May 8, 2026

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MEMO TO: DRIP-19 File

F R O M: Tamara Paltin, Chair Tamara A.M. Paltin
Disaster Recovery, International Affairs, and Planning Committee

SUBJECT: **TRANSMITTAL OF INFORMATIONAL DOCUMENT RELATING TO BILL 163 (2025), BILL 164 (2025), AND BILL 165 (2025), TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PULEHU ROAD), AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION, AND CHANGE THE ZONING FOR 166.511 ACRES SITUATED AT KAHULUI, HAWAI'I (HO'ONANI VILLAGE)** (DRIP-19)

The attached informational document pertains to Item 19 on the Committee's agenda.

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Attachment

CC 86-26

RICHARD T. BISSEN, JR.
Mayor

JACKY TAKAKURA
Director

ANA LILLIS
Deputy Director

RECEIVED
2026 APR 14 AM 10:33
OFFICE OF THE
COUNTY CLERK

DEPARTMENT OF PLANNING
COUNTY OF MAUI
ONE MAIN PLAZA
2200 MAIN STREET, SUITE 315
WAILUKU, MAUI, HAWAI'I 96793

April 10, 2026

Honorable Richard T. Bissen Jr.
Mayor, County of Maui
200 South High Street
Wailuku, Hawai'i 96793

APPROVED FOR TRANSMITTAL

Mayor 4-13-26 Date

For Transmittal to:

Honorable Alice L. Lee, Chair
and Members of the Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

Dear Chair Lee and Members:

SUBJECT: MAUI PLANNING COMMISSION RECOMMENDATION OF DEFERRAL IN THE MATTER OF MAUI COUNTY COUNCIL RESOLUTION NO. 25-132, FD1, HO'ONANI VILLAGE, TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PŪLEHU ROAD) FOR 163.443 ACRES; TO AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION FROM AGRICULTURE TO BUSINESS/MULTI-FAMILY FOR 163.443 ACRES; AND TO CHANGE THE ZONING FROM AGRICULTURAL DISTRICT TO M-1 LIGHT INDUSTRIAL DISTRICT FOR 166.511 ACRES, ON A PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY: (2) 3-8-006:004-0005, SITUATED AT KAHULUI, ISLAND OF MAUI, HAWAI'I (ZPA2025-00011) (DRIP-19)

The Department of Planning (Department) is transmitting for the Maui County Council's (Council) review, the Maui Planning Commission's (Commission) recommendation on three applications outlined above for the proposed Ho'onani Village project (Project). The Project is envisioned as a high-density, master-planned, mixed-use community highlighted by 1,608 units of

multi-family housing rented at or below 140 percent of AMI Level (AMI), along with a blend of commercial, office, retail, restaurant, entertainment, industrial, and possible hospitality/hotel uses on a 166 acre site. The site is roughly bordered by Hansen Road to the south, Pu'unēnē Avenue to the west, Ho'okele Street to the north, and Pūlehu Road to the east. The site is surrounded by other agricultural properties to the east and south and commercial properties to the north.

The proposed Project Mixed Use Development project was initiated by the Council through Resolution No. 25-132, FD1, adopted on June 6, 2025. As initiated by the Council, the Resolution referred to the Commission the following three land use amendments:

- Bil No. 163 to Amend the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) to include the property within the Urban Growth Boundary.

- Bill No. 164 to Amend the Wailuku-Kahului Community Plan designation of the property from Agriculture to Business/Multi-Family.

- Bill No. 165 to change the zoning of the property from Agricultural District to M-1, Light Industrial District.

At its regular meeting on January 13, 2026, the Commission reviewed the above applications in a noticed public hearing, received public testimony, and after due deliberation, recommended the Council's deferral of the Maui Island Plan's Directed Growth Map Amendment, Community Plan Amendment, and Change In Zoning (CIZ) for the Project. Deferral is recommended pending receipt of further information including the submission of the Draft Environmental Impact Statement to the State Land Use Commission prior to a decision on the Maui Island Plan's Urban Growth Boundary Amendment and the Communtiy Plan Amendment, and the receipt of a final decision on the District Boundary Amendment by the Land Use Commission prior to a decision on the CIZ.

The recommendation of the Maui Planning Commission to the Maui County Council is as follows:

MAUI ISLAND GROWTH BOUNDARY AMENDMENT

The Maui Planning Commission recommends "deferral" to the Maui County Council for the Amendment to the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) to include the property within the Urban Growth Boundary, until the Draft Environmental Impact Statement is submitted to the State Land Use Commission, and the island-wide inventory of existing land uses is updated and indicates that additional urban density land is necessary to provide for the needs of the projected population growth.

COMMUNITY PLAN AMENDMENT

The Maui Planning Commission recommends "deferral" to the Maui County Council for the Amendment to the Wailuku-Kahului Community Plan designation of the property from Agriculture to Business/Multi-Family, until the Draft Environmental Impact Statement is submitted to the State Land Use Commission and the Maui Island Plan Urban Growth Boundary is expanded.

CHANGE OF ZONING

The Maui Planning Commission recommends "deferral" to the Maui County Council for the CIZ for the property from Agricultural District to M-1 Light Industrial District, until the State Land Use Commission approves the District Boundary Amendment and the criteria described in Maui County Code (MCC) 19.510.040.A.4 are met.

Furthermore, in the event the Maui County Council decides to move forward on these matters, the Maui Planning Commission recommends the following conditions for the CIZ:

1. All residential units will be rented at or below 140 percent of AMI Level rental rates.

2. All residential units will be rented at or below 140 percent of AMI Level rental rates for a minimum of 30 years.

3. Annual compliance reports shall be submitted to the Department of Planning.

4. That the Project will have a minimum of 1,000 residential units and that the Project will be built according to the phasing plan as represented in the presentation to the Maui Planning Commission on January 13, 2026, with the exception that the civic, recreation, entertainment, and park elements are to be built concurrently or in earlier phases than represented in the phasing plan.

A summary of the application is as follows:

APPLICATION SUMMARY	
Applicant	Council Initiated Project via Resolution No. 25-132, FDI
Tax Map Key	(2) 3-8-006:004-0005
Address	21 Hansen Road, Kahului, Maui, Hawai'i
Area	Approximately 166.511 acres
Land Use Designations	State Land Use District - Agriculture Wailuku-Kahului Community Plan - Agriculture Maui County Zoning - Agricultural
Brief Description	• Bill No. 163 to Amend the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) to include the property within the Urban Growth Boundary. • Bill No. 164 to Amend the Wailuku-Kahului Community Plan designation for the property from Agriculture to Business/Multi-Family. • Bill No. 165 to change the zoning of the property from Agricultural District to M-1, Light Industrial District.
Public Hearing	Held by Maui Planning Commission on January 13, 2026.
Testimony	Time for verbal testimony was offered during the hearing.

APPLICATION SUMMARY	
Recommendation	The Commission recommended ***deferral*** of the three discretionary applications by unanimous vote of 5 Commissioners, with 2 Commissioners excused. Furthermore, should the Council wish to proceed on these applications, the Commissions recommended 4 conditions of zoning previously listed.

Inasmuch as Council approval is required for each of these applications, the Department transmits the subject application to the Council for consideration. Accordingly, attached for your review are the following documents:

1. Department's Staff Report and Recommendation to the Commission, dated January 13, 2026.

2. Documents received after posting along with numbered Community Plan and Land Zoning Maps in response to Councilmember Paltin's request.

3. Testimony received after posting.

4. Commission meeting minutes of January 13, 2026.

5. Letter from Jacky Takakura, Director to Mr. Jeffrey T. Ueoka, Project Attorney, dated February 2, 2026, with the Maui Planning Commission's recommendation for Council deferral of the three proposed discretionary applications.

Thank you for your attention to this matter. Should you have any questions, please transmit them to the Department of Planning via transmittal through the Office of the Mayor.

Sincerely,

JACKY TAKAKURA
Director

Attachments
cc: Carolyn Cortez, Planning Program Administrator (PDF)
Danny A. Dias, Planning Program Administrator (PDF)
Kurt F. Wollenhaupt, Land Use Planning Supervisor (PDF)
JMCT:KFW:lp
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RICHARD T. BISSEN, JR.
Mayor

JACKY TAKAKURA
Director

ANA LILLIS
Deputy Director

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April 10, 2026

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CHANGE OF ZONING

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Furthermore, in the event the Maui County Council decides to move forward on these matters, the Maui Planning Commission recommends the following conditions for the CIZ:

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Brief Description	• Bill No. 163 to Amend the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) to include the property within the Urban Growth Boundary. • Bill No. 164 to Amend the Wailuku-Kahului Community Plan designation for the property from Agriculture to Business/Multi-Family. • Bill No. 165 to change the zoning of the property from Agricultural District to M-1, Light Industrial District.
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Testimony	Time for verbal testimony was offered during the hearing.

APPLICATION SUMMARY	
Recommendation	The Commission recommended ***deferral*** of the three discretionary applications by unanimous vote of 5 Commissioners, with 2 Commissioners excused. Furthermore, should the Council wish to proceed on these applications, the Commissions recommended 4 conditions of zoning previously listed.

Inasmuch as Council approval is required for each of these applications, the Department transmits the subject application to the Council for consideration. Accordingly, attached for your review are the following documents:

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Thank you for your attention to this matter. Should you have any questions, please transmit them to the Department of Planning via transmittal through the Office of the Mayor.

Sincerely,

JACKY TAKAKURA
Director

Attachments
cc: Carolyn Cortez, Planning Program Administrator (PDF)
Danny A. Dias, Planning Program Administrator (PDF)
Kurt F. Wollenhaupt, Land Use Planning Supervisor (PDF)
JMCT:KFW:lp
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BEFORE THE MAUI PLANNING COMMISSION

COUNTY OF MAUI

STATE OF HAWAIʻI

In the Matter of Maui County Council Resolution No. 25-132, FD1 for HOʻONANI VILLAGE To amend the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) for 163.443 acres; to amend the Wailuku-Kahului Community Plan Designation from Agriculture to Business/Multi-Family for 163.443 acres; and to change the Zoning from Agricultural District to M-1 Light Industrial District, for 166.511 acres all on a portion of a parcel identified for real property tax purposes as Tax Map Key (2) 3-8-006:004-0005, situated at Kahului, Maui, Hawaiʻi.	DOCKET NO. ZPA2025-00011 HOʻONANI VILLAGE

DEPARTMENT OF PLANNING
REPORT AND RECOMMENDATION
JANUARY 13, 2026 MEETING

DEPARTMENT OF PLANNING
COUNTY OF MAUI
2200 MAIN STREET, SUITE 315
WAILUKU, HAWAIʻI 96793

Zoning Plan Amendment

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BEFORE THE MAUI PLANNING COMMISSION

COUNTY OF MAUI

STATE OF HAWAIʻI

In the Matter of Maui County Council Resolution No. 25-132, FD1 for HOʻONANI VILLAGE To amend the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) for 163.443 acres; to amend the Wailuku-Kahului Community Plan Designation from Agriculture to Business/Multi-Family for 163.443 acres; and to change the Zoning from Agricultural District to M-1 Light Industrial District, for 166.511 acres all on a portion of a parcel identified for real property tax purposes as Tax Map Key (2) 3-8-006:004-0005, situated at Kahului, Maui, Hawaiʻi.	DOCKET NO. ZPA2025-00011 HOʻONANI VILLAGE

EXECUTIVE SUMMARY

Processing Concerns: Maui County Code (MCC) Chapter 2.80B defines the processes for updating the General Plan and Community Plans on a decennial and non-decennial basis. The decennial process is reserved for prescribed decennial updates by the Planning Director with Advisory Committee and Planning Commission input prior to final approval by the County Council. On the other hand, the non-decennial process is reserved for amendments that can be initiated by the County Council, Planning Director, or a private property owner, and require review by the Planning Commission and approval by the County Council, but do not involve Advisory Committee review.

While the non-decennial process can be used for amending policy within the General Plan and Community Plan, it is typically used for changes in land use designations to accommodate private or public development projects; often accompanied by a request for a Change in Zoning (CIZ). A CIZ application can be initiated by the County Council, Planning Director or private property owner and the process requirements are outlined in MCC Section 19.510.

Importantly, the processing of County Council-initiated amendments to the General Plan, Community Plan, and Change in Zoning differ substantially from that of a private property owner request. Specifically, according to MCC 2.80B, a County Council-initiated non-decennial amendment to the General Plan and Community Plan require compliance with the procedure outlined in the Maui County Charter (Charter), while the same amendment initiated by a private property owner requires compliance with the requirements of MCC Chapter 19.510. Similarly, a CIZ initiated by the Council does not require the submittal of an application, whereas a CIZ

initiated by a private property owner also requires compliance with the requirements of MCC Chapter 19.510.

This distinction is important as Chapter 19.510 provides specific requirements of what a private property owner needs to submit to the County as part of their application so that the project can be properly analyzed by the Department, and considered by the public, Planning Commission and Council before final action. This is evident through MCC subsection 19.510.010(C)(2), which requires that for all community plan amendment and change in zoning applications deemed complete, the director shall prepare a report that includes an assessment and detailed explanation for each requirement set forth in MCC subsection 19.510.010(D), and that report shall include all relevant data, studies, agency reports, and any other information relied upon by the Director in finding that an application is complete. Amongst a variety of application materials required of MCC subsection 19.510.010(D), the applicant of a developer-initiated project would be required to submit the following:

- *"19.510.010(D)(7): Policies and objectives of the general plan, the provisions of the community plan applicable to the application, the provisions of the applicable district and an analysis of the extent to which the application, if granted, conforms to these policies, objectives and provisions;*

- *19.510.010(D)(9): Preliminary archaeological and historical data and comments from the department of land and natural resources and office of Hawaiian affairs of the State, and if applicable, a preservation/mitigation plan which has been reviewed and approved by the department of land and natural resources and office of Hawaiian affairs of the State;*

- *19.510.010(D)(10): Analysis of the secondary impacts of the proposed use on surrounding uses which includes, but which is not limited to, increases in property value, populations, housing, community services and facility needs, secondary jobs and employment generated, and compatibility with surrounding uses, and if applicable, the affordable housing program and comments from the department of human concerns of the County, and other mitigation plans and comments from the respective governmental and community services agencies;*

- *19.510.010(D)(11): Traffic impact analysis and, if applicable, a traffic master plan, which includes, but which is not limited to, comments from the department of transportation of the State and department of public works and environmental management;*

- *19.510.010(D)(13): Water source, supply and distribution analysis which includes, but which is not limited to, methods of irrigation existing on the parcel and proposed for the application, location and use of groundwater and nonpotable water sources, and, if applicable, a water master plan, which includes, but which is not limited to, comments from the department of land and natural resources of the State and the departments of water supply and public works and environmental management;*

- *19.510.010(D)(14): Sewage disposal analysis, a description of a proposed method of sewage disposal, and comments, if applicable, from the departments of health and land and natural resources of the State and the departments of public works and environmental management and water supply;*

- *19.510.010(D)(15): Solid waste disposal analysis, a description of a proposed method of solid waste disposal and comments, if applicable, from the departments of health and land and natural resources of the State and the departments of public works and environmental management and water supply;*

- *19.510.010(D)(16): Identification of environmentally sensitive areas, habitat and botanical features which include, but which are not limited to, wetlands, streams, rock outcroppings, endangered plants and animals, and exceptional trees, if applicable, a baseline study and preservation/mitigation plan, and comments, if applicable, from the department of land and natural resources of the State, the United States Fish and Wildlife Service, and the United States Corps of Engineers;*

- *19.510.010(D)(17): Identification of the topographical and drainage patterns existing on the subject parcel and any proposed alterations to these patterns;*

- *19.510.010(D)(18): Identification of all meetings held between the applicant and any community or residential group which may be impacted by the applicant's request, the issues raised by these meetings, and any measures proposed by the applicant to deal with or to mitigate these issues;*

- *19.510.010(D)(22): Operations and management of the proposed use which includes, but is not limited to, number of employees, proposed employee housing plan, hours of operation, fees charged to residents and visitors, provisions for off-site parking;*

- *19.510.010(D)(24): Identification and assessment of chemicals and fertilizers used, including, but not limited to, detailing effects upon surface, underground and marine water resources and neighboring properties and surrounding flora and fauna, and if applicable, a mitigation plan and maintenance program and schedule, and comments from the departments of health and of land and natural resources of the State, the United States Fish and Wildlife Service, and the United States Environmental Protection Agency;"*

Furthermore, MCC Section 19.510.040(A) requires that applications for a CIZ be processed to provide for community, State and County agency input through public hearing(s) in accordance with the requirements of MCC Sections 19.510.010 and 19.510.020. Whereas, while Council-initiated amendments do require a public hearing before the Planning Commission, because there is no associated application, there is no direct requirement to have the proposal reviewed by other State or County agencies.

Additionally, an Environmental Assessment (EA)/Environmental Impact Statement (EIS) provides the opportunity for a detailed environmental impact analysis, which is critical for analyzing large development projects. Hawai'i Revised Statutes (HRS) Section 343-5(6), indicates that an EA shall be required for actions that *"(6) Propose any amendments to existing county general plans where the amendment would result in designations other than agriculture, conservation, or preservation, <u>except actions proposing any new county general plan or amendments to any existing county general plan initiated by a county</u>"* (emphasis added). According to this Section, while a developer-initiated application for such an amendment would require an EA/EIS be

processed prior to County action, a Council-initiated amendment bypasses this important analysis at the County level.

In summary, it is the Department's position that bypassing the normal application and environmental review procedures/analysis expected of a private development project of significant magnitude will result in a significant reduction in the level of impact analysis normally performed by the Department, Planning Commission and Council, result in relatively little community input, and may result in potential impacts to the community. For these reasons, the Department recommends that projects of significant size require that the private property owner initiate such amendments and be required to submit the necessary application materials and environmental analysis as required per MCC and HRS as opposed to a Council-initiated amendment that does not require the submittal of such materials and analysis.

Department Review and Recommendation: Regardless of the Department's position on the processing of large development projects, the Council does have the legal authority to initiate such amendments and act on them without the relevant application materials and HRS Section 343 analysis that would be required of a private property owner submitting the same request.

The proposed Hoʻonani Village Mixed Use Development project was initiated by the Council through Resolution No. 25-132, FD1, adopted on June 6, 2025. (**Exhibit 1**). As initiated by the Council, the Resolution refers to the Maui Planning Commission (Commission) the following three land use amendments (**Exhibit 2**). Bill No. 163 and No. 164 have been slightly revised to reflect a 3.068-acre parcel that is already within the Urban Growth Boundary and bears a Heavy Industrial Community Plan designation which the Applicant wishes to retail. (**Exhibit 3**)

- Bil No. 163 to Amend the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) to include the property within the Urban Growth Boundary.

- Bill No. 164 to Amend the Wailuku-Kahului Community Plan designation for the property from Agriculture to Business/Multi-Family.

- Bill No. 165 a Change of Zoning for the property from Agricultural District to M-1, Light Industrial District. **Exhibit 4** is the proposed zoning map.

The Department received Resolution 25-132, FD1, on June 16, 2025. The Charter implies that the Planning Commission shall provide comments and recommendations to the Council within 120 days of receipt of the resolution, which in this case would have been by October 14, 2025. Because the property owner had not submitted any permit applications or materials associated with the proposed project, nor were any materials provided to the Department other than Resolution 25-132, FD1, the Department postponed scheduling this item for public hearing with the Maui Planning Commission until more information was provided about the project. On September 29, 2025, the Department informed the Council that based upon the lack of application materials, the Maui Planning Commission cannot provide the County Council with a recommendation. The Department requested that the Council take no action on Resolution 25-132, FD1, and requested the property owner submit permit applications so that the project may be processed through a more typical property owner-initiated request as opposed to a Council-initiated request.

On November 6, 2025, which was more than 120 days beyond the date the Department received the resolution, the proposed project appeared upon the County Council Disaster Recovery, International Affairs, and Planning (DRIP) Committee agenda. During the meeting, the DRIP

Committee received a PowerPoint presentation from the Applicant. The Committee also discussed with Corporation Counsel's and the Department's potential issues associated with the lack of review from the Maui Planning Commission. While the DRIP Committee was poised to act on the project, upon advice of Corporation Counsel, the DRIP Committee deferred their decision. Specifically, it was the opinion of Corporation Counsel that per the Charter and MCC, the Resolution needed to be transmitted to the Maui Planning Commission even if information on the project was limited. Consequently, the Resolution was re-referred to the Maui Planning Commission.

Since the November 6, 2025, DRIP Committee meeting, for the first time, the project applicant has made available to the Department information and studies associated with the proposed project, which have been attached to this report. Unfortunately, the Department has had little time to prepare a complete analysis of the submitted information, nor work with the owner to request additional information as deemed necessary in order to ensure that an application is complete prior to bringing this to the Commission for review — the common procedure for an applicant-initiated request.

More specifically, all the items required to be submitted as part of an applicant-initiated request per MCC subsection 19.510.010(D), as described above, have not been submitted, nor is there any EA/EIS analysis to consider what potential environmental impacts may result from the project. Without these documents and analysis, the potential impacts associated with the project cannot be evaluated and therefore associated conditions of approval that would mitigate or reduce those potential impacts cannot be clearly identified. For example, while the Department recently received a traffic study for the proposed project that identifies over 20,000 daily trips associated with the project and the need for signalization improvements to one intersection (Hāna Highway/Hansen Road), such analysis has not been thoroughly evaluated by the Department and other agencies. Therefore, the Department is unable to formulate conditions/mitigation measures to address any traffic impacts that may result from the project including but not limited to the proposed signal improvements to one specified intersection.

Furthermore, the owner has outlined a project development proposal consisting of 1,600 residential units along with a specified amount of commercial and industrial uses. There will be no further entitlements necessary for development of the property after the CIZ has been approved. Thus, there is no guarantee that the final project will contain the development proposal currently put forward, including the development of any residential units. Once the CIZ has been approved, the applicant merely needs to develop according to the MCC allowed uses and development standards associated with the zoning designation applied to the project – the M-1 Light Industrial zoning designation requested allows for a variety of land uses and the development standards allow structures at 40-feet tall with no setbacks. During a typical property owner-initiated application, the Department would have the opportunity to identify any issues associated with the future use of this property and ensure that all such use scenarios were fully analyzed and impacts mitigated.

In summary, due to the lack of information submitted, the Department is unable to complete a full analysis of the project. As a result, the Department recommends the MPC recommend deferral until certain conditions are met as described in the recommendations later in this report. Per the Department's September 29, 2025 letter, it is recommended that no action be taken on the resolution and the applicant be required to submit the necessary information and documents to ensure a more comprehensive review of this significant project.

DESCRIPTION OF THE PROJECT

The Applicant's presentation to the DRIP Committee is shown in **Exhibit 5.** This exhibit includes the preliminary site plan with the phasing plan for development into 2042. The Applicant proposes the development of Hoʻonani Village envisioned as a high-density, master-planned, mixed-use community. The project highlights 1,608 units of multi-family housing. The Department understands that all housing units are expected to be made available for rent for income ranges at 140% AMI (area median income) and below. To expedite the development of housing, the Applicant may pursue a 201H application with the Hawaiʻi Housing and Finance Development Corporation (HHFDC), which requires at least 50% plus one additional unit be affordable to households with incomes at or below 140% AMI. The Applicant is working on specific income ranges to be considered for housing allocation which reflect an emphasis on need at lower AMI levels than 140%.

Along with the multi-family housing will be a blend of commercial, office, retail, restaurant, entertainment, industrial, and possibly hospitality/hotel uses on the site. A 23-acre parcel on the northwest corner of the site is not included in the project as it is County land which will likely be developed by others.

Ho'onani Village is located adjacent to Pūlehu Road located a half a mile from the intersection of Hāna Highway and Mayor Elmer F. Cravalho Way. The project is envisioned as an accessible residential community helping to address Maui's housing needs with a phased approach of approximately 200 units coming on-line each year.

The project will incorporate extensive community recreational offerings to complement the residential offerings anchored by a central greenspace. The retail program is intended to serve local Maui residents.

It should be noted that because the community plan amendment (normally a trigger for the preparation of an EA/EIS) was initiated by the Maui County Council, the State of Hawaiʻi Land Use Commission (LUC) has been deemed the accepting authority of the EIS. The LUC will also be the hearings body for the District Boundary Amendment (DBA) as the project is over 15 acres. The approval by the LUC to be the accepting authority of the EIS was made at their regular meeting held on November 19, 2025. The Draft EIS is currently being prepared along with additional detailed reports on traffic, archaeology, noise, water, wastewater, etc. The Final EIS is anticipated to be completed mid 2026 at which time it will come before the LUC along with the DBA. **Exhibit 6** is the Environmental Impact Notice Preparation Statement (EISPN) which contains a project overview. **Exhibit 7** is the Petition for a DBA to the LUC.

DESCRIPTION OF THE PROPERTY

The project area consists of an undeveloped parcel with dried grass, sand, gravel, and kiawe trees. The site is currently addressed as 21 Hansen Rd, Kahului HI 96732. It is located adjacent to Lowe's and Target and is near the Alexander and Baldwin Sugar Museum in Puʻunēnē. The site is bordered roughly by Hansen Road to the south, Puʻunēnē Avenue to the west, Hoʻokele Street to the north, and Pūlehu Road to the east. The site is surrounded by other agricultural properties to the east and south and commercial properties to the north.

Land Use Designations

State Land Use District	Agriculture
Maui Island Plan	Outside Urban Growth Boundary (there is a 3.068-acre portion of the property that is within the Urban Growth Boundary)
Wailuku-Kahului Community Plan	Agriculture, within the Airport Special Control District 60Ldn isoline (there is a 3.068-acre portion of the property that bears a Heavy Industrial Community Plan designation)
County Zoning	Agricultural District
Other	Outside Special Management Area (SMA), Class "A" Prime Agricultural Land
Flood	Zone "X"

APPLICABLE REGULATIONS

Note that the County Council passed Resolution No. 25-132, FD1 referring to the Maui Planning Commission the Maui Island Plan Amendment, Community Plan Amendment, and Change of Zoning. **Exhibits 1 and 2** are the Resolution and proposed Ordinances for this project. The Processing Comments section of the Executive Summary for this staff report outline the somewhat different procedures these Applications are governed by as they have been initiated by the County Council.

PROCEDURAL MATTERS

1. On June 6, 2025, the Council of the County of Maui adopted Resolution No. 25-132, FD1.

2. On June 16, 2025, the Planning Department received the Resolution from the Office of Mayor.

3. On November 5 and 6, 2025, the project was reviewed by the County Council's Disaster Recovery, International Affairs, and Planning (DRIP) Committee. Corporation Counsel advised the DRIP Committee that the Resolution must be considered by the Planning Commission. The DRIP Committee referred the Resolution back to the Department and to the Planning Commission for review and comment.

4. On November 19, 2025, the LUC gave approval to be the accepting authority of the EIS. The Draft EIS is currently being prepared along with additional detailed reports on traffic, archaeology, noise, water, wastewater, etc. The Final EIS is anticipated to be complete in mid-2026 at which time it will come before the LUC along with the DBA.

5. On November 19, 2025, the Planning Department transmitted the Resolution and

associated documents to various Federal, State and County agencies for review and comment.

6. On November 19, 2025, the Planning Department emailed the Applicant and consultant, notifying them of the scheduled public hearing.

7. On December 12, 2025, a notice of public hearing on the Zoning Plan Amendment was published in the Maui News by the Planning Department for the January 13, 2026, hearing.

8. On December 26, 2025, the County Council sent to the Director of Planning updated maps for the Maui Island Plan and Community Plan Amendments reflecting the correct number of acres being considering under the Zoning Plan Amendment Application. A 3.068-acre portion of the property is already within the MIP Urban Growth Boundary and bears a Heavy Industrial Community Plan designation which the Applicant wishes to retain.

REVIEWING AGENCIES

Multiple agencies are currently reviewing the EISPN in preparation of the completion of the Draft EIS to be reviewed by the LUC. The Department received from the Applicant various preliminary studies that are being used in review of the project in this staff report. A detailed analysis will be available in the Final EIS.

Some agencies have submitted comments as follows within the limited response time. Detailed agency comments from numerous agencies are expected at the time the Draft EIS is circulated for review to different parties as the LUC is the Accepting Authority. The Draft EIS is expected to be available in mid-2026. Some of the County agencies were requested to answer questions at the DRIP meetings on November 5 and 6, 2025 and comments are included in this report along with additional agency comments that are coming to the Department.

State	Exhibits
Office of Planning and Sustainable Development	**8**
DAGS, Land Survey Review	**9**
DLNR, Engineering	**10**
DLNR, Commission on Water Resource Management	**11**
Hawai‘i Schools Facilities Authority	**12**
State Department of Transportation	**13, 13A, 13B**
County	
Dept. of Environmental Management (From DRIP Meeting)	**13**
Fire & Public Safety (From DRIP Meeting)	**14**
Dept. of Housing (From DRIP Meeting)	**15**
Dept. of Oiwi Resources (1) (From DRIP Meeting)	**16**
Dept. of Oiwi Resources (2) (From DRIP Meeting)	**17**
Dept. of Parks and Recreation (From DRIP Meeting)	**18**
Dept. of Transportation (From DRIP Meeting and Agency Review)	**19**
Dept. of Water Supply (1) (From DRIP Meeting)	**20**
Dept. of Water Supply (2) (From DRIP Meeting)	**21**

ANALYSIS

LAND USE

Hawai‘i State Plan and District Boundary Amendment

The subject property is in the State Agriculture District. Chapter 205, Hawai‘i Revised Statutes, pertaining to the Land Use Commission, establishes four land use districts in which all lands in the state are placed. These districts are designated as Urban, Rural, Agricultural, and Conservation. The Applicant has filed a District Boundary Amendment (DBA) with the LUC for redistricting from Agriculture to Urban. As the accepting authority, the LUC will directly review this Petition for a DBA after reviewing the Draft EIS.

County of Maui Review Against the General Plan

Discretionary applications are reviewed against the policies of the Maui County General Plan, which includes the Countywide Policy Plan (CWPP) approved in 2010 and amended in 2021, the Maui Island Plan (MIP) adopted in 2012, and the Wailuku-Kahului Community Plan adopted in 2002 to determine if the application is consistent with the General Plan. Below is a preliminary consistency analysis based upon project information submitted to date.

Countywide Policy Plan (CWPP)

A. Protect the Natural Environment

Goal: Maui County's natural environment and distinctive open spaces will be preserved, managed, and cared for in perpetuity

.

Objective 1: Improve the opportunity to experience the natural beauty and native biodiversity of the islands for present and future generations.

Policies:
A.1.a. Perpetuate native Hawaiian biodiversity by preventing the introduction of invasive species, containing or eliminating existing noxious pests, and protecting critical habitat areas.
A.1.b. Preserve and reestablish indigenous and endemic species' habitats and their connectivity.
A.1.f. Preserve and provide ongoing care for important scenic vistas, view planes, landscapes, and open-space resources.

Staff Comment: Project development should aim to prevent introduction of more invasive species into the area. The flora and fauna survey indicate only two commonly found native plant (‘uhaloa and pa‘u o Hi‘iaka), and no native animals. The project should also incorporate measures to protect existing views of the West Maui Mountains and Haleakalā.

Objective 2: Improve the quality of environmentally sensitive, locally valued natural resources and native ecology of each island.

Policy A.2.c. Improve the connection between urban environments and the natural landscape and incorporate natural features of the land into urban design.

Staff Comment: The project site is vacant grassland with two identified native plants and no native animals. In addition to the drainage basins proposed in the preliminary engineering report, working with the natural landscape to retain and filter storm water runoff onsite and implementing other Low Impact Development techniques throughout the development would better address the policies in CWPP A.2.

Objective 3: Improve the stewardship of the natural environment.

Policies:
A.3.a. Preserve and protect natural resources with significant scenic, economic, cultural, environmental, or recreational value.
A.3.c. Evaluate development to assess potential short-term and long-term impacts on land, air, aquatic, and marine environments.

Staff Comment: According to CIA 7.3 (p. 165), "the project area has undergone extensive and invasive changes due to over a century of sugar cane cultivation and no traditional Hawaiian site-features have been identified in or near the project area, but it most likely contains above-ground historic properties related to commercial agriculture in the historic period."

The Applicant should initiate as recommended in CIA 7.3 "consultation with SHPD to determine if any specific identification or mitigation measures are needed for the proposed project (e.g., archaeological monitoring). Considering the heightened sensitivity regarding historic properties and iwi kupuna (ancestral remains) on Maui, the project would be well-advised to ensure a thorough archaeological survey is prepared in areas of potential concern and that the survey is approved by SHPD prior to any ground-disturbing activities."

B. Preserve Local Cultures and Traditions

Goal: Maui County will foster a spirit of pono and protect, perpetuate, and reinvigorate its residents' multi-cultural values and traditions to ensure that current and future generations will enjoy the benefits of their rich island heritage.

Objective 1: Perpetuate the Hawaiian culture as a vital force in the lives of residents.

Policies:
B.1.a. Protect and preserve access to mountain, ocean, and island resources for traditional Hawaiian cultural practices.
B.1.b. Prohibit inappropriate development of cultural lands and sites that are important for traditional Hawaiian cultural practices and establish mandates for the special protection of these lands in perpetuity.
B.1.c. Promote the use of ahupua'a and moku management practices.
B.1.f. Recognize and preserve the unique natural and cultural characteristics of each ahupua'a or district.
B.1.h. Ensure the protection of Native Hawaiian rights.
B.1.i. Promote, encourage, and require the correct use of traditional place names, particularly in government documents, signage, and the tourism industry.

Staff Comment: See above comment on "stewardship of the natural environment." The Department understands that the Applicant is working to complete the 6E process with SHPD.

E. Expand Housing Opportunities for Residents

Goal: Quality, island-appropriate housing will be available to all residents.

Objective 1: Reduce the affordable housing deficit for residents.
Policy m. Develop neighborhoods with a mixture of accessible and integrated community facilities and services.

Objective 2. Increase the mix of housing types in towns and neighborhoods to promote sustainable land use planning, expand consumer choice, and protect the County's rural and small-town character.
Policy E.2.d. Promote infill housing in urban areas at scales that capitalize on existing infrastructure, lower development costs, and are consistent with existing or desired patterns of development.
Policy E.2.f. Develop workforce housing in proximity to job centers and transit facilities.

Staff Comment: The proposal appears consistent with the objectives and policies because it promotes a greater diversity of housing options and mixed uses in a location likely planned for growth in the future, supporting sustainable land use and infill development near retail establishments. By increasing density through multi-family housing, the proposal likely capitalizes on existing infrastructure and may lower development costs. However, the proposed area is currently outside of existing urban areas, there is a lack of transit facilities, and it is important that the design and scale of the project respect the surrounding context (adjacent retail employment center) to avoid undermining this goal.

Objective 3. Increase and maintain the affordable housing inventory.

Policy E.3. g. Minimize the intrusion of housing on prime, productive, and potentially productive agricultural lands and regionally valuable agricultural lands.

Staff Comment: The proposal includes multi-family residential housing, which provides opportunities for more affordable housing types compared to single-family homes. However, this is not consistent with the policy because the project site has a long history of productive and valuable agricultural land, and according to Hawai'i Land Study Bureau website the soil classification is rated "A" which represents highest productivity. Such productivity does rely upon a reliable and available water source for agricultural irrigation.

F. Strengthen the Local Economy

Goal: Maui County's economy will be diverse, sustainable, and supportive of community values.

Objective 2. Diversify and expand sustainable forms of agriculture and aquaculture

Policies:
F.2.b. Prioritize the use of agricultural land to feed the local population, and promote the use of agricultural lands for sustainable and diversified agricultural activities.
F.2.e. Support ordinances, programs, and policies that keep agricultural land and water available and affordable to farmers.

Staff Comment: Converting high productivity ag land for non-ag uses is inconsistent with these policies.

Objective 3. Support a visitor industry that respects the resident culture and the environment.

Policies
F.3.a. Promote traditional Hawaiian practices in visitor-related facilities and activities.
F.3.b. Encourage and educate the visitor industry to be sensitive to island lifestyles and cultural values.
F.3.c. Encourage a spirit of welcome for residents at visitor facilities, such as by offering kama'aina incentives and discount programs.
F.3.d. Support the renovation and enhancement of existing visitor facilities.
F.3.e. Support policies, programs, and a tax structure that redirect the benefits of the visitor industry back into the local community.
F.3.f. Encourage resident ownership of visitor-related businesses and facilities.
F.3.g. Develop partnerships to provide educational and training facilities to residents employed in the visitor industry.
F.3.h. Foster an understanding of local cultures, customs, and etiquette, and emphasize the importance of the Aloha Spirit as a common good for all.
F.3.i. Support the diversification, development, evolution, and integration of the visitor industry in a way that is compatible with the traditional, social, economic, spiritual, and environmental values of island residents.
F.3.j. Improve collaboration between the visitor industry and the other sectors of Maui County's economy.
F.3.k. Perpetuate an authentic image of the Hawaiian culture and history and an appropriate recognition of the host culture.
F.3.l. Support the programs and initiatives outlined in the Maui County Tourism Strategic Plan 2006-2015.
F.3.m. Promote water conservation, beach conservation, and open-space conservation in areas providing services for visitors.
F.3.n. Recognize the important contributions that the visitor industry makes to the County's economy.

Staff Comment: Objective 3 and its policies are included for consideration regarding the transient accommodations component of the proposed project. Should the hotel component be developed, the policies should be implemented to the extent possible.

I. Improve Physical Infrastructure

Goal: Maui County's physical infrastructure will be maintained in optimum condition and will provide for and effectively serve the needs of the County through clean and sustainable technologies.

Objective 1. Improve water systems to assure access to sustainable, clean, reliable, and affordable sources of water.

Policy I.1. a. Ensure that adequate supplies of water are available prior to approval of subdivision or construction documents.

Staff Comment: The developer is working with a neighboring landowner to use an existing well. Backup plans for redundancy should be included. To align with objective and policy, the proposal should provide confirmation that adequate, sustainable water supplies will be available before development proceeds. An adequate, clean source of water is critical for this project to proceed.

Objective 3. Direct growth in a way that makes efficient use of existing infrastructure and to areas where there is available infrastructure capacity.

Policies
I.3.a. Capitalize on existing infrastructure capacity as a priority over infrastructure expansion.
I.3.b. Planning for new towns should only be considered if a region's growth is too large to be directed into infill and adjacent growth areas.
I.3.c. Utilize appropriate infrastructure technologies in the appropriate locations.
I.3.d. Promote land use patterns that can be provided with infrastructure and public facilities in a cost-effective manner.
I.3.e. Support catchment systems and on-site wastewater treatment in rural areas and aggregated water and wastewater systems in urban areas if they are appropriately located.

Staff Comment: The project should be considered only after an analysis of the existing Urban Growth area has been completed to ensure that the existing infrastructure can be adequately expanded or new infrastructure developed to manage increased demand, and that the project does not conflict with the policy's intent to prevent sprawl or premature expansion into undeveloped regions.

Goal: Maui County's physical infrastructure will be maintained in optimum condition and will provide for and effectively serve the needs of the County through clean and sustainable technologies.

Objective 4: Improve the planning and management of infrastructure systems.

Policies:
I.4.f. Discourage the development of critical infrastructure systems within hazard zones and the tsunami-inundation zone to the extent practical.
I.4.g. Ensure that infrastructure is built concurrent with or prior to development.
I.4.i. Locate public facilities and emergency services in appropriate locations that support the health, safety, and welfare of each community and that minimize delivery inefficiencies.

Staff Comment: The proposed site is in the Extreme Tsunami Evacuation Zone (these are areas deemed to be at risk during an "extreme tsunami," which is a new class of seismic event that has been modeled but not observed historically.) The proposed project timeline should clarify infrastructure planning and capacity. Identify which infrastructure systems are already available (roads, sewer, water, electricity, etc.). Provide a phasing plan or commitment that infrastructure and civic amenities will be delivered before or during development, not after.

J. Promote Sustainable Land Use and Growth Management

Goal: Community character, lifestyles, economies, and natural assets will be preserved by managing growth and using land in a sustainable manner.

Objective 1. Improve land use management and implement a directed-growth strategy.

Policy J.1.a. Establish, map, and enforce urban- and rural-growth limits.

Staff Comment: Although the project site is currently zoned agriculture, its location abutting Pūlehu Road within the Maui Island Plan's directed growth map suggests that the proposed amendment to change zoning from agriculture to M-1 light industrial and business/multi-family

uses is an effort to align zoning with the designated urban growth boundary. However, it is important to demonstrate that this change is part of a managed and justified growth strategy, not an ad hoc expansion into agricultural lands. The project may be more appropriate after ensuring that there are no further development opportunities within the currently mapped Urban Growth Boundary.

Policy J.1.b. Direct urban and rural growth to designated areas.

Staff Comment: The project site's adjacency to the Directed Growth Map area and proposed amendments support directing growth into designated urban zones; however, as stated above, infill development opportunities within the growth boundaries should be exhausted prior to pursuing this project.

Policy J.1.e. Encourage redevelopment and infill in existing communities on lands intended for urban use to protect productive farmland and open-space resources.

Staff Comment: The project is not consistent with this policy. While it is not infill or redevelopment, its proximity to existing designated urban growth areas, and its integrated, mixed-use character help it support the broader intent of promoting efficient land use.

Policy J.1.h. Support the dedication of land for public uses.

Staff Comment: The inclusion of recreational spaces, community gathering places, and sports fields supports public use dedication, aligning well with this policy. These civic amenities should be delivered before or during development, not after.

Objective 2. Improve planning for and management of agricultural lands and rural areas

Policy J.2.a. Protect prime, productive, and potentially productive agricultural lands to maintain the islands' agricultural and rural identities and economies.

Policy J.2.c. Discourage developing or subdividing agriculturally designated lands when non-agricultural activities would be primary uses.

Objective 4. Improve and increase efficiency in land use planning and management.

Policy J.4.b. Ensure that new development projects requiring discretionary permits demonstrate a community need, show consistency with the General Plan, and provide an analysis of impacts.

Staff Comment: The proposed amendments represent a significant land use change. This requires thorough justification showing alignment with the General Plan's vision, particularly regarding growth management and agricultural preservation. Although, the project's inclusion of multi-family housing and commercial space may address housing shortages and economic development needs, a comprehensive analysis for the following should be provided: demand for these uses, and environmental, traffic and transportation issues, infrastructure, and social impacts.

Policy J.4.c. Encourage public and private partnerships to preserve lands of importance, develop housing, and meet the needs of residents.

Staff Comment: The project provides housing and community spaces, which helps meet residents' needs. However, since it would convert agricultural land to urbanized land, the project should also include ways to preserve or offset the loss of farmland, such as setting aside other agricultural lands or partnering with organizations to protect important farmland.

Policy J.4.d. Promote creative subdivision designs that implement best practices in land development, sustainable management of natural and physical resources, increased pedestrian and bicycle functionality and safety, and the principles of livable communities.

Staff Comment: The development should prioritize pedestrian and bicycle infrastructure by designing safe, accessible, and convenient pathways, crosswalks, and bike lanes including direct access to the adjacent retail establishments. Veterans Highway currently has designated walkways and bicycle lanes. Similarly, Pūlehu and Hansen Roads should include designated walkways that connect to Maui Veterans Highway. This not only encourages healthier transportation choices but also reduces reliance on vehicles, contributing to sustainability goals.

Policy J.4.e. Coordinate with Federal, State, and County officials in order to ensure that land use decisions are consistent with County plans and the vision local populations have for their communities.

Staff Comment: Effective collaboration between government and residents is essential for balanced and successful land use decisions. Extensive community engagement is highly recommended.

L. Mitigate Climate Change and Work Toward Resilience

Goal: Minimize the causes and negative effects of climate change.

Objective 3. Significantly increase the use of renewable and green technologies to promote energy efficiency and energy self-sufficiency.

Policy L.3.a. Promote the use of locally renewable energy sources, and reward energy efficiency.

Staff Comment: While building plans have not yet been submitted, the proposal could align with this policy if it incorporates energy-efficient design, solar panels, or other renewable energy systems, especially to offset increased energy usage for total enclosure of structures and air conditioning (See Wailuku-Kahului community plan, Land Use objective 9). At this stage, however, no such features have been indicated.

Policy L.3.b. Consider tax incentives and credits for the development of sustainable- and renewable energy sources.

Staff Comment: The following was not mentioned in the proposal: tax incentives, energy credits, or participation in green building programs. Including such elements would improve consistency with this policy.

Policy L.3.d. Encourage small-scale energy generation that utilizes wind, sun, water, biowaste, and other renewable sources of energy.

Staff Comment: In the absence of site layout, the inclusion of ample open space and mixed uses could potentially support solar PV arrays, small-scale wind installations, or biowaste systems—particularly in industrial or community gathering areas.

Maui Island Plan (MIP)

Heritage Resources

Objective 2.1.2 A more effective and efficient planning and review process that incorporates the best available cultural resources inventory, protection techniques, and preservation strategies.

Policy 2.1.2.c. Ensure that cultural, historic, and archaeological resources are protected for the benefit of present and future generations.

Staff Comment: The Applicant should consult with SHPD and complete the 6E process which the Department understands the Applicant is currently engaged in, and closely follow the recommendations of SHPD during ground altering activities.

Objective 2.3.2 Decreased NPS and point source pollution.
Policy 2.3.2.b. Support the use of Low Impact Development (LID) techniques such as those described in the State of Hawai'i LID Practitioner's Guide (June 2006), as amended.

Staff Comment: In addition to the drainage basins proposed in the preliminary engineering report, the Applicant should work with the natural landscape to retain and filter storm water runoff onsite and implement other low impact development techniques throughout the development.

Objective 2.5.1 A greater level of protection for scenic resources.

Policy 2.5.1.b. Identify, preserve, and provide ongoing management of important scenic vistas and open space resources, including mauka-to-makai and makai-to-mauka view planes.

Objective 2.5.2 Reduce impacts of development projects and public-utility improvements on scenic resources.

Staff Comment: Project should incorporate measures to protect existing views of the West Maui Mountains and Haleakalā.

Economic Development – Tourism

Objective 4.2.2 Comprehensively manage future visitor-unit expansion.

Policy 4.2.2.b Allow, where permitted by the community plan, the development of business hotels and small, sensitively designed inns.

Staff Comment: The proposed community plan designation Business/Multi-Family is defined as follows, "includes a mixture of retail, office, and commercial services which are oriented to neighborhood service and single family and multi-family residential uses." For the proposed transient accommodations component of the project, the Applicant should develop a business hotel or a small, sensitively designed inn; the community plan designation Hotel would be more appropriate.

Policy 4.2.2.c Manage impacts from transient vacation rentals, hotels, bed and breakfast units, timeshares, and resort condominiums on residential communities, public infrastructure, and community facilities.

Objective 4.2.3 Maximize residents' benefits from the visitor industry.

Staff Comment: Applicant should ensure any negative impacts of hotel use are minimized.

Policy 4.2.3.a Promote a desirable island population by striving to not exceed an island-wide visitor population of roughly 33 percent of the resident population.

Staff Comment: Maui already meets and sometimes exceeds its desirable island population ratio of visitors to residents during most months. The *2023 5-year American Community Survey* data show Maui Island's population at 153,207. Consequently, 33 percent of 153,207 is 50,558.

HTA annual visitor population numbers are as follows:
Pre-COVID: 2019 average daily census air arrivals monthly average = 66,363 (43%)
Post-COVID: 2023 average daily census air arrivals monthly average = 55,300 (36%)
2024 average daily census air arrivals monthly average = 51,100 (33%).

Housing

Objective 5.1.1 More livable communities that provide for a mix of housing types, land uses, income levels, and age.

Policy 5.1.1.a Promote livable communities (compact/walkable/bikeable, access to transit) that provide for a mix of housing types and land uses, including parks, open space, and recreational areas.

Staff Comment: Resolution 25-132 FD1, describes the proposed project as "a high-density, master-planned, mixed-use community, featuring multi-family residential housing, commercial office space, retail, restaurant dining areas, light industrial uses, recreational and open space, an outdoor amphitheater, community gathering places, and sports fields…" The proposal is consistent with Objective 5.1.1 and Policy 5.1.1.a, provided walking/biking paths and access to transit are provided.

Land Use

Objective 7.1.1. Significantly reduce the loss of productive agricultural lands.

Policy 7.1.1.c. Discourage developing or subdividing productive agricultural lands for residential uses in which the residence would be the primary use and any agricultural activities would be secondary uses.

Policy 7.1.1.e. Focus urban growth, to the extent practicable, away from productive and important agricultural lands.

Policy 7.1.1.f Strongly discourage the conversion of productive and important agricultural lands (such as sugar, pineapple, and other produce lands) to rural or urban use, unless justified during the General Plan update, or when other overriding factors are present.

Policy 7.1.1.j Require all major developments adjacent to agricultural lands to provide an appropriate and site-specific agricultural protection buffer as part of a required site plan.

Staff Comment: According to the Hawai'i Land Study Bureau GIS program, the project site is rated as Class "A," indicating that the property is prime agricultural land. Therefore, amending the Wailuku-Kahului Community Plan to change the designation of this land is not consistent with the policy. If the project is approved, a protection buffer must be included adjacent to any remaining agricultural lands.

Objective 7.3.1 Facilitate and support a more compact, efficient, human-scale urban development pattern.

Policy 7.3.1.a Ensure higher-density compact urban communities, infill, and redevelopment of underutilized urban lots within Urban Growth Boundaries.

Policy 7.3.1.c Strengthen evaluation requirements for new urban expansion, new towns, and major urban infill projects within urban growth areas. Tailor submittal requirements to reflect the impact or scale of different projects.

Staff Comment: Expanding urban boundaries should go through a rigorous and transparent evaluation process and should only occur after infill and redevelopment of underutilized urban lots within Urban Growth Boundaries. These projects often have substantial and long-term effects on infrastructure, traffic, public services, the environment, and community character.

Objective 7.3.2 Facilitate more self-sufficient and sustainable communities.

Policy 7.3.2.i. Develop communities that provide sufficient parks, schools, libraries, and other essential public facilities and services to serve resident needs.

Staff Comment: Provide a phasing plan or commitment that open space, outdoor amphitheater and other civic amenities will be delivered before or during development, not after.

Directed Growth

Goal 8.1 Maui will have well-serviced, complete, and vibrant urban communities and traditional small towns through sound planning and clearly defined development expectations.

Policy 8.1.a. The County, with public input, will be responsible for designating new growth areas where infrastructure and public facilities will be provided, consistent with the policies of the MIP and in accordance with State and County infrastructure plans.

Staff Comment: The proposed mix of housing, employment opportunities, recreational areas, and community spaces aligns with the intent to support well-serviced and complete communities. However, its location calls for support through infrastructure planning and public input.

Policy 8.1.b. Amendments to a UGB or STB shall be reviewed as a MIP amendment. A UGB or STB shall only be expanded if the island-wide inventory (maintained by the Department of Planning) of existing land uses (residential, commercial, industrial) indicates that additional urban density land is necessary to provide for the needs of the projected population growth within ten years of that inventory; or, during the decennial update of the MIP.

Policy 8.1.e. New development shall be consistent with the UGBs, STBs, and all other applicable policies of the MIP. New urban-density development shall not be allowed outside of a UGB or STB.

Staff Comment: The 2012 Maui Island Plan (2010–2030) states, "According to the land use forecast and the most recent DBEDT forecasts, an additional 10,845 residential units are needed to accommodate projected 2030 housing demand." This is based on DBEDT numbers from 2012 and applies to the island as a whole.

According to the October 2014 Land Use Forecast, Island of Maui (pp. 42-43), total net demand for the island of Maui to 2035 is estimated at 27,006 for resident, or 33,291 for resident + non-resident. Potential new supply is 37,637 which results in a surplus of 10,630 units for resident demand, or 4,345 units for resident + non-resident demand.

For the Wailuku-Kahului Community Plan area, the 2014 report estimates net demand to 2035 is 10,272 units for residential, or 11,320 for resident + non-resident. Potential new supply is 11,642 units which results in a surplus of 1,370 units for resident demand, or 321 for resident + non-resident.

The report notes that, "The potential supply does not include DHHL projects. These could supply about 600 residential lots to Native Hawaiian beneficiaries in the next decade or so, and an additional 4,150 lots or units over the long term."

Note that the 2014 Land Use Forecast is based on population estimates from the 2014 Socio-Economic Forecast Report (final draft 9/15/2014) which includes population estimates from DBEDT. These indicators are much higher than actual. For example, the 2025 population estimate is 182,135 (Land Use Forecast p. 33), whereas the 9/26/2025 estimate from UHERO is 163,800. UHERO estimates growth of approximately 0.1% per year. This means the 2014 Land Use Forecast is likely over-estimating demand for additional land uses.

The table below shows some existing approved and ongoing housing projects, totaling approximately 4,069 units. A detailed analysis demonstrating the need for additional urban land should be provided when reviewing an expansion of the UGB. With these estimates, the proposed Project is not consistent with the policy. These numbers represent a preliminary review and are subject to change.

Approved or anticipated housing projects in the Wailuku-Kahului CP Area:

Kahului Civic Center	300 units approximately
Maui Lani remaining entitlements	608 homes (further review needed)
DHHL Wailuku Single Family Residential	173 homes plus 31 lots
DHHL Puʻuhona (Wailuku)	171 homes
DHHL (Waiehu Mauka)	343 homes and 55 rural lots
Waikapū Country Town	1,433 residential units plus 146 ʻohana
Waikapū Development Venture	80 homes
Waiheʻe Affordable Housing	752 units
Hale Pilina (Puunene Ave, Kahului)	178 apartments
Estimated Total	4,069

Missing from this list are Queen Kaʻahumanu Center and Kahului Shopping Center which have significant potential for mixed use transit-oriented development but have not proposed plans yet.

Also, Title 19 is being updated in multiple ways that will increase housing opportunities – kitchenettes were recently added as an allowed use in Residential and Rural zoning districts to accommodate multi-generational families; bills for ordinance are proposed to allow duplexes and multi-family units in Residential zoning districts; the size of accessory dwelling units is under review for expansion; and multi-family dwellings in commercial districts as required by Act 37 which updated HRS §46-A will allow residential development in areas zoned for commercial use. Act 39 also updated HRS §46 to require allowing at least two ADUs on all residential lots regardless of size, effective December 31, 2026.

Furthermore, the phase-out of Apartment district transient vacation rentals will create opportunities for some Central Maui residents to live closer to where they work in South and West Maui.

Note: the list of housing projects above is not exhaustive, and the numbers may change.

At this time, the Long-Range Division is working on the Central Maui community plan update and recently completed several research papers. The Central Maui Community Plan Update Housing Resource Paper December 2024 provides some updated projections for Central Maui based on UHERO forecasts. It states, "Assuming UHERO's baseline population estimate, there will be a need for additional housing units to accommodate the population increase. As of 2022, there were an estimated 19,440 total housing units in Central Maui. If the average household size and vacancy rate for Central Maui remain constant over the 20-year period, the baseline forecast population growth would translate to a need for about 20,135 housing units by 2043… This represents an increase of roughly 695 units relative to the existing housing unit count."

Relevant recommendations from the Central Maui Community Plan Update Economic Development Resource Paper December 2024 include:

- Encourage building upward rather than outward, focusing on intensifying development in the existing more urban areas of Central Maui, particularly along major corridors and within existing underutilized centers.

- The core of Wailuku presents opportunities for infill and mixed-use development due to the amount of surface parking and adjacent low-density residential areas.

- The Kaʻahumanu Avenue corridor also offers potential to decrease the amount of low-density residential-designated land to help encourage delivery of more diverse housing types, including multifamily development.

- Seek opportunities to reduce the amount of land designated for industrial development by striving to balance the short-term demand for new industrial space with limited long-term need.

Long-Range Division is currently gathering data to update the island-wide inventory of existing land uses, as required by MIP Policy 8.1.b. This information should be available by mid-2026.

Policy 8.1.f. The County, as a condition of development approval, shall require developers of privately owned infrastructure systems to provide financial insurance (bonding, etc.) for the operation and maintenance of these systems.

Staff Comment: Any private water and wastewater systems will require financial insurance.

Regional Framework Theme Two: (p. 8-14) Protect Maui's agricultural resource lands, especially prime and productive agricultural lands. "Maui's agricultural lands are an important resource for both current and future generations of island residents. Agricultural lands provide the opportunity for greater economic diversification; food and energy security; and better stewardship of land, water, and open space resources. Maui residents have expressed a strong desire to support the agricultural economy and protect the island's agricultural lands for both present and future generations."

Regional Framework Theme Three: (p. 8-14) Direct growth to areas proximate to existing employment centers, where infrastructure and public facility capacity can be cost-effectively provided, and where housing can be affordably constructed.

Regional Framework Theme Four: (p. 8-15) Within the Urban Growth Boundaries, promote livable, mixed-use communities, defined by a high quality of life. "…Beyond our urban boundaries, working agricultural landscapes, natural wildland areas, and undeveloped shorelines and beaches are vitally necessary to provide a sense of refuge and escape from the stresses of urban life."

Staff Comment: The Regional Framework Themes stress saving ag land for ag purposes, only expanding growth to areas where infrastructure and public facility capacity can be cost-effectively provided, and maintaining ag landscapes as a boundary around urban areas. The proposed project should be carefully reviewed if it can be developed within these Framework Themes.

WAILUKU-KAHULUI COMMUNITY PLAN

The Applicant proposes a community plan designation for Ho'onani Village as:

> ***Business/Multi-Family Community Plan.*** *This includes a mixture of retail, office, and commercial services which are oriented to neighborhood service and single family and multi-family residential uses.*

Staff comment: This community plan designation is more consistent with business-type zoning districts, such as B-2 Community Business District. Community plan designations such as Business/Industrial or Light Industrial are more consistent with M-1 Light Industrial zoning.

Economic Activity

3. Allow opportunities for hotel accommodations within the region at Kahului and Wailuku – at the existing hotel district by Kahului Harbor; near the Kahului Airport; and within the Wailuku Town core.

Staff comment: While the project's proposed transient accommodations component may find some consistency with this policy, the Applicant's proposed zoning of M-1 Light Industrial does not allow transient accommodations. For a community plan designation, Hotel would be more appropriate where transient-oriented uses are intended.

Note that in 2022, Ordinance 5473 prohibited new transient accommodations in all almost all zoning districts, likely indicating a change in public opinion about hotel expansion.

Environment

1. Preserve agricultural lands as a major element of the open space setting that which borders the various communities within the planning region. The close relationship between open space and developed areas is an important characteristic of community form.

Staff Comment: The project is not consistent with this policy.

13. Support energy conservation measures, including the use of solar heating and photovoltaic systems, in conjunction with urban areas.

Staff Comment: The proposal could align with this policy if it includes energy-efficient building standards, use of solar panels, or other renewable systems. At this stage, no such features are described but are important for total enclosure of structures and air conditioning needed to mitigate noise (see Land Use Policy 9, below).

Housing

2. Provide sufficient land areas for new residential growth which relax constraints on the housing market and afford variety in type, price, and location of units. Opportunities for the provision of housing are presently constrained by a lack of expansion areas. This condition should be relieved by a choice of housing in a variety of locations, both rural and urban in character.

3. Seek alternative residential growth areas within the planning region, with high priority given to the Wailuku and Kahului areas. This action should recognize that crucial issues of maintaining important agricultural lands, achieving efficient patterns of growth, and providing adequate housing supply and choice of price and location must be addressed and resolved.

Staff Comment: The proposed project is partly consistent with Policies 2. and 3. in that it proposes land areas for new residential growth; however, it may need some modifications to maintain important agricultural lands and achieve efficient growth patterns such as infill.

8. Promote efficient housing designs in order to reduce residential home energy and water consumption.

Staff Comment: See above comment on Environment on energy-efficient home designs. The installation of water efficient appliances and fixtures are recommended to reduce water consumption.

Social Infrastructure

1. *Provide park and recreation areas as an integral part of project district specifications which will accommodate the needs of population growth.*

Staff Comment: The project proposal is consistent with the stated goal. The following elements are included in the project proposal: recreational and open space, an outdoor amphitheater, community gathering places, and sports fields. Provide a phasing plan or commitment that open

space, outdoor amphitheater and other civic amenities will be delivered before or during development, not after.

Public Safety

2. Encourage communities to establish Neighborhood Crime Watch Programs

Staff Comment: This is a necessity for the future neighborhood at this site. Pūlehu Road is currently largely occupied by homeless encampments and has been the location of brush fires.

Government

5. Ensure that adequate infrastructure is or will be available to accommodate planned development.

6. Support public and private partnerships to fund the planning and construction of infrastructure.

Staff Comment: The Applicant should work with the county and/or state to ensure adequate infrastructure.

Land Use

1. Ensure that adequate lands are available to support the region's present and future agricultural activities.

2. Identify prime or productive agricultural lands, and develop appropriate regulations for their protection.

Staff Comment: The proposed project site is identified as a prime or productive agricultural land. The proposed project is inconsistent with this policy.

9. Maintain the existing Kahului Airport district boundaries, as defined in the Community Plan Land Use Map and continue to evaluate the air transportation needs of the County to determine future air transportation facility requirements. Create a direct control overlay district in and around Kahului Airport due to the public investment and the economic importance of the facility. The boundaries of this district shall be generally defined by the 60 Ldn isoline (60 decibels, day/night average) of the FAA approved noise contour map for the airport. The intent of this district shall be to establish specific guidelines for development within the area which would define uses compatible with the airport and appropriate design standards, particularly with respect to noise attenuation to reduce interior noise levels to the 45 Ldn level or less. Total closure of structures, as well as air-conditioning, are generally required for this purpose. Residential uses should be discouraged within the 60 Ldn isoline.

Staff Comment: The proposed project area is within the Wailuku-Kahului community plan map – Airport Special Control District 60Ldn isoline. Total enclosure of structures and air-conditioning are generally required. Residential uses should be discouraged. The proposed project is inconsistent with this policy.

In addition, the 2016 Kahului Airport Master Plan Update 2.11.1 describes the proposed Hoʻonani Village site as, "Puʻunēnē is now utilized for heavy industry which is compatible with relatively

high noise levels." It also includes plans for southward expansion (see chapters 5 and 6) which may impact proposed project site. FAA and HDOT – Airports consultation is highly recommended.

Figure 6-2 Land Acquisition

Figure 1 Kahului Airport Master Plan Update, December 2016, p. 6-5

Infrastructure

Water and Utilities

1. Coordinate water system improvement plans with growth areas to ensure adequate supply and a program to replace deteriorating portions of the distribution system. Future growth should be phased to be in concert with the service capacity of the water system.

3. Promote water conservation and education programs.

5. Coordinate the construction of all water and public roadway and utility improvements to minimize construction impacts and inconveniences to the public.

6. Coordinate expansion of and improvements to the water system to coincide with the development of residential expansion areas.

7. Promote conservation of potable water through the use of treated wastewater effluent for irrigation.

Staff Comment: Applicant should ensure water and utilities infrastructure meet all system standards and include plans for redundancy.

Liquid and Solid Waste

1, Coordinate sewer system improvement plans with future growth requirements, as defined in the Community Plan.

Drainage

1. Establish a storm drain improvement program to alleviate existing problems; implement a continuing maintenance program, and ensure that improvements to the system will meet growth requirements. This addresses safety and property loss concerns as well as the need for comprehensive flood control planning.

5. Encourage the incorporation of drainageways, setbacks, and flood protection areas into greenways consisting of open space, pedestrian way and bikeway networks.

Energy

1. Promote the use of alternative energy sources, such as biomass, wind and solar.

2. Develop efficient circulation systems, public transportation and promote bicycle and pedestrian travel to reduce energy expenditures for travel.

6. Encourage energy efficient building design and site development practices.

7. Support energy conservation measures, including the use of solar heating and photovoltaic systems, in conjunction with urban uses.

8. Promote recycling programs to reduce solid waste disposal in landfills.

Staff Comment: For liquid and solid waste, drainage, and energy source, Applicant should follow all system standards requirements.

Transportation

2. Provide bikeway and walkway systems in the Wailuku-Kahului area which offer safe and pleasant means of access, particularly along routes accessing residential districts, major community facilities and activity centers, school sites, and the shoreline between Kahului Harbor and Paʻia.

4. Support private efforts to expand public transit service, with an emphasis on service to the Kahului Airport and Wailuku Civic Center. Future growth in population will warrant an expanded public transportation system.

5. For future residential development, prohibit direct lot access from primary roads.

6. Accommodate bicycle and pedestrian ways within planned roadway improvements.

6.b.2. (Kahului) Improve major intersections to accommodate increased traffic volumes, including turning lanes, signals, and other improvements, including but not limited to the corridors of Kamehameha, Puʻunene and Wakea Avenues.

Staff Comment: Applicant should ensure safe multi-modal options are included in the design. The TIAR does not mention traffic impacts of the transient accommodations component, or if the retail is located closer to and facing Hoʻokele Street or Pūlehu Road instead of inside the development. Applicant should consider a broader impact area and consult with DPW, MDOT and HIDOT to ensure all requirements are met.

Urban Design

2. Maintain a design quality for commercial and public projects and large-scale master planned developments.

3. Improve pedestrian and bicycle access within the region.

6. Promote a unified street tree planting program along major highways and streets.

7. Buffer public and quasi-public facilities and light-heavy industrial/commercial type facilities from adjacent residential uses with appropriate landscape planting.

10. Incorporate drought tolerant plant species and xeriscaping in future landscape planting.

14. Require all future subdivisions, construction projects and developments to comply with the adopted Maui County Planting Plan.

Staff Comment: Applicant should ensure project design meets all Urban Design policies and meet with the Urban Design Review Board.

Objectives and Policies for Kahului

2. Circulation: provide and maintain sidewalks and bikeways for convenient and pleasant connections between activity centers, such as shopping centers, schools, Maui Community College and public parks. These pathways should have adequate separation from vehicular traffic for safety purposes.

Staff Comment: Applicant should ensure project design meets all objectives and policies for Kahului.

Planning Standards

Land Use

a. All zoning applications and/or proposed land uses and developments shall conform with the planned use designations, as specified in the adopted Community Plan Map, and be consistent with the Community Plan policies.

Staff Comment: Proposed zoning and community plan designation are not consistent. As mentioned above, the proposed community plan designation is more consistent with Business-type zoning districts, such as B-2 Community Business District. Community plan designations such as Business/Industrial or Light Industrial are more consistent with M-1 Light Industrial zoning. For the transient accommodations component, Hotel zoning and Hotel community plan designation are more appropriate.

*c. Development of the vacant properties in the Dairy Road Light Industrial Expansion (Matrix 33), identified as TMK: 3-8-1:portion of 2 and **3-8-6:portion of 4**; and the Airport Triangle (Matrix 34), identified as TMK: 3-8-79:13, shall provide a landscaped aesthetic visual corridor along all adjacent highways. Additionally, a landscaped berm utilizing trees and shrubbery shall be constructed along the entire proposed collector road (Ho'okele Street Extension) to soften the visual impact of the buildings along the road. Ingress/egress or other improvements mandated by engineering safety standards shall be exempt. Additionally, alternative energy shall be utilized,*

including, but not limited to, the use of solar energy to heat water. Underground utilities and low impact lighting to preserve the visual appearance of the area shall also be utilized. Signalized intersections shall be minimized on the Ho'okele Street Extension, and shall be installed only when warranted by standard traffic engineering requirements.

In addition, the said Dairy Road Light Industrial Expansion (Matrix 33), shall be constructed in increments of not greater than seventy (70) acres. Building permits shall not be authorized for each increment until completion of the infrastructure construction for the prior increment. The Ho'okele Street Extension, or similar thoroughfare connecting Dairy Road to Hana Highway, shall be constructed concurrently with development of the first increment. The exact location of the Ho'okele Street Extension shall be determined as a part of the property's zoning approval, with an emphasis on maintaining a "view corridor" toward Haleakala.

Staff Comment: Applicant should ensure all Planning Standards for Land Use are met, including landscaping and other requirements as described in Policy c. above.

Urban Design

a. General

1. *Buffer public and quasi-public facilities and light-heavy industrial/commercial type facilities from adjacent residential uses with appropriate landscape planting and setbacks.*

2. *Save and incorporate healthy mature trees in the landscape planting plans of subdivisions, roads and other developments.*

3. *Incorporate drought tolerant plant species and xeriscaping in future landscape planting.*

4. *Use native plants for landscape planting in public projects to the extent practicable.*

5. *Emphasize contrasting earth-tone color schemes for buildings.*

Staff Comment: Applicant should ensure project design meets all Land Use Urban Design policies.

CHANGE OF ZONING (CIZ)

The Applicant proposes a change of zoning for the parcel to M-1 Light Industrial so that they have "maximum flexibility" as to what uses would be allowed on the property. The Applicant states *"the proposed zoning district meets the intent of the M-1 designation by accommodating low-impact industrial, commercial, and housing in an appropriately service area with planned access, drainage, and wastewater systems that ensure environmental protection and public health."* They wish to have the flexibility to engage in light-industrial activities and businesses. However, until the state land use designation changes to Urban, the proposed zoning is inconsistent and therefore any recommendation should be deferred until the state designation is updated.

In addition, the M-1 Light Industrial zoning designation would be inconsistent with the Applicant's proposed community plan of Business/Multi-family. The Department notes that a zoning designation of B-2, Community Business would be consistent with the proposed Business/Multi-Family community plan. The B-2 zoning districts permit a considerable range of economic

activities, many of which would be less burdensome to the many adjacent residents in the multi-family buildings and to potential transient accommodation guests.

It should be noted that the Wailuku-Kahului Community Plan update is currently underway. A new community plan designation of Transit-Oriented Corridor (TOC) may be more appropriate and consistent with the proposed activities of Hoʻonani Village. *"The TOC community plan designation is intended to create transit-friendly areas that are, or are planned to be, characterized by a mix of higher-density commercial, employment, light industrial, and residential uses. Within this designation, residential uses and retail and other businesses serving local or regional markets mix to create pedestrian-friendly activity centers and multimodal corridors with vibrant street life. Housing types in this designation include a mix of medium- to high-density development. Preferred design elements include buildings front property line; pedestrian, bicycle, and transit facilities; public/private amenities; and civic space and parks. Developments within TOC designations should be designed to provide the majority of the services residents would need on a daily basis, within walking distance. Development must follow the scale and character of the surrounding area until design standards are established by the Council."*

*** Please note that the Draft Environmental Impact Statement is currently being completed with the LUC designated as the accepting authority. Consequently, this staff report reflects the information available to date. More detailed information on project impacts will be available in mid-2026 and will be reviewed by the LUC prior to their deliberation on the Petition for a District Boundary Amendment from Agriculture to Urban for the project site.***

ARCHAEOLOGICAL, HISTORIC AND CULTURAL RESOURCES

An Archaeological Literature Review and Assessment (ALRA) has been completed in support of the EIS to be reviewed by the LUC. (**Exhibit 23)** The project area is part of the once-extensive commercial sugar cane operation known as Hawaiian Commercial and Sugar Company. Due to over a century of sugar cane operations, no traditional Hawaiian site-features have yet been identified in the current project area; however, further review is currently in process. The ALRA is not an Archaeological Inventory Survey (AIS) and did not include a field inspection. The ALRA is being used however to consult with SHPD in compliance with HRS Chapter 6E-42 and HAR Chapter 13-284; and to satisfy environmental review under HRS Chapter 343. The Department is in communication with the Applicant and Consultant who are working to complete the 6E form for SHPD review and comment.

Honua Consulting is working with SHPD-Archaeology Branch to identify if any specific identification or mitigation measures are needed for this project. Archaeological monitoring during ground disturbance at construction times will likely be required for a project of this scope in accordance with the anticipated AIS.

Additionally, Honua Consulting has prepared a Cultural Impact Assessment (CIA) along with the required Ka Paʻakai Analysis for the project. (**Exhibit 24**) The CIA *states "… there is a potential for the project to have an impact on valued cultural, historical, or natural resources in the project area or larger geographic extent, which is to be addressed through the HRS Chapter 6E process. Additionally, there is a negligible potential for the project to have a direct, adverse impact on traditional or customary Native Hawaiian rights in the project area or in the larger geographic extent, largely in part to the extensive commercial agricultural use of the project area for over 100 years. It is unfortunate, but any cultural practices that may have occurred in the project area or surrounding area were likely discontinued after the land was acquired by companies with commercial interests for plantation use. Cultural resources that may have once existed in the*

project area were likely irreparably destroyed by decades of agricultural use. Any potential for an adverse indirect or cumulative impact in the larger geographic extent can be minimized through the conditions and BMPs recommended herein [the CIA]. These conditions and BMPs constitute feasible action that may be reasonably taken to protect Native Hawaiian rights and cultural rights in the larger geographic extent."

AGRICULTURAL IMPACT

Availability of Lands for Agriculture

State and County plans and policies call directly or implicitly for preserving the economic viability of agriculture and promoting the growth of diversified agriculture (i.e., non-plantation agriculture). To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured.

The development of the 163-acre project will result in the loss of 0.23% of the 72,300 acres of farmland within the Agricultural District on Maui Island. Regarding plantation agriculture, sugarcane is no longer grown on the project site or nearby since Hawaiian Commercial & Sugar Co. ceased all sugar operations on Maui in 2016.

Regarding diversified agriculture, the project site has no recent history of being used for growing crops other than sugarcane, and water is no longer readily available to irrigate potential crops.

Conservation of Agricultural Lands

In addition to the above, State and County policies call for conserving and protecting "Prime" agricultural lands, including protecting farmland from urban development. The project site is somewhat problematic for farming unless the area is irrigated.

Redesignation from Agricultural to Urban/Rural

Discussions in the *Agriculture State Functional Plan* recognize that redesignation of lands from Agricultural to Urban and/or Rural should be allowed *"… upon a demonstrated change in economic or social conditions, and where the requested redesignation will provide greater benefits to the general public than its retention in …agriculture;"* that is, when an *"overriding public interest exists."*

It is incumbent upon the Commission to weigh the loss of "Prime" agricultural lands against the potential benefits of this project.

Important Agricultural Lands

None of the project area is currently designated as Important Agricultural Lands (IAL), and future designation is highly improbable. Nevertheless, the project area does have a soil classification of "A" by the Land Study Bureau.

A draft of the Agricultural Impact Report is found in **Exhibit 25** and the final report will be available in the Draft EIS to be reviewed by the LUC.

INFRASTRUCTURE, PUBLIC FACILITIES, AND SERVICES

Water – The existing site is vacant and does not have water systems located on-site for domestic or agricultural purposes. As the site was once used for agricultural purposes, it is assumed that there was an irrigation system to provide water to the crops. This system has since been removed. There are no existing water systems or structures in Pūlehu Road or Hansen Road that are adjacent to the site. The nearest existing water system is located in Hoʻokele Street and Pakaula Street to the north. The existing development adjacent to the site to the north uses this system for both domestic and fire uses. The nearest existing fire hydrant is located near the terminus of Pakaula Street. The site does not currently plan to connect to the existing water system and will likely therefore not affect the County system. **Exhibit 26** is the Preliminary Engineering Report (PER) and **Exhibit 27** is the Geotechnical Report.

The project will likely not connect to an existing County of Maui Department of Water Supply public water system, and there are several potential options to serve the project for domestic service and fire protection. The development plans on designing and constructing a private water system, modifying an existing water source with a new water pumping system, and installing a new storage and distribution system. The new private water system would serve the site for domestic uses, irrigation, and fire suppression. The applicant is currently analyzing an existing domestic well referred to as Puʻunēnē Well 6 No. 6-5226-002. Water samples from the existing well were tested and appear to meet the acceptable thresholds for domestic use standards. The existing well pump would need to be upgraded to accommodate for the new development. The intent of the private water system is for the system to be initially owned and maintained privately but will be constructed to Department of Water Supply standards so that in the future there could be an opportunity to turn the system over to the County of Maui.

From the PER – *"The current plan for Hoʻonani Village has an approximate average daily demand of 844,292 gpd. The potential future developments on the County site and the Hoʻonani Village site could produce an average daily demand of 183,543 gpd. The total Average daily demand for the system is approximately 1,023,357 gpd. This was increased by 10% to account for unmetered losses in the system to total Design A.D.D. of 1,125,693 gpd."*

The final water source and the location of the water tanks and pumps will be off-site and are subject to change throughout the design process. Currently the potential location of the off-site water tanks site would need approximately 23,000 linear feet of water line to convey the water down Pūlehu Road, and to the site.

Should the existing well not be able to service the site, the Applicant plans on proposing to drill a new water source to serve the site. The location of a future well site would be confirmed prior to construction plan approval. Additional alternatives for the proposed water system are limited. There is an existing private water source on the adjacent property just makai of the site that will serve the Maui Business Park development. The issue with this is that the source is at a lower elevation from the project and there would likely not be enough pressure to serve the site at the higher elevations. The other alternative would be connecting to the existing public system and public water source in the nearby area to serve the site. Water availability for domestic use is an ongoing issue for the island of Maui. The proposed development has a very large domestic water demand. A demand of that size would put a massive burden on the existing system. For this reason, the Applicant is proposing to create a separate private water source and distribution system to serve the development. Another alternative would be to obtain new well permits and drill new wells.

Detailed discussion of the water system and proposed alternatives will be discussed in the Draft EIS available in 2026.

Wastewater – The proposed development does not have any public wastewater lines adjacent to the site to connect to. The closest existing system is a private system that connects to the downstream public wastewater system. The public wastewater system in the area currently conveys wastewater to the Wailuku/Kahului Wastewater Treatment Plant. The existing wastewater system does not have the capacity to manage the additional wastewater that the project site would create. Thus, the Applicant is proposing to install a private wastewater system on site to serve the development. The system is currently proposed to be privately owned and maintained for the lifetime of the system. See **Exhibits 26 and 27.**

The proposed system will be made up of a network of gravity sanitary sewer main lines that convey wastewater to a pump station at the low end of the site. Each building on site will be connected to the gravity system by individual sanitary service laterals. The pump station will then pump the waste in a pressure line system to the proposed wastewater treatment plant that will be located on the western end of the project site. The wastewater treatment plant is planned to be designed to treat wastewater and produce R-1 reusable water that can be utilized for irrigation of as much of the site as possible. The R-1 water would be pumped to irrigate the site in a non-potable purple pipe system for recycled water or an approved equal.

Drainage – The project will be constructing new impervious surfaces from the construction of the proposed streets, buildings, parking areas, sidewalks and central promenade area. These improvements will increase the amount runoff from the site and will be managed for water quantity control per the County of Maui's Rules for the Design of Storm Drainage Facilities, Title MC-15, Chapter 4. These improvements will also bring elements to the site that increase the chance of pollutants entering the existing drainage conveyance systems nearby including our streams and oceans. The runoff from the site will be managed for water quality treatment to meet the Rules for the Design of Storm Water Treatment Best Management Practices, Chapter 15-111. The complete analysis of the proposed drainage system and the upstream basins can be found in Appendices 'C' and 'D' of the PER in **Exhibit 26**.

The proposed site has been divided into 37 drainage basins in the developed condition, notated as P1-P37. Upstream Basins O1-O3 continue to flow towards the site and will be managed in the proposed system. The proposed storm drainage system on site will incorporate a mixture of open conveyance and closed conveyance measures to direct the runoff to its discharge location to be detained and infiltrated. The storm drainage design for the site is subject to change throughout the design process. The PER represents the currently proposed alternative as well as a few additional possible alternatives that could be utilized as the project design moves forward.

Roadways – The Transportation Impact Analysis Report (TIAR) in **Exhibit 28** documents the assessment of mobility and access associated with the proposed Ho'onani Village project. Parking will be provided in at-grade parking lots with a total of 5,413 spaces. The site will be accessed via three full-access driveways at roundabout intersections: two on Hansen Road and one on Pūlehu Road. Three right-in right-out (RIRO) only driveways will also be provided along Hansen Road and one will be provided along Pūlehu Road. The project will also extend and connect to Pakaula Street to the north.

The impacts of the proposed project on mobility and access near the project site were evaluated following the guidelines and standards of the affected government agencies including the County of Maui (County) and the State of Hawai'i Department of Transportation Highways Division (HDOT). Six existing study intersections in the vicinity of the project were evaluated during the weekday morning (AM) and evening (PM) peak hours for Existing (2024) Conditions, Year 2035

No Project Conditions, and Year 2035 Plus Project Conditions. The new intersections providing direct site access were also analyzed under Year 2035 Plus Project Conditions.

Vehicle trip generation for the development was estimated for the weekday morning (AM) and evening (PM) peak hours using rates published by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual (11th Edition, 2021). Fehr & Peer's web tool MXD+ (MainStreet) was utilized to provide estimates of pedestrian, bicycle, and transit trips, as well as trip internalization. The analysis determined that the project will have a significant impact at one of the study intersections in 2035: Hāna Highway and Hansen Road. This intersection also operates unacceptably and meets signal warrants under Existing (2024) Conditions. The installation of a signal at this intersection would improve operations to acceptable levels.

An evaluation of the level and quality of service of all multi-modal transportation facilities was conducted for the roadways bordering the site. The project will not conflict with any planned pedestrian, bicycle, and transit facilities in the study area, and it will include active transportation improvements to enhance multimodal travel and access to the site.

The Department agrees with the following comment from the Office of Planning and Sustainable Development which states: "*The application should identify how the project site plan and layout will increase walkability and accommodate safe bicycle and pedestrian routes as well as connection to adjacent land uses. Consideration should also be given to activating streets for multimodal use (such as for pedestrians and bicyclists) by placement of buildings near/along streets. It is unclear whether the Maui bus services will be accommodated onsite or will be readily accessible to project residents/visitors."*

The Department recommends the following for further study in the Draft EIS:

- The proposed project identified in the TIAR assumes a certain development scenario of residential, commercial and industrial uses. The requested Change in Zoning for the property will not guarantee the development proposal analyzed in the TIAR. The TIAR should be revised to analyze multiple development scenarios including the most impactful (from a traffic generation standpoint) development scenario based upon the permitted uses and development standards allowed within the M-1 Light Industrial zoning district. For example, if the project was developed with only residential uses at a density permitted within the M-1 zoning district, does that change the traffic generation and impact analysis to roadways and intersections? If only commercial or industrial uses were developed in accordance with the development standards of the M-1 zoning district, does that change the impact analysis to roadways and intersections related to an anticipated increase in truck deliveries?

- The TIAR analysis was evaluated during weekday morning and evening peak hours for existing conditions in May 2024. The analysis should be expanded to account for weekend conditions as well as during high-visitor conditions when Hansen Road is often used for a bypass to access east and upcountry Maui from residents and visitor destination areas of west and south Maui.

- The TIAR should expand its intersection impact analysis beyond the six existing study intersections in the immediate vicinity of the project to address a broader impact analysis as described above. At minimum, it should also include an intersection impact analysis of the following intersections: Kuihelani Highway/Maui Veterans Highway; Pakaula

Street/Dairy Road/Mayor Elmer F. Cravalho Way; Dairy Road/Hāna Highway; intersection of Pakaula Street and ingress/egress driveways of Walmart and Home Depot.

- The TIAR does not provide any analysis of roadway widths and need for expansion to account for the additional 20,000+ daily trips. Additionally, it does not identify any recommendations for pedestrian and bicycle facilities along roadways that service the project and connectivity to existing regional pedestrian and bicycle facilities. In addition to identifying specific proposed pedestrian and bicycle facilities, which may require roadway widening, the study should at minimum address the following two-lane roadways to determine if roadway widening is necessary to address any anticipated impacts: Hansen Road, Pūlehu Road, Pakaula Street and Hoʻokele Street.

Finally, the Department received comments from the State Department of Transportation (See **Exhibits 13, 13A, and 13B**) which identify concerns regarding the project and nearby associated roadways. The following issues will need to be discussed by the Applicant in detail in the Draft EIS. Again ,the Department notes the importance of having a final EIS to review this major project.

"The HDOT has the following comments:

8. The development will have a total of seven access points, comprising five right-in/right-out driveways. Three of the primary access driveways are proposed on Pūlehu Road, Hansen Road (east side), and Hansen Road (west side). The following project intersections connecting to our state highways may be impacted in the near future:

a. Hansen Road (west side) via the Maui Veterans Highway, Route 311 (formerly Mokulele Road).

b. Pulehu Road and Hansen Road (east side) with Hana Highway.

9. We have reviewed the Traffic Impact Analysis Report (TIAR), dated May 2025, which is included in the application.

a. We note that under "Table 3: Existing Roadway Facilities," it was stated incorrectly that the Maui Veterans Highway is owned by the County. Therefore, the study should be revised to reflect that the highway is under State jurisdiction.

b. Under "Table 7: Year 2035 No Project and Plus Project," it pointed out that the westbound left turn movement on Hana Highway to Hansen Road is projected to operate at Level of Service (LOS) F during a.m. and p.m. peak hours for the existing conditions, as well as Plus Project conditions. The intersection is identified as a significant impact to Hana Highway, which is under State jurisdiction.

c. Under "Table 4: Existing 2024 Conditions Level of Service," for all scenarios, revise to show and consider delay and LOS for individual movements at signalized intersections. It is not sufficient to consider only overall intersection LOS.

i. Regarding Hana Highway/Hansen Road, on observed delays and upstream signals, please explain whether micro-simulation would yield more accurate

results? Also, please verify if observed delays are higher if the effects of vehicle platooning are not accounted for.

Under "Chapter 4: Project Traffic Estimates," the consultant should provide additional information relating to a Trip Generation Model developed by Fehr & Peers.

a. *Explain, for example, whether this model took into consideration the statements mentioned in "Section 3.4: Existing Transit Facilities and Services"?*

b. *If the project is generating significant pedestrian and bicycle trips in an area with these limited facilities, please explain what improvements are recommended to be implemented.*

c. *c. "Table 6: Project Trip Generation," the footnotes relating to internal trips with the daily total and external trips total should be verified.*

Under "Chapter 5: Year 2035 Analysis," the study should be revised to explain whether the annual growth rate in traffic of 1 percent through 2025 includes other planned developments along the Maui Veterans Highway.

a. *Explain or identify the name of the additional planned development along the corridor as mentioned, and whether trips can be obtained from the traffic study for that development.*

b. *Section 5.1 stated that the HDOT will make the final determination on the need for a signal at the Hana Highway/Hansen Road intersection. However, the TIAR should provide recommendations and mitigations at no cost to the State, with anew Conclusion and Recommendation section added to the study.*

Under "Appendix C," an explanation should be provided for Warrant 3A Peak Hour, with why the peak hour warrant would be appropriate for the stated intersection.

a. *We note that the Peak Hour Volume on Minor Approach of 460 (Existing Conditions) is the NB RT volume. The analysis indicates that it operates as free.*

b. *Under both the four-hour and the eight-hour scenario ("Number of Approach Lanes with Minor Street"), please revise to show all data used and plotted points. This is only for one hour of the four-hour warrant.*

10. Should the subject applications be approved, we recommend that the following conditions be included in the approval before obtaining any construction permits by the petitioner:

a. *The petitioner shall coordinate a meeting with the Highways and/or Maui District Engineer to discuss its pro-rata share, any mitigation responsibilities, and shall contribute its pro-rata share to traffic improvements to be determined by the HDOT, as well as the recording of a Memorandum of Agreement if deemed necessary.*

b. *The petitioner shall fund, design, and construct its pro-rata share of the necessary local and regional roadway improvements necessitated by the proposed development in designs and schedules accepted by the HDOT. A revised TIAR shall be submitted*

to/and accepted by the HDOT, which shall specify the petitioner's improvements that they are committed to providing.

c. *Before the commencement of any construction activity, the developer, its successors and permitted assigns, shall develop and submit a Transportation Management Plan to be reviewed by the County Department of Public Works, and a copy shall be routed to the HDOT Maui District Engineer.*

11. The HDOT encourages strategies to reduce carbon emissions from the project, if any. Suggestions include:

a. *Incorporate elements that encourage and enhance the use of multiple types of transportation to reduce carbon emissions.*

b. *Implement energy-efficient technologies and practices, such as light-emitting diode lighting.*

c. *Use sustainable, recycled, or low-emission materials in construction and manufacturing."*

Electrical, Telephone, and Cable – The parcels will have electrical, telephone and cable service. There should be no adverse impact to electrical, telephone or cable service associated with the proposed entitlements. However, the Applicant should discuss if there will be a higher energy impact/footprint due to noise impacts, which may require air-conditioning for noise mitigation and alternative forms of renewable energy to offset higher energy uses.

Parks – The Applicant proposes to work with the County to provide land for civic uses, and possibly a community center. Note that the Applicant made clear that this would be just for the land for a potential community center, not the building itself. Further analysis will be discussed in the Draft EIS.

Schools – The proposed schools for residents of the project are: Elementary: Kahului Elementary, Middle School: Waena, and High School: Maui High School. The Department would like to see additional analysis on the effect on student enrollment at full build-out of the project. Again, further study of the effect of this project on school enrollment will be discussed in the Draft EIS. See **Exhibit 12**.

Solid Waste – Multifamily housing units are serviced by private companies and therefore not serviced by the County Department of Environmental Management (DEM) Solid Waste Division. There should be no adverse impact to solid waste as a result of the proposed land use entitlements; however, the impacts of this project will be more carefully reviewed in the Draft EIS. Commercial solid waste management would be handled by private companies.

Public Services – Police protection is provided by the Maui Police Department at the Wailuku Police Station. Additional details will be available in the Draft EIS on the adequacy of police services for this project.

Fire prevention, suppression, and protection services for the region are provided by the Department of Fire and Public Safety's Kahului Fire Station located approximately 0.5 miles away

from the project. The potential impacts and mitigation measures of the project on the Police and Fire Protection work force will be discussed in the Draft EIS.

Maui Memorial Medical Center, the only major medical facility on the island, is located in Wailuku. Acute, general, and emergency care services are provided by this facility, which is licensed for approximately 231 beds. In addition, numerous privately operated medical/dental clinics and offices are located in the area to serve the region's residents.

Soil Sampling Report - The soil sampling data generated during this investigation by Malama Environmental indicates that the subject site is suitable for unrestricted use of the property according to this report. See **Exhibit 29**.

Phase I Environmental Site Report - MEV, LLC (Company) was retained by Aina Lani Pacific LLC, to perform a Phase I Environmental Site Assessment (ESA). See **Exhibit 30**. The site reconnaissance was conducted on May 25, 2023. Significant observations include the following.

• The subject property was undeveloped fallow agricultural land and vacant.

• The subject site contains a network of unpaved access roads and man-made berms throughout.

• The asphalt paved remnants of Central Power Plant Road are present on the central portion of the site from the northeast to the southwest.

This assessment revealed no evidence of controlled recognized environmental conditions in connection with the subject property. This assessment has revealed no evidence of historical recognized environmental conditions in connection with the subject property.

A vapor encroachment condition, as defined in ASTM 2600-15, is the presence or likely presence of Chemicals of Concern vapors in the vadose zone of the subject property caused by the release of vapors from contaminated soil and/or groundwater either on or near the subject property, as identified by Tier 1 or Tier 2 procedures. There is no vapor encroachment hazard that would be considered a vapor encroachment condition, and further, a recognized environmental condition.

Based on the time period for previous onsite sugar cane cultivation, field areas likely received regular applications of pesticide chemicals commonly used in historic Hawaiian sugar cane operations, as defined in Appendix 9-C of the State of Hawai‘i Department of Health (HDOH) Hazard Evaluation and Emergency Response (HEER) Office’s Technical Guidance Manual for the Implementation of The Hawai‘i State Contingency Plan (2009). These agrochemicals have been recognized by the U.S. Environmental Protection Agency (EPA) for contributing to the potential contamination of surface soils and groundwater systems. Based on previous onsite sugar cane cultivation, the potential exists for residual pesticides to be present in surface soil onsite at concentrations greater than the applicable environmental action levels (EALs).

According to Hawai‘i Administrative Rules, Chapter 128D Environmental Response Law, the presence of agricultural chemicals resulting from the legal application of a pesticide product does not constitute a "release" of a hazardous substance; furthermore, it is not considered a recognized environmental condition. However, as a precaution when agricultural lands are converted, soil sampling and laboratory testing are commonly performed to determine if any potential for residual exposure hazards exists at concentrations greater than the applicable environmental action levels

(EALs). A soil sampling investigation that included former agricultural field areas would contribute to higher confidence regarding health/safety issues for future occupancy of the site.

MEV recommends that soil sampling and analysis be conducted at the subject property in areas where future contact with surface soils may occur. This recommendation is in line with HDOH guidance to perform sampling in areas of historical sugar cane operations that will be developed to a more restrictive land usage than commercial or industrial. If potential additional information is found indicating previous operations other than field spraying, such as a historic map of the property showing mixing, storage, or other activity areas, then a more targeted sampling approach may be necessary.

SOCIO-ECONOMIC IMPACT

Over the next decade the project will support construction and construction-related employment. In the long-term, the project will meet housing needs of residents, stimulate the local economy through the generation of business in the area, and provide additional commercial and possibly hospitality space. See **Exhibit 31** for the Retail Demand Analysis prepared for the Draft EIS which reviews Maui‘s retail market in context ot the project.

ENVIRONMENTAL IMPACTS

Topography – The property is relatively flat. Because the future development will be sited to minimalize grade alteration, there should be little impact associated with property reclassification regarding topographical conditions.

Soil Conditions – The State Department of Agriculture has established three categories of Agricultural Lands of Importance to the State of Hawai‘i (ALISH) with land rated as Prime, Unique, or Other, based on their underlying soils. The property is rated Prime.

The subject properties are not designated as Important Agricultural Lands (IAL).

The development of the 163-acre project site will result in the loss of 0.23% of the 72,300 acres of quality farmland within the State Agricultural District on Maui Island.

Sea Level Rise, Flood and Tsunami – According to the Hawai‘i Sea Level Rise Viewer, the project area is outside of the 3.2 foot sea level rise exposure area. The project area is also outside of the higher 6.0 foot sea level rise exposure area.

According to the Federal Emergency Management Agency’s Flood Insurance Rate Map, the properties are located within Flood Zone X, an area of minimal flooding.

Portions of the parcel are within the Extreme Tsunami Evacuation Zone. Because the project area may be subject to damages from an extreme tsunami event, the Applicant will initiate discussions with the Maui Emergency Management Agency to write up evacuation and damage control procedures. No adverse impact to existing flood or tsunami conditions are anticipated in connection with the proposed zoning change. Further discussion of this will be available in the Draft EIS.

Flora and Fauna – The property is undeveloped. Dedicated surveys for Hawaiian Hoary Bats

were not done, but bats are known to transit over broad areas and may forage at the site at times. The US Fish and Wildlife Service suggests that trimming woody plants more than 15 feet tall should not occur between June 1 and September 15. No other endangered plants or animals were identified at the site. However, the Final EIS will discuss the flora and fauna in detail. See **Exhibit 32** for the Flora and Fauna Study.

Air Quality – Terry A. Hayes Associates Inc. (TAHA) has completed an Air Quality and Climate Change Study. Key findings are listed below from the consultant:

- *"The proposed project would generate temporary construction emissions of criteria air pollutants. The primary sources of pollutant emissions during construction activities would be exhaust from diesel-powered equipment and trucks. Construction emissions would be temporary and would cease upon completion of activities.*

- *Construction activities could generate fugitive dust, although it would be minimized by utilizing control measures. The proposed project will follow reasonable control measures included in the Hawaii Department of Health (DOH) Clean Air Branch Fugitive Dust Fact Sheet (April 2019) to reduce fugitive dust. Control measures include, but are not limited to, fugitive dust control plans, watering as necessary to maintain soils in a damp condition, limiting the amount of exposed areas through planning and timing of project phases, and covering temporarily exposed areas with mulch. Which control measures to implement is/are the responsibility of the owner, project manager, or operator of the site in response to the County of Maui's grading permit and National Pollutant Discharge Elimination System (NPDES) permit requirements from the Hawaii DOH. The site topography and surroundings, soil conditions, meteorological conditions, site activities, site equipment, and types of material processed must be considered. Generally, dry and windy conditions will require more control measures than rainy and calm periods.*

- *The proposed project would not result in adverse effects related to regional operational emissions. Vehicle exhaust associated with residential trips would be the primary source of direct emissions. The entirety of Maui is designated as attainment of the ambient air quality standards, and mobile source emissions from the proposed project vehicle trips would not have the potential to compromise the attainment designations by deteriorating air quality.*

- *Implementation of the proposed project would generate temporary (e.g., construction equipment and vehicle exhaust) and permanent (e.g., residential vehicle exhaust, utility use) greenhouse gas (GHG) emissions. Construction-related GHG emissions, which are quantified and disclosed within the Study, would be temporary and not significant. Cumulatively, permanent emissions would be unavoidable but not significant because the proposed project would not interfere with the development of clean energy supply in Hawaii.*

- *The State of Hawaii is committed to renewable energy production, which does not generate GHG emissions. Hawaii has enacted a law that mandates that all of the State's electricity comes from renewable sources no later than 2045. The proposed project is anticipated to be fully built out by 2035. Project-related indirect emissions would decline as the State moves toward a fully renewable supply of energy.*" See **Exhibit 33** for the Air Quality and Climate Change Study.

Airport Proximity Noise – The Office of Planning and Sustainable Development states in their comment letter the following with which the Department agrees: *"OPSD notes that this project is in the vicinity of Kahului Airport. Any land use change within five statute miles of airport boundaries needs to consult with the Federal Aviation Administration (FAA) and the Hawai'i Department of Transportation (HDOT) to ascertain if the proposed project will create any incompatible land uses, such as hazardous wildlife attractants and glint/glare hazards. The FAA encourages proponents of land use changes within five statute miles of an airport to notify the FAA as early in the planning process as possible.*

In regard to noise associated with airport proximity, the applicant states, "the proposed project is within the noise contours of the Kahului Airport." Additionally stated, "Due to the presence of consistent aircraft noise disturbances throughout much of the project site, exterior glazing, wall and floor/ceiling construction will be particularly important to isolate the inhabitants." Please note that if this project intends to use affordable housing financing, e.g., via U.S. Department of Housing and Urban Development, they will need to follow the housing construction requirements to mitigate noise impacts.

OPSD recommends that the application includes a map showing HDOT airport constraints and noise contours in relation to the project area. Application should discuss issues likely to arise due to proximity to Kahului Airport."

A Safety study and a separate Noise study should be prepared that addresses all hours Kahului Airport is in operation, and on days with light wind, no wind, and days of wind directional change that affects take-off and landing patterns. A description of construction details and costs to mitigate air traffic noise should be in further studies and should address if these costs will be passed on to residents and/or affect the affordability component of the project. Review on the Draft EIS with the FAA and Hawaii State Department of Transportation – Airports Division will be a key feature in the Draft EIS. Any safety and/or noise impacts and subsequent mitigation measures identified from the impact analysis or from these agencies should be incorporated into the Draft EIS.

In addition, the Applicant will need to address the 2002 Wailuku-Kahului Community Plan – Land Use objective #9:

> *9. Maintain the existing Kahului Airport district boundaries, as defined in the Community Plan Land Use Map and continue to evaluate the air transportation needs of the County to determine future air transportation facility requirements. Create a direct control overlay district in and around Kahului Airport due to the public investment and the economic importance of the facility. The boundaries of this district shall be generally defined by the 60 Ldn isoline (60 decibels, day night average) of the FAA approved noise contour map for the airport. The intent of this district shall be to establish specific guidelines for development within the area which would define uses compatible with the airport and appropriate design standards, particularly with respect to noise attenuation to reduce interior noise levels to the 45 Ldn level or less. Total closure of structures, as well as air-conditioning, are generally required for this purpose. Residential uses should be discouraged within the 60 Ldn isoline.*

Finally, the Department received comments from the State Department of Transportation (See **Exhibits 13, 13A, and 13B**) which addresses concerns regarding the project and nearby

associated aircraft operations. The following issues will need to be discussed by the Applicant in detail in the Draft EIS:

"The HDOT has the following comments:

1. *The proposed project is approximately 0.15 miles from the property boundary of Kahului Airport (OGG) and under an existing flight path for arrivals on Runway 2. All projects within 5 miles of Hawaii State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits. The TAM can be viewed at this link: http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-2016.pdf.*

2. *As the airport sponsor and the recipient of Federal Aviation Administration (FAA) Grants, the HDOT must comply with the FAA Grant Assurances, which include ensuring compatible land use for the safe landing and take-off of aircraft near the airport. The project site is located within the 55-75 Day-Night Average Sound Level (DNL) noise contours of the Base Year 1993 OGG Noise Exposure Map (NEM). The HDOT recommends relocating noise-sensitive land uses in the proposed project to avoid noise-sensitive areas defined by the noise contours of the Base Year 1993 OGG NEM. Specifically, all housing should be relocated outside of the 65 DNL or greater contours. In addition, Noise Level Reduction measures such as air conditioning, dual-pane windows, and concrete masonry walls should be incorporated throughout the project's design for housing and buildings where the public is received to achieve interior levels of 45 DNL or less. Please refer to the attached noise compatibility land use chart from the 1995 OGG Noise Compatibility Program for more guidance on recommended land uses within noise contours.*

3. *Due to the nature of the development, the HDOT requests that the property owner grant a noise and avigation easement to the HDOT.*

4. *Due to the proximity to OGG, the applicant, future residents, and users should be aware of potential single-event noise from aircraft operations. There is also potential for fumes, smoke, vibrations, odors, etc., resulting from occasional aircraft flight operations over or near the project location. These impacts may increase or decrease over time and are dependent on airport operations.*

5. *The project site is approximately 5,016 feet from the end of Runway 2 at OGG. FAA regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction or Alteration pursuant to the Code of Federal Regulations, Title 14, Part 77.9, if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet. Construction equipment and staging area heights, including heights of temporary construction cranes, shall be included in the submittal. The form and submission criteria can be found at the following website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp. Please provide a copy of the FAA response to the Part 77 analysis to the HDOT Airport Planning Section."*

Additional information will be available in the Draft EIS of this critical issue regarding airport noise. See Environmental Noise Assessment in **Exhibit 34.**

Streams, Wetlands and Reservoirs – There are no identified wetlands or rivers on or in the vicinity of the properties.

TESTIMONY

As of December 30, 2025, the Department has received no letters regarding this Project.

MAUI COUNTY CODE REQUIREMENTS FOR CHANGE OF ZONING

MCC Section 19.510.040 - Change of zoning, includes the following criteria for change of zoning approvals:

19.510.040.A.4.The county council may grant a change of zoning if all of the following criteria are met:

a. The proposed request meets the intent of the general plan and the objectives and policies of the community plans of the county,
b. The proposed request is consistent with the applicable community plan land use map of the county,
c. The proposed request meets the intent and purpose of the district being requested,
d. The application, if granted, would not adversely affect or interfere with public or private schools, parks, playgrounds, water systems, sewage and solid waste disposal, drainage, roadway and transportation systems, or other public requirements, conveniences and improvements,
e. The application, if granted, would not adversely impact the social, cultural, economic, environmental, and ecological character and quality of the surrounding area, and
f. If the application change in zoning involves the establishment of an agricultural district with a minimum lot size of two acres, an agricultural feasibility study shall be required and reviewed by the department of agriculture and the United States Soil and Conservation Service.

At this time, the proposed request does not meet the intent of the general plan or the objectives and policies of the Wailuku-Kahului community plan (4.a). It is inconsistent with the community plan land use map (4.b); more information is needed to determine consistency with the intent and purpose of the district being requested (4.c), and the application does not clearly assess the project's impact on infrastructure and other systems (4.d). In addition, more information is needed to determine impacts on character and quality of the surrounding area (4.e). Item (4.f) is not applicable.

COMMISSION ALTERNATIVES

1. ***Deferral:*** The Commission may defer action to another meeting date in order to obtain additional information that will assist in their deliberation on the request.

2. ***Recommend Approval without Conditions****:* The Commission may take action to recommend that the Maui County Council approve the request without imposing any conditions.

3. ***Recommend Approval with Conditions****:* The Commission may take action recommend that the Maui County Council approve the request with conditions.

4. ***Recommend Denial****:* The Commission may take action to recommend that the Maui County

Council deny the request.

CONCLUSIONS OF LAW

- The Environmental Impact Statement Preparation Notice (EISPN) was published in The Environmental Notice dated December 8, 2025**,** from the State of Hawai‘i’s Office of Planning and Sustainable Development. The two triggers for the EIS are: 1) “Propose the use of state or county lands or the use of state or county funds, and (9)(a) “Propose any wastewater treatment unit, except an individual wastewater system or a wastewater treatment unit serving fewer than fifty single-family dwellings or the equivalent.” These issues merit Commission review following the acceptance of an EIS. Due to the lack of a Final EIS with all the detailed studies and agency comments, the Department is unable to complete a full analysis of the project. The very nature of an EIS notes that environmental impacts will occur; consequently, a Final EIS is needed to review critical project components. The Department needs additional information on numerous issues which include, in part, the following:

    - the impact of air proximity noise on residents and on construction methodology as outlined in comments from the HDOT,
    - the results of a detailed consultation with the State Historic Preservation Department – Archaeology Branch to determine if any identification or mitigation measures are needed for the proposed project such as an Archaeological Inventory Survey and/or monitoring during ground altering activities,
    - the results of a more detailed traffic analysis covering the greater Kahului/Wailuku area and the intersection between County and State road improvements as outlined in detailed comments from the HDOT,
    - a detailed water report of the proposed private well system and requirements for redundancy should a well or wells be out of service, and,
    - discussion on the likelihood that Ho‘onani Village will be primarily an affordable housing community with associated uses such as light industrial enterprises, retail, hospitality, etc.

- The project includes multi-family residential housing, which provides opportunities for more affordable housing types compared to single-family homes. However, this is not consistent with Countywide Policy Plan (CWPP) *Policy E.3.g “minimize the intrusion of housing on prime, productive and potentially productive agricultural lands and regional valuable agricultural lands”* as the project site has a long history of productive agricultural land use, and according to Hawai‘i Land Study Bureau website the soil classification is rated “A” which represents the highest productivity.

- Converting high productivity ag land for non-ag uses is inconsistent with the CWPP *Policy F.2.b. ”Prioritize the use of agricultural land to feed the local population, and promote the use of agricultural lands for sustainable and diversified agricultural activities” ad CWPP Policy F.2.e. “Support ordinances, programs, and policies that keep agricultural land and water available to farmers.”*

- It is unclear from the information given if the project is consistent with CWPP Policy I.3.a. *“Capitalize on existing infrastructure capacity as a priority over infrastructure expansion”* and Policy I.3.b *“Planning for new towns should only be considered if a region’s growth is too large to be directed into infill and adjacent growth areas”.* Locating the project outside

the current Urban Growth Boundary must include a detailed analysis of the existing Urban Growth Area to ensure that the existing infrastructure can be adequately expanded or the new infrastructure developed to manage demand and that the project does not conflict with the goal to prevent a premature expansion into undeveloped regions. The application does not address other development opportunities within the currently mapped Urban Growth Boundary that may provide adequate land and resources for housing and light industrial activities.

- The project is inconsistent with CWPP Policy J.1.e. *"Encourage redevelopment and infill in existing communities on lands intended for urban use to protect productive farmland and open-space resources."*

- According to the Hawai'i Land Study Bureau GIS program, the project site is rated as Class "A" indicating that the property is prime agricultural land. Amending the Wailuku-Kahului Community Plan to change the desgination of this land from Agriculture to Business/Multi-family is not consistent with the Maui Island Plan (MIP) Objective 7.1.1. *"Significantly reduce the loss of productive agricultural lands"* and Policy 7.1.1.c. *"Discourage developing or subdividing productive agricultural lands for residential uses in which the residence would be the primary use and any agricultural activities would be secondary uses"* and Policy 7.1.1.e. *"Focus urban growth to the extent practicable, away from productive and important agricultural lands"* and Policy 7.1.1.f. *"Strongly discourage the conversion of productive and important agricultural lands to rural and urban use, unless justified during the General Plan update, or when other overriding factors are present."*

- Expanding urban boundaries should go through a rigorous and transparent evaluation process and should only occur after infill and redevelopment of underused urban lots within the current Urban Growth Boundaries. This project's proposal to amend the Growth Boundaries is inconsistent with MIP Objective 7.3.1. *"Facilitate and support a more compact, efficient, human-scale urban development pattern"* in that this project will have an as yet unknown long-term effect on infrastructure, traffic, public services, the environment, and community character.

- Further analysis from the Applicant on residential and industrial needs to 2042 is necessary in determining the project's consistency with MIP Policy 8.1.b. ***"****Amendments to a UGB or STB shall be reviewed as a MIP amendment. A UGB or STB shall only be expanded if the island-wide inventory (maintained by the Department of Planning) of existing land uses (residential, commercial, industrial) indicates that additional urban density land is necessary to provide for the needs of the projected population growth within ten years of that inventory; or, during the decennial update of the MIP"* and Policy 8.1.e. *"New development shall be consistent with the UGBs, STBs, and all other applicable policies of the MIP. New urban-density development shall not be allowed outside of a UGB or STB."* Expanding the UGB should be done in context with other projects being built, those entitled but waiting for permitting, and those likely to come on-line with pending legislation.

- The Applicant proposed a Wailuku-Kahului Community Plan designation as Business/Multi-family. This designation is more consistent with Business-type zoning such as B-2, Community Business District rather than the Applicant's request for M-1 Light Industrial Zoning. The Department cannot support such an inconsistency between the

proposed community plan designation and the proposed zoning.

- The project is not consistent with Wailuku-Kahului Community Plan Policy under the Plan's Environment Section that states *"1. Preserve agricultural lands as a major element of the open space setting that which borders the various communities within the planning region. The close relationship between open space and developed areas is an important characteristic of community form."*

- The Applicant's proposed zoning of M-1 Light Industrial does not allow transient accommodations as proposed in the project and a more appropriate community plan designation would be Hotel if hospitality uses are anticipated for a portion of the parcel.

- Under the Land Use Section of the WKCP are two policies stated as 1. *"Ensure that adequate lands are available to support the region's present and future agricultural activities"* and 2. *"Identify prime or productive agricultural lands, and develop appropriate regulations for their protection."* The project site is identified as Prime land; therefore, the project is inconsistent with this policy.

- The proposed project area is within the Wailuku-Kahului community plan map – Airport Special Control District 60Ldn isoline. Total enclosure of structures and air-conditioning are generally required. Residential uses should be discouraged. The proposed project is inconsistent with WKCP Policy 9 under the Land Use Section discouraging residential projects in the Airport Special Control District.

- The Applicant proposes a change of zoning for the parcel to M-1 Light Industrial so that they have "maximum flexibility" as to what uses would be allowed on the property. The Applicant states *"the proposed zoning district meets the intent of the M-1 designation by accommodating low-impact industrial, commercial, and housing in an appropriately service area with planned access, drainage, and wastewater systems that ensure environmental protection and public health."* The Applicant wishes to have the flexibility to engage in light-industrial activities and businesses. The M-1 Light Industrial zoning designation would be inconsistent with the Applicant's proposed community plan request of Business/Multi-family.

RECOMMENDATION

MAUI ISLAND GROWTH BOUNDARY AMENDMENT

The Planning Department recommends to the Maui Planning Commission that it recommend "deferral" to the Maui County Council for the Amendment to the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) to include the property within the Urban Growth Boundary, until the Final EIS is accepted, and the island-wide inventory of existing land uses is updated and indicates that additional urban density land is necessary to provide for the needs of the projected population growth.

COMMUNITY PLAN AMENDMENT

The Planning Department recommends to the Maui Planning Commission that it recommend "deferral" to the Maui County Council for the Amendment to the Wailuku-Kahului Community Plan designation for the property from Agriculture to Business/Multi-Family, until the EIS is accepted,

and the Maui Island Plan Urban Growth Boundary is expanded.

CHANGE OF ZONING

The Planning Department recommends to the Maui Planning Commission that it recommend "deferral" to the Maui County Council for the Change the Zoning for the property from Agricultural District to M-1, Light Industrial District, until the LUC approves the DBA and the criteria described in MCC 19.510.040.A.4 are met.

In consideration of the foregoing, the Planning Department recommends that the Maui Planning Commission recommend deferral to the Maui County Council of the Maui Island Plan Growth Boundary Amendment, Community Plan Amendment, and Change of Zoning request, and adopt the Department of Planning's Report and Recommendation prepared for the January 13, 2026, meeting and authorize the Planning Director to transmit said Report and Recommendation to the Maui County Council.

APPROVED:

KATE L. K. BLYSTONE
Planning Director

EXHIBIT 1

Resolution 25-132, FD1

Resolution

No. 25-132, FD1

REFERRING TO THE MAUI PLANNING COMMISSION THREE PROPOSED BILLS TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PULEHU ROAD); TO AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION FROM AGRICULTURE TO BUSINESS/MULTI-FAMILY; AND TO CHANGE THE ZONING FROM AGRICULTURAL DISTRICT TO M-1 LIGHT INDUSTRIAL DISTRICT, FOR A 166.511 ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, SITUATED AT KAHULUI, MAUI, HAWAI'I (HO'ONANI VILLAGE)

WHEREAS, the Council is considering three proposed bills to grant land use entitlements for a 166.511 acre portion of a parcel identified for Real Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, situated at Kahului, Maui, Hawai'i; and

WHEREAS, the proposed bills would:

- Amend the Maui Island Plan's Directed Growth Map C5 (Pulehu Road) to include the property within the Urban Growth Boundary;

- Amend the Wailuku-Kahului Community Plan designation for the property from Agriculture to Business/Multi-Family; and

- Change the Zoning for the property from Agricultural District to M-1 Light Industrial District; and

WHEREAS, the property is planned for the Ho'onani Village Mixed Use Development project; and

WHEREAS, on March 20, 2024, the Council's Housing and Land Use Committee of the 2023-2025 Council term, received a presentation on Ho'onani Village; and

Resolution No. 25-132, FD1

WHEREAS, Ho'onani Village is described as a high-density, master-planned, mixed-use community, featuring multi-family residential housing, commercial office space, retail, restaurant dining areas, light industrial uses, recreational and open space, an outdoor amphitheater, community gathering places, and sports fields; and

WHEREAS, Ho'onani Village proposes a total of 1,600 residential apartment rental units, including approximately 50 percent workforce housing units comprised of studios and one-, two-, and three-bedroom units; and

WHEREAS, the proposed bills will allow the property to be developed as housing for Maui's workforce while also providing commercial and business opportunities; and

WHEREAS, the property abuts the Maui Island Plan's Directed Growth Map C5 (Pulehu Road) but cannot be used for urban development unless it is included within the Urban Growth Boundary; and

WHEREAS, under Subsection 2.80B.060(A), Maui County Code, the Council may propose amendments to the Maui Island Plan by resolution; and

WHEREAS, under Subsection 2.80B.100(A), Maui County Code, the Council may propose non-decennial amendments to community plans by resolution; and

WHEREAS, under Subsection 19.510.040(A)(1), the appropriate planning commission shall conduct a public hearing on all change of zoning applications; and

WHEREAS, Sections 8-8.4 and 8-8.6 of the Revised Charter of the County of Maui (1983), as amended, require that the appropriate planning commission review proposed zoning and other land use ordinances, and provide findings and recommendations to the Council; now, therefore,

Resolution No. 25-132, FD1

BE IT RESOLVED by the Council of the County of Maui:

1. That it refers the following bills to the Maui Planning Commission for appropriate action under Sections 8-8.4 and 8-8.6 of the Revised Charter of the County of Maui (1983), as amended:

    a. A proposed bill, entitled "A BILL FOR AN ORDINANCE TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PULEHU ROAD) BY INCLUDING WITHIN THE URBAN GROWTH BOUNDARY, A 166.511-ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, KAHULUI, MAUI, HAWAI'I," attached as Exhibit "1;"

    b. A proposed bill, entitled "A BILL FOR AN ORDINANCE TO AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION FROM AGRICULTURE TO BUSINESS/MULTI-FAMILY FOR A 166.511-ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, SITUATED AT KAHULUI, MAUI, HAWAI'I," attached as Exhibit "2;" and

    c. A proposed bill, entitled "A BILL FOR AN ORDINANCE TO CHANGE THE ZONING FROM AGRICULTURAL DISTRICT TO M-1 LIGHT INDUSTRIAL DISTRICT FOR A 166.511-ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, SITUATED AT KAHULUI, MAUI, HAWAI'I," attached as Exhibit "3;" and

2. That certified copies of this Resolution be transmitted to the Mayor; Planning Director; Maui Planning Commission; and Ax Holdings, LLC.

Resolution No. 25-132, FD1

APPROVED AS TO FORM AND LEGALITY:

/s/ Michael J. Hopper

Department of the Corporation Counsel
County of Maui

paf:jpp:25-143f

INTRODUCED BY:

NOHELANI U'U-HODGINS

EXHIBIT "1"

ORDINANCE NO. _____

BILL NO. _____ (2025)

A BILL FOR AN ORDINANCE TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PULEHU ROAD) BY INCLUDING WITHIN THE URBAN GROWTH BOUNDARY, A 166.511-ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, KAHULUI, MAUI, HAWAIʻI

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Under Chapter 2.80B, Maui County Code, the Maui Island Plan's Directed Growth Map C5 (Pulehu Road) is amended to include within the Urban Growth Boundary, a 166.511-acre portion of a parcel identified for Real Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, situated at Kahului, Maui, Hawai'i, as described and depicted in the attached Exhibit "A." The Planning Director is directed to produce updated official mapping for the public's benefit consistent with this Ordinance.

SECTION 2. This Ordinance takes effect on approval.

APPROVED AS TO FORM AND LEGALITY:

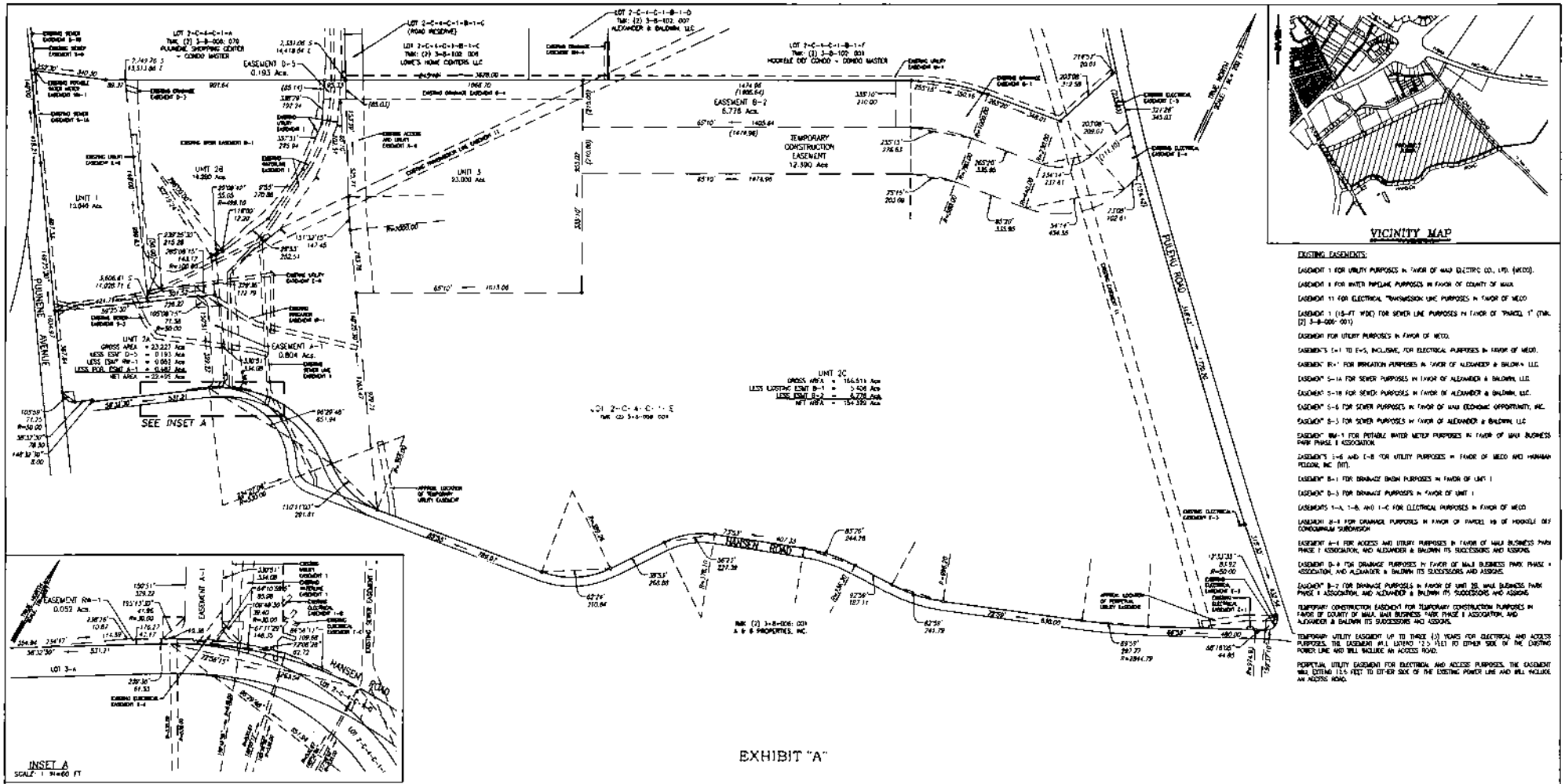
_____

Department of the Corporation Counsel
County of Maui

paf:jpp:25-143b

INTRODUCED BY:

NOHELANI U'U-HODGINS


PUUNENE AVENUE
HANSEN ROAD
PULEHU ROAD
UNIT 1
12.040 Ac.
UNIT 2A
GROSS AREA = 23.227 Ac
LESS ESMT D-5 = 0.193 Ac
LESS ESMT RW-1 = 0.052 Ac
LESS FOR ESMT A-1 = 0.467 Ac
NET AREA = 22.495 Ac
UNIT 2B
14.260 Ac.
UNIT 2C
GROSS AREA = 166.511 Ac
LESS EXISTING ESMT B-1 = 5.408 Ac
LESS ESMT B-2 = 6.278 Ac
NET AREA = 154.592 Ac
UNIT 3
93.000 Ac.
EASEMENT A-1
0.467 Ac.
EASEMENT A-4
0.804 Ac.
EASEMENT B-2
6.778 Ac.
TEMPORARY CONSTRUCTION EASEMENT
12.590 Ac
EASEMENT D-5
0.193 Ac.
EASEMENT RW-1
0.052 Ac.
SEE INSET A
LOT 2-C-4-C-1-A
TMK: (2) 3-8-006: 070
PUUNENE SHOPPING CENTER
- CONDO MASTER
LOT 2-C-4-C-1-B-1-G
(ROAD RESERVE)
LOT 2-C-4-C-1-B-1-C
TMK: (2) 3-8-102: 006
LOWE'S HOME CENTERS LLC
LOT 2-C-4-C-1-B-1-D
TMK: (2) 3-8-102: 007
ALEXANDER & BALDWIN, LLC
LOT 2-C-4-C-1-B-1-F
TMK: (2) 3-8-102: 031
HOOKELE DEV CONDO - CONDO MASTER
LOT 2-C-4-C-1
TMK: (2) 3-8-006: 004
TMK: (2) 3-8-006: 009
A & B PROPERTIES, INC.
EXISTING POWER EASEMENT D-1
EXISTING WATERLINE EASEMENT 1
EXISTING ACCESS AND UTILITY EASEMENT A-4
EXISTING DRAINAGE EASEMENT B-1
EXISTING DRAINAGE EASEMENT B-2
EXISTING ELECTRICAL EASEMENT E-1
EXISTING ELECTRICAL EASEMENT E-2
EXISTING ELECTRICAL EASEMENT E-3
EXISTING ELECTRICAL EASEMENT E-4
EXISTING ELECTRICAL EASEMENT E-5
EXISTING SEWER EASEMENT 1
EXISTING SEWER EASEMENT 2
EXISTING SEWER EASEMENT 3
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EXISTING SEWER EASEMENT 5
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EXISTING SEWER EASEMENT 19
EXISTING SEWER EASEMENT 20
EXISTING WATER EASEMENT B-1
EXISTING WATER EASEMENT B-2
EXISTING WATER EASEMENT B-3
EXISTING WATER EASEMENT B-4
EXISTING WATER EASEMENT B-5
EXISTING WATER EASEMENT B-6
EXISTING WATER EASEMENT B-7
EXISTING WATER EASEMENT B-8
EXISTING WATER EASEMENT B-9
EXISTING WATER EASEMENT B-10
EXISTING WATER EASEMENT

MAUI ECONOMIC OPPORTUNITY CONDOMINIUM

UNIT 2C

Being a portion of Lot 2-C-4-C-1-E of The First Assembly of God Subdivision (Subdivision File No. 3.2208), being also a portion of Grant 3343 to Claus Spreckels.

Situate at Puunene, Wailuku, Maui, Hawaii.

Beginning at the Northwest corner of the parcel of land, being also the Northeast corner of Unit 1 of Maui Economic Opportunity Condominium, the coordinates of said point of beginning referred to Government Survey Triangulation Station "LUKE" being 4,019.58 feet South and 15,364.93 feet East thence running by azimuths measured clockwise from true South:

1.	149°	25′	30″	979.71 feet	along Unit 2A of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
2.	245°	10′		1015.06 feet	along Unit 3 of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
3.	155°	10′		955.02 feet	along same;
4.	245°	10′		1474.96 feet	along Lots 2-C-4-C-1-B-1-D and 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels;
					Thence along Lot 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels, on a curve to the right with a radius of 1000 feet, the chord azimuth and distance being:
5.	255°	15′		350.16 feet;	
6.	265°	20′		348.01 feet	along same;

7.	203°	08′		312.58 feet	along same;
8.	214°	57′		20.01 feet	along same;
9.	321°	28′		345.03 feet	along Pulehu Road;
10.	318°	43′		1770.20 feet	along same;
11.	315°	30′		432.54 feet	along same;
					Thence along same, on a curve to the right with a radius of 50.00 feet, the chord azimuth and distance being:
12.	12°	33′	35″	83.92 feet;	
					Thence along Hansen Road, on a curve to the left with a radius of 974.93 feet, the chord azimuth and distance being:
13.	68°	18′	05″	44.85 feet;	
14.	66°	59′		480.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 2844.79, the chord azimuth and distance being:
15.	69°	59′		297.77 feet;	
16.	72°	59′		630.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 696.20 feet, the chord azimuth and distance being:
17.	82°	59′		241.79 feet;	
18.	92°	59′		187.11 feet	along same;
					Thence along same, on a curve to the left with a radius of 736.20 feet, the chord azimuth and distance being:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817-5031
1871 WILI PA LOOP, SUITE A
WAILUKU, MAUI, HAWAII 96793
100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

19.	83°	26′	244.28 feet;	
20.	73°	53′	407.33 feet	along same;
				Thence along same, on a curve to the left with a radius of 378.10 feet, the chord azimuth and distance being:
21.	56°	23′	227.39 feet;	
22.	38°	53′	268.88 feet	along same;
				Thence along same, on a curve to the right with a radius of 389.26 feet, the chord azimuth and distance being:
23.	62°	24′	310.64 feet;	
24.	85°	55′	789.97 feet	along same, to the point of beginning and containing an area of 166.511 Acres.

Description Prepared By:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

ERIK S. KANESHIRO
Licensed Professional Land Surveyor
Certificate No. 9826
Exp. 04/26

Honolulu, Hawaii
December 18, 2024

TMK: (2) 3-8-006: POR. 004
Y:\2022\22-530 Maui Business Park DEF Subdiv\SURVEY\Descriptions\MEO CPR UNIT 2C.docx

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817-5031
1871 WILI PA LOOP, SUITE A
WAILUKU, MAUI, HAWAII 96793
160 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

EXHIBIT "2"

ORDINANCE NO. _____

BILL NO. _____ (2025)

A BILL FOR AN ORDINANCE TO AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION FROM AGRICULTURE TO BUSINESS/MULTI-FAMILY FOR A 166.511-ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, SITUATED AT KAHULUI, MAUI, HAWAI'I

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Under Chapter 2.80B, Maui County Code, the Wailuku-Kahului Community Plan designation is amended from Agriculture to Business/Multi-Family for a 166.511-acre portion of a parcel identified for Real Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, situated at Kahului, Maui, Hawai'i, as described and depicted in the attached Exhibit "A."

SECTION 2. This Ordinance takes effect on approval.

APPROVED AS TO FORM AND LEGALITY:

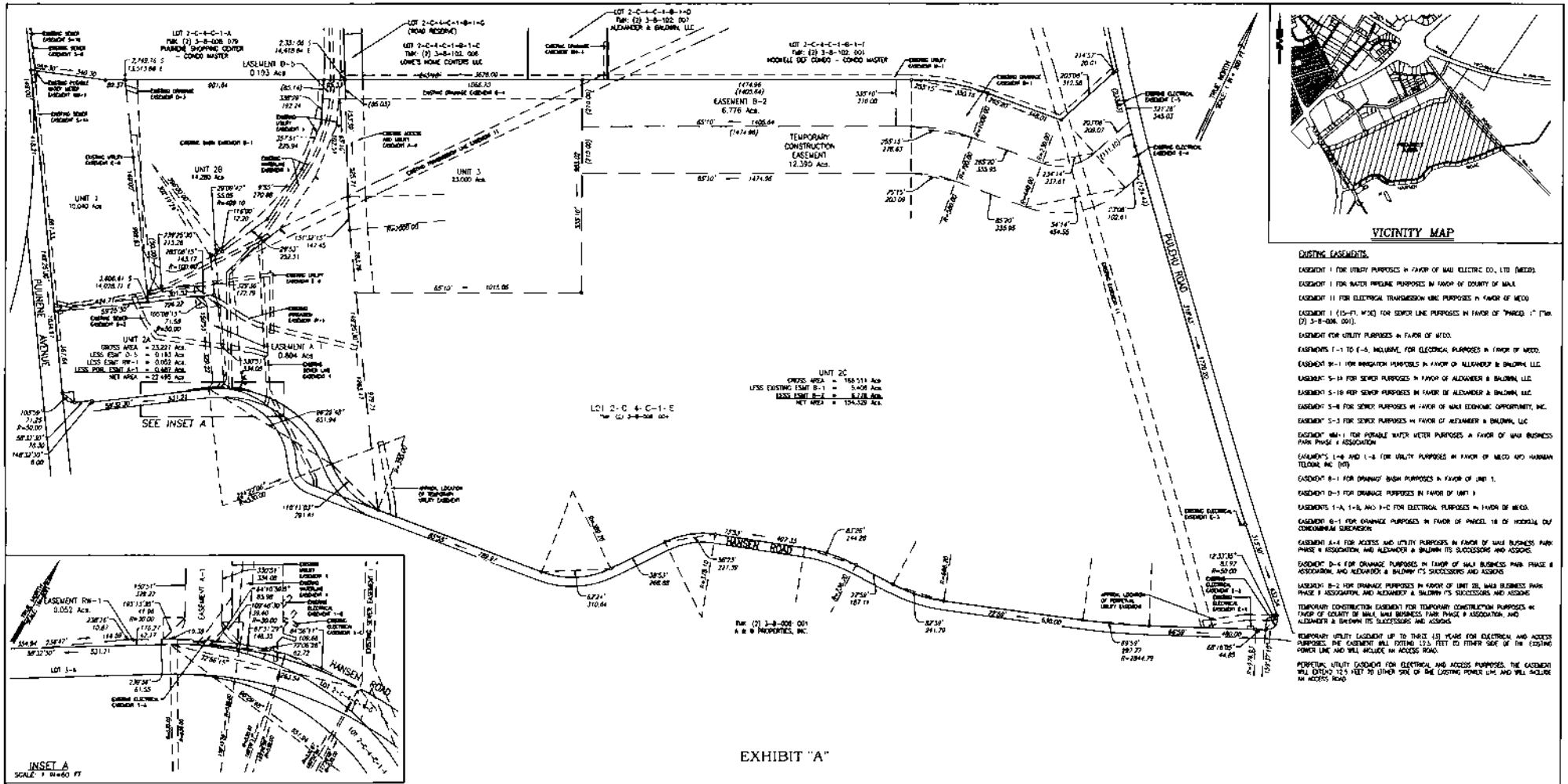
_____

Department of the Corporation Counsel
County of Maui

paf:jpp:25-143c

INTRODUCED BY:

NOHELANI U'U-HODGINS



EXISTING EASEMENTS:

EASEMENT 1 FOR UTILITY PURPOSES IN FAVOR OF MAUI ELECTRIC CO., LTD (MECO).

EASEMENT 1 FOR WATER PIPELINE PURPOSES IN FAVOR OF COUNTY OF MAUI.

EASEMENT 11 FOR ELECTRICAL TRANSMISSION LINE PURPOSES IN FAVOR OF MECO.

EASEMENT 1 (15-FT. WIDE) FOR SEWER LINE PURPOSES IN FAVOR OF "PARCEL 1" (TMK: (2) 3-8-006: 001).

EASEMENT FOR UTILITY PURPOSES IN FAVOR OF MECO.

EASEMENTS 1-1 TO 1-5, INCLUSIVE, FOR ELECTRICAL PURPOSES IN FAVOR OF MECO.

EASEMENT W-1 FOR IRRIGATION PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT S-1A FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT S-1B FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT S-4 FOR SEWER PURPOSES IN FAVOR OF MAUI ECONOMIC OPPORTUNITY, INC.

EASEMENT S-3 FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT "W-1" FOR POTABLE WATER METER PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION

EASEMENTS 1-A AND 1-B (FOR UTILITY PURPOSES IN FAVOR OF MECO AND HAWAIIAN TELCOM, INC. (HT)

EASEMENT B-1 FOR DRAINAGE BASIN PURPOSES IN FAVOR OF UNIT 1.

EASEMENT D-3 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 1

EASEMENTS 1-A, 1-B, AND 1-C FOR ELECTRICAL PURPOSES IN FAVOR OF MECO.

EASEMENT D-1 FOR DRAINAGE PURPOSES IN FAVOR OF PARCEL 18 OF HOOKIPA OLU CONDOMINIUM SUBDIVISION

EASEMENT A-4 FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS.

EASEMENT D-4 FOR DRAINAGE PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS

EASEMENT B-2 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2B, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS

TEMPORARY CONSTRUCTION EASEMENT FOR TEMPORARY CONSTRUCTION PURPOSES IN FAVOR OF COUNTY OF MAUI, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS

TEMPORARY UTILITY EASEMENT UP TO THREE (3) YEARS FOR ELECTRICAL AND ACCESS PURPOSES. THE EASEMENT WILL EXTEND 12.5 FEET TO EITHER SIDE OF THE EXISTING POWER LINE AND WILL INCLUDE AN ACCESS ROAD.

PERPETUAL UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES. THE EASEMENT WILL EXTEND 12.5 FEET TO EITHER SIDE OF THE EXISTING POWER LINE AND WILL INCLUDE AN ACCESS ROAD.

NOTES:

1. AZIMUTHS AND COORDINATES REFERRED TO GOVERNMENT SURVEY TRIANGULATION STATION "LUKE".
2. THE DASHED LINES DELINEATE THE AREA FOR EACH UNIT AND IS NOT INTENDED TO REPRESENT A LEGALLY SUBDIVIDED LOT.
3. OWNERS OF ADJOINING PARCELS TAKEN FROM RECORDS OF THE REAL PROPERTY MAPPING BRANCH.
4. EASEMENT A-1 (50-FT. WIDE) IS FOR ACCESS PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2B.
5. EASEMENT A-4 IS FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF UNIT 2B AND ITS
6. EASEMENT UNIT 2A SURFACE WATER - UNIT 2A SHALL HAVE AN EASEMENT FOR FLOW AND DISCHARGE OF SURFACE WATER OVER UNIT 2B AS DESCRIBED IN THE DECLARATION.
7. EASEMENT D-5 (85-FT. WIDE) IS FOR DRAINAGE AND ACCESS PURPOSES IN FAVOR OF UNIT 2B, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN, LLC, ITS SUCCESSORS AND ASSIGNS
8. EASEMENT RW-1 IS FOR ACCESS AND ROAD WIDENING PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2B
9. EASEMENT D-6 IS FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2B.

EXHIBIT "A"

SITE PLAN
MAUI ECONOMIC OPPORTUNITY CONDOMINIUM

LOT 2-C 4-C-1 E OF THE FIRST ASSEMBLY OF GOD SUBDIVISION

TAX MAP KEY: (2) 3-8-006: 004

BEING A PORTION OF GRANT 3343 TO CLAUS SPRECKELS

AT PUUNENE, WAILUKU, MAUI, HAWAII

CONDOMINIUM MAP NO. 5149

Owner Alexander & Baldwin, LLC.

Address. P.O. Box 156
Kahului, HI 96733

GRAPHIC SCALE

(IN FEET)
1 inch = 200 ft.

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
501 SUMNER STREET, SUITE 521
HONOLULU, HI 96817

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

LICENSED PROFESSIONAL LAND SURVEYOR
CERTIFICATE No. 9636
EXP. 04/24

MARCH 20, 2023

SHEET 1

MAUI ECONOMIC OPPORTUNITY CONDOMINIUM

UNIT 2C

Being a portion of Lot 2-C-4-C-1-E of The First Assembly of God Subdivision (Subdivision File No. 3.2208), being also a portion of Grant 3343 to Claus Spreckels.

Situate at Puunene, Wailuku, Maui, Hawaii.

Beginning at the Northwest corner of the parcel of land, being also the Northeast corner of Unit 1 of Maui Economic Opportunity Condominium, the coordinates of said point of beginning referred to Government Survey Triangulation Station "LUKE" being 4,019.58 feet South and 15,364.93 feet East thence running by azimuths measured clockwise from true South:

1.	149°	25′	30″	979.71 feet	along Unit 2A of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
2.	245°	10′		1015.06 feet	along Unit 3 of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
3.	155°	10′		955.02 feet	along same;
4.	245°	10′		1474.96 feet	along Lots 2-C-4-C-1-B-1-D and 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels;
					Thence along Lot 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels, on a curve to the right with a radius of 1000 feet, the chord azimuth and distance being:
5.	255°	15′		350.16 feet;	
6.	265°	20′		348.01 feet	along same;

7.	203°	08′		312.58	feet	along same;
8.	214°	57′		20.01	feet	along same;
9.	321°	28′		345.03	feet	along Pulehu Road;
10.	318°	43′		1770.20	feet	along same;
11.	315°	30′		432.54	feet	along same;
						Thence along same, on a curve to the right with a radius of 50.00 feet, the chord azimuth and distance being:
12.	12°	33′	35″	83.92	feet;	
						Thence along Hansen Road, on a curve to the left with a radius of 974.93 feet, the chord azimuth and distance being:
13.	68°	18′	05″	44.85	feet;	
14.	66°	59′		480.00	feet	along same;
						Thence along same, on a curve to the right with a radius of 2844.79, the chord azimuth and distance being:
15.	69°	59′		297.77	feet;	
16.	72°	59′		630.00	feet	along same;
						Thence along same, on a curve to the right with a radius of 696.20 feet, the chord azimuth and distance being:
17.	82°	59′		241.79	feet;	
18.	92°	59′		187.11	feet	along same;
						Thence along same, on a curve to the left with a radius of 736.20 feet, the chord azimuth and distance being:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817-5031
1671 WILI PA LOOP, SUITE A
WAILUKU, MAUI, HAWAII 96793
100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

19.	83°	26′	244.28 feet;	
20.	73°	53′	407.33 feet	along same;
				Thence along same, on a curve to the left with a radius of 378.10 feet, the chord azimuth and distance being:
21.	56°	23′	227.39 feet;	
22.	38°	53′	268.88 feet	along same;
				Thence along same, on a curve to the right with a radius of 389.26 feet, the chord azimuth and distance being:
23.	62°	24′	310.64 feet;	
24.	85°	55′	789.97 feet	along same, to the point of beginning and containing an area of 166.511 Acres.

Description Prepared By:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

ERIK S. KANESHIRO
Licensed Professional Land Surveyor
Certificate No. 9826
Exp. 04/26

Honolulu, Hawaii
December 18, 2024

TMK: (2) 3-8-006: POR. 004
Y:\2022\22-530 Maui Business Park DEF Subdiv\SURVEY\Descriptions\MEO CPR UNIT 2C.docx

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817-5031
1671 WILI PA LOOP, SUITE A
WAILUKU, MAUI, HAWAII 96793
100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

EXHIBIT "3"

ORDINANCE NO. _____

BILL NO. _____ (2025)

A BILL FOR AN ORDINANCE TO CHANGE THE ZONING FROM AGRICULTURAL DISTRICT TO M-1 LIGHT INDUSTRIAL DISTRICT FOR A 166.511-ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, SITUATED AT KAHULUI, MAUI, HAWAI'I

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Under Chapters 19.24 and 19.510, Maui County Code, a Change in Zoning from Agricultural District to M-1 Light Industrial District is granted for a 166.511-acre portion of a parcel identified for Real Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, situated at Kahului, Maui, Hawai'i, as described and depicted in the attached Exhibit "A."

SECTION 2. Under Section 19.06.020, Maui County Code, the Planning Director is directed to amend the Maui island digital zoning map to reflect the Change in Zoning.

SECTION 3. This Ordinance takes effect on approval.

APPROVED AS TO FORM AND LEGALITY:

_____

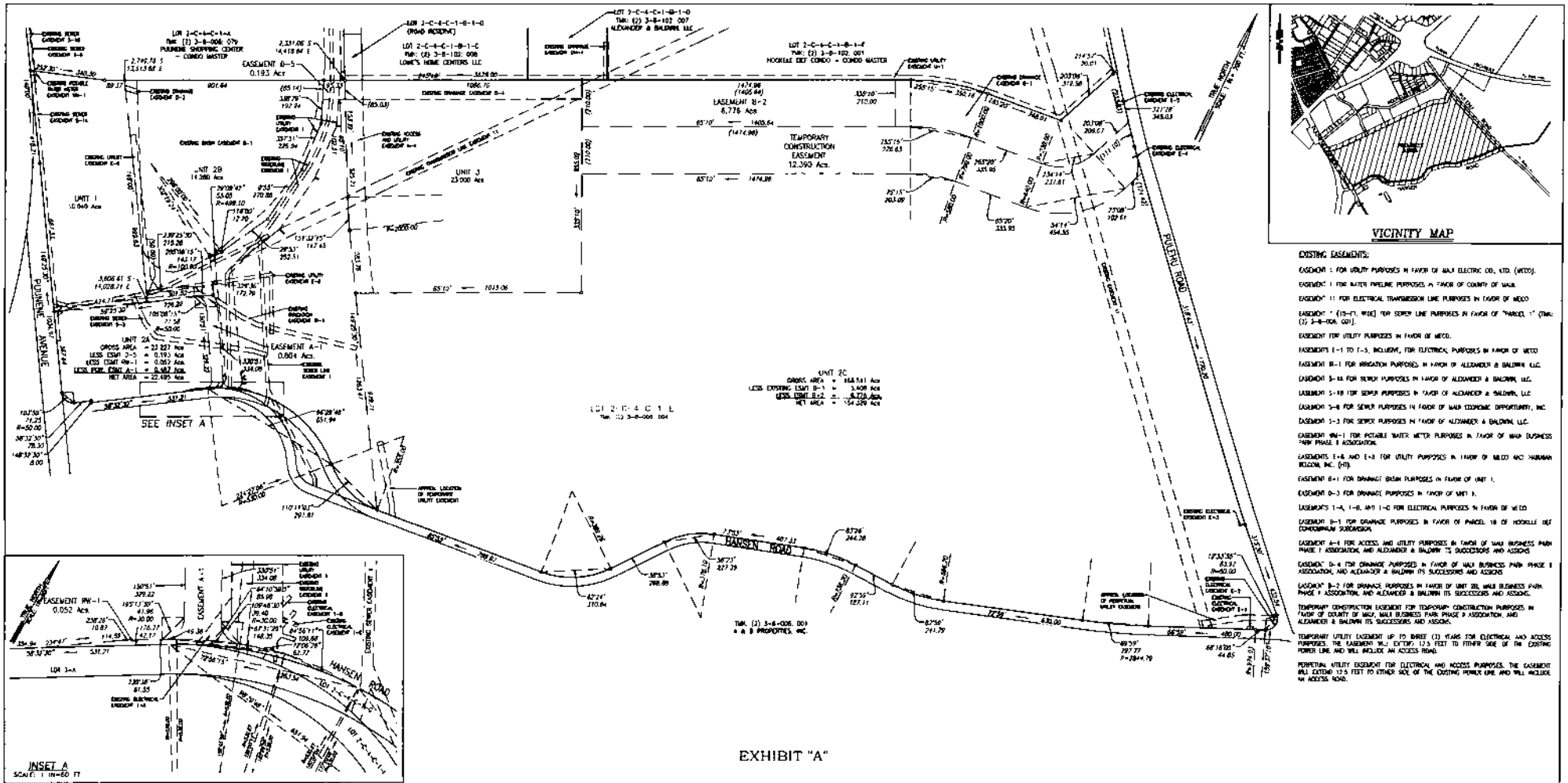
Department of the Corporation Counsel
County of Maui

paf:jpp:25-143d

INTRODUCED BY:

Nohelani Uu-Hodgins

NOHELANI UU-HODGINS



VICINITY MAP

EXISTING EASEMENTS:

EASEMENT 1 FOR UTILITY PURPOSES IN FAVOR OF MAUI ELECTRIC CO., LTD. (MECO).

EASEMENT 1 FOR WATER PIPELINE PURPOSES IN FAVOR OF COUNTY OF MAUI.

EASEMENT 11 FOR ELECTRICAL TRANSMISSION LINE PURPOSES IN FAVOR OF MECO

EASEMENT "I" (15-FT. WIDE) FOR SEWER LINE PURPOSES IN FAVOR OF "PARCEL 1" (TMK: (2) 3-8-006: 001).

EASEMENT FOR UTILITY PURPOSES IN FAVOR OF MECO.

EASEMENTS E-1 TO E-5, INCLUSIVE, FOR ELECTRICAL PURPOSES IN FAVOR OF MECO

EASEMENT IR-1 FOR IRRIGATION PURPOSES, IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT S-4A FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT S-4B FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT S-6 FOR SEWER PURPOSES IN FAVOR OF MAUI ECONOMIC OPPORTUNITY, INC.

EASEMENT S-3 FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT WM-1 FOR POTABLE WATER METER PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION.

EASEMENTS E-6 AND E-8 FOR UTILITY PURPOSES IN FAVOR OF MECO AND HAUBIAN BUILDING, INC. (HTI).

EASEMENT B-1 FOR DRAINAGE BASIN PURPOSES IN FAVOR OF UNIT 1.

EASEMENT D-3 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 1.

EASEMENTS 1-A, 1-B, AND 1-D FOR ELECTRICAL PURPOSES IN FAVOR OF MECO

EASEMENT D-1 FOR DRAINAGE PURPOSES IN FAVOR OF PARCEL 18 OF HOOKELE DEF CONDOMINIUM SUBDIVISION.

EASEMENT A-4 FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE I ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS

EASEMENT D-4 FOR DRAINAGE PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS

EASEMENT B-2 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2B, MAUI BUSINESS PARK PHASE I ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS.

TEMPORARY CONSTRUCTION EASEMENT FOR TEMPORARY CONSTRUCTION PURPOSES, IN FAVOR OF COUNTY OF MAUI, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS.

TEMPORARY UTILITY EASEMENT UP TO THREE (3) YEARS FOR ELECTRICAL AND ACCESS PURPOSES. THE EASEMENT WILL EXTEND 12.5 FEET TO EITHER SIDE OF THE EXISTING POWER LINE AND WILL INCLUDE AN ACCESS ROAD.

PERPETUAL UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES. THE EASEMENT WILL EXTEND 12.5 FEET TO EITHER SIDE OF THE EXISTING POWER LINE AND WILL INCLUDE AN ACCESS ROAD.

NOTES:

1. AZIMUTHS AND COORDINATES REFERRED TO GOVERNMENT SURVEY TRIANGULATION STATION "LINE".
2. THE DASHED LINES DELINEATE THE AREA FOR EACH UNIT AND IS NOT INTENDED TO REPRESENT A LEGALLY SUBDIVIDED LOT.
3. OWNERS OF ADJOINING PARCELS TAKEN FROM RECORDS OF THE REAL PROPERTY MAPPING BRANCH.
4. EASEMENT A-1 (60-FT. WIDE) IS FOR ACCESS PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2B.
5. EASEMENT A-4 IS FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF UNIT 2B AND 2C.
6. EASEMENT UNIT 2A SURFACE WATER - UNIT 2A SHALL HAVE AN EASEMENT FOR FLOW AND DISCHARGE OF SURFACE WATER OVER UNIT 2B AS DESCRIBED IN THE DECLARATION.
7. EASEMENT D-5 (85-FT. WIDE) IS FOR DRAINAGE AND ACCESS PURPOSES IN FAVOR OF UNIT 2B, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN, LLC. ITS SUCCESSORS AND ASSIGNS
8. EASEMENT RW-1 IS FOR ACCESS AND ROAD WIDENING PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2B
9. EASEMENT D-6 IS FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2B.

EXHIBIT "A"

SITE PLAN
MAUI ECONOMIC OPPORTUNITY CONDOMINIUM

LOT 2-C-4-C-1-E OF THE FIRST ASSEMBLY OF GOD SUBDIVISION

TAX MAP KEY: (2) 3-8-006: 004

BEING A PORTION OF GRANT 3343 TO CLAUS SPRECKELS AT PUUNENE, WAILUKU, MAUI, HAWAII

CONDOMINIUM MAP NO. 5149

Owner: Alexander & Baldwin, LLC.

Address: P.O. Box 156
Kahului, HI 96733

GRAPHIC SCALE
(IN FEET)
1 inch = 200 ft.

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
501 SUMNER STREET, SUITE 521
HONOLULU, HI 96817

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

LICENSED PROFESSIONAL LAND SURVEYOR
CERTIFICATE No. 9838
EXP. 04/30

MARCH 20, 2023

SHEET 1

Y:\2022\22-539 Maui Business Park DEF Subdn\SURVEY\DWG\AMENDED MEC EXH 2023-03-20.dwg

ATA AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS • SURVEYORS
1871 WILI PA LOOP SUITE A • WAILUKU, MAUI, HAWAII 96793

24" X 36" = 6.0 SQ. FT.

MAUI ECONOMIC OPPORTUNITY CONDOMINIUM

UNIT 2C

Being a portion of Lot 2-C-4-C-1-E of The First Assembly of God Subdivision (Subdivision File No. 3.2208), being also a portion of Grant 3343 to Claus Spreckels.

Situate at Puunene, Wailuku, Maui, Hawaii.

Beginning at the Northwest corner of the parcel of land, being also the Northeast corner of Unit 1 of Maui Economic Opportunity Condominium, the coordinates of said point of beginning referred to Government Survey Triangulation Station "LUKE" being 4,019.58 feet South and 15,364.93 feet East thence running by azimuths measured clockwise from true South:

1.	149°	25′	30″	979.71 feet	along Unit 2A of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
2.	245°	10′		1015.06 feet	along Unit 3 of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
3.	155°	10′		955.02 feet	along same;
4.	245°	10′		1474.96 feet	along Lots 2-C-4-C-1-B-1-D and 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels;
					Thence along Lot 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels, on a curve to the right with a radius of 1000 feet, the chord azimuth and distance being:
5.	255°	15′		350.16 feet;	
6.	265°	20′		348.01 feet	along same;

7.	203°	08′		312.58 feet	along same;
8.	214°	57′		20.01 feet	along same;
9.	321°	28′		345.03 feet	along Pulehu Road;
10.	318°	43′		1770.20 feet	along same;
11.	315°	30′		432.54 feet	along same;
					Thence along same, on a curve to the right with a radius of 50.00 feet, the chord azimuth and distance being:
12.	12°	33′	35″	83.92 feet;	
					Thence along Hansen Road, on a curve to the left with a radius of 974.93 feet, the chord azimuth and distance being:
13.	68°	18′	05″	44.85 feet;	
14.	66°	59′		480.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 2844.79, the chord azimuth and distance being:
15.	69°	59′		297.77 feet;	
16.	72°	59′		630.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 696.20 feet, the chord azimuth and distance being:
17.	82°	59′		241.79 feet;	
18.	92°	59′		187.11 feet	along same;
					Thence along same, on a curve to the left with a radius of 736.20 feet, the chord azimuth and distance being:

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HILO, HAWAII 96720

19.	83°	26′	244.28 feet;	
20.	73°	53′	407.33 feet	along same;
				Thence along same, on a curve to the left with a radius of 378.10 feet, the chord azimuth and distance being:
21.	56°	23′	227.39 feet;	
22.	38°	53′	268.88 feet	along same;
				Thence along same, on a curve to the right with a radius of 389.26 feet, the chord azimuth and distance being:
23.	62°	24′	310.64 feet;	
24.	85°	55′	789.97 feet	along same, to the point of beginning and containing an area of 166.511 Acres.

Description Prepared By:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

ERIK S. KANESHIRO
Licensed Professional Land Surveyor
Certificate No. 9826
Exp. 04/26

Honolulu, Hawaii
December 18, 2024

TMK: (2) 3-8-006: POR. 004
Y:\2022\22-530 Maui Business Park DEF Subdiv\SURVEY\Descriptions\MEO CPR UNIT 2C.docx

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817-5031
1871 WILI PA LOOP, SUITE A
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100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

COUNCIL OF THE COUNTY OF MAUI

WAILUKU, HAWAII 96793

CERTIFICATION OF ADOPTION

It is HEREBY CERTIFIED that RESOLUTION NO. 25-132, FD1 was adopted by the Council of the County of Maui, State of Hawaii, on the 6th day of June 2025, by the following vote:

MEMBERS	Alice L. LEE Chair	Yuki Lei K. SUGIMURA Vice-Chair	Tom COOK	Natalie A. KAMA	Gabriel L. JOHNSON	Tamara A. M. PALTIN	Keani N. W. RAWLINS-FERNANDEZ	Shane M. SINENCI	Nohelani U'U-HODGINS
ROLL CALL	Aye	Aye	Aye	Aye	Aye	Aye	Aye	Aye	Aye

COUNTY CLERK

EXHIBIT 2

Bills 163, 164, 165

EXHIBIT 2

Bills 163, 164, 165

ORDINANCE NO. _____

BILL NO. 163 (2025)

A BILL FOR AN ORDINANCE TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PULEHU ROAD) BY INCLUDING WITHIN THE URBAN GROWTH BOUNDARY, A 166.511-ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, KAHULUI, HAWAI'I

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. By Resolution 25-132, FD1, adopted on June 6, 2025, the Council referred a proposed bill to amend the Maui Island Plan's Directed Growth Map C5 (Pulehu Road) for a 166.511-acre portion of a parcel identified for Real Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, Kahului, Hawai'i.

Section 8-8.6(2), Revised Charter of the County of Maui (1983), as amended, provides a 120-day period after receipt of the referral within which the planning commission must make its report. By County Communication 192-25, dated September 29, 2025, the Planning Director advised the Council that the Maui Planning Commission cannot provide a recommendation within that timeframe. Under the Charter, the Council may pass the bill without the planning commission's review and report by an affirmative vote of at least two thirds of the Council's entire membership.

SECTION 2. Under Chapter 2.80B, Maui County Code, the Maui Island Plan's Directed Growth Map C5 (Pulehu Road) is amended to include within the Urban Growth Boundary, a 166.511-acre portion of a parcel identified for Real

Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, situated at Kahului, Hawai'i, as described and depicted in the attached Exhibit "A."

SECTION 3. This Ordinance takes effect on approval.

APPROVED AS TO FORM AND LEGALITY:

_____

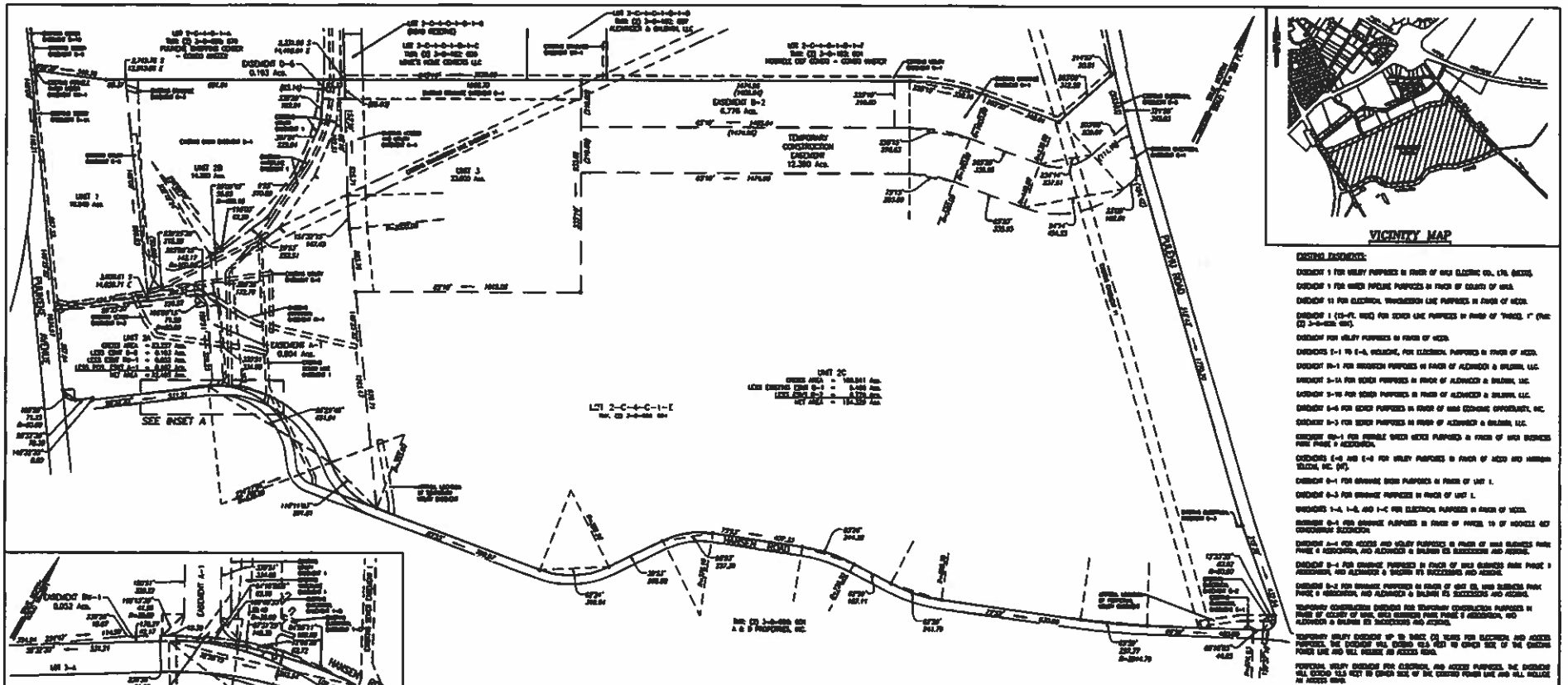
Department of the Corporation Counsel
County of Maui

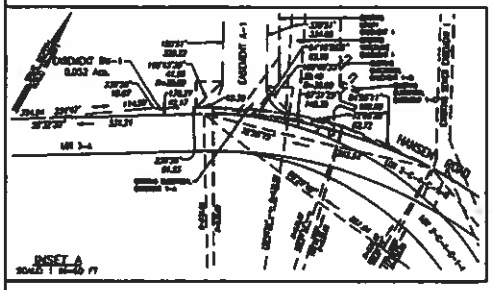
paf:jpp:25-143i

INTRODUCED BY:

Nohelani Uu-Hodgins

NOHELANI U'U-HODGINS





INSET A
SCALE: 1" = 40 FT

VICINITY MAP

EXISTING EASEMENTS:

EASEMENT 1 FOR UTILITY PURPOSES IN FAVOR OF MAUI ELECTRIC CO., LTD. (DOCUMENT)

EASEMENT 2 FOR WATER PIPELINE PURPOSES IN FAVOR OF COUNTY OF MAUI

EASEMENT 10 FOR ELECTRICAL TRANSMISSION LINE PURPOSES IN FAVOR OF HECO

EASEMENT 1 (15-FT. WIDE) FOR SEWER LINE PURPOSES IN FAVOR OF "PARCEL 1" (TMK: (2) 3-8-006: 004)

EASEMENT FOR UTILITY PURPOSES IN FAVOR OF HECO

EASEMENTS 1-1 TO 1-4, INCLUSIVE, FOR ELECTRICAL PURPOSES IN FAVOR OF HECO

EASEMENT 1A-1 FOR DRAINAGE PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT 3-1A FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT 3-1B FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT 5-4 FOR SEWER PURPOSES IN FAVOR OF MAUI ECONOMIC OPPORTUNITY, INC.

EASEMENT 5-3 FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC.

EASEMENT 5A-1 FOR PERPETUAL WATER SERVICE PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION

EASEMENTS 1-4 AND 1-5 FOR UTILITY PURPOSES IN FAVOR OF HECO AND HAWAIIAN TELCOM, INC. (HT)

EASEMENT B-1 FOR DRAINAGE DITCH PURPOSES IN FAVOR OF UNIT 1.

EASEMENT B-3 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 1.

EASEMENTS 1-A, 1-B, AND 1-C FOR ELECTRICAL PURPOSES IN FAVOR OF HECO.

EASEMENT B-1 FOR DRAINAGE PURPOSES IN FAVOR OF PHASE 1B OF HOOKELE AT CONDOMINIUM ASSOCIATION

EASEMENT A-1 FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS.

EASEMENT B-1 FOR DRAINAGE PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS.

EASEMENT B-2 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2D, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS.

TEMPORARY CONSTRUCTION EASEMENT FOR TEMPORARY CONSTRUCTION PURPOSES IN FAVOR OF COUNTY OF MAUI, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN ITS SUCCESSORS AND ASSIGNS.

TEMPORARY UTILITY EASEMENT OF 30 BASIC (3) WIRES FOR ELECTRICAL AND ACCESS PURPOSES, THE EASEMENT WILL EXTEND 10.0 FEET TO EITHER SIDE OF THE CENTER POWER LINE AND WILL ENABLE AN ACCESS ROAD.

PERPETUAL UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES, THE EASEMENT WILL EXTEND 12.5 FEET TO EITHER SIDE OF THE CENTER POWER LINE AND WILL ENABLE AN ACCESS ROAD.

NOTES:

1. ALIGNING AND EASEMENTS REFERRED TO HEREINAFTER SURVEY TRANSLATION STATION "LINE" A.
2. THE DASHED LINES SEPARATE THE AREA FOR EACH UNIT AND IS NOT INTENDED TO REPRESENT A LEGALLY SUBDIVIDED LOT.
3. DISTANCE OF ADJOINING PARCELS TAKEN FROM RECORDS OF THE REAL PROPERTY TAX OFFICE.
4. EASEMENT A-1 (30-FT. WIDE) IS FOR ACCESS PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2B.
5. EASEMENT A-4 IS FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF UNIT 2B AND 2C.
6. EASEMENT UNIT 2A SURFACE WATER – UNIT 2A SHALL HAVE AN EASEMENT FOR FLOW AND EXCHANGE OF SURFACE WATER WITH UNIT 2B AS DESCRIBED IN THE DECLARATION.
7. EASEMENT B-2 (20-FT. WIDE) IS FOR DRAINAGE AND ACCESS PURPOSES IN FAVOR OF UNIT 2B, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN, LLC. ITS SUCCESSORS AND ASSIGNS.
8. EASEMENT 5A-1 IS FOR ACCESS AND ROAD WIDENING PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2B.
9. EASEMENT B-4 IS FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2B.

EXHIBIT "A"

SITE PLAN
MAUI ECONOMIC OPPORTUNITY CONDOMINIUM
LOT 2-C-4-C-1-E OF THE FIRST ASSEMBLY OF GOD SUBDIVISION
TAX MAP KEY: (2) 3-8-006: 004
BEING A PORTION OF GRANT 3343 TO CLAUS SPRECKELS
AT PUUNENE, WAILUKU, MAUI, HAWAII

CONDOMINIUM MAP NO. 5149

Owner: Alexander & Baldwin, LLC.

Address: P.O. Box 156
Kahului, HI 96733

GRAPHIC SCALE
(IN FEET)
1 inch = 200 ft.

LICENSED PROFESSIONAL LAND SURVEYOR
CERTIFICATE No. 9566
EXP. 04/30

MARCH 30, 2023

SHEET 1

24" x 36" – 6.0 SQ. FT.

MAUI ECONOMIC OPPORTUNITY CONDOMINIUM

UNIT 2C

Being a portion of Lot 2-C-4-C-1-E of The First Assembly of God Subdivision (Subdivision File No. 3.2208), being also a portion of Grant 3343 to Claus Spreckels.

Situate at Puunene, Wailuku, Maui, Hawaii.

Beginning at the Northwest corner of the parcel of land, being also the Northeast corner of Unit 1 of Maui Economic Opportunity Condominium, the coordinates of said point of beginning referred to Government Survey Triangulation Station "LUKE" being 4,019.58 feet South and 15,364.93 feet East thence running by azimuths measured clockwise from true South:

1.	149°	25′	30″	979.71 feet	along Unit 2A of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
2.	245°	10′		1015.06 feet	along Unit 3 of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
3.	155°	10′		955.02 feet	along same;
4.	245°	10′		1474.96 feet	along Lots 2-C-4-C-1-B-1-D and 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels; Thence along Lot 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels, on a curve to the right with a radius of 1000 feet, the chord azimuth and distance being:
5.	255°	15′		350.16 feet;	
6.	265°	20′		348.01 feet	along same;

7.	203°	08′		312.58 feet	along same;
8.	214°	57′		20.01 feet	along same;
9.	321°	28′		345.03 feet	along Pulehu Road;
10.	318°	43′		1770.20 feet	along same;
11.	315°	30′		432.54 feet	along same;
					Thence along same, on a curve to the right with a radius of 50.00 feet, the chord azimuth and distance being:
12.	12°	33′	35″	83.92 feet;	
					Thence along Hansen Road, on a curve to the left with a radius of 974.93 feet, the chord azimuth and distance being:
13.	68°	18′	05″	44.85 feet;	
14.	66°	59′		480.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 2844.79, the chord azimuth and distance being:
15.	69°	59′		297.77 feet;	
16.	72°	59′		630.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 696.20 feet, the chord azimuth and distance being:
17.	82°	59′		241.79 feet;	
18.	92°	59′		187.11 feet	along same;
					Thence along same, on a curve to the left with a radius of 736.20 feet, the chord azimuth and distance being:

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WAILUKU, MAUI, HAWAII 96793
100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

19.	83°	26′	244.28 feet;	
20.	73°	53′	407.33 feet	along same;
				Thence along same, on a curve to the left with a radius of 378.10 feet, the chord azimuth and distance being:
21.	56°	23′	227.39 feet;	
22.	38°	53′	268.88 feet	along same;
				Thence along same, on a curve to the right with a radius of 389.26 feet, the chord azimuth and distance being:
23.	62°	24′	310.64 feet;	
24.	85°	55′	789.97 feet	along same, to the point of beginning and containing an area of 166.511 Acres.

Description Prepared By:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

ERIK S. KANESHIRO
Licensed Professional Land Surveyor
Certificate No. 9826
Exp. 04/26

Honolulu, Hawaii
December 18, 2024

TMK: (2) 3-8-006: POR. 004
Y:\2022\22-530 Maui Business Park DEF Subdiv\SURVEY\Descriptions\MEO CPR UNIT 2C.docx

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817-5031
1871 WILI PA LOOP, SUITE A
WAILUKU, MAUI, HAWAII 96793
100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

ORDINANCE NO. _____

BILL NO. 164 (2025)

A BILL FOR AN ORDINANCE TO AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION FROM AGRICULTURE TO BUSINESS/MULTI-FAMILY FOR A 166.511-ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, SITUATED AT KAHULUI, HAWAI'I

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. By Resolution 25-132, FD1, adopted on June 6, 2025, the Council referred a proposed bill to amend the Wailuku-Kahului Community Plan designation from Agriculture to Business/Multi-Family for a 166.511-acre portion of a parcel identified for Real Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, Kahului, Hawai'i.

Section 8-8.6(2), Revised Charter of the County of Maui (1983), as amended, provides a 120-day period after receipt of the referral within which the planning commission must make its report. By County Communication 192-25, dated September 29, 2025, the Planning Director advised the Council that the Maui Planning Commission cannot provide a recommendation within that timeframe. Under the Charter, the Council may pass the bill without the planning commission's review and report by an affirmative vote of at least two thirds of the Council's entire membership.

SECTION 2. Under Chapter 2.80B, Maui County Code, the Wailuku-Kahului Community Plan designation is amended from Agriculture to

Business/Multi-Family for a 166.511-acre portion of a parcel identified for Real Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, situated at Kahului, Hawai'i, as described and depicted in the attached Exhibit "A."

SECTION 3. This Ordinance takes effect on approval.

APPROVED AS TO FORM AND LEGALITY:

_____

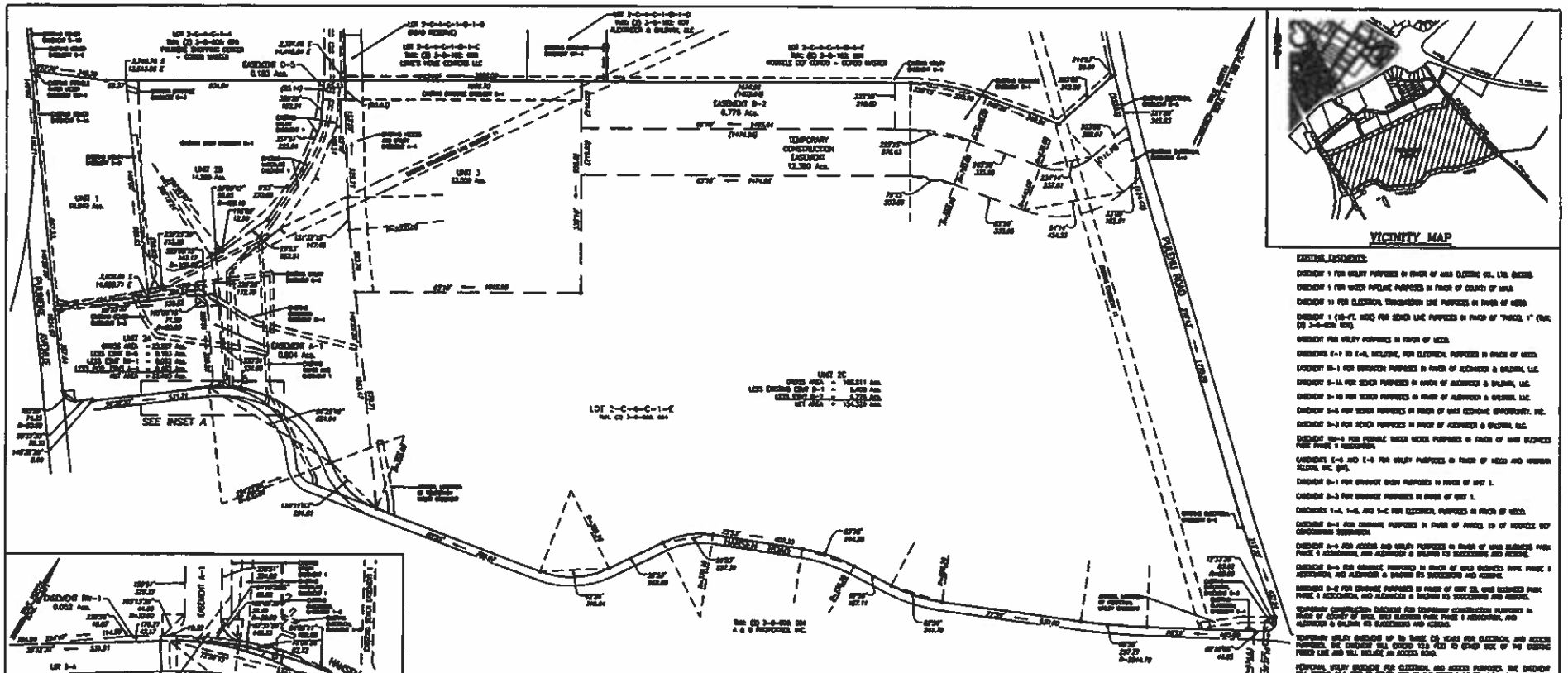
Department of the Corporation Counsel
County of Maui

paf:jpp:25-143j

INTRODUCED BY:

Nohelani U'u-Hodgins

NOHELANI U'U-HODGINS



VICINITY MAP

EXISTING EASEMENTS:

EASEMENT 1 FOR UTILITY PURPOSES IN FAVOR OF MAUI ELECTRIC CO., LTD. (DOCUMENT NO. [illegible])

EASEMENT 2 FOR WATER PIPELINE PURPOSES IN FAVOR OF COUNTY OF MAUI

EASEMENT 11 FOR ELECTRICAL TRANSMISSION LINE PURPOSES IN FAVOR OF HECO

EASEMENT 1 (50-FT. WIDE) FOR SEWER LINE PURPOSES IN FAVOR OF "PARCEL 1" (TMK: (2) 3-8-006: 003)

EASEMENT FOR UTILITY PURPOSES IN FAVOR OF HECO

EASEMENTS 1-1 TO 1-4, INCLUSIVE, FOR ELECTRICAL PURPOSES IN FAVOR OF HECO

EASEMENT B-1 FOR DRAINAGE PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC

EASEMENT D-1A FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC

EASEMENT D-1B FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC

EASEMENT D-2 FOR SEWER PURPOSES IN FAVOR OF MAUI ECONOMIC OPPORTUNITY, INC.

EASEMENT D-3 FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC

EASEMENT W-1 FOR POTABLE WATER MAIN PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE 1 ASSOCIATION

EASEMENTS 1-5 AND 1-6 FOR UTILITY PURPOSES IN FAVOR OF HECO AND HAWAIIAN TELCOM, INC. (BY)

EASEMENT D-1 FOR DRAINAGE DITCH PURPOSES IN FAVOR OF UNIT 1

EASEMENT D-3 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 1

EASEMENTS 1-4, 1-5, AND 1-6 FOR ELECTRICAL PURPOSES IN FAVOR OF HECO

EASEMENT D-1 FOR DRAINAGE PURPOSES IN FAVOR OF PARCEL 10 OF MONTAGE 807 CONDOMINIUM ASSOCIATION

EASEMENT A-4 FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE 1 ASSOCIATION, AND ALEXANDER & BALDWIN, LLC, AS SUCCESSORS AND ASSIGNS

EASEMENT D-4 FOR DRAINAGE PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE 1 ASSOCIATION, AND ALEXANDER & BALDWIN, LLC, AS SUCCESSORS AND ASSIGNS

EASEMENT D-2 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2B, MAUI BUSINESS PARK PHASE 1 ASSOCIATION, AND ALEXANDER & BALDWIN, LLC, AS SUCCESSORS AND ASSIGNS

TEMPORARY CONSTRUCTION EASEMENT FOR TEMPORARY CONSTRUCTION PURPOSES IN FAVOR OF COUNTY OF MAUI, MAUI BUSINESS PARK PHASE 1 ASSOCIATION, AND ALEXANDER & BALDWIN, LLC, AS SUCCESSORS AND ASSIGNS

EXPANSION UTILITY EASEMENT UP TO THREE (3) POLES FOR ELECTRICAL AND ACCESS PURPOSES, THE EASEMENT SHALL EXTEND 12.5 FEET TO EITHER SIDE OF THE EXISTING POWER LINE AND WILL INCLUDE AN ACCESS ROAD.

PERPETUAL UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES, THE EASEMENT SHALL EXTEND 12.5 FEET TO EITHER SIDE OF THE EXISTING POWER LINE AND WILL INCLUDE AN ACCESS ROAD.

NOTES:

1. AZIMUTHS AND COORDINATES REFERRED TO GRID/NORTH ZONE 3 NORTH, NAD 83 (1993) AS DERIVED BY GPS OBSERVATIONS AND ARE BASED ON THE DEPARTMENT OF LAND MANAGEMENT SURVEY TRAVERSE STATION "LAHE".
2. THE DASHED LINES ENCLOSING THE AREA FOR EACH UNIT AND IS NOT INTENDED TO REPRESENT A LEGALLY SUBDIVIDED LOT.
3. OWNERS OF ADJOINING PARCELS TAKEN FROM RECORDS OF THE REAL PROPERTY ASSESSMENT DIVISION.
4. EASEMENT A-1 (50-FT. WIDE) IS FOR ACCESS PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2A.
5. EASEMENT A-4 IS FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF UNIT 2B AND 2C.
6. EASEMENT UNIT 2A (SURFACE WATER - UNIT 2A SHALL HAVE AN EASEMENT FOR FLOW AND DISCHARGE OF SURFACE WATER OVER UNIT 2B AS DESCRIBED IN THE DECLARATION.
7. EASEMENT D-4 (20-FT. WIDE) IS FOR DRAINAGE AND ACCESS PURPOSES IN FAVOR OF UNIT 2B, MAUI BUSINESS PARK PHASE 1 ASSOCIATION, AND ALEXANDER & BALDWIN, LLC, AS SUCCESSORS AND ASSIGNS.
8. EASEMENT W-1 IS FOR ACCESS AND WATER MAIN PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2B.
9. EASEMENT D-1 IS FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2B.

EXHIBIT "A"

SITE PLAN
MAUI ECONOMIC OPPORTUNITY CONDOMINIUM
LOT 2-C-4-C-1-E OF THE FIRST ASSEMBLY OF GOD SUBDIVISION
TAX MAP KEY: (2) 3-8-006: 004
BEING A PORTION OF GRANT 3343 TO CLAUS SPRECKELS
AT PUUNENE, WAILUKU, MAUI, HAWAII

CONDOMINIUM MAP NO. 5149

Owner: Alexander & Baldwin, LLC.

Address: P.O. Box 156
Kahului, HI 96733

GRAPHIC SCALE

(IN FEET)
1 inch = 200 ft.

MARCH 30, 2023
SHEET 1
24" x 36" = 6.6 SQ. FT.

MAUI ECONOMIC OPPORTUNITY CONDOMINIUM

UNIT 2C

Being a portion of Lot 2-C-4-C-1-E of The First Assembly of God Subdivision (Subdivision File No. 3.2208), being also a portion of Grant 3343 to Claus Spreckels.

Situate at Puunene, Wailuku, Maui, Hawaii.

Beginning at the Northwest corner of the parcel of land, being also the Northeast corner of Unit 1 of Maui Economic Opportunity Condominium, the coordinates of said point of beginning referred to Government Survey Triangulation Station "LUKE" being 4,019.58 feet South and 15,364.93 feet East thence running by azimuths measured clockwise from true South:

1.	149°	25′	30″	979.71 feet	along Unit 2A of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
2.	245°	10′		1015.06 feet	along Unit 3 of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
3.	155°	10′		955.02 feet	along same;
4.	245°	10′		1474.96 feet	along Lots 2-C-4-C-1-B-1-D and 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels;
					Thence along Lot 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels, on a curve to the right with a radius of 1000 feet, the chord azimuth and distance being:
5.	255°	15′		350.16 feet;	
6.	265°	20′		348.01 feet	along same;

7.	203°	08′		312.58 feet	along same;
8.	214°	57′		20.01 feet	along same;
9.	321°	28′		345.03 feet	along Pulehu Road;
10.	318°	43′		1770.20 feet	along same;
11.	315°	30′		432.54 feet	along same;
					Thence along same, on a curve to the right with a radius of 50.00 feet, the chord azimuth and distance being:
12.	12°	33′	35″	83.92 feet;	
					Thence along Hansen Road, on a curve to the left with a radius of 974.93 feet, the chord azimuth and distance being:
13.	68°	18′	05″	44.85 feet;	
14.	66°	59′		480.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 2844.79, the chord azimuth and distance being:
15.	69°	59′		297.77 feet;	
16.	72°	59′		630.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 696.20 feet, the chord azimuth and distance being:
17.	82°	59′		241.79 feet;	
18.	92°	59′		187.11 feet	along same;
					Thence along same, on a curve to the left with a radius of 736.20 feet, the chord azimuth and distance being:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817-5031
1671 WILI PA LOOP, SUITE A
WAILUKU, MAUI, HAWAII 96793
100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

19.	83°	26′	244.28 feet;	
20.	73°	53′	407.33 feet	along same;
				Thence along same, on a curve to the left with a radius of 378.10 feet, the chord azimuth and distance being:
21.	56°	23′	227.39 feet;	
22.	38°	53′	268.88 feet	along same;
				Thence along same, on a curve to the right with a radius of 389.26 feet, the chord azimuth and distance being:
23.	62°	24′	310.64 feet;	
24.	85°	55′	789.97 feet	along same, to the point of beginning and containing an area of 166.511 Acres.

Description Prepared By:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

ERIK S. KANESHIRO
Licensed Professional Land Surveyor
Certificate No. 9826
Exp. 04/26

Honolulu, Hawaii
December 18, 2024

TMK: (2) 3-8-006: POR. 004
Y:\2022\22-530 Maui Business Park DEF Subdiv\SURVEY\Descriptions\MEO CPR UNIT 2C.docx

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817-5031
1871 WILI PA LOOP, SUITE A
WAILUKU, MAUI, HAWAII 96793
100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

ORDINANCE NO. _____

BILL NO. 165 (2025)

A BILL FOR AN ORDINANCE TO CHANGE THE ZONING FROM AGRICULTURAL DISTRICT TO M-1 LIGHT INDUSTRIAL DISTRICT FOR A 166.511-ACRE PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TAX MAP KEY (2) 3-8-006:004-0005, SITUATED AT KAHULUI, HAWAIʻI

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. By Resolution 25-132, FD1, adopted on June 6, 2025, the Council referred a proposed bill to change the zoning from Agricultural District to M-1 Light Industrial District for a 166.511-acre portion of a parcel identified for Real Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, Kahului, Hawaiʻi.

Section 8-8.6(2), Revised Charter of the County of Maui (1983), as amended, provides a 120-day period after receipt of the referral within which the planning commission must make its report. By County Communication 192-25, dated September 29, 2025, the Planning Director advised the Council that the Maui Planning Commission cannot provide a recommendation within that timeframe. Under the Charter, the Council may pass the bill without the planning commission's review and report by an affirmative vote of at least two thirds of the Council's entire membership.

SECTION 2. Under Chapters 19.24 and 19.510, Maui County Code, a Change in Zoning from Agricultural District to M-1 Light Industrial District is

granted for a 166.511-acre portion of a parcel identified for Real Property Tax purposes as Tax Map Key (2) 3-8-006:004-0005, situated at Kahului, Hawai'i, as described and depicted in the attached Exhibit "A."

SECTION 3. This Ordinance takes effect on approval.

APPROVED AS TO FORM AND LEGALITY:

Department of the Corporation Counsel
County of Maui

paf:jpp:25-143k

INTRODUCED BY:

Nohelani U'u-Hodgins

NOHELANI U'U-HODGINS

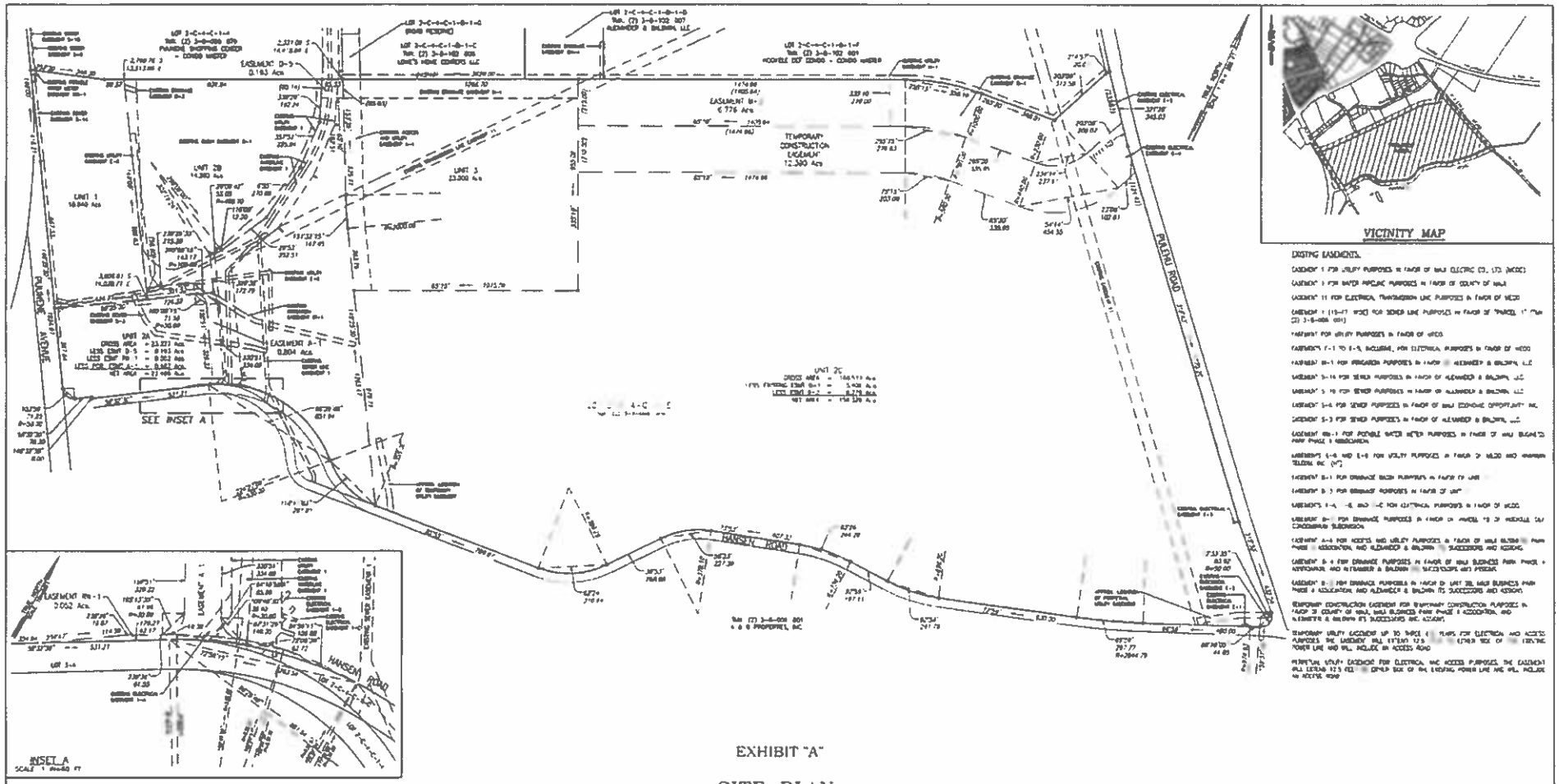


EXHIBIT "A"

SITE PLAN
MAUI ECONOMIC OPPORTUNITY CONDOMINIUM
LOT 2-C-4-C-1-E OF THE FIRST ASSEMBLY OF GOD SUBDIVISION
TAX MAP KEY: (2) 3-8-006: 004
BEING A PORTION OF GRANT 3343 TO CLAUS SPRECKELS
AT PUUNENE, WAILUKU, MAUI, HAWAII

CONDOMINIUM MAP NO. 5149

Owner: Alexander & Baldwin, LLC

Address: P.O. Box 156
Kahului, HI 96733

GRAPHIC SCALE
(IN FEET)
1 inch = 200 ft.

EXISTING EASEMENTS:

EASEMENT 1 FOR UTILITY PURPOSES IN FAVOR OF MAUI ELECTRIC CO., LTD. (MECO)

EASEMENT 3 FOR WATER PIPELINE PURPOSES IN FAVOR OF COUNTY OF MAUI

EASEMENT 11 FOR ELECTRICAL TRANSMISSION LINE PURPOSES IN FAVOR OF MECO

EASEMENT 1 (15-FT WIDE) FOR SEWER LINE PURPOSES IN FAVOR OF PARCEL 1 ("Tax (2) 3-8-006: 001)

EASEMENT FOR UTILITY PURPOSES IN FAVOR OF MECO

EASEMENT E-1 TO E-5, INCLUSIVE, FOR ELECTRICAL PURPOSES IN FAVOR OF MECO

EASEMENT W-1 FOR IRRIGATION PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC

EASEMENT S-16 FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC

EASEMENT S-16 FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC

EASEMENT S-4 FOR SEWER PURPOSES IN FAVOR OF MAUI ECONOMIC OPPORTUNITY, INC.

EASEMENT S-3 FOR SEWER PURPOSES IN FAVOR OF ALEXANDER & BALDWIN, LLC

EASEMENT W-1 FOR POTABLE WATER METER PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION

EASEMENTS E-6 AND E-8 FOR UTILITY PURPOSES IN FAVOR OF MECO AND HAWAIIAN TELCOM INC. (HT)

EASEMENT D-1 FOR DRAINAGE DITCH PURPOSES IN FAVOR OF UNIT

EASEMENT D-3 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT

EASEMENT E-4, -6, AND -8 FOR ELECTRICAL PURPOSES IN FAVOR OF MECO

EASEMENT D-1 FOR DRAINAGE PURPOSES IN FAVOR OF PARCEL 19 OF HANSEN TAI CONDOMINIUM SUBDIVISION

EASEMENT A-4 FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN, LLC, ITS SUCCESSORS AND ASSIGNS

EASEMENT D-4 FOR DRAINAGE PURPOSES IN FAVOR OF MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN, LLC, ITS SUCCESSORS AND ASSIGNS

EASEMENT D-5 FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2B, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN, ITS SUCCESSORS AND ASSIGNS

TEMPORARY CONSTRUCTION EASEMENT FOR TEMPORARY CONSTRUCTION PURPOSES IN FAVOR OF COUNTY OF MAUI, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN, ITS SUCCESSORS AND ASSIGNS

TEMPORARY UTILITY EASEMENT UP TO THREE (3) POLES FOR ELECTRICAL AND ACCESS PURPOSES, THE EASEMENT WILL EXTEND 12.5 FEET (25 FEET TOTAL) EACH SIDE OF THE EXISTING POWER LINE AND WILL INCLUDE AN ACCESS ROAD

PERMANENT UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES, THE EASEMENT WILL EXTEND 12.5 FEET (25 FEET TOTAL) EACH SIDE OF THE EXISTING POWER LINE AND WILL INCLUDE AN ACCESS ROAD

NOTES:

1. AREAS AND DIMENSIONS ARE SHOWN TO CONFORM TO SURVEY "ENGINEERING STATION LINE" A.
2. THE DASHED LINES DELINEATE THE AREA FOR EACH UNIT AND IS NOT INTENDED TO REPRESENT A LEGALLY SUBDIVIDED LOT
3. OWNERS OF ADJOINING PARCELS SHOWN FROM RECORDS OF THE REAL PROPERTY ASSESSMENT DIVISION
4. EASEMENT A-1 (50 FT. WIDE) IS FOR ACCESS PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2B
5. EASEMENT A-4 IS FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF UNIT 2B AND 2C
6. EASEMENT UNIT 2B SURFACE WATER - UNIT 2A SHALL HAVE AN EASEMENT FOR FLOW AND DISCHARGE OF SURFACE WATER OVER UNIT 2B AS DESCRIBED IN THE DECLARATION
7. EASEMENT D-5 (25-FT WIDE) IS FOR DRAINAGE AND ACCESS PURPOSES IN FAVOR OF UNIT 2B, MAUI BUSINESS PARK PHASE II ASSOCIATION, AND ALEXANDER & BALDWIN, LLC, ITS SUCCESSORS AND ASSIGNS
8. EASEMENT W-1 IS FOR ACCESS AND ROAD WIDENING PURPOSES IN FAVOR OF UNIT 1 AND UNIT 2A
9. EASEMENT D-4 IS FOR DRAINAGE PURPOSES IN FAVOR OF UNIT 2B

MARCH 30, 2021
SHEET 1 OF 1 SHEETS

Y:\2021\21-530 Maui Business Park DEF Subdiv\SURVEY\DWG\MICHOED MED CPM 2021-03-30.dwg

MUNEKIYO, TAIRABENE & ARAKAWA, INC. DBA MUNEKIYO & HIRAGA, INC. SURVEYING

24" x 36" = 0.0 SQ. FT.

MAUI ECONOMIC OPPORTUNITY CONDOMINIUM

UNIT 2C

Being a portion of Lot 2-C-4-C-1-E of The First Assembly of God Subdivision (Subdivision File No. 3.2208), being also a portion of Grant 3343 to Claus Spreckels.

Situate at Puunene, Wailuku, Maui, Hawaii.

Beginning at the Northwest corner of the parcel of land, being also the Northeast corner of Unit 1 of Maui Economic Opportunity Condominium, the coordinates of said point of beginning referred to Government Survey Triangulation Station "LUKE" being 4,019.58 feet South and 15,364.93 feet East thence running by azimuths measured clockwise from true South:

1.	149°	25′	30″	979.71 feet	along Unit 2A of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
2.	245°	10′		1015.06 feet	along Unit 3 of Maui Economic Opportunity Condominium, also along the remainder of Grant 3343 to Claus Spreckels;
3.	155°	10′		955.02 feet	along same;
4.	245°	10′		1474.96 feet	along Lots 2-C-4-C-1-B-1-D and 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels;
					Thence along Lot 2-C-4-C-1-B-1-F of The First Assembly of God Subdivision, also along the remainder of Grant 3343 to Claus Spreckels, on a curve to the right with a radius of 1000 feet, the chord azimuth and distance being:
5.	255°	15′		350.16 feet;	
6.	265°	20′		348.01 feet	along same;

7.	203°	08′		312.58 feet	along same;
8.	214°	57′		20.01 feet	along same;
9.	321°	28′		345.03 feet	along Pulehu Road;
10.	318°	43′		1770.20 feet	along same;
11.	315°	30′		432.54 feet	along same;
					Thence along same, on a curve to the right with a radius of 50.00 feet, the chord azimuth and distance being:
12.	12°	33′	35″	83.92 feet;	
					Thence along Hansen Road, on a curve to the left with a radius of 974.93 feet, the chord azimuth and distance being:
13.	68°	18′	05″	44.85 feet;	
14.	66°	59′		480.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 2844.79, the chord azimuth and distance being:
15.	69°	59′		297.77 feet;	
16.	72°	59′		630.00 feet	along same;
					Thence along same, on a curve to the right with a radius of 696.20 feet, the chord azimuth and distance being:
17.	82°	59′		241.79 feet;	
18.	92°	59′		187.11 feet	along same;
					Thence along same, on a curve to the left with a radius of 736.20 feet, the chord azimuth and distance being:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817-5031
1871 WILI PA LOOP, SUITE A
WAILUKU, MAUI, HAWAII 96793
100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

19.	83°	26′	244.28 feet;	
20.	73°	53′	407.33 feet	along same;
				Thence along same, on a curve to the left with a radius of 378.10 feet, the chord azimuth and distance being:
21.	56°	23′	227.39 feet;	
22.	38°	53′	268.88 feet	along same;
				Thence along same, on a curve to the right with a radius of 389.26 feet, the chord azimuth and distance being:
23.	62°	24′	310.64 feet;	
24.	85°	55′	789.97 feet	along same, to the point of beginning and containing an area of 166.511 Acres.

Description Prepared By:

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

ERIK S. KANESHIRO
Licensed Professional Land Surveyor
Certificate No. 9826
Exp. 04/26

Honolulu, Hawaii
December 18, 2024

TMK: (2) 3-8-006: POR. 004
Y:\2022\22-530 Maui Business Park DEF Subdiv\SURVEY\Descriptions\MEO CPR UNIT 2C.docx

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
501 SUMNER STREET, SUITE 521
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1871 WILI PA LOOP, SUITE A
WAILUKU, MAUI, HAWAII 96793
100 PAUAHI STREET, SUITE 213
HILO, HAWAII 96720

DRIP Committee

From:	DRIP Committee
Sent:	Wednesday, October 22, 2025 9:52 AM
To:	CorpCounselRFLS@co.maui.hi.us
Cc:	DRIP Committee
Subject:	(OCS) (DRIP-19); reply by 11/3/25
Attachments:	019acc01 signed.pdf

EXHIBIT 3

Revised Maps for MIP and CPA

Council Chair
Alice L. Lee

Vice-Chair
Yuki Lei K. Sugimura

Councilmembers
Tom Cook
Gabe Johnson
Tamara Paltin
Keani N.W. Rawlins-Fernandez
Shane M. Sinenci
Nohelani U'u-Hodgins

COUNTY COUNCIL
COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.MauiCounty.us

Director of Council Services
David M. Raatz, Jr., Esq.

Deputy Director of Council Services
Richelle K. Kawasaki, Esq.

December 22, 2025

Ms. Kate Blystone, Director
Department of Planning
County of Maui
Wailuku, Hawaii 96793

Dear Ms. Blystone:

SUBJECT: **BILL 163 (2025), BILL 164 (2025), AND BILL 165 (2025), TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PULEHU ROAD), AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION, AND CHANGE THE ZONING FOR 166.511 ACRES SITUATED AT KAHULUI, HAWAI'I (HO'ONANI VILLAGE)** (DRIP-19)

Thank you for participating in the Council's Disaster Recovery, International Affairs, and Planning Committee's meetings on Bills 163, 164, and 165 (2025) on November 5 and 6, 2025.

The DRIP Committee recommended passage of Bills 163 and 164 on first reading, relating to the Maui Island Plan amendment and Community Plan amendment, respectively. The Committee then requested the landowner's representative provide Maui Island Plan and Community Plan maps.

Maps returned by the representative showed discrepancies. According to the maps, a 3.068-acre portion of the property is already within the MIP Urban Growth Boundary and bears a Heavy Industrial Community Plan designation. Because this information was inconsistent with the bills the Committee considered, I sent follow-up questions to the representative by correspondence dated December 11, 2025. The representative's response, with the questions restated, is attached, along with the two maps.

The representative confirmed that the landowner is now seeking a Maui Island Plan amendment and Community Plan amendment for 163.443 acres,

rather than 166.511 acres. No MIP amendment is being sought for the 3.068 acres.

Additionally, the representative noted that the 3.068-acre portion of the property is zoned Agricultural and that the proposed Change in Zoning from Agricultural District to M-1 Light Industrial District is still for the entire 166.511 acres.

May I please request that you provide a copy of this correspondence to the Maui Planning Commission and advise the Commission of the 3.068-acre decrease in property size for the requested Maui Island Plan and Community Plan amendments, as a part of its consideration at the scheduled public hearing on January 13, 2026. If sufficient time remains, may I also request that your analysis be adjusted accordingly—particularly as it applies to alignment of requested land use designations.

May I further request that you insert the appropriate map numbers and, if appropriate, the public hearing date, and return the numbered maps to drip.committee@mauicounty.us. The proposed Land Zoning map will be transmitted to you upon receipt from the landowner's representative.

Should you have any questions, please contact me or the Committee staff (Jarret Pascual at ext. 7141, or Yvette Bouthillier at ext. 7758).

Sincerely,

Tamara A.M. Paltin

TAMARA PALTIN, Chair
Disaster Recovery, International Affairs,
and Planning Committee

drip:ltr:019apl03:jpp

Attachments

cc: Mayor Richard T. Bissen, Jr.

Paul M. Ueoka
paul@wslmaui.com

Jeffrey T. Ueoka
jeff@wslmaui.com

WELLS STREET LAW

A Limited Liability Law Company

(808) 481-4210

2145 Wells Street
Suite 406
Wailuku, Hawaii 96793

USPS Mailing Address:
P.O. Box 733
Wailuku, Hawaii 96793

December 15, 2025

Via email to drip.committee@mauicounty.us

Tamara Paltin, Chair
Disaster Recovery, International Affairs,
And Planning Committee
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

Re: DRIP-19
Bill 163 (2025), Bill 164 (2025), and Bill 165 (2025)
Response to December 11, 2025 Letter

Dear Chair Paltin,

We are in receipt of your letter dated December 11, 2025. We offer the following responses:

1. **The Maui Island Plan map shows that a 3.068-acre portion of the property is already in the Urban Growth Boundary. When taken out of the property's gross area of 166.511 acres, the net area is 163.443 acres. Please confirm that the map is correct and whether Bill 163 should be revised to seek an amendment for 163.443 acres only.**

   Confirming that the map is correct and Bill 163 should be revised to seek an amendment for 163.443 acres only.

2. **The Community Plan map shows that this 3.068-acre portion of the property has a Heavy Industrial Community Plan designation. As you know, Bill 164 seeks a Community Plan Amendment for 166.511 acres from Agriculture to Business/Multi-Family. Please advise if the landowner is seeking a Community Plan Amendment for the 163.443 acres only.**

   Landowner is seeking a Community Plan Amendment for the 163.443 acres only.

3. Please confirm the zoning for the 3.068-acre portion of the property. Please also advise if the property's Change in Zoning from Agricultural District to M-1 Light Industrial District is for the entire 166.511 acres or for the 163.443 acres only. Please also provide the Land Zoning Map depicting the proposed Change in Zoning.

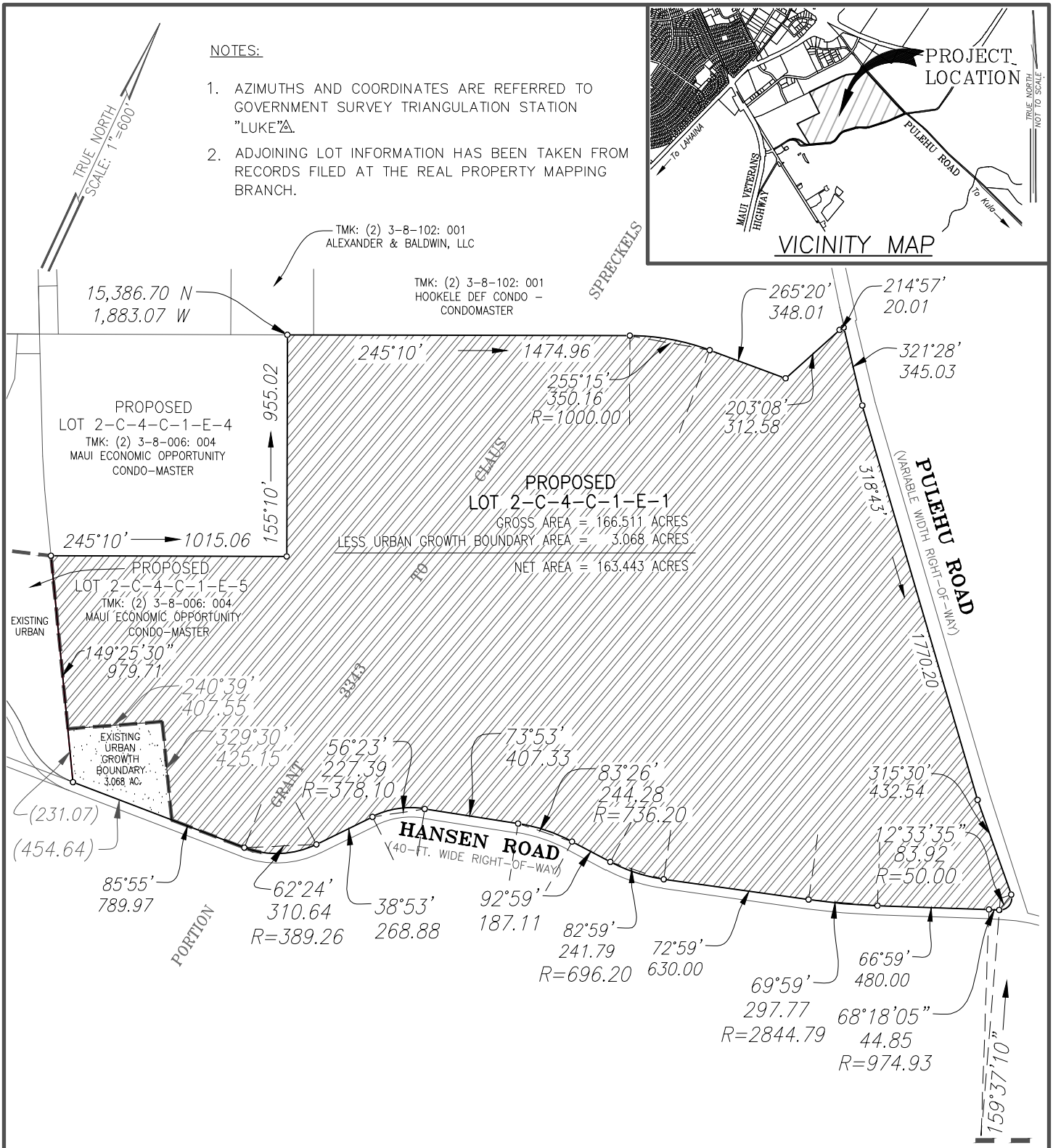
The zoning for the 3.068-acre portion of the property is Agricultural. The property's Change in Zoning from Agricultural District to M-1 Light Industrial District is for the entire 166.511 acres.

We are working with our surveyor on the preparation of a Land Zoning Map depicting the proposed Change in Zoning and will transmit to the DRIP Committee upon receipt.

We appreciate your attention to this matter and please feel free to contact me with any questions or concerns.

Sincerely,

Jeffrey Ueoka



MAUI ISLAND PLAN DIRECTED GROWTH MAP AMENDMENT NO. ____

URBAN GROWTH BOUNDARY AMENDMENT - PUUNENE, MAUI, HAWAII

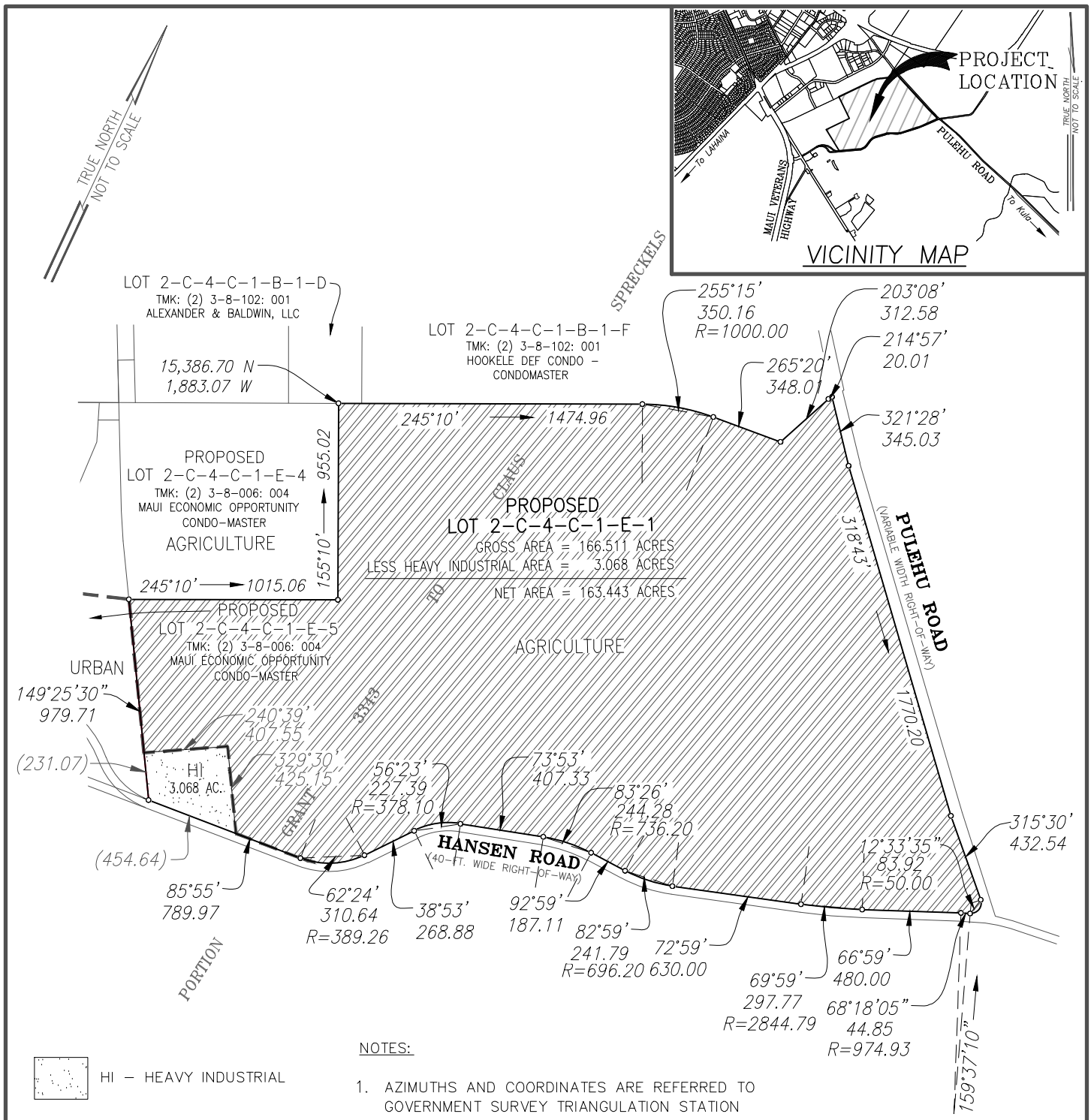
APPROVAL: _____ County Clerk	PUBLIC HEARING DATE: ADOPTED BY COUNTY COUNCIL: ADOPTED BY MAYOR: ORDINANCE NO.
APPROVAL: _____ Planning Director	DATE: SCALE: 1" = 600'

OFFICE OF THE COUNTY CLERK
200 S. HIGH ST. WAILUKU, MAUI, HAWAII, 96793
MIP-

LAND
TMK: (2) 3-8-006: POR. 004

AREA
163.443 ACRES

EXHIBIT " "



HI – HEAVY INDUSTRIAL

NOTES:

1. AZIMUTHS AND COORDINATES ARE REFERRED TO GOVERNMENT SURVEY TRIANGULATION STATION "LUKEI".
2. ADJOINING LOT INFORMATION HAS BEEN TAKEN FROM RECORDS FILED AT THE REAL PROPERTY MAPPING BRANCH.

DATE: 12/10/2025

TAX MAP KEY

TMK: (2) 3-8-006: POR. 004

AREA

163.443 ACRES

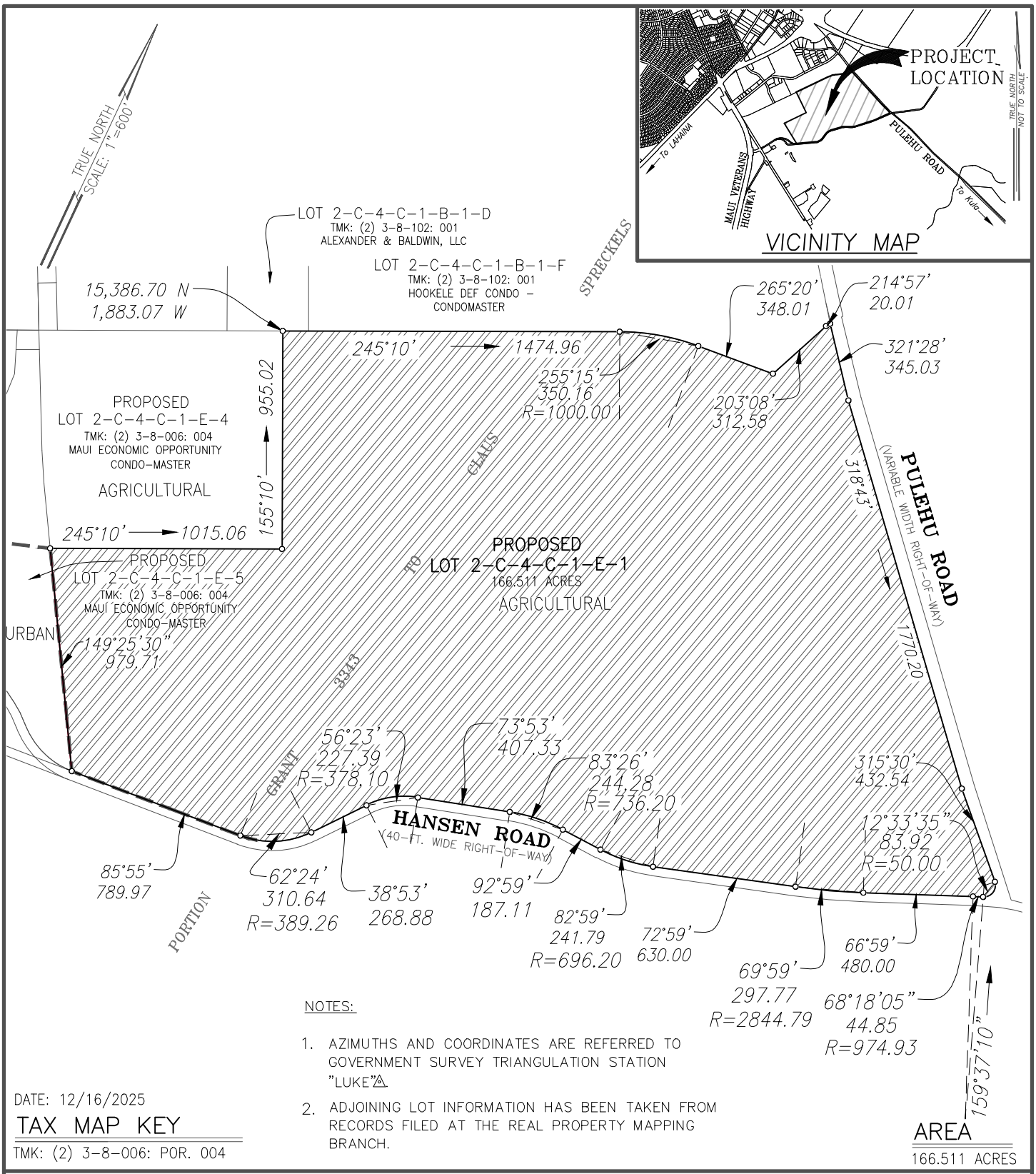
COMMUNITY PLAN MAP NO. CP-____

COMMUNITY PLAN AMENDMENT - PUUNENE, MAUI, HAWAII
FROM AGRICULTURE TO BUSINESS/MULTI-FAMILY

EXHIBIT "_"

EXHIBIT 4

Zoning Map



NOTES:

1. AZIMUTHS AND COORDINATES ARE REFERRED TO GOVERNMENT SURVEY TRIANGULATION STATION "LUKE".
2. ADJOINING LOT INFORMATION HAS BEEN TAKEN FROM RECORDS FILED AT THE REAL PROPERTY MAPPING BRANCH.

DATE: 12/16/2025

TAX MAP KEY

TMK: (2) 3-8-006: POR. 004

AREA

166.511 ACRES

LAND ZONING MAP NO. L- ____

CHANGE IN ZONING - PUUNENE, MAUI, HAWAII

FROM AGRICULTURAL DISTRICT TO M-1 LIGHT INDUSTRIAL DISTRICT

EXHIBIT "_"

EXHIBIT 5

Ho‘onani Village Presentation Slides

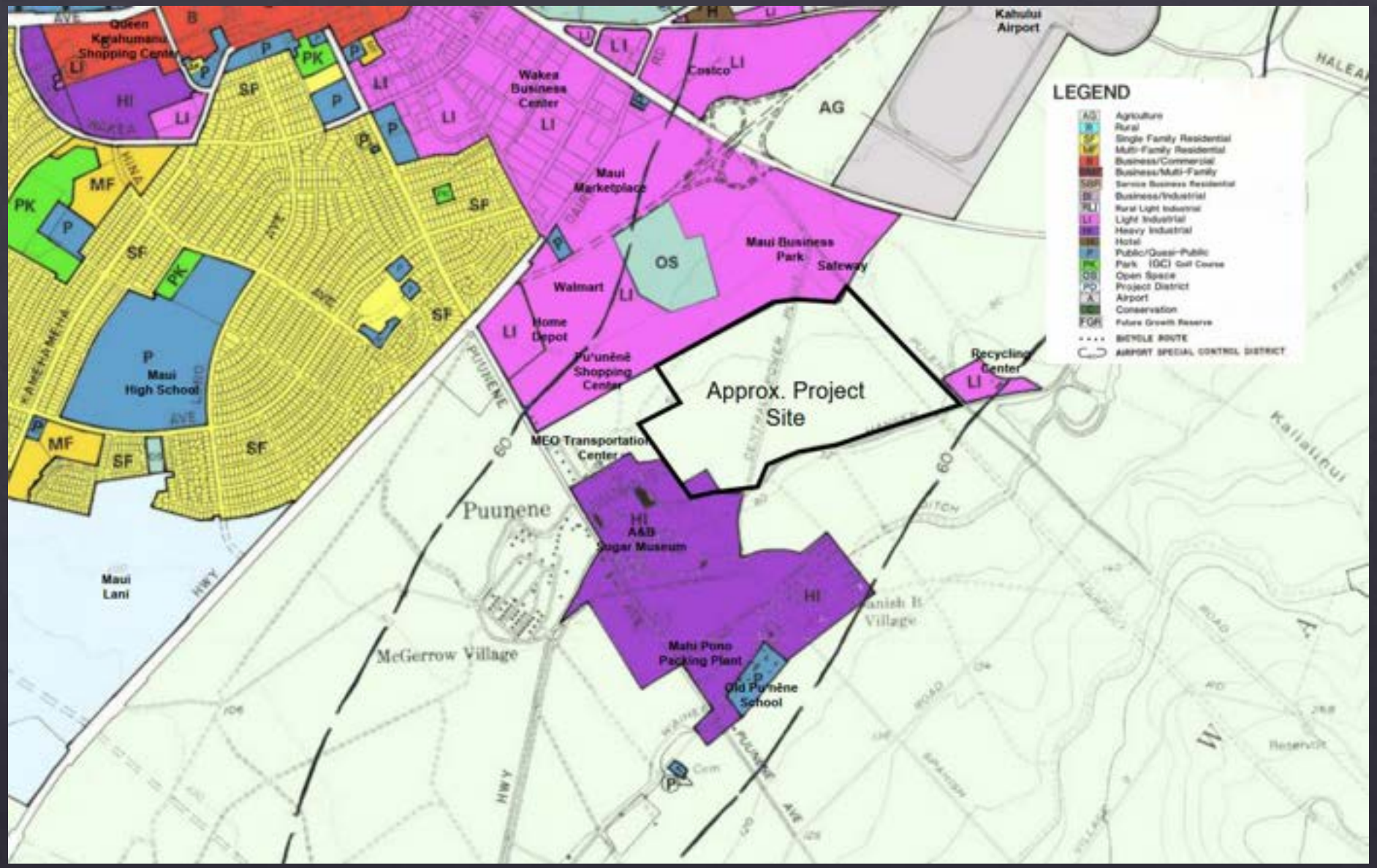
HOʻONANI VILLAGE

A Vision for Sustainable Community Growth

Island Plan Growth Boundary, Community Plan Amendment, County Zoning

- Maui Island Plan: Urban Growth Boundary Expansion
- Community Plan Amendment: Ag to Business/Multi-family
- Change in Zoning: Ag/Heavy Industrial to M-1 Light Industrial

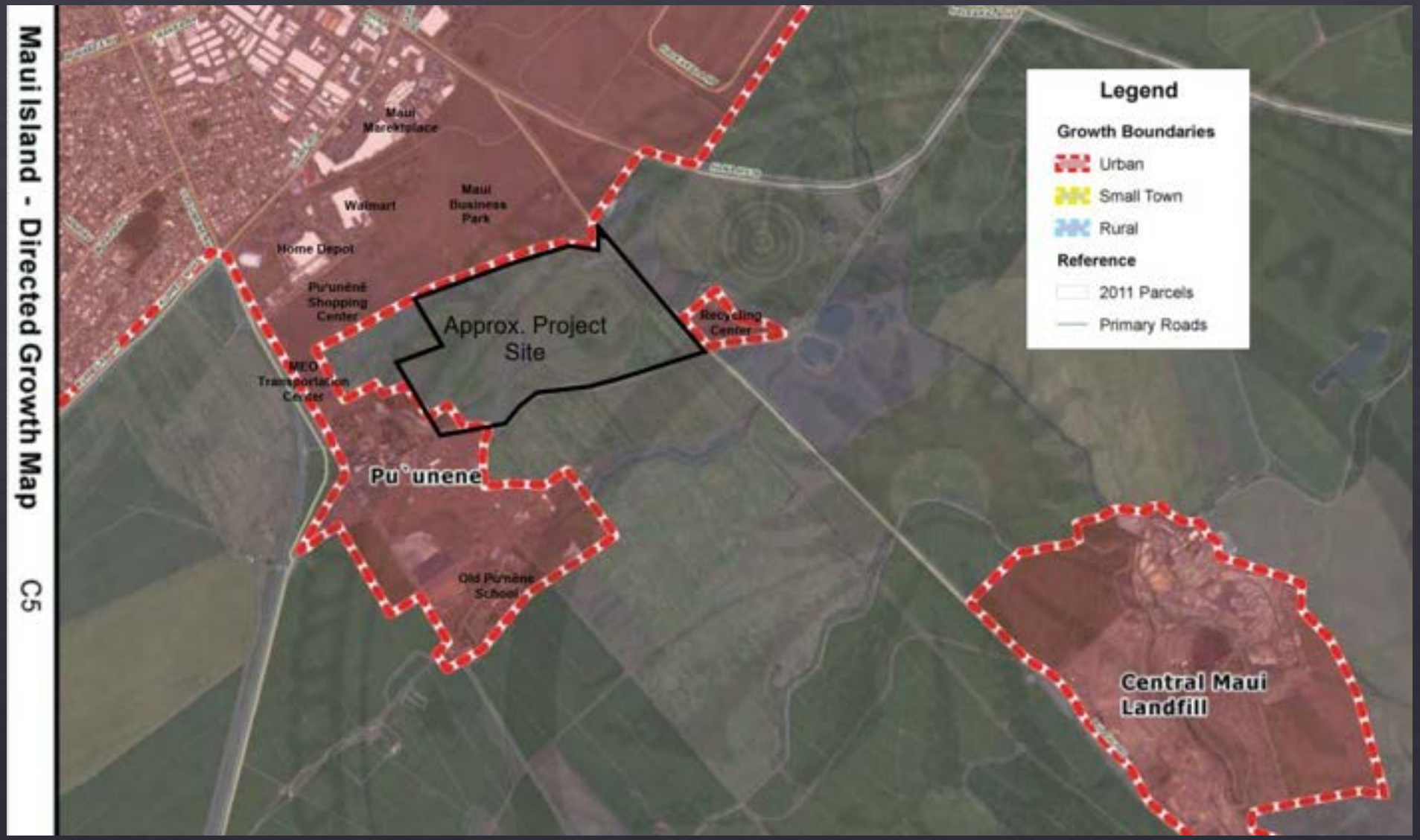
Wailuku-Kahului Community Plan



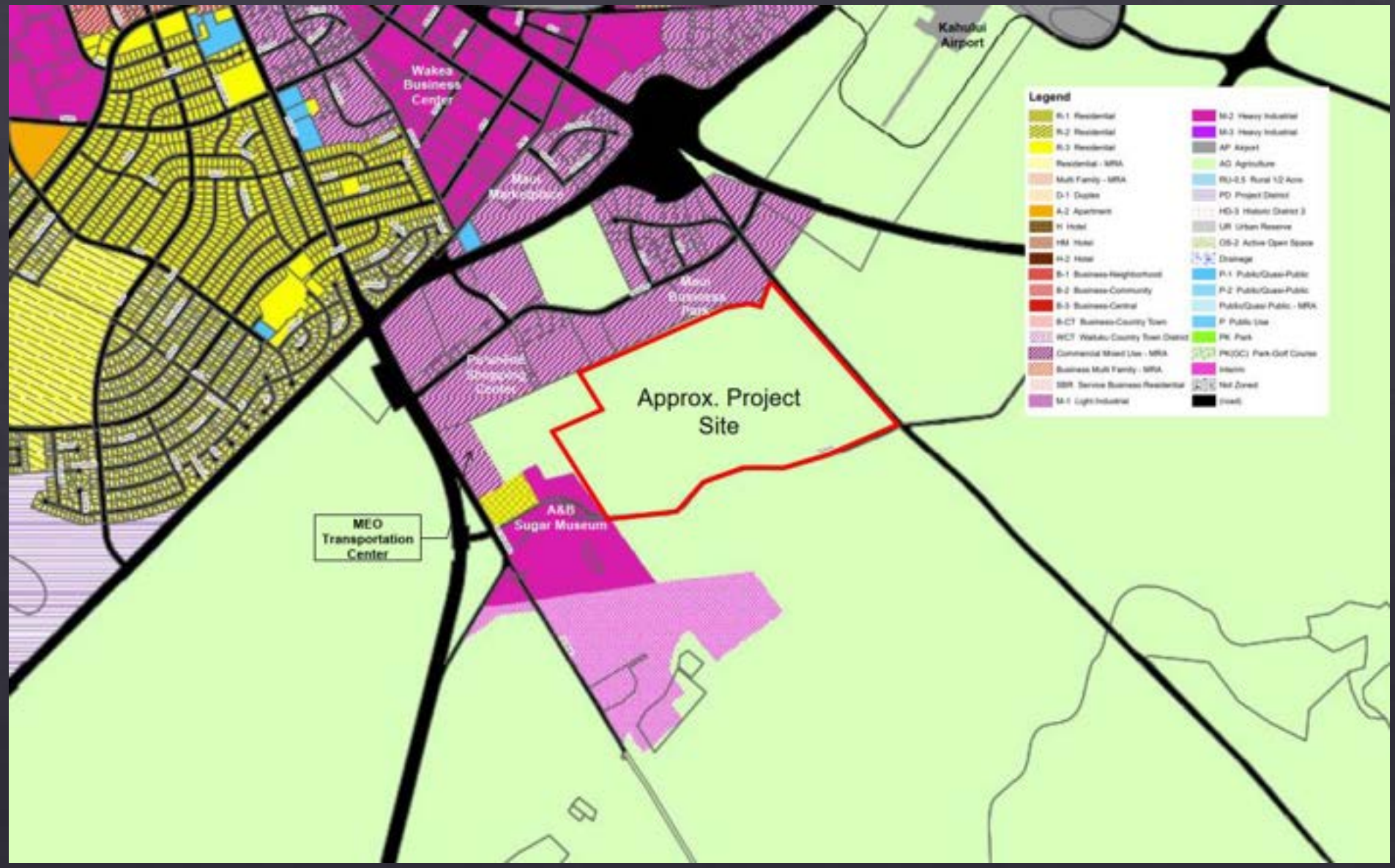
Business/Multi-Family Community Plan Designation

- Wailuku-Kahului Community Plan (2002)
- This includes a mixture of retail, office, and commercial services which are oriented to neighborhood service and single family and multi-family residential uses
- Designation to be updated in the forthcoming Central Maui Community Plan Update

Maui Island Plan Growth Boundaries



County Zoning



M-1 Light Industrial Zoning

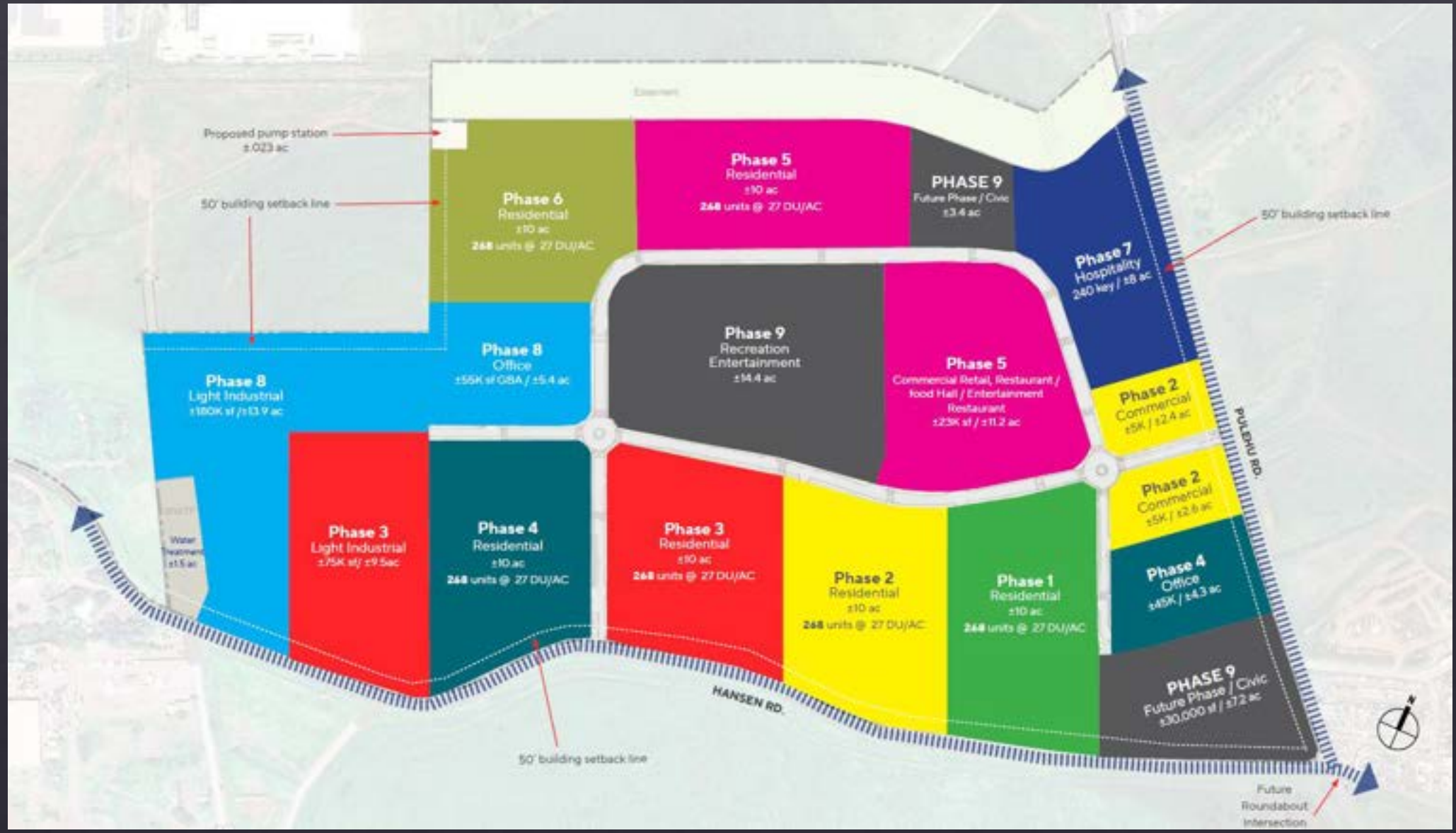
- Any use permitted in a B-1, B-2, or B-3 business district **EXCEPT** single family dwellings, duplexes, bungalow courts, short-term rental homes, and transient vacation rentals
- B-2 & B-3 allows Multifamily dwellings
  - "Multifamily dwelling unit" means a building or portion thereof which consists of three or more dwelling units and which is designed for occupancy by three or more families living independently of each other.
- Allows for an assortment of business related permitted uses

Hoʻonani: Vision

- 1,608 Multi-family Units
- Commercial, office, retail, hospitality, light industrial uses
- Open Space, outdoor amphitheater, civic uses
- Restaurants and Outdoor Areas
- Community gathering places

- Project objectives drafted to help prepare the alternatives analysis ranking:
  - Housing opportunities for Maui residents across a range of income levels near existing services and job opportunities.
  - Commercial business and industrial spaces for local businesses to operate and expand.
  - Creates *authentic* community and gathering places for locals. We honor the history, culture, and connection to Central Maui.

Preliminary Site Plan



Phases

Land Use Summary - 2025.10.24

uses	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	PHASE 9 / PHASE PARCEL	TOTAL KEYS	TOTAL GBA	TOTAL PARCEL ACREAGE	TOTAL UNIT
Multi-Family													
Market Rate Multi-Family (Walk-up) 7	268	268	268	268	268	268							**1408**
Affordable Multi-Family (Walk -up) 7				Part of 268		part of 268							TBD
Acreage	10	10	10	10	10	10						**60**	
Commercial & Others													
Commercial Retail & Restaurant 1		10,000			23,000						**33,000**	**16.2**	
Food Hall 2					7,000						**7,000**	(Part of 16.2)	
Entertainment Space 3					5,000						**5,000**	(Part of 16.2)	
Light Industrial Park 4			75,000					180,000			**255,000**	**23.4**	
Office Building 5				45,000				55,000			**100,000**	**9.7**	
Hospitality 6							240*			**240***		**8.0**	
Future Phase Commercial / Civic 9									30,000		**30,000**	**7.2**	
Future Phase (Recreation / Entertainment / Park) 8									TBD		TBD	**14.4**	
Future Phase / Civic 9									TBD		TBD	**3.4**	
Parcel Acreage		5	9.5	4.3	11.2		8	19.3	25			82.3	
Total										240*	**430,000**	**142**	**1608**

* Dual-brand Hotels site with shared common amenities; Circulation major ROW, water treatment and pump station site area are excluded

Features

- Unit Mix
  - Studios, 1, 2, and 3 Bedrooms
- Parking
  - Provided as required by code
  - Parking rates and traffic management will be implemented via studies and best practices
- Laundry Facilities Onsite
- Water Use
  - 925k / day at Full Buildout
  - 680k / day R-1 at Full Buildout
- Schools
  - Kahului Elementary
  - Maui Waena
  - Maui High School
- Transit Oriented Design
  - Walkable Neighborhoods
  - Bicycle Routes Throughout
  - Improvements to Hansen and Pulehu
  - Bus Stops
    - Working with County Department of Transportation to confirm interest and possible routes
- Photovoltaics
  - Yes, as feasible and allowable
- County Park
  - Working with the County to provide land for civic uses, possibly a community center

Schools and Parks

Estimated Timeline

- **February 2026 – January 2027**: Phase I Design.
- **January 2028:** Phase I Building Permit Issued.*
- **January 2028– June 2029:** Phase I Construction to Substantial Completion.
- **June 2028 – June 2029**: Phase II Design.
- **July 2030 – December 2031:** Phase II Construction to Substantial Completion.
- **December 2031 – December 2032:** Phase III Design.
- **January 2033– June 2034:** Phase III Construction to Substantial Completion.
- **June 2033 – June 2034:** Phase IV & V Design.
- **July 2035 – December 2036:** Phase IV Construction to Substantial Completion (Office).
- **July 2035 – December 2036:** Phase V Construction to Substantial Completion.
- **December 2035 – December 2036:** Phase VI & VII Design.
- **January 2037– June 2038:** Phase VI Construction to Substantial Completion.
- **January 2037– June 2038:** Phase VII Construction to Substantial Completion.
- **June 2037 – June 2038:** Phase VIII Design.
- **July 2039 – December 2040:** Phase VIII Construction to Substantial Completion.
- **December 2039 – December 2040:** Phase IX Design.
- **January 2041– June 2042:** Phase IX Construction to Substantial Completion.

- **If 201-H is approved, Building Permit could be issued as early as Q1 of 2027.*

Required Permits & Approvals

- **State of Hawai‘i:**
- Chapter 343, Hawai’i Revised Statutes (HRS), Environmental Impact Statement
- State Land Use Commission District Boundary Amendment
- Chapter 6E, HRS, Historic Preservation Compliance
- National Pollutant Discharge Elimination System (NPDES) Permit
- Noise Permit, as applicable
- Section 401 Water Quality Certification, as applicable (if DA permit required)
- Well Permit for off-site water source (if applicable)
- Pump Modification Permit (if applicable)
- Wastewater Permit with the Department of Health for the W.W.T.P. (if applicable).
- Department of Health
- CWRM
- Energy Code

- **County of Maui:**
- Residential Workforce Housing Requirements
- Subdivision
  - Traffic
  - Roadways
  - Sidewalks
  - Drainage
- County Council Initiated Maui Island Plan Amendment
- County Council Initiated Community Plan Amendment
- County Council Initiated Change In Zoning
- Fire
- Building Permits
- Grading, Accessories & Sitework (including off-site improvements)
- County Right of Way (Roadway)
- Electrical Permit
- Plumbing Permit

Zoning Criteria (19.510.040, MCC)

- Community Plan Amendment (CPA) is being pursued concurrently to redesignate the area as "Business/Multi-Family" consistent with the project's intended development pattern. Upon concurrent adoption of the CPA, the proposed M-1 zoning will be consistent with the updated Community Plan Land Use Map, fulfilling County requirements for plan and zoning conformance.
- The proposed request meets the intent of the general plan and the objectives and policies of the community plans of the county
- The proposed request is consistent with the applicable community plan land use map of the county
- The proposed request meets the intent and purpose of the district being requested
- The application, if granted, would not adversely affect or interfere with public or private schools, parks, playgrounds, water systems, sewage and solid waste disposal, drainage, roadway and transportation systems, or other public requirements, conveniences and improvements

Zoning Application Information (19.510.010, MCC)

Policies and objectives of the general plan, the provisions of the community plan

- The proposed change in zoning from Agricultural to M-1 Light Industrial supports the policies and objectives of the Maui County General Plan and Wailuku-Kahului Community Plan by directing growth toward existing urban areas, promoting economic diversification, and providing housing and employment opportunities in proximity to similar uses.
- The project site is located adjacent to the established industrial and commercial corridor of Kahului, consistent with community plan objectives to expand industrial activity near the airport and harbor. Reclassification to M-1 will allow for compatible light industrial, office, commercial and residential uses that align with the General Plan's goals for a balanced, sustainable economy and efficient land use pattern.
- The proposed zoning district meets the intent of the M-1 designation by accommodating low-impact industrial, commercial and housing in an appropriately serviced area with planned access, drainage, and wastewater systems that ensure environmental protection and public health.
- Granting the zoning change will bring the property's use into greater conformity with County growth policies by converting underutilized former agricultural land into a well-planned, employment-generating district that supports the island's long-term social, economic, and infrastructure objectives.

Land Use History

- The project site encompasses approximately 166.5 acres located at the northwest corner of Hansen Road and Pūlehu Road in Kahului, Maui. Historically, the site has been limited to plantation agriculture and related uses.
- From the late 19th century through the mid-20th century, the project area was fully integrated into Claus Spreckels' sugarcane enterprise, which was later subsumed into the Hawaiian Commercial & Sugar Company (HC&S). Historical maps dating from 1885 through 1955 clearly depict the presence of sugarcane fields, railroad lines, irrigation ditches, and associated infrastructure.
- Aerial imagery from the 1950s further corroborates this transformation, showing that the area was actively cultivated and structured for plantation operations.
- Following the closure of HC&S operations in 2016, ownership of the land transferred from Alexander & Baldwin, Inc. (A&B) to the current landowner and project applicant.
- Since that time, the property has remained undeveloped, fallow agricultural land. The site is currently designated Agricultural by the State Land Use Commission (LUC), consistent with its historical use.
- The County zoning for the parcel is Agricultural (Ag). There are no known State or County land use violations associated with the property.

Archaeological & Historical Data

- An archaeological literature review report was prepared for the project by Honua Consulting, in addition to a cultural impact assessment (CIA).
- The archaeological report noted that previous archaeological surveys that included portions of the project area have only identified historic-period sites related to commercial (plantation) agriculture.
- Due to over a century of sugar cane cultivation and the installation and use of related infrastructure (e.g., roads, ditches, fence lines, railroads and reservoirs), no traditional (pre-Contact) Hawaiian site-features have been identified in or near the current project area.
- The CIA concluded that there are no identified traditional or customary Native Hawaiian practices currently taking place within the project site, but recommended use of native and canoe plants for landscaping.
- Consultation with OHA and DLNR SHPD pending

Anticipated Secondary Impacts (Positives)

- The Hoʻonani Village project would provide several beneficial outcomes that are part of the positive cumulative impact, including the removal of non-native vegetation and the introduction of native and canoe plants, consistent with the County of Maui's landscaping guidelines for the area.
- The proposed development will also reduce areas susceptible to wildfire hazards, illegal dumping, homeless camps and invasive species.
- The proposed development will create an available water source and wastewater treatment facility that could be utilized to serve other landowners in the area. These resources are very limited in the County of Maui and would be very beneficial for the adjacent property owners.
- The Proposed Action is anticipated to increase State and County revenues, thereby enhancing the capacity to support community facilities and public services.
- The Hoʻonani Village project will function as a genuine community gathering place, featuring cultural programming, local entertainment, dining and retail amenities, and site improvements that highlight both the properties and the island of Maui's natural character and Hawaiian cultural heritage.
- This vision for the site reflects and addresses many concerns in the Wailuku/Kahului Community Plan and the Maui Island Plan, supports stakeholder goals to celebrate local culture and history of the area, and achieves a balanced integration of economic development, cultural preservation, and public access that outweighs potential adverse effects.
- The vacant site currently provides little existing visual benefits to the community. Additionally, the choice to keep the buildings to 3 stories or less will preserve the existing visual resources including Haleakalā and the West Maui Mountains.

Anticipated Secondary Impacts (Requiring Mitigation)

- These include, but are not limited to, increases in vehicular traffic and associated use of pedestrian, bicycle, and transit facilities; greater demand for potable water, wastewater treatment, electrical power, drainage infrastructure, solid waste and recycling services; as well as increases in residential and traffic-related noise, air pollutant emissions, and greenhouse gas emissions resulting from transportation, construction, and energy generation activities.
- Additional cumulative demands are expected on public schools, recreational facilities, and public safety services, including police, fire protection, and emergency medical response.

Traffic

- Ho‘onani Village project is designed with the mindset of creating a place for the Maui community to live, work and play; a place to grow together and thrive.
- In efforts to achieve this, the site plan is designed for the residents of the project to be able to access the Town Center and various commercial areas without the need to drive.
- Pedestrian facilities including the sidewalks and multi-use paths are located adjacent to all interior streets and are protected by the proposed curbs, planter strips and traffic calming measures.
- Additionally, pedestrian walking paths will be located throughout the Town Center to provide active open space for the residents and visitors to Ho‘onani Village, and to connect the various commercial uses.
- The Ho‘onani Village site plan will create a very walkable community.
- TIAR will need to be updated, there will be coordination with DPW and HDOT on improvements.

Impact on Agriculture

- An Agricultural Impact Assessment was prepared by Plasch Econ Pacific LLC. to assess the potential impact of the proposed project on the availability of productive agricultural lands on Maui.
- Approximately 90 percent of land on Maui is designated Agriculture or Conservation. The conversion of this 166.5-acre parcel will reduce the island's supply of high-quality farmland by just 0.23%.
- The proposed project will have minimal to no effect on the agriculture of the island of Maui. While the site is technically classified as "prime" under some soil systems, it is no longer practically viable for agriculture and its conversion to urban land will not significantly impact Maui's ability to grow commercial crops.
- The project site is not designated as Important Agricultural Lands (IAL).

Water

- Developer is currently working with a neighboring landowner to utilize an existing well
- Goal is partner with the County of Maui on the development of the water system (source, storage and transmission)
- Water system will meet all requirements of the County of Maui Department of Water Supply and the State of Hawai‘i Department of Health.

Sewer

- Goal is to connect to the existing County of Maui sanitary sewer system
- If that is infeasible, plan is to develop a Wastewater Reclamation Facility to serve the project
- Sewer system to serve development will meet all requirements of the County of Maui and State of Hawai‘i Dept of Health.

Environmentally Sensitive Areas

- No streams, wetlands or critical habitats for endangered species are present within the project area.
- A flora and fauna survey was conducted by Starr Environmental.
- The only native plant found on the main site was the common shrub ‘uhaloa (Waltheria indica). No other native, endangered or threatened species were documented.
- However, tree tobacco, a host tree for the endangered Blackburn’s Sphinx Moth was present. As such, monitoring of the trees for presence of the Blackburn’s Sphinx Moth will be conducted prior to construction.

Topographical

- Site is located on the base of Haleakala
- Site slopes from the SE to the NW towards Kahului harbor.
- Proposed development will alter the existing elevations on site to construct the proposed streets, buildings and other improvements, but will not change the overall direction flow direction of the site.

Flora / Fauna

- No streams, wetlands or critical habitats for endangered species are present within the project area.
- A flora and fauna survey was conducted by Starr Environmental.
- The only native plant found on the main site was the common shrub ‘uhaloa (Waltheria indica). No other native, endangered or threatened species were documented.

Phase I Environmental Assessment

- A Phase 1 Environmental Site Assessment was conducted and due to the former agricultural use on the site.
- Soil sampling was subsequently conducted to test for Hawai‘i Department of Health (DOH) target pesticide categories associated with former sugar cane and pineapple fields, which include Organo-Chlorine Pesticides and Arsenic.
- No Organo-Chlorine Pesticide chemicals were detected in the soil samples analyzed. Arsenic was detected at concentrations less than the DOH applicable environmental action levels (EALs) of 24 mg/kg.
- The soil sampling data generated during this investigation indicates that the subject site is suitable for unrestricted use of the property.

Conditions of Zoning

- Request that all timelines be based on matters that are under the Developer's control.

- Please do **not** include:
  - Matters that are required by law
  - Annual compliance reporting

HHFDC

AFFORDABLE RENT GUIDELINES* 2025

Affordable rents are based on 30% of income (including utilities)**

Area	$110,900	Studio	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom
MAUI						
	30% of Median	$707	$757	$909	$1,050	$1,171
	50% of Median	$1,178	$1,262	$1,515	$1,750	$1,952
	60% of Median	$1,414	$1,515	$1,818	$2,100	$2,343
	80% of Median	$1,886	$2,020	$2,424	$2,800	$3,124
	100% of Median	$2,357	$2,525	$3,030	$3,500	$3,905
	120% of Median	$2,829	$3,030	$3,636	$4,200	$4,686
	140% of Median	$3,300	$3,535	$4,242	$4,900	$5,467

*Please note that area market rents may be lower than these rent guidelines.

**Monthly rent levels would include the cost of the following utilities: water, sanitary sewage services, electricity and gas (where applicable). Please refer to the Utility Allowance Schedule for each island.

Mahalo for Your Mālama

EXHIBIT 6

EISPN – Ho‘onani Village

RICHARD T. BISSEN, JR.
Mayor

KATE L. K. BLYSTONE
Director

ANA LILLIS
Deputy Director

DEPARTMENT OF PLANNING
COUNTY OF MAUI
ONE MAIN PLAZA
2200 MAIN STREET, SUITE 315
WAILUKU, MAUI, HAWAIʻI 96793

February 28, 2025

Ms. Mary Alice Evans, Director
State of Hawaiʻi
Office of Planning and Sustainable Development
Environmental Review Program
235 South Beretania Street, Suite 702
Honolulu, Hawaiʻi 96813

Dear Ms. Evans:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE PROPOSED HOʻONANI VILLAGE MIXED-USE DEVELOPMENT PROJECT AT KAHULUI, MAUI, HAWAIʻI; TMK: (2) 3-8-006:004

With this letter, the County of Maui Department of Planning (Department) hereby transmits the Environmental Impact Statement Preparation Notice (EISPN) for the subject proposed Hoʻonani Village project for publication in the next available edition of the Environmental Notice.

The Department has determined that an Environmental Impact Statement (EIS) is required for the above-referenced project. The determination was made in accordance with Hawaiʻi Revised Statutes Section 343-5(e), and Hawaiʻi Administrative Rules Section 11-200.1-14(d)(2) which state that an approving agency may authorize an Applicant to prepare an EIS rather than an Environmental Assessment if, through its judgement and experience, it determines that an EIS is likely to be required.

We hereby transmit this determination that an EIS is required for the subject project. We are providing this EISPN electronically via the "Submittal Form for HRS Chapter 343 Publications in the Periodic Bulletin."

If you have any questions, please contact the Planning Director, Kate Blystone, at planning@mauicounty.gov or at (808) 270-7735.

Sincerely,

KATE L. K. BLYSTONE
Director

cc: Danny A. Dias, Planning Program Administrator, Maui County (PDF)
Kurt Wollenhaupt, Staff Planner, Maui County (PDF)
Mary Alice Evans, Director, ERP (PDF)
Tom Eisen, Senior Planner, ERP, (PDF)
Environmental Review Program, (PDF)
Tyler Christian Campbell, PDG Hawaii, Consultant, (PDF)
Greg Sado, Alpha Hawaii, Applicant, (PDF)
S:\ALL\KURT W\Ho'onani Villgae EISPN to ERP Trans Letter from County.docx

From: webmaster@hawaii.gov
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice
Date: Friday, February 28, 2025 12:26:42 PM

Action Name

Ho'onani Village EISPN

Type of Document/Determination

Environmental impact statement preparation notice (EISPN)

HRS §343-5(a) Trigger(s)

- (1) Propose the use of state or county lands or the use of state or county funds
- (6) Propose any amendments to existing county general plans where the amendment would result in designations other than agriculture, conservation, or preservation

Judicial district

Wailuku, Maui

Tax Map Key(s) (TMK(s))

(2) 3-8-006:004

Action type

Applicant

Other required permits and approvals

General plan amendment, State Land Use District Boundary Amendment, Change in Zoning, Community Plan Amendment, Subdivision

Discretionary consent required

County of Maui Planning Department

Agency jurisdiction

County of Maui

Approving agency

County Of Maui Planning Department / Planning Commission

Agency contact name

Kate Blystone

Agency contact email (for info about the action)

planning@mauicounty.gov

Email address for receiving comments

tccampbell@pdg-hawaii.com

Agency contact phone

(808) 270-8205

Agency address

2200 Main Street
6th Floor
Wailuku, Hawaii 96793
United States
Map It

Public Scoping Meeting information

Thursday, March 27, 2025, 6:00 pm Above the Wave, 400 Hana Hwy., Suite B1, Kahului, HI 96732

Accepting authority

County of Maui Planning Department

Applicant

Ho'onani Development LLC

Applicant contact name

Greg Sado

Applicant contact email

greg@alphahawaii.com

Applicant contact phone

(808) 873-3883

Applicant address

21 Hansen Road
Kahului, HI 96732
United States
Map It

Is there a consultant for this action?

Yes

Consultant

Pioneer Design Group - Hawaii, LLC.

Consultant contact name

T.C. Campbell

Consultant contact email

tccampbell@pdg-hawaii.com

Consultant contact phone

(808) 400-5959

Consultant address

711 Kapiolani Blvd., Suite 1450
Honolulu, Hawaii 96813
United States
Map It

Action summary

The proposed action is a mixed-use development called Ho'onani Village. The development would feature a mixture of affordable and market-rate multi-family low-rise residential housing rental units, along with a blend of commercial office space, retail, restaurant dining areas, and industrial uses, all situated makai of Hansen Road.

Attached documents (signed agency letter & EA/EIS)

- Hoonani-Village-EISPN_0217251.pdf
- Hoʻonani-Village-EISPN-to-ERP-Trans-Letter-from-County.pdf

ADA Compliance certification

- This is to certify that documents submitted are ADA accessible.

Action location map

- Hoonani-Village-Action-Area1.zip

Authorized individual

Tyler Christian Campbell

Authorization

- The above named authorized individual hereby certifies that he/she has the authority to make this submission.

Environmental Impact Statement Preparation Notice

Hoʻonani Village

Mixed-Use Development

TMK: (2) 3-8-006:004

Prepared for:
Hoʻonani Development, LLC.

Accepting Authority:
Maui Planning Commission / County of Maui Planning Department

February 2025

Prepared by:
Pioneer Design Group – Hawaiʻi, LLC.

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APPENDIX 'D' – Retail Demand Report
APPENDIX 'E' – Scoping Meeting Invite Packet

List of Acronyms

ALISH	Agricultural Lands of Importance to the State of Hawai'i
AMI	Area Median Income
AMSL	Above Mean Sea Level
BMP	Best Management Practices
CFS	Cubic Feet per Second
CIA	Cultural Impact Assessment
CIZ	Change of Zoning
CPA	Community Plan Amendment
CZM	Coastal Zone Management
DA	Department of the Army
DBA	District Boundary Amendment
DOE	Department of Education
DWS	Department of Water Supply
EaA	Ewa Silty Clay Loam, 0 to 3 percent slopes
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
ERP	Environmental Review Program
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GHG	Greenhouse Gases
GPD	Gallons Per Day
HAR	Hawai'i Administrative Rules
HCZMP	Hawai'i Coastal Zone Management Program
HRS	Hawai'i Revised Statutes
IAL	Important Agricultural Lands
LSB	Land Study Bureau
MCC	Maui County Code
MIP	Maui Island Plan
MPD	Maui Police Department
MPH	Miles per Hour

MuB	Molokai Silty Clay Loam, 3 to 7 percent Slopes
NPDES	National Pollutant Discharge Elimination System
OHA	Office of Hawaiian Affairs
PEDR	Preliminary Engineering and Drainage Report
SHPD	State Historic Preservation Division
SLUC	State Land Use Commission
SMA	Special Management Area
TIA	Traffic Impact Assessment
TMK	Tax Map Key
UGB	Urban Growth Boundary
UHMC	University of Hawai‘i Maui College
USACE	U.S. Army Corps of Engineers
WWRF	Wastewater Reclamation Facility

EXECUTIVE SUMMARY

Project Name:	Hoʻonani Village Mixed Use Development
Type of Document:	Environmental Impact Statement (EIS) Preparation Notice
Legal Authority:	Chapter 343, Hawai'i Revised Statutes (HRS) Title 11, Chapter 00.1, Hawai'i Administrative Rules (HAR)
Applicable Chapter 343, HRS "Triggers":	Use of State/County Lands State Land Use Boundary Amendment Community Plan Amendment County Initiated Change in Zoning
Location:	Kahului, Maui Island TMK No. (2) 3-8-006:004 Lot 2-C-4-C-1-E-1 (Lot E-1) of the Preliminary Subdivision Plat for the First Assembly of God Subdivision Currently addressed as 21 Hansen Road, Kahului, HI 96732
Landowners:	Maui Economic Opportunity Condo - Master
Applicant:	Hoʻonani Development LLC 21 Hansen Road Kahului, Hawai'i 96732 Contact: Greg Sado Telephone No.: (808) 873-3883 Email: greg@alphahawaii.com
Accepting Authority:	Maui Planning Commission / County of Maui Department of Planning 2200 Main Street, Suite 315 Wailuku, Hawai'i 96793 Contact: TBD Telephone No.: (808) 270-8250 Email: planning@mauicounty.gov

Consultant:	Pioneer Design Group, Hawai'i, LLC. 711 Kapiolani Blvd., Suite 1450 Honolulu, HI. 96813 Contact: TC Campbell, P.E. Phone: (808) 400-5959 Email: TCCampbell@pdg-hawaii.com
Project Summary:	The Applicant proposes the development of Ho'onani Village, a high-density, master-planned, mixed-use community in the Kahului area of Central Maui. Ho'onani Village (also referred to as "the project," "the proposed project," "the proposed action," "the plan," or "the land plan") will feature a mixture of affordable and market-rate multi-family low-rise residential housing rental units, along with a blend of commercial office space, retail, restaurant dining areas, and industrial uses, all situated makai of Hansen Road. Ho'onani Village will include an entrance open space area off of Pulehu Road, community gathering places in the form of a central community promenade space, an Amphitheater event space, parks, sports fields, a multi-use pathway system, and a botanical trail to support connectivity. Access to the project area will be provided from Pulehu Road, Hansen Road and future connection of Pakaula Street with an internal roadway network connecting to the individual uses within the land plan. Improvements to Pulehu Road and Hansen Road as well as to proposed internal roadways are anticipated as part of the proposed project. The preliminary conceptual land plan anticipates a total of approximately 1,600 residential apartment units, inclusive of about 50% workforce housing units, located across the approximately 166.512-acre site. The units will have a mix of studios, 1-, 2- and 3-bedroom units. The project will meet all of the residential workforce housing requirements pursuant to Chapter 2.96, Maui County Code.

Required Permits & Approvals:	In order for the proposed project to be implemented, a subdivision application has been submitted to the County of Maui to subdivide Lot 2-C-4-C-1-E of the First Assembly of God Subdivision into five (5) lots. The subdivision application was submitted by Austin Tsutsumi & Associates Inc., in September 2024. The lot that will be referred to as the project site is lot 2-C-4-C-1-E-1, and the lot that will be referred to as the County site is lot 2-C-4-C-1-E-4. Following the subdivision of the current lot, amendments to the urban growth boundary described in the Maui Island Plan's Directed Growth plan, and the State Land Use District Boundary are needed. See Figures 3 and 8 for the Site's Directed Growth Map and the State Land Use District Boundary Map. Additionally, the applicant is working with the County of Maui to pursue a County initiated Zone Change to change the zoning of lot E-1 and E-4 to Zone M-1 for Light Industrial. See Figure 9 for County of Maui Zoning Map. Along with the County Initiated Change in Zoning, a Community Plan Amendment may be required to change the use of the site from Agricultural and Heavy Industrial to Light Industrial to match the new County Zoning. There are no Special Management Area (SMA) Use Permit(s) that must be obtained as the project site is outside of the County of Maui's SMA. The property is also outside of the Shoreline Setback area. After the subdivision is completed, the amendments are made to the Maui Island Plan and State Land Use Maps, and the zoning of the lots are changed as needed, the applicant will begin to apply for the various permits associated with the construction of the project including well permits, grading permits and building permits, etc. A list of anticipated required permits and approvals is provided in Chapter VI.
Determination:	Environmental Impact Statement (EIS) is to be prepared. The Hoʻonani Village land plan spans approximately 166.51 acres and includes a proposal for approximately 1,600 new

multi-family low-rise units as well as commercial office buildings, light industrial buildings, and a large central commercial space for retail, dining and entertainment on land that was previously designated for agricultural use. Given the scale of the project, the anticipated changes to the area's natural environment, the scope of potential impacts to be evaluated, and the relevant significance criteria, it is expected that the proposed development may have a considerable environmental impact. The County of Maui Department of Planning has determined through its judgment and experience that an EIS is likely to be required and has authorized the Applicant to initiate its environmental review through the preparation of an EIS Preparation Notice (EISPN).

This EISPN has been prepared in accordance with HRS Chapter 343 and HAR Chapter 11-200.1. Pursuant to HAR Section 11-200.1-7(c), the Maui Planning Department shall have final authority to accept the EIS due to the first discretionary permit/approval being a Subdivision Application from the County of Maui's Planning Department.

Once completed, the Final EIS will act as a technical supporting document for the above-referenced Subdivision application and subsequent land use entitlement applications for the project.

EISPN Scoping Meeting: A public scoping meeting for the project (as required by HAR 11-200.1-23) will be held on Thursday, March 27, 2025, at 6:00 p.m. at the meeting room at Above the Wave located at 400 Hana Hwy., Suite B1, Honolulu, Hawai'i 96732. See Chapter VII.

I. PROJECT OVERVIEW

A. Background – Kahului Land Use Designations

Hoʻonani Village (referred to herein as "Hoʻonani Village", "the project", "the proposed project", "the proposed action" "the plan" or "the land plan"), is located in the Kahului area in the Central Maui Region., within the ahupuaʻa of Wailuku. The site is just makai of the ahupuaʻas of ʻŌmaʻopio, Kalialinui, Aʻapueo and Makaʻehu. The site lies in the moku of Pūʻali Komohana. The local area consists of various uses including agriculture lands, low-density residential lots, commercial mixed use shopping centers and light industrial uses. Generally, multi-family residential development in the immediate vicinity is very limited. There are a variety of public/quasi-public and recreational uses within the Wailuku-Kahului District including but not limited to Kanaha Beach, Kanaha Pond State Wildlife Sanctuary, Keopuolani Regional Park, Kahului Community Center Park, The Dunes at Maui Lani Golf course and the Central Maui Regional Sports Complex. See Figures 1 and 2 for the Regional Location Map and the Property Location Map.

FIGURE 1
REGIONAL LOCATION MAP

SOURCE: COUNTY OF MAUI QPUBLIC GIS POWERED BY ESRI.

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: Vert. Scale: **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

FIGURE 2
PROPERTY LOCATION MAP

SOURCE: COUNTY OF MAUI QPUBLIC GIS POWERED BY ESRI.

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: Vert. Scale: **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

Hoʻonani Village is proposed as a mixed-use master-planned community that incorporates workforce housing affordable and market rate multi-family low-rise residential housing units, commercial retail, dining, office campus and industrial uses accompanied by recreational and open space uses including a central promenade, trail network, botanical trail, outdoor amphitheater entertainment space, community gathering places and park areas in addition to sports fields. The total land area within Hoʻonani Village (hereafter referred to as the "project area") is approximately 166.512 acres and is in the Puʻunene area in Kahului, adjacent to Pulehu Road and Hansen Road.

A summary of the past land use plans for the Puʻunene & Kahului area follows.

The Maui County General Plan is a long-term, comprehensive blueprint for the physical, economic, environmental development and cultural identity of the county. The first General Plan for Maui County was developed in 1962 with a second general plan being completed in 1972. Additional updates were made in 1980 and 1990 as well. The current County Policy Plan was adopted on March 24, 2010, and includes elements from the earlier general plans. The Countywide Policy Plan, also referred to as the 2030 General Plan, acts as an over-arching statement of values and provides a policy framework for the Maui Island Plan and Community Plans. The Countywide Policy Plan provides broad goals, objectives, policies, and implementing actions that portray the desired direction of the County's future for all three of the islands that are a part of the County, Maui, Molokaʻi and Lānaʻi. Through the preparation of the Countywide Policy Plan several primary concerns were identified including access to quality education, access to affordable housing, environmental and natural resource protection, cultural resource protection, economic stability through sustainable practices, community cohesiveness and the loss of scenic resources.

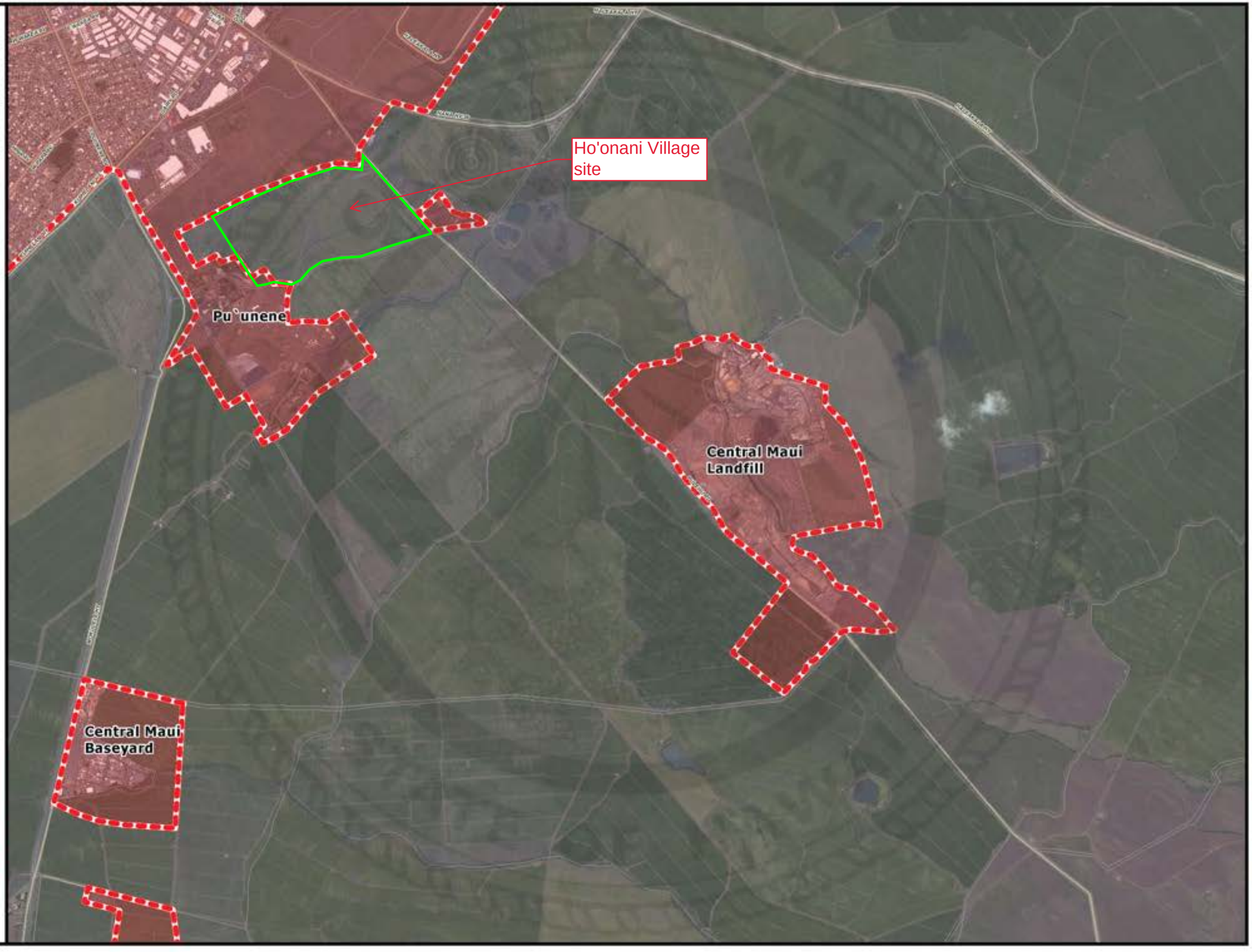
The history of the land use plans in the Kahului area ties back to the shift in the culture on the island that came about from opening of the plantations. The first sugar mill was built in 1828 and led to the boom of the plantation industry on Maui with sugar cane and pineapple being the main crops produced. Later, following World War II, the rise of the tourism industry began. The first master plan for the land near Kahului Harbor was written by Harland Bartholomew in 1947 called "Dream City." The growth in both the local population and the tourism industry led to the first General Plan in 1962.

The County of Maui planning framework today starts with the Countywide Policy Plan, then gets more specific with the Maui Island Plan, and then breaks up into the most specific Community Plan documents. The Maui Island plan, adopted on December 28, 2012, describes the Central Maui area, made up of the Wailuku and Kahului areas, as the main area of urban development. The area has a wide variety of uses including residential, commercial, industrial, recreational and agricultural etc. The County of Maui's Civic center, the Kahului Airport, the harbor, the primary business district, and many acres of sugarcane fields make up this area. From the MIP, it is anticipated that

the Wailuku-Kahului area will grow faster than other parts of Maui as former sugarcane lands are developed into various uses such as residential subdivisions.

As part of the MIP, the County of Maui developed their Directed Growth Map to show what areas in the County fall under the Urban, Small Town, and Rural Growth Boundaries. The boundaries for the various growth areas change with amendments and updates to the MIP. The Urban Growth Boundary (UGB) denotes areas that support urban-density development that require a full range of services. The UGB is described as a long-range planning tool to be used to evaluate development proposals. Urban areas are noted as containing a greater variety of land use types, including various housing types and densities, commercial, retail, industrial uses, and resort destination areas. The Hoʻonani Village site has a portion of the southwest corner of the site within the UGB, with most of the site currently outside of the UGB in the MIP. The site is adjacent to the UGB to the north, west and east. See Figure 3 – Maui Island Plan Directed Growth Map. The proposed uses on the site directly align with the goals of the MIP to increase affordable housing, create outdoor active and passive open spaces for the community, provide additional local commercial retail and restaurant spaces, and provide light industrial areas to match the existing uses around the site.

Maui Island - Directed Growth Map C5



County of Maui

Maui Island Plan Directed Growth Map

Pulehu Road

C5

Legend

Growth Boundaries

- Urban
- Small Town
- Rural

Reference

- 2011 Parcels
- Primary Roads

Product Code: M-CET_20121210-D2
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Background Image: Worldview 2 - 2010

This is not a zoning map. Please contact the Planning Department for Zoning confirmation.

PREPARED BY:

Long Range Planning Division
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

To complete the Hoʻonani Village land plan and to ensure consistency with the UGB, land use entitlement changes will be needed for the proposed improvements. Further details on these specific land use entitlement changes to be sought are provided in Section E below.

The first Wailuku-Kahului community plan was created as a product of the General Plan in 1980 and was adopted with Ordinance No. 1674 in 1987. The community plan was updated in 1992 by the Citizens Advisory Committee (CAC) for the area, and that led to the current version adopted in June 2002. The past community plans and the current community plan have the majority of the project site called out for the Agriculture (AC) land use category, with a small section of the southwest corner being in the Heavy Industrial Category. See Figure 4 – Wailuku and Kahului Community Plan Map (2002). The community plan identifies several problems facing the region including:

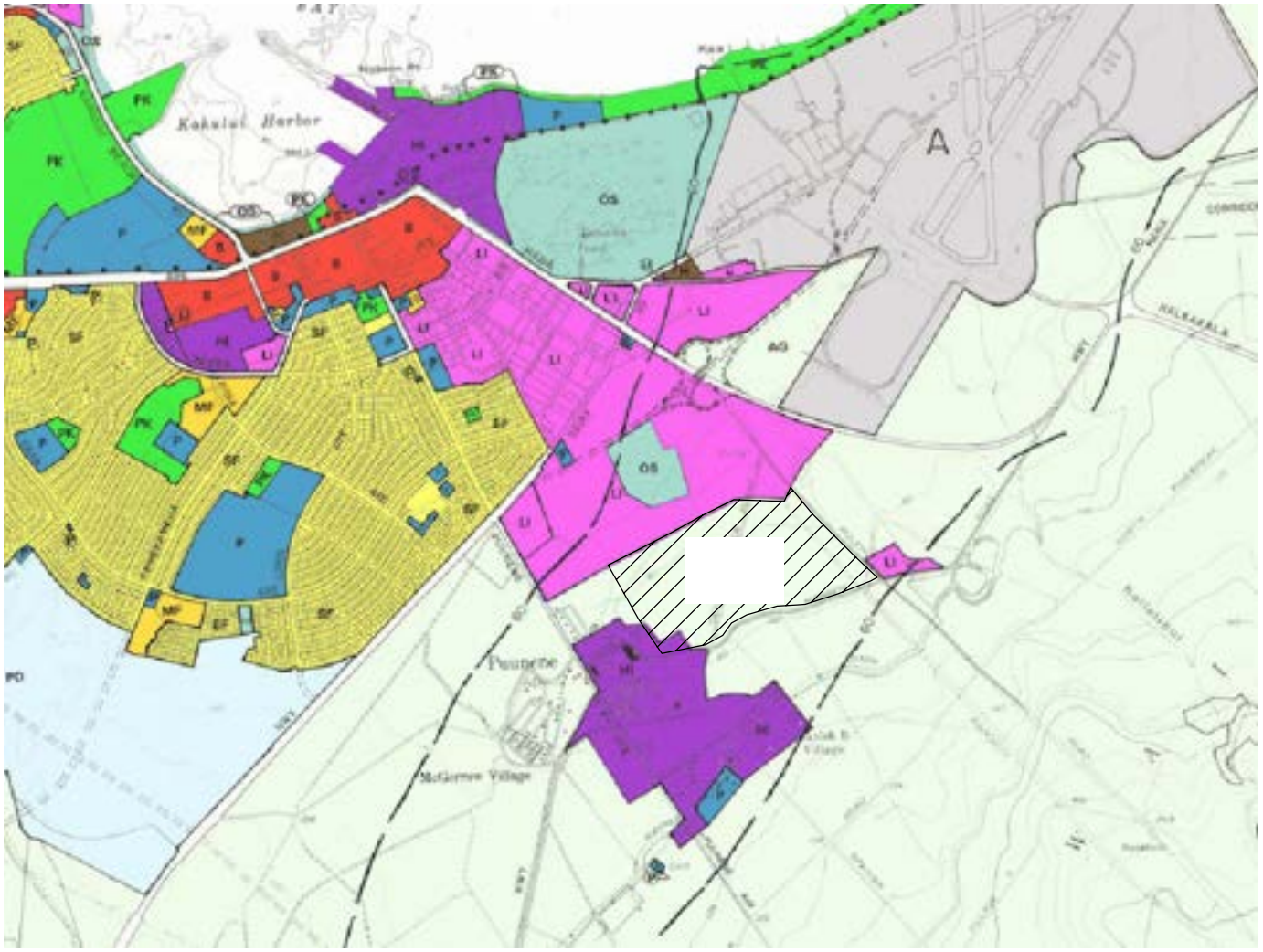
1. Public Infrastructure
2. Circulation, Parking, & Access for the elderly, people with disabilities, pedestrians, and bicyclists
3. Recreational and Community Facilities
4. Lack of Affordable Housing
5. Water

These problems in the region can be addressed with various development opportunities and strategies in the community plan area. The Hoʻonani Village project land plan was developed to affect the community planning area of Wailuku-Kahului in a helpful way by addressing some of the immediate needs in the area while not affecting the existing public utilities and infrastructure.

The project site is located adjacent to the rapidly growing commercial area and shopping centers that are located off of Hoʻokele Street and Pakaula Street. Under the existing State Land Use, the Wailuku-Kahului Community Plan and County zoning designations, the Hoʻonani Village project site is zoned as Agricultural or Agricultural and Heavy Industrial. The Hoʻonani Village land plan has been designed to seamlessly flow into the existing developments to the north and the existing agricultural lands to the south. The land use entitlements the applicant will pursue are discussed in more detail in Section E below.

FIGURE 4

WAILUKU-KAHULUI COMMUNITY PLAN MAP (2002)



SOURCE: COUNTY OF MAUI, COMMUNITY PLAN MAPS

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: NTS Vert. Scale: NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

B. Summary of Proposed Action

Ho'onani Village is a high-density master-planned multi-use community that will offer both affordable workforce housing and market rate multi-family rental units, commercial retail, office and restaurant spaces, and an area for light industrial uses that blend into the existing uses adjacent to the site. The master plan for the approximate 166.5 AC site is located at the Northwest Corner of Hansen Road and Pulehu Road in Kahului, Maui. The development is bisected by the extension of Pakaula Street that will connect to Pulehu Road. The site is divided into six distinct planning areas – Multi-Family low-rise Residential, Retail, Office, Casual Dining, Light Industrial and Open Spaces. The project is organized by a large central "commons" area that features boutique retail uses featuring local tenants, a large event lawn & amphitheater, food truck parking, open space for seasonal/weekend farmers market space and botanical walkways highlighted by natural water features. Anchoring the "commons" will be a food hall that will feature local food / beverage offerings set in a park setting.

The architecture will derive aesthetic queues from the architecture of Main Street Lahaina. The retail will promote pedestrian frontages and offer traffic calming angled parking along the perimeter of the "commons" to establish a walkable environment. The intent is to connect each of the residential planning areas to the central commons via well-defined pedestrian walkway and bicycle connections. Considerable care is given to reduce vehicular traffic even further by the placement of strategic traffic roundabouts at each end of the central park commons to reduce the idling of automobiles.

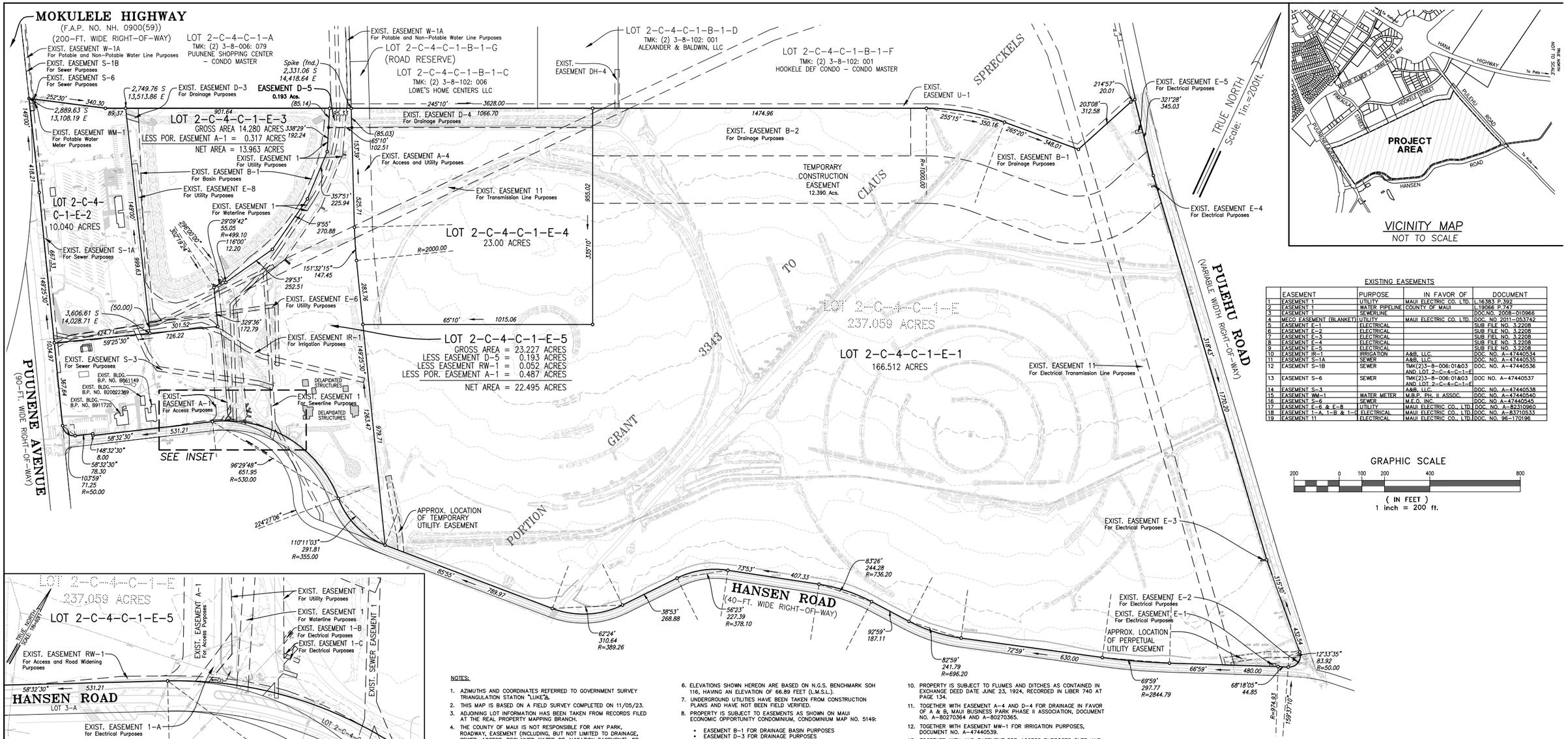
The proposed action's purpose is to help address existing problems within the community plan area while blending into existing uses adjacent to the project site. The applicant's vision is to provide approximately 1,600 units of additional rental housing for the Kahului community, and to create gathering spaces to bolster the community by providing new commercial restaurant and retail spaces, active and passive open spaces, and entertainment spaces throughout the site. Additionally, the new office and industrial spaces will provide additional jobs for the community as well. The goal is to design a plan that benefits the community in multiple ways, blends into the adjacent uses surrounding the site, celebrates the history of the site and preserves the deep cultural roots of Kahului.

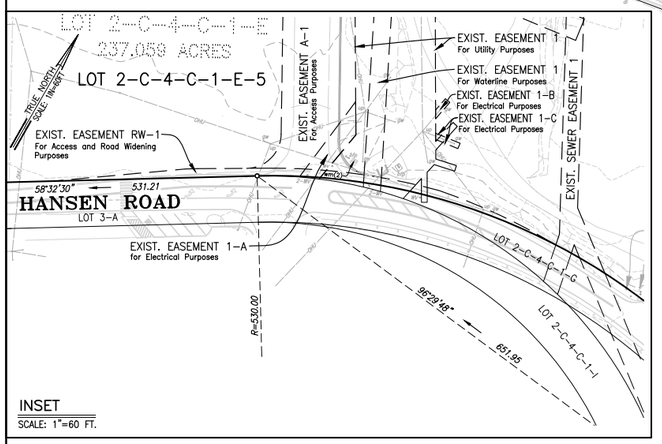
C. Proposed Land Plan Development Components

The Ho'onani Village land plan is proposed to be developed on Lot 2-C-4-C-1-E-1 (Lot E-1) of the submitted Preliminary Plat for the First Assembly of God Subdivision. See Figure 5 – Preliminary Subdivision Plat. Future development of the future subdivided Lot 2-C-4-C-1-E-4 (Lot E-4) that will be owned by the County

of Maui will be developed separately but referred to in this report. The total acreage of the project area is 166.512 acres. The adjacent lot E-4 is 22.99 acres in size.

The land plan will have approximately 1,600 low-rise multi-family units proposed on 82.77 acres. This equates to approximately 19 units per acre. The remaining area of 83.742 acres will contain other uses as noted below. See Figure 6 – Preliminary Master Site Plan and Table 1 below for the preliminary land use breakdown of the site.





EXISTING EASEMENTS

	EASEMENT	PURPOSE	IN FAVOR OF	DOCUMENT
1	EASEMENT 1	UTILITY	MAUI ELECTRIC CO. LTD.	L 16383 P.392
2	EASEMENT 1	WATER PIPELINE	COUNTY OF MAUI	L 19066 P.747
3	EASEMENT 1	SEWERLINE		DOC.NO. 2008-010966
4	MECO EASEMENT (BLANKET)	UTILITY	MAUI ELECTRIC CO. LTD.	DOC. NO 2011-053742
5	EASEMENT E-1	ELECTRICAL		SUB FILE NO. 3.2208
6	EASEMENT E-2	ELECTRICAL		SUB FILE NO. 3.2208
7	EASEMENT E-3	ELECTRICAL		SUB FILE NO. 3.2208
8	EASEMENT E-4	ELECTRICAL		SUB FILE NO. 3.2208
9	EASEMENT E-5	ELECTRICAL		SUB FILE NO. 3.2208
10	EASEMENT IR-1	IRRIGATION	A&B, LLC	DOC. NO. A-47440534
11	EASEMENT S-1A	SEWER	A&B, LLC	DOC. NO. A-47440535
12	EASEMENT S-1B	SEWER	TMK(2)3-8-006:01&03 AND LOT 2-C-4-C-1-F	DOC. NO. A-47440536
13	EASEMENT S-6	SEWER	TMK(2)3-8-006:01&03 AND LOT 2-C-4-C-1-F	DOC NO. A-47440537
14	EASEMENT S-3		A&B, LLC	DOC. NO. A-47440538
15	EASEMENT WM-1	WATER METER	M.B.P. PH. II ASSOC.	DOC. NO. A-47440540
16	EASEMENT S-6	SEWER	M.E.O. INC.	DOC. NO. A-47440545
17	EASEMENT E-6 & E-8	UTILITY	MAUI ELECTRIC CO., LTD.	DOC. NO. A-82310960
18	EASEMENT 1-A, 1-B & 1-C	ELECTRICAL	MAUI ELECTRIC CO., LTD.	DOC. NO. A-83710533
19	EASEMENT 11	ELECTRICAL	MAUI ELECTRIC CO., LTD.	DOC. NO. 96-170196

NOTES:

1. AZIMUTHS AND COORDINATES REFERRED TO GOVERNMENT SURVEY TRIANGULATION STATION "LUKE".
2. THIS MAP IS BASED ON A FIELD SURVEY COMPLETED ON 11/05/23.
3. ADJOINING LOT INFORMATION HAS BEEN TAKEN FROM RECORDS FILED AT THE REAL PROPERTY MAPPING BRANCH.
4. THE COUNTY OF MAUI IS NOT RESPONSIBLE FOR ANY PARK, ROADWAY, EASEMENT (INCLUDING, BUT NOT LIMITED TO DRAINAGE, SEWER, ACCESS, RECLAIMED WATER OR AVIGATION EASEMENT), OR ANY OTHER INTEREST IN REAL PROPERTY SHOWN ON THIS MAP OR SHOWN ON THESE PLANS, UNLESS THE COUNTY OF MAUI HAS ACCEPTED ITS DEDICATION BY A RESOLUTION APPROVED BY A MAJORITY OF COUNCIL MEMBERS AT A REGULAR OR SPECIAL MEETING OF THE MAUI COUNTY COUNCIL OR THE COUNTY OF MAUI HAS SIGNED ITS ACCEPTANCE VIA A CONVEYANCE DOCUMENT RECORDED IN THE BUREAU OF CONVEYANCES OF THE STATE OF HAWAII IN COMPLIANCE WITH MAUI COUNTY CODE SECTION 3.44.015.
5. PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS "ZONE X/OTHER AREAS" AS SHOWN ON THE MAP INDEX, MAP NUMBER 15003O0359SE WITH A REVISION DATE OF SEPTEMBER 25, 2009 IN MAUI COUNTY, STATE OF HAWAII, WHICH IS THE CORRECT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
6. ELEVATIONS SHOWN HEREON ARE BASED ON N.G.S. BENCHMARK SOH 116, HAVING AN ELEVATION OF 66.89 FEET (L.M.S.L.).
7. UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM CONSTRUCTION PLANS AND HAVE NOT BEEN FIELD VERIFIED.
8. PROPERTY IS SUBJECT TO EASEMENTS AS SHOWN ON MAUI ECONOMIC OPPORTUNITY CONDOMINIUM, CONDOMINIUM MAP NO. 5149:
   - EASEMENT B-1 FOR DRAINAGE BASIN PURPOSES
   - EASEMENT D-3 FOR DRAINAGE PURPOSES
   - EASEMENT B-1 FOR DRAINAGE PURPOSES
   - EASEMENT B-2 FOR DRAINAGE PURPOSES
   - TEMPORARY CONSTRUCTION EASEMENT
   - EXISTING TEMPORARY UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES (UP TO 3 YEARS)
   - EXISTING UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES
   - EASEMENT A-1 FOR ACCESS PURPOSES
   - EASEMENT UNIT 2A SURFACE WATER
   - EASEMENT D-5 FOR DRAINAGE AND ACCESS PURPOSES
   - EASEMENT RW-1 FOR ACCESS AND ROAD WIDENING PURPOSES.
9. PROPERTY IS SUBJECT TO A DECLARATION OF EASEMENT RIGHTS, COVENANTS CONDITIONS AND RESTRICTIONS, DOCUMENT NO. A-82940748, AMENDED BY DOCUMENT NO. A-85840476.
10. PROPERTY IS SUBJECT TO FLUMES AND DITCHES AS CONTAINED IN EXCHANGE DEED DATE JUNE 23, 1924, RECORDED IN LIBER 740 AT PAGE 134.
11. TOGETHER WITH EASEMENT A-4 AND D-4 FOR DRAINAGE IN FAVOR OF A & B, MAUI BUSINESS PARK PHASE II ASSOCIATION, DOCUMENT NO. A-80270364 AND A-80270365.
12. TOGETHER WITH EASEMENT MW-1 FOR IRRIGATION PURPOSES, DOCUMENT NO. A-47440539.
13. TOGETHER WITH AND EASEMENT FOR ACCESS PURPOSES OVER AND ACROSS LOT 2-C-4-C-1-B-G, DOCUMENT NO. A-80270367.
14. PROPERTY IS SUBJECT TO A DECLARATION OF EASEMENT RIGHTS, COVENANTS, CONDITIONS AND RESTRICTIONS, DOCUMENT NO. A-85840477.

LEGEND

bfp	back flow preventer	pp	power pole
cabx	cable television box	sdmh	storm drain manhole
di	drain inlet	sicmh	signal corp manhole
ebx	electric box	sl	street light
fh	fire hydrant	smh	sewer manhole
gen	generator	tebx	telephone box
gw	guy wire	trans	transformer
lp	lamp post	up	utility pole
ohu	overhead utility lines	wbx	water box
pbx	power box	wv	water valve
		wmh	water manhole

OWNERS: MAUI ECONOMIC OPPORTUNITY, INC.
COUNTY OF MAUI
ALEXANDER & BALDWIN, LLC.
AX HOLDING, LLC.
PUUNENE INDUSTRIAL PARK, LLC.

JUSTIN H. LABB
LICENSED PROFESSIONAL LAND SURVEYOR
No. 12964
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

JUSTIN H. LABB
LICENSED PROFESSIONAL LAND SURVEYOR
CERTIFICATE No. 12964
EXP. DATE 04/2024

PRELIMINARY PLAT
FIRST ASSEMBLY OF GOD SUBDIVISION
SUBDIVISION OF LOT 2-C-4-C-1-E OF THE FIRST ASSEMBLY OF GOD SUBDIVISION INTO LOTS 2-C-4-C-1-E-1, 2-C-4-C-1-E-2, 2-C-4-C-1-E-3, 2-C-4-C-1-E-4 AND 2-C-4-C-1-E-5
BEING A PORTION OF GRANT 3343 TO CLAUS SPRECKELS
SITUATED AT PUUNENE, WAILUKU, MAUI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS * SURVEYORS
1871 WILI PA LOOP SUITE A * WAILUKU, MAUI, HAWAII 96793

TMK: (2) 3-8-006: 004

Z:\2023\23-526 MBP MEO SUBDIVISION\SURVEY\DWG\23526PP.DWG

SEPTEMBER 17, 2024
24" X 36" = 6 SQ. FT.
JOB NO.: 23-526

FIGURE 5: PRELIMINARY SUBDIVISION PLAT

be developed concurrently with Multi-family Phase 1 or later.

Ho'onani Development

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Concept Site Plan Study

Proposed Land Use Plan - Option 11

Architecture. Design. Relationships.

Scale 1"=300'
Job No. 2023-0690
Date 2024-10-07

1

FIGURE 6: PRELIMINARY MASTER SITE PLAN

Table 1: Land Plan Area Breakdown

Land Plan Area Breakdown	
Multi-Family Residential	82.77 ac
Commercial Office Campus	10.30 ac
Light Industrial Park	18.42 ac
Commercial Space	4.10 ac
Future Commercial Space	3.24 ac
Central Commons	25.35 ac
Detention Ponds	14.23 ac
Entry Open Space	6.05 ac
Wastewater Treatment Plant	1.70 ac
Site Total	166.15 ac

The project area is located at the northwest corner of the intersection of Pulehu Road and Hansen Road. Pulehu Road runs adjacent to the project site along the entire eastern boundary, and Hansen Road runs adjacent to the site along the southern boundary. The existing southern terminus of Pakaula Street stubs into the northern boundary of the site. This road will be extended into the site for access. Access to the project area will be provided from these three existing streets that lead to an internal roadway network surrounding the central "commons" area. The local roadway network will result in the entire site being connected for vehicular, bicycle and pedestrian circulation. Half-street improvements to existing roads adjacent to the site are anticipated as part of the proposed action. Within the project site, renters of the future units will be encouraged to use alternative means of transportation throughout the community. As such, walking and bicycling mixed-use paths are planned as part of the project. Additionally, ride share pick-up, and drop-off locations are being incorporated into the design to create easy locations for the public that lives outside of the project to get in and out without having to consider parking.

The six (6) components of the land plan besides the open space areas are described below. Further details on the project components will be included and discussed in the Draft Environmental Impact Statement (Draft EIS).

1. Multi-Family Low-Rise Residential Units

Approximately 1,600 multi-family low-rise rental units will be constructed. The units will be a mixture of studios, 1-, 2- and 3-bedroom units. The units will be at least 50% workforce housing rental units, and the proposed plan will meet the applicable affordable housing code requirements. The residential portion of the plan will be approximately 82.77 acres. Parking will be provided in excess of the minimum requirement in private parking lots within individual blocks. Access to the parking lots will be from the internal street network to limit access points on the main exterior streets. The unit mix and the total number of units are subject to change throughout the design timeline.

2. Commercial Office Campus

A commercial office campus is proposed to the southeast of the central commons and food hall area. The office campus building will be a low-rise style office building, approximately 100,000 square feet in size. The overall block for the campus is approximately 10.3 acres in size. Parking for the workers on the campus will be provided in the campus block. Three access points to the commercial office campus are proposed from the internal street network.

3. Commercial Retail & Restaurant Space

There are two commercial areas and one future commercial area that are planned outside of the central commons area. These areas are 1.61, 2.49 and 3.24 acres in size and will be for various retail and restaurant uses. The 1.61 acres has a building footprint of approximately 5,850 SF. The 2.49 acres has a building footprint of approximately 7,418 SF. The 3.24 acres does not have a building footprint proposed at this time. Parking for the workers and customers of these areas will be provided in the individual area and/or on the nearby streets.

4. Light Industrial Park

The industrial park is about 18.42 acres in size with eight (8) buildings proposed. The sizes and number of buildings are subject to change throughout the design process. The buildings have an approximate footprint of 198,100 SF. The industrial park is proposed in the southeast corner of the site just outside of the office campus to transition from the project site to the adjacent industrial and agricultural uses adjacent to the

site to the south and east. Parking for the industrial workers will be provided within the blocks.

5. Central Commons

The site is organized around a large central "commons" area. This area is approximately 25.35 acres in size and is the focal point of the development in the center of the residential, commercial and industrial uses. The goal of the central area is to create a gathering place for the entire community to come together to eat with their friends and family, to shop at locally owned boutique shops, and to gather for various types of entertainment. The area includes active and passive open space areas with pedestrian trails, water features, park areas, and walkable promenade style gathering areas. The open space areas are designed for opportunities allowing farmers markets and food truck style events as well. The central commons also include an entertainment area with a proposed amphitheater. The building spaces within this area are for commercial retail and restaurant use. The current proposal includes 79,800 square feet of commercial retail and restaurant space to go along with a 7,400 square foot food hall area. The food hall would feature multiple smaller food / beverage tenants that share a large dining area that can open to adjacent outside areas. Often that separation is via large overhead doors that can be opened to offer inside / outside environments. The food hall is designed to enhance this setting and generate unique gathering spaces.

The central commons are bordered by the two main internal roads. These streets are designed with angular parking to act as traffic calming and allow drivers to get in and out of stalls with relative ease. To promote ride share access, drop off and pick up locations have been designed around the commons area. Additionally, three parking lot areas are proposed to provide off-street parking for visitors coming to the Commons area. Roundabouts are proposed at either end of the central commons to reduce vehicles idling and wait times by promoting the yield access intersections.

The design of the central commons is subject to change, but the goal of the design will remain the same.

6. Wastewater Treatment Plant

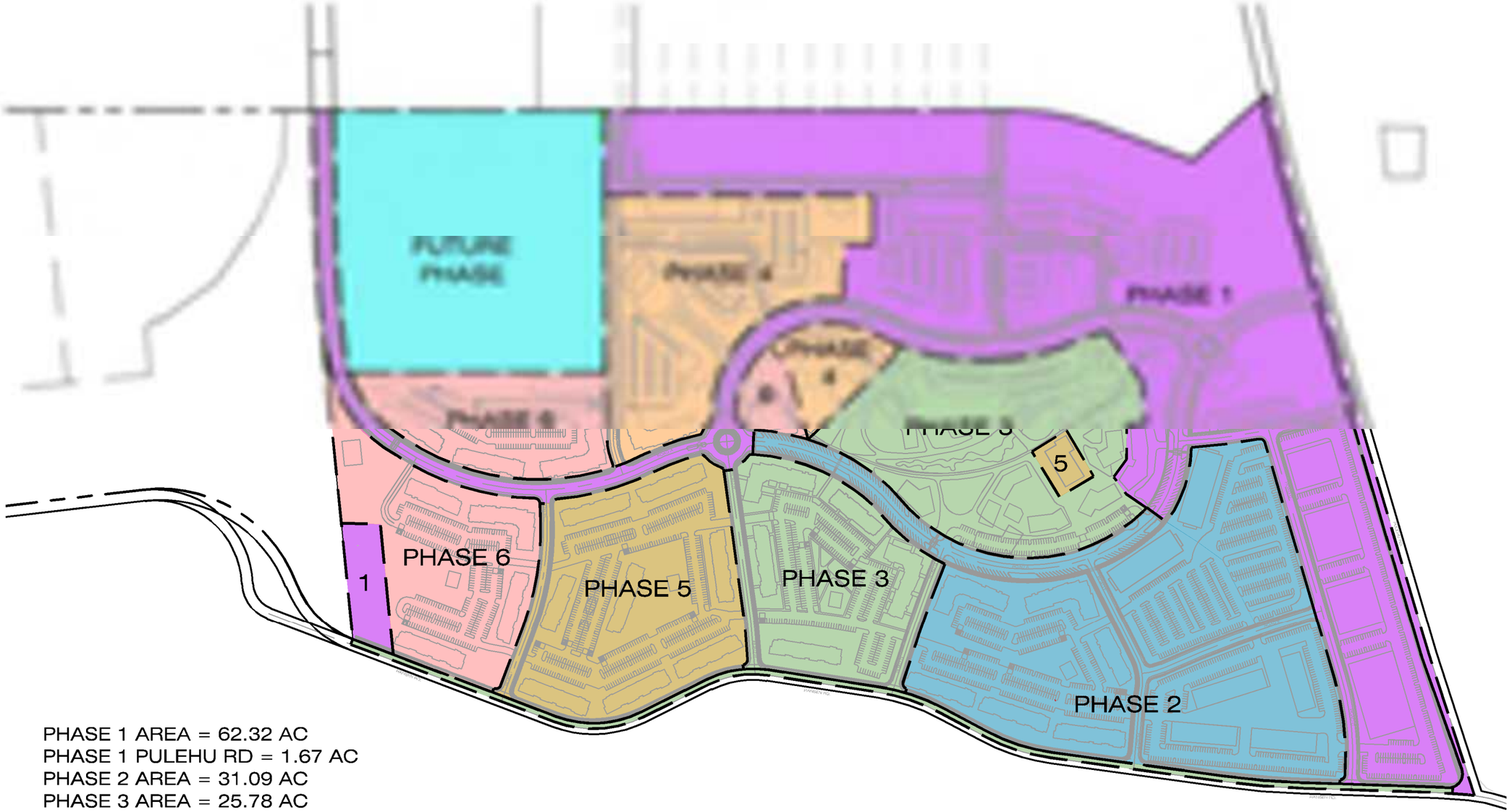
The southwest corner of the project site is the location of the proposed wastewater treatment plant. This area is approximately 1.7 acres in size. The wastewater will be pumped to the wastewater treatment plant to be processed, and the plant will produce reuseable water that will potentially be used for irrigation around the site. The treatment plant is proposed in this area to blend into the existing agricultural uses to the west and south. Various alternative designs are being considered for the treatment of wastewater including various locations for the treatment plant, and additional sources of wastewater. The wastewater treatment plant is discussed in further detail below in section II.D Infrastructure.

Phasing Plan

The Land Plan for Ho‘onani Village will be developed as a phased development. See Figure 7 – Preliminary Phasing Plan. The preliminary phasing plan is broken down into six (6) phases with a future phase for the County owned future lot, E-4. See Table 2 below for the breakdown of the acreage for each phase.

FIGURE 7: PRELIMINARY PHASING PLAN

HOONANI VILLAGE



PHASE 1 AREA = 62.32 AC
PHASE 1 PULEHU RD = 1.67 AC
PHASE 2 AREA = 31.09 AC
PHASE 3 AREA = 25.78 AC
PHASE 3 HANSEN RD = 1.94 AC
PHASE 4 AREA = 16.1 AC
PHASE 5 AREA = 15.03 AC
PHASE 6 AREA = 16.76 AC
FUTURE PHASE =22.07 AC
TOTAL AREA = 192.76 AC

SCALE
400 0 200 400
1 INCH = 400 FEET

Designed by	AO	Date 10/
Drawn by	ENH	Date 10/
Reviewed by	TCC	Date 10/
Project No.	H109-001	REF.
Horiz. Scale:	1"=400'	
Vert. Scale:		

PRELIMINARY PHASING PLAN

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
1 of 1

B:\Projects\PDGHAWAII\H109-001\Engineering\Exhibits\PRELIMINARY

Table 2: Preliminary Phasing Plan Area Breakdown

Preliminary Phasing Plan Area Breakdown	
Phase 1	62.32 ac
Phase 1 – Pulehu Rd.	1.67 ac
Phase 2	31.09 ac
Phase 3	25.78 ac
Phase 3 – Hansen Rd.	1.94 ac
Phase 4	16.10 ac
Phase 5	15.03 ac
Phase 6	16.76 ac
Future Phase	22.07 ac
Site Total	192.76 ac

Phase 1 will install the initial access points and roads for the site including the extension of Pakaula St. into the site, the half-street improvements and road widening of Pulehu Road, and a few of the interior streets and roundabouts. A portion of the extension of Pakaula Street will be completed on the property that is owned by the County of Maui. Phase 1 will have residential, commercial and industrial uses constructed. In phase 1, the essential utilities to serve the site have to be installed, which include the items listed below:

- Pump station and wastewater treatment plant
- 1st phase of gravity wastewater systems
- Entire pressure pipe wastewater system from Pump station to WWTP
- Off-site water source and storage reservoirs
- Off-site water distribution system
- 1st Phase of on-site water line system
- Regrading and updates to the detention basins
- 1st Phase of storm conveyance system
- Electrical & telecommunication conduits
- Street lighting
- Natural gas lines if decided by applicant

Phase 2 will include the commercial office campus, the remaining industrial area, and another phase of low-rise multi-family residential units along with the associated street and utility improvements.

Phase 3 will include the majority of the central commons area, another phase of low-rise multi-family residential units along with the associated

street and utility improvements, and the half-street improvements and road widening of Hansen Road.

Phase 4 will include a small section of the central commons area, and another phase of low-rise multi-family residential units along with the associated street and utility improvements.

Phase 5 will include a single building in the central commons area, and another phase of low-rise multi-family residential units along with the associated street and utility improvements. All street improvements will be completed with Phase 5.

Lastly, Phase 6 will include a small section of the central commons area including the proposed amphitheater entertainment space, and the last phase of low-rise multi-family residential units along with the associated utility improvements.

The phasing plan is preliminary and is subject to change through the design process. The final phasing plan will be completed with the construction plans for the project.

D. Chapter 343, Hawaii Revised Statutes Compliance

The County of Maui Department of Planning, based on its judgment and experience, has determined that an Environmental Impact Statement (EIS) is likely necessary and has authorized the Applicant to begin the environmental review process by preparing an Environmental Impact Statement Preparation Notice (EISPN). This EISPN has been prepared in compliance with Chapter 343 of the Hawai'i Revised Statutes (HRS) and Chapter 200.1 of Title 11 of the Department of Health Administrative Rules (HAR), which governs the EIS process. In accordance with §11-200.1-7(c), HAR, the Maui Planning Commission holds the final authority to accept the EIS, as the first discretionary permit or approval for the project will involve a Special Management Area (SMA) Use Permit, as described further below.

This Environmental Impact Statement Preparation Notice (EISPN) serves to inform the public about the proposed project and to gather input on the scope of impacts to be addressed in the Draft Environmental Impact Statement (EIS). Public comments on the contents of the Draft EIS will be solicited through this EISPN and during a public scoping meeting. As defined in HAR §11-200.1-2, an "EIS public scoping meeting" is a forum where agencies, citizen groups, and the public collaborate with the proposing agency or applicant to determine the range of actions, alternatives, impacts, and mitigation measures to be included in the Draft

EIS, and to identify significant issues for in-depth analysis. Details regarding the public scoping meeting can be found in Chapter VII.

The Draft EIS will provide a more refined and detailed description of the proposed project. It will analyze the potential environmental consequences of the project and will provide a discussion of alternatives to the project. The Draft EIS will disclose significant short-term, long-term, and cumulative impacts on the human, natural, and built environment. The following resource categories have been tentatively identified for consideration in the Draft EIS:

- Existing and Surrounding Land Uses
- Climate
- Topography and Soil Characteristics
- Agriculture
- Groundwater Resources
- Streams and Wetlands
- Flood Hazards
- Flora and Fauna
- Air Quality
- Greenhouse Gas Emissions
- Noise
- Scenic and Open Space Resources
- Archaeological and Historic Resources
- Cultural Resources
- Chemical and Fertilizer Use
- Regional Setting
- Population, Demography, and Social Impacts
- Economy and Labor Force
- Police and Fire Protection
- Medical Facilities
- Educational Facilities
- Recreational Facilities
- Solid Waste Collection
- Roadways/Circulation
- Water System
- Wastewater System
- Drainage System
- Electrical, Telephone, and Cable Television/Internet Systems
- Cumulative and Secondary Impacts

It is anticipated that the following site-specific environmental studies analysis and reports for the project will be addressed in and appended to the Draft EIS, as applicable:

- Air Quality & Greenhouse Gas Report
- Retail Demand Study
- Acoustic Impact Report
- Archaeological Impact Study
- Traffic Impact Analysis
- Shared Parking Analysis
- Geotechnical Report and Infiltration Analysis
- Water Resource Impact Study
- Environmental Phase 1 and 2
- Agricultural Impact Assessment
- Cultural Impact Analysis
- Flora and Fauna Report
- Preliminary Engineering and Drainage Report
- Sustainability Report
- View Analysis

The Draft Environmental Impact Statement (EIS) will be prepared and submitted to the Department of Planning for review. It will be published in the Environmental Notice bulletin by the Office of Planning and Sustainable Development's Environmental Review Program (ERP) and made available for a 45-day public review and comment period. Additionally, the Draft EIS will be presented to the Maui Planning Commission, the EIS Accepting Authority, at a public meeting for further review. After this process, the Applicant will prepare a Final EIS that addresses the comments received on the Draft EIS. The Final EIS will then be reviewed by the Maui Planning Commission at another meeting to determine the acceptability of the document.

E. Land Use Entitlements Required

1. Subdivision Application of Lot 2-C-4-C-1-E

The current TMK is (2) 3-8-006:004 and notated as Lot 2-C-4-C-1-E. A subdivision application has been filed to subdivide the existing parcel into five lots (E-1 through E-5). The subdivision application has been filed by Austin Tsutsumi & Associates, and is named First Assembly of God Subdivision of Lot 2-C-4-C-1-E. The subdivision will create the new lot E-1 where the Ho'onani Village project is proposed to be developed, and also lot E-4 which will be owned by the County of Maui and will be proposed for future development. This process will be first to create the lot that the rest of the entitlements will apply to. This process will be accepted and reviewed by the County of Maui's Planning Department, and thus they will also be the receiving agency for the EISPN.

2. District Boundary Amendment

The MIP Directed Growth Map shows the southwest corner of lot E-1 to be within the Urban Growth Boundary, but most of lot E-1 and the entire lot E-4 are outside of the current UGB. See Figure 3 – Maui Island Plan Directed Growth Map. Additionally, the project site is adjacent to the UGB to the north and to the southeast. Bringing the site into the UGB would match with the existing uses adjacent to the site. The State Land Use District Boundary Map currently has the site in the agricultural district. See Figure 8 – State Land Use District Boundary Map. As such, approval from the SLUC of a District Boundary Amendment (DBA) petition will be needed to bring these lands within the "Urban" district. From the Applicant's perspective, the Urban District designation would match the existing uses adjacent to the site and would not create a new break between the growth boundaries. SLUC classification of the project site will be sought after the subdivision of the existing lot. A Community Plan Amendment application (as discussed below) will be needed prior to processing the DBA petition to ensure conformity of the County comprehensive land use plans.

FIGURE 8
STATE LAND USE DISTRICT BOUNDARY MAP

SOURCE: STATE LAND USE COMMISSION MAPS

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: NTS Vert. Scale: NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

3. Community Plan Amendment

As mentioned previously, a portion of the lot E-1 is classified as Heavy Industrial by the Wailuku-Kahului Community Plan (2002). Refer to Figure 4. The lands immediately adjacent to the site to the north and to the southeast are classified as Light Industrial by the Community Plan. It is anticipated that lots E-1 and E-4 will have their County Zoning and Community Plan Classifications redesignated to ensure land use consistency with the proposed State Land Use and County zoning designations. As such, as noted above, prior to the DBA petition for reclassification, an application for a Community Plan Amendment (CPA) may be prepared and filed with the Department of Planning for review and action by the Maui County Council. There is a possibility that the Wailuku-Kahului Community Plan Map could be updated prior to the filing of the CPA, in which case a CPA may not be required for the development of the project. The goal of the CPA is to have the classification match the future zoning of the lot as discussed in Section 4 below for the Change in Zoning.

4. Change of Zoning

The project site, Lot E-1, and the County owned lot E-4 are currently zoned for Agricultural Use in the County of Maui. Refer to Figure 9 – Maui County Zoning Map. The project site will need to be re-zoned to allow for uses proposed by the site plan. As lot E-4 of the subdivision will be owned by the County of Maui, the applicant is working with the County of Maui to pursue a County Initiated Change of Zoning (CIZ) to change the zoning of lot E-1 and E-4 to M-1 Light Industrial. This zone change would allow all of the proposed uses in the Ho'onani Village land plan. The CIZ process will be coordinated directly with the County of Maui.

Further information regarding the proposed land use entitlement changes for the project will be provided in the Draft EIS.

FIGURE 9
MAUI COUNTY ZONING MAP

SOURCE: MAUI COUNTY GIS

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II. DESCRIPTION OF THE EXISTING ENVIRONMENT AND SCOPING OF POTENTIAL IMPACTS

A. PHYSICAL SETTING

1. Existing and Surrounding Land Uses

The project area is located adjacent to the Wailuku-Kahului Community Plan Area within the Central Maui region. The surrounding area contains a variety of uses. Northwest of the site, the uses are primarily commercial in nature including both large "big box" retail such as Target and Lowe's Home Improvement Store, and smaller retail shops and restaurants. The airport is north/northeast of the site separated from it by agricultural lands. South and east of the site the area is primarily designated Agricultural. West and southwest of the site contain both Agricultural and Heavy Industrial land designations as well as public/quasi-public and recreational uses. Refer to Figure 4 – Wailuku and Kahului Community Plan Map.

2. Climate

Maui has a semi-tropical climate with numerous distinct microclimates. The average annual temperature near sea level is around 75 degrees Fahrenheit. Most of the island's rainfall occurs on its northeast-facing shores, while the south and southwest coastal areas remain relatively dry.

Kahului experiences consistently warm temperatures throughout the year, with minimal seasonal fluctuations. Annual temperatures in the region average in the upper 70s to mid-80's. July through September are historically the warmer months of the year, while the cooler months are December through February. During the summer months, average daily temperatures in Kahului are slightly higher than in winter and typically range from the low to the mid 80's.

Average rainfall distribution in this region varies from 10 inches to 20 inches per year in the higher elevations. Rainfall in the Central Maui region is highly seasonal, with most of the precipitation occurring in the winter months from strong storm systems.

The northeast trade winds dominate about 80 to 85 percent of the time, typically averaging 10 to 15 miles per hour in the afternoons. Mornings and nights generally bring calmer or lighter winds. From

October to April, southerly winds associated with Kona storms may also occur.

Replacing vegetative surfaces with hardscapes such as roadways, paved parking areas, and buildings can slightly increase ambient air temperatures, creating a "heat island" effect. To mitigate this, the project will incorporate proposed landscaping and landscape buffers. The landscape design and planting plan aim to provide shading to help reduce the "heat island" effect. More details about the proposed landscaping plan will be included in the Draft EIS.

3. Topography and Soil Characteristics

The project area slopes in a southeast to northwest direction with low points near the adjacent Target store and the most northerly corner of the site along Pulehu Road.

The project area is underlain by the Pulehu-Ewa Jaucas Association. See Figure 10 – Soil Association Map. The Soil Survey of the Islands of Kaua'i, O'ahu, Maui, Moloka'i and Lāna'i, State of Hawai'i characterizes the soils of the Kahului/Pu'nene soil association as deep, nearly level to moderately sloping, well-drained and excessively drained soils that have a moderately fine textured to coarse-textured subsoil or underlying material; on alluvial fans and in basins.

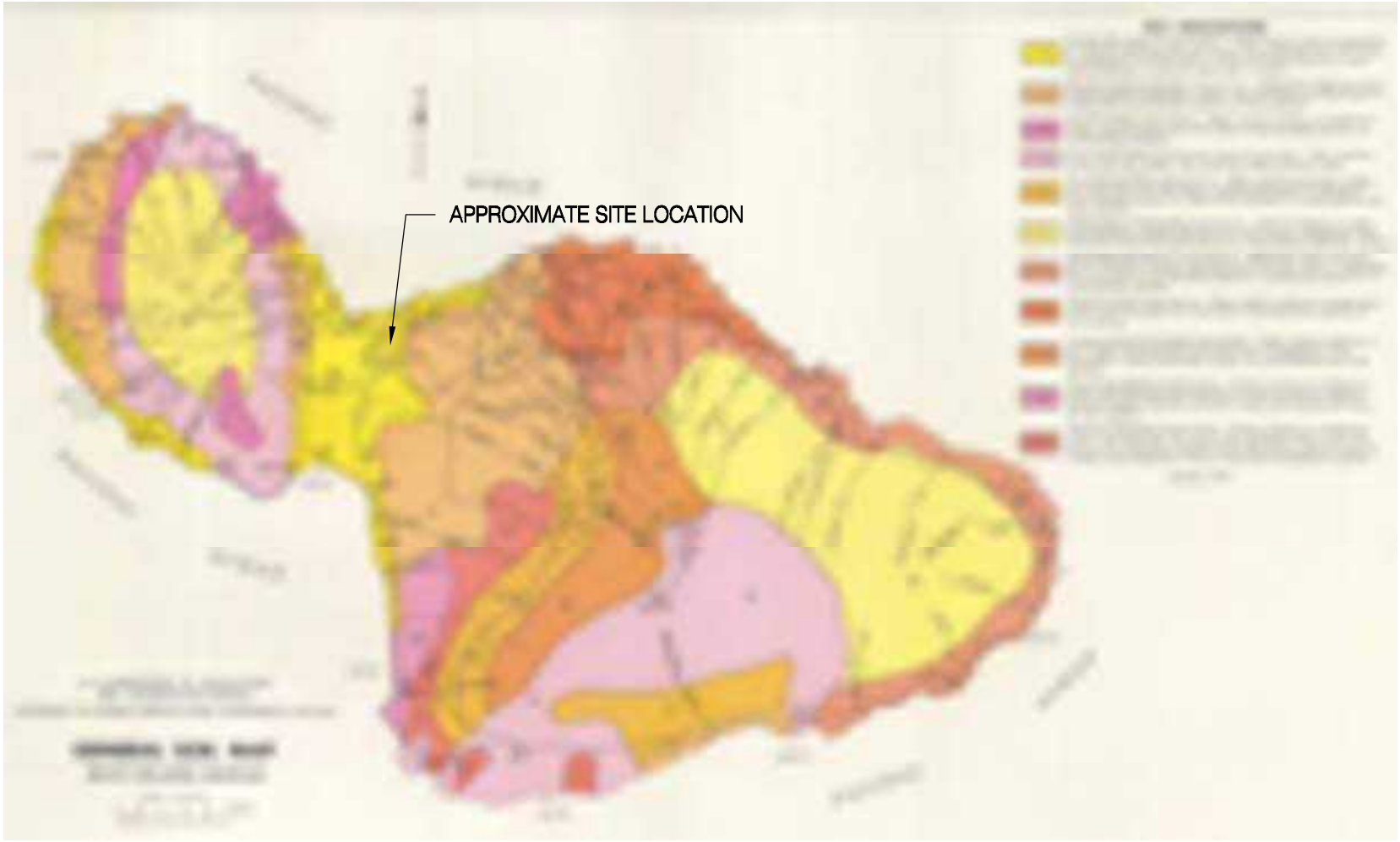
The site is generally blanketed by a layer of agriculturally disturbed soil underlain by alluvial (water deposited) soil.

The Natural Resources Conservation Service Map classifies existing soil on site as (EaA) Ewa Silty Clay loam. See Figure 11 – Soil Classification Map. This series is characterized by well drained soils in basins and alluvial fans. These soils developed in alluvium derived from basic igneous rock. They are nearly level to moderately sloping.

The site was recently used for the cultivation of sugar cane. The cultivation process left the entire site with approximately 12 to 30 inches of agriculturally disturbed soil. The agriculturally disturbed clayey silt consisted of low plasticity clayey silt with varying percentages of sand, typically classified as ML under the USCS. In addition to the agriculturally disturbed clayey silt, several areas of agriculturally disturbed silty sand, typically classified as SM under the USCS, were encountered across the site. The depth of bedrock is deeper than 5 feet.

FIGURE 10

SOIL ASSOCIATION MAP



SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, GENERAL SOIL MAP

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FIGURE 11
HYDROLOGIC SOIL GROUP CLASSIFICATION MAP

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, SOIL MAP

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: NTS Vert. Scale: NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

4. Agriculture

On the island of Maui approximately 235,770 acres have been designated as “Agricultural” by the SLUC, representing just over 50 percent of the island.

The State Department of Agriculture created a classification system in 1977 identifying Agricultural Lands of Importance to the State of Hawai‘i (ALISH). This system is based mainly, though not solely, on the soil characteristics of the land. ALISH divides the land into three categories: "Prime," "Unique," and "Other Important" agricultural land, with any remaining areas classified as "Unclassified."

"Prime" agricultural lands have the soil quality, growing season, and moisture supply necessary to economically produce sustained crop yields when combined with modern farming techniques. "Unique" agricultural lands are capable of producing sustained high yields of specific crops due to their favorable combination of soil quality, growing season, and moisture supply. "Other Important" agricultural lands, while not classified as "Prime" or "Unique," are still considered significant for agricultural use at the state or local level.

Approximately 62,000 acres, or 26 percent, of Maui’s 235,770 acres of SLUC designated “Agricultural” lands are characterized as “Prime” lands by the ALISH system. The project area is classified by the ALISH system. See Figure 12 – Agricultural Lands of Importance to the State of Hawai‘i Map.

FIGURE 12

AGRICULTURAL LANDS OF INTEREST OF THE STATE OF HAWAII (ALISH) MAP

SOURCE: STATE OF HAWAII GIS (POWERED BY GEOPORTAL)

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: NTS Vert. Scale: NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

The University of Hawai‘i’s Land Study Bureau (LSB) created the Overall Productivity Rating system, which categorizes soils into five levels. Soils rated “A” have the highest productivity, while those rated “E” have the lowest. Numbers following these letters provide additional details about the soil, such as its texture, drainage capacity, and stoniness. These ratings are determined based on various factors like soil characteristics, topography, and climate. On Maui, approximately 21 percent of the island’s SLUC “Agricultural” lands are classified as LSB “A” and “B” soils, indicating high productivity. The project area is within the State Agricultural District and, therefore, is provided a classification of A by the LSB. Refer to Figure 13 – Land Study Bureau Map.

Chapter 205, Hawai’i Revised Statutes (HRS), declared that the people of Hawai’i have a substantial interest in conserving the agricultural resources of the State. The State calls for the identification of Important Agricultural Lands (IAL) to identify and plan for the maintenance of a strategic agricultural land resource base that can support a diversity of agricultural activities and opportunities that expand agricultural income. The project area is not an IAL.

An Agricultural Impact Assessment will be prepared as part of the EIS process to assess the potential impact of the proposed project on the availability of productive agricultural lands on Maui. A copy of the Agricultural Impact Assessment will be included and discussed in the Draft EIS.

FIGURE 13
LAND STUDY BUREAU MAP

SOURCE: STATE OF HAWAII GIS PROGRAM, LAND STUDY BUREAU'S CLASS LOCATOR

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5. Groundwater Resources

A Groundwater Resource Assessment will be conducted to assess potential impacts on local groundwater resulting from the proposed project, including the possible development of one or more wells and a reverse osmosis facility. The findings of this report will be included and analyzed in the draft Environmental Impact Statement (EIS).

6. Streams and Wetlands

There are no drainageways crossing the property nor are there any identified wetlands. As such, the project proposes no impact to these types of resources. See Figure 14 – Existing Streams Map and Figure 15 – Existing Wetlands Map below. A Preliminary Engineering and Drainage Report (PEDR) has been developed for the project to evaluate the hydrological conditions influencing drainage patterns within the project area. The PEDR is included as Appendix A.

FIGURE 14
EXISTING STREAMS MAP

SOURCE: STATE OF HAWAII GIS PROGRAM, HAWAII STREAMS FROM DLNR, DIVISION OF AQUATIC RESOURCES, 2008.

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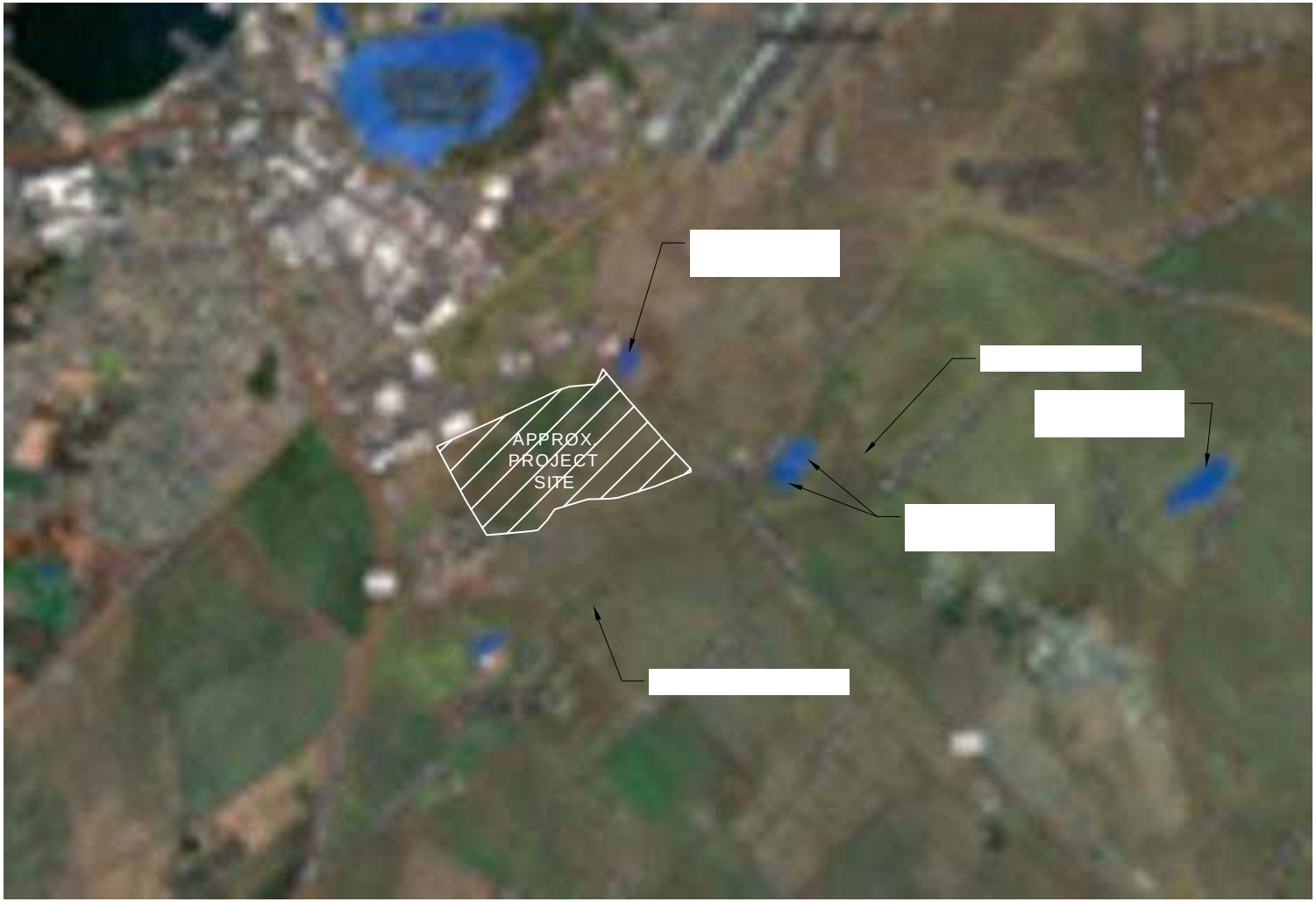
FIGURE 15
EXISTING WETLANDS MAP



SOURCE: STATE OF HAWAII GIS PROGRAM, WETLANDS OF THE STATE OF HAWAII, USFWS, AUGUST 2019.

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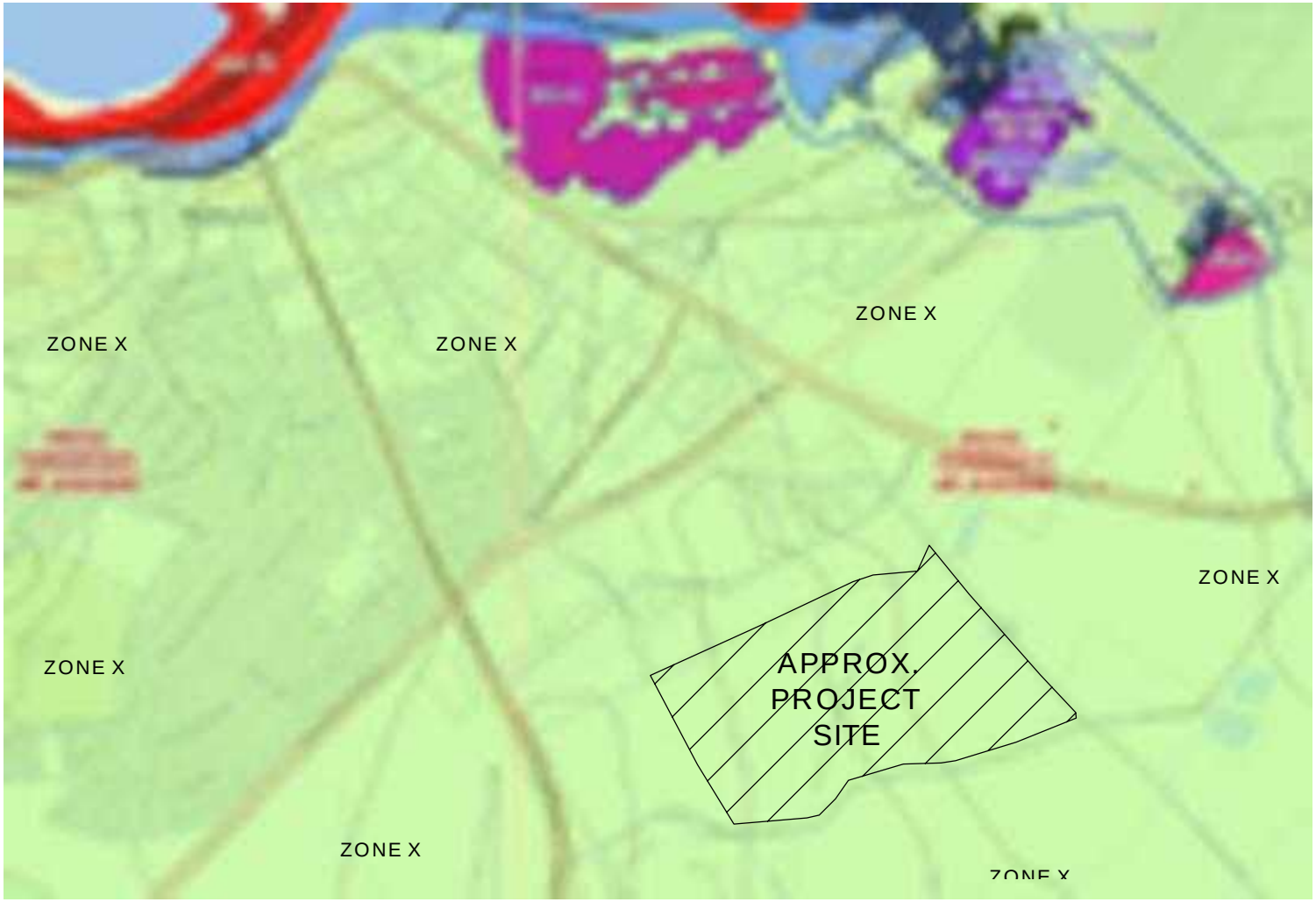
7. Flood and Tsunami Hazards

The entirety of the project site is in Flood Zone X as shown on The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map. As such, there is not a source of flooding that would affect the project site. Refer to Figure 16 – Flood Insurance Rate Map.

The updated Tsunami Evacuation maps from the County of Maui identify three zones: 1) Safe Zone, marked in green, which indicates areas where people should evacuate to during a tsunami event; 2) Extreme Evacuation Zone, shown in yellow, which highlights areas that must be evacuated during an Extreme Tsunami Warning; and 3) Tsunami Evacuation Zone, shown in orange, designating areas to be evacuated under any Tsunami Warning. During a Tsunami Warning, destructive waves could inundate all coastlines, while during an Extreme Tsunami Warning, waves may reach significantly farther inland. According to the Tsunami Evacuation Map, the project is located within and near the boundary of the Extreme Evacuation Zone, adjacent to a Safe Zone that follows the alignment of Hansen Road. Refer to Figure 17 – Tsunami Evacuation Zone Map.

There are no restrictions on development associated with the Flood Zone X designation covering the site. Structures will be sited in the Extreme Evacuation Zone however the safe zone is adjacent to and mauka of the project site.

FIGURE 16
FLOOD INSURANCE RATE MAP



SOURCE: STATE OF HAWAII DLNR FLOOD HAZARD ASSESSMENT TOOL

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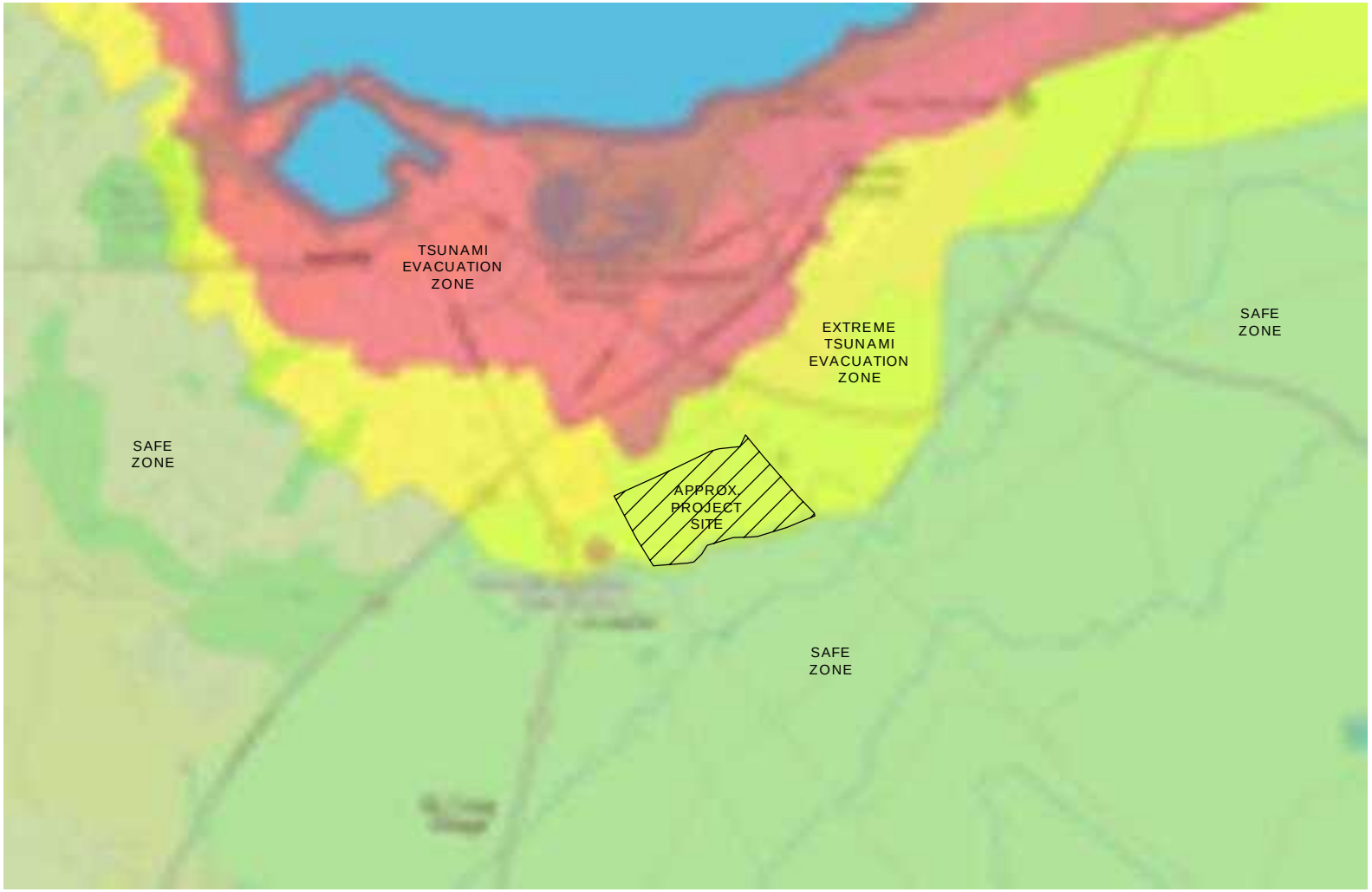
FIGURE 17
TSUNAMI EVACUATION ZONE MAP



LEGEND

- -TSUNAMI EVACUATION ZONE
- -EXTREME TSUNAMI EVACUATION ZONE
- -SAFE ZONE

SOURCE: TSUNAMI EVACUATION MAPS, NOAA, TSUNAMI.COAST.NOAA.GOV

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8. Flora and Fauna

A Flora and Fauna review of the site has been completed, and the final report is submitted with this EISPN in Appendix C.

"The main project site and the lower reaches of the pipeline corridor are dominated by non-native grasses, mostly Guinea grass (Megathyrsus maximus) and buffel grass (Cenchrus ciliaris). In areas where grasses are thin, other aggressive non-native plants dominate, especially spiny amaranth (Amaranthus spinosus), lion's tail (Leonotis nepetifolia), golden crown-beard (Verbesina encelioides), and tumbleweed (Salsola tragus). Clumps of shrubby non-native fleabane (Pluchea spp.) also dot the fields of grass.

There are very few trees in the main project area. Most prevalent are hundreds of non -native tree tobacco (Nicotiana glauca). Other trees in the project area include groves of large haole koa (Leucaena leucocephala). A few monkey pods (Samanea saman). And a row of giant, mostly dead, elephant's ear pod (Enterolobium cyclocarpum) along Pulehu Rd. There are also scattered small kiawe (Prosopis pallida), Manila tamarind (Pithecellobium dulce), silky oak (Grevillea robusta), and date palms (Phoenix sp.). And at the well site and upper reaches of the pipeline corridor, there is an active citrus farm growing lime trees (Citrus aurantifolia).

The only native plant found on the main site was the common shrub 'uhaloa (Waltheria indica). 'Uhaloa was also abundant at the well site and in the pipeline corridor, along with scattered vines of the native pā'ū o Hi'iaka (Jacquemontia sandwicense)

Dedicated surveys for Hawaiian Hoary Bats (Aeorestes semotus) were not done, but bats are known to transit over broad areas and may forage at the site at times. Most of the trees at the project site are less than 15 ft. tall, though some are taller. Hawaiian Hoary Bats roost and give birth to their young in tall trees. While tree trimming activities are not incompatible with bats, they have the potential to impact juvenile bats unable to fly away from a tree that is cut during the summer pupping season. For this reason, the FWS suggests that trimming woody plants more than 15 ft. tall should not occur between June 1 and September 15.

The only non-native mammals observed at the site were a few dozen Axis Deer (Axis axis) at the main site and a herd of cows (Bos taurus) in the lower reaches of the pipeline corridor. Additionally, high levels of browsing, scat, game trails, digging, and rubbing were observed. Non-native mammals that were not observed but likely occur in the project area at times include pigs

(Sus scrofa), rats (Rattus spp.), mice (Mus domesticus), cats (Felis domesticus), dogs (Canis familiaris), and mongooses (Herpestes auropunctatus).

There were very few birds at the site. The bulk of the birds encountered during the survey were common non-native species. The birds were mostly transiting through the site, roosting in trees, and loafing on the ground. Birds were most common near the edges of the property, in areas that are lusher and have more structural diversity. Most abundant were Common Mynah (Acridotheres tristis) and Zebra Doves (Geopelia striata). No Hawaiian Geese or Nēnē were encountered on the site, though they are known from the general area."

9. Air Quality

The area typically does not experience significant air quality issues. Local sources of air contaminants primarily include vehicle emissions and occasional events such as volcanic eruptions on Hawai'i Island and range fires.

Construction activities for the project are expected to generate short-term dust impacts. Site work, including clearing, grubbing, grading, and utility and roadway installation, will produce windblown particulates. A Best Management Practices (BMP) plan will be implemented during construction to mitigate these impacts. Dust control measures outlined in the BMP may include regular watering, the use of sprinklers, installation of dust screens, and prompt revegetation of disturbed areas.

Post-construction, vehicle traffic generated by the project will contribute to automotive emissions. To reduce these emissions, residents and employees will be encouraged to use alternative transportation methods. The project includes proposed walking and bicycle pathways to promote ease of access and reduce airborne emissions from short trips.

An Air Quality Assessment will be prepared as part of the environmental review process, a copy will be included in the Draft EIS.

10. Greenhouse Gas Emissions

The Central Maui Area includes a variety of uses including residential, Commercial, Industrial and Airport. The areas near the site include commercial activities to the north/northwest and agricultural uses to the south/southeast. The site itself is agricultural in nature with sugar cane being the most recent mass-produced crop on the site. Generally

agricultural uses of this type are not considered to be a substantial contributor of Greenhouse Gas (GHG) emissions. Development of the area into commercial and residential uses will increase levels of GHG through sources such as vehicular emissions and commercial and residential electricity needs. Constructing a “complete community” will help reduce GHG impacts through decreased out of area trips and increased multi-modal transportation opportunities.

An Air Quality Assessment will be prepared as part of the environmental review process for the project. It will also include a discussion relating to GHG emissions. The assessment will be included and discussed within the Draft EIS.

11. Noise

Existing background traffic traversing through the area to the north/northwest of the site is the principal contributor of local noise.

Ambient noise levels will be temporarily affected by construction activities, with heavy machinery and construction work being the primary sources of noise. To mitigate the impact on local noise conditions, equipment maintenance, mufflers, and other noise-reducing devices will be employed during construction. Construction noise will be limited to daylight hours, reducing the duration of noise disturbances. Contractors will adhere to the maximum allowable noise levels for stationary equipment as outlined in Hawai‘i Administrative Rules (HAR), Chapter 11-46, "Community Noise Control." If required, a community noise permit will be obtained before construction begins.

As part of the environmental review process, a Noise Study will be conducted, and its findings will be included and discussed in the Draft Environmental Impact Statement (EIS).

12. Scenic and Open Space Resources

The potential impacts of the proposed project on scenic and open space resources, as well as scenic view corridors, will be assessed and discussed in the Draft (EIS).

13. Archaeological and Historical Resources

An Archaeological Impact Study will be prepared for the project area in coordination with the State Historic Preservation Division. The findings of the study will be assessed and discussed in the Draft EIS.

14. Cultural Resources

In terms of traditional Hawaiian perspectives of the island, the project area is situated within the moku (traditional land district) of Pūʻali Komohana. The site lies within the ahupuaʻa of Wailuku, just makai of the ahupuaʻas of ʻŌmaʻopio, Kalialinui, Aʻapueo and Makaʻehu. The Pūʻali Komohana moku stretches from about the center of the West Maui Mountains to the northwestern slopes of Haleakalā. The site sits on the base of Haleakalā as the slopes flatten out towards the Kahului area. The project site was in the heart of the plantation industry boom in the early 1800s, with Puʻunene Sugar Mill being located just to the west of the site. Sugar cane and pineapple fields covered most of the area around the site, with the main harbor and business area growing to the Northwest in Kahului.

Existing wetland areas were located throughout the coastline in Kahului before the area's development. Kanahā Pond was one of the twin ponds of Kapiʻioho, which were constructed over 200 years ago by the Chief of Maui at the time, Kapiʻiohoʻokalani. These were utilized for growing and storing fish for the local community. In the early 1900s, half of the fishpond was filled with material from the dredging of the nearby harbor. Kanahā pond exists today as a wildlife sanctuary.

The site's history of agricultural uses and the nearby ocean resources lead to massive growth within the moku. A Cultural Impact Assessment (CIA) study for the project area will be prepared as part of the environmental review process. A copy of the CIA report will be included and its findings discussed in the Draft EIS.

15. Use of Chemicals and Fertilizers

The project area is currently vacant and recently burned. The vegetation consists of primarily non-native species such as Guinea grass and Buffel grass. In areas where grasses are thin, other aggressive non-native plants dominate, including spiny amaranth, lion's tail, golden crown-beard, and tumbleweed. Clumps of shrubby non-native fleabane also dot the fields of grass. Pre-contact, the area would have likely supported a diverse, native dry forest and grassland habitat. The diversity has been greatly reduced by past sugar cane production. Chemicals and Fertilizers typical for sugar cane agricultural activities were likely used on the project site but none since production ceased on the property.

Landscaping for the project will be designed in a manner that reduces the need for herbicides, pesticides and fertilizers. A low maintenance approach will be taken to limit impacts to the site and surrounding areas. During the establishment period for new plantings, fertilizers may be used to ensure survivability. Herbicides and pesticides may also be used in limited situations for landscape maintenance.

The project will also include a comprehensive drainage system to retain stormwater due to increased run-off rates of impervious surfaces. Water quality of the runoff will provide treatment to prevent impacts to downstream properties. A more detailed description and discussion of the drainage system for the project will be included in the Draft EIS.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Regional Setting

From a regional perspective, the project area lies within the Wailuku-Kahului Community Plan region, which is described as the Central Maui region. The region touches the West Maui region to the west, the Kihei-Makena region to the south, and the Paia and Pukalani regions to the east and southeast. This area showcases a wide range of physical and socio-economic environments. Due to the region's growth in the commercial retail and restaurant industries, the proximity to the airport, the shoreline, and Haleakalā, the number of local residents and visitors in the area has consistently grown over the years. Kahului and Wailuku serve as the commercial, industrial and residential hub of the region based around the Kahului airport and harbor. The Kahului and Wailuku area has more permanent residents than visitors. Visitors tend to stay at the resort locations of south and west Maui. The region has planned development areas that start at the edges of the current development and stretch south.

The proposed project aims to create affordable multi-family rental units to provide additional housing for the local community while also creating a central commercial gathering area to bring the community together. The industrial uses will provide for a smooth transition to the existing agricultural and industrial uses adjacent to the site. The design will incorporate architectural and landscape thematic concepts to maintain consistency with the area's built environment.

2. Population, Demography, and Social Impacts

Maui County's population has experienced moderate growth over the past ten years. According to Decennial Census data, the population increased from 154,834 in 2010 to 164,754 in 2020, representing a 6.41% growth over the decade.

The proposed project is located south of the Kahului Airport in the Central Maui Region. The Census Designated places nearby include Kahului, Wailuku, Waikapu and Waiheʻe – Waiehu. These census areas have also grown within the 10-year time frame between 2010 and 2020. In 2010 the population of the four census areas that make up Central Maui was 50,002. In 2020 the population had expanded to 58,587 for an increase of 14.6%.

With a substantial amount of apartment housing being proposed in this mixed-use development, tenants are likely to be primarily local residents used as full-time residency.

An economic and Fiscal Impact Assessment will likely be prepared and submitted in the Draft EIS.

3. Economy and Labor Force

Kahului, located on the island of Maui in Hawaii, is primarily dependent on the tourism industry. As a central hub for transportation and commerce on the island, Kahului hosts Maui's main airport (Kahului Airport) and its largest harbor, making it a key entry point for visitors. Tourism drives much of the local economy, with visitors coming for the island's beaches, resorts, and attractions like Haleakalā National Park.

In addition to tourism, the Central Maui Region, most notably the Kahului and Wailuku area has a strong presence in retail and transportation. Agriculture also had a strong presence particularly in historical industries like sugarcane and pineapple cultivation, though agriculture has declined in recent decades. The retail and transportation industries provide service support for the tourism industry.

For the calendar year 2023, total spending by visitors on Maui was $5.80 billion (-0.5%) and daily spending was $287 per person (+17.5%). In comparison, total visitor spending on Maui was $5.82 billion and daily spending was $244 per person in 2022. (Hawaiʻi Tourism Authority, 2023)

This reflects the significant contribution of tourism to the local economy, with spending on accommodations, dining, activities, and retail being key areas of expenditure.

Hawai'i's economy was strong through 2019, with record-breaking visitor arrivals and low unemployment rates. However, the COVID-19 pandemic had widespread impacts on Maui's economy. Stay-at-home orders and travel quarantines implemented to contain the virus led many businesses to close or significantly scale back operations, resulting in a sharp rise in unemployment claims. By May 2020, the statewide unemployment rate soared to 23.4%, up from just 2.7% in February 2020. As businesses gradually reopened, unemployment rates steadily declined. By December 2023, the unemployment rate had dropped to 2.9%, an improvement from 3.5% in December 2022 (Department of Business, Economic Development and Tourism, 2024).

An Economic and Fiscal Impact Assessment will likely be included in the Draft EIS.

C. Public Services

1. Police and Fire Protection

The Maui County Police Department Headquarters (MPD) are located at the Wailuku Station. There are several patrol, support, administrative and investigative divisions that service the Hana, Lanai, Lahaina, Molokai, Wailuku and Kihei regions. The MPD's Wailuku Station covers the subject region operating out of the main station on Mahalani Street approximately 4 miles from the project site.

Fire prevention, protection and suppression services are provided by the County of Maui, Department of Fire and Public Safety. The Kahului Fire Station, which services the site area is located on Dairy Road near its intersection with Mayor Elmer F. Cravalho Way. The station is approximately 0.5 miles west of the project site.

The proposed project will support police and fire protection services through the real property tax revenues it is expected to generate. Projections of these tax revenues will be detailed in the Economic and Fiscal Impact Assessment, which will likely be included in the Draft EIS.

2. Medical Facilities

Maui Memorial Medical Center is the only major medical facility on the island of Maui. This facility has 219 beds and provides general, acute and emergency care services.

Within the Wailuku and Kahului area, there are doctor's offices and clinics throughout. These offer fewer medical services. These clinics include Maui Medical Group, Paradise Medical Services, Maui Medical, Maui Family Medicine, Minit Medical Urgent Care, Maui VA Clinic, Champs Pediatric and Kaiser Permanente to name a few.

3. Education Facilities

The Hawaii Department of Education (DOE) operates nine (9) schools within the Kahului/Wailuku area. Pu'u Kukui, Pomaika'i, Kahului, Lihikai and Wailuku elementary schools serve kindergarten through 5th grade. Iao and Maui Waena intermediate schools serve grades 6th through 8th and Maui and Baldwin High Schools serve grades 9th through 12th. Approximate enrollment figures for these schools are located in Table 2 below.

Table 3 – Wailuku – Kahului Public School Enrollment

School	Actual Enrollment		
	SY 21-22	SY 22-23	SY 23-24
Pu'u Kukui Elem.	685	683	709
Pomaika'i Elem.	539	510	578
Kahului Elem.	835	832	799
Lihikai Elem.	758	717	691
Wailuku Elem.	585	559	550
Iao Int.	818	780	950
Maui Waena Int.	1140	1044	1126
Baldwin High	1350	1338	1345

Maui High	2058	1999	1908
Total	8768	8462	8656

Maui College is a branch of the University of Hawaii (UHMC) located in Kahului. Maui College is the primary higher education institution providing service on Maui.

The majority of the residents at the project are expected to be full-time residents and would have children enrolled in local public schools. The future County owned lot, E-4, is a potential location for a future public elementary school. The applicant will comply with applicable DOE school impact fee requirements for the project.

4. Recreational Facilities

Many diverse opportunities exist in the Central Maui Community Plan Region. Shoreline activities such as fishing, surfing, jogging, camping, picnicking, snorkeling, swimming, kite surfing and windsurfing are the primary recreation activities in the area.

Popular local beaches include Kanaha Beach, VOR Beach, Hoʻaloha Park, Spreckelsville, Baby, Sugar Cane, Hoʻokipa, Kaulahao and Pāʻia Secret Beach.

Various public park facilities are also located nearby including War Memorial Sports Complex, Keopuolani Regional Park, Maui Lani Regional Park, Kahului Community Center Park, Kahului Park and Lihikai Park while golfing activities exist at Waiehu Municipal Golf Course and The Dunes at Maui Lani. There are also 2 private golf clubs in the local area.

Additional recreational resources include Maui Zip Line Company, Kanaha Pond State Wildlife Sanctuary, Lao Valley, Maui Nui Botanical Gardens and the Central Maui Regional Sports Complex.

The proposed plan, with its implementation will provide additional recreational facilities including a potential future County of Maui community center, and active and passive open space areas such as parks, trails, greenspace, and multi-modal pathways to promote recreational activities in the area. These improvements will reduce impacts to existing park facilities nearby. The applicant will coordinate with the Department of Parks and Recreation to address compliance with County parks and

playground assessment requirements for the project pursuant to Section 18.16.320 of the Maui County Code.

5. Solid Waste Collection

There are no single-family residential uses proposed in the project which would require collection service provided by the County of Maui. On Maui, waste is collected and disposed at the County's Central Maui Landfill Facility approximately 1.35 miles southeast of the project site. The Central Maui Landfill also accepts commercial waste from private collection companies. A County supported green waste recycling facility is also located at the Central County Landfill.

Solid waste collection is being implemented into the design of the various buildings on site to provide various options for efficient waste disposal and removal from the site. The low-rise residential buildings will be designed with either a solid waste collection room to combine all the waste into one area to be taken off site, or a designated covered trash area in the nearby parking lot. The various commercial buildings will have designated solid waste areas, and a regular collection schedule. The solid waste design is subject to change through the design process.

During the construction phase of the project, waste and recyclable materials will be transported to appropriate processing facilities. Due to the mix of uses and product types and variety of construction materials involved, an exact quantification of construction waste to be generated is hard to provide at this stage of the project. As part of the sustainability objectives for the project, a construction waste management plan will be developed by the Application to ensure waste is properly disposed of and to identify efficiency opportunities during construction.

After construction is complete, the proposed project will be served by private waste collection companies. The project will not affect the service capabilities of the County of Maui's residential solid waste collection.

D. Infrastructure

1. Roadways

The internal streets proposed within the project area will be accessed via Pulehu Road, Hansen Road and the future extension of Pakaula Street. Hansen Road connects west to Maui Veterans Highway and northeast to Pulehu Road. Both Pulehu Road and Pakaula Street connect north to

Ho‘okele Street which connects to Hana Highway to the northeast and Maui Veteran’s Highway to the west.

Pulehu and Hansen Roads are Major collectors and run adjacent to the site to the east and south respectively. The applicant is proposing to complete half-street improvements and pavement widening on these streets to incorporate the access points to the development and accommodate the additional traffic. The applicant is proposing 36 feet of right of way from centerline on both streets, which would be about an 8-foot ROW dedication on Pulehu road (actual dedication width varies), and a 16-foot ROW dedication on Hansen Road. The streets are being proposed to have 24 feet of paved width from the centerline with curb, gutter and sidewalk. This preliminary section is being proposed to accommodate a center turn lane to allow vehicles to make turns into the development.

Pakaula Street north of the site has a paved width of about 54 feet and has a travel lane and a lane for on-street parking on both sides, and a center turn lane. The applicant is proposing to connect to the end of the existing improvements and extend the street into the site. The extension of Pakaula is proposed to narrow the pavement to a width of 38 feet with a sidewalk on one side and a 14-foot-wide bicycle & pedestrian path on the other. The extension of Pakaula is referred to as Road A for the Ho‘onani Village land plan.

Both Hansen and Pulehu are posted for a 30 mile per hour speed limit. The south end of Hansen is posted for a 20 mile per hour speed limit approaching Maui Veterans Highway. Pakaula Street is posted 25 miles per hour near its intersection with Ho‘okele Street. All existing intersections along Hansen and Pulehu Roads are unsignalized.

A Traffic Impact Analysis will be completed and submitted with the Draft EIS to update the proposed street sections for the widening of the existing streets, and the extension of Pakaula based on the traffic analysis.

The interior street system is oriented around the “Central Commons” area with Road A to the south and Road B to the north. These streets are connected on the west and east side of the commons with roundabouts. These are proposed to reduce vehicle queueing around the site and to promote a more continuous flow through the development. These streets adjacent to the central commons are proposed with angled street parking to allow visitors to be able to get in and out of parking stalls with relative ease. Additionally, off-street parking spaces are proposed in adjacent

parking lots. These streets are proposed with 30 feet of pavement and a standard sidewalk on one side and a 14-foot-wide bicycle & pedestrian path on the other. The multi-use path is to promote bicycle and pedestrian access to the site, while keeping the users safe by separating them from the main flow of traffic. These streets are designed with pull out areas for ride sharing drop-off and pick-up locations to make it easier for the outside community to gain access to the various retail and restaurant uses on site.

The remaining local streets on site have two different proposed sections and streetscapes. Roads C, D and E are in the light industrial area where we would be expecting larger vehicles utilizing the streets and less pedestrian and bicycle traffic. To accommodate these vehicles, the project proposes a 30-foot paved width with 5-foot planter strips and 5-foot sidewalks on either side. The remaining minor local streets in the residential areas are currently proposed with 24 feet of pavement to slow vehicle speeds on these roads. These roads will all have sidewalks on at least one side with a few of the roads having a 14-foot-wide multiuse path to provide additional space for bicycle and pedestrian circulation.

A Traffic Impact Analysis (TIA) for the build-out of the proposed project will be prepared as a part of the environmental review process to assess the potential traffic impacts associated with the proposed development and uses. A copy of the TIA will be included and discussed in the Draft EIS.

2. Water System

The existing site is vacant and does not have any water systems located on site for domestic or agricultural purposes. As the site was once used for agricultural purposes, it is assumed that at one time there was an irrigation system across the site to provide water to the crops on site. This system has since been removed. There are no existing water systems or structures in Pulehu Road or Hansen Road that are adjacent to the site. The nearest existing water system is located in Ho'okele Street and Pakaula Street to the north. The existing development adjacent to the site to the north uses this system for both domestic and fire uses. The nearest existing fire hydrant is located near the terminus of Pakaula Street. The site does not plan to connect to the existing water system and will not affect the system.

A PEDR for the proposed development has been prepared as part of the EIS process to assess water needs for the proposed development. See Appendix A – Preliminary Engineering and Drainage Report for the complete analysis of the proposed water system.

Due to the lack of existing infrastructure, the development plans on creating a new water source, water storage & pump site, and distribution system will be designed and constructed to provide water for domestic uses, irrigation and fire suppression. The intent of this new system is for the system to be initially owned and maintained privately but will be constructed to Department of Water Supply standards so that in the future there could be an opportunity to turn the system over to the County of Maui.

The water system on site will be constructed with various sizes of ductile iron pipe, and will be located within the streets, parking lots, and open spaces to serve the various uses on site. Separate water services, meters, pressure reducers and backflow preventers etc. will be installed throughout the site to serve the various residential, commercial and industrial buildings, and open space areas. Fire hydrants will be spaced every 250 feet as required by the Department of Water Supply for fire suppression. Additionally, the buildings will have FDC's and other fire suppression measures that will be addressed in the future.

At this time water for irrigation use of the open space areas could come from the new water system, or from reusable R-1 water from the proposed wastewater treatment plant on site. To err on the side of caution, irrigation consumption has been added to the water system calculations below. Irrigation meters and backflow preventers will be installed as necessary to irrigate the open space and landscape amenities on site.

The new system will have an average daily demand of approximately 1,145,744 gallons. Below in Table 4 is the breakdown of the preliminary water system demand calculations.

Table 4: Preliminary Water System Sizing Calculations

Preliminary Water System Sizing Calculations				
Type of Use	Unit	Quantity of unit	Average Daily Demand (gpd)	Max Daily Demand (gpd) (1.5 x ADD)
Multi-family Low-Rise Residential	400 gal/unit	1,599 units	639,600	959,400
Commercial Space	140 gal/1,000 SF bldg. area	165,196 sf	23,127	34,691
Light Industrial Area	140 gal/1,000 SF bldg. area	198,100 sf	27,734	41,601

Park Open Space	1,700 gal/acre	33.13 acres	56,321	84,482
WWTP Site	140 gal/1,000 SF bldg. area	9,000 sf	1,260	1,890
Future Residential Space (County)	400 gal/unit	440 units	176,000	264,000
Future Commercial Space (County)	400 gal/unit	275 units	110,000	165,000
Future Commercial Space (bldg. sq. ft.)	140 gal/1,000 SF bldg. area	53,880 sf	7,543	11,315
Project Total	-	-	1,145,744 (Increased by 10% for unmetered losses)	1,718,616

Alternatives for the proposed water system are limited. There is an existing private water source on the adjacent property just makai of the site that will serve the Maui Business Park development. The issue with this is that the source is at a lower elevation from this development and there would likely not be enough pressure to serve the site at the higher elevations. The other alternative would be connecting to the existing public system and public water source in the nearby area to serve the site. Water availability for domestic use is an ongoing issue for the island of Maui. The proposed development has a very large domestic water demand. A demand of that size would put a massive burden on the existing system. For this reason, the applicant is proposing to create a separate private water source and distribution system to serve the development.

3. Wastewater System

The future lot that is being subdivided for the Hoʻonani Village development does not have any existing wastewater lines or structures on it. According to the County of Maui's GIS for the Wastewater Infrastructure, the existing lot has some private wastewater lines and structures on the western side towards the existing Sugar Museum. Additionally, private wastewater lines are located in Hoʻokele Street and Pakaula street to serve the existing users just makai of the project site. The private system in these streets connects to the public system owned and operated by the County of Maui that flows to the Wailuku/Kahului Wastewater refuse facility. The proposed development will not connect to an existing private or public wastewater system. These existing systems will not be affected by the development.

The applicant plans to install a private wastewater system on-site to serve the development. This system will likely be privately owned and maintained for its entire lifespan.

The proposed system will consist of a network of gravity sanitary sewer main lines directing wastewater to a pump station at the site's lower end. Each building will connect to this gravity system through individual sanitary service laterals. The pump station will then transfer the wastewater via a pressure line system to a proposed wastewater treatment plant situated on the western end of the project site. The treatment plant is designed to process wastewater and produce R-1 reusable water for irrigation purposes across as much of the site as possible. The R-1 water will be distributed through a non-potable purple pipe system or an equivalent approved system. Various routes and alignments are possible for the proposed pipe network to optimize efficiency, and the location of the proposed mains may change. The slopes, sizes of the main lines, and the proposed structures will be designed in accordance with the requirements of the County of Maui Wastewater Reclamation Division. See Appendix A – Preliminary Engineering and Drainage Report for the complete analysis of the proposed wastewater system.

The wastewater daily flow volume from the project was designed per the estimated rates by various uses from the County of Maui Wastewater Reclamation Division. The project will have an average daily flow of approximately 1,021,943 gallons per day. The wastewater treatment plant was sized to add an additional 25% for a factor of safety and will be approximately 1.3 million gallons in size. While the storage and treatment portions of the system are sized with the average daily flow, the size of the wastewater main lines is sized using the peak flow. The mains on site will be sized to flow at less than 50% full for the peak flow rate of the contributing wastewater basin. Below in Table 5 is the breakdown of the preliminary wastewater system flow volume calculations.

As the project moves forward, the location of the wastewater treatment plant is subject to change, which could include locating the plant on an adjacent TMK. Additionally, at this time no off-site wastewater is expected to be conveyed to the WWTP, but there is a possibility that the plant could serve adjacent parcels. The final WWTP design will include all proposed wastewater sources in the final sizing calculations.

Table 5: Preliminary Wastewater System Sizing Calculations

Preliminary Wastewater System Sizing Calculations				
Type of Use	Unit	Quantity of unit	Average Daily Flow (gpd)	Average Flow Rate (cfs)
Residential multi-family low-rise	255 gal/unit	1,599 units	407,745	0.631
Commercial Restaurant	60% useable space, 1 seat per 20 SF useable space, 80 gal. per seat	56, 100 sf = 1,683 seats	134,640	0.208
Commercial Retail	1 employee per 350 SF bldg. area, 15 gal per employee	56, 100 sf = 160 employees	2,400	0.004
Commercial Office	1 employee per 200 SF bldg. area, 20 gal per employee	100,000 sf = 500 employees	10,000	0.015
Light Industrial	1 employee per 500 SF bldg. area, 25 gal per employee	198,100 sf = 396 employees	9,900	0.015
Future Commercial (On-site) (Restaurant)	60% useable space, 1 seat per 20 SF useable space, 80 gal. per seat	26,940 SF = 808 seats	64,640	0.100
Future Commercial (On-site) (Retail)	1 employee per 350 SF bldg. area, 15 gal per employee	26,940 SF = 77 employees	1,155	0.002
Future Residential (County Site)	255 gal/unit	440	112,200	0.174
Future Commercial (County Site) (Modeled as Residential)	300 gal/unit	275	82,500	0.128
Dry Weather Infiltration/Inflow	5 gal/capita/day	9940	49,700	0.077
Wet Weather Infiltration/Inflow	1,250 gal/acre/day	117.65 acres	147,063	0.228
Project Total Wastewater Flow	-	-	1,021,943	1.581
Min. WWTP Volume	(Additional 25% factor of Safety)	-	1,277,428	1.977
Project Peak Wastewater Flow	(2.0 Peaking factor multiplied to Project Total Wastewater Flow)	-	2,043,885	3.163

Due to the substantial wastewater flow generated by the development, connecting to the adjacent sanitary system is not feasible. The current system was not designed to handle the additional wastewater flow from the site and would require significant and impractical upgrades.

Another option is to connect to the new wastewater treatment plant (WWTP) planned for Central Maui. However, there are several reasons why this is impractical. The Central Maui WWTP is over 3.5 miles southwest of the proposed development, necessitating a very long pipeline. Additionally, the project's timing and the availability of sewer service are problematic; the Central Maui WWTP would need to be operational before the first phase of Hoʻonani Village is completed to serve the site. These factors make this alternative unsuitable.

The current plan allows the applicant to control the timing of the wastewater system, ensuring service availability as the site is developed. Furthermore, the plan includes providing R-1 water from the WWTP for irrigation of open spaces and landscape features, promoting a green site design. Since the WWTP will be located on-site, there will be no need for an extensive pipeline to convey sewage from the pump station to the WWTP. For disposing of R-1 water, four alternatives are considered: on-site irrigation, off-site irrigation by supplying water to Maui Business Park to replace their current irrigation supply, off-site irrigation by providing water to Mahi Pono for their crops or using an injection well/soil aquifer treatment system. The final use of R-1 water will be determined later in the design process.

4. Drainage System

The site including lots E1 and E4 is 189.511 acres in size with the existing runoff on site flowing down the slopes of Haleakalā from the south to the north. Per the County of Maui's Title MC-15, Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui, the site will be analyzed using the 100-year, 24-hour storm event. According to 15-04-05 (d), the Natural Resources Conservation Service (NRCS) hydrography method will be utilized to quantify the flow rates and flow volume for the site. From the NOAA Rainfall Data for the site, an approximate depth of 9.17 inches was used for this storm event. The complete analysis of the existing drainage conditions can be found in the PEDR in Appendix 'A'.

The project site was broken up into 8 existing drainage basins. Table 6 below shows the pre-developed drainage basin analysis for the on-site basins. The existing site has a pre-developed flow of about 261 cfs.

Table 6: Pre-Developed On-Site Basin Analysis

Pre-Developed On-Site Basin Analysis				
Pre-Developed Basin #	Basin Area (AC)	Pre-Developed Flow Rate (cfs.)	Pre-Developed Volume (Ac-ft.)	Type of Flow
1	49.060	61.26	16.291	Channel flow from irrigation ditch to Pulehu Rd.
2	37.666	52.23	12.509	Channel flow from irrigation ditch to Pulehu Rd.
3	5.767	10.74	1.916	Shallow concentrated flow along existing farm road
4	60.369	82.40	20.844	Shallow concentrated flow along existing farm road
5	21.335	31.78	7.083	Sheet flow from south to north
6	12.618	18.80	4.191	Sheet flow from south to north
7	0.663	1.24	0.219	Sheet flow from south to north
8	2.044	2.55	0.677	Channel flow in existing drainage ditch
TOTAL	189.511	261.00	63.73	

The overall runoff in the area has been analyzed multiple times since 2010 for the various phases of the Maui Business Park. These past projects created multiple regional stormwater detention basins to manage the runoff. Downstream of Hoʻokele Street is a regional pond noted as Basin A, and to the west of the project site on future lot E3 is another regional basin noted as Basin B-1. These two large ponds are currently constructed and stabilized. Maui Business Park Phase 2 is located adjacent to the project site to the north. This development proposes to install two detention basins on the Hoʻonani Village site to manage the runoff from the upstream basins, which includes the project site. These basins are noted as Basin B2A and B2B. These basins have not been constructed but are in the design process with the County of Maui.

For the Hoʻonani Village project, there are 3 upstream basins that would flow to existing basins B1, B2A and B2B, and they are noted as O1-O3. Upstream basins O1 and O2 are designed to flow to basins B2A and B2B

with an approximate flow of 164.67 cfs. Upstream Basin O3 flows to detention basin B1 with a flow rate of about 243.67 cfs. See Table 7 below for the breakdown of the upstream basin.

Table 7: Pre-Developed Upstream Basin Analysis

Pre-Developed Upstream Basin Analysis				
Upstream Basin	Basin Area (AC)	Pre-Developed Flow Rate (cfs.)	Pre-Developed Volume (ac-ft)	Type of Flow
O1	141.42	153.38	41.100	Sheet flow to Hansen Road
O2	6.65	11.29	2.280	Sheet flow to Pulehu Roadside ditch to be discharged by pipe in existing basin B2B.
O3	140.68	243.67	67.23	Channel flow to existing detention basin, B1.
TOTAL	288.75	408.34	110.61	

The existing detention basin B1, and the currently designed basins B2A and B2B are adequately designed to manage the current flows that are upstream of them. Existing basin B1 has an approximate available storage volume of 87.6 acre-ft, and Basins B2A and B2B have a combined available storage volume of 100.20 acre-ft. See Table 8 below for the breakdown of the existing and designed detention basins.

Table 8: Pre-Developed Existing & Designed Detention Basins Analysis

Pre-Developed Existing & Designed Detention Basins Analysis				
Basin Label	Available Storage (Ac-ft.)	Pre-Developed Flow Rate (cfs.)	Pre-Developed Volume (Ac-ft)	Available Volume (Ac-ft)
Basin B2A & B2B	100.20	425.67	107.11	2.03
Basin B1	87.60	243.67	67.23	20.37
TOTAL	196.74	669.34	174.34	

In the Developed condition, the Ho'onani Village site plan is divided into 37 basins including a basin for the County owned parcel. The basins were all analyzed individually utilizing their approximate impervious areas and time of concentration to calculate the associated flow rate. The site has an approximate total flow rate of 1022.19 cfs and an associated flow volume of 111 acre-ft. See Table 9 below for the breakdown of the developed basins.

Table 9: Developed Basins Analysis

Developed Basin Analysis					
Basin #	Basin Area (AC)	Composite Runoff Curve	Approx. Dev. T.O.C. (min.)	Developed Flow Rate (cfs.)	Developed Volume (Ac-ft.)
P1	3.44	90.6	8.22	20.95	2.236
P2	2.14	90.6	17.78	10.22	1.395
P3	8.63	92.45	7.44	53.85	5.669
P4	1.52	90.6	12.39	8.31	0.989
P5	7.38	92.45	8.37	45.14	4.85
P6	0.76	90.6	8.10	4.64	0.494
P7	8.40	92.45	8.77	50.89	5.52
P8	0.82	90.60	9.44	4.85	0.533
P9	9.62	83.20	10.00	50.68	5.623
P10	0.55	90.60	7.94	3.37	0.358
P11	9.39	83.20	8.42	51.57	5.487
P12	0.82	90.60	9.31	4.86	0.533
P13	13.22	83.20	9.61	70.40	7.726
P14	0.82	90.60	9.17	4.87	0.533
P15	11.31	83.20	10.10	59.59	6.61
P16	0.68	90.60	8.33	4.13	0.442
P17	3.81	75.80	6.67	19.16	1.973
P18	1.19	90.60	6.81	7.47	0.773

P19	4.59	90.60	9.72	26.94	2.985
P20	3.07	90.60	12.22	16.87	1.998
P21	1.71	90.60	9.86	9.98	1.112
P22	21.21	79.50	9.22	108.62	11.806
P23	4.04	90.60	7.50	24.93	2.626
P24	3.11	64.70	7.22	11.77	1.259
P25	5.21	83.20	6.11	30.15	3.043
P26	0.59	90.60	7.92	3.62	0.384
P27	2.15	83.20	6.56	12.29	1.256
P28	0.97	90.60	8.83	5.82	0.631
P29	10.12	83.20	8.67	55.17	5.914
P30	2.79	90.60	10.00	16.25	1.815
P31	0.60	90.60	8.67	3.61	0.39
P32	6.96	83.20	7.56	38.95	4.066
P33	1.14	90.60	10.33	6.58	0.742
P34	6.76	83.20	9.44	36.19	3.951
P35	21.29	74.00	10.21	84.12	10.602
P36	5.11	64.70	5.00	20.33	2.069
P37	7.17	61.00	5.00	25.05	2.605
TOTAL	193.09	-	-	1022.19	111.00

The flows from various portions of the site and the upstream basins will be conveyed to detention basins B1, B2A and B2B to be detained and infiltrated into the existing soil. These basins will be redesigned to manage the additional runoff that is being proposed to be conveyed to them. Basin B1 is proposed to have an additional 7 feet dug out of the bottom to increase the volume from 87.6 acre-feet to 119.54 acre-feet. Basins B2A and B2B are proposed to have the bottom of the pond lowered by 4 feet to increase their combined volume from 100.20 acre-feet to 116.62 acre-feet.

All of these basins are designed with emergency overflow outlets to release runoff in a safe manner to prevent any harm from downstream structures.

Percolation tests were completed by Hawaii Geotechnical to test the ability of the existing soil to accept runoff. These rates were utilized in HydroCAD software to analyze the Developed Conditions for the detention basins. The basins were designed using the NRCS hydrograph method for the 100-year 24-hr storm event. See Tables 10 and 11 for the Developed Condition of the detention basins. See Appendix A for the complete HydroCAD analysis and sizing for the Detention ponds. These ponds will be designed to meet the County of Maui's Rules for the Design of Storm Drainage Facilities, and the Rules for the Design of Storm Water Treatment Best Management Practices.

Table 10: Developed Condition: Detention Basin B1

Developed Condition: Detention Basin B1	
Detention Basin Bottom Elev. (ft.)	30.0 ft.
100-year, 24- hr. storm Elev. (ft.)	38.92 ft.
Top of Pond Elev. (ft.)	45.0 ft.
Amount of Freeboard (ft.)	6.0 ft.
Total Available Volume (Ac.-ft.)	119.543 ac.-ft.
Total Flow Volume (Ac.-ft.)	122.521 ac.-ft.
Total Storage Volume (Ac.-ft.)	66.616 ac.-ft.

Table 11: Developed Condition: Detention Basins B2A and B2B

Developed Condition: Detention Basins B2A & B2B	
Detention Basin Bottom Elev. (ft.)	28.0 ft.
100-year, 24- hr. storm Elev. (ft.)	38.47 ft.
Top of Pond Elev. (ft.)	46.0 ft.
Amount of Freeboard (ft.)	7.53 ft.
Total Available Volume (Ac.-ft.)	116.623 ac.-ft.
Total Flow Volume (Ac.-ft.)	101.137 ac.-ft.
Total Storage Volume (Ac.-ft.)	54.950 ac.-ft.

The design of the storm drainage system is one element of the Hoʻonani Village that could change greatly as the project moves forward. Below is a list of potential alternatives that could be used to address water quantity detention and water quality control for the project site and upstream basins. The final storm drainage system might include other alternatives that are not listed, but these are the main alternatives that are being considered.

1) Street-side swales, planters or rain gardens: Open conveyance options along the street frontages to manage runoff from the public and private streets could be incorporated into the design.

2) Sub-surface detention: In the future it could be more feasible to manage some of the drainage basins within the basin itself underground in sub-surface detention measure such as chambers or large perforated pipes.

3) Bio-retention basins, planters or landscaping: Currently the final landscaping vision and design that the project would like to achieve is not finalized. There is potential for runoff from roof drains of the proposed buildings to be directed to bio-retention or flow through BMP for treatment, detention or infiltration.

4) Infiltration structures: Smaller basins could be infiltrated separately into other types of infiltration structures such as dry wells, or open bottom catch basins etc.

5) Other detention basins: The large site provides other areas that could be used for detention/infiltration basins to manage stormwater. Items like internal and external water features and other potential landscape elements could be used to manage stormwater.

5. Electrical, Telephone, and Cable Television/Internet

Electrical power, telephone, and cable television/internet services in the region are provided by Maui Electric Company, Hawaiian Telcom, and Spectrum, respectively. There are existing overhead powerlines and communication lines that run along the western side of Pulehu Road, and the southern side of Hansen Road for the entire length of the project site. The project proposes to connect to the existing power system to serve the site. Telephone and cable television/internet services will be installed, but the Utility Company that will provide the service will be selected at a later time. Outside of these services Natural gas lines may be incorporated into the design.

The utility infrastructure for the proposed project will be placed underground within the development. To reduce overall energy use, energy conservation and efficiency measures will be incorporated into the project design in line with the County of Maui's efforts to emphasize sustainability and Ordinance 3613 requirements. The applicant plans on potentially utilizing solar and other renewable energy sources to minimize the project's impact on the existing power system.

E. Cumulative and Secondary Impacts

HAR Section 11-200.1-2 defines Cumulative impacts as:

> *[T]he impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

A complete analysis and assessment of potential cumulative impacts from the Ho'onani Village project will be included in the Draft EIS. Potential cumulative impacts to existing resources (natural, cultural, agricultural, water etc.) and lands, existing adjacent land uses, existing utility and transportation infrastructure systems and public services will be analyzed for both short term and long term within the reasonably foreseeable future.

HAR Section 11-200.1-2 defines Secondary impacts as:

> *[A]n effect that is caused by the action and is later in time or farther removed in distance, but is still reasonably foreseeable. An indirect effect may include growth-inducing effect and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air, water, and other natural systems, including ecosystems.*

Secondary Impacts are viewed as indirect effects that occur later in time or further in the reasonably foreseeable future because of the project being constructed. They are also referred to as future actions of others because of the presence of the completed project. A completed analysis and assessment of secondary impacts to existing resources, land use plans & districts, utility systems and transportation infrastructure will be included in the Draft EIS.

III. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

As required by HAR Section 11-200.1-24, the Draft EIS will provide a summary of the proposed action's compatibility with existing land use plans and policies. Additionally, the Draft EIS will describe the relationship between the proposed action and the land use, natural, or cultural resource plans, policies, and regulations applicable to the affected area. It will also assess how the proposed action aligns with or potentially conflicts with the objectives and specific terms of approved land use and resource plans, policies, and controls, if any, for the area. A preliminary list of the land use plans and policies anticipated for discussion in the Draft EIS is outlined below, though this list may be updated based on feedback received during the EISPN scoping period.

- State Land Use Law, HRS Chapter 205
- Hawai'i State Plan, HRS Chapter 226
- State Functional Plans
- General Plan of Maui including Countywide Policy Plan, Maui Island Plan and 2002 Wailuku-Kahului Community Plan
- Maui County Zoning, Maui County Code, Title 19

IV. ALTERNATIVES TO THE PROPOSED ACTION

As required under HAR Section 11-200.1-24, the Draft EIS will contain a section discussing the alternative of no action as well as reasonable alternatives that could attain the objectives of the Hoʻonani Village Land Plan.

The analysis will rigorously explore and objectively evaluate the environmental impacts of all alternative actions, placing special emphasis on alternatives that could enhance environmental quality or mitigate, reduce, or avoid some or all of the adverse environmental effects, costs, and risks associated with the current proposal for Hoʻonani Village.

The Draft EIS is expected to present a range of alternatives, including the no-action alternative, which entails not developing any components of the project. Other potential alternatives to be considered and detailed in the Draft EIS may involve projects with different densities, land use types (commercial, industrial etc.), and potentially different residential product types as well.

V. SIGNIFICANCE CRITERIA ASSESSMENT

Since Act 172 was enacted in 2012, approving agencies have the authority, based on their judgment and experience, to determine if an Environmental Impact Statement (EIS) is likely required. If the agency concludes that an EIS is necessary, it can permit the applicant to forgo preparing an environmental assessment and instead start with an EIS, beginning with the preparation of an Environmental Impact Statement Preparation Notice (EISPN). See Hawaii Revised Statutes (HRS) Section 343-5(e) and see Hawai'i Administrative Rules (HAR) Section 11-200.1-14(d)(2). Determining whether a proposed action might significantly impact the environment involves evaluating the total potential effects on environmental quality according to the significance criteria outlined in HAR Section 11-200.1-13. Typically, if an action could result in one or more of the effects listed under the significance criteria in HAR Section 11-200.1-13(b)(1) – (13), it is likely to have a significant impact on the environment, thus necessitating an Environmental Impact Statement (EIS).

The significance criteria under HAR Section 11-200.1-13(b)(1) – (13) are:

(1) Irrevocably commit a natural, cultural, or historic resource;
(2) Curtail the range of beneficial uses of the environment;
(3) Conflict with the State's environmental policies or long-term environmental goals established by law;
(4) Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State;
(5) Have a substantial adverse effect on public health;
(6) Involve adverse secondary impacts, such as population changes or effects on public facilities;
(7) Involve a substantial degradation of environmental quality;
(8) Be individually limited but cumulatively have substantial adverse effect upon the environment or involves a commitment for larger actions;
(9) Have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat;
(10) Have a substantial adverse effect on air or water quality or ambient noise levels;
(11) Have a substantial adverse effect on or be likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;
(12) Have a substantial adverse effect on scenic vistas and view planes, during day or night, identified in county or state plans or studies; or
(13) Require substantial energy consumption or emit substantial greenhouse gases.

The Ho'onani Village land plan includes 166 acres in the Kahului are and would include approximately 1,600 low-rise multi-family residential units, a light industrial park, a commercial office building, active and passive open space areas, and other commercial spaces for restaurant and retail uses. Due to the large size of the project, the proposed change to the UGB, the proposed change in zoning, and the proposed change to the existing conditions of this area, the various potential impacts need to be assessed. Given the established significance criteria, it is anticipated that the proposed action may significantly affect the environment.

A preliminary assessment of the significance criteria in relation to the proposed project is presented below:

1. Irrevocably commit a natural, cultural, or historic resource.

Archaeological documentation and Cultural Impact Assessment reports will be prepared for the project area. Copies of these studies and any necessary mitigation measures will be included and discussed in the Draft EIS.

Consultation with the State Historic Preservation Division (SHPD) and the Office of Hawaiian Affairs (OHA) will ensure that historic, archaeological, and cultural concerns are addressed, and appropriate mitigation measures are identified.

The potential impact of the proposed project on natural and cultural resources, along with any necessary mitigation measures, will be assessed through the preparation of relevant studies, including preliminary engineering and environmental studies, which will be included in the Draft EIS.

2. Curtail the range of beneficial uses of the environment.

Technical studies will be conducted and incorporated into the Draft EIS, aiding the environmental review process. A drainage assessment has been completed to evaluate potential impacts and identify appropriate mitigation measures to preserve the beneficial uses of the environment. The drainage analysis is attached to this EISPN in Appendix A. Additional technical studies will be completed to assess other aspects of the project and will be included in the Draft EIS.

3. Conflict with the State's environmental policies or long-term environmental goals established by law.

HRS Chapter 344 addresses the State's Environmental Policy. An assessment of the project relative to the State's environmental policies and guidelines will be completed after receiving the remaining technical reports. This assessment will be included with the Draft EIS document.

4. Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State.

The project will greatly benefit the local economy by creating jobs related to the construction associated with the development, the industrial park, the commercial office spaces, the retail and restaurant spaces. Additionally, the development of affordable and market price residential low-rise rental units will help with the desperate need for rental units, and the economic and social welfare of Maui. The wide variety of proposed uses will provide benefits to multiple areas of the Maui economy. A more detailed analysis of the potential impacts of the project on economic welfare, social welfare, and cultural practices in the community will be presented in the Draft EIS. A Fiscal and Economic Impact Assessment and Cultural Impact Assessment (CIA) will be conducted for the project, with copies included and discussed in the Draft EIS.

5. Have a substantial adverse effect on public health.

Technical studies addressing health-related issues, such as air quality, noise emissions, and water quality will be prepared and discussed in the Draft EIS.

6. Involve adverse secondary impacts, such as population changes or effects on public facilities.

The Preliminary Engineering and Drainage Report is attached in Appendix A. Any additional technical studies addressing public infrastructure and services will be included in the Draft EIS. Coordination will be undertaken during the environmental review process with State and County agencies, as well as with utility service providers, to address services and facilities required for the project.

7. Involve a substantial degradation of environmental quality.

A comprehensive set of technical studies will be conducted in preparation for the Draft EIS to identify potential impacts and suggest suitable mitigation measures to minimize environmental degradation. The PEDR analyzes the potential drainage options to mitigate adverse effects on downstream and neighboring properties. Archaeological, cultural, and biological investigations will ensure that valuable historical, cultural, and biological resources are appropriately managed. Copies of these studies will be included and discussed in the Draft EIS.

8. Be individually limited but cumulatively have substantial adverse effects upon the environment or involves a commitment for larger actions.

The majority of the site is immediately adjacent to the Urban Growth Boundary of the Maui Island Plan, with the southwest corner of the site being inside of the UGB. The adjacent parcels to the north have been developed with various

commercial uses and the proposed development would blend into the existing uses around it with the proposed adjustment to the UGB. An analysis of the project's potential cumulative and secondary impacts will be included in the Draft EIS.

9. Have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat.

A Flora/Fauna Survey has been conducted within the project area to assess the existence of rare, threatened, or endangered species or habitats. A copy of the Flora/Fauna Study report is included with this EISPN in Appendix 'C'. A full assessment of the project's effect on rare, threatened, or endangered species or their habitat will be included with the Draft EIS.

10. Have a substantial adverse effect on air or water quality or ambient noise levels.

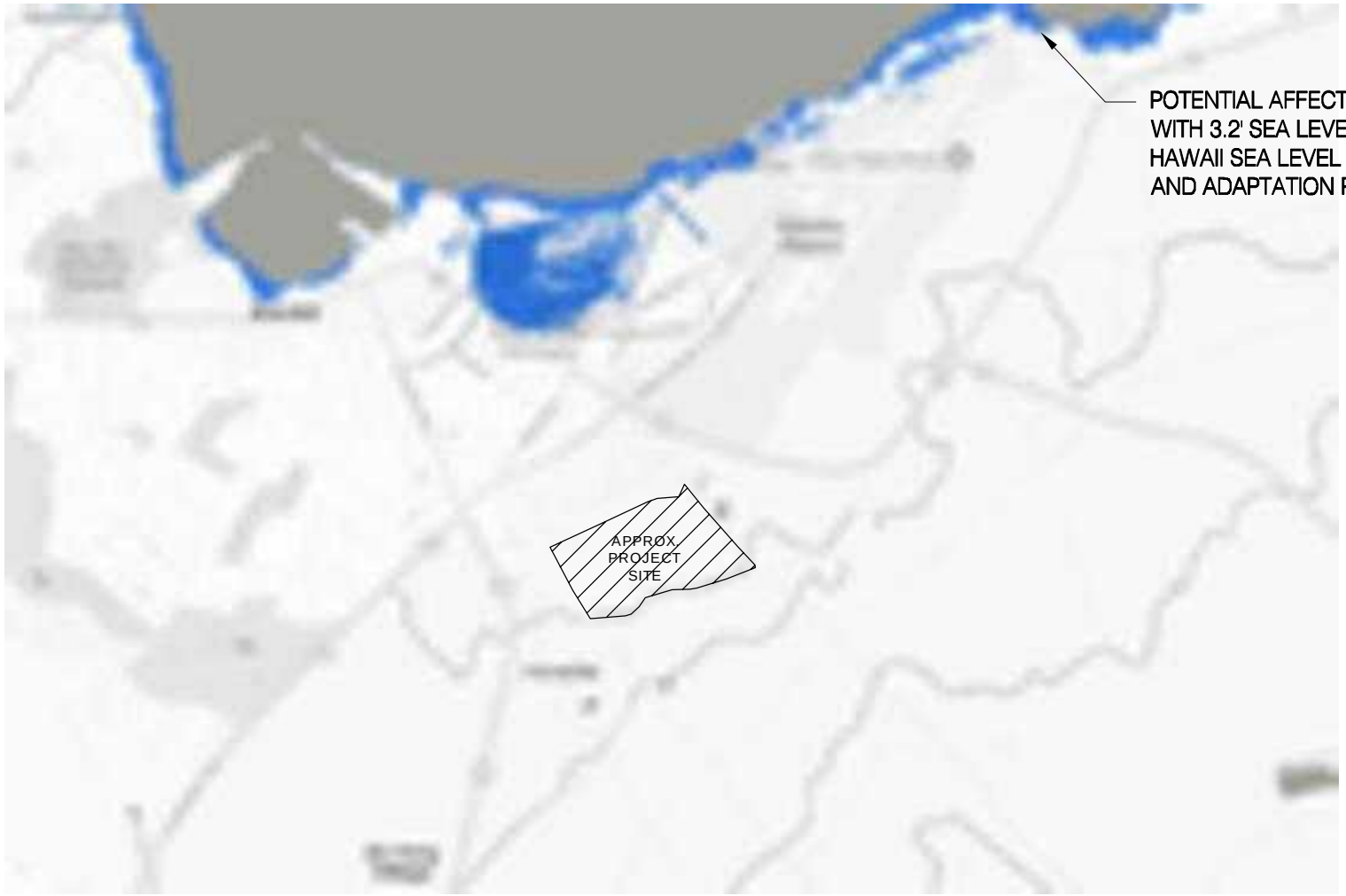
Construction activities may lead to short-term impacts on noise, air, and water quality in the area. To mitigate these effects, appropriate control measures will be implemented, such as maintaining construction equipment, applying dust control methods (e.g., regular watering, sprinkling, and installing dust fences), and implementing erosion control measures during grading and construction. Compliance with State and County regulations, including the Department of Health's HAR, Title 11, Chapter 46, "Community Noise Control," will be ensured. Necessary permits, such as a noise permit and a National Pollutant Discharge Elimination Permit System (NPDES) permit, will be obtained prior to commencing any construction activities. Potential impacts on noise, air, and water quality from the project will be evaluated in technical studies, which will be included and discussed in the Draft EIS.

11. Have a substantial adverse effect on or be likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

Evaluations of environmentally sensitive areas, their impacts, and potential mitigation measures will be conducted and included in the Draft EIS. The project site is located in Flood Hazard Zone X. See Figure 16 – Flood Insurance Rate Map. Additionally, the project site is located in the Extreme Tsunami Zone areas. See Figure 17 – Tsunami Evacuation Zone Map. There are no portions of the project site that are within the projected 3.2-foot sea level rise exposure area. See Figure 18 – Sea Level Rise Map.

FIGURE 18

SEA LEVEL RISE MAP - +3.2 FT.



SOURCE: STATE OF HAWAII SEA LEVEL RISE TOOL, UNIVERSITY OF HAWAII SYSTEM

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: NTS Vert. Scale: NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

12. Have a substantial adverse effect on scenic vistas and view planes, during day or night, identified in county or state plans or studies.

The potential impact of the proposed project on scenic and open space resources, as well as scenic view corridors, will be thoroughly evaluated and discussed in the Draft EIS.

13. Require substantial energy consumption or emit substantial greenhouse gases.

The project will require fuel for construction equipment, vehicles, and machinery during both construction and maintenance phases. Coordination with Hawaiian Electric Company (HECO) will take place during the preparation of the Draft EIS to ensure proper planning for any potential power supply issues. Sustainability measures aimed at reducing overall energy consumption and greenhouse gas emissions associated with the project will also be discussed in the Draft EIS.

Based on the foregoing and as discussed in Chapter I, the County of Maui Department of Planning has determined that an EIS is warranted for the project pursuant to Chapter 343, HRS, and HAR Section 11-200.1-14(d)(2).

VI. LIST OF PERMITS AND APPROVALS

The following is a preliminary list the permits and approvals that are anticipated to be required for implementation of the proposed project:

Federal:

None anticipated at this time.

State of Hawai‘i:

1. Chapter 343, Hawai'i Revised Statutes (HRS), Environmental Impact Statement
2. Chapter 6E, HRS, Historic Preservation Compliance
3. State Land Use Commission District Boundary Amendment
4. National Pollutant Discharge Elimination System (NPDES) Permit
5. Noise Permit, as applicable
6. Section 401 Water Quality Certification, as applicable (if DA permit required)
7. Well Permit for off-site water source
8. Wastewater Permit with the Department of Health for the WWTP.

County of Maui:

1. Subdivision Approval (large lot subdivision)
2. District Boundary Amendment
3. Community Plan Amendment
4. County Initiated Zoning Change
5. Building Permits
6. Other Construction Permits (i.e., grading, electrical, plumbing)
7. Potential future subdivision Approval

VII. EIS PUBLIC SCOPING MEETING

A public scoping meeting for the project, as required by Chapter 11-200.1-23, Hawai'i Administrative Rules will be held on Thursday, March 27, 2025, at 6:00 p.m. at the meeting room at Above the Wave located at 400 Hana Hwy., Suite B1, Kahului, HI 96732. Invitees will be able to attend the meeting virtually should they not be able to attend in person. Comments from all attendees and interested parties will be sent to the applicant following the 30 day comment period.

VIII. EIS CONSULTATION

A. PARTIES TO BE CONSULTED DURING THE PREPARATION OF THE DRAFT EIS

A copy of this EISPN will be sent to the required reviewing agencies, organizations, and individuals for review. Agency, organization, and individual comments received, and responses to substantive comments will be included in the DEIS.

FEDERAL AGENCIES

1. National Marine Fisheries Service Pacific Islands Regional Office Department of Commerce 1845 Wasp Blvd., Building 176 Honolulu HI 96818	2. Linda Speerstra, Chief U.S. Department of the Army, Regulatory Branch U.S. Army Engineer District, Honolulu CEPOH-RO@usace.army.mil
3. Gerald Gregory District Conservationist Natural Resources Conservation Service U.S. Department of Agriculture 77 Ho'okele Street, Suite 202 Kahului, HI 96732	4. Chelsie Javar-Salas, Acting Island Team Leader U.S. Fish and Wildlife Service 300 Ala Moana Blvd., Rm. 3-122 Honolulu HI 96850
5. Kay Zukeran NOAA Inouye Regional Center NMFS/PIRO 1845 Wasp Blvd., Building 176 Honolulu HI 96818	6. Ryan Okahara Field Office Director U. S. Department of Housing and Urban Development 1132 Bishop Street, Suite 1400 Honolulu HI 96813-4918
7. U.S. Environmental Protection Agency Region IX Pacific Islands Office P.O. Box 50003 Honolulu HI 96850	

STATE AGENCIES

8. Heidi Meeker State of Hawai'i Department of Education Office of Business Services 3633 Waialae Avenue, Room C-209 Honolulu HI 96816	9. Laura McIntyre, AICP State of Hawai'i Department of Health Environmental Planning Office P.O. Box 3378 Honolulu HI 96801-3378

10. Keith Regan, Comptroller State of Hawai‘i Department of Accounting and General Services 1151 Punchbowl Street, #426 Honolulu HI 96813	11. Patti Kitkowski State of Hawai‘i Department of Health Maui Sanitation Branch 54 South High Street, Room 300 Wailuku HI 96793
12. Sharon Hurd, Chair State of Hawai‘i Department of Agriculture 1428 South King Street Honolulu HI 96814-2512	13. Dawn Chang, Chairperson State of Hawai‘i Department of Land and Natural Resources P. O. Box 621 Honolulu HI 96809
14. Major General Kenneth Hara Adjutant General State of Hawai‘i Department of Defense 3949 Diamond Head Road Honolulu HI 96816	15. Ed Sniffen, Director State of Hawai‘i Department of Transportation 869 Punchbowl Street Honolulu HI 96813
16. Keith Hayashi, Superintendent State of Hawai‘i Department of Education P.O. Box 2360 Honolulu HI 96804	17. Denise Iseri-Matsubara, Executive Director State of Hawai‘i Hawai‘i Housing Finance and Development Corporation 677 Queen Street Honolulu HI 96813
18. Kali Watson, Chairman State of Hawai‘i Department of Hawaiian Homelands P.O. Box 1879 Honolulu HI 96805	19. Sylvia Hussey, Chief Executive Officer State of Hawai'i Office of Hawaiian Affairs 560 N. Nimitz Highway, Suite 200 Honolulu HI 96817
20. Alec Wong, P.E., Chief State of Hawai‘i Department of Health Clean Water Branch Hale Ola, Room 225 2827 Waimano Home Road Pearl City HI 96782	21. Scott Glenn, Director State of Hawai‘i Office of Planning and Sustainable Development P. O. Box 2359 Honolulu HI 96804
22. State of Hawai‘i Department of Health Environmental Health Administration P.O. Box 3378 Honolulu HI 96801	23. Dan Orodenker, Executive Officer State of Hawai‘i State Land Use Commission P.O. Box 2359 Honolulu HI 96804

COUNTY AGENCIES

24. Shayne Agawa, Director County of Maui Department of Environmental Management 2050 Main Street, Suite 2B Wailuku HI 96793	25. Richard Bissen, Mayor County of Maui Office of the Mayor 200 South High Street Wailuku HI 96793
26. Brad Ventura, Chief County of Maui Department of Fire and Public Safety 200 Dairy Road Kahului HI 96732	27. John Pelletier, Chief County of Maui Police Department 55 Mahalani Street Wailuku HI 96793
28. Lori Tsuhako, Director County of Maui Department of Housing and Human Concerns 2200 Main Street, Suite 546 Wailuku HI 96793	29. Yuki Lei Sugimura Maui County Council 200 South High Street Wailuku HI 96793
30. Patrick McCall, Director County of Maui Department of Parks and Recreation 700 Halia Nakoa Street, Unit 2F Wailuku HI 96793	31. Keani Rawlins-Fernandez Council Vice Chair Maui County Council 200 South High Street Wailuku HI 96793
32. Kate Blystone, Director County of Maui Department of Planning 2200 Main Street, Suite 315 Wailuku HI 96793	33. Tasha Kama Council Chair Maui County Council 200 South High Street Wailuku HI 96793
34. Jordan Molina, Director County of Maui Department of Public Works 200 South High Street Wailuku HI 96793	35. Gabe Johnson Maui County Council 200 South High Street Wailuku HI 96793
36. Marc Takamori, Director County of Maui Department of Transportation David Trask Building, Suite 102 2145 Kaohu Street Wailuku HI 96793	37. Alice Lee Maui County Council 200 South High Street Wailuku HI 96793
38. John Stufflebean, Director County of Maui Department of Water Supply 200 South High Street, 5th Floor Wailuku HI 96793	39. Tom Cook Maui County Council 200 South High Street Wailuku HI 96793

40. Amos Lonokailua-Hewett, Emergency Management Officer County of Maui Emergency Management Agency 200 South High Street Wailuku HI 96793	41. Nohelani U'u-Hodgkins Maui County Council 200 South High Street Wailuku HI 96793
42. County of Maui Maui County Cultural Resources Commission 2200 Main Street, Room 315 Wailuku HI 96793	43. Tamara Paltin Maui County Council 200 South High Street Wailuku HI 96793
44. Luana Mahi, Director County of Maui Office of Economic Development 2200 Main Street, Suite 305 Wailuku HI 96793	45. Shane Sinenci Maui County Council 200 South High Street Wailuku HI 96793

OTHER ORGANIZATIONS, ADJACENT OWNERS (500' RADIUS), OTHER INDIVIDUALS

46. 'Aha Moku O Maui Inc.	47. 'Aha Moku Honua'ula Moku
48. Hawaiian Telecom 60 South Church Street Wailuku HI 96793	49. Hookele DEF Condo - Condo Master Alexander & Baldwin LLC 822 Bishop St Honolulu, HI 96813
50. Michael Grider, Manager, Engineering Hawaiian Electric P.O. Box 398 Kahului HI 9673	51. Lowe's Home Centers LLC Attn: Legal Dept-Real Estate 1000 Lowe's Blvd Mooresville, NC 28117
52. Maui Hotel & Lodging Association 85 North Church Street Wailuku HI 96793	53. Maui Economic Opportunity Inc 99 Mahalani St Wailuku, HI 96793
54. Spectrum 158 Ma'a Street Kahului HI 96732	55. Maui Electric Company Ltd PO Box 398 Kahului, HI 96733
56. State of Hawaii Department of Education Hawai'i State Library Hawai'i Documents Center 478 S. King Street Honolulu, HI 96813	57. McGerrow Condominium - Condo Master Alexander & Baldwin LLC 11 S Puunene Ave Kahului, HI 96732
58. AB Maui Quarries LLC Attn: Nan, Inc 636 Laumaka St	59. MP Central B LLC Attn: Carlsmith Ball LLP - One Main 2200 Main St Ste 400

Honolulu, HI 96819	Wailuku, HI 96793
60. ABP Puunene LLC 822 Bishop St Honolulu, HI 96813	61. MP CPR LLC PO Box 1104 Puunene, HI 96784
62. Alexander & Baldwin LLC 11 S Puunene Ave Kahului, HI 96732	63. MP West LLC PO Box 565 Puunene, HI 96784
64. Alexander & Baldwin LLC 822 Bishop St Honolulu, HI 96813	65. Puunene Industrial Park LLC 636 Laumaka St Honolulu, HI 96819
66. Aloha Pacific Federal Credit Union 832 S Hotel St Honolulu, HI 96813	67. Puunene Mill Condominium - Condo Alexander & Baldwin LLC 11 S Puunene Ave Kahului, HI 96732
68. AX Holdings LLC PO Box 330449 Kahului, HI 96733	69. Puunene Shopping Center - Condo Property Development Center LLC 5918 Stoneridge Mall Rd Pleasanton, CA 94588
70. Chick-Fil-A Inc Attn: Legal Dept - Real Estate 5200 Buffington Rd Atlanta, GA 30349	71. Safeway Inc Attn: Paradigm Tax Group PO Box 800729 Dallas, TX 75380
72. County of Maui 200 S High St Wailuku, HI 96793	73. Target Corporation Property Tax Dept T-2660 PO Box 9456 Minneapolis, MN 55440
74. Hansen Road Condominium - Condo C/O Alexander & Baldwin LLC PO Box 156 Kahului, HI 96733	75. TJ Gomes Trucking Co Inc 500 Waiale Rd Ste B Wailuku, HI 96793
76. Hawaii State Federal Credit Union 333 Queen St Honolulu, HI 96813	77. HC&D Condominium - Condo Master Alexander & Baldwin LLC PO Box 156 Kahului, HI 96733
78. HC&D LLC 2344 Pahounui Dr Honolulu, HI 96819	

IX. REFERENCES

1. County of Maui, Department of Planning, County of Maui 2030 General Plan Countywide Policy Plan, March 2010.

2. County of Maui, Maui Island Plan, December 28, 2012.

3. County of Maui, Department of Planning, Wailuku and Kahului Community Plan, 2002.

4. County of Maui, Department of Planning, Wailuku and Kahului Community Plan, 1992.

5. County of Maui. (n.d.). *Code of Ordinances*.

6. State of Hawai'i, Chapter 226, Hawai'i State Plan, Hawai'i Revised Statutes.

7. State of Hawaii. (n.d.). *HiStateGIS: Land Survey Bureau*.

8. Hawaii State Department of Education. (n.d.). *School Reports*.

9. U.S. Department of Agriculture, Natural Resources Conservation Service. (n.d.). *Web Soil Survey*.

10. Pacific Islands Ocean Observing System (PacIOOS). (n.d.). *Sea Level Rise in Hawaii*.

11. Hawaii State Department of Human Services. (n.d.). *Family Health Assessment Tool (FHAT)*

12. State of Hawaii. (n.d.). *HiStateGIS: Agricultural Lands of Importance to the State of Hawaii (ALISH)*.
13. State of Hawaii. (n.d.). *HiStateGIS: Wetlands*.

14. State of Hawaii, Land Use Commission. (n.d.). *State of Hawaii Land Use District Boundaries Map*.

15. State of Hawaii. (n.d.). *HiStateGIS: Streams*.

16. European Commission, Joint Research Centre. (n.d.). *United States Soil Map*.

17. National Oceanic and Atmospheric Administration (NOAA). (n.d.). *Tsunami Coastal Portal*.

APPENDIX 'A' – PRELIMINARY ENGINEERING AND DRAINAGE REPORT

EXPERIENCED • INNOVATIVE • COMMITTED

Preliminary Engineering Report
Hoʻonani Village
Kahului, Maui, Hawaii

Applicant:
Hoʻonani Development LLC
21 Hansen Rd
Kahului, Hawaii 96732

Civil Engineer:
Pioneer Design Group – Hawaii LLC.
711 Kapiolani Blvd. Suite 1450
Honolulu, Hawaii 96813
808.400.5959

Date: October 31, 2024
Prepared by: T.C. Campbell, P.E.
PDG-HI Job No. H109-001

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APPENDIX 'G' – PRELIMINARY LAND USE CONCEPT PLAN & SITE PLAN
APPENDIX 'H' – PERCOLATION TESTS RESULTS

1.0 INTRODUCTION

The purpose of this Preliminary Engineering Report is to provide an overview of the existing conditions and propose preliminary design options for the site drainage, water system and wastewater systems for the Hoʻonani Village project. This study determines the anticipated water demand and wastewater flows and presents proposed water system and wastewater system designs. In addition, this report analyzes the existing drainage patterns at the project site and provides a concept drainage design for the proposed project that will meet the "Rules for the Design of Storm Drainage Facilities in the County of Maui".

2.0 SITE DESCRIPTION AND LOCATION

The proposed development includes the construction of multi-family residential low-rise buildings, commercial office buildings, light industrial buildings, a central plaza for shopping and walking, outdoor open spaces, an amphitheater, parking facilities, and landscape design. The project site is made up of tax map key (2) 3-8-006:004 within the County of Maui. The site will be called the Hoʻonani Village and is currently addressed as 21 Hansen Rd, Kahului HI 96732. It is located adjacent to Lowe's and Target and is also near the Alexander and Baldwin Sugar Museum in Puʻunene. The site is bordered by Hansen Road to the south, Puʻunene Avenue to the west, Hoʻokele Street to the north, and Pulehu Road to the east. The existing site is 237 acres in size and is zoned Agricultural AG-1 by the County of Maui. The site is surrounded by other agricultural properties to the east and south and commercial properties to the north.

The TMK is currently in the subdivision process with the County of Maui and is being subdivided into five new lots. The name of the subdivision plat is the First Assembly of God Subdivision. The proposed development will be located on Lot 2-C-4-C-1-E-1 on the attached Preliminary Plat that is under review. A portion of the street improvements will be located on Lot 2-C-4-C-1-E-4 to connect the development to the terminus of the existing street Pakaula Street. This lot will be owned by the County of Maui. A portion of the drainage improvements are proposed on Lot 2-C-4-C-1-E-3. This lot contains an existing detention basin referenced as B-1.

Additionally, the site is currently zoned as AG-1, but the applicant is actively working with the County of Maui to move forward with a County Initiated Zone Change to change the zoning of the site to M-1 Light Industrial. The proposed project will only be completed following the zone change when the proposed uses are allowed in the zoning category.

3.0 EXISTING SITE CONDITIONS

The project site has been used for agricultural uses for many years. The Puʻunene area has a rich history deeply intertwined with the sugar industry. The property was once part of the Hawaiian Commercial & Sugar Company's (HC&S) sprawling sugar plantation, which operated for over a century until its closure in 2016. The Puʻunene Sugar Mill, built in 1901, is located adjacent to the project site to the southwest. After the mill's closure, the

land transitioned to new agricultural ventures, including a 40-acre potato field planted by Mahi Pono in 2019, aiming to boost local food production. The project site is currently vacant with no existing structures. A few existing gravel and asphalt farming roads exist on site. Existing culverts span these roads to allow the irrigation ditches to convey water across the site. There are no existing wastewater lines or water mains on site for domestic or agricultural purposes. There are existing overhead power lines on site that are used to provide power to users on both the mauka and makai sides of the site. Existing powerline easements exist on site that will be vacated and relocated to continue to serve all users in the area.

3.1 Site Topography

The project site is located on the gradual slopes of Haleakalā. The existing topography on site slopes from the southeast to the northwest. Grades on site are gentle, generally ranging from 1-2% with areas of occasionally steeper slopes. The site has a relative high point at approximately 78 feet at the southeastern corner of the site, and a relative low point along the north property line with an elevation of approximately 33 feet.

3.2 Soil Type

The predominant soils found throughout the site are Ewa Silty Clay Loam (99.5% of the site), which has a corresponding hydrologic soil group (HSG) B designation, as shown on the attached Natural Resources Conservation Service (NRCS) soil survey. Soils classified as Group B have moderate infiltration rates when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission. A very small portion of the site has Molokai Silty Clay Loam, which has a corresponding hydrologic soil group (HSG) C designation.

A geotechnical investigation was completed on site by Hawaii Geotechnical Consulting to investigate the existing soil conditions. For more information, see geotechnical report dated August 11, 2024, that will be submitted separately from this report. Two percolation tests were conducted on site to determine the existing soil's ability to percolate runoff. On the east side of the site, the test resulted in 11.41 minutes per inch of water drop, which is approximately 5.25 inches per hour. On the west side of the site, the test resulted in 5.93 minutes per inch of water drop, which is approximately 10.1 inches per hour.

3.3 Flood and Tsunami Zone

The project site lies in FEMA Zone X and does not contain any FEMA designated Special Flood Hazard Areas (SFHAs). The Flood Zone Mapp is attached in Appendix A and was generated using the State of Hawaii, DLNR, Flood Hazard Assessment Tool. This zone designates the site as an area outside the 0.2% annual change floodplain. The site is located within the Extreme Tsunami evacuation zone.

4.0 EXISTING DRAINAGE CONDITIONS

The project site is 189.511 acres in size with the existing runoff on site flowing down the slopes of Haleakalā from the south to the north. Per the County of Maui's Title MC-15, Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui, the site will be analyzed using the 100-year, 24-hour storm event. According to 15-04-05 (d), the Natural Resources Conservation Service (NRCS) hydrography method will be utilized to quantify the flow rates and flow volume for the site. From the NOAA Rainfall Data for the site, an approximate depth of 9.17 inches was used for this storm event. Hydrocad software was used to model the hydrographs for the various existing basins and to quantify the flow rates and volumes. The complete analysis of the existing drainage conditions can be found in Appendix 'B'.

The project site has divided into eight (8) existing drainage basins notated as E1-E8. Each of these basins corresponds with the existing discharge points. See the Discharge Analysis below for additional details. The attached Pre-Developed Basin Map shows the boundaries, sizes, and flow paths for the existing basins on site. Additionally, there are three upstream basins that currently flow towards the site contributing to the existing drainage flows and volumes. These basins are notated as O1-O3. The attached Upstream Basin Map shows the boundaries, sizes, and flow paths for these basins.

A runoff curve number of 58 corresponding to a ground cover type Meadows for B soils was used in the SCS TR-20 Method. As the percentage of C soil was insignificant, the runoff curve number for C soil was not utilized for the existing ground coverage of the site. The flow paths for all the existing basins can be found on the Pre-Developed Basin map. The time of concentration for each basin was calculated utilizing Plate 1 for Overland flow from the Rules for the Design of Storm Drainage facilities. The Plate 1 diagrams for all existing basins are attached to this report for more details.

Utilizing sizes, cover type, and time of concentrations for each basin, a pre-developed flow rate was calculated in Hydrocad for the 100-year, 24-hr storm event. The basins on site, E1-E8, have a cumulative pre-developed flow rate of 261 cfs and a flow volume of 63.73 acre-feet. Below is table 4-1 for the breakdown of the flows to the various discharge points on site.

Table 4-1: Pre-Developed On-Site Discharge Point Analysis				
Discharge Point #	Basin Area (AC)	Pre-Developed Flow Rate (cfs.)	Pre-Developed Volume (Ac-ft.)	Type of Flow
1	49.060	61.26	16.291	Channel flow from irrigation ditch to Pulehu Rd.
2	37.666	52.23	12.509	Channel flow from irrigation ditch to Pulehu Rd.
3	5.767	10.74	1.916	Shallow concentrated flow along existing farm road
4	60.369	82.40	20.844	Shallow concentrated flow along existing farm road
5	21.335	31.78	7.083	Sheet flow from south to north
6	12.618	18.80	4.191	Sheet flow from south to north
7	0.663	1.24	0.219	Sheet flow from south to north
8	2.044	2.55	0.677	Channel flow in existing drainage ditch
TOTAL	189.511	261.00	63.73	

The three upstream basins have a total basin area of 288.75 acres. These basins contribute a total flow rate of 408.34 cfs and flow volume of 110.61 acre-feet to the project site and the adjacent future lots.

Table 4-2: Pre-Developed Upstream Basin Analysis				
Discharge Point #	Basin Area (AC)	Pre-Developed Flow Rate (cfs.)	Pre-Developed Volume (ac-ft)	Type of Flow
Hansen Road	141.42	153.38	41.100	Sheet flow to Hansen Road
Basin B2A & B2B	6.65	11.29	2.280	Sheet flow to Pulehu Roadside ditch to be discharged by pipe in existing basin B2B.
Basin B1	140.68	243.67	67.23	Channel flow to existing detention basin, B1.
TOTAL	288.75	408.34	110.61	

The existing drainage condition in the area including the project site and the upstream basin has been analyzed in several different storm drainage reports. The most recent of the

reports was for the Maui Business Park Development that is located just makai of the Ho'onani Village project site. Three detention basins were described and designed with the Maui Business Park development on the TMK where Ho'onani Village is currently subdividing. The first basin is notated as Basin B1. This basin is existing and is located just mauka of Target in Kahului. This basin has currently about 87.6 acre-feet in available volume. Upstream Basin O3 flows to this existing detention basin with a volume of about 67.23 acre-feet. The existing basin has a large slope on the high side of the basin in the southwest corner. This slope runs from the 62-foot elevation down to the pond bottom of about the 37-foot elevation. The lower side of the pond shows the actual active pond storage depth. The top of the berm is at the 45-foot elevation which makes the detention basin have an active storage depth of 8 feet. The detention basin B1 has two outlets. One outlet flows to the northeast to an open ditch that discharges at Discharge point 8. The other outlet allows flows to escape the basin to the northwest. This basin has existing access roads in place for access and maintenance.

On the Ho'onani Village project site there are currently no existing detention basins. Existing runoff flows down the mountain towards the northern property line. The Maui Business Park development has designed detention basins B2A in a drainage easement on the Ho'onani Village site. These basins have not been constructed yet. These basins are designed to manage the pre-development flow for the Ho'onani Village site and upstream basins, O1 & O2. These basins are currently designed to function in series together with a 60-inch drain line connecting the two basins to function as one larger basin. These basins are currently designed to have a volume of about 109.14 acre-feet of storage and a pre-developed volume of 107.11 acre-feet. Both basins were designed with the same top and bottom elevations. The top of the basins are at the 46-foot elevation and the bottom of the basins are at the 32-foot elevation. See table 4-3 below for additional flow details.

Table 4-3: Pre-Developed Existing & Designed Detention Basins

Basin Label	Available Storage (Ac-ft.)	Pre-Developed Flow Rate	Pre-Developed Volume	Available Volume (Ac-ft)
Basin B2A & B2B	109.14	425.67	107.11	2.03
Basin B1	87.60	243.67	67.23	20.37
TOTAL	196.74	669.34	174.34	

5.0 EXISTING WATER SYSTEM

The existing site is vacant and does not have any water systems located on site for domestic or agricultural purposes. As the site was once used for agricultural purposes, it is assumed that at one time there was an irrigation system across the site to provide water

to the crops on site. This system has since been removed. There are no existing water systems or structures in Pulehu Road or Hansen Road that are adjacent to the site. The nearest existing water system is located in Ho'okele Street and Pakaula Street to the north. The existing development adjacent to the site to the north uses this system for both domestic and fire uses. The nearest existing fire hydrant is located near the terminus of Pakaula Street. The site does not plan to connect to the existing water system and will not affect the system.

6.0 EXISTING WASTEWATER SYSTEM

The future lot that is being subdivided for the Ho'onani Village development does not have any existing wastewater lines or structures on it. According to the County of Maui's GIS for the Wastewater Infrastructure, the existing lot has some private wastewater lines and structures on the western side towards the existing Sugar Museum. Additionally, private wastewater lines are located in Ho'okele Street and Pakaula street to serve the existing users just makai of the project site. The private system in these streets connects to the public system owned and operated by the County of Maui that flows to the Wailuku/Kahului Wastewater refuse facility. The proposed development will not connect to an existing private or public wastewater system. These existing systems will not be affected by the development. See attached Existing Wastewater System Map for more information.

7.0 PROPOSED DRAINAGE SYSTEM

The project will be constructing new impervious surfaces from the construction of the proposed streets, buildings, parking areas, sidewalks and central promenade area. These improvements will increase the amount runoff from the site and will be managed for water quantity control per the County of Maui's Rules for the Design of Storm Drainage Facilities, Title MC-15, Chapter 4. These improvements will also bring elements to the site that increase the chance of pollutants entering the existing drainage conveyance systems nearby including our streams and oceans. The runoff from the site will be managed for water quality treatment to meet the Rules for the Design of Storm Water Treatment Best Management Practices, Chapter 15-111. The complete analysis of the proposed drainage system and the upstream basins can be found in Appendices 'C' and 'D'.

The proposed site has been divided into 37 drainage basins in the developed condition, notated as P1-P37. Upstream Basins O1-O3 continue to flow towards the site and will be managed in the proposed system. The attached Developed Basin Map details the boundaries of these proposed drainage basins.

The site is made up of soil group B rated soils and will have future cover types for impervious areas and open space lawn areas. These cover types have associated runoff curve numbers of 98 for impervious areas and 61 for open space lawn areas. The future site plan is made up of several different uses including residential low-rise apartments areas, light industrial

& business office area, street right-of-way areas, neighborhood commercial areas, and open space areas. Within these various areas, the amount of impervious areas was estimated by percentages to help calculate the composite runoff curve number for the site. The residential area was estimated at 60% impervious, the light industrial & business area at 85%, the street ROW area at 80% and the neighborhood commercial area at 50%. The last piece of the runoff analysis for the developed basins was the time of concentration for each basin. For each basin a catchment time of five minutes was used, and the longest potential run of drain line was utilized with a velocity of 3 ft/sec. of flow in the pipe. The run of pipe was estimated in the respective basin to overestimate the developed flow rates and volumes to err on the safer side with the design.

The developed basin sizes, composite runoff curve numbers and developed time of concentrations were inputted into HydroCAD to model the developed hydrographs for the 100-year, 24-hour storm events for each basin. The NOAA rainfall data for the area was utilized to estimate the rainfall depth for the site for this storm event. The attached Proposed Drainage Condition Analysis breaks down the developed flow rate (cfs) and flow volume (ac-ft) for the all the separate 37 on site basins and the 3 off site basins. Table 7-1 below breaks down the developed drainage basins and their associated flows and volumes.

Table 7-1: Developed Basin Analysis

Basin #	Basin Area (AC)	Composite Runoff Curve	Approx. Dev. T.O.C. (min.)	Developed Flow Rate (cfs.)	Developed Volume (Ac-ft.)
P1	3.44	90.6	8.22	20.95	2.236
P2	2.14	90.6	17.78	10.22	1.395
P3	8.63	92.45	7.44	53.85	5.669
P4	1.52	90.6	12.39	8.31	0.989
P5	7.38	92.45	8.37	45.14	4.85
P6	0.76	90.6	8.10	4.64	0.494
P7	8.40	92.45	8.77	50.89	5.52
P8	0.82	90.60	9.44	4.85	0.533
P9	9.62	83.20	10.00	50.68	5.623
P10	0.55	90.60	7.94	3.37	0.358
P11	9.39	83.20	8.42	51.57	5.487
P12	0.82	90.60	9.31	4.86	0.533

P13	13.22	83.20	9.61	70.40	7.726
P14	0.82	90.60	9.17	4.87	0.533
P15	11.31	83.20	10.10	59.59	6.61
P16	0.68	90.60	8.33	4.13	0.442
P17	3.81	75.80	6.67	19.16	1.973
P18	1.19	90.60	6.81	7.47	0.773
P19	4.59	90.60	9.72	26.94	2.985
P20	3.07	90.60	12.22	16.87	1.998
P21	1.71	90.60	9.86	9.98	1.112
P22	21.21	79.50	9.22	108.62	11.806
P23	4.04	90.60	7.50	24.93	2.626
P24	3.11	64.70	7.22	11.77	1.259
P25	5.21	83.20	6.11	30.15	3.043
P26	0.59	90.60	7.92	3.62	0.384
P27	2.15	83.20	6.56	12.29	1.256
P28	0.97	90.60	8.83	5.82	0.631
P29	10.12	83.20	8.67	55.17	5.914
P30	2.79	90.60	10.00	16.25	1.815
P31	0.60	90.60	8.67	3.61	0.39
P32	6.96	83.20	7.56	38.95	4.066
P33	1.14	90.60	10.33	6.58	0.742
P34	6.76	83.20	9.44	36.19	3.951
P35	21.29	74.00	10.21	84.12	10.602
P36	5.11	64.70	5.00	20.33	2.069
P37	7.17	61.00	5.00	25.05	2.605
TOTAL	193.09	-	-	1022.19	111.00

The on-site basins have a total flow rate of 1022.19 cfs and a total flow volume of 111.0 acre-feet (see the attached HydroCAD report for the developed conditions for additional information). The site had a pre-developed flow rate of 261.0 cfs and a flow volume of 63.73 acre-feet. The flow rate increased by 761.19 cfs and the flow volume increased by 47.27 acre-feet. With the development the flow rates and flow volume from the upstream basins O1-O3 did not change. The increase in flow will be detained meeting the County of Maui's Rules for the Design of Storm Drainage Facilities.

The proposed storm drainage system on site will incorporate a mixture of open conveyance and closed conveyance measures to direct the runoff to its discharge location to be detained and infiltrated. The storm drainage design for the site is subject to change throughout the design process. This report represents the currently proposed alternative as well as a few additional possible alternatives that could be utilized as the project design moves forward.

7.1 STORMWATER QUANTITY CONTROL - ALTERNATIVE 1

The current design to manage the increased runoff from the new improvements is to utilize the existing detention basin B1, and to redesign the detention basins B2A and B2B. Curb inlets, area drains, manholes and an underground storm drain line system will convey runoff from the on-site and upstream basins to these three detention basins. Runoff from the site will be separated between basin B1 and basins B2A & B2B based on the elevation and location of the basin to provide enough vertical fall to convey the water to the final detention basin. The only developed basins that have flows splitting between detention basins are P1 and O1 as they stretch the entire south property line of the site. These basins were split into A and B sub-basins. See the attached Developed Condition Analysis for the sizes, flow rates and flow volumes of these sub-basins. Sub-basins P1A and O1A are towards the east side of Hansen Road and will be conveyed to Basins B2A & B2B while sub-basins P1B and O1B on the west side of Hansen Road will be conveyed to Basin B1.

In the developed condition, existing Basin B1 is designed to have basins O1B, O3, P1B, P12-15, P20-21, and P34-35 discharged to it. To accommodate for these additional flows, we are proposing to deepen this basin and dig out the bottom of the basin to the 30-foot elevation. This would be an additional 7 feet of depth with the top of the basin remaining at the 45-foot elevation. This would increase the volume of the basin from 87.6 acre-feet to 119.54 acre-feet. The basin would have a developed volume of 122.13 acre-feet of total flow. The developed runoff hydrograph for the 100-year, 24-hour storm event was modeled in HydroCAD utilizing a 5 in./hr. infiltration rate. The infiltration rate used is less than half of the 10.1 in./hr. that resulted from the percolation tests done by Hawaii Geotechnical Consulting on the west side of the site. Using this as the only method of release for the runoff, the peak elevation was 38.92 feet, which allows for an additional 6 feet of available storage. The existing outlet that released water from the basin to the northeast to the drainage ditch would be removed with the development. Emergency overflow from the basin will remain in place to the northwest through the existing outlet. This basin is adequately designed to manage the developed runoff for these basins.

Table 7-2: Detention Basin B1	
Detention Basin Bottom Elev. (ft.)	30.0 ft.
100-year, 24- hr. storm Elev. (ft.)	38.92 ft.
Top of Pond Elev. (ft.)	45.0 ft.
Amount of Freeboard (ft.)	6.0 ft.
Total Available Volume (Ac.-ft.)	119.543 ac.-ft.
Total Flow Volume (Ac.-ft.)	122.521 ac.-ft.
Total Storage Volume (Ac.-ft.)	66.616 ac.-ft.

In the developed condition, designed basins B2A and B2b are designed to have basins O1A, O2, P1A, P2-11, P16-19, P22-33 and P36-37 discharged to them. To accommodate for these additional flows, we are proposing to redesign these basins to lower the bottom of the basins to the 28-foot elevation. This would be an additional 4 feet of depth with the top of the basin remaining at the 46-foot elevation. This would give the basins a total depth of 18 feet. This would increase the volume of the basins from a combined 100.20 acre-feet to 116.36 acre-feet. The basins would receive a developed volume of 99.475 acre-feet of total flow. The developed runoff hydrograph for the 100-year, 24-hour storm event was modeled in HydroCAD utilizing a 5 in./hr. infiltration rate. The infiltration rate used is less than the actual rate of 5.25 in./hr. that resulted from the percolation test done by Hawaii Geotechnical Consulting on the east side of the site. Using this as the only method of release for the runoff, the peak elevation was 38.47 feet, which allows for an additional 7.53 feet of available storage. The existing design of these basins has an emergency overflow outlet at the western end of basin B2A that will connect to the end of the designed storm system in the Maui Business Park. Should this be installed by the Maui Business Park development, the outlet will be relocated as necessary to continue to allow the emergency overflow to be conveyed north to the MBP system. These basins are adequately designed to manage the developed runoff for these basins.

Table 7-3: Detention Basins B2A & B2B	
Detention Basin Bottom Elev. (ft.)	28.0 ft.
100-year, 24- hr. storm Elev. (ft.)	38.47 ft.
Top of Pond Elev. (ft.)	46.0 ft.
Amount of Freeboard (ft.)	7.53 ft.
Total Available Volume (Ac.-ft.)	116.623 ac.-ft.
Total Flow Volume (Ac.-ft.)	101.137 ac.-ft.
Total Storage Volume (Ac.-ft.)	54.950 ac.-ft.

Along with these three detention basins, the proposed catch basins, area drains and drain lines will be designed to convey the 100-year, 24-hour storm event to meet the Rules for

the Design of Storm Drainage Facilities in the County of Maui. The conveyance system will be designed so that the flooded widths of the streets will be less than the required 8 feet, and so that the Hydraulic Grade Lines within the system is further than 1 foot from the rim elevations of the proposed structures or the finished ground elevation. The final drainage report for the project will address the catch basin & inlet capacity calculations, the flooded road widths, and the hydraulic grade line calculations. The HGL calculations will also be shown on the drain line profiles on the final construction plans.

The on-site drainage system will be privately owned and maintained by the applicant until the system is turned over to the Association that is created to manage the development. The final O&M plan will be added to the final storm drainage report.

7.2 Stormwater Quality Treatment

The proposed detention basins B1, B2A and B2b are designed to function as infiltration basins. These basins have been designed to meet the *Rules for the Design of Storm Water Treatment Best Management Practices, Chapter 15-111*. The detention basins have more than enough available storage volume for the water quality storms associated with the proposed drainage basins as they are much smaller than the 9.17 inches associated with the 100-year, 24-hour storm event. The detention basins allow the rainfall from smaller rain events to infiltrate into the bottom of the basins by not having any pond outlets outside of the emergency overflow outlets. This allows solids to filter out and are not conveyed into any downstream storm systems or streams. The basins have sufficient infiltration rates to allow the stormwater to be filtered through the vegetation and soil. The basins will be maintained monthly or following large rain events to remove any large debris and to keep the basins functioning properly.

It is our opinion that the basins will function well as water quality treatment BMPs and will more than sufficiently treat the runoff from the site and upstream basins. The proposed project will not adversely affect the downstream drainage areas with any contaminants or debris.

7.3 Potential Alternatives

The design of the storm drainage system is one element of the Ho'onani Village that could change greatly as the project moves forward. With the ever-changing costs of construction materials and the nature of storm drainage design having more room for flexibility and creativity than other systems like water or wastewater, the current proposed design could change. Below is a list of potential alternatives that could be used to address water quantity detention and water quality control for the project site and upstream basins. The final storm drainage system might include other alternatives that are not listed, but these are the main alternatives that are being considered.

1) Street-side swales, planters or rain gardens: Open conveyance options along the street frontages to manage runoff from the public and private streets could be incorporated into the design.

2) Sub-surface detention: In the future it could be more feasible to manage some of the drainage basins within the basin itself underground in sub-surface detention measure such as chambers or large perforated pipes.

3) Bio-retention basins, planters or landscaping: Currently the final landscaping vision and design that the project would like to achieve is not finalized. There is potential for runoff from roof drains of the proposed buildings to be directed to bio-retention or flow through BMP for treatment, detention or infiltration.

4) Infiltration structures: Smaller basins could be infiltrated separately into other types of infiltration structures such as dry wells, or open bottom catch basins etc.

5) Other detention basins: The large site provides other areas that could be used for detention/infiltration basins to manage stormwater. Items like internal and external water features and other potential landscape elements could be used to manage stormwater.

8.0 PROPOSED WATER SYSTEM

The proposed development has no potential opportunity to connect to an existing County of Maui Department of Water Supply public water system. Due to the lack of existing infrastructure, the development plans on creating a new water source, water storage & pump site, and distribution system will be designed and constructed to provide water for domestic uses, irrigation and fire suppression. The intent of this new system is for the system to be initially owned and maintained privately but will be constructed to Department of Water Supply standards so that in the future there could be an opportunity to turn the system over to the County of Maui.

The water system on site will be constructed with various sizes of ductile iron pipe, and will be located within the streets, parking lots, and open spaces to serve the various uses on site. Separate water services, meters, pressure reducers and backflow preventers etc. will be installed throughout the site to serve the various residential, commercial and industrial buildings, and open space areas. Fire hydrants will be spaced out every 250 feet as required by the Department of Water Supply for fire suppression. Additionally, the buildings will have FDC's and other fire suppression measures that will be addressed in the future.

At this time water for irrigation use of the open space areas could come from the new water system, or from reusable R-1 water from the proposed wastewater treatment plant on site. To err on the side of caution, the irrigation consumption has been added to the water

system calculations below. Irrigation meters and backflow preventers will be installed as necessary to irrigate the open space and landscape amenities on site.

The complete analysis of the proposed water system and the plans for the preliminary water master plan can be found in Appendix 'E'.

8.1 Water System Preliminary Calculations

The project site is mixed-use in nature including multi-family low rise residential, mixed commercial spaces, commercial office space, light industrial and landscaping. The County of Maui Department of Water Supply's requirements for water system sizing were used to size the proposed system. The Domestic Consumption Guidelines and the Fire Flow Requirements were utilized in the attached calculations and in the water system demand table below.

For the residential portion of the site, the current site plan reflects 1,599 units that vary between 1-, 2- and 3-bedroom units. The total number of units and the mix of unit type is subject to change through the design process. The proposed units are all low-rise multi-family units, and the private system will be designed with these units having a domestic consumption unit of 400 gal/unit. The approximate residential average daily demand for 1,599 units is 639,600 gallons per day. The commercial and industrial spaces were broken down into the actual square footage of the buildings. The commercial and industrial building spaces were modeled at the required 140 gallons per 1,000 square feet. The total average daily demand for the commercial areas was 23,127 gpd, and the total for the industrial areas was 27,734 gpd. The open space areas on site were modeled at 1,700 gallons per acre and had a total average daily demand of 56,321 gpd. The wastewater treatment plant will also contribute to the daily water consumption and overestimated to have a building square footage of 9,000 square feet. Utilizing the commercial rate of 140 gallons per 1,000 square feet, the total consumption from the WWTP totaled 1,260 gpd.

There are a few areas within the site with the ability to develop in the future and need to be modeled to size the water source and storage. The County owns the parcel that is 22.99 acres and is mauka of the existing Lowe's Home Improvement store. This parcel has the potential for both commercial and residential uses in the future but could even end up as a public school. To provide additional capacity in the system the potential commercial area was modeled as 275 residential units, and the residential portion was estimated at 440 residential units. The residential units have a consumption unit of 400 gal/unit and average daily demands of 110,000 and 176,000 gpd respectively. The total average daily demand for this parcel could be around 286,000 gpd. This parcel will not be developed as a part of the Ho'onani Village project but will be included in the sizing of the water system.

There are areas within the site where future commercial uses could be added in the future for potential retail or restaurant space. The potential future commercial buildings have an

approximate square footage of 53,880. The buildings were modeled at 140 gallons per 1,000 square feet of building area for a total average daily demand of 7,543 gpd.

The table below summarizes the breakdown of the various uses on site. The current plan for Ho'onani Village has an approximate average daily demand of 748,042 gpd. The potential future developments on the County site and the Ho'onani Village site could produce an average daily demand of 293,543 gpd. The total Average daily demand for the system is approximately 1,041,586 gpd. This was increased by 10% to account for unmetered losses in the system to total Design A.D.D. of 1,145,744 gpd. Utilizing a factor of 1.5, the Max Daily Demand was calculated to be 1,718,616 gpd.

Table 8-1: Water System Sizing Calculations

Type of Use	Unit	Quantity of unit	Average Daily Demand (gpd)	Max Daily Demand (gpd) (1.5 x ADD)
Multi-family Low-Rise Residential	400 gal/unit	1,599 units	639,600	959,400
Commercial Space	140 gal/1,000 SF bldg. area	165,196 sf	23,127	34,691
Light Industrial Area	140 gal/1,000 SF bldg. area	198,100 sf	27,734	41,601
Park Open Space	1,700 gal/acre	33.13 acres	56,321	84,482
WWTP Site	140 gal/1,000 SF bldg. area	9,000 sf	1,260	1,890
Future Residential Space (County)	400 gal/unit	440 units	176,000	264,000
Future Commercial Space (County)	400 gal/unit	275 units	110,000	165,000
Future Commercial Space (bldg. sq. ft.)	140 gal/1,000 SF bldg. area	53,880 sf	7,543	11,315
Project Total	-	-	1,145,744 (Increased by 10% for unmetered losses)	1,718,616

8.2 Water Main System & Water Storage Sizing

With the total approximate average daily demand and max daily demand understood, the water mains on site and off site were sized based on fire flows and domestic flows. The main distribution line from the off-site water source will carry the domestic flows for the entire site. The peak hour flow rate of 2,387 gallons per minute was used to analyze this line. During peak flow for the domestic flows the max velocity in the water mains has to be less than 5 ft./sec. This criterion requires this main distribution line to be a minimum of 14 inches in size. Within the project site, the separate branches of the water system only supply flows to the uses around it, which indicates that the fire flow rate will likely control the sizing of these mains. Commercial uses in the County of Maui have to be able to supply a fire flow rate of 2,000 gpm for two hours. Based on this flow rate, the water mains on site must be a minimum of 12 inches in size.

The future water reservoir that serves the development is sized based on the larger requirement between the maximum day consumption, and max day consumption flow plus fire flow for the duration of the fire (2 hr.). During the two-hour period of a potential fire, a ¾ full reservoir would have to hold 383,218 gallons, which would make the reservoir have a size of at least 510,957 gallons. This is significantly less than the maximum day consumption of 1,718,616 gallons, which would control the size of the reservoir. As the proposed water tanks will likely be approximately 500,000 gallons in size, a combination of water tanks will be utilized to have a combined volume greater than the maximum day consumption.

8.3 Water Source and Water Tank Site

The development will have to create a new water source to provide water for the site. Multiple wells will have to be drilled to produce the new water source. The applicant has been working with the owners of TMK (2) 2-5-001:016 to work out an agreement to utilize this TMK as the site for the new wells and water tanks. The site will likely include multiple wells, water tanks, treatment system, and a pump station. Approximately 23,000 LF of ductile iron pipe will be used to bring the water from the well site, down Pulehu Road, and to the site. See the attached Preliminary Off-site Distribution System for the approximate location of the water source and water tanks. Well permits will be pulled by Alpha Inc. prior to the drilling of the proposed wells.

8.4 Water System Alternatives

Alternatives for the proposed water system are limited. There is an existing private water source on the adjacent property just makai of the site that will serve the Maui Business Park development. The issue with this is that the source is at a lower elevation from our development and there would likely not be enough pressure to serve the site at the higher elevations. The other alternative would be connecting to the existing public system and public water source in the nearby area to serve the site. Water availability for domestic use is an ongoing issue for the island of Maui. The proposed development has a very large

domestic water demand. A demand of that size would put a massive burden on the existing system. For this reason, the applicant is proposing to create a separate private water source and distribution system to serve the development.

9.0 PROPOSED WASTEWATER SYSTEM

The proposed development does not have any public wastewater lines adjacent to the site to connect to. The closest existing system is a private system that connects to the downstream public wastewater system. The public wastewater system in the area currently conveys wastewater to the Wailuku/Kahului Wastewater Treatment Plant. The existing wastewater system does not have the capacity to manage the additional wastewater that the project site would create. Thus, the applicant is proposing to install a private wastewater system on site to serve the development. The system is currently proposed to be privately owned and maintained for the lifetime of the system.

The proposed system will be made up of a network of gravity sanitary sewer main lines that convey wastewater to a pump station at the low end of the site. Each building on site will be connected to the gravity system by individual sanitary service laterals. The pump station will then pump the waste in a pressure line system to the proposed wastewater treatment plant that will be located on the western end of the project site. The wastewater treatment plant is planned to be designed to treat wastewater and produce R-1 reusable water that can be utilized for irrigation of as much of the site as possible. The R-1 water would be pumped to irrigate the site in a non-potable purple pipe system for recycled water or an approved equal. A preliminary master plan for the wastewater pipe network is attached in Appendix 'F'. There are many different routes and alignments that could be utilized for the proposed pipe network to make it as efficient as possible. The location of the proposed mains is subject to change. The proposed slopes of the main lines, the line sizes and the proposed structures will be designed to meet the requirements of the County of Maui Wastewater Reclamation Division.

9.1 Wastewater Sizing Calculations

The proposed sanitary sewer system will be made up of various sizes of PVC or HDPE pipe. The individual sanitary sewer laterals will likely be a minimum size of 6 inches per the County of Maui code for the Wastewater Reclamation Division. The approximate wastewater flow rates for the mixed-use site were broken up by use type and follow the Wastewater Flow Standards of the Wastewater Reclamation Division. The site plan for the residential units, commercial spaces and industrial spaces is subject to change through the design process, and the calculations below represent the current land use concept plan at the time of this report.

The existing plan for the residential buildings has a total of 1,599 units with a mixture of 1-, 2- and 3-bedroom type units. These units were estimated at 255 gals/unit. The approximate total residential wastewater flow is 407,745 gpd. The commercial areas were divided into

an approximate breakdown between retail, restaurants, and the commercial office buildings because each of the uses have different estimated wastewater flow rates. As the tenants in the commercial spaces in the center mixed-use area of the site will change over time, we had to estimate the breakdown within those spaces. To err on the high side, we estimated that 50% of that space will be used for restaurants and 50% would be retail. The commercial restaurant wastewater flow was estimated by useable area, which is approximately 60% of the total square footage. It was assumed 1 restaurant seat per 20 square foot of useable area and 80 gals/seat. For an area of 56,100 sf, it was calculated that 1,683 seats would generate 134,640 gpd. The retail area was estimated at 1 employee per 350 square feet and 15 gallons per employee. For 56,100 square feet of retail area, it was calculated that 160 employees would generate 2,400 gpd. The office spaces were estimated assuming 1 employee per 200 square feet of building area and 20 gallons per employee. For 100,000 square feet of office space, it was calculated that 500 employees would generate 10,000 gpd. The total commercial average daily flow was estimated to be 147,040 gallons per day. The wastewater flow from the industrial area was estimated to be 1 employee per 500 square feet of building area and 25 gallons per employee. The total average daily flow from the 198,100 square feet of industrial area is estimated for 396 employees generating 9,900 gpd. The current Ho'onani Village site has an average daily flow volume of 564,685 gallons per day.

There are a few areas on site where future development is planned or possible, including an area for commercial development within the project site, and the potential future development of the 23-acre parcel that is owned by the County of Maui. To ensure that the system has the capacity for the future County site, this area was assumed to potentially have both residential and commercial uses, even though the area could be a public school in the future as well. The commercial space on the site was modeled as a residential development with 275 units and a flow rate of 300 gal/unit to create an additional factor of safety. This area has an approximate flow of 82,500 gpd. The possible residential area was modeled to have 440 units and calculated at 255 gals/unit. The future potential residential development of the County's 23-acre site would produce a flow of 112,200 gpd. The potential wastewater flow from the County site that we are using to size the wastewater system is approximately 194,700 gpd.

The future commercial area on the Ho'onani Village site was analyzed at the same ratio for retail and restaurants as the planned commercial development area. The future commercial area has a total building square footage of 53,880 and would produce a flow of 65,795 gpd. This total is the sum of 64,640 gpd of flow for the potential future restaurant area and 1,155 gpd of flow for the potential future retail area.

The mixed-use site was modeled to overestimate the wastewater flow of the site, and some of the future uses are subject to change. The average wastewater flow for the proposed system was calculated to be 825,180 gallons per day. The complete breakdown of the Wastewater System Calculations can be found in Appendix 'F'.

The next step in sizing the system was to include the dry weather and wet weather infiltration and inflow that could be added to the system. The number of people that would be on site per day was estimated to be 9,940 people per day and was broken down in Appendix 'F'. During dry and wet weather conditions there is water underground that could infiltrate the wastewater pipes and structures. These conditions were analyzed for wastewater lines laid above the normal ground water table. Dry weather infiltration/inflow is calculated at 5 gallons per capita per day, which is a total of 49,700 gallons per day for the site. The wet weather infiltration/inflow is calculated at 1,250 gallons per acre per day. The area on site that has wastewater lines present is approximately 117.65 acres, which is a total of 147,063 gallons per day of flow for the site.

The Total Average Wastewater Flow was calculated by taking the average wastewater flow plus dry & wet weather infiltration/inflow and was calculated to be 1,021,943 gpd. To calculate the minimum volume that the Wastewater treatment plant would be designed to, we took this number and increased it by a 25% factor of safety to get a WWTP min. volume of 1,277,428 gallons per day. The final wastewater treatment plant will be designed by others at a later time and will be designed with sufficient volume to meet all of the County of Maui wastewater flow requirements. The site Peak wastewater flow was calculated by taking a peaking factor of 2 to the Total Average daily site wastewater flow and was found to be 2,043,885 gpd. This has an associated flow rate of 3.163 cfs, which will be used to design the flow within the wastewater lines.

Table 8-2: Wastewater System Sizing Calculations

Type of Use	Unit	Quantity of unit	Average Daily Flow (gpd)	Average Flow Rate (cfs)
Residential multi-family low-rise	255 gal/unit	1,599 units	407,745	0.631
Commercial Restaurant	60% useable space, 1 seat per 20 SF useable space, 80 gal. per seat	56, 100 sf = 1,683 seats	134,640	0.208
Commercial Retail	1 employee per 350 SF bldg. area, 15 gal per employee	56, 100 sf = 160 employees	2,400	0.004
Commercial Office	1 employee per 200 SF bldg. area, 20 gal per employee	100,000 sf = 500 employees	10,000	0.015
Light Industrial	1 employee per 500 SF bldg. area, 25 gal per employee	198,100 sf = 396 employees	9,900	0.015
Future Commercial (On-site) (Restaurant)	60% useable space, 1 seat per 20 SF useable space, 80 gal. per seat	26,940 SF = 808 seats	64,640	0.100

Future Commercial (On-site) (Retail)	1 employee per 350 SF bldg. area, 15 gal per employee	26,940 SF = 77 employees	1,155	0.002
Future Residential (County Site)	255 gal/unit	440	112,200	0.174
Future Commercial (County Site) (Modeled as Residential)	300 gal/unit	275	82,500	0.128
Dry Weather Infiltration/Inflow	5 gal/capita/day	9940	49,700	0.077
Wet Weather Infiltration/Inflow	1,250 gal/acre/day	117.65 acres	147,063	0.228
Project Total Wastewater Flow	-	-	1,021,943	1.581
Min. WWTP Volume	(Additional 25% factor of Safety)	-	1,277,428	1.977
Project Peak Wastewater Flow	(2.0 Peaking factor multiplied to Project Total Wastewater Flow)	-	2,043,885	3.163

The complete analysis of the proposed wastewater system and the plans for the preliminary wastewater master plan can be found in Appendix 'F'.

The proposed sanitary sewer system will be made up of various sizes of PVC or HDPE pipe. The pipe sizes will range from 6-inch to 18-inch mains as you get to the pump station. The entire proposed system was sized to flow at 50% full. With the design peak flow rate of the site being 3.163 cfs, an 18-inch PVC pipe would be needed to convey the flow at 50% full.

The proposed pump station and wastewater treatment plant will be designed by others at a later time and will be designed to meet all of the Hawaii Department of Health and the County of Maui requirements. A pressure pipe system will convey the wastewater from the pump station back up the site to the proposed wastewater treatment plant site. The WWTP will be designed to treat the waste to produce R-1 reuseable water. The various alternatives for how the plant will get rid of the R-1 water are discussed below. The current plan is for the R-1 water will be utilized to irrigate portions of the site. A non-potable waterline system will be designed and approved to utilize the R-1 water.

9.2 Wastewater System Alternatives

The wastewater system does not have many alternatives. The nearest existing system to the development is the private system just north of the site at the terminus of Pakaula Street. This system connects to the County of Maui public wastewater system that conveys the wastewater to the Wailuku/Kahului Wastewater Treatment Plant. Due to the large wastewater flow generated by the development, connecting to the adjacent sanitary system isn't a feasible solution. The existing system was not designed to convey the additional wastewater flow from the site and thus would need major upgrades in size and would be impractical and infeasible.

Additionally, a new wastewater treatment plant in Central Maui is being planned. An alternative could be to connect to this new WWTP. There are several factors to why this is impractical. First, the Central Maui WWTP is over 3.5 miles to the southwest of the proposed development. This would require an extremely long run of pipe to connect to the site. Another issue comes down to the timing of the project and when sewer service would be available for the development. The Central Maui WWTP would have to be in service prior to the first phase of the Ho'onani Village being completed to be a potential source to serve the site. Due to these factors this alternative is not the chosen design path.

The current selection allows the applicant to control the timing of the wastewater system to ensure that service is available as it would be developed with the site. Additionally, the current plan provides R-1 water from the WWTP to be utilized for irrigation of the open space and landscape features on site and promotes a green site design. The location of the WWTP would also be on site, so there would not be the need for a long run of pipe to convey the sewage from the pump station to the WWTP. For the disposal of the R-1 water there are four different alternatives, which includes the use for onsite irrigation, the use for offsite irrigation by providing the water to Maui Business Park to replace their current irrigation water supply, the use for offsite irrigation by providing the water to Mahi Pono for irrigation of their crops, and lastly an injection well/soil aquifer treatment system. The final use of the R-1 water will be determined later in the design process.

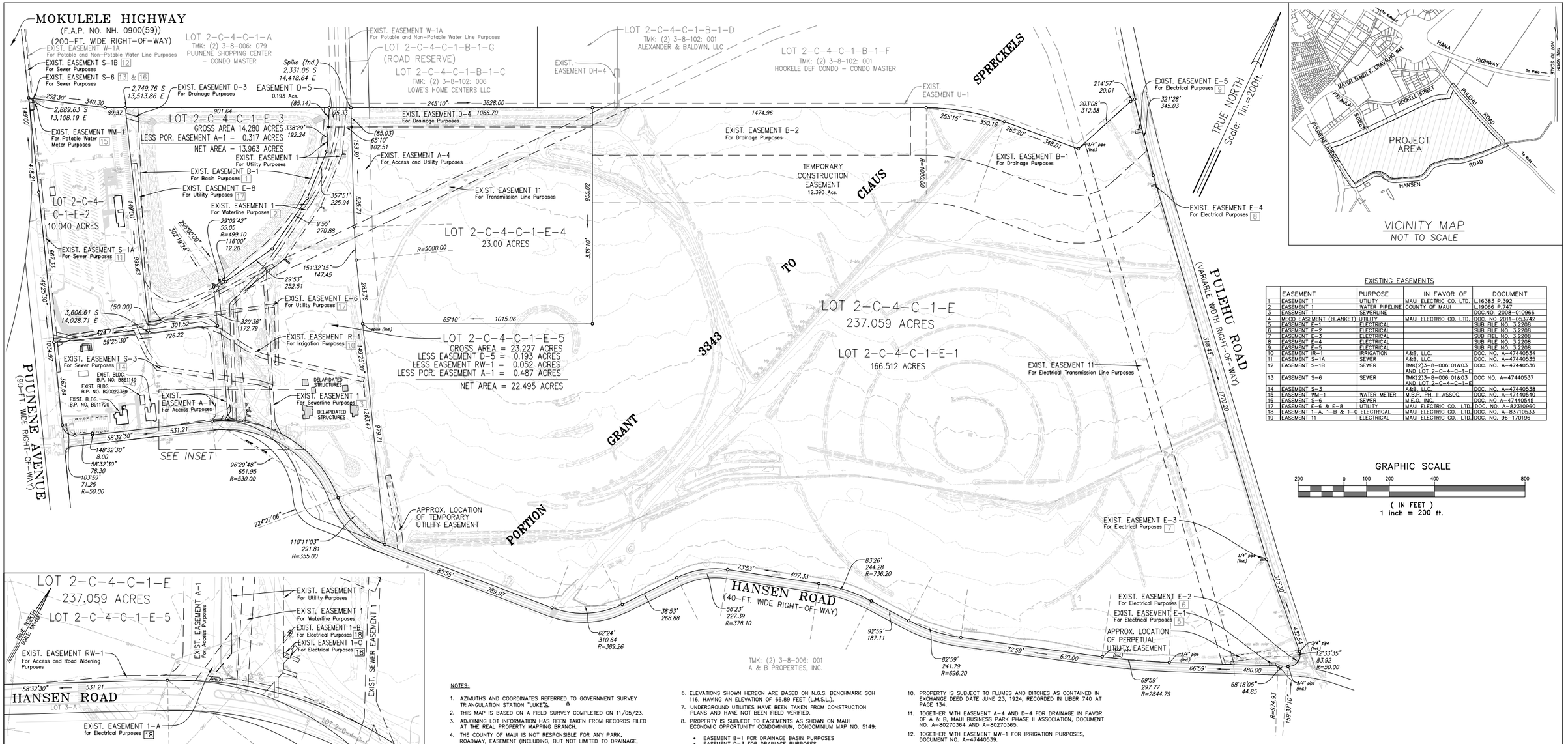
10.0 CONCLUSION

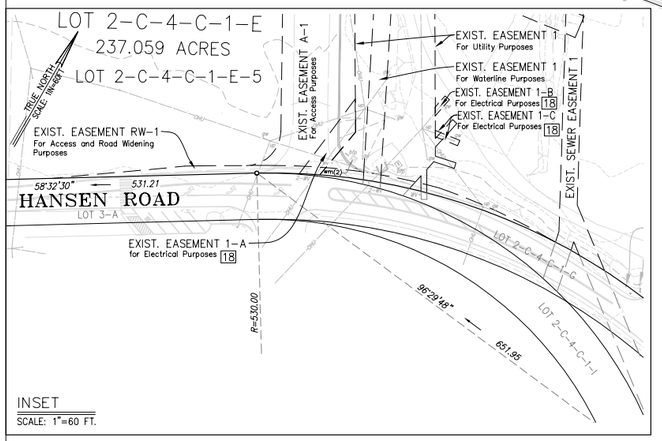
Based on the supporting stormwater calculations and attached analysis, it is the opinion of Pioneer Design Group-Hawai'i, LLC. that the development of the Ho'onani Village will not adversely affect the existing downstream drainage system or adjacent property owners. Water quantity control meeting the Drainage standards for the County of Maui Title MC-15, Chapter 4, and water quality treatment meeting the Maui County Chapter 15-111 "Rules for the Design of Storm Water Treatment Best Management Practices" will be provided by the on-site detention basins or an alternative design. The water and wastewater systems will be designed to efficiently serve the site, to meet all the associated requirements, and to limit disturbances to the adjacent parcels. All the infrastructure associated with the project

will be fully designed for construction plan review and will be approved prior to construction.

11.0 VICINITY MAP

APPENDIX 'A' – EXISTING SUBDIVISION PRELIMINARY PLAT, SITE MAPS AND SOIL INFORMATION





EXISTING EASEMENTS

	EASEMENT	PURPOSE	IN FAVOR OF	DOCUMENT
1	EASEMENT 1	UTILITY	MAUI ELECTRIC CO. LTD.	L 16383 P 392
2	EASEMENT 1	WATER PIPELINE	COUNTY OF MAUI	L 19066 P 747
3	EASEMENT 1	SEWERLINE		DOC.NO. 2008-010966
4	MECO EASEMENT (BLANKET)	UTILITY	MAUI ELECTRIC CO. LTD.	DOC. NO. 2011-053742
5	EASEMENT E-1	ELECTRICAL		SUB FILE NO. 3.2208
6	EASEMENT E-2	ELECTRICAL		SUB FILE NO. 3.2208
7	EASEMENT E-3	ELECTRICAL		SUB FILE NO. 3.2208
8	EASEMENT E-4	ELECTRICAL		SUB FILE NO. 3.2208
9	EASEMENT E-5	ELECTRICAL		SUB FILE NO. 3.2208
10	EASEMENT IR-1	IRRIGATION	A&B, LLC.	DOC. NO. A-47440534
11	EASEMENT S-1A	SEWER	A&B, LLC.	DOC. NO. A-47440535
12	EASEMENT S-1B	SEWER	TMK(2)3-8-006:01&03 AND LOT 2-C-4-C-1-E	DOC. NO. A-47440536
13	EASEMENT S-6	SEWER	TMK(2)3-8-006:01&03 AND LOT 2-C-4-C-1-E	DOC NO. A-47440537
14	EASEMENT S-3	SEWER	A&B, LLC.	DOC. NO. A-47440538
15	EASEMENT WM-1	WATER METER	M.B.P. PH. II ASSOC.	DOC. NO. A-47440540
16	EASEMENT S-6	SEWER	M.E.O. INC.	DOC. NO. A-47440545
17	EASEMENT E-6 & E-8	UTILITY	MAUI ELECTRIC CO., LTD.	DOC. NO. A-82310960
18	EASEMENT 1-A, 1-B & 1-C	ELECTRICAL	MAUI ELECTRIC CO., LTD.	DOC. NO. A-85710533
19	EASEMENT 11	ELECTRICAL	MAUI ELECTRIC CO., LTD.	DOC. NO. 96-170196

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

NOTES:

1. AZIMUTHS AND COORDINATES REFERRED TO GOVERNMENT SURVEY TRIANGULATION STATION "LUKE".
2. THIS MAP IS BASED ON A FIELD SURVEY COMPLETED ON 11/05/23.
3. ADJOINING LOT INFORMATION HAS BEEN TAKEN FROM RECORDS FILED AT THE REAL PROPERTY MAPPING BRANCH.
4. THE COUNTY OF MAUI IS NOT RESPONSIBLE FOR ANY PARK, ROADWAY, EASEMENT (INCLUDING, BUT NOT LIMITED TO DRAINAGE, SEWER, ACCESS, RECLAIMED WATER OR AVIGATION EASEMENT), OR ANY OTHER INTEREST IN REAL PROPERTY SHOWN ON THIS MAP OR SHOWN ON THESE PLANS, UNLESS THE COUNTY OF MAUI HAS ACCEPTED ITS DEDICATION BY A RESOLUTION APPROVED BY A MAJORITY OF COUNCIL MEMBERS AT A REGULAR OR SPECIAL MEETING OF THE MAUI COUNTY COUNCIL OR THE COUNTY OF MAUI HAS SIGNED ITS ACCEPTANCE VIA A CONVEYANCE DOCUMENT RECORDED IN THE BUREAU OF CONVEYANCES OF THE STATE OF HAWAII IN COMPLIANCE WITH MAUI COUNTY CODE SECTION 3.44.015.
5. PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS "ZONE X/OTHER AREAS" AS SHOWN ON THE MAP INDEX, MAP NUMBER 15000305955E WITH A REVISION DATE OF SEPTEMBER 25, 2009 IN MAUI COUNTY, STATE OF HAWAII, WHICH IS THE CORRECT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
6. ELEVATIONS SHOWN HEREON ARE BASED ON N.G.S. BENCHMARK SOH 116, HAVING AN ELEVATION OF 66.89 FEET (L.M.S.L.).
7. UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM CONSTRUCTION PLANS AND HAVE NOT BEEN FIELD VERIFIED.
8. PROPERTY IS SUBJECT TO EASEMENTS AS SHOWN ON MAUI ECONOMIC OPPORTUNITY CONDOMINIUM, CONDOMINIUM MAP NO. 5149:
   - EASEMENT B-1 FOR DRAINAGE BASIN PURPOSES
   - EASEMENT D-3 FOR DRAINAGE PURPOSES
   - EASEMENT B-1 FOR DRAINAGE PURPOSES
   - EASEMENT B-2 FOR DRAINAGE PURPOSES
   - TEMPORARY CONSTRUCTION EASEMENT
   - EXISTING TEMPORARY UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES (UP TO 3 YEARS)
   - EXISTING UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES
   - EASEMENT A-1 FOR ACCESS PURPOSES
   - EASEMENT UNIT 2A SURFACE WATER
   - EASEMENT D-5 FOR DRAINAGE AND ACCESS PURPOSES
   - EASEMENT RW-1 FOR ACCESS AND ROAD WIDENING PURPOSES.
9. PROPERTY IS SUBJECT TO A DECLARATION OF EASEMENT RIGHTS, COVENANTS CONDITIONS AND RESTRICTIONS, DOCUMENT NO. A-82940748, AMENDED BY DOCUMENT NO. A-85840476.
10. PROPERTY IS SUBJECT TO FLUMES AND DITCHES AS CONTAINED IN EXCHANGE DEED DATE JUNE 23, 1924, RECORDED IN LIBER 740 AT PAGE 134.
11. TOGETHER WITH EASEMENT A-4 AND D-4 FOR DRAINAGE IN FAVOR OF A & B, MAUI BUSINESS PARK PHASE II ASSOCIATION, DOCUMENT NO. A-80270364 AND A-80270365.
12. TOGETHER WITH EASEMENT MW-1 FOR IRRIGATION PURPOSES, DOCUMENT NO. A-47440539.
13. TOGETHER WITH AND EASEMENT FOR ACCESS PURPOSES OVER AND ACROSS LOT 2-C-4-C-1-B-G, DOCUMENT NO. A-80270367.
14. PROPERTY IS SUBJECT TO A DECLARATION OF EASEMENT RIGHTS, COVENANTS, CONDITIONS AND RESTRICTIONS, DOCUMENT NO. A-85840477.

LEGEND

bfp	back flow preventer	pp	power pole
cabx	cable television box	sdmh	storm drain manhole
di	drain inlet	sicmh	signal corp manhole
ebx	electric box	sl	street light
fh	fire hydrant	smh	sewer manhole
gen	generator	tebx	telephone box
gw	guy wire	trans	transformer
lp	lamp post	up	utility pole
ohu	overhead utility lines	wbx	water box
pbx	power box	wv	water valve
		wmh	water manhole

OWNERS: MAUI ECONOMIC OPPORTUNITY, INC.
COUNTY OF MAUI
ALEXANDER & BALDWIN, LLC.
AX HOLDING, LLC.
PUUNENE INDUSTRIAL PARK, LLC.

TMK: (2) 3-8-006: 004

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

PRELIMINARY
SUBJECT TO CHANGE

JUSTIN H. LAPP
LICENSED PROFESSIONAL LAND SURVEYOR
CERTIFICATE No. 12964
EXP. DATE 04/2026

PRELIMINARY PLAT
FIRST ASSEMBLY OF GOD SUBDIVISION
SUBDIVISION OF LOT 2-C-4-C-1-E
INTO LOTS 2-C-4-C-1-E-1, 2-C-4-C-1-E-2,
2-C-4-C-1-E-3, 2-C-4-C-1-E-4 AND 2-C-4-C-1-E-5
BEING A PORTION OF GRANT 3343 TO CLAUS SPRECKELS
SITUATED AT PUUNENE, WAILUKU, MAUI, HAWAII

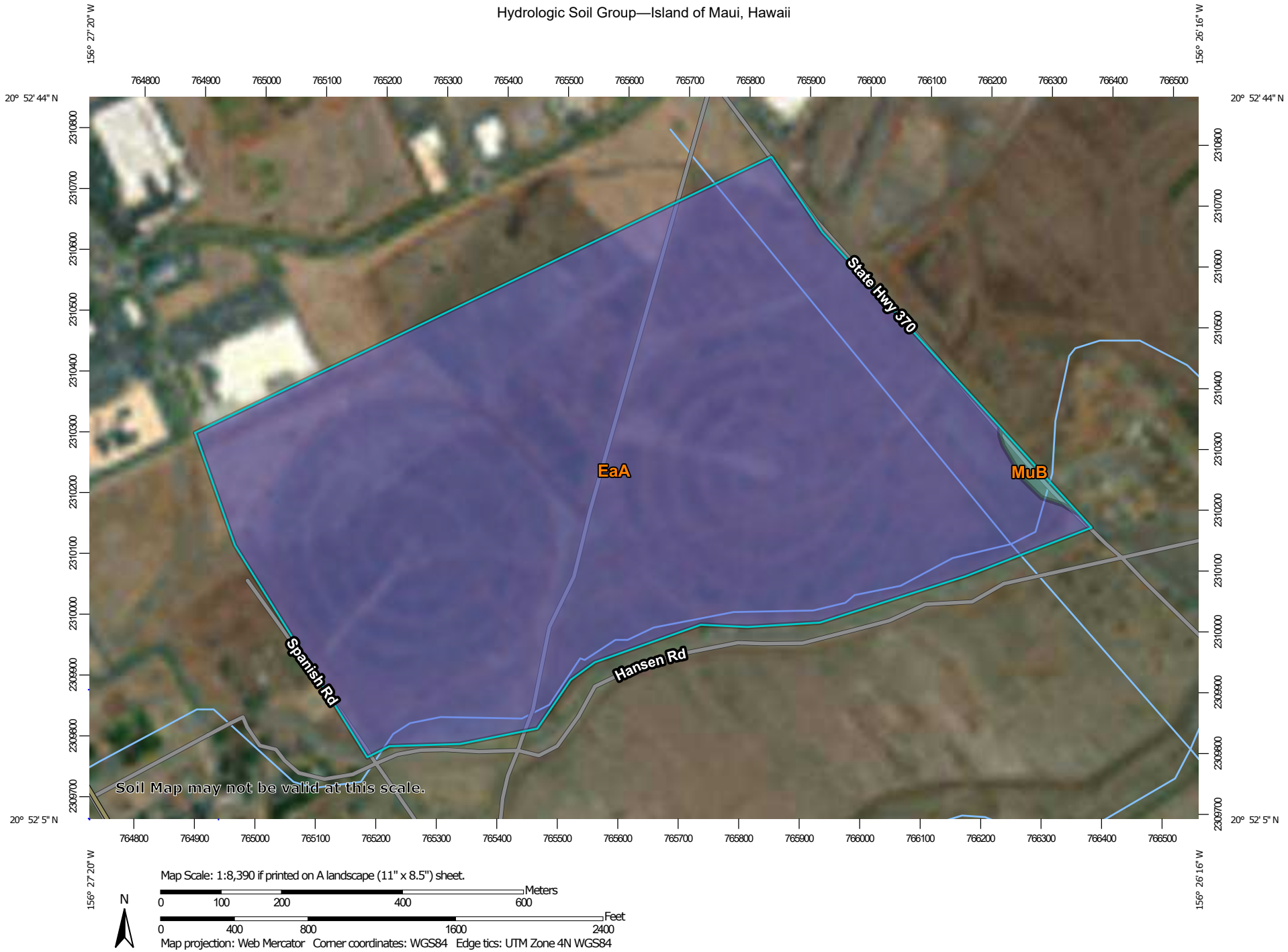
JUNE 21, 2024

B:\PROJECTS\PDGHAWAII\H109-001\SUBS\ATA SURVEYING\23526PP TO ALPHA.DWG

AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS * SURVEYORS
1871 WILI PA LOOP SUITE A * WAILUKU, MAUI, HAWAII 96793

24" X 36" = 6 SQ. FT.

JOB NO.: 23-526


156° 27' 20" W
156° 26' 16" W
20° 52' 44" N
20° 52' 5" N
764800
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2310200
2310100
2310000
2309900
2309800
2309700
State Hwy 370
EaA
MuB
Spanish Rd
Hansen Rd
Soil Map may not be valid at this scale.
Map Scale: 1:8,390 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
100
200
400
600
Feet
0
400
800
1600
2400
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Maui, Hawaii
Survey Area Data: Version 21, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
EaA	Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158	B	193.8	99.5%
MuB	Molokai silty clay loam, 3 to 7 percent slopes, MLRA 158	C	0.9	0.5%
Totals for Area of Interest			**194.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

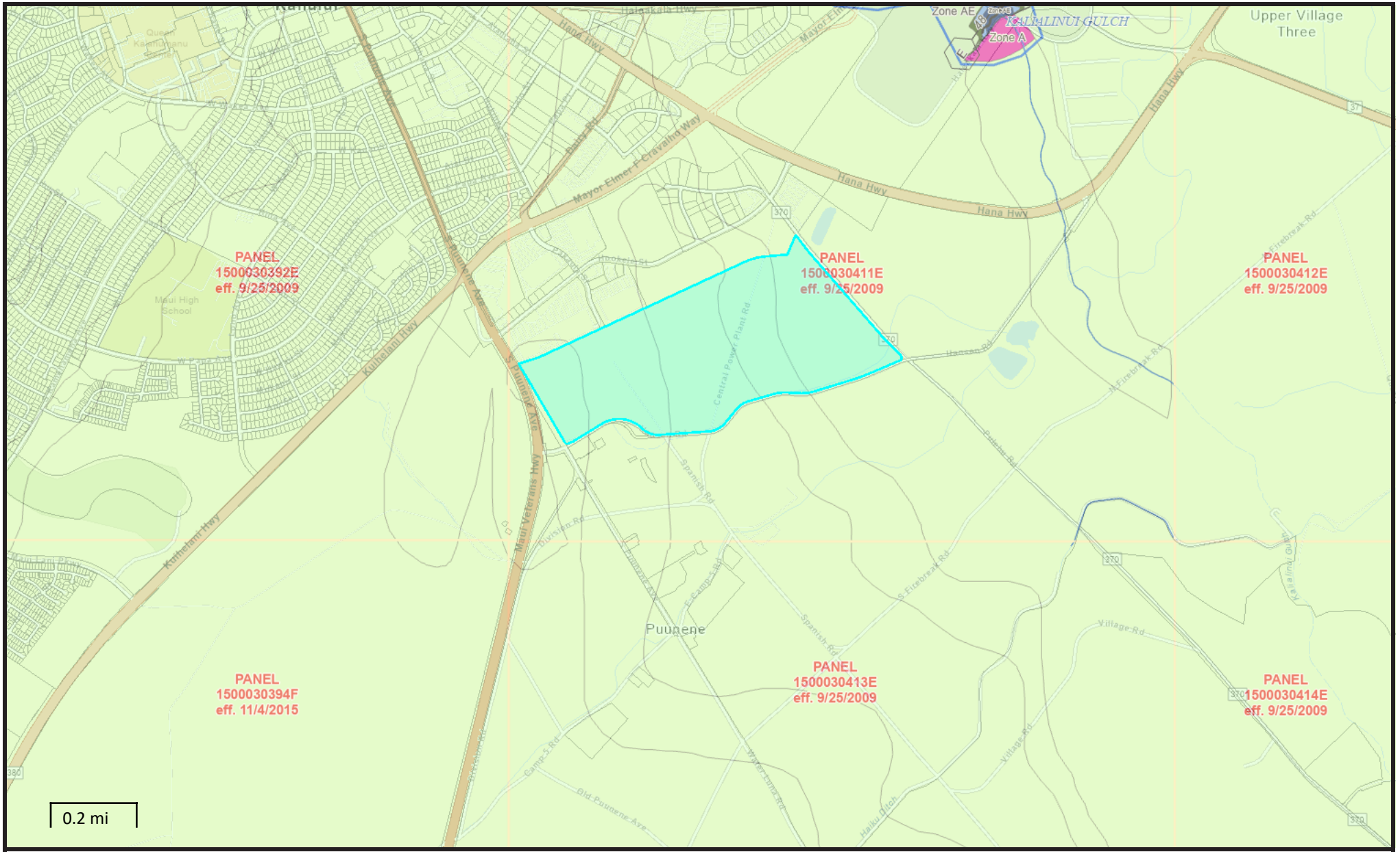
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Flood Hazard Map

Title: Hoonani Village Flood Hazard Map

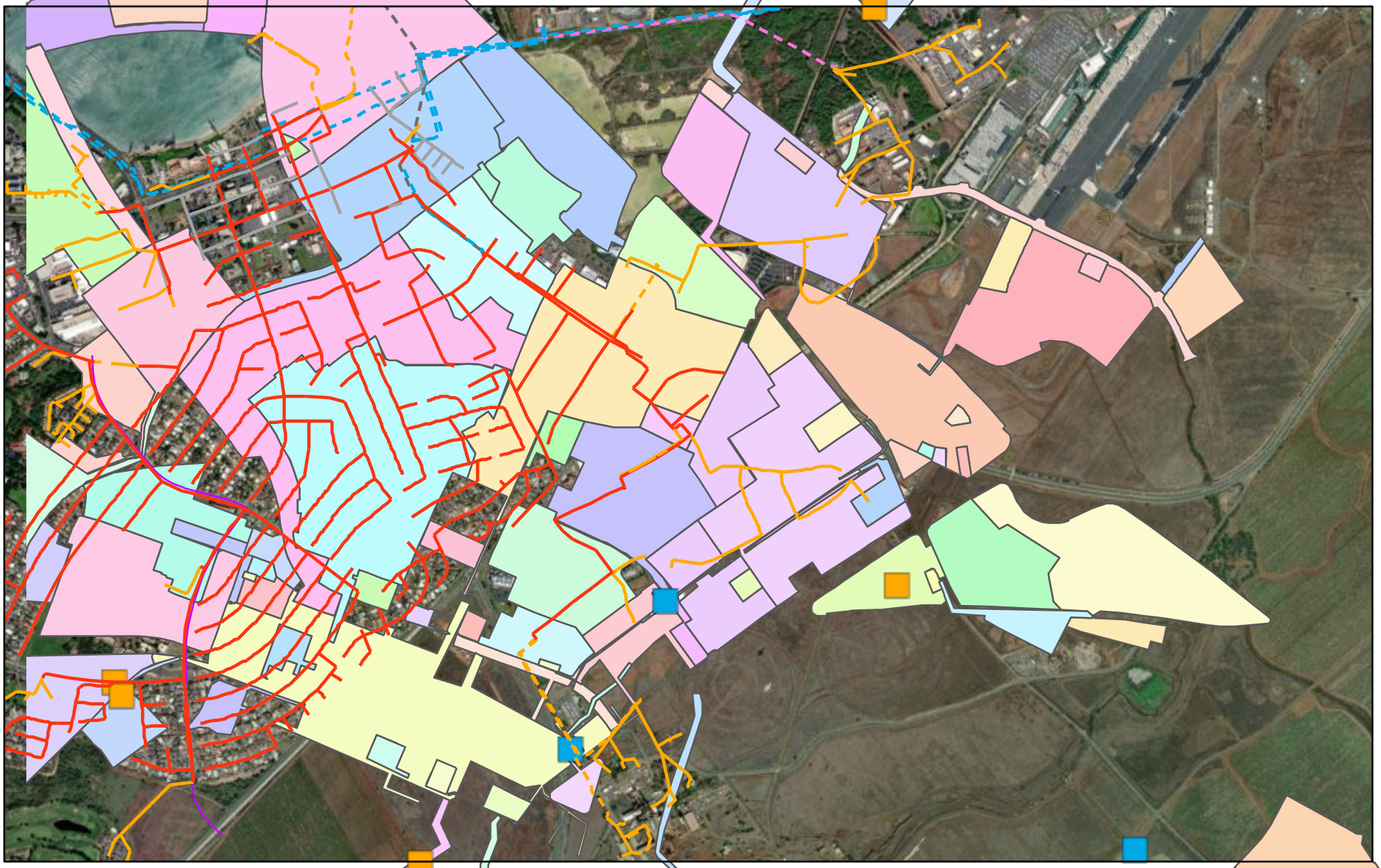
Notes: Flood Zone X

Map generated on 10/11/2024

Map Legend

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

County of Maui Wastewater Infrastructure



10/14/2024

1:22,615

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

Resource Mapping Hawaii, Maxar, Eagleview, 2023, Eagleview, 2023.

APPENDIX 'B' – PRE-DEVELOPED CONDITION DRAINAGE ANALYSIS

NOAA Atlas 14, Volume 4, Version 3
Location name: Kahului, Hawaii, USA*
Latitude: 20.8729°, Longitude: -156.4473°
Elevation: 66 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

S. Perica, D. Martin, B. Lin, T. Parzybok, D. Riley, M. Yekta, L. Hiner, L.-C. Chen, D. Brewer, F. Yan, K. Maitaria, C. Trypaluk, G. M. Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.219 (0.189-0.250)	0.293 (0.253-0.342)	0.399 (0.342-0.466)	0.483 (0.409-0.567)	0.601 (0.502-0.713)	0.698 (0.572-0.837)	0.797 (0.641-0.968)	0.905 (0.710-1.12)	1.05 (0.796-1.33)	1.18 (0.860-1.51)
10-min	0.325 (0.280-0.370)	0.434 (0.375-0.507)	0.592 (0.508-0.691)	0.716 (0.607-0.840)	0.891 (0.744-1.06)	1.04 (0.848-1.24)	1.18 (0.950-1.44)	1.34 (1.05-1.66)	1.56 (1.18-1.97)	1.75 (1.28-2.24)
15-min	0.408 (0.352-0.465)	0.545 (0.471-0.637)	0.744 (0.638-0.868)	0.900 (0.762-1.06)	1.12 (0.934-1.33)	1.30 (1.06-1.56)	1.48 (1.19-1.80)	1.68 (1.32-2.08)	1.96 (1.48-2.47)	2.20 (1.60-2.81)
30-min	0.575 (0.496-0.654)	0.768 (0.663-0.896)	1.05 (0.898-1.22)	1.27 (1.07-1.48)	1.57 (1.32-1.87)	1.83 (1.50-2.19)	2.09 (1.68-2.54)	2.37 (1.86-2.92)	2.76 (2.08-3.48)	3.09 (2.25-3.96)
60-min	0.756 (0.652-0.861)	1.01 (0.873-1.18)	1.38 (1.18-1.61)	1.67 (1.41-1.95)	2.07 (1.73-2.46)	2.41 (1.97-2.88)	2.75 (2.21-3.34)	3.12 (2.45-3.85)	3.64 (2.74-4.58)	4.06 (2.96-5.21)
2-hr	1.03 (0.902-1.19)	1.40 (1.21-1.64)	1.92 (1.64-2.24)	2.31 (1.97-2.72)	2.87 (2.40-3.41)	3.31 (2.72-3.97)	3.76 (3.02-4.57)	4.24 (3.33-5.22)	4.90 (3.70-6.17)	5.44 (3.96-6.97)
3-hr	1.16 (1.02-1.34)	1.61 (1.39-1.87)	2.20 (1.89-2.57)	2.66 (2.26-3.13)	3.31 (2.76-3.93)	3.82 (3.13-4.59)	4.35 (3.49-5.28)	4.90 (3.84-6.04)	5.67 (4.27-7.14)	6.29 (4.58-8.06)
6-hr	1.47 (1.28-1.70)	2.01 (1.73-2.35)	2.77 (2.38-3.25)	3.38 (2.87-3.98)	4.21 (3.52-5.02)	4.88 (4.01-5.87)	5.57 (4.48-6.77)	6.30 (4.94-7.77)	7.30 (5.50-9.21)	8.11 (5.90-10.4)
12-hr	1.84 (1.59-2.12)	2.52 (2.16-2.93)	3.48 (2.98-4.07)	4.26 (3.61-5.00)	5.35 (4.46-6.35)	6.23 (5.11-7.48)	7.16 (5.74-8.69)	8.14 (6.37-10.0)	9.52 (7.16-12.0)	10.6 (7.73-13.6)
24-hr	2.28 (1.99-2.62)	3.13 (2.73-3.59)	4.35 (3.79-5.00)	5.34 (4.63-6.15)	6.77 (5.82-7.83)	7.93 (6.76-9.22)	9.17 (7.74-10.7)	10.5 (8.77-12.4)	12.4 (10.2-14.7)	14.0 (11.3-16.7)
2-day	2.79 (2.48-3.16)	3.86 (3.42-4.37)	5.40 (4.78-6.14)	6.67 (5.87-7.60)	8.50 (7.41-9.72)	10.0 (8.65-11.5)	11.6 (9.93-13.4)	13.4 (11.3-15.6)	15.9 (13.2-18.7)	18.0 (14.6-21.3)
3-day	2.95 (2.63-3.34)	4.08 (3.63-4.63)	5.72 (5.06-6.49)	7.06 (6.21-8.04)	8.98 (7.84-10.3)	10.6 (9.13-12.1)	12.3 (10.5-14.2)	14.1 (11.9-16.4)	16.7 (13.8-19.6)	18.9 (15.4-22.4)
4-day	3.12 (2.78-3.53)	4.32 (3.83-4.89)	6.03 (5.34-6.84)	7.45 (6.55-8.48)	9.47 (8.26-10.8)	11.1 (9.62-12.8)	12.9 (11.0-14.9)	14.8 (12.5-17.2)	17.6 (14.5-20.6)	19.8 (16.1-23.4)
7-day	3.52 (3.13-3.98)	4.86 (4.32-5.51)	6.78 (5.99-7.69)	8.32 (7.32-9.47)	10.5 (9.15-12.0)	12.3 (10.6-14.1)	14.1 (12.1-16.3)	16.1 (13.6-18.7)	19.0 (15.7-22.2)	21.3 (17.3-25.1)
10-day	3.86 (3.43-4.37)	5.33 (4.72-6.04)	7.38 (6.52-8.39)	9.04 (7.94-10.3)	11.3 (9.86-13.0)	13.2 (11.4-15.2)	15.1 (12.9-17.4)	17.1 (14.4-19.9)	20.0 (16.5-23.5)	22.3 (18.1-26.3)
20-day	4.87 (4.33-5.52)	6.69 (5.93-7.57)	9.16 (8.10-10.4)	11.1 (9.75-12.6)	13.7 (12.0-15.7)	15.8 (13.6-18.1)	17.9 (15.3-20.7)	20.1 (16.9-23.3)	23.0 (19.0-27.0)	25.3 (20.6-30.0)
30-day	5.63 (5.01-6.37)	7.71 (6.84-8.73)	10.5 (9.33-12.0)	12.7 (11.2-14.5)	15.7 (13.7-18.0)	18.1 (15.6-20.7)	20.4 (17.5-23.6)	22.9 (19.3-26.6)	26.2 (21.7-30.7)	28.8 (23.4-34.0)
45-day	6.88 (6.12-7.78)	9.43 (8.37-10.7)	12.9 (11.4-14.6)	15.5 (13.6-17.6)	19.0 (16.5-21.7)	21.6 (18.7-24.9)	24.3 (20.8-28.1)	27.1 (22.8-31.4)	30.7 (25.4-36.0)	33.5 (27.2-39.6)
60-day	7.74 (6.88-8.76)	10.6 (9.38-12.0)	14.3 (12.7-16.2)	17.1 (15.1-19.5)	20.9 (18.2-23.9)	23.8 (20.5-27.3)	26.6 (22.7-30.7)	29.5 (24.9-34.2)	33.3 (27.5-39.0)	36.1 (29.3-42.7)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

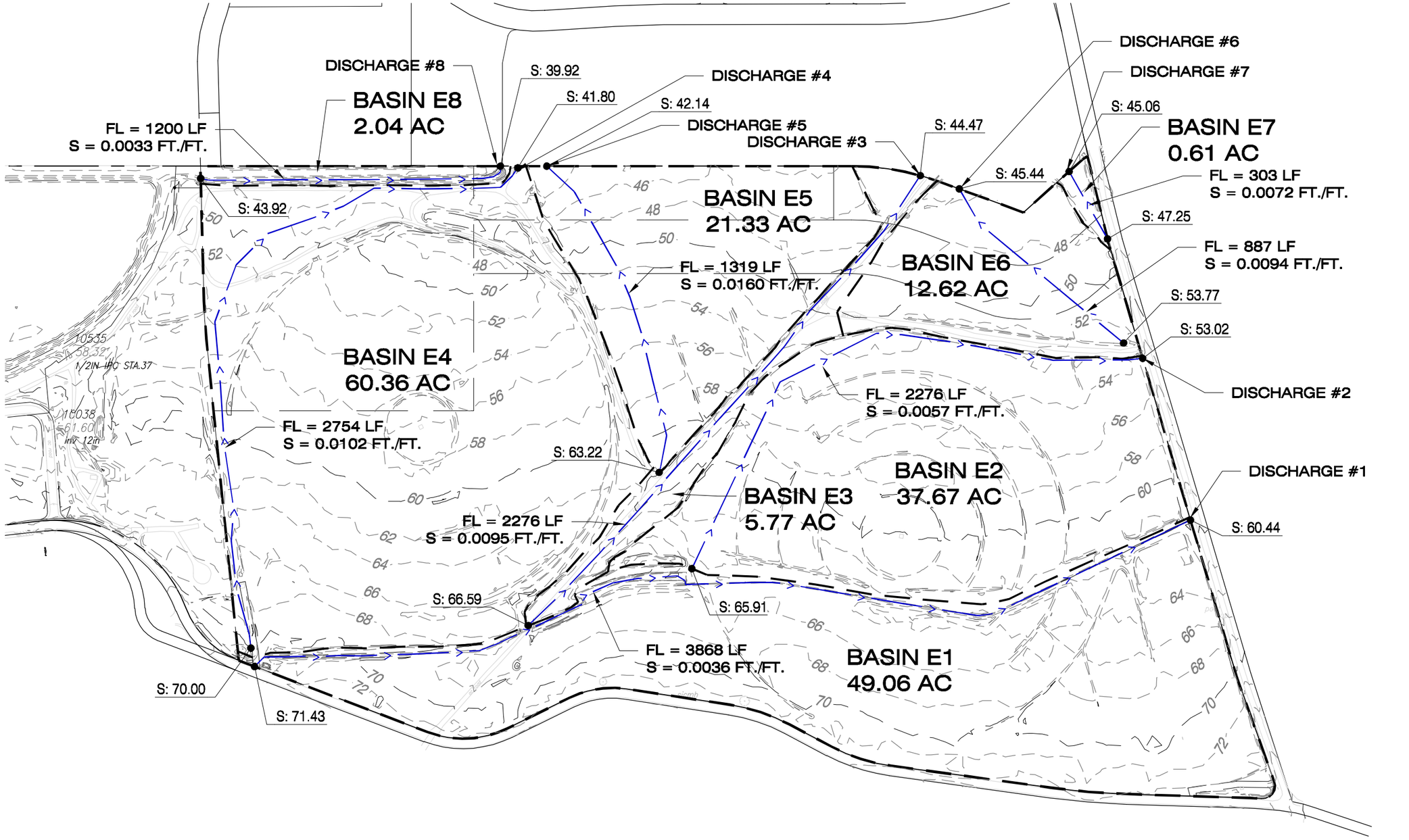
Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

PRE-DEVELOPED BASIN MAP

HOONANI VILLAGE



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PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.400.5959
WWW.PD-GRP.COM

Designed by	TCC	Date	09/2024
Drawn by	TCC	Date	09/2024
Reviewed by	TCC	Date	09/024
Project No.	H109-001	REF.	
Horiz. Scale:	1"=400'		
Vert. Scale:			

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
1 of 1

UPSTREAM BASIN MAP
HOONANI VILLAGE

N

SCALE
600 0 300 600
1 INCH = 600 FEET

PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
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Designed by TCC Date 09/2024
Drawn by TCC Date 09/2024
Reviewed by TCC Date 09/2024
Project No. H109-001 REF.
Horiz. Scale:
Vert. Scale:

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
1 of 1

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RUNOFF CURVE NUMBERS (TR55)

Table 2-2a: Runoff curve numbers for urban areas [1]

Cover description		CN for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover >75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]	77	86	91	94	
Idle lands (CNs are determined using cover types similar to those in table 2-2c)					

1: Average runoff condition, and $I_a = 0.2S$.

2: The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas hava a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

3: CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4: Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5: Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

RUNOFF CURVE NUMBERS (TR55)

Table 2-2c: Runoff curve numbers for other agricultural lands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range -- continuous forage for grazing					
<50% ground cover or heavily grazed with no mulch.	Poor	68	79	86	89
50% to 75% ground cover and not heavily grazed.	Fair	49	69	79	84
>75% ground cover and lightly or only occasionally grazed.	Good	39	61	74	80
Meadow -- continuous grass, protected from grazing and generally mowed for hay	--	30	58	71	78
Brush – weed-grass mixture with brush as the major element					
<50% ground cover	Poor	48	67	77	83
50% to 75% ground cover	Fair	35	56	70	77
>75% ground cover	Good	30 [2]	48	65	73
Woods – grass combination (orchard or tree farm) [3]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods					
Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.	Poor	45	66	77	83
Woods are grazed but not burned, and some forest litter covers the soil.	Fair	36	60	73	79
Woods are protected from grazing, and litter and brush adequately cover the soil.	Good	30 [2]	55	70	77
Farmsteads -- buildings, lanes, driveways, and surrounding lots	--	59	74	82	86

1: Average runoff condition, and $I_a = 0.2S$.

2: Actual curve number is less than 30; use CN = 30 for runoff computations.

3: CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

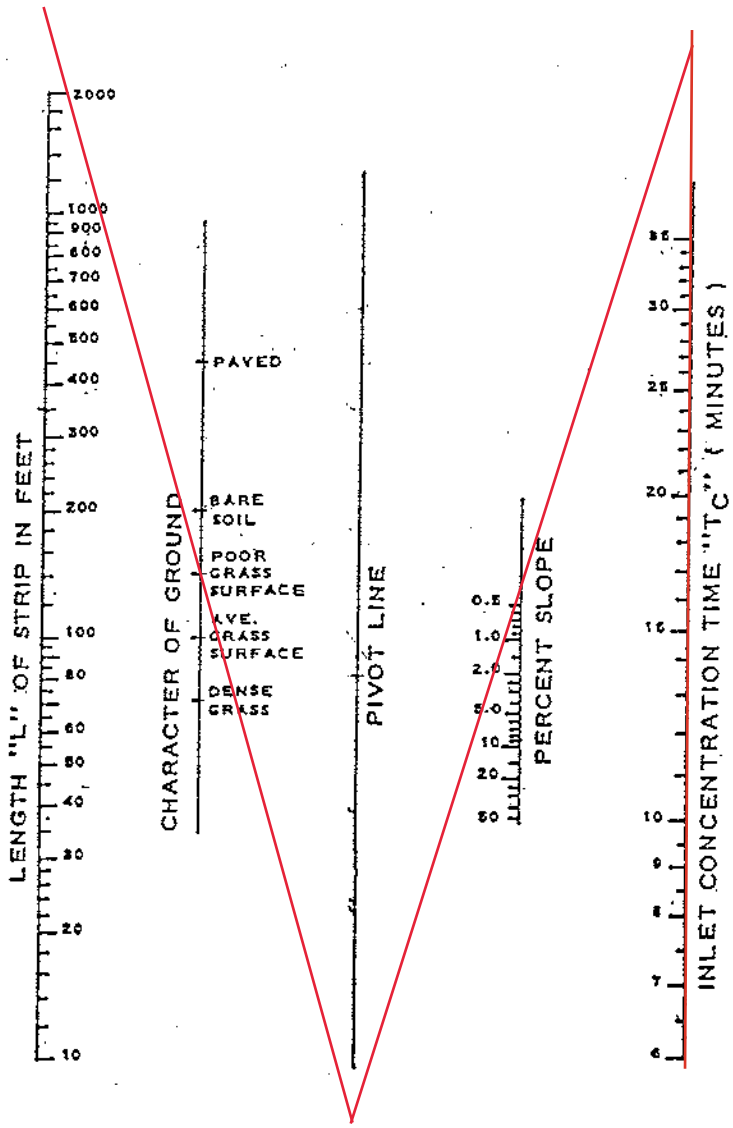
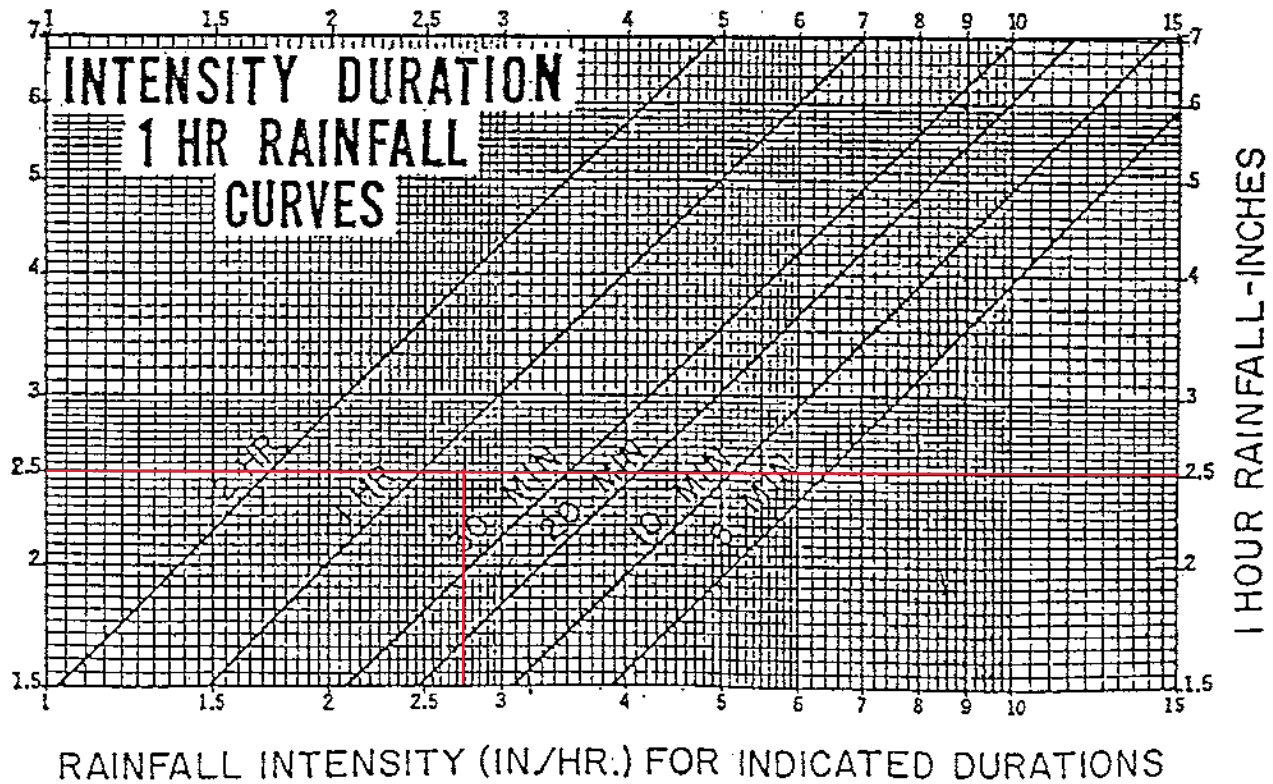


Plate 1

Overland Flow Chart

Plate 2



BASIN 1 PRE-DEVELOPMENT

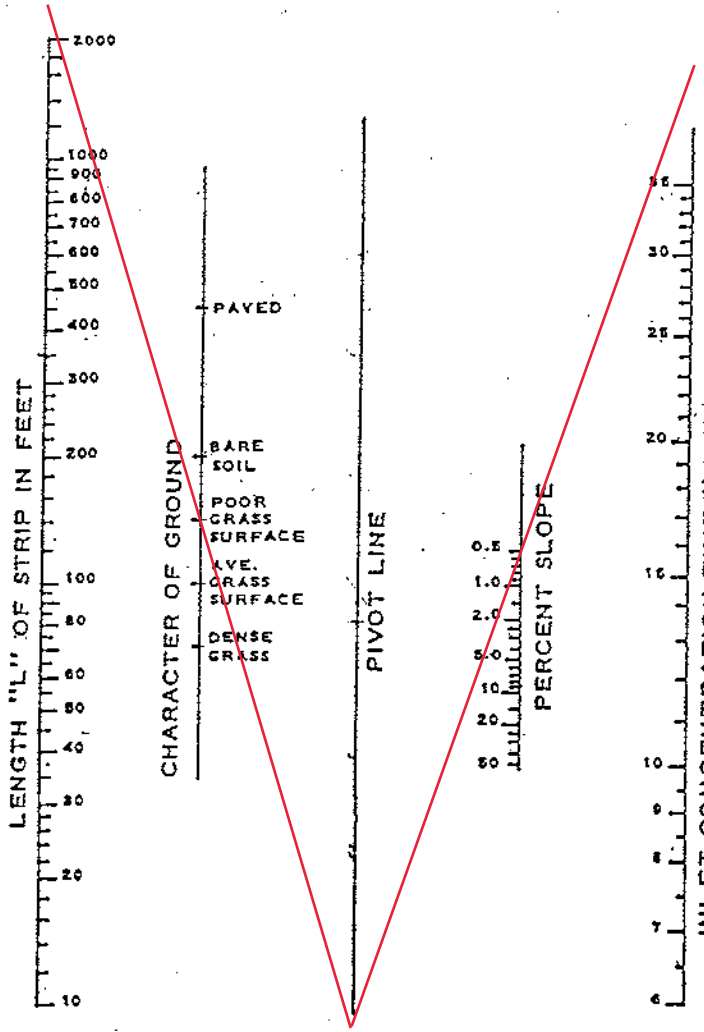
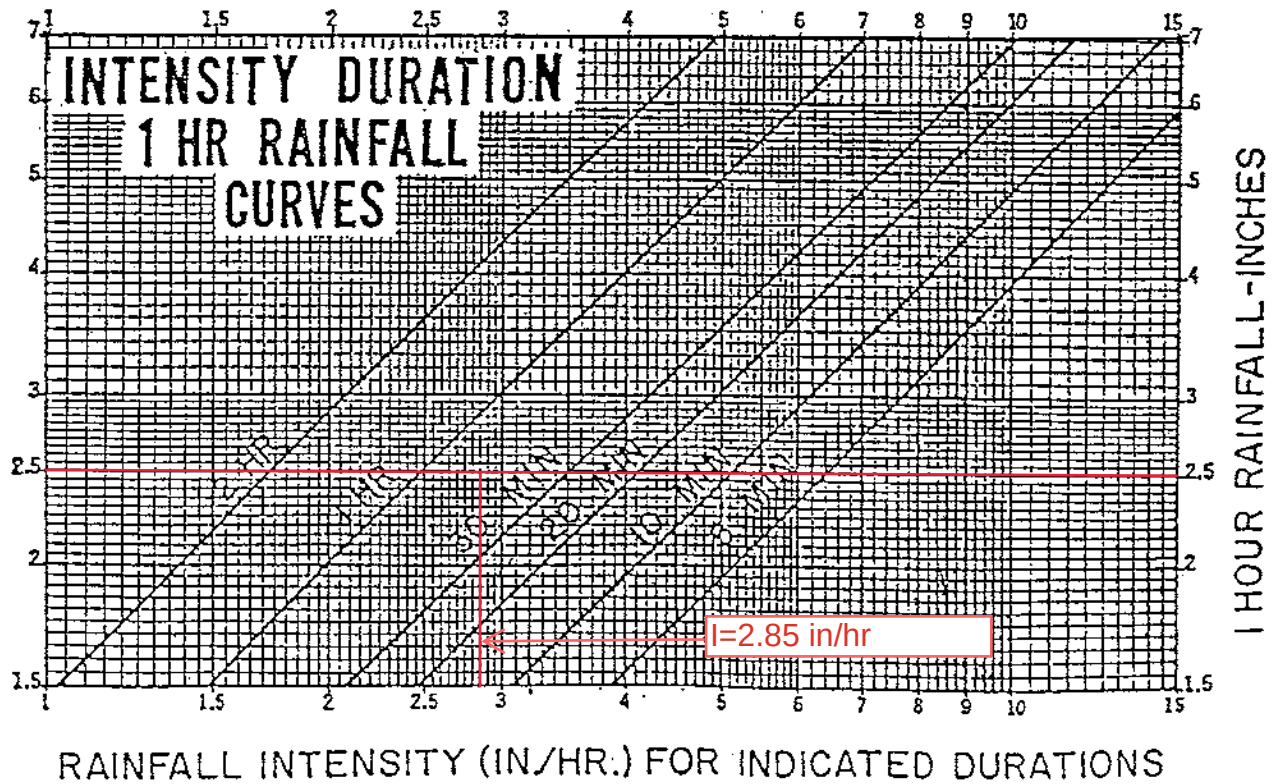


Plate 1

Overland Flow Chart

Plate 2



BASIN 2 PRE-DEVELOPMENT

BASIN 3 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 25 min.
Intensity = 3.75 in./hr.

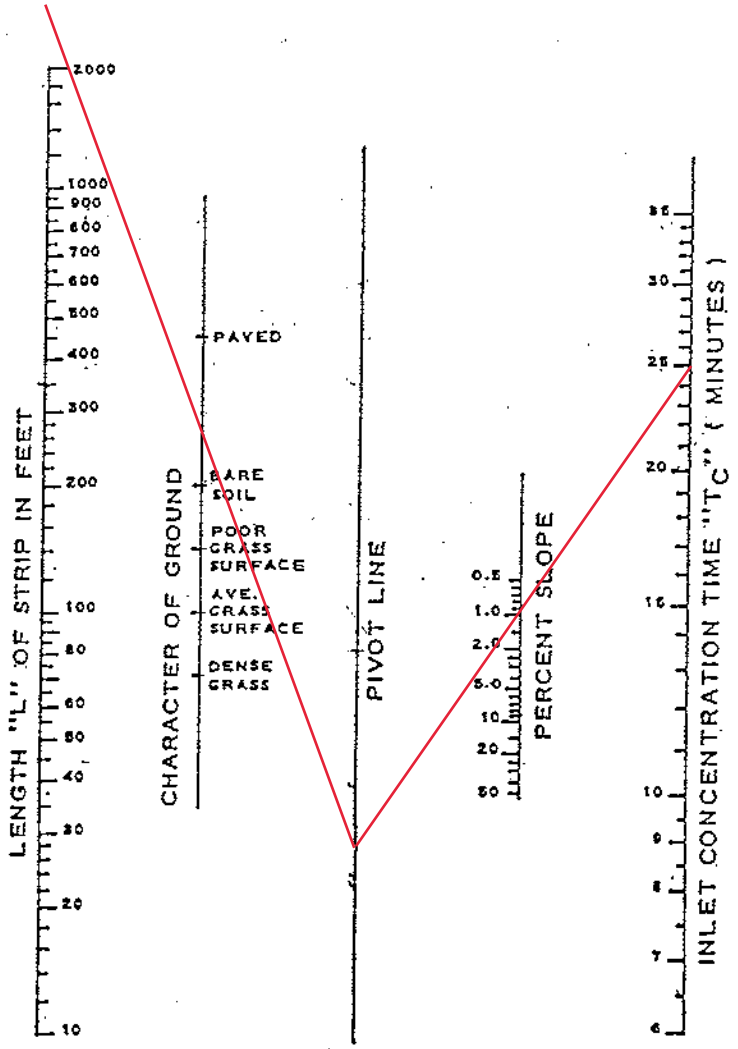
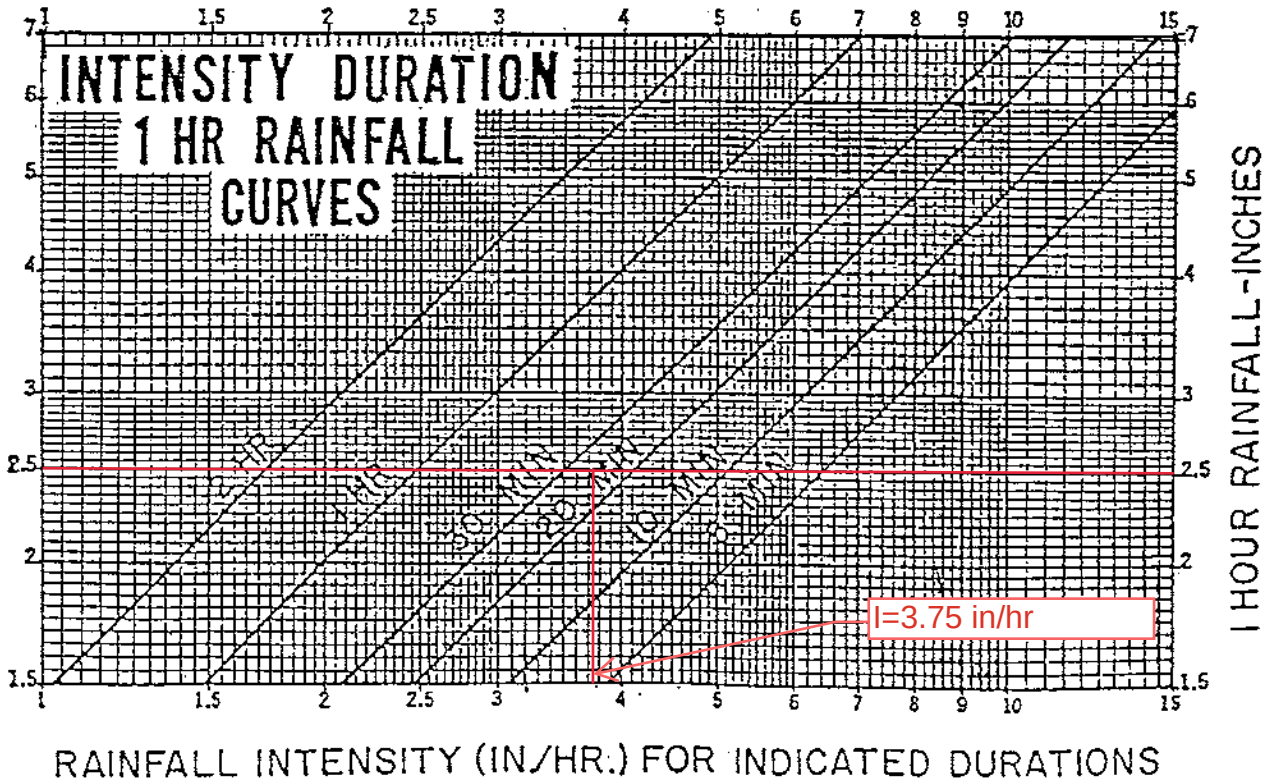


Plate 1

Overland Flow Chart

Plate 2



BASIN 4 PRE-DEVELOPMENT
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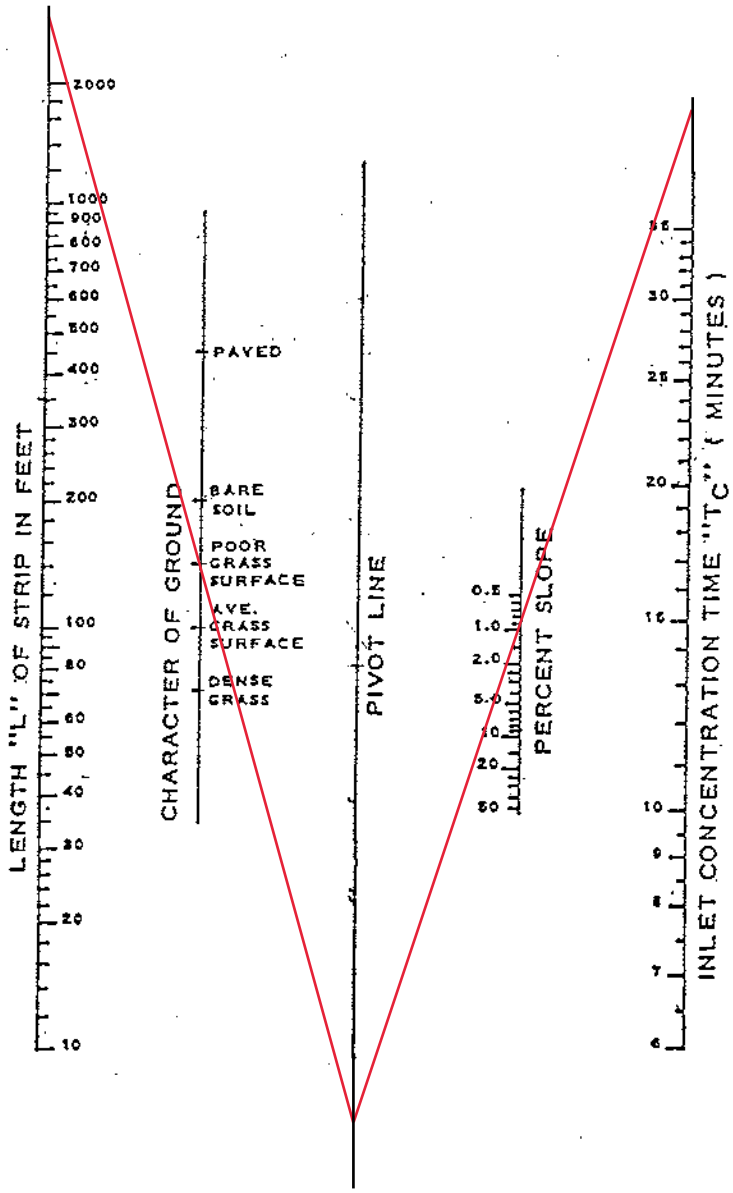
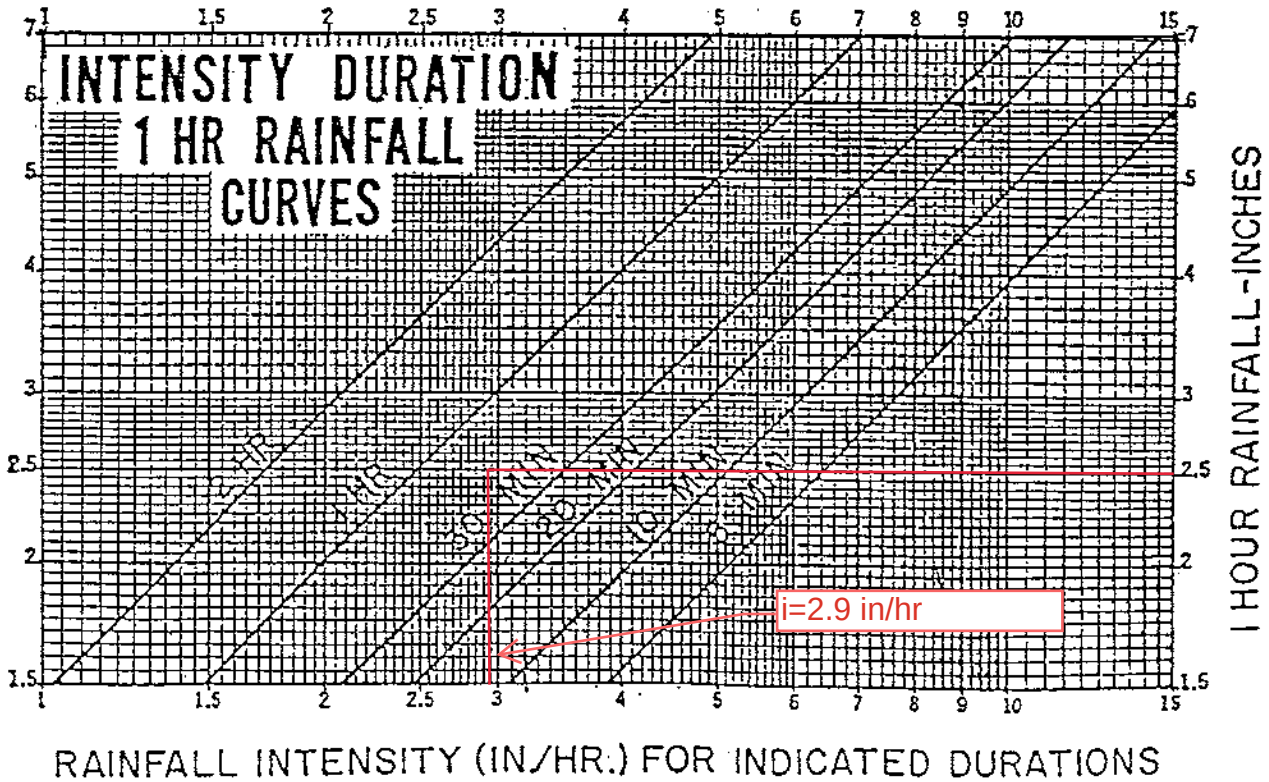


Plate 1

Overland Flow Chart

Plate 2



BASIN 5 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 37 min.
Intensity = 3.25 in./hr.

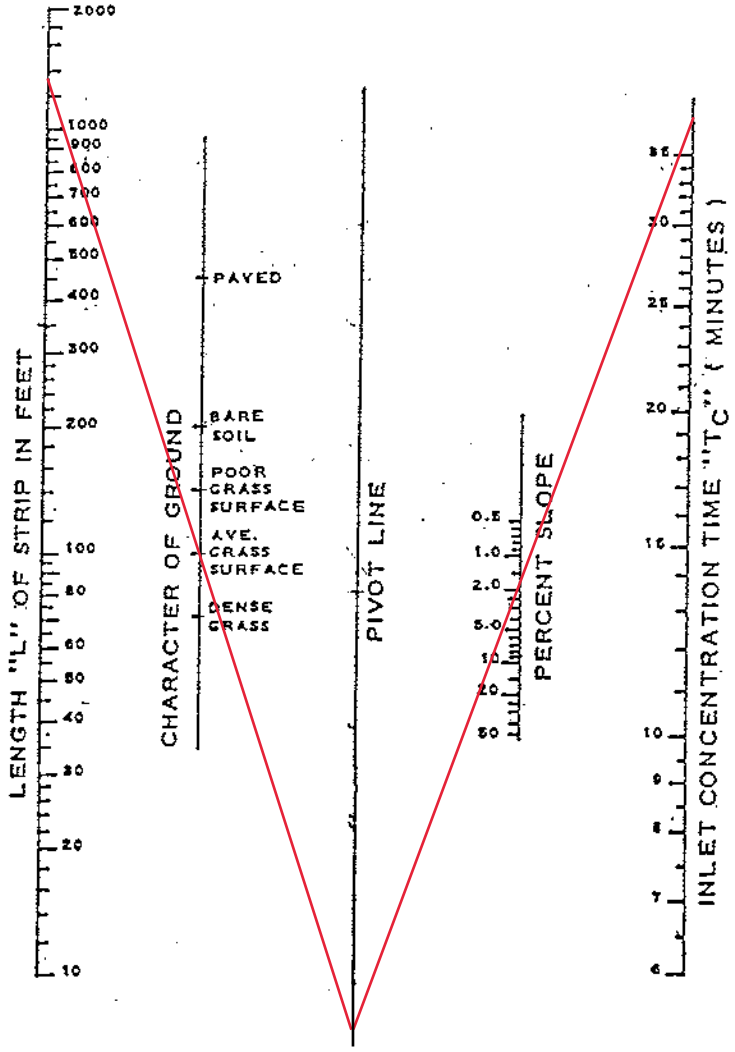
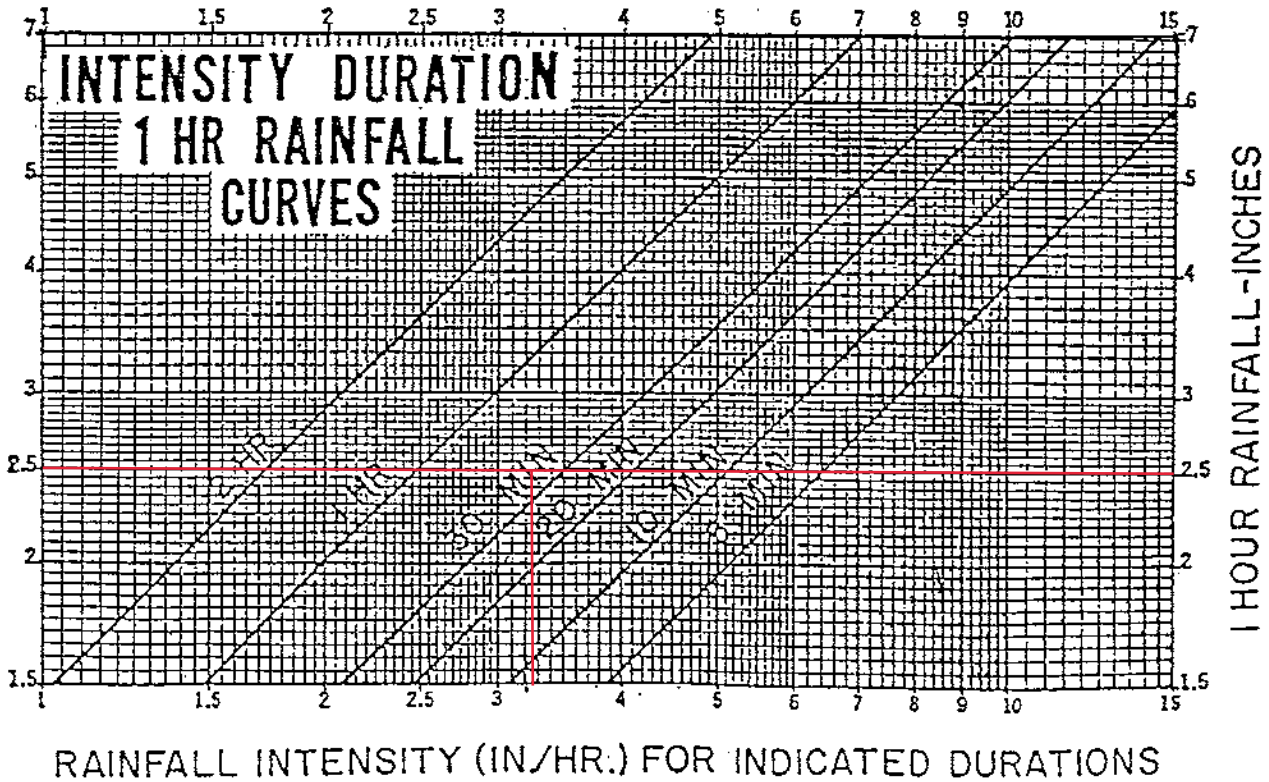


Plate 1

Overland Flow Chart

Plate 2



BASIN 6 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 37 min.
Intensity = 3.25 in./hr.

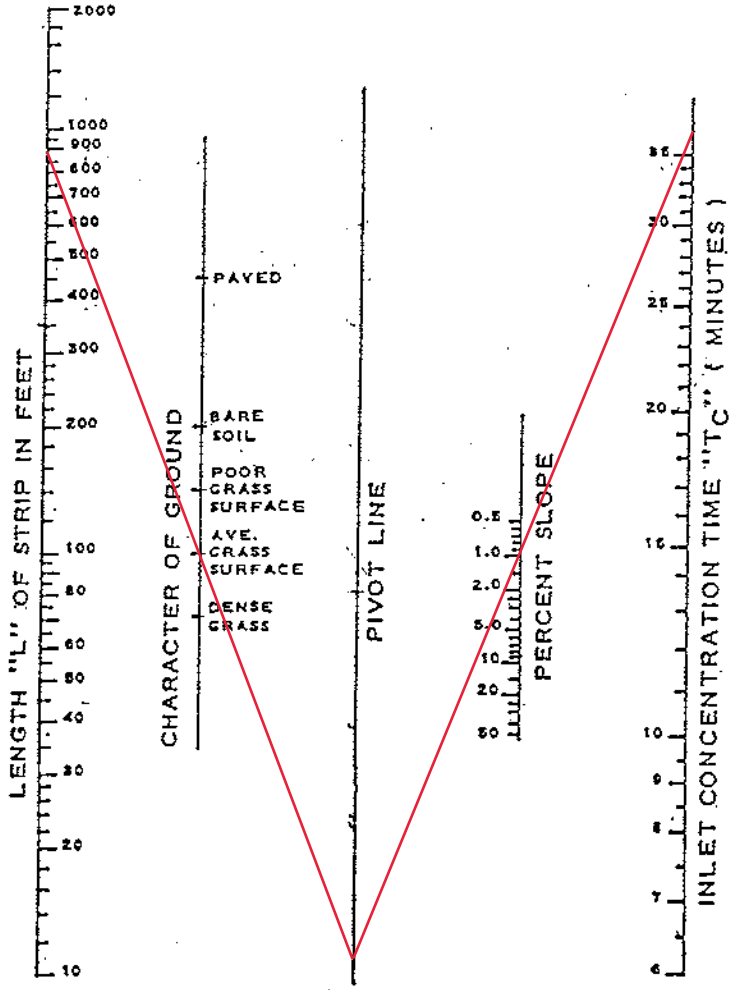
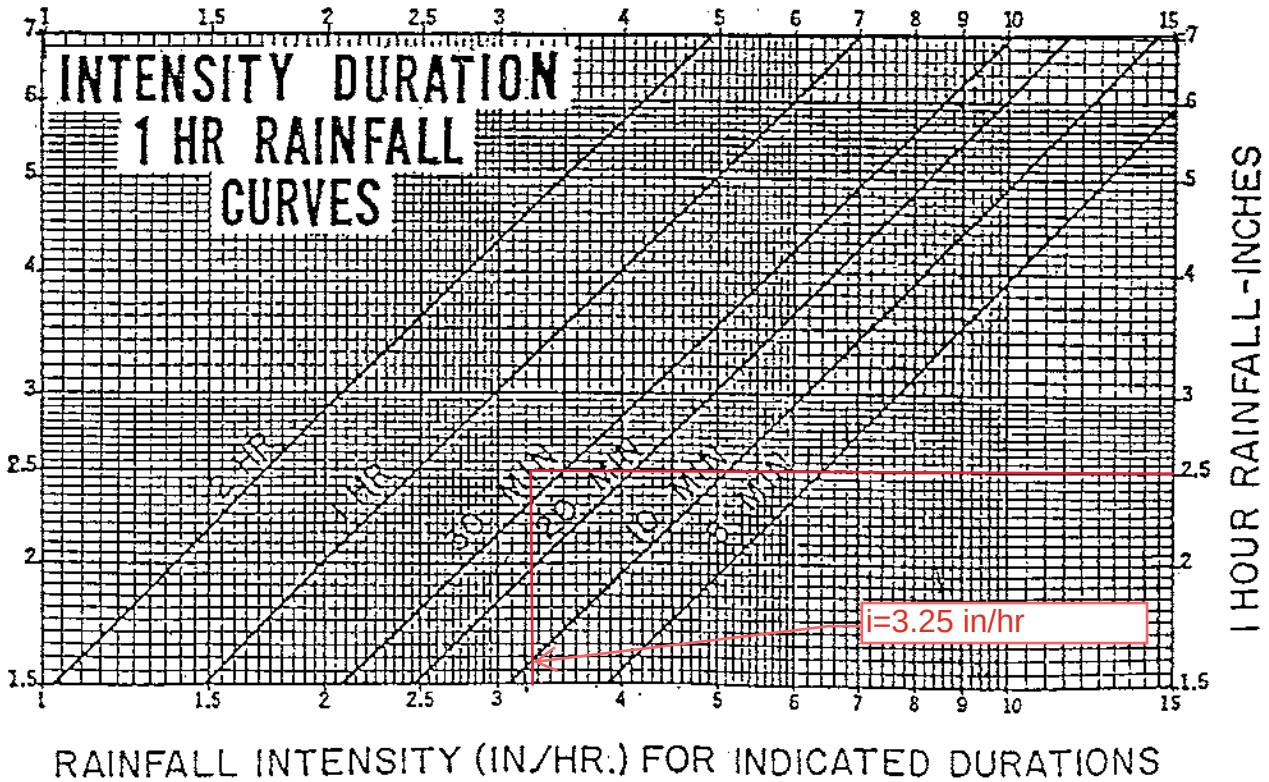


Plate 1

Overland Flow Chart

Plate 2



BASIN 7 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 24.5 min.
Intensity = 3.9 in./hr.

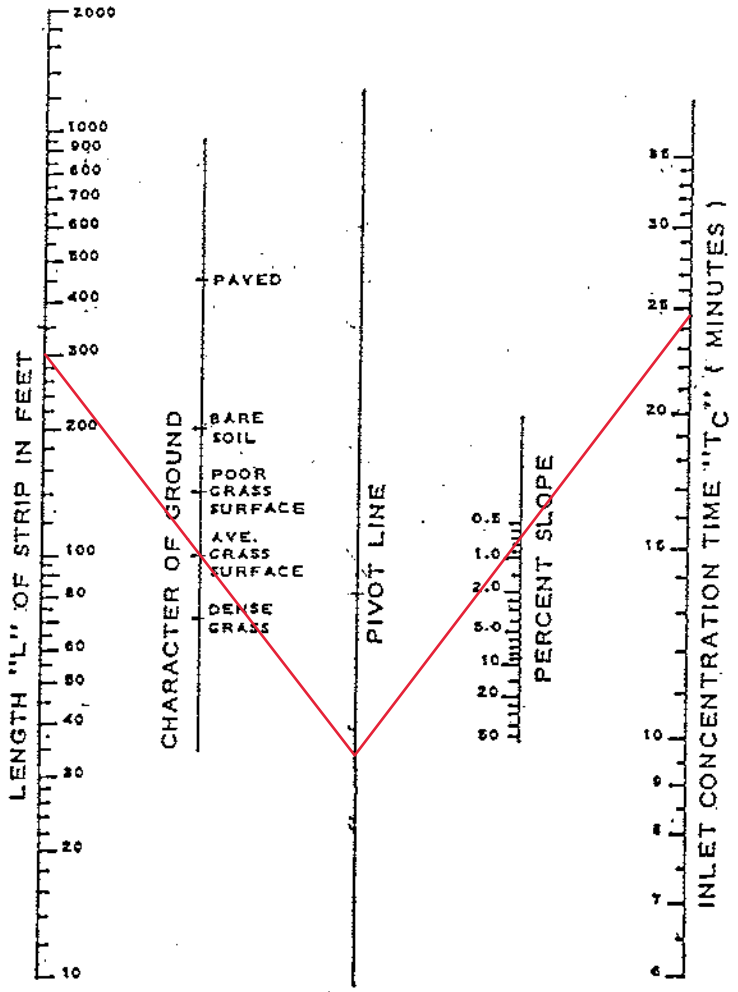
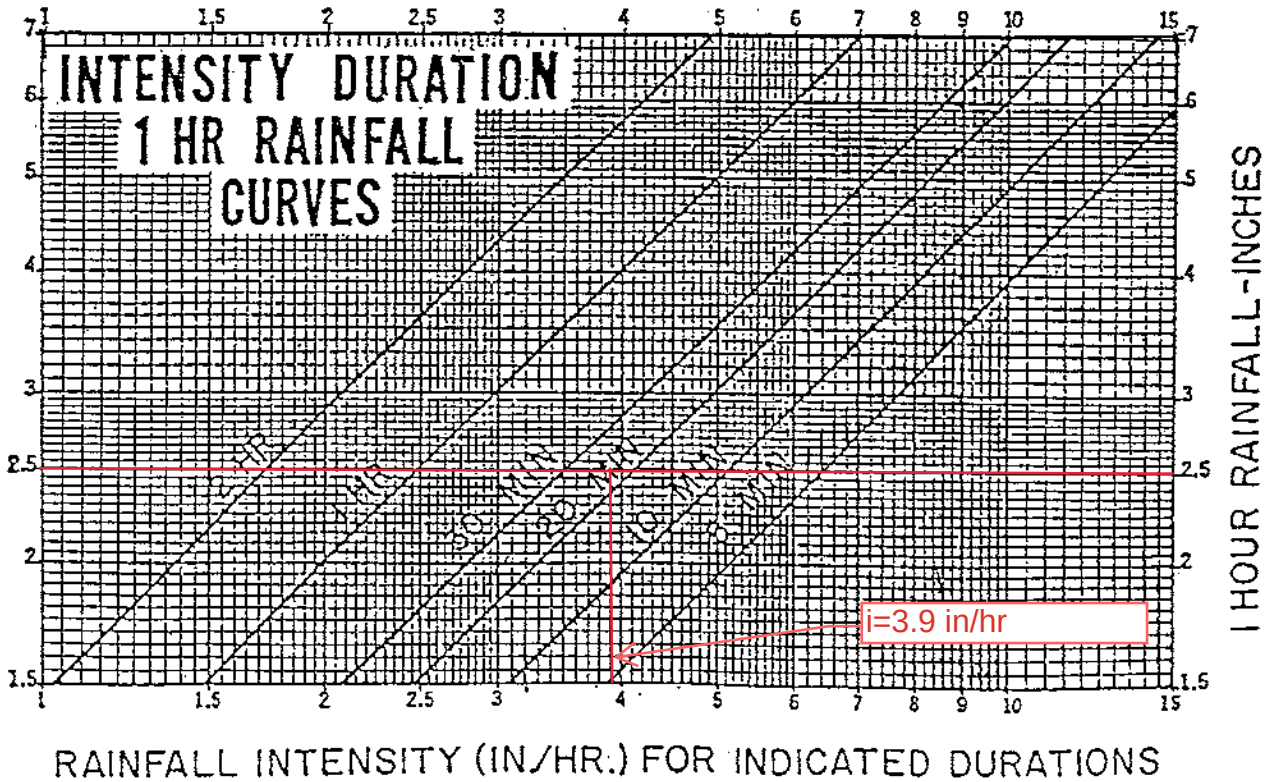


Plate 1

Overland Flow Chart

Plate 2



BASIN 8 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 50.0 min.
Intensity = 2.75 in./hr.

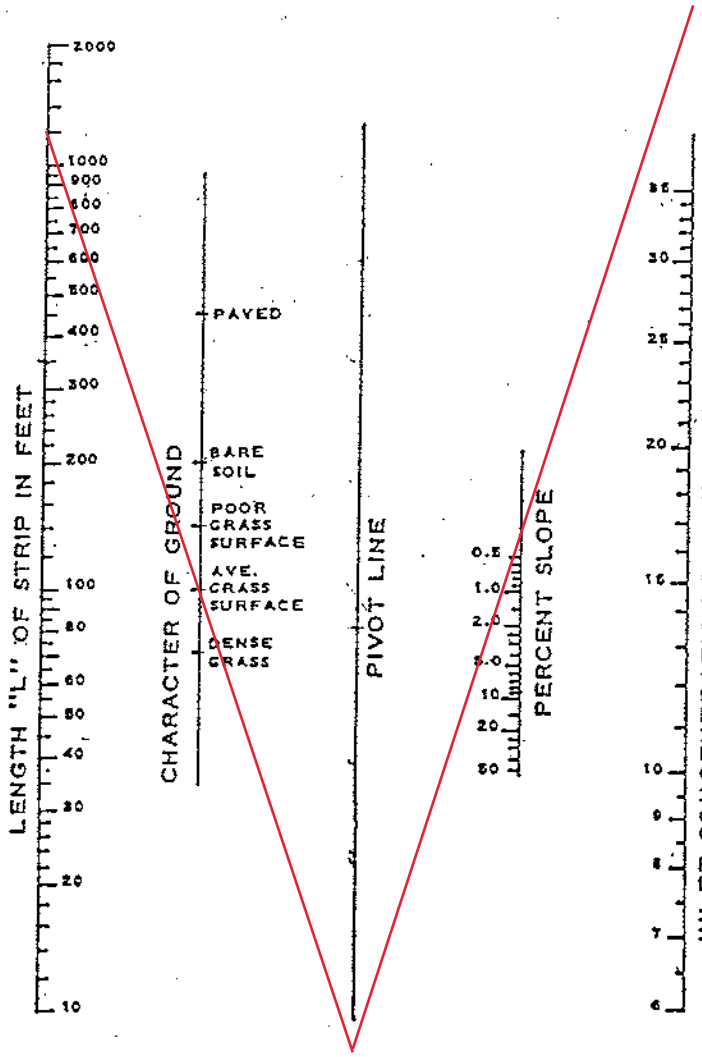
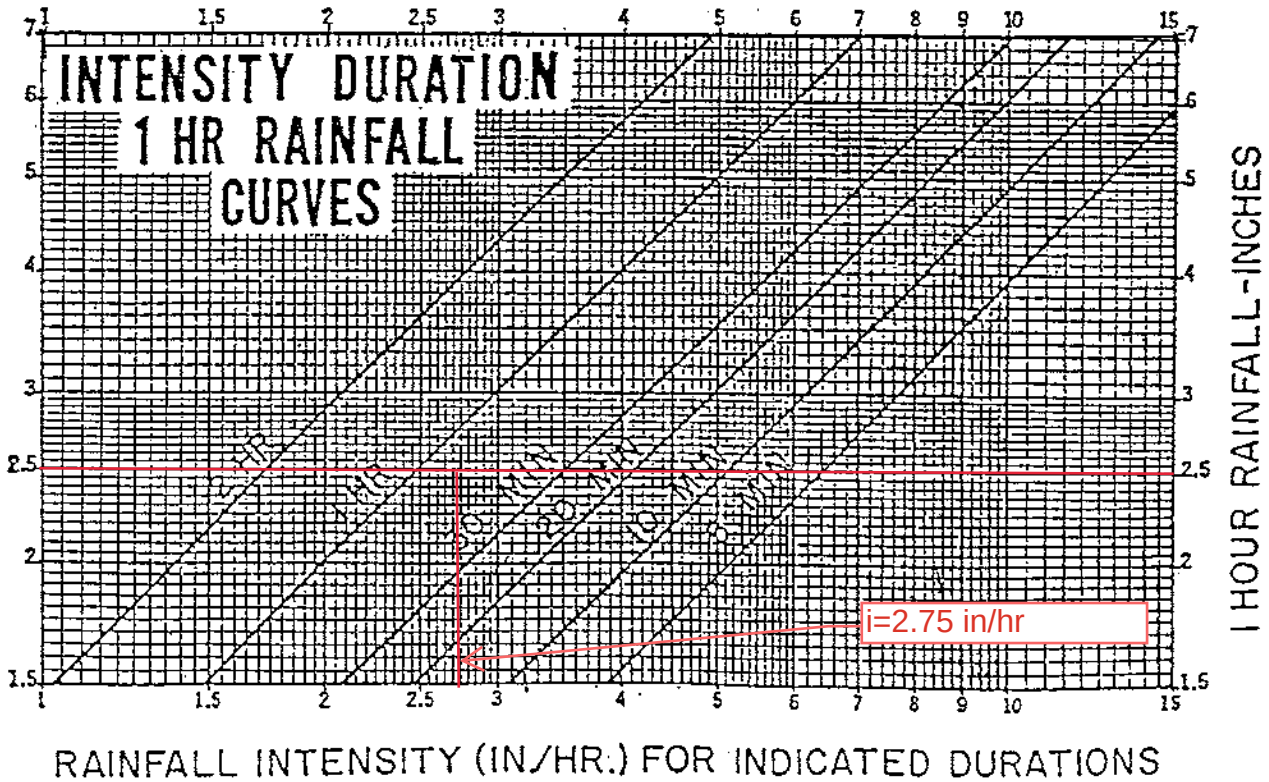


Plate 1

Overland Flow Chart

Plate 2



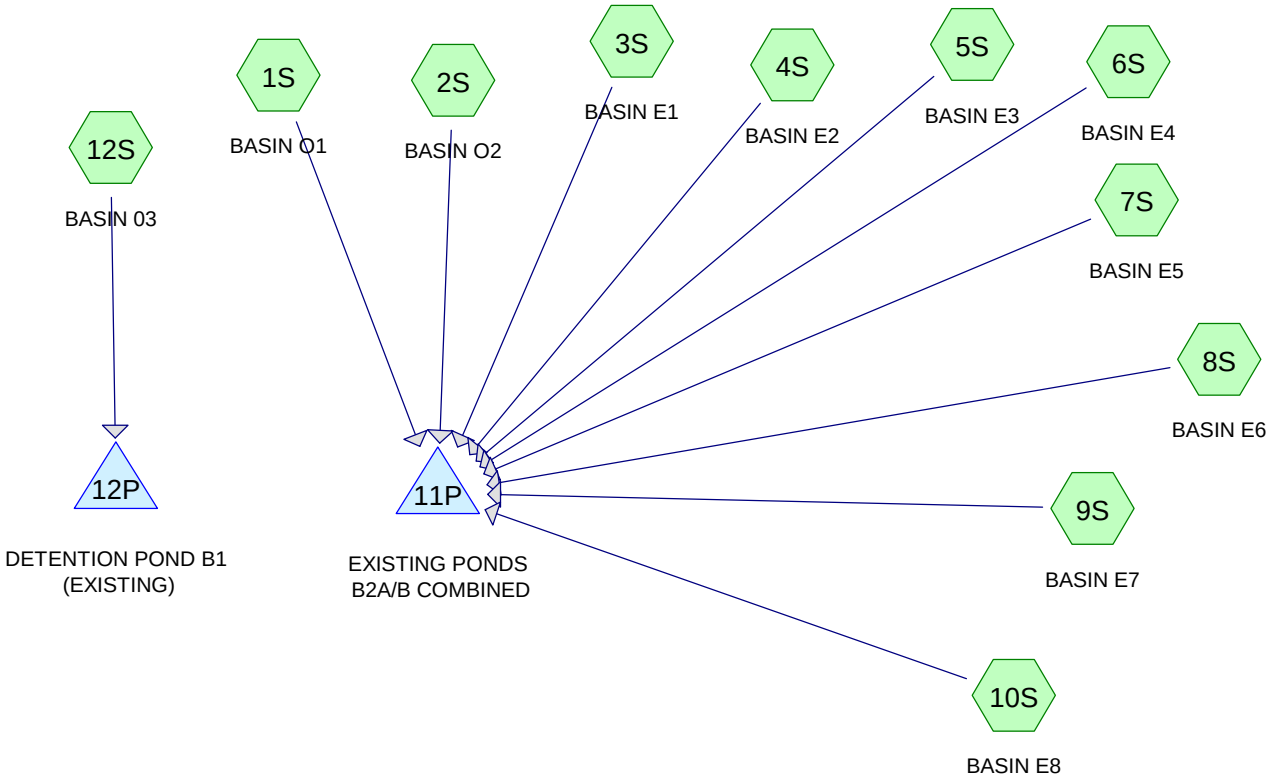
PREDEVELOPED BASIN & DISCHARGE POINT ANALYSIS

(100 YEAR, 24 HR STORM EVENT)

JOB NUMBER: H109-001
PROJECT: Hoonani Village
FILE: H1091_PER Hydro

PRE-DEVELOPED ON-SITE ANALYSIS					
DISCHARGE POINT #	**CONTRIBUTING BASINS**	**BASIN AREA (AC)**	**PREDEVELOPED FLOW RATE (CFS)**	**PREDEVELOPED VOL. (AC-FT)**	**TYPE OF FLOW**
1	E1	49.060	61.26	16.291	Channel Flow from existing cutoff/irrigation ditch that outfalls to Pulehu Road.
2	E2	37.666	52.23	12.509	Channel Flow from existing cutoff/irrigation ditch that outfalls to Pulehu Road.
3	E3	5.767	10.74	1.916	Shallow concentrated flow that flows along the existing farm road
4	E4	60.359	82.40	20.844	Shallow concentrated flow that flows along the existing farm road
5	E5	21.335	31.78	7.083	Sheetflow from south to north
6	E6	12.618	18.80	4.191	Sheetflow from south to north
7	E7	0.663	1.24	0.219	Sheetflow from south to north
8	E8	2.044	2.55	0.677	Channel flow in existing drainage ditch
	ALL BASINS ON SITE	**189.511**	**261.00**	**63.73**	

PRE-DEVELOPED UPSTREAM BASIN ANALYSIS					
DISCHARGE POINT #	**CONTRIBUTING BASINS**	**BASIN AREA (AC)**	**PREDEVELOPED FLOW RATE (CFS)**	**PREDEVELOPED VOL. (AC-FT)**	**TYPE OF FLOW**
HANSEN ROAD	O1	141.420	153.38	41.100	Upstream sheet flow towards Hansen Road. Flow to be collected in new storm system on Hansen Road and conveyed to a detention pond.
BASIN B2A & B2B	O2	6.650	11.29	2.280	Upstream sheet flow towards Pulehu Road. Flow to be collected in an area drain along Pulehu Road and discharged by a pipe into a detention pond, B2B.
BASIN B1	O3	140.680	243.67	67.230	Channel flow to existing detention basin B1. Flow does not change in the developed condition.
	UPSTREAM BASINS	**288.750**	**408.34**	**110.61**	
PRE-DEVELOPED EXISTING & DESIGNED DETENTION BASIN ANALYSIS					
BASIN LABEL	**CONTRIBUTING BASINS**	**AVAILABLE STORAGE (AC-FT)**	**PREDEVELOPED FLOW RATE (CFS)**	**PREDEVELOPED VOL. (AC-FT)**	**AVAILABLE VOLUME (AC-FT)**
BASIN B1	O3	87.600	243.67	67.230	20.37
BASIN B2A & B2B	O1, O2, E1-8	100.200	425.67	107.11	-6.91
		187.800	**669.34**	**174.34**	



Subcat Reach Pond Link

Routing Diagram for PRELIM PREDEVELOPED HYDRO
Prepared by Pioneer Design Group, Printed 10/1/2024
HydroCAD® 10.20-4b s/n 09255 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
189.510	58	(3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S)
140.680	72	(12S)
141.420	54	UPSTREAM BASIN O1 (1S)
6.650	59	UPSTREAM BASIN O2 (2S)
478.260	**61**	**TOTAL AREA**

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BASIN O1 Runoff Area=141.420 ac 0.00% Impervious Runoff Depth=3.49"
Tc=46.5 min CN=54 Runoff=153.38 cfs 41.099 af

Subcatchment 2S: BASIN O2 Runoff Area=6.650 ac 0.00% Impervious Runoff Depth=4.11"
Tc=31.7 min CN=59 Runoff=11.29 cfs 2.277 af

Subcatchment 3S: BASIN E1 Runoff Area=49.060 ac 0.00% Impervious Runoff Depth=3.98"
Tc=50.0 min CN=58 Runoff=61.26 cfs 16.291 af

Subcatchment 4S: BASIN E2 Runoff Area=37.670 ac 0.00% Impervious Runoff Depth=3.98"
Tc=42.0 min CN=58 Runoff=52.23 cfs 12.509 af

Subcatchment 5S: BASIN E3 Runoff Area=5.770 ac 0.00% Impervious Runoff Depth=3.98"
Tc=25.0 min CN=58 Runoff=10.74 cfs 1.916 af

Subcatchment 6S: BASIN E4 Runoff Area=60.360 ac 0.00% Impervious Runoff Depth=3.98"
Tc=43.0 min CN=58 Runoff=82.40 cfs 20.044 af

Subcatchment 7S: BASIN E5 Runoff Area=21.330 ac 0.00% Impervious Runoff Depth=3.98"
Tc=37.0 min CN=58 Runoff=31.78 cfs 7.083 af

Subcatchment 8S: BASIN E6 Runoff Area=12.620 ac 0.00% Impervious Runoff Depth=3.98"
Tc=37.0 min CN=58 Runoff=18.80 cfs 4.191 af

Subcatchment 9S: BASIN E7 Runoff Area=0.660 ac 0.00% Impervious Runoff Depth=3.98"
Tc=24.5 min CN=58 Runoff=1.24 cfs 0.219 af

Subcatchment 10S: BASIN E8 Runoff Area=2.040 ac 0.00% Impervious Runoff Depth=3.98"
Tc=50.0 min CN=58 Runoff=2.55 cfs 0.677 af

Subcatchment 12S: BASIN 03 Runoff Area=140.680 ac 0.00% Impervious Runoff Depth>5.73"
Tc=62.2 min CN=72 Runoff=243.67 cfs 67.230 af

Pond 11P: EXISTING PONDS B2A/B Peak Elev=37.80' Storage=35.580 af Inflow=413.32 cfs 106.306 af
Outflow=69.77 cfs 106.305 af

Pond 12P: DETENTION POND B1 (EXISTING) Peak Elev=39.90' Storage=23.573 af Inflow=243.67 cfs 67.230 af
Outflow=42.20 cfs 67.230 af

Total Runoff Area = 478.260 ac Runoff Volume = 173.536 af Average Runoff Depth = 4.35"
100.00% Pervious = 478.260 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: BASIN O1

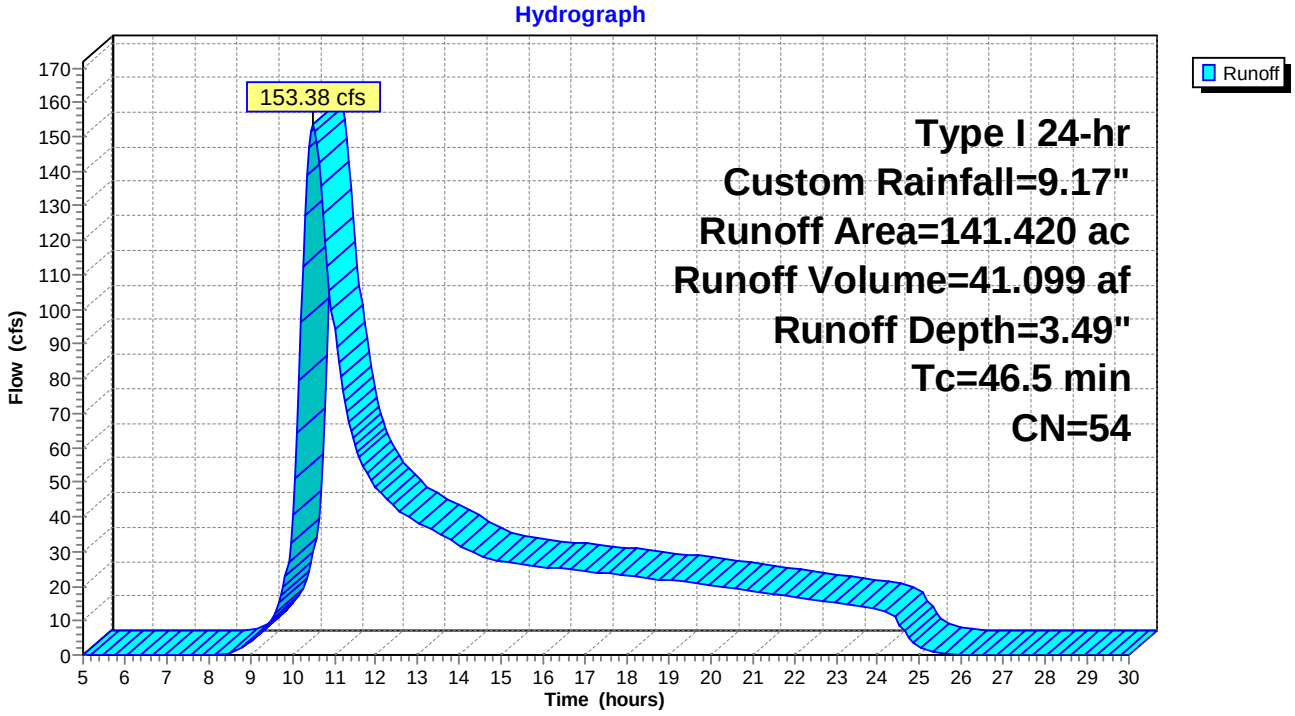
Runoff = 153.38 cfs @ 10.50 hrs, Volume= 41.099 af, Depth= 3.49"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	141.420	54	UPSTREAM BASIN O1
	141.420		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.5					**Direct Entry, PREDEV TOC**

Subcatchment 1S: BASIN O1



Summary for Subcatchment 2S: BASIN O2

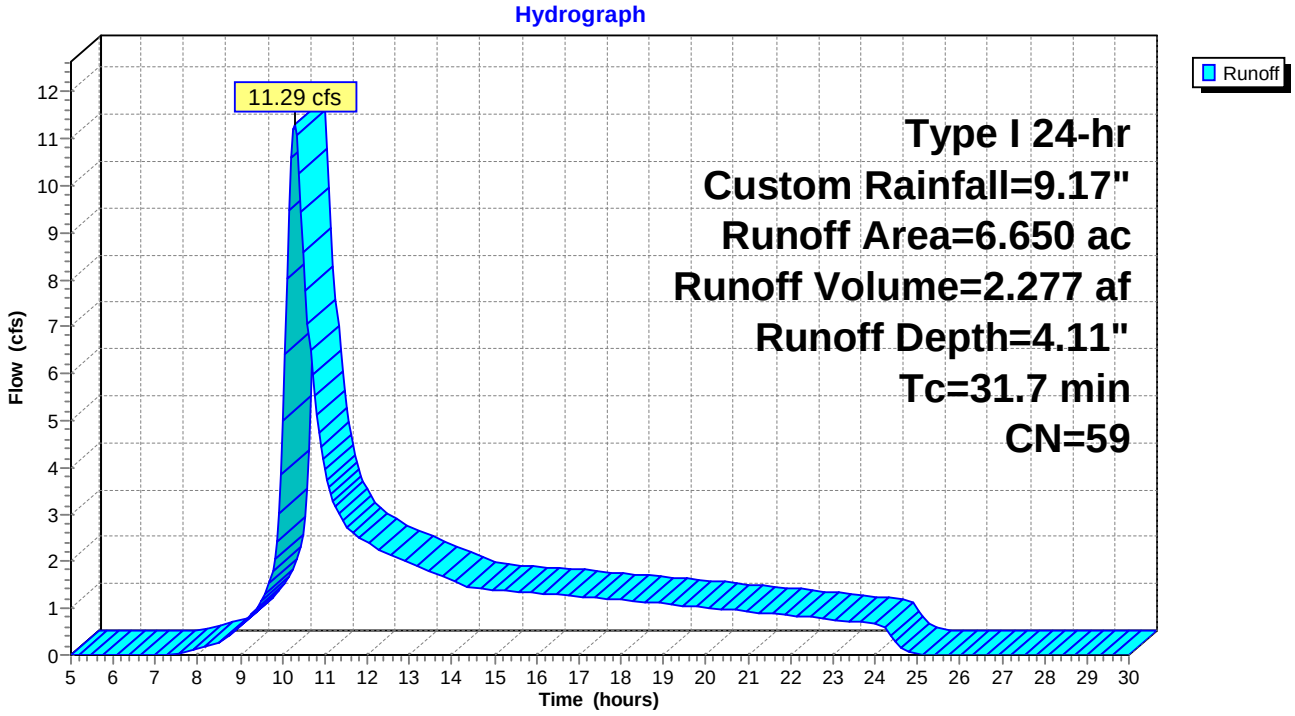
Runoff = 11.29 cfs @ 10.28 hrs, Volume= 2.277 af, Depth= 4.11"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.650	59	UPSTREAM BASIN O2
	6.650		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.7					**Direct Entry,**

Subcatchment 2S: BASIN O2



Summary for Subcatchment 3S: BASIN E1

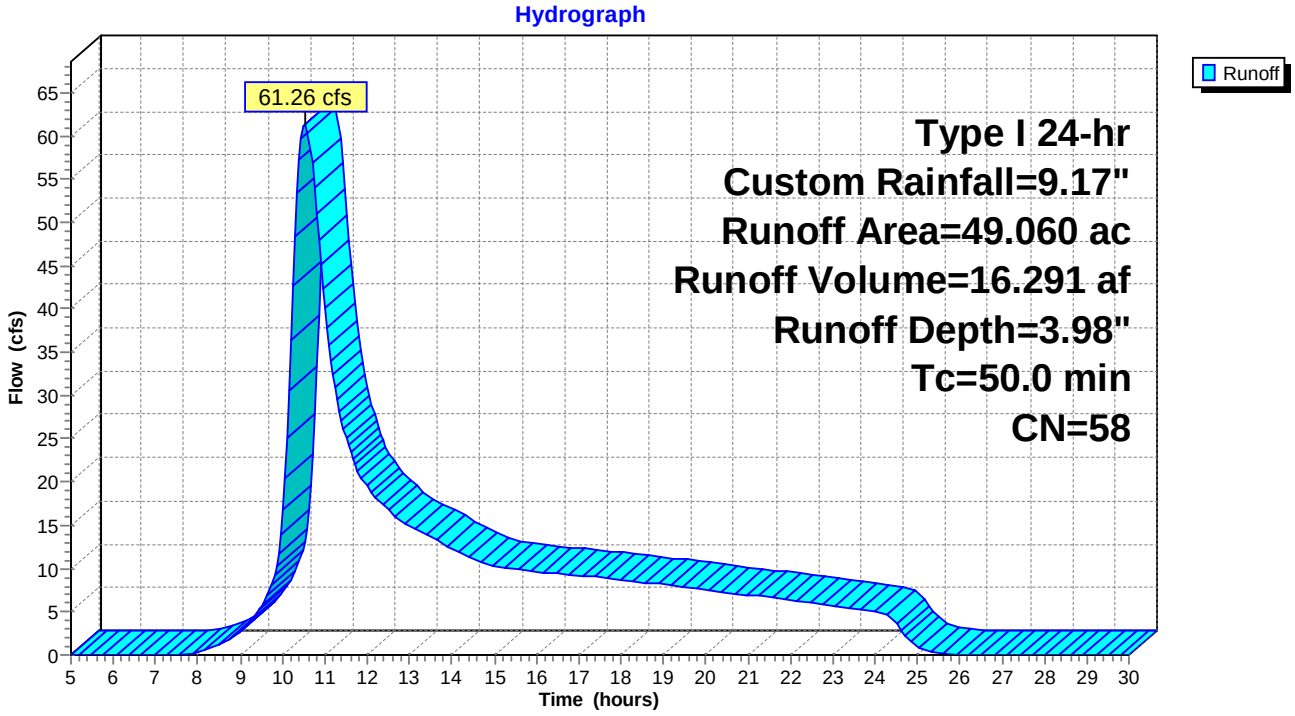
Runoff = 61.26 cfs @ 10.53 hrs, Volume= 16.291 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	49.060	58	
	49.060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.0					**Direct Entry,**

Subcatchment 3S: BASIN E1



Summary for Subcatchment 4S: BASIN E2

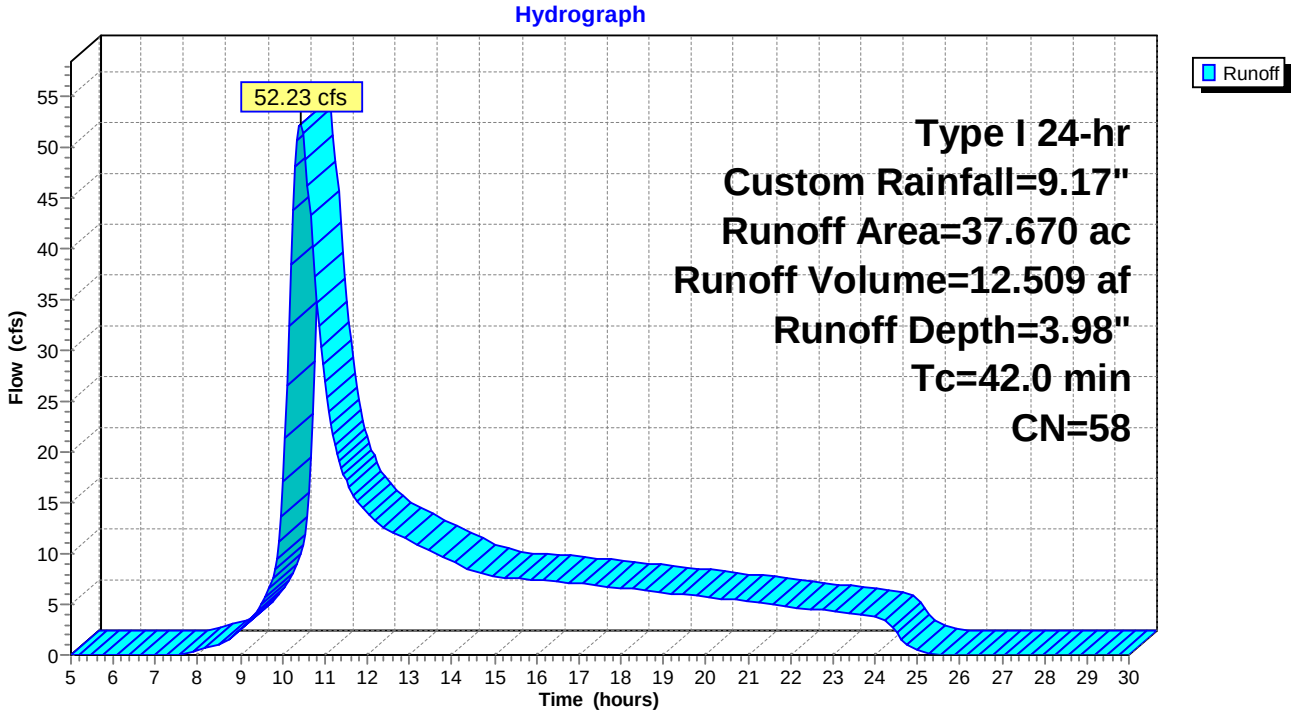
Runoff = 52.23 cfs @ 10.42 hrs, Volume= 12.509 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	37.670	58	
	37.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0					**Direct Entry,**

Subcatchment 4S: BASIN E2



Summary for Subcatchment 5S: BASIN E3

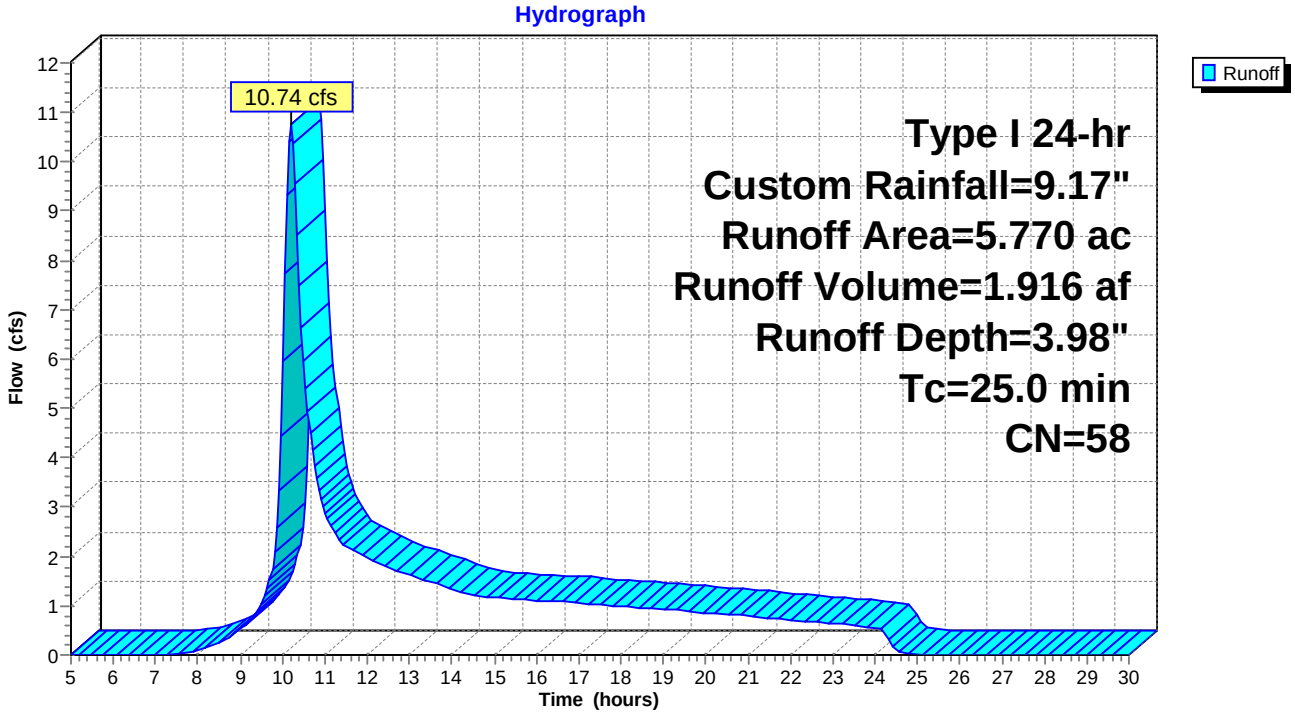
Runoff = 10.74 cfs @ 10.20 hrs, Volume= 1.916 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	5.770	58	
	5.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0					**Direct Entry,**

Subcatchment 5S: BASIN E3



Summary for Subcatchment 6S: BASIN E4

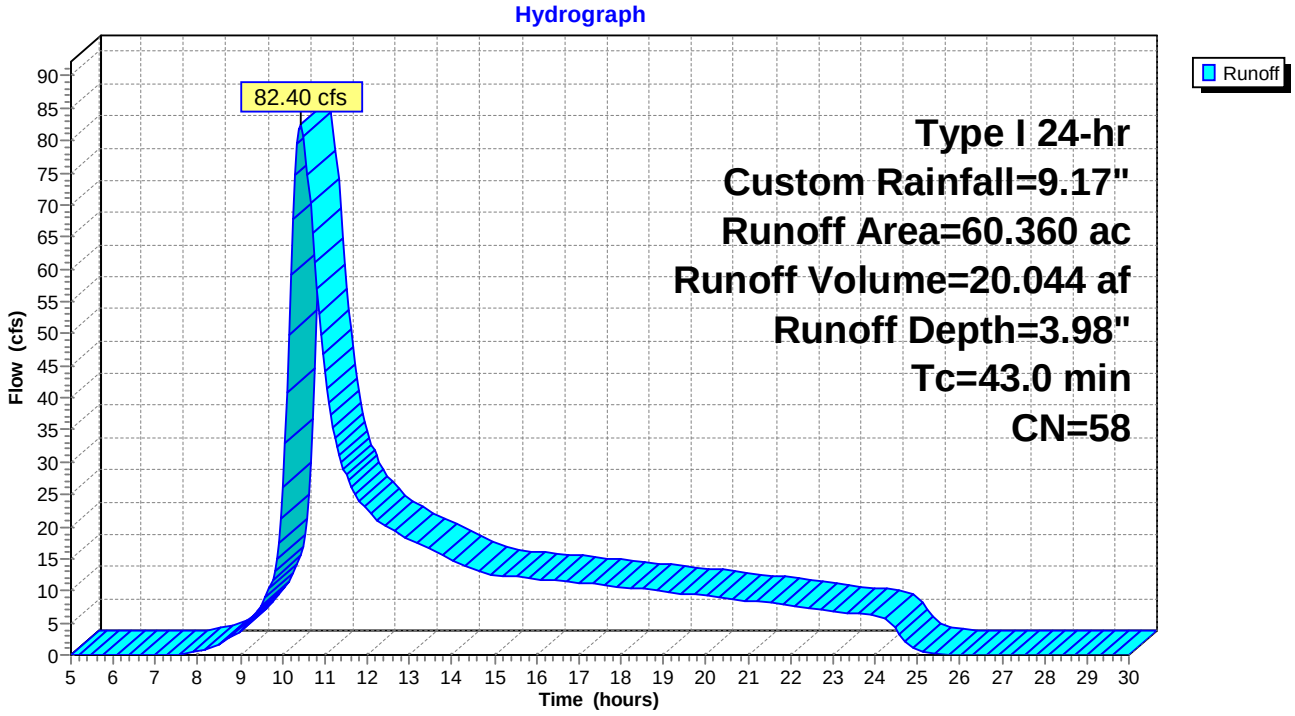
Runoff = 82.40 cfs @ 10.44 hrs, Volume= 20.044 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	60.360	58	
	60.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.0					**Direct Entry,**

Subcatchment 6S: BASIN E4



Summary for Subcatchment 7S: BASIN E5

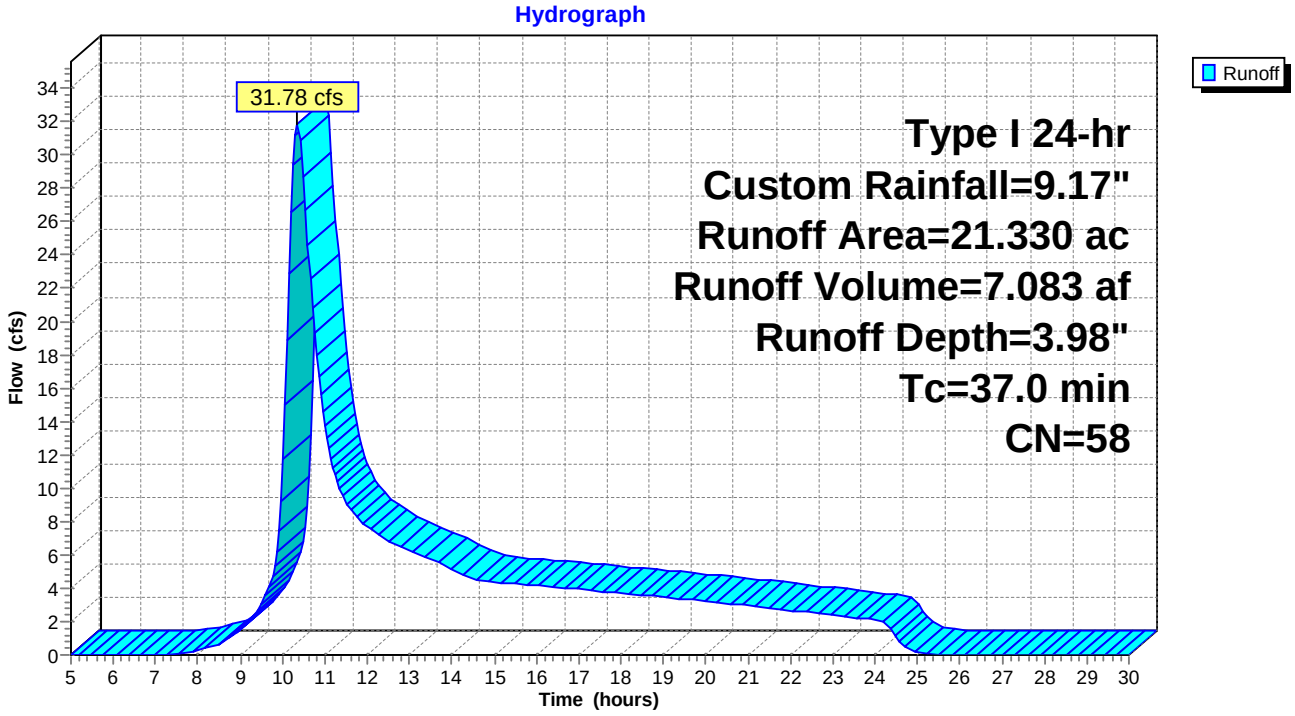
Runoff = 31.78 cfs @ 10.36 hrs, Volume= 7.083 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	21.330	58	
	21.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.0					**Direct Entry,**

Subcatchment 7S: BASIN E5



Summary for Subcatchment 8S: BASIN E6

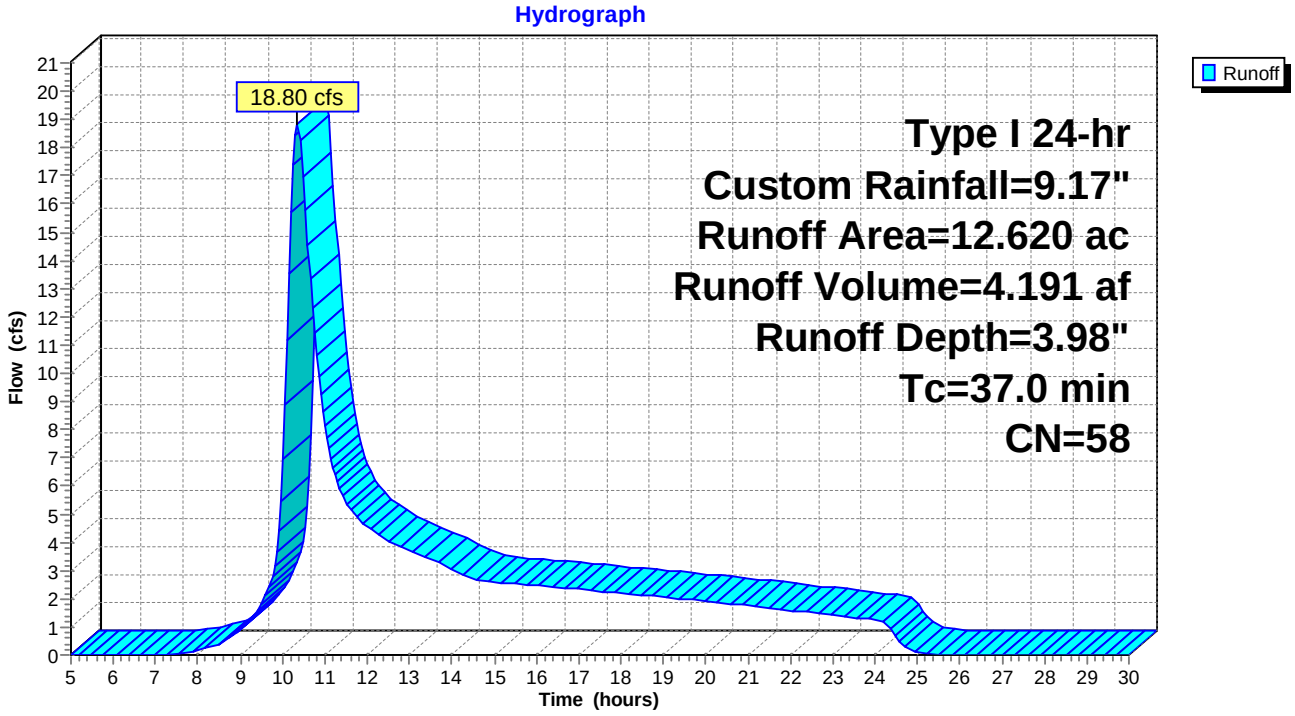
Runoff = 18.80 cfs @ 10.36 hrs, Volume= 4.191 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	12.620	58	
	12.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.0					**Direct Entry,**

Subcatchment 8S: BASIN E6



Summary for Subcatchment 9S: BASIN E7

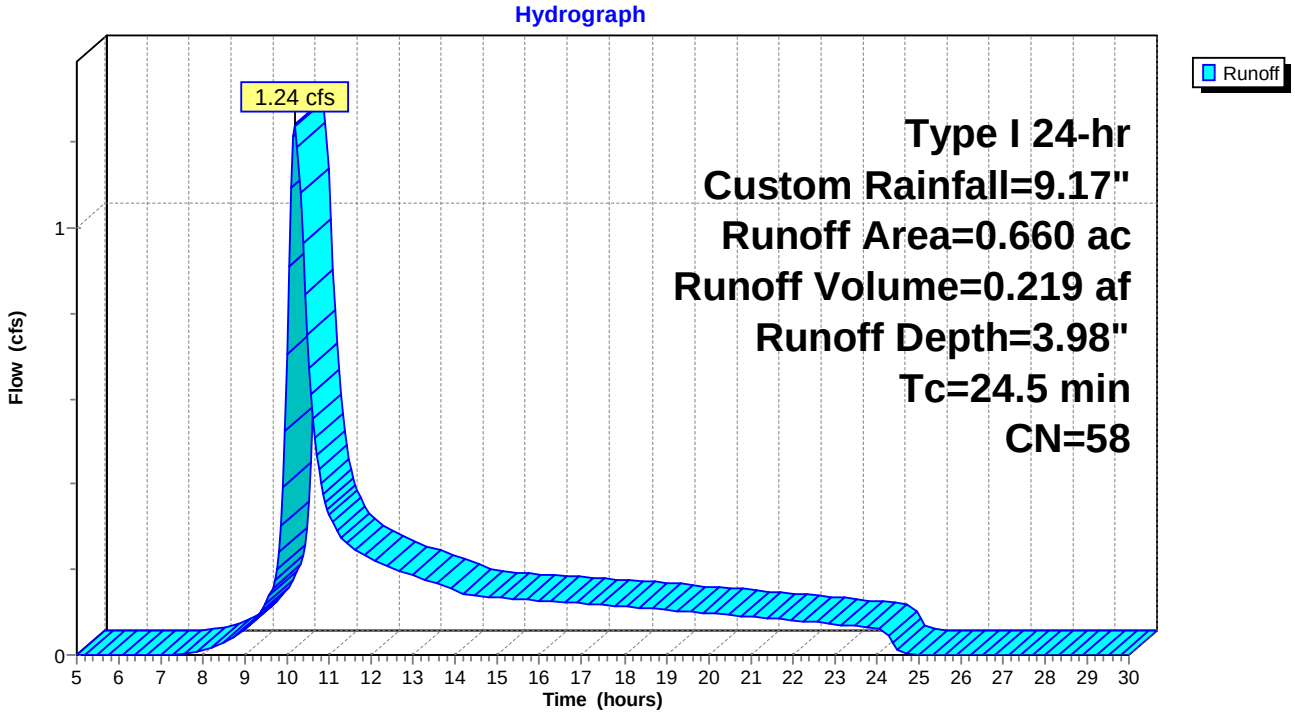
Runoff = 1.24 cfs @ 10.19 hrs, Volume= 0.219 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.660	58	
	0.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5					**Direct Entry,**

Subcatchment 9S: BASIN E7



Summary for Subcatchment 10S: BASIN E8

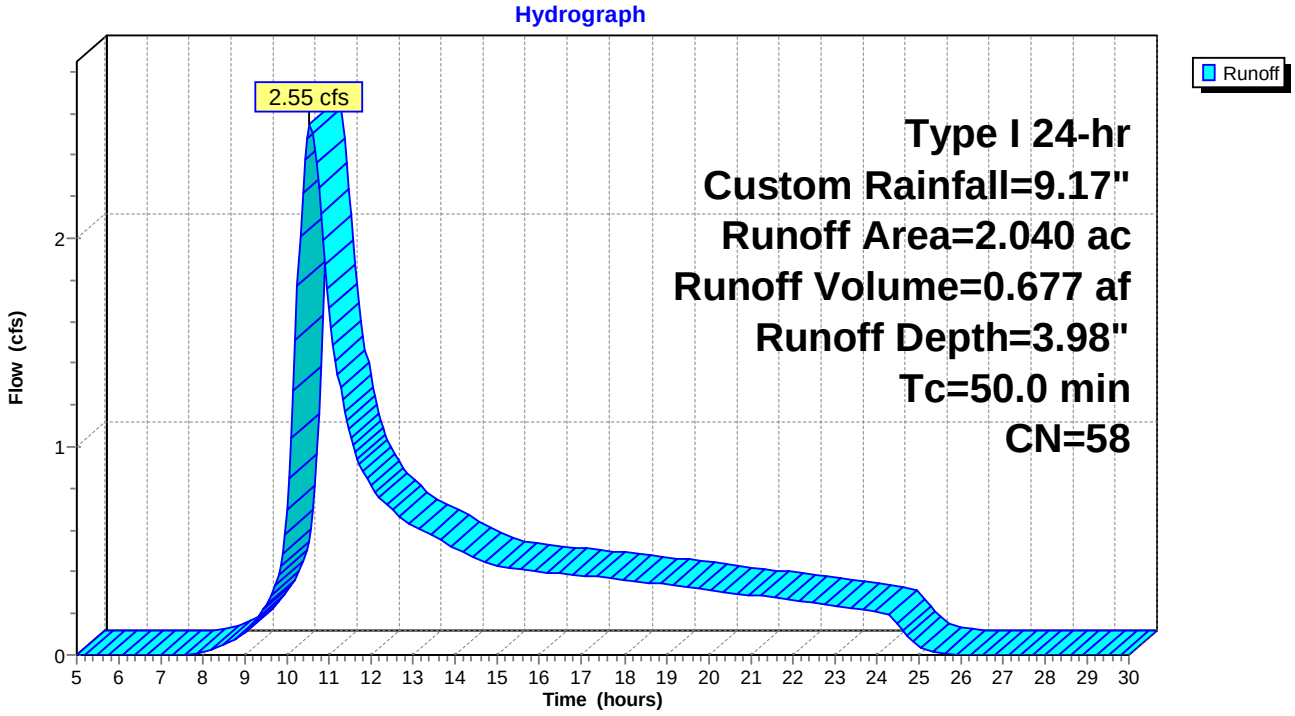
Runoff = 2.55 cfs @ 10.53 hrs, Volume= 0.677 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	2.040	58	
	2.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.0					**Direct Entry,**

Subcatchment 10S: BASIN E8



Summary for Subcatchment 12S: BASIN 03

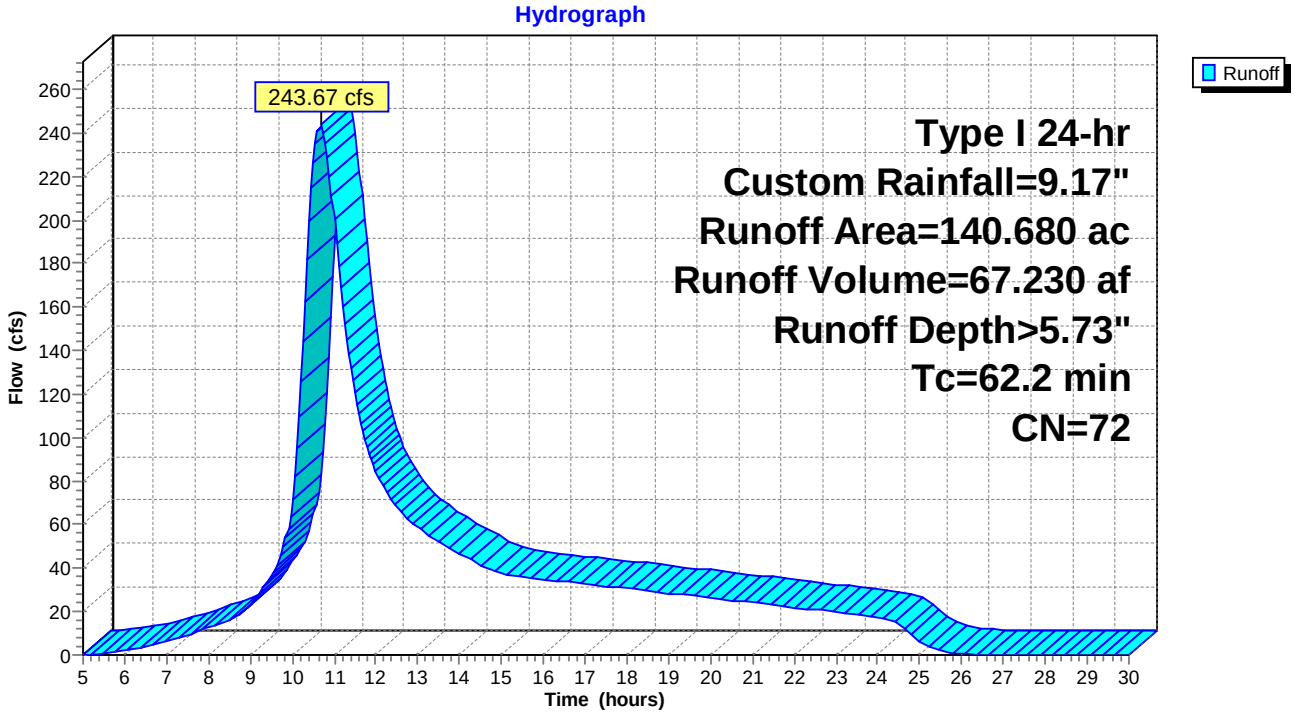
Runoff = 243.67 cfs @ 10.68 hrs, Volume= 67.230 af, Depth> 5.73"
Routed to Pond 12P : DETENTION POND B1 (EXISTING)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	140.680	72	
	140.680		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.2					**Direct Entry,**

Subcatchment 12S: BASIN 03



Summary for Pond 11P: EXISTING PONDS B2A/B COMBINED

Inflow Area = 337.580 ac, 0.00% Impervious, Inflow Depth = 3.78" for Custom event
Inflow = 413.32 cfs @ 10.45 hrs, Volume= 106.306 af
Outflow = 69.77 cfs @ 14.69 hrs, Volume= 106.305 af, Atten= 83%, Lag= 254.0 min
Discarded = 69.77 cfs @ 14.69 hrs, Volume= 106.305 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.80' @ 14.69 hrs Surf.Area= 6.901 ac Storage= 35.580 af

Plug-Flow detention time= 272.3 min calculated for 106.093 af (100% of inflow)
Center-of-Mass det. time= 272.3 min (1,140.7 - 868.5)

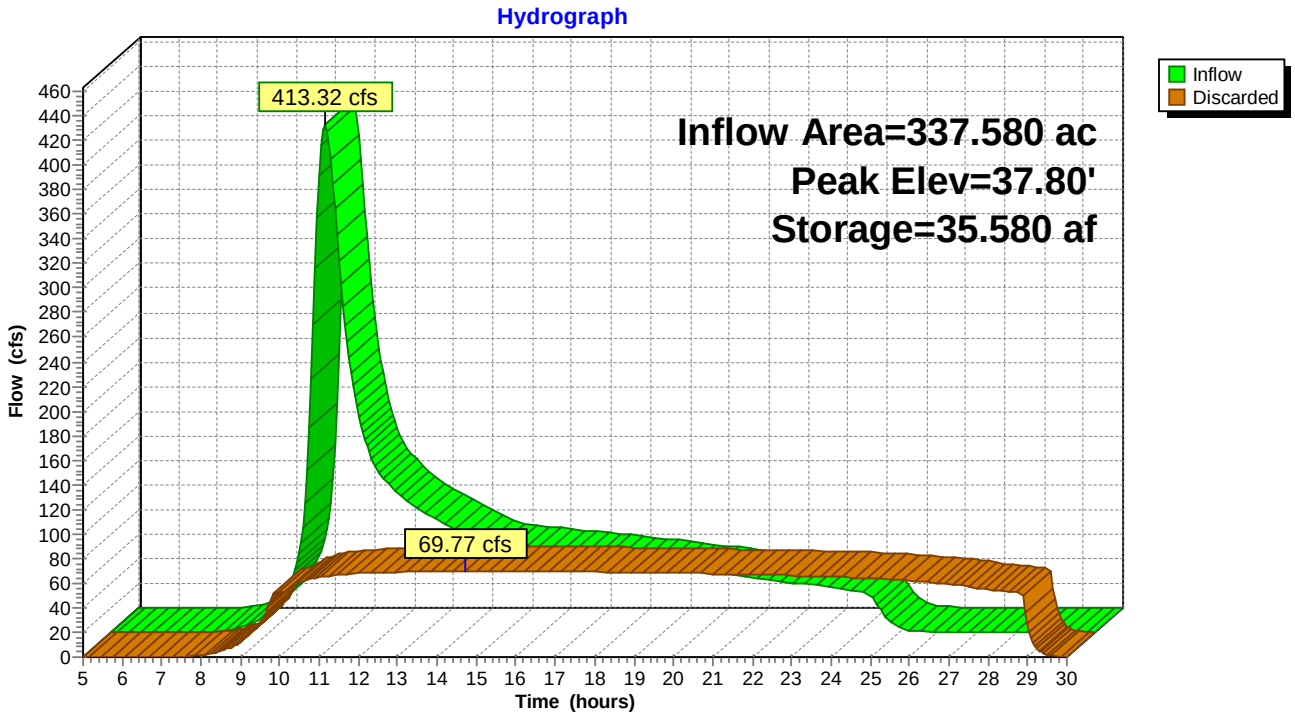
Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	109.140 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
32.00	5.063	0.000	0.000	5.063
34.00	6.001	11.051	11.051	6.004
36.00	6.472	12.470	23.521	6.483
38.00	6.949	13.418	36.939	6.968
40.00	7.425	14.371	51.310	7.453
42.00	7.903	15.326	66.636	7.940
44.00	8.382	16.283	82.918	8.429
46.00	8.862	17.242	100.160	8.919
47.00	9.099	8.980	109.140	9.161

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	**10.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=69.77 cfs @ 14.69 hrs HW=37.80' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 69.77 cfs)

Pond 11P: EXISTING PONDS B2A/B COMBINED



Summary for Pond 12P: DETENTION POND B1 (EXISTING)

Inflow Area = 140.680 ac, 0.00% Impervious, Inflow Depth > 5.73" for Custom event
Inflow = 243.67 cfs @ 10.68 hrs, Volume= 67.230 af
Outflow = 42.20 cfs @ 14.45 hrs, Volume= 67.230 af, Atten= 83%, Lag= 225.9 min
Discarded = 42.20 cfs @ 14.45 hrs, Volume= 67.230 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.90' @ 14.45 hrs Surf.Area= 8.369 ac Storage= 23.573 af

Plug-Flow detention time= 263.4 min calculated for 67.229 af (100% of inflow)
Center-of-Mass det. time= 263.3 min (1,098.7 - 835.3)

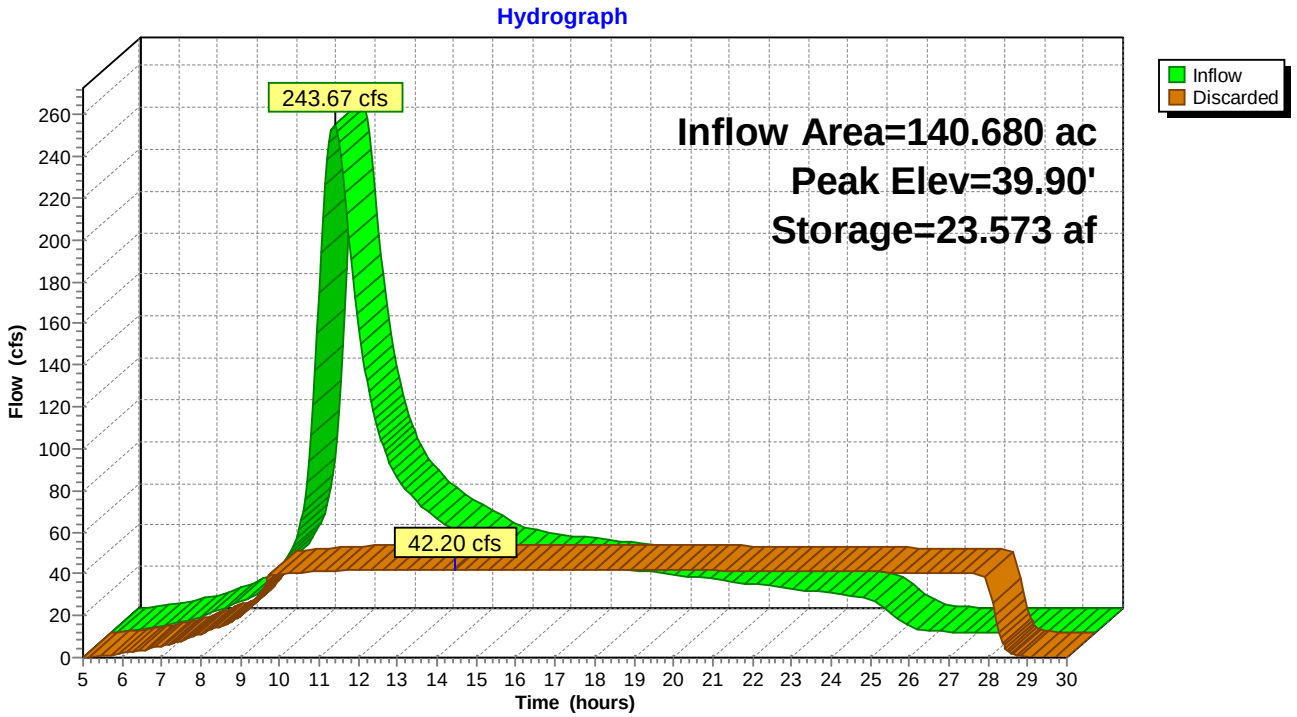
Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	68.432 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
37.00	7.882	0.000	0.000
45.00	9.226	68.432	68.432

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.00'	**5.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=42.20 cfs @ 14.45 hrs HW=39.90' (Free Discharge)
1=Exfiltration (Exfiltration Controls 42.20 cfs)

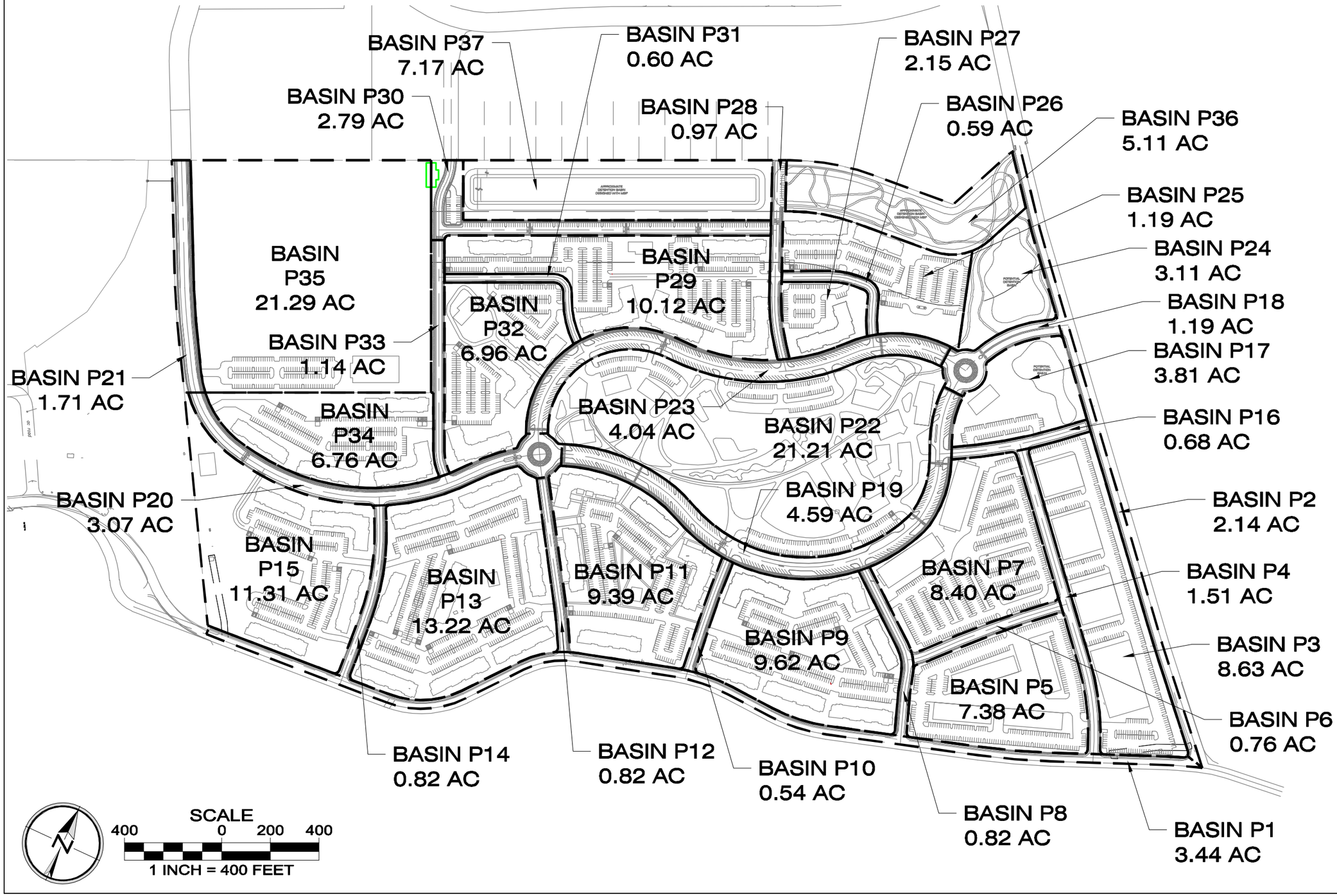
Pond 12P: DETENTION POND B1 (EXISTING)



APPENDIX 'C' – DEVELOPED CONDITION DRAINAGE ANALYSIS

DEVELOPED BASIN MAP

HOONANI VILLAGE



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Drawn by	TCC	Date 09/2024
Reviewed by	TCC	Date 09/024
Project No.	H109-001	REF.
Horiz. Scale:	1"=400'	
Vert. Scale:		

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HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

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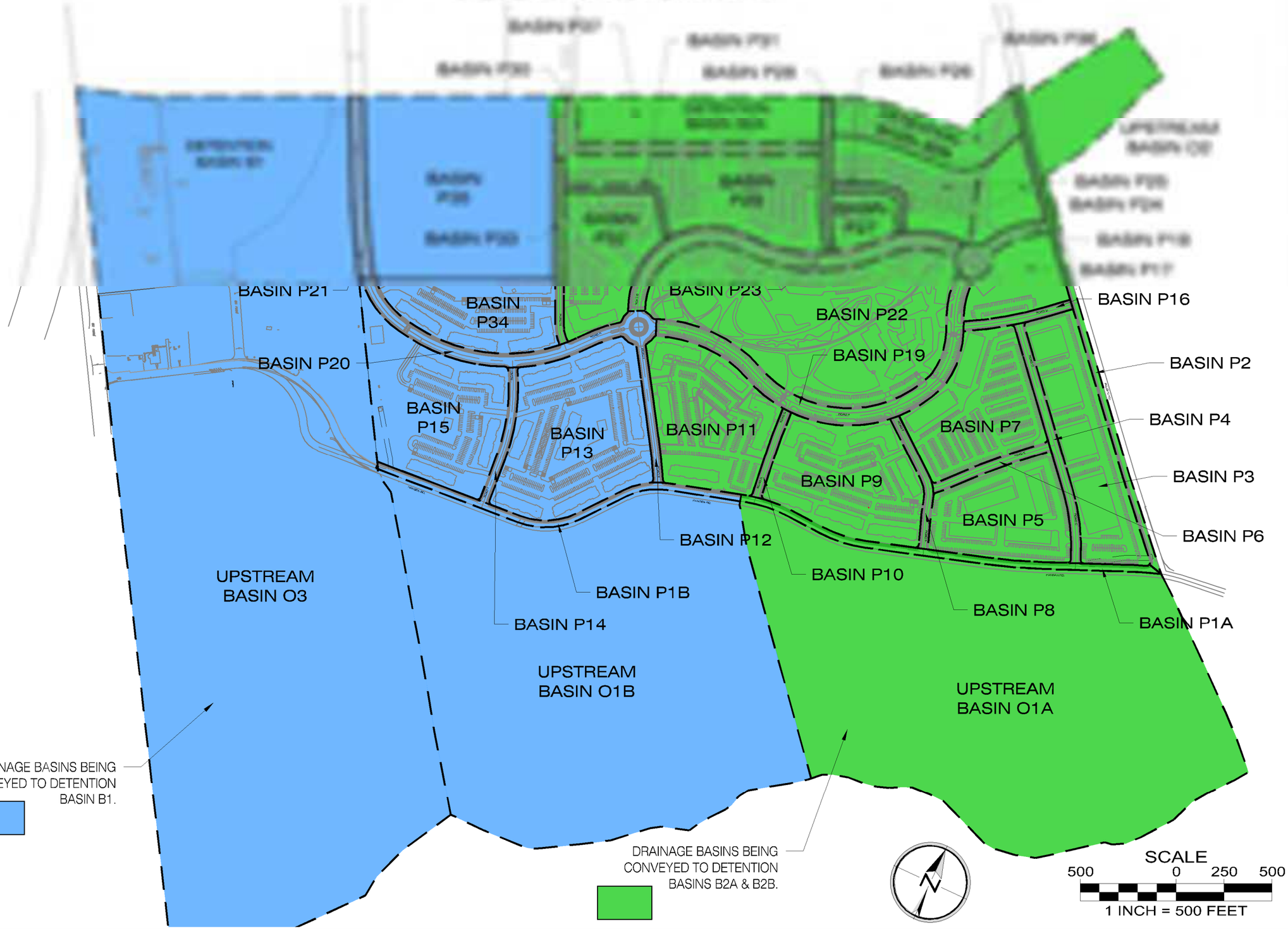
1 of 1

DETENTION BASIN MAP



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Vert. Scale:		

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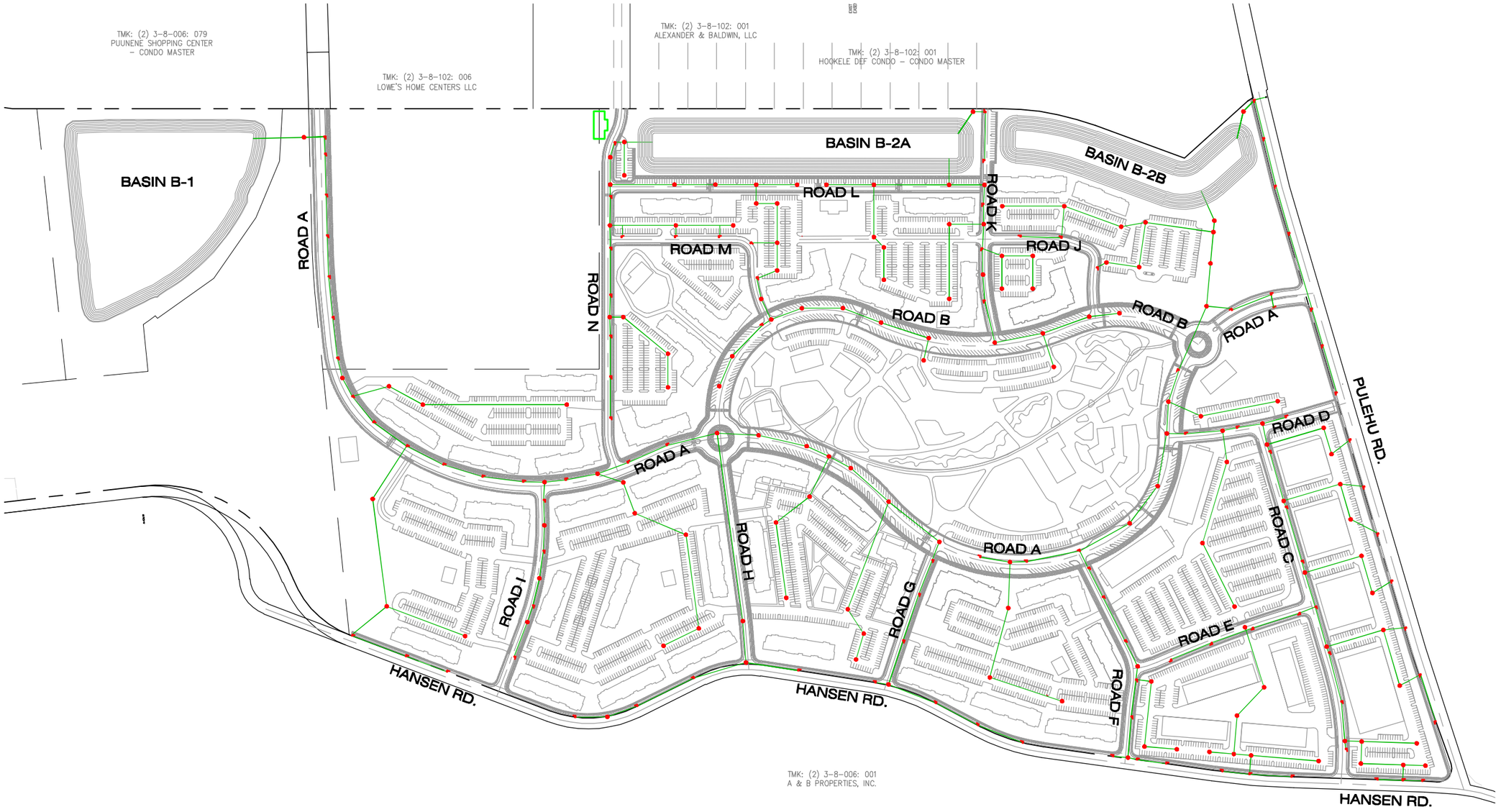
PRELIMINARY STORM DRAINAGE MASTER PLAN

OVERALL MASTER PLAN



SCALE
400 0 200 400
1 INCH = 400 FEET

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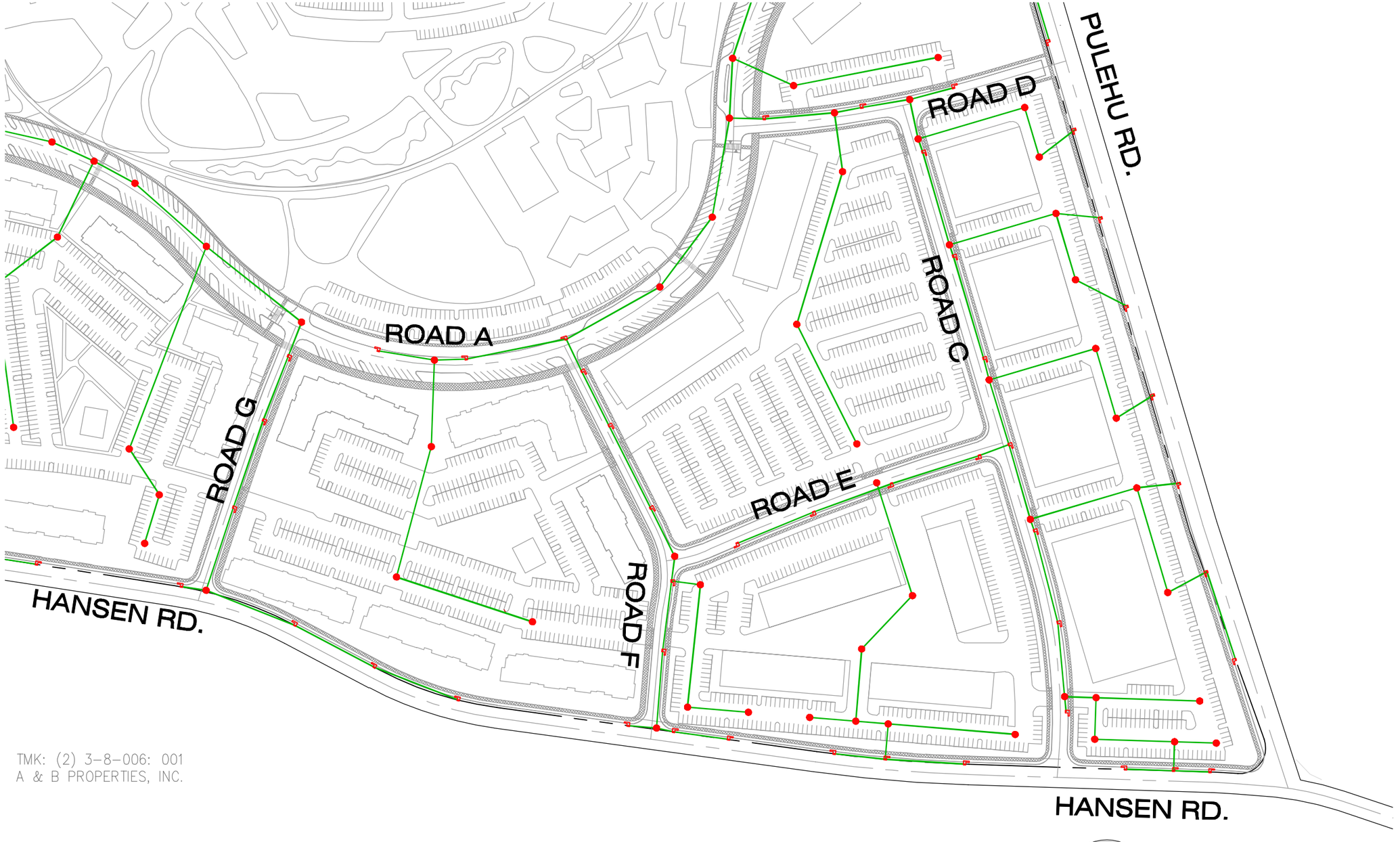
PRELIMINARY STORM DRAINAGE MASTER PLAN

SOUTHEAST



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Reviewed by	TCC	Date 10/2024
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Vert. Scale:		

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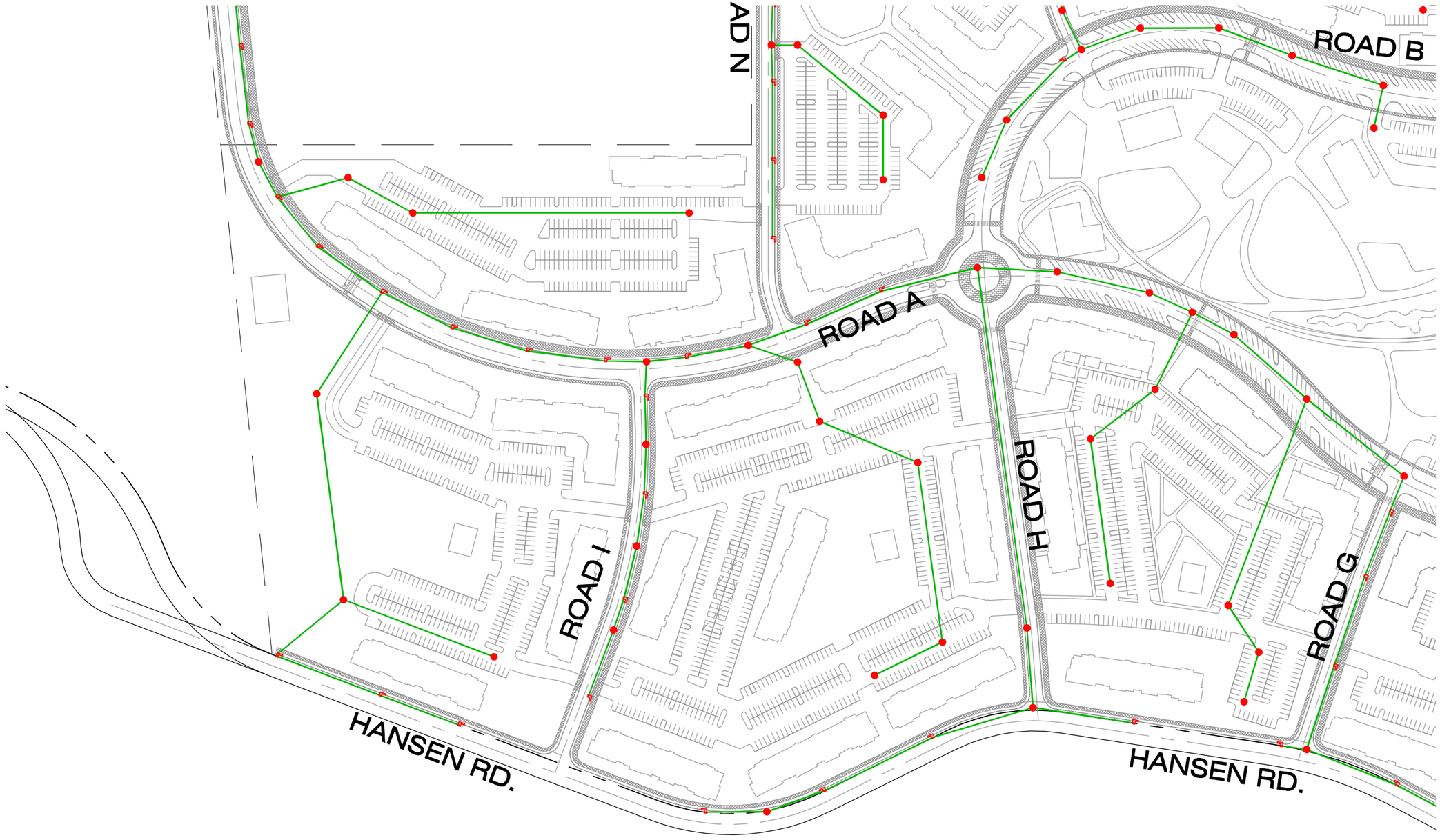
PRELIMINARY STORM DRAINAGE MASTER PLAN

SOUTHWEST



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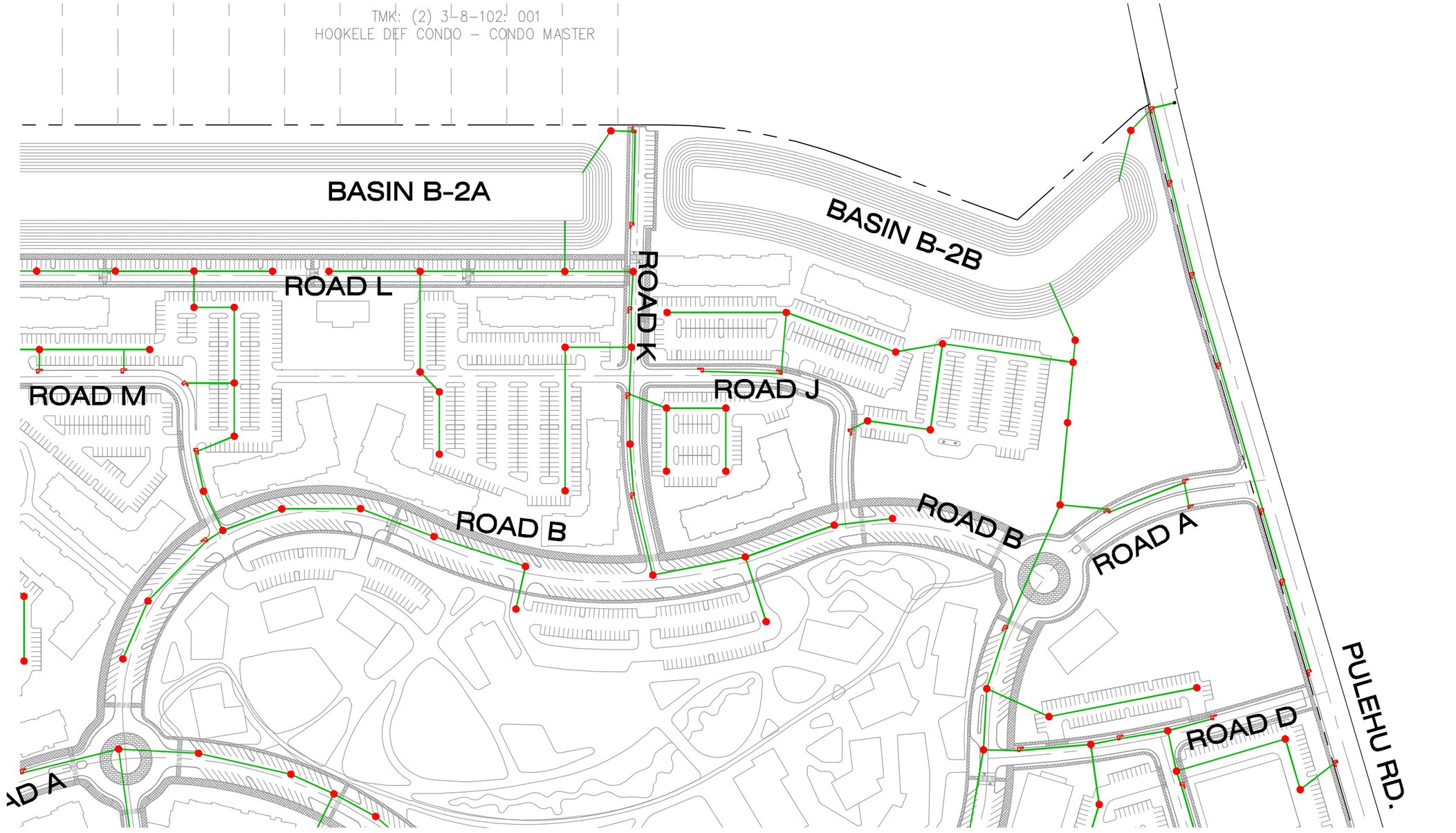
PRELIMINARY STORM DRAINAGE MASTER PLAN

NORTHEAST



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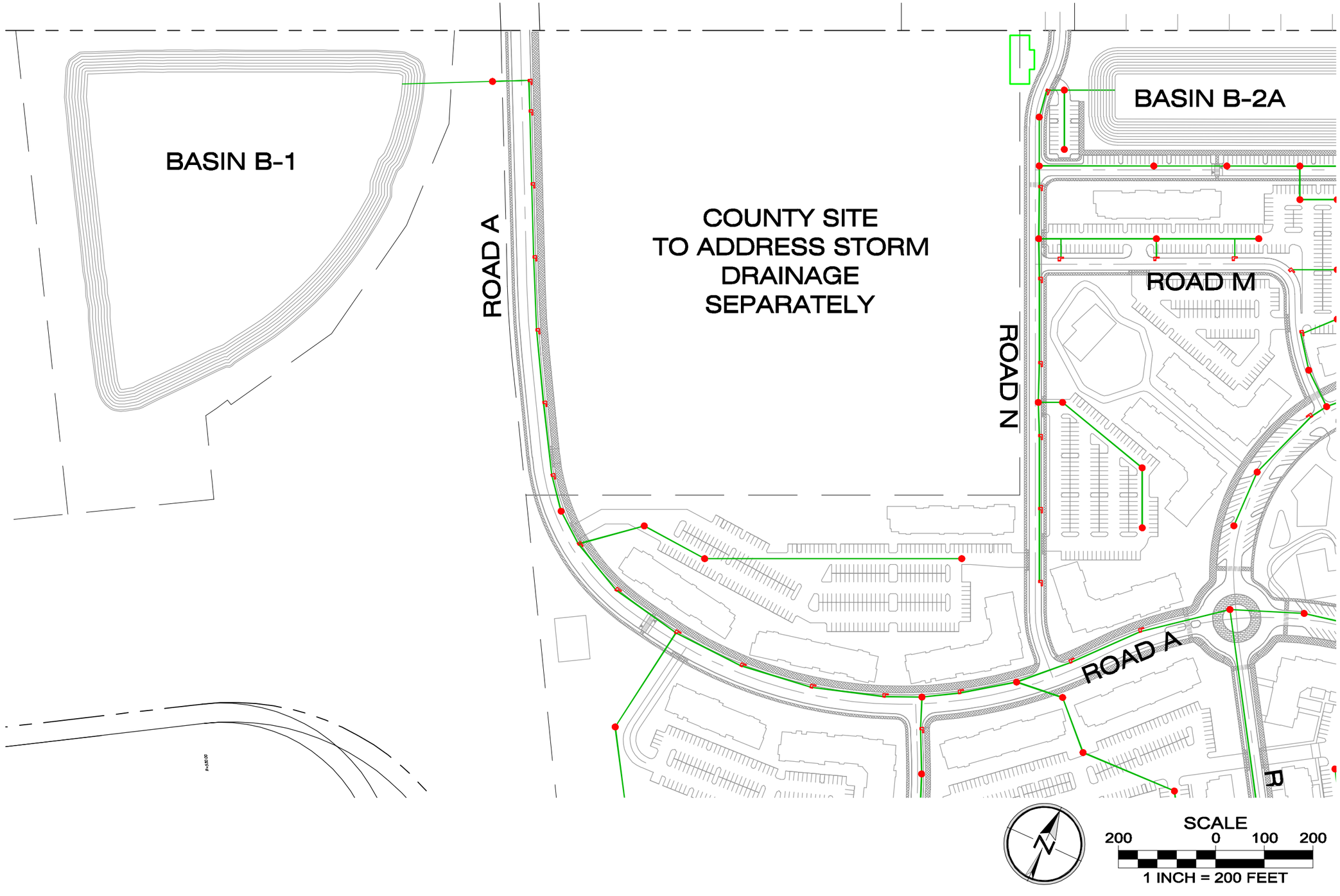
PRELIMINARY STORM DRAINAGE MASTER PLAN

NORTHWEST



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Reviewed by TCC Date 10/2024
Project No. H109-001 REF.
Horiz. Scale: 1"=200'
Vert. Scale:

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
5 of 5

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PROPOSED DRAINAGE CONDITION ANALYSIS

(100 YEAR, 24 HOUR STORM EVENT)

JOB NUMBER: H109-001
PROJECT: Hoonani Village
FILE: H1091_PER Hydro

RUNOFF CURVE NUMBERS

IMPERVIOUS AREAS (B SOILS) = 98
OPEN SPACES (B SOILS) = 61

RESIDENTIAL APARTMENT = 60% IMPERVIOUS
LIGHT INDUSTRIAL & BUSINESS AREA = 85% IMPERVIOUS
STREET ROW AREA = 80% IMPERVIOUS
NEIGHBORHOOD COMMERCIAL AREA = 50% IMPERVIOUS

TIME OF CONCENTRATION (MIN.) = 5 min. + Time in Pipe (min.)

CATCHMENT TIME 5 min.
VELOCITY IN PIPE 3 ft/s
TIME IN PIPE LENGTH / VEL. s

FLOW RATE (Q) CALCULATED IN HYDROCAD (SEE ATTACHED HYDROCAD REPORT)

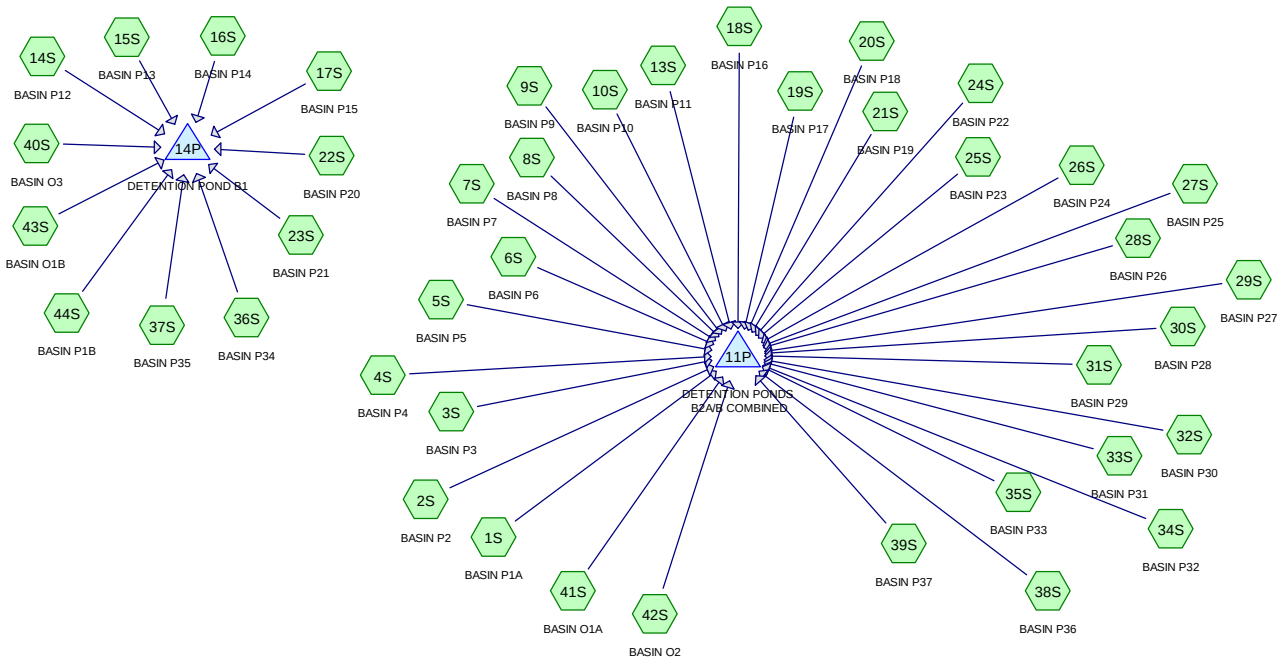
DRAINAGE BASIN LABEL	AREA	(SF)	AREA (AC)		ESTIMATED PERCENT IMPERVIOUS	COMPOSITE RUNOFF CURVE NUMBER	LONGEST RUN OF PIPE (LF)	APPROX. DEV. TOC. (MIN.)	FLOW RATE (Q) CFS	FLOW VOL. (AC-FT)
BASIN P1	149,893.00	ft^2	**3.44**	**ac**	80%	90.60	580	8.22	20.95	2.236
BASIN P2	93,269.00	ft^2	**2.14**	**ac**	80%	90.60	2300	17.78	10.22	1.395
BASIN P3	375,735.00	ft^2	**8.63**	**ac**	85%	92.45	440	7.44	53.85	5.669
BASIN P4	66,168.00	ft^2	**1.52**	**ac**	80%	90.60	1330	12.39	8.31	0.989
BASIN P5	321,635.00	ft^2	**7.38**	**ac**	85%	92.45	606	8.37	45.14	4.85
BASIN P6	33,323.00	ft^2	**0.76**	**ac**	80%	90.60	558	8.10	4.64	0.494
BASIN P7	366,056.00	ft^2	**8.40**	**ac**	85%	92.45	678	8.77	50.89	5.52
BASIN P8	35,831.00	ft^2	**0.82**	**ac**	80%	90.60	800	9.44	4.85	0.533
BASIN P9	419,061.00	ft^2	**9.62**	**ac**	60%	83.20	900	10.00	50.68	5.623
BASIN P10	23,772.00	ft^2	**0.55**	**ac**	80%	90.60	530	7.94	3.37	0.358
BASIN P11	408,930.00	ft^2	**9.39**	**ac**	60%	83.20	615	8.42	51.57	5.487
BASIN P12	35,512.00	ft^2	**0.82**	**ac**	80%	90.60	775	9.31	4.86	0.533
BASIN P13	576,065.00	ft^2	**13.22**	**ac**	60%	83.20	830	9.61	70.4	7.726
BASIN P14	35,900.00	ft^2	**0.82**	**ac**	80%	90.60	750	9.17	4.87	0.533
BASIN P15	492,530.00	ft^2	**11.31**	**ac**	60%	83.20	900	10.00	59.59	6.61
BASIN P16	29,430.00	ft^2	**0.68**	**ac**	80%	90.60	600	8.33	4.13	0.442
BASIN P17	166,153.00	ft^2	**3.81**	**ac**	40%	75.80	300	6.67	19.16	1.973
BASIN P18	51,667.00	ft^2	**1.19**	**ac**	80%	90.60	325	6.81	7.47	0.773
BASIN P19	199,740.00	ft^2	**4.59**	**ac**	80%	90.60	850	9.72	26.94	2.985
BASIN P20	133,750.00	ft^2	**3.07**	**ac**	80%	90.60	1300	12.22	16.87	1.998
BASIN P21	74,409.00	ft^2	**1.71**	**ac**	80%	90.60	875	9.86	9.98	1.112
BASIN P22	924,101.00	ft^2	**21.21**	**ac**	50%	79.50	760	9.22	108.62	11.806
BASIN P23	175,824.00	ft^2	**4.04**	**ac**	80%	90.60	450	7.50	24.93	2.626
BASIN P24	135,568.00	ft^2	**3.11**	**ac**	10%	64.70	400	7.22	11.77	1.259

BASIN P25	227,068.00	ft^2	**5.21**	**ac**	60%	83.20	200	6.11	30.15	3.043
BASIN P26	25,771.00	ft^2	**0.59**	**ac**	80%	90.60	525	7.92	3.62	0.384
BASIN P27	93,502.00	ft^2	**2.15**	**ac**	60%	83.20	280	6.56	12.29	1.256
BASIN P28	42,266.00	ft^2	**0.97**	**ac**	80%	90.60	690	8.83	5.82	0.631
BASIN P29	440,771.00	ft^2	**10.12**	**ac**	60%	83.20	660	8.67	55.17	5.914
BASIN P30	121,625.00	ft^2	**2.79**	**ac**	80%	90.60	900	10.00	16.25	1.815
BASIN P31	26,252.00	ft^2	**0.60**	**ac**	80%	90.60	660	8.67	3.61	0.39
BASIN P32	303,206.00	ft^2	**6.96**	**ac**	60%	83.20	460	7.56	38.95	4.066
BASIN P33	49,618.00	ft^2	**1.14**	**ac**	80%	90.60	960	10.33	6.58	0.742
BASIN P34	294,312.00	ft^2	**6.76**	**ac**	60%	83.20	800	9.44	36.19	3.951
BASIN P35	927,479.00	ft^2	**21.29**	**ac**	0%	74.00	937	10.21	94.12	10.602
BASIN P36	222,453.00	ft^2	**5.11**	**ac**	10%	64.70	0	5.00	20.33	2.069
BASIN P37	312,360.00	ft^2	**7.17**	**ac**	0%	61.00	0	5.00	25.05	2.605
BASIN P1A	79,011.00	ft^2	**1.81**	**ac**	80%	90.60	580	8.22	11.05	1.222
(SUB-BASIN NOT IN TOTALS)										
BASIN P1B	70,882.00	ft^2	**1.63**	**ac**	80%	90.60	580	8.22	9.91	1.096
(SUB-BASIN NOT IN TOTALS)										
	TOTAL DRAINAGE AREA (SF)		**TOTAL DRAINAGE AREA (ac)**						**TOTAL Q FLOW (cfs)**	**TOTAL VOLUME (AC-FT)**
PROPOSED DRAINAGE CONDITION	**8,411,005.00**	**ft^2**	**193.09**	**ac**					**1022.19**	**111.00**

UPSTREAM BASIN LABEL	**TOTAL DRAINAGE AREA (SF)**		**TOTAL DRAINAGE AREA (ac)**			**COMPOSITE RUNOFF CURVE NUMBER**		**APPROX. DEV. TOC. (MIN.)**	**TOTAL Q FLOW (cfs)**	**TOTAL VOLUME (AC-FT)**
BASIN O1	6,160,420.00	ft^2	**141.42**	**ac**		53.80		46.5	**153.38**	**41.10**
BASIN O1A	3,052,128.00	ft^2	**70.07**	**ac**		53.80		46.5	**76.00**	**20.36**
(SUB-BASIN NOT IN TOTALS)										
BASIN O1B	3,108,292.00	ft^2	**71.36**	**ac**		53.80		46.5	**77.38**	**20.74**
(SUB-BASIN NOT IN TOTALS)										
BASIN O2	289,835.00	ft^2	**6.65**	**ac**		58.50		31.7	**11.29**	**2.28**
BASIN O3	6,128,207.00	ft^2	**140.68**	**ac**		72.20		62.23	**243.67**	**67.23**

DEVELOPED DETENTION BASIN ANALYSIS

BASIN LABEL	**CONTRIBUTING BASINS**	**AVAILABLE STORAGE (AC-FT)**	**DEVELOPED FLOW RATE (CFS)**	**DEVELOPED VOL. (AC-FT)**	**AVAILABLE VOLUME (AC-FT)**
BASIN B1	O1B, O3, P1B, P12-15, P20-21, P34-35	119.540	627.84	122.13	-2.589
BASIN B2A & B2B	O1A, O2, P1A, P2-111, P16-19, P22-33, P36-37	116.360	802.69	99.475	16.89
		235.900	**1430.530**	**221.60**	**14.30**



Subcat Reach Pond Link

Routing Diagram for PRELIM HYDRO_DEVELOPED
Prepared by Pioneer Design Group, Printed 10/7/2024
HydroCAD® 10.20-4b s/n 09255 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
24.410	92	(3S, 5S, 7S)
28.287	91	(4S, 6S, 8S, 10S, 14S, 16S, 18S, 20S, 21S, 22S, 23S, 25S, 28S, 30S, 32S, 33S, 35S, 44S)
74.740	83	(9S, 13S, 15S, 17S, 27S, 29S, 31S, 34S, 36S)
3.810	76	(19S)
21.210	80	(24S)
8.220	65	(26S, 38S)
21.290	74	(37S)
7.170	61	(39S)
140.684	72	(40S)
141.430	54	(41S, 43S)
6.650	59	(42S)
1.814	91	HANSEN ROAD (1S)
2.140	91	PULEHU ROAD (2S)
481.855	**71**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BASIN P1A Runoff Area=79,011 sf 0.00% Impervious Runoff Depth=8.08"
Tc=8.2 min CN=91 Runoff=11.05 cfs 1.222 af

Subcatchment 2S: BASIN P2 Runoff Area=2.140 ac 0.00% Impervious Runoff Depth=8.08"
Tc=17.8 min CN=91 Runoff=10.22 cfs 1.441 af

Subcatchment 3S: BASIN P3 Runoff Area=8.630 ac 0.00% Impervious Runoff Depth=8.20"
Tc=7.4 min CN=92 Runoff=53.85 cfs 5.899 af

Subcatchment 4S: BASIN P4 Runoff Area=1.520 ac 0.00% Impervious Runoff Depth=8.08"
Tc=12.4 min CN=91 Runoff=8.31 cfs 1.024 af

Subcatchment 5S: BASIN P5 Runoff Area=7.380 ac 0.00% Impervious Runoff Depth=8.20"
Tc=8.4 min CN=92 Runoff=45.14 cfs 5.045 af

Subcatchment 6S: BASIN P6 Runoff Area=0.760 ac 0.00% Impervious Runoff Depth=8.08"
Tc=8.1 min CN=91 Runoff=4.64 cfs 0.512 af

Subcatchment 7S: BASIN P7 Runoff Area=8.400 ac 0.00% Impervious Runoff Depth=8.20"
Tc=8.8 min CN=92 Runoff=50.89 cfs 5.742 af

Subcatchment 8S: BASIN P8 Runoff Area=0.820 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.4 min CN=91 Runoff=4.85 cfs 0.552 af

Subcatchment 9S: BASIN P9 Runoff Area=9.620 ac 0.00% Impervious Runoff Depth=7.10"
Tc=10.0 min CN=83 Runoff=50.68 cfs 5.692 af

Subcatchment 10S: BASIN P10 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth=8.08"
Tc=7.9 min CN=91 Runoff=3.37 cfs 0.370 af

Subcatchment 13S: BASIN P11 Runoff Area=9.390 ac 0.00% Impervious Runoff Depth=7.10"
Tc=8.4 min CN=83 Runoff=51.57 cfs 5.556 af

Subcatchment 14S: BASIN P12 Runoff Area=0.820 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.3 min CN=91 Runoff=4.86 cfs 0.552 af

Subcatchment 15S: BASIN P13 Runoff Area=13.220 ac 0.00% Impervious Runoff Depth=7.10"
Tc=9.6 min CN=83 Runoff=70.40 cfs 7.822 af

Subcatchment 16S: BASIN P14 Runoff Area=0.820 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.2 min CN=91 Runoff=4.87 cfs 0.552 af

Subcatchment 17S: BASIN P15 Runoff Area=11.310 ac 0.00% Impervious Runoff Depth=7.10"
Tc=10.0 min CN=83 Runoff=59.59 cfs 6.692 af

Subcatchment 18S: BASIN P16 Runoff Area=0.680 ac 0.00% Impervious Runoff Depth=8.08"
Tc=8.3 min CN=91 Runoff=4.13 cfs 0.458 af

Subcatchment 19S: BASIN P17 Runoff Area=3.810 ac 0.00% Impervious Runoff Depth=6.23"
Tc=6.7 min CN=76 Runoff=19.16 cfs 1.979 af

Subcatchment 20S: BASIN P18 Runoff Area=1.190 ac 0.00% Impervious Runoff Depth=8.08"
Tc=6.8 min CN=91 Runoff=7.47 cfs 0.801 af

Subcatchment 21S: BASIN P19 Runoff Area=4.590 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.7 min CN=91 Runoff=26.94 cfs 3.091 af

Subcatchment 22S: BASIN P20 Runoff Area=3.070 ac 0.00% Impervious Runoff Depth=8.08"
Tc=12.2 min CN=91 Runoff=16.87 cfs 2.067 af

Subcatchment 23S: BASIN P21 Runoff Area=1.710 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.9 min CN=91 Runoff=9.98 cfs 1.152 af

Subcatchment 24S: BASIN P22 Runoff Area=21.210 ac 0.00% Impervious Runoff Depth=6.73"
Tc=9.2 min CN=80 Runoff=108.62 cfs 11.894 af

Subcatchment 25S: BASIN P23 Runoff Area=4.040 ac 0.00% Impervious Runoff Depth=8.08"
Tc=7.5 min CN=91 Runoff=24.93 cfs 2.721 af

Subcatchment 26S: BASIN P24 Runoff Area=3.110 ac 0.00% Impervious Runoff Depth=4.86"
Tc=7.2 min CN=65 Runoff=11.77 cfs 1.259 af

Subcatchment 27S: BASIN P25 Runoff Area=5.210 ac 0.00% Impervious Runoff Depth=7.10"
Tc=6.1 min CN=83 Runoff=30.15 cfs 3.083 af

Subcatchment 28S: BASIN P26 Runoff Area=0.590 ac 0.00% Impervious Runoff Depth=8.08"
Tc=7.9 min CN=91 Runoff=3.62 cfs 0.397 af

Subcatchment 29S: BASIN P27 Runoff Area=2.150 ac 0.00% Impervious Runoff Depth=7.10"
Tc=6.6 min CN=83 Runoff=12.29 cfs 1.272 af

Subcatchment 30S: BASIN P28 Runoff Area=0.970 ac 0.00% Impervious Runoff Depth=8.08"
Tc=8.8 min CN=91 Runoff=5.82 cfs 0.653 af

Subcatchment 31S: BASIN P29 Runoff Area=10.120 ac 0.00% Impervious Runoff Depth=7.10"
Tc=8.7 min CN=83 Runoff=55.17 cfs 5.988 af

Subcatchment 32S: BASIN P30 Runoff Area=2.790 ac 0.00% Impervious Runoff Depth=8.08"
Tc=10.0 min CN=91 Runoff=16.25 cfs 1.879 af

Subcatchment 33S: BASIN P31 Runoff Area=0.600 ac 0.00% Impervious Runoff Depth=8.08"
Tc=8.7 min CN=91 Runoff=3.61 cfs 0.404 af

Subcatchment 34S: BASIN P32 Runoff Area=6.960 ac 0.00% Impervious Runoff Depth=7.10"
Tc=7.6 min CN=83 Runoff=38.95 cfs 4.118 af

Subcatchment 35S: BASIN P33 Runoff Area=1.140 ac 0.00% Impervious Runoff Depth=8.08"
Tc=10.3 min CN=91 Runoff=6.58 cfs 0.768 af

Subcatchment 36S: BASIN P34 Runoff Area=6.760 ac 0.00% Impervious Runoff Depth=7.10"
Tc=9.4 min CN=83 Runoff=36.19 cfs 4.000 af

Subcatchment 37S: BASIN P35 Runoff Area=21.290 ac 0.00% Impervious Runoff Depth=5.98"
Tc=10.2 min CN=74 Runoff=94.12 cfs 10.617 af

Subcatchment 38S: BASIN P36 Runoff Area=5.110 ac 0.00% Impervious Runoff Depth=4.86"
Tc=5.0 min CN=65 Runoff=20.33 cfs 2.069 af

Subcatchment 39S: BASIN P37 Runoff Area=7.170 ac 0.00% Impervious Runoff Depth=4.36"
Tc=5.0 min CN=61 Runoff=25.05 cfs 2.605 af

Subcatchment 40S: BASIN O3 Runoff Area=6,128,207 sf 0.00% Impervious Runoff Depth=5.73"
Tc=62.2 min CN=72 Runoff=243.68 cfs 67.233 af

Subcatchment 41S: BASIN O1A Runoff Area=70.070 ac 0.00% Impervious Runoff Depth=3.49"
Tc=46.5 min CN=54 Runoff=76.00 cfs 20.364 af

Subcatchment 42S: BASIN O2 Runoff Area=6.650 ac 0.00% Impervious Runoff Depth=4.11"
Tc=31.7 min CN=59 Runoff=11.29 cfs 2.277 af

Subcatchment 43S: BASIN O1B Runoff Area=71.360 ac 0.00% Impervious Runoff Depth=3.49"
Tc=46.5 min CN=54 Runoff=77.40 cfs 20.738 af

Subcatchment 44S: BASIN P1B Runoff Area=70,882 sf 0.00% Impervious Runoff Depth=8.08"
Tc=8.2 min CN=91 Runoff=9.91 cfs 1.096 af

Pond 11P: DETENTION PONDS B2A/B Peak Elev=38.47' Storage=54.950 af Inflow=729.92 cfs 101.137 af
Outflow=34.69 cfs 100.105 af

Pond 14P: DETENTION POND B1 Peak Elev=38.92' Storage=66.616 af Inflow=401.68 cfs 122.521 af
Outflow=41.58 cfs 122.521 af

Total Runoff Area = 481.855 ac Runoff Volume = 223.658 af Average Runoff Depth = 5.57"
100.00% Pervious = 481.855 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: BASIN P1A

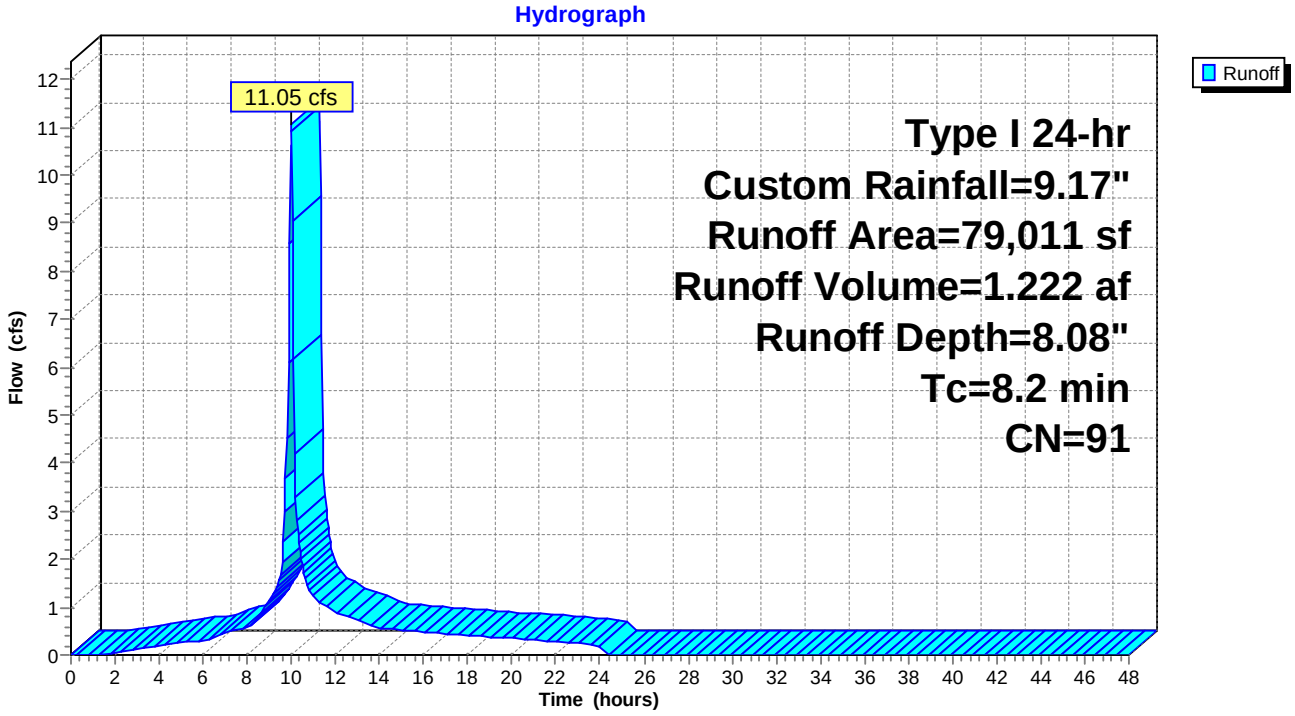
Runoff = 11.05 cfs @ 9.98 hrs, Volume= 1.222 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (sf)	CN	Description
*	79,011	91	HANSEN ROAD
	79,011		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry, PREDEV TOC**

Subcatchment 1S: BASIN P1A



Summary for Subcatchment 2S: BASIN P2

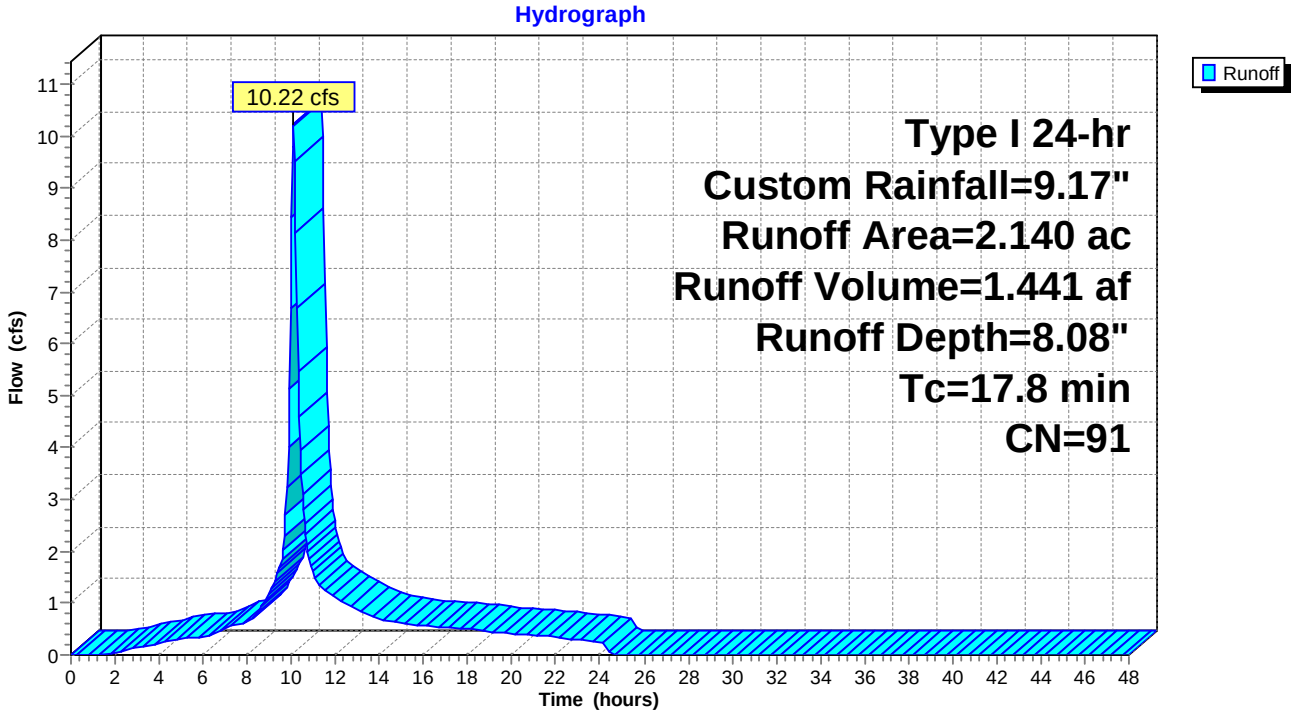
Runoff = 10.22 cfs @ 10.09 hrs, Volume= 1.441 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	2.140	91	PULEHU ROAD
	2.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8					**Direct Entry,**

Subcatchment 2S: BASIN P2



Summary for Subcatchment 3S: BASIN P3

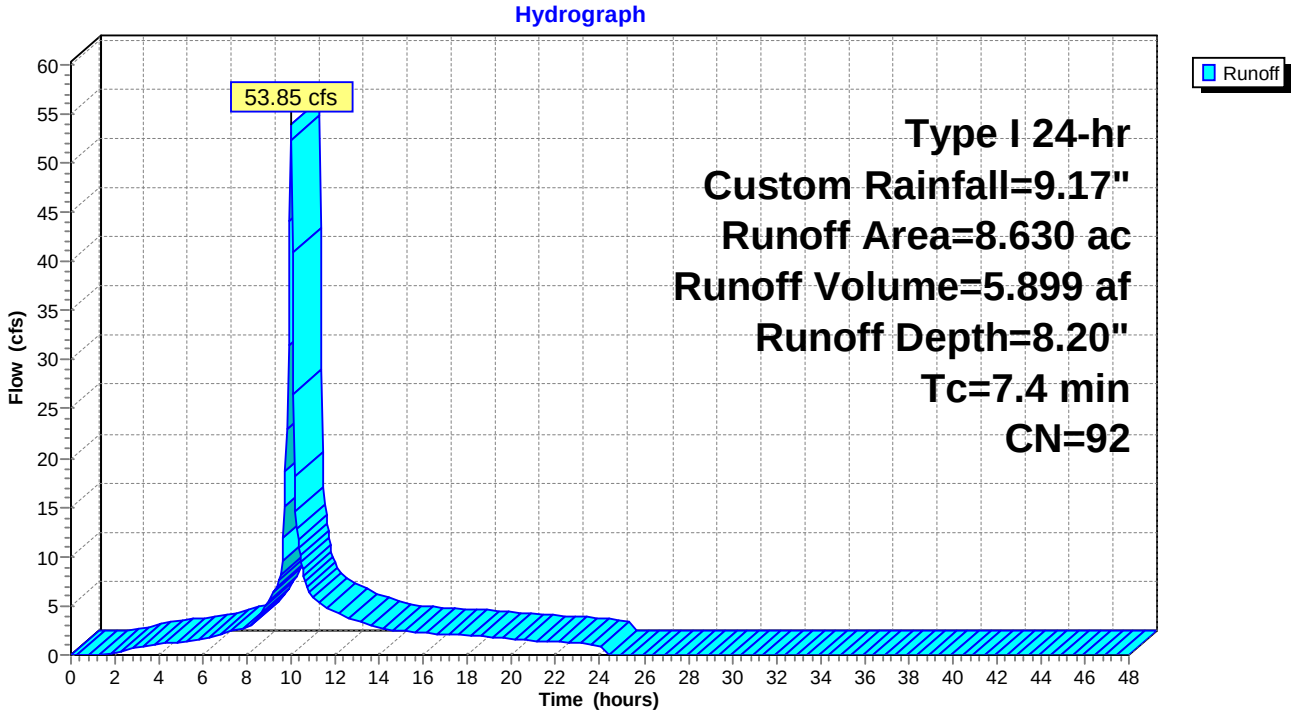
Runoff = 53.85 cfs @ 9.97 hrs, Volume= 5.899 af, Depth= 8.20"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	8.630	92	
	8.630		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4					**Direct Entry,**

Subcatchment 3S: BASIN P3



Summary for Subcatchment 4S: BASIN P4

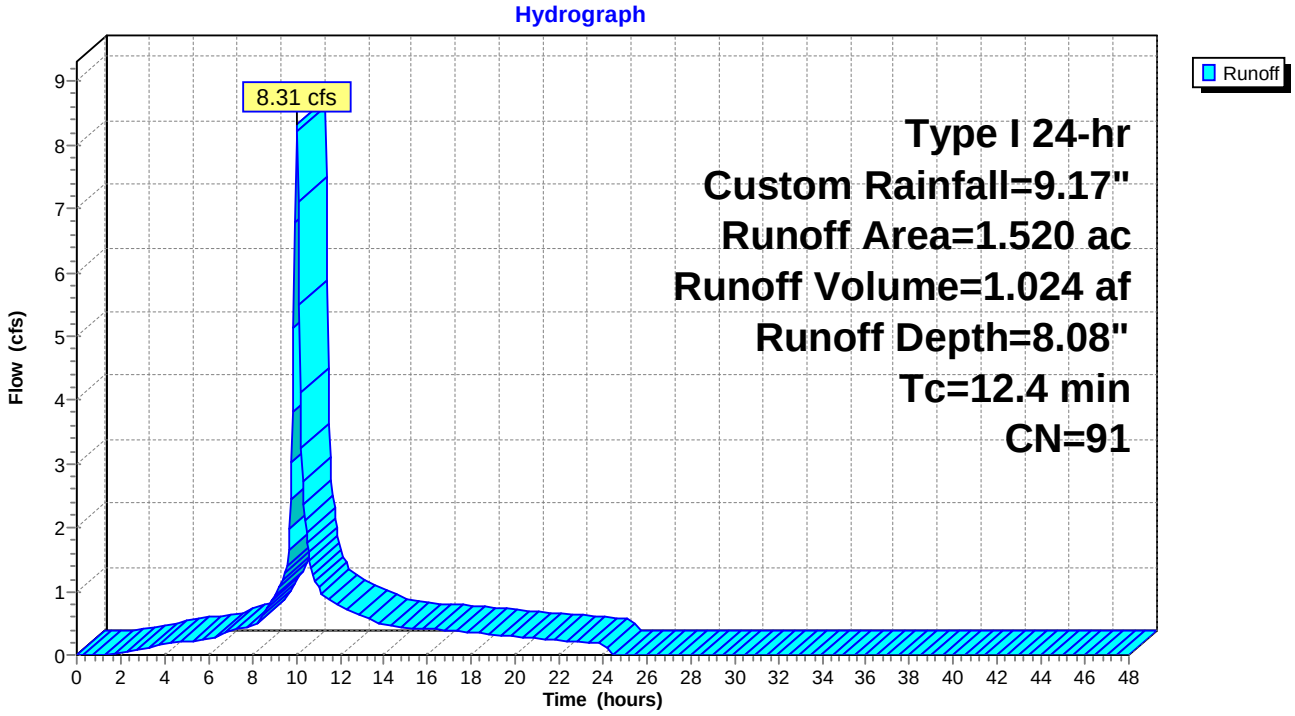
Runoff = 8.31 cfs @ 10.03 hrs, Volume= 1.024 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	1.520	91	
	1.520		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4					**Direct Entry,**

Subcatchment 4S: BASIN P4



Summary for Subcatchment 5S: BASIN P5

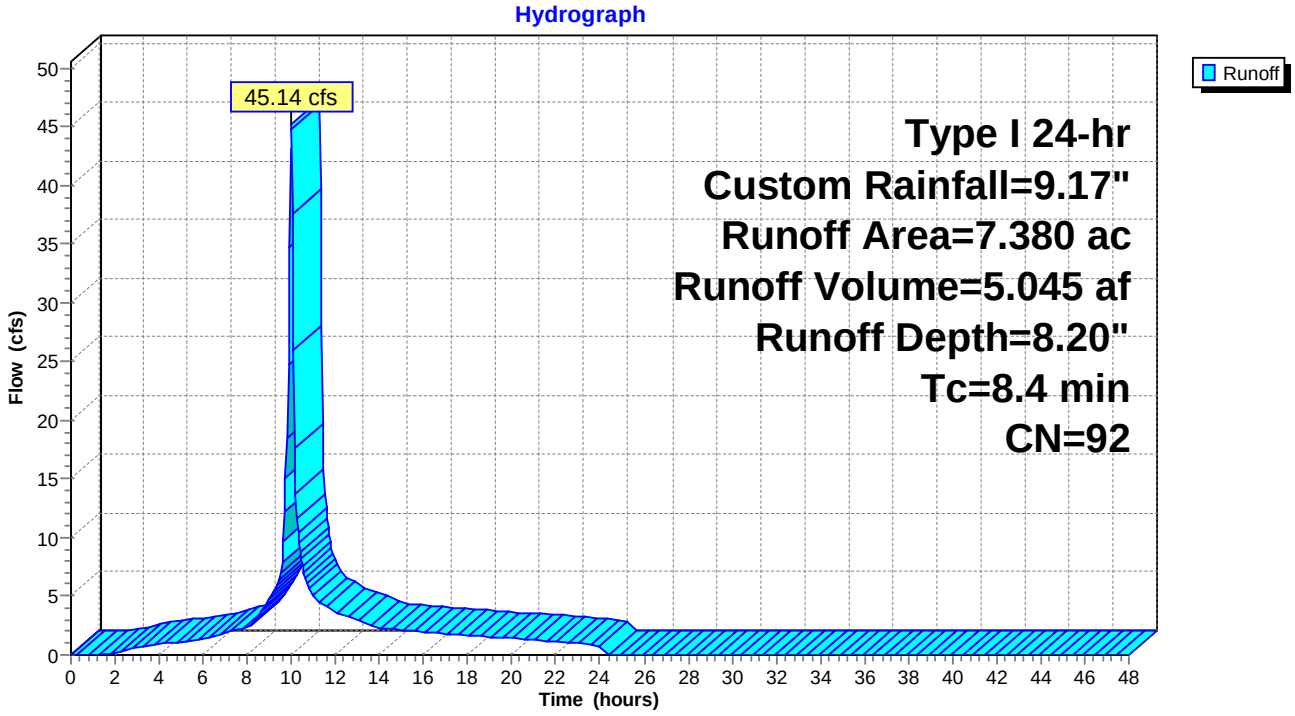
Runoff = 45.14 cfs @ 9.98 hrs, Volume= 5.045 af, Depth= 8.20"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	7.380	92	
	7.380		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment 5S: BASIN P5



Summary for Subcatchment 6S: BASIN P6

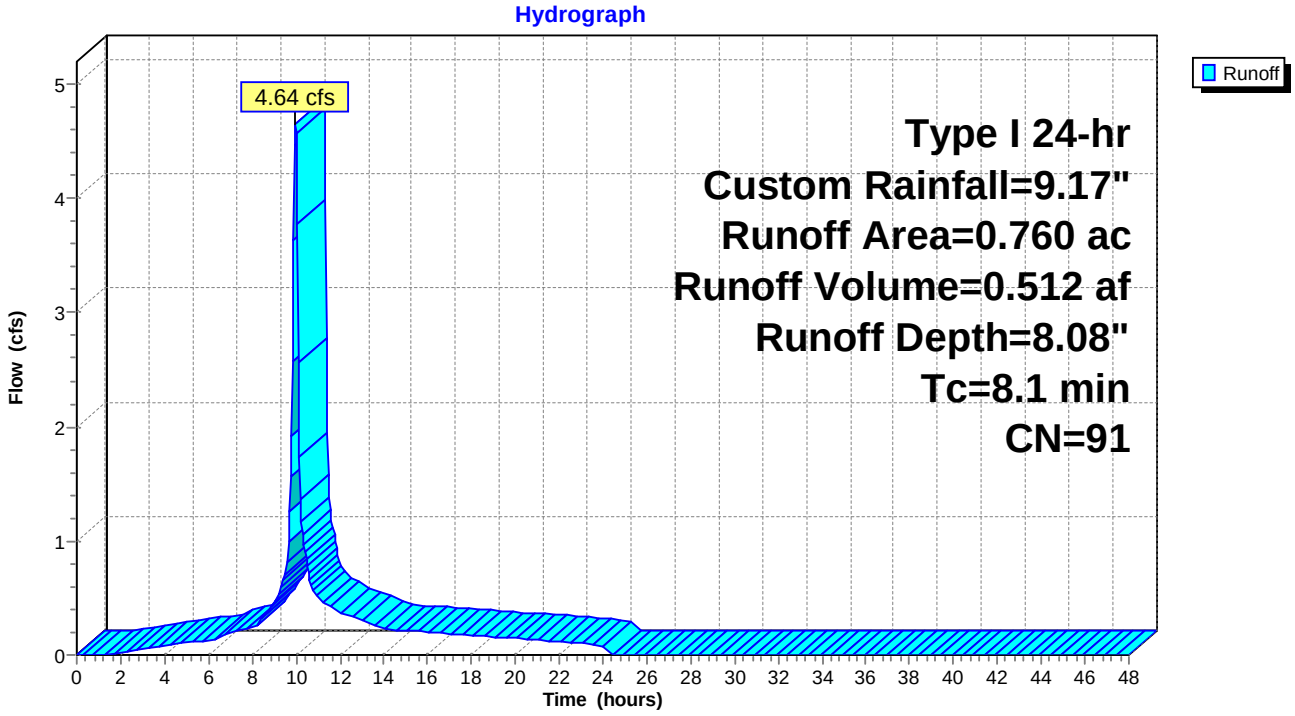
Runoff = 4.64 cfs @ 9.98 hrs, Volume= 0.512 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.760	91	
	0.760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1					**Direct Entry,**

Subcatchment 6S: BASIN P6



Summary for Subcatchment 7S: BASIN P7

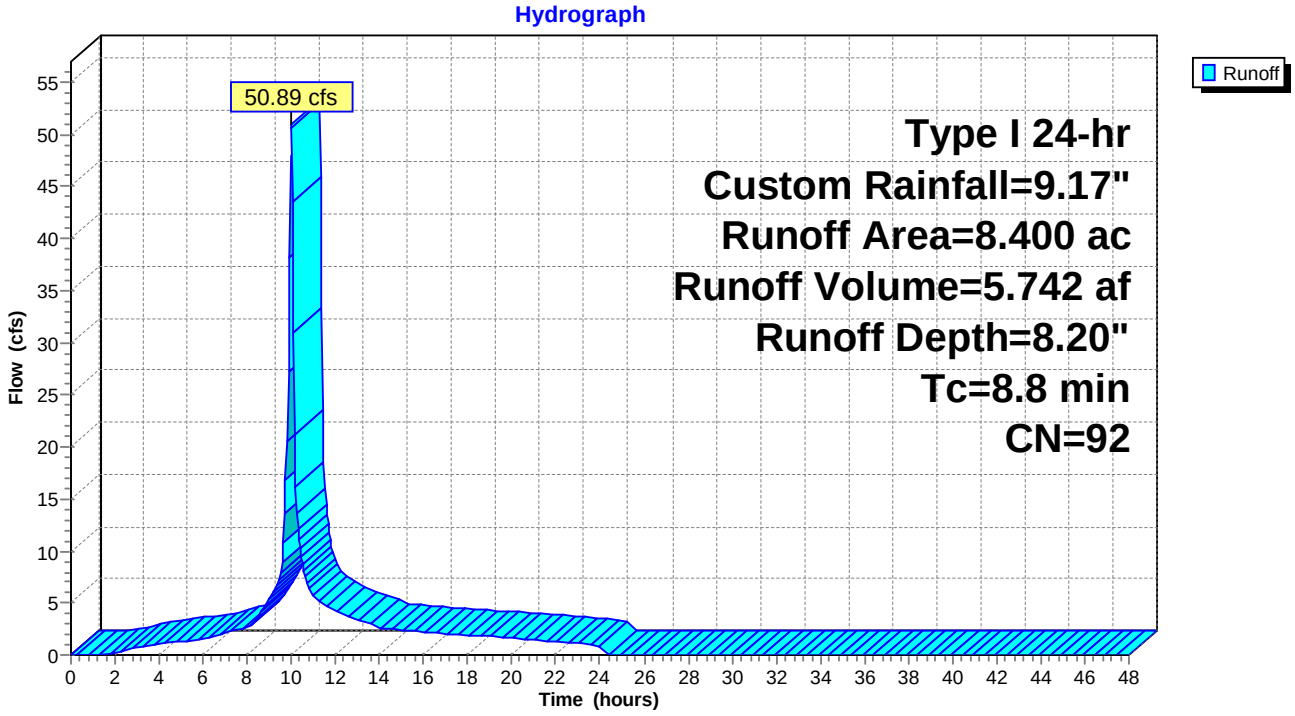
Runoff = 50.89 cfs @ 9.99 hrs, Volume= 5.742 af, Depth= 8.20"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	8.400	92	
	8.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8					**Direct Entry,**

Subcatchment 7S: BASIN P7



Summary for Subcatchment 8S: BASIN P8

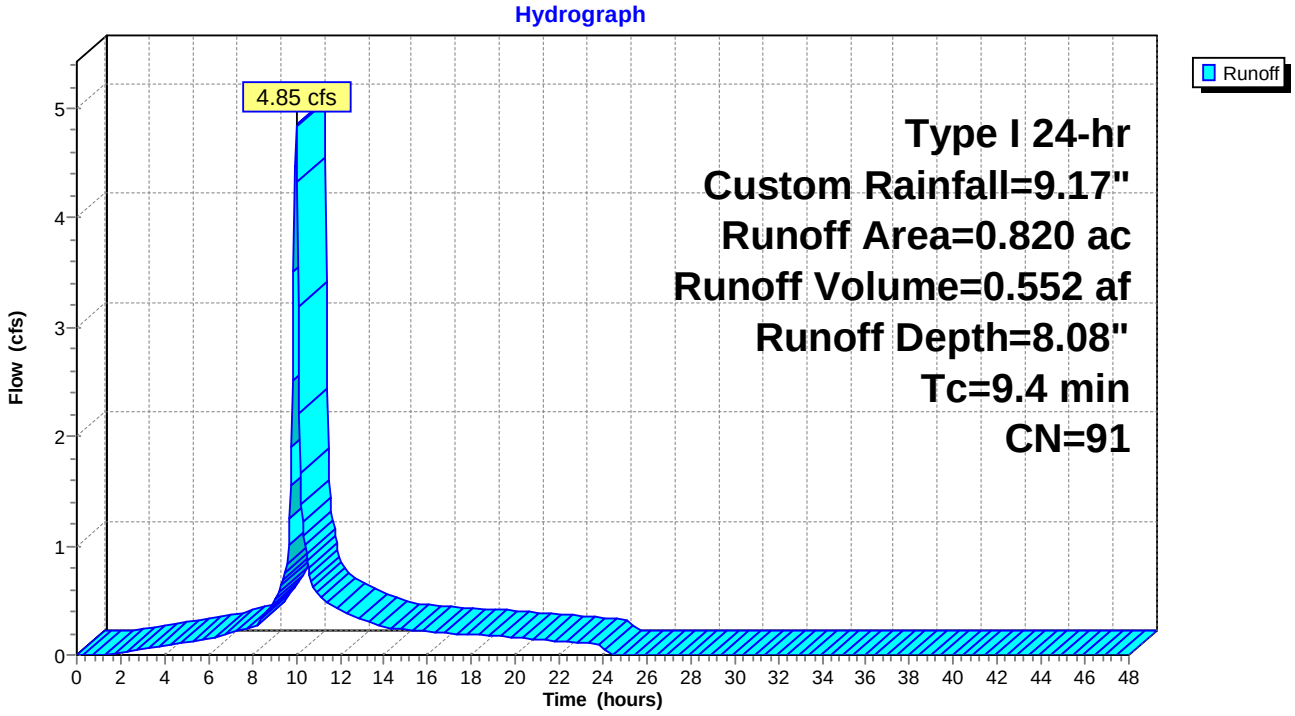
Runoff = 4.85 cfs @ 10.00 hrs, Volume= 0.552 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.820	91	
	0.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4					**Direct Entry,**

Subcatchment 8S: BASIN P8



Summary for Subcatchment 9S: BASIN P9

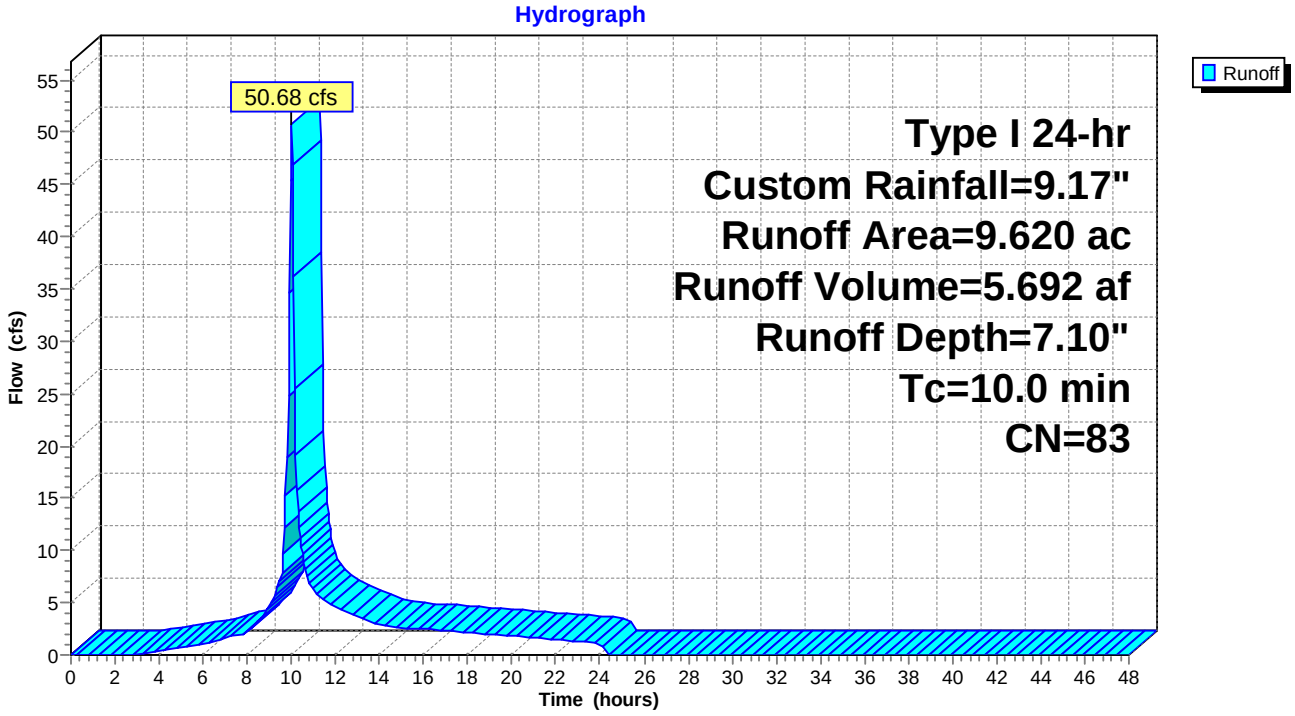
Runoff = 50.68 cfs @ 10.00 hrs, Volume= 5.692 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	9.620	83	
	9.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 9S: BASIN P9



Summary for Subcatchment 10S: BASIN P10

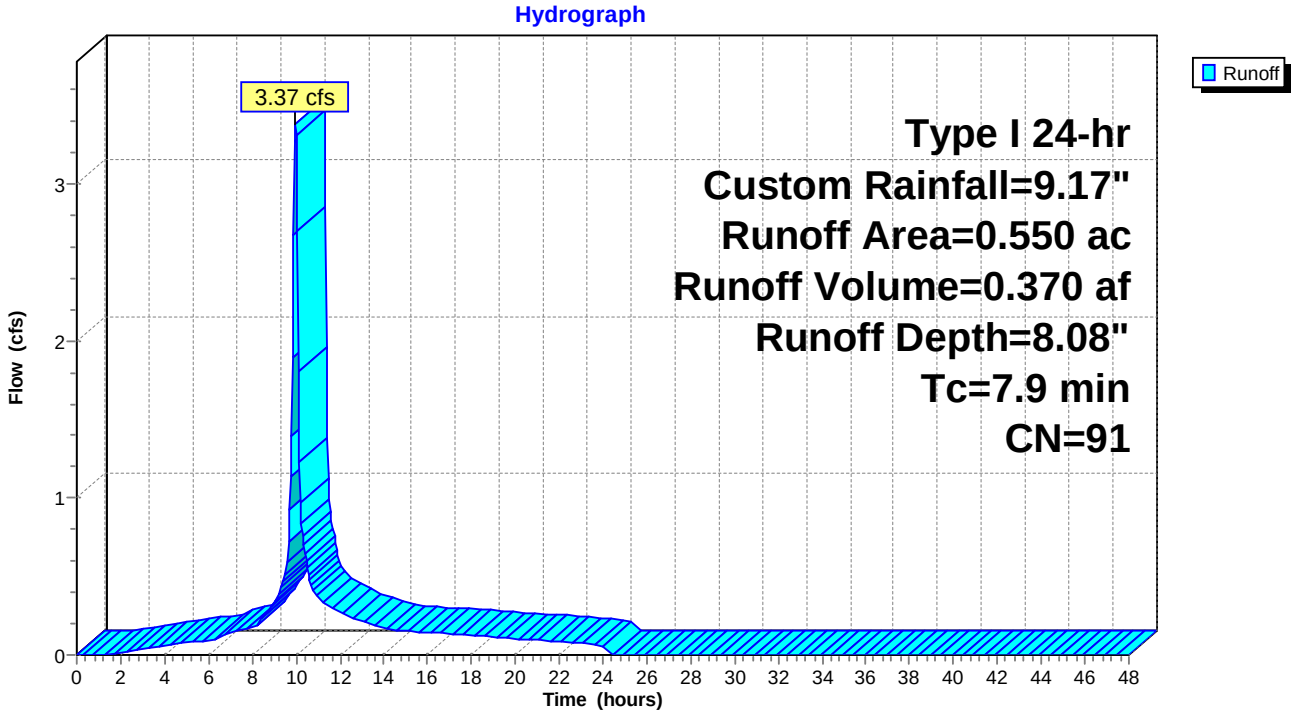
Runoff = 3.37 cfs @ 9.98 hrs, Volume= 0.370 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.550	91	
	0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9					**Direct Entry,**

Subcatchment 10S: BASIN P10



Summary for Subcatchment 13S: BASIN P11

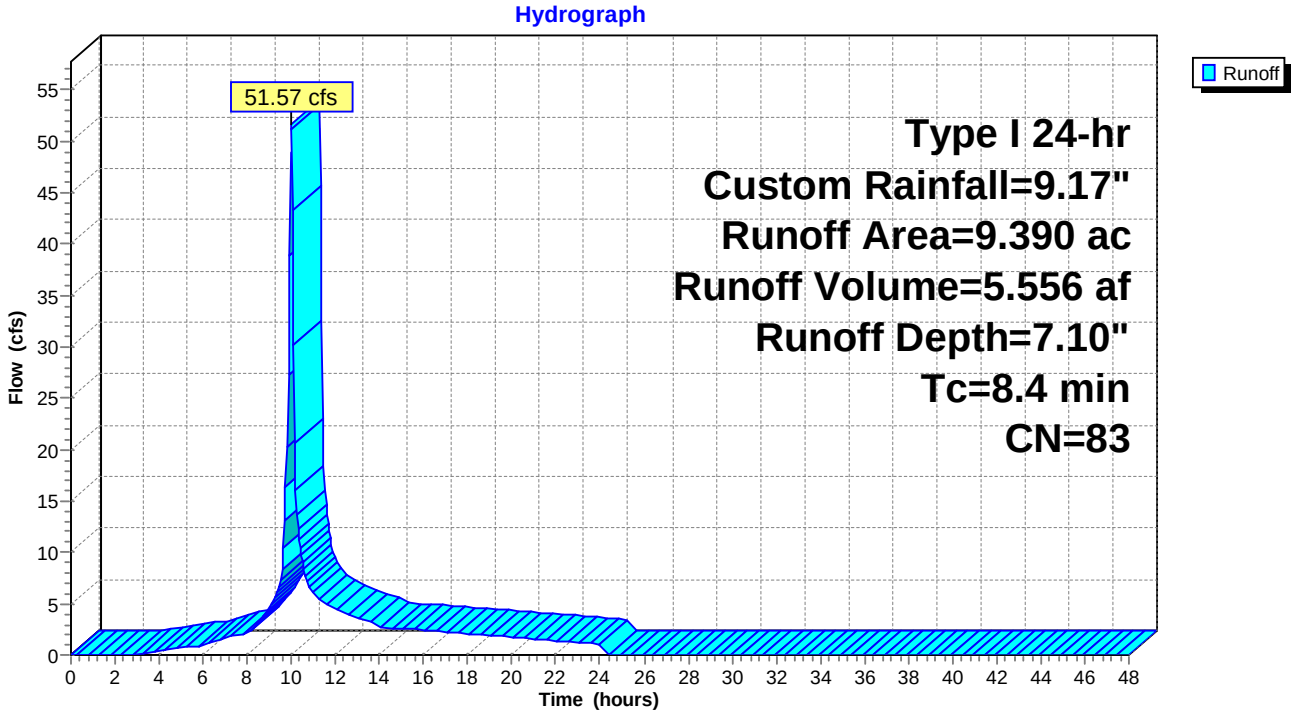
Runoff = 51.57 cfs @ 9.99 hrs, Volume= 5.556 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	9.390	83	
	9.390		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment 13S: BASIN P11



Summary for Subcatchment 14S: BASIN P12

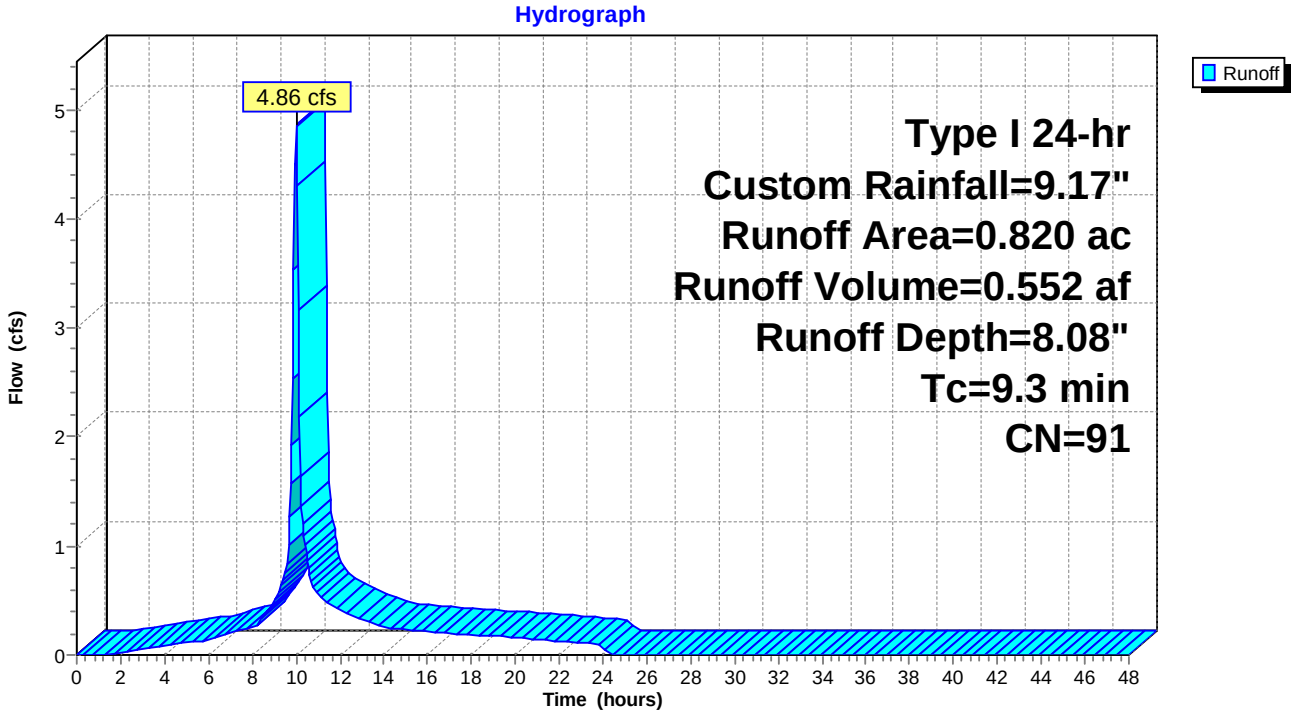
Runoff = 4.86 cfs @ 9.99 hrs, Volume= 0.552 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.820	91	
	0.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3					**Direct Entry,**

Subcatchment 14S: BASIN P12



Summary for Subcatchment 15S: BASIN P13

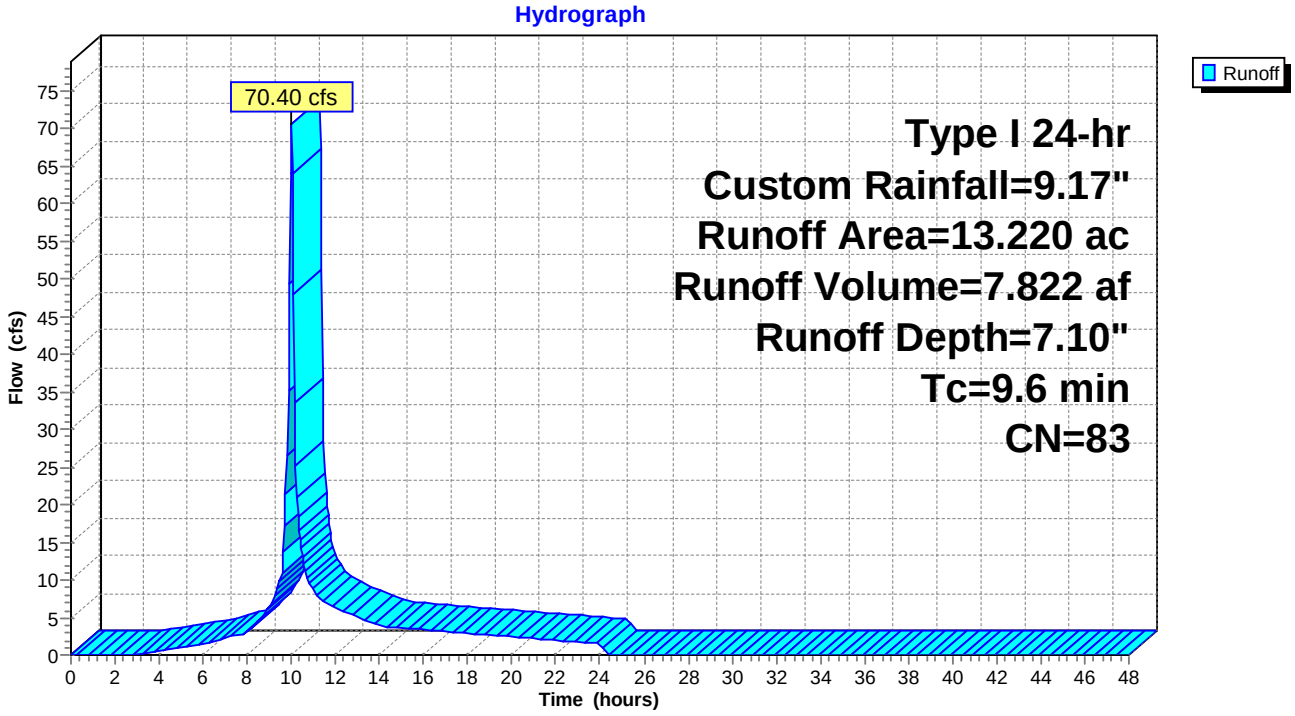
Runoff = 70.40 cfs @ 10.00 hrs, Volume= 7.822 af, Depth= 7.10"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	13.220	83	
	13.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6					**Direct Entry,**

Subcatchment 15S: BASIN P13



Summary for Subcatchment 16S: BASIN P14

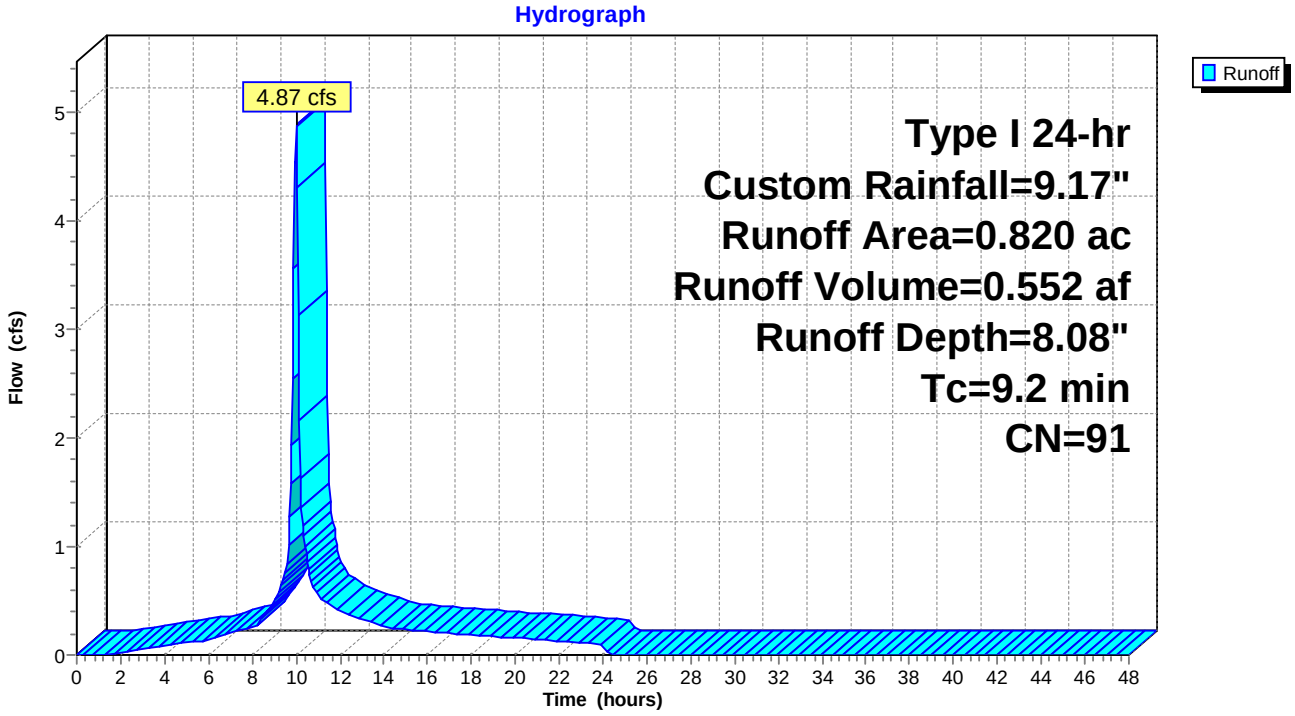
Runoff = 4.87 cfs @ 9.99 hrs, Volume= 0.552 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.820	91	
	0.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2					**Direct Entry,**

Subcatchment 16S: BASIN P14



Summary for Subcatchment 17S: BASIN P15

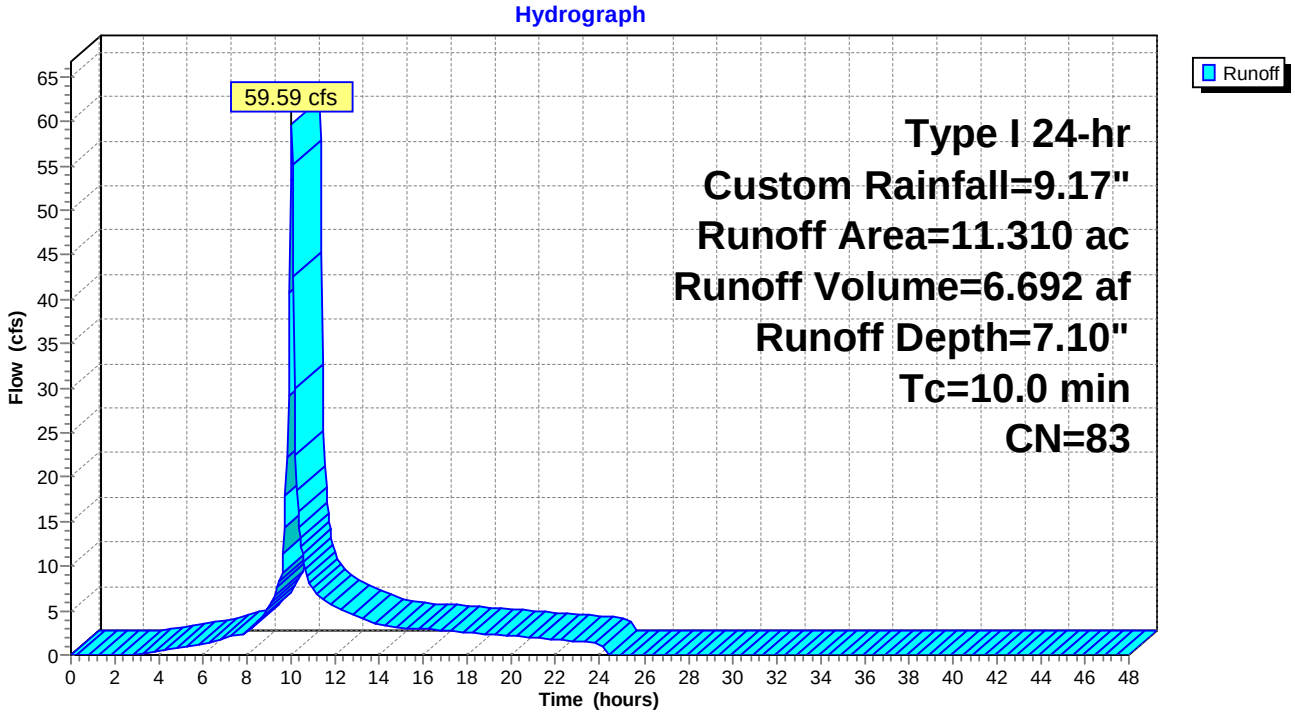
Runoff = 59.59 cfs @ 10.00 hrs, Volume= 6.692 af, Depth= 7.10"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	11.310	83	
	11.310		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 17S: BASIN P15



Summary for Subcatchment 18S: BASIN P16

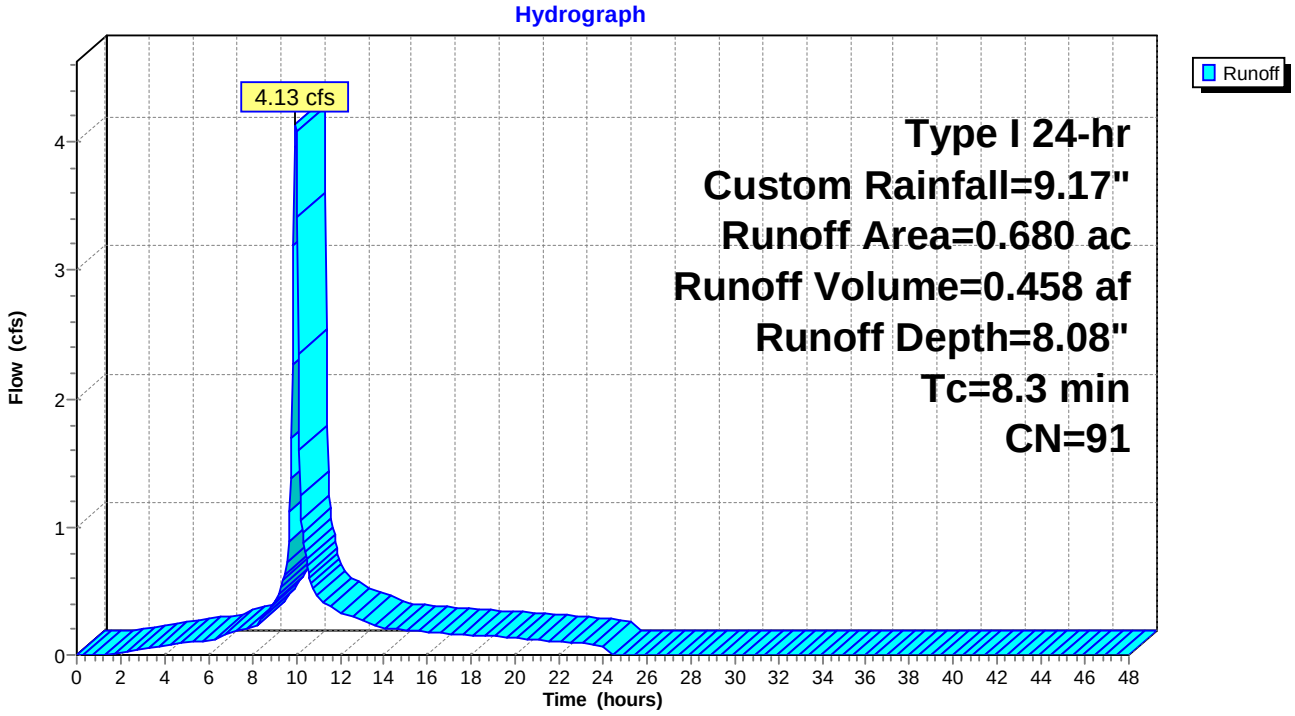
Runoff = 4.13 cfs @ 9.98 hrs, Volume= 0.458 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.680	91	
	0.680		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3					**Direct Entry,**

Subcatchment 18S: BASIN P16



Summary for Subcatchment 19S: BASIN P17

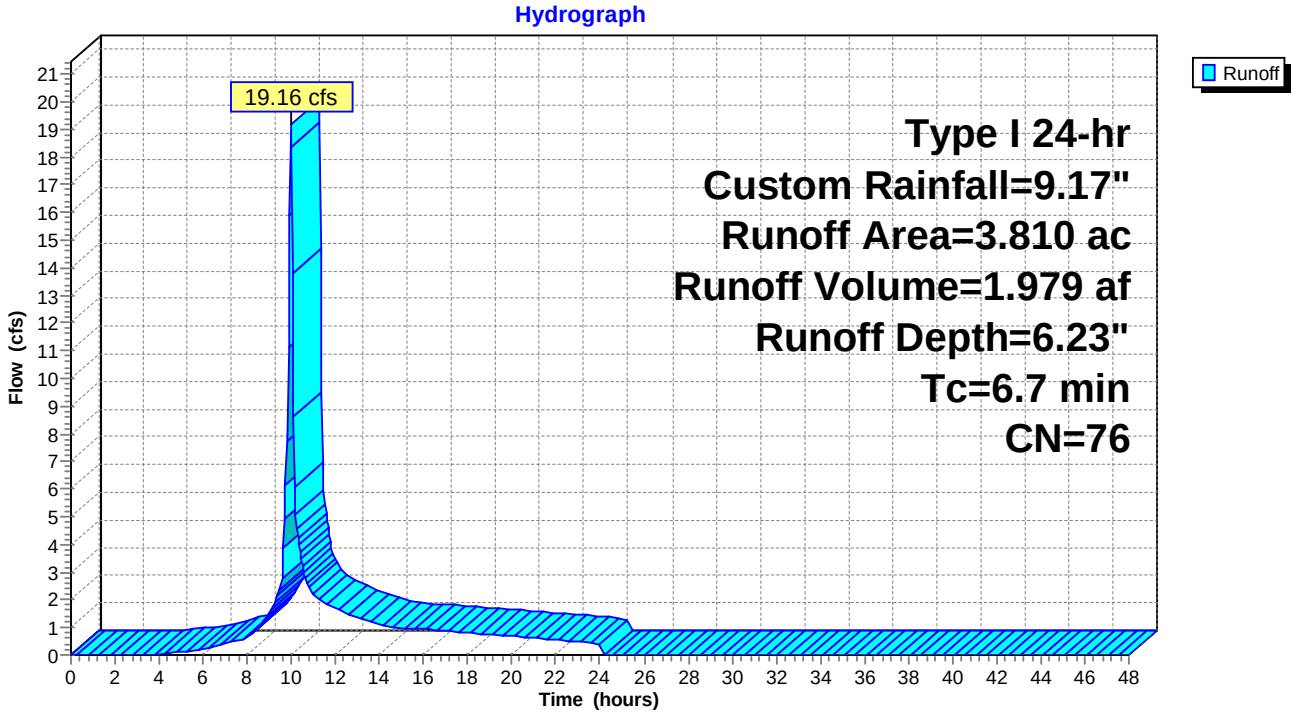
Runoff = 19.16 cfs @ 9.97 hrs, Volume= 1.979 af, Depth= 6.23"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	3.810	76	
	3.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7					**Direct Entry,**

Subcatchment 19S: BASIN P17



Summary for Subcatchment 20S: BASIN P18

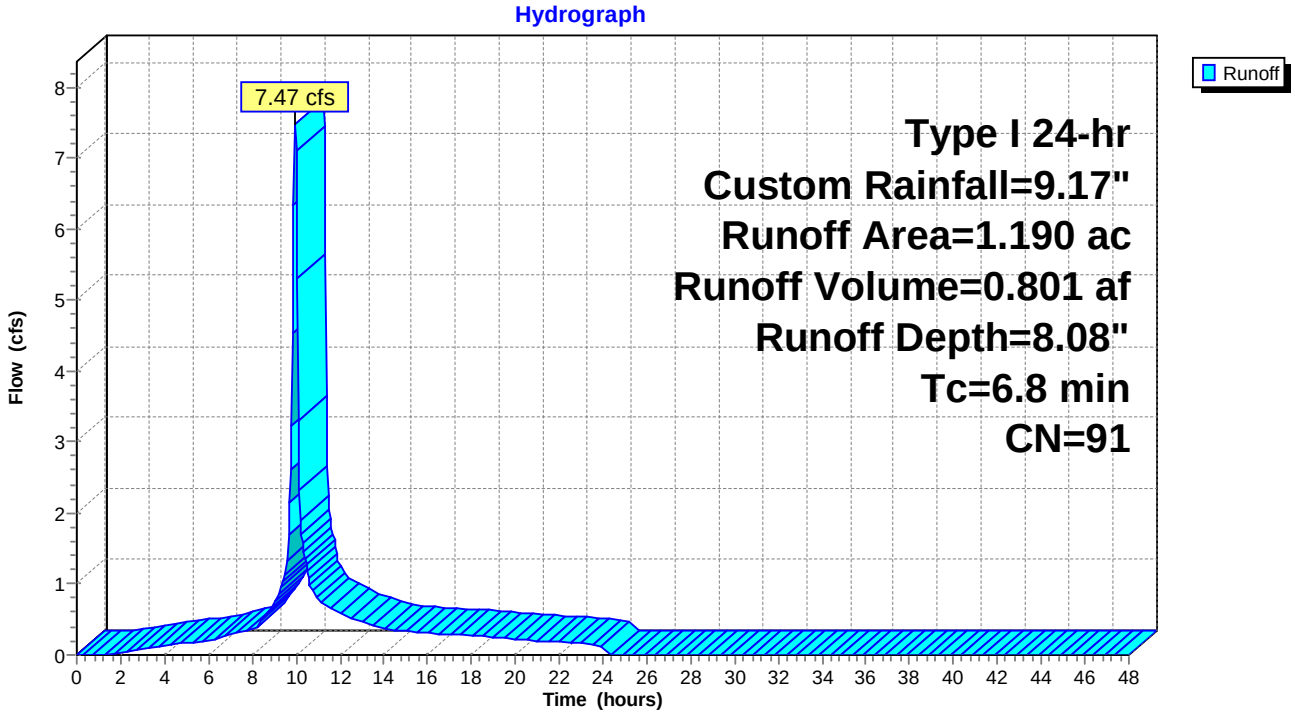
Runoff = 7.47 cfs @ 9.96 hrs, Volume= 0.801 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	1.190	91	
	1.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8					**Direct Entry,**

Subcatchment 20S: BASIN P18



Summary for Subcatchment 21S: BASIN P19

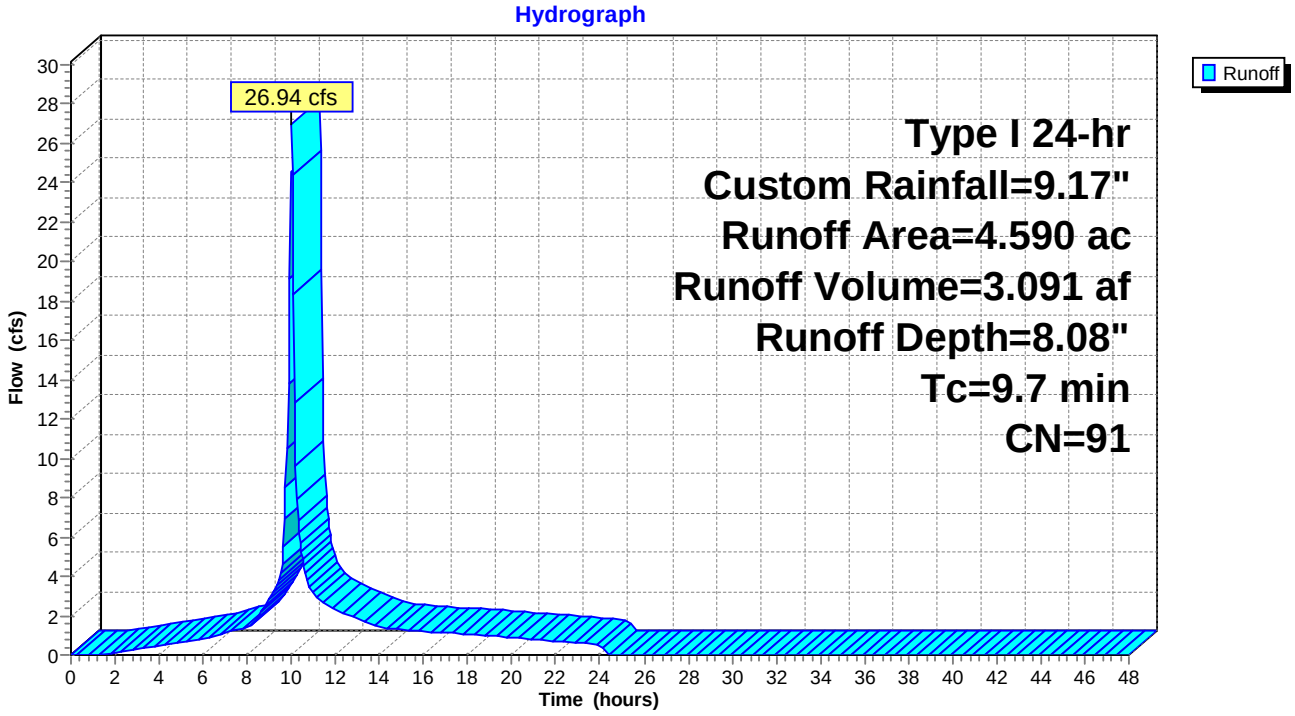
Runoff = 26.94 cfs @ 10.00 hrs, Volume= 3.091 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	4.590	91	
	4.590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7					**Direct Entry,**

Subcatchment 21S: BASIN P19



Summary for Subcatchment 22S: BASIN P20

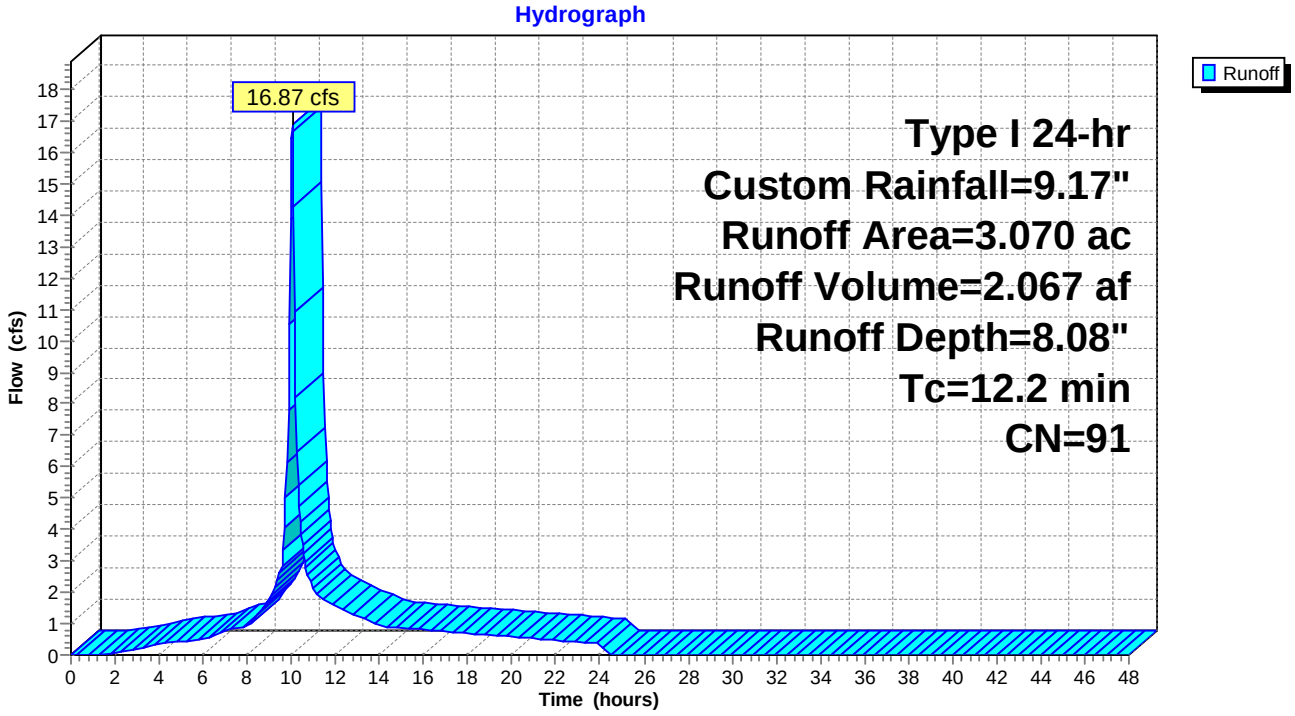
Runoff = 16.87 cfs @ 10.03 hrs, Volume= 2.067 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	3.070	91	
	3.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry,**

Subcatchment 22S: BASIN P20



Summary for Subcatchment 23S: BASIN P21

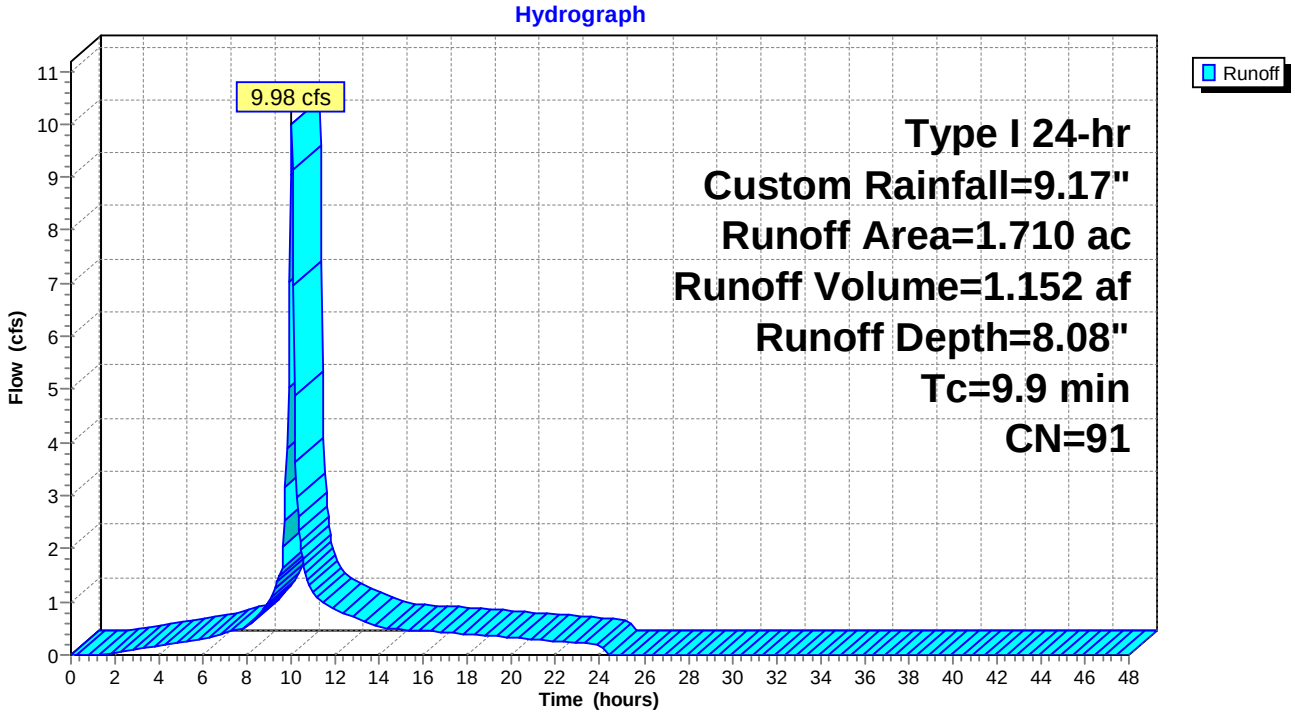
Runoff = 9.98 cfs @ 10.00 hrs, Volume= 1.152 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	1.710	91	
	1.710		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9					**Direct Entry,**

Subcatchment 23S: BASIN P21



Summary for Subcatchment 24S: BASIN P22

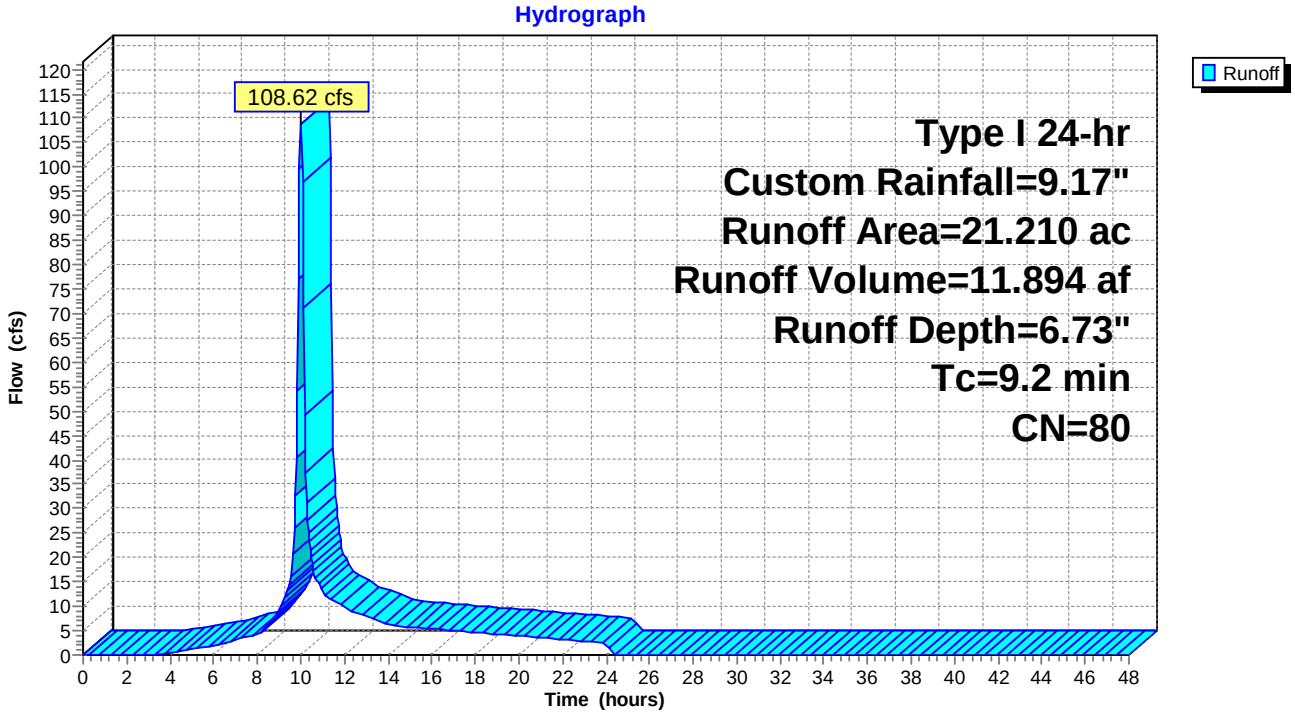
Runoff = 108.62 cfs @ 10.00 hrs, Volume= 11.894 af, Depth= 6.73"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	21.210	80	
	21.210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2					**Direct Entry,**

Subcatchment 24S: BASIN P22



Summary for Subcatchment 25S: BASIN P23

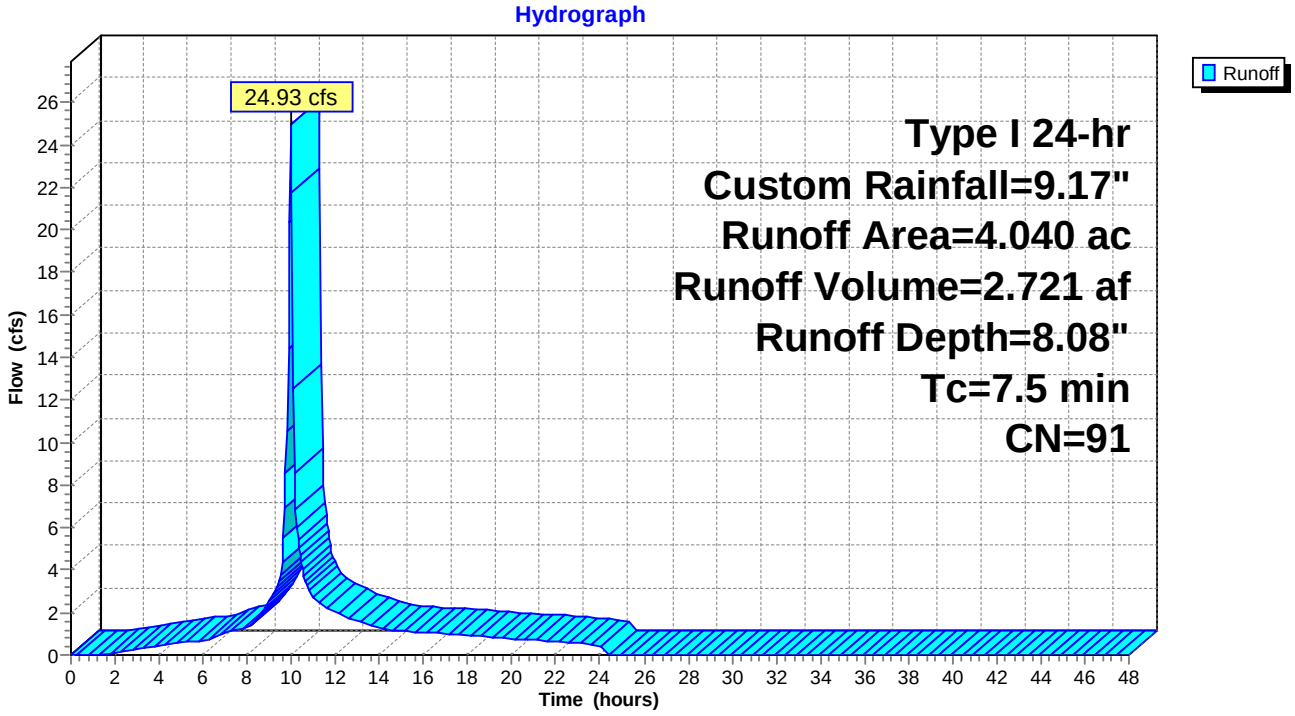
Runoff = 24.93 cfs @ 9.97 hrs, Volume= 2.721 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	4.040	91	
	4.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5					**Direct Entry,**

Subcatchment 25S: BASIN P23



Summary for Subcatchment 26S: BASIN P24

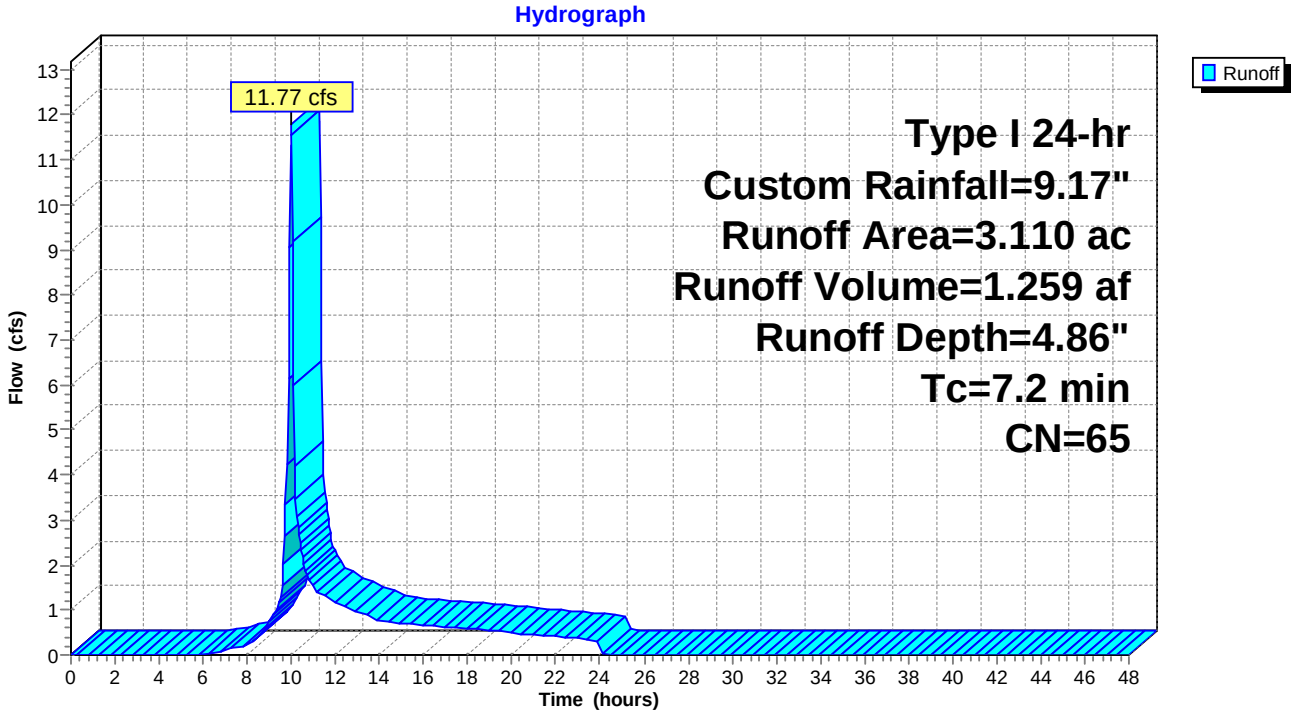
Runoff = 11.77 cfs @ 9.98 hrs, Volume= 1.259 af, Depth= 4.86"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	3.110	65	
	3.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2					**Direct Entry,**

Subcatchment 26S: BASIN P24



Summary for Subcatchment 27S: BASIN P25

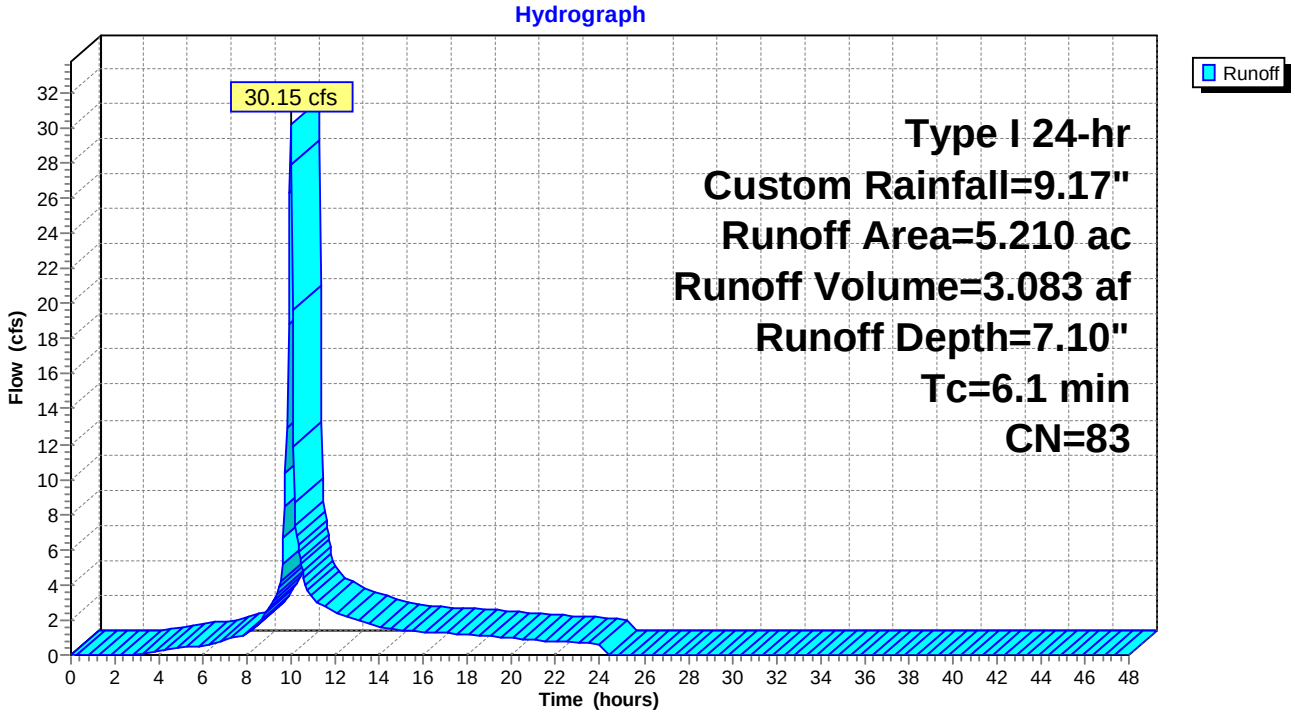
Runoff = 30.15 cfs @ 9.96 hrs, Volume= 3.083 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	5.210	83	
	5.210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					**Direct Entry,**

Subcatchment 27S: BASIN P25



Summary for Subcatchment 28S: BASIN P26

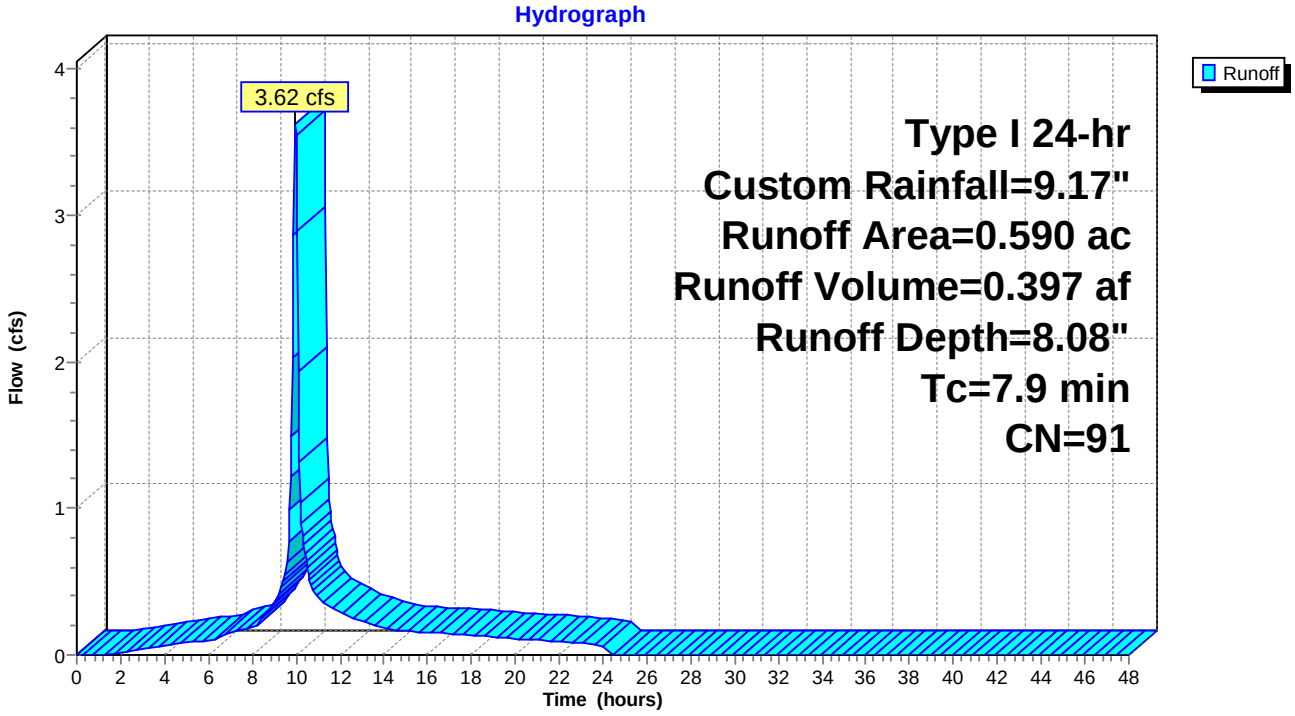
Runoff = 3.62 cfs @ 9.98 hrs, Volume= 0.397 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.590	91	
	0.590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9					**Direct Entry,**

Subcatchment 28S: BASIN P26



Summary for Subcatchment 29S: BASIN P27

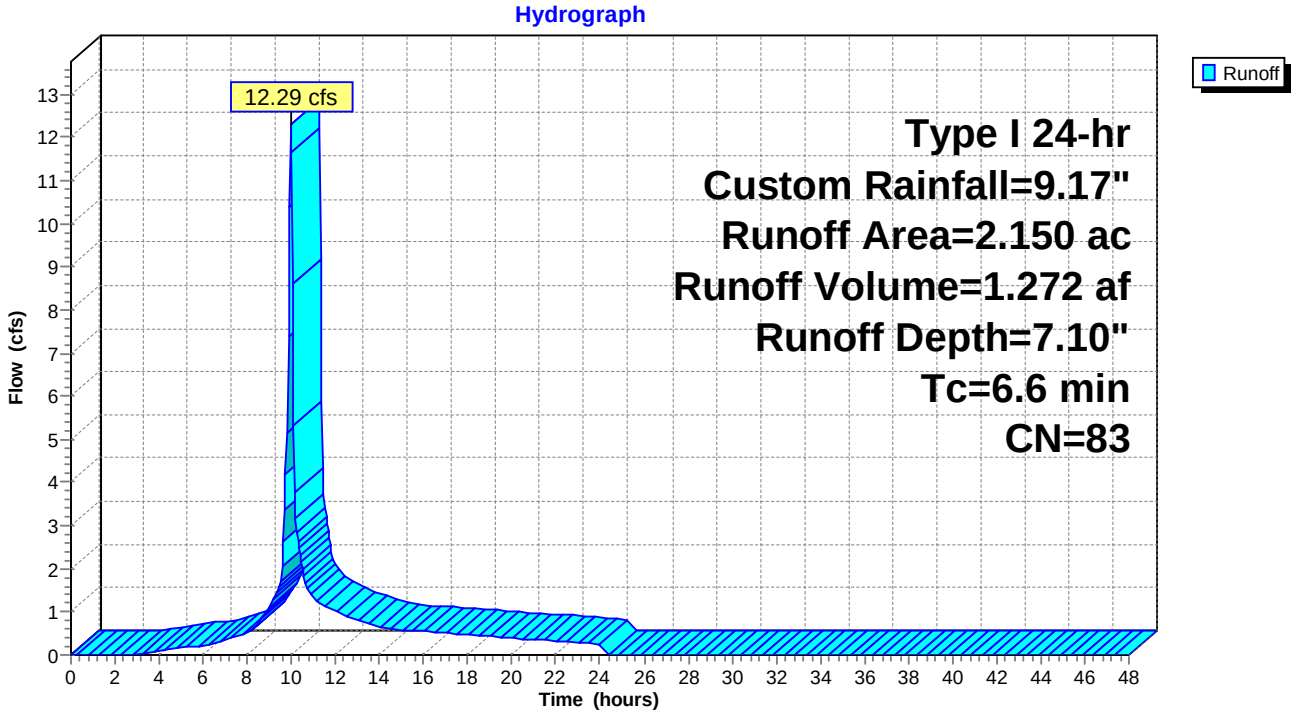
Runoff = 12.29 cfs @ 9.96 hrs, Volume= 1.272 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	2.150	83	
	2.150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6					**Direct Entry,**

Subcatchment 29S: BASIN P27



Summary for Subcatchment 30S: BASIN P28

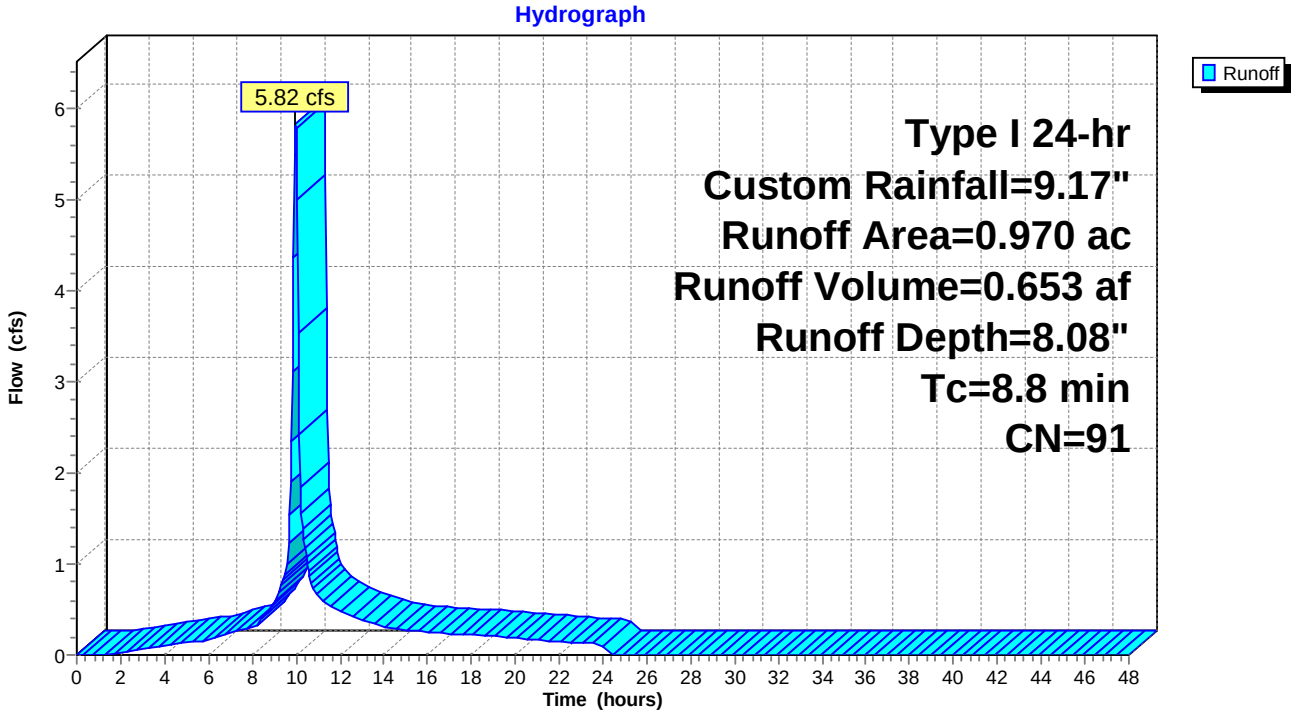
Runoff = 5.82 cfs @ 9.99 hrs, Volume= 0.653 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.970	91	
	0.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8					**Direct Entry,**

Subcatchment 30S: BASIN P28



Summary for Subcatchment 31S: BASIN P29

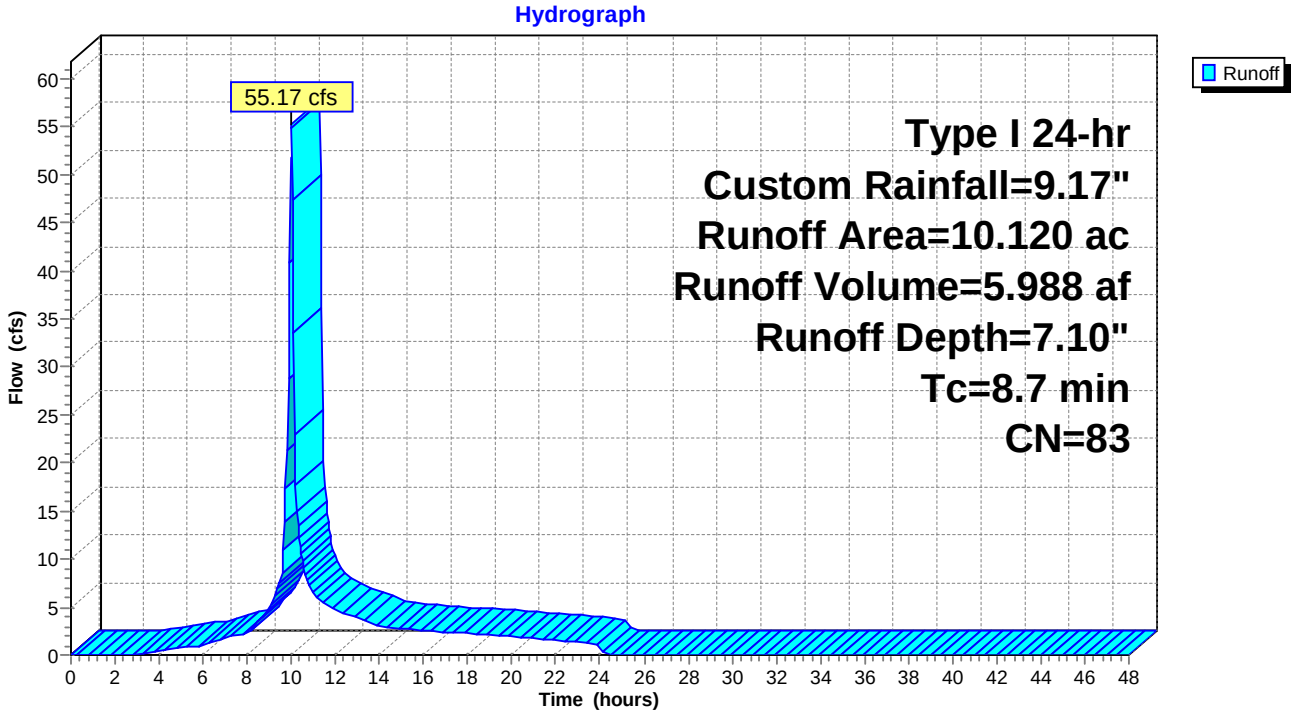
Runoff = 55.17 cfs @ 9.99 hrs, Volume= 5.988 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	10.120	83	
	10.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7					**Direct Entry,**

Subcatchment 31S: BASIN P29



Summary for Subcatchment 32S: BASIN P30

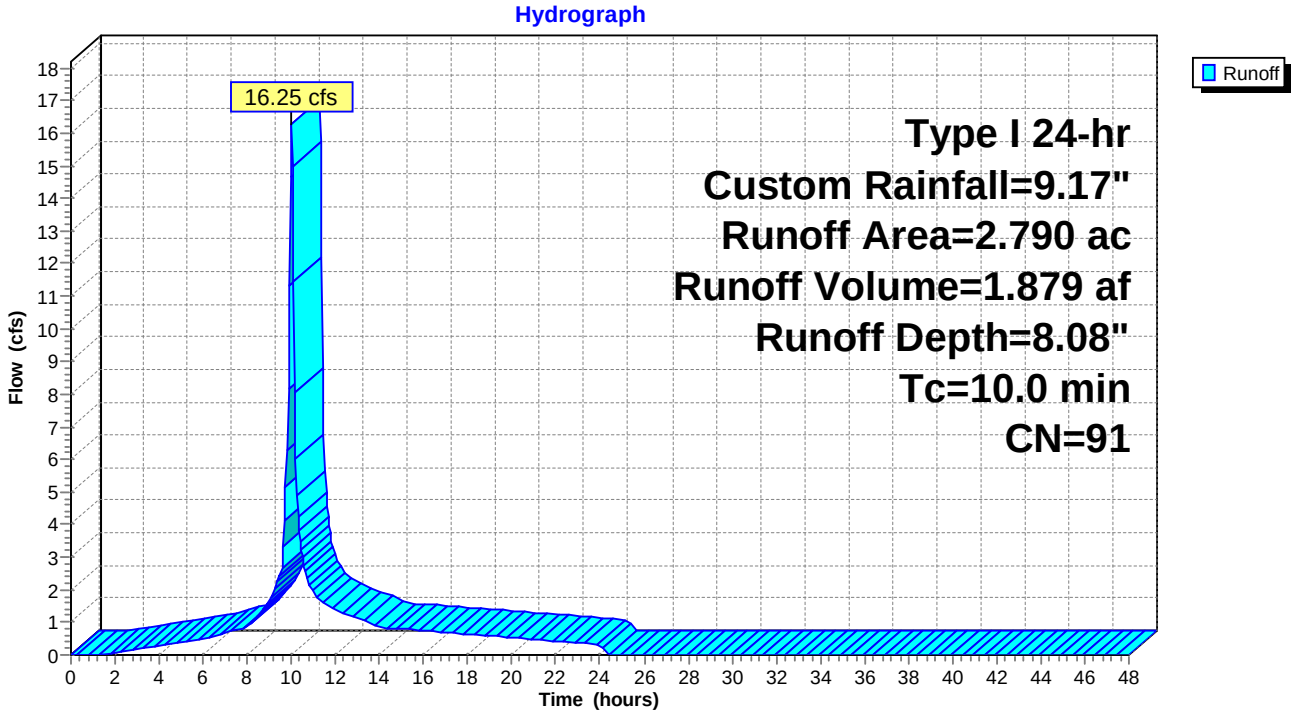
Runoff = 16.25 cfs @ 10.00 hrs, Volume= 1.879 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	2.790	91	
	2.790		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 32S: BASIN P30



Summary for Subcatchment 33S: BASIN P31

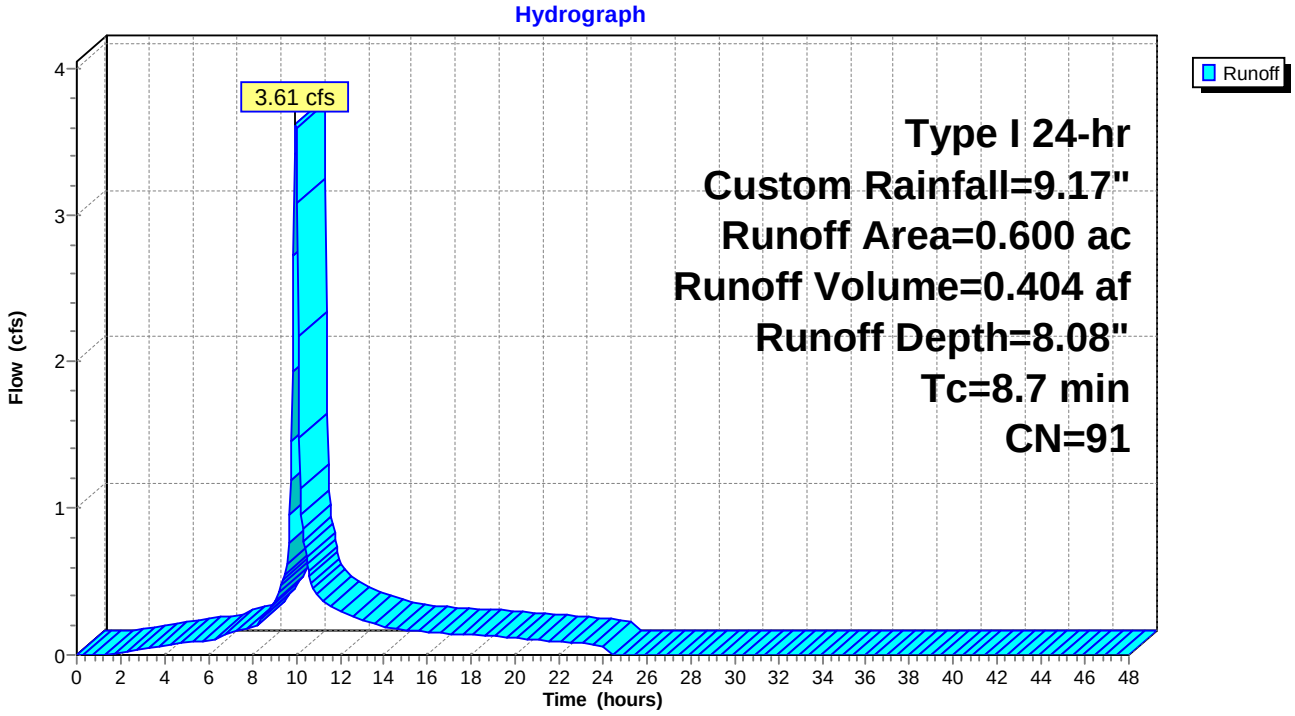
Runoff = 3.61 cfs @ 9.99 hrs, Volume= 0.404 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.600	91	
	0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7					**Direct Entry,**

Subcatchment 33S: BASIN P31



Summary for Subcatchment 34S: BASIN P32

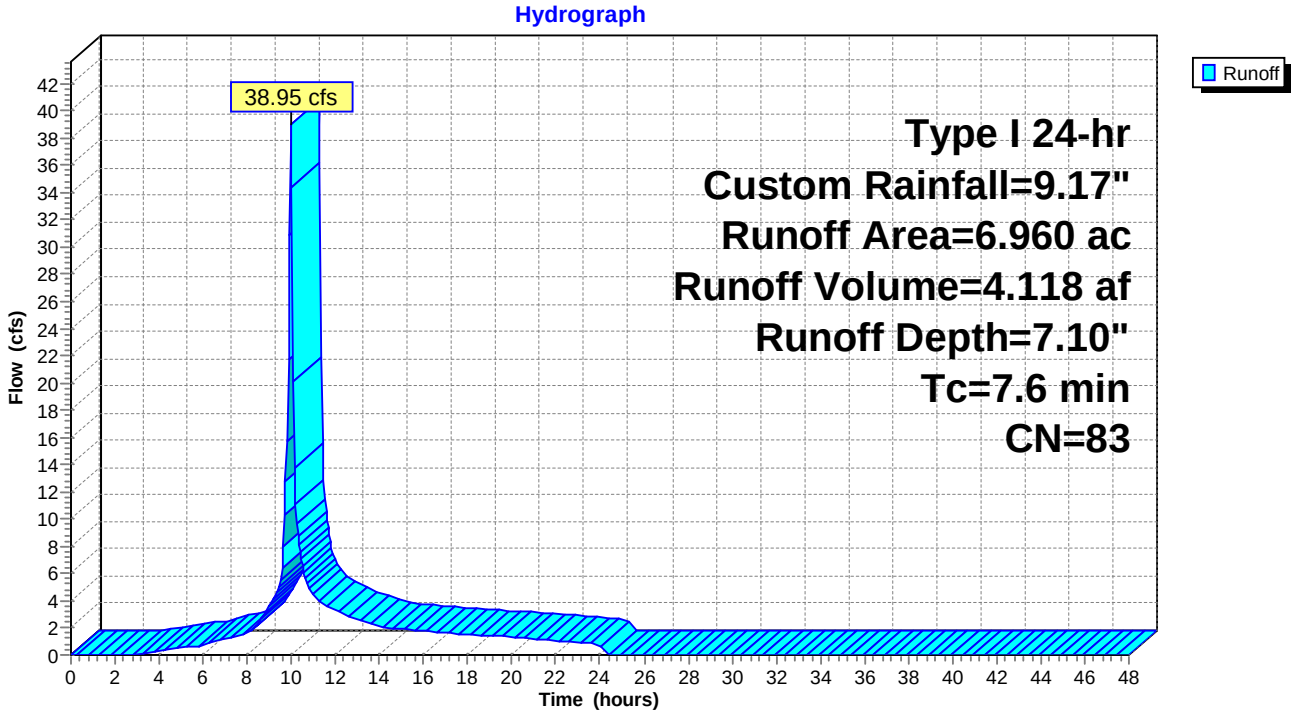
Runoff = 38.95 cfs @ 9.98 hrs, Volume= 4.118 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.960	83	
	6.960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6					**Direct Entry,**

Subcatchment 34S: BASIN P32



Summary for Subcatchment 35S: BASIN P33

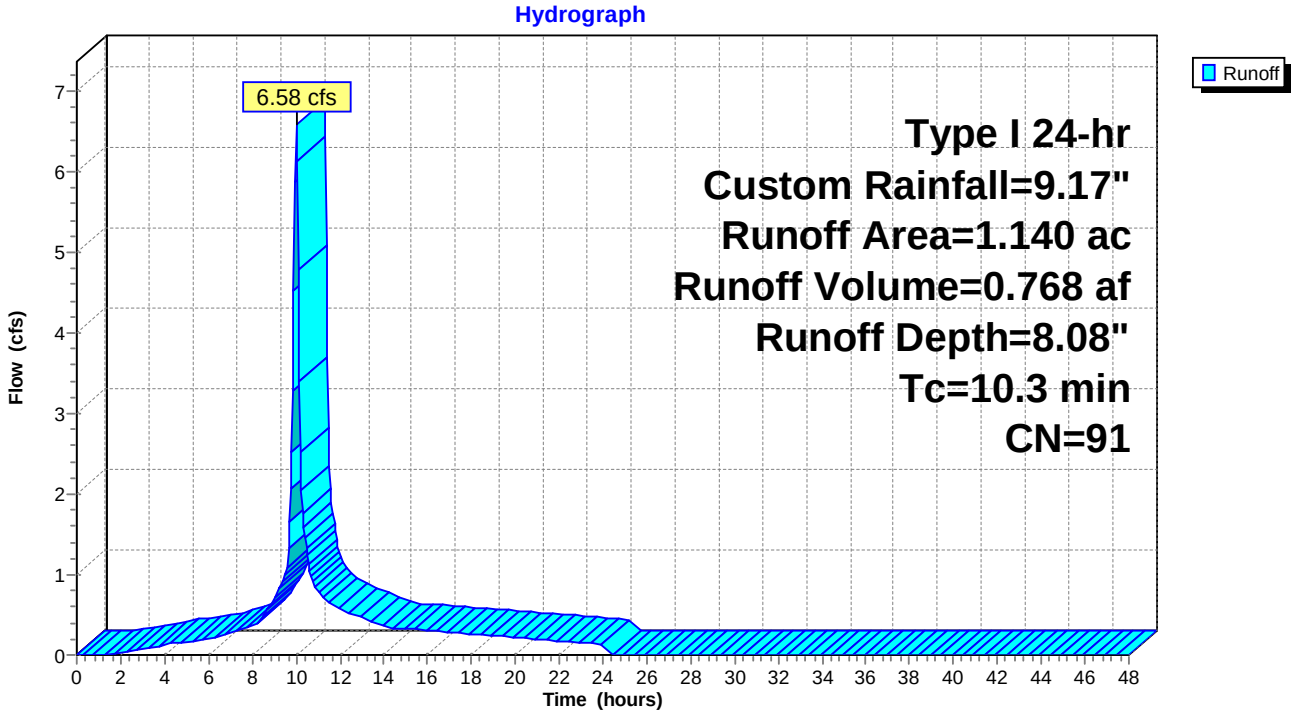
Runoff = 6.58 cfs @ 10.01 hrs, Volume= 0.768 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	1.140	91	
	1.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Subcatchment 35S: BASIN P33



Summary for Subcatchment 36S: BASIN P34

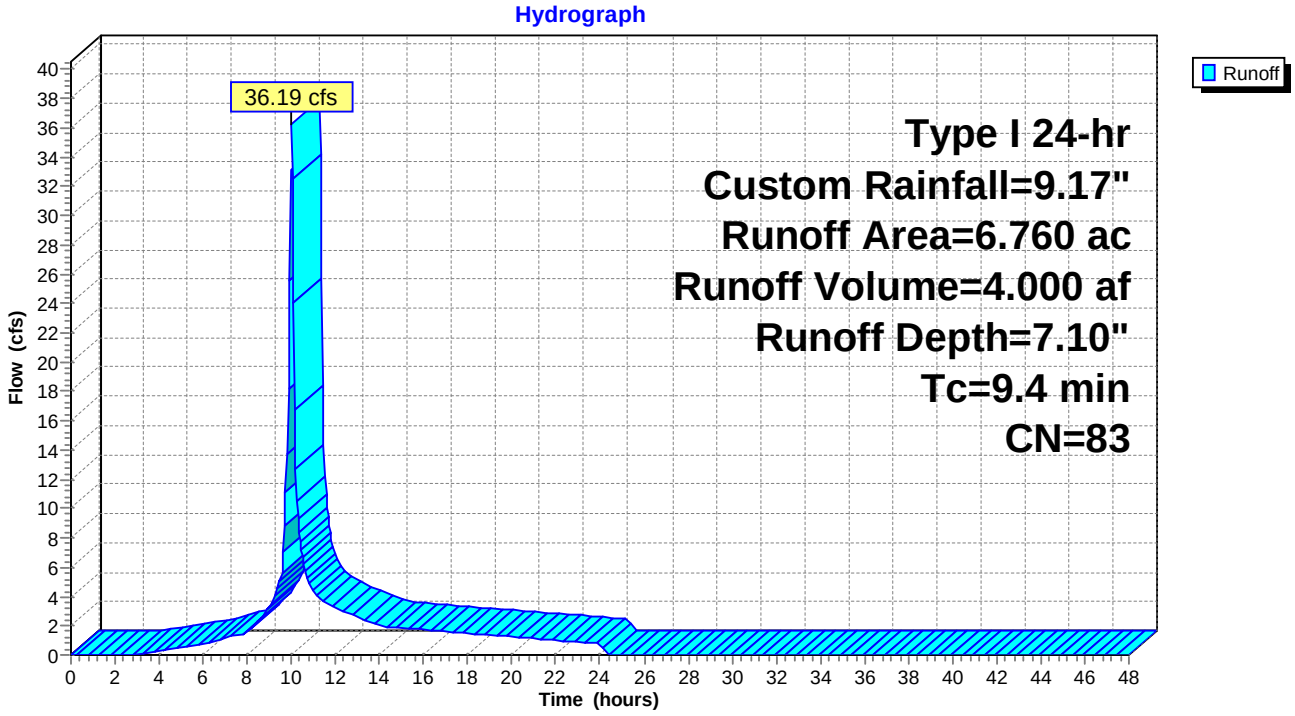
Runoff = 36.19 cfs @ 10.00 hrs, Volume= 4.000 af, Depth= 7.10"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.760	83	
	6.760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4					**Direct Entry,**

Subcatchment 36S: BASIN P34



Summary for Subcatchment 37S: BASIN P35

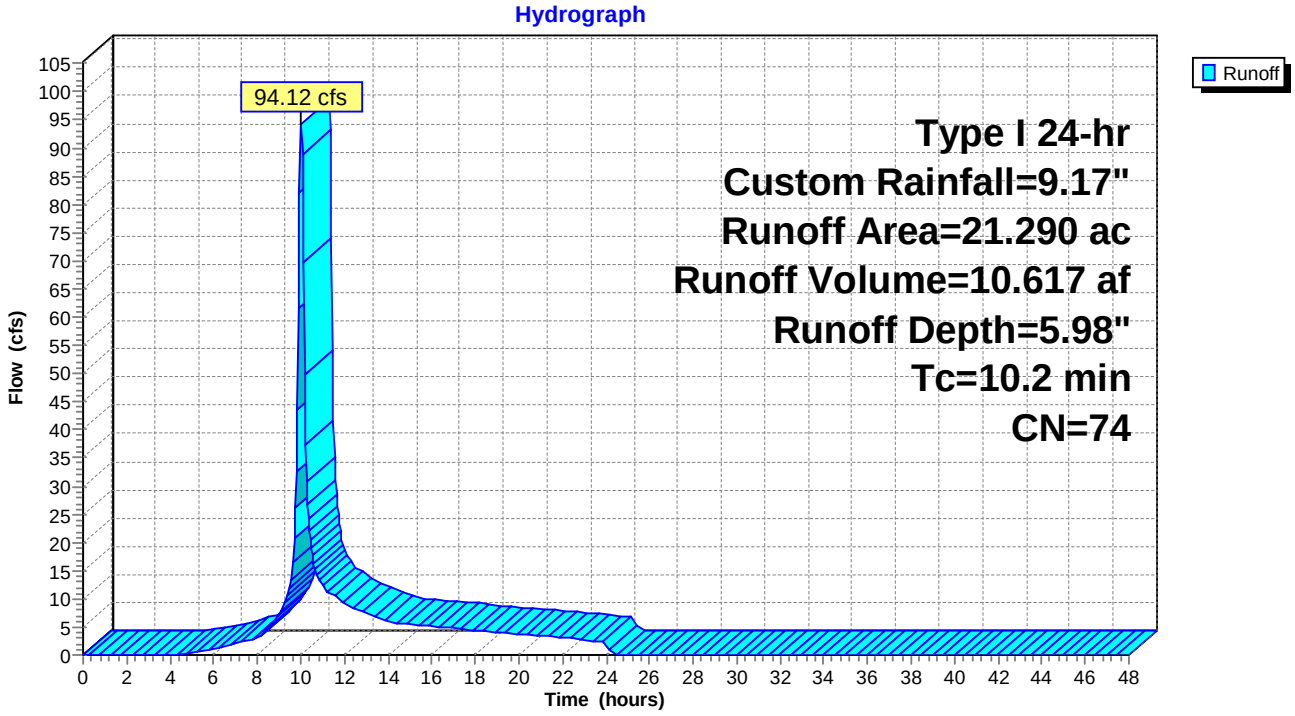
Runoff = 94.12 cfs @ 10.01 hrs, Volume= 10.617 af, Depth= 5.98"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	21.290	74	
	21.290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2					**Direct Entry,**

Subcatchment 37S: BASIN P35



Summary for Subcatchment 38S: BASIN P36

[49] Hint: Tc<2dt may require smaller dt

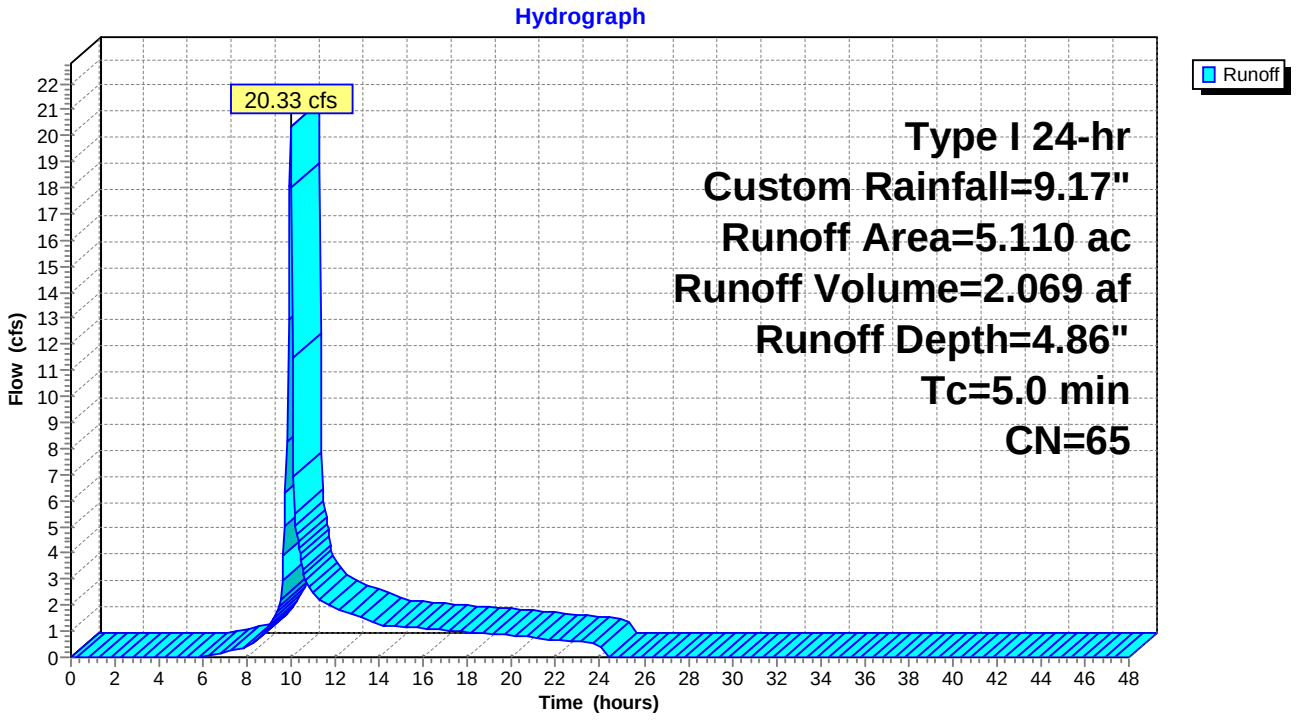
Runoff = 20.33 cfs @ 9.95 hrs, Volume= 2.069 af, Depth= 4.86"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	5.110	65	
	5.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 38S: BASIN P36



Summary for Subcatchment 39S: BASIN P37

[49] Hint: Tc<2dt may require smaller dt

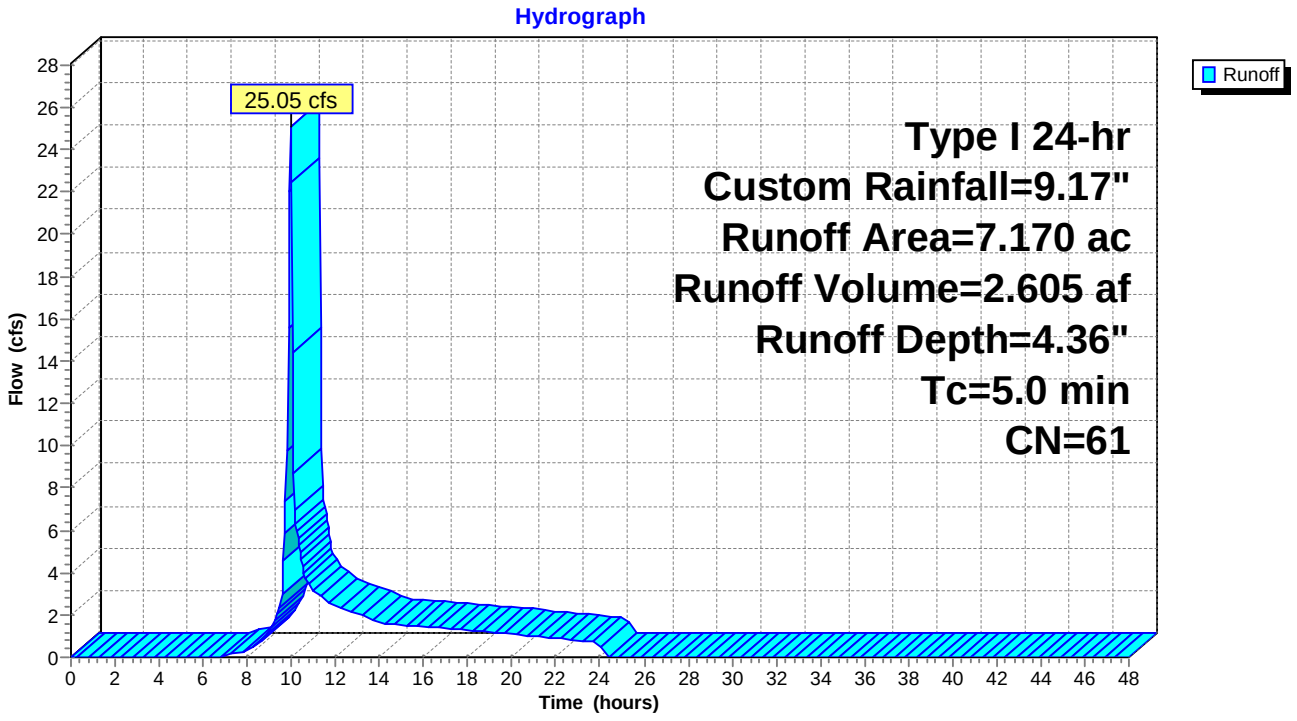
Runoff = 25.05 cfs @ 9.95 hrs, Volume= 2.605 af, Depth= 4.36"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	7.170	61	
	7.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 39S: BASIN P37



Summary for Subcatchment 40S: BASIN O3

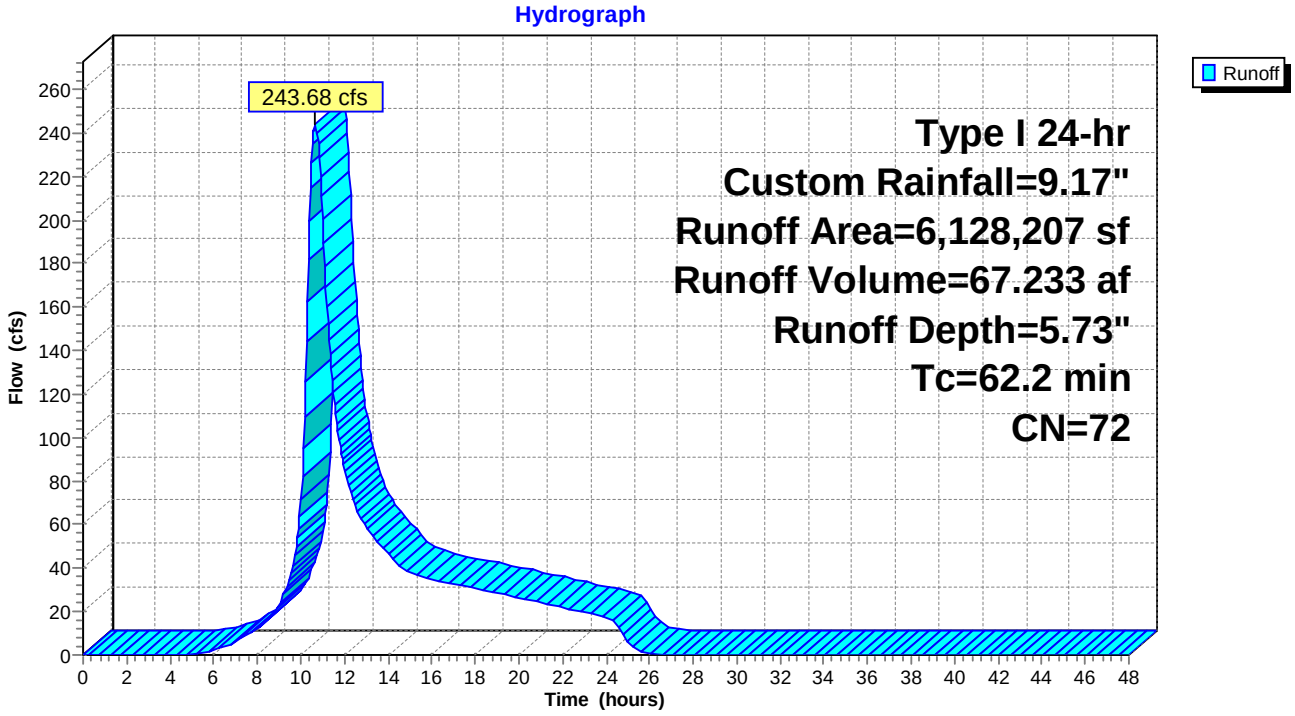
Runoff = 243.68 cfs @ 10.68 hrs, Volume= 67.233 af, Depth= 5.73"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (sf)	CN	Description
*	6,128,207	72	
	6,128,207		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.2					**Direct Entry,**

Subcatchment 40S: BASIN O3



Summary for Subcatchment 41S: BASIN O1A

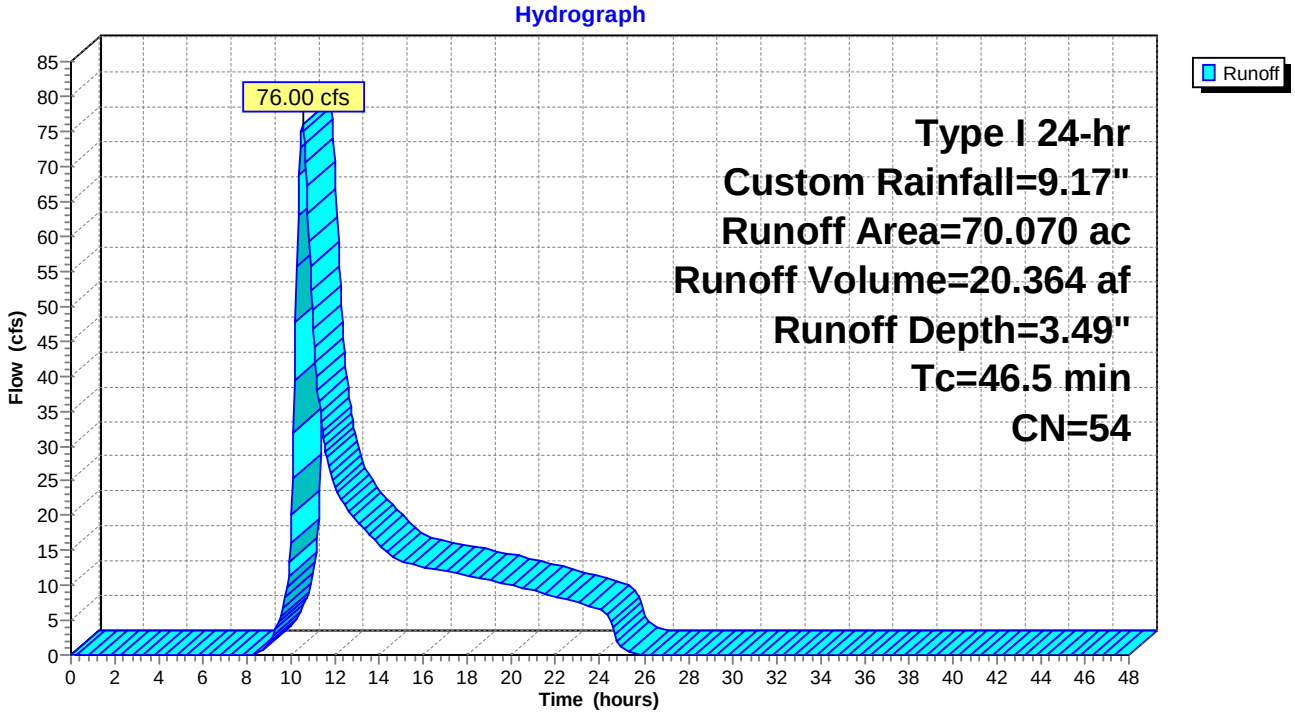
Runoff = 76.00 cfs @ 10.50 hrs, Volume= 20.364 af, Depth= 3.49"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	70.070	54	
	70.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.5					**Direct Entry,**

Subcatchment 41S: BASIN O1A



Summary for Subcatchment 42S: BASIN O2

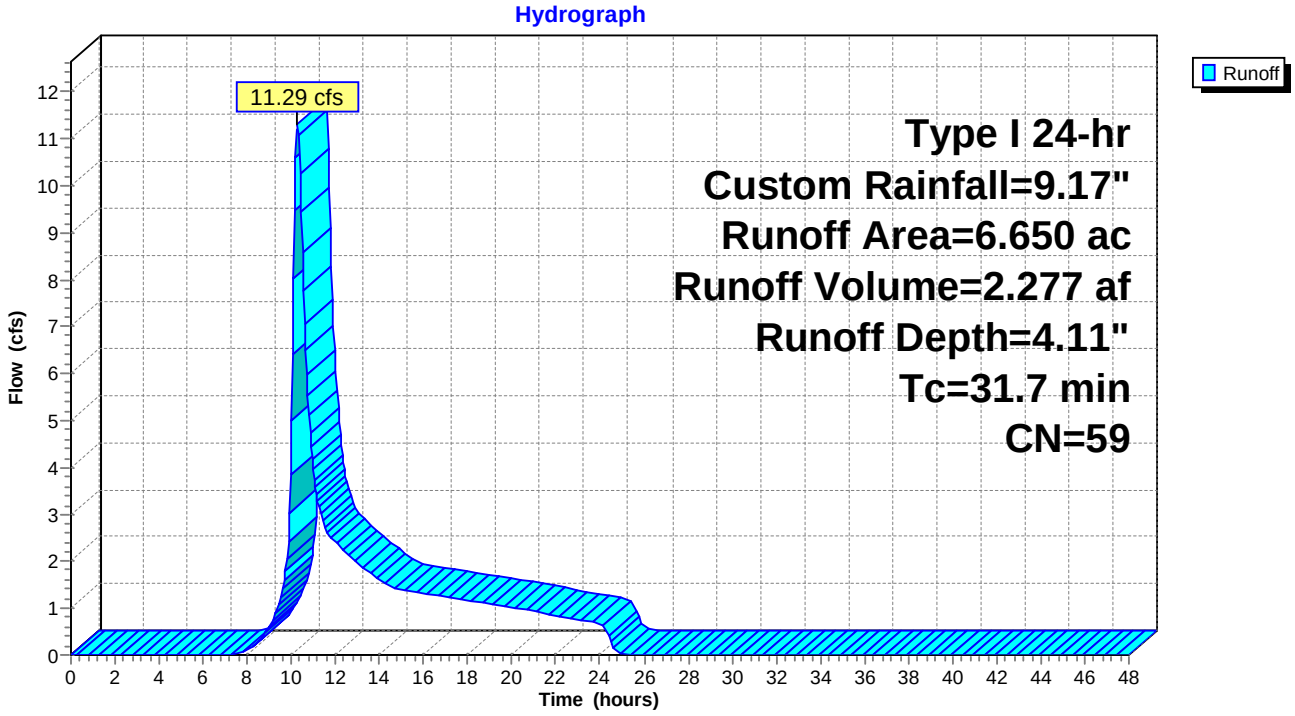
Runoff = 11.29 cfs @ 10.28 hrs, Volume= 2.277 af, Depth= 4.11"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.650	59	
	6.650		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.7					**Direct Entry,**

Subcatchment 42S: BASIN O2



Summary for Subcatchment 43S: BASIN O1B

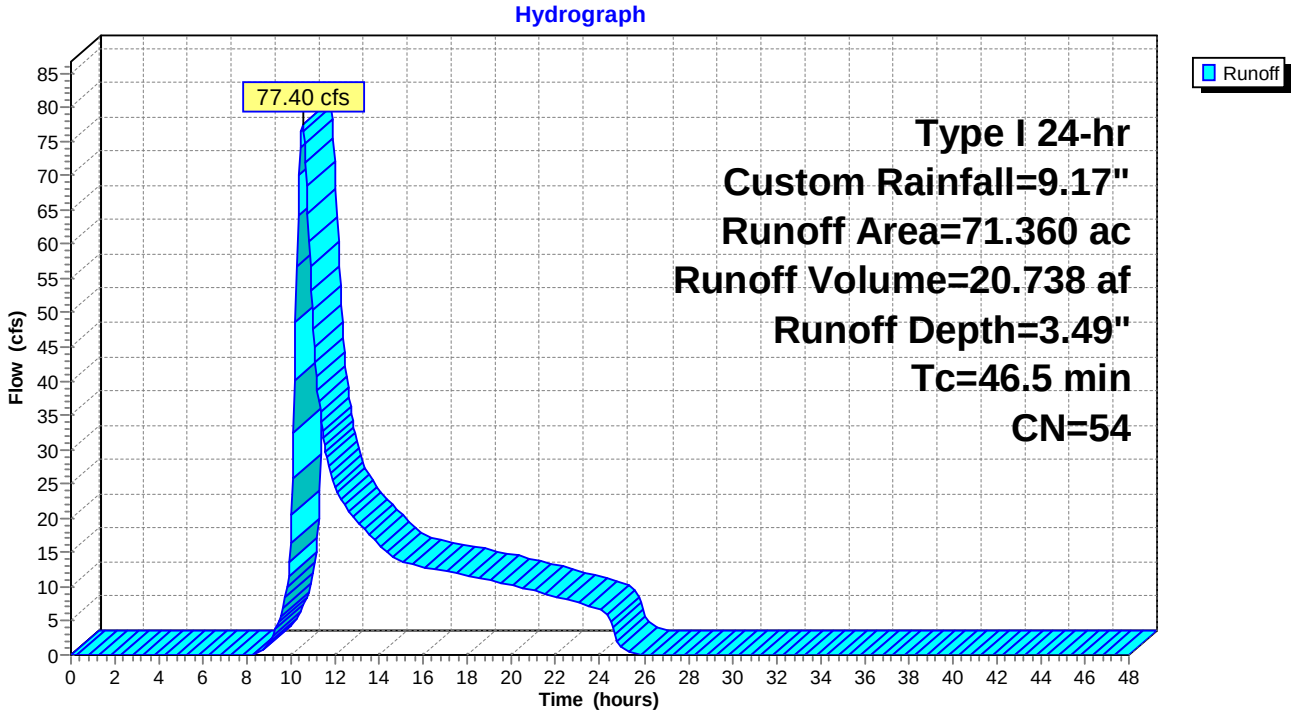
Runoff = 77.40 cfs @ 10.50 hrs, Volume= 20.738 af, Depth= 3.49"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	71.360	54	
	71.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.5					**Direct Entry,**

Subcatchment 43S: BASIN O1B



Summary for Subcatchment 44S: BASIN P1B

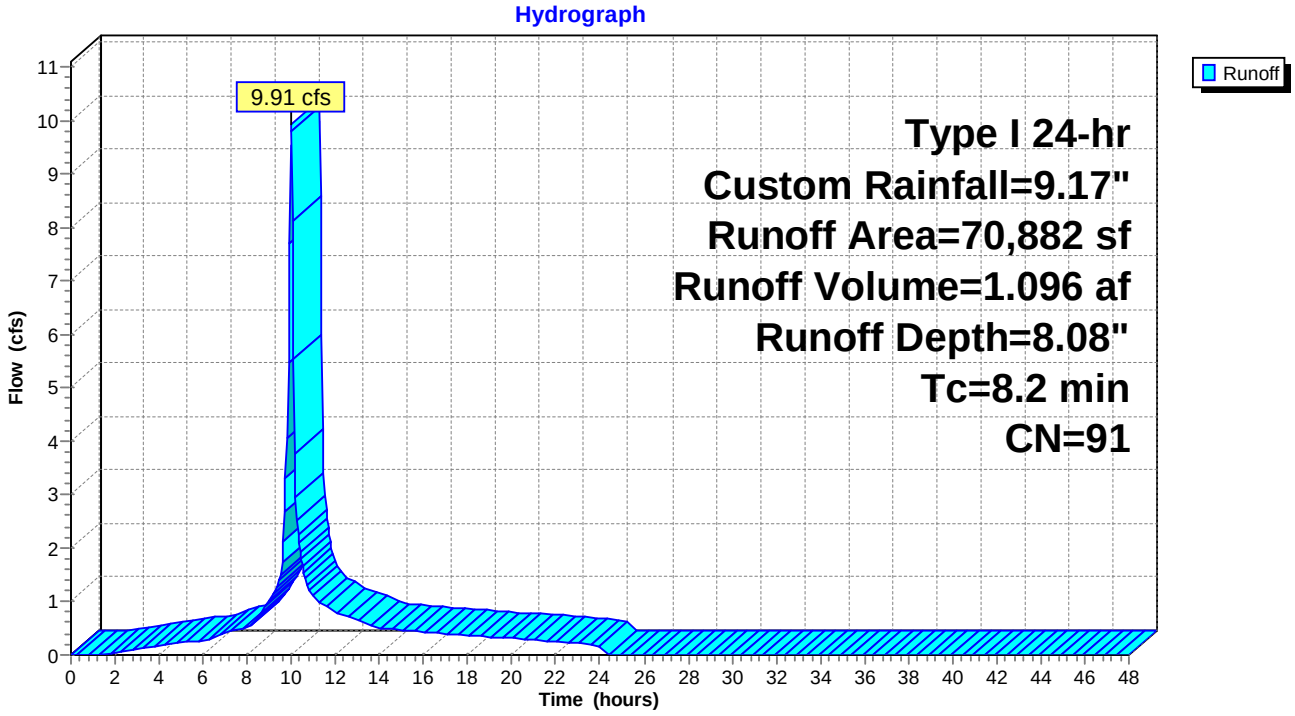
Runoff = 9.91 cfs @ 9.98 hrs, Volume= 1.096 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (sf)	CN	Description
*	70,882	91	
	70,882		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry,**

Subcatchment 44S: BASIN P1B



Summary for Pond 11P: DETENTION PONDS B2A/B COMBINED

Inflow Area = 209.184 ac, 0.00% Impervious, Inflow Depth = 5.80" for Custom event
Inflow = 729.92 cfs @ 9.99 hrs, Volume= 101.137 af
Outflow = 34.69 cfs @ 20.32 hrs, Volume= 100.105 af, Atten= 95%, Lag= 620.2 min
Discarded = 34.69 cfs @ 20.32 hrs, Volume= 100.105 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 38.47' @ 20.32 hrs Surf.Area= 6.854 ac Storage= 54.950 af

Plug-Flow detention time= 771.8 min calculated for 100.105 af (99% of inflow)
Center-of-Mass det. time= 764.9 min (1,538.6 - 773.7)

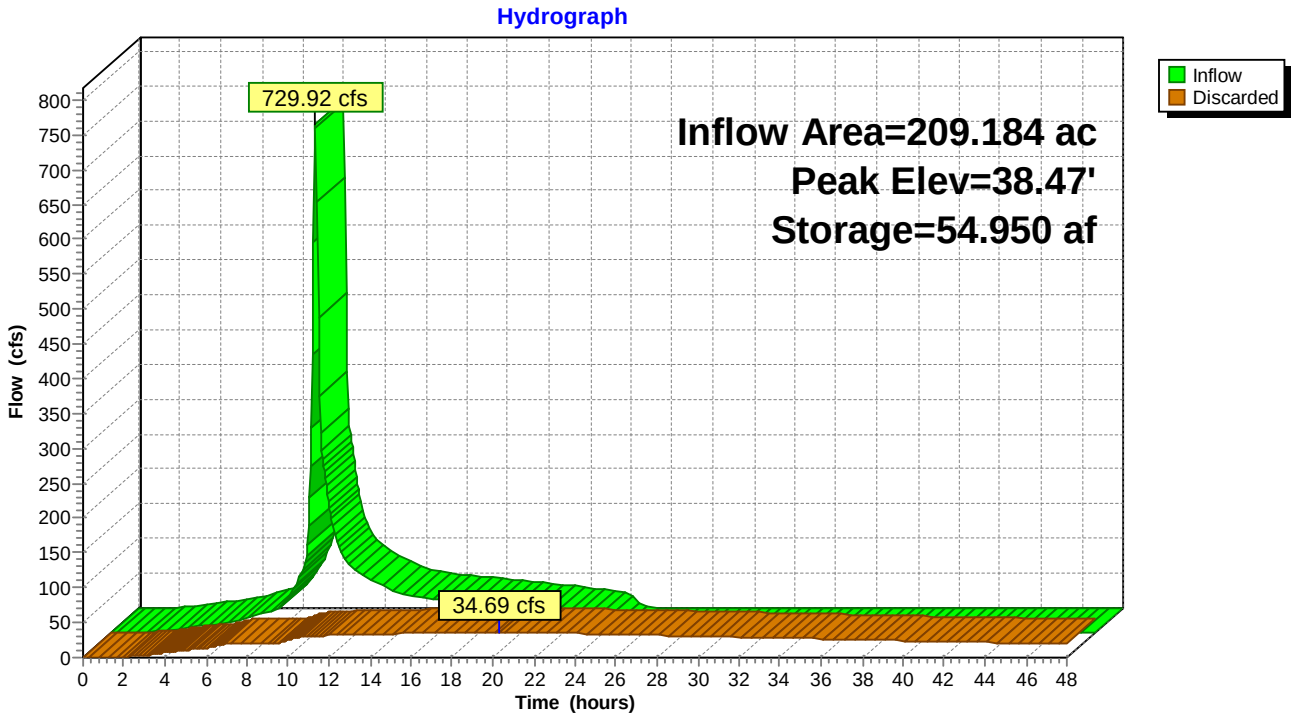
Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	116.623 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
28.00	3.789	0.000	0.000	3.789
46.00	9.613	116.623	116.623	9.664

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**5.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=34.69 cfs @ 20.32 hrs HW=38.47' (Free Discharge)
1=Exfiltration (Exfiltration Controls 34.69 cfs)

Pond 11P: DETENTION PONDS B2A/B COMBINED



Summary for Pond 14P: DETENTION POND B1

Inflow Area = 272.672 ac, 0.00% Impervious, Inflow Depth = 5.39" for Custom event
Inflow = 401.68 cfs @ 10.02 hrs, Volume= 122.521 af
Outflow = 41.58 cfs @ 21.54 hrs, Volume= 122.521 af, Atten= 90%, Lag= 691.4 min
Discarded = 41.58 cfs @ 21.54 hrs, Volume= 122.521 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 38.92' @ 21.54 hrs Surf.Area= 8.187 ac Storage= 66.616 af

Plug-Flow detention time= 741.8 min calculated for 122.521 af (100% of inflow)
Center-of-Mass det. time= 741.8 min (1,562.2 - 820.5)

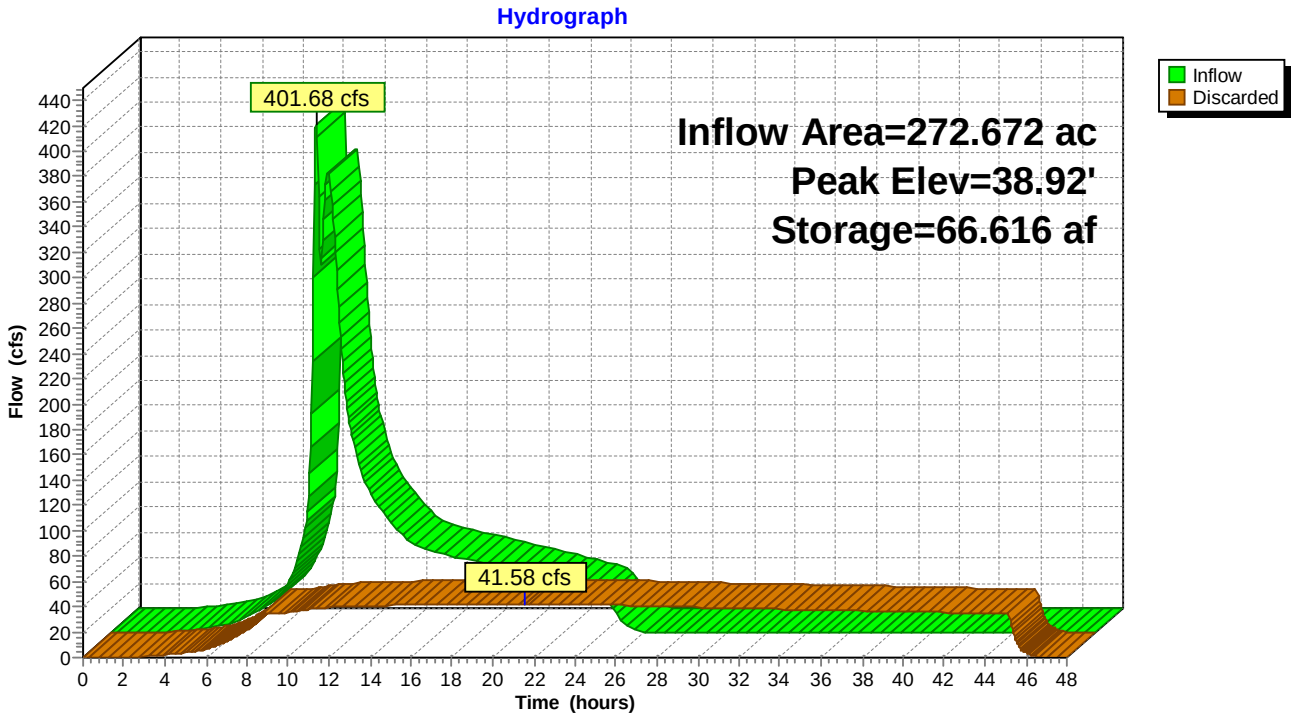
Volume	Invert	Avail.Storage	Storage Description
#1	30.00'	119.543 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
30.00	6.776	0.000	0.000	6.776
45.00	9.226	119.543	119.543	9.329

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.00'	**5.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=41.58 cfs @ 21.54 hrs HW=38.92' (Free Discharge)
1=Exfiltration (Exfiltration Controls 41.58 cfs)

Pond 14P: DETENTION POND B1



APPENDIX 'D' – UPSTREAM BASIN DRAINAGE ANALYSIS

UPSTREAM BASIN MAP
HOONANI VILLAGE

N

SCALE
600 0 300 600
1 INCH = 600 FEET

PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.400.5959
WWW.PD-GRP.COM

Designed by TCC Date 09/2024
Drawn by TCC Date 09/2024
Reviewed by TCC Date 09/2024
Project No. H109-001 REF.
Horiz. Scale:
Vert. Scale:

Project
HOONANI VILLAGE

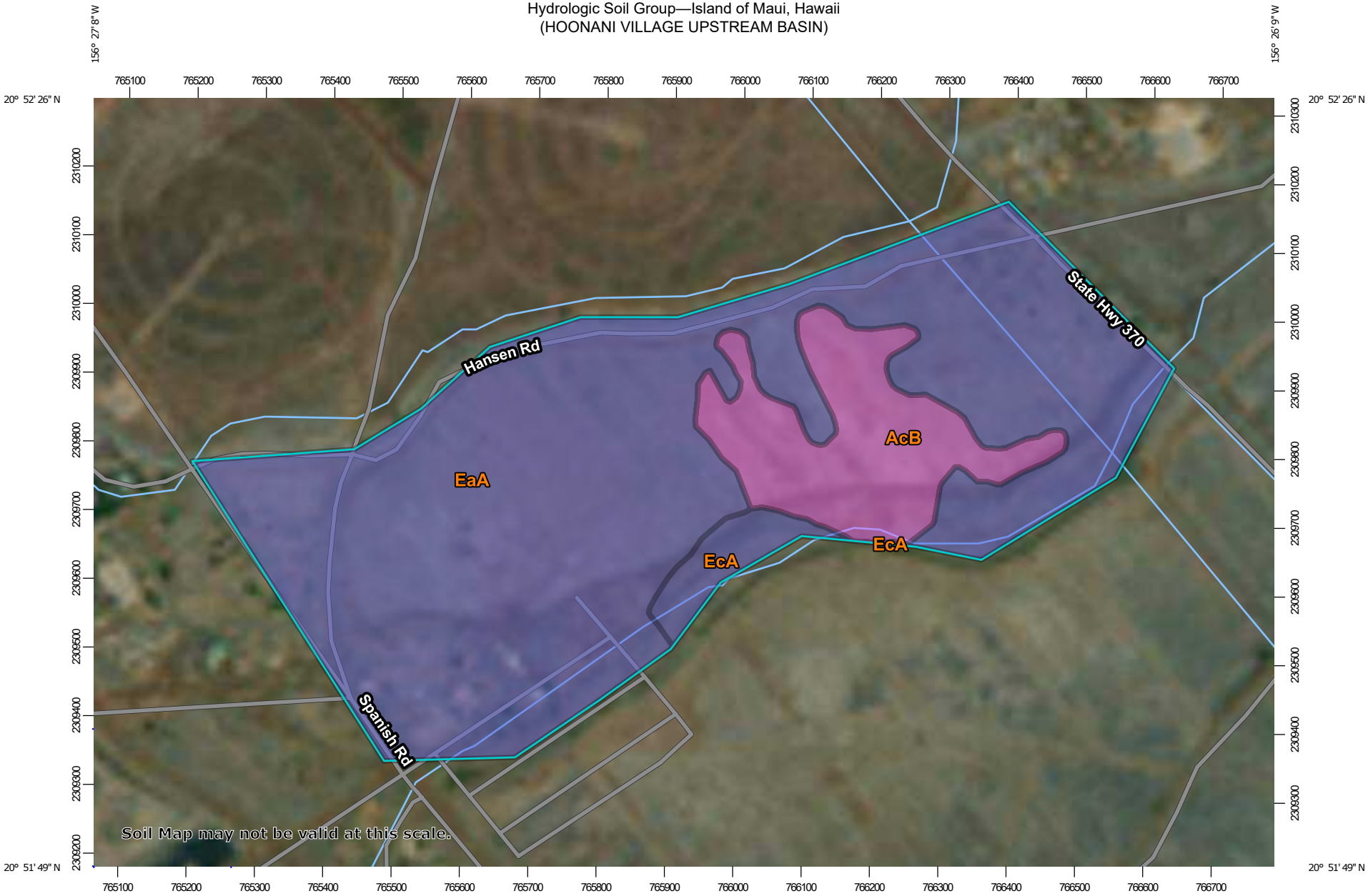
No.
H109-001

Type
ENGINEERING

Sheet
1 of 1

B:\Projects\PDGHAWAII\H109-001\Engineering\Hydro\PERH1091-UPSTREAM BASIN MAP 2.dwg 9/25/2024 2:14:36 PM

Hydrologic Soil Group—Island of Maui, Hawaii
(HOONANI VILLAGE UPSTREAM BASIN)



Map Scale: 1:7,900 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 100 200 400 600

Feet
0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Maui, Hawaii
Survey Area Data: Version 21, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AcB	Alae cobbly sandy loam, 3 to 7 percent slopes, MLRA 158	A	21.5	15.0%
EaA	Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158	B	117.2	81.8%
EcA	Ewa cobbly silty clay loam, 0 to 3 percent slopes, MLRA 158	B	4.5	3.1%
Totals for Area of Interest			**143.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Map Scale: 1:2,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Maui, Hawaii
Survey Area Data: Version 21, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
EaA	Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158	B	4.1	60.3%
MuB	Molokai silty clay loam, 3 to 7 percent slopes, MLRA 158	C	0.2	3.6%
W	Water > 40 acres		2.5	36.0%
Totals for Area of Interest			**6.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

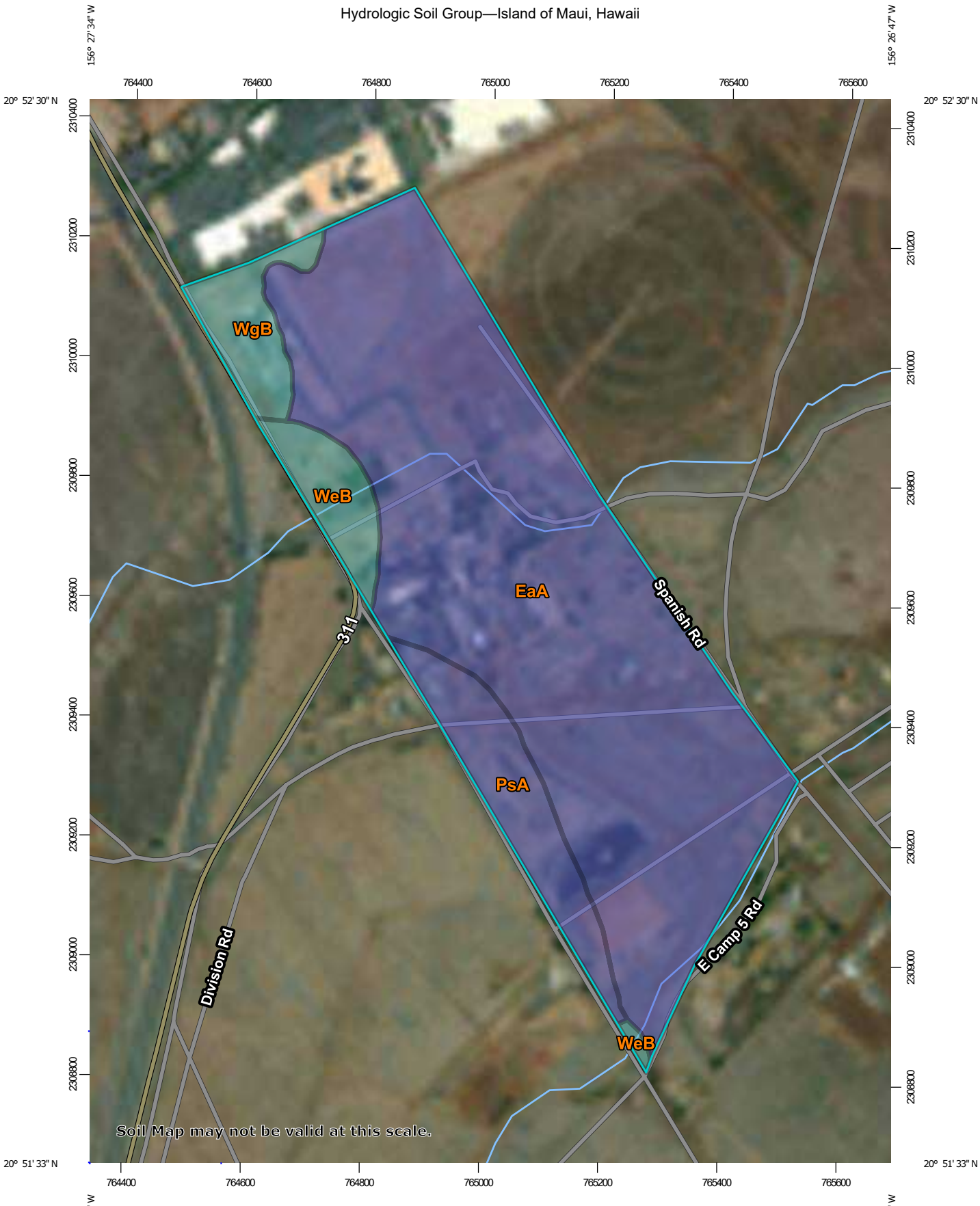
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Map Scale: 1:8,670 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Maui, Hawaii
Survey Area Data: Version 21, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
EaA	Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158	B	117.2	80.3%
PsA	Pulehu clay loam, 0 to 3 percent slopes , MLRA 163	B	13.5	9.3%
WeB	Waiakoa silty clay loam, 3 to 7 percent slopes	C	7.4	5.1%
WgB	Waiakoa very stony silty clay loam, 3 to 7 percent slopes, MLRA 158	C	7.8	5.3%
Totals for Area of Interest			**145.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

RUNOFF CURVE NUMBERS (TR55)

Table 2-2a: Runoff curve numbers for urban areas [1]

Cover description		CN for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover >75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]	77	86	91	94	
Idle lands (CNs are determined using cover types similar to those in table 2-2c)					

1: Average runoff condition, and $I_a = 0.2S$.

2: The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas hava a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

3: CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4: Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5: Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

RUNOFF CURVE NUMBERS (TR55)

Table 2-2c: Runoff curve numbers for other agricultural lands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range -- continuous forage for grazing					
<50% ground cover or heavily grazed with no mulch.	Poor	68	79	86	89
50% to 75% ground cover and not heavily grazed.	Fair	49	69	79	84
>75% ground cover and lightly or only occasionally grazed.	Good	39	61	74	80
Meadow -- continuous grass, protected from grazing and generally mowed for hay	--	30	58	71	78
Brush – weed-grass mixture with brush as the major element					
<50% ground cover	Poor	48	67	77	83
50% to 75% ground cover	Fair	35	56	70	77
>75% ground cover	Good	30 [2]	48	65	73
Woods – grass combination (orchard or tree farm) [3]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods					
Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.	Poor	45	66	77	83
Woods are grazed but not burned, and some forest litter covers the soil.	Fair	36	60	73	79
Woods are protected from grazing, and litter and brush adequately cover the soil.	Good	30 [2]	55	70	77
Farmsteads -- buildings, lanes, driveways, and surrounding lots	--	59	74	82	86

1: Average runoff condition, and $I_a = 0.2S$.

2: Actual curve number is less than 30; use CN = 30 for runoff computations.

3: CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

MANNING'S "n" VALUES

SHEET FLOW EQUATION MANNING'S VALUES	n_s
Smooth Surfaces (concrete, asphault, gravel, or bare hand packed soil)	0.011
Fallow Fields or loose soil surface (no residue)	0.05
Cultivated soil with residue cover (≤ 20%)	0.06
Cultivated soil with residue cover (> 20%)	0.17
Short prairie grass and lawns	0.15
Dense grasses	0.24
Bermuda grasses	0.41
Range (natural)	0.13
Woods or forrest with light underbrush	0.40
Woods or forrest with dense underbrush	0.80

SHALLOW CONCENTRATED FLOW (after initial 300 ft of sheet flow, R = 0.1)	k_s
Forrest with heavy ground litter and meadows (n = 0.010)	3
Brushy ground with some trees (n = 0.060)	5
Fallow or minimum tillage cultivation (n = 0.040)	8
High grass (n = 0.035)	9
Short grass, pasture and lawns (n = 0.030)	11
Nearly bare ground (n = 0.25)	13
Paved and gravel areas (n = 0.012)	27

CHANNEL FLOW (Intermittent) (At the beginning of all visible channels, R = 0.2)	k_c
Forested swale with heavy ground cover (n = 0.10)	5
Forested drainage course/ravine with defined channel bed (n = 0.050)	10
Rock-lined waterway (n = 0.035)	15
Grassed waterway (n = 0.030)	17
Earth-lined waterway (n = 0.025)	20
CMP pipe (n = 0.024)	21
Concrete pipe (n = 0.012)	42
Other waterways and pipe 0.508/n	

CHANNEL FLOW (continuous stream, R = 0.4)	k_c
Meandering stream (n = 0.040)	20
Rock-lined stream (n = 0.035)	23
Grass-lined stream (n = 0.030)	27
Other streams, man-made channels and pipe (n = 0.807/n)	

EXISTING CONDITIONS - COMPOSITE CURVE NUMBERS

(UPSTREAM BASIN O1)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

TOTAL AREA= 6,160,420 SF

EXISTING CONDITIONS

COVER TYPE	SOIL TYPE	AREA (SF)	SOIL GRADE	CURVE NUMBER
MEADOWS	Ewa Silty Clay Loam	5,039,224	B	58
	Ewa Cobbly Silty Clay Loam	197,133		
MEADOWS	Alae Cobbly Sandy Loam	924,063	A	30

EXISTING COMPOSITE CN = $\frac{(5{,}236{,}357 \times 58) + (924{,}063 \times 30)}{6{,}160{,}420}$ = **53.8**

EXISTING CONDITIONS - COMPOSITE CURVE NUMBERS

(UPSTREAM BASIN O2)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

TOTAL AREA= 289,835 SF

EXISTING CONDITIONS

COVER TYPE	SOIL TYPE	AREA (SF)	SOIL GRADE	CURVE NUMBER
MEADOWS	Ewa Silty Clay Loam	279,401	B	58
MEADOWS	Molokai Silty Clay Loam	10,434	C	71

EXISTING COMPOSITE CN = $\frac{(279{,}4017 \times 58) + (10{,}434 \times 71)}{289{,}835}$ = **58.5**

EXISTING CONDITIONS - COMPOSITE CURVE NUMBERS

(UPSTREAM BASIN O3)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

TOTAL AREA= 6,128,207 SF

EXISTING CONDITIONS

COVER TYPE	SOIL TYPE	AREA (SF)	SOIL GRADE	CURVE NUMBER
MEADOWS	Ewa Silty Clay Loam Pulehu Clay Loam	3,173,135	B	58
	Waiakoa Silty Clay Loam Waiakoa Very Stony silty clay loam	234,857	C	71
INDUSTRIAL	Ewa Silty Clay Loam Pulehu Clay Loam	2,166,121	B	88
	Waiakoa Silty Clay Loam	87,549	C	91
COMMERCIAL	Ewa Silty Clay Loam Pulehu Clay Loam	237,530	B	92
	Waiakoa Silty Clay Loam Waiakoa Very Stony silty clay loam	229,015	C	94

EXISTING COMPOSITE CN = $\frac{(3{,}173{,}135 \times 58) + (234{,}857 \times 71) + (2{,}166{,}121 \times 88) + (87{,}549 \times 91) + (237{,}530 \times 92) + (229{,}015 \times 94)}{6{,}128{,}207}$ = **72.2**

PREDEVELOPED TIME OF CONCENTRATION

(UPSTREAM BASIN O1)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

				Accum. Tc
LAG ONE: SHEET FLOW (FIRST 300 FEET)				
Tt = Travel time				
Manning's "n " =	0.15			
Flow Length, L =	300	ft	(300 ft. max.)	
P = 2-year, 24hr storm =	2.5	in		
Slope, S_0 =	0.013	ft/ft		
$T_T = \frac{(0.42)(n*L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}}$	31.43	min.		31.43 min.
LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 1165 FEET)				
Tc Velocity factor, k=	11			
Slope, S_0 =	0.014	ft/ft		
$V = k\sqrt{S_0}$	1.29	ft/s		
Flow Length, L =	1165	ft		
$T = \frac{L}{(60)(V)}$	15.08	min.		46.51 min.

TOTAL PREDEVELOPED TIME OF CONCENTRATION (Tc) = 46.51 min.

PREDEVELOPED TIME OF CONCENTRATION

(UPSTREAM BASIN O2)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

				Accum. Tc
LAG ONE: SHEET FLOW (FIRST 300 FEET)				
Tt = Travel time				
Manning's "n " =	0.15			
Flow Length, L =	300	ft	(300 ft. max.)	
P = 2-year, 24hr storm =	2.5	in		
Slope, S_0 =	0.027	ft/ft		
$T_T = \frac{(0.42)(n*L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}}$	23.82	min.		23.82 min.
LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 369 FEET)				
Tc Velocity factor, k=	11			
Slope, S_0 =	0.005	ft/ft		
$V = k\sqrt{S_0}$	0.78	ft/s		
Flow Length, L =	369	ft		
$T = \frac{L}{(60)(V)}$	7.91	min.		31.72 min.

TOTAL PREDEVELOPED TIME OF CONCENTRATION (Tc) = 31.72 min.

PREDEVELOPED TIME OF CONCENTRATION

(UPSTREAM BASIN O3)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

				Accum. Tc
LAG ONE: SHEET FLOW (FIRST 300 FEET)				
Tt = Travel time				
Manning's "n " =	0.15			
Flow Length, L =	300	ft	(300 ft. max.)	
P = 2-year, 24hr storm =	2.5	in		
Slope, S_0 =	0.013	ft/ft		
$T_T = \frac{(0.42)(n*L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}}$	31.40	min.		31.40 min.
LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 1556 FEET)				
Tc Velocity factor, k=	13			
Slope, S_0 =	0.012	ft/ft		
$V = k\sqrt{S_0}$	1.44	ft/s		
Flow Length, L =	1556	ft		
$T = \frac{L}{(60)(V)}$	18.05	min.		49.45 min.
LAG THREE: CONCENTRATED FLOW (NEXT 1414 FEET)				
Tc Velocity factor, k=	20			
Slope, S_0 =	0.009	ft/ft		
$V = k\sqrt{S_0}$	1.84	ft/s		
Flow Length, L =	1414	ft		
$T = \frac{L}{(60)(V)}$	12.78	min.		62.23 min.

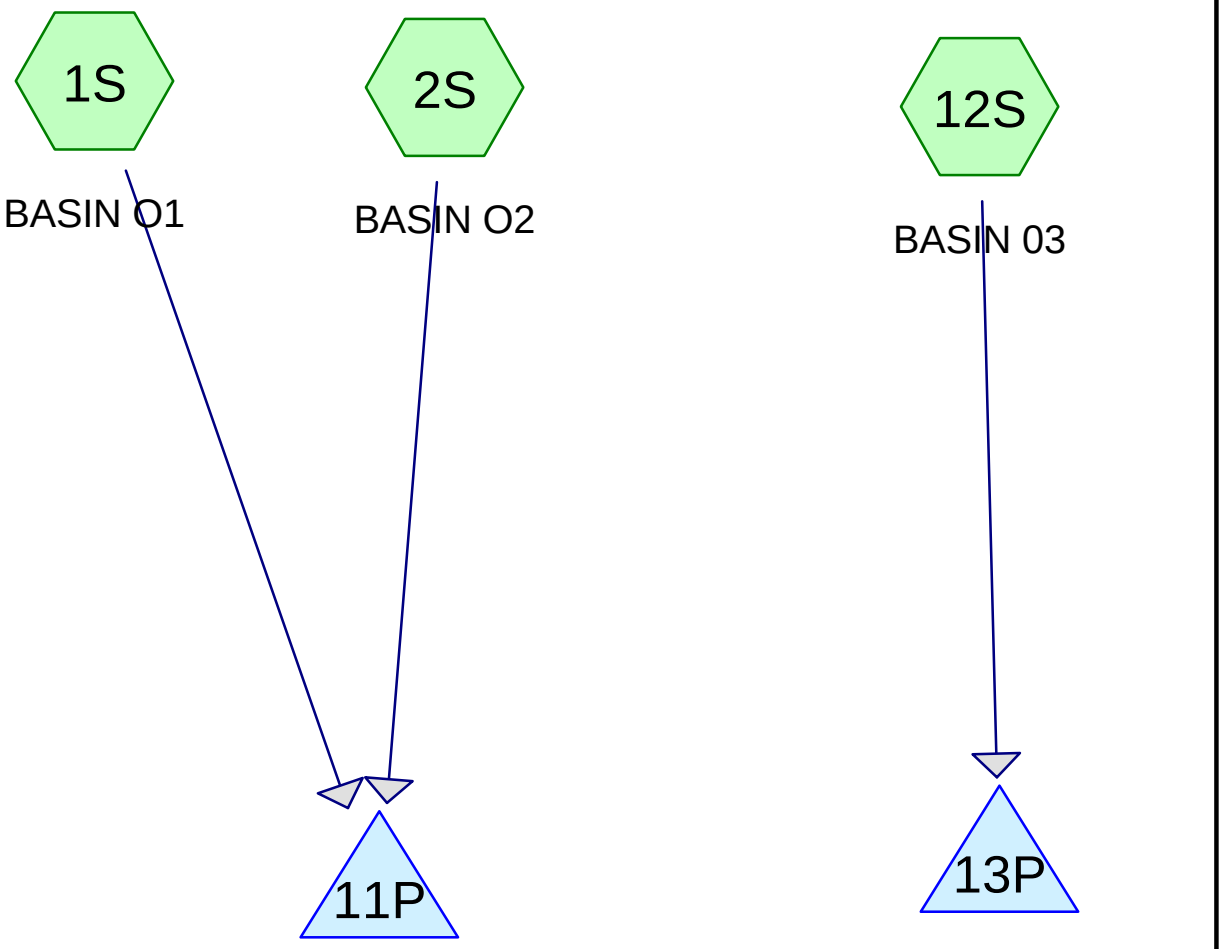
TOTAL PREDEVELOPED TIME OF CONCENTRATION (Tc) = 62.23 min.

UPSTREAM BASIN ANALYSIS

(100-YEAR, 24 HR. STORM EVENT)

JOB NUMBER: H109-001
PROJECT: Hoonani Village
FILE: H1091_PER Hydro

DRAINAGE BASIN LABEL	AREA (SF)		AREA (AC)		COMPOSITE RUNOFF CN	Tc (min.)	Q FLOW (cfs)	FLOW VOLUME (AC-FT)
BASIN O1	6,160,420.00	ft^2	**141.42**	**ac**	53.8	46.5	**153.38**	**41.10**
BASIN O2	289,835.00	ft^2	**6.65**	**ac**	58.5	31.7	**11.29**	**2.28**
BASIN O3	6,128,207.00	ft^2	**140.68**	**ac**	72.2	62.23	**243.67**	**67.23**
	TOTAL DRAINAGE AREA (SF)		**TOTAL DRAINAGE AREA (ac)**				**TOTAL Q FLOW (cfs)**	**TOTAL FLOW VOLUME (AC-FT)**
UPSTREAM DRAINAGE CONDITION	**12,578,462.00**	**ft^2**	**288.76**	**ac**			**408.34**	**110.61**



Subcat Reach Pond Link

Routing Diagram for PRELIM UPSTREAM BASIN HYDRO
Prepared by Pioneer Design Group, Printed 9/25/2024
HydroCAD® 10.20-4b s/n 09255 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
141.420	54	UPSTREAM BASIN O1 (1S)
6.650	59	UPSTREAM BASIN O2 (2S)
140.680	72	UPSTREAM BASIN O3 (12S)
288.750	**63**	**TOTAL AREA**

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BASIN O1 Runoff Area=141.420 ac 0.00% Impervious Runoff Depth=3.49"
Tc=46.5 min CN=54 Runoff=153.38 cfs 41.099 af

Subcatchment 2S: BASIN O2 Runoff Area=6.650 ac 0.00% Impervious Runoff Depth=4.11"
Tc=31.7 min CN=59 Runoff=11.29 cfs 2.277 af

Subcatchment 12S: BASIN 03 Runoff Area=140.680 ac 0.00% Impervious Runoff Depth>5.73"
Tc=62.2 min CN=72 Runoff=243.67 cfs 67.230 af

Pond 11P: EXISTING DETENTION PONDS Peak Elev=33.36' Storage=7.292 af Inflow=162.06 cfs 43.376 af
Outflow=57.40 cfs 43.376 af

Pond 13P: EXISTING DETENTION POND B1 Peak Elev=39.46' Storage=23.826 af Inflow=243.67 cfs 67.230 af
Outflow=42.14 cfs 67.229 af

Total Runoff Area = 288.750 ac Runoff Volume = 110.606 af Average Runoff Depth = 4.60"
100.00% Pervious = 288.750 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: BASIN O1

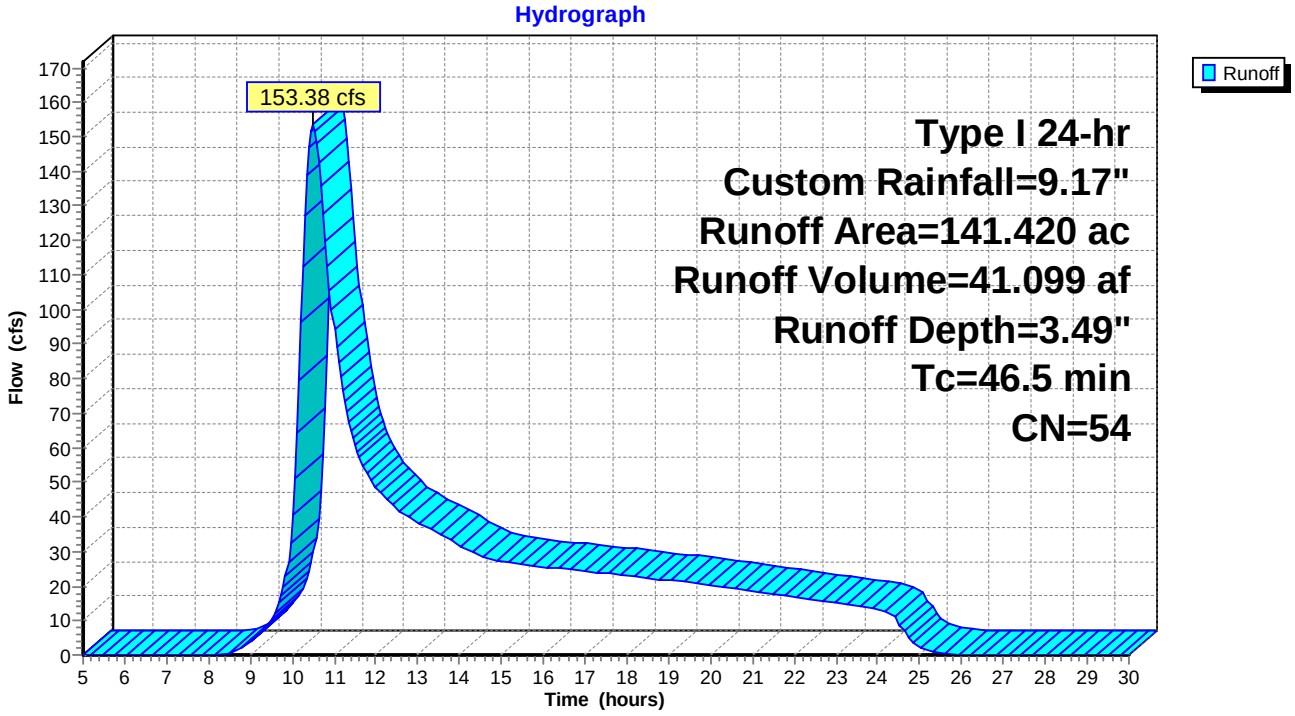
Runoff = 153.38 cfs @ 10.50 hrs, Volume= 41.099 af, Depth= 3.49"
Routed to Pond 11P : EXISTING DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	141.420	54	UPSTREAM BASIN O1
	141.420		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.5					**Direct Entry, PREDEV TOC**

Subcatchment 1S: BASIN O1



Summary for Subcatchment 2S: BASIN O2

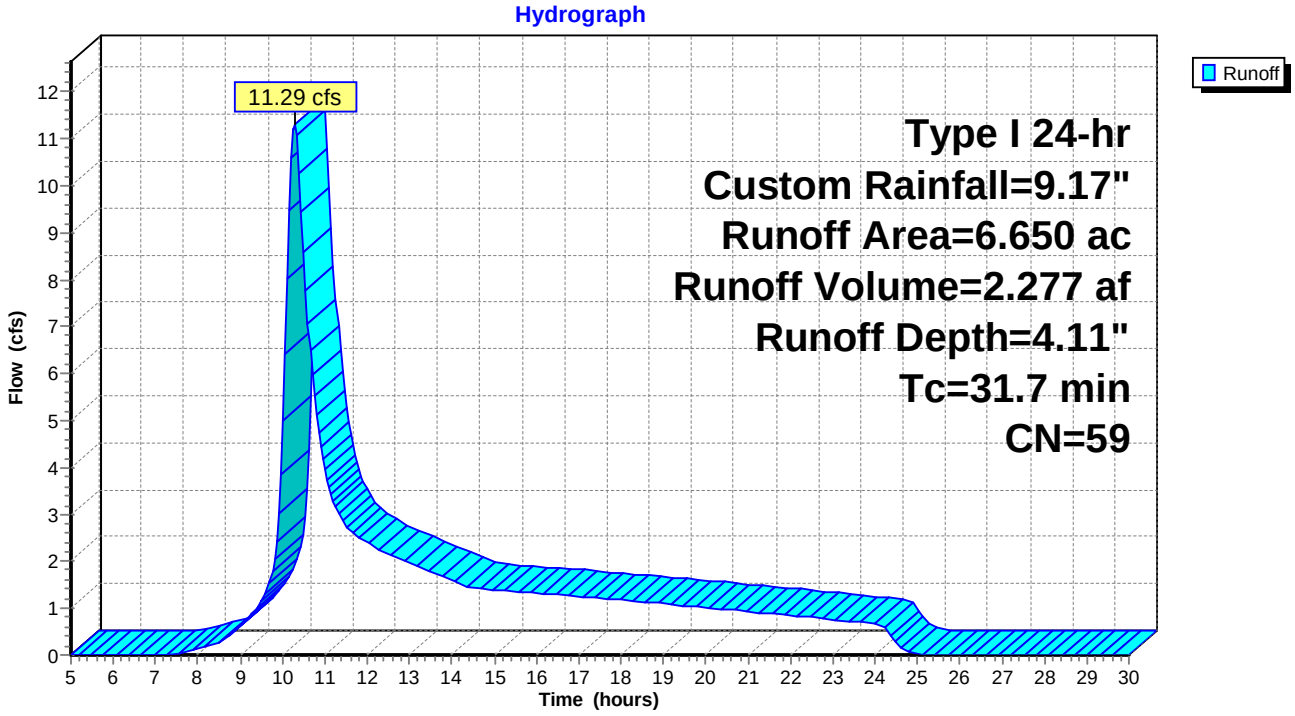
Runoff = 11.29 cfs @ 10.28 hrs, Volume= 2.277 af, Depth= 4.11"
Routed to Pond 11P : EXISTING DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.650	59	UPSTREAM BASIN O2
	6.650		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.7					**Direct Entry,**

Subcatchment 2S: BASIN O2



Summary for Subcatchment 12S: BASIN 03

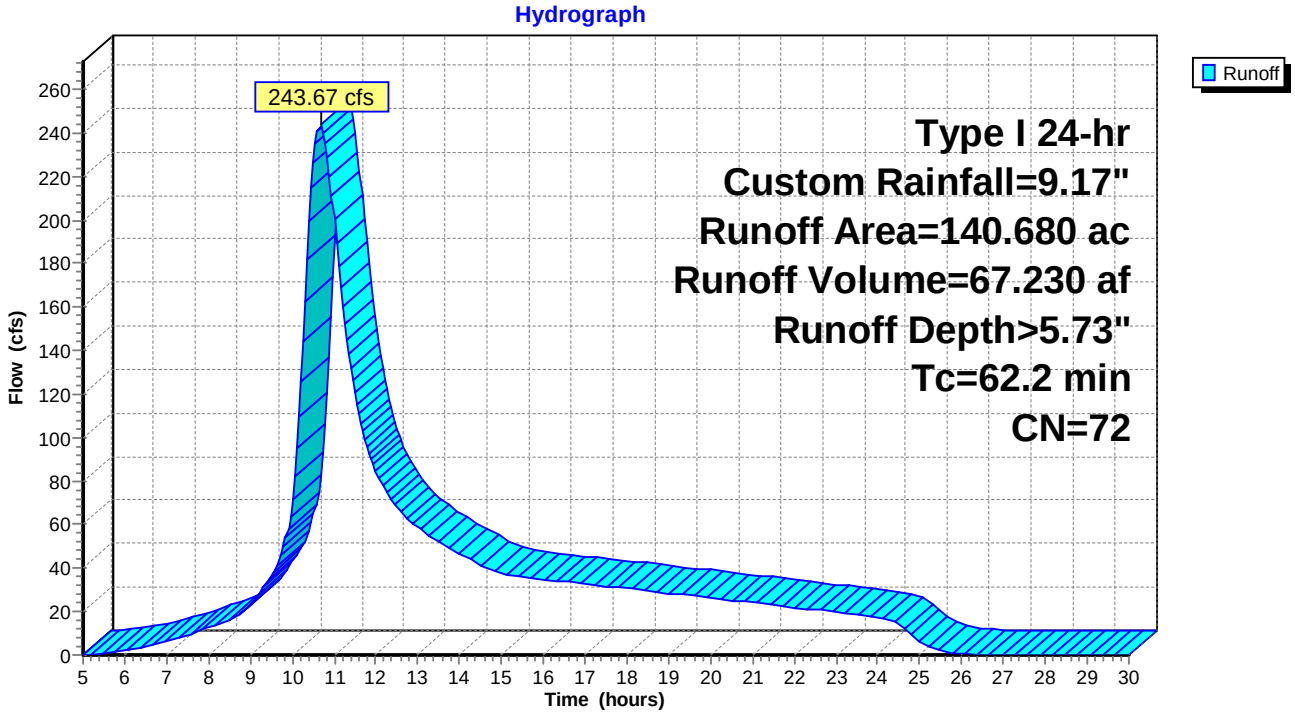
Runoff = 243.67 cfs @ 10.68 hrs, Volume= 67.230 af, Depth> 5.73"
Routed to Pond 13P : EXISTING DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	140.680	72	UPSTREAM BASIN O3
	140.680		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.2					**Direct Entry,**

Subcatchment 12S: BASIN 03



Summary for Pond 11P: EXISTING DETENTION PONDS B2A/B COMBINED

Inflow Area = 148.070 ac, 0.00% Impervious, Inflow Depth = 3.52" for Custom event
Inflow = 162.06 cfs @ 10.49 hrs, Volume= 43.376 af
Outflow = 57.40 cfs @ 11.68 hrs, Volume= 43.376 af, Atten= 65%, Lag= 71.7 min
Discarded = 57.40 cfs @ 11.68 hrs, Volume= 43.376 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 33.36' @ 11.68 hrs Surf.Area= 5.691 ac Storage= 7.292 af

Plug-Flow detention time= 42.7 min calculated for 43.290 af (100% of inflow)
Center-of-Mass det. time= 42.6 min (920.5 - 877.8)

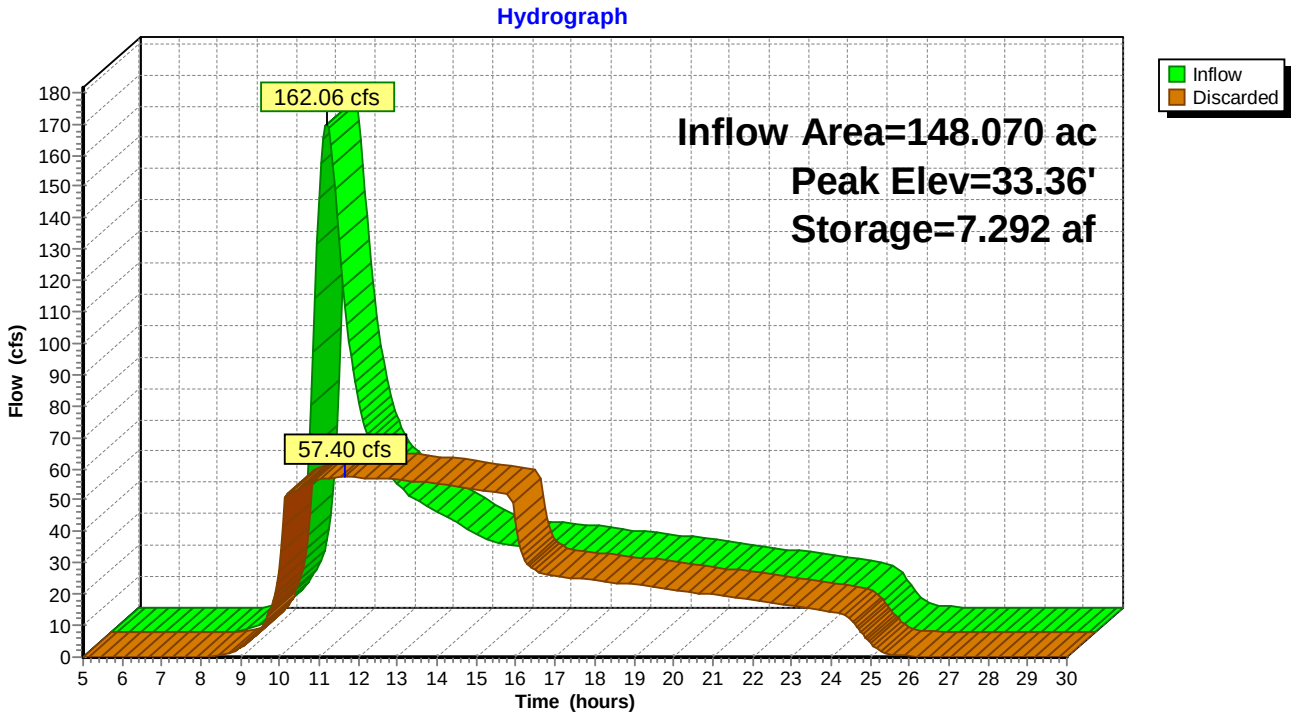
Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	109.142 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
32.00	5.063	0.000	0.000	5.063
34.00	6.001	11.051	11.051	6.004
36.00	6.472	12.470	23.521	6.483
38.00	6.949	13.418	36.939	6.968
40.00	7.425	14.371	51.311	7.453
42.00	7.903	15.326	66.637	7.940
44.00	8.382	16.283	82.920	8.428
46.00	8.862	17.242	100.161	8.919
47.00	9.099	8.980	109.142	9.161

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	**10.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=57.40 cfs @ 11.68 hrs HW=33.36' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 57.40 cfs)

Pond 11P: EXISTING DETENTION PONDS B2A/B COMBINED



Summary for Pond 13P: EXISTING DETENTION POND B1

Inflow Area = 140.680 ac, 0.00% Impervious, Inflow Depth > 5.73" for Custom event
Inflow = 243.67 cfs @ 10.68 hrs, Volume= 67.230 af
Outflow = 42.14 cfs @ 14.45 hrs, Volume= 67.229 af, Atten= 83%, Lag= 226.2 min
Discarded = 42.14 cfs @ 14.45 hrs, Volume= 67.229 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.46' @ 14.45 hrs Surf.Area= 8.343 ac Storage= 23.826 af

Plug-Flow detention time= 268.8 min calculated for 67.229 af (100% of inflow)
Center-of-Mass det. time= 268.8 min (1,104.1 - 835.3)

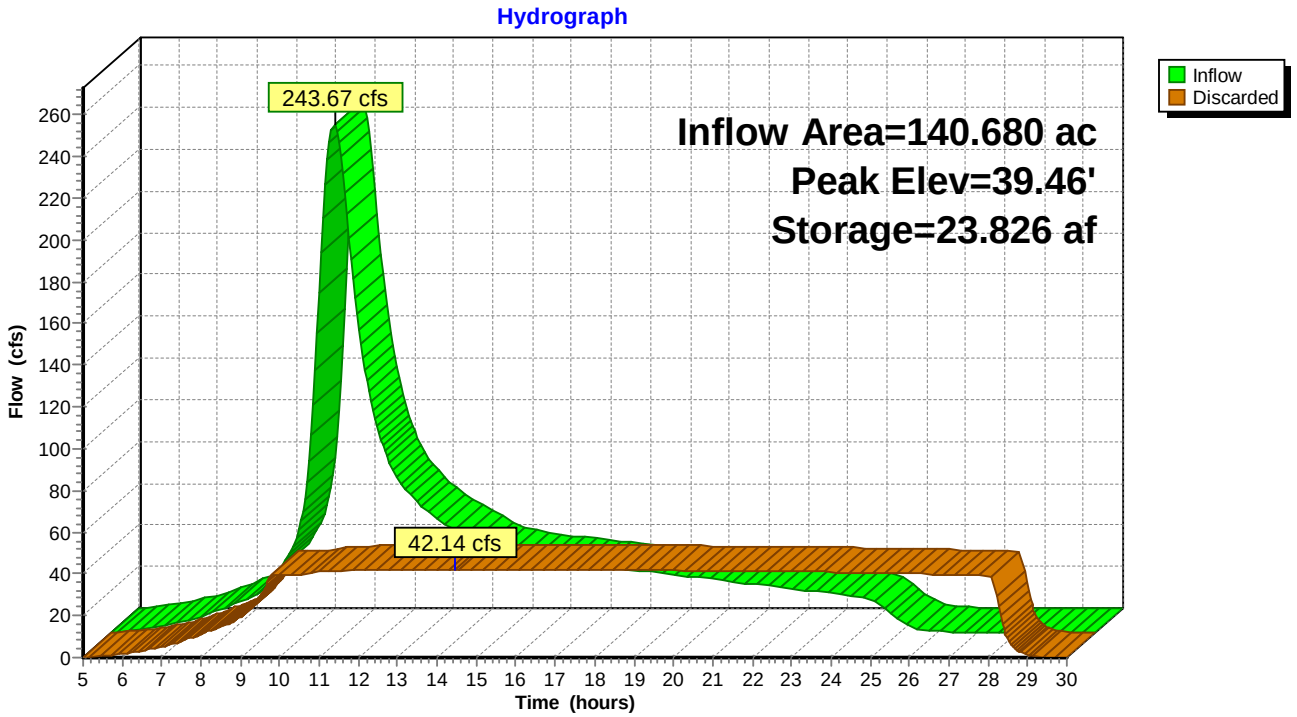
Volume	Invert	Avail.Storage	Storage Description
#1	36.50'	92.770 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
36.50	7.739	0.000	0.000	7.739
47.00	9.979	92.770	92.770	10.040

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.50'	**5.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=42.14 cfs @ 14.45 hrs HW=39.46' (Free Discharge)
1=Exfiltration (Exfiltration Controls 42.14 cfs)

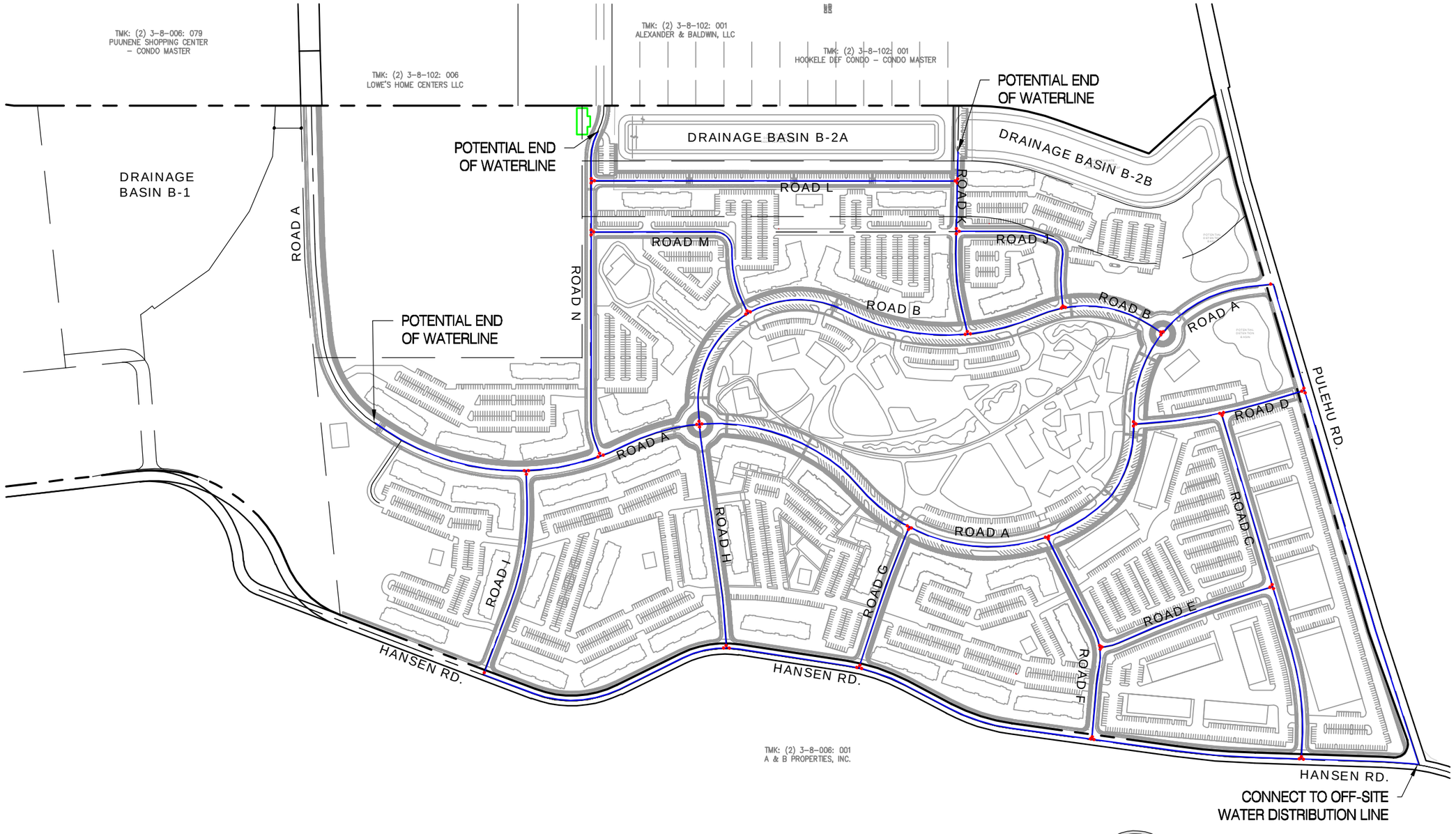
Pond 13P: EXISTING DETENTION POND B1



APPENDIX 'E' – PRELIMINARY WATER SYSTEM CALCULATIONS AND PLANS

PRELIMINARY WATER MASTER PLAN

OVERALL MASTER PLAN



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CIVIL ENGINEERING · LAND USE PLANNING
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Designed by	ENH	Date	10/2024
Drawn by	ENH	Date	10/2024
Reviewed by	TCC	Date	10/2024
Project No.	H109-001	REF.	
Horiz. Scale:	1"=400'		
Vert. Scale:			

Project
HOONANI VILLAGE

No.
H109-001

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ENGINEERING

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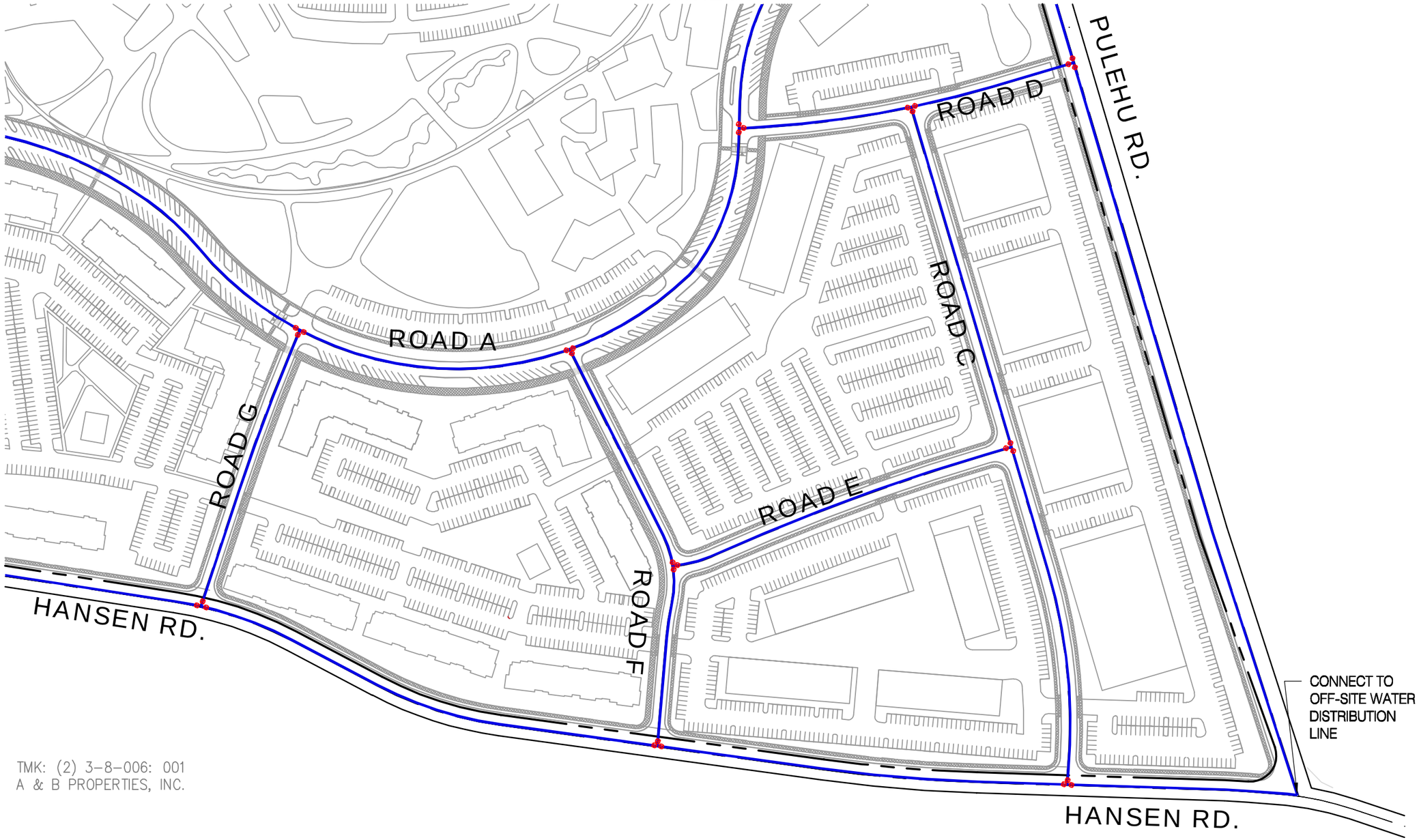
1 of 5

PRELIMINARY WATER MASTER PLAN



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Vert. Scale:		

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HOONANI VILLAGE

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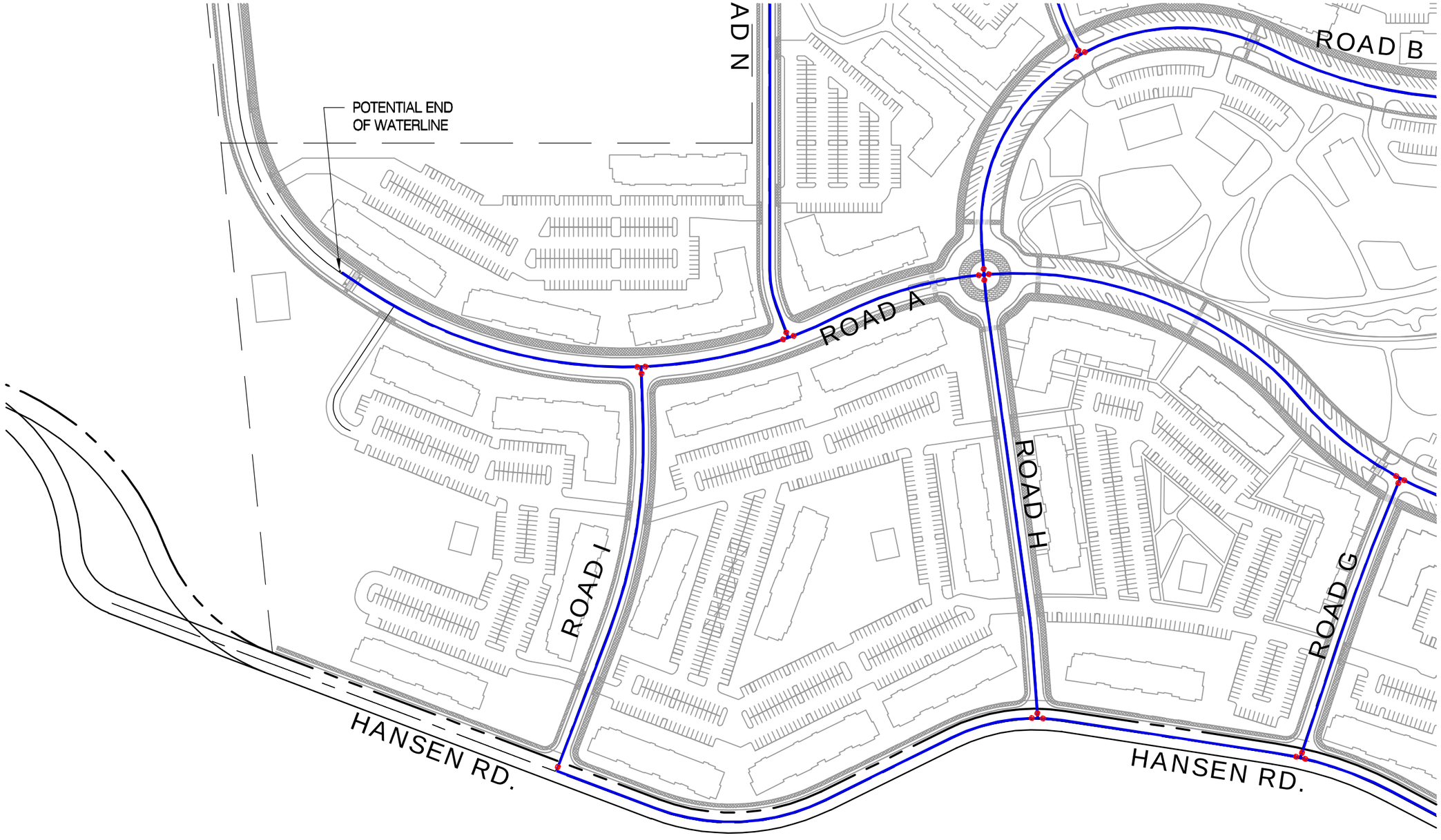
2 of 5

PRELIMINARY WATER MASTER PLAN

SOUTHWEST



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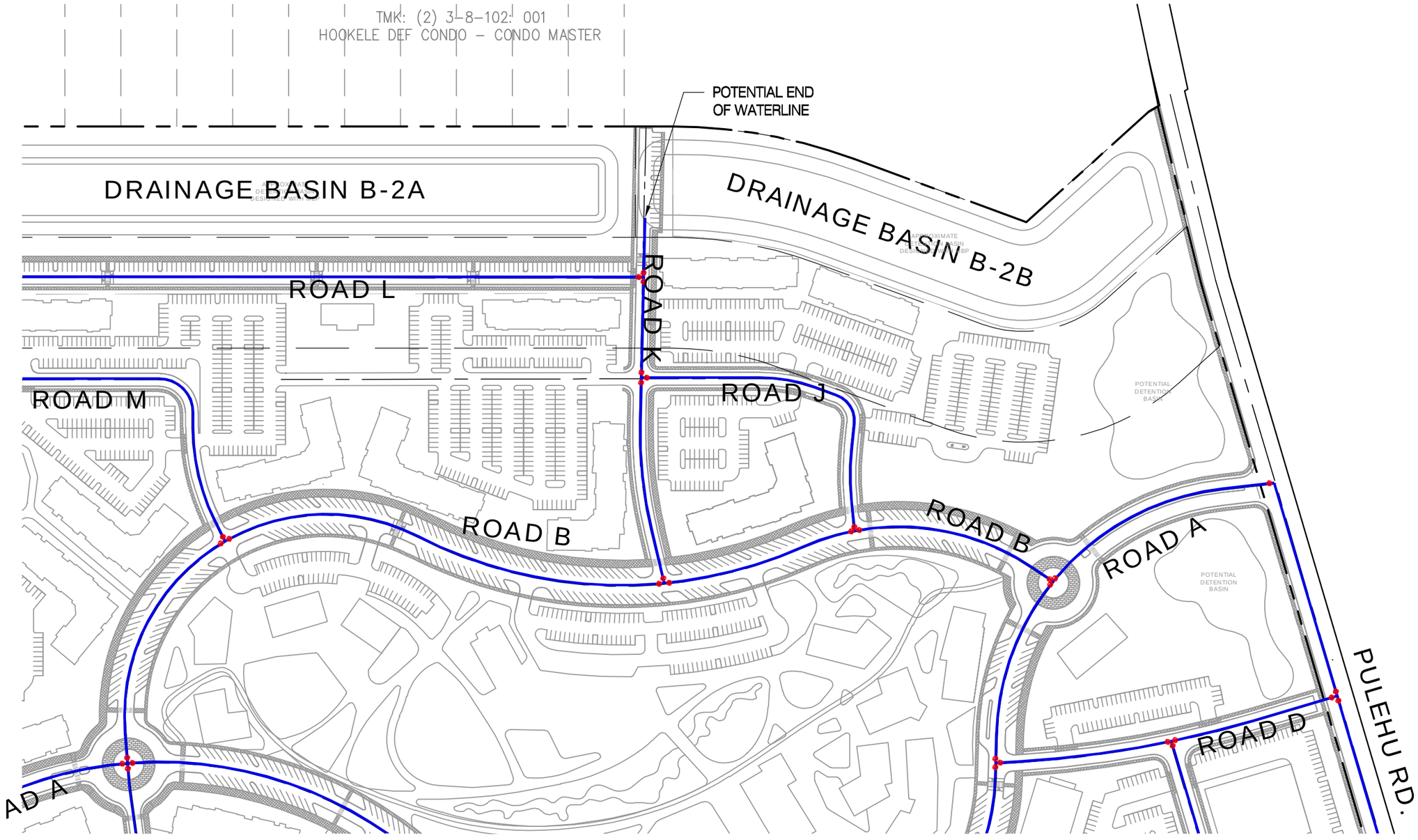
PRELIMINARY WATER MASTER PLAN

NORTHEAST



SCALE
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1 INCH = 200 FEET

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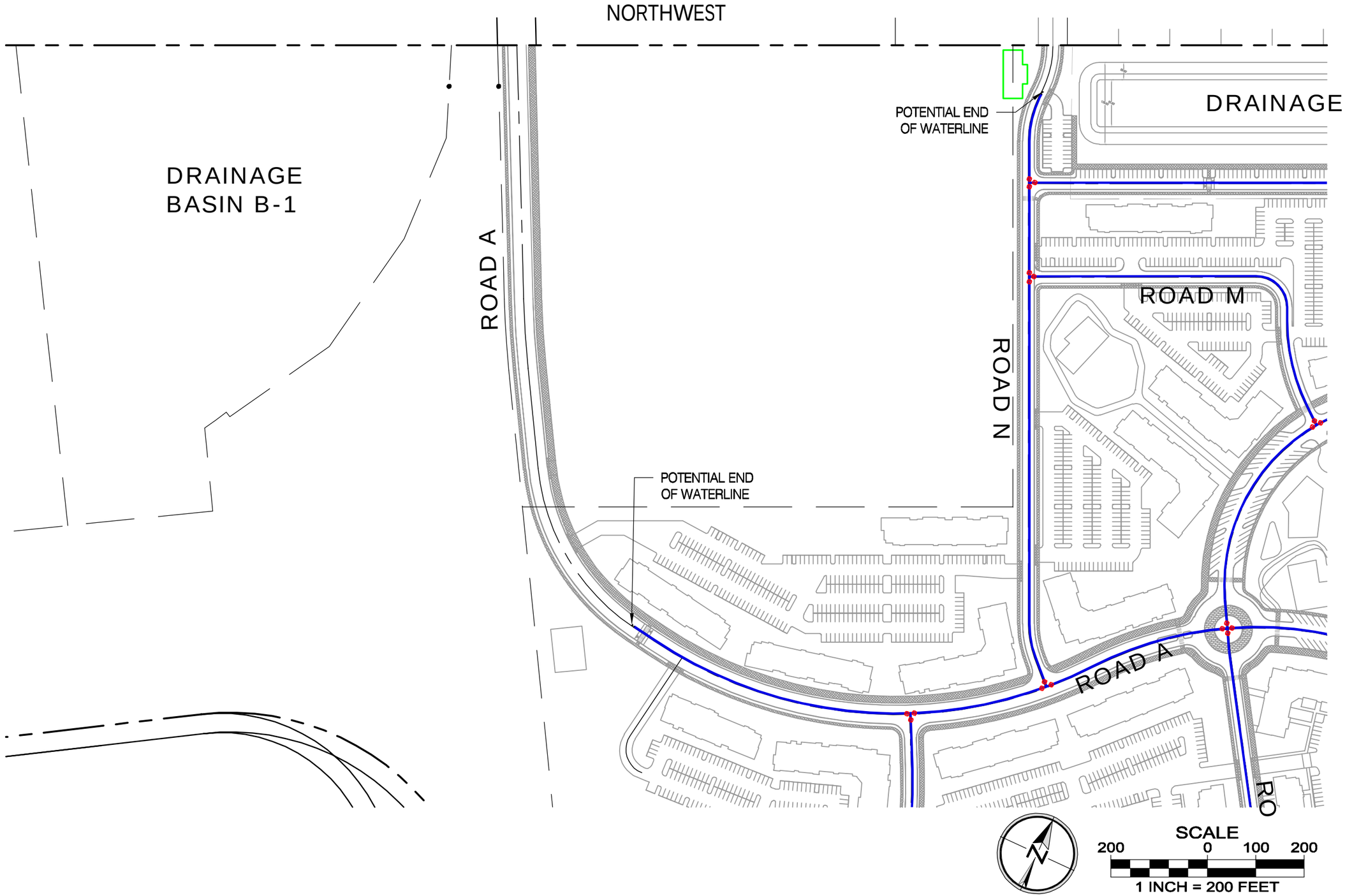
PRELIMINARY WATER MASTER PLAN



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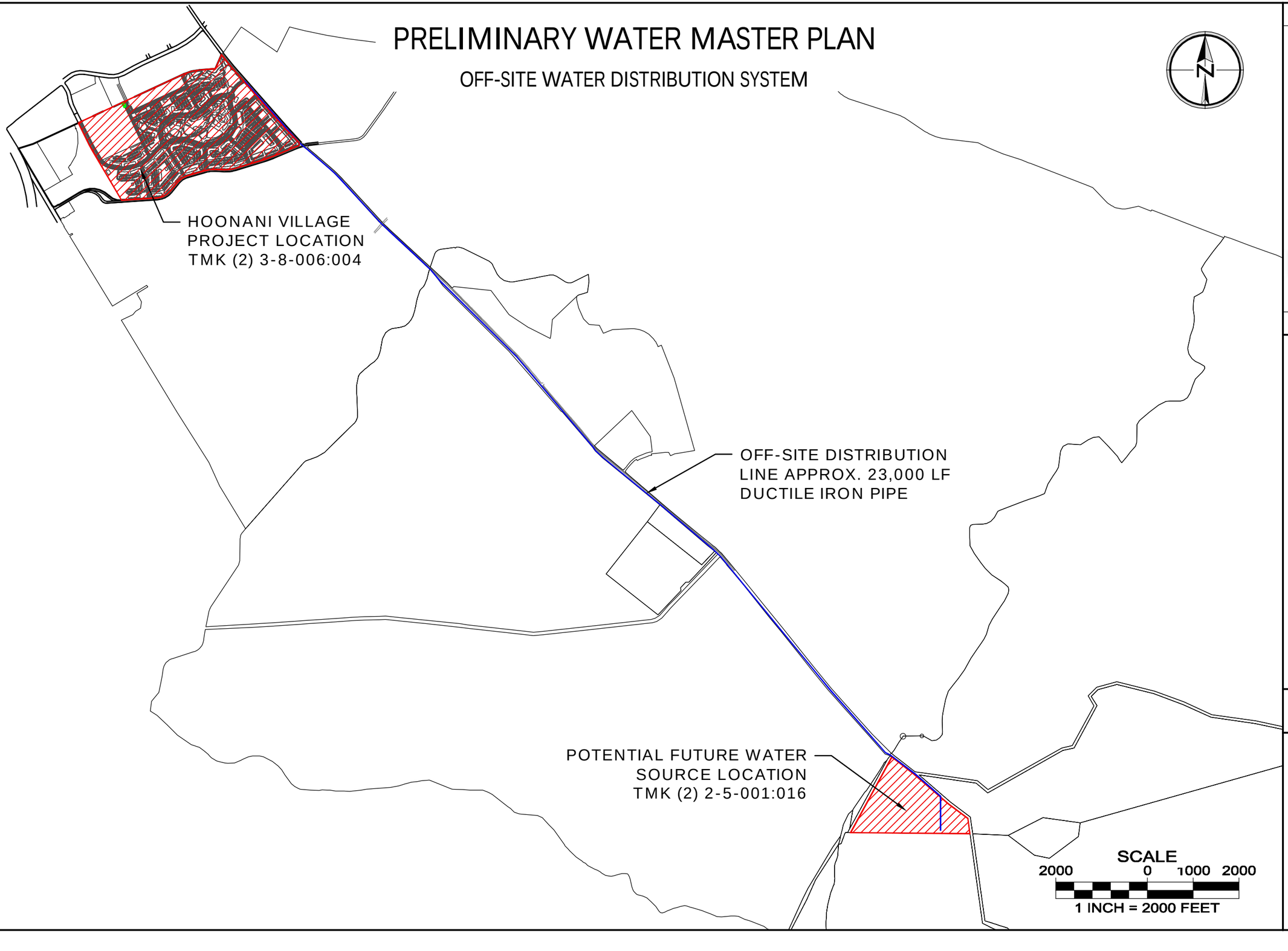
PRELIMINARY WATER MASTER PLAN

OFF-SITE WATER DISTRICTION SYSTEM



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H109-001

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Table 100-18 - DOMESTIC CONSUMPTION GUIDELINES				
AVERAGE DAILY DEMAND*				
ZONING DESIGNATION	HAWAII	KAUAI	MAUI	OAHU
RESIDENTIAL:				
Single Family or Duplex	400 gals/unit	500 gals/unit	600 gals/unit or 3000 gals/acre	500 gals/unit or 2500 gals/acre
Multi-Family Low Rise	400 gals/unit	350 gals/unit	560 gals/unit or 5000 gals/acre	400 gals/unit or 4000 gals/acre
Multi-Family High Rise	400 gals/unit	350 gals/unit	560 gals/unit	300 gals/unit
COMMERCIAL:				
Commercial Only	3000 gals/acre	3000 gals/acre	6000 gals/acre	3000 gals/acre
Commercial/Industrial Mix	--	5000 gals/acre	140 gals/1000 sq. ft.	100 gals/1000 sq. ft.
Commercial/Residential Mix	--	3000 gals/acre	140 gals/1000 sq. ft.	120 gals/1000 sq. ft.
RESORT (To include hotel for Maui only)	400 gals/unit (1)	350 gals/unit	350 gals/unit or 17000 gals/acre	350 gals/unit or 4000 gals/acre
LIGHT INDUSTRY:	4000 gals/acre	4000 gals/acre	6000 gals/acre	4000 gals/acre
SCHOOLS, PARKS:	4000 gals/acre or 60 gals/student	4000 gals/acre or 60 gals/student	1700 gals/acre ~~or 60 gals/student~~	4000 gals/acre or 60 gals/student
AGRICULTURE:		2,500 gals/acre	~~5000 gals/acre~~	4000 gals/acre

* - Where two or more figures are listed for the same zoning, the daily demand resulting in higher consumption use shall govern the design unless specified otherwise.

(1) - Subject to special review and control by the Manager.

Table 100-19 - FIRE FLOW REQUIREMENTS

LAND USE	FLOW (GPM)/DURATION (HRS)/FIRE HYDRANT SPACING (FT.)			
	HAWAII	KAUAI	MAUI	OAHU
Agriculture	500/0.5/600 (1)	250/1/500	500/2/500	1000/0.5/700
Rural			1000/2/500	
Single Family	(2)	(4)	1000/2/350	1000/1/350
Duplex	1500/1/300	(4)	1250/2/350	1000/1/350
PUD Townhouse and Low Rise Apartments	1500/1/300	(4)	(5)	1500/1/250
Schools, Neighborhood Businesses, Small Shopping Centers, Hotels (except Maui), and High Rise Apartments	2000/2/300	2000/2/350	2000/2/250	2000/2/250
Light Industry, Downtown Business, Large Shopping Center, and Hospitals	2,000/2/300	3000/3/350	2000/2/250	4000/3/250
Heavy Industry, Hotels	2,000/2/300	3000/3/350	2,500/2/ 250	(3)

(1) - Applies to one acre lot size or less
(2) - 10,000 sq. ft. or larger lot size = 500/2/600; Less than 10,000 sq. ft. lot size = 1000/1/600
(3) - Subject to special review and control by Manager
(4) - R-2 = 500/1/500 R-4 = 750/2/500 R-6 = 1000/2/500 R-10 = 1250/2/350
R-20 = 1500/2/350 RR-10 = 1500/2/350 RR-20 = 2000/2/350
(5) - A-1 = 1500/2/250 A-2 = 2000/2/250

Note:
1. On dead end streets, the last F.H. shall be located at one half the spacing distance for F.H.s from the last house/unit (frontage property line or to the driveway/access for the property).
2. Spacing of fire hydrant shall be measured along the roadway.

PRIVATE WATER SYSTEM CALCULATIONS

JOB NUMBER: H109-001
PROJECT: Hoonani Development
FILE: Private Water System Calculations.xlsx

Project Residential Calculations:

Number of Multi-Family Low Rise Units =	1599	units
Average Daily Demand (A.D.D.) =	400	gal/unit
A.D.D. =	639,600	gal/day
Max Daily Demand (1.5*ADD) =	959,400	gal/day
Average Daily Flow (GPM) =	444.17	GPM
Max Day Flow (GPM) =	666.25	GPM
Residential Peak Hour Flow (3.0*ADF) =	1,333	GPM

Project Commercial Space Calculations:

Commercial Space Area (AC) =	23.90	AC
Building Area (Sq. Ft)=	165,196	Sq. Ft.
Average Daily Demand (A.D.D.) =	140	gal/1000 bldg. sq. ft.
Commercial Space ADD	23,127	gal/day
C.S. Max Daily Demand (1.5*ADD) =	34,691	gal/day
C.S. Average Daily Flow (GPM) =	16.06	GPM
C.S. Max Day Flow (GPM) =	24.09	GPM
C.S. Peak Hour Flow (3.0*ADF) =	48.18	GPM

Project WWTP Space Calculations:

WWTP Approx. Building Area (SF)	9,000	SF
Average Daily Demand (A.D.D.) =	140	gal/1000 bldg. sq. ft.
WWTP ADD	1,260	gal/day
C.S. Max Daily Demand (1.5*ADD) =	1,890	gal/day
C.S. Average Daily Flow (GPM) =	0.88	GPM
C.S. Max Day Flow (GPM) =	1.31	GPM
C.S. Peak Hour Flow (3.0*ADF) =	2.63	GPM

Project Park Space Calculations

Park Space Area (AC) =	33.13	AC
Average Daily Demand (A.D.D.) =	1700	gal/acre
Industrial Space ADD	56,321	gal/day
C.S. Max Daily Demand (1.5*ADD) =	84,482	gal/day
C.S. Average Daily Flow (GPM) =	39.11	GPM
C.S. Max Day Flow (GPM) =	58.67	GPM
C.S. Peak Hour Flow (3.0*ADF) =	117.34	GPM

Project Industrial Space Calculations

Industrial Space Area (AC) =	18.42	AC
Building Area (Sq. Ft)=	198,100	Sq. Ft.
Average Daily Demand (A.D.D.) =	140	gal/1000 bldg. sq. ft.
Industrial Space ADD	27,734	gal/day
C.S. Max Daily Demand (1.5*ADD) =	41,601	gal/day
C.S. Average Daily Flow (GPM) =	19.26	GPM
C.S. Max Day Flow (GPM) =	28.89	GPM
C.S. Peak Hour Flow (3.0*ADF) =	57.78	GPM

Potential Future Commercial Space Calculations (County Site):

(Modeled as Residential for additional factor of safety)

Potential number of units =	275.00	units
Average Daily Demand (A.D.D.) =	400	gal/unit
Future Commercial Space A.D.D.	110,000	gal/day
C.S. Max Daily Demand (1.5*ADD) =	165,000	gal/day
C.S. Average Daily Flow (GPM) =	76.39	GPM
C.S. Max Day Flow (GPM) =	114.58	GPM
C.S. Peak Hour Flow (3.0*ADF) =	229.17	GPM

Potential Future Residential Calculations (County Site):

Number of Multi-Family Low Rise Units =	440	units
Average Daily Demand (A.D.D.) =	400	gal/unit
A.D.D. =	176,000	gal/day
Max Daily Demand (1.5*ADD) =	264,000	gal/day
Average Daily Flow (GPM) =	122.22	GPM
Max Day Flow (GPM) =	183.33	GPM
Residential Peak Hour Flow (3.0*ADF) =	367	GPM

Potential Future Commercial Space Calculations:

Future Potential Commercial Space (Bldg Sq. Ft.)	53,880	Sq. Ft.
Average Daily Demand (A.D.D.) =	140	gal/1000 bldg. sq. ft.
Future Commercial Space A.D.D.	7,543	gal/day
C.S. Max Daily Demand (1.5*ADD) =	11,315	gal/day
C.S. Average Daily Flow (GPM) =	5.24	GPM
C.S. Max Day Flow (GPM) =	7.86	GPM
C.S. Peak Hour Flow (3.0*ADF) =	15.72	GPM

Project Total Calculations:
(Totals are increased by 10% for unmetered uses and losses)

Total Project Site Average Daily Demand (GPD)	748,042	gal/day
Total Potential Future Average Daily Demand (GPD)	293,543	gal/day
Total Average Daily Demand (GPD)	1,041,586	gal/day
Design Average Daily Demand (GPD) * 1.10	1,145,744	gal/day
Total Max Daily Demand (1.5*Design ADD) =	1,718,616	gal/day
Total Average Daily Flow (GPM) =	796	GPM
Total Max Day Flow (GPM) =	1193	GPM
Total Peak Hour Flow (3.0*Design ADF) =	2387	GPM

Fire Flow Criteria & Water Line Sizing:

1. For Commercial use: 2000 GPM / 2 hours
2. Max velocity in main line = 10 ft./sec.

Flow Rate (gpm) =	2000	gpm
Flow Rate (cfs) =	4.456	cfs
Area of 12 inch pipe (sf) =	0.785	sf
Velocity in 12 inch pipe (ft/s) =	5.67	ft/sec.

Water mains to be 12 inches in size.

Domestic Flow Criteria & Water Distribution Line Sizing:

1. For domestic use during Peak Hour Flow: 2387 GPM
2. Max velocity in main line = 5 ft./sec.

Flow Rate (gpm) =	2387	gpm
Flow Rate (cfs) =	5.318	cfs
Area of 14 inch pipe (sf) =	1.069	sf
Velocity in 14 inch pipe (ft/s) =	4.97	ft/sec.

Offsite Water distribution mains to be 14 inches in size.

Reservoir Capacity Sizing Criteria:

1. Meet Maximum Day consumption:

From above, reservoir must be larger than 1,718,616 gallons.

2. Meet Max Day plus fire flow for duration of fire. Reservoir 3/4 full at start of fire.
(Ignoring pump input credits for factor of safety)

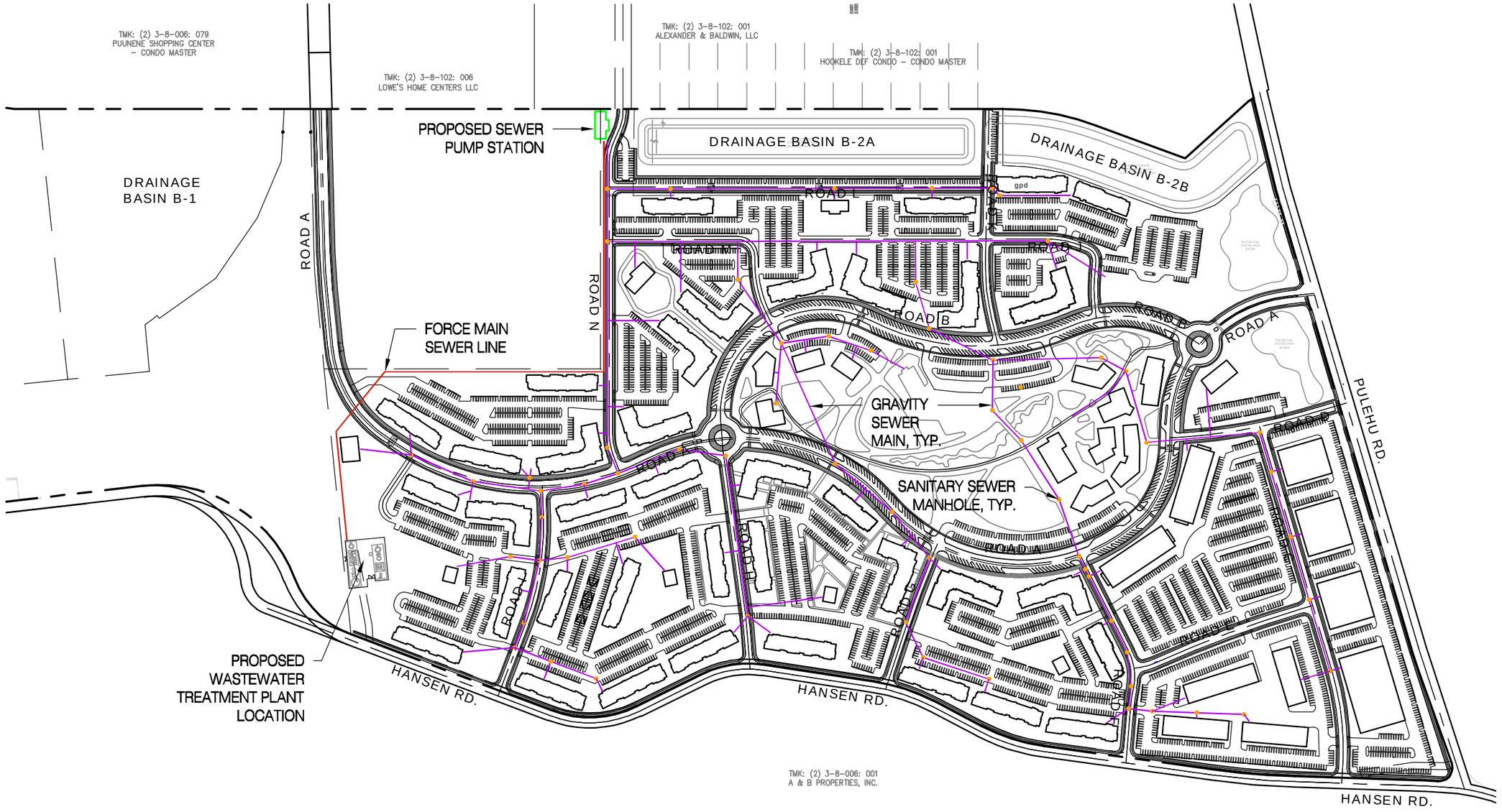
Max Day Flow for 2 hours (Gal) =	143218	gal
Fire Flow Rate for 2 hours (gal) =	240000	gal
Total Volume Needed at 3/4 full (gal) =	383218	gal
Total Reservoir volume (gal) =	510957	gal

Total Reservoir storage will be over 1,718,616 gallons.

APPENDIX 'F' – PRELIMINARY WASTEWATER SYSTEM CALCULATIONS AND PLANS

PRELIMINARY SANITARY SEWER MASTER PLAN

OVERALL MASTER PLAN



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Drawn by	ENH	Date	10/2024
Reviewed by	TCC	Date	10/2024
Project No.	H109-001	REF.	
Horiz. Scale:	1"=400'		
Vert. Scale:			

Project
HOONANI VILLAGE

No.
H109-001

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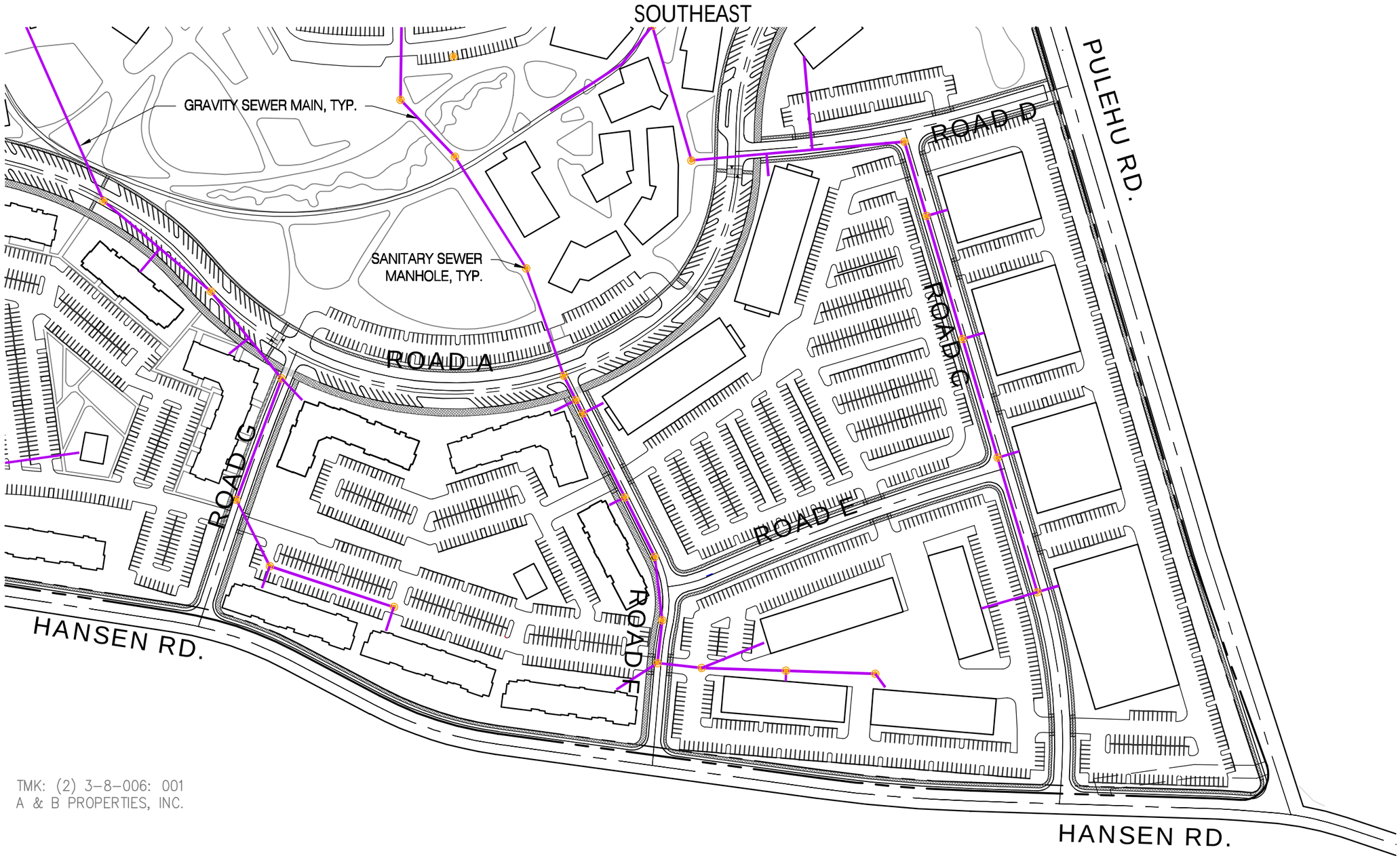
1 of 5

PRELIMINARY SANITARY SEWER MASTER PLAN



TMK: (2) 3-8-006: 001
A & B PROPERTIES, INC.

SCALE
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1 INCH = 200 FEET

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CONSTRUCTION MANAGEMENT
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Sheet
2 of 5

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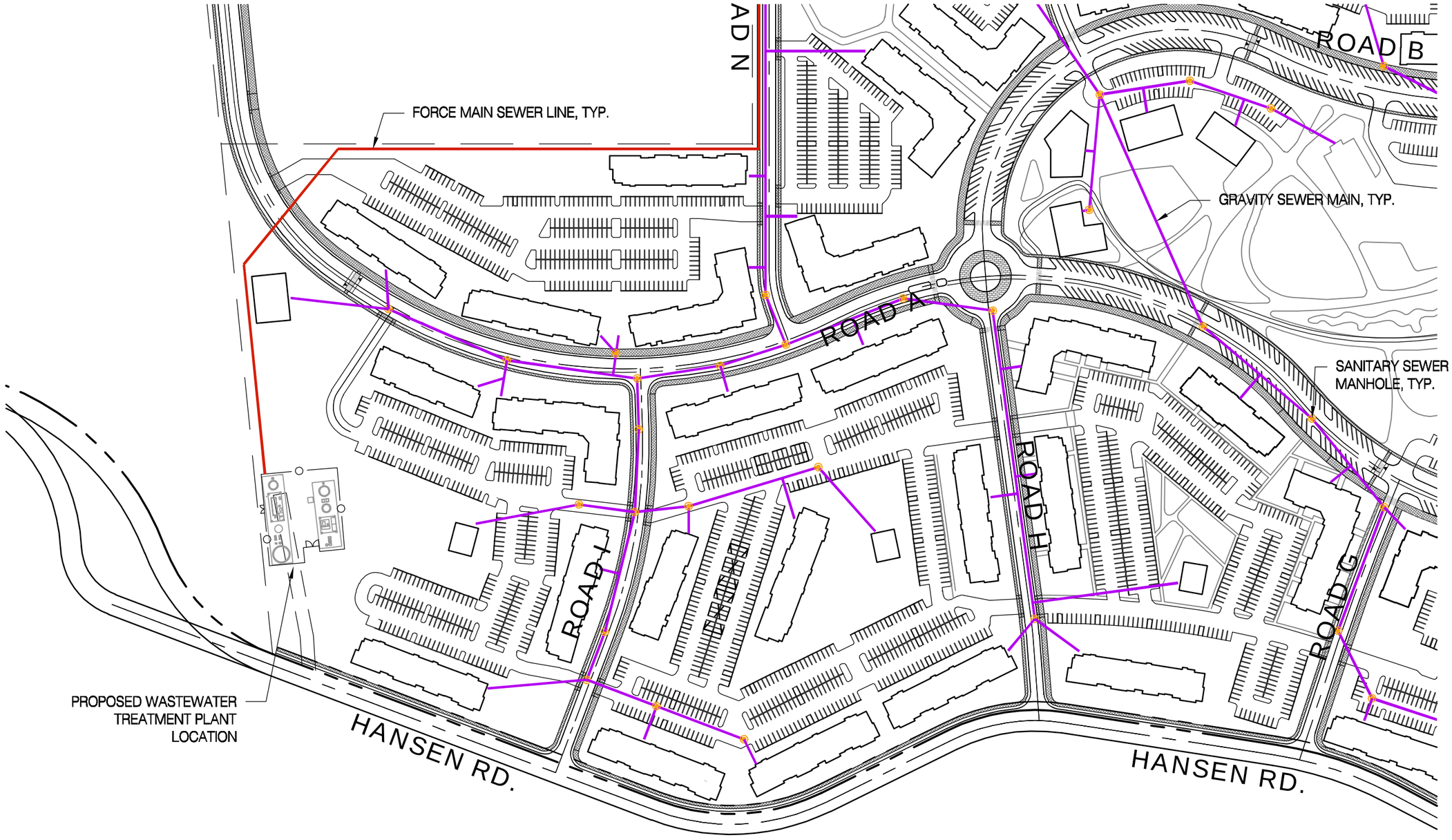
PRELIMINARY SANITARY SEWER MASTER PLAN

SOUTHWEST



SCALE
200 0 100 200
1 INCH = 200 FEET

PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.4005959
WWW.PD-GRP.COM

Designed by	ENH	Date	10/2024
Drawn by	ENH	Date	10/2024
Reviewed by	TCC	Date	10/2024
Project No.	H109-001	REF.	
Horiz. Scale:	1"=200'		
Vert. Scale:			

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
3 of 5

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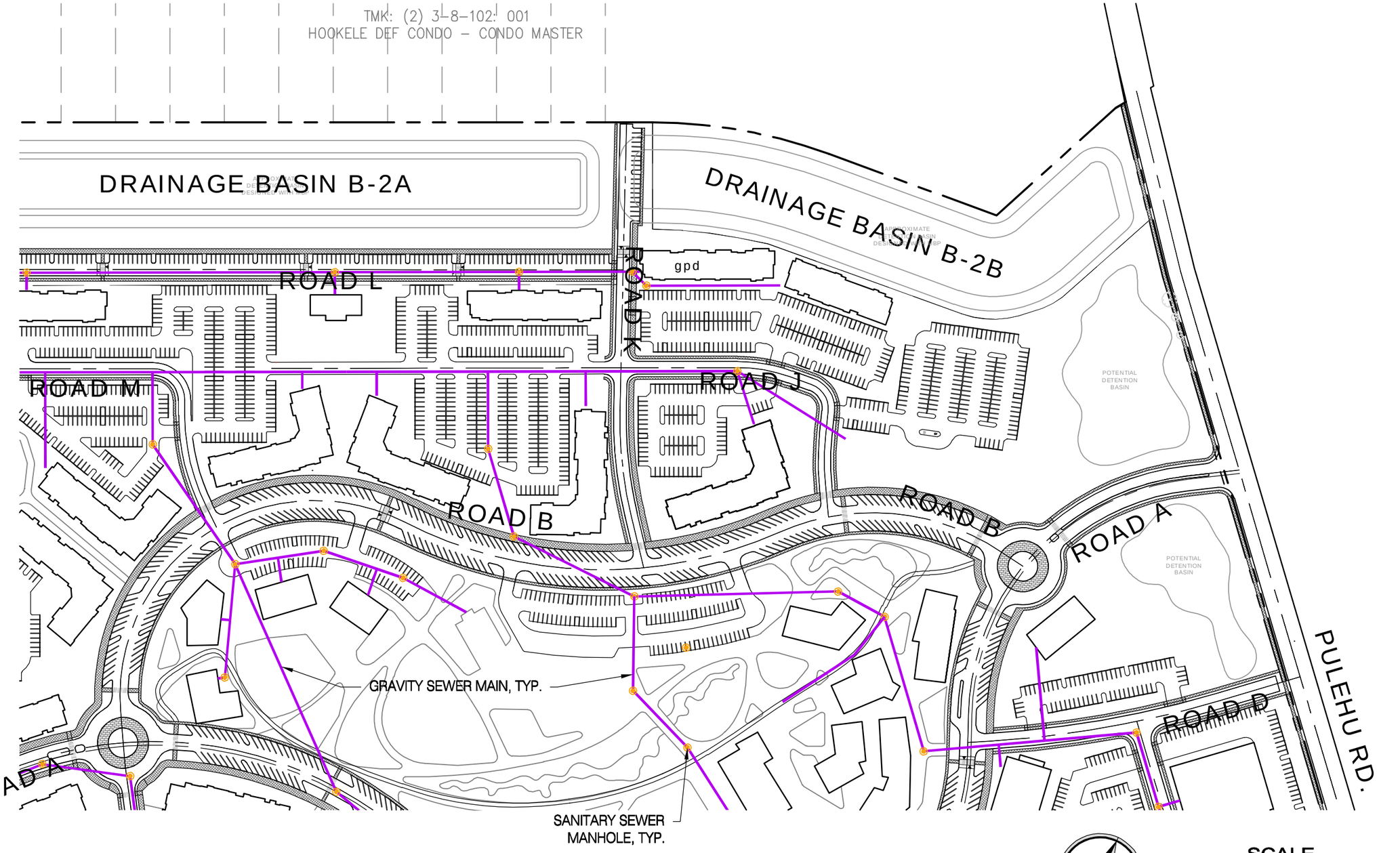
PRELIMINARY SANITARY SEWER MASTER PLAN

NORTHEAST



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HONOLULU, HAWAII PH: 808.4005959
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Reviewed by TCC Date 10/2024
Project No. H109-001 REF.
Horiz. Scale: 1"=200'
Vert. Scale:

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
4 of 5

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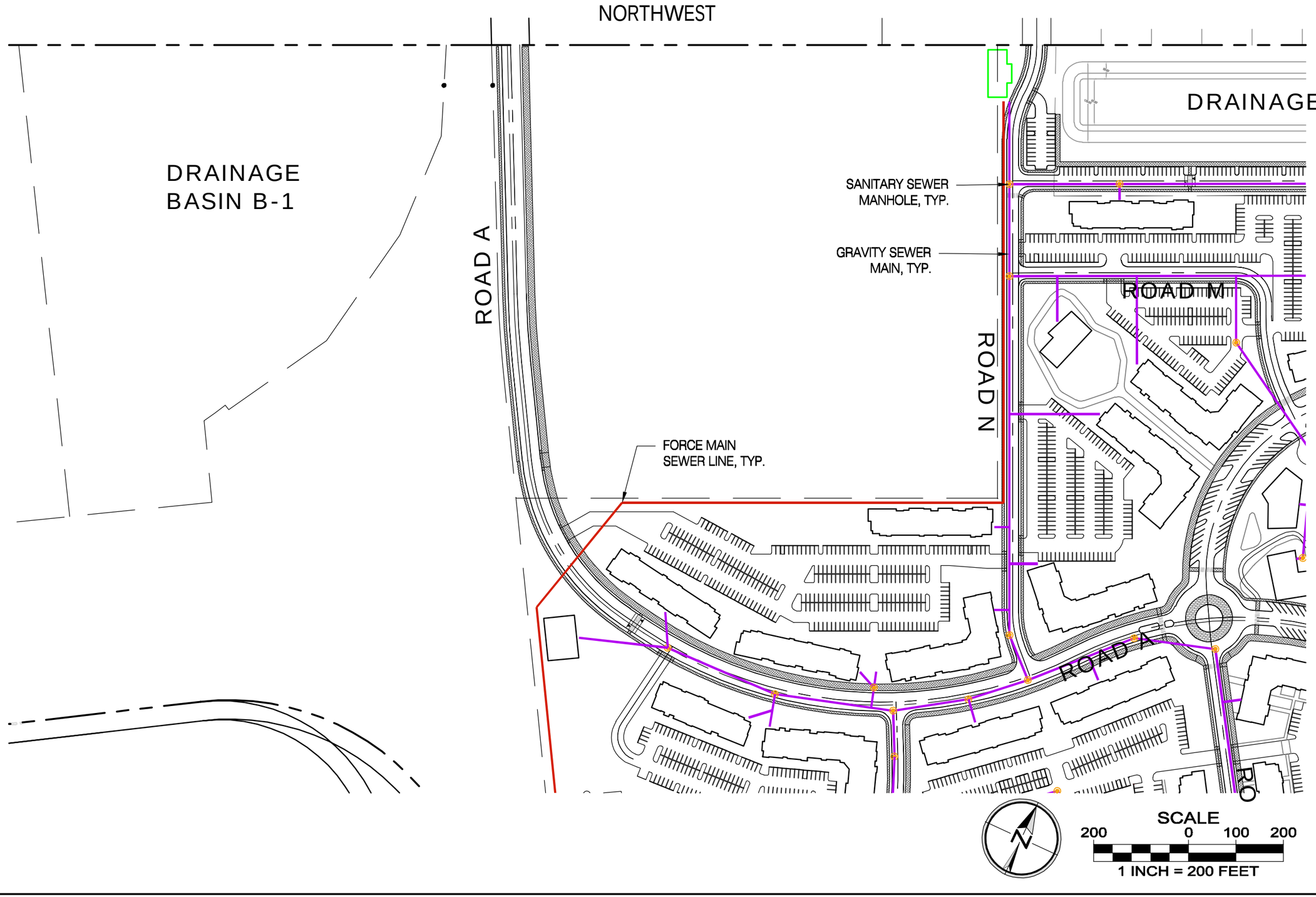
PRELIMINARY SANITARY SEWER MASTER PLAN



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Horiz. Scale:	1"=200'				
Vert. Scale:					

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
5 of 5

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WASTEWATER SYSTEM CALCULATIONS

(Preliminary Sanitary Sewer Analysis for Hoonani Village)

JOB: H109-001
PROJECT: Hoonani Village
FILE: Hoonani Village Sanitary Sewer Capacity Calculations
Manning's n= 0.013

TYPE OF USE	UNIT	QUANTITY OF UNIT	AVERAGE DAILY FLOW VOLUME (GPD)	AVERAGE FLOW RATE (CFS)
Residential Multi-Family Low-rise Apartments	255 gals/unit	1599 units	407,745	0.631
Commercial Restaurant (60% usable space for customers)	1 seat per 20 SF useable area, 80 gal per seat	56,100 sf = 1683 seats	134,640	0.208
Commercial Retail	1employee per 350 SF bldg area, 15 gal per employee	56,100 sf = 160 employees	2,400	0.004
Commercial Office Space	1employee per 200 SF bldg area, 20 gal per employee	100,000 sf = 500 employees	10,000	0.015
Light Industrial	1employee per 500 SF bldg area, 25 gal per employee	198,100 sf = 396 employees	9,900	0.015
Total Site Average Wastewater Flow			**564,685**	**0.874**
County Site - Potential Future Commercial Space (Modeled as Residential for higher flow)	300 gal/unit	275 units	82,500	0.128
County Site - Potential Future Residential - Modeled as Residential for higher flow. Potentially a School site.)	255 gals/unit	440 units	112,200	0.174
Future Restaurant (60% usable space for customers)	1 seat per 20 SF useable area, 80 gal per seat	26,940 sf = 808 seats	64,640	0.100
Future Retail	1employee per 350 SF bldg area, 15 gal per employee	26,940 sf = 77 employees	1,155	0.002
Total Potential Future Wastewater Flow			**260,495**	**0.403**
Total Average Wastewater Flow			**825,180**	**1.277**

Dry Weather Infiltration/Inflow	5 gal/capita/day	9940	**49,700**	0.077
Wet Weather Infiltration/Inflow (Area with sanitary lines)	1250 Gal./acre/day	117.654	**147,063**	0.228
Total Average Daily Site Wastewater Flow	Average Daily Flow plus Dry and Wet Weather Infiltration/inflow rate		**1,021,943**	**1.581**
Total Wastewater Flow Volume for WWTP	Additional 25% factor of safety for volume of WWTP		**1,277,428**	1.977
Total Site Peak Wastewater Flow (2.0 Peaking Factor)	(Peak flow rate (cfs) utilized for wastewater line sizing)		**2,043,885**	**3.163**

VERIFYING FLOW OF VARIOUS SIZES OF MAIN LINE AT 1/2 FULL

For y/do= 0.5 (50% full pipe)

Manning's n = 0.013

A/(d0^2) = 0.3927 (see table 10.1 below)

AR ^ (2/3) / (d0 ^ 8/3) = 0.1558 (see table 10.1 below)

S (ft./ft.) 0.005 ft./ft.

S^(1/2) = 0.0707

TABLE 10.1 GEOMETRIC ELEMENTS FOR C

$\frac{y}{d_0}$	$\frac{A}{d_0^2}$	$\frac{P}{d_0}$	$\frac{R}{d_0}$
0.01	0.0013	0.2003	0.0066
0.05	0.0147	0.4510	0.0326
0.10	0.0409	0.6435	0.0635
0.15	0.0739	0.7954	0.0929
0.20	0.1118	0.9273	0.1206
0.25	0.1535	1.0472	0.1466
0.30	0.1982	1.1593	0.1709
0.35	0.2450	1.2661	0.1935
0.40	0.2934	1.3694	0.2142
0.45	0.3428	1.4706	0.2331
0.50	0.3927	1.5708	0.2500
0.55	0.4426	1.6710	0.2649
0.60	0.4920	1.7722	0.2776
0.65	0.5404	1.8755	0.2881
0.70	0.5872	1.9823	0.2962
0.75	0.6318	2.0944	0.3017
0.80	0.6736	2.2143	0.3042
0.85	0.7115	2.3462	0.3033
0.90	0.7445	2.4981	0.2980
0.94[a]	0.7662	2.6467	0.2896
0.95	0.7707	2.6906	0.2864
1.00	0.7854	3.1416	0.2500

[a]Maximum flow occurs at 0.94 full depth.

Manning's Equation:

$$Q = VA = \left(\frac{1.49}{n}\right) AR^{\frac{2}{3}}\sqrt{S} \quad [U.S.]$$

$$Q = VA = \left(\frac{1.00}{n}\right) AR^{\frac{2}{3}}\sqrt{S} \quad [SI]$$

Where:

Q = Flow Rate, (ft^3/s)
v = Velocity, (ft/s)
A = Flow Area, (ft^2)
n = Manning's Roughness Coefficient
R = Hydraulic Radius, (ft)
S = Channel Slope, (ft/ft)

PIPE MAIN SIZE	do (ft)	AR ^ (2/3)	FLOW RATE (Q)			
6" Sewer Main	0.50	0.0245	**0.20 cfs**	<	1.581	cfs
8" Sewer Main	0.67	0.0528	**0.43 cfs**	<	1.581	cfs
10" Sewer Main	0.83	0.0958	**0.78 cfs**	<	1.581	cfs
12" Sewer Main	1.00	0.1558	**1.26 cfs**	<	1.581	cfs
15" Sewer Main	1.25	0.2825	**2.29 cfs**	<	1.581	cfs
15" PIPE AT 0.5% MIN. SLOPE CAN CONVEY HALF OF THE WASTEWATER FLOW FROM HOONANI VILLAGE						
18" Sewer Main	1.50	0.4594	**3.72 cfs**	<	3.163	cfs
18" PIPE AT 0.5% MIN. SLOPE FLOWING HALF FULL CAN CONVEY THE ENTIRE WASTEWATER FLOW FROM HOONANI VILLAGE						

TYPE OF USE	**UNIT**	**QUANTITY OF UNIT**	**TOTAL CAPITA**
Residential Multi-Family Low-rise Apartments	2.5 Occupants per Unit	1599	3998
Commercial Restaurant (Customers)	60% useable space, 1 seat per 20 SF	56100	1683
Commercial Restaurant (Front of house staff)	1 staff member per 20 customers	1683	84
Commercial Restaurant (Back of house staff)	4 staff member per 50 customers	1683	135
Commercial Retail	1employee per 350 SF bldg area	56100	160
Commercial Office Space	1employee per 200 SF bldg area	100000	500
Light Industrial	1employee per 500 SF bldg area	198,100	396
Potential Future Commercial Space (Estimated at Hotel for higher flow)	2.25 Occupants per Unit + 1 Employee per room	275	894

County Site - Future Residential - Modeled as Residential (440 units) for higher flow. Potentially a School site.)	2.5 Occupants per Unit	440	1,100
Future Restaurant (Customers)	60% useable space, 1 seat per 20 SF	26,940	808
Future Restaurant (Front of house staff)	1 staff member per 20 customers	808	40
Future Restaurant (Back of house staff)	4 staff member per 50 customers	808	65
Future Retail	1employee per 350 SF bldg area	26,940	77
TOTAL ESTIMATED CAPITA			**9940**

County of Maui
Wastewater Reclamation Division

2200 Main Street Suite 610 ● Wailuku, HI 96793 ● (808) 270-7417 ● 270-7425 fax

Wastewater Flow Standards

The following wastewater flow contributions are to be utilized for projecting wastewater flows for the following types of uses, unless other supporting data is provided to show differently.

Type of use	Unit	Contribution (Gal/Unit/Day)
Apartment/Condo	Unit	255
Bar	Seat	15
Church, large	Seat	6
Church, small	Seat	4
Cottage or Ohana (600 S.F. max)	Unit	180
Day-care Center	Child	10
Factory	Employee	30
Golf Clubhouse	Golf Rounds	25
Hotel, resort with laundry	Room	350
Hotel, average with laundry	Room	300
Hotel, average without laundry	Room	250
Hospital	Bed	200
Industrial Shop	Employee	25
Laundry (coin operated)	Machine	300
Office	Employee	20
Residence, subdivision	Home	350
Restaurant, average	Seat	80
Restaurant, fast food	Seat	100
Rest Home	Patient	100
Retail Store	Employee	15
School, elementary	Student	15
School, high	Student	25
Storage, w/ offices	Employee	15
Storage w/ offices and showers	Employee	30
Store Customer bathroom usage	Use	5
Theater	Seat	5

The following standards will be used as necessary to compute the number of units required to make wastewater calculations:

Residential Occupancy	4 persons per unit
Apartment/Condo Occupancy	2.5 persons per unit
Hotel Occupancy	2.25 persons per unit
Hotel Employees	1 per hotel room
Office Employees	1 per 200 square feet of floor area
Retail Warehouse Employees	1 per 350 square feet of floor area
Storage/ Industrial Employees	1 per 500 square feet of floor area

Average Wastewater Flow: The average wastewater flow is the sum of the applicable wastewater flows listed above.

Maximum Wastewater Flow: The maximum wastewater flow is obtained by multiplying the average flow by a flow factor. The flow factor shall be obtained utilizing the Babbit formula or other rationale method.

Dry Weather Infiltration/Inflow: The following rates shall be used in the design of wastewater transmission lines:

a.	35 gpcd* -	Wastewater lines laid below the normal ground water table.
b.	5 gpcd -	Wastewater lines laid above the normal ground water table.

* gpcd = Gallons per Capita Day

Wet Weather Infiltration/Inflow: The following rates shall be used in the design of wastewater transmission lines:

a	2,750 gad* -	Wastewater lines laid below the normal ground water table.
b.	1,250 gad -	Wastewater lines laid above the normal ground water table.

* gad = Gallons per Acre per Day

Design Average Flow: The design average flow is the sum of the average wastewater flow and the applicable dry weather infiltration/inflow rate.

Design Maximum Flow: The design maximum flow is the sum of the maximum flow and the applicable dry weather infiltration/inflow rate.

Design Peak Flow: The design peak flow of wastewater is the sum of design maximum flow and the wet weather infiltration/inflow

APPENDIX 'G' – PRELIMINARY LAND USE CONCEPT PLAN AND SITE PLAN

MAP LEGEND

RETAIL

1. COSTCO
2. WHOLE FOODS MARKET
3. WALMART
4. TAGET
5. SAFEWAY
6. QUEEN KALAHUMANU CENTER

POINTS OF INTEREST

7. KANAHA BEACH
8. KANAHA POND STATE WILDLIFE SANCTUARY
9. KEOPUOLANI REGIONAL PARK
10. KAHULUI COMMUNITY CENTER PARK
11. THE DUNES AT MAUI LANI GOLF COURSE
12. CENTRAL MAUI REGIONAL SPORTS COMPLEX

PUBLIC AMENITIES

13. KAHULUI AIRPORT
14. UNIVERSITY OF HAWAII MAUI COLLEGE
15. BALDWIN HIGH SCHOOL
16. MAUI HIGH SCHOOL
17. KAHULUI ELEMENTARY SCHOOL
18. LIHIKAI ELEMENTARY SCHOOL
19. POMAIKA'I ELEMENTARY SCHOOL
20. KAHULUI PUBLIC LIBRARY
21. MAUI MEMORIAL MEDICAL CENTER

Ho'onani Development

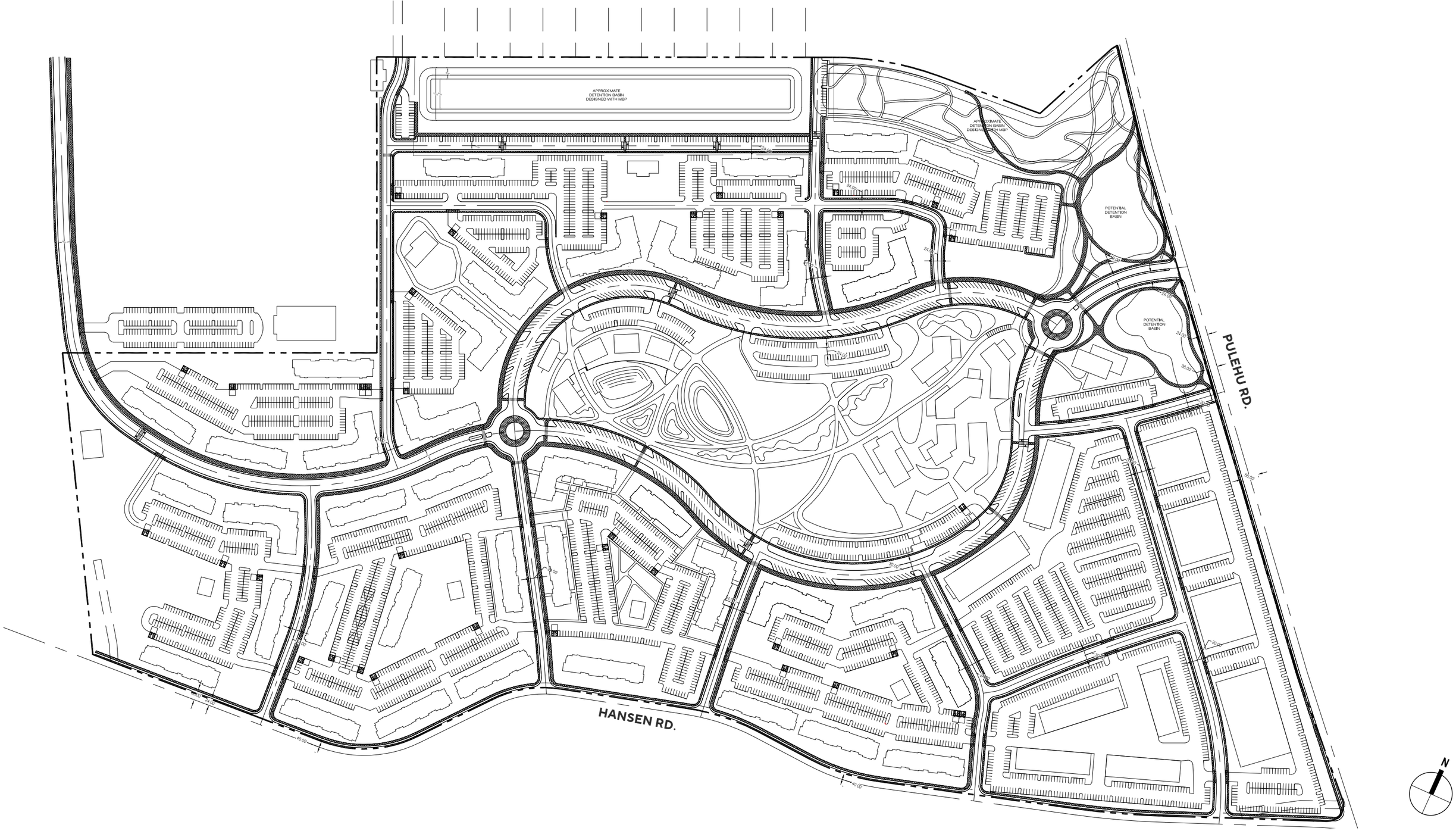
PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Vicinity Map

Architecture. Design. Relationships.

Scale 1"=300'
Job No. 2023-0690
Date 2024-06-17



Ho'onani
Development

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Concept Site Plan Study

Proposed Master Site Plan - Option 11

Architecture.
Design.
Relationships.

Scale	1" = 300'
Job No.	2023-0690
Date	2024-10-07

1

Commercial parcels to be developed concurrently with Multi-family Phase 1 or later.

Ho'onani
Development

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Concept Site Plan Study
Proposed Land Use Plan - Option 11

Architecture.
Design.
Relationships.

Scale 1"=300'
Job No. 2023-0690
Date 2024-10-07

1

	Land Use Description	Land Area (Acres)	Walk-up Unit	Modular Unit	D.U. / Acre (Range)	Commercial (Up To) GSF	Total Dwelling Units / Floor Area (SQ. FT.)	Parking Required	Parking Provided
1	Grand Entry Open Space	6.05	N/A	N/A	N/A	N/A	N/A	0	0
2A	Open Space Park (R)	25.35	N/A	N/A	N/A	N/A	N/A	628	725
2B	Food Hall		N/A	N/A	N/A	13,000	13,000		
2D	Commercial / Retail/ Restaurant		N/A	N/A	N/A	79,800	79,800		
2E	Entertainment space		N/A	N/A	N/A	7,400	7,400		
3	Future Commercial	3.24	N/A	N/A	N/A	TBD	N/A	TBD	172
4	Multi-Family	6.55	45	84	20 DU/AC	N/A	129	201	265
5	Multi-Family	21.45	270	84	17 DU/AC	N/A	354	606	847
6	Multi-Family	7.85	129	42	22 DU/AC	N/A	171	249	278
7	Multi-Family	9.23	75	84	17 DU/AC	N/A	159	252	313
8	Multi-Family	15.03	156	168	22 DU/AC	N/A	324	453	578
9	Multi-Family	11.30	120	84	18 DU/AC	N/A	204	333	393
10	Multi-Family	11.36	120	126	22 DU/AC	N/A	246	393	424
11	Office Campus	10.30	N/A	N/A	N/A	100,000	100,000	200	601
12	Commercial / Retail/ Restaurant	2.49	N/A	N/A	N/A	7,418	7,418	74	63
13	Industrial Park	18.42	N/A	N/A	N/A	198,100	198,100	330	645
14	Commercial / Retail/ Restaurant	1.61	N/A	N/A	N/A	5,850	5,850	59	0
15	Sports Complex	9.33	N/A	N/A	N/A	N/A	152,755	100	116
16	Sports Complex	4.90	N/A	N/A	N/A	N/A	N/A	0	19
17	Waste Water Treatment Plant	1.70	N/A	N/A	N/A	N/A	N/A	0	0
18	**Not A Part - County Land**	22.99	N/A	N/A	N/A	N/A	N/A	0.0	0.0
TOTAL		**189.15**	**915**	**672**		**411,568**	**1,587 uits; 442,000 sq. ft.**	**3878**	**5439**

Ho'onani Development

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Concept Site Plan Study

Proposed Master Site Plan Option 11 - **Site Tabulation**

Architecture. Design. Relationships.

Scale 1"=300'
Job No. 2021-0690
Date 2024-10-07

	Land Use Description	Land Area (Acres)	Walk-up Unit	Modular Unit	D.U. / Acre (Range)	Commercial (Up To) GSF	Total Dwelling Units / Floor Area (SQ. FT.)	Parking Required	Parking Provided
1	Grand Entry Open Space	6.05	N/A	N/A	N/A	N/A	N/A	0	0
2A	Open Space Park (R)	25.35	N/A	N/A	N/A	N/A	N/A	628	725
2B	Food Hall		N/A	N/A	N/A	13,000	13,000		
2D	Commercial / Retail/ Restaurant		N/A	N/A	N/A	79,800	79,800		
2E	Entertainment space		N/A	N/A	N/A	7,400	7,400		
3	Future Commercial	3.24	N/A	N/A	N/A	TBD	N/A	TBD	172
4	Multi-Family	6.55	45	84	20 DU/AC	N/A	129	201	265
5	Multi-Family	21.45	270	84	17 DU/AC	N/A	354	606	847
6	Multi-Family	7.85	129	42	22 DU/AC	N/A	171	249	278
7	Multi-Family	9.23	75	84	17 DU/AC	N/A	159	252	313
8	Multi-Family	15.03	156	168	22 DU/AC	N/A	324	453	578
9	Multi-Family	11.30	120	84	18 DU/AC	N/A	204	333	393
10	Multi-Family	11.36	120	126	22 DU/AC	N/A	246	393	424
11	Office Campus	10.30	N/A	N/A	N/A	100,000	100,000	200	601
12	Commercial / Retail/ Restaurant	2.49	N/A	N/A	N/A	7,418	7,418	74	63
13	Industrial Park	18.42	N/A	N/A	N/A	198,100	198,100	330	645
14	Commercial / Retail/ Restaurant	1.61	N/A	N/A	N/A	5,850	5,850	59	0
15	Sports Complex	9.33	N/A	N/A	N/A	N/A	152,755	100	116
16	Sports Complex	4.90	N/A	N/A	N/A	N/A	N/A	0	19
17	Waste Water Treatment Plant	1.70	N/A	N/A	N/A	N/A	N/A	0	0
18	**Not A Part - County Land**	22.99	N/A	N/A	N/A	N/A	N/A	0.0	0.0
TOTAL		**189.15**	**915**	**672**		**411,568**	**1,587 uits; 442,000 sq. ft.**	**3878**	**5439**

APPENDIX 'H' – PERCOLATION TEST RESULTS

DEPARTMENT OF HEALTH – WASTEWATER BRANCH
INDIVIDUAL WASTEWATER SYSTEM (IWS) – SITE EVALUATION/PERCOLATION TEST
(PERCOLATION TEST NO. 1 - EAST)

Date/Time: July 29, 2024 Test Performed by: Hawaii Geotechnical Consulting, Inc.

Owner: Ho'onani Development, LLC TMK: --

Elevation:	Unknown	Feet
Depth to Groundwater Table:	>10	feet below grade
Depth to Bedrock (if observed):	Unknown	feet below grade
Diameter of Hole:	9.0	inches
Depth to Hole Bottom:	36	inches below grade

Depth, inches below grade	Soil Profile (color, texture, other)
0-18	Brown Clayey Silt with some Sand, Soft
18-108	Orange Brown Silt with some Sand, Hard

PERCOLATION READINGS:

Time 12 inches of water to seep away: 101 minutes

Time 12 inches of water to seep away: 47 minutes

Check one:

_____ Percolation tests in sandy soils, recorded time intervals and water drops at least every 10 minutes for at least 1 hour.

X Percolation tests in non-sandy soils, presoaked the test hole for at least 4 hours. Recorded time intervals and water drops at least every 10 minutes for 1 hour of time for the first 6 inches to seep away in greater than 30 minutes recorded time intervals and water drops at least every 30 minutes for 4 hours or until 2 successive drops do not vary by more than 1/16 inch.

Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches
30	2-5/8	30	2-5/8		
30	2-3/16	30			
30	2-1/2				
30	2-5/8				

Percolation Rate (time/final water level drop): 11.41 minute/inch

As the engineer responsible for gathering and providing site information and percolation test results, I attest to the fact that above site information is accurate and that the site evaluation was conducted in accordance with the provisions of Chapter 11-62, "Wastewater Systems" and the results were acceptable. I also attest that three feet of suitable soil exists between the bottom of the soil absorption system and the groundwater table or any other limiting layer.

Engineer's Signature/Stamp

July 29, 2024

License Expires 04/30/2026

DEPARTMENT OF HEALTH – WASTEWATER BRANCH
INDIVIDUAL WASTEWATER SYSTEM (IWS) – SITE EVALUATION/PERCOLATION TEST
(PERCOLATION TEST NO. 2 - WEST)

Date/Time: July 29, 2024 Test Performed by: Hawaii Geotechnical Consulting, Inc.

Owner: Ho'onani Development, LLC TMK: --

Elevation:	Unknown	Feet
Depth to Groundwater Table:	>10	feet below grade
Depth to Bedrock (if observed):	Unknown	feet below grade
Diameter of Hole:	9.0	inches
Depth to Hole Bottom:	36	inches below grade

Depth, inches below grade	Soil Profile (color, texture, other)
0-18	Brown Clayey Silt with some Sand, Soft
18-108	Orange Brown Silt with some Sand, Hard

PERCOLATION READINGS:

Time 12 inches of water to seep away: 136 minutes

Time 12 inches of water to seep away: 100 minutes

Check one:

_____ Percolation tests in sandy soils, recorded time intervals and water drops at least every 10 minutes for at least 1 hour.

X Percolation tests in non-sandy soils, presoaked the test hole for at least 4 hours. Recorded time intervals and water drops at least every 10 minutes for 1 hour of time for the first 6 inches to seep away in greater than 30 minutes recorded time intervals and water drops at least every 30 minutes for 4 hours or until 2 successive drops do not vary by more than 1/16 inch.

Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches
30	4-15/16	30	5-1/16		
30	5-1/4				
30	5				
30	5-1/16				

Percolation Rate (time/final water level drop): 5.93 minute/inch

As the engineer responsible for gathering and providing site information and percolation test results, I attest to the fact that above site information is accurate and that the site evaluation was conducted in accordance with the provisions of Chapter 11-62, "Wastewater Systems" and the results were acceptable. I also attest that three feet of suitable soil exists between the bottom of the soil absorption system and the groundwater table or any other limiting layer.

Engineer's Signature/Stamp

July 29, 2024

License Expires 04/30/2026

APPENDIX 'B' – GEOTECHNICAL REPORT

GEOTECHNICAL INVESTIGATION REPORT
HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

A report by:
HAWAII GEOTECHNICAL CONSULTING, INC.

August 11, 2024

THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

04/30/2026

SIGNATURE

EXPIRATION DATE
OF LICENSE

Hawaii Geotechnical Consulting

- I n c o r p o r a t e d -

P.O. Box 331223 • Kahului, Hawaii 96733 • Phone (808) 205-1727

August 11, 2024
File No. 24024.01

Mr. Greg Sado
Ho'onani Development, LLC
Kahului, Maui, Hawaii 96793

Subject: **GEOTECHNICAL INVESTIGATION REPORT FOR HOONANI VILLAGE KAHULUI, MAUI, HAWAII**

Dear Mr. Sado:

We are pleased to submit our Geotechnical Investigation Report for the Hoonani Village project in Kahului, Maui, Hawaii. The enclosed report describes our subsurface investigation and presents our geotechnical recommendations for earthwork, foundations, retaining walls, pavements, utilities and percolation rates.

We appreciate the opportunity to work with you on this project. If you should have any questions or require additional information, please contact us.

Sincerely,

HAWAII GEOTECHNICAL CONSULTING, INC.

Robert M. Gibbens, P.E.
Senior Geotechnical Engineer

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1. INTRODUCTION

1.1 Authorization

Hawaii Geotechnical Consulting, Inc. (HGC) was retained by Hoonani Development, LLC to conduct a geotechnical investigation for the Hoonani Village project in Kahului, Maui, Hawaii. The scope of our services was outlined in our May 5, 2024 proposal No. P-780.

Authorization to proceed was received via a May 6, 2024 proposal signed by Mr. Greg Sato. The June 17, 2024 Concept Site Plan Study by AO Architecture was used during our investigation.

1.2 Purpose and Scope

The purpose of this geotechnical investigation was to explore and evaluate the proposed site's subsurface conditions in order to provide geotechnical recommendations for the project's mass grading, foundations, retaining walls, pavements, utilities and percolation rates. In addition to evaluating the subsurface soil conditions, the site's groundwater conditions and construction considerations were addressed. A description of the scope of work is presented below:

Phase 1 – Test Pit Field Investigation. A total of 42 test pits were excavated across the site with a CAT 328D excavator equipped with a 4.5-foot-wide bucket. Each test pit was excavated to an initial depth of 4 to 5 feet below the existing ground surface. The cut face of each test pit was then hand logged and relatively undisturbed drive and disturbed grab and bulk samples were obtained where appropriate. After initial logging and sample collection, each test pit was extended further. During the additional excavation, the disturbed soil cuttings were sampled when visual changes were observed.

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The test pits were excavated to depths ranging from 4 to 9 feet below the existing ground surface. An engineer with HGC observed and directed the test pit investigation, maintained a log of the subsurface soils encountered and collected relatively undisturbed drive and disturbed grab and bulk samples for laboratory testing. A description of the field investigation, the Logs of Test Pits, and a Unified Soil Classification System (USCS) chart are presented in Appendix A. The test pit locations are presented on the Test Pit Location Plan, Figure 1.

Phase 2 – Laboratory Testing. Laboratory tests were performed on relatively undisturbed drive and disturbed grab and bulk samples obtained during the field investigation. Laboratory tests were selected to verify field classifications and provide geotechnical parameters for use in design. Testing consisted of in-place dry density and moisture content, gradation, Atterberg limit and California Bearing Ratio (CBR) tests. The laboratory test methods and results are described and presented graphically in Appendix B and tabulated on the Logs of Test Pits in Appendix A, where applicable.

Phase 3 – Percolation Test. A total of two percolation tests were performed within the proposed WWTP leach field area. The percolation tests were performed at depths of 36 inches below the existing ground surface following the State of Hawaii Department of Health – Wastewater Branch testing method. The percolation test method and result are described and presented in Appendix C.

Phase 4 – Geotechnical Analysis. Our field observations and laboratory test results were analyzed in combination with the plans. We evaluated a shallow foundation system for support of the proposed project structures. Our analysis focused on the suitability of the sites in-place soils. We also analyzed the existing subsurface conditions as they relate to general site earthwork, foundations, retaining walls, pavement design and percolation rates. Design recommendations for use with standard IBC seismic criteria are also provided.

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Phase 5 – Geotechnical Report. This report was prepared to present our findings, conclusions, and recommendations regarding the geotechnical feasibility for site earthwork, foundations, retaining walls, pavement design and percolation rates. Discussions and recommendations regarding foundation types, bearing capacity, settlements and pavement design are presented.

1.3 Site Location

The proposed site is located along the valley area between Haleakala and the West Maui Mountains in Kahului, Maui, Hawaii. The site is bounded by Hansen Road to the south, by Pulehu Road to the east, existing commercial buildings and Hookele Street to the north and by vacant land to the west.

1.4 Site Description and Conditions

No topographic plans were available for the site. The site is relatively level. Unimproved soil and asphaltic paved roads were observed across the site. Signs of previous sugar cane cultivation were observed across the site including watering systems and plastic piping.

The site is currently vacant, having been most recently used for sugarcane cultivation. The sites surface varies from lightly vegetated to thickly overgrown, with thick brush and weeds observed.

END OF INTRODUCTION

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2. PROJECT DESIGN CONSIDERATIONS

2.1 Proposed Project/Development Plans

We understand that the project is a strategically planned mixed-use development located on a 165-acre site along Pulehu Road in southern Kahului. The following sections describe our understanding of the overall project scope.

2.1.1 Residential

The project will include 1,600 individual residential apartments across multiple structures. The apartment structures will consist of 1 to 4 story buildings constructed of wood with concrete slab on grade lower floors. In addition to the structures, various pools will be constructed across the site as well as stormwater detention basins along the site's northern region.

In addition to the residential structures, onsite driveways and parking lots as well as entranceways off Hansen Road, Pulehu Road and Hookele Street will be constructed. Buried utilities including water, sewer, drain and electrical are also planned.

We understand that retaining walls may be required across the site in order to support grade changes. We have assumed that retaining walls will include either CMU or concrete cantilevered walls with unknow heights.

2.1.2 WWTP

A wastewater treatment plant is planned for the site's western region. The WWTP will include an underground septic system, holding tanks and prefabricated metal buildings. In addition, a sewer pump station is planned for the site's northern region.

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2.1.3 Well Site

A new well site is planned up Pulehu Road. The well site will include new wells and additional water holding tanks.

2.1.4 Community Recreational Facilities

Recreational amenities including an amphitheater, pickleball/basketball courts, multiple sports fields and a dog park are planned.

2.1.5 Commercial/Industrial

In addition to the residential component, multiple commercial ventures are proposed within the development. Two 125-150 room hotels are planned within the development. The hotel structures will likely be wood framed with concrete slab-on-grade lower floors. We understand that 100,000 square feet of commercial space is planned along with 200,000 square feet of industrial space. The commercial and industrial structures will likely be constructed of wood or steel with concrete slab on grade lower floors.

2.1.6 County School/Community Facilities

We understand that the 23-acre site at the projects northwest corner may, in the future, be developed into a grade school as well as a community facility. It appears that the grade school project will include a main school building along with parking lots and other structures. A community facility may be constructed just south of the school facility. The community facility will include a single structure with a parking lot.

2.2 Grading

Although no grading plans were made available, we have assumed that mass grading across the relatively level site will likely include cuts and fills on the order of 1 to 3 feet. Deeper cuts will be required along the site's detention basins and buried utilities.

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2.3 Pavements

We have assumed that all onsite paving will consist of asphaltic concrete (AC), with Portland Cement Concrete Pavement (PCCP) possibly used at heavily loaded or tight turning areas, such as trash enclosures as well as within the commercial and industrial areas. No traffic information was made available at this time. We have assumed traffic within the proposed residential project will include primarily passenger and light truck traffic, with assumed traffic within the proposed commercial and industrial projects will include primarily passenger and light to heavy truck traffic.

END OF PROJECT DESIGN CONSIDERATIONS

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3. SUBSURFACE INVESTIGATION

3.1 Test Pits

A total of 42 test pits were excavated across the proposed site. The test pits were excavated with a CAT 328D excavator equipped with a straight bar 4.5-foot-wide bucket. Each test pit was excavated to an initial depth of 4 to 5 feet below the existing ground surface. The cut face of each test pit was hand logged and relatively undisturbed drive and disturbed grab and bulk samples were obtained where appropriate. After initial logging and sample collection, each test pit was extended further. During the additional excavation, the disturbed soil cuttings were sampled when visual changes were observed.

The test pits were excavated to depths ranging from 4 to 9 feet below the existing ground surface. An engineer with HGC observed and directed the test pit investigation, maintained a log of the subsurface soils encountered and collected relatively undisturbed drive and disturbed grab and bulk samples for laboratory testing. A description of the field exploration, the Logs of Test Pits, and a USCS chart are presented in Appendix A. The Logs of Test Pits are presented as Figures A2 through A43. A USCS soil classification chart is presented as Figure A1. The test pit locations and percolation test locations are presented on the Test Pit Location Plan, Figure 1.

3.2 Laboratory Testing

Laboratory tests were performed on relatively undisturbed drive and disturbed grab and bulk samples obtained during the field investigation. Laboratory tests were selected to verify field classifications and provide geotechnical parameters for use in design. Testing consisted of in-place dry density and moisture content, gradation, Atterberg limit, CBR and Proctor tests. The laboratory test methods and results are described and presented graphically in Appendix B and tabulated on the Logs of Test Pits in Appendix A, where applicable.

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3.3 Percolation Testing

A total of two percolation tests were performed within the proposed WWTP leach field area, one along its east end and one along its west end. The percolation tests were performed at a depth of 36 inches following the State of Hawaii Department of Health – Wastewater Branch testing method.

Approximately 1 inch of clean ¾-inch gravel was placed at the bottom of a 9-inch diameter, 36-inch-deep hand excavated hole. Step D of the procedure for other type (non-granular) soils was used to perform the percolation tests, as a 12 inch head of water did not seep away in under 10 minutes, twice. After a minimum of 4 hours of presoaking, maintaining a 12-inch head, the hole was allowed to swell for at least 12 hours. After swelling, water was then added to 6 inches above the gravel and allowed to percolate. The water drop was recorded every 30-minute time interval for 4 hours. The final drop used to calculate the percolation rates.

A senior engineer with HGC performed the percolation test and maintained a log of the time and water drop intervals. The percolation test result is presented in Appendix C.

END OF SUBSURFACE INVESTIGATION

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4. SUBSURFACE CONDITIONS

4.1 General

The site is generally blanketed by a layer of agriculturally disturbed soil underlain by alluvial (water deposited) soil to the maximum depth of our explorations. A detailed description of the underlying soils is presented below.

Map 104 of the August 1972 *United States Department of Agriculture Soil Conservation Service Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* indicates that the proposed site is within the (EaA) Ewa series. This series is characterized by well drained soils in basins and on alluvial fans on the islands of Maui and Oahu. These soils developed in alluvium derived from basic igneous rock. They are nearly level to moderately sloping. These soils are used for sugarcane, truck crops, and pasture. The depth to bedrock is deeper than 5 feet. The Unified Soil Classification is ML-MH.

4.2 Agriculturally Disturbed Soil

The site was recently used for the cultivation of cane sugar. The cultivation process left the entire site with approximately 12 to 30 inches of agriculturally disturbed soil. Roots and black irrigation plastic were encountered within the agriculturally disturbed soils to depths between 6 and 12 inches.

The agriculturally disturbed clayey silt consisted of low plasticity clayey silt with varying percentages of sand, typically classified as ML under the USCS. The clayey silt was generally soft and dry, with measured in-place dry densities ranging from 68 to 75 pounds per cubic foot (pcf) and measured in-place moisture contents ranging from 11 to 21 percent, with a single measured moisture content as high as 38 percent. Atterberg limit tests on the low plasticity agriculturally disturbed clayey silts indicated they possess low- to low-moderate plasticity, with Plasticity Index (PI) values ranging from 14 to 22.

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In addition to the agriculturally disturbed clayey silt, several areas of agriculturally disturbed silty sand, typically classified as SM under the USCS, were encountered across the site. The silty sand was encountered from the ground surface to depths of 12 to 24 inches. The silty sand was generally loose and dry, with measured in-place dry densities ranging from 93 to 101 pcf and measured in-place moisture contents ranging from 8 to 17 percent.

4.3 Alluvial Soil

Low plasticity alluvial orange-brown silts were encountered below the upper agriculturally disturbed clayey silts. The alluvial silts were encountered from a depth of 12 to 30 inches to the maximum depth of our explorations at 9 feet. The alluvial silts were typically classified as ML under the USCS. The silts were generally hard and damp to moist, with measured in-place dry densities ranging from 72 to 82 pcf and measured in-place moisture contents ranging from 12 to 33 percent. Atterberg limit tests on the low plasticity silts indicated they possess a low- to low-moderate plasticity, with Plasticity Index (PI) values ranging from 9 to 24. The alluvial silt along the WWTP region, in the area of the proposed leach field, possessed percolation rates ranging from of 5.9 minutes per inch (west) to 11.4 minutes per inch (east).

In addition to the alluvial silts, several areas of alluvial silty sand and silty gravel, typically classified as SM and GM under the USCS, respectively, were encountered across the site. The silty sand and silty gravel was encountered from depths of 6.0 to 7.5 feet to the maximum depth of our explorations at 9 feet. The silty sand and silty gravel was generally dense and damp to moist, with measured in-place moisture contents ranging from 10 to 27 percent.

4.4 Undocumented Fill

Limited areas of undocumented fill were encountered along the sites southwestern corner (Test Pit Nos. 22 and 25). The undocumented fill consisted

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of soft clayey silt and loose silty sand. The fill was encountered from the ground surface to depths of 1 foot. A 1.5-inch asphaltic pavement section was encountered below the undocumented fill in Test Pit No. 25.

The clayey silt fill is typically classified as ML under the USCS. The clayey silt was generally soft and dry, with a measured in-place dry density of 70 pcf and a measured moisture content of 14 percent. The silty sand fill is typically classified as SM under the USCS. The silty sand was generally loose and dry, with a measured in-place dry density of 93 pcf and a measured moisture content of 8 percent.

4.5 Groundwater Conditions

No free water or groundwater was encountered during our field investigation and is not expected to impact construction. Groundwater levels within the project areas may vary depending on seasonal rainfall and runoff conditions not apparent at the time of our field investigation. Therefore, groundwater levels may vary from those presented above at the time of construction.

END OF SUBSURFACE CONDITIONS

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5. DISCUSSION AND ANALYSIS

5.1 General

Based on the results of our field exploration, laboratory testing, and geotechnical analysis, we believe that it is geotechnically feasible to construct the proposed mixed-use project, provided the recommendations of this report are closely followed. The primary geotechnical concern regarding the proposed construction is the presence of soft and loose agriculturally disturbed soils across the site as well as the presence undocumented fill along the sites southwest corner. A more detailed discussion regarding these as well as other concerns is presented below.

5.2 Agriculturally Disturbed Soils

Between 12 and 30 inches of the sites upper soils have been agriculturally disturbed by the past sugar cane cultivation. The disturbed soils are generally soft or loose and dry, possessing the potential for future settlement if not remediated. The agriculturally disturbed soils will need to be removed down to within 12 inches of the bottom of the agriculturally disturbed soils within all fill areas, foundations or roadways. The final in-place 12 inches of agriculturally disturbed soils should be scarified and moisture conditioned in-place prior to being compacted to no less than 90 percent of the soils maximum dry density at a moisture content within 3 percent of its optimum moisture content in accordance with ASTM D1557.

The removed agriculturally disturbed soils can then be placed and compacted back to their original level or to finished grade. The recompacted agriculturally disturbed soils should be placed in accordance with Section 6.7.4 Engineered Fill.

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5.3 Undocumented Fill

Undocumented fill was encountered within Test Pit Nos. 22 and 25 at the sites southwest corner. The undocumented fill was encountered in a soft to loose state from the ground surface to a depth of 12 inches.

We recommend that the soils at the sites southwest corner be proof rolled in order to detect any additional undocumented fill, if it exists. We recommend that the proof rolling be performed with a minimum of a 12-ton vibratory smooth drum roller. The proof rolling should be observed by HGC personnel. All undocumented fill should be removed and recompacted in-place to no less than 90 percent of the soils maximum dry density at a moisture content within 3 percent of its optimum moisture content in accordance with ASTM D1557.

5.4 County School/Community Facility Site

We understand that the sites northwest corner may be developed into a grade school and community facility sometime in the future. The scope of our investigation did not include test pits within the school and community facility site. Based on the overall site's consistent subsurface conditions, we believe that the soils beneath the school and community facility will likely consist of an upper layer of agriculturally disturbed clayey silt underlain by alluvial silt.

These soil conditions are generally suitable for support of foundations and pavements for projects with similar scopes to the potential future school and community facility. We recommend that a full geotechnical investigation be performed at the school and community facility prior to its development.

END OF DISCUSSION AND ANALYSIS

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6. ENGINEERING RECOMMENDATIONS

6.1 General

Site grading design can be developed in accordance with the following recommendations. Unless stated otherwise, the maximum dry density (MDD) and optimum moisture content (OMC) of all engineered fill referenced within this report is based on Laboratory Test Method ASTM D1557.

6.2 Seismic Design Considerations

The following sections address what we believe to be the project's major seismic design considerations.

6.2.1 Ground Shaking

The proposed development is located in an area with some seismic activity and the proposed structures will likely be subjected to seismic shaking during their design life. The primary potential seismic hazard is ground shaking. We recommend that the proposed development be designed in accordance with the requirements of the latest (2018) edition of the International Building Code (IBC). According to Table 1613.52 of the 2018 IBC, the project site can be characterized by a Site Class of C.

6.2.2 Liquefaction

Liquefaction occurs in loose, saturated sands that are subjected to earthquake type motions. In sands where constant volume conditions are maintained during shaking (i.e., where no immediate drainage path exists), excess pore water pressures build quickly and as a result, soil strength is rapidly reduced and settlement occurs. Neither loose sands nor a shallow groundwater table underlie the site. Therefore no liquefaction-induced settlements are likely.

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6.2.3 Other Seismic Considerations

The site is not located within an Earthquake Fault Zone. Therefore the likelihood of the ground surface rupturing due to faulting is considered to be low. Based on the materials encountered and the existing and planned topographic conditions, we do not expect seismic slope instability to be a concern. Due to the site's elevation, we do not believe that tsunamis are a potential threat.

6.3 Foundations

The residential, commercial and industrial structures may be founded on shallow continuous strip or spread footings provided the recommendations for site preparation are followed. We recommend that all foundations founded in recompacted previously agriculturally disturbed clayey silt, native alluvial silt, or granular engineered fill be placed a minimum depth of 12 inches below the lowest adjacent grade for both interior and exterior footings. These embedment depths should provide bearing surfaces consisting of either fine grained clayey silt or coarse grained granular engineered fil.

For a shallow foundation system designed with the recommendations presented above, an allowable bearing pressure of 3,050 pounds per square foot (psf) may be used. This bearing value is for total dead plus sustained live loads and may be increased by one-third for transient loads such as wind or seismic. We estimate that total and differential settlements should be less than ½-inch for foundations designed as described above.

The bottom of all foundations should be cleaned of loose material and all uncompacted agriculturally disturbed soils should be compacted to no less than 90 percent of the soils MDD at a moisture content within 3 percent of its OMC. The subgrade soil should also be compacted to at least 90 percent of the materials MDD at a moisture content within 3 percent of its OMC. Footings located near adjacent slopes should be embedded such that a minimum

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horizontal distance of 5 feet is maintained between the footing's bottom edge and the exposed slope face.

Lateral resistance may be derived from passive resistance along the footing sides and friction along the footing bottoms. An allowable passive earth pressure of 250 psf per foot of depth may be used for footings founded in either compacted previously agriculturally disturbed soil, alluvial soil or engineered fill. We recommend that the lateral earth pressure of any footing be neglected for the upper 12-inches unless the surface around the footing is protected from erosion or disturbance by a slab, pavement, or some other form of confinement.

A coefficient of friction value of 0.45 may be used between the bottom of concrete footings and the underlying compacted previously agriculturally disturbed soil, alluvial soil or engineered fill. Sliding resistance should be calculated based on the dead load only.

6.4 Slab-on Grade Floors

Concrete slab-on-grade floors bearing on compacted previously agriculturally disturbed soil, alluvial soil or engineered fill can be used for the residential, commercial or industrial structures. If reducing the passage of water vapor through the slab is desired, we recommend that a vapor barrier be placed beneath the slab.

For exterior slabs and slabs designed as rigid pavements, the water vapor barrier can be replaced by 6 inches of Aggregate for Untreated Base (UTB). The UTB should conform to Section 703.06 of the 2005 Hawaii Standard Specifications for Road, Bridge, and Public Works Construction (Standard Specifications). The UTB should be compacted to at least 95 percent of its MDD.

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Lateral resistance may be derived from passive resistance along the footing sides and friction along the footing bottoms. An allowable passive earth pressure of 250 psf per foot of depth may be used for footings founded in either compacted previously agriculturally disturbed soil, alluvial soil or engineered fill. We recommend that the lateral earth pressure of any footing be neglected for the upper 12-inches unless the surface around the footing is protected from erosion or disturbance by a slab, pavement, or some other form of confinement.

A coefficient of friction value of 0.45 may be used between the bottom of concrete footings and the underlying compacted previously agriculturally disturbed soil, alluvial soil or engineered fill. Sliding resistance should be calculated based on the dead load only.

6.5 Retaining Walls

We understand that the yielding free-standing retaining walls may be used to support site grade changes across the site. We have assumed that site walls will be CMU or concrete within unknown heights, but likely with heights less than 6 feet. We have assumed that most wall backfill will be level onsite soil.

Unrestrained walls that are free to rotation at the top should be designed with active lateral earth pressures. For yielding CMU or concrete walls with level backfill, we recommend that an active lateral earth pressure equivalent to a fluid weighing **45 pcf** be used in design.

Lateral resistance may be derived from passive resistance along the wall footing sides and friction along the footing bottoms. An allowable passive earth pressure of 250 psf per foot of depth may be used for design. We recommend that the lateral earth pressure of any footing be neglected for the upper 12-inches unless the surface around the footing is protected from erosion or disturbance by a slab, pavement, or some other form of confinement.

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A coefficient of friction value of 0.45 may be used between the bottom of the concrete footings and the previously agriculturally disturbed soil, alluvial soil or engineered fill. Sliding resistance should be calculated based on the dead load only.

These pressures are given in terms of equivalent fluid pressure for unrestrained walls and do not include compaction-induced, surcharge, foundation, or hydrostatic loads, which must be added where appropriate.

Wall backfill should be placed and compacted in accordance with the engineered fill recommendations. Wall backfill compaction should not exceed 95 percent relative compaction to minimize lateral wall pressures. Heavy construction equipment should be maintained a distance of at least three feet away from the walls while the backfill soils are being placed. Hand operated compaction equipment should be used to compact the wall backfill within a three foot zone adjacent to the walls.

Adequate wall drainage should be provided.

6.6 Pavement Design

Detailed vehicular load and frequency information was not made available to us. We have assumed traffic within the proposed residential project will include passenger and light truck traffic while assumed traffic within the proposed commercial/industrial project will include passenger and light to heavy truck traffic.

6.6.1 Flexible Pavement

The sites upper agriculturally disturbed soils will likely be used for support of the sites pavements, including entranceways, driveways, parking lots and roadways. A California Bearing Ratio (CBR) test on the sites upper clayey silt soils indicate

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a CBR value of 18. Based on a CBR of 18, and the assumed traffic, we believe that a pavement section consisting of 2.5 inches of Asphaltic Concrete over 6.0 inches of UTB should be sufficient for the residential passenger and light truck traffic while a pavement section consisting of 3.0 inches of Asphaltic Concrete over 8.0 inches of UTB should be sufficient for the commercial/industrial passenger and light to heavy truck traffic.

The UTB should conform to Sections 703.06 of the 2005 Standard Specifications and should be compacted to at least 95 percent of the materials MDD at a moisture content between optimum and 3 percent wet of the soils OMC. All pavement subgrades should be sloped to drain. All pavement subgrades should be compacted to at least 90 percent of their MDD at a moisture content at least 2 percent wet of their OMC for a depth of at least 12 inches.

6.6.2 Rigid Pavement

Portland cement concrete pavements (PCCP) may be desirable at entry points and other locations where tight-turning heavy vehicles are expected. For residential usage, we recommend a 6-inch thick rigid concrete pavement over 6 inches of UTB. For commercial/industrial usage, we recommend a 6-inch thick rigid concrete pavement over 8 inches of UTB.

The UTB should conform to Section 703.06 of the Standard Specifications and should be compacted to at least 95 percent of the materials MDD. The subgrade should be compacted to at least 90 percent of its MDD at a moisture content within 3 percent of its OMC for a depth of at least 12 inches.

6.6.3 Construction Considerations

After completion of site grading, we recommend that the final subgrade soils be tested for their CBR value to confirm the values assumed in design. Modified

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pavement sections may be required if subgrade conditions vary from those assumed in design.

In the event unstable (pumping) subgrades are encountered within the planned pavement areas, we recommend that a heavy rubber tired vehicle (typically a loaded water truck) be used to test the load/deflection characteristics of the finished subgrade. If the tested surface shows a visible deflection, corrective measures should be implemented.

6.7 Construction Considerations

The following recommendations are provided for geotechnical earthwork design. All site preparation and earthwork operations should be performed in accordance with the Standard Specifications.

6.7.1 Stripping and Grubbing

Prior to commencement of site grading, the site should be cleared and grubbed to remove all organics, vegetation, and other deleterious materials in accordance with the Standard Specifications. We anticipate stripping and grubbing will include surface vegetation and the removal of all irrigation plastic. We believe the stripping and grubbing to depths of 6 inches will be required. Organic material should not be mixed with the underlying native soils that may be later used as fill or backfill. Material with organic matter in excess of about 4 percent should not be used as fill or backfill.

The stripping and grubbing work should include the removal or recompaction of all agriculturally disturbed soils that, in the judgment of the geotechnical engineer, is uncertified, compressible, collapsible, or contains significant voids. The voids caused by the removal of subsurface features, if encountered, must also be processed and backfilled in accordance with the recommendations presented in this report.

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6.7.2 Site Preparation

Based on our interpretation of the geotechnical subsurface profile, we anticipate that the soils exposed during construction will consist primarily of fine-grained clayey silts. All areas to receive fill should be stripped and grubbed to expose a firm, non-yielding subgrade, free of large voids, organics, and deleterious materials. The exposed subgrade soils should be moisture conditioned to within 3 percent of the soils OMC for a depth of at least 12 inches prior to being compacted to at least 90 percent of the soils MDD.

6.7.3 Excavation Characteristics

We anticipate that cuts of less than 3 feet may be required for mass grading with cuts of as much as 10 to 15 feet required for the installation of detention basins and buried utilities. We believe that conventional earth moving construction equipment should be capable of performing the anticipated excavations. Areas with limited excavation widths, such as utility trenches, may encountered boulders that may be difficult to remove without the assistance of some form of hard rock removal technique.

6.7.4 Engineered Fill

The onsite soils are generally suitable for use as engineered fill provided all organics and rocks or clods larger than 6 inches in diameter are removed and the fill is placed to within 3 percent of the soils OMC. If imported fill is required it should consist of coarse-grained material with a maximum particle size of 3 inches. Additionally, all imported fill should possess a PI less than 20 and should qualify as SW, SP, GP, GM or SM in accordance with the USCS.

All fill should be placed in successive horizontal lifts of not more than 12 inches in loose thickness for the full width of the area being filled. The fill should be moisture conditioned to within 3 percent the materials OMC prior to being compacted to at least 90 percent of its MDD.

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Ground surfaces to receive fill with slopes in excess of 5H:1V should be benched with a series of horizontal terraces prior to fill placement. The benches should extend through any disturbed slope materials into the native alluvial or alluvial soils.

6.8 Utilities

All utility installations should be performed in accordance with the Standard Specifications. The following recommendations are meant to supplement the Standard Specifications.

We recommend that the minimum excavated width for any utility trench be such that at least 14 inches of clearance exists between the edge of the utility pipe and the excavated trench sidewall prior to utility pipe placement. Insufficient space between the utility pipe and trench sidewall could lead to inadequate backfill compaction and potential pipe failure.

All utility backfills should be placed in horizontal lifts for the full width of the utility trench prior to compaction. In overwidened trenches, such as trenches excavated in hard rock, arching or shaping of the initial bedding lifts should not be allowed.

Shallow temporary utility trench excavations are anticipated for installation of the required utility lines. All vertical or steeply sided trench excavations deeper than 5 feet should be braced and shored in accordance with good construction practices and all applicable safety ordinances and codes.

6.9 Site Drainage

The ground surface should slope away from pavement areas, toward appropriate drop inlets or other surface drainage devices. These grades should be maintained for the life of the project.

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7. ADDITIONAL SERVICES

We recommend that a thorough review of the project plans and specifications be conducted before they are finalized to verify that our geotechnical recommendations have been properly interpreted and implemented during the design. If we are not accorded this review, we can assume no responsibility for misinterpretation of our recommendations. The review can be completed on a time-and-expense basis in accordance with our current Fee Schedule.

The construction process is an integral design component with respect to the geotechnical aspects of a project. Because geotechnical engineering is an inexact science due to the variability of natural processes and because we sample only a small portion of the soils affecting the performance of the proposed structures, unanticipated or changed conditions can be disclosed during grading. Proper geotechnical observation and testing during construction is imperative to allow the geotechnical engineer the opportunity to verify assumptions made during the design. Therefore, we recommend that Hawaii Geotechnical Consulting, Inc. be kept apprised of design modifications and construction schedules for the proposed development so that design changes can be made if subsurface field conditions warrant.

END OF ADDITIONAL SERVICES

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8. LIMITATIONS

This report has been prepared for the exclusive use of Ho'onani Development, LLC and their agents for specific application to the proposed Hoonani Village project in Kahului, Maui, Hawaii.

The findings, conclusions, and recommendations presented in this report were prepared in accordance with generally accepted geotechnical engineering practice as it exists in the site area at the time of our study. No warranty is expressed or implied. The recommendations provided in this report are based on the assumption that our firm will conduct an adequate program of tests and observations during the construction phase in order to evaluate compliance with our recommendations. If the scope of the proposed construction, including the proposed loads, grades, or structural locations change from that described in this report, our recommendations should also be reviewed. We have not reviewed a final grading or building plan for the project.

Hazardous materials may have been discovered during the course of Hawaii Geotechnical Consulting, Inc.'s services. Hawaii Geotechnical Consulting, Inc. will assume no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

Nothing contained in this scope of work should be construed or interpreted as requiring Hawaii Geotechnical Consulting, Inc. to assume the status of an owner, operator, generator, or person who arranges for disposal, transport, storage, or treatment of hazardous materials within the meaning of any governmental statute, regulation, or order.

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The client has the responsibility to see that all parties to the project, including the designer, contractor, subcontractor, etc., are made aware of this report in its entirety. This report contains information that may be useful in the preparation of contract specifications. However, the report is not designed as a specification document and may not contain sufficient information for this use without proper modification.

The recommendations contained in this report are based on our field observations and our present knowledge of the proposed construction. It is possible that soil conditions could vary between or beyond the areas observed. If soil conditions are encountered during construction which differ from those described herein, we should be notified immediately in order that a review may be made and any supplemental recommendations provided.

This report may be used only by the client and only for the purpose stated, within a reasonable time from its issuance. Land use, site conditions (both onsite and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Hawaii Geotechnical Consulting, Inc. of such intended use. Based on the intended use of this report, Hawaii Geotechnical Consulting, Inc. may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Hawaii Geotechnical Consulting, Inc. from any liability resulting from the use of this report by any unauthorized party.

END OF LIMITATIONS

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FIGURES

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

HAWAII GEOTECHNICAL CONSULTING, INC.	
TEST PIT LOCATION PLAN	
HOONANI VILLAGE KAHULUI, MAUI, HAWAII	
24024.01	AUGUST 2024
FIGURE 1	

Concept Site Plan Study

oposed Master Site Plan - **Option 10**

Architecture. Design. Relationships.

01

Scale 1"=300'
Job No. 2023-0690
Date 2024-06-17

APPENDIX A
Field Exploration

APPENDIX A
FIELD EXPLORATION

The subsurface exploration program for the Hoonani Village project included excavating and logging a total of 42 test pits. The test pits were excavated to depths ranging from 4 to 9 feet below the existing ground surface.

The Logs of Test Pits are presented as Figures A2 through A43. A USCS soil classification chart is presented as Figure A1. The Logs of Test Pits describe the materials encountered, samples obtained, and show field and laboratory tests performed. The logs also show the test pit number, excavation date, name of the logger and excavation subcontractor, and the groundwater level. A senior geotechnical engineer logged the materials encountered in accordance with the USCS. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual.

The test pits were excavated with a CAT 328D excavator equipped with a straight bar 4.5-foot-wide bucket. Each test pit was excavated to an initial depth of 4 to 5 feet below the existing ground surface, where possible. The cut face of each test pit was then hand logged and disturbed grab and bulk samples and relatively undisturbed drive samples were obtained where appropriate. After initial logging and sample collection, each excavatable test pit was extended further, where possible. During the additional excavation, the disturbed soil cuttings were observed and sampled when visual changes were observed.

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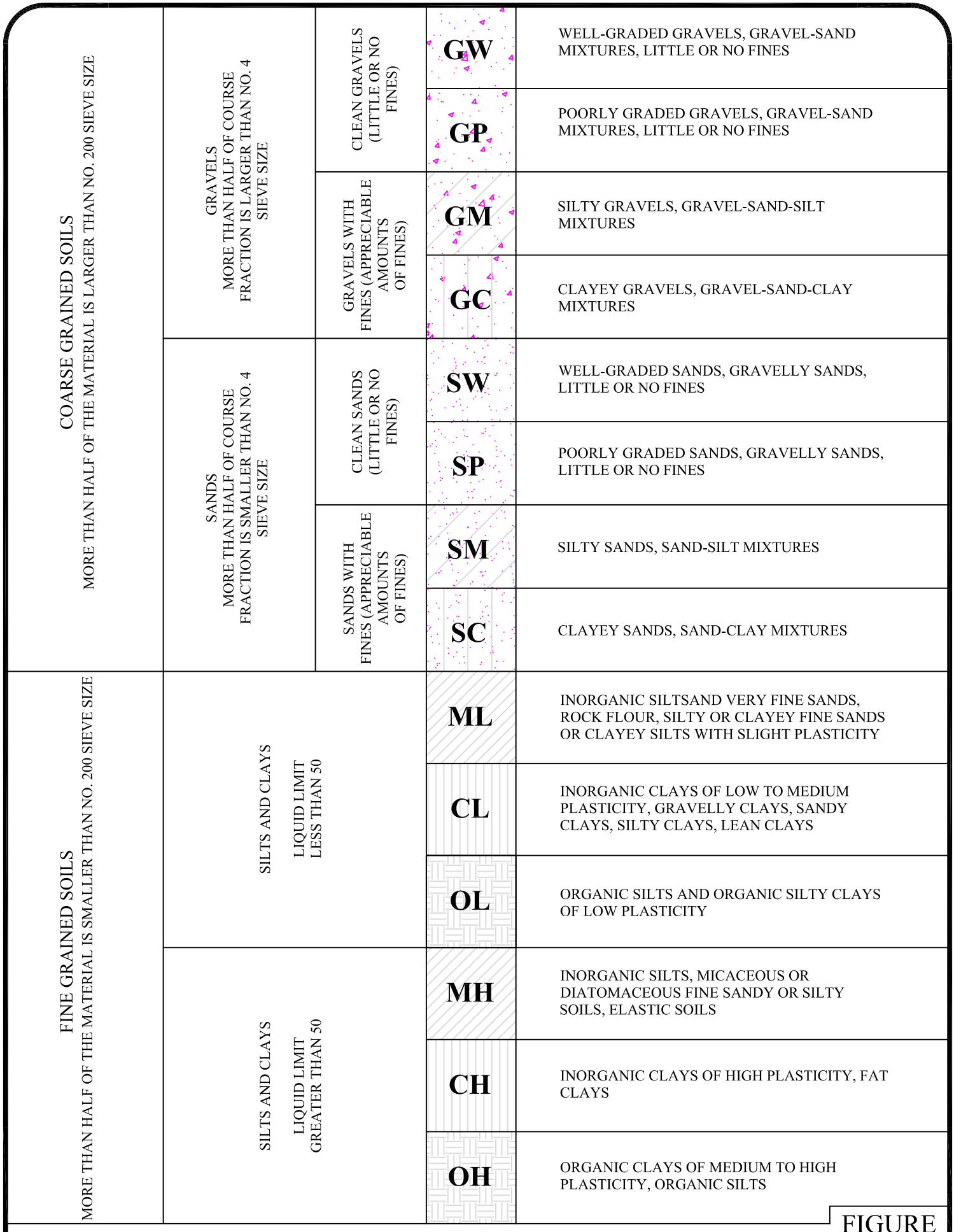

USCS SOIL CLASSIFICATION CHART

FIGURE
A1

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	70	13	Gravel = 0% Sand = 20% Silt/Clay = 80% LL = 46 PI = 18
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand and trace Gravel and Cobble	orange brown / gray	hard		4.00	78	16	Gravel = 1% Sand = 16% Silt/Clay = 83%
4			ALLUVIUM							
			Refusal on Cobbles and Boulders at 4.0 feet No free water observed Test pit backfilled with excavated materials							
5										
6										
7										
8										
9										
10										

Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/28/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 1

FIGURE
A2

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) and Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	71	17	Gravel = 0% Sand = 35% Silt/Clay = 65%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (MH) with Sand				4.00	80	21	Gravel = 0% Sand = 23% Silt/Clay = 77% LL = 57 PI = 24
4										
5	■	3	SILT (ML) with Sand	orange brown	hard	dry	4.00	81	21	Gravel = 0% Sand = 21% Silt/Clay = 79%
6										
7										
8	■	4	SILT (ML) with some Sand				--	--	22	Gravel = 0% Sand = 11% Silt/Clay = 89%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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DATE 06/28/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 2

FIGURE
A3

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	SILTY SAND (SM) (roots/irrigation plastic to 12-in.)	brown	loose	dry	1.00	101	17	Gravel = 0% Sand = 53% Silt/Clay = 47%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	78	18	Gravel = 0% Sand = 26% Silt/Clay = 74%
4										
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	16	Gravel = 0% Sand = 11% Silt/Clay = 89%
6										
7										
8		4	SILT (ML) with trace Sand				--	--	18	Gravel = 0% Sand = 8% Silt/Clay = 92%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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PROJECT NO. 24024.01
DATE 07/01/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 3

FIGURE
A4

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) and Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	75	15	Gravel = 0% Sand = 33% Silt/Clay = 67%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) and Sand				4.00	80	22	Gravel = 0% Sand = 32% Silt/Clay = 68%
4										
5	■	3	SILT (ML) with Gravel and some Sand	orange brown	hard	dry	--	79	17	Gravel = 24% Sand = 14% Silt/Clay = 62%
6										
7										
8	■	4	SILT (ML) with some Sand and trace Gravel				--	--	21	Gravel = 2% Sand = 17% Silt/Clay = 81%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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PROJECT NO. 24024.01
DATE 06/28/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 4

FIGURE
A5

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	70	14	Gravel = 0% Sand = 19% Silt/Clay = 81%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with trace Sand				4.00	80	19	Gravel = 0% Sand = 26% Silt/Clay = 74%
4										
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	20	Gravel = 0% Sand = 65% Silt/Clay = 35%
6										
7										
8		4	SILT (ML) with some Sand				--	--	20	Gravel = 0% Sand = 37% Silt/Clay = 63%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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PROJECT NO. 24024.01
DATE 06/28/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 5

FIGURE
A6

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	74	16	Gravel = 0% Sand = 14% Silt/Clay = 86%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	27	Gravel = 0% Sand = 11% Silt/Clay = 89%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	25	Gravel = 0% Sand = 12% Silt/Clay = 88%
6										
7										
8	■	4	SILT (ML) with some Sand				--	--	22	Gravel = 0% Sand = 13% Silt/Clay = 87%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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PROJECT NO. 24024.01
DATE 07/01/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 6

FIGURE
A7

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	70	16	Gravel = 0% Sand = 17% Silt/Clay = 83% LL = 53 PI = 22
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	76	24	Gravel = 0% Sand = 12% Silt/Clay = 88%
4										
5	■	3	SILT (ML) with Sand	orange brown	hard	dry	4.00	--	26	Gravel = 0% Sand = 23% Silt/Clay = 77%
6										
7										
8	■	4	SILT (ML) with some Sand				--	--	21	Gravel = 0% Sand = 11% Silt/Clay = 89%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 7

FIGURE
A8

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample; Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	72	15	Gravel = 0% Sand = 11% Silt/Clay = 89%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with trace Sand				4.00	80	25	Gravel = 0% Sand = 0% Silt/Clay = 100%
4										
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	82	21	Gravel = 0% Sand = 4% Silt/Clay = 96%
6										
7										
8		4	SILT (ML) with some Sand				--	--	25	Gravel = 0% Sand = 7% Silt/Clay = 93%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 8

FIGURE
A9

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand and trace Gravel (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	72	18	Gravel = 4% Sand = 24% Silt/Clay = 72% LL = 43 PI = 17
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	81	22	Gravel = 0% Sand = 19% Silt/Clay = 81%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	79	20	Gravel = 0% Sand = 12% Silt/Clay = 88%
6										
7										
8	■	4	SILT (ML) and Sand				--	--	18	Gravel = 0% Sand = 46% Silt/Clay = 54%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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DATE 06/23/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 9

FIGURE
A10

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand and with Gravel (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	73	15	Gravel = 22% Sand = 23% Silt/Clay = 55% LL = 45 PI = 15
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) and Sand				4.00	79	25	Gravel = 0% Sand = 37% Silt/Clay = 63% LL = 44 PI = 13
4										
5	■	3	SILT (ML) with Sand	orange brown	hard	dry	4.00	--	20	Gravel = 2% Sand = 22% Silt/Clay = 76%
6										
7										
8	■	4	SILT (ML) with Sand				--	--	20	Gravel = 0% Sand = 27% Silt/Clay = 73%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 10

FIGURE
A11

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	73	21	Gravel = 0% Sand = 14% Silt/Clay = 86% LL = 40 PI = 17
			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) and Sand				4.00	77	20	Gravel = 0% Sand = 35% Silt/Clay = 65%
5		3	SILT (ML) and Sand	orange brown	hard	dry	4.00	--	19	Gravel = 0% Sand = 45% Silt/Clay = 55%
8		4	SILT (ML) and Sand				--	--	19	Gravel = 0% Sand = 30% Silt/Clay = 70%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 11

FIGURE
A12

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	--	16	Gravel = 0% Sand = 23% Silt/Clay = 77%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	79	21	Gravel = 0% Sand = 22% Silt/Clay = 78%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	22	Gravel = 0% Sand = 21% Silt/Clay = 79%
8		4	SILT (ML) and Sand				--	--	19	Gravel = 10% Sand = 31% Silt/Clay = 59%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 12

FIGURE
A13

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	70	16	Gravel = 0% Sand = 12% Silt/Clay = 88%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with Sand				4.00	79	19	Gravel = 0-% Sand = 22% Silt/Clay = 78%
4										
5	■	3	SILT (ML) with Sand	orange brown	hard	damp	4.00	81	20	Gravel = 0% Sand = 20% Silt/Clay = 80%
6										
7										
8	■	4	SILT (ML) and Sand				--	--	22	Gravel = 0% Sand = 48% Silt/Clay = 52%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 13

FIGURE
A14

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	71	17	Gravel = 0% Sand = 20% Silt/Clay = 80% LL = 48 PI = 19
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	79	22	Gravel = 0% Sand = 21% Silt/Clay = 79%
5		3	SILT (ML) with some Sand	orange brown	hard	damp	4.00	79	19	Gravel = 0% Sand = 17% Silt/Clay = 83%
8		4	SILT (ML) and Sand				--	--	18	Gravel = 0% Sand = 35% Silt/Clay = 65%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 14

FIGURE
A15

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) and Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	73	15	Gravel = 0% Sand = 34% Silt/Clay = 66%
			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	77	17	Gravel = 0% Sand = 26% Silt/Clay = 74%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	18	Gravel = 0% Sand = 25% Silt/Clay = 75% LL = 37 PI = 12
8		4	SILT (ML) and Sand				--	--	18	Gravel = 0% Sand = 40% Silt/Clay = 60%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 15

FIGURE
A16

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	69	12	Gravel = 7% Sand = 21% Silt/Clay = 72% LL = 41 PI = 16
			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with trace Sand				4.00	79	18	Gravel = 0% Sand = 9% Silt/Clay = 91%
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	17	Gravel = 0% Sand = 10% Silt/Clay = 90%
8	■	4	SILT (ML) with some Sand				--	--	18	Gravel = 0% Sand = 15% Silt/Clay = 85%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 16

FIGURE
A17

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	71	17	Gravel = 0% Sand = 22% Silt/Clay = 78%
3			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	20	Gravel = 0% Sand = 12% Silt/Clay = 88%
5	■	3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 27% Silt/Clay = 73%
8	■	4	SILT (ML) with some Sand				--	--	19	Gravel = 0% Sand = 16% Silt/Clay = 84%
9			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 17

FIGURE
A18

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand and trace Gravel (roots to 30-in.)	brown	soft	dry	1.25	70	17	Gravel = 2% Sand = 27% Silt/Clay = 70%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	77	19	Gravel = 0% Sand = 12% Silt/Clay = 88%
4			with Cobble from 4.0 ft.							
5	■	3	SILT (ML) with some Sand and, with Cobble and trace Boulders	orange brown	hard	dry	4.00	--	20	Gravel = 0% Sand = 11% Silt/Clay = 89%
6										
7										
8	■	4	SILT (ML) with some Sand				--	--	20	Gravel = 0% Sand = 12% Silt/Clay = 88%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 18

FIGURE
A19

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	74	11	Gravel = 0% Sand = 12% Silt/Clay = 88%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	79	18	Gravel = 0% Sand = 23% Silt/Clay = 77%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 20% Silt/Clay = 80%
8		4	SILT (ML) with Sand				--	--	21	Gravel = 0% Sand = 22% Silt/Clay = 78%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 19

FIGURE
A20

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	A	1	CLAYEY SILT (ML) with some Sand and trace Gravel (irrigation plastic to 6-in.)	brown	soft	dry	1.00	71	18	Gravel = 1% Sand = 15% Silt/Clay = 84% CBR = 18 Swell = 0.3% Proctor: 96 pcf @ 29
3			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	80	19	Gravel = 0% Sand = 22% Silt/Clay = 78%
5		3	SILT (ML) with Sand	orange brown	hard	dry	4.00	79	17	Gravel = 0% Sand = 20% Silt/Clay = 80%
8		4	SILT (ML) with Sand				--	--	19	Gravel = 0% Sand = 20% Silt/Clay = 80%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 20

FIGURE
A21

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with trace Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	71	20	Gravel = 0% Sand = 4% Silt/Clay = 96%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	77	18	Gravel = 0% Sand = 18% Silt/Clay = 82%
4										
5		3	SILT (ML) with some Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 19% Silt/Clay = 81%
6										
7										
8		4	SILT (ML) with some Sand				--	--	18	Gravel = 0% Sand = 15% Silt/Clay = 85%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 21

FIGURE
A22

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0										
1		1	SILTY SAND (SM) with some Gravel (roots to 6-in.) FILL	brown	loose	dry	--	93	8	Gravel = 17% Sand = 53% Silt/Clay = 30%
2										
3		2	SILT (ML) with Sand				4.00	80	17	Gravel = 0% Sand = 25% Silt/Clay = 75%
4										
5		3	SILT (ML) and Sand	orange brown	hard	damp	4.00	77	18	Gravel = 0% Sand = 32% Silt/Clay = 68%
6										
7										
8		4	SILT (ML) and Sand				--	--	18	Gravel = 0% Sand = 32% Silt/Clay = 68%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 22

FIGURE
A23

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample; Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand	brown	soft	dry	1.25	70	17	Gravel = 0% Sand = 20% Silt/Clay = 80% LL = 47 PI = 16
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) and Sand				4.00	78	18	Gravel = 0% Sand = 42% Silt/Clay = 58%
4										
5		3	SILT (ML) with Sand	orange brown	hard	dry	4.00	--	19	Gravel = 0% Sand = 27% Silt/Clay = 73%
6										
7										
8		4	SILT (ML) with Sand				--	--	18	Gravel = 0% Sand = 28% Silt/Clay = 72%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 23

FIGURE
A24

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand and trace gravel (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	71	18	Gravel = 4% Sand = 24% Silt/Clay = 72%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) and Sand			moist	4.00	79	25	Gravel = 0% Sand = 34% Silt/Clay = 66%
4					hard					
5		3	SILT (ML) with Sand and some Gravel	orange brown			4.00	--	20	Gravel = 17% Sand = 29% Silt/Clay = 54%
6			ALLUVIUM			damp				
7					dense					
8		4	SILTY SAND (SM) with some Gravel				--	--	20	Gravel = 16% Sand = 50% Silt/Clay = 34%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 24

FIGURE
A25

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample; Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots to 6-in.) FILL 1.5-in. Asphaltic Pavement	brown	soft	dry	1.00	70	14	Gravel = 0% Sand = 14% Silt/Clay = 86%
3		2	SILT (ML) with Sand				4.00	79	19	Gravel = 0% Sand = 21% Silt/Clay = 79%
5		3	SILT (ML) and Sand	orange brown	hard	dry	4.00	79	23	Gravel = 0% Sand = 49% Silt/Clay = 51%
8		4	SILT (ML) and Sand ALLUVIUM				--	--	21	Gravel = 0% Sand = 44% Silt/Clay = 56% LL = 37 PI = 9
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 25

FIGURE
A26

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	70	20	Gravel = 0% Sand = 11% Silt/Clay = 89%
3			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	77	21	Gravel = 0% Sand = 16% Silt/Clay = 84%
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	79	19	Gravel = 0% Sand = 17% Silt/Clay = 83%
8	■	4	SILT (ML) with some Sand				--	--	21	Gravel = 0% Sand = 14% Silt/Clay = 86%
9			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 26

FIGURE
A27

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample; Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots to 1.5 ft. and irrigation plastic to 0.5-ft.)	brown	soft	dry	1.25	71	18	Gravel = 0% Sand = 14% Silt/Clay = 86%
3			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with trace Sand				4.00	72	21	Gravel = 0% Sand = 1% Silt/Clay = 99% LL = 37 PI = 10
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	19	Gravel = 0% Sand = 14% Silt/Clay = 86%
8		4	SILT (ML) and Sand with some Gravel				--	--	17	Gravel = 15% Sand = 35% Silt/Clay = 51%
9			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 27

FIGURE
A28

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots to 1.5 ft. and irrigation plastic to 0.5-ft.)	brown	soft	dry	1.00	70	19	Gravel = 0% Sand = 10% Silt/Clay = 90% LL = 46 PI = 16
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	17	Gravel = 0% Sand = 19% Silt/Clay = 81%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 15% Silt/Clay = 85%
6										
7										
8	■	4	SILT (ML) with some Sand and trace Boulders				--	--	19	Gravel = 0% Sand = 15% Silt/Clay = 85% LL = 37 PI = 9
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 28

FIGURE
A29

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 24-in.)	brown	soft	dry	1.25	73	17	Gravel = 0% Sand = 22% Silt/Clay = 78%
3			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	78	17	Gravel = 0% Sand = 11% Silt/Clay = 89%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 27% Silt/Clay = 73%
8		4	SILT (ML) with Sand				--	--	20	Gravel = 0% Sand = 22% Silt/Clay = 78%
9			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

Hawaii Geotechnical Consulting, Inc.

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 29

FIGURE
A30

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	71	18	Gravel = 0% Sand = 2% Silt/Clay = 98%
3			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	22	Gravel = 0% Sand = 13% Silt/Clay = 87%
5	■	3	SILT (ML) with Sand	orange brown	hard	damp	4.00	80	22	Gravel = 0% Sand = 20% Silt/Clay = 80%
8	■	4	SILT (ML) with some Sand				--	--	22	Gravel = 0% Sand = 14% Silt/Clay = 86%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 30

FIGURE
A31

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.00	73	15	Gravel = 0% Sand = 17% Silt/Clay = 83% LL = 48 PI = 16
			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	80	21	Gravel = 0% Sand = 11% Silt/Clay = 89%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	20	Gravel = 0% Sand = 25% Silt/Clay = 75%
8		4	SILT (ML) and Sand				--	--	21	Gravel = 0% Sand = 34% Silt/Clay = 66%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 31

FIGURE
A32

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	68	14	Gravel = 0% Sand = 15% Silt/Clay = 85%
1			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	21	Gravel = 0% Sand = 15% Silt/Clay = 85%
5	■	3	SILT (ML) with some Sand	orange brown	hard	damp	4.00	77	19	Gravel = 0% Sand = 17% Silt/Clay = 83%
8	■	4	SILT (ML) with some Sand				--	--	19	Gravel = 0% Sand = 18% Silt/Clay = 82%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 32

FIGURE
A33

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample; Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	moist	1.25	70	38	Gravel = 0% Sand = 20% Silt/Clay = 80%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with somee Sand				4.00	80	24	Gravel = 0% Sand = 15% Silt/Clay = 85%
4					hard					
5		3	SILT (ML) and Sand	orange brown		moist	4.00	--	32	Gravel = 0% Sand = 36% Silt/Clay = 64%
6										
7			ALLUVIUM							
8		4	SILTY SAND (SM)		dense		--	--	27	Gravel = 0% Sand = 59% Silt/Clay = 41%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 33

FIGURE
A34

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	70	17	Gravel = 0% Sand = 23% Silt/Clay = 77%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with trace Sand				4.00	79	19	Gravel = 0% Sand = 29% Silt/Clay = 71%
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	81	18	Gravel = 0% Sand = 40% Silt/Clay = 60%
8		4	SILT (ML) with some Sand				--	--	18	Gravel = 0% Sand = 23% Silt/Clay = 77%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 34

FIGURE
A35

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 18-in.)	brown	soft	dry	1.25	73	15	Gravel = 0% Sand = 18% Silt/Clay = 82% LL = 46 PI = 15
			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	19	Gravel = 0% Sand = 18% Silt/Clay = 82%
5	■	3	SILT (ML) and Sand	orange brown	hard	dry	4.00	--	19	Gravel = 0% Sand = 37% Silt/Clay = 63%
8	■	4	SILT (ML) with some Sand and trace Boulders				--	--	24	Gravel = 0% Sand = 14% Silt/Clay = 86%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 35

FIGURE
A36

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	70	14	Gravel = 0% Sand = 26% Silt/Clay = 74% LL = 47 PI = 16
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand			damp	4.00	79	20	Gravel = 0% Sand = 17% Silt/Clay = 83%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard		4.00	79	24	Gravel = 0% Sand = 10% Silt/Clay = 90%
6						moist				
7										
8	■	4	SILT (ML) and Sand				--	--	33	Gravel = 0% Sand = 36% Silt/Clay = 64%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 36

FIGURE
A37

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	72	14	Gravel = 0% Sand = 17% Silt/Clay = 83%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	80	21	Gravel = 0% Sand = 14% Silt/Clay = 86%
4										
5		3	SILT (ML) with Sand	orange brown	hard	dry	4.00	--	30	Gravel = 0% Sand = 29% Silt/Clay = 71%
6										
7										
8		4	SILT (ML) with some Sand				--	--	20	Gravel = 0% Sand = 13% Silt/Clay = 87%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 37

FIGURE
A38

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.00	71	17	Gravel = 0% Sand = 24% Silt/Clay = 76% LL = 43 PI = 14
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	80	19	Gravel = 0% Sand = 15% Silt/Clay = 85%
4										
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	22	Gravel = 0% Sand = 14% Silt/Clay = 86%
6										
7										
8		4	SILT (ML) with some Sand				--	--	29	Gravel = 0% Sand = 15% Silt/Clay = 85%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 38

FIGURE
A39

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	--	17	Gravel = 0% Sand = 13% Silt/Clay = 87%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with somee Sand				4.00	80	20	Gravel = 0% Sand = 11% Silt/Clay = 89%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	23	Gravel = 0% Sand = 11% Silt/Clay = 89%
6										
7										
8	■	4	SILT (ML) and Sand				--	--	27	Gravel = 0% Sand = 34% Silt/Clay = 66%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 39

FIGURE
A40

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	70	14	Gravel = 0% Sand = 18% Silt/Clay = 82%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	--	12	Gravel = 0% Sand = 13% Silt/Clay = 87%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	moist	4.00	80	23	Gravel = 0% Sand = 11% Silt/Clay = 89%
6										
7										
8	■	4	SILT (ML) and Sand				--	--	31	Gravel = 0% Sand = 30% Silt/Clay = 70%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 40

FIGURE
A41

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	73	12	Gravel = 7% Sand = 21% Silt/Clay = 72%
			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with trace Sand				4.00	79	18	Gravel = 0% Sand = 9% Silt/Clay = 91%
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	17	Gravel = 0% Sand = 10% Silt/Clay = 90%
8	■	4	SILT (ML) with some Sand				--	--	18	Gravel = 0% Sand = 15% Silt/Clay = 85%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 41

FIGURE
A42

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0										
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	damp	1.00	72	19	Gravel = 0% Sand = 16% Silt/Clay = 84%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand		hard		4.00	80	20	Gravel = 0% Sand = 29% Silt/Clay = 71%
4										
5		3	SILT (ML) and Sand with trace Cobble	orange brown			4.00	--	19	Gravel = 0% Sand = 35% Silt/Clay = 65%
6			ALLUVIUM							
7					dense					
8		4	SILTY GRAVEL (GM) with some Sand and some Cobble				--	--	10	Gravel = 70% Sand = 18% Silt/Clay = 12%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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LOG OF TEST PIT 42

FIGURE
A43

APPENDIX B
Laboratory Testing

APPENDIX B
LABORATORY TESTING

Laboratory tests were performed on selected grab, bulk, and drive samples to estimate their pertinent engineering characteristics. Testing was performed in accordance with ASTM Standards for Soil Testing, latest revision.

MOISTURE CONTENT AND DRY DENSITY

Natural moisture content and dry density tests were performed on multiple samples in accordance with ASTM D2216 and D2937, respectively. The results of these tests are presented on the Logs of Test Pits in Appendix A.

PLASTICITY

Atterberg limits tests were performed in accordance with ASTM D4318. The results of the tests are presented on the Logs of Test Pits in Appendix A and graphically in Appendix B.

GRAIN SIZE

Grain size analyses were performed on select samples in accordance with ASTM D2487. The results are presented on the Logs of Test Pits in Appendix A.

CALIFORNIA BEARING RATIO (CBR)

Two CBR tests were performed on a representative sample of the site's predominant near surface soils in accordance with ASTM D1883. The result is presented graphically in Appendix B and presented on the Logs of Test Pits in Appendix A.

COMPACTION

The optimum moisture content and maximum dry density of a soil sample was determined in accordance with ASTM D1557. The result is presented graphically in Appendix B and presented on the Logs of Test Pits in Appendix A.

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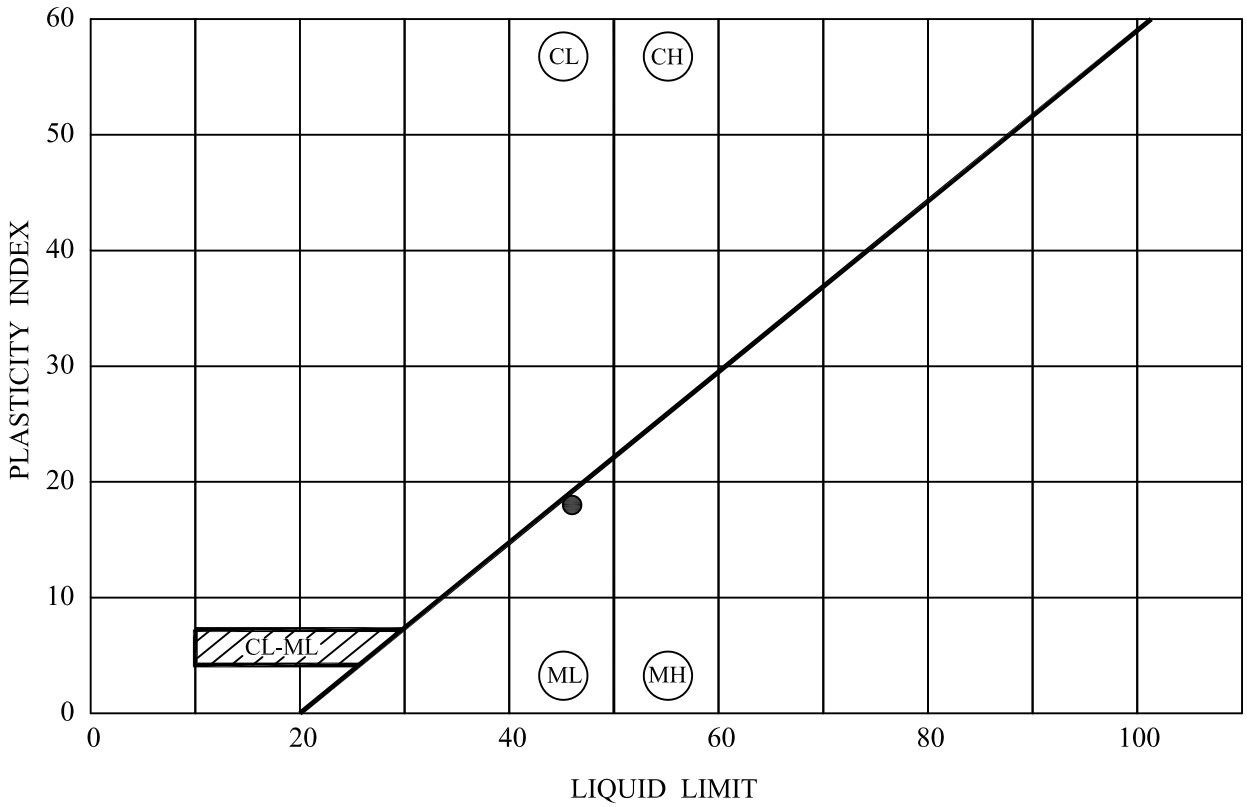

Sample ID	Depth (ft)	LL	PL	PI	Classification
● 1-1	1.0	46	28	18	Brown Clayey SILT (ML) with Sand

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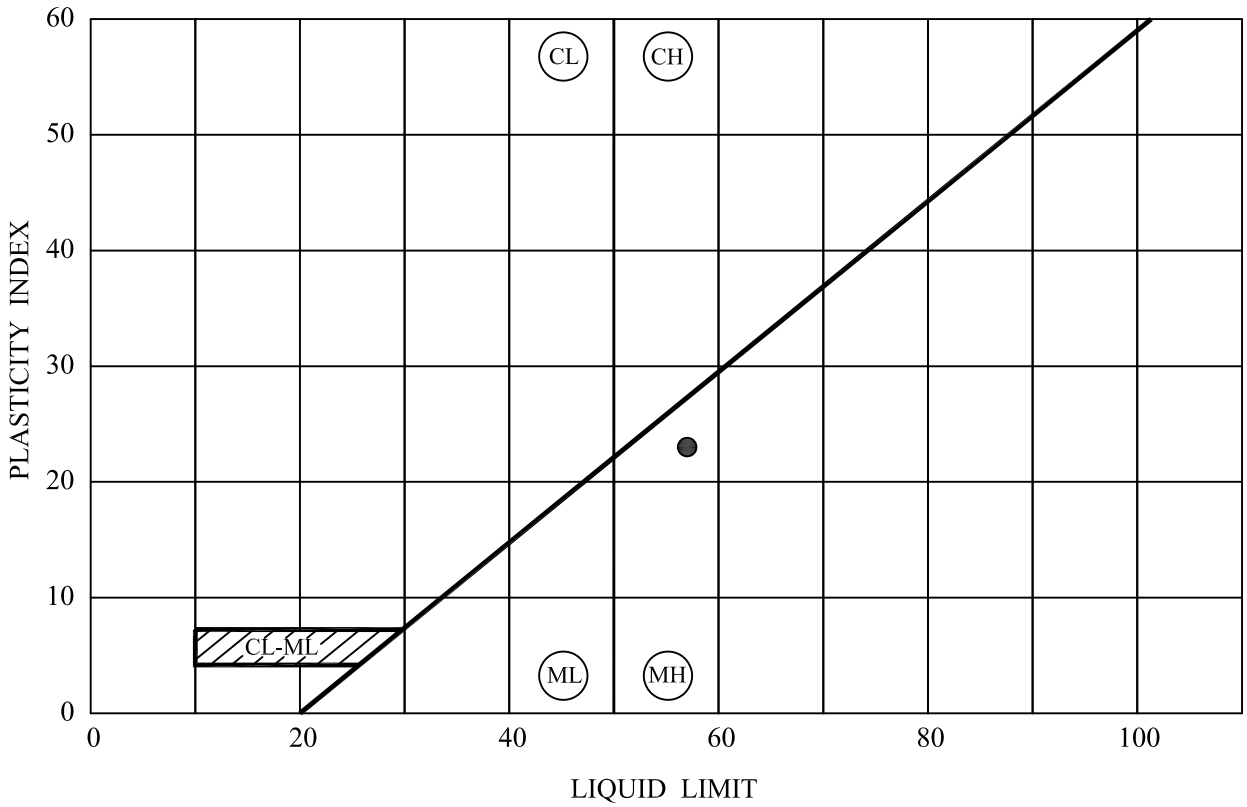
PLASTICITY INDEX

FIGURE
B1



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	2-2	3.0	57	34	23	Orange Brown SILT (MH) with Sand

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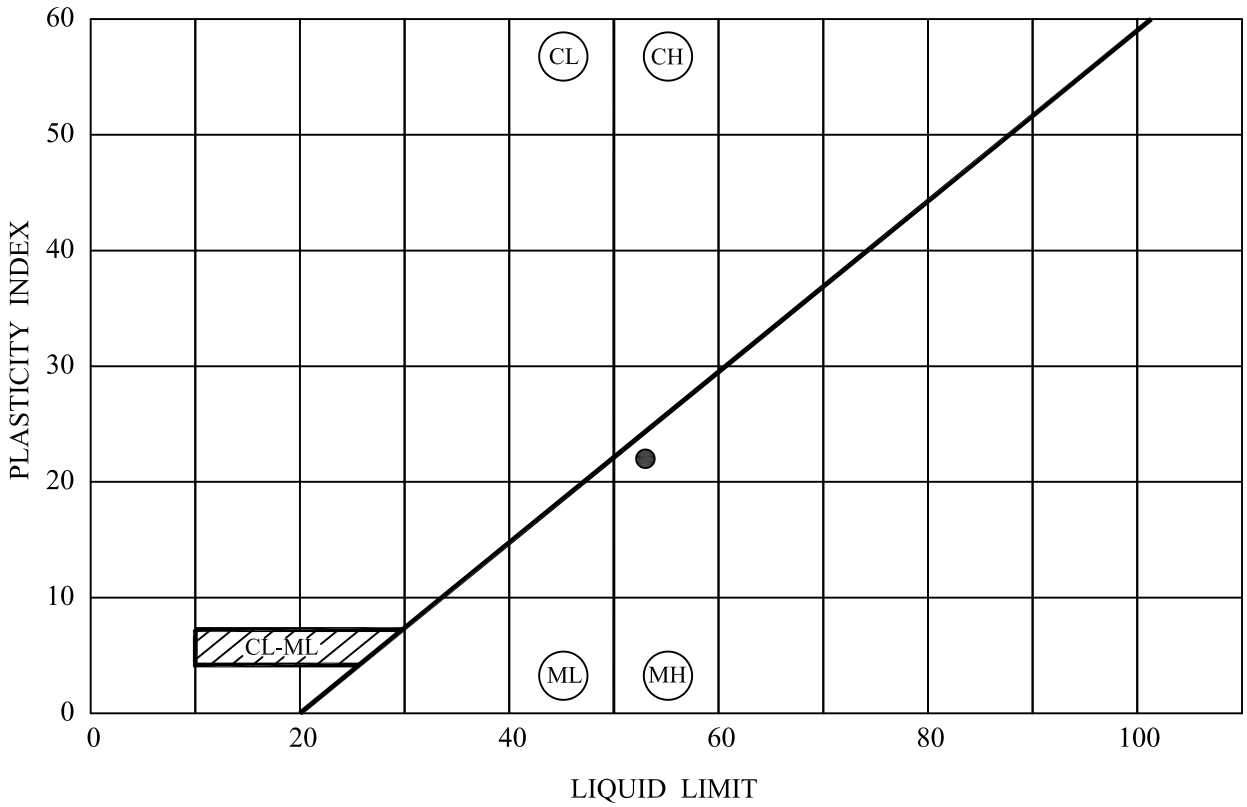
PLASTICITY INDEX

FIGURE
B2



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	7-1	1.0	53	31	22	Brown Clayey SILT (MH) with some Sand

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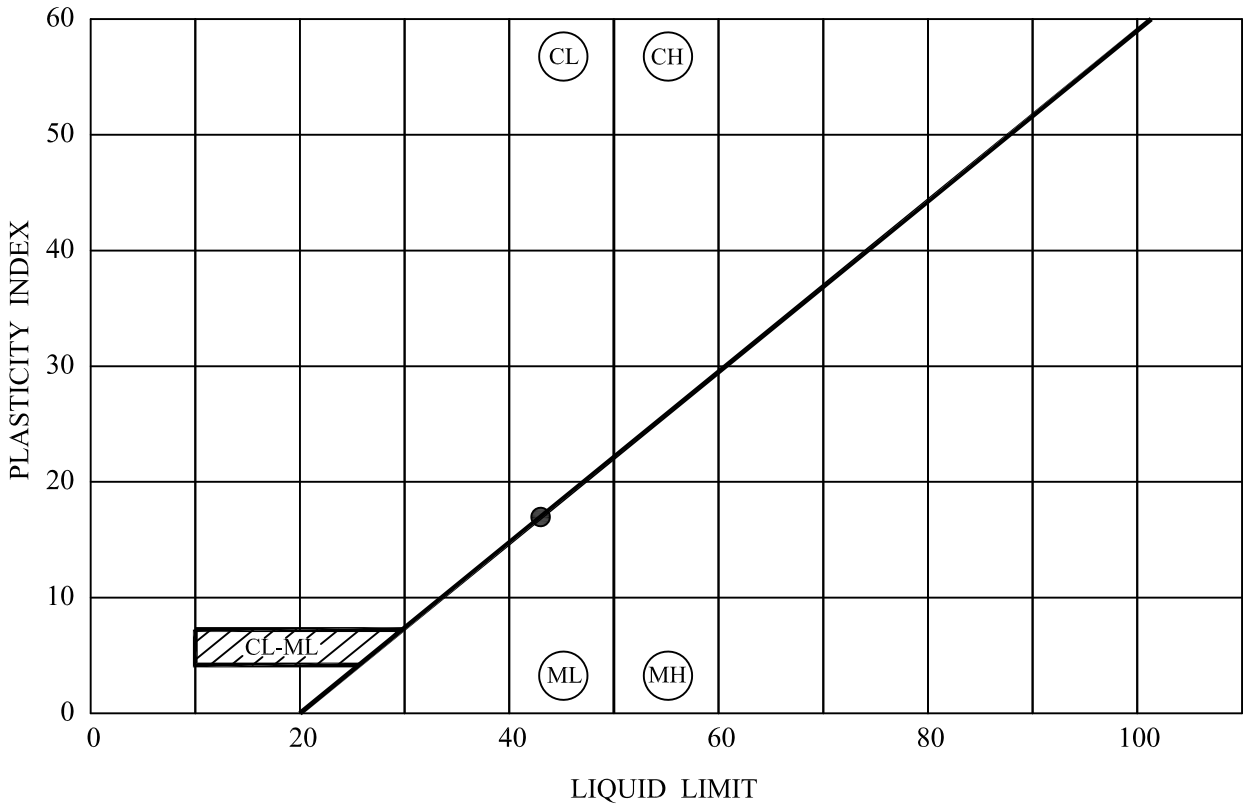
PLASTICITY INDEX

FIGURE
B3



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	9-1	1.0	43	26	17	Brown Clayey SILT (ML) with Sand and trace Gravel

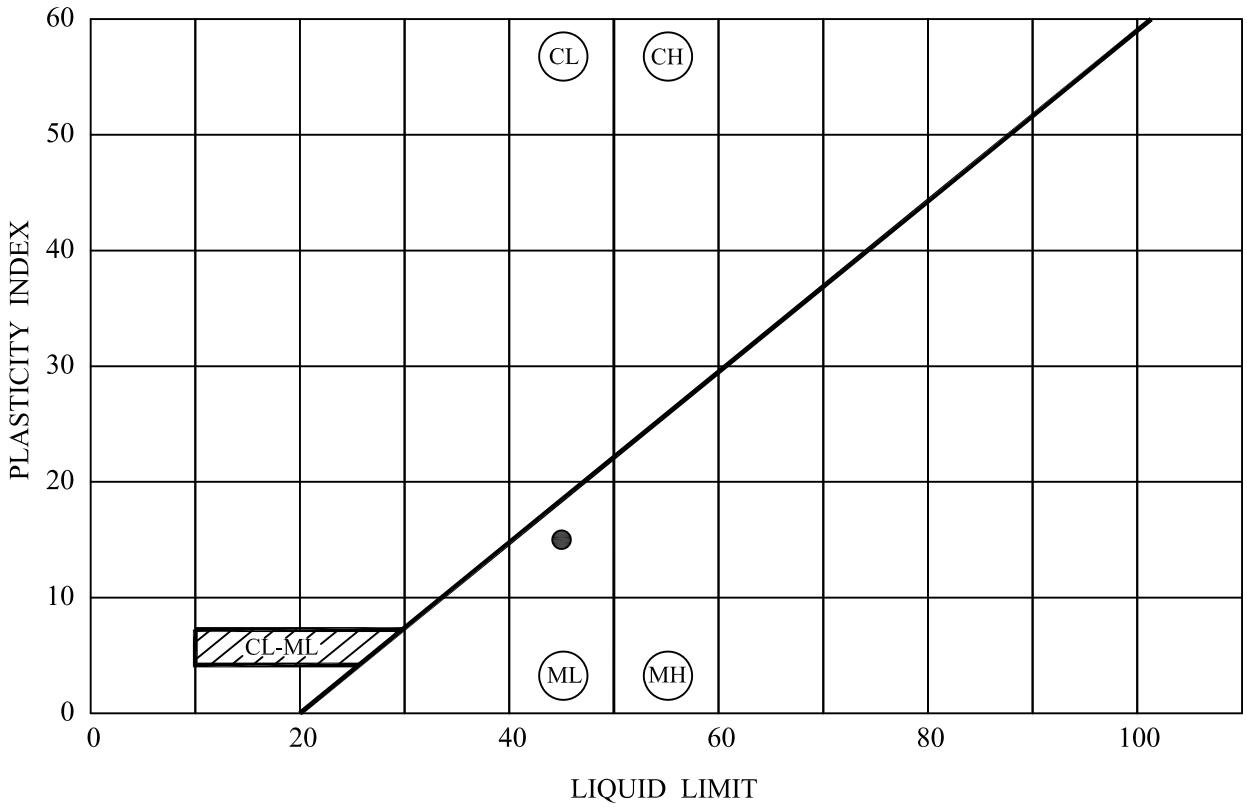
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B4



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 10-1	1.0	45	30	15	Brown CLAYEY SILT (ML) with Sand and with Gravel

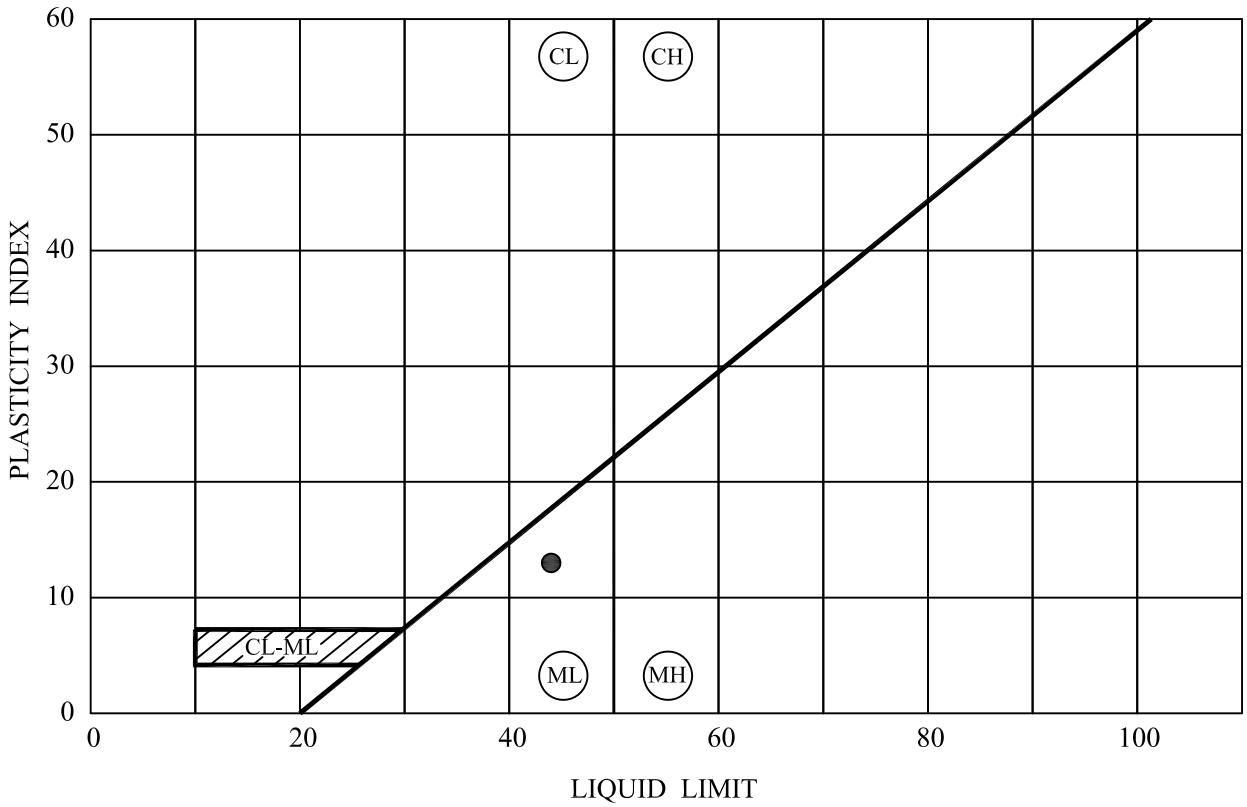
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/24/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B5



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 10-2	3.0	44	31	13	Orange Brown SILT (ML) and Sand

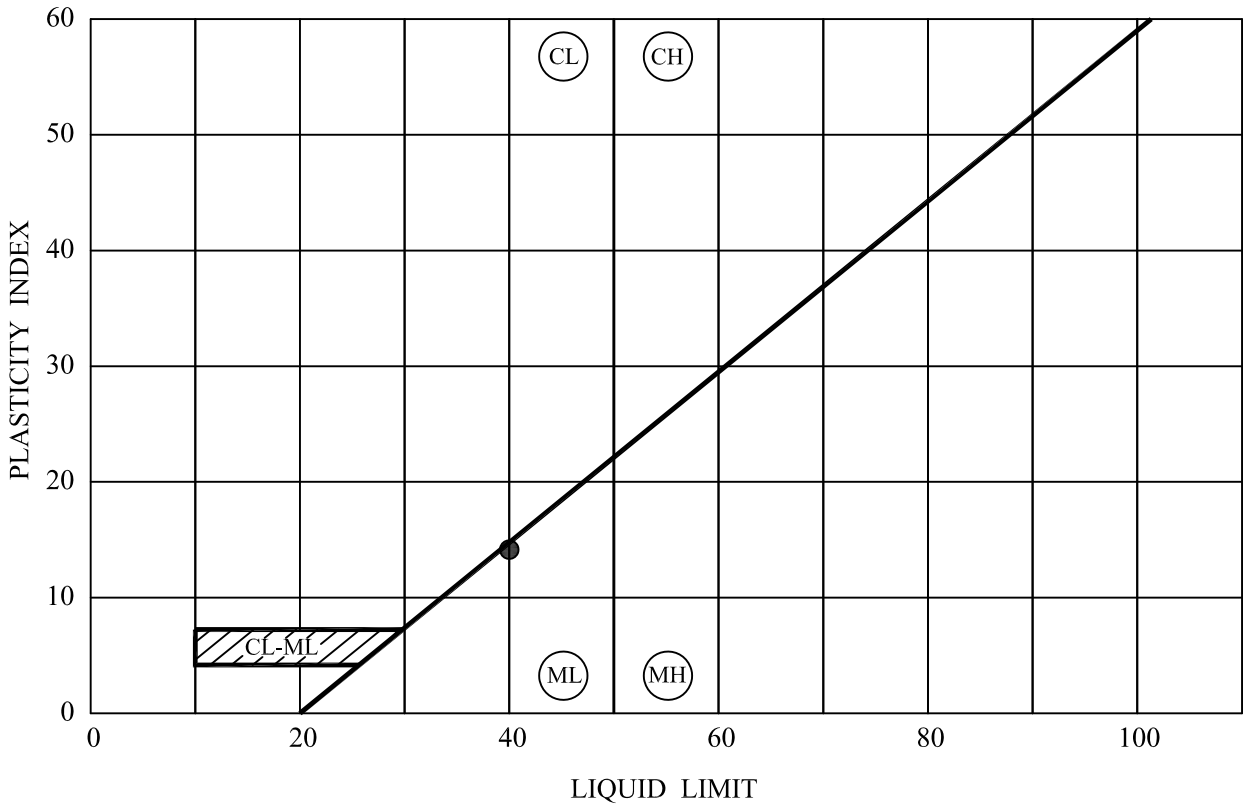
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/24/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B6



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	11-1	1.0	40	26	14	Brown Clayey SILT (MH) with some Sand

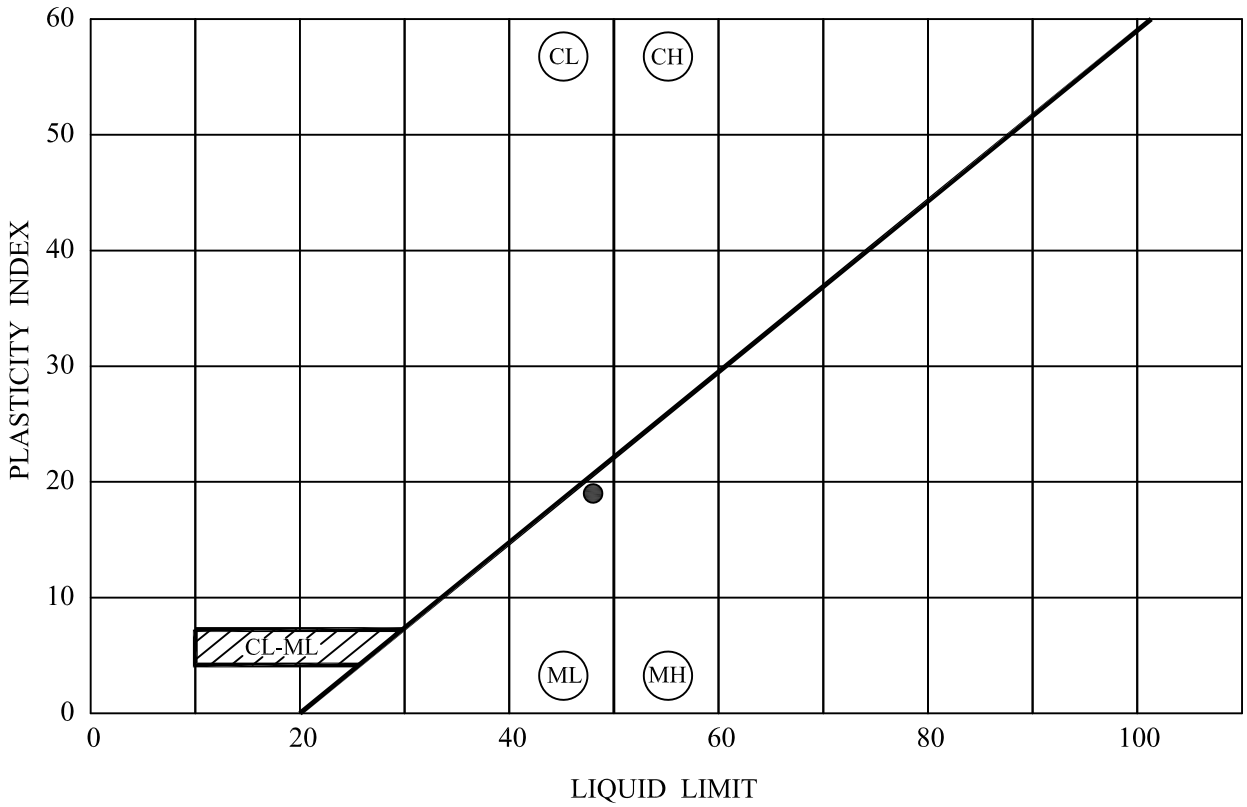
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B7



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 14-1	1.0	48	29	19	Brown CLAYEY SILT (ML) with Sand

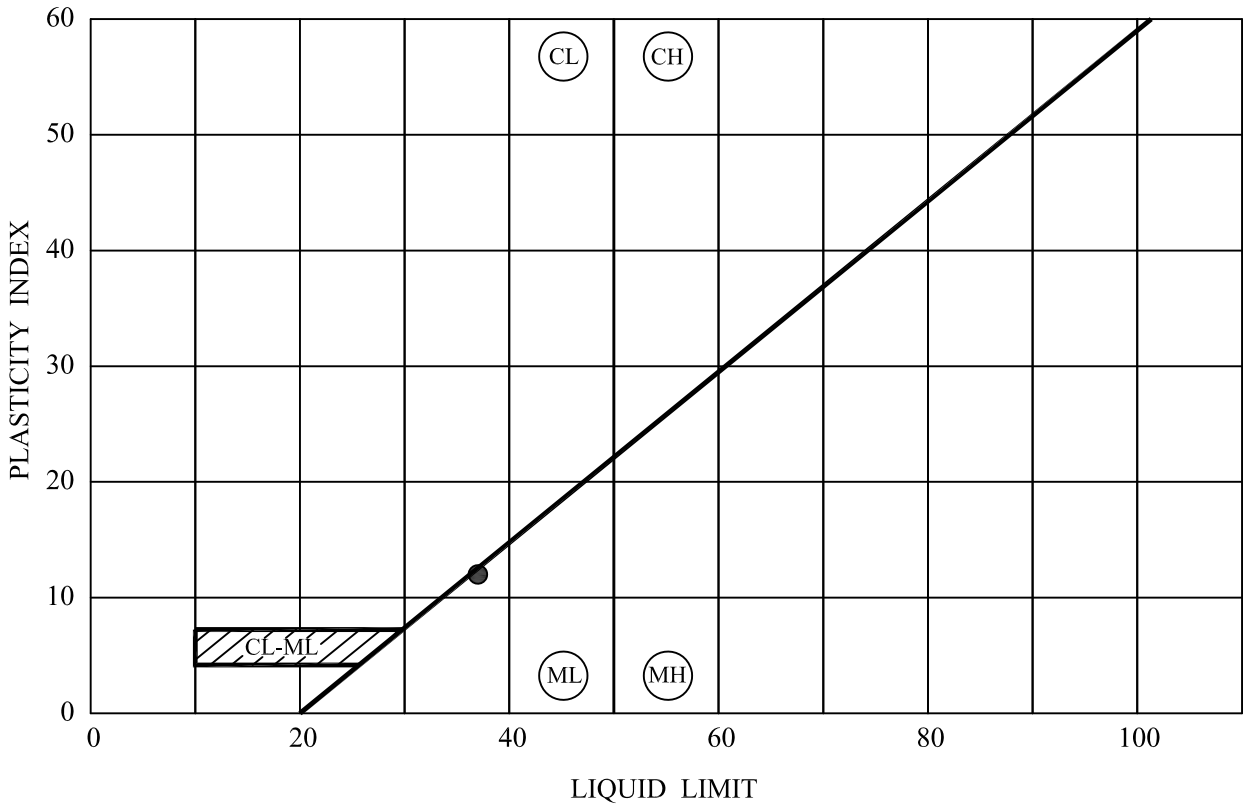
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/21/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B8



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 15-3	5.0	37	25	12	Orange Brown SILT (ML) with Sand

Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
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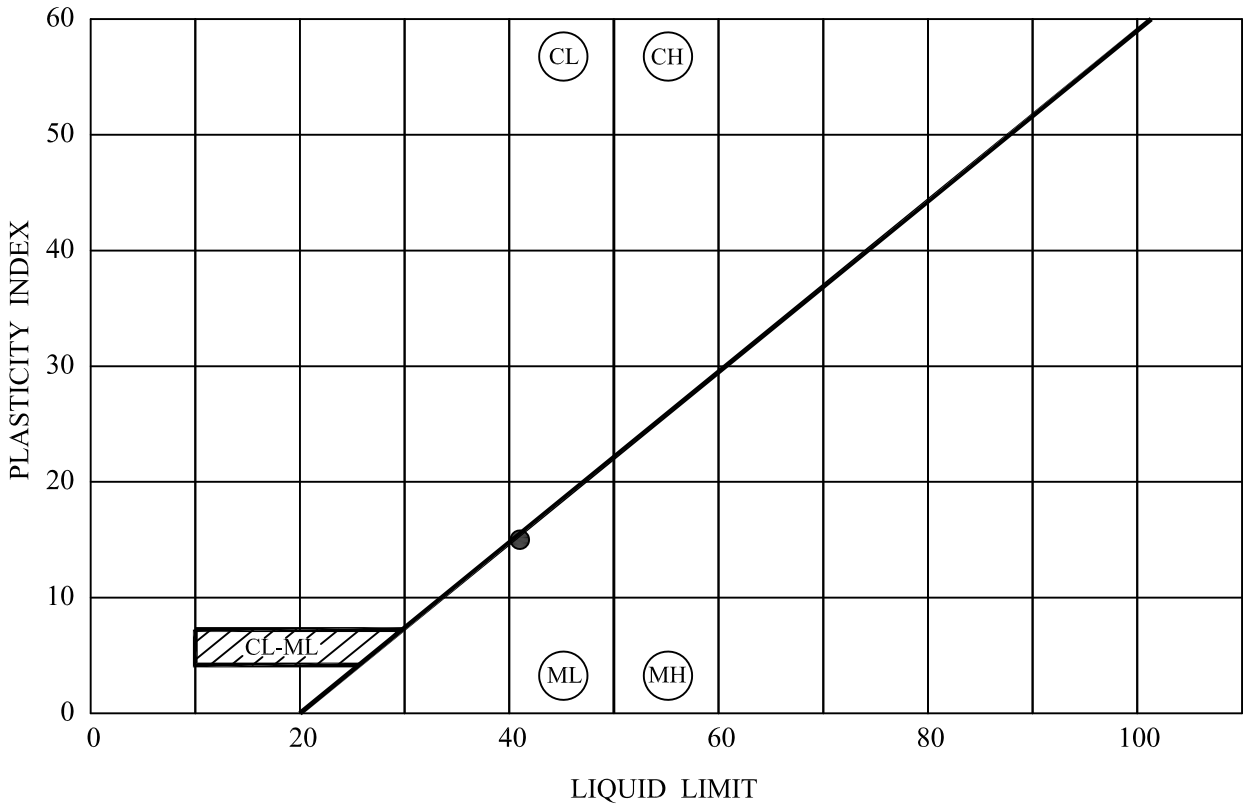
HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B9



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 16-1	1.0	41	25	16	Brown Clayey SILT (ML) with some Sand

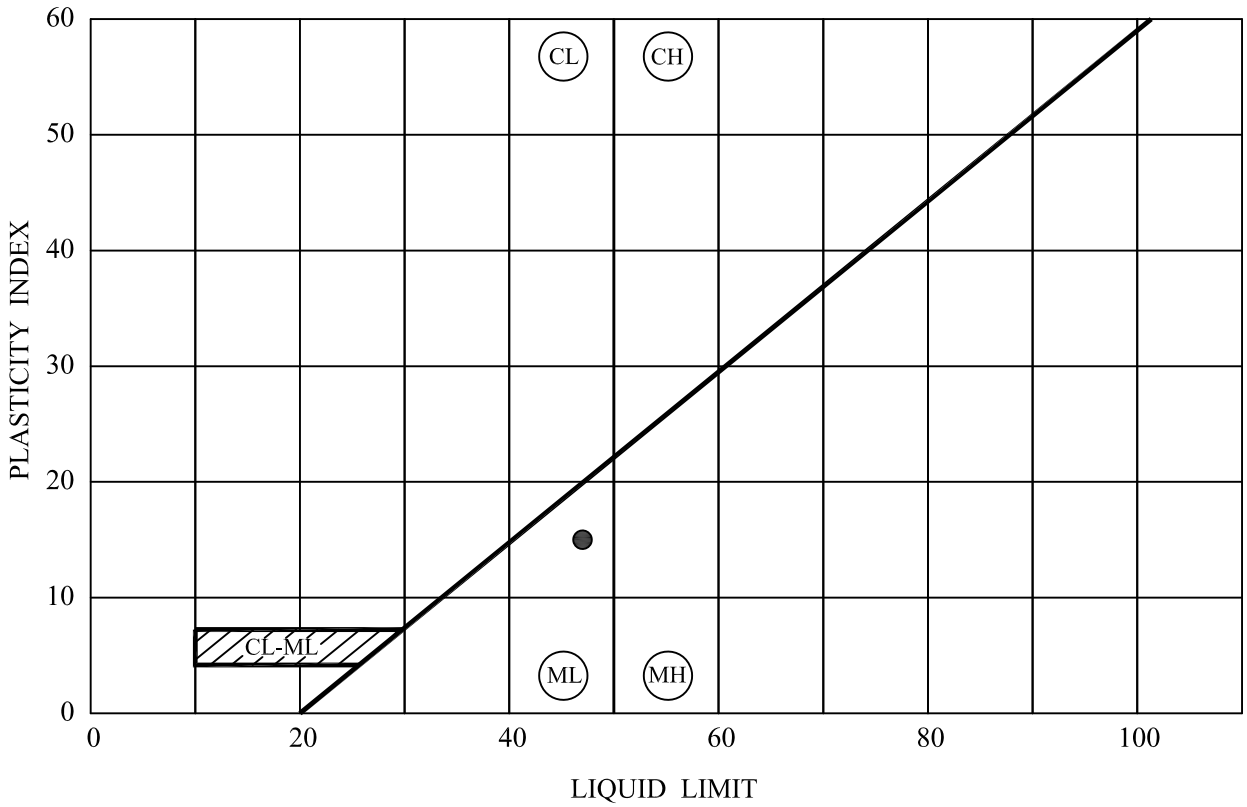
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/23/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B10



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 23-1	1.0	47	32	15	Brown CLAYEY SILT (ML) with Sand

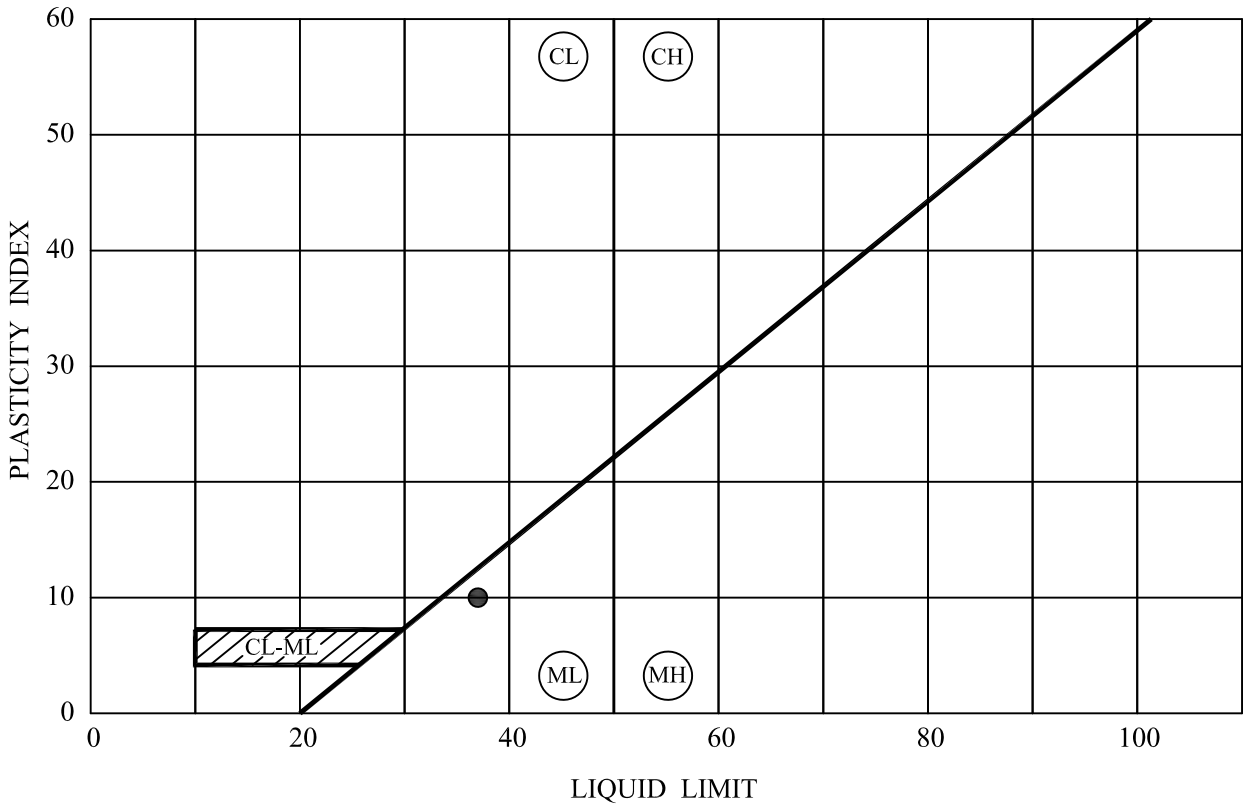
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/21/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B11



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 27-2	3.0	37	27	10	Orange Brown SILT (ML) with trace Sand

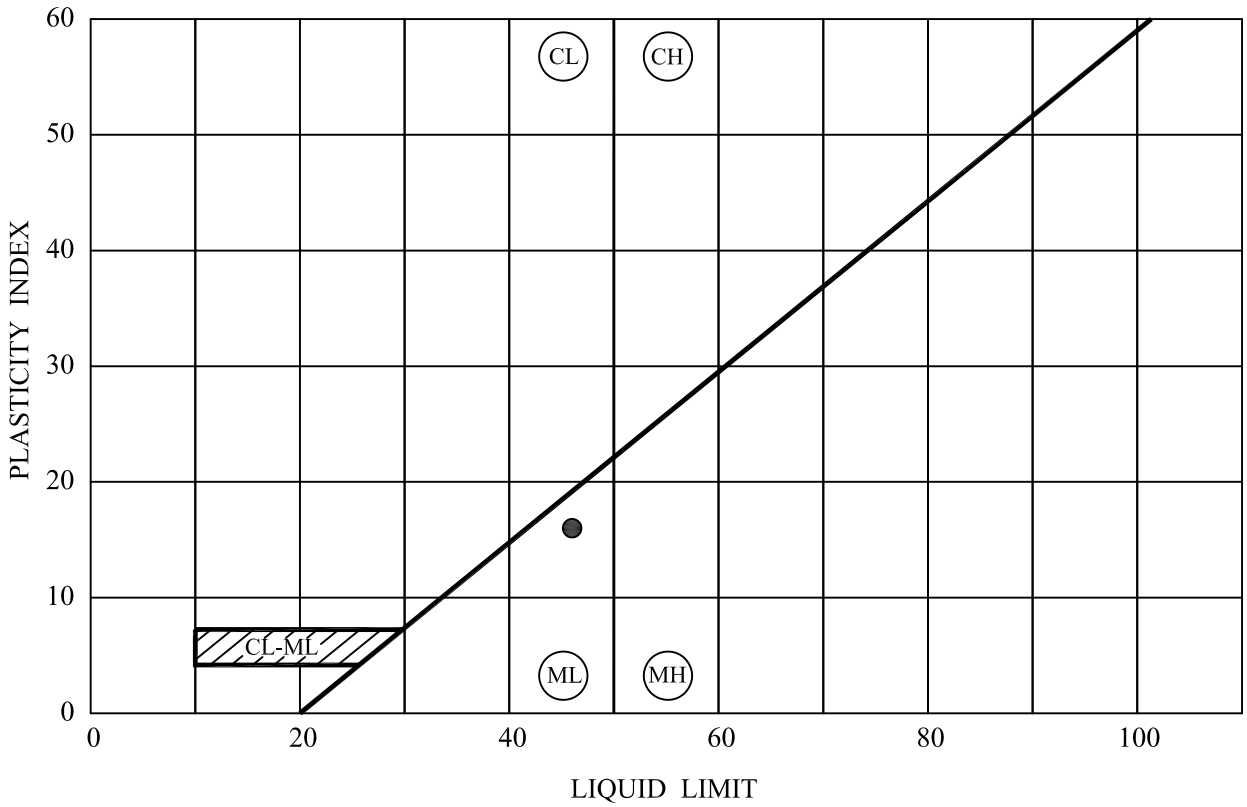
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B12



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 28-1	1.0	46	30	16	Brown Clayey SILT (ML) with some Sand

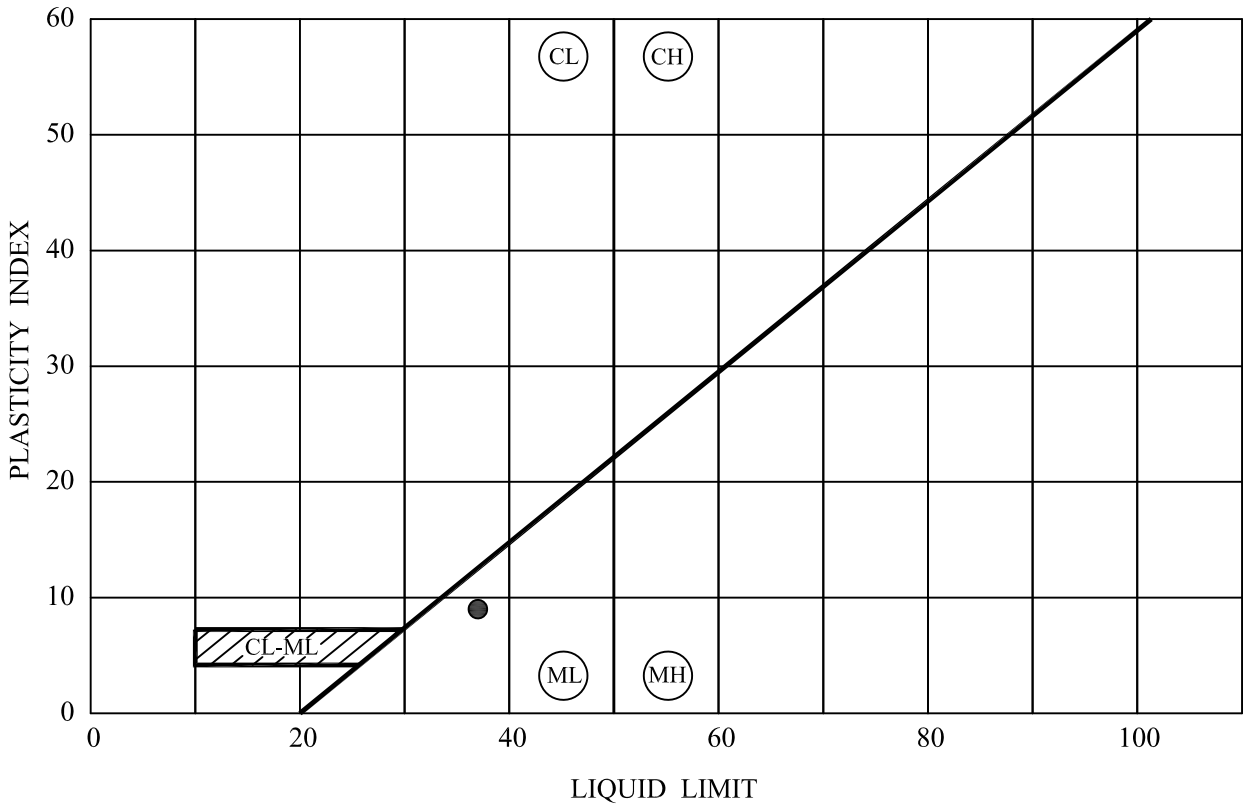
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/23/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B13



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 25-4	8.0	37	28	9	Orange Brown SILT (ML) and Sand

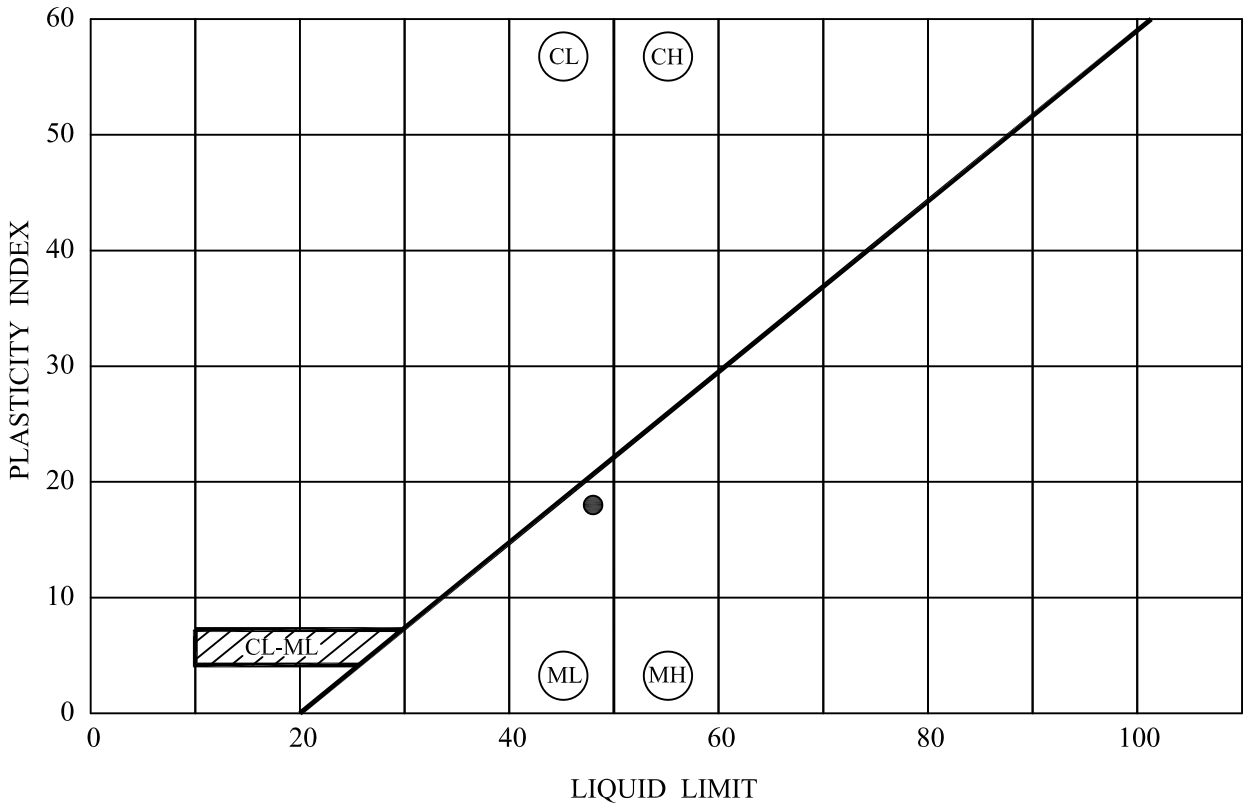
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B14



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	31-1	1.0	48	32	16	Brown CLAYEY SILT (ML) with some Sand

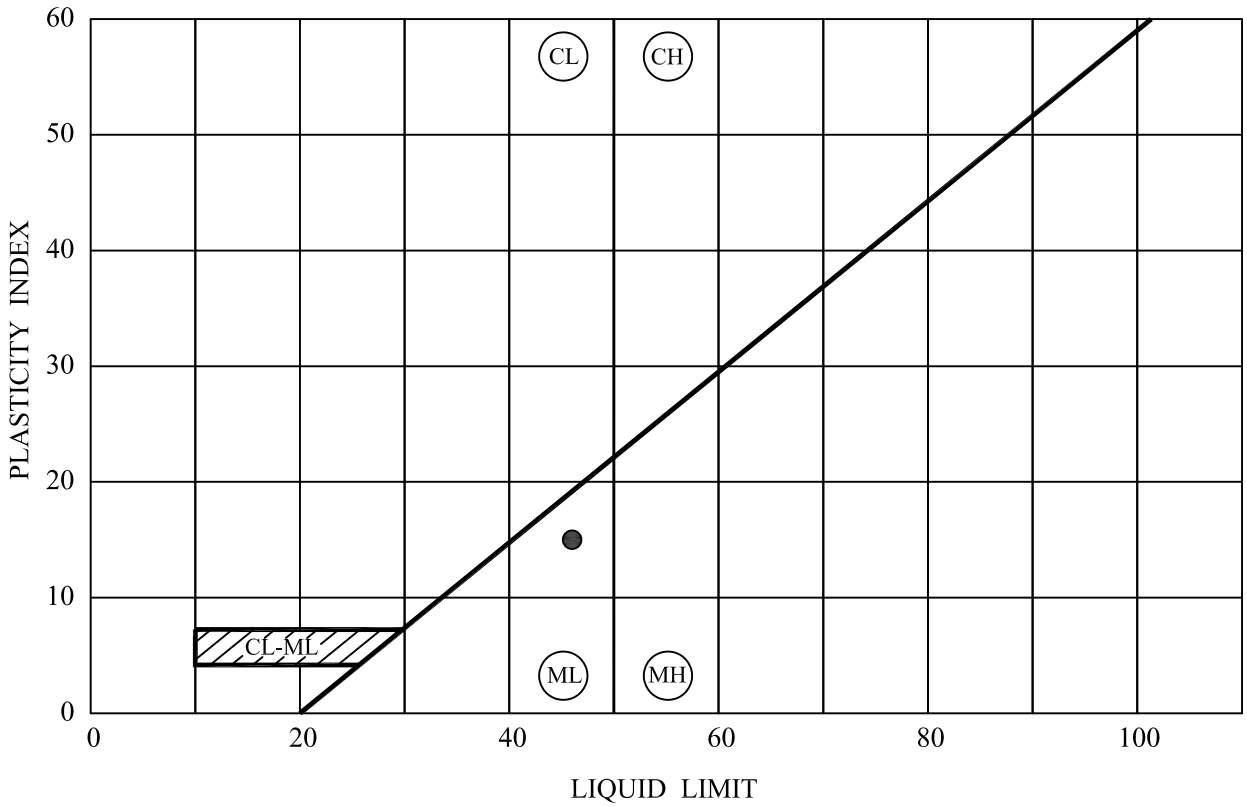
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/16/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B15



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 35-1	1.0	46	31	15	Brown CLAYEY SILT (ML) with some Sand

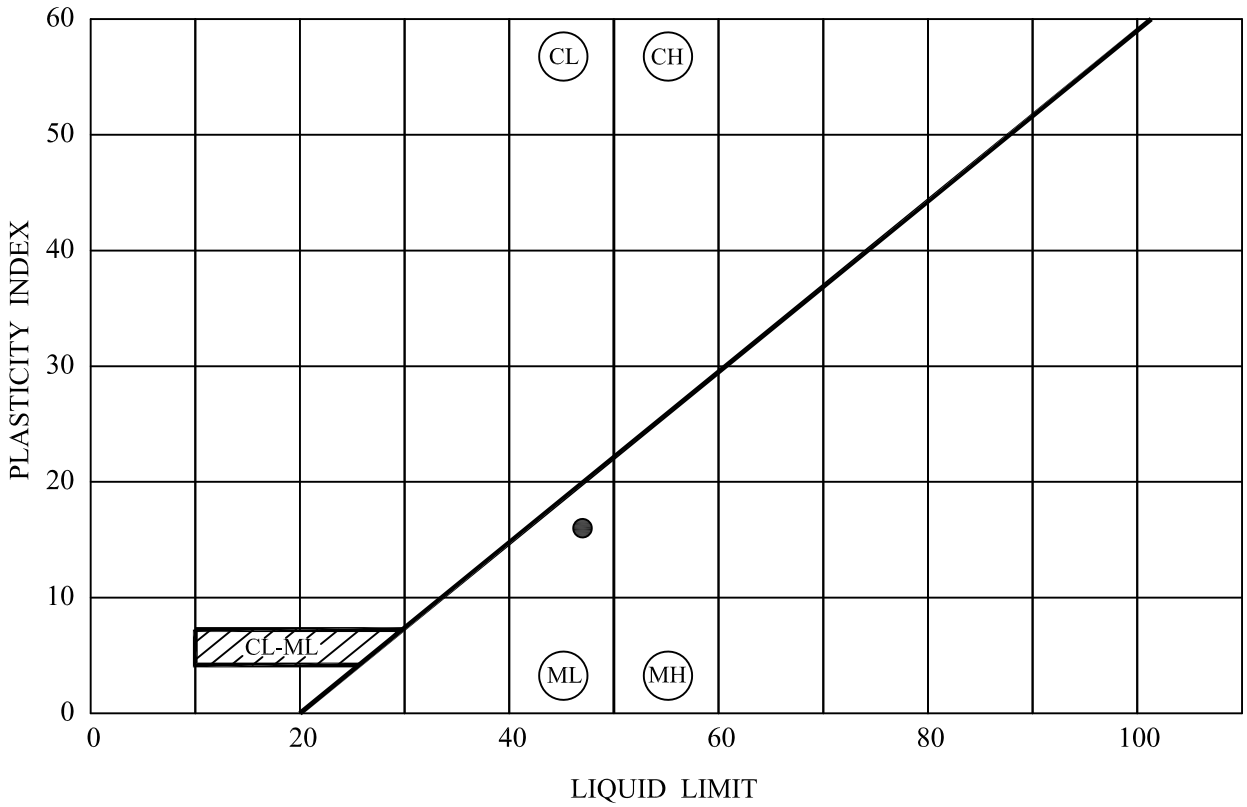
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/16/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B16



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 36-1	1.0	47	31	16	Brown CLAYEY SILT (ML) with Sand

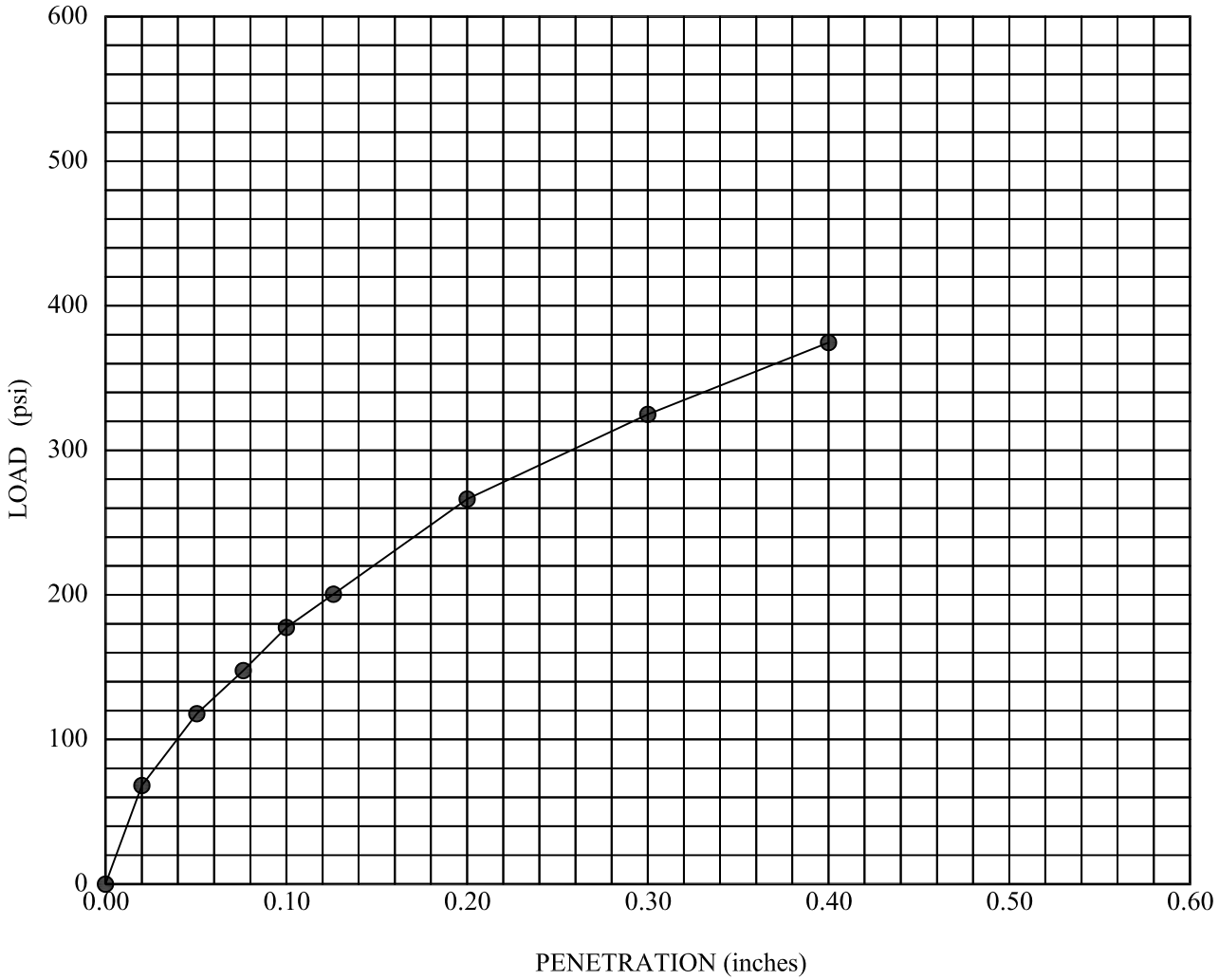
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B17



Sample Identification		Classification	CBR	% Comp.	Opt. Den.	Opt. % MC	% Swell	LL	PI
●	A	Brown CLAYEY SILT (ML)with some Sand	18	98	96	29	0.3	47	16

Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 08/06/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

COMPACTION CURVE

FIGURE
B18

APPENDIX C
Percolation Testing

APPENDIX C
PERCOLATION TESTING

A total of two percolation tests were performed within the proposed WWTP system leach field site. The percolation tests were performed at depths of 36 inches following the State of Hawaii Department of Health – Wastewater Branch testing method.

Approximately 1 inch of clean ¾-inch gravel was placed at the bottom of an 9-inch diameter, 36 inch deep hand excavated hole. Step D of the procedure for other type (non-granular) soils was used to perform the percolation test, as a 12 inch head of water did not seep away in under 10 minutes twice. After a minimum of 4 hours of presoaking, maintaining a 12-inch head, the hole was allowed to swell for at least 12 hours. After swelling, water was then added to 6 inches above the gravel and allowed to percolate. The water drop was recorded every 30-minute time interval for 4 hours. The final drop used to calculate the percolation rates.

A senior engineer with HGC performed the percolation test and maintained a log of the time and water drop intervals.

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DEPARTMENT OF HEALTH – WASTEWATER BRANCH
INDIVIDUAL WASTEWATER SYSTEM (IWS) – SITE EVALUATION/PERCOLATION TEST
(PERCOLATION TEST NO. 1 - EAST)

Date/Time: July 29, 2024 Test Performed by: Hawaii Geotechnical Consulting, Inc.

Owner: Ho'onani Development, LLC TMK: --

Elevation:	Unknown	Feet
Depth to Groundwater Table:	>10	feet below grade
Depth to Bedrock (if observed):	Unknown	feet below grade
Diameter of Hole:	9.0	inches
Depth to Hole Bottom:	36	inches below grade

Depth, inches below grade	Soil Profile (color, texture, other)
0-18	Brown Clayey Silt with some Sand, Soft
18-108	Orange Brown Silt with some Sand, Hard

PERCOLATION READINGS:

Time 12 inches of water to seep away: 101 minutes

Time 12 inches of water to seep away: 47 minutes

Check one:

_____ Percolation tests in sandy soils, recorded time intervals and water drops at least every 10 minutes for at least 1 hour.

X Percolation tests in non-sandy soils, presoaked the test hole for at least 4 hours. Recorded time intervals and water drops at least every 10 minutes for 1 hour of time for the first 6 inches to seep away in greater than 30 minutes recorded time intervals and water drops at least every 30 minutes for 4 hours or until 2 successive drops do not vary by more than 1/16 inch.

Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches
30	2-5/8	30	2-5/8		
30	2-3/16	30			
30	2-1/2				
30	2-5/8				

Percolation Rate (time/final water level drop): 11.41 minute/inch

As the engineer responsible for gathering and providing site information and percolation test results, I attest to the fact that above site information is accurate and that the site evaluation was conducted in accordance with the provisions of Chapter 11-62, "Wastewater Systems" and the results were acceptable. I also attest that three feet of suitable soil exists between the bottom of the soil absorption system and the groundwater table or any other limiting layer.

Engineer's Signature/Stamp

July 29, 2024

License Expires 04/30/2026

DEPARTMENT OF HEALTH – WASTEWATER BRANCH
INDIVIDUAL WASTEWATER SYSTEM (IWS) – SITE EVALUATION/PERCOLATION TEST
(PERCOLATION TEST NO. 2 - WEST)

Date/Time: July 29, 2024 Test Performed by: Hawaii Geotechnical Consulting, Inc.

Owner: Ho'onani Development, LLC TMK: --

Elevation:	Unknown	Feet
Depth to Groundwater Table:	>10	feet below grade
Depth to Bedrock (if observed):	Unknown	feet below grade
Diameter of Hole:	9.0	inches
Depth to Hole Bottom:	36	inches below grade

Depth, inches below grade	Soil Profile (color, texture, other)
0-18	Brown Clayey Silt with some Sand, Soft
18-108	Orange Brown Silt with some Sand, Hard

PERCOLATION READINGS:

Time 12 inches of water to seep away: 136 minutes

Time 12 inches of water to seep away: 100 minutes

Check one:

_____ Percolation tests in sandy soils, recorded time intervals and water drops at least every 10 minutes for at least 1 hour.

X Percolation tests in non-sandy soils, presoaked the test hole for at least 4 hours. Recorded time intervals and water drops at least every 10 minutes for 1 hour of time for the first 6 inches to seep away in greater than 30 minutes recorded time intervals and water drops at least every 30 minutes for 4 hours or until 2 successive drops do not vary by more than 1/16 inch.

Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches
30	4-15/16	30	5-1/16		
30	5-1/4				
30	5				
30	5-1/16				

Percolation Rate (time/final water level drop): 5.93 minute/inch

As the engineer responsible for gathering and providing site information and percolation test results, I attest to the fact that above site information is accurate and that the site evaluation was conducted in accordance with the provisions of Chapter 11-62, "Wastewater Systems" and the results were acceptable. I also attest that three feet of suitable soil exists between the bottom of the soil absorption system and the groundwater table or any other limiting layer.

Engineer's Signature/Stamp

July 29, 2024

License Expires 04/30/2026

APPENDIX ‘C’ – FLORA AND FAUNA SURVEY

FLORA AND FAUNA SURVEY
FIRST ASSEMBLY OF GOD SUBDIVISION
KAHULUI, MAUI

Prepared By:
FOREST & KIM STARR
STARR ENVIRONMENTAL

Prepared For:
LEHUA BUILDERS, INC.

2024

INTRODUCTION

Lehua Builders, Inc. is gathering information for construction of a proposed subdivision on about 190 acres, with an approximately 6 acre well and tank site, connected by a 2.6 mile water line in Kahului, Maui. This report focuses on the flora and fauna within the project site.

Project site.

SITE DESCRIPTION

The main project site is located in the dry isthmus of East Maui, at an elevation of about 50-80 ft. The terrain is relatively flat and was previously cultivated in sugar cane. The vegetation is mostly non-native grasses, shrubs, and small trees. The site is currently sitting idle. Most of the site has burned in the recent past.

The pipeline section, which runs from about 80-350 ft. elevation is similar to the main project site in the lower reaches, and is an active citrus field in the upper reaches. The well site, at about 350 ft. elevation, is also an active citrus field.

Terrain and vegetation at main project site.

Terrain and vegetation in lower reaches of pipeline corridor.

Terrain and vegetation in upper reaches of pipeline corridor and well site.

SURVEY OBJECTIVES

The objectives of the survey were to:

- Document what plant and animal species occur on the site or may likely occur in the habitat.

- Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.

SURVEY METHODS

The bulk of the main project area was surveyed in May 2024. An additional parcel in the main area, the well site, and the corridor pipeline connecting the two were surveyed in July 2024.

A walk-through survey method was used. Notes were made on plant and animal species encountered. Extra emphasis was made to look for species of conservation concern.

Taking notes on vegetation.

FLORA

The main project site and the lower reaches of the pipeline corridor are dominated by non-native grasses, mostly Guinea grass (*Megathyrsus maximus*) and buffel grass (*Cenchrus ciliaris*). In areas where grasses are thin, other aggressive non-native plants dominate, especially spiny amaranth (*Amaranthus spinosus*), lion's tail (*Leonotis nepetifolia*), golden crown-beard (*Verbesina encelioides*), and tumbleweed (*Salsola tragus*). Clumps of shrubby non-native fleabane (*Pluchea* spp.) also dot the fields of grass.

There are very few trees in the main project area. Most prevelant are hundreds of non -native tree tobacco (*Nicotiana glauca*). Though weedy and non-native, these small trees / large shrubs are potential host plants for the endangered Blackburn's Sphinx Moth (*Manduca blackburni*). There is more discussion about this in the insect section.

Other trees in the project area include groves of large haole koa (*Leucaena leucocephala*). A few monkey pods (*Samanea saman*). And a row of giant, mostly dead, elephant's ear pod (*Enterolobium cyclocarpum*) along Pulehu Rd. There are also scattered small kiawe (*Prosopis pallida*), Manila tamarind (*Pithecellobium dulce*), silky oak (*Grevillea robusta*), and date palms (*Phoenix* sp.). And at the well site and upper reaches of the pipeline corridor, there is an active citrus farm growing lime trees (*Citrus aurantifolia*).

The only native plant found on the main site was the common shrub ʻuhaloa (*Waltheria indica*). ʻUhaloa was also abundant at the well site and in the pipeline corridor, along with scattered vines of the native pāʻū o Hiʻiaka (*Jacquemontia sandwicense*).

The main site, mostly non-native grasses, especially Guinea grass (*Megathyrsus maximus*).

The lower reaches of the pipeline corridor, with large dead elephant's earpod trees (*Enterolobium cyclocarpum*) and an understory of non-native grasses and weeds.

Active citrus farm (*Citrus aurantifolia*) at well site and upper reaches of pipeline corridor.

Abandoned road in main site being colonized by tumbleweed (*Salsola tragus*).

Thickets of lion's tail (*Leonotis nepetifolia*) are common in areas with sparse grass cover.

One of a handful of monkey pod trees (*Samanea saman*) along Hansen Road.

Small Manila tamarind trees (*Pithecellobium dulce*) are scattered about the site.

Kiawe (*Prosopis pallida*) with understory of golden crown-beard (*Verbesina encelioides*).

Tree tobacco (*Nicotiana glauca*) is abundant at the main site.

Non-native Mexican poppy (*Argemone mexicana*) is locally common in the main site

Native ʻuhaloa (*Waltheria indica*) is present in the main site and pipeline corridor, and abundant in the rows between citrus trees.

Non-native obscure morning glory (*Ipomoea obscura*) is common in the citrus groves.

The native morning glory pāʻū o Hiʻiaka (*Jacquemontia sandwicense*) is also present.

Citrus farm (*Citrus aurantifolia*) at well site and upper reaches of pipeline corridor.

Cultivated lime (*Citrus aurantifolia*).

Plant Checklist

List of plants encountered during the survey.

Scientific Name	Common name	Nativity
Abutilon grandifolium	Hairy abutilon	Non-native
Alternanthera pungens	Khaki weed	Non-native
Amaranthus spinosus	Spiny amaranth	Non-native
Argemone mexicana	Mexican poppy	Non-native
Atriplex muelleri	Saltbush	Non-native
Bidens Pilosa	Beggarstick	Non-native
Boerhavia coccinea	Scarlet boerhavia	Non-native
Calotropis procera	Small crown flower	Non-native
Canavalia cathartica	Maunaloa	Non-native
Cenchrus ciliaris	Buffel grass	Non-native
Chamaecrista nictitans	Partridge pea	Non-native
Chenopodium murale	Lamb's quarters	Non-native
Chloris barbata	Fingergrass	Non-native
Citrus sp.	Citrus tree	Non-native
Coffea arabica	Coffee	Non-native
Crotalaria assamica	Rattle pod	Non-native
Cucumis dipsaceus	Wild cucumber	Non-native
Cynodon dactylon	Bermuda grass	Non-native
Cyperus rotundus	Nut-sedge	Non-native
Datura stramonium	Jimson weed	Non-native
Desmanthus pernambucanus	Slender mimosa	Non-native
Eleusine indica	Wire grass	Non-native
Enterolobium cyclocarpum	Elephant's earpod	Non-native
Eragrostis cilianensis	Stink grass	Non-native
Eragrostis pectinacea	Carolina love grass	Non-native
Grevillea robusta	Silky oak	Non-native
Heliotropium procumbens	Fourspike heliotrope	Non-native
Heterotheca grandiflora	Telegraph weed	Non-native
Indigofera suffruticosa	Upright indigo	Non-native
Ipomoea obscura	Obscure morning glory	Non-native
Jacquemontia sandwicense	Pāʻū o Hiʻiaka	Native
Leonotis nepetifolia	Lion's tail	Non-native
Lepidium sp.	Pepperweed	Non-native
Leucaena leucocephala	Haole koa	Non-native
Ludwigia octovalvis	Primrose willow	Non-native
Macroptilium atropurpureum	Vining cow pea	Non-native

Scientific Name	Common name	Nativity
Macroptilium lathyroides	Erect cow pea	Non-native
Malva parviflora	Cheeseweed	Non-native
Malvastrum coromandelianum	False mallow	Non-native
Megathyrsus maximus	Guinea grass	Non-native
Momordica charantia	Bitter melon	Non-native
Moringa oleifera	Drumstick tree	Non-native
Nicandra physalodes	Apple of Peru	Non-native
Nicotiana glauca	Tree tobacco	Non-native
Parthenium hysterophorus	Santa Maria	Non-native
Paspalum sp.	Paspalum	Non-native
Phoenix sp.	Date palm	Non-native
Pithecellobium dulce	Opiuma	Non-native
Pluchea carolinensis	Sourbush	Non-native
Pluchea indica	Indian fleabane	Non-native
Prosopis pallida	Kiawe	Non-native
Ricinus communis	Castor bean	Non-native
Salsola tragus	Tumble weed	Non-native
Samanea saman	Monkey pod	Non-native
Schinus terebinthifolius	Christmas berry	Non-native
Senna occidentalis	Coffee senna	Non-native
Setaria verticillata	Bristly fox-tail	Non-native
Sida ciliaris	Red sida	Non-native
Sida spinosa	Prickly sida	Non-native
Solanum lycopersicum	Wild tomato	Non-native
Syzygium cumini	Java plum	Non-native
Tridax procumbens	Coat buttons	Non-native
Vachellia farnesiana	Klu	Non-native
Verbesina encelioides	Golden crown-beard	Non-native
Waltheria indica	ʻUhaloa	Native

FAUNA

Below is a discussion of our findings and steps the U.S. Fish and Wildlife Service (FWS) recommends to prevent harm to rare native species that could occur within the project area.

BATS

Dedicated surveys for Hawaiian Hoary Bats (*Aeorestes semotus*) were not done, but bats are known to transit over broad areas and may forage at the site at times. Most of the trees at the project site are less than 15 ft. tall, though some are taller.

Hawaiian Hoary Bats roost and give birth to their young in tall trees. While tree trimming activities are not incompatible with bats, they have the potential to impact juvenile bats unable to fly away from a tree that is cut during the summer pupping season. For this reason, the FWS suggests that trimming woody plants more than 15 ft. tall should not occur between June 1 and September 15. Use of barbed wire is also discouraged, as it can entangle and kill bats.

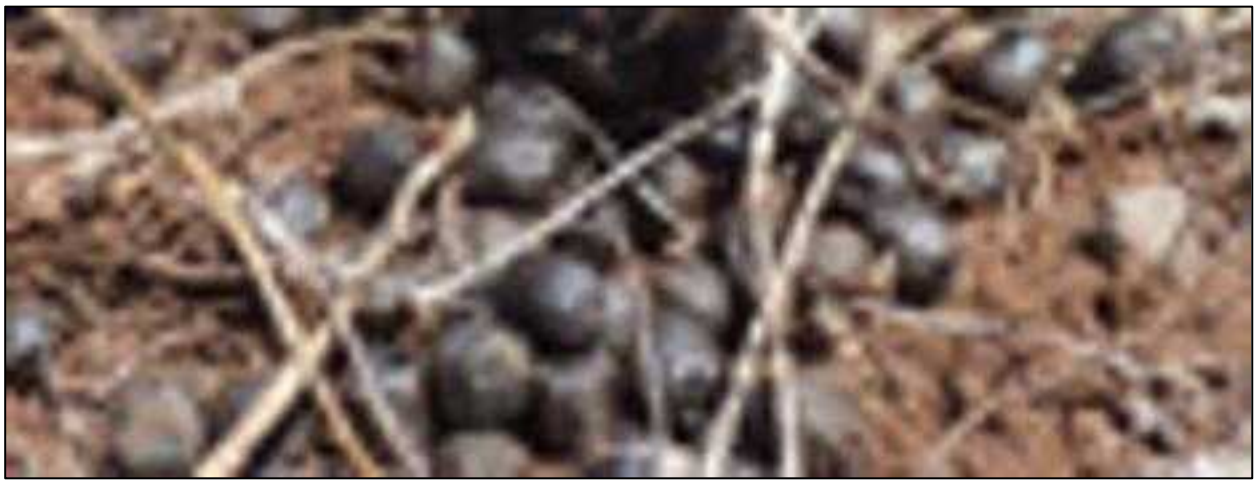
NON-NATIVE MAMMALS

The only non-native mammals observed at the site were a few dozen Axis Deer (*Axis axis*) at the main site and a herd of cows (*Bos taurus*) in the lower reaches of the pipeline corridor. Additionally, high levels of browsing, scat, game trails, digging, and rubbing were observed.

Non-native mammals that were not observed but likely occur in the project area at times include pigs (*Sus scrofa*), rats (*Rattus* spp.), mice (*Mus domesticus*), cats (*Felis domesticus*), dogs (*Canis familiaris*), and mongooses (*Herpestes auropunctatus*).

Herd of Axis Deer (*Axis axis*) in tree tobacco thicket at main site.

Axis Deer (*Axis axis*) rubbing on tree tobacco.



Fresh Axis Deer (*Axis axis*) scat.

Cows (*Bos taurus*) in lower reaches of pipeline corridor.

BIRDS

There were very few birds at the site. The bulk of the birds encountered during the survey were common non-native species. The birds were mostly transiting through the site, roosting in trees, and loafing on the ground. Birds were most common near the edges of the property, in areas that are lusher and have more structural diversity. Most abundant were Common Mynah (*Acridotheres tristis*) and Zebra Doves (*Geopelia striata*). A nest of non-native Black Francolin (*Francolinus francolinus*) was found at the base of a grass clump.

Dedicated seabird surveys were not done, and the habitat would likely be inhospitable to them. A lone Frigatebird or ʻIwa (*Fregata minor*) was observed riding thermals above the site and gliding to the south. Seabirds could also transit over the site at night. The FWS recommends using downward facing lights to minimize disorienting these night flying birds, and avoiding nighttime construction during September 15 through December 15 when young seabirds are fledging.

No Hawaiian Geese or Nēnē were encountered on the site, though they are known from the general area. The FWS recommends that folks do not approach, feed, or disturb Nēnē. If Nēnē start to become regularly observed on the project site, contact FWS for further guidance.

Bird Checklist

List of birds encountered during the survey.

Scientific Name	**Common name**	**Nativity**
Francolinus francolinus	Black Francolin	Non-native
Bubulcus ibis	Cattle Egret	Non-native
Acridotheres tristis	Common Mynah	Non-native
Ortygornis pondicerianus	Gray Francolin	Non-native
Passer domesticus	House Sparrow	Non-native
Fregata minor	ʻIwa, Frigatebird	Native
Spilopelia chinensis	Lace-necked Dove	Non-native
Cardinalis cardinalis	Northern Cardinal	Non-native
Lonchura sp.	Rice Birds	Non-native
Geopelia striata	Zebra Dove	Non-native

Frigatebird or ‘Iwa (*Fregata minor*) gliding on thermals above main site.

Looking and listening for birds.

Black francolin (*Francolinus francolinus*) eggs at base of grass tussock.

INSECTS

A survey of all the insects on the site was beyond the scope of this project. Conspicuous insects were noted, and insects of conservation concern were looked for.

The insects observed at the site were all common non-native insects one would expect in this habitat. Most conspicuous are numerous butterfly species including Monarch Butterfly (*Danaus plexippus*), Sleepy Orange Butterfly (*Eurema nicippe*), Bean Butterfly (*Lampides boeticus*) Western Pygmy Blue Butterfly (*Brephidium exilis*), and Citrus Swallowtail Butterfly (*Papilio xuthus*). Honey bees (*Apis mellifera*) were also buzzing about, and glaber ants (*Ochetellus glaber*) were present on many plants.

Of note, the main site has hundreds of tree tobacco (*Nicotiana glauca*) plants, virtually all of which are greater than three feet tall and nearing the end of their life cycle. Though non-native, this species can be a host for the endangered Blackburn's Sphinx Moth (*Manduca blackburni*). All the tree tobacco encountered were broadly scanned for obvious feeding damage and large larvae. About a hundred of the tree tobacco were more closely surveyed for eggs, small larvae, and frass. No signs of Blackburn's Sphinx Moth were encountered.

FWS recommends not allowing tree tobacco to grow greater than three feet tall in the project area, to minimize attraction of Blackburn's Sphinx Moth. Additionally, FWS requests they be contacted when tree tobacco greater than three feet tall is found on a site that is to be developed, so they can provide additional guidance to avoid impacts to the Blackburn's Sphinx Moth.

Painted Lady Butterfly (*Vanessa cardui*) sipping nectar from fleabane (*Pluchea*) flowers.

Citrus Swallowtail Butterfly (*Papilio xuthus*) ovipositing on citrus leaf.

Citrus Swallowtail Butterfly (*Papilio xuthus*) egg on citrus leaf.

One of the denser and healthier patches of tree tobacco (*Nicotiana glauca*) on the site.

Another patch of tree tobacco (*Nicotiana glauca*) that is mostly just dead stems.

Looking for signs of Blackburn's Sphinx Moth (*Manduca blackburni*) on tree tobacco.

Looking for signs of Blackburn's Sphinx Moth (*Manduca blackburni*) on tree tobacco.

Omnivorous leafroller moth (*Platynota stultana*) eggs on tree tobacco.

Omnivorous leafroller moth (*Platynota stultana*) larva on tree tobacco.

Spider, likely *Cheiracanthium*, in silked over tree tobacco leaf.

Soft scale (*Pulvinaria*) and armored scales (Diaspididae) feeding on tree tobacco.

Glaber ants (*Ochetellus glaber*) tending treehoppers (*Vanduzea segmentata*) on tree tobacco.

Tree tobacco (*Nicotiana glauca*) flowers, green fruit, and leaves.

Areas in yellow where tree tobacco (*Nicotiana glauca*) was observed. The bulk of the tree tobacco was observed in the eastern portion of the main site. Scattered individuals were also observed elsewhere in the main site and in the pipeline corridor up to the Haiku Ditch. No tree tobacco were observed in the rest of the pipeline corridor or at the well site.

Insect Checklist

List of insects encountered during the survey.

Order	Family	Scientific Name	Common name	Nativity
Araneae	Cheiracanthiidae	*Cheiracanthium*	Yellow sac spider	Non-native
Hemiptera	Coccidae	*Pulvinaria sp.*	Soft scale	Non-native
Hemiptera	Diaspididae	*Unknown*	Armored scale	Non-native
Hemiptera	Membracidae	*Vanduzea segmentata*	Treehopper	Non-native
Hymenoptera	Ampulicidae	*Ampulex compressa*	Emerald cockroach wasp	Non-native
Hymenoptera	Apidae	*Apis mellifera*	Honey bee	Non-native
Hymenoptera	Formicidae	*Ochetellus glaber*	Black household ant	Non-native
Lepidoptera	Crambidae	*Spoladea recurvalis*	Beet webworm	Non-native
Lepidoptera	Lycaenidae	*Brephidium exilis*	Western pygmy blue	Non-native
Lepidoptera	Lycaenidae	*Lampides boeticus*	Bean butterfly	Non-native
Lepidoptera	Nymphalidae	*Danaus plexippus*	Monarch butterfly	Non-native
Lepidoptera	Nymphalidae	*Vanessa cardui*	Painted Lady	Non-native
Lepidoptera	Papilionidae	*Papilio xuthus*	Citrus swallowtail	Non-native
Lepidoptera	Pieridae	*Eurema nicippe*	Sleepy orange butterfly	Non-native
Lepidoptera	Pieridae	*Pieris rapae*	Cabbage butterfly	Non-native
Lepidoptera	Tortricidae	*Platynota stultana*	Omnivorous leafroller moth	Non-native
Mantodea	Mantidae	*Unknown*	Preying mantis	Non-native
Orthoptera	Acrididae	*Schistocerca nitens*	Grasshopper	Non-native

Honey bee (*Apis mellifera*) foraging in purple crown flower (*Calotropis procera*).

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Nishida, G. M. 2002. Hawai‘i Arthropod Checklist Fourth Edition. Bishop Museum Technical Report 22: iv+313 pp.

Pyle, R.L., and P. Pyle. 2009. The Birds of the Hawaiian Islands: Occurrence, History, Distribution, and Status. B.P. Bishop Museum, Honolulu, HI, U.S.A.

Wagner, W. L., D. R. Herbst, and S. H. Sohmer. 1999. Manual of the Flowering Plants of Hawai‘i. Univ. of Hawai‘i Press and Bishop Museum Press, Honolulu, HI.

Artistic rendering of site.

"E mālama ‘oe i ka ‘āina, e mālama ka ‘āina ia ‘oe."
Take care of the land, and the land will take care of you.

APPENDIX 'D' – RETAIL DEMAND REPORT

Ho'onani Village

Retail Demand Analysis

May 2024

Prepared For - Seaview Investors, LLC.

STREETSENSE

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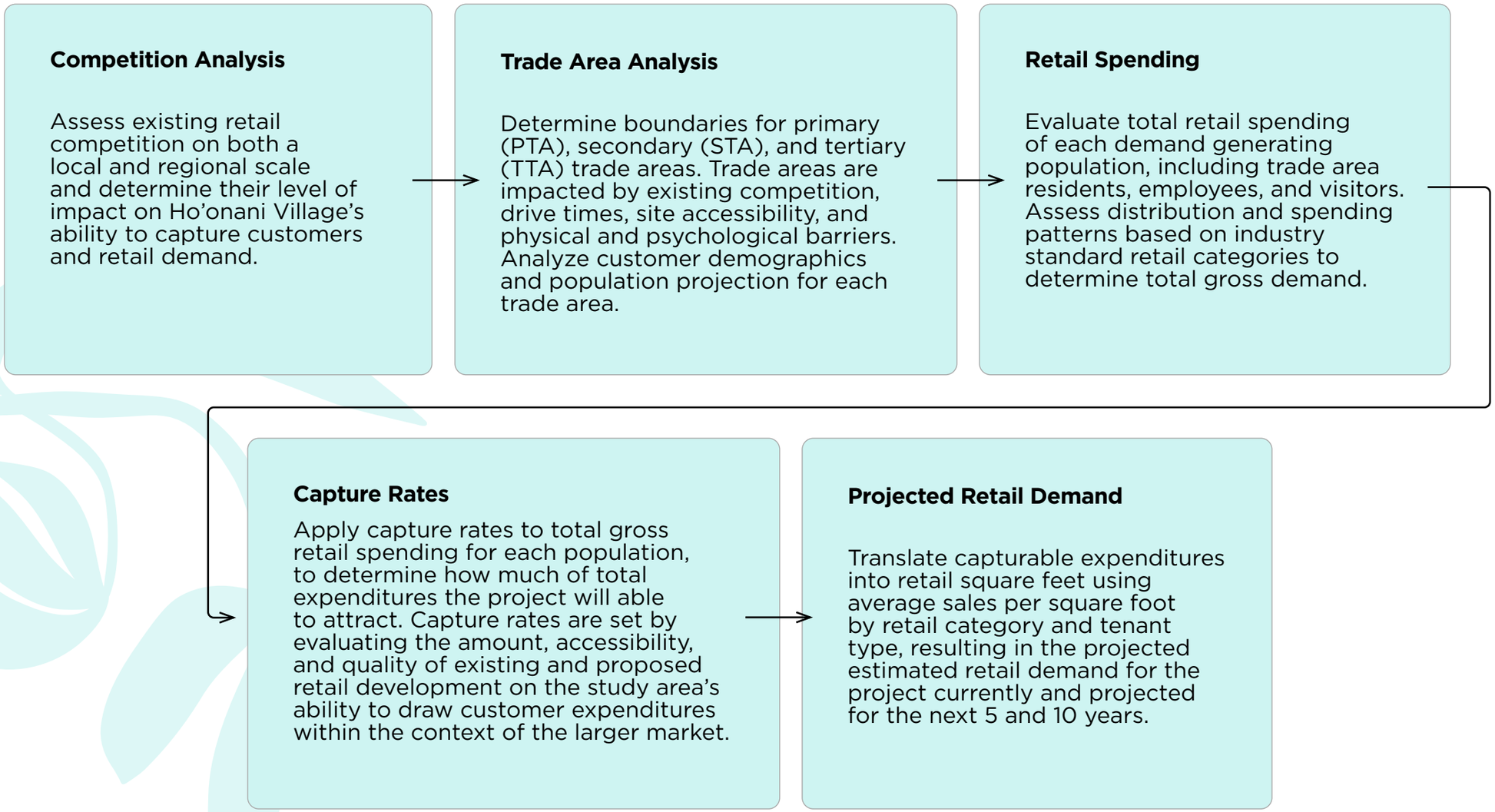
Methodology

For the purposes of this assessment, the following tasks were undertaken to evaluate the retail opportunity at Ho'onani Village.



Retail Terminology

A healthy, vibrant retail place has all four components

Retail Uses
(considered in quantitative assessment)

Non-Retail Uses
(not considered in quantitative assessment)

GROCERY & SERVICES

Grocery Store

Neighborhood Market

Pharmacy/Drug Store

Dry Cleaner/Laundromat

Tailor/Seamstress

Nail/Hair Salon/Spa

Barber Shop

Fitness

FOOD & BEVERAGE (F&B)

Sit-Down Restaurant

Full-Service Restaurant

Fast-Casual Restaurant

Fast food Restaurant

Carry-out Restaurant

Ice Cream Shop

Coffee Shop

Cafe

GENERAL MERCHANDISE

Home Goods & Improvement

Furniture Store

Clothing Store

Electronics Store

Pet Store

Sports Store

Book Store

Music Store

NON-RETAIL USES

Given their extraordinary nuance, ancillary tenants (e.g. financial, educational, religious, governmental institutions, etc.) and entertainment establishments (e.g. arcades, movie theaters, bowling alleys, pickle ball, escape rooms, etc.) are considered to be non retail uses and are not factored into the quantitative retail demand model or included in retail demand calculations.

Project Understanding

Ho'onani Village is a proposed mixed-use development in southern Kahului, the commercial hub of Maui, HI. The 165-acre site on Pulehu Road is strategically located less than half a mile offset from the major intersection of Hana Highway and the new airport access road (Mayor Elmer F. Cravalho Way), providing easy access to the airport, downtown Kahului, and Kihei to the south.

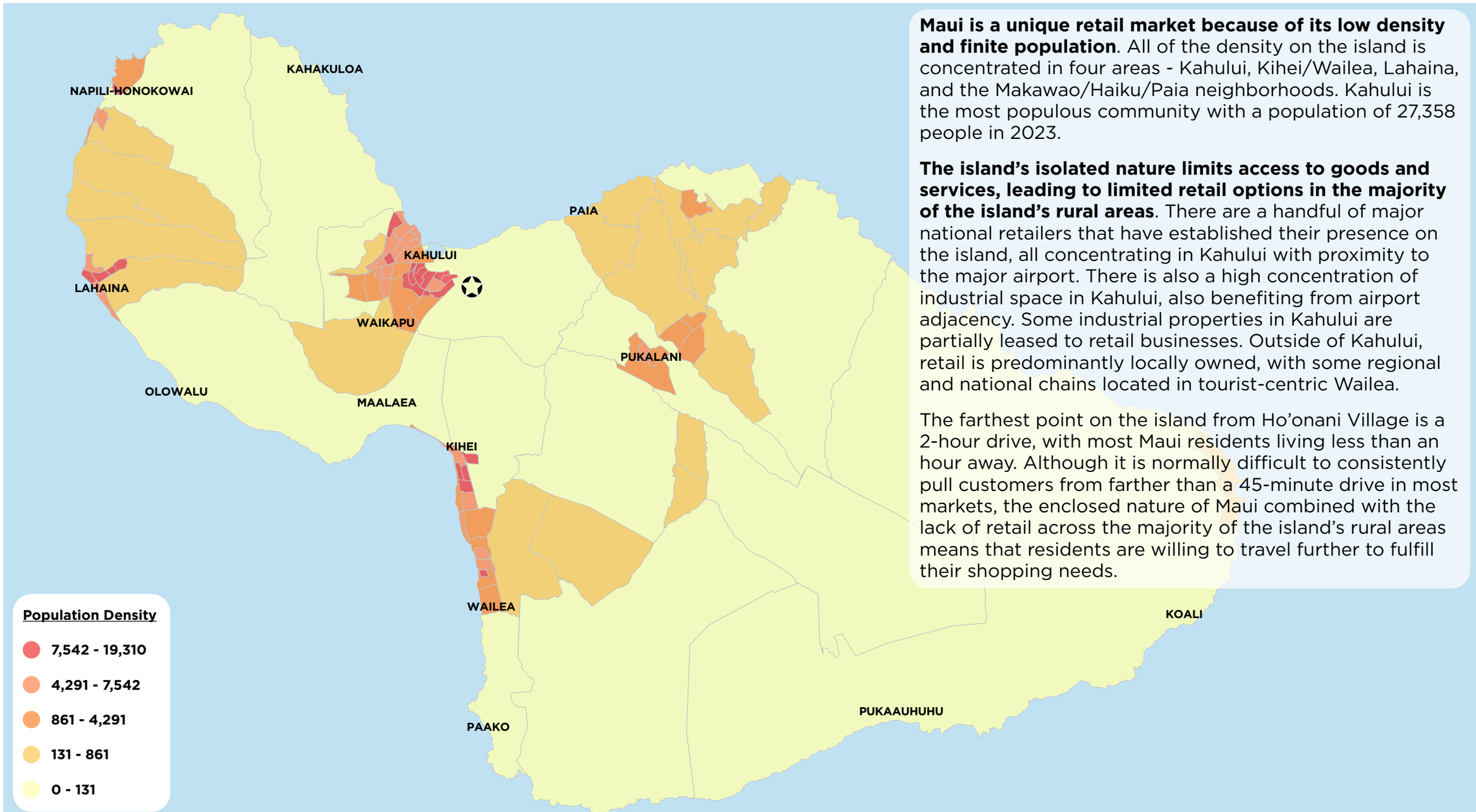
The project is envisioned as an accessible residential community bringing 1,600 rental apartments at full build-out, addressing Maui's housing needs with a phased approach bringing 200 units per year. Half of the residential units will be dedicated to affordable housing, catering to a multigenerational audience and providing high-quality, accessible housing options.

Ho'onani Village will incorporate extensive community recreational offerings to complement the residential offering, potentially including an amphitheater, pickleball/ basketball courts, multiple sports fields, and a dog park. Additionally, the plans show two 150-key hotels, and 50,000 SF of office and industrial space, respectively.

The community will be anchored by a central greenspace with retail along a pedestrian streetscape to create a walkable environment. The retail program is intended to serve local Maui residents, offering an authentic local offering in contrast to the big-box retailers in the area.

This analysis intends to determine the appropriate, sustainable level of retail space that could be supportable at Ho'onani Village based on customer spending and demographics, household growth, and the Maui competitive landscape.

Maui Market Context



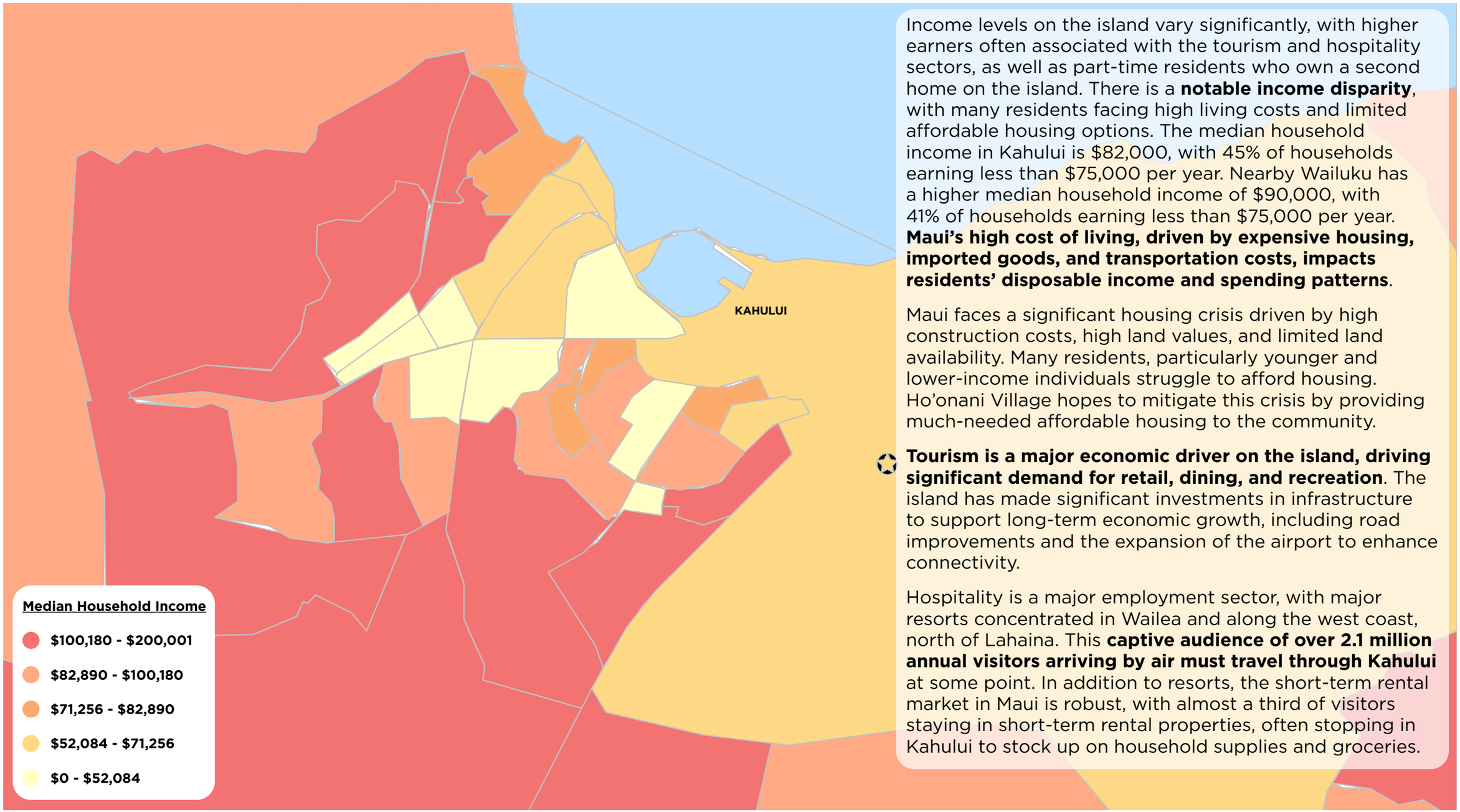
Maui is a unique retail market because of its low density and finite population. All of the density on the island is concentrated in four areas - Kahului, Kihei/Wailea, Lahaina, and the Makawao/Haiku/Paia neighborhoods. Kahului is the most populous community with a population of 27,358 people in 2023.

The island's isolated nature limits access to goods and services, leading to limited retail options in the majority of the island's rural areas. There are a handful of major national retailers that have established their presence on the island, all concentrating in Kahului with proximity to the major airport. There is also a high concentration of industrial space in Kahului, also benefiting from airport adjacency. Some industrial properties in Kahului are partially leased to retail businesses. Outside of Kahului, retail is predominantly locally owned, with some regional and national chains located in tourist-centric Wailea.

The farthest point on the island from Ho'onani Village is a 2-hour drive, with most Maui residents living less than an hour away. Although it is normally difficult to consistently pull customers from farther than a 45-minute drive in most markets, the enclosed nature of Maui combined with the lack of retail across the majority of the island's rural areas means that residents are willing to travel further to fulfill their shopping needs.

SOURCES: ESRI, US Census 2023, Hawaii Tourism Authority

Economic & Market Context



Income levels on the island vary significantly, with higher earners often associated with the tourism and hospitality sectors, as well as part-time residents who own a second home on the island. There is a **notable income disparity**, with many residents facing high living costs and limited affordable housing options. The median household income in Kahului is $82,000, with 45% of households earning less than $75,000 per year. Nearby Wailuku has a higher median household income of $90,000, with 41% of households earning less than $75,000 per year. **Maui's high cost of living, driven by expensive housing, imported goods, and transportation costs, impacts residents' disposable income and spending patterns**.

Maui faces a significant housing crisis driven by high construction costs, high land values, and limited land availability. Many residents, particularly younger and lower-income individuals struggle to afford housing. Ho'onani Village hopes to mitigate this crisis by providing much-needed affordable housing to the community.

Tourism is a major economic driver on the island, driving significant demand for retail, dining, and recreation. The island has made significant investments in infrastructure to support long-term economic growth, including road improvements and the expansion of the airport to enhance connectivity.

Hospitality is a major employment sector, with major resorts concentrated in Wailea and along the west coast, north of Lahaina. This **captive audience of over 2.1 million annual visitors arriving by air must travel through Kahului** at some point. In addition to resorts, the short-term rental market in Maui is robust, with almost a third of visitors staying in short-term rental properties, often stopping in Kahului to stock up on household supplies and groceries.

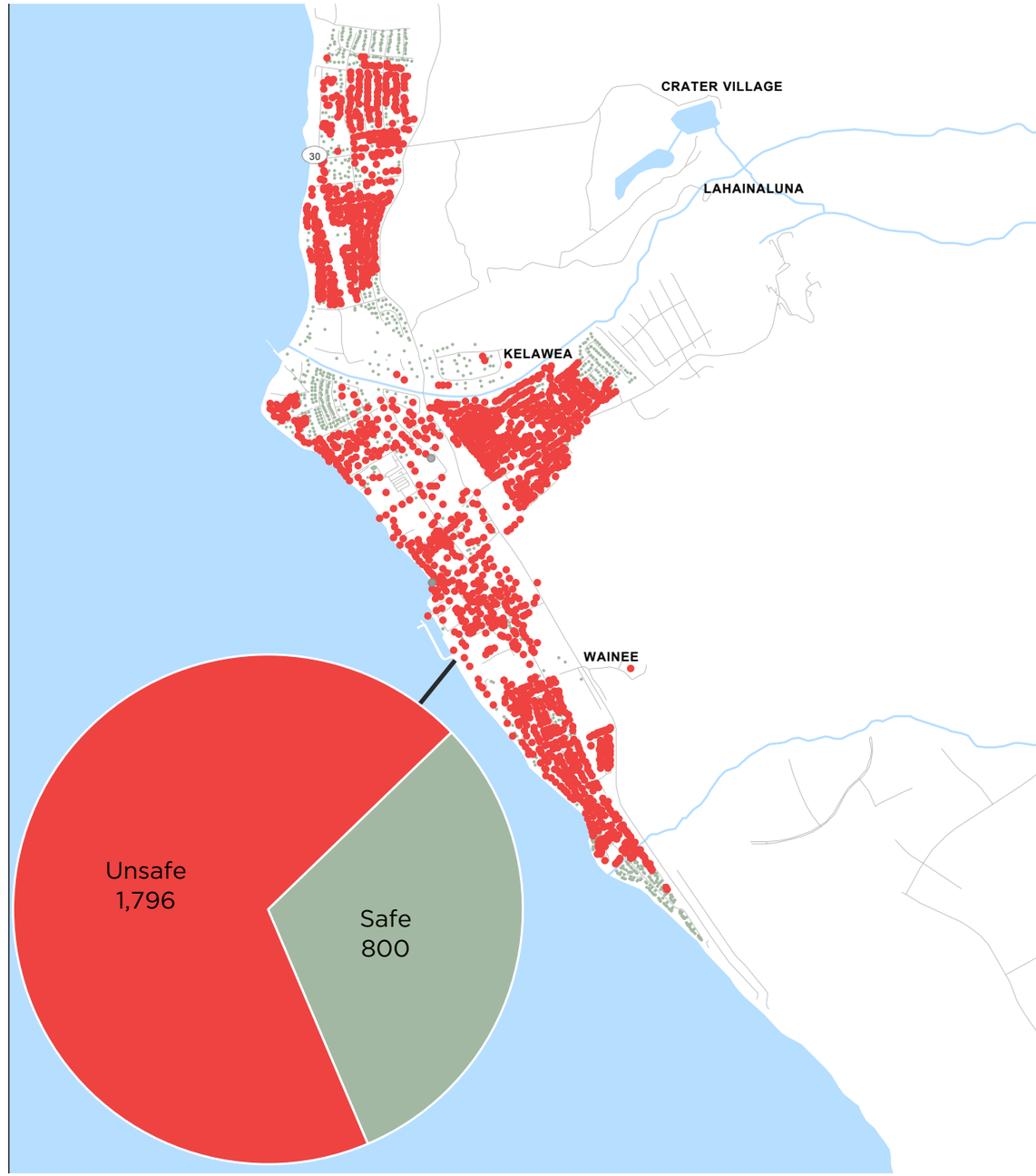
SOURCES: ESRI, US Census 2023, Hawaii Tourism Authority

Lahaina Fire impacts

The Lahaina fire in August 2023 dramatically impacted Lahaina and Maui overall. The third largest community on the island after Kihei and Kahului, Lahaina had a population of about 12,000 before the fire, the majority being displaced. **About 80% of the community was destroyed by the fire, which included 550,000 SF of retail space in downtown Lahaina**. Before the fire, Lahaina had one of the strongest retail environments on the island, with a walkable downtown along Front Street, a food truck park, the Wharf Cinema Center, and the Old Lahaina Shopping Center.

Two neighborhood-serving shopping centers in northern Lahaina, the Lahaina Cannery Mall, and Lahaina Gateway, survived the fire, reopening in Q1 2024. With the majority of retail space destroyed, residents living in the Lahaina region must travel to other retail nodes on the island to shop and fulfill daily needs.

As of the writing of this report, 95% of residential and 82% of commercial owners of properties affected by the fire have submitted right-of-entry applications. This is a positive indicator that the majority of property owners are committed to returning to their properties when they are able. However, the **recovery is still in an early stage**, with cleanup underway. **At this stage, it is not possible to determine what a revitalized Lahaina will look like, or the exact timeline for rebuilding**. However, it is unlikely that the retail that was destroyed will be fully rebuilt within the ten-year time horizon of this analysis.



SOURCES: CoStar, Maui Recovers

Retail Demand Assessment

Competitive Analysis Process

Due to the complexity and unique aspects of the Maui retail market, Streetsense took a layered approach for the competition analysis. Our analysis starts by looking at the retail environment in Kahului more granularly, as competition adjacent to Ho'onani Village will have the greatest impact on capturable demand. The analysis will then consider the retail landscape on the island as a whole beyond Kahului, and then will assess competition among nontraditional retail operators.

Regional and Local

Local Kahului Retail Landscape

Assessment of retail centers in Kahului that will directly compete with Ho'onani Village for both local customer spending as well as Maui-wide customer dollars, that are drawn to the area because of the density of retail.

Grocery

Local Kahului Grocery Environment

The local grocery environment will be highlighted separately and will consider both smaller local operators and big-box national chains. These competitive sites will have the strongest impact on Ho'onani Village's ability to attract grocery spending from across the island.

Regional and Local

Regional Competition - Outside of Kahului

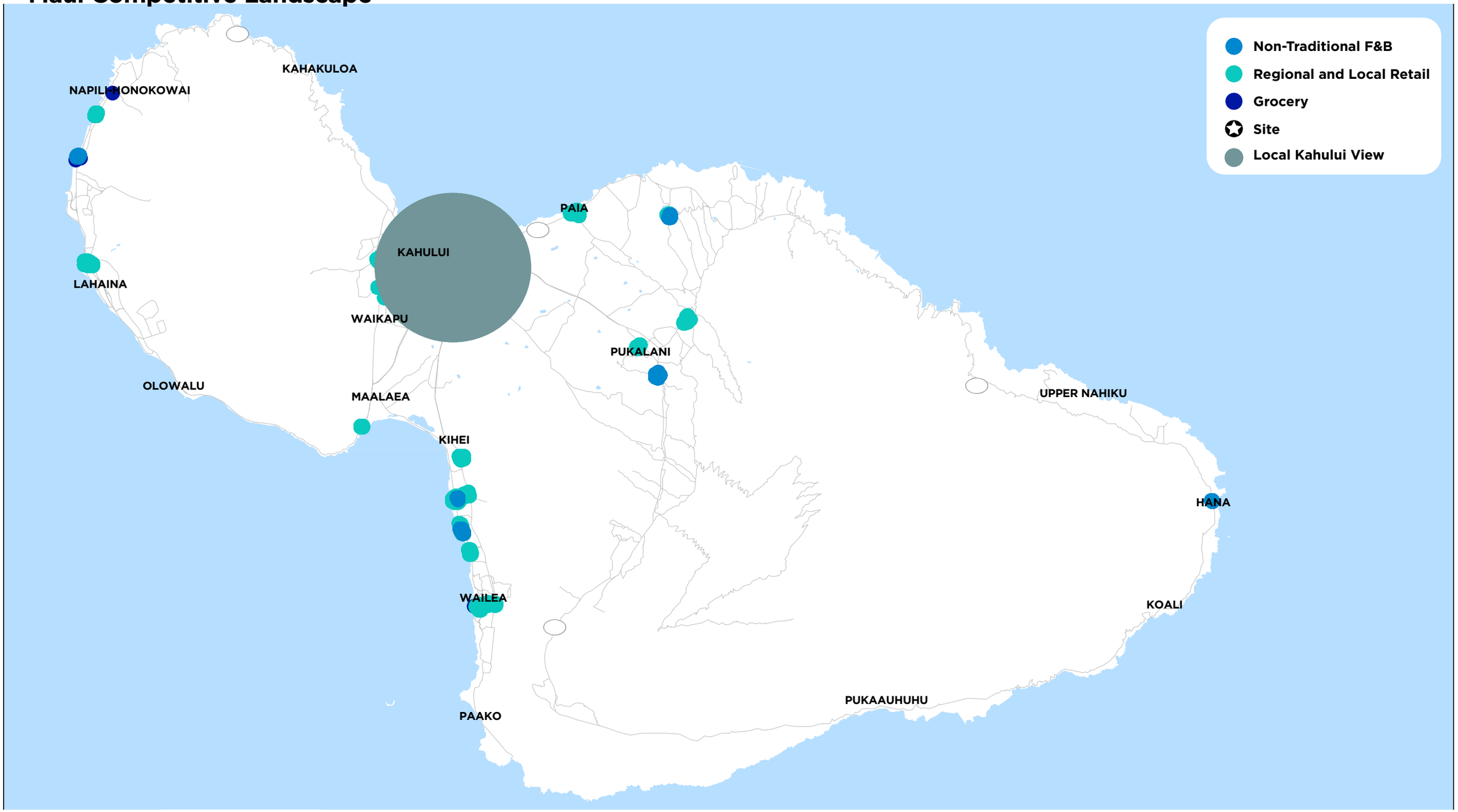
This section will account for traditional retail environments that are outside of Kahului, including centers and downtown environments. The quality and positioning of these sites will inform how trade areas outside of Kahului are formed.

Non-Traditional Retail

Non-Traditional Retail Environments

Nontraditional retail environments include food halls, food trucks, and farmer's markets. These environments often have an outsized customer draw due to their unique offerings or periodic operating schedules. Food truck parks will be highlighted in particular due to their prevalence across the island.

Maui Competitive Landscape



Kahului Retail Landscape

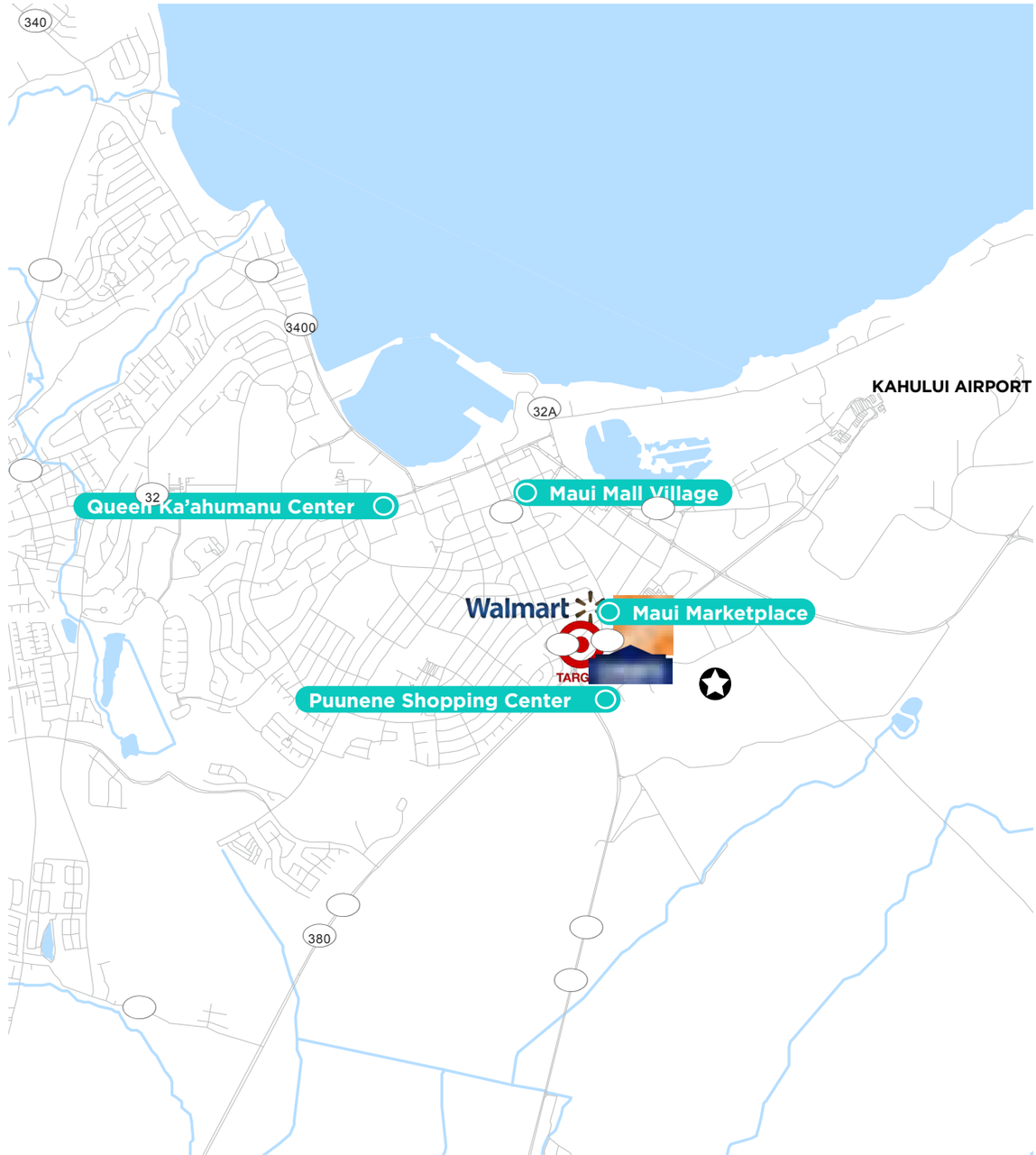
Competition in Kahului predominantly consists of big box retailers and power centers that serve populations across the island, attracted to the density of offerings. Retail in Kahului also benefits from its location next to the airport, attracting visitors as they arrive on the island.

Puunene Shopping Center is the newest on the island, delivering in 2015-2017. Anchored by Target, the center offers generic mass market retailers like Ulta Beauty, Planet Fitness, and Chick-fil-A, adjacent to Home Depot, Lowes, and Walmart centers. The center has experienced some vacancy, currently with a vacant 25,000 SF junior anchor.

Maui Marketplace is anchored by a Barnes & Noble and Office Max. The center has suffered elevated vacancy since the delivery of Puunene, totaling 136,000 SF available for lease. Plans are being implemented to revitalize the center, and specialty grocer Seafood City recently signed a deal for one of the anchor spaces.

Maui Mall Village stands out as a walkable environment with a central square, benches, and wayfinding signage. However, the Village's last major renovation was in 1995, with 18,000 SF total available for lease.

Queen Ka'ahumanu Center is an aging mall that has had difficulty attracting visitor traffic due to its distance from the airport. The mall has high vacancy, with 26% of retail space marketed as available, including a 77,000 SF Sears anchor. The mall also has multiple office tenants such as accountants and recruitment centers, indicating difficulty attracting retail tenants to fill space.



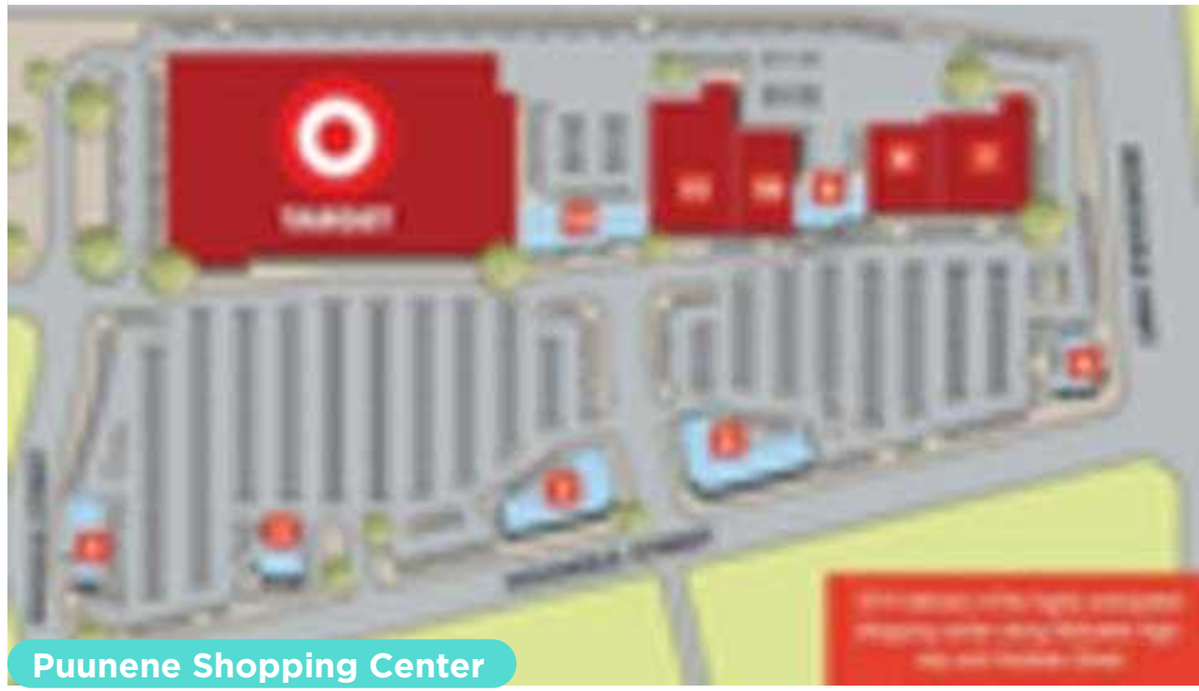
SOURCES: CoStar, Streetsense Research

Kahului Retail Landscape

Lack of strong retail environments in Kahului:

- Retail competition in Kahului is dense, but there is a lack of cohesive, inviting environments
- Puunene Village has island-wide customer draw but is a generic power center
- Kahului lacks a truly walkable downtown
- Adjacency to the airport is critical to driving foot traffic and visitation
- New airport access road improved airport connectivity and shifted retail landscape, leading to the relocation and expansion of Walmart followed by several other retailers
- Increased vacancy among spaces located off the main arteries
- Maui Mall Village and the Queen Ka'ahumanu Mall are aging and have elevated vacancy
- Stronger environments exist outside of Kahului but their tenanting and positioning is geared towards serving visitors over residents

While the dense competition takes away from the retail opportunity at Ho'onani Village, it will benefit from the already high visitation to the area. The poor quality of the retail offerings and environments leaves opportunity for smaller-scale complementary retail with a strong sense of place.



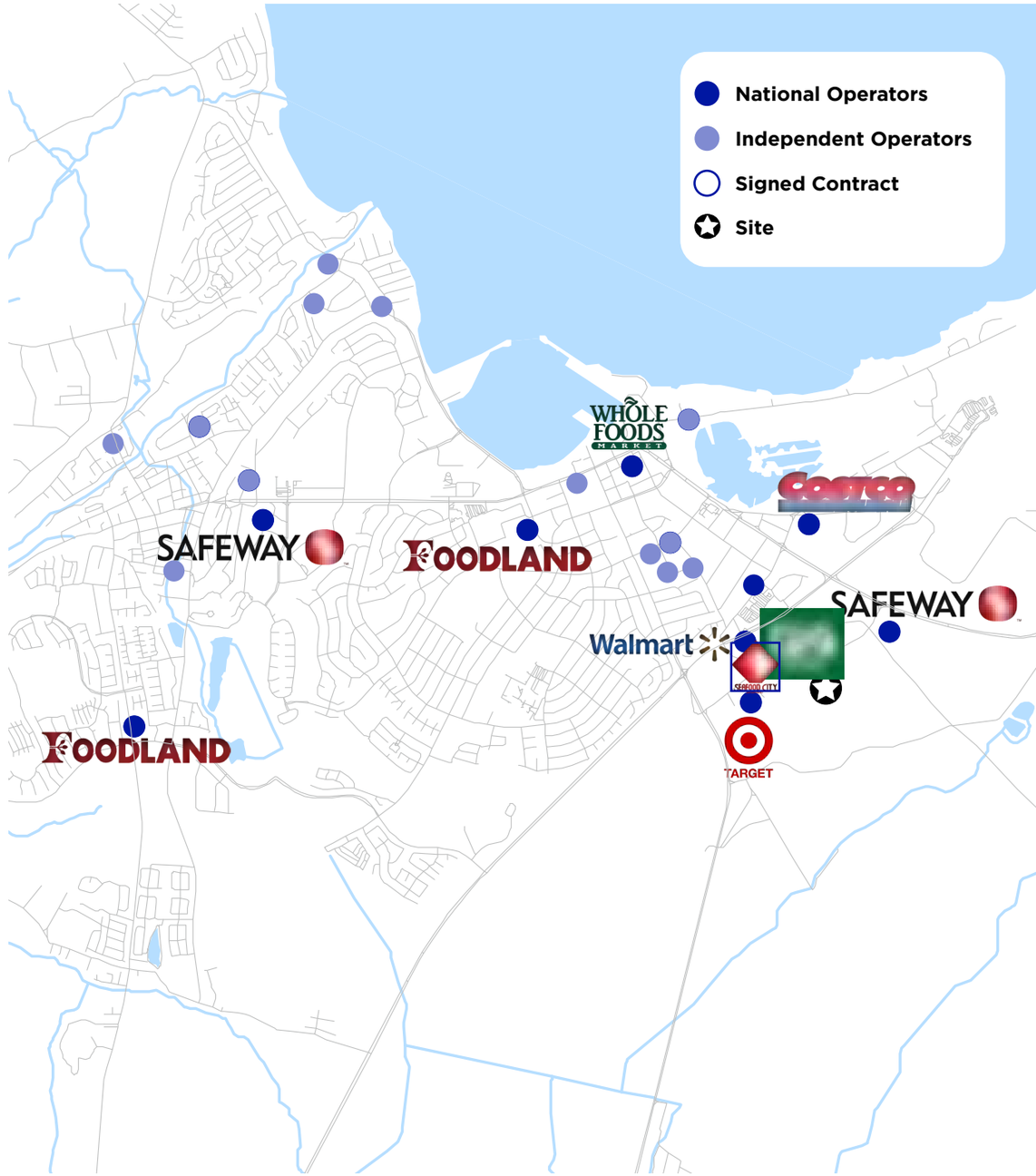
Images Sourced from Costar

Kahului Grocery Landscape

Saturated Grocery Market:

- Maui grocery competition is dense and highly varied, representing an array of operators from budget options to a Whole Foods, as well as 12 independent local operators
- Target, Walmart and Safeway (delivering in 2019 directly northeast of the site) surround and are directly adjacent to Ho'onani Village, satisfying a range of island residents' grocery needs
- Costco's position near the airport ideally places it to attract visitors for a pre-vacation grocery run
- Whole Foods will be difficult to outcompete for a high-end organic food market, coupled with local chain Down to Earth, and the two open-air markets
- Seafood City will make the immediate grocery environment even more crowded, adding a fifth grocery option within less than a five-minute drive

These factors combine to make it unlikely that Ho'onani Village can pull away enough spending from the competition to support even a smaller-format grocer.



SOURCES: CoStar, Streetsense Research

Regional Competition - Outside of Kahalui

Downtown retail offerings, like in Paia and Makwao, are known for their local boutiques and galleries, with limited F&B and grocery options, forcing those residents to travel to Kahului to fulfill their need for grocery and services.

Downtown Wailuku, Paia and Makawao

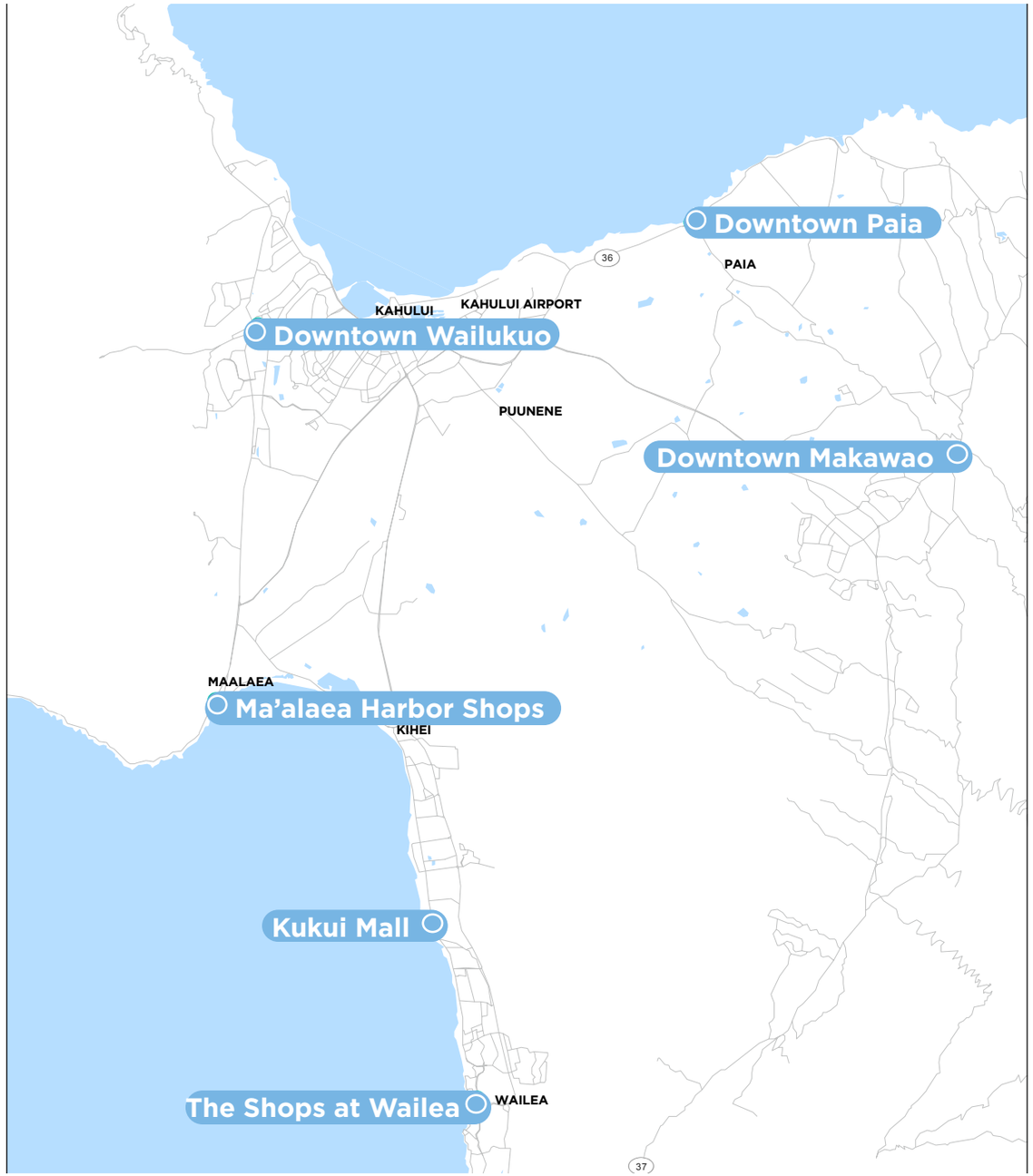
- Dominated by local businesses
- 50%+ businesses are general merchandise
- Prevalence of women's apparel and art galleries
- F&B and grocery options are limited
- High vacancy - Paia 11%

Lahaina area residents have lost significant retail due to the fires. Although a handful of grocery-anchored retail centers have reopened in north Lahaina, residents living on the west coast of Maui are traveling to Kahului periodically for larger shopping trips.

Tourist-serving retail

Ma'alaea Harbor Shops and The Shops at Wailea primarily serve tourists, offering luxury shopping, resort-wear and upscale dining. These environments are well-tenanted and walkable, but do not adequately fulfill the needs of the local community.

The devastating destruction of Lahaina's downtown retail has left a major void on the island for a walkable, place-based retail environment. By curating an authentic and locally-tenanted retail program that resonates with all underserved Maui residents, Ho'onani Village has the opportunity to become the island's community gather hub.



SOURCES: CoStar, Streetsense Research

Non-Traditional F&B Environments

Maui hosts numerous non-traditional retail environments, including food truck parks, farmer's markets, and other open-air markets. These are some of the island's most active retail offerings celebrating the island's diverse cuisines and serving as community hubs, while offering flexibility to local operators.

Food Trucks

Food truck culture is particularly strong, with numerous small food truck parks scattered across the island. There are five notable larger food truck parks that host at least five trucks, two of which are in Kahului, serving as direct F&B competition to Ho'onani Village.

Plate Lunch Marketplace is the more established of the two and includes some amenities like picnic tables and a large central tent. The **Costco food truck park** was established at the Costco parking lot in 2021, benefitting from the high foot traffic. That increased traffic is appealing to operators, attracting several popular Maui food truck operators to expand their operations, opening second trucks at the Costco location. Although much smaller and offering no amenities or infrastructure, there is also **a small food truck park active within the Home Depot parking lot**.

All of these locations are well-situated in highly trafficked locations, attracting both visitors flying into the island and locals shopping at existing retail. This indicates the importance of a steady flow of foot traffic to support the success of local entrepreneurs.

Similarly, the **Honoapiilani Food Truck Park** is well-positioned near resort hotels and has also seen an influx of patrons from Lahaina since the fire. **Kihei has two major food truck parks**, the larger and newer of which is at South Maui Gardens.

SOURCES: CoStar, Streetsense Research, GITNUX

Non-Traditional Retail Market

Farmer's Markets & Open Air Markets

Kahului hosts **two farmer's/open-air markets** that are each active on Saturdays and Sundays, respectively. These markets give local vendors the opportunity to sell fresh produce, handmade crafts, and local delicacies that resonate with locals, but also attract visitors looking for an authentic Maui experience. Retailers that are beloved by locals often appeal to visitors, expanding the customer base and driving success to business owners.

Both markets are conveniently located near the waterfront, with the Maui Swap meet being directly adjacent to The University of Hawaii Maui College, serving yet another customer base.

Hotel & Resort F&B

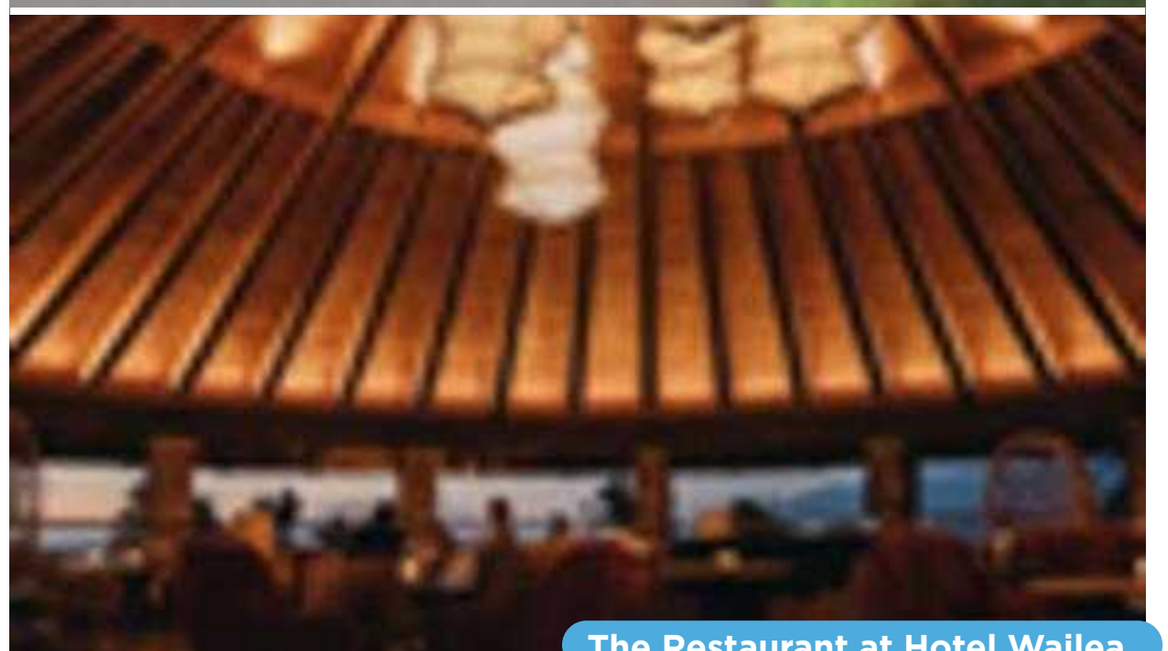
Hotels and resorts on the island often incorporate some level of retail catering to the captive tourist customer base, often offering a restaurant program, depending on the size and scale of the hotel or resort. Most full-service dining offerings in Maui are located within a hotel or resort, with limited standalone dining concepts. Larger resorts often supplement the offering with a mix of luxury boutiques, gift shops, and specialty shops.

Food Halls

There are no operating food halls on Maui, creating the opportunity to build upon and complement the existing food truck scene and foster entrepreneurship on the island. The growing popularity of food halls has spread to Hawaii's island of Oahu, with numerous food halls throughout Honolulu.

There are numerous operating models for food halls, some of which serve as incubators, offering low barriers to entry for local operators. Food halls in the continental US average 10,000 to 12,000 SF, encompassing both operator stalls and common areas. A food hall of this scale typically generates $8 million in total annual sales. There are no true food halls on Maui that will compete with Ho'onani Village, which provides the opportunity to support one onsite.

Maui Swap Meet



The Restaurant at Hotel Wailea

Images Sourced from Afar Media and Hotel Wailea

F&B Market Considerations

Opportunity for F&B in both brick-and-mortar and food truck formats:

- Brick-and-mortar restaurants in Kahului are frequently located in industrial properties or generic strip centers, which can detract from the customer experience.
- Existing downtown environments are very focused on general merchandise rather than F&B, requiring local residents to travel for diverse food options.
- Kahului hosts two of the island's largest food truck parks, benefitting from foot traffic to Costco but lacking a cohesive and comfortable dining environment.
- Despite their popularity, food truck parks mainly offer quick-service options and do not entirely fulfill the need for sit-down restaurants or fool halls.

Development Potential:

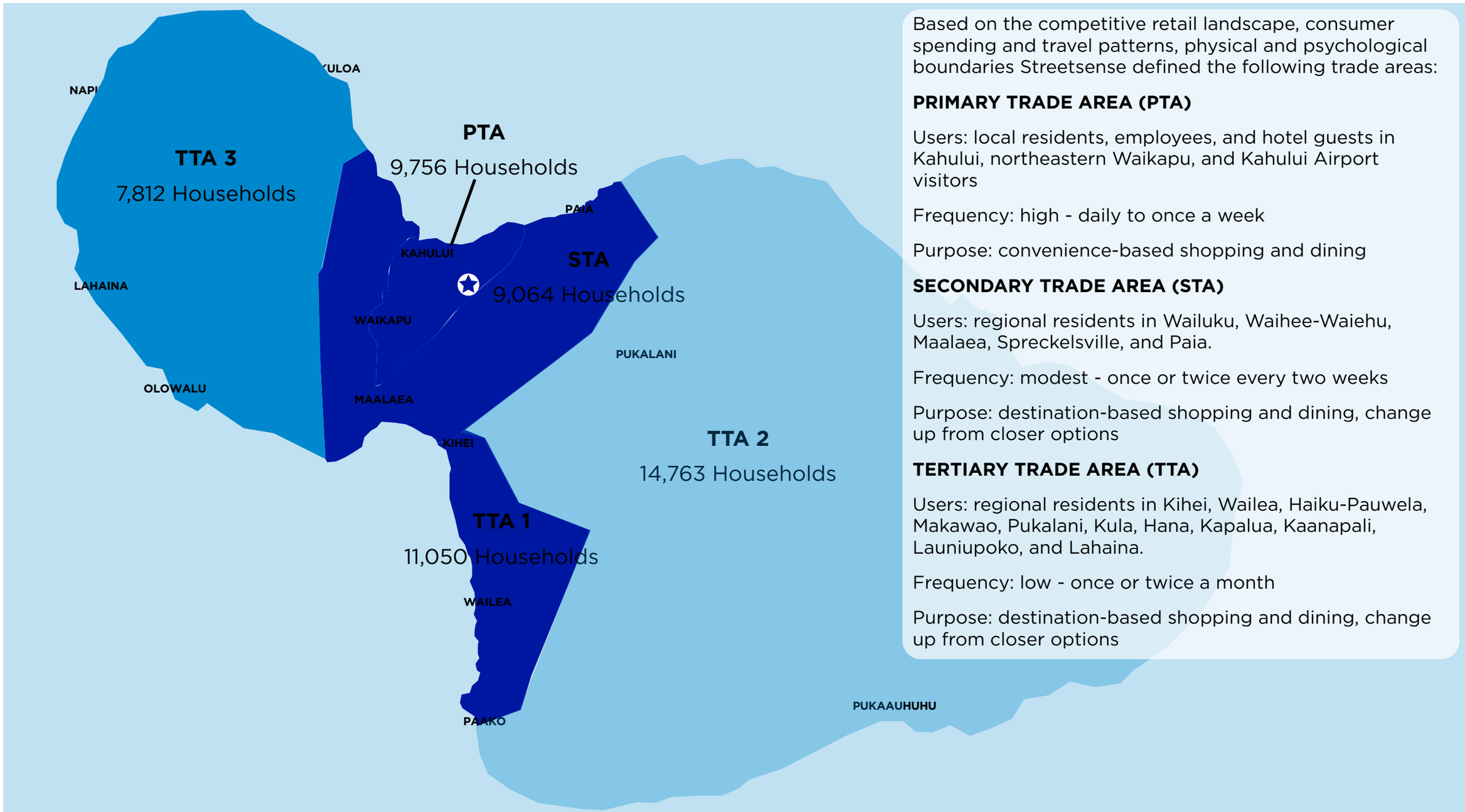
- Unique Dining Experience: Ho'onani Village presents an opportunity to create a unique, first-to-market food hall restaurant program to fill the void on the island.
- Purpose-Built Food Truck Area: There is potential to attract food trucks to a dedicated, purpose-built area within Ho'onani Village, providing a more structured and appealing environment compared to existing locations like Home Depot parking lot.
- A food hall with a central commissary kitchen creates additional opportunity to support the island's strong entrepreneurial spirit, offering new and existing small operators the opportunity to grow in a brick-and-mortar space, expand their existing food truck business, and/or provide catering services to diversify their revenue base.

Jack's Inn Restaurant

Place Lunch Marketplace

Images Sourced from Costar and The Hawaii Vacation Guide

Retail Trade Areas



Based on the competitive retail landscape, consumer spending and travel patterns, physical and psychological boundaries Streetsense defined the following trade areas:

PRIMARY TRADE AREA (PTA)

Users: local residents, employees, and hotel guests in Kahului, northeastern Waikapu, and Kahului Airport visitors

Frequency: high - daily to once a week

Purpose: convenience-based shopping and dining

SECONDARY TRADE AREA (STA)

Users: regional residents in Wailuku, Waihee-Waiehu, Maalaea, Spreckelsville, and Paia.

Frequency: modest - once or twice every two weeks

Purpose: destination-based shopping and dining, change up from closer options

TERTIARY TRADE AREA (TTA)

Users: regional residents in Kihei, Wailea, Haiku-Pauwela, Makawao, Pukalani, Kula, Hana, Kapalua, Kaanapali, Launiupoko, and Lahaina.

Frequency: low - once or twice a month

Purpose: destination-based shopping and dining, change up from closer options

Customer Profile

Understanding the demographic and psychographic profile of customers within the trade areas dictates the type of retail that would resonate with Ho'onani Village's customer base. Ultimately, retail spending levels among these customer groups drive retail demand on the site.

Trade Area / Statistic	PTA	STA	TTA 1	TTA 2	TTA 3
Households	9,756	9,064	11,050	14,763	7,812
Median Age	41	41	45	44	43
Average Household Size	3.4	3.1	2.5	2.8	3.0
Households with Children	34%	32%	24%	28%	26%
Median Household Income	$82,908	$91,497	$82,875	$89,215	$84,746
Average Household Retail Spending	$24,501	$24,794	$25,614	$26,246	$26,301

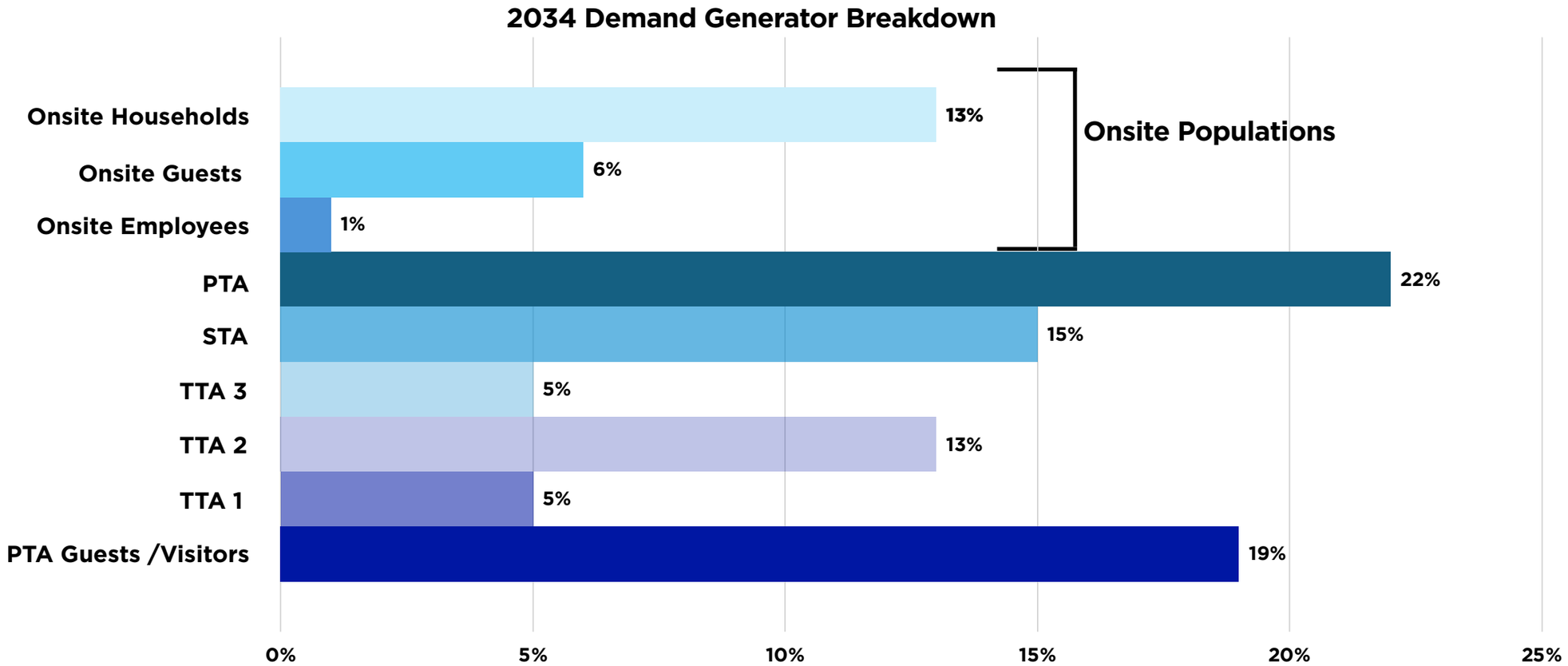
Key Takeaway

Household density is low island-wide, which limits total retail spending from locals. Residents also tend to be older, with median ages across the trade areas higher than the US median age of 39. Family households are in the majority and there is a high proportion of children. This is especially the case within the PTA and STA, which indicates the opportunity for family-friendly offerings and children's apparel. Median household incomes across the trade areas are relatively higher than the US median of $74,580, with the STA and TTA2 achieving the highest incomes. However, retail spending is restricted by the high cost of living on the island. Although the STA has the highest median household income, it has the second lowest average household retail spending, after the PTA.

SOURCES: Sitewise, US Census

2034 **Customer Segmentation**

The most successful retail environments appeal to a spectrum of users, serving a diverse customer base that creates consistent daypart activity to the community driving the success of businesses. It is important to identify the entire customer spectrum, analyzing each customer segment's wants and needs and prioritizing in a way that yields an experience equally magnetic to all users (albeit for different reasons). This approach will maximize Ho'onani Vilage's appeal and subsequent productivity.



Key Takeaway

Rather than being primarily driven by one customer segment, capturable retail demand at Ho'onani Village comes from multiple populations. The largest tranche of demand (22%) is driven by PTA residents, however hotel guests within the PTA and island visitors drive significant sales potential, contributing 19% of the total retail demand. It is critical to create a place that first and foremost serves the local Maui community by making the retail accessible and inviting so that it becomes a local staple on the island. By creating a welcoming and authentic retail environment that serves both locals and visitors, local operators will thrive, driving long-term economic growth for the asset and the Maui community overall.

SOURCES: Sitewise, Streetsense Research

Demand from Onsite Populations

The proposed onsite development program at Ho'onani Village consists of the following program by 2034.

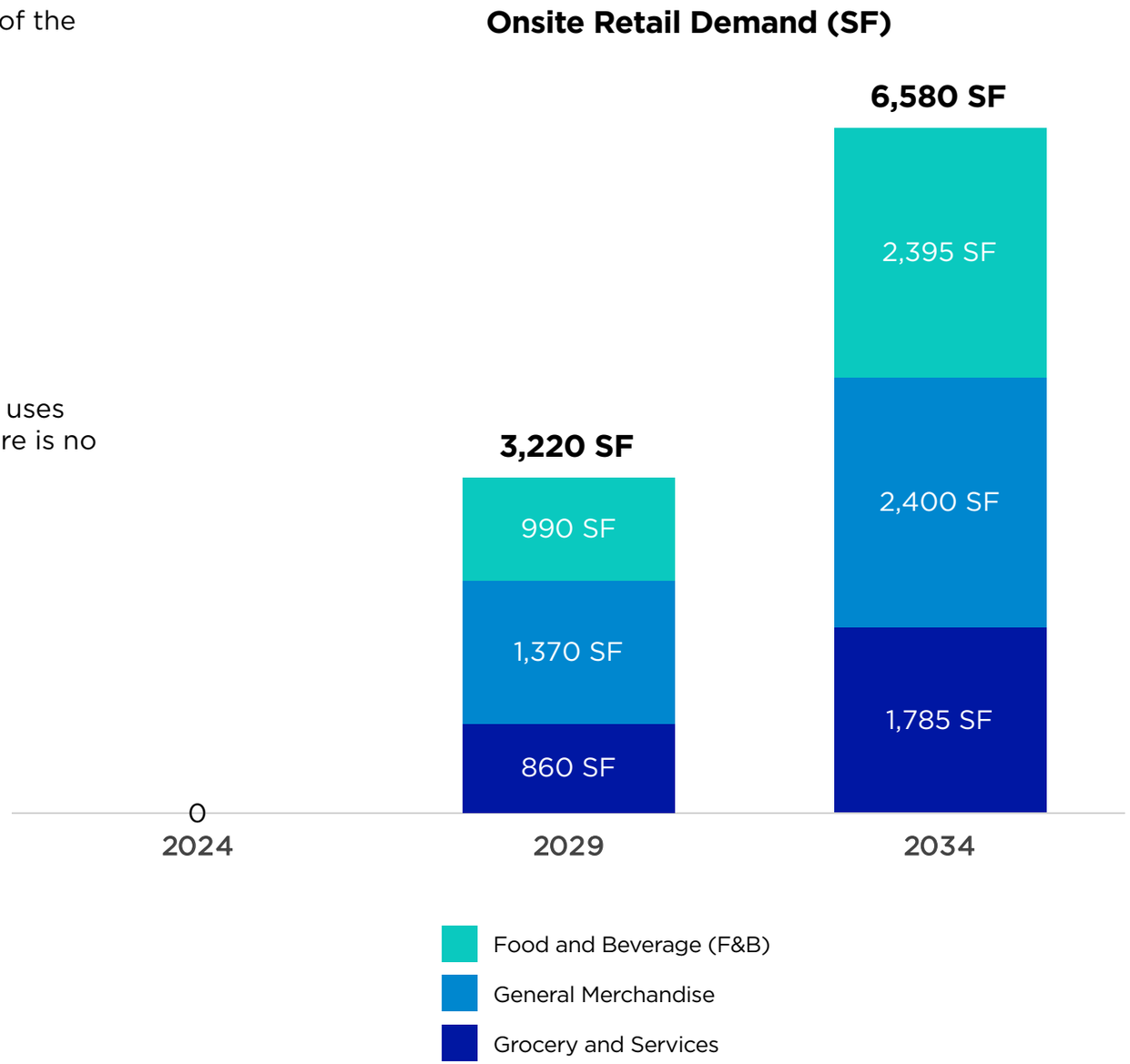
- 1,600 residential units
- 50,000 SF of office
- 50,000 SF of industrial and
- 300 hotel keys

For the purposes of this analysis, it is assumed that half of the proposed uses will be delivered by 2029. Because the site is currently undeveloped, there is no onsite demand in 2024.

Key Takeaway

Because onsite residents will be Ho'onani Village's most immediate customers, onsite residents have the highest level of spending capture. However, even the significant development program that is in place units only generates 6,580 SF of total retail demand at full build-out.

To achieve a robust retail program and highly vibrant and active environment, Ho'onani Village needs to attract spending from island residents living outside the Village and visitors to Maui.



SOURCES: Sitewise, Streetsense Research

Retail Scenarios

Scenario 1

Strong sense of arrival

Scenario 2

Streetsense assessed two development scenarios to understand the retail opportunity at Ho'onani Village.

Scenario 1 is based on the current plans showing retail located in the center of the residential community, creating a greater barrier for customers outside of the development to shop and dine.

In **Scenario 2**, greater emphasis is placed on attracting Maui residents as well as vacationers. An important factor for retail to thrive in a mixed-use environment include a strong sense of arrival and tenant visibility, which will be more difficult to achieve if retail is more centrally located in the development. By placing retail closer to Pulehu Road, Ho'onani Village's offerings will feel less "walled in" and more open to the community beyond the development itself. This will also assist with tenant attraction, as tenants frequently demand a degree of roadside visibility. By shifting the retail core, the site will be better positioned to attract and retain both customers and tenants without sacrificing the envisioned mixed-use, pedestrian only environment.

Retail Scenarios

As part of our analysis, Streetsense considered two potential scenarios.

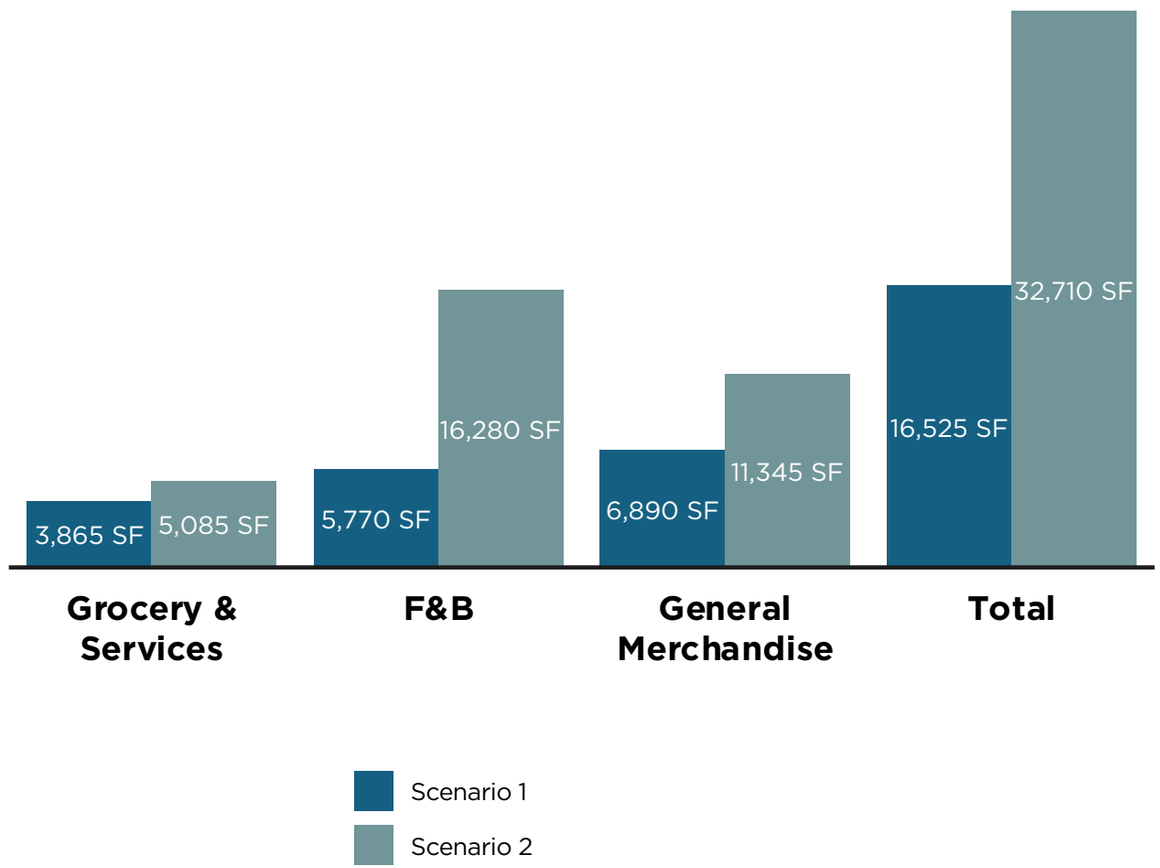
In **Scenario 1**, Streetsense assumed that the final build-out of Ho'onani Village would be similar to the plans depicted on page 5 of this document, with retail centrally located within the residential community. In this scenario retail at Ho'onani Village primarily serves onsite and Kahului residents, with less emphasis on attracting patronage from vacationers or residents living further out on the island, thereby capturing a smaller audience base and ultimately less retail demand, amounting to a total 16,525 SF in 2034.

Scenario 2 is reflected in the 32,710 SF of total capturable demand by 2034 presented in the Total Demand Projections. This scenario assumes that the walkable retail environment is placed closer to and facing Ho'okele Street or Pulehu Road. **Streetsense does not recommend placing retail directly on the street - rather the planned pedestrian-only environment should be shifted closer to the site's access points to facilitate customer draw and tenant visibility.**

Key Takeaway

Total demand in 2034 will be reduced by 16,185 SF in Scenario 1. F&B and General Merchandise are the most heavily impacted categories, with F&B demand being cut down by nearly two-thirds.

2034 Demand Scenario Comparison



SOURCES: Sitewise, Streetsense Research

Total Retail Demand Projections: Scenario 2

The site can currently support 23,985 SF of retail, growing to 32,710 SF over the next 10 years due to household growth on the island and the delivery of the onsite residential program bringing 1,600 additional captive households.

Based on consumer spending, local and regional retail competition, and projected household growth, the site can support the following:

$21,957,214 total captured annual expenditures

This translates to **32,710 SF total retail demand**

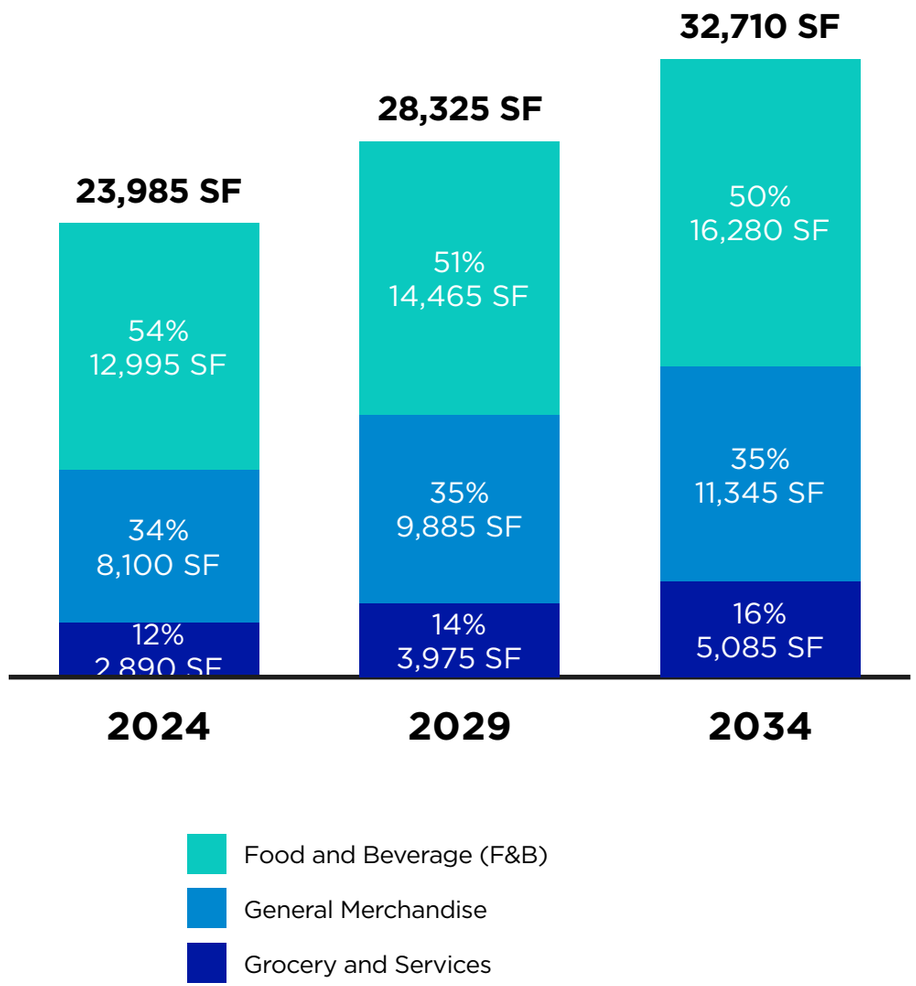
Grocery & Services Opportunity - 5,085 SF

Grocery & Services demand is limited by the density of a variety of grocery competition, despite the shortfalls of individual competitive sites. With this level of demand, a full-service grocery store or larger-format pharmacy is not supportable onsite. However, there is sufficient demand for a small convenience store, as well as personal services that serve as an amenity to future onsite residents, driving value to the residential program.

General Merchandise Opportunity - 11,345 SF

General Merchandise demand is more substantial, although is still limited by the density of competition within Kahului. There is sufficient demand for a moderate program primarily consisting of apparel and home furnishings. However, due to the site's direct adjacency to big-box retailers, local and specialty operators should be targeted in order to stand out from the more generic offerings provided by Target, Lowes, Home Depot and Walmart.

Total Demand Projections



SOURCES: Sitewise, Streetsense Research, CBRE

F&B Opportunity & Recommendations: Scenario 2

There is total $12.3 million in capturable F&B spending, this roughly equates to 16,280 SF of F&B demand. Given the nontraditional operations and footprints of food halls and food trucks, some of the recommendations are based on capturable sales volumes, while brick and mortar restaurant recommendations are expressed in square footage.

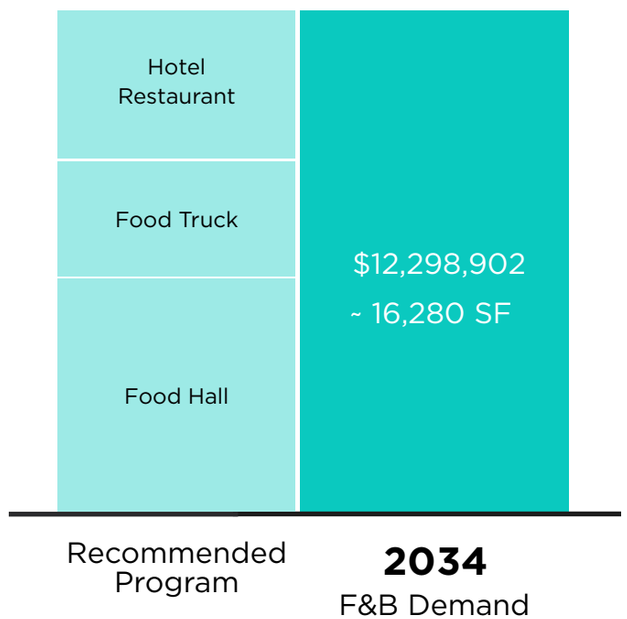
The following represent Streetsense recommendations for a potential F&B program based on the identified demand, conversations with local brokers, hospitality consultants and former operators, and our understanding of the market dynamics. These recommendations are not prescriptive, leaving flexibility based on the ongoing evolution of the site plan and market trajectory. Ultimately, our recommendations show a balance between

- Brick and mortar hotel restaurant
- Food truck
- Food hall

Brick And Mortar Recommendations

In order to support onsite hotel guests, **Streetsense recommends that 3,500 - 4,000 SF of F&B demand goes towards brick-and-mortal sit-down restaurant within the proposed hotels**. We do not recommend stand-alone brick-and-mortar restaurants beyond the hotel offering - remaining F&B demand will be met by the food truck park and food hall.

Food & Beverage Total Capturable Retail Spending



SOURCES: Sitewise, Streetsense Research, CBRE

F&B Opportunity & Recommendations

Food Truck Recommendations

According to CBRE research, some of the highest-performing food trucks on the island draw in $360,000 in net sales per year, with moderately performing trucks generating $250,000 in sales. **Streetsense recommends an initial program of 8 food trucks with flexibility to expand the park as the site establishes itself in the community, growing demand over time**.

There is an opportunity to pull food trucks away from the Home Depot and Lowes parking lots, which currently host four trucks collectively. Although these trucks have direct access to customers currently, they are not in an attractive, place-based environment that Ho'onani Village could foster. There is also opportunity to relocated food trucks that previously operated in the Lahiana Food Truck Park, formerly one of the island's largest and most successful food truck locations that has since been displaced by the fire.

The inclusion of an amphitheater will also help drive customers to both the food hall and food truck park. However, even high-performing Live Nation venues generally host 30 events per year, so amphitheater events should not be relied on too heavily as a source of F&B spending.

SOURCES: Sitewise, Streetsense Research, CBRE

F&B Opportunity & Recommendations

Food Hall Recommendations

This opportunity assumes the client's current operating plans, which follows a revenue share model, with a larger shared commercial kitchen and smaller prep areas within each stall, and shared seating. A shared commercial kitchen is a great advantage, because it can be used by food truck operators as well.

Streetsense recommends an average-sized food hall consisting of 9 food stalls, with each stall 400 - 600 SF, equating to approximately 3,600 - 4,500 SF for stalls total.

It is important to note that generally food halls' performance is driven by alcohol sales, with food sales on their own taking years to break even in many cases. As such, **we recommend a central bar serving the entire food hall that supplements the operator's revenue share**.

Spacial recommendations for the seating area and shared commercial kitchen vary drastically depending on the specifics of the operations, and will need to be assessed in a more nuanced approach. However, the typical shared kitchen occupies between 2,500 - 5,000 SF, depending on the specifics of the operating models.

The **development can be flexible with limited indoor seating areas by leveraging the adjacent food truck park and creating more outdoor seating areas. Operable storefront/garage doors can help maximize seating capacity with a lower development risk**. This also creates a comfortable indoor-outdoor flow for customers access and are recommended for this project.

Potential Operators

There are numerous very successful food truck operators on the island that could also be attracted to opening additional locations onsite to benefit from access to the food halls' shared kitchen, creating opportunities to diversify their revenue streams by offering catering services or occupying a food hall stall at a fixed location onsite.

There is also opportunity to pull former Lahaina operators that have been displaced by the fires, providing them with operating and kitchen spaces while recovery efforts are ongoing. This will also serve to attract Lahaina customers who have lost their favorite local spots.

SOURCES: Sitewise, Streetsense Research, CBRE

Thank You

STREETSENSE

APPENDIX ‘E’ – SCOPING MEETING NOTICE PACKET

February 14, 2025

RE: NOTICE OF A PUBLIC SCOPING MEETING FOR ENVIRONMENTAL IMPACT STATEMENT REVIEW PROCESS

PROPOSED DEVELOPMENT: Hoʻonani Village Mixed Use Development

To Whom It May Concern:

Lehua Builders is representing the developer, Hoʻonani Village LLC., who will be submitting an Environmental Impact Statement Preparation Notice (EISPN) to the County of Maui for the proposed Hoʻonani Village Development. The project site is currently addressed as 21 Hansen Road, Kahului, HI 96732 and is a portion of existing TMK (2) 3-8-006:004. Hoʻonani Village LLC. is seeking early involvement and consultation with Federal, State, and Local government agencies, and the local community of nearby landowners.

You are invited to attend a public scoping meeting at which the preliminary plan for the proposed development will be discussed. The purpose of this meeting is to provide a forum for the applicant and the interested parties to review the proposal and have a discussion regarding any comments or concerns that they may have. Notices of the public scoping meeting will also be published in The Environmental Notice that is released twice a month.

For your convenience, the scoping meeting will be held at the following location:

March 27, 2025
Above The Wave
400 Hana Hwy, Ste B1
Kahului, HI 96732
6:00pm - 8:00pm

We request notification whether you plan to attend the meeting in person so we can plan the conference space accordingly. Please respond to **Krysti Bukoski at 808-669-1122 by March 20, 2025,** and indicate the number of people who plan to attend.

Enclosed is a Scoping document that briefly describes the proposed project. Please note that these plans are preliminary and are subject to change throughout the review process. Also enclosed for your use is a comment form if you are unable to attend. Written comments and recommendations may be sent to the following address or via email by close of business on **April 28, 2025.**

Krysti Bukoski / Lehua Builders

395 Dairy Road, Suite E
Kahului, HI 96732
Email: krysti@lehuabuilders.com

If you have any questions regarding the EIS scoping process, please contact T.C. Campbell with Pioneer Design Group – Hawaiʻi at 808-400-5959 or tccampbell@pdg-hawaii.com.

Sincerely,

Sandy Duvauchelle

Sandra Duvauchelle of Lehua Builders

PUBLIC COMMENT FORM

Ho’onani Village Development

Please use the space below to give us your thoughts on the Ho’onani Village Development Project and EIS Review. All written comments should be received by Lehua Builders by close of business on April 28, 2025. Thank you for your interest and assistance with this important community project.

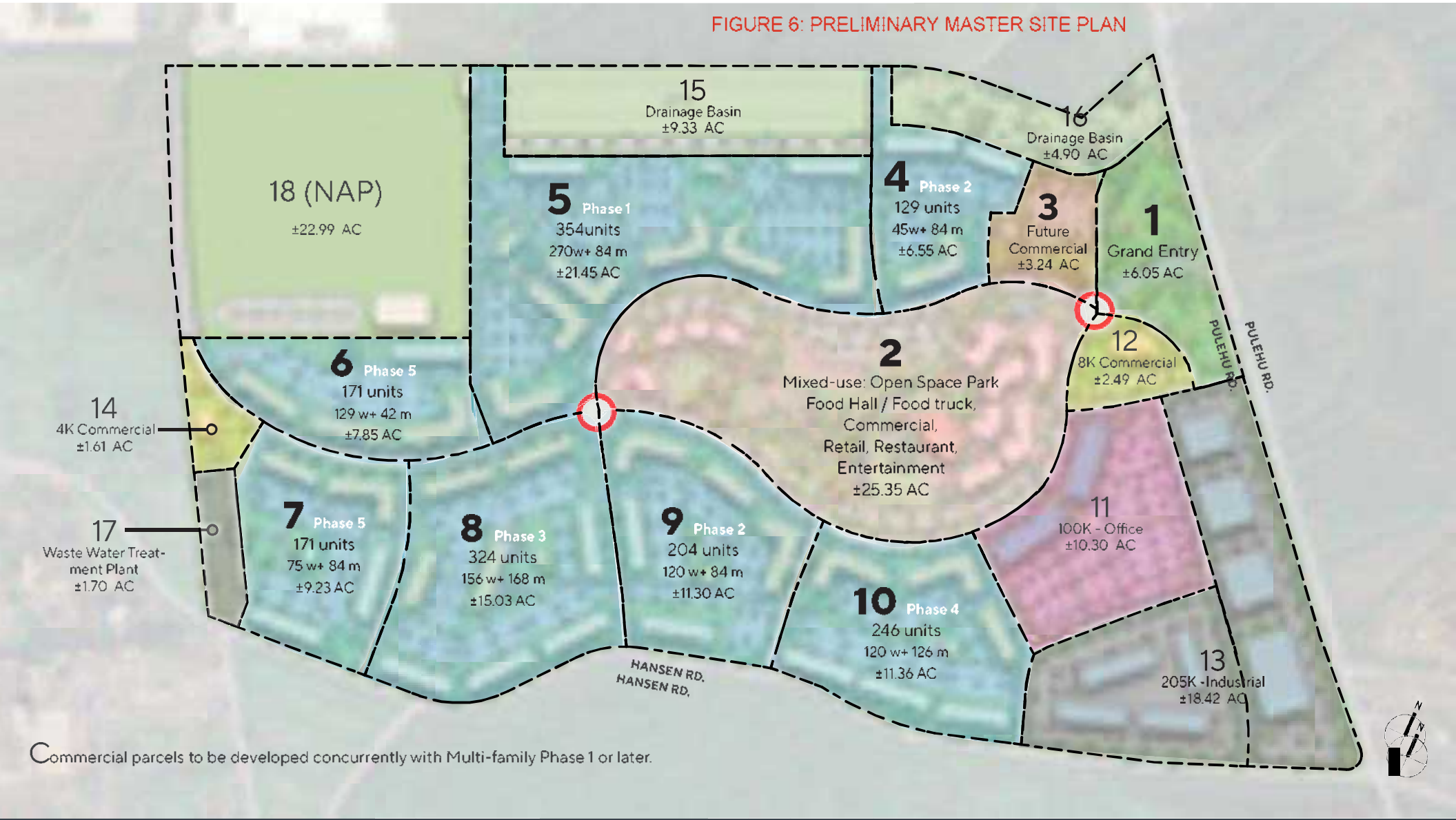
Date_____

Name_____

Address_____

City, State, Zip_____

FIGURE 6: PRELIMINARY MASTER SITE PLAN



Commercial parcels to be developed concurrently with Multi-family Phase 1 or later.

Ho'onani Development

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Concept Site Plan Study
Proposed Land Use Plan - Option 11

AO Architecture. Design. Relationships.

Scale 1"=100'
Job No. 2023-0690
Date 2024-10-07

1

FIGURE 2
PROPERTY LOCATION MAP

SOURCE: COUNTY OF MAUI QPUBLIC GIS POWERED BY ESRI.

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: Vert. Scale: **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

EXHIBIT 7

District Boundary Amendment Petition

RECEIVED
08/20/2025
4:11 pm
STATE OF HAWAII
LAND USE COMMISSION

WELLS STREET LAW, LLLC

JEFFREY UEOKA 8402-0
2145 Wells Street, Suite 406
Wailukū, Hawai'i 96793
Telephone: (808) 481-4215
jeff@wslmaui.com

Attorney for Petitioner
HO'ONANI DEVELOPMENT LLC

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of

HO'ONANI DEVELOPMENT LLC

To Amend the Agricultural Land Use District Boundary into the Urban Land Use District for Approximately 166.512 acres of land situate at Pu'unēnē, Wailukū, Island and County of Māui, State of Hawai'i, Tax Map Key: (2) 3-8-006-004-0005

DOCKET NO. A25-811

PETITION FOR LAND USE DISTRICT BOUNDARY AMENDMENT; EXHIBITS 1 THROUGH 4; VERIFICATION; AND CERTIFICATE OF SERVICE

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of HO'ONANI DEVELOPMENT LLC To Amend the Agricultural Land Use District Boundary into the Urban Land Use District for Approximately 166.512 acres of land situate at Pu'unēnē, Wailukū, Island and County of Maui, State of Hawai'i, Tax Map Key: (2) 3-8-006-004-0005	DOCKET NO. A25-811 PETITION FOR LAND USE DISTRICT BOUNDARY AMENDMENT

PETITION FOR LAND USE DISTRICT BOUNDARY AMENDMENT

TO THE HONORABLE LAND USE COMMISSION OF THE STATE OF HAWAI'I:

HO'ONANI DEVELOPMENT LLC ("Petitioner") by and through its attorney Wells Street Law, LLLC, respectfully petitions the Land Use Commission of the State of Hawai'i ("Commission") to amend the land use district boundary of approximately 166.512 acres of land situate at Pu'unēnē, Wailukū, Island and County of Māui, State of Hawai'i ("Petition Area") more particularly described below, from the State Land Use Agricultural District to the State Land Use Urban District for a residential/commercial mixed-use project with a limited hospitality space known as Ho'onani Village ("Project"). In support of this Petition, Petitioner respectfully presents the following:

1. Background. The Petition Area is Unit 2C of the Maui Economic Opportunity Condominium more particularly described in that certain Declaration of Condominium Property Regime dated as of December 27, 2012, recorded in the Bureau of Conveyances as Document No. A47440542. The Maui Economic Opportunity Condominium is currently being subdivided by the FIRST ASSEMBLY OF GOD SUBDIVISION OF LOT 2-C-4-C-1-E OF THE FIRST ASSEMBLY OF GOD SUBDIVISION INTO LOTS 2-C-4-C-1-E-1, 2-C-4-C-1-E-2, 2-C-4-C-1-E-3, 2-C-4-C-1-E-4 AND 2-C-4-C-1-E-5 (SUBD2024-00028). The Petition Area is proposed lot 2-C-4-C-1-E-1 where each lot shall have the same perimeter boundaries as the vertical boundaries of each condominium unit.

The Petition Area was historically used as part of sugar cane cultivation up until 2016, and has since remained vacant. Petitioner is now seeking to reclassify the Petition Area to the Urban District to develop approximately 1,600 multi-family residential units along with retail, office, dining, open spaces, hospitality, and light industrial, to meet Maui's housing needs while also providing some limited economic and entertainment opportunities.

2. Standing. The fee simple ownership of the Petition Area is vested in AX HOLDINGS, LLC, a South Dakota limited liability company, whose principal place of business is 101 S. Phillips Avenue, Suite 509, Sioux Falls, SD 57104. A deed evidencing ownership of the Petition Area is attached hereto as Exhibit 1. Ax Holdings, LLC, in accordance with Hawai'i Administrative Rules ("HAR") §15-15-50(5)(B), has authorized Petitioner to file this Petition, please see Exhibit 2, attached hereto.

3. Relief Sought. Petitioner desires to amend the land use district boundary of approximately 166.512 acres of land situate at Pu'unēnē, Wailukū, Island and County of Māui,

State of Hawai'i more particularly described below, from the State Land Use Agricultural District to the State Land Use Urban District.

4. Authority for Relief Sought. Petitioner files this Petition pursuant to Hawai'i Revised Statutes ("HRS") §205-4 and the Land Use Commission Rules of the State of Hawai'i, HAR, Title 15, Subtitle 3, Chapter 15.

5. Petitioner. HO'ONANI DEVELOPMENT LLC, a Hawai'i limited liability company, whose mailing address is P.O. Box 330449, Kahului, Hawai'i 96733.

6. Authorized Representative. Jeffrey Ueoka and the firm of Wells Street Law, LLLC, have been appointed to represent the Petitioner pursuant to HAR §15-15-35(b). All correspondence and communications in regard to this Petition shall be addressed to, and served upon Mr. Jeffrey Ueoka, Wells Street Law, LLLC, at PO Box 733, Wailuku, Hawai'i 96793.

7. Description of the Petition Area. The Petition Area is just makai of the ahupua'as of 'Ōma'opio, Kalialinui, A'apueo and Maka'ehu. The site lies in the moku of Pū'ali Komohana. The local area consists of various uses including agriculture lands (eastern and southern boundaries), low-density residential lots, commercial mixed use shopping centers and light industrial uses (northern boundary). Generally, multi-family residential development in the immediate vicinity is limited. There are a variety of public/quasi-public and recreational uses within the Wailuku-Kahului District including but not limited to Kanaha Beach, Kanaha Pond State Wildlife Sanctuary, Keopuolani Regional Park, Kahului Community Center Park, The Dunes at Maui Lani Golf course and the Central Maui Regional Sports Complex. The Petition Area is more particularly described and shown on Exhibits 3.

8. Description of Easements on the Subject Property. The various easements encumbering the Petition Area are described in the Exhibit A to the Deed attached hereto as Exhibit 1.

9. Type of Use or Development being Proposed. 1,600 multi-family residential units along with retail, office, dining, open spaces, hospitality, and light industrial.

10. Boundary Amendment Sought; Present Use of the Property; and Assessment of Conformity of the Boundary Amendment to Urban Standards. The Petition Area is presently classified within the State Land Use Agricultural District and is vacant. Petitioner seeks to reclassify the Petition Area to develop the proposed Project. The proposed Project is expected to include 1,600 multi-family residential units along with retail, office, dining, open spaces, hospitality, and light industrial, along with all necessary infrastructure.

The proposed Project is consistent with the standards for urban districts pursuant to HAR §15-15-18. The proposed Project will have "city-like" concentrations of people, structures, streets and urban level of services, and the Project is proximately located to centers of trading and employment, accessible to basic services, has satisfactory topography, reasonably free from adverse environmental effects, and is contiguous with urban areas.

11. Statement of projected number of lots, lot size, number of units, densities, selling price, intended market, and development timetables. The proposed Project is expected to include 1,600 multi-family residential units along with retail, office, dining, open spaces, hospitality, and light industrial. A market study will be conducted as part of the Draft Environmental Impact Statement ("DEIS"). A preliminary development timeline, which is subject to change, is attached hereto as Exhibit 4.

12. Petitioner's Financial Condition. This Petition will be amended with Petitioner's financial statements towards the end of the EIS Process.

13. Description of the subject property and surrounding areas. The Petition Area is currently vacant Agricultural Land that is bordered by the Maui Business Park Phase I to the North, Agricultural Lands to the East, the old Puunene Mill Site and Agricultural Lands to the South, and the MEO Transportation Hub and Veterans Highway to the West.

14. Environmental Impact. Petitioner intends to make a motion to designate the LUC as the Accepting Authority for the Environmental Impact Statement for the Project in accordance with HAR §11-200.1-7, and for authorization to prepare an Environmental Impact Statement without first requiring an Environmental Assessment pursuant to HAR §11-200.1-14(d)(2). In the event that the LUC agrees to be the Accepting Authority and accepts the Final Environmental Impact Statement ("FEIS") for the Project, then this Petition will be amended to incorporate the FEIS.

15. Soils Classification, Agricultural Lands of Importance of the State of Hawai'i, and Productivity Rating. The project area is underlain by the Pulehu-Ewa Jaucas Association. The Soil Survey of the Islands of Kaua'i, O'ahu, Maui, Moloka'i and Lāna'i, State of Hawai'i characterizes the soils of the Kahului/Pu'nene soil association as deep, nearly level to moderately sloping, well-drained and excessively drained soils that have a moderately fine textured to coarse-textured subsoil or underlying material; on alluvial fans and in basins. The site is generally blanketed by a layer of agriculturally disturbed soil underlain by alluvial (water deposited) soil. The Natural Resources Conservation Service Map classifies existing soil on site as (EaA) Ewa Silty Clay loam. This series is characterized by well drained soils in basins and alluvial fans. These soils developed in alluvium derived from basic igneous rock. They are nearly level to moderately

sloping. The site was recently used for the cultivation of sugar cane. The cultivation process left the entire site with approximately 12 to 30 inches of agriculturally disturbed soil. The agriculturally disturbed clayey silt consisted of low plasticity clayey silt with varying percentages of sand, typically classified as ML under the USCS. In addition to the agriculturally disturbed clayey silt, several areas of agriculturally disturbed silty sand, typically classified as SM under the USCS, were encountered across the site. The depth of bedrock is deeper than 5 feet. On the island of Maui approximately 235,770 acres have been designated as "Agricultural" by the SLUC, representing just over 50 percent of the island.

The State Department of Agriculture created a classification system in 1977 identifying Agricultural Lands of Importance to the State of Hawai'i (ALISH). This system is based mainly, though not solely, on the soil characteristics of the land. ALISH divides the land into three categories: "Prime," "Unique," and "Other Important" agricultural land, with any remaining areas classified as "Unclassified."

"Prime" agricultural lands have the soil quality, growing season, and moisture supply necessary to economically produce sustained crop yields when combined with modern farming techniques. "Unique" agricultural lands are capable of producing sustained high yields of specific crops due to their favorable combination of soil quality, growing season, and moisture supply. "Other Important" agricultural lands, while not classified as "Prime" or "Unique," are still considered significant for agricultural use at the state or local level.

Approximately 62,000 acres, or 26 percent, of Maui's 235,770 acres of SLUC designated "Agricultural" lands are characterized as "Prime" lands by the ALISH system. The project area is classified as "Prime" by the ALISH system. Historically the project site was utilized for

agricultural uses related to the sugar cane trade. Since that time the project site has been vacant and does not have any active agricultural uses.

The University of Hawai'i's Land Study Bureau (LSB) created the Overall Productivity Rating system, which categorizes soils into five levels. Soils rated "A" have the highest productivity, while those rated "E" have the lowest. Numbers following these letters provide additional details about the soil, such as its texture, drainage capacity, and stoniness. These ratings are determined based on various factors like soil characteristics, topography, and climate. On Maui, approximately 21 percent of the island's SLUC "Agricultural" lands are classified as LSB "A" and "B" soils, indicating high productivity. The project area is within the State Agricultural District and, therefore, is provided a classification of A by the LSB.

Chapter 205, Hawai'i Revised Statutes (HRS), declared that the people of Hawai'i have a substantial interest in conserving the agricultural resources of the State. The State calls for the identification of Important Agricultural Lands (IAL) to identify and plan for the maintenance of a strategic agricultural land resource base that can support a diversity of agricultural activities and opportunities that expand agricultural income. The project area is not an IAL.

A discussion of the agricultural impacts of the proposed Project will be provided in the DEIS.

16. Topography. The Petition Area slopes in a southeast to northwest direction with low points near the adjacent Target store and the most northerly corner of the site along Pulehu Road.

17. Assessment of the Impacts of the Proposed Development on the Environment. A discussion of the impacts of the proposed Project on the environment (flora, fauna, groundwater

and surface water, archaeological and historical resources, cultural resources, agriculture, air and noise quality, scenic and open space resources) will be provided in the DEIS.

18. Availability or Adequacy of Public Services and Facilities. A discussion of the availability and adequacy of public services and facilities (roads, water, wastewater, drainage, electrical/cable/television, police and fire, educational, recreational, solid waste, medical) will be provided in the DEIS.

19. Location of the Proposed Development to in Relation to Adjacent Land Use Districts and Centers of Trading and Employment. The Petition Area is adjacent to lands in the Urban District and the Agricultural District. The Petition Area is also near to centers of trading and employment in the town on Kahului.

20. Economic Impacts of the Proposed Development. A Market and Economic impact study will be prepared and discussed in the DEIS.

21. Housing Needs of Low Income, Low-Moderate Income, and Gap Groups. The project will meet the requirements of Chapter 2.96, Maui County Code, the County's residential workforce housing policy.

22. Need for Reclassification. The proposed Project will provide much needed housing opportunities along with economic and entertainment opportunities in the area. A market and economic impact study will be prepared and discussed in the DEIS.

23. Hawai'i State Plan. The proposed Project's consistency with the Hawai'i State Plan will be discussed in the DEIS.

24. Hawai'i Coastal Zone Management Program. The proposed Project is not within the Special Management Area or the Shoreline Setback Area.

25. County of Maui General Plan. The proposed Project's consistency with the County of Maui General Plan will be discussed in the DEIS.

26. County of Maui Comprehensive Zoning Ordinance. The proposed Project's consistency with the County of Maui's Comprehensive Zoning Ordinance will be discussed in the DEIS.

27. County of Maui Special Management Area. The Petition Area is not within the Special Management Area.

28. Infrastructure Deadline. It is unlikely that the Project will be substantially completed with ten (10) years after the date of the LUC's approval, provided however that the related onsite and offsite infrastructure improvements, along with initial phases of the Project can be completed within ten (10) years.

29. Hawaiian Customary and Traditional Rights. Petitioner is aware of and sensitive to the existence and practice of native Hawaiian customary and traditional rights that are protected by Article XII, Section 7 of the Hawai'i State Constitution. A cultural impact assessment for the Project will be prepared and included with the DEIS

30. Written Comments from Agencies and Organizations. Written comments from agencies and organization will be included in the DEIS.

EXHIBIT 1

DEED

STATE OF HAWAII
BUREAU OF CONVEYANCES
RECORDED
July 3, 2023 8:01 AM
Doc No(s) A - 85840479

Doc 4 of 4
Pkg 12225078 SKC

/s/ LESLIE T KOBATA
REGISTRAR

Conveyance Tax: $19,375.00

Return by Mail (X) Pickup ( ) To:

AX HOLDINGS, LLC
P.O. BOX 330449
KAHULUI, HI 96733

TG: 73114/6556 -S

TGE: 7322372087 RS-4
Jeremy Trueblood

This document contains 22 pages

Tax Map Key No.: (2) 3-8-006-004 CPR 0002 (por.)
Unit 2C of the Maui Economic Opportunity Condominium

LIMITED WARRANTY UNIT DEED WITH RESERVATIONS, COVENANTS, AND RESTRICTIONS

This LIMITED WARRANTY UNIT DEED WITH RESERVATIONS, COVENANTS, AND RESTRICTIONS (this "**Unit Deed**") is made this 3rd day of July, 2023, by ALEXANDER & BALDWIN, LLC, a Delaware limited liability company, hereinafter called the "Grantor" to AX HOLDINGS, LLC, a South Dakota limited liability company, whose address is 360 Papa Place, Suite 203, Kahului, Hawaii 96732, hereinafter called the "Grantee".

1. Grant

For and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration, the receipt and sufficiency of which are acknowledged, Grantor does hereby grant, bargain, sell, and convey unto Grantee, and its successors and assigns, absolutely and in fee simple, all of Grantor's right, title, and interest in and to:

> All of that certain unit (the "**Unit**"), easements, rights and undivided interest in the common elements, being a portion of the Maui Economic Opportunity Condominium project (the "**Condominium**"), described in Exhibit "A" attached to and made a part of this Unit Deed subject, however, to the encumbrances mentioned in Exhibit "A";

And the reversions, remainders, rents, issues, and profits thereof, and all of the estate, right, title, and interest of Grantor, both at law and in equity therein and thereto (collectively, the "**Property**");

TO HAVE AND TO HOLD the same, together with all rights, easements, privileges, and appurtenances thereon and thereto belonging or appertaining or held and enjoyed therewith, unto Grantee according to the tenancy herein set forth, forever.

SUBJECT, HOWEVER, to all of the reservations, encumbrances and covenants of Grantor and Grantee mentioned in this Unit Deed.

Grantor hereby covenants with Grantee that Grantor has good right to convey the Property and that the Property is free and clear of and from all encumbrances made or suffered by Grantor or by anyone claiming by, through or under Grantor, except as mentioned in said Exhibit "A" and except for the lien of real property taxes not yet required by law to be paid; and that Grantor will warrant and defend the same unto Grantee against the lawful claims and demands of all persons claiming by, through or under Grantor, except as aforesaid.

Pursuant to Section 18-215 of the Delaware Limited Liability Company Act, Grantor established within itself Series T, to which the Property has been allocated. Grantor is hereby conveying the Property on behalf of said Series T.

2. **Covenants and Restrictions**

Grantee, for itself, its successors and assigns, acknowledges, covenants and agrees with and to Grantor, its successors and assigns, as follows:

(a) Compliance with Covenants. The Grantee will observe, perform, comply with and abide by all of the terms, covenants, conditions, agreements, obligations and restrictions set forth in the Declaration of Condominium Property Regime of Maui Economic Opportunity Condominium, as the same are or may be amended or restated from time to time in accordance with law (the "**Declaration**"), the Bylaws of the Association of Unit Owners of the Condominium, and the Restrictive Covenant, each as defined in Exhibit "A" and as may be amended from time to time, and will indemnify and save harmless Grantor for any failure to observe and perform any such terms, covenants, conditions, agreements, obligations and restrictions.

(b) Grantee Acceptance. Grantee, for itself, its successors and assigns, hereby accepts the Property and acknowledges, covenants, and agrees with and to Grantor, its successors and assigns, that the Property is held and shall be held, conveyed, mortgaged, encumbered, leased, rented, used, occupied and improved subject to the covenants, warranties, and restrictions contained in this instrument, which covenants, warranties, and restrictions are conditions to Grantor's conveyance of the Property to Grantee.

(c) Undivided Interest. The undivided interest in and to the common elements conveyed by this Unit Deed shall not be separated from the Unit conveyed by this Unit Deed to which the undivided interest is appurtenant, and shall be conveyed or encumbered with the Unit even though such interest is not expressly mentioned or described in the conveyance or other

instrument, except as specifically provided in the Declaration. This provision shall be a covenant running with the land upon which the Condominium is situated.

(d) "As-Is" Conveyance. Except for the limited warranties of title set forth above, Grantee agrees (1) that it is acquiring the Property on an **"AS IS"** basis and based on its own investigation of the Property, (2) that Grantor is not making and has not at any time made any warranty, representation or guarantee, expressed, implied or statutory, written or oral, including, without limitation, any (i) warranty of habitability, merchantability or fitness for any purpose or of reasonable workmanship, concerning the Property or any of the improvements located thereon or therein, (ii) warranty, representation or guarantee with respect to title, zoning, tax consequences, latent or patent physical or environmental condition, utilities, operating history or projections, valuation, governmental approvals, the compliance of the Property with governmental laws, or (iii) warranty, representation or guarantee with respect to the truth, accuracy or completeness of the Property documents or any the information provided by or on behalf of Grantor to Grantee, or any other matter or thing regarding the Property, and (3) that Grantor has made no warranty, representation or guarantee as to any government limitation or restriction, or absence thereof, pertaining to the Property, or as to the presence or absence of any latent defect, subsurface soil condition, environmental condition, hazardous substance, toxic waste or any other matter pertaining to the physical condition of the Property. The entire risk as to the quality and performance of the Property and Grantee's use of the Property is with Grantee, and if the Property proves defective, Grantee, and not Grantor, assumes the entire risk and costs of all necessary servicing, curing, correcting, or repair of the defects. Neither Grantor nor Grantor's broker, if any, has made any representation, warranty or guarantee as to any land use controls or other laws, rules, and regulations of any governmental agency having jurisdiction applicable to the Property. Grantee shall be solely responsible for complying with all land use and environmental controls and other laws, rules, and regulation, including without limitation, those pertaining to hazardous substances and toxic wastes.

(e) Agricultural Activities & the Hawaii Right to Farm Act. The Property is adjacent to, nearby or in the vicinity of lands that in the past, present and/or future have been or may be actively used for the raising, growing, harvesting and processing agricultural products (such growing, harvesting and processing activities being herein collectively called the "**Agricultural Activities**"), which activities may from time to time bring upon the Property or result in noise, odors, smoke, dust, fumes, spray, vibrations, heat, agricultural chemicals, particulates and similar substances and nuisances (collectively, the "**Agricultural By-Products**"). Each person acquiring the Property or any portion thereof or interest therein acknowledges that farming operations and practices on adjacent or contiguous land in the State Land Use Agricultural District are protected under Hawaii Revised Statutes Chapter 165, the Hawaii Right to Farm Act. The Grantee and each person subsequently acquiring any portion of or interest in the Property, and their respective tenants and lessees, assumes complete risk of and forever releases the Grantor from all claims for damages (including, but not limited to, consequential, special, exemplary and punitive damages) and nuisances occurring on the Property and arising out of any Agricultural Activities or Agricultural By-Products. Without limiting the generality of the foregoing, the Grantee and each such other person, with full knowledge of its rights, forever: (i) waives any right to require the Grantor, and releases the Grantor from any obligation, to take any action to correct, modify, alter, eliminate or abate any Agricultural Activities or Agricultural By-Products, and (ii) waives any right to file any suit or claim against the Grantor for injunction or abatement of nuisances. Any

Agricultural Activities or Agricultural By-Products, and any claim, demand, action, loss, damage, liability, cost or expense arising therefrom, shall not constitute a breach of any covenant or warranty of the Grantor under this agreement or be the basis for a suit or other claim for injunction or abatement of nuisances, and the Grantee hereby forever waives any right to file any such suit or claim. As used in this section regarding Agricultural Activities, all references to the "Grantor" shall mean and include the Grantor and all parent, subsidiary, sister and other affiliated companies of the Grantor, in their respective capacities as the current owner of the Property, the owner of the lands on which the Agricultural Activities are or may be conducted, and the person conducting or who may conduct the Agricultural Activities, and all successors and assigns of the Grantor and its parent, subsidiary, sister and affiliated companies.

(f) Acknowledgement of Potential Aircraft and Airport Impacts. Each person acquiring the Property or any portion thereof or interest therein acknowledges that the Property is near the Kahului Airport and a flight path for aircraft arriving at or departing from such airport. Thus, the Property is subject to aircraft noise, right of flight, emissions, vibrations, and other incidences of aircraft operations.

(g) Utility and Other Effects. Grantee acknowledges that the Property is subject to or may be located adjacent to or in the vicinity of electric, water and other utilities (including, without limitation high-powered electrical transmission lines) and public roads and thoroughfares, and irrigation ditches and hydroelectric facilities which may result in, among other things, electromagnetic fields, nuisances, noise, dust, disturbances or hazards to persons and to property on or with the Property, and Grantee agrees to assume all risks of impairment of Grantee's use and enjoyment of the Property, loss in market value and property damage and personal injury arising from such utilities, public roads and thoroughfares, irrigation ditches and hydroelectric facilities.

Each of the foregoing covenants, agreements, acknowledgments, waivers and releases shall constitute covenants running with the land. Each such covenant, agreement, acknowledgment, waiver and release shall be binding upon, and all references to "Grantee" shall mean and include, the Grantee, its heirs, personal representatives, successors and assigns, and all persons now or hereafter acquiring any right, title or interest in or to the Property (or any portion thereof) or occupying all or any portion of the Property. By accepting any right, title or interest in the Property (or any portion thereof) or by occupying all or any portion of the Property, each such person automatically shall be deemed to have made and agreed to, and shall be bound by, observe and be subject to, each of the foregoing covenants, agreements, acknowledgments, waivers and releases.

4. **Reservations**. Grantor reserves to itself, its successors and assigns, the right to designate, grant to third parties, relocate, delete and realign easements, licenses and rights-of-way over, under and across the Property for electrical, gas, communications, cable and television, and other utility purposes, for sewer, drainage, flowage, irrigation, storage and water purposes or facilities, for landscaping, planting, and screening purposes, for subdivision identification signage purposes and for sight distances over, under, along, across, and through the Property, together with all such customary and reasonable rights of access, construction, use, maintenance, repair and replacement in accordance with the specific purpose of the easement granted; provided, however, that any such easement shall be located solely within the Property's setback areas described in the Maui County Code or within easement areas designated on the subdivision map or condominium map for the Property at the time this Deed is recorded. Grantor expressly reserves all such easements and the

right to grant the same to any appropriate governmental agency or private or public utility or corporations of the owner or owners of other lots within the subdivision or land adjacent to or in the vicinity of the subdivision under the usual terms and conditions required by the grantee for such easement rights, without joinder or consent of Grantee or Grantee's mortgagee. In connection with the foregoing reservations, Grantee irrevocably appoints Grantor its attorney-in-fact to file maps designating such easements and to grant such easements and rights and to do all things necessary or convenient in connection with such easements, which power of attorney shall be assignable to a designee of Grantor and, being coupled with an interest shall be irrevocable and shall run with the Property. Grantee agrees to join in and execute all documents designating and conveying such easements. If the foregoing reservation shall be unlawful, void, or voidable for violation of the rule against perpetuities, then such provisions shall continue only until twenty-one (21) years after the death of the last survivor of the now living descendants of King Charles III. Notwithstanding anything to the contrary in this Unit Deed, this Section 4 shall be in addition to, and not in limitation of, Grantor's rights set forth in any other document.

(a) Utility and Other Effects. Grantee acknowledges that the Property is subject to or may be located adjacent to or in the vicinity of electric, water and other utilities (including, without limitation high-powered electrical transmission lines) and public roads and thoroughfares, and irrigation ditches and hydroelectric facilities which may result in, among other things, electromagnetic fields, nuisances, noise, dust, disturbances or hazards to persons and to property on or with the Property, and Grantee agrees to assume all risks of impairment of Grantee's use and enjoyment of the Property, loss in market value and property damage and personal injury arising from such utilities, public roads and thoroughfares, irrigation ditches and hydroelectric facilities.

(b) Easements Over Property. Grantor reserves the right to designate and to grant to the State of Hawaii, the County of Maui, Maui Electric Company, Board of Water Supply of the County of Maui, the Maui Business Park Phase II Association or any other appropriate governmental agency or to any public utility or other public or private corporation, non-exclusive access or utility easements that are designated on the Condominium Map for the Condominium, for electrical, gas, cable television, communications and other utility facilities and purposes and for sewer, drainage, water and irrigation purposes over, under along, across or through the Property under the usual terms and conditions required by the grantee or holder of such easement rights, without notice to or the consent or joinder of Grantee provided, however, that such easements shall not materially interfere with Grantee's use, development, occupancy or sale of the Property. Grantee hereby appoints Grantor as Grantee's attorney-in-fact to grant such easements and do all other things necessary to effectuate such grants. This power-of-attorney is coupled with interest and is irrevocable. Notwithstanding such appointment, Grantee shall promptly upon Grantor's request and for no additional consideration, join in and execute such documents and instruments to effectuate such grants as may be requested by Grantor. Grantee, for itself and its successors in interest in the Property agree to cooperate in executing whatever documents may be necessary to effectuate Grantor's reservation set forth in this Section 4(b).

5. **Miscellaneous**.

(a) Grantor and Grantee. Except as otherwise provided in this Deed the term "Grantor" as and when used in this Deed shall mean and include Grantor named above and Grantor's successors and assigns, and the term "Grantee" as and when used in this Deed shall mean and

include the Grantee named above and Grantee's successors and assigns; where there is more than one Grantee, the use of the singular shall be construed to include the plural wherever the context shall so require and the obligations of Grantee shall be joint and several, and the use of any gender shall include all genders.

(b) Severability. In the event any covenant herein contained is held to be invalid or unenforceable in whole or in part, by any order, judgment or decree of any court, then such decision shall in no way affect the validity of the other covenants herein contained, and they shall remain in full force and effect.

(c) Counterparts. This instrument may be executed in counterparts, each of which shall be deemed an original, and said counterparts shall together constitute one and the same agreement, binding all of the parties, even though all of the parties are not signatory to the original or the same counterparts. For all purposes, including, without limitation, recordation, filing and delivery of this instrument, duplicate unexecuted and unacknowledged pages of the counterparts may be discarded and the remaining pages assembled as one document.

[*remainder of page intentionally left blank*]

IN WITNESS WHEREOF, the Grantor and the Grantee have executed these presents as of the date first set forth above.

ALEXANDER & BALDWIN, LLC,
a Delaware limited liability company

By: _____
Name: Scott G. Morita
Title: Vice President, Series T

By: _____
Name: Jeffrey W. Pauker
Title: Vice President, Series T

Grantor

AX HOLDINGS, LLC,
a South Dakota limited liability company,

By: _____
Name: James A. Stenger, Jr.
Title: Manager

Grantee

STATE OF HAWAII)
) SS.
CITY AND COUNTY OF HONOLULU)

On this 26th day of June, 2023, before me personally appeared **SCOTT G. MORITA**, to me personally known, who, being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the free act and deed of such person, and if applicable, in the capacity shown, having been duly authorized to execute such instrument in such capacity.

I further certify the following with regard to the foregoing instrument:

Doc. Date: _____ or ☒ Undated at time of notarization No. of Pages: 22

Document Identification or Description: Limited Warranty Unit Deed with Reservations, Covenants, And Restrictions

(Official Stamp or Seal)

Signature of Notary Public

Name: Mary Ann Ige
Notary Public, State of Hawaii

My commission expires: May 30, 2024

Jurisdiction in which notarial act is performed:
First Circuit, State of Hawaii

STATE OF HAWAII)
) SS.
CITY AND COUNTY OF HONOLULU)

On this 26th day of June, 2023, before me personally appeared **JEFFREY W. PAUKER**, to me personally known, who, being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the free act and deed of such person, and if applicable, in the capacity shown, having been duly authorized to execute such instrument in such capacity.

I further certify the following with regard to the foregoing instrument:

Doc. Date: _____ or ☒ Undated at time of notarization No. of Pages: 22

Document Identification or Description: Limited Warranty Unit Deed with Reservations, Covenants, And Restrictions

(Official Stamp or Seal)

Signature of Notary Public

Name: Mary Ann Ige
Notary Public, State of Hawaii

My commission expires: May 30, 2024

Jurisdiction in which notarial act is performed:
First Circuit, State of Hawaii

STATE OF HAWAII)
) SS.
COUNTY OF MAUI)

On this 26th day of June, 2023, before me personally appeared James A. Stenger, Jr., to me personally known, who, being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the free act and deed of such person, and if applicable, in the capacity shown, having been duly authorized to execute such instrument in such capacity.

I further certify the following with regard to the foregoing instrument:

Doc. Date: _____ or ☐ Undated at time of notarization No. of Pages: 22

Document Identification or Description: Limited Warranty Unit Deed with Reservations, Covenants, And Restrictions

Signature of Notary Public

Name: GWEN VIDA EXPIRATION: October 11, 2026

Notary Public, State of ~~South Dakota~~ Hawaii

My commission expires: Second Circuit

(Official Stamp or Seal)

GV | NP

Exhibit A

All of those certain premises comprising a portion of that certain condominium project known as "MAUI ECONOMIC OPPORTUNITY CONDOMINIUM" (the "Condominium"), more particularly described in that certain Declaration of Condominium Property Regime dated as of December 27, 2012, recorded in the Bureau of Conveyances of the State of Hawaii (the "Bureau") as Document No. A-47440542, and any improvements and appurtenances thereof as described in and established by the Declaration, as the same may have been or may be hereafter amended or restated from time to time (collectively, the "Declaration"), and as shown on the plans of the Condominium filed as Condominium Map No. 5149 in said Bureau, as the same may have been or may be later amended from time to time (collectively, the "Condominium Map"), described as follows:

-FIRST:-

Unit No. 2C of the Condominium as described in the Declaration and as shown on the Condominium Map.

Together with easements appurtenant to said Unit established by and described in the Declaration.

-SECOND:-

An undivided 70.24% interest in all common elements of the Project, as established for said Unit by the Declaration, or such other percentage interest as hereafter established for said Unit by any amendment of the Declaration, as tenant in common with all other owners from time to time of undivided interests in and to said common elements.

SUBJECT as to said common elements to the right of all other unit owners to use the common elements.

The land upon which said Condominium Project "Maui Economic Opportunity Condominium" is located is described as follows:

All of that certain parcel of land (being portion(s) of land(s) described in and covered by Grant 3343 to Claus Spreckels) situate, lying and being at Puunene, Wailuku, Island and County of Maui, State of Hawaii, being LOT 2-C-4-C-1-E, being a portion of Lot 2-C-4-C-1 of the "FIRST ASSEMBLY OF GOD SUBDIVISION", approved by the Department of Public Works, County of Maui, on May 31, 2011, corrected and accepted on May 18, 2012, Subdivision File No. 3.2208, area 237.059 acres, more or less.

Said parcel of land being more particularly described in Declaration of Condominium Property Regime dated as of December 27, 2012, recorded in the Bureau of Conveyances of the State of Hawaii as Document No. A-47440542.

Together with a non-exclusive easement for drainage purposes over, under and across the burdened property in the location generally described in Exhibit "A" attached thereto, identified as Easement "D-5" (10-foot wide), as granted by GRANT OF DRAINAGE EASEMENT dated September 29,

2011, recorded as Document No. 2011-161644; and subject to the terms and provisions contained therein.

Together also with the right, in the nature of a nonexclusive easement for irrigation purposes over Easement "MW-1", as granted by GRANT OF IRRIGATION EASEMENT (MW-1), dated as of December 27, 2012, recorded as Document No. A-47440539, being more particularly described therein; and subject to the terms and provisions contained therein.

Together with an easement for access purposes to be used in common with others entitled thereto, over and across Lot 2-C-4-C-1-B-G of the First Assembly of God Subdivision, Subdivision File No. 3.2323, as set forth by Limited Warranty Deed with Reservations and Covenants dated December 23, 2021 and recorded as Document No. A-80270367.

BEING THE PREMISES ACQUIRED BY DEED

GRANTOR : HAWAIIAN COMMERCIAL AND SUGAR COMPANY, a corporation duly organized and existing under and by virtue of the laws of the State of California

GRANTEE : HAWAIIAN COMMERCIAL AND SUGAR COMPANY, LIMITED, a corporation duly organized and existing under and by virtue of the laws of the Territory of Hawaii

DATED : effective December 31, 1926

RECORDED : Liber 865 Page 8

SUBJECT, HOWEVER, TO:

1. Mineral and water rights of any nature.

2. Any and all existing roadways, trails, easements, rights of way, flumes and irrigation ditches.

3. Flumes and ditches, as contained in EXCHANGE DEED dated June 23, 1924, recorded in Liber 740 at Page 134.

4. GRANT

   TO : MAUI ELECTRIC COMPANY, LIMITED

   DATED : May 25, 1982
   RECORDED : Liber 16383 Page 392
   GRANTING : a right and easement over Easement "1" for utility purposes being more particularly described therein and as referenced on map attached thereto

5. GRANT

   TO : COUNTY OF MAUI

DATED : September 3, 1985
RECORDED : Liber 19066 Page 747
GRANTING : a non-exclusive easement over Easement "1" for water pipeline purposes being more particularly described therein

6. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (AGRICULTURAL USE)

DATED : March 10, 1987
RECORDED : Liber 21128 Page 275
PARTIES : ALEXANDER & BALDWIN, INC. and the COUNTY OF MAUI, through its Department of Public Works

7. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (LARGE LOTS)

DATED : March 10, 1987
RECORDED : Liber 21128 Page 284
PARTIES : ALEXANDER & BALDWIN, INC., a Hawaii corporation, and the COUNTY OF MAUI

8. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (LARGE LOTS)

DATED : January 5, 1988
RECORDED : Liber 21534 Page 206
PARTIES : ALEXANDER & BALDWIN, INC., a Hawaii corporation, and the COUNTY OF MAUI

9. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (THREE LOTS OR LESS)

DATED : January 5, 1988
RECORDED : Liber 21534 Page 215
PARTIES : ALEXANDER & BALDWIN, INC., a Hawaii corporation, and the COUNTY OF MAUI

10. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (THREE LOTS OR LESS)

DATED : June 14, 1995
RECORDED : Document No. 95-089570
PARTIES : ALEXANDER & BALDWIN, INC., and the COUNTY OF MAUI

11. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (LARGE LOTS)

DATED : June 27, 1995
RECORDED : Document No. 95-089571
PARTIES : ALEXANDER & BALDWIN, INC., and the COUNTY OF MAUI

12. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (LARGE LOTS)

DATED : June 14, 1995
RECORDED : Document No. 95-094770
PARTIES : ALEXANDER & BALDWIN, INC., and the COUNTY OF MAUI

13. The terms and provisions contained in the following:

INSTRUMENT : DEFERRAL OF SUBDIVISION REQUIREMENT AGREEMENT

DATED : July 13, 1995
RECORDED : Document No. 95-114079
PARTIES : ALEXANDER & BALDWIN, INC., a Hawaii corporation, and the DEPARTMENT OF WATER SUPPLY of the County of Maui

14. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (DEFERRAL OF ROAD WIDENING LOTS)

DATED : November 9, 1995
RECORDED : Document No. 95-147052
PARTIES : ALEXANDER & BALDWIN, INC., a Hawaii corporation, and the COUNTY OF MAUI, a political subdivision of the State of Hawaii

15. The terms and provisions contained in the following:

INSTRUMENT : DEFERRAL OF SUBDIVISION REQUIREMENTS AGREEMENT

DATED : August 31, 1995
RECORDED : Document No. 95-158022
PARTIES : ALEXANDER & BALDWIN, INC., a Hawaii corporation, and the DEPARTMENT OF WATER SUPPLY of the County of Maui

16. Easement in favor of MAUI ELECTRIC COMPANY, LIMITED, a Hawaii corporation, acquired by FINAL ORDER OF CONDEMNATION dated November --, 1996, filed in the Circuit Court of the Second Circuit, State of Hawaii, Civil No. 96-0929 (3) (Condemnation), on November 26, 1996, recorded as Document No. 96-170196, said easement being

Easement "11", area 339,564 square feet or 7.795 acres, more or less, for electrical transmission line purposes, being more particularly described therein.

17. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (AGRICULTURAL USE)

DATED : June 14, 2000
RECORDED : Document No. 2000-087672
PARTIES : ALEXANDER & BALDWIN, INC., and the COUNTY OF MAUI, through its Department of Public Works and Waste Management, a body politic and corporate, and a political subdivision of the State of Hawaii

18. The terms and provisions contained in the following:

INSTRUMENT : DECLARATION OF CONDITIONS

DATED : --- (acknowledged April 19, 2004)
RECORDED : Document No. 2004-078771

Joinder by ALEXANDER & BALDWIN, INC., a Hawaii corporation, dated --- (acknowledged April 19, 2004), recorded as Document No. 2004-078772.

19. The terms and provisions contained in the following:

INSTRUMENT : DECLARATION OF CONDITIONS

DATED : June 27, 2005
RECORDED : Document No. 2005-128814

20. DESIGNATION OF EASEMENT "1" (15 feet wide) for sewer line purposes in favor of Tax Map Key (2) 3-8-006-001, as set forth in DECLARATION OF EASEMENT dated January 17, 2007, recorded as Document No. 2008-010966, as referenced on map attached thereto.

21. The terms and provisions contained in the following:

INSTRUMENT : UNILATERAL AGREEMENT AND DECLARATION FOR CONDITIONAL ZONING

DATED : November 18, 2009
RECORDED : Document No. 2009-187098
PARTIES : MAHI ECONOMIC OPPORTUNITY, INC., a Hawaii nonprofit corporation, "MEO", and ALEXANDER & BALDWIN, INC., a Hawai'i corporation, "Declarant"

22. The terms and provisions contained in the following:

INSTRUMENT : AGREEMENT FOR ALLOCATION OF FUTURE SUBDIVISION POTENTIAL

DATED : March 23, 2011
RECORDED : Document No. 2011-051296
PARTIES : ALEXANDER & BALDWIN, INC. and A&B PROPERTIES, INC., "Subdivider", and the COUNTY OF MAUI, through its Department of Public Works, a political subdivision of the State of Hawaii, "County"

23. The terms and provisions contained in the following:

INSTRUMENT : FIRST AMENDED AND RESTATED SUBDIVISION AGREEMENT (LARGE LOTS)

DATED : April 18, 2011
RECORDED : Document No. 2011-065270
PARTIES : ALEXANDER & BALDWIN, INC. and A&B PROPERTIES, INC., "Owner", and the COUNTY OF MAUI, through its Department of Public Works, a body politic and corporate, and a political subdivision of the State of Hawaii

The foregoing Restated Agreement supersedes in its entirety that certain Agreement dated September 2, 2009, recorded as Document No. 2009-139108.

24. GRANT

TO : MAUI ELECTRIC COMPANY, LIMITED, a Hawaii corporation, and HAWAIIAN TELCOM, INC., a Hawaii corporation

DATED : March 17, 2011
RECORDED : Document No. 2011-053742
GRANTING : a right and easement for utility purposes as referenced on the map attached thereto

25. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (AGRICULTURAL USE)

DATED : March 30, 2011
RECORDED : Document No. 2011-057405
PARTIES : ALEXANDER & BALDWIN, INC. and A&B PROPERTIES, INC., "Owner", and the COUNTY OF MAUI, through its Department of Planning, a body politic and corporate, and a political subdivision of the State of Hawaii

26. The terms and provisions contained in the following:

INSTRUMENT : SUBDIVISION AGREEMENT (SECTION 18.04.030.B-5 EXCEPTION)

DATED : April 18, 2011
RECORDED : Document No. 2011-065269
PARTIES : A&B PROPERTIES, INC. and ALEXANDER & BALDWIN, INC., "Owner", and the COUNTY OF MAUI, through its Department of Public Works, a body politic and corporate, and a political subdivision of the State of Hawaii, "County"

27. DESIGNATION OF EASEMENT "E-1"

PURPOSE : electrical
REFERENCED : on subdivision map prepared by Ken T. Nomura, Land Surveyor dated May 28, 2008, last revised May 11, 2012, approved by the Department of Public Works, County of Maui, Subdivision File No. 3.2208, on May 3, 2011, corrected on May 18, 2012

28. DESIGNATION OF EASEMENT "E-2"

PURPOSE : electrical
REFERENCED : on subdivision map prepared by Ken T. Nomura, Land Surveyor dated May 28, 2008, last revised May 11, 2012, approved by the Department of Public Works, County of Maui, Subdivision File No. 3.2208, on May 3, 2011, corrected on May 18, 2012

29. DESIGNATION OF EASEMENT "E-3"

PURPOSE : electrical
REFERENCED : on subdivision map prepared by Ken T. Nomura, Land Surveyor dated May 28, 2008, last revised May 11, 2012, approved by the Department of Public Works, County of Maui, Subdivision File No. 3.2208, on May 3, 2011, corrected on May 18, 2012

30. DESIGNATION OF EASEMENT "E-4"

PURPOSE : electrical
REFERENCED : on subdivision map prepared by Ken T. Nomura, Land Surveyor dated May 28, 2008, last revised May 11, 2012, approved by the Department of Public Works, County of Maui, Subdivision File No. 3.2208, on May 3, 2011, corrected on May 18, 2012

31. DESIGNATION OF EASEMENT "E-5"

PURPOSE : electrical

REFERENCED : on subdivision map prepared by Ken T. Nomura, Land Surveyor dated May 28, 2008, last revised May 11, 2012, approved by the Department of Public Works, County of Maui, Subdivision File No. 3.2208, on May 3, 2011, corrected on May 18, 2012

32. GRANT

TO : ALEXANDER & BALDWIN, LLC, a Hawaii limited liability company

DATED : December 27, 2012
RECORDED : Document No. A-47440534
GRANTING : a non-exclusive easement in gross for irrigation purposes over, under, through and across Easement "IR-1", being more particularly described therein and as referenced on the map attached thereto

33. GRANT

TO : ALEXANDER & BALDWIN, LLC, a Hawaii limited liability company, formerly known as ALEXANDER & BALDWIN, INC.

DATED : December 27, 2012
RECORDED : Document No. A-47440535
GRANTING : the right, in the nature of an easement for sewer purposes, over and across Easement "S-1A" for sewer purposes, being more particularly described therein and as referenced on the map attached thereto

34. DESIGNATION OF EASEMENT "S-1B" for sewer purposes in favor of Tax Map Keys (2) 3-8-006-001, (2) 3-8-006-003 and Lot 2-C-4-C-1-E as set forth in DECLARATION OF SEWER EASEMENT dated December 27, 2012, recorded as Document No. A-47440536, being more particularly described therein and as referenced on the map attached thereto.

35. DESIGNATION OF EASEMENT "S-6" for sewer purposes in favor of Tax Map Keys (2) 3-8-006-001, (2) 3-8-006-003 and Lot 2-C-4-C-1-E as set forth in DECLARATION OF SEWER EASEMENT dated December 27, 2012, recorded as Document No. A-47440537, being more particularly described therein and as referenced on the map attached thereto.

36. GRANT

TO : ALEXANDER & BALDWIN, LLC, a Hawaii limited liability company

DATED : December 27, 2012
RECORDED : Document No. A-47440538
GRANTING : a non-exclusive easement for sewer purposes over, under, through and across Easement "S-3", being more particularly described therein and as referenced on the map attached thereto

37. GRANT

TO	:	MAUI BUSINESS PARK PHASE II ASSOCIATION INC, a Hawaii nonprofit corporation
DATED	:	December 27, 2012
RECORDED	:	Document No. A-47440540
GRANTING	:	a non-exclusive easement on, over, across, under and through Easement "WM-1" for potable water meter purposes, being more particularly described therein and as referenced on the map attached thereto

38. The terms and provisions contained in the following:

INSTRUMENT	:	DECLARATION OF CONDOMINIUM PROPERTY REGIME FOR "MAUI ECONOMIC OPPORTUNITY CONDOMINIUM"
DATED	:	December 27, 2012
RECORDED	:	Document No. A-47440542
MAP	:	5149 and any amendments thereto

Said Declaration was amended by instruments dated October 20, 2021, recorded as Document No. A-79650643, dated November 24, 2021, recorded as Document No. A-80040488, and dated June 1, 2023, recorded as Doc No. A-85520955.

-Note:- Any recorded amendments to said Declaration affecting apartments other than the specific apartment described herein, are not shown.

39. The terms and provisions contained in the following:

INSTRUMENT	:	BY-LAWS OF THE ASSOCIATION OF UNIT OWNERS
DATED	:	--- (acknowledged December 27, 2012)
RECORDED	:	Document No. A-47440543

40. GRANT

TO	:	MAUI ECONOMIC OPPORTUNITY, INC., a Hawaii nonprofit corporation
DATED	:	as of December 27, 2012
RECORDED	:	Document No. A-47440545
GRANTING	:	the right, in the nature of a nonexclusive easement for sewer purposes, on, over, across, under and through Easement "S-6", more particularly described therein and as referenced on the map attached thereto

41. The terms and provisions contained in the following:

INSTRUMENT : SEWER SERVICE BILLING AGREEMENT

DATED : October 7, 2013
RECORDED : Document No. A-50420868
PARTIES : COUNTY OF MAUI, ALEXANDER & BALDWIN, INC., and MAUI BUSINESS PARK PHASE II ASSOCIATION CLARIFICATION OF SEWER SERVICE BILLING AGREEMENT dated December 31, 2013, recorded as Document No. A-51290700A thru A-51290

42. The terms and provisions contained in the following:

INSTRUMENT : HOLD-HARMLESS AGREEMENT

DATED : May 8, 2015
RECORDED : Document No. A-65330998
PARTIES : MAUI ECONOMIC OPPORTUNITY, INC., "Applicant", and the COUNTY OF MAUI, "County"

No joinder by ALEXANDER & BALDWIN, LLC.

43. The terms and provisions contained in the following:

INSTRUMENT : AGREEMENT AND GRANT AND RESERVATION OF EASEMENTS

DATED : December 23, 2021

RECORDED : Document No. A-80270364 and A-80270365

PARTIES : ALEXANDER & BALDWIN, LLC, a Delaware limited liability company, "A&B", MAUI BUSINESS PARK PHASE II ASSOCIATION, a Hawaii nonprofit corporation, "Association" collectively with A&B, "Grantee", and COUNTY OF MAUI, a political subdivision of the State of Hawaii, "County"

RE : County of Maui grants to Grantee (i) a nonexclusive easement over, across, under and through Easement A-4 for access and utility purposes, and (ii) an easement over, across, under and through Easement D-4 for drainage purposes.

The foregoing includes, but is not limited to, matters relating to reservation of easements.

44. GRANT

TO : MAUI ELECTRIC COMPANY, LIMITED, a Hawaii corporation, and HAWAIIAN TELCOM, INC., a Hawaii corporation

DATED : March 10, 2022
RECORDED : Document No. A-82310960
GRANTING : a non-exclusive right and easement for utility purposes over and across Easement E-6 and Easement E-8

AGREEMENT REGARDING GRANT OF EASEMENT dated August 31, 2022, recorded as Document No. A-82850690.

45. GRANT

TO : MAUI ELECTRIC COMPANY LIMITED, a Hawaii corporation

DATED : October 24, 2022
RECORDED : Document No. A-83710533
CONSENT : a non-exclusive right and easement for the transmission and distribution of electricity

46. The following are shown on revised Condominium Map of MAUI ECONOMIC OPPORTUNITY CONDOMINIUM, prepared by Erik S. Kaneshiro, Land Surveyor, with Austin, Tsutsumi, Associates, Inc., dated March 20, 2023, filed in the Bureau of Conveyances as Condominium Map No. 5149:

(A) Existing Easement B-1 for drainage basin purposes;
(B) Existing Easement D-3 for drainage purposes;
(C) Existing Easement B-1 for drainage purposes;
(D) Existing Easement B-2 for drainage purposes;
(E) Existing Temporary Construction Easement for temporary construction purposes;
(F) Existing temporary utility easement up to three (3) years for electrical and access purposes;
(G) Existing Utility Easement for electrical and access purposes;
(H) Easement A-1(50-ft. wide) for access purposes;
(I) Easement Unit 2A Surface Water;
(J) Easement D-5 (85-ft. wide) for drainage and access purposes; and
(K) Easement RW-1 for access and road widening purposes.

47. Declaration of Easement Rights, Covenants, Conditions and Restrictions dated and recorded in the Bureau substantially concurrently herewith.

48. Grants of Easements dated July 3, 2023 and recorded in the Bureau substantially concurrently herewith, granting (a) a temporary non-exclusive 25-foot wide easement, and (b) a perpetual non-exclusive 25-foot wide easement.

49. Claims arising out of customary and traditional rights and practices, including without limitation those exercised for subsistence, cultural, religious, access or gathering purposes, as provided for in the Hawaii Constitution or the Hawaii Revised Statutes.

50. Discrepancies, conflicts in boundary lines, shortage in area, encroachments or any other matters which a correct survey or archaeological study would disclose.

EXHIBIT 2

AUTHORIZATION

AUTHORIZATION TO FILE PETITION

STATE OF HAWAI'I)
) SS.
COUNTY OF MAUI)

JAMES A. STENGER, JR., being first duly sworn, on oath, deposes and says that:

1. I am the Manager of Ax Holdings, LLC, a South Dakota limited liability company.

2. Ax Holdings, LLC, is the fee simple owner of that certain parcel of real property, area approximately 166.512 acres, situate at Pu'unēnē, Wailukū, Island and County of Maui, State of Hawai'i, identified as Tax Map Key: (2) 3-8-006-004-0005, being Unit 2C of the Maui Economic Opportunity Condominium, more particularly described in that certain Declaration of Condominium Property Regime dated as of December 27, 2012, recorded in the Bureau of Conveyances as Document No. A47440542 (the "Property").

3. I hereby authorize HO'ONANI DEVELOPMENT LLC, a Hawai'i limited liability company, to file a Petition to Amend the Agricultural Land Use District Boundary into the Urban Land Use District for the Property and to take all actions necessary to effectuate said district boundary amendment.

Dated: Kahului, Hawai'i, August 14, 2025.

JAMES A. STENGER, JR.

Subscribed and sworn to me on

this 14th day of August, 2025.

MATTHEW WALTER PENNAZ
Notary Public, State of Hawaii

My commission expires: 10/12/2028

NOTARY CERTIFICATION STATEMENT

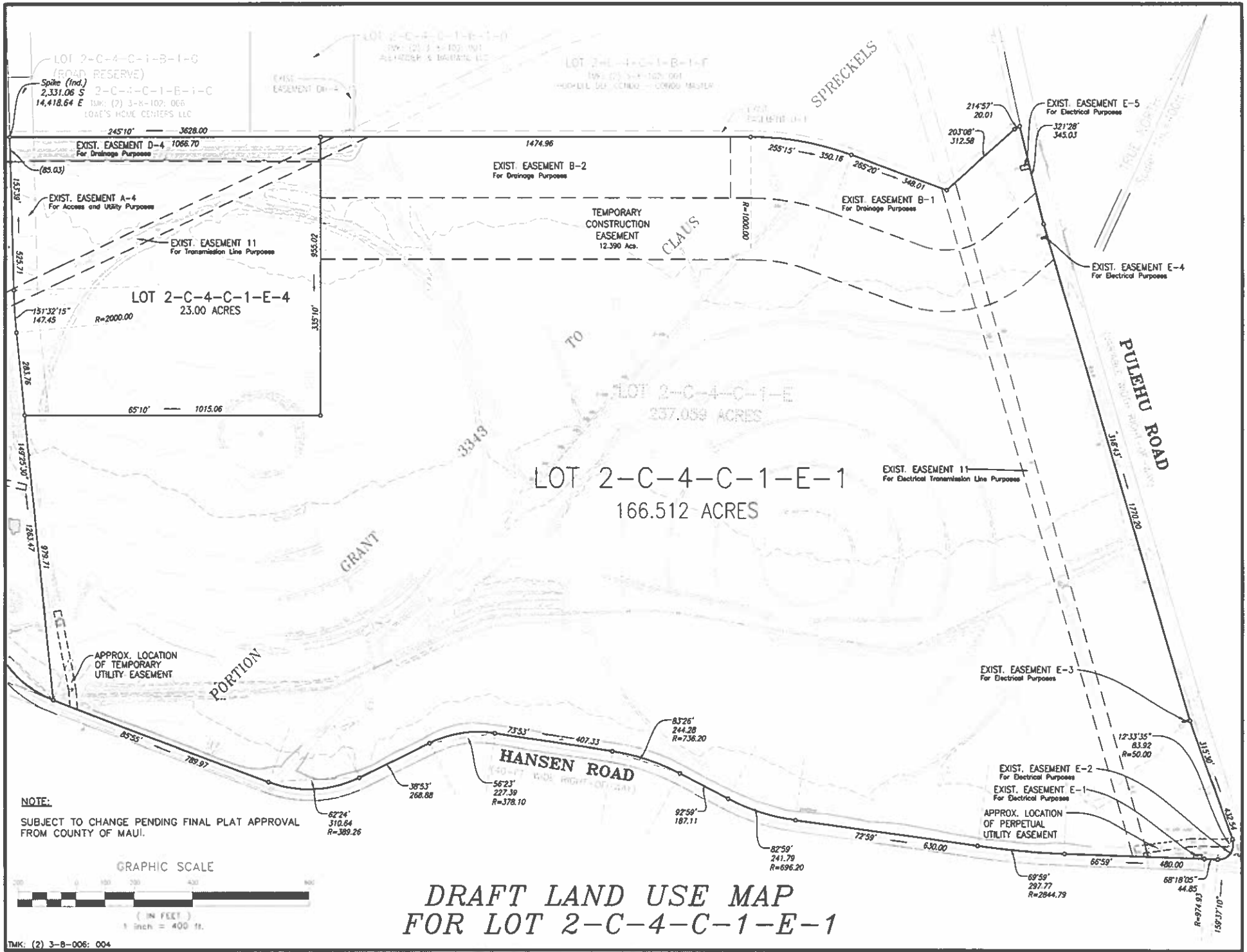
Document Title: Authorization to File Petition
Documents Consists of 2 pages.
Date of Document: August 14, 2025
Date of Notarial Act &
Notary Certification Statement: August 14, 2025
Jurisdiction in which notarial act performed: Second Judicial Circuit, State of Hawaii

[illegible] Pennaz, First Circuit Doc. Date: 8/14/25
No. of Pages: 2 Doc. Description: Authorization to File Petition

Signature 8/14/25
Date
NOTARY CERTIFICATION

EXHIBIT 3

PETITION AREA



DRAFT LAND USE MAP FOR LOT 2-C-4-C-1-E-1

TMK: (2) 3-8-006: 004

Z:\2023\23-526 MBP MEO SUBDIVISION\SURVEY\DWG\23526PP — LAND USE MAP FOR LOT E-1.DWG

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

8.5" X 11"

JOB NO.: 23-526

EXHIBIT 4

PRELIMINARY DEVELOPMENT TIMELINE*

- **December 2027 – May 2029:** Phase I Construction to Substantial Completion.
- **December 2029 – May 2031:** Phase II Construction to Substantial Completion.
- **December 2031 – May 2033:** Phase III Construction to Substantial Completion.
- **December 2033 – May 2035:** Phase IV Construction to Substantial Completion.
- **December 2035 – May 2037:** Phase V Construction to Substantial Completion.
- **December 2037 – May 2039:** Phase VI Construction to Substantial Completion.

*Note that these are estimated dates, subject to change.

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of HO'ONANI DEVELOPMENT LLC To Amend the Agricultural Land Use District Boundary into the Urban Land Use District for Approximately 166.512 acres of land situate at Pu'unēnē, Wailukū, Island and County of Maui, State of Hawai'i, Tax Map Key: (2) 3-8-006-004-0005	DOCKET NO. A25-811 VERIFICATION

VERIFICATION

STATE OF HAWAII)
) SS.
COUNTY OF MAUI)

GREGORY SADO, being first duly sworn, on oath, deposes and says that:

1. I am a manager of HO'ONANI DEVELOPMENT LLC, a Hawai'i limited liability company ("Petitioner"), and in this capacity I am family with matters relating to the land which is the subject of Docket No. A25-811 and knowledgeable to testify on behalf of Petitioner.

2. I have personal knowledge of the matters set forth in the foregoing Petition in Docket No. A25-811 and am qualified and competent to make this verification.

3. I make this verification pursuant to HAR §15-15-39, Land Use Commission Rules.

4. I have read the foregoing document and the contents therefore are true and correct to the best of my knowledge and belief.

Dated: Kahului, Hawai'i, August 18, 2025

GREGORY SADO

Subscribed and sworn to me on

this 18th day of August, 2025

LIANE ABOY NOTARY PUBLIC No. 21-177 STATE OF HAWAII

Liane Aboy

~~MATTHEW WALTER PENNAZ~~

Notary Public, State of Hawaii

My commission expires: ~~10/12/2028~~ 12/12/2025

NOTARY CERTIFICATION STATEMENT

Document Title: Verification
Documents Consists of 2 pages.
Date of Document: August 18, 2025
Date of Notarial Act &
Notary Certification Statement: August 18, 2025
Jurisdiction in which notarial act performed: Second Judicial Circuit, State of Hawaii

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of HO'ONANI DEVELOPMENT LLC To Amend the Agricultural Land Use District Boundary into the Urban Land Use District for Approximately 166.512 acres of land situate at Pu'unēnē, Wailukū, Island and County of Maui, State of Hawai'i, Tax Map Key: (2) 3-8-006-004-0005	DOCKET NO. A25-811 CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

THE UNDERSIGNED HEREBY CERTIFIES that on this date, a true and correct copy of the foregoing was duly served upon the following parties VIA ELECTRONIC MAIL:

MARY ALICE EVANS
Director, State Office of Planning and Sustainable Development
Via e-mail to maryalice.evans@hawaii.gov & dbedt.op.lud@hawaii.gov

KATE BLYSTONE
Director, County of Maui Department of Planning
Via e-mail to kate.blystone@co.maui.hi.us

DATED: Wailuku, Hawai'i, August 20, 2025.

JEFFREY UEOKA

Attorney for Petitioner
HO'ONANI DEVELOPMENT LLC

EXHIBIT 8

Office of Planning and Sustainable Dev.

Comments

STATE OF HAWAI'I
OFFICE OF PLANNING
& SUSTAINABLE DEVELOPMENT

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LT. GOVERNOR

MARY ALICE EVANS
DIRECTOR

235 South Beretania Street, 6th Floor, Honolulu, Hawai'i 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawai'i 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: https://planning.hawaii.gov/

Coastal Zone Management Program

Environmental Review Program

Land Use Commission

Land Use Division

Special Plans Branch

State Transit-Oriented Development

Statewide Geographic Information System

Statewide Sustainability Branch

DTS 202511200840NA

December 16, 2025

Kate Blystone, Director
Attn: Kurt Wollenhaupt
Planning Department
County of Maui
2200 Main Street, Suite 315
Wailuku, Hawai'i 96793

Dear Ms. Blystone:

Subject: ZPA2025-00011, Change in Zoning/Community Plan Amendment/Maui Island Plan Amendment, Kahului-Wailuku, Maui
Tax Map Key No: (2) 3-8-006:004 (por)

The Office of Planning and Sustainable Development (OPSD) has reviewed the materials submitted with the request for comments on the proposed Change in Zoning and amendments to the Maui Island Plan and Wailuku-Kahului Community Plan. In a separate application, the applicant is in the process of submitting a petition for a Land Use District Boundary Amendment (DBA) with the State Land Use Commission.

The materials posted on the Maui Automated Planning and Permitting System (MAPPS) application page indicate that Ho'onani Development, LLC proposes the development of Ho'onani Village, a high-density, master-planned, mixed-use community on 166.51 acres. The preliminary conceptual plan features approximately 1,600 affordable and market-rate multi-family low-rise residential units, including studios, and 1-, 2-, 3-bedroom units. Approximately 50% of the units will be designated as workforce housing and the development will additionally include retail, office, and commercial services as well as recreational spaces/amenities.

The project site is in the State Land Use (SLU) Agriculture District. Almost all of the project sites are outside the Urban Growth Boundary (UGB) of the Maui Island Plan as well as nearly all are designated Agriculture in the Wailuku-Kahului Community Plan. The entire project site is zoned Agriculture by the County of Maui. With these proposed amendments, the applicant proposes to expand the UGB to encompass the project site and to amend the Community Plan and County zoning to Light Industrial.

OPSD offers the following comments regarding the proposed changes and amendments.

1. **Conformance with State Land Use District (SLUD):** The project site is in the SLUD Agricultural District. Pursuant to Hawai'i Revised Statutes (HRS) §205, county zoning is to conform to SLU zoning, and therefore, the processing and decision of the DBA should occur prior to county discretionary permitting decisions. Related to the appropriate land use for this project, OPSD understands that the Maui County Planning Department is currently in the process of updating their Central Maui Community Plan. The applicant should discuss proposed amendments to this Community Plan with the County of Maui during this update process.

2. **Airport Proximity/Noise:** OPSD notes that this project is in the vicinity of Kahului Airport. Any land use change within five (5) statute miles of airport boundaries needs to consult with the Federal Aviation Administration (FAA) and the Hawai'i Department of Transportation (HDOT) to ascertain if the proposed project will create any incompatible land uses, such as hazardous wildlife attractants and glint/glare hazards. The FAA encourages proponents of land use changes within 5 statute miles of an airport to notify the FAA as early in the planning process as possible.

   In regard to noise associated with airport proximity, the applicant states, "the proposed project is within the noise contours of the Kahului Airport." Additionally stated, "Due to the presence of consistent aircraft noise disturbances throughout much of the project site, exterior glazing, wall and floor/ceiling construction will be particularly important to isolate the inhabitants." Please note that if this project intends to use affordable housing financing, e.g., via U.S. Department of Housing and Urban Development, they will need to follow the housing construction requirements to mitigate noise impacts.

   OPSD recommends that the application includes a map showing HDOT airport constraints and noise contours in relation to the project area. Application should discuss issues likely to arise due to proximity to Kahului Airport.

3. **Water:** The applicant states, "The proposed development will create an available water source…" and further states that "the groundwater salinity is too high for nearly all crops." The applicant should specify in the application what will be entailed for the development of a potable water source for this project. The applicant should consult with the Commission on Water Resource Management (CRWM) and the County of Maui on the feasibility and timeframe of the development of a new potable water source for the project. Further, the applicant may wish to consider recycled water for non-potable uses.

4. **Agricultural Land**: The project site land is designated "A" by the UH Land Study Bureau (LSB), which represents the highest productivity level and is designated "Prime" agricultural land by the Agricultural Lands of Importance in the State of Hawai'i (ALISH). OPSD notes that this represents almost a quarter of agricultural land with soils rated "A" by the UH LSB and is designated "Prime" agricultural land by ALISH. OPSD recommends that the application note the loss of these highly rated agricultural lands.

5. **Affordable Housing**: OPSD recommends that the application clarify the target populations/household incomes for affordable housing and consider some housing to target lower Area Median Income (AMI) housing.

6. **Transportation, Multimodal, and Walkability Issues:** The application should identify how the project site plan and layout will increase walkability and accommodate safe bicycle and pedestrian routes as well as connection to adjacent land uses. Consideration should also be given to activating streets for multimodal use (such as for pedestrians and bicyclists) by placement of buildings near/along streets. It is unclear whether the Maui bus services will be accommodated onsite or will be readily accessible to project residents/visitors.

7. **Energy**: The application should discuss if there will be a higher energy impact/footprint due to noise impacts, which may require air-conditioning for noise mitigation and alternative forms of renewable energy to offset higher energy uses.

8. **Complete Application:** OPSD strongly recommends that the application form contains the information requested rather than referencing external documents in its responses. This will enable the public to readily review information relevant to the project proposal.

Thank you for the opportunity to comment on the proposed application. If you have any questions, please contact Rachel Beasley, rachel.e.beasley@hawaii.gov, (808) 587-2888. If you wish to respond to this comment letter, please include DTS 202511200840NA in the subject line.

Mahalo,

Mary Alice Evans

Mary Alice Evans
Director

EXHIBIT 9

DAGS Land Survey Comments

JOSH GREEN, M.D.
GOVERNOR
KE KIA'ĀINA

KEITH A. REGAN
COMPTROLLER
KA LUNA HO'OMALU HANA LAULĀ

MEOH-LENG SILLIMAN
DEPUTY COMPTROLLER
KA HOPE LUNA HO'OMALU HANA LAULĀ

STATE OF HAWAI'I | KA MOKU'ĀINA O HAWAI'I
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES | KA 'OIHANA LOIHELU A LAWELAWE LAULĀ
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

Response Refer to:
Ma-184(25)

MEMORANDUM

TO: Kate Blystone, Director
Department of Planning, County of Maui

ATTN: Kurt Wollenhaupt, Staff Planner

FROM: Reid K. Siarot, State Land Surveyor
DAGS, Land Survey Division

SUBJECT: Ho`onani Village
Applicant: Ho`onani Development LLC
Permit No.: ZPA2025-00011
TMKs: 3-8-06: 04

This is in regard to your email dated November 19, 2025 and request for comments on the subject application.

The subject proposal has been reviewed and confirmed that no Government Survey Triangulation Stations or Benchmarks are affected. Survey has no objections to the proposed project.

Should you have any questions, please call me at 586-0390.

EXHIBIT 10

DLNR, Engineering Comments

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

DAWN N. S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA
LAND DIVISION

P.O. BOX 621
HONOLULU, HAWAII 96809

November 20, 2025

MEMORANDUM

FROM: ~~TO~~:

DLNR Agencies:
___Div. of Aquatic Resources (kendall.l.tucker@hawaii.gov)
___Div. of Boating & Ocean Recreation richard.t.howard@hawaii.gov)
_X_ Engineering Division (DLNR.ENGR@hawaii.gov)
_X_ Div. of Forestry & Wildlife (rubyrosa.t.terrago@hawaii.gov)
___Div. of State Parks (curt.a.cottrell@hawaii.gov)
_X_ Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
___Office of Conservation & Coastal Lands (sharleen.k.kuba@hawaii.gov)
_X_ Land Division – Maui District (dlnr.land.maui@hawaii.gov)
___Aha Moku Advisory Committee (leimana.k.damate@hawaii.gov)

TO: ~~FROM~~: Ian C. Hirokawa, Acting Land Administrator

SUBJECT: Request for Review and Comment on the proposed Urban Boundary Change-Community Plan Amendment-Zoning Change for Ho'onani Village

LOCATION: TMK (2) 3-8-006:004 Kahului, Maui

APPLICANT: County of Maui Public Works Department, Engineering Division applicants

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **December 17, 2025.** If no response is received by the above date, we will assume your agency has no comments. Should you have any questions about this request, please contact Raymond Severn at raymond.severn@hawaii.gov. Thank you.

BRIEF COMMENTS:

( ) We have no objections.
( ) We have no comments.
( ) We have no additional comments.
(✓) Comments are included/attached.

Signed:
Print Name: Dina U. Lau, Acting Chief Engineer
Division: Engineering Division
Date: Dec 16, 2025

Attachments
cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Ryan K.P. Kanaka'ole

Ref: Request for Review and Comment on the proposed Urban Boundary Change-Community Plan Amendment-Zoning Change for Ho'onani Village
Location: Kahului, Maui
TMK(s): (2) 3-8-006:004
Applicant: County of Maui Public Works Department, Engineering Division applicants

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high-risk areas). Be advised that 44CFR, Chapter 1, Subchapter B, Part 60 reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible for researching the Flood Hazard Zone designation for the project. Flood zones subject to NFIP requirements are identified on FEMA's Flood Insurance Rate Maps (FIRM). The official FIRMs can be accessed through FEMA's Map Service Center (msc.fema.gov). Our Flood Hazard Assessment Tool (FHAT) (fhat.hawaii.gov) could also be used to research flood hazard information.

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7139.
- Kauai: County of Kauai, Department of Public Works (808) 241-4849.

Signed: _____
DINA U. LAU, ACTING CHIEF ENGINEER

Date: Dec 16, 2025

EXHIBIT 11

DLNR, Commission on

Water Resources Mgmt.

Comments

JOSH GREEN, M.D.
GOVERNOR | KE KIA ĀINA

DAWN N.S. CHANG
CHAIRPERSON

KENNETH S. FINK, M.D., MGA, MPH
AURORA KAGAWA-VIVIANI, PH.D
WAYNE K. KATAYAMA
LAWRENCE H. MIIKE, M.D., J.D.
HANNAH KIHALANI SPRINGER

CIARA W.K. KAHAHANE
DEPUTY DIRECTOR

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES | KA 'OIHANA KUMUWAIWAI 'ĀINA
COMMISSION ON WATER RESOURCE MANAGEMENT | KE KAHUWAI PONO
P.O. BOX 621
HONOLULU, HAWAII 96809

Dec 16, 2025

REF: RFD.6573.6

TO Mr. Ian Hirokawa, Acting Administrator
Land Division

FROM Ciara W.K. Kahahane, Deputy Director
Commission on Water Resource Management

SUBJECT. Urban Boundary Change- Community Plan Amendment-Zoning Change for Ho'onani Village

FILE NO RFD 6573.6
TMK NO (2) 3-8-006:004

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://dlnr.hawaii.gov/cwrm

Our comments related to water resources are checked off below.

- [X] 1. We recommend coordination with the county to incorporate this project into the next update of the county's Water Use and Development Plan (WUDP). Please contact the respective Planning Department and/or Department of Water Supply for further information.
- [ ] 2. We recommend coordination with the Engineering Division of the State of Hawai'i, Department of Land and Natural Resources (DLNR) to incorporate this project into the next update of the State Water Projects Plan (SWPP).
- [ ] 3. We recommend coordination with the State of Hawai'i, Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the associated agricultural water demands into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information at https://hdoa.hawaii.gov/contact/.
- [X] 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the project to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EAP as having high water efficiency can be found at http://www.epa.gov/watersense.
- [X] 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project on the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://planning.hawaii.gov/czm/initiatives/low-impact-development/.
- [X] 6. We recommend the use of alternative water sources, wherever practicable.
- [X] 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program.
- [X] 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawai'i. These practices can be found online at

https://hawaiiscape.com/index.php. Additional information can be found at https://dlnr.hawaii.gov/cwrm/planning/conservation/.

☐ 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health (HDOH) and the acceptance of any resulting requirements related to water quality.

☐ 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 11. The Hawai'i Water Plan is directed toward the achievement of the utilization of reclaimed water for uses other than drinking and for potable water needs in one hundred per cent of State and County facilities by December 31, 2045 (§174C-31(g)(6), Hawaii Revised Statutes). We strongly recommend that this project consider using reclaimed water for its non-potable water needs, such as irrigation. Reclaimed water may include, but is not limited to, recycled wastewater, gray water, and captured rainwater/stormwater. Please contact the Hawai'i Department of Health, Wastewater Branch, for more information on their reuse guidelines and the availability of reclaimed water in the project area. Contact information can be found at https://health.hawaii.gov/about/contact/.

☒ 12. A Well Construction Permit(s) is (are) are required before the commencement of any well construction work.

☒ 13. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 14. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 15. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 16. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a steam channel.

☐ 17. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.

☐ 18. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 19. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required by CWRM, or whether there are potential impacts to water resources.

☒ 20. The proposed water source(s) and projected water demands for the project, both potable and non-potable, should be identified. If the project will be provided water by a local water system we recommend consultation with them to ensure that system capacity is available to supply water for this project.

☒ OTHER: Planning -

The State Water Code requires each county to update its water use and development plans as necessary to maintain consistency with its zoning and land use policies (§174C-31 HRS). Should a change in zoning be approved for this project, please coordinate with the respective Maui Planning Department and/or Maui Department of Water Supply to incorporate this project into the county water use and development plan.

If the water will be provided by an existing water system, coordination is required with the Commission to determine any potential impacts that this project will have on the system's allocations.

Groundwater -

Impacts to ground water dependent ecosystems are becoming an emerging issue as impacts to these are related to impacts to traditional & customary practices of sustenance from these ecosystems. We recommend consultation with the region's (moku) Aha Moku Council on whether a land use conversion or project that uses water will impact any traditional & customary practices.

If you have any questions, please contact Ryan Imata of the Groundwater Regulation Branch at (808) 587-0225 or Katie Roth of the Planning Branch (808) 587-0216.

EXHIBIT 12

Hawai‘i School Facilities Authority

Comments

JOSH GREEN, M.D.
GOVERNOR

RIKI FUJITANI
EXECUTIVE DIRECTOR

2759 S. KING STREET, ROOM H201
HONOLULU, HAWAIʻI 96826

December 23, 2025

MEMORANDUM

TO: Kurt Wollenhaupt
Land Use Planning Supervisor
Department of Planning, County of Maui

FROM: Liz Lee
Planning Officer, Hawaiʻi School Facilities Authority

SUBJECT: Hawaii School Facilities Authority - Agency Review for – ZPA2025-00011 – Ho'onani Village

This memorandum is regarding the requested agency review for ZPA2025-00011 – Ho'onani Village.

Given the scale of the proposed masterplan and the associated housing units as part of the overall vision, Hawaii School Facilities Authority (SFA) would recommend the county consider existing schools and their capacity to support new families. A detailed review of the proposed housing on existing school capacity and timing of this project development may be warranted. Recent shifts in enrollment and associated redistricting in Central Maui highlight the importance of understanding how Ho'onani Village may or may not further impact area schools.

Separate but related to this, the developers building the proposed housing as part of Ho'onani Village will be subject to fees-in-lieu of land which our team is happy to lead discussions and negotiations on when the time comes. Should you have any questions on the above, please contact Liz Lee, Planning Officer, at liz.lee@hisfa.org or (415) 226-6521.

EXHIBIT 13, 13A, and 13B

State Department of Transportation

Comments

JOSH GREEN, M.D.
GOVERNOR
KE KIA'ĀINA

EDWIN H. SNIFFEN
DIRECTOR
KA LUNA HO'OKELE

Deputy Directors
Nā Hope Luna Ho'okele
DREANALEE K. KALILI
TAMMY L. LEE
CURT T. OTAGURO
ROBIN K. SHISHIDO

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF TRANSPORTATION | KA 'OIHANA ALAKAU
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO

STP 00950.25
STP 8.4013

December 23, 2025

VIA EMAIL: kurt.wollenhaupt@co.maui.hi.us

Ms. Kate Blystone, Director
County of Maui
Planning Department
2200 Main Street
One Main Plaza, Suite 315
Wailuku, Hawaii 96793

Attention: Mr. Kurt Wollenhaupt

Dear Ms. Blystone:

Subject: Change of Zoning, General Plan Amendment, and District Boundary Amendment (ZPA2025-00011)
Hoonani Village
Kahului, Maui, Hawaii
Tax Map Key: (2) 3-8-006: 004

Thank you for your email notification, dated November 19, 2025, requesting the Hawaii Department of Transportation's (HDOT) review and comments on the subject rezoning and amendments. The HDOT understands the applicant is proposing to develop approximately 1,600 multi-family residential units along with retail, office, and restaurant spaces, as well as light industrial spaces.

The HDOT has the following comments:

1. The proposed project is approximately 0.15 miles from the property boundary of Kahului Airport (OGG) and under an existing flight path for arrivals on Runway 2. All projects within 5 miles of Hawaii State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits. The TAM can be viewed at this link:

http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-2016.pdf

2. As the airport sponsor and the recipient of Federal Aviation Administration (FAA) Grants, the HDOT must comply with the FAA Grant Assurances, which include ensuring compatible land use for the safe landing and take-off of aircraft near the airport. The project site is located within the 55-75 Day-Night Average Sound Level (DNL) noise contours of the Base Year 1993 OGG Noise Exposure Map (NEM). The HDOT recommends relocating noise-sensitive land uses in the proposed project to avoid noise-sensitive areas defined by the noise contours of the Base Year 1993 OGG NEM. Specifically, all housing should be relocated outside of the 65 DNL or greater contours. In addition, Noise Level Reduction measures such as air conditioning, dual-pane windows, and concrete masonry walls should be incorporated throughout the project's design for housing and buildings where the public is received to achieve interior levels of 45 DNL or less. Please refer to the attached noise compatibility land use chart from the 1995 OGG Noise Compatibility Program for more guidance on recommended land uses within noise contours.

3. Due to the nature of the development, the HDOT requests that the property owner grant a noise and avigation easement to the HDOT.

4. Due to the proximity to OGG, the applicant, future residents, and users should be aware of potential single-event noise from aircraft operations. There is also potential for fumes, smoke, vibrations, odors, etc., resulting from occasional aircraft flight operations over or near the project location. These impacts may increase or decrease over time and are dependent on airport operations.

5. The project site is approximately 5,016 feet from the end of Runway 2 at OGG. FAA regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction or Alteration pursuant to the Code of Federal Regulations, Title 14, Part 77.9, if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet. Construction equipment and staging area heights, including heights of temporary construction cranes, shall be included in the submittal. The form and submission criteria can be found at the following website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp. Please provide a copy of the FAA response to the Part 77 analysis to the HDOT Airport Planning Section.

6. The HDOT requires that the proposed development not provide landscape and vegetation that will create a wildlife attractant, which can potentially become a hazard to aircraft operations. Standing water also has the potential to become a wildlife attractant. Please review the FAA Advisory Circular 150/5200-33C, Hazardous Wildlife Attractants On or

Near Airports, for guidance. If the development creates a wildlife attractant, the developer shall immediately mitigate the hazard upon notification by the HDOT and/or the FAA.

7. If a solar energy photovoltaic (PV) system is going to be installed, be aware that PV systems located in or near the approach path of aircrafts can create a hazardous condition for pilots due to possible glint and glare reflected from the PV panel array. If glint or glare from the PV array creates a hazardous condition for pilots, the owner of the PV system shall be prepared to immediately mitigate the hazard upon notification by the HDOT and/or FAA.

   The FAA requires a glint-and-glare analysis for all solar energy PV systems near airports. A separate FAA Form 7460-1 will be necessary for the solar energy PV system. After the FAA determination of the Form 7460-1 glint and glare analysis, a copy shall be provided to the HDOT Airport Planning Section by the owner of the solar energy PV system.

   Solar energy PV systems have also been known to emit radio frequency interference (RFI) to aviation-dedicated radio signals, thereby disrupting the reliability of air-to-ground communications. Again, the owner of the solar energy PV system shall be prepared to immediately mitigate the RFI hazard upon notification by the HDOT and/or the FAA.

8. The development will have a total of seven access points, comprising five right-in/right-out driveways. Three of the primary access driveways are proposed on Pulehu Road, Hansen Road (east side), and Hansen Road (west side). The following project intersections connecting to our state highways may be impacted in the near future:

   a. Hansen Road (west side) via the Maui Veterans Highway, Route 311 (formerly Mokulele Road).

   b. Pulehu Road and Hansen Road (east side) with Hana Highway.

9. We have reviewed the Traffic Impact Analysis Report (TIAR), dated May 2025, which is included in the application.

   a. We note that under "Table 3: Existing Roadway Facilities," it was stated incorrectly that the Maui Veterans Highway is owned by the County. Therefore, the study should be revised to reflect that the highway is under State jurisdiction.

b. Under "Table 7: Year 2035 No Project and Plus Project," it pointed out that the westbound left turn movement on Hana Highway to Hansen Road is projected to operate at Level of Service (LOS) F during a.m. and p.m. peak hours for the existing conditions, as well as Plus Project conditions. The intersection is identified as a significant impact to Hana Highway, which is under State jurisdiction.

c. Under "Table 4: Existing 2024 Conditions Level of Service," for all scenarios, revise to show and consider delay and LOS for individual movements at signalized intersections. It is not sufficient to consider only overall intersection LOS.

    i. Regarding Hana Highway/Hansen Road, on observed delays and upstream signals, please explain whether micro-simulation would yield more accurate results? Also, please verify if observed delays are higher if the effects of vehicle platooning are not accounted for.

Under "Chapter 4: Project Traffic Estimates," the consultant should provide additional information relating to a Trip Generation Model developed by Fehr & Peers.

a. Explain, for example, whether this model took into consideration the statements mentioned in "Section 3.4: Existing Transit Facilities and Services"?

b. If the project is generating significant pedestrian and bicycle trips in an area with these limited facilities, please explain what improvements are recommended to be implemented.

c. "Table 6: Project Trip Generation," the footnotes relating to internal trips with the daily total and external trips total should be verified.

Under "Chapter 5: Year 2035 Analysis," the study should be revised to explain whether the annual growth rate in traffic of 1 percent through 2025 includes other planned developments along the Maui Veterans Highway.

a. Explain or identify the name of the additional planned development along the corridor as mentioned, and whether trips can be obtained from the traffic study for that development.

b. Section 5.1 stated that the HDOT will make the final determination on the need for a signal at the Hana Highway/Hansen Road intersection. However, the TIAR

should provide recommendations and mitigations at no cost to the State, with a new Conclusion and Recommendation section added to the study.

Under "Appendix C," an explanation should be provided for Warrant 3A Peak Hour, with why the peak hour warrant would be appropriate for the stated intersection.

a. We note that the Peak Hour Volume on Minor Approach of 460 (Existing Conditions) is the NB RT volume. The analysis indicates that it operates as free.

b. Under both the four-hour and the eight-hour scenario ("Number of Approach Lanes with Minor Street"), please revise to show all data used and plotted points. This is only for one hour of the four-hour warrant.

10. Should the subject applications be approved, we recommend that the following conditions be included in the approval before obtaining any construction permits by the petitioner:

    a. The petitioner shall coordinate a meeting with the Highways and/or Maui District Engineer to discuss its pro-rata share, any mitigation responsibilities, and shall contribute its pro-rata share to traffic improvements to be determined by the HDOT, as well as the recording of a Memorandum of Agreement if deemed necessary.

    b. The petitioner shall fund, design, and construct its pro-rata share of the necessary local and regional roadway improvements necessitated by the proposed development in designs and schedules accepted by the HDOT. A revised TIAR shall be submitted to/and accepted by the HDOT, which shall specify the petitioner's improvements that they are committed to providing.

    c. Before the commencement of any construction activity, the developer, its successors and permitted assigns, shall develop and submit a Transportation Management Plan to be reviewed by the County Department of Public Works, and a copy shall be routed to the HDOT Maui District Engineer.

11. The HDOT encourages strategies to reduce carbon emissions from the project, if any. Suggestions include:

    a. Incorporate elements that encourage and enhance the use of multiple types of transportation to reduce carbon emissions.

b. Implement energy-efficient technologies and practices, such as light-emitting diode lighting.

c. Use sustainable, recycled, or low-emission materials in construction and manufacturing.

Please submit any subsequent land use entitlement-related requests for review or correspondence to the HDOT Land Use Intake email address at DOT.LandUse@hawaii.gov.

If there are any questions, please contact Mr. Blayne Nikaido, Planner, Land Use Section of the HDOT Statewide Transportation Planning Office at (808) 831-7979 or via email at blayne.h.nikaido@hawaii.gov.

Sincerely,

EDWIN H. SNIFFEN
Director of Transportation

Attachments

EXHIBIT 13A

Table 4-2 State Department of Transportation Recommendations for Local Land Use Compatibility Expressed in Yearly Day-Night Average Sound Levels (Ldn).

TYPE OF LAND USE	Yearly Day-Night Average Sound Level					
	< 60	60-65	65-70	70-75	75-80	80-85
RESIDENTIAL:						
Low density residential, resorts, & hotels (w/ outdoor facil).	Y(a)	N(b)	N	N	N	N
Low density apartment w/ moderate outdoor use	Y	N(b)	N	N	N	N
High density apartment with limited outdoor use	Y	N(b)	N(b)	N	N	N
Transient lodgings (w/ limited outdoor use)	Y	N(b)	N(b)	N	N	N
PUBLIC USE:						
Schools, day care centers, libraries, and churches	Y	N(c)	N(c)	N(c)	N	N
Hospitals, nursing homes, clinics, and health facilities	Y	Y(d)	Y(d)	Y(d)	N	N
Indoor auditoriums and concert halls	Y(c)	Y(c)	N	N	N	N
Government services and office bldgs.serving the public	Y	Y	Y(d)	Y(d)	N	N
Transportation and parking	Y	Y	Y(d)	Y(d)	Y(d)	Y(d)
COMMERCIAL AND GOVERNMENT USE:						
Offices—government, business, and professional	Y	Y	Y(d)	Y(d)	N	N
Wholesale & Retail: bldg.mater.,hardware, & heavy equip..	Y	Y	Y(d)	Y(d)	Y(d)	Y(d)
Airport businesses—car rental, ticketing, lei stands, etc..	Y	Y	Y(d)	Y(d)	N	N
Retail trade,restaurants,shp.centers,financial institute.etc.	Y	Y	Y(d)	Y(d)	N	N
Power plants, sewage treatment plants, & base yards.	Y	Y	Y(d)	Y(d)	Y(d)	N
Studios w/o outdoor sets, broadcasting & Production facil.	Y(c)	Y(c)	N	N	N	N
MANUFACTURING, PRODUCTION AND STORAGE:						
Manufacturing, general	Y	Y	Y(d)	Y(d)	Y(d)	N
Photographic and optical	Y	Y	Y(d)	Y(d)	N	N
Agriculture (except livestock) and forestry	Y	Y(e)	Y(e)	Y(e)	Y(e)	Y(e)
Livestock farming and breeding	Y	Y(e)	Y(e)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL USE:						
Outdoor sports arenas and spectator sports	Y	Y(f)	Y(f)	N	N	N
Outdoor music shells, amphitheaters	Y(f)	N	N	N	N	N
Nature exhibits and zoos, neighborhood parks	Y	Y	Y	N	N	N
Amusements, beach parks, active playgrounds, etc.	Y	Y	Y	Y	N	N
Public golf courses, riding stables, cemeteries, gardens, etc.	Y	Y	N	N	N	N
Professional/resort sports facil., media event facil., etc.	Y(f)	N	N	N	N	N
Extensive natural wildlife and recreation areas	Y(f)	N	N	N	N	N

Note: Letters in parentheses refer to following notes.

(a) A noise level of 60 Ldn does not eliminate all risks of adverse noise impacts from aircraft noise. However, the 60 Ldn planning level has been selected by the State Airports Division as an appropriate compromise between the minimal risk level of 55 Ldn and the significant risk level of 65 Ldn.

(b) Where the community determines that these uses should be allowed, Noise Level Reduction (NLR) measures to achieve interior levels of 45 Ldn or less should be incorporated into building codes and be considered in individual approvals. Normal local construction employing natural ventilation can be expected to provide an average NLR of approximately 9 dB. Total closure plus air conditioning may be required to provide additional outdoor to indoor NLR, but will not eliminate outdoor noise problems.

(c) Because the Ldn noise descriptor system represents a 24-hour average of individual aircraft noise events, each of which can be unique in respect to amplitude, duration, and tonal content, the NLR requirements should be evaluated for the specific land use, interior acoustical requirements, and properties of the aircraft noise events. NLR requirements should not be based solely upon the exterior Ldn exposure level.

(d) Measures to achieve required NLR must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

(e) Residential buildings require NLR. Residential buildings should not be located where exterior noise is greater than 65 Ldn.

(f) Impact of amplitude, duration, frequency, and tonal content of aircraft noise events should be evaluated.

Abbreviations:
Y(Yes) = Land Use and related structures compatible without restrictions.
N(No) = Land Use and related structures are not compatible and should be prohibited.

Source: Airports Division, Department of Transportation, State of Hawaii

EXHIBIT
13B

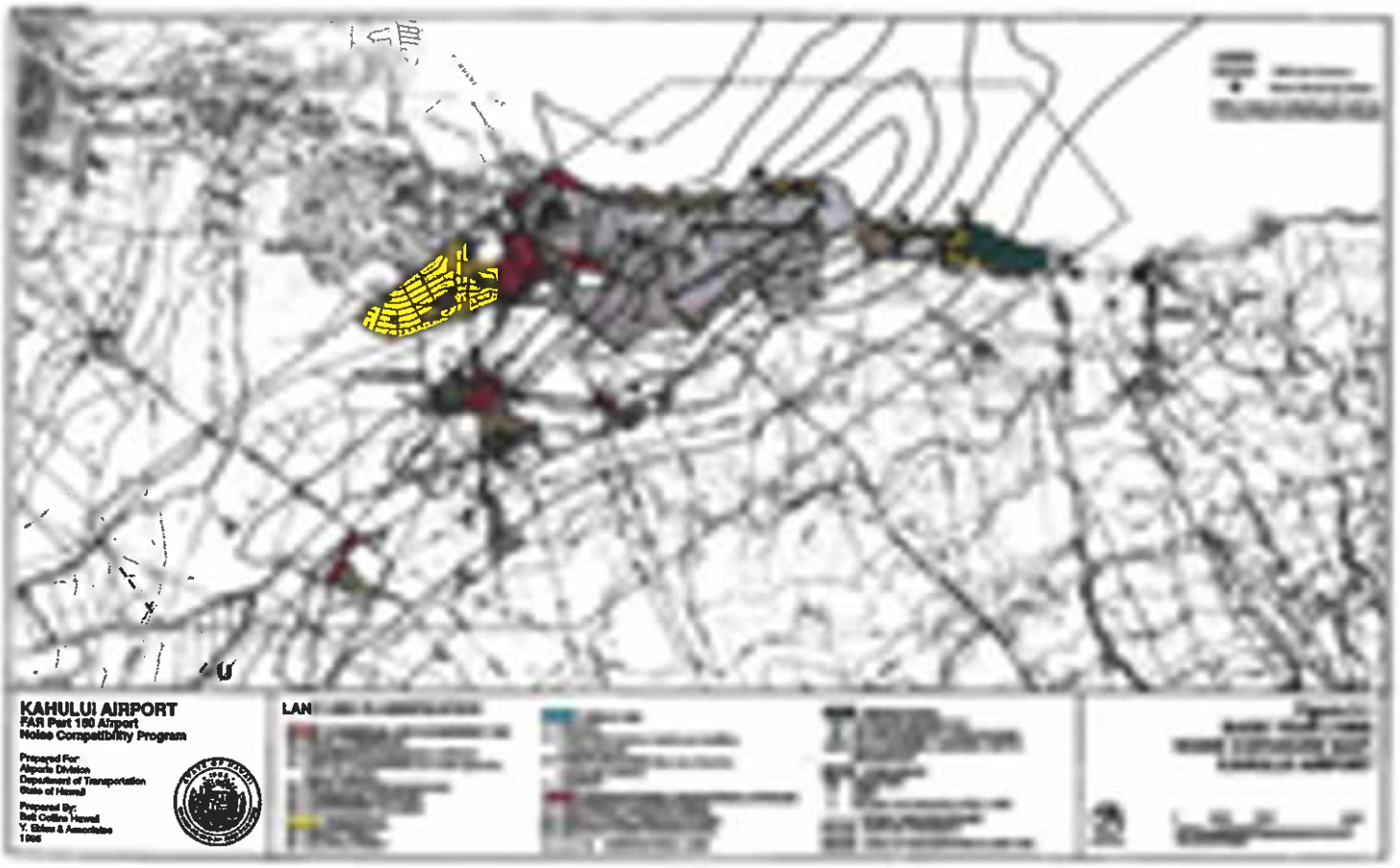

KAHULUI AIRPORT
FAR Part 150 Airport
Noise Compatibility Program
Prepared For:
Airports Division
Department of Transportation
State of Hawaii
Prepared By:
Ball Collins Hawaii
Y. Shiba & Associates
1995

EXHIBIT 14

Correspondence from

Dept. of Environmental Management

(DRIP Meeting)

[redacted]

November 13, 2020

[redacted]

Honorable Richard T. Bissen, Jr.
Mayor, County of Maui
200 South High Street
Wailuku, HI 96793

For Transmittal to:

Honorable Tamara Paltin, Chair
Disaster Recovery, International Affairs, and Planning Committee
200 South High Street
Wailuku, HI 96793

Dear Council Member Paltin:

SUBJECT: [redacted]

This letter is in response to your October 23, 2020 request to review the subject project/documents and provide comments. Our review has concluded that:

1. The subject project being developed is approximately 148.2 acres of the former Pu'unene Sugar Mill property located east of Puʻunēnē Ave. and north of Hansen Rd. in Kahului. The project includes a mix of multifamily residential units, industrial and commercial developments. Per the information available, the project will develop approximately 1,000 residential units, approximately 464,000 sf of industrial/commercial property with additional space for a possible 700+ housing units. It is expected that the project will produce about 1.02 mgd (average daily flow) of final buildout.
2. The proposed project is outside of the current sewer service area. Given the scope of the project, the Wastewater Reclamation Division (WWRD) recommends that an onsite wastewater treatment plant be constructed to service the project.
3. If the development intends to connect to the County wastewater system, there is currently not enough capacity within the existing sewer collection system nor wastewater treatment capacity at the Kahului/Pukalani Wastewater Reclamation Facility (WWRF) to

support this project. The project would need to wait until late 2029 or 2030 for the Central Maui WWRF to become operational or until WWRD is successful in increasing treatment capacity at the plant.

4) There may be wastewater treatment capacity at the Kahului WWRF for Phase 1 of the project depending on additional users between now and when Phase 1 obtains building permit approval. If the project's wastewater collection system proposes to tie in to the County system on Pakaula St., further coordination with DEM/WWRD will be necessary.

   a. Preliminary sewer service analysis comments (assuming sewer tie-in at Pakaula St. DEM Accommodates):

      i. The project's wastewater with planetary offset approx. 14,000 LF of existing sewer lines from the tie-in point in the Kamaha'i Lump Station, then to the Kaiulula Pump Station, and then to the Kahului WWRF.

      ii. Upsizing of existing sewer collection lines and upgrades to the existing 2 pump stations mentioned before will be required. The sewer improvements needed will require further detailed analysis and coordination with the development team and our WWRD.

      iii. Based on the projected upgrades to the existing wastewater infrastructure, WWRD suggests that the developer perform a cost analysis to determine if an onsite DEWW solution is more feasible.

   b. Note that the Kahului/Kahului Wastewater Reclamation Facility (WWRF) currently processes approximately 6.5 million gallons per day (mgd) of wastewater. To date the County has allocated about 1.3 mgd of the plants 7.5 mgd capacity.

5) Note that capacity cannot be guaranteed until building permits are issued. There is always a possibility that adequate capacity may not be available if construction is delayed, other projects are developed, or regulatory conditions change.

Thank you for the opportunity to provide you with information on this matter. Should you have any questions or concerns, please feel free to contact Kent Lo, the Department of Environmental Management's representative through the Office of the Mayor.

Sincerely,

[illegible]

SHAYNE M. AGUIAR, P.E.
Director of Environmental Management

xc: Wastewater Reclamation Division

Council Chair
[illegible]

Vice Chair
[illegible]

Presiding Officer Pro Tempore
[illegible]

Councilmembers
[illegible]

Director of Council Services
[illegible]

Deputy Director of Council Services
[illegible]

COUNTY COUNCIL

COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.MauiCounty.us

October 23, 2025

Mr. Shayne Agaran, Director
Department of Environmental Management
County of Maui
Wailuku, Hawaii 96793

Dear Mr. Agaran:

SUBJECT: **BILL 163 (2025), BILL 164 (2025), AND BILL 165 (2025), TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP (3) (PUAMAU ROAD), AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION, AND CHANGE THE ZONING FOR [illegible] (DEVELOPER TITLE 19)** (2025-19)

The Council's Disaster Recovery, International Affairs, and Planning Committee intends to consider Bills 163, 164, and 165 (2025) on land use entitlements for the proposed Honua'ula Village Mixed Use Development project at its meeting of November 3, 2025, at 3:00 p.m.

By County Communication 193-25, dated September 29, 2025, the Planning Director indicated that the Maui Planning Commission cannot provide the Council a recommendation within the 120-day period under Charter Section 9-9.4(2), Revised Charter of the County of Maui (1983), as amended.

May I please request the following:

1. To the extent feasible given the shortness of time, please review and provide your Department's comments on the project and attached proposed bills, including any anticipated impacts as a result of the proposal.

2. Please be prepared to comment on the project at the November 5th Commission meeting.

For more information on the project, please see the following link: https://library.hawaii.gov/depts/crtp/files/Library/2023/10/08-9th-EISPN-Waiakeiki-Village.pdf.

May I further request you transmit your response to crtp.commitment@maui-county.us by **noon on November 6, 2023**. To ensure efficient processing, please include the Commission case number in the subject line.

Should you have any questions, please contact me or the Commission Staff Planner Planner] at ext. 7141, or Yvette Bouthillier at ext. 77156.

Sincerely,

YUKIMURA PHILTON, Chair
Hawaiian Recovery, International Affairs, and Planning Commission

angela-li-hawaii-1.jpg

Attachments

cc: Mayor Richard T. Bissen, Jr.

DRIP Committee

From: Michelle L. Santos <Michelle.Santos@co.maui.hi.us>
Sent: Thursday, November 6, 2025 3:09 PM
To: DRIP Committee
Cc: Environmental Mgmt; Cynthia E. Sasada; Didi A. Hamai; Erin A. Wade; Josiah K. Nishita; Kelii P. Nahooikaika
Subject: MT#11301 Proposed Bill 163, 164, 165
Attachments: MT#11301-DRIP Committee.pdf

EXHIBIT 15

Correspondence from

Fire and Public Safety

(DRIP Meeting)

[redacted]

November 3, 2025

[redacted]

Received at DRIP meeting on 11/5/25

Please reference the attached relevant fire code sections related to water supply and accessibility.

Water Supply

D0.0.0 Fire Flow Requirements for Land Use Development

D0.0.0.1 General. A water supply capable of delivering the required fire flow must be provided for all new land development including subdivision and single parcel development intended for new or more structures in accordance with subsection D0.0.0. The design of the system will be subject to approval by the Authority Having Jurisdiction (AHJ).

D0.0.0.2 Fire flow, hydrant spacing, and dedicated water supply for fire protection must be in accordance with the requirements for development listed as:

- Agricultural: 500 gpm and 500 feet spacing between hydrants
- Rural: 1,000 gpm and 500 feet spacing between hydrants
- Single Family: 1,000 gpm and 330 feet spacing between hydrants
- Duplex: 1,250 gpm and 330 feet between hydrants
- Townhouse and Low-Rise Apartments: 1,500 gpm and 250 feet spacing between hydrants
- Businesses, High-Rise Apartments, and Light Industry: 2,000 gpm and 250 feet spacing between hydrants
- Heavy Industry and Hotels: 3,500 gpm and 250 feet hydrants spacing

Fire Apparatus Access Roads

D0.2.0.0.1 Width. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6.1 meters).

D0.2.0.0.2. Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with an all-weather driving surface.

2. Please be prepared to comment on the project at the November 9th Commission meeting.

Fire Captain Olivia Vega, of the Fire Prevention Bureau has provided the responses above and will be available for the meeting on November 9, 2023.

If you have any questions, please contact the Office of the Fire Chief at (888) 230-1561.

Respectfully,

[redacted]

[redacted]
Fire Chief

DRIP Committee

From: Michelle L. Santos <Michelle.Santos@co.maui.hi.us>
Sent: Wednesday, November 5, 2025 8:55 AM
To: DRIP Committee
Cc: Cynthia E. Sasada; Didi A. Hamai; Erin A. Wade; Josiah K. Nishita; Kelii P. Nahooikaika; Bradford K. Ventura; Chasserae K. Kaawa; Gavin L. Fujioka; Ryan Y. Otsubo
Subject: MT#11292-Bill 163
Attachments: MT#11292-DRIP Committee.pdf

EXHIBIT 16

Correspondence from

Dept. of Housing

(DRIP Meeting)

[redacted author block]

[redacted]

November 3, 2025

Honorable Richard T. Bissen, Jr.
Mayor, County of Maui
200 South High Street
Wailuku, Hawai'i 96793

[redacted]

For Transmittal to:

Honorable Tamara Paltin, Chair
Disaster, Resilience, International Affairs & Planning Committee
200 South High Street
Wailuku, Hawai'i 96793

Dear Chair Paltin:

SUBJECT: **BILL 143 (2025), BILL 144 (2025), AND BILL 145 (2025), TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP (TO [redacted]), AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION, AND CHANGE THE ZONING FOR 144.511 ACRES SITUATED AT KAHULUI, [redacted]**

Thank you for your October 23, 2025, letter requesting comments relating to Bills 143, 144, and 145 (2025), relating to the proposed Re'ipono Village project. Both your question and the Department of Housing's (Department) response are below:

Received at DRIP meeting on 11/5/2025

1. **To the extent feasible given the shortness of time, please review and provide your Department's comments on the project and attached proposed bills, including any anticipated impacts as a result of the proposal.**

The Department is supportive of projects that advance its priority mission of providing the widest array of affordable housing options for County residents, and sensitive to the need for expediency during a housing crisis while conducting an appropriate level of review. Land use issues as handled by the Planning Department and West Planning Commission, and the Department defers to the Planning Department's response to the above questions.

The Department has reviewed the Planning Department's analysis, dated November 5, 2020, and consistent with the Planning Department would like the developer to provide more information about potential project impacts, and explain the necessity of seeking a zoning change from Agriculture to M-1 (Light Industrial District), before weighing in on the project.

The Department has little information about project, except for the project proponent's conceptual presentation to the Housing & Land Use Committee in March 2019 and is unaware of a more recent presentation to the Council with current project information.

The Department notes that while it is exclusively within the Council's purview to proceed with the Council initiated bills, should the project's mix of housing materially change after the passage of the bills or the project proponent fails to meet any Council imposed conditions, the process of rezoning the zoning is not without complications that must be considered.

Should you have further questions, please contact me or the Department at (808) 270-7735 or email me at director.housing@co.maui.hi.

[redacted]
RICHARD T. MITCHELL, ESQ.
Director of Housing

DRIP Committee

From: Michelle L. Santos <Michelle.Santos@co.maui.hi.us>
Sent: Wednesday, November 5, 2025 8:56 AM
To: DRIP Committee
Cc: Cynthia E. Sasada; Didi A. Hamai; Erin A. Wade; Josiah K. Nishita; Kelii P. Nahooikaika; Amanda M. Martin; Richard E. Mitchell; Saumalu Mataafa
Subject: MT#11294 Bill 163
Attachments: MT#11294-DRIP Committee.pdf

EXHIBIT 17

Correspondence from

Oiwi Resources Part 1

(DRIP Meeting)

[redacted author block]

[redacted author block]

[redacted author block]

[redacted author block]

[redacted author block]

[redacted author block]

5 November 2021

[redacted]

[redacted]

[redacted]

[redacted]

For Transmittal to:

[redacted]

[redacted]

[redacted]

[redacted]

Dear Chair Rapozo and Council Members:

SUBJECT: [redacted]

The Department of Planning would like to share the following review for the proposed Bill 117 (2021), Bill 118(2021), and Bill 119(2021), to amend the Wahiawa Small Town Planning Area Interim Ordinance, and change the zoning for approximately 1,000 acres situated at Kaukonahua, Waialua, Oahu, TMK: (1) 6-7-001: 001 (por.), 002 (por.), 003 (por.), 004 (por.), 005 (por.), 006 (por.), 007 (por.), 008 (por.), 009 (por.), 010 (por.), 011 (por.), 012 (por.), 013 (por.), 014 (por.), 015 (por.), 016 (por.), 017 (por.), 018 (por.), 019 (por.), 020 (por.),

Department of Civic Resources should recommend significant discussions with our county archaeologist Dr. Jones. We should also be done to understand the possible areas that need to be looked at within the proposed section.

The potential impacts to the proposed bill would be the natural resources already challenged by the ever-present state of our economics and what our environment can provide for us and how we currently care for this significant resource. Also acknowledging the space for the ever-present trade winds that can influence the use of capturing this wind energy to the proposed area. Along with solar energy and the use of technology today. Seeking the carbon footprint would be a leap in caring for our fabulous resources for the betterment of our natural environment and our community.

Multiple key planning for the Department of Civic Resources to offer input. Please reach out to us at our office number 888-(750)1215. If you would like further information from us and we would be happy to engage in sharing what we can.

Reliably and true,

[LOREMIST ULLAMCO]
Director, Department of Civic Resources
County of Ullam

DRIP Committee

From: Michelle L. Santos <Michelle.Santos@co.maui.hi.us>
Sent: Friday, November 7, 2025 1:36 PM
To: DRIP Committee
Cc: Cynthia E. Sasada; Didi A. Hamai; Erin A. Wade; Josiah K. Nishita; Kelii P. Nahooikaika; Deanna L. Thyssen; John K. Molitau; Kekai Robinson
Subject: MT#11302 Bill 163, 164, 165
Attachments: MT#11302-DRIP Committee.pdf

EXHIBIT 18

Correspondence from

Dept. of Oiwi Resources, Part 2

(DRIP Meeting)

[redacted author block]

[redacted author block]

[redacted author block]

[redacted author block]

November 12, 2025

Honorable Richard T. Bissen, Jr.
Mayor, County of Maui
200 S. High Street
Wailuku, Hawaii 96793

For Transmittal to:

Honorable Tasha Kama, Chair
And Members of the Disaster Recovery, International Affairs, and Planning Committee
200 S. High Street
Wailuku, Hawaii 96793

Dear Chair Kama and Council Members:

SUBJECT: [redacted]

[redacted] search shows that the remnants of the Pigeonpea factory (SIHP #50-50-05-6983) were identified by Walker in 1931 adjacent to the project parcel. This is an area known for famous conflicts such as the battle of Fu'ueone and the battle of Kuleanehoa.

Although this area has been used for agricultural activities in the past (specifically, sugar), it would be wrong to understand this as a previously disturbed context with no potential to support significant cultural sites. Previous projects in the immediate area have shown this isn't the case. Terrace and lo'i/paiaua were encountered in the immediate area during the construction of Target and American Savings Bank. Additionally, the presence of a sacred site, indicates the cultural significance of this area in the past and that much of the surrounding infrastructure (like the basin…) was destroyed by plantation activities in the past.

Sincerely and true,

[illegible] [illegible]
[illegible]
[illegible]
Director, Department of [illegible] Resources
County of [illegible]

DRIP Committee

From: Estrelita B. Dahilig <Estrelita.B.Dahilig@co.maui.hi.us>
Sent: Thursday, November 13, 2025 1:09 PM
To: DRIP Committee
Cc: Josiah K. Nishita; Erin A. Wade; Cynthia E. Sasada; Didi A. Hamai; John K. Molitau; Kekai Robinson; Deanna L. Thyssen; Kelii P. Nahooikaika
Subject: MT-11307 CM Paltin
Attachments: Transmittal to Chair Paltin. Bill 163.164. 165.pdf

Aloha,

Please see attached TRANSMITTAL dated November 12, 2025 from Director Kapono' Ai Molitau of 'Oiwi Resources.
Bill 163 (2025), Bill 164 (2025), and Bill 165 (2025), To Amend the Maui Island Plan's Directed Growth Map C5 (PULEHU ROAD), amend the Wailuku-Kahului Community Plan Designation, and Change the Zoning for 166.511 acres situated at Kahului, Hawaii (Ho'Onani Village) (DRIP-19).

Mahalo,
Lita

EXHIBIT 19

Correspondence from

Dept. of Parks and Recreation

(DRIP Meeting)

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

November 5, 2025

Honorable Richard T. Bissen Jr.
Mayor, County of Maui
200 South High Street
Wailuku, Hawaii 96793

[redacted]

For Transmittal to:

Honorable Tamara Paltin, Chair
Disaster Recovery, International Affairs, and Planning Committee
200 South High Street
Wailuku, Hawaii 96793

Dear Chair Paltin:

SUBJECT: [redacted]

The Department of Parks and Recreation (DPR) has reviewed the proposed bills associated with the Honokahua Village Mixed-Use Development project, which seeks to amend the Maui Island Plan's Directed Growth Map (3) (Puunēnē Road), the Wailuku-Kahului Community Plan, and the zoning for approximately 168.0 acres.

The Honokahua Village project proposes conversion of agricultural land to urban use, introducing residential, commercial, and light industrial components. Given the project's size and mixed-use intent, DPR anticipates an increase in park demand from both new residents and potential workforce populations.

Based on preliminary assessment, the project area lies within the service radius of existing facilities such as Mahalapuni Park and Kahului Community Center Park. However, both are heavily utilized and may not accommodate additional demand without further improvements.

Received at DRIP meeting on 11/5/25

- **Recreation Demand:** Using our typical planning standard (approximately 10 acres per 1,000 residents), the proposed residential density could generate a need for an additional 40–15 acres of neighborhood and community park space.

- **Access and Connectivity:** The proposed site's proximity to major roadways underscores the importance of safe pedestrian and bicycle linkages to nearby facilities. DPR recommends requiring multi-modal connectivity in coordination with the Department of Public Works.

- **Maintenance and Operations:** Any park dedications or developer-built recreation areas must include long-term maintenance provisions. DPR typically requires full site improvements including irrigation, landscaping, and amenities prior to acceptance.

The Department supports responsible, well-planned growth that aligns with County Park standards and mitigates the impacts of new development on existing facilities. DPR requests continued consultation during the subdivision and design phases to ensure adequate recreational infrastructure is provided commensurate with the development's population and land use intensity.

Thank you for the opportunity to comment. The Department will attend and be prepared to respond to Committee questions at the November 5, 2025 meeting.

Should you have any questions or require additional information, please feel free to contact me or Samuel Manuel, Chief of Planning and Development, at samuel.manuel@co.maui.hi.us or at (808) 270-8173.

Sincerely,

PATRICK S. MCCALL
Director of Parks and Recreation

c: Shane Kubat, Parks Deputy Director
Samuel Manuel, Chief of Planning and Development

Attachment

DRIP Committee

From: Michelle L. Santos <Michelle.Santos@co.maui.hi.us>
Sent: Wednesday, November 5, 2025 12:51 PM
To: DRIP Committee
Cc: Cynthia E. Sasada; Didi A. Hamai; Erin A. Wade; Josiah K. Nishita; Kelii P. Nahooikaika; Karissa Y. Kaeo; Patrick S. McCall; Shane T. Dudoit
Subject: MT#11297 Bill 163
Attachments: Image_011.pdf

EXHIBIT 20

Correspondence from

Dept. of Transportation

(DRIP Meeting and Agency Review)

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

MARC I. TAKAMORI
Director

DIANE C. YOGI
Deputy Director

DEPARTMENT OF TRANSPORTATION
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAIʻI 96793

TELEPHONE: (808) 270-7511
FAX: (808) 270-7505

December 26, 2025

Mr. Jeffrey Ueoka
2145 Wells Street Suite 406
Wailuku, HI 96793

SUBJECT: ZPA2025-00011 – Comments Regarding Proposed Hoʻonani Village Mixed-Use Development Project, Kahului, Maui, Hawaiʻi. TMK: (2) 3-8-006:004-0005

Dear Mr. Ueoka:

Mahalo for the opportunity to provide comment on the subject request. The Maui Department of Transportation (MDOT) is submitting the following comments in light of the Disaster Recovery, International Affairs, and Planning (DRIP) Committee discussion on November 5, 2025, regarding the proposed Hoʻonani Village mixed-use development and associated legislative actions to amend the Maui Island Plan, the Wailuku–Kahului Community Plan, and zoning for approximately 166.5 acres in Kahului. The following comments are provided in addition to the comments provided to the DRIP Committee on October 31, 2025.

MDOT acknowledges and appreciates the Planning Department's testimony and the technical points raised by Planning Director Kate Blystone, particularly regarding the quality of agricultural soils, the State Land Use District designation, and the parcel's location outside the Maui Island Plan Urban Growth Boundary. In MDOT's view, these factors warrant careful consideration to ensure that this significant investment is built upon a foundation of sound land-use policy and long-term community resilience.

From a transportation perspective, MDOT continues to support the Hoʻonani Village concept, as it reflects many of Maui's long-range transportation objectives. The project's mixed-use form, internal street network, and emphasis on multi-modal connectivity such as walking and bicycling are highly consistent with the goals of the Hele Mai Maui 2045 Long Range Transportation Plan. MDOT views these design elements as a positive model for future development on Maui.

However, to ensure the project's success, MDOT believes it is essential to harmonize these transportation merits with the Planning Director's concerns. The land's designation as "Prime"

Agricultural Land of Importance to the State of Hawai‘i (ALISH) designated by the State Department of Agriculture with high-quality “A” rated soils by The University of Hawai‘i’s Land Study Bureau, combined with its current exclusion from the Urban Growth Boundary, creates important policy questions. The urgent need for housing – which MDOT strongly supports – is best served by a thorough evaluation that balances development with the protection of high-productivity agricultural assets.

MDOT also recognizes the Planning Department’s concern that Maui already has a substantial number of entitled or planned housing units within the existing Urban Growth Boundary that have not yet been constructed. While market conditions, infrastructure timing, and other constraints may delay these projects, the significant number of entitlements that have failed to move into construction underscores the importance of addressing barriers to implementation, rather than expanding into undeveloped agricultural land. Improving infrastructure delivery, streamlining permitting where appropriate, and resolving financing and phasing challenges may help unlock housing that is already planned and entitled, without needing to expand the Urban Growth Boundary. At the same time, MDOT recognizes that new proposals like Ho‘onani Village offer modern, multi-modal design principles that are specifically intended to reduce long-term infrastructure strain. The applicant is therefore encouraged to demonstrate how this project’s unique design and housing contributions provide a compelling case for expansion that aligns with the County’s broader growth and safety goals.

Ultimately, MDOT advocates for a process that respects the established order of operations for land-use decision-making. This includes careful evaluation through the Environmental Impact Statement (EIS) process and due consideration by the State Land Use Commission regarding any proposed District Boundary Amendment. Working through these critical regulatory steps ensures that all state and county land-use policies are fully integrated and that the project is positioned for success.

In closing, MDOT emphasizes support for the development of new housing and recognizes that Ho‘onani Village reflects many positive transportation and urban design principles. While fundamental land use questions regarding the site’s location and agricultural status remain, MDOT remains committed to the realization of sustainable housing solutions. MDOT looks forward to continued coordination with the Planning Department, the Maui Planning Commission, the State Land Use Commission, and the applicant as these issues are further evaluated.

If you have any questions, please feel free to reach out to Ignacio Filippini at (808) 463-3124 or ignacio.filippini@mauicounty.gov.

Sincerely,

MARC I. TAKAMORI
Director of Transportation

Cc: Marc I. Takamori, MDOT, Director, via email
Kate Blystone, Planning Department, Director, via email
Danny Dias, Planning Department, Planning Program Administrator, via email
Kurt Wollenhaupt, Planning Department, Land Use Planning Supervisor, via email
Ignacio Filippini, MDOT, Transportation Planner, via email
Emily Murai, Pioneer Design Group-Hawai‘i, via email
Martina Segura, State of Hawai‘i, Land Use Commission, via email

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

MARC I. TAKAMORI
Director

DIANE C. YOGI
Deputy Director

DEPARTMENT OF TRANSPORTATION
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAI'I 96793

TELEPHONE: (808) 270-7511
FAX: (808) 270-7505

October 31, 2025

APPROVED FOR TRANSMITTAL

Mayor 11-3-25 Date

Honorable Richard T. Bissen, Jr.
Mayor, County of Maui
200 South High Street
Wailuku, Hawaii 96793

For Transmittal to:

Honorable Tamara Paltin
Chair, Disaster Recovery, International Affairs, and Planning Committee
200 South High Street
Wailuku, Hawaii 96793

Dear Chair Tamara Paltin:

SUBJECT: **BILL 163 (2025), BILL 164 (2025), AND BILL 165 (2025), TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PULEHU ROAD), AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION, AND CHANGE THE ZONING FOR 166.511 ACRES SITUATED AT KAHULUI, HAWAI'I (HO'ONANI VILLAGE)** (DRIP-19)

The Department of Transportation (DOT) hereby transmit the following response to your letter dated October 23, 2025 regarding Bill 163 (2025), Bill 164 (2025), and Bill 165 (2025), to amend the Maui Island plan's directed growth map C5 (Pulehu Road), amend the Wailuku-Kahului community plan designation, and change the zoning for 166.511 acres situated at Kahului, Hawai'i (Ho'onani Village).

Question 1: **Please review and provide your Department's comments on the project and attached proposed bills, including any anticipated impacts as a result of the proposal.**

Response: **The Maui Department of Transportation (MDOT) has reviewed the proposed Ho'onani Village mixed-use development with attention to its consistency with the Hele Mai Maui 2045 Long Range Transportation Plan (LRTP) and its multimodal transportation goals. Overall, the proposed project aligns strongly with LRTP objectives to expand mobility choices, improve safety, and connect communities through Complete Streets**

Received at DRIP meeting on 11/5/25

design and transit-oriented development. The following analysis summarizes how the project supports Key DRPT Key goals and related programs.

Goal 1: Improve Safety and Promote Health
The Main Mid-West 6966 plan emphasizes Vision Zero, Safe Routes to School, and Complete Streets initiatives to eliminate traffic fatalities and promote calmer, healthy travel.

- The inclusion of roundabouts, traffic-calmed local streets, and separated bicycle/pedestrian paths in the Northern Village concept supports those safety priorities.

- Proposed sidewalks and multiuse paths promote active transportation and public health outcomes consistent with DRPT programs such as Neighborhood Slow Streets and Safe Routes for Virginia.

- MRWT recommends that the forthcoming Traffic Impact Analysis (TIA) evaluate pedestrian crossings on Hanson and Kinsley Roads for potential safety upgrades (e.g., Rectangular Rapid Flashing Beacons at village islands) to ensure alignment with the Vision Zero West Action Plan.

Goal 2: Enhance Climate Resilience, Sustainability, and Cultural and Natural Resources
The DRPT calls for resilient infrastructure and reduced vehicle dependence through land-use integration and multimodal options.

- The project's mixed-use design, combining housing, retail, and employment, reduces the need for long commutes and supports a sustainable transportation pattern.

- Incorporating green infrastructure, low-impact design, and shade trees along sidewalks and driveways would enhance climate resilience and stormwater management, consistent with DRPT Goal 2.

- The provision of a multiuse path system supports non-motorized mobility and reduces transportation emissions.

Goal 3: Expand Mobility Choices to Reduce Traffic Congestion
DRPT Goal 3 encourages public transit, shared mobility, and complete multimodal networks.

- The proposed street network with roundabouts, bike/ped paths, and ridesharing pull-out areas advances Shared Mobility West Program and Transportation Demand Management (TDM) goals described in the DRPT.

- The site's proximity to West Interstate Highway and the planned Tidewater Transit extension positions it well for future West Bus service or an employer shuttle program.

- MRRP recommends coordination with West MPO and West Bus to identify future transit stop locations, paratransit service needs, and bus circulation routes.

Goal 4: Connect and Strengthen Communities to Improve Quality of Life
The Land envisions equitable, walkable neighborhoods with accessible public spaces.

- Plan vertical commons and pedestrian priority design elements within the site, embody UDO strategies such as Placemaking, Activation and Wayfinding and Signage Programs.

- The integration of housing, commercial, and light industrial uses fosters a balanced community that supports living, working, and recreating within the same area, reducing vehicle miles traveled (VMT) and strengthening local connectivity.

- MRRP encourages the inclusion of culturally appropriate wayfinding and shade protected walking routes to enhance comfort and inclusivity.

Goal 5: Maintain Assets and Invest Strategically for Economic Vitality
The proposed roadway improvements on Hanson and Fields Roads, including right-of-way dedications, pavement widening, and new pedestrian facilities, support the UDO's emphasis on maintaining and upgrading existing infrastructure.

- The project's investment in local access roads will improve safety and network efficiency on two major collector routes.

- Coordination with DPW and West MPO is recommended to ensure consistency with long-term maintenance and capital improvement programming.

Summary and Recommendations
The Harrison Village proposal is generally consistent with the goals and policies of the Hale Mar West 2040 Long Range Transportation Plan. The project supports recommended access, mixed-use development, and roadway design features that align with the County's Complete Streets policy and Vision Zero principles.

MRRP recommends the following coordination and design actions:

1. Incorporate the planned multiuse paths and sidewalks into County and MPO multimodal network maps.

2. Evaluate transit access, paratransit accommodation, and potential shuttle service integration.

3. Include pedestrian safety countermeasures in the TIA consistent with Vision Zero West.

4. Design roadway cross-sections and roundabouts to safely accommodate bicycles, pedestrians, and large vehicles.

5. Coordinate with the Maui MPO, DPW, and Planning Department to ensure consistency with JWA and NA project implementation schedules.

Sincerely,

Jade T. Takayama
Director of Transportation

cc: Wayne Richard T. Bissen, Jr.

DRIP Committee

From: Michelle L. Santos <Michelle.Santos@co.maui.hi.us>
Sent: Monday, November 3, 2025 12:18 PM
To: DRIP Committee
Cc: Cynthia E. Sasada; Didi A. Hamai; Erin A. Wade; Josiah K. Nishita; Kelii P. Nahooikaika; Cora-Lyn Dumlao; Diane C. Yogi; Marc I. Takamori
Subject: MT#11282 Bill 163
Attachments: MT#11282-DRIP Committee.pdf

EXHIBIT 21

Correspondence from

Dept. of Water Supply, Part 1

(DRIP Meeting)

Received at DRIP meeting on 11/05/2025

affordable housing units. The rule does not address rental units, so it does not appear that an exemption applies.

3. The project also proposes commercial, office, retail, hospitality, and light industrial uses throughout various project phases. How would the County's Water Availability Policy apply if the project contains phases that contain non-residential components that may not address affordable housing needs?
Response:

If the project is subdivided, the entire parcel may be subject to the County's Availability Policy. However, if the project is developed in phases, each phase may be reviewed for compliance with Maui County Code Chapter 14.15. As such case, commercial and industrial development would not be subject to the County's Availability Policy according to the definition of "Subdivision" in Maui County Code Chapter 14.15.020. "Subdivision" means improved or unimproved land or lands divided into two or more lots, parcels, sites, or other divisions of land for the purpose, whether immediate or in the future, of sale, lease, rental, mortgage, or building or other development, and includes the process of consolidation and resubdivision, and when appropriate to the context, shall relate to the process of subdividing land. The term also includes the construction of a building or group of buildings, other than a hotel, on a single lot, parcel, or site which will contain, could, or is planned and built to contain multiple units, including planned developments pursuant to Chapter 19.32 of this Code, condominium property regimes established pursuant to Hawaii Revised Statutes, or other forms of development, provided that unless approved by the developer, condominium property shall not be required to install separate water meters for each condominium unit."

If you require additional information, please feel to contact me. Thank you in advance.

Sincerely,

[redacted], P.E.
Director

/ch/CH.ltr

DRIP Committee

From: Michelle L. Santos <Michelle.Santos@co.maui.hi.us>
Sent: Wednesday, November 5, 2025 8:52 AM
To: DRIP Committee
Cc: Cynthia E. Sasada; Didi A. Hamai; Erin A. Wade; Josiah K. Nishita; Kelii P. Nahooikaika; James A. Landgraf; John Stufflebean; Linda K. Kimura
Subject: MT#11288-Bill 163 MT#11289 Bill 163
Attachments: MT#11288-DRIP Committee.pdf; MT#11289-DRIP Committee.pdf

Michelle L. Santos
Secretary I
Office of the Mayor
County of Maui
808-270-7855

EXHIBIT 22

Correspondence from

Dept. of Water Supply, Part 2

(DRIP Meeting)

[redacted]

[redacted]

[redacted]

shortfalls, an estimate total water demand is about 1,364 million gallons per day (mgd).

The subject property is adjacent to the Central Napa Water System. The project does not propose to connect to the CNWS water system. A private water system is proposed to serve the project. The subdivision is subject to the Napa County Code Chapter 16.10, which requires a written verification of adequate, reliable supply of water. The proposed water source is a development of three private wells on the 104.5 ± acre site, which is overlying the Napa aquifer. Current drawdown in the Napa aquifer is 0.01 mgd while the aquifer sustainable yield is 7 mgd. While the project would not cause any direct impacts on the CNWS water system, it is possible that well construction permits for the private wells would not be issued by the Commission on Water Resource Management at this time to serve the project.

If you require additional information, please feel to contact me. Thank you in advance.

Sincerely,

[redacted]
Director

JR:KW:ljs

DRIP Committee

From: Michelle L. Santos <Michelle.Santos@co.maui.hi.us>
Sent: Wednesday, November 5, 2025 8:52 AM
To: DRIP Committee
Cc: Cynthia E. Sasada; Didi A. Hamai; Erin A. Wade; Josiah K. Nishita; Kelii P. Nahooikaika; James A. Landgraf; John Stufflebean; Linda K. Kimura
Subject: MT#11288-Bill 163 MT#11289 Bill 163
Attachments: MT#11288-DRIP Committee.pdf; MT#11289-DRIP Committee.pdf

Michelle L. Santos
Secretary I
Office of the Mayor
County of Maui
808-270-7855

EXHIBIT 23

Archaeological Literature Review

And Assessment

Archaeological Literature Review and Assessment Hoʻonani Village Mixed-Use Development Project Wailuku and Kalialinui Ahupuaʻa, Pūʻali Komohana and Kula Districts (Moku), Maui Island TMK: [2] 2-5-001:016 (por.), 3-8-006:004 (por.) & Pulehu Road ROW

Prepared for
Pioneer Design Group Hawaiʻi
Honolulu, Hawaiʻi

Prepared by
Christopher M. Monahan, Ph.D.
Trisha K. Watson, Ph.D.

Honolulu, Hawaiʻi

May 2025

Management Summary

This archaeological literature review and assessment (ALRA) report was completed in support of an Environmental Impact Statement (EIS) for the Hoʻonani Village Mixed-Use Development project. The project area consists of portions of TMK (2) 3-8-006:004, (2) 2-5-001:016 and the Pulehu Road right-of-way (ROW) between these two parcels. The northern end of the project (the location of a proposed mixed-use development) is adjacent to Puʻunēnē Shopping Center. The northern parcel, which is privately owned, consists of undeveloped land currently used for commercial agriculture. The southern end of the project, which is the site of a potential future water source, is also privately-owned undeveloped land used for commercial agriculture. Connecting the two parcels is the Pulehu Road ROW measuring approximately 23,000 linear ft. (4.4 mi.). The entire project area of 288.3 acres can be divided into the northern parcel (193.5 acres), the southern parcel (57.9 acres) and the ROW connecting them (36.9 acres). The proposed project is described in the Introduction (see p.1). The objectives of this study include: (1) documentation and description of the parcel's land-use history in the context of both its traditional Hawaiian character as well as its historic-period changes; (2) identification of any potential above-ground historic properties or component features; and (3) providing information relevant to the likelihood of encountering historically-significant cultural deposits in subsurface context during construction. This ALRA is not an archaeological inventory survey (AIS) and did not include a field inspection. The document may be used, however, to consult with the State Historic Preservation Division (SHPD) in compliance with Hawaiʻi Revised Statutes (HRS) Chapter 6E-42 and Hawaiʻi Administrative Rules (HAR) Chapter 13-284; and to satisfy environmental review under HRS Chapter 343.

Results are as follows: (1) The project area is part of a once-extensive commercial sugar cane operation originally founded by Claus Spreckels in the late 1800s, eventually incorporated into the Hawaiian Commercial and Sugar Co. (HC&S), which lasted well into modern times; (2) Historic maps depict a thoroughly altered landscape dedicated to extensive commercial sugar cane operations with numerous related features in and adjacent to the current project area, including roads, ditches, fence lines, railroads and reservoirs; (3) Aerial photographs dated to 1950 clearly show the current project area as completely under intensive, commercial agriculture; (4) Archaeological surveys of the current project area have only identified historic-period sites related to commercial (plantation) agriculture, although most of these have not been formally assessed or assigned State Inventory of Historic Places (SIHP) #s because such sites, in the past, were not generally considered significant by archaeologists more interested in documented traditional Hawaiian sites; (5) Due to over a century of sugar cane cultivation and the installation and use of related infrastructure (e.g., roads, ditches, fence lines, railroads and reservoirs), no traditional (pre-Contact) Hawaiian site-features has been identified in or near the current project area; (6) The current project area most likely contains above-ground historic properties related to commercial agriculture in the historic period; and (7) It is unlikely that intact historic properties will be encountered in subsurface excavation; however, the discovery of isolated artifacts associated with the plantation era cannot be ruled out. Honua recommends consultation with the SHPD-Archaeology Branch to determine if any specific identification or mitigation measures are needed for the proposed project (e.g., AIS or archaeological monitoring).

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Section 1 Introduction

1.1 Project Background

This archaeological literature review and assessment (ALRA) report was completed in support of an Environmental Impact Statement (EIS) for the Hoʻonani Village Mixed-Use Development project. The project area consists of portions of TMK (2) 3-8-006:004, (2) 2-5-001:016 and the Pulehu Road right-of-way (ROW) between these two parcels (Figure 1 to Figure 5). The project is currently addressed as 21 Hansen Road, Kahului, Maui. Kahului Harbor is about 1.75 miles (mi.) northwest of the northern end of the project area; Kahului Airport is about 1.0 mi. to the northeast.

The northern end of the project, which is the location of the proposed mixed-use development, is adjacent to a commercial development known as Puʻunēnē Shopping Center. The northern parcel, which is privately owned, consists of undeveloped land currently used for commercial agriculture; it is bounded by Pulehu Road (east), Hansen Road (south) and undeveloped land (west and north). Central Power Plant Road runs through the northern parcel. The southern end of the project, which is the site of a potential future water source, is also privately-owned undeveloped land used for commercial agriculture, bounded by Pulehu Road (northeast and east) and undeveloped land on all other sides. Spanish Road runs through this southern parcel. Connecting the two parcels is the Pulehu Road ROW measuring approximately 23,000 linear feet (ft.) (4.4 mi.) (Figure 6).

The entire project area of 288.3 acres can be divided into the northern parcel (193.5 acres), the southern parcel (57.9 acres) and the ROW connecting them (36.9 acres).

1.1.1 Project Description

According to the EISPN (EIS Preparation Notice), the proposed project is as follows:

> The Applicant proposes the development of Hoʻonani Village, a high-density, master-planned, mixed-use community in the Kahului area of Central Maui. Hoʻonani Village [. . .] will feature a mixture of affordable and market-rate multi-family low-rise residential housing rental units, along with a blend of commercial office space, retail, restaurant dining areas, and industrial uses, all situated makai of Hansen Road.
>
> Hoʻonani Village will include an entrance open space area off of Pulehu Road, community gathering places in the form of a central community promenade space, an Amphitheater event space, parks, sports fields, a multi-use pathway system, and a botanical trail to support connectivity. Access to the project area will be provided from Pulehu Road, Hansen Road and future connection of Pakaula Street with an internal roadway network connecting to the individual uses within the land plan. Improvements to Pulehu Road and Hansen Road as well as to proposed internal roadways are anticipated as part of the proposed project.
>
> The preliminary conceptual land plan anticipates a total of approximately 1,600 residential apartment units, inclusive of about 50% workforce housing units, located across the approximately 166.512-acre site. The units will have a mix of

> studios, 1-, 2- and 3-bedroom units. The project will meet all of the residential workforce housing requirements pursuant to Chapter 2.96, Maui County Code.

1.1.2 Regulatory Context and Document Purpose

The objectives of this study include: (1) documentation and description of the parcel's land-use history in the context of both its traditional Hawaiian character as well as its historic-period changes; (2) identification of any potential above-ground historic properties or component features; and (3) providing information relevant to the likelihood of encountering historically-significant cultural deposits in subsurface context during construction.

This ALRA is not an archaeological inventory survey (AIS) and did not include a field inspection. The document may be used, however, to consult with the State Historic Preservation Division (SHPD) in compliance with Hawai'i Revised Statutes (HRS) Chapter 6E-42 and Hawai'i Administrative Rules (HAR) Chapter 13-284; and to satisfy environmental review under HRS Chapter 343.

1.2 Environmental Setting

1.2.1 Natural Environment

This section describes the environmental and physiographic conditions in the project area. The hard-rock geology in and around the project area consists of Pleistocene volcanic flows originating (Kula Volcanics) from Haleakalā (Qkul) (Macdonald et al. 1983; Sherrod et al. 2007). Elevation varies from about 500 ft. (152.4 meters [m]) above mean sea level (amsl) in the southern (mauka, or inland) portion to about 60 ft. (18.3 m) amsl in the northern (makai, or seaward) portion.

U.S. Department of Agriculture (USDA-NRCS n.d.) soil survey data show a wide variety of soil types in the project area (see also Foote et al. 1972) (Figure 7). Focusing on the two parcels (northern and southern) rather than the Pulehu Road ROW, the northern parcel consists entirely of Ewa silty clay loam 0 to 3 percent slopes (EaA); these well drained soil with very low runoff potential are described by the USDA-NRCS (n.d.) as "prime farmland if irrigated," and occur on alluvial fans, stream terraces and mountain slopes.

Other than humanly-altered water courses such as irrigation and drainage ditches, there are no through-flowing (natural) streams in the project area.

The southern parcel consists almost entirely of Keahua very stony silty clay loam (7 to 25 percent slopes) (KnbD), which is described as follows:

> This soil has a profile like that of Keahua silty clay loam (3 to 7 percent slopes), except that stones cover as much as 3 percent of the surface. Runoff is slow to medium, and the erosion hazard is slight to moderate. Included in mapping were small areas that are 20 to 40 inches deep over soft, weathered basic igneous rock. In a few places tones cover 3 to 15 percent of the surface. This soil is used for pasture and wildlife habitat. (Foote et al. 1972:66)

The USDA-NRCS (n.d.) describes Keahua very stony silty clay (7 to 25 percent slopes) as "not prime farmland."

The project area is in a relatively dry part of Maui; mean annual rainfall is about 20 inches (508 millimeters) (Giambelluca et al. 2013), giving this part of the island a semi-arid climate. Prior to the historic period, vegetation in the project area would have consisted of dryland forest and shrubs with the northern terminus close to or in the coastal vegetation zone (Ziegler 2002:173). Today, however, due to historic effects of commercial agriculture (most notably sugar cane) and modern human alteration of the landscape, the project area and immediate environs are dominated by cultivated crops, invasive grasses and weeds where not under active cultivation.

1.2.2 Built Environment

Except for existing roads that traverse the northern and southern parcels (i.e., Central Power Plant Road and Spanish Road, respectively) and some irrigation features and possible subsurface utilities, the two parcels are undeveloped. Both are either actively used for commercial agriculture or have been relatively recently. The rest of the project area consists of the Pulehu Road ROW.

Figure 1. Portion of 2013 USGS topographic map (Wailuku quadrangle) with project area (base map source: ESRI's ArcMap 10.8.2)

Figure 2. Aerial image showing location of project area (base image source: ESRI's ArcMap 10.8.2)

Figure 3. Portion of Tax Map Key (TMK) [2] 3-8-006 showing northern half of project area (base image source: Maui County website, http://www.mauicounty.gov/757/Tax-Map-Information, accessed April 2025)

Figure 4. Portion of Tax Map Key (TMK) [2] 2-5-000 showing one version of southern half of project area (base image source: Maui County website, http://www.mauicounty.gov/757/Tax-Map-Information, accessed April 2025)

Figure 5. Portion of Tax Map Key (TMK) [2] 3-8-003 showing second version of southern half of project area (base image source: Maui County website, http://www.mauicounty.gov/757/Tax-Map-Information, accessed April 2025)

Figure 6. Client-provided preliminary water master plan depicting potential future water connection to main project location

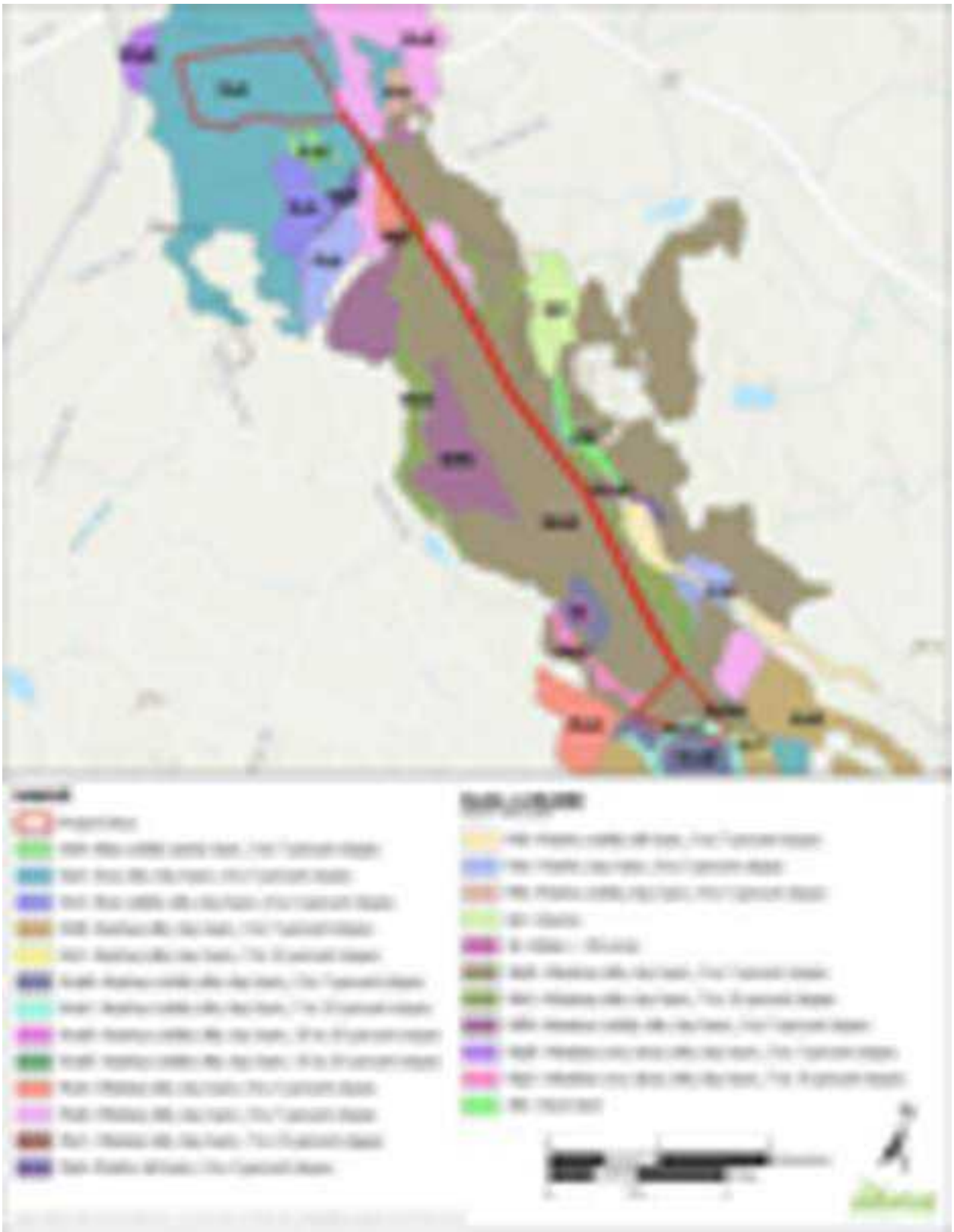

Figure 7. Soil series overlay showing soils in the project area (see text) (data source: Foote et al. 1972)

Section 2 Cultural and Historical Context

This section includes a synthesis of relevant cultural and historical information related to the types and character of land uses in and around the project area from pre-Contact times into the historic period and modern times. The main objective of this section, primarily through the analysis of historical documents, maps and aerial images, is to provide a project area-specific picture of land use and modification over time. If additional archaeological work is needed for this project, such as an archaeological inventory survey (AIS) or archaeological monitoring, this section may be expanded.

In addition to referencing a sample of previous studies from Central Maui, we also conducted a records search of the SHPD's digital library, as well as the on-line database (State of Hawai'i n.d.) of the Environmental Review Program, within the Office of Planning and Sustainable Development (that is administratively attached to the Department of Business, Economic Development and Tourism), which publishes EIS and EA documents; we also reviewed Honua's proprietary database of reports, and utilized the following on-line sources to obtain cultural, historical and archaeological data:

- OHA's Papakilo database (http://papakilodatabase.com/main/main.php)
- OHA's Kipuka database (http://kipukadatabase.com/kipuka/)
- Bernice P. Bishop Museum archaeological site database (http://has.bishopmuseum.org/index.asp)
- Bishop's Hawaii Ethnological Notes (http://data.bishopmuseum.org/HEN/browse.php?stype=3)
- University of Hawai'i-Mānoa's digital maps (http://magis.manoa.hawaii.edu/maps/index.html)
- DAGS' State Land Survey (http://ags.hawaii.gov/survey/map-search/)
- Waihona 'Aina website (www.waihona.com)
- Digital newspaper archive "Chronicling America, Historic American Newspapers" (http://chroniclingamerica.loc.gov/lccn/sn82014681/)
- Hawai'i State Archives digital collections (http://archives1.dags.hawaii.gov/)
- U.S. Library of Congress digital map collections (https://www.loc.gov/maps/)
- USGS Information Service, including digital map collections (https://nationalmap.gov/historical/index.html)
- AVA Konohiki's website (http://www.avakonohiki.org/)

2.1 Hawaiian Cultural Landscape

On Maui, as with the other inhabited islands of the archipelago, determining a project area's traditional district (moku) and ahupua'a can be difficult because varied configurations and names commonly appear in different historical and modern sources. Reasons for this include political changes (both traditional and historic), conquest of one island by another, economic factors, and so on. For example, despite how the ahupua'a concept is explained in some sources as "ancient," some knowledgeable cultural historians argue that the so-called ahupua'a system was introduced to O'ahu in the late or terminal pre-Contact period (i.e., at or around the time of Kahekili [circa 1783] or Kamehameha [circa 1795]) and, thus, it is not necessarily ancient nor endemic to O'ahu Island.[1]

[1] On O'ahu, a possibly older concept than the ahupua'a was known as ka'ānani'au, defined by Pukui and Elbert (186:108) as "Same as *ahupua'a*, the altar marking the land division. *O'ahu. Rare."* See Genz (2011) for a perspective on this topic.

Figure 8. Traditional moku (districts) and ahupua'a of Maui according to the Aha Moku Advisory Committee (base map source: http://www.ahamoku.org)

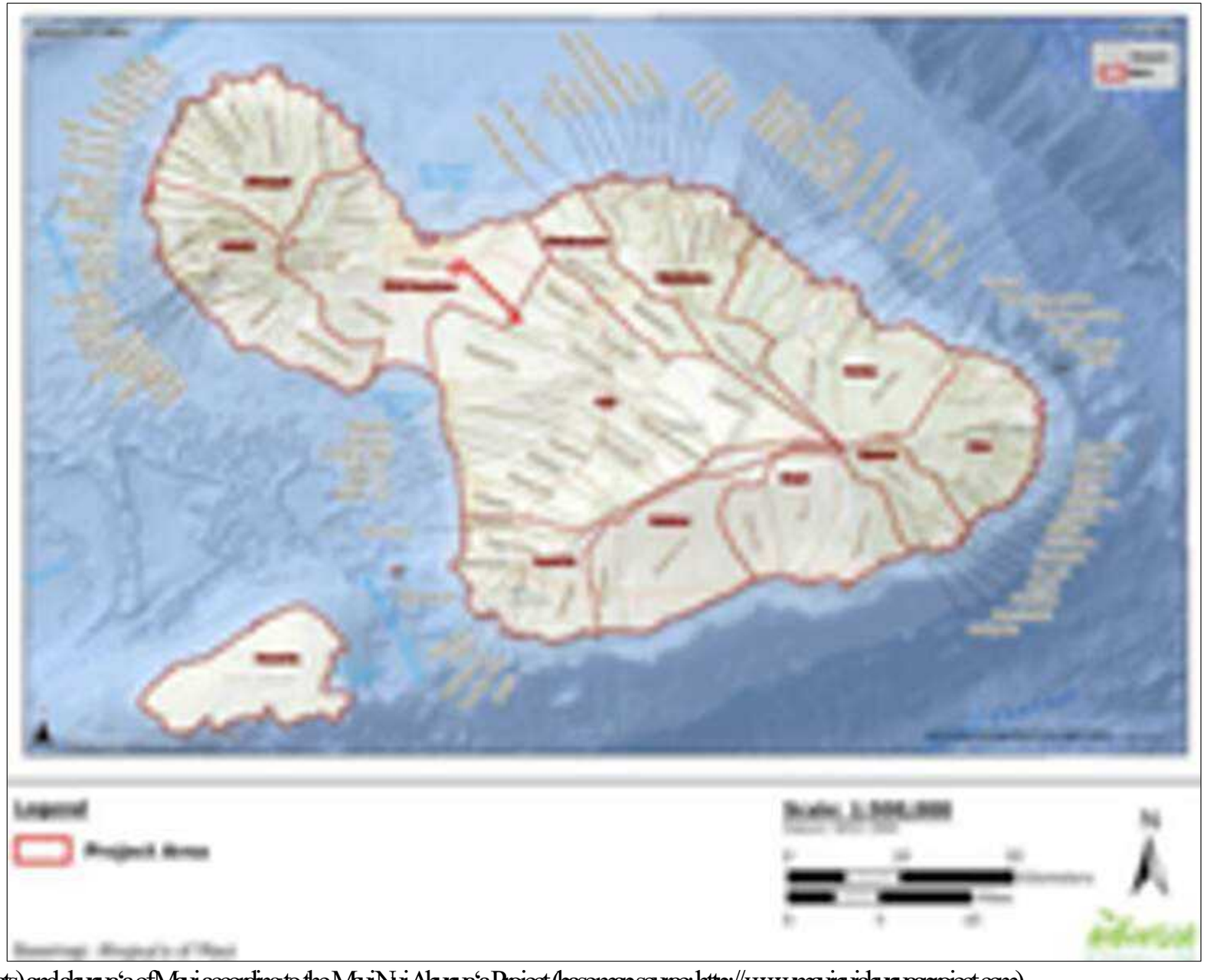

Figure 9. Traditional moku (districts) and ahupua'a of Maui according to the Maui Nui Ahupua'a Project (base map source: http://www.mauinuiahupuaaproject.com)

Figure 8 and Figure 9 illustrate the research problem of differing land divisions for Maui. The former configuration (see Figure 8), which places most of the project area in the moku of "Hamakuapoko" and the ahupua'a of "Poniau," is based on research conducted by the Aha Moku Advisory Committee (see website in figure caption). In contrast, the latter map (see Figure 9) is the result of research by Maui Nui Ahupua'a Project (see website in figure caption), the SHPD GIS program and the Office of Hawaiian Affairs (OHA). This moku/ahupua'a configuration seems to be the most widely accepted model at the current time. According to this, almost the entire project area (except for the southern parcel) is in the moku of Pū'ali Komohana and the ahupua'a of Wailuku. The southern terminus of the current project area is in Kula Moku and Kalialinui Ahupua'a. Names aside, from a traditional Hawaiian perspective, the importance of these two sets of land-division names accurately reflects the fact that most of the project area is associated with the coastal and near-coastal settlement and growing area around Kahului Harbor in the central, "saddle" region between Maui's two volcanoes (West Maui, or Pu'u Kukui and Haleakalā). The southern parcel of the current project area is more closely associated with the uplands of the lower slopes of Haleakalā.

Ruberti et al. (2021:13-14) discuss the challenge of understanding the many meanings and definitions of Wailuku:

> The general area of [their] study is located in the *ahupua'a* of Wailuku [. . .]. An independent ahupua'a that was once able to sustain hundreds of families, Wailuku is often mistakenly referred to as a small part of one large ahupua'a that includes three other ahupua'a: Waikapū, Waiehu, and Waihe'e. Traditionally, these four districts have been collectively referred to as Nā Wai 'Ehā, or The Four Waters. In the Māhele Book, which recorded the names of all the ahupua'a on each of the islands, these four ahupua'a are identified as being in the kalana (a land division smaller than a moku) of Pū'ali Komohana (West Isthmus). After the establishment of the Office of Hawaiian Government Survey (OHGS) in 1870, Maui was surveyed and mapped. This resulted in Wailuku being used as the primary name for the ahupua'a and the larger district of Wailuku, of which the four ahupua'a are now a part of. A reason for this name choice was given by Curtis J. Lyons, an OHGS surveyor, who wrote, "Wailuku, Waikapu, Waiehu, and Waihee were independent, belonging to no Moku. On the map it was necessary to form a new district and call it Wailuku, Nawaieha, the four waters, being too cumbursome and ill understood" [. . .]

Pukui et al. (1974) do not include Pū'ali Komohana in their place name compendium, but they do translate Pū'ali, a place on Moloka'i, as "groove." Pukui and Elbert's (1986:165.) *Hawaiian Dictionary* defines komohana as "west, or western, so-called because the sun 'enters' *(komo)* the sea in the west." They (ibid.:346) also define pū'ali as isthmus (among other definitions). Thus, this moku name may be translated as something like the isthmus (i.e., saddle between Maui's two volcanoes) where the sun sets.

Pukui et al. (1974:225), citing Kuykendall's (1938:Vol.1:31) *The Hawaiian Kingdom,* Vol. 1, Kamakau's (1961:148) *Ruling Chiefs of Hawaii* and Nathaniel Emerson's (1915:57) *Pele and Hiiaka*, provide the following under the entry for Maui's Wailuku:

> Land division, elementary school, quadrangle, heights, city, point, sugar company, and stream, West Maui; site of the battle in the late eighteenth century in which the army of Ka-lani-ʻōpuʻu was nearly annihilated by Ka-hekili of Maui.

Because of this moʻolelo (oral-historical account), Wailuku is translated literally as "water [of] destruction" (Pukui et al. 1974:225).

The southern end of the current project area is in the moku of Kula (literally, plain), a place name on both Maui and Hawaiʻi Island (ibid.:123). Kalialinui, the ahupuaʻa within which the southern end of the current project area is located, is described as "pronunciation and meaning uncertain" (ibid.:4).

E.S. Craighill Handy's (Handy 1940; Handy and Handy 1972) seminal work in the 1930s was focused on identifying and describing the primary traditional growing and settlement areas of the Hawaiian Islands, and his cultural-landscape approach to the work remains a useful resource to this day. Although his direct observations of the landscape in the 1930s were long after the widespread breakdown of the traditional Hawaiian subsistence economy, his insights on how the lands were utilized in pre-Contact and early historic-period times were valid.

A close reading of Handy's presentation makes clear that the project area did not represent a prime location for Hawaiian settlement but, rather, was between two more fertile settlement regions: (1) to the west, the famous "Four Streams," or Nā Wai ʻEhā, draining the slopes of West Maui into Kahului Bay at and north of the historic town of Wailuku—northwest of the current project area; and (2) the coastal and near-coastal area northeast of the current project area known as Hāmākua Poko (or Hāmākuapoko). These two areas are described as follows (Handy and Handy 1972:496):

> The old *ʻokana* (land division) named Na Wai Eha (*Na Wai Eha* means "The Four Streams") comprised the four great valleys which cut far back into the slopes of West Maui and drain the eastward watershed of Puʻu Kukui and the ridges radiating northeastward, eastward, and southeastward from it. Two of the great valleys, Waiheʻe and Waiehu, open towards the ocean and their streams empty into it. Wailuku is partly landbound, but its stream flows into Kahului Bay, which has been eroded by the ocean out of what was formerly the stream mouth. Waikapu is landbound. The waters of its great stream, now [in the 1930s] utilized for irrigating a great acreage of sugar cane, formerly was diverted into *loʻi* and its overflow was dissipated on the dry plains of the broad isthmus between West and East Maui. (brackets added)

And, referring to the Hāmākua area (ibid.:498):

> Hamakua Poko (Short Hamakua) and Hamakua Loa (Long Hamakua) are two coastal regions where gently sloping *kula* lands intersected by small gulches come down to the sea along the northern coast line of East Maui. Maliko Stream, flowing in a gulch that widens and has a flat bottom to seaward, in pre-sugar-plantation days had a considerable number of *loʻi.* East of Maliko the number of named *ahupuaʻa* is evidence of habitation along this coast [. . .] The number of very narrow *ahupuaʻa* thus utilized along the whole of the Hamakua coast indicates that there must have been a very considerable population. This would be despite the fact that it is an area of only moderate precipitation because of being

> too low to draw rain out of trade winds flowing down the coast from the rugged and wet northeast Koʻolau area that lies beyond. (brackets added).

The famous loko (pond) of Kanahā, today a wetland with brackish water designated a State wildlife sanctuary and home to endangered birds, is north-northwest of the current project area between Kahului Harbor and the airport. According to Pukui et al (1974:83), Kanahā can be translated literally to "the shattered [thing]." It was " . . . said to have been built by Chief Kiha-a-Piʻilani, brother-in-law of ʻUmi [. . .] who lived about A.D. 1500" (ibid.). In Hawaiian traditions, Kanahā is often paired with another loko named Mauʻoni, which was likely a distinct pond that is now included in the larger wetland of Kanahā.

Puʻunēnē (literally, "goose hill," ibid.:202) is the name of a small cinder cone east-northeast of the project area between the airport and Pāʻia; and also the name of a plantation settlement area adjacent to the northern parcel of the current project area.

2.1.1 Moʻolelo (Oral-historical Accounts)

Hawaiians were fond of naming natural phenomena such as winds and rains of the many named places on the traditional cultural landscape. The name for the wind of Wailuku, according to an oli (chant) on the topic of Maui and Molokaʻi's winds, is Iʻaiki (Nakuina 1990:55), which can be translated as "little fish" (Pukui and Elbert 1986:93). Two rains associated with Wailuku were called Kiliʻoʻopu—which is a variety of native grass used to string small fish—and ʻUlalena, which can be translated as "yellowish-red" (ibid.:367). Both of these rains are described in mele ʻāina (songs about the land and resources of Hawaiʻi) compiled by Akana and Gonzalez (2015:83, 267), and with associations to place names in and around the current project area such as Puʻukoaʻe and Pūlehu.

Pukui's (1983) *ʻŌlelo Noʻeau, Hawaiian Proverbs & Poetical Sayings* includes several entries about both Wailuku and Kahului and also Kanahā. The Wailuku entries include associations with battles that took place on the open expanse of the isthmus of Maui, the famous Nā Wai ʻEhā area and the character of the Wailuku landscape. Referring to famous battles including Wailuku, Pukui (ibid.:5) recounts:

> Ahulau ka Piʻipiʻi i Kakanilua.
>
> A slaughter of the Piʻipiʻi at Kakanilua.
>
> In the battle between Kahekili of Maui and Kalaniʻopuʻu of Hawaiʻi, on the sand dunes of Wailuku, Maui, there was a great slaughter of Hawaiʻi warriors who were called the Piʻipiʻi. Any great slaughter might be compared to the slaughter of the Piʻipiʻi.

And also (ibid.:184)

> Ke inu aku la paha aʻu ʻĀlapa i ka wai o Wailuku.
>
> My ʻĀlapa warriors must now be drinking the water of Wailuku.
>
> Said when an expected success has turned into a failure. This was a remark made by Kalaniōpuʻu to his wife Kalola and son Kiwalaʻō, in the belief that his selected warriors, the ʻĀlapa, were winning in their battle against Kahekili. Instead they were utterly destroyed.

The references to Kahului stress the qualities of the ocean in the bay as well as the loko of Kanahā and Mauʻoni (Pukui 1983:284):

> Pākāhi ka nehu a Kapiʻioho.
>
> *The* nehu *of Kapiʻioho are divided, one to a person*.
>
> Kapiʻioho, ruler of Molokaʻi, had two ponds, Mauʻoni and Kanahā, built on his land at Kahului, Maui. The men who were brought from Molokaʻi and Oʻahu to build the ponds were fed on food brought over from Molokaʻi. The drain on that island was often so great that the men were reduced to eating *nehu* fish, freshwater *ʻopae* and *poi*. The saying is used when *poi* is plentiful but fish is scarce and has to be carefully rationed.

Various moʻolelo, whose full discussion is beyond the scope and purpose of this document, concern the origins and construction of the ponds at Kanakā and Mauʻoni as well as their relationship to important chiefs of Maui (see, e.g., Kamakau 1961:36-46; Manu 1884).[2] The life and times of Kahekili, Maui's last warrior-king who ruled from circa 1766 until 1782, also figure prominently in moʻolelo about this part of the island. In addition to Lahaina (or Lāhaina) and Hāna, Wailuku was another seat of political power in traditional times, and Kahekili and his people were said to frequent the Wailuku area for its surf and ocean activities (see, e.g., Kamakau 1961:83). Other battles, such as the famous one in 1790 between Kamehameha and Kahekili's son, Kalanikūpule, were also centered on Wailuku and Wailuku Stream; known as the battle of Kepaniwai, literally the "water dam," (Pukui et al. 1974:109) in reference to the great number of dead bodies filling the stream and blocking its course.

2.2 Historic Period

2.2.1 Proto-Historic Accounts

Early accounts of Maui by European explorers have been summarized and retold many times in many reports over the years. The following excerpts are from various secondary literature sources, as cited below. Yucha et al. (2020:21) discuss Captain James Cook's observations upon entering Kahului Bay:

> Kahekili was at Wailuku when Captain James Cook and his ships *Resolution* and *Discovery* encountered Maui. Cook first sighted the island on 26 November 1778 with his ship *Resolution* positioned three miles off the Wailuku shore. Cook recorded the encounter in his logbook:
>
> > In the country was an elevated saddle hill, whose summit appeared above the clouds. From this hill, the land fell in a gentle slope, and terminated in a steep rocky coast, against which the sea broke in a dreadful surf. Finding that we could not weather the island, I bore up, and ranged along the coast to the Westward. It was not long before we saw people on several parts of the shore, and some houses and plantations. The country seemed to be

[2] Hawaiian historian Moses Manu published a serialized account of a high chief of Maui known as Kiha-a-Piʻilani in the Hawaiian language newspaper *Ku Okoa* between January 12, 1884 to August 23, 1884; and included details on these ponds.

> both well wooded and watered; and running streams were seen falling into the sea in various places. (Speakman 1978)

> Cook records that the Hawaiians who came out in canoes to trade for supplies appeared "to be of the same nation with the inhabitants of the islands more to leeward [i.e., O'ahu and Kaua'i] which we had already visited [ten months earlier in January 1778]; and… they knew of our having been there" (in Speakman 1978:23-24).

Ruberti et al. (2021:27-28) briefly summarize the earliest English (Cook) and French (La Pérouse) explorers who documented their observations about Maui:

> In 1778, Captain James Cook of the British Navy made contact with Hawai'i as he led two ships, *Resolution* and *Discovery*, north from the Society Islands en route to North America. On this first encounter, the ships spent two weeks in the islands and visited O'ahu, Kaua'i, and Ni'ihau while engaging in trade, principally of iron in exchange for food and water. The Hawaiian people treated the principal officers of these foreign ships as they would their *ali'i* of the highest rank.
>
> Eight months later, in the fall of 1778, Captain Cook returned to Hawai'i with the intent of spending the winter here. His ships arrived off the northern coast of Maui on the morning of November 26, and the next day, Kahekili, Maui's *mō'ī* at the time, paid a visit to the Discovery and gifted Captain Charles Clerke, in command of that ship, with an *'ahu 'ula* (feather cloak). The ships remained off the coast of Maui until early-January before heading to Hawai'i Island, where a dispute between the foreigners and the Hawaiians famously resulted in Cook's death at Kealakekua.
>
> Eight years passed before any foreigners returned to Hawai'i. In 1786, and from that point on, one or more ships visited the islands every year. In May of 1786, the French explorer Jean-François de La Pérouse sailed past Maui and landed briefly on the island's south side, at Keone'o'io in the *moku* of Honua'ula, anchoring in the bay that now bears his name (La Pérouse Bay). He was the first European to set foot on Maui and spent one day ashore engaging in trade and exploring the area (Dunmore 1985:227). Accounts from this expedition suggest a relatively large and well-established community with ready access to resources:
>
> > More than one hundred and twenty of them, men, women, and children had been out in their canoes since the crack of dawn and immediately offered to begin trading. Two of them, who seemed to be the men of authority, approached. They made a long, serious speech to La Pérouse, who did not understand a single word, and presented him with a pig, which he accepted. In return he gave them some medals, hatchets, and pieces of iron, which they valued very highly. By this generosity, the French succeeded in winning the friendship of the islanders.
> >
> > During his reconnaissance, La Pérouse saw four small villages of ten or twelve houses. These are made of grass and are covered with the same material. They have the same shape as the thatched cottages found in

> certain parts of France. The roofs are pitched on two sides, and the door, which is located on the gable end, is only three feet high, so that it is necessary to stoop when entering. The furnishings consist of mats, which like our carpets make a very neat flooring on which the islanders sleep. The only cooking utensils they have are gourds painted in various colors. Their cloth is made from the paper mulberry tree, but, although painted in a great variety of colors, it appears less skillfully made than the cloth of other South Sea islanders.
>
> When he returned aboard, the commander learned that Captain Clonard, his executive officer, had received a chief and had bought a cape and a fine red helmet from him; he had also acquired more than one hundred pigs, some bananas, yams, taro, mats, and various small objects made of feathers and shells. (Jean-François de Galaup 1969:24-25)

2.2.2 Early 1800s

Hawai‘i’s introduction to the “world system” economy starting during the time of Kamehameha (in general terms, circa 1800) began with the archipelago being used by maritime travelers as a provisioning stop on the way to other places and then for the extraction of ‘iliahi (sandalwood, *Santalum* sp.) to trade in eastern Asia. This latter development in the first couple decades of the nineteenth century had a devastating adverse impact on the maka‘āinana (commoners) and environment of the islands. These economic changes, in the context of the end of the traditional kapu system of ancient religious protocols and beliefs in 1819 and the arrival of Christianity in 1820, have been recounted many times in numerous resources.

Yucha et al. (2020:21-22) discuss demographic trends and population estimates on Maui during the early to middle 1800s:

> Estimates of the early nineteenth century population of Kahului are difficult to find. In regions where Protestant missionaries had been stationed, statistical records were updated often, but the missionary out-station region of Kahului appeared to have received scant attention during the early years of the Protestant missions. In 1830, Protestant missionaries recorded school attendance figures for the out-stations of Wailuku as: Waihu [Waihe‘e] at 612 students, Waikepu [Waikapū] at 329 students, and Waiehu at 103 students, with no mention of Kahului [. . .] In 1831, the missionaries stationed on Maui began to advocate for the conversion of the Wailuku branch-station of the Lahaina Mission to be a standalone mission station [. . .] In 1832, 12 years after the arrival of the first missionaries in Hawai‘i [. . .] and nine years following the establishment of the Lahaina Mission Station [. . .] the official Wailuku Mission Station was formed by the Reverend Jonathan Smith Green [. . .] A larger meeting house with a thatched roof was erected by the congregation in 1834, and [. . .] the construction of a stone meeting house designed by Reverend Edward Baily was started and subsequently brought to completion in 1840 [. . .]
>
> The initial documentation of life in Wailuku during the first half of the nineteenth century was recorded by the Protestant missionaries from their station at Wailuku in 1832. The missionary census of 1831-1832 recorded a total population of 2,256

> in Wailuku Ahupua‘a, comprising 918 adult males, 860 adult females, and 478 children [. . .] By 1840, the Wailuku population had dropped to 1,364, representing a diminution of 892 in just four years [. . .] (brackets added)

A well-known map produced by University of Hawai‘i demographer John Welsey Coulter (1931) (Figure 10) shows the current project area as east of the main population center of Wailuku and southwest of the coastal and near-coastal settlement areas of Hāmākuapoko.

2.2.3 Middle 1800s – Māhele ‘Āina

Beginning in the 1840s, private property was introduced via formation of the Board of Commissioners to Quiet Land Titles, and the adoption of the Māhele (i.e., the division of Hawaiian lands). In 1845, King Kamehameha III waived his right to full authority over all lands; he portioned out some for his personal use (crown lands), and divided the rest into government land, land for the ali‘i (chiefs) and konohiki (land overseers), and land for commoners (kuleana land) (Alexander 1891; Board of Commissioners 1929; Moffat and Fitzpatrick 1995). After this time, Land Commission Awards (LCAs) were granted to commoners as kuleana parcels for fee ownership. LCAs record who resided on the land and how the land was used. There are no kuleana (commoner) parcels, nor claims, in or near the project area. Another type of land ownership introduced in the middle nineteenth century was Land Grants (LG), which were not actually “grants” but purchases of private land from the Hawaiian government. The current project area was once part of such a purchase (LG 3343) to Claus Spreckels, who founded a vast commercial sugar cane operation that included the current project area.

Yucha et al. (2020:24) discuss Wailuku’s place in the Māhele ‘Āina:

> Wailuku was declared as “Crown Land” to be used to support the Kingdom of Hawai‘i (Zambucka 1977:48).
>
> Ruth Ke‘elikolani, half-sister of Kamehameha V (Lot Kapuāiwa), inherited the *ahupua‘a* of Wailuku from Lot Kapuāiwa on his death in 1872. Ruth Ke‘elikolani then sold a portion of her Wailuku land holdings to the sugar-industrialist Claus Spreckels in 1882. Spreckels subsequently received Land Grant 3343 from King Kalakaua, that consisted of 24,000 acres of the southeastern portion of the Wailuku Ahupua‘a (Zambucka 1977:48). Spreckels’ acquisition of the 24,000-acre parcel in fee simple occurred when he agreed to purchase a part-interest in Crown Lands of the Kingdom of Hawai‘i from Princess Ruth Ke‘elikolani. This agreement allowed the Commission of Crown Lands to exchange Spreckels’ part-interest for the fee-simple title to central Maui lands he had previously leased from the Kingdom in 1877 (Daws 1968) [. . .]
>
> Although almost 300 subsequent awards to individuals were awarded by the Land Commission for kuleana lands within the *ahupua‘a* of Wailuku, a majority of these claims represented lands located in the upland portion of the *ahupua‘a* focused along the flood plain of the ‘Īao Valley Stream, as well as mauka of the area identified as the “Sand Hills” [. . .] The disposition of these awards may reflect a continuation into the post-Contact era of the traditional Hawaiian settlement of Wailuku and avoidance of the Sand Hills area [referring to an area west of the current project area known for containing unmarked Hawaiian burials] (brackets added)

Figure 10. Main population centers on Maui circa 1853 according to demographer Coulter (1931:22); each circle represents 50 people; approximate location of current project area indicated by star symbol

2.3 Historical Maps and Aerial Images

Figure 11, a portion of 1885 map by F.S. Dodge, shows the entire project are within the limits (denoted by red line boundary) of commercial sugar cane operations of the Hawaiian Commercial and Sugar Co. (HC&S). At this time, the entire area was referred to as Wailuku and the name C. Spreckles as the major landowner is also shown. Puʻu Koae (spelled Koahe on other historic maps) is shown at or near the southern parcel of the current project area.

Figure 12, a portion of 1893 map by Lyons, depicts the extent and features of the original Sprecklesville Plantation within which the northern parcel of the current project area was located. This map shows several railroad lines crossing through and near the northern parcel of the current project area. In addition to the main line ("Main R.R."), numerous named laterals (including "Sam Sing R.R." traversing the parcel) and branch lines are also depicted. These lines would have moved harvested cane from the fields to processing mills at Pāʻie and Puʻunēnē. A series of workers' camps are depicted along the "Waihee Ditch," which cuts across the project area along Pulehu Road, including one just east of the current project area along Pulehu Road. Another major irrigation ditch labeled "Haiku Ditch" also cut across (presumably under via a culvert) Pulehu Road. A fence line labeled "H. C. & S." cuts across the middle of the project area along Pulehu Road.

Figure 13, a portion of 1924 topographic map, shows many site-features and details on the landscape in and around the current project area, showing the area was completely dedicated to the commercial sugar cane industry at this time. The "Sam Sing" railway line runs from the Sam Sing Camp to a narrow gauge line to the north. A pipeline traversed the eastern portion of the northern parcel. Many other ditches, pipelines and rail lines are depicted in or adjacent to the project area along its length with numerous workers' camp on either side of Kula (now Pulehu) Road.

Figure 14, a portion of 1929 map, shows similar features in less detail than the previous (1924) map.

Figure 15, a portion of 1950 aerial photograph, shows the northern parcel completely under commercial sugar cane agriculture with several linear resources depicted consisting of roads, an irrigation ditch along the southern boundary of the northern parcel and a pipeline in the eastern portion of the northern parcel. Other than these features, there are no structures or development in the northern parcel.

Figure 16 is a portion of 1950 aerial photograph of the entire current project area, shows similar commercial sugar-cane features along its entire length.

Figure 17, a 1955 USGS topographic map, shows similar commercial sugar-cane features along its entire length as the two aerial photographs from 1950.

Figure 11. Portion of 1885 map showing project-area location (base map source: DAGS Land Survey Map Search, http://ags. hawaii.gov/survey/map-search/)

Figure 12. Portion of 1893 map of Specklesville Plantation (Registered Map 1786); note, map was produced "upside down" (i.e., north arrow facing down) (base map source: DAGS Land Survey Map Search, http://ags.hawaii.gov/survey/ map-search/)

Figure 13. Portion of 1924 topographic map showing project-area location (base map source: University of Hawai‘i-Mānoa’s digital maps, http://magis.manoa.hawaii.edu/maps/index.html)

Figure 14. Portion of 1929 topographic map with project area location (base map source: University of Hawai‘i-Mānoa’s digital maps, http://magis.manoa.hawaii.edu/maps/index.html)

Figure 15. Portion of 1950 aerial photograph with northern parcel location (base map source: University of Hawai‘i-Mānoa’s digital maps, http://magis.manoa.hawaii.edu/maps/index.html)

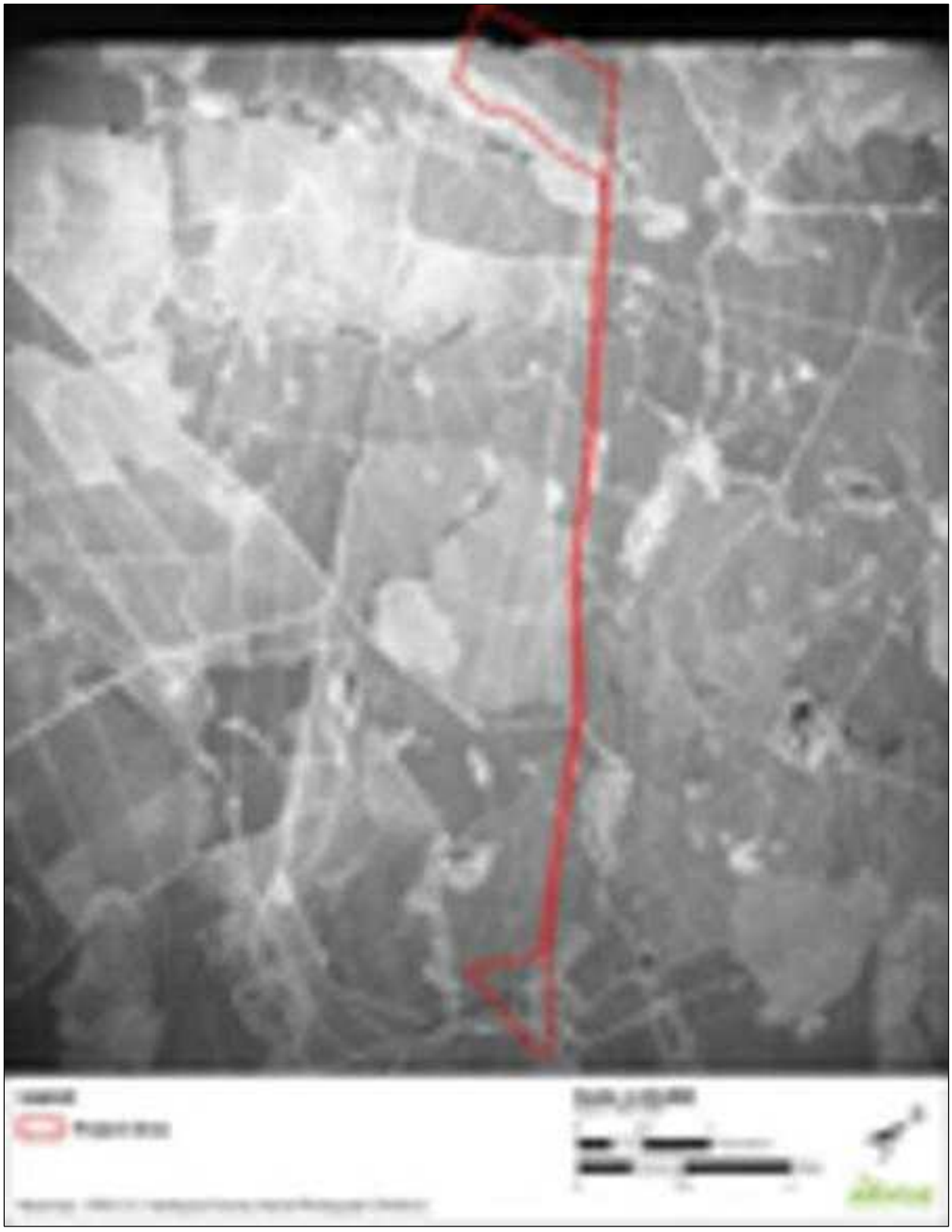

Figure 16. Portion of 1950 topographic map with project-area location (base map source: University of Hawai‘i-Mānoa’s digital maps, http://magis.manoa.hawaii.edu/maps/index.html)

Figure 17. Portion of 1955 USGS topographic map with project-area location (base map source: University of Hawai‘i-Mānoa’s digital maps, http://magis.manoa.hawaii.edu/maps/index.html)

Section 3 Previous Archaeological Studies

In this section, we summarize relevant previous archaeological studies in and near the project area to reconstruct human use and modification of the land in both pre-Contact and historic-period times. The main purpose of presenting this information is to develop predictive data about the types and distribution of archaeological historic properties and their component features we expected to encounter; and to assist interpretation of any new findings. If this project requires additional archaeological investigation, such as an archaeological inventory survey (AIS) or archaeological monitoring, this section may be expanded.

Table 1, Figure 18 and Figure 19 summarize and depict previous archaeological and other cultural-resource management studies in and near the project area.

3.1 Previous Studies in and near Current Project Area

Prior to the advent of modern, professional archaeological research on Maui, several early studies that included compilations and surveys of heiau (traditional Hawaiian temples) and other prominent structures such as fishponds and settlement/cultivation areas were completed (e.g., Stokes 1916; Walker 1931; Thrum 1938). Starting in the 1970s, with the advent of Federal and State historic preservation laws, updated island-wide survey and compilation projects (i.e., Emory and Hommon 1972; Sterling 1998) were also completed. These studies, which focused on above-ground sites, identified one site (SIHP # 50-50-05-00056) within 0.5 miles of current project area (i.e., just west of the northern parcel of the current project area), described by Walker (1931) as a platform-terrace heiau that had been destroyed by the time of his survey work.

Other studies are summarized below.

3.1.1 Connolly 1981

On behalf of the State Department of Transportation, Airports Division, Connolly (1981) conducted a brief (two-day) archaeological reconnaissance survey at and around the (then) extent of Kahului Airport to support a master plan for the facility. Two traditional Hawaiian sites were identified more than one mile northeast of the northern end of the current project area: State Inventory of Historic Places (SIHP) # 50-50-05-01798, described as a burial site with an unknown number of individuals that had been partially disturbed in the past. Connolly (ibid.) summarized this site as follows:

> Site 1 [SIHP # 01798] consists of an uncertain number of burials located within the boundaries of the airport proper. These burials were pointed out by Mr. Hanchett. He stated that several burials were discovered some years ago during bulldozing to clear a section of the airport for development. Upon finding the burials, work was stopped. Mr. Charles Maxwell was brought in to bless and rebury the bones off to the side of the construction areas [. . .]. Other, undisturbed burials were left in place, and to prevent any further disturbance of them large boulders were pushed around the site by the contractor [. . .]. (brackets added)

The second site identified by Connolly (ibid.), SIHP # 50-50-05-01798, consisted of " . . . a possible prehistoric house site located approximately 200 meters northeast of the burials, in the sand dunes just to seaward of the airport proper."

3.1.2 Watanabe 1987

Watanabe (1987) conducted archaeological reconnaissance survey of three, discrete parcels on Maui in advance of the (then) proposed Relay Mirror Experiment, a project that involved using a mirror to reflect sunlight and create a mirror-based solar collector. The project area was located east of, and adjacent to, the northern end of the current project area, east of Pulehu Road. No historic properties were identified at this location, which had been severely impacted by commercial sugar cane agriculture in the historic period.

3.1.3 Welch 1988, Tomonari-Tuggle and Welch 1995

International Archaeological Research Institute, Inc. (IARII) (Welch 1988) conducted additional archaeological reconnaissance survey in and around Kahului Airport following up on previous work by Connolly (1981). Welch (1988) provided further documentation of two sites identified by Connolly (1981) (see above) and surveyed an area west of the previously identified sites. Heavy modern disturbance was noted; no new historically significant or culturally sensitive finds were made of above-ground sites. Sand was noted in the project area, which was the rationale for a recommendation for archaeological monitoring of future ground disturbance.

IARII (Tomonari-Tuggle and Welch 1995) conducted additional archaeological reconnaissance survey in and around Kahului Airport with an emphasis on the identification of World War II military structures and structural remnants; documentary research also indicated the possibility of encountering plantation village remnants inland of the eastern end of the runways, as well as railroad remnants.

3.1.4 Riford and Cleghorn 1989

Bishop Museum archaeologists (Riford and Cleghorn 1989) conducted an archival assessment (i.e., an archaeological literature review) of proposed power plant sites across Maui. The Pu'unēnē HC&S Mill Site, just southwest of the current project area, was determined to have low potential for above-ground archaeological features given its severe impact by commercial sugar cane agriculture in the historic period (ibid.:13). The potential for encountering subsurface archaeological resources was deemed moderate in places where above-ground modification to the landscape was minimal (ibid.).

3.1.5 Sinoto and Pantaleo 1992

Aki Sinoto Consulting conducted an AIS for the proposed East Maui Waterline Project consisting of a linear corridor measuring more than 20 miles from East Maui to an existing pipeline facility in Central Maui near Kuihelani Highway (Sinoto and Pantaleo 1992). Much of the waterline project area consisted of paved roads or areas of sugar cane production. No subsurface testing was conducted. No historic properties were identified.

3.1.6 Hammatt 1995

Cultural Surveys Hawai‘i (CSH) conducted archaeological survey (with no subsurface excavation) at three discrete parcels adjacent to Pulehu Road (Hammatt 1995). One of the parcels partially overlaps with part of Burgett and Spear (1997) and Monahan (2023) project areas. No historic properties were identified.

3.1.7 Burgett and Spear 1997

Scientific Consultant Services (SCS) conducted archaeological survey (with no subsurface excavation) of an approximately 65-acre rectangular parcel along the west side of Pulehu Road (adjacent to the ROW portion of the current project area) and approximately 10 miles of proposed utility corridors from Pu‘unēnē Mill to Pā‘ia Mill. The 65-acre parcel was found to be entirely in active sugar cane agriculture. In the utility corridor portion of the project area, no traditional Hawaiian archaeological features were observed but some irrigation ditches and other potential agricultural sites from the historic period were noted.

3.1.8 Tomonari-Tuggle et al. 2001

An AIS of the former Naval Air Station (NAS) Puunene was conducted by Tomonari-Tuggle et al. (2001). The approximately 1,875-acre project area yielded numerous sites and features. These include all of the existing features of NAS Puunene; remains of a cattle ranch dating from the late 1940s; the area of pre-war Camp 6; abandoned features of the HC&S sugar plantation; and remains of the Kihei railroad line (Tomonari-Tuggle et al. 2000: iii). None of these sites are within 0.5 miles of the current project area.

3.1.9 Hill et al. 2008

CSH conducted archaeological monitoring in support of a cesspool conversion project at Pu‘unēnē School southwest of the northern project-area parcel. No historic properties were identified; fragments of historic-period and modern glass, ceramics and nails, including a historic-period medicine bottle, were collected from excavated material. No SIHP #s were generated for these artifact finds.

3.1.10 Madeus and Fredericksen 2008

Xamanek Researches (Xamanek) conducted a AIS of an approximately 12.8-acre parcel along the east side of Pulehu Road (Madeus and Fredericksen 2008) identified one historic property, designated SIHP # 50-50-05-06360, representing structural remnants of the old Pu‘unēnē Hospital.

3.1.11 McCurdy et al. 2009

CSH conducted an archaeological literature review and field inspection (ALRFI) of a 13-acre project area on the east side of Pulehu Road (McCurdy et al. 2009). No historic properties identified. The authors state (ibid.ii):

> The historic use of the project area for agriculture and modern developments therein likely caused the destruction of any above-ground historic properties within the current project corridor. Background research and prior archaeological

investigations in the general vicinity of the project corridor indicate a limited potential for encountering subsurface cultural layers and human burials. However, subsurface deposits and features related to the historic use of the project area by commercial plantation activities is more likely.

3.1.12 Fuentes et al. 2014

Archaeological Services Hawai‘i (ASH) conducted burial treatment of SIHP # 50-50-05-07622 along the western boundary of northern parcel of current project area (Fuentes et al. 2014). The find was described as “secondarily deposited human remains in imported pipe bedding during the Target construction.”

3.1.13 Andricci and Dega 2018

SCS conducted an AIS along the east side of Pulehu Road at the current Central Maui Landfill Facilities (Andricci and Dega 2018). Their work included extensive subsurface testing (30 trenches) but no above-ground or subsurface sites were identified.

3.1.14 Pantaleo 2018

ASH (Pantaleo 2018) conducted burial treatment of SIHP # 50-50-05-08506 just northwest of the current project area. The find was described as “single skeletal element in secondary context recovered in fill material excavated during construction.” The site was identified on the property of American Savings Bank on Ho‘okele Street.

3.1.15 Monahan 2023

Honua (Monahan 2023) completed a cultural resources assessment (CRA) including a field inspection in support of the Waena Contingency Plan project at 8001 Pulehu Road; the project area of 65.7 acres was found to have been severely impacted by more than 100 years of commercial sugar cane and other, mechanized agriculture. Two potential historic properties were identified at the ground surface in the project area: both are plantation-era irrigation ditches that initially appear on maps dating to 1922 and 1954. These two ditches are still in use. These potential historic properties do not currently have SIHP #s. No traditional Hawaiian sites are located at the ground surface in the project area.

3.1.16 Yucha et al. 2023

CSH conducted an AIS on HC&S property adjacent to, and east of, Pulehu Road (Yucha et al. 2023). The report is in draft form only (i.e., currently unavailable to the public) because it is still in review with the SHPD. Basic details (findings, site type, GIS location of project area and results) were provided to Honua by Yucha as a professional courtesy. The AIS documented a historic-period Japanese cemetery designated SIHP # 50-50-05-09013 from which the burials had been removed and reinterred elsewhere in the past. An abandoned “cane haul” (sugar cane) road designated SIHP # 50-50-05-04092 was also documented.

Table 1. Summary of Previous Archaeological and other Historic-Preservation Studies in and near Current Project Area

Previous Study	Formal Type	Location	Results & Comments
Stokes 1916 Walker 1931 Thrum 1938 Sterling 1998	Earliest surveys / compilations of heiau (temples), other sites and wahi pana (legendary places)	Maui Island-wide	These studies focused on above-ground sites and identified 1 site (SIHP # 50-50-05-00056) within 0.5 miles of current project area; Walker (1931) described it as a destroyed platform-terrace heiau
Connolly 1981	Archaeological reconnaissance survey	Kahului Airport Master Plan project area	Identified 2 traditional Hawaiian historic properties, both of which are more than 0.5 mile from current project area: SIHP #s 50-50-05-01798 (human burial site w. undetermined number of individuals) & 01700 (possible pre-Contact house site remnants)
Watanabe 1987	Archaeological reconnaissance survey	Parcel directly east of, and adjacent to, northern parcel of current project area, east of Pulehu Road	No historic properties identified
Welch 1988	Archaeological reconnaissance survey	Kahului Airport	Other than 2 sites identified by Connolly (see above), no new sites identified
Tomonari-Tuggle & Welch 1995	Archaeological reconnaissance survey		Study focused on World War II-era military structures and structural remnants in airport area
Riford & Cleghorn 1989	Archaeological literature review and assessment	Multiple locations on Maui – closest to current project area just west of northern project-area parcel	Pu‘unēnē HC&S Mill site assessed as mostly low potential for subsurface archaeological deposits w. some areas of moderate potential
Sinoto & Pantaleo 1992	Archaeological inventory survey (no excavation)	20-mile corridor across Central to Eastern Maui	No historic properties identified
Hammatt 1995	Archaeological survey (no subsurface excavation)	3 discrete parcels adjacent to Pulehu Road (see comments)	No historic properties identified (1 parcel partially overlaps w. part of Burgett & Spear 1997 and Monahan 2023)
Burgett & Spear 1997	Archaeological survey (no subsurface excavation)	Circa 65-acre parcel along west side of Pulehu Road and utility corridors	No historic properties identified
Tomonari-Tuggle et al. 2001	Archaeological inventory survey	Former Naval Air Station (NAS) Puunene (1,875-acre project area)	Identified numerous site/features including all existing features of NAS Puunene; remains of a cattle ranch dating from late 1940s; area of pre-war Camp 6; abandoned features of HC&S sugar plantation; and remains of Kihei railroad line; none of these sites are within 0.5 miles of current project area

Previous Study	Formal Type	Location	Results & Comments
Hill et al. 2008	Archaeological monitoring	Cesspool Conversion Project at Pu‘unēnē School southwest of northern project-area parcel	No historic properties identified; fragments of historic-period and modern glass, ceramics and nails, including a historic-period medicine bottle, were collected from excavated material
Madeus & Fredericksen 2008	Archaeological inventory survey	12.8 acres east side of Pulehu Road	Identified 1 historic property: SIHP # 50-50-05-06360, remnants of old Pu‘unene Hospital
McCurdy et al. 2009	Archaeological literature review and field inspection	13-acre project area on east side of Pulehu Road	No historic properties identified
Fuentes et al. 2014	Burial treatment	Along western boundary of northern parcel of current project area	Documented burial site SIHP # 50-50-05-07622
Andricci & Dega 2018	Archaeological inventory survey	East side of Pulehu Road at current Central Maui Landfill Facilities	Included subsurface testing (30 trenches); no historic properties identified
Pantaleo 2018	Burial treatment	Just northwest of northern parcel of current project area	Documented burial site SIHP # 50-50-05-08506
Monahan 2023	Archaeological literature review and field inspection	Circa 65-acre parcel along west side of Pulehu Road	Same project area as Hammatt 1995 and rectangular parcel studied by Burgett & Spear 1997; 2 irrigation ditches that may qualify as historic properties were identified but have not received SIHP #s
Yucha et al. 2023	Archaeological inventory survey (report is currently in draft form, in review with SHPD, and details were provided to Honua by Yucha as a courtesy)	HC&S Quarry east of Pulehu Road	Documented historic-period Japanese cemetery designated SIHP # 50-50-05-09013 and an abandoned “cane haul” (sugar cane) road designated SIHP # 50-50-05-04092

Abbreviations: SIHP = State Inventory of Historic Places

Figure 18. Previous archaeological studies in and near the project area (see table and text above for details)

Figure 19. Previous historic properties documented in and near the project area (see table and text above for details

Section 4 Conclusion

This archaeological literature review and assessment (ALRA) report was completed in support of an Environmental Impact Statement (EIS) for the Hoʻonani Village Mixed-Use Development project. The project area consists of portions of TMK (2) 3-8-006:004, (2) 2-5-001:016 and the Pulehu Road right-of-way (ROW) between these two parcels.

The northern end of the project, which is the location of the proposed mixed-use development, is adjacent to a commercial development known as Puʻunēnē Shopping Center. The northern parcel, which is privately owned, consists of undeveloped land currently used for commercial agriculture. Central Power Plant Road runs through the northern parcel.

The southern end of the project, which is the site of a potential future water source, is also privately-owned undeveloped land used for commercial agriculture. Spanish Road runs through this southern parcel. Connecting the two parcels is the Pulehu Road ROW measuring approximately 23,000 linear ft. (4.4 mi.).

The entire project area of 288.3 acres can be divided into the northern parcel (193.5 acres), the southern parcel (57.9 acres) and the ROW connecting them (36.9 acres).

The proposed project is described in the Introduction (see p.1).

The objectives of this study include: (1) documentation and description of the parcel's land-use history in the context of both its traditional Hawaiian character as well as its historic-period changes; (2) identification of any potential above-ground historic properties or component features; and (3) providing information relevant to the likelihood of encountering historically-significant cultural deposits in subsurface context during construction.

This ALRA is not an archaeological inventory survey (AIS) and did not include a field inspection. The document may be used, however, to consult with the State Historic Preservation Division (SHPD) in compliance with Hawaiʻi Revised Statutes (HRS) Chapter 6E-42 and Hawaiʻi Administrative Rules (HAR) Chapter 13-284; and to satisfy environmental review under HRS Chapter 343.

Results of this ALRA include the following:

1. The project area is part of a once-extensive commercial sugar cane operation originally founded by Claus Spreckels in the late 1800s, eventually incorporated into the Hawaiian Commercial and Sugar Co. (HC&S) (see Figure 11), which lasted well into modern times in this part of Maui;
2. Historical maps clearly depict a thoroughly altered historic-period landscape dedicated to extensive commercial sugar cane operations with numerous related features in and adjacent to the current project area, including roads, ditches, fence lines, railroads and reservoirs (see, in particular, Figure 12 [dated 1893], Figure 13 [dated 1924] and Figure 17 [dated 1955]);
3. Likewise, aerial photographs dated to 1950 (see Figures 15 and 16) clearly show the current project area as completely under intensive, commercial agriculture;
4. Archaeological surveys that have included portions of the current project area have only identified historic-period sites related to commercial (plantation) agriculture, although most of these have not been formally assessed or assigned State

Inventory of Historic Places (SIHP) #s because such sites, in the past, were not generally considered significant by archaeologists more interested in documented traditional Hawaiian sites;

5. Due to over a century of sugar cane cultivation and the installation and use of related infrastructure (e.g., roads, ditches, fence lines, railroads and reservoirs), no traditional (pre-Contact) Hawaiian site-features has been identified in or near the current project area;
6. The current project area most likely contains some above-ground historic properties related to commercial agriculture in the historic period; and,
7. It is unlikely that any intact historic properties or component features will be encountered in subsurface excavation; however, the discovery of isolated artifacts associated with the plantation-era usage of the project area, in particular, cannot be ruled out.

4.1 Recommendations

Honua recommends consultation with the SHPD-Archaeology Branch to determine if any specific identification or mitigation measures are needed for the proposed project (e.g., archaeological inventory survey (AIS) or archaeological monitoring).

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EXHIBIT 24

Cultural Impact Assessment

Cultural Impact Assessment Report for Hoʻonani Village Mixed-Use Development Project
Wailuku and Kalialinui Ahupuaʻa, Wailuku and Kula Districts (Moku), Maui Island
TMK: [2] 2-5-001:016 (por.), 3-8-006:004 (por.) & Pulehu Road ROW

Prepared for
Pioneer Design Group – Hawaiʻi, LLC

Prepared by

July 2025

Author and Lead Researchers

Kepā Maly
Onaona Maly
Trisha Kehaulani Watson, J.D., Ph.D.

Assistant Researchers and Authors

Matthew Kawaiola Sproat
Catharine Thetford
Torie Hoʻopiʻi

Note on Hawaiian language usage

In keeping with other Hawaiian scholars, we do not italicize Hawaiian words. Hawaiian is both the native language of the pae ʻāina of Hawaiʻi and an official language of the State of Hawaiʻi. Some authors will leave Hawaiian words italicized if part of a quote; we do not. In the narrative, we use diacritical markings to assist our readers, except in direct quotes, in which we keep the markings used in the original text. We provide translations contextually when appropriate.

Front Cover Credit

Digital Archives of Hawaiʻi. (n.d.). *Sugar cane, Puunene, Maui*. [Photograph]. Reference PNL-6-00181. https://digitalarchives.hawaii.gov/item/ark:70111/4c36

Executive Summary

At the request of Pioneer Design Group – Hawai‘i, LLC, Honua Consulting, LLC prepared a Cultural Impact Assessment for the proposed Ho‘onani Village Mixed-Use Development project. This project is a large-scale, mixed-use residential and community development planned for 288-acres in Pu‘unēnē, Wailuku and Kalialinui ahupua‘a, Wailuku (Pū‘ali Komohana) and Kula moku in Central Maui. Ho‘onani Village is envisioned as a new, walkable community that will provide a mix of residential and community amenities. The project includes: approximately 1,625 residential units; over 19 acres of greenspace and community areas, including parks, pedestrian paths, and recreational facilities; and supporting infrastructure, including a wastewater treatment plant, proposed water well and tank site on Mahi Pono lands, and an internal roadway network. A new waterline will convey water from the proposed well to the project area.

Research in preparation of this report involved a thorough search of Hawaiian language documents including, but not limited to, the Bishop Museum mele index and Bishop Museum archival documents, such as the Hawaiian language archival cache. All Hawaiian language documents were reviewed by Hawaiian language experts for relevant information that could be included in the report. Documents considered relevant to this analysis are included herein and translations are provided when appropriate to the discussion. Summaries of interviews and information on other oral testimonies are also provided. An impact analysis and *Ka Pa‘akai* analysis are both included in this CIA.

Based on the extensive identification effort and thorough analysis undertaken for this assessment, which included interviews with a number of cultural experts and area practitioners, there is a potential for the project to have an impact on valued cultural, historical, or natural resources in the project area or larger geographic extent, which is to be addressed through the HRS Chapter 6E process. Additionally, there is a negligible potential for the project to have a direct, adverse impact on traditional or customary Native Hawaiian rights in the project area or in the larger geographic extent, largely in part to the extensive commercial agricultural use of the project area for over 100 years. It is unfortunate, but any cultural practices that may have occurred in the project area or surrounding area were likely discontinued after the land was acquired by companies with commercial interests for plantation use. Cultural resources that may have once existed in the project area were likely irreparably destroyed by decades of agricultural use. Any potential for an adverse indirect or cumulative impact in the larger geographic extent can be minimized through the conditions and BMPs recommended herein. These conditions and BMPs constitute feasible action that may be reasonably taken to protect Native Hawaiian rights and cultural rights in the larger geographic extent.

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Abbreviations and Acronyms

A&B: Alexander & Baldwin
ALRA: Archaeological Literature Review and Assessment
AMSL: Above Mean Sea Level
BMP: Best Management Practice
CIA: Cultural Impact Assessment
DLNR: Department of Land and Natural Resources
EaA: Ewa silty clay loam, 0-3% slopes
EIS: Environmental Impact Statement
ERP: Environmental Review Program
ESOHP: Ethnic Studies Oral History Project
ft.: Linear feet
GIS: Geographic Information System
HAR: Hawai‘i Administrative Rules
HC&S: Hawaiian Commercial & Sugar Company
HRS: Hawai‘i Revised Statutes
HSA: Hawai‘i State Archives
ICH: Intangible Cultural Heritage
Ka Pa‘akai: Ka Pa‘akai O Ka ‘Āina v. Land Use Commission, 94 Haw. 31 (2000)
KnaC: Keahua cobbly silty clay loam, 7-15% slopes
KnbD: Keahua very stony silty clay loam, 7-25% slopes
LCA: Land Commission Award
m.: Meters
MA Company: Maui Agricultural Company
MAGIS: Maps Aerial Photographs and GIS
Māhele: The Māhele ‘Āina of 1848
NAS Pu‘unēnē: Naval Air Station Pu‘unēnē
NOAA: National Oceanic and Atmospheric Administration
ROW: Right-of-way
SHPD: State Historic Preservation Division
SIHP: State Inventory of Historic Places
SLH: Session Laws of Hawai‘i
TMK: Tax Map Key
USFWS: U.S. Fish and Wildlife Service
USGS: The United States Geological Survey
WWII: World War II

1.0 Project Description

At the request of Pioneer Design Group Hawai‘i, LLC, Honua Consulting, LLC prepared a Cultural Impact Assessment (CIA) for the proposed Ho‘onani Village Mixed-Use Development project. This project is a large-scale, mixed-use residential and community development planned for 288-acres in Pu‘unēnē, Wailuku and Kalialinui ahupua‘a (land division usually extending from mauka (uplands) to makai (seaward)), Wailuku (Pū‘ali Komohana) and Kula moku (districts) in Central Maui. The northern parcel of the project area consists of portions of Tax Map Key (TMK) (2) 3-8-006:004, which is situated mauka of the Pu‘unēnē Shopping Center and is bounded by Hansen Road to the south, Pulehu Road to the east, and Maui Veterans Highway to the west. The project site lies near numerous existing amenities including Safeway, Target, Lowe’s, Walmart, Home Depot, Planet Fitness, and the Kahului Airport. The southern end of the project consists of portions of TMK (2) 2-5-001:016 and it the site of a potential future water source. This parcel is privately-owned undeveloped land used for commercial agriculture, bounded by Pulehu Road to the east-northeast with Spanish Road running through the parcel. Connecting the two parcels is the Pulehu Road right-of-way (ROW) measuring approximately 23,000 linear feet (ft.).

Ho‘onani Village is envisioned as a new, walkable community that will provide a mix of residential and community amenities. The project includes:

- **Approximately 1,625 residential units**, proposed to be developed in three phases:
    - Phase 1: ~1,017 units
    - Phase 2: ~304 units
    - Phase 3: ~304 units

      At least 50% of the units in each phase are proposed as workforce or affordable rental housing.
- **Over 19 acres of greenspace and community areas**, including parks, pedestrian paths, and recreational facilities, which will support both community and cultural engagement.
- **Supporting infrastructure**, including a wastewater treatment plant, proposed water well and tank site on Mahi Pono lands, and an internal roadway network. A new waterline will convey water from the proposed well to the project area.
- **Design principles** focused on livability, sustainability, and connectivity to nearby services and commercial areas. The plan encourages pedestrian access and walkability.

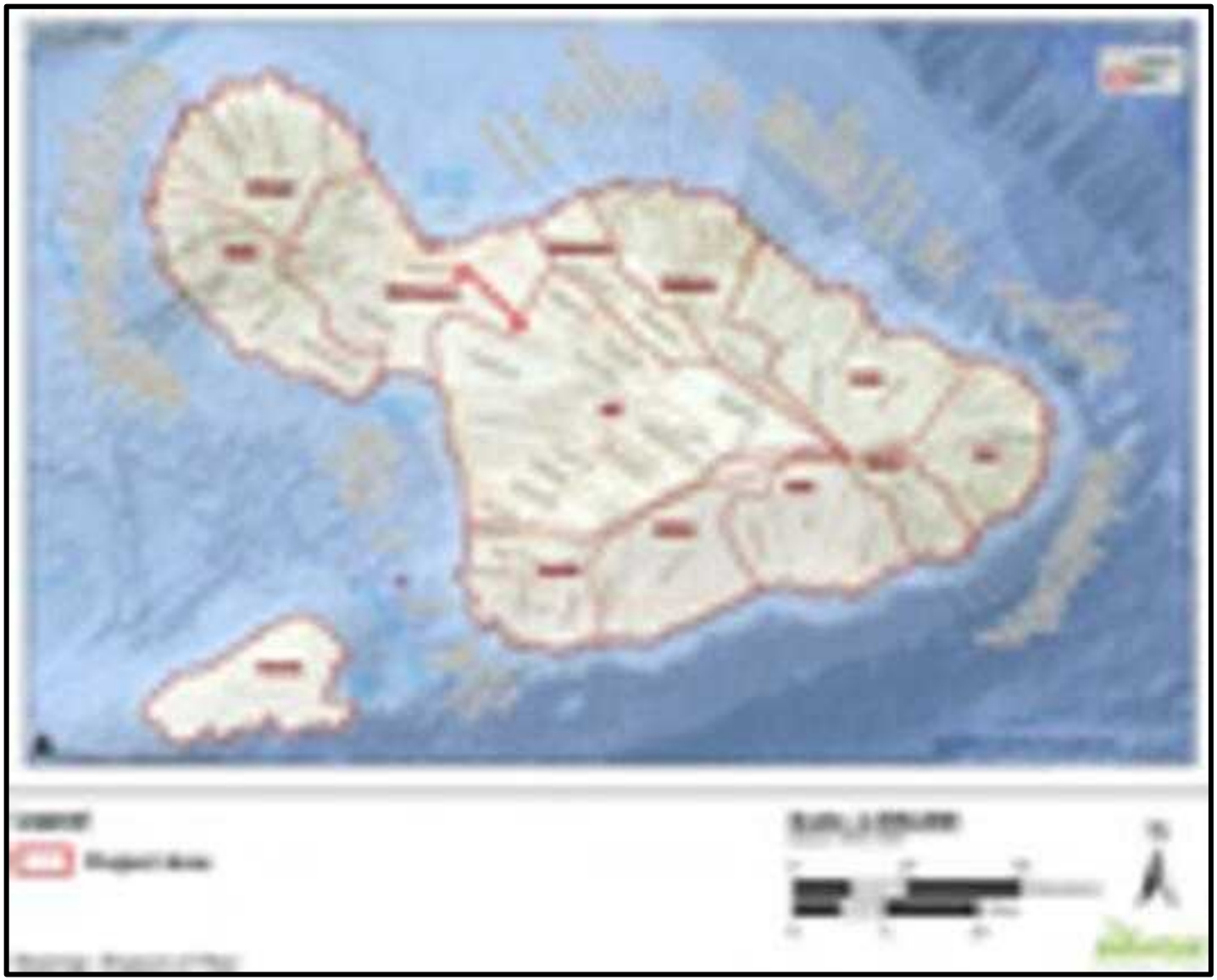

Figure 1. Traditional moku and ahupua‘a of Maui according to the Maui Nui Ahupua‘a Project (Source: http://www.mauinuiahupuaaproject.com)

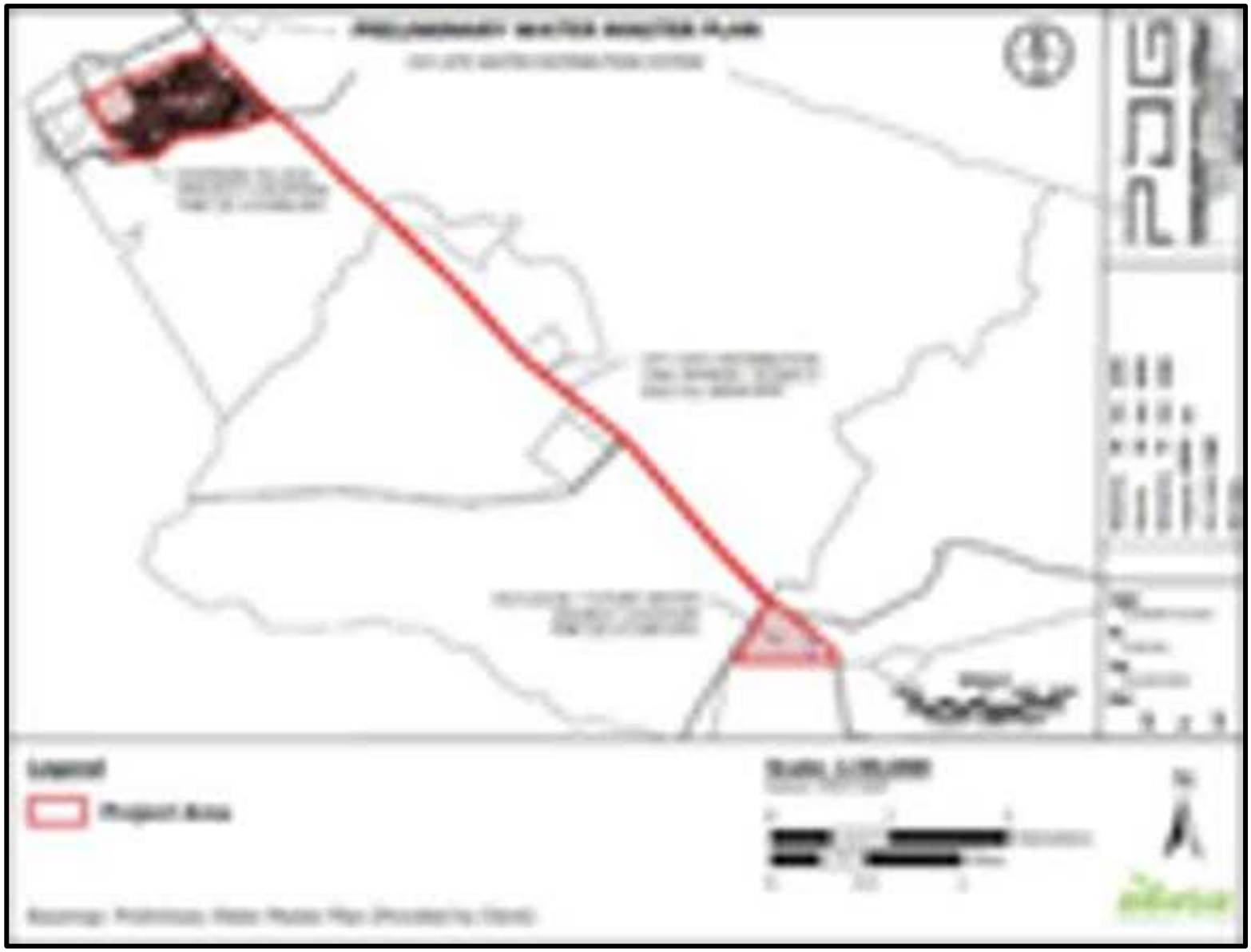

Figure 2. Preliminary Water Master Plan Showing Potential Future Water Connection to Project Site

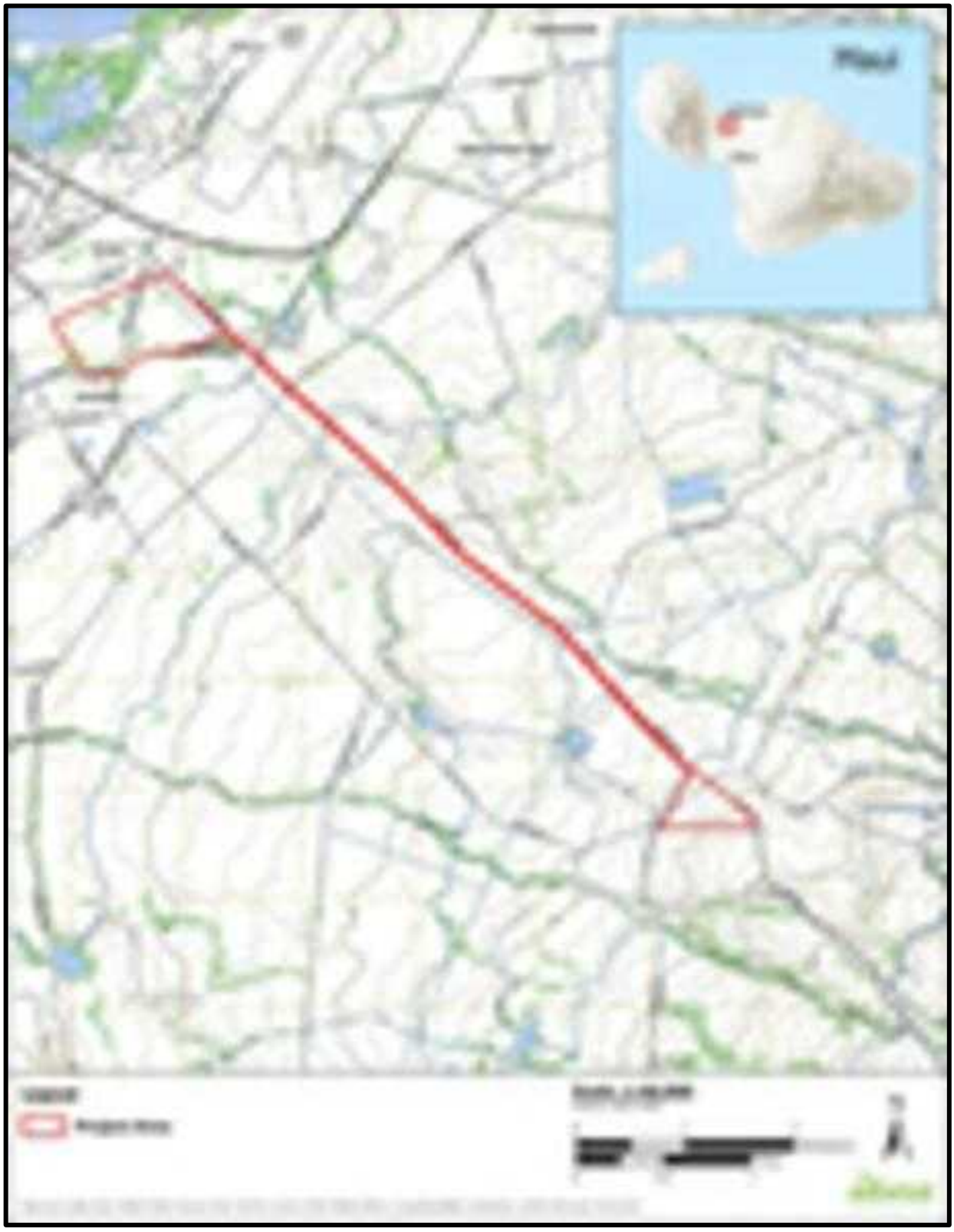

Figure 3. Portion of 2013 USGS Topographic Map Showing Project Area

Figure 4. Aerial Image Showing Project Area

Figure 5. Portion of TMK Map Showing Northern Half of Project Area

Figure 6. Portion of TMK Map Showing One Version of Southern Half of Project Area

Figure 7. Portion of TMK Map Showing Second Version of Southern Half of Project Area

1.1 Description of the Project Area

The project site is part of the historic plantation-era lands once cultivated for sugarcane by Hawaiian Commercial & Sugar Company (HC&S) and more recently used as agricultural land under Mahi Pono, LLC. It is located within the Nā Wai ʻEhā region, an area historically rich in Native Hawaiian history and cultural significance.

The boundaries of the moku and ahupuaʻa of Maui have been redefined from the traditional boundaries, but the most widely accepted model illustrates that the northern parcel lies within Wailuku ahupuaʻa, Wailuku (Pūʻali Komohana) moku, while the southern parcel lies within Kalialinui ahupuaʻa, Kula moku (Figure 1).

Elevation of the project area varies from about 500 ft. (152.4 meters (m.)) above mean sea level (amsl) in the mauka portion to about 60 ft. (18.3 m.) amsl in the makai portion. Mean annual rainfall is about 20 inches (Giambelluca et al., 2013), which is a relatively low average when compared to Maui island as a whole. Vegetation of the project area would have consisted of dryland forest and shrubs prior to Western contact, but is currently dominated by cultivated crops, invasive grasses, and weeds due to commercial agriculture and human alteration of the landscape.

The soil type within the project area – excluding the Pulehu Road ROW – consists of Ewa silty clay loam (EaA, 0-3% slopes) in the northern parcel, and Keahua very stony silty clay loam (KnbD, 7-25% slopes) and Keahua cobbly silty clay loam (KnaC, 7-15% slopes) in the southern parcel (Figure 8). EaA is typically used for sugar cane and homesites, as runoff is very slow with slight erosion hazards (Foote et al., 1972, p. 30). KnbD is used for pasture and wildlife habitat, but is not considered prime farmland (Foote et al., 1972, p. 66). KnaC is used for sugarcane and pasture, with a few acres used for truck crops (Foote et al., 1972, p. 66).

1.2 Background

The State and its agencies have an affirmative obligation to preserve and protect Native Hawaiians' customarily and traditionally exercised rights to the extent feasible.[1] State law further recognizes that the cultural landscapes provide living and valuable cultural resources where Native Hawaiians have and continue to exercise traditional and customary practices, including hunting, fishing, gathering, and religious practices. In *Ka Paʻakai*, the Hawaiʻi Supreme Court provided government agencies an analytical framework to ensure the protection and preservation of traditional and customary Native

[1] Article XII, Section 7 of the Hawaiʻi State Constitution, *Ka Paʻakai O Ka ʻĀina v. Land Use Commission*, 94 Haw. 31 [2000] (Ka Paʻakai), Act 50 Session Laws of Hawaiʻi (SLH) 2000.

Hawaiian rights while reasonably accommodating competing private development interests. This is accomplished through:

1) The identification of valued cultural, historical, or natural resources in the project area, including the extent to which traditional and customary Native Hawaiian rights are exercised in the project area;
2) The extent to which those resources—including traditional and customary Native Hawaiian rights—will be affected or impaired by the proposed action; and
3) The feasible action, if any, to be taken to reasonably protect Native Hawaiian rights if they are found to exist.

The appropriate information concerning the project area has been collected, focusing on areas near or adjacent to the project area. A thorough analysis of this project and potential impacts to cultural resources, historical resources, and archaeological sites is included in this survey.

This CIA provides an overview of cultural and historic resources in the project area using thorough literature review, community and cultural practitioner consultation, and high-level, project-specific surveys. This CIA focuses on identifying areas in which disturbance should be avoided or minimized to reduce impacts to historic properties or culturally important features. The paramount goal is to minimize impact through avoidance of sensitive areas and mitigating for impacts only if avoidance is not feasible.

1.3 Geographic Extent

The geographic extent for impacts to cultural resources and historic properties includes the project area and localized surroundings. This CIA also reviews some of the resources primarily covered by the regulatory review. It primarily researches and reviews the range of biocultural resources identified through historical documents, traditional knowledge, information found in the Hawaiian language historical cache, and oral histories and knowledge collected from cultural practitioners and experts.

The best practice for CIAs is to define a geographic extent beyond the identified or typical boundaries of the geographic project area. The recommended area is typically the size of the ahupua‘a or moku, but this can be larger or smaller depending on what best helps to identify the resources appropriately.

The geographic extent of the CIA is based on the position that the “Project Area” is part of an existing or former cultural landscape or cultural landscapes, and that therefore it is most appropriate to set and study the proposed alternatives within that cultural context.

This approach is not to imply that an eligible cultural landscape currently exists in the region.

Additionally, this geographic extent is rather unique because of its location and the geopolitical history of Maui. Wailuku is part of “Na Poko,” which is an unusual land designation compared to the majority of land designations throughout traditional Hawai‘i. In 1891, W.D. Alexander wrote:

> On Maui the lands of Waikapu and Wailuku appropriated almost the whole isthmus so as to cut off half of the lands in the district of Kula from access to the sea. These two ahupuaas (sic), together with Waiehu and Waihee, which were independent, belonging to no Moku, were called Na Poko, and have been formed into a district in modern times. (p. 106)

1.4 Goal of Cultural Impact Assessment

This CIA, along with the archaeological literature review and assessment (ALRA) being completed by Honua Consulting, aims to fulfill the requirement of taking into account the Project’s potential impacts on historic and cultural resources and, at a minimum, describe: a) any valued cultural, historic, or natural resources in the area in question, including the extent to which traditional and customary native Hawaiian rights are exercised in the area, b) the extent to which those resources – including traditional and customary Native Hawaiians rights – will be affected or impaired by the Project; and c) the feasible action, if any, to be taken to reasonably protect Native Hawaiian rights if they are found to exist.

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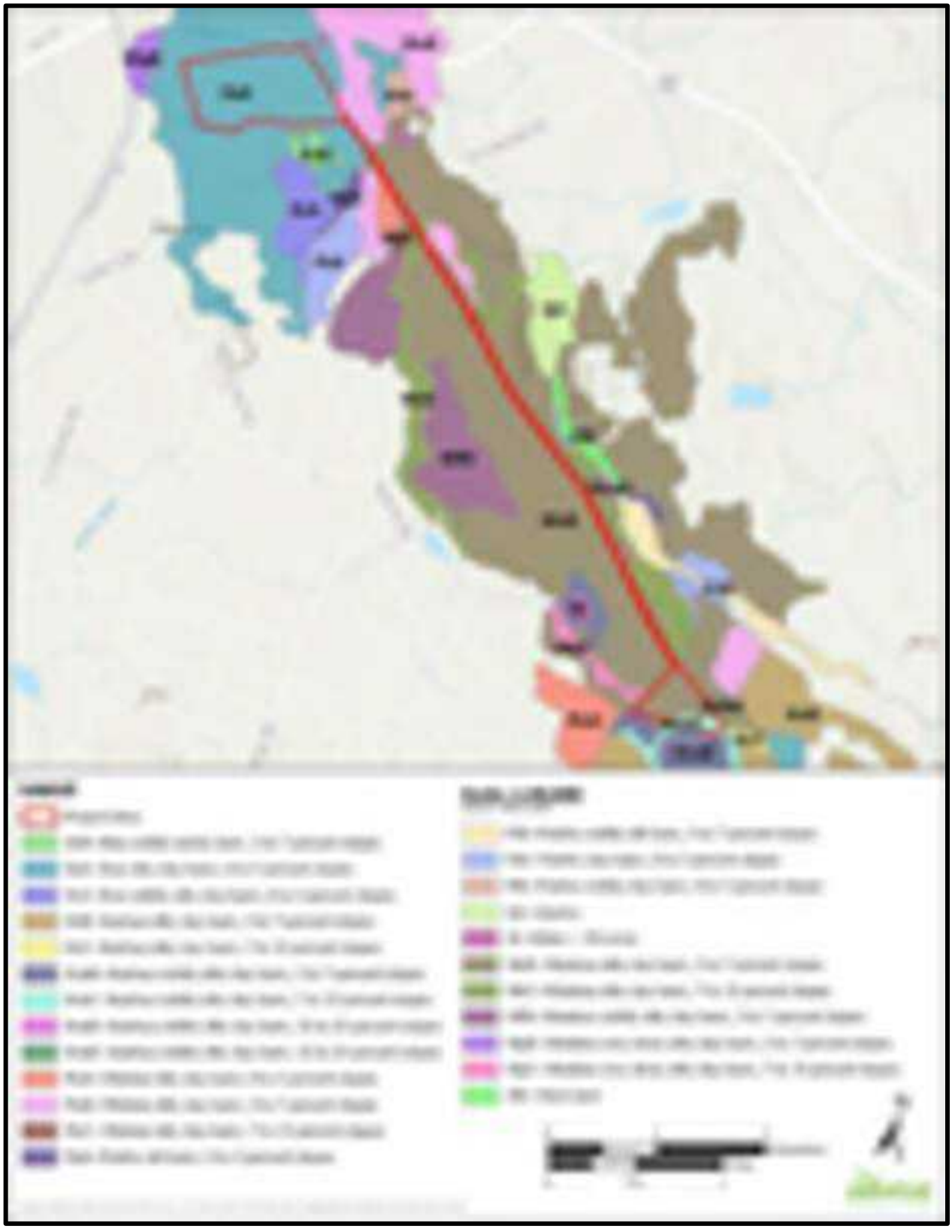

Figure 8. Soil Series Overlay Showing Soils in the Project Area

2.0 Methodology

The approach to developing the CIA is as follows:

1) Gather Best Information Available
   a) Gather historic cultural information from stories and other oral histories about the affected area to provide cultural foundation for the report;
   b) Inventory as much information as can be identified as many known cultural, historic, and natural resources, including previous archaeological inventory surveys, CIAs, etc. that may have been completed for the area; and
   c) Update the information with interviews with cultural or lineal descendants or other knowledgeable cultural practitioners.
2) Identify Potential Impacts to Cultural Resources
3) Develop Reasonable Mitigation Measures to Reduce Potential Impacts
   a) Involve the community and cultural experts in developing culturally appropriate mitigation measures; and
   b) Develop specific best management practices (BMPs), if any are required, for conducting the project in a culturally appropriate and/or sensitive manner as to mitigation and/or reduce any impacts to cultural practices and/or resources.

While numerous studies have been conducted on this area, very few have effectively utilized Hawaiian language resources and Hawaiian knowledge. This appears to have impacted modern understanding of this location, as many of the relevant documents are native testimonies given by Kanaka Hawai‘i (Hawaiians) who lived on this land.

While hundreds of place names and primary source historical accounts (from both Hawaiian and English language narratives) are cited in this document, it is impossible to tell the whole story of these lands in any given manuscript. A range of history, spanning generations, has been covered. Importantly, the resources herein are a means of connecting people with the history of their communities—that they are part of that history. Knowledge of place will, in turn, promote appreciation for place and encourage acts of stewardship for the valued resources that we pass on to the future.

Background research was conducted using materials obtained from the State Historic Preservation Division (SHPD) library in Kapolei and the Honua Consulting LLC report library. On-line materials consulted included the Ulukau Electronic Hawaiian Database (www.ulukau.com), Papakilo Database (www.papakilodatabase.com), the State Library on-line (http://www.librarieshawaii.org/Serials/databases.html), and Waihona ‘Āina Māhele database (http://www.waihona.com). Hawaiian terms and place names were translated using the on-line Hawaiian dictionaries (Nā Puke Wehewehe ‘Ōlelo Hawai‘i) (www.wehewehe.com), and *Place Names of Hawai‘i* (Pukui et al., 1976), and *Hawai‘i*

Place Names (Clark, 2002). Historic maps were obtained from the State Archives, State of Hawai'i Land Survey Division website (http://ags.hawaii.gov/survey/map-search/), and the UH-Mānoa Maps, Aerial Photographs, and Geographic Information System (GIS) website (http://guides.library.manoa.hawaii.edu/magis). Maps were geo-referenced for this report using ArcGIS 10.3. It should be noted that GIS is not 100% precise and historic maps were created with inherent flaws; therefore, geo-referenced maps should be understood to have some built-in inaccuracy.

While conducting the research, primary references included, but were not limited to: land use records, including the Hawaiian Land Commission Awards (LCA) records from the Māhele 'Āina (Land Division) of 1848; the Boundary Commission Testimonies and Survey records of the Kingdom and Territory of Hawai'i; and historical texts authored or compiled by numerous native and foreign writers. The study also includes several native accounts from Hawaiian language newspapers (primarily compiled and translated from Hawaiian to English by Kepā Maly), and historical records authored by nineteenth century visitors, and residents of the region.

M. P. Nogelmeier (2010) discusses the adverse impacts of methodology that fails to properly research and consider Hawaiian language resources. He strongly cautions against a mono-rhetorical approach that marginalizes important native voices and evidence from consideration, specifically in the field of archaeology. For this reason, Honua Consulting consciously employs a poly-rhetorical approach, whereby all data, regardless of language, is researched and considered. To fail to access these millions of pages of information within the Hawaiian language cache could arguably be a violation of Act 50, as such an approach would fundamentally fail to gather the best information available, especially considering the voluminous amounts of historical accounts available for native tenants in the Hawaiian language.

Hawaiian culture views natural and cultural resources as largely inextricable: without the resources provided by nature, cultural resources could and would not be procured. From a Hawaiian perspective, all natural and cultural resources are interrelated, and all natural and cultural resources are culturally significant. Kepā Maly (2001), ethnographer and Hawaiian language scholar, points out, "In any culturally sensitive discussion on land use in Hawai'i, one must understand that Hawaiian culture evolved in close partnership with its natural environment. Thus, Hawaiian culture does not have a clear dividing line of where culture ends and nature begins" (p. 1). As leading researchers and scholars on Hawaiian culture, Maly and his wife, Onaona, have conducted numerous ground-breaking studies on cultural histories throughout Hawai'i. A substantial part of the archival research utilized in this study was previously compiled and published by Kepā and Onaona Maly, who have granted their permission to use this important work and are identified properly as associated authors and researchers to this study.

This study also specifically looks to identify intangible resources. Tangible and intangible heritage are inextricably linked (Bouchenaki, 2003). Intangible cultural resources, also identified as intangible cultural heritage (ICH), are resources without a physical form, such as hulu or mele (song). These resources are critical to the perpetuation of cultures globally. International and human rights law professor Federico Lenzerini (2011) notes that, "At present, we are aware on a daily basis of the definitive loss—throughout the world—of language, knowledge, knowhow, customs, and ideas, leading to the progressive impoverishment of human society" (p. 102). Lenzerini (2011) goes on to warn that:

> The rich cultural variety of humanity is progressively and dangerously tending towards uniformity. In cultural terms, uniformity means not only loss of cultural heritage—conceived as the totality of perceptible manifestations of the different human groups and communities that are exteriorized and put at the others' disposal—but also standardization of the different peoples of the world and of their social and cultural identity into a few stereotyped ways of life, of thinking, and of perceiving the world. Diversity of cultures reflects diversity of peoples; this is particularly linked to ICH, because such a heritage represents the living expression of the idiosyncratic traits of the different communities. Preservation of cultural diversity, as emphasized by Article 1 of the UNESCO Universal Declaration on Cultural Diversity, 'is embodied in the uniqueness and plurality of the identities of the groups and societies making up humankind'. Being a 'source of exchange, innovation and creativity', cultural diversity is vital to humanity and is inextricably linked to the safeguarding of ICH. Mutual recognition and respect for cultural diversity—and, *a fortiori*, appropriate safeguarding of the ICH of the diverse peoples making up the world—is essential for promoting harmony in intercultural relations, through fostering better appreciation and understanding of the differences between human communities. (p. 103)

Therefore, tradition and practice, as elements of Hawaiian ICH, are essential to the protection of Hawaiian rights, the perpetuation of the Hawaiian culture, and the preservation of cultural diversity as a whole.

2.1 Identifying Traditional or Customary Practices

Through this contextual lens of tradition and practice serving as elements of Hawaiian ICH, Honua Consulting developed a framework to define traditional or customary practices:

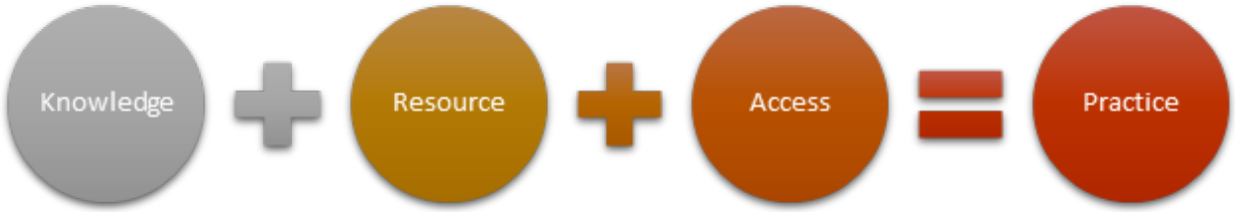

Figure 9. Diagram of Elements that Contribute to Traditional or Customary Practices (Honua Consulting)

The first element, knowledge, has been referred to as traditional ecological knowledge, Indigenous local knowledge, or ethnoscience. In the context of this study, knowledge is the information, data, or expertise Native Hawaiians or local communities possessed or possess about an area's environment. In a traditional context, this would have included information Hawaiians possessed to have the skills to utilize the area's resources for a range of purposes, including, but not limited to, travel, food, worship or habitation. This element is largely intangible.

The second element is the resources themselves. These are primarily tangible resources, either archaeological resources (e.g., habitation structures, walls, etc.) or natural resources (e.g., plants, animals, etc.). Resources can also be places or geographic features, such as a wahi pana (legendary places) or sacred/culturally important sites. While wahi pana may sometimes be construed as general locations, their importance and value need not be diminished. It is important to recognize that potential eligibility as a "historic site" on the National Register of Historic Places would require identifiable boundaries of a site.

The third element is access. Access serves as the important catalyst through which the first two elements, knowledge and resource, can be operationalized for traditional and customary practices to take place. In this way, practitioners must have access to the resource to practice their traditional customs. Importantly, access as defined here expands beyond mere physical access but also includes the ability to access resources. For example, if a particular plant species is used for medicinal purposes, a sufficient population of that plant species must be accessible to practitioners for use. In this example, an action that would adversely impact the population of the culturally important plant species would impact practitioners' ability to access that plant. By extension, the action would also adversely impact the traditional or customary practice.

Traditional or customary practices are, therefore, the combination of knowledge, resource(s), and access. Each of these individual elements should be researched and identified in assessing any potential practices or impacts to said practices.

2.2 Traditional Knowledge and the Identification of Cultural Resources

The concept of ethnoscience was first established in the 1960s and has been defined as "the field of inquiry concerned with the identification of the conceptual schemata that indigenous peoples use to organize their experience of the environment" (Roth, 2019). Ethnoscience includes a wide range of subfields, such as ethnoecology, ethnobotany, ethnozoology, ethnoclimatology, ethnomedicine and ethnopedology. All these fields are important to properly identify traditional knowledge within a certain area.

Traditional Native Hawaiian practitioners were scientists and expert natural resource managers by necessity. Without modern technological conveniences to rely upon, Hawaiians developed and maintained prosperous and symbiotic relationships with their natural environment for thousands of years. Their environments were their families, their homes, and their laboratories. They knew the names of every wind and every rain. The elements taught and inspired. The ability of Indigenous people to combine spirituality and science led to the formation of unique land-based methodologies that spurred unsurpassed innovation. Therefore, identifying significant places requires a baseline understanding of what made places significant for Hawaiians.

Hawaiians were both settlers and explorers. Krauss (1993) explains: "Exploration of the forests revealed trees, the timber of which was valuable for building houses and making canoes. The forests also yielded plants that could be used for making and dying tapa, for medicine, and for a variety of other artifacts" (p. 1). Analysis of native plants and resource management practices reveals the depth to which Hawaiians excelled in their environmental science practices:

> [Hawaiians] demonstrated great ability in systematic differentiation, identification, and naming of the plants they cultivated and gathered for use. Their knowledge of the gross morphology of plants, their habits of growth, and the requirements for greatest yields is not excelled by expert agriculturists of more complicated cultures. They worked out the procedures of cultivation for every locality, for all altitudes, for different weather conditions and exposures, and for soils of all types. In their close observations of the plants they grew, they noted and selected mutants (spores) and natural hybrids, and so created varieties of the plants they already had. Thus over the years after their arrival in the Islands, the Hawaiians added hundreds of named varieties of taro, sweet potatoes, sugarcane, and other cultivated plants to those they had brought with them from the central Pacific. (Krauss, 1993, p. 3)

Thus, Native Hawaiians reinforced the biodiversity that continues to exist in Hawai'i today through their customary traditional natural resource management practices.

The present analyses of archival documents, oral traditions (oli [chants], mele, and/or hula dances and haʻi moʻolelo [storytelling performances]), and Hawaiian language sources including books, manuscripts, and newspaper articles, are focused on identifying recorded cultural resources present on the landscape, including: Hawaiian and non-Hawaiian place names; landscape features (ridges, gulches, cinder cones); archaeological features (kuleana parcel walls, house platforms, shrines, heiau [places of worship], etc.); culturally significant areas (viewsheds, unmodified areas where gathering practices and/or rituals were performed); and significant biological, physiological, or natural resources. This research also looks to document the wide range of Hawaiian science that existed within the geographic extent.

2.3 Moʻolelo ʻĀina: Native Traditions of the Land

Among the most significant sources of native moʻolelo (history, narrative, story) are the Hawaiian language newspapers which were printed between 1838 and 1948, and the early writings of foreign visitors and residents. Most of the accounts that were submitted to the papers were penned by native residents of areas being described and noted native historians. Over the last 30 years, Kepā Maly has reviewed and compiled an extensive index of articles published in the Hawaiian language newspapers, with particular emphasis on those narratives pertaining to lands, customs, and traditions. Many traditions naming places around Hawaiʻi are found in these early writings. Many of these accounts describe native practices, the nature of land use at specific locations, and native moʻolelo. Thus, we are given a means of understanding how people related to their environment and sustained themselves on the land.

2.4 Historic Maps

There are also numerous, informative historic maps for the region. Surveyors of the eighteenth and nineteenth centuries were skilled in traversing land areas and capturing important features and resources throughout Hawaiʻi's rich islands. Historic maps were carefully studied, and the features detailed therein were aggregated and categorized to help identify specific places, names, features, and resources throughout the study area. From these, among other documents, new maps were created that more thoroughly capture the range of resources in the area.

2.5 Archaeological and Biological Studies

An archaeological literature review and assessment was completed by Honua Consulting. Previous archaeological studies and other findings are further discussed in that survey. The previous archaeology for that report was provided and reviewed, and this literature review showed no previous historic sites within the proposed project area. Any potential impact to historic properties is addressed through the archaeological survey and resolved

through Hawai‘i Revised Statutes (HRS) Chapter 6E in consultation with practitioners and SHPD.

A biological assessment was conducted by Starr Environmental in 2024. The findings are discussed in **Section 4.2 (Natural Resources with Cultural Significance)**.

2.6 Ethnographic Methodology

Information from lineal and cultural descendants is instrumental in procuring information about the project area’s transformation over time and its changing uses. The information gathered through research helped to focus interview questions on specific features and elements within the project area. Descendants and individuals with personal ties to the area were contacted and interviewed for this CIA. These interview summaries are included in **Section 5.0 (Oral Records, Interviews, and Consultations)**.

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3.0 Historic Background

Maui has a unique geography because it is "made up of two distinct mountain masses joined by a low flat isthmus" (Sterling, 1998, p. 3). The land divisions on Maui are also unlike those on other islands. Ancient names for Maui include 'Ihikapalaumaewa and Kulua (Sterling, 1998, p. 2).

In Hawaiian culture, natural and cultural resources – the honua ola (biocultural landscape) – are one and the same. Native traditions describe the formation of the Hawaiian Islands and the presence of life on and around them in the context of genealogical accounts. All forms of the honua ola, including the heavens, mountain peaks, barren lava flows, watered valleys, plains, shores, and the ocean depths, are the kino lau (myriad body forms) of Hawaiian gods, goddesses, and other deities. Hawaiian genealogical accounts reveal that various gods, goddesses, and creative forces of nature gave birth to the Hawaiian Islands. Among them are Wākea (the expanse of the sky, the father) and Papa-hānau-moku (Strata-earth who gave birth to the islands, the mother[2]). Hawai'i was the largest and first-born of these island children, followed by Kaho'olawe or Kanaloa, born as a miscarriage, and then Maui. These same god-beings – or creative forces of nature who gave birth to the islands, stretching from Hawai'i to the Moku Papapa,[3] – were also the parents of the first man, Hāloa, the ancestor from which all Hawaiian people are descended. It was in this context of kinship, that the ancient Hawaiians addressed their environment, and it is the basis of the Hawaiian system of land use.

There is some uncertainty regarding the meaning of Kahului. Pukui et al. (1976) define the name as "the winning" (p. 67). Hului is also a type of bag fish net, so considering Kahului's known history as a place with abundant fishing, it is possible the name references this bag net or a fishing technique. Hului is also the term for pulling together the ends of a fish net when the net is full, so it is possible the term is Ka-hului, "the hului."

Wailuku is widely agreed to mean the "waters of destruction." While many associate the term with the Battle of Kapaniwai, scholars believe the term to have an older origin. One mo'olelo recounts a battle in Wailuku between kanaka (humans) and pueo (owls). While such tales seem far-fetched, this mo'olelo is not unique to Maui, as a similar mo'olelo of a great battle between kanaka and pueo is found on O'ahu. The Wailuku tale speaks of how many humans and chiefs were killed, including Kapoi and his wife (Uaua, 1871, p. 1). Clark (1980) provides an interpretation of this story:

> In 1871 the Hawaiian newspaper *Ke Au 'Oko'a* told a legend involving a man named Kapoi who lived with his wife at Kaimuhe'e, just above the two waters

[2] Also Haumea-nui-hānau-wā-wā (Great Haumea—Woman-earth born time and time again).
[3] The distant atolls and pinnacle-islets of the Northwestern Hawaiian Island Chain.

> Kanahā and Mauoni. One day Kapoi's wife went out to gather *'ūhini* (grasshoppers) and found an owl's nest with seven eggs. Thinking they were duck's eggs, she took them and gave them to Kapoi. He realized what they were, but refused to give them back to the owl who appeared and requested for their return. Kapoi then smashed the eggs against the stone wall surrounding the house. Infuriated over the senseless loss, 'A'apueo, the mother owl, and her mate, Pueokaia, gathered owls from all the islands. All of the men and chiefs of the area, including Kapoi and his wife, were destroyed. The place *mauka* of the ponds where the cruel breaking of 'A'apueo's eggs was avenged was called Wailuku, "water (of) destruction." (pp. 8-9)

In this mo'olelo, the place name Kaimuhee is found: "I ka wa e noho alii ana o Kanenenuiakawaikalu no Maui, ma Wailuku kona wahi noho mau, e noho ana kekahi kanaka kaulana o ia wahi, o Kapoi me kana wahine, ma Kaimuhee, mauka ae o na wai elua, o Kanaha me Mauoni, he mau loko kaulana ia no Wailuku…" (Uaua, 1871, p. 1). This specifies that Kapoi and his wife lived in Kaimuhee, mauka from the famed ponds of Wailuku: Kanahā and Mau'oni.

The following research and analyses appropriately study the history and cultural resources of Pu'unēnē and Kahului within Wailuku moku, focusing on the project area and the surrounding environment.

3.1 Inoa 'Āina (Place Names)

In ancient times, named localities served a variety of functions, telling people about: (1) places where the gods walked the earth and changed the lives of people for good or worse; (2) heiau or other features of ceremonial importance; (3) triangulation points such as ko'a (ceremonial markers) for fishing grounds and fishing sites; (4) residences and burial sites; (5) areas of planting; (6) water sources; (7) trails and trail side resting places (o'io'ina), such as a rock shelter or tree shaded spot; (8) the sources of particular natural resources/resource collections areas, or any number of other features; or (9) notable events which occurred at a given area. Through inoa 'āina, knowledge of the past and places of significance were handed down across countless generations.

Honua Consulting developed a list of place names which includes, but is not limited to, the following places and terms to help guide research and analyses. It is important to note that this is an extensive listing of known place names within the two moku, but inclusion of the place name on this list does not indicate that the place is within the project area. It should also be noted that the known place names for these regions are comparably less than other ahupua'a on Maui, likely explained by the natural lack of water in this region compared to the other regions of Maui.

Table 1. Inoa ʻĀina Associated with the Project Area

Toponym	Type	Ahupuaʻa	Meaning	Significance
Ae Stream	Kahawai (stream)	Wailuku	–	Part of traditional hydrology and irrigation in the Wailuku area.
Ah Fong Village	Plantation Camp	Wailuku	Named after Chinese entrepreneur Ah Fong	Historic plantation-era camp for immigrant laborers, primarily Chinese and other ethnic groups.
Āhuakokoli	ʻIli ʻĀina[4]	Wailuku	–	Name misspelled as “Ahuakokele” in historic land records.
Ahuʻena	ʻIli ʻĀina	Wailuku	Red-hot heap	Name associated with sacred and residential uses.
Alabama Village	Plantation Camp	Wailuku	Likely a nickname given by residents	Historic multicultural camp housing diverse plantation workers.
ʻAuhaka	ʻIli ʻĀina	Wailuku	Spindle-legged	Cited in Māhele and LCA records.
Baldwin Park	Beach Park / Public Space	Wailuku	Named after Henry P. Baldwin	Public beach park associated with plantation-era philanthropy and community events.
Camp 11	Plantation Camp	Wailuku	Numbered plantation camp	One of many HC&S labor camps that housed immigrant families working the sugar fields.
Cod Fish Village	Plantation Camp	Wailuku	Named for dietary staples of residents	Nickname for a camp of Portuguese workers; reflects local culture and food customs.

[4] A land area whose chief pays tribute to the chief of the ahupuaʻa of which it is a part, rather than directly to the king.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Green Camp	Plantation Camp (now destroyed)	Wailuku	Likely named for surroundings or building color	Another multicultural sugar camp; part of plantation landscape.
Haʻakupu	ʻIli ʻĀina / Puʻu (hill)	Wailuku	To cause growth, sprouting; tribute, tax	Traditional land division known from land documents and oral history.
Haʻikū Ditch	Irrigation Ditch	Wailuku	Upland Haʻikū	Key infrastructure transporting water from East Maui Irrigation to central Maui plantations.
Halaʻula 1	Plantation Camp	Wailuku	Red pandanus	One of three plantation housing areas named Halaʻula; reflects land use patterns.
Halaʻula 2	Plantation Camp	Wailuku	Red pandanus	Second of three camps under same name; reflects plantation housing arrangements.
Halaʻula 3	Plantation Camp	Wailuku	Red pandanus	Final cluster of Halaʻula camps; part of Puʻunēnē plantation community.
Halekiʻi	Heiau / Sacred Site	Wailuku	Image house	Ancient temple site associated with chiefly power and ritual.
Halekou	ʻIli ʻĀina	Wailuku	Kou-wood house	Traditional land section with sugarcane possibly grown here; name tied to agriculture.
Halelani	ʻIli ʻĀina	Wailuku	House of heaven; chief's house	Traditional land section possibly tied to religious or ceremonial use.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Halemano	ʻIli ʻĀina	Wailuku	Many houses	Cited in Māhele and LCA records.
Halepākī	Settlement / Area	Wailuku	Mud house	Historic housing area with native construction; reflects 19th-century settlement patterns.
Haliau	ʻIli ʻĀina / Village	Wailuku	Possibly a personal name	Cited in LCA records.
Happy Valley	Village / Settlement	Wailuku	English name given by residents	Multicultural community in Wailuku known for plantation-era housing and community life.
Hawaiian Village	Plantation Camp / Village	Wailuku	Named for Native Hawaiian residents	A neighborhood with strong Native Hawaiian identity, especially during plantation period.
Hiʻiwela	ʻIli ʻĀina	Wailuku	Faint or flickering fire	Traditional land area referenced in older land division documents.
Hobron Point	Landmark / Port Area	Wailuku	Named after U.S. official or business agent Hobron	Port and industrial area tied to plantation export and transport.
Hōlū	ʻIli ʻĀina / Landform	Wailuku	Soft, to soften	Land section possibly associated with shifting winds or terrain.
Hopoʻi Reservoir	Reservoir / Water Resource	Wailuku	To soak or immerse	Water resource supporting plantation irrigation infrastructure.
Hopoʻi Village	Plantation Camp / Village	Wailuku	Named after nearby reservoir	Camp for plantation workers; tied to nearby water and irrigation systems.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Hopukoa	ʻIli ʻĀina / Fishery	Wailuku	Caught by warriors	Land associated with martial or historic events.
ʻĪao	ʻIli ʻĀina / Valley	Wailuku	Supreme cloud	Burial site of high-ranking aliʻi (chiefs); location of the 1790 Battle of Kepaniwai.
ʻĪao Needle (Kūkaʻemoku)	Geological Feature / Puʻu	Wailuku	Named for the warrior Kūkaʻemoku	Guardian peak of ʻĪao Valley; iconic feature in many moʻolelo.
ʻĪao Stream	Kahawai	Wailuku	Named for the ʻĪao Valley	Key water source; vital to loʻi (irrigated terrace) systems and site of historic events.
ʻĪao Valley	Valley	Wailuku	Supreme cloud	Culturally sacred site for burials, battles, and spiritual significance.
Imiau	ʻIli ʻĀina	Wailuku	Possibly personal or familial name	Cited in Māhele records.
Japanese Village 1	Plantation Camp	Wailuku	Named for Japanese laborers	Residential camp for Japanese plantation workers near Puʻunēnē Mill.
Kaʻa	ʻIli ʻĀina	Wailuku	Rolling	Named land section; associated with traditional travel or movement.
Kaʻahu	ʻIli ʻĀina / Surf	Wailuku	The garment	Possibly tied to ceremonial practices or places of worship; ancient surfing area.
Kaʻahumanu Church	Religious site	Wailuku	The bird (feather) cloak; Named after Queen Kaʻahumanu	Built in 1832; reflects missionary presence and Christianization of Maui.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Kaʻākaupōhaku	ʻIli ʻĀina / Surf	Wailuku	The north (or right hand side) stone	Traditional land area, possibly marked by large rock mounds or features; ancient surfing site.
Kaʻeo	ʻIli ʻĀina	Wailuku	–	Historic agricultural section used for loʻi and dryland farming.
Kahewa	ʻIli ʻĀina	Wailuku	The mistake, error	Cited in LCA records; may be tied to fishing or territorial disputes.
Kahiki	ʻIli ʻĀina	Wailuku	The arrival; Tahiti	Symbolic reference to ancestral homelands and migratory origins.
Kahua	ʻIli ʻĀina / Flatland	Wailuku	The fruit; foundation, site, grounds	Level ground often used for gatherings, residences, or agriculture.
Kahului	Town / Harbor	Wailuku	The winning; the taking	Main commercial port and industrial town of central Maui; grew from plantation transport hub.
Kahului Bay	Bay / Ocean Area	Wailuku	Bay named for Kahului town	Vital maritime zone; natural harbor expanded for shipping and commerce.
Kahului Harbor	Port / Infrastructure	Wailuku	Harbor of Kahului	Constructed for plantation exports; now central to Maui's economy and imports.
Kaihuwaʻa	Ili ʻĀina / Coastal Feature	Wailuku	The bow of a canoe, bowsprit	Coastal area likely used for launching or housing canoes; maritime tradition site.
Kalapaokaʻīlio	ʻIli ʻĀina / Ridge	Wailuku	The ridge of the dog	Enclosed land section; associated with personal land

Toponym	Type	Ahupuaʻa	Meaning	Significance
				tenure or fishpond structure. Misspelt "Kaiapaokailio" in land documents.
Kaleholeho	ʻIli ʻĀina / Surf	Wailuku	The callus	Culturally rooted but etymology uncertain. Ancient surfing site.
Kalialinui	Ahupuaʻa	Kalilinui	Pronunciation and meaning uncertain, may be a contraction of Ke-aliali-nui	Retained by Kamaikaʻaloa at the Māhele.
Kalialinui Gulch	Kahawai	Kalialinui	–	Stream rises about 8,100 ft. elevation as Waiale Gulch, ends at about 65 ft. elevation one mile from shore above Kahului Airport.
Kalua	ʻIli ʻĀina	Wailuku	The pit or depression	Appears multiple times in records; used agriculturally or ceremonially.
Kaluaʻōiki	ʻIli ʻĀina	Wailuku	The narrow pit	Diminutive of Kalua; possibly adjacent to or branching from it in land division.
Kaluaʻoʻopu	ʻIli ʻĀina	Wailuku	The ʻoʻopu (fish) hole	Cited in LCA records.
Kāluli	Heiau	Wailuku	To sway, bend	Heiau site repaired in the time of Kahekili; now destroyed.
Kamāʻalaea	ʻIli ʻĀina	Wailuku	The peaceful child; or a personal name	Known ʻili in Central Maui near Puʻunēnē; connected to older land divisions and trails.
Kamamao	ʻIli ʻĀina	Wailuku	–	Cited in LCA records.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Kamaʻomaʻo	Plain	Wailuku	The greenness	Ghosts believed to have wandered here.
Kanahā	Wetland / Shoreline	Wailuku	The shattered (thing)	Traditional fishing grounds and loko iʻa (fishpond); restored wetlands critical to native species.
Kanahā Pond	Loko (pond)	Wailuku	The shattered (thing)	Said to have been built by Chief Kiha-a-Piʻilani
Kaʻohe	ʻIli ʻĀina	Wailuku	The bamboo	Area in ʻĪao Valley.
Kaʻōpala	ʻIli ʻĀina	Wailuku	The rubbish	Cited in LCA records; coastal area and gulch.
Kaopuohe	ʻIli ʻĀina	Wailuku	–	Cited in LCA records.
Kapaʻaiki	ʻIli ʻĀina	Wailuku	Small Ka-paʻa (the solid or the closing)	Cited in LCA records.
Kapaʻaloa	ʻIli ʻĀina	Wailuku	Distant Ka-paʻa	Cited in LCA records.
Kāpalaʻalaea	ʻIli ʻĀina	Wailuku	Stained with red ochre	Cited in LCA records; misspelt as “Kapalaaea” in some records.
Kapānui	ʻIli ʻĀina	Wailuku	The large enclosure	Cited in LCA records.
Kapilau Ridge	Ridge	Wailuku	The stench	Between ʻĪao Valley and Waikapū Valley.
Kaʻulupala	ʻIli ʻĀina / Heiau	Wailuku	The ripe breadfruit	Among heiau consecrated by Liholiho in 1801.
Kaunoa School	School	Wailuku	Place without taboo	A school in Spreckelsville.
Kaupali	ʻIli ʻĀina	Wailuku	–	Cited in LCA records.
Kawelowelo	Heiau	Wailuku	The flying streak, as of the tail of a comet	Among heiau consecrated by Liholiho in 1801.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Keahukū	Heiau	Wailuku	The slaughter by stoning	Among heiau consecrated by Liholiho in 1801.
Keahupiʻo	ʻIli ʻĀina	Wailuku	The arched heap	Cited in LCA records.
Keahupu	ʻIli ʻĀina	Wailuku	–	Cited in LCA records.
Kealakapehu	ʻIli ʻĀina	Wailuku	–	Cited in LCA records.
Keālia	Loko / Wetland	Wailuku	The salt encrustation	Significant pond at Kamaʻomaʻo plain; tied to traditional navigation, legends, and water systems.
Keoneʻula	ʻIli ʻĀina	Wailuku	The red sand	Cited in LCA records.
Kepaniwai	Battle ground / Park	Wailuku	The water dam (ʻĪao Stream was choked with bodies of slain warriors)	County park commemorating the Battle of Kepaniwai in which Kamehameha defeated Kalanikūpule and became ruler of Maui.
Kepukakeʻeo	ʻIli ʻĀina	Wailuku	–	Cited in LCA records.
Kinihāpai	Kahawai	Wailuku	Carry multitudes	Stream that rises about 3,000 ft. elevation and joins ʻĪao Stream.
Koloa	ʻIli ʻĀina	Wailuku	Multiple meanings depending on lexicology	Cited in LCA records.
Kuanui	ʻIli ʻĀina	Wailuku	Tedious, boring	Cited in LCA records.
Kuipa	ʻIli ʻĀina	Wailuku	–	Cited in LCA records.
Kūkaʻemoku	Puʻu	Wailuku	Personal name of a warrior; known as ʻĪao Needle	Geological sentinel of ʻĪao Valley; associated with moʻolelo and ancestral protection.
Lāʻie	ʻIli ʻĀina	Wailuku	ʻIe (*Freycinetia arborea*) leaf	Cited in multiple LCA records.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Lamaliʻi	ʻIli ʻĀina	Wailuku	Small lama tree or torch	Cited in LCA records; Lamaliʻi-iki and Lamaliʻi-nui misspelt in records as Lamaluiki and Lamalunui.
Lelemākō	ʻIli ʻĀina / Heiau	Wailuku	Rough leaping	Among heiau consecrated by Liholiho in 1801.
Lemukeʻe	ʻIli ʻĀina	Wailuku	–	Retained by H. Kamala at the Māhele.
Lowrie Ditch	Ditch	Wailuku	Named for William J. Lowrie, manager of HC&S plantation.	22-mile canal beginning at Pāpaʻaʻea Reservoir; mauka side was the boundary between Makawao and Wailuku moku.
Māniania	ʻIli ʻĀina / Ditch	Wailuku	Shuddering sensation	Takes water from ʻĪao Stream at 800 ft. elevation toward Waiehu.
Mānienie	ʻIli ʻĀina	Wailuku	Bermuda grass	Retained by H. Kalama at the Māhele.
Mauoni	Loko / Loko iʻa	Wailuku	Name meaning uncertain; possibly personal or place-based	Loko iʻa formerly in the Kanahā area; part of traditional aquaculture.
McGerrow Village	Village	Wailuku	–	Plantation housing near Puʻunēnē Mill; also called “Mecerrow Camp.”
Nā Wai ʻEhā	Hydrological Unit	Wailuku	“The Four Waters” (Waikapū, Wailuku, Waiehu, Waiheʻe)	Integral to native irrigation systems and cultural identity; focal point in modern water rights battles.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Naval Air Station Puʻunēnē (NAS Puʻunēnē)	Military / Aviation Site	Wailuku	–	Built by the U.S. Navy in 1940; key World War II (WWII) training airfield; later transitioned to Kahului Airport infrastructure.
Nehe	ʻIli ʻĀina / Point	Wailuku	Rustle	Cited in LCA records.
Oloolokalani	Heiau	Wailuku	–	Among heiau consecrated by Liholiho in 1801.
Olopio	Heiau	Wailuku	–	No particulars, named among heiau consecrated by Liholiho in 1801.
Olopua	Place	Wailuku	Named for a native tree	Place in the vicinity of Village 2 and Puʻu Nēnē.
ʻOwā	ʻIli ʻĀina	Wailuku	–	Cited in multiple LCA records.
Pāiki	ʻIli ʻĀina	Wailuku	Small enclosure or wall	Cited in multiple LCA records.
Palamahiki	Heiau	Wailuku	–	Among heiau consecrated by Liholiho in 1801.
Papaʻula	Point	Wailuku	Red flats	Most likely the site of the fishing ground called Papaulu, awarded to Henry L. Brooks in LCA records.
Pāpōhaku	ʻIli ʻĀina / Park	Wailuku	Stone fence	Small park to the northwest of Kahului; cited in LCA records.
Paukūkalo	Coastal region / Surf	Wailuku	Taro piece	Area of coastal fishing; near loko iʻa and ancestral shoreline practices.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Paʻuwela	ʻIli ʻĀina / Town	Puʻunēnē	Hot soot	ʻIli associated with plantation expansion; cleared for sugar cultivation.
Peʻepeʻe	ʻIli ʻĀina	Wailuku	To hide oneself	Retained by Liholiho at the Māhele.
Pihanakalani	Heiau	Wailuku	Gathering place of the heavens	Leina a ka ʻuhane[5]; associated with ancestral spirits and spiritual transitions.
Piliokakai	ʻIli ʻĀina	Wailuku	–	Cited in LCA records.
Pōhakuokahi	Heiau / ʻIli ʻĀina	Wailuku	Stone of Kahi	Among those consecrated by Liholiho in 1801 tour; cited in LCA records.
Portuguese Camp	Village	Wailuku	–	Former plantation housing now abandoned.
Puakea	ʻIli ʻĀina	Wailuku	White blossom	Cited in LCA records, 3.42 acres.
Puakō	ʻIli ʻĀina	Wailuku	Sugarcane blossom	Cited in multiple LCA records.
Puhiawāwa	ʻIli ʻĀina	Wailuku	–	Retained by H. Kalama at the Māhele.
Pūlehu Camp	Village	Kalialinui	Broiled	Former plantation housing abandoned before 1954.
Puʻu Koaʻe	Puʻu / Boundary Point	Kalialinui	Tropicbird hill	Boundary runs from the corner of Kalialinui, Wailuku, and Waikapū; elevation about 460 ft.
Puʻu Lehua	Puʻu / Boundary Point	Kalialinui	Lehua flower hill	Kalialinui / ʻŌmaʻopio boundary runs makai

[5] Leina-a-ka-ʻuhana is a place where spirits leaped into the nether world; literally, leap of the soul.

Toponym	Type	Ahupuaʻa	Meaning	Significance
				to this puʻu; elevation about 310 ft.
Puʻu Lio	Puʻu / Boundary Point	Wailuku	Pronunciation and meaning uncertain	Point on the Wailuku/ Waikapū boundary, marking transition between Kalapaokailio ridge and Kapilau ridge.
Puʻu Nēnē	Puʻu / Cone / Triangulation Station	Wailuku	Goose hill	Cinder cone with elevation of 180 ft.
Puʻunēnē Mill	Industrial / Plantation Site	Wailuku	Goose hill	Built in 1901; central to Maui's sugar industry; transformed land use and demographics of Central Maui.
Puʻunēnē School	Educational / Historic Site	Wailuku	Named after the Puʻunēnē region	Built in 1913 for children of plantation workers; became a key community hub for immigrant families from Japan, Portugal, the Philippines, and beyond.
Puʻu o Hala	ʻIli ʻĀina	Wailuku	Hill of pandanus	Retained by H. Kalama at the Māhele, 45.98 acres.
Puʻuohala Camp	Village	Wailuku	Hill of pandanus	Former plantation residential area, elevation 360 ft.
Puʻu o Koha	Puʻu / Triangulation Station	Kalialinui	–	Elevation 1,050 ft.
Russian Village	Village	Wailuku	Named for Russian laborers	Former plantation housing in Spreckelsville.
Sam Sing Camp	Village	Wailuku	–	Plantation housing near Puʻunēnē Mill.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Spanish Camp/ Spanish B Village	Village	Wailuku	Named for Spanish laborers	Plantation housing near Puʻunēnē Mill.
Spreckelsville	Village	Wailuku	Named for sugar plantation founder Claus Spreckels	Made up of Russian Village, Japanese Village, Hawaiian Village, and Cod Fish Village.
ʻUmiʻeu	ʻIli ʻĀina	Wailuku	–	Cited in LCA records.
Waiaka	ʻIli ʻĀina	Wailuku	Reflection water	Cited in LCA records, 4.84 acres.
Waiʻale	ʻĀpana ʻāina (land parcel)	Wailuku	Rippling water	Traditional loʻi kalo region; historically irrigated by ʻĪao Stream.
Waiʻale Gulch	Kahawai	Kalialinui	Rippling water	Stream rises at 8,100 ft. elevation and becomes Kalialinui Gulch below Upper Kula Road.
Waiʻale Reservoirs	Reservoir	Wailuku	Rippling water	Two reservoirs, elevation about 220 ft.
Waiauiki	ʻIli ʻĀina	Wailuku	Small swirling water	Cited in LCA records, 2.79 acres.
Waiehu	Ahupuaʻa	Wailuku	Water spray	Coastal ahupuaʻa known for surf spots, taro farming, and Waiehu Stream.
Waiheʻe	Ahupuaʻa	Wailuku	Squid liquid	Wetland and estuarine ecosystem; vital to Nā Wai ʻEhā hydrology.
Waikani	ʻIli ʻĀina	Wailuku	Sounding water	Cited in multiple LCA records.
Waikapū	Ahupuaʻa	Wailuku	The water of the conch shell	Part of Nā Wai ʻEhā; fertile for loʻi kalo; traditional agricultural center.

Toponym	Type	Ahupuaʻa	Meaning	Significance
Wailuku	Ahupuaʻa / Town	Wailuku	Water of destruction	Named for the turbulent ʻĪao Stream; major seat of political power; site of sacred traditions and battles.
Wawau	Point / Beach	Wailuku	Not translated	Point and beach near Spreckelsville.
Yung Hee Camp/ Yung Hee Village	Village	Wailuku	–	Plantation housing near Puʻunēnē Mill.

3.2 Traditional Period

The northern half of the project area is located in the ahupuaʻa of Wailuku, within the moku of the same name, which is also in other resources referred to as Pūʻali Komohana. Wailuku (Pūʻali Komohana) moku consists of four ahupuaʻa: Waiheʻe, Waiehu, Wailuku, and Waikapū. Kahului is both the name of a bay (Kahului Bay) and the adjacent land area, sometimes known as an ʻili.[6]

Smaller land areas like Kahului were largely impacted by activities that took place within their larger ahupuaʻa and moku. Kahului was no exception. To fully appreciate the cultural history of Kahului, it is necessary to understand the context of the larger moku. Abraham Fornander (1878) notes that Hawaiians settled within the Wailuku moku as early as the 9-10th century: "Among other southern families of note who arrived at the Hawaiian group during this migratory period, though now it is impossible to place them in their proper order, the legend mentions *Kalana-nuunui-kua-mamao*, and *Humu*, and *Kamaunua-niho* who came from Kahiki (the southern groups), and landed at Kahahawai in Waihee, Maui" (p. 43).

Long before Puʻunēnē became known for sugar plantations and mill smokestacks, the region was part of a vibrant Native Hawaiian landscape shaped by cultural and environmental stewardship. Puʻunēnē was once a dry, open plain nestled between the more fertile uplands and the wetlands of Keālia and Kanahā. The name "Puʻunēnē" itself, meaning "nēnē hill," references the native Hawaiian goose (*Branta sandvicensis*), indicating the area's ecological and cultural ties to endemic wildlife.

Traditional Hawaiian use of this region included seasonal dryland agriculture and the gathering of native plants and resources, with the nearby Keālia wetlands serving as a

[6] It is important to note here that there is also an ʻili called Kahului located within the ahupuaʻa of Kona on Hawaiʻi Island.

rich habitat for native birds and fish. While less intensively cultivated than wetter areas of Maui, the Puʻunēnē region would have functioned as a transitional zone between upland farming systems and coastal fishing communities. The landscape was woven into larger networks of travel and trade, especially along the well-worn ala loa (long trails) that connected east and west Maui.

Though the arrival of sugar cultivation in the late 19th century dramatically altered the area's natural and cultural landscape, remnants of traditional land use persist in oral histories and moʻolelo passed through generations. Today, understanding Puʻunēnē's traditional history offers a vital reminder of the deep cultural connections to land that preceded industrial transformation, and the continued importance of restoring and honoring those ancestral relationships.

3.2.1 Ka Hoʻonoho Moku–Hawaiian Settlement of the Islands

Archaeologists and historians describe the inhabiting of the Hawaiian Islands in the context of settlement, which resulted from voyages taken in canoes across the open ocean. Archaeologists have proposed that early Polynesian settlement voyages between Kahiki (the ancestral homelands of the Hawaiian gods and people) and Hawaiʻi were underway by ca. 400 A.D., with long distance voyages occurring fairly regularly through at least the thirteenth century (cf. Cordy, 2000). It has been generally reported that the island homes of the early Hawaiian population—the Hawaiian "Kahiki"—were the Marquesas and Society Islands (Tatar, 1982, pp. 16-18). Indeed, Kahikinui moku is named because from afar on the ocean, it resembled a larger form of Kahiki, the ancestral homeland.[7]

For several generations following initial settlement, communities were clustered along the watered, koʻolau (windward) shores of the Hawaiian Islands. Along the koʻolau slopes, streams flowed and rainfall was abundant, and agricultural production became established. The koʻolau region also offered sheltered bays from which deep-sea fisheries could be easily accessed, and near shore fisheries, enriched by nutrients carried in the fresh water, could be maintained in fishponds and coastal fisheries. It was around these bays that clusters of houses where families lived could be found, and in these early times, the residents generally engaged in subsistence practices in the forms of agriculture and fishing (Handy et al., 1972, p. 287).

With the passing of time (ca. A.D. 800 to 1000), the koʻolau region became more populated and perhaps crowded, and the Hawaiians began expanding out to and settling more remote areas, which had not been the first choices for settlement—based primarily

[7] "*Kaao Hooniua Puuwai no Ka-Miki*" (The Heart Stirring Story of Ka-Miki), published in the Hawaiian language newspaper *Ka Hoku o Hawaii* from 1914 to 1917.

on access to water. These kona (leeward) lands offered residents sheltered coves, rich fisheries, and access to forested uplands, where agricultural endeavors could be supported, and natural resources could be collected (cf. Haun & Henry, 2004).

3.2.2 Governance During the Traditional Period

It is best to begin a genealogy of Maui's aliʻi with Moʻoinanea, who appears in numerous moʻolelo throughout Hawaiian history. She is considered "the matriarch of all moʻo [(lizard)] gods and goddesses" (Pukui & Elbert, 1986, p. 394). Accounts detail her arrival from Kahiki "with the Kū and Hina family of gods" and that she was "the ancestor of the ʻUlu / Hemo linage of Maui" (Klieger, 1998, p. 8). Klieger (1998) explains:

> One of [Moʻoinanea's] descendants was Kelea (Keleanuinohoʻanaʻapiʻapi), a Maui chief and famous surfer of married Kalamakua, a prominent chief on Oʻahu. Maui was not yet a unified kingdom at the time, but soon the moʻo would be evoked for the unification of the island, and then the entire archipelago. Kelea was the daughter of Kahekili I, the alii nui of the kingdom of West Maui, and his wife Haukanuimakamaka. The moʻo lineage was most likely introduced through Kelea's mother. Kelea's paternal grandfather and great uncle were Kakaʻe and Kalaʻalaneo, alii nui of the Wailuku line who ruled West Maui and Lanai from Lele/Lahaina in the sixteenth century. (p. 8)

After Kahekili I passed, Kelea's brother, Kawaokaohele, gained control over his kingdom. Kawaokaohele was a popular aliʻi and the reign is known for its prosperity. Most importantly, it was during the reign of Kawaokaohele that East Maui (i.e., Hana) recognized the Wailuku aliʻi as being mōʻī (King) of Maui (Klieger, 1998, pp. 8-9).

Kawaokaohele's son, Piʻilani, is widely acknowledged to this day to be the greatest aliʻi in Maui's history. He ruled all of Maui from his base at Lahaina, which would eventually become the political center of the island and later the unified Hawaiian Kingdom. Piʻilani is known for creating a trail that circumnavigated the entire island (Klieger, 1998, p. 9). Piʻilani married his first cousin, Laieloheloheikawai, daughter of Kelea. Piʻilani and Laieloheloheikawai had at least four children: daughter Kihawahine Mokuhinia Kalamaula Kalaaiheana, daughter Piʻikea, son Lono-a-Piʻilani,[8] and son Kiha-a-Piʻilani. These children, being the result of a piʻo union (marriage between two close relatives, sometimes a brother and sister), had a very strong lineage.

Upon her death, it is believed that Kihawahine transformed into a moʻo and became a guardian of sacred places on Maui, most notably fishponds, some of which bear her

[8] Children often bore the name of an ancestor, so names such as Lono-a-Piʻilani mean "Lono of Piʻilani." Whenever historical figures' names have this element, the name has been broken up with dashes in this report to help the reader follow genealogies and familial relationships.

names. M.K. Pukui said that her home was Mauʻoni fishpond, located in Kahului (Klieger, 1998, p. 9), yet it is also said that Kihawahine possessed the ability to travel between islands and fishponds (Klieger, 1998, p. 9). Many fishponds to this day are associated with a moʻowahine (female lizard deity) that protects the pond. It is likely that this continued existence of moʻo deities originated with Kihawahine.

Historians estimate that Piʻilani ruled in the 16th century. It is important to note that Hawaiian chiefs demonstrated considerable savvy in politics. Chiefs commonly intermarried for political reasons. Piʻikea-a-Piʻilani, daughter of Piʻilani, married Umi-a-Liloa, the King of Hawaiʻi Island. When Piʻilani died, the Maui Kingdom went to his oldest son, Lono-a-Piʻilani. For many years, Lono-a-Piʻilani and his younger brother Kiha-a-Piʻilani (brothers to Piʻikea) co-existed peacefully. Eventually, Lono-a-Piʻilani and Kiha-a-Piʻilani had a falling out and the latter feared his brother, the King, would try to kill him, so Kiha-a-Piʻilani fled and lived on Lānaʻi. He eventually returned and stayed in the southern parts of Maui, as to not be found by his brother. His identity was eventually discovered, and he traveled to Hawaiʻi Island to stay with his sister, Piʻikea-a-Piʻilani and her husband, ʻUmi-a-Liloa (Kamakau, 1992, pp. 23-27). Kiha-a-Piʻilani joined with ʻUmi-a-Liloa, and together they planned to invade Maui. Lono-a-Piʻilani resided in Wailuku during this time.

Kiha-a-Piʻilani and ʻUmi-a-Liloa successfully invaded and conquered East Maui. Before they could reach Lono-a-Piʻilani in Wailuku, Lono-a-Piʻilani died. A prophet told Kiha-a-Piʻilani that the body of Lono-a-Piʻilani was “in Wailuku in a land called Paʻuniu” (Kamakau, 1992, p. 31). Despite a wide search throughout Wailuku, the bones of Lono-a-Piʻilani were never found by Kiha-a-Piʻilani.

Kiha-a-Piʻilani ruled Maui in the 17th century. During ʻUmi-a-Liloa’s reign of Hawaiʻi Island, the two kingdoms remained close and peaceful thanks to the intermarrying of the chiefly families. It would be this history of strategically intermarrying that would help to engender the eventual unification of the islands. Kiha-a-Piʻilani’s descendant, Kekaulike, would become the Mōʻī of Maui in the 18th century.

As Kekaulike ruled on Maui, Keawe was a famed ruler on Hawaiʻi Island (Kamakau, 1992, p. 64). Keawe’s half-sister was Ka-lani-kau-lele-ia-iwi, whose husband was Ka-uaua-nui-a-Mahi and to them was born Alapaʻi-nui-a-Kauaua (Alapaʻi) (Kamakau, 1992, p. 64). Kamakau (1992) notes that Keawe enjoyed travel and would travel to the other islands, including Maui. When Keawe died, he left Kohala and Kona to his son Keʻeaumoku and Kaʻu to his son Kalaninuiʻiamamao (Kamakau, 1992, p. 64).

Alapaʻi also lived on Maui during this time, moving there after Hilo chiefs killed his father, Ka-uaua-nui-a-Mahi. Alapaʻi’s half-sister, Kekuʻiapoiwanui-a-Kalaninuikauleleiaiwi (Kekuʻiapoiwanui), was the wife of Kekaulike (Kamakau, 1992, p. 65). After Keawe’s death, Alapaʻi returned to Hawaiʻi Island. He first waged war against Keʻeaumoku and

gained control of Kohala and Kona. Kekaulike did not approve of this and took his own warriors to fight with Alapaʻi on Hawaiʻi Island. Kekaulike was unsuccessful in this battle, and he slaughtered numerous commoners during his campaign in Kohala (Kamakau, 1992, pp. 65-66). Alapaʻi then unsuccessfully launched a campaign against Kekaulike on Maui.

Kekaulike had four biological children with his wife, Kekuʻiapoiwanui: Kalola (wahine (female)), Kamehamehanui (kāne (male)), Kahekili II (kāne), and Kahuʻaimokuakama (wahine). Kalola bore children with three different men: Kalanikauōkikilokalaniakua (wahine) with her brother Kamehamehanui, Kīwalaʻo (kāne) through her union with Kalaniʻopuʻu, and Kekuʻaipoiwa Liliha (wahine) from her union with Keōua. Kalanikauōkikilokalaniakua had many kapu on her due to her being the result of a piʻo union between siblings, which Hawaiians believed gave a child a sacred status. Kalaniʻopuʻu and Keōua are two sons of Keawe, both of which Alapaʻi brought up as leaders in his government.

Keōua had many wives. In addition to Kalola, he also married Kekuʻaipoiwa, daughter of Kekela and Haʻae (not to be confused with Kekuʻaipoiwa Liliha, daughter of Kalola, or Kekuʻaipoiwanui, wife of Kekaulike). Keōua and Kekuʻaipoiwa would become the parents of Kamehameha I (kāne), who was born as Alapaʻi launched his attack against Kekaulike on Maui.

Alapaʻi was a peaceful and prosperous chief; additional war between the two kingdoms of Maui and Hawaiʻi Island was avoided for a period of time. On Maui, Wailuku had been the central location of power since the time of Piʻilani. Kekaulike moved it to Kaupō, likely in preparation of attacks on Hawaiʻi Island. Kekaulike fell ill and never returned to Hawaiʻi Island. Kekaulike turned over Maui to his son, Kamehamehanui (not to be confused with Kamehameha I).

In anticipation of an attack from Alapai's forces, the weakened Kekaulike directed his family and governing officials to return to Wailuku, to Halekiʻi, "the royal residence of the Maui ruling line near Wailuku" (Kirch, 2012, p. 240). There, Kekaulike died and after his death, "fearing the arrival of Alapaʻi bent on war, the chiefs cut the flesh from the bones of Ke-kau-like in order to lighten the load in carrying the body to ʻIao" (Kamakau, 1992, p. 69).

Alapaʻi arrived on Maui as anticipated. Yet, when Alapaʻi heard of Kekaulike's death and of Kamehamehanui's rule, he relinquished his planned attack on the island and opted for peace between the kingdoms.

Kahekili II, the second son of Kekaulike, would become one of Maui's most famed aliʻi. He was known to be a ferocious warrior and a staunch follower of the Hawaiian religious

beliefs and protocols. He kept individuals for sacrifice at a place called Pua‘anui, near the site of the Wailuku mill (Thrum, 1916, p. 60). It was during Kahekili II’s reign that the great battle at Kakanilua occurred. Joseph Mokuohai Poepoe (1905, in Sterling, 1998) wrote of this great battle in Hawaiian language newspapers:

> As the Alapa[9] and Piipii proceeded to the plain of Kamaomao (from Kihei-puko‘a) they met with no hindrance until they reached the southeastern side of a place called Kalua, close to the village of Wailuku.
>
> When the Alapa arrived there, the warriors of Kahekili concentrated upon them from many points, like sandcrabs running over the sand.
>
> A bitter fight was fought by the Alapa and Piipii armies of Kalaniopuu against the well trained warriors of Maui and those of Oahu under Kahahana…
>
> Kalaniopuu received the news on the evening of the day of the terrible battle. This battle in which the Alapa and Piipii were destroyed was called Ahulau ka Piipii i Kakanilua (completely slaughtered were the Piipii at Kakanilua). (p. 88)

Sterling (1998) elaborates that Kakanilua is located “in the sandhills between Wailuku and the mill at Puunene” and the Alapa guard was “wiped out almost to a man” (p. 88).

Keku‘aipoiwa Liliha (daughter of Keōua and Kalola) and her half-brother Kīwala‘ō married and this nī‘au pi‘o union resulted in the birth of Keōpuōlani (wahine). Due to the half-sibling relationship between her parents and her royal lineage, Keōpuōlani was a chiefess of substantial status and rank. While Kamehameha I would eventually take many wives, none held as high a sacred status as Keōpuōlani and she would become known as Kamehameha’s sacred wife. It is through their children, Liholiho (kāne), Kauikeaouli (kāne), and Nahi‘ena‘ena (wahine), that the Kamehameha Dynasty was established.

The Wailuku district was generally abundant with resources, both from the mountains and the sea, yet its name implies a history of conflict also impacted the area. Wailuku literally translates to “water of destruction,” and while some attribute the name to the historic battle instigated by Kamehameha I that took place in this area (Sterling, 1998, p. 74), the name reaches further back prior to Kamehameha’s reign.

Wailuku would become an important political hub. Kahekili kept a home in Wailuku, known as Lanikeha, which was a name often used for the residences of high chiefs (Pukui & Elbert, 1986, p. 178; Malo, 1951, p. 104). Literally meaning “lofty heaven,” it referenced the legendary part of heaven. It is possible Kahekili kept a second home in Wailuku. One

[9] “Alapa” in this case references the famed warrior company of Kalani‘opu‘u. The spelling of the term with diacritics is ‘ālapa.

account from *Ka Naʻi Aupuni* mentions another home called Kalani-hale: “The people of Hawaii lamented greatly. Kalaniʻopuu grieved over the destruction of his ʻAlapa and Piipii warriors. At that time Kahekili was living in his house, Lanikeha, in Wailuku. Kiwalaʻo donned his royal regalia; Kameeiamoku held his spittoon and Kamanawa carried his kahili. The delegate from Hawaii went up to Wailuku, for at that time Kahekili was living in his house named Kalani-hale” (Sterling, 1998, p. 89).[10]

3.2.3 Development of the Ahupuaʻa System

Over the period of several generations following settlement, the Hawaiians began to develop a sophisticated system of land- and resource-management practices, that were integrated into natural cycles of the environment around them. By ca. 1500, in the time of Kākaʻe and Kakaʻalaneo, the island (mokupuni) of Maui was divided into some eleven or twelve major districts (moku-o-loko or moku), and smaller subdivisions, which were handed down through time. These moku included Honuaʻula, Kula, Lāhaina, Kāʻanapali, Nāpoko or Wailuku, Hāmākua Poko, Hāmākua Loa, Koʻolau, Hāna, Kīpahulu, Kaupō, and Kahikinui. Some of these large districts were subdivided into smaller ʻokana or kalana (regions of land smaller than the moku-o-loko) yet comprising a number of smaller units of land (Lyons, 1875; Coulter, 1935).

The moku and sub-regions (ʻokana and kalana) were further divided into manageable units of land, and were tended to by the makaʻāinana (people of the land). Of all the land divisions, perhaps the most significant management unit was the ahupuaʻa. Ahupuaʻa are subdivisions of land that were usually marked by an altar with an image or representation of a pig placed upon it (thus the name ahu-puaʻa or pig-altar). In their configuration, the ahupuaʻa may generally be compared to wedge-shaped pieces of land that radiate out from the center of the island, extending to the ocean fisheries fronting the land unit. Their boundaries are defined by topographic or geological features such as puʻu, ridges, gullies, valleys, craters, or areas of a particular vegetation growth (cf. Malo, 1951, pp. 16-18; Lyons, 1875).

The ahupuaʻa were also divided into smaller, manageable arable parcels of land (such as the ʻili, kula, kōʻele, māla, kīhāpai, moʻo, and paukū). Generally, these small land units ran in a mauka-makai orientation and were often marked by stone wall alignments. In these smaller parcels, the native tenants tended fields and cultivated crops necessary to sustain their immediate families and the chiefly communities with which they were associated. As long as sufficient hoʻokupu (tribute) was offered and kapu (prohibitions) were observed, the common people living in a given ahupuaʻa had access to most of the

[10] The original text of this account implies the home was in the mauka part of Wailuku: “Ua pii aku la nohoi ka elele o Hawaii no uka o Wailuku, a, aia ia wa, e noho ana no o Kahekili iloko o kona hale i heaia ma ka inoa o ʻKalani-haleʻ” (Poepoe, 1905, p. 4).

resources from mountain slopes to the ocean. These access rights were almost uniformly tied to residency on particular land and earned as a result of taking responsibility for stewardship of the natural environment and supplying the needs of one's ali'i (Malo, 1951, pp. 63-67; Kamakau, 1992).

Entire ahupua'a, or portions of the land were generally under the jurisdiction of appointed konohiki (lesser chief-landlords) who answered to an ali'i-'ai-ahupua'a (chief who controlled the ahupua'a resources). The ali'i-'ai-ahupua'a in turn, answered to an ali'i 'ai moku (chief who claimed the abundance of the entire district). Thus, ahupua'a resources supported not only the maka'āinana and 'ohana (families) who lived on the land but also contributed to the support of the royal community of regional and/or island kingdoms. This form of district subdividing was integral to Hawaiian life and was the product of strictly adhered to resources management planning. In this system, the land provided fruits and vegetables, and some meat in the diet, and the ocean provided a wealth of protein resources. Also, in communities with long-term royal residents, divisions of labor (with specializing in various occupations on land and in the procurement of marine resources-were strictly observed (Malo, 1951, pp. 63-67).

3.3 Traditional Period as Recorded in Mo'olelo 'Āina (Native Traditions)

Based on genealogical references and historical accounts, the association of ancient chiefs with the lands of Pu'unēnē and the broader Wailuku moku pre-date the era of recorded history. While specific references to the project area itself are limited, the region was part of the larger ahupua'a of Wailuku, which held significant importance to Hawaiian chiefs throughout history.

Preeminent Hawaiian scholar David Malo recorded events associated with the lives of various chiefs and their genealogies in the larger region. The nearby fishponds of Kanahā and Mau'oni, located west of the project area, were of particular significance to Hawaiian royalty. As documented in 'ōlelo no'eau (proverb) #2578, "Kapi'ioho, ruler of Moloka'i, had two ponds, Mau'oni and Kanahā, built on his land at Kahului, Maui. The men who were brought from Moloka'i and O'ahu to build the ponds were fed on food brought over from Moloka'i" (Pukui, 1983, p. 284).

Another account attributes the construction of these fishponds to Chief Kihapi'ilani: "The Chief Kihapi'ilani is the one who made the walls of the ponds spoken of. He was the chief of Wailuku, Island of Maui" (Kiha in DLNR, 1969, Volume 1, pp. 5-7). According to mo'olelo, "when this work was completed, Kihapi'ilani then departed for Waiehu and 'Ā'āpueo..." indicating his influence extended throughout the region.

The honua ola landscape of the Hawaiians reflects the relationship between the akua (gods, goddesses and creative forces of nature) and kānaka. As mo'olelo are also historic

stories, additional moʻolelo are incorporated throughout this section on the region's history.

3.3.1 The Lifetimes of Kahekili and Kamehama I

During the reigns of Kahekili on Maui and Kalaniʻōpuʻu on Hawaiʻi, war broke out between the chiefs and their respective islands. Hawaiian historian and scholar Samuel Kamakau wrote that in 1776, Kalaniʻōpuʻu invaded Maui, landing with the war fleet at Makena in Honuaʻula. The natives were pillaged and routed to the forests. The following narratives are excerpted from Kamakau's original Hawaiian texts of 1866 and accompanied by M.K. Pukui's translation:

> I ka M. H. 1776. Holo mai la o Kalaniopuu me naʻlii o Hawaii, i ke kaua ma Wailuku, me ka Moi Kahekili o Maui, he kaua huliamahi no Hawaii a puni. I ka holo ana o Kalaniopuu me naʻlii, a me na Kuhina kaua, a me na koa, me na puali, a me na maka kaua, a pae iho la ma Keoneoio, a hiki i Makena ma Honuaula, ua nui loa ka auwaa i piha in a koa. O na makaainana o Honuaula, ua hao ia ka waiwai, ua luku wale ia, a ua auhe i ka nahelehele me ka pilikia. I ka lohe ana o Kahekili ua hiki mai ke kau ai Honuaula, hoomakaukau iho la o Kahekili i kona mau Alii, a me kona mau koa, ka poe lima hema e maa aku ai i ka lauoho a me ka pua mauu aole e hala…
>
> In the year 1776 Ka-lani-ʻōpuʻu and the chiefs returned to war on Maui, and in the battle with Ka-hekili's forces at Wailuku were completely overthrown. The army landed at Keoneʻoʻio, their double canoes extending to Makena at Honuaʻula. There they ravaged the countryside, and many of the people of Honuaʻula fled to the bush. When Ka-hekili heard of the fighting at Honuaʻula he got his forces together – chiefs, fighting men, and left-handed warriors whose sling-shots missed not a hair of the head of a blade of grass. Ka-lani-ʻopuʻu landed his forces before noon, a great multitide filling the land from Kiheipukoʻa at Kealia to Kapaʻahu, all eager with the thought that the Alapa were to drink of the waters of Wailuku… (Kamakau, 1992, p. 85)

The difficulties between Kahekili and Kalaniʻōpuʻu were eventually settled, and the two kings were left to their respective islands. Later during the reign of Kahekili, while he and many of his chiefs were away on Oʻahu, one of his followers rebelled. The chief Kukeawe began to mistreat the people of Honuaʻula and neighboring districts, leading to a rebellion. Warriors loyal to Kahekili put down the uprising and Kukeawe was killed near Palauea:

> During this period there were disturbances among the country people, not only on Oahu but also on Maui. The trouble arose through one of the lesser chiefs (*kaukaualiʻi*) named Ku-keawe, a favorite (*aikane*) of Ka-hekili to whom Ka-hekili

had given the privilege of letting his pigs run over the land of Kula and roasting them as he needed them. But he seized also the pigs belonging to the country people of Kula, Honua‘ula, and Kahikinui, as far as Kaupo, and went with a large party to rob them of their wealth even with violence. This was the cause of the uprising of the country people called the “Battle of the pig-eating of Ku-keawe” (*‘Aipua‘a-a-Ku-keawe*). When the plundering party reached Kaupo they were surprised by some fighting men of Kahikinui, Honua‘ula, Wailuku, and Waihe‘e under ‘Opu‘u, and their retreat was blocked by Ka-wehena, Ka-ho‘oluhina, and Ku-heana, each with his company. Hence they climbed the mountain of Haleakala in order to descend to Kamaole in Kula and fortified themselves strongly at Kapuoa, where they would have been safe had they not descended to the sea at Kamaole. Here they were surrounded by Ka-wehena’s men, Ku-keawe was killed, and his body stuck up like an image toward the sea of Palauea.

When Ka-hekili and the chiefs who were on Oahu heard of the trouble on Maui they pitied the common people, and Ka-hekili gathered his younger brothers and his sons about him, and Ka-lani-ku-pule was chosen ruling chief to return and rule over Maui, with some of the chiefs to accompany him… (Kamakau, 1992, p. 142)

Pukui (1983, p. 12) discussed the ‘ōlelo no‘eau that resulted from the above event, and which was subsequently used to warn people about being greedy:

‘Ai-pua‘a a Kukeawe.

The pork-eating of Kukeawe.

Said of a person who is not satisfied with the number of his own pigs and so robs his neighbors of theirs. Kukeawe was a friend of Kahekili who was allowed to help himself to any of Kahekili’s pigs in Kula, Maui. But Kukeawe also took the pigs belonging to the people of Kula, Honua‘ula, and Kahikinui and plundered their possessions. These people rose in rebellion, led by ‘Opū, and surprised the followers of Kukeawe while they were ascending Haleakalā on the way to Kula. Kukeawe’s party retreated but found their way blocked by other parties led by Kawehena, Kaho‘oluhina, and Kuheana. Kukeawe was killed and his body set up at Palauea for all to see.

3.3.2 Ka Moolelo o Kihapi‘ilani (The Tradition of Kihapi‘ilani)

From January 12-August 23, 1884, native historian Moses Manu published “Ka Moolelo o Kihapiilani” in native newspaper *Ka Nupepa Kuokoa*. A part of the account includes reference to Kihapi‘ilani’s rise to rule over Maui and construction of the great fishpond complex of Kanahā in Kahului. The following excerpt, translated by K. Maly, is a synopsis of Manu’s (1884) narratives:

> Upon securing his rule over Maui, Kihapiʻilani determined that he was going to build a heiau, a house for the gods… Kihapiʻilani then called upon the chiefs and commoners alike, having them gather the ʻalā makahinu (dense basalt stones) to build an alanu (trail).
>
> The trail began at the stream of Kawaipapa and Pihehe and entered the hala forest of Kahalaowaka. From that place, it went to the forest of ʻAkialaʻa at Honomāʻele… The trail was also set out at Kaupō, from the stream (gulch) of Manawainui to Kumunui. That was the extent of the work of the king and the people. He then began the paving in the forest of ʻOʻopuloa [i.e., ʻOʻopuola], at Koʻolau, extending from Kawahinepeʻe to Kaloa, then on to Pāpaʻaʻea, and on to Kaʻohekanu at Hāmākua Loa…
>
> Now when the King (Kihapiʻilani) completed his work in this area, he moved and lived at Kahului, where he began the collection of stones for the kuapā (fishpond walls) of Mauoni and Kanahā. He is the one who caused the water in those two ponds to be separated and given two names. The kuapā is still there to this day, but a large portion of it has been lost, covered under the sands flying in the winds. When this work was completed, Kihapiʻilani then departed for Waiehu and ʻĀʻāpueo… (p. 4)

3.3.3 He Moolelo Kaao Hawaii no Laukaieie… (A Hawaiian Tradition of Laukaieie…)

Manu published "He Moolelo Kaao Hawaii no Laukaieie…" in *Nupepa Ka Oiaio* between January 5, 1894 and September 13, 1895. The following is excerpted from the longer narratives which describe the travels of Laukaieie, her younger brother Makanikeʻoe, and their companions. This tradition includes descriptions of fisheries, aquatic resources, history, and mele interspersed with accounts from other traditions and references to nineteenth century events.

> From [Makawao] he then traveled to the cool pond of Kālena and then he went to the top of the hill, Piʻiholo, from where he could look out upon the beauty of the land. While he was atop Piʻiholo the ʻūkiukiu mist rains and the ʻulalena surrounded him, and the līhau dropped from the leaves of the koa of Kokomo and the famous kukui grove of Lilikoʻi. There, while upon the hill he saw two young women whose features were like that of Hinauluʻōhiʻa [a goddess of the forests and water at Waipiʻo, Hawaiʻi] sitting along the side of the stream of ʻAlelele. In his mysterious manner, Makanikeoe appeared before these two young women. Startled, they dove into the stream of ʻAlelele and entered a cave, and in a short time these mysterious women arose below Waiʻalalā. There, the women took their mysterious body forms and Makanikeoe called out to them. He learned that their names were

Lauhuki and Kiliʻoe, and that they were the moʻo guardians of the cool waters of Kālena and all of the ponds at Makawao. For them the lines of the mele were composed:

Ka helena a wahine i ka pali	The women travel along the cliffs
I ka luna o Piʻiholo i ʻAlelele	At the heights of Piʻiholo and ʻAlelele
O Lauhuki ma lāua o Kilioe.	They are Lauhuki and Kiliʻoe

After exchanging their greetings, Makanikeoe passed through the cave by which the women traveled to Waiʻalalā. He then continued underground till he reached the sea fronting Māliko. He arose at the eastern point of Māliko, which is the boundary between Hāmākualoa and Hāmākuapoko. From here, the path of our traveler passed before Kūʻau and Pāʻia and he then arrived at Kapukaʻulua, the boundary between Hāmākuapoko and Wailuku. There, Makanikeoe saw a deep pit in the sea which he entered and followed to the ponds of Kanahā and Mauoni, those famous ponds that are near Kahului. The ponds were made by the commoners in the time of the chief Kihapiʻilani…

3.3.4 Moolelo o Hiiakaikapoli-o-Pele (Tradition of Hiʻiakaikapoliopele)

In Hoʻoulumāhiehie's version of Hiʻiakaikapoliopele (transcribed and translated by Kaʻiminaʻauao Kahikina) published in *Ka Naʻi Aupuni*, Paukūkalo is mentioned briefly as an ʻelele (messenger) from Wailuku, Maui. Paukūkalo belongs to the king's court and is tasked with another ʻelele from Waiehu, Kaiehu, to fetch a hog for a ceremony to revive the chief ʻOlepau.

ʻOlepau's demise was a result of a dramatic hoʻopāpā (battle of wits) between Hiʻiaka and a wahine of ʻOlepau named Waihīnalo. Waihīnalo, along with another wife of ʻOlepau, Kawelokaiehuehu, were dismissive of Hiʻiaka's call to enter their home. Their fear was that ʻOlepau would be captivated by the beauty of akua wahine, Hiʻiaka. The tension in the story escalates with the following excerpt from their arrival at the house of ʻOlepau:

Ka Moolelo o Hiiakaikapoli-o-Pele	**The Tradition of Hiʻiakaikapoliopele**
Ka wahine i ka Hikina a ka La, a o ka Ui Palekoki Uwila o Halemaʻumaʻu	**Woman of the Sunrise, Lightning-Skirted Beauty of Halemaʻumaʻu**
Iune 29, 1906	**June 29, 1906**
…O ko kakou [lakou] uei hele aku la no ia a ku ana mawaho o ka hale. Nana aku la lakou nei ia loko, ua hele a piha	…They went along until they arrived outside of the house. They looked inside and saw that it was filled with

i na kane a me na wahine a hoonuu ana i na mea ai o ka ahaaina i hoomakaukauia.	men and women eating insatiably the food that was prepared.
Oi ku aku lakou nei mawaho o ka haleaina, aohe o lakou nei kahea ia mai; ia wa huli ae la o Hiiaka a olelo ae la i ke kane a me ke aikane.	They peered from outside toward the eating house of the women and noticed they weren't called in; at this time, Hi'iaka turns toward the man [Lohiau] and her close companions and says.
"Ua hele ka paha o Olepau i kahi e, ina paha eia no oia i kauhale nei, ina nohoi ua kahea ia mai la kakou. Malia paha, ua hiamoe oia, a o ia ke kumu o kona ike ole ana mai nei ia kakou. E pono paha au e hoala ae ia Olepau."	"Perhaps 'Olepau went somewhere else, if perhaps he were here then he would have called us. Perhaps he is sleeping which is why he does not acknowledge us. It is good for me to wake up 'Olepau."
Iune 30, 1906	**June 30, 1906**
Alaila, ninau mai la o Lohiau i ka wahine, "Ala mai no nae o Olepau, ke hoala aku oe?"	Then, Lohiau asks the woman [Hi'iaka] "'Olepau will wake up should you wake him?"
Ae aku la nohoi o Hiiaka me [ka] olelo ana aku i ke kane. ["]Ala mai no ia ke hoala aku au iaia.["]	Hi'iaka agrees by saying to [Lohiau], "He will wake should I wake him."
Ia wa, hoala aku la o Hiiaka ia Olepau ma ka paeaea ana'ku i keia kau.	Then, Hi'iaka wakes 'Olepau by chanting this song.
Kau Elua Haneri me Elima o ka Moolelo o Hiiaka.	*Chant Two Hundred and Five of the Story of Hi'iaka.*
1 E ala e! E ala!! E ala e Mahinanu,	1 Awaken! Awaken!! Awaken Mahinanu,
2 E ala e Mahialani	2 Awaken Mahialani
3 E ala e ka malie hihi…	3 The maile hihi awakens
4 Io akua nei la—	4 By way of this god
I ka pau ana o ka Hiiaka oli ana i keia kau, ua lohe aku no o Olepau i keia	After Hi'iaka finishes her chanting of this song, 'Olepau hears this song that

mele aia nei i kau aku ai, oia hoi he mele hoala keia ana i hea aku ai e ala ae oia (Olepau).

Hi‘iaka chanted, which was a mele ho‘āla she uses to arouse him (‘Olepau).

Ia wa i pane mai ai o Olepau, [“]ke ala aku nei no au aole au i moe. Aole hoi a hihi, ua alaiia mai nei nohoi au e nei poe wahine o oukou.

Then, ‘Olepau responds “I am awake, I am not asleep. I am not ensnared by sleep; I am distracted by you women.

O Hiiakaikapoliopele paha oe, o ka pokii kaikaina punahele o Pele. A ina pela, e lalau ae au i puaa a uhau aku imua ou ame na’akua o kakou.[”]

Perhaps you are Hi‘iaka, the youngest sibling and favorite sister of Pele. If that is so, I extend a pig to be sacrificed before you and our gods.”

Ia wa pane ihola na wahine ana iaia: “Ka! [“O] Hiiakaikapoliopele ka auanei kela wahi wahine a pupuka-a-ino nui wale e ku mai la[?]

Then his [‘Olepau’s] wahine retort to him: “Ka! That extremely ugly evil hag standing there is Hi‘iaka[?]

Aole kela o Hiiakaikapoliopele. He wahine ui mao Popo [sic] o Hiiaka, aka, o kela ino e ku mai la, he wahi kuouou maka ma’i kela, a he ino haalele loa nohoi.[”]

That is not Hiiakaikapoliopele. Hi‘iaka is a beautiful woman, but that mess standing out there is a wicked and sickly eyed old woman, a wickedness to be rejected.”

O na wahine na laua na olelo hoinoino ia Hiiaka, oia o Kamelokaiehuehu [Kawelokaiehuehu] me Waihinano [Waihinalo]. Ua ike no laua ma ko laua ano ike papalua, o Hiiakaikapoliopele no keia, e ku aku nei a e kani aku nei nohoi ke oli; a ua hoomaopopo no laua, a ua kamaaina nohoi, he wahine ui no o Hiiakaikapoliopele; a o keia hoopupuka ana ona iaia iho; he hana hunahuna a hoonalonalo wale no ia ana iaia iho.

The women who uttered those rotten words to Hi‘iaka were Kawelokaiehuehu and Waihīnalo. They could see by their gifted sight that this was indeed Hi‘iakaikapoliopele. When they [Hi‘iaka folks] arrived and the oli recited, Kawelokaiehuehu and Waihīnalo understood and were acquainted with the fact that Hi‘iaka was a beautiful woman. Hi‘iaka had made herself ugly as a means to hide and make a secret identity.

Ua maka‘u ka keia mau wahine o lilo ke kane a laua o Olepau ia Hiiaka; a oia ke

The women were afraid that their man ‘Olepau would be begotten by Hi‘iaka.

kumu o ko laua olelo kuʻikaʻi ana mai ia Olepau a olelo hoonalonalo mai la nohoi imua o ua kane nei a laua.	This was the reason why they said those untruthful and evasive words before the man ʻOlepau.
No nei mau olelo a ua mau wahine nei, ua hooki pu iho la ko Olepau manao, a ua lohe aku la no nae o Hiiaka i keia olelo hoonalonalo a na wahine a Olepau ma ka wa ana i kamailio mai ai.	Because of these women's words, ʻOlepau thoughts were stopped. At the same time, they were conversing, Hiʻiaka could hear these evasive words by the women of ʻOlepau.

Due to the arrogant behavior of the two wahine of ʻOlepau, Hiʻiaka grows frustrated and decides to play a game of hoʻopāpā. She will be on the side of death, and Waihīnalo will be on the side of life. Hoʻoulumāhiehie shares these chants and explicitly describes them as prayers to cause death and bring life. This hoʻopāpā would barter the life of ʻOlepau.

As Hiʻiaka chants, she begins to inflict the sickness of kālawa (neuritis) on ʻOlepau, which soon overcomes his entire body. Afterward, Waihīnalo and Kawelokaiehuehu chant a prayer of life, calling to ʻOlepau's akua restoring him to health.

The wāhine go back and forth, battling with prayer until eventually Hiʻiaka wins and ʻOlepau dies gruesomely. Calling on Kapokūlani and Puanui, the two akua take charge of ʻOlepau's upper and lower extremities, causing him to vomit and excrete blood from the lower half of his body. No matter how much Waihīnalo and Kawelokaiehuehu tried, they could not stop the blood from flowing. ʻOlepau was dead. Hiʻiaka and her companions flee the scene, leaving the two wāhine of ʻOlepau in disbelief and sorrow.

Waihīnalo and Kawelokaiehuehu call to their ʻelele Kaiehu and Paukūkalo to go and fetch ʻOlepau's younger brothers, both ruling chiefs of Molokaʻi and Lanaʻi. Kaiehu and Paukūkalo go and meet the ʻelele from both Molokaʻi and Lanaʻi to share the news of ʻOlepau's passing and that their older sisters want the ruling chiefs of Molokaʻi and Lanaʻi to come to their court. It is revealed that at the same time ʻOlepau passed, his two younger siblings too passed. Kaiehu and Paukūkalo return to Maui and bear this news to the two chiefs.

While mourning proceedings continued for the chiefs of Maui, Molokaʻi, and Lanaʻi, Kaiehu and Paukūkalo sought the council of ʻOlepau's kahuna nui (high priest), whose name was Kaukahimaikūlani. They were sent there by the Waihīnalo and Kawelokaiehuehu and were instructed to fetch a young pig as an offering to ʻOlepau's akua to revive the dead chief.

As Hiʻiaka and her companions journeyed, Wahineʻōmaʻo noticed the sound of the pig and asked Hiʻiaka what the commotion was about. Hiʻiaka, having her godly sight,

explained that the pig was fetched to be brought to Kaukahimaikūlani to revive the chief. She shares that if the chief should live again, they would all perish. Hiʻiaka, knowing the signs and symbols of her ancestors, instructs her entourage that should the pig pass their ʻaoʻao kapu (the sacred side of her and her elder sister's body), then the chief shall not be revived. The pig eventually passes her ʻaoʻao kapu as the two ʻelele run past Hiʻiaka and her companions. At that moment, Hiʻiaka chants:

Iulai 14, 1906	**July 14, 1906**
1 E Kaiehu—e!	1 E Kaiehu—e
2 E Paukukalo—e!	2 E Paukūkalo—e!
3 He ala pii na ka maʻi kane	3 The genitals of man is an uphill path
4 Hala iho no ka maʻi wahine	4 Passing down the female genitals
5 Akua lamalama kai o Niua—la	5 Niua, the god that illuminates the ocean
6 Mai Waihee no a Kapulehu	6 From Waiheʻe until Kapūlehu

As Hiʻiaka chants, a big gust of wind comes, lifting dirt and debris, which cling to the eyes of the two ʻelele. In pain and with swelling red eyes, Kaiehu hastily insists that they pluck out their eyes. Paukūkalo resists this idea, saying that they would die should they try.

The two ʻelele arrive at the house of the kahuna and decide to keep the reason for their eyes being red a secret. Feeling desperate, Kaiehu hastily utters a prayer right outside of the kahuna Kaukahimaikūlani's home, saying:

Iulai 16, 1906	**July 16, 1906**
"Eia ka puaa la. He puaa na ke Akua. E ola ia maua ia Kaiehu a me Paukukalo, Amama. Ua noa. Lele wale."	"Here is the pig. A pig for the God. Revive us two, Kaiehu and Paukūkalo, it is so. The tabu lifted. The prayer flies to its recipient."

Aroused by the pule (prayer) from inside his home, Kaukahimaikūlani ventures out and poses a simple question about the pig. However, Kaiehu, in a display of unnecessary rudeness, retorts that the kahuna should be able to discern the pig's purpose, which is for the chief ʻOlepau. Kaukahimaikūlani, hearing the disrespectful tone of this ʻelele, makes a conscious decision to respond with respect and kindness, demonstrating the power of choosing a positive response in the face of rudeness.

Iulai 16, 1906	**July 16, 1906**
“I hewa no ia olua i ka olua kanaenae ana mai nei ma ka pule. Olelo mai nei olua, e ola ia Kaiehu a me Paukukalo. Aole hoi olua i hai mai nei ia‘u ma ka olua pule, no ke alii no Olepau, ka puaa. A ua pau la hoi ia, ke hai mai nei olua no Olepau, ka puaa. A ke hai aku nei au ia olua ua lele ke aho ia Olepau. Ua make. Aohe puaa ola o ke Alii. Ua make ke alii o Maui. Aloha ino no ka hoi! [K]uu alii. Ae. Ua make ia i ka nui naaupo o na wahine ana; a no ka nui hookiekie nohoi. Eia la, ua make ia i ke ahi. He ahi ka wahine. Aloha wale ke akua i ka ike ole ia aku e ke kanaka.”	“The mistake falls on you two because of your lamentation in your prayer. You both said, revive Kaiehu and Paukūkalo. You never said to me through your prayer that the pig was for ‘Olepau. I am here to tell you that ‘Olepau’s breath has gone. He is dead. No pig will revive the chief. The chief of Maui is dead. It is indeed pitiful! My chief. Yes. He died by the great ignorance of his women; who were self exalted indeed. He died by fire. A fire of the woman. My affections to the god because of the disregard of man.”

The kahuna then prays to his gods to see if there was a way to restore life to the chief ‘Olepau. All the gods except one agree to restore ‘Olepau to life. The one dissenting god, named Kamaomao, upsets the other gods with his insolence. However, Kamaomao claims Hi‘iaka as his lord and explains that the red eyes of the two ‘elele were due to her mana. Having lied, Kaiehu and Paukūkalo are confronted by Kaukahimaikūlani:

Iulai 18, 1906	**July 18, 1906**
“Auhea olua, i hai aku au ia olua, mamuli o ko’u ike kakaolelo mai ka’u mau kumu i a’o ai a ailolo; ekolu mau huaolelo ano nui loa au i hoike mai nei i ku i kahi o ka oiaio.	“Listen you two, I tell you that because of my counseled sight by my teachers who taught me until I graduated; There are three big words to me that have been shown in agreement and in truth.
O nei mau huaolelo oia o lepo o honua ame ula. A eia ka wehe ana oia mau huaolelo e akaka ai kou waha hee.	These words are dirt, earth, and red. Here is the translation of these words that clarify your lie.
I ula na maka o olua i ka lepo o ka honua. Nolaila, alua auanei aina o Maui nei e kapaia ana ma keia mau inoa, o ka-Lepo-lepo i pula ai na maka o olua; a o Honua-ula hoi kahi i ula ai ua onohi maka o olua.	Your eyes were reddened by the dirt of the earth. Therefore, there are two places on Maui called by these names, Kaleopolepo that flung debris in the eyes; and Honuaula the place that reddened these eyes of you both.

Ua loaa olua i ke ehu lepo wawae o ke akua, oia o HiiakaikapolioPele. Nolaila, no ko olua hoike ole mai ia‘u i ka mea oiaio, e hoi oe e Kaiehu a Waiehu noho malie; a o oe e Paukukalo, e hoi oe a Wailuku i ka aina i kapaia o Kalaula. E hoi olua a hai aku i na ‘lii me na makaainana, na’u no au e hele aku.”	You were begotten by the feet of red dirt of the god who is Hi‘iakaikapoliopele. Therefore, because you never showed me the truth, you must return o Kaiehu to Waiehu and live quietly. And for you Paukūkalo, return to Wailuku to the place called Kalaula. Return and tell the chiefs and people that I am coming.”

In this section of the mo‘olelo, both Kaiehu and Paukūkalo were seen as animated characters in the saga of Hi‘iakaikapoliopele. They are now, respectively, place names. In Hawaiian thinking, places are also people, and vice versa. The two are interchangeable when appropriate for the narrative or history. Take, for example, Kaiolohia and Maohelaia of Moloka‘i. In the mo‘olelo of Laukaieie, both place names on Moloka‘i took the form of a human and welcomed Makanikeoe and Pupukanioe as guests on Maunaloa.

> The narrative about the red dirt in the eyes of these two ‘elele could speak to the actual physical conditions of the area. Perhaps Paukūkalo was known locally for its red dirt and dust devils, which could blind any passerby who was unlucky enough to be caught in its path. This is possible as the kahuna describes place or wind names of their region in Kalepolepo and Honuaula. Further clues could be given in Hi‘iaka’s chant, where she says, “Akua lamalama kai o Niua la, Mai waihee no a Kapulehu.” Hi‘iaka calls to the akua, Niua, which also means distortion as in one’s vision, and she references Waiehu and Kapūlehu.

3.3.5 He Moolelo no Kamapuaa (A Tradition of Kamapua‘a)

In a version of “He Moolelo no Kamapuaa” in the Hawaiian language newspaper *Ka Leo o ka Lahui,* edited by John Bush, Paukūkalo is briefly mentioned as a place and a person. Kamapua‘a is on Maui and is making his way around the island. From Kahului, he travels to Wailuku, where he meets Waihinanoikapoipoi, mentioned in the previous section in the story of Hi‘iakaikapoliopele, as Wahīnalo. Waihinanoikapoipoi invites Kamapua‘a to her home to eat and sleep. He denies her request, stating that he already ate in Kahului and wished to sleep in the darkness. He leaves Wailuku o Waihinano and continues his journey to Paukūkalo. He meets a beautiful woman bathing and lashing her luxurious hair in a freshwater pond. She calls Kamapua‘a saying:

…[“]ei ala e, e hele mai kaua e auau i pau ka hou lepo o ko hele ana mai nei i ke alanui loa, na’u e holoi aku ka lepo	Hey you, come let us bath to clean the sweat from your journey along the long road. I will wash the dirt from your back

o ko kua a na'u no hoi e lomilomi aku ka maopaopa o kou mau wawae.	and will massage your weary feet.
A pau kou auau ana, alaila, hoi aku kaua no kauhale, aia ilaila ka ai, ka i'a, ka wai, a me na mea no a pau au e makemake ai, ke hele aku nei ka la e napoo, moe a ao hele ana he la okoa.	After you finish bathing let us go back to the house. There is food there, meat, and water with anything else you desire. The sun is setting, sleep until day and go on your journey the next day.

Kamapua'a denies her request saying that he does not want food, nor does he want anything she has to offer and that he instead is following the love of his elder sibling. Kamapua'a and the bathing wahine converse briefly:

…["]E hele no wau a kahi poeleele ai, alaila wau ae aku no ka moe.["]	"I am going to a dark place, there I will sleep."
["]He keu no hoi ko lohe ole e kena kanaka, ina paha he kanaka eeiao [pepeiao] oe, i na [ina] paha ua lohe.["]	"It is excessive how you don't listen, if you are a person with ears then you would have heard what I said."
I aku la o Kamappuaa i ua wahine ala, ["]aohe au kupono me oe, no ka mea, he wahine oe no loko o ka wai, he kanaka au no ka aina maloo nei, kohu ole ke kaunu ana i waialoha, nolaila e aloha auanei oe, eia no au ke hele nei.["]	Kamapua'a responds to the woman "I am not right with you because you are a woman inside the bathing pond, I am a person from the dry lands, the two do not mix well in making love. Therefore, goodbye. I must be going."
I mei [mai] la ua wahine la, ["]he mea oiaio kau e olelo mai nei ia'u, aka, ua like no nae hoi kaua ma ia mea he kino lau.	The wahine says to Kamapua'a "it is true what you say to me, but, we are alike by way of this thing called a kino lau.
He kino lau ko'u no loko mai o ka wai; a pela no hoi oe, he kino lau no hoi kou e ka moopuna puaa a Kamaunuaniho.["]	I have a kino lau inside the water, and the same goes for you o grandchild pig of Kamaunuaniho."

This bathing woman was called Paukūkalo. According to the mo'olelo, there is a bathing pond named for her. Bush goes on to say that "A ua kapaia ka inoa o ia loko ana i auau

aia makai iho o Waluku o Paukukalo a hiki i keia la." (The bathing pond [Paukūkalo], the ocean side of Wailuku of Paukūkalo, is called this until this day.) Waihinanoikapoipoi and Paukūkalo are both kūpua (supernatural beings) in this version of Kamapua'a. According to the author, Waihinanoikapoipoi is a cousin to Pele, and Paukūkalo is a water spirit. Paukūkalo may have once been abundant in water, and there still may be a spring or pond on the land today. This would make sense considering the name words paukū kalo mean a portion or piece of kalo (taro). The area would have probably had a lo'i kalo (irrigated kalo terrace) where the water from Paukūkalo pond was once irrigated.

3.3.6 Ka Ike Ana i Na Tausani Lapu (The Knowledge of a Thousand Spirits)

Paukūkalo is revisited in a captivating ghost story series titled "Ka Ike Ana i Na Tausani Lapu" in the newspaper *Hawaii Holomua* on February 20 and 22, 1893 (transcription and translation by Ka'imina'auao Kahikina). Our central character, the kiu (spy), roams Maui at night, exploring historic wahi pana. Here, he witnesses the spectral movement of lapu (spirits or specters) in the night. These are the spirits of Hawaiian history, such as 'Olepau, Kāka'e, and other ali'i, who met tragic and untimely ends. In this part of the mo'olelo, the kiu finds himself at Paukūkalo, accompanied by a few kama'āina (native-born). As they depart from the wave break of Hoeamaikawa'a, en route to Papakāhulihuli in Wailuku, the kiu shares the intriguing origins of the name of this wave break makai of Paukūkalo. Paukūkalo is also depicted as a place teeming with poi and abundant food. The subsequent sections delve deeper into the historical significance of Paukūkalo and Hoeamaikawa'a:

Pepeluali 20, 1893	**February 20, 1893**
Mawaho ae o Paukukalo laua o ka hoomaka ana e holo, a olelo aku la oia i kahi kamaaina. ["]Ua ike no oe i ka inoa o keia wahi[?"]	Right outside of Paukūkalo they began to sail, and he [the kiu] says to the kama'āina, "Do you know the name of this place?"
Hoole mai la ua kanaka la. ["]Aole au i ike i ka inoa o keia wahi.["]	The man responds that no, "I don't know the name of this place."
Pane aku la ke kiu, ["]o Hoea mai ka waa, ka inoa o kei wahi nalu.["]	The kiu shares, "The arrival of the canoe is the name of this wave break."
O ke kumu o keia inoa, he huaolelo na kekahi wahine i kahea aku i kanaka, e hee aku ka waa, oiai oia ua oku na wawae i ka mano.	The reason for this name is that it was uttered by a woman calling out to a group of men surfing their canoe while she was being mauled by a shark—her legs torn off her body.

I ka wa o na kanaka i hoe aku ai i ka waa, ua lumai ia iho la ke kino o ua wahine la ilalo o ka hohonu, lawe ia aku a hookikii ia mai la iwaho nei.

When the men paddled to her, her body sank below into the deep water. An attempt was made to yank her out.

Ua noke na kanaka i ka holo ma ka waa, aole loaa iki. A o ke kane a kela wahine ua au okoa i ke kai me ka manao e make pu i ka mano aohe nae he make iki i ka mano.

The men on the canoe attempted but to no avail. The husband of that woman swam into the water with the idea that he would die with her by way of the shark. He was not successful.

Pepeluali 22 1893

February 22, 1893

["]Ea! [A]uhea oe e kanaka kolohe[?"] wahi a kekahi kanaka kamaaina me ka makaʻu nui.

"Is that right! Where are you going with this you mischievous person?" said the kamaʻāina with great fear.

["]Aole hoi maanei ka kaua huakai, eia mai nei ka hoi kaua ianaei.["]

"Our conversation need not go there, let us stay here."

Pane hou mai la ke kiu, ["]i ka wa i make ai o ua wahine la, he keu ke ano o kakahiaka nei, a e lohe aku ana no kauhale nei i ke kahea mai a ke leo o kela wahine.

The kiu responds again, "When the woman died, it was in the wee hours of the morning, and the town could hear her calls for help.

O keia wahine, he kino ui nohenohea kona, a he upepe nae, aohe ona wahi kina ma na wahi a pau i ka ihu wale no.

This woman had an exceptionally beautiful body, with a flat nose with no blemishes on her body except for her nose.

Oiai keia kakahiaka, he malie kahakai nei, a au aku la kela a me keia i kahi lawaia o hee, papaʻi, papa, hooluuluu a pela aku. He poe kane a poe wahine keia e imi ola nei.

On this morning, the sea was calm, and people were out fishing for heʻe, pāpaʻi, papa, hoʻoluʻuluʻu, that sort of thing. They were just men and women seeking out their livelihood.

A hoi ae no, a o ka uka poi nui a Paukukalo, ka ai pumehana oia aina, haule iho la no hoohiolo lua na miki poi. Aloha no ke keiki o ia kaha.["]

To return to the uplands to the poi rich place of Paukūkalo, the adored food of this land, where poi teemed excessively. I have adoration for the

children of this place."

Oiai laua e hoolana nei ma kuanalu, a ke owe mai la ke kai ma na wahi a pau o ko laua wahi waa.

While they floated just outside the surf break, the ocean all around their canoe murmured.

A e au ku ana kahi waa iluna a ilalo, ke koai la kekahi lima o ke kiu i ka hoe, a kamailio oia i kahi kanaka.

The canoe began to go up and down and the kiu began to turn the paddle while conversing with the kamaʻāina.

Pii mai la ka hoihoi ole i kahi kanaka, a olelo iho la oia iaia iho, ["]nani koʻu puni i keia kanaka a ka eepa nui wale.["]

The man grew disinterested and said to himself, "Lucky me for my pity on this strange person."

A oia ka ua kiu la i pane hou ae ai, ["]o ke kumu i pau ai kela wahine, i ka mano, he hakina ai nana i waiho a loaa ka ia alaila, hoi mai a ai pu iho, a o ka lawaia a ua whaine la e lawaia ana, he hooluuluu hinalea.["]

Then the kiu responded again, "The reason this woman died to the shark is because she had a piece of food left behind to get fish, that was eaten too [by the shark]. The kind of fishing this woman was doing was the hoʻoluʻuluʻu hinalea (hinalea diving)."

3.3.7 Na Hunahuna no ka Moolelo Hawaii (Fragments of Hawaiian History)

Native historian and steward to the descendants of the Kamehameha line, John Papa ʻĪʻī, penned important accounts of Hawaiian history in a series of articles published between 1868 to 1870. In 1853, ʻĪʻī and his ward Chiefess Victoria Kamāmalu[11] sailed to Hawaiʻi from Oʻahu and returned via Maui. ʻĪʻī (1959) reported on the smallpox epidemic that had reached the island:

> [They] reached the port of Kapueokahi, Maui, near noon. They looked up at the stronghold of kauiki, where Kaahumanu was born. It was evening when. The smaller ship arrived. As soon as it reached port some of the passengers made haste to go ashore, but their rowboats had not reached the shore when orders came to stay aboard because smallpox had been brought there. As the *Kalaikini* lacked water and food, five bundles of hard poi, ten dried ʻ*awa* fish, and one barrel of water were sent out to the ship.

[11] Chiefess Kamāmalu, a granddaughter of Kamehameha I and Kaheiheimālie, held many lands on Maui as a birthright inheritance. Among these lands was Haʻikū, which her father (and trustee), Matthew Kekūanāʻoa sold to Richard Armstrong in 1849. Kamāmalu died in 1866.

> Ii's ship remained at Kapueokahi until after Sunday, and the passengers associated with the people there. On Monday they left and paused at Ulaino, belong to John Young II, to bathe in the water at Makapuu, a pool famous in legend. Then they returned with head leis of *palapalai* fern and ginger. In the house where they were received their emptiness became well filled. Then they bade their friends farewell and boarded a boat to return to the ship.
>
> The sailed of the lovely one turned hither. Those aboard glanced at the cliffs of Koolau and Hamakua, reached Halehaku at night, where they paused until day break. Then they moved along, looking at Halehaku and Haiku, seeing the growing koa and kukui trees of Lilikoi and other sights until they reached Kahului. They went ashore there and went to Kaoo's houses at Wailuku and spent two nights there. When they left for Kahului on ox carts, Kamamalu and the others sang. Children, men and women accompanied them until they boarded the boats.
>
> They departed from there, looking up at those lands as far as the cliffs of Kahakuloa, and thought "what a multitude of inhabitants" Kaukini had. Passing Honokohau and Kaanapali, they saw a white flag at Lahaina where people from Oahu were not allowed to land because of the smallpox. They went from the ship to the fort, where they remained apart until the Sabbath and where their prayer meeting was held. They did not know until late that day that most of the congregation at Wainee was eager to have them. (p. 172)

3.4 Boundary Commission Testimonies

In 1862, a Commission of Boundaries was established in the Kingdom of Hawai'i to legally set the boundaries of ahupua'a that had been awarded to Ali'i, Konohiki (headman of an ahupua'a under the ali'i), and foreigners during the Māhele 'Āina of 1848. By the middle of the 1860s, landowners and their lessees were petitioning to have the boundaries of their respective lands – which were the foundation of plantation and ranching interests on Maui – settled. The primary informants for the boundary descriptions were old native residents of the areas being discussed, generally born between the 1780s to 1830s. The native witnesses usually spoke in Hawaiian, and in some instances, their testimony was translated into English and transcribed as the proceedings occurred. Other testimonies have remained in Hawaiian, untranslated to the present-day.

The narratives cited in this collection were excerpted from the testimonies given by native residents, or those given by surveyors who recorded the boundaries based on the testimony of native guides and their own field work. The testimonies include descriptions of several ahupua'a extending from ocean fisheries to plateau lands and mountain peaks. They also describe a wide range of traditional practices, travel, land use, resource collection, bird catching, and changes in the landscape witnessed during their lifetime.

The testimony from the 1870 Boundary Commission reveals that the area had been under the jurisdiction of Kamehameha I since the time of the Battle of Kepaniwai (ca. 1790), showing the political importance of the region. Native informant Kiha noted: “This place became Kamehameha’s at the time of the battle of Kepaniwai, and that was the first time that I saw that land, and to the present day... My grandfather was the one who showed him the boundaries of the land.”

Such accounts, though they do not specifically reference the immediate project area, indicate that the Puʻunēnē region was part of a culturally rich landscape connected to chiefly authority and important cultural sites. The proximity to the famous fishponds and the location along traditional trails between makai and mauka areas suggests that the project area would have been traversed by aliʻi and their retinues as they moved between coastal and upland areas.

With these chiefly events in history and the area’s strategic location within Wailuku ahupuaʻa, we can understand that while major heiau, high status residences, and agricultural centers were likely concentrated closer to water sources and the fishponds, the project area would have been part of the cultural landscape that supported traditional practices, trails, and intermittent land use patterns. Additional research into the specific cultural geography of the broader Wailuku moku continues to inform our understanding of the historical significance of all areas within this important district.

The original Hawaiian texts are provided in their entirety, with excerpts translated by Kepā Maly situated to the right of the original text to highlight pertinent sections. The first series of testimonies are the proceedings from Kalialinui, which document a dispute regarding the boundaries of Kamaikaaloa’s Kalialinui and the Crown Land of Wailuku. As a result of the dispute, significant testimonies from elder native informants were recorded. Place names or cultural site/practice references have been underlined in each of the ahupuaʻa proceedings.

3.4.1 Kalialinui Ahupuaʻa Testimony

Kalialinui Ahupuaa

District of Kula, Island of Maui
Boundary Commission
Maui, Volume 1, pages 2-12

Wailuku, Maui
Febuari 21st, 1871

Keena Hookolokolo a ke Komisina o na palena aina ma Wailuku o ka Mokupuni o Maui o ko Hawaii Pae Aina

Ma ka hihia e pili ana i ka hooponopono ana i na palena o ka aina o Wailuku ame Kalialinui ma Wailuku, Moku o Maui Hawaii Pae Aina

Na Komisina o na Aina Lei Alii vs. Campbell & Turton

Ua waihoia mai imua o ke Komisina Palena Aina o ka Mokupuni o Maui o ko Hawaii Pae Aina he palapala nonoi na na Komisina o na Aina Lei Alii ma ka la 22, o Dekamaba o ka M.H. Hookahi Tausani Ewalu Haneri ame Kanahiku.

Honolulu, Decemaba 19, 1870

I ka mea Hanohano
P. Nahaolelua
Kiaaina o Maui

Aloha oe

E ke Komisina o na palena aina o ka Mokupuni o Maui. Ua Kauohaia mai au e na Komisina o na Aina Lei Alii e waiho ‘ku i palapala nonoi no ka hooponoponoana ina palena o ka Aina Lei Alii i kapaia o Wailuku e waiho la ma ka Apana o Wailuku, Mokupuni o Maui.

O na palena a makou i manao nui ai e hooponoponoia oia no na palena mawaena o ka Aina i oleloia maluna ame ka aina i kapaia o “Kalialinui.”

I hoomaopopo no Campbell ame Turton a ke makemake nei na Komisina i na Aina Lei Alii e kauoha ‘ku ia laua.

Eia mai me keia palapala ke ana o ka Aina o Wailuku e like me ka mea i maopopo i na Komisina Lei Alii i ku like me ke Kanawai, a mai poina oe i ka hoolaha mai ia makou i ka manawa ame kahi e hoolohe ai.

O wau no,
Kau Kauwa Hoolohe

Jno O. Dominis
Komisina o na Aina Lei Alii a hope luna aina

Ua haiia na aoao elua e pili ana i keia hihia i haiia ae la, oia hoi i na Komisina Aina Lei Alii e Kue ana ia Campbell ame Turton ma ka la 21, o Febuari M.H. Hookahi Tausani Ewalu Haneri ame Kanahiku kumamakahi ma Wailuku kahi i hoolohe i keia hihia ma ka Mokupuni o Maui o ko Hawaii Pae Aina. Ua hoopukaia e ke Komisina Palena Aina o ka Mokupuni o Maui o ko Hawaii Pae Aina he palapala Kii

hoike ia Kaaiaweoweo (K) no ka Mokupuni o Oahu, a ua hoihoiia mai ia Palapala Kii hoike imua o ka Aha ma Wailuku Mokupuni o Maui o ko Hawaii Pae Aina ma ka la 21, o ke malama o Febuari o ka makahiki Hookahi Tausani Ewalu Haneri ame Kanahiku kumamakahi me ka olelo mai, ame ka hai ana mai a ka mea nana i kii i ka mea i hooakakaia e Kii maloko o ua palapala Kii hoike la i ka hope Ilamuku nui o ka Mokupuni o Oahu ame ko Hawaii Pae Aina, aole e hiki pono mai ka hoike no ka pilikia loa i ka mai pela ka mea i maopopo imua o ka Aha.

E like me Kahi ame ka manawa i hoolahaia ai e ke Komisina Palena Aina o ka Mokupuni o Maui o ko Hawaii Pae Aina. Ua hiki mai na aoao elua o keia hihia imua o ka Aha a ua hoopaneeia keia hihia a hiki i ka hora akahi o ke Awakea o keia la ma ka ae ana mai o na Aoao Elua

Ua hiki mai no na aoao elua imua o ka Aha e like me ka manawa i hoopaneeia ma ka hora akahi oia la i oleloia oia hoi na Komisina o na Palena Aina Lei Alii ka aoao hoopii i kue ana ia Campbell ame Turton ka mea i hoopiiia ua ae mai no ka mea i hoopiiia ua loaa ‘ku ia laua ka lono o ka manawa ame kahi e hoolohe ai i keia hihia e like me ke Kanawai.

W. C. Jones ka loio o Campbell ame Turton

R.H. Stanley ka loio o na Komisina o na Aina Lei Alii

Ua waiho mai o W.C. Jones i keia la 21, o Febuari o ka Makahiki o ka haku Hookahi Tausani Ewalu Haneri ame Kanahiku kumamakahi i ke Kii o ka aina o “Kalialinui.”

Ua waiho mai o R.H. Stanley i keia la 21, o Febuari o ka makahiki o ka haku Hookahi Tausani Ewalu Haneri ame Kanahiku kumamakahi i ke Kii o ka aina o Wailuku o ka Mokupuni o Maui o ko Hawaii Pae Aina ame ka ana pu.

A noi hou mai R.H. Stanley e hookomoia na Inoa Campbell ame Turton i mau ona no ua aina la i kapaia Kalialinui ma Wailuku, Mokupuni o Maui, H. P. A. A olelo mai o W.C. Jones imua o ka Aha ua makaukau oia e hana i keia hihia, a e nininau kela aoao Ka mea hoopii i Kona mau hoike aka he hoike Ka Ko makou aoao aole nae, oia maanei nei, no ka mea ua loaa loa oia i ka pilikila i ka mai ma Honolulu o ka Mokupuni o Oahu, H. P. A.

Kue mai o R.H. Stanley i ke noi a W.C. Jones, no ka mea he mea pono ole i Ka Aha Ke noho i hoolohe i kekahi aoao apau kana mau hoike e loaa auanei ka manawa o kela aoao e aoao a kuai i kela hoike, ma Honolulu, Mokupuni o Oahu.

Olelo mai o R.H. Stanley imua o ka Aha ina e hoopukaia kekahi palapala kii hoike e kekahi mea ua manaoia e ka mea nana i kii ua hoike nei i hooakakaia maloko o

ua palapala kii hoike nei, e kakau ma ke kua o ua palapala nei i ke ana o kona hana ana e like me ka mea ana i kauohaia ai e hana i ka makai ai oleia i ka Ilamuku o ko Hawaii Pae Aina.

Waiho hou mai la o W.C. Jones i palapala lawe ike a kela hoike ma Honolulu, Mok. o Oahu, H.P.A. e olelo ana oia no ka hoike nui a lakou i manaonui ai a ua loaa mai ka palapala kii hoike i ka hope makai nui e olelo ana ua mai loa ka mea i kiiia, aole e hiki aku i Lahaina, Mokupuni o Maui, H. P. A. Ke ano nui nae oia palapala he palapala e noi ana imua o ka Aha e hoopanee i keia hihia no ka lawe ana i ka ike a kela hoike ma Honolulu ka Mokupuni o Oahu, H. P. A. e pili ana i ka hihia hooponopono ina palena aina ame ke Ahupuaa o Wailuku ame Kalialinui, ma Wailuku o ka Mokupuni o Maui, H. P. A.

Ku mai o R.H. Stanley a kue mai i keia palapala lawe ika hoike, no ka mea aole hoi i hooakakaia mai ana ka palapala lawe ike hoike, no ka Aha hea la ka ike a kela hoike e waiho mai ai, a imua la o ka Luna Kanawai hea.

Na hoike ma ka aoao o na Komisina o na Aina Lei Alii.

Kiha hoohikiia a olelo mai.

I Kula kuu wahi i hanau ai ma Kamaole o ka Mokupuni o Maui, H. P. A. Ua noho au me Kamehameha Akahi iloko o ka makahiki 1797.

Ua ike au i ka aina o Kalialinui, a ua ike no au i ka aina e pili ana ia Kalialinui i oleloia ae la, oia no ka aina o Wailuku, no Kamehameha ia aina. Ua lilo keia wahi ia Kamehameha i ka wa e kaua ana o Kepaniwai, oia ka manawa mua a‘u i ike ai i ua Aina la a hiki wale i keia la. O ko‘u poe Kupuna makuakane Ka Luna Hooponopono o Wailuku, Maui nei. Ina e komo mai kekahi Konohiki iloko o ke Ahupuaa o Wailuku alaila na ku‘u poe Kupuna e Kuhikuhi i na palena o ua Aina la. O ka wa a‘u i ike mua ai i keia aina oia no ka manawa e ola ana o Kamehameha. Aole nae au i lilo i Luna na ke Alii, aka ku‘u poe Kupuna

Kiha sworn and says:

My birthplace was in Kula at Kamaole, Island of Maui, Hawaiian Islands. I lived with Kamehameha First in the year 1797.

I know the land of Kealialinui [Kalialinui], I know the things that have been spoken of, that is for the land of Wailuku, that land is for Kamehameha. This place became Kamehameha’s at the time of the battle of Kepaniwai [ca. 1790], and that was the first time that I saw that land, and to the present day. My grandfather was the one who oversaw the settlements of Wailuku. If a Konohiki came into the ahupua‘a of Wailuku, my grandfather was the one who showed him the boundaries of the land. The first time that I saw this land was when Kamehameha was alive. I did not become an overseer for the

wale no.

chief, it was my grandfather.

Ua hele au e nana ina palena o Wailuku me ku‘u mau kupuna, a ua ike hoi au ina palena o Kalialinui e kaawale aku ai o Wailuku.

I went to look at the boundaries of Wailuku with my elders, and I saw the boundary where Kalialinui is separated from Wailuku…

Ua hele au maluna o na palena o na aina o Kalialianui & Wailuku. Ua pinepine ku‘u hele ana maluna o na palena o ua mau aina i haiia la, ua oi aku mamua [illegible] manawa hookahi ku‘u hele ana. Eia na Kanaka i hele pu ai me au. O Makalena kekahi, Kuihelani ame Malaihi.

Ua hoomaka mai ka palena o Wailuku mai Kapukaulua mai a hiki i Keone Kapoo, a mai Keone Kapoo mai hoi, a hiki i Pohakunahaha,

It begins at the boundary of Wailuku, from Kapukaulua to Keone Kapoo, and from Keone Kapoo to Pohakunahaha,

a mai Pohakunahaha mai holo a hiki i Pohakuolopua, alaila hui o Wailuku me Haliimaile a hiki i Papakaloa, mai Papakaloa mai a hiki i Kauhiana, a mai Kauhiana mai a hiki Puuhinale, he alanui mai laila mai oia Ke Alanui o Hobron, oia ka palena i hui ai o Haliimaile, Kula ame Wailuku. Alaila holo aku la i Kalialinui, o Hokuula mauka, a o Wailuku mai makai ona Aina o Kula keia a‘u e hai nei. Hokuula, Na Pukalani, Na Kuikuiaeo, a o Kailua hoi kekahi inoa ma ka Akau i Kailua pili aku la me Kalialinui a o Wailuku no makai. Alaila ma na Omaopio hiki aku la i Puukoae ma ka hema hui aku la i ke huina Alanui e hiki aku ai i Kealia, Wailuku ame Waikapu.

O Kaluaolohe ka inoa o ka huina o keia mau Alanui. Ilaila hui o Wailuku me Pulehu makai, a hiki aku i Pohaku ame Kaopala. Alaila hui o Wailuku me Waikapu a mai laila holo a hiki i Pohakoi, a mai Pohakoi holo aku la a hiki i Kalapakailio. He aina o Omaomao no Wailuku o Kamaomao, mai Pohakoi mai a hiki i Kalapakailio oia ka palena o Wailuku a hiki aku i Kahului no Wailuku wale no ia mau aina e pili ana me Kapukaulua, mai Kahului a hiki aku i Paukukalo hui maila o Waiehu a no Wailuku no ia mau aina.

Ua ike au he mau loko ia kekahi o Mauoni, ame Kanaha na inoa o ua mau loko ia nei. Aia keia mau loko ia iluna o ka aina o Wailuku o Maui nei. Ua ike maoli au i keia mau Loko ia. He kanaka mau no na Alii. O ke kumu o ku‘u ike ana no Wailuku ia mau lokoia, noho iho

I know the fishponds Mauoni and Kanaha are the names of those ponds. These ponds are upon the land of Wailuku, Maui. I have known these fishponds very well. I was a man for the chief. The reason that I know Wailuku and these ponds is that I stayed with

la ku‘u kaikuahine me Kuaena. A oia no ka mea nana i malama ia mau loko i haiia ae la malalo o Kamehameha Akahi.

my elder sister and brother. They were the ones who cared for the above-mentioned ponds under Kamehameha First.

Pau o Kamehameha Akahi noho iho o Auwae, o Naea mai kona hope ka makua o Emma. A pau oia noho iho la o Keahi. Pau no oia lilo iho la ia P. Nahaolelua ke konohiki i keia manawa.

When Kamehameha First died, they went to Auwae, then Naea was his replacement, the father of Emma. And when he was finished, it went to Keahi. When he was done, it went to P. Nahaolelua, who is the Konohiki at this time.

Ninauia i kela aoao o W. C. Jones ka Loio a olelo mai. Hanau au i Kula. I Hamakua poko au kahi i noho ai, i ka manawa e ana ia ana ka aina o Kalialinui. I laila wau kahi i kuhikuhi pololei ai i ka palena, na Kuihelani au i hoouna mai e hele aku e kuhikuhi i ka palena o Wailuku ame Kalialinui.

Question asked by the side of C.W. Jones, Attorney, and answered: I was born at Kula. I lived in Hamakua poko at the time that the surveying was done at Kalialinui. I pointed out the correct boundaries then. I was sent by Kuihelani to go and point out the boundaries of Wailuku and Kalialinui.

Ua hele pu mai no e Makalena me au. Ua hai mai no na Kanaka kahiko ia‘u ina palena o na Aina i haiia ae la. Ua hele no au maluna oia mau aina a puni ia‘u mamua o ku‘u holo pu ana me Makalena ma e kuhikuhi ai i ka palena aina. Ua hele pinepine no au iluna oia mau aina.

Makalena also came with me. The old people are the ones who told me the boundaries of the said lands. I have been all across the lands, and around them before my traveling with Makalena folks, and shown the boundaries. I have often gone upon the lands…

Ua aoia no hoi au ina palena i keia mau aina, mai Hawaii mai a hiki i Kauai. Ua kakauia keia mau mea maloko o ka Buke i ka M.H.1860. Ua hele makou o Kuihelani ame Napela aole no au i hele kaapuni loa i ua aina nei. Ua aoia au e na poe kahiko i ke kuhikuhi o ka manawa o ka Niaukani. E ola ana no o Kamehameha mua ia manawa ame Kuumiumi ku‘u Kupuna Keoho (K) he kanaka no Kalialinui ame Pulehu. Kamamani, Weka, ame Kuawaeku, na poe i hele pu ai me au ma ia manawa a ia manawa aku. Ua like ka lakou ike me Ka‘u. Aole no lakou i hele a puni kela wahi.

Ua ike makou ia mau loko i Kapaia o

We saw the ponds called Mauoni and

Mauoni ame Kanaha. He Alii o Kihapiilani oia ka mea nana i kukulu i ka pa ma kai o na loko ia i hai ia ae la, oia ke Alii o Wailuku, Mok. o Maui. Aole no Ke Kukuluia ana o Ka Pa, oia mau loko he kumu ia e Kaawale ai o Kalialinui ame Ka Aina o Wailuku mai. No ke Alii Ka Aina i kapaia o Kalialinui oia no Ka Aina mai Kinohi mai.

Kanaha. The Chief Kihapiilani is the one who made the walls of the ponds spoken of. He was the chief of Wailuku, Is. of Maui; the walls were built for these ponds and are the source that separates Kalialinui and the land of Wailuku. The land called Kealialinui is for the chief, it has been that way from the beginning.

Waiho mai o W.C. Jones imua o Ka Aha he kumu ninau a penei. Aole au anei i moe mai ka aina o na Alii mai ke Kuahiwi mai a hiki i Ke Kai. Kue mai o R.H. Stanley ame ka waiho aku omua o ka Aha i keia ninau a kela aoao ua pono ole, hooholo ia e ka Aha i ka pono ole oia ninau. O ke Konohiki oia ka mea i ka wa Kahiko. O Kahikoku ke Alii o Kula i ku[u] wa uuku. Ua lohe au mai kuʻu poe kupuna o Piikea ke Alii mamua ʻku o Kahikoku a mamuli hoi o koʻu ike maoli o mea ke Alii nui o Kahikoku. Haawi aku la o Umi keiki o Liloa ia laua ka malama. Mahope o ka noho ana o Kahikoku i Alii. Lilo iho la o Keaweaheulu kona hope, mahope mai lilo o Aikanaka kona hope a pau hoi oia noho iho o Keohohiwa, a o Keohokalole mai hoi kona hope. O ke Aupuni ka hope loa mai nei, no Kula wale no keia mau Alii.

Eia na Alii o Kalialinui. Keohohiwa ka mua a pau ia noho maila, Kauikeaouli mai, a o Maikaaloa mai a mahope mai hoi o keikimahine o Maikaaloa ka mea i mare ia Panee. Aole i anaia ka aina i ka wa ia Maikaaloa.

Here are the chiefs of Kalialinui. Keohohiwa was the first. When he was finished, then it was Kauikeaouli, and then Maʻikaʻaloa (Kamaʻikaʻaloa), and afterwards, it was the daughter of Maʻikaʻaloa, who married Pāneʻe. The land was not surveyed in the time of Maʻikaʻaloa.

Aole mea i hoike mai iaʻu ina palena o Kalialinui. Malihini loa na Alii, aole i ike loa, na kamaaina wale no kai ike i ka palena o keia aina. Aole i hai mai o Keoho iaʻu ina palena o Kalialinui, aka ua hai mai oia iaʻu he loko o Kanaha no ke Ahupuaa o Wailuku, Maui. Ua kaua o Kalalakoa mauka iho o Kanaha no ka manao o ko uka poe i ka ono i ka ia o ka loko o Kanaha ua ike au ia Makaku he Pohaku.

Aole ia he hoailona pale. Aole no au i lohe i ka poe kahiko. Ua hoopaneeia ka Aha a hiki i k a la apopo la 22, o Febuari M.H. 1871, o ka hora 10, o ke Ka kahiaka.

Noho hou ka Aha i ka la i hoopaneeia ai oia ka la 22, o Febuari, ua hiki mai no na aoao i elua imua o ka Aha, nonoi o R.H. Stanley e hoohikiia o Malaihi.

Malaihi hoohikiia a olelo mai.

Malaihi, Sworn and States:

I ka wa o Kamehameha mua ku‘u hanau ana. Aia ma Kula, mokupuni o Maui ko‘u wahi e noho nei. Ma Lanai nae ku‘u hanau ana. I Hamakua poko wau kahi i noho ai mamua aku o ka Niaukani. Ua ike au ina aina o Kalialinui mauka mai o Kula.

My birth was during the time of Kamehameha the first. I reside in Kula on the island of Maui. But I was born on Lāna‘i. I lived in Hāmākuapoko before the time of the Nī‘aukani (ca. prior to 1811). I know the lands of Kalialinui, above Kula...

A ua hele no hoi au me kekahi mea ma ka aoao mauka o Hamakuapoko. Eia na kanaka i hele pu ai me a‘u. O Makalena, H. Kuihelani, ame Kiha. Ua hele makou ma ka aoao mauka o Hamakuapoko e pili ana ia Wailuku mai Kapukaulua ka makou wahi i hoomaka mai ai, mai Kapukaulua mai a hiki i Keone Kapoo, a mai Keone Kapoo mai holo aku a hiki i Hamakuapoko a mai Hamakuapoko aku holo aku la a hiki Pohakunahanaha. Alaila holo aku ma ka aoao o Hamakua ame Wailuku holo hou a hiki Olopua mai laila mai paleia aku la o Hamakuapoko a pili mai o Haliimaile mauka holo hou aku la ka palena o Wailuku me Papakaloa a mai

Papakaloa aku hiki aku i Haliimaile ma ka aoao mauka mai laila mai holo aku la i Kauhiana, a hiki aku la i Haliimaile ame Wailuku. Alaila loaa aku la o Puuhinale a mao mai o Haliimaile hui ae la o Kula me Wailuku kahawai kekahi. Ua koke no i ke alanui o Hopena e pili ana me Hokuula ka aina o Kula mai, Hokuula mai o Kula mauka, a o Wailuku hoi makai a loaa ai o Kalialinui. He kahawai ko ka aina o Kalialinui ame kekahi aoao o ka aina o Kula o Keahua ka inoa o ka aina e pili pu ana me ke kahawai o Kalialinui. He Ahupuaa o Kalialinui ame Keahua. Alaila hui ae la laua a holo mai ia Puukoae oia na aina mauka o Kealialinui ame Omaopio. O Wailuku hoi makai holo hou aku la a hiki i Pulehunui a hiki aku i ke kai.

From Papakōlea to Hāli‘imaile on the mauka side, from there on to Kauhiana, until reaching Hāli‘imaile and Wailuku. Then there will be Pu‘uhīnale and beyond Hāli‘imaile Kula and Wailuku stream meet as well. It was close to Hopena street adjacent with Hōkū‘ula, the land in Kula; From Hōkū‘ula of upper Kula and to Wailuku returning toward shore there will be Kalialinui. The land of Kalialinui has a kahawai (stream gulch), on one side, on the Kula side of the land is the place called Keāhua. That is the side that adjoins the kahawai of Kalialinui. Kalialinui is an ahupua‘a and so is Keāhua. They meet together and run to Pu‘ukoa‘e, the lands above Kalialinui and ‘Ōma‘opio. Wailuku is below, running to Pūlehunui, and reaching to the sea…

He huina alanui e pii ana ma Waikapu i Kula. Alaila hiki ae la no i Wailuku. Iho mai

makou o Makalena ma a hiki i kai a hai aku la no hoi au ia Makalena mauka iho o Pohakoi, maanei ka‘u wahi ike e pili ana ina palena. O na aina o Pulehunui ame Wailuku. Aia no ma na aoao i Pohakoi. Oia wale iho la no ka‘u mea i ike e pili ana ina palena ame na aina a‘u i hai iho nei imua o ka Aha. I ka wa mamua he mea nui ka pio manu. Eia na mea ko Kula poe e hele ai i ka pio manu he Aweoweo he Ilima Elua no maunu, a o ko Wailuku poe kanaka hoi he walahee ka maunu e loaa i ka manu. I Puukoae nae Kahi e hele ai i ke Kapio manu. Ina e hele mai ko Kula poe iluna o Puukoae e Kapio manu ai. Alaila alualu aku la ko Wailuku e Kipaku. Aole e hiki ke kiiia mai ka paakai o Kanaha e ko Kula poe, aole no e hiki i ka Alii ke kii mai!

Ninauia e kela aoao o W.C. Jones ka loio aoao pale.

Ua kuhikuhiia au e na kanaka kahiko ina palena o keia mau aina a‘u e hai ae la. No Kula ku‘u makuakane, ku‘u makuahine no Lanai, kamaaina ko‘u makuakane no Kula. Ua ike au ina palena mamua o ka hiki ana mai o na Missionari. He puni ia makou na palena i ka hele ia i ka pii i ke Kolea. Aole i olelo mai ku‘u mau makua. Ua hala aku ka palena o Kalialinui a Kanaha o Puukoae ka aina e pili ana, hui ae la o Umiomaopio me Pulehunui. He kahawai mai Kalialinui mai a holo i uka ma ka aoao Omaopio a hui ae la me Kalialinui. Aohe kahawai iluna o Puukoae, ma ka hema Kekahi a me ka Akau. Ka inoa ma ka aoao Akau o Kalialinui, Kaapakai ame Keanakalahu ma kaaoao hema o Waiohonu ame Pulehunui. Omaopio, oia mawaena hui ae la me ka Aina o Kalialinui. Aia ma ka aoao akau o Kalialinui o ke kahawai. O Kaakai ka palena nui mai Kai a hiki i uka. Ilaila hui ae la me Wailuku. O Kalialinui ma ka aoao hema, ma ka aoao Akau o Keahua o ke kahawai, he owawa ma ka Hema o Kalialinui, mai uka mai o Kalapaalii mai, a o ka Waipuilani kekahi inoa ua hai mai iau na kamaaina i keia owawa e hui ana me ke kahawainui. Ua ike no au ina kamaaina, ua make i keia manawa. Hookahi kahawai o mea Kaakakai ame Keanakalahu. Aole kahawai o Puukoae, holo aku ke kahawai o Kaakakai kona inoa a hui ae la me ka aina i kapaia Omaopio a haiki loa, ua ike au i keia mau aina ame ke kahawai mahope o ka hiki ana mai o ka poe Kaleponi oia paha ka M.H.1851 a 1852 paha. A kokoke ana ia wa aole au i ike ia Makaku. Ua ike au i ka loko ia ia Kanaha.

Ua kauoha R.H. Stanley i keia hoike e hele mai imua o ke Aha e hai i kana mea apau i ike e pili ana ina palena aina o Wailuku ame Kalialinui. Aole no he mea i hele mai a olelo mai ia‘u e hoike ma ke ano Wahahee imua o ke Aha, oia ka pane a Stanley i kue ai i ka ninau a W.C. Jones, ua hele mai keia hoike e hoike i kana mea i ike, ame kana mea i maopopo e pili ana ina palena o Hamakua, Haliimaile, Kula, ame Pulehu.

Napue hoohikiia a olelo mai.

I Wailuku nei kuʻu wahi i hanau ai. I ka wa o Kamehameha mua. Ua ike no au ina palena o Wailuku e pili ana ia Hamakuapoko, Haliimaile, Kula, ame Pulehu. Ua hele au me kekahi mea ma keia mau wahi i haiia ae la. O wau ame Kaawa. Ua ike no au ia Makalena. Aole nae au i hele pu me ia. Hui o Hamakuapoko me Wailuku i kela wahi i kapaia o Keone Kapoo, mai Keone Kapoo mai hoi, holo aku la a hiki i Puunene. A mai Puunene mai holo aku la no a hiki i Papakaloa. A e pili ana o Hokuula, a o Haliimaile mauka. Mai laila mai hoi holo aku la a loaa o Puukoae, he puu aa nae ma kela wahi i oleloia ae la o Puukoae. He alanui o Puukoae he holoia no e ka lio maluna oia wahi aa. Aia ma ka aoao makai o ke alanui oia ka Aina o Waiohonu. Haalele iho la ia Puuhinale e holo aku la a hiki i Puukoae, a o Wailuku ka aina makai, a Omaopio hoi ma ka aoao mauka. A holo hou aku la no a hiki i Pohakoi. O Pulehu hoi ka aina mauka iho o Pohakoi, a o Wailuku no makai.

Hiki no ilaila ka pau no ia. Holo no a hiki i Paukukalo. Alaila pili ana o Kahului me ke Ahupuaa o Wailuku. Ua ike au ia Mauoni ame Kanaha. He mau loko ia ia ma Wailuku nei o Maui. Ua hele au ilaila. I kuʻu wa i hele ai ilaila o Auwae, ke Konohiki ia manawa no Wailuku. Apau hoi ka noho Konohiki ana o Auwae noho iho la o Kawailepolepo. Apau no hoi o Kawailepolepo, noho iho la o Kailihiwa i Konohiki. Apau no hoi o Kailihiwa noho iho la o Naea, a o P. Nahaolelua mai ka mea imua o ka Aha (he Lunakanawai). Ua noho au malalo o keia poe Konohiki a hiki wale i keia manawa. Ua ike au ia Kalialinui. Aia ia aina ma Wailuku. Ua ike au ia Kaawa, he kanaka ia no Wailuku. Ua olelo mai oia iaʻu oia wale iho la no ka palena o Kalialinui a hiki i Puukoae. Aole oia i hai mai iaʻu ina palena o Kalialinui. Ua make ke kanaka o Kaawa. Ua hoi e hiamoe, aole e ala hou mai. Ua ike au ia Makaku, aia mawaena o Wailuku. Aole no i hai mai o Kaawa iaʻu ina palena o Wailuku o Maui, Hawaii Pae Aina.

H. Kuihelani hoohikiia a olelo mai.

I Wailuku kuʻu wahi i hanau ai, he kanalima paha oʻu M.H. i noho ai ma keia aina o Wailuku nei a keu aku paha. Ua noho kuʻu makua i Konohiki no Wailuku nei. Aole au i noho Konohiki. Aka ua ike nae au ia Mauoni ame Kanaha. He mau loko ia ma Wailuku nei, Mokupuni o Maui. I kuu wa uuku ua hele pu au me kuʻu makuakane ma keia wahi i haiia ae la. He umi paha oʻu

H. Kuihelani, sworn and says:

My birthplace is at Wailuku, I have lived on the land of Wailuku for fifty years, a little more perhaps. My father was the konohiki of Wailuku. I was not a konohiki. But I do know Mauoni and Kanahā. They are fishponds of Wailuku, Island of Maui. When I was little, I went with my father to this place spoken of. I was perhaps ten years old at the time. For the King, two fishponds.

makahiki ia manawa no ka Moi. Elua ia mau loko ia. Ua hele au mahope iho o ka manawa o Kamehameha Ekolu. Ia makou nae ka malama oia mau loko. Na makou ao e lawe i ka I-a.

I went after the time of Kamehameha Third. It was us who cared for those ponds. It was us who took the fish.

Apau o Kamehameha Ekolu, o Kamehameha Eha iho, aole nae ia makou ka malama ia manawa. O P. Nahaolelua ka mea nana e malama nei i keia mau loko ia i ke ahupuaa o Wailuku, Maui. Keahua ka palena o Wailuku ma ke kai. Ia‘u ka malama oia kai mai ku‘u makuakane mai oia ka Aina i oleloia iho nei o Pukaulua. Aia no ia ili aina ia‘u i keia manawa. No ka Moi ke Kai. Aole poe i aeia e kii i kela ia iloko o na loko ia, no ka mea ua kapu loa ke kii i ka ia. Aia no a hu ka i-a mawaho o ka loko alaila hiki i kela mea, keia mea ke kii i ka i-a mawaho wale no o na loko. He paakai no Kolaila. He opeia ka paakai a laweia na na alii. Aole au i ike i ka aina o Kalialinui e oleloia nei. Aole au i hele i Kalialinui e laweia ai. Ua ike au ia Kamaomao, ua koke no ia Pohaku. Ke Ahupuaa o Wailuku, Maui nei o ko Hawaii Pae Aina.

When Kamehameha Third died, it went to Kamehameha Fourth; we did not take care of them then. P. Naha‘olelua is the one who cares for these fishponds in the ahupua‘a of Wailuku, Maui. Keāhua is the boundary of Wailuku at the shore. I am the one who has stewardship of sea (fishery); it is from my father; that land mentioned is Pukaulua. I have that land section at this time. The fishery is for the King. People are not allowed to take the fish from within the fishponds, because the harvesting of fish is restricted. Though when the fish overflow from the ponds, then this person and that person can harvest the fish that are on the outside of the ponds. There is also salt there. The salt is bundled up and taken by the chiefs. I do not know the land of Kalialinui, spoken of. I did not go to take things from Kalialinui. I know of Kama‘oma‘o, the stone is close to pig-cairn (boundary marker) of Wailuku, Maui of the Hawaiian Islands…

Ninau e kela aoao o W.C. Jones ka loio o ka mea pale.

Ua hoohuliia kanaka i ke kukulu ana i ka pa, mawaho o na loko ia, ma Oopuola. O Kihapiilani ke Alii o Maui ia manawa, nana no i hoohuli na kanaka i ke kukulu ana i ka pa. Ua ike au i ka pohaku o Makaku.

Men were sought out to construct the wall outside of the ponds, at ‘O‘opuola. Kīhāpi‘ilani was the Chief of Maui at that time, it was he who sought out the men to build the wall. I know of the stone of Makaku.

O kuʻu lohe he pohaku kela no na uhane e hui ai. Pela mai ka olelo a kekahi poe. Ame Kamaomao kekahi, ua hele makou e ohi i mao no na alii i mea e ala ai na Kapa Aahu o lakou. Aole poe kanaka e ae o no kanaka wale iho la no o Wailuku, Maui, Hawaii Pae Aina.

What I heard was that it is a stone where the spirits gather. That is what some people say. And Kamaʻomaʻo is one also; we used to go gather maʻo [a native hibiscus] for the chiefs, as something with which they would scent their Kapa Clothing. No other people, only the people of Wailuku, Maui, Hawaiian Islands.

Napela hoohikiia a olelo mai.

I Honokowai kuu wahi i hanau ai o ka mokupuni o Maui, H.P.A. Noho au ma Wailuku i ka wa o Kamehameha mua, ma ia wa. Mai laila mai koʻu noho ana ma Wailuku nei a hiki wale i keia wa. Ua ike au ia Kanaha he loko ia aia ma Wailuku, a he loko i-a e ae no kekahi i kapaia o Mauoni, ma ia wahi hookahi no i haiia ae la. Oia kuʻu manawa i ike mua ai i ka wa o Kamehameha mua a hiki wale i keia manawa. Ua hele au ilaila a ua ike maoli au. He Luna holoholona au no ke Aupuni.

Na Kauka Judd wau i hoonoho mai, a o Keoni Ana no kekahi i hoonoho mai iaʻu i Luna holoholona no ke Aupuni. He nui ka i-a maloko oia mau loko ia i kuʻu wa e noho Luna ana. O ke Konohiki o Wailuku ke lawe i ka ia. Aole mea e ae. He paakai no ko na loko. Ua ike no au ia Makaku. Aia ia aina i Wailuku nei, Maui. Elua paha mile ke kaawale aku mai Kula aku.

Ua kuhikuhiia wau ina palena o Hamakua & Haliimaile. O Kaawa, Kiha, ame Humphreys, oia na mea i hai mai iaʻu ina palena o ua mau aina la. Aia nae ia mau aina iloko o Wailuku, Maui. O Naea ke Alii ia manawa, apau oia noho mai o Namakaeha. A mahope mai hoi o Namakaeha lilo iho la o Keahi ke Konohiki, a keia manawa hoi ka mea Hanohano P. Nahaolelua. He aina o Kamaomao no Wailuku nei, kokoke loa i Makaku, mauka iho oia mau loko i-a o Wailuku, Maui.

Ninauia e ka loio W.C. Jones o ka aoao pale. Aia o Kalialinui ma uka loa aku. Ua lohe au i ka Aina o Kalialinui. A ua ike au ina hale olaila. Aole kamaaina i kuhikuhi mai iaʻu ina palena o Kalialinui. I ka M.H.1846. Koʻu ike ana.

Hoomaha ka aoao hoopii, oia hoi na Komisina o na Aina Lei Alii.

Ua waiho mai o Makalena ke Ana Aina i ke ana ame ke kii o keia aina o Wailuku ame na kamaaina i hele pu ai me ia eia na inoa o lakou. Kiha, Kuihelani, ame kekahi poe e ae he nui wale. Nolaila ua ae mai na aoao i elua o keia hihia o E. Mayor ka mea nana i ana i ke kii o Kalialinui ame na mea i hoakakaia maloko oia

palapala Kii. Ua hoopaneeia ka Aha a hiki i ka hora Elua o ke Awakea o keia la.

Hoike ma ka aoao pale o Campbell ame Turton.

Hikiau hoohikiia a olelo mai.	Hikiau Sworn and Stated:
Ua noho au ma keia wahi, mai ia Kamehameha mua mai (Maui) 94, o‘u makahiki. Ua ike no au ina palena makai nei o Kalialinui. I ka wa i make ai o Kamehameha mua lilo iho ia Kamehameha Elua.	I have lived at this place since the time of Kamehameha the first (on Maui), I am 94 years old. I have seen the boundaries of Kalialinui. When Kamehameha the first died, it was obtained by Kamehameha the second.
Pii makou o Liholiho ame Auwae i uka nei i ka pana iole. Makai mai o ka palena o Kalialinui e pili ana me Wailuku oia no o Aiuhini.	We climbed up with Liholiho and ‘Auwae, to shoot ‘iole in the uplands. On the shoreward section, Kalialinui, bounds with Wailuku, at Aiuhini.

A moe aku la i Keonekapoo. Oia wale iho la no ka‘u mea i ike. Ua ike au ia Puukoae. Oia ka palena o Kula me Kalialinui. Ua loihi loa o Puukoae mai Aiuhini mai. Aia o Aiuhini ma kai loa. He mau pohaku kekahi ma Aiuhini. Hiki no ia‘u ke kuhikuhi, aka imua o P. Nahaolelua. Auwae ke Konohiki ia manawa o makou i ike ai. Make o Auwae ma Owa Wailuku nei. Aole au i ike i ka palena o Kalialinui.

Noi mai o W.C. Jones imua o ka Aha e waiho hoona ma ia ka Aha, no ka lawe i ka ike a ka makou hoike i manaonui ai ai ma Honolulu, Oahu, aole o makou. Aole o makou hoike e ae e lawe mai ana, oia wale no, ua ae kela aoao.

3.4.2 Hali‘imaile Ahupua‘a Testimony

Haliimaile Ahupuaa

District of Hamakuapoko, Island of Maui
Boundary Commission
Maui, Volume 1, pages 191-194

Ahupuaa o Haliimaile ma ka apana o Makawao, Maui, No. 60

Hale Hookolokolo, Wailuku, Maui, Oct. 14, 1880

Ua noho ka Aha o ka Komisina o na Palena Aina o Maui, Molokai, ame Lanai. ma ka Hale Hookolokolo ma Wailuku, Maui, ma ka la 14 o Okatoba M.H.1880, ma ka hora 10 o ke kakahiaka, e like me ka hoolaha ana ma na nupepa ko Hawaii Pae Aina, o ka la 9 o Okatoba M.H.1880. ma ka Helu 41, Buke III a ma ka nupepa

Haole “Hawaiian Gazette”, no ka hooponopono ana i na palena o Haliimaile ma Makawao, Maui ko Hawaii Pae Aina, ma ke noi ana mai o S.B. Dole Esquire ma ka Palapala Hoopii i waihoia mai ma ka la 28 o Aperila M.H. 1880.

Ua hoomaopopoia ka Palapala Hoopii. Ua kaheaia ka poe kue i keia nonoi ana mai a S.B. Dole Esquire, aohe poe kue i hele mai.

O W.O. Smith Esquire ka loio a kokua hoi ma ka aoao o ka mea hoopii

Ua nonoi mai ke kokua o ka mea hoopii e hooholo keia Aha i na palena o Haliimaile e like me na palena a W.D. Alexander ka Luna Ana Aina nui o ke Aupuni. A ua ae ka Aha i keia nonoi ana mai.

L. Aholo, Komisina o na Palena Aina ma Maui, Molokai ame Lanai.

Notes of Survey of Boundaries of the Ahupuaa of Haliimaile, Maui

Beginning at an Iron stake in the road from Makawao to Kahului at the common corner of the East Maui Plantation of the Hobron Plantation and of Royal Patent 2324:2 to Kekahuna from which the granite post on Piiholo bears S 55° 39’ E true, the Boundary runs:

1. N 62° 57’ W true (N 71° 20’ W magn) 1854 feet to a kukui tree, along land purchased by T.H. Hobron from the Haiku Sugar Co. (according to W.H. Pease’s survey corrected); thence
2. N 73° 26’ W true (N 82° W magn) 5509 feet; and
3. N 38° 12’ W true (N 46° W magn) 1202 feet along the same to a corner of Alexander and Baldwin’s purchase from Haiku Sugar Co. (which is 158 feet S 36° 45’ E true from a granite post by the road to Kahului); thence
4. N 51° 24’ W true 10939 feet along Alexander & Baldwin Purchase to the boundary of land sold by the Haiku Sugar Co. to a company of 28 natives; thence
5. S 51° 15’ W true (S 43° W magn) 1619 feet along land sold to natives, to iron pin; thence
6. N 89° 45’ w (S 81° 15’ west magn) 300 feet along land sold to natives to the rock called Olopua in a ravine, which forms the Boundary between this land and Wailuku; thence
7. S 26º 40’ E true (S 35 1/2° E magn) along said ravine 1304 feet along Wailuku to a place called Puupili; thence
8. S 21° 17 E true (S 30° E magn) 1680 feet along ravine to a marked rock called

Kaioleakalani about 170 ft above the road to Kahului; thence

9. S 17° 04' E true (S 25 3/4° E magn) 1592 ft to a pile of stones at Kauhiana or West side of the ravine; thence [page 192]
10. S 22° 15' E true (S 40 3/4° E magn) 1390 ft to a marked rock by the path at Puhinali [Puuhinale]; thence
11. S 35° 07' E true (S 42 1/4° E magn) 3508 ft to a wiliwili tree on West bank of the gulch, which is the corner of Wailuku and the district of Kula. From this point the middle of this gulch is the boundary between Haliimaile & Kula; thence
12. N 70° 03' E true (N 61 1/2° E magn) 330 ft to large marked rock in the wall at the bottom of the ravine; thence
13. S 54° 50' E true [(S 63 1/4° Magn] 558 ft to the junction of two stone walls in the gulch; thence
14. S 57° 29' E true 482 ft along the bottom of the gulch to corner of stone wall; thence
15. S 2° 40' E true 878 feet along bottom of the gulch;
16. S 37° 41' E true 1400 ft along bottom of the gulch;
17. S 50° 12' E true 824 ft along bottom of the gulch;
18. S 47° 33' E true 1108 ft along bottom of the gulch;
19. S 75° 42' E true 958 ft along bottom of the gulch; thence
20. S 64° 43' East true 247 feet along bottom of gulch to the corner of the former Brewer Plantation; thence
21. S 52° 44' E true 1995 ft along the gulch;
22. S 59° 12' E true 1058 ft along the gulch;
23. S 72° 28' E true 1653 ft along the gulch;
24. S 32° 02' E true 2738 ft along the gulch;
25. S 14° 53' E true 2475 ft along the gulch;
26. S 40° 54' E true 506 ft along the gulch to the top of falls in the gulch, which is the corner of the former Brewer Plantation & of the land purchased from Mrs. Haalelea by J. Clark; thence
27. S 81° 52' E true 376 ft along the bottom of the gulch;
28. S 60° 57' E true 528 ft along the same to the boundary of Makawao; thence
29. N 35° 29' E true 521 ft along Grant 216; thence
30. N 14° 33' E true 1678 ft along the same, along an ancient ulumaika course, to an iron stake at the corner of the former Brewer Plantation and of Grants 216 & 499; thence

31. N 53° 49’ E true (N 46 E magn) 4200 f along Grants 499 & 216; thence
32. N 53° 28’ E true 1248 ft along Grant 641 to East Maui Plantation; thence
33. N 43° 15’ E Magnetic 1627 ft along Grant 64; [page 193]
34. N 52° 30’ E magnetic 1455 ft along Grant 64 to S.W. bank of the Maliko gulch; thence
35. N 36° E magnetic 980 ft along Grant 64, down the pali to the bottom of the deep gulch, separating this land from Haiku;
36. Thence the boundary follows down to centre of the Maliko gulch in a North-Westerly direction to the upper Southeast corner of Hamakuapoko;
37. Beginning again at the starting point of this description at the iron stake in the Makawao corner near a School house, run N 60° 07’ E true (N 51° 21’ E magn) 2655 ft along Grant 2342 to Kekahuna & Grant 187 to John Richardson, & thence
38. N 69° 33’ East true (N 58 1/2° magnc) 1002 ft to the bottom of Maliko gulch to the southeast upper corner of Hamakuapoko mentioned above.

Total area = 4230 Acres, more or less.
Makawao, June 21, 1879
W.D. Alexander, Surveyor

L. Aholo
Commissioner of Bounds for the Islands of Maui, Molokai & Lanai.
Lahaina, Oct. 16, 1880

3.4.3 Wailuku Ahupua‘a Testimonies

Wailuku Ahupuaa (Aina Lei Alii)

District of Wailuku, Island of Maui
Boundary Commission
Maui, Volume 1, p. 13

No. 1, Maui, Palena Aina a ke Komisina, Palapala keia o na palena o ke Ahupuaa o Wailuku o Maui

Ma ka noi ana mai a ke Komisina o na Aina Lei Alii (Jno O. Dominis) kiaaina o Oahu, a ma ka mana hoi i haawiia mai ia‘u ma ke kanawai i Luna Komisina no na palena aina o Maui, a ma keia ke hooholo nei au ina palena o ke Ahupuaa o Wailuku ma ka Apana o Wailuku o ka Mokupuni o Maui, ke hoakakaia aku nei malalo penei.

Ua haawi malalo o ku‘u lima ma Lahaina i keia la Elua o Maraki o ka M.H. 1871

P. Nahaolelua, Komisina o na Palena Aina o ka mokupuni o Maui

Eia na palena o Wailuku i anaia e J.W. Makalena. E hoomaka ana ma ke kihi Akau loa o Wailuku ma kahi i kapaia Kapukaulua, ma ka Puupohaku iwaena o ke one 3 4/10 kaulahao mai ke kai. A mailaila ka moe ana ae o ka Hao Kuhikuhi o ke panana i kahi oioi loa o Puukoae i Kahakuloa

Akau 66° 30’ Komohana ame kahi oioi loa o Piiholo i Makawao

Hema 63° 30’ Hikina a holo

Hema 17° 30’ Hikina 16 1/10 kaulahao i kahi i kapaia o Keonekapoo

Hema 48° Hikina 46 9/10 kaulahao i ka Poopohaku i ka nuku o kahawai, a holo ma ke kahawai

Hema 34° Hikina 14 2/10 kaulahao ma Hamakuapoko ai Haliimaile, i ka pohaku i kapaia o Olopua

Hema 35° Hikina 20 kaulahao i ka pohaku o Puuiki

Hema 29° Hikina 35 4/10 kaulahao i ka pohaku i kapaia Kaioleokalani kokoke i ke alanui ma Kapapakaloa

Hema 25° Hikina 25 kaulahao iluna o kahonua

Akau 41° Hikina 73 9/10 kaulahao ma ka honua a hiki i ke kumu Wiliwili ka palena o Wailuku me Kula ma ke Ahupuaa o Nahokuula [Hokuula] kahi i kapaia o Puahinale me Kaulehulehu, alaila holo ma Kula

Hema 27° 30’ Komohana 81 kaulahao ma Hokuula, Napukalani, na Kauau a hiki i Keahua ma ke kumu laau Akoko i ka puupohaku

Hema 20° 15’ Komohana 91 8/10 kaulahao ma Keahua na Omaopio i ka puupohaku i ka laau Akoko alaila holo

Hema 23° Hikina 141 8/10 kaulahao ma na Omaopio ma ka lihi makai o ka Mahina Palaoa o Kekipi ma a hiki i kapohaku i kapaia o Puukoae

Hema 30° 30’ Komohana 43 3/10 kaulahao ma Omaopio a hiki i ka huinao na alanui o Wailuku me Waikapu e pii ai i uka o Kula ma Pulehu i kai mai o Waihonu ka huina alanui keia i oleloia e na Luna Hoona ma ka lakou olelo hooholo no ka palena mawaena o Wailuku me Waikapu, alaila holo pololei e like me ka lakou hooholo ana

Akau 76° Komohana hiki i kahi i kapaia o Pohakoi

Akau 85° Komohana 80 7/10 kaulahao

Hema 86° 15’ Komohana 16 8/10 kaulahao hiki i ke kumu o ka Lapaokailio pili keia

mau aoao me Waikapu.

Wailuku Ahupuaa

District of Wailuku, Island of Maui
Boundary Commission
Maui, Volume 1, pages 216-219

Ahupuaa o Wailuku, No. 65

Hale Hookolokolo Wailuku, Maui, Sept. 21, 1882

Ua noho ka Aha Komisina o na mokupuni o Maui, Molokai a me Lanai, ma ka Hale Hookolokolo ma Wailuku Maui, ma ka la 21st. o Dekatemaba, M.H. 1882, ma ka hora 10 o ke kakahiaka, e like me ka Hoolahaia ana ma na nupepa “Ka Elele Poakolu” a me na nupepa haole “The P.C. Advertiser”.

Ua hiki mai o F.F. Porter, ma ka aoao o Claus Spreckles ka mea hoopii. A o Meekapu nona iho. O M.D. Monsarrat ma ka aoao o na Aina Lei Alii a ma ka aoao o na Kahu o ka Waiwai o ka Moi Lunalilo.

Hookakaia ka Palapala Hoopii, a ninauia ka poe kue. Aohe poe i hiki mai.

Hookaka mai o Meekapu i kekahi mau mea, a pau kana ua laweia mai o M.D. Monsarrat i Hoike a Hoohikiia a hai mai.

He Ana Aina kau hana, nau i ana ke Ahupuaa o Wailuku nei. Aole au i hele a puni o Wailuku nei, aka, ua lawe au i na palena i apono mua ia, ma ka hooponoponoia ana o na palena o Hamakuapoko, Pulehunui e pili ana me Wailuku nei. A ua hooponoponoia e au na palena e pili la me Waiehu, mai loko mai o na palena i hooholo mua ia.

Hoike mai la o M.D. Monsarrat no ka aoao o na Kahu Waiwai o ka Moi Lunalilo, a me na Komisina o na Aina Lei Alii, ua ae lakou i keia mau palena, ma keia palapala ana o M.D. Monsarrat. Aole mea kue.

Survey of the Ahupuaa of Wailuku, Maui

Beginning at a red wood post and hill of stones on the sea shore adjoining the land of Hamakuapoko at the place called Kapukaulua. From which post the Government survey station on Puunene bears S 8° 15’ W true and running.

1. S 9° 39’ E true 1062 feet along Hamakuapoko to Keonekapoo

2. S 40° 7’ E true 3018 feet along Hamakuapoko to a pile of stones at Nukukahawai;
3. S 22° 3’ E true 934 feet to a large rock called Olopua which forms the corner of Wailuku, Haliimaile and Hamakuapoko; thence
4. S 26° 40’ E true (South 35 1/2° East Magn) 1304 feet along Haliimaile to Puupili; thence
5. S 21° 17’ E true (S 30 E magnc) 1680 feet along the ravine to marked rock called Kaioleakalani, about 170 feet S of the way to Kahului; thence
6. S 17° 4’ E true (S 25 3/4 E magn) 1592 feet to a pile of stones at Kauhiana, on West side of the ravine; thence
7. S 32° 18’ E true (S 40 3/4 E magnc) 1390 feet to a marked rock by the path at Puhinali;
8. S 35° 7’ E true (S 42 1/4 E magn) 3508 feet to a wiliwili tree on West bank of the gulch, which is the corner of Wailuku, Haliimaile and the District of Kula; thence
9. S 36° 27’ W true 5346 feet along Kula;
10. S 29° 21’ W true 6059 feet along Kula;
11. S 28° 36’ W true 932 feet along Kula to a concrete post marked with a cross at the north West corner of Kalialinui and Wailuku; From which the government survey station on Puu o Koha bears S 38° 25’ E true; thence
12. S 28° 36’ W true 8376 feet along Kalialinui to lots of large rock called Puukoae; thence
13. S 36° 41’ W true 3060.5 feet along Kalialinui to a granite post at the corner of Kalialinui, Wailuku and Pulehunui; thence when the government Survey Station on Puu Hele bears South 82° 6’ W true; thence
14. N 64° 5’ W true 36030 feet along Pulehunui and Waikapu to Pohakoi, a marked rock a short distance West of road to Waikapu; thence
15. N 13° 45’ W true (N 85° West magn) 5326.2 feet along Waikapu up ridge;
16. N 82° 30 W true (S 86° 15’ W magn) 408.8 feet along [page 217] Waikapu to a stone post on the crest of the ridge known as Kalapakailio;
17. Thence along up the center of this ridge along Waikapu always following the water shed to the ridge forming the head of Olowalu Valley;
18. Thence following said ridge dividing this from Olowalu Valley;
19. Thence around by the ridge forming the head of Wailuku Valley to the head of the land of the land of Waihee;
20. Thence along the dividing ridge between the Wailuku and Waihee Valleys to

the head of Waiehu; Thence

21. S 70° 39’ E true 3366 feet along Waiehu down ridge;
22. N 80° 36’ E true 2161.5 feet along same to junction of ridge called Kahoolewa;
23. N 63° 36’ E true 6385.5 feet along same;
24. N 85° 6’ E true 3445.3 feet along same to end of ridge; thence
25. N 89° 51’ E true 1039.5 feet along same to black rock marked thus [arrow to right] at edge of gulch; thence
26. N 71° 21’ E true 427.7 feet along Waiehu along edge of gulch;
27. N 16° 51’ E true 569.6 feet along same to point near a large block stone marked [arrow to right];
28. N 66° 36’ E true 803.9 feet along same;
29. N 46° 6’ E true 937.2 feet along Waiehu;
30. N 46° 21’ E true 1029.6 feet along Waiehu;
31. N 49° 36’ E true 1025 feet along Waiehu to stone marked thus [arrow to right];
32. N 20° 30’ W true 128 feet along Waiehu;
33. N 22° 15’ E true 244 feet along Waiehu;
34. N 11° 44’ W true 310 feet along Waiehu;
35. N 57° 50’ E true 264 feet along Waiehu;
36. S 44° 30’ E true 753 feet along Waiehu along stone wall;
37. N 73° 00’ E true 674 along Waiehu along stone wall to tall stone marked [arrow to right] bears S 70° 21’ W true 1458.6 feet; thence
38. S 66° 6’ E true 1607.8 feet crossing the Government road to stone marked [arrow to right] at sand hills; thence
39. N 77° 52’ E true 1589.3 feet along Waiehu across sandy hollow to stone marked [arrow to right]; thence
40. N 65° 45’ E true 1083.7 feet along Waiehu to a stone marked [arrow to right] at sea shore; [page 218]
41. Thence along sea shore to initial point.

Area 24000 acres more or less.

Notes from various Boundary Certificates and Government Survey Maps by
M.D. Monsarrat, Surveyor

Honolulu July 22nd, 1882
S. Aholo, Commissioner of Boundries for the island of Maui, Molokai and Lanai.

Lahaina, Maui
September 25, 1882

3.5 Wailuku and Kula Described by Visitors of the Historical Period

In addition to the traditional accounts and observations penned by native Hawaiians and others interested in Hawaiian lore, visitors to the islands also recorded their observations of Maui. The writers describe various aspects of the land, sites, industry, and communities while also describing the transition in residency, land use, and the regional communities of the region.

3.5.1 The Journals of Captain James Cook

The journals of Captain James Cook and crew include further documentation regarding this period of history. Cook and crew first saw the Hawaiian Islands of Oʻahu and Kauaʻi on January 18, 1778. Cook then reports that on November 26, 1778, he and his crew saw the island of "Mowee" (Maui) for the first time. While sailing on the eastern side of Maui, they were visited by residents of the Wailuku-Hāmākua-Koʻolau region prior to their sailing to Hawaiʻi Island. Though only a limited time was spent at Maui, Cook penned a few observations of the region:

> I continued to steer to the southward, till daylight in the morning o. the 25th, at which time we were in the latitude of 20° 55'. I now spread the ships, and steered to the west… land was seen extending from south south-east to west. We made sail, and stool for it. At eight, it extended from south-east half south, to west; the nearest part two leagues distant. It was supposed that we saw the extent of the land to the east, but not to the west. We were now satisified, that the group of the Sandwich Islands had been only imperfectly discovered; as those of them which we had visited in our progress northward, all lie to the leeward of our present station.…
>
> In the country was an elevated saddle hill, whose summit appeared above the clouds. From this hill, the land fell in a gentle slope, and terminated in a steep, rocky coast, against which the sea broke in a dreadful surf. Finding that we could not weather the island, I bore up, and ranged along the coast to the westward. It was not long before we saw people on several parts of the shore, and some houses and plantations. The country seemed to be both well wooded and watered; and running streams were seen falling in to the sea in various places…
>
> In the evening, the horizon being clear to the westward, we judged the westernmost land in sight to be an island, separated from that off which we now were.… At first, only a few of the natives visited us; but, toward noon, we had the

> company of a good many, who brought with them bread-fruit, potatoes, taro, or eddy roots, a few plantains, and small pigs; all of which they exchanged for nails and iron tools.…
>
> In the afternoon of the 30th, being off the north-east end of the island, several canoes came off to the ships. Most of these belonged to a chief named Terreeoboo [Kalaniʻōpuʻu], who came in one of them. He made me a present of two or three small pigs; and we got, by barter, from the other people, a little fruit. After a stay of about two hours, they all left us, except six or eight of their company, who chose to remain on board. A double-sailing canoe came, soon after, to attend upon them; which we towed astern all night. In the evening, we discovered another island to the windward, which the natives call *Owhyhee* [Hawaiʻi]. The name of that off which we had been for some days, we were also told, is *Mowee* [Maui].…
>
> Finding that we could fetch Owhyhee, I stood for it; and our visitors from Mowee not choosing to accompany us, embarked in their canoe, and went ashore.… (Vol VI., pp. 485-487)
>
> The island next in size, and nearest in situation, to Owhyee, is Mowee; which lies at the distance of eight leagues north north-west from the former, and is 140 geological miles in circumference. A low isthmus divides it into two circular peninsulas, of which that to the east is called Whamadooa [Hāmākua or Hāmākualoa], and is double the size of the western peninsula, called Owhyrookoo [Wailuku]. The mountains in both rise to an exceeding great height, having been seen by us at the distance of upward of thirty leagues. (Vol VII., p. 105)

The description of this region of Maui ends with the above narrative as Cook never again returned to Maui.

3.5.2 Commander Charles Wilkes: The United States Exploring Expedition

In 1840 and 1841, Commander Charles Wilkes of the United States Exploring Expedition toured the Hawaiian Islands. In April 1841, Wilkes and party toured Maui, and Wilkes' narratives (1845) provide several descriptions of the lands and activities in the Wailuku and Kula moku:

> The island of Maui is divided into two oval-shaped peninsulas, connected by a low isthmus, only a few feet higher than the beach.… East Maui is the largest of the two, and rises in one unbroken mountain ten thousand feet in elevation, which falls almost perpendicularly towards the sea. West Maui has many sharp peaks and ridges, which are divided by deep valleys, and which in descending towards the sea open out and form sloping plains on the north and south sides of considerable

extent. The highest peak of West Maui was found, by triangulation, to be six thousand one hundred and thirty feet.…

After breakfast, Mr. Greene was obliging enough to accompany us to see the sugar-mills and taro-plantations, in the valley of the Wailuku. The sugar manufactory is an experiment of the king, and is now under the superintendence of a Chinese.… The sugar appears to be of good quality, and with proper attention, the manufacture could no doubt be made profitable.…

The district of Wailuku is composed of valley and upland. The soil in the former is extremely rich and well watered; the upland, also, produces good crops when sufficient moisture can be had. Potatoes, corn, sugar-cane, and sweet-potatoes, are the chief products of the windward side of the island.

In some places there are extensive woods, the trees in which are of large size; but the timber is of little value, being either soft and spongy, or hard and difficult to work. Of the former kinds the natives make their canoes.

The district of Kula, on east Maui, although extremely rough and rock, has a loamy, rich, and productive soil: it produces the finest Irish potatoes, turnips, corn, melons, and wheat. The latter, off an excellent quality, is found growing wild. It was introduced about twenty years before our visit, planted, and not the least attention paid to it; instead, however, of “running out,” it has increased.…

The isthmus is too dry to be fit for cultivation; it is an extent about twenty by fifteen miles. During nine months of the year it is a fine grazing country, and feeds large herd of cattle, that are mostly owned by foreigners.…

Both at Wailuku and at Hamakualoa, the natives have shown much perseverance and enterprise in erecting stone churches.… At Wailuku the building-stone used was vesicular lava.…

In Wailuku, the population is thought to be decreasing at the rate of about one hundred and thirty annually, but no adequate causes are assigned for this diminution. The climate of Maui is healthy, and no diseases prevail.…

The north coast of East Maui is a succession of deep ravines, which gradually diminish in breadth as they ascend, and are finally lost on the flanks of the mountains; travelling along the coast, in consequence becomes almost impossible. Cascades are seen falling in these ravines several hundred feet in height, having little volume of water, however.…

[O]ur gentlemen were very kindly received by the king and missionaries. They

> forthwith made preparations for a tour to East Maui. The Rev. Mr. Andrews, his son, and four students of the seminary, joined the party, together with six Kanakas to carry their food. The Kanakas were engaged at twenty-five cents a day, and twenty-five cents more was allowed for their food. The party first passed to Wailuku, where it was further increased by the accession of Mr. Baily. (pp. 252-270)

3.5.3 Wailuku Described by Editor J. Jarves

The Polynesian, a newspaper publication of the Hawaiian Government, regularly ran articles contributed by both residents and visitors that offered glimpses into the activities and developments in island communities, and sites to be seen when visiting various localities. J. Jarves, the paper's editor, was a prolific writer and contributed many descriptive articles to the newspaper. Among the writings was a series of articles describing a trip from Lahaina to Haleakalā via the kula lands of Kahului and Hāmākua Poko. Jarves reported on industry and sites of the region through which he traveled. Also among his observations were the significant changes on the Wailuku (Kamaʻomaʻo) Plains:

> A boat was hired to carry our baggage along shore, while we followed the southern coast to the foot of Wailuku mountain, and execrable pile of six miles of precipices and craggy rocks of no great altitude where the path traverses, but of most undescribable [sic] roughness, without the agreeable alloy of shade or vegetation the entire distance.…
>
> Having an eye to ease, we did not cross the mountain, but embarked in the boat and sailed with a favorable breeze along its base until near its eastern extremity, when, being rather late in the day, the trades that had just crossed the isthmus met us with a violent puff, and obliged our crew to putt lustily for about a couple of hours before we could reach a landing place. The bay here is subject to violent gusts of wind, which makes it dangerous boating. On reaching shore we found a very good house, built by missionaries for a night's accommodation when travelling to Lahaina, and awaiting here a calm opportunity to canoe it round the mountain. We dined here, rested two hours, and started on a very good carriage road, which follows the margin of the bay for some distance. On reaching the eastern bend, the dust, wind and heat were each intense. The first, composed of the light sand of the seashore, which is here invading the country to the very foot of the mountain, destroying in its course every green thing, rose in clouds to darken the sun. Our road lay for many weary miles through it. The country about the bay is barren enough to starve grasshoppers, and if it is a specimen of the "unclaimed and unoccupied" lands of the kingdom, I should say, thanks to the Company that would

take it *off* or pay for it as it is. We passed a number of hamlets, and noticed plenty of healthful and well clad children. Indeed, the whole population of Maui so far as I have thus seen, appear well off as regard's to clothing and if the children to be seen on this route are a fair criterion for the island generally, population is far from running out. On some of the sand hills we noticed human skulls, which had bleached there for centuries, for aught we could tell. At 8 o'clock P.M., we arrived at the landing place of our boat [in the area below Pāʻia], which had crossed the bay in advance with the luggage. I would give the name but do not know it, and can only describe it as the terminus of the road leading from Mr. Torbert's plantation [the Brewer Plantation at Kawaʻapae – Hāliʻimaile], and the grand potato embarking place for the fertile region above.…

A lovely panorama of cultivated fields lay several thousand feet beneath, while beyond there and reaching to the beach, was a sterility in striking contrast, to the right, Wailuku plains stretched their arid soil over a great expanse of country, backed by the ocean on either side. – Wailuku with its [illegible] and buildings was clearly distinguishable by the [illegible]. West Maui lay disclosed to full view, without a cloud to screen its rugged and uninviting mountain range. (Jarves, 1846, July 25, p. 1).

On the 14th I rode to Wailuku. The road for the first six or seven miles passes gently down to the beach through a pleasant and fertile country. The remainder of the way is not particularly agreeable, particularly if the sun is disposed to make reflections upon one in the passage over the sand hills which skirt the plain. The Wailuku plain which is some six or seven miles across by rather more in width, was once waving with tall grass, and when Mr. White first came to the island, trees six inches in diameter grew in it. Not a bush is now to be seen. The goats and cattle have exterminated the grass and dug up the soil of the plain, which dried by the sun, is now moving in drifts to the leeward into the ocean, leaving a bare and sun-parched surface. The windward beach which was once so covered with a profuse vine that kept the sand in its place, is now travelling in huge wave-like heaps to the other side. The sand may be said to make a breach clear across the isthmus. It is also filling up a large pond near by the famed Golgotha. So light is it and so easily borne aloft by the furious winds that here unchecked sweep every thing before them, that at a distance, mingled with the red dust of the plain, it resembles a conflagration; the smoke arising from the burnt cities of the plain. Every thing like vegetation is being killed. It may not be too late to remedy the evil to some extent, but it is a lamentable fact that this large extent of country, once covered with grass and trees is now a worse than barren waste.

Wailuku with its numerous rills, rich valley and cultivated enclosures, affords an

> agreeable relief to the general desolation of this region. There is water enough both here and at Waikapu from the back valleys, to enlarge the cultivation greatly. On approaching Wailuku, its large Quaker-like stone church, school house and other mission buildings, give it the resemblance of a factory house. How [illegible] and uninteresting all these native villages would appear, were the improvements of the missionaries removed. Wailuku being built on a rising ground, with mountains in the rear, and giant sand hills in front, makes a somewhat imposing appearance from the number and regularity of its large edifices, most of which are connected with the female seminary. The soil here is very productive.…
>
> The temperature of Wailuku is not excelling in evenness in this kingdom. Its range is from 70 to 83 deg. – and what is vastly agreeable, but few [mosquitos]. (Jarves, 1846, August 15, p. 2).

3.6 Modern History

Nestled in the central part of Maui lies the unincorporated community of Puʻunēnē, a place whose history is deeply intertwined with the sugar industry that dominated Hawaiʻi's economy for over a century. The name Puʻunēnē, meaning "goose hill" in Hawaiian, refers to a small volcanic cone between Spreckelsville and Pāʻia, and pays homage to the endemic nēnē (Hawaiian goose), the state bird of Hawaiʻi. With a modest population of approximately 50 residents today, this area once served as the heart of Maui's sugar production and was home to a vibrant multicultural plantation community that shaped the island's development for generations.

This historical overview traces the development of Puʻunēnē from its origins as a sugar plantation center through its evolution in the post-plantation era, with special focus on key institutions like the Puʻunēnē School, airport, hospital, plantation camps, and religious establishments that formed the fabric of community life.

3.6.1 The Rise of Sugar in Puʻunēnē

The commercial cultivation of sugarcane in Hawaiʻi began in the 1830s and 1840s, with the first sugar plantation established on Maui at Haliʻimaile in 1848. Samuel Thomas Alexander and Henry Perrine Baldwin, friends since childhood, formed a partnership and began planting near Makawao in 1870. Alexander & Baldwin (A&B) secured a lease for water rights from the kingdom in 1878 and built a ditch to bring water to arid central Maui. This irrigation system was crucial to the development of the sugar industry in the area.

In the same period, Claus Spreckels established Hawaiian Commercial Company in 1878, an enterprise in Central Maui which soon became devoted to sugar. It was renamed Hawaiian Commercial & Sugar Company (HC&S) in 1882. Spreckels built the

Spreckelsville Mill, which was rumored to be the largest sugar mill in the world at the time.

George Bowser, editor of *The Hawaiian Kingdom Statistical and Commercial Directory and Tourists Guide* wrote about various statistics and places of interest around the Hawaiian Islands. In the following excerpts, Bowser (1880) provides an overview of the Spreckels Plantation on the Wailuku-Waikapū lands:

> *Claus Spreckels & Co.'s Sugar Mill and Plantation*, Wailuku and Waikapu Common, seven miles from Wailuku; Kahului Road; post office address, Kahului. Owns 30,000 acres; 3,000 acres under cultivation; 25,000 acres available for sugar planting; the balance is pasture, etc. sole right of 32 streams for irrigating purposes; said right obtained direct from the Crown; estimated yield for season of 1880, 3,000 tons of sugar. The cane will average six tons to the acre. Number of men employed, 350; horses and mules employed, 70 head.
>
> The ploughing on the whole is done by steam ploughs, and the cane is transported by the aid of portable railways to the mill. The capacity of the mill will be about twenty tons per diem; the mill will have five crushers in two sets, one of three, and one of two. The mill buildings are now in course of construction, and it is expected that grinding may be commenced above November next. Mr. Spreckels has his own landing and storehouse at Kahului, and the sugar is brought down to the landing by Captain Hobron's Wailuku and Hamakua Railway. Messrs. J. Horner & Co. plant 600 acres, all under cultivation, on shares with this company. Mr. Spreckels calculates to import, inside of four years, 40,000 tons of sugar per annum from his Hawaiian estates. (pp. 431-432)

Bowser (1880) also described the native and plantation communities, and various attractions to be seen while traveling from Wailuku to the Hāmākua-Koʻolau region:

> From Wailuku to Kahului I found the already familiar road in first rate order, either for horses or wheeled vehicles. The trade-wind, however, although it may be the perennial benefactor of the island, is not at times a good traveling companion. This morning I found it in boisterous spirits. For the first seven miles of my journey my road was over a perfectly level country, on which there was not a tree to be seen. It is not for lack of good soil, I am sure, that neither trees nor cultivation are to be found over a great portion of the level land around Wailuku. Attempts will no doubt in time be made to irrigate this fine tract, either by extending the system of water-races, which have lately been constructed by the enterprising owners of sugar plantations, or by the and [sic] of artesian wells, and then thousands of acres here will be available for sugar planting and other agriculture.
>
> I had not proceeded far on my way before I found myself in the neighborhood of

the sugar plantation of Mr. Claus Spreckels, to whose enterprise and example this part of Maui owes no little of its wealth. His enterprise, by demonstrating the feasibility, and above all, the profitable character of works by which the superfluous waters of one district are made to fertilize districts otherwise unproductive because less bountifully supplied with water by Nature, has been one of the most important which the chronicler of the industrial development of the Islands has to record.

Mr. Spreckels, who is a well-known San Francisco merchant, having on a previous visit examined the undeveloped land and water resources of Maui, engaged Mr. H. Schussler in the Spring of 1878, Chief Engineer of the Spring Valley Water Works of San Francisco, to accompany him, and thoroughly survey the land and investigate the scheme he had in contemplation for bringing water from the streams on the northerly coast of East Maui to the large fertile tract of bottom land known as the Wailuku and Waikapu Commons, and located on the neck of land connecting East and West Maui. Mr. Schussler finished the survey of a water race and pipe line, and made a general topographical survey of the land to be brought under cultivation. The work occupied him ten days, and upon his reporting the results to Mr. Spreckels, an application was made to the Government for a franchise for the proposed irrigation scheme. This was granted for the term of thirty years, with the privilege of thirty years extension. These preliminaries being arranged, Mr. Spreckels acquired, by a long lease, a tract of 15,000 acres of Crown lands, and, by purchase, an interest in a large adjoining tract, both areas being part of the bottom lands already spoken of.… The construction of the ditch was commenced in October, 1878; camps were located in suitable places, and a depot established, at which the pipes were boiled in an asphaltum bath.…

Planting was commenced about the middle of December, 1879, and discontinued to January following, by which time a little over 500 acres had been planted. At this time (July, 1880), the cane is growing finely, promising an enormous crop, which will be ready for the mill at the beginning of 1881. The mill is situated in a central part of the estate, and in a position which will allow the greater part of the cane to be brought to it on a downward grade, over portable and stationary railroad tracks. The mill, which is to be one of the most complete ever imported into the islands, is in course of construction at the Risdon Iron Works, San Francisco.…

At nine miles from Wailuku I came to the dairy ranch of Mr. W.H. Rogers. The country here is rich pasture, and, at the same time, suitable for agriculture. (pp. 505-508)

Figure 10. Portion of 1885 Map of Maui Showing Project Area (F.S. Dodge)

Figure 11. Portion of 1893 Map of Spreckelsville Plantation Showing Project Area (Registered Map 1786)

Kahului Railroad Company incorporated in 1881 and established its headquarters near Kahului Bay. This was the first railroad company in Hawai‘i, and the first route ran from Kahului to Wailuku. The company was founded by Captain Thomas Hobron, a sea captain who came to Hawai‘i and decided to stay and become a merchant in the islands. Hobron Point is named for him (Clark, 1980, p. 7).

In 1898, Alexander and Baldwin gained a controlling interest in HC&S. The following year, HC&S acquired Kahului Railroad and Maui Railroad & Steamship, merging them into Kahului Railroad. In addition to transporting sugar and people, Kahului Railroad started the development of Kahului Harbor, marking Alexander and Baldwin’s expansion into transportation.

The decision to build the Pu‘unēnē Mill was strategic. Pu‘unēnē’s location at a higher elevation made it possible to gravity feed the mill’s cane wash water for reuse in crop irrigation. This innovation demonstrated the forward-thinking approach that would characterize HC&S operations for decades.

In 1901, a new sugar mill, the HC&S Pu‘unēnē factory, was built. The mill quickly became the center of operations for what would grow into the largest sugar producer in the United States. The Pu‘unēnē Sugar Mill was built in 1901 and at the time was the largest sugar mill in the state. Pu‘unēnē was the world’s first fully computerized sugar mill with the capacity to process 7,500 tons of sugarcane per day, resulting in 1,000 tons of raw sugar.

The mill continued to innovate over the decades. In 1912, HC&S installed its first hydroelectric plant in Pā‘ia, providing 800 kilowatts of electricity to power the plantation’s mills and irrigation pumps. Later technological advances included the transition from railroad transportation to more modern equipment. In 1950, HC&S replaced its railroad — the main sugar cane transportation system — with Tournahaulers. They were used to carry harvested cane from the field to the plantation mills in Pā‘ia and Pu‘unēnē.

The sugar industry in Pu‘unēnē continued to expand through the early to mid-20th century. In 1948, HC&S merged with Maui Agricultural Co., making HC&S the largest sugar producer in the United States. This consolidation strengthened HC&S’s position as a dominant force in Hawai‘i’s economy.

The company also diversified its operations. In 1948, HC&S sold its first pasteurized milk (at 28 cents per quart) from its small but thriving dairy and beef cattle operations. HC&S sold its Pu‘unēnē Dairy to Haleakalā Dairy in 1951.

Further corporate consolidation occurred in the 1960s. In 1962, HC&S merged with A&B and became a wholly-owned division. At the time, HC&S operated three subsidiaries —

East Maui Irrigation Co., Kahului Railroad, and Kahului Development Co., predecessor of Alexander & Baldwin Properties.

3.6.2 Plantation Life and Community Development

The sugar plantation era in Hawai‘i created a unique social structure centered around plantation camps. These camps were established by the sugar companies to house workers and their families close to the fields and mill. In Pu‘unēnē, HC&S built numerous camps throughout the area, each with its own character and often associated with specific ethnic groups.

During sugar’s heyday, an extensive irrigation system was developed by private enterprise. This irrigation system still provides a significant portion of Maui’s water supply. The sugar industry also built workforce housing, stores, hospitals, churches, and recreational facilities. This infrastructure created self-contained communities where most workers’ needs could be met without leaving the plantation area.

The camps were typically named by numbers (Camp 1, Camp 2, etc.) or by location. Figure 12 shows the various camps distributed throughout the plantation area, highlighting the extensive community that developed around the sugar industry.

The development of the sugar industry brought workers from around the world to Hawai‘i, creating the multicultural society that characterizes the islands today. As the industry’s need for manpower grew, immigrants from around the world were recruited to work on the plantations, hailing from places as far-flung as China, Japan, Puerto Rico, Korea, the Philippines, Portugal, Russia, Germany, and Scandinavia. These immigrants became the foundation of the islands’ multi-ethnic society, the “melting pot of the Pacific.”

The plantation workers faced challenging conditions. They worked twelve-hour days for less than six cents an hour. Overcrowded barracks and poor diets led to surges in illness. Those who attempted to run away would be beaten and jailed for breaking their contracts. Despite these hardships, the diverse workforce created a rich cultural tapestry that continues to influence Hawai‘i today.

3.6.3 Key Institutions in Pu‘unēnē

The vibrant plantation community of Pu‘unēnē was built upon more than just sugar fields and processing facilities. As HC&S expanded its operations in the early 20th century, the company recognized the need to develop a complete social infrastructure to support its growing workforce. The result was the establishment of several essential institutions that formed the backbone of community life, creating a self-contained society where generations of plantation workers lived, learned, worked, and worshipped.

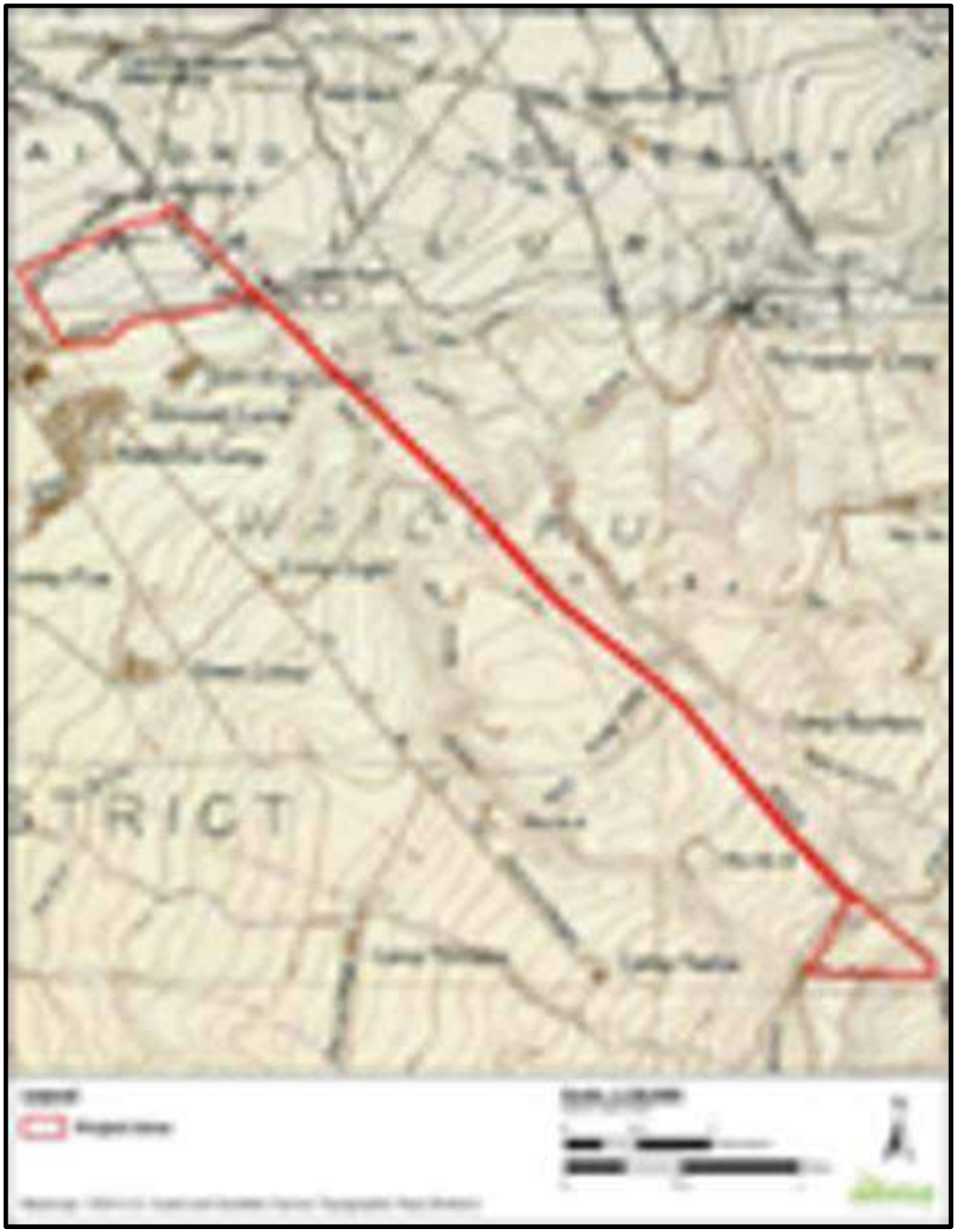

Figure 12. Portion of 1924 Topographic Map Showing Project Area (U.S. Coast and Geodetic Survey)

Figure 13. Portion of 1929 Topographic Map of Maui Showing Project Area (W.E. Wall)

Figure 14. Portion of 1950 Aerial Photograph Showing Northern Half of Project Area (U.S. Geological Survey)

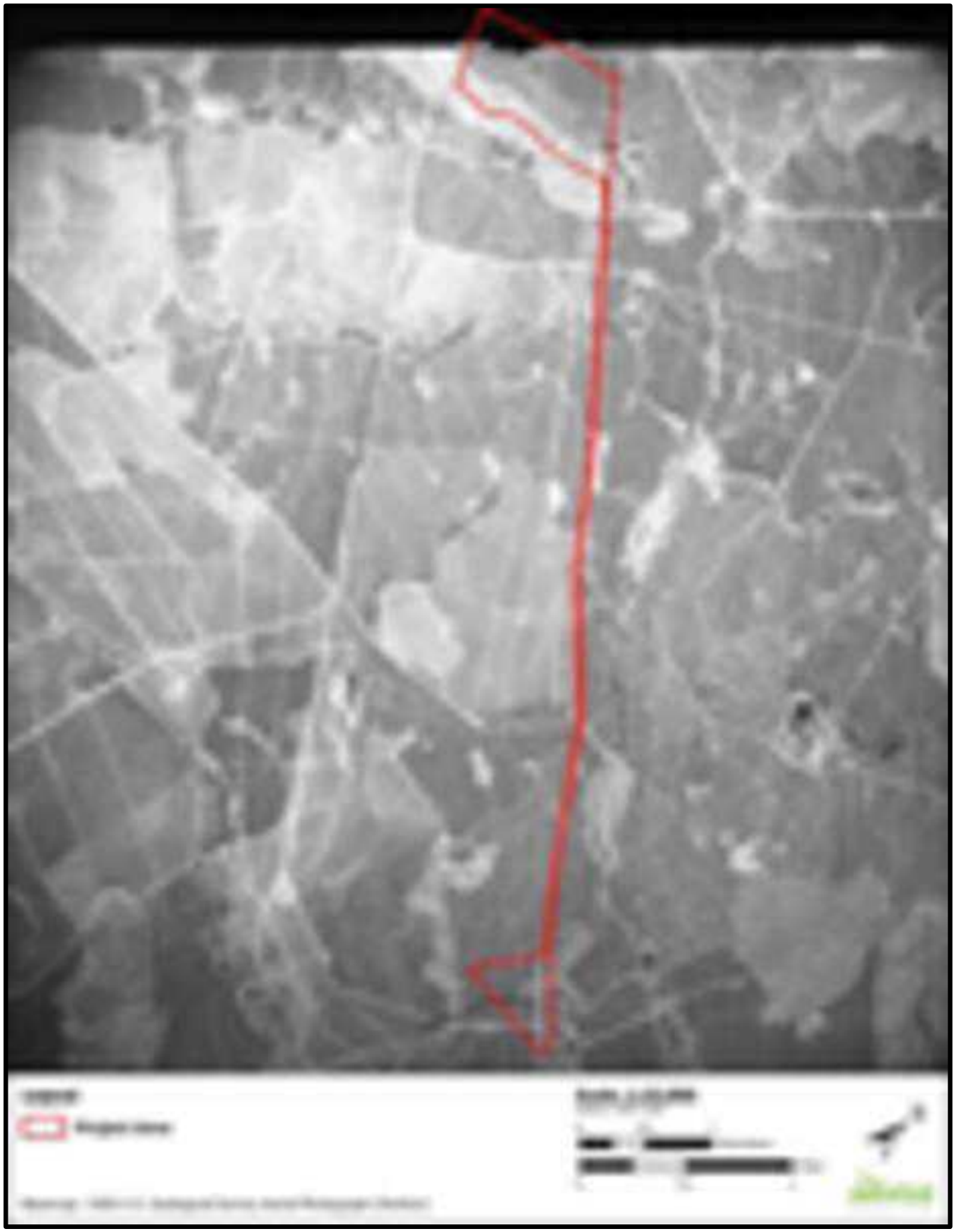

Figure 15. Portion of 1950 Aerial Photograph Showing Project Area (U.S. Geological Survey)

These institutions represented the company's paternalistic approach to worker welfare, a common practice among Hawaiian plantations, where management provided for most aspects of employees' lives. They also reflected the multicultural nature of plantation society, with facilities designed to accommodate the diverse needs of immigrant workers from Asia, Europe, and other parts of the world. From education and healthcare to transportation and spiritual life, these key institutions shaped daily existence in Puʻunēnē and left an enduring legacy that continues to resonate in Maui's cultural landscape today. Though many of these structures have been repurposed or lost to time, their historical significance provides invaluable insight into how plantation communities functioned as self-sufficient microcosms of Hawaiian society during the sugar era.

3.6.3.1 Puʻunēnē School

Education was an important part of plantation community life and the Puʻunēnē School played a central role in the education of generations of plantation workers' children. The Puʻunēnē School is a historic school building in the community of Puʻunēnē near Kahului. Puʻunēnē School was built in 1922 by HC&S. The school was constructed on 10 acres of land donated by the company in 1913. Upon completion, it replaced an earlier four-room school on the site that was built to hold 350 students.

The school quickly became a cornerstone of the community. The Classical Revival 1922 two-story concrete building became Maui's largest elementary school with about 1,000 students in grades one through eight from nearby communities. The school served the educational needs of the diverse population of Puʻunēnē for decades.

One of the most notable aspects of the Puʻunēnē School's history was the Three-Year Swim Club. From 1937 to 1940, Puʻunēnē School science teacher Soichi Sakamoto trained boys in a Three-Year Swim Club to compete for the 1940 Summer Olympics, originally scheduled to be held in Tokyo, Japan but cancelled due to WWII. Sakamoto's swimmers won medals in later Olympics, fulfilling his dream of creating world-class athletes and continuing Hawaiʻi's tradition of cultivating great swimmers like Duke Kahanamoku.

The school's importance declined along with the plantation community. In the 1950s, the area went into decline as many families moved to Kahului. In the 1950s and 1960s, the building was used for special education classes. In 1979, it became an administrative annex for the Department of Education. Despite these changes, the school's historical significance was recognized when Puʻunēnē School was added to the Hawaiʻi Register of Historic Places in August 2000.

3.6.3.2 Maui Airport (Puʻunēnē)

The development of air transportation in Hawaiʻi was closely tied to the Puʻunēnē area. On June 15, 1938, Governor's Executive Order No. 804 set aside 300.71 acres of land at Pulehunui for the new Maui Airport to be under the control and management of the Superintendent of Public Works. The Department of Public Works started construction on the new airport shortly after July 1, 1938. The airport was opened on June 30, 1939.

This airport served as Maui's primary airport for several years. By June 1950, Maui Airport was still the principal airport on Maui and was served by all scheduled and non-scheduled operators. It was equipped with lighting facilities for night operations and was a designated International-Alternate for most of the overseas operations. There were two paved runways 400 ft. wide and 6,900 ft. and 6,000 ft. in length, respectively.

During WWII, the airport was expanded for military use. Immediately after December 7, 1941, the military took control of all airfields in the Territory and began the expansion of Maui Airport at Puʻunēnē. The armed services added greatly to the facilities of the airport, and as NAS, the airport served as a principal carrier plane training base.

The airport's importance declined with the development of Kahului Airport. The Hawaiʻi Aeronautics Commission officially made the decision to move interisland air operations from Puʻunēnē to Kahului on May 25, 1951. On June 24, 1952, all airport operations and facilities were transferred from Puʻunēnē Airport to Kahului Airport. The Maui Airport at Puʻunēnē was placed in caretaker status on June 30, 1953. Eventually, Maui Airport was closed to aeronautical activity on December 31, 1955.

3.6.3.3 Puʻunēnē Hospital

Healthcare was an essential service provided by the plantation system, and the Puʻunēnē Hospital played a vital role in the medical care of plantation workers and their families. The hospital's history dates back to the early 1900s, with newspaper records documenting its evolution alongside the development of HC&S.

A March 10, 1905 article in *The Hawaiian Gazette* reported that the "Puunene Hospital Reduces Deathrate," highlighting the hospital's success in improving healthcare outcomes for plantation workers (Emerson, 1905, p. 3). The article praised the hospital's facilities and noted its importance in treating illnesses common among plantation laborers. This suggests that by 1905, the hospital was already an established institution within the plantation community.

By 1912, the hospital was expanding its facilities to meet the growing needs of the community. A September 6, 1912 article in the *Honolulu Star-Bulletin* announced "New

Puunene Hospital Work," reporting on construction activities to enhance the medical facilities (p. 3). According to the article, the new hospital construction was part of HC&S's commitment to providing improved healthcare for its workforce. This expansion reflected both the growth of the plantation population and the company's recognition of healthcare's importance in maintaining a productive workforce.

The Puʻunēnē Hospital was part of a larger healthcare system developed by the sugar plantations throughout Hawaiʻi. Plantation hospitals typically provided both inpatient and outpatient services, with medical care focused on addressing common health issues faced by plantation workers, including injuries from field work, infectious diseases, and chronic illnesses. Medical staff often included physicians brought in from the mainland United States or trained in Honolulu, along with nurses who sometimes had training in specific needs of the immigrant workforce.

The hospital's services evolved over time to incorporate advances in medical practice. By the 1950s, as indicated in a February 10, 1956 article in the *Hawaii Tribune-Herald* discussing "Many Problems Raised In Hospitals Consolidation," the plantation healthcare system was facing transitions (p. 10). This piece, published as the sugar industry was beginning its gradual decline, suggests that Puʻunēnē Hospital, like other plantation medical facilities, was confronting challenges related to changing economic conditions and the evolution of healthcare delivery in Hawaiʻi.

The plantation medical care system represented a significant investment by HC&S in its workforce's health. While this paternalistic approach had limitations and served the company's interests by ensuring a healthy labor force, it nevertheless provided essential services that might otherwise have been unavailable to plantation workers and their families. The hospital's facilities included wards for different types of patients, surgical capabilities, and outpatient services, making it a comprehensive medical center for the Puʻunēnē community.

Like many plantation institutions, the Puʻunēnē Hospital's operations declined along with the sugar industry. As workers moved away from plantation camps to other communities and as public healthcare options expanded throughout Maui, the hospital's role diminished. Eventually, medical services for the central Maui area were consolidated at what would later become Maui Memorial Medical Center, which continues to serve as the primary acute care hospital for the island today.

3.6.3.4 Religious Institutions

Religious institutions played a significant role in the lives of plantation communities, offering spiritual guidance and serving as social centers. Several notable religious establishments were built in Puʻunēnē during the plantation era.

The Puʻunēnē Nichiren Mission was one such institution. Reverand Genyu Oba established a temporary place to spread the dharma in the town of Wailuku in November 1920. Attending the opening ceremony, Mr. William McGerrow, the chief accountant for HC&S, announced that he would offer a parcel of land next to a public cemetery free of charge to any of Japanese Buddhist temples. Taking advantage of this opportunity, Puʻunēnē Nichiren Mission was founded in November 11, 1922 by the priest Temmyoin Nichirai Shonin.

The Puʻunēnē Congregational Church was another important religious institution. As one of Maui's first Japanese Christian churches, the Puʻunēnē Congregational Church played an important part in the lives of many plantation workers who lived and worked near the Puʻunēnē Sugar Mill. Built in 1910, the church has housed multiple congregations, including the United Church of Christ (1949 to 1968) and the Lanakila Church of Full Gospel of Jesus Christ (1972 to 1995).

3.6.4 Decline of the Sugar Industry

The sugar industry that had dominated Hawaiʻi's economy for more than a century began to decline in the latter half of the 20th century. Sugar's reign in Hawaiʻi lasted until the 1960s, when tourism outpaced it as the state's number one industry. It remained Hawaiʻi's leading agricultural crop until the closure of several plantations in the 1990s. The crop value of sugar fell below that of pineapples, marking the end of a major era.

HC&S remained the last operating sugar plantation in Hawaiʻi, a testament to its efficient operations and the company's adaptability. However, even this final holdout eventually succumbed to economic pressures, closing in December 2016 after 134 years. This closure marked the definitive end of the sugar plantation era in Hawaiʻi. The company made efforts to support its employees through the transition, stating its dedication to keeping the land in central Maui in agriculture by leasing it to farmers, with priority going to the employees.

In 2019, a field of potatoes was planted by Mahi Pono where sugarcane used to be grown. This 40-acre (16 ha) initial planting was the beginning of using these fallow lands to increase local food production.

3.6.4.1 The Alexander & Baldwin Sugar Museum

The legacy of the sugar industry in Puʻunēnē is preserved through the Alexander & Baldwin Sugar Museum, housed in the former residence of the superintendent of Puʻunēnē Sugar Mill. Its mission is "to preserve and present the history and heritage of Hawaiʻi's sugar industry, and the multi-ethnic plantation life which it engendered."

The museum offers a comprehensive look at the sugar industry's impact on Maui. The 1,800 square foot museum examines the establishment and growth of the industry on the island, as well as the significant influence that it had on the development of Maui's water resource and the rich, multicultural diversity that it brought to Hawai'i's population. Through its exhibits, the museum tells the story of daily life in the plantation era and the inner workings of a sugar mill.

The history of Pu'unēnē is intrinsically tied to the rise and fall of the sugar industry in Hawai'i. From its establishment as a plantation center in the early 20th century through its gradual transition following the closure of HC&S in 2016, Pu'unēnē stands as a testament to the profound impact that sugar cultivation had on Maui's landscape, economy, and social fabric.

The community that grew around the Pu'unēnē Mill was diverse and vibrant, with workers from around the world contributing to a unique multicultural society. Essential institutions like the Pu'unēnē School, airport, hospital, and various religious establishments served the needs of this community, creating a self-contained plantation town that thrived for decades.

While the sugar industry has faded into history, its legacy lives on in the physical structures that remain, the cultural practices that evolved from plantation life, and the diverse population that continues to call Maui home. The Alexander & Baldwin Sugar Museum ensures that future generations will remember and understand the significance of Pu'unēnē and the sugar industry in shaping modern Hawai'i.

As the former sugar lands transition to new uses, Pu'unēnē faces an uncertain but potentially promising future. The community's rich history provides a foundation upon which new chapters can be written, maintaining connections to the past while adapting to the changing needs of Maui's residents and economy.

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4.0 Cultural Resources

The following research and analyses incorporate the history and cultural resources of the project area, focusing on the project area and the surrounding environment.

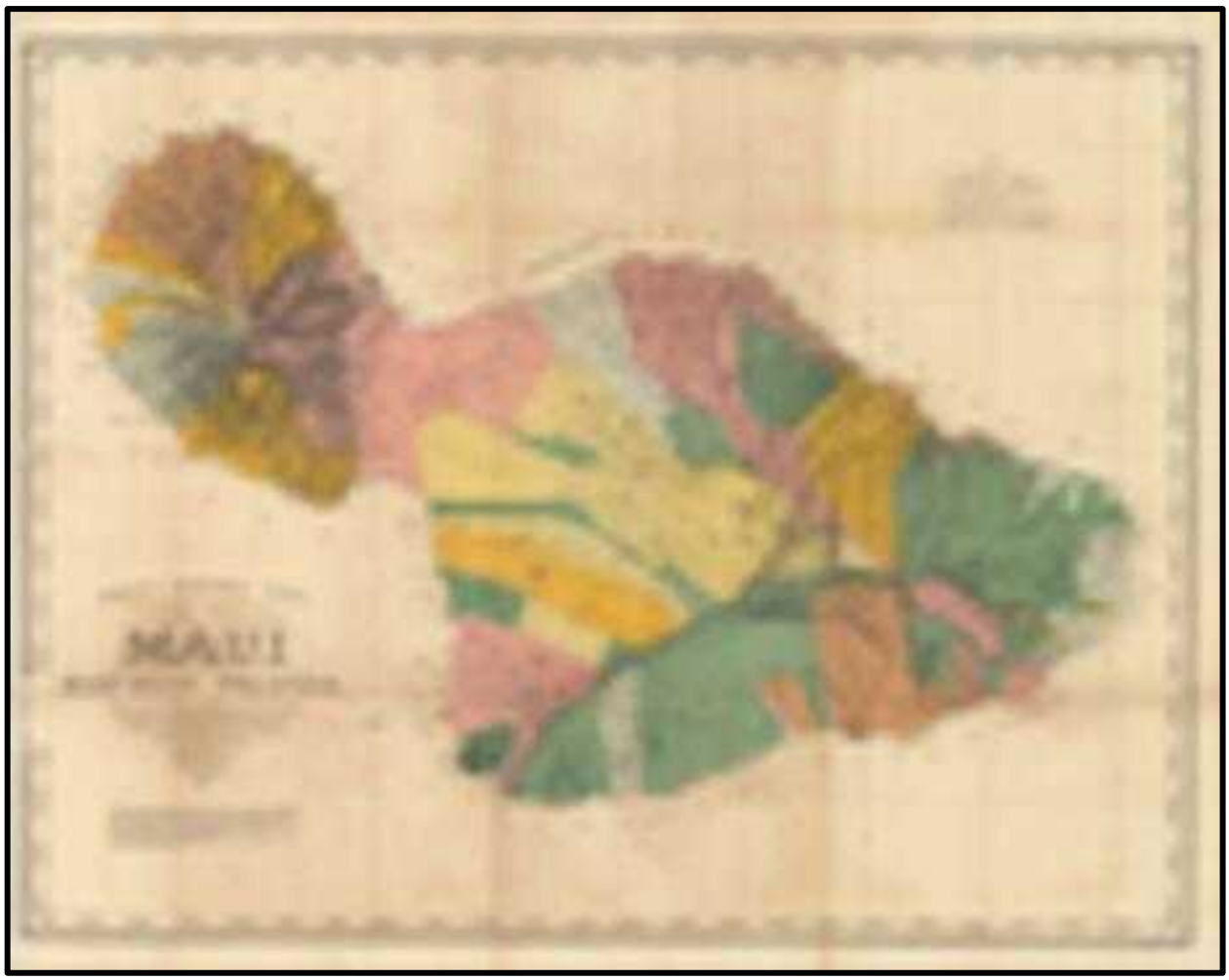

Figure 16. Map of Maui by W.D. Alexander and F.S. Dodge (1885)

Fitzpatrick & Moffat (1987) note about Dodge's 1885 map of Maui:

> In addition to the standard colors of yellow for Crown and green for government lands, Dodge employed several other colors to cope with the land complexities of Maui. For example, an unusual land in Hawai'i is the *'ili kupono* of Wailuku, shown in pink and covering the north half of the isthmus that connects the two halves of the island. An *'ili kupono* was an *'ili* that was independent of any ahupua'a. Wailuku was purchased by Claus Spreckels in 1882 and formed a major component of his sugar empire in Hawai'i. (p. 47)

It is unclear when the area became known as its own district, but it occurred sometime between the creation of Dodge's map in 1885 and the passage of the County Act by the Territorial Government in 1905 when the Act named Wailuku to the County seat of Maui (Hibbard, 1986).

4.1 Historic Properties and Cultural Sites

The archaeological record for the Puʻunēnē region—particularly the area encompassing the Hoʻonani Village Mixed-Use Development Project—reflects over a century of intensive commercial sugar cultivation and land modification. This section synthesizes historical and archaeological findings based on a comprehensive Archaeological Literature Review and Assessment (ALRA) conducted for TMKs (2) 2-5-001:016, (2) 3-8-006:004, and the connecting Pulehu Road ROW. The findings provide context for understanding the physical and cultural landscape of Puʻunēnē, with an emphasis on its plantation-era legacy and the limited potential for intact pre-contact cultural resources.

The project area is located within what was once the expansive sugarcane cultivation lands of Claus Spreckels and, later, the HC&S. By the late 19th century, the lands had been thoroughly converted for industrial agriculture, facilitated through Land Grant No. 3343 issued by King Kalākaua. This transformation included the construction of a dense network of infrastructure: cane haul roads, railroad tracks (e.g., the "Sam Sing R.R."), irrigation ditches (notably the Haʻikū and Waiheʻe ditches), reservoirs, and field camps.

Historic maps and aerial photographs from 1885, 1893, 1924, and 1950 (Figures 10–15) show the project area fully integrated into HC&S operations. These images depict extensive linear infrastructure and patterns consistent with monocrop sugar cultivation. The landscape had been heavily engineered for plantation efficiency, and no evidence of traditional Hawaiian land use was documented within or adjacent to the parcels under review.

Archaeological studies in and near the project area consistently reflect the dominance of plantation-era features. Key findings of the ALRA include:

1. **Lack of Pre-Contact Cultural Features**: No traditional Hawaiian archaeological features have been identified in the current project area. Decades of intensive mechanical agriculture, including plowing, ditch digging, and road grading, likely destroyed any shallow or low-profile pre-contact features that may have once existed. Previous researchers (e.g., Hammatt, 1995; McCurdy et al., 2009) reported no traditional sites in adjacent parcels.
2. **Historic-Period Features (Unassigned SIHP)**: Several features associated with commercial agriculture were observed or inferred from historical records, including plantation ditches and haul roads. These have not been assigned State Inventory

of Historic Places (SIHP) numbers, largely due to past archaeological biases favoring pre-contact sites. Two such plantation-era irrigation ditches still in use were identified during nearby surveys (Monahan, 2023) and may qualify for SIHP registration upon further study.

3. **Nearby Historic Sites**: While no confirmed SIHP sites exist within the current project boundaries, multiple sites have been recorded nearby, including:
    - **SIHP # 50-50-05-06360**: Remnants of the old Puʻunēnē Hospital located east of Pulehu Road (Madeus & Fredericksen, 2008).
    - **SIHP # 50-50-05-07622**: Secondary deposit of human remains identified during construction of the Puʻunēnē Target store, along the western boundary of the northern parcel (Fuentes & Pantaleo, 2014).
    - **SIHP # 50-50-05-08506**: A single skeletal element in secondary context from nearby fill material (Pantaleo, 2018).
    - **SIHP # 50-50-05-09013**: A historic Japanese cemetery located east of Pulehu Road, with burials previously exhumed and reinterred (Yucha et al., 2023).
4. **Site Destruction and Agricultural Disturbance**: The extensive use of machinery and chemical treatments during sugarcane operations significantly impacted the stratigraphy and integrity of any potential subsurface archaeological resources. As such, the likelihood of encountering intact features—pre-contact or historic—is considered low.
5. **Isolated Plantation-Era Artifacts**: Monitoring at Puʻunēnē School (Hill et al., 2008) documented historic-period artifacts, including ceramics and glass fragments, consistent with mid-20th century plantation life. Similar isolated finds may occur within the current project area, though they are unlikely to meet the threshold of significance for registration.

While the project area does not contain known or registered traditional cultural properties, it is situated within a broader historic landscape shaped by large-scale monoculture and labor migration. The Puʻunēnē region housed multiple ethnic plantation camps and community institutions, including schools, health facilities, and religious centers, most of which were dismantled or destroyed following the plantation closures.

Given the presence of human remains in nearby parcels and known burial activity in the general Puʻunēnē area, there is still a modest potential for encountering previously undocumented burials or reinterred remains during ground-disturbing activity. Therefore, Honua Consulting recommends consultation with the SHPD regarding the need for an Archaeological Inventory Survey or archaeological monitoring during construction, particularly in areas where fill material or trenching may be necessary.

The archaeological record of Puʻunēnē is emblematic of Maui's historic transformation under industrial agriculture. While no traditional Hawaiian cultural features have been found in the current project area, the plantation-era history is deeply embedded in the physical and documentary landscape. The cumulative findings support a high likelihood of encountering above-ground historic properties related to commercial sugar operations and a low but non-negligible chance of encountering buried cultural materials or isolated artifacts. Continued due diligence through consultation with SHPD and culturally appropriate protocols remains essential.

4.1.1 Heiau

The cultural landscape of Wailuku was marked by numerous religious and ceremonial sites that reflected the spiritual dimensions of traditional Hawaiian life. Thomas G. Thrum (1908) reported on the heiau of Wailuku moku:

> Of the Wailuku heiaus it is somewhat remarkable that of the seven we have been able to learn of in that section, five are named as consecrated by Liholiho during his tour for this service during the year's stay of the "peleleu" [a very large canoe type] fleet at Maui, viz: Pihana, Kaluli, Malumaluakua, Keakuku [Keahuku] and Olopio, as also Kealakaihonua at Waihee.…
>
> It may be inferred that most of the heiaus in this section were war temples. The massiveness of Pihana, as shown in its ruins, as also the prominence of Kaluli in turbulous times confirm this. The time of their construction doubtless dates far back, and of their repair or reconstruction, Kahekili is credited with placing Kaluli in order on the instructions of the high priest Kaleopuupuu, in anticipation of war with Kalaniopuu of Hawaii. And in the battle of Waikapu common when the Maui forces annihilated the invading army so that but two out of the 800 escaped alive, the only prisoner, a chief of Hilo, brought alive to Kahekili to be sacrificed at the heiau of Kaluli in honor of the victory, died of his wounds before he could be offered up the gods. This was in 1776. (pp. 45-46)

The following table is a summary of the notable heiau located throughout Wailuku moku, including those identified by previous archaeological studies within Wailuku ahupuaʻa.

Table 2. Notable Heiau of Wailuku Moku

Heiau Name	Location and Remarks
Halekiʻi	Wailuku, some 300 ft. to N.E. of Pihana, and about 100 ft. square in size (Thrum, 1908, p. 38). N.N.W. of Pihana 350 feet on another sand dune. A large heiau of the same type as Pihana but is has resisted erosion more successfully. It shows massive wall facings in ruins of four terraces

Heiau Name	Location and Remarks
	on the south side. Water-worm boulders are used in its construction. It measures 300 x 150 feet (Walker, 1931, p. 148).
Halelau	Mauka to Waiehu Camp in cane fields. Obliterated by modern cemetery (Walker, 1931, p. 140).
Kakolika	Along road mauka to swamp in cane fields. Site of heiau torn up in cutting road.
Kāluli	Wailuku, at Puuohala. Repaired in time of Kahekili; Kaleopuupuu its priest (Thrum, 1908, p. 38). Above Puohala Camp in the cane fields. Now totally destroyed (Walker, 1931, p. 145).
Kealakaʻihonua	Kapokea, Waihee, the heiau of Koi, prominent in Kahekili's staff; priest of the Kaleopuupuu order, and leader of the murderous attack on the officers of the Daedalus (Thrum, 1908, p. 38). On beach near Waihee Dairy. A large square shaped pile of rock which was once a heiau. According to a government map it makes a fish pond at the mouth of the stream. Kapoho is given as the name of the village, but the heiau of that name is more inland (Walker, 1931, p. 134).
Koihale	Waihee, a medium sized heiau of about 90 ft. square, still to be seen (Thrum, 1908, p. 38).
Kukuipuka	Waihee, the place of refuge for West Maui as also heiau (Thrum, 1908, p. 39).
Kukuikomo	On ridge between North and South Waiehu Gulches. Another heiau without walls or platforms (Walker, 1931, p. 143).
Malumaluakua	Wailuku. No particulars gathered of these heiaus further than that nearly all of the Wailuku temples, with the Kapokea one of Waihee, are named among those consecrated by Liholiho during a year's stay en route to Oahu, preceding the peleleu fleet (Thrum, 1908, p. 38). Head of south Waiehu Gulch. A grove of kukui trees surrounding a level spot without evidences of walls or platforms. A large rock in the center may have served for sacrificial purposes. The native informant, Kawailana, was an old man 88 years of age and blind. But he said the heiaus near Waiehu were all built by Kahekili to Kane, and men and pigs were laid on the lele [sacrificial altar]. In this region a heiau seems to mean merely a sacred spot not marked necessarily by either walls or platforms of stone (Walker, 1931, p. 142).

Heiau Name	Location and Remarks
Nukukahi	Waiehu; of this heiau nothing now remains but a heap of stones (Thrum, 1908, p. 39).
Paulani	Near head of road leading mauka from Waihee. Utterly destroyed. Said to have been built by Kamehameha about 1819 on ruins of temple built by Kahekili to Kane. Informant, Kapoi (Walker, 1931, p. 139).
Pihana	Wailuku, near end of coral and sand ridge, one-half mile from the sea; about 300 x 120 ft. in size; walls in complete ruins showing foundations massive (Thrum, 1908, p. 38).
Pu‘ukoa	Near pond on ridge south of Waiehu Camp. Destroyed (Walker, 1931, p. 144).
Ulukua	North side of Waihee stream two sites with same name on either side of the road. Both destroyed (Walker, 1931, p. 131).
Wawaekanaka	At Puhauolu, Waihee, said to date from Kahekili’s time, long ago demolished, save a mound of stones which mark its site (Thrum, 1908, p. 39). Inside [Kakoliko heiau] may still be seen a large rock, the Wawaekanaka Stone, which has some foot-shaped holes said to have been made by the gods. It is used for grinding awa root according to native Kanuhi (Walker, 1931, p. 137).

In addition to these heiau, Walker (1931) identified Keahukū, Olokua, Olopio, Mālena, Pōhakuokahi, Lelemākō, Kawelowelo, Ka‘ulupala, Palamaihiki, and Oloolokalani within the vicinity of Wailuku, but none of these heiau could be located during survey (p. 149). These heiau were said to have been among those consecrated by Liholiho in his tour of Maui for that purpose about 1801 (Walker, 1931, p. 149). Moreover, Walker (1931) also identified three heiau as being destroyed prior to surveying: Malaihakoa at Paukūkalo, Papanene at Kapukaulua, Pu‘unēnē, and Pō‘aiwa at Kapuakaulua (p. 151).

There are no historic properties listed on the National or Hawai‘i Register of Historic Places within the area of potential effect for the undertaking.

4.2 Natural Resources with Cultural Significance

To employ the Hawaiian landscape perspective and emphasize the symbiosis of natural and cultural resources, Honua Consulting uses the term “biocultural” to refer to natural and cultural resources, with additional sub-classifications by attributes.

Further, a brief discussion of environmental zones and traditional Hawaiian land management practices is necessary to understand the tangible and intangible aspects of

the Hawaiian landscape. Additionally, it is important to specify again that in the Hawaiian landscape, all natural and cultural resources are interrelated and culturally significant. Natural unaltered landscape features such as rocky outcrops, cinder cones, intermittent streams, or an open plain can carry as much significance as a planted grove of wauke (*Broussonetia papyrifera*) or a boulder-lined ʻauwai (canal).

Maly (2001) presents a narrative of traditional Hawaiian land management strategies and the different environmental zones recorded in *Ka Hoku o Hawaii* (September 21, 1916):

> Hawaiian customs and practices demonstrate the belief that all portions of the land and environment are related, like members of an extended family, each environmental zone was named, and their individual attributes were known. Acknowledging the relationship of one environmental zone (wao) to another, is rooted in traditional land management practices and values. Just as place names tell us that areas are of cultural importance, the occurrence of a Hawaiian nomenclature for environmental zones also tells us that there was an intimate relationship between Hawaiians and their environment.
>
> The native tradition of Ka-Miki provides readers with a detailed account of Hawaiian land divisions and environmental zones. While competing in a riddling contest at the court of the chief, Palikū-a-Kīkoʻokoʻo, the hero, Ka-Miki sparred with Pīnaʻau, the foremost riddler of the district of Hilo Palikū (northern Hilo). The riddles covered topics describing regions from the mountain tips to the depths of the ocean, and descriptions of kalo (taro growth), the ala loa (trail systems), and nā mea lawaiʻa (fishing practices). As the contest unfolded, it was seen that each of the competitors were well matched. In one of the riddles, Ka-Miki described the various regions of the island of Hawaii, extending from the mountain to the sea. Ka-Miki then told his opponent, that if he could rise to the challenge of answering the riddle, his knowledge could be compared to one who has ascended to the summit of the "mauna o Paliahu" (mountain of Poliʻahu, or Mauna Kea) (in *Ka Hoku o Hawaii*, September 21, 1916).
>
> Through one of the riddles [the] reader learn[s] about the traditional wao or regions of land, districts, and land divisions of the administrators who kept peace upon the land. The environmental zones include:
>
> 1 – Ke kuahiwi; 2 – Ke kualono; 3 – Ke kaumauna; 4 – Ke ku(a)hea; 5 – Ke kaolo; 6 – Ka wao; 7 – Ka wau maʻu kele; 8 – Ka wao kele; 9 – Ka wao akua; 10 – Ka wao lāʻau; 11 – Ka wao kānaka; 12 – Ka ʻamaʻu; 13 – Ka ʻāpaʻa; 14 – Ka paheʻe; 15 – Ke kula; 16 – Ka ʻilima; 17 – Ka puʻeone; 18 – Ka poʻina nalu; 19 – Ke kai kohola; 20 – Ke kai ʻele; 21 – Ke kai uli; 22 – Ke kai pualena; 23 – Kai Pōpolohua-a-Kāne-i-Tahiti.

> 1 – The mountain; 2 – The region near the mountain top; 3 – The mountain top; 4 – The misty ridge; 5 – The trail ways; 6 – The inland regions; 7 and 8 – The rain belt regions; 9 – The distant area inhabited by gods; 10 – The forested region; 11 – The region of people below; 12 – The place of ‘ama‘u (fern upland agricultural zone); 13 – The arid plains; 14 – The place of wet land planting; 15 – The plain or open country; 16 – The place of ‘ilima growth (a seaward, and generally arid section of the kula; 17 – The dunes; 18 – The place covered by waves (shoreline); 19 – The shallow sea (shoreline reef flats); 20 – The dark sea; 21 – The deep blue-green sea; 22 – The yellow (sun-reflecting sea on the horizon); and 23 – The deep purplish black sea of Kāne at Tahiti. (p. 3)

The entire area of Wailuku contained a full range of wao and as a result, the area was known to be kapu. Maui historian Inez Ashdown (1976) explains:

> Na Wai Ehā, the Four Waters, including Wai-ka-pu Valley, waterfalls and stream, the Forbidden or Sacred Valley. Wai-luku is the Destructive Waters of I-a-o Valley whose stream is best known as Wai-aka-ma-kea or Waters of Light and Shadow. Wai-ehu is the Valley of Misty Waters; and Wai-he‘e is the Valley of Racing Waters. All this area on the eastern slope of west Maui, whose name is Mauna-ka-Hala-Wai, or Mountain Blessed with Waters, was farmed diligently in olden times. With the produce from those lovely gardens, and the fat fish from the ponds of Kana-hā and Mau‘oni at Kahului and their counterparts at Ke-alia of Ka-lepo-lepo on Ma‘alaea Bay, the people of Maui were rich and happy. Here, many temples were built for prayer, ceremonials, and finally, some were rededicated as war temples.
>
> Today little of the flourishing gardens remains. There are some active taro patches, but the land now produces sugar cane products at the Wailuku Sugar Company which began under King Kamehameha III, who had the burden of changing the ancient feudal system into a modern money-making venture (1825 to 1854) during his reign of the Kingdom of all Hawai‘i.
>
> The fishponds date back for many centuries and were rededicated under Kiha-a-Pi‘ilani and Umi-a-Liloa who was his brother-in-law, in the middle 1500s. During the reign of King Ke-kau-li-ke, who died in 1736, the twin ponds of Kanaha and Mau‘oni were again repaired along their walls. Today Kanaha is a bird sanctuary; and Kealia is a modern commercial shrimp pond.
>
> The area of Na Wai Ehā were kapu (sacred) to Maui Kingdom, with the beach at Kahului Bay being named Maka-wela, or literally, the Burning Eyes, indicative of the kapu of the burning sun peculiar to the Ali‘i of Maui. (p. 5)

This section discusses the natural resources within the project area, specifically those natural resources that may have cultural significance or use. These natural resources were identified through the biological assessment prepared for the project and through primary research into historic resources.

4.2.1 Flora

Starr Environmental (2024) conducted a flora survey of the property and concluded that the site is dominated by non-native grasses, mostly Guinea grass (*Megathyrsus maximus*) and buffel grass (*Cenchrus ciliaris*). Trees in the project area include the invasive haole koa (*Leucaena leucocephala*) and kiawe (*Prosopis pallida*), which have outcompeted native species. The only native plants identified by the survey are ʻuhaloa (*Waltheria indica*), which was abundant at the well site and in the pipeline corridor, and pāʻū o Hiʻiaka (*Jacquemontia sandwicense*), scattered throughout the well site.

ʻUhaloa is primarily a medicinal plant. The leaves, stems and roots were pounded, strained and used as a gargle for sore throats, which is a practice that continues today (Abbott, 1992). Canoe builders would occasionally add the sap of ʻuhaloa to a concoction of kukui root, ʻakoko, and banana inflorescence to create a paint that would stain the hull (Krauss, 1993). This native weed remains abundant throughout the Hawaiian Islands and is still treasured as a natural and safe tonic for bodily ailments today.

Pāʻū o Hiʻiaka translates to “Hiʻiaka’s skirt,” referring to the goddess sister of Pele. Traditionally, the leaves and stems of this native morning glory were dried and made into a tea or mixed with coconut and eaten (Kaʻaiakamanu & Akina, 1972, p. 73). Additionally, ancient Hawaiians used this plant medicinally to treat babies with thrush and general weakness, as a laxative for constipation, to treat aches and pains, and as a bandage for cuts when mixed with kalo leaves and salt (Handy et al., 1972, p. 238; Kaʻaiakamanu & Chun, 2003, p. 85).

4.2.2 Fauna

Starr Environmental’s (2024) faunal survey observed Axis deer (*Axis axis*) and domestic cattle (*Bos taurus*); It is highly likely that introduced and invasive species such as house mice (*Mus musculus*), black rats (*Rattus rattus*), domesticated dogs (*Canis lupus familiaris*), feral cats (*Felis catus*), pigs (*Sus scrofa*), and mongoose (*Herpestes auropunctatus*) utilize the project area, but were not observed during the survey. Axis deer are associated with customary practices (practices developed post-contact). They are hunted and their meat used for subsistence purposes. Hunting activities are governed by state law.

The ʻōpeʻapeʻa (Hawaiian hoary bat, *Lasiurus semotus*), Hawaiʻi's only endemic terrestrial mammal and an endangered species, are known to transit over the project site and roost in tall trees. Testing for this species was not completed in the faunal survey, but the U.S. Fish and Wildlife Service (USFWS) recommends that trimming of tall trees only be done outside of pupping season (June 1 – September 15) and the project not use barbed wire that can entangle and kill the bats.

The most common birds observed were the common Mynah (*Acridotheres tristis*) and Zebra Doves (*Geopelia striata*). As the project area is very dry, the habitat is inhospitable to native seabirds. However, a lone ʻiwa (frigatebird, *Fregata minor*) was observed flying over the project site. For this reason, USFWS recommends using downward facing lights to minimize disorienting these flying birds and to avoid nighttime construction when young seabirds are fledging (Starr & Starr, 2024, p. 17).

4.2.3 Water Resources

Wai (fresh water) is of tremendous significance to Native Hawaiians. It is closely associated with a variety of Hawaiian gods. According to traditional accounts such as Westervelt (1915), "Ka-ne and Kanaloa were the water-finders, opening springs and pools over all the islands, each pool known now as Ka-Wai-a-ke-Akua (The water provided by a god)" (p. 38). Kāne is widely known to be closely associated with all forms of water, as outlined below in the mele "He Mele No Kane."

There was no element more important or precious than water and there was no god more powerful than Kāne. Pua Kanahele (2011) recounts the oli "ʻO Kāne, ʻo wai ia aliʻi o Hawaiʻi?" and notes of the oli: "The chant begins with Kāne and focuses on this deity as the connective force of all the poʻe akua, or god family. All the entities mentioned in each paukū, or verse, are a manifestation of Kāne" (p. 24). The association between water and Kāne is logical considering certain interpretations of Hawaiian mythology identify Kāne as the most powerful of all the Hawaiian gods.

Further investigation into the relationship between Kāne and Pele would be appropriate and helpful. Some interpretations identify Kāne as Pele's father (Westervelt, 1915). A full analysis of the different perspectives on Pele and Kāne would be helpful to refining an approach in developing community education programs for geothermal energy and culture. A brief analysis is provided below.

He Mele No Kane asks:

E ui aku ana au ia oe,	One question I ask of you:
Aia i hea ka Wai a Kane?	Where flows the water of Kane?
Aia i lalo, i ka honua, i ka Wai hu,	Deep in the ground, in the gushing spring,

I ka wai kau a Kane me Kanaloa-	In the ducts of Kane and Kanaloa,
He waipuna, he wai e inu,	A well spring of water, to quaff,
He wai e mana, he wai e ola,	A water of magic power- The water of life!
E ola no, ea!	Life! O give us this life!

This mele and other moʻolelo are clear: Kāne is water. Fresh water as a resource is deeply valued by the Hawaiian people, both historically and at present. The only exceptions may be mist, known to be associated with Lilinoa, and snow, associated with Poliahu. There is an extensive body of traditional knowledge about the expeditions of Kāne and Kanaloa during which Kāne drove his ʻōʻō (digging stick) into the earth in search of water.

There is heightened sensitivity regarding water in South Maui. Contemporaneous protections around water as a "public trust resource" extend back to the Kingdom, where the concept of owning water contradicted Hawaiian cultural values and traditions. Under the monarchy, control of water was reserved for use by the people who lived on and worked the land. The use of surface water was strictly controlled through the kapu system to ensure that all land tenants enjoyed an abundant availability of water. Farming, particularly kalo, occurred regularly, especially in places with notably fertile lands like those found in the watersheds of East Maui. As early as 1839, the public use of water was codified by Kauikeaouli, Kamehameha III. His "Respecting Water for Irrigation" law stated:

> In all places which are watered by irrigation, those farms which have not formally received a division of water, shall, when this new regulation respecting lands is circulated, be supplied in accordance with this law, the design of which is to correct in full all those abuses which men have introduced. All those farms which were formally denied a division of water, shall receive their equal proportion. Those bounties which God has provided for the several places should be equally distributed, in order that there may be an equal distribution of happiness among all those who labor in those places" (Cited in *Reppun v. Board of Water Supply*, 656 P.2d 57, 1982).

This public right eventually found its way into existing law, where the Hawaii Water Code continues to recognize and protect traditional farming and mahi ʻai (farmers).

It is critical for this CIA to consider impacts to cultural practices, even when the practices may take place outside the project area if project activities within the project area have the potential to impact traditional practices and customs. It is appropriate to carefully consider the impact water usage may have on farmers and other practitioners within the watershed(s) from which the water for this project will be drawn. It should be noted that there are no users of groundwater downstream from the project, and the project's use of groundwater should not divert any resources from cultural and/or traditional use.

Regardless, the project should remain mindful of its water consumption and ensure that its usage does not exceed the sustainable yield for any of the aquifers from which it draws water.

4.2.3.1 Wailuku Stream

Wailuku Stream is one of the four water sources that make up Nā Wai ʻEha. Practitioners continue to work the protect and restore these waters. As described by Hui o Nā Wai ʻEha (n.d.):

> **"Kaulana ʻo Nā Wai ʻEhā" "Famous are the Four Great Waters of Waikapū, Wailuku, Waiehu, and Waiheʻe."**
>
> This well-known saying attests to the traditional, historical, and cultural significance of the four ahupuaʻa within the moku of Wailuku and their fresh water resources. Nā Wai ʻEhā, was once the largest contiguously cultivated loʻi kalo growing region in all of Hawaiʻi. It also served as the primary ritual, political, and population center of Maui. The vast water resources of Mauna Kahālāwai (West Maui Mountains) supplied these four streams with the life giving waters of Kāne. This allowed the Hawaiian population of this area to develop expansive irrigation and agricultural systems unique to Hawaiʻi. The rich history of Nā Wai ʻEhā, is directly linked to the abundance of wai. Hawaiians thrived for many generations in this region by cultivating loʻi kalo (wetland kalo), fishing in natural and manmade inland fishponds, gathering native stream life such as ʻoʻopu, hīhīwai, and ʻōpae, and collecting drinking water from springs.

4.2.3.2 Wailuku Spring

As described by Thrum (1908): "Several hundred yards from the base of Pihana [heiau] is Wailuku spring and taro patch, reserved in ancient times for choice plantings for royal tables only, and from this spring the town and district is said to derive its name" (p. 46).

4.2.4 Rains

Akana & Gonzalez (2015) explain the significance of the wind and rain in Native Hawaiian culture:

> In the mind…of our Hawaiian kūpuna [(ancestors)], every being and every thing in the universe was born. Our kūpuna respected nature because we, as kānaka, are related to all that surrounds us – to plants and creatures, to rocks and sea, to sky and earth, and to natural phenomena, including rain and wind. This worldview is evident in a birth chant for Queen Emma, "Hānau ke aliʻi, hānau ka ua me ka makani" (The chiefess was born, the rain and wind, too, were born). Our kūpuna

> had an intimate relationship with the elements. They were keen observers of their environment, with all of its life-giving and life-taking forces. They had a nuanced understanding of the rains of their home. They knew that one place could have several different rains, and that each rain was distinguishable from another. They knew when a particular rain would fall, its color, duration, intensity, the path it would take, the sound it made on the trees, the scent it carried, and the effect it had on people. (p. xv)

To the Native Hawaiians, no two rains are ever the same. Rain can be distinguished based on its intensity, the way it falls, and its duration, among other things. The following are a collection of rains that occur within Wailuku and Kula moku. Moʻolelo, ʻōlelo noʻeau, mele, oli, etc., associated with the particular rain name are also provided to give insight into the importance and cultural significance that the different types of rains have to the Native Hawaiian people.

4.2.4.1 Kiliʻoʻopu Rain

Kiliʻoʻopu rain is associated with Wailuku, Maui and is also the name of a wind. This rain is referenced in several districts within Wailuku moku:

Kuʻu kāne mai ka ua Kiliʻoʻopu o Waiheʻe
ʻAuʻau ka ʻuhane i ka wai o Nīʻaukawa

My dear husband from the Kiliʻoʻopu rain of Waiheʻe
The spirit bathes in the water of Nīʻaukawa

From a kanikau (lament) for Kamakaokalani (Akana & Gonzalez, 2015, p. 83).

Ua Kiliʻoʻpu – Wailuku, Maui.

From a list of rain names and their descriptions (Akana & Gonzalez, 2015, p. 84).

4.2.4.2 ʻUlalena Rain

ʻUlalena or Ulalenalena rain is probably related to Lena and is associated with Lilikoʻi and Piʻiholo, Maui. It is also found on other parts of Maui and on Kahoʻolawe, Oʻahu, and Kauaʻi. "'Ula lena" means "yellowish-red" (Akana & Gonzalez, 2015, p. 262).

Pau ʻole koʻu mahalo i ka laulā o Kamaʻomaʻo	*My admiration is endless for the expanse of Kamaʻomaʻo*
Ka hālana maikaʻi a Keālia	*The fine rising of the waters of Keālia*
Ka hemolele o ka ua ʻUlalena	*The perfection of the ʻUlalena rain*
Lena ka pua o ka māmane pala luhiehu i ka lā	*Yellow are the blossoms of the māmane, soft and lovely in the sun*

From a mele mākaʻikaʻi (travel chant) for ʻEmalani Kaleleonālani by Kaleipaʻihala (Akana & Gonzalez, 2015, p. 267).

4.2.4.3 Hōʻehaʻili Rain

Hōʻehaʻili rain is associated with Waiehu, Maui and is also found on Kauaʻi. "Hōʻeha ʻili" means "to hurt the skin." It is both the name of a specific rain and a generally descriptive term; its various usages are determined by the context (Akana & Gonzalez, 2015, p. 36).

Ka ua Hōʻehaʻili o Waiehu.	*The skin-hurting [Hōʻehaʻili] rain of Waiehu.*

An ʻōlelo noʻeau (Akana & Gonzalez, 2015, p. 37).

He aloha, he lihaliha, he kūmākena	*Loving, heartsick, grief-stricken*
He ʻū iā ʻoe	*Mourning for you*
E Hon. Iosepa Kahoʻoluhi	*O Hon. Joseph Kahoʻoluhi*
Nāwahīokalaniʻōpuʻu	*Nāwahīokalaniʻōpuʻu*
A haʻo ē!	*We shall truly miss you!*
I uē ʻia mai nei ʻoe e Nā Wai ʻEhā	*You have been mourned by the lands of the four waters*
E ka makani Kiliʻoʻopu o Waiheʻe	*By the Kiliʻoʻopu wind of Waiheʻe*
Ka ua Hōʻehaʻili o Waiehu	*And the Hōʻehaʻili rain of Waiehu*

From a message of condolence for the passing of Joseph Nāwahīokalaniʻōpuʻu from people of Nā Wai ʻEhā, Maui (Akana & Gonzalez, 2015, p. 37).

4.2.4.4 Nāulu Rain

Nāulu is a sudden shower that is also the name of a shower cloud and a wind (Akana & Gonzalez, 2015, p. 187).

Rain of Kula, Maui

Ke hoʻi nei ka ʻuhane i ka malu niu o Lele	*The spirit is returning to the shade of the niu trees of Lele*
I ka malu kuawa o Wailuku	*To the shelter of Wailuku Valley*
I ka ua Nāulu noe anu o Kula	*To the cold, misty Nāulu rain of Kula*
I ka ua noe uahi moe i ke pili	*To the smoky, misty rain that rests upon the pili grass*
I pili ʻia ka ua me ka lā	*Joined are the rain and the sun*
Ke anu hoʻi me ke koʻekoʻe	*The cold and the chill*

A kanikau for L.L. Ua written by the same's students at the Lahainaluna Seminary (Akana & Gonzalez, 2015, p. 192).

Ō mai ʻo ʻEmalani, ke aliʻi nona ia inoa	*Emmalani responds, the chiefess for whom is the name*
Ia hoʻonuʻanuʻa i uka, ka uahi o Kula	*That conflagration in the uplands, the smoke of Kula*
Ua hāliʻi ke kūmoena wai a ka Nāulu	*The watery mat of the Nāulu rain has been spread out*
ʻAʻohe hana a ka ua ʻŪkiu e laʻi nei	*There's no action by the ʻŪkiu rain, now peaceful*
E hoʻokō ʻia ana e ka ua ʻUlalena	*It shall be carried out by the golden-red rain ʻUlalena*
E ka ua kāhiko kukui o Lilikoʻi ē, eie ʻoe ē	*O rain that adorns the kukui trees of Lilikoʻi, here you are, oh*

From a mele kālaiʻāina (political chant) for ʻEmalani Kaleleonālani (Akana & Gonzalez, 2015, p. 192).

4.2.4.5 Kili Rain

Kili rain is associated with Waiheʻe, Maui and is a beloved fine, light rain; to rain gently.

He poli aloha ka makua lā	*The father has a loving heart*
Ka iki hone o ke kanaka lā	*The soft sweetness of man*
I ka ua Kili o Waiheʻe lā	*In the drizzling Kili rain of Waiheʻe*
E wiki, e lohi ʻo ia ala lā	*He should make haste before it's too late*

From a mele inoa (name chant) for Erisapeka (Akana & Gonzalez, 2015, p. 81).

4.2.4.6 Uhiwai Rain

Uhiwai is a heavy fog and mist associated with Mānoa, Oʻahu and Mānā, Hawaiʻi, but found in other areas. "Uhi wai" means "water covering." It is both the name of a specific rain and a generally descriptive term; its various usages are determined by the context.

Mist of ʻĪao, Maui

Nai iki ʻĪao i ka uhiwai.	*(Mount) ʻĪao is barely breathing in the heavy mist.*

Cited by Pukui & Elbert (1986), who note that the phrase refers to "one in dire distress" (p. 364).

4.2.4.7 ʻŪkiu/ʻŪkiukiu Rain

These rains are the same, associated with Makawao, Maui and found on other parts of Maui. It is also the name of a wind.

Rain of Kula, Maui

Refer to the mele kālaiʻāina for ʻEmalani Kaleleonālani in the preceding section for the Nāulu rain.

Rain of Makawao, Maui

Aloha ʻo Makawao	*Love for Makawao*
I ka ua ʻŪkiukiu	*In the ʻŪkiukiu rain*
He ti una ka Nāulu	*A sign of the Nāulu*
I ke tula o Kamaʻomaʻo	*On the plain of Kamaʻomaʻo*

From the song "ʻAuhea wale ana ʻoe" by Nakulula (Akana & Gonzalez, 2015, p. 259).

4.2.4.8 Līlīlehua Rain

Pukui and Elbert (1986) identify Līlīlehua as the name of a wind and rain famous in Waiehu, Maui.

4.2.5 Winds

Hawaiian wind names hold significant cultural and practical importance in the Hawaiian Islands. Wind names in Hawaiian culture are deeply rooted in the traditional belief system and connection to the natural environment. Hawaiians have a profound respect for nature and its elements, and wind names reflect their reverence for the forces of nature. These names are a part of the rich cultural heritage and oral tradition of the Hawaiian people. The importance of Hawaiian wind names lies in their cultural, practical, and spiritual significance, connecting the people to their environment, enabling navigation, predicting weather, and preserving their cultural heritage.

Wind names also were important resources for understanding the surrounding environment. Hawaiian wind names are instrumental in navigation and wayfinding, particularly for voyaging canoes and seafaring traditions. Traditional Polynesian voyagers used their knowledge of the winds and stars to navigate across vast expanses of the Pacific Ocean. By knowing the characteristics and names of different winds, they could effectively chart their courses and find their way to distant islands.

Wind names are also crucial for predicting weather patterns in Hawaiʻi. Hawaiians developed a deep understanding of the winds' behavior and associated weather conditions based on their observations over generations. By identifying and naming

different winds, they could anticipate changes in weather, ocean currents, and other natural phenomena, which was essential for agriculture, fishing, and daily activities.

The wind names reflect a close connection between the people and the environment. By acknowledging and naming specific winds, Hawaiians recognized the unique characteristics and qualities of each wind. This awareness promoted a harmonious relationship with nature and fostered a sense of responsibility for its preservation and sustainable use.

Today, some of the most important use and preservation of Hawaiian wind names contribute to the retention and revitalization of the Hawaiian language, culture, and traditions. In a modern context, these names help to maintain and celebrate the unique cultural identity of the Hawaiian people, strengthening their sense of belonging and heritage.

Based on extensive research, two traditional Hawaiian wind names were identified for the Wailuku area. These names were gleaned from historical records and cultural practices, though many additional traditional names may have been lost over time.

The name Iʻa-iki, meaning “little fish,” was identified for the Wailuku area. Rebecca Nuuhiwa identifies that “Waiehu’s wind is the Makani-hooʻeha-ili, the wind that hurts the skin” (in Sterling, 1998, p. 62). It is also said that the name of the wind of Wailuku is “Makani-lawe-malie, the wind that takes it easy” (Sterling, 1998, p. 62).

As mentioned in the rain names section, Kiliʻoʻopu is both a rain and wind name associated with Waiehu and appears in several moʻolelo and kanikau.

4.3 Intangible Cultural Resources

It is important to note that Honua Consulting’s unique methodology divides cultural resources into two categories: biocultural resources and built environment resources. We define biocultural resources as elements that exist naturally in Hawaiʻi without human contact. These resources and their significance can be shown, proven, and observed through oral histories and literature. We define built environment resources as elements that exist through human interaction with biocultural resources whose existence and history can be defined, examined, and proven through anthropological and archaeological observation. Utilizing this methodology is critical in the preparation of a CIA as many resources, such as those related to akua, do not necessarily result in material evidence, but nonetheless are significant to members of the Native Hawaiian community.

4.3.1 ʻŌlelo Noʻeau

ʻŌlelo noʻeau are a vital source of cultural information about the area. ʻŌlelo noʻeau literally means "wise saying" and they encompass a wide variety of literary techniques and multiple layers of meaning common in the Hawaiian language. Considered to be the highest form of cultural expression in old Hawaiʻi, ʻōlelo noʻeau bring us closer to understanding the everyday thoughts, customs, and lives of those that created them.

The ʻōlelo noʻeau presented here relate to Wailuku and Kula moku. These ʻōlelo noʻeau are found in Pukui's *ʻŌlelo Noʻeau: Hawaiian Proverbs & Poetical Sayings* (1983). The number preceding each saying is provided.

88 ʻAi puaʻa a Kukeawe.
The pork-eating of Kukeawe.

Said of a person who is not satisfied with the number of his own pigs and so robs his neighbors of theirs. Kukeawe was a friend of Kahekili who was allowed to help himself to any of Kahekili's pigs in Kula, Maui. But Kukeawe also took the pigs belonging to the people of Kula, Honuaʻula, and Kahikinui and plundered their possessions. These people rose in rebellion, led by ʻOpū, and surprised the followers of Kukeawe while they were ascending Haleakalā on the way to Kula. Kukeawe's party retreated but found their way blocked by other parties led by Kawehena, Kahoʻoluhina, and Kuheana. Kukeawe was killed and his body set up at Palauea for all to see.

1711 Ke inu aku la paha aʻu ʻĀlapa i ka wai o Wailuku.
My ʻĀlapa warriors must now be drinking the water of Wailuku.

Said when an expected success has turned into a failure. This was a remark made by Kalaniōpuʻu to his wife Kalola and son Kiwalaʻō, in the belief that his selected warriors, the ʻĀlapa, were winning in their battle against Kahekili. Instead they were utterly destroyed.

1722 Ke kai holu o Kahului.
The swaying sea of Kahului.

Refers to Kahului, Maui.

1824 Kokolo ka uahi o Kula, he Kēhau.
The smoke of Kula creeps along when the Kēhau breeze blows.

Where there is smoke there is fire.

1911 Kula unahi pikapika he‘e.
Kula people, scalers of the suckers on the tentacles of the octopus.

Said in fun of the people of Kula, Maui. A Kula chiefess who lived inland did not know what the suckers on an octopus were and tried to scale them as one scales fish.

2170 Moe kokolo ka uahi o Kula, he Hau.
The smoke of Kula traveled low and swift, borne by the Hau wind.

Said of one who is swift in movement. Also, in love and war much depends on swiftness and subtlety.

2238 Na keiki uneune māmane o Kula.
The lads of Kula, who tug and pull the māmane up by the roots.

An expression of admiration for the people of Kula, Maui, who accomplish whatever they set out to do.

2300 Na wai ‘ehā.
The four wai.

A poetic term for these places on Maui: Wailuku, Waiehu, Waihe‘e, Waikapū, each of which has a flowing water (wai).

2351 Nūnū lawe leka o Kahului.
Letter-carrying pigeon of Kahului.

In 1893 carrier pigeons arrived at Kahului, Maui. One was brought to Honolulu and released with a letter tied to its neck. It flew back to Kahului. This was of such great interest to the people that a song was written and a quilt design made to commemorate the event.

2578 Pākāhi ka nehu a Kapi‘ioho.
The nehu of Kapi‘ioho are divided, one to a person.

Kapi‘ioho, ruler of Moloka‘i, had two ponds, Mau‘oni and Kanaha, built on his land at Kahului, Maui. The men who were brought from Moloka‘i and O‘ahu to build the ponds were fed on food brought over from Moloka‘i. The drain on that island was often so great that the men were reduced to eating nehu fish, freshwater ‘ōpae and poi. The saying is used when poi is plentiful but fish is scarce and has to be carefully rationed.

2647 Pili ka hanu o Wailuku.
Wailuku holds its breath.

Said of one who is speechless or petrified with either fear or extreme cold. There is a play on luku (destruction). Refers to Wailuku, Maui.

2912 Wailuku i ka malu he kauwa.
Wailuku in the shelter of the valleys.

Wailuku, Maui, reposes in the shelter of the clouds and the valley.

4.3.2 Mele

Honua Consulting completed searches of mele written about the ahupuaʻa and moku of Waikulu. Maui historian Inez Ashdown (1976) wrote about the importance of mele:

> The natives of Hawaiʻi Neʻi saw the Creator in everything and the Haku Mele or Music Masters delighted in presenting the chants and songs, mele and oli, to inspire the people. Such mele tell of God's assistant spirits which, to the imaginative natives, represented the winds, rains, and so on. Each spirit of creation was depicted as male or female and was given a personality and a name indicative of purpose. Hence the name of the volcanic action creating and cleansing the earth. She is beautiful, alluring, desirable. She also is unpredictable because she is temperamental and usually full of fiery emotions. She is an old woman asking help when she lies to test mortals, and woe betide anyone who is rude or inconsiderate of this form of an older person to whom respect and Aloha must be given. (p. 5)

The following mele showcase the cultural and historical significance of the Kahului and Wailuku areas.

4.3.2.1 Aloha ʻIa No ʻO Maui

The following mele was composed by Alice Johnson as a celebration of the beauty and majesty of Maui. The mele features key locations throughout Maui, including Kahului and its wharf, ʻĪao, and Haleakalā, while praising Maui as the best of the Hawaiian Islands because of the unforgettable beauty it offers (Johnson, n.d.).

Aloha ʻIa No ʻO Maui – by Alice Johnson

Aloha ʻia nō ʻo Maui	How we love Maui
Nā hono aʻo Piʻilani	Beloved land of Chief Piʻilani
Uluwehi i ka pua roselani ē	She is decked with wreaths of roses

Nā pua ʻala onaona	And other fragrant flowers
Kaulani ʻoe e Kahului	You are famed Kahului
Ke kai holuholu ē	For your rolling waves
A me ka uapo hoʻokipa malihini ē	And for your wharf which welcomes visitors
I kou ʻāina nani ē	To your beautiful isle
Haʻaheo wale hoʻi ʻoe	Oh, how proud you look
Kepaniwai o ʻĪao	O water course of ʻĪao
Mākaʻikaʻi mau ʻia ana lā	You are constantly being visited
E nā malihini ē	By many strangers
Kilakila Haleakalā	Majestic is Haleakalā
Kuahiwi nani o Maui	Beautiful mountain of Maui
Kaulana kona inoa puni Hawaiʻi	Whose name is known throughout Hawaiʻi
Ke alanui kīkeʻekeʻe	For its winding road
Haʻina mai ka puana	The end of my song I sing
ʻO Maui nō e ka ʻoi	Of Maui, best of the islands
Me kona nani hoʻohenoheno	Whose beauty woos us all
He nani poina ʻole	Her beauty we cannot forget

4.3.2.2 Hualālai

The following mele honors the Inter-Island Steamer, Hualālai, that operated between the islands in the 1930's. This steamer was named for the famous Kona volcano of the same name and regularly served Kahului Harbor (Akiu, n.d.).

Hualālai – by Roger Akiu

Kaulana e ka holo, e, e, e	Famous is the journey
O Hualālai lā	Of Hualālai
Mana kai holo holo e	Sailing on the powerful current in the sea
Aʻo Kahului lā e	Of Kahului
O ka helena ana ia lā, e, e, e	The appearance
A ka wahine uʻi lā e, e, e	Of this beautiful woman
E kilohi iho ʻoe lā e	(I) stare at you, then look down
He malino i ke kai	At the calm sea
E kūlana hiehie lā, e, e, e	Distinguished

Kō Hualālai lā, e, e, e	Is Hualālai
Kohu kakela nui lani ʻike kai	Recognized as the castle of the sea
Nani wale ke ʻike aku	Beautiful to see
Haulani ke Hualālai lā, e, e, e	Constantly moving is Hualālai
Ke kuini hoi ike kai, e, e, e	The queen of the sea
Na ale ka moana kou hoa pili	Friend of the waves
ʻAe kohu ai ka helena	Ruler of her travels
Haʻina mai ana ka puana, e, e, e	Tell the refrain
No Hualālai lā, e, e, e	Of Hualālai
Kakela hiehie lani ike kai	Castle of the sea
Nani wale ke ike aku	Beautiful to see

4.3.2.3 Kaʻa Ahi Kahului

The following mele was written by Palani Vaughan in honor of the first passenger train service in Hawaiʻi, which was between the town of Kahului and city of Wailuku on July 29, 1879. Railroad building in Hawaiʻi was the result of the encouragement by King David Kalākaua (Vaughan, n.d.).

Kaʻa Ahi Kahului – by Palani Vaughan

Eia ka moʻolelo pōkole	Here is the short story
No ke kaʻa ahi mua o Hawaiʻi Nei	About the first train in Hawaiʻi
Chūkū-chūkū maila, chūkū-chūkū maila	Choo-choo, choo-choo
Koʻehu (kuehu) aku ma ke alahao	Stirring dust along the tracks
Hūlō, Hūlō, no Ka Lani e	Hurrah! Hurrah! for the chief
No Ka Lani ʻO Kalākaua	For the chief, Kalākaua
Ke mea i kākau kona inoa	The one who signed his name
Ma ka Palapala no ka chūkū-chūkū	On the Act for the Railroad
Lohe mai e nā keiki hānau o ka ʻāina	Listen, oh children of the land
Lohe mai i ka moʻolelo chūkū	Listen to the train story
A i ko ʻoukou Ka Lani hope	And (hear) about your last King
Ka mea i kākau kona inoa	The one who signed his name
Hui:	Chorus:
Wū-wū Kaʻa Ahi Kahului	Woo-woo! Kahului Railroad
Ke alahao a i Wailuku	Tracks all the way to Wailuku
Wū-wū Kaʻa Ahi Kahului	Woo-woo! Kahului Railroad

Chūkū-chūkū mua o Hawai‘i	The first train of Hawai‘i

4.3.2.4 Kaleleonālani

The following mele for Queen Emma Na‘ea Rooke was composed as a greeting for her on her trip to Maui in 1882. As her ship entered Kahului Harbor, lehua blossoms were floated on the water to greet the Queen (Verse 2). Lucy Kamalalehua Peabody, a companion of the Queen, says this was written by Sylvester Kalama, who was aboard the ship that took the Queen to Maui. Charles E. King credits this mele to Nu‘uanu. After the death of her husband, Alexander Liholiho Kamehameha IV, Queen Emma campaigned for the royal office, losing the election to David Kalākaua. Her campaign headquarters was in Nu‘uanu Valley, and many believe this was used as the composer’s name. The Queen was always addressed as Emma or Emalani but was called Kalanikaumaka (the chiefess to whom everyone looks) by her immediate family. Upon the tragic death of her son, Prince Albert, in 1862, she asked her people to call her Kaleleokalani, the flight of the heavenly one. When her husband died a year later, she asked that the name be changed to the plural form, Kaleleonālani (Nu‘uanu & Kalama, n.d.).

Kaleleonālani (Flight of the Royal Ones) – by Nu‘uanu & Sylvester Kalama

Welo ana e ka hae Hawai‘i	The Hawaiian flag is waving
Hāli‘i lua i ka ‘ili kai	Over the surface of the sea
E ha‘i mai ana i ka lono	Telling the news
Ke kuini Emalani ko luna	Queen Emma is on board
Hui:	Chorus:
Kaleleonālani kou inoa	Kaleleonālani is your name
A he hiwahiwa ‘oe na ka lāhui	You are beloved by the nation
A he lani ‘oia la no ‘oukou	She is the chiefess for all of you
A he milimili ho‘i na mākou	And cherished by us
A waho o na nalu o Kōlea	Outside the surf of Kōlea
‘Ike ‘ia i ka nani o Kahului	The beauty of Kahului is seen
‘A‘ohe mea nani ‘ole o laila	There is not a thing without beauty
Ua nu‘a ka lehua ‘au i ke kai	Even lehua blossoms floated out to sea
Ui a‘e nei Emalani	A question from Emalani
Pehea mai la ‘oukou	How are all of you?
Ka manawa kupono kēia	This is a suitable time (to land)
E nā hoa hele o ke kai loa	My traveling companions on the high seas

4.3.2.5 Kela Mea Whiffa

Written by Eddie Kamae and Pilahi Paki then recorded by Eddie Kamae and the Sons of Hawai‘i, this mele expresses a smell that one who travels on the island of Maui will experience when traveling from Kahului to Lahaina. This scent is caused by the residue of burnt cane that is emptied into the ocean at Launuipoko, the area between the village of Olowalu and Lahaina. To experience this scent is what Hawaiians call Kela Mea Whiffa (Kamae & Paki, n.d.).

Kela Mea Whiffa (The Breath of Love) – by Eddie Kamae and Pilahi Paki

Mai Kahului komo Lahaina	From Kahului to Lahaina
Ke ala onaona i hanu	The fragrance that one breathes
Naue aku au ma Olowalu	As we go along pass Olowalu
He no‘e au no ke kanaka	A rare experience awaits all
Hale nui me ka ihu pinana	Then, the big house with the smoke stack
Ike aku au i ke kapulu	Where activities seldom cease
A hanu au i na mea lepo	Sends its natural products
Maluhi au kela mea whiffa	To stay at kela mea whiffa
Hui:	Chorus:
‘Auhea e kela mea whiffa	Where is kela mea whiffa
Oia hanu a ke aloha	The breath of love
Ma ke lauko a kiawe	Between sugar cane and kiawe
A malaila kou mana‘o	For this is where you’ll find me
‘Auhea e kela mea whiffa	Where is kela mea whiffa
Oia hanu a ke aloha	The breath of love
Ma ke lauko a kiawe me ea	Between sugar cane and kiawe
Kōpa‘a ka po‘e haole	Sugar cane introduced by foreigners
Ulu ana a nui hewahewa	And grown in abundance
Mala nui nā lau uliuli	Acres and acres of green stuff
Ike ‘oe a mamao	You see all around you
Puhipuhi ia nā mala ko	The burning of the cane at the fields
I maha ho‘i ke ‘ohi	Makes it easier to harvest
‘Auhea ‘oe mea whiffa	Where are my sweet whiffa
Ma Launiupoko kela mea whiffa	At Launuipoko kela mea whiffa

4.3.2.6 Na Wai ‘Ehā O Maui

This mele was written by Alice Namakelua on April 6, 1940 for the Maui float in the Kamehameha Day Celebration in Honolulu (Namakelua, n.d.).

Na Wai ‘Ehā O Maui – by Alice Namakelua

E Maui nui o Kama	Great Maui of Kama
‘Āina ua kaulana	Famous land
O ka heke i‘o no ‘oe	You are truly superior
Ua lohe ‘ia ‘a puni ka honua	Heard around the earth
‘Āina ‘oe ua wehi	You are the land adorned
Ua ‘ohu e ka roselani	Adorned by the rose
He pua ho‘i nāu e lei	A flower for you to wear as an adornment
A e ha‘aheo mau ai ‘oe	And continue to wear in pride
Kaulana nā wai ‘ehā	Famous are the four waters
He puana he inoa he ha‘ina	A refrain, a name, an answer
Waikapū, Wailuku, Waiehu	Waikapū, Wailuku, Waiehu
A‘o Waihe‘e iho ia wai	Water descends in Waihe‘e
He inoa nēia nou	This is a name chant for you
E Maui nui o Kama	Great Maui of Kama
Ha‘aheo ‘oe i ka roselani	You are cherished with pride because of the rose
E ō mai i kou inoa	Reply to your name

4.3.2.7 Waikapū

The following mele was composed by James Kanahele in the early 20th century about the central Maui region, recounting the wind names of the area (Kahele, n.d.).

Waikapū (Forbidden Waters) – by James Kahele

Waikapō makani kokolo lio	Waikapū has a swift blowing wind
Makani houhou ‘ili	Wind that pierces the skin
‘Ini‘iniki mālie	Gently pinching
Wailuku makani lawe mālie	Wailuku has a gently blowing wind
Makani houhou ‘ili	Wind that pierces the skin
‘Ini‘iniki mālie	Gently pinching
Wai‘ehu makani ho‘eha ‘ili	Waiehu has a wind that pricks the skin

Makani houhou ‘ili	Wind that pierces the skin
‘Ini‘iniki mālie	Gently pinching
Waihe‘e makani kili‘o‘opu	Waihe‘e has a cool wind
Makani houhou ‘ili	Wind the pierces the skin
‘Ini‘iniki mālie	Gently pinching
Ha‘ina mai ana ka puana	This ends my song
Makani houhou ‘ili	Wind that pierces the skin
‘Ini‘iniki mālie	Gently pinching

(This area intentionally left blank.)

5.0 Oral Records, Interviews, and Consultations

Honua Consulting was tasked with gathering information from individuals with lineal and cultural ties to the area and its vicinity regarding regional biocultural resources, potential impacts to these biocultural resources, and mitigation measures to minimize and/or avoid these impacts. This section includes previously conducted oral interviews from kūpuna (ancestors) of the area, as well as contemporaneously conducted interviews with practitioners familiar with the area.

5.1 Stores and Storekeepers of Paia and Puunene, Maui (1980)

This summary examines the Ethnic Studies Oral History Project (ESOHP) focused on stores and storekeepers in Pāʻia and Puʻunēnē from 1910-1980. The project gathered first-person accounts from 33 interviewees who operated or worked in stores serving these plantation communities, documenting the economic, social, and cultural dimensions of small businesses in Hawaiʻi's plantation era.

Pāʻia and Puʻunēnē were major plantation communities on Maui, dominated by sugar production. Puʻunēnē was part of HC&S, consisting of 33,000 acres with 16,000 dedicated to cane land in 1935. According to the document, Puʻunēnē Plantation housed approximately 7,600 employees and their families across 26 camps with infrastructure including four public schools, three Japanese-language schools, ten churches, a large hospital, twelve nurseries, three theaters, and a gymnasium.

Pāʻia Plantation, operated by Maui Agricultural Company (MA Company), was smaller but still substantial, with six main camps housing approximately 6,000 people. Both plantations were owned and managed by A&B, which later merged the two operations in 1948 to become known solely as HC&S.

Lower Pāʻia, situated half a mile below Pāʻia Mill, functioned as the commercial center for the area with stores, restaurants, and businesses that served plantation residents. It had a population of slightly over 1,000 in the 1930s.

The oral history reveals several distinct categories of stores serving these communities:

1. **Plantation Stores**

   The plantation-owned stores operated under HC&S and MA Company provided basic necessities to workers. The MA Company system included Pāʻia Store and six branch stores in outlying camps. John Perreira, who worked at Pāʻia Store from 1926 to 1959, described it as a large establishment divided into departments: grocery, men's furnishings, drugs, dry goods, Japanese foods, etc. HC&S had a different structure

with Kahului Store serving primarily as a wholesaler, while branch stores at Camp 5 (Puʻunēnē) and Camp 1 (Spreckelsville) functioned as the main retail outlets.

These stores offered services tailored to plantation life:

- Order takers visited camps to collect orders which were delivered the next day;
- Credit systems based on plantation identification numbers (bangō);
- "New month" purchasing periods that allowed workers to delay payment; and
- Payroll deduction capabilities that gave plantation stores an advantage over independent stores.

2. Family-Run Camp Stores

These smaller stores operated by couples (mostly Japanese) within plantation camps served as convenience stores with items needed immediately (e.g., canned goods, soda, candy, and homemade items). According to interviewee Larry Kobayashi, who owned a store in McGerrow Camp, these stores served an important social function as gathering places where people would go after work or on their way to the camp bathhouse (furo) to talk or go outside on the porch.

Interviewee Yoshiko Araki, who opened her store in Pāʻia Camp in 1940, needed plantation permission to operate. She had to submit a list of items she planned to sell, ensuring she did not compete directly with plantation stores.

3. Lower Pāʻia Independent Stores

Located outside plantation lands, these stores provided alternatives to plantation stores. Many offered similar services (order taking, delivery, credit), though on a more limited scale due to their smaller size. Alice Gouveia, who ran Economy Store starting in 1948, handled her own deliveries with herself and her daughter serving as sole staff.

Independent storekeepers often struggled with collection. As Hiromu Tsuji recalled, some storekeepers in the 1930s went to the plantation payroll office on payday to wait for delinquent debtors. Minoru Hayashida, a fish market owner, had difficulty remembering the faces of Filipino customers who owed him money.

4. Kahului and Wailuku Stores

Several large Japanese-owned stores in Kahului specialized in order-taking and delivery to Pāʻia and Puʻunēnē camps: Onishi Shōkai, Kobayashi Shōkai, Maui Shōkai, and Japanese Mercantile Company. These stores were known as the "big 5"

(along with Ikeda Shōkai) and competed with plantation stores through generous credit policies.

These businesses particularly served long-term contract cultivators (kompang workers), who received only a small monthly allowance but were paid in one large lump sum when their cane was harvested after 18-20 months. The Kahului stores would "carry" these workers throughout this period.

5. Peddlers

Independent peddlers with trucks selling fresh fish, meat, vegetables, and canned goods followed regular routes through the camps. These mobile vendors filled an important niche since plantation stores and Japanese stores did not sell many fresh items. Yaichi Noda, who began peddling in 1933, eventually opened a small fish market in Kahului in 1941 and later expanded to a large supermarket in 1957.

5.1.1 Historical Developments Affecting Stores

The economic landscape of Pāʻia and Puʻunēnē was shaped by several pivotal historical events that transformed how stores operated between 1910 and 1980. From waves of immigration that expanded customer bases, through the dramatic impact of WWII on commerce, to post-war unionization and the eventual dismantling of the plantation camp system, storekeepers had to continually adapt their business strategies. These developments not only altered the physical presence of stores but revolutionized their relationships with customers, forcing evolution from credit-based purchasing to modern cash-and-carry operations, and ultimately redefining the commercial geography of central Maui.

1. Immigration Patterns

Filipino immigration created new business opportunities. Masakazu Shimada described how his father at Maui Shōkai actively sought Filipino customers in the 1920s by ordering Filipino foods and clothing, hiring Filipino order takers, and establishing banking services. Similarly, Minoru Hayashida adapted his fish business by learning to make bagoong (Filipino fermented fish sauce) to serve Filipino customers.

2. World War II

The war brought significant changes. Some stores thrived with military personnel as new customers – Sam Sato in Spreckelsville had to quit his other job to focus on his increasingly busy store. Yoshiko Araki was able to repay her startup loans much sooner than expected due to booming wartime business.

However, others suffered under wartime regulations. Two of the "big 5" Kahului stores – Kobayashi Shōkai and Japanese Mercantile Company – closed due to the Alien Properties Custody Act, which prohibited alien ownership of businesses.

3. Post-War Era and Unionization

The International Longshoremen's and Warehousemen's Union organized plantation workers in 1945, leading to significant changes in stores' operations. Conversion of perquisites to cash wages, twice-monthly paydays, and increased automobile ownership reduced dependency on credit-based stores and led to the rise of cash-and-carry supermarkets.

The most disruptive development was the closure of plantation camps and the migration of residents to "Dream City" [determined to be "Ka-ihu-waʻa" by Sterling (1998, p. 93)], a fee-simple residential development begun in 1949 by A&B subsidiary Kahului Development Company. This led to:

- Demolition of camp stores
- Decreased population in Lower Pāʻia
- Decline and eventual closing of plantation stores
- Rise of Kahului as a major population center with modern supermarkets

5.1.2 Entrepreneurship Among Storekeepers

The oral histories reveal numerous examples of entrepreneurial innovation:

1. Satoki Ikeda, a clothing store owner, nailed advertisements in English and Japanese on community bathhouse walls and enlisted his children to distribute advertisements.
2. Minoru Hayashida adapted during WWII when fish were scarce by hiring a Hawaiian skilled in reef fishing and contracting with an Oʻahu fish dealer to maintain his supply.
3. Minetaro Nashiwa (father of interviewee Richard Nashiwa) opened a lunch counter in his bakery to sell hamburgers, which introduced Japanese residents accustomed to rice to new Western food items, thereby increasing his bread sales while modifying local dietary habits.
4. Masakazu Shimoda's father decided to stop competing for Japanese customers and actively pursue Filipino clientele by hiring Filipino order takers and stocking Filipino foods.

Beyond their economic function, stores served as important social spaces within plantation communities. Camp stores like Larry Kobayashi's functioned as gathering

places and the sole public establishments open late at night. Storekeepers often provided additional services; Yasunari Hamai, who worked at an MA Company branch store, read and wrote letters in Japanese for illiterate plantation residents and gave them rides in the company car.

Order takers like Chosoku Kochi played community roles beyond sales; he served as a matchmaker and supplied wedding celebrations with food and drinks from the store. The credit system maintained by storekeepers created intricate webs of economic relationships and obligations throughout these communities.

The oral history reveals ethnic patterns in store ownership and clientele. By the 1930s-40s, Japanese had become the predominant store owners in the area, though the project documented businesses run by Portuguese, Chinese, and Filipino entrepreneurs as well.

Gilbert Zane, a Chinese storekeeper, noted that most of his customers were haole (white) and Portuguese, with few Japanese or Filipinos patronizing his establishment. Language and cultural familiarity influenced customer choices, with plantation stores assigning order takers based on ethnic and linguistic compatibility. Modesto Palafox, a Filipino order taker for Camp 1 Store between 1943 and 1956, recalled serving only Filipino households.

5.1.3 Conclusion of ESOHP

The ESOHP documenting Pāʻia and Puʻunēnē stores provides a detailed window into the economic, social, and cultural dimensions of Hawaiʻi's plantation era. Through 33 interviews totaling 79 recorded hours, the project preserved first-person accounts of how these businesses operated, adapted to changes, and served as more than merely commercial establishments. The documents reveal how storekeepers navigated cultural differences, economic challenges, and historical developments while serving as both entrepreneurs and community builders.

The stores of Pāʻia and Puʻunēnē illustrate the complex interplay between corporate plantation systems and independent businesses in Hawaiʻi's economic development, while also documenting the everyday lives and consumer patterns of plantation workers and their families across seven decades.

5.2 Tsunamis in Maui County: Oral Histories

The *Tsunamis of Maui County: Oral Histories* project represents a comprehensive effort to document, preserve, and share first-person accounts of tsunami events that have impacted Maui County throughout history. This collection captures memories of tsunamis in Maui County, with particular focus on the devastating April 1, 1946, tsunami, though some interviews reference events dating back to 1923. The project stands as a vital

historical record, giving voice to survivors and witnesses while providing crucial insights into both the physical impacts of these natural disasters and their profound effects on communities and individuals.

Initiated by the Center for Oral History in the Department of Ethnic Studies at the University of Hawai‘i at Mānoa, this project highlights the recollections of Native Hawaiians and the multi-ethnic people of Hawai‘i, producing oral histories and interpretive materials about lifeways, key historic events, and social movements. The collection includes approximately 40 interviews, all conducted in 1998, creating a valuable archive accessible through both the National Oceanic and Atmospheric Administration (NOAA) Voices Oral History Archives and the Center’s ScholarSpace open-access repository.

The April 1, 1946, tsunami stands as the central event in many of the collected narratives. This devastating tsunami was generated by a large undersea earthquake near the Aleutian Islands of Alaska and had catastrophic impacts across the Hawaiian Islands. The 8.6 magnitude earthquake triggered tsunami waves that killed 167 people, with most fatalities occurring in Hawai‘i. This disaster was particularly significant because a tsunami warning system did not exist in 1946, meaning no one had any warning of the approaching dangerous waves.

The interviews capture the experiences of survivors who witnessed the waves firsthand. Their testimonies provide invaluable insights into the tsunami’s impacts across different Maui communities. For instance, Roland Enos, who was six years old during the 1946 tsunami, recounts running with his grandparents from their Kahului Beach Road home as the waves approached. These personal accounts preserve not only the factual details of the event but also the emotional and psychological impacts on survivors.

Pu‘unēnē, an unincorporated community in central Maui, has important connections to this oral history project through both geographic and cultural contexts. Though modestly populated with approximately 50 residents, Pu‘unēnē’s history is deeply intertwined with the sugar industry.

The tsunami oral history project connects to Pu‘unēnē in several ways:

1. **Geographical Proximity to Impacted Areas**: During the 2011 Fukushima earthquake tsunami, Kahului Harbor saw a 6-foot surge that pushed water about 1/3 mile inland to wet “the toes of Walgreens on Puunene Avenue.” Though this was a more recent event than those covered in the oral histories, it demonstrates Pu‘unēnē’s vulnerability to tsunami impacts.
2. **Plantation Community Connections**: Many of the interview subjects have connections to plantation communities, including those associated with HC&S,

which operated the Puʻunēnē Sugar Mill. These plantation camps, including those in Puʻunēnē, formed the foundation of many families' experiences in Hawaiʻi.

3. **Multi-Ethnic Community Heritage**: The sugar industry recruited workers worldwide in the late 19th and 20th centuries, creating the diverse cultural fabric of communities like Puʻunēnē. The oral histories reflect this diversity, featuring interviewees from various ethnic backgrounds whose families came to work in the plantation economy.
4. **Historical Context and Development**: Some interviews, such as the one with Helen von Tempsky, mention the impact of the 1946 tsunami on areas like Spreckelsville, which shares historical and economic connections with Puʻunēnē through the sugar industry.

The following sections are summaries of three interviews from this oral history project that collectively paint a detailed picture of Puʻunēnē as a plantation town centered around the sugar industry, with its distinctive social organization, cultural diversity, and community structures. They also document how natural disasters like tsunamis contributed to population shifts and changes in residential patterns, gradually transforming the plantation communities of Maui, including Puʻunēnē.

5.2.1 Summary of Jared Kaholokua's Interview

Jared Kaholokua's April 20, 1998, interview provides valuable insights into life in Maui before and after the 1946 tsunami, with significant connections to Puʻunēnē. Born on July 12, 1935, in Pāʻia, Jared lived in Pāʻia until 1944-1945 when his family moved to Māliko Bay. He describes Pāʻia as a "big camp" with many facilities, including two golf courses. His grandfather, Henry English, worked for HC&S as a mechanic supervisor in Puʻunēnē. Jared's father also worked as a mechanic at HC&S in the machine shop, highlighting the sugar industry's importance to the family's livelihood.

When describing his childhood in Pāʻia, Jared mentions living in "Skill Village," which was one of the plantation camps. He portrays plantation life as community-oriented, with shared recreational facilities and social activities. The tsunami of April 1, 1946, dramatically impacted his family's life in Māliko Bay. After losing their home to the tsunami, they relocated to Hāmākua Poko, where Jared noted that living in a larger community actually improved their quality of life by providing more social opportunities and activities compared to their isolated existence in Māliko. His account shows how the tsunami contributed to the reshaping of residential patterns and community structures in Maui, including the plantation communities connected to Puʻunēnē.

5.2.2 Summary of Ivy Carbonell's Interview

Ivy Carbonell's April 21, 1998, interview provides a direct connection to Puʻunēnē, as she was born there on January 8, 1939. Her father, Henry Copp Daniels Jr., worked for HC&S as a mechanic in the machine shop, following a family tradition, as his father had also worked for HC&S with the sugarcane railroad. Ivy describes growing up in "Spanish B" camp in Puʻunēnē, painting a picture of plantation life with its structured housing arrangements and community-focused lifestyle. She mentions that the Puʻunēnē camp had four rows of houses with approximately twenty houses on each side of the street. Her family had a three-bedroom plantation-type home with one bath, a living room, and a "pretty good size kitchen."

Ivy provides rich descriptions of Puʻunēnē during her childhood, including memories of playing in the streets, which served as makeshift playgrounds since few families owned cars. She also recalls wartime experiences in Puʻunēnē, including the blackout windows and air raid sirens. After graduating from high school, Ivy worked at Maui Pineapple Company until she married. While her tsunami experience occurred after she had moved from Puʻunēnē (she survived the 1960 tsunami while living in Kahului), her interview offers valuable insights into the daily life, social structure, and cultural aspects of growing up in a plantation community in Puʻunēnē during the 1940s and early 1950s.

5.2.3 Summary of Jan Priest Wysard's Interview

Jan Priest Wysard's July 17, 1998, interview offers a firsthand perspective of Puʻunēnē and its sugar plantation heritage. Born at the hospital in Puʻunēnē (which she notes was affiliated with the plantation), Jan's connection to the area runs deep. Her father and mother, Alonzo Priest and Jean McIntyre Priest, moved to Maui in 1935 from Maui so Alonzo could work for HC&S under F.F. Baldwin. He was hired as a recreational director for a new facility being built in Puʻunēnē for plantation workers, which included a swimming pool, baseball diamond, basketball courts, and other recreational facilities.

Jan's account illustrates the structured social environment of plantation life in Puʻunēnē, where the company provided housing and many amenities for workers and their families. She describes life in Puʻunēnē as "really wonderful" because of the sense of community among the residents: "everybody knew you and you knew everybody else." Jan also notes that her family had Japanese help that "ran [the] house" and provided a safe environment.

Jan mentions that her family eventually moved from Puʻunēnē to Spreckelsville just weeks before the 1946 tsunami, which destroyed the house they had considered purchasing in the Kaunoa School area. Her description provides valuable context about the lifestyle and community structure in Puʻunēnē during the pre-tsunami era, highlighting how the sugar

plantation defined not just economic life but also social infrastructure and housing arrangements for residents.

5.3 Ethnographic Reflection: A Wedding in Puʻunēnē

Interview Compiler: Torie Hoʻopiʻi
Interviewee: Priscilla Hoʻopiʻi
Date of Event: August 28, 1971

Summary

This ethnographic reflection documents a significant personal and communal event that took place in the heart of Puʻunēnē, Maui. The wedding of Richard Hoʻopiʻi Sr. and Priscilla Kaonohi on August 28, 1971, exemplifies how plantation spaces—often remembered for labor and industry—were also sites of deep cultural value, ʻohana celebration, and Hawaiian resilience. This testimony offers insight into the cultural significance of the proposed Hoʻonani Villages project area.

Background

Priscilla Hoʻopiʻi (Kaonohi) was born in 1952 and raised in the valley community of Kahakuloa, as was her future husband, Richard. Their lives were deeply rooted in the cultural and working-class communities of Central Maui. At the time of their wedding, Richard worked as the lumber yard supervisor for Alexander & Baldwin, and the couple chose Puʻunēnē for its strong sense of community and accessibility for family from across the island.

The Wedding in Puʻunēnē

The ceremony was held outdoors near the historic mill wheel, which today stands next to the Alexander & Baldwin Sugar Museum (Figure 17). The couple was adorned in regal red and yellow, symbols of aliʻi lineage, and honored by the sounding of pū (conch shells). Decorations were made by hand, and the event brought together friends, neighbors, and fellow plantation workers in a two-day celebration that included Hawaiian music, hula, food, and storytelling.

Priscilla Hoʻopiʻi stated: “The plantation lands—normally defined by labor—became a place of love, laughter, and connection.”

This wedding serves as a reminder of how even within a heavily industrialized setting, Hawaiian values and traditions found ways to thrive. The land carried not just the legacy of sugar production, but also the imprint of joy, community effort, and Hawaiian identity. Though many structures from that time are now gone, memories like these connect generations to place and reaffirm the cultural richness of Puʻunēnē.

Figure 17. Richard and Priscilla Exchanging Rings with Puʻunēnē Mill in the Background

Cultural Resources and Traditional Practices

As Priscilla did not live in the plantation camps and has a limited direct association with the project area aside from her 1971 wedding, she has no knowledge of any traditional sites or ongoing cultural practices specific to the area.

Potential Impacts of the Project

Priscilla welcomes the idea of new housing in Puʻunēnē, "so long as it truly serves our local people and low-income families who need it most." The site of the proposed Hoʻonani Villages is not just former plantation land, but a place layered with personal and communal memories. Events like this wedding highlight the importance of recognizing Puʻunēnē as a living landscape with deep cultural and emotional ties. Development in the

area should consider not only the physical environment but also the stories and relationships embedded in the land.

Conclusion

This story, passed down through ʻohana and remembered by many throughout Maui, enriches our understanding of Puʻunēnē as more than an industrial hub. It was a place where culture, love, and ʻohana thrived, even amidst the smoke and steel of the plantation. These memories matter, and they deserve a place in how we consider the future of this land.

5.4 Interview with Pastor Gordon Earl Napokā Kekahuna

Interviewer: Torie Hoʻopiʻi
Interviewee: Pastor Gordon Earl Napokā Kekahuna
Date: May 21, 2025

Summary

Pastor Kekahuna's life in Puʻunēnē embodies a period of intense labor, cultural fusion, and ʻohana-centered values. His stories provide insight into what once existed on the land—from communal life, ditch swimming, and church on Sundays to eating brown sugar off the tracks. His testimony reflects deep emotional and generational ties to the land. In his words, "Puʻunēnē was home. Even if the buildings are gone, the memories are still there. You cannot erase what was lived." He shared that growing up in the plantation system meant many Hawaiian families like his were disconnected from cultural practices and traditions: "We never grow up with traditions. We never grow up with culture. We grew up in a sugar plantation life. That was it." His statement reflects the generational impact of plantation systems on cultural continuity and reinforces the importance of restoring these connections today.

Biography

Pastor Gordon Kekahuna, born in March 1953 at Wailuku Hospital, grew up in various plantation camps in Puʻunēnē and currently resides in Lealiʻi Hawaiian Homes in Lahaina. His firsthand recollections offer insight into the landscape, lifestyle, cultural values, and environmental changes that have shaped the region over the past several decades. Pastor Kekahuna is a retired hotel worker who spent 30 years at the Maui Prince Hotel in Mākena (later known as Mākena Beach Resort), retiring in 2017 before the resort closed. He currently does part-time rideshare driving and serves as a pastor alongside his wife Kathy Kekahuna at Lāhainā New Life Church of God.

Pastor Kekahuna was born to Albert Pū of Hāna and Marylane Smith of Molokaʻi but was adopted and raised by George Kekahuna Sr. and Elizabeth Kalehuawehe Kekahuna. His

father worked over 30 years at HC&S, beginning as a laborer and later operating lowboy trucks. The family lived in plantation camps including Young He Village, Alabama Camp, and eventually Haole Camp, where many of the supervisors and teachers lived. In 1983–1984, they relocated to Hawaiian Homes in Paukūkalo.

Life in Puʻunēnē

Pastor Kekahuna described life in the plantation camps as 'simple living' and community-oriented. Children swam in irrigation ditches ('duruwana') since there were no beaches nearby. They crafted small boats from scrap tin roofing and caught tilapia. Homes had outdoor showers and outhouses in the early days. As camps changed, so did the infrastructure: Haole Camp had better-built homes and amenities.

He recalled, "Growing up, we had what—all your friends were there. Sometimes you fight with your friends all day, and the next day you go to school like nothing happened."

Stores allowed families to buy on credit using the father's name. Gordon would buy cigarettes for his dad this way. He also remembers buying poi for 25 cents a bag: "a full bag, more like a two-pound bag."

After Sunday Mass at Holy Family Church, families visited the Chinese stores for manapua and other treats. He fondly remembered collecting spilled brown sugar from train tracks: "They used to haul the sugar on the trains down to the harbor. Sometimes we'd pick up the brown sugar that fell and eat 'em."

Religion played a strong role in the Kekahuna household. His mother was the catechism teacher at Holy Family Church, with weekly classes held Mondays from 1:00 to 2:00 p.m. Church attendance was regular, and spiritual values were instilled early.

He described the tight-knit nature of camp life: "Everywhere you went, people knew who your parents were. If you got in trouble, the elders would say, 'Who's your father?' And then, 'I going tell your father.'"

Cultural Resources and Traditional Practices

When asked about any traditions or customs associated with the Puʻunēnē area, Pastor Kekahuna shared that he was not aware of specific cultural practices growing up. His experience in the plantation camps did not include Hawaiian traditions or ceremonies, as life revolved around work, school, and church: "We never grow up with traditions. We never grow up with culture. We grew up in a sugar plantation life. That was it."

While he remembers the landscape and community—swimming in irrigation ditches, making boats from tin roofing, and eating brown sugar from the train tracks—he emphasized that cultural knowledge wasn't something passed down during those years.

His reflection points to how the plantation lifestyle affected Hawaiian families' ability to carry on traditional practices in daily life.

Potential Impacts of the Project

Pastor Kekahuna expressed concern about the present-day impacts of land development in the isthmus region. Historically, Puʻunēnē and surrounding areas—such as Kanahā, Mauoni, and Keālia—were marshlands. These wetlands played a role in balancing water flow. "That's why this area floods," he noted. "They stopped the water flow and diverted it."

He recalled that many homes from the plantation camps were moved to the "Dream City" subdivision in Kahului. The Japanese cemetery and shrine once located in the area are now mostly obscured by industrial growth. "I don't know what they did with the bodies. But it was all there when I was a kid."

Pastor Kekahuna expressed concern about the disruption of the land's natural systems and cultural memory. He emphasized that much of the area was originally marshland and is prone to flooding: "They want to build on marshland, that's why there's always flooding. That water got nowhere to go."

He worries about the erasure of community memory and cultural sites: "There's hardly any trace of the old camps anymore. But those places, that's where we grew up. They meant something." At the same time, he expressed hope that the project—especially the workforce housing—could be prioritized for Hawaiian families and those who already live in the area: "If they going build, I just hope it's really for our people—our local people, the ones already here. Because if not, what's the point?"

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6.0 Traditional or Customary Practices Historically in the Project Area and Surrounding Area

This section is not intended to be a comprehensive list of all the practices that historically or contemporaneously occur in Wailuku and Kalialinui, but instead is meant to show the range of traditional or customary practices that took place in the larger geographic extent. Many of these practices may not have taken place within the specific project area, although they may actively occur within the larger ahupuaʻa and moku.

Prior to contact and modernization, a range of cultural practices likely took place in the project area. These practices would have been predominantly related to traditional agriculture and aquaculture and were obstructed beginning in the 19th century by Western modernization.

6.1 Moʻolelo

Moʻolelo is the practice of storytelling and developing oral histories for the purpose of transmitting knowledge, information, and values intergenerationally. Moʻolelo are particularly critical in protecting and preserving traditional culture in that they are the primary form through which information was transmitted over many generations in the Hawaiian Islands and particularly in the Native Hawaiian community. In a collection of essays about moʻolelo, professors C.M. Kaliko Baker and Tammy Hailiʻōpua Baker (2023) explain:

> *Moʻolelo*, loosely translated as stories and histories, are the *kūkulu* ʻpillarsʼ that shoulder and chronicle Kanaka Maoli narratives and beliefs. The moʻo, or successions, of *ʻōlelo* ʻwordsʼ are the foundation for the many genres of moʻolelo which collectively represent the prowess of the Kanaka Maoli literary canon. (p. 2)

Storytelling, oral histories, and oration are widely practiced throughout Polynesia and important in compiling the ethnohistory of the area. The Native Hawaiian newspapers were particularly valued for their regular publication of different moʻolelo about Hawaiian history. Were it not for the newspapers having the foresight to allow for the printing and publication of moʻolelo, far less information about the cultural history of the Hawaiian people would be available today.

As described in **Section 3.3**, moʻolelo about Puʻunēnē and the larger Wailuku region tell of various chiefs and traditions, including Kiha-a-Piʻilaniʼs time in hiding and the travels of various supernatural beings through the area. While specific moʻolelo directly relating to the Puʻunēnē project area have not been identified, the region is part of larger cultural narratives about the Wailuku moku.

6.2 Habitation

Hawaiians lived extensively throughout the islands. Handy et al. (1972) identify how different kānaka and their ʻohana lived in accordance with what the authors termed "occupational contrasts" (p. 286), meaning that based on occupation (i.e., planter, fisherman, etc.), habitation systems differed. Handy et al. (1972) explain:

> The typical homestead or *kauhale*… consisted of the sleeping or common house, the men's eating house, women's eating house, and storehouse, and generally stood in relative isolation in dispersed communities. It was only when topography or the physical character of an area required close proximity of homes that villages exist. There was no term for village. Kauhale meant homestead, and when there were a number of kauhale close together the same term was used. The old Hawaiians, in other words, had no conception of village or town as a corporate social entity. The terrain and the subsistence economy naturally created the dispersed community of scattered homesteads. (p. 284)

The traditional Hawaiian home was known as a hale, which was a simple structure made of natural materials, such as wood, thatch, and lava rocks. The hale was typically rectangular in shape, with a sloping roof that was thatched with palm fronds or other accessible vegetation. The walls were made of woven mats or a framework of wooden poles covered with woven coconut leaves or bark. The floor was typically made of packed dirt or crushed coral.

Based on the archaeology for the Puʻunēnē area and its inland location away from permanent water sources, any habitation in the area would have likely been temporary or seasonal in nature, utilized as kānaka traveled from the makai areas to the mauka areas or during particular resource collection seasons.

As detailed in the ethnographic history, the lands of Puʻunēnē were extensively converted as plantation housing for the numerous immigrants (i.e., Chinese, Japanese, Filipino, etc.) and locals who served as laborers for the sugar plantations. Pastor Kekahuna detailed the tight-knit community-based nature of these plantation camps prior to the decline of the sugar industry.

6.3 Travel and Trail Usage

The ability to travel was essential to Hawaiians and enabled their sustainability. Travel, and the freedom to move throughout different areas, had different names, including huakaʻi, kaʻapuni, or kaʻahele. Traveling by sea had distinct names as well, like ʻaumoana. Traveling through the mountains was sometimes referred to as hele mauna. Travel, and

moving throughout various places and regions was an essential practice and way of life in traditional Hawai‘i.

The freedom to travel safely was so important that Kamehameha I would come to pass a well-known law protecting travelers, Ke Kānāwai Māmalahoe (The Law of the Splintered Paddle). It is explained by the William S. Richardson School of Law as follows:

> As a young warrior chief, Kamehameha the Great came upon commoners fishing along the shoreline. He attacked the fishermen, but during the struggle caught his foot in a lava crevice. One of the fleeing fishermen turned and broke a canoe paddle over the young chief's head. The fisherman's act reminded Kamehameha that human life was precious and deserved respect, and that it is wrong for the powerful to mistreat those who may be weaker.
>
> Years later when Kamehameha became ruler of Hawai‘i, he declared one of his first laws, *Ke Kānāwai Māmalahoe* (the Law of the Splintered Paddle), which guaranteed the safety of the highways to all. This royal edict was law over the entire Hawaiian kingdom during the reign of Kamehameha the Great. Considered one of the most important *kānāwai* (royal edict), the law gave the Hawaiian people an era of freedom from violent assault ("Ke Kānāwai Māmalahoe," n.d.).

The kānāwai (law) reads:

E nā kānaka	O my people
E mālama ‘oukou i ke akua	Honor thy god
A e mālama ho‘i	Respect alike, the rights of
Ke kānaka nui a me kānaka iki	All men great and humble
E hele ka ‘elemakule	See to it that our aged,
Ka luahine, a me ke kama	Our women, and children
A moe i ke ala	Lie down to sleep by the roadside
A‘ohe mea nana e ho‘opilikia	Without fear of harm
Hewa no, make	Disobey, and die

The law would have such long-lasting resonance that it would be expressly incorporated into the Hawai‘i State Constitution.[12]

As traveling through traditional trails was the primary means by which people traveled on land throughout most of Hawaiian history, the traditional trail system is particularly

[12] Article IX. Section 10 of the Hawaii State Constitution reads: "The law of the splintered paddle, mamala-hoe kanawai, decreed by Kamehameha I--Let every elderly person, woman and child lie by the roadside in safety--shall be a unique and living symbol of the State's concern for public safety."

important throughout the Hawaiian Islands. Throughout the islands, there were numerous trails that allowed for people to access different locations. This trail system was critical not only for maintaining a healthy population and managing this population, but it was also important for the traditional economic system of bartering. The trail system allowed for different localized communities to engage and interact. This also allowed for the trade of goods throughout island communities.

There is no doubt that traditionally Hawaiians traveled through the project area, but more contemporaneously, this travel would have been limited by ranching activities that utilized fencing to keep cattle within property boundaries. Given Puʻunēnē's location between the uplands of Haleakalā and the coastal areas, it would have been traversed by trails connecting these areas. The construction of Kiha-a-Piʻilani's trail that circumnavigated Maui would have passed through or near the project area. During the plantation era, these traditional trails were largely replaced or altered by plantation roads and infrastructure.

6.4 Farming

Traditional Hawaiian agriculture was a sophisticated system adapted to various environmental zones. Since poi was the staple food for Native Hawaiians, it was of the utmost priority for the first settlers to establish loʻi. Kalo's prominence in the Hawaiian diet derived from its nutritional value, but even more so from its mythological significance. According to Hawaiian traditions, the first human (male) was born from the taro plant:

> The first born son of Wakea and Papa was of premature birth and was given the name Haloa-naka. The little thing died, however, and its body was buried in the ground at one end of the house. After a while, a taro plant shot up from the child's body, the leaf of which was named lau-kapa-lili, quivering leaf; but the stem was given the name Haloa.
>
> After that another child was born to them, whom they called Haloa, from the stalk of the taro. He is the progenitor of all the peoples of the earth. (Malo, 1951, p. 244)

Handy (1940) describes Wailuku:

> This is the third of "The Four Streams," the great torrent that drains the highest cloud-capped uplands of western Maui through deep Iao Valley. Much of the upper section of what is now the city of Wailuku is built on old terrace sites. Along the broad stream bed of Iao Valley, extending several miles up and inland, the carefully leveled and stone-encased terraces may be seen. In the lower sections of the valley these broad terraces now serve as sites for camps 10 and 6 of Wailuku Sugar Plantation, being utilized for house sites, garden, playgrounds, and roads. A little farther up, neat private homes and vegetable and flower gardens cover

> these old taro terraces; while at their upper limit the terraces are submerged in guava thickets. Here a few wild taros were found, but I saw no terraces in Iao or Wailuku being used as flooded taro patches. It is significant that here, as at Waihee, the old terraces are adapted to market gardening (Chinese bananas, vegetables and flowers) by Japanese and Portuguese gardeners. (p. 108)

In drier areas like Puʻunēnē, dryland agriculture would have been practiced when possible.

In addition to kalo, ʻuala (sweet potato) was another common staple crop of the ancient Hawaiian diet. Although this crop was harvested frequently on similar land types, Handy (1940) noted that:

> From Waihee to Waikapu there is much good land below and bounding the ancient terrace area on the *kula* and in the lower valleys which would be ideal for sweet potato culture, but it is said that little was grown in this section because there was so much taro. (p. 160)

Based on Hobdy's biological assessment, no food crops are currently being cultivated in the project area.

Beyond staple food crops, farming in Wailuku was closely tied to broader social and economic systems. Hawaiians engaged in a reciprocal trade network, exchanging dryland crops with communities in wetter regions for wetland crops. This exchange ensured a balanced diet and reinforced inter-district relationships. Additionally, agricultural production supported the aliʻi system, with designated konohiki overseeing land management and resource distribution.

The land management system was structured within the ahupuaʻa framework, ensuring access to both mountain and ocean resources. This allowed farmers to supplement their diets with fish and marine resources, complementing their cultivated foods. Fishing and farming were often practiced in tandem, with families maintaining both agricultural plots and coastal fishing grounds.

Spirituality and agriculture were deeply interconnected in traditional Hawaiian life. Temples and shrines dedicated to rain deities and agricultural fertility were common throughout the islands. Agricultural rituals and offerings were made to ensure bountiful harvests, and knowledge of planting and harvesting cycles was preserved through oral tradition.

The history of farming in Wailuku reflects the deep knowledge and resourcefulness of Native Hawaiians in managing their land. From dryland farming techniques to inter-island trade networks, these practices sustained generations of residents and reinforced the

cultural and spiritual connections between people and place. While colonial disruptions altered traditional land use, the persistence of Hawaiian agricultural knowledge continues to inform efforts to reclaim and revitalize these landscapes today.

6.5 Ranching and Paniolo Culture

The Hawaiian paniolo were the first cowboys in the United States. In 1793, Captain George Vancouver brought cattle to Kamehameha as a gift shortly after Kamehameha unified the Hawaiian Kingdom under his rule. This was the introduction of ranching to the islands. In order to grow the population so Hawaiians could export cattle and use them throughout the islands, Kamehameha first put a kapu on the cattle. The cattle grew sharply in numbers, and soon large numbers of cattle were roaming wild throughout Hawaii Islands (Harrington, 2019).

To get the growing population of cattle under control, Kamehameha brought the vaqueros from Mexico, who had the expertise to manage the cattle with horses. Hawaiians could not initially pronounce the term vaqueros, so they would attempt to use the term “españoles” (Spanish speaking males) instead. Unable to pronounce this properly, the term “paniolo” was created.

Horses would be landed on both Hawai‘i Island and Maui Island. They were gifts to John Young, one of Kamehameha I’s close advisors. The introduction of horses had a transformative effect on Hawaiian society. Before the arrival of horses, Hawaiians primarily traveled by foot or by canoe. The use of horses revolutionized transportation and warfare, allowing faster and more efficient movement across the islands.

Lyons’ (1892) publication from the Papers of the Hawaiian Historical Society explains about Spanish influence in Hawai‘i:

> [The Mexican Hispano-Indian] was called by the Hawaiian, specifically, Huanu, Hoke, Hoakina, etc. these names of course meaning Jean, Jose, Joachin, etc. He had with him sometimes full-blooded Indians of Mexican origin, who I say in my boyhood. He was called generically “Paniolo” or “Espangnol,” the word that now-a-days means “cow-boy.” He brought with him the Mexican saddle in all its rich adornment of stamped bull-hide leather, and stirrups broad-winged. He brought the jingling spur with bells of hand-wrought steel. He brought the hair-rope in strands of alternative black and white, and the hand-whirled wheel for twisting it; also the hand-wrought bit, not so crude as it looked to be, and a necessity in bullock-hunting. All this away back in the [eighteen] thirties, long before the birth of the modern cow-boy. Do not I remember him well, this Spaniard, the red bandanna handkerchief tied over his head under the broad flapping hat with rim up-turned in front? Did not the scrape – poncho we always called it, and the name

much have come from South American – commend itself to our common sense as a defence (sic) from rain? We adopted it, and the red silk sash in the bargain, and the leggins not buttoned. Last but not least, the lasso or lariat, braided evenly and lovingly from four strands of well-chosen hide, then well-stretched and oiled, coiled in the same left hand, that with the little and third finger held the finely braided bridle rein; (Mexican too this was, and Mexican the causing of the rein to bear on the horse's neck, instead of to pull on the mouth). (p. 26)

Figure 18. "Typical Hawaiian Cowboys" (HSA, Paniolo Collection, PP-13-6-015, n.d.)

Hawaiians took the lessons and teachings from their Spanish and Mexican instructors and created their own traditions revolving around cattle and horses. Hawaiian paniolo are considered to be some of the best ranchers and cowboys in the world. Hawaiian paniolo like Ikua Purdy became world-famous for competing in rodeo competitions in the United States, and the skill and craftsmanship of paniolo has been noted throughout history. In places like Makawao, paniolo culture and practices are still actively practiced today.

The paniolo are regarded with great esteem. While they were not intended to remain in the islands, marriages between the paniolo and local population resulted in Hawaiian paniolo. The cowboy lifestyle became a way of life. They were considered particularly masculine, and historic record and songs reflect this (M. Sproat, per. comm. 2021). As horses spread throughout the islands, they were introduced to South Maui as well. The fertile lands and open spaces in the region made it conducive to raising and keeping horses. The availability of horses allowed for easier communication and trade between South Maui and other parts of the island.

Horses played a crucial role in agriculture and ranching on Maui. They were used for plowing fields, transporting goods, and herding cattle on ranches. The emergence of paniolo culture in the 19th century further solidified the significance of horses in Maui's agricultural and ranching practices. Paniolo culture, which blends traditional Hawaiian practices with the horsemanship and cattle-handling techniques brought by Mexican vaqueros, thrived in Maui. Skilled paniolo were essential for managing the expanding cattle industry on the island.

The Paniolo are a distinct cultural group, or folk society, with origins to numerous ethnic groups including Mexicans, Hawaiians, Portuguese, and others (Mills et al., 2013). Records show that ranching and the Paniolo utilized the project area and geographic extent significantly. (See Paniolo Hall of Fame Oral History Interviews, O‘ahu Cattlemen’s Association.) In this region, these Paniolo were largely of Native Hawaiian descent, and they integrated not only Hawaiian practices learned from their families, but Hawaiian words and language into their practices as Paniolo.

The vaqueros also brought the Spanish guitar with them. It is through this introduction that slack key music was also born. It is said that slack key music originated from Mexicans leaving their guitars with local Hawaiians, who would “slack the keys” because they did not know the proper way to tune the guitars, creating a new form of tuning that originated in the islands. For many decades, “slack key” music grew and was perpetuated within the Paniolo community.

There are also numerous songs written for and by the Paniolo. National Heritage Fellow Clyde “Kindy” Sproat traveled to the Smithsonian Folklife Festival in 1989 to share mele and mo‘olelo about the paniolo, slack key music, and falsetto singing. At that festival, when sharing the song “Adios Ke Aloha” by Prince Leleiohoku, the younger brother to King Kalākaua and Queen Lili‘uokalani, Sproat said:

> “Adios Ke Aloha” was written by Prince Leleiōhoku, and he wrote this in honor of the Mexicans that came to teach the cowboys how to rope and ride and all of that. That is my heritage, believe it or not. One of my great-grandfathers was one of

> those Mexicans that came to teach the Hawaiians how to rope and ride. (Harrington, 2019)

Hawai‘i Island is known for being the origin of Hawai‘i’s Paniolo culture, but there are numerous rodeos held on Maui and this way of life is still practiced today.

Paniolo worked throughout the ahupua‘a, from the mauka lands where the ranch was based, to the ocean. They were responsible for managing the fences that allowed the cattle to graze through the entire lands managed by the ranch. Cattle would be allowed to roam and graze in a particular area, and then they had eaten down the grass and vegetation, the Paniolo would move them to the next pasture.

6.6 Modern Hunting

While modern hunting is not a traditional Hawaiian practice, it has certainly become a cultural practice throughout Hawai‘i. Traditionally, most animals were domesticated, making the need for hunting obsolete. It was not until after foreign contact, when land mammals and ungulates were allowed to roam wild and hunting weapons (e.g., guns) were introduced to the Hawaiian people, that hunting as we know it today began to gain popularity. The term for hunting in Hawaiian is hahai holoholona, to pursue animals. The need for hunting in Hawai‘i did not arise until new species of animals arrived in the islands and became wild and widespread. Hawaiians have been using introduced technology, including bows and guns, to hunt introduced species such as deer as well as native species, like boar, for generations. In places like Wailuku, hunting practices are still very active, and many residents continue to hunt for their food as a part of subsistence living practices.

Axis deer were identified in the project area, but there is no indication they are actively hunted.

6.7 Haku Mele, Haku Oli, and Hula

This practice is related to the composition of song and chants. This is a practice that has existed for many centuries in the Hawaiian culture. Since the Hawaiian culture primarily relied on an oral tradition to pass on knowledge and information, the ability to create songs and chants was essential to pass information from one generation to the next. Hawaiians had hundreds of terms associated with this practice.

Songs and chants are largely influenced by the environment around them. As a pedagogical device it was important, if not imperative, that these songs or chants effectively captured data from the environment around the composer and passed on this information for others to utilize when managing natural resources. In a very real sense,

the land and natural resources act as a muse for composers. The category of songs that provide information on, or speak to, natural resources are called mele ʻāina (songs of the land). As detailed in **Section 4.3.2 (Mele)**, there are numerous traditional chants and songs about the project area and its surrounding landscape.

Much like mele and oli, hula serves as a way of both honoring place and telling the story of place. Many hula, especially those based on mele ʻāina, require intimate understanding of the place where the mele was composed, including the natural elements of that ʻāina. Hula hālau will regularly take huakaʻi (journeys) to visit and honor the place of which a particular mele speaks. The ability to visit the place and learn about it is important to the practice of hula. Hula, as well as mele or oli, are also offered as gifts to kupuna and akua. This practice requires access to traditional sites.

6.8 Traditional Clothing (Clothes Making, Dyeing, and Lei Making)

Kapa (commonly known as barkcloth) was the traditional material made through a method of gathering, treating, and beating plant fibers, often, but not limited to, wauke (*Broussonetia papyrifera*) to make fabric that was used to make lole (clothing). Pacific and Hawaiian kapa was known for its wide range of colors and the application of watermarks.

Furer (1981) describes the process for making kapa:

> The finest kapa came from the paper of the mulberry tree. These trees were cultivated on plantations and grew to heights of more than twelve feet. As the tree grew, the branches were nipped off along the main trunk, ensuring a long piece of bark which was easily peeled from the tree.
>
> The manufacture of kapa was an important occupation for women. After the bark had been peeled from the tree, the inner bark was separated and soaked in sea water to make it soft and pulpy. The softened bark was placed on an anvil and beaten with a cylindrical wooden beater. The first beating separated the fibers and produced strips about eight or nine feet long and ten to fourteen inches wide. These strips could be dried and stored until needed. When needed, the strips were soaked in water, placed in layers between banana leaves, and left for about ten days to mature by “retting” which is the decomposition and removal of softened tissues, leaving the finer fibers. These partially decomposed layered strips were beaten a second time with specially carved four-sided beaters. The patterns carved on the beaters were functional as they produced the necessary characteristics in the kapa for its end use. These carved designs left the equivalent of a watermark on the kapa.

> Kapa which was to be extremely soft and pliable, such as that used for the malo or loincloth, was subjected to an additional softening process. This process, which produced a finely ribbed fabric, was done by dampening the cloth, stretching it over a grooved board, and running a wooden grooving tool along the indentations in the board. When the cloth dried, permanent ribs remained. The hand was very similar to our crinkle gauze of today. (pp. 109-110)

Hawaiians were skilled at utilizing plants and materials to dye their clothing and other materials. Different methods would be employed to hōʻawa, extract dye colors from their source material(s). These dyes would be placed in a cup, known as a kā kāpala. Even foreign or exotic plants were utilized for this practice. Hawaiians used different words for the various types of dyeing activities and methods.

- Hili – bark dye, as hili kukui, hili kōlea, hili noni; also kapa dyed with bark or the name for dyeing with the use of bark
- Hōlei –native tree (*Ochorosia compta*) related to the hao (*Rauvolfia*), which yields a yellow dye for kapa
- Kīheʻaheʻa palaʻā – dye made from the palaʻā (*Sphenomeria chinensis syn. chusana*) fern; palaʻā also references a kapa made from the māmaki (*Pipturus spp.*) bark which is then dyed a brownish-red with palaʻā fern
- Kiʻolena – to dye kapa
- Kūhili – to dye (or stain) by soaking in water containing mashed bark, such as used for nets; also mulberry bark before it is beat into kapa
- Kūpenu – to dye by dipping material
- Weʻa – a red dye or to print or dye red

Hawaiians also had a lexicon for the various colors that could be achieved through this traditional practice.

- ʻĀkala – color made from raspberry or thimbleberry juice
- Hili – Dark-brown dye made from bark
- Nao – dark red
- ʻŌlenalena – yellow
- ʻŌmaʻomaʻo – light green color made from maʻo leaves
- Pōkohukohu – color made from the noni (*Morinda citrifolia*) root
- Puakai – red

Similarly, lei making was a regular occurrence in traditional Hawaiʻi. Anderson-Fung and Maly (2009) write about the traditional practice:

> In old Hawai‘i, lei could have important ceremonial functions, such as in religious offerings and for chiefly regalia, but lei were also enjoyed as personal adornment by Hawaiians of all levels of society. The ali‘i (chiefs) and the maka‘āinana (the common people who tended the land) all wore lei. Even the akua (gods, deities, spirits), it was believed, sometimes wore lei when they walked the land in human form. The following observation by the French botanist Gaudichaud, who visited the islands in 1819, paints a picture of Hawai‘i as a place where the lei was an integral part of everyday life:
>
> > “It is indeed rare to encounter one of the natives of this archipelago who does not have an ornamental plant on his head or neck or some other part of his body…[The] women … change [the plants they wear] according to the seasons, [and for them] all the fragrant plants, all flowers, and even the colored fruits, serve as attire, one after another. …The young girls of the people, those of the island of Hawai‘i especially, seem to be fond of the [kou, *Cordia subcordata*], a tree very abundant in all the cultivated areas… The young girls of the mountains, who live near the forests, give their preference to the flowers of the [Erythrina (wiliwili) and a species of Canavalia, called ‘awikiwiki], the lively color of which makes magnificent garlands. Such natural attire is much more rich, much more striking, than all the dazzling creations of the elegant European ladies.”
>
> This account and others like it suggest that lei worn for personal adornment were fashioned from the favorite plant materials that were readily available and abundant in the lei maker’s environment. (p. 4)

Lei making continues as an important practice today, as the making and giving of lei as an expression of aloha to loved ones still regularly occurs throughout the Hawaiian Islands. The floral survey did not identify any species that are typically used by practitioners in the making of lei or kapa, so it is unlikely that the project area is utilized for this practice.

6.9 Lā‘au Lapa‘au

Lā‘au lapa‘au is the practice of traditional Hawaiian medicine. For centuries, Native Hawaiians relied upon the environment around them to provide them medicine. It is still actively taught and practiced today. Medicinal experts or healers have intimate knowledge about plants and other resources to cure ailments illnesses and sicknesses. Traditional medicine is practiced by native peoples and local communities around the world. Similarly, Native Hawaiians, over many generations, have learned how to properly care for, utilize, and prepare plants to maintain the community’s health.

In addition to plant access, it was also important to ensure that these plants were healthy and in good condition. These cultural resources are critical to the ongoing practice of traditional medicine and healing within the Native Hawaiian community. There are still many traditional medicine practitioners in the Hawaiian community and throughout the Hawaiian Islands today. Moreover, lāʻau lapaʻau is a practice that continues to be taught to the younger generation and is honored and utilized in many Hawaiian households throughout the state.

It was important that medicinal plants existed throughout the Hawaiian Islands so that when people traveled through different places on in the islands, they would always have access to the medicine they needed. In some cases, some plants were extremely rare, and, in those cases, it was particularly important to make sure that these populations were well protected and tended. An identification of plants of cultural value for medicinal purposes that grow naturally within the project area is included in **Section 4.2.1 (Flora).**

There were numerous gods associated with health, healing, and medicine: Hiʻiakaikapoliopele, Hiʻiakaikapuaʻenaʻena, Hauwahine, Hina, Hinaʻea, Hinalaulimukala, Kamakanuiʻahuʻilono, Kanaloa, Kū, Kūkeoloʻewa, Lonopūhā, Maʻiola, Mauliola, and ʻŌpeluhuikauhaʻailo.

Wailuku has an active community of healing practitioners. These practitioners actively practice in the Wailuku and Kalialinui ahupuaʻa, although there is no indicator that the project area is currently used for any of these practices. Although ʻuhaloa and pāʻū o Hiʻiaka (identified in biological survey) have medicinal properties, these species are very common and it is unlikely any practitioners currently access the area for these resources.

6.10 Kilo

Kilo “references a Hawaiian observation approach which includes watching or observing [the] environment and resources by listening to the subtleties of place to help guide decisions for management and pono practices” (ʻAuamo, 2016). The practice of kilo is seeing a resurgence on Hawaiʻi Island and in the Hawaiian Islands.

Kilo hōkū are traditional astronomers, or those who study the stars. Hale kilo or hale kilo hōkū are observatories or star observatories, respectfully. Kilo makani are those who traditionally observe the winds. Kilo moana were traditionally oceanographers. Kilo ʻuhane were those who observed and communicated with spirits.

Traditionally, the practice of kilo was critical to the management of Hawaiian landscapes. This practice is very closely tied to traditional or customary access as observers would require access to specific vistas, viewsheds, or areas in order to observe environmental phenomenon.

As illustrated in the proceeding section, Native Hawaiians created a wide range of terms for the environment and understanding the ecosystems around them. These terms were often quite specific, and many were tied closely to a specific geographic area. This level of specificity illustrated the close kinship Hawaiians shared to their surrounding environment. The ability to observe and understand all elements of their ecosystem was essential to both the successful care of natural resources and the survival of the Hawaiian people.

The ability to effectively and accurately read weather phenomena was essential to the ability of Hawaiian people who farm, fish, navigate, and conduct any number of practices in a sustainable and successful manner. The knowledge Hawaiians acquired about their environment around them, including weather phenomena, was the result of multi-generational observations that comprised an extensive body of information passed down through oral traditions. The following Hawaiians names and their descriptions of weather phenomena include words for clouds, rains, and winds that are utilized by kilo to help guide activities and practices:

- Ānuenue – rainbow, a favorable omen.
- Ao akua – godly cloud, figurative representative of a rainbow.
- Ao loa – long cloud or high, distant cloud. Status cloud along the horizon.
- Ao ʻōnohi – cloud with rainbow, ʻōnohi, colors contained within it.
- Ao pehupehu – continually growing cumulus typical of summer. Drifting with the tradewinds, these clouds pick up moisture and darken at their base, finally releasing their rain on the windward mountain cliffs.
- Ao puaʻa – cumulus clouds of various sizes piled together, like a mother pig with piglets clustered around her. The Kona coast is famous for ao puaʻa, a sign of good weather and no impending storms.
- Hoʻomalumalu – sheltering cloud.
- Hoʻoweliweli – threatening cloud.
- Ua loa – extended rainstorm.
- Ua poko – short rain spell.

There are numerous points identified in **Section 3.1**. These points would have been traditionally used by kilo iʻa, skilled ocean observers who would identify marine resources for gathering. These locations for kilo are typically located in nearshore coastal areas from elevations along the shoreline where schools of fish can be observed.

6.11 Ceremonial Practices

Ceremonial practices played an integral role in the lives of Wailuku's residents. Numerous heiau and shrines were established throughout the region, serving as places of worship, agricultural ceremonies, and navigational landmarks. The presence of these religious sites underscores the deep connection between the Hawaiian people and their environment. Spiritual observances were woven into daily life, influencing agricultural practices, fishing expeditions, and social structures. The loss of traditional place-based knowledge due to Western contact and missionary influence led to the gradual abandonment of many cultural sites, though efforts to preserve and revitalize these traditions continue today.

The ceremonial practices of traditional Hawaiians are extensive. Throughout the course of Hawai'i's history, traditional Hawaiians have integrated religious, spiritual, and ceremonial practices in their daily lifestyle. Traditional or customary practices are then not distinct ceremonial practices but rather a part of the Hawaiian way of life. Therefore, it is challenging to explicitly define ceremonial practices associated with traditional Hawaiian customs. For the purpose of this section, the ceremonial practices discussed here focus primarily on customs carried out by general populations of Hawaiians, as opposed to activities or rituals carried out by trained and recognized specialists, kahuna.

Ceremonial practices are incorporated throughout numerous, if not all, of the activities identified in this section. For example, there is a great level of ceremonial practice and ritual associated with the care of the dead, burial remains, and funerary objects. Native Hawaiians, as with most indigenous peoples, integrated ceremony into most of their practices, especially those that occurred in the natural landscape or related to their way of life. There was no specific site or materials required for ceremony *per se*.

Nonetheless, shrines were sometimes associated with ceremonial practices. Shrines for the purpose of this assessment are distinct from heiau, which were places of worship. The distinction is the natural contexts in which these features or sites were created. Heiau required the advice and guidance of a kahuna, who would help ali'i determine the best location in which to erect a heiau. Conversely, shrines were erected by maka'āinana (working class) as part of their daily or occupational functions.

Makahiki is one example of a practice that has taken place prior to contact, continues post-contact, and involves ceremonial elements. One of these elements is the akua loa, described by Malo (1951) as "the image of the Makahiki god, Lono-makua … This work was called ku-i-ke-pa-a" (p. 143). Further described by Malo (1951):

> 22. This Makahiki idol was a stick of wood having a circumference of about ten inches and a length of about two fathoms. In form, it was straight and staff-like,

> with joints carved at intervals and resembling a horse's leg; and it had a figure carved at its upper end.
>
> 23. A cross piece was tied to the neck of this figure, and to this cross piece, kea, were bound pieces of the edible pala[13] fern. From each end of this cross piece were hung feather lei that fluttered about, also feather imitations of the kaupu bird[14], from which all the flesh and solid parts had been removed.
>
> 24. The image was also decorated with a white tapa cloth made from wauke kakahi[15], such as was grown at Kuloli[16]. … One end of this tapa was basted to the cross piece, from which it hung down in one piece to a length greater than that of the pole. The width of this tapa was the same as the length of the cross piece, about sixteen feet.
>
> 25. The work of fabricating this image, I say, was called kuikepaa. The following night the chiefs and people bore the image in grand procession, and anointed it with cocoanut [sic] oil. Such was the making of the Makahiki god. It was called Lono-makua (father Lono), also the akua loa. This name was given it because it made the circuit of the land. (pp. 144-145)

The akua loa was taken to each ahupua'a. This custom was important to the care, stewardship, and worship of the gods. These practices were intimately tied to the proper care and sustainable stewardship of all cultural and natural resources.

As with many concepts of traditional Hawaiian living and practices, the contemporaneous concept of the kahuna has been largely influenced by Western thought. The roles and responsibilities of the kahuna are well explained by Professor Terry Kanalu Young (1998):

> As recipients of hana lawelawe[17], the Ali'i Nui were themselves servers of a sort. They were responsible for maintaining a positive spiritual relationship with the Akua through pono conduct. Pono was defined for individuals of that era within the context of a particular task specialty. Kahuna who functioned as experts in specific skill areas like medicinal healing, canoe building, or spiritual advising were

[13] Native fern (*Marattia douglasii)* used for medicinal purposes as well as in ceremony.
[14] Laysan albatross (*Diomedea immutabilis*), written with diacritical markings as ka'upu.
[15] Meaning outstanding or of high quality, referencing the white kapa made from these fibers.
[16] Likely a reference to the place in Pelekunu Valley at Kamalō, Moloka'i, located between the peaks of Kaunuohua and Pēpē'ōpae.
[17] Hana lawelawe are defined by Young as "service tasks" by which kaukau ali'i (lower ranked chiefs) served the Ali'i Nui (high chiefs). These hana lawelawe were critical to the ability of the Ali'i Nui to effective govern (Young, 1989).

> consulted by leaders. The experts were looked to as responses for what was considered pono in their respective realms of knowledge. (p. 74)

Kahuna were critical to traditional Hawaiian lifeways as their extensive expertise helped to provide sound and strategic advice to aliʻi and other leaders on proper spiritual, cultural, and ecological management. There are numerous types of kahuna in Hawaiian traditions. including, but not limited to:

- kahuna ʻanāʻanā – sorcerer who practices black magic and counter sorcery.
- kahuna aʻo – teaching preacher, minister, sorcerer.
- kahuna hāhā – an expert who diagnoses, as sickness or pain, by feeling the body.
- kahuna haʻiʻōlelo – preacher, especially an itinerant preacher.
- kahuna hoʻohāpai keiki – medical expert who induced pregnancy.
- kahuna hoʻopiʻopiʻo – malevolent sorcerer, as one who inflicts illness by gesture.
- kahuna hoʻoulu ʻai – agricultural expert.
- kahuna hoʻoulu lāhui – priest who increased population by praying for pregnancy.
- kahuna hui – a priest who functioned in ceremonies for the deification of a king.
- kahuna kālai – carving expert, sculptor.
- kahuna kālai waʻa – canoe builder.
- kahuna kiʻi – caretaker of images, who wrapped, oiled, and stored them, and carried them into battle ahead of the chief.
- kahuna kilokilo – priest or expert who observed the skies for omens.
- kahuna lapaʻau – medical doctor, medical practitioner, healer. *Lit.*, curing expert.
- kahuna makani – a priest who induced spirits to possess a patient so that he might then drive the spirits out.
- kahuna nui – high priest and councilor to a high chief; office of councilor.
- kahuna poʻo – high priest.
- kahuna pule – preacher, pastor, minister, parson, priest, clergyman. *Lit*., prayer expert.
- kahuna pule kaʻahele – preacher.
- kahuna pule wahine – priestess.

There are stories of kiʻi within the larger moku. Handy et al. (1972) recount a story of a Lono Kiʻi (Lono Image) from in a spring in the uplands. It is also said that Huakaʻioka Po (night marchers) were also known to travel through the area (p. 510).

The Holy Family Catholic Church in Puʻunēnē was a cornerstone of the plantation-era community, established in 1895 to serve the spiritual needs of Catholic plantation workers and their families. The church played a significant role in the daily lives of residents, hosting Masses, catechism classes, and community events. Notably, Christ the King Church in Kahului was established in 1932 as a mission outpost of the then-flourishing Holy Family Parish in Puʻunēnē, reflecting the growth and outreach of the Catholic community during that period (Peros, 2017). As the plantation economy declined and populations shifted, the church's role evolved. By the late 20th century, the original Holy Family Church building was repurposed; in 2013, it functioned as the HC&S Irrigation Supply Warehouse 31, marking a significant transformation from its original purpose.

Despite these changes, the legacy of Holy Family Parish endures through its mission outposts and the memories of those who were part of its congregation. The church remains a testament to the rich cultural and spiritual tapestry of Maui's plantation communities. Pastor Gordon Kekahuna's reflections on growing up as a member of this church congregation are included in **Section 5.4**.

Figure 19. Former Holy Family Catholic Church (Abroad, 2013)

6.12 Surfing

Traditional surfing in Hawai‘i has a rich and ancient history that dates back centuries. Surfing, known generally as he‘e nalu, was not just a sport but an integral part of Hawaiian culture and way of life. Surfing in Hawai‘i can be traced back to ancient Polynesian settlers who arrived in the Hawaiian Islands around 2,000 years ago. These early kānaka settlers brought with them the knowledge and skills of wave riding. Surfing quickly became a significant aspect of Hawaiian society.

Hawaiian historian John R.K. Clark (2011, p. 19) explains that traditional surfing consisted of six different sports:

- He‘e nalu – board surfing
- He‘e one – sand sliding
- He‘e pu‘e wai – river surfing
- Kaha nalu – body surfing
- Pae po‘o – bodyboarding
- Pākākā nalu – outrigger canoe surfing

Traditional surfing held deep spiritual and cultural significance in Hawaiian society. It was not only a recreational activity but also a way to connect with the ocean and the gods. Hawaiian mythology includes stories of powerful deities who were skilled surfers, further emphasizing the cultural importance of surfing. In the early days of Hawaiian surfing, surfboards were typically made from local materials such as koa wood. These wooden surfboards were heavy and often quite large compared to modern surfboards.

Surfing played a role in the social hierarchy of ancient Hawai‘i. Ali‘i often had access to the best surf spots, and the sport was used to reinforce their status. Commoners also surfed, but their boards were usually of lesser quality. With the arrival of European explorers and missionaries in the late 18th century, Hawaiian society underwent significant changes. The influence of Western culture led to a decline in traditional Hawaiian practices, including surfing. Surfing was even discouraged and suppressed by missionaries who viewed it as immoral.

Kamakau (1992) identified the surfs of Wailuku in the traditional period:

> Ka-hekili was living at Pihana, at Paukukalo, and at Wailuku [at Pihana, in Paukukalo, Wailuku] with the chiefs, his companions and favorites, and his warriors, Ka-niu-‘ula and Ke-po‘o-uahi. The chiefs of Wailuku passed their time in the surf of Kehu and Ka‘akau. (p. 82)

The 20th century saw a revival of interest in surfing in Hawai‘i. In the early 1900s, individuals like Duke Kahanamoku, often regarded as the father of modern surfing, helped reintroduce and popularize the sport. Duke’s travels and surf demonstrations in the United States and around the world played a crucial role in spreading surfing beyond Hawai‘i. Today, Hawai‘i is known as one of the world’s premier surfing destinations. It is a global hub for surfers and continues to serve as an important cultural practice.

According to Clark (1980), by the 1970s, surfing activities continued in the Kahului area: “This area of Kahului Bay is sometimes called Kahului Breakwater Park and is frequented primarily by fishermen, surfers, boaters, and limu gatherers” (p. 8). This indicates that surfing remains an active practice in waters near the project area, particularly at Kahului Breakwater Park, approximately one mile from the project site.

While the project area itself is inland and does not directly impact surfing areas, these coastal surfing sites are part of the traditional cultural landscape connected to the broader region.

6.13 Fishing, Diving, and Limu Picking

The coastal areas near the project area are known for fishing and diving, with a particular reputation for he‘e (octopus) fishing. This area is also historically known for limu picking, although limu has become scarcer in recent times, likely due to development and environmental degradation.

This ocean expertise was critical to traditional Hawaiian practices. Moses Manu & Others (2006) write:

> With a knowledge of fishing areas and seasons and an array of implements that included hooks and lines, lures, nets, basket traps, poisonous plants, and spears, a fisher supplied his family or his ali‘i with fish and shellfish from streams, fishponds, reefs, and ocean. Sometimes the catch was so huge, fish could be fed to the pigs and dogs, with some left over to dry as food or fuel for fire; some was left to rot. Those fishers that could supply large amounts of fish from ponds or catches at sea were believed to possess mana kupua, or supernatural power, to attract fish at will or make them multiply. Successful fishing implements, such as hooks or cowry shell lures became famous and were prized, passed on to heirs, and sometimes fought over. (p. ix)

Spearfishing has been an integral part of Hawaiian culture for centuries. It was not only a means of sustenance but also a way to connect with the ocean and maintain a balanced relationship with nature. Hawaiian ancestors relied on their skills as fishermen and practiced sustainable fishing techniques. Traditional Hawaiian spearfishing primarily

utilizes two main tools: the koʻa (spear) and the Hawaiian sling. The koʻa is a wooden pole with a pointed tip, often made from the wood of the hau or koa tree. It was used for larger fish species or when deeper dives were required. The Hawaiian sling is a handheld device consisting of a short wooden or fiberglass rod with a looped rubber sling attached. The sling propels the spear with accuracy and force.

Traditional Hawaiian spearfishers developed sophisticated techniques to enhance their chances of success. These techniques involved free diving and breath-hold diving skills, using natural camouflage, and observing fish behavior to approach them stealthily. Patience and precision were key elements, as spearfishers needed to wait for the perfect moment to strike and accurately aim for the target. Spearfishing in Hawaiian culture was guided by cultural protocols and practices. Respect for the ocean and its resources was paramount, with a strong emphasis on sustainability and not taking more than needed. Traditional knowledge was passed down through generations, and elders played a significant role in teaching younger community members about proper fishing practices and the spiritual connection to the ocean.

In recent years, there has been a resurgence of interest in traditional Hawaiian practices, including spearfishing. Efforts have been made to preserve and revive traditional techniques, share knowledge, and promote sustainable fishing practices. Local communities, cultural organizations, and educational programs play an important role in preserving this cultural heritage. When engaging in spearfishing as a traditional Hawaiian practice, it is essential to approach it with cultural sensitivity, respect, and a deep appreciation for the ocean and its resources. Learning from experienced practitioners or participating in cultural programs can provide valuable insights into the rich traditions and practices associated with spearfishing in Hawaiʻi.

The coastal areas makai of the project area continue to support these traditional practices. As previously noted, Clark (1980) identified Kahului Breakwater Park as an area frequented by limu gatherers. Clark (1980) also describes traditional fishing practices at nearby Kanahā Beach Park:

> The beach, frequented primarily by fishermen, limu pickers, and strolling picnickers… The water is almost invariably murky. The beach, frequented primarily by fishermen, limu pickers, and strolling picnickers, being Makai of Kahului Airport and ends at Hobron Point, the right point of Kahului Harbor. (p. 9)

This ocean-based lifestyle remains an important cultural practice on Maui. While the project area itself is inland and does not directly impact fishing areas, these coastal fishing and limu picking sites are part of the traditional cultural landscape connected to the broader region. The continuation of these practices demonstrates the enduring connection between Native Hawaiians and their marine resources.

6.13.1 Loko Iʻa

Loko iʻa, or Hawaiian fishponds, represent sophisticated engineered systems that Native Hawaiians developed over centuries to raise fish in coastal or inland water bodies. These fishponds were not merely food production facilities but embodiments of the Hawaiian principle of mālama ʻāina—to care for and live in balance with the land and sea.

Hawaiian fishponds are broadly classified into several types based on their location, construction, and function. The most common type was loko kuapā (seawall-enclosed ponds), which typically used lava rock and coral walls to keep water circulating while wooden sluice gates (mākāhā) allowed small fish to enter the pond but prevented them from leaving after they grew larger.

Other types included loko iʻa kalo (ponds integrated with taro cultivation) and loko puʻuone, which formed by the development of a natural sand berm parallel to the coast, often with an opening to the sea managed through sluice gates.

The management of fishponds reflected a profound ecological understanding and cultural philosophy. They were often a chiefly responsibility and involved kapu systems to regulate harvests and ensure abundance for future generations. These systems embodied balance, humility, and relational responsibility within Hawaiian society.

Fishponds were considered sacred spaces, part of the extended family of land, sea, and people. They integrated food production, biodiversity stewardship, and intergenerational knowledge transmission. The ponds represented biocultural systems where ecological resilience was maintained through customary tenure, knowledge transfer, and community governance.

The technology of these fishponds was ingenious in its simplicity and effectiveness. The mākāhā were designed to work with natural tidal patterns and fish behavior. Small fish would enter the pond through the gates to feed on cultivated algae and other nutrients. As they grew larger, they could no longer pass through the slats of the gate, effectively trapping them in the pond until they were harvested.

Species commonly raised in Hawaiian fishponds included ʻamaʻama (mullet) and awa (milkfish), which were particularly valued for their taste and cultural significance. The fishponds created an efficient and sustainable system of food production that provided a reliable source of protein for Hawaiian communities.

In the coastal area of Kahului Bay once stood a pair of significant loko iʻa known as Kanahā and Mauoni. These ponds were located between what is now the harbor and the

airport, with Mauoni extending to the old County Fairgrounds area near the present-day Safeway.

Both Mauoni and Kanahā were naturally occurring, inland freshwater ponds whose shapes were modified by early loko iʻa builders. They served as vital food resources for the Hawaiian people, particularly during the yearly spawning season when Hawaiian kapu prohibited catching or eating fish from the sea.

As explored in **Section 3.3.2**, Chief Kihapiʻilani, a ruling chief of Maui in the early 1700s who lived at Kahului, "began the collection of stones for the kuapā of Mauoni and Kanahā. He is the one who caused the water in those two ponds to be separated and given two names" (Manu, 1884, p. 4).

Another tradition attributes their construction to Kapiiohookalani, King of Oʻahu and half of Molokaʻi, who "built the banks of kuapa of Kanaha and Mauoni, known as the twin ponds of Kapiioho" (Sterling, 1998, p. 87). For this massive undertaking, he used laborers from Oʻahu, Molokaʻi, and Maui. The workers reportedly stood so closely together that they passed stones from hand to hand to construct the fishpond walls.

During King Kamehameha's campaign to unify the Hawaiian Islands, a significant military encounter took place within Kahului Bay, in the area around these fishponds:

> After his [Kapa-kahili] death the fighting ceased, and Kamehameha and his chiefs went on to the principal encounter at Wailuku. The bay from Kahului to Hopukoa was filled with war canoes. For two days there was constant fighting in which many of the most skillful warriors of Maui took part, but Kamehameha brought up the cannon, Lopaka, with men to haul it and the white men, John Young and Isaac Davis, to handle it… There was a great slaughter, but mostly among the commoners; no important chief was killed in this battle. (Kamakau, 1992, p. 148)

Kanahā Pond was set aside in 1951 as the first wildlife sanctuary in the Hawaiian Islands. In historic times, it was considerably larger, consisting of two royal Hawaiian fishponds known as the twin ponds of Kapiʻioho. The original fishponds were significantly altered over time. Half of the original fishpond area was filled with rubble from dredging during the construction of the nearby harbor between 1881 and 1954. The remaining pond was further modified while under military control during WWII.

Today, Kanahā Pond serves as one of two major wetland habitats on Maui and is critical nesting and foraging habitat for native Hawaiian waterbirds, including the aeʻo (Hawaiian black-necked stilt) and the ʻalae keʻokeʻo (Hawaiian coot). These endemic water birds move between Kanahā Pond and Keālia Pond National Wildlife Refuge on the west side of the island.

Due to the continued destruction of many of Hawai‘i’s wetland areas, Kanahā Pond was designated a registered natural landmark in late 1971 by the Department of the Interior, one of only two such sites registered at the time.

The restoration of fishponds has become a growing movement within Hawai‘i. Community-led efforts to reclaim and reactivate traditional aquaculture systems are taking place as part of broader food sovereignty and climate resilience strategies. Organizations across the Hawaiian Islands have helped restore nearly 50 fishponds statewide through co-management, cultural protocol, and hands-on restoration work.

The transformation of these royal fishponds into a protected wildlife sanctuary represents both the loss of traditional Hawaiian aquaculture practices and the contemporary importance of preserving what remains of these culturally and ecologically significant areas. While full restoration of many historic fishponds may not be feasible due to their altered landscapes, recognition of their historic boundaries and significance serves as a model for culturally respectful planning and environmental stewardship.

6.14 Paddling

Hawaiian outrigger canoe paddling is deeply rooted in the cultural heritage of the Hawaiian Islands. It is a traditional form of canoeing that has been practiced by the indigenous people of Hawai‘i for centuries. Outrigger canoes are large canoes with a smaller attached float, or outrigger, on one side for stability.

Canoe paddling holds cultural significance for Hawaiians. In ancient times, outrigger canoes were essential for fishing, transportation, and exploration between the islands. They played a vital role in the lives of the Hawaiian people and were deeply connected to their identity. Paddling plays a vital role in preserving Hawaiian culture and connecting the present generation with their ancestral heritage. It provides a platform for passing down traditional knowledge, values, and skills to younger generations, ensuring the continuation of this rich cultural practice. It is also often seen as a spiritual experience. Hawaiians believe in the concept of mana, a spiritual energy or power that exists in all things. Paddlers connect with the ocean, nature, and their ancestors during their time on the water, fostering a deep sense of respect and reverence.

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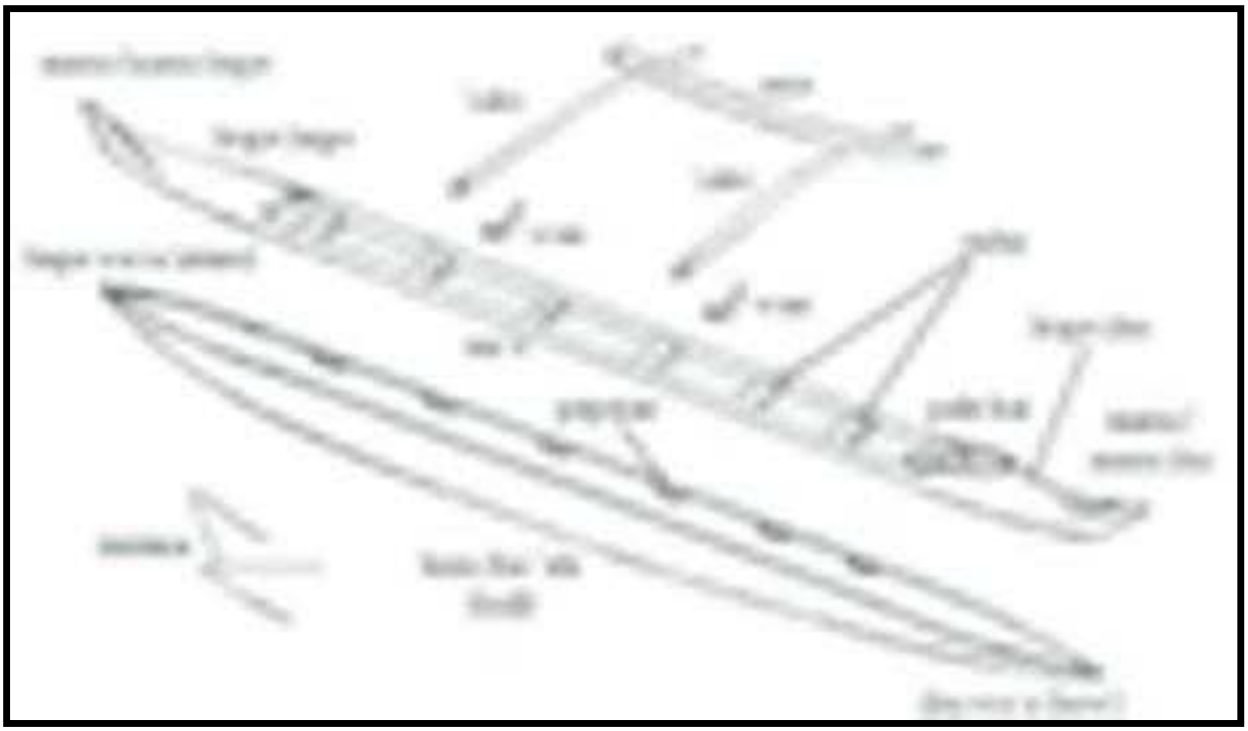

Figure 20. Diagram of Traditional Hawaiian Outrigger Canoe (Babineau, 2004)

Hawaiian names for the parts of an outrigger canoe with English translations:

- Aha – braided or twisted cord used in lashing the canoe
- Ama – float/outrigger
- Hoe – a paddle; to paddle
- Hope waʻa – stern (back end of the canoe)
- ʻIako – spars, boom
- Ihu waʻa – bow (front end of the canoe)
- Kanaka – stern end of ama
- Kapuaʻi – part of ʻiako between hull and ama
- Kino/Kaʻele/Kuamoʻo – hull, keel
- Kua ʻiako – portion of the ʻiako lashed to the hull
- Kupe hope – curved end piece covering the aft part of the hull
- Kupe ihu – curved end piece covering the fore part of the hull
- Lupe – bow end of ama
- Manu hope – stern end piece
- Manu ihu – bow end piece
- Manu kupe –to steer a canoe
- Momoa – under part of the rear covered section of a canoe
- Moʻo – gunwale

- Muku – ends of ʻiako that extend beyond the hull
- Noho – seat
- Pale kai – splash board
- Paʻu – storm covers, spray skirts
- Pepeiao – lugs or blocks inside a canoe hull to which the ʻiako, booms, and perhaps the mast are fastened
- Pikao – hull
- Wae – spreaders
- Waʻa – canoe, also vaʻa, waka

Contemporary canoe paddling continues in the waters near the project area. The Laeʻula O Kai outrigger canoe club is located at Kanahā Beach Park behind Kahului Airport, approximately one mile from the project site. Their mission statement is "to perpetuate the sport and culture of Hawaiian canoe paddling. In an atmosphere of respect and aloha, we strive to be Laeʻula O Kai, well-trained and wise in the ways of the lowlands and seas" (n.d.).

The club's hālau waʻa (canoe house) is situated at Kanahā Beach Park, with Kahului Airport property lying between the club and the project area. This includes existing car rental properties and other airport-related uses. Given the distance from the project area and the intervening industrial uses, the project is highly unlikely to adversely impact the tangible cultural resources at the hālau waʻa or the cultural activities that take place at Kanahā Beach Park and in the adjacent waters.

This active canoe club demonstrates the continuation of traditional paddling practices in the modern era, maintaining connections between contemporary practitioners and their ancestral heritage through this ancient form of ocean travel and sport.

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7.0 Impact Assessment

When the Hawaii State Legislature passed Act 50 in 2000, the purposes of the Act were clear: "1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and 2) Amend the definition of "significant effect" to include adverse effects on cultural practices" (Act 50, SLH 2000).

HRS 343-2, as amended per Act 50, defines an "Environmental impact statement" as "an informational document prepared in compliance with the rules adopted under 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action, effects of a proposed action on the economic welfare, social welfare, and *cultural practices of the community and State*, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects" (emphasis added) (HRS Chapter 323-2).

Under the same part, "Significant effects" is defined under state law as "the sum of the effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic welfare, social welfare, or *cultural practices of the community and State*" (emphasis added) (HRS Chapter 323-2). Therefore, an adverse effect to cultural practices of the community or state constitutes a "significant effect" under Chapter 343.

Any tangible or physical impacts to historic sites are addressed in the archaeological section of the Environmental Impact Statement (EIS) and are not covered by this CIA. Similarly, any tangible physical impacts to flora or fauna are address in the biological section of the EIS and not covered by this CIA. This CIA focuses on affects to cultural practices of the community and state as required by Chapter 343.

7.1 Impacts to Flora

The biological assessment did not identify flora resources of concern. Nonetheless, the project is strongly urged to incorporate plant native fauna in their landscaping to repopulate the area with indigenous, endemic, and native species within the project area.

7.2 Impacts to Fauna

There is unlikely to be any impacts to candidate, threatened, or endangered fauna over the course of this project based on the biological assessment. However, in the event of discovery of the native, endangered ʻōpeʻapeʻa in the tall trees of the project site, the

USFWS recommends that trimming of tall trees only be done outside of pupping season (June 1 – September 15) and the project not use barbed wire that can entangle and kill the bats.

7.3 Impacts to Historic Sites

Honua Consulting is conducting an ARLA of the project area that complies with HRS Chapter 6E. The project area has undergone extensive and invasive changes due to over a century of sugar cane cultivation and no traditional Hawaiian site-features have been identified in or near the project area, but it most likely contains above-ground historic properties related to commercial agriculture in the historic period. Honua Consulting recommends consultation with SHPD to determine if any specific identification or mitigation measures are needed for the proposed project (e.g., archaeological monitoring).

Considering the heightened sensitivity regarding historic properties and iwi kūpuna (ancestral remains) on Maui, the project would be well-advised to ensure a thorough archaeological survey is prepared in areas of potential concern and that the survey is approved by SHPD prior to any ground-disturbing activities.

7.4 Impacts to Intangible Cultural Resources

Intangible cultural resources refer to those resources without physical form, such as hula or mele. As there are no known or identified cultural practices currently taking place on the property and the property has been heavily disturbed, it is unlikely the proposed activities would adversely impact intangible cultural resources on the property or in adjacent areas.

7.5 Impacts to Cultural Practices

It is unlikely that the project would adversely impact any cultural practices as the area has been heavily developed and no cultural practices are known to currently take place in the area or benefit from resources that exist on the project property.

Cultural practices are present in the nearby geographic area, specifically in ocean-based activities. Paniolo customs continue to be practiced mauka. With proper conditions and BMPs, discussed below, it is unlikely the project would have any impact, direct, indirect, or cumulative, on these activities.

7.6 Cumulative and Indirect Impacts

Adverse cumulative and indirect impacts to cultural resources are often overlooked in CIAs, as they are difficult to assess. Cumulative impacts are cultural impacts that result from the incremental impacts of an activity when added to past, present, and reasonably

foreseeable future actions and activities. Indirect impacts are impacts on cultural resources that are not a direct result of the project, but a secondary or tertiary result of the project. It is currently not anticipated that the project will have any cumulative or indirect impacts.

7.7 Mitigation and Best Management Practices

Any mitigation recommended under HRS 6E should be implemented. Construction BMPs should be implemented during project construction to limit any potential impacts to nearby water resources. Mitigation for any possible iwi discovered during construction should be brought to the burial council, and cultural descendants should be notified.

Native and canoe plants should be incorporated into the project to increase the native and canoe plants in the area. Planting these resources in publicly accessible places that would allow for practitioner use would result in the net benefit to traditional practices for the project and is encouraged. The following plants may be possible for landscaping:

1. **Kukui**, *Aleurites moluccana*, or candlenut trees are a Polynesian-introduced species. Kukui played a significant role regarding wearing apparel and accessories of the ancient Hawaiians. The most popular usage of kukui is in lei kukui, the best-known lei hua (lei made from seeds and nuts). Each nut is sanded down, polished, punctured on the ends, has the inner meat removed, and then strung on a cord. The nuts are typically polished with a piece of tapa dipped in kukui-nut oil, and the finest lei kukui continue to consist of hand polished nuts. Kukui contributed to the dye used for kapa, as the fruit husk produces grayish/beige dye, the inner bark trunk produces brownish red dye, and the inner bark root produced reddish brown dye. Black dye was also produced by roasting kukui nuts and grinding them into a powder, which was then mixed with kukui oil and applied to the kapa until the color penetrated every fiber. The ancient Hawaiians applied a technique of painting kapa that involved a charcoal bag consisting of piece of kapa filled with roasted and ground kukui nuts, and the “bag” was brushed over the surface of kapa to produce a grayish coloring. In addition to clothes, kukui nuts were also used in tattoos. The charcoal of the kukui nut and the kukui fruit juice created black pigmentation, and the ancient Hawaiians expressed grief by tattooing a black spot or line on the tongue with a bamboo sliver dipped in these kukui concoctions. Kukui is also a prized canoe plant, brought over by Polynesians who first migrated to Hawai‘i hundreds of years ago. Canoes would be carved from the trunks of these trees.

2. **Ma‘o**, *Gossypium tomentosum*, also known as Hawaiian Cotton, is an endemic shrub and vulnerable species in the islands. This coastal plan blooms a beautiful bright yellow flower throughout the year. Used for both seed and flower lei traditionally, one of the most important cultural uses of ma‘o was as a dye utilized

by traditional kapa (barkcloth) makers. The leaves of the maʻo plant would be utilized to make a green dye to decorate and adorn the kapa. Kapa continues to be made by master practitioners throughout Hawaiʻi today.

3. **Pōhinahina,** *Vitex rotundifolia*, is an indigenous sprawling shrub with small purple flowers and silvery-green leaves that were traditionally used to protect kapa from insects. The flower gives off a gentle, pleasing scent. The flowers and leaves from this plant can be used to create lei poʻo (head lei).

4. **Naupaka**, *Scaevola taccada*, is a distinct and storied indigenous shrub in Hawaiʻi. If you look closely at the naupaka, all the flowers appear to be only half of a flower. This is because according to traditional Hawaiian legend, the naupaka comes from the story of two young lovers. These two young lovers were deeply devoted to each other, yet the man attracted the attention of the volcano goddess, Pele. When the man refused Pele's advances, she chased him to the mountains, where she threw fire at him. She then chases his female lover into the sea. Taking pity on the couple, Pele's sisters stepped in and transformed the man into the mountain naupaka, its flowers only growing half a flower, and the woman into the coastal naupaka. The two half flowers are said to represent the young couple.

5. **Naiʻo**, *Myoporum sandwicense*, is an endemic tree or shrub, also commonly known as false sandalwood. It is known to sometimes have a pleasantly spicy sandalwood-like fragrance that emanates from its delicate, small, white-pink flowers. A particularly hard wood, traditionally the wood of the naiʻo tree would be used in the building of traditional hale for the posts, rafters, or frames. It also was used to create netting for fishing.

6. **Loulu**, *Pritchardia spp.,* are native single trunked palm trees. The trees are identifiable by their fan-shaped leaves. The wood from taller species were hard enough to fashion into spears by Hawaiians in traditional times. The fruit of the tree, known as hāwane, were gathered by climbing notches on the tree. Once gathered, the young fruits were peeled and enjoyed, as the interior of the fruit are similar to coconuts. The fronds of the tree, known as lau hāwane, were woven by practitioners to fashion fans or pāpale (hats). It is even said that one species of loulu would be used customarily for a traditional sport similar to hand gliding.

7. **Hala**, *Pandanus tectorius*, is another prized canoe plant that produces sturdy leaves of the were used to make sails and kaula (cordage) for traditional waʻa (canoes). The leaves contined to be widely used by practitioners to fashion hats, mats, bags, and jewelry. The fruit of the tree is pulled apart to make beautiful lei, mostly for special occasions. These lei are symbols of significant transitions and are given with great intention. The seeds and fruit are eligible, and traditional the

fruit was known for its medicinal properties. The roots of the tree also had numerous medicinal properties.

8. **Kamani**, *Calophyllum inophyllum*, is a tree valued for its hard, dark wood. The kamani wood has long been used for calabashes or bowls. Many poi bowls were fashioned out of kamani. The flowers give off a gentle orange scent and have been used to scent kapa. This versatile tree was also used for oil and perfumes. The nut from the tree would also be made into a whistle as used as a traditional instrument.

Additionally, signage and material produced by the EIS should be utilized in curriculum for education.

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8.0 *Ka Pa‘akai* Analysis

It has long been the law of the land that the State of Hawai‘i has an “obligation to protect the reasonable exercise of customary and traditionally exercised rights of Hawaiians to the extent feasible” *Public Access Shoreline Hawai‘i v. Hawai‘i County Planning Commission (“PASH”)* 79 Hawai‘i 425, 450 n. 43, 903 P.2d 1246, 1271 n. 43 (1995). In 2000, in the *Ka Pa‘akai* decision, the Court established a framework “to help ensure the enforcement of traditional and customary Native Hawaiian rights while reasonably accommodating competition private development interests.” 94 Hawai‘i 31, 35, 7 P.3d 1068, 1972 (2000). This analysis is used here to fulfill the goal of this CIA (**Section 1.4**). It is also used as guidance to state agencies in fulfulling their obligations under *Ka Pa‘akai*.

It is also imperative to emphasize that the State may not delegate their obligations under the *Ka Pa‘akai* decision to another party, including but not limited to the federal government. While the *Ka Pa‘akai* decision was specific to a private developer, the facts of that case would be applicable to the situation at hand because the Court’s reasoning for this decision and applicable precedent apply – the issue being that another entity would not have the same public accountability as the State. That is the case herein, the public accountability of the federal government is not equal to that of the State of Hawai‘i. More specifically, the federal government is not bound to the obligations of the State as set forth under the Hawai‘i State Constitution, which is the document from which the rights protected under *Ka Pa‘akai* emanate.

Based on the guidelines set forth in *Ka Pa‘akai*, the Hawai‘i Supreme Court provided government agencies an analytical framework to ensure the protection and preservation of traditional and customary Native Hawaiian rights while reasonably accommodating competing private development, or other, interests. The Court has stated: “that in order to fulfill its duty to preserve and protect customary and traditional Native Hawaiian rights to the extent feasible, as required by Article XII, Section 7 of the Hawai‘i Constitution, an administrative agency must, at minimum, make specific findings of fact and conclusions of law as to the following:

1) The identification of valued cultural, historical, or natural resources in the project area, including the extent to which traditional and customary Native Hawaiian rights are exercised in the project area.

2) The extent to which those resources—including traditional and customary Native Hawaiian rights—will be affected or impaired by the proposed action; and

3) The feasible action, if any, to be taken to reasonably protect Native Hawaiian rights if they are found to exist. *Ka Paʻakai*, 94, Hawaii at 47, 7 P.3d at 1084. Cited in *Matter of Contested Case Hearing Re Conservation District Use Application (CDUA) HA-3568 for the Thirty Meter Telescope at the Mauna Kea Science Reserve, Kaʻohe Mauka, Hāmākua, Hawaiʻi*, 143 Hawaiʻi 379, 431 P.3d 752 (2018) ("*Mauna Kea II*").

To complete a thorough CIA that complies with statutory and case law, it is necessary to fully consider information available from, and provided by, Native Hawaiian cultural practitioners and cultural descendants from the project area. From thorough research, data was extrapolated that provides a comprehensive look at the cultural resources in this ʻāina. Through this research, the factors from *State v Hanapi* are met. These factors are:

> [T]o establish that his or her conduct is constitutionally protected as a native Hawaiian right, he or she must show, at minimum, the following three factors. First, he or she must qualify as a "native Hawaiian" within the guidelines set out in PASH . . . [as] "those persons who are 'descendants of native Hawaiians who inhabited the islands prior to 1778,' … regardless of their blood quantum." Second, once a defendant qualifies as a Native Hawaiian, he or she must then establish that his or her claimed right is constitutionally protected as a customary or traditional native Hawaiian practice…. Finally, a defendant claiming his or her conduct is constitutionally protected must also prove that the exercise of the right occurred on undeveloped or "less than fully developed property." (89 Hawaiʻi 177, 185-86, 970 P.2d. 485, 493-94 (1998))

The *Ka Paʻakai* analysis is largely a legal analysis, as the applicable tests are legal standards. Therefore, a strong analysis is one conducted by someone with sufficient legal training. Additionally, at the core of a thoughtful *Ka Paʻakai* analysis is a comprehensive understanding of traditional and customary practices. In breaking down the Court's tests, it is important to the different elements that contribute to each test.

The first test – "The identification of valued cultural, historical, or natural resources in the project area, including the extent to which traditional and customary Native Hawaiian rights are exercised in the project area" – consists of two separate elements. First, the simple identification and existence of valued cultural, historical, or natural resources. These resources are tangible in nature. They can include sacred places, culturally valuable plants, or a religious or historic site. This CIA sought to exhaustively identify the great multitude of resources that may exist in the project area or adjacent areas.

As to this test, this survey shows, both through the historic resource as well as the ethnographic data, that there are potentially resources within the project area.

Archaeological survey work will be conducted and any impacts to historic sites and properties will be formally assessed through the HRS 6E-42 process, which is required for this project. Interviews indicate there are otherwise no current traditional cultural resources in the area that are used for traditional or customary practices, but practitioners may access lands mauka of the project area.

The second element of this first test is access. Access requires two things to occur. One is the existence of a resource. Whether a plant, an animal, a place, or site, the resource must exist for a practitioner to access it. The second element is physical access. This includes, but it is not limited to, the ability to physically access a plant, animal, site, or location associated with a particular practice. This can also include the traditional and customary route or path taken to access the resource. This can also include cultural protocols that existed in accessing a resource. These are often temporal, in that access protocols can be at a certain time of day or year. Makahiki would be a good example of a traditional custom that has specific cultural protocols associated with access. In the case of Makahiki, the custom takes place at a certain time of year.

Therefore, the first test under *Ka Pa‘akai* should include not only a listing of resources, but the identification of ways in which those resources are accessed and utilized in association with a traditional and customary practice.

As noted in the previous sections, any resources associated with historic sites are to addressed through HRS Chapter 6E. There are no practices currently occurring the area and no indicator that practitioners use the area for access.

Therefore, the second test – “The extent to which those resources—including traditional and customary Native Hawaiian rights—will be affected or impaired by the proposed action” – also looks at two separate elements. The first, does the proposed action and its alternatives have an adverse impact on the existence of resources? This would include the alteration, destruction, modification, or harm of sites, including biological resources, sacred places, burial sites, etc. It also includes a loss of species. Any adverse impact or harm to resources is alone an affect or impairment caused by the proposed action.

Under this element, adverse impacts to historic sites or culturally utilized plants would all be identified adverse impacts. Under this same element, any indirect or cumulative effects would create an adverse impact under *Ka Pa‘akai* if those actions harmed resources.

There were no other significant sites identified on the parcels, and there is no written evidence to indicate the parcel has any unique traditional or customary significance (i.e., associated mo‘olelo, a kilo location, etc.), aside from its previous association with ranching and farming activities.

In addition to this, any action that impacts traditional and customary access to resources, even if there is not direct adverse impact to the resource itself, would result in an affect or impairment resulting from the proposed action. Therefore, the limitations on access that could result from development or use of the project area could create an adverse impact under *Ka Pa‘akai.* **It is not anticipated any impacts to cultural access would result from this project.**

The third part of the *Ka Pa‘akai* framework aims to identify “[t]he feasible action, if any, to be taken to reasonably protect Native Hawaiian rights if they are found to exist.” Determining whether or not action has been suitably “feasible” is a matter for the State. These feasible actions could include continued access to the project as needed to conduct cultural practices.

As there are no identified impacts, the need to identify feasible action is moot. However, implementation of BMPs identified in Section 7.0 is highly recommended.

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9.0 Conclusion

In Hawaiian culture, natural and cultural resources are largely viewed as being one and the same. Without the resources provided by nature, cultural resources could not and would not be procured. From a Hawaiian perspective, all natural and cultural resources are interrelated, and all natural and cultural resources are culturally significant. The kinship between Hawaiians and their land extends back across many generations, and it was the depth and intimacy of this relationship that enabled Hawaiians to thrive sustainability in the islands for hundreds of years prior to the arrival of Europeans. Therefore, Hawaiians are entitled to the pain and anguish they feel at the loss of their lands and resources.

This loss lies at the heart of Hawaiian struggles for traditional or customary access. Therefore, the obligation of the state to ensure that these rights are protected is much more than a legal obligation, as such rights are a necessity of indigenous human life. Recognition and respect for these rights also enables a more mutually respectful and beneficial relationship between the military and Hawaiians.

Act 50 was passed by the state recognizing:

> … the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture (Act 50, SLH 2000).

The CIA is a construct of state law and a requirement of HRS Chapter 343. The legislative intent quoted above is critical to the due consideration of the effects the proposed action has and will have on cultural practices, because it specifies the importance of ensuring “the continued existence, development, and exercise” of culture. This recognizes that culture is not static; it is dynamic. It changes over time. Act 50 specifically calls for consideration of the effects a proposed action may have on the continued “development” of native Hawaiian culture. Which means it is insufficient to simply look back to historic practices. Considering effects to the continued development of culture means the state, specifically the governing state or county agency, as the accepting authority of the Chapter 343 EIS, of which this CIA is a requirement.

The Office of Environmental Quality Control (OEQC), now the Environmental Review Program (ERP), offers specific guidelines for what elements and issues a CIA should address. Table 3 outlines these specific guidelines and the corresponding sections of this

CIA which addresses that element.

Table 3. ERP Compliance Requirements

ERP Compliance Requirement	Corresponding Section in this CIA
A. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.	A detailed methodology section is provided in **Section 2.0 (Methodology).**
B. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.	A discussion of the effort to gather information from persons familiar with the area or other stakeholders is provided in **Section 2.6 (Ethnographic Methodology)**.
C. Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.	A discussion of procedures, including constraints or limitations, is provided in **Section 2.6 (Ethnographic Methodology).**
D. Biographical information concerning the individuals and organizations consulted, their expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.	Biographical information was provided for each interviewee in **Section 5.0 (Oral Records, Interviews, and Consultations)**.
E. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched and the level of	A discussion of the materials consulted is provided in **Section 2.0 (Methodology)**. An extensive cultural and historical overview, which uses both Hawaiian and

ERP Compliance Requirement	Corresponding Section in this CIA
effort undertaken. This discussion should include, if appropriate, the perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.	English language resources is also provided in **Section 2.0 (Methodology)**. Stakeholders are given significant consideration. Petitions and other materials by project opponents are addressed in the context of this assessment.
F. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.	In addition to the cultural and historical overview, an extensive discussion concerning cultural resources, practice, and beliefs are provided throughout the document by subfield.
G. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area affected directly or indirectly by the proposed project.	A thorough discussion concerning the nature of traditional or customary practices and the significance of the cultural resources affected directly or indirectly by the proposed alternatives are provided in **Section 7.0 (Impact Assessment).**
H. An explanation of confidential information that has been withheld from public disclosure in the assessment.	There is no confidential information withheld from public disclosure, except for personal emails, addresses, or phone numbers.
I. A discussion concerning any conflicting information regarding identified cultural resources, practices and beliefs.	There was no conflicting information regarding cultural resources, practices, or beliefs.
J. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the	A thorough analysis is provided in **Section 7.0 (Impact Assessment)**.

ERP Compliance Requirement	Corresponding Section in this CIA
setting in which cultural practices take place.	
K. A bibliography of references and attached records of interviews which were allowed to be disclosed.	References are included in **Section 10.0 (References)**.

The standard under which an EIS is considered sufficient is also well-established in Hawaii state case law. The court has held:

> …an EIS need not be exhaustive to the point of discussing all possible details bearing on the proposed action but will be upheld as adequate if it has been compiled in good faith and sets forth sufficient information to enable the decision-maker to consider fully the environmental factors involved and to make a reasoned decision after balancing the risks of harm to the environment against the benefits to be derived from the proposed action, as well as to make a reasoned choice between alternatives" *Price v Obayashi Hawaii Corp*, 81 Hawaii 171, 182 (1996), upheld in *Kaleikini v Yoshioka*, 283 P. 3d 60, 74 (2012).

It is the obligation of this CIA to disclose information as required under Act 50 sufficiently and in good faith such that the state may consider all impacts when acting as decision-maker to this proposed action. This assessment is not a policy document, nor does it intend to influence decision-making in any fashion. Rather, it has sought to document the complex, and often elusive, history of past and present cultural practices within the project area and larger region. It is ultimately the responsibility of the state to accept or reject the adequacy of this assessment, and then, if accepted, consider the information disclosed herein when deciding on the proposed action.

In applying *Ka Pa'akai*, cultural, historical, or natural resources have been identified in the project area. Traditional or customary Native Hawaiian rights do not appear to be currently exercised in the project area, but they are practiced in the nearby coastal areas. Implementing the recommendations provided in **Section 7.0** can avoid, minimize, or mitigate any adverse effects on these practices.

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Appendix A: Glossary of Hawaiian Terms

The following list of terms were used throughout this report. All definitions were compiled using Pukui and Elbert's *Hawaiian Dictionary* (1986).

Ahupua‘a	Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (ahu) of stones surmounted by an image of a pig (pua‘a), or because a pig or other tribute was laid on the altar as tax to the chief.
‘Āina	Land, earth.
Akua	1. God, goddess, spirit, ghost. 2. Divine, supernatural, godly.
Ala	Path, road, trail.
Ala hele	Pathway, route, road, way to go, itinerary, trail, highway, means of transportation.
Ala loa	Highway, main way. Ancient island trails.
Ali‘i	1. Chief, chiefess, ruler, monarch. 2. Royal, regal. 3. To act as chief, reign.
Ali‘i ‘ai ahupua‘a	Chief who controls the ahupua‘a resources.
Ali‘i ‘ai moku	Chief who rules a moku (district).
Ali‘i nui	High chief.
Ali‘i wahine	Female chiefs.
Aloha	Love, affection, compassion, mercy, sympathy, pity, kindness, sentiment, grace, charity
‘Ao‘ao kapu	Sacred side.
‘Āpana	Piece, slice, portion, fragment, section, segment, installment, part, land parcel, lot, district, sector, ward, precinct; chop, as of lamb. A kuleana, land division, may consist of several ‘āpana.
‘Aumakua	Family or personal gods, deified ancestors who might assume the shape of sharks, owls, hawks, dogs, plants, etc. A symbiotic relationship existed; mortals did not harm or eat them, and the ‘aumakua warned or reprimanded mortals in dreams, visions, and calls.
‘Auwai	Irrigation ditch, canal.
‘Elele	Messenger, delegate, ambassador, envoy, any diplomatic representative.
Ha‘i mo‘olelo	Storytelling performance.
Hālau	1. Long house, as for canoes or hula instruction; meeting house. 2. Large, numerous; much.
Hale	House, building, institution, lodge, station, hall.
Hale pili	House thatched with pili grass.

Haole	White person, American, Englishman, Caucasian; American, English; formerly, any foreigner; foreign, introduced, of foreign origin, as plants, pigs, chickens.
Heiau	Pre-Christian place of worship, shrine. Some heiau were elaborately constructed stone platforms, other simple earth terraces.
Honua ola	Living biocultural landscape.
Hoʻokupu	Tribute, tax, ceremonial gift-giving to a chief as a sign of honor and respect; to pay such tribute; church offering.
Hoʻopāpā	A contest in wit (as riddling) or strength; to hold such a contest; repartee, banter; to endeavor to find out something or obtain something by indirect methods, by feeling out the person indirectly; to debate, argue.
Huakaʻi	Trip, voyage, journey, mission, procession, parade; to travel, parade.
Hula	A Polynesian dance form accompanied by chant or song.
ʻIli	Land section, next in importance to ahupuaʻa and usually a subdivision of an ahupuaʻa.
ʻIli ʻāina	Land area. Ka ʻili ʻāina o 0.75 ʻeka, an area of 0.75 acre. An ʻili land division whose chief pays tribute to the chief of the ahupuaʻa of which it is a part, rather than directly to the king.
ʻIli kūpono	A nearly independent ʻili land division within an ahupuaʻa, paying tribute to the ruling chief and not to the chief of the ahupuaʻa. Transfer of the ahupuaʻa from one chief to another did not include the ʻili kūpono located within its boundaries.
Inoa ʻāina	Place names.
Iwi	Bone, carcass. The bones of the dead, considered the most cherished possession, were hidden, and hence there are many figurative expressions with iwi meaning life, old age.
Iwi kūpuna	Ancestral remains.
Kahawai	Stream, creek, river; valley, ravine, gulch, whether wet or dry..
Kahuna	Priest, sorcerer, magician, wizard, minister, expert in any profession (whether male or female).
Kahuna nui	High priest and councilor to a high chief; office of councilor.
Kalana	Division of land smaller than a moku or district; county
Kālawa	Intermittent pains in the side of the neck, probably neuritis.
Kalo	Taro (*Colocasia esculenta*), a kind of aroid cultivated since ancient times for food, spreading wildly from the tropics of the Old World. In Hawaiʻi, taro has been the staple from earliest times to the present, and here its culture developed greatly, including more than 300

	forms. All parts of the plant are eaten, its starchy root principally as poi, and its leaves as lūʻau.
Kamaʻāina	1. Native-born, one born in a place, host. 2. Native plant. 3. Acquainted, familiar.
Kanaka	Human being, man, person, individual, party, mankind, population.
Kanaka Hawaiʻi	Hawaiians.
Kānāwai	Law, code, rule, statute, act, regulation, ordinance, decree, edict.
Kāne	Male, husband, male sweetheart, man; brother-in-law of a woman.
Kanikau	1. Dirge, lamentation, chant of mourning, lament. 2. To chant, wail, mourn.
Kapa	Tapa, as made from wauke or māmaki bark; formerly clothes of any kind or bedclothes; quilt.
Kapu	1. Taboo, prohibition. 2. Special privilege or exemption from ordinary taboo. 3. Sacredness, prohibited, forbidden, sacred, holy, consecrated. 4. No trespassing, keep out.
Kiʻi	Image, statue, picture, photograph, drawing, diagram, illustration, likeness, cartoon, idol, doll, petroglyph; features, as of a face; plans, as for a house; carved, as end of an ʻauamo pole.
Kilo	Stargazer, reader of omens, seer, astrologer, necromancer.
Kilo iʻa	A man who observes fish movements from a high place and directs fishermen; to so act.
Kino lau	Many forms taken by a supernatural body, as Pele, who could at will become a flame of fire, a young girl, or an old hag.
Kiu	Spy, scout; to spy, observe secretly.
Koʻa	1. Fishing grounds, usually identified by lining up with marks on shore. 2. Shrine, often consisting of circular piles of coral or stone, built along the shore or by ponds or streams, used in ceremonies as to make fish multiply; also built on bird islands, and used in ceremonies to make birds multiply.
Kona	Leeward sides of the Hawaiian Islands.
Konohiki	Headman of an ahupuaʻa land division under the chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights.
Koʻolau	Windward sides of the Hawaiian Islands.
Kuapā	Wall of a fish pond. Loko kuapā, fish pond made by building a wall on a reef.
Kuʻi	To join, stitch, sew, splice, unite; joined; seam.
Kula	1. Plain, field, open country, pasture. 2. School, academy; to teach school, go to school; to hold school or class sessions

Kuleana	Right, privilege, concern, responsibility, title, business, property, estate, portion, jurisdiction, authority, liability, interest, claim, ownership, tenure, affair, province.
Kumu	Teacher, tutor, manual, primer, model, pattern.
Kumu hula	Hula teacher.
Kupua	Demigod or culture hero, especially a supernatural being possessing several forms (as Kama-pua‘a and Laenihi); one possessing mana; to possess kupua (magic) powers.
Kupuna	Grandparent, ancestor, relative or close friend of the grandparent’s generation, grandaunt, granduncle.
Kūpuna	Plural of kupuna.
Lā‘au lapa‘au	Medicine. *Lit.*, curing medicine.
Lei	Garland, wreath; necklace of flowers, leaves, shells, ivory, feathers, or paper, given as a symbol of affection; beads; any ornament worn around the head or about the neck.
Leina a ka ‘uhane	A place where spirits leaped into the nether world; literally, leap of the soul.
Limu	A general name for all kinds of plants living under water, both fresh and salt, also algae growing in any damp place in the air, as on the ground, on rocks, and on other plants; also mosses, liverworts, lichens.
Lo‘i	Irrigated terrace, especially for taro, but also for rice and paddy.
Loko	Pond, lake, pool.
Loko i‘a	Traditional Hawaiian fishpond.
Lole	Cloth, clothes, costume, dress, gown; to wear clothes.
Lū‘au	Hawaiian feast, named for the taro tops always served at one; this is not an ancient name, but goes back at least to 1856.
Māhele ‘Āina	Land Division.
Mahi ‘ai	Farmer, planter; to farm, cultivate; agricultural.
Maka‘āinana	Commoner, populace, people in general.
Mākāhā	Sluice gate, as of a fish pond; entrance to or egress from an enclosure.
Makahiki	Ancient festival beginning about the middle of October and lasting about four months, with sports and religious festivities and taboo on war
Makai	On the seaside, toward the sea, in the direction of the sea.
Mālama	To take care of, tend, attend, care for, preserve, protect, beware, save, maintain.
Mauka	Inland, upland, towards the mountain.

Mele	1. Song, anthem, or chant of any kind. 2. Poem, poetry. 3. To sing, chant.
Mele ʻāina	Songs of the land.
Mele inoa	Name chant.
Mele kālaiʻāina	Political chant.
Mele mākaʻikaʻi	Travel chant.
Mōʻī	King, sovereign, monarch, majesty, ruler, queen.
Moku	1. District, island, islet, section, forest, grove, clump, fragment. 2. To be cut, severed, amputated, broken in two.
Mokupuni	Island.
Moʻo	Lizard, reptile of any kind, dragon, serpent.
Moʻolelo	Story, tale, myth, history, tradition, literature, legend, journal, log, yard, fable, essay, chronicle, record, article.
Moʻowahine	Female lizard deity.
Nīʻau-piʻo	Offspring of the marriage of a high-born brother and sister, or half-brother and half-sister.
ʻOhana	Family, relative, kin group; related.
ʻOkana	District or subdistrict, usually comprising several ahupuaʻa.
ʻŌlelo noʻeau	Proverb, wise saying, traditional saying.
Oli	Chant that was not danced to, especially with prolonged phrases chanted in one breath, often with a trill at the end of each phrase; to chant thus.
ʻŌʻō	Digging stick, digging implement, spade.
Pae ʻāina	Group of islands, archipelago.
Paniolo	Cowboy (sometimes called paniolo pipi to distinguish from paniolo). 2. hoʻo.pani.olo To be like a cowboy or pretend to be a cowboy.
Pāʻū	Woman's skirt, sarong; skirt worn by women horseback riders
Piʻo	Marriage of full brother and sister of nīʻaupiʻo rank, presumably the highest possible rank. Their offspring had the rank of naha, which is less than piʻo but probably more than nīʻaupiʻo. Later piʻo included marriage with half-sibling.
Pōhaku	Rock, stone, mineral, tablet.
Poi	Poi, the Hawaiian staff of life, made from cooked taro corms, or rarely breadfruit, pounded and thinned with water.
Poko	Small division of a district, sometimes the personal lands of a chief.
Pono	Goodness, uprightness, morality, moral qualities, correct or proper procedure, excellence, well-being, prosperity, welfare, benefit, behalf, equity, sake, true condition or nature, duty.
Pū	Large triton conch or helmet shell (*Charonia tritonis*) as used for trumpets; any wind instrument, as horn, trumpet, cornet.

Pueo	Hawaiian short-eared owl (*Asio flammeus sandwichensis*), regarded often as a benevolent ʻaumakua.
Pule	Prayer, magic spell, incantation, blessing, grace, church service, church.
Puʻu	Any kind of a protuberance from a pimple to a hill: hill, peak, cone, hump, mound, bulge, heap, pile
ʻUala	The sweet potato (*Ipomoea batatas*), a perennial, wide-spreading vine, with heart-shaped, angled, or lobed leaves and pinkish-lavender flowers. The tuberous roots are a valuable food, and they vary greatly in many ways, as in color and shape. Though of South American origin, the plant has been a staple food since ancient times in many parts of Polynesia, as well as in some other regions.
Waʻa	Canoe, rough-hewn canoe, canoemen, paddlers; a chant in praise of a chief's canoe.
Wahi pana	A sacred and celebrated/legendary place.
Wahine	Woman, lady, wife; sister-in-law, female cousin-in-law of a man.
Wāhine holo lio pāʻū	Female pāʻū riders.
Wai	Water, liquid or liquor of any kind other than sea water.
Wao	1. Realm. 2. A general term for inland region usually forested but not precipitous and often uninhabited.

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EXHIBIT 25

Agricultural Impact Report

Draft

HO‘ONANI VILLAGE: AGRICULTURAL IMPACTS

HO‘ONANI VILLAGE: AGRICULTURAL IMPACTS

PREPARED FOR:
Ho‘onani Development, LLC

PREPARED BY:
Plasch Econ Pacific LLC

April 2025

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APPENDIX

State and County Goals, Objectives, Policies and Guidelines Related to Agricultural Lands A-1

ACRONYMS AND ABBREVIATIONS

A&B	Alexander & Baldwin, Inc.
ALISH	Agricultural Lands of Importance to the State of Hawai‘i
County	County of Maui
diversified agriculture	crops other than sugarcane or pineapple
EaA	Ewa Silty Clay Loam, 0 to 3 percent slopes
HC&S	Hawaiian Commercial & Sugar Co.
HRS	Hawai‘i Revised Statutes
IAL	Important Agricultural Lands
Kona wind	south wind
LSB	Land Study Bureau
MIP	Maui Island Plan
mph	miles per hour
NRCS	Natural Resources Conservation Service
plantation agriculture	sugarcane and/or pineapple
Project	Ho‘onani Village
SLUC	State Land Use Commission
SMA	Special Management Area
State	State of Hawai‘i
TMK	Tax Map Key
U.S.	United States
UGB	Urban Growth Boundary
UH	University of Hawai‘i

EXECUTIVE SUMMARY

1. PROPOSED DEVELOPMENT

Ho‘onani Development, LLC proposes the development of Ho‘onani Village (the **Project**), a high-density, master-planned, mixed-use community on 166.51 acres in Kahalui. The preliminary conceptual plan for Ho‘onani Village features approximately 1,600 affordable and market-rate multi-family low-rise residential rental units, including studios, and 1-, 2-, and 3-bedroom units. About 50% of the units will be designated as workforce housing units. Furthermore, the Project will encompass a low-rise office building of approximately 100,000 square feet, commercial space for a diverse array of retail stores and restaurants, a light industrial park, and recreational amenities (an amphitheater, parks, and sports fields, etc.).

2. LAND CLASSIFICATIONS

Currently, the Project site is within the State Agricultural District, nearly all of the site is designated Agriculture in County plans, and the entire is zoned Agriculture. Project development will require appropriate State and County reclassifications.

3. AGRICULTURAL CONDITIONS

The Project site has (1) soils that have severe limitations which reduce the choice of plants, require special conservation practices, or both; (2) good soil ratings with two of the three rating systems; (3) gentle slopes: (4) favorable climatic conditions (e.g., high solar radiation); (5) no access to irrigation water; and (6) good access to nearby markets and shipping terminals.

The 166.5-acre Project site is no longer suitable for farming due to a lack of water for irrigating crops.

4. PAST, CURRENT AND SURROUNDING LAND USES

From the late 1800s to 2016, the Project site was used to grow sugarcane. In December 2016, Alexander & Baldwin, Inc. (**A&B**) closed the Hawaiian Commercial & Sugar Co. (**HC&S)** sugarcane plantation and ceased all sugar operations in Central Maui.

Since 2016, the Project site has been left uncultivated.

Current land uses surrounding the Project site are as follows:

— To the northwest: commercial, including “big box” stores, and smaller retail shops and restaurants.

— To the north/northeast: agricultural lands then the airport.
— To the south and east: agriculture.
— To the west and southwest: agriculture, heavy industry, and public/quasi-public and recreational uses.

5. IMPACTS ON AGRICULTURE

a. Impacts on On-site Agricultural Operations

The Project will not have any impacts on current on-site farm or ranch operations, as none exist.

b. Impacts on Nearby Agricultural Operations

Impacts

Mahi Pono has planted crops to the east, south, and west of the Project site. These include citrus orchards, row crops, and forage grasses for future cattle grazing. The nearest citrus fields are approximately a quarter mile east (upwind) of the Project site, while the nearest row-crop fields are approximately a quarter mile to the southwest (downwind).

Due to the proximity of agricultural operations, Project residents, workers, and customers may occasionally experience noise during planting and harvesting, wind-blown chemicals, wind-blown dust from plowing fields for row crops when the plowing occurs during strong Kona winds (south winds), etc. In turn, nuisance complaints could lead to community pressure to restrict nearby agricultural operations, possibly including efforts to shorten hours of operations, cease spraying of chemicals during strong winds, cease plowing fields during strong Kona-winds, etc.

Mitigating Measures

Recommended mitigating measures to reduce possible impacts from agricultural operations, nuisance complaints over these impacts, and restrictions on agricultural operations due to the complaints include the following:

— Design the Project to avoid or reduce impacts from agriculture

  This may include (1) landscaping, berms, and walls designed to reduce noise, wind-blown chemicals and dust, etc.; (2) sound proofing of building walls as necessary to minimize noise, and (3) windows designed to reduce noise and block wind-blown chemicals and dust, along with air conditioning of spaces isolated from cooling tradewinds.

— Provide notice to new Project tenants that agricultural operations are nearby

  The notice about nearby agricultural operations should be provided early in the process before contracts are signed, and should include information on possible impacts from agricultural operations.

— Provide information on Hawaii's Right to Farm Act

Information on the Right to Farm Act should be provided early in the process before contracts are signed. The Right to Farm Act (Hawai'i Revised Statutes §165-4) stipulates that: "No court, official, public servant, or public employee shall declare any farming operation a nuisance for any reason if the farming operation has been conducted in a manner consistent with generally accepted agricultural and management practices. There shall be a rebuttable presumption that a farming operation does not constitute a nuisance."

c. Impacts on the Growth of Crop Farming

The Project will result in the redistribution of approximately 166.5 acres from the State Agricultural District to the Urban District. However, this redistricting will have no impact on the growth of commercial crop farming on Maui, as the lack of irrigation water renders this land unsuitable for cultivating commercial crops.

6. OFFSETTING BENEFITS

Repurposing about 166.5 acres from agriculture to urban uses will provide the following Project benefits:

— Benefits from construction activity

- Construction jobs and payroll associated with Project development.
- Indirect jobs and payroll generated by the purchase of goods and services by construction companies and families of construction workers.
- County tax revenues (excise tax surcharge, etc.) and State tax revenues (excise taxes, personal income taxes, corporate income taxes, etc.) paid by construction companies and workers, and by companies and families that are supported by construction activity.

— Benefits from operations at full development

- Affordable and market housing for residents.
- Goods and services provided by on-site restaurant, retail, office, and industrial activities.
- Recreational amenities (amphitheater, parks, sports fields, etc.).
- On-site jobs and payroll provided by on-site businesses.
- Off-site jobs and payroll generated by the purchase of goods and services by on-site families and businesses.
- County tax revenues (excise tax surcharge, property taxes, etc.) and State tax revenues (excise taxes, personal income taxes, corporate income taxes, etc.) paid by Project property owners, on-site families, on-site businesses, and off-

site business that provide goods and services in support of on-site families and businesses.

7. CONSISTENCY WITH STATE AND COUNTY POLICIES

a. Availability of Lands for Agriculture

State and County plans and policies call directly or implicitly for preserving the economic viability of plantation agriculture (sugarcane and pineapple) and promoting the growth of diversified agriculture (i.e., non-plantation agriculture). To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured.

The development of the 166.5-acre Project will result in the loss of only 0.23% of the 72,300 acres of high-quality farmland within the Agricultural District on Maui Island.

Regarding plantation agriculture, sugarcane is no longer grown on the Project site or nearby since Hawaiian Commercial & Sugar Co. ceased all sugar operations on Maui in 2016.

Regarding diversified agriculture, the Project site has no recent history of being used for growing crops other than sugarcane, nor is water available to irrigate potential crops.

b. Conservation of Agricultural Lands

In addition to the above, State and County policies call for conserving and protecting prime agricultural lands, including protecting farmland from urban development.

However, the 166.5-acre Project site is no longer suitable for farming due to a lack of water for irrigating crops.

c. Redesignation from Agricultural to Urban/Rural

Discussions in the *Agriculture State Functional Plan* recognize that redesignation of lands from Agricultural to Urban and/or Rural should be allowed "… upon a demonstrated change in economic or social conditions, and where the requested redesignation will provide greater benefits to the general public than its retention in …agriculture;" that is, when an "overriding public interest exists."

The enormous contraction of plantation agriculture and the resulting increase in the supply of land that came available for diversified crop farming constitutes a major change in economic conditions. Moreover, the Project will provide community benefits (homes, goods and services, recreational amenities, jobs, payroll, tax revenues, etc.) that far exceed the benefits of leaving the land in agriculture (no current agricultural jobs).

d. Important Agricultural Lands

None of the Project area is currently designated as Important Agricultural Lands (IAL), and future designation is highly improbable. The area in the south-west corner of the Project

site that is within the County's UGB is not eligible for IAL designation. The remaining lands do not meet the definition of IAL due to the lack of water for irrigating crops. Specifically, these lands: (1) are incapable of producing sustained high agricultural yields without water, (2) contribute negligibly to the State's economic base, and (3) are not needed to promote the expansion of agricultural activities and income for the future.

e. County of Maui Land-Use Plans

Nearly all of the Project site is outside the Urban Growth Boundary of the Maui Island Plan, nearly all is designated Agriculture in the Wailuku-Kahului Community Plan, and all of the land is zoned Agriculture by the County. Development of the Project will require appropriate changes to these plans and to the zoning.

HO‘ONANI VILLAGE:
IMPACTS ON AGRICULTURE

1. INTRODUCTION

Ho‘onani Development, LLC proposes the development of Ho‘onani Village (the **Project**), a high-density, master-planned, mixed-use community.

This report addresses the impacts of the Project on agriculture. The material below gives information about the Project, land designations, the agricultural conditions of the Project’s agricultural lands, past and current agricultural uses, the impact of the Project on agriculture, benefits of the Project that would offset adverse agricultural impacts, and consistency of the Project with State of Hawai‘i (**State**) and County of Maui (**County**) agricultural policies. Figures are at the end of the report. The Appendix provides a summary of State and County goals, objectives, policies and guidelines related to agricultural lands.

2. PROJECT INFORMATION

a. Project Location and TMK

The Project site is located in the Kahului area of Central Maui, Map Key (**TMK**) (2) 3-8-006:004 (see Figures 1 and 2). Pulehu Road runs adjacent to the project site along the entire eastern boundary, and Hansen Road runs adjacent to the site along the southern boundary. The existing southern terminus of Pakaula Street stubs into the northern boundary of the site.

b. Project Acreage

The Project site encompasses approximately 166.51 acres.

c. Project Plans

The preliminary conceptual plan for Ho‘onani Village will feature the following components (see Figure 3):

— Housing (82.77 acres)

Approximately 1,600 affordable and market-rate multi-family low-rise residential rental units will be provided, including studios, and 1-, 2-, and 3-bedroom units. About 50% will be designated as workforce housing units. The Project will meet all of the residential workforce housing requirements pursuant to Chapter 2.96, Maui County Code.

— Offices (10.3 acres)

The Project will include a low-rise office building of about 100,000 square feet from which a diverse range of services will be provided to residents and businesses within the Project and nearby. Furthermore, these offices will provide employment to residents living within the Project and nearby.

— Commercial (7.34 acres)

The commercial area will offer a diverse array of retail and restaurant establishments, and generate additional employment opportunities.

— Industrial (18.42 acres)

A light industrial park will be designed to be compatible with Project homes, stores, and restaurants. Tenants will provide various goods and services, and offer additional employment opportunities.

— Central Commons (25.35 acres)

The Project will be organized around a large central “commons” area that includes botanical walkways highlighted by natural water features, a multi-use pathway system, a spacious event lawn and amphitheater, active and passive parks and open spaces, sports fields, boutique stores, a food hall for local food and beverages offered in a park setting, food-truck parking, and a seasonal/weekend farmers market.

— Grand Entry (6.05 acres)

An attractive Grand Entry will add to the open space.

— Wastewater Treatment Plant (1.07 acres)

The Wastewater Treatment Plant will have a capacity of about 1.3 million gallons per day, and will produce R-1 reusable water. Potential applications of this water include: irrigation of landscaped areas within the Project; irrigation of landscaped areas at the nearby Maui Business Park, thereby replacing the current water source; irrigation of crops grown nearby by Mahi Pono; and/or injection of the water to recharge the underlying aquifer.

— Drainage (14.23 acres)

Two detention basins will retain stormwaters.

— Infrastructure

Additional infrastructure will include limited internal roads, water, power, television/internet cables, phone cables, possibly natural gas lines, etc.

In Figure 3, the area labeled 18 (NAP) is not part of the Project. Instead, it will be owned and developed by the County.

3. LAND CLASSIFICATIONS

Current land classifications for the Project site and the proposed changes are as follows:

— **State of Hawaii**

- State District
  + Current: Agricultural (see Figure 4).
  + Proposed: Urban.
- Important Agricultural Lands (**IAL**), State of Hawai‘i.
  + Current: none of the Project site is classified as IAL.
  + Proposed: no change.

— **County of Maui**

- Subdivision
  + Current: the Project site is part of a larger parcel.
  + Proposed: a subdivision application has been filed to subdivide the existing parcel into five lots (E-1 through E-5), with Ho‘onani Village proposed for the new lot E-1.
- Maui Island Plan, Urban Growth Boundary (**UGB**)
  + Current: most of Project site is outside the UGB, but a small area in the southwest corner of the site is within the Boundary (see Figure 5).
  + Proposed: expand the UGB to include the Project site.
- Wailuku-Kahului Community Plan,
  + Current: Agriculture, with a small section of the southwest corner designated Heavy Industrial (see Figure 6).
  + Proposed: Community Plan Amendment to change the designation to Light Industrial, unless prior to the filing the Plan is updated to accommodate the filing.
- Zoning
  + Current: Agriculture, with a small section of the southwest corner designated Heavy Industrial (see Figure 7).
  + Proposed: Light Industrial.
- Special Management Area (**SMA**)
  + Current: outside the SMA.
  + Proposed: no change.
- Shoreline Setback
  + Current: outside the Shoreline Setback area.
  + Proposed: no change.

4. AGRICULTURAL CONDITIONS

a. Soil Type and Characteristics

According to the Natural Resources Conservation Service (**NRCS**) of the U.S. Department of Agriculture, formerly known as the Soil Conservation Service, the Project site is comprised of Pulehu-Ewa Jaucas Association (see Figure 8). NRCS characterizes the soils of this association as deep, nearly level to moderately sloping, well-drained and excessively drained, moderately fine textured to coarse-textured subsoil or underlying material. These soils are located on alluvial fans and in basins.

As shown in Figure 9, the specific soil type underlying nearly all of the Project site is **EaA**: Ewa silty clay loam, 0 to 3 percent slopes. Consistent with the above, the EaA soils series consists of deep, well drained soils which formed in alluvium weathered from basaltic rock. Runoff from EaA soils is very slow and the erosion hazard is no more than slight ..This soil is used for sugarcane and pasture.

The Project site was recently used for the cultivation of sugarcane which left the entire site with approximately 12 to 30 inches of agriculturally disturbed soil.

b. Soil Ratings

Three classification systems are commonly used to rate Hawai‘i soils: (1) Land Capability and Pasture Groupings, (2) Agricultural Lands of Importance to the State of Hawai‘i, and (3) Overall Productivity Rating.

Land Capability and Pasture Groupings (NRCS Rating)

NRCS’s 1972 Land Capability Grouping rates soils according to eight levels, ranging from the highest classification level “I” to the lowest “VIII.”

If irrigated, the soil rating for EaA is **IIIe**. Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both. Subclass IIIe soils are subject to severe erosion if they are cultivated and not protected.

Agricultural Lands of Importance in the State of Hawai‘i (ALISH)

ALISH ratings were developed in 1977 by the NRCS, University of Hawai‘i (**UH**) College of Tropical Agriculture and Human Resources, and the State of Hawai‘i, Department of Agriculture. This system classifies land into three broad categories: (a) “**Prime**” agricultural land which is land that is best suited for the production of crops because of its ability to sustain high yields with relatively little input and with the least damage to the environment; (b) “**Unique**” agricultural land which is non-Prime agricultural land used for the production of specific high-value crops (e.g., taro); and (c) “**Other**” agricultural land which is non-Prime and non-Unique agricultural land that is important to the production of crops. Agricultural

land that is not rated in any of these three categories is labeled “**Not Classified**” due to poor agricultural quality, and/or inability to produce high-value crops or important crops.

As shown in Figure 10, the entire Project site is comprised of soils rated as “**Prime**.”

Overall Productivity Rating (LSB Rating)

In 1967, the UH Land Study Bureau (**LSB**) developed the Overall Productivity Rating, which classifies soils according to five levels, with “**A**” representing the class of highest productivity and “**E**” the lowest.

As indicated in Figure 11, the Agricultural lands within the Project site have soils with the highest productivity rating of “**A**.”

c. Elevations

The Project site ranges in elevation from about 50 feet to 80 feet.

d. Slope

The average slope within the Project site is about 1%.

e. Climatic Conditions

Like other areas in Hawai‘i, Kahalui has a mild semitropical climate that is due primarily to three factors: (1) Hawai‘i’s mid-Pacific location near the Tropic of Cancer, (2) the surrounding warm ocean waters that vary little in temperature between the winter and summer seasons, and (3) the prevailing northeasterly tradewinds that bring air having temperatures which are close to those of the surrounding waters.

Solar Radiation

The site receives considerable sunshine, with average daily insolation of about 500 calories per square centimeter per day.

Rainfall

Rainfall in Kahallui averages about 14 inches annually. Most of this rainfall occurs during the winter rainy season (October through April).

Temperatures

In Kahalui, average monthly temperatures range from 65°F to 80°F in the winter (January), and 72°F to 87°F in the summer (August).

Winds

Prevailing surface winds are tradewinds that blow from the east at an average rate of 11.7 miles per hour (**mph**) in the Winter (January) and 15.8 mph in the summer (July).

f. Irrigation Water

Before the closing of sugarcane operations before 2016, the Project site and nearby fields were irrigated with a combination of brackish groundwater, surface water to reduce salinity, and water from Puʻunēnē Mill.

Groundwater is still available but, without mixing with surface water, the salinity is too high for nearly all crops. Surface water from East Maui is no longer available for irrigating crops at the Project site because the State Water Commission reduced stream diversions in East Maui, and Mahi Pono needs all of the available surface water to irrigate their crops in Central Maui. Mill water is no longer available because sugarcane operations ceased in December 2016.

g. Road Access

Currently, the Project site is reached via Pulehu Road and Hansen Road. Internally, Central Power Plant Road crosses and the property, and plantation roads provide access to former sugarcane fields.

h. Distance to Markets and Shipping Terminals

Trucking distances from the Project site to most of Kahului, the Kahului Harbor and the Kahului Airport are less than 2 miles. Kahului serves as the island's primary commercial, industrial, distribution and transportation center.

i. Summary of Agricultural Conditions

The Project site has (1) soils that have severe limitations which reduce the choice of plants, require special conservation practices, or both; (2) good soil ratings with two of the three rating systems; (3) gentle slopes: (4) favorable climatic conditions (e.g., high solar radiation); (5) no access to irrigation water; and (6) good access to nearby markets and shipping terminals.

The 166.5-acre Project site is no longer suitable for farming due to a lack of water for irrigating crops.

5. PAST, CURRENT AND SURROUNDING LAND USES

a. Past Agricultural Use

From the late 1800s to 2016, the Project site was used to grow sugarcane. In December 2016, Alexander & Baldwin, Inc. (**A&B**) closed the Hawaiian Commercial & Sugar Co. (**HC&S)** sugarcane plantation and ceased all sugar operations in Central Maui.

b. Current Use of the Project Site

Since 2016, the Project site has been left uncultivated. Non-native grasses like Guinea grass and Buffel grass dominate, with aggressive plants like spiny amaranth, lion’s tail, golden crown-beard, and tumbleweed taking over thin areas. Fleabane clumps also dot the grass fields.

c. Surrounding Land Uses

As shown in Figure 1, land uses surrounding the Project site are as follows:

- To the northwest: commercial, including “big box” stores, and smaller retail shops and restaurants.
- To the north/northeast: agricultural lands then the airport.
- To the south and east: agriculture.
- To the west and southwest: agriculture, heavy industry, and public/quasi-public and recreational uses.

6. IMPACTS ON AGRICULTURE

a. Impacts on On-site Agricultural Operations

The Project will not have any impacts on current on-site farm or ranch operations, as none exist.

b. Impacts on Nearby Agricultural Operations

Impacts

Mahi Pono has planted crops to the east, south, and west of the Project site. These include citrus orchards, row crops, and forage grasses for future cattle grazing. The nearest citrus fields are approximately a quarter mile east (upwind) of the Project site, while the nearest row-crop fields are approximately a quarter mile to the southwest (downwind).

Due to the proximity of agricultural operations, Project residents, workers, and customers may occasionally experience noise during planting and harvesting, wind-blown chemicals, wind-blown dust from plowing fields for row crops when the plowing occurs during strong Kona winds (south winds), etc. In turn, nuisance complaints could lead to

community pressure to restrict nearby agricultural operations, possibly including efforts to shorten hours of operations, cease spraying of chemicals during strong winds, cease plowing fields during strong Kona-winds, etc.

Mitigating Measures

Recommended mitigating measures to reduce possible impacts from agricultural operations, nuisance complaints over these impacts, and restrictions on agricultural operations due to the complaints include the following:

— Design the Project to avoid or reduce impacts from agriculture

This may include (1) landscaping, berms, and walls designed to reduce noise, wind-blown chemicals and dust, etc.; (2) sound proofing of building walls as necessary to minimize noise, and (3) windows designed to reduce noise and block wind-blown chemicals and dust, along with air conditioning of spaces isolated from cooling tradewinds.

— Provide notice to new Project tenants that agricultural operations are nearby

The notice about nearby agricultural operations should be provided early in the process before contracts are signed, and should include information on possible impacts from agricultural operations.

— Provide information on Hawaii’s Right to Farm Act

Information on the Right to Farm Act should be provided early in the process before contracts are signed. The Right to Farm Act (Hawai‘i Revised Statutes §165-4) stipulates that: “No court, official, public servant, or public employee shall declare any farming operation a nuisance for any reason if the farming operation has been conducted in a manner consistent with generally accepted agricultural and management practices. There shall be a rebuttable presumption that a farming operation does not constitute a nuisance.”

c. Impacts on the Growth of Crop Farming

The Project will result in the redistribution of approximately 166.5 acres from the State Agricultural District to the Urban District. However, this redistricting will have no impact on the growth of commercial crop farming on Maui, as the lack of irrigation water renders this land unsuitable for cultivating commercial crops.

7. OFFSETTING BENEFITS

Repurposing about 166.5 acres from agriculture to urban uses will provide the following Project benefits:

— Benefits from construction activity
  - Construction jobs and payroll associated with Project development.
  - Indirect jobs and payroll generated by the purchase of goods and services by construction companies and families of construction workers.
  - County tax revenues (excise tax surcharge, etc.) and State tax revenues (excise taxes, personal income taxes, corporate income taxes, etc.) paid by construction companies and workers, and by companies and families that are supported by construction activity.

— Benefits from operations at full development
  - Affordable and market housing for residents.
  - Goods and services provided by on-site restaurant, retail, office, and industrial activities.
  - Recreational amenities (amphitheater, parks, sports fields, etc.).
  - On-site jobs and payroll provided by on-site businesses.
  - Off-site jobs and payroll generated by the purchase of goods and services by on-site families and businesses.
  - County tax revenues (excise tax surcharge, property taxes, etc.) and State tax revenues (excise taxes, personal income taxes, corporate income taxes, etc.) paid by Project property owners, on-site families, on-site businesses, and off-site business that provide goods and services in support of on-site families and businesses.

8. CONSISTENCY WITH STATE AND COUNTY POLICIES

a. Availability of Agricultural Lands

The *Hawai‘i State Constitution*, the *Hawai‘i State Plan*, the *State Agriculture Functional Plan*, the *County of Maui 2030 General Plan,* the County’s *Maui Island Plan,* and the County’s *Wailuku-Kahului Community Plan* call directly or implicitly for preserving the economic viability of plantation agriculture (sugarcane and pineapple) and promoting the growth of diversified agriculture (i.e., non-plantation agriculture). To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured.

The development of the 166.5-acre Project will result in the loss of only 0.23% of the 72,300 acres of high-quality farmland within the Agricultural District on Maui Island (see Figure 12). This accounting encompasses land in the Agricultural District that possesses one or more high soil ratings: an NRCS rating of I or II; an ALISH rating of Prime or Unique, and/or an LSB rating of A or B. However, this accounting excludes land used for country estates and golf courses.

Regarding plantation agriculture, sugarcane is no longer grown on the Project site or nearby since HC&S ceased all sugar operations on Maui in 2016 (see Section 5.a).

Regarding diversified agriculture, the Project site has no recent history of being used for growing crops other than sugarcane, nor is water available to irrigate potential crops (see Sections 4.i and 5.b).

b. Conservation of Agricultural Lands

In addition to the above, State and County policies call for conserving and protecting prime agricultural lands, including protecting farmland from urban development.

However, the 166.5-acre Project site is no longer suitable for farming due to a lack of water for irrigating crops (see Section 4.i).

c. Redesignation from Agricultural to Urban

Discussions in the *Agriculture State Functional Plan* recognize that redesignation of lands from Agricultural to Urban and/or Rural should be allowed "… upon a demonstrated change in economic or social conditions, and where the requested redesignation will provide greater benefits to the general public than its retention in …agriculture;" that is, when an "overriding public interest exists."

The enormous contraction of plantation agriculture and the resulting increase in the supply of land that came available for diversified crop farming constitutes a major change in economic conditions (see Figure 13 for Statewide acreage in crop from 1960 to 2023[1]). Moreover, the Project will provide community benefits (homes, goods and services, recreational amenities, jobs, payroll, tax revenues, etc.) that far exceed the benefits of leaving the land in agriculture (no current agricultural jobs)—see Section 7.

d. Important Agricultural Lands

Chapter 205, Hawai'i Revised Statutes (**HRS**), declares "… that the people of Hawaii have a substantial interest in the health and sustainability of agriculture as an industry in the State. There is a compelling state interest in conserving the State's agricultural land resource base and assuring the long-term availability of agricultural lands for agricultural use to achieve the purposes of: (1) Conserving and protecting agricultural lands; (2) Promoting diversified agriculture; (3) Increasing agricultural self-sufficiency; and (4) Assuring the availability of agriculturally suitable lands …". "The objective for the identification of important agricultural lands is to identify and plan for the maintenance of a strategic agricultural land resource base that can support a diversity of agricultural activities and opportunities that expand agricultural income and job opportunities and increase agricultural self-sufficiency for current and future generations."

1. In Figure 13, the recent increase in crop acreage reflects plantings by Mahi Pono on former sugarcane lands in Central Maui.

IALs are defined as lands that: “(1) Are capable of producing sustained high agricultural yields when treated and managed according to accepted farming methods and technology; (2) Contribute to the State's economic base and produce agricultural commodities for export or local consumption; or (3) Are needed to promote the expansion of agricultural activities and income for the future, even if currently not in production.”

The IAL designation is a supplemental State land use classification that provides access to incentives that promote profitable farming of IALs. The designation does not change existing land classifications (i.e., State Land Use Districts, County community plan designations, County zoning, etc.), nor does it restrict allowable uses of IAL-designated agricultural land.

Landowners can petition the State Land Use Commision (**SLUC**) to designate as IAL all or portions of their agricultural land. In addition, each county is required to identify, map and recommend lands within its jurisdiction that have potential for IAL designation in keeping with the standards, criteria and procedures established by law. After the SLUC reviews a County’s recommendations, the SLUC is responsible for designating IALs.

None of the Project area is currently designated as IAL, and future designation is highly improbable. The area in the south-west corner of the Project site that is within the County’s UGB is not eligible for IAL designation (see Figure 5). The remaining lands do not meet the definition of IAL due to the lack of water for irrigating crops. Specifically, these lands: (1) are incapable of producing sustained high agricultural yields without water, (2) contribute negligibly to the State's economic base, and (3) are not needed to promote the expansion of agricultural activities and income for the future.

e. County of Maui Land-Use Plans

Nearly all of the Project site is outside the Urban Growth Boundary of the Maui Island Plan, nearly all is designated Agriculture in the Wailuku-Kahului Community Plan, and all of the land is zoned Agriculture by the County. Development of the Project will require appropriate changes to these plans and to the zoning.

9. REFERENCES

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FIGURE 1

REGIONAL LOCATION MAP

SOURCE: COUNTY OF MAUI QPUBLIC GIS POWERED BY ESRI.

Project HOONANI VILLAGE **No.** H109-001	**Designed by** TCC **Date** 08/2024 **Drawn by** TCC **Date** 08/2024 **Horiz. Scale:** **Vert. Scale:** **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

FIGURE 2

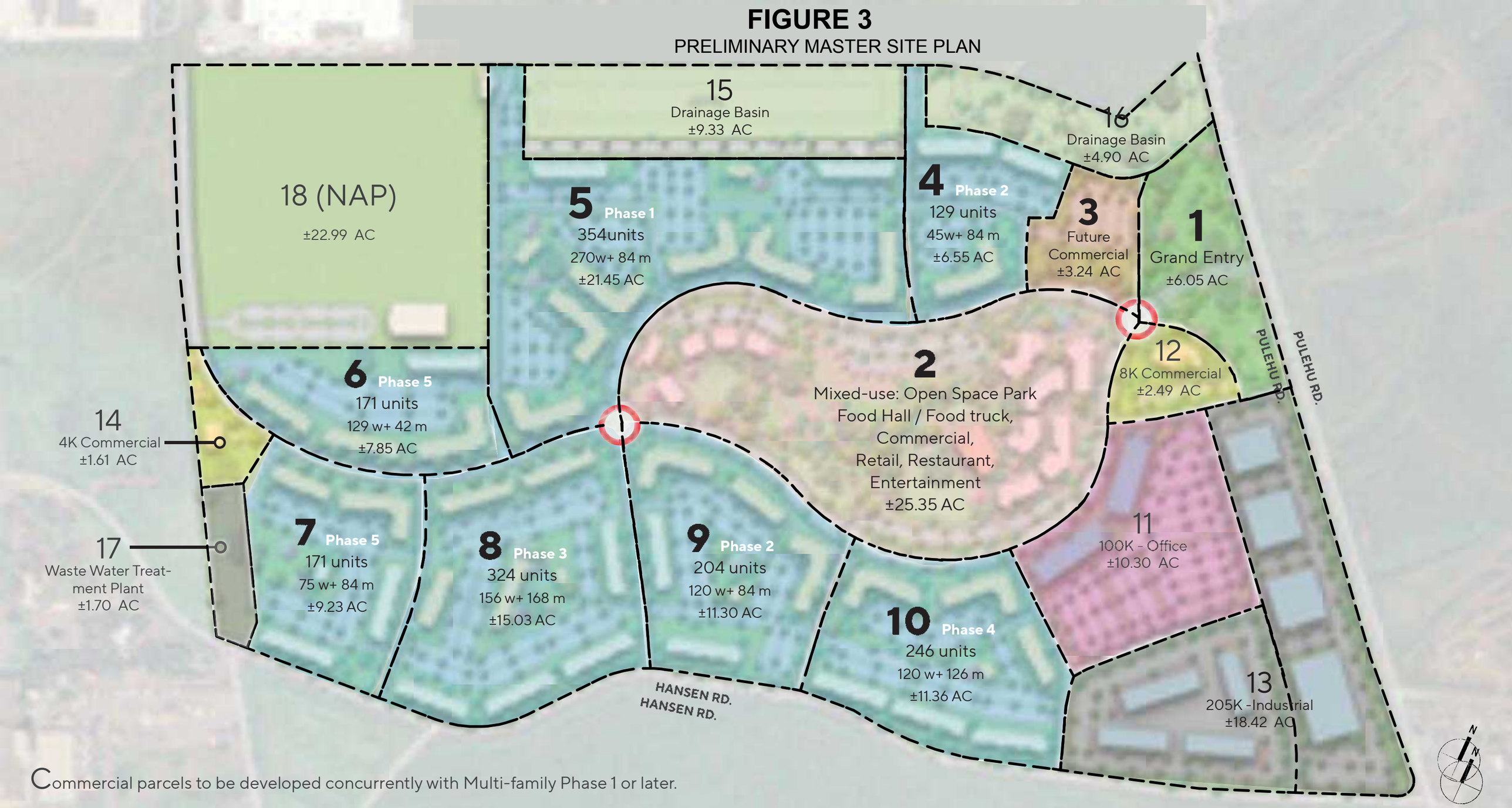
PROPERTY LOCATION MAP

SOURCE: COUNTY OF MAUI QPUBLIC GIS POWERED BY ESRI.

Project HOONANI VILLAGE **No.** H109-001	**Designed by** TCC **Date** 08/2024 **Drawn by** TCC **Date** 08/2024 **Horiz. Scale:** **Vert. Scale:** **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

FIGURE 3

PRELIMINARY MASTER SITE PLAN



Commercial parcels to be developed concurrently with Multi-family Phase 1 or later.

Ho'onani Development

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Concept Site Plan Study

Proposed Land Use Plan - Option 11

AO Architecture. Design. Relationships.

Scale	1"=300'
Job No.	2023-0690
Date	2024-10-07

FIGURE 4

STATE LAND USE DISTRICT BOUNDARY MAP

SOURCE: STATE LAND USE COMMISSION MAPS

Project HOONANI VILLAGE **No.** H109-001	**Designed by** TCC **Date** 08/2024 **Drawn by** TCC **Date** 08/2024 **Horiz. Scale:** NTS **Vert. Scale:** NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

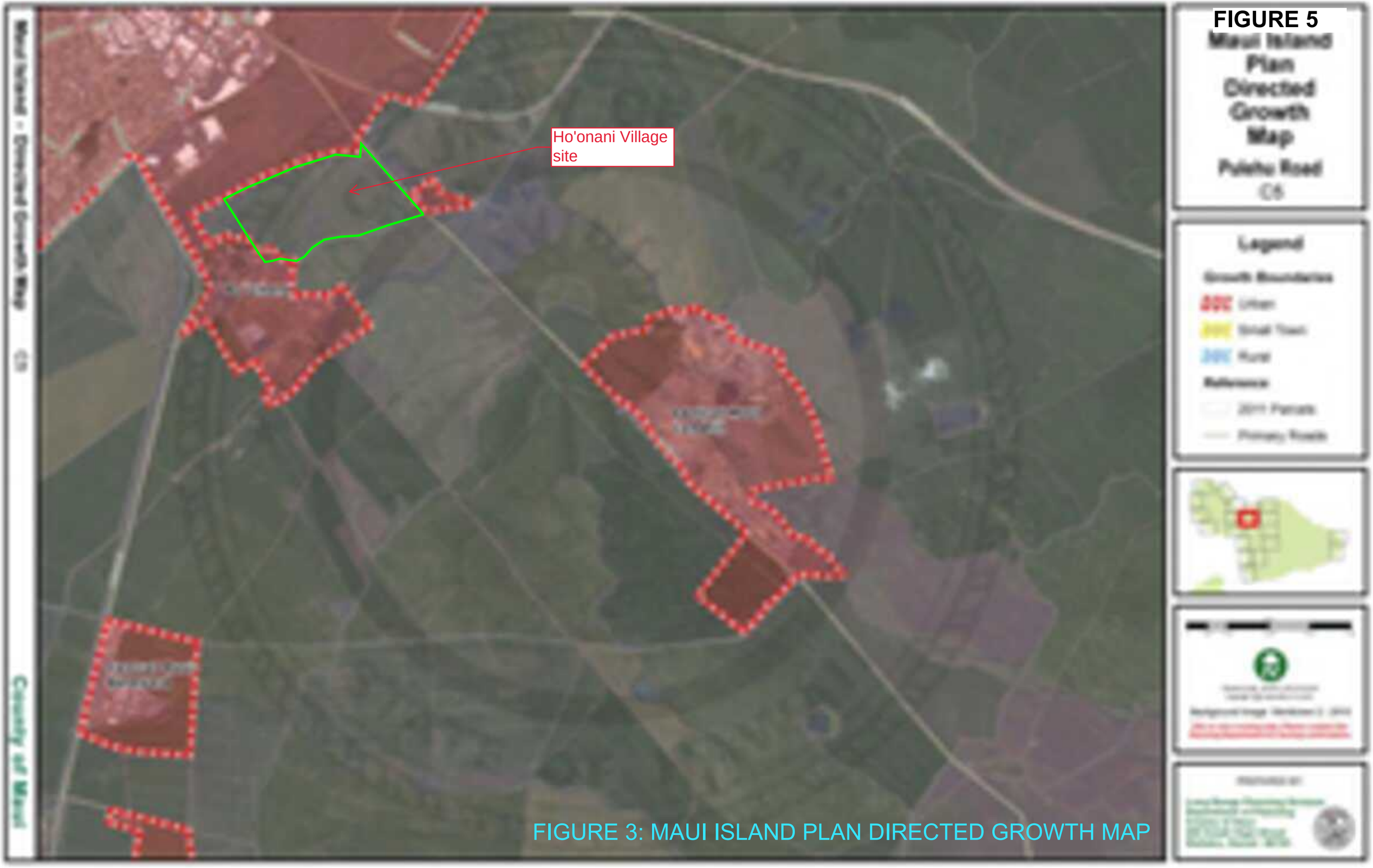
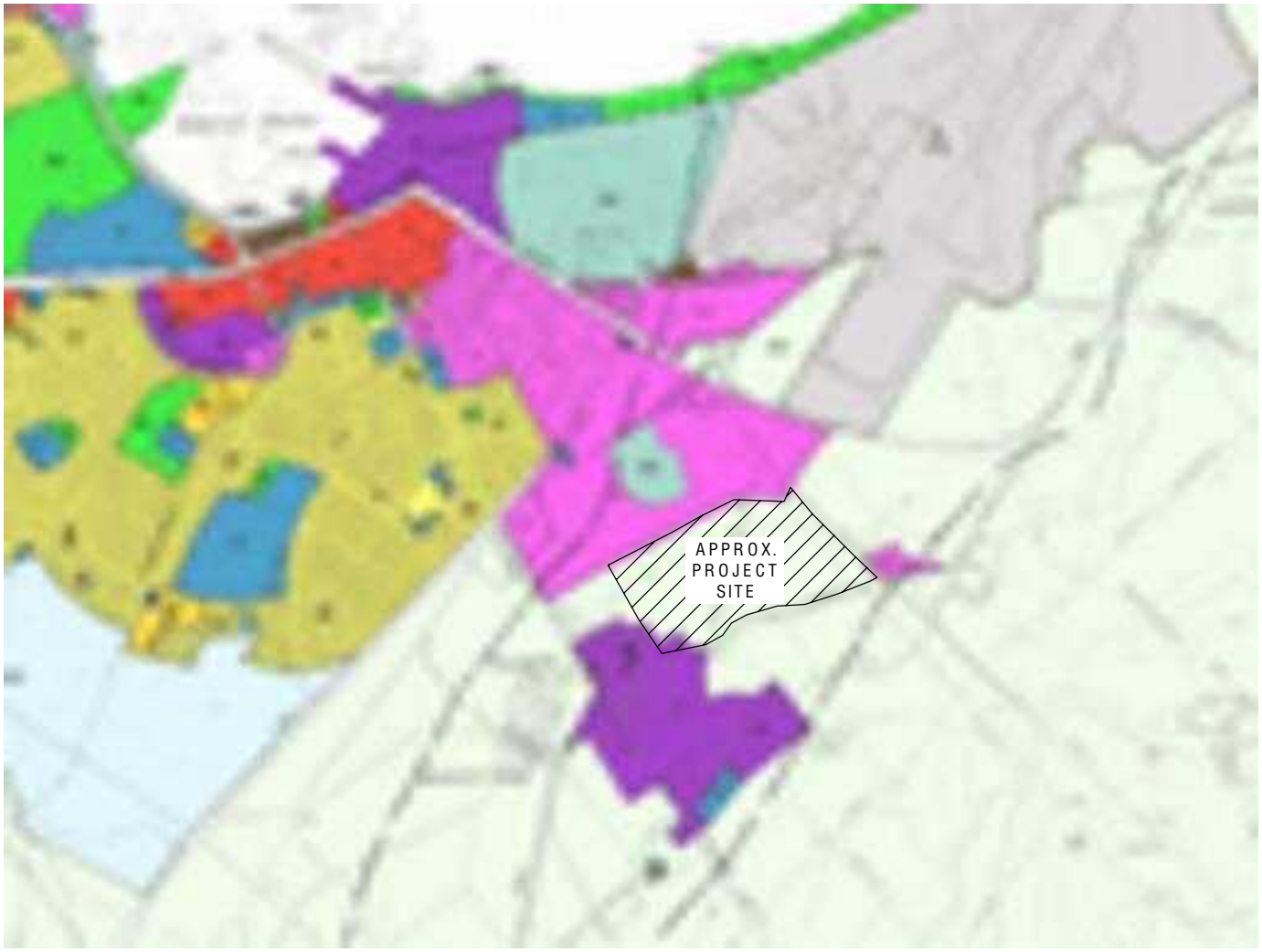


FIGURE 3: MAUI ISLAND PLAN DIRECTED GROWTH MAP

FIGURE 6

WAILUKU-KAHULUI COMMUNITY PLAN MAP (2002)



SOURCE: COUNTY OF MAUI, COMMUNITY PLAN MAPS

Project HOONANI VILLAGE **No.** H109-001	**Designed by** TCC **Date** 08/2024 **Drawn by** TCC **Date** 08/2024 **Horiz. Scale:** NTS **Vert. Scale:** NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

FIGURE 7

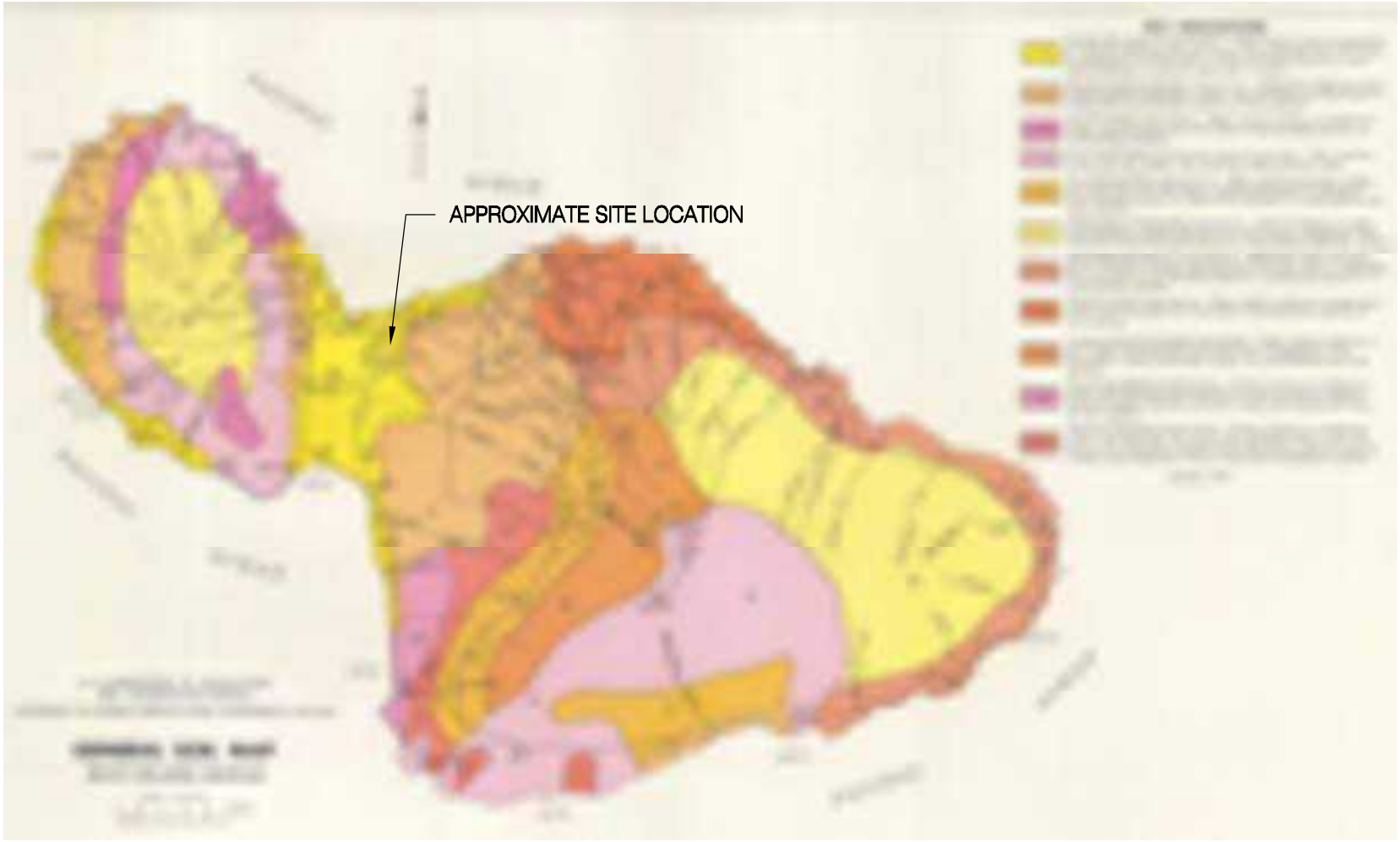
MAUI COUNTY ZONING MAP

SOURCE: MAUI COUNTY GIS

Project HOONANI VILLAGE **No.** H109-001	**Designed by** TCC **Date** 08/2024 **Drawn by** TCC **Date** 08/2024 **Horiz. Scale:** NTS **Vert. Scale:** NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

FIGURE 8

SOIL ASSOCIATION MAP



SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, GENERAL SOIL MAP

Project HOONANI VILLAGE **No.** H109-001	**Designed by** TCC **Date** 08/2024 **Drawn by** TCC **Date** 08/2024 **Horiz. Scale:** NTS **Vert. Scale:** NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

FIGURE 9

SOIL CLASSIFICATION MAP

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, SOIL MAP

Project HOONANI VILLAGE **No.** H109-001	**Designed by** TCC **Date** 08/2024 **Drawn by** TCC **Date** 08/2024 **Horiz. Scale:** NTS **Vert. Scale:** NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

FIGURE 10

AGRICULTURAL LANDS OF IMPORTANCE TO THE STATE OF HAWAII MAP

SOURCE: STATE OF HAWAII GIS (POWERED BY GEOPORTAL)

Project HOONANI VILLAGE **No.** H109-001	**Designed by** TCC **Date** 08/2024 **Drawn by** TCC **Date** 08/2024 **Horiz. Scale:** NTS **Vert. Scale:** NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

FIGURE 11

LAND STUDY BUREAU MAP

SOURCE: STATE OF HAWAII GIS PROGRAM, LAND STUDY BUREAU'S CLASS LOCATOR

Project HOONANI VILLAGE **No.** H109-001	**Designed by** TCC **Date** 08/2024 **Drawn by** TCC **Date** 08/2024 **Horiz. Scale:** NTS **Vert. Scale:** NTS **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

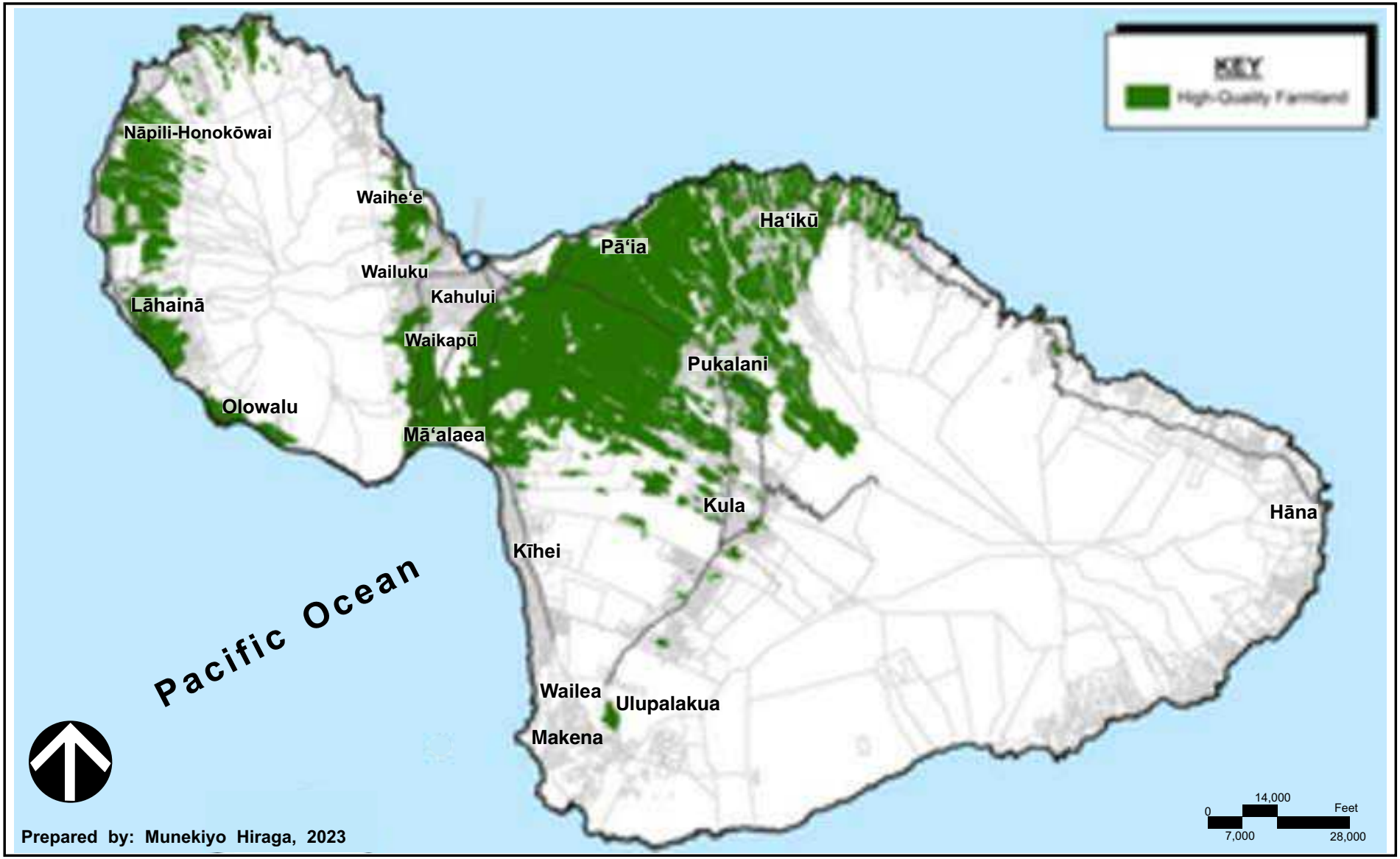


FIGURE 12

HIGH-QUALITY FARMLAND MAP, MAUI

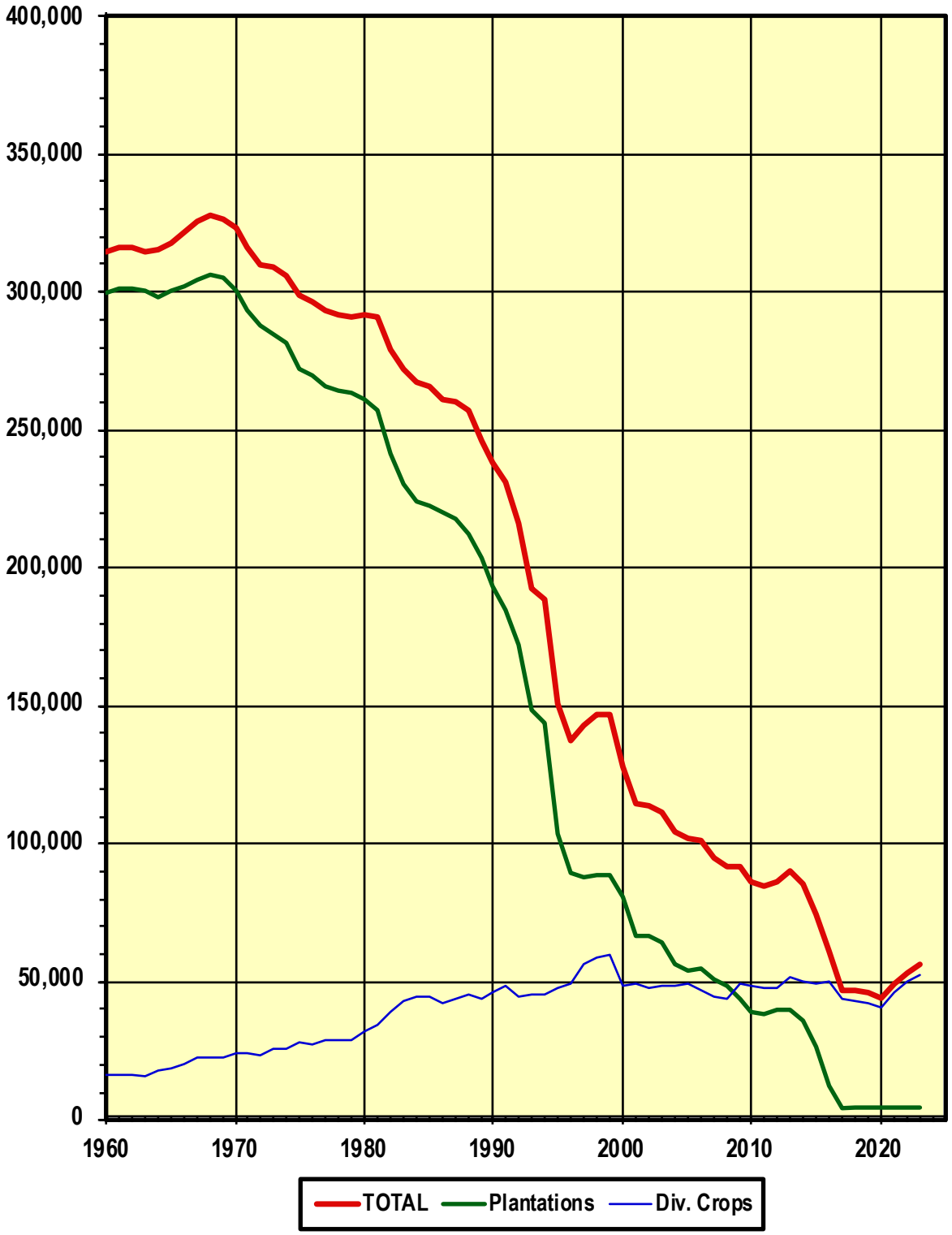


FIGURE 13

ACREAGE IN CROP, HAWAII: 1960 TO 2023

APPENDIX

STATE AND COUNTY GOALS, OBJECTIVES, POLICIES AND GUIDELINES RELATED TO AGRICULTURAL LANDS

1. HAWAI'I STATE CONSTITUTION (Article XI, Section 3):

> …to conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands…

2. HAWAI'I STATE PLAN (Chapter 226, Hawaii Revised Statutes, as amended):

Section 226-7 Objectives and policies for the economy--agriculture.

(a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:

(1) Viability in Hawaii's sugar and pineapple industries.

(2) Growth and development of diversified agriculture throughout the State.

(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being.

(b) To achieve the agricultural objectives, it shall be the policy of the State to:

(2) Encourage agriculture by making best use of natural resources.

(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.

(16) Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.

Section 226-103 Economic priority guidelines.

(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:

(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.

(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:

(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.

(10) Support the continuation of land currently in use for diversified agriculture.

Section 226-104 Population growth and land resources priority guidelines.

(b) Priority guidelines for regional growth distribution and land resource utilization:

(2) Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.

3. AGRICULTURAL STATE FUNCTIONAL PLAN (1991)

(Functional plans are guidelines for implementing the State Plan. They are approved by the Governor, but not adopted by the State Legislature.)

Objective H: Achievement of Productive Agricultural Use of Lands Most Suitable and Needed for Agriculture.

Policy H(2): Conserve and protect important agricultural lands in accordance with the Hawaii State Constitution.

Action H(2)(a): Propose enactment of standards and criteria to identify, conserve, and protect important agricultural lands and lands in agricultural use.

Action H(2)(c): Administer land use district boundary amendments, permitted land uses, infrastructure standards, and other planning and regulatory functions on important agricultural lands and lands in agricultural use, so as to ensure the availability of agriculturally suitable lands and promote diversified agriculture.

4. COUNTY OF MAUI 2030 GENERAL PLAN, COUNTYWIDE POLICY PLAN (2010)

Countywide goals, objectives, policies and actions

F. Strengthen the Local Economy

Objective

2. Diversify and expand sustainable forms of agriculture and aquaculture.

Policies

b. Prioritize the use of agricultural land to feed the local population, and promote the use of agriculture lands for sustainable and diversified agricultural activities.

e. Support ordinances, programs, and policies that keep agricultural land and water available and affordable to farmers.

Implementing Actions

c. Create agricultural parks in areas distant from genetically modified crops.

J. Promote Sustainable Land Use and Growth Management

Objective

2. Improve planning for and management of agricultural lands and rural areas.

Policies

a. Protect prime, productive, and potentially productive agricultural lands to maintain the islands' agricultural and rural identities and economies.

c. Discourage developing or subdividing agriculturally designated lands when non-agricultural activities would be primary uses.

Implementing Actions

a. Inventory and protect prime, productive, and potentially productive agricultural lands from competing non-agricultural land uses.

5. MAUI ISLAND PLAN, GENERAL PLAN 2030 (2012)

Core Values

E. Preserve rural and agricultural lands and encourage sustainable agriculture.

Agricultural Lands

Goal

7.1 Maui will have a prosperous agricultural industry and will protect agricultural lands.

Objective

7.1.1 Significantly reduce the loss of productive agricultural lands.

Policies

7.1.1.a Allow, where appropriate, the clustering of development on agricultural lands when approved as a CSD [Conservation Site Design] plan or similar approval mechanism.

7.1.1.b Require, where appropriate, the review and approval of CSD plans prior to the subdivision of agricultural land.

7.1.1.c Discourage developing or subdividing productive agricultural lands for residential uses in which the residence would be the primary use and any agricultural activities would be secondary uses.

7.1.1.e Focus urban growth, to the extent practicable, away from productive and important agricultural lands.

7.1.1.f Strongly discourage the conversion of productive and important agricultural lands (such as sugar, pineapple, and other produce lands) to rural or urban

use, unless justified during the General Plan update, or when other overriding factors are present.

7.1.1.h Provide incentives for landowners to preserve and protect agricultural lands from development through the use of TDR/PDR, tax credits, easement programs, or similar means.

7.1.1.j Require all major developments adjacent to agricultural lands to provide an appropriate and site-specific agricultural protection buffer as part of a required site plan.

Directed Growth Plan

Rural Growth Area, Policies

8.2.d All development within rural growth areas should avoid encroachment upon prime agricultural land.

Wailuku-Kahului

As shown in Figure 6, Pu‘unani is within the Growth Area for Wailuku, with a portion within the Urban Boundary and a portion within the Rural Boundary.

6. COUNTY OF MAUI, WAILUKU–KAHALUI COMMUNITY PLAN (2002)

B. Intended Effects of the Wailuku-Kahului Community Plan

… The plan seeks to balance future growth and development in a manner reflective of the urban/agricultural character of the region. … the protection of agricultural lands is an inherent part of the plan.

C. Goals, Objectives, Policies and Implementing Actions

ECONOMIC ACTIVITY

Goal

A stable and viable economy that provides opportunities for growth and diversification to meet long-term community and regional needs and in a manner that promotes agricultural activity and preserves agricultural lands and open space resources.

Objectives and policies

1. Support agricultural production so agriculture can continue to provide employment and contribute to the region’s economic well-being.

9. Support the establishment of agricultural parks for truck farming, piggery operations, bee keeping and other diversified agricultural operations within larger unsubdivided agricultural parcels and in locations that are compatible with residential uses.

ENVIRONMENT

Objectives and policies

1. Preserve agricultural lands as a major element of the open space setting that which borders the various communities within the planning region …

HOUSING

Objectives and policies

3. Seek alternative residential growth areas within the planning region, with high priority given to the Wailuku and Kahului areas. This action should recognize that crucial issues of maintaining important agricultural lands …

LAND USE

Objectives and policies

1. Ensure that adequate lands are available to support the region's present and future agricultural activities.
2. Identify prime or productive agricultural lands, and develop appropriate regulations for their protection.
3. The direct and cumulative impacts of agricultural subdivisions and the impacts on the community shall be assessed and considered.
4. Establish administrative procedures and standards … to ensure that agricultural subdivisions shall not be approved unless their uses are expressly permitted by Chapter 205, Hawaii Revised Statutes.
5. Encourage traditional Hawaiian agriculture, such as taro cultivation, within the agricultural district, in areas.

7. REFERENCES

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EXHIBIT 26

Preliminary Engineering Report

EXPERIENCED • INNOVATIVE • COMMITTED

Preliminary Engineering Report
Hoʻonani Village

Kahului, Maui, Hawaii

Applicant:
Hoʻonani Development LLC
21 Hansen Rd
Kahului, Hawaii 96732

Civil Engineer:
Pioneer Design Group – Hawaii LLC.
711 Kapiolani Blvd. Suite 1450
Honolulu, Hawaii 96813
808.400.5959

Date: July 23, 2025
Prepared by: T.C. Campbell, P.E.
PDG-HI Job No. H109-001

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1.0 INTRODUCTION

The purpose of this Preliminary Engineering Report is to provide an overview of the existing conditions and propose preliminary design options for the site drainage, water system and wastewater systems for the Hoʻonani Village project. This study determines the anticipated water demand and wastewater flows and presents proposed water system and wastewater system designs. In addition, this report analyzes the existing drainage patterns at the project site and provides a concept drainage design for the proposed project that will meet the "Rules for the Design of Storm Drainage Facilities in the County of Maui".

2.0 SITE DESCRIPTION AND LOCATION

The proposed development includes the construction of multi-family residential low-rise buildings, commercial office buildings, light industrial buildings, a central plaza for shopping and walking, outdoor open spaces, an amphitheater, parking facilities, and landscape design. The project site is made up of tax map key (2) 3-8-006:004 within the County of Maui. The site will be called the Hoʻonani Village and is currently addressed as 21 Hansen Rd, Kahului HI 96732. It is located adjacent to Lowe's and Target and is also near the Alexander and Baldwin Sugar Museum in Puʻunene. The site is bordered by Hansen Road to the south, Puʻunene Avenue to the west, Hoʻokele Street to the north, and Pulehu Road to the east. The existing site is 237 acres in size and is zoned Agricultural AG-1 by the County of Maui. The site is surrounded by other agricultural properties to the east and south and commercial properties to the north.

The TMK is currently in the subdivision process with the County of Maui and is being subdivided into five new lots. The name of the subdivision plat is the First Assembly of God Subdivision. The proposed development will be located on Lot 2-C-4-C-1-E-1 on the attached Preliminary Plat that is under review. A portion of the street improvements will be located on Lot 2-C-4-C-1-E-4 to connect the development to the terminus of the existing street Pakaula Street. This lot will be owned by the County of Maui. A portion of the drainage improvements are proposed on Lot 2-C-4-C-1-E-3. This lot contains an existing detention basin referenced as B-1.

Additionally, the site is currently zoned as AG-1, but the applicant is actively working with the County of Maui to move forward with a County Initiated Zone Change to change the zoning of the site to M-1 Light Industrial. The proposed project will only be completed following the zone change when the proposed uses are allowed in the zoning category.

3.0 EXISTING SITE CONDITIONS

The project site has been used for agricultural uses for many years. The Puʻunene area has a rich history deeply intertwined with the sugar industry. The property was once part of the Hawaiian Commercial & Sugar Company's (HC&S) sprawling sugar plantation, which operated for over a century until its closure in 2016. The Puʻunene Sugar Mill, built in 1901, is located adjacent to the project site to the southwest. After the mill's closure, the

land transitioned to new agricultural ventures, including a 40-acre potato field planted by Mahi Pono in 2019, aiming to boost local food production. The project site is currently vacant with no existing structures. A few existing gravel and asphalt farming roads exist on site. Existing culverts span these roads to allow the irrigation ditches to convey water across the site. There are no existing wastewater lines or water mains on site for domestic or agricultural purposes. There are existing overhead power lines on site that are used to provide power to users on both the mauka and makai sides of the site. Existing powerline easements exist on site that will be vacated and relocated to continue to serve all users in the area.

3.1 Site Topography

The project site is located on the gradual slopes of Haleakalā. The existing topography on site slopes from the southeast to the northwest. Grades on site are gentle, generally ranging from 1-2% with areas of occasionally steeper slopes. The site has a relative high point at approximately 78 feet at the southeastern corner of the site, and a relative low point along the north property line with an elevation of approximately 33 feet.

3.2 Soil Type

The predominant soils found throughout the site are Ewa Silty Clay Loam (99.5% of the site), which has a corresponding hydrologic soil group (HSG) B designation, as shown on the attached Natural Resources Conservation Service (NRCS) soil survey. Soils classified as Group B have moderate infiltration rates when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission. A very small portion of the site has Molokai Silty Clay Loam, which has a corresponding hydrologic soil group (HSG) C designation.

A geotechnical investigation was completed on site by Hawaii Geotechnical Consulting to investigate the existing soil conditions. For more information, see the geotechnical report dated August 11, 2024, that will be submitted separately from this report. Two percolation tests were conducted on site to determine the existing soil's ability to percolate runoff. On the east side of the site, the test resulted in 11.41 minutes per inch of water drop, which is approximately 5.25 inches per hour. On the west side of the site, the test resulted in 5.93 minutes per inch of water drop, which is approximately 10.1 inches per hour.

3.3 Flood and Tsunami Zone

The project site lies in FEMA Zone X and does not contain any FEMA designated Special Flood Hazard Areas (SFHAs). The Flood Zone Mapp is attached in Appendix A and was generated using the State of Hawaii, DLNR, Flood Hazard Assessment Tool. This zone designates the site as an area outside the 0.2% annual change floodplain. The site is located within the Extreme Tsunami evacuation zone.

4.0 EXISTING DRAINAGE CONDITIONS

The project site is 189.511 acres in size with the existing runoff on site flowing down the slopes of Haleakalā from the south to the north. Per the County of Maui's Title MC-15, Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui, the site will be analyzed using the 100-year, 24-hour storm event. According to 15-04-05 (d), the Natural Resources Conservation Service (NRCS) hydrography method will be utilized to quantify the flow rates and flow volume for the site. From the NOAA Rainfall Data for the site, an approximate depth of 9.17 inches was used for this storm event. Hydrocad software was used to model the hydrographs for the various existing basins and to quantify the flow rates and volumes. The complete analysis of the existing drainage conditions can be found in Appendix 'B'.

The project site has divided into eight (8) existing drainage basins notated as E1-E8. Each of these basins corresponds with the existing discharge points. See the Discharge Analysis below for additional details. The attached Pre-Developed Basin Map shows the boundaries, sizes, and flow paths for the existing basins on site. Additionally, there are three upstream basins that currently flow towards the site contributing to the existing drainage flows and volumes. These basins are notated as O1-O3. The attached Upstream Basin Map shows the boundaries, sizes, and flow paths for these basins.

A runoff curve number of 58 corresponding to a ground cover type Meadows for B soils was used in the SCS TR-20 Method. As the percentage of C soil was insignificant, the runoff curve number for C soil was not utilized for the existing ground coverage of the site. The flow paths for all the existing basins can be found on the Pre-Developed Basin map. The time of concentration for each basin was calculated utilizing Plate 1 for Overland flow from the Rules for the Design of Storm Drainage facilities. The Plate 1 diagrams for all existing basins are attached to this report for more details.

Utilizing sizes, cover type, and time of concentrations for each basin, a pre-developed flow rate was calculated in Hydrocad for the 100-year, 24-hr storm event. The basins on site, E1-E8, have a cumulative pre-developed flow rate of 261 cfs and a flow volume of 63.73 acre-feet. Below is Table 4-1 for the breakdown of the flows to the various discharge points on site.

Table 4-1: Pre-Developed On-Site Discharge Point Analysis				
Discharge Point #	Basin Area (AC)	Pre-Developed Flow Rate (cfs.)	Pre-Developed Volume (Ac-ft.)	Type of Flow
1	49.060	61.26	16.291	Channel flow from irrigation ditch to Pulehu Rd.
2	37.666	52.23	12.509	Channel flow from irrigation ditch to Pulehu Rd.
3	5.767	10.74	1.916	Shallow concentrated flow along existing farm road
4	60.369	82.40	20.844	Shallow concentrated flow along existing farm road
5	21.335	31.78	7.083	Sheet flow from south to north
6	12.618	18.80	4.191	Sheet flow from south to north
7	0.663	1.24	0.219	Sheet flow from south to north
8	2.044	2.55	0.677	Channel flow in existing drainage ditch
TOTAL	189.511	261.00	63.73	

The three upstream basins have a total basin area of 288.75 acres. These basins contribute a total flow rate of 408.34 cfs and flow volume of 110.61 acre-feet to the project site and the adjacent future lots.

Table 4-2: Pre-Developed Upstream Basin Analysis				
Discharge Point #	Basin Area (AC)	Pre-Developed Flow Rate (cfs.)	Pre-Developed Volume (ac-ft)	Type of Flow
Hansen Road	141.42	153.38	41.100	Sheet flow to Hansen Road
Basin B2A & B2B	6.65	11.29	2.280	Sheet flow to Pulehu Roadside ditch to be discharged by pipe in existing basin B2B.
Basin B1	140.68	243.67	67.23	Channel flow to existing detention basin, B1.
TOTAL	288.75	408.34	110.61	

The existing drainage condition in the area including the project site and the upstream basin has been analyzed in several different storm drainage reports. The most recent of the

reports was for the Maui Business Park Development that is located just makai of the Ho'onani Village project site. Three detention basins were described and designed with the Maui Business Park development on the TMK where Ho'onani Village is currently subdividing. The first basin is notated as Basin B1. This basin is existing and is located just mauka of Target in Kahului. This basin has currently about 87.6 acre-feet in available volume. Upstream Basin O3 flows to this existing detention basin with a volume of about 67.23 acre-feet. The existing basin has a large slope on the high side of the basin in the southwest corner. This slope runs from the 62-foot elevation down to the pond bottom of about the 37-foot elevation. The lower side of the pond shows the actual active pond storage depth. The top of the berm is at the 45-foot elevation which makes the detention basin have an active storage depth of 8 feet. The detention basin B1 has two outlets. One outlet flows to the northeast to an open ditch that discharges at Discharge point 8. The other outlet allows flows to escape the basin to the northwest. This basin has existing access roads in place for access and maintenance.

On the Ho'onani Village project site there are currently no existing detention basins. Existing runoff flows down the mountain towards the northern property line. The Maui Business Park development has designed detention basins B2A in a drainage easement on the Ho'onani Village site. These basins have not been constructed yet. These basins are designed to manage the pre-development flow for the Ho'onani Village site and upstream basins, O1 & O2. These basins are currently designed to function in series together with a 60-inch drain line connecting the two basins to function as one larger basin. These basins are currently designed to have a volume of about 109.14 acre-feet of storage and a pre-developed volume of 107.11 acre-feet. Both basins were designed with the same top and bottom elevations. The top of the basins are at the 46-foot elevation and the bottom of the basins are at the 32-foot elevation. See Table 4-3 below for additional flow details.

Table 4-3: Pre-Developed Existing & Designed Detention Basins

Basin Label	Available Storage (Ac-ft.)	Pre-Developed Flow Rate	Pre-Developed Volume	Available Volume (Ac-ft)
Basin B2A & B2B	109.14	425.67	107.11	2.03
Basin B1	87.60	243.67	67.23	20.37
TOTAL	196.74	669.34	174.34	

5.0 EXISTING WATER SYSTEM

The existing site is vacant and does not have any water systems located on site for domestic or agricultural purposes. As the site was once used for agricultural purposes, it is assumed that at one time there was an irrigation system across the site to provide water

to the crops on site. This system has since been removed. There are no existing water systems or structures in Pulehu Road or Hansen Road that are adjacent to the site. The nearest existing water system is located in Ho'okele Street and Pakaula Street to the north. The existing development adjacent to the site to the north uses this system for both domestic and fire uses. The nearest existing fire hydrant is located near the terminus of Pakaula Street. The site does not currently plan to connect to the existing water system and will likely not affect the system.

6.0 EXISTING WASTEWATER SYSTEM

The future lot that is being subdivided for the Ho'onani Village development does not have any existing wastewater lines or structures on it. According to the County of Maui's GIS for the Wastewater Infrastructure, the existing lot has some private wastewater lines and structures on the western side towards the existing Sugar Museum. Additionally, private wastewater lines are located in Ho'okele Street and Pakaula street to serve the existing users just makai of the project site. The private system in these streets connects to the public system owned and operated by the County of Maui that flows to the Wailuku/Kahului Wastewater refuse facility. The proposed development does not plan to connect to an existing private or public wastewater system. These existing systems will likely not be affected by the development. See attached Existing Wastewater System Map for more information.

7.0 PROPOSED DRAINAGE SYSTEM

The project will be constructing new impervious surfaces from the construction of the proposed streets, buildings, parking areas, sidewalks and central promenade area. These improvements will increase the amount runoff from the site and will be managed for water quantity control per the County of Maui's Rules for the Design of Storm Drainage Facilities, Title MC-15, Chapter 4. These improvements will also bring elements to the site that increase the chance of pollutants entering the existing drainage conveyance systems nearby including our streams and oceans. The runoff from the site will be managed for water quality treatment to meet the Rules for the Design of Storm Water Treatment Best Management Practices, Chapter 15-111. The complete analysis of the proposed drainage system and the upstream basins can be found in Appendices 'C' and 'D'.

The proposed site has been divided into 37 drainage basins in the developed condition, notated as P1-P37. Upstream Basins O1-O3 continue to flow towards the site and will be managed in the proposed system. The attached Developed Basin Map details the boundaries of these proposed drainage basins.

The site is made up of soil group B rated soils and will have future cover types for impervious areas and open space lawn areas. These cover types have associated runoff curve numbers of 98 for impervious areas and 61 for open space lawn areas. The future site plan is made up of several different uses including residential low-rise apartments areas, light industrial

& business office area, street right-of-way areas, neighborhood commercial areas, and open space areas. Within these various areas, the amount of impervious areas was estimated by percentages to help calculate the composite runoff curve number for the site. The residential area was estimated at 60% impervious, the light industrial & business area at 85%, the street ROW area at 80% and the neighborhood commercial area at 50%. The last piece of the runoff analysis for the developed basins was the time of concentration for each basin. For each basin a catchment time of five minutes was used, and the longest potential run of drain line was utilized with a velocity of 3 ft/sec. of flow in the pipe. The run of pipe was estimated in the respective basin to overestimate the developed flow rates and volumes to err on the safer side with the design.

The developed basin sizes, composite runoff curve numbers and developed time of concentrations were inputted into HydroCAD to model the developed hydrographs for the 100-year, 24-hour storm events for each basin. The NOAA rainfall data for the area was utilized to estimate the rainfall depth for the site for this storm event. The attached Proposed Drainage Condition Analysis breaks down the developed flow rate (cfs) and flow volume (ac-ft) for the all the separate 37 on site basins and 3 off site basins. Table 7-1 below breaks down the developed drainage basins and their associated flows and volumes.

Table 7-1: Developed Basin Analysis

Basin #	Basin Area (AC)	Composite Runoff Curve	Approx. Dev. T.O.C. (min.)	Developed Flow Rate (cfs.)	Developed Volume (Ac-ft.)
P1	3.44	90.6	8.22	20.95	2.236
P2	2.14	90.6	17.78	10.22	1.395
P3	8.63	92.45	7.44	53.85	5.669
P4	1.52	90.6	12.39	8.31	0.989
P5	7.38	92.45	8.37	45.14	4.85
P6	0.76	90.6	8.10	4.64	0.494
P7	8.40	92.45	8.77	50.89	5.52
P8	0.82	90.60	9.44	4.85	0.533
P9	9.62	83.20	10.00	50.68	5.623
P10	0.55	90.60	7.94	3.37	0.358
P11	9.39	83.20	8.42	51.57	5.487
P12	0.82	90.60	9.31	4.86	0.533

Table 7-1: Developed Basin Analysis					
Basin #	Basin Area (AC)	Composite Runoff Curve	Approx. Dev. T.O.C. (min.)	Developed Flow Rate (cfs.)	Developed Volume (Ac-ft.)
P13	13.22	83.20	9.61	70.40	7.726
P14	0.82	90.60	9.17	4.87	0.533
P15	11.31	83.20	10.10	59.59	6.61
P16	0.68	90.60	8.33	4.13	0.442
P17	3.81	75.80	6.67	19.16	1.973
P18	1.19	90.60	6.81	7.47	0.773
P19	4.59	90.60	9.72	26.94	2.985
P20	3.07	90.60	12.22	16.87	1.998
P21	1.71	90.60	9.86	9.98	1.112
P22	21.21	79.50	9.22	108.62	11.806
P23	4.04	90.60	7.50	24.93	2.626
P24	3.11	64.70	7.22	11.77	1.259
P25	5.21	83.20	6.11	30.15	3.043
P26	0.59	90.60	7.92	3.62	0.384
P27	2.15	83.20	6.56	12.29	1.256
P28	0.97	90.60	8.83	5.82	0.631
P29	10.12	83.20	8.67	55.17	5.914
P30	2.79	90.60	10.00	16.25	1.815
P31	0.60	90.60	8.67	3.61	0.39
P32	6.96	83.20	7.56	38.95	4.066
P33	1.14	90.60	10.33	6.58	0.742
P34	6.76	83.20	9.44	36.19	3.951
P35	21.29	74.00	10.21	84.12	10.602
P36	5.11	64.70	5.00	20.33	2.069

Table 7-1: Developed Basin Analysis					
Basin #	Basin Area (AC)	Composite Runoff Curve	Approx. Dev. T.O.C. (min.)	Developed Flow Rate (cfs.)	Developed Volume (Ac-ft.)
P37	7.17	61.00	5.00	25.05	2.605
TOTAL	193.09	-	-	1022.19	111.00

The on-site basins have a total flow rate of 1022.19 cfs and a total flow volume of 111.0 acre-feet (see the attached HydroCAD report for the developed conditions for additional information). The site had a pre-developed flow rate of 261.0 cfs and a flow volume of 63.73 acre-feet. The flow rate increased by 761.19 cfs and the flow volume increased by 47.27 acre-feet. With the development the flow rates and flow volume from the upstream basins O1-O3 did not change. The increase in flow will be detained meeting the County of Maui's Rules for the Design of Storm Drainage Facilities.

The proposed storm drainage system on site will incorporate a mixture of open conveyance and closed conveyance measures to direct the runoff to its discharge location to be detained and infiltrated. The storm drainage design for the site is subject to change throughout the design process. This report represents the currently proposed alternative as well as a few additional possible alternatives that could be utilized as the project design moves forward.

7.1 STORMWATER QUANTITY CONTROL - ALTERNATIVE 1

The current design to manage the increased runoff from the new improvements is to utilize the existing detention basin B1, and to redesign the detention basins B2A and B2B. Curb inlets, area drains, manholes and an underground storm drain line system will convey runoff from the on-site and upstream basins to these three detention basins. Runoff from the site will be separated between basin B1 and basins B2A & B2B based on the elevation and location of the basin to provide enough vertical fall to convey the water to the final detention basin. The only developed basins that have flows splitting between detention basins are P1 and O1 as they stretch the entire south property line of the site. These basins were split into A and B sub-basins. See the attached Developed Condition Analysis for the sizes, flow rates and flow volumes of these sub-basins. Sub-basins P1A and O1A are towards the east side of Hansen Road and will be conveyed to Basins B2A & B2B while sub-basins P1B and O1B on the west side of Hansen Road will be conveyed to Basin B1.

In the developed condition, existing Basin B1 is designed to have basins O1B, O3, P1B, P12-15, P20-21, and P34-35 discharged to it. To accommodate for these additional flows, we are proposing to deepen this basin and dig out the bottom of the basin to the 30-foot elevation. This would be an additional 7 feet of depth with the top of the basin remaining at the 45-foot elevation. This would increase the volume of the basin from 87.6 acre-feet to 119.54 acre-feet. The basin would have a developed volume of 122.13 acre-feet of total flow. The developed runoff hydrograph for the 100-year, 24-hour storm event was modeled in

HydroCAD utilizing a 5 in./hr. infiltration rate. The infiltration rate used is less than half of the 10.1 in./hr. that resulted from the percolation tests done by Hawaii Geotechnical Consulting on the west side of the site. Using this as the only method of release for the runoff, the peak elevation was 38.92 feet, which allows for an additional 6 feet of available storage. The existing outlet that released water from the basin to the northeast to the drainage ditch would be removed with the development. Emergency overflow from the basin will remain in place to the northwest through the existing outlet. This basin is adequately designed to manage the developed runoff for these basins.

Table 7-2: Detention Basin B1	
Detention Basin Bottom Elev. (ft.)	30.0 ft.
100-year, 24- hr. storm Elev. (ft.)	38.92 ft.
Top of Pond Elev. (ft.)	45.0 ft.
Amount of Freeboard (ft.)	6.0 ft.
Total Available Volume (Ac.-ft.)	119.543 ac.-ft.
Total Flow Volume (Ac.-ft.)	122.521 ac.-ft.
Total Storage Volume (Ac.-ft.)	66.616 ac.-ft.

In the developed condition, designed basins B2A and B2b are designed to have basins O1A, O2, P1A, P2-11, P16-19, P22-33 and P36-37 discharged to them. To accommodate for these additional flows, we are proposing to redesign these basins to lower the bottom of the basins to the 28-foot elevation. This would be an additional 4 feet of depth with the top of the basin remaining at the 46-foot elevation. This would give the basins a total depth of 18 feet. This would increase the volume of the basins from a combined 100.20 acre-feet to 116.36 acre-feet. The basins would receive a developed volume of 99.475 acre-feet of total flow. The developed runoff hydrograph for the 100-year, 24-hour storm event was modeled in HydroCAD utilizing a 5 in./hr. infiltration rate. The infiltration rate used is less than the actual rate of 5.25 in./hr. that resulted from the percolation test done by Hawaii Geotechnical Consulting on the east side of the site. Using this as the only method of release for the runoff, the peak elevation was 38.47 feet, which allows for an additional 7.53 feet of available storage. The existing design of these basins has an emergency overflow outlet at the western end of basin B2A that will connect to the end of the designed storm system in the Maui Business Park. Should this be installed by the Maui Business Park development, the outlet will be relocated as necessary to continue to allow the emergency overflow to be conveyed north to the MBP system. These basins are adequately designed to manage the developed runoff for these basins.

Table 7-3: Detention Basins B2A & B2B	
Detention Basin Bottom Elev. (ft.)	28.0 ft.
100-year, 24- hr. storm Elev. (ft.)	38.47 ft.
Top of Pond Elev. (ft.)	46.0 ft.

Table 7-3: Detention Basins B2A & B2B	
Amount of Freeboard (ft.)	7.53 ft.
Total Available Volume (Ac.-ft.)	116.623 ac.-ft.
Total Flow Volume (Ac.-ft.)	101.137 ac.-ft.
Total Storage Volume (Ac.-ft.)	54.950 ac.-ft.

Along with these three detention basins, the proposed catch basins, area drains and drain lines will be designed to convey the 100-year, 24-hour storm event to meet the Rules for the Design of Storm Drainage Facilities in the County of Maui. The conveyance system will be designed so that the flooded widths of the streets will be less than the required 8 feet, and so that the Hydraulic Grade Lines within the system is further than 1 foot from the rim elevations of the proposed structures or the finished ground elevation. The final drainage report for the project will address the catch basin & inlet capacity calculations, the flooded road widths, and the hydraulic grade line calculations. The HGL calculations will also be shown on the drain line profiles on the final construction plans.

The on-site drainage system will be privately owned and maintained by the applicant until the system is turned over to the Association that is created to manage the development. The final O&M plan will be added to the final storm drainage report.

7.2 Stormwater Quality Treatment

The proposed detention basins B1, B2A and B2b are designed to function as infiltration basins. These basins have been designed to meet the *Rules for the Design of Storm Water Treatment Best Management Practices, Chapter 15-111*. The detention basins have more than enough available storage volume for the water quality storms associated with the proposed drainage basins as they are much smaller than the 9.17 inches associated with the 100-year, 24-hour storm event. The detention basins allow the rainfall from smaller rain events to infiltrate into the bottom of the basins by not having any pond outlets outside of the emergency overflow outlets. This allows solids to filter out and are not conveyed into any downstream storm systems or streams. The basins have sufficient infiltration rates to allow the stormwater to be filtered through the vegetation and soil. The basins will be maintained monthly or following large rain events to remove any large debris and to keep the basins functioning properly.

It is our opinion that the basins will function well as water quality treatment BMPs and will more than sufficiently treat the runoff from the site and upstream basins. The proposed project will not adversely affect the downstream drainage areas with any contaminants or debris.

7.3 Potential Alternatives

The design of the storm drainage system is one element of the Ho'onani Village that could change greatly as the project moves forward. With the ever-changing costs of construction

materials and the nature of storm drainage design having more room for flexibility and creativity than other systems like water or wastewater, the current proposed design could change. Below is a list of potential alternatives that could be used to address water quantity detention and water quality control for the project site and upstream basins. The final storm drainage system might include other alternatives that are not listed, but these are the main alternatives that are being considered.

1) Street-side swales, planters or rain gardens: Open conveyance options along the street frontages to manage runoff from the public and private streets could be incorporated into the design.

2) Sub-surface detention: In the future it could be more feasible to manage some of the drainage basins within the basin itself underground in sub-surface detention measure such as chambers or large perforated pipes.

3) Bio-retention basins, planters or landscaping: Currently the final landscaping vision and design that the project would like to achieve is not finalized. There is potential for runoff from roof drains of the proposed buildings to be directed to bio-retention or flow through BMP for treatment, detention or infiltration.

4) Infiltration structures: Smaller basins could be infiltrated separately into other types of infiltration structures such as dry wells, or open bottom catch basins etc.

5) Other detention basins: The large site provides other areas that could be used for detention/infiltration basins to manage stormwater. Items like internal and external water features and other potential landscape elements could be used to manage stormwater.

8.0 PROPOSED WATER SYSTEM

The proposed development will likely not connect to an existing County of Maui Department of Water Supply public water system, and there are several potential options to serve the project for domestic service and fire protection. The development plans on designing and constructing a private water system, modifying an existing water source with a new water pumping system, and installing a new storage and distribution system. The new private water system would serve the site for domestic uses, irrigation, and fire suppression. The applicant is currently analyzing an existing domestic well referred to as Puunene Well 6 No. 6-5226-002. Water samples from the existing well were tested and appear to meet the acceptable thresholds for domestic use standards. The existing well pump would need to be upgraded to accommodate for the new development. The intent of the private water system is for the system to be initially owned and maintained privately but will be constructed to Department of Water Supply standards so that in the future there could be an opportunity to turn the system over to the County of Maui.

The water system on site will be constructed with various sizes of ductile iron pipe (or another material meeting the standards of the Department of Water Supply), and will be located within the streets, parking lots, and open spaces to serve the various uses on site. Separate water services, meters, pressure reducers and backflow preventers etc. will be installed throughout the site to serve the various residential, commercial and industrial buildings, and open space areas. Fire hydrants will be spaced out every 250 feet as required by the Department of Water Supply for fire suppression. Additionally, the buildings will have FDC's and other fire suppression measures that will be addressed in the future.

At this time water for irrigation use of the open space areas could come from the new water system, or from reusable R-1 water from the proposed wastewater treatment plant on site. To err on the side of caution, the irrigation consumption has been added to the water system calculations below. Irrigation meters and backflow preventers will be installed as necessary to irrigate the open space and landscape amenities on site.

The complete analysis of the proposed water system and the plans for the preliminary water master plan can be found in Appendix 'E'.

8.1 Water System Preliminary Calculations

The project site is mixed-use in nature including multi-family low rise residential, mixed commercial spaces, commercial office space, light industrial, hotel and landscaping. The County of Maui Department of Water Supply's requirements for water system sizing were used to size the proposed system. The Domestic Consumption Guidelines and the Fire Flow Requirements were utilized in the attached calculations and in the water system demand table below.

For the residential portion of the site, the current site plan reflects 1,599 units that vary between 1-, 2- and 3-bedroom units. The total number of units and the mix of unit type is subject to change through the design process. The proposed units are all low-rise multi-family units, and the private system will be designed with these units having a domestic consumption unit of 400 gal/unit. The approximate residential average daily demand for 1,599 units is 639,600 gallons per day. The commercial and industrial spaces were broken down into the actual square footage of the buildings. The commercial and industrial building spaces were modeled at the required 140 gallons per 1,000 square feet. The total average daily demand for the commercial areas was 23,127 gpd, and the total for the industrial areas was 27,734 gpd. The open space areas on site were modeled at 1,700 gallons per acre and had a total average daily demand of 56,321 gpd. The wastewater treatment plant will also contribute to the daily water consumption and overestimated to have a building square footage of 9,000 square feet. Utilizing the commercial rate of 140 gallons per 1,000 square feet, the total consumption from the WWTP totaled 1,260 gpd. The current site plan has the potential for two hotels to be constructed in the future. One hotel will have 150 rooms and one hotel will have 125 rooms. For a total of 275 hotel rooms, the domestic

consumption of 350 gal/unit was considered. The total average daily demand for the two hotels was calculated to be 82,500 gpd.

There are a few areas within the site with the ability to develop in the future and need to be modeled to size the water source and storage. The County owns the parcel that is 22.99 acres and is mauka of the existing Lowe's Home Improvement store. This parcel has the potential for both commercial and residential uses in the future but could even end up as a public school. To provide additional capacity in the system the potential residential portion was estimated at 440 residential units. The residential units have a consumption unit of 400 gal/unit and average daily demand of 176,000 gpd. The potential future commercial buildings have an approximate square footage of 53,880. The buildings were modeled at 140 gallons per 1,000 square feet of building area for a total average daily demand of 7,543 gpd. This parcel will not be developed as a part of the Ho'onani Village project but will be included in the sizing of the water system.

Table 8-1 below summarizes the breakdown of the various uses on site. The current plan for Ho'onani Village has an approximate average daily demand of 844,292 gpd. The potential future developments on the County site and the Ho'onani Village site could produce an average daily demand of 183,543 gpd. The total Average daily demand for the system is approximately 1,023,357 gpd. This was increased by 10% to account for unmetered losses in the system to total Design A.D.D. of 1,125,693 gpd. Utilizing a factor of 1.5, the Max Daily Demand was calculated to be 1,688,539 gpd.

Table 8-1: Water System Sizing Calculations

Type of Use	Unit	Quantity of unit	Average Daily Demand (gpd)	Max Daily Demand (gpd) (1.5 x ADD)
Multi-family Low-Rise Residential	400 gal/unit	1,599 units	639,600	959,400
Commercial Space	140 gal/1,000 SF bldg. area	165,196 sf	23,127	34,691
Light Industrial Area	140 gal/1,000 SF bldg. area	198,100 sf	27,734	41,601
Park Open Space	1,700 gal/acre	33.13 acres	56,321	84,482
WWTP Site	140 gal/1,000 SF bldg. area	9,000 sf	1,260	1,890
Hotel	350 gal/unit	275 units	96,250	144,375

Table 8-1: Water System Sizing Calculations				
Type of Use	Unit	Quantity of unit	Average Daily Demand (gpd)	Max Daily Demand (gpd) (1.5 x ADD)
Future Commercial Space (County)	400 gal/unit	440 units	176,000	264,000
Future Commercial Space (bldg. sq. ft.)	140 gal/1,000 SF bldg. area	53,880 sf	7,543	11,315
Project Total	-	-	1,125,693 (Increased by 10% for unmetered losses)	1,688,539

8.2 Water Main System & Water Storage Sizing

With the total approximate average daily demand and max daily demand understood, the water mains on site and off site were sized based on fire flows and domestic flows. The main distribution line from the off-site water source will carry the domestic flows for the entire site. The peak hour flow rate of 2,345 gallons per minute was used to analyze this line. During peak flow for the domestic flows the max velocity in the water mains has to be less than 5 ft./sec. This criterion requires this main distribution line to be a minimum of 14 inches in size. Within the project site, the separate branches of the water system only supply flows to the uses around it, which indicates that the fire flow rate will likely control the sizing of these mains. Commercial uses in the County of Maui have to be able to supply a fire flow rate of 2,000 gpm for two hours. Based on this flow rate, the water mains on site must be a minimum of 12 inches in size.

The future water reservoir that serves the development is sized based on the larger requirement between the maximum day consumption, and max day consumption flow plus fire flow for the duration of the fire (2 hr.). During the two-hour period of a potential fire, a ¾ full reservoir would have to hold 380,712 gallons, which would make the reservoir have a size of at least 507,615 gallons. This is significantly less than the maximum day consumption of 1,688,539 gallons, which would control the size of the reservoir. As the proposed water tanks will likely be approximately 500,000 gallons in size, a combination of water tanks will be utilized to have a combined volume greater than the maximum day consumption.

8.3 Water Source and Water Tank Site

The final water source and the location of the water tanks and pumps will be off-site and are subject to change throughout the design process. Currently the potential location of the off-site water tanks site would need Approximately 23,000 LF of water line to convey the water down Pulehu Road, and to the site. See the attached Preliminary Off-site Distribution System for the approximate location of the water tanks and pump site.

8.4 Water System Alternatives

Should the existing well not be able to service the site, the applicant plans on proposing to drill a new water source to serve the site. The location of a future well site would be confirmed prior to construction plan approval. Additional alternatives for the proposed water system are limited. There is an existing private water source on the adjacent property just makai of the site that will serve the Maui Business Park development. The issue with this is that the source is at a lower elevation from our development and there would likely not be enough pressure to serve the site at the higher elevations. The other alternative would be connecting to the existing public system and public water source in the nearby area to serve the site. Water availability for domestic use is an ongoing issue for the island of Maui. The proposed development has a very large domestic water demand. A demand of that size would put a massive burden on the existing system. For this reason, the applicant is proposing to create a separate private water source and distribution system to serve the development. Another alternative would be to obtain new well permits and drill new wells.

9.0 PROPOSED WASTEWATER SYSTEM

The proposed development does not have any public wastewater lines adjacent to the site to connect to. The closest existing system is a private system that connects to the downstream public wastewater system. The public wastewater system in the area currently conveys wastewater to the Wailuku/Kahului Wastewater Treatment Plant. The existing wastewater system does not have the capacity to manage the additional wastewater that the project site would create. Thus, the applicant is proposing to install a private wastewater system on site to serve the development. The system is currently proposed to be privately owned and maintained for the lifetime of the system.

The proposed system will be made up of a network of gravity sanitary sewer main lines that convey wastewater to a pump station at the low end of the site. Each building on site will be connected to the gravity system by individual sanitary service laterals. The pump station will then pump the waste in a pressure line system to the proposed wastewater treatment plant that will be located on the western end of the project site. The wastewater treatment plant is planned to be designed to treat wastewater and produce R-1 reusable water that can be utilized for irrigation of as much of the site as possible. The R-1 water would be pumped to irrigate the site in a non-potable purple pipe system for recycled water or an approved equal. A preliminary master plan for the wastewater pipe network is attached in Appendix 'F'. There are many different routes and alignments that could be utilized for the proposed pipe network to make it as efficient as possible. The location of the proposed mains is subject to change. The proposed slopes of the main lines, the line sizes and the proposed structures will be designed to meet the requirements of the County of Maui Wastewater Reclamation Division.

9.1 Wastewater Sizing Calculations

The proposed sanitary sewer system will be made up of various sizes of PVC or HDPE pipe. The individual sanitary sewer laterals will likely be a minimum size of 6 inches per the County of Maui code for the Wastewater Reclamation Division. The approximate wastewater flow rates for the mixed-use site were broken up by use type and follow the Wastewater Flow Standards of the Wastewater Reclamation Division. The site plan for the residential units, commercial spaces and industrial spaces is subject to change through the design process, and the calculations below represent the current land use concept plan at the time of this report.

The existing plan for the residential buildings has a total of 1,599 units with a mixture of 1-, 2- and 3-bedroom type units. These units were estimated at 255 gals/unit. The approximate total residential wastewater flow is 407,745 gpd. The commercial areas were divided into an approximate breakdown between retail, restaurants, and the commercial office buildings because each of the uses have different estimated wastewater flow rates. As the tenants in the commercial spaces in the center mixed-use area of the site will change over time, we had to estimate the breakdown within those spaces. To err on the high side, we estimated that 50% of that space will be used for restaurants and 50% would be retail. The commercial restaurant wastewater flow was estimated by useable area, which is approximately 60% of the total square footage. It was assumed 1 restaurant seat per 20 square foot of useable area and 80 gals/seat. For an area of 56,100 sf, it was calculated that 1,683 seats would generate 134,640 gpd. The retail area was estimated at 1 employee per 350 square feet and 15 gallons per employee. For 56,100 square feet of retail area, it was calculated that 160 employees would generate 2,400 gpd. The office spaces were estimated assuming 1 employee per 200 square feet of building area and 20 gallons per employee. For 100,000 square feet of office space, it was calculated that 500 employees would generate 10,000 gpd. The total commercial average daily flow was estimated to be 147,040 gallons per day. The wastewater flow from the industrial area was estimated to be 1 employee per 500 square feet of building area and 25 gallons per employee. The total average daily flow from the 198,100 square feet of industrial area is estimated for 396 employees generating 9,900 gpd. The hotel space on the site was modeled with 275 units and a flow rate of 300 gal/unit. This area has an approximate flow of 82,500 gpd. The current Ho'onani Village site has an average daily flow volume of 647,185 gallons per day.

There are a few areas on site where future development is planned or possible, including an area for commercial development within the project site, and the potential future development of the 23-acre parcel that is owned by the County of Maui. To ensure that the system has the capacity for the future County site, this area was assumed to potentially have both residential and commercial uses, even though the area could be a public school in the future as well. The possible residential area was modeled to have 440 units and calculated at 255 gals/unit. The future potential residential development of the County's 23-acre site would produce a flow of 112,200 gpd. The future commercial area on the Ho'onani Village site was analyzed at the same ratio for retail and restaurants as the planned

commercial development area. The future commercial area has a total building square footage of 53,880 and would produce a flow of 65,795 gpd. This total is the sum of 64,640 gpd of flow for the potential future restaurant area and 1,155 gpd of flow for the potential future retail area. The total potential future average daily flow volume would add an additional 177,995 gallons per day.

The mixed-use site was modeled to overestimate the wastewater flow of the site, and some of the future uses are subject to change. The average wastewater flow for the proposed system was calculated to be 825,180 gallons per day. The complete breakdown of the Wastewater System Calculations can be found in Appendix 'F'.

The next step in sizing the system was to include the dry weather and wet weather infiltration and inflow that could be added to the system. The number of people that would be on site per day was estimated to be 9,940 people per day and was broken down in Appendix 'F'. During dry and wet weather conditions there is water underground that could infiltrate the wastewater pipes and structures. These conditions were analyzed for wastewater lines laid above the normal ground water table. Dry weather infiltration/inflow is calculated at 5 gallons per capita per day, which is a total of 49,700 gallons per day for the site. The wet weather infiltration/inflow is calculated at 1,250 gallons per acre per day. The area on site that has wastewater lines present is approximately 117.65 acres, which is a total of 147,063 gallons per day of flow for the site.

The Total Average Wastewater Flow was calculated by taking the average wastewater flow plus dry & wet weather infiltration/inflow and was calculated to be 1,021,943 gpd. To calculate the minimum volume that the Wastewater treatment plant would be designed to, we took this number and increased it by a 25% factor of safety to get a WWTP min. volume of 1,277,428 gallons per day. The final wastewater treatment plant will be designed by others at a later time and will be designed with sufficient volume to meet all of the County of Maui wastewater flow requirements. The site Peak wastewater flow was calculated by taking a peaking factor of 2 to the Total Average daily site wastewater flow and was found to be 2,043,885 gpd. This has an associated flow rate of 3.163 cfs, which will be used to design the flow within the wastewater lines.

Table 8-2: Wastewater System Sizing Calculations

Type of Use	Unit	Quantity of unit	Average Daily Flow (gpd)	Average Flow Rate (cfs)
Residential multi-family low-rise	255 gal/unit	1,599 units	407,745	0.631
Commercial Restaurant	60% useable space, 1 seat per 20 SF useable space, 80 gal. per seat	56, 100 sf = 1,683 seats	134,640	0.208

Table 8-2: Wastewater System Sizing Calculations				
Type of Use	Unit	Quantity of unit	Average Daily Flow (gpd)	Average Flow Rate (cfs)
Commercial Retail	1 employee per 350 SF bldg. area, 15 gal per employee	56, 100 sf = 160 employees	2,400	0.004
Commercial Office	1 employee per 200 SF bldg. area, 20 gal per employee	100,000 sf = 500 employees	10,000	0.015
Light Industrial	1 employee per 500 SF bldg. area, 25 gal per employee	198,100 sf = 396 employees	9,900	0.015
Hotel	300 gal/unit	275	82,500	0.128
Future Commercial (On-site) (Restaurant)	60% useable space, 1 seat per 20 SF useable space, 80 gal. per seat	26,940 SF = 808 seats	64,640	0.100
Future Commercial (On-site) (Retail)	1 employee per 350 SF bldg. area, 15 gal per employee	26,940 SF = 77 employees	1,155	0.002
Future Residential (County Site)	255 gal/unit	440	112,200	0.174
Dry Weather Infiltration/Inflow	5 gal/capita/day	9940	49,700	0.077
Wet Weather Infiltration/Inflow	1,250 gal/acre/day	117.65 acres	147,063	0.228
Project Total Wastewater Flow	-	-	1,021,943	1.581
Min. WWTP Volume	(Additional 25% factor of Safety)	-	1,277,428	1.977
Project Peak Wastewater Flow	(2.0 Peaking factor multiplied to Project Total Wastewater Flow)	-	2,043,885	3.163

The complete analysis of the proposed wastewater system and the plans for the preliminary wastewater master plan can be found in Appendix 'F'.

The proposed sanitary sewer system will be made up of various sizes of PVC or HDPE pipe. The pipe sizes will range from 6-inch to 18-inch mains as you get to the pump station. The

entire proposed system was sized to flow at 50% full. With the design peak flow rate of the site being 3.163 cfs, an 18-inch PVC pipe would be needed to convey the flow at 50% full.

The proposed pump station and wastewater treatment plant will be designed by others at a later time and will be designed to meet all of the Hawaii Department of Health and the County of Maui requirements. A pressure pipe system will convey the wastewater from the pump station back up the site to the proposed wastewater treatment plant site. The WWTP will be designed to treat the waste to produce R-1 reuseable water. The various alternatives for how the plant will get rid of the R-1 water are discussed below. The current plan is for the R-1 water will be utilized to irrigate portions of the site. A non-potable waterline system will be designed and approved to utilize the R-1 water.

9.2 Wastewater System Alternatives

The wastewater system does not have many alternatives. The nearest existing system to the development is the private system just north of the site at the terminus of Pakaula Street. This system connects to the County of Maui public wastewater system that conveys the wastewater to the Wailuku/Kahului Wastewater Treatment Plant. Due to the large wastewater flow generated by the development, connecting to the adjacent sanitary system isn't a feasible solution. The existing system was not designed to convey the additional wastewater flow from the site and thus would need major upgrades in size and would be impractical and infeasible.

Additionally, a new wastewater treatment plant in Central Maui is being planned. An alternative could be to connect to this new WWTP. There are several factors to why this is impractical. First, the Central Maui WWTP is over 3.5 miles to the southwest of the proposed development. This would require an extremely long run of pipe to connect to the site. Another issue comes down to the timing of the project and when sewer service would be available for the development. The Central Maui WWTP would have to be in service prior to the first phase of the Ho'onani Village being completed to be a potential source to serve the site. Due to these factors this alternative is not the chosen design path.

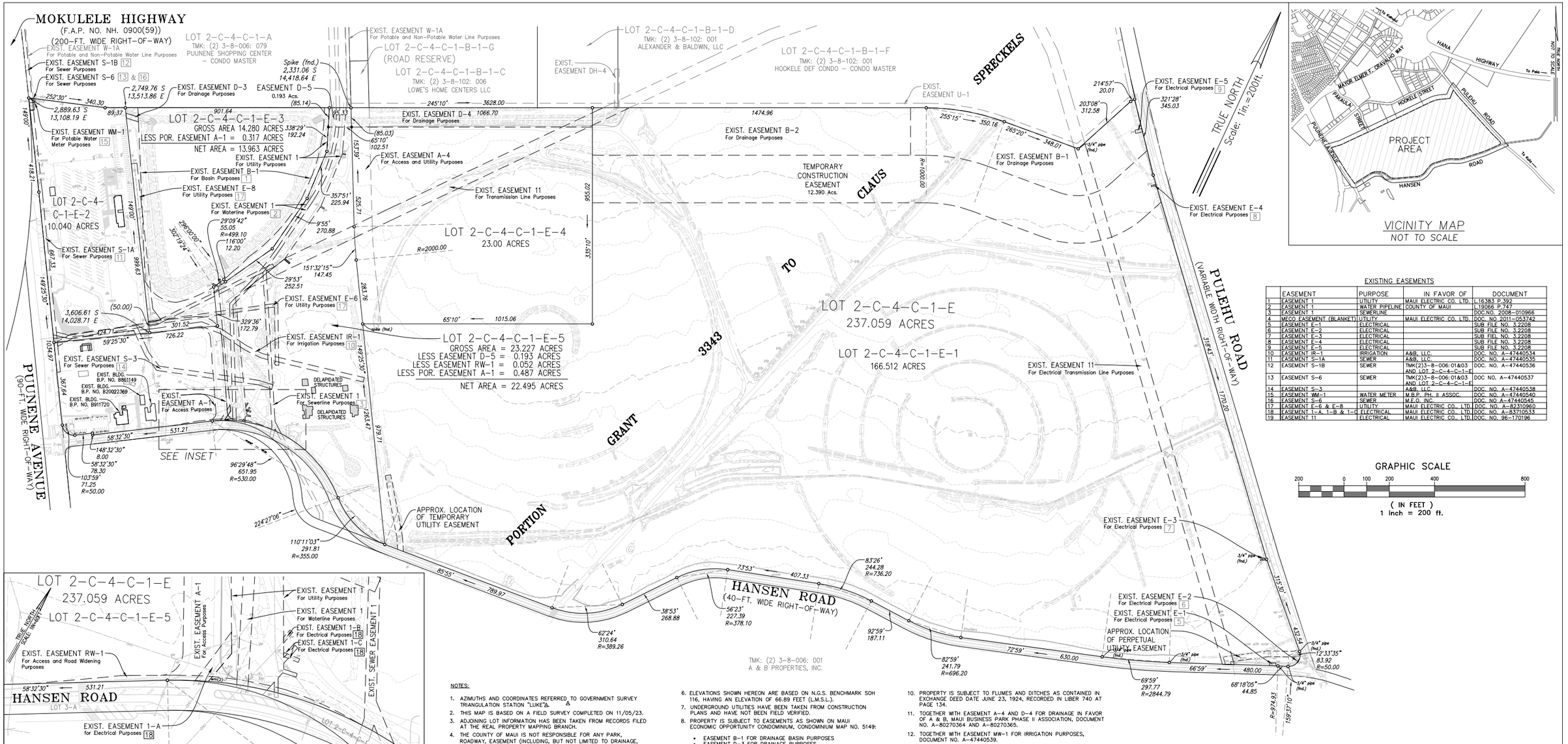
The current selection allows the applicant to control the timing of the wastewater system to ensure that service is available as it would be developed with the site. Additionally, the current plan provides R-1 water from the WWTP to be utilized for irrigation of the open space and landscape features on site and promotes a green site design. The location of the WWTP would also be on site, so there would not be the need for a long run of pipe to convey the sewage from the pump station to the WWTP. For the disposal of the R-1 water there are four different alternatives, which includes the use for onsite irrigation, the use for offsite irrigation by providing the water to Maui Business Park to replace their current irrigation water supply, the use for offsite irrigation by providing the water to Mahi Pono for irrigation of their crops, and lastly an injection well/soil aquifer treatment system. The final use of the R-1 water will be determined later in the design process.

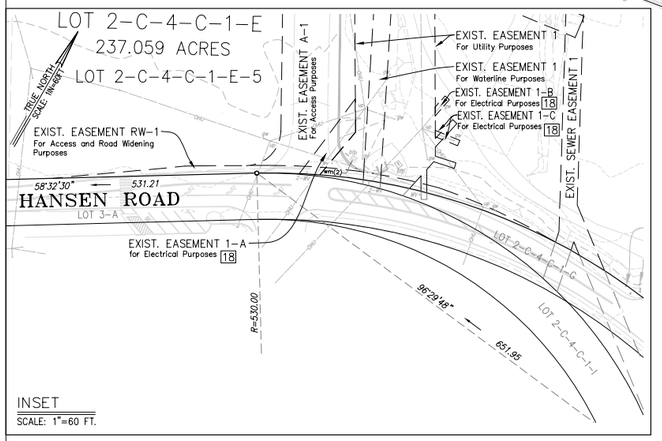
10.0 CONCLUSION

Based on the supporting stormwater calculations and attached analysis, it is the opinion of Pioneer Design Group-Hawai'i, LLC. that the development of the Ho'onani Village will not adversely affect the existing downstream drainage system or adjacent property owners. Water quantity control meeting the Drainage standards for the County of Maui Title MC-15, Chapter 4, and water quality treatment meeting the Maui County Chapter 15-111 "Rules for the Design of Storm Water Treatment Best Management Practices" will be provided by the on-site detention basins or an alternative design. The water and wastewater systems will be designed to efficiently serve the site, to meet all the associated requirements, and to limit disturbances to the adjacent parcels. All the infrastructure associated with the project will be fully designed for construction plan review and will be approved prior to construction.

11.0 VICINITY MAP

APPENDIX 'A' – EXISTING SUBDIVISION PRELIMINARY PLAT, SITE MAPS AND SOIL INFORMATION





EXISTING EASEMENTS

	EASEMENT	PURPOSE	IN FAVOR OF	DOCUMENT
1	EASEMENT 1	UTILITY	MAUI ELECTRIC CO. LTD.	L 16383 P 392
2	EASEMENT 1	WATER PIPELINE	COUNTY OF MAUI	L 19066 P 747
3	EASEMENT 1	SEWERLINE		DOC.NO. 2008-010966
4	MECO EASEMENT (BLANKET)	UTILITY	MAUI ELECTRIC CO. LTD.	DOC. NO. 2011-053742
5	EASEMENT E-1	ELECTRICAL		SUB FILE NO. 3.2208
6	EASEMENT E-2	ELECTRICAL		SUB FILE NO. 3.2208
7	EASEMENT E-3	ELECTRICAL		SUB FILE NO. 3.2208
8	EASEMENT E-4	ELECTRICAL		SUB FILE NO. 3.2208
9	EASEMENT E-5	ELECTRICAL		SUB FILE NO. 3.2208
10	EASEMENT IR-1	IRRIGATION	A&B, LLC.	DOC. NO. A-47440534
11	EASEMENT S-1A	SEWER	A&B, LLC.	DOC. NO. A-47440535
12	EASEMENT S-1B	SEWER	TMK(2)3-8-006:01&03 AND LOT 2-C-4-C-1-E	DOC. NO. A-47440536
13	EASEMENT S-6	SEWER	TMK(2)3-8-006:01&03 AND LOT 2-C-4-C-1-E	DOC NO. A-47440537
14	EASEMENT S-3	SEWER	A&B, LLC.	DOC. NO. A-47440538
15	EASEMENT WM-1	WATER METER	M.B.P. PH. II ASSOC.	DOC. NO. A-47440540
16	EASEMENT S-6	SEWER	M.E.O. INC.	DOC. NO. A-47440545
17	EASEMENT E-6 & E-8	UTILITY	MAUI ELECTRIC CO., LTD.	DOC. NO. A-82310960
18	EASEMENT 1-A, 1-B & 1-C	ELECTRICAL	MAUI ELECTRIC CO., LTD.	DOC. NO. A-85710533
19	EASEMENT 11	ELECTRICAL	MAUI ELECTRIC CO., LTD.	DOC. NO. 96-170196

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

NOTES:

1. AZIMUTHS AND COORDINATES REFERRED TO GOVERNMENT SURVEY TRIANGULATION STATION "LUKE".
2. THIS MAP IS BASED ON A FIELD SURVEY COMPLETED ON 11/05/23.
3. ADJOINING LOT INFORMATION HAS BEEN TAKEN FROM RECORDS FILED AT THE REAL PROPERTY MAPPING BRANCH.
4. THE COUNTY OF MAUI IS NOT RESPONSIBLE FOR ANY PARK, ROADWAY, EASEMENT (INCLUDING, BUT NOT LIMITED TO DRAINAGE, SEWER, ACCESS, RECLAIMED WATER OR AVIGATION EASEMENT), OR ANY OTHER INTEREST IN REAL PROPERTY SHOWN ON THIS MAP OR SHOWN ON THESE PLANS, UNLESS THE COUNTY OF MAUI HAS ACCEPTED ITS DEDICATION BY A RESOLUTION APPROVED BY A MAJORITY OF COUNCIL MEMBERS AT A REGULAR OR SPECIAL MEETING OF THE MAUI COUNTY COUNCIL OR THE COUNTY OF MAUI HAS SIGNED ITS ACCEPTANCE VIA A CONVEYANCE DOCUMENT RECORDED IN THE BUREAU OF CONVEYANCES OF THE STATE OF HAWAII IN COMPLIANCE WITH MAUI COUNTY CODE SECTION 3.44.015.
5. PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS "ZONE X/OTHER AREAS" AS SHOWN ON THE MAP INDEX, MAP NUMBER 15000305955E WITH A REVISION DATE OF SEPTEMBER 25, 2009 IN MAUI COUNTY, STATE OF HAWAII, WHICH IS THE CORRECT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
6. ELEVATIONS SHOWN HEREON ARE BASED ON N.G.S. BENCHMARK SOH 116, HAVING AN ELEVATION OF 66.89 FEET (L.M.S.L.).
7. UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM CONSTRUCTION PLANS AND HAVE NOT BEEN FIELD VERIFIED.
8. PROPERTY IS SUBJECT TO EASEMENTS AS SHOWN ON MAUI ECONOMIC OPPORTUNITY CONDOMINIUM, CONDOMINIUM MAP NO. 5149:
   - EASEMENT B-1 FOR DRAINAGE BASIN PURPOSES
   - EASEMENT D-3 FOR DRAINAGE PURPOSES
   - EASEMENT B-1 FOR DRAINAGE PURPOSES
   - EASEMENT B-2 FOR DRAINAGE PURPOSES
   - TEMPORARY CONSTRUCTION EASEMENT
   - EXISTING TEMPORARY UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES (UP TO 3 YEARS)
   - EXISTING UTILITY EASEMENT FOR ELECTRICAL AND ACCESS PURPOSES
   - EASEMENT A-1 FOR ACCESS PURPOSES
   - EASEMENT UNIT 2A SURFACE WATER
   - EASEMENT D-5 FOR DRAINAGE AND ACCESS PURPOSES
   - EASEMENT RW-1 FOR ACCESS AND ROAD WIDENING PURPOSES.
9. PROPERTY IS SUBJECT TO A DECLARATION OF EASEMENT RIGHTS, COVENANTS CONDITIONS AND RESTRICTIONS, DOCUMENT NO. A-82940748, AMENDED BY DOCUMENT NO. A-85840476.
10. PROPERTY IS SUBJECT TO FLUMES AND DITCHES AS CONTAINED IN EXCHANGE DEED DATE JUNE 23, 1924, RECORDED IN LIBER 740 AT PAGE 134.
11. TOGETHER WITH EASEMENT A-4 AND D-4 FOR DRAINAGE IN FAVOR OF A & B, MAUI BUSINESS PARK PHASE II ASSOCIATION, DOCUMENT NO. A-80270364 AND A-80270365.
12. TOGETHER WITH EASEMENT MW-1 FOR IRRIGATION PURPOSES, DOCUMENT NO. A-47440539.
13. TOGETHER WITH AND EASEMENT FOR ACCESS PURPOSES OVER AND ACROSS LOT 2-C-4-C-1-B-G, DOCUMENT NO. A-80270367.
14. PROPERTY IS SUBJECT TO A DECLARATION OF EASEMENT RIGHTS, COVENANTS, CONDITIONS AND RESTRICTIONS, DOCUMENT NO. A-85840477.

LEGEND

bfp	back flow preventer	pp	power pole
cabx	cable television box	sdmh	storm drain manhole
di	drain inlet	sicmh	signal corp manhole
ebx	electric box	sl	street light
fh	fire hydrant	smh	sewer manhole
gen	generator	tebx	telephone box
gw	guy wire	trans	transformer
lp	lamp post	up	utility pole
ohu	overhead utility lines	wbx	water box
pbx	power box	wv	water valve
		wmh	water manhole

OWNERS: MAUI ECONOMIC OPPORTUNITY, INC.
COUNTY OF MAUI
ALEXANDER & BALDWIN, LLC.
AX HOLDING, LLC.
PUUNENE INDUSTRIAL PARK, LLC.

TMK: (2) 3-8-006: 004

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

PRELIMINARY
SUBJECT TO CHANGE

JUSTIN H. LAPP
LICENSED PROFESSIONAL LAND SURVEYOR
CERTIFICATE No. 12964
EXP. DATE 04/2026

PRELIMINARY PLAT
FIRST ASSEMBLY OF GOD SUBDIVISION
SUBDIVISION OF LOT 2-C-4-C-1-E
INTO LOTS 2-C-4-C-1-E-1, 2-C-4-C-1-E-2,
2-C-4-C-1-E-3, 2-C-4-C-1-E-4 AND 2-C-4-C-1-E-5
BEING A PORTION OF GRANT 3343 TO CLAUS SPRECKELS
SITUATED AT PUUNENE, WAILUKU, MAUI, HAWAII

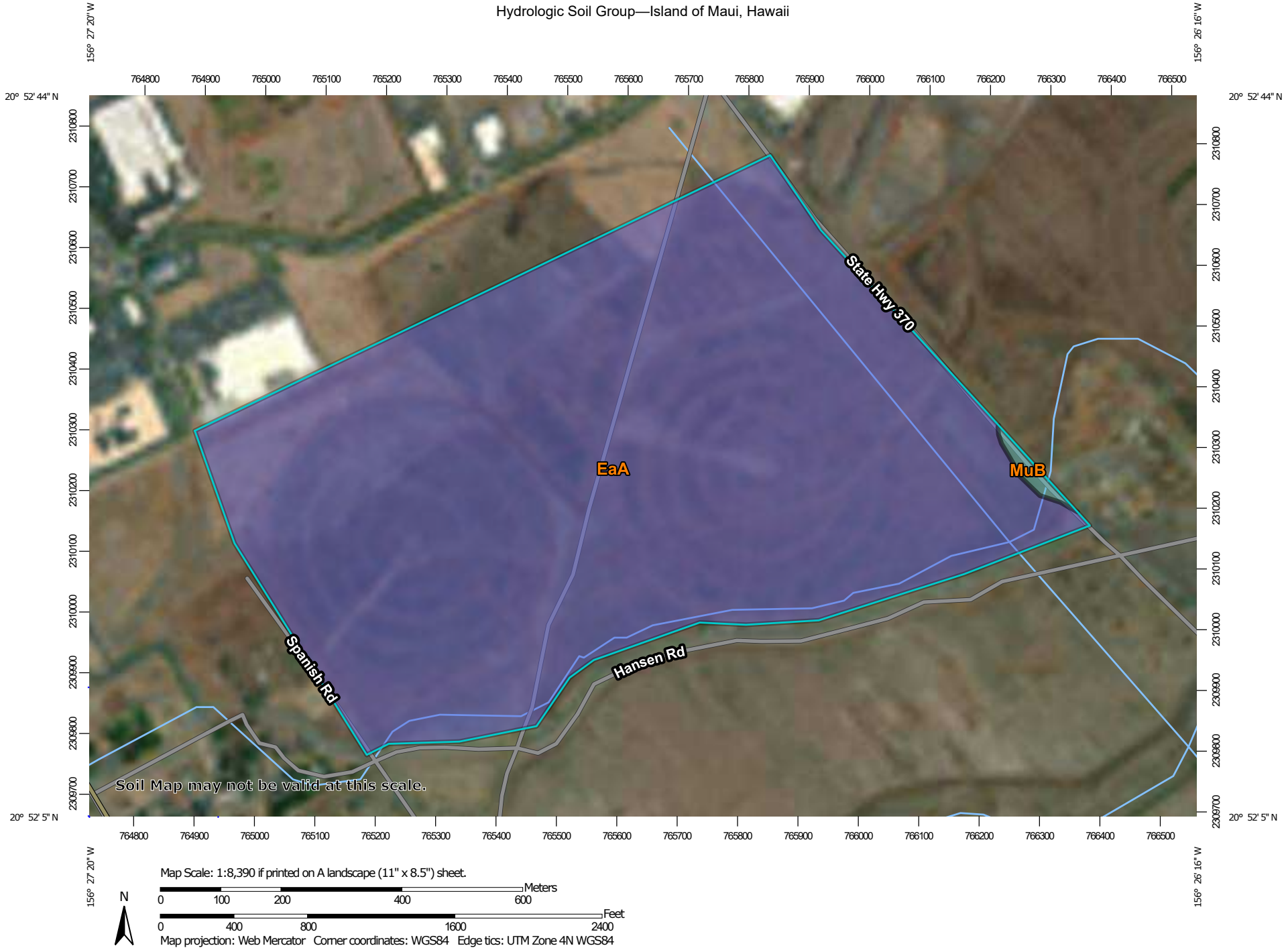
JUNE 21, 2024

B:\PROJECTS\PDGHAWAII\H109-001\SUBS\ATA SURVEYING\23526PP TO ALPHA.DWG

AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS * SURVEYORS
1871 WILI PA LOOP SUITE A * WAILUKU, MAUI, HAWAII 96793

24" X 36" = 6 SQ. FT.

JOB NO.: 23-526



Map Scale: 1:8,390 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Maui, Hawaii
Survey Area Data: Version 21, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
EaA	Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158	B	193.8	99.5%
MuB	Molokai silty clay loam, 3 to 7 percent slopes, MLRA 158	C	0.9	0.5%
Totals for Area of Interest			**194.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

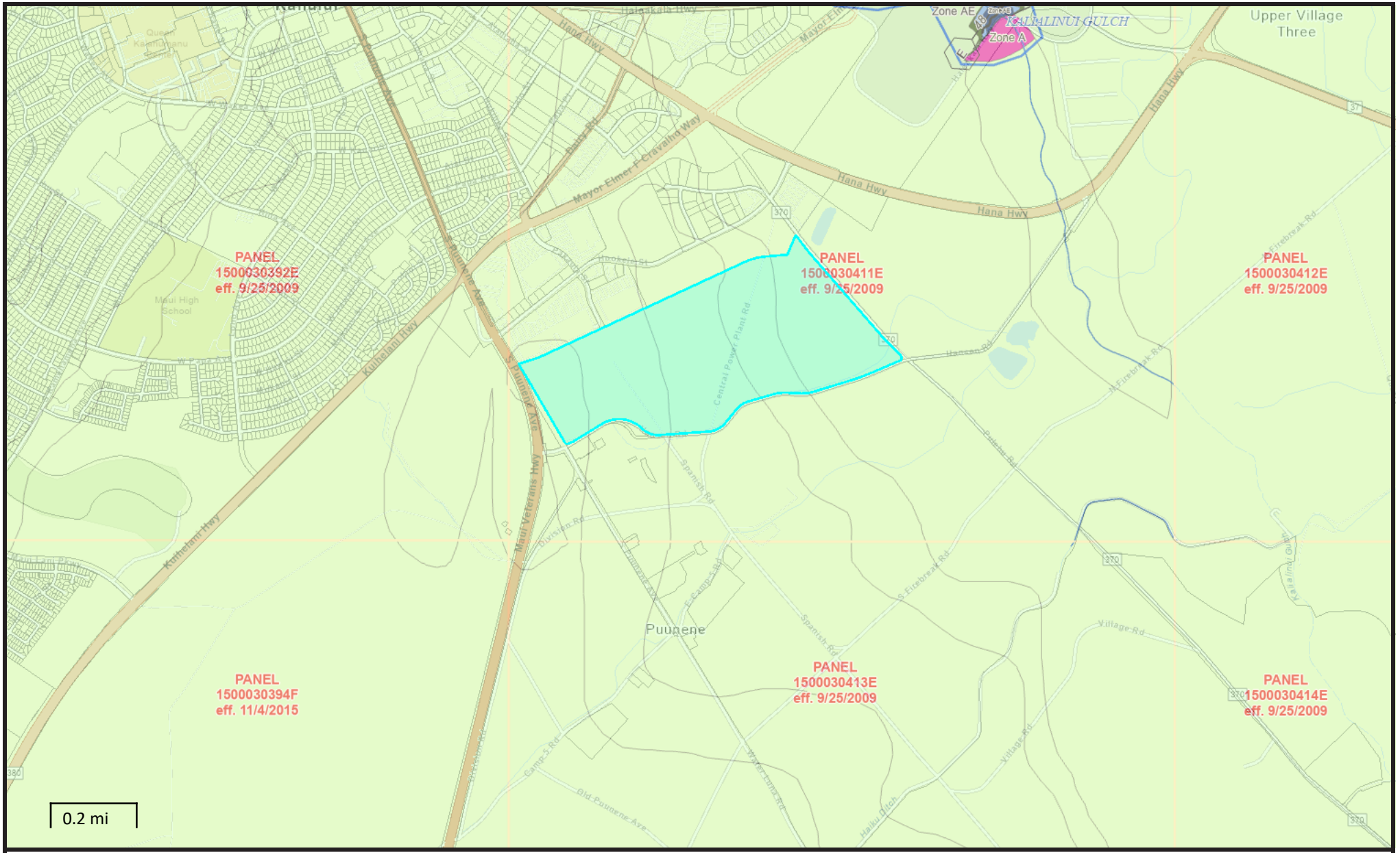
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Flood Hazard Map

Title: Hoonani Village Flood Hazard Map

Notes: Flood Zone X

Map generated on 10/11/2024

Map Legend

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

County of Maui Wastewater Infrastructure

10/14/2024

1:22,615

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

Resource Mapping Hawaii, Maxar, Eagleview, 2023, Eagleview, 2023.

APPENDIX 'B' – PRE-DEVELOPED CONDITION DRAINAGE ANALYSIS

NOAA Atlas 14, Volume 4, Version 3
Location name: Kahului, Hawaii, USA*
Latitude: 20.8729°, Longitude: -156.4473°
Elevation: 66 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

S. Perica, D. Martin, B. Lin, T. Parzybok, D. Riley, M. Yekta, L. Hiner, L.-C. Chen, D. Brewer, F. Yan, K. Maitaria, C. Trypaluk, G. M. Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.219 (0.189-0.250)	0.293 (0.253-0.342)	0.399 (0.342-0.466)	0.483 (0.409-0.567)	0.601 (0.502-0.713)	0.698 (0.572-0.837)	0.797 (0.641-0.968)	0.905 (0.710-1.12)	1.05 (0.796-1.33)	1.18 (0.860-1.51)
10-min	0.325 (0.280-0.370)	0.434 (0.375-0.507)	0.592 (0.508-0.691)	0.716 (0.607-0.840)	0.891 (0.744-1.06)	1.04 (0.848-1.24)	1.18 (0.950-1.44)	1.34 (1.05-1.66)	1.56 (1.18-1.97)	1.75 (1.28-2.24)
15-min	0.408 (0.352-0.465)	0.545 (0.471-0.637)	0.744 (0.638-0.868)	0.900 (0.762-1.06)	1.12 (0.934-1.33)	1.30 (1.06-1.56)	1.48 (1.19-1.80)	1.68 (1.32-2.08)	1.96 (1.48-2.47)	2.20 (1.60-2.81)
30-min	0.575 (0.496-0.654)	0.768 (0.663-0.896)	1.05 (0.898-1.22)	1.27 (1.07-1.48)	1.57 (1.32-1.87)	1.83 (1.50-2.19)	2.09 (1.68-2.54)	2.37 (1.86-2.92)	2.76 (2.08-3.48)	3.09 (2.25-3.96)
60-min	0.756 (0.652-0.861)	1.01 (0.873-1.18)	1.38 (1.18-1.61)	1.67 (1.41-1.95)	2.07 (1.73-2.46)	2.41 (1.97-2.88)	2.75 (2.21-3.34)	3.12 (2.45-3.85)	3.64 (2.74-4.58)	4.06 (2.96-5.21)
2-hr	1.03 (0.902-1.19)	1.40 (1.21-1.64)	1.92 (1.64-2.24)	2.31 (1.97-2.72)	2.87 (2.40-3.41)	3.31 (2.72-3.97)	3.76 (3.02-4.57)	4.24 (3.33-5.22)	4.90 (3.70-6.17)	5.44 (3.96-6.97)
3-hr	1.16 (1.02-1.34)	1.61 (1.39-1.87)	2.20 (1.89-2.57)	2.66 (2.26-3.13)	3.31 (2.76-3.93)	3.82 (3.13-4.59)	4.35 (3.49-5.28)	4.90 (3.84-6.04)	5.67 (4.27-7.14)	6.29 (4.58-8.06)
6-hr	1.47 (1.28-1.70)	2.01 (1.73-2.35)	2.77 (2.38-3.25)	3.38 (2.87-3.98)	4.21 (3.52-5.02)	4.88 (4.01-5.87)	5.57 (4.48-6.77)	6.30 (4.94-7.77)	7.30 (5.50-9.21)	8.11 (5.90-10.4)
12-hr	1.84 (1.59-2.12)	2.52 (2.16-2.93)	3.48 (2.98-4.07)	4.26 (3.61-5.00)	5.35 (4.46-6.35)	6.23 (5.11-7.48)	7.16 (5.74-8.69)	8.14 (6.37-10.0)	9.52 (7.16-12.0)	10.6 (7.73-13.6)
24-hr	2.28 (1.99-2.62)	3.13 (2.73-3.59)	4.35 (3.79-5.00)	5.34 (4.63-6.15)	6.77 (5.82-7.83)	7.93 (6.76-9.22)	9.17 (7.74-10.7)	10.5 (8.77-12.4)	12.4 (10.2-14.7)	14.0 (11.3-16.7)
2-day	2.79 (2.48-3.16)	3.86 (3.42-4.37)	5.40 (4.78-6.14)	6.67 (5.87-7.60)	8.50 (7.41-9.72)	10.0 (8.65-11.5)	11.6 (9.93-13.4)	13.4 (11.3-15.6)	15.9 (13.2-18.7)	18.0 (14.6-21.3)
3-day	2.95 (2.63-3.34)	4.08 (3.63-4.63)	5.72 (5.06-6.49)	7.06 (6.21-8.04)	8.98 (7.84-10.3)	10.6 (9.13-12.1)	12.3 (10.5-14.2)	14.1 (11.9-16.4)	16.7 (13.8-19.6)	18.9 (15.4-22.4)
4-day	3.12 (2.78-3.53)	4.32 (3.83-4.89)	6.03 (5.34-6.84)	7.45 (6.55-8.48)	9.47 (8.26-10.8)	11.1 (9.62-12.8)	12.9 (11.0-14.9)	14.8 (12.5-17.2)	17.6 (14.5-20.6)	19.8 (16.1-23.4)
7-day	3.52 (3.13-3.98)	4.86 (4.32-5.51)	6.78 (5.99-7.69)	8.32 (7.32-9.47)	10.5 (9.15-12.0)	12.3 (10.6-14.1)	14.1 (12.1-16.3)	16.1 (13.6-18.7)	19.0 (15.7-22.2)	21.3 (17.3-25.1)
10-day	3.86 (3.43-4.37)	5.33 (4.72-6.04)	7.38 (6.52-8.39)	9.04 (7.94-10.3)	11.3 (9.86-13.0)	13.2 (11.4-15.2)	15.1 (12.9-17.4)	17.1 (14.4-19.9)	20.0 (16.5-23.5)	22.3 (18.1-26.3)
20-day	4.87 (4.33-5.52)	6.69 (5.93-7.57)	9.16 (8.10-10.4)	11.1 (9.75-12.6)	13.7 (12.0-15.7)	15.8 (13.6-18.1)	17.9 (15.3-20.7)	20.1 (16.9-23.3)	23.0 (19.0-27.0)	25.3 (20.6-30.0)
30-day	5.63 (5.01-6.37)	7.71 (6.84-8.73)	10.5 (9.33-12.0)	12.7 (11.2-14.5)	15.7 (13.7-18.0)	18.1 (15.6-20.7)	20.4 (17.5-23.6)	22.9 (19.3-26.6)	26.2 (21.7-30.7)	28.8 (23.4-34.0)
45-day	6.88 (6.12-7.78)	9.43 (8.37-10.7)	12.9 (11.4-14.6)	15.5 (13.6-17.6)	19.0 (16.5-21.7)	21.6 (18.7-24.9)	24.3 (20.8-28.1)	27.1 (22.8-31.4)	30.7 (25.4-36.0)	33.5 (27.2-39.6)
60-day	7.74 (6.88-8.76)	10.6 (9.38-12.0)	14.3 (12.7-16.2)	17.1 (15.1-19.5)	20.9 (18.2-23.9)	23.8 (20.5-27.3)	26.6 (22.7-30.7)	29.5 (24.9-34.2)	33.3 (27.5-39.0)	36.1 (29.3-42.7)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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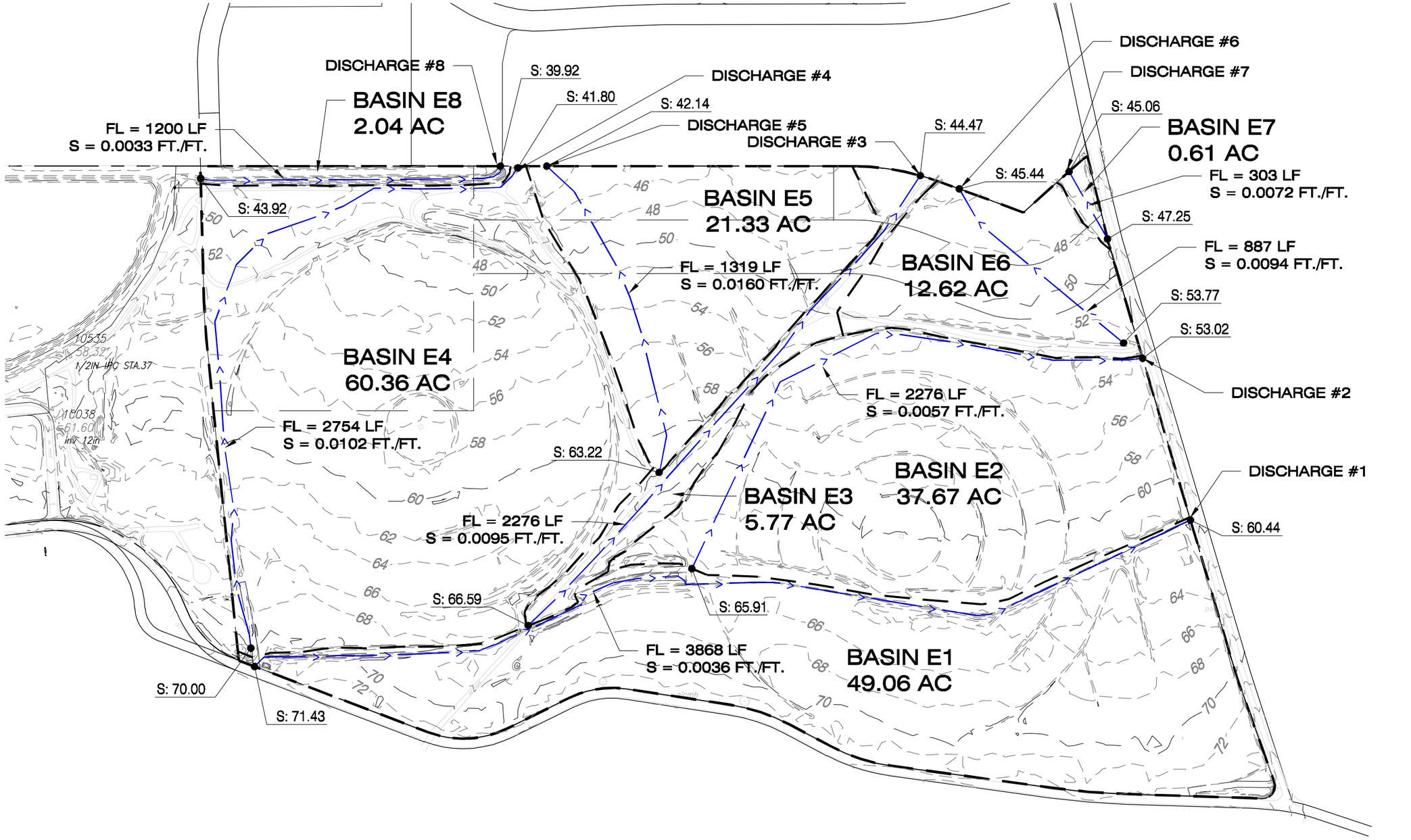
PF graphical

PRE-DEVELOPED BASIN MAP

HOONANI VILLAGE



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CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.400.5959
WWW.PD-GRP.COM

Designed by TCC Date 09/2024
Drawn by TCC Date 09/2024
Reviewed by TCC Date 09/024
Project No. H109-001 REF.
Horiz. Scale: 1"=400'
Vert. Scale:

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
1 of 1

UPSTREAM BASIN MAP
HOONANI VILLAGE

N

SCALE
600 0 300 600
1 INCH = 600 FEET

PIONEER DESIGN GROUP – HAWAII LLC
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CONSTRUCTION MANAGEMENT
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Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

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1 of 1

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RUNOFF CURVE NUMBERS (TR55)

Table 2-2a: Runoff curve numbers for urban areas [1]

Cover description		CN for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover >75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]	77	86	91	94	
Idle lands (CNs are determined using cover types similar to those in table 2-2c)					

1: Average runoff condition, and $I_a = 0.2S$.

2: The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas hava a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

3: CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4: Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5: Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

RUNOFF CURVE NUMBERS (TR55)

Table 2-2c: Runoff curve numbers for other agricultural lands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range -- continuous forage for grazing					
<50% ground cover or heavily grazed with no mulch.	Poor	68	79	86	89
50% to 75% ground cover and not heavily grazed.	Fair	49	69	79	84
>75% ground cover and lightly or only occasionally grazed.	Good	39	61	74	80
Meadow -- continuous grass, protected from grazing and generally mowed for hay	--	30	58	71	78
Brush – weed-grass mixture with brush as the major element					
<50% ground cover	Poor	48	67	77	83
50% to 75% ground cover	Fair	35	56	70	77
>75% ground cover	Good	30 [2]	48	65	73
Woods – grass combination (orchard or tree farm) [3]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods					
Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.	Poor	45	66	77	83
Woods are grazed but not burned, and some forest litter covers the soil.	Fair	36	60	73	79
Woods are protected from grazing, and litter and brush adequately cover the soil.	Good	30 [2]	55	70	77
Farmsteads -- buildings, lanes, driveways, and surrounding lots	--	59	74	82	86

1: Average runoff condition, and $I_a = 0.2S$.

2: Actual curve number is less than 30; use CN = 30 for runoff computations.

3: CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

BASIN 1 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 50min.
Intensity = 2.75 in./hr.

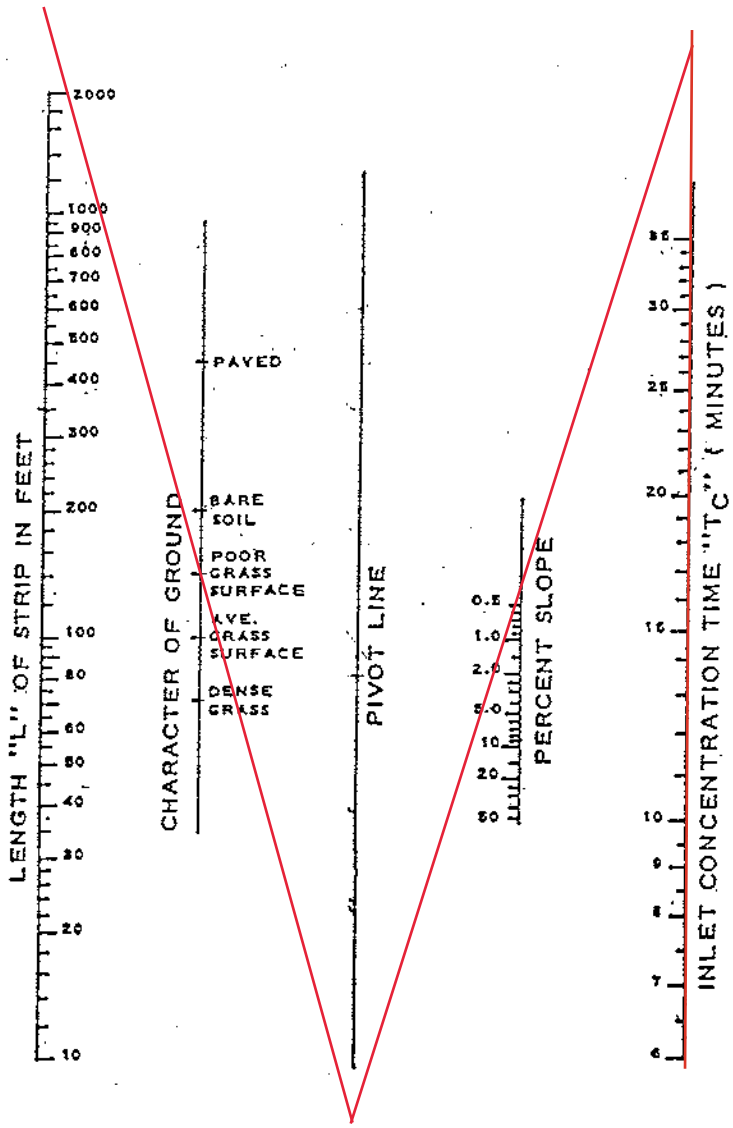
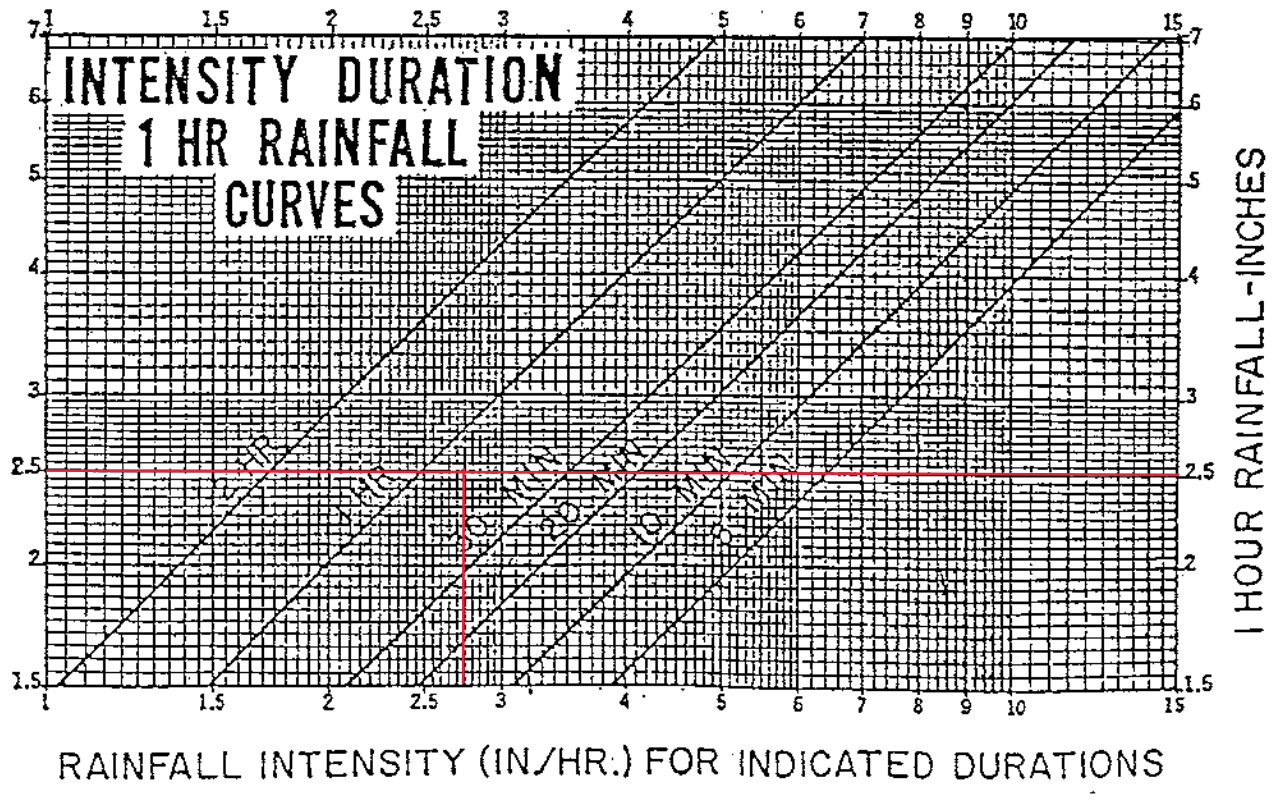


Plate 1

Overland Flow Chart

Plate 2



BASIN 2 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 42 min.
Intensity = 2.85 in./hr.

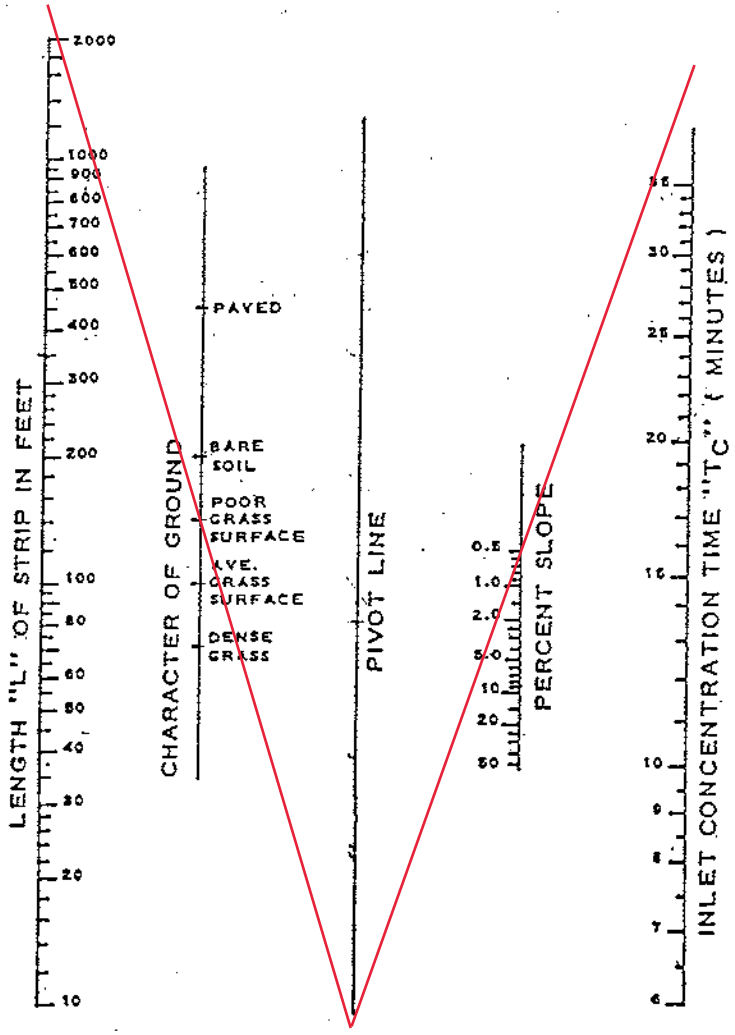
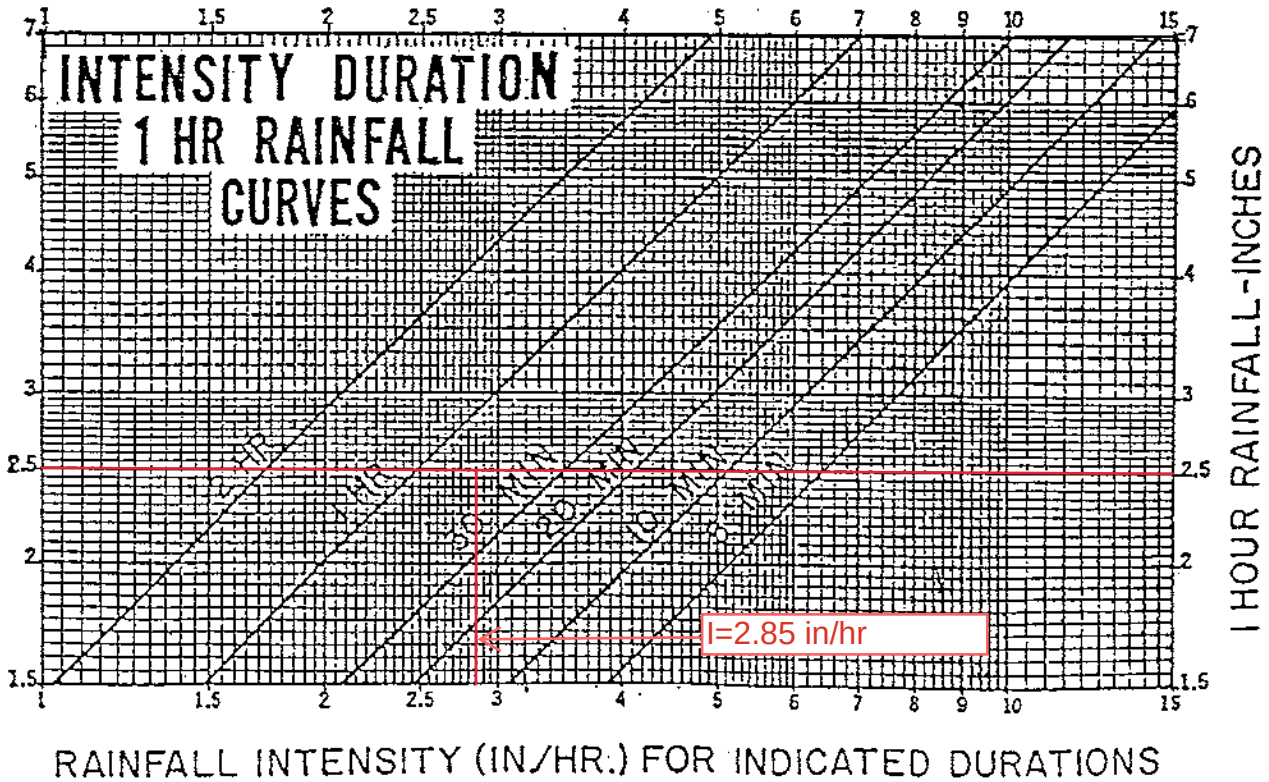


Plate 1

Overland Flow Chart

Plate 2



BASIN 3 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 25 min.
Intensity = 3.75 in./hr.

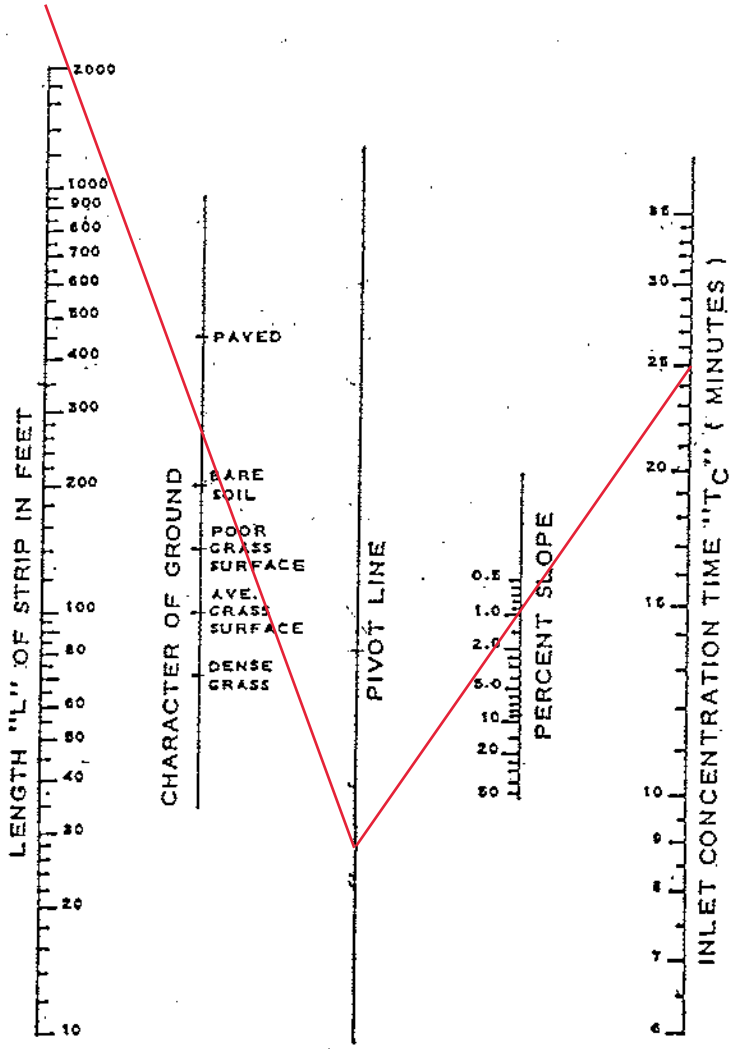
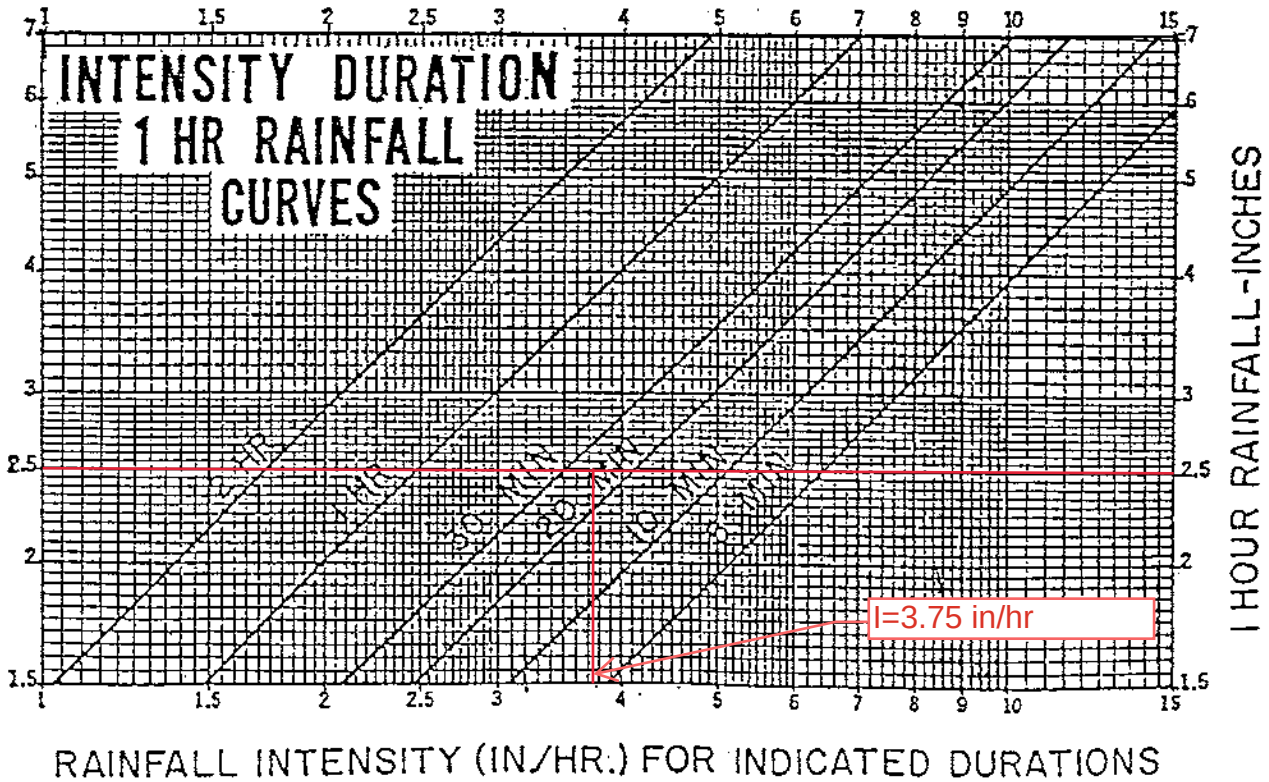


Plate 1

Overland Flow Chart

Plate 2



BASIN 4 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 43 min.
Intensity = 2.9 in./hr.

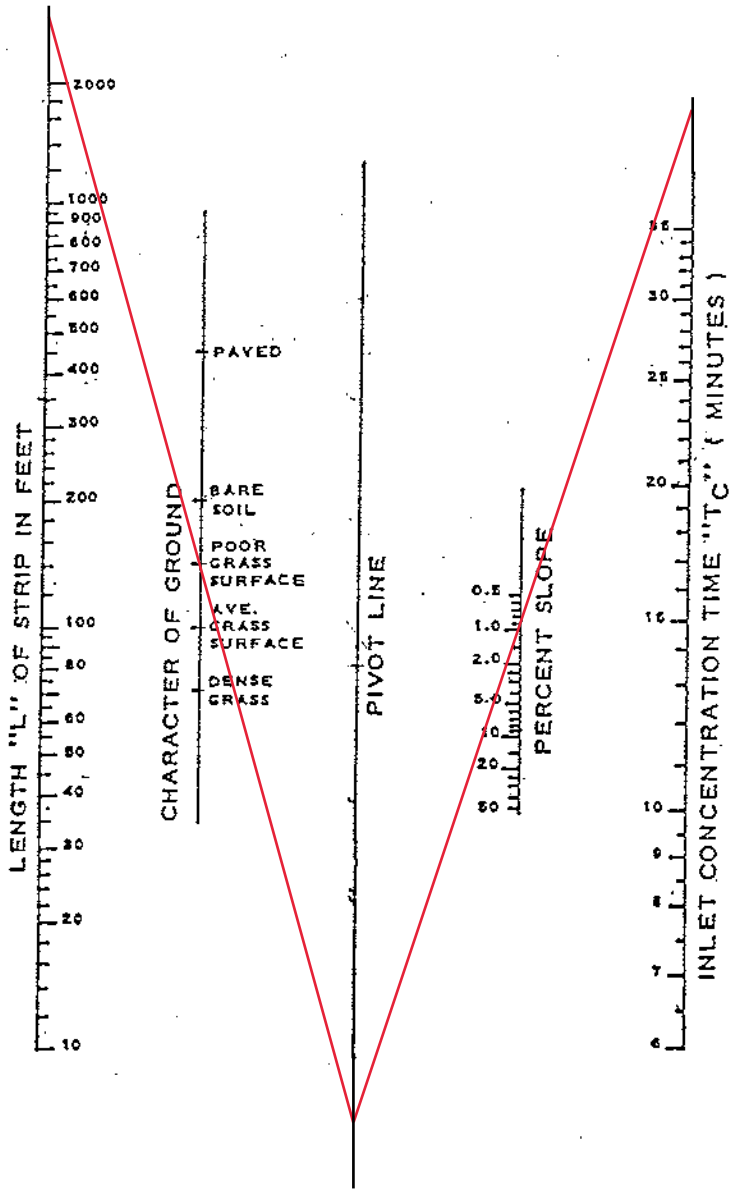
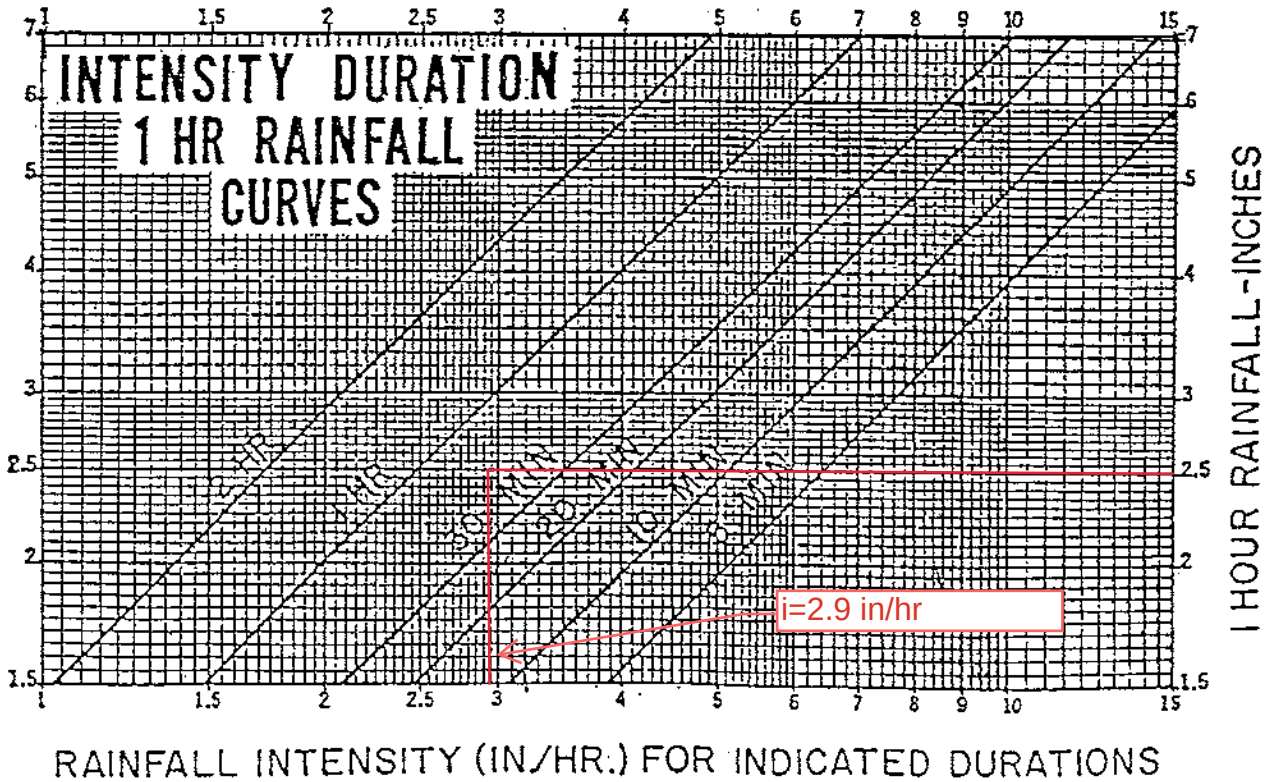


Plate 1

Overland Flow Chart

Plate 2



BASIN 5 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 37 min.
Intensity = 3.25 in./hr.

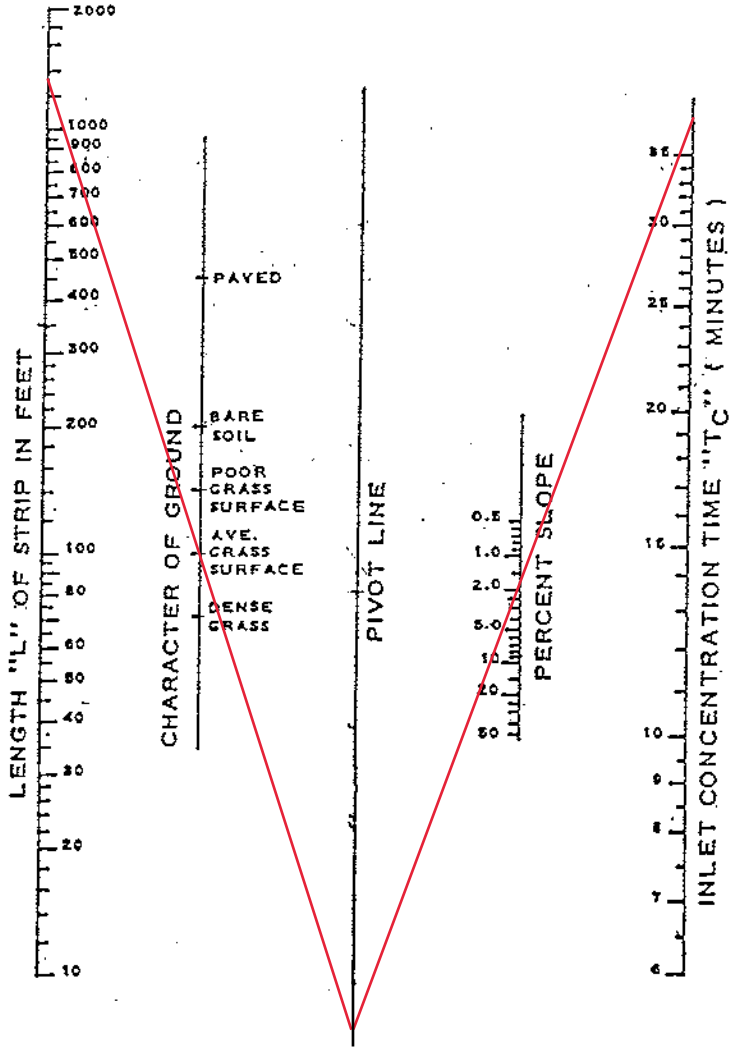
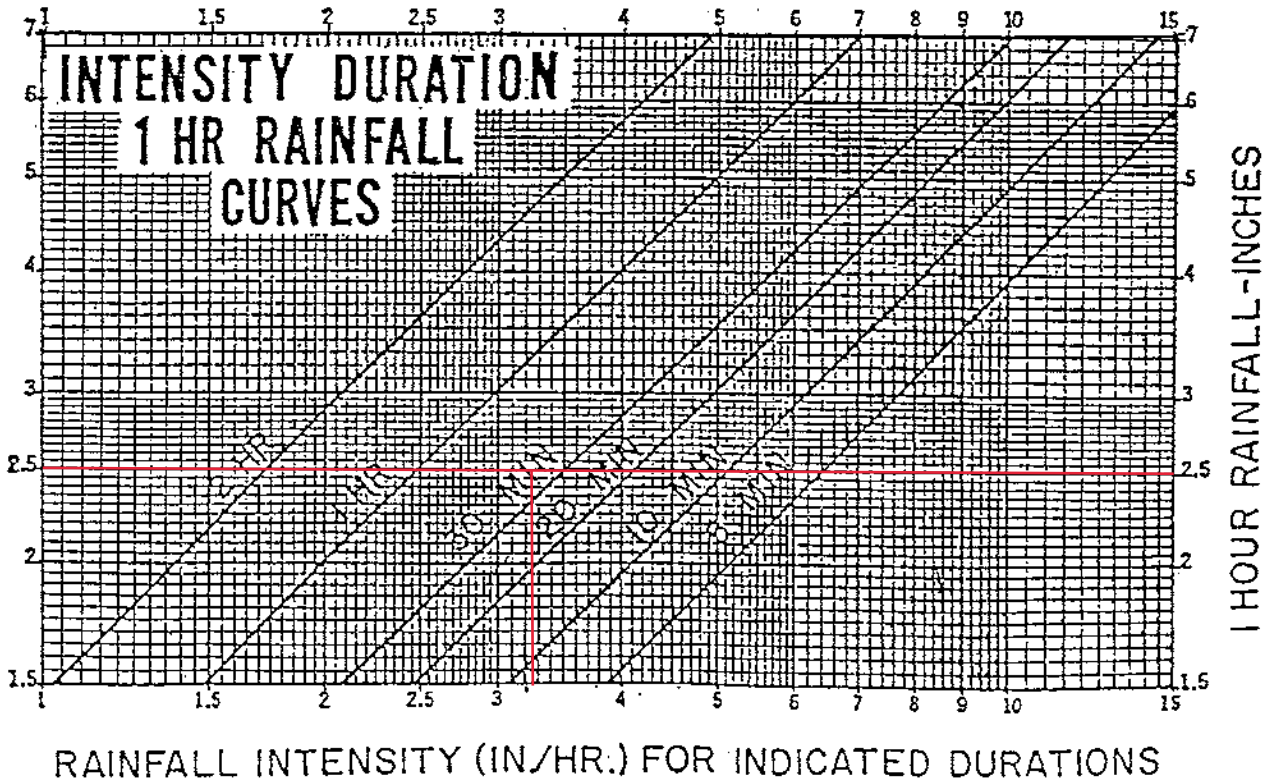


Plate 1

Overland Flow Chart

Plate 2



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Tc = 37 min.
Intensity = 3.25 in./hr.

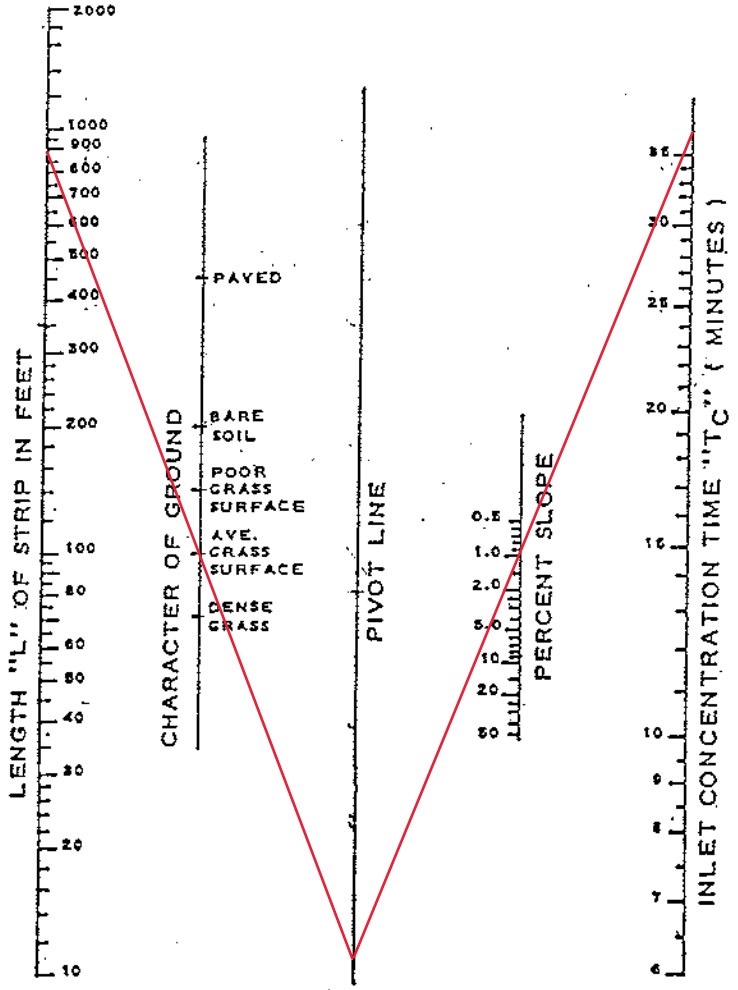
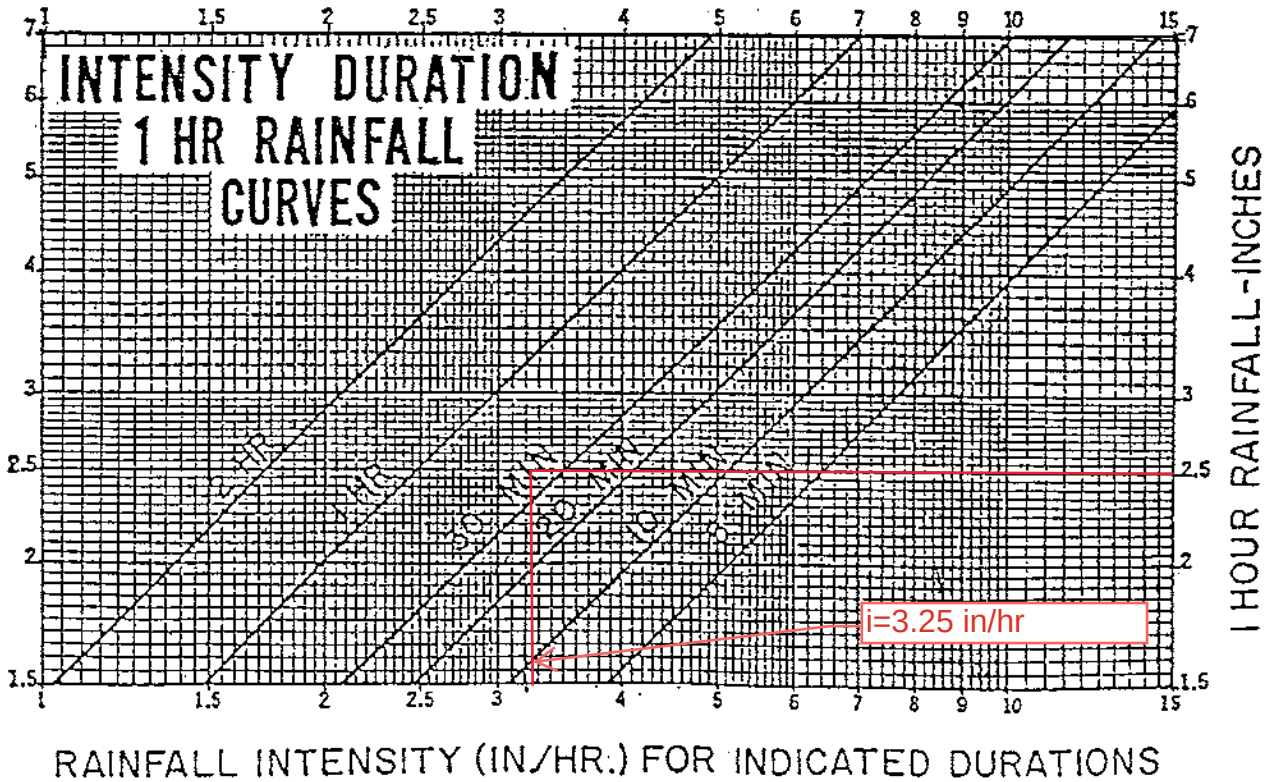


Plate 1

Overland Flow Chart

Plate 2



BASIN 7 PRE-DEVELOPMENT
Plate 7 = 2.5 inches
Tc = 24.5 min.
Intensity = 3.9 in./hr.

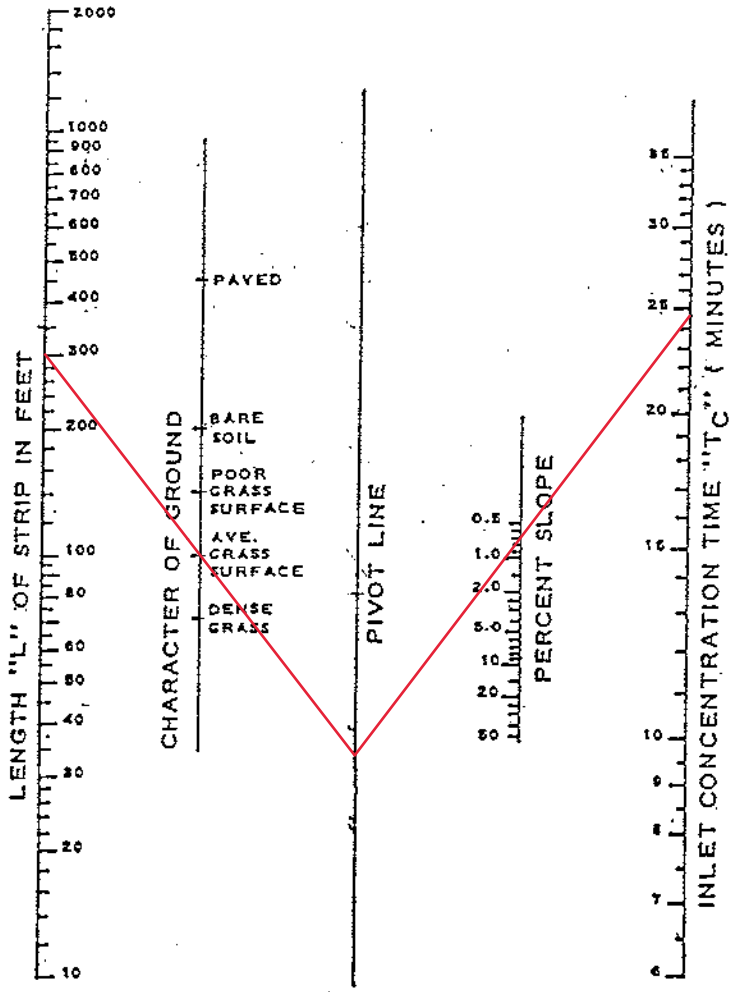
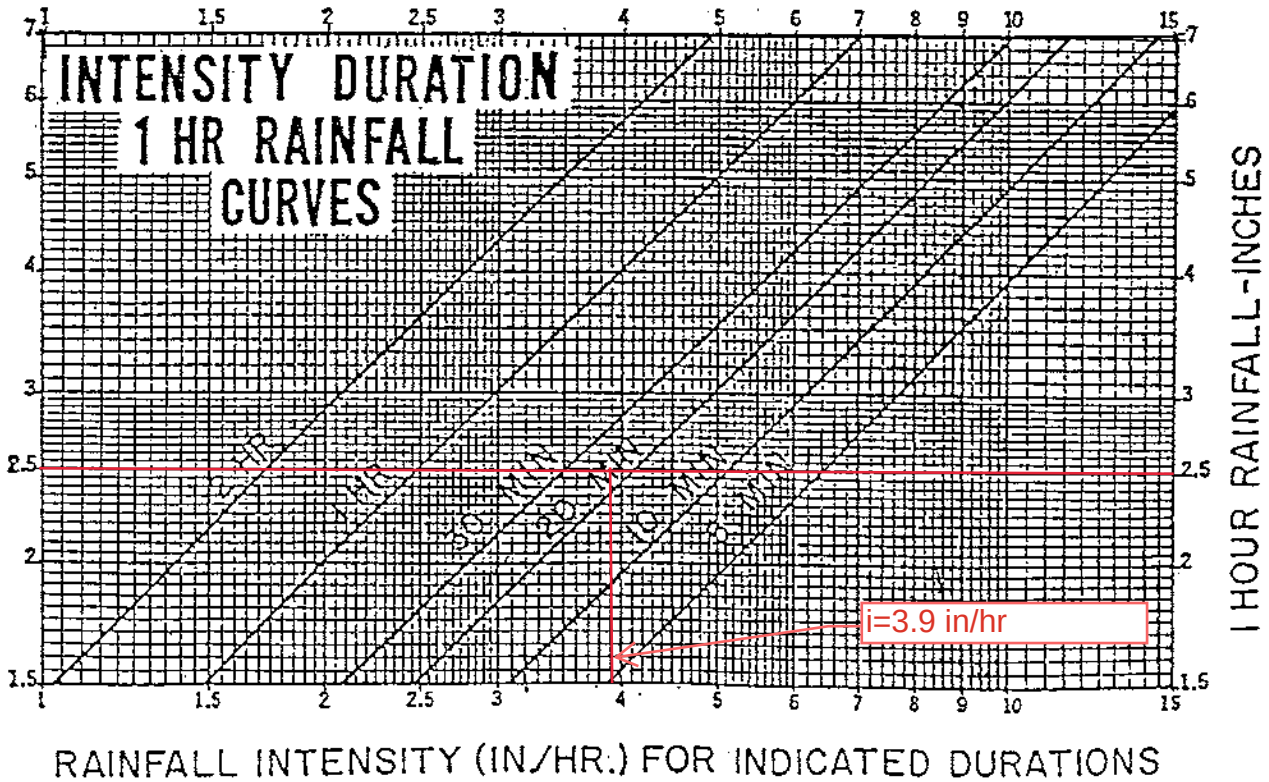


Plate 1

Overland Flow Chart

Plate 2



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Tc = 50.0 min.
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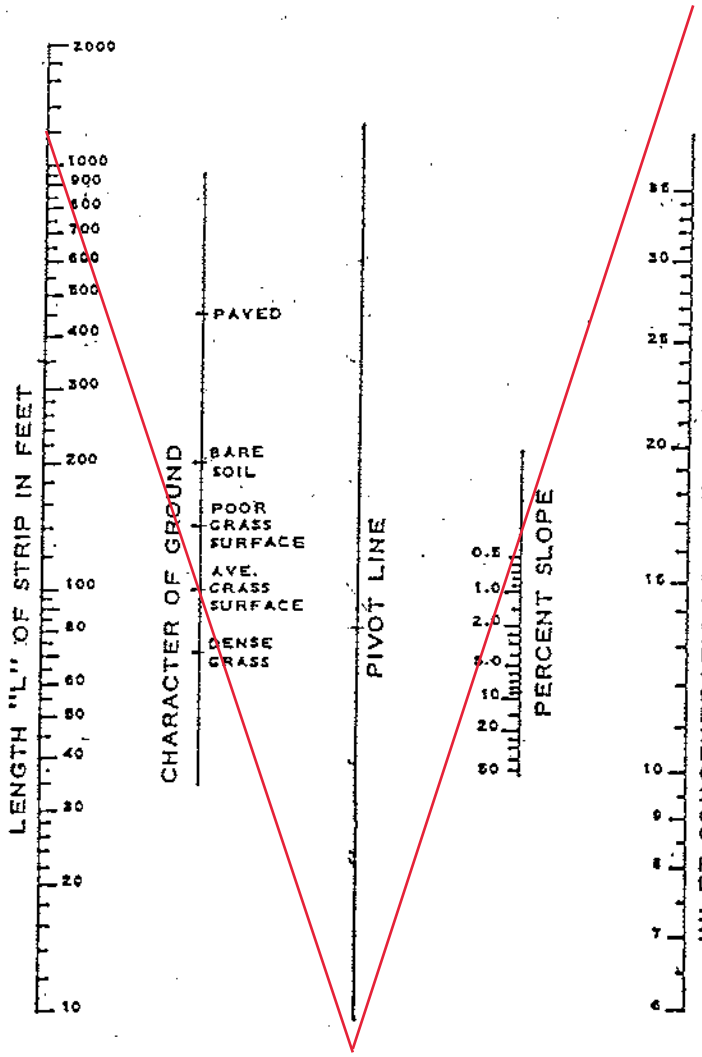
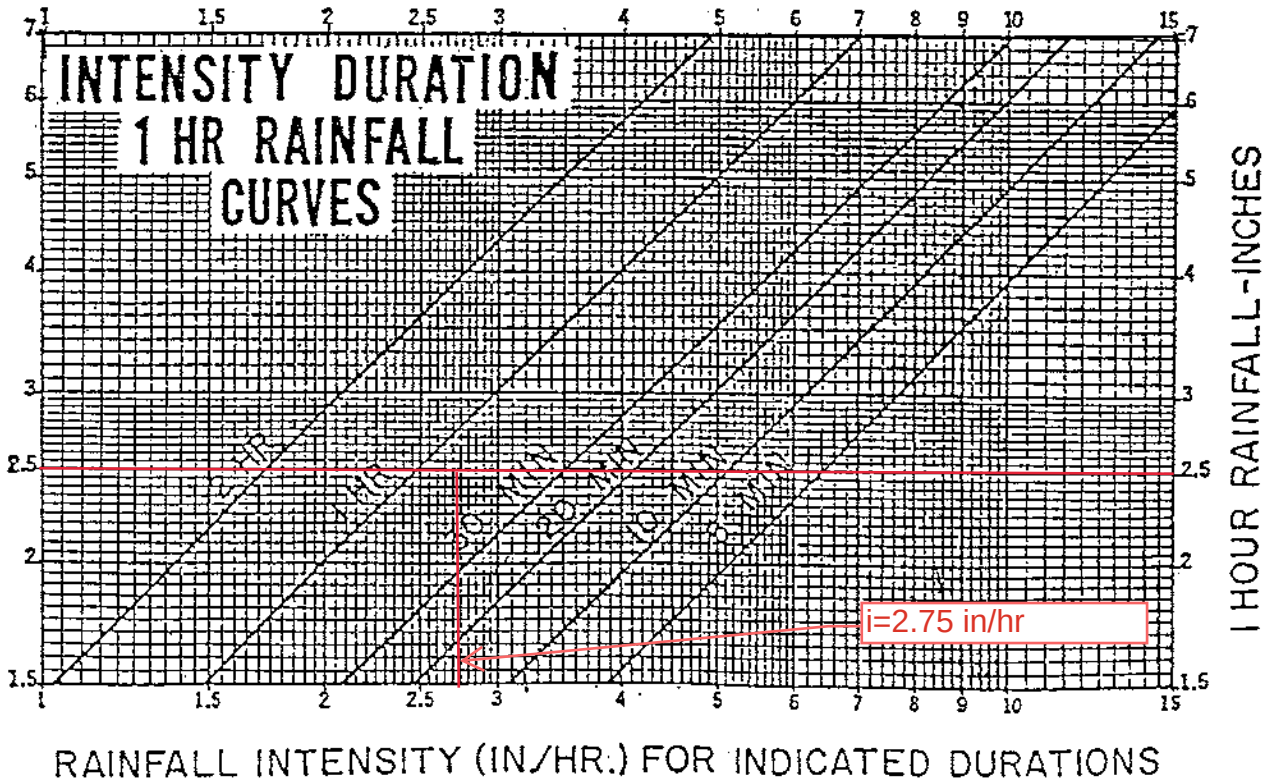


Plate 1

Overland Flow Chart

Plate 2

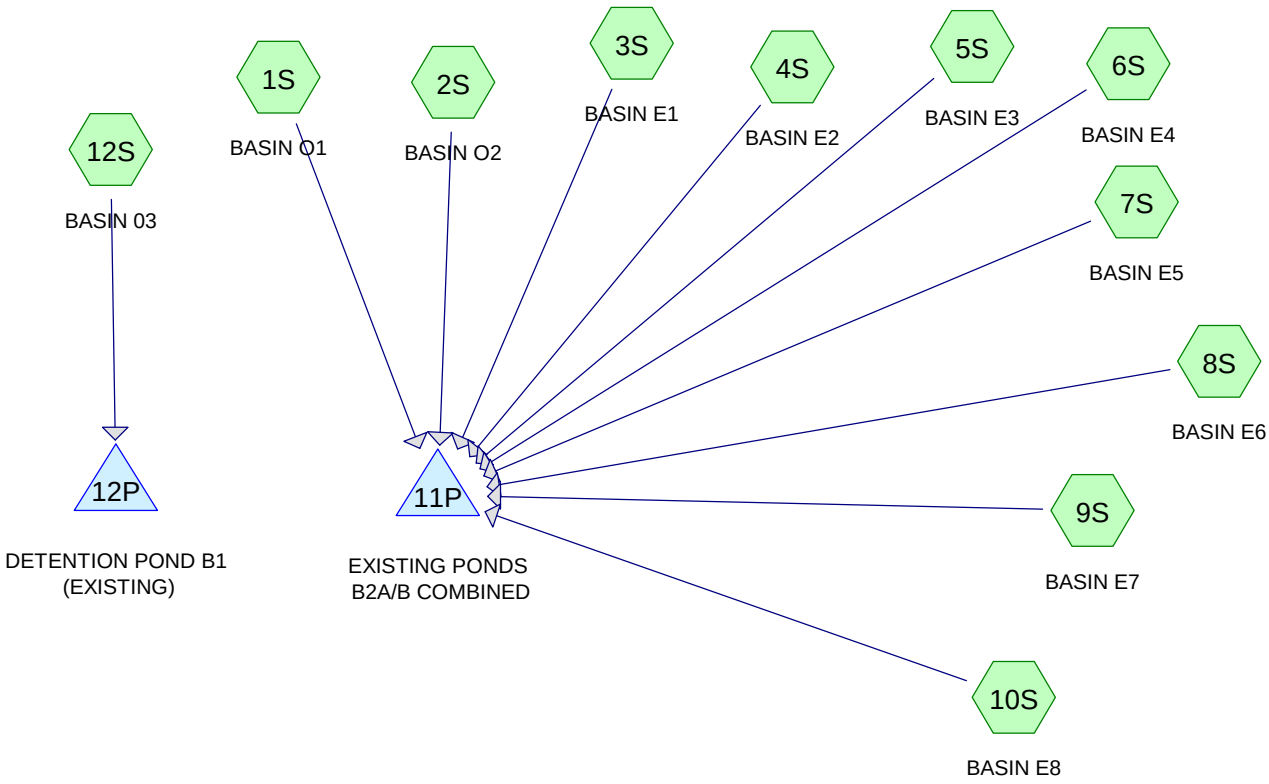


PREDEVELOPED BASIN & DISCHARGE POINT ANALYSIS
(100 YEAR, 24 HR STORM EVENT)

JOB NUMBER: H109-001
PROJECT: Hoonani Village
FILE: H1091_PER Hydro

PRE-DEVELOPED ON-SITE ANALYSIS					
DISCHARGE POINT #	**CONTRIBUTING BASINS**	**BASIN AREA (AC)**	**PREDEVELOPED FLOW RATE (CFS)**	**PREDEVELOPED VOL. (AC-FT)**	**TYPE OF FLOW**
1	E1	49.060	61.26	16.291	Channel Flow from existing cutoff/irrigation ditch that outfalls to Pulehu Road.
2	E2	37.666	52.23	12.509	Channel Flow from existing cutoff/irrigation ditch that outfalls to Pulehu Road.
3	E3	5.767	10.74	1.916	Shallow concentrated flow that flows along the existing farm road
4	E4	60.359	82.40	20.844	Shallow concentrated flow that flows along the existing farm road
5	E5	21.335	31.78	7.083	Sheetflow from south to north
6	E6	12.618	18.80	4.191	Sheetflow from south to north
7	E7	0.663	1.24	0.219	Sheetflow from south to north
8	E8	2.044	2.55	0.677	Channel flow in existing drainage ditch
	ALL BASINS ON SITE	**189.511**	**261.00**	**63.73**	

PRE-DEVELOPED UPSTREAM BASIN ANALYSIS					
DISCHARGE POINT #	**CONTRIBUTING BASINS**	**BASIN AREA (AC)**	**PREDEVELOPED FLOW RATE (CFS)**	**PREDEVELOPED VOL. (AC-FT)**	**TYPE OF FLOW**
HANSEN ROAD	O1	141.420	153.38	41.100	Upstream sheet flow towards Hansen Road. Flow to be collected in new storm system on Hansen Road and conveyed to a detention pond.
BASIN B2A & B2B	O2	6.650	11.29	2.280	Upstream sheet flow towards Pulehu Road. Flow to be collected in an area drain along Pulehu Road and discharged by a pipe into a detention pond, B2B.
BASIN B1	O3	140.680	243.67	67.230	Channel flow to existing detention basin B1. Flow does not change in the developed condition.
	UPSTREAM BASINS	**288.750**	**408.34**	**110.61**	
PRE-DEVELOPED EXISTING & DESIGNED DETENTION BASIN ANALYSIS					
BASIN LABEL	**CONTRIBUTING BASINS**	**AVAILABLE STORAGE (AC-FT)**	**PREDEVELOPED FLOW RATE (CFS)**	**PREDEVELOPED VOL. (AC-FT)**	**AVAILABLE VOLUME (AC-FT)**
BASIN B1	O3	87.600	243.67	67.230	20.37
BASIN B2A & B2B	O1, O2, E1-8	100.200	425.67	107.11	-6.91
		187.800	**669.34**	**174.34**	



Subcat Reach Pond Link

Routing Diagram for PRELIM PREDEVELOPED HYDRO
Prepared by Pioneer Design Group, Printed 10/1/2024
HydroCAD® 10.20-4b s/n 09255 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
189.510	58	(3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S)
140.680	72	(12S)
141.420	54	UPSTREAM BASIN O1 (1S)
6.650	59	UPSTREAM BASIN O2 (2S)
478.260	**61**	**TOTAL AREA**

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BASIN O1 Runoff Area=141.420 ac 0.00% Impervious Runoff Depth=3.49"
Tc=46.5 min CN=54 Runoff=153.38 cfs 41.099 af

Subcatchment 2S: BASIN O2 Runoff Area=6.650 ac 0.00% Impervious Runoff Depth=4.11"
Tc=31.7 min CN=59 Runoff=11.29 cfs 2.277 af

Subcatchment 3S: BASIN E1 Runoff Area=49.060 ac 0.00% Impervious Runoff Depth=3.98"
Tc=50.0 min CN=58 Runoff=61.26 cfs 16.291 af

Subcatchment 4S: BASIN E2 Runoff Area=37.670 ac 0.00% Impervious Runoff Depth=3.98"
Tc=42.0 min CN=58 Runoff=52.23 cfs 12.509 af

Subcatchment 5S: BASIN E3 Runoff Area=5.770 ac 0.00% Impervious Runoff Depth=3.98"
Tc=25.0 min CN=58 Runoff=10.74 cfs 1.916 af

Subcatchment 6S: BASIN E4 Runoff Area=60.360 ac 0.00% Impervious Runoff Depth=3.98"
Tc=43.0 min CN=58 Runoff=82.40 cfs 20.044 af

Subcatchment 7S: BASIN E5 Runoff Area=21.330 ac 0.00% Impervious Runoff Depth=3.98"
Tc=37.0 min CN=58 Runoff=31.78 cfs 7.083 af

Subcatchment 8S: BASIN E6 Runoff Area=12.620 ac 0.00% Impervious Runoff Depth=3.98"
Tc=37.0 min CN=58 Runoff=18.80 cfs 4.191 af

Subcatchment 9S: BASIN E7 Runoff Area=0.660 ac 0.00% Impervious Runoff Depth=3.98"
Tc=24.5 min CN=58 Runoff=1.24 cfs 0.219 af

Subcatchment 10S: BASIN E8 Runoff Area=2.040 ac 0.00% Impervious Runoff Depth=3.98"
Tc=50.0 min CN=58 Runoff=2.55 cfs 0.677 af

Subcatchment 12S: BASIN 03 Runoff Area=140.680 ac 0.00% Impervious Runoff Depth>5.73"
Tc=62.2 min CN=72 Runoff=243.67 cfs 67.230 af

Pond 11P: EXISTING PONDS B2A/B Peak Elev=37.80' Storage=35.580 af Inflow=413.32 cfs 106.306 af
Outflow=69.77 cfs 106.305 af

Pond 12P: DETENTION POND B1 (EXISTING) Peak Elev=39.90' Storage=23.573 af Inflow=243.67 cfs 67.230 af
Outflow=42.20 cfs 67.230 af

Total Runoff Area = 478.260 ac Runoff Volume = 173.536 af Average Runoff Depth = 4.35"
100.00% Pervious = 478.260 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: BASIN O1

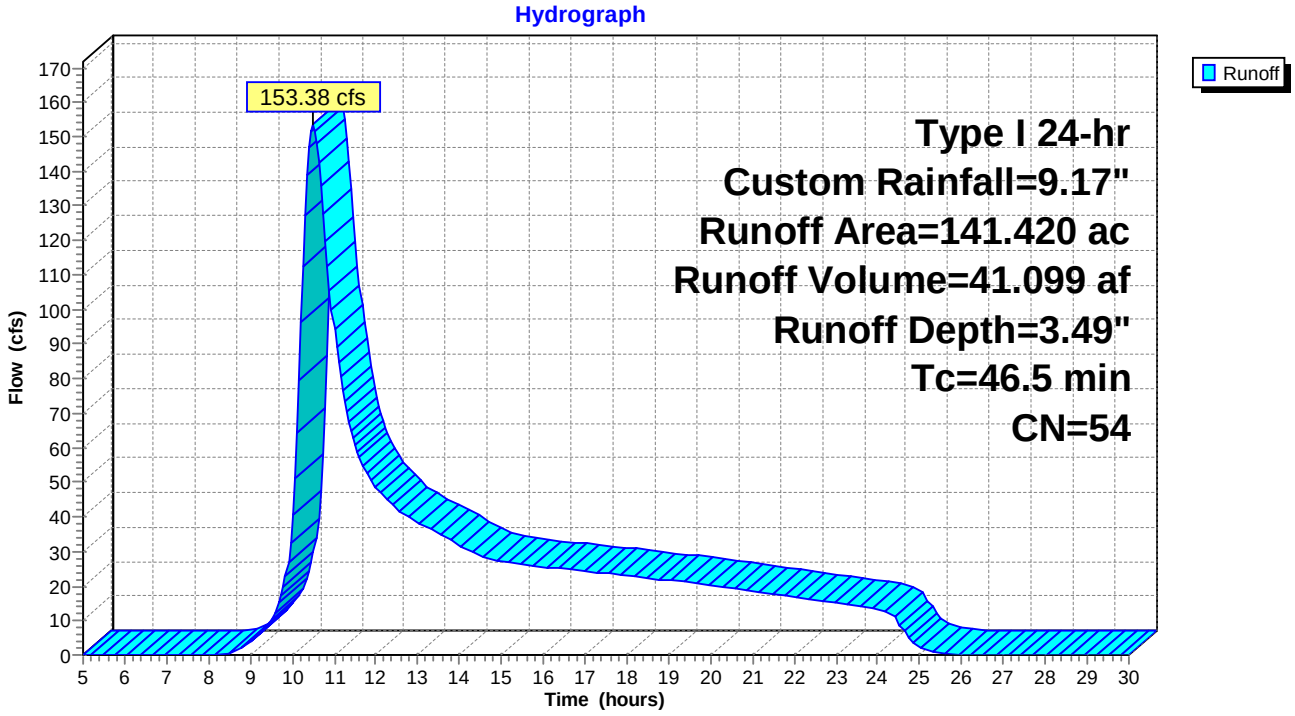
Runoff = 153.38 cfs @ 10.50 hrs, Volume= 41.099 af, Depth= 3.49"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	141.420	54	UPSTREAM BASIN O1
	141.420		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.5					**Direct Entry, PREDEV TOC**

Subcatchment 1S: BASIN O1



Summary for Subcatchment 2S: BASIN O2

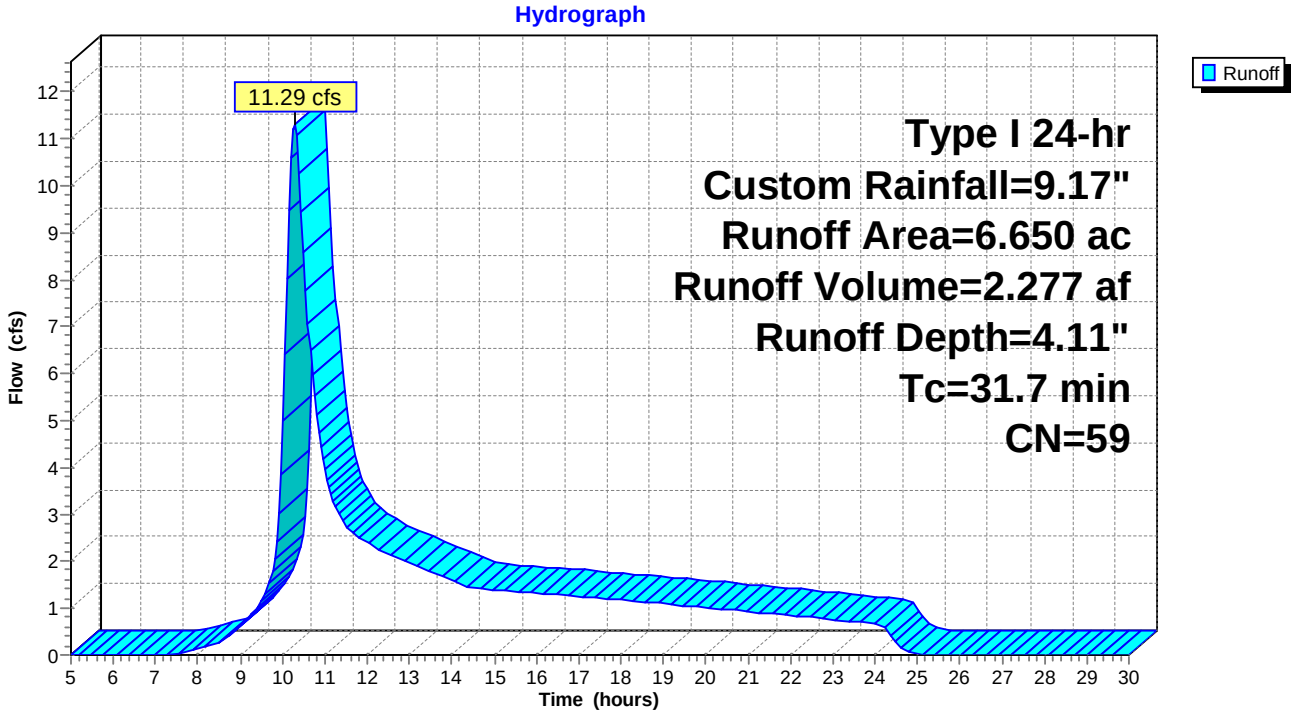
Runoff = 11.29 cfs @ 10.28 hrs, Volume= 2.277 af, Depth= 4.11"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.650	59	UPSTREAM BASIN O2
	6.650		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.7					**Direct Entry,**

Subcatchment 2S: BASIN O2



Summary for Subcatchment 3S: BASIN E1

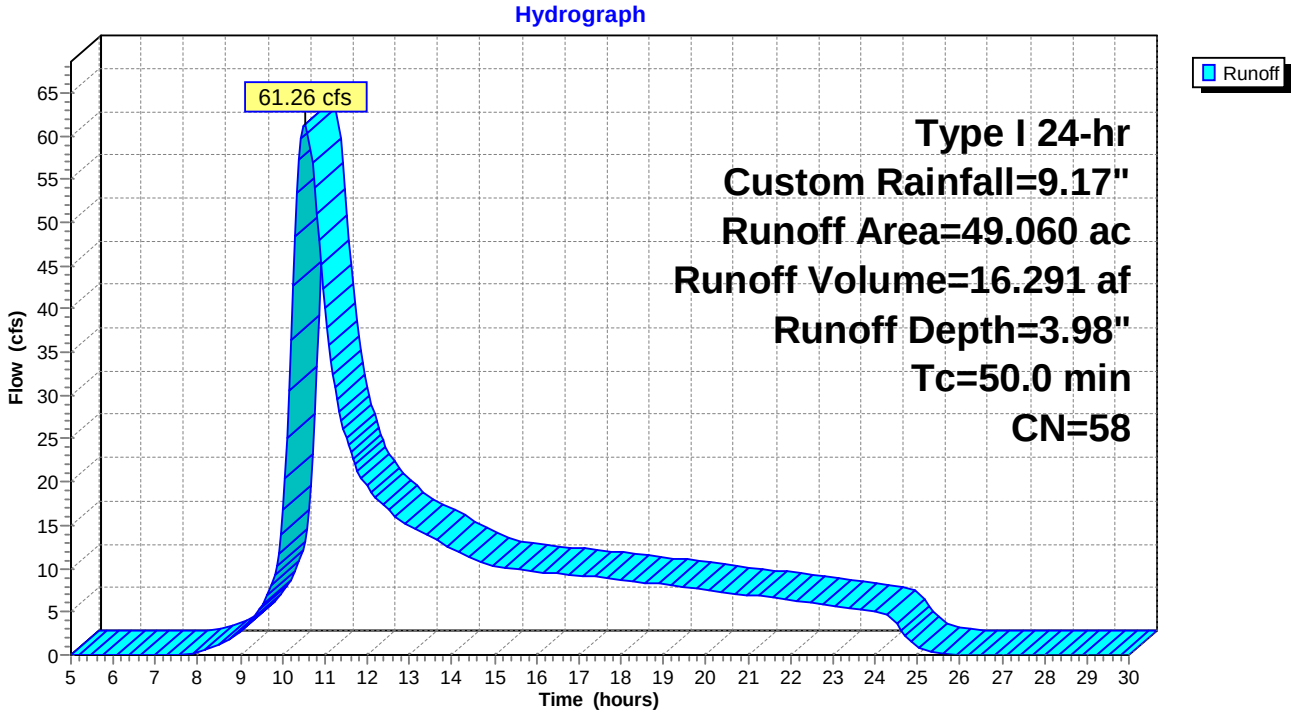
Runoff = 61.26 cfs @ 10.53 hrs, Volume= 16.291 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	49.060	58	
	49.060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.0					**Direct Entry,**

Subcatchment 3S: BASIN E1



Summary for Subcatchment 4S: BASIN E2

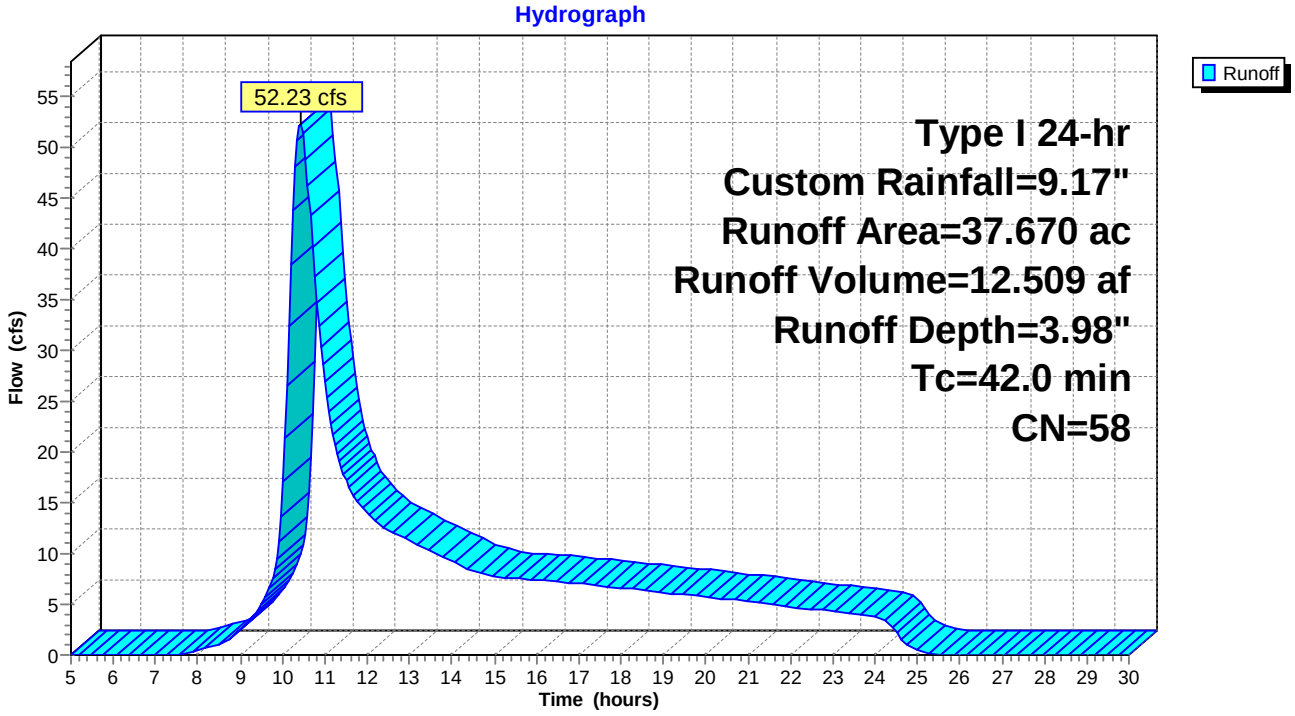
Runoff = 52.23 cfs @ 10.42 hrs, Volume= 12.509 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	37.670	58	
	37.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0					**Direct Entry,**

Subcatchment 4S: BASIN E2



Summary for Subcatchment 5S: BASIN E3

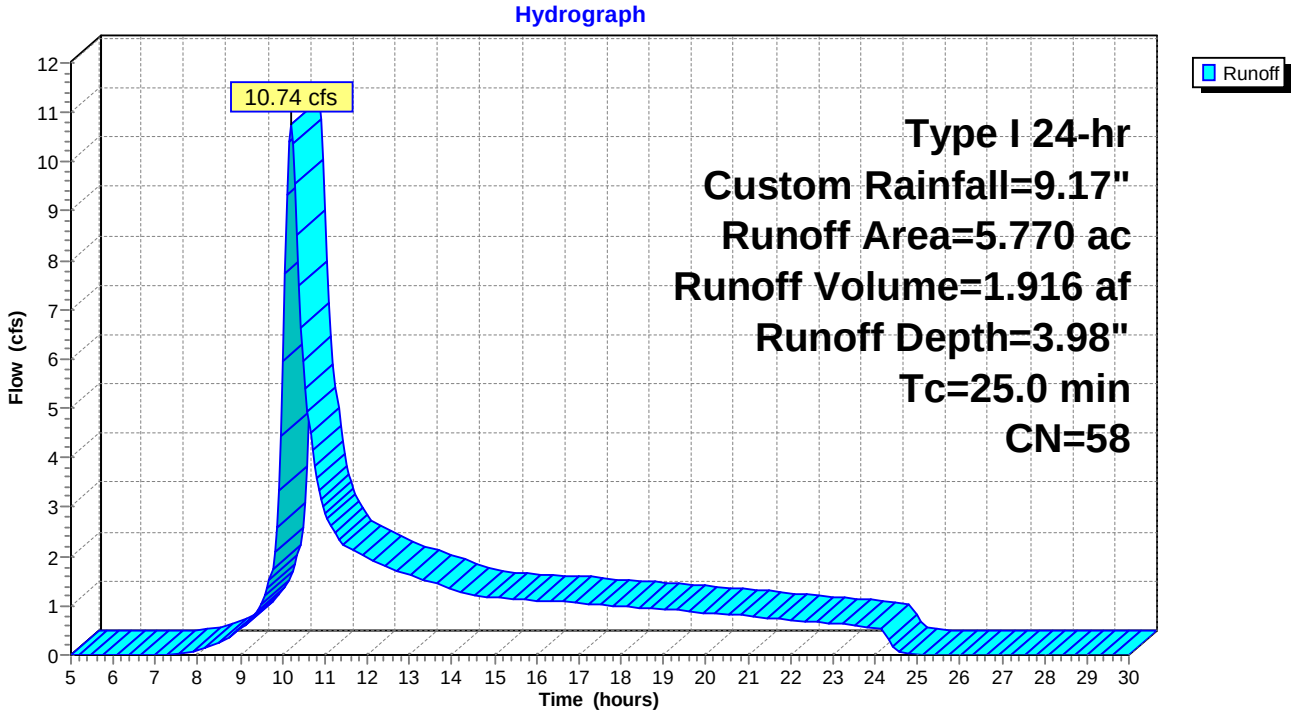
Runoff = 10.74 cfs @ 10.20 hrs, Volume= 1.916 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	5.770	58	
	5.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0					**Direct Entry,**

Subcatchment 5S: BASIN E3



Summary for Subcatchment 6S: BASIN E4

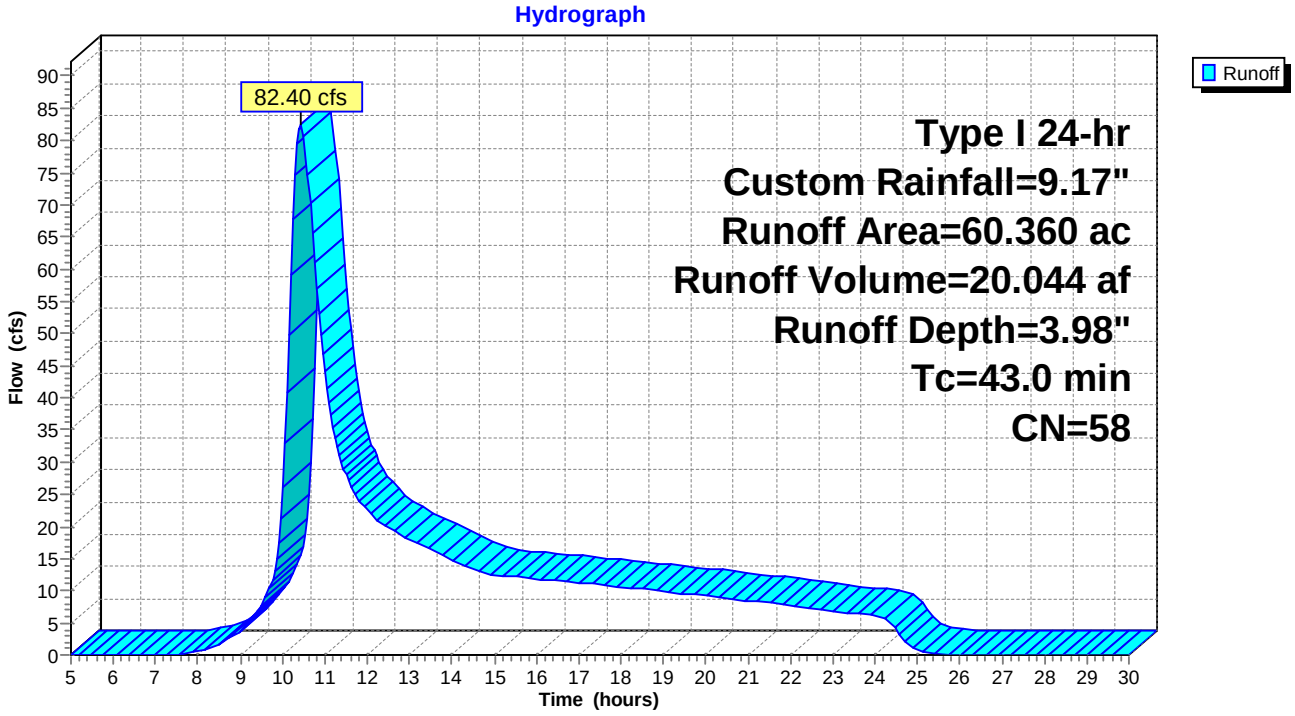
Runoff = 82.40 cfs @ 10.44 hrs, Volume= 20.044 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	60.360	58	
	60.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.0					**Direct Entry,**

Subcatchment 6S: BASIN E4



Summary for Subcatchment 7S: BASIN E5

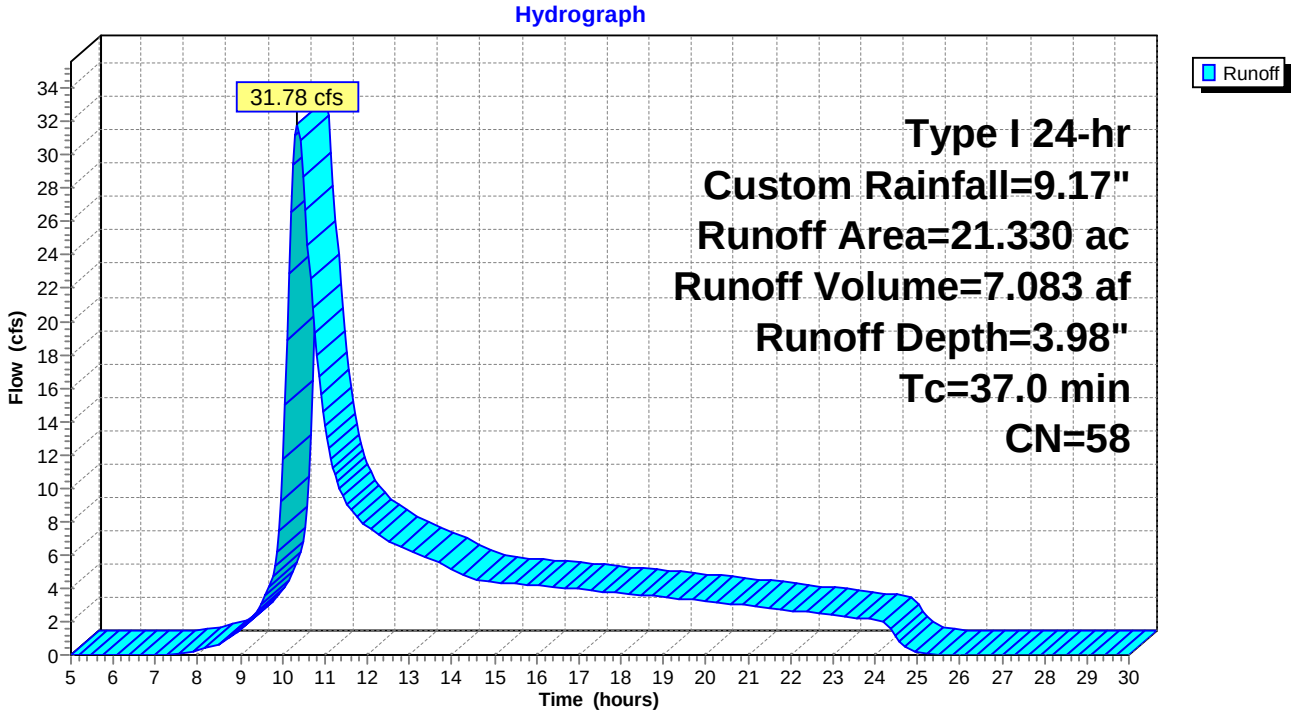
Runoff = 31.78 cfs @ 10.36 hrs, Volume= 7.083 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	21.330	58	
	21.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.0					**Direct Entry,**

Subcatchment 7S: BASIN E5



Summary for Subcatchment 8S: BASIN E6

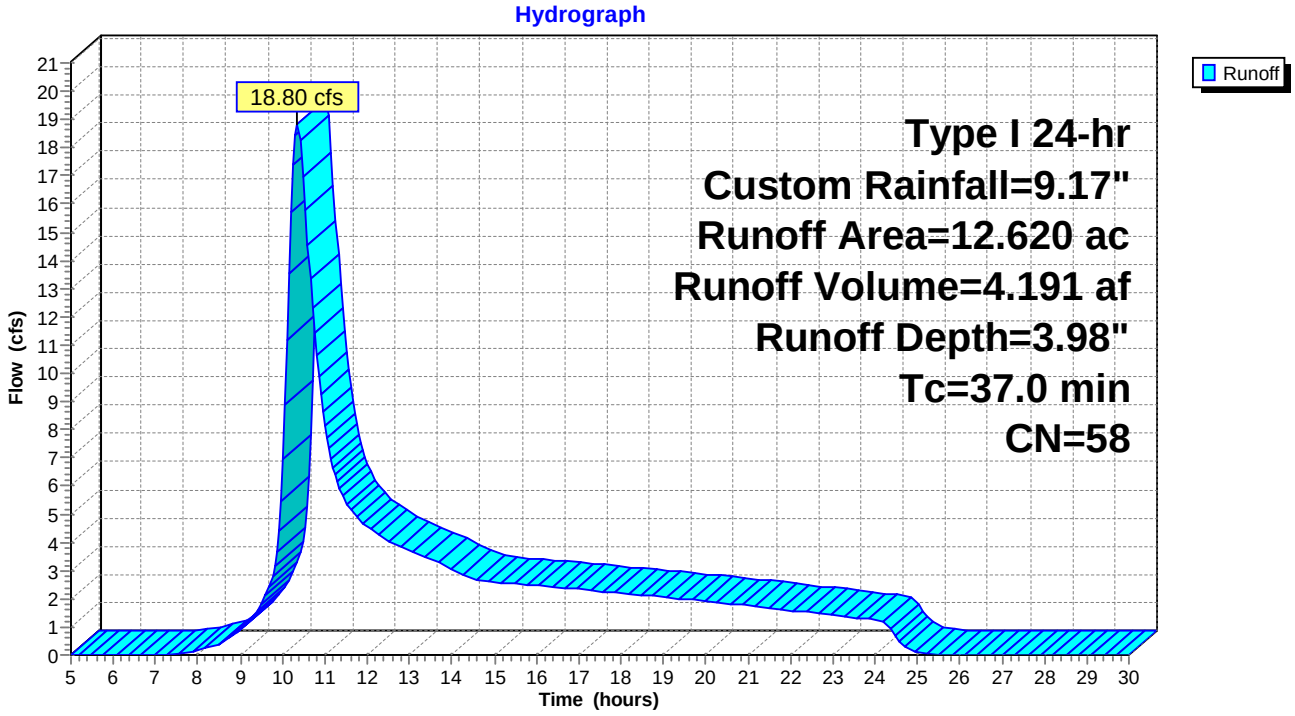
Runoff = 18.80 cfs @ 10.36 hrs, Volume= 4.191 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	12.620	58	
	12.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.0					**Direct Entry,**

Subcatchment 8S: BASIN E6



Summary for Subcatchment 9S: BASIN E7

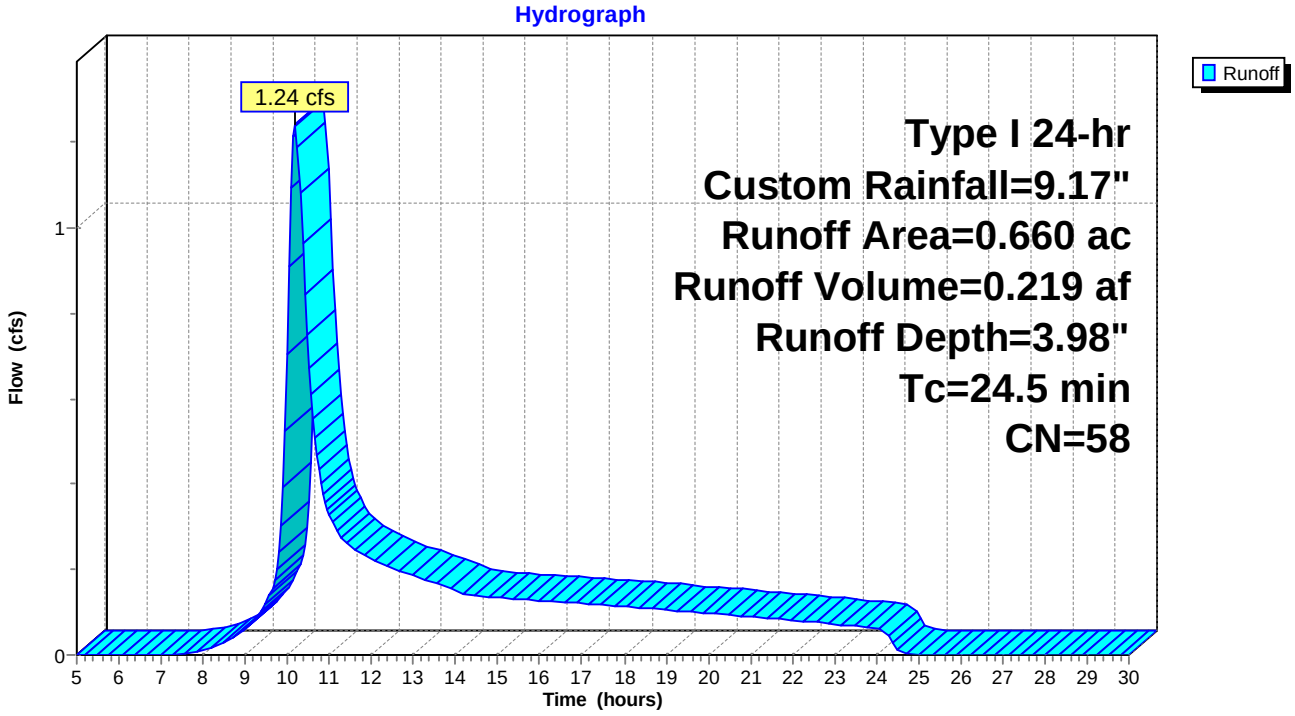
Runoff = 1.24 cfs @ 10.19 hrs, Volume= 0.219 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.660	58	
	0.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5					**Direct Entry,**

Subcatchment 9S: BASIN E7



Summary for Subcatchment 10S: BASIN E8

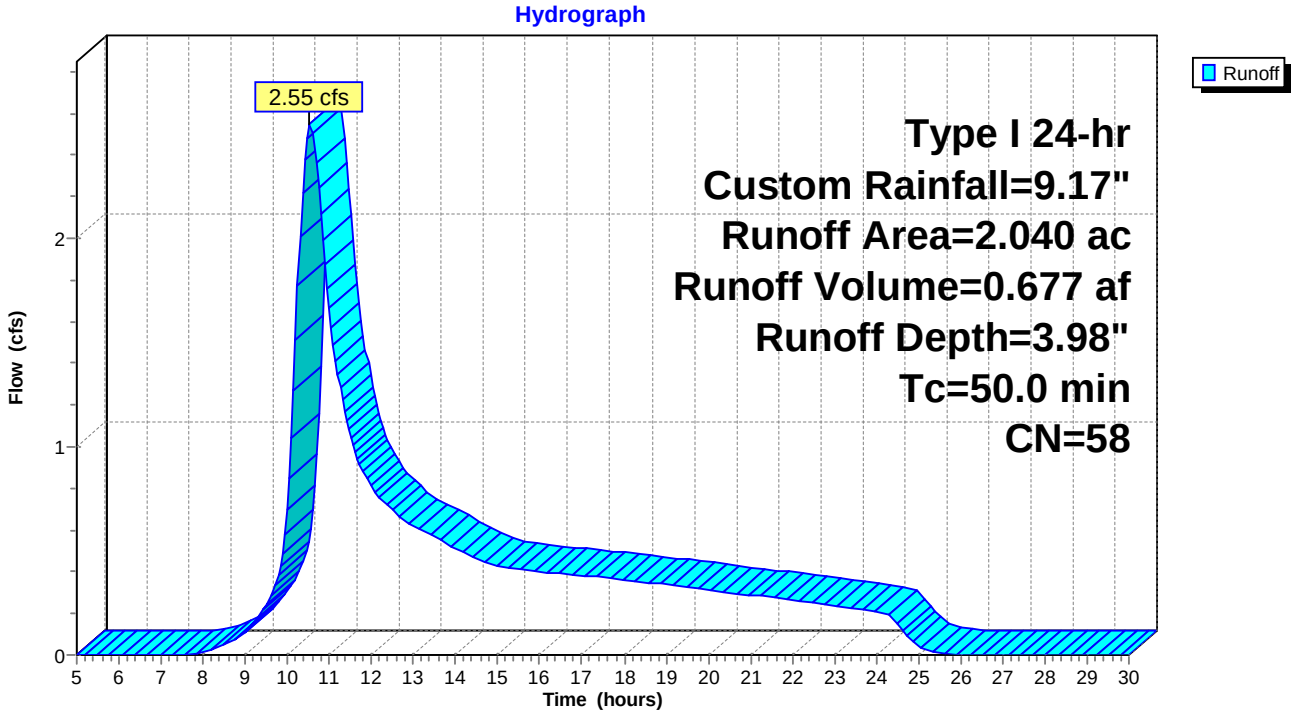
Runoff = 2.55 cfs @ 10.53 hrs, Volume= 0.677 af, Depth= 3.98"
Routed to Pond 11P : EXISTING PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	2.040	58	
	2.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.0					**Direct Entry,**

Subcatchment 10S: BASIN E8



Summary for Subcatchment 12S: BASIN 03

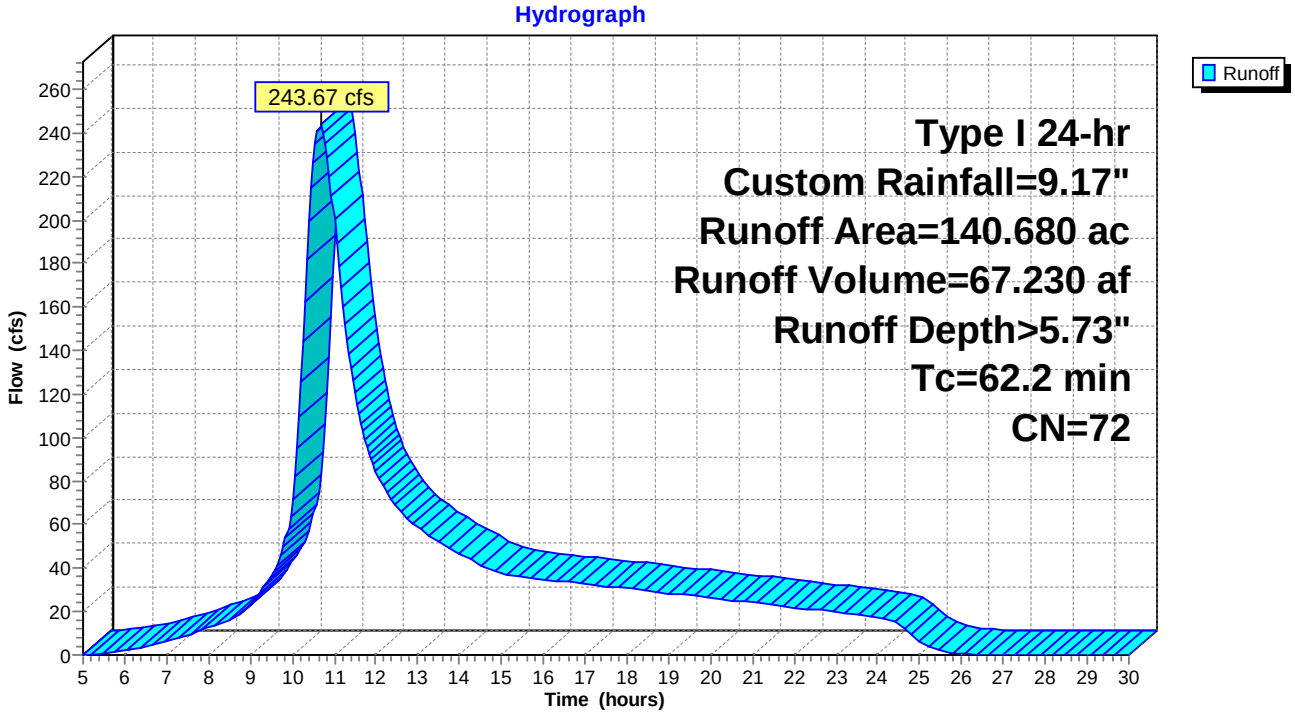
Runoff = 243.67 cfs @ 10.68 hrs, Volume= 67.230 af, Depth> 5.73"
Routed to Pond 12P : DETENTION POND B1 (EXISTING)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	140.680	72	
	140.680		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.2					**Direct Entry,**

Subcatchment 12S: BASIN 03



Summary for Pond 11P: EXISTING PONDS B2A/B COMBINED

Inflow Area = 337.580 ac, 0.00% Impervious, Inflow Depth = 3.78" for Custom event
Inflow = 413.32 cfs @ 10.45 hrs, Volume= 106.306 af
Outflow = 69.77 cfs @ 14.69 hrs, Volume= 106.305 af, Atten= 83%, Lag= 254.0 min
Discarded = 69.77 cfs @ 14.69 hrs, Volume= 106.305 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.80' @ 14.69 hrs Surf.Area= 6.901 ac Storage= 35.580 af

Plug-Flow detention time= 272.3 min calculated for 106.093 af (100% of inflow)
Center-of-Mass det. time= 272.3 min (1,140.7 - 868.5)

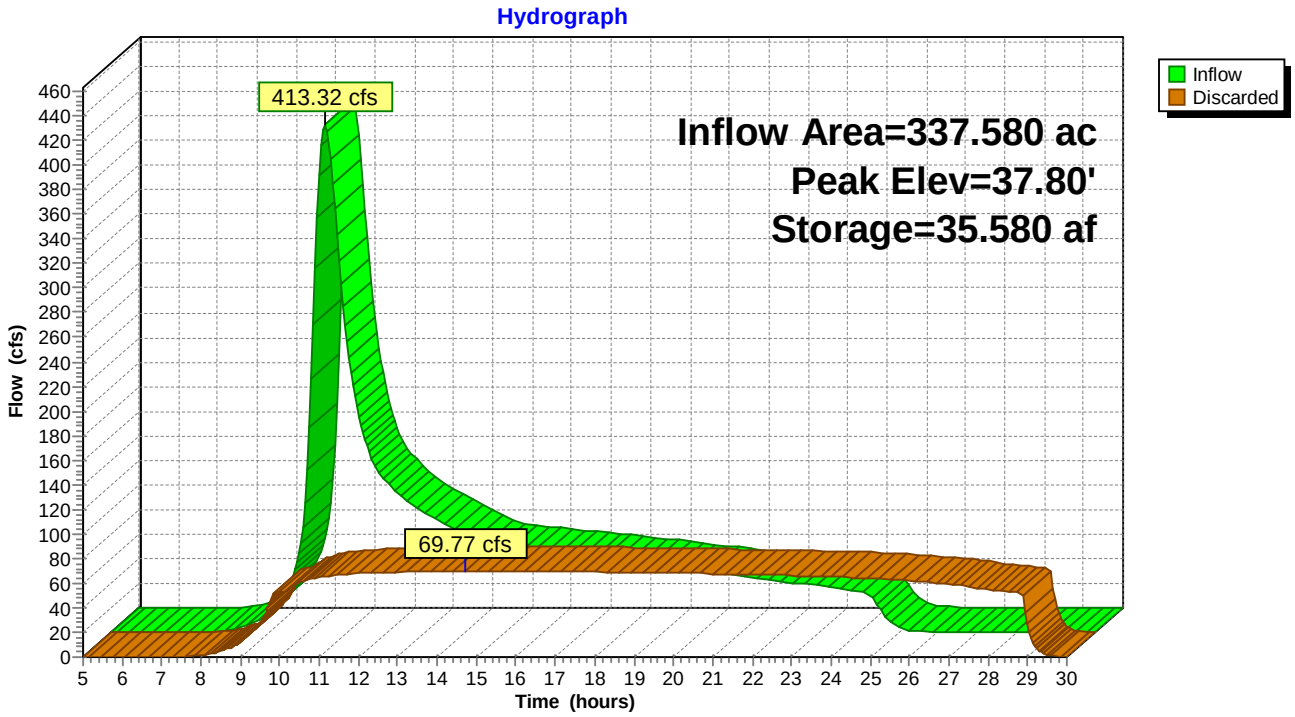
Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	109.140 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
32.00	5.063	0.000	0.000	5.063
34.00	6.001	11.051	11.051	6.004
36.00	6.472	12.470	23.521	6.483
38.00	6.949	13.418	36.939	6.968
40.00	7.425	14.371	51.310	7.453
42.00	7.903	15.326	66.636	7.940
44.00	8.382	16.283	82.918	8.429
46.00	8.862	17.242	100.160	8.919
47.00	9.099	8.980	109.140	9.161

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	**10.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=69.77 cfs @ 14.69 hrs HW=37.80' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 69.77 cfs)

Pond 11P: EXISTING PONDS B2A/B COMBINED



Summary for Pond 12P: DETENTION POND B1 (EXISTING)

Inflow Area = 140.680 ac, 0.00% Impervious, Inflow Depth > 5.73" for Custom event
Inflow = 243.67 cfs @ 10.68 hrs, Volume= 67.230 af
Outflow = 42.20 cfs @ 14.45 hrs, Volume= 67.230 af, Atten= 83%, Lag= 225.9 min
Discarded = 42.20 cfs @ 14.45 hrs, Volume= 67.230 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.90' @ 14.45 hrs Surf.Area= 8.369 ac Storage= 23.573 af

Plug-Flow detention time= 263.4 min calculated for 67.229 af (100% of inflow)
Center-of-Mass det. time= 263.3 min (1,098.7 - 835.3)

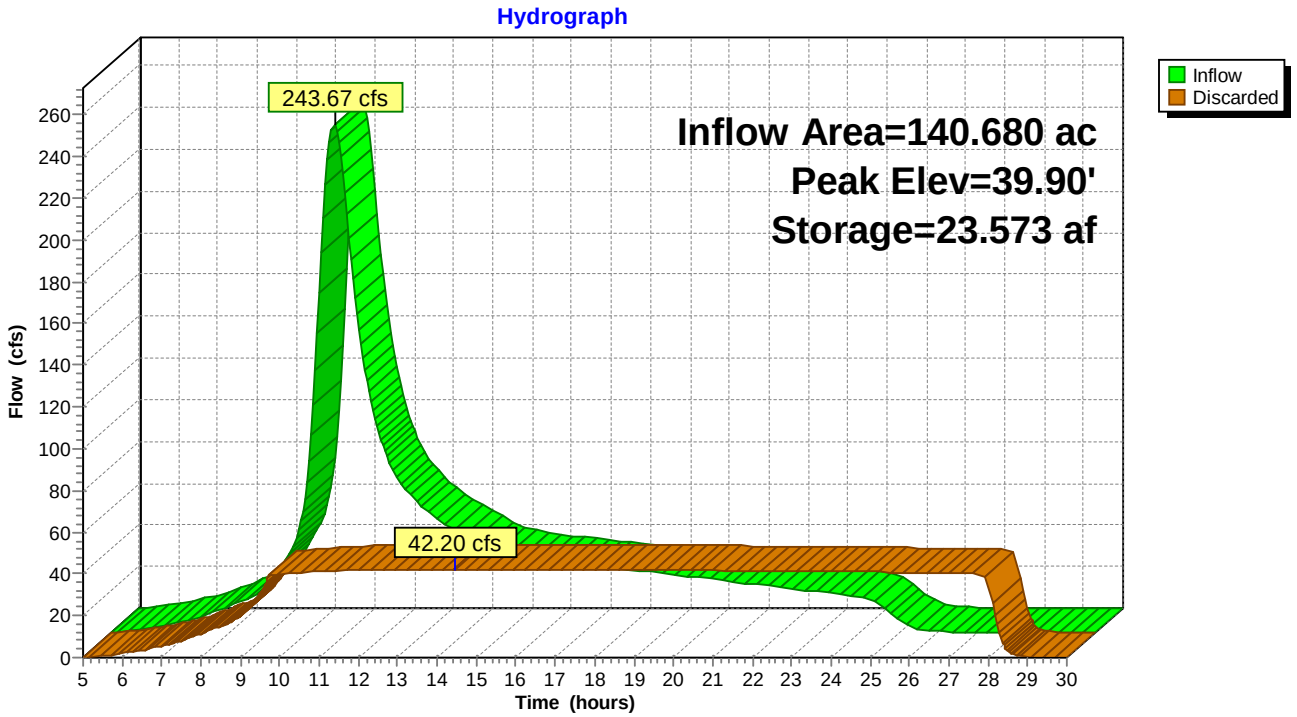
Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	68.432 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
37.00	7.882	0.000	0.000
45.00	9.226	68.432	68.432

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.00'	**5.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=42.20 cfs @ 14.45 hrs HW=39.90' (Free Discharge)
1=Exfiltration (Exfiltration Controls 42.20 cfs)

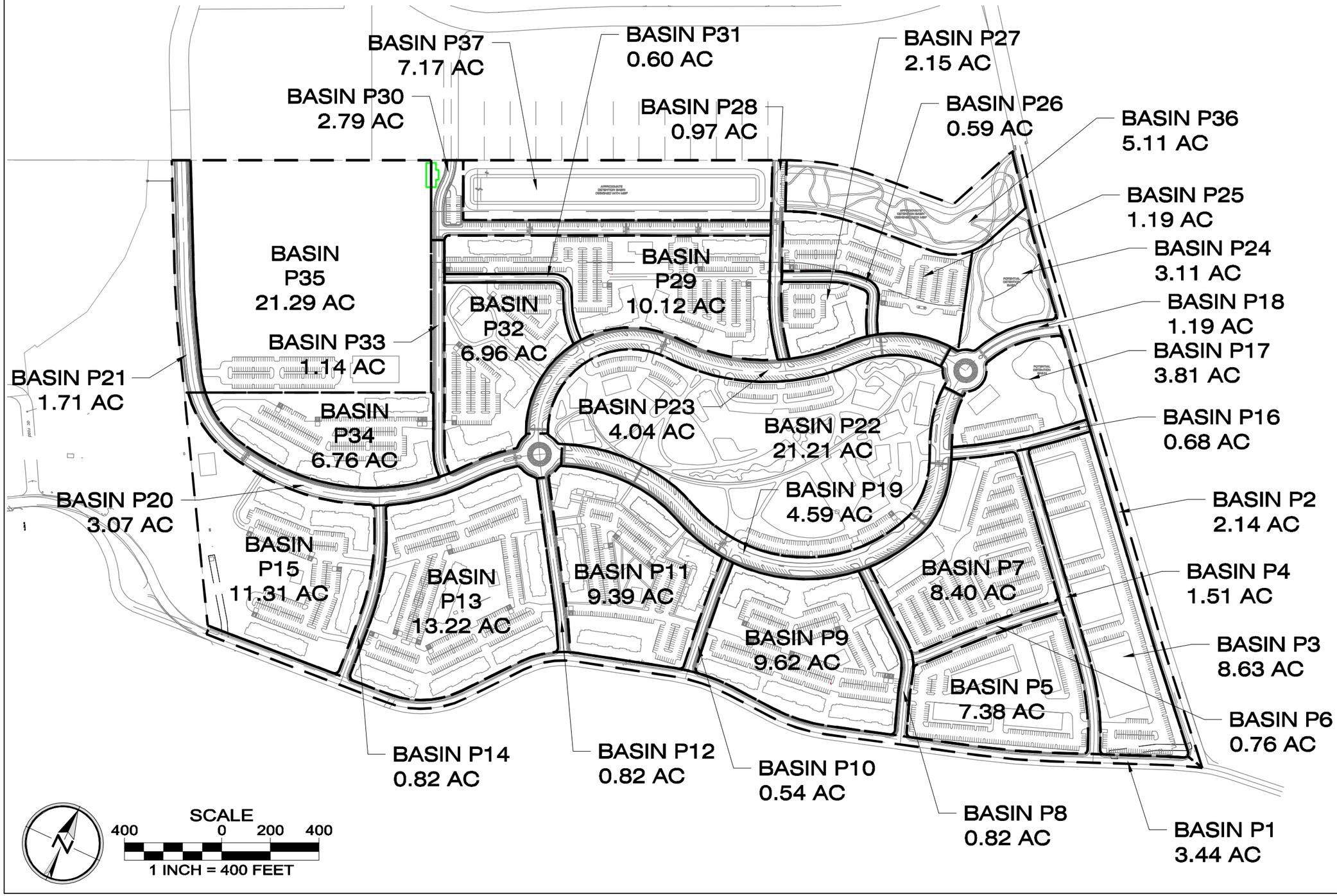
Pond 12P: DETENTION POND B1 (EXISTING)



APPENDIX 'C' – DEVELOPED CONDITION DRAINAGE ANALYSIS

DEVELOPED BASIN MAP

HOONANI VILLAGE



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PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.400.5959
WWW.PD-GRP.COM

Designed by	TCC	Date	09/2024
Drawn by		Date	09/2024
Reviewed by	TCC	Date	09/024
Project No.	H109-001	REF.	
Horiz. Scale:	1"=400'		
Vert. Scale:			

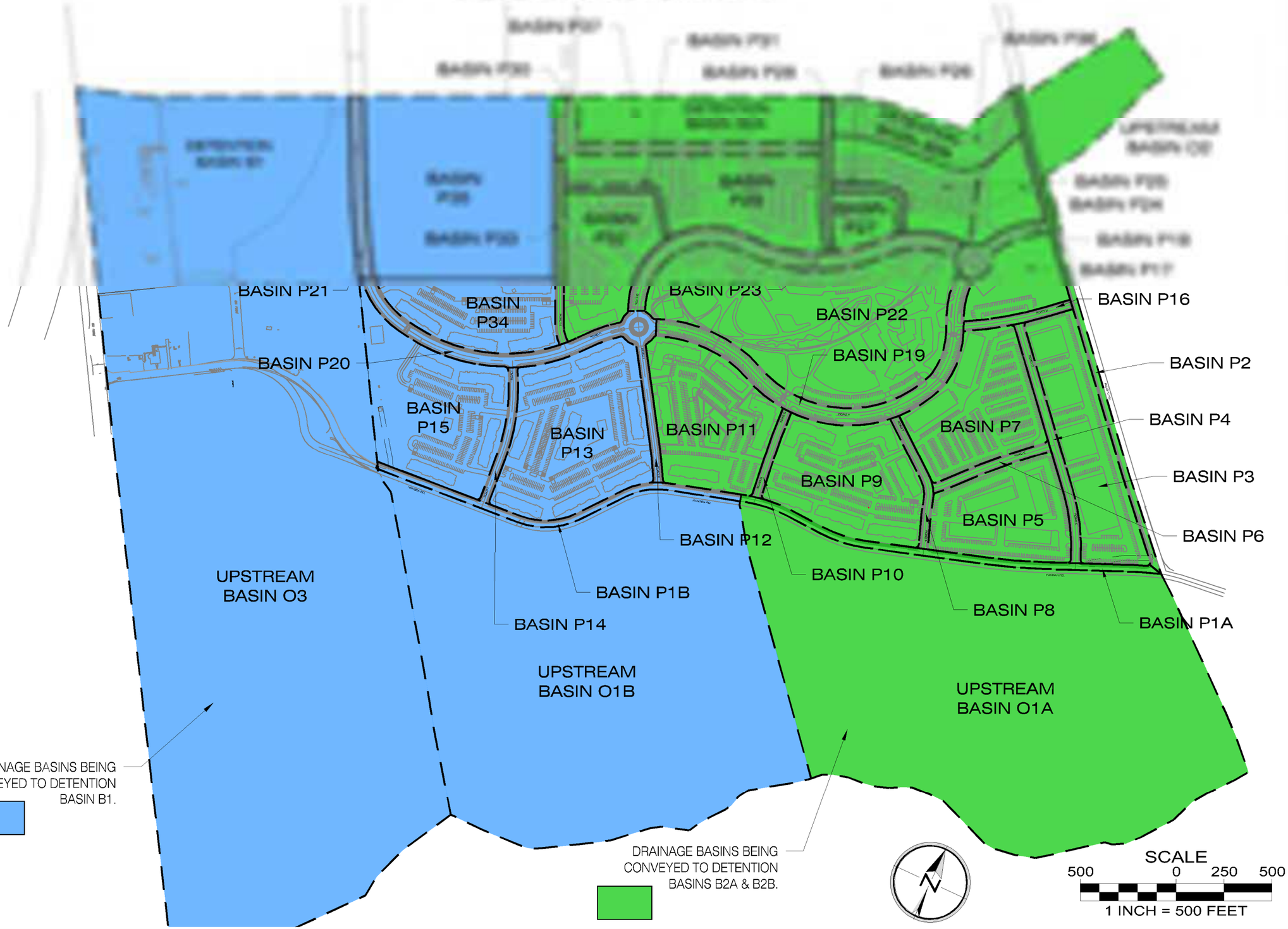
Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
1 of 1

DETENTION BASIN MAP



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Designed by	TCC	Date 09/2024
Drawn by	TCC	Date 09/2024
Reviewed by	TCC	Date 09/024
Project No.	H109-001	REF.
Horiz. Scale:	1"=500'	
Vert. Scale:		

Project
HOONANI VILLAGE

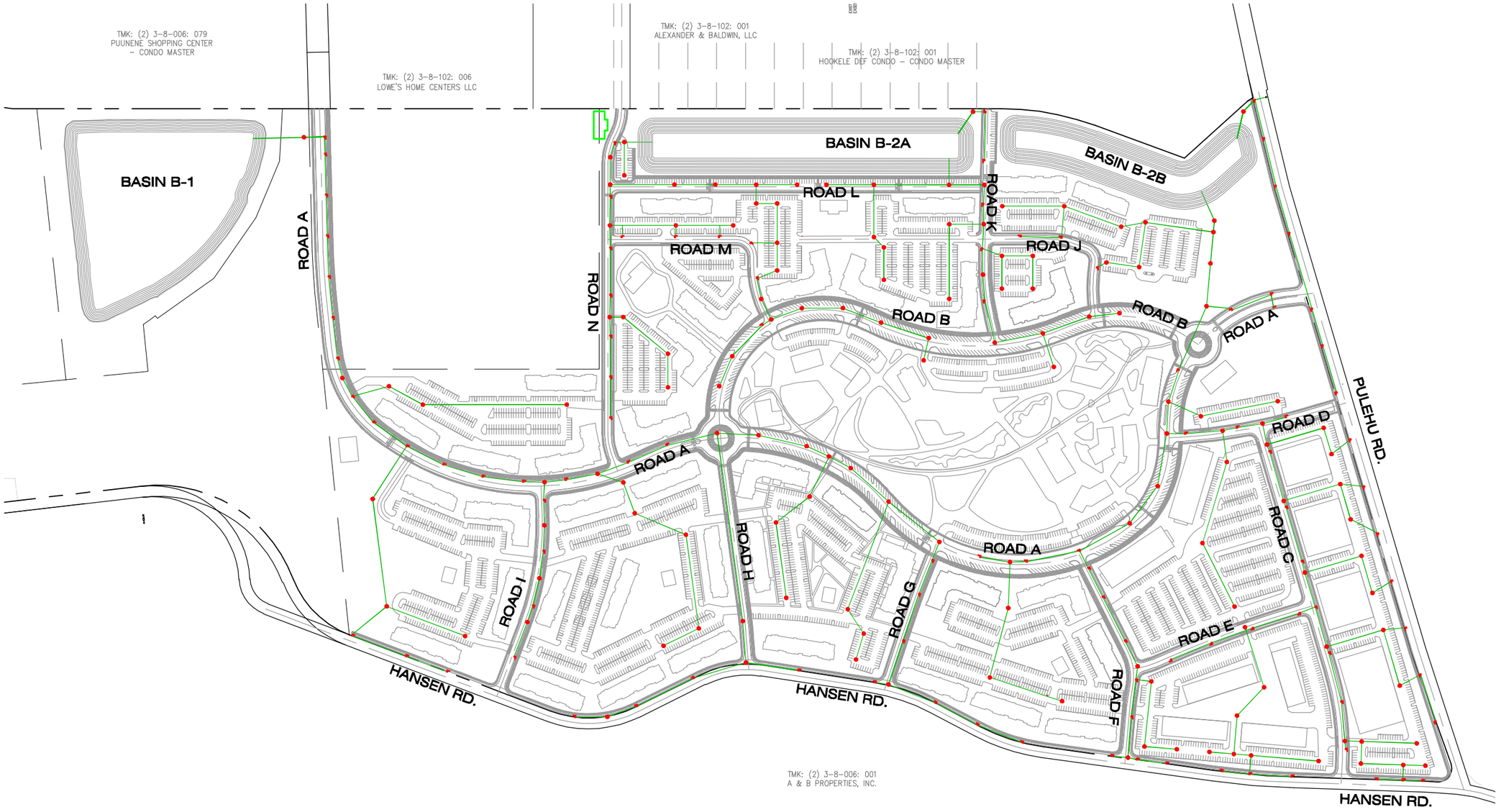
No.
H109-001

Type
ENGINEERING

Sheet
1 of 1

PRELIMINARY STORM DRAINAGE MASTER PLAN

OVERALL MASTER PLAN



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CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.400.5959
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Designed by	TCC	Date	10/2024		
Drawn by	TCC	Date	10/2024		
Reviewed by	TCC	Date	10/2024		
Project No.	H109-001	REF.			
Horiz. Scale:	1"=400'				
Vert. Scale:					

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
1 of 5

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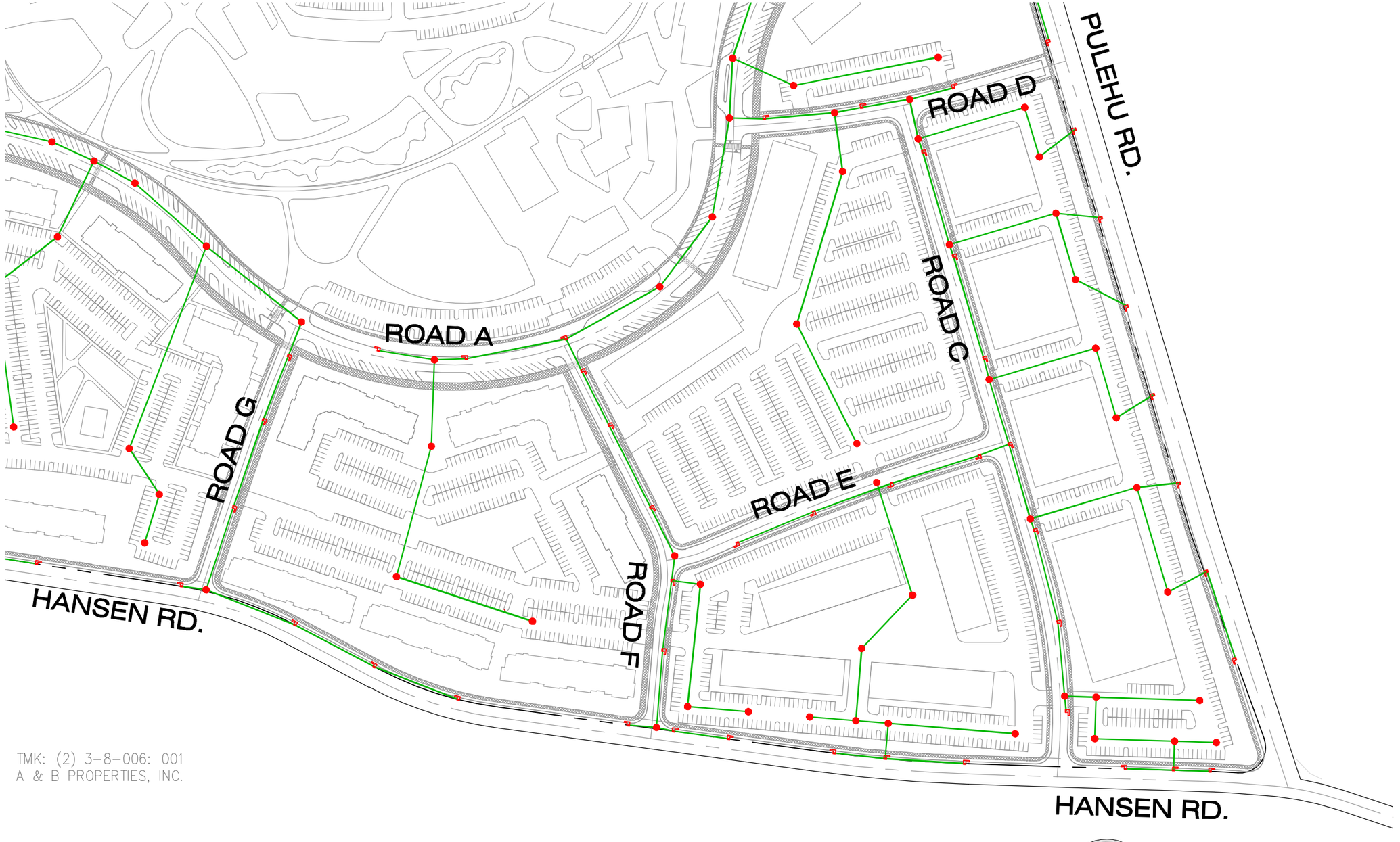
PRELIMINARY STORM DRAINAGE MASTER PLAN

SOUTHEAST



TMK: (2) 3-8-006: 001
A & B PROPERTIES, INC.

SCALE
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1 INCH = 200 FEET

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CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.400.5959
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Designed by	TCC	Date 10/2024
Drawn by	TCC	Date 10/2024
Reviewed by	TCC	Date 10/2024
Project No.	H109-001	REF.
Horiz. Scale:	1"=200'	
Vert. Scale:		

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
2 of 5

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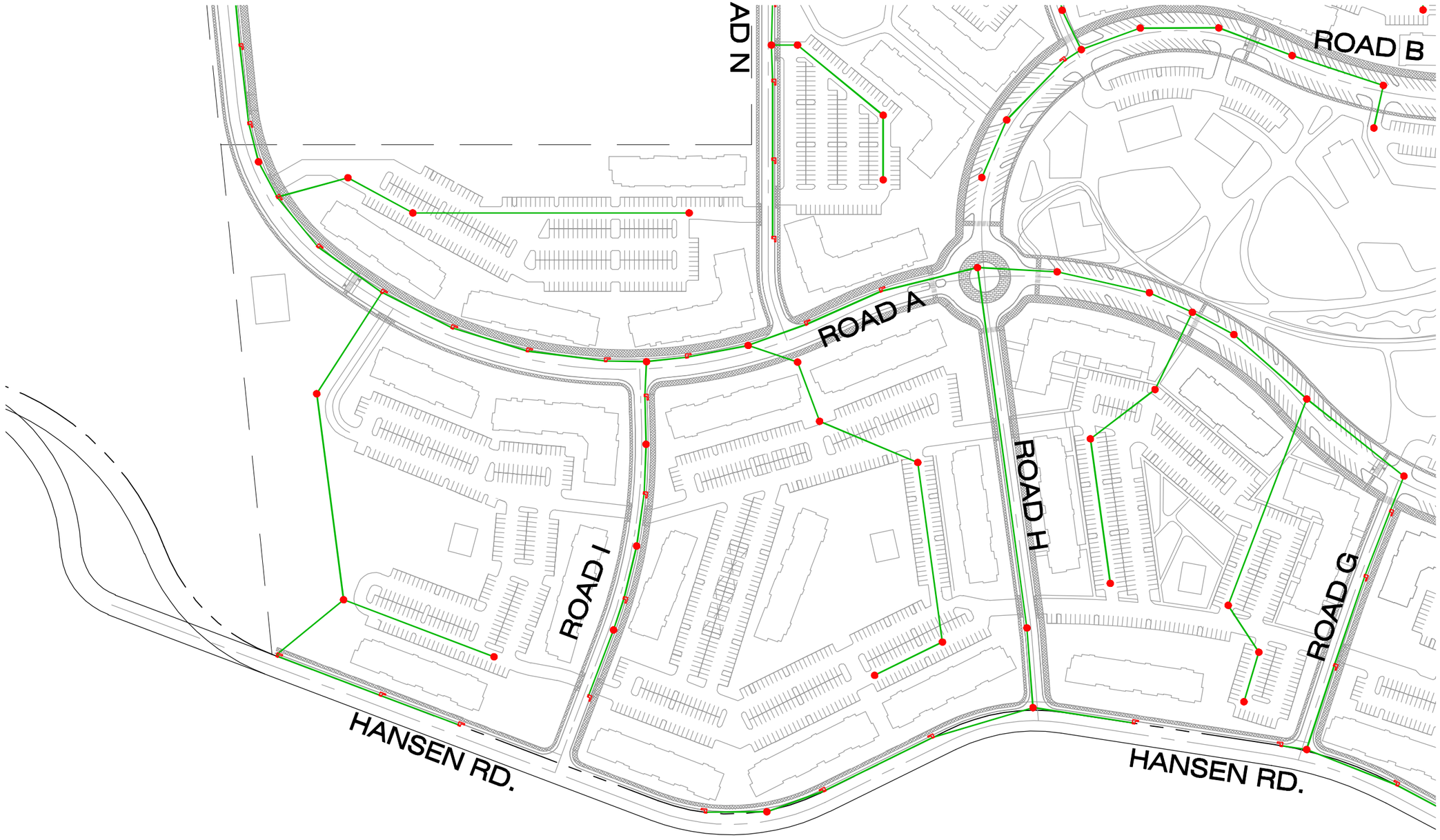
PRELIMINARY STORM DRAINAGE MASTER PLAN

SOUTHWEST



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Horiz. Scale:	1"=200'		
Vert. Scale:			

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
3 of 5

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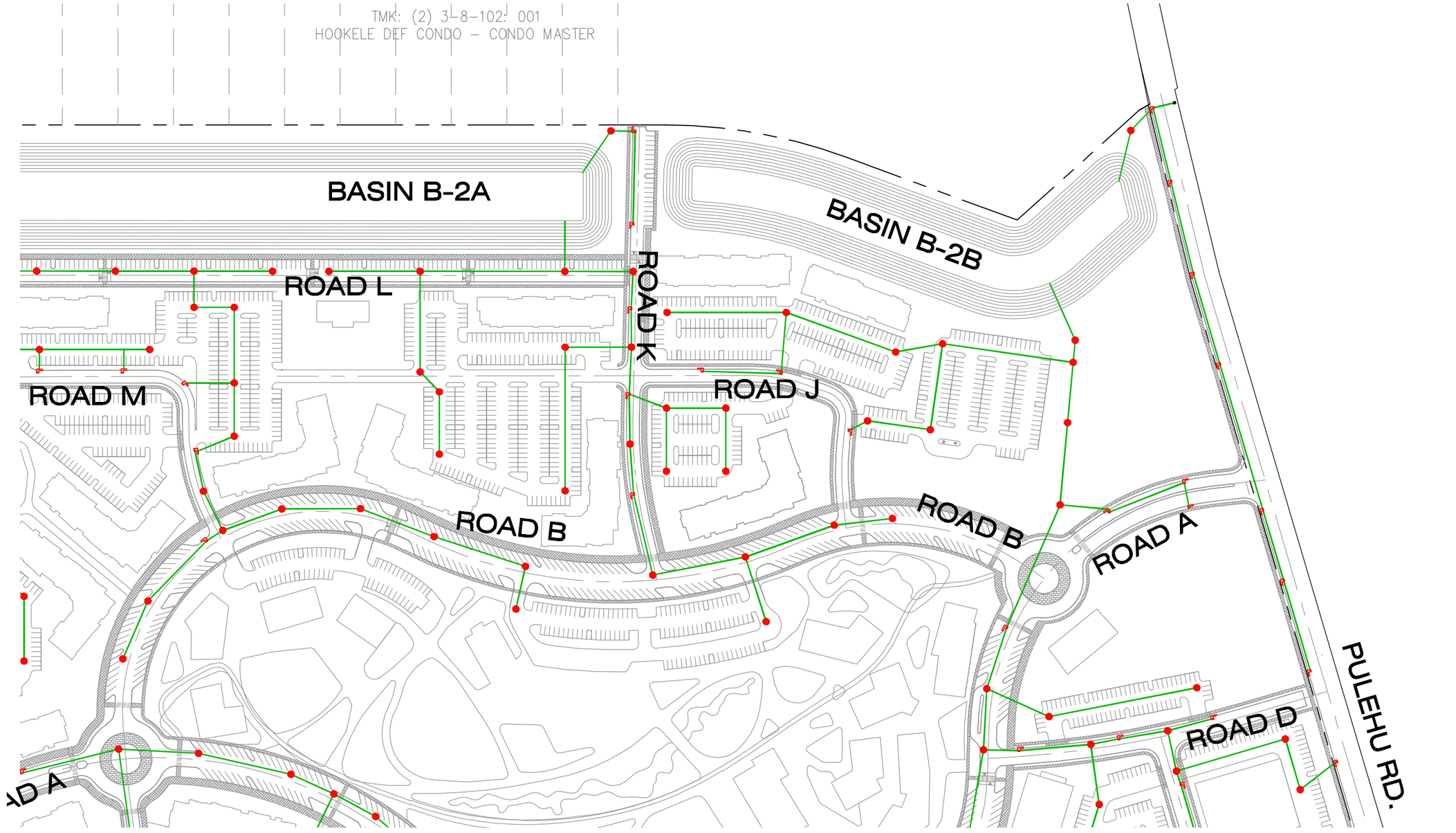
PRELIMINARY STORM DRAINAGE MASTER PLAN

NORTHEAST



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Designed by	TCC	Date	10/2024
Drawn by	TCC	Date	10/2024
Reviewed by	TCC	Date	10/2024
Project No.	H109-001	REF.	
Horiz. Scale:	1"=200'		
Vert. Scale:			

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
4 of 5

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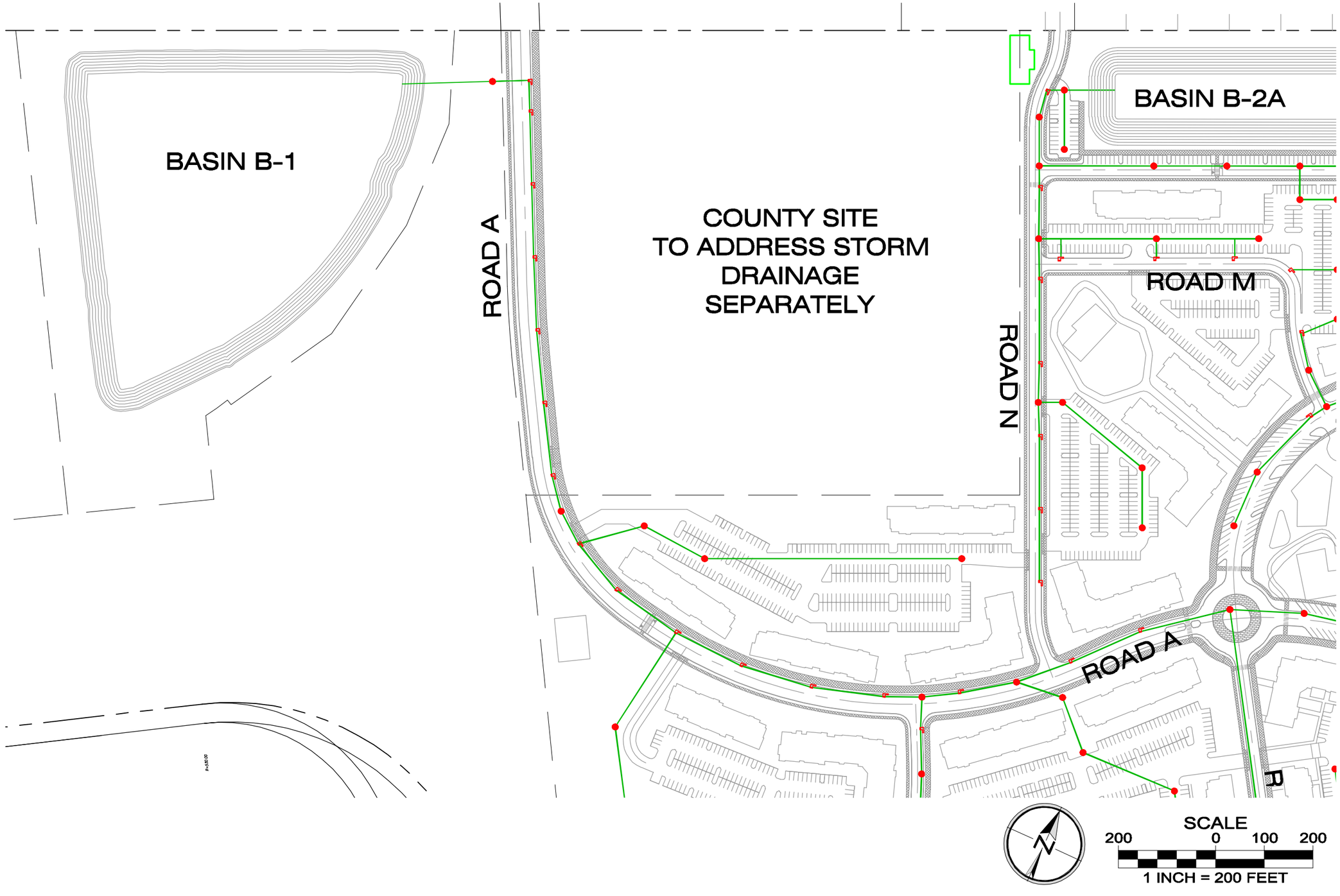
PRELIMINARY STORM DRAINAGE MASTER PLAN

NORTHWEST



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Designed by TCC Date 10/2024
Drawn by TCC Date 10/2024
Reviewed by TCC Date 10/2024
Project No. H109-001 REF.
Horiz. Scale: 1"=200'
Vert. Scale:

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
5 of 5

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PROPOSED DRAINAGE CONDITION ANALYSIS

(100 YEAR, 24 HOUR STORM EVENT)

JOB NUMBER: H109-001
PROJECT: Hoonani Village
FILE: H1091_PER Hydro

RUNOFF CURVE NUMBERS

IMPERVIOUS AREAS (B SOILS) = 98
OPEN SPACES (B SOILS) = 61

RESIDENTIAL APARTMENT = 60% IMPERVIOUS
LIGHT INDUSTRIAL & BUSINESS AREA = 85% IMPERVIOUS
STREET ROW AREA = 80% IMPERVIOUS
NEIGHBORHOOD COMMERCIAL AREA = 50% IMPERVIOUS

TIME OF CONCENTRATION (MIN.) = 5 min. + Time in Pipe (min.)

CATCHMENT TIME 5 min.
VELOCITY IN PIPE 3 ft/s
TIME IN PIPE LENGTH / VEL. s

FLOW RATE (Q) CALCULATED IN HYDROCAD (SEE ATTACHED HYDROCAD REPORT)

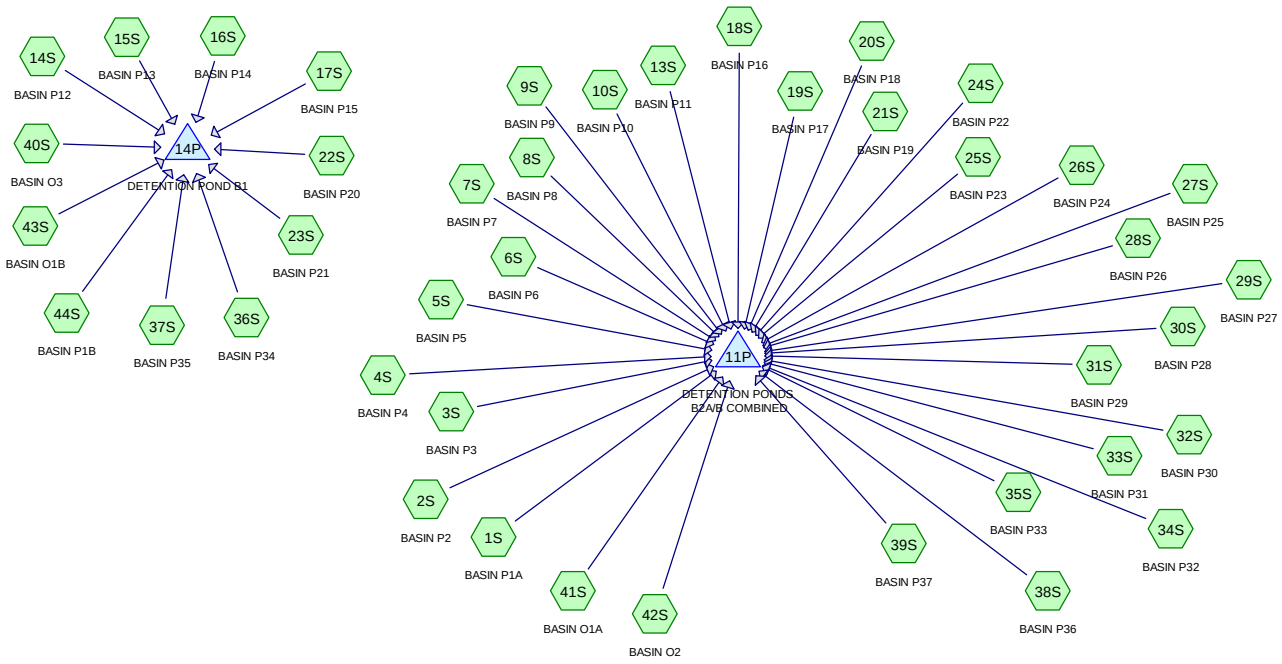
DRAINAGE BASIN LABEL	AREA	(SF)	AREA (AC)		ESTIMATED PERCENT IMPERVIOUS	COMPOSITE RUNOFF CURVE NUMBER	LONGEST RUN OF PIPE (LF)	APPROX. DEV. TOC. (MIN.)	FLOW RATE (Q) CFS	FLOW VOL. (AC-FT)
BASIN P1	149,893.00	ft^2	**3.44**	**ac**	80%	90.60	580	8.22	20.95	2.236
BASIN P2	93,269.00	ft^2	**2.14**	**ac**	80%	90.60	2300	17.78	10.22	1.395
BASIN P3	375,735.00	ft^2	**8.63**	**ac**	85%	92.45	440	7.44	53.85	5.669
BASIN P4	66,168.00	ft^2	**1.52**	**ac**	80%	90.60	1330	12.39	8.31	0.989
BASIN P5	321,635.00	ft^2	**7.38**	**ac**	85%	92.45	606	8.37	45.14	4.85
BASIN P6	33,323.00	ft^2	**0.76**	**ac**	80%	90.60	558	8.10	4.64	0.494
BASIN P7	366,056.00	ft^2	**8.40**	**ac**	85%	92.45	678	8.77	50.89	5.52
BASIN P8	35,831.00	ft^2	**0.82**	**ac**	80%	90.60	800	9.44	4.85	0.533
BASIN P9	419,061.00	ft^2	**9.62**	**ac**	60%	83.20	900	10.00	50.68	5.623
BASIN P10	23,772.00	ft^2	**0.55**	**ac**	80%	90.60	530	7.94	3.37	0.358
BASIN P11	408,930.00	ft^2	**9.39**	**ac**	60%	83.20	615	8.42	51.57	5.487
BASIN P12	35,512.00	ft^2	**0.82**	**ac**	80%	90.60	775	9.31	4.86	0.533
BASIN P13	576,065.00	ft^2	**13.22**	**ac**	60%	83.20	830	9.61	70.4	7.726
BASIN P14	35,900.00	ft^2	**0.82**	**ac**	80%	90.60	750	9.17	4.87	0.533
BASIN P15	492,530.00	ft^2	**11.31**	**ac**	60%	83.20	900	10.00	59.59	6.61
BASIN P16	29,430.00	ft^2	**0.68**	**ac**	80%	90.60	600	8.33	4.13	0.442
BASIN P17	166,153.00	ft^2	**3.81**	**ac**	40%	75.80	300	6.67	19.16	1.973
BASIN P18	51,667.00	ft^2	**1.19**	**ac**	80%	90.60	325	6.81	7.47	0.773
BASIN P19	199,740.00	ft^2	**4.59**	**ac**	80%	90.60	850	9.72	26.94	2.985
BASIN P20	133,750.00	ft^2	**3.07**	**ac**	80%	90.60	1300	12.22	16.87	1.998
BASIN P21	74,409.00	ft^2	**1.71**	**ac**	80%	90.60	875	9.86	9.98	1.112
BASIN P22	924,101.00	ft^2	**21.21**	**ac**	50%	79.50	760	9.22	108.62	11.806
BASIN P23	175,824.00	ft^2	**4.04**	**ac**	80%	90.60	450	7.50	24.93	2.626
BASIN P24	135,568.00	ft^2	**3.11**	**ac**	10%	64.70	400	7.22	11.77	1.259

BASIN P25	227,068.00	ft^2	**5.21**	**ac**	60%	83.20	200	6.11	30.15	3.043
BASIN P26	25,771.00	ft^2	**0.59**	**ac**	80%	90.60	525	7.92	3.62	0.384
BASIN P27	93,502.00	ft^2	**2.15**	**ac**	60%	83.20	280	6.56	12.29	1.256
BASIN P28	42,266.00	ft^2	**0.97**	**ac**	80%	90.60	690	8.83	5.82	0.631
BASIN P29	440,771.00	ft^2	**10.12**	**ac**	60%	83.20	660	8.67	55.17	5.914
BASIN P30	121,625.00	ft^2	**2.79**	**ac**	80%	90.60	900	10.00	16.25	1.815
BASIN P31	26,252.00	ft^2	**0.60**	**ac**	80%	90.60	660	8.67	3.61	0.39
BASIN P32	303,206.00	ft^2	**6.96**	**ac**	60%	83.20	460	7.56	38.95	4.066
BASIN P33	49,618.00	ft^2	**1.14**	**ac**	80%	90.60	960	10.33	6.58	0.742
BASIN P34	294,312.00	ft^2	**6.76**	**ac**	60%	83.20	800	9.44	36.19	3.951
BASIN P35	927,479.00	ft^2	**21.29**	**ac**	0%	74.00	937	10.21	94.12	10.602
BASIN P36	222,453.00	ft^2	**5.11**	**ac**	10%	64.70	0	5.00	20.33	2.069
BASIN P37	312,360.00	ft^2	**7.17**	**ac**	0%	61.00	0	5.00	25.05	2.605
BASIN P1A	79,011.00	ft^2	**1.81**	**ac**	80%	90.60	580	8.22	11.05	1.222
(SUB-BASIN NOT IN TOTALS)										
BASIN P1B	70,882.00	ft^2	**1.63**	**ac**	80%	90.60	580	8.22	9.91	1.096
(SUB-BASIN NOT IN TOTALS)										
	TOTAL DRAINAGE AREA (SF)		**TOTAL DRAINAGE AREA (ac)**						**TOTAL Q FLOW (cfs)**	**TOTAL VOLUME (AC-FT)**
PROPOSED DRAINAGE CONDITION	**8,411,005.00**	**ft^2**	**193.09**	**ac**					**1022.19**	**111.00**

UPSTREAM BASIN LABEL	**TOTAL DRAINAGE AREA (SF)**		**TOTAL DRAINAGE AREA (ac)**			**COMPOSITE RUNOFF CURVE NUMBER**		**APPROX. DEV. TOC. (MIN.)**	**TOTAL Q FLOW (cfs)**	**TOTAL VOLUME (AC-FT)**
BASIN O1	6,160,420.00	ft^2	**141.42**	**ac**		53.80		46.5	**153.38**	**41.10**
BASIN O1A	3,052,128.00	ft^2	**70.07**	**ac**		53.80		46.5	**76.00**	**20.36**
(SUB-BASIN NOT IN TOTALS)										
BASIN O1B	3,108,292.00	ft^2	**71.36**	**ac**		53.80		46.5	**77.38**	**20.74**
(SUB-BASIN NOT IN TOTALS)										
BASIN O2	289,835.00	ft^2	**6.65**	**ac**		58.50		31.7	**11.29**	**2.28**
BASIN O3	6,128,207.00	ft^2	**140.68**	**ac**		72.20		62.23	**243.67**	**67.23**

DEVELOPED DETENTION BASIN ANALYSIS

BASIN LABEL	**CONTRIBUTING BASINS**	**AVAILABLE STORAGE (AC-FT)**	**DEVELOPED FLOW RATE (CFS)**	**DEVELOPED VOL. (AC-FT)**	**AVAILABLE VOLUME (AC-FT)**
BASIN B1	O1B, O3, P1B, P12-15, P20-21, P34-35	119.540	627.84	122.13	-2.589
BASIN B2A & B2B	O1A, O2, P1A, P2-111, P16-19, P22-33, P36-37	116.360	802.69	99.475	16.89
		235.900	**1430.530**	**221.60**	**14.30**



Subcat Reach Pond Link

Routing Diagram for PRELIM HYDRO_DEVELOPED
Prepared by Pioneer Design Group, Printed 10/7/2024
HydroCAD® 10.20-4b s/n 09255 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
24.410	92	(3S, 5S, 7S)
28.287	91	(4S, 6S, 8S, 10S, 14S, 16S, 18S, 20S, 21S, 22S, 23S, 25S, 28S, 30S, 32S, 33S, 35S, 44S)
74.740	83	(9S, 13S, 15S, 17S, 27S, 29S, 31S, 34S, 36S)
3.810	76	(19S)
21.210	80	(24S)
8.220	65	(26S, 38S)
21.290	74	(37S)
7.170	61	(39S)
140.684	72	(40S)
141.430	54	(41S, 43S)
6.650	59	(42S)
1.814	91	HANSEN ROAD (1S)
2.140	91	PULEHU ROAD (2S)
481.855	**71**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BASIN P1A Runoff Area=79,011 sf 0.00% Impervious Runoff Depth=8.08"
Tc=8.2 min CN=91 Runoff=11.05 cfs 1.222 af

Subcatchment 2S: BASIN P2 Runoff Area=2.140 ac 0.00% Impervious Runoff Depth=8.08"
Tc=17.8 min CN=91 Runoff=10.22 cfs 1.441 af

Subcatchment 3S: BASIN P3 Runoff Area=8.630 ac 0.00% Impervious Runoff Depth=8.20"
Tc=7.4 min CN=92 Runoff=53.85 cfs 5.899 af

Subcatchment 4S: BASIN P4 Runoff Area=1.520 ac 0.00% Impervious Runoff Depth=8.08"
Tc=12.4 min CN=91 Runoff=8.31 cfs 1.024 af

Subcatchment 5S: BASIN P5 Runoff Area=7.380 ac 0.00% Impervious Runoff Depth=8.20"
Tc=8.4 min CN=92 Runoff=45.14 cfs 5.045 af

Subcatchment 6S: BASIN P6 Runoff Area=0.760 ac 0.00% Impervious Runoff Depth=8.08"
Tc=8.1 min CN=91 Runoff=4.64 cfs 0.512 af

Subcatchment 7S: BASIN P7 Runoff Area=8.400 ac 0.00% Impervious Runoff Depth=8.20"
Tc=8.8 min CN=92 Runoff=50.89 cfs 5.742 af

Subcatchment 8S: BASIN P8 Runoff Area=0.820 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.4 min CN=91 Runoff=4.85 cfs 0.552 af

Subcatchment 9S: BASIN P9 Runoff Area=9.620 ac 0.00% Impervious Runoff Depth=7.10"
Tc=10.0 min CN=83 Runoff=50.68 cfs 5.692 af

Subcatchment 10S: BASIN P10 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth=8.08"
Tc=7.9 min CN=91 Runoff=3.37 cfs 0.370 af

Subcatchment 13S: BASIN P11 Runoff Area=9.390 ac 0.00% Impervious Runoff Depth=7.10"
Tc=8.4 min CN=83 Runoff=51.57 cfs 5.556 af

Subcatchment 14S: BASIN P12 Runoff Area=0.820 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.3 min CN=91 Runoff=4.86 cfs 0.552 af

Subcatchment 15S: BASIN P13 Runoff Area=13.220 ac 0.00% Impervious Runoff Depth=7.10"
Tc=9.6 min CN=83 Runoff=70.40 cfs 7.822 af

Subcatchment 16S: BASIN P14 Runoff Area=0.820 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.2 min CN=91 Runoff=4.87 cfs 0.552 af

Subcatchment 17S: BASIN P15 Runoff Area=11.310 ac 0.00% Impervious Runoff Depth=7.10"
Tc=10.0 min CN=83 Runoff=59.59 cfs 6.692 af

Subcatchment 18S: BASIN P16 Runoff Area=0.680 ac 0.00% Impervious Runoff Depth=8.08"
Tc=8.3 min CN=91 Runoff=4.13 cfs 0.458 af

Subcatchment 19S: BASIN P17 Runoff Area=3.810 ac 0.00% Impervious Runoff Depth=6.23"
Tc=6.7 min CN=76 Runoff=19.16 cfs 1.979 af

Subcatchment 20S: BASIN P18 Runoff Area=1.190 ac 0.00% Impervious Runoff Depth=8.08"
Tc=6.8 min CN=91 Runoff=7.47 cfs 0.801 af

Subcatchment 21S: BASIN P19 Runoff Area=4.590 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.7 min CN=91 Runoff=26.94 cfs 3.091 af

Subcatchment 22S: BASIN P20 Runoff Area=3.070 ac 0.00% Impervious Runoff Depth=8.08"
Tc=12.2 min CN=91 Runoff=16.87 cfs 2.067 af

Subcatchment 23S: BASIN P21 Runoff Area=1.710 ac 0.00% Impervious Runoff Depth=8.08"
Tc=9.9 min CN=91 Runoff=9.98 cfs 1.152 af

Subcatchment 24S: BASIN P22 Runoff Area=21.210 ac 0.00% Impervious Runoff Depth=6.73"
Tc=9.2 min CN=80 Runoff=108.62 cfs 11.894 af

Subcatchment 25S: BASIN P23 Runoff Area=4.040 ac 0.00% Impervious Runoff Depth=8.08"
Tc=7.5 min CN=91 Runoff=24.93 cfs 2.721 af

Subcatchment 26S: BASIN P24 Runoff Area=3.110 ac 0.00% Impervious Runoff Depth=4.86"
Tc=7.2 min CN=65 Runoff=11.77 cfs 1.259 af

Subcatchment 27S: BASIN P25 Runoff Area=5.210 ac 0.00% Impervious Runoff Depth=7.10"
Tc=6.1 min CN=83 Runoff=30.15 cfs 3.083 af

Subcatchment 28S: BASIN P26 Runoff Area=0.590 ac 0.00% Impervious Runoff Depth=8.08"
Tc=7.9 min CN=91 Runoff=3.62 cfs 0.397 af

Subcatchment 29S: BASIN P27 Runoff Area=2.150 ac 0.00% Impervious Runoff Depth=7.10"
Tc=6.6 min CN=83 Runoff=12.29 cfs 1.272 af

Subcatchment 30S: BASIN P28 Runoff Area=0.970 ac 0.00% Impervious Runoff Depth=8.08"
Tc=8.8 min CN=91 Runoff=5.82 cfs 0.653 af

Subcatchment 31S: BASIN P29 Runoff Area=10.120 ac 0.00% Impervious Runoff Depth=7.10"
Tc=8.7 min CN=83 Runoff=55.17 cfs 5.988 af

Subcatchment 32S: BASIN P30 Runoff Area=2.790 ac 0.00% Impervious Runoff Depth=8.08"
Tc=10.0 min CN=91 Runoff=16.25 cfs 1.879 af

Subcatchment 33S: BASIN P31 Runoff Area=0.600 ac 0.00% Impervious Runoff Depth=8.08"
Tc=8.7 min CN=91 Runoff=3.61 cfs 0.404 af

Subcatchment 34S: BASIN P32 Runoff Area=6.960 ac 0.00% Impervious Runoff Depth=7.10"
Tc=7.6 min CN=83 Runoff=38.95 cfs 4.118 af

Subcatchment 35S: BASIN P33 Runoff Area=1.140 ac 0.00% Impervious Runoff Depth=8.08"
Tc=10.3 min CN=91 Runoff=6.58 cfs 0.768 af

Subcatchment 36S: BASIN P34 Runoff Area=6.760 ac 0.00% Impervious Runoff Depth=7.10"
Tc=9.4 min CN=83 Runoff=36.19 cfs 4.000 af

Subcatchment 37S: BASIN P35 Runoff Area=21.290 ac 0.00% Impervious Runoff Depth=5.98"
Tc=10.2 min CN=74 Runoff=94.12 cfs 10.617 af

Subcatchment 38S: BASIN P36 Runoff Area=5.110 ac 0.00% Impervious Runoff Depth=4.86"
Tc=5.0 min CN=65 Runoff=20.33 cfs 2.069 af

Subcatchment 39S: BASIN P37 Runoff Area=7.170 ac 0.00% Impervious Runoff Depth=4.36"
Tc=5.0 min CN=61 Runoff=25.05 cfs 2.605 af

Subcatchment 40S: BASIN O3 Runoff Area=6,128,207 sf 0.00% Impervious Runoff Depth=5.73"
Tc=62.2 min CN=72 Runoff=243.68 cfs 67.233 af

Subcatchment 41S: BASIN O1A Runoff Area=70.070 ac 0.00% Impervious Runoff Depth=3.49"
Tc=46.5 min CN=54 Runoff=76.00 cfs 20.364 af

Subcatchment 42S: BASIN O2 Runoff Area=6.650 ac 0.00% Impervious Runoff Depth=4.11"
Tc=31.7 min CN=59 Runoff=11.29 cfs 2.277 af

Subcatchment 43S: BASIN O1B Runoff Area=71.360 ac 0.00% Impervious Runoff Depth=3.49"
Tc=46.5 min CN=54 Runoff=77.40 cfs 20.738 af

Subcatchment 44S: BASIN P1B Runoff Area=70,882 sf 0.00% Impervious Runoff Depth=8.08"
Tc=8.2 min CN=91 Runoff=9.91 cfs 1.096 af

Pond 11P: DETENTION PONDS B2A/B Peak Elev=38.47' Storage=54.950 af Inflow=729.92 cfs 101.137 af
Outflow=34.69 cfs 100.105 af

Pond 14P: DETENTION POND B1 Peak Elev=38.92' Storage=66.616 af Inflow=401.68 cfs 122.521 af
Outflow=41.58 cfs 122.521 af

Total Runoff Area = 481.855 ac Runoff Volume = 223.658 af Average Runoff Depth = 5.57"
100.00% Pervious = 481.855 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: BASIN P1A

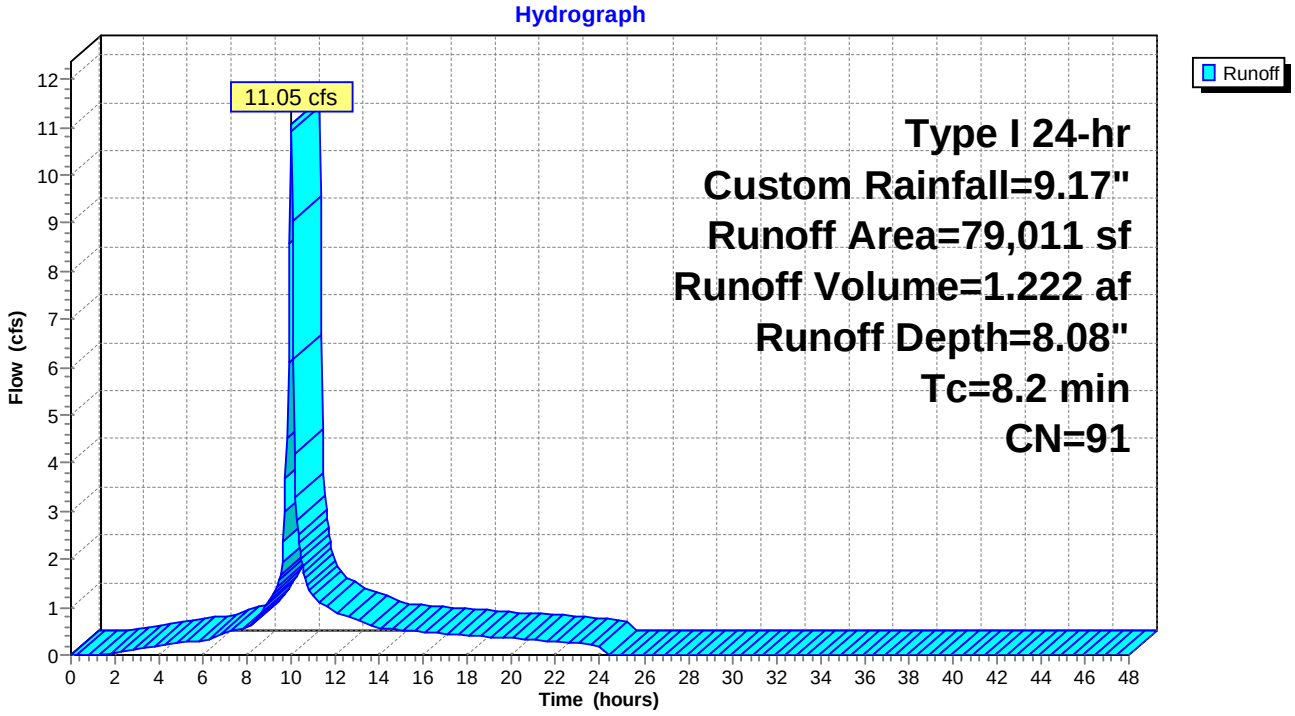
Runoff = 11.05 cfs @ 9.98 hrs, Volume= 1.222 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (sf)	CN	Description
*	79,011	91	HANSEN ROAD
	79,011		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry, PREDEV TOC**

Subcatchment 1S: BASIN P1A



Summary for Subcatchment 2S: BASIN P2

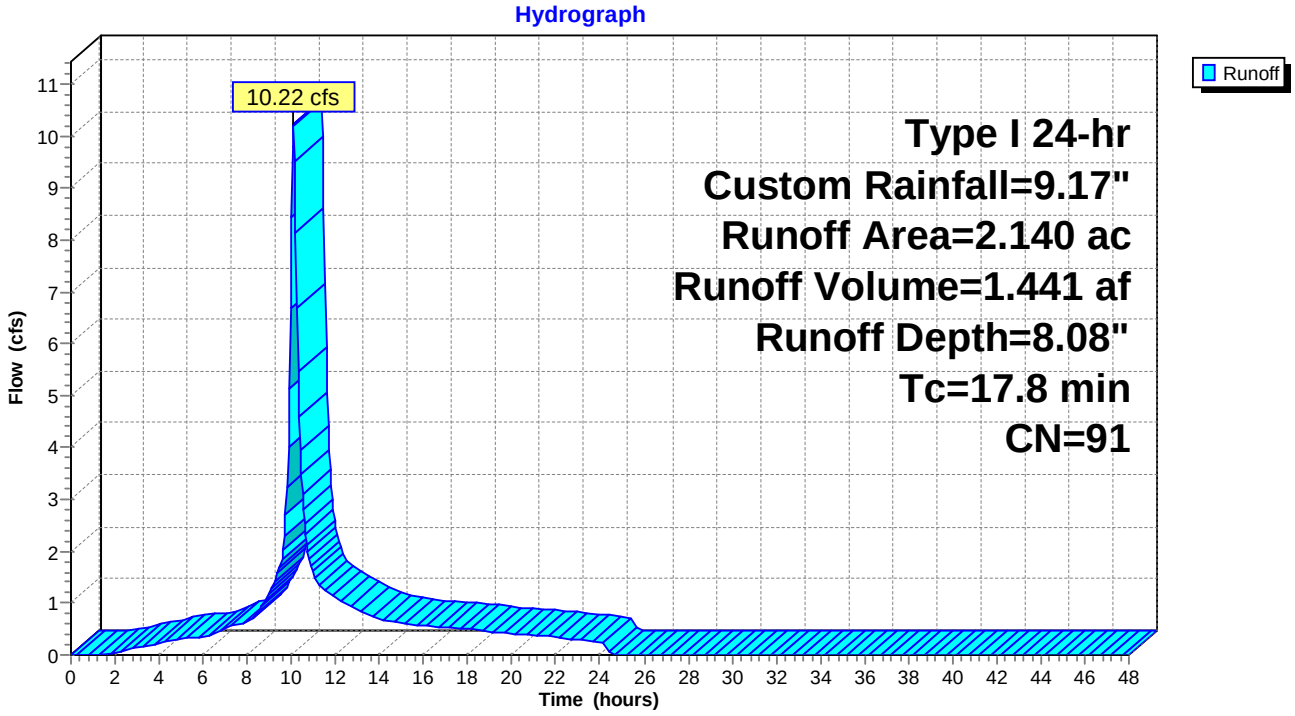
Runoff = 10.22 cfs @ 10.09 hrs, Volume= 1.441 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	2.140	91	PULEHU ROAD
	2.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8					**Direct Entry,**

Subcatchment 2S: BASIN P2



Summary for Subcatchment 3S: BASIN P3

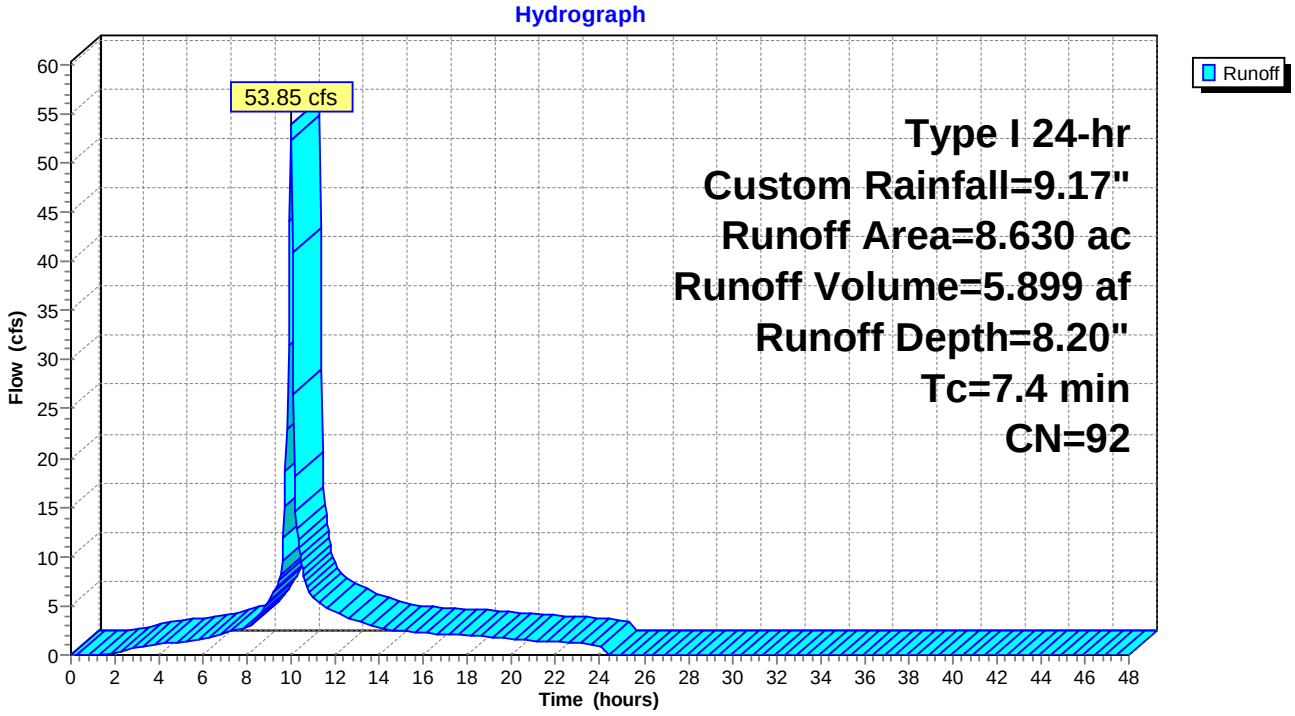
Runoff = 53.85 cfs @ 9.97 hrs, Volume= 5.899 af, Depth= 8.20"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	8.630	92	
	8.630		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4					**Direct Entry,**

Subcatchment 3S: BASIN P3



Summary for Subcatchment 4S: BASIN P4

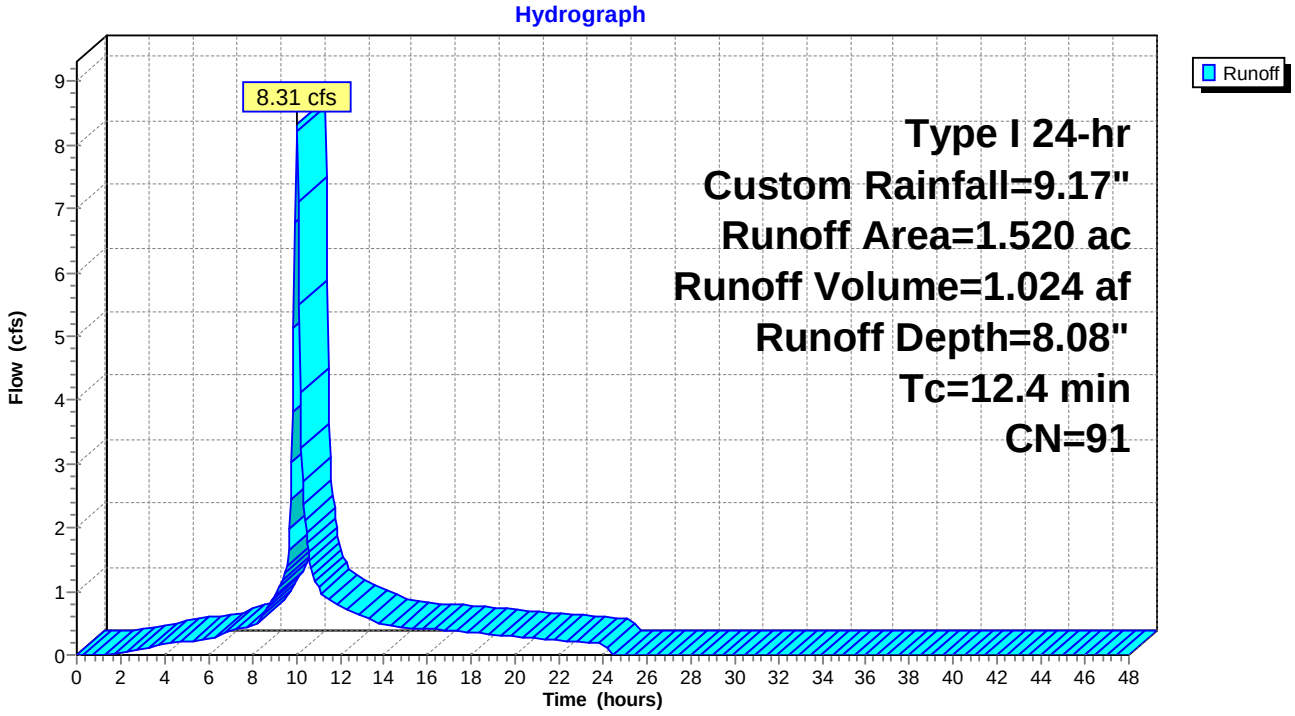
Runoff = 8.31 cfs @ 10.03 hrs, Volume= 1.024 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	1.520	91	
	1.520		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4					**Direct Entry,**

Subcatchment 4S: BASIN P4



Summary for Subcatchment 5S: BASIN P5

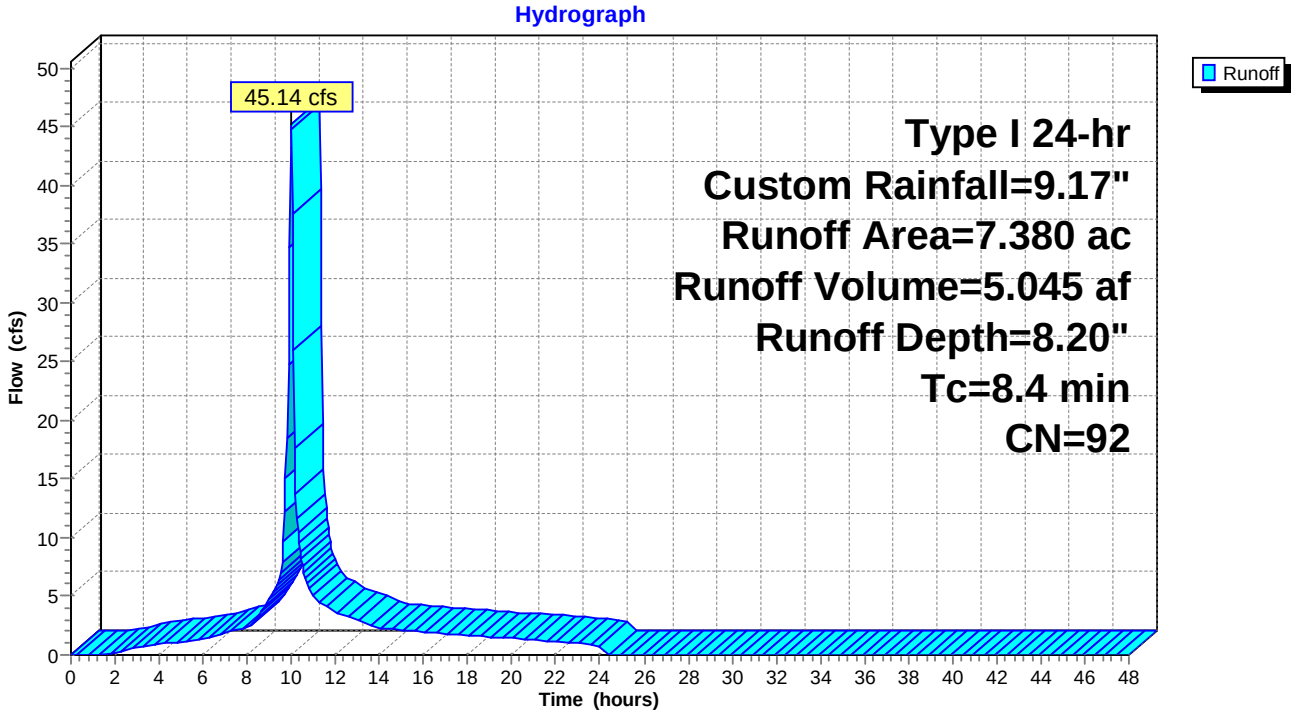
Runoff = 45.14 cfs @ 9.98 hrs, Volume= 5.045 af, Depth= 8.20"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	7.380	92	
	7.380		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment 5S: BASIN P5



Summary for Subcatchment 6S: BASIN P6

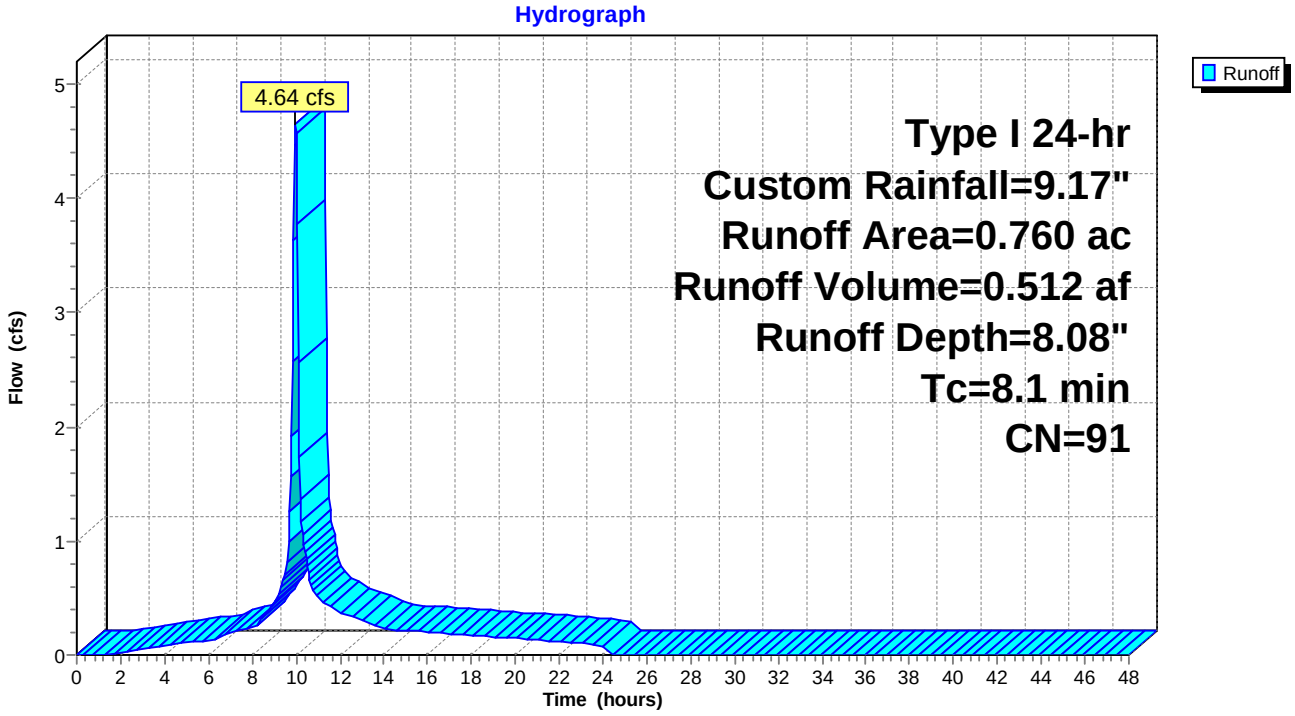
Runoff = 4.64 cfs @ 9.98 hrs, Volume= 0.512 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.760	91	
	0.760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1					**Direct Entry,**

Subcatchment 6S: BASIN P6



Summary for Subcatchment 7S: BASIN P7

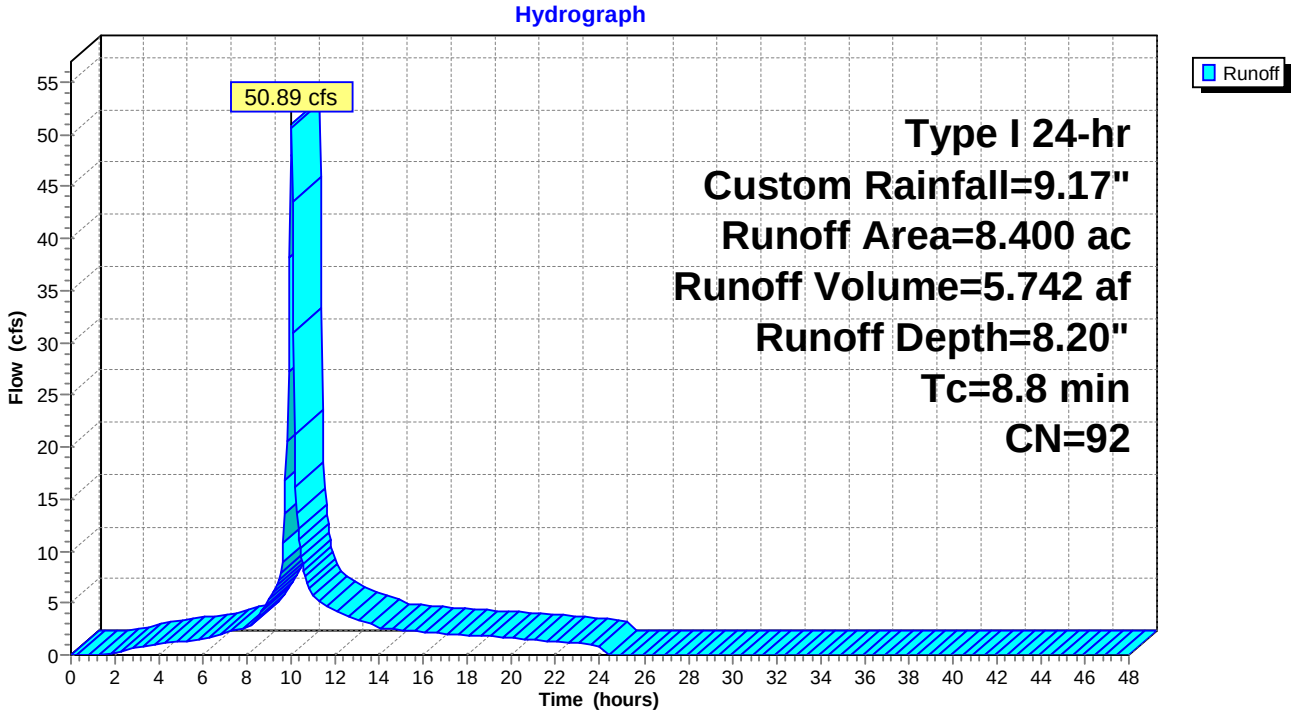
Runoff = 50.89 cfs @ 9.99 hrs, Volume= 5.742 af, Depth= 8.20"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	8.400	92	
	8.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8					**Direct Entry,**

Subcatchment 7S: BASIN P7



Summary for Subcatchment 8S: BASIN P8

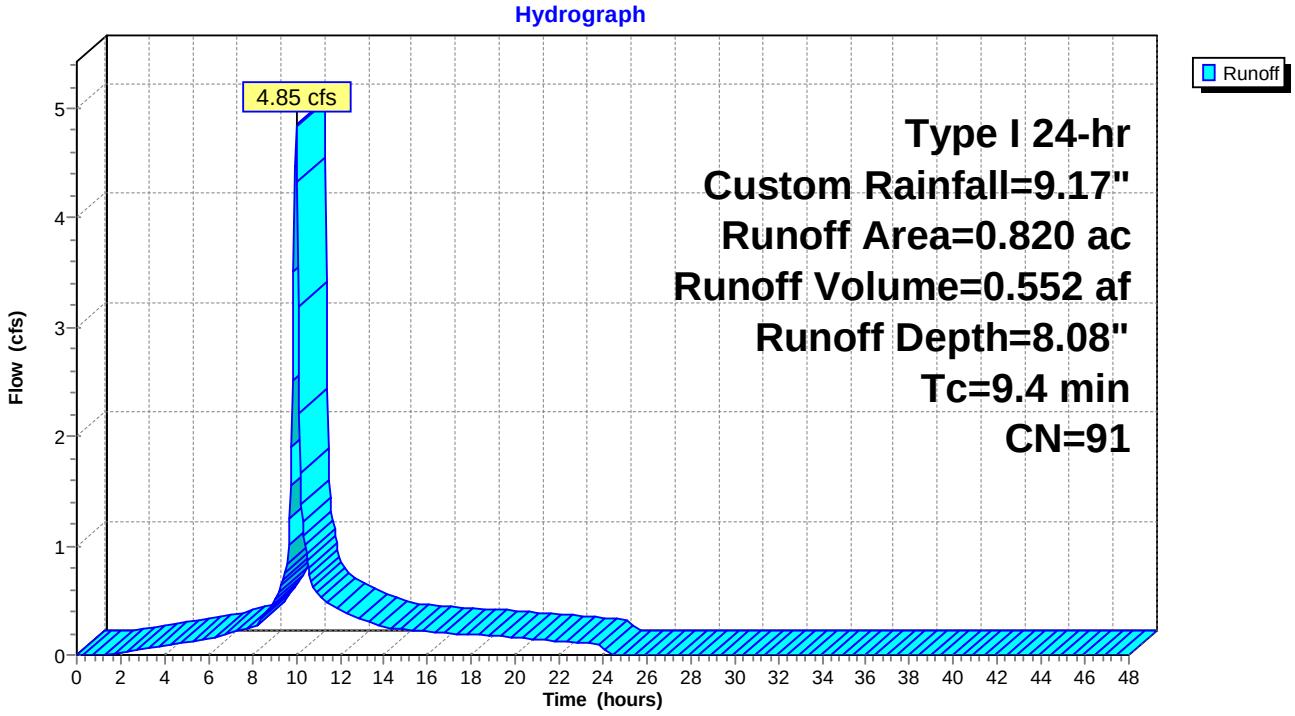
Runoff = 4.85 cfs @ 10.00 hrs, Volume= 0.552 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.820	91	
	0.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4					**Direct Entry,**

Subcatchment 8S: BASIN P8



Summary for Subcatchment 9S: BASIN P9

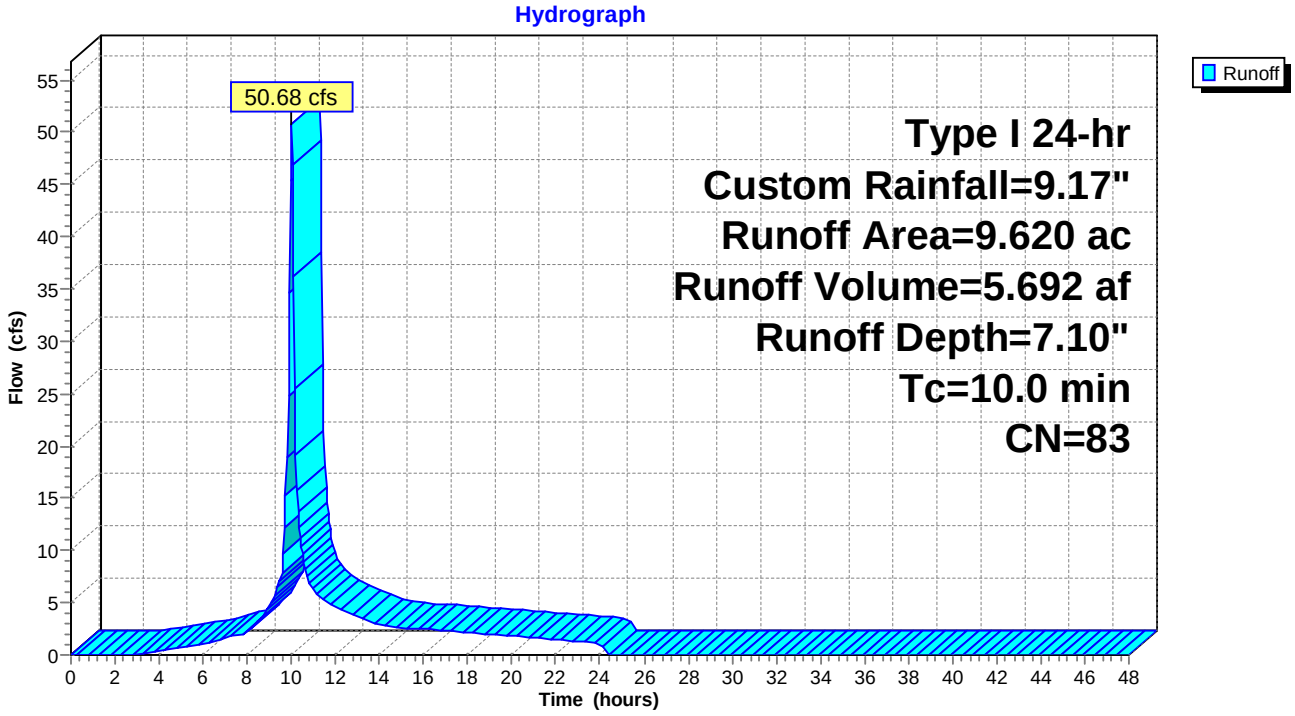
Runoff = 50.68 cfs @ 10.00 hrs, Volume= 5.692 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	9.620	83	
	9.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 9S: BASIN P9



Summary for Subcatchment 10S: BASIN P10

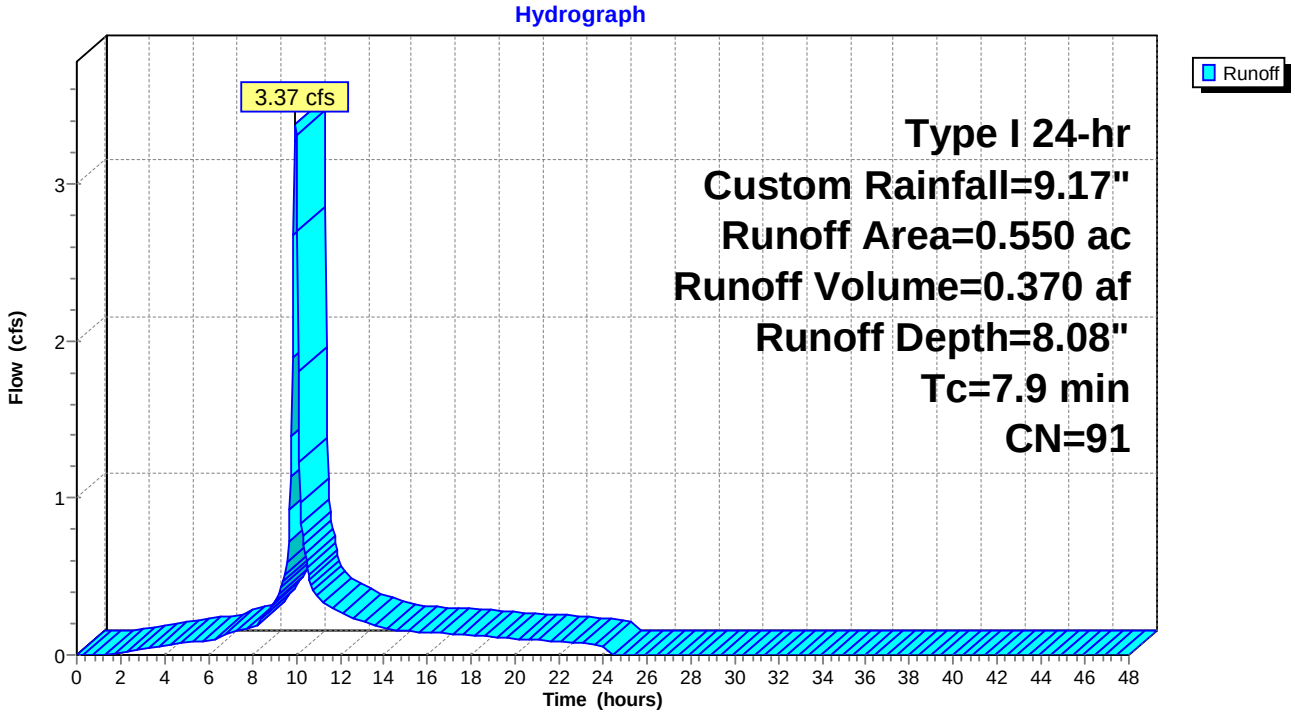
Runoff = 3.37 cfs @ 9.98 hrs, Volume= 0.370 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.550	91	
	0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9					**Direct Entry,**

Subcatchment 10S: BASIN P10



Summary for Subcatchment 13S: BASIN P11

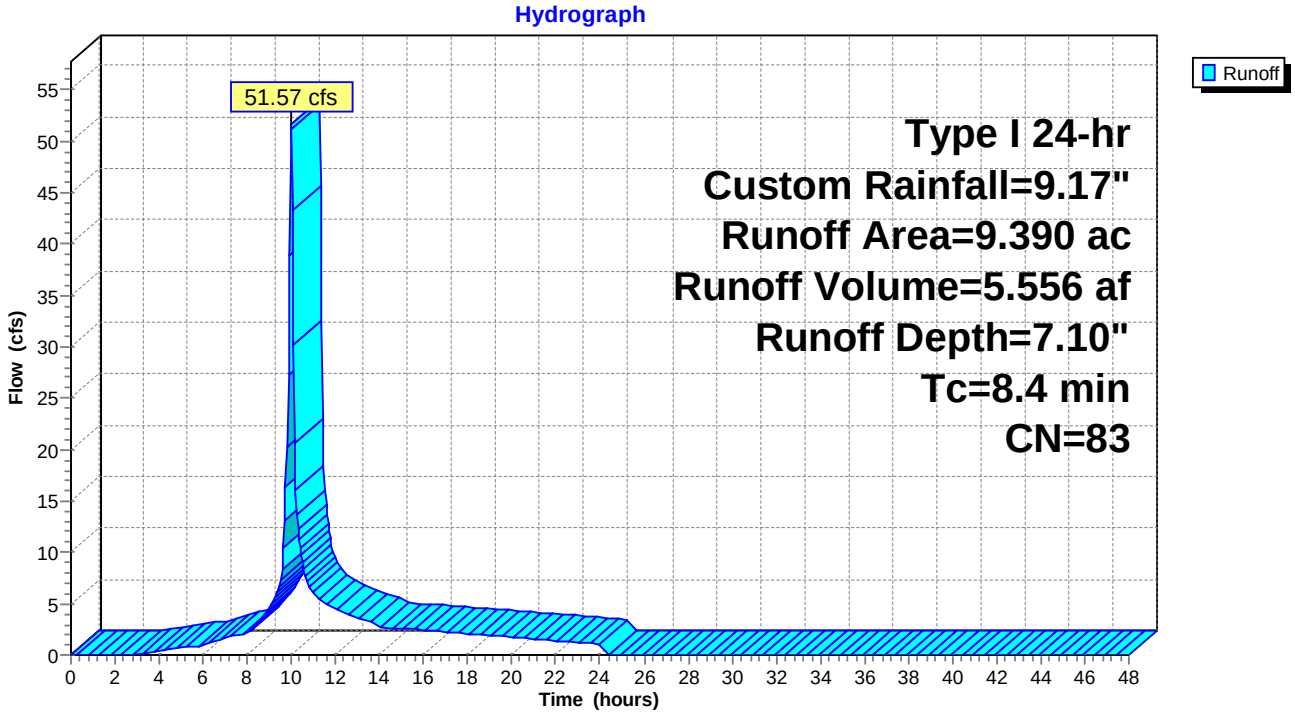
Runoff = 51.57 cfs @ 9.99 hrs, Volume= 5.556 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	9.390	83	
	9.390		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment 13S: BASIN P11



Summary for Subcatchment 14S: BASIN P12

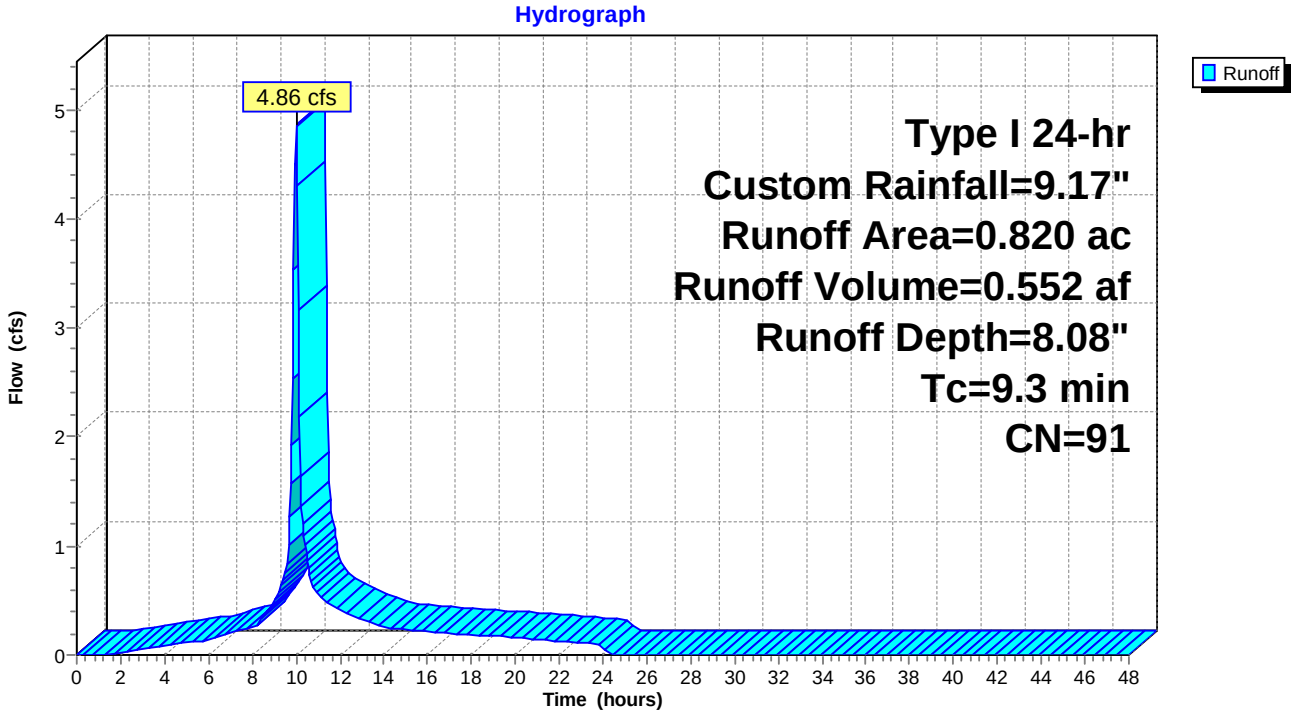
Runoff = 4.86 cfs @ 9.99 hrs, Volume= 0.552 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.820	91	
	0.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3					**Direct Entry,**

Subcatchment 14S: BASIN P12



Summary for Subcatchment 15S: BASIN P13

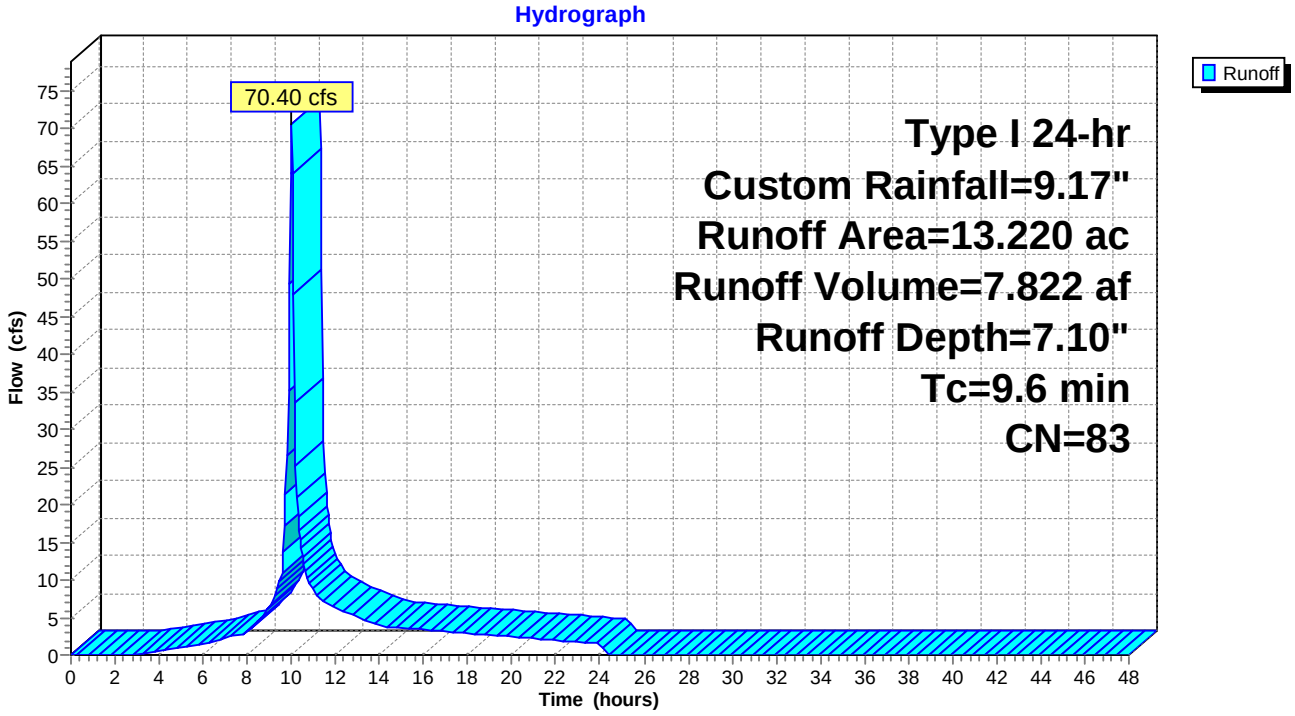
Runoff = 70.40 cfs @ 10.00 hrs, Volume= 7.822 af, Depth= 7.10"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	13.220	83	
	13.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6					**Direct Entry,**

Subcatchment 15S: BASIN P13



Summary for Subcatchment 16S: BASIN P14

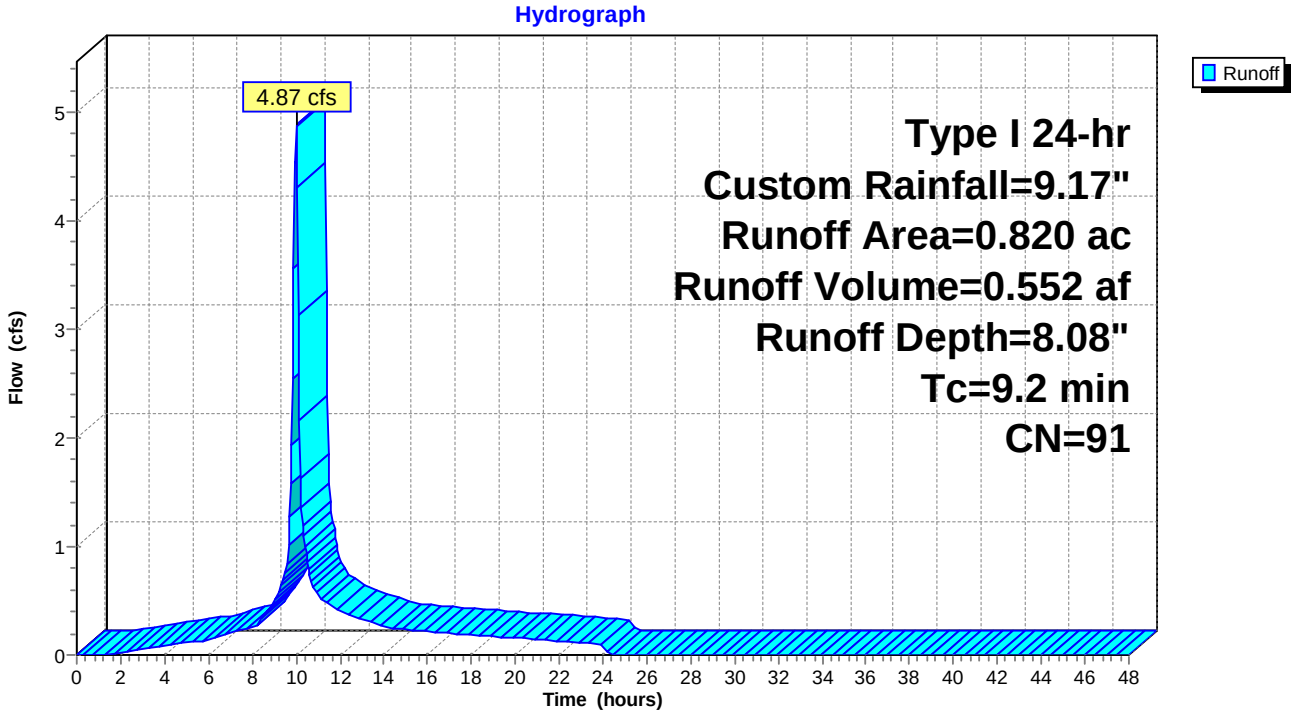
Runoff = 4.87 cfs @ 9.99 hrs, Volume= 0.552 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.820	91	
	0.820		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2					**Direct Entry,**

Subcatchment 16S: BASIN P14



Summary for Subcatchment 17S: BASIN P15

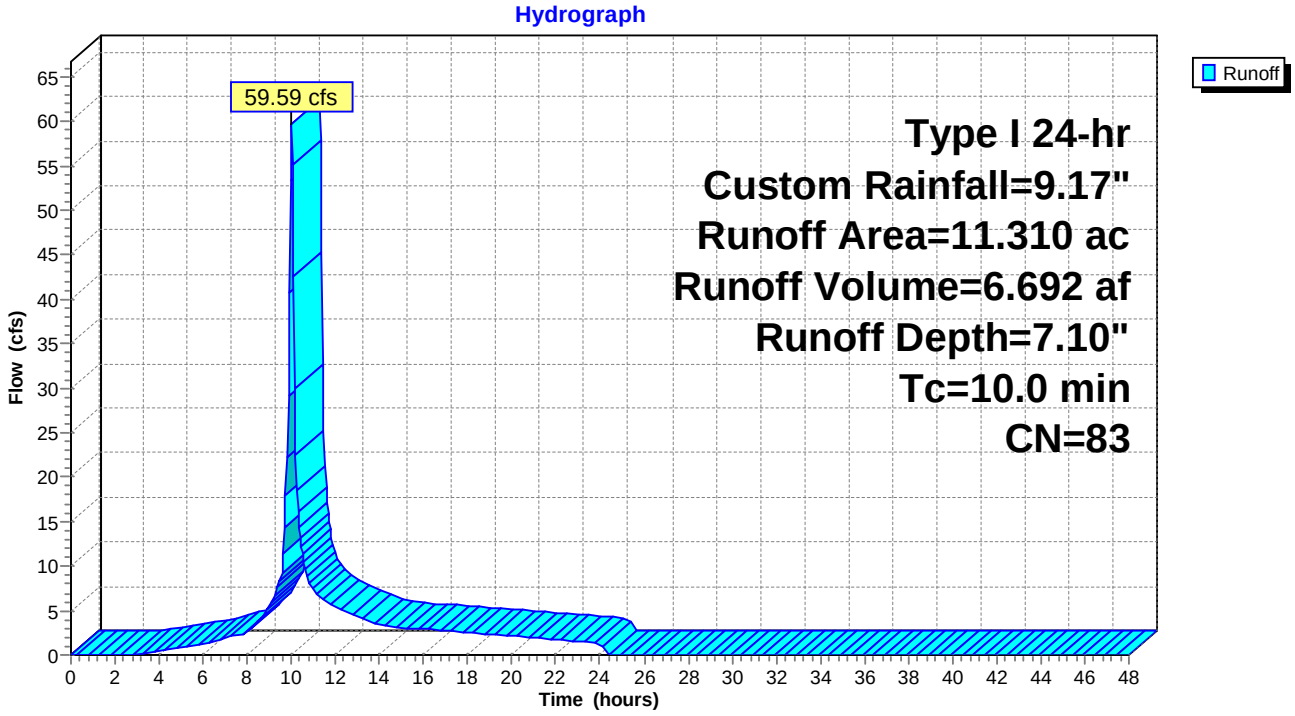
Runoff = 59.59 cfs @ 10.00 hrs, Volume= 6.692 af, Depth= 7.10"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	11.310	83	
	11.310		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 17S: BASIN P15



Summary for Subcatchment 18S: BASIN P16

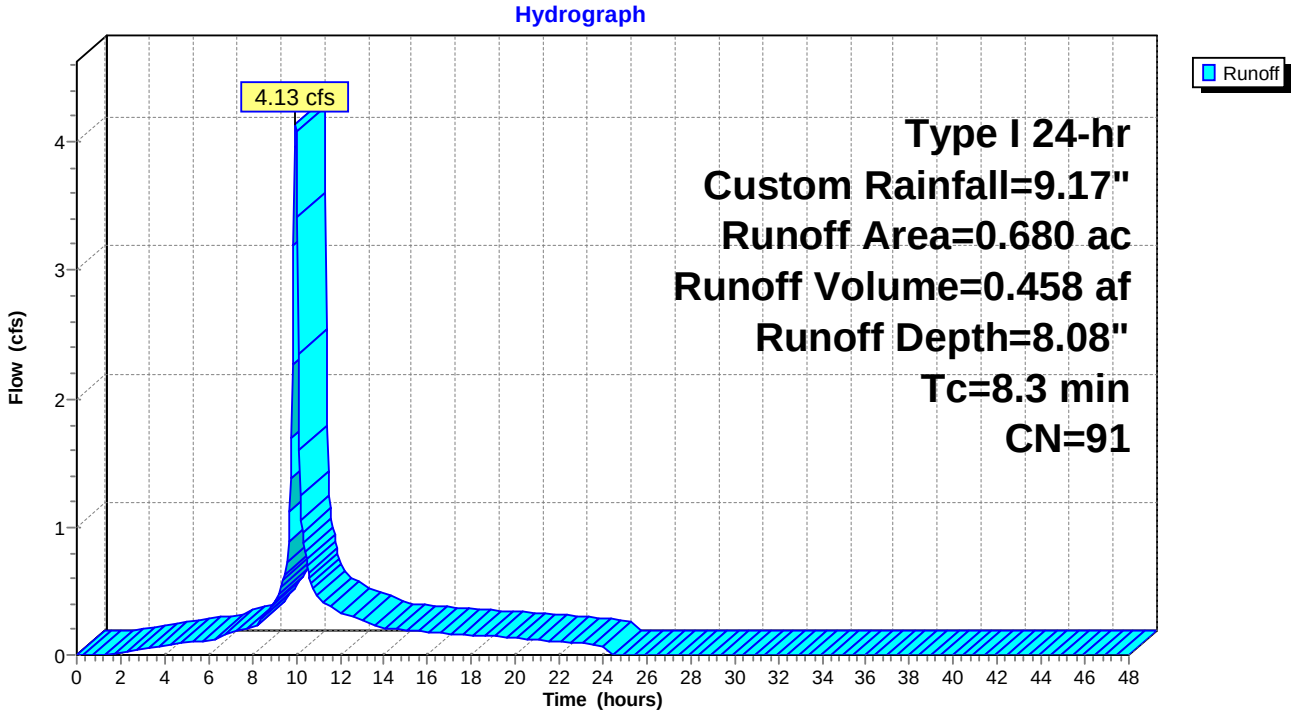
Runoff = 4.13 cfs @ 9.98 hrs, Volume= 0.458 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.680	91	
	0.680		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3					**Direct Entry,**

Subcatchment 18S: BASIN P16



Summary for Subcatchment 19S: BASIN P17

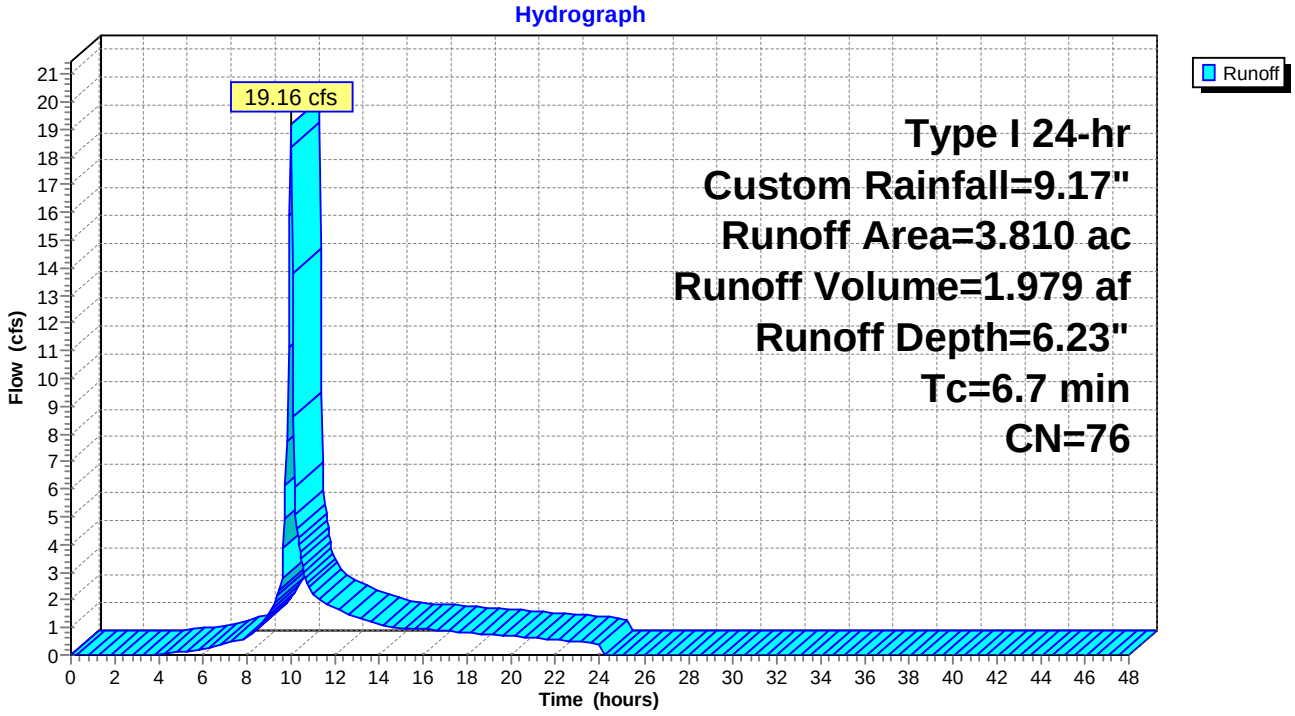
Runoff = 19.16 cfs @ 9.97 hrs, Volume= 1.979 af, Depth= 6.23"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	3.810	76	
	3.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7					**Direct Entry,**

Subcatchment 19S: BASIN P17



Summary for Subcatchment 20S: BASIN P18

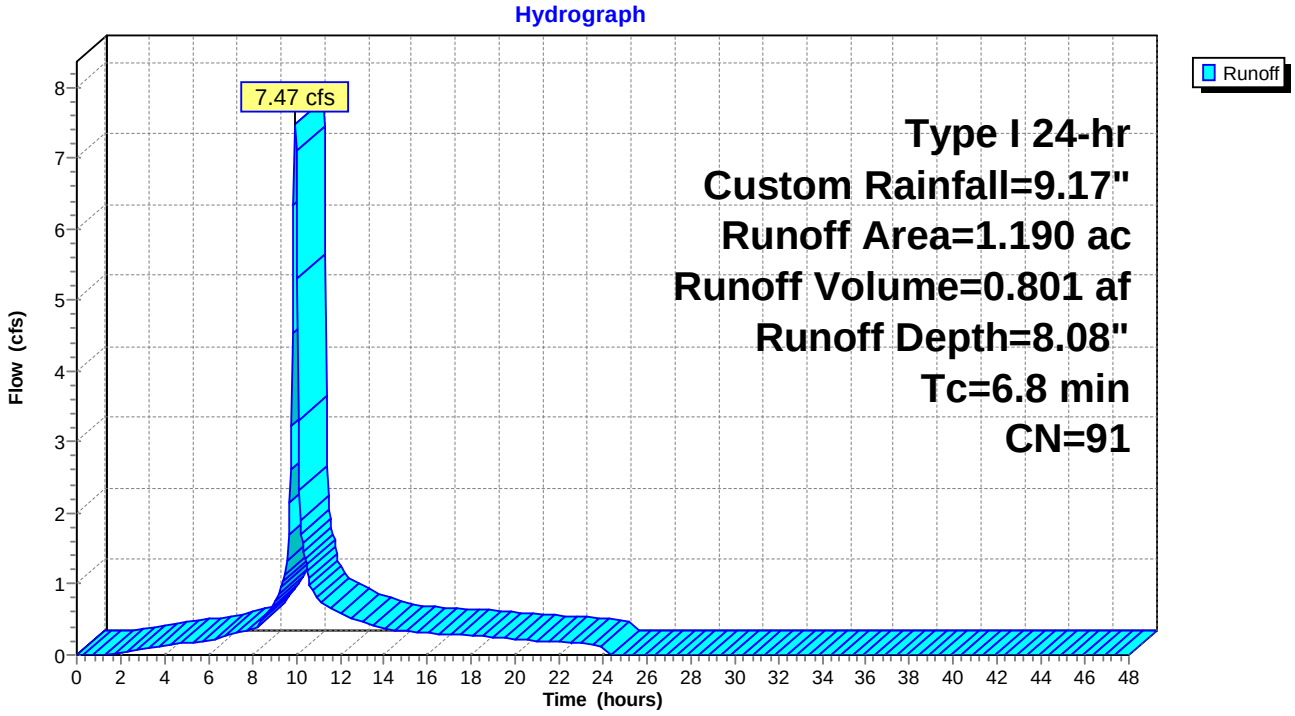
Runoff = 7.47 cfs @ 9.96 hrs, Volume= 0.801 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	1.190	91	
	1.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8					**Direct Entry,**

Subcatchment 20S: BASIN P18



Summary for Subcatchment 21S: BASIN P19

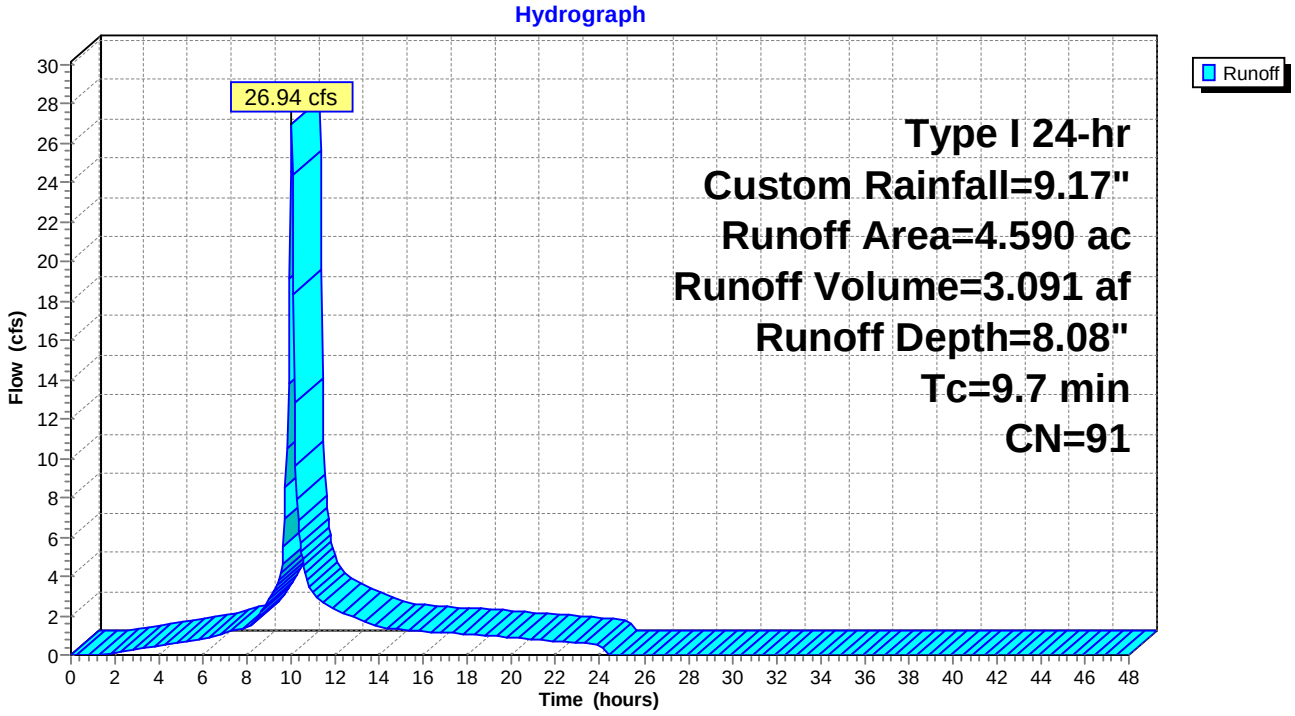
Runoff = 26.94 cfs @ 10.00 hrs, Volume= 3.091 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	4.590	91	
	4.590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7					**Direct Entry,**

Subcatchment 21S: BASIN P19



Summary for Subcatchment 22S: BASIN P20

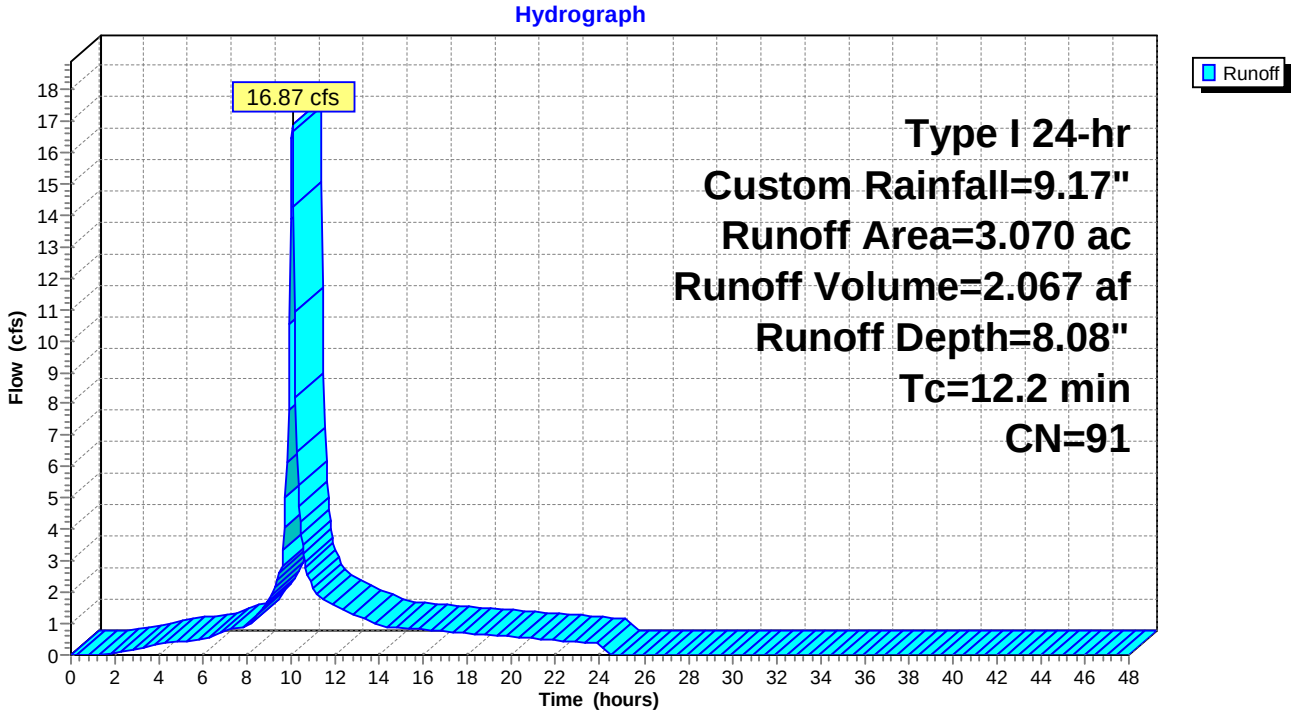
Runoff = 16.87 cfs @ 10.03 hrs, Volume= 2.067 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	3.070	91	
	3.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry,**

Subcatchment 22S: BASIN P20



Summary for Subcatchment 23S: BASIN P21

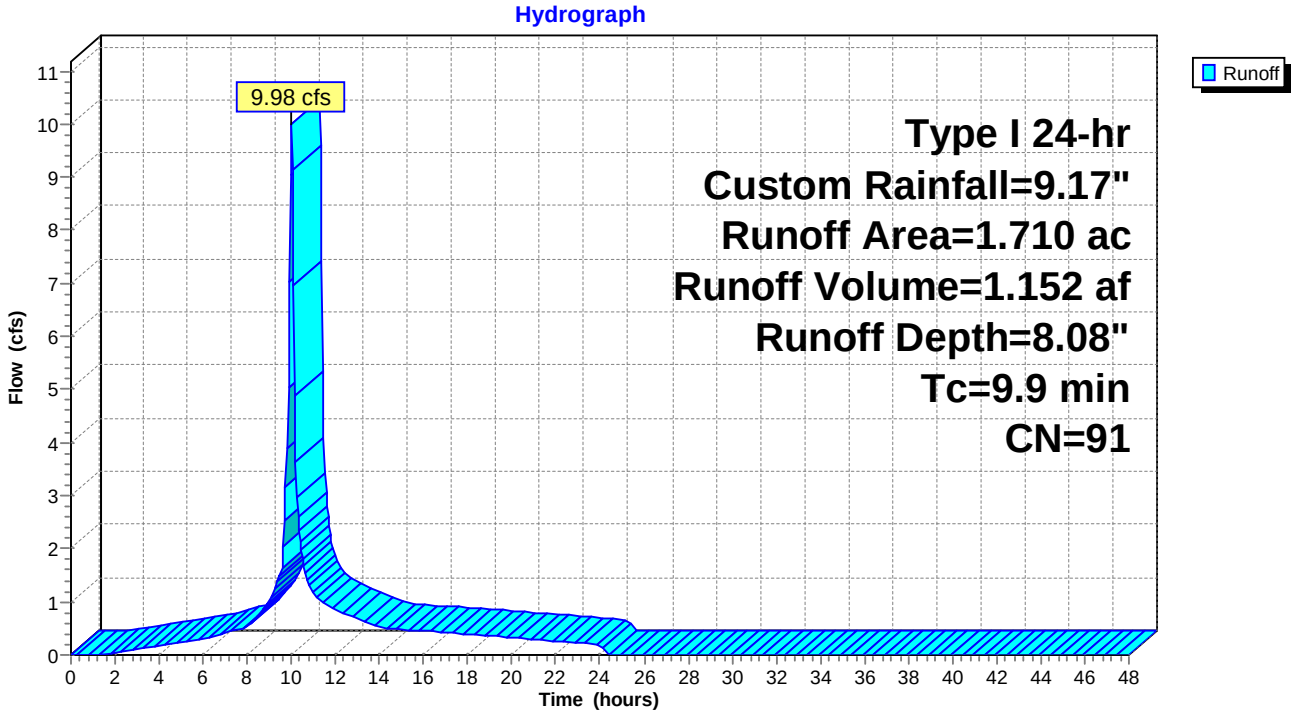
Runoff = 9.98 cfs @ 10.00 hrs, Volume= 1.152 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	1.710	91	
	1.710		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9					**Direct Entry,**

Subcatchment 23S: BASIN P21



Summary for Subcatchment 24S: BASIN P22

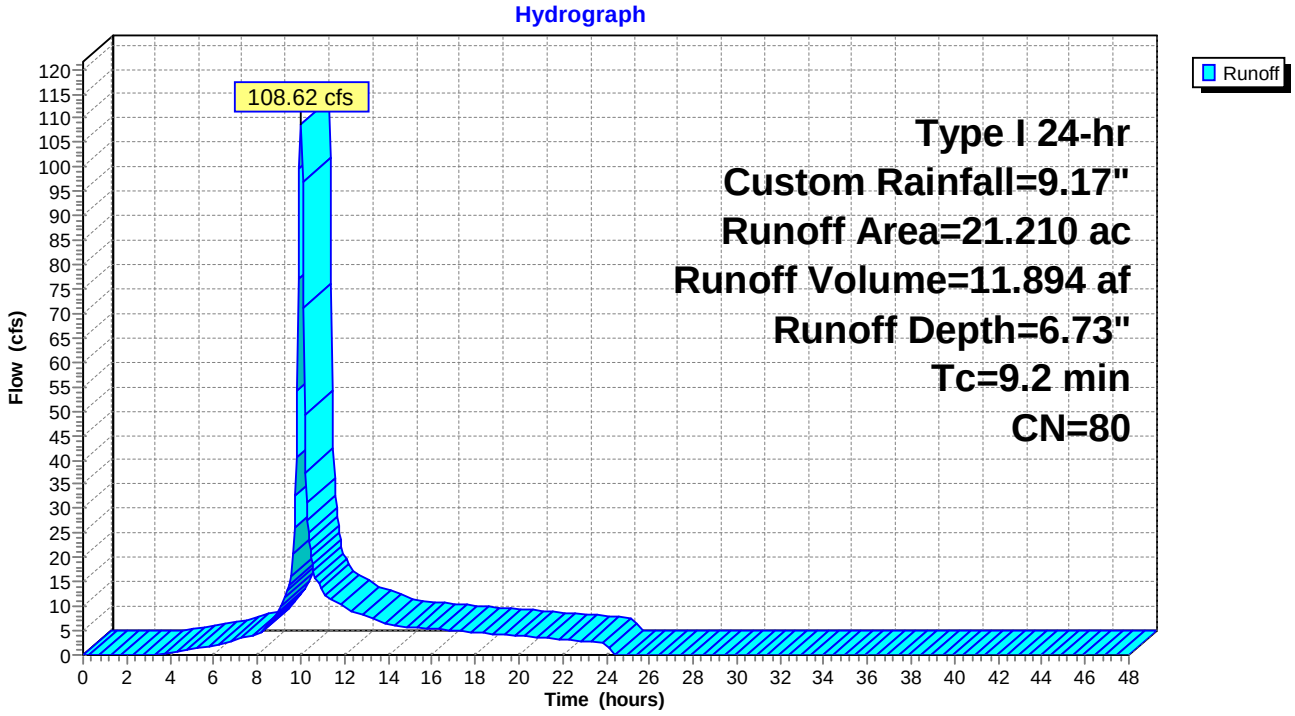
Runoff = 108.62 cfs @ 10.00 hrs, Volume= 11.894 af, Depth= 6.73"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	21.210	80	
	21.210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2					**Direct Entry,**

Subcatchment 24S: BASIN P22



Summary for Subcatchment 25S: BASIN P23

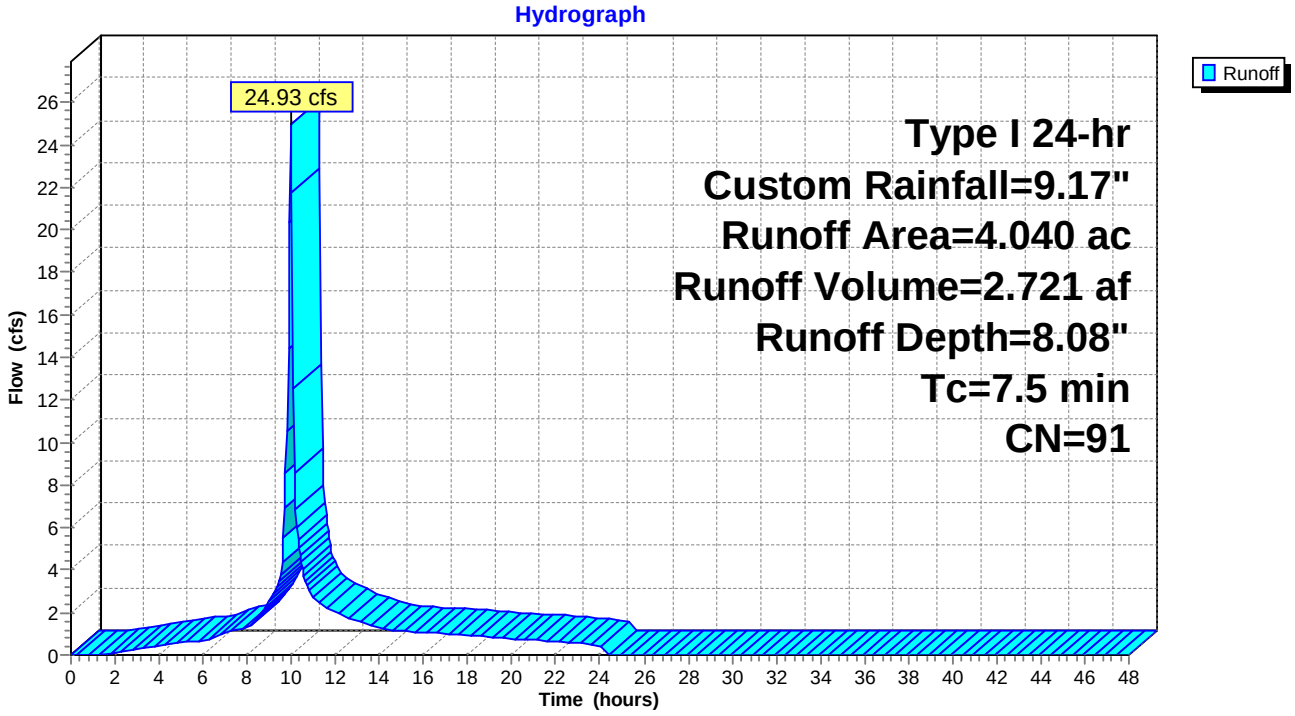
Runoff = 24.93 cfs @ 9.97 hrs, Volume= 2.721 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	4.040	91	
	4.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5					**Direct Entry,**

Subcatchment 25S: BASIN P23



Summary for Subcatchment 26S: BASIN P24

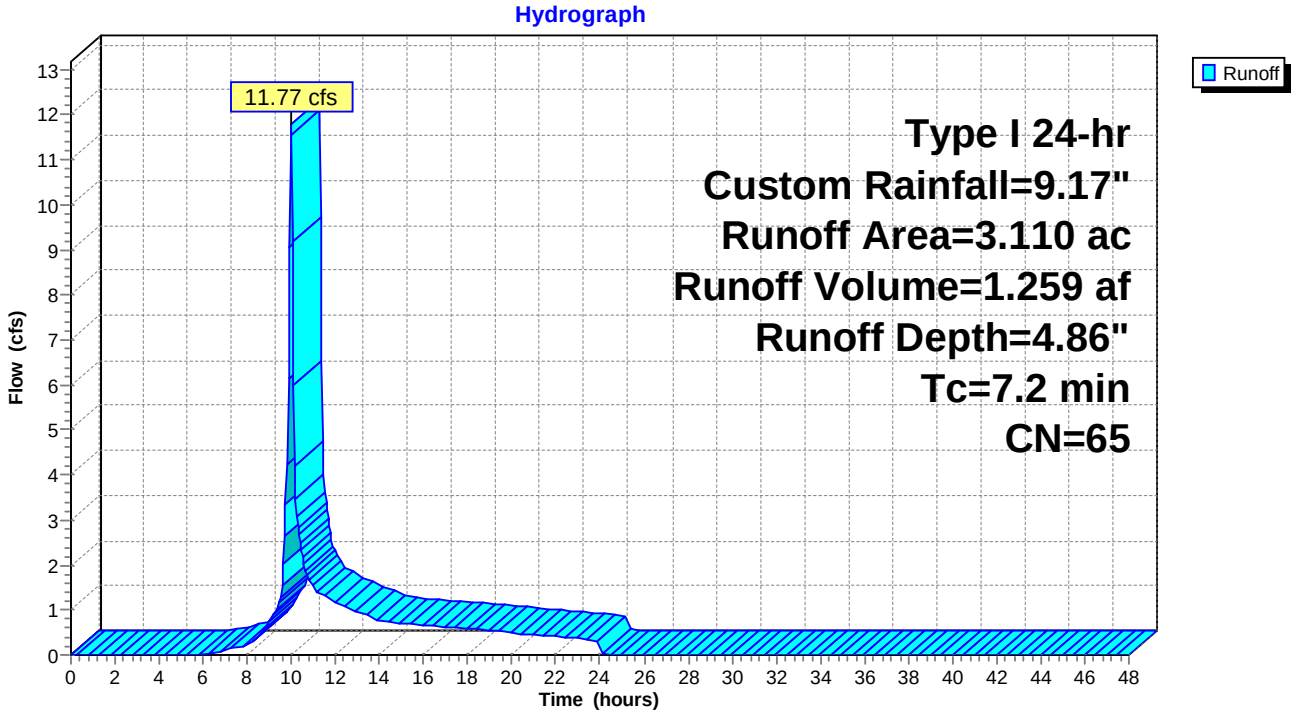
Runoff = 11.77 cfs @ 9.98 hrs, Volume= 1.259 af, Depth= 4.86"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	3.110	65	
	3.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2					**Direct Entry,**

Subcatchment 26S: BASIN P24



Summary for Subcatchment 27S: BASIN P25

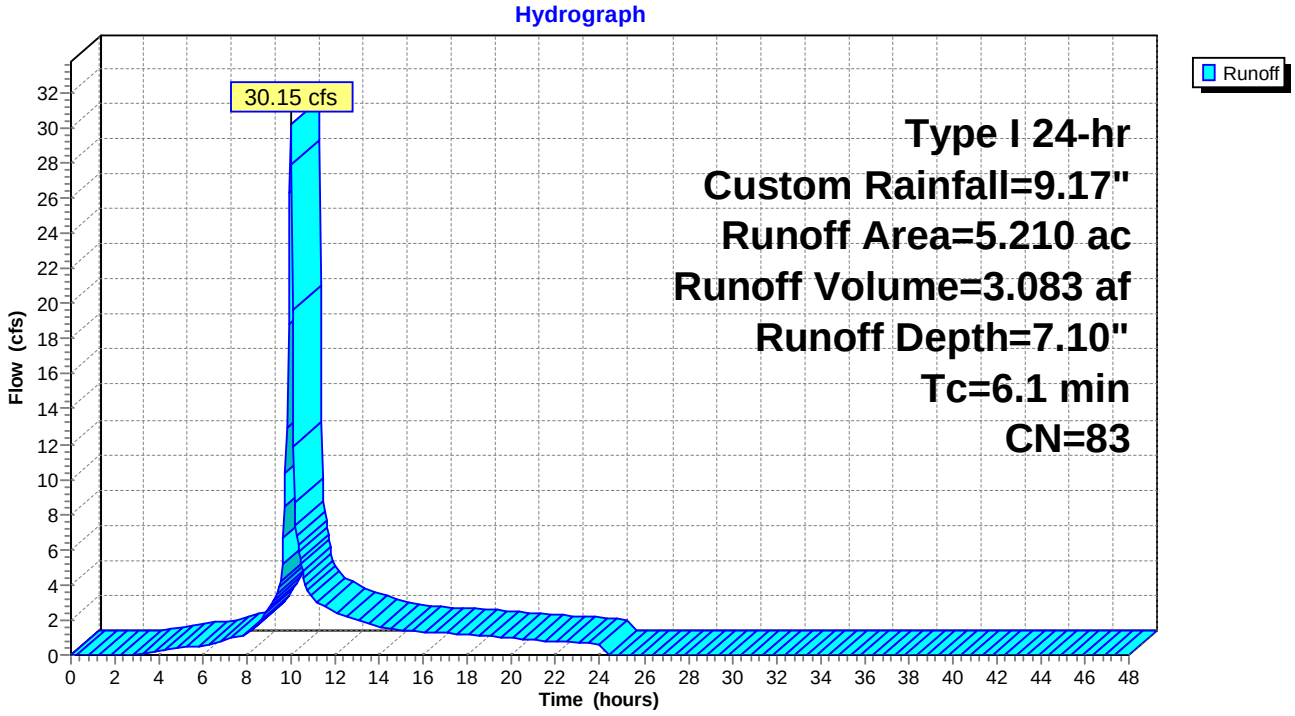
Runoff = 30.15 cfs @ 9.96 hrs, Volume= 3.083 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	5.210	83	
	5.210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					**Direct Entry,**

Subcatchment 27S: BASIN P25



Summary for Subcatchment 28S: BASIN P26

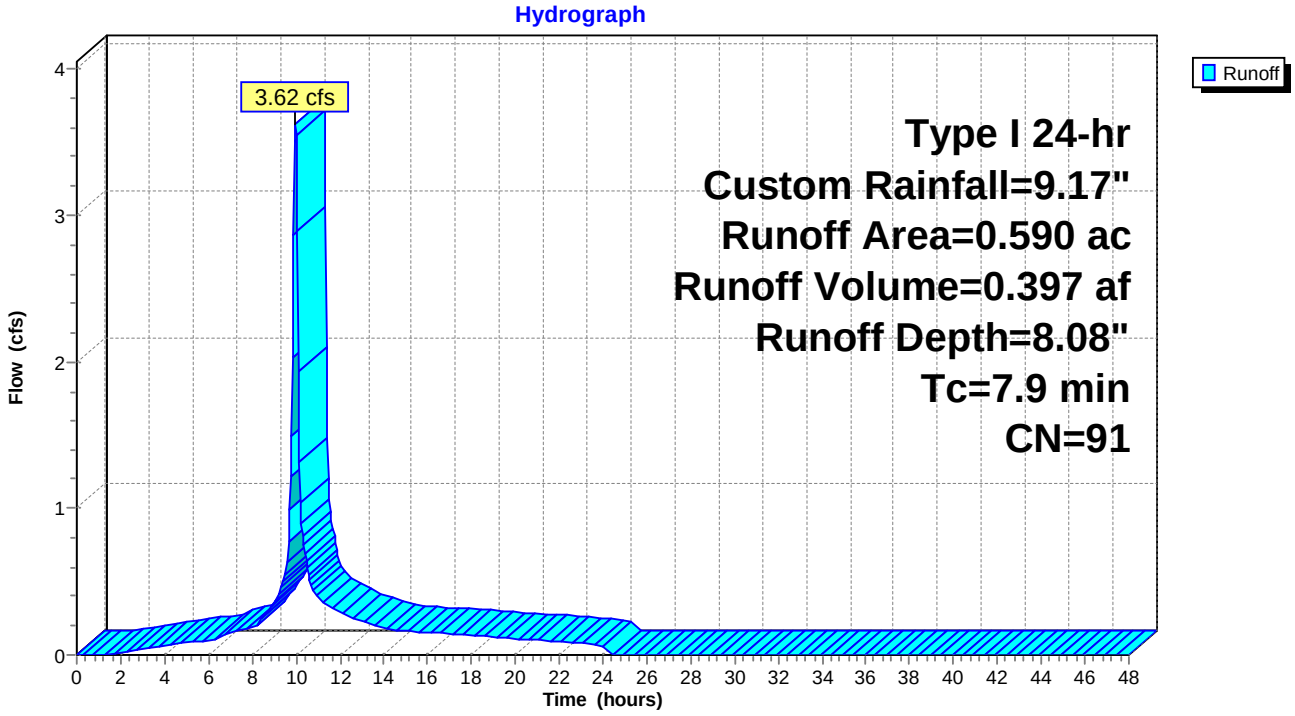
Runoff = 3.62 cfs @ 9.98 hrs, Volume= 0.397 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.590	91	
	0.590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9					**Direct Entry,**

Subcatchment 28S: BASIN P26



Summary for Subcatchment 29S: BASIN P27

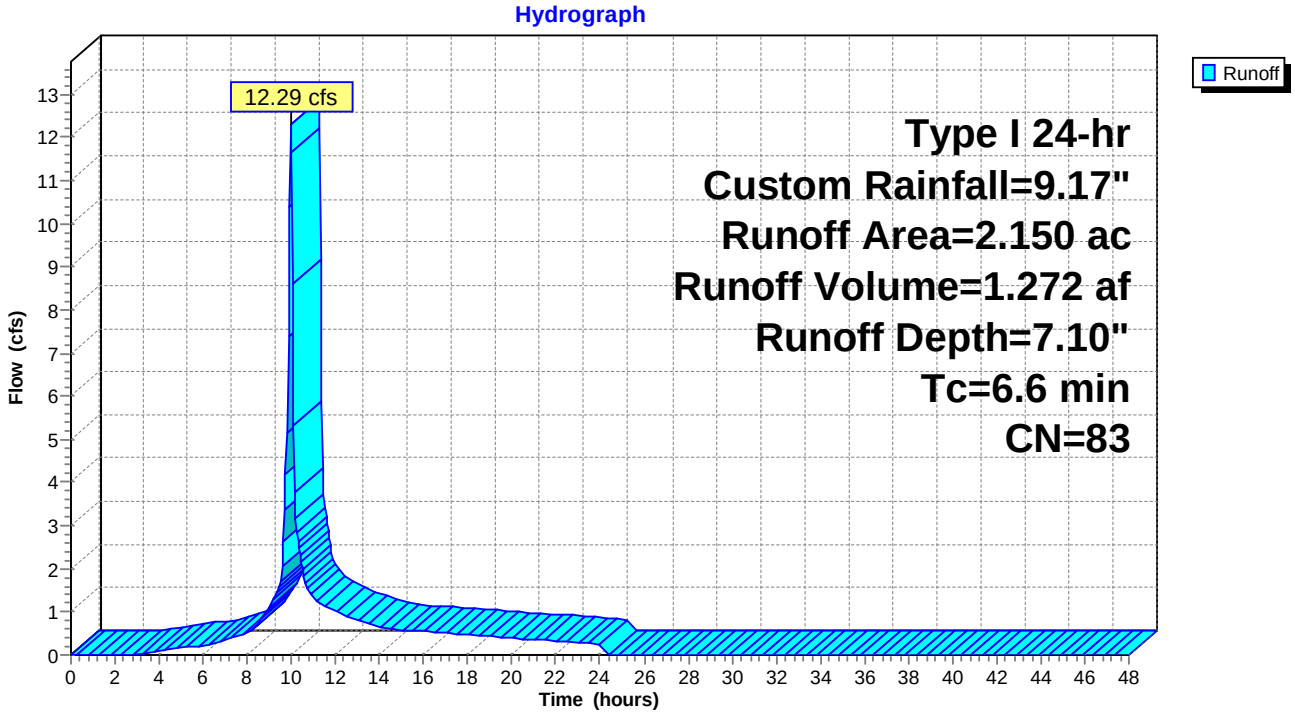
Runoff = 12.29 cfs @ 9.96 hrs, Volume= 1.272 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	2.150	83	
	2.150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6					**Direct Entry,**

Subcatchment 29S: BASIN P27



Summary for Subcatchment 30S: BASIN P28

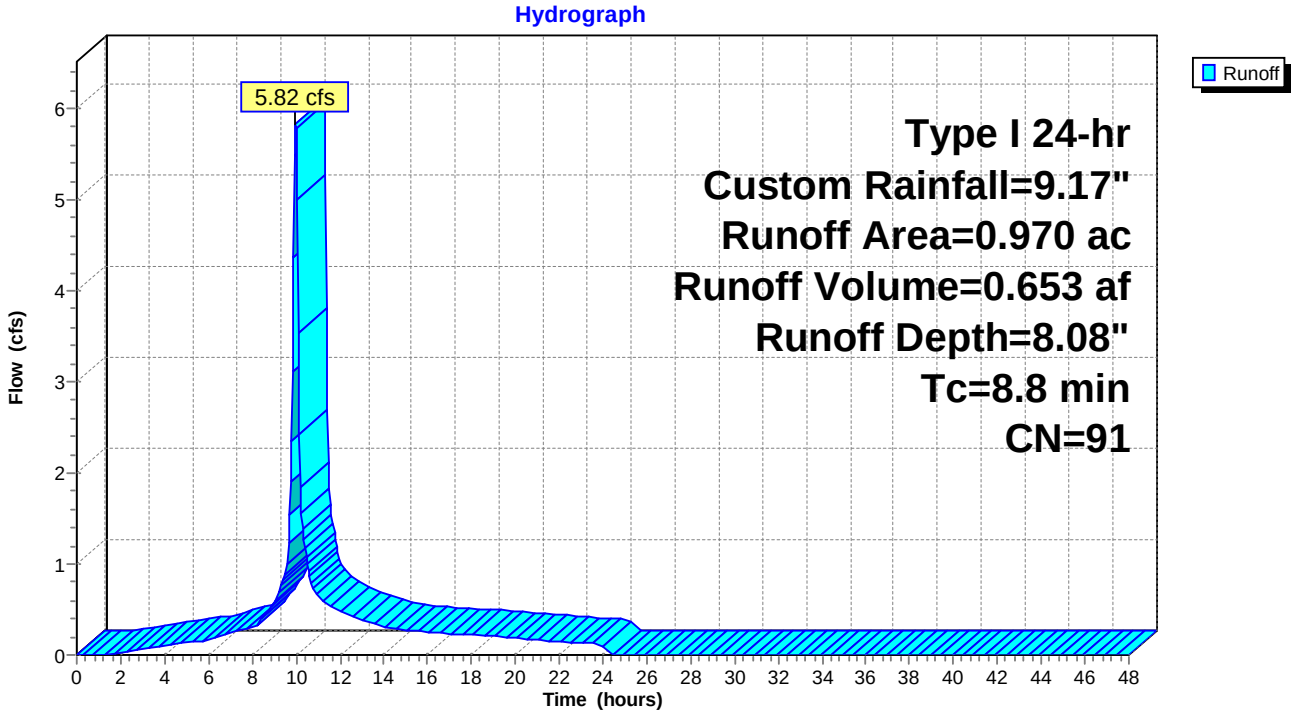
Runoff = 5.82 cfs @ 9.99 hrs, Volume= 0.653 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.970	91	
	0.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8					**Direct Entry,**

Subcatchment 30S: BASIN P28



Summary for Subcatchment 31S: BASIN P29

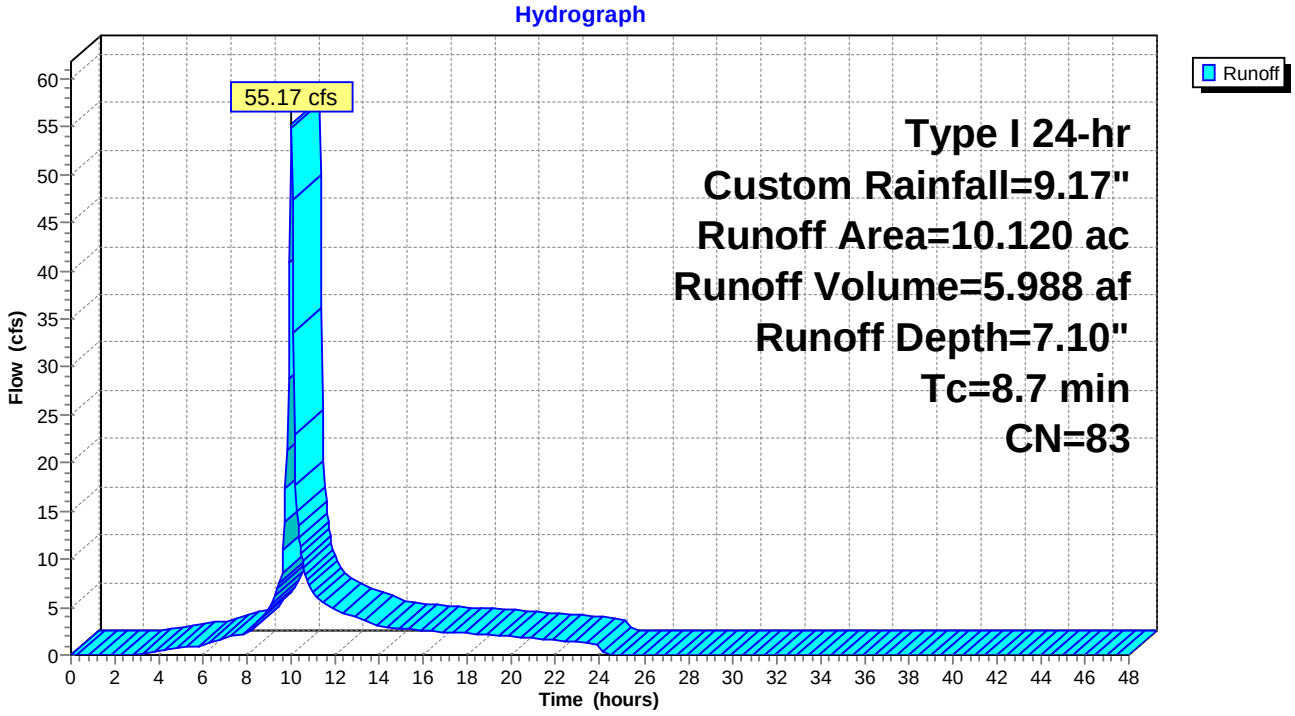
Runoff = 55.17 cfs @ 9.99 hrs, Volume= 5.988 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	10.120	83	
	10.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7					**Direct Entry,**

Subcatchment 31S: BASIN P29



Summary for Subcatchment 32S: BASIN P30

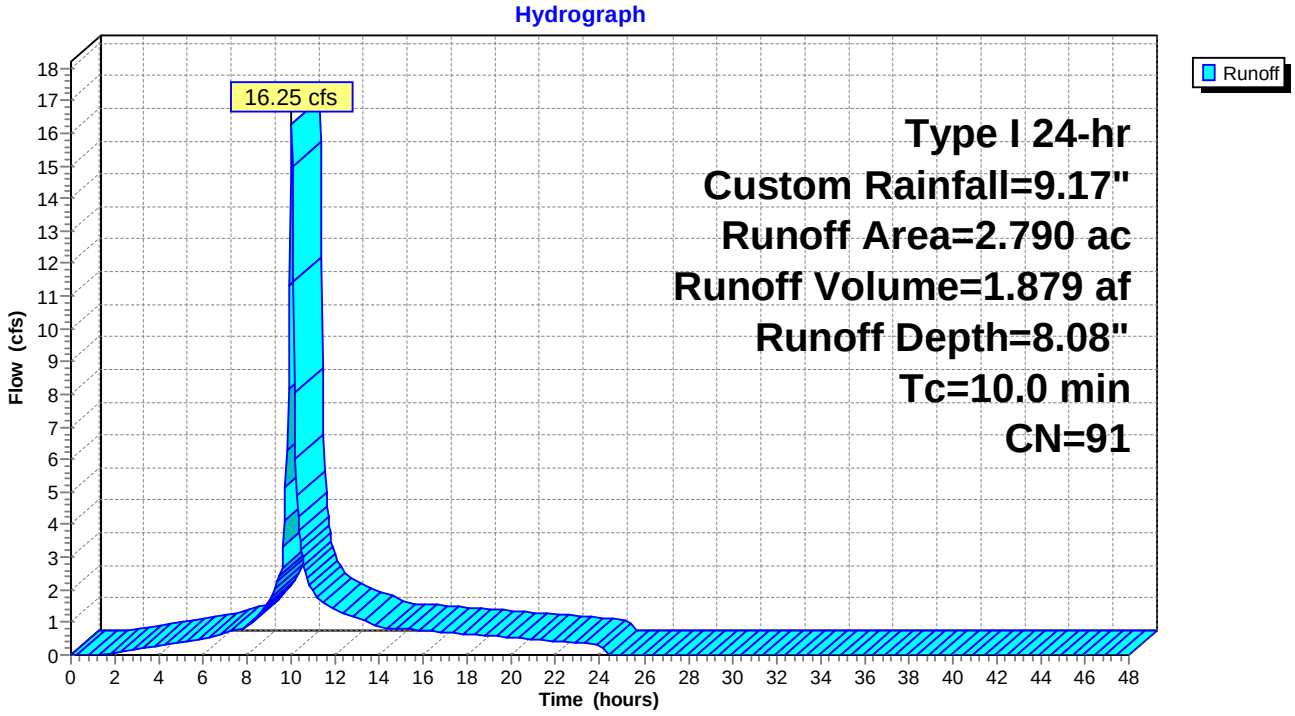
Runoff = 16.25 cfs @ 10.00 hrs, Volume= 1.879 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	2.790	91	
	2.790		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 32S: BASIN P30



Summary for Subcatchment 33S: BASIN P31

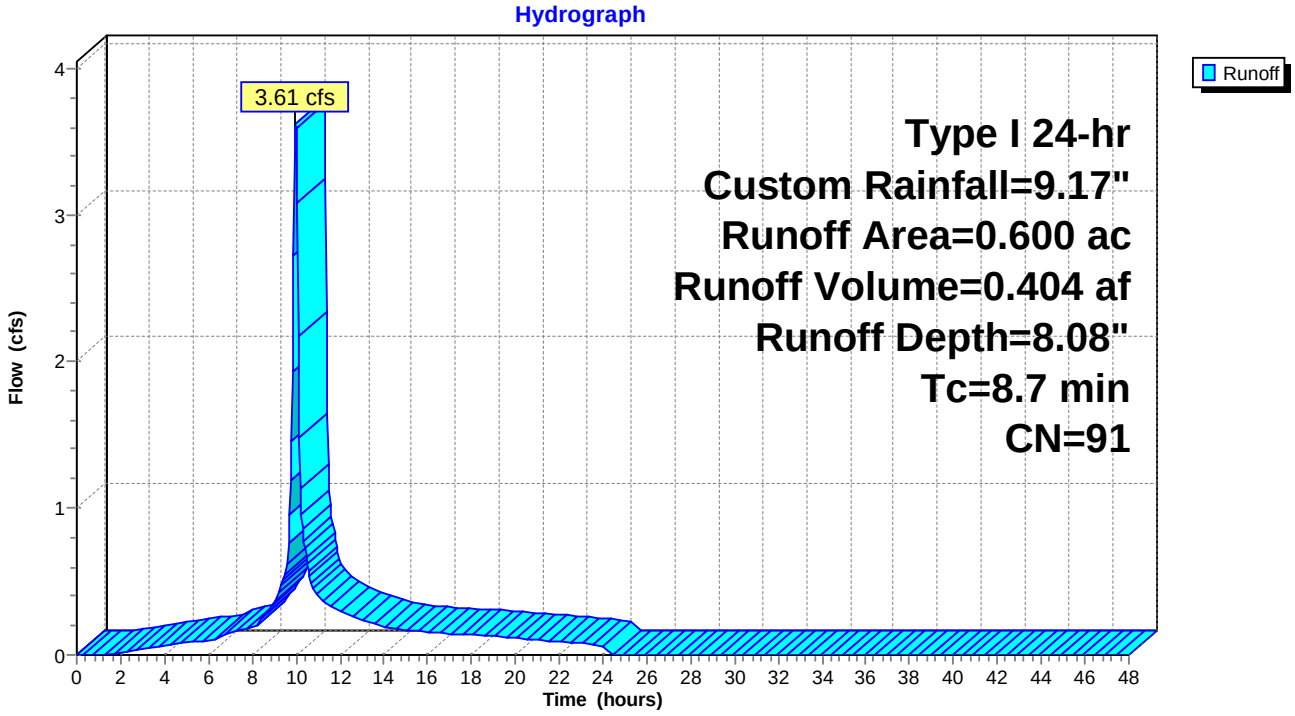
Runoff = 3.61 cfs @ 9.99 hrs, Volume= 0.404 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	0.600	91	
	0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7					**Direct Entry,**

Subcatchment 33S: BASIN P31



Summary for Subcatchment 34S: BASIN P32

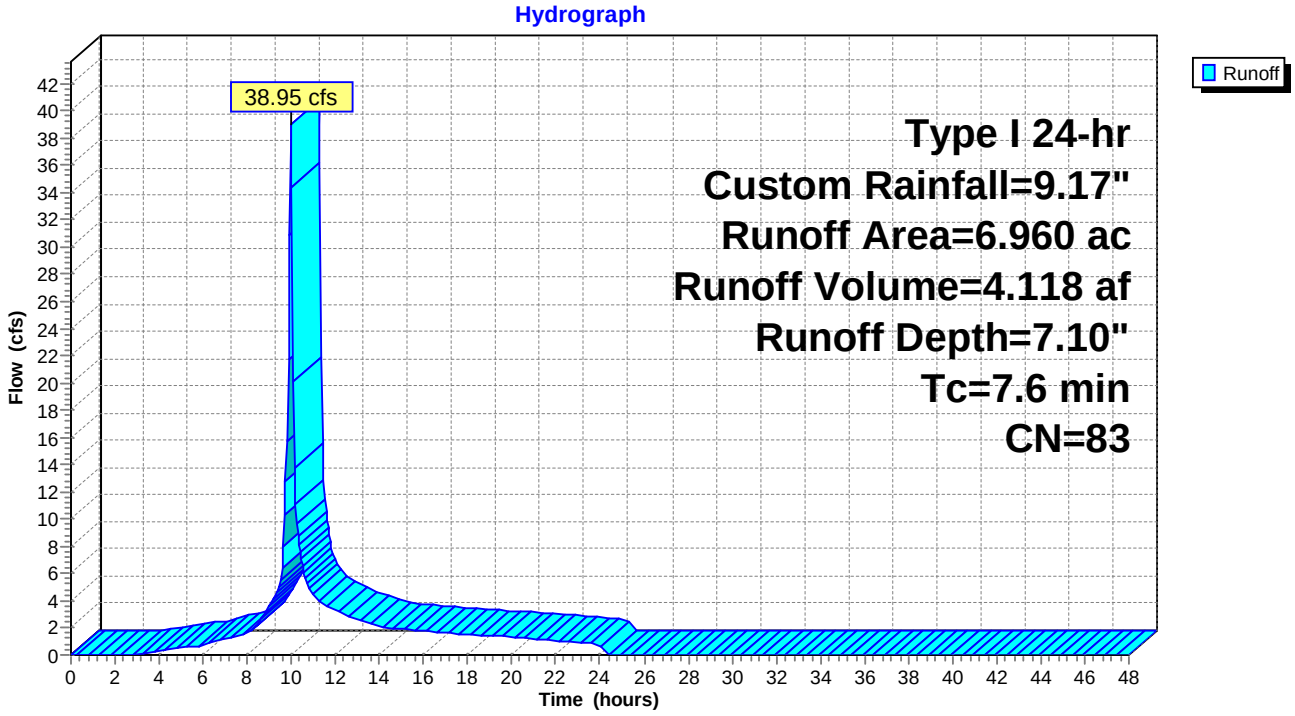
Runoff = 38.95 cfs @ 9.98 hrs, Volume= 4.118 af, Depth= 7.10"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.960	83	
	6.960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6					**Direct Entry,**

Subcatchment 34S: BASIN P32



Summary for Subcatchment 35S: BASIN P33

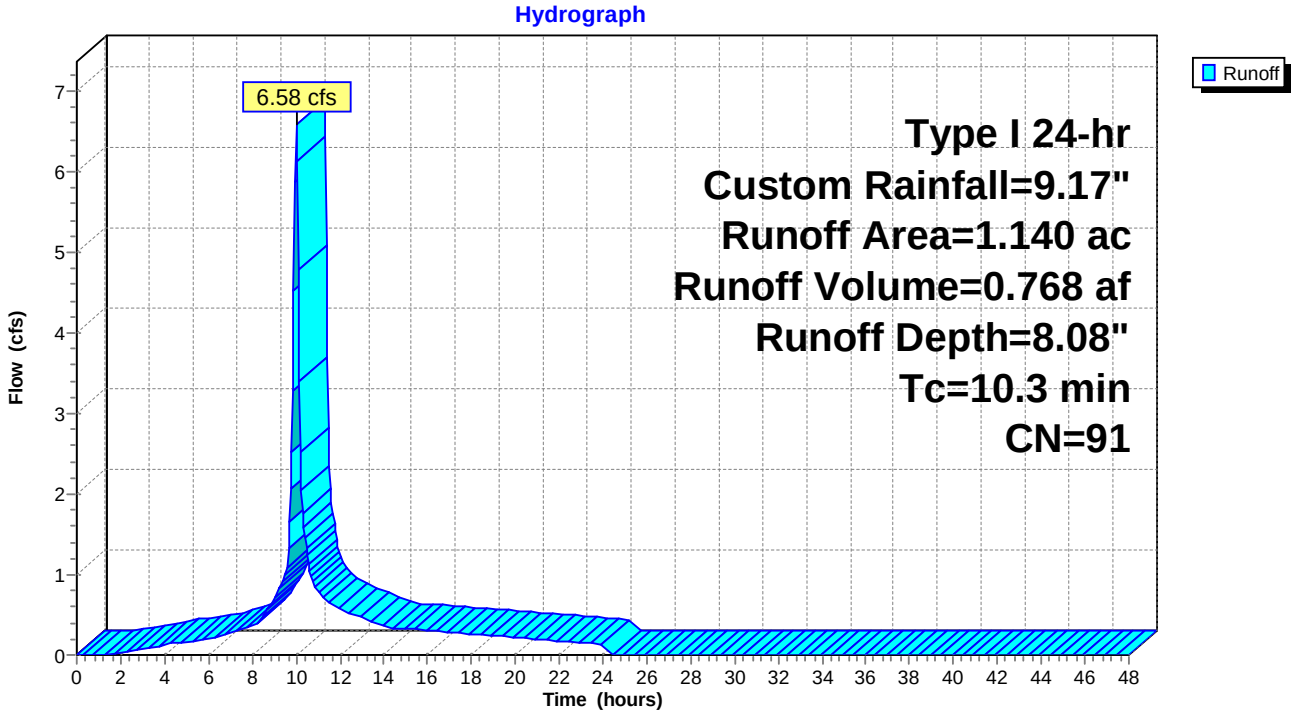
Runoff = 6.58 cfs @ 10.01 hrs, Volume= 0.768 af, Depth= 8.08"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	1.140	91	
	1.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Subcatchment 35S: BASIN P33



Summary for Subcatchment 36S: BASIN P34

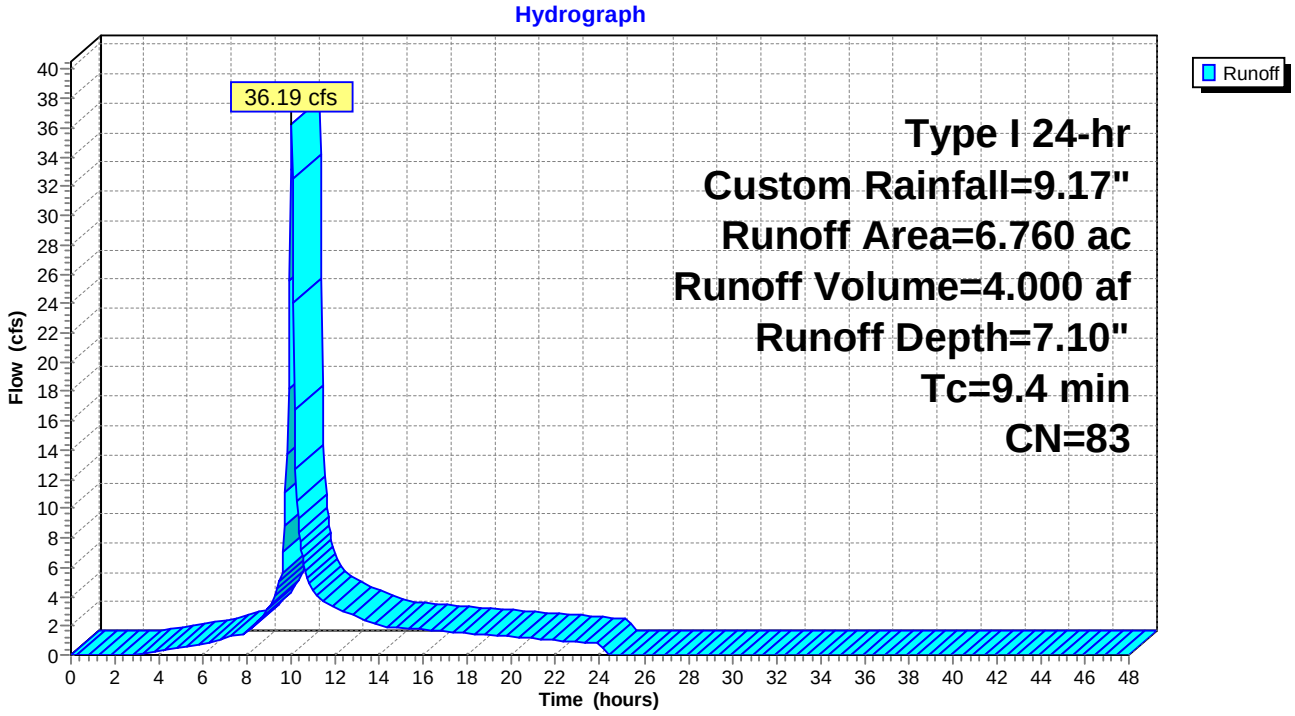
Runoff = 36.19 cfs @ 10.00 hrs, Volume= 4.000 af, Depth= 7.10"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.760	83	
	6.760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4					**Direct Entry,**

Subcatchment 36S: BASIN P34



Summary for Subcatchment 37S: BASIN P35

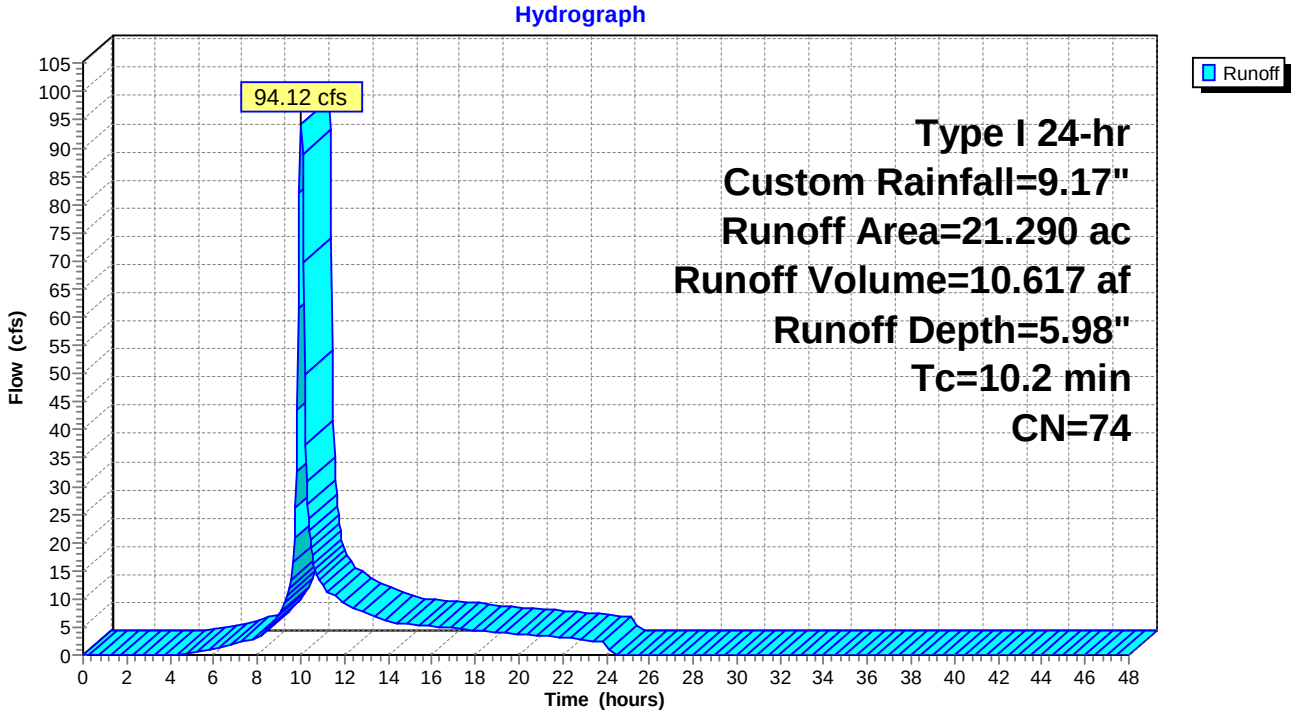
Runoff = 94.12 cfs @ 10.01 hrs, Volume= 10.617 af, Depth= 5.98"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	21.290	74	
	21.290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2					**Direct Entry,**

Subcatchment 37S: BASIN P35



Summary for Subcatchment 38S: BASIN P36

[49] Hint: Tc<2dt may require smaller dt

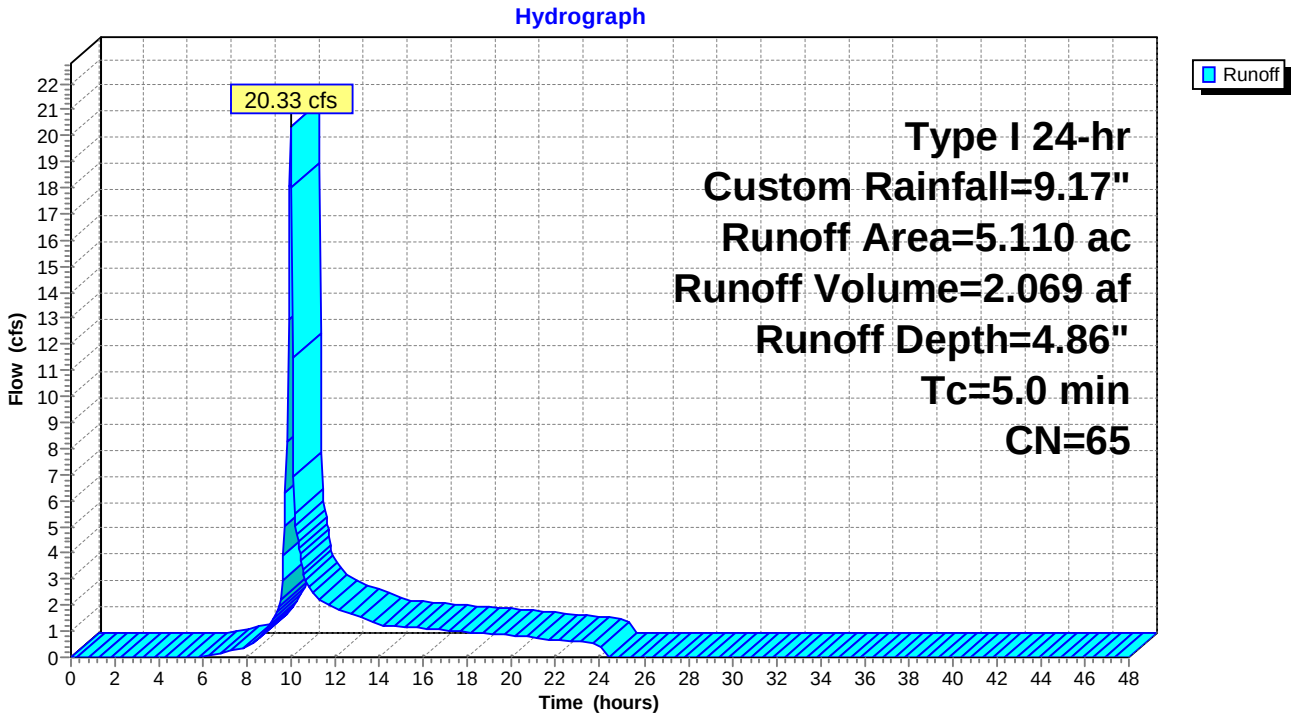
Runoff = 20.33 cfs @ 9.95 hrs, Volume= 2.069 af, Depth= 4.86"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	5.110	65	
	5.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 38S: BASIN P36



Summary for Subcatchment 39S: BASIN P37

[49] Hint: Tc<2dt may require smaller dt

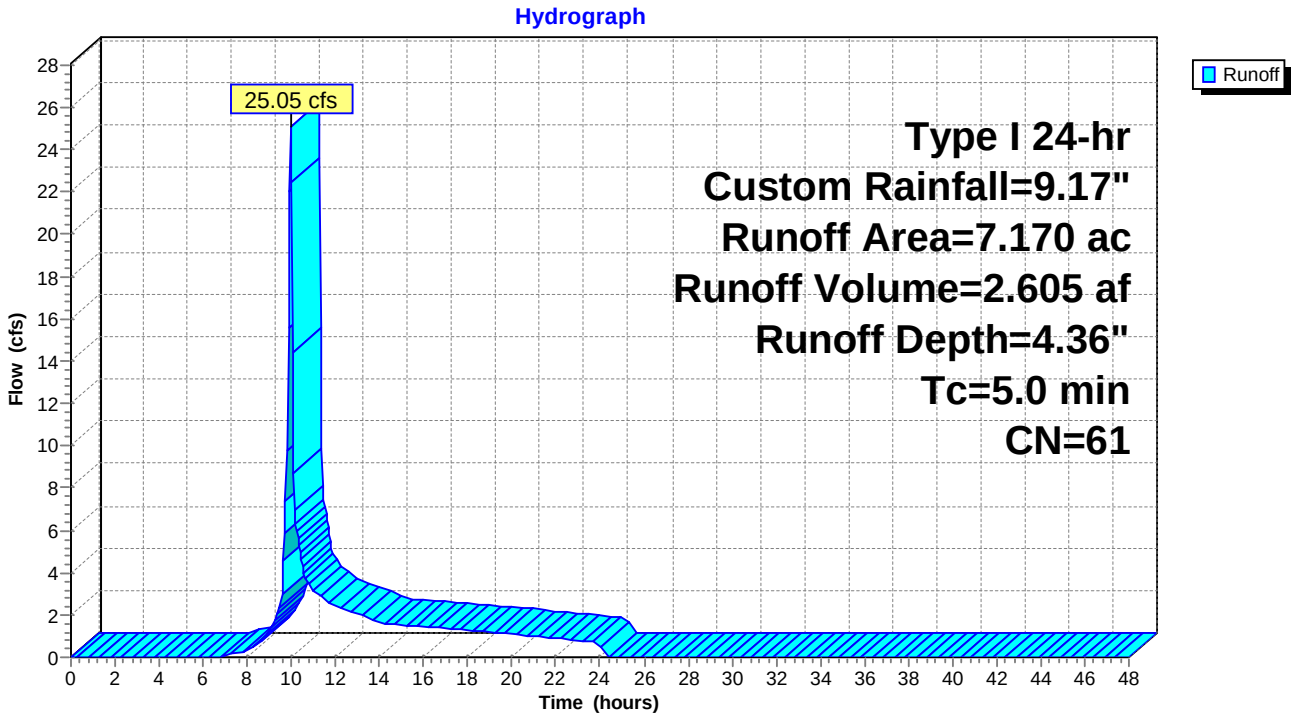
Runoff = 25.05 cfs @ 9.95 hrs, Volume= 2.605 af, Depth= 4.36"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	7.170	61	
	7.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 39S: BASIN P37



Summary for Subcatchment 40S: BASIN O3

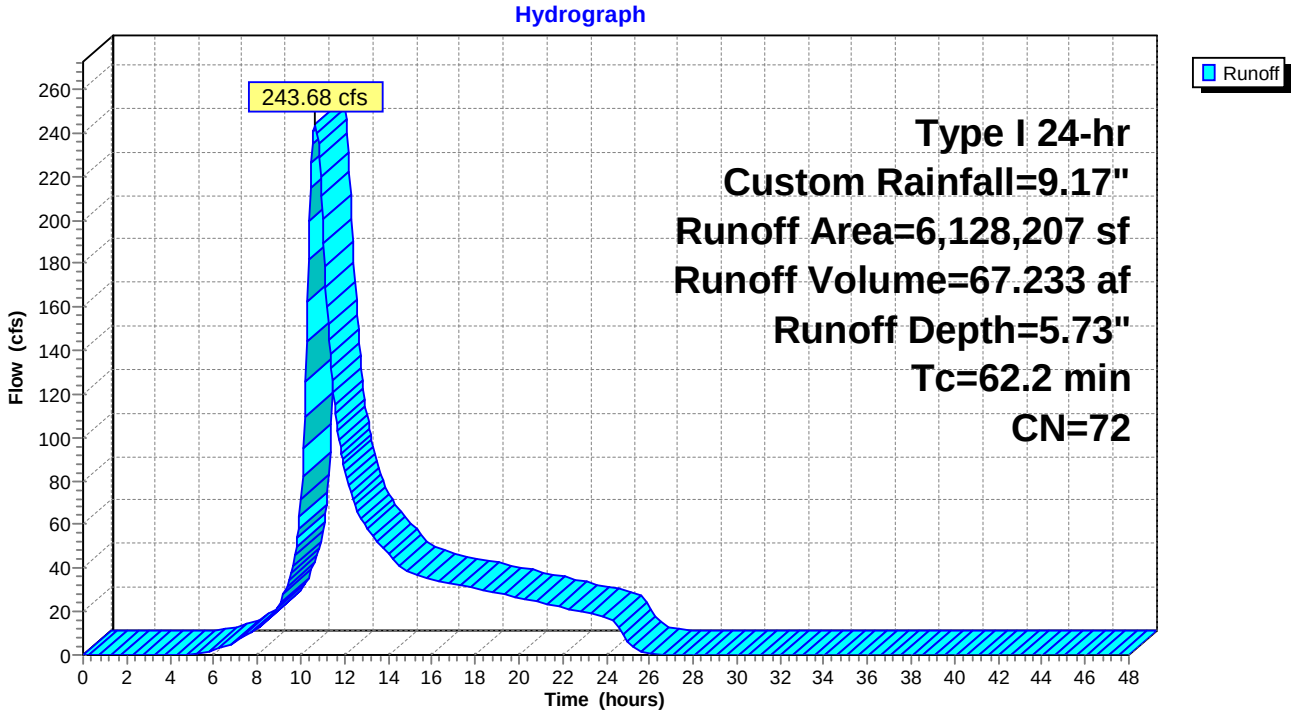
Runoff = 243.68 cfs @ 10.68 hrs, Volume= 67.233 af, Depth= 5.73"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (sf)	CN	Description
*	6,128,207	72	
	6,128,207		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.2					**Direct Entry,**

Subcatchment 40S: BASIN O3



Summary for Subcatchment 41S: BASIN O1A

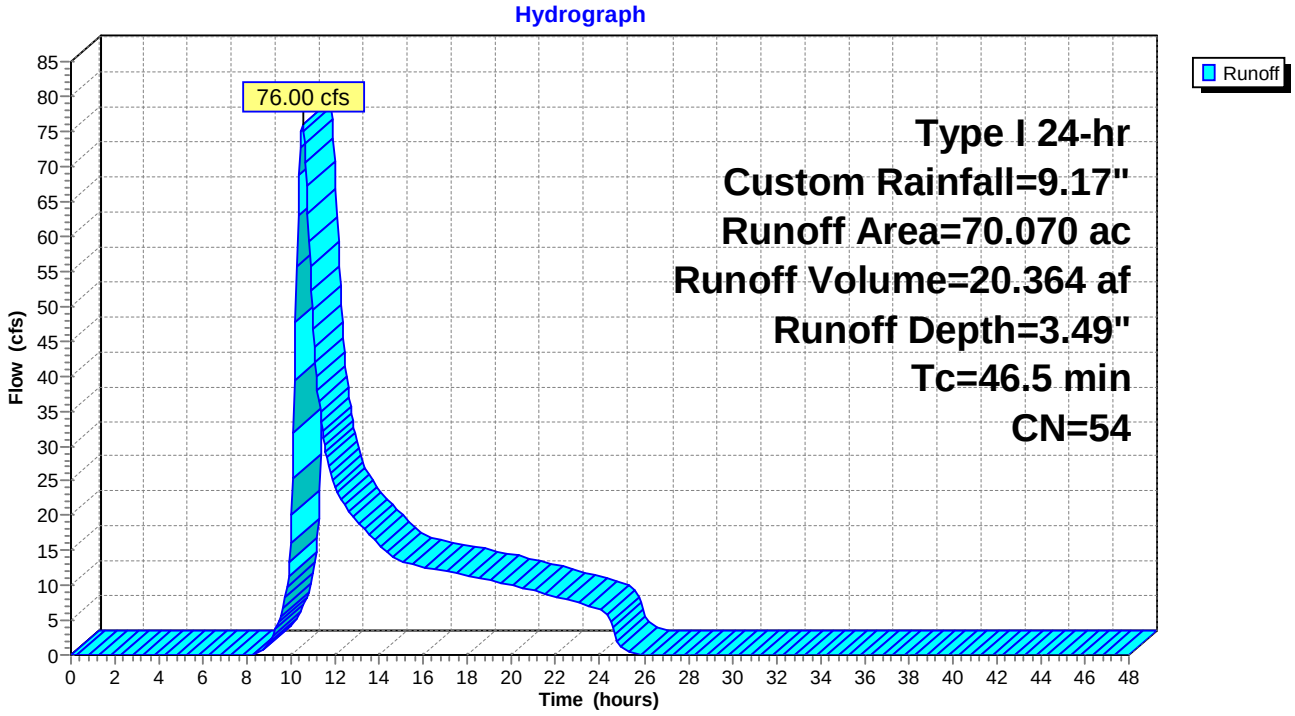
Runoff = 76.00 cfs @ 10.50 hrs, Volume= 20.364 af, Depth= 3.49"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	70.070	54	
	70.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.5					**Direct Entry,**

Subcatchment 41S: BASIN O1A



Summary for Subcatchment 42S: BASIN O2

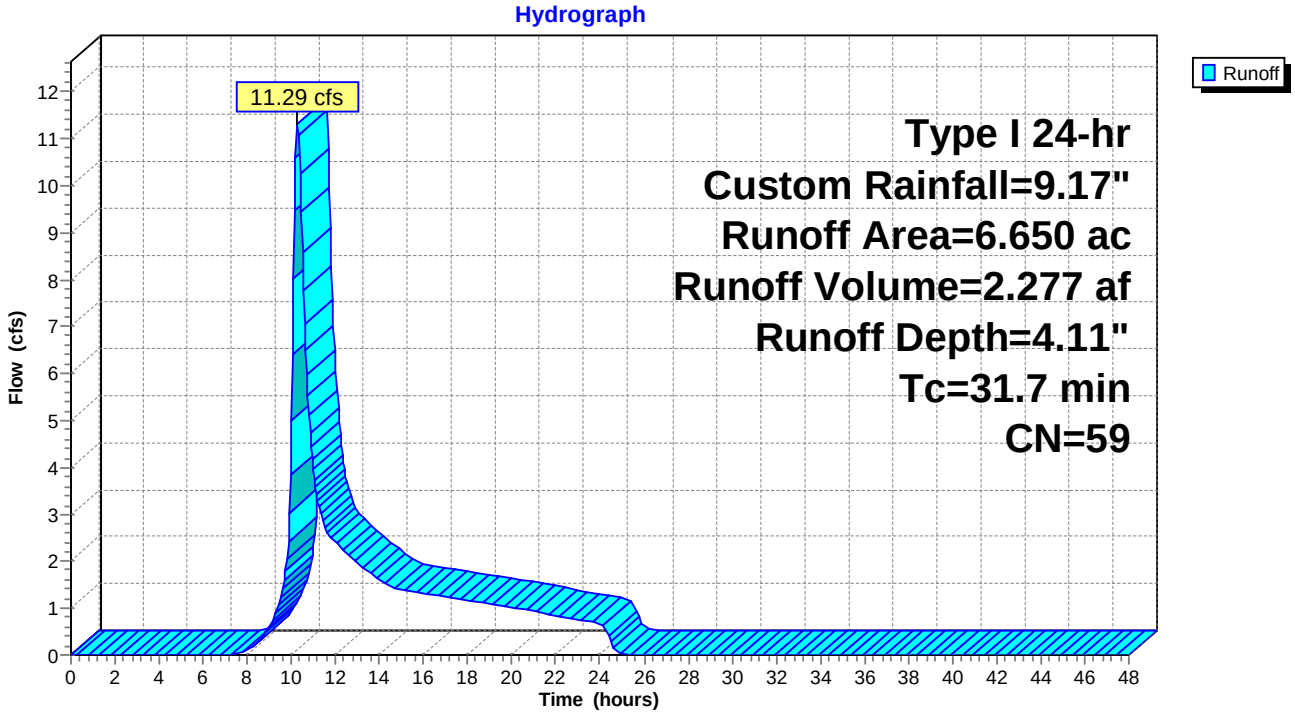
Runoff = 11.29 cfs @ 10.28 hrs, Volume= 2.277 af, Depth= 4.11"
Routed to Pond 11P : DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.650	59	
	6.650		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.7					**Direct Entry,**

Subcatchment 42S: BASIN O2



Summary for Subcatchment 43S: BASIN O1B

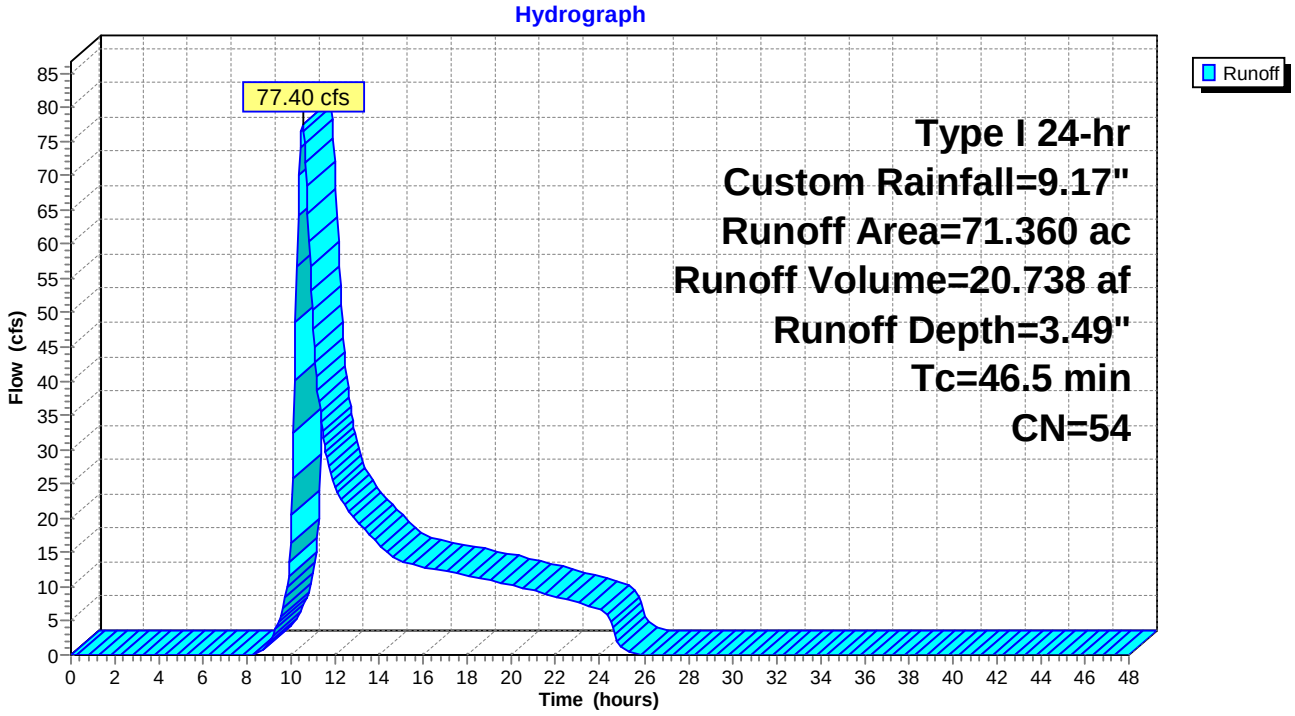
Runoff = 77.40 cfs @ 10.50 hrs, Volume= 20.738 af, Depth= 3.49"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	71.360	54	
	71.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.5					**Direct Entry,**

Subcatchment 43S: BASIN O1B



Summary for Subcatchment 44S: BASIN P1B

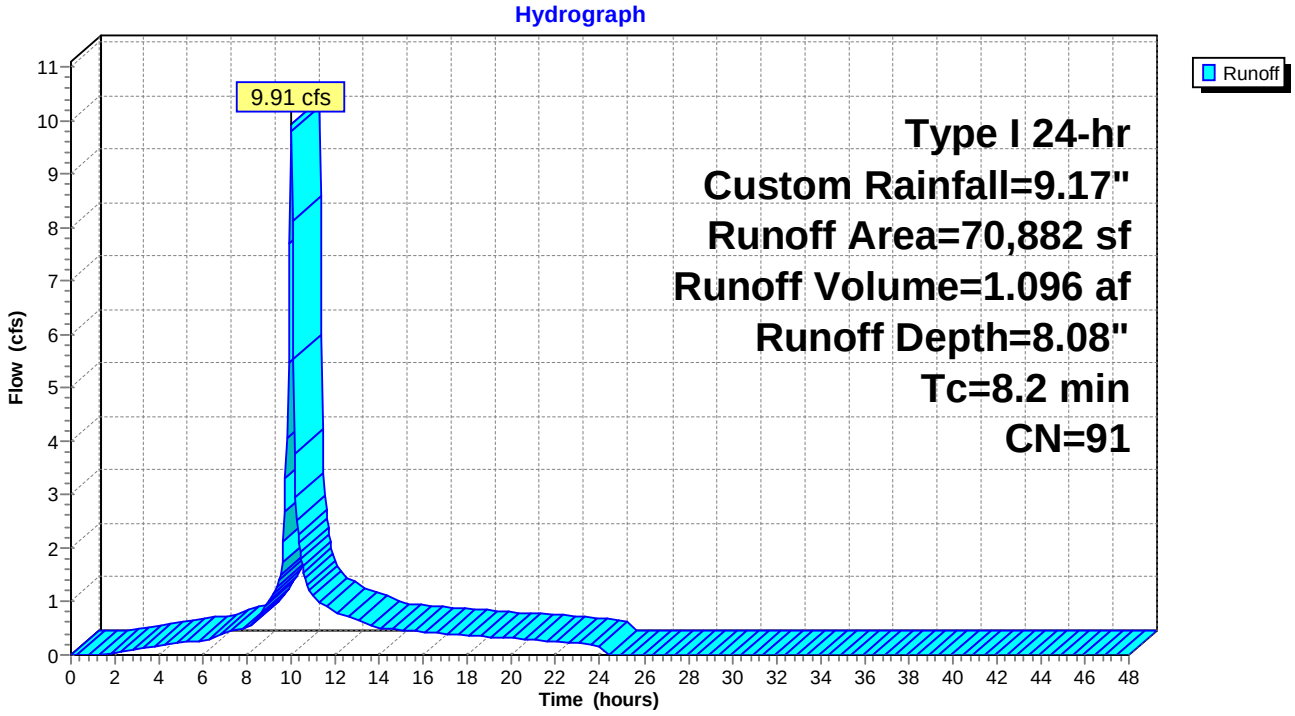
Runoff = 9.91 cfs @ 9.98 hrs, Volume= 1.096 af, Depth= 8.08"
Routed to Pond 14P : DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (sf)	CN	Description
*	70,882	91	
	70,882		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry,**

Subcatchment 44S: BASIN P1B



Summary for Pond 11P: DETENTION PONDS B2A/B COMBINED

Inflow Area = 209.184 ac, 0.00% Impervious, Inflow Depth = 5.80" for Custom event
Inflow = 729.92 cfs @ 9.99 hrs, Volume= 101.137 af
Outflow = 34.69 cfs @ 20.32 hrs, Volume= 100.105 af, Atten= 95%, Lag= 620.2 min
Discarded = 34.69 cfs @ 20.32 hrs, Volume= 100.105 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 38.47' @ 20.32 hrs Surf.Area= 6.854 ac Storage= 54.950 af

Plug-Flow detention time= 771.8 min calculated for 100.105 af (99% of inflow)
Center-of-Mass det. time= 764.9 min (1,538.6 - 773.7)

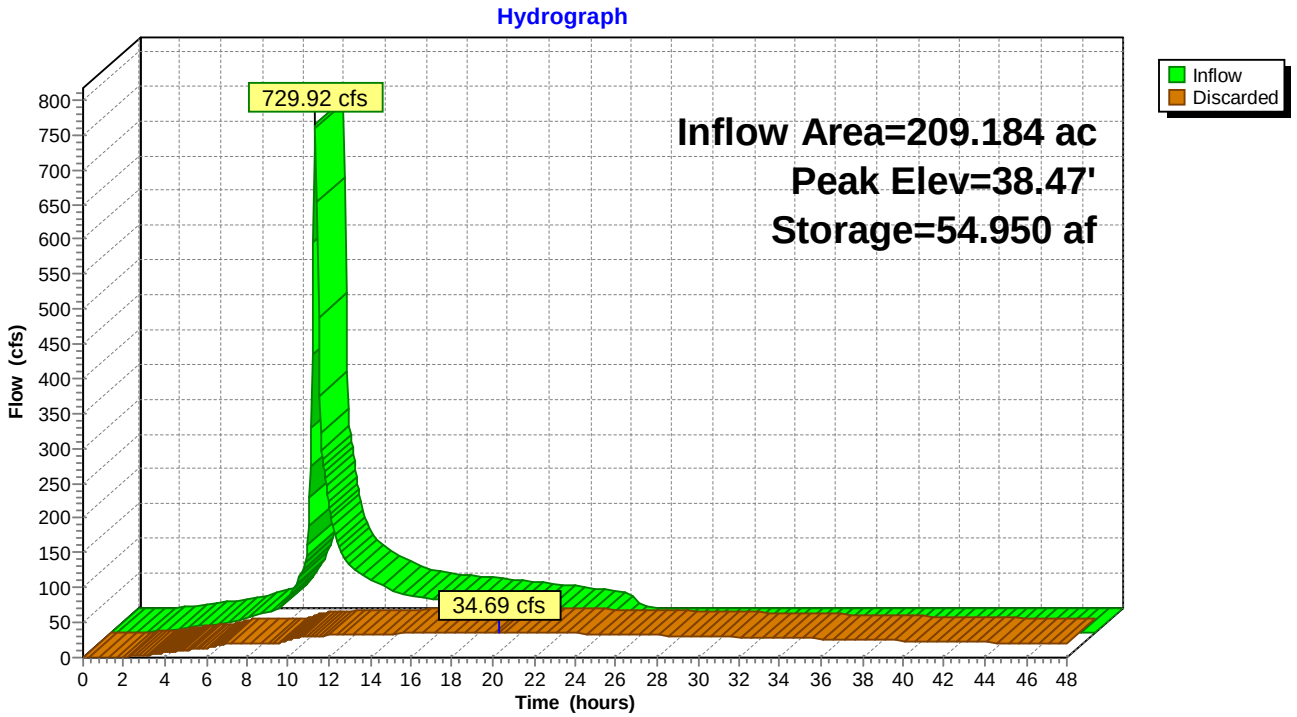
Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	116.623 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
28.00	3.789	0.000	0.000	3.789
46.00	9.613	116.623	116.623	9.664

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**5.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=34.69 cfs @ 20.32 hrs HW=38.47' (Free Discharge)
1=Exfiltration (Exfiltration Controls 34.69 cfs)

Pond 11P: DETENTION PONDS B2A/B COMBINED



Summary for Pond 14P: DETENTION POND B1

Inflow Area = 272.672 ac, 0.00% Impervious, Inflow Depth = 5.39" for Custom event
Inflow = 401.68 cfs @ 10.02 hrs, Volume= 122.521 af
Outflow = 41.58 cfs @ 21.54 hrs, Volume= 122.521 af, Atten= 90%, Lag= 691.4 min
Discarded = 41.58 cfs @ 21.54 hrs, Volume= 122.521 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 38.92' @ 21.54 hrs Surf.Area= 8.187 ac Storage= 66.616 af

Plug-Flow detention time= 741.8 min calculated for 122.521 af (100% of inflow)
Center-of-Mass det. time= 741.8 min (1,562.2 - 820.5)

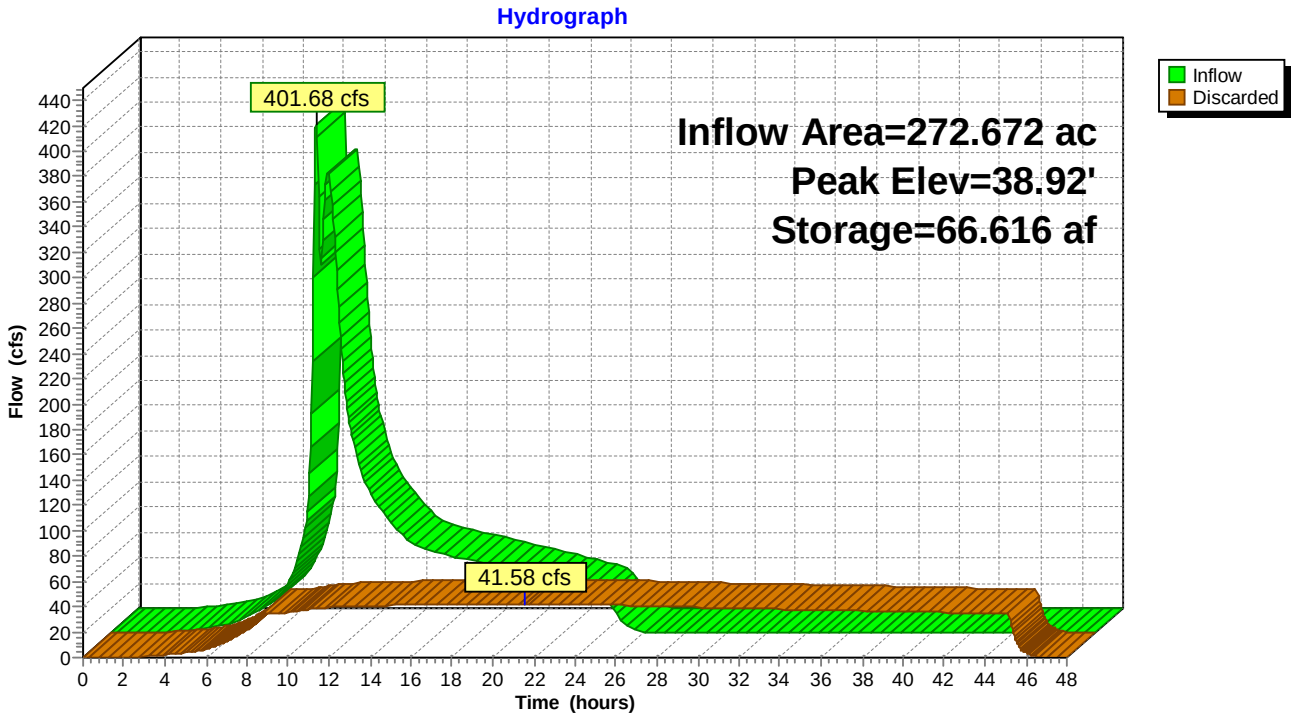
Volume	Invert	Avail.Storage	Storage Description
#1	30.00'	119.543 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
30.00	6.776	0.000	0.000	6.776
45.00	9.226	119.543	119.543	9.329

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.00'	**5.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=41.58 cfs @ 21.54 hrs HW=38.92' (Free Discharge)
1=Exfiltration (Exfiltration Controls 41.58 cfs)

Pond 14P: DETENTION POND B1



APPENDIX 'D' – UPSTREAM BASIN DRAINAGE ANALYSIS

UPSTREAM BASIN MAP
HOONANI VILLAGE

N

SCALE
600 0 300 600
1 INCH = 600 FEET

PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.400.5959
WWW.PD-GRP.COM

Designed by	TCC	Date 09/2024
Drawn by	TCC	Date 09/2024
Reviewed by	TCC	Date 09/2024
Project No.	H109-001	REF.
Horiz. Scale:		
Vert. Scale:		

Project
HOONANI VILLAGE

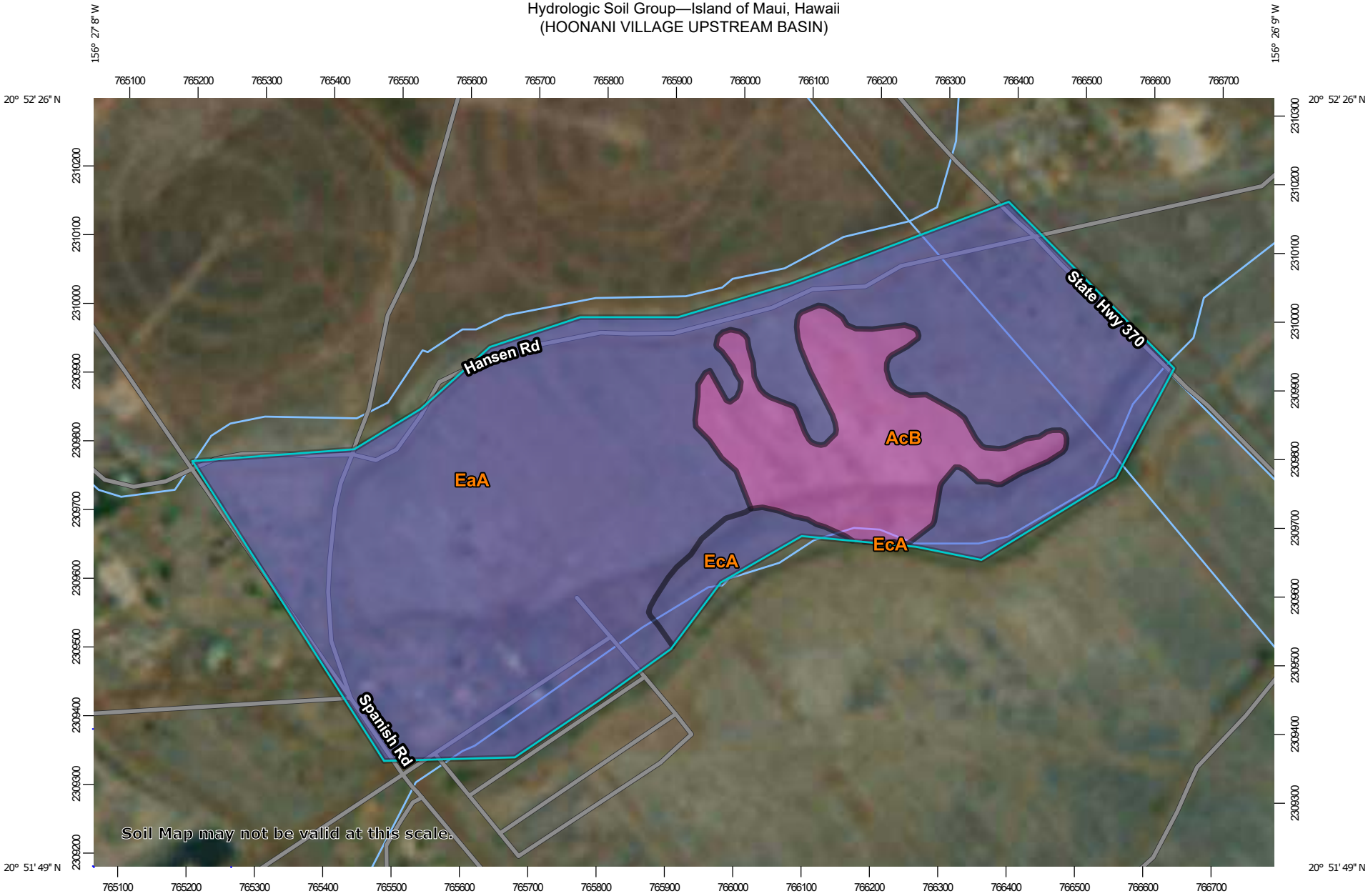
No.
H109-001

Type
ENGINEERING

Sheet
1 of 1

B:\Projects\PDGHAWAII\H109-001\Engineering\Hydro\PERH1091-UPSTREAM BASIN MAP 2.dwg 9/25/2024 2:14:36 PM

Hydrologic Soil Group—Island of Maui, Hawaii
(HOONANI VILLAGE UPSTREAM BASIN)



Map Scale: 1:7,900 if printed on A landscape (11" x 8.5") sheet.

N

0 100 200 400 600 Meters

0 350 700 1400 2100 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Maui, Hawaii
Survey Area Data: Version 21, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AcB	Alae cobbly sandy loam, 3 to 7 percent slopes, MLRA 158	A	21.5	15.0%
EaA	Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158	B	117.2	81.8%
EcA	Ewa cobbly silty clay loam, 0 to 3 percent slopes, MLRA 158	B	4.5	3.1%
Totals for Area of Interest			**143.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Map Scale: 1:2,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
EaA	Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158	B	4.1	60.3%
MuB	Molokai silty clay loam, 3 to 7 percent slopes, MLRA 158	C	0.2	3.6%
W	Water > 40 acres		2.5	36.0%
Totals for Area of Interest			**6.8**	**100.0%**

Description

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The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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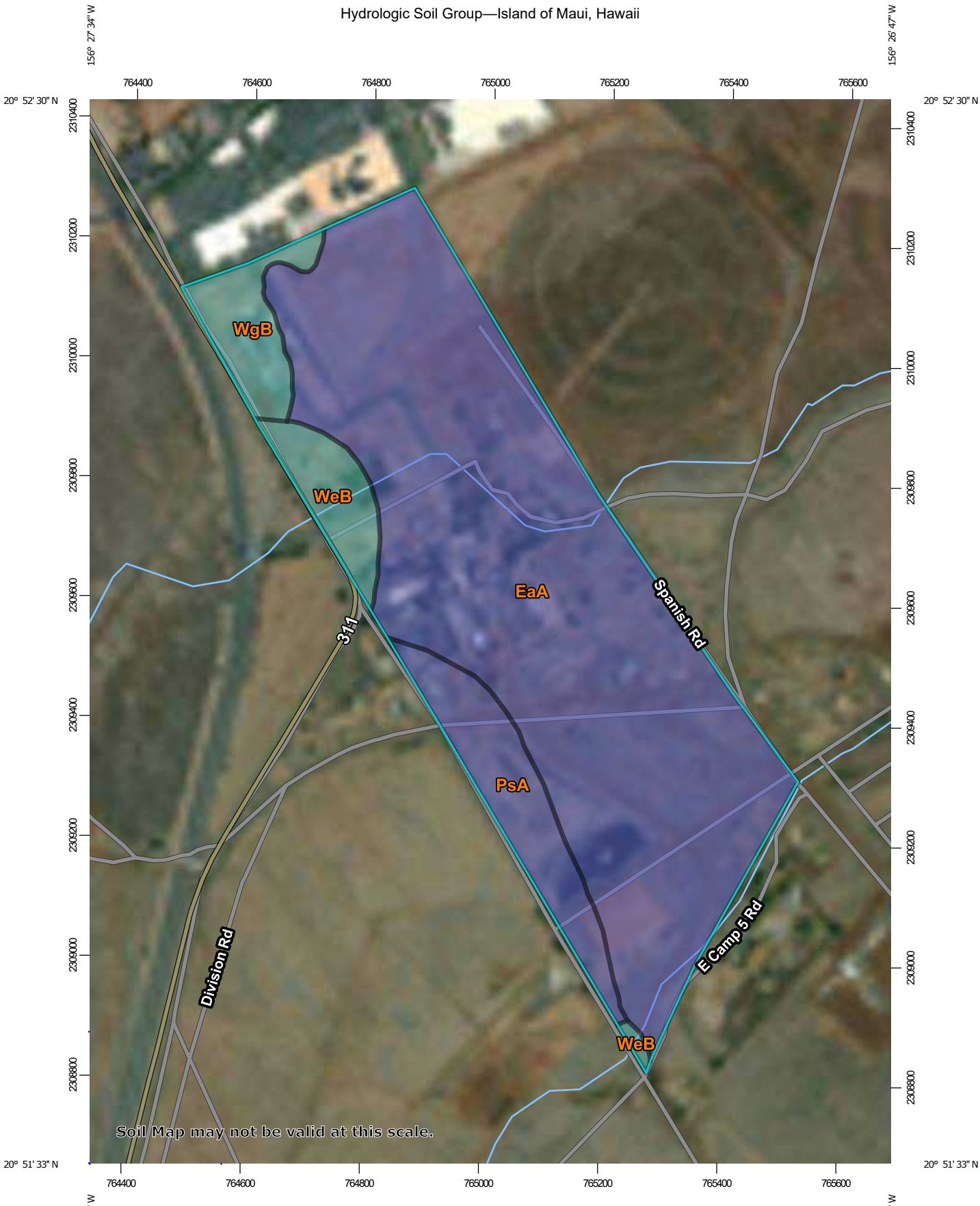
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Map Scale: 1:8,670 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

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Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
EaA	Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158	B	117.2	80.3%
PsA	Pulehu clay loam, 0 to 3 percent slopes , MLRA 163	B	13.5	9.3%
WeB	Waiakoa silty clay loam, 3 to 7 percent slopes	C	7.4	5.1%
WgB	Waiakoa very stony silty clay loam, 3 to 7 percent slopes, MLRA 158	C	7.8	5.3%
Totals for Area of Interest			**145.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

RUNOFF CURVE NUMBERS (TR55)

Table 2-2a: Runoff curve numbers for urban areas [1]

Cover description		CN for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover >75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]	77	86	91	94	
Idle lands (CNs are determined using cover types similar to those in table 2-2c)					

1: Average runoff condition, and $I_a = 0.2S$.

2: The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas hava a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

3: CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4: Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5: Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

RUNOFF CURVE NUMBERS (TR55)

Table 2-2c: Runoff curve numbers for other agricultural lands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range -- continuous forage for grazing					
<50% ground cover or heavily grazed with no mulch.	Poor	68	79	86	89
50% to 75% ground cover and not heavily grazed.	Fair	49	69	79	84
>75% ground cover and lightly or only occasionally grazed.	Good	39	61	74	80
Meadow -- continuous grass, protected from grazing and generally mowed for hay	--	30	58	71	78
Brush – weed-grass mixture with brush as the major element					
<50% ground cover	Poor	48	67	77	83
50% to 75% ground cover	Fair	35	56	70	77
>75% ground cover	Good	30 [2]	48	65	73
Woods – grass combination (orchard or tree farm) [3]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods					
Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.	Poor	45	66	77	83
Woods are grazed but not burned, and some forest litter covers the soil.	Fair	36	60	73	79
Woods are protected from grazing, and litter and brush adequately cover the soil.	Good	30 [2]	55	70	77
Farmsteads -- buildings, lanes, driveways, and surrounding lots	--	59	74	82	86

1: Average runoff condition, and $I_a = 0.2S$.

2: Actual curve number is less than 30; use CN = 30 for runoff computations.

3: CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

MANNING'S "n" VALUES

SHEET FLOW EQUATION MANNING'S VALUES	n_s
Smooth Surfaces (concrete, asphault, gravel, or bare hand packed soil)	0.011
Fallow Fields or loose soil surface (no residue)	0.05
Cultivated soil with residue cover (≤ 20%)	0.06
Cultivated soil with residue cover (> 20%)	0.17
Short prairie grass and lawns	0.15
Dense grasses	0.24
Bermuda grasses	0.41
Range (natural)	0.13
Woods or forrest with light underbrush	0.40
Woods or forrest with dense underbrush	0.80

SHALLOW CONCENTRATED FLOW (after initial 300 ft of sheet flow, R = 0.1)	k_s
Forrest with heavy ground litter and meadows (n = 0.010)	3
Brushy ground with some trees (n = 0.060)	5
Fallow or minimum tillage cultivation (n = 0.040)	8
High grass (n = 0.035)	9
Short grass, pasture and lawns (n = 0.030)	11
Nearly bare ground (n = 0.25)	13
Paved and gravel areas (n = 0.012)	27

CHANNEL FLOW (Intermittent) (At the beginning of all visible channels, R = 0.2)	k_c
Forested swale with heavy ground cover (n = 0.10)	5
Forested drainage course/ravine with defined channel bed (n = 0.050)	10
Rock-lined waterway (n = 0.035)	15
Grassed waterway (n = 0.030)	17
Earth-lined waterway (n = 0.025)	20
CMP pipe (n = 0.024)	21
Concrete pipe (n = 0.012)	42
Other waterways and pipe 0.508/n	

CHANNEL FLOW (continuous stream, R = 0.4)	k_c
Meandering stream (n = 0.040)	20
Rock-lined stream (n = 0.035)	23
Grass-lined stream (n = 0.030)	27
Other streams, man-made channels and pipe (n = 0.807/n)	

EXISTING CONDITIONS - COMPOSITE CURVE NUMBERS

(UPSTREAM BASIN O1)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

TOTAL AREA= 6,160,420 SF

EXISTING CONDITIONS

COVER TYPE	SOIL TYPE	AREA (SF)	SOIL GRADE	CURVE NUMBER
MEADOWS	Ewa Silty Clay Loam	5,039,224	B	58
	Ewa Cobbly Silty Clay Loam	197,133		
MEADOWS	Alae Cobbly Sandy Loam	924,063	A	30

EXISTING COMPOSITE CN = $\frac{(5{,}236{,}357 \times 58) + (924{,}063 \times 30)}{6{,}160{,}420}$ = **53.8**

EXISTING CONDITIONS - COMPOSITE CURVE NUMBERS

(UPSTREAM BASIN O2)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

TOTAL AREA= 289,835 SF

EXISTING CONDITIONS

COVER TYPE	SOIL TYPE	AREA (SF)	SOIL GRADE	CURVE NUMBER
MEADOWS	Ewa Silty Clay Loam	279,401	B	58
MEADOWS	Molokai Silty Clay Loam	10,434	C	71

EXISTING COMPOSITE CN = $\frac{(279{,}4017 \times 58) + (10{,}434 \times 71)}{289{,}835}$ = **58.5**

EXISTING CONDITIONS - COMPOSITE CURVE NUMBERS

(UPSTREAM BASIN O3)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

TOTAL AREA= 6,128,207 SF

EXISTING CONDITIONS

COVER TYPE	SOIL TYPE	AREA (SF)	SOIL GRADE	CURVE NUMBER
MEADOWS	Ewa Silty Clay Loam Pulehu Clay Loam	3,173,135	B	58
	Waiakoa Silty Clay Loam Waiakoa Very Stony silty clay loam	234,857	C	71
INDUSTRIAL	Ewa Silty Clay Loam Pulehu Clay Loam	2,166,121	B	88
	Waiakoa Silty Clay Loam	87,549	C	91
COMMERCIAL	Ewa Silty Clay Loam Pulehu Clay Loam	237,530	B	92
	Waiakoa Silty Clay Loam Waiakoa Very Stony silty clay loam	229,015	C	94

EXISTING COMPOSITE CN = $\frac{(3{,}173{,}135 \times 58) + (234{,}857 \times 71) + (2{,}166{,}121 \times 88) + (87{,}549 \times 91) + (237{,}530 \times 92) + (229{,}015 \times 94)}{6{,}128{,}207}$ = **72.2**

PREDEVELOPED TIME OF CONCENTRATION

(UPSTREAM BASIN O1)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

				Accum. Tc
LAG ONE: SHEET FLOW (FIRST 300 FEET)				
Tt = Travel time				
Manning's "n " =	0.15			
Flow Length, L =	300	ft	(300 ft. max.)	
P = 2-year, 24hr storm =	2.5	in		
Slope, S_0 =	0.013	ft/ft		
$T_T = \frac{(0.42)(n*L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}}$	31.43	min.		31.43 min.
LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 1165 FEET)				
Tc Velocity factor, k=	11			
Slope, S_0 =	0.014	ft/ft		
$V = k\sqrt{S_0}$	1.29	ft/s		
Flow Length, L =	1165	ft		
$T = \frac{L}{(60)(V)}$	15.08	min.		46.51 min.

TOTAL PREDEVELOPED TIME OF CONCENTRATION (Tc) = 46.51 min.

PREDEVELOPED TIME OF CONCENTRATION

(UPSTREAM BASIN O2)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

				Accum. Tc
LAG ONE: SHEET FLOW (FIRST 300 FEET)				
Tt = Travel time				
Manning's "n " =	0.15			
Flow Length, L =	300	ft	(300 ft. max.)	
P = 2-year, 24hr storm =	2.5	in		
Slope, S_0 =	0.027	ft/ft		
$T_T = \frac{(0.42)(n*L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}}$	23.82	min.		23.82 min.
LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 369 FEET)				
Tc Velocity factor, k=	11			
Slope, S_0 =	0.005	ft/ft		
$V = k\sqrt{S_0}$	0.78	ft/s		
Flow Length, L =	369	ft		
$T = \frac{L}{(60)(V)}$	7.91	min.		31.72 min.

TOTAL PREDEVELOPED TIME OF CONCENTRATION (Tc) = 31.72 min.

PREDEVELOPED TIME OF CONCENTRATION

(UPSTREAM BASIN O3)

JOB NUMBER: H109-001
PROJECT: HOONANI VILLAGE
FILE: H1091-PRELIM UPSTREAM HYDRO

				Accum. Tc
LAG ONE: SHEET FLOW (FIRST 300 FEET)				
Tt = Travel time				
Manning's "n " =	0.15			
Flow Length, L =	300	ft	(300 ft. max.)	
P = 2-year, 24hr storm =	2.5	in		
Slope, S_0 =	0.013	ft/ft		
$T_T = \frac{(0.42)(n*L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}}$	31.40	min.		31.40 min.
LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 1556 FEET)				
Tc Velocity factor, k=	13			
Slope, S_0 =	0.012	ft/ft		
$V = k\sqrt{S_0}$	1.44	ft/s		
Flow Length, L =	1556	ft		
$T = \frac{L}{(60)(V)}$	18.05	min.		49.45 min.
LAG THREE: CONCENTRATED FLOW (NEXT 1414 FEET)				
Tc Velocity factor, k=	20			
Slope, S_0 =	0.009	ft/ft		
$V = k\sqrt{S_0}$	1.84	ft/s		
Flow Length, L =	1414	ft		
$T = \frac{L}{(60)(V)}$	12.78	min.		62.23 min.

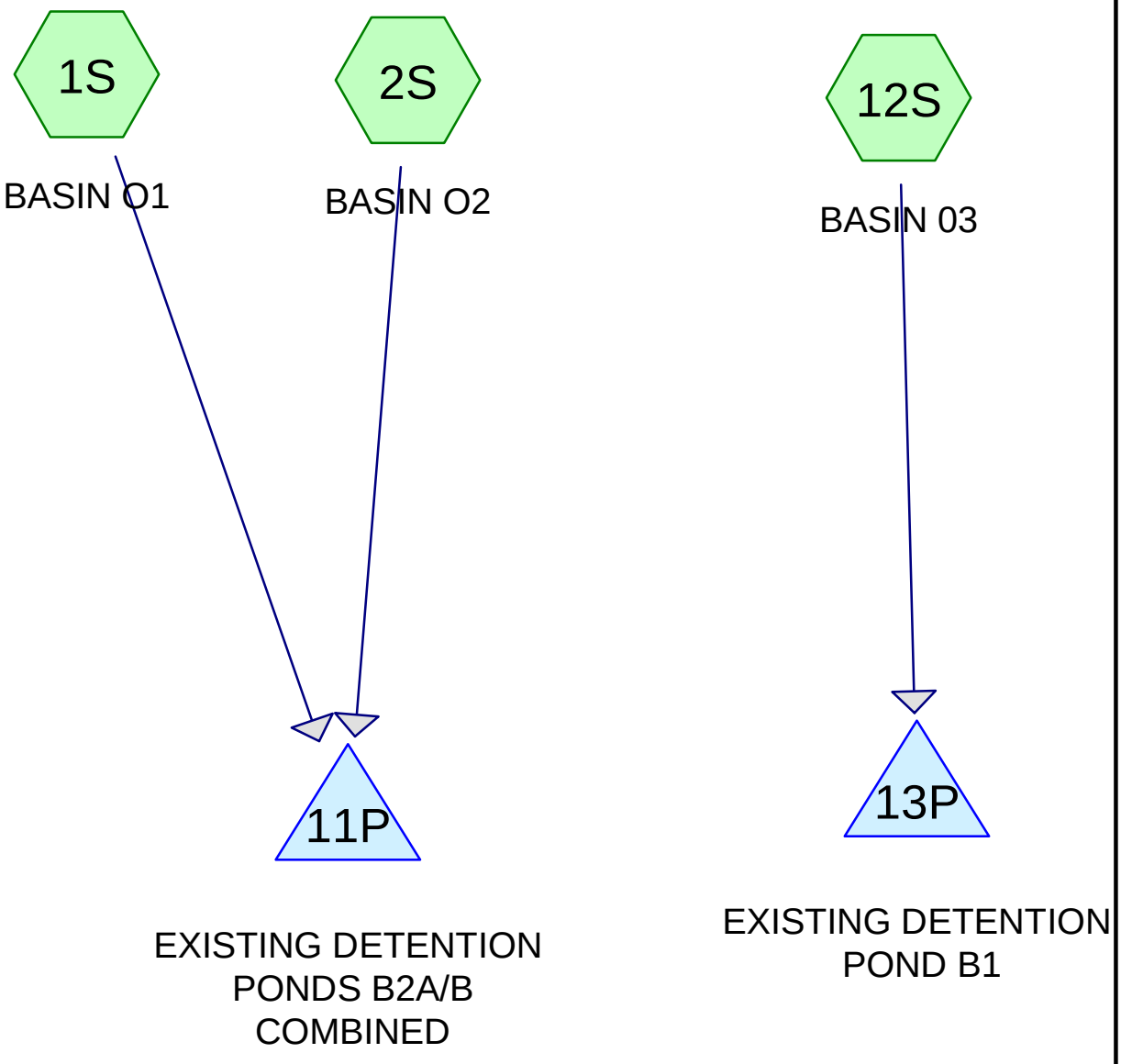
TOTAL PREDEVELOPED TIME OF CONCENTRATION (Tc) = 62.23 min.

UPSTREAM BASIN ANALYSIS

(100-YEAR, 24 HR. STORM EVENT)

JOB NUMBER: H109-001
PROJECT: Hoonani Village
FILE: H1091_PER Hydro

DRAINAGE BASIN LABEL	AREA (SF)		AREA (AC)		COMPOSITE RUNOFF CN	Tc (min.)	Q FLOW (cfs)	FLOW VOLUME (AC-FT)
BASIN O1	6,160,420.00	ft^2	**141.42**	**ac**	53.8	46.5	**153.38**	**41.10**
BASIN O2	289,835.00	ft^2	**6.65**	**ac**	58.5	31.7	**11.29**	**2.28**
BASIN O3	6,128,207.00	ft^2	**140.68**	**ac**	72.2	62.23	**243.67**	**67.23**
	TOTAL DRAINAGE AREA (SF)		**TOTAL DRAINAGE AREA (ac)**				**TOTAL Q FLOW (cfs)**	**TOTAL FLOW VOLUME (AC-FT)**
UPSTREAM DRAINAGE CONDITION	**12,578,462.00**	**ft^2**	**288.76**	**ac**			**408.34**	**110.61**



Subcat Reach Pond Link

Routing Diagram for PRELIM UPSTREAM BASIN HYDRO
Prepared by Pioneer Design Group, Printed 9/25/2024
HydroCAD® 10.20-4b s/n 09255 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
141.420	54	UPSTREAM BASIN O1 (1S)
6.650	59	UPSTREAM BASIN O2 (2S)
140.680	72	UPSTREAM BASIN O3 (12S)
288.750	**63**	**TOTAL AREA**

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BASIN O1 Runoff Area=141.420 ac 0.00% Impervious Runoff Depth=3.49"
Tc=46.5 min CN=54 Runoff=153.38 cfs 41.099 af

Subcatchment 2S: BASIN O2 Runoff Area=6.650 ac 0.00% Impervious Runoff Depth=4.11"
Tc=31.7 min CN=59 Runoff=11.29 cfs 2.277 af

Subcatchment 12S: BASIN 03 Runoff Area=140.680 ac 0.00% Impervious Runoff Depth>5.73"
Tc=62.2 min CN=72 Runoff=243.67 cfs 67.230 af

Pond 11P: EXISTING DETENTION PONDS Peak Elev=33.36' Storage=7.292 af Inflow=162.06 cfs 43.376 af
Outflow=57.40 cfs 43.376 af

Pond 13P: EXISTING DETENTION POND B1 Peak Elev=39.46' Storage=23.826 af Inflow=243.67 cfs 67.230 af
Outflow=42.14 cfs 67.229 af

Total Runoff Area = 288.750 ac Runoff Volume = 110.606 af Average Runoff Depth = 4.60"
100.00% Pervious = 288.750 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: BASIN O1

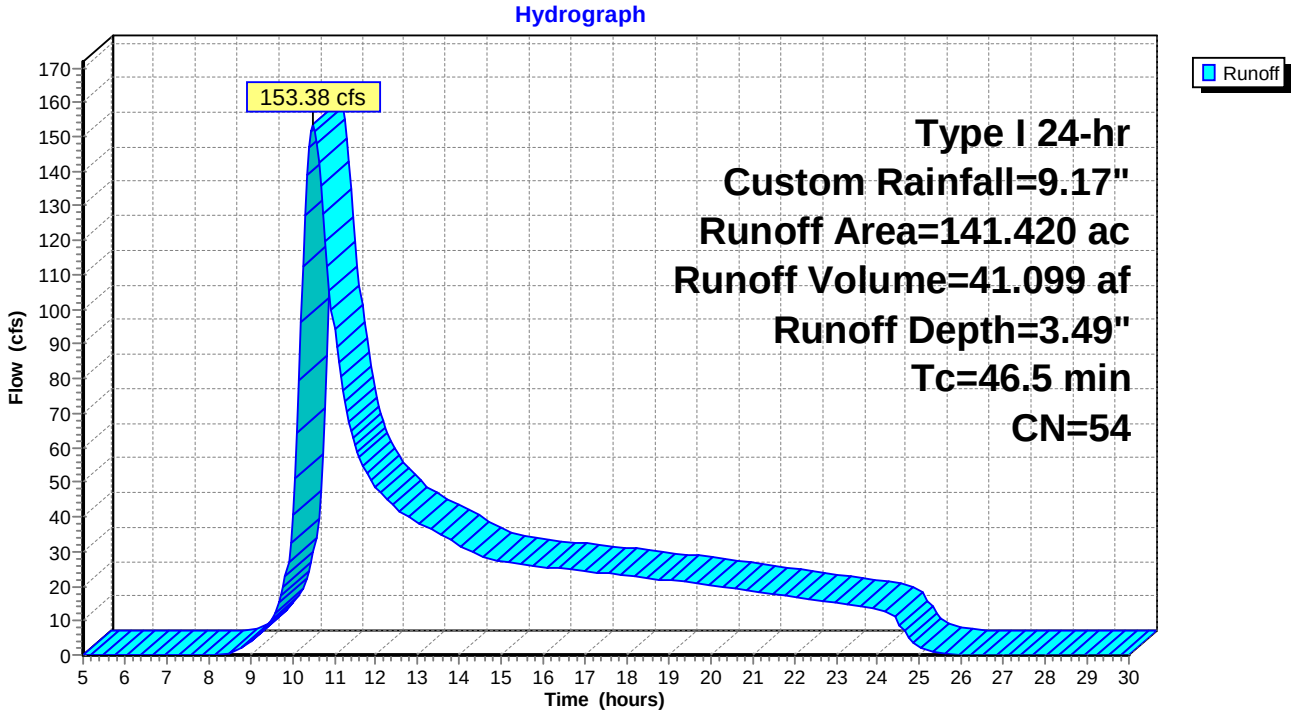
Runoff = 153.38 cfs @ 10.50 hrs, Volume= 41.099 af, Depth= 3.49"
Routed to Pond 11P : EXISTING DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	141.420	54	UPSTREAM BASIN O1
	141.420		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.5					**Direct Entry, PREDEV TOC**

Subcatchment 1S: BASIN O1



Summary for Subcatchment 2S: BASIN O2

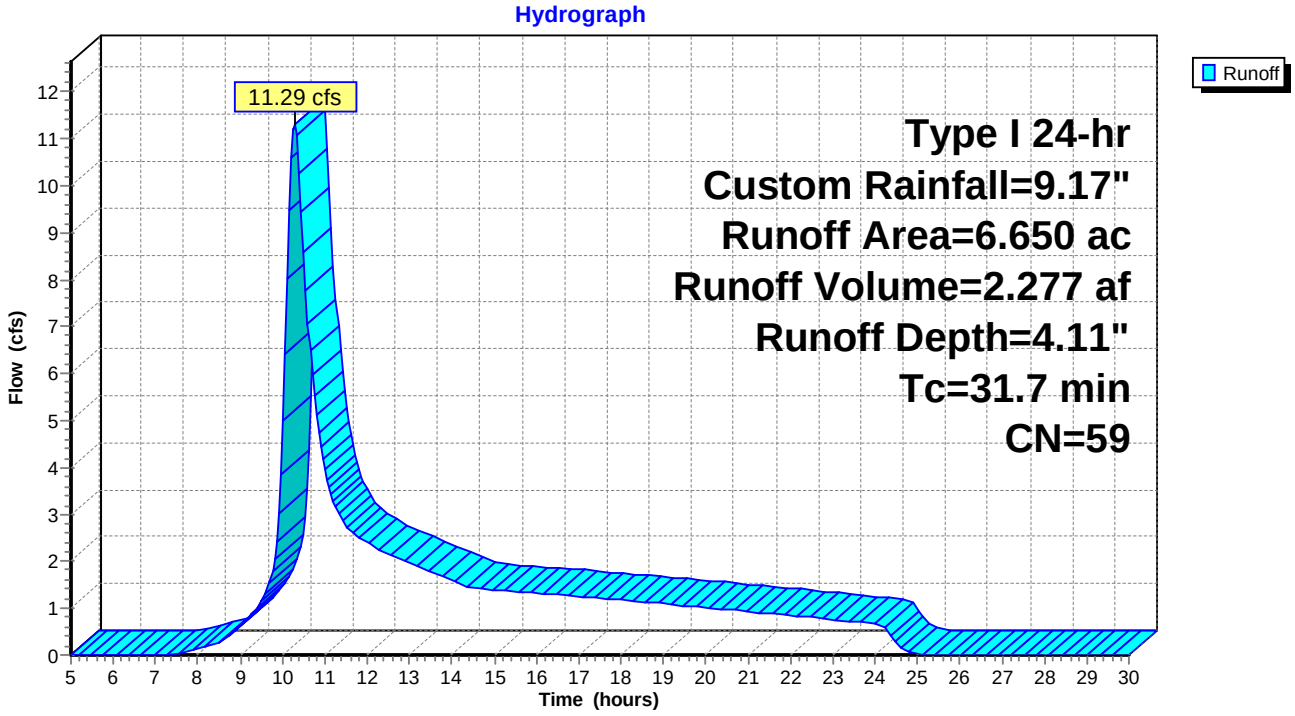
Runoff = 11.29 cfs @ 10.28 hrs, Volume= 2.277 af, Depth= 4.11"
Routed to Pond 11P : EXISTING DETENTION PONDS B2A/B COMBINED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	6.650	59	UPSTREAM BASIN O2
	6.650		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.7					**Direct Entry,**

Subcatchment 2S: BASIN O2



Summary for Subcatchment 12S: BASIN 03

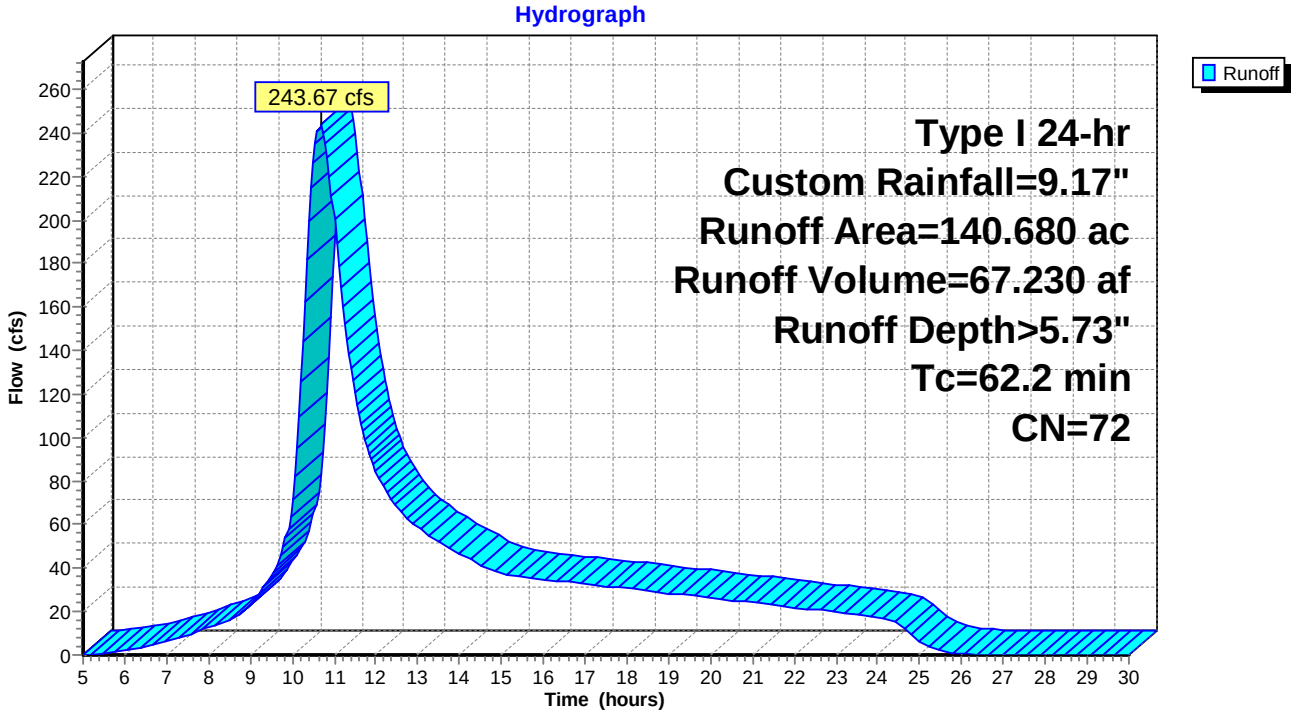
Runoff = 243.67 cfs @ 10.68 hrs, Volume= 67.230 af, Depth> 5.73"
Routed to Pond 13P : EXISTING DETENTION POND B1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr Custom Rainfall=9.17"

	Area (ac)	CN	Description
*	140.680	72	UPSTREAM BASIN O3
	140.680		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.2					**Direct Entry,**

Subcatchment 12S: BASIN 03



Summary for Pond 11P: EXISTING DETENTION PONDS B2A/B COMBINED

Inflow Area = 148.070 ac, 0.00% Impervious, Inflow Depth = 3.52" for Custom event
Inflow = 162.06 cfs @ 10.49 hrs, Volume= 43.376 af
Outflow = 57.40 cfs @ 11.68 hrs, Volume= 43.376 af, Atten= 65%, Lag= 71.7 min
Discarded = 57.40 cfs @ 11.68 hrs, Volume= 43.376 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 33.36' @ 11.68 hrs Surf.Area= 5.691 ac Storage= 7.292 af

Plug-Flow detention time= 42.7 min calculated for 43.290 af (100% of inflow)
Center-of-Mass det. time= 42.6 min (920.5 - 877.8)

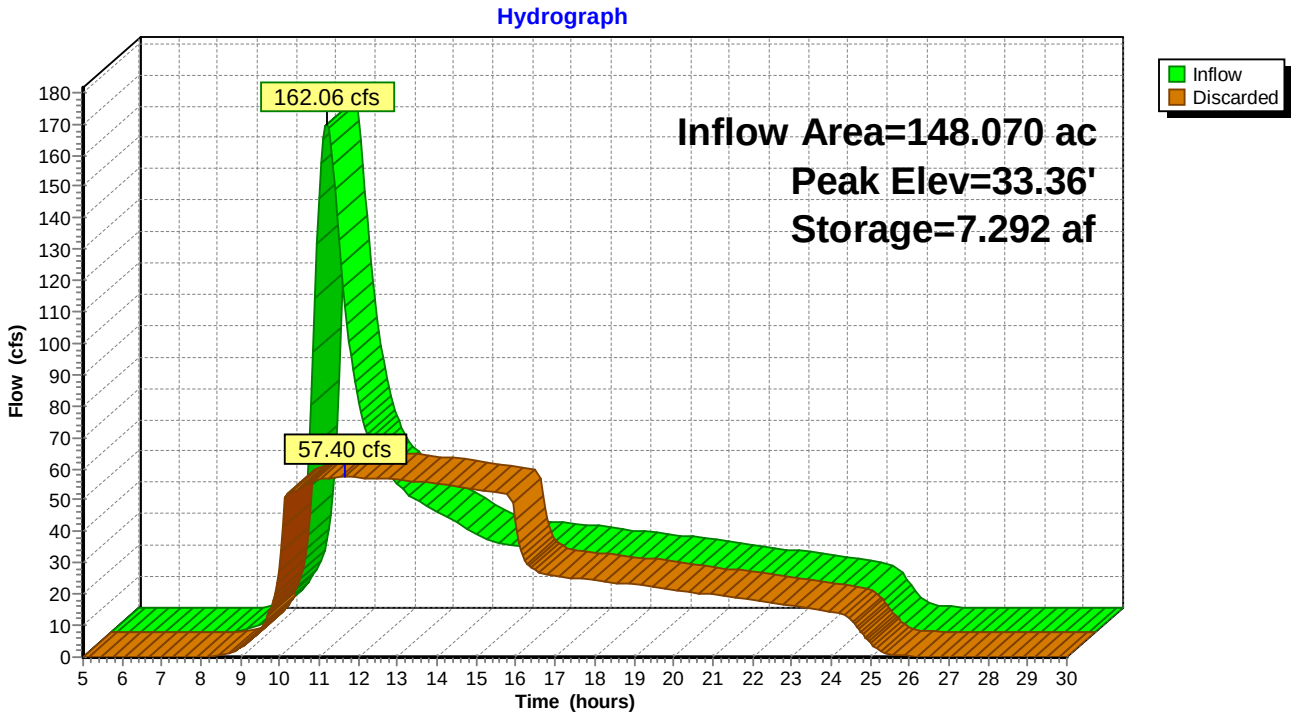
Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	109.142 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
32.00	5.063	0.000	0.000	5.063
34.00	6.001	11.051	11.051	6.004
36.00	6.472	12.470	23.521	6.483
38.00	6.949	13.418	36.939	6.968
40.00	7.425	14.371	51.311	7.453
42.00	7.903	15.326	66.637	7.940
44.00	8.382	16.283	82.920	8.428
46.00	8.862	17.242	100.161	8.919
47.00	9.099	8.980	109.142	9.161

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	**10.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=57.40 cfs @ 11.68 hrs HW=33.36' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 57.40 cfs)

Pond 11P: EXISTING DETENTION PONDS B2A/B COMBINED



Summary for Pond 13P: EXISTING DETENTION POND B1

Inflow Area = 140.680 ac, 0.00% Impervious, Inflow Depth > 5.73" for Custom event
Inflow = 243.67 cfs @ 10.68 hrs, Volume= 67.230 af
Outflow = 42.14 cfs @ 14.45 hrs, Volume= 67.229 af, Atten= 83%, Lag= 226.2 min
Discarded = 42.14 cfs @ 14.45 hrs, Volume= 67.229 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.46' @ 14.45 hrs Surf.Area= 8.343 ac Storage= 23.826 af

Plug-Flow detention time= 268.8 min calculated for 67.229 af (100% of inflow)
Center-of-Mass det. time= 268.8 min (1,104.1 - 835.3)

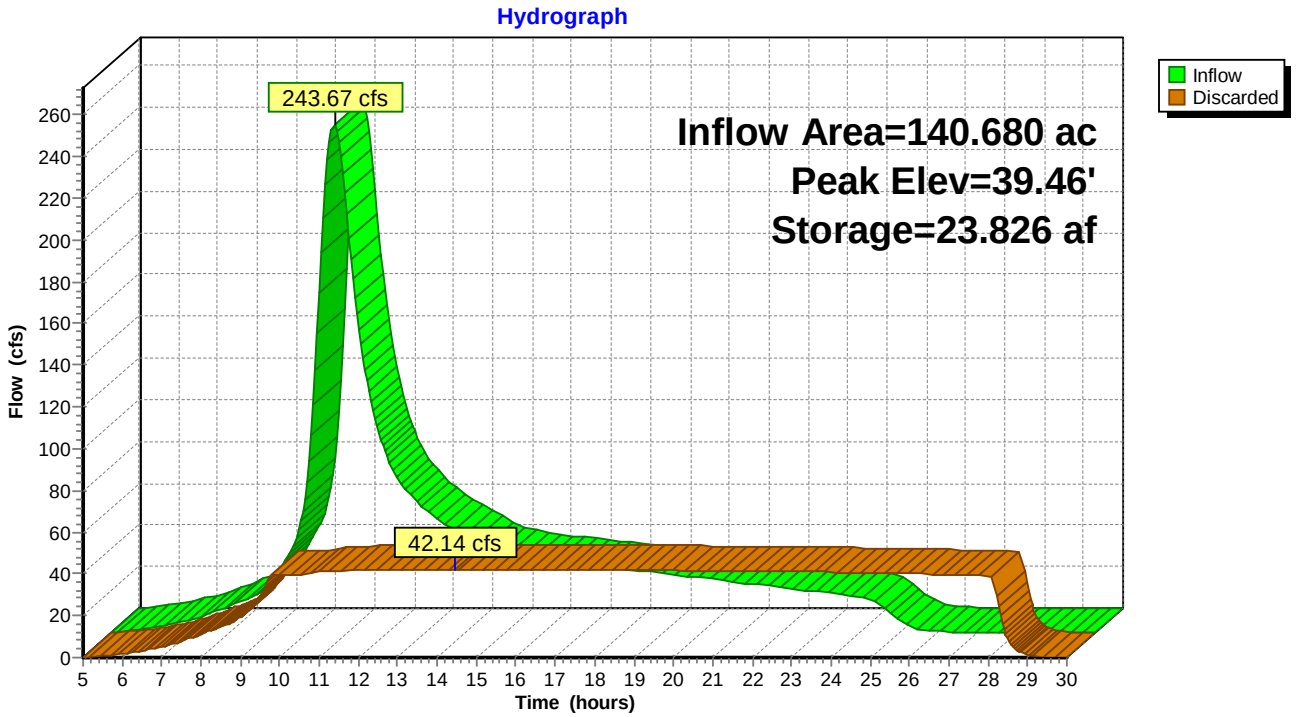
Volume	Invert	Avail.Storage	Storage Description
#1	36.50'	92.770 af	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
36.50	7.739	0.000	0.000	7.739
47.00	9.979	92.770	92.770	10.040

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.50'	**5.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=42.14 cfs @ 14.45 hrs HW=39.46' (Free Discharge)
1=Exfiltration (Exfiltration Controls 42.14 cfs)

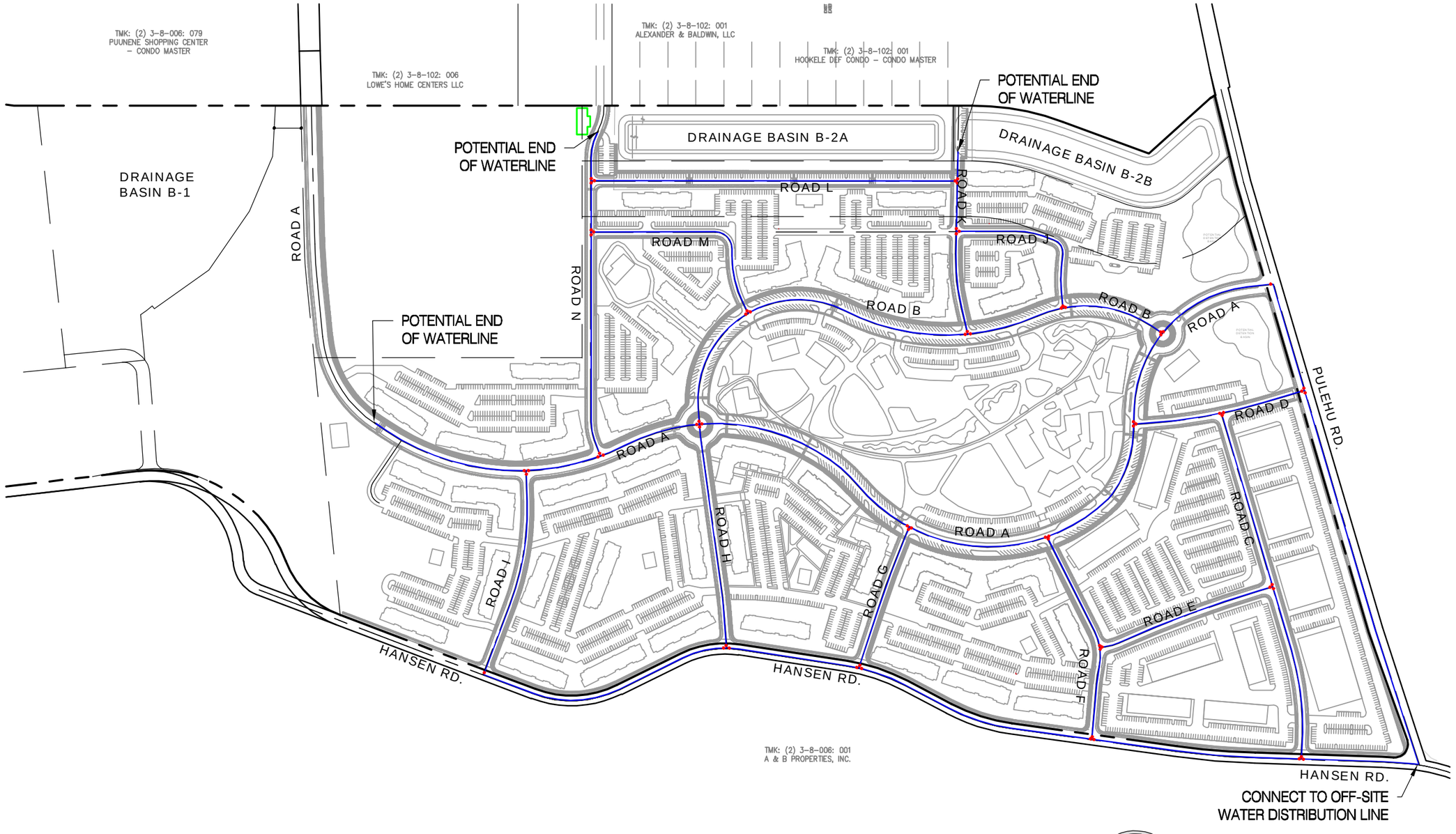
Pond 13P: EXISTING DETENTION POND B1



APPENDIX 'E' – PRELIMINARY WATER SYSTEM CALCULATIONS AND PLANS

PRELIMINARY WATER MASTER PLAN

OVERALL MASTER PLAN



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CIVIL ENGINEERING · LAND USE PLANNING
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HONOLULU, HAWAII PH: 808.400.5959
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Designed by	ENH	Date	10/2024
Drawn by	ENH	Date	10/2024
Reviewed by	TCC	Date	10/2024
Project No.	H109-001	REF.	
Horiz. Scale:	1"=400'		
Vert. Scale:			

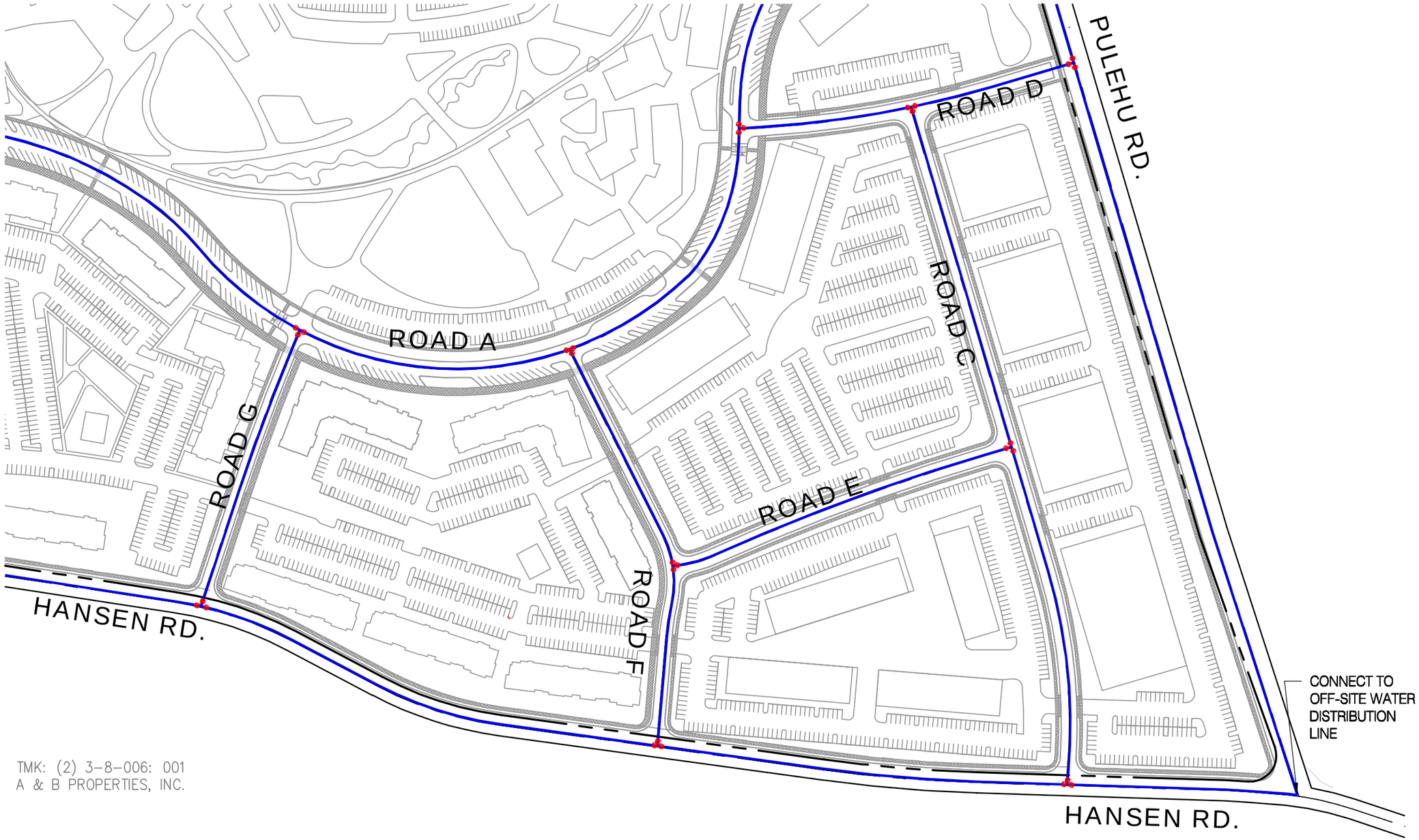
Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
1 of 5

PRELIMINARY WATER MASTER PLAN



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Horiz. Scale:	1"=200'	
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H109-001

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Sheet
2 of 5

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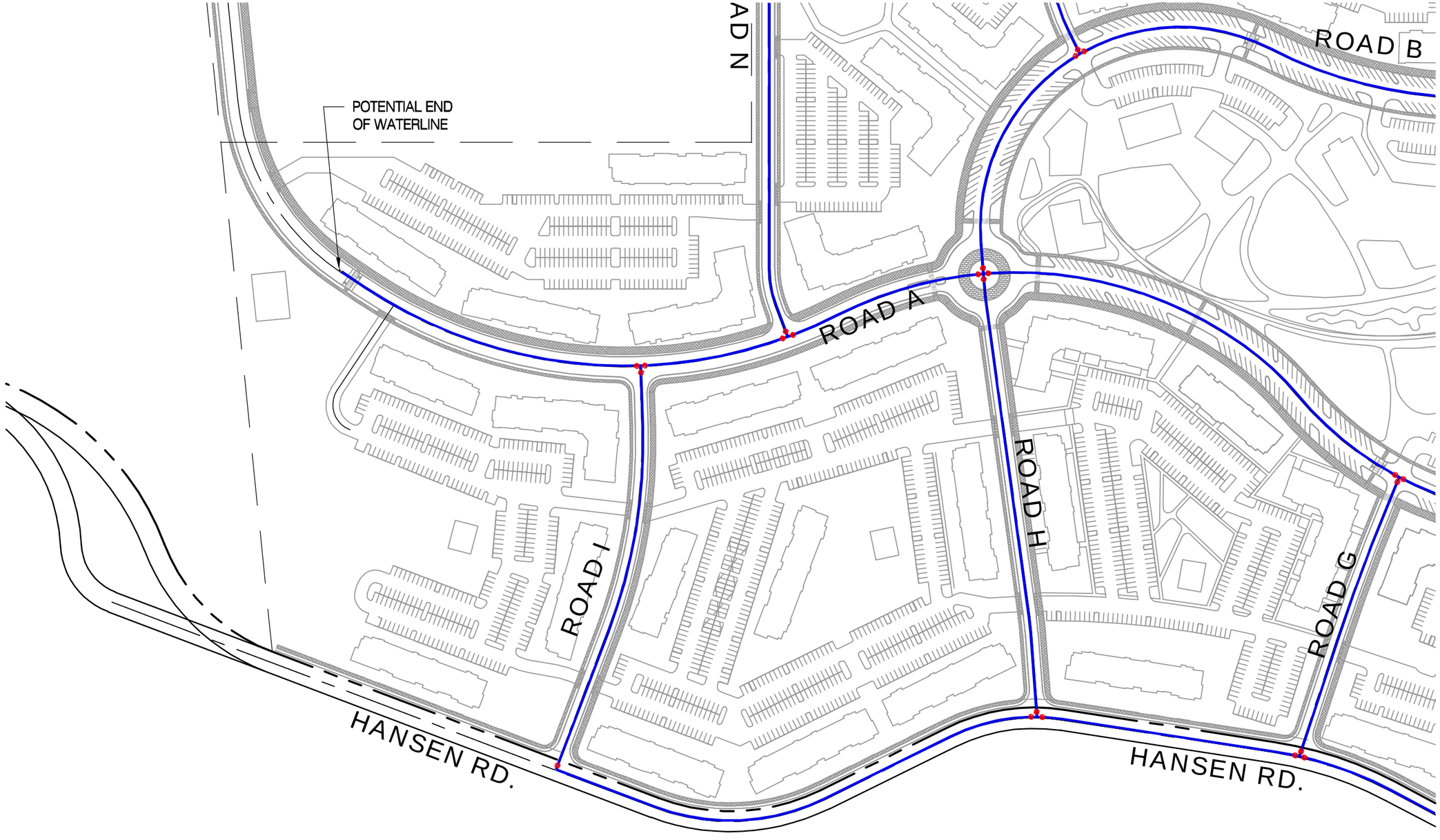
PRELIMINARY WATER MASTER PLAN

SOUTHWEST



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Reviewed by	TCC	Date	10/2024	
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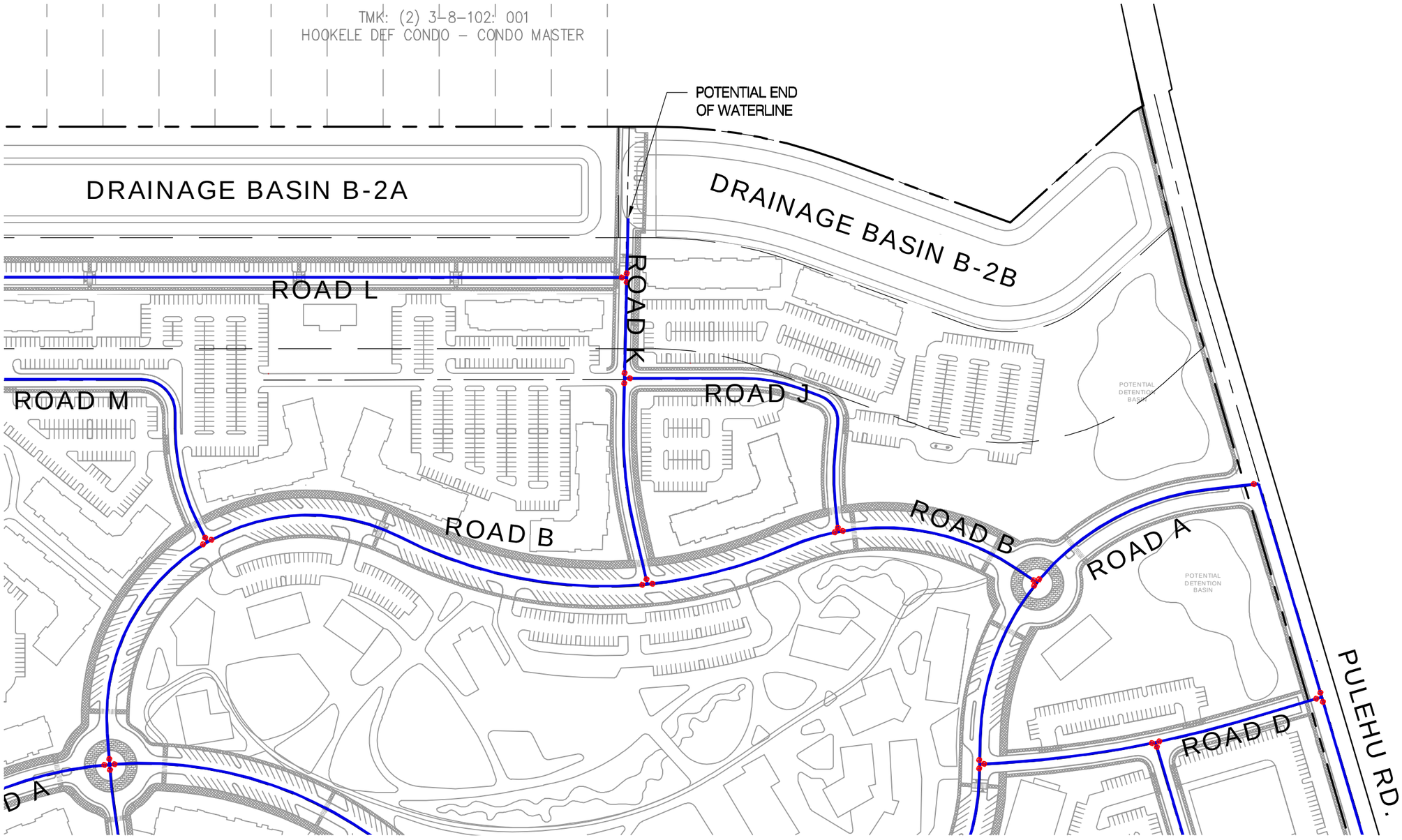
PRELIMINARY WATER MASTER PLAN

NORTHEAST



SCALE
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1 INCH = 200 FEET

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Reviewed by	TCC	Date	10/2024
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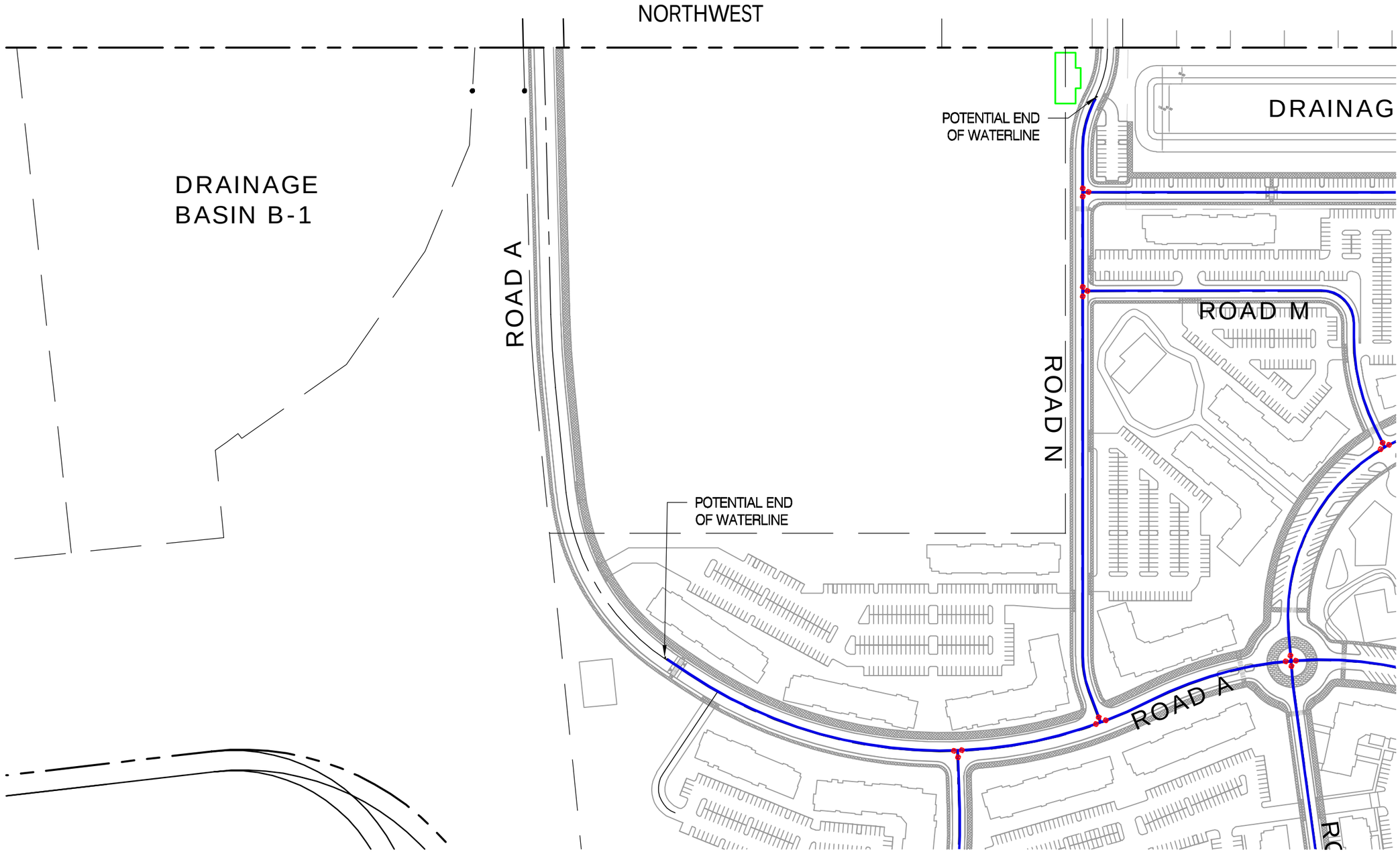
PRELIMINARY WATER MASTER PLAN



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Reviewed by	TCC	Date	10/2024
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PRELIMINARY WATER MASTER PLAN

OFF-SITE WATER DISTRICTION SYSTEM

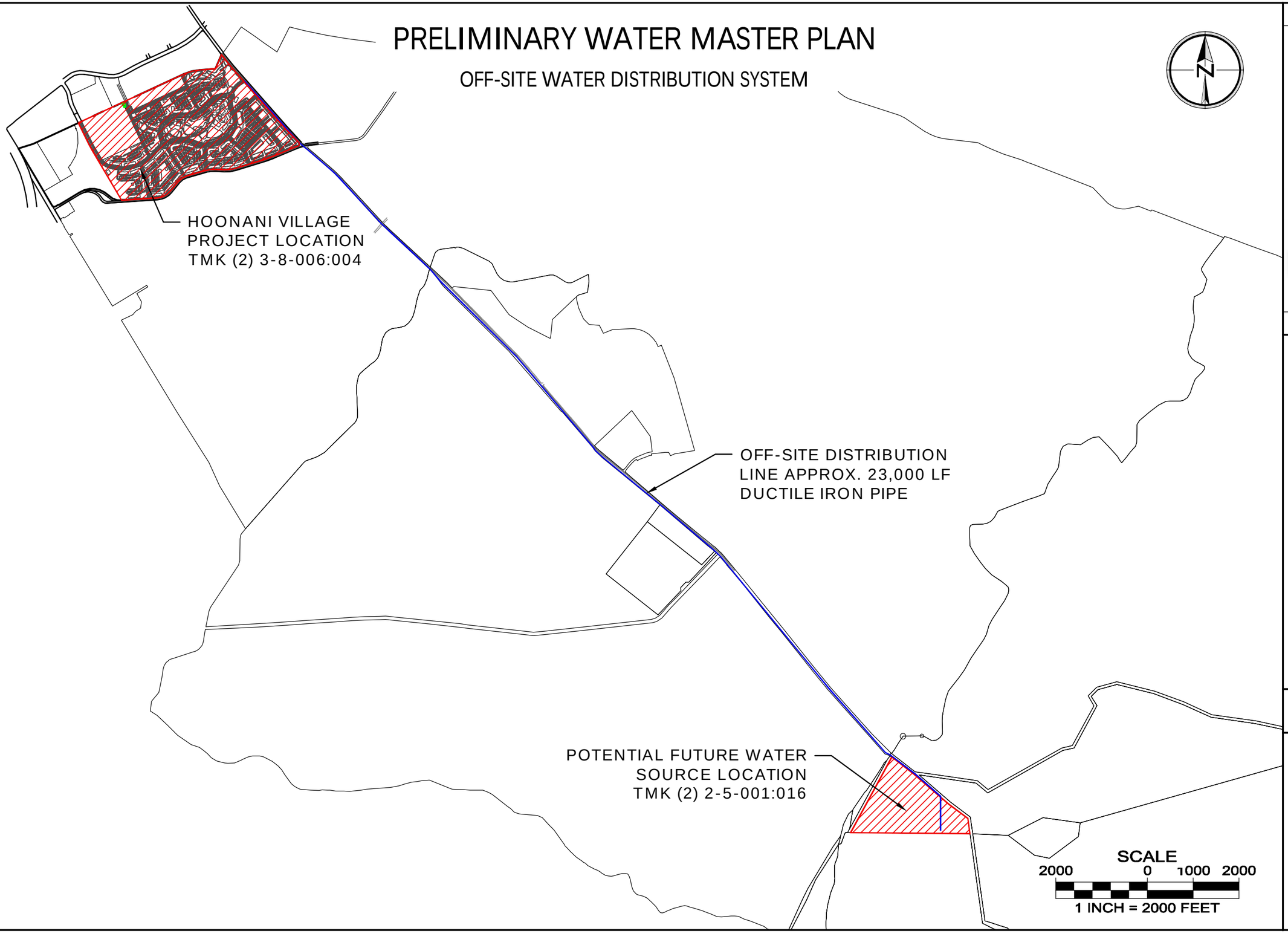

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Table 100-18 - DOMESTIC CONSUMPTION GUIDELINES				
AVERAGE DAILY DEMAND*				
ZONING DESIGNATION	HAWAII	KAUAI	MAUI	OAHU
RESIDENTIAL:				
Single Family or Duplex	400 gals/unit	500 gals/unit	600 gals/unit or 3000 gals/acre	500 gals/unit or 2500 gals/acre
Multi-Family Low Rise	400 gals/unit	350 gals/unit	560 gals/unit or 5000 gals/acre	400 gals/unit or 4000 gals/acre
Multi-Family High Rise	400 gals/unit	350 gals/unit	560 gals/unit	300 gals/unit
COMMERCIAL:				
Commercial Only	3000 gals/acre	3000 gals/acre	6000 gals/acre	3000 gals/acre
Commercial/Industrial Mix	--	5000 gals/acre	140 gals/1000 sq. ft.	100 gals/1000 sq. ft.
Commercial/Residential Mix	--	3000 gals/acre	140 gals/1000 sq. ft.	120 gals/1000 sq. ft.
RESORT (To include hotel for Maui only)	400 gals/unit (1)	350 gals/unit	350 gals/unit or 17000 gals/acre	350 gals/unit or 4000 gals/acre
LIGHT INDUSTRY:	4000 gals/acre	4000 gals/acre	6000 gals/acre	4000 gals/acre
SCHOOLS, PARKS:	4000 gals/acre or 60 gals/student	4000 gals/acre or 60 gals/student	1700 gals/acre ~~or 60 gals/student~~	4000 gals/acre or 60 gals/student
AGRICULTURE:		2,500 gals/acre	~~5000 gals/acre~~	4000 gals/acre

* - Where two or more figures are listed for the same zoning, the daily demand resulting in higher consumption use shall govern the design unless specified otherwise.

(1) - Subject to special review and control by the Manager.

Table 100-19 - FIRE FLOW REQUIREMENTS

LAND USE	FLOW (GPM)/DURATION (HRS)/FIRE HYDRANT SPACING (FT.)			
	HAWAII	KAUAI	MAUI	OAHU
Agriculture	500/0.5/600 (1)	250/1/500	500/2/500	1000/0.5/700
Rural			1000/2/500	
Single Family	(2)	(4)	1000/2/350	1000/1/350
Duplex	1500/1/300	(4)	1250/2/350	1000/1/350
PUD Townhouse and Low Rise Apartments	1500/1/300	(4)	(5)	1500/1/250
Schools, Neighborhood Businesses, Small Shopping Centers, Hotels (except Maui), and High Rise Apartments	2000/2/300	2000/2/350	2000/2/250	2000/2/250
Light Industry, Downtown Business, Large Shopping Center, and Hospitals	2,000/2/300	3000/3/350	2000/2/250	4000/3/250
Heavy Industry, Hotels	2,000/2/300	3000/3/350	2,500/2/ 250	(3)

(1) - Applies to one acre lot size or less
(2) - 10,000 sq. ft. or larger lot size = 500/2/600; Less than 10,000 sq. ft. lot size = 1000/1/600
(3) - Subject to special review and control by Manager
(4) - R-2 = 500/1/500 R-4 = 750/2/500 R-6 = 1000/2/500 R-10 = 1250/2/350
R-20 = 1500/2/350 RR-10 = 1500/2/350 RR-20 = 2000/2/350
(5) - A-1 = 1500/2/250 A-2 = 2000/2/250

Note:
1. On dead end streets, the last F.H. shall be located at one half the spacing distance for F.H.s from the last house/unit (frontage property line or to the driveway/access for the property).
2. Spacing of fire hydrant shall be measured along the roadway.

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PRIVATE WATER SYSTEM CALCULATIONS

JOB NUMBER: H109-001
PROJECT: Hoonani Development
FILE: Private Water System Calculations.xlsx

Project Residential Calculations:

Number of Multi-Family Low Rise Units =	1599	units
Average Daily Demand (A.D.D.) =	400	gal/unit
A.D.D. =	**639,600**	gal/day
Max Daily Demand (1.5*ADD) =	**959,400**	gal/day
Average Daily Flow (GPM) =	444.17	GPM
Max Day Flow (GPM) =	666.25	GPM
Residential Peak Hour Flow (3.0*ADF) =	1,333	GPM

Project Commercial Space Calculations:

Commercial Space Area (AC) =	23.90	AC
Building Area (Sq. Ft)=	165,196	Sq. Ft.
Average Daily Demand (A.D.D.) =	140	gal/1000 bldg. sq. ft.
Commercial Space ADD	**23,127**	gal/day
C.S. Max Daily Demand (1.5*ADD) =	**34,691**	gal/day
C.S. Average Daily Flow (GPM) =	16.06	GPM
C.S. Max Day Flow (GPM) =	24.09	GPM
C.S. Peak Hour Flow (3.0*ADF) =	48.18	GPM

Project WWTP Space Calculations:

WWTP Area (AC)	9,000.00	SF
Average Daily Demand (A.D.D.) =	140	gal/1000 bldg. sq. ft.
WWTP ADD	**1,260**	gal/day
C.S. Max Daily Demand (1.5*ADD) =	**1,890**	gal/day
C.S. Average Daily Flow (GPM) =	0.88	GPM
C.S. Max Day Flow (GPM) =	1.31	GPM
C.S. Peak Hour Flow (3.0*ADF) =	2.63	GPM

Project Park Space Calculations

Park Space Area (AC) =	33.13	AC
Average Daily Demand (A.D.D.) =	1700	gal/acre
Industrial Space ADD	**56,321**	gal/day
C.S. Max Daily Demand (1.5*ADD) =	**84,482**	gal/day
C.S. Average Daily Flow (GPM) =	39.11	GPM
C.S. Max Day Flow (GPM) =	58.67	GPM
C.S. Peak Hour Flow (3.0*ADF) =	117.34	GPM

Project Industrial Space Calculations

Industrial Space Area (AC) =	18.42	AC
Building Area (Sq. Ft)=	198,100	Sq. Ft.
Average Daily Demand (A.D.D.) =	140	gal/1000 bldg. sq. ft.
Industrial Space ADD	**27,734**	gal/day
C.S. Max Daily Demand (1.5*ADD) =	**41,601**	gal/day
C.S. Average Daily Flow (GPM) =	19.26	GPM
C.S. Max Day Flow (GPM) =	28.89	GPM
C.S. Peak Hour Flow (3.0*ADF) =	57.78	GPM

Project Hotel Space Calculations:

Number of Units =	275	Units
Average Daily Demand (A.D.D.) =	350	gal/unit
Hotel Space ADD	**96,250**	gal/day
C.S. Max Daily Demand (1.5*ADD) =	**144,375**	gal/day
C.S. Average Daily Flow (GPM) =	66.84	GPM
C.S. Max Day Flow (GPM) =	100.26	GPM
C.S. Peak Hour Flow (3.0*ADF) =	200.52	GPM

Potential Future Residential Calculations (County Site):

Number of Multi-Family Low Rise Units =	440	units
Average Daily Demand (A.D.D.) =	400	gal/unit
A.D.D. =	**176,000**	gal/day
Max Daily Demand (1.5*ADD) =	**264,000**	gal/day
Average Daily Flow (GPM) =	122.22	GPM
Max Day Flow (GPM) =	183.33	GPM
Residential Peak Hour Flow (3.0*ADF) =	367	GPM

Potential Future Commercial Space Calculations:

Future Potential Commercial Space (Bldg Sq. Ft.	53,880	Sq. Ft.
Average Daily Demand (A.D.D.) =	140	gal/1000 bldg. sq. ft.
Future Commercial Space A.D.D.	**7,543**	gal/day
C.S. Max Daily Demand (1.5*ADD) =	**11,315**	gal/day
C.S. Average Daily Flow (GPM) =	5.24	GPM
C.S. Max Day Flow (GPM) =	7.86	GPM
C.S. Peak Hour Flow (3.0*ADF) =	15.72	GPM

Project Total Calculations:

(Totals are increased by 10% for unmetered uses and losses)

Total Project Site Average Daily Demand (GPD)	**844,292**	gal/day
Total Potential Future Average Daily Demand (GPD)	**183,543**	gal/day
Total Average Daily Demand (GPD)	**1,023,357**	gal/day
Design Average Daily Demand (GPD) * 1.10	**1,125,693**	gal/day
Total Max Daily Demand (1.5*Design ADD) =	**1,688,539**	gal/day
Total Average Daily Flow (GPM) =	782	GPM
Total Max Day Flow (GPM) =	1173	GPM
Total Peak Hour Flow (3.0*Design ADF) =	**2345**	GPM

Fire Flow Criteria & Water Line Sizing:

1. For Commercial use: 2000 GPM / 2 hours
2. Max velocity in main line = 10 ft./sec.

Flow Rate (gpm) =	2000	gpm
Flow Rate (cfs) =	4.456	cfs
Area of 12 inch pipe (sf) =	0.785	sf
Velocity in 12 inch pipe (ft/s) =	5.67	ft/sec.

Water mains to be 12 inches in size.

Domestic Flow Criteria & Water Distribution Line Sizing:

1. For domestic use during Peak Hour Flow: 2387 GPM
2. Max velocity in main line = 5 ft./sec.

Flow Rate (gpm) =	2345	gpm
Flow Rate (cfs) =	5.225	cfs
Area of 14 inch pipe (sf) =	1.069	sf
Velocity in 14 inch pipe (ft/s) =	4.89	ft/sec.

Offsite Water distribution mains to be 14 inches in size.

Reservoir Capacity Sizing Criteria:

1. Meet Maximum Day consumption:

From above, reservoir must be larger than 1,688,539 gallons.

2. Meet Max Day plus fire flow for duration of fire. Reservoir 3/4 full at start of fire.
(Ignoring pump input credits for factor of safety)

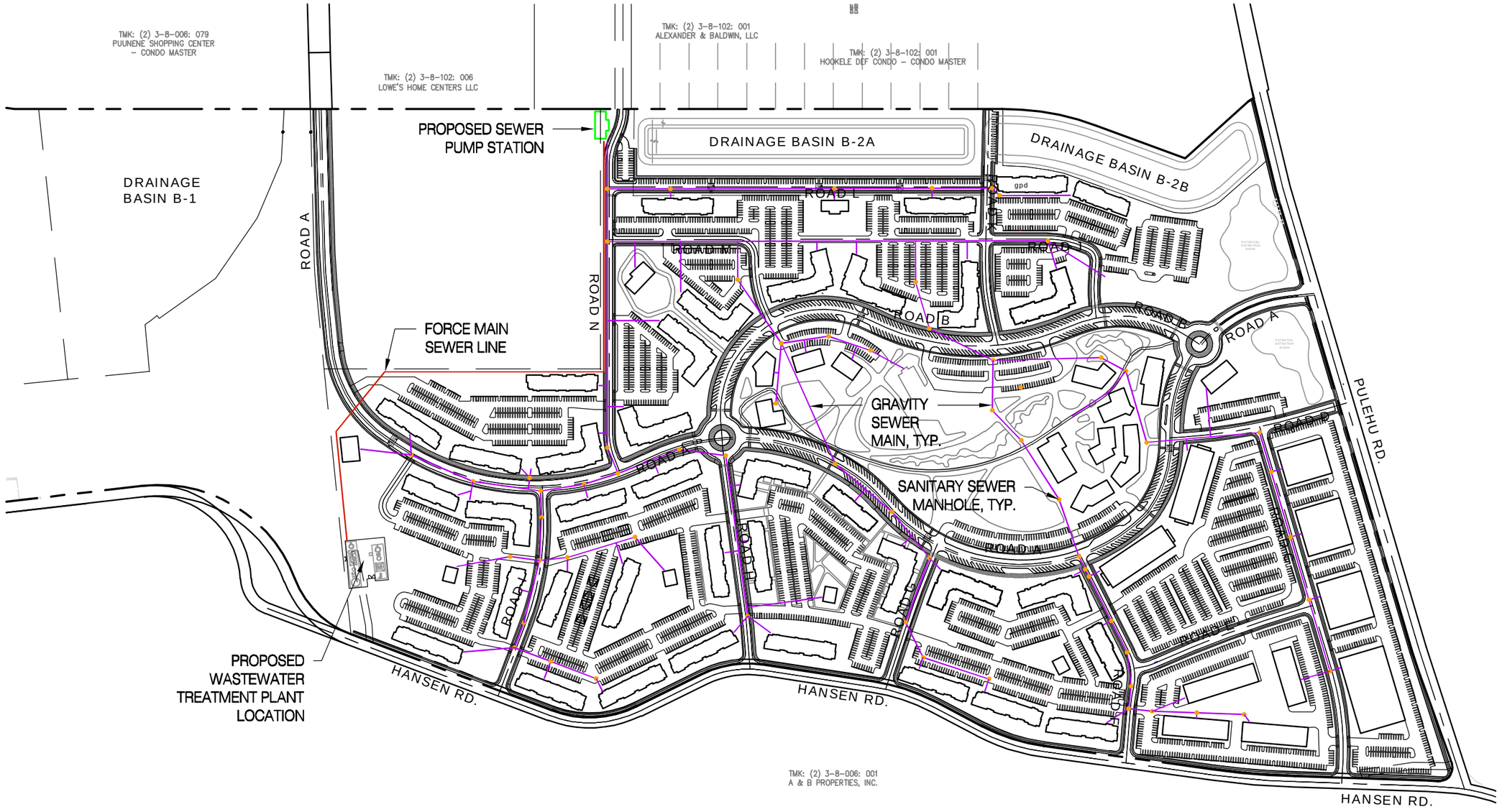
Max Day Flow for 2 hours (Gal) =	140712	gal
Fire Flow Rate for 2 hours (gal) =	240000	gal
Total Volume Needed at 3/4 full (gal) =	380712	gal
Total Reservoir volume (gal) =	507615	gal

Total Reservoir storage will be over 1,688,539 gallons.

APPENDIX 'F' – PRELIMINARY WASTEWATER SYSTEM CALCULATIONS AND PLANS

PRELIMINARY SANITARY SEWER MASTER PLAN

OVERALL MASTER PLAN



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1 INCH = 400 FEET

PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.400.5959
WWW.PD-GRP.COM

Designed by	ENH	Date	10/2024		
Drawn by	ENH	Date	10/2024		
Reviewed by	TCC	Date	10/2024		
Project No.	H109-001	REF.			
Horiz. Scale:	1"=400'				
Vert. Scale:					

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
1 of 5

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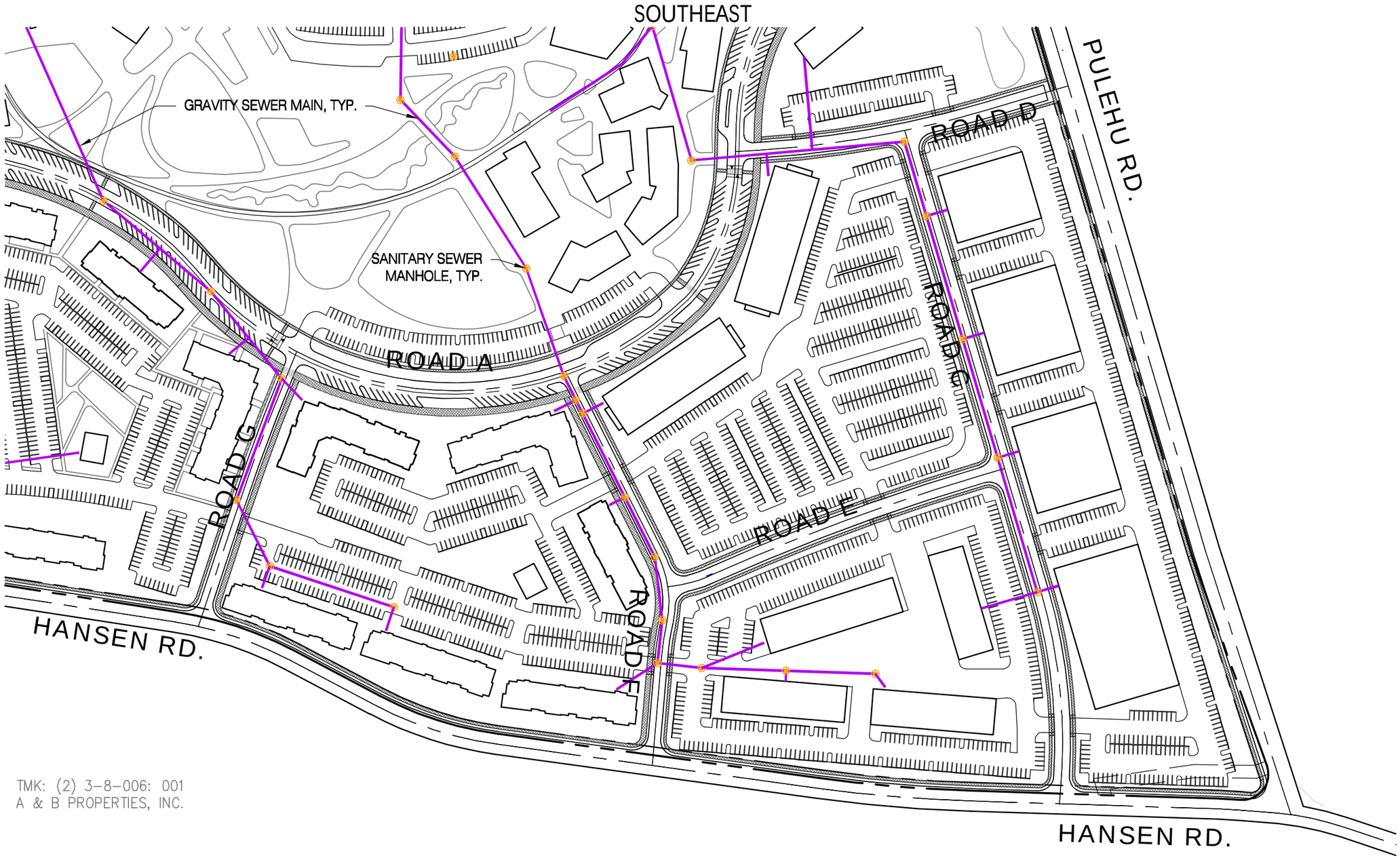
PRELIMINARY SANITARY SEWER MASTER PLAN



TMK: (2) 3-8-006: 001
A & B PROPERTIES, INC.

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1 INCH = 200 FEET

PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.4005959
WWW.PD-GRP.COM

Designed by	ENH	Date 10/2024
Drawn by	ENH	Date 10/2024
Reviewed by	TCC	Date 10/2024
Project No.	H109-001	REF.
Horiz. Scale:	1"=200'	
Vert. Scale:		

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
2 of 5

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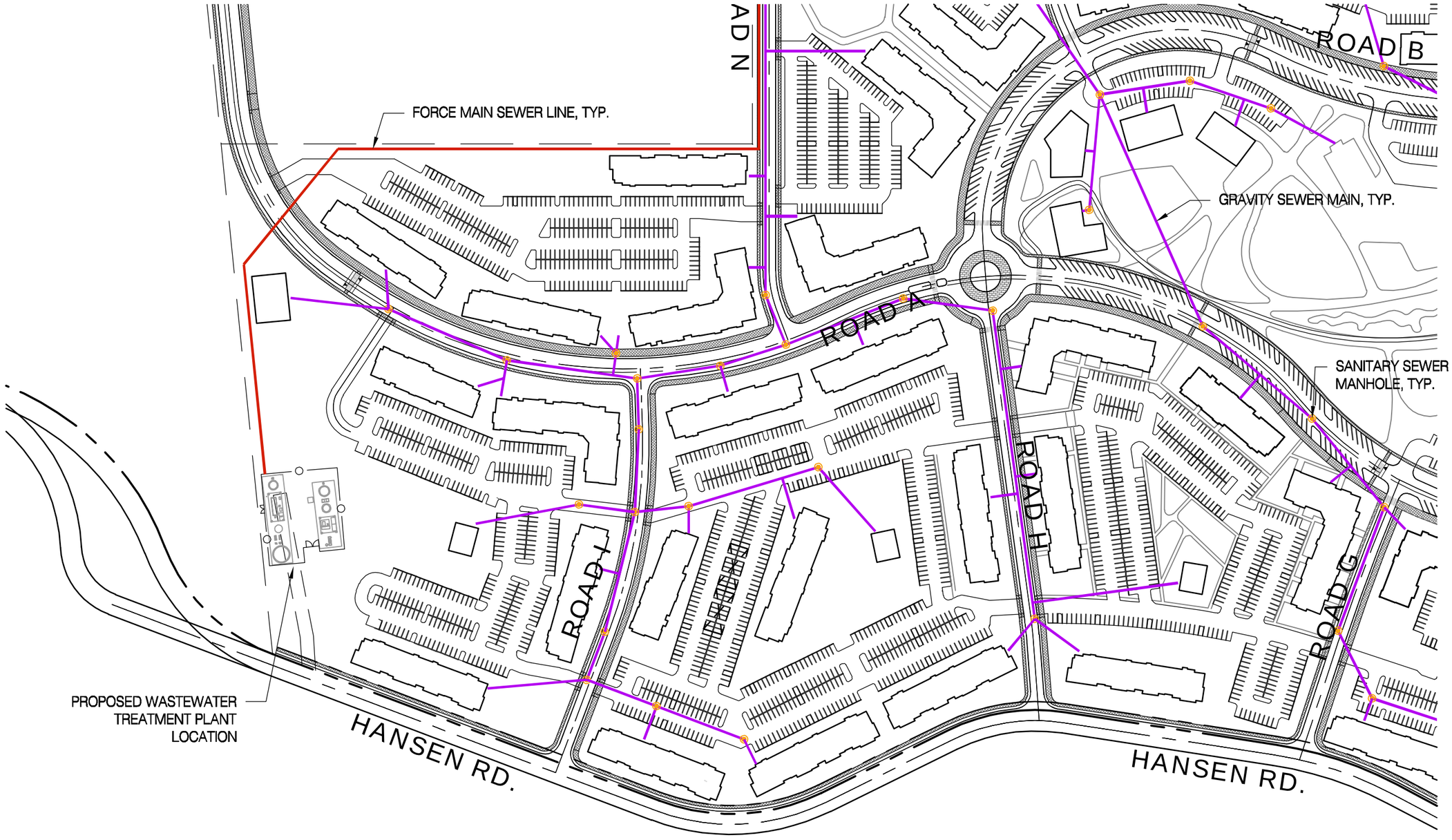
PRELIMINARY SANITARY SEWER MASTER PLAN

SOUTHWEST



PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.4005959
WWW.PD-GRP.COM

Designed by	ENH	Date	10/2024
Drawn by	ENH	Date	10/2024
Reviewed by	TCC	Date	10/2024
Project No.	H109-001	REF.	
Horiz. Scale:	1"=200'		
Vert. Scale:			

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
3 of 5

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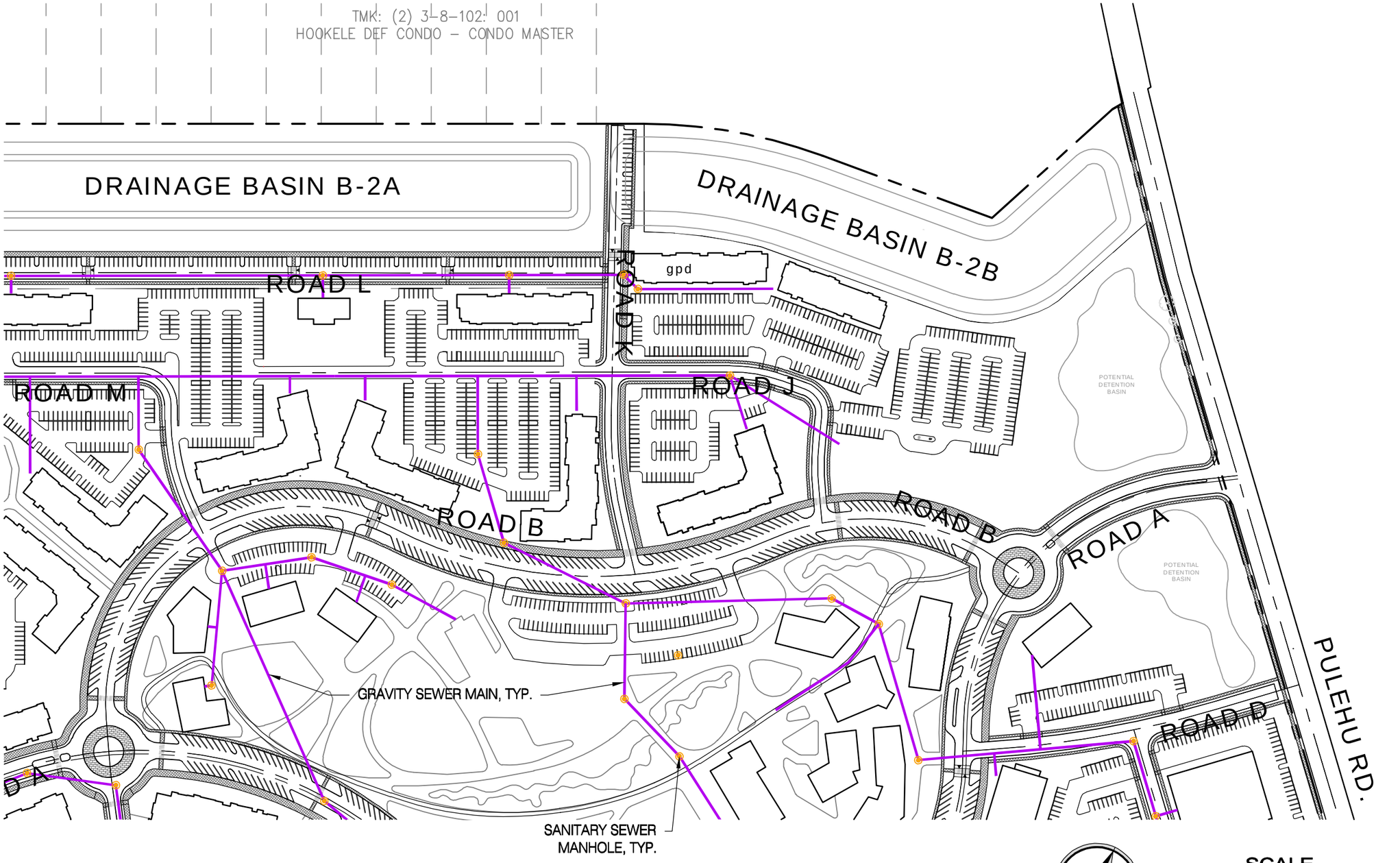
PRELIMINARY SANITARY SEWER MASTER PLAN

NORTHEAST



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1 INCH = 200 FEET

PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.4005959
WWW.PD-GRP.COM

Designed by ENH Date 10/2024
Drawn by ENH Date 10/2024
Reviewed by TCC Date 10/2024
Project No. H109-001 REF.
Horiz. Scale: 1"=200'
Vert. Scale:

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
4 of 5

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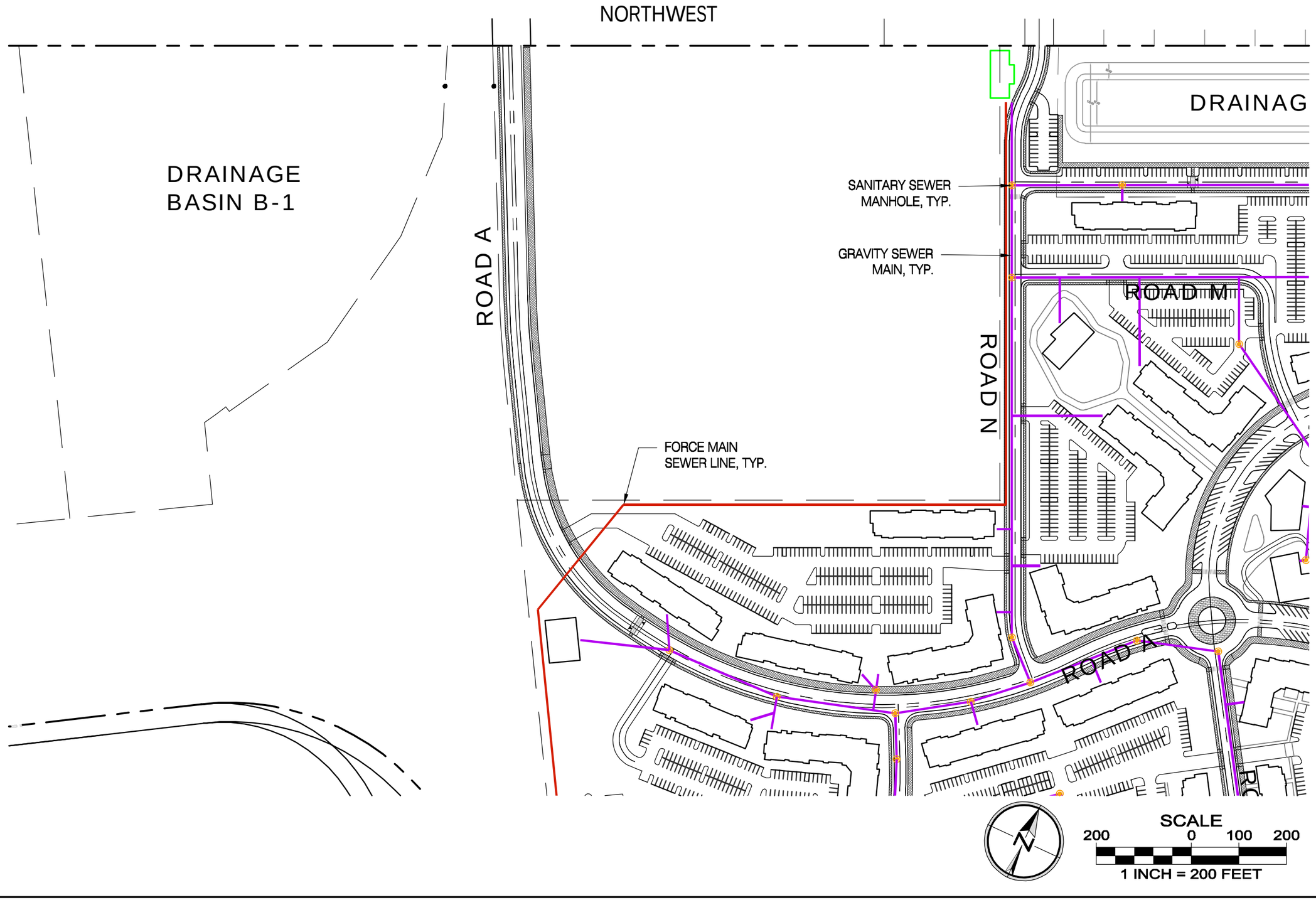
PRELIMINARY SANITARY SEWER MASTER PLAN



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PIONEER DESIGN GROUP – HAWAII LLC
CIVIL ENGINEERING · LAND USE PLANNING
CONSTRUCTION MANAGEMENT
HONOLULU, HAWAII PH: 808.4005959
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Designed by	ENH	Date	10/2024		
Drawn by	ENH	Date	10/2024		
Reviewed by	TCC	Date	10/2024		
Project No.	H109-001	REF.			
Horiz. Scale:	1"=200'				
Vert. Scale:					

Project
HOONANI VILLAGE

No.
H109-001

Type
ENGINEERING

Sheet
5 of 5

WASTEWATER SYSTEM CALCULATIONS

(Preliminary Sanitary Sewer Analysis for Hoonani Village)

JOB: H109-001
PROJECT: Hoonani Village
FILE: Hoonani Village Sanitary Sewer Capacity Calculations
Manning's n= 0.013

TYPE OF USE	UNIT	QUANTITY OF UNIT	AVERAGE DAILY FLOW VOLUME (GPD)	AVERAGE FLOW RATE (CFS)
Residential Multi-Family Low-rise Apartments	255 gals/unit	1599 units	407,745	0.631
Commercial Restaurant (60% usable space for customers)	1 seat per 20 SF useable area, 80 gal per seat	56,100 sf = 1683 seats	134,640	0.208
Commercial Retail	1employee per 350 SF bldg area, 15 gal per employee	56,100 sf = 160 employees	2,400	0.004
Commercial Office Space	1employee per 200 SF bldg area, 20 gal per employee	100,000 sf = 500 employees	10,000	0.015
Light Industrial	1employee per 500 SF bldg area, 25 gal per employee	198,100 sf = 396 employees	9,900	0.015
Hotel	300 gal/unit	275 units	82,500	0.128
Total Site Average Wastewater Flow			**647,185**	**1.001**
County Site - Potential Future Residential - Modeled as Residential for higher flow. Potentially a School site.)	255 gals/unit	440 units	112,200	0.174
Future Restaurant (60% usable space for customers)	1 seat per 20 SF useable area, 80 gal per seat	26,940 sf = 808 seats	64,640	0.100
Future Retail	1employee per 350 SF bldg area, 15 gal per employee	26,940 sf = 77 employees	1,155	0.002
Total Potential Future Wastewater Flow			**177,995**	**0.275**
Total Average Wastewater Flow			**825,180**	**1.277**
Dry Weather Infiltration/Inflow	5 gal/capita/day	9940	**49,700**	0.077

Wet Weather Infiltration/Inflow (Area with sanitary lines)	1250 Gal./acre/day	117.654	**147,063**	0.228
Total Average Daily Site Wastewater Flow	Average Daily Flow plus Dry and Wet Weather Infiltration/inflow rate		**1,021,943**	**1.581**
Total Wastewater Flow Volume for WWTP	Additional 25% factor of safety for volume of WWTP		**1,277,428**	1.977
Total Site Peak Wastewater Flow (2.0 Peaking Factor)	(Peak flow rate (cfs) utilized for wastewater line sizing)		**2,043,885**	**3.163**

VERIFYING FLOW OF VARIOUS SIZES OF MAIN LINE AT 1/2 FULL

For y/do= 0.5 (50% full pipe)

Manning's n =	0.013	
A/(d0^2) =	0.3927	(see table 10.1 below)
AR ^ (2/3) / (d0 ^ 8/3) =	0.1558	(see table 10.1 below)
S (ft./ft.)	0.005	ft./ft.
S^(1/2) =	0.0707	

PIPE MAIN SIZE	do (ft)	AR ^ (2/3)	FLOW RATE (Q)			
6" Sewer Main	0.50	0.0245	**0.20 cfs**	<	1.581	cfs
8" Sewer Main	0.67	0.0528	**0.43 cfs**	<	1.581	cfs
10" Sewer Main	0.83	0.0958	**0.78 cfs**	<	1.581	cfs
12" Sewer Main	1.00	0.1558	**1.26 cfs**	<	1.581	cfs
15" Sewer Main	1.25	0.2825	**2.29 cfs**	<	1.581	cfs
15" PIPE AT 0.5% MIN. SLOPE CAN CONVEY HALF OF THE WASTEWATER FLOW FROM HOONANI VILLAGE						
18" Sewer Main	1.50	0.4594	**3.72 cfs**	<	3.163	cfs
18" PIPE AT 0.5% MIN. SLOPE FLOWING HALF FULL CAN CONVEY THE ENTIRE WASTEWATER FLOW FROM HOONANI VILLAGE						

TYPE OF USE	UNIT	QUANTITY OF UNIT	TOTAL CAPITA
Residential Multi-Family Low-rise Apartments	2.5 Occupants per Unit	1599	3998
Commercial Restaurant (Customers)	60% useable space, 1 seat per 20 SF	56100	1683
Commercial Restaurant (Front of house staff)	1 staff member per 20 customers	1683	84
Commercial Restaurant (Back of house staff)	4 staff member per 50 customers	1683	135
Commercial Retail	1employee per 350 SF bldg area	56100	160
Commercial Office Space	1employee per 200 SF bldg area	100000	500
Light Industrial	1employee per 500 SF bldg area	198,100	396
Hotel	2.25 Occupants per Unit + 1 Employee per room	275	894

County Site - Future Residential - Modeled as Residential (440 units) for higher flow. Potentially a School site.)	2.5 Occupants per Unit	440	1,100
Future Restaurant (Customers)	60% useable space, 1 seat per 20 SF	26,940	808
Future Restaurant (Front of house staff)	1 staff member per 20 customers	808	40
Future Restaurant (Back of house staff)	4 staff member per 50 customers	808	65
Future Retail	1employee per 350 SF bldg area	26,940	77
TOTAL ESTIMATED CAPITA			**9940**

County of Maui
Wastewater Reclamation Division

2200 Main Street Suite 610 ● Wailuku, HI 96793 ● (808) 270-7417 ● 270-7425 fax

Wastewater Flow Standards

The following wastewater flow contributions are to be utilized for projecting wastewater flows for the following types of uses, unless other supporting data is provided to show differently.

Type of use	Unit	Contribution (Gal/Unit/Day)
Apartment/Condo	Unit	255
Bar	Seat	15
Church, large	Seat	6
Church, small	Seat	4
Cottage or Ohana (600 S.F. max)	Unit	180
Day-care Center	Child	10
Factory	Employee	30
Golf Clubhouse	Golf Rounds	25
Hotel, resort with laundry	Room	350
Hotel, average with laundry	Room	300
Hotel, average without laundry	Room	250
Hospital	Bed	200
Industrial Shop	Employee	25
Laundry (coin operated)	Machine	300
Office	Employee	20
Residence, subdivision	Home	350
Restaurant, average	Seat	80
Restaurant, fast food	Seat	100
Rest Home	Patient	100
Retail Store	Employee	15
School, elementary	Student	15
School, high	Student	25
Storage, w/ offices	Employee	15
Storage w/ offices and showers	Employee	30
Store Customer bathroom usage	Use	5
Theater	Seat	5

The following standards will be used as necessary to compute the number of units required to make wastewater calculations:

Residential Occupancy	4 persons per unit
Apartment/Condo Occupancy	2.5 persons per unit
Hotel Occupancy	2.25 persons per unit
Hotel Employees	1 per hotel room
Office Employees	1 per 200 square feet of floor area
Retail Warehouse Employees	1 per 350 square feet of floor area
Storage/ Industrial Employees	1 per 500 square feet of floor area

Average Wastewater Flow: The average wastewater flow is the sum of the applicable wastewater flows listed above.

Maximum Wastewater Flow: The maximum wastewater flow is obtained by multiplying the average flow by a flow factor. The flow factor shall be obtained utilizing the Babbit formula or other rationale method.

Dry Weather Infiltration/Inflow: The following rates shall be used in the design of wastewater transmission lines:

a.	35 gpcd* -	Wastewater lines laid below the normal ground water table.
b.	5 gpcd -	Wastewater lines laid above the normal ground water table.

* gpcd = Gallons per Capita Day

Wet Weather Infiltration/Inflow: The following rates shall be used in the design of wastewater transmission lines:

a	2,750 gad* -	Wastewater lines laid below the normal ground water table.
b.	1,250 gad -	Wastewater lines laid above the normal ground water table.

* gad = Gallons per Acre per Day

Design Average Flow: The design average flow is the sum of the average wastewater flow and the applicable dry weather infiltration/inflow rate.

Design Maximum Flow: The design maximum flow is the sum of the maximum flow and the applicable dry weather infiltration/inflow rate.

Design Peak Flow: The design peak flow of wastewater is the sum of design maximum flow and the wet weather infiltration/inflow

APPENDIX 'G' – PRELIMINARY LAND USE CONCEPT PLAN AND SITE PLAN

MAP LEGEND

RETAIL

1. COSTCO
2. WHOLE FOODS MARKET
3. WALMART
4. TAGET
5. SAFEWAY
6. QUEEN KALAHUMANU CENTER

POINTS OF INTEREST

7. KANAHA BEACH
8. KANAHA POND STATE WILDLIFE SANCTUARY
9. KEOPUOLANI REGIONAL PARK
10. KAHULUI COMMUNITY CENTER PARK
11. THE DUNES AT MAUI LANI GOLF COURSE
12. CENTRAL MAUI REGIONAL SPORTS COMPLEX

PUBLIC AMENITIES

13. KAHULUI AIRPORT
14. UNIVERSITY OF HAWAII MAUI COLLEGE
15. BALDWIN HIGH SCHOOL
16. MAUI HIGH SCHOOL
17. KAHULUI ELEMENTARY SCHOOL
18. LIHIKAI ELEMENTARY SCHOOL
19. POMAIKA'I ELEMENTARY SCHOOL
20. KAHULUI PUBLIC LIBRARY
21. MAUI MEMORIAL MEDICAL CENTER

Ho'onani Development

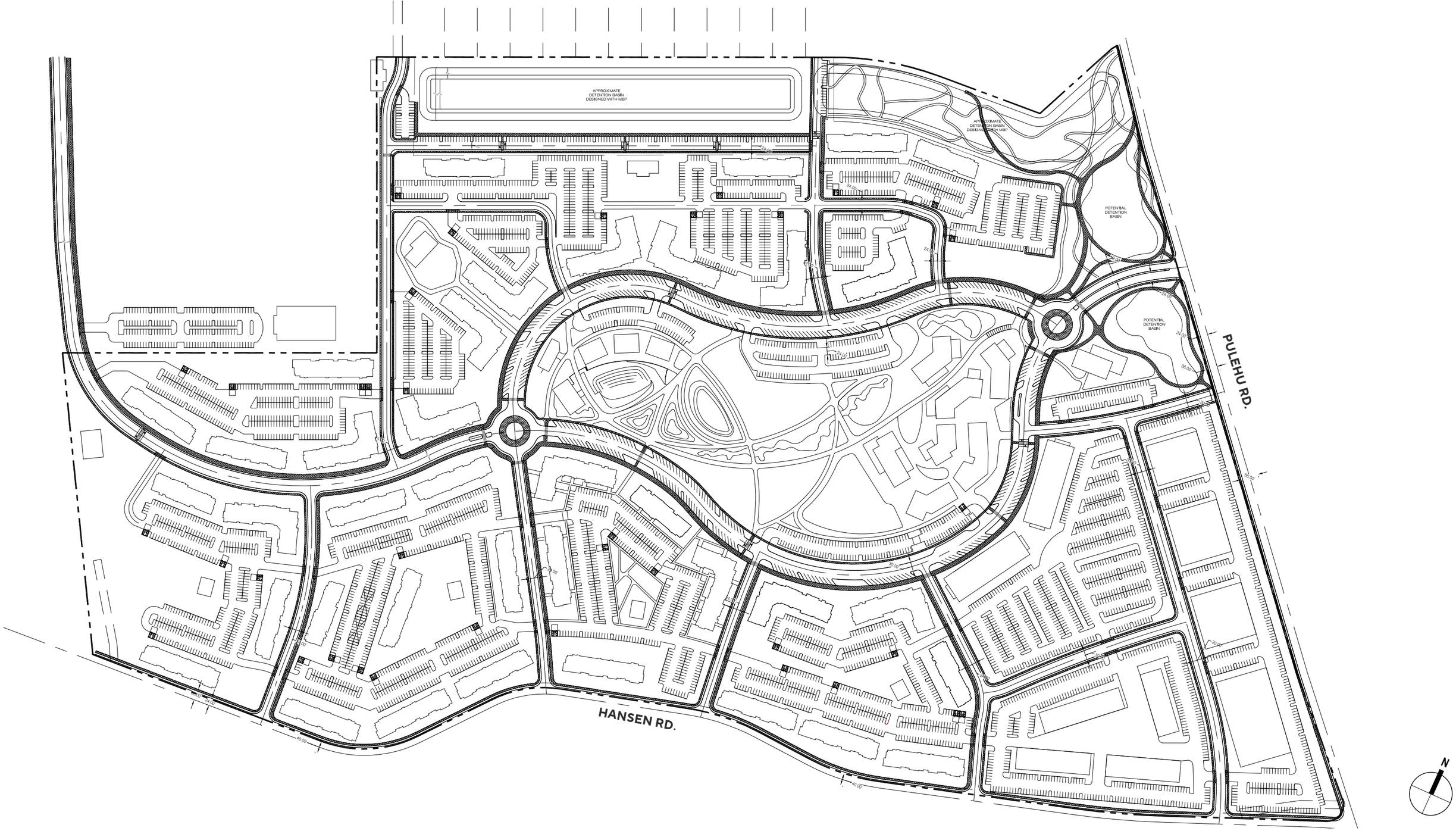
PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Vicinity Map

Architecture. Design. Relationships.

Scale 1"=300'
Job No. 2023-0690
Date 2024-06-17



Ho'onani
Development

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Concept Site Plan Study

Proposed Master Site Plan - Option 11

Architecture.
Design.
Relationships.

Scale	1" = 300'
Job No.	2023-0690
Date	2024-10-07

1

Commercial parcels to be developed concurrently with Multi-family Phase 1 or later.

Ho'onani
Development

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

Concept Site Plan Study
Proposed Land Use Plan - Option 11

Architecture.
Design.
Relationships.

Scale 1"=300'
Job No. 2023-0690
Date 2024-10-07

1

	Land Use Description	Land Area (Acres)	Walk-up Unit	Modular Unit	D.U. / Acre (Range)	Commercial (Up To) GSF	Total Dwelling Units / Floor Area (SQ. FT.)	Parking Required	Parking Provided
1	Grand Entry Open Space	6.05	N/A	N/A	N/A	N/A	N/A	0	0
2A	Open Space Park (R)	25.35	N/A	N/A	N/A	N/A	N/A	628	725
2B	Food Hall		N/A	N/A	N/A	13,000	13,000		
2D	Commercial / Retail/ Restaurant		N/A	N/A	N/A	79,800	79,800		
2E	Entertainment space		N/A	N/A	N/A	7,400	7,400		
3	Future Commercial	3.24	N/A	N/A	N/A	TBD	N/A	TBD	172
4	Multi-Family	6.55	45	84	20 DU/AC	N/A	129	201	265
5	Multi-Family	21.45	270	84	17 DU/AC	N/A	354	606	847
6	Multi-Family	7.85	129	42	22 DU/AC	N/A	171	249	278
7	Multi-Family	9.23	75	84	17 DU/AC	N/A	159	252	313
8	Multi-Family	15.03	156	168	22 DU/AC	N/A	324	453	578
9	Multi-Family	11.30	120	84	18 DU/AC	N/A	204	333	393
10	Multi-Family	11.36	120	126	22 DU/AC	N/A	246	393	424
11	Office Campus	10.30	N/A	N/A	N/A	100,000	100,000	200	601
12	Commercial / Retail/ Restaurant	2.49	N/A	N/A	N/A	7,418	7,418	74	63
13	Industrial Park	18.42	N/A	N/A	N/A	198,100	198,100	330	645
14	Commercial / Retail/ Restaurant	1.61	N/A	N/A	N/A	5,850	5,850	59	0
15	Sports Complex	9.33	N/A	N/A	N/A	N/A	152,755	100	116
16	Sports Complex	4.90	N/A	N/A	N/A	N/A	N/A	0	19
17	Waste Water Treatment Plant	1.70	N/A	N/A	N/A	N/A	N/A	0	0
18	**Not A Part - County Land**	22.99	N/A	N/A	N/A	N/A	N/A	0.0	0.0
TOTAL		**189.15**	**915**	**672**		**411,568**	**1,587 uits; 442,000 sq. ft.**	**3878**	**5439**

APPENDIX 'H' – PERCOLATION TEST RESULTS

DEPARTMENT OF HEALTH – WASTEWATER BRANCH
INDIVIDUAL WASTEWATER SYSTEM (IWS) – SITE EVALUATION/PERCOLATION TEST
(PERCOLATION TEST NO. 1 - EAST)

Date/Time: July 29, 2024 Test Performed by: Hawaii Geotechnical Consulting, Inc.

Owner: Ho'onani Development, LLC TMK: --

Elevation:	Unknown	Feet
Depth to Groundwater Table:	>10	feet below grade
Depth to Bedrock (if observed):	Unknown	feet below grade
Diameter of Hole:	9.0	inches
Depth to Hole Bottom:	36	inches below grade

Depth, inches below grade	Soil Profile (color, texture, other)
0-18	Brown Clayey Silt with some Sand, Soft
18-108	Orange Brown Silt with some Sand, Hard

PERCOLATION READINGS:

Time 12 inches of water to seep away: 101 minutes

Time 12 inches of water to seep away: 47 minutes

Check one:

_____ Percolation tests in sandy soils, recorded time intervals and water drops at least every 10 minutes for at least 1 hour.

X Percolation tests in non-sandy soils, presoaked the test hole for at least 4 hours. Recorded time intervals and water drops at least every 10 minutes for 1 hour of time for the first 6 inches to seep away in greater than 30 minutes recorded time intervals and water drops at least every 30 minutes for 4 hours or until 2 successive drops do not vary by more than 1/16 inch.

Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches
30	2-5/8	30	2-5/8		
30	2-3/16	30			
30	2-1/2				
30	2-5/8				

Percolation Rate (time/final water level drop): 11.41 minute/inch

As the engineer responsible for gathering and providing site information and percolation test results, I attest to the fact that above site information is accurate and that the site evaluation was conducted in accordance with the provisions of Chapter 11-62, "Wastewater Systems" and the results were acceptable. I also attest that three feet of suitable soil exists between the bottom of the soil absorption system and the groundwater table or any other limiting layer.

Engineer's Signature/Stamp

July 29, 2024

License Expires 04/30/2026

DEPARTMENT OF HEALTH – WASTEWATER BRANCH
INDIVIDUAL WASTEWATER SYSTEM (IWS) – SITE EVALUATION/PERCOLATION TEST
(PERCOLATION TEST NO. 2 - WEST)

Date/Time: July 29, 2024 Test Performed by: Hawaii Geotechnical Consulting, Inc.

Owner: Ho'onani Development, LLC TMK: --

Elevation:	Unknown	Feet
Depth to Groundwater Table:	>10	feet below grade
Depth to Bedrock (if observed):	Unknown	feet below grade
Diameter of Hole:	9.0	inches
Depth to Hole Bottom:	36	inches below grade

Depth, inches below grade	Soil Profile (color, texture, other)
0-18	Brown Clayey Silt with some Sand, Soft
18-108	Orange Brown Silt with some Sand, Hard

PERCOLATION READINGS:

Time 12 inches of water to seep away: 136 minutes

Time 12 inches of water to seep away: 100 minutes

Check one:

_____ Percolation tests in sandy soils, recorded time intervals and water drops at least every 10 minutes for at least 1 hour.

X Percolation tests in non-sandy soils, presoaked the test hole for at least 4 hours. Recorded time intervals and water drops at least every 10 minutes for 1 hour of time for the first 6 inches to seep away in greater than 30 minutes recorded time intervals and water drops at least every 30 minutes for 4 hours or until 2 successive drops do not vary by more than 1/16 inch.

Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches
30	4-15/16	30	5-1/16		
30	5-1/4				
30	5				
30	5-1/16				

Percolation Rate (time/final water level drop): 5.93 minute/inch

As the engineer responsible for gathering and providing site information and percolation test results, I attest to the fact that above site information is accurate and that the site evaluation was conducted in accordance with the provisions of Chapter 11-62, "Wastewater Systems" and the results were acceptable. I also attest that three feet of suitable soil exists between the bottom of the soil absorption system and the groundwater table or any other limiting layer.

Engineer's Signature/Stamp

July 29, 2024

License Expires 04/30/2026

EXHIBIT 27

Geotechnical Report

GEOTECHNICAL INVESTIGATION REPORT
HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

A report by:
HAWAII GEOTECHNICAL CONSULTING, INC.

August 11, 2024

THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

04/30/2026

SIGNATURE

EXPIRATION DATE
OF LICENSE

Hawaii Geotechnical Consulting

- I n c o r p o r a t e d -

P.O. Box 331223 • Kahului, Hawaii 96733 • Phone (808) 205-1727

August 11, 2024
File No. 24024.01

Mr. Greg Sado
Ho'onani Development, LLC
Kahului, Maui, Hawaii 96793

Subject: **GEOTECHNICAL INVESTIGATION REPORT FOR HOONANI VILLAGE KAHULUI, MAUI, HAWAII**

Dear Mr. Sado:

We are pleased to submit our Geotechnical Investigation Report for the Hoonani Village project in Kahului, Maui, Hawaii. The enclosed report describes our subsurface investigation and presents our geotechnical recommendations for earthwork, foundations, retaining walls, pavements, utilities and percolation rates.

We appreciate the opportunity to work with you on this project. If you should have any questions or require additional information, please contact us.

Sincerely,

HAWAII GEOTECHNICAL CONSULTING, INC.

Robert M. Gibbens, P.E.
Senior Geotechnical Engineer

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1. INTRODUCTION

1.1 Authorization

Hawaii Geotechnical Consulting, Inc. (HGC) was retained by Hoonani Development, LLC to conduct a geotechnical investigation for the Hoonani Village project in Kahului, Maui, Hawaii. The scope of our services was outlined in our May 5, 2024 proposal No. P-780.

Authorization to proceed was received via a May 6, 2024 proposal signed by Mr. Greg Sato. The June 17, 2024 Concept Site Plan Study by AO Architecture was used during our investigation.

1.2 Purpose and Scope

The purpose of this geotechnical investigation was to explore and evaluate the proposed site's subsurface conditions in order to provide geotechnical recommendations for the project's mass grading, foundations, retaining walls, pavements, utilities and percolation rates. In addition to evaluating the subsurface soil conditions, the site's groundwater conditions and construction considerations were addressed. A description of the scope of work is presented below:

Phase 1 – Test Pit Field Investigation. A total of 42 test pits were excavated across the site with a CAT 328D excavator equipped with a 4.5-foot-wide bucket. Each test pit was excavated to an initial depth of 4 to 5 feet below the existing ground surface. The cut face of each test pit was then hand logged and relatively undisturbed drive and disturbed grab and bulk samples were obtained where appropriate. After initial logging and sample collection, each test pit was extended further. During the additional excavation, the disturbed soil cuttings were sampled when visual changes were observed.

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The test pits were excavated to depths ranging from 4 to 9 feet below the existing ground surface. An engineer with HGC observed and directed the test pit investigation, maintained a log of the subsurface soils encountered and collected relatively undisturbed drive and disturbed grab and bulk samples for laboratory testing. A description of the field investigation, the Logs of Test Pits, and a Unified Soil Classification System (USCS) chart are presented in Appendix A. The test pit locations are presented on the Test Pit Location Plan, Figure 1.

Phase 2 – Laboratory Testing. Laboratory tests were performed on relatively undisturbed drive and disturbed grab and bulk samples obtained during the field investigation. Laboratory tests were selected to verify field classifications and provide geotechnical parameters for use in design. Testing consisted of in-place dry density and moisture content, gradation, Atterberg limit and California Bearing Ratio (CBR) tests. The laboratory test methods and results are described and presented graphically in Appendix B and tabulated on the Logs of Test Pits in Appendix A, where applicable.

Phase 3 – Percolation Test. A total of two percolation tests were performed within the proposed WWTP leach field area. The percolation tests were performed at depths of 36 inches below the existing ground surface following the State of Hawaii Department of Health – Wastewater Branch testing method. The percolation test method and result are described and presented in Appendix C.

Phase 4 – Geotechnical Analysis. Our field observations and laboratory test results were analyzed in combination with the plans. We evaluated a shallow foundation system for support of the proposed project structures. Our analysis focused on the suitability of the sites in-place soils. We also analyzed the existing subsurface conditions as they relate to general site earthwork, foundations, retaining walls, pavement design and percolation rates. Design recommendations for use with standard IBC seismic criteria are also provided.

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Phase 5 – Geotechnical Report. This report was prepared to present our findings, conclusions, and recommendations regarding the geotechnical feasibility for site earthwork, foundations, retaining walls, pavement design and percolation rates. Discussions and recommendations regarding foundation types, bearing capacity, settlements and pavement design are presented.

1.3 Site Location

The proposed site is located along the valley area between Haleakala and the West Maui Mountains in Kahului, Maui, Hawaii. The site is bounded by Hansen Road to the south, by Pulehu Road to the east, existing commercial buildings and Hookele Street to the north and by vacant land to the west.

1.4 Site Description and Conditions

No topographic plans were available for the site. The site is relatively level. Unimproved soil and asphaltic paved roads were observed across the site. Signs of previous sugar cane cultivation were observed across the site including watering systems and plastic piping.

The site is currently vacant, having been most recently used for sugarcane cultivation. The sites surface varies from lightly vegetated to thickly overgrown, with thick brush and weeds observed.

END OF INTRODUCTION

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2. PROJECT DESIGN CONSIDERATIONS

2.1 Proposed Project/Development Plans

We understand that the project is a strategically planned mixed-use development located on a 165-acre site along Pulehu Road in southern Kahului. The following sections describe our understanding of the overall project scope.

2.1.1 Residential

The project will include 1,600 individual residential apartments across multiple structures. The apartment structures will consist of 1 to 4 story buildings constructed of wood with concrete slab on grade lower floors. In addition to the structures, various pools will be constructed across the site as well as stormwater detention basins along the site's northern region.

In addition to the residential structures, onsite driveways and parking lots as well as entranceways off Hansen Road, Pulehu Road and Hookele Street will be constructed. Buried utilities including water, sewer, drain and electrical are also planned.

We understand that retaining walls may be required across the site in order to support grade changes. We have assumed that retaining walls will include either CMU or concrete cantilevered walls with unknow heights.

2.1.2 WWTP

A wastewater treatment plant is planned for the site's western region. The WWTP will include an underground septic system, holding tanks and prefabricated metal buildings. In addition, a sewer pump station is planned for the site's northern region.

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2.1.3 Well Site

A new well site is planned up Pulehu Road. The well site will include new wells and additional water holding tanks.

2.1.4 Community Recreational Facilities

Recreational amenities including an amphitheater, pickleball/basketball courts, multiple sports fields and a dog park are planned.

2.1.5 Commercial/Industrial

In addition to the residential component, multiple commercial ventures are proposed within the development. Two 125-150 room hotels are planned within the development. The hotel structures will likely be wood framed with concrete slab-on-grade lower floors. We understand that 100,000 square feet of commercial space is planned along with 200,000 square feet of industrial space. The commercial and industrial structures will likely be constructed of wood or steel with concrete slab on grade lower floors.

2.1.6 County School/Community Facilities

We understand that the 23-acre site at the projects northwest corner may, in the future, be developed into a grade school as well as a community facility. It appears that the grade school project will include a main school building along with parking lots and other structures. A community facility may be constructed just south of the school facility. The community facility will include a single structure with a parking lot.

2.2 Grading

Although no grading plans were made available, we have assumed that mass grading across the relatively level site will likely include cuts and fills on the order of 1 to 3 feet. Deeper cuts will be required along the site's detention basins and buried utilities.

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2.3 Pavements

We have assumed that all onsite paving will consist of asphaltic concrete (AC), with Portland Cement Concrete Pavement (PCCP) possibly used at heavily loaded or tight turning areas, such as trash enclosures as well as within the commercial and industrial areas. No traffic information was made available at this time. We have assumed traffic within the proposed residential project will include primarily passenger and light truck traffic, with assumed traffic within the proposed commercial and industrial projects will include primarily passenger and light to heavy truck traffic.

END OF PROJECT DESIGN CONSIDERATIONS

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3. SUBSURFACE INVESTIGATION

3.1 Test Pits

A total of 42 test pits were excavated across the proposed site. The test pits were excavated with a CAT 328D excavator equipped with a straight bar 4.5-foot-wide bucket. Each test pit was excavated to an initial depth of 4 to 5 feet below the existing ground surface. The cut face of each test pit was hand logged and relatively undisturbed drive and disturbed grab and bulk samples were obtained where appropriate. After initial logging and sample collection, each test pit was extended further. During the additional excavation, the disturbed soil cuttings were sampled when visual changes were observed.

The test pits were excavated to depths ranging from 4 to 9 feet below the existing ground surface. An engineer with HGC observed and directed the test pit investigation, maintained a log of the subsurface soils encountered and collected relatively undisturbed drive and disturbed grab and bulk samples for laboratory testing. A description of the field exploration, the Logs of Test Pits, and a USCS chart are presented in Appendix A. The Logs of Test Pits are presented as Figures A2 through A43. A USCS soil classification chart is presented as Figure A1. The test pit locations and percolation test locations are presented on the Test Pit Location Plan, Figure 1.

3.2 Laboratory Testing

Laboratory tests were performed on relatively undisturbed drive and disturbed grab and bulk samples obtained during the field investigation. Laboratory tests were selected to verify field classifications and provide geotechnical parameters for use in design. Testing consisted of in-place dry density and moisture content, gradation, Atterberg limit, CBR and Proctor tests. The laboratory test methods and results are described and presented graphically in Appendix B and tabulated on the Logs of Test Pits in Appendix A, where applicable.

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3.3 Percolation Testing

A total of two percolation tests were performed within the proposed WWTP leach field area, one along its east end and one along its west end. The percolation tests were performed at a depth of 36 inches following the State of Hawaii Department of Health – Wastewater Branch testing method.

Approximately 1 inch of clean ¾-inch gravel was placed at the bottom of a 9-inch diameter, 36-inch-deep hand excavated hole. Step D of the procedure for other type (non-granular) soils was used to perform the percolation tests, as a 12 inch head of water did not seep away in under 10 minutes, twice. After a minimum of 4 hours of presoaking, maintaining a 12-inch head, the hole was allowed to swell for at least 12 hours. After swelling, water was then added to 6 inches above the gravel and allowed to percolate. The water drop was recorded every 30-minute time interval for 4 hours. The final drop used to calculate the percolation rates.

A senior engineer with HGC performed the percolation test and maintained a log of the time and water drop intervals. The percolation test result is presented in Appendix C.

END OF SUBSURFACE INVESTIGATION

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4. SUBSURFACE CONDITIONS

4.1 General

The site is generally blanketed by a layer of agriculturally disturbed soil underlain by alluvial (water deposited) soil to the maximum depth of our explorations. A detailed description of the underlying soils is presented below.

Map 104 of the August 1972 *United States Department of Agriculture Soil Conservation Service Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* indicates that the proposed site is within the (EaA) Ewa series. This series is characterized by well drained soils in basins and on alluvial fans on the islands of Maui and Oahu. These soils developed in alluvium derived from basic igneous rock. They are nearly level to moderately sloping. These soils are used for sugarcane, truck crops, and pasture. The depth to bedrock is deeper than 5 feet. The Unified Soil Classification is ML-MH.

4.2 Agriculturally Disturbed Soil

The site was recently used for the cultivation of cane sugar. The cultivation process left the entire site with approximately 12 to 30 inches of agriculturally disturbed soil. Roots and black irrigation plastic were encountered within the agriculturally disturbed soils to depths between 6 and 12 inches.

The agriculturally disturbed clayey silt consisted of low plasticity clayey silt with varying percentages of sand, typically classified as ML under the USCS. The clayey silt was generally soft and dry, with measured in-place dry densities ranging from 68 to 75 pounds per cubic foot (pcf) and measured in-place moisture contents ranging from 11 to 21 percent, with a single measured moisture content as high as 38 percent. Atterberg limit tests on the low plasticity agriculturally disturbed clayey silts indicated they possess low- to low-moderate plasticity, with Plasticity Index (PI) values ranging from 14 to 22.

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In addition to the agriculturally disturbed clayey silt, several areas of agriculturally disturbed silty sand, typically classified as SM under the USCS, were encountered across the site. The silty sand was encountered from the ground surface to depths of 12 to 24 inches. The silty sand was generally loose and dry, with measured in-place dry densities ranging from 93 to 101 pcf and measured in-place moisture contents ranging from 8 to 17 percent.

4.3 Alluvial Soil

Low plasticity alluvial orange-brown silts were encountered below the upper agriculturally disturbed clayey silts. The alluvial silts were encountered from a depth of 12 to 30 inches to the maximum depth of our explorations at 9 feet. The alluvial silts were typically classified as ML under the USCS. The silts were generally hard and damp to moist, with measured in-place dry densities ranging from 72 to 82 pcf and measured in-place moisture contents ranging from 12 to 33 percent. Atterberg limit tests on the low plasticity silts indicated they possess a low- to low-moderate plasticity, with Plasticity Index (PI) values ranging from 9 to 24. The alluvial silt along the WWTP region, in the area of the proposed leach field, possessed percolation rates ranging from of 5.9 minutes per inch (west) to 11.4 minutes per inch (east).

In addition to the alluvial silts, several areas of alluvial silty sand and silty gravel, typically classified as SM and GM under the USCS, respectively, were encountered across the site. The silty sand and silty gravel was encountered from depths of 6.0 to 7.5 feet to the maximum depth of our explorations at 9 feet. The silty sand and silty gravel was generally dense and damp to moist, with measured in-place moisture contents ranging from 10 to 27 percent.

4.4 Undocumented Fill

Limited areas of undocumented fill were encountered along the sites southwestern corner (Test Pit Nos. 22 and 25). The undocumented fill consisted

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of soft clayey silt and loose silty sand. The fill was encountered from the ground surface to depths of 1 foot. A 1.5-inch asphaltic pavement section was encountered below the undocumented fill in Test Pit No. 25.

The clayey silt fill is typically classified as ML under the USCS. The clayey silt was generally soft and dry, with a measured in-place dry density of 70 pcf and a measured moisture content of 14 percent. The silty sand fill is typically classified as SM under the USCS. The silty sand was generally loose and dry, with a measured in-place dry density of 93 pcf and a measured moisture content of 8 percent.

4.5 Groundwater Conditions

No free water or groundwater was encountered during our field investigation and is not expected to impact construction. Groundwater levels within the project areas may vary depending on seasonal rainfall and runoff conditions not apparent at the time of our field investigation. Therefore, groundwater levels may vary from those presented above at the time of construction.

END OF SUBSURFACE CONDITIONS

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5. DISCUSSION AND ANALYSIS

5.1 General

Based on the results of our field exploration, laboratory testing, and geotechnical analysis, we believe that it is geotechnically feasible to construct the proposed mixed-use project, provided the recommendations of this report are closely followed. The primary geotechnical concern regarding the proposed construction is the presence of soft and loose agriculturally disturbed soils across the site as well as the presence undocumented fill along the sites southwest corner. A more detailed discussion regarding these as well as other concerns is presented below.

5.2 Agriculturally Disturbed Soils

Between 12 and 30 inches of the sites upper soils have been agriculturally disturbed by the past sugar cane cultivation. The disturbed soils are generally soft or loose and dry, possessing the potential for future settlement if not remediated. The agriculturally disturbed soils will need to be removed down to within 12 inches of the bottom of the agriculturally disturbed soils within all fill areas, foundations or roadways. The final in-place 12 inches of agriculturally disturbed soils should be scarified and moisture conditioned in-place prior to being compacted to no less than 90 percent of the soils maximum dry density at a moisture content within 3 percent of its optimum moisture content in accordance with ASTM D1557.

The removed agriculturally disturbed soils can then be placed and compacted back to their original level or to finished grade. The recompacted agriculturally disturbed soils should be placed in accordance with Section 6.7.4 Engineered Fill.

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5.3 Undocumented Fill

Undocumented fill was encountered within Test Pit Nos. 22 and 25 at the sites southwest corner. The undocumented fill was encountered in a soft to loose state from the ground surface to a depth of 12 inches.

We recommend that the soils at the sites southwest corner be proof rolled in order to detect any additional undocumented fill, if it exists. We recommend that the proof rolling be performed with a minimum of a 12-ton vibratory smooth drum roller. The proof rolling should be observed by HGC personnel. All undocumented fill should be removed and recompacted in-place to no less than 90 percent of the soils maximum dry density at a moisture content within 3 percent of its optimum moisture content in accordance with ASTM D1557.

5.4 County School/Community Facility Site

We understand that the sites northwest corner may be developed into a grade school and community facility sometime in the future. The scope of our investigation did not include test pits within the school and community facility site. Based on the overall site's consistent subsurface conditions, we believe that the soils beneath the school and community facility will likely consist of an upper layer of agriculturally disturbed clayey silt underlain by alluvial silt.

These soil conditions are generally suitable for support of foundations and pavements for projects with similar scopes to the potential future school and community facility. We recommend that a full geotechnical investigation be performed at the school and community facility prior to its development.

END OF DISCUSSION AND ANALYSIS

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6. ENGINEERING RECOMMENDATIONS

6.1 General

Site grading design can be developed in accordance with the following recommendations. Unless stated otherwise, the maximum dry density (MDD) and optimum moisture content (OMC) of all engineered fill referenced within this report is based on Laboratory Test Method ASTM D1557.

6.2 Seismic Design Considerations

The following sections address what we believe to be the project's major seismic design considerations.

6.2.1 Ground Shaking

The proposed development is located in an area with some seismic activity and the proposed structures will likely be subjected to seismic shaking during their design life. The primary potential seismic hazard is ground shaking. We recommend that the proposed development be designed in accordance with the requirements of the latest (2018) edition of the International Building Code (IBC). According to Table 1613.52 of the 2018 IBC, the project site can be characterized by a Site Class of C.

6.2.2 Liquefaction

Liquefaction occurs in loose, saturated sands that are subjected to earthquake type motions. In sands where constant volume conditions are maintained during shaking (i.e., where no immediate drainage path exists), excess pore water pressures build quickly and as a result, soil strength is rapidly reduced and settlement occurs. Neither loose sands nor a shallow groundwater table underlie the site. Therefore no liquefaction-induced settlements are likely.

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6.2.3 Other Seismic Considerations

The site is not located within an Earthquake Fault Zone. Therefore the likelihood of the ground surface rupturing due to faulting is considered to be low. Based on the materials encountered and the existing and planned topographic conditions, we do not expect seismic slope instability to be a concern. Due to the site's elevation, we do not believe that tsunamis are a potential threat.

6.3 Foundations

The residential, commercial and industrial structures may be founded on shallow continuous strip or spread footings provided the recommendations for site preparation are followed. We recommend that all foundations founded in recompacted previously agriculturally disturbed clayey silt, native alluvial silt, or granular engineered fill be placed a minimum depth of 12 inches below the lowest adjacent grade for both interior and exterior footings. These embedment depths should provide bearing surfaces consisting of either fine grained clayey silt or coarse grained granular engineered fil.

For a shallow foundation system designed with the recommendations presented above, an allowable bearing pressure of 3,050 pounds per square foot (psf) may be used. This bearing value is for total dead plus sustained live loads and may be increased by one-third for transient loads such as wind or seismic. We estimate that total and differential settlements should be less than ½-inch for foundations designed as described above.

The bottom of all foundations should be cleaned of loose material and all uncompacted agriculturally disturbed soils should be compacted to no less than 90 percent of the soils MDD at a moisture content within 3 percent of its OMC. The subgrade soil should also be compacted to at least 90 percent of the materials MDD at a moisture content within 3 percent of its OMC. Footings located near adjacent slopes should be embedded such that a minimum

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horizontal distance of 5 feet is maintained between the footing's bottom edge and the exposed slope face.

Lateral resistance may be derived from passive resistance along the footing sides and friction along the footing bottoms. An allowable passive earth pressure of 250 psf per foot of depth may be used for footings founded in either compacted previously agriculturally disturbed soil, alluvial soil or engineered fill. We recommend that the lateral earth pressure of any footing be neglected for the upper 12-inches unless the surface around the footing is protected from erosion or disturbance by a slab, pavement, or some other form of confinement.

A coefficient of friction value of 0.45 may be used between the bottom of concrete footings and the underlying compacted previously agriculturally disturbed soil, alluvial soil or engineered fill. Sliding resistance should be calculated based on the dead load only.

6.4 Slab-on Grade Floors

Concrete slab-on-grade floors bearing on compacted previously agriculturally disturbed soil, alluvial soil or engineered fill can be used for the residential, commercial or industrial structures. If reducing the passage of water vapor through the slab is desired, we recommend that a vapor barrier be placed beneath the slab.

For exterior slabs and slabs designed as rigid pavements, the water vapor barrier can be replaced by 6 inches of Aggregate for Untreated Base (UTB). The UTB should conform to Section 703.06 of the 2005 Hawaii Standard Specifications for Road, Bridge, and Public Works Construction (Standard Specifications). The UTB should be compacted to at least 95 percent of its MDD.

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Lateral resistance may be derived from passive resistance along the footing sides and friction along the footing bottoms. An allowable passive earth pressure of 250 psf per foot of depth may be used for footings founded in either compacted previously agriculturally disturbed soil, alluvial soil or engineered fill. We recommend that the lateral earth pressure of any footing be neglected for the upper 12-inches unless the surface around the footing is protected from erosion or disturbance by a slab, pavement, or some other form of confinement.

A coefficient of friction value of 0.45 may be used between the bottom of concrete footings and the underlying compacted previously agriculturally disturbed soil, alluvial soil or engineered fill. Sliding resistance should be calculated based on the dead load only.

6.5 Retaining Walls

We understand that the yielding free-standing retaining walls may be used to support site grade changes across the site. We have assumed that site walls will be CMU or concrete within unknown heights, but likely with heights less than 6 feet. We have assumed that most wall backfill will be level onsite soil.

Unrestrained walls that are free to rotation at the top should be designed with active lateral earth pressures. For yielding CMU or concrete walls with level backfill, we recommend that an active lateral earth pressure equivalent to a fluid weighing **45 pcf** be used in design.

Lateral resistance may be derived from passive resistance along the wall footing sides and friction along the footing bottoms. An allowable passive earth pressure of 250 psf per foot of depth may be used for design. We recommend that the lateral earth pressure of any footing be neglected for the upper 12-inches unless the surface around the footing is protected from erosion or disturbance by a slab, pavement, or some other form of confinement.

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A coefficient of friction value of 0.45 may be used between the bottom of the concrete footings and the previously agriculturally disturbed soil, alluvial soil or engineered fill. Sliding resistance should be calculated based on the dead load only.

These pressures are given in terms of equivalent fluid pressure for unrestrained walls and do not include compaction-induced, surcharge, foundation, or hydrostatic loads, which must be added where appropriate.

Wall backfill should be placed and compacted in accordance with the engineered fill recommendations. Wall backfill compaction should not exceed 95 percent relative compaction to minimize lateral wall pressures. Heavy construction equipment should be maintained a distance of at least three feet away from the walls while the backfill soils are being placed. Hand operated compaction equipment should be used to compact the wall backfill within a three foot zone adjacent to the walls.

Adequate wall drainage should be provided.

6.6 Pavement Design

Detailed vehicular load and frequency information was not made available to us. We have assumed traffic within the proposed residential project will include passenger and light truck traffic while assumed traffic within the proposed commercial/industrial project will include passenger and light to heavy truck traffic.

6.6.1 Flexible Pavement

The sites upper agriculturally disturbed soils will likely be used for support of the sites pavements, including entranceways, driveways, parking lots and roadways. A California Bearing Ratio (CBR) test on the sites upper clayey silt soils indicate

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a CBR value of 18. Based on a CBR of 18, and the assumed traffic, we believe that a pavement section consisting of 2.5 inches of Asphaltic Concrete over 6.0 inches of UTB should be sufficient for the residential passenger and light truck traffic while a pavement section consisting of 3.0 inches of Asphaltic Concrete over 8.0 inches of UTB should be sufficient for the commercial/industrial passenger and light to heavy truck traffic.

The UTB should conform to Sections 703.06 of the 2005 Standard Specifications and should be compacted to at least 95 percent of the materials MDD at a moisture content between optimum and 3 percent wet of the soils OMC. All pavement subgrades should be sloped to drain. All pavement subgrades should be compacted to at least 90 percent of their MDD at a moisture content at least 2 percent wet of their OMC for a depth of at least 12 inches.

6.6.2 Rigid Pavement

Portland cement concrete pavements (PCCP) may be desirable at entry points and other locations where tight-turning heavy vehicles are expected. For residential usage, we recommend a 6-inch thick rigid concrete pavement over 6 inches of UTB. For commercial/industrial usage, we recommend a 6-inch thick rigid concrete pavement over 8 inches of UTB.

The UTB should conform to Section 703.06 of the Standard Specifications and should be compacted to at least 95 percent of the materials MDD. The subgrade should be compacted to at least 90 percent of its MDD at a moisture content within 3 percent of its OMC for a depth of at least 12 inches.

6.6.3 Construction Considerations

After completion of site grading, we recommend that the final subgrade soils be tested for their CBR value to confirm the values assumed in design. Modified

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pavement sections may be required if subgrade conditions vary from those assumed in design.

In the event unstable (pumping) subgrades are encountered within the planned pavement areas, we recommend that a heavy rubber tired vehicle (typically a loaded water truck) be used to test the load/deflection characteristics of the finished subgrade. If the tested surface shows a visible deflection, corrective measures should be implemented.

6.7 Construction Considerations

The following recommendations are provided for geotechnical earthwork design. All site preparation and earthwork operations should be performed in accordance with the Standard Specifications.

6.7.1 Stripping and Grubbing

Prior to commencement of site grading, the site should be cleared and grubbed to remove all organics, vegetation, and other deleterious materials in accordance with the Standard Specifications. We anticipate stripping and grubbing will include surface vegetation and the removal of all irrigation plastic. We believe the stripping and grubbing to depths of 6 inches will be required. Organic material should not be mixed with the underlying native soils that may be later used as fill or backfill. Material with organic matter in excess of about 4 percent should not be used as fill or backfill.

The stripping and grubbing work should include the removal or recompaction of all agriculturally disturbed soils that, in the judgment of the geotechnical engineer, is uncertified, compressible, collapsible, or contains significant voids. The voids caused by the removal of subsurface features, if encountered, must also be processed and backfilled in accordance with the recommendations presented in this report.

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6.7.2 Site Preparation

Based on our interpretation of the geotechnical subsurface profile, we anticipate that the soils exposed during construction will consist primarily of fine-grained clayey silts. All areas to receive fill should be stripped and grubbed to expose a firm, non-yielding subgrade, free of large voids, organics, and deleterious materials. The exposed subgrade soils should be moisture conditioned to within 3 percent of the soils OMC for a depth of at least 12 inches prior to being compacted to at least 90 percent of the soils MDD.

6.7.3 Excavation Characteristics

We anticipate that cuts of less than 3 feet may be required for mass grading with cuts of as much as 10 to 15 feet required for the installation of detention basins and buried utilities. We believe that conventional earth moving construction equipment should be capable of performing the anticipated excavations. Areas with limited excavation widths, such as utility trenches, may encountered boulders that may be difficult to remove without the assistance of some form of hard rock removal technique.

6.7.4 Engineered Fill

The onsite soils are generally suitable for use as engineered fill provided all organics and rocks or clods larger than 6 inches in diameter are removed and the fill is placed to within 3 percent of the soils OMC. If imported fill is required it should consist of coarse-grained material with a maximum particle size of 3 inches. Additionally, all imported fill should possess a PI less than 20 and should qualify as SW, SP, GP, GM or SM in accordance with the USCS.

All fill should be placed in successive horizontal lifts of not more than 12 inches in loose thickness for the full width of the area being filled. The fill should be moisture conditioned to within 3 percent the materials OMC prior to being compacted to at least 90 percent of its MDD.

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Ground surfaces to receive fill with slopes in excess of 5H:1V should be benched with a series of horizontal terraces prior to fill placement. The benches should extend through any disturbed slope materials into the native alluvial or alluvial soils.

6.8 Utilities

All utility installations should be performed in accordance with the Standard Specifications. The following recommendations are meant to supplement the Standard Specifications.

We recommend that the minimum excavated width for any utility trench be such that at least 14 inches of clearance exists between the edge of the utility pipe and the excavated trench sidewall prior to utility pipe placement. Insufficient space between the utility pipe and trench sidewall could lead to inadequate backfill compaction and potential pipe failure.

All utility backfills should be placed in horizontal lifts for the full width of the utility trench prior to compaction. In overwidened trenches, such as trenches excavated in hard rock, arching or shaping of the initial bedding lifts should not be allowed.

Shallow temporary utility trench excavations are anticipated for installation of the required utility lines. All vertical or steeply sided trench excavations deeper than 5 feet should be braced and shored in accordance with good construction practices and all applicable safety ordinances and codes.

6.9 Site Drainage

The ground surface should slope away from pavement areas, toward appropriate drop inlets or other surface drainage devices. These grades should be maintained for the life of the project.

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7. ADDITIONAL SERVICES

We recommend that a thorough review of the project plans and specifications be conducted before they are finalized to verify that our geotechnical recommendations have been properly interpreted and implemented during the design. If we are not accorded this review, we can assume no responsibility for misinterpretation of our recommendations. The review can be completed on a time-and-expense basis in accordance with our current Fee Schedule.

The construction process is an integral design component with respect to the geotechnical aspects of a project. Because geotechnical engineering is an inexact science due to the variability of natural processes and because we sample only a small portion of the soils affecting the performance of the proposed structures, unanticipated or changed conditions can be disclosed during grading. Proper geotechnical observation and testing during construction is imperative to allow the geotechnical engineer the opportunity to verify assumptions made during the design. Therefore, we recommend that Hawaii Geotechnical Consulting, Inc. be kept apprised of design modifications and construction schedules for the proposed development so that design changes can be made if subsurface field conditions warrant.

END OF ADDITIONAL SERVICES

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8. LIMITATIONS

This report has been prepared for the exclusive use of Ho'onani Development, LLC and their agents for specific application to the proposed Hoonani Village project in Kahului, Maui, Hawaii.

The findings, conclusions, and recommendations presented in this report were prepared in accordance with generally accepted geotechnical engineering practice as it exists in the site area at the time of our study. No warranty is expressed or implied. The recommendations provided in this report are based on the assumption that our firm will conduct an adequate program of tests and observations during the construction phase in order to evaluate compliance with our recommendations. If the scope of the proposed construction, including the proposed loads, grades, or structural locations change from that described in this report, our recommendations should also be reviewed. We have not reviewed a final grading or building plan for the project.

Hazardous materials may have been discovered during the course of Hawaii Geotechnical Consulting, Inc.'s services. Hawaii Geotechnical Consulting, Inc. will assume no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

Nothing contained in this scope of work should be construed or interpreted as requiring Hawaii Geotechnical Consulting, Inc. to assume the status of an owner, operator, generator, or person who arranges for disposal, transport, storage, or treatment of hazardous materials within the meaning of any governmental statute, regulation, or order.

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The client has the responsibility to see that all parties to the project, including the designer, contractor, subcontractor, etc., are made aware of this report in its entirety. This report contains information that may be useful in the preparation of contract specifications. However, the report is not designed as a specification document and may not contain sufficient information for this use without proper modification.

The recommendations contained in this report are based on our field observations and our present knowledge of the proposed construction. It is possible that soil conditions could vary between or beyond the areas observed. If soil conditions are encountered during construction which differ from those described herein, we should be notified immediately in order that a review may be made and any supplemental recommendations provided.

This report may be used only by the client and only for the purpose stated, within a reasonable time from its issuance. Land use, site conditions (both onsite and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Hawaii Geotechnical Consulting, Inc. of such intended use. Based on the intended use of this report, Hawaii Geotechnical Consulting, Inc. may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Hawaii Geotechnical Consulting, Inc. from any liability resulting from the use of this report by any unauthorized party.

END OF LIMITATIONS

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FIGURES

PROPOSED MASTER SITE PLAN

Kahului, Maui, Hawaii

HAWAII GEOTECHNICAL CONSULTING, INC.	
TEST PIT LOCATION PLAN	
HOONANI VILLAGE KAHULUI, MAUI, HAWAII	
24024.01	AUGUST 2024
FIGURE 1	

Concept Site Plan Study

Proposed Master Site Plan - **Option 10**

Architecture. Design. Relationships.

01

Scale 1"=300'
Job No. 2023-0690
Date 2024-06-17

APPENDIX A
Field Exploration

APPENDIX A
FIELD EXPLORATION

The subsurface exploration program for the Hoonani Village project included excavating and logging a total of 42 test pits. The test pits were excavated to depths ranging from 4 to 9 feet below the existing ground surface.

The Logs of Test Pits are presented as Figures A2 through A43. A USCS soil classification chart is presented as Figure A1. The Logs of Test Pits describe the materials encountered, samples obtained, and show field and laboratory tests performed. The logs also show the test pit number, excavation date, name of the logger and excavation subcontractor, and the groundwater level. A senior geotechnical engineer logged the materials encountered in accordance with the USCS. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual.

The test pits were excavated with a CAT 328D excavator equipped with a straight bar 4.5-foot-wide bucket. Each test pit was excavated to an initial depth of 4 to 5 feet below the existing ground surface, where possible. The cut face of each test pit was then hand logged and disturbed grab and bulk samples and relatively undisturbed drive samples were obtained where appropriate. After initial logging and sample collection, each excavatable test pit was extended further, where possible. During the additional excavation, the disturbed soil cuttings were observed and sampled when visual changes were observed.

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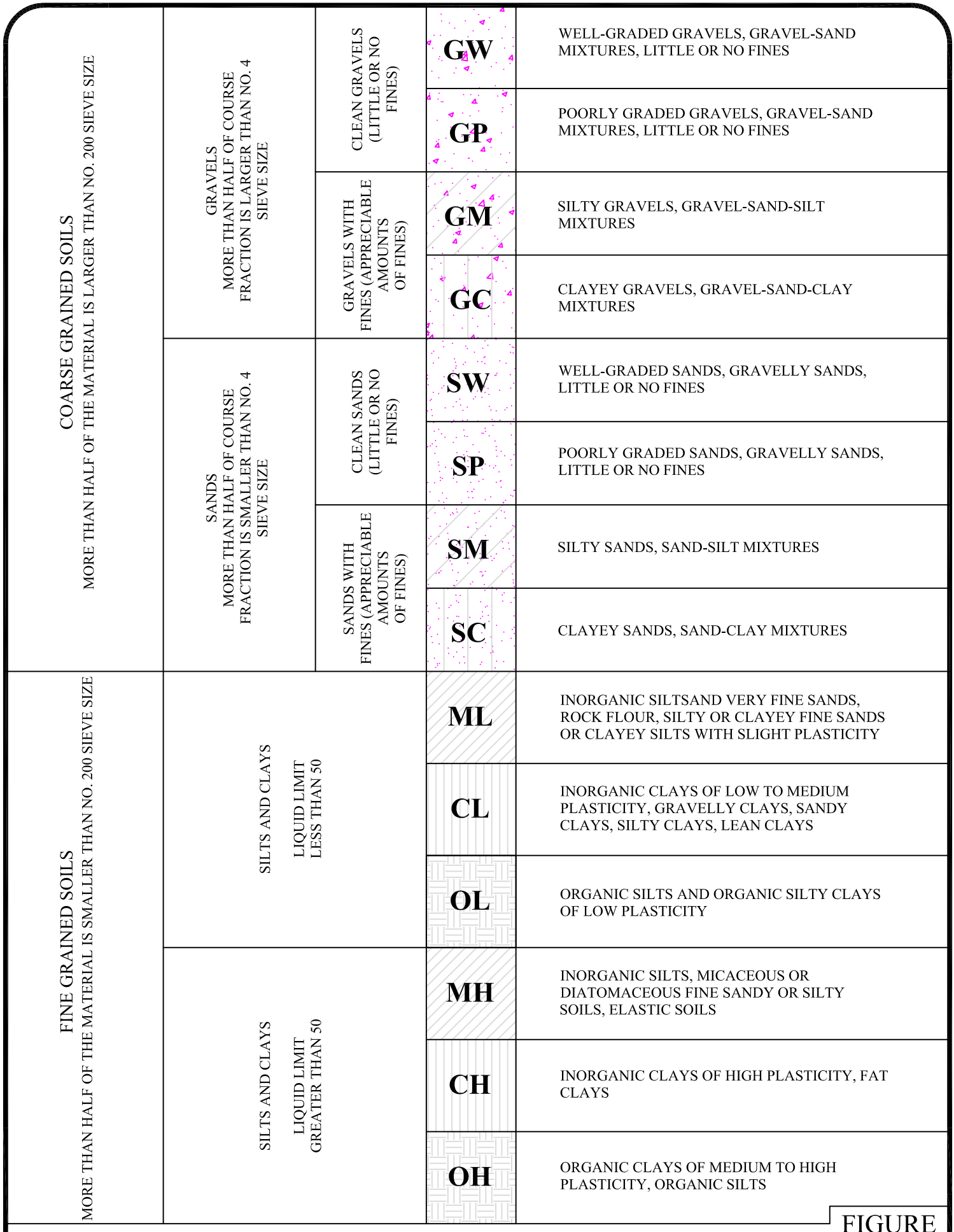

USCS SOIL CLASSIFICATION CHART

FIGURE
A1

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	70	13	Gravel = 0% Sand = 20% Silt/Clay = 80% LL = 46 PI = 18
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand and trace Gravel and Cobble	orange brown / gray	hard		4.00	78	16	Gravel = 1% Sand = 16% Silt/Clay = 83%
4			ALLUVIUM							
			Refusal on Cobbles and Boulders at 4.0 feet No free water observed Test pit backfilled with excavated materials							
5										
6										
7										
8										
9										
10										

Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/28/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 1

FIGURE
A2

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) and Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	71	17	Gravel = 0% Sand = 35% Silt/Clay = 65%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (MH) with Sand				4.00	80	21	Gravel = 0% Sand = 23% Silt/Clay = 77% LL = 57 PI = 24
4										
5	■	3	SILT (ML) with Sand	orange brown	hard	dry	4.00	81	21	Gravel = 0% Sand = 21% Silt/Clay = 79%
6										
7										
8	■	4	SILT (ML) with some Sand				--	--	22	Gravel = 0% Sand = 11% Silt/Clay = 89%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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DATE 06/28/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 2

FIGURE
A3

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	SILTY SAND (SM) (roots/irrigation plastic to 12-in.)	brown	loose	dry	1.00	101	17	Gravel = 0% Sand = 53% Silt/Clay = 47%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	78	18	Gravel = 0% Sand = 26% Silt/Clay = 74%
4										
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	16	Gravel = 0% Sand = 11% Silt/Clay = 89%
6										
7										
8		4	SILT (ML) with trace Sand				--	--	18	Gravel = 0% Sand = 8% Silt/Clay = 92%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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PROJECT NO. 24024.01
DATE 07/01/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 3

FIGURE
A4

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) and Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	75	15	Gravel = 0% Sand = 33% Silt/Clay = 67%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) and Sand				4.00	80	22	Gravel = 0% Sand = 32% Silt/Clay = 68%
4										
5	■	3	SILT (ML) with Gravel and some Sand	orange brown	hard	dry	--	79	17	Gravel = 24% Sand = 14% Silt/Clay = 62%
6										
7										
8	■	4	SILT (ML) with some Sand and trace Gravel				--	--	21	Gravel = 2% Sand = 17% Silt/Clay = 81%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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PROJECT NO. 24024.01
DATE 06/28/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 4

FIGURE
A5

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	70	14	Gravel = 0% Sand = 19% Silt/Clay = 81%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with trace Sand				4.00	80	19	Gravel = 0% Sand = 26% Silt/Clay = 74%
4										
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	20	Gravel = 0% Sand = 65% Silt/Clay = 35%
6										
7										
8		4	SILT (ML) with some Sand				--	--	20	Gravel = 0% Sand = 37% Silt/Clay = 63%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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PROJECT NO. 24024.01
DATE 06/28/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 5

FIGURE
A6

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	74	16	Gravel = 0% Sand = 14% Silt/Clay = 86%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	27	Gravel = 0% Sand = 11% Silt/Clay = 89%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	25	Gravel = 0% Sand = 12% Silt/Clay = 88%
6										
7										
8	■	4	SILT (ML) with some Sand				--	--	22	Gravel = 0% Sand = 13% Silt/Clay = 87%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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PROJECT NO. 24024.01
DATE 07/01/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 6

FIGURE
A7

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	70	16	Gravel = 0% Sand = 17% Silt/Clay = 83% LL = 53 PI = 22
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	76	24	Gravel = 0% Sand = 12% Silt/Clay = 88%
4										
5	■	3	SILT (ML) with Sand	orange brown	hard	dry	4.00	--	26	Gravel = 0% Sand = 23% Silt/Clay = 77%
6										
7										
8	■	4	SILT (ML) with some Sand				--	--	21	Gravel = 0% Sand = 11% Silt/Clay = 89%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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DATE 07/01/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 7

FIGURE
A8

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample; Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	72	15	Gravel = 0% Sand = 11% Silt/Clay = 89%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with trace Sand				4.00	80	25	Gravel = 0% Sand = 0% Silt/Clay = 100%
4										
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	82	21	Gravel = 0% Sand = 4% Silt/Clay = 96%
6										
7										
8		4	SILT (ML) with some Sand				--	--	25	Gravel = 0% Sand = 7% Silt/Clay = 93%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 8

FIGURE
A9

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand and trace Gravel (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	72	18	Gravel = 4% Sand = 24% Silt/Clay = 72% LL = 43 PI = 17
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	81	22	Gravel = 0% Sand = 19% Silt/Clay = 81%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	79	20	Gravel = 0% Sand = 12% Silt/Clay = 88%
6										
7										
8	■	4	SILT (ML) and Sand				--	--	18	Gravel = 0% Sand = 46% Silt/Clay = 54%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 9

FIGURE
A10

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand and with Gravel (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	73	15	Gravel = 22% Sand = 23% Silt/Clay = 55% LL = 45 PI = 15
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) and Sand				4.00	79	25	Gravel = 0% Sand = 37% Silt/Clay = 63% LL = 44 PI = 13
4										
5	■	3	SILT (ML) with Sand	orange brown	hard	dry	4.00	--	20	Gravel = 2% Sand = 22% Silt/Clay = 76%
6										
7										
8	■	4	SILT (ML) with Sand				--	--	20	Gravel = 0% Sand = 27% Silt/Clay = 73%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 10

FIGURE
A11

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	73	21	Gravel = 0% Sand = 14% Silt/Clay = 86% LL = 40 PI = 17
			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) and Sand				4.00	77	20	Gravel = 0% Sand = 35% Silt/Clay = 65%
5		3	SILT (ML) and Sand	orange brown	hard	dry	4.00	--	19	Gravel = 0% Sand = 45% Silt/Clay = 55%
8		4	SILT (ML) and Sand				--	--	19	Gravel = 0% Sand = 30% Silt/Clay = 70%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 11

FIGURE
A12

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	--	16	Gravel = 0% Sand = 23% Silt/Clay = 77%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	79	21	Gravel = 0% Sand = 22% Silt/Clay = 78%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	22	Gravel = 0% Sand = 21% Silt/Clay = 79%
8		4	SILT (ML) and Sand				--	--	19	Gravel = 10% Sand = 31% Silt/Clay = 59%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 12

FIGURE
A13

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	70	16	Gravel = 0% Sand = 12% Silt/Clay = 88%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with Sand				4.00	79	19	Gravel = 0-% Sand = 22% Silt/Clay = 78%
4										
5	■	3	SILT (ML) with Sand	orange brown	hard	damp	4.00	81	20	Gravel = 0% Sand = 20% Silt/Clay = 80%
6										
7										
8	■	4	SILT (ML) and Sand				--	--	22	Gravel = 0% Sand = 48% Silt/Clay = 52%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 13

FIGURE
A14

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	71	17	Gravel = 0% Sand = 20% Silt/Clay = 80% LL = 48 PI = 19
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	79	22	Gravel = 0% Sand = 21% Silt/Clay = 79%
5		3	SILT (ML) with some Sand	orange brown	hard	damp	4.00	79	19	Gravel = 0% Sand = 17% Silt/Clay = 83%
8		4	SILT (ML) and Sand				--	--	18	Gravel = 0% Sand = 35% Silt/Clay = 65%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 14

FIGURE
A15

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) and Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	73	15	Gravel = 0% Sand = 34% Silt/Clay = 66%
			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	77	17	Gravel = 0% Sand = 26% Silt/Clay = 74%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	18	Gravel = 0% Sand = 25% Silt/Clay = 75% LL = 37 PI = 12
8		4	SILT (ML) and Sand				--	--	18	Gravel = 0% Sand = 40% Silt/Clay = 60%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 15

FIGURE
A16

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	69	12	Gravel = 7% Sand = 21% Silt/Clay = 72% LL = 41 PI = 16
			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with trace Sand				4.00	79	18	Gravel = 0% Sand = 9% Silt/Clay = 91%
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	17	Gravel = 0% Sand = 10% Silt/Clay = 90%
8		4	SILT (ML) with some Sand				--	--	18	Gravel = 0% Sand = 15% Silt/Clay = 85%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 16

FIGURE
A17

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	71	17	Gravel = 0% Sand = 22% Silt/Clay = 78%
3	■	2	AGRICULTURALLY DISTURBED SILT (ML) with some Sand				4.00	79	20	Gravel = 0% Sand = 12% Silt/Clay = 88%
5	■	3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 27% Silt/Clay = 73%
8	■	4	SILT (ML) with some Sand ALLUVIUM				--	--	19	Gravel = 0% Sand = 16% Silt/Clay = 84%
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 17

FIGURE
A18

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand and trace Gravel (roots to 30-in.)	brown	soft	dry	1.25	70	17	Gravel = 2% Sand = 27% Silt/Clay = 70%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	77	19	Gravel = 0% Sand = 12% Silt/Clay = 88%
4			with Cobble from 4.0 ft.							
5	■	3	SILT (ML) with some Sand and, with Cobble and trace Boulders	orange brown	hard	dry	4.00	--	20	Gravel = 0% Sand = 11% Silt/Clay = 89%
6										
7										
8	■	4	SILT (ML) with some Sand				--	--	20	Gravel = 0% Sand = 12% Silt/Clay = 88%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 18

FIGURE
A19

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	74	11	Gravel = 0% Sand = 12% Silt/Clay = 88%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	79	18	Gravel = 0% Sand = 23% Silt/Clay = 77%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 20% Silt/Clay = 80%
8		4	SILT (ML) with Sand				--	--	21	Gravel = 0% Sand = 22% Silt/Clay = 78%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 19

FIGURE
A20

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	A	1	CLAYEY SILT (ML) with some Sand and trace Gravel (irrigation plastic to 6-in.)	brown	soft	dry	1.00	71	18	Gravel = 1% Sand = 15% Silt/Clay = 84% CBR = 18 Swell = 0.3% Proctor: 96 pcf @ 29
3			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand				4.00	80	19	Gravel = 0% Sand = 22% Silt/Clay = 78%
5		3	SILT (ML) with Sand	orange brown	hard	dry	4.00	79	17	Gravel = 0% Sand = 20% Silt/Clay = 80%
8		4	SILT (ML) with Sand				--	--	19	Gravel = 0% Sand = 20% Silt/Clay = 80%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 20

FIGURE
A21

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with trace Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	71	20	Gravel = 0% Sand = 4% Silt/Clay = 96%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	77	18	Gravel = 0% Sand = 18% Silt/Clay = 82%
5		3	SILT (ML) with some Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 19% Silt/Clay = 81%
8		4	SILT (ML) with some Sand				--	--	18	Gravel = 0% Sand = 15% Silt/Clay = 85%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 21

FIGURE
A22

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0										
1		1	SILTY SAND (SM) with some Gravel (roots to 6-in.) FILL	brown	loose	dry	--	93	8	Gravel = 17% Sand = 53% Silt/Clay = 30%
2										
3		2	SILT (ML) with Sand				4.00	80	17	Gravel = 0% Sand = 25% Silt/Clay = 75%
4										
5		3	SILT (ML) and Sand	orange brown	hard	damp	4.00	77	18	Gravel = 0% Sand = 32% Silt/Clay = 68%
6										
7										
8		4	SILT (ML) and Sand				--	--	18	Gravel = 0% Sand = 32% Silt/Clay = 68%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 22

FIGURE
A23

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand	brown	soft	dry	1.25	70	17	Gravel = 0% Sand = 20% Silt/Clay = 80% LL = 47 PI = 16
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) and Sand				4.00	78	18	Gravel = 0% Sand = 42% Silt/Clay = 58%
4										
5		3	SILT (ML) with Sand	orange brown	hard	dry	4.00	--	19	Gravel = 0% Sand = 27% Silt/Clay = 73%
6										
7										
8		4	SILT (ML) with Sand				--	--	18	Gravel = 0% Sand = 28% Silt/Clay = 72%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 23

FIGURE
A24

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0										
1		1	CLAYEY SILT (ML) with Sand and trace gravel (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	71	18	Gravel = 4% Sand = 24% Silt/Clay = 72%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) and Sand			moist	4.00	79	25	Gravel = 0% Sand = 34% Silt/Clay = 66%
4					hard					
5		3	SILT (ML) with Sand and some Gravel	orange brown			4.00	--	20	Gravel = 17% Sand = 29% Silt/Clay = 54%
6			ALLUVIUM			damp				
7					dense					
8		4	SILTY SAND (SM) with some Gravel				--	--	20	Gravel = 16% Sand = 50% Silt/Clay = 34%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 24

FIGURE
A25

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots to 6-in.) FILL 1.5-in. Asphaltic Pavement	brown	soft	dry	1.00	70	14	Gravel = 0% Sand = 14% Silt/Clay = 86%
3		2	SILT (ML) with Sand				4.00	79	19	Gravel = 0% Sand = 21% Silt/Clay = 79%
5		3	SILT (ML) and Sand	orange brown	hard	dry	4.00	79	23	Gravel = 0% Sand = 49% Silt/Clay = 51%
8		4	SILT (ML) and Sand ALLUVIUM				--	--	21	Gravel = 0% Sand = 44% Silt/Clay = 56% LL = 37 PI = 9
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 25

FIGURE
A26

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	70	20	Gravel = 0% Sand = 11% Silt/Clay = 89%
3			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	77	21	Gravel = 0% Sand = 16% Silt/Clay = 84%
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	79	19	Gravel = 0% Sand = 17% Silt/Clay = 83%
8	■	4	SILT (ML) with some Sand				--	--	21	Gravel = 0% Sand = 14% Silt/Clay = 86%
9			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 26

FIGURE
A27

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample; Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots to 1.5 ft. and irrigation plastic to 0.5-ft.)	brown	soft	dry	1.25	71	18	Gravel = 0% Sand = 14% Silt/Clay = 86%
3			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with trace Sand				4.00	72	21	Gravel = 0% Sand = 1% Silt/Clay = 99% LL = 37 PI = 10
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	19	Gravel = 0% Sand = 14% Silt/Clay = 86%
8		4	SILT (ML) and Sand with some Gravel				--	--	17	Gravel = 15% Sand = 35% Silt/Clay = 51%
9			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 27

FIGURE
A28

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots to 1.5 ft. and irrigation plastic to 0.5-ft.)	brown	soft	dry	1.00	70	19	Gravel = 0% Sand = 10% Silt/Clay = 90% LL = 46 PI = 16
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	17	Gravel = 0% Sand = 19% Silt/Clay = 81%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 15% Silt/Clay = 85%
6										
7										
8	■	4	SILT (ML) with some Sand and trace Boulders				--	--	19	Gravel = 0% Sand = 15% Silt/Clay = 85% LL = 37 PI = 9
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 28

FIGURE
A29

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 24-in.)	brown	soft	dry	1.25	73	17	Gravel = 0% Sand = 22% Silt/Clay = 78%
3			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	78	17	Gravel = 0% Sand = 11% Silt/Clay = 89%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	19	Gravel = 0% Sand = 27% Silt/Clay = 73%
8		4	SILT (ML) with Sand				--	--	20	Gravel = 0% Sand = 22% Silt/Clay = 78%
9			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

Hawaii Geotechnical Consulting, Inc.

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 29

FIGURE
A30

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	71	18	Gravel = 0% Sand = 2% Silt/Clay = 98%
3			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	22	Gravel = 0% Sand = 13% Silt/Clay = 87%
5	■	3	SILT (ML) with Sand	orange brown	hard	damp	4.00	80	22	Gravel = 0% Sand = 20% Silt/Clay = 80%
8	■	4	SILT (ML) with some Sand				--	--	22	Gravel = 0% Sand = 14% Silt/Clay = 86%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 30

FIGURE
A31

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.00	73	15	Gravel = 0% Sand = 17% Silt/Clay = 83% LL = 48 PI = 16
			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	80	21	Gravel = 0% Sand = 11% Silt/Clay = 89%
5		3	SILT (ML) with Sand	orange brown	hard	damp	4.00	--	20	Gravel = 0% Sand = 25% Silt/Clay = 75%
8		4	SILT (ML) and Sand				--	--	21	Gravel = 0% Sand = 34% Silt/Clay = 66%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 31

FIGURE
A32

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	68	14	Gravel = 0% Sand = 15% Silt/Clay = 85%
1			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	21	Gravel = 0% Sand = 15% Silt/Clay = 85%
5	■	3	SILT (ML) with some Sand	orange brown	hard	damp	4.00	77	19	Gravel = 0% Sand = 17% Silt/Clay = 83%
8	■	4	SILT (ML) with some Sand				--	--	19	Gravel = 0% Sand = 18% Silt/Clay = 82%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 32

FIGURE
A33

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample; Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	moist	1.25	70	38	Gravel = 0% Sand = 20% Silt/Clay = 80%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with somee Sand				4.00	80	24	Gravel = 0% Sand = 15% Silt/Clay = 85%
4					hard					
5		3	SILT (ML) and Sand	orange brown		moist	4.00	--	32	Gravel = 0% Sand = 36% Silt/Clay = 64%
6										
7			ALLUVIUM							
8		4	SILTY SAND (SM)		dense		--	--	27	Gravel = 0% Sand = 59% Silt/Clay = 41%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 33

FIGURE
A34

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.25	70	17	Gravel = 0% Sand = 23% Silt/Clay = 77%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with trace Sand				4.00	79	19	Gravel = 0% Sand = 29% Silt/Clay = 71%
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	81	18	Gravel = 0% Sand = 40% Silt/Clay = 60%
8		4	SILT (ML) with some Sand				--	--	18	Gravel = 0% Sand = 23% Silt/Clay = 77%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 34

FIGURE
A35

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 18-in.)	brown	soft	dry	1.25	73	15	Gravel = 0% Sand = 18% Silt/Clay = 82% LL = 46 PI = 15
			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	79	19	Gravel = 0% Sand = 18% Silt/Clay = 82%
5	■	3	SILT (ML) and Sand	orange brown	hard	dry	4.00	--	19	Gravel = 0% Sand = 37% Silt/Clay = 63%
8	■	4	SILT (ML) with some Sand and trace Boulders				--	--	24	Gravel = 0% Sand = 14% Silt/Clay = 86%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 35

FIGURE
A36

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	70	14	Gravel = 0% Sand = 26% Silt/Clay = 74% LL = 47 PI = 16
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand			damp	4.00	79	20	Gravel = 0% Sand = 17% Silt/Clay = 83%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard		4.00	79	24	Gravel = 0% Sand = 10% Silt/Clay = 90%
6						moist				
7										
8	■	4	SILT (ML) and Sand				--	--	33	Gravel = 0% Sand = 36% Silt/Clay = 64%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 36

FIGURE
A37

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.00	72	14	Gravel = 0% Sand = 17% Silt/Clay = 83%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	80	21	Gravel = 0% Sand = 14% Silt/Clay = 86%
4										
5		3	SILT (ML) with Sand	orange brown	hard	dry	4.00	--	30	Gravel = 0% Sand = 29% Silt/Clay = 71%
6										
7										
8		4	SILT (ML) with some Sand				--	--	20	Gravel = 0% Sand = 13% Silt/Clay = 87%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 37

FIGURE
A38

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1		1	CLAYEY SILT (ML) with Sand (roots/irrigation plastic to 12-in.)	brown	soft	dry	1.00	71	17	Gravel = 0% Sand = 24% Silt/Clay = 76% LL = 43 PI = 14
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with some Sand				4.00	80	19	Gravel = 0% Sand = 15% Silt/Clay = 85%
4										
5		3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	22	Gravel = 0% Sand = 14% Silt/Clay = 86%
6										
7										
8		4	SILT (ML) with some Sand				--	--	29	Gravel = 0% Sand = 15% Silt/Clay = 85%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 38

FIGURE
A39

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	--	17	Gravel = 0% Sand = 13% Silt/Clay = 87%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with somee Sand				4.00	80	20	Gravel = 0% Sand = 11% Silt/Clay = 89%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	23	Gravel = 0% Sand = 11% Silt/Clay = 89%
6										
7										
8	■	4	SILT (ML) and Sand				--	--	27	Gravel = 0% Sand = 34% Silt/Clay = 66%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 39

FIGURE
A40

Date Completed:	06/21/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	☒ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	70	14	Gravel = 0% Sand = 18% Silt/Clay = 82%
2			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with some Sand				4.00	--	12	Gravel = 0% Sand = 13% Silt/Clay = 87%
4										
5	■	3	SILT (ML) with some Sand	orange brown	hard	moist	4.00	80	23	Gravel = 0% Sand = 11% Silt/Clay = 89%
6										
7										
8	■	4	SILT (ML) and Sand				--	--	31	Gravel = 0% Sand = 30% Silt/Clay = 70%
9			ALLUVIUM							
			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 40

FIGURE
A41

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	⊠ Bulk Sample ■ Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
1	■	1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	dry	1.25	73	12	Gravel = 7% Sand = 21% Silt/Clay = 72%
			AGRICULTURALLY DISTURBED							
3	■	2	SILT (ML) with trace Sand				4.00	79	18	Gravel = 0% Sand = 9% Silt/Clay = 91%
5	■	3	SILT (ML) with some Sand	orange brown	hard	dry	4.00	--	17	Gravel = 0% Sand = 10% Silt/Clay = 90%
8	■	4	SILT (ML) with some Sand				--	--	18	Gravel = 0% Sand = 15% Silt/Clay = 85%
			ALLUVIUM							
9			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							
10										

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HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 41

FIGURE
A42

Date Completed:	06/20/2024	Water Depth:	Not Encountered
Drilled By:	Alpha Construction	Elevation:	--
Drilling Method:	Excavator	Location:	--
Logged By:	R.M. Gibbens, P.E.	Symbols:	Bulk Sample / Drive/Grab Sample

Depth (feet)	Sample Type	Sample No.	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Color	Consistency	Moisture	Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0										
1		1	CLAYEY SILT (ML) with some Sand (roots/irrigation plastic to 6-in.)	brown	soft	damp	1.00	72	19	Gravel = 0% Sand = 16% Silt/Clay = 84%
2			AGRICULTURALLY DISTURBED							
3		2	SILT (ML) with Sand		hard		4.00	80	20	Gravel = 0% Sand = 29% Silt/Clay = 71%
4										
5		3	SILT (ML) and Sand with trace Cobble	orange brown			4.00	--	19	Gravel = 0% Sand = 35% Silt/Clay = 65%
6			ALLUVIUM							
7					dense					
8		4	SILTY GRAVEL (GM) with some Sand and some Cobble				--	--	10	Gravel = 70% Sand = 18% Silt/Clay = 12%
9			ALLUVIUM							
10			Bottom of Excavation at 9.0 feet No free water observed Test pit backfilled with excavated materials							

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KAHULUI, MAUI, HAWAII

LOG OF TEST PIT 42

FIGURE
A43

APPENDIX B
Laboratory Testing

APPENDIX B
LABORATORY TESTING

Laboratory tests were performed on selected grab, bulk, and drive samples to estimate their pertinent engineering characteristics. Testing was performed in accordance with ASTM Standards for Soil Testing, latest revision.

MOISTURE CONTENT AND DRY DENSITY

Natural moisture content and dry density tests were performed on multiple samples in accordance with ASTM D2216 and D2937, respectively. The results of these tests are presented on the Logs of Test Pits in Appendix A.

PLASTICITY

Atterberg limits tests were performed in accordance with ASTM D4318. The results of the tests are presented on the Logs of Test Pits in Appendix A and graphically in Appendix B.

GRAIN SIZE

Grain size analyses were performed on select samples in accordance with ASTM D2487. The results are presented on the Logs of Test Pits in Appendix A.

CALIFORNIA BEARING RATIO (CBR)

Two CBR tests were performed on a representative sample of the site's predominant near surface soils in accordance with ASTM D1883. The result is presented graphically in Appendix B and presented on the Logs of Test Pits in Appendix A.

COMPACTION

The optimum moisture content and maximum dry density of a soil sample was determined in accordance with ASTM D1557. The result is presented graphically in Appendix B and presented on the Logs of Test Pits in Appendix A.

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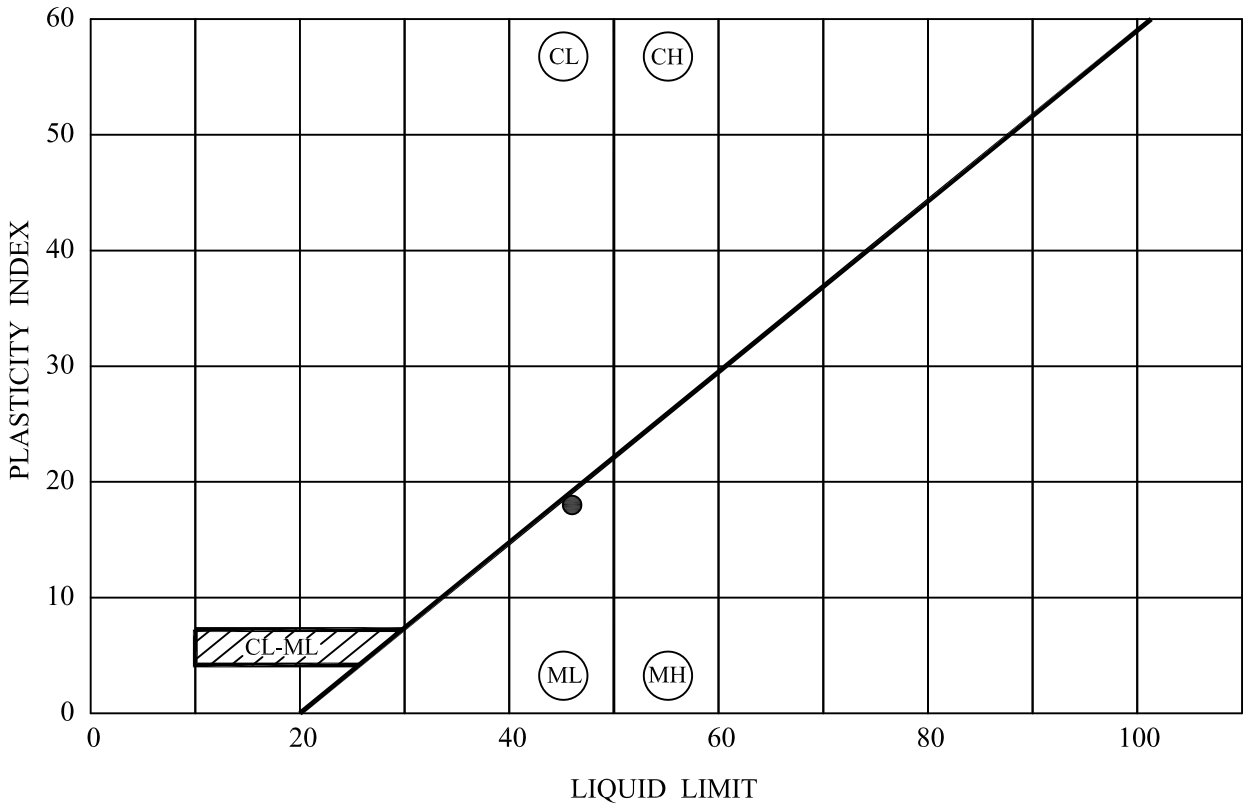

Sample ID	Depth (ft)	LL	PL	PI	Classification
● 1-1	1.0	46	28	18	Brown Clayey SILT (ML) with Sand

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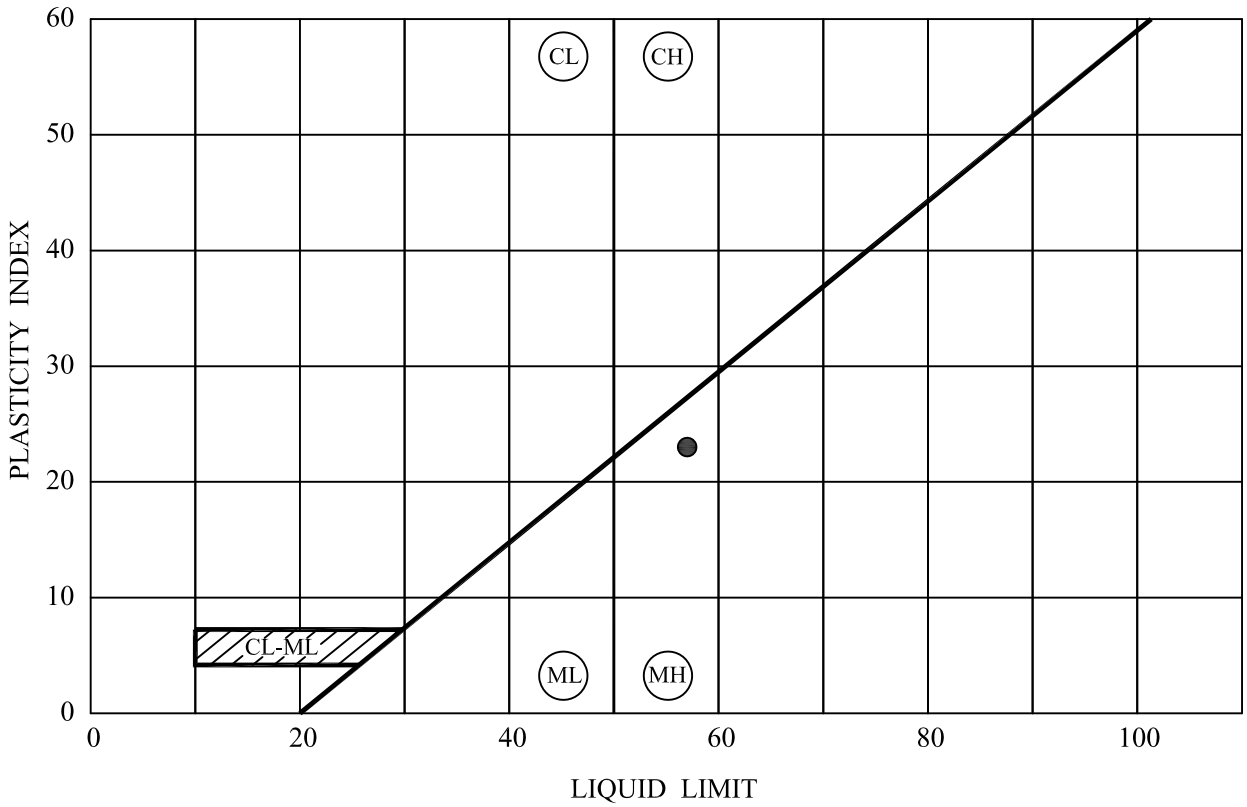
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B1



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	2-2	3.0	57	34	23	Orange Brown SILT (MH) with Sand

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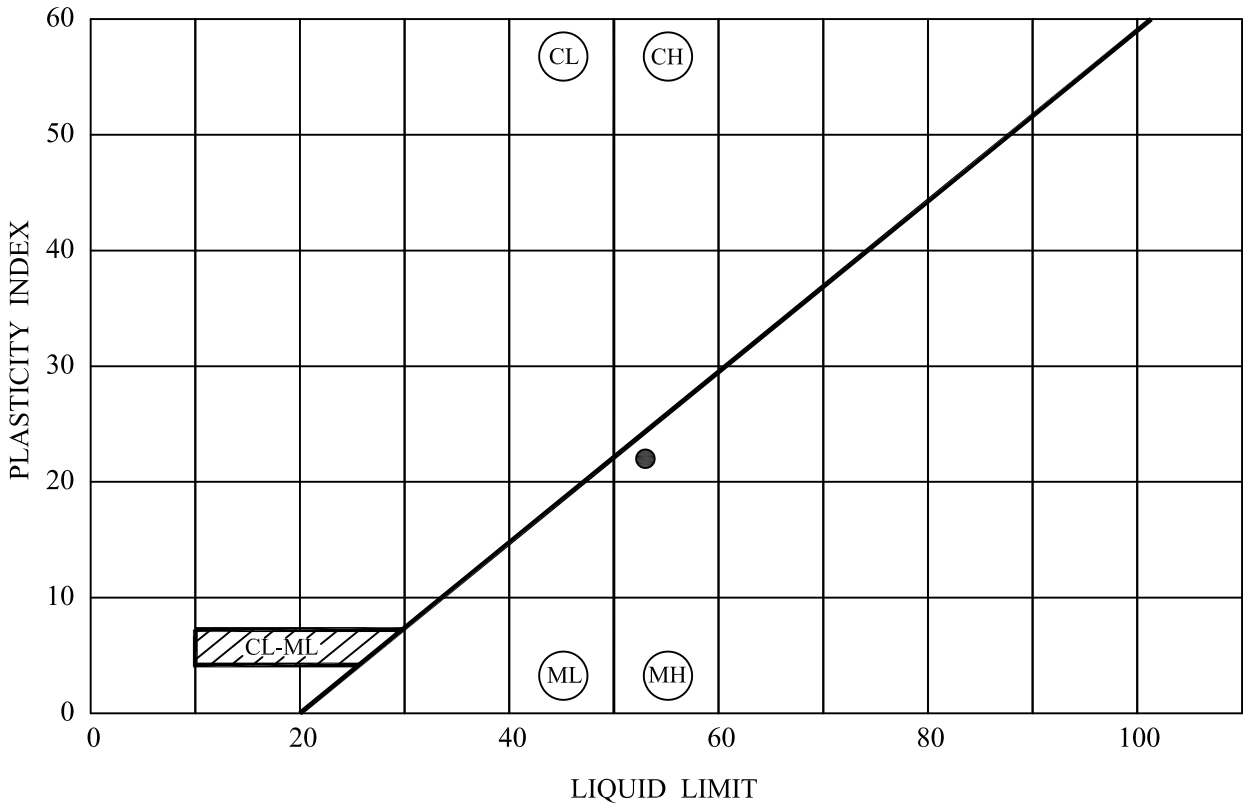
PLASTICITY INDEX

FIGURE
B2



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	7-1	1.0	53	31	22	Brown Clayey SILT (MH) with some Sand

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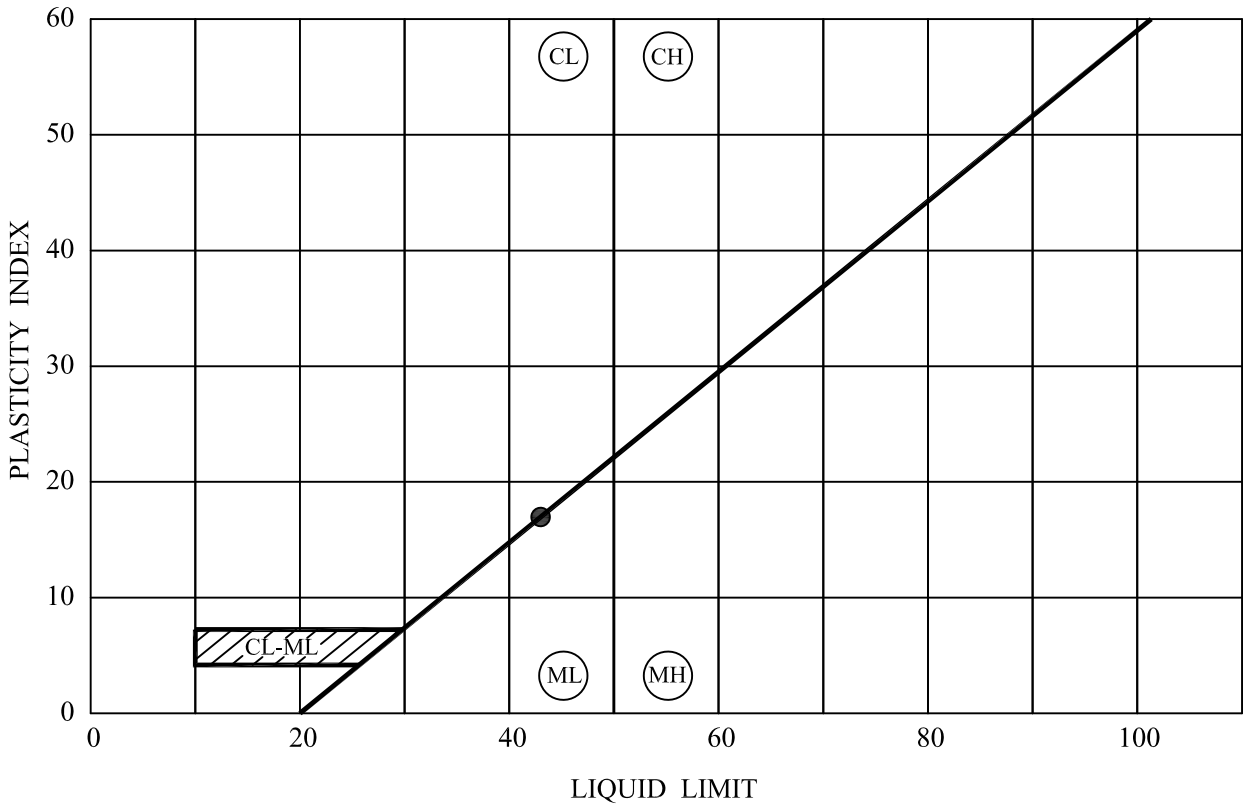
PLASTICITY INDEX

FIGURE
B3



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	9-1	1.0	43	26	17	Brown Clayey SILT (ML) with Sand and trace Gravel

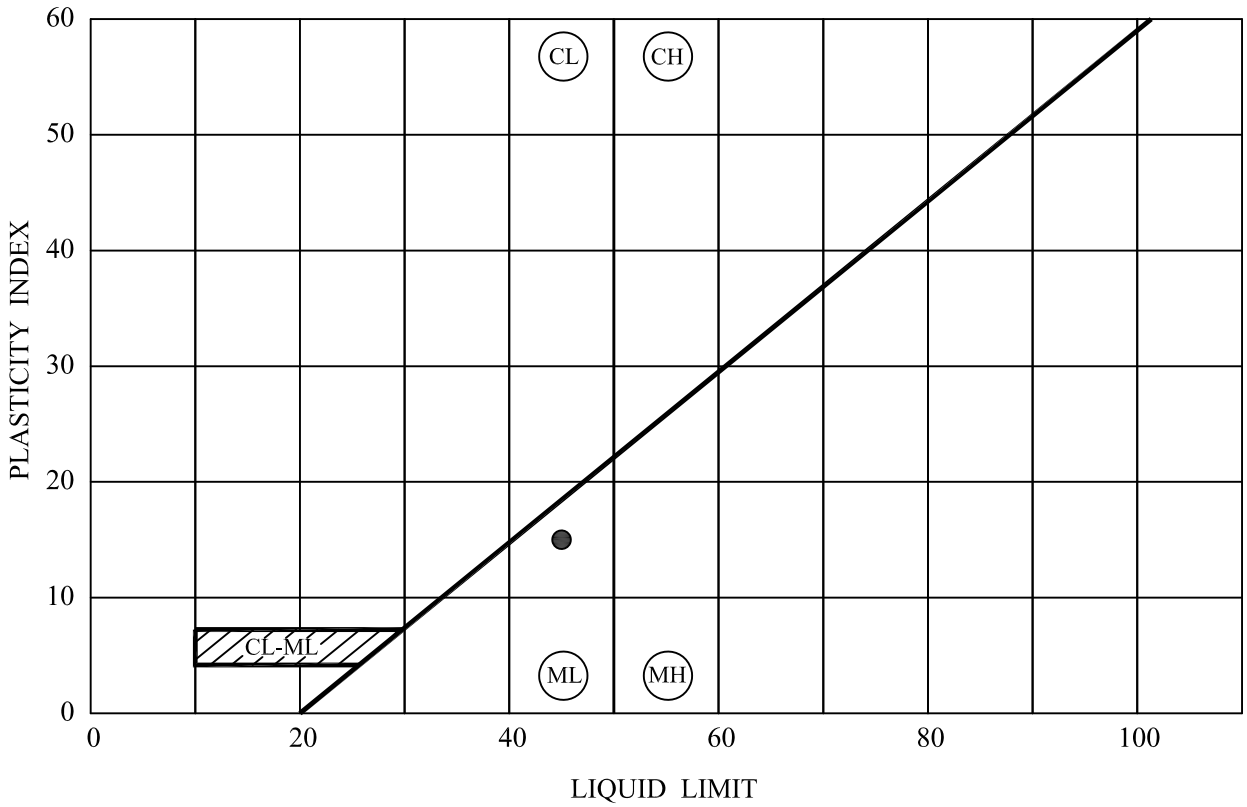
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B4



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 10-1	1.0	45	30	15	Brown CLAYEY SILT (ML) with Sand and with Gravel

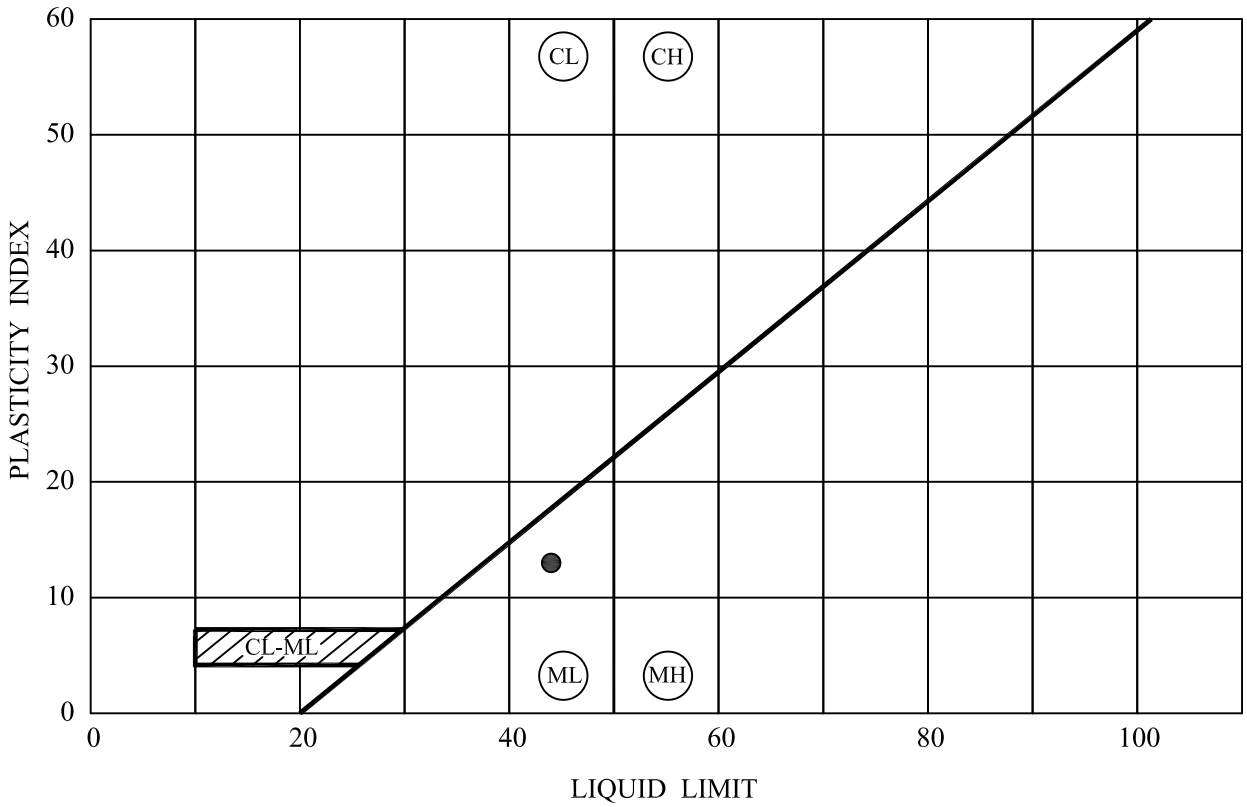
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/24/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B5



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 10-2	3.0	44	31	13	Orange Brown SILT (ML) and Sand

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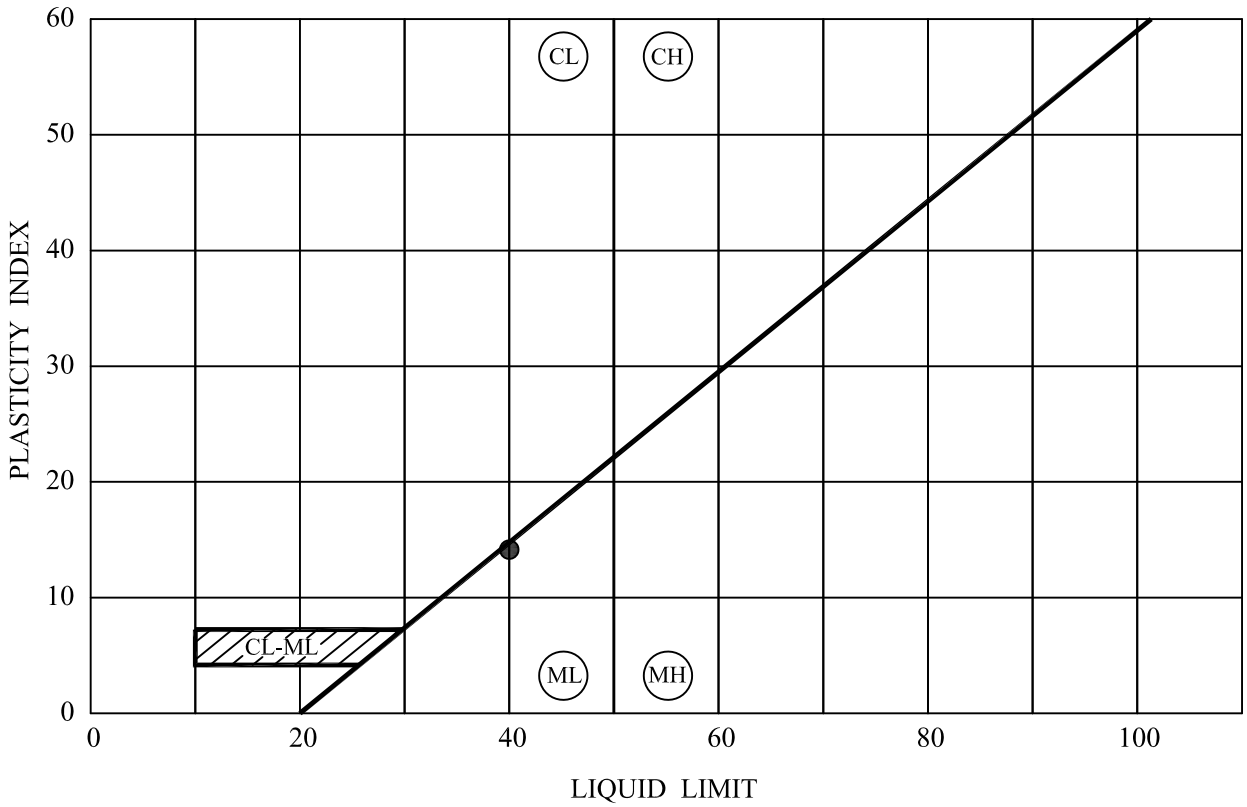
PROJECT NO. 24024.01
DATE 07/24/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B6



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	11-1	1.0	40	26	14	Brown Clayey SILT (MH) with some Sand

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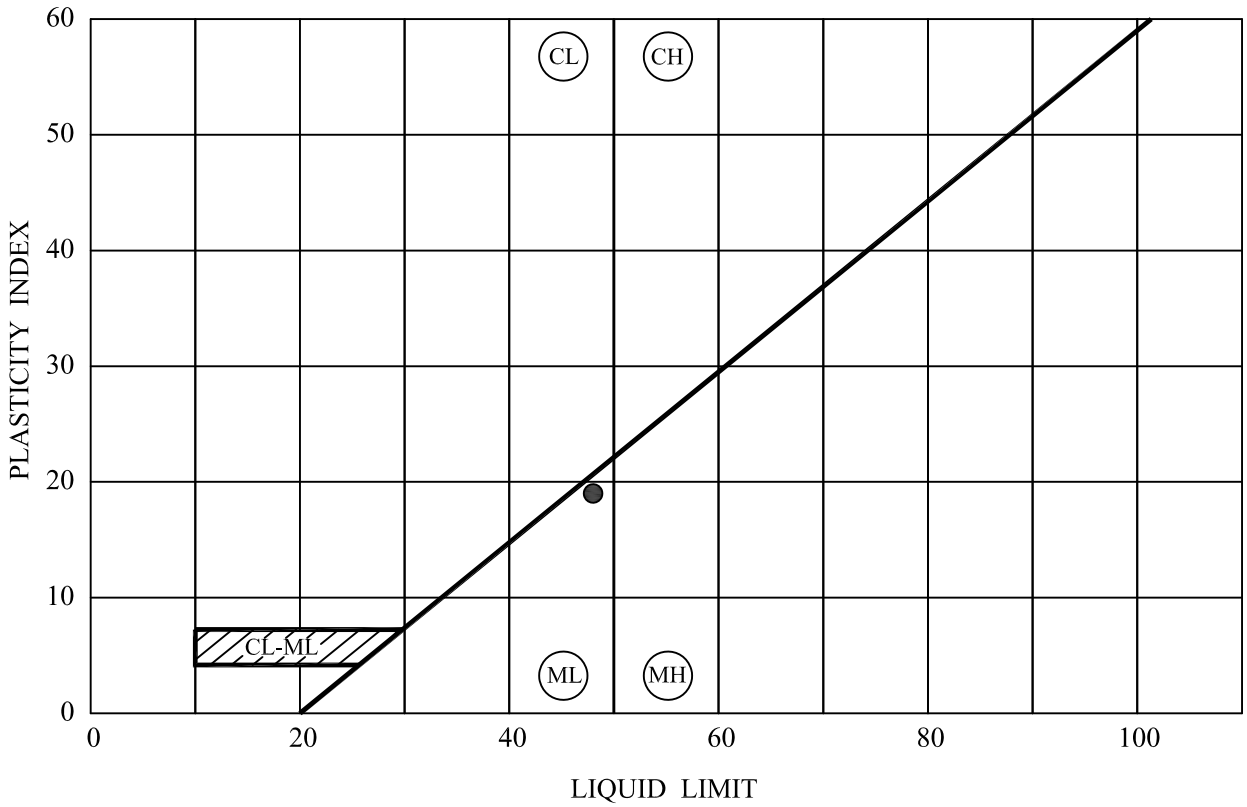
PROJECT NO. 24024.01
DATE 06/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B7



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 14-1	1.0	48	29	19	Brown CLAYEY SILT (ML) with Sand

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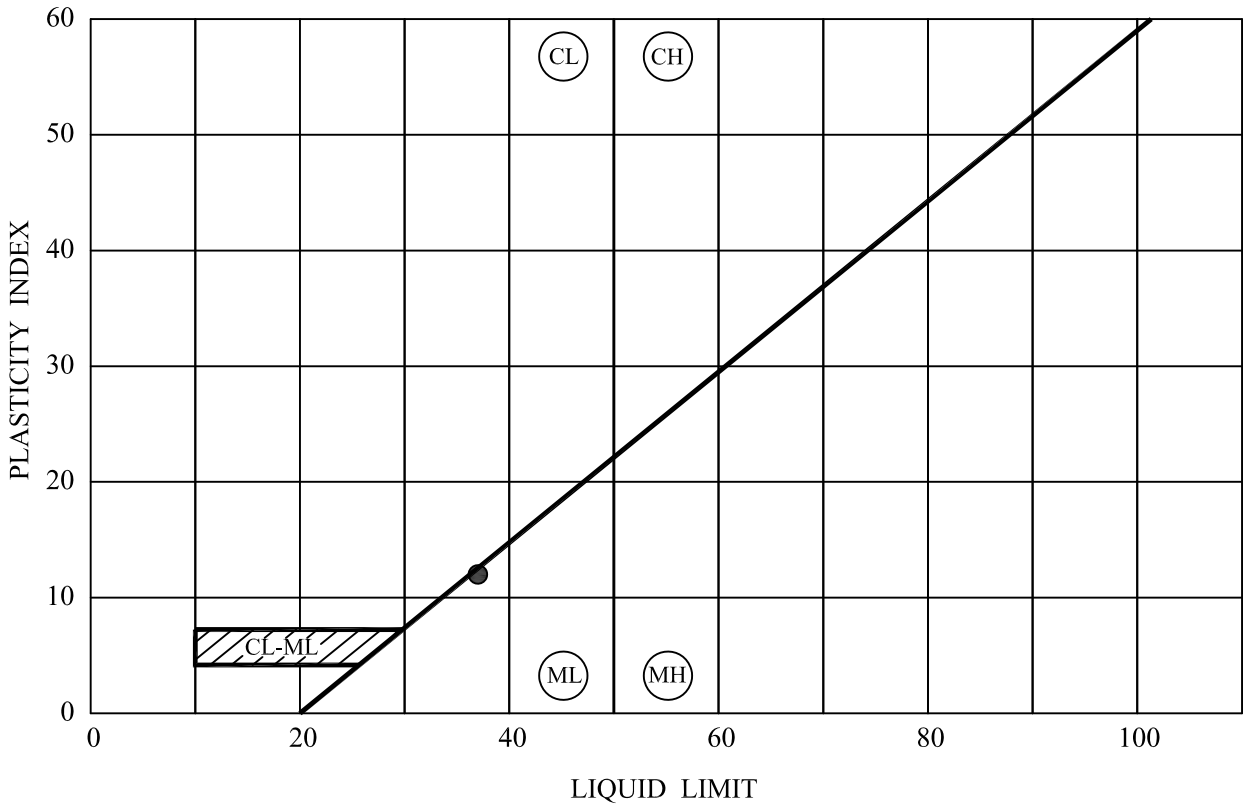
PROJECT NO. 24024.01
DATE 07/21/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B8



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 15-3	5.0	37	25	12	Orange Brown SILT (ML) with Sand

Hawaii Geotechnical Consulting, Inc.

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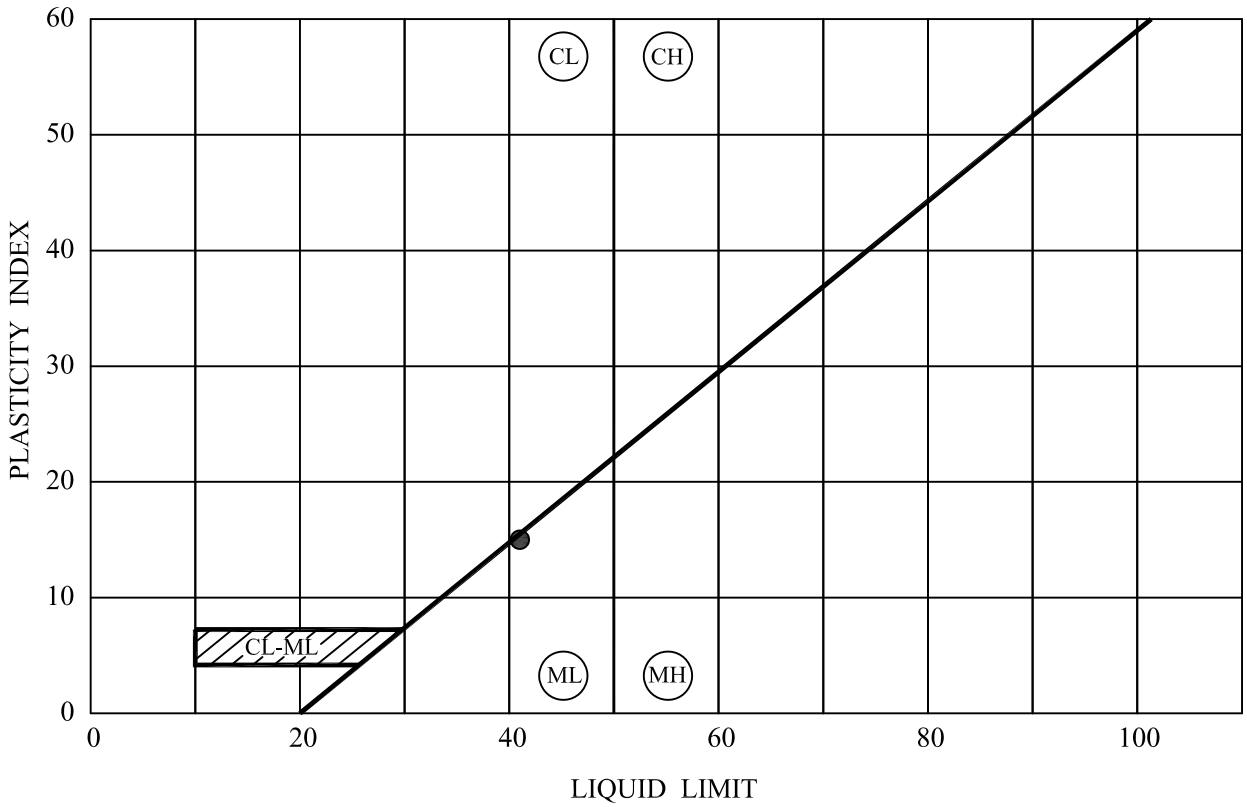
DATE 06/23/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B9



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 16-1	1.0	41	25	16	Brown Clayey SILT (ML) with some Sand

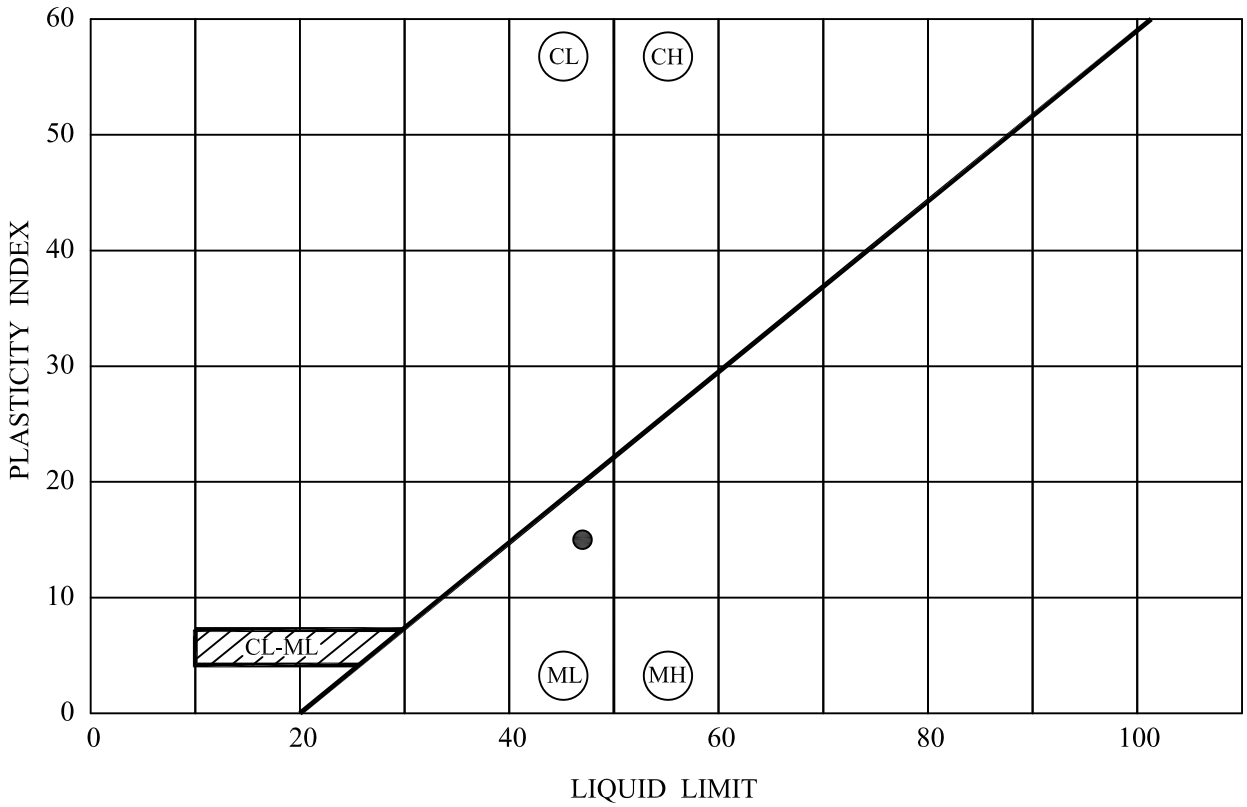
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/23/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B10



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 23-1	1.0	47	32	15	Brown CLAYEY SILT (ML) with Sand

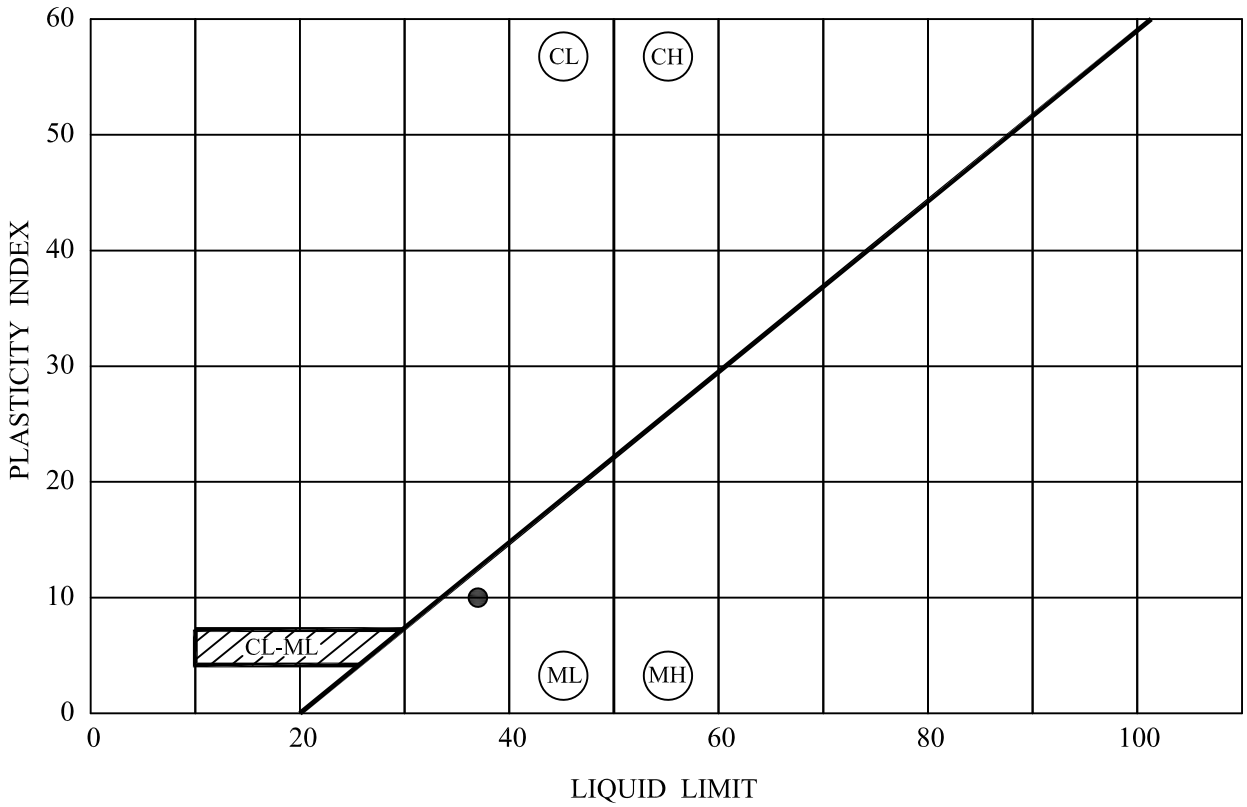
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/21/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B11



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 27-2	3.0	37	27	10	Orange Brown SILT (ML) with trace Sand

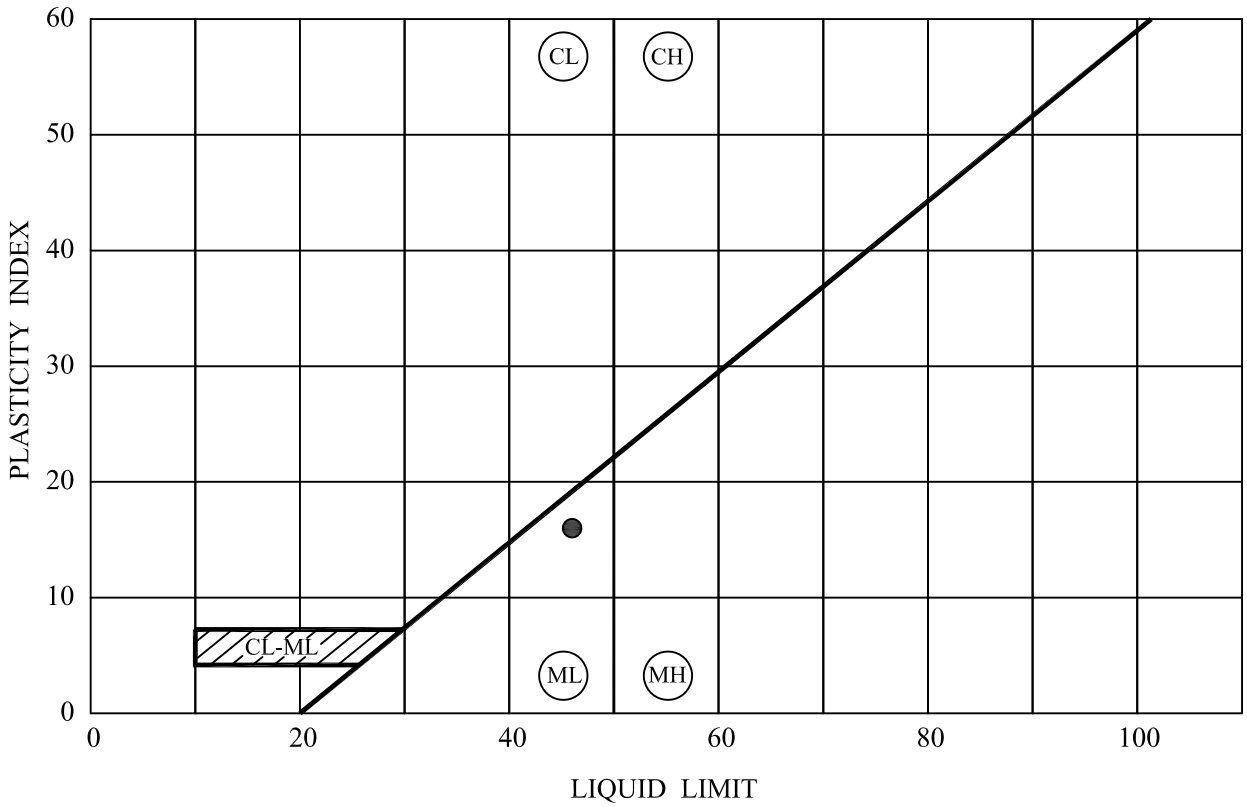
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B12



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 28-1	1.0	46	30	16	Brown Clayey SILT (ML) with some Sand

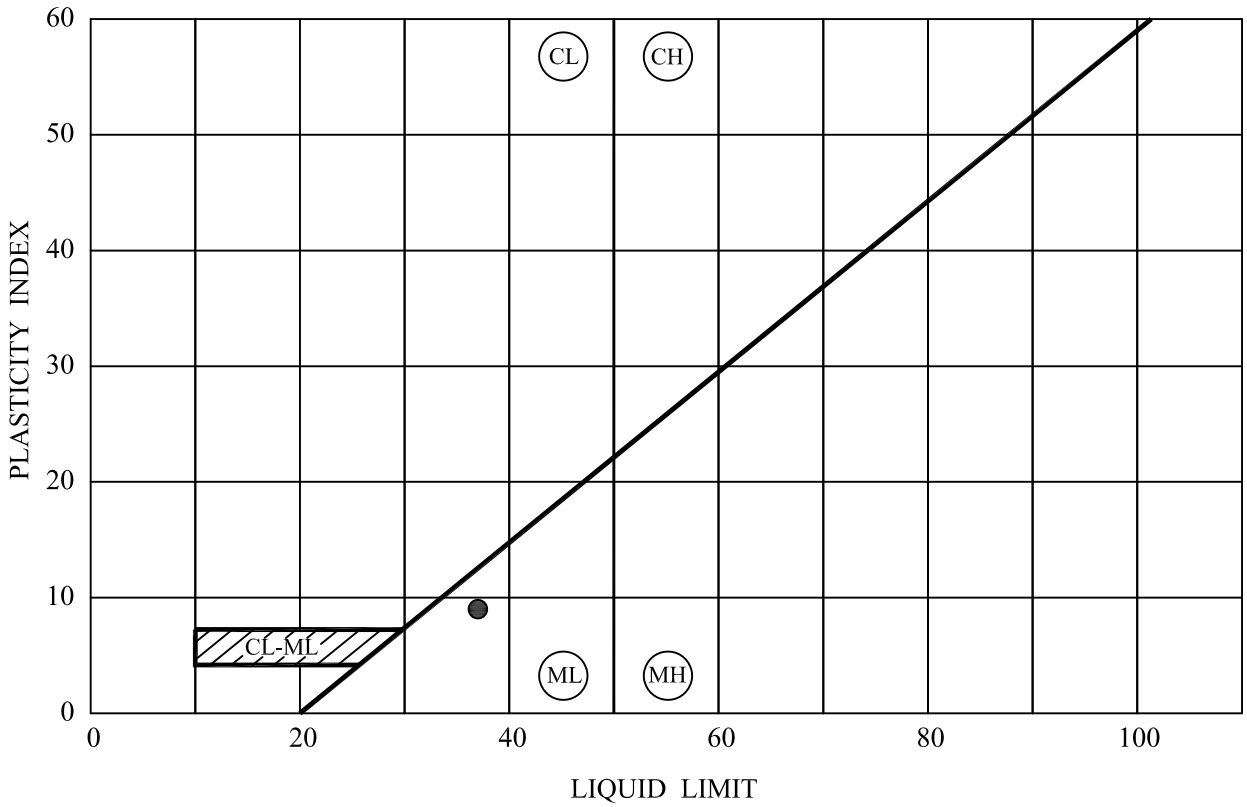
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/23/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B13



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 25-4	8.0	37	28	9	Orange Brown SILT (ML) and Sand

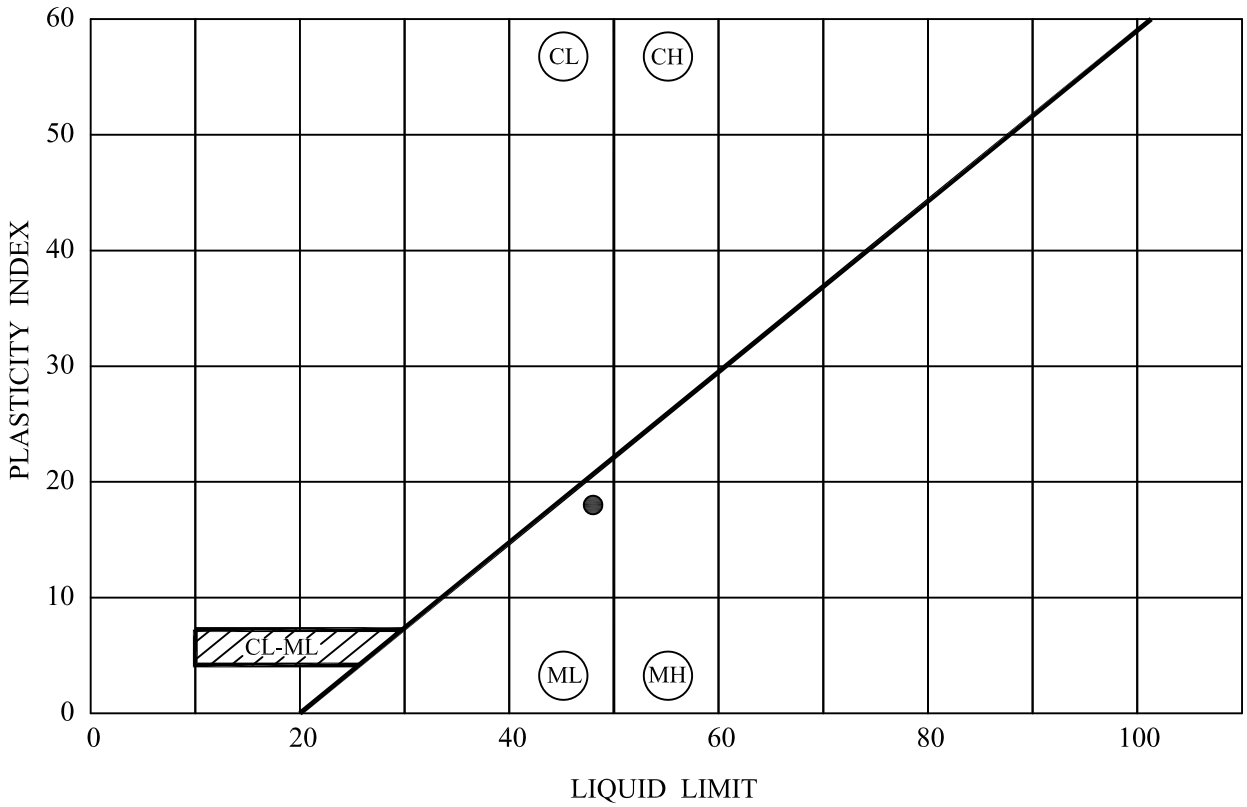
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 06/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B14



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	31-1	1.0	48	32	16	Brown CLAYEY SILT (ML) with some Sand

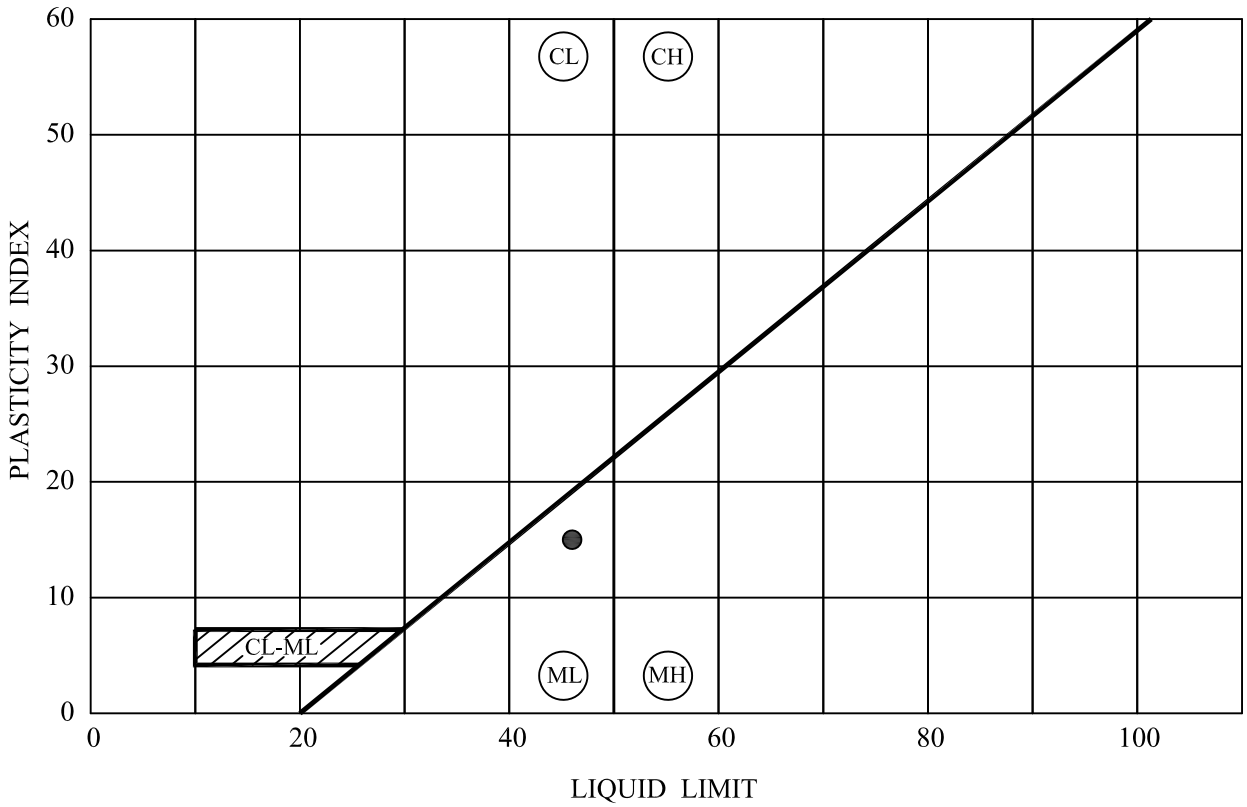
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/16/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B15



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 35-1	1.0	46	31	15	Brown CLAYEY SILT (ML) with some Sand

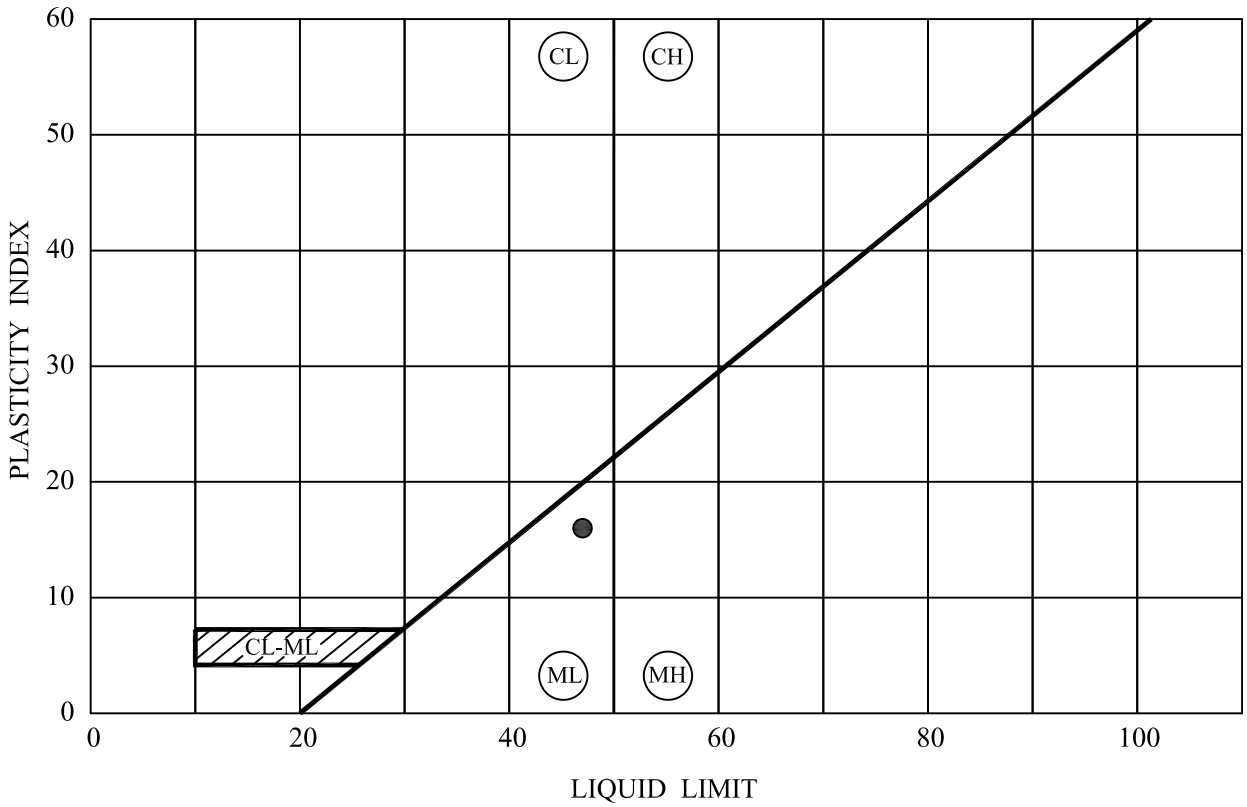
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/16/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B16



Sample ID	Depth (ft)	LL	PL	PI	Classification
● 36-1	1.0	47	31	16	Brown CLAYEY SILT (ML) with Sand

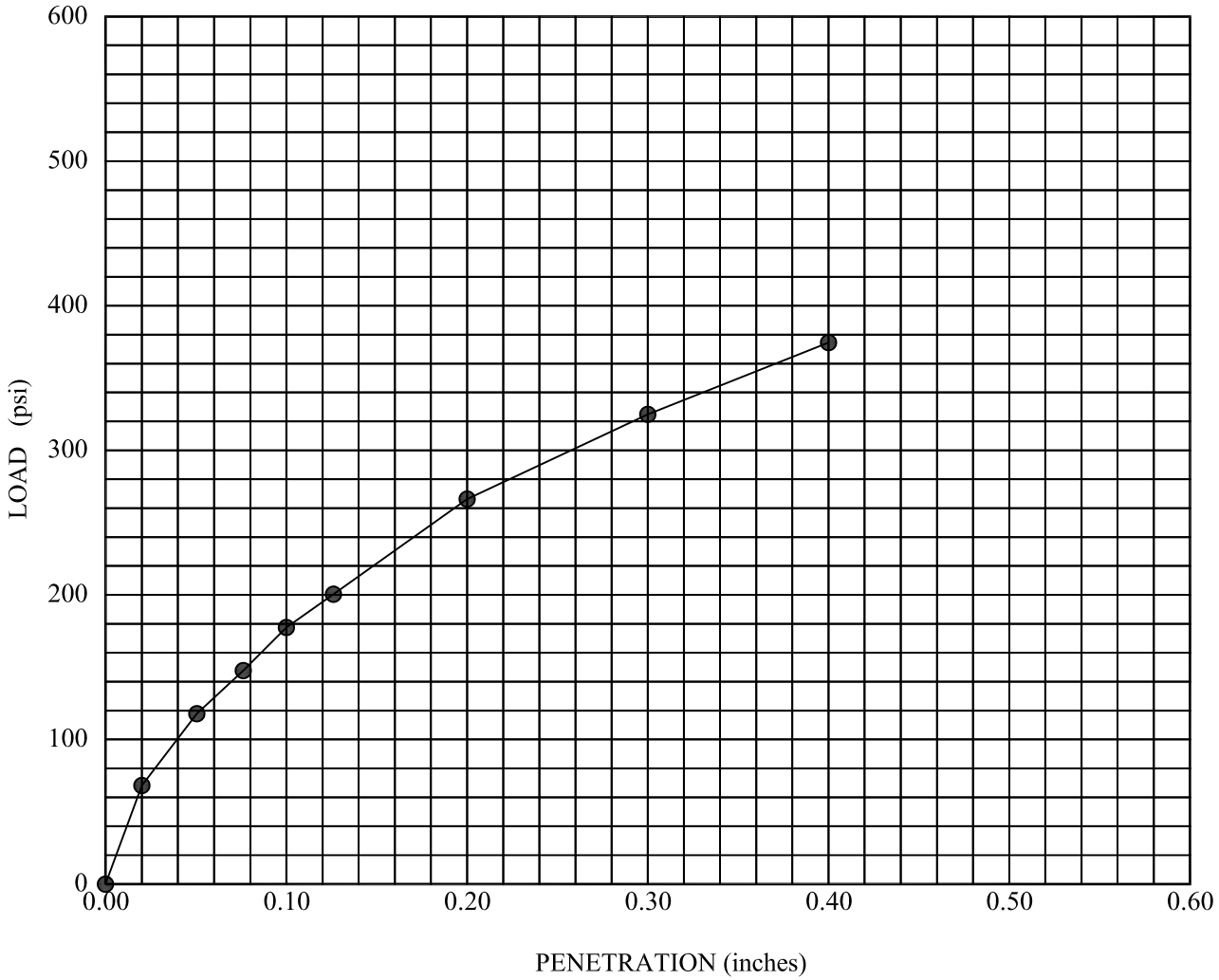
Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 07/29/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

PLASTICITY INDEX

FIGURE
B17



Sample Identification		Classification	CBR	% Comp.	Opt. Den.	Opt. % MC	% Swell	LL	PI
●	A	Brown CLAYEY SILT (ML)with some Sand	18	98	96	29	0.3	47	16

Hawaii Geotechnical Consulting, Inc.

PROJECT NO. 24024.01
DATE 08/06/2024

HOONANI VILLAGE
KAHULUI, MAUI, HAWAII

COMPACTION CURVE

FIGURE
B18

APPENDIX C
Percolation Testing

APPENDIX C
PERCOLATION TESTING

A total of two percolation tests were performed within the proposed WWTP system leach field site. The percolation tests were performed at depths of 36 inches following the State of Hawaii Department of Health – Wastewater Branch testing method.

Approximately 1 inch of clean ¾-inch gravel was placed at the bottom of an 9-inch diameter, 36 inch deep hand excavated hole. Step D of the procedure for other type (non-granular) soils was used to perform the percolation test, as a 12 inch head of water did not seep away in under 10 minutes twice. After a minimum of 4 hours of presoaking, maintaining a 12-inch head, the hole was allowed to swell for at least 12 hours. After swelling, water was then added to 6 inches above the gravel and allowed to percolate. The water drop was recorded every 30-minute time interval for 4 hours. The final drop used to calculate the percolation rates.

A senior engineer with HGC performed the percolation test and maintained a log of the time and water drop intervals.

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DEPARTMENT OF HEALTH – WASTEWATER BRANCH
INDIVIDUAL WASTEWATER SYSTEM (IWS) – SITE EVALUATION/PERCOLATION TEST
(PERCOLATION TEST NO. 1 - EAST)

Date/Time: July 29, 2024 Test Performed by: Hawaii Geotechnical Consulting, Inc.

Owner: Ho'onani Development, LLC TMK: --

Elevation:	Unknown	Feet
Depth to Groundwater Table:	>10	feet below grade
Depth to Bedrock (if observed):	Unknown	feet below grade
Diameter of Hole:	9.0	inches
Depth to Hole Bottom:	36	inches below grade

Depth, inches below grade	Soil Profile (color, texture, other)
0-18	Brown Clayey Silt with some Sand, Soft
18-108	Orange Brown Silt with some Sand, Hard

PERCOLATION READINGS:

Time 12 inches of water to seep away: 101 minutes

Time 12 inches of water to seep away: 47 minutes

Check one:

_____ Percolation tests in sandy soils, recorded time intervals and water drops at least every 10 minutes for at least 1 hour.

X Percolation tests in non-sandy soils, presoaked the test hole for at least 4 hours. Recorded time intervals and water drops at least every 10 minutes for 1 hour of time for the first 6 inches to seep away in greater than 30 minutes recorded time intervals and water drops at least every 30 minutes for 4 hours or until 2 successive drops do not vary by more than 1/16 inch.

Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches
30	2-5/8	30	2-5/8		
30	2-3/16	30			
30	2-1/2				
30	2-5/8				

Percolation Rate (time/final water level drop): 11.41 minute/inch

As the engineer responsible for gathering and providing site information and percolation test results, I attest to the fact that above site information is accurate and that the site evaluation was conducted in accordance with the provisions of Chapter 11-62, "Wastewater Systems" and the results were acceptable. I also attest that three feet of suitable soil exists between the bottom of the soil absorption system and the groundwater table or any other limiting layer.

Engineer's Signature/Stamp

July 29, 2024

License Expires 04/30/2026

DEPARTMENT OF HEALTH – WASTEWATER BRANCH
INDIVIDUAL WASTEWATER SYSTEM (IWS) – SITE EVALUATION/PERCOLATION TEST
(PERCOLATION TEST NO. 2 - WEST)

Date/Time: July 29, 2024 Test Performed by: Hawaii Geotechnical Consulting, Inc.

Owner: Ho'onani Development, LLC TMK: --

Elevation:	Unknown	Feet
Depth to Groundwater Table:	>10	feet below grade
Depth to Bedrock (if observed):	Unknown	feet below grade
Diameter of Hole:	9.0	inches
Depth to Hole Bottom:	36	inches below grade

Depth, inches below grade	Soil Profile (color, texture, other)
0-18	Brown Clayey Silt with some Sand, Soft
18-108	Orange Brown Silt with some Sand, Hard

PERCOLATION READINGS:

Time 12 inches of water to seep away: 136 minutes

Time 12 inches of water to seep away: 100 minutes

Check one:

_____ Percolation tests in sandy soils, recorded time intervals and water drops at least every 10 minutes for at least 1 hour.

X Percolation tests in non-sandy soils, presoaked the test hole for at least 4 hours. Recorded time intervals and water drops at least every 10 minutes for 1 hour of time for the first 6 inches to seep away in greater than 30 minutes recorded time intervals and water drops at least every 30 minutes for 4 hours or until 2 successive drops do not vary by more than 1/16 inch.

Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches	Time Interval (min)	Drop in Inches
30	4-15/16	30	5-1/16		
30	5-1/4				
30	5				
30	5-1/16				

Percolation Rate (time/final water level drop): 5.93 minute/inch

As the engineer responsible for gathering and providing site information and percolation test results, I attest to the fact that above site information is accurate and that the site evaluation was conducted in accordance with the provisions of Chapter 11-62, "Wastewater Systems" and the results were acceptable. I also attest that three feet of suitable soil exists between the bottom of the soil absorption system and the groundwater table or any other limiting layer.

Engineer's Signature/Stamp

July 29, 2024

License Expires 04/30/2026

EXHIBIT 28

Traffic Impact Analysis

Ho'onani Village: Transportation Impact Analysis Report

Prepared for:

Alpha Inc.

May 23, 2025

Fehr & Peers

SD23-0477.01

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Executive Summary

This report documents the assessment of mobility and access associated with the proposed Ho'onani Village project located on a 189.15-acre parcel located between Maui Veterans Highway and Hana Highway fronting Hansen Road and Pulehu Road. The project is situated in the community of Kahului on the island of Maui. The existing parcel is currently vacant and is part of TMK (2) 3-8-006-004.

The project is planned to be completed in 2035 and includes: 1,599 units of multi-family housing; two separate drainage basins which can be used for sports fields; 3.24 acres of future commercial uses; 100,000 square feet (sf) of office space; a 25.35 acre mixed-use area in the center of the site with open space and commercial, retail, restaurant, and entertainment space; 13,468 sf of additional commercial space; a 1.7 acre waste water treatment plant; and 198,100 sf of industrial space. A 23-acre parcel on the northwest corner of the site is not included in the project as it is County land which will likely be developed by others into a school or affordable housing. Development on that parcel is assumed to not be complete by 2035. Note that the assumed land use totals are considered conservative and yield a higher-end trip generation.

Parking will be provided in at-grade parking lots with a total of 5,413 spaces provided. The site will be accessed via three (3) full-access driveways at roundabout intersections: two on Hansen Road and one on Pulehu Road. Three (3) right-in right-out (RIRO) only driveways will also be provided along Hansen Road and one (1) will be provided along Pulehu Road. The project will also extend and connect to Pakaula Street to the north.

The impacts of the proposed project on mobility and access near the project site were evaluated following the guidelines and standards of the affected government agencies including the County of Maui (County) and the State of Hawai'i Department of Transportation Highways Division (HDOT). Six (6) existing study intersections in the vicinity of the project were evaluated during the weekday morning (AM) and evening (PM) peak hours for Existing (2024) Conditions, Year 2035 No Project Conditions, and Year 2035 Plus Project Conditions. The new intersections providing direct site access were also analyzed under Year 2035 Plus Project Conditions.

Vehicle trip generation for the development was estimated for the weekday morning (AM) and evening (PM) peak hours using rates published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual (11th Edition, 2021)*. Fehr & Peer's web tool MXD+ (MainStreet) was utilized to provide estimates of pedestrian, bicycle, and transit trips, as well as trip internalization.

The analysis determined that the project will have a significant impact at only one of the study intersections in 2035: Hana Highway and Hansen Road. This intersection also operates unacceptably and meets signal warrants under Existing (2024) Conditions. The installation of a signal at this intersection would improve operations to acceptable levels.

An evaluation of the level and quality of service of all multi-modal transportation facilities was conducted for the roadways bordering the site. The project will not conflict with any planned pedestrian, bicycle, and transit facilities in the study area, and it will include active transportation improvements to enhance multimodal travel and access to the site. As such, no active transportation or transit impacts are anticipated as part of project implementation.

1 Project Description and Study Area

The proposed project, Ho'onani Village, is located on a 189.15-acre parcel in the Kahului community on the island of Maui. The currently vacant parcel is part of TMK (2) 3-8-006-004 and is located between Maui Veterans Highway and Hana Highway. Note that a 23-acre parcel on the northwest corner of the site is not included in the project as it is County land which will likely be developed into a school or affordable housing. Development on that adjacent parcel is assumed to completed after full development of the proposed project.

The project is planned to be completed in 2035 and includes: 1,599 units of multi-family housing units; two separate drainage basins which can be used for sports fields; 3.24 acres of future commercial uses; 100,000 square feet (sf) of office space; a 25.35 acre mixed-use area in the center of the site with open space and commercial, retail, restaurant, and entertainment space; 13,468 sf of additional commercial space, a 1.7 acre waste water treatment plant; and 198,100 sf of industrial space. Note that the assumed land use totals are considered conservative and yield a higher-end trip generation.

A total of 5,413 surface level parking spaces will be provided. Vehicular access to the project site with entrances on Hansen Road and Pulehu Road is proposed as follows: two (2) full access driveway on Hansen Road, one (1) full access driveway on Pulehu Road, three (3) right-in right-out (RIRO) driveways along Hansen Road, and one (1) RIRO driveway along Pulehu Road. The project will also have access to Pakaula Street to the north. The project site plan is shown on **Figure 1**, which also shows the locations of the driveways serving the site.

This study identifies the potential impacts of the project on the surrounding roadways and transportation network. The impacts of the proposed project on mobility and access surrounding the project site were evaluated following the guidelines and standards of the affected government agencies.

Figure 1

Project Site Plan

1.1 Project Study Locations

The impact analysis focused on evaluating the potential project-related transportation effects at six (6) existing intersections in the vicinity of the proposed project and the three (3) future full access project driveways. The six (6) existing intersections analyzed include:

1. Ho'okele Street/Pakaula Street
2. Ho'okele Street/Pulehu Road
3. Ho'okele Street/Hana Highway
4. Maui Veterans Highway/Hansen Road
5. Pulehu Road/Hansen Road
6. Hansen Road/Hana Highway

The three (3) future driveways analyzed include:

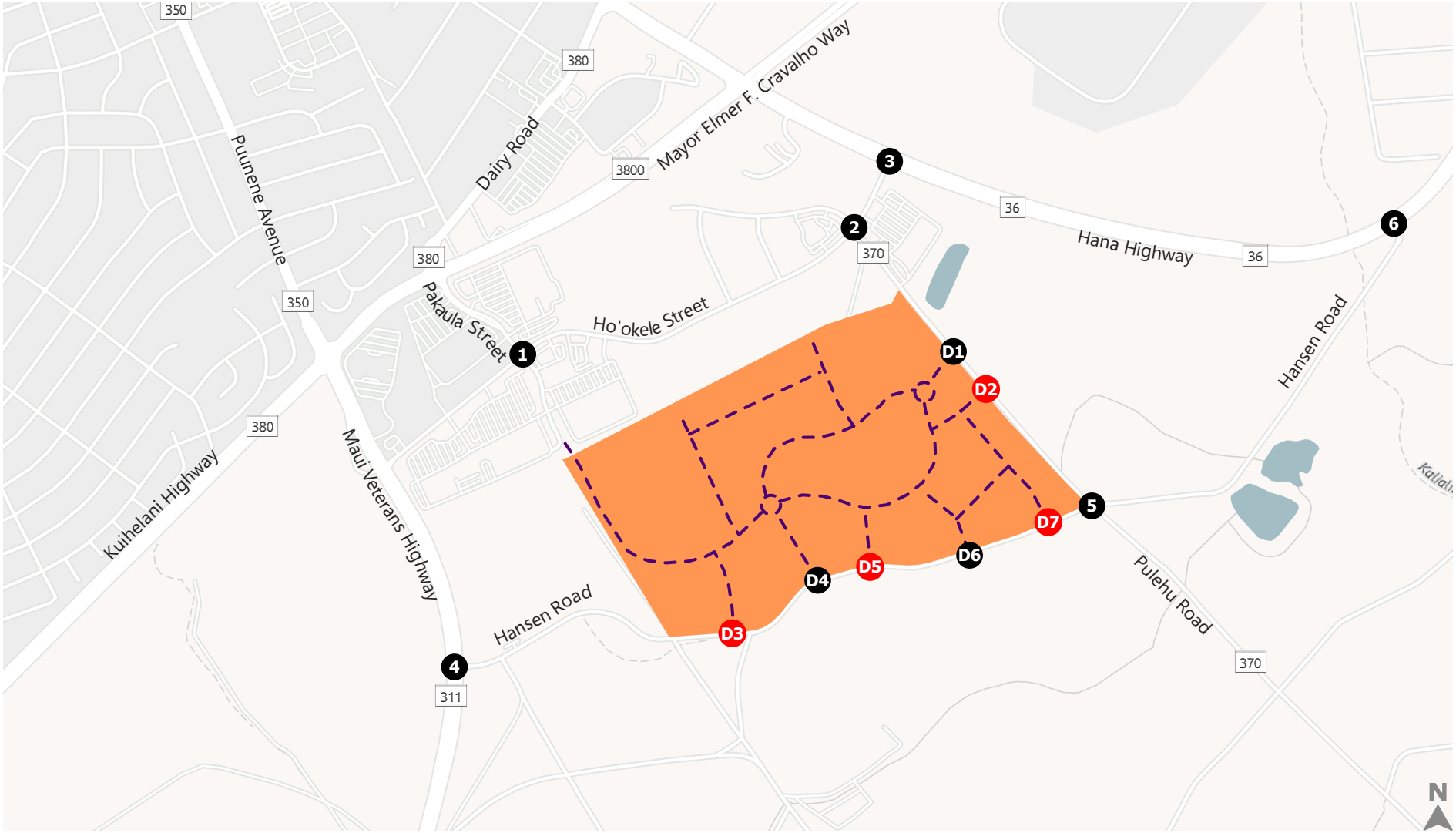
D1. Pulehu Road/Project Driveway 1
D4. Project Driveway 4/Hansen Road
D6. Project Driveway 6/Hansen Road

The study area is shown on **Figure 2**. This study includes the three primary full-access site driveways as study intersections and assumes that they are configured as single-lane roundabouts. Project trip assignment is provided for the RIRO driveways but they were not included in the operations analysis as they will handle less traffic and experience less delay compared to the full access driveways. These are also shown on **Figure 2**.

Any delays or queues at these RIRO driveway intersections are not expected to affect operations along Hansen Road or Pulehu Road.

The Waste Water treatment plan on the southwest corner of the project site will have its own entrance but was not studied. The effects of employee/other trips generated by this land use under typical operations are considered negligible and would not affect operations on Hansen Road.

This study analyzes the potential project-related traffic impacts under typical weekday AM and PM peak hour traffic conditions. The peak hours for each intersection are identified as the highest one-hour totals of traffic at each intersection during the typical peak commute periods from 6:00 AM to 9:00 AM and from 3:00 to 6:00 PM on a mid-weekday (i.e., Tuesday, Wednesday, or Thursday).



Project Site

Study Intersections

Right In Right Out Project Driveways

Future Roadway

Figure 2

Project Study Area

1.2 Study Scenarios

The operations of the study intersections were evaluated during the weekday AM and PM peak hours for the following scenarios:

- Existing (2024) Conditions – Traffic counts at study intersections were collected in May 2024, on a typical mid-weekday while schools were in session. The analysis of peak hour traffic operations under this scenario was conducted using existing intersection lane configurations, signal timings, etc. The existing conditions analysis also includes a description of key roadways and a review of existing transit, bicycle, and pedestrian facilities and services near the site.
- Year 2035 No Project Conditions – Future traffic volumes in the anticipated completion year of the project were projected by increasing the existing volumes using an annual growth factor of 1% per year to account for ambient growth except for along Ho'okele Street, where a 2% per year growth rate was used. These growth rates were calculated based on planned development in the study area and long-term growth projections in the Maui Metropolitan Planning Organization (MPO) Travel Demand Model. This scenario does not include any project traffic and forms the baseline against which project impacts are evaluated.
- Year 2035 Plus Project Conditions – Traffic volumes estimated from the completion and full occupancy of the entire project were added to traffic projections from Year 2035 No Project Conditions. The impact of the project under this scenario was also assessed for potential impacts on bicycles, pedestrian, and transit facilities and services.

2 Analysis Methodology

The analysis of roadway operations performed for this study is based on procedures presented in the *Highway Capacity Manual 7th Edition* (HCM 7), published by the Transportation Research Board in 2022. The operations of roadway facilities are described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels are defined, from LOS A, with the least congested operating conditions, to LOS F, with the most congested operating conditions. LOS E represents "at-capacity" operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions.

2.1 Signalized Intersections

The methodology described in "Chapter 19: Signalized Intersections" of the *HCM 7* was used to prepare the LOS calculations for the signalized study intersections. This LOS method analyzes a signalized intersection's operation based on the average control delay per vehicle. Control delay alone is used to characterize LOS for the entire intersection or for an approach. Control delay includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections is calculated using Synchro 12.0 analysis software and is correlated to a LOS designation, as shown in **Table 1**.

Table 1: Signalized Intersection LOS Definitions

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of desirable delay. These high-delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered undesirable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: *Highway Capacity Manual 7th Edition*, Transportation Research Board, 2022.

2.2 Stop-Controlled Intersections and Roundabouts

The operations of the unsignalized intersections were evaluated using the methodology contained in "Chapter 20: Two-Way Stop-Controlled Intersections", "Chapter 21: All-Way Stop-Controlled Intersections", and "Chapter 22: Roundabouts" of the *HCM 7* LOS ratings for stop-sign-controlled and roundabout intersections are based on the average control delay expressed in seconds per vehicle. At a two-way- or side-street-stop-controlled (SSSC) intersection, the average control delay is calculated for the minor-street stopped movement and the major-street left turns, not for the overall intersection. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. At a roundabout or all-way stop-controlled intersection (AWSC) intersection, the average control delay is calculated for the entire intersection. The average control delay for intersections is calculated using Synchro 12.0 analysis software and is correlated to the LOS designations shown in **Table 2**.

Table 2: Intersection Level of Service Criteria

Level of Service	Description	Signalized Delay (Seconds)	Unsignalized Delay (Seconds)
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10.0	≤ 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0	> 10.0 to 15.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0	> 15.0 to 25.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0	> 25.0 to 35.0
E	This level is often considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0	> 35.0 to 50.0
F	This level is often considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0	> 50.0

Source: Highway Capacity Manual (Transportation Research Board, 2022).

2.3 Significant Impact Criteria

The analysis of Year 2035 Conditions compares No Project operations and conditions when the project is fully built out to determine whether project implementation is expected to result in a significant impact on the surrounding roadways and transportation systems. Based on previous studies conducted for both the County of Maui and the State of Hawaii Department of Transportation (HDOT), the minimum desired operating standard for a signalized intersection is LOS D. If the addition of project traffic is expected to degrade desirable service levels (LOS D or better) to lower than desirable service levels (LOS E or F) then the project is considered to have a project-specific impact. Impacts are also defined to occur when the addition of project traffic exacerbates locations already operating or projected to operate at LOS E or F under No Project conditions by more than five (5) seconds. Impacts resulting from the exacerbation of already undesirable operations are referred to as cumulative impacts. Construction-related impacts are considered temporary and are addressed with provisional mitigation measures during construction.

When evaluating intersection operations at any location, other factors are considered in the analysis, such as vehicle queues, and potential secondary impacts to pedestrians, bicycle, and transit travel.

For unsignalized intersections, the criterion for a project-specific impact is the same as for signalized intersections regarding LOS as described above, but one or more signal warrants must also be met. The signal warrants used for this evaluation are those described in Chapter 4C of the Manual of Uniform Control Devices (MUTCD, 2009) published by the U.S. Department of Transportation Federal Highways Administration (FHWA). However, the project is determined to have a potentially significant cumulative impact when it adds traffic to a study location which includes a controlled approach operating at an undesirable level (i.e., LOS E or F), *and* one or more volume-based signal warrants are met.

County of Maui and HDOT do not publish formal impact analysis criteria for pedestrian, bicycle, and transit. For this analysis, pedestrian, bicycle, and transit modes were evaluated based on whether the project would: 1) conflict with the existing or planned pedestrian, bicycle, or transit facilities and services, or 2) create substantive walking, bicycling, or transit use demand without providing adequate and appropriate facilities for non-motorized mobility. Existing facilities for pedestrians, bicycles, and transit users were inventoried to evaluate the quality and scope of facilities/services currently in place. The assessments of planned pedestrian, bicycle, and transit facilities were conducted using the information in planning documents. For these modes, if the proposed project is expected to conflict with existing or planned improvements to pedestrian and bicycle facilities, or if the project is expected to generate a substantial demand which could warrant additional transit service, then the project would be determined to have a project-specific impact to non-motorized modes of transportation.

3 Existing Conditions

3.1 Existing Local Roadway Network

The following is a description of the existing street network in the study area, including road designations per the State of Hawaii Office of Planning.

- Ho'okele Street is a four (4) lane Major Urban Collector that is aligned east/west from Maui Veterans Highway to Hana Highway. The posted speed limit is 35 mph in the study area, on-street parking is prohibited on either side of the street, and pedestrian facilities are provided along both sides of the street. Transit stops are located on the side streets of Pakaula Street, Pulehu Place, and Alaihi Street.
- Pulehu Road is a two (2) lane Major Rural Collector that extends in the north/south direction from Ho'okele Street towards Kula Highway (Highway 37). The posted speed limit is 30 mph in the study area, on-street parking is prohibited on either side of the street, and no formal pedestrian facilities are provided near the project area except for a small segment near the Safeway grocery store which includes a sidewalk and bike lanes. A transit stop is located on Pulehu Road just north of Ho'okele Street.
- Hana Highway is a four (4) lane Major Urban Arterial within the project area and extends in the east/west direction from E Kaahumanu Ave to Piilani Highway (Southern Maui). The posted speed limit is 45 mph within the study area, on-street parking is prohibited on either side of the roadway, and no formal pedestrian facilities along the segment in the project area.
- Hansen Road is a two (2) lane Major Rural Collector that is aligned east/west from Maui Veterans Highway to Hana Highway. The posted speed limit is 20 mph, on-street parking is prohibited along both sides of the street, and no formal pedestrian facilities are provided along either side of the street.
- Maui Veterans Highway is a four (4) lane Major Urban Arterial that is aligned in the north/south direction from Mayor Elmer F. Cravalho Way (Highway 380) to N Kihei Road/ Piilani Highway in the south. The posted speed limit is 30 mph within the project area, on-street parking is prohibited on either side of the street, a "Bike Path" runs along the eastern side of the street from Ho'okele Street south past Hansen Road to Kihei, and no formal pedestrian facilities are provided on either side of the street.
- Pakaula Street is a two (2) lane Minor Urban Collector that extends in the north/south direction from Mayor Elmer F. Cravalho Way (Highway 380) to Ho'okele Street. The posted speed limit is 20 mph, it serves as an access point for several shopping centers in the area, on-street parking is prohibited on either side of the street, and sidewalks exist on both sides of the street along the full extent of the roadway. Transit stops are located near the intersection of Pakaula Street and Ho'okele Street.

Table 3 summarizes characteristics of these roadway facilities for their extents in the study area, including ownership, number of lanes, speed limits, and presence and condition of bike and pedestrian facilities. Some of the adjacent lots along Ho'okele Street have submitted requests for projects whose construction could coincide with the project. Existing roadway segments should not be affected.

Field observation of existing conditions was conducted in the study area at the six (6) existing intersections. At the intersection of Ho'okele and Pakaula Streets, queueing occasionally exceeded the storage capacity on the eastbound approach for the left turn towards Pakaula Street during the PM peak hour. At the Ho'okele Street/Hana Highway intersection, queuing was observed during the PM peak hour on the northbound and eastbound approaches, with the northbound queue nearing the signal at Ho'okele Street & Pulehu Road and the eastbound queue occasionally reaching Mayor Elmer F. Cravalho Way. However, this queueing was not present for most of the peak hour and was not considered excessive.

Further south, the intersection at Hansen Road and Pulehu Road included lengthy queues on the eastbound approach during the PM peak hour. The stop sign was treated more as a yield when other approaches had no traffic. Hansen Road has a higher volume than Pulehu Road, and it is used as a cut-through route between Maui Veterans Highway and Hana Highway. On Hana Highway, lengthy delays were observed on the westbound left turn to Hansen Road; however, queues never exceeded the available storage during either peak hour.

3.2 Existing Pedestrian Facilities and Activity

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. Numerous gaps exist in the sidewalk network within the study area. Many roadways only have sidewalks on one side or no sidewalks at all.

While sidewalks are provided along Ho'okele Street, the other segments along the project site don't have any pedestrian facilities except for a small segment on Pulehu Road where the Safeway Supermarket was constructed.

The intersections at Hansen Road/Hana Highway and Hansen Road/Pulehu Road lack marked crosswalks across one or more intersection legs. However, the existing land uses adjacent to these intersections generate a negligible number of pedestrians, and that level of pedestrian demand is not expected to change in the near term without the project. Signal controlled crossings and marked crosswalks (where pedestrian demand exists) are provided at all other existing study intersections.

Pedestrian activity is limited in the study area due to the low-density or lack of active land uses. The limited number of pedestrian access points, lack of connections to existing residential areas to the north, and distance between retail centers discourages walking trips by increasing walking distances. Existing and soon to be constructed sidewalk facilities are shown in **Figure 3**.

Table 3: Existing Roadway Facilities

Name	Owner	Number of Lanes	Direction	From	To	Posted Speed	On Street Parking Area	Sidewalk	Designated Bicycle Facilities
Ho'okele Street	County	4	East-West	Maui Veterans Highway	Hana Highway	35	No	South side between Maui Veterans Highway and Hana Highway. North side between Maui Veterans Highway and Hana Highway.	None
Pulehu Road	County	2	North-South	Ho'okele Street	Hansen Road	30	No	South side & North Side between Ho'okele Street and Safeway Shopping Center	Bike lanes between Ho'okele Street and eastern Safeway Shopping Center driveway
Hana Highway	State	4	East-West	Ho'okele Street	Hansen Road	45	No	No	None
Hansen Road	County	2	East-West	Maui Veterans Highway	Hana Highway	20	No	No	None
Maui Veterans Highway	County	4	North-South	Ho'okele Street	Hansen Road	30	No	No	Bike Path on the east side from Ho'okele Street south past Hansen Road to Kihei
Pakaula Street	County	2	North-South	Ho'okele Street	Airport Access Road	20	No	East side between Airport Access Road & Ho'okele Road. West Side between Airport Access Road & Ho'okele Road.	None

Source: Fehr & Peers, 2024

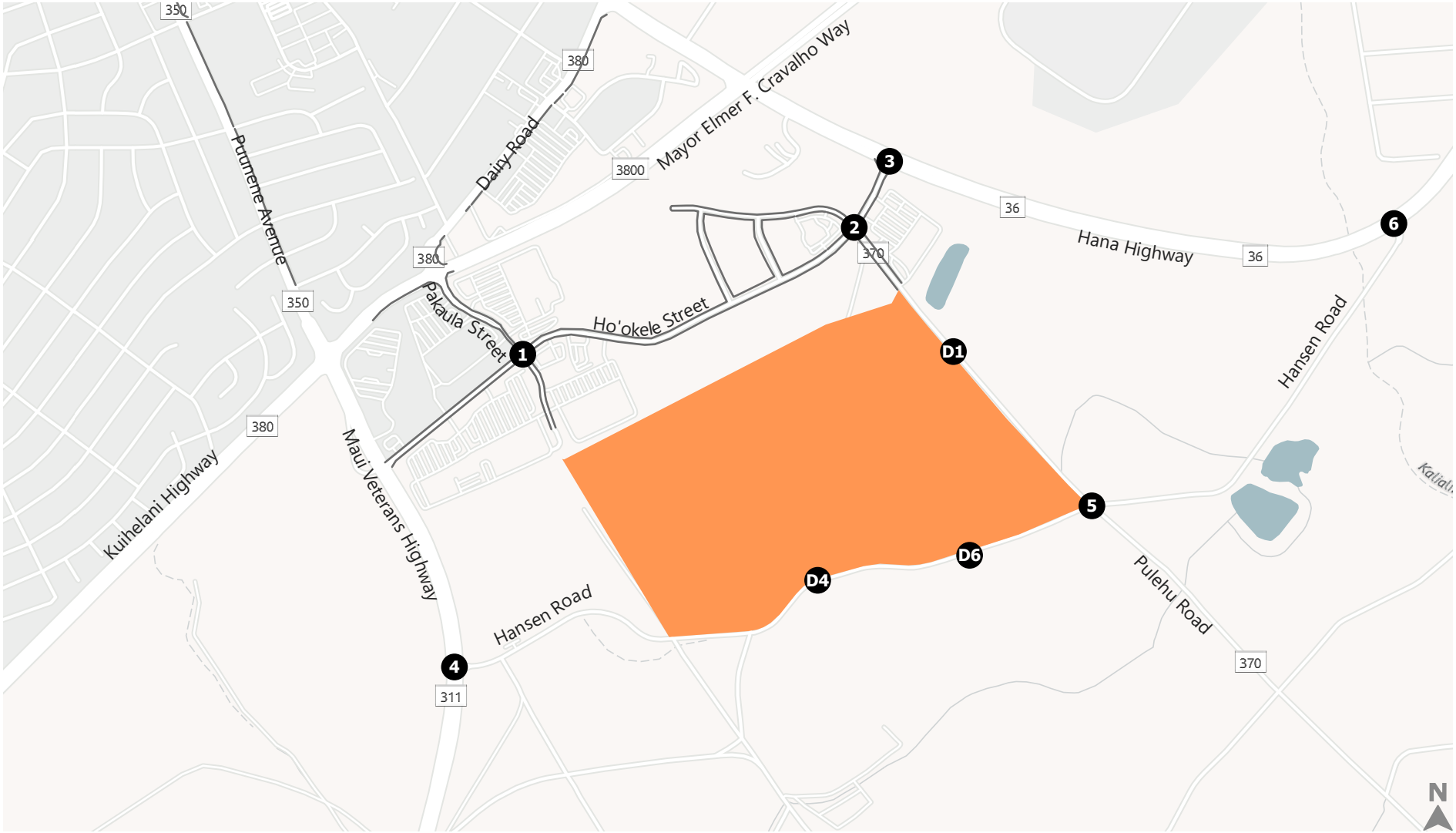


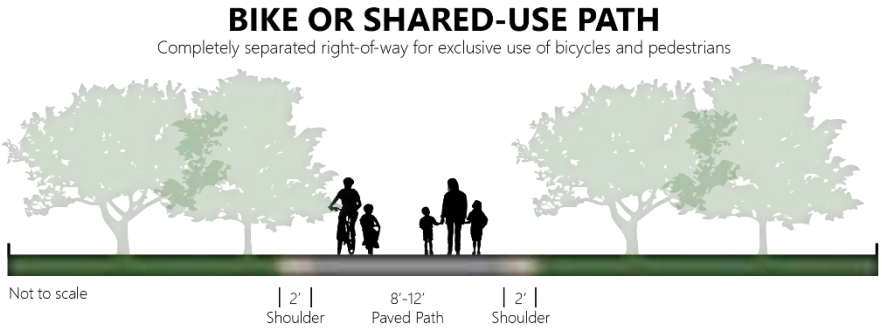
Figure 3

Existing Sidewalk Facilities

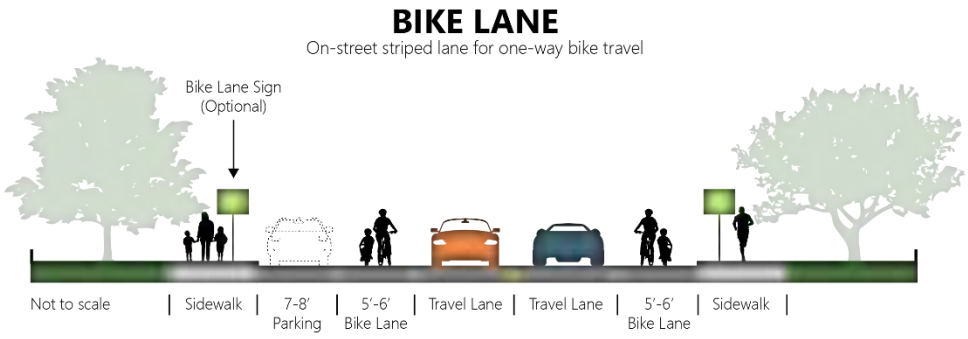
3.3 Existing Bicycle Facilities and Activity

Bicycle facilities generally consist of four types of facilities, which are outlined below:

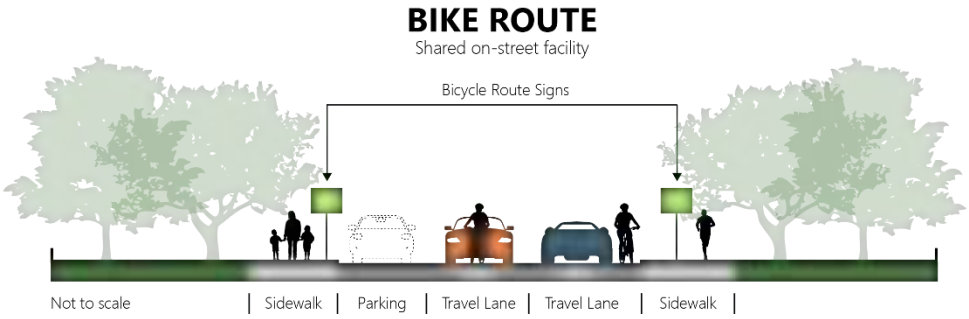
- *Bike or Shared Use Paths* provide a separate right-of-way and are designated for the exclusive use of bicycles and pedestrians (or exclusively bicycles) with vehicle and pedestrian cross-flow minimized. Generally, the minimum pavement width for a two-directional bike or multi-use path is eight (8) feet plus graded shoulders, but a ten (10) foot or wider path is desirable.



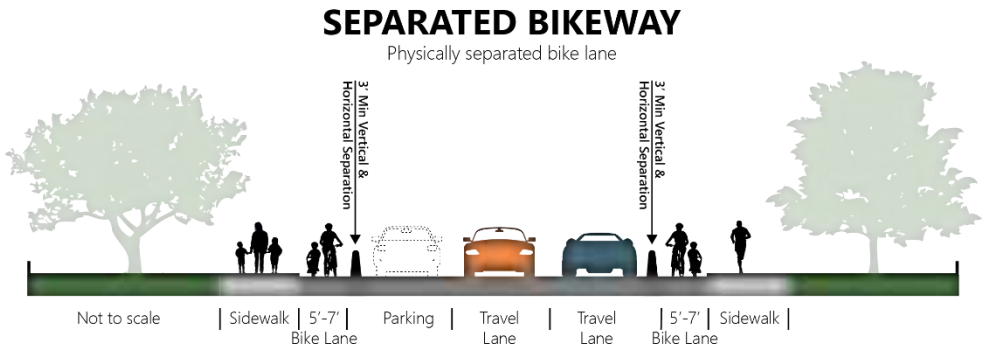
- *Bike Lanes* provide a restricted right-of-way and are designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally five (5) feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.



- *Bike Route or Signed Shared Roadways* provide for a right-of-way designated by signs or shared lane pavement markings, or "sharrows," for shared use with pedestrians or motor vehicles.



- *Separated Bikeways or Cycle Tracks* provide a restricted right-of-way with physical separation and are designated for the use of bicycles in or directly adjacent to a roadway with a raised barrier, such as curbs or bollards. Separated bikeways are typically at least five (5) feet wide with a minimum three (3) foot minimum horizontal separation from an adjacent vehicle parking or travel lane [although a two (2) foot median could be used next to a travel lane with lower vehicle speeds]. Adjacent vehicle parking is permitted and vehicle/pedestrian cross-flow is restricted to selected locations (e.g., driveways) indicated by breaks in the barrier and buffer.



In the project study area, existing bicycle facilities are limited. Bicycle lanes are provided along Pulehu Road between Ho'okele St and the mauka Safeway driveway. A shared-use path is located on the east side of Maui Veterans Highway from Ho'okele Street to Hansen Road and extends further south towards the community of Kihei. Roadway shoulders along Hansen Road are wide enough on some segments to act as de facto bicycle lanes but are not officially designated as such. Existing bicycle facilities in the study area are shown in **Figure 4**. According to the I Mua Central Maui Transportation Study, bike lanes are proposed along Hansen Road between Maui Veterans Highway and Hana Highway.

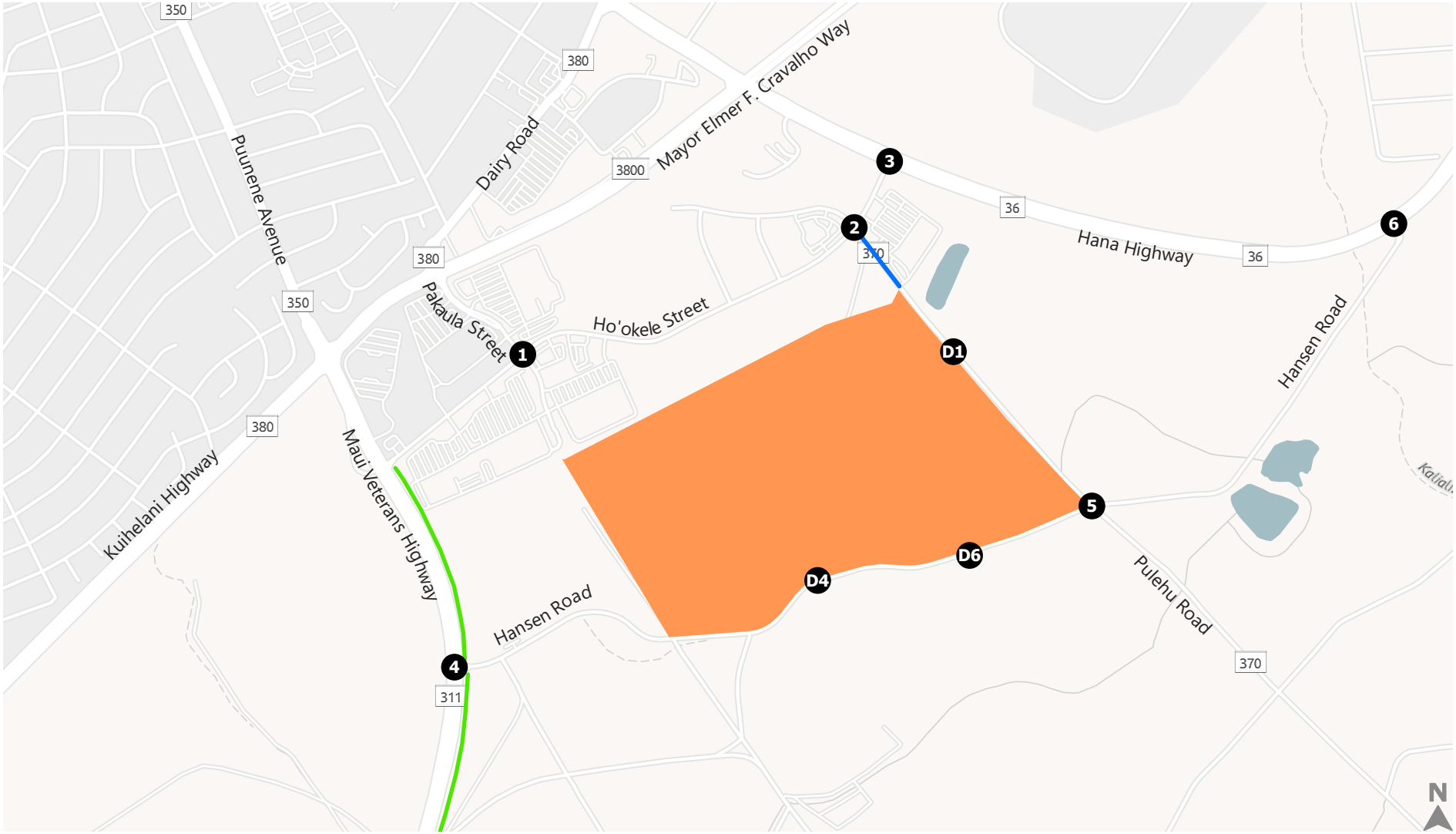


Figure 4

Existing Bicycle Network

3.4 Existing Transit Facilities and Services

Maui Bus, operated by the Maui Bus Public Transit System, provides three bus routes in the study area: Route 5, Route 6, and Route 39. Routes 5 & 6 operate in a loop from Queen Ka'ahumanu Center and run in opposing directions. Service on these routes is provided every 60 minutes on weekdays and on weekends. The closest stops in the study area are located at the Ho'okele Street/Pakaula Street, Ho'okele Street/Alaihi Street, and Ho'okele Street/Pulehu Place intersections. This are just beyond a ½-mile walking distance from the project.

Route 39 operates in a loop out of Queen Ka'ahumanu Center, travelling from Kahului to Keokea with stops in between at Kula and Pukalani. Service on this route is provided every 90 minutes on weekdays and weekends. The closest stops in the study area are located at the Ho'okele Street/Pakaula Street intersection. This is an approximately ½-mile walking distance from the northern edge of the project site. Existing transit service is shown on **Figure 5**.

Because of this distance, no substantial increase in transit demand is anticipated with the implementation of the proposed project that could not be accommodated by existing service. According to the General Plan, a proposed Conceptual Transit Corridor is proposed near the project site but it won't have any effect on the project.

3.5 Existing Volumes and Operations

Intersection-turning movement traffic counts were obtained on Tuesday May 21st, 2024, from 6:00 AM to 9:00 AM and from 3:00 PM to 6:00 PM. Existing (2024) peak hour volumes, lane configurations, and level of service for all study intersections are provided on **Figure 6**. Detailed count sheets are provided in **Appendix A**.

Table 4 contains LOS and delay results for existing conditions. The corresponding LOS calculation sheets are included in **Appendix B**. These results align with conditions observed in the field. Congestion was mainly observed along Hansen Road, specifically at Pulehu Road/Hansen Road and Hana Highway/Hansen Road intersections during the AM and PM peak hour. The Pulehu Road/Hansen Road is an all-way stop control intersection, and large queues and delays were observed during the peak hours.

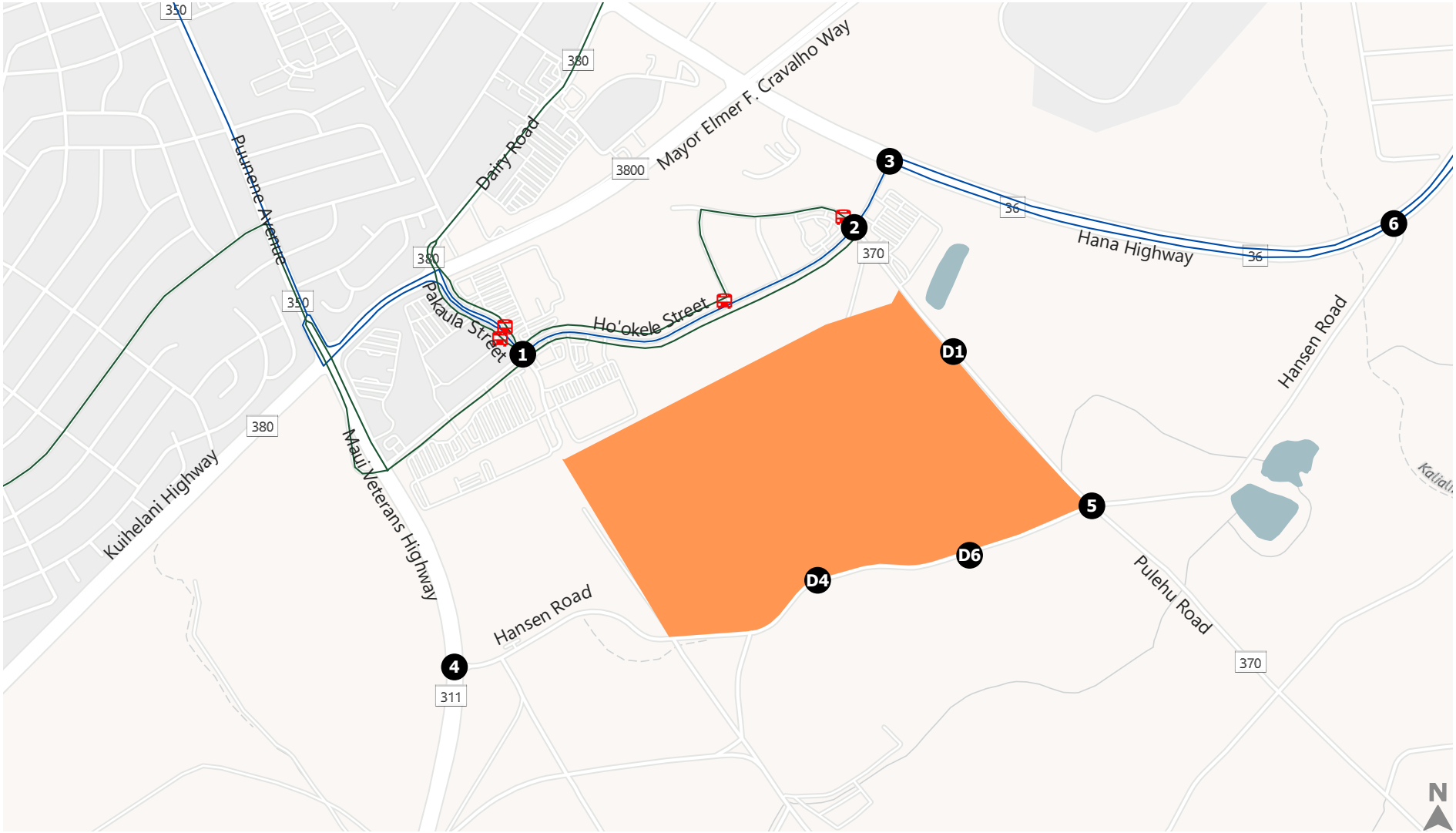
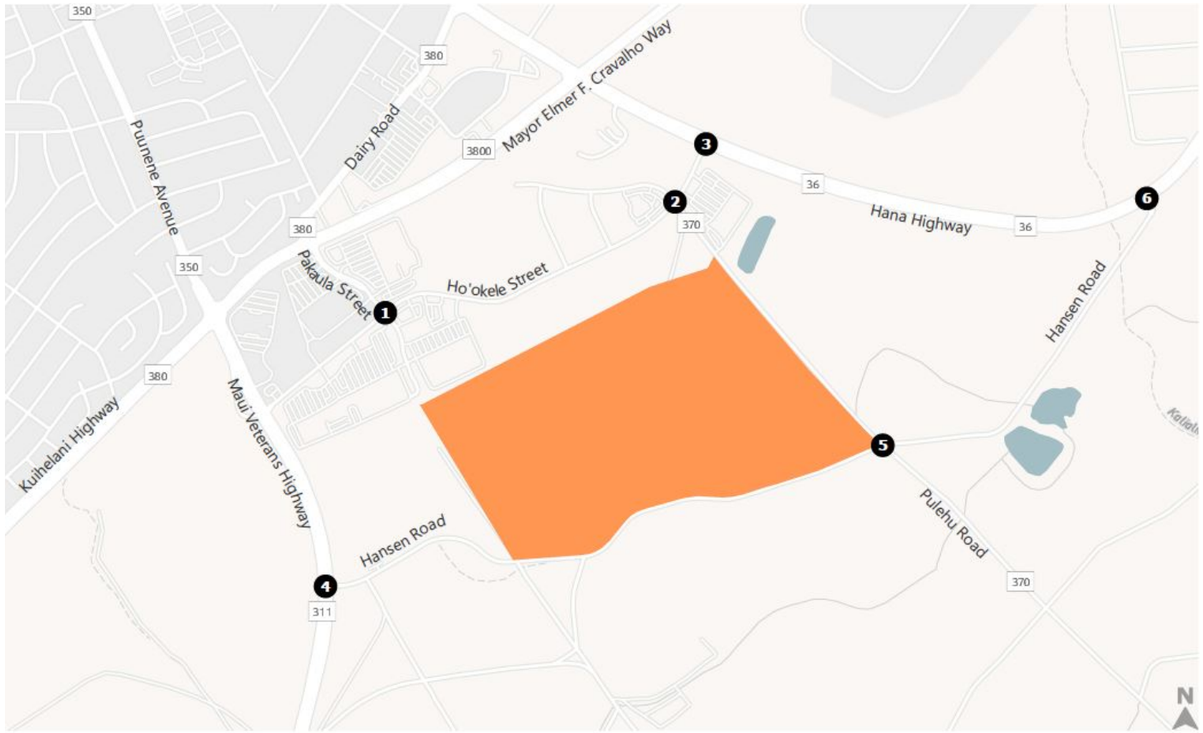
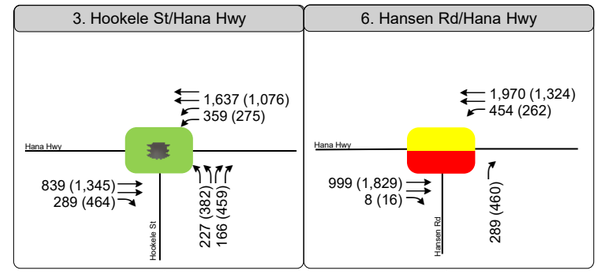
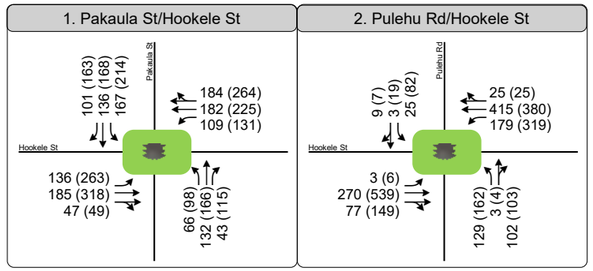


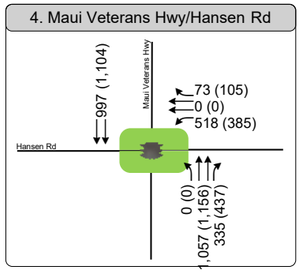
Figure 5

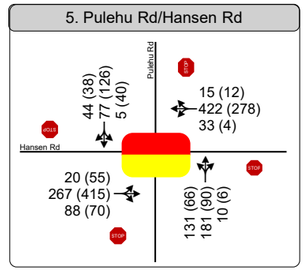
Existing Transit Network











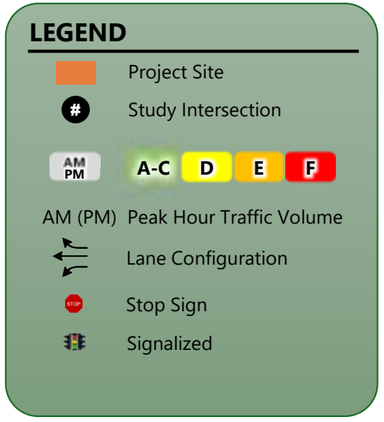


Figure 6
Existing (2024) Conditions Roadway Level of Service and Intersection Configurations

Table 4: Existing (2024) Conditions Level of Service

	Intersection	Control[1]	Existing Intersection Operations			
			AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]
1	Ho'okele Street/ Pakaula Street	Signal	14.2	B	16.7	B
2	Ho'okele Street/ Pulehu Road	Signal	13.5	B	17.0	B
3	Hana Highway/ Ho'okele Street	Signal	10.4	B	17.2	B
4	Maui Veterans Highway/ Hansen Road	Signal	12.8	B	10.8	B
5	Pulehu Road/ Hansen Road	AWSC	**54.9**	**F**	30.2	D
6	Hana Highway/ Hansen Road	Yield	26.5	D (WB LT)	**56.6**	**F (WB LT)**
D1	Pulehu Road/ Project Driveway (Future)	-	-	-	-	-
D4	Hansen Road/ Project Driveway (Future)	-	-	-	-	-
D6	Hansen Road/ Project Driveway (Future)	-	-	-	-	-

Source: Fehr & Peers, 2024 using Synchro 12.
Notes:
[1] AWSC = All Way Stop Control, SSSC = Side Street Stop Control
[2] The average stopped delay and LOS for the worst movement is reported for side-street stop-controlled (SSSC) intersections. The weighted average stopped delay and LOS for the whole intersection is reported at all AWSC and signalized intersections.
[3] LOS = Level of Service
Bold text indicates undesirable levels of service

At Hana Highway/Hansen Road, observed delays on the westbound left turn from Hana Highway and Hansen were highly variable depending on arrival of the vehicle platoon from the Hana Highway/ Ho'okele Street intersection. Wait times to turn left varied from only a few seconds to around 40 seconds. Note that the Synchro 12 analysis software is limited in its ability to capture heavy platooning due to upstream signals. Observed delays are therefore lower than the average delays reported below, though still support the conclusion that vehicles making the westbound left turn can experience higher delays at select times.

Significant project impacts are defined to occur at an unsignalized intersection if operations change from LOS D or better to LOS E or F (or LOS E or F operations are exacerbated), *and* one or more signal warrants are met. Accordingly, MUTCD volume warrants were evaluated for the intersection of Hana Highway at Hansen Road, which was calculated to operate at an unacceptable LOS (E or F) under Existing (2024) Conditions. Counts were collected in 2024 as a part of this study and represent the most recently available traffic counts. This intersection meets the peak hour, 4-hour, and 8-hour signal warrants under Existing (2024) Conditions. Since all other analysis scenarios assume higher volumes at Hana Highway/ Hansen Road, the signal will be warranted under both future analysis scenarios. Signal warrants are provided in **Appendix C**.

3.6 Collision History

HDOT provides a summary of fatal crashes across the state for 2012 through 2023 on their online Fatal Crash Dashboard and web map. For the last five years of data (2019-2023), a total of six fatal crashes were reported. Five of the crashes had drugs or alcohol as the primary contributing factor. The location of these crashes and the mode of travel are shown in **Table 5**.

Table 5: Collision History

Approximate Location	Motorcycle/Moped	Pedestrian	Bicycle	Car/Truck
Ho'okele Street (Pakaula Street to Pulehu Road)	1	0	0	0
Hana Highway (Ho'okele Street to Hansen Road)	0	1	0	0
Hana Highway/Ho'okele Street Intersection	0	0	0	1
Hansen Road (Pulehu Road to Hana Highway)	0	0	0	1
Maui Veterans Highway/Kuihelani Highway Intersection	1	0	0	0
Pakaula Street/Mayor Elmer F Cravalho Way Intersection	1	0	0	0

Source: O'ahu Motor Vehicle Crashes 2012-2023
https://histategis.maps.arcgis.com/apps/MapSeries/index.html?appid=39e4d804242740a89d3fd0bc76d8d7de

Overall, no major safety issues were identified immediately fronting the project site. However, the lack of designated and quality bicycle and pedestrian facilities in the study area increases the potential of crashes involving active transportation users.

4 Project Traffic Estimates

Future traffic added to the roadway system by the project is estimated using a three-step process: (1) project trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of project-generated traffic that would be added to the roadway network. The second step estimates the direction of travel to and from the project site. The new trips are assigned to specific street segments and intersection turning movements during the third step.

Buildout land use data and trip generation information for the Ho'onani Village Master Plan update was provided by Alpha Inc. The vehicle trip generation for the proposed project was estimated using standard trip rates from the *Trip Generation Manual* (11th Edition, September 2021) published by the Institute of Transportation Engineers (ITE) and buildout land use data for the Ho'onani Village Project provided by the project team. The resulting trip totals were then adjusted using the Mixed-Use (MXD) Trip Generation Model developed by Fehr & Peers and the Environmental Protection Agency (EPA), which is based on statistically superior data compared to the mixed-use methodology used by ITE alone. This model accounts for the site context and other factors to estimate potential internalization and multimodal trip reductions.

Table 6 shows the expected trip generation by phase based on ITE trip rates and inclusive of multimodal trip reductions. More details on trip generation rates, inbound and outbound splits, and reductions taken in the MXD+ model are provided in **Appendix D**.

New vehicle trips were distributed across the roadway network based on existing travel patterns inferred from the turning movement counts, roadway segment counts, and 2019 ADT volume outputs from the Maui MPO Travel Demand Model. The trip distribution for the project is shown on **Figure 7**.

Trips were then assigned to the individual turning movements at each of the study intersections and used to analyze future conditions with the project as described in **Section 5**. The trip assignments are shown on **Figure 8**.

Table 6: Project Trip Generation

Project Land Use	ITE Land Use	ITE Code	Units	Quantity	Daily Total	AM In	AM Out	AM Total	PM In	PM Out	PM Total
Multifamily Housing	Multifamily Housing (Low- Rise)	221	Dwelling Units	1,599	10,325	125	394	519	446	262	708
Commercial in Mixed-Use Site and Blocks 12 and 14	Shopping Plaza (40-150k) - No Supermarket	821	1000 Sq. Ft. GLA	125.668	8,592	153	98	251	322	332	654
Future Commercial in Block 3	Shopping Plaza (40-150k) - No Supermarket	821	1000 Sq. Ft. GLA	15.6	1,202	38	30	68	42	41	83
Office	Office Park	750	1000 Sq. Ft. GFA	100	1,338	256	32	288	21	126	147
Industrial	Industrial Park (Adj Streets, 7-9A, 4-6P)	130	1000 Sq. Ft. GFA	198.1	668	54	13	67	15	52	67
Internal Capture[1]					-702	-41	-37	-78	-93	-89	-182
External Walk, Bike, and Transit Reduction[2]					-1,109	-38	-35	-73	-38	-36	-74
Total					**20,314**	**547**	**495**	**1,042**	**715**	**688**	**1,403**

Source: Fehr & Peers, 2025
[1]Internal trips: Daily = 3.2%, AM Peak Hour = 6.6%, PM Peak Hour = 11.1%
[2]External trips made by a combination of walking, bicycling, and transit: Daily = 5.0%, AM Peak Hour = 6.1%, PM Peak Hour = 4.5%

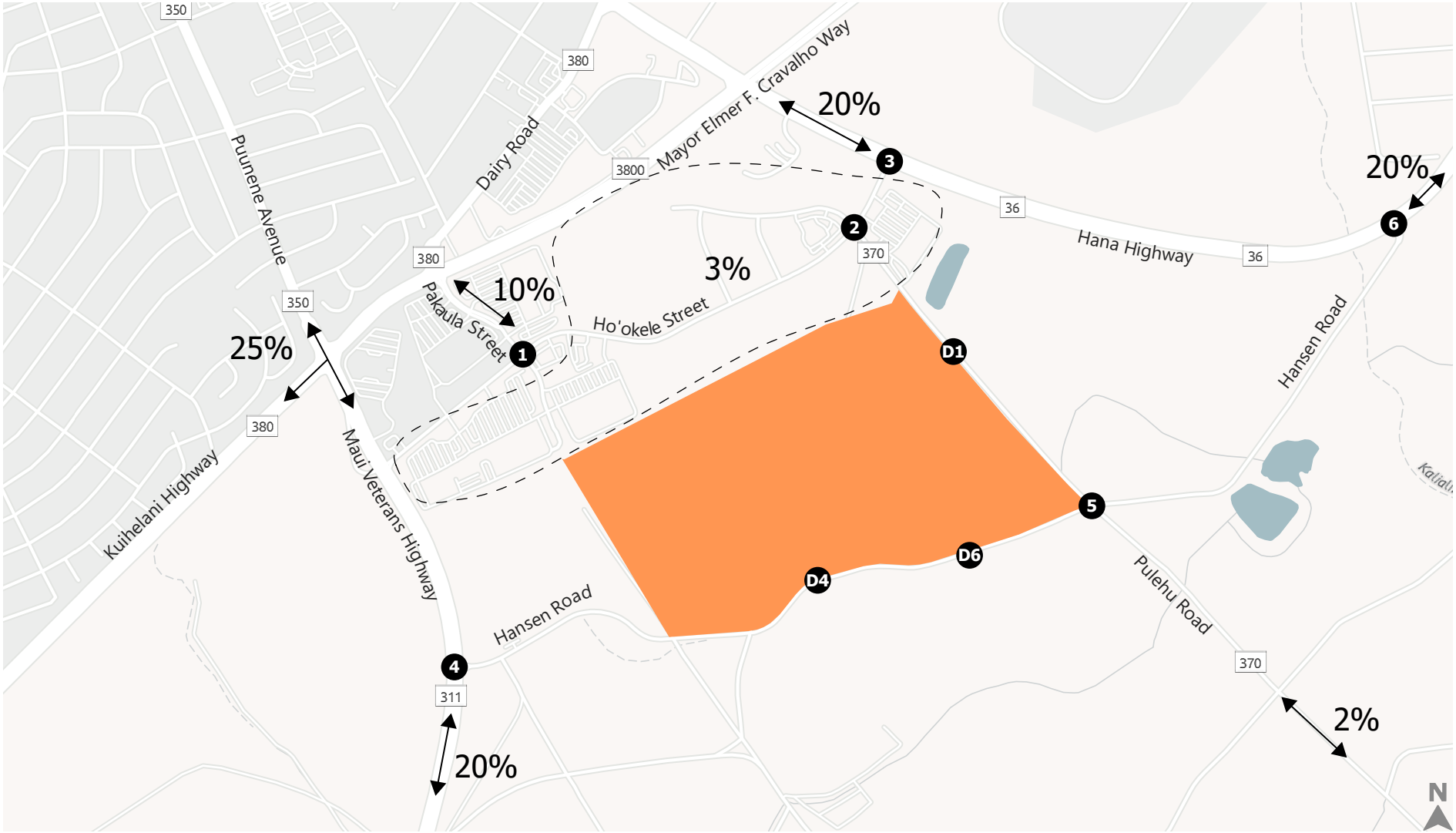
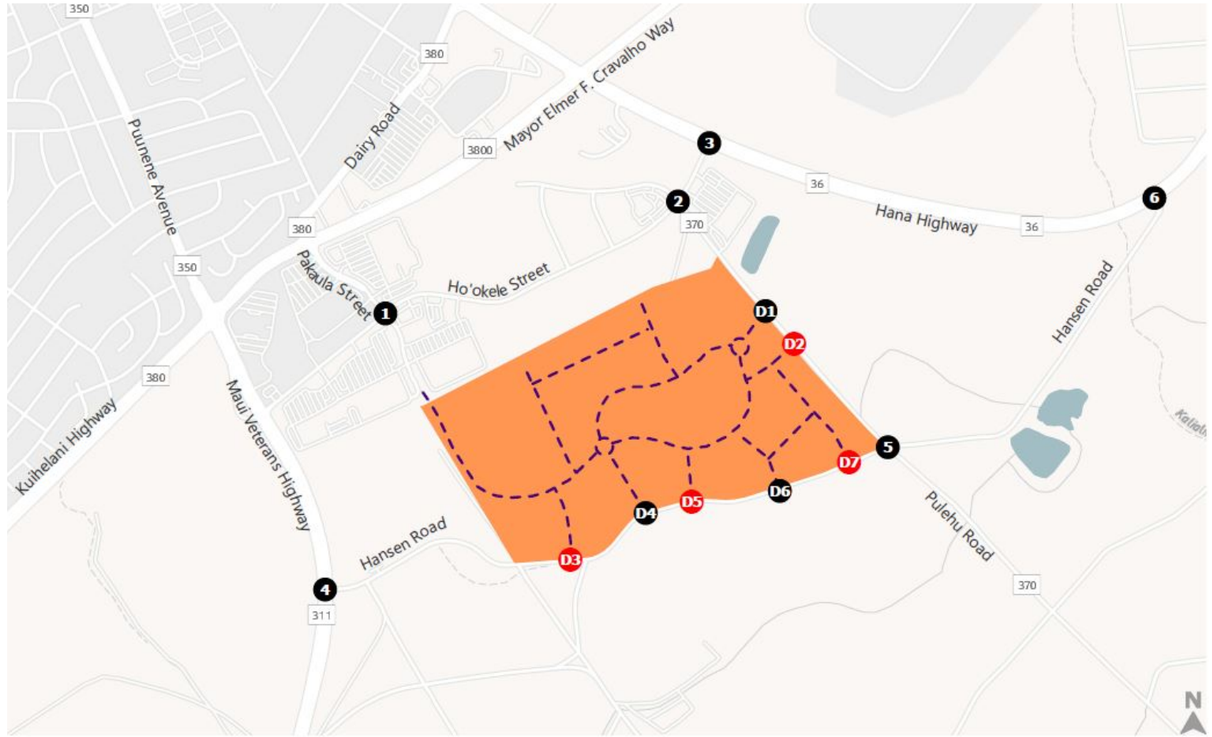


Figure 7

Trip Distribution



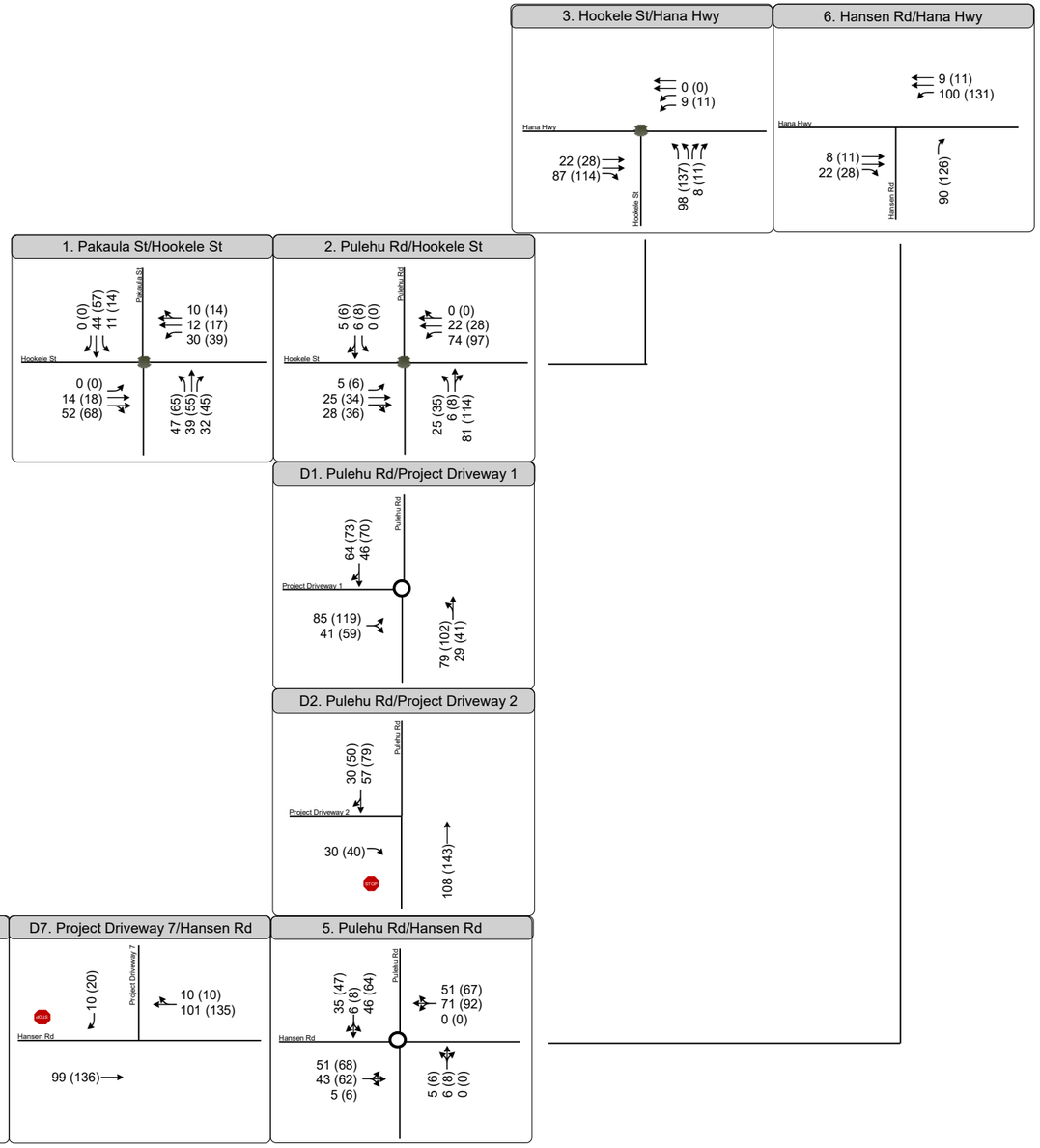


Figure 8
Project Trip Assignment

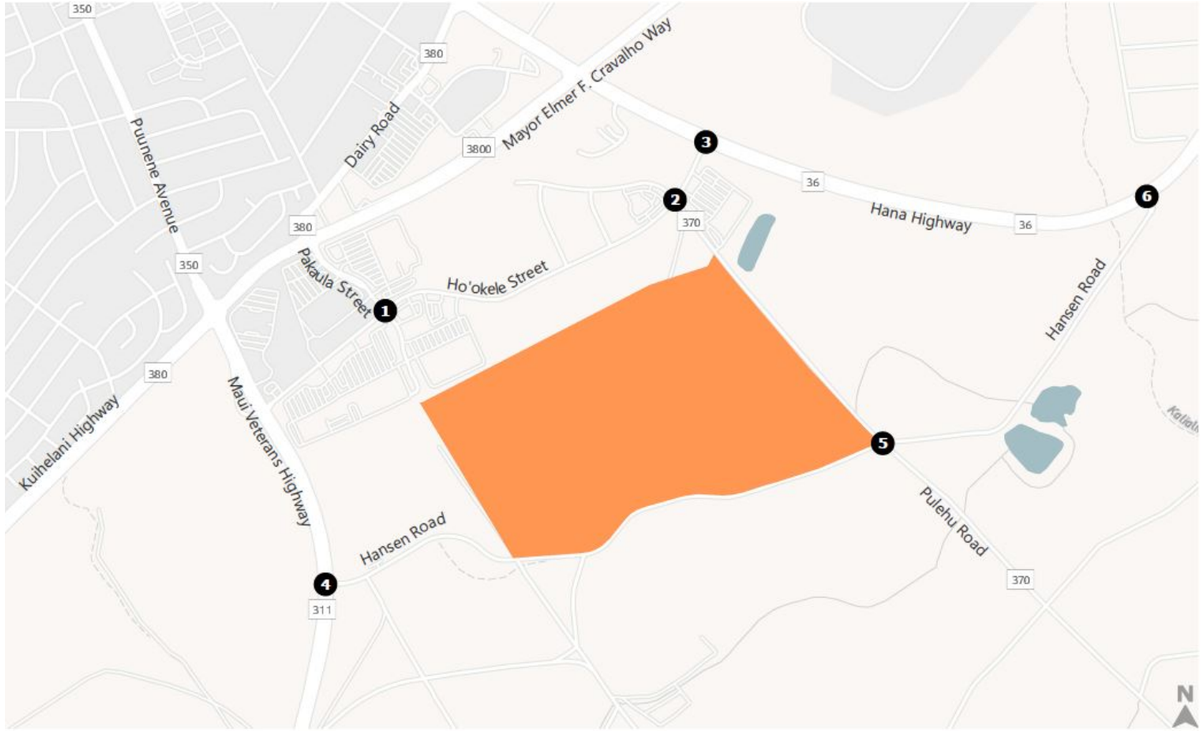
5 Year 2035 Analysis

Annual growth rates for volumes on study facilities were calculated based on planned development in the study area and long-term growth projections in the Maui Travel Demand Model. Using estimated growth by buildout in 2035, an annual growth rate in traffic of 1% through 2035 was calculated for the study area except for Ho'okele Street, where a 2% per year growth rate was used to account for the additional planned development along the corridor. Growth rates were applied to Existing (2024) volumes to yield Year 2035 No Project volumes. Project trip generation forecasts from **Section 4** were added to these volumes to yield Year 2035 Plus Project volumes.

All signalized intersections were optimized for Year 2035 analysis. Additionally, the Pulehu Road/Hansen Road intersection was assumed to have been changed from AWSC (All Way Stop Controlled) to a single-lane roundabout for Year 2035 analysis based on information provided by Maui County and the identification of the intersection in the I Mua Central Maui Transportation Study as needing intersection improvements.

5.1 Year 2035 Intersection Analysis

Year 2035 peak hour volumes, lane configurations, and level of service for all study intersections are provided on **Figure 9** and **Figure 10** for No Project and Plus Project Conditions, respectively. **Table 9** contains LOS and delay results for the two future 2035 scenarios. The corresponding LOS calculation sheets are included in **Appendix B**.



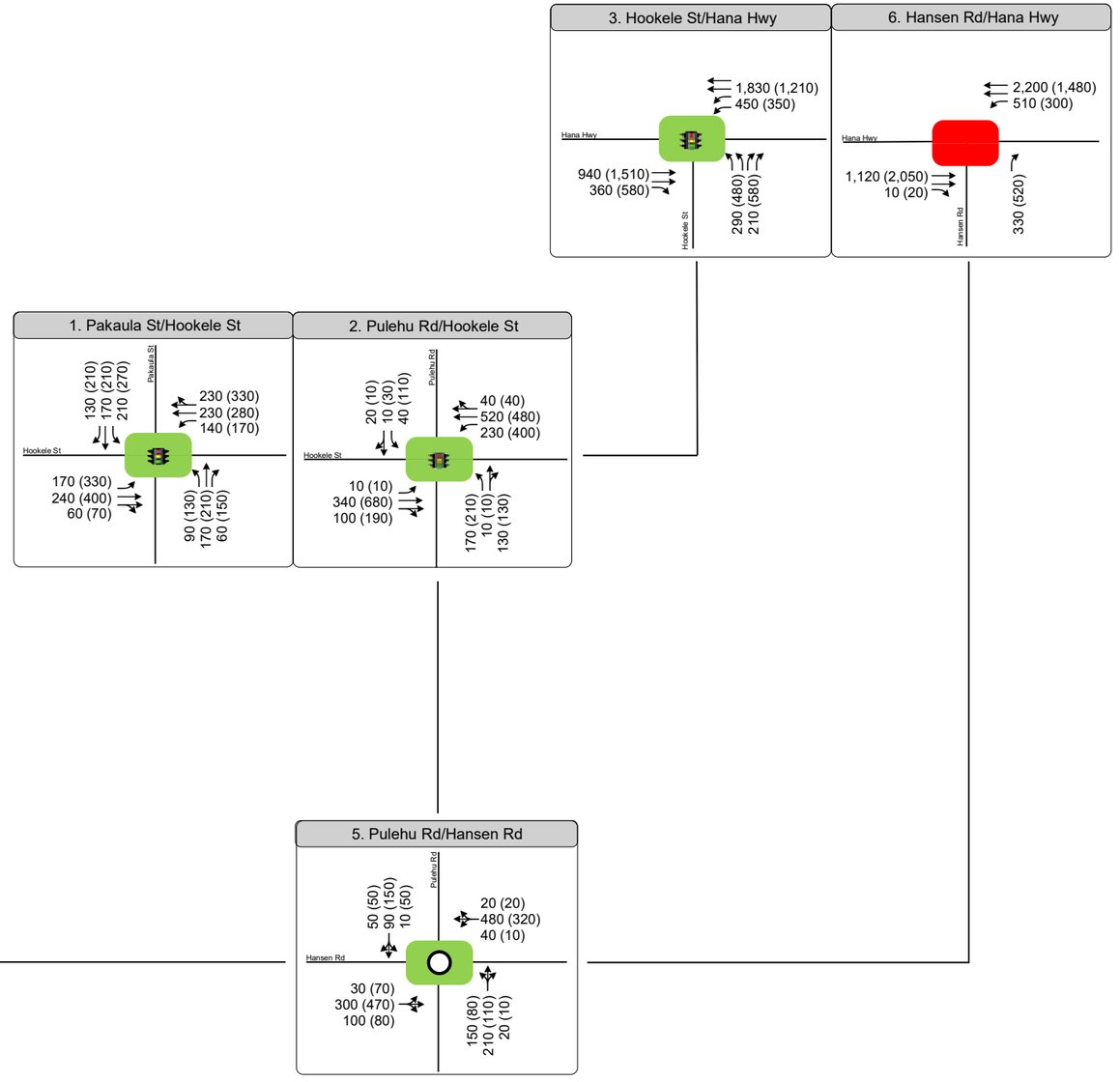
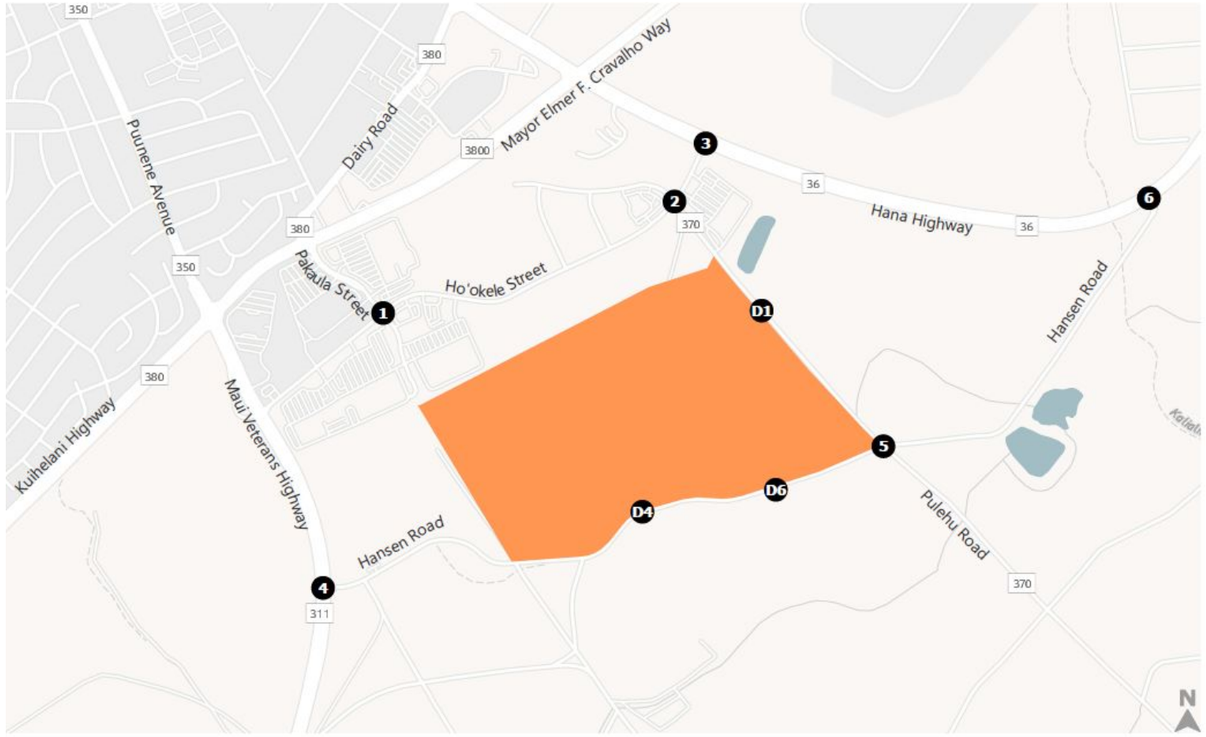
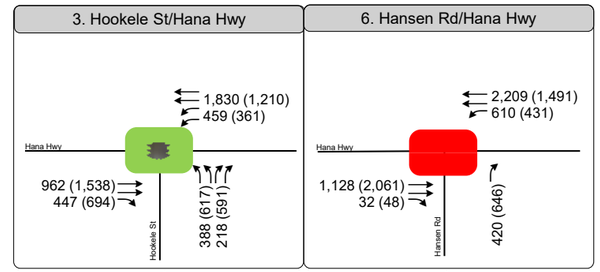
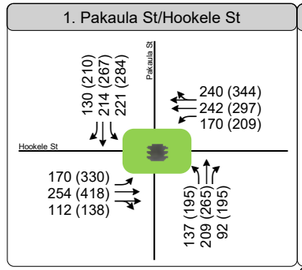
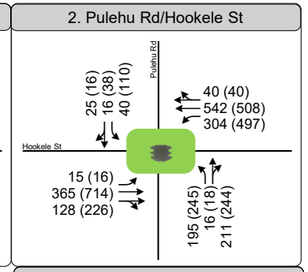


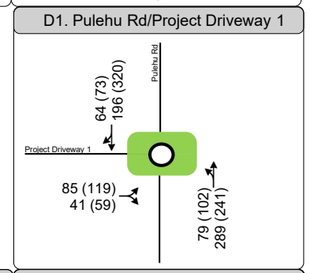
Figure 9
Peak Hour Traffic Volumes, Lane Configurations, and Level of Service - Year 2035 No Project











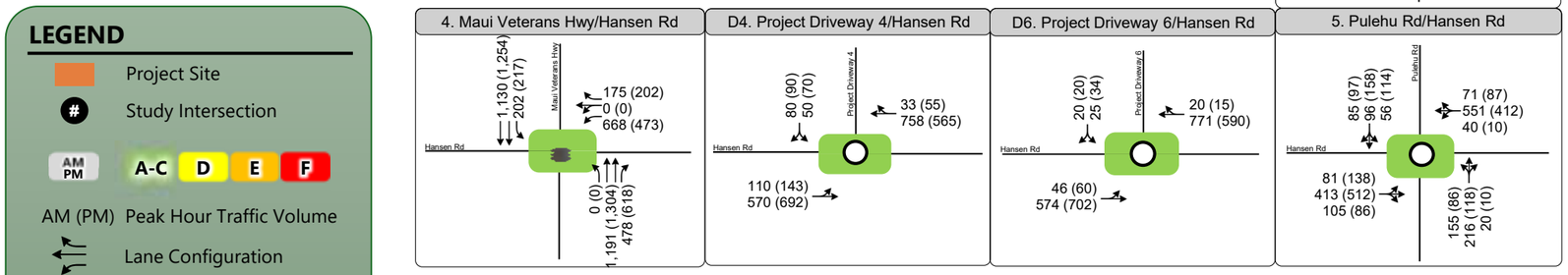


Figure 10
Peak Hour Traffic Volumes, Lane Configurations, and Level of Service - Year 2035 Plus Project

Table 7: Year 2035 No Project and Plus Project Level of Service Results

	Intersection	Control	No Project				Plus Project				Change in Delay	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour	PM Peak Hour
			Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS		
1	Ho'okele Street/ Pakaula Street	Signal	15.5	B	18.7	B	16.3	B	20.8	C	0.8	2.1
2	Ho'okele Street/ Pulehu Road	Signal	14.6	B	20.3	C	15.4	B	27.1	C	0.8	6.8
3	Hana Highway/ Ho'okele Street	Signal	11.9	B	20.8	C	14.1	B	25.5	C	2.2	4.7
4	Maui Veterans Highway/ Hansen Road	Signal	15.0	B	12.3	B	21.7	C	17.3	B	6.7	5.0
5	Pulehu Road/ Hansen Road	Roundabout	11.8	B	9.7	A	24.4	C	15.4	C	12.6	5.7
6	Hana Highway/ Hansen Road	Yield	**51.0**	**F**	**>120.0 (WB LT)**	**F**	**114.5 (WB LT)**	**F**	**>120.0 (WB LT)**	**F**	**63.2 (WB LT)**	**> 120.0 (WB LT)**
D1	Pulehu Road/ Project Driveway	Roundabout	-	-	-	-	5.3	A	6.0	A	-	-
D4	Hansen Road/ Project Driveway	Roundabout	-	-	-	-	11.7	B	11.2	B	-	-
D6	Hansen Road/ Project Driveway	Roundabout	-	-	-	-	10.0	B	9.5	A	-	-

Source: Fehr & Peers, 2024 using Synchro 12.
Notes:
[1] The average stopped delay and LOS for the worst movement is reported for side-street stop-controlled intersections. The weighted average stopped delay and LOS for the whole intersection is reported all other intersections.
[2] Individual turning movement operates at an undesirable level, but side street volume does not warrant signal.
Bold text indicates undesirable levels of service

All study intersections are forecast to operate at desirable levels of service under both No Project and Plus Project conditions in 2035 with the exception of Hana Highway/Hansen Road. The Pulehu Road/Hansen Road intersection is forecast to operate at LOS A/B/C under both No Project and Plus Project conditions. A single lane roundabout with single lane approaches is sufficient for acceptable operations and no widening along Pulehu Road or Hansen Road is needed.

The westbound left-turn movement on Hana Highway to Hansen Road is projected to operate at LOS F under both No Project and Plus Project conditions during the AM and PM peak hours. This movement also operates at LOS F during the PM peak hour under existing conditions and meets the 4-hour and 8-hour signal warrants under existing conditions. Based on the impact criteria, the project implementation would result in a significant *cumulative* impact at this location (i.e., poor operations would occur even without the project, but the proposed development would exacerbate undesirable operations).

If this intersection is not signalized in the future, vehicle queues (maximum of 800 feet under Plus Project conditions) would exceed the 350-foot turn-pocket storage. Under those conditions, vehicles heading towards the project from Hana Highway would likely continue past Hansen Road and use Ho'okele Street, Pakaula Street, and Pulehu Road to access the site rather than Hansen Road. Intersections along Ho'okele Street are projected to operate at LOS C and do have the capacity to absorb additional traffic. In particular, the westbound left-turn from Hana Highway to Ho'okele Street is forecast to still have some available capacity.

With a signal were installed to mitigate impacts at the Hana Highway/Hansen Road intersection with the existing lane configurations, the entire intersection would operate at LOS A in the AM peak hour with an average delay of 6.3 seconds and LOS B in the PM peak hour with an average delay of 13.2 seconds. The westbound left turn would operate with an average delay of 20.1 seconds in the AM peak hour and 48.6 seconds in the PM peak hour. The projected 95th percentile westbound left turn queue lengths would be 260 feet in the AM peak hour and 350 feet in the PM peak hour, both of which would fit within the available storage.

Because the traffic signal is already warranted at this location under Existing (2024) Conditions, the project should be responsible for its contribution to traffic at this location based on Year 2035 peak hour traffic volumes with the project in place. For the entire intersection, project traffic accounts for 34% of the growth in volumes for the AM peak hour and 39% of the growth in volumes for the PM peak hour between 2024 and 2035. The project accounts for 5% of the total forecast traffic at the intersection in 2035 in the AM peak hour and 7% in the PM peak hour. HDOT will make the final determination on the need for a signal at this location.

5.2 Active Transportation and Transit Impacts

Implementation of the proposed project is not expected to conflict with any existing transit, pedestrian, or bicycle facilities, and it will not preclude the implementation of any other planned enhancements to walking biking, or transit activity (e.g., a path or sidewalk along with a facility where it does not currently exist, such as Hansen Road). Accordingly, no significant active transportation or transit impacts are anticipated.

Pedestrian improvements within the Ho'onani project site include marked crosswalks, street trees, and improved/wider sidewalks. All interior streets including those connecting to Hansen and Pulehu Roads will include sidewalks. The project will additionally construct new sidewalks with landscaping along Pulehu Road and Hansen Street along the project site frontage. The extension of Pakaula is proposed to narrow the pavement to a width of 38 feet with a sidewalk on one side and a 14-foot-wide bicycle & pedestrian path on the other.

Along Hansen Street and Pulehu Road, the project is proposing to widen both streets to meet or exceed County design standards. A center left turn lane would not by needed along either road since all proposed driveways are either right-in right-out or at single-lane roundabouts. The project will be able to

accommodate sidewalks and bike lanes or a shared-use path(s) within the provided right-of-way, consistent with the improvements proposed in the I Mua Central Maui Transportation Study.

The project does not preclude the implementation or installation of additional bike facilities on existing roadway segments in the study area.

The new project driveways on Pulehu Road and Hansen Road should be designed such that there is adequate sight distance for drivers exiting and entering the project site to observe pedestrians and bicyclists and approaching traffic. Additionally, the site facilities should be ADA-compliant, ensuring equal access for individuals with disabilities by implementing necessary modifications to buildings, pathways, and streets/driveways. This will make the site inclusive and accommodating for everyone, regardless of their physical abilities, to actively participate in and benefit from the various transportation options available.

Transportation demand management (TDM) refers to a set of strategies and policies aimed at managing and optimizing transportation systems by reducing travel demand or redistributing it by mode and time. The goal of TDM is to improve transportation efficiency, reduce congestion, enhance mobility, and promote sustainable transportation options. At a minimum, the project developer should provide information on available transit options, as well as micro-mobility (e.g., bike and e-bikes). The developer should also work with the County of Maui to accommodate future transit expansion, including facilitating the development of bus stops adjacent to the project site. This would serve to encourage people to choose these transportation options, thereby reducing the reliance on private vehicles and alleviating congestion on the roads. By facilitating convenient access to car-sharing services, this measure promotes sustainability, enhances efficiency, and contributes to a more streamlined and eco-friendly transportation system within the area.

5.3 Collision Assessment

As noted in the Existing Conditions section of this report, a review of available State of Hawai'i Department of Health motor vehicle crash data showed a total of six fatal crashes were reported. Five of the crashes had drugs or alcohol as the primary contributing factor. While the project will add a small amount of traffic to these facilities, this additional volume is not anticipated to change the crash rate or substantially affect safety. It is assumed that the frontage roadway improvements will be designed consistent with applicable agency standards to minimize safety issues.

Configuring the full-access, site driveway intersections as roundabouts would have safety benefits for both the project and community. Roundabouts reduce the number of conflict points at an intersection. Additionally, they serve as traffic calming features that moderate vehicle speeds and typically reduce collision severity within the intersection.

Given that it is not possible to perfectly predict human behavior and random fluctuations in crash locations or frequency, additional factors and influences may obfuscate the effects of the proposed project. This high-level assessment does not constitute, and is not meant to be, a comprehensive review

of safety in the study or surrounding area, which could be much broader in scope (e.g., including a review of individual collision records, human factors considerations, and comparisons of the collision rates and frequencies with similar localities).

6 Site Access, Circulation, and Parking

This section includes a review of the site access and on-site circulation for vehicles, bicyclists, and pedestrians.

6.1 Site Access

Seven (7) vehicular access points to the site are proposed. Two full access driveways on Hansen Road and one full access driveway on Pulehu Road will be configured as single-lane roundabouts and were studied in the operations analysis above. The roundabouts will function at a desirable level with this traffic control device. Additionally, three right-in right-out driveways are proposed along Hansen Road and one right-in right-out driveway is proposed along Pulehu Road. No separate turn lanes are needed along either Hansen Road or Pulehu Road with roundabouts. The project is proposing to widen both streets to meet or exceed County design standards. The following will be accommodated within the proposed cross-sections and pavement widths:

- Two travel lanes
- Bike Lanes and Sidewalks or a Shared-Use Path(s)
- Raised medians between the two travel lanes at the right-in right-out intersections which will prevent illegal left-turns at the right-in right-out driveways. In between the raised medians, a striped median can be provided within the excess pavement width.
    - Alternatively, a two-way left turn lane could be accommodated.

A preliminary review of sight distances along Pulehu Road and Hansen Road at the access points was conducted and no existing issues were identified; drivers can clearly see the length of the road and no visual impediments are proposed on the project site plan. However, future design plans should be reviewed in detail to ensure that adequate sight distance is provided, in particular for the RIRO driveways along Hansen Road such as Project Driveway 3, where sight distance may be impeded due to roadway curves, building setbacks, and other potential visual impediments (e.g., landscaping, monument signage, etc.) near street/driveway intersections.

Pedestrian access and bicycle access will be provided via the project driveways along Hansen Road and Pulehu Road, as well as Pakaula Street.

Overall, site access is considered adequate, and no additional modifications are recommended.

6.2 On-Site Circulation and Parking

On-site vehicular circulation will be provided via two-lane roads and two-way parking isles within the parking lots on-site. Sidewalks and pedestrian walkways are provided throughout the project site, providing access and multi-modal connectivity to/from/ between residential units, commercial areas, and site amenities.

The project proposes to include 5,413 parking spaces. All spaces provided in surface-level parking lots are perpendicular with two-way circulation. Most spaces will be in parking lots but some angled on-street parking is proposed. All proposed parking will be located within the project; Hansen Road and Pulehu Road do not provide designated street parking and no parking is proposed along those facilities.

Overall, on-site circulation and parking are considered adequate, and no modifications are recommended.

Appendix A – Existing Counts

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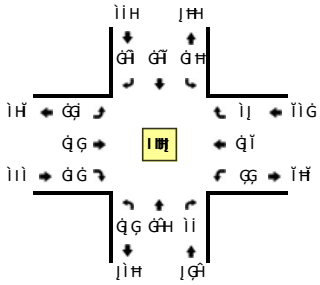

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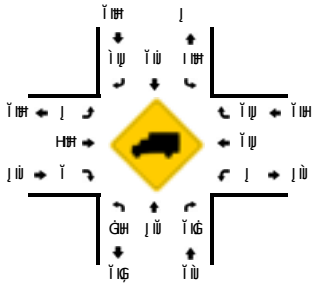

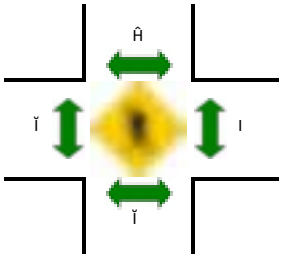

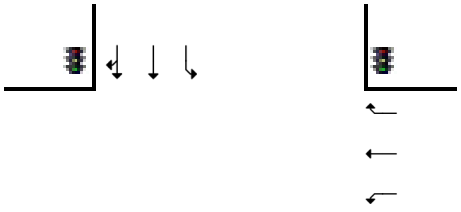

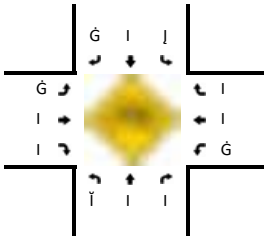

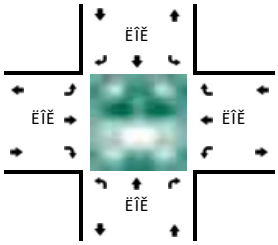

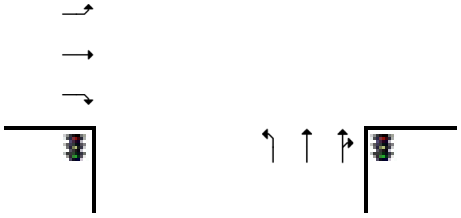

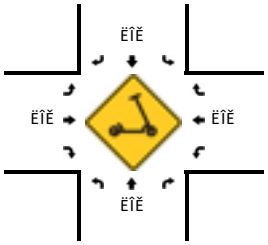

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ÎÐÍÆÐ	GI	GH	Ï	I	Ï	GH	GI	I	J	GH	GI	I	Ï	GI	Î	I	GIG	GJIH
ÎÐHÆÐ	GI	GG	H	I	J	GI	GH	I	GH	GI	Ï	I	H	GG	H	I	GI Ï	GJHH
ÎGÍÆÐ	GH	GI	Ï	I	Ï	Ï	GI	I	ÏI	GI	H	I	J	Î	I	I	GGI	GJII
ÎGHÆÐ	GI	GI	Ï	I	GG	ÏI	GÎ	I	GJ	H	H	I	Ï	GI	Ï	I	GJJ	GJÎI
ÎÐÍÆÐ	GH	GG	Ï	I	GI	GI	GH	I	GI	GH	Ï	I	Î	GG	Î	I	GIH	GIÏG
ÎÐHÆÐ	H	GH	Î	I	H	GG	GI	I	GI	G	H	I	H	GH	Ï	I	GIG	GIÏI
ÎGÍÆÐ	Ï	G	H	I	GI	GJ	H	I	GI	GI	GJ	I	H	GI	J	I	GGH	GIÏJ
ÎGHHÆÐ	GH	ÏG	G	I	Ï	GG	ÏJ	I	GÎ	GÎ	GI	I	Ï	GJ	Ï	I	GHG	GIÎÎ

ÇÃÄÀÄGHED ÆÉ LÐÃÍ ÃÃÐÃC	Ë ÁÅÐÃÃÃÃÆC				È ÁÃÐÃÃÃÃÆC				ÐÃCÐÃÃÃÆC				K ÃCÐÃÃÃÆC				ÁÐÃÐ
	ÈÃÂB	ÃÅÃ	ÇÃÆÃB	L	ÈÃÂB	ÃÅÃ	ÇÃÆÃB	L	ÈÃÂB	ÃÅÃ	ÇÃÆÃB	L	ÈÃÂB	ÃÅÃ	ÇÃÆÃB	L	
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ÊÁĎ Ď AÆBĊĆ

ĶA ÁÅÐÀÆÆÆÃÃÐÃCÃÁÆÃÎHÎÎÎÌÀĠÎ ĊHĮ ÆĖD

ÈÉĹĶÊÐĊÃ ÃÃÐÃĮ ÆÁÃÆBĊÃÈÈÀÃBB ĊÎÎĹĹĹĹŁÃÃÐÃĮ ĊÁÃÆBĊĴÆÃBĴÀĠĘĤÎÎĘĤÎĘĬĠĞ

ÈÉÊÉ ÇÉÈÇÉ AÉÃÄÄÅÐÅÉBÆÇÇÃÄÄÄÅÐÅÉB
ÊÇÌÍÉ É ÐÇÎ ÃÄÄÅÐÅÁÇÉÇ

FÉÄÉ GÄGÇÇGGHÎHHGÌH
ÏÉ ÐÇÂ ÄAÎÄÐ Ã Á GÃÌÍÎÏ

ÇAÃÄÆÉ ÁÅÅÇÂ ÇÎ HÀÇD ÀÆÃÄ ÇÎ HÀÇD
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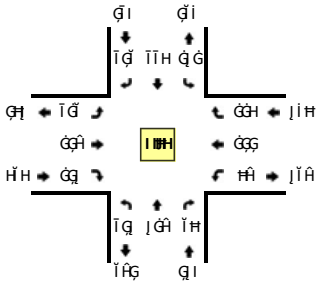
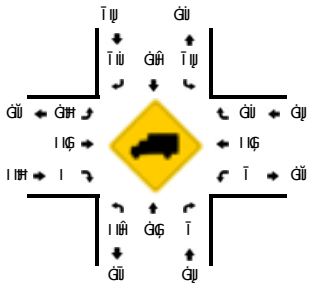
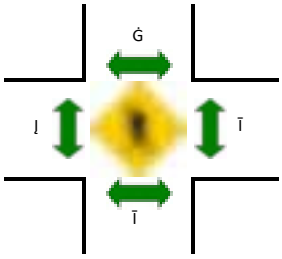
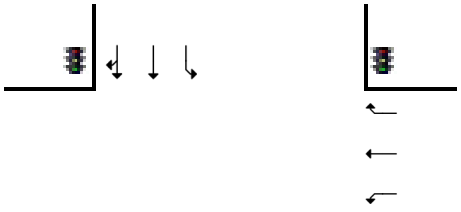
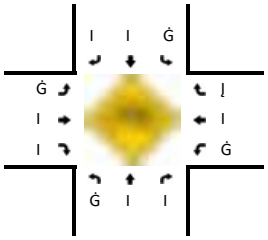
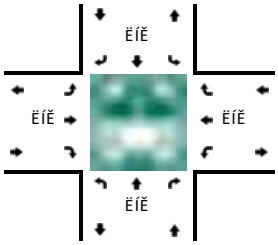
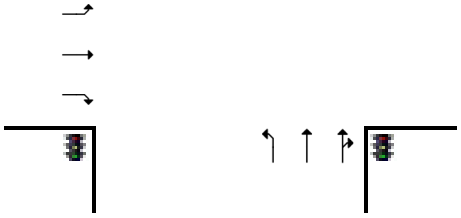
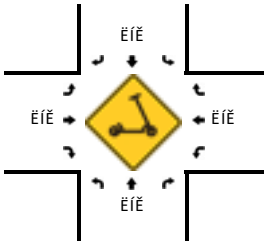
TRUE DATA TO IMPROVE MOBILITY

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ÎÇÌÁÇD	GÌ	ÎÎ	H	I	GG	GÌ	GH	I	GÌ	GÌ	GÌ	I	H	GÌ	H	I	GGÎ	
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ÎÇGÌÇD	ÌÏ	ÎG	Ì	I	GH	ÌÎ	ÏÎ	I	GÌ	GÏ	Ì	I	Ì	GG	H	I	GHG	
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ÎÇHÇD	GÏ	ÏÌ	H	I	GÏ	GÎ	GÎ	I	GG	GG	GÌ	I	G	GH	GH	I	GHÏ	
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ÎÇÌÁÇD	ÏÏ	ÏÌ	Î	I	GÎ	ÏÎ	ÏG	I	GÎ	GÎ	GG	I	GG	GÎ	H	I	GHH	ÏGÎG
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HÚÌÁÇD	ÏG	ÎÌ	Â	I	HH	GÏ	Â	I	ÏG	GH	GÌ	I	Ì	GÂ	GÏ	I	GÌÂ	ÏGÎÏ
HÚHÇD	GÎ	ÏHH	H	I	Â	GH	ÏÌ	I	GÏ	ÏÌ	GG	I	G	GÏ	GÏ	I	GGH	ÏGGÌ
HÚGÌÇD	GÏ	ÎÏ	Ì	I	Ì	GÏ	GÏ	I	ÏG	GÎ	GH	I	Ï	GÏ	GG	I	GGÂ	ÏGGH
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HÛÌÁÇD	GÏ	ÎÎ	G	I	GÌ	GÂ	GÌ	I	GH	ÏÎ	Ì	I	G	GÏ	GÌ	I	GGÎ	ÏÌÌÎ
HÛHÇD	GÌ	ÏH	G	I	Ì	GH	GG	I	GH	GÏ	HH	I	GÏ	GG	GÏ	I	GHG	ÏÌHÎ
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HÚHÇD	GÎ	ÏÌ	Î	I	H	GH	GG	I	GÂ	GG	GÏ	I	G	GG	GG	I	GHÌ	GHHH
HÛÌÁÇD	GÏ	ÏG	Ì	I	H	GG	GÌ	I	GÏ	GÎ	GG	I	G	GÌ	HH	I	GÎÏ	GHHÎ
HÛHÇD	GH	ÎÏ	Ì	I	GÏ	GH	GÌ	I	GÎ	GG	GG	I	G	Â	Â	I	GHG	GHÎG
HÚHÌÁÇD	HH	ÏÂ	I	I	G	GÌ	GG	I	ÏÏ	GG	GG	I	GÌ	GH	HH	I	GHÏ	GHGÏ
HÚHHÇD	GÏ	ÏÌ	Ï	I	HH	GÂ	ÏÏ	I	GH	G	HH	I	Ï	Î	H	I	GÎG	GÂHÌ

ÇÃÄÀÄGHED ÆÉ LÐÃL ÃÃÐÃC	ËÁÅÐÃÃÃÃÆC				ÈÁÅÐÃÃÃÃÆC				ÐÃCÐÃÃÃÆC				KÃCÐÃÃÃÆC				ÁÐÃÐ
	ÈÃÂB	ÃÅÃ	ÇÃÆÃB	L	ÈÃÂB	ÃÅÃ	ÇÃÆÃB	L	ÈÃÂB	ÃÅÃ	ÇÃÆÃB	L	ÈÃÂB	ÃÅÃ	ÇÃÆÃB	L	
ËÐÐÆÃÃÇÐÃC	ÍHÎ	ĮÍÍ	ÎÍ	Í	GĮG	ÎÍÍ	ÎÍG	Í	ÍÍÍ	GGĪ	GGĮ	Í	ĤÎ	GĤÎ	GGĪ	Í	ÎÍĤG
ĒÃÃĻ ÀÃÅCÄČ	Í	GĪ	Í		Î	GĪ	ĤÎ		Ĭ	Ĭ	Í		Í	Í	Í		ĬĬ
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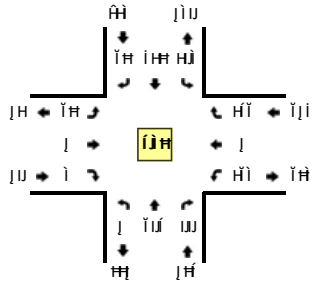
ÈĊÁÁÐÃÆČ																	
ÊÁĎ Ď ÃÆÐĊĆ																	

ĶA ÁÅÐÀÉÆÆÃÃÐÃCÁÁÆÃÍHÍÎÍÎĬÀĠĮĊĤĮÆĖD ÈÉĹĶÊÐĊÃĖÃÃÐÃÆĖÁÃÆÐĊĆÃÈÈÀĹÃĖĖĊĹĹĹĹĹĹÃÃÐÃĖĊÁĂÆĖĎĊÆÃĖĖĠĤÍĮĤĮĮĪĠĪ

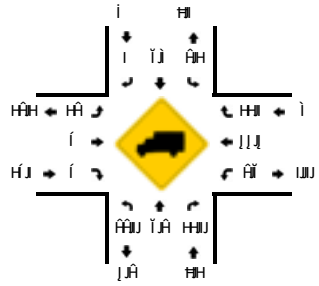
ÈÉÊÈ ÇÈÉÊÈ ÆÉÁÈÄÄÁÐÅÉBÆÇÈÄÐÄÄÄÇÉÐÇÄÐÄÄÄGC
ÊÇÎFÉ É ÐÇÃ ÃÄÄÐÄÁÇÉÇ

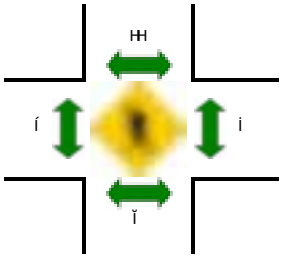
GÉÁÆÉGÁÇÇHÍÍHÌÍÍÎ
Ï É ÐÇÂ ÄÁÌÄÐ Ã Ä HÄÍÍÍÍ

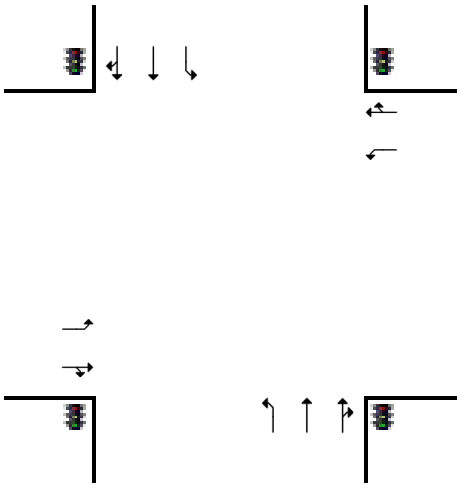


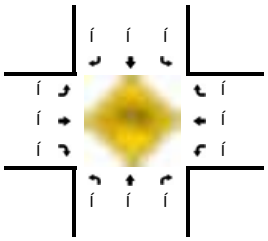
ÇÃÃÄÆÉÁÅÅÇÂÇÍÍÆÐ ÀÆÇÀÇÍÍÆÐ
ÇÃÃÄÀHHÆÐ ÆÆÇÂÇÍÍÆÐ ÀÆÇÀÇHHÆÐ

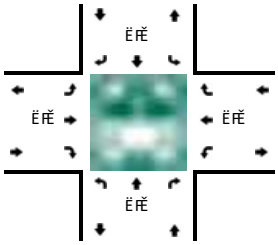
TRUE DATA TO IMPROVE MOBILITY

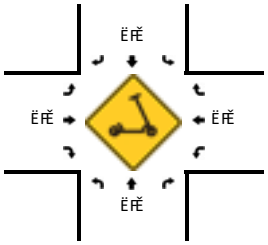












HÆÐ ÁÆÉÁÄÁÆB ÇÁÄÄÁÇÁ GÁÄÆÁÆÄÁÆÉÁÆÉB	ÉÁÆÃÄÄÁÐÄÆÉB ÎÆÁÆÐÅÁÁÄÁÆCK				ÉÁÆÃÄÄÁÐÄÆÉB ÎÉÁÄÆÐÅÁÁÄÁÆCK				ÇÁÐÄÄÁÇÆÐÇÁÐÄÄÁÆGC ÎÐÃÇÆÁÁÁÄÁÆCK				ÇÁÐÄÄÁÇÆÐÇÁÐÄÄÁÆGC ÎÇ ÁÇÆÅÁÁÄÁÆCK				ÁÐÃÐ	ÉÁÄÆÐ ÁÐÄÐÇ
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ÑÇHÍÆD	Í	Ì	Ñ	Í	H	HÏ	H	Í	Í	Í	Í	Í	Ñ	H	Ï	Í	ÌÏ	
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ÑÇÍÆD	Í	HH	H	Í	Ñ	HIJ	H	Í	Í	Í	Í	Í	HH	H	Ì	Í	ÑH	
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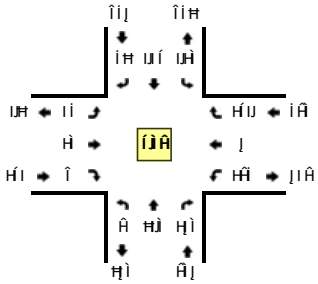

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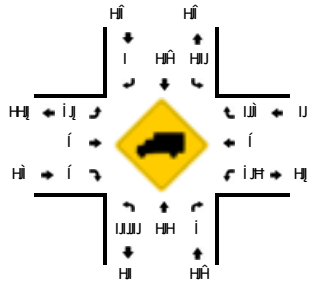

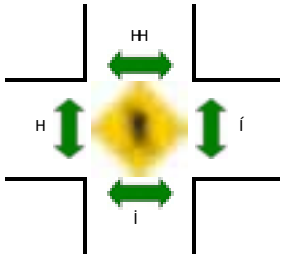

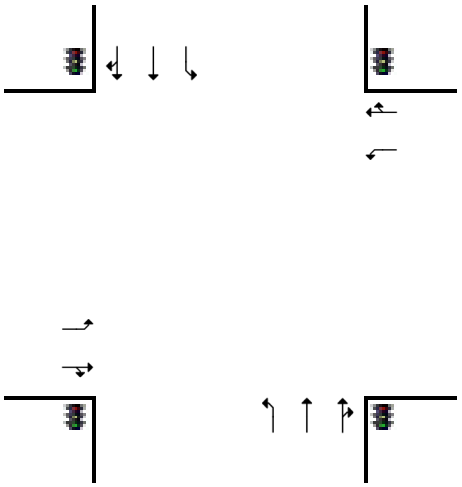

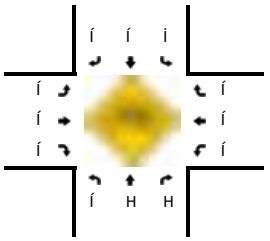

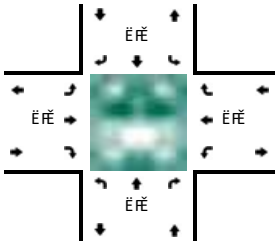

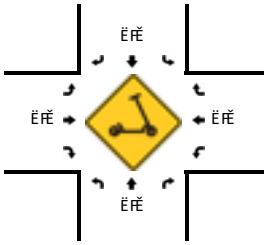

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ÈÉÊË ÇÈÉÇÆÉÄÆÄÄÆÅÆÈÆÄÆÉÆÄÆÉÆÄÆÉ

ÇAÃÄÀGÍED ÆE ĽBAF ÁÁBAC	Ë ÁÅBĀÁÁÁÆC				È ÁÅBĀÁÁÁÆC				ÐÁČBÅÁÁÆC				Ķ ACBÅÁÁÆC				ÁBÃÐ
	ÈAÂB	ĀÅÅ	LÆĒAB	Ĺ	ÈAÂB	ĀÅÅ	LÆĒAB	Ĺ	ÈAÂB	ĀÅÅ	LÆĒAB	Ĺ	ÈAÂB	ĀÅÅ	LÆĒAB	Ĺ	
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LA ÁÅBÀÆÅÆAÅÃBACÁÁÆÀÎÌÎÌÌÎÌÄĢÌ ĈĦĮÆĚD

ÈÉĹĽÊÐĈĢÄÃÆĄB ÆÁÅÁÆBĆÄÆÈÈÂÃÆB ĈÎÎF F F IŁÄÃÆĄB ĊÁÅÁÆBĆĴÆÆABÀĢĘĦIJĘĤĦÌ ĘĬĬĢĬ

ÈÉÊÈ ÇÈÈÇÆÉ AÉÆÄÄÀÐÀÆÉBÁÇÆÉÃÉÆÄÆÉF
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GÊÁÇÉ GÁGÇGHÎHÎHÎ I
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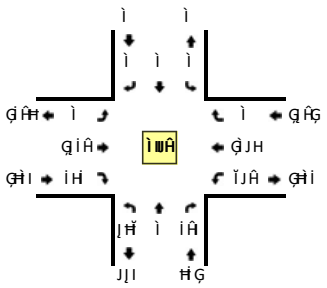

ÇÁÃÄÆÉÁÅÅÇÁÇÌÌÀÇD ÀÉÆÁÇÌÌÀÇD
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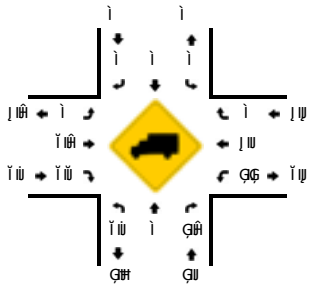
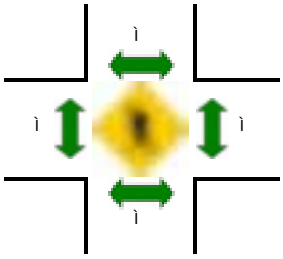
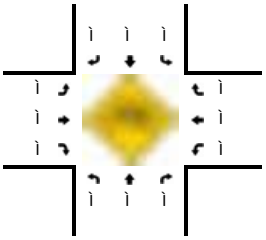
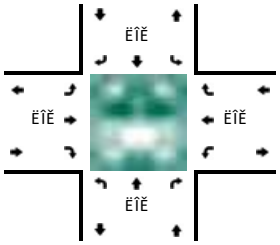
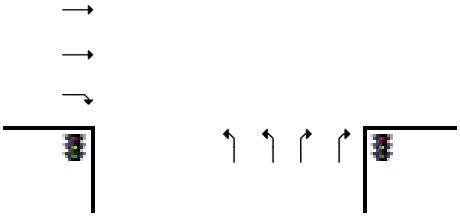
TRUE DATA TO IMPROVE MOBILITY

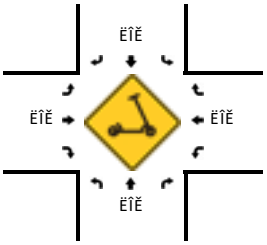












ÎHÐ ÁÆÈÁÅÄÁB CÁÄÁCÁ GÁÆÆÁÆÆÆB	ÉÁÆÃÄÁÆÆÆB ÎÉÁÆÆÅÅÁÄÁÆCK				ÉÁÆÆÄÄÆÆÆB ÎÉÁÆÆÅÅÁÄÁÆCK				ÉÁÆÆÃÆÆF ÎÐÃÇÆÅÁÄÁÆCK				ÉÁÆÆÃÆÆF ÎÇ ACÆÅÁÄÁÆCK				ÁÆÃÐ	ÉÁÄÁÐ ÁÆÁÆÇ
	ÈÁÂB	ÃÁÄ	LÁÇÃB	Í	ÈÁÂB	ÃÁÄ	LÁÇÃB	Í	ÈÁÂB	ÃÁÄ	LÁÇÃB	Í	ÈÁÂB	ÃÁÄ	LÁÇÃB	Í		

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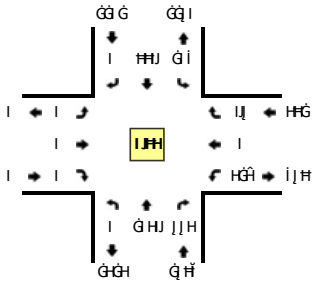

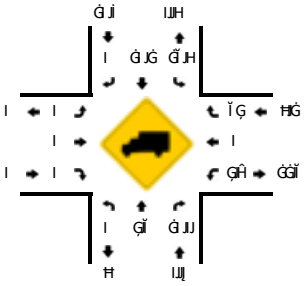

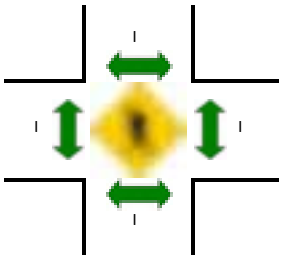

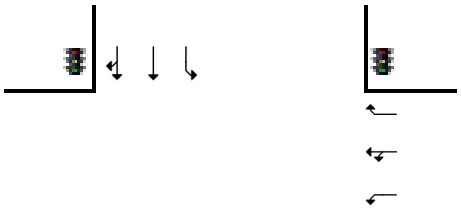

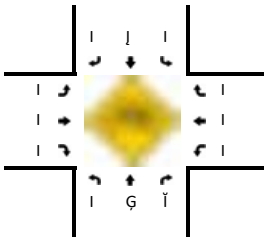

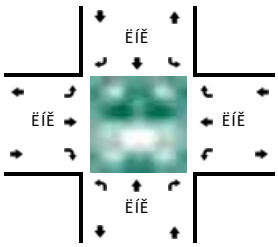

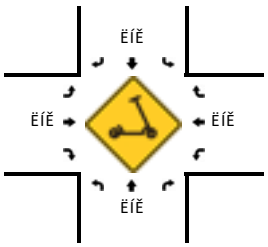

ÇÃÄÀÀÇÈÉÊÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüýþÿ	ËÁÂÃĀÅÆÇÈÉÊĀÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüýþÿ					ÎÁÂÃĀÅÆÇÈÉÊĀÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüýþÿ				ÐÁÂÃĀÅÆÇÈÉÊĀÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüýþÿ				Ķ ÁÂÃĀÅÆÇÈÉÊĀÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüýþÿ				ÁÃÑÐ
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ÈÃÂÀÀÇÈÉÊÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüýþÿ																																								
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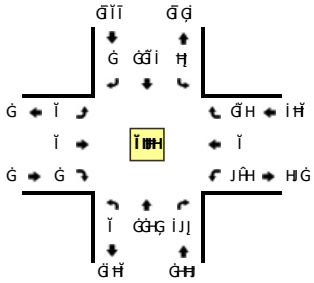

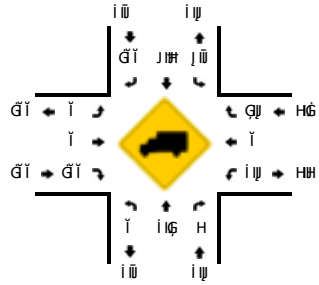

ÇÄÃÄÆÉÊÁÅÅÇÎÍHÇÇD ÀÆÉÄÍÍHÇÇD
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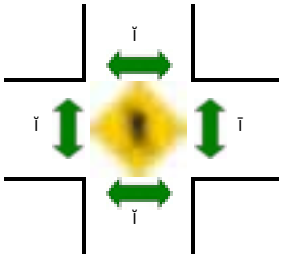

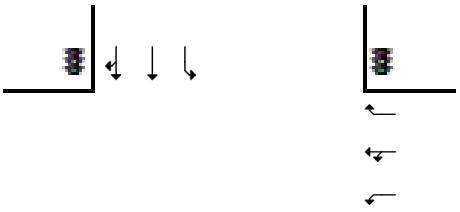

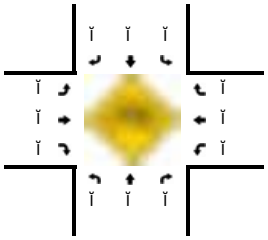

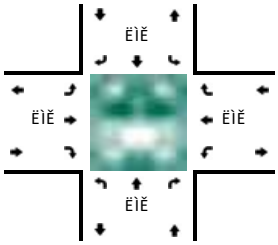

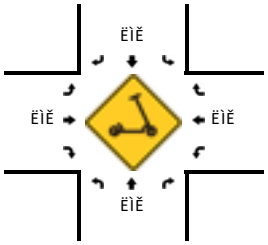

HÉÐ ÆÇÈÉÆÅÃÆB CÆÅÆÆCÆ GÆÆÇÈÆÆÆÆÆÆB	D ÃÄÆÇÈÉÆÆBÆÅÆÆÆCÆÈÉ ÎÈÉÆÆBÆÅÆÆÆCK				D ÃÄÆÇÈÉÆÆBÆÅÆÆÆCÆÈÉ ÎÍÉÆÆBÆÅÆÆÆCK				ÈÆÆCÆÆÆÇC ÎÐÃÇBÆÆÆÆCK				ÈÆÆCÆÆÆÇC ÎKÆCBÆÆÆÆCK				ÁBÃÐ	ÈÁÃÆÐ ÁBÆÆÇ
	ÈÆÂB	ÃÆÆ	ÇÆÆÃB	L	ÈÆÂB	ÃÆÆ	ÇÆÆÃB	L	ÈÆÂB	ÃÆÆ	ÇÆÆÃB	L	ÈÆÂB	ÃÆÆ	ÇÆÆÃB	L		
JÇÎÍÆÇD	Í	ÍJ	ÍÍ	Í	Í	ÍĠ	Í	Í	Í	Í	Í	Í	JÍ	Í	H	Í	ÍÍĠ	
JÇHÆÇD	Ï	ĠÏÍ	ÍĠ	Ï	Ġ	ÍJ	Ï	Ï	Ï	Ï	Ï	Ï	JÎ	Ï	ĠH	Ï	ÍHĮ	
JÇĠÏÆÇD	Ï	HĠ	ÍÎ	Ï	ĠÏ	ÍĠ	Ï	Ï	Ï	Ï	Ï	Ï	ÍÍ	Ï	Í	Ï	ÍÍĠ	
JÇĠHÆÇD	Ï	ÎJ	ÍH	Ï	H	ĠÏH	Ï	Ġ	Ï	Ï	Ï	Ï	JÏ	Ï	Í	Ï	ÍĠĠ	
JÇÎÏÆÇD	Ï	ÎH	ÍÍ	Ï	Í	HÏ	Ï	Í	Ï	Ï	Ï	Ï	JÍ	Ï	H	Ï	ÍÍJ	
JÇHÆÇD	Í	ĠÏH	ÍH	Í	ĠĠ	ĠÏÍ	Ġ	Í	Í	Í	Í	Í	ÍÎ	Í	Í	Í	ÍHĠ	
JÇÍÏÆÇD	Ï	ÎJ	JÍ	Ï	Í	ÎH	Ï	Ï	Ï	Ï	Ï	Ï	JH	Ï	ĠÏ	Ï	ÍĠÏ	
JÇÎÏÆÇD	Ï	ĠĠĠ	ÍÍ	Ï	H	ÍH	Ï	Ï	Ï	Ï	Ï	Ï	JH	Ï	ĠÏ	Ï	ÍHH	
JÇHÆÇD	Ï	ĠÏH	ÍÎ	Ï	ĠĠ	ĠĠÏ	Ï	Ï	Ï	Ï	Ï	Ï	ÍĮ	Ï	ĠĠ	Ï	JĠÏ	
JÇÎÏÆÇD	Ï	ĠÎ	ÍÍ	Ï	Î	ÍÍ	Ï	Ï	Ï	Ï	Ï	Ï	ÍĠ	Ï	ĠÏ	Ï	ÍĠ	
JÇHÏÆÇD	Ï	ÎJ	ÍÍ	Ï	Ï	ÎĠ	Ï	Ï	Ï	Ï	Ï	Ï	JĠ	Ï	J	Ï	ÍÍÍ	
JÇHHÆÇD	Ï	ĠÏĮ	JH	Ï	ĠJ	ĠĠH	Ï	Ï	Ï	Ï	Ï	Ï	ÍH	Ï	Ġ	Ï	JÍH	JĠĠÎ
ÍÇÎÏÆÇD	Ï	ĠÎ	JÎ	Ï	Î	ÍÏ	Ï	Ġ	Ï	Ï	Ġ	Ï	JÍ	Ï	ĠÏ	Ï	ÍÍÍ	JĠÎHH
ÍÇÎÆÇD	Ï	HÏ	JĮ	Ï	Í	ĠÏĠ	Ï	Ï	Ï	Ï	Ï	Ï	ÍÎ	Ï	Í	Ï	ÍÍÍ	JÍÍÍ
ÍÇĠÏÆÇD	Ï	ĮJ	ÍÍ	Ï	H	ÎÏ	Ï	Ġ	Ï	Ï	Ï	Ï	JĠ	Ï	ĠĠ	Ï	ÍÍH	JÍÍĮ
ÍÇĠHÆÇD	Ï	ĠÏĮ	HÏ	Ï	ĠÏ	HĠ	Ï	Ï	Ï	Ï	Ï	Ï	ÍH	Ï	H	Ï	JÍÎ	JÍĮÍ
ÍÇÎÏÆÇD	Ï	ÎH	ÍH	Ï	Í	ĮJ	Ï	Ġ	Ï	Ï	Ï	Ï	JÎ	Ï	H	Ï	ÍHH	JÍÎĠ
ÍÇHÆÇD	Ï	ĠÏĮ	JÍ	Ï	ĠH	ĮĠ	Ï	Ġ	Ï	Ï	Ï	Ï	ÍÍ	Ï	J	Ï	ÍHÍ	JÍHH
ÍÁÍÏÆÇD	Ï	ĮJ	ÍÎ	Ï	H	ÎÍ	Ï	Ï	Ï	Ï	Ï	Ï	JÍ	Ï	Ġ	Ï	ÍÍÍH	JÍÍH
ÍÇHÆÇD	Ï	ĠÏĠ	ÍJ	Ï	ĠĠ	HÍ	Ï	Ï	Ï	Ï	Ï	Ï	ÍH	Ï	Ġ	Ï	JÍĠ	JÍĠÍ
ÍÇĠÏÆÇD	Ï	ĠÏ	JÍ	Ï	Ï	ĠÎ	Ï	Ï	Ï	Ï	Ï	Ï	ÍĠ	Ï	Ġ	Ï	ÍÍÍ	JÍĠH
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HÇÎÏÆÇD	Ï	ÎĠ	JÍ	Ï	ĠÏ	ÎJ	Ġ	Ï	Ï	Ï	Ï	Ï	ÍJ	Ï	Í	Ï	ÍJH	JÍÍĠ
HÇÎHÆÇD	Ï	HĠ	ÍĮ	Ï	H	ÎH	Ï	Ġ	Ï	Ï	Ï	Ï	JĠ	Ï	J	Ï	ÍĠÎ	JÍHH
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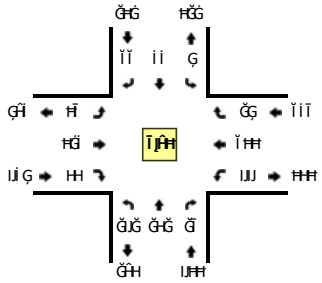
HÇHHÆÇD	Ï	HH	ÍÍ	Ï	ĠÏ	ĠÎ	Ï	Ġ	Ï	Ï	Ï	Ï	ÍÎ	Ï	Í	Ï	ĠHÏ	ÍĮÍH

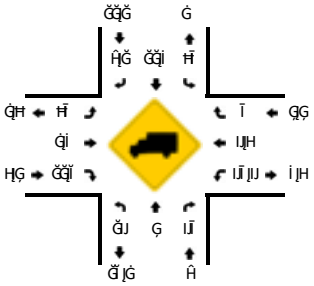
ÈÉÊËÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüýþÿĀāĂăĄąĆćĈĉĊċČčĎďĐđĒēĔĕĖėĘęĚěĜĝĞğĠġĢģĤĥĦħĨĩĪīĬĭĮįİıĲĳĴĵĶķĹĺĻļĽľĿŀŁłŃńŅņŇňŊŋŌōŎŏŐőŒœŔŕŖŗŘřŚśŜŝŞşŠšŢţŤťŦŧŨũŪūŬŭŮůŰűŲųŴŵŶŷŸŹźŻżŽ

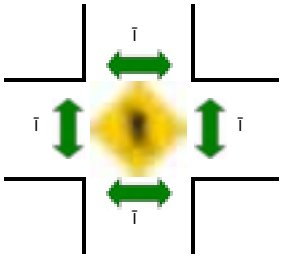
ÊÔÌÍÎ ÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüýþÿĀāĂăĄąĆćĈĉĊċČčĎďĐđĒēĔĕĖėĘęĚěĜĝĞğĠġĢģĤĥĦħĨĩĪīĬĭĮįİıĲĳĴĵĶķĹĺĻļĽľĿŀŁłŃńŅņŇňŊŋŌōŎŏŐőŒœŔŕŖŗŘřŚśŜŝŞşŠšŢţŤťŦŧŨũŪūŬŭŮůŰűŲųŴŵŶŷŸŹźŻżŽ

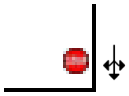


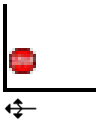
ÇÃÃÄÈÁÅÅÇÃÇĞĢĞĢÄÈD ÄÈÈÄHĞĞĢĞĢÄÈD
ÇÃÃÄÄĞĢĞĒD ÆĢĞÃĆÚĢĞĢÄÈD ÄÈÈÄĆĢĪÄÈD

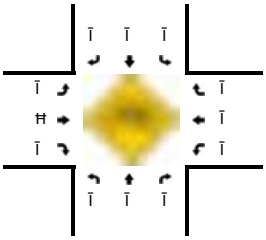
TRUE DATA TO IMPROVE MOBILITY

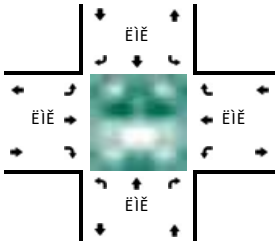


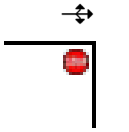


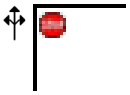


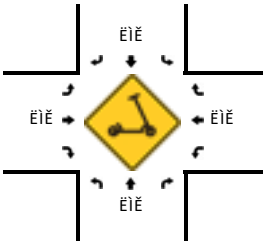












ĢĒD ÆĢĒÄĂÄB ĆÄÄÆĆÄĢĀ GÄÄĢÆĢÄÈÄB	ĆÄĐÄÄÄÄĒC JĒ ÄÄĐÄÅÄÄÄÆĆĴ				ĆÄĐÄÄÄÄĒC JÍ ÄÄĐÄÅÄÄÄÆĆĴ				ÉĀÆĆÄÄÆĒC JĐĀĆĐÄÄÄÄÆĆĴ				ÉĀÆĆÄÄÆĒC JK ĀĆĐÅÄÄÄÆĆĴ				ÁĐĀĐ	ÉÄĀÄĐ ÁĐÄĐĆ
	ÈÄÂB	ĀÄÄ	ĒÄĢĒB	Ķ	ÈÄÂB	ĀÄÄ	ĒÄĢĒB	Ķ	ÈÄÂB	ĀÄÄ	ĒÄĢĒB	Ķ	ÈÄÂB	ĀÄÄ	ĒÄĢĒB	Ķ		
ĢĈĪÆĒD	IJ	Ħ	Ī	Ī	Ī	Ī	Ħ	Ī	Ġ	Ġ	Ī	Ī	Ġ	ĦĪ	IJ	Ī	Ī Ħ	
ĢĈĢÆĒD	Ĭ	Î	Ğ	Ī	Ī	Ģ	Ğ	Ī	Ī	Ĭ	ĞĞ	Ī	Ħ	ĞĢ	Ī	Ī	ĢĦ	
ĢĞĢÆĒD	ĞĪ	Î	Ī	Ī	Ī	IJ	IJ	Ī	IJ	Ġ	İ	Ī	IJ	ĠĪ	Ħ	Ī	ĢIJ	
ĢĞĢĢÆĒD	İ	ĞĪ	Ī	Ī	Ī	Ģ	Ğ	Ī	Ġ	Ĭ	Ĭ	Ī	Ħ	ĦĪ	Ğ	Ī	ĢĤ	
ĢĈĦĪÆĒD	ĞH	ĠIJ	Ī	Ī	Ī	Ī	Ī	Ī	Ġ	İ	H	Ī	Ī	ĦĪ	Ğ	Ī	Ī Ā	
ĢĈĦĢÆĒD	ĞĞ	Î	Ğ	Ī	Ī	Ġ	Ħ	Ī	Ħ	Î	H	Ī	Ğ	ĦIJ	Ğ	Ī	Ī IJ	
ĢĆIJĪÆĒD	İ	Ģ	Ī	Ī	Ī	IJ	Ħ	Ī	Ī	ĠIJ	Î	Ī	IJ	IJĞ	IJ	Ī	Ī Ī	
ĢĆIJĢÆĒD	ĞĪ	ĞĞ	Ğ	Ī	Ī	Ĭ	Ī	Ī	Ī	ĞĪ	Î	Ī	Ğ	IJĬ	Ī	Ī	ĦĬ	
ĢĈĪÆĒD	Ģ	ĞĪ	Ğ	Ī	Ī	Ģ	İ	Ī	Ħ	ĞĪ	Ġ	Ī	Ğ	Ī Ī	İ	Ī	ÂIJ	
ĢĈĢÆĒD	ĞĪ	ĞĪ	Ħ	Ī	Ħ	IJ	Ġ	Ī	IJ	ĞH	Î	Ī	Ğ	IJIJ	Ğ	Ī	ÎĦ	
ĢĞĢÆĒD	ĞĪ	ĞĪ	Ī	Ī	Ğ	Ģ	İ	Ī	IJ	ĞĢ	H	Ī	Ğ	ĦĪ	Ğ	Ī	ÂĢ	
ĢĞĢĢÆĒD	H	ĞĢ	Ğ	Ī	Ğ	Ħ	Ğ	Ī	Ħ	ĞĪ	IJ	Ī	Ħ	IJH	Ğ	Ī	ĦĬ	ÂĪ Ğ
İ ĈĪÆĒD	H	ĞĪ	Ī	Ī	Ī	H	Ħ	Ī	Ğ	ĞĢ	Ģ	Ī	Ī	IJIJ	Ī	Ī	ĦĪ	ÂIJÂ
İ ĈĢÆĒD	ĞĪ	Î	Ğ	Ī	Ī	Ĭ	Ģ	Ī	Ī	ĞĪ	Ġ	Ī	IJ	ĦH	Ğ	Ī	ĦĞ	ÂĢH
İ ĞĞĪÆĒD	İ	Î	Ħ	Ī	Ħ	Ĭ	Ħ	Ī	IJ	ĞĪ	H	Ī	Ĭ	ĦĢ	Ğ	Ī	ĦĪ	ÂĦĢ
İ ĞĞĢÆĒD	İ	ĞH	Ī	Ī	Ħ	H	Ħ	Ī	Ī	ĦĢ	H	Ī	Ĭ	IJĢ	IJ	Ī	ĢĪ Ģ	ĢĪ IJĦ
İ ĞĦĪÆĒD	ĞIJ	ĞĢ	Ğ	Ī	Ī	İ	Ģ	Ī	Ħ	ĦĦ	ĞĞ	Ī	IJ	IJĪ	Ī	Ī	ĢĞH	ĢĪ ĢĢ
İ ĞĦĢÆĒD	ĞH	ĦĪ	Ğ	Ī	Ī	Ģ	Ğ	Ī	Ğ	ĦH	Ģ	Ī	Ĭ	IJĤ	Ğ	Ī	ĢĞH	ĢĞĢĪ
İ ĆIJĪÆĒD	ĠĪ	ĞĢ	Ģ	Ī	Ğ	Ģ	ĢĦ	Ī	Ī	ĦIJ	İ	Ī	Ģ	IJĢ	Ğ	Ī	ĢĢĞ	ĢĞĪ Ī
İ ĆIJĢÆĒD	ĞH	ĞH	Ğ	Ī	Ī	İ	Ī	Ī	IJ	ĦĢ	İ	Ī	Ğ	IJİ	Ħ	Ī	ĢĞĪ	ĢĞĪ Ī
İ ĈĪÆĒD	ĢĢ	ĞĪ	Ī	Ī	Ī	Ĥ	H	Ī	Ħ	ĦĢ	ĞĪ	Ī	IJ	IJIJ	Ģ	Ī	ĢĦĢ	ĢĞĤH
İ ĈĢÆĒD	ĞĪ	ĦĞ	Ĭ	Ī	Ī	Ģ	IJ	Ī	Ī	IJĞ	Ģ	Ī	Ħ	IJĢ	Ğ	Ī	ĢĦĪ	ĢĦĦĢ
İ ĞĢĪÆĒD	Ĥ	ĞĦ	Ī	Ī	Ī	İ	IJ	Ī	Ī	ĦĦ	Ī	Ī	Ģ	Ī Ī	Ģ	Ī	ĢĦIJI	
İ ĞĢĢÆĒD	Ģ	ĞĪ	Ğ	Ī	Ğ	H	Ĭ	Ī	Ğ	ĞĪ	İ	Ī	Ħ	Ĭ Ī	IJ	Ī	ĞĪ İ	ĢĦĢĪ
HĈĪÆĒD	ĞĞ	ĞH	Ī	Ī	Ī	IJ	Ī	Ī	IJ	ĦĞ	ĞĞ	Ī	Ģ	IJĢ	Ī	Ī	ĞĞĢ	ĢĦHĪ
HĈĢÆĒD	Î	H	Ī	Ī	Ī	İ	IJ	Ī	Ğ	ĞĢ	Ģ	Ī	Ī	ĦĪ	Ħ	Ī	ĦĦ	ĢĦHĢ
HĈĞĪÆĒD	Ĥ	ĞĪ	Ğ	Ī	Ğ	Ī	IJ	Ī	IJ	ĞIJ	Ħ	Ī	IJ	IJĢ	Ī	Ī	ĦĦ	ĢĦĤIJ
HĞĢÆĒD	İ	ĞĪ	Ħ	Ī	Ī	Ī	Ī	Ī	Ģ	ĢĢ	Ģ	Ī	İ	ĦIJ	Ģ	Ī	ĦĢ	ĢĦĢH
HĞĦĪÆĒD	Î	ĞĢ	Ħ	Ī	Ī	Î	Ĭ	Ī	Ģ	ĦIJ	Î	Ī	Ī	IJĢ	Ģ	Ī	ĢĞĪ	ĢĦĢĢ
HĞĦĢÆĒD	ĞIJ	ĞĢ	Ħ	Ī	Ī	Ģ	Ģ	Ī	Ħ	ĞĢ	H	Ī	Ģ	ĦĦ	IJ	Ī	ĤH	ĢĦĪ Ģ
HĞĢĪÆĒD	Ģ	ĞĪ	Ģ	Ī	Ħ	Î	IJ	Ī	Ī	ĦĪ	Ī	Ī	Ħ	IJĢ	Ģ	Ī	ĤĦ	ĢĦIJIJ
HĞĢĢÆĒD	Ģ	ĞĢ	Ī	Ī	Ħ	Ģ	Ģ	Ī	Ħ	ĦĪ	ĞĞ	Ī	IJ	IJĢ	Ħ	Ī	ĞĪ Ģ	ĢĦĦH
HĞĢĢÆĒD	ĞIJ	ĞĪ	Ğ	Ī	IJ	Ī	Ħ	Ī	Ħ	ĞĪ	IJ	Ī	IJ	ĦĤ	Ī	Ī	ĦĪ	ĢĞĦĪ
HĞĢĢÆĒD	Ī	ĞĪ	Ħ	Ī	Ğ	Ħ	IJ	Ī	Ħ	ĦH	Ī	Ī	IJ	ĞĦ	Ħ	Ī	ĦĤ	ĢĞĢH

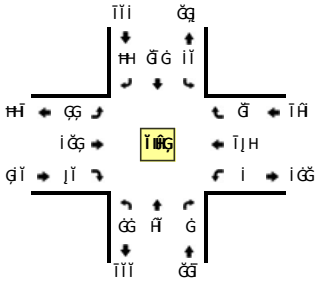
ÇAÃÄÀÄĞĞĒĎ ÆÉ LĐÆL ÄÆBÆC	ËÁÅBÆĀÄÄÄÆC				ÍÁÄBÆĀÄÄÄÆC				ÐÁCĐÆÄÄÄÆC				KÆCĐÆÄÄÄÆC				ÁBÃÐ
	ÈAÂB	ĀÅĂ	ĒÆĢĀB	Ķ	ÈAÂB	ĀÅĂ	ĒÆĢĀB	Ķ	ÈAÂB	ĀÅĂ	ĒÆĢĀB	Ķ	ÈAÂB	ĀÅĂ	ĒÆĢĀB	Ķ	
ÈBÆAÄĢĐÆC	ĞĢĦ	ĦĞĢ	Ħİ	Ī	Ī	ĦĦ	İĪ	Ī	Ħİ	ĦĦĦ	ĢİĦ	Ī	Ħİ	İĦİ	ĢĞ	Ī	ĢİĪĪ
ÈAÃĽ ÀÅĆÄĆ	Ħİ	ĞĦ	Ħ		Ī	Ħİ	Ħ		Ī	ĞĦ	ĞĢ		Ħ	ĞĦ	Ī		ĞĞĢ
GÄĆAĆ																	
ÇACACĐÅĀĢÆC		Ī				Ī				Ī				Ī			Ī
GĄĆ ĐÆĆ	Ī	Ī	Ī		Ī	Ī	Ī		Ī	Ĭ	Ī		Ī	Ī	Ī		Ĭ
ÍĆÁÁBÆĀĆ																	
ÊÁĎ Ď AÆBĆĆ																	

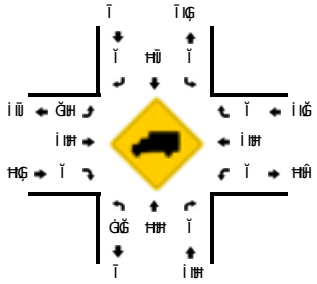
ĒA ÁÅBÆĀÆÆÄÄÄBÆACÄÁÆĂÌĤÌĦĪĦĬĂĞĪĢĢIJÆD

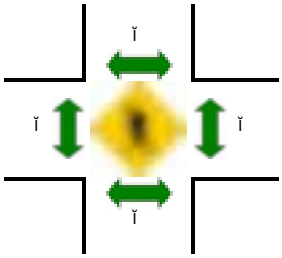
ÍÉĶĒÊĐĆĄĒÄĞÆĄBÆÄÆBĆĪÆÈÈÀĀBB ĆÌÌĹĹĹIĻĂĞÆĄBĆÁĂÄÆBĆĻÆABĪĂĞĒĦİĪĒĢĦĪĒĦĦĞĦ

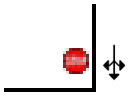
ÈÉÊÈ ÇÉÈÇÃÐÁÂÃÄÅÆÇÈÉÊÀÁÈÃÁÇÁÂÆÇÈÉÊÀÁÈÇ
ÊÇÌÍÎ È ÐÇÑÌ ÃÃÄÐÁÂÃÄÅÆÇÈÉÊÇ

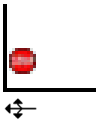
ÇÁÃÄÆÈ ÁÂÅÇÊHÍ GÀÇD ÀÆÈÄÍ GÀÇD
ÇÁÃÄÄÆGÆÈD ÁÆÇÄÍ Ï ÀÇD ÀÆÈÄÍ GÇGÀÇD

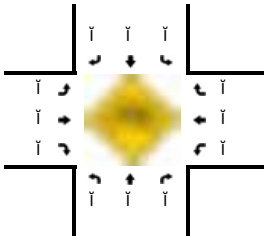


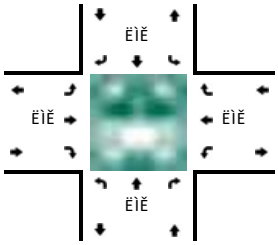


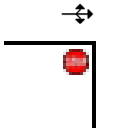


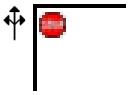


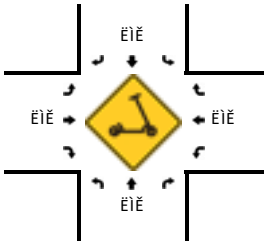












GÉD ÁÆÈÁÃÁB CÁÃÁCÀ GÁÁÐÁÆÈÁÃÁB	CÁÐÁÃÁÈC JÉ ÁÁÐÁÅÁÃÁÆCÎ				CÁÐÁÃÁÈC JÍ ÁÁÐÁÅÁÃÁÆCÎ				ÉÃÆCÁÆÈC JÐÃCÐÁÁÃÁÆCÎ				ÉÃÆCÁÆÈC JK ACÐÁÁÃÁÆCÎ				ÁÐÃÐ	ÉÁÃÅÐ ÁÐÁÐ
	ÈÁÂB	ÃÁÄ	ÉÁÆÈB	Ķ	ÈÁÂB	ÃÁÄ	ÉÁÆÈB	Ķ	ÈÁÂB	ÃÁÄ	ÉÁÆÈB	Ķ	ÈÁÂB	ÃÁÄ	ÉÁÆÈB	Ķ		
HÚÍÁÇD	G	H	Ï	Ï	G	H	G	Ï	G	GĮ	GĬ	Ï	H	Ï	Ï	Ï	HĞ	
HÚĞÁÇD	ĞH	GĬ	G	Ï	G	Į	Ï	Ï	G	Ï Ï	Ï	Ï	G	ĞĤ	Ï	Ï	ĤH	
HĞĞÍÁÇD	Ï	H	G	Ï	Ï	H	Į	Ï	G	Ï Ĥ	Ï	Ï	Ï	ĞĤ	G	Ï	HĮ	
HĞĞĞÁÇD	G	Ĥ	G	Ï	Ï	GĬ	Į	Ï	Ï	Ï Ï	Ï	Ï	Ï	Ï H	Ï	Ï	HH	
HÚÍÁÇD	GĬ	Ĥ	G	Ï	Ï	Ĥ	H	Ï	G	Ï Ï	G	Ï	G	HĬ	Ï	Ï	ĤĮ	
HÚĞÁÇD	Ï	ĞĞ	G	Ï	G	H	H	Ï	G	Ï Ğ	Ï	Ï	Ï	Ï Ï	G	Ï	HH	
HĞHÍÁÇD	Ï	Ĥ	Ï	Ï	Ï	GĬ	Ï	Ï	Ï	Ï Ï	G	Ï	G	HĞ	G	Ï	ĤĞ	
HĞHĞÁÇD	G	Ĥ	Ï	Ï	Ï	GĬ	H	Ï	Į	HĬ	G	Ï	Ï	Ï Į	G	Ï	GĬ Ï	
HÚÍÁÇD	ĞĞ	Ĥ	Ï	Ï	Ï	H	H	Ï	G	HĬ	H	Ï	Ï	ĞĤ	Ï	Ï	ĤĬ	
HÚĞÁÇD	Ĥ	G	Ï	Ï	H	H	G	Ï	Ï	Ï Ï	G	Ï	Ï	Ï H	H	Ï	HĮ	
HĞĞÍÁÇD	H	Ĥ	H	Ï	Ï	GĬ	Ï	Ï	Ï	HĬ	G	Ï	Ï	Ï G	Ï	Ï	ĤĤ	
HĞĞĞÁÇD	H	H	Ï	Ï	G	ĞG	Ï	Ï	Ï	Ï Ĥ	H	Ï	G	Ï Ï	Ï	Ï	ĤĮ	ĞĞĬ H
ÍÚÍÁÇD	Ï	ĞĞ	G	Ï	G	H	Į	Ï	G	Ï G	Ï	Ï	Ï	HĞ	Ï	Ï	GĬ H	ĞĞHĬ
ÍÚĞÁÇD	G	GĬ	Ï	Ï	H	GĬ	Ï	Ï	G	HH	H	Ï	Ï	Ï G	G	Ï	GĬ Ğ	ĞĞHH
ÍĞĞÍÁÇD	G	Į	Ï	Ï	Ï	GĬ	H	Ï	H	HH	GĬ	Ï	G	Ï Į	G	Ï	GĞ Ğ	ĞĞĞG
ÍĞĞĞÁÇD	G	Į	G	Ï	Ï	GĬ	H	Ï	Ï	Ï G	G	Ï	Ï	Ï G	Ï	Ï	GĬ Ğ	ĞĞĬ H
ÍÚÍÁÇD	G	G	Ï	Ï	G	Į	Ï	Ï	Ï	Ï Ï	G	Ï	Ï	Ï H	G	Ï	GĬ Ğ	ĞĞHĬ
ÍÚĞÁÇD	Ĥ	H	Ï	Ï	G	GĬ	H	Ï	G	HG	Į	Ï	Ï	ĞĤ	Ï	Ï	GĬ Ï	ĞĞĤĤ
ÍĞHÍÁÇD	Ï	Į	G	Ï	G	GĬ	Ï	Ï	H	Ï Ï	G	Ï	G	GĬ	G	Ï	ĤĞ	ĞĞĤĬ
ÍĞHĞÁÇD	G	Į	Ï	Ï	Į	GG	G	Ï	G	Ï H	H	Ï	G	Ï H	Ï	Ï	GĬ H	ĞĞĤH
ÍÚÍÁÇD	Ï	Ï	Ï	Ï	G	G	H	Ï	Į	HH	ĞĞ	Ï	Ï	Ï G	G	Ï	GĬ Ğ	ĞĞĬ Ï
ÍĞĞÍÁÇD	G	H	G	Ï	G	GĬ	Ï	Ï	Ï	Ï H	G	Ï	G	GĤ	G	Ï	HĮ	ĞĞHĮ
ÍĞĞĞÁÇD	Ï	G	G	Ï	Ï	H	Ï	Ï	G	HĬ	G	Ï	Ï	Ï Ï	Ï	Ï	ĤĞ	ĞĞHĤ
ÍĞĞĞÁÇD	H	H	Ï	Ï	Ï	G	Į	Ï	H	Ï G	G	Ï	Ï	Ï G	Ï	Ï	GĬ Ï	ĞĞĤĬ
GÚÍÁÇD	G	H	Ï	Ï	H	GĬ	G	Ï	Ï	Ï Į	Į	Ï	H	Ï Ï	Ï	Ï	ĤH	ĞĞHĬ
GÚĞÁÇD	H	G	Ï	Ï	H	ĞG	H	Ï	H	HĬ	GĬ	Ï	Ï	Ï H	G	Ï	GĬ Į	ĞĞHH
GĞĞÍÁÇD	Ï	Ï	Ï	Ï	H	Ĥ	Ï	Ï	G	ĞH	Ï	Ï	Ï	Ï Ï	Ï	Ï	Į Ĥ	ĞĞGĬ
GĞĞĞÁÇD	Ï	Į	G	Ï	G	GĬ	G	Ï	Ï	HG	G	Ï	Ï	Ĥ	G	Ï	HĬ	ĞĞHG
GÚÍÁÇD	Ï	Ï	Ï	Ï	Ï	GĬ	Ï	Ï	Ï	HĮ	GĬ	Ï	Ï	Ï Į	G	Ï	GĬ Į	ĞĞĬ G
GÚĞÁÇD	H	G	Ï	G	G	H	Ï	Ï	G	HĬ	G	Ï	G	GĮ	G	Ï	Į G	ĞĞĞĮ
GĞHÍÁÇD	G	Ï	G	Ï	G	H	Ï	Ï	Ï	Ï Ï	Ï	Ï	Ï	Ï Ï	H	Ï	ĤĬ	ĞĞĬ Ï
GĞHĞÁÇD	G	Ï	Ï	Ï	Ï	GĤ	H	Ï	G	ĞG	G	Ï	G	Ï Ï	G	Ï	Į Ğ	GĬ HH
GÚÍÁÇD	Ï	Ï	Ï	Ï	Ï	H	Ï	Ï	Ï	HĬ	Ĥ	Ï	G	ĞH	Ï	Ï	Į Į	GĬ GĬ
GÚĞÁÇD	H	H	Ï	Ï	Ï	ĞĞ	H	Ï	Ï	Ï G	H	Ï	Ï	GĬ	G	Ï	Į Ï	GĬ GĬ
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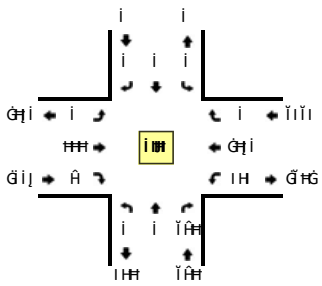

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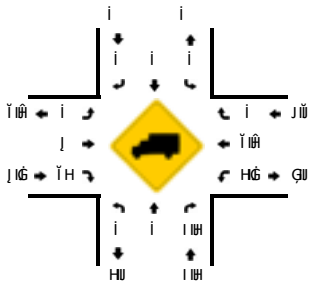

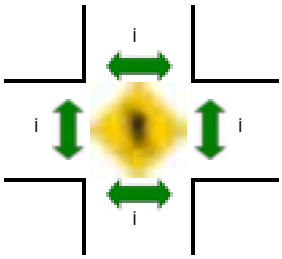

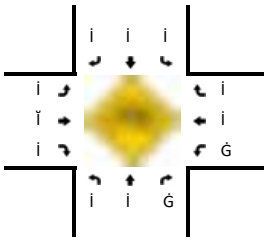

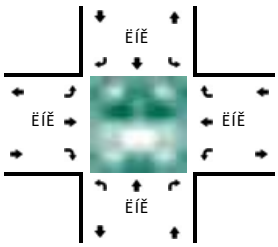

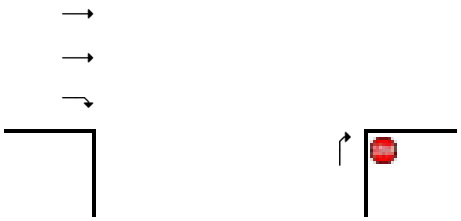

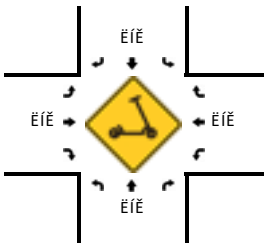

HÌÐ ÆÆÈÁÅÄÂB CÁÃÄÄCÀ GÄÆÆÆÆÆÆÆÆB	ÈÄÄCÄÄÈÈC ÎÈÁÆÄÅÅÁÄÄÄCK				ÈÁÄCÄÄÈÈC ÎÎÁÄÄÅÅÁÄÄÄCK				ÈÁÄÈÃÄÈÇ ÎÐÈÃCÄÅÁÄÄÄCK				ÈÁÄÈÃÄÈÇ ÎÇÄCÄÅÁÄÄÄCK				ÁÆÃÐ	ÈÁÃÅÆÐ ÁÆÄÆÈC
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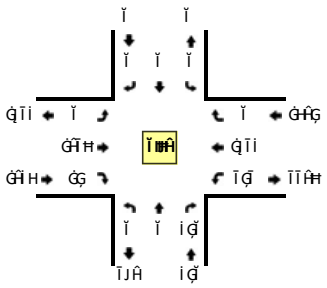
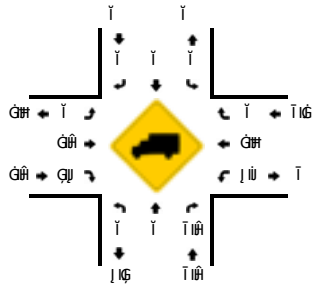
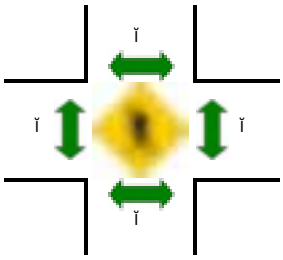
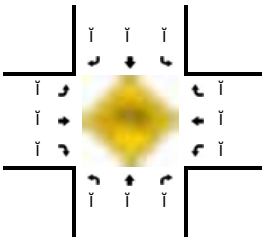
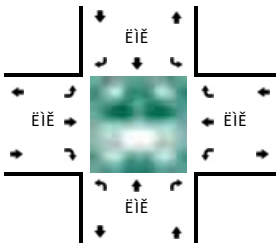
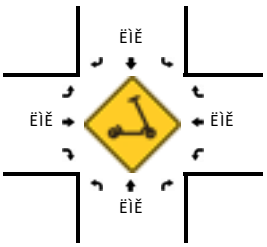
TRUE DATA TO IMPROVE MOBILITY



HÉÐ ÁÆÈÉÁÅÁÆÀÐ CÁÃÁÀCÁ ÇÁÆÁÆÁÆÈÁÆÈÐ	ÉÁÆÇÁÆÈÉÇ ÎÉÁÆÐÅÁÁÁÆÇCK				ÉÁÆÇÁÆÈÉÇ ÍÍÁÁÐÅÁÁÁÆÇCK				ÉÁÆÇÃÆÈÉÇ ÎÐÃÇÁÐÅÁÁÁÆÇCK				ÉÁÆÇÃÆÈÉÇ ÎÇ ÁÇÃÅÁÁÁÆÇCK				ÁÐÃÐ	ÉÁÅÁÆÐ ÁÐÁÐÇ
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Appendix B – Level of Service Analysis Results

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	185	47	109	182	184	66	132	43	167	136	101
Future Volume (veh/h)	136	185	47	109	182	184	66	132	43	167	136	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1870	1870	1870	1841	1856	1870	1870	1856	1826	1870
Adj Flow Rate, veh/h	146	199	29	117	196	39	71	142	11	180	146	33
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	3	2	2	2	4	3	2	2	3	5	2
Cap, veh/h	464	515	74	462	466	91	494	342	286	527	427	367
Arrive On Green	0.10	0.17	0.17	0.09	0.16	0.16	0.07	0.18	0.18	0.12	0.23	0.23
Sat Flow, veh/h	1781	3092	444	1781	2963	578	1767	1870	1564	1767	1826	1569
Grp Volume(v), veh/h	146	112	116	117	116	119	71	142	11	180	146	33
Grp Sat Flow(s),veh/h/ln	1781	1763	1774	1781	1777	1764	1767	1870	1564	1767	1826	1569
Q Serve(g_s), s	2.7	2.3	2.4	2.2	2.4	2.5	1.3	2.7	0.2	3.2	2.7	0.7
Cycle Q Clear(g_c), s	2.7	2.3	2.4	2.2	2.4	2.5	1.3	2.7	0.2	3.2	2.7	0.7
Prop In Lane	1.00		0.25	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	464	294	295	462	280	278	494	342	286	527	427	367
V/C Ratio(X)	0.31	0.38	0.39	0.25	0.41	0.43	0.14	0.42	0.04	0.34	0.34	0.09
Avail Cap(c_a), veh/h	1008	1752	1763	1023	1766	1753	1047	1354	1133	989	1322	1136
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.3	15.1	15.1	12.4	15.5	15.5	11.9	14.7	13.7	11.2	13.0	12.2
Incr Delay (d2), s/veh	0.4	0.8	0.8	0.3	1.0	1.0	0.1	0.8	0.1	0.4	0.5	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.9	0.9	0.7	0.9	0.9	0.4	1.1	0.1	1.1	1.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.7	15.9	16.0	12.7	16.5	16.6	12.1	15.5	13.8	11.6	13.5	12.3
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		374			352			224			359	
Approach Delay, s/veh		14.7			15.2			14.3			12.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	11.9	8.2	11.3	7.3	14.0	8.5	10.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	29.5	16.5	40.5	15.5	29.5	16.5	40.5
Max Q Clear Time (g_c+I1), s	5.2	4.7	4.2	4.4	3.3	4.7	4.7	4.5
Green Ext Time (p_c), s	0.3	0.8	0.2	1.4	0.1	0.9	0.3	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	14.2
HCM 7th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	270	77	179	415	25	129	3	102	25	3	9
Future Volume (veh/h)	3	270	77	179	415	25	129	3	102	25	3	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	0.98		0.99	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	922	1870	1737	1811	1870	1781	1811	1411	1737	1663	1870	1870
Adj Flow Rate, veh/h	3	284	57	188	437	23	136	3	29	26	3	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	66	2	11	6	2	8	6	33	11	16	2	2
Cap, veh/h	258	584	115	479	1071	56	563	27	263	431	188	125
Arrive On Green	0.00	0.20	0.20	0.12	0.31	0.31	0.09	0.24	0.24	0.03	0.18	0.18
Sat Flow, veh/h	878	2952	583	1725	3433	180	1725	112	1086	1584	1038	692
Grp Volume(v), veh/h	3	169	172	188	226	234	136	0	32	26	0	5
Grp Sat Flow(s),veh/h/ln	878	1777	1758	1725	1777	1837	1725	0	1198	1584	0	1731
Q Serve(g_s), s	0.1	3.7	3.8	3.4	4.4	4.4	2.7	0.0	0.9	0.6	0.0	0.1
Cycle Q Clear(g_c), s	0.1	3.7	3.8	3.4	4.4	4.4	2.7	0.0	0.9	0.6	0.0	0.1
Prop In Lane	1.00		0.33	1.00		0.10	1.00		0.91	1.00		0.40
Lane Grp Cap(c), veh/h	258	351	348	479	554	573	563	0	290	431	0	313
V/C Ratio(X)	0.01	0.48	0.49	0.39	0.41	0.41	0.24	0.00	0.11	0.06	0.00	0.02
Avail Cap(c_a), veh/h	565	1236	1223	885	1236	1278	1014	0	833	942	0	1204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.0	15.6	15.6	10.5	11.9	11.9	12.4	0.0	12.9	13.8	0.0	14.7
Incr Delay (d2), s/veh	0.0	1.0	1.1	0.5	0.5	0.5	0.2	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.3	1.4	1.0	1.4	1.5	0.9	0.0	0.2	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.0	16.6	16.7	11.0	12.4	12.4	12.6	0.0	13.1	13.9	0.0	14.8
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		344			648			168			31	
Approach Delay, s/veh		16.6			12.0			12.7			14.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.7	18.2	8.5	12.4	9.7	13.2	5.9	15.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	30.5	15.5	30.5	15.5	30.5	15.5	30.5
Max Q Clear Time (g_c+I1), s	2.1	6.4	4.7	2.1	5.4	5.8	2.6	2.9
Green Ext Time (p_c), s	0.0	2.7	0.2	0.0	0.3	1.9	0.0	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	13.5
HCM 7th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	839	289	359	1637	227	166
Future Volume (veh/h)	839	289	359	1637	227	166
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1781	1870	1856	1826	1856
Adj Flow Rate, veh/h	883	0	378	1723	239	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	8	2	3	5	3
Cap, veh/h	1640		551	2539	402	330
Arrive On Green	0.48	0.00	0.16	0.72	0.12	0.12
Sat Flow, veh/h	3503	1510	3456	3618	3374	2768
Grp Volume(v), veh/h	883	0	378	1723	239	102
Grp Sat Flow(s),veh/h/ln	1706	1510	1728	1763	1687	1384
Q Serve(g_s), s	10.2	0.0	5.8	15.0	3.8	1.9
Cycle Q Clear(g_c), s	10.2	0.0	5.8	15.0	3.8	1.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1640		551	2539	402	330
V/C Ratio(X)	0.54		0.69	0.68	0.59	0.31
Avail Cap(c_a), veh/h	7519		1572	9653	1053	864
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	0.0	22.2	4.3	23.4	22.6
Incr Delay (d2), s/veh	0.3	0.0	1.5	0.3	1.4	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	2.1	1.4	1.4	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	10.5	0.0	23.8	4.6	24.8	23.1
LnGrp LOS	B		C	A	C	C
Approach Vol, veh/h	883			2101	341	
Approach Delay, s/veh	10.5			8.1	24.3	
Approach LOS	B			A	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.4	31.4		11.2		44.9
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	25.5	123.5		17.5		153.5
Max Q Clear Time (g_c+I1), s	7.8	12.2		5.8		17.0
Green Ext Time (p_c), s	1.2	6.9		0.9		23.4

Intersection Summary	
HCM 7th Control Delay, s/veh	10.4
HCM 7th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	518	0	73	0	1057	335	104	997	0
Future Volume (veh/h)	0	0	0	518	0	73	0	1057	335	104	997	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1870	1515	1870	1811	1752	1722	1752	0
Adj Flow Rate, veh/h	0	0	0	545	0	0	0	1113	0	109	1049	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	6	2	26	2	6	10	12	10	0
Cap, veh/h	0	3	0	744	0		3	1578		139	2076	0
Arrive On Green	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.46	0.00	0.08	0.62	0.00
Sat Flow, veh/h	0	1870	0	3450	0	1284	1781	3441	1485	1640	3416	0
Grp Volume(v), veh/h	0	0	0	545	0	0	0	1113	0	109	1049	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	1725	0	1284	1781	1721	1485	1640	1664	0
Q Serve(g_s), s	0.0	0.0	0.0	8.2	0.0	0.0	0.0	14.5	0.0	3.6	9.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.2	0.0	0.0	0.0	14.5	0.0	3.6	9.7	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	3	0	744	0		3	1578		139	2076	0
V/C Ratio(X)	0.00	0.00	0.00	0.73	0.00		0.00	0.71		0.78	0.51	0.00
Avail Cap(c_a), veh/h	0	851	0	1570	0		493	3409		454	3298	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	20.5	0.0	0.0	0.0	12.1	0.0	25.1	5.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.6	0.0	9.3	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.2	0.0	0.0	0.0	4.1	0.0	1.7	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	21.9	0.0	0.0	0.0	12.7	0.0	34.4	6.0	0.0
LnGrp LOS				C				B		C	A	
Approach Vol, veh/h		0			545			1113			1158	
Approach Delay, s/veh		0.0			21.9			12.7			8.7	
Approach LOS					C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	30.2		0.0	0.0	39.4		16.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	15.5	55.5		25.5	15.5	55.5		25.5
Max Q Clear Time (g_c+I1), s	5.6	16.5		0.0	0.0	11.7		10.2
Green Ext Time (p_c), s	0.2	9.2		0.0	0.0	10.0		1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	12.8
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	54.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	267	88	33	422	15	131	181	10	5	77	44
Future Vol, veh/h	20	267	88	33	422	15	131	181	10	5	77	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	20	6	11	30	3	2	13	5	30	20	11	9
Mvmt Flow	22	290	96	36	459	16	142	197	11	5	84	48
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	40.2	92.1	32.8	16.5
HCM LOS	E	F	D	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	41%	5%	7%	4%
Vol Thru, %	56%	71%	90%	61%
Vol Right, %	3%	23%	3%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	322	375	470	126
LT Vol	131	20	33	5
Through Vol	181	267	422	77
RT Vol	10	88	15	44
Lane Flow Rate	350	408	511	137
Geometry Grp	1	1	1	1
Degree of Util (X)	0.761	0.843	1.079	0.33
Departure Headway (Hd)	8.172	7.754	7.602	9.118
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	445	469	475	397
Service Time	6.172	5.754	5.691	7.118
HCM Lane V/C Ratio	0.787	0.87	1.076	0.345
HCM Control Delay, s/veh	32.8	40.2	92.1	16.5
HCM Lane LOS	D	E	F	C
HCM 95th-tile Q	6.4	8.4	16.3	1.4

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	999	8	454	1970	0	0	0	289	0	0	0
Future Vol, veh/h	0	999	8	454	1970	0	0	0	289	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	477	500	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	94	94	94	94	92	94	92	94	92	92	92
Heavy Vehicles, %	2	7	25	5	2	2	2	2	4	2	2	2
Mvmt Flow	0	1063	9	483	2096	0	0	0	307	0	0	0

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	-	0	0	1063	0	0			-	-	1048
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	-	-			-	-	-
Critical Hdwy	-	-	-	4.2	-	-			-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-			-	-	-
Follow-up Hdwy	-	-	-	2.25	-	-			-	-	3.32
Pot Cap-1 Maneuver	0	-	-	634	-	0			0	0	224
Stage 1	0	-	-	-	-	0			0	0	-
Stage 2	0	-	-	-	-	0			0	0	-
Platoon blocked, %		-	-		-						
Mov Cap-1 Maneuver	-	-	-	634	-	-			-	0	224
Mov Cap-2 Maneuver	-	-	-	-	-	-			-	0	-
Stage 1	-	-	-	-	-	-			-	0	-
Stage 2	-	-	-	-	-	-			-	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	4.97	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	634	-	-
HCM Lane V/C Ratio	-	-	0.762	-	-
HCM Control Delay (s/veh)	-	-	26.5	-	0
HCM Lane LOS	-	-	D	-	A
HCM 95th %tile Q(veh)	-	-	7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	318	49	131	225	264	98	166	115	214	168	163
Future Volume (veh/h)	263	318	49	131	225	264	98	166	115	214	168	163
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	277	335	41	138	237	75	103	175	25	225	177	46
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	538	808	98	469	483	149	443	299	252	479	420	355
Arrive On Green	0.16	0.25	0.25	0.09	0.18	0.18	0.08	0.16	0.16	0.14	0.22	0.22
Sat Flow, veh/h	1781	3189	387	1781	2670	824	1781	1870	1579	1781	1870	1581
Grp Volume(v), veh/h	277	185	191	138	156	156	103	175	25	225	177	46
Grp Sat Flow(s),veh/h/ln	1781	1777	1799	1781	1777	1717	1781	1870	1579	1781	1870	1581
Q Serve(g_s), s	5.9	4.4	4.5	3.1	4.0	4.1	2.4	4.4	0.7	5.0	4.1	1.2
Cycle Q Clear(g_c), s	5.9	4.4	4.5	3.1	4.0	4.1	2.4	4.4	0.7	5.0	4.1	1.2
Prop In Lane	1.00		0.22	1.00		0.48	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	538	450	456	469	321	310	443	299	252	479	420	355
V/C Ratio(X)	0.52	0.41	0.42	0.29	0.48	0.50	0.23	0.59	0.10	0.47	0.42	0.13
Avail Cap(c_a), veh/h	794	1952	1976	854	1952	1886	855	1314	1109	775	1314	1111
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	15.7	15.8	14.6	18.6	18.7	15.7	19.7	18.1	13.9	16.8	15.6
Incr Delay (d2), s/veh	0.8	0.6	0.6	0.3	1.1	1.3	0.3	1.8	0.2	0.7	0.7	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.7	1.7	1.2	1.6	1.6	0.9	1.9	0.2	1.9	1.7	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.1	16.3	16.4	14.9	19.7	19.9	16.0	21.5	18.3	14.6	17.5	15.8
LnGrp LOS	B	B	B	B	B	B	B	C	B	B	B	B
Approach Vol, veh/h		653			450			303			448	
Approach Delay, s/veh		15.0			18.3			19.4			15.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	12.6	9.1	17.3	8.3	15.8	12.7	13.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	35.5	15.5	55.5	15.5	35.5	15.5	55.5
Max Q Clear Time (g_c+I1), s	7.0	6.4	5.1	6.5	4.4	6.1	7.9	6.1
Green Ext Time (p_c), s	0.4	1.1	0.2	2.6	0.2	1.2	0.5	2.2

Intersection Summary	
HCM 7th Control Delay, s/veh	16.7
HCM 7th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	539	149	319	380	25	162	4	103	82	19	7
Future Volume (veh/h)	6	539	149	319	380	25	162	4	103	82	19	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1411	1870	1870	1870	1870	1781	1870	1870	1856	1870	1870	1870
Adj Flow Rate, veh/h	6	561	133	332	396	23	169	4	20	85	20	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	33	2	2	2	2	8	2	2	3	2	2	2
Cap, veh/h	339	816	193	487	1502	87	499	52	258	430	260	13
Arrive On Green	0.01	0.29	0.29	0.16	0.44	0.44	0.11	0.19	0.19	0.06	0.15	0.15
Sat Flow, veh/h	1344	2838	670	1781	3414	198	1781	267	1335	1781	1764	88
Grp Volume(v), veh/h	6	350	344	332	206	213	169	0	24	85	0	21
Grp Sat Flow(s),veh/h/ln	1344	1777	1731	1781	1777	1835	1781	0	1603	1781	0	1852
Q Serve(g_s), s	0.2	10.6	10.7	7.2	4.5	4.5	4.7	0.0	0.7	2.4	0.0	0.6
Cycle Q Clear(g_c), s	0.2	10.6	10.7	7.2	4.5	4.5	4.7	0.0	0.7	2.4	0.0	0.6
Prop In Lane	1.00		0.39	1.00		0.11	1.00		0.83	1.00		0.05
Lane Grp Cap(c), veh/h	339	511	498	487	782	807	499	0	310	430	0	273
V/C Ratio(X)	0.02	0.69	0.69	0.68	0.26	0.26	0.34	0.00	0.08	0.20	0.00	0.08
Avail Cap(c_a), veh/h	671	1214	1182	656	1214	1253	761	0	778	773	0	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	19.2	19.2	12.3	10.8	10.8	18.4	0.0	20.1	19.9	0.0	22.3
Incr Delay (d2), s/veh	0.0	1.6	1.7	1.8	0.2	0.2	0.4	0.0	0.1	0.2	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.1	4.1	2.5	1.5	1.6	1.8	0.0	0.3	1.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.2	20.9	21.0	14.1	11.0	11.0	18.8	0.0	20.2	20.1	0.0	22.4
LnGrp LOS	B	C	C	B	B	B	B		C	C		C
Approach Vol, veh/h		700			751			193			106	
Approach Delay, s/veh		20.9			12.3			18.9			20.6	
Approach LOS		C			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	31.2	11.1	13.5	14.2	22.0	8.3	16.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	41.5	15.5	29.5	15.5	41.5	15.5	29.5
Max Q Clear Time (g_c+I1), s	2.2	6.5	6.7	2.6	9.2	12.7	4.4	2.7
Green Ext Time (p_c), s	0.0	2.5	0.3	0.1	0.6	4.6	0.1	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	17.0
HCM 7th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1345	464	275	1076	382	459
Future Volume (veh/h)	1345	464	275	1076	382	459
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1870	1870
Adj Flow Rate, veh/h	1416	0	289	1133	402	451
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	2	2
Cap, veh/h	1850		399	2435	689	878
Arrive On Green	0.52	0.00	0.12	0.69	0.20	0.20
Sat Flow, veh/h	3647	1585	3456	3618	3456	2790
Grp Volume(v), veh/h	1416	0	289	1133	402	451
Grp Sat Flow(s),veh/h/ln	1777	1585	1728	1763	1728	1395
Q Serve(g_s), s	26.0	0.0	6.6	12.0	8.6	10.8
Cycle Q Clear(g_c), s	26.0	0.0	6.6	12.0	8.6	10.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1850		399	2435	689	878
V/C Ratio(X)	0.77		0.72	0.47	0.58	0.51
Avail Cap(c_a), veh/h	4140		1075	5397	1918	1870
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	35.0	5.8	29.7	23.0
Incr Delay (d2), s/veh	0.7	0.0	2.5	0.1	0.8	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.0	2.8	3.0	3.5	8.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	16.3	0.0	37.5	5.9	30.5	23.4
LnGrp LOS	B		D	A	C	C
Approach Vol, veh/h	1416			1422	853	
Approach Delay, s/veh	16.3			12.3	26.8	
Approach LOS	B			B	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	14.0	47.2		20.8		61.1
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	25.5	95.5		45.5		125.5
Max Q Clear Time (g_c+I1), s	8.6	28.0		12.8		14.0
Green Ext Time (p_c), s	0.9	14.6		3.5		10.0

Intersection Summary	
HCM 7th Control Delay, s/veh	17.2
HCM 7th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	1	385	0	105	0	1156	437	97	1104	1
Future Volume (veh/h)	0	0	1	385	0	105	0	1156	437	97	1104	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	418	1841	1870	1811	1870	1841	1826	1796	1856	418
Adj Flow Rate, veh/h	0	0	0	405	0	0	0	1217	0	102	1162	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	100	4	2	6	2	4	5	7	3	100
Cap, veh/h	0	3	0	598	0		3	1749		132	2390	2
Arrive On Green	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.50	0.00	0.08	0.66	0.66
Sat Flow, veh/h	0	1870	0	3506	0	1535	1781	3497	1547	1711	3615	3
Grp Volume(v), veh/h	0	0	0	405	0	0	0	1217	0	102	567	596
Grp Sat Flow(s),veh/h/ln	0	1870	0	1753	0	1535	1781	1749	1547	1711	1763	1855
Q Serve(g_s), s	0.0	0.0	0.0	5.8	0.0	0.0	0.0	14.3	0.0	3.1	8.6	8.6
Cycle Q Clear(g_c), s	0.0	0.0	0.0	5.8	0.0	0.0	0.0	14.3	0.0	3.1	8.6	8.6
Prop In Lane	0.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	3	0	598	0		3	1749		132	1166	1227
V/C Ratio(X)	0.00	0.00	0.00	0.68	0.00		0.00	0.70		0.77	0.49	0.49
Avail Cap(c_a), veh/h	0	891	0	1671	0		516	3627		495	1828	1924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	20.8	0.0	0.0	0.0	10.3	0.0	24.2	4.5	4.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.5	0.0	9.2	0.3	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.3	0.0	0.0	0.0	3.7	0.0	1.5	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	22.2	0.0	0.0	0.0	10.8	0.0	33.5	4.8	4.8
LnGrp LOS				C				B		C	A	A
Approach Vol, veh/h		0			405			1217			1265	
Approach Delay, s/veh		0.0			22.2			10.8			7.1	
Approach LOS					C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.6	31.3		0.0	0.0	39.9		13.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	15.5	55.5		25.5	15.5	55.5		25.5
Max Q Clear Time (g_c+I1), s	5.1	16.3		0.0	0.0	10.6		7.8
Green Ext Time (p_c), s	0.2	10.5		0.0	0.0	10.3		1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	10.8
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	30.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	415	70	4	278	12	66	90	6	40	126	38
Future Vol, veh/h	55	415	70	4	278	12	66	90	6	40	126	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	4	2	2	4	2	6	3	2	2	3	2
Mvmt Flow	58	437	74	4	293	13	69	95	6	42	133	40
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	47.5	17.4	14.4	15.2
HCM LOS	E	C	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	41%	10%	1%	20%
Vol Thru, %	56%	77%	95%	62%
Vol Right, %	4%	13%	4%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	540	294	204
LT Vol	66	55	4	40
Through Vol	90	415	278	126
RT Vol	6	70	12	38
Lane Flow Rate	171	568	309	215
Geometry Grp	1	1	1	1
Degree of Util (X)	0.349	0.939	0.556	0.42
Departure Headway (Hd)	7.376	5.948	6.47	7.037
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	484	608	554	509
Service Time	5.47	4.01	4.548	5.123
HCM Lane V/C Ratio	0.353	0.934	0.558	0.422
HCM Control Delay, s/veh	14.4	47.5	17.4	15.2
HCM Lane LOS	B	E	C	C
HCM 95th-tile Q	1.5	12.4	3.4	2.1

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑				↱			↱
Traffic Vol, veh/h	0	1829	16	262	1324	0	0	0	460	0	0	0
Future Vol, veh/h	0	1829	16	262	1324	0	0	0	460	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	477	500	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	2	6	3	2	2	2	2	2	2	2	2
Mvmt Flow	0	1866	16	267	1351	0	0	0	469	0	0	0

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	-	0	0	1866	0	0			-	-	676
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	-	-			-	-	-
Critical Hdwy	-	-	-	4.16	-	-			-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-			-	-	-
Follow-up Hdwy	-	-	-	2.23	-	-			-	-	3.32
Pot Cap-1 Maneuver	0	-	-	315	-	0			0	0	396
Stage 1	0	-	-	-	-	0			0	0	-
Stage 2	0	-	-	-	-	0			0	0	-
Platoon blocked, %		-	-		-						
Mov Cap-1 Maneuver	-	-	-	315	-	-			-	0	396
Mov Cap-2 Maneuver	-	-	-	-	-	-			-	0	-
Stage 1	-	-	-	-	-	-			-	0	-
Stage 2	-	-	-	-	-	-			-	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	9.36	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	315	-	-
HCM Lane V/C Ratio	-	-	0.848	-	-
HCM Control Delay (s/veh)	-	-	56.6	-	0
HCM Lane LOS	-	-	F	-	A
HCM 95th %tile Q(veh)	-	-	7.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	240	60	140	230	230	90	170	60	210	170	130
Future Volume (veh/h)	170	240	60	140	230	230	90	170	60	210	170	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1870	1870	1870	1841	1856	1870	1870	1856	1826	1870
Adj Flow Rate, veh/h	179	253	32	147	242	48	95	179	12	221	179	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	2	2	2	4	3	2	2	3	5	2
Cap, veh/h	456	581	73	449	497	97	485	366	306	515	450	387
Arrive On Green	0.11	0.18	0.18	0.09	0.17	0.17	0.08	0.20	0.20	0.13	0.25	0.25
Sat Flow, veh/h	1781	3152	394	1781	2963	578	1767	1870	1566	1767	1826	1570
Grp Volume(v), veh/h	179	140	145	147	143	147	95	179	12	221	179	33
Grp Sat Flow(s),veh/h/ln	1781	1763	1783	1781	1777	1764	1767	1870	1566	1767	1826	1570
Q Serve(g_s), s	3.6	3.2	3.3	3.0	3.3	3.4	1.9	3.9	0.3	4.4	3.7	0.7
Cycle Q Clear(g_c), s	3.6	3.2	3.3	3.0	3.3	3.4	1.9	3.9	0.3	4.4	3.7	0.7
Prop In Lane	1.00		0.22	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	456	325	329	449	298	296	485	366	306	515	450	387
V/C Ratio(X)	0.39	0.43	0.44	0.33	0.48	0.50	0.20	0.49	0.04	0.43	0.40	0.09
Avail Cap(c_a), veh/h	456	1056	1069	514	1100	1092	544	1166	976	515	1171	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	16.3	16.4	13.5	17.0	17.1	12.7	16.2	14.7	12.0	14.2	13.1
Incr Delay (d2), s/veh	0.5	0.9	0.9	0.4	1.2	1.3	0.2	1.0	0.1	0.6	0.6	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.2	1.2	1.1	1.3	1.3	0.7	1.6	0.1	1.5	1.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.8	17.2	17.3	13.9	18.2	18.4	12.9	17.2	14.8	12.6	14.8	13.2
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		464			437			286			433	
Approach Delay, s/veh		15.9			16.8			15.7			13.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	13.3	8.7	12.8	8.0	15.7	9.5	12.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.8	28.2	5.9	27.1	5.0	29.0	5.0	28.0
Max Q Clear Time (g_c+I1), s	6.4	5.9	5.0	5.3	3.9	5.7	5.6	5.4
Green Ext Time (p_c), s	0.0	1.0	0.0	1.6	0.0	1.1	0.0	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	15.5
HCM 7th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	340	100	230	520	40	170	10	130	40	10	20
Future Volume (veh/h)	10	340	100	230	520	40	170	10	130	40	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.99	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	922	1870	1737	1811	1870	1781	1811	1411	1737	1663	1870	1870
Adj Flow Rate, veh/h	11	358	70	242	547	36	179	11	32	42	11	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	66	2	11	6	2	8	6	33	11	16	2	2
Cap, veh/h	247	647	125	482	1145	75	548	73	211	422	239	65
Arrive On Green	0.01	0.22	0.22	0.13	0.34	0.34	0.11	0.23	0.23	0.04	0.17	0.17
Sat Flow, veh/h	878	2964	573	1725	3383	222	1725	315	916	1584	1408	384
Grp Volume(v), veh/h	11	213	215	242	287	296	179	0	43	42	0	14
Grp Sat Flow(s),veh/h/ln	878	1777	1761	1725	1777	1829	1725	0	1230	1584	0	1792
Q Serve(g_s), s	0.5	5.2	5.3	4.8	6.2	6.2	4.0	0.0	1.3	1.0	0.0	0.3
Cycle Q Clear(g_c), s	0.5	5.2	5.3	4.8	6.2	6.2	4.0	0.0	1.3	1.0	0.0	0.3
Prop In Lane	1.00		0.33	1.00		0.12	1.00		0.74	1.00		0.21
Lane Grp Cap(c), veh/h	247	388	384	482	601	619	548	0	284	422	0	305
V/C Ratio(X)	0.04	0.55	0.56	0.50	0.48	0.48	0.33	0.00	0.15	0.10	0.00	0.05
Avail Cap(c_a), veh/h	326	1007	998	482	1062	1093	548	0	715	515	0	1038
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	16.8	16.8	11.1	12.6	12.6	13.8	0.0	14.8	15.3	0.0	16.8
Incr Delay (d2), s/veh	0.1	1.2	1.3	0.8	0.6	0.6	0.3	0.0	0.2	0.1	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.9	2.0	1.5	2.1	2.1	1.4	0.0	0.4	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.5	18.0	18.1	11.9	13.2	13.2	14.2	0.0	15.1	15.4	0.0	16.9
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		439			825			222			56	
Approach Delay, s/veh		18.0			12.8			14.3			15.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	20.9	9.6	12.7	11.0	15.1	6.7	15.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	28.9	5.1	28.0	6.5	27.4	5.0	28.1
Max Q Clear Time (g_c+I1), s	2.5	8.2	6.0	2.3	6.8	7.3	3.0	3.3
Green Ext Time (p_c), s	0.0	3.4	0.0	0.0	0.0	2.4	0.0	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	14.6
HCM 7th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	940	360	450	1830	290	210
Future Volume (veh/h)	940	360	450	1830	290	210
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1781	1870	1856	1826	1856
Adj Flow Rate, veh/h	989	0	474	1926	305	22
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	8	2	3	5	3
Cap, veh/h	1413		621	2418	437	358
Arrive On Green	0.41	0.00	0.18	0.69	0.13	0.13
Sat Flow, veh/h	3503	1510	3456	3618	3374	2768
Grp Volume(v), veh/h	989	0	474	1926	305	22
Grp Sat Flow(s),veh/h/ln	1706	1510	1728	1763	1687	1384
Q Serve(g_s), s	11.7	0.0	6.4	18.4	4.2	0.3
Cycle Q Clear(g_c), s	11.7	0.0	6.4	18.4	4.2	0.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1413		621	2418	437	358
V/C Ratio(X)	0.70		0.76	0.80	0.70	0.06
Avail Cap(c_a), veh/h	1646		745	2785	519	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	19.0	5.3	20.3	18.6
Incr Delay (d2), s/veh	1.1	0.0	3.9	1.5	3.3	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	2.4	2.0	1.7	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	12.9	0.0	22.9	6.8	23.6	18.7
LnGrp LOS	B		C	A	C	B
Approach Vol, veh/h	989			2400	327	
Approach Delay, s/veh	12.9			10.0	23.3	
Approach LOS	B			A	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.3	24.7		10.8		37.9
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	10.5	23.5		7.5		38.5
Max Q Clear Time (g_c+I1), s	8.4	13.7		6.2		20.4
Green Ext Time (p_c), s	0.4	4.4		0.2		13.0

Intersection Summary	
HCM 7th Control Delay, s/veh	11.9
HCM 7th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	580	0	90	0	1180	380	120	1120	0
Future Volume (veh/h)	0	0	0	580	0	90	0	1180	380	120	1120	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1870	1515	1870	1811	1752	1722	1752	0
Adj Flow Rate, veh/h	0	0	0	611	0	0	0	1242	0	126	1179	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	6	2	26	2	6	10	12	10	0
Cap, veh/h	0	3	0	770	0		3	1592		158	2102	0
Arrive On Green	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.46	0.00	0.10	0.63	0.00
Sat Flow, veh/h	0	1870	0	3450	0	1284	1781	3441	1485	1640	3416	0
Grp Volume(v), veh/h	0	0	0	611	0	0	0	1242	0	126	1179	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	1725	0	1284	1781	1721	1485	1640	1664	0
Q Serve(g_s), s	0.0	0.0	0.0	10.4	0.0	0.0	0.0	18.8	0.0	4.7	12.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	10.4	0.0	0.0	0.0	18.8	0.0	4.7	12.5	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	3	0	770	0		3	1592		158	2102	0
V/C Ratio(X)	0.00	0.00	0.00	0.79	0.00		0.00	0.78		0.80	0.56	0.00
Avail Cap(c_a), veh/h	0	151	0	1085	0		144	2110		251	2282	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	22.7	0.0	0.0	0.0	14.0	0.0	27.4	6.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.0	0.0	1.4	0.0	8.9	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.2	0.0	0.0	0.0	5.8	0.0	2.1	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	25.5	0.0	0.0	0.0	15.4	0.0	36.3	6.8	0.0
LnGrp LOS				C				B		D	A	
Approach Vol, veh/h		0			611			1242			1305	
Approach Delay, s/veh		0.0			25.5			15.4			9.6	
Approach LOS					C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	33.2		0.0	0.0	43.6		18.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.5	38.0		5.0	5.0	42.5		19.5
Max Q Clear Time (g_c+I1), s	6.7	20.8		0.0	0.0	14.5		12.4
Green Ext Time (p_c), s	0.1	7.9		0.0	0.0	10.4		1.5

Intersection Summary	
HCM 7th Control Delay, s/veh	15.0
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	453	568	400	159
Demand Flow Rate, veh/h	490	596	438	176
Vehicles Circulating, veh/h	173	449	386	754
Vehicles Exiting, veh/h	757	375	277	291
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.9	16.5	10.3	10.0
Approach LOS	A	C	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	490	596	438	176
Cap Entry Lane, veh/h	1157	873	931	640
Entry HV Adj Factor	0.925	0.953	0.913	0.901
Flow Entry, veh/h	453	568	400	159
Cap Entry, veh/h	1069	832	850	576
V/C Ratio	0.424	0.683	0.471	0.275
Control Delay, s/veh	7.9	16.5	10.3	10.0
LOS	A	C	B	A
95th %tile Queue, veh	2	6	3	1

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1120	10	510	2200	0	0	0	330	0	0	0
Future Vol, veh/h	0	1120	10	510	2200	0	0	0	330	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	477	500	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	7	25	5	2	2	2	2	4	2	2	2
Mvmt Flow	0	1179	11	537	2316	0	0	0	347	0	0	0

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	-	0	0	1179	0	0			-	-	1158
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	-	-			-	-	-
Critical Hdwy	-	-	-	4.2	-	-			-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-			-	-	-
Follow-up Hdwy	-	-	-	2.25	-	-			-	-	3.32
Pot Cap-1 Maneuver	0	-	-	571	-	0			0	0	189
Stage 1	0	-	-	-	-	0			0	0	-
Stage 2	0	-	-	-	-	0			0	0	-
Platoon blocked, %		-	-		-						
Mov Cap-1 Maneuver	-	-	-	571	-	-			-	0	189
Mov Cap-2 Maneuver	-	-	-	-	-	-			-	0	-
Stage 1	-	-	-	-	-	-			-	0	-
Stage 2	-	-	-	-	-	-			-	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	9.61	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	571	-	-
HCM Lane V/C Ratio	-	-	0.939	-	-
HCM Control Delay (s/veh)	-	-	51	-	0
HCM Lane LOS	-	-	F	-	A
HCM 95th %tile Q(veh)	-	-	12.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	400	70	170	280	330	130	210	150	270	210	210
Future Volume (veh/h)	330	400	70	170	280	330	130	210	150	270	210	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	347	421	56	179	295	68	137	221	31	284	221	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	523	761	101	446	540	122	419	341	288	443	417	353
Arrive On Green	0.16	0.24	0.24	0.11	0.19	0.19	0.09	0.18	0.18	0.13	0.22	0.22
Sat Flow, veh/h	1781	3153	417	1781	2874	652	1781	1870	1580	1781	1870	1581
Grp Volume(v), veh/h	347	236	241	179	181	182	137	221	31	284	221	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1793	1781	1777	1749	1781	1870	1580	1781	1870	1581
Q Serve(g_s), s	8.2	6.2	6.2	4.2	4.9	5.0	3.2	5.8	0.9	6.7	5.5	1.5
Cycle Q Clear(g_c), s	8.2	6.2	6.2	4.2	4.9	5.0	3.2	5.8	0.9	6.7	5.5	1.5
Prop In Lane	1.00		0.23	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	523	429	433	446	334	329	419	341	288	443	417	353
V/C Ratio(X)	0.66	0.55	0.56	0.40	0.54	0.56	0.33	0.65	0.11	0.64	0.53	0.16
Avail Cap(c_a), veh/h	523	932	940	582	972	957	435	974	822	443	1034	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	17.6	17.6	14.6	19.5	19.5	15.5	20.1	18.1	15.7	18.1	16.6
Incr Delay (d2), s/veh	3.1	1.1	1.1	0.6	1.4	1.5	0.4	2.1	0.2	3.1	1.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	2.4	2.4	1.5	1.9	2.0	1.3	2.5	0.3	2.9	2.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.1	18.7	18.7	15.2	20.8	21.0	16.0	22.2	18.2	18.8	19.2	16.8
LnGrp LOS	B	B	B	B	C	C	B	C	B	B	B	B
Approach Vol, veh/h		824			542			389			560	
Approach Delay, s/veh		18.0			19.0			19.7			18.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	14.2	10.4	17.3	9.0	16.3	13.2	14.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	27.6	9.9	27.8	5.0	29.3	8.7	29.0
Max Q Clear Time (g_c+I1), s	8.7	7.8	6.2	8.2	5.2	7.5	10.2	7.0
Green Ext Time (p_c), s	0.0	1.3	0.2	2.8	0.0	1.5	0.0	2.1

Intersection Summary	
HCM 7th Control Delay, s/veh	18.7
HCM 7th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	680	190	400	480	40	210	10	130	110	30	10
Future Volume (veh/h)	10	680	190	400	480	40	210	10	130	110	30	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1411	1870	1870	1870	1870	1781	1870	1870	1856	1870	1870	1870
Adj Flow Rate, veh/h	11	716	175	421	505	37	221	11	15	116	32	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	33	2	2	2	2	8	2	2	3	2	2	2
Cap, veh/h	340	916	224	495	1659	121	414	101	137	418	245	15
Arrive On Green	0.01	0.33	0.33	0.18	0.49	0.49	0.08	0.14	0.14	0.07	0.14	0.14
Sat Flow, veh/h	1344	2816	688	1781	3357	245	1781	707	963	1781	1739	109
Grp Volume(v), veh/h	11	452	439	421	267	275	221	0	26	116	0	34
Grp Sat Flow(s),veh/h/ln	1344	1777	1728	1781	1777	1826	1781	0	1670	1781	0	1848
Q Serve(g_s), s	0.4	15.1	15.1	9.4	5.9	5.9	5.0	0.0	0.9	3.6	0.0	1.1
Cycle Q Clear(g_c), s	0.4	15.1	15.1	9.4	5.9	5.9	5.0	0.0	0.9	3.6	0.0	1.1
Prop In Lane	1.00		0.40	1.00		0.13	1.00		0.58	1.00		0.06
Lane Grp Cap(c), veh/h	340	578	562	495	878	902	414	0	238	418	0	261
V/C Ratio(X)	0.03	0.78	0.78	0.85	0.30	0.31	0.53	0.00	0.11	0.28	0.00	0.13
Avail Cap(c_a), veh/h	424	751	730	612	1057	1086	414	0	713	420	0	789
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	20.0	20.0	12.8	9.9	9.9	23.3	0.0	24.5	21.6	0.0	24.6
Incr Delay (d2), s/veh	0.0	4.0	4.2	9.3	0.2	0.2	1.3	0.0	0.2	0.4	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.2	6.1	4.2	2.0	2.0	3.1	0.0	0.3	1.4	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.5	24.1	24.2	22.1	10.1	10.1	24.7	0.0	24.7	21.9	0.0	24.9
LnGrp LOS	B	C	C	C	B	B	C		C	C		C
Approach Vol, veh/h		902			963			247			150	
Approach Delay, s/veh		24.0			15.3			24.7			22.6	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	36.9	9.5	13.8	16.5	25.8	9.4	13.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	39.0	5.0	28.0	16.3	27.7	5.0	28.0
Max Q Clear Time (g_c+I1), s	2.4	7.9	7.0	3.1	11.4	17.1	5.6	2.9
Green Ext Time (p_c), s	0.0	3.4	0.0	0.1	0.6	4.1	0.0	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	20.3
HCM 7th LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1510	580	350	1210	480	580
Future Volume (veh/h)	1510	580	350	1210	480	580
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1870	1870
Adj Flow Rate, veh/h	1589	0	368	1274	505	592
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	2	2
Cap, veh/h	1781		449	2441	638	877
Arrive On Green	0.50	0.00	0.13	0.69	0.18	0.18
Sat Flow, veh/h	3647	1585	3456	3618	3456	2790
Grp Volume(v), veh/h	1589	0	368	1274	505	592
Grp Sat Flow(s),veh/h/ln	1777	1585	1728	1763	1728	1395
Q Serve(g_s), s	29.5	0.0	7.6	12.7	10.2	13.5
Cycle Q Clear(g_c), s	29.5	0.0	7.6	12.7	10.2	13.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1781		449	2441	638	877
V/C Ratio(X)	0.89		0.82	0.52	0.79	0.68
Avail Cap(c_a), veh/h	1870		449	2529	638	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	0.0	31.0	5.4	28.5	21.8
Incr Delay (d2), s/veh	5.7	0.0	11.5	0.2	6.8	2.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	0.0	3.6	2.7	4.6	10.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	22.2	0.0	42.5	5.6	35.3	23.9
LnGrp LOS	C		D	A	D	C
Approach Vol, veh/h	1589			1642	1097	
Approach Delay, s/veh	22.2			13.9	29.1	
Approach LOS	C			B	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	14.0	41.2		18.0		55.2
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	9.5	38.5		13.5		52.5
Max Q Clear Time (g_c+I1), s	9.6	31.5		15.5		14.7
Green Ext Time (p_c), s	0.0	5.2		0.0		11.1

Intersection Summary	
HCM 7th Control Delay, s/veh	20.8
HCM 7th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	10	430	0	120	0	1290	490	110	1240	10
Future Volume (veh/h)	0	0	10	430	0	120	0	1290	490	110	1240	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	418	1841	1870	1811	1870	1841	1826	1796	1856	418
Adj Flow Rate, veh/h	0	0	0	453	0	0	0	1358	0	116	1305	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	100	4	2	6	2	4	5	7	3	100
Cap, veh/h	0	3	0	625	0		3	1745		147	2378	20
Arrive On Green	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.50	0.00	0.09	0.66	0.66
Sat Flow, veh/h	0	1870	0	3506	0	1535	1781	3497	1547	1711	3583	30
Grp Volume(v), veh/h	0	0	0	453	0	0	0	1358	0	116	642	674
Grp Sat Flow(s),veh/h/ln	0	1870	0	1753	0	1535	1781	1749	1547	1711	1763	1850
Q Serve(g_s), s	0.0	0.0	0.0	6.9	0.0	0.0	0.0	18.1	0.0	3.8	11.0	11.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.9	0.0	0.0	0.0	18.1	0.0	3.8	11.0	11.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	0	3	0	625	0		3	1745		147	1170	1228
V/C Ratio(X)	0.00	0.00	0.00	0.73	0.00		0.00	0.78		0.79	0.55	0.55
Avail Cap(c_a), veh/h	0	164	0	1139	0		156	2210		225	1192	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	22.1	0.0	0.0	0.0	11.7	0.0	25.5	5.1	5.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.4	0.0	9.9	0.5	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.8	0.0	0.0	0.0	5.2	0.0	1.8	2.6	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	23.7	0.0	0.0	0.0	13.1	0.0	35.4	5.6	5.6
LnGrp LOS				C				B		D	A	A
Approach Vol, veh/h		0			453			1358			1432	
Approach Delay, s/veh		0.0			23.7			13.1			8.0	
Approach LOS					C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.4	32.9		0.0	0.0	42.3		14.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	7.5	36.0		5.0	5.0	38.5		18.5
Max Q Clear Time (g_c+I1), s	5.8	20.1		0.0	0.0	13.0		8.9
Green Ext Time (p_c), s	0.0	8.3		0.0	0.0	10.6		1.2

Intersection Summary	
HCM 7th Control Delay, s/veh	12.3
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	653	369	211	264
Demand Flow Rate, veh/h	676	382	219	271
Vehicles Circulating, veh/h	228	283	644	450
Vehicles Exiting, veh/h	493	580	260	215
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.8	7.6	9.1	7.7
Approach LOS	B	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	676	382	219	271
Cap Entry Lane, veh/h	1094	1034	715	872
Entry HV Adj Factor	0.966	0.965	0.961	0.975
Flow Entry, veh/h	653	369	211	264
Cap Entry, veh/h	1057	997	688	850
V/C Ratio	0.618	0.369	0.306	0.311
Control Delay, s/veh	11.8	7.6	9.1	7.7
LOS	B	A	A	A
95th %tile Queue, veh	4	2	1	1

Intersection	
Int Delay, s/veh	16

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2050	20	300	1480	0	0	0	520	0	0	0
Future Vol, veh/h	0	2050	20	300	1480	0	0	0	520	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	477	500	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	6	3	2	2	2	2	2	2	2	2
Mvmt Flow	0	2158	21	316	1558	0	0	0	547	0	0	0

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	-	0	0	2158	0	0			-	-	779
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	-	-			-	-	-
Critical Hdwy	-	-	-	4.16	-	-			-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-			-	-	-
Follow-up Hdwy	-	-	-	2.23	-	-			-	-	3.32
Pot Cap-1 Maneuver	0	-	-	~ 242	-	0			0	0	339
Stage 1	0	-	-	-	-	0			0	0	-
Stage 2	0	-	-	-	-	0			0	0	-
Platoon blocked, %		-	-		-						
Mov Cap-1 Maneuver	-	-	-	~ 242	-	-			-	0	339
Mov Cap-2 Maneuver	-	-	-	-	-	-			-	0	-
Stage 1	-	-	-	-	-	-			-	0	-
Stage 2	-	-	-	-	-	-			-	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	34.53	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	~ 242	-	-
HCM Lane V/C Ratio	-	-	1.306	-	-
HCM Control Delay (s/veh)	-	-	204.9	-	0
HCM Lane LOS	-	-	F	-	A
HCM 95th %tile Q(veh)	-	-	16.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	254	112	170	242	240	137	209	92	221	214	130
Future Volume (veh/h)	170	254	112	170	242	240	137	209	92	221	214	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1870	1870	1870	1841	1856	1870	1870	1856	1826	1870
Adj Flow Rate, veh/h	183	273	47	183	260	43	147	225	19	238	230	34
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	3	2	2	2	4	3	2	2	3	5	2
Cap, veh/h	443	525	89	437	539	88	469	405	340	495	461	396
Arrive On Green	0.10	0.17	0.17	0.11	0.18	0.18	0.09	0.22	0.22	0.13	0.25	0.25
Sat Flow, veh/h	1781	3012	512	1781	3057	499	1767	1870	1568	1767	1826	1570
Grp Volume(v), veh/h	183	158	162	183	150	153	147	225	19	238	230	34
Grp Sat Flow(s),veh/h/ln	1781	1763	1761	1781	1777	1779	1767	1870	1568	1767	1826	1570
Q Serve(g_s), s	3.9	3.9	4.0	3.9	3.6	3.7	3.0	5.1	0.5	4.9	5.1	0.8
Cycle Q Clear(g_c), s	3.9	3.9	4.0	3.9	3.6	3.7	3.0	5.1	0.5	4.9	5.1	0.8
Prop In Lane	1.00		0.29	1.00		0.28	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	443	307	307	437	313	314	469	405	340	495	461	396
V/C Ratio(X)	0.41	0.52	0.53	0.42	0.48	0.49	0.31	0.55	0.06	0.48	0.50	0.09
Avail Cap(c_a), veh/h	443	1029	1028	437	1041	1042	495	1096	919	495	1108	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	17.9	17.9	14.0	17.7	17.7	12.7	16.7	14.8	12.3	15.3	13.6
Incr Delay (d2), s/veh	0.6	1.3	1.4	0.6	1.1	1.2	0.4	1.2	0.1	0.7	0.8	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.5	1.6	1.4	1.4	1.5	1.1	2.1	0.2	1.8	2.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.6	19.2	19.3	14.6	18.8	18.9	13.0	17.8	14.9	13.0	16.1	13.7
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		503			486			391			502	
Approach Delay, s/veh		17.6			17.3			15.9			14.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	14.9	9.6	12.8	8.8	16.6	9.5	12.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.0	28.0	5.1	27.9	5.0	29.0	5.0	28.0
Max Q Clear Time (g_c+I1), s	6.9	7.1	5.9	6.0	5.0	7.1	5.9	5.7
Green Ext Time (p_c), s	0.0	1.3	0.0	1.8	0.0	1.5	0.0	1.7

Intersection Summary	
HCM 7th Control Delay, s/veh	16.3
HCM 7th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	365	128	304	542	40	195	16	211	40	16	25
Future Volume (veh/h)	15	365	128	304	542	40	195	16	211	40	16	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.99	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1248	1870	1737	1811	1870	1781	1811	1589	1737	1752	1870	1870
Adj Flow Rate, veh/h	16	384	90	320	571	36	205	17	50	42	17	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	44	2	11	6	2	8	6	21	11	10	2	2
Cap, veh/h	287	663	154	483	1190	75	526	78	231	424	243	57
Arrive On Green	0.02	0.23	0.23	0.14	0.35	0.35	0.10	0.22	0.22	0.04	0.17	0.17
Sat Flow, veh/h	1188	2859	663	1725	3394	214	1725	351	1033	1668	1458	343
Grp Volume(v), veh/h	16	237	237	320	299	308	205	0	67	42	0	21
Grp Sat Flow(s),veh/h/ln	1188	1777	1744	1725	1777	1830	1725	0	1385	1668	0	1800
Q Serve(g_s), s	0.5	5.9	6.0	6.7	6.5	6.5	4.9	0.0	2.0	1.0	0.0	0.5
Cycle Q Clear(g_c), s	0.5	5.9	6.0	6.7	6.5	6.5	4.9	0.0	2.0	1.0	0.0	0.5
Prop In Lane	1.00		0.38	1.00		0.12	1.00		0.75	1.00		0.19
Lane Grp Cap(c), veh/h	287	412	404	483	623	642	526	0	309	424	0	301
V/C Ratio(X)	0.06	0.58	0.59	0.66	0.48	0.48	0.39	0.00	0.22	0.10	0.00	0.07
Avail Cap(c_a), veh/h	383	968	951	483	1036	1067	526	0	780	517	0	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	16.9	17.0	11.6	12.6	12.6	14.9	0.0	15.8	15.9	0.0	17.5
Incr Delay (d2), s/veh	0.1	1.3	1.4	3.4	0.6	0.6	0.5	0.0	0.3	0.1	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.2	2.2	2.4	2.2	2.3	1.7	0.0	0.6	0.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.2	18.2	18.3	15.0	13.2	13.2	15.4	0.0	16.1	16.0	0.0	17.6
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		490			927			272			63	
Approach Delay, s/veh		18.1			13.8			15.6			16.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	21.9	9.5	12.8	11.4	16.0	6.7	15.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	29.0	5.0	28.0	6.9	27.1	5.0	28.0
Max Q Clear Time (g_c+I1), s	2.5	8.5	6.9	2.5	8.7	8.0	3.0	4.0
Green Ext Time (p_c), s	0.0	3.5	0.0	0.1	0.0	2.6	0.0	0.3

Intersection Summary	
HCM 7th Control Delay, s/veh	15.4
HCM 7th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	962	447	459	1830	388	218
Future Volume (veh/h)	962	447	459	1830	388	218
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1781	1870	1856	1826	1856
Adj Flow Rate, veh/h	1013	0	483	1926	408	28
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	8	2	3	5	3
Cap, veh/h	1352		614	2337	536	440
Arrive On Green	0.40	0.00	0.18	0.66	0.16	0.16
Sat Flow, veh/h	3503	1510	3456	3618	3374	2768
Grp Volume(v), veh/h	1013	0	483	1926	408	28
Grp Sat Flow(s),veh/h/ln	1706	1510	1728	1763	1687	1384
Q Serve(g_s), s	12.9	0.0	6.8	20.5	5.8	0.4
Cycle Q Clear(g_c), s	12.9	0.0	6.8	20.5	5.8	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1352		614	2337	536	440
V/C Ratio(X)	0.75		0.79	0.82	0.76	0.06
Avail Cap(c_a), veh/h	1533		677	2589	594	488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	0.0	19.9	6.3	20.3	18.1
Incr Delay (d2), s/veh	1.8	0.0	5.6	2.1	5.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.0	2.7	3.2	2.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	14.9	0.0	25.5	8.4	25.5	18.1
LnGrp LOS	B		C	A	C	B
Approach Vol, veh/h	1013			2409	436	
Approach Delay, s/veh	14.9			11.8	25.0	
Approach LOS	B			B	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.5	24.5		12.5		38.0
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	9.0	22.7		8.9		37.1
Max Q Clear Time (g_c+I1), s	8.8	14.9		7.8		22.5
Green Ext Time (p_c), s	0.2	3.9		0.2		11.0

Intersection Summary	
HCM 7th Control Delay, s/veh	14.1
HCM 7th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	668	0	175	0	1191	478	202	1130	0
Future Volume (veh/h)	0	0	0	668	0	175	0	1191	478	202	1130	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1870	1693	1870	1811	1752	1722	1752	0
Adj Flow Rate, veh/h	0	0	0	703	0	0	0	1254	0	213	1189	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	6	2	14	2	6	10	12	10	0
Cap, veh/h	0	3	0	815	0		2	1465		251	2132	0
Arrive On Green	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.43	0.00	0.15	0.64	0.00
Sat Flow, veh/h	0	1870	0	3450	0	1434	1781	3441	1485	1640	3416	0
Grp Volume(v), veh/h	0	0	0	703	0	0	0	1254	0	213	1189	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	1725	0	1434	1781	1721	1485	1640	1664	0
Q Serve(g_s), s	0.0	0.0	0.0	14.3	0.0	0.0	0.0	24.0	0.0	9.2	14.6	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	14.3	0.0	0.0	0.0	24.0	0.0	9.2	14.6	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	3	0	815	0		2	1465		251	2132	0
V/C Ratio(X)	0.00	0.00	0.00	0.86	0.00		0.00	0.86		0.85	0.56	0.00
Avail Cap(c_a), veh/h	0	128	0	922	0		122	1631		290	2132	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	26.7	0.0	0.0	0.0	18.9	0.0	30.1	7.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	7.7	0.0	0.0	0.0	4.4	0.0	18.4	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	6.4	0.0	0.0	0.0	8.9	0.0	4.8	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	34.5	0.0	0.0	0.0	23.3	0.0	48.5	7.7	0.0
LnGrp LOS				C				C		D	A	
Approach Vol, veh/h		0			703			1254			1402	
Approach Delay, s/veh		0.0			34.5			23.3			13.9	
Approach LOS					C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.7	35.6		0.0	0.0	51.2		21.7
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	12.9	34.6		5.0	5.0	42.5		19.5
Max Q Clear Time (g_c+I1), s	11.3	26.0		0.0	0.0	16.6		16.3
Green Ext Time (p_c), s	0.1	5.0		0.0	0.0	10.2		1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	21.7
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	24.4
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	651	719	425	257
Demand Flow Rate, veh/h	697	752	466	278
Vehicles Circulating, veh/h	234	531	633	863
Vehicles Exiting, veh/h	907	568	298	420
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.9	41.8	18.0	15.5
Approach LOS	B	E	C	C

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	697	752	466	278
Cap Entry Lane, veh/h	1087	803	724	572
Entry HV Adj Factor	0.934	0.956	0.913	0.923
Flow Entry, veh/h	651	719	425	257
Cap Entry, veh/h	1015	768	660	528
V/C Ratio	0.641	0.937	0.644	0.486
Control Delay, s/veh	12.9	41.8	18.0	15.5
LOS	B	E	C	C
95th %tile Queue, veh	5	14	5	3

Intersection	
Int Delay, s/veh	17.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1128	32	610	2209	0	0	0	420	0	0	0
Future Vol, veh/h	0	1128	32	610	2209	0	0	0	420	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	477	500	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	94	94	94	94	92	94	92	94	92	92	92
Heavy Vehicles, %	2	7	8	5	2	2	2	2	4	2	2	2
Mvmt Flow	0	1200	34	649	2350	0	0	0	447	0	0	0

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	-	0	0	1200	0	0			-	-	1175
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	-	-			-	-	-
Critical Hdwy	-	-	-	4.2	-	-			-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-			-	-	-
Follow-up Hdwy	-	-	-	2.25	-	-			-	-	3.32
Pot Cap-1 Maneuver	0	-	-	~ 561	-	0			0	0	184
Stage 1	0	-	-	-	-	0			0	0	-
Stage 2	0	-	-	-	-	0			0	0	-
Platoon blocked, %		-	-		-						
Mov Cap-1 Maneuver	-	-	-	~ 561	-	-			-	0	184
Mov Cap-2 Maneuver	-	-	-	-	-	-			-	0	-
Stage 1	-	-	-	-	-	-			-	0	-
Stage 2	-	-	-	-	-	-			-	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	24.78	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	~ 561	-	-
HCM Lane V/C Ratio	-	-	1.157	-	-
HCM Control Delay (s/veh)	-	-	114.5	-	0
HCM Lane LOS	-	-	F	-	A
HCM 95th %tile Q(veh)	-	-	22	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	5.3
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	137	400	283
Demand Flow Rate, veh/h	140	408	288
Vehicles Circulating, veh/h	217	94	88
Vehicles Exiting, veh/h	159	263	414
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.4	6.0	4.9
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LT	TR
Assumed Moves	LR	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	140	408	288
Cap Entry Lane, veh/h	1106	1254	1261
Entry HV Adj Factor	0.979	0.980	0.982
Flow Entry, veh/h	137	400	283
Cap Entry, veh/h	1082	1228	1238
V/C Ratio	0.127	0.325	0.228
Control Delay, s/veh	4.4	6.0	4.9
LOS	A	A	A
95th %tile Queue, veh	0	1	1

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	740	860	141
Demand Flow Rate, veh/h	754	877	144
Vehicles Circulating, veh/h	55	122	840
Vehicles Exiting, veh/h	929	687	159
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	9.5	13.9	9.5
Approach LOS	A	B	A

Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	754	877	144
Cap Entry Lane, veh/h	1305	1218	586
Entry HV Adj Factor	0.981	0.980	0.979
Flow Entry, veh/h	740	860	141
Cap Entry, veh/h	1280	1194	574
V/C Ratio	0.578	0.720	0.246
Control Delay, s/veh	9.5	13.9	9.5
LOS	A	B	A
95th %tile Queue, veh	4	7	1

Intersection	
Intersection Delay, s/veh	10.0
Intersection LOS	B

Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	674	860	49
Demand Flow Rate, veh/h	687	877	50
Vehicles Circulating, veh/h	28	51	855
Vehicles Exiting, veh/h	877	664	73
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	8.1	11.6	7.4
Approach LOS	A	B	A

Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	687	877	50
Cap Entry Lane, veh/h	1341	1310	577
Entry HV Adj Factor	0.980	0.981	0.980
Flow Entry, veh/h	674	860	49
Cap Entry, veh/h	1315	1285	565
V/C Ratio	0.512	0.670	0.087
Control Delay, s/veh	8.1	11.6	7.4
LOS	A	B	A
95th %tile Queue, veh	3	6	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	418	138	209	297	344	195	265	195	284	267	210
Future Volume (veh/h)	330	418	138	209	297	344	195	265	195	284	267	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	347	440	104	220	313	91	205	279	43	299	281	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	508	695	163	441	594	170	376	398	337	384	418	354
Arrive On Green	0.15	0.24	0.24	0.13	0.22	0.22	0.09	0.21	0.21	0.10	0.22	0.22
Sat Flow, veh/h	1781	2854	669	1781	2725	779	1781	1870	1581	1781	1870	1581
Grp Volume(v), veh/h	347	273	271	220	202	202	205	279	43	299	281	48
Grp Sat Flow(s),veh/h/ln	1781	1777	1747	1781	1777	1726	1781	1870	1581	1781	1870	1581
Q Serve(g_s), s	8.5	7.7	7.9	5.2	5.7	5.8	5.0	7.8	1.2	5.6	7.7	1.4
Cycle Q Clear(g_c), s	8.5	7.7	7.9	5.2	5.7	5.8	5.0	7.8	1.2	5.6	7.7	1.4
Prop In Lane	1.00		0.38	1.00		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	508	433	425	441	387	376	376	398	337	384	418	354
V/C Ratio(X)	0.68	0.63	0.64	0.50	0.52	0.54	0.55	0.70	0.13	0.78	0.67	0.14
Avail Cap(c_a), veh/h	508	916	901	483	913	887	376	958	810	384	978	827
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	19.1	19.1	14.4	19.5	19.5	16.3	20.5	18.0	18.9	20.0	17.5
Incr Delay (d2), s/veh	3.7	1.5	1.6	0.9	1.1	1.2	1.6	2.2	0.2	9.9	1.9	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.1	3.1	2.0	2.3	2.3	2.1	3.4	0.4	2.1	3.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.2	20.6	20.7	15.2	20.6	20.7	17.9	22.8	18.1	28.7	21.9	17.7
LnGrp LOS	B	C	C	B	C	C	B	C	B	C	C	B
Approach Vol, veh/h		891			624			527			628	
Approach Delay, s/veh		19.7			18.7			20.5			24.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	16.5	11.6	18.2	9.5	17.1	13.0	16.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	28.9	8.4	29.1	5.0	29.5	8.5	29.0
Max Q Clear Time (g_c+I1), s	7.6	9.8	7.2	9.9	7.0	9.7	10.5	7.8
Green Ext Time (p_c), s	0.0	1.7	0.1	3.2	0.0	1.8	0.0	2.4

Intersection Summary	
HCM 7th Control Delay, s/veh	20.8
HCM 7th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	714	226	497	508	40	245	18	244	110	38	16
Future Volume (veh/h)	16	714	226	497	508	40	245	18	244	110	38	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1604	1870	1870	1870	1870	1781	1870	1870	1856	1870	1870	1870
Adj Flow Rate, veh/h	17	752	213	523	535	38	258	19	17	116	40	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	20	2	2	2	2	8	2	2	3	2	2	2
Cap, veh/h	358	908	257	574	1890	134	360	118	106	359	226	6
Arrive On Green	0.02	0.33	0.33	0.25	0.56	0.56	0.07	0.13	0.13	0.07	0.12	0.12
Sat Flow, veh/h	1527	2718	770	1781	3365	239	1781	898	803	1781	1815	45
Grp Volume(v), veh/h	17	492	473	523	282	291	258	0	36	116	0	41
Grp Sat Flow(s),veh/h/ln	1527	1777	1711	1781	1777	1827	1781	0	1701	1781	0	1861
Q Serve(g_s), s	0.6	20.9	20.9	16.9	6.8	6.8	6.1	0.0	1.5	4.6	0.0	1.6
Cycle Q Clear(g_c), s	0.6	20.9	20.9	16.9	6.8	6.8	6.1	0.0	1.5	4.6	0.0	1.6
Prop In Lane	1.00		0.45	1.00		0.13	1.00		0.47	1.00		0.02
Lane Grp Cap(c), veh/h	358	593	571	574	998	1026	360	0	224	359	0	231
V/C Ratio(X)	0.05	0.83	0.83	0.91	0.28	0.28	0.72	0.00	0.16	0.32	0.00	0.18
Avail Cap(c_a), veh/h	422	725	698	776	1257	1293	360	0	595	359	0	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.3	25.1	25.1	18.8	9.3	9.4	31.8	0.0	31.5	28.6	0.0	32.1
Incr Delay (d2), s/veh	0.1	6.7	6.9	12.0	0.2	0.2	6.6	0.0	0.3	0.5	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	9.3	9.0	8.0	2.3	2.4	2.5	0.0	0.6	2.0	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.3	31.8	32.0	30.8	9.5	9.5	38.5	0.0	31.9	29.1	0.0	32.4
LnGrp LOS	B	C	C	C	A	A	D		C	C		C
Approach Vol, veh/h		982			1096			294			157	
Approach Delay, s/veh		31.6			19.7			37.7			30.0	
Approach LOS		C			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	50.5	10.6	14.7	24.7	31.8	10.0	15.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	57.9	6.1	28.0	29.5	33.4	5.5	28.6
Max Q Clear Time (g_c+I1), s	2.6	8.8	8.1	3.6	18.9	22.9	6.6	3.5
Green Ext Time (p_c), s	0.0	3.7	0.0	0.1	1.3	4.5	0.0	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	27.1
HCM 7th LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1538	694	361	1210	617	591
Future Volume (veh/h)	1538	694	361	1210	617	591
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1870	1870
Adj Flow Rate, veh/h	1619	0	380	1274	649	608
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	2	2
Cap, veh/h	1739		458	2392	719	950
Arrive On Green	0.49	0.00	0.13	0.68	0.21	0.21
Sat Flow, veh/h	3647	1585	3456	3618	3456	2790
Grp Volume(v), veh/h	1619	0	380	1274	649	608
Grp Sat Flow(s),veh/h/ln	1777	1585	1728	1763	1728	1395
Q Serve(g_s), s	33.9	0.0	8.5	14.4	14.5	14.6
Cycle Q Clear(g_c), s	33.9	0.0	8.5	14.4	14.5	14.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1739		458	2392	719	950
V/C Ratio(X)	0.93		0.83	0.53	0.90	0.64
Avail Cap(c_a), veh/h	1771		458	2424	719	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	0.0	33.5	6.4	30.6	22.0
Incr Delay (d2), s/veh	9.3	0.0	12.2	0.2	14.7	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.7	0.0	4.1	3.6	7.2	11.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	28.3	0.0	45.7	6.6	45.3	23.5
LnGrp LOS	C		D	A	D	C
Approach Vol, veh/h	1619			1654	1257	
Approach Delay, s/veh	28.3			15.6	34.8	
Approach LOS	C			B	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.0	43.3		21.0		58.3
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s	10.5	39.5		16.5		54.5
Max Q Clear Time (g_c+I1), s	10.5	35.9		16.6		16.4
Green Ext Time (p_c), s	0.0	2.9		0.0		11.1

Intersection Summary	
HCM 7th Control Delay, s/veh	25.5
HCM 7th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	10	473	0	202	0	1304	618	217	1254	10
Future Volume (veh/h)	0	0	10	473	0	202	0	1304	618	217	1254	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	418	1841	1870	1811	1870	1841	1826	1796	1856	418
Adj Flow Rate, veh/h	0	0	0	498	0	0	0	1373	0	228	1320	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	100	4	2	6	2	4	5	7	3	100
Cap, veh/h	0	3	0	627	0		3	1637		271	2477	21
Arrive On Green	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.47	0.00	0.16	0.69	0.69
Sat Flow, veh/h	0	1870	0	3506	0	1535	1781	3497	1547	1711	3583	30
Grp Volume(v), veh/h	0	0	0	498	0	0	0	1373	0	228	649	682
Grp Sat Flow(s),veh/h/ln	0	1870	0	1753	0	1535	1781	1749	1547	1711	1763	1850
Q Serve(g_s), s	0.0	0.0	0.0	9.4	0.0	0.0	0.0	23.8	0.0	9.0	12.5	12.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	9.4	0.0	0.0	0.0	23.8	0.0	9.0	12.5	12.5
Prop In Lane	0.00		0.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	0	3	0	627	0		3	1637		271	1219	1279
V/C Ratio(X)	0.00	0.00	0.00	0.79	0.00		0.00	0.84		0.84	0.53	0.53
Avail Cap(c_a), veh/h	0	135	0	855	0		129	1863		326	1219	1279
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	27.2	0.0	0.0	0.0	16.1	0.0	28.3	5.2	5.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.7	0.0	0.0	0.0	3.2	0.0	15.3	0.4	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.1	0.0	0.0	0.0	8.3	0.0	4.6	3.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	30.9	0.0	0.0	0.0	19.4	0.0	43.6	5.7	5.7
LnGrp LOS				C				B		D	A	A
Approach Vol, veh/h		0			498			1373			1559	
Approach Delay, s/veh		0.0			30.9			19.4			11.2	
Approach LOS					C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.5	36.9		0.0	0.0	52.4		16.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	13.3	36.9		5.0	5.0	45.1		16.9
Max Q Clear Time (g_c+I1), s	11.0	25.8		0.0	0.0	14.5		11.4
Green Ext Time (p_c), s	0.1	6.6		0.0	0.0	11.6		1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	17.3
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	775	537	226	388
Demand Flow Rate, veh/h	802	556	235	397
Vehicles Circulating, veh/h	304	372	831	558
Vehicles Exiting, veh/h	651	694	275	370
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	20.0	12.4	12.4	12.0
Approach LOS	C	B	B	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	802	556	235	397
Cap Entry Lane, veh/h	1012	944	591	781
Entry HV Adj Factor	0.967	0.965	0.963	0.977
Flow Entry, veh/h	775	537	226	388
Cap Entry, veh/h	978	911	569	763
V/C Ratio	0.792	0.589	0.397	0.508
Control Delay, s/veh	20.0	12.4	12.4	12.0
LOS	C	B	B	B
95th %tile Queue, veh	9	4	2	3

Intersection	
Int Delay, s/veh	48.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2061	48	431	1491	0	0	0	646	0	0	0
Future Vol, veh/h	0	2061	48	431	1491	0	0	0	646	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	477	500	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	6	3	2	2	2	2	2	2	2	2
Mvmt Flow	0	2169	51	454	1569	0	0	0	680	0	0	0

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	-	0	0	2169	0	0			-	-	785
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	-	-			-	-	-
Critical Hdwy	-	-	-	4.16	-	-			-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-			-	-	-
Follow-up Hdwy	-	-	-	2.23	-	-			-	-	3.32
Pot Cap-1 Maneuver	0	-	-	~ 239	-	0			0	0	336
Stage 1	0	-	-	-	-	0			0	0	-
Stage 2	0	-	-	-	-	0			0	0	-
Platoon blocked, %		-	-		-						
Mov Cap-1 Maneuver	-	-	-	~ 239	-	-			-	0	336
Mov Cap-2 Maneuver	-	-	-	-	-	-			-	0	-
Stage 1	-	-	-	-	-	-			-	0	-
Stage 2	-	-	-	-	-	-			-	0	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0	101.59	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	~ 239	-	-
HCM Lane V/C Ratio	-	-	1.896	-	-
HCM Control Delay (s/veh)	-	-	$ 453	-	0
HCM Lane LOS	-	-	F	-	A
HCM 95th %tile Q(veh)	-	-	32.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	6.0
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	187	361	414
Demand Flow Rate, veh/h	191	368	423
Vehicles Circulating, veh/h	344	128	109
Vehicles Exiting, veh/h	188	407	387
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.7	5.9	6.2
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LT	TR
Assumed Moves	LR	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	191	368	423
Cap Entry Lane, veh/h	972	1211	1235
Entry HV Adj Factor	0.979	0.981	0.979
Flow Entry, veh/h	187	361	414
Cap Entry, veh/h	951	1188	1209
V/C Ratio	0.197	0.304	0.343
Control Delay, s/veh	5.7	5.9	6.2
LOS	A	A	A
95th %tile Queue, veh	1	1	2

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	879	653	169
Demand Flow Rate, veh/h	897	666	172
Vehicles Circulating, veh/h	75	154	607
Vehicles Exiting, veh/h	704	818	213
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	12.8	9.9	7.6
Approach LOS	B	A	A

Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	897	666	172
Cap Entry Lane, veh/h	1278	1179	743
Entry HV Adj Factor	0.980	0.981	0.983
Flow Entry, veh/h	879	653	169
Cap Entry, veh/h	1253	1156	730
V/C Ratio	0.702	0.565	0.232
Control Delay, s/veh	12.8	9.9	7.6
LOS	B	A	A
95th %tile Queue, veh	6	4	1

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	828	657	59
Demand Flow Rate, veh/h	844	670	60
Vehicles Circulating, veh/h	38	66	654
Vehicles Exiting, veh/h	676	816	82
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	10.6	8.5	6.1
Approach LOS	B	A	A

Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
A (Intercept)	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	844	670	60
Cap Entry Lane, veh/h	1327	1290	708
Entry HV Adj Factor	0.981	0.981	0.983
Flow Entry, veh/h	828	657	59
Cap Entry, veh/h	1302	1265	696
V/C Ratio	0.636	0.519	0.085
Control Delay, s/veh	10.6	8.5	6.1
LOS	B	A	A
95th %tile Queue, veh	5	3	0

Lane Group	EBT	EBR	WBL	WBT	NBR
Lane Group Flow (vph)	1200	34	649	2350	447
v/c Ratio	0.79	0.05	0.88	0.66	0.28
Control Delay (s/veh)	15.0	3.3	24.3	1.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.0	3.3	24.3	1.0	0.5
Queue Length 50th (ft)	126	0	85	0	0
Queue Length 95th (ft)	#192	10	#260	0	0
Internal Link Dist (ft)	618			710	
Turn Bay Length (ft)		477	500		
Base Capacity (vph)	1658	736	796	3470	1580
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.72	0.05	0.82	0.68	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1128	32	610	2209	0	420
Future Volume (vph)	1128	32	610	2209	0	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5
Lane Util. Factor	0.95	1.00	1.00	0.95		1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	1.00		0.87
Flt Protected	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	3374	1463	1719	3539		1580
Flt Permitted	1.00	1.00	0.17	1.00		1.00
Satd. Flow (perm)	3374	1463	304	3539		1580
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1200	34	649	2350	0	447
RTOR Reduction (vph)	0	19	0	0	0	0
Lane Group Flow (vph)	1200	15	649	2350	0	447
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	7%	8%	5%	2%	2%	4%
Turn Type	NA	Perm	pm+pt	NA		pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6			6
Actuated Green, G (s)	19.3	19.3	37.9	42.4		37.9
Effective Green, g (s)	19.3	19.3	37.9	42.4		37.9
Actuated g/C Ratio	0.46	0.46	0.89	1.00		0.89
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	1535	665	742	3539		1580
v/s Ratio Prot	0.36		c0.29	0.66		0.09
v/s Ratio Perm		0.01	c0.49			0.19
v/c Ratio	0.78	0.02	0.87	0.66		0.28
Uniform Delay, d1	9.8	6.4	8.9	0.0		0.3
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	2.7	0.0	11.2	0.5		0.1
Delay (s)	12.4	6.4	20.1	0.5		0.4
Level of Service	B	A	C	A		A
Approach Delay (s/veh)	12.3			4.7	0.4	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	42.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBR
Lane Group Flow (vph)	2169	51	454	1569	680
v/c Ratio	0.93	0.05	0.92	0.44	0.42
Control Delay (s/veh)	21.5	1.7	48.4	0.4	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.5	1.7	48.4	0.4	0.8
Queue Length 50th (ft)	441	0	166	0	0
Queue Length 95th (ft)	#696	10	#343	0	0
Internal Link Dist (ft)	618			710	
Turn Bay Length (ft)		477	500		
Base Capacity (vph)	2360	1033	504	3539	1611
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.92	0.05	0.90	0.44	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2061	48	431	1491	0	646
Future Volume (vph)	2061	48	431	1491	0	646
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5
Lane Util. Factor	0.95	1.00	1.00	0.95		1.00
Frt	1.00	0.85	1.00	1.00		0.87
Flt Protected	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	3539	1524	1752	3539		1611
Flt Permitted	1.00	1.00	0.07	1.00		1.00
Satd. Flow (perm)	3539	1524	131	3539		1611
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2169	51	454	1569	0	680
RTOR Reduction (vph)	0	17	0	0	0	0
Lane Group Flow (vph)	2169	34	454	1569	0	680
Heavy Vehicles (%)	2%	6%	3%	2%	2%	2%
Turn Type	NA	Perm	pm+pt	NA		pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6			6
Actuated Green, G (s)	51.8	51.8	74.3	78.8		74.3
Effective Green, g (s)	51.8	51.8	74.3	78.8		74.3
Actuated g/C Ratio	0.66	0.66	0.94	1.00		0.94
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	2326	1001	493	3539		1611
v/s Ratio Prot	0.61		c0.21	0.44		0.10
v/s Ratio Perm		0.02	c0.66			0.33
v/c Ratio	0.93	0.03	0.92	0.44		0.42
Uniform Delay, d1	12.0	4.7	26.0	0.0		0.2
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	7.6	0.0	22.7	0.1		0.2
Delay (s)	19.5	4.7	48.6	0.1		0.4
Level of Service	B	A	D	A		A
Approach Delay (s/veh)	19.2			11.0	0.4	
Approach LOS	B			B	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Appendix C – Signal Warrants

FEHR PEERS

Major Street	Hana Highway	Project	Ho'onani Village
Minor Street	WBL to Hansen Road	Scenario	Existing Conditions
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	262
Through	0	0	1,829	1,324
Right	460	0	16	0
Total	460	0	1,845	1,586

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	56.71
Approach with Worst Case Delay	WB
Total Vehicles on Approach	262

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Conditions	**4.1**	**460**	**3,891**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR & PEERS

Major Street	Hana Highway
Minor Street	WBL to Hansen Road

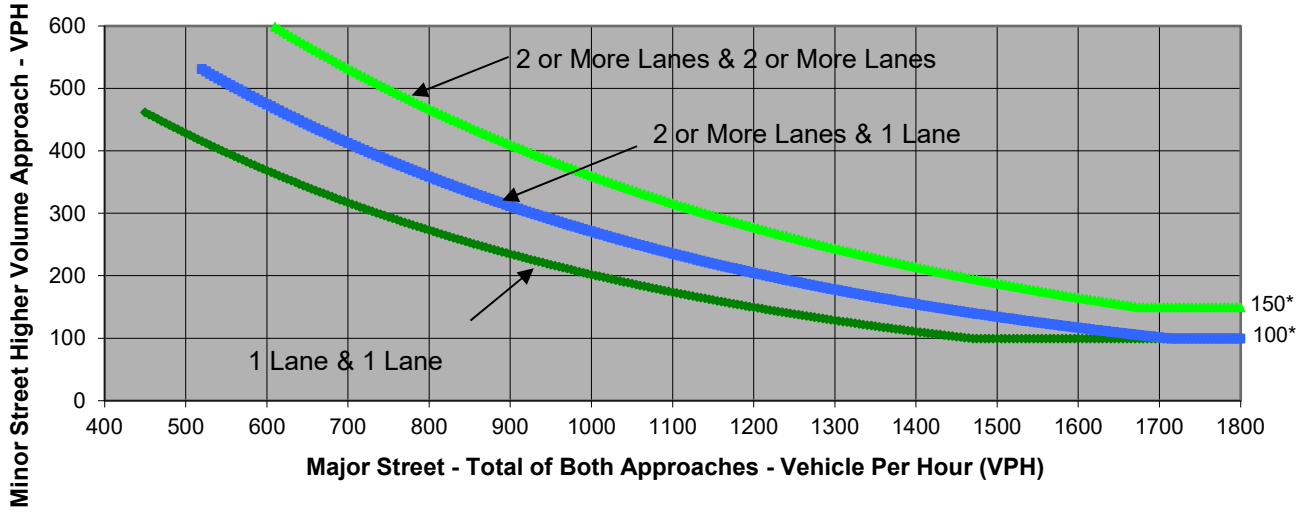
Project	Ho'onani Village
Scenario	Existing Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	262
Through	0	0	1829	1324
Right	460	0	16	0
Total	460	0	1,845	1,586

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Hana Highway	WBL to Hansen Road	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**1,829**	**262**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Hana Highway	Project	Ho'onani Village
Minor Street	WBL to Hansen Road	Scenario	Existing
		Period	Four Hour

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	1,095
Through	0	0	6,749	5,078
Right	1,596	0	57	0
Total	1,596	0	6,806	6,173

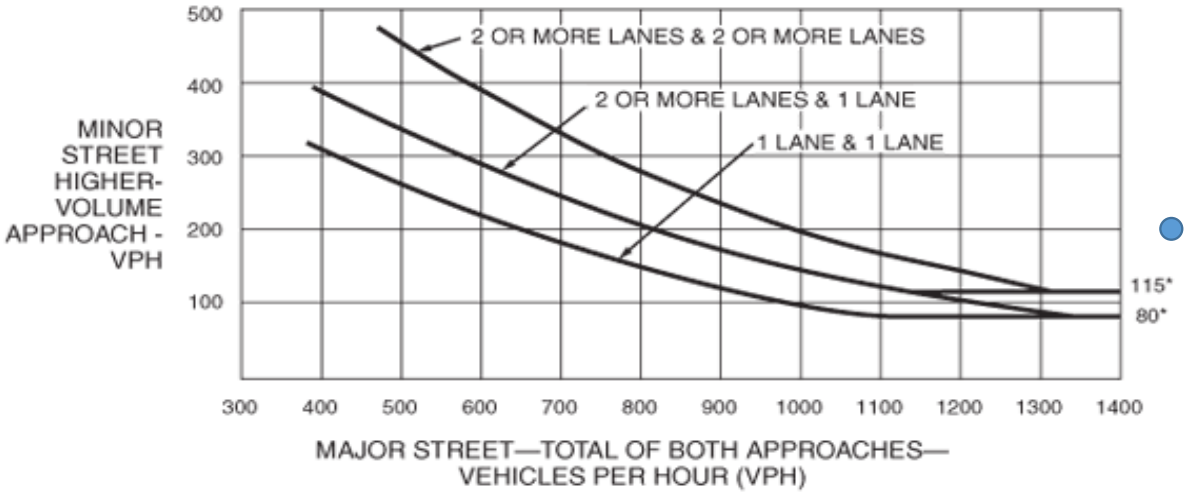
Major Street Direction

	North/South
x	East/West

	Major Street	Minor Street	Warrant Met
	Hana Highway	WBL to Hansen Road	
Number of Approach Lanes	**2**	**1**	**Yes**
Traffic Volume (VPH) *	**1,687**	**274**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

FEHR PEERS

Major Street	Hana Highway	Project	Ho'onani Village
Minor Street	WBL to Hansen Road	Scenario	Existing
		Period	Eight Hour

Approach Volumes

	NB	SB	EB	WBL
Eight-Hour vph	0	0	9,612	2,653

Major Street Direction

	North/South
x	East/West

The need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day:
A. The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; or
B. The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.

	Major Street	Minor Street	Warrant Met
	Hana Highway	WBL to Hansen Road	
Number of Approach Lanes	**2**	**1**	**Yes**
Traffic Volume (VPH) *	**1,202**	**332**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume									
Number of lanes for moving traffic on each approach		**Vehicles per hour on major street (total of both approaches)**				**Vehicles per hour on higher-volume minor-street approach (one direction only)**			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112
Condition B—Interruption of Continuous Traffic									
Number of lanes for moving traffic on each approach		**Vehicles per hour on major street (total of both approaches)**				**Vehicles per hour on higher-volume minor-street approach (one direction only)**			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

[a] Basic minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000
[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Appendix D – Trip Generation Rates

Model Outputs (Vehicle Trips)

Land Use	Units[1]	ITE Code	Quantity	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
Net New Uses										
15.6 KSF Future Commerical (Using code 310 equivalent)	Rooms	310 [2]	150	1202	38	30	68	42	41	83
12.2 KSF Additional Commercial in Mixed Use Site (Using code 310 equivalent)	Rooms	310 [3]	125	931	31	24	55	33	32	65
(750) Office Park (Adj Streets, 7-9A, 4-6P)	1000 Sq. Ft. GFA	750 [4]	100	1338	256	32	288	21	126	147
(130) Industrial Park (Adj Streets, 7-9A, 4-6P)	1000 Sq. Ft. GFA	130 [5]	198.1	668	54	13	67	15	52	67
(821) ShoppingPlaza (40-150k)-Supermarket -No (Adj Streets, 7-9A, 4-6P)	1000 Sq. Ft. GLA	821 [6]	113.468	7661	122	74	196	289	300	589
(220) Multifamily Housing (Low- Rise) Not Close toRail Transit (Adj Streets, 7-9A, 4-6P)	Dwelling Units	220 [7]	1599	10325	125	394	519	446	262	708
Reductions										
Internal Capture				-702	-41	-37	-78	-93	-89	-182
External Walk, Bike, and Transit				-1,109	-38	-35	-73	-38	-36	-74
Total Reductions				-1,811	-79	-72	-151	-131	-125	-256
Net New Project Trips				20,314	547	495	1,042	715	688	1,403

1. **DU = dweling units. KSF = 1000 square feet**
2. **ITE Trip Generation land use category (310) (Adj Streets, 7-9A, 4-6P)**
   - **Daily: T = 10.84(X) + -423.51**
   - **AM Peak Hour: T = 0.50(X) + -7.45 (57.99999999999999% in, 42% out)**
   - **PM Peak Hour: T = 0.74(X) + -27.89 (49% in, 51% out)**
3. **ITE Trip Generation land use category (310) Hotel (Adj Streets, 7-9A, 4-6P)**
   - **Daily: T = 10.84(X) + -423.51**
   - **AM Peak Hour: T = 0.50(X) + -7.45 (57.99999999999999% in, 42% out)**
   - **PM Peak Hour: T = 0.74(X) + -27.89 (49% in, 51% out)**
4. **ITE Trip Generation land use category (750) Office Park (Adj Streets, 7-9A, 4-6P)**
   - **Daily: Ln(T) = 0.89 * ln(X) + 3.10**
   - **AM Peak Hour: T = 0.94(X) + 194.06 (92% in, 8% out)**
   - **PM Peak Hour: T = 1.26(X) + 20.98 (15% in, 85% out)**
5. **ITE Trip Generation land use category (130) Industrial Park (Adj Streets, 7-9A, 4-6P)**
   - **Daily: T = 3.37(X)**
   - **AM Peak Hour: T = 0.34(X) (86% in, 14.000000000000002% out)**
   - **PM Peak Hour: T = 0.34(X) (20% in, 80% out)**
6. **ITE Trip Generation land use category (220) Multifamily Housing (Low- Rise) Not Close toRail Transit (Adj Streets, 7-9A, 4-6P)**
   - **Daily: T = 6.41(X) + 75.31**
   - **AM Peak Hour: T = 0.31(X) + 22.85 (20% in, 80% out)**
   - **PM Peak Hour: T = 0.43(X) + 20.55 (65% in, 35% out)**
7. **ITE Trip Generation land use category (821) ShoppingPlaza (40-150k)-Supermarket -No (Adj Streets, 7-9A, 4-6P)**
   - **Daily: T = 67.52(X)**
   - **AM Peak Hour: T = 1.73(X)**
   - **PM Peak Hour: T = 5.19(X)**
8. **Reductions based on application of MXD+ model:**
   - **Total Reductions: Daily = 8.2%, AM Peak Hour = 12.7%, PM Peak Hour = 15.6%**
   - **Internal Capture: Daily = 3.2%, AM Peak Hour = 6.6%, PM Peak Hour = 11.1%**
   - **External Walk, Bike, and Transit: Daily = 5.0%, AM Peak Hour = 6.1%, PM Peak Hour = 4.5%**
9. **Sources:**
   - ***ITE Trip Generation Manual*, 9th and 10th Edition**
   - **Fehr and Peers**
10. **Person Trips:**
    - **Person Trips derived using the following average vehicle occupancy rates, applied to ITE Vehicle Trip Generation:**
    - **HBW AVO:1.05**
    - **HBO AVO:1.05**
    - **NHW AVO:1.05**

EXHIBIT 29

Soil Sampling Report

April 2, 2025

Mr. Bob Young
Senior Project Manager, Civil Division
Alpha Inc.
427 Ala Makani Rd., Suite 100
Kahului, Hawaii 96732

RE: Limited Soil Investigation
MEO Condominium Unit 2C
21 Hansen Road
Kahului, Hawaii, TMK (2) 3-8-006:004 (portion)
MEV Project No. T24-020

Dear Mr. Young,

Malama Environmental (MEV) was initially retained by Ax Holdings LLC to perform a Limited Soil Investigation on the subject property. The investigation was performed to assess potential residual pesticide impact resulting from previous agricultural operations on the subject site. This report summarizes the findings of our investigation.

BACKGROUND INFORMATION

The State of Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response (HEER) Office recommends that sites with known pesticide-related contamination, as well as sites where pesticides were regularly applied, be evaluated for residual contamination prior to re-development (HDOH, 2014). The term "pesticides" includes any type of chemical mixture specifically formulated to kill "pests." The pesticides most commonly used in agricultural fields in Hawaii include herbicides, fungicides, and insecticides (insecticides include termiticides and nematicides). Most agricultural fields formerly used in sugar cane and pineapple cultivation received regular pesticide applications.

According to Hawaii Revised Statutes (HRS) Chapter 128D Environmental Response Law, the presence of agricultural chemicals resulting from the legal application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) does not constitute a “release” of a hazardous substance. However, as a precaution when agricultural lands are converted, soil sampling and laboratory testing are commonly performed to determine if any potential for residual exposure hazards exists at concentrations greater than the applicable environmental action levels (EALs).

SITE DESCRIPTION

The subject property consists of an approximately 166.511 acre irregularly shaped area of land within the central and eastern portions of the identified parcel. The site is currently vacant, undeveloped fallow agricultural land that was previously used for sugarcane cultivation. The site slopes slightly downward to the northwest and contains a network of unpaved access road and man-made berms throughout. The asphalt paved remnants of Central Power Plant Road are present on the central

portion of the site from the northeast to the southwest. Ground cover consists primarily of medium to tall dry grass with some trees. The site and surrounding area are shown on Figure 1 in Attachment 1.

SOIL SAMPLING AND ANALYSIS

The HDOH identifies target pesticide categories for investigation of former sugar cane and pineapple operations in Hawaii. The target pesticide categories for former sugar cane and pineapple fields include Organo-Chlorine Pesticides and Arsenic (HDOH, 2014). Per HDOH guidance, MEV recommended that Multi-Increment Decision Unit (MIS DU) soil samples from the subject property be analyzed for Organo-Chlorine Pesticides and Arsenic. Eight (8) Decision Unit (DU) locations were selected in accessible topographic low, medium, and high areas for general site characterization purposes. Two (2) additional DU sample sets were also collected as part of the quality assurance/quality control (QAQC) requirements for a total of ten (10) Multi-Increment Sample sets (MIS). Each DU area is about 0.5 acres in size. The decision unit sample locations are shown on Figure 1 in Attachment 1.

On January 29, 2025, MEV personnel performed the field sampling. Thirty soil increments were collected and combined into one multi-increment sample for each of the DU areas at the subject site. Soil increments were collected from random accessible locations across each DU. Using a stainless-steel soil core sampler, core-shaped soil increments were collected from a depth of 0 to 6 inches below ground surface (bgs). All soil increments collected within each DU were placed into a new clean gallon Ziploc bag.

Subsequent to sampling in the field, the samples were preserved in a cooler with ice packs. The cooler with the chilled samples, ice packs, and chain of custody form was relinquished by MEV to Hawaiian Airlines Air Cargo at Kahului Airport on the day of sampling for chilled shipment and storage to Honolulu International Airport. On the following day, the samples were picked up by Hawaii Analytical Laboratory in Honolulu. After performing multi increment sample preparation, the samples were analyzed for Chlordane (Technical Grade) and other Organo-Chlorine Pesticides using EPA Method 8081B, and Total Arsenic using EPA Method 3051m/7061Am.

ANALYTICAL RESULTS

As defined by the HDOH *Technical Guidance Manual For The Implementation Of The Hawaii State Contingency Plan*, Tier 1 Environmental Action Levels (EALs) are concentrations of contaminants in the environment below which the contaminants are assumed to not pose a significant threat to human health or the environment (HDOH, 2017). The presence of trace concentrations of contaminants may, however, indicate that additional evaluation is warranted to determine if the level of risk at the site is acceptable or unacceptable, and if cleanup actions are appropriate (HDOH, 2017).

The results of the laboratory analyses performed on the soil samples were compared with HDOH Tier 1 EALs and are presented in Table 1 below. The EALs referenced in this report are from the State of Hawaii's *Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater, Volume 2*, Appendix 1 (HDOH, 2024). The laboratory report and chain of custody form are found in Attachment 2.

Table 1 - SOIL SAMPLE ANALYTICAL RESULTS					
Sample Number	**Analysis**	**Compound(s) Detected**	**Concentration (mg/kg)***	**DOH EAL** (mg/kg)**	**Exceeds EAL**
DU-1A	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	4.5	24 (Soil Background)	No
DU-1B	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	4	24 (Soil Background)	No
DU-1C	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	4.5	24 (Soil Background)	No
DU-2	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	5.5	24 (Soil Background)	No
DU-3	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	4.4	24 (Soil Background)	No
DU-4	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	5.6	24 (Soil Background)	No
DU-5	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	5.8	24 (Soil Background)	No
DU-6	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	8.2	24 (Soil Background)	No

Table 1 - SOIL SAMPLE ANALYTICAL RESULTS					
Sample Number	**Analysis**	**Compound(s) Detected**	**Concentration (mg/kg)***	**DOH EAL** (mg/kg)**	**Exceeds EAL**
DU-7	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	5.3	24 (Soil Background)	No
DU-8	Chlordane (Technical Grade)	None	<0.4	N/A	No
	Other Organo-Chlorine Pesticides	None	<0.02	N/A	No
	Total Arsenic	Arsenic	4.6	24 (Soil Background)	No

NOTES

*mg/kg = milligrams per kilogram, or parts per million (ppm)

**DOH EALs – HDOH Tier 1 Environmental Action Levels (EALs) for Unrestricted Current or Future Land Use (considered adequate for residential housing, schools, medical facilities, day-care centers, parks, and other sensitive uses).

Laboratory Reporting Limit for Chlordane (Technical Grade) was 0.4 mg/kg.

Laboratory Reporting Limit for Other Organo-Chlorine Pesticides was 0.02 mg/kg.

N/A – Not applicable.

No Organo-Chlorine Pesticide chemicals were detected in the soil samples analyzed. Arsenic was detected in the soil samples at concentrations less than the HDOH EAL of 24 mg/kg.

CONCLUSIONS AND RECOMMENDATIONS

The soil sampling data generated during this investigation indicates that the subject site is suitable for unrestricted use of the property.

LIMITATIONS

The inspection methods used in this investigation were used to provide the Client with information regarding potential health and safety issues for the site. The investigation was performed in accordance with generally accepted practices and principles current at the time the work was performed. The reported observations and data are necessarily limited to the conditions observed at the time of the investigation. The conclusions and recommendations presented herein represent the best judgment of MEV based on the data obtained from the work. Due to the nature and limited scope of the investigation, MEV cannot warrant undiscovered environmental liabilities. The conclusions and recommendations presented in this report should not be construed as legal advice.

This report was prepared on behalf of and exclusively for the use of the Client. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, be used or relied upon by any other party, nor shall any other party discuss the report with MEV personnel without the written consent from the Client, or their designee(s).

ACKNOWLEDGMENT

MEV appreciates the opportunity to be of service. If you have any questions or need additional information, please contact our office at (808) 876-0500.

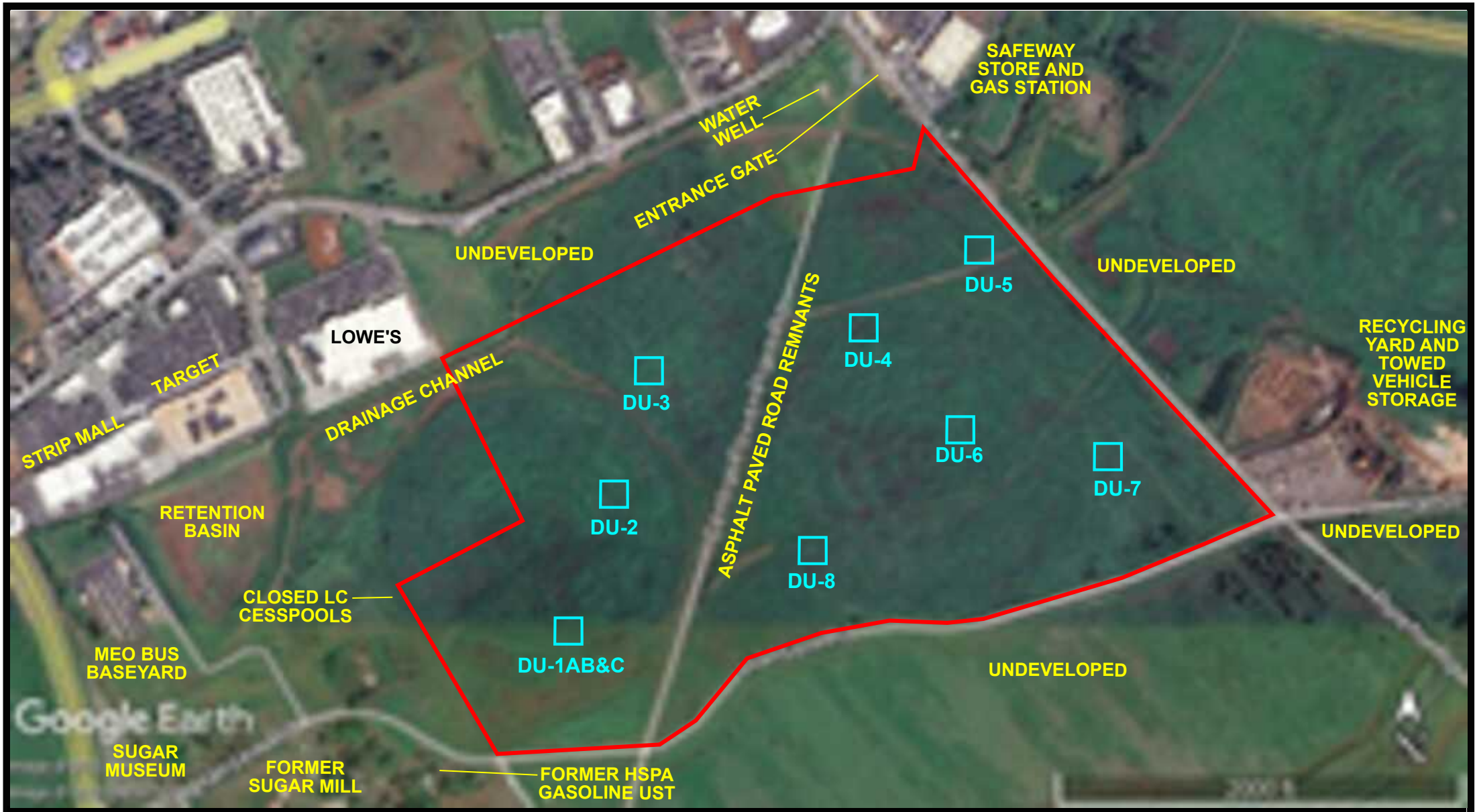
Sincerely,
Malama Environmental

Jeffrey R. King, CPG
Project Manager – Technical Services

Attachments:
Attachment 1 – Figures
Attachment 2 – Laboratory Reports and Chain of Custody

Attachment 1:

Figures



LEGEND

APPROX. SUBJECT PROPERTY BOUNDARY

APPROX. DECISION UNIT BOUNDARY

SOIL SAMPLE MAP

MEO Condominium Unit 2C
21 Hansen Road
Kahului, Maui, Hawaii
TMK: (2) 3-8-006:004 Portion

Limited Soil Investigation
March 2025
MEV Project No. T24-020

FIGURE 1

Attachment 2:

Laboratory Reports and Chain of Custody

Hawaii Analytical Laboratory
ANALYTICAL REPORT

Tuesday, February 11, 2025

Malama Environmental
P.O. Box 880487
Pukalani HI 96788

Phone Number: (808)876-0500
Email: mev.llc.jeff@gmail.com; rogerclay7@gmail.com

Lab Job No: 202500826
Total Analyzed: 10
Date Collected:
Date Submitted: 1/30/2025
Project Name: T24-020, MEO Condominium Unit 2C

Chlordane (Technical Grade)

EPA Method: 8081B -m [Gas Chromatography - ECD]

Lab Sple No.	Sample ID / Description	Results	Units	Date Analyzed
202505865	**DU1A** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/4/2025
202505866	**DU1B** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/4/2025
202505867	**DU1C** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/4/2025
202505868	**DU2** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/5/2025
202505869	**DU3** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/5/2025
202505870	**DU4** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/5/2025
202505871	**DU5** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/5/2025
202505872	**DU6** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/5/2025
202505873	**DU7** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/5/2025

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Total Analyzed: 10
Date Collected:
Date Submitted: 1/30/2025
Project Name: T24-020, MEO Condominium Unit 2C

Chlordane (Technical Grade)

EPA Method: 8081B -m [Gas Chromatography - ECD]

Lab Sple No.	Sample ID / Description	Results	Units	Date Analyzed
202505874	**DU8** Multi-incremental sampling was performed on the sample	< 0.4	mg/kg	2/5/2025

All Quality Control data are acceptable unless otherwise noted.

Malama Environmental
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Pukalani HI 96788

Phone Number: (808)876-0500
Email: mev.llc.jeff@gmail.com; rogerclay7@gmail.com

Lab Job No: 202500826
Total Analyzed: 10
Date Collected:
Date Submitted: 1/30/2025
Project Name: T24-020, MEO Condominium Unit 2C

Organochlorinated Pesticides

EPA Method: 8081B -m [Gas Chromatography - ECD]

Lab Sple No.	Sample ID / Description	Results	Units	Date Analyzed
202505865	**DU1A**			2/4/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			
202505866	**DU1B**			2/4/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			

Malama Environmental
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Lab Job No: 202500826
Total Analyzed: 10
Date Collected:
Date Submitted: 1/30/2025
Project Name: T24-020, MEO Condominium Unit 2C

Organochlorinated Pesticides

EPA Method: 8081B -m [Gas Chromatography - ECD]

Lab Sple No.	Sample ID / Description	Results	Units	Date Analyzed
202505867	**DU1C**			2/4/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			
202505868	**DU2**			2/5/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			

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Lab Job No: 202500826
Total Analyzed: 10
Date Collected:
Date Submitted: 1/30/2025
Project Name: T24-020, MEO Condominium Unit 2C

Organochlorinated Pesticides

EPA Method: 8081B -m [Gas Chromatography - ECD]

Lab Sple No.	Sample ID / Description	Results	Units	Date Analyzed
202505869	**DU3**			2/5/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			
202505870	**DU4**			2/5/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			

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Lab Job No: 202500826
Total Analyzed: 10
Date Collected:
Date Submitted: 1/30/2025
Project Name: T24-020, MEO Condominium Unit 2C

Organochlorinated Pesticides

EPA Method: 8081B -m [Gas Chromatography - ECD]

Lab Sple No.	Sample ID / Description	Results	Units	Date Analyzed
202505871	**DU5**			2/5/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			
202505872	**DU6**			2/5/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			

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Project Name: T24-020, MEO Condominium Unit 2C

Organochlorinated Pesticides

EPA Method: 8081B -m [Gas Chromatography - ECD]

Lab Sple No.	Sample ID / Description	Results	Units	Date Analyzed
202505873	**DU7**			2/5/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			
202505874	**DU8**			2/5/2025
	4,4'-DDD	< 0.02	mg/kg	
	4,4'-DDE	< 0.02	mg/kg	
	4,4'-DDT	< 0.02	mg/kg	
	Aldrin	< 0.02	mg/kg	
	alpha-BHC	< 0.02	mg/kg	
	beta-BHC	< 0.02	mg/kg	
	delta-BHC	< 0.02	mg/kg	
	Dieldrin	< 0.02	mg/kg	
	Endosulfan I	< 0.02	mg/kg	
	Endosulfan II	< 0.02	mg/kg	
	Endosulfan Sulfate	< 0.02	mg/kg	
	Endrin	< 0.02	mg/kg	
	Endrin Aldehyde	< 0.02	mg/kg	
	Endrin Ketone	< 0.02	mg/kg	
	gamma-BHC	< 0.02	mg/kg	
	Heptachlor	< 0.02	mg/kg	
	Heptachlor Epoxide	< 0.02	mg/kg	
	Methoxychlor	< 0.02	mg/kg	
	Multi-incremental sampling was performed on the sample.			

All Quality Control data are acceptable unless otherwise noted.

Malama Environmental
P.O. Box 880487
Pukalani HI 96788

Phone Number: (808)876-0500
Email: mev.llc.jeff@gmail.com; rogerclay7@gmail.com

Lab Job No: 202500826
Total Analyzed: 10
Date Collected:
Date Submitted: 1/30/2025
Project Name: T24-020, MEO Condominium Unit 2C

Total Recoverable Arsenic (Gaseous Hydride)

EPA Method: 3051m / 7061Am

Lab Sple No.	Sample ID / Description	Results	Units	Date Analyzed
202505865	**DU1A** Multi-incremental sampling was performed on the sample.	4.5	mg/kg	2/11/2025
202505866	**DU1B** Multi-incremental sampling was performed on the sample.	4	mg/kg	2/11/2025
202505867	**DU1C** Multi-incremental sampling was performed on the sample.	4.5	mg/kg	2/11/2025
202505868	**DU2** Multi-incremental sampling was performed on the sample.	5.5	mg/kg	2/11/2025
202505869	**DU3** Multi-incremental sampling was performed on the sample.	4.4	mg/kg	2/11/2025
202505870	**DU4** Multi-incremental sampling was performed on the sample.	5.6	mg/kg	2/11/2025
202505871	**DU5** Multi-incremental sampling was performed on the sample.	5.8	mg/kg	2/11/2025
202505872	**DU6** Multi-incremental sampling was performed on the sample.	8.2	mg/kg	2/11/2025
202505873	**DU7** Multi-incremental sampling was performed on the sample.	5.3	mg/kg	2/11/2025
202505874	**DU8** Multi-incremental sampling was performed on the sample.	4.6	mg/kg	2/11/2025

All Quality Control data are acceptable unless otherwise noted.

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Phone Number: (808)876-0500
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Lab Job No: 202500826
Total Analyzed: 10
Date Collected:
Date Submitted: 1/30/2025
Project Name: T24-020, MEO Condominium Unit 2C

General Comments
The sample[s] analysis subject of this analytical report were conducted in general accordance with the procedures associated with the "analytical method" referenced above. The analysis of sample relates only to the sample analyzed, and may or may not be representative of the original source of the material submitted for our analysis. All analysts participate in interlaboratory quality control testing to continuously document profiency. This report is not to be duplicated except in full without the expressed written permission of Hawaii Analytical Laboratory. This report should not be construed as an endorsement for a product or a service by the AIHA LAP, LLC or any affiliated organizations. Sample and associated sampling / collection data (e.g. air volume or surface area) is reported as provided by client. TWA values have been calculated based on information supplied by the client that the laboratory has not independently verified. Results have not been corrected for blank determinations unless noted in remarks. Unless otherwise indicated the sample condition at the time of receipt was acceptable. MRL for lead air is 5ug; MRL for lead wipe is 5ug; MRL for lead paint or soil is 40 mg/kg for a 0.25g

Results and Symbols Definitions
> This testing result is greater than the numerical value listed.
< This testing result is less than the numerical value listed.
# = Analytical methods marked with an "#" are not within our AIHA LAP, LLC Scope of Accreditation.
MRL = Method Reporting Limit

Eva Skogsberg
Laboratory Manager

RECEIPT & ACKNOWLEDGEMENT FORM

Hawaii Analytical Laboratory
98-625 Hekilina Avenue, Suite 308, Honolulu, Hawaii, 96818

RECEIPT & ACKNOWLEDGEMENT FORM

[redacted]

For Third Party Records show the following information about your company:

Where project information can be found on the COC for job number:

Name:

Due Date:

Others:

Project name:

Applies only to water analyses: (Answer: Yes / No / N/A)

Bottle Temp. °C: Cooling Aid/Ice: Y / N / N/A

Containers intact: Y / N / N/A Preservation Confirmed: Y / N / N/A Zero Headspace: Y / N / N/A

VOA / Cyanide Vials: Y / N / N/A Received On Ice: Y / N / N/A Correct Bottles Used: Y / N / N/A

Samples Intact / proper Temp: Y / N

1	Samples were received via?	USPS	FedEx	UPS	DSL	Walk In
2	Samples were received on? (circle)		M / T / W / TH / F / S / SU			
3	Packing material used:	Bubble Wrap	Box Packs	Peanuts	Other	None

4	Were custody papers properly filled out (ink, signed, etc)?	Y	N	N/A
5	Did samples / bottles arrive in good condition (unbroken)?	Y	N	N/A
6	Were all sample labels complete?	Y	N	N/A
7	Did all sample labels and tags agree with custody papers?	Y	N	N/A
8	Were appropriate bottles / containers and volume received for the tests indicated?	Y	N	N/A
9	Were the pH-preserved bottles received at the appropriate pH?	Y	N	N/A
10	Were VOA vials received without headspace?	Y	N	N/A

Note: Discrepancies and Resolutions:

Work Completed By: [redacted]

EXHIBIT 30

Phase 1 ESA

Phase I Environmental Site Assessment Report

MEO Condominium Unit 2C
21 Hansen Rd.
Kahului, Hawaii 96732

Prepared by
MEV, LLC
P.O. Box 880487
Pukalani, HI 96788

Prepared for
Aina Lani Pacific LLC
360 Papa Place, #203
Kahului, HI 96732,

June 25, 2023
Project # T23-011

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1.0 GENERAL INFORMATION

Project Information:
MEO Condominium Unit 2C
Project Number:
T23-011

Consultant Information:
MEV, LLC
P.O. Box 880487
Pukalani, HI 96788
Phone: (808) 876-0500
E-mail Address:
Inspection Date: May 25, 2023
Report Date: June 25, 2023

Site Information:
MEO Condominium Unit 2C
21 Hansen Rd.
Kahului, Hawaii 96732
County: Maui
Latitude, Longitude: 20.873687, -156.446467
Site Access Contact:

Client Information:
Aina Lani Pacific LLC
Howard Kihune, Jr.
360 Papa Place, #203
Kahului, HI 96732,

Site Assessor

Jeffrey R. King
Project Manager - Technical Services

Senior Reviewer

Jeffrey R. King
Project Manager - Technical Services

Certification:

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR Part 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Jeffrey R. King - Project Manager - Technical Services

2.0 EXECUTIVE SUMMARY

2.1 Project Introduction

MEV, LLC (Company) was retained by Aina Lani Pacific LLC (hereafter referred to as Client), to perform a Phase I Environmental Site Assessment (ESA) of the property known as MEO Condominium Unit 2C located at 21 Hansen Rd. in Kahului, Maui, Hawaii (subject property). MEV, LLC performed the ESA in conformance with the Scope of Work and the provisions of the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-21, thereby satisfying United States Environmental Protection Agency's (U. S. EPA) "Standards and Practices for All Appropriate Inquiries (AAI); Final Rule" (40 Code of Federal Regulations Part 312) Federal Register Vol. 70, No. 210, November 1, 2005. Any exceptions to, or deletions from, this practice are described within this report.

This Phase I ESA has been prepared for and was conducted pursuant to MEV's written proposal and contract, which was executed in the form of a signed proposal and accepted by the client on May 5, 2023.

2.2 Subject Property Description

The subject property, MEO Condominium Unit 2C, is located at 21 Hansen Rd., in the town of Kahului, on the Island and in the County of Maui, State of Hawaii. At the time of our inspection, the property was undeveloped fallow agricultural land and vacant. We understand that the property is slated for future residential, commercial, and industrial development.

The site consists of one irregular shaped parcel of land on the south end of the town of Kahului, in a mostly undeveloped area. The site land area consists of approximately 166.511 acres. The site is further described on the Tax Maps of the State of Hawaii as Division 2, Zone 3, Section 8, Plat 6, Portion of Parcel 004, TMK (2) 3-8-006:004 Portion. The property consists roughly of the central and eastern portions of the identified parcel. According to the Maui County Real Property Assessment Division, the current owner of the parcel is identified as Alexander & Baldwin LLC Fee Owner.

Tax records also indicate that the site is not within the Special Management Area boundary, the Tsunami Evacuation Zone, and the Extreme Tsunami Evacuation Zone. The pertinent Flood Insurance Rate Map (1500030411E dated September 19, 2012) depicts the subject site and surrounding properties as Zone X; areas determined to be of minimal flood risk and outside the 0.2% annual chance floodplain.

The subject site contains a network of unpaved access roads and man made berms throughout. The asphalt paved remnants of Central Power Plant Road are present on the central portion of the site from the northeast to the southwest. Ground cover consists primarily of medium to tall dry grass with some trees.

The adjacent properties are undeveloped, industrial, and commercial. Vehicle access to the subject property is from the northeast via a concrete paved gated entrance from Pulehu Road.

The subject property is identified on the **Regional Setting Map (Figure 1)** and the **Site Plan Map (Figure 2)** both of which are provided in **Appendix A**. **Photographs** are provided in **Appendix B**.

2.3 Data Gaps

Data gaps are defined by ASTM 1527-21 as "a lack of or inability to obtain information required by this practice despite good faith effort by the environmental professional to gather such information." Data gaps may result from incompleteness in any of the activities required by this practice, including, but not limited to, site reconnaissance (for example, an inability to conduct the site visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.).

MEV contracted with EDR to conduct a search of available historical records for the subject property. EDR's search provided a significant amount of material at various time intervals. There are data gaps in the available information and time intervals. However, these data gaps are not significant and do not impact MEV's ability to form opinions or identify recognized environmental conditions, controlled recognized environmental conditions, and historical recognized environmental conditions pertaining to the subject property.

2.4 Environmental Report Summary

MEV has performed an Environmental Site Assessment, in conformance with the Scope of Work developed in cooperation with the client and the provisions of ASTM Practice E 1527-21. Any exceptions to, or deletions from, this practice are described in Section 3.4, Limitations and Exceptions, of this report.

Historical information identifying the past site use was obtained from a variety of sources provided in **Appendix C** of this report and included: City Directories, Aerial Photographs, Sanborn Fire Insurance Maps, and/or Topographic Maps. Information gleaned from historical information sources indicates that the site was undeveloped land since at least 1922 and was used for sugar cane cultivation from sometime before 1950 until approximately 2016.

The client provided MEV with a geotechnical Soil Investigation Report for Maui Business Park prepared by Hirata & Associates for Austin, Tsutsumi & Associates dated February 2009, portions of which are north adjoining to the subject property. Several of the soil borings were located along the northern subject property boundary. Soil conditions identified in those borings indicated clayey silt overlying weathered basalt at a depth of 11 to 14 feet below ground surface. Groundwater or seepage water were not encountered. No environmental concerns were identified. For additional details please refer to the referenced report in Appendix G.

A records review was included as part of this evaluation. The purpose of a records review is to obtain and review records that will help identify recognized environmental conditions in connection with the subject property. The services of Environmental Data Resources, Inc. (EDR) were utilized to compile the database listings.

The EDR records review did not discover any current investigation of the subject site under any programs conducted by a federal, state, or local environmental agency. Database listings associated with nearby sites as indicated by the EDR Report, along with additional information provided by the Hawaii Department of Health and HC&S Environmental Personnel regarding those listings and other nearby sites, are not expected to negatively impact the environmental condition of the subject property (see Section 6.1, Section 6.2, and the EDR Report, Appendix D). This conclusion is based on: the status of the site with the State and/or the EPA (i.e. depending on the type of listing, whether the site had a reported release, has been remediated, has initiated remediation, etc.); the respective distances of the listed site from the subject property; the direction of stormwater and groundwater flow; and/or the general characteristics of underlying earth materials.

The site reconnaissance was conducted on May 25, 2023. Significant observations include the following.

- The subject property was undeveloped fallow agricultural land and vacant.
- The subject site contains a network of unpaved access roads and man made berms throughout.
- The asphalt paved remnants of Central Power Plant Road are present on the central portion of the site from the northeast to the southwest.

Recognized Environmental Conditions

Recognized environmental conditions, as defined by ASTM Standard E1527-21, are: (1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Controlled recognized environmental conditions, as defined by ASTM Standard E1527-21, are a recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations).

Historical recognized environmental conditions, as defined by ASTM Standard E1527-21, are a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). A historical recognized environmental condition is not a recognized environmental condition.

2.4 Environmental Report Summary (continued)

This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property.

This assessment has revealed no evidence of controlled recognized environmental conditions in connection with the subject property.

This assessment has revealed no evidence of historical recognized environmental conditions in connection with the subject property.

A vapor encroachment condition, as defined in ASTM 2600-15, is the presence or likely presence of Chemicals of Concern vapors in the vadose zone of the subject property caused by the release of vapors from contaminated soil and/or groundwater either on or near the subject property, as identified by Tier 1 or Tier 2 procedures. There is no vapor encroachment hazard that would be considered a vapor encroachment condition, and further, a recognized environmental condition.

Report Section		No Further Action	REC	HREC	CREC	Issue/Further Investigation	Comments
4.3	**Current Use of Property**	X					
4.5	**Adjoining Property Information**	X					
6.1	**Standard Environmental Records Sources**	X					
6.4.1	**Historical Summary**					X	Based on previous onsite sugar cane cultivation, the potential exists for residual pesticides to be present in surface soil onsite at concentrations greater than the applicable environmental action levels (EALs).
6.4.7	**Other Environmental Reports**	X					
7.3.1	**Hazardous Substances**	X					
7.3.2	**Petroleum Products**	X					
7.3.3	**USTs**	X					
7.3.4	**ASTs**	X					
7.3.5	**Other Suspect Containers**	X					
7.3.6	**Equipment Likely to Contain PCBs**	X					
7.3.7	**Interior Staining/Corrosion**	X					
7.3.8	**Discharge Features**	X					
7.3.9	**Pits, Ponds, And Lagoons**	X					
7.3.10	**Solid Waste Dumping/Landfills**	X					
7.3.11	**Stained Soil/Stressed Vegetation**	X					
7.3.12	**Wells**	X					
	Asbestos-Containing Materials	X					
	Lead-Based Paint	X					
	Radon	X					
	Wetlands	X					
	Microbial Contamination (Mold)	X					

2.5 Recommendations

Based on the time period for previous onsite sugar cane cultivation, field areas likely received regular applications of pesticide chemicals commonly used in historic Hawaiian sugar cane operations, as defined in Appendix 9-C of the State of Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response (HEER) Office's *Technical Guidance Manual for the Implementation Of The Hawaii State Contingency Plan* (2009). These agrochemicals have been recognized by the U.S. Environmental Protection Agency (EPA) for contributing to the potential contamination of surface soils and groundwater systems.

According to Hawaii Administrative Rules, Chapter 128D Environmental Response Law, the presence of agricultural chemicals resulting from the legal application of a pesticide product does not constitute a "release" of a hazardous substance; furthermore, it is not considered a ***recognized environmental condition***. However, as a precaution when agricultural lands are converted, soil sampling and laboratory testing are commonly performed to determine if any potential for residual exposure hazards exists at concentrations greater than the applicable environmental action levels (EALs). A soil sampling investigation that included former agricultural field areas would contribute to higher confidence regarding health/safety issues for future occupancy of the site.

MEV recommends that soil sampling and analysis be conducted at the subject property in areas where future contact with surface soils may occur. This recommendation is in line with HDOH guidance to perform sampling in areas of historical sugar cane operations that will be developed to a more restrictive land usage than commercial or industrial. If potential additional information is found indicating previous operations other than field spraying, such as a historic map of the property showing mixing, storage, or other activity areas, then a more targeted sampling approach may be necessary.

3.0 INTRODUCTION

3.1 Purpose

The purpose of the Phase I Environmental Site Assessment (ESA) was to evaluate the current and historical conditions of the Subject Property in an effort to identify recognized environmental conditions in connection with the Subject Property.

A ***Recognized Environmental Condition*** (REC) is defined by The American Society of Testing and Materials (ASTM) Standard E1527-21 as: (1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment. A de minimis condition is not a recognized environmental condition.

The identification of recognized environmental conditions in connection with the subject property may impose an environmental liability on owners or operators of the site, reduce the value of the site, or restrict the use or marketability of the site, and therefore, further investigation may be warranted to evaluate the scope and extent of potential environmental liabilities.

A Phase 1 ESA is also conducted to identify ***controlled recognized environmental conditions*** on a property, which are defined by ASTM Standard E1527-21 as a recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations).

Additionally, a Phase 1 ESA is conducted to identify ***historical recognized environmental conditions***, which are defined by ASTM Standard E1527-21 as a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). A historical recognized environmental condition is not a recognized environmental condition.

The American Society of Testing and Materials (ASTM) Standard E1527-21, Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process is used "to define good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. 9601) and petroleum products."

The ESA objectives are to characterize the environmental setting of the subject property, to identify any obvious activity of environmental concern that may have occurred at or near the site, and to evaluate potential migration pathways for any identified contaminants. It may also address any activities that affect future considerations for potential environmental impairment to the property.

Another function of this Phase I ESA is to conduct an all appropriate environmental inquiry in response to the federal CERCLA of 1980, the EPA’s final rule (40 CFR Part 312), and similar state and local regulations. An ESA "all appropriate inquiry" may provide the buyer, receiver, or lender making a loan secured by the subject real property with a basis to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser defense should any legal action be initiated for environmental impairment to the property.

ASTM Publication E1527-21 is recognized by 40 CFR Part 312 as an acceptable guidance document for satisfying the EPA’s final "All Appropriate Inquiries" rule.

3.2 Scope of Work

The Phase I ESA conducted at the Subject Property was in general accordance with ASTM Standard E 1527-21 and included the following:

- Interviews with regulatory officials and personnel associated with the subject and adjoining properties.
- A site walk through of the property for visual evidence of potential environmental concerns including existing or potential soil and groundwater contamination, as evidenced by soil or pavement staining or discoloration, stressed vegetation; indications of waste dumping or burial, pits, ponds, or lagoons; containers of hazardous substances or

3.2 Scope of Work (continued)

petroleum products; electrical and hydraulic equipment that may contain polychlorinated biphenyls (PCBs),such as electrical transformers and hydraulic hoists; and underground and aboveground storage tanks (USTs/ASTs).

- A site property line visual assessment of adjacent properties during site reconnaissance for evidence of potential off site environmental conditions that may affect the subject property.
- An investigation of historical uses of the subject property through reasonably ascertainable historical information (e.g., aerial photographs, topographic maps, fire insurance maps, city directories, building department records. etc.) for evidence of prior land use that could have led to RECs.
- A review of information available on general geology and topography of the subject property, local groundwater conditions, sources of water, power, and sewer, and proximity to ecologically sensitive receptors such as streams that might be impacted by RECs and environmental issues.
- A review of environmental records available from the property owner or site contact including regulatory agency reports, permits, registrations, and consultant reports for evidence of RECs and activity and use limitations (AULs).
- A review of a commercial database summary of federal, state and tribal regulatory agency records pertinent to the subject property and off site facilities located within ASTM-specified search distances from the subject property.
- Review of reasonably ascertainable Federal, State and Local environmental agency case files for the subject property. This will also include interviewing agency project managers (if available) regarding the status of the subject property (e.g. LUST incident closure, etc.).
- Interviews with the subject property representative, key site personnel, and others regarding current and previous uses of the property, particularly activities involving hazardous substances and petroleum products. The information from all interviews and any information provided from User Questionnaires are included within this report.
- Evaluation of information gathered during the assessment to reach conclusions concerning RECs and development of this report; and
- Evaluation of information and preparation of the report provided herein.

Typically, a Phase I ESA does not include sampling or testing of air, soil, groundwater, surface water, or building materials. These activities would be carried out in a Phase II ESA, if required. For this Phase I ESA, no additions to the ASTM E 1527-21 standard were made with the exception of the following: None.

3.3 Significant Assumptions

The assessment of ***recognized environmental conditions***, ***controlled recognized environmental conditions***, and ***historical recognized environmental conditions*** relies on: 1) sources of actual knowledge, 2) thorough appropriate inquiry, 3) reviewing reasonably ascertainable documents and records, and 4) conducting a visual and olfactory reconnaissance. In conducting this ESA, MEV has relied on the truthfulness of its inquiry sources and the validity of reviewed records. If obvious indications or MEV actual knowledge contradicted the reported/reviewed information sources, it has been so stated in the appropriate sections of this report.

There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information.

Malama Environmental (MEV) believes that the information obtained from the record review and the interviews about the site is reliable. However, MEV cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The methodologies of this assessment are not intended to produce all-inclusive or comprehensive results, but rather to offer information about the subject property.

3.4 Limitations and Exceptions

Along with all of the limitations set forth in various sections of the ASTM E 1527-21 protocol, the accuracy and completeness of this report may be limited by the following:

Access Limitations - None

Physical Obstructions to Observations - None.

Outstanding Information Requests - As of the date of this report, MEV's requests to the Clean Air Branch, Clean Water Branch, and Safe Drinking Water Branch of the Hawaii Department of Health (DOH) are still outstanding.

Historical Data Source Failure - None

Other - None

It should be noted that this assessment did not include a review or audit of operational environmental compliance issues, or of any environmental management systems (EMS) that may exist on the property. Where required, the documents provided in the Appendices were used as reference material for the completion of the Phase I ESA. Some of the information presented in this report was provided through existing documents and interviews. Although attempts were made, whenever possible, to obtain a minimum of two confirmatory sources of information, MEV, LLC in certain instances has been required to assume that the information provided is accurate.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted engineering and scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgment of MEV, LLC based on the data obtained from the work. Due to the nature of investigation and the limited data available, MEV, LLC cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be construed as legal advice.

Should additional information become available which differs significantly from our understanding of conditions presented in this report, we request that this information be brought to our attention so that we may reassess the conclusions provided herein.

3.5 Deviations

No deviations from the recommended scope of ASTM Standard E 1527-21 were performed as part of this Phase I ESA with the exception of any additions noted in Scope of Services.

Interviews with regulatory authorities are included in the ASTM standard. However, Federal (EPA), state (DOH) and county (Maui) agencies typically referred MEV to their respective websites for general information and their official request process for site-specific data. No other significant deviations were made from the applicable ASTM standard.

The EPA, DOH, and Maui County web pages were reviewed for information pertaining to ownership, historical use, and environment impacts/releases involving the subject property. The databases were searched by providing the subject property address, latitude & longitude, zip code, and/or county and city data.

3.6 Special Terms and Conditions

Authorization to perform this assessment was given by the client on May 5, 2023. Instructions as to the location of the property, access, and an explanation of the property and facilities to be assessed were provided by Aina Lani Pacific LLC.

As a standard practice, a confidential client privilege was initiated by MEV for the work performed and contents of this report. MEV shall ensure that its officers, employees, agents, and independent contractors do not disclose this report or any information contained therein to any person without the proper knowledge and written consent from the Client (or as otherwise required by law). MEV shall ensure that each of its officers, employees, agents, and independent contractors understand and obey these requirements.

The information and opinions provided herein are intended as background data and planning guidance to interested parties. This should not be construed to mean that any regulatory agency would have the same opinion as MEV, nor is any implication proposed.

3.6 Special Terms and Conditions (continued)

MEV has performed this study in a competent and professional manner. Since there may be hidden or unknown conditions that may be missed during this inspection, MEV cannot warrant the actual site conditions beyond which were observed at the time and along the traverse route during this site inspection.

3.7 Reliance

This report has been prepared for the benefit of the client. The report may not be relied upon by any other person or entity without the express written consent of Aina Lani Pacific LLC the client. Use of this report in whole or in part without this consent is done at the users' sole risk.

The information and opinions expressed in this report are given in response to a limited assignment and should be considered and implemented only in light of that assignment. The services provided by MEV in completing this project were consistent with normal standards of the profession. No other warranty, expressed or implied, is made.

4.0 SITE DESCRIPTION

4.1 Location and Legal Description

The subject property is known as MEO Condominium Unit 2C and is located at 21 Hansen Rd., Kahului, Hawaii. Information obtained from the Maui County Assessor's Department indicates that the tax assessment parcel number for the subject property is (2) 3-8-006:004 Portion. The property consists roughly of the central and eastern portions of the identified parcel. The subject property is irregular in shape and 166.511 acres in size.

4.2 Site and Vicinity Description

The subject property is located on the south end of the town of Kahului, in a mostly undeveloped area.

The site is zoned R-1 Residential & Agriculture, M-1 Light Industrial, and M-2 Heavy Industrial. Surrounding land use includes commercial and industrial operations/businesses, and fallow agricultural land.

4.3 Current Use of Property

At the time of our inspection, the property was undeveloped fallow agricultural land. We understand that the property is slated for future residential, commercial, and industrial development.

4.4 Description of Structures and Other Improvements

The subject site contains a network of unpaved access roads and man made berms throughout. The asphalt paved remnants of Central Power Plant Road are present on the central portion of the site from the northeast to the southwest. Ground cover consists primarily of medium to tall dry grass with some trees.

Vehicle access to the subject property is from the northeast via a concrete paved gated entrance from Pulehu Road.

Water and sewer services are provided to the site area by the County of Maui. Electricity is provided by Maui Electric. Solid waste disposal services are not currently provided.

4.5 Adjoining Property Information

Current uses of the adjoining properties as observed by the investigator during the site reconnaissance are as follows (See also Figure 2 of Appendix A):

North - Fallow agricultural land with Lowe's store to the northwest and Safeway and other stores to the northeast, with Hookele Street and additional commercial development beyond.

East - Pulehu Road with fallow agricultural land and a recycling and towed vehicle storage lot beyond.

South - Hansen Road with fallow agricultural land and the former Puunene Sugar Mill beyond.

West - Fallow agricultural land with a retention basin and MEO bus baseyard and fueling station beyond.

5.0 USER PROVIDED INFORMATION

5.1 Specialized Knowledge

MEV, LLC has no specialized knowledge of the Subject Property outside of the research which was conducted and reported as part of this report.

The property ownership and tenants as well as all individuals who were interviewed as part of this investigation, have not reported any specialized knowledge of this Subject Property outside of what is contained in this report.

5.2 Valuation Reduction for Environmental Issues

No environmental issues were identified by the user/client that could result in property value reduction.

5.3 Owner, Property Manager, and Occupant Information

No written or verbal communication with the property owner, manager and tenants revealed any information which suggested that there are currently or historically any recognized environmental conditions associated with the subject property.

5.4 Reason For Performing Phase I ESA

The purpose of this Phase I Environmental Site Assessment (ESA) was to identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E1527-21) in connection with the Subject Property. MEV, LLC understands that the findings of this study will be used to evaluate a pending financial transaction in connection with the Subject Property.

6.0 RECORDS REVIEW

6.1 Standard Environmental Records Sources

MEV, LLC contracted Environmental Data Resources, Inc. (EDR) to conduct a search of Federal and State databases containing known and suspected sites of environmental contamination. The number of listed sites identified within the approximate minimum search distance (AMSD) from the Federal and State environmental records database listings specified in ASTM Standard E 1527-21 are summarized in the following table.

Risk sites, if any, that may be located on or adjacent to the subject property or within close proximity are described below, along with an opinion about the significance of the listing to the analysis of recognized environmental conditions in connection with the subject property. Refer to Appendix D, EDR Radius Map Report, for a complete listing and description of all sites located within the designated search distances, details, and government agency database release dates.

The EDR Report bases the location of the listed risk sites on longitude/latitude information provided by the respective government agency. MEV confirms the locations of risk sites within close proximity to the subject site during the site visit. When the MEV site visit information contradicts the EDR Report, it has been so stated.

Map Findings Summary

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1	0	0	0	0	NR	0
CORRACTS		1	0	0	0	0	NR	0
RCRA-TSDF		0.5	0	0	0	NR	NR	0
RCRA-LQG		0.25	0	0	NR	NR	NR	0
RCRA-SQG		0.25	0	0	NR	NR	NR	0
RCRA-VSQG		0.25	0	0	NR	NR	NR	0
ERNS		0.001	0	NR	NR	NR	NR	0
DOD		1	0	0	0	0	NR	0
FUDS		1	1	0	0	0	NR	1
US BROWNFIELDS		0.5	0	0	0	NR	NR	0
FINDS		0.001	0	NR	NR	NR	NR	0
EDR Hist Auto		0.125	0	NR	NR	NR	NR	0
SCRD DRYCLEANERS		0.5	0	0	0	NR	NR	0
RCRA NonGen / NLR		0.25	0	0	NR	NR	NR	0
EDR Hist Cleaner		0.125	0	NR	NR	NR	NR	0
IHS OPEN DUMPS		0.5	0	0	0	NR	NR	0
SHWS		1	2	2	0	18	NR	22
SWF/LF		0.5	0	0	0	NR	NR	0
UIC		0.001	0	NR	NR	NR	NR	0
LUST		0.5	0	0	0	NR	NR	0
UST		0.25	0	0	NR	NR	NR	0
SPILLS		0.001	0	NR	NR	NR	NR	0
ENG CONTROLS		0.5	0	0	0	NR	NR	0
INST CONTROL		0.5	0	0	0	NR	NR	0
VCP		0.5	0	0	0	NR	NR	0
DRYCLEANERS		0.25	0	0	NR	NR	NR	0
BROWNFIELDS		0.5	0	0	0	NR	NR	0
SPILLS 90		0.001	0	NR	NR	NR	NR	0

6.1.1 Regulatory File Review

The EDR Radius Map Report records review did not identify any current investigation of the subject site under any programs conducted by a federal, state, or local environmental agency.

The EDR database report identified a total of twenty three (23) sites of potential environmental concern within the ASTM-recommended search distances from the subject property. The identified sites include: twenty two (22) State Hazardous Waste Sites (SHWS), one (1) Formerly Used Defense Site (FUDS), and no Orphan sites. Sites with the potential to impact the subject property were evaluated. Based on the current regulatory status, positioning, and/or distances relative to the subject property, it is unlikely that any of these sites pose a significant environmental concern to

6.1.1 Regulatory File Review (continued)

the subject property. This conclusion is based on: the status of the site with the State and/or the EPA (i.e. depending on the type of listing, whether the site had a reported release, has been remediated, has initiated remediation, etc.); the respective distances of the listed site from the subject property; the direction of stormwater and groundwater flow; and/or the general characteristics of underlying earth materials. Sites of note include:

- Map Item 1 Puunene Sugar Mill Mud Storage Area with an address of Hansen Rd. is listed as a SHWS (State Hazardous Waste Site). The EDR Report identifies the site on the subject property near the western south boundary. No details regarding site status were listed. MEV contacted HC&S environmental personnel at the former sugar plant office for clarification. Information they provided indicated that the actual mud storage area was not on the subject property but in two off site locations: one being approximately several hundred feet south of the subject property on the plant grounds, and the other also several hundred feet away on the vacant property southeast of the subject site across Pulehu Rd. and Hansen Rd. The site is not likely to pose a significant environmental concern to the subject property. See Section 6.2, Additional Environmental Record Sources, for more information about this listing.

- Map Item 2 Haleakala Research Site with an address of Haleakala, HI is listed as a FUDS (Formerly Used Defense Site). The EDR Report identifies the site on the east adjacent vacant property across Pulehu Rd. However, information in the site listing indicates that the site is located on Mount Haleakala and therefore this listing is considered an error. The site is not likely to pose a significant environmental concern to the subject property.

- Map Item 3 Maui Well No. 5 is listed as a SHWS and is located on the eastern north adjoining vacant property near the gated site entrance on Pulehu Rd. No details regarding site status were listed. MEV contacted HC&S environmental personnel at the former sugar plant office for clarification. Information they provided indicated that a release of PCB oil from a former transformer at the site had occurred. The release was sufficiently remediated and given a No Further Action status from the DOH HEER Office. The site is not likely to pose a significant environmental concern to the subject property. See Section 6.2, Additional Environmental Record Sources, for more information about this listing.

- Map Item 4 Hawaiian Commercial & Sugar Co. Puunene Diesel Spill 1/13/2004 is listed as a SHWS and is located southwest of the subject property across Hansen Rd. No details regarding site status were listed. MEV contacted HC&S environmental personnel at the former sugar plant office for clarification. Information they provided indicated that a release of diesel fuel from a dispenser at the site had occurred. The release was cleaned up by plant personnel. The site is not likely to pose a significant environmental concern to the subject property. See Section 6.2, Additional Environmental Record Sources, for more information about this listing.

- Map Item 4 Hawaiian Commercial & Sugar Co. is also listed as a US AIRS facility subject to Air Permitting. The listing indicated permit records from 1975 to 2016, when sugar manufacturing ceased. HC&S environmental personnel stated that the boiler exhaust was subject to the air permitting requirements. This listing is not likely to pose a significant environmental concern to the subject property.

- Map Item 5 Puunene Sugar Mill Cane Hauler Shop is listed as a SHWS and is located southwest of the subject property across Hansen Rd. No details regarding site status were listed. MEV contacted HC&S environmental personnel at the former sugar plant office for clarification. Information they provided indicated that diesel fuel contamination was encountered in subsurface soil likely resulting from previous USTs. The DOH HEER Office concluded that no further excavation would be required based on an Exposure Prevention Management Plan. The site is not likely to pose a significant environmental concern to the subject property. See Section 6.2, Additional Environmental Record Sources, for more information about this listing.

6.2 Additional Environmental Record Sources

MEV requested Additional Environmental Records from various state and local agencies. As of the date of this report the requests to the Clean Air Branch, Clean Water Branch, and Safe Drinking Water Branch of the Hawaii Department of Health (DOH) are still outstanding. The record requests and responses are included in Appendix E.

To supplement the information provided in the responses, on the DOH website, and in the EDR Report, MEV contacted HC&S environmental personnel for additional clarification. MEV was then invited to review additional reports at their office, and performed the review on June 20, 2023. A discussion of the records obtained and reviewed is presented below.

6.2 Additional Environmental Record Sources (continued)

- Map Item 1 Puunene Sugar Mill Mud Storage Area: the actual mud storage area was not on the subject property but in two off site locations: one being approximately several hundred feet south of the subject property on the plant grounds, and the other also several hundred feet away on the vacant property southeast of the subject site across Pulehu Rd. and Hansen Rd. The mill mud consisted of soil washed from the sugar cane and mixed with fly ash from the plant. The mud and fly ash were regularly sampled and analyzed for contaminants of concern. Analytical results of the fly ash indicated occasional slight elevated concentrations of a few metals. However, the mud and fly ash mixture did not have any elevated concentrations. The mud and fly ash mixture was historically provided to the nearby Maui County Landfill for daily cover until plant operations ceased in 2016.

- Map Item 3 Maui Well No. 5: a release of PCB oil from a former transformer at the site was discovered during a Phase II investigation in June 2007. In January 2008 the EPA approved a work plan to excavate and dispose PCB contaminated soil. In November 2008 the Removal Action Report was submitted to DOH and EPA. The release was given a No Further Action status from the DOH HEER Office in January 2011.

- Map Item 4 Hawaiian Commercial & Sugar Co. Puunene Diesel Spill 1/13/2004: a release of approximately 150 gallons of diesel fuel to concrete and soil was discovered in the dispenser area due to an operator error. The release report stated that response actions and cleanup measures taken included pumping spilled fuel into holding tanks, absorbent material spread on spill, and contaminated soil removed. The report also stated the recovered liquid product and absorbent material will be burned in the facility boilers, and that contaminated soil will be processed at the plant's bio remediation facility.

- Map Item 5 Puunene Sugar Mill Cane Hauler Shop: diesel fuel contamination was encountered in subsurface soil during construction excavation, likely resulting from previous USTs and dispensers. In August 2003 ETC performed a Limited Phase II ESA and found that diesel contamination had not penetrated into the weathered bedrock below the soil and that the lateral extent of impact was limited to the immediate area beneath the former USTs and dispensers. Groundwater was not encountered. In April 2004 ETC prepared an Exposure Prevention Management Plan to address the remaining impacted soil which included capping the area with asphalt and a plan for notification of workers should the area require excavation, although not anticipated. The DOH HEER Office concluded that no further excavation was required based on the Exposure Prevention Management Plan.

- The client and the owner stated that plant process water was sometimes used to irrigate the sugar cane previously growing on the subject property. The water was first used at the plant to rinse the sugar cane. After the solids were filtered, the water was pumped to the sprinkler systems on the subject property. Analytical testing of the water in 2014 indicated no elevated levels of contaminants.

- HC&S environmental personnel stated that four Large Capacity Cesspools (LCCs) were located on the west adjoining vacant property near the west site boundary and pointed out their location. The cesspools were used to dispose domestic waste water from portions of the former sugar mill. The EPA approved the closure of the LCC cesspools in December 2008.

- UST notification forms and other information provided by the DOH UST Section indicated that a 550-gallon gasoline UST was installed at the Hawaiian Sugar Planters Association (HSPA) on Hansen Rd. in March 1986. A sketch map showed the location of the UST relative to the building but did not show the site location relative to the surrounding area. HC&S environmental personnel pointed out the the HSPA building and former UST location. The UST was removed in December 1994 and site assessment soil sampling was performed by HC&S environmental personnel. The site assessment results indicated that contaminants in the soil samples were either not detected or present at concentrations less than the applicable action levels, and suitable for unrestricted closure.

Based on the information provided, the identified sites are not likely to pose a significant environmental concern to the subject property.

6.3 General Site Setting

The subject property is located on the south end of the town of Kahului, in a mostly undeveloped area. Figure 1 in Appendix A depicts the general site setting for this report and shows the subject site location in relation to topographic features. Also depicted are the projected groundwater flows, regional surface water flows, and locations of other significant physical features or structures.

6.3 General Site Setting (continued)

The site consists of one irregular shaped parcel of land northwest of the intersection of Pulehu Road and Hansen Road..

6.3.1 Topography

The subject property is located in the north central region of the Island of Maui within the Kahului Isthmus. The regional topography is characterized by slight northwest trending slopes. The average elevation of the subject site is approximately 62 feet above sea level. On site relief is gently sloping to the northwest. Based on a review of the 2017 USGS topographic map for the site area, groundwater is inferred to flow to the northwest toward the Pacific Ocean.

6.3.2 Surface Water Bodies

The nearest prominent natural land feature is the Kanaha Pond State Wildlife Sanctuary wetlands, located approximately 0.9 miles to the west/northwest of the subject site. The subject property is approximately 1.65 miles southeast of Kahului Bay in the Pacific Ocean. There are no surface water bodies on the subject site.

6.3.3 Geology and Hydrology

The Island of Maui is made up of two separate shield volcanoes. The volcano remnant comprising the western portion of the island is older and has been deeply eroded to form the peaks of the West Maui Mountains, known as Mauna Kahalewai. Haleakala Volcano forms the eastern portion of the island and is much larger and younger than the West Maui Volcano. The volcanoes are joined by an isthmus, which was created when Haleakala lavas flowed over the pre existing West Maui Volcano.

A review of the soil type of the area was performed. The soil survey of the island of Maui is published by the United States Department of Agriculture Soil Conservation Service in cooperation with the University of Hawaii Agricultural Experiment Station (issued 1972). The soil overlying the volcanic bedrock beneath the subject site is identified as Ewa silty clay loam consisting of moderately well and well drained clayey soil with moderate steel corrosion potential.

Groundwater beneath the project site occurs in two distinct aquifers within the Kahului Aquifer System of the Central Aquifer Sector. The shallow aquifer is classified as a basal, unconfined, sedimentary aquifer, occurring in non volcanic lithology. The groundwater status is reported as currently used, but not for drinking water and ecologically important. The salinity of the groundwater within this aquifer is described as low (250-1000 milligrams per liter Cl-). The groundwater is further described as irreplaceable, with a high vulnerability to contamination (Mink and Lau, 1990).

The deeper aquifer is classified as a basal, confined, flank aquifer, occurring in horizontally extensive lavas. The groundwater status is reported as being currently in use, but not for drinking water purposes. The salinity of the groundwater within this aquifer is described as low (250-1000 milligrams per liter Cl-). The groundwater is further described as irreplaceable with a moderate vulnerability to contamination (Mink and Lau, 1990).

The hydrogeologic gradient in the vicinity of the project site is anticipated to be slight, with a general trend to the northwest. Groundwater levels are expected to be influenced by leaking infrastructure, tidal fluctuations, and human activity. The rate of groundwater flow across the project site is expected to be somewhat variable and relatively slow. The estimated depth to the basal groundwater is projected to be approximately 60 feet below the ground surface of the subject site. The projected groundwater flow is expected to be in a northerly direction.

6.4 Historical Use

6.4.1 Historical Summary

Historical information identifying the past site use was obtained from a variety of sources provided in **Appendix C** of this report and included: City Directories, Aerial Photographs, Sanborn Fire Insurance Maps, and/or Topographic Maps. Information gleaned from historical information sources indicates that the site was undeveloped land since at least 1922 and was used for sugar cane cultivation from sometime before 1950 until approximately 2016.

6.4.2 Title Records

Limited title information obtained from the Maui County Tax Assessor's office along with information provided by the client was reviewed to assess past ownership of the project site. The records indicate the original parcel contained over 500 acres since at least 1946 and has been subdivided and easements granted for portions of roads and utilities down to its current configuration. The parcel was owned by Hawaiian Commercial & Sugar Co. prior to Alexander & Baldwin.

6.4.3 City Directories

City Directories from 1992 to 2020 were reviewed for the subject site and nearby properties. The 2020 directory identifies Malama Aina Recycle Center and Maui Tow & Transport at 301 Hansen Rd., the southern east adjacent property across Pulehu Rd. The subject property is not listed. The 2017 and 2014 directories identify ABR LLC at 999 Hansen Rd. (location unknown) and the Sugar Museum listed at 3957 Hansen Rd., west of the subject property. The Sugar Museum was also listed in the 2000 directory. None of the city directory listings revealed information suggesting environmental concerns in connection with the subject property.

6.4.4 Aerial Photos

MEV reviewed historical aerial photographs supplied by EDR and dated 1950 through 2000. MEV did not observe any features on aerial photographs examined that would suggest the presence of significant vegetation stress, soil staining, or bulk storage of chemicals such as drums or tanks. A summary of historical aerial photographs reviewed is listed below.

Summary

Date(s)	Property Comments	Surrounding Area Comments
1950	The subject site appears as a sugar cane field with some unpaved roads. Central Power Plant Road is present across the central portion of the site from the northeast to the southwest. Pulehu Road is present along the east boundary. Hansen Road is present along the south boundary.	The immediate surrounding area appears as sugar cane fields. The water well on the eastern north adjoining property is present along with several small buildings surrounding it. The southern east adjacent property across Pulehu Road appears developed with a building with multiple wings, and many smaller buildings. Beyond the sugar cane fields to the south and west are residential agricultural villages. The former sugar plant is present across Hansen Road to the southwest.
1976	No significant changes noted.	The small buildings surrounding the water well to the northeast are no longer present. A smaller building development is present to the southeast along with additional sugar cane cultivation. The residential agricultural villages to the south and west are not as extensive.
1992	No significant changes noted.	The residential agricultural villages to the south and west are no longer present.
2000	No significant changes noted.	Significant commercial development is present to the northwest along Dairy Road and vicinity.

6.4.5 Sanborn/Historical Maps

Historic Sanborn® Fire Insurance Maps were not available for the subject property's location.

6.4.6 Historical Topographic Maps

MEV reviewed historical topographic maps supplied by EDR and dated 1922 through 2017. A summary of historical topographic maps reviewed is listed below.

6.4.6 Historical Topographic Maps (continued)

Summary

Date(s)	Quad	Property Comments	Surrounding Area Comments
1922, 1922	PAIA, KIHEI	The subject property appears undeveloped. A pipe line is present near the east boundary. A ditch is present near the south boundary. Rail lines are present through the central portion and along the west boundary.	The immediate surrounding area appears undeveloped. A rail line is present on the north adjoining property. Well No.5 and a stack are present at the current water well location on the eastern north adjoining property. Residential agricultural villages are present to the southeast, south, and southwest. The former sugar mill is present to the southwest.
1954, 1955	Paia, Wailuku	Central Power Plant Road is present through the central portion of the site. Rail lines no longer present. Pulehu Road is present along the east boundary. Hansen Road is present along the south boundary.	Puunene Hospital is present on the southern east adjacent property across Pulehu Road. Some of the current roads are present in the surrounding area. Kahului residential development is present to the northwest.
1961	MAUI	No significant changes noted.	No significant changes noted.
1977, 1977	Paia, Wailuku	Aerial photo image.	Aerial photo image.
1983, 1983	Paia, Wailuku	No significant changes noted.	Puunene Hospital is no longer present on southern east adjacent property across Pulehu Road. Residential agricultural villages in the surrounding area appear smaller. Significant commercial development is present beyond Dairy Road in Kahului to the northwest.
1997, 1997	Paia, Wailuku	No significant changes noted.	No significant changes noted. Residential agricultural villages in the surrounding area appear smaller.
2013, 2013	Paia, Wailuku	No details depicted.	No details depicted. Hansen Road connects with Maui Veterans Highway.
2017, 2017	Paia, Wailuku	No details depicted.	No details depicted.

6.4.7 Other Environmental Reports

The client provided MEV with a geotechnical Soil Investigation Report for Maui Business Park prepared by Hirata & Associates for Austin, Tsutsumi & Associates dated February 2009, portions of which are north adjoining to the subject property. Several of the soil borings were located along the northern subject property boundary. Soil conditions identified in those borings indicated clayey silt overlying weathered basalt at a depth of 11 to 14 feet below ground surface. Groundwater or seepage water were not encountered. No environmental concerns were identified. For additional details please refer to the referenced report in Appendix G.

6.4.8 Building Department Records

Building permit records from the Maui County Tax Assessor Department were reviewed for evidence indicating the developmental history of the Subject Property, and for the presence of documentation relative to site construction, pertinent site features, underground storage tanks, etc. Records found included construction and various other submittals and inspections related to the recent development of the westernmost portion of the subject property parcel as an MEO baseyard, including the installation of the 8,000-gallon AST. No environmental concerns were identified.

6.5 Environmental Liens and Activity/Use Limitations

MEV found no evidence of environmental liens associated with the subject site. Activity and Use Limitations (AULs) are one indication of a past or present release of a hazardous substance or petroleum product. AULs are explicit recognition by a federal, tribal, state, or local regulatory agency that residual levels of hazardous substances or petroleum products may be present on a property and the unrestricted use of the property may not be warranted. MEV found no evidence of AULs associated with the subject property.

6.6 Vapor Encroachment Evaluation

A vapor encroachment condition, as defined in ASTM 2600-15, is the presence or likely presence of Chemicals of Concern vapors in the vadose zone of the subject property caused by the release of vapors from contaminated soil and/or groundwater either on or near the subject property, as identified by Tier 1 or Tier 2 procedures. No vapor encroachment hazards were identified that would be considered a vapor encroachment condition, and further, a recognized environmental condition.

7.0 SITE RECONNAISSANCE

7.1 Methodology and Limiting Conditions

The site reconnaissance was conducted on May 25, 2023 by Jeffrey King, Project Manager with MEV, LLC, access provided by Jason Koga of Alexander & Baldwin, the current owner. Weather conditions at the time of the site reconnaissance were partly cloudy and 80 degrees F. The visual reconnaissance consisted of observing the boundaries of the property, the surrounding area, and systematically traversing the site to provide an overlapping field of view, wherever possible. Photographs of pertinent site features identified during the site reconnaissance are included in Appendix B.

7.2 General Site Setting

The property consists of approximately 166.511 acres acres and is currently undeveloped fallow agricultural land. The ground surface at the site slopes gently downward to the northwest. Ground cover consists primarily of medium to tall dry grass with some trees. Vehicle access to the subject property is from the northeast via a concrete paved gated entrance from Pulehu Road.

7.3 Site Visit Findings

7.3.1 Hazardous Substances

No hazardous substances were identified on the subject property during the site reconnaissance. The site is currently vacant and undeveloped.

7.3.2 Petroleum Products

No petroleum products were identified on the subject property during the site reconnaissance.

7.3.3 USTs

No evidence of underground storage tanks (USTs) was identified on the subject property during the site reconnaissance.

7.3.4 ASTs

No evidence of above ground storage tanks (ASTs) was identified on the subject property during the site reconnaissance. As stated previously, an 8,000-gallon gasoline AST is present on the west end of the west adjoining property in the MEO bus baseyard.

7.3.5 Other Suspect Containers

No unidentified substance containers were observed during the site reconnaissance.

7.3.6 Equipment Likely to Contain PCBs

No equipment likely to contain PCBs was observed on the subject property during the site reconnaissance.

7.3.7 Interior Staining/Corrosion

There are no permanent structures on the subject property, so this section is not applicable.

7.3.8 Discharge Features

Storm sewer catch basins were observed in the Pulehu Road curb near the subject site entrance. A dry drainage channel was observed along the western north boundary. A dry retention basin was observed west of the drainage channel on the west adjoining property.

7.3.9 Pits, Ponds, And Lagoons

No pits, ponds, or lagoons were observed on the subject property during the site reconnaissance. As stated in Section 7.3.8, a dry retention basin was observed west of the drainage channel on the west adjoining property.

7.3.10 Solid Waste Dumping/Landfills

Small amounts of household trash and scrap metal were observed on a few small areas of the subject property. Any waste materials encountered during future development should be properly disposed or recycled.

No readily apparent evidence of suspect fill material or landfills was identified on the subject property during the site reconnaissance.

7.3.11 Stained Soil/Stressed Vegetation

No stained soil or stressed vegetation was observed on the subject property and immediate vicinity during the site reconnaissance.

7.3.12 Wells

No wells were observed on the subject property during the site reconnaissance. A water well identified as Well No. 5 was observed in a fenced area on the eastern north adjoining vacant property. Information provided by the DLNR indicates the well was originally installed in 1899 and provides non potable water for agricultural crops and processing purposes. The well is currently used for irrigation of properties within the Maui Business Park subdivision to the north.

8.0 INTERVIEWS

The client was provided a standard environmental user questionnaire for completion. The completed user questionnaire is attached in Appendix G. Jeffrey King of MEV interviewed Jason Koga of Alexander & Baldwin (owner) during the site inspection. Mr. King also interviewed Jeff Kermode and Sean O'Keefe of Hawaiian Commercial & Sugar (former sugar mill environmental personnel) who also provided access to review reports related to the former sugar mill and other off site properties. The interviewees were not aware of any condition that would impact the environmental integrity of the subject property.

9.0 OTHER ENVIRONMENTAL CONSIDERATIONS

The following topics of environmental consideration are not included in the scope of services for this Phase I ESA:

Asbestos Materials
Lead-Based Paint
Microbial Contamination (Mold)
Lead-In Drinking Water
Regulatory Compliance
Cultural and Historical Resources
Industrial Hygiene
Health and Safety
Ecological Resources
Endangered Species
Indoor Air Quality
Biological Agents

Where the site inspector made direct observations, notes are included.

Asbestos-Containing Materials

Asbestos is the name for a group of naturally occurring silicate minerals that can be separated into fibers. The fibers are strong, durable, and resistant to heat and fire. They are also long, thin and flexible, so they can even be woven into cloth. Because of these qualities, asbestos has been used in thousands of consumer, industrial, maritime, automotive, scientific and building products. During the 20th century, some 30 million tons of asbestos have been used in industrial sites, homes, schools, shipyards and commercial buildings in the United States. Common ACMs include pipe covering, insulating cement, insulating block, refactory and boiler insulation materials, transite board, fireproofing spray, joint compound, vinyl floor tile, ceiling tile, mastics, roofing products, and duct insulation for HVAC applications. Inhalation of asbestos fibers can result in deleterious health effects.

There are currently no permanent structures on the site so there was no potential ACM observed.

Lead-Based Paint

Evaluation of Lead Based Paint materials was not included in the scope of the ESA. There are currently no permanent structures on the site so no suspect lead-based paint debris was noted on site.

Radon

Radon gas is a product of the decay series that begins with uranium. Radon is produced directly from radium, which can be commonly found in bedrock that contains black shale and/or granite. Radon gas can migrate through the ground and enter buildings through porous concrete or fractures. Radon tends to accumulate in poorly ventilated basements. Long term exposure to radon has been associated with lung cancer.

MEV did not identify any man made products on the subject property that are known or suspected to emit radioactive decay elements.

The designated Federal Radon Zone for all counties in the State of Hawaii is Zone 3, which is a *Low Potential Zone* for radon, with a predicted average indoor radon screening level that is less than 2 pCi/L.

Wetlands

No wetlands were observed on the site or immediate vicinity during the site reconnaissance.

Microbial Contamination (Mold)

In accordance with the scope of work, the site reconnaissance is to include a visual inspection for indications of water intrusions or the presence of active mold growth on readily accessible interior and exterior surfaces. Confirmation sampling is not included in the scope of work for the Phase I ESA. There are no permanent structures on the site. No mold was observed on the site by visual or olfactory indications or areas of water damage.

FINDINGS

Historical information identifying the past site use was obtained from a variety of sources provided in **Appendix C** of this report and included: City Directories, Aerial Photographs, Sanborn Fire Insurance Maps, and/or Topographic Maps. Information gleaned from historical information sources indicates that the site was undeveloped land since at least 1922 and was used for sugar cane cultivation from sometime before 1950 until approximately 2016.

The client provided MEV with a geotechnical Soil Investigation Report for Maui Business Park prepared by Hirata & Associates for Austin, Tsutsumi & Associates dated February 2009, portions of which are north adjoining to the subject property. Several of the soil borings were located along the northern subject property boundary. Soil conditions identified in those borings indicated clayey silt overlying weathered basalt at a depth of 11 to 14 feet below ground surface. Groundwater or seepage water were not encountered. No environmental concerns were identified. For additional details please refer to the referenced report in Appendix G.

A records review was included as part of this evaluation. The purpose of a records review is to obtain and review records that will help identify recognized environmental conditions in connection with the subject property. The services of Environmental Data Resources, Inc. (EDR) were utilized to compile the database listings.

The EDR records review did not discover any current investigation of the subject site under any programs conducted by a federal, state, or local environmental agency. Database listings associated with nearby sites as indicated by the EDR Report, along with additional information provided by the Hawaii Department of Health and HC&S Environmental Personnel regarding those listings and other nearby sites, are not expected to negatively impact the environmental condition of the subject property (see Section 6.1, Section 6.2, and the EDR Report, Appendix D). This conclusion is based on: the status of the site with the State and/or the EPA (i.e. depending on the type of listing, whether the site had a reported release, has been remediated, has initiated remediation, etc.); the respective distances of the listed site from the subject property; the direction of stormwater and groundwater flow; and/or the general characteristics of underlying earth materials.

The site reconnaissance was conducted on May 25, 2023. Significant observations include the following.

- The subject property was undeveloped fallow agricultural land and vacant.
- The subject site contains a network of unpaved access roads and man made berms throughout.
- The asphalt paved remnants of Central Power Plant Road are present on the central portion of the site from the northeast to the southwest.

This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property.

This assessment has revealed no evidence of controlled recognized environmental conditions in connection with the subject property.

This assessment has revealed no evidence of historical recognized environmental conditions in connection with the subject property.

A vapor encroachment condition, as defined in ASTM 2600-15, is the presence or likely presence of Chemicals of Concern vapors in the vadose zone of the subject property caused by the release of vapors from contaminated soil and/or groundwater either on or near the subject property, as identified by Tier 1 or Tier 2 procedures. There is no vapor encroachment hazard that would be considered a vapor encroachment condition, and further, a recognized environmental condition.

OPINIONS

Based on the time period for previous onsite sugar cane cultivation, field areas likely received regular applications of pesticide chemicals commonly used in historic Hawaiian sugar cane operations, as defined in Appendix 9-C of the State of Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response (HEER) Office's *Technical Guidance Manual for the Implementation Of The Hawaii State Contingency Plan* (2009). These agrochemicals have been recognized by the U.S. Environmental Protection Agency (EPA) for contributing to the potential contamination of surface soils and groundwater systems. Based on previous onsite sugar cane cultivation, the potential exists for residual pesticides to be present in surface soil onsite at concentrations greater than the applicable environmental action levels (EALs).

OPINIONS (continued)

According to Hawaii Administrative Rules, Chapter 128D Environmental Response Law, the presence of agricultural chemicals resulting from the legal application of a pesticide product does not constitute a "release" of a hazardous substance; furthermore, it is not considered a ***recognized environmental condition***. However, as a precaution when agricultural lands are converted, soil sampling and laboratory testing are commonly performed to determine if any potential for residual exposure hazards exists at concentrations greater than the applicable environmental action levels (EALs). A soil sampling investigation that included former agricultural field areas would contribute to higher confidence regarding health/safety issues for future occupancy of the site.

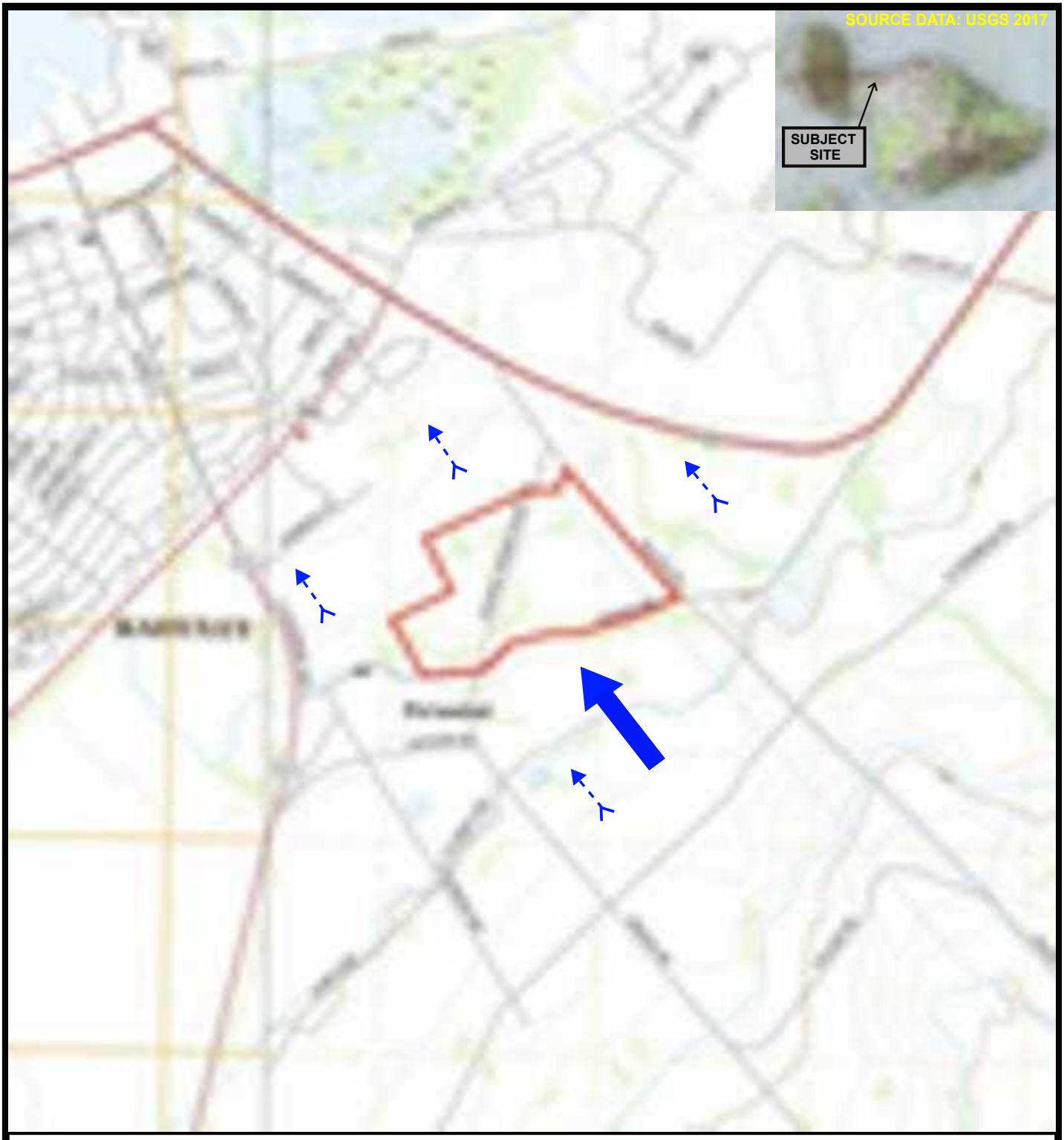
MEV recommends that soil sampling and analysis be conducted at the subject property in areas where future contact with surface soils may occur. This recommendation is in line with HDOH guidance to perform sampling in areas of historical sugar cane operations that will be developed to a more restrictive land usage than commercial or industrial. If potential additional information is found indicating previous operations other than field spraying, such as a historic map of the property showing mixing, storage, or other activity areas, then a more targeted sampling approach may be necessary.

REFERENCES

1. Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck®
2. Federal Emergency Management Agency, Flood Insurance Rate Map
3. EDR Historical Aerial Photographs
4. EDR Historical Sanborn Maps
5. EDR Historical Topographic Maps
6. EDR Historical City Directories
7. U.S. Geological Survey, 7.5 Minute Topographic Map, 2017
8. Hirata & Associates Soils Investigation, Maui Business Park, Phase II, February 2009

Appendix A:

Figures



SUBJECT PROPERTY BOUNDARY

PROJECTED GROUNDWATER FLOW

REGIONAL SURFACE WATER FLOW

USGS STREAM

USGS WOODLAND AREAS

N

SCALE 1:24,000

1,000 Feet

REGIONAL SETTING MAP

MEO Condominium Unit 2C
21 Hansen Road
Kahului, Maui, Hawaii
TMK: (2) 3-8-006:004 Portion

Phase I ESA
June 2023
MEV Project No. T23-011

FIGURE 1

N

SCALE
NOT TO SCALE

LEGEND

APPROX. SUBJECT PROPERTY BOUNDARY

SITE PLAN MAP

MEO Condominium Unit 2C
21 Hansen Road
Kahului, Maui, Hawaii
TMK: (2) 3-8-006:004 Portion

Phase 1 ESA
June 2023
MEV Project No. T23-011

FIGURE 2

Appendix B:

Photographs

Cover Photo view southwest of subject property from entrance gate on Pulehu Rd.

View south of northeastern portion of site.

View south along east site boundary and adjoining Pulehu Rd.

View southwest of eastern portion of site from Pulehu Rd.

View west of southeastern portion of site from Pulehu Rd.

View west along eastern south site boundary and adjoining Hansen Rd. with eastern south adjacent vacant property beyond.

View northeast of blocked site entrance at end of old Central Power Plant Rd. from Hansen Rd.

View southeast of southern portion of site from old Central Power Plant Rd.

View southwest along end of old Central Power Plant Rd. and blocked site entrance with south adjoining Hansen Rd. beyond.

View west of irrigation system remnants in berm along old Central Power Plant Rd.

View southwest along remnants of old Central Power Plant Rd. through central portion of site.

View southwest of southwestern portion of site from old Central Power Plant Rd.

View north of irrigation system remnants on southwest portion of site.

View southwest of scrap metal debris in northwestern portion of site.

View east of drainage ditch along north site boundary.

View east of northern portion of site.

View north of western north adjoining vacant property.

View northeast of central north adjoining vacant property.

View north of pad transformer and water well on eastern north adjoining property.

View east of northeast adjacent Taco Bell restaurant and Safeway store across Pulehu Rd.

View east of old fertilizer tanks behind Safeway on northern east adjacent vacant property across Pulehu Rd.

View southeast of southern east adjacent recycling and towed vehicle storage lot and driveway entrance across Pulehu Rd.

View east of southern east adjacent recycling and towed vehicle storage lot across Pulehu Rd.

View southeast of Pulehu Rd. and Hansen Rd. intersection with southeast adjacent vacant property beyond.

View southeast of south adjacent vacant property across Hansen Rd.

View southwest of southern west adjoining vacant MEO property and former sugar mill beyond.

View southwest of southwest adjacent former sugar mill across Hansen Rd.

View west of retention basin on west adjoining MEO vacant property with MEO bus baseyard and fueling station beyond.

View west of northern west adjoining MEO vacant property and northwest adjoining Lowe's store.

View west of drainage ditch behind Lowe's on west adjoining MEO vacant property.

Appendix C:

Historical Research

MEO Condominium Unit 2C
21 Hansen Rd
Kahului, HI 96732

Inquiry Number: 7336517.3
May 15, 2023

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

05/15/23

Site Name:

MEO Condominium Unit 2C
21 Hansen Rd
Kahului, HI 96732
EDR Inquiry # 7336517.3

Client Name:

MEV, LLC
P.O. Box 880487
Pukalani, HI 96788
Contact: Jeffrey King

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The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 26BC-4E17-B242

PO # NA

Project T23-011

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 26BC-4E17-B242

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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MEO Condominium Unit 2C
21 Hansen Rd
Kahului, HI 96732

Inquiry Number: 7336517.4
May 15, 2023

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

05/15/23

Site Name:	Client Name:
MEO Condominium Unit 2C	MEV, LLC
21 Hansen Rd	P.O. Box 880487
Kahului, HI 96732	Pukalani, HI 96788
EDR Inquiry # 7336517.4	Contact: Jeffrey King

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by MEV, LLC were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		*Coordinates:*	
P.O.#	NA	**Latitude:**	20.873687 20° 52' 25" North
Project:	T23-011	**Longitude:**	-156.446467 -156° 26' 47" West
		UTM Zone:	Zone 4 North
		UTM X Meters:	765674.35
		UTM Y Meters:	2310278.74
		Elevation:	65.18' above sea level

Maps Provided:

2017
2013
1997
1983
1977
1961
1954, 1955
1922

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2017 Source Sheets

Paia
2017
7.5-minute, 24000

Wailuku
2017
7.5-minute, 24000

2013 Source Sheets

Paia
2013
7.5-minute, 24000

Wailuku
2013
7.5-minute, 24000

1997 Source Sheets

Paia
1997
7.5-minute, 24000
Aerial Photo Revised 1997

Wailuku
1997
7.5-minute, 24000
Aerial Photo Revised 1997

1983 Source Sheets

Paia
1983
7.5-minute, 24000
Aerial Photo Revised 1977

Wailuku
1983
7.5-minute, 24000
Aerial Photo Revised 1977

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1977 Source Sheets

Paia
1977
7.5-minute, 24000
Aerial Photo Revised 1977

Wailuku
1977
7.5-minute, 24000
Aerial Photo Revised 1977

1961 Source Sheets

MAUI
1961
15-minute, 62500

1954, 1955 Source Sheets

Paia
1954
7.5-minute, 24000
Aerial Photo Revised 1950

Wailuku
1955
7.5-minute, 24000
Aerial Photo Revised 1950

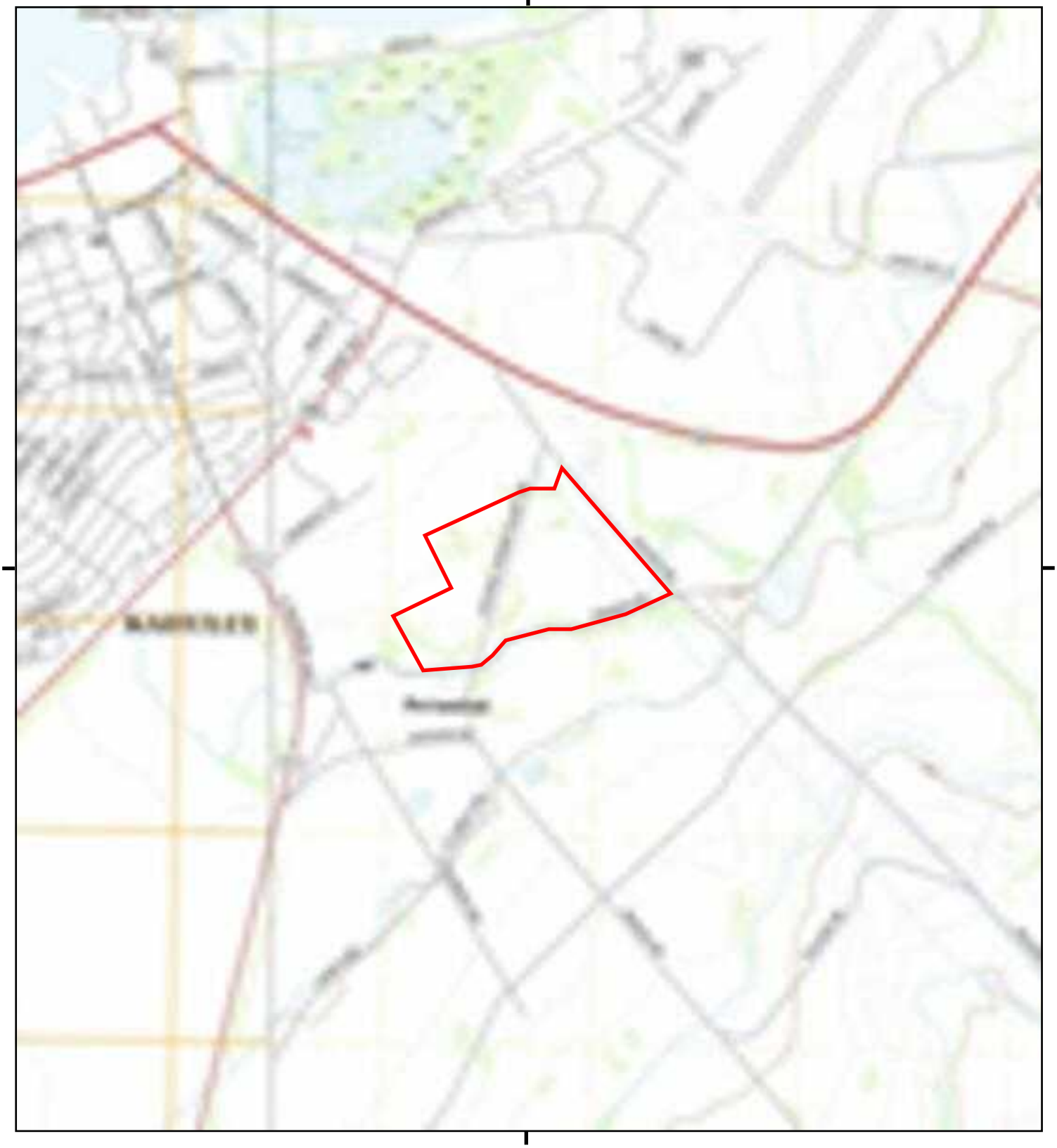
1922 Source Sheets

PAIA
1922
7.5-minute, 31680

KIHEI
1922
7.5-minute, 31680

Historical Topo Map

2017



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Paia, 2017, 7.5-minute
W, Wailuku, 2017, 7.5-minute

SITE NAME: MEO Condominium Unit 2C
ADDRESS: 21 Hansen Rd
Kahului, HI 96732
CLIENT: MEV, LLC

N

Historical Topo Map

2013

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Paia, 2013, 7.5-minute
W, Wailuku, 2013, 7.5-minute

SITE NAME: MEO Condominium Unit 2C
ADDRESS: 21 Hansen Rd
Kahului, HI 96732
CLIENT: MEV, LLC

N

Historical Topo Map

1997

This report includes information from the following map sheet(s).

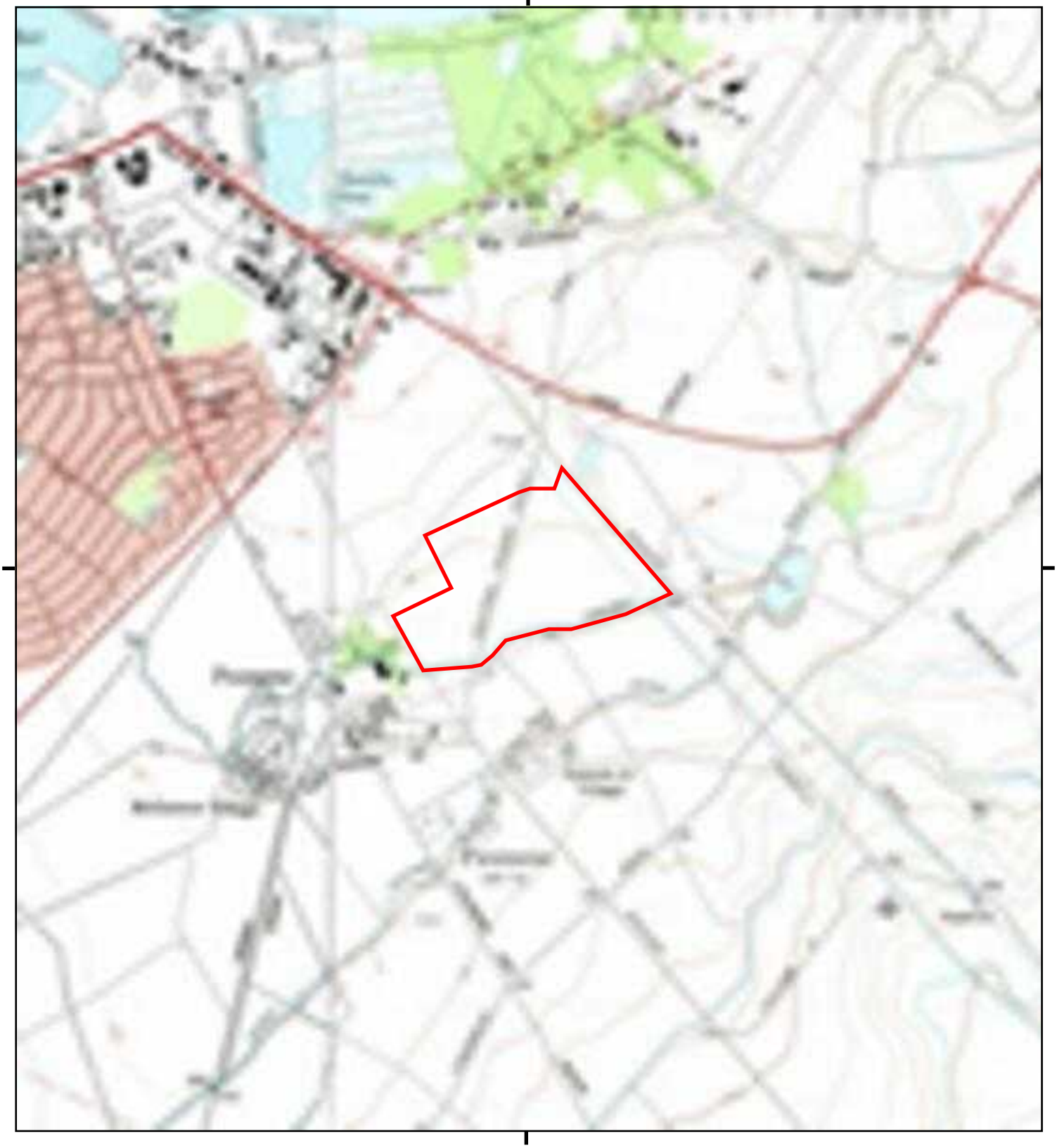
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Paia, 1997, 7.5-minute
W, Wailuku, 1997, 7.5-minute

SITE NAME: MEO Condominium Unit 2C
ADDRESS: 21 Hansen Rd
Kahului, HI 96732
CLIENT: MEV, LLC

N



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0 Miles 0.25 0.5 1 1.5

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W E
SW S SE

TP, Paia, 1983, 7.5-minute
W, Wailuku, 1983, 7.5-minute

SITE NAME: MEO Condominium Unit 2C
ADDRESS: 21 Hansen Rd
Kahului, HI 96732
CLIENT: MEV, LLC

N

This report includes information from the following map sheet(s).

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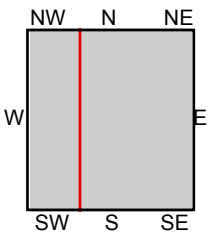


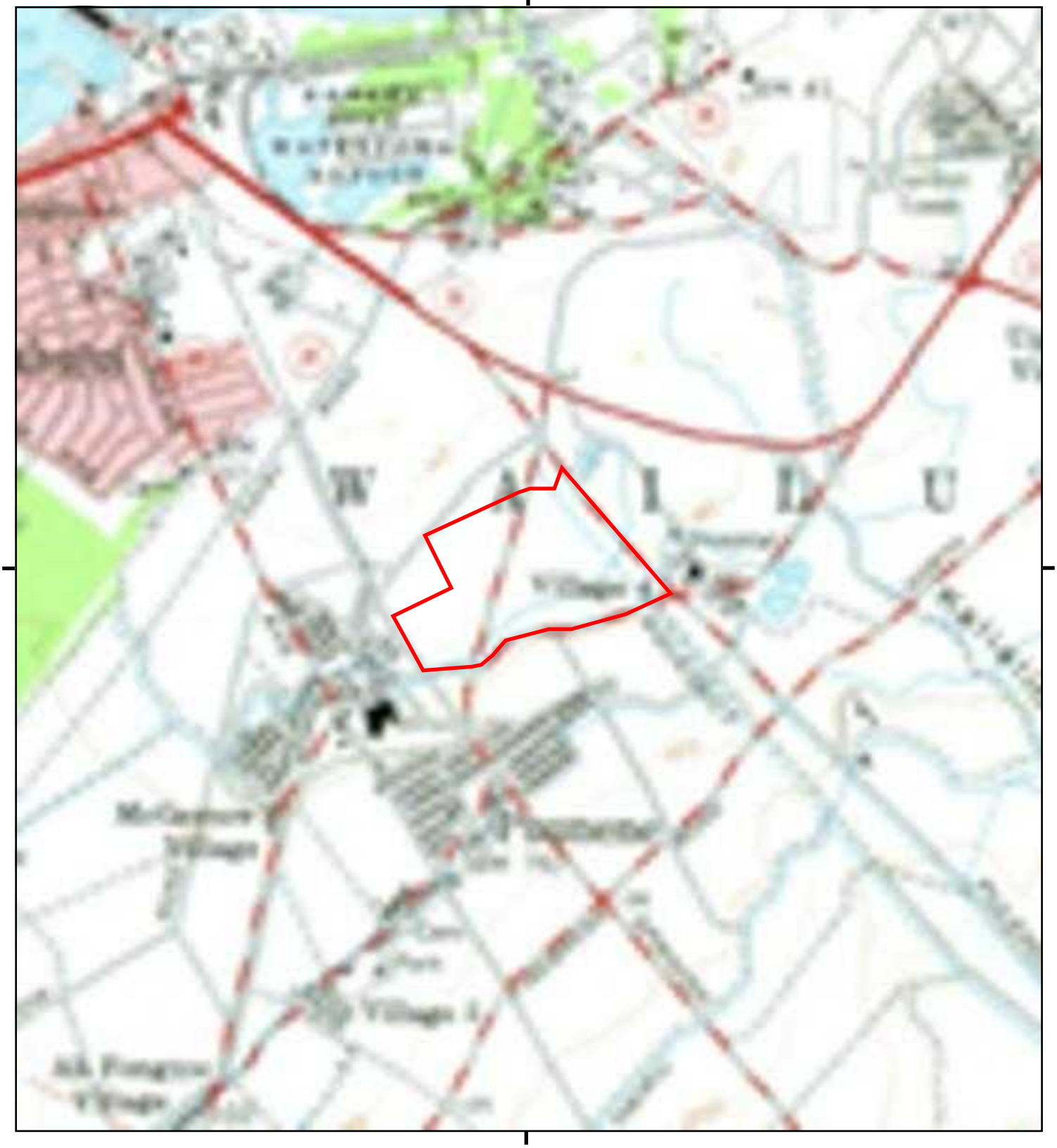
TP, Paia, 1977, 7.5-minute
W, Wailuku, 1977, 7.5-minute

SITE NAME: MEO Condominium Unit 2C
ADDRESS: 21 Hansen Rd
Kahului, HI 96732
CLIENT: MEV, LLC

N

Historical Topo Map

1961



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NW N NE
W E
SW S SE

TP, MAUI, 1961, 15-minute

SITE NAME: MEO Condominium Unit 2C
ADDRESS: 21 Hansen Rd
Kahului, HI 96732
CLIENT: MEV, LLC

N

Historical Topo Map

1954, 1955

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

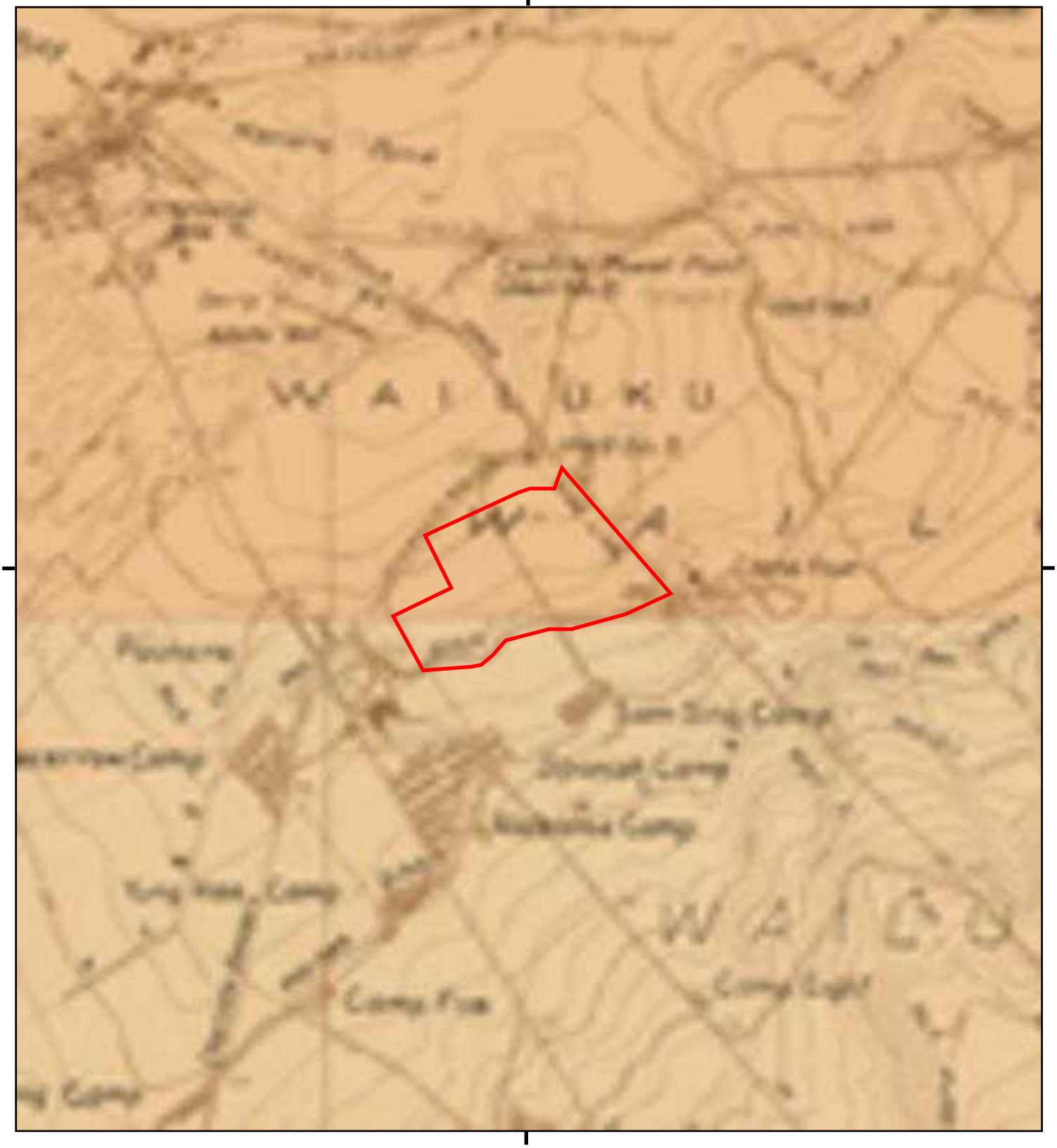
TP, Paia, 1954, 7.5-minute
W, Wailuku, 1955, 7.5-minute

SITE NAME: MEO Condominium Unit 2C
ADDRESS: 21 Hansen Rd
Kahului, HI 96732
CLIENT: MEV, LLC

N

Historical Topo Map

1922



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, PAIA, 1922, 7.5-minute
TP, KIHEI, 1922, 7.5-minute

SITE NAME: MEO Condominium Unit 2C
ADDRESS: 21 Hansen Rd
Kahului, HI 96732
CLIENT: MEV, LLC

N

MEO Condominium Unit 2C

21 Hansen Rd

Kahului, HI 96732

Inquiry Number: 7336517.8

May 16, 2023

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Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

05/16/23

Site Name:

MEO Condominium Unit 2C
21 Hansen Rd
Kahului, HI 96732
EDR Inquiry # 7336517.8

Client Name:

MEV, LLC
P.O. Box 880487
Pukalani, HI 96788
Contact: Jeffrey King

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Search Results:

Year	*Scale*	*Details*	*Source*
2000	1"=625'	Acquisition Date: April 12, 2000	USGS/DOQQ
1992	1"=625'	Flight Date: September 23, 1992	USGS
1976	1"=625'	Flight Date: December 20, 1976	USGS
1950	1"=625'	Flight Date: September 28, 1950	USGS

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7336517.8
2000
= 625'
N

7336517.8
1992
N
= 625'

7336517.8
1976
= 625'
N

7336517.8
1950
= 625'
N

MEO Condominium Unit 2C
21 Hansen Rd
Kahului, HI 96732

Inquiry Number: 7336517.5
May 16, 2023

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Please contact EDR at 1-800-352-0050
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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available business directory data at approximately five year intervals.

RECORD SOURCES

The EDR City Directory Report accesses a variety of business directory sources, including Haines, InfoUSA, Polk, Cole, Bresser, and Stewart. Listings marked as EDR Digital Archive access Cole and InfoUSA records. The various directory sources enhance and complement each other to provide a more thorough and accurate report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2020	☑	☑	EDR Digital Archive
2017	☑	☑	Cole Information
2014	☑	☑	Cole Information
2010	☑	☑	Cole Information
2005	☐	☑	Cole Information
2000	☑	☐	Cole Information
1995	☐	☐	Cole Information
1992	☐	☐	Cole Information

FINDINGS

TARGET PROPERTY STREET

21 Hansen Rd
Kahului, HI 96732

Year	*CD Image*	*Source*	
HANSEN RD			
2020	pg A1	EDR Digital Archive	
2017	pg A4	Cole Information	
2014	pg A6	Cole Information	
2010	pg A8	Cole Information	
2005	-	Cole Information	Street not listed in Source
2000	pg A11	Cole Information	
1995	-	Cole Information	Street not listed in Source
1992	-	Cole Information	Street not listed in Source

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	
HOOKELE ST			
2020	pg. A2	EDR Digital Archive	
2017	pg. A5	Cole Information	
2014	pg. A7	Cole Information	
2010	pg. A9	Cole Information	
2005	pg. A10	Cole Information	
2000	-	Cole Information	Street not listed in Source
1995	-	Cole Information	Street not listed in Source
1992	-	Cole Information	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
✔	-	EDR Digital Archive

HANSEN RD 2020

301 MALAMA AINA RECYCLE CTR LLC
MAUI TOW & TRANSPORT CO

Target Street	Cross Street	Source
-	✔	EDR Digital Archive

HOOKELE ST 2020

15	ZIPPY'S RESTAURANTS
32	PLANET FITNESS
45	CENTRAL MAUI ANIMAL CLINIC
50	PETCO
58	MAUI TACOS
66	ULTA BEAUTY
70	MASSAGE ENVY
77	ARBEN KRYEZIU
	CENTRAL MAUI SOIL-WATER
	KAWAHARA & CO CPAS LLC
	KAWAHARA & HU LLC
	MAUI OUTDOOR LIVING LLC
	MIMI SJ HU INC
	MOVEMENT MORTGAGE
	OZOLIO LLC
	PHARMA CBD LLC
	SEVEN FIVE LLC
	THINOPS RESOURCES LLC
	TRI-ISLE RESOURCE CONSERVATION
	USDA FARM SVC AGENCY
	VALLEY ISLE SPORT SHOOTERS
80	DOMINO'S
	SUPERCUTS
	VERIZON WIRELESS
89	ALOHA DERMATOLOGY & LASER CTR
	ALOHA DERMATOLOGY-LASER CTR
	C B A C INTERGALACTIC LLC
	FAMILY HEARING AID CTR
	K'S BUSINESS MANAGEMENT LLC
	KALUAAHOLE LLC
	LORNE DIRENFELD
	MAUI CARDIOLOGY LTD
	MAUI NEUROLOGICAL ASSOC
	MELANIE VALLEJOS INC
	OTUM LLC
	WAIPA LLC
100	ATM
	CVS/PHARMACY
	ELECTRIC CHARGING STATION
	LONGS DRUGS
	PIZZA HUT EXPRESS
	STARBUCKS
	TARGET
120	FORK & SALAD
	STARBUCKS
125	JEFFREY HARNETIAUX
	PARADISE SELF STORAGE
140	HAWAII STATE FEDERAL CU
	JERSEY MIKE'S SUBS
150	AMERICAN SAVINGS BANK

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HOOKELE ST 2020 (Cont'd)

214	BLUE RHINO
	LOWE'S HOME IMPROVEMENT
	MINUTE KEY
781	SERVCO LEXUS MAUI
	SERVCO SUBARU MAUI
1090	REDBOX
	SAFEWAY
	SAFEWAY PHARMACY
	STARBUCKS
	WESTERN UNION AGENT LOCATION

Target Street	Cross Street	Source
✔	-	Cole Information

HANSEN RD 2017

301	MAUI TOW & TRANSPORT CO
999	ABR LLC
3957	SUGAR MUSEUM

Target Street	Cross Street	Source
-	✓	Cole Information

HOOKELE ST 2017

15	ZIPPYS
45	CENTRAL MAUI ANIMAL CLINIC
	WILLAUER CURTIS VMD
77	HOME SAVINGS MORTGAGE
	HU MIMI S J CPA INC
	LEVIN & HU LLP
	UNITED STATES GOVERNMENT
89	ALOHA DERMATOLOGY & LASER CENTER
	BUMP NETWORKS
	DIRENFELD LORNE MD
	FAMILY HEARING CENTER
	FAMILY HEARING CENTER INC
	JAMES E MUTO MD FACC
	JONATHAN W ALLEN MD
	MAUI CARDIOLOGY LTD
	MICKI LY MD
	SHINNYOEN HAWAII
	VALLEJOS MELANIE DDS INC
100	LONGS DRUG STORE
	TARGET
	TARGET PHARMACY
125	PARADISE SELF STORAGE
145	CYCLE CITY LTD
	JN AUTO DEPOT

Target Street	Cross Street	Source
✔	-	Cole Information

HANSEN RD 2014

999	ABR LLC
3949	ENDO, RIKIO
3957	ALEXANDER & BALDWIN SUGAR MUSEUM
	SUGAR MUSEUM

Target Street	Cross Street	Source
-	✓	Cole Information

HOOKELE ST 2014

15	ZIPPYS
45	BUMPUS SALLY DVM
	CENTRAL MAUI ANIMAL CLINIC INC
	JOHNSON BEN DVM
	MARTIN SHAE T DVM
	WALTHER MIMMI DVM
	WILLAUER CURTIS DVM
	WILLAUER CURTIS VMD
77	GOLD BARGAIN INC
	HU, MIMI S
	MIMI S J HU CPA INC
	UNITED STATES GOVERNMENT
89	ALLEN JONATHAN W MD
	ALOHA DERMATOLOGY & LASER CENTER
	BUMP NETWORKS
	DIRENFELD LORNE MD
	FAMILY HEARING CENTER
	LY MICKI MD
	MAUI CARDIOLOGY LTD
	MUTO JAMES E MD FACC
	SHINNYOEN HAWAII
	VALLEJOS MELANIE DDS INC
125	PARADISE SELF STORAGE
145	CYCLE CITY LTD

Target Street	Cross Street	Source
✔	-	Cole Information

HANSEN RD 2010

3949 ENDO, RIKIO
3951 PINHEIRO, MANUEL
3956 KUBOTA, GAYLORD C

Target Street	Cross Street	Source
-	✔	Cole Information

HOOKELE ST 2010

45	CENTRAL MAUI ANIMAL CLINIC INC
77	DK LEVIN CO CPA
	LEVIN & HU LLP
	OHANA HEALTH PLAN
	STATE FARM INSURANCE
89	ALOHA DERMATOLOGY & LASER CTR
	BUMP NETWORKS
	EIGHTY NINE HOOKELE OWNERS
	H&R BLOCK
	HEARING AID CTR
	MAUI DERMATOLOGY
	MAUI DERMATOLOGY LLC
	MAUI NEUROLOGICAL ASSOC
	MELANIE VALLEJOS INC
	SHINNYOEN HAWAII
125	PARADISE SELF STORAGE

Target Street	Cross Street	Source
-	✔	Cole Information

HOOKELE ST 2005

45 MARTIN SHAE T DVM

77 77 LLC

ALDERSON2 LLC

EMPIRE FUNDING

MIMI S J HU CPA INC

OFFICE EDGE THE LLC

TALBOY CONSTRUCTION INC

Target Street	Cross Street	Source
✔	-	Cole Information

HANSEN RD 2000

3957 ALEXANDER & BALDWIN SUGAR MUSEUM

Appendix D:

Regulatory Records

MEO Condominium Unit 2C
21 Hansen Rd
Kahului, HI 96732

Inquiry Number: 7336517.2s
May 15, 2023

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

21 HANSEN RD
KAHULUI, HI 96732

COORDINATES

Latitude (North):	20.8736870 - 20° 52' 25.27''
Longitude (West):	156.4464670 - 156° 26' 47.28''
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	765678.5
UTM Y (Meters):	2310142.2
Elevation:	62 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	9757761 PAIA, HI
Version Date:	2017
West Map:	9372279 WAILUKU, HI
Version Date:	2017

MAPPED SITES SUMMARY

Target Property Address:
21 HANSEN RD
KAHULUI, HI 96732

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	PUUNENE SUGAR MILL M	HANSEN RD	SHWS	Higher	1 ft.
2	HALEAKALA RESEARCH S		FUDS	Higher	435, 0.082, ENE
3	MAUI WELL NO. 5		SHWS	Lower	500, 0.095, North
4	HAWAIIAN COMMERCIAL	PUUNENE MILL	SHWS, US AIRS	Higher	770, 0.146, SW
5	PUUNENE SUGAR MILL C	HANSEN RD	SHWS	Higher	795, 0.151, SW
6	DAIRY ROAD SHELL	370 DAIRY RD	SHWS, LUST, UST, Financial Assurance	Lower	3180, 0.602, NNW
A7	PACIFIC MACHINERY IN	470 S HANA HWY	SHWS	Lower	3230, 0.612, NNW
A8	PACIFIC MACHINERY, I	470 S HANA HWY	SHWS	Lower	3230, 0.612, NNW
9	MAUI PINEAPPLE COMPA	HALEAKALA HWY	SHWS	Lower	3246, 0.615, NNW
10	MAUI PINEAPPLE COMPA	HALEAKALA ST	SHWS	Lower	3249, 0.615, North
11	A&B CENTRAL POWER PL	HALEAKALA HWY	SHWS	Lower	3364, 0.637, North
12	FONG CONSTRUCTION PE	HUKILIKI ST	SHWS	Lower	3387, 0.641, NW
A13	MECO SUBSTATION 2 TR	DAIRY RD & HANA HWY	SHWS	Lower	3415, 0.647, NNW
A14	MECO STATION-CLASS T	DAIRY RD SE CORNER O	SHWS, SPILLS	Lower	3426, 0.649, NNW
15	COSTCO #119 MAUI ADD	540 HALEAKALA HWY	SHWS, VCP	Lower	3709, 0.702, NNW
16	OPALA PARTNERS DIESE	221 LALO PL	SHWS	Lower	3880, 0.735, NW
17	MECO POLE-MOUNT TRAN	POLE E-9 AT AIAI ST	SHWS	Lower	3938, 0.746, WNW
18	HAWAII AIR NATIONAL	75 KULEANA ST BLDG 5	SHWS, LUST, UST, Financial Assurance	Lower	4043, 0.766, North
19	KAHULUI AIRPORT, AIR	1 KEOLANI PL	SHWS, PFAS	Lower	4274, 0.809, NNW
20	A&B DUMP SITE	W PAPA AVE	SHWS	Lower	4361, 0.826, WNW
21	ALII LINEN SERVICE (	312 ALAMAHA PL	SHWS, ENG CONTROLS, INST CONTROL	Lower	4509, 0.854, NW
22	HAWAII WOOD PRESERVI	356 HANAKAI ST	SHWS	Lower	4591, 0.870, NW
23	KAHULUI AIRPORT CONS	LANUI CIRCLE	SHWS	Lower	5258, 0.996, NNE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS Engineering Controls Sites List
US INST CONTROLS Institutional Controls Sites List

Federal ERNS list

ERNS Emergency Response Notification System

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF Permitted Landfills in the State of Hawaii

Lists of state and tribal leaking storage tanks

LUST Leaking Underground Storage Tank Database
INDIAN LUST Leaking Underground Storage Tanks on Indian Land

Lists of state and tribal registered storage tanks

FEMA UST Underground Storage Tank Listing
UST Underground Storage Tank Database
INDIAN UST Underground Storage Tanks on Indian Land

State and tribal institutional control / engineering control registries

ENG CONTROLS Engineering Control Sites
INST CONTROL Sites with Institutional Controls

Lists of state and tribal voluntary cleanup sites

INDIAN VCP Voluntary Cleanup Priority Listing
VCP Voluntary Response Program Sites

Lists of state and tribal brownfield sites

BROWNFIELDS Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY SWRCY
INDIAN ODI Report on the Status of Open Dumps on Indian Lands
ODI Open Dump Inventory
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register
CDL Clandestine Drug Lab Listing

US CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
SPILLS ..... Release Notifications
SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ..... RCRA - Non Generators / No Longer Regulated
DOD ..... Department of Defense Sites
SCRD DRYCLEANERS ..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ..... Financial Assurance Information
EPA WATCH LIST ..... EPA WATCH LIST
2020 COR ACTION ..... 2020 Corrective Action Program List
TSCA ..... Toxic Substances Control Act
TRIS ..... Toxic Chemical Release Inventory System
SSTS ..... Section 7 Tracking Systems
ROD ..... Records Of Decision
RMP ..... Risk Management Plans
RAATS ..... RCRA Administrative Action Tracking System
PRP ..... Potentially Responsible Parties
PADS ..... PCB Activity Database System
ICIS ..... Integrated Compliance Information System
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ..... Material Licensing Tracking System
COAL ASH DOE ..... Steam-Electric Plant Operation Data
COAL ASH EPA ..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ..... PCB Transformer Registration Database
RADINFO ..... Radiation Information Database
HIST FTTS ..... FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ..... Incident and Accident Data
CONSENT ..... Superfund (CERCLA) Consent Decrees
INDIAN RESERV ..... Indian Reservations
FUSRAP ..... Formerly Utilized Sites Remedial Action Program
UMTRA ..... Uranium Mill Tailings Sites
LEAD SMELTERS ..... Lead Smelter Sites
US AIRS ..... Aerometric Information Retrieval System Facility Subsystem
US MINES ..... Mines Master Index File
ABANDONED MINES ..... Abandoned Mines
FINDS ..... Facility Index System/Facility Registry System
UXO ..... Unexploded Ordnance Sites
ECHO ..... Enforcement & Compliance History Information
DOCKET HWC ..... Hazardous Waste Compliance Docket Listing
FUELS PROGRAM ..... EPA Fuels Program Registered Listing
PFAS NPL ..... Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES ..... Federal Sites PFAS Information
PFAS TSCA ..... PFAS Manufacture and Imports Information
PFAS RCRA MANIFEST ..... PFAS Transfers Identified In the RCRA Database Listing

PFAS ATSDR PFAS Contamination Site Location Listing
PFAS WQP Ambient Environmental Sampling for PFAS
PFAS NPDES Clean Water Act Discharge Monitoring Information
PFAS ECHO Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAINING Facilities in Industries that May Be Handling PFAS Listing
PFAS PART 139 AIRPORT All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC Aqueous Foam Related Incidents Listing
PFAS PFAS Contamination Site Listing
AIRS List of Permitted Facilities
DRYCLEANERS Permitted Drycleaner Facility Listing
Financial Assurance Financial Assurance Information Listing
LEAD LEAD
UIC Underground Injection Wells Listing
MINES MRDS Mineral Resources Data System
PFAS TRIS List of PFAS Added to the TRI

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Auto EDR Exclusive Historical Auto Stations
EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS Recovered Government Archive State Hazardous Waste Facilities List
RGA LF Recovered Government Archive Solid Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites

may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Health.

A review of the SHWS list, as provided by EDR, and dated 10/20/2022 has revealed that there are 22 SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PUUNENE SUGAR MILL M	HANSEN RD	0 - 1/8 (0.000 mi.)	1	8
HAWAIIAN COMMERCIAL	***PUUNENE MILL***	***SW 1/8 - 1/4 (0.146 mi.)***	***4***	***10***
PUUNENE SUGAR MILL C	HANSEN RD	SW 1/8 - 1/4 (0.151 mi.)	5	19

Lower Elevation	Address	Direction / Distance	Map ID	Page
MAUI WELL NO. 5		N 0 - 1/8 (0.095 mi.)	3	9
DAIRY ROAD SHELL	***370 DAIRY RD***	***NNW 1/2 - 1 (0.602 mi.)***	***6***	***20***
PACIFIC MACHINERY IN	470 S HANA HWY	NNW 1/2 - 1 (0.612 mi.)	A7	23
PACIFIC MACHINERY, I	470 S HANA HWY	NNW 1/2 - 1 (0.612 mi.)	A8	24
MAUI PINEAPPLE COMPA	HALEAKALA HWY	NNW 1/2 - 1 (0.615 mi.)	9	25
MAUI PINEAPPLE COMPA	HALEAKALA ST	N 1/2 - 1 (0.615 mi.)	10	26
A&B CENTRAL POWER PL	HALEAKALA HWY	N 1/2 - 1 (0.637 mi.)	11	27
FONG CONSTRUCTION PE	HUKILIKI ST	NW 1/2 - 1 (0.641 mi.)	12	27
MECO SUBSTATION 2 TR	DAIRY RD & HANA HWY	NNW 1/2 - 1 (0.647 mi.)	A13	28
MECO STATION-CLASS T	***DAIRY RD SE CORNER O***	***NNW 1/2 - 1 (0.649 mi.)***	***A14***	***29***
COSTCO #119 MAUI ADD	***540 HALEAKALA HWY***	***NNW 1/2 - 1 (0.702 mi.)***	***15***	***32***
OPALA PARTNERS DIESE	221 LALO PL	NW 1/2 - 1 (0.735 mi.)	16	34
MECO POLE-MOUNT TRAN	POLE E-9 AT AIAI ST	WNW 1/2 - 1 (0.746 mi.)	17	34
HAWAII AIR NATIONAL	***75 KULEANA ST BLDG 5***	***N 1/2 - 1 (0.766 mi.)***	***18***	***35***
KAHULUI AIRPORT, AIR	***1 KEOLANI PL***	***NNW 1/2 - 1 (0.809 mi.)***	***19***	***38***
A&B DUMP SITE	W PAPA AVE	WNW 1/2 - 1 (0.826 mi.)	20	42
ALII LINEN SERVICE (	***312 ALAMAHA PL***	***NW 1/2 - 1 (0.854 mi.)***	***21***	***43***
HAWAII WOOD PRESERVI	356 HANAKAI ST	NW 1/2 - 1 (0.870 mi.)	22	45
KAHULUI AIRPORT CONS	LANUI CIRCLE	NNE 1/2 - 1 (0.996 mi.)	23	45

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

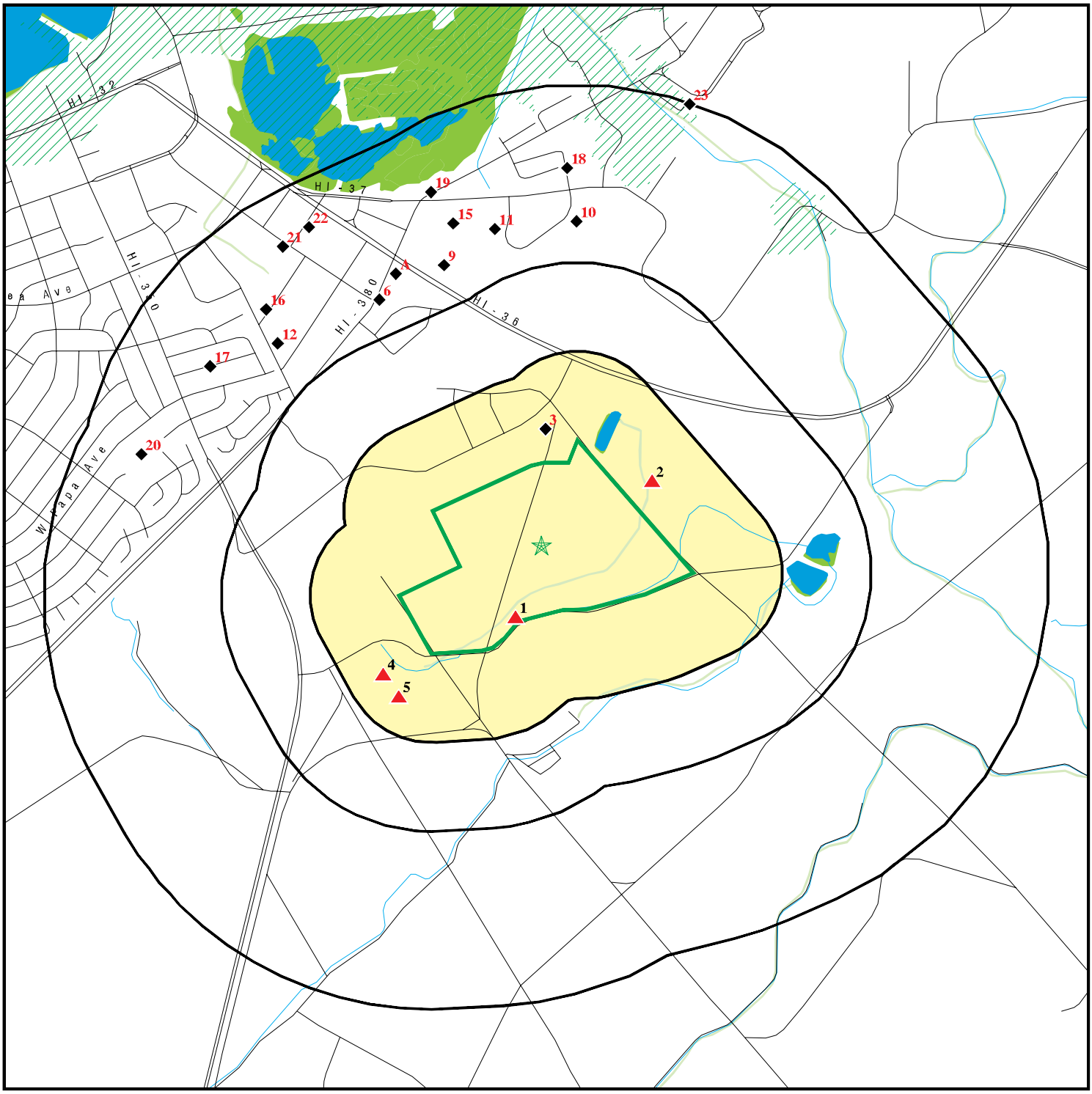
A review of the FUDS list, as provided by EDR, and dated 02/01/2023 has revealed that there is 1 FUDS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HALEAKALA RESEARCH S		ENE 0 - 1/8 (0.082 mi.)	2	8

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7336517.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: MEO Condominium Unit 2C	CLIENT: MEV, LLC
ADDRESS: 21 Hansen Rd	CONTACT: Jeffrey King
Kahului HI 96732	INQUIRY #: 7336517.2s
LAT/LONG: 20.873687 / 156.446467	DATE: May 15, 2023 12:27 pm

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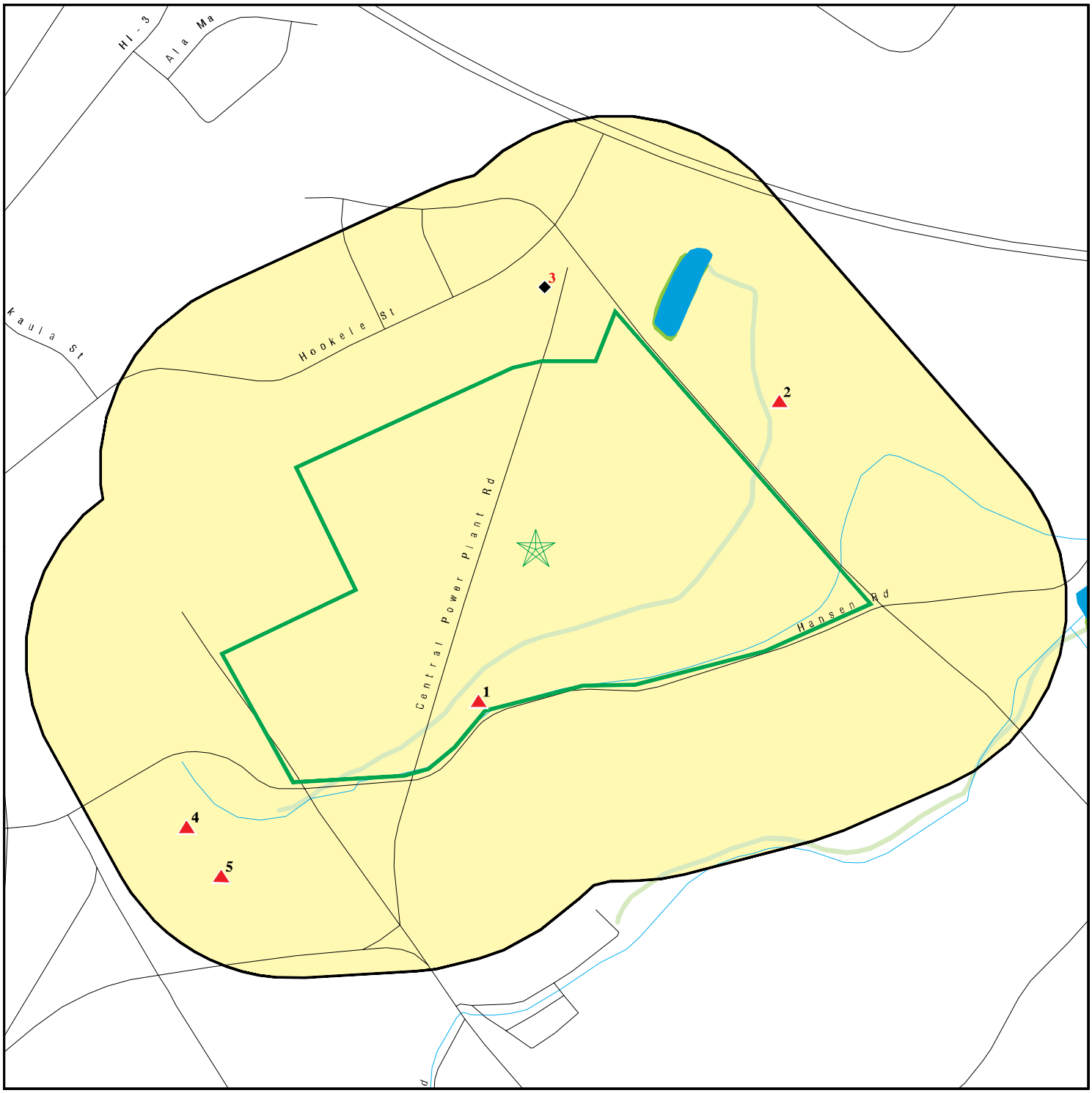
DETAIL MAP - 7336517.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: MEO Condominium Unit 2C ADDRESS: 21 Hansen Rd Kahului HI 96732 LAT/LONG: 20.873687 / 156.446467	CLIENT: MEV, LLC CONTACT: Jeffrey King INQUIRY #: 7336517.2s DATE: May 15, 2023 12:28 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal hazardous waste facilities								
SHWS	1.000		2	2	0	18	NR	22
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		0	0	0	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
SPILLS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		1	0	0	0	NR	1
DOD	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0
PFAS TSCA	0.250		0	0	NR	NR	NR	0
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AIRS	0.001		0	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
LEAD	0.001		0	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MINES MRDS	0.001		0	NR	NR	NR	NR	0
PFAS TRIS	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	0.001		0	NR	NR	NR	NR	0
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	3	2	0	18	0	23

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 **PUUNENE SUGAR MILL MUD STORAGE AREA** **SHWS** **S128195979**
HANSEN RD **N/A**
< 1/8 **PUUNENE, HI 96784**
1 ft.

Relative: **Higher**
Actual: **75 ft.**

SHWS:

Name:	PUUNENE SUGAR MILL MUD STORAGE AREA
Address:	HANSEN RD
City,State,Zip:	PUUNENE, HI 96784
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	1400
Location Description:	Hansen Rd, P.O. Box 266
Is Public:	True
Update On:	44461.634201388886
Latitude:	20.87083
Longitude:	-156.447594

---

2 **HALEAKALA RESEARCH SITE** **FUDS** **1024901949**
ENE **N/A**
< 1/8 **HALEAKALA, HI**
0.082 mi.
435 ft.

Relative: **Higher**
Actual: **67 ft.**

FUDS:

EPA Region:	09
Installation ID:	HI99799F384200
Congressional District Number:	2
Name:	HALEAKALA RESEARCH SITE
FUDS Number:	H09HI0102

HALEAKALA RESEARCH SITE (Continued) **1024901949**

City:	HALEAKALA
State:	HI
County:	MAUI
Object ID:	3347
USACE Division:	POD
USACE District:	Honolulu District (POH)
Status:	Properties without projects
Current Owner:	OTHER: OTHER
EMS Map Link:	https://fudsportal.usace.army.mil/ems/inventory/map?id=62365
Eligibility:	Eligible
Has Projects:	No
NPL Status:	Not reported
Project Required:	No
Feature Description:	THE FACILITY WAS OPERATED BY THE US AIR FORCE'S 1156TH TECHNICAL OPERATIONS SQUADRON. IN AUGUST 1968, TWO PARCELS OF 4.45 ACRES AND .19 ACRE ON MOUNT HALEAKALA LEASED AND LICENSED, RESPECTIVELY BY THE STATE OF HAWAII WERE TRANSFERRED TO THE US ATOMIC ENERGY COMMISSION WHICH CONTINUES TO OCCUPY THE SITES TO CONDUCT IT MULTIPLE CLASSIFIED AND NONCLASSIFIED PROGRAMS
Latitude:	20.87638889
Longitude:	-156.44166667

---

3 **MAUI WELL NO. 5** **SHWS** **S108859921**
North **N/A**
< 1/8 **KAHULUI, HI 96732**
0.095 mi.
500 ft.

Relative: **Lower**

Actual: **52 ft.**

SHWS:

Name:	MAUI WELL NO. 5
Address:	Not reported
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported

MAUI WELL NO. 5 (Continued) **S108859921**

Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	346
Location Description:	Not reported
Is Public:	True
Update On:	43615.858113425929
Latitude:	20.8785
Longitude:	-156.446294

---

4 **HAWAIIAN COMMERCIAL & SUGAR CO** **SHWS** **1000146689**
SW **PUUNENE MILL** **US AIRS** **N/A**
1/8-1/4 **PUUNENE, HI 96784**
0.146 mi.
770 ft.

Relative:
Higher

Actual:
75 ft.

SHWS:

Name:	PUUNENE DIESEL FUEL SPILL 1/13/2004
Address:	1 HANSEN RD
City,State,Zip:	PUUNENE, HI 96784
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	1843
Location Description:	1 Hansen Rd, Puunene, HI 96784
Is Public:	True

HAWAIIAN COMMERCIAL & SUGAR CO (Continued) **1000146689**

Update On: 44461.634756944448
Latitude: 20.868498
Longitude: -156.453347

US AIRS (AFS):
Region Code: 09
County Code: HI009
Programmatic ID: AIR HI0000001500900001
Facility Registry ID: 110001093165
D and B Number: Not reported
Facility Site Name: HAWAIIAN COMMERCIAL & SUGAR CO
Primary SIC Code: 2061
NAICS Code: 311311
Default Air Classification Code: MAJ
Facility Type of Ownership Code: POF
Air CMS Category Code: TVM
HPV Status: Not reported

US AIRS (AFS):
Region Code: 09
Programmatic ID: AIR HI0000001500900001
Facility Registry ID: 110001093165
Air Operating Status Code: OPR
Default Air Classification Code: MAJ

Air Program: Title V Permits
Activity Date: 2016-04-18 00:00:00
Activity Status Date: 2016-05-18 15:56:00
Activity Group: Case File
Activity Type: Case File
Activity Status: Case File Data Entered

Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2014-07-03 00:00:00
Activity Status Date: 2014-09-23 15:37:54
Activity Group: Compliance Monitoring
Activity Type: Compliance Investigation
Activity Status: Active

Air Program: New Source Performance Standards
Activity Date: 2014-07-03 00:00:00
Activity Status Date: 2014-09-23 15:37:54
Activity Group: Compliance Monitoring
Activity Type: Compliance Investigation
Activity Status: Active

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-07-03 00:00:00
Activity Status Date: 2014-09-23 15:37:54
Activity Group: Compliance Monitoring
Activity Type: Compliance Investigation
Activity Status: Active

Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2014-06-04 00:00:00
Activity Status Date: 2014-09-23 15:20:11
Activity Group: Compliance Monitoring

HAWAIIAN COMMERCIAL & SUGAR CO (Continued) **1000146689**

Activity Type: Inspection/Evaluation
Activity Status: Active

Air Program: New Source Performance Standards
Activity Date: 2014-06-04 00:00:00
Activity Status Date: 2014-09-23 15:20:11
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-06-04 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-06-04 00:00:00
Activity Status Date: 2014-09-23 15:20:11
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Air Program: Title V Permits
Activity Date: 2012-06-20 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2012-06-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Operating Permits
Activity Date: 2011-08-24 00:00:00
Activity Status Date: 2011-09-13 14:58:06
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Air Program: Title V Permits
Activity Date: 2011-08-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2011-08-24 00:00:00
Activity Status Date: 2011-09-13 14:58:06
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation

HAWAIIAN COMMERCIAL & SUGAR CO (Continued) **1000146689**

Activity Status: Active

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2011-08-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2011-05-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2010-05-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2010-05-11 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2009-01-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2009-01-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2008-05-07 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2008-05-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

HAWAIIAN COMMERCIAL & SUGAR CO (Continued) **1000146689**

Air Program: Title V Permits
Activity Date: 2007-04-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2007-04-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2006-04-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2006-04-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2005-03-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2004-03-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2003-04-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits
Activity Date: 2002-04-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: Title V Permits

HAWAIIAN COMMERCIAL & SUGAR CO (Continued) **1000146689**

Activity Date: 2001-04-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2001-04-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2000-09-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1999-06-01 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1998-10-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1997-10-22 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1996-06-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1994-10-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1993-07-02 00:00:00

HAWAIIAN COMMERCIAL & SUGAR CO (Continued) **1000146689**

Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1992-10-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1991-05-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1990-05-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1989-06-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1989-04-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1988-06-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1987-06-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1986-06-14 00:00:00
Activity Status Date: Not reported

HAWAIIAN COMMERCIAL & SUGAR CO (Continued) **1000146689**

Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1985-06-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1984-06-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1983-06-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1982-05-20 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1981-05-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1980-09-04 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1980-06-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1979-05-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

HAWAIIAN COMMERCIAL & SUGAR CO (Continued) **1000146689**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1978-12-04 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1978-05-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1977-08-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1977-08-01 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1976-05-11 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1976-04-13 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1976-04-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1975-04-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation

HAWAIIAN COMMERCIAL & SUGAR CO (Continued) **1000146689**

Activity Status: Not reported

5
SW
1/8-1/4
0.151 mi.
795 ft.

PUUNENE SUGAR MILL CANE HAULER SHOP **SHWS** **S126283135**
HANSEN RD **N/A**
PUUNENE, HI 96784

Relative:
Higher

Actual:
79 ft.

SHWS:

Name:	PUUNENE SUGAR MILL CANE HAULER SHOP
Address:	HANSEN RD
City,State,Zip:	PUUNENE, HI 96784
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	1486
Location Description:	Hansen Rd
Is Public:	True
Update On:	43615.858113425929
Latitude:	20.867588
Longitude:	-156.452665

6 **DAIRY ROAD SHELL** **SHWS** **U003222218**
NNW **370 DAIRY RD** **LUST** **N/A**
1/2-1 **KAHULUI, HI 96732** **UST**
0.602 mi. **Financial Assurance**
3180 ft.

Relative:
Lower

Actual:
13 ft.

SHWS:

Name:	MAUI BUSINESS PARK OIL CONTAMINATION
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Maui Business Park Oil Contamination
HID Number:	Not reported
Facility Registry Identifier:	110013767227
Lead Agency:	HEER Office
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Maui
SDAR Environmental Interest Name:	Maui Business Park Oil Contamination
HID Number:	Not reported
Facility Registry Identifier:	110013767227
Lead Agency:	HEER Office
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: petroleum distillates - gasoline
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	08/10/2005
Document Number:	2005-409-MS
Document Subject:	NFA letter for oil contamination
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782
Facility ID:	1473
Location Description:	370 Dairy Rd
Is Public:	True
Update On:	43615.858113425929
Latitude:	20.88365
Longitude:	-156.453468

LUST:

Name:	DAIRY ROAD SHELL
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Facility ID:	9-501300
Facility Status:	Site Assessment Ongoing
Facility Status Date:	12/12/2019
Release ID:	160011
Project Officer:	Richard Takaba

DAIRY ROAD SHELL (Continued) **U003222218**

Name: DAIRY ROAD SHELL
Address: 370 DAIRY RD
City,State,Zip: KAHULUI, HI 96732
Facility ID: 9-501300
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 08/02/1995
Release ID: 950110
Project Officer: Richard Takaba

UST:
Name: DAIRY ROAD SHELL
Address: 370 DAIRY RD
City,State,Zip: KAHULUI, HI 96732
Facility ID: 9-501300
Owner: DAIRY ROAD PARTNERS
Owner Address: 370 DAIRY ROAD
Owner City,St,Zip: Kahului, 96732 96732
Latitude: 20.883794
Longitude: -156.453318
Horizontal Reference Datum Name: NAD83
Horizontal Collection Method Name: GPS

Tank ID: r-1
Date Installed: 04/15/1985
Tank Status: **Permanently out of Use**
Date Closed: 12/14/2020
Tank Capacity: 10000
Substance: Gasohol

Name: DAIRY ROAD SHELL
Address: 370 DAIRY RD
City,State,Zip: KAHULUI, HI 96732

Tank ID: r-1
Date Installed: 04/15/1985
Tank Status: **Permanently out of Use**
Date Closed: 12/14/2020
Tank Capacity: 10000
Substance: Gasohol

Name: DAIRY ROAD SHELL
Address: 370 DAIRY RD
City,State,Zip: KAHULUI, HI 96732

Tank ID: r-2
Date Installed: 04/15/1985
Tank Status: **Permanently out of Use**
Date Closed: 12/14/2020
Tank Capacity: 10000
Substance: Gasohol

Name: DAIRY ROAD SHELL
Address: 370 DAIRY RD
City,State,Zip: KAHULUI, HI 96732

Tank ID: r-2
Date Installed: 04/15/1985

DAIRY ROAD SHELL (Continued) **U003222218**

Tank Status:	**Permanently out of Use**
Date Closed:	12/14/2020
Tank Capacity:	10000
Substance:	Gasohol
Name:	DAIRY ROAD SHELL
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Tank ID:	r-3
Date Installed:	04/15/1985
Tank Status:	**Permanently out of Use**
Date Closed:	12/14/2020
Tank Capacity:	10000
Substance:	Gasohol
Name:	DAIRY ROAD SHELL
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Tank ID:	r-3
Date Installed:	04/15/1985
Tank Status:	**Permanently out of Use**
Date Closed:	12/14/2020
Tank Capacity:	10000
Substance:	Gasohol

HI Financial Assurance:

Name:	DAIRY ROAD SHELL
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Alt Facility ID:	9-501300
Tank Id:	r-1
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	Not reported
FR Archive:	False
Name:	DAIRY ROAD SHELL
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Alt Facility ID:	9-501300
Tank Id:	r-2
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	Not reported
FR Archive:	False
Name:	DAIRY ROAD SHELL
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Alt Facility ID:	9-501300
Tank Id:	r-3
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	Not reported
FR Archive:	False

DAIRY ROAD SHELL (Continued) **U003222218**

Name:	DAIRY ROAD SHELL
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Alt Facility ID:	9-501300
Tank Id:	r-1
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	10/14/2013
FR Archive:	True

Name:	DAIRY ROAD SHELL
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Alt Facility ID:	9-501300
Tank Id:	r-2
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	10/14/2013
FR Archive:	True

Name:	DAIRY ROAD SHELL
Address:	370 DAIRY RD
City,State,Zip:	KAHULUI, HI 96732
Alt Facility ID:	9-501300
Tank Id:	r-3
Tank Status:	Permanently out of Use
FRTYPE:	Insurance
Expiration Date:	10/14/2013
FR Archive:	True

A7 **PACIFIC MACHINERY INC MAUI** **SHWS** **S121406209**
NNW **470 S HANA HWY** **N/A**
1/2-1 **KAHULUI, HI 96732**
0.612 mi.
3230 ft. **Site 1 of 4 in cluster A**

Relative:
Lower

Actual:
13 ft.

SHWS:

Name:	PACIFIC MACHINERY INC MAUI
Address:	470 S HANA HWY
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Pacific Machinery Inc Maui
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Eric Sadoyama
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Maui
SDAR Environmental Interest Name:	Pacific Machinery Inc Maui
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Not Necessary

PACIFIC MACHINERY INC MAUI (Continued) **S121406209**

Response:	Not reported
Nature of Contamination:	Found: Selenium confined to a small portion of the site groundwater.
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	05/17/2016
Document Number:	2016-290-ES
Document Subject:	No Further Action Determination for Pacific Machinery, Inc Maui, a.k.a. Hawthorne Machinery, based on review of Limited Phase II Environmental Investigation, 470 S Hana Hwy, TMK 2 3-8-065-001 (por), Kahului, Maui, Hawaii, (2/5/2016)
Project Manager:	Eric Sadoyama
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782
Facility ID:	832
Location Description:	470 S Hana Hwy
Is Public:	True
Update On:	43615.858113425929
Latitude:	20.884411
Longitude:	-156.452302

A8 **PACIFIC MACHINERY, INC MAUI** **SHWS** **S121406210**
NNW **470 S HANA HWY** **N/A**
1/2-1 **KAHULUI, HI 96732**
0.612 mi.
3230 ft. **Site 2 of 4 in cluster A**

Relative:
Lower

Actual:
13 ft.

SHWS:

Name:	PACIFIC MACHINERY, INC MAUI
Address:	470 S HANA HWY
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Pacific Machinery, Inc Maui
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Maui
SDAR Environmental Interest Name:	Pacific Machinery, Inc Maui
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Petroleum contaminated soil.
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported

PACIFIC MACHINERY, INC MAUI (Continued) **S121406210**

Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	08/03/2004
Document Number:	2004-310-MS
Document Subject:	NFA for 4 areas at the Pacific Machinery Maui site
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782
Facility ID:	1482
Location Description:	470 S Hana Hwy
Is Public:	True
Update On:	43615.858113425929
Latitude:	20.884536
Longitude:	-156.452341

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9 **MAUI PINEAPPLE COMPANY AGRICULTURAL DEEP SOIL DUMP** **SHWS** **S128196102**
NNW **HALEAKALA HWY** **N/A**
1/2-1 **KAHULUI, HI 96732**
0.615 mi.
3246 ft.

Relative:
Lower

Actual:
15 ft.

SHWS:

Name:	MAUI PINEAPPLE COMPANY AGRICULTURAL DEEP SOIL DUMP REINTERNMENT ON
Address:	HALEAKALA HWY
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	2332

MAUI PINEAPPLE COMPANY AGRICULTURAL DEEP SOIL DUMP REINTERNM (Continued) **S128196102**

Location Description:	Haleakala Hwy
Is Public:	True
Update On:	44540.786493055559
Latitude:	20.885196
Longitude:	-156.450704

10
North
1/2-1
0.615 mi.
3249 ft.

MAUI PINEAPPLE COMPANY SUSPECTED FORMER AGRICULTUR **SHWS** **S126282949**
HALEAKALA ST **N/A**
KAHULUI, HI 96732

Relative:
Lower

Actual:
38 ft.

SHWS:

Name:	MAUI PINEAPPLE COMPANY SUSPECTED FORMER AGRICULTURAL DEEP SOIL DUM
Address:	HALEAKALA ST
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	2331
Location Description:	Haleakala St
Is Public:	True
Update On:	44020.597199074073
Latitude:	20.886985
Longitude:	-156.444942

11
North
1/2-1
0.637 mi.
3364 ft.

A&B CENTRAL POWER PLANT ELECTRICAL SUBSTATION AND — **SHWS** — **S126282151**
HALEAKALA HWY — **N/A**
KAHULUI, HI 96732

Relative:
Lower

Actual:
27 ft.

SHWS:

Name:	A&B CENTRAL POWER PLANT ELECTRICAL SUBSTATION AND TRANSFORMER STO
Address:	HALEAKALA HWY
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	TSCA
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	TSCA
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	260
Location Description:	Haleakala Hwy
Is Public:	True
Update On:	44608.779247685183
Latitude:	20.886667
Longitude:	-156.448493

12
NW
1/2-1
0.641 mi.
3387 ft.

FONG CONSTRUCTION PETROLEUM HYDROCARBON CONTAMINAT — **SHWS** — **S126282415**
HUKILIKI ST — **N/A**
KAHULUI, HI 96732

Relative:
Lower

Actual:
23 ft.

SHWS:

Name:	FONG CONSTRUCTION PETROLEUM HYDROCARBON CONTAMINATION
Address:	HUKILIKI ST
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported

FONG CONSTRUCTION PETROLEUM HYDROCARBON CONTAMINATION (Continued) **S126282415**

Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	270
Location Description:	Hukiliki St
Is Public:	True
Update On:	43615.858113425929
Latitude:	20.882
Longitude:	-156.457926

A13 **MECO SUBSTATION 2 TRANSFORMER NO. 13702** **SHWS** **S126282977**
NNW **DAIRY RD & HANA HWY** **N/A**
1/2-1 **KAHULUI, HI 96732**
0.647 mi.
3415 ft. **Site 3 of 4 in cluster A**

Relative: **Lower**
Actual: **10 ft.**

SHWS:

Name:	MECO SUBSTATION 2 TRANSFORMER NO. 13702
Address:	DAIRY RD & HANA HWY
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported

MECO SUBSTATION 2 TRANSFORMER NO. 13702 (Continued) **S126282977**

Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	2392
Location Description:	Dairy Rd & Hana Hwy, Substation # 2
Is Public:	True
Update On:	43615.858113425929
Latitude:	20.884802
Longitude:	-156.452815

A14 **MECO STATION-CLASS TRANSFORMER NO. 6369** **SHWS** **S113230501**
NNW **DAIRY RD SE CORNER OF HANA HWY INTERSECTION** **SPILLS** **N/A**
1/2-1 **KAHULUI, HI 96732**
0.649 mi.
3426 ft. **Site 4 of 4 in cluster A**

Relative: **Lower**
Actual: **10 ft.**

SHWS:

Name:	MECO STATION-CLASS TRANSFORMER NO. 6369
Address:	DAIRY RD SE CORNER OF HANA HWY INTERSECTION
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	MECO Station-Class Transformer No. 6369
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Amelia Hicks
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Maui
SDAR Environmental Interest Name:	MECO Station-Class Transformer No. 6369
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete

MECO STATION-CLASS TRANSFORMER NO. 6369 (Continued) **S113230501**

Nature of Contamination:	Not reported
Nature of Residual Contamination:	PCB detected at maximum concentrations of less than 0.2 mg/kg (below HDOH EALs) and TPH detected at maximum concentrations of less 193 mg/kg (below HDOH EALs).
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	07/13/2012
Document Number:	2012-430-AH
Document Subject:	No Further Action Determination for MECO Pad-Mount Transformer, No 6324, No 8554, MECO Pole-Mount Transformer No 6371, MECO Station-Class Transformer No 6369 No 8857
Project Manager:	Amelia Hicks
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782
Facility ID:	2588
Location Description:	Dairy Rd SE corner of Hana Hwy Intersection, MECO Substation 2
Is Public:	True
Update On:	43615.858113425929
Latitude:	20.884842
Longitude:	-156.452788

SPILLS:

Name:	MECO STATION-CLASS TRANSFORMER NO. 6369
Address:	DAIRY RD SE CORNER OF HANA HWY INTERSECTION
Address 2:	MECO SUBSTATION 2
City,State,Zip:	KAHULUI, HI 96732
Island:	Maui
Supplemental Loc. Text:	Not reported
Case Number:	20081110-1100
Facility Registry ID:	Not reported
HID Number:	Not reported
Lead and Program:	HEER EP&R
ER:	None
Less Or Greater Than:	Not reported
Units:	MECO Substation-Class Transformer No. 6369 MECO Substation 2 Release
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Maui Electric Co., Inc.
Substances:	Transformer Oil
Quanity:	0
Units:	Not reported
Reported Date:	Not reported
Release Date:	Not reported
Release Duration:	Not reported
Media:	Not reported
Waterbody:	Not reported
Summary:	Not reported
Is Noteworthy for Reports:	Not reported
Is the Release a Fugitive Dumping:	Not reported
Tax Map Key:	Not reported
Assigned SOSC:	Not reported

MECO STATION-CLASS TRANSFORMER NO. 6369 (Continued) **S113230501**

Notified Agencies:	Not reported
Response Measures Taken:	Not reported
Incident Report Number:	Not reported
Coordination Needed:	Not reported
Tier II Facility:	Not reported
RMP:	Not reported
Follow-up Received On:	Not reported
Cost Recovery:	Not reported
Invoice To:	Not reported
Closed Date:	Not reported
Comments:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Name:	MECO STATION-CLASS TRANSFORMER NO. 6369
Address:	DAIRY RD SE CORNER OF HANA HWY INTERSECTION
Address 2:	MECO SUBSTATION 2
City,State,Zip:	KAHULUI, HI 96732
Island:	Maui
Supplemental Loc. Text:	Not reported
Case Number:	20081110-1100
Facility Registry ID:	Not reported
HID Number:	Not reported
Lead and Program:	HEER EP&R
ER:	None
Less Or Greater Than:	Not reported
Units:	MECO Substation-Class Transformer No. 6369 MECO Substation 2 Release
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Not reported
File Under:	Maui Electric Co., Inc.
Substances:	Transformer Oil
Quanity:	0
Units:	Not reported
Reported Date:	Not reported
Release Date:	Not reported
Release Duration:	Not reported
Media:	Not reported
Waterbody:	Not reported
Summary:	Not reported

Is Noteworthy for Reports:	Not reported
Is the Release a Fugitive Dumping:	Not reported
Tax Map Key:	Not reported
Assigned SOSC:	Not reported
Notified Agencies:	Not reported
Response Measures Taken:	Not reported
Incident Report Number:	Not reported
Coordination Needed:	Not reported
Tier II Facility:	Not reported
RMP:	Not reported
Follow-up Received On:	Not reported
Cost Recovery:	Not reported
Invoice To:	Not reported
Closed Date:	Not reported
Comments:	Not reported

MECO STATION-CLASS TRANSFORMER NO. 6369 (Continued) **S113230501**

Latitude:	Not reported
Longitude:	Not reported

15
NNW
1/2-1
0.702 mi.
3709 ft.

COSTCO #119 MAUI ADDITION LOT 21A
540 HALEAKALA HWY
KAHULUI, HI 96732

SHWS **S111704705**
VCP **N/A**

Relative:
Lower

Actual:
16 ft.

SHWS:

Name:	A&B CENTRAL POWER PLANT PIPELINES
Address:	540 HALEAKALA HWY
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	2790
Location Description:	540 Haleakala Hwy, Kahului, HI 96732
Is Public:	True
Update On:	44227.853101851855
Latitude:	20.887635
Longitude:	-156.44984

Name:	COSTCO #119 MAUI ADDITION LOT 21A
Address:	540 HALEAKALA HWY
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Costco #119 Maui Addition Lot 21A

COSTCO #119 MAUI ADDITION LOT 21A (Continued) **S111704705**

HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	VRP
Project Manager:	Steve Mow
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Present
Island:	Maui
SDAR Environmental Interest Name:	Costco #119 Maui Addition Lot 21A
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Hazard Present
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Letter of Completion - Restricted Use
Document Date:	04/21/2015
Document Number:	2015-170-JQN
Document Subject:	Letter of Completion pursuant to the Voluntary Response Program Agreement, Dec 2010 between Costco Wholesale Corporation and the State of Hawaii, Department of Health
Project Manager:	Steve Mow
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782
Facility ID:	667
Location Description:	540 Haleakala Hwy, Kahului, HI 96732
Is Public:	True
Update On:	44227.852210648147
Latitude:	20.887121
Longitude:	-156.450765

VCP:

Name:	COSTCO #119 MAUI ADDITION LOT 21A
Address:	540 HALEAKALA HWY
City,State,Zip:	KAHULUI, HI 96732
Program:	VRP
Zip Suffix:	Not reported
Supplemental Location:	Not reported
Island:	Maui
Facility ID:	667
Location Description:	540 Haleakala Hwy, Kahului, HI 96732
Latitude:	20.887121
Longitude:	-156.450765

16
NW
1/2-1
0.735 mi.
3880 ft.

OPALA PARTNERS DIESEL RELEASE
221 LALO PL
KAHULUI, HI 96732

SHWS **S106818999**
N/A

Relative:
Lower

Actual:
20 ft.

SHWS:

Name:	OPALA PARTNERS DIESEL RELEASE
Address:	221 LALO PL
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	353
Location Description:	221 Lalo Pl
Is Public:	True
Update On:	43615.858113425929
Latitude:	20.883664
Longitude:	-156.458842

17
WNW
1/2-1
0.746 mi.
3938 ft.

MECO POLE-MOUNT TRANSFORMER NO. 6748
POLE E-9 AT AIAI ST
KAHULUI, HI 96732

SHWS **S121406197**
N/A

Relative:
Lower

Actual:
29 ft.

SHWS:

Name:	MECO POLE-MOUNT TRANSFORMER NO. 6748
Address:	POLE E-9 AT AIAI ST
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported

MECO POLE-MOUNT TRANSFORMER NO. 6748 (Continued) **S121406197**

Island:	Maui
Environmental Interest:	MECO Pole-Mount Transformer no. 6748
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Amelia Hicks
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Maui
SDAR Environmental Interest Name:	MECO Pole-Mount Transformer no. 6748
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	PCB detected at <0.2 mg/kg; TPH detected at 1,290 mg/kg
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	No Engineering Control Required
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	05/10/2012
Document Number:	2012-290-AH
Document Subject:	No Further Action Determination for MECO Pad-Mount Transformer No 15683 (Incident ID 20091125-1412), Pole-Mount Transformer No 6159 (Incident ID 20080626-1149), No 6748 (Incident ID 20091203-1124) and No 9353 (Incident ID 20080320-1427)
Project Manager:	Amelia Hicks
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782
Facility ID:	2585
Location Description:	Pole E-9 at Aiai St
Is Public:	True
Update On:	43875.39199074074
Latitude:	20.881064
Longitude:	-156.460861

18
North
1/2-1
0.766 mi.
4043 ft.

HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG0061 **SHWS** **U003222266**
75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3 **LUST** **N/A**
KAHULUI, HI 96732 **UST**
Financial Assurance

Relative:
Lower

Actual:
33 ft.

SHWS:

Name:	HIANG KAHULUI COMMUNICATIONS STATION
Address:	75 KULEANA ST
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	DOD-IRP

HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CB (Continued) **U003222266**

Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	720
Location Description:	Kahului Airport, 75 Kuleana St, Kahului, HI 96732
Is Public:	True
Update On:	44003.700011574074
Latitude:	20.889868
Longitude:	-156.444834

LUST:

Name:	HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CBCS (PMID OGG006108)
Address:	75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
City,State,Zip:	KAHULUI, HI 96732
Facility ID:	9-502879
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	11/14/2000
Release ID:	980058
Project Officer:	Shaobin Li

Name:	HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CBCS (PMID OGG006108)
Address:	75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
City,State,Zip:	KAHULUI, HI 96732
Facility ID:	9-502879
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	11/01/2000
Release ID:	980057
Project Officer:	Shaobin Li

Name:	HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CBCS (PMID OGG006108)
Address:	75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
City,State,Zip:	KAHULUI, HI 96732
Facility ID:	9-502879
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	10/16/2000

HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CB (Continued) **U003222266**

Release ID: 980054
Project Officer: Shaobin Li

UST:

Name:	HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CBCS (PMID OGG00
Address:	75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
City,State,Zip:	KAHULUI, HI 96732
Facility ID:	9-502879
Owner:	STATE DOD - HAWAII AIR NATIONAL GUARD
Owner Address:	3949 DIAMOND HEAD ROAD
Owner City,St,Zip:	Kahului, 96732 96732
Latitude:	20.889997
Longitude:	-156.445397
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	Map
Tank ID:	R-502-1
Date Installed:	12/01/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	01/11/1996
Tank Capacity:	1000
Substance:	Gasoline
Name:	HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CBCS (PMID OGG00
Address:	75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
City,State,Zip:	KAHULUI, HI 96732
Tank ID:	R-502-2
Date Installed:	12/01/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	01/11/1996
Tank Capacity:	1000
Substance:	Diesel
Name:	HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CBCS (PMID OGG00
Address:	75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
City,State,Zip:	KAHULUI, HI 96732
Tank ID:	R-502-3
Date Installed:	12/01/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	01/11/1996
Tank Capacity:	550
Substance:	Used Oil

HI Financial Assurance:

Name:	HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CBCS (PMID OGG006108)
Address:	75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
City,State,Zip:	KAHULUI, HI 96732
Alt Facility ID:	9-502879
Tank Id:	R-502-1
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported
FR Archive:	False

HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CB (Continued) **U003222266**

Name:	HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CBCS (PMID OGG006108)
Address:	75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
City,State,Zip:	KAHULUI, HI 96732
Alt Facility ID:	9-502879
Tank Id:	R-502-3
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported
FR Archive:	False

Name:	HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG006108) 292 CBCS (PMID OGG006108)
Address:	75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
City,State,Zip:	KAHULUI, HI 96732
Alt Facility ID:	9-502879
Tank Id:	R-502-2
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported
FR Archive:	False

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19 **KAHULUI AIRPORT, AIRCRAFT RESCUE AND FIREFIGHTING** **SHWS S126282750**
NNW **1 KEOLANI PL** **PFAS N/A**
1/2-1 **KAHULUI, HI 96732**
0.809 mi.
4274 ft.

Relative: SHWS:
Lower

Actual: Name:	KAHULUI AIRPORT
13 ft. Address:	1 KEOLANI PL
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported

KAHULUI AIRPORT, AIRCRAFT RESCUE AND FIREFIGHTING TRAINING P (Continued) **S126282750**

Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	3099
Location Description:	1 Keolani Pl, Kahului, HI 96732
Is Public:	True
Update On:	44658.551979166667
Latitude:	20.892705
Longitude:	-156.437689

Name:	KAHULUI AIRPORT - HOLDROOM A, B, & E
Address:	1 KEOLANI PL
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	2863
Location Description:	1 Keolani Pl, Kahului, HI 96732
Is Public:	True
Update On:	44540.794502314813
Latitude:	20.892062
Longitude:	-156.437858

Name:	KAHULUI AIRPORT HOLDROOM AND GATE IMPROVEMENTS
Address:	1 KEOLANI PLACE
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported

KAHULUI AIRPORT, AIRCRAFT RESCUE AND FIREFIGHTING TRAINING P (Continued) **S126282750**

Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	3145
Location Description:	Kahului Airport
Is Public:	True
Update On:	44461.333773148152
Latitude:	20.891761
Longitude:	-156.438226

Name:	KAHULUI AIRPORT RUNWAY 2-20 RECONSTRUCTION
Address:	1 KEOLANI PLACE
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported

KAHULUI AIRPORT, AIRCRAFT RESCUE AND FIREFIGHTING TRAINING P (Continued) **S126282750**

Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	3173
Location Description:	1 Keolani Place, Kahului, HI 96732
Is Public:	True
Update On:	44658.538923611108
Latitude:	20.896948
Longitude:	-156.430421

Name:	KAHULUI AIRPORT, AIRCRAFT RESCUE AND FIREFIGHTING TRAINING PIT
Address:	1 KEOLANI PL
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported

KAHULUI AIRPORT, AIRCRAFT RESCUE AND FIREFIGHTING TRAINING P (Continued) **S126282750**

Contact Information:	Not reported
Facility ID:	2871
Location Description:	1 Keolani Pl, Kahului, HI 96732
Is Public:	True
Update On:	44789.373726851853
Latitude:	20.901419
Longitude:	-156.433548

PFAS:

Site ID:	2871
Name:	KAHULUI AIRPORT, AIRCRAFT RESCUE AND FIREFIGHTING TRAINING PIT
Address:	1 KEOLANI PL
City,State,Zip:	KAHULUI, HI 96732
Island:	Maui
Program:	State

---

20 WNW 1/2-1 0.826 mi. 4361 ft. **A&B DUMP SITE** **SHWS** **1006820345**
W PAPA AVE **N/A**
KAHULUI, HI 96732

Relative: Lower

Actual: 39 ft.

SHWS:

Name:	A&B DUMP SITE
Address:	W PAPA AVE
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Alexander and Baldwin Dump Site
HID Number:	HI0001290808
Facility Registry Identifier:	110013782914
Lead Agency:	HEER Office
Program:	PA/SI
Project Manager:	Laura Young
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Island:	Maui
SDAR Environmental Interest Name:	Alexander and Baldwin Dump Site
HID Number:	HI0001290808
Facility Registry Identifier:	110013782914
Lead Agency:	HEER Office
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action - Type Undetermined
Document Date:	11/10/1997
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Laura Young

A&B DUMP SITE (Continued) **1006820345**

Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782
Facility ID:	2429
Location Description:	W Papa Ave, Kahului, HI 96732
Is Public:	True
Update On:	44032.611620370371
Latitude:	20.877478
Longitude:	-156.46385

21
NW
1/2-1
0.854 mi.
4509 ft.

ALII LINEN SERVICE (FKA SNOW WHITE LINEN) **SHWS S106816121**
312 ALAMAHA PL **ENG CONTROLS N/A**
KAHULUI, HI 96732 **INST CONTROL**

Relative:
Lower

Actual:
12 ft.

SHWS:

Name:	LILI LAUNDRY
Address:	312 ALAMAHA PL
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	852
Location Description:	312 Alamaha Pl, Unit H
Is Public:	True
Update On:	43769.459201388891
Latitude:	20.885596
Longitude:	-156.458322

Name:	LILI LAUNDRY

ALII LINEN SERVICE (FKA SNOW WHITE LINEN) (Continued) **S106816121**

Address:	312 ALAMAHA PL
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	852
Location Description:	312 Alamaha Pl, Unit H
Is Public:	True
Update On:	43769.459201388891
Latitude:	20.8854772
Longitude:	-156.4581199

ENG CONTROLS:

Supplemental Location Text:	Not reported
Zip Suffix:	Not reported
Island:	Maui
Potential Hazards And Controls:	Hazard Managed With Controls
Engineering Control:	Engineering Control Required

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Not reported
Zip Suffix:	Not reported
Island:	Maui
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

22
NW
1/2-1
0.870 mi.
4591 ft.

HAWAII WOOD PRESERVING CO. (OSMOSE) **SHWS** **1000146664**
356 HANAKAI ST **N/A**
KAHULUI, HI 96732

Relative:
Lower

Actual:
10 ft.

SHWS:

Name:	HAWAII WOOD PRESERVING CO. (OSMOSE)
Address:	356 HANAKAI ST
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported
Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	SHWB
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	SHWB
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	1186
Location Description:	356 Hanakai St, Kahului, HI 96732
Is Public:	True
Update On:	44492.708449074074
Latitude:	20.886681
Longitude:	-156.456283

23
NNE
1/2-1
0.996 mi.
5258 ft.

KAHULUI AIRPORT CONSOLIDATED CAR RENTAL (CONRAC) F **SHWS** **S126282749**
LANUI CIRCLE **N/A**
KAHULUI, HI 96732

Relative:
Lower

Actual:
20 ft.

SHWS:

Name:	KAHULUI AIRPORT CONSOLIDATED CAR RENTAL (CONRAC) FACILITY
Address:	LANUI CIRCLE
City,State,Zip:	KAHULUI, HI 96732
Supplemental Location:	Not reported

KAHULUI AIRPORT CONSOLIDATED CAR RENTAL (CONRAC) FACILITY (Continued) **S126282749**

Island:	Maui
Environmental Interest:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Program:	State
Project Manager:	Not reported
Hazard Priority:	Not reported
Potential Hazards And Controls:	Not reported
Island:	Maui
SDAR Environmental Interest Name:	Not reported
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER Office
Potential Hazard And Controls:	Not reported
Priority:	Not reported
Assessment:	Not reported
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Not reported
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Not reported
Contact Information:	Not reported
Facility ID:	1590
Location Description:	New airport access road
Is Public:	True
Update On:	43903.366979166669
Latitude:	20.891776
Longitude:	-156.440034

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 25

Source: EPA
Telephone: N/A
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/20/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 03/28/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/08/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 82

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/20/2023
Date Data Arrived at EDR: 02/21/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 70

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/21/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/20/2023
Date Data Arrived at EDR: 02/21/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 70

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/21/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/12/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 12/19/2022
Number of Days to Update: 5

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

SHWS: Sites List

Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 10/20/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Semi-Annually

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF: Permitted Landfills in the State of Hawaii

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/14/2022
Date Data Arrived at EDR: 09/28/2022
Date Made Active in Reports: 10/12/2022
Number of Days to Update: 14

Source: Department of Health
Telephone: 808-586-4245
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

Lists of state and tribal leaking storage tanks

LUST: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/07/2023
Number of Days to Update: 77

Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 11/22/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 134
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/19/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/26/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/07/2023
Number of Days to Update: 77

Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 02/21/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 134

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/19/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Control Sites

A listing of sites with engineering controls in place.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 9

Source: Department of Health
Telephone: 404-586-4249
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

INST CONTROL: Sites with Institutional Controls

Voluntary Remediation Program and Brownfields sites with institutional controls in place.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 9

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

VCP: Voluntary Response Program Sites

Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

Date of Government Version: 10/20/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/17/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Brownfields Sites

With certain legal exclusions and additions, the term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Date of Government Version: 10/20/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 04/06/2023
Date Data Arrived at EDR: 04/13/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: SWRCY
A listing of recycling and drop-off facilities located in Hawaii.

Date of Government Version: 09/14/2022
Date Data Arrived at EDR: 09/28/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 7
Source: Department of Health
Telephone: 808-586-4226
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/19/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176
Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 8
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Lab Listing
A listing of clandestine drug lab site locations.

Date of Government Version: 08/04/2010
Date Data Arrived at EDR: 09/10/2010
Date Made Active in Reports: 10/22/2010
Number of Days to Update: 42
Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 03/02/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 8
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Quarterly

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26
Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 86
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

SPILLS: Release Notifications
Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/16/2022
Date Made Active in Reports: 02/07/2023
Number of Days to Update: 83
Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 03/10/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/11/2013
Number of Days to Update: 39

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 02/01/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 77

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/11/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/03/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/11/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/01/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/04/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 283

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/13/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 02/16/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 75

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/16/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/17/2023
Date Data Arrived at EDR: 01/18/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 91

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 01/04/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 89

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/26/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 13

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/03/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 02/27/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/04/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/23/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 04/07/2023
Number of Days to Update: 85

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/03/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 11/17/2022
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 85

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/22/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 02/27/2023
Date Data Arrived at EDR: 03/01/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 23

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/20/2022
Date Data Arrived at EDR: 12/20/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 80

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/02/2023
Date Data Arrived at EDR: 02/28/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 24

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 11/09/2021
Date Data Arrived at EDR: 10/20/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 82

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/01/2023
Date Data Arrived at EDR: 01/04/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 03/31/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/13/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 64

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 123

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/07/2023
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 33

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 04/20/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 33

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/07/2023
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS ECHO FIRE TRAINING: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS PART 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 04/27/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Listing

A listing of sites where "Potential PFAS" were found. The listing includes sites with "PFAs" and "fluoro", and site names that include "firefight", fire fight", "fire train".

Date of Government Version: 02/25/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 10

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

AIRS: List of Permitted Facilities

A listing of permitted facilities in the state.

Date of Government Version: 06/28/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 09/14/2022
Number of Days to Update: 76

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 03/23/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

DRYCLEANERS: Permitted Drycleaner Facility Listing
A listing of permitted drycleaner facilities in the state.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 02/23/2023
Date Made Active in Reports: 05/12/2023
Number of Days to Update: 78

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 03/23/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

Financial Assurance: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/07/2022
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 83

Source: Department of Health
Telephone: 808-586-4226
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

LEAD: Lead Inspection Listing
Lead inspections

Date of Government Version: 12/06/2022
Date Data Arrived at EDR: 12/07/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 84

Source: Department of Health
Telephone: 808-586-5800
Last EDR Contact: 03/02/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

UIC: Underground Injection Wells Listing
A listing of underground injection well locations.

Date of Government Version: 02/07/2013
Date Data Arrived at EDR: 02/12/2013
Date Made Active in Reports: 04/09/2013
Number of Days to Update: 56

Source: Department of Health
Telephone: 808-586-4258
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

PFAS TRIS: List of PFAS Added to the TRI
Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) immediately added certain per- and polyfluoroalkyl substances (PFAS) to the list of chemicals covered by the Toxics Release Inventory (TRI) under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provided a framework for additional PFAS to be added to TRI on an annual basis.

Date of Government Version: 03/07/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 202-566-0250
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 98

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: No Update Planned

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 191

Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/17/2014
Number of Days to Update: 200

Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines

Source: Endeavor Business Media

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data

Source: Endeavor Business Media

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GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Planning
Telephone: 808-587-2895

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

MEO CONDOMINIUM UNIT 2C
21 HANSEN RD
KAHULUI, HI 96732

TARGET PROPERTY COORDINATES

Latitude (North):	20.873687 - 20° 52' 25.27''
Longitude (West):	156.446467 - 156° 26' 47.28''
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	765678.5
UTM Y (Meters):	2310142.2
Elevation:	62 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	9757761 PAIA, HI
Version Date:	2017
West Map:	9372279 WAILUKU, HI
Version Date:	2017

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

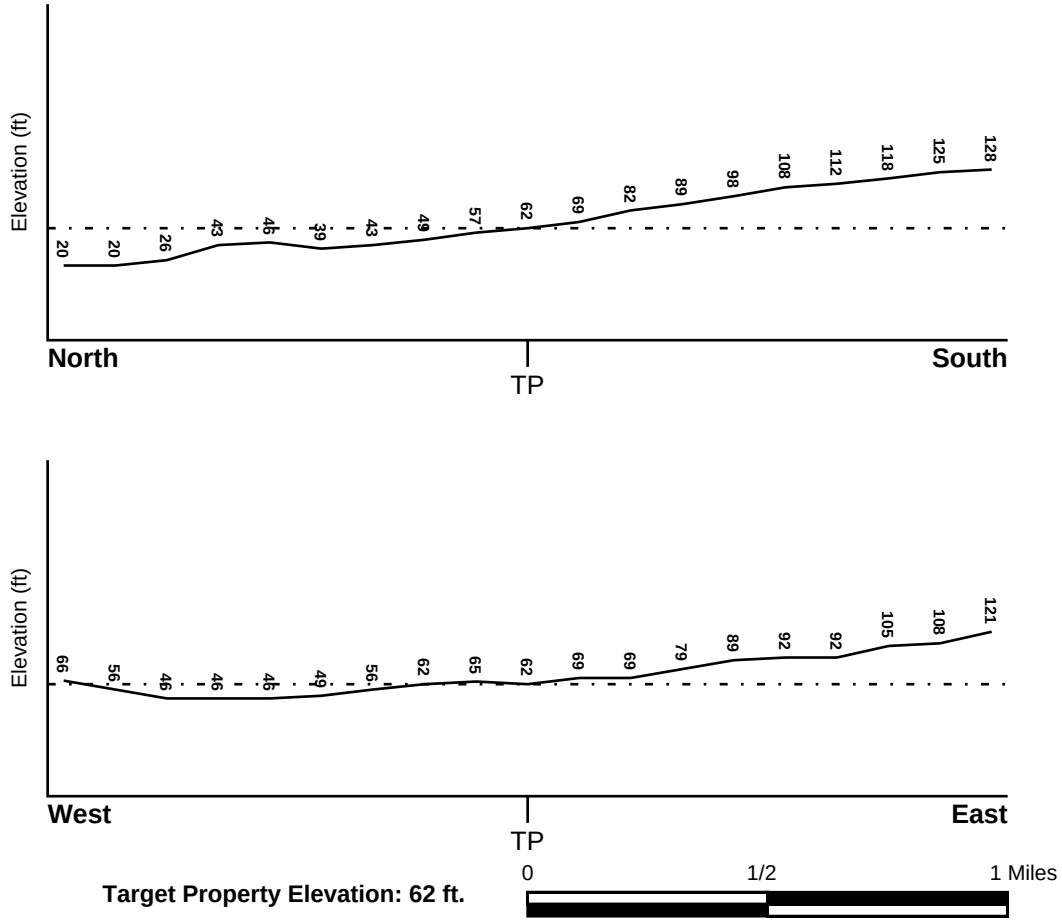
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 62 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
1500030411E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
1500030392E	FEMA FIRM Flood data
1500030394F	FEMA FIRM Flood data
1500030413E	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

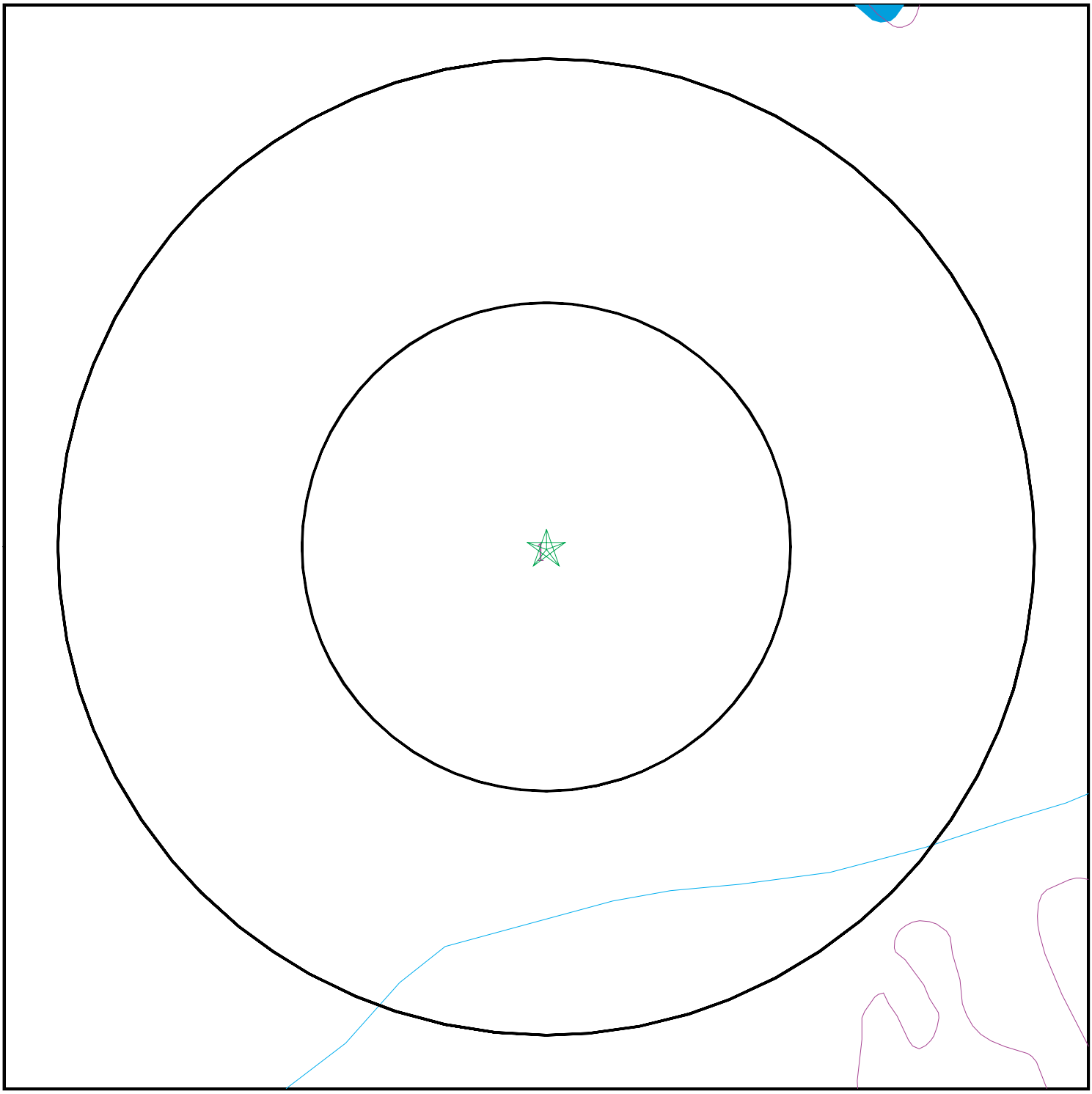
Era:	-
System:	-
Series:	-
Code:	N/A *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7336517.2s



SITE NAME:	MEO Condominium Unit 2C	CLIENT:	MEV, LLC
ADDRESS:	21 Hansen Rd Kahului HI 96732	CONTACT:	Jeffrey King
		INQUIRY #:	7336517.2s
LAT/LONG:	20.873687 / 156.446467	DATE:	May 15, 2023 12:29 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Ewa

Soil Surface Texture: silty clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	ML-K (proposed)	Max: 14 Min: 4.23	Max: 7.8 Min: 6.6
2	18 inches	59 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	ML-K (proposed)	Max: 14 Min: 4.23	Max: 7.8 Min: 6.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A3	USGS40000269057	1/2 - 1 Mile SSW
5	USGS40000269130	1/2 - 1 Mile NNE
B9	USGS40000269088	1/2 - 1 Mile WNW
B11	USGS40000269083	1/2 - 1 Mile WNW
C15	USGS40000269073	1/2 - 1 Mile WNW
D17	USGS40000269084	1/2 - 1 Mile WNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	HI1300000003471	1/4 - 1/2 Mile North
2	HI1300000003477	1/2 - 1 Mile SW
A4	HI1300000003476	1/2 - 1 Mile SW
6	HI1300000003480	1/2 - 1 Mile WNW
7	HI1300000003548	1/2 - 1 Mile NNW
B8	HI1300000003545	1/2 - 1 Mile WNW
B10	HI1300000003550	1/2 - 1 Mile WNW
B12	HI1300000003553	1/2 - 1 Mile WNW
13	HI1300000003549	1/2 - 1 Mile North
C14	HI1300000003474	1/2 - 1 Mile WNW
D16	HI1300000003544	1/2 - 1 Mile WNW

PHYSICAL SETTING SOURCE MAP - 7336517.2s

0 1/4 1/2 1 Miles

County Boundary
Major Roads
Contour Lines
Airports
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location

N

SITE NAME:	MEO Condominium Unit 2C	CLIENT:	MEV, LLC
ADDRESS:	21 Hansen Rd Kahului HI 96732	CONTACT:	Jeffrey King
		INQUIRY #:	7336517.2s
LAT/LONG:	20.873687 / 156.446467	DATE:	May 15, 2023 12:29 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **North** **1/4 - 1/2 Mile** **Lower**	**HI WELLS**	**HI1300000003471**

Well #:	6-5226-001	Well Name:	MBPII Non-Potable
Original Name:	Puunene-Pump 5	Aquifer Type:	Basal
Year Drilled:	1899	Driller:	Not Reported
Well Depth (ft):	48		
Land Owner:	Alexander & Baldwin, Inc. - Maui Office, A&B		
Pump Installer:	Alpha, Inc.	Well Construction Type:	Shaft
Casing Diameter (in):	Not Reported	Ground Elevation (ft):	42.53
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Agriculture-Crops and Processing		
Initial Water Level (ft):	Not Reported	Water Level After Drilling (ft):	Not Reported
Chloride Content (mg/l):	Not Reported	Date Tested:	Not Reported
Test Pump Rate (g/m):	Not Reported	Test Drawdown Rate (ft):	Not Reported
Test Chloride Content (mg/l):	Not Reported	Test Water Temp:	26
Test Unit:	C	Pump GPM:	450
Max Chloride Level:	Not Reported	Min Chloride Level:	Not Reported
Pump Installed:	1970	Draft Year:	Not Reported
Hole Bottom Elevation:	-5.47	Solid Casing Bot Elevation:	Not Reported
Perf Casing Bot Elevation:	Not Reported	Pump Capacity (MM gal/day):	.648
Pump Intake Depth (ft):	Not Reported	Latest WCR1 Report:	16-JUN-14
Latest WCR2 Report:	08-FEB-21	Transmissivity:	Not Reported

	Database	EDR ID Number
2 **SW** **1/2 - 1 Mile** **Higher**	**HI WELLS**	**HI1300000003477**

Well #:	6-5227-005	Well Name:	Puunene-Pump 19
Original Name:	Pump 19	Aquifer Type:	Basal
Year Drilled:	1952	Driller:	Not Reported
Well Depth (ft):	Not Reported	Land Owner:	ABL-R
Pump Installer:	Not Reported	Well Construction Type:	Shaft
Casing Diameter (in):	Not Reported	Ground Elevation (ft):	79
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Agriculture-Crops and Processing		
Initial Water Level (ft):	Not Reported	Water Level After Drilling (ft):	Not Reported
Chloride Content (mg/l):	Not Reported	Date Tested:	Not Reported
Test Pump Rate (g/m):	Not Reported	Test Drawdown Rate (ft):	Not Reported
Test Chloride Content (mg/l):	Not Reported	Test Water Temp:	Not Reported
Test Unit:	Not Reported	Pump GPM:	7360
Max Chloride Level:	Not Reported	Min Chloride Level:	Not Reported
Pump Installed:	1970	Draft Year:	Not Reported
Hole Bottom Elevation:	Not Reported	Solid Casing Bot Elevation:	Not Reported
Perf Casing Bot Elevation:	Not Reported	Pump Capacity (MM gal/day):	10.51
Pump Intake Depth (ft):	Not Reported	Latest WCR1 Report:	31-JUL-12
Latest WCR2 Report:	Not Reported	Transmissivity:	Not Reported

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A3
SSW
1/2 - 1 Mile
Higher

FED USGS **USGS40000269057**

Organization ID:	USGS-HI	Organization Name:	USGS Hawaii Water Science Center
Monitor Location:	6-5227-04 Maui Shaft 17 at Puunene, Maui, HI		
Type:	Well	Description:	Not Reported
HUC:	20020000	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Not Reported
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

A4
SW
1/2 - 1 Mile
Higher

HI WELLS **HI1300000003476**

Well #:	6-5227-004	Well Name:	Puunene-Mill Pump 8
Original Name:	Pump 8	Aquifer Type:	Basal
Year Drilled:	1939	Driller:	Not Reported
Well Depth (ft):	Not Reported	Land Owner:	ABL-R
Pump Installer:	Not Reported	Well Construction Type:	Shaft
Casing Diameter (in):	Not Reported	Ground Elevation (ft):	80
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Agriculture-Crops and Processing		
Initial Water Level (ft):	Not Reported	Water Level After Drilling (ft):	Not Reported
Chloride Content (mg/l):	Not Reported	Date Tested:	Not Reported
Test Pump Rate (g/m):	Not Reported	Test Drawdown Rate (ft):	Not Reported
Test Chloride Content (mg/l):	Not Reported	Test Water Temp:	Not Reported
Test Unit:	Not Reported	Pump GPM:	9440
Max Chloride Level:	Not Reported	Min Chloride Level:	Not Reported
Pump Installed:	1970	Draft Year:	Not Reported
Hole Bottom Elevation:	Not Reported	Solid Casing Bot Elevation:	Not Reported
Perf Casing Bot Elevation:	Not Reported	Pump Capacity (MM gal/day):	13.49
Pump Intake Depth (ft):	Not Reported	Latest WCR1 Report:	31-JUL-12
Latest WCR2 Report:	Not Reported	Transmissivity:	Not Reported

---

5
NNE
1/2 - 1 Mile
Lower

FED USGS **USGS40000269130**

Organization ID:	USGS-HI	Organization Name:	USGS Hawaii Water Science Center
Monitor Location:	6-5327-06 W23	Type:	Well
Description:	Not Reported	HUC:	20020000
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	42	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

6
WNW
1/2 - 1 Mile
Lower

HI WELLS **HI1300000003480**

Well #:	6-5227-008	Well Name:	Puunene-First Assembly
Original Name:	Not Reported	Aquifer Type:	Basal
Year Drilled:	Not Reported	Driller:	Not Reported
Well Depth (ft):	40		
Land Owner:	Maui First Assembly of God - Kahului, Maui King's Cathedral and Chapel		
Pump Installer:	Not Reported	Well Construction Type:	Not Reported
Casing Diameter (in):	6	Ground Elevation (ft):	Not Reported
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Irrigation (non-domestic, non-agricujlture)		
Initial Water Level (ft):	Not Reported	Water Level After Drilling (ft):	Not Reported
Chloride Content (mg/l):	Not Reported	Date Tested:	Not Reported
Test Pump Rate (g/m):	Not Reported	Test Drawdown Rate (ft):	Not Reported
Test Chloride Content (mg/l):	Not Reported	Test Water Temp:	Not Reported
Test Unit:	F	Pump GPM:	Not Reported
Max Chloride Level:	Not Reported	Min Chloride Level:	Not Reported
Pump Installed:	Not Reported	Draft Year:	Not Reported
Hole Bottom Elevation:	Not Reported	Solid Casing Bot Elevation:	Not Reported
Perf Casing Bot Elevation:	Not Reported	Pump Capacity (MM gal/day):	Not Reported
Pump Intake Depth (ft):	Not Reported	Latest WCR1 Report:	Not Reported
Latest WCR2 Report:	Not Reported	Transmissivity:	Not Reported

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7
NNW
1/2 - 1 Mile
Lower

HI WELLS **HI1300000003548**

Well #:	6-5327-006		
Well Name:	TMK 3-8-06-42 (MECO Kanaha Substation)		
Original Name:	Not Reported	Aquifer Type:	Caprock
Year Drilled:	1970		
Driller:	Ocean View Drilling Co., Ltd.		
Well Depth (ft):	42		
Land Owner:	Maui Electric Company, Ltd., MECO		
Pump Installer:	Not Reported	Well Construction Type:	Not Reported
Casing Diameter (in):	6	Ground Elevation (ft):	9
Solid Casing Depth (ft):	8	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Abandoned-Sealed		
Initial Water Level (ft):	Not Reported	Water Level After Drilling (ft):	Not Reported
Chloride Content (mg/l):	Not Reported	Date Tested:	Not Reported
Test Pump Rate (g/m):	Not Reported	Test Drawdown Rate (ft):	Not Reported
Test Chloride Content (mg/l):	Not Reported	Test Water Temp:	Not Reported
Test Unit:	Not Reported	Pump GPM:	Not Reported
Max Chloride Level:	Not Reported	Min Chloride Level:	Not Reported
Pump Installed:	Not Reported	Draft Year:	Not Reported
Hole Bottom Elevation:	-33	Solid Casing Bot Elevation:	1
Perf Casing Bot Elevation:	Not Reported	Pump Capacity (MM gal/day):	Not Reported
Pump Intake Depth (ft):	Not Reported	Latest WCR1 Report:	Not Reported
Latest WCR2 Report:	Not Reported	Transmissivity:	Not Reported

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B8
WNW
1/2 - 1 Mile
Lower

HI WELLS **HI1300000003545**

Well #:	6-5327-003	Well Name:	Tmk 3-8-09-3
Original Name:	Not Reported	Aquifer Type:	Not Reported
Year Drilled:	Not Reported	Driller:	Not Reported
Well Depth (ft):	Not Reported	Land Owner:	Robert Steven Moniz
Pump Installer:	Not Reported	Well Construction Type:	Rotary
Casing Diameter (in):	4	Ground Elevation (ft):	Not Reported
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Abandoned-Lost	Initial Water Level (ft):	Not Reported
Water Level After Drilling (ft):	Not Reported	Chloride Content (mg/l):	Not Reported
Date Tested:	Not Reported	Test Pump Rate (g/m):	Not Reported
Test Drawdown Rate (ft):	Not Reported	Test Chloride Content (mg/l):	Not Reported
Test Water Temp:	Not Reported	Test Unit:	Not Reported
Pump GPM:	Not Reported	Max Chloride Level:	Not Reported
Min Chloride Level:	Not Reported	Pump Installed:	Not Reported
Draft Year:	Not Reported	Hole Bottom Elevation:	Not Reported
Solid Casing Bot Elevation:	Not Reported	Perf Casing Bot Elevation:	Not Reported
Pump Capacity (MM gal/day):	Not Reported	Pump Intake Depth (ft):	Not Reported
Latest WCR1 Report:	Not Reported	Latest WCR2 Report:	Not Reported
Transmissivity:	Not Reported		

B9
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000269088**

Organization ID:	USGS-HI	Organization Name:	USGS Hawaii Water Science Center
Monitor Location:	6-5327-03 W20-112	Type:	Well
Description:	Not Reported	HUC:	20020000
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	Not Reported	Well Depth Units:	Not Reported
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

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B10
WNW
1/2 - 1 Mile
Lower

HI WELLS **HI1300000003550**

Well #:	6-5327-008	Well Name:	Tmk 3-8-09-8
Original Name:	Not Reported	Aquifer Type:	Not Reported
Year Drilled:	1962	Driller:	Paul Smith
Well Depth (ft):	71	Land Owner:	Lillian Roman
Pump Installer:	Not Reported	Well Construction Type:	Rotary
Casing Diameter (in):	4	Ground Elevation (ft):	Not Reported
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Irrigation (non-domestic, non-agricujlture)		
Initial Water Level (ft):	Not Reported	Water Level After Drilling (ft):	Not Reported
Chloride Content (mg/l):	Not Reported	Date Tested:	Not Reported
Test Pump Rate (g/m):	Not Reported	Test Drawdown Rate (ft):	Not Reported

Test Chloride Content (mg/l):	Not Reported	Test Water Temp:	Not Reported
Test Unit:	Not Reported	Pump GPM:	Not Reported
Max Chloride Level:	Not Reported	Min Chloride Level:	Not Reported
Pump Installed:	Not Reported	Draft Year:	Not Reported
Hole Bottom Elevation:	Not Reported	Solid Casing Bot Elevation:	Not Reported
Perf Casing Bot Elevation:	Not Reported	Pump Capacity (MM gal/day):	Not Reported
Pump Intake Depth (ft):	Not Reported	Latest WCR1 Report:	01-JAN-62
Latest WCR2 Report:	Not Reported	Transmissivity:	Not Reported

---

B11
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000269083**

Organization ID:	USGS-HI	Organization Name:	USGS Hawaii Water Science Center
Monitor Location:	6-5327-08 W20-110	Type:	Well
Description:	Not Reported	HUC:	20020000
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19620101
Well Depth:	71	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

---

B12
WNW
1/2 - 1 Mile
Lower

HI WELLS **HI1300000003553**

Well #:	6-5327-011	Well Name:	Tmk 3-8-09-52
Original Name:	Not Reported	Aquifer Type:	Not Reported
Year Drilled:	1970		
Driller:	Ocean View Drilling Co., Ltd.		
Well Depth (ft):	Not Reported	Land Owner:	Marjorie Osorno
Pump Installer:	Not Reported	Well Construction Type:	Rotary
Casing Diameter (in):	4	Ground Elevation (ft):	69
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Abandoned-Lost	Initial Water Level (ft):	Not Reported
Water Level After Drilling (ft):	Not Reported	Chloride Content (mg/l):	Not Reported
Date Tested:	Not Reported	Test Pump Rate (g/m):	Not Reported
Test Drawdown Rate (ft):	Not Reported	Test Chloride Content (mg/l):	Not Reported
Test Water Temp:	Not Reported	Test Unit:	Not Reported
Pump GPM:	Not Reported	Max Chloride Level:	Not Reported
Min Chloride Level:	Not Reported	Pump Installed:	Not Reported
Draft Year:	Not Reported	Hole Bottom Elevation:	Not Reported
Solid Casing Bot Elevation:	Not Reported	Perf Casing Bot Elevation:	Not Reported
Pump Capacity (MM gal/day):	Not Reported	Pump Intake Depth (ft):	Not Reported
Latest WCR1 Report:	01-JAN-70	Latest WCR2 Report:	Not Reported
Transmissivity:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

13
North
1/2 - 1 Mile
Lower

HI WELLS **HI1300000003549**

Well #:	6-5327-007	Well Name:	Central Power Plant
Original Name:	Not Reported	Aquifer Type:	Basal
Year Drilled:	1894	Driller:	Not Reported
Well Depth (ft):	14		
Land Owner:	Costco Wholesale Corp - Washington		
Pump Installer:	Not Reported	Well Construction Type:	Shaft
Casing Diameter (in):	439	Ground Elevation (ft):	20
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Abandoned-Sealed		
Initial Water Level (ft):	Not Reported	Water Level After Drilling (ft):	Not Reported
Chloride Content (mg/l):	Not Reported	Date Tested:	29-OCT-02
Test Pump Rate (g/m):	520	Test Drawdown Rate (ft):	.46
Test Chloride Content (mg/l):	Not Reported	Test Water Temp:	Not Reported
Test Unit:	Not Reported	Pump GPM:	1000
Max Chloride Level:	Not Reported	Min Chloride Level:	Not Reported
Pump Installed:	2002	Draft Year:	Not Reported
Hole Bottom Elevation:	Not Reported	Solid Casing Bot Elevation:	Not Reported
Perf Casing Bot Elevation:	Not Reported	Pump Capacity (MM gal/day):	1.44
Pump Intake Depth (ft):	10	Latest WCR1 Report:	31-JUL-12
Latest WCR2 Report:	Not Reported	Transmissivity:	138000

C14
WNW
1/2 - 1 Mile
Lower

HI WELLS **HI1300000003474**

Well #:	6-5227-002	Well Name:	Tmk 3-8-09-18
Original Name:	Not Reported	Aquifer Type:	Not Reported
Year Drilled:	Not Reported	Driller:	Not Reported
Well Depth (ft):	Not Reported	Land Owner:	Ruben Ganal
Pump Installer:	Not Reported	Well Construction Type:	Rotary
Casing Diameter (in):	4	Ground Elevation (ft):	40
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Abandoned-Lost	Initial Water Level (ft):	Not Reported
Water Level After Drilling (ft):	Not Reported	Chloride Content (mg/l):	Not Reported
Date Tested:	Not Reported	Test Pump Rate (g/m):	Not Reported
Test Drawdown Rate (ft):	Not Reported	Test Chloride Content (mg/l):	Not Reported
Test Water Temp:	Not Reported	Test Unit:	Not Reported
Pump GPM:	Not Reported	Max Chloride Level:	Not Reported
Min Chloride Level:	Not Reported	Pump Installed:	Not Reported
Draft Year:	Not Reported	Hole Bottom Elevation:	Not Reported
Solid Casing Bot Elevation:	Not Reported	Perf Casing Bot Elevation:	Not Reported
Pump Capacity (MM gal/day):	Not Reported	Pump Intake Depth (ft):	Not Reported
Latest WCR1 Report:	Not Reported	Latest WCR2 Report:	Not Reported
Transmissivity:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C15
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000269073**

Organization ID:	USGS-HI	Organization Name:	USGS Hawaii Water Science Center
Monitor Location:	6-5227-02 W20-107	Type:	Well
Description:	Not Reported	HUC:	20020000
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	Not Reported	Well Depth Units:	Not Reported
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

---

D16
WNW
1/2 - 1 Mile
Lower

HI WELLS **HI1300000003544**

Well #:	6-5327-002	Well Name:	Tmk 3-8-09-48
Original Name:	Not Reported	Aquifer Type:	Not Reported
Year Drilled:	Not Reported	Driller:	Not Reported
Well Depth (ft):	Not Reported	Land Owner:	Eugene A. Williams
Pump Installer:	Not Reported	Well Construction Type:	Rotary
Casing Diameter (in):	4	Ground Elevation (ft):	35
Solid Casing Depth (ft):	Not Reported	Perf Casing Depth (ft):	Not Reported
Major Well Use:	Irrigation (non-domestic, non-agricujlture)		
Initial Water Level (ft):	Not Reported	Water Level After Drilling (ft):	Not Reported
Chloride Content (mg/l):	Not Reported	Date Tested:	Not Reported
Test Pump Rate (g/m):	Not Reported	Test Drawdown Rate (ft):	Not Reported
Test Chloride Content (mg/l):	Not Reported	Test Water Temp:	Not Reported
Test Unit:	Not Reported	Pump GPM:	Not Reported
Max Chloride Level:	Not Reported	Min Chloride Level:	Not Reported
Pump Installed:	Not Reported	Draft Year:	Not Reported
Hole Bottom Elevation:	Not Reported	Solid Casing Bot Elevation:	Not Reported
Perf Casing Bot Elevation:	Not Reported	Pump Capacity (MM gal/day):	Not Reported
Pump Intake Depth (ft):	Not Reported	Latest WCR1 Report:	Not Reported
Latest WCR2 Report:	Not Reported	Transmissivity:	Not Reported

---

D17
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000269084**

Organization ID:	USGS-HI	Organization Name:	USGS Hawaii Water Science Center
Monitor Location:	6-5327-02 W20-109	Type:	Well
Description:	Not Reported	HUC:	20020000
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	Not Reported	Well Depth Units:	Not Reported
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for MAUI County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 96732

Number of sites tested: 17

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	-0.271 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.200 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Planning
Telephone: 808-587-2895

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Well Index Database
Source: Commission on Water Resource Management
Telephone: 808-587-0214
CWRM maintains a Well Index Database to track specific information pertaining to the construction and installation of production wells in Hawaii.

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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MEO Condominium Unit 2C
21 Hansen Rd
Kahului, HI 96732

Inquiry Number: 7336517.2s
May 15, 2023

EDR Summary Radius Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

21 HANSEN RD
KAHULUI, HI 96732

COORDINATES

Latitude (North):	20.8736870 - 20° 52' 25.27''
Longitude (West):	156.4464670 - 156° 26' 47.28''
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	765678.5
UTM Y (Meters):	2310142.2
Elevation:	62 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	TP
Source:	U.S. Geological Survey

Target Property:	W
Source:	U.S. Geological Survey

MAPPED SITES SUMMARY

Target Property Address:
21 HANSEN RD
KAHULUI, HI 96732

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	PUUNENE SUGAR MILL M	HANSEN RD	SHWS	Higher	1 ft.
2	HALEAKALA RESEARCH S		FUDS	Higher	435, 0.082, ENE
3	MAUI WELL NO. 5		SHWS	Lower	500, 0.095, North
4	HAWAIIAN COMMERCIAL	PUUNENE MILL	SHWS, US AIRS	Higher	770, 0.146, SW
5	PUUNENE SUGAR MILL C	HANSEN RD	SHWS	Higher	795, 0.151, SW
6	DAIRY ROAD SHELL	370 DAIRY RD	SHWS, LUST, UST, Financial Assurance	Lower	3180, 0.602, NNW
A7	PACIFIC MACHINERY IN	470 S HANA HWY	SHWS	Lower	3230, 0.612, NNW
A8	PACIFIC MACHINERY, I	470 S HANA HWY	SHWS	Lower	3230, 0.612, NNW
9	MAUI PINEAPPLE COMPA	HALEAKALA HWY	SHWS	Lower	3246, 0.615, NNW
10	MAUI PINEAPPLE COMPA	HALEAKALA ST	SHWS	Lower	3249, 0.615, North
11	A&B CENTRAL POWER PL	HALEAKALA HWY	SHWS	Lower	3364, 0.637, North
12	FONG CONSTRUCTION PE	HUKILIKI ST	SHWS	Lower	3387, 0.641, NW
A13	MECO SUBSTATION 2 TR	DAIRY RD & HANA HWY	SHWS	Lower	3415, 0.647, NNW
A14	MECO STATION-CLASS T	DAIRY RD SE CORNER O	SHWS, SPILLS	Lower	3426, 0.649, NNW
15	COSTCO #119 MAUI ADD	540 HALEAKALA HWY	SHWS, VCP	Lower	3709, 0.702, NNW
16	OPALA PARTNERS DIESE	221 LALO PL	SHWS	Lower	3880, 0.735, NW
17	MECO POLE-MOUNT TRAN	POLE E-9 AT AIAI ST	SHWS	Lower	3938, 0.746, WNW
18	HAWAII AIR NATIONAL	75 KULEANA ST BLDG 5	SHWS, LUST, UST, Financial Assurance	Lower	4043, 0.766, North
19	KAHULUI AIRPORT, AIR	1 KEOLANI PL	SHWS, PFAS	Lower	4274, 0.809, NNW
20	A&B DUMP SITE	W PAPA AVE	SHWS	Lower	4361, 0.826, WNW
21	ALII LINEN SERVICE (	312 ALAMAHA PL	SHWS, ENG CONTROLS, INST CONTROL	Lower	4509, 0.854, NW
22	HAWAII WOOD PRESERVI	356 HANAKAI ST	SHWS	Lower	4591, 0.870, NW
23	KAHULUI AIRPORT CONS	LANUI CIRCLE	SHWS	Lower	5258, 0.996, NNE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

SHWS: A review of the SHWS list, as provided by EDR, and dated 10/20/2022 has revealed that there are 22 SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PUUNENE SUGAR MILL M	HANSEN RD	0 - 1/8 (0.000 mi.)	1	8
HAWAIIAN COMMERCIAL	***PUUNENE MILL***	***SW 1/8 - 1/4 (0.146 mi.)***	***4***	***8***
PUUNENE SUGAR MILL C	HANSEN RD	SW 1/8 - 1/4 (0.151 mi.)	5	8

Lower Elevation	Address	Direction / Distance	Map ID	Page
MAUI WELL NO. 5		N 0 - 1/8 (0.095 mi.)	3	8
DAIRY ROAD SHELL	***370 DAIRY RD***	***NNW 1/2 - 1 (0.602 mi.)***	***6***	***8***
PACIFIC MACHINERY IN	470 S HANA HWY	NNW 1/2 - 1 (0.612 mi.)	A7	9
PACIFIC MACHINERY, I	470 S HANA HWY	NNW 1/2 - 1 (0.612 mi.)	A8	9
MAUI PINEAPPLE COMPA	HALEAKALA HWY	NNW 1/2 - 1 (0.615 mi.)	9	9
MAUI PINEAPPLE COMPA	HALEAKALA ST	N 1/2 - 1 (0.615 mi.)	10	9
A&B CENTRAL POWER PL	HALEAKALA HWY	N 1/2 - 1 (0.637 mi.)	11	10
FONG CONSTRUCTION PE	HUKILIKI ST	NW 1/2 - 1 (0.641 mi.)	12	10
MECO SUBSTATION 2 TR	DAIRY RD & HANA HWY	NNW 1/2 - 1 (0.647 mi.)	A13	10
MECO STATION-CLASS T	***DAIRY RD SE CORNER O***	***NNW 1/2 - 1 (0.649 mi.)***	***A14***	***10***
COSTCO #119 MAUI ADD	***540 HALEAKALA HWY***	***NNW 1/2 - 1 (0.702 mi.)***	***15***	***10***
OPALA PARTNERS DIESE	221 LALO PL	NW 1/2 - 1 (0.735 mi.)	16	10
MECO POLE-MOUNT TRAN	POLE E-9 AT AIAI ST	WNW 1/2 - 1 (0.746 mi.)	17	11
HAWAII AIR NATIONAL	***75 KULEANA ST BLDG 5***	***N 1/2 - 1 (0.766 mi.)***	***18***	***11***
KAHULUI AIRPORT, AIR	***1 KEOLANI PL***	***NNW 1/2 - 1 (0.809 mi.)***	***19***	***11***
A&B DUMP SITE	W PAPA AVE	WNW 1/2 - 1 (0.826 mi.)	20	11
ALII LINEN SERVICE (	***312 ALAMAHA PL***	***NW 1/2 - 1 (0.854 mi.)***	***21***	***12***
HAWAII WOOD PRESERVI	356 HANAKAI ST	NW 1/2 - 1 (0.870 mi.)	22	12
KAHULUI AIRPORT CONS	LANUI CIRCLE	NNE 1/2 - 1 (0.996 mi.)	23	12

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

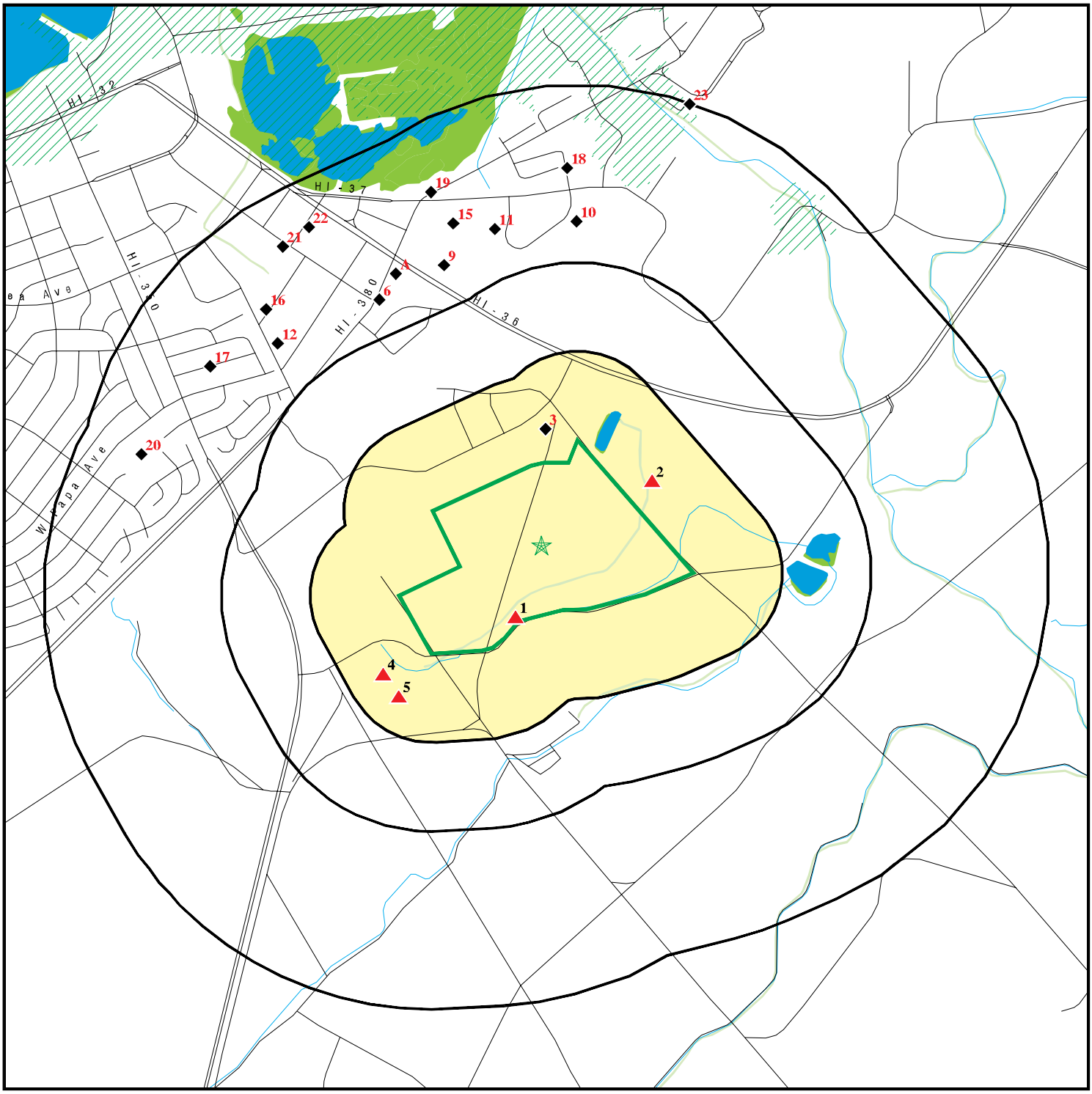
FUDS: A review of the FUDS list, as provided by EDR, and dated 02/01/2023 has revealed that there is 1 FUDS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HALEAKALA RESEARCH S		ENE 0 - 1/8 (0.082 mi.)	2	8

Count: 0 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

OVERVIEW MAP - 7336517.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: MEO Condominium Unit 2C	CLIENT: MEV, LLC
ADDRESS: 21 Hansen Rd	CONTACT: Jeffrey King
Kahului HI 96732	INQUIRY #: 7336517.2s
LAT/LONG: 20.873687 / 156.446467	DATE: May 15, 2023 12:27 pm

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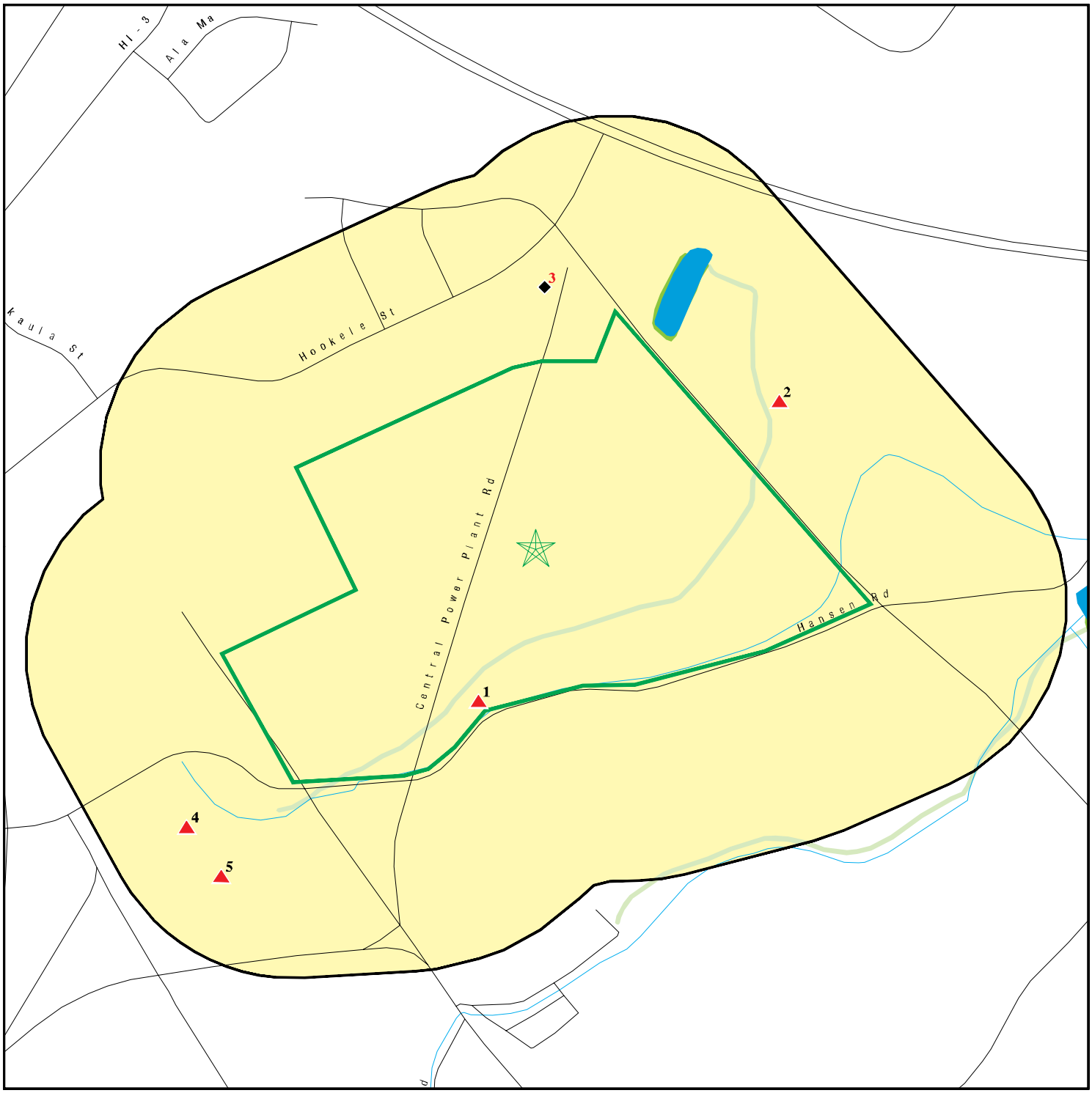
DETAIL MAP - 7336517.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: MEO Condominium Unit 2C ADDRESS: 21 Hansen Rd Kahului HI 96732 LAT/LONG: 20.873687 / 156.446467	CLIENT: MEV, LLC CONTACT: Jeffrey King INQUIRY #: 7336517.2s DATE: May 15, 2023 12:28 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal hazardous waste facilities								
SHWS	1.000		2	2	0	18	NR	22
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		0	0	0	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
SPILLS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		1	0	0	0	NR	1
DOD	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0
PFAS TSCA	0.250		0	0	NR	NR	NR	0
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AIRS	0.001		0	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
LEAD	0.001		0	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MINES MRDS	0.001		0	NR	NR	NR	NR	0
PFAS TRIS	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	0.001		0	NR	NR	NR	NR	0
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	3	2	0	18	0	23

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
< 1/8
1 ft.

Relative:
Higher

PUUNENE SUGAR MILL MUD STORAGE AREA
HANSEN RD
PUUNENE, HI 96784

Click here for full text details

SHWS **S128195979**
N/A

2
ENE
< 1/8
0.082 mi.
435 ft.

Relative:
Higher

HALEAKALA RESEARCH SITE
HALEAKALA, HI

Click here for full text details

FUDS **1024901949**
N/A

3
North
< 1/8
0.095 mi.
500 ft.

Relative:
Lower

MAUI WELL NO. 5
KAHULUI, HI 96732

Click here for full text details

SHWS **S108859921**
N/A

4
SW
1/8-1/4
0.146 mi.
770 ft.

Relative:
Higher

HAWAIIAN COMMERCIAL & SUGAR CO
PUUNENE MILL
PUUNENE, HI 96784

Click here for full text details

US AIRS
EPA plant ID: 110001093165

SHWS **1000146689**
US AIRS **N/A**

5
SW
1/8-1/4
0.151 mi.
795 ft.

Relative:
Higher

PUUNENE SUGAR MILL CANE HAULER SHOP
HANSEN RD
PUUNENE, HI 96784

Click here for full text details

SHWS **S126283135**
N/A

6
NNW
1/2-1
0.602 mi.
3180 ft.

Relative:
Lower

DAIRY ROAD SHELL
370 DAIRY RD
KAHULUI, HI 96732

Click here for full text details

LUST
Facility Status Site Assessment Ongoing
Facility Status Site Cleanup Completed (NFA)

SHWS **U003222218**
LUST **N/A**
UST
Financial Assurance

DAIRY ROAD SHELL (Continued) **U003222218**

Release ID 160011
Release ID 950110
Facility Id 9-501300

UST
Tank Status Permanently out of Use
Date Closed 12/14/2020
Facility Id 9-501300

Financial Assurance
Alt Facility ID 9-501300
Tank Status Permanently out of Use

A7 **PACIFIC MACHINERY INC MAUI** **SHWS** **S121406209**
NNW **470 S HANA HWY** **N/A**
1/2-1 **KAHULUI, HI 96732**
0.612 mi.
3230 ft.

Relative: Lower

Click here for full text details

A8 **PACIFIC MACHINERY, INC MAUI** **SHWS** **S121406210**
NNW **470 S HANA HWY** **N/A**
1/2-1 **KAHULUI, HI 96732**
0.612 mi.
3230 ft.

Relative: Lower

Click here for full text details

---

9 **MAUI PINEAPPLE COMPANY AGRICULTURAL DEEP SOIL DUMP** **SHWS** **S128196102**
NNW **HALEAKALA HWY** **N/A**
1/2-1 **KAHULUI, HI 96732**
0.615 mi.
3246 ft.

Relative: Lower

Click here for full text details

---

10 **MAUI PINEAPPLE COMPANY SUSPECTED FORMER AGRICULTUR** **SHWS** **S126282949**
North **HALEAKALA ST** **N/A**
1/2-1 **KAHULUI, HI 96732**
0.615 mi.
3249 ft.

Relative: Lower

Click here for full text details

11
North
1/2-1
0.637 mi.
3364 ft.

Relative:
Lower

A&B CENTRAL POWER PLANT ELECTRICAL SUBSTATION AND
HALEAKALA HWY
KAHULUI, HI 96732

Click here for full text details

SHWS

S126282151
N/A

12
NW
1/2-1
0.641 mi.
3387 ft.

Relative:
Lower

FONG CONSTRUCTION PETROLEUM HYDROCARBON CONTAMINAT
HUKILIKI ST
KAHULUI, HI 96732

Click here for full text details

SHWS

S126282415
N/A

A13
NNW
1/2-1
0.647 mi.
3415 ft.

Relative:
Lower

MECO SUBSTATION 2 TRANSFORMER NO. 13702
DAIRY RD & HANA HWY
KAHULUI, HI 96732

Click here for full text details

SHWS

S126282977
N/A

A14
NNW
1/2-1
0.649 mi.
3426 ft.

Relative:
Lower

MECO STATION-CLASS TRANSFORMER NO. 6369
DAIRY RD SE CORNER OF HANA HWY INTERSECTION
KAHULUI, HI 96732

Click here for full text details

SHWS
SPILLS

S113230501
N/A

15
NNW
1/2-1
0.702 mi.
3709 ft.

Relative:
Lower

COSTCO #119 MAUI ADDITION LOT 21A
540 HALEAKALA HWY
KAHULUI, HI 96732

Click here for full text details

SHWS
VCP

S111704705
N/A

16
NW
1/2-1
0.735 mi.
3880 ft.

Relative:
Lower

OPALA PARTNERS DIESEL RELEASE
221 LALO PL
KAHULUI, HI 96732

Click here for full text details

SHWS

S106818999
N/A

17
WNW
1/2-1
0.746 mi.
3938 ft.

Relative:
Lower

MECO POLE-MOUNT TRANSFORMER NO. 6748
POLE E-9 AT AIAI ST
KAHULUI, HI 96732

SHWS **S121406197**
N/A

Click here for full text details

18
North
1/2-1
0.766 mi.
4043 ft.

Relative:
Lower

HAWAII AIR NATIONAL GUARD - 292 CBCS (PMID OGG0061
75 KULEANA ST BLDG 502 TANK 502-1 502-2 502-3
KAHULUI, HI 96732

SHWS **U003222266**
LUST **N/A**
UST
Financial Assurance

Click here for full text details

LUST
Facility Status Site Cleanup Completed (NFA)
Release ID 980058
Release ID 980057
Release ID 980054
Facility Id 9-502879

UST
Tank Status Permanently Out of Use
Date Closed 01/11/1996
Facility Id 9-502879

Financial Assurance
Alt Facility ID 9-502879
Tank Status Permanently Out of Use

19
NNW
1/2-1
0.809 mi.
4274 ft.

Relative:
Lower

KAHULUI AIRPORT, AIRCRAFT RESCUE AND FIREFIGHTING
1 KEOLANI PL
KAHULUI, HI 96732

SHWS **S126282750**
PFAS **N/A**

Click here for full text details

20
WNW
1/2-1
0.826 mi.
4361 ft.

Relative:
Lower

A&B DUMP SITE
W PAPA AVE
KAHULUI, HI 96732

SHWS **1006820345**
N/A

Click here for full text details

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
21 **NW** **1/2-1** **0.854 mi.** **4509 ft.** **Relative:** **Lower**	**ALII LINEN SERVICE (FKA SNOW WHITE LINEN)** **312 ALAMAHA PL** **KAHULUI, HI 96732** **Click here for full text details**	**SHWS** **ENG CONTROLS** **INST CONTROL**	**S106816121** **N/A**
22 **NW** **1/2-1** **0.870 mi.** **4591 ft.** **Relative:** **Lower**	**HAWAII WOOD PRESERVING CO. (OSMOSE)** **356 HANAKAI ST** **KAHULUI, HI 96732** **Click here for full text details**	**SHWS**	**1000146664** **N/A**
23 **NNE** **1/2-1** **0.996 mi.** **5258 ft.** **Relative:** **Lower**	**KAHULUI AIRPORT CONSOLIDATED CAR RENTAL (CONRAC) F** **LANUI CIRCLE** **KAHULUI, HI 96732** **Click here for full text details**	**SHWS**	**S126282749** **N/A**

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
HI	AIRS	List of Permitted Facilities	Department of Health	06/28/2022	06/30/2022	09/14/2022
HI	BROWNFIELDS	Brownfields Sites	Department of Health	10/20/2022	12/02/2022	02/22/2023
HI	CDL	Clandestine Drug Lab Listing	Department of Health	08/04/2010	09/10/2010	10/22/2010
HI	DRYCLEANERS	Permitted Drycleaner Facility Listing	Department of Health	01/23/2023	02/23/2023	05/12/2023
HI	ENG CONTROLS	Engineering Control Sites	Department of Health	04/17/2019	05/21/2019	05/30/2019
HI	Financial Assurance	Financial Assurance Information Listing	Department of Health	12/02/2022	12/07/2022	02/28/2023
HI	INST CONTROL	Sites with Institutional Controls	Department of Health	04/17/2019	05/21/2019	05/30/2019
HI	LEAD	Lead Inspection Listing	Department of Health	12/06/2022	12/07/2022	03/01/2023
HI	LUST	Leaking Underground Storage Tank Database	Department of Health	11/21/2022	11/22/2022	02/07/2023
HI	PFAS	PFAS Contamination Site Listing	Department of Health	02/25/2022	02/28/2022	03/10/2022
HI	RGA HWS	Recovered Government Archive State Hazardous Waste Facilitie	Department of Health		07/01/2013	01/08/2014
HI	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Health		07/01/2013	01/17/2014
HI	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	Department of Health		07/01/2013	01/03/2014
HI	SHWS	Sites List	Department of Health	10/20/2022	12/02/2022	02/22/2023
HI	SPILLS	Release Notifications	Department of Health	11/16/2022	11/16/2022	02/07/2023
HI	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	03/10/2012	01/03/2013	02/11/2013
HI	SWF/LF	Permitted Landfills in the State of Hawaii	Department of Health	09/14/2022	09/28/2022	10/12/2022
HI	SWRCY	SWRCY	Department of Health	09/14/2022	09/28/2022	10/05/2022
HI	UIC	Underground Injection Wells Listing	Department of Health	02/07/2013	02/12/2013	04/09/2013
HI	UST	Underground Storage Tank Database	Department of Health	11/21/2022	11/22/2022	02/07/2023
HI	VCP	Voluntary Response Program Sites	Department of Health	10/20/2022	12/02/2022	02/22/2023
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	ABANDONED MINES	Abandoned Mines	Department of Interior	12/20/2022	12/20/2022	03/10/2023
US	AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing	Environmental Protection Agency	04/27/2023	04/27/2023	05/02/2023
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2021	03/09/2023	03/20/2023
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2020	11/30/2021	02/22/2022
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	01/12/2017	03/05/2019	11/11/2019
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	12/31/2022	01/12/2023	04/07/2023
US	CORRACTS	Corrective Action Report	EPA	03/06/2023	03/09/2023	03/20/2023
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/06/2021	05/21/2021	08/11/2021
US	DOD	Department of Defense Sites	USGS	06/07/2021	07/13/2021	03/09/2022
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	01/02/2020	01/28/2020	04/17/2020
US	Delisted NPL	National Priority List Deletions	EPA	01/25/2023	02/02/2023	02/28/2023
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	01/01/2023	01/04/2023	04/03/2023
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	12/12/2022	12/14/2022	12/19/2022
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	12/20/2022	12/21/2022	03/10/2023
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	04/02/2018	04/11/2018	11/06/2019
US	FEMA UST	Underground Storage Tank Listing	FEMA	10/14/2021	11/05/2021	02/01/2022
US	FINDS	Facility Index System/Facility Registry System	EPA	02/02/2023	02/28/2023	03/24/2023
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	02/01/2023	02/14/2023	05/02/2023

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	02/13/2023	02/14/2023	04/19/2023
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	07/26/2021	07/27/2021	10/22/2021
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	12/13/2022	12/14/2022	03/10/2023
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	10/19/2022	12/06/2022	03/03/2023
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	11/23/2022	12/06/2022	04/19/2023
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	11/26/2022	12/06/2022	03/03/2023
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	10/14/2022	12/06/2022	03/03/2023
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	11/23/2022	12/06/2022	03/03/2023
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	10/14/2022	12/06/2022	03/03/2023
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	11/23/2022	12/06/2022	03/03/2023
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	11/23/2022	12/06/2022	03/03/2023
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	10/19/2022	12/06/2022	03/03/2023
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	11/23/2022	12/06/2022	04/19/2023
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	11/23/2022	12/06/2022	03/03/2023
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	10/14/2022	12/06/2022	03/03/2023
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	11/23/2022	12/06/2022	03/03/2023
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	10/14/2022	12/06/2022	03/03/2023
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	11/23/2022	12/06/2022	03/03/2023
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	11/23/2022	12/06/2022	03/03/2023
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	01/25/2023	02/02/2023	02/28/2023
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	01/25/2023	02/02/2023	02/28/2023
US	LUCIS	Land Use Control Information System	Department of the Navy	02/08/2023	02/09/2023	05/02/2023
US	MINES MRDS	Mineral Resources Data System	USGS	08/23/2022	11/22/2022	02/28/2023
US	MINES VIOLATIONS	MSHA Violation Assessment Data	DOL, Mine Safety & Health Admi	02/27/2023	03/01/2023	03/24/2023
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	10/26/2022	11/22/2022	12/05/2022
US	NPL	National Priority List	EPA	01/25/2023	02/03/2023	02/28/2023
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	PADS	PCB Activity Database System	EPA	11/03/2022	01/04/2023	04/03/2023
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	09/13/2019	11/06/2019	02/10/2020
US	PCS	Permit Compliance System	EPA, Office of Water	07/14/2011	08/05/2011	09/29/2011
US	PCS ENF	Enforcement data	EPA	12/31/2014	02/05/2015	03/06/2015
US	PFAS ATSDR	PFAS Contamination Site Location Listing	Department of Health & Human Services	06/24/2020	03/17/2021	11/08/2022
US	PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing	Environmental Protection Agency	03/30/2023	03/30/2023	04/03/2023
US	PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing	Environmental Protection Agency	03/30/2023	03/30/2023	04/03/2023
US	PFAS FEDERAL SITES	Federal Sites PFAS Information	Environmental Protection Agency	03/30/2023	03/30/2023	04/07/2023
US	PFAS NPDES	Clean Water Act Discharge Monitoring Information	Environmental Protection Agency	03/30/2023	03/30/2023	04/07/2023
US	PFAS NPL	Superfund Sites with PFAS Detections Information	Environmental Protection Agency	02/23/2022	07/08/2022	11/08/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing	Environmental Protection Agency	03/30/2023	03/30/2023	04/03/2023
US	PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing	Environmental Protection Agency	03/30/2023	03/30/2023	05/02/2023
US	PFAS TRIS	List of PFAS Added to the TRI	Environmental Protection Agency	03/07/2023	03/07/2023	03/24/2023
US	PFAS TSCA	PFAS Manufacture and Imports Information	Environmental Protection Agency	01/03/2022	03/31/2022	11/08/2022
US	PFAS WQP	Ambient Environmental Sampling for PFAS	Environmental Protection Agency	03/30/2023	03/30/2023	05/02/2023
US	PRP	Potentially Responsible Parties	EPA	10/27/2022	11/01/2022	11/15/2022
US	Proposed NPL	Proposed National Priority List Sites	EPA	01/25/2023	02/02/2023	02/28/2023
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/01/2019	07/01/2019	09/23/2019
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
US	RCRA-VSQG	RCRA - Very Small Quantity Generators (Formerly Conditionall	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
US	RMP	Risk Management Plans	Environmental Protection Agency	04/27/2022	05/04/2022	05/10/2022
US	ROD	Records Of Decision	EPA	01/25/2023	02/02/2023	02/28/2023
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	07/30/2021	02/03/2023	02/10/2023
US	SEMS	Superfund Enterprise Management System	EPA	01/25/2023	02/02/2023	02/28/2023
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	01/25/2023	02/02/2023	02/28/2023
US	SSTS	Section 7 Tracking Systems	EPA	01/17/2023	01/18/2023	04/19/2023
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2021	02/16/2023	05/02/2023
US	TSCA	Toxic Substances Control Act	EPA	12/31/2020	06/14/2022	03/24/2023
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	08/30/2019	11/15/2019	01/28/2020
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	04/06/2023	04/13/2023	04/19/2023
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	01/06/2023	02/02/2023	02/10/2023
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	02/20/2023	02/21/2023	05/02/2023
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	12/13/2022	12/14/2022	03/10/2023
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	01/06/2023	02/02/2023	02/10/2023
US	US INST CONTROLS	Institutional Controls Sites List	Environmental Protection Agency	02/20/2023	02/21/2023	05/02/2023
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	11/07/2022	11/17/2022	02/10/2023
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	05/06/2020	05/27/2020	08/13/2020
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	UXO	Unexploded Ordnance Sites	Department of Defense	11/09/2021	10/20/2022	01/10/2023

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	AHA Hospitals	Sensitive Receptor: AHA Hospitals	American Hospital Association, Inc.			
US	Medical Centers	Sensitive Receptor: Medical Centers	Centers for Medicare & Medicaid Services			
US	Nursing Homes	Sensitive Receptor: Nursing Homes	National Institutes of Health			
US	Public Schools	Sensitive Receptor: Public Schools	National Center for Education Statistics			
US	Private Schools	Sensitive Receptor: Private Schools	National Center for Education Statistics			
US	Flood Zones	100-year and 500-year flood zones	Emergency Management Agency (FEMA)			
US	NWI	National Wetlands Inventory	U.S. Fish and Wildlife Service			
HI	State Wetlands	Wetlands Inventory	Office of Planning			
US	Topographic Map		U.S. Geological Survey			
US	Oil/Gas Pipelines		Endeavor Business Media			
US	Electric Power Transmission Line Data		Endeavor Business Media			

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

MEO CONDOMINIUM UNIT 2C
21 HANSEN RD
KAHULUI, HI 96732

TARGET PROPERTY COORDINATES

Latitude (North):	20.873687 - 20° 52' 25.27''
Longitude (West):	156.446467 - 156° 26' 47.28''
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	765678.5
UTM Y (Meters):	2310142.2
Elevation:	62 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	9757761 PAIA, HI
Version Date:	2017
West Map:	9372279 WAILUKU, HI
Version Date:	2017

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

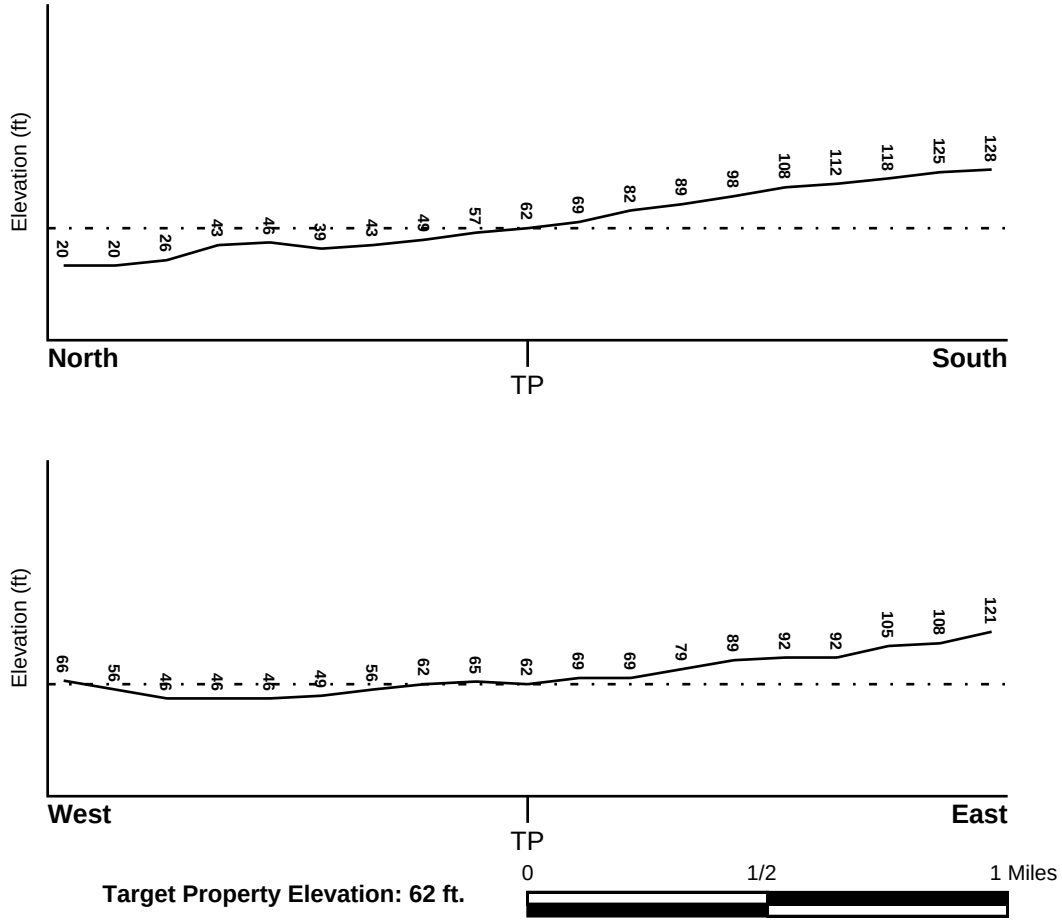
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 62 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
1500030411E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
1500030392E	FEMA FIRM Flood data
1500030394F	FEMA FIRM Flood data
1500030413E	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

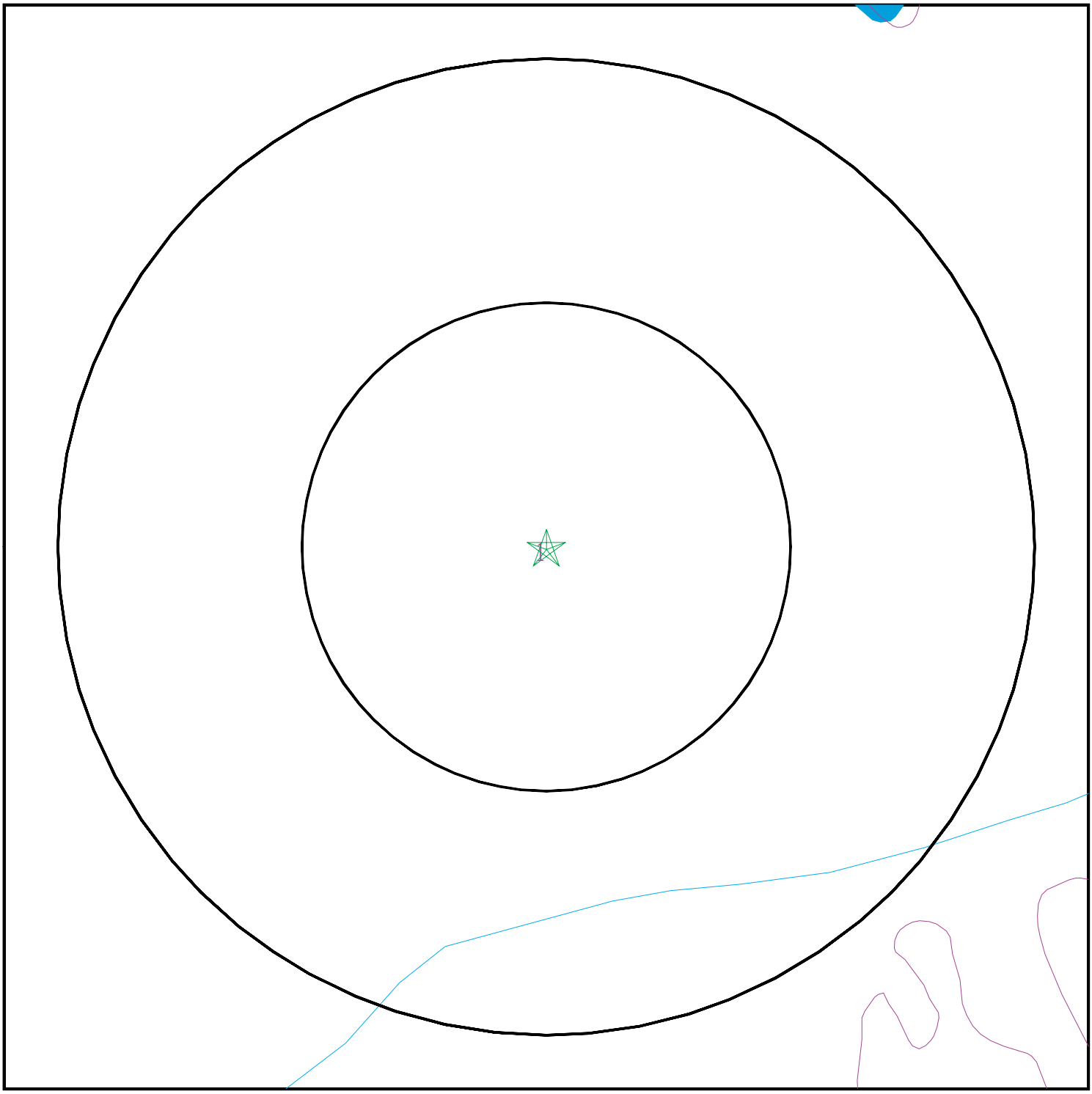
Era:	-
System:	-
Series:	-
Code:	N/A *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7336517.2s



SITE NAME:	MEO Condominium Unit 2C	CLIENT:	MEV, LLC
ADDRESS:	21 Hansen Rd Kahului HI 96732	CONTACT:	Jeffrey King
		INQUIRY #:	7336517.2s
LAT/LONG:	20.873687 / 156.446467	DATE:	May 15, 2023 12:29 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Ewa

Soil Surface Texture: silty clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	ML-K (proposed)	Max: 14 Min: 4.23	Max: 7.8 Min: 6.6
2	18 inches	59 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	ML-K (proposed)	Max: 14 Min: 4.23	Max: 7.8 Min: 6.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A3	USGS40000269057	1/2 - 1 Mile SSW
5	USGS40000269130	1/2 - 1 Mile NNE
B9	USGS40000269088	1/2 - 1 Mile WNW
B11	USGS40000269083	1/2 - 1 Mile WNW
C15	USGS40000269073	1/2 - 1 Mile WNW
D17	USGS40000269084	1/2 - 1 Mile WNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	HI1300000003471	1/4 - 1/2 Mile North
2	HI1300000003477	1/2 - 1 Mile SW
A4	HI1300000003476	1/2 - 1 Mile SW
6	HI1300000003480	1/2 - 1 Mile WNW
7	HI1300000003548	1/2 - 1 Mile NNW
B8	HI1300000003545	1/2 - 1 Mile WNW
B10	HI1300000003550	1/2 - 1 Mile WNW
B12	HI1300000003553	1/2 - 1 Mile WNW
13	HI1300000003549	1/2 - 1 Mile North
C14	HI1300000003474	1/2 - 1 Mile WNW
D16	HI1300000003544	1/2 - 1 Mile WNW

PHYSICAL SETTING SOURCE MAP - 7336517.2s

0 1/4 1/2 1 Miles

County Boundary
Major Roads
Contour Lines
Airports
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location

N

SITE NAME:	MEO Condominium Unit 2C	CLIENT:	MEV, LLC
ADDRESS:	21 Hansen Rd Kahului HI 96732	CONTACT:	Jeffrey King
		INQUIRY #:	7336517.2s
LAT/LONG:	20.873687 / 156.446467	DATE:	May 15, 2023 12:29 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
1 **North** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**HI WELLS**	**HI1300000003471**
2 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**HI WELLS**	**HI1300000003477**
A3 **SSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000269057**
A4 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**HI WELLS**	**HI1300000003476**
5 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000269130**
6 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**HI WELLS**	**HI1300000003480**
7 **NNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**HI WELLS**	**HI1300000003548**
B8 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**HI WELLS**	**HI1300000003545**
B9 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000269088**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
B10 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**HI WELLS**	**HI1300000003550**
B11 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000269083**
B12 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**HI WELLS**	**HI1300000003553**
13 **North** **1/2 - 1 Mile** **Lower**	Click here for full text details	**HI WELLS**	**HI1300000003549**
C14 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**HI WELLS**	**HI1300000003474**
C15 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000269073**
D16 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**HI WELLS**	**HI1300000003544**
D17 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000269084**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for MAUI County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 96732

Number of sites tested: 17

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	-0.271 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.200 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Planning
Telephone: 808-587-2895

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Well Index Database
Source: Commission on Water Resource Management
Telephone: 808-587-0214
CWRM maintains a Well Index Database to track specific information pertaining to the construction and installation of production wells in Hawaii.

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Appendix E:

Regulatory File Review

Overview

Legend

- Parcels (2023)
- Roads

Parcel ID	380060040000	**Situs/Physical Address**	21 HANSEN RD
Acreage	237.059	**Mailing Address**	MAUI ECONOMIC OPPORTUNITY
Class	AGRICULTURAL		CONDO- MASTER

Assd Land Value	$23,700
Assd Building Value	$0
Total Assd Value	$23,700
Exempt Value	$0
Taxable Value	$23,700

Last 2 Sales Date	**Price**	**Reason**	**Qual**
12/23/2021	0	n/a	U
6/7/2014	0	n/a	U

Brief Tax Description n/a

(Note: Not to be used on legal documents)

Date created: 5/14/2023
Last Data Uploaded: 5/14/2023 7:33:57 AM

Developed by Schneider GEOSPATIAL

May 17, 2023

Hawaii State Department of Health
2827 Waimano Home Road #130
Pearl City, Hawaii 96782
Attn: Clean Air Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project #:	T23-011
TMK, Name, Address, and Current Owner:	**TMK: (2) 3-8-006:004 (Central & Eastern Portion, appr. 166 acres)** NAME: MEO Condominium Unit 2C ADDRESS: 21 Hansen Road, Kahului, HI 96732 CURRENT OWNER: Maui Economic Opportunity Condo-Master

Please email any information to:

Jeff King – Malama Environmental
Email: mev.llc.jeff@gmail.com
Phone: (808) 344-2871

Thank you for your assistance.

Sincerely yours,

Jeffrey R. King, CPG – Malama Environmental

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: 5/17/2023

TO: Clean Air Branch, Hawaii State Department of Health

FROM: Jeffrey R. King, Malama Environmental

Name or Alias Phone: (808) 344-2871

Contact Information Email: mev.llc.jeff@gmail.com

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject matter, date, location, purpose, or names of persons to whom the record refers, or other information that could help the agency identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site described below:

TMK: (2) 3-8-006:004 (Portion) ADDRESS: 21 Hansen Rd., Kahului, HI 96732

*PLEASE SEE THE ATTACHED COVER LETTER AND TMK MAP.

I WOULD LIKE: (please check one or more of the options below)

☐ **To inspect the government record.**

☒ **A copy of the government record:** **(**Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.

- ☐ Pick up at agency (**date and time**): _____
- ☐ Mail
- ☐ Fax (toll free and only if available)
- ☒ Other, if available (please specify): Email: mev.llc.jeff@gmail.com

☐ If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.

☒ Electronic ☐ Audio ☐ Other (please specify):_____

☐ Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

SEE BACK FOR IMPORTANT INFORMATION

FEES FOR PROCESSING RECORD REQUESTS

You may be charged fees for the services that the agency must perform when processing your record request, including fees for making photocopies and other lawful fees. **The first $30 of fees charged for searching for a record, reviewing, and segregating will not be charged to you. Any amount over $30 will be charged to you.** Fees are as follows:

Search for a Record	$2.50 for 15 minutes
Review and Segregation of a Record	$5.00 for 15 minutes

WAIVER OF FEES IN THE PUBLIC INTEREST

Up to $60 of fees for searching for, segregating and reviewing records may be waived when the waiver would serve the public interest as described in section 2-71-32, Hawaii Administrative Rules. If you wish to apply for a waiver of fees in the public interest, you must attach to this request a statement of facts, including your identity as the requester, to show how the waiver of fees would serve the public interest. The criteria for this waiver, found at section 2-71-32, Hawaii Administrative Rules, are:

(1) The requested record pertains to the operations or activities of an agency;
(2) The record is not readily available in the public domain; and
(3) The requester has the primary intention and the actual ability to widely disseminate information from the government record to the public at large.

AGENCY RESPONSE TO YOUR REQUEST FOR ACCESS

The agency to which you addressed your request must respond within a set time period. The agency will normally respond to you within 10 business days from the date it receives your request; however, in ***extenuating circumstances*** the agency must respond within 20 business days from the date of your request. If you have questions about the response time, you may contact the agency's UIPA contact person. If you are not satisfied with the agency's response, you may call the Office of Information Practices at 808-586-1400.

REQUESTER'S RESPONSIBILITIES

You have certain responsibilities under §2-71-16, Hawaii Administrative Rules. You may obtain a copy of these rules from the Lieutenant Governor's Office or from the Office of Information Practices. These responsibilities include making arrangements to inspect and copy records, providing further clarification or description of the requested record as instructed by the agency's notice, and making a prepayment of fees, if assessed.

May 17, 2023

Hawaii State Department of Health
Hale Ola, Room 225
2827 Waimano Home Road
Pearl City, Hawaii 96782
Attn: Clean Water Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project #:	T23-011
TMK, Name, Address, and Current Owner:	**TMK: (2) 3-8-006:004 (Central & Eastern Portion, appr. 166 acres)** NAME: MEO Condominium Unit 2C ADDRESS: 21 Hansen Road, Kahului, HI 96732 CURRENT OWNER: Maui Economic Opportunity Condo-Master

Please email any information to:

Jeff King – Malama Environmental
Email: mev.llc.jeff@gmail.com
Phone: (808) 344-2871

Thank you for your assistance.

Sincerely yours,

Jeffrey R. King, CPG – Malama Environmental

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: 5/17/2023

TO: Clean Water Branch, Environmental Management Division, Hawaii DOH

FROM: Jeff King, Malama Environmental

Name or Alias Phone: (808) 344-2871

Contact Information Email: mev.llc.jeff@gmail.com

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject matter, date, location, purpose, or names of persons to whom the record refers, or other information that could help the agency identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site described below:

TMK: (2) 3-8-006:004 (Portion) ADDRESS: 21 Hansen Rd., Kahului, HI 96732

*PLEASE SEE THE ATTACHED COVER LETTER AND TMK MAP.

I WOULD LIKE: (please check one or more of the options below)

☐ **To inspect the government record.**

☒ **A copy of the government record:** **(**Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.

- ☐ Pick up at agency (**date and time**): _____
- ☐ Mail
- ☐ Fax (toll free and only if available)
- ☒ Other, if available (please specify): Email: mev.llc.jeff@gmail.com

☐ If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.

☒ Electronic ☐ Audio ☐ Other (please specify):_____

☐ Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

SEE BACK FOR IMPORTANT INFORMATION

FEES FOR PROCESSING RECORD REQUESTS

You may be charged fees for the services that the agency must perform when processing your record request, including fees for making photocopies and other lawful fees. **The first $30 of fees charged for searching for a record, reviewing, and segregating will not be charged to you. Any amount over $30 will be charged to you.** Fees are as follows:

Search for a Record	$2.50 for 15 minutes
Review and Segregation of a Record	$5.00 for 15 minutes

WAIVER OF FEES IN THE PUBLIC INTEREST

Up to $60 of fees for searching for, segregating and reviewing records may be waived when the waiver would serve the public interest as described in section 2-71-32, Hawaii Administrative Rules. If you wish to apply for a waiver of fees in the public interest, you must attach to this request a statement of facts, including your identity as the requester, to show how the waiver of fees would serve the public interest. The criteria for this waiver, found at section 2-71-32, Hawaii Administrative Rules, are:

(1) The requested record pertains to the operations or activities of an agency;
(2) The record is not readily available in the public domain; and
(3) The requester has the primary intention and the actual ability to widely disseminate information from the government record to the public at large.

AGENCY RESPONSE TO YOUR REQUEST FOR ACCESS

The agency to which you addressed your request must respond within a set time period. The agency will normally respond to you within 10 business days from the date it receives your request; however, in ***extenuating circumstances*** the agency must respond within 20 business days from the date of your request. If you have questions about the response time, you may contact the agency's UIPA contact person. If you are not satisfied with the agency's response, you may call the Office of Information Practices at 808-586-1400.

REQUESTER'S RESPONSIBILITIES

You have certain responsibilities under §2-71-16, Hawaii Administrative Rules. You may obtain a copy of these rules from the Lieutenant Governor's Office or from the Office of Information Practices. These responsibilities include making arrangements to inspect and copy records, providing further clarification or description of the requested record as instructed by the agency's notice, and making a prepayment of fees, if assessed.

State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

WELL INFORMATION RELEASE REQUEST

Instructions: Please print in ink or type and send completed form with attachments to the Commission on Water Resource Management, via mail to P.O. Box 621, Honolulu, Hawaii 96809, via facsimile to (808) 587-0219, or via e-mail to dlnr.cwrm@hawaii.gov. For further information and updates to this application form, visit http://www.hawaii.gov/dlnr/cwrm.

For Official Use Only:

Well Info Request No.:

Please fill out this form to request a release of well information in the form of maps, database information, and/or file documents. Upon submission, Commission staff shall review the request, prior to delivery of the requested information. Copying charges may apply and must be paid prior to copies being made.

Name: Jeff King - Malama Environmental

Mailing Address, Phone Number, and E-mail:

Phone: (808) 344-2871
Email: mev.llc.jeff@gmail.com

Company Name: (If obtaining information for a business.) Malama Environmental

Company Phone Number, Fax, and Email: See above.

Location of Interest: (Please attach map if possible.)

MEO Condominium Unit 2C, 21 Hansen Rd., Kahului, HI 96732

Island: Maui

Tax Map Key(s): (2) 3-8-006:004 (Central & Eastern Portion)

Specific Information Desired:

Information about the location and use of wells on the subject property and in a 1-mile radius of the subject property.

For Official Use Only:

Information provided:

Staff providing information:

Date provided:

Total Copy Charges: (See attached, "Record of Copied Materials" form.) **$**

May 17, 2023

Maui County Fire Department
200 Dairy Road
Kahului, Hawaii 96732
Attn: Acting Officer

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

Malama Environmental is requesting any past or present information of environmental concern pertaining to the subject site(s) and adjacent sites from the Maui County Fire Department's database. This could include information on environmental releases (spills), permits, citations, inspections, fires, etc.

SITE INFORMATION:

MEV Project #:	T23-011
TMK, Name, Address, and Current Owner:	**TMK: (2) 3-8-006:004 (Central & Eastern Portion, appr. 166 acres)** NAME: MEO Condominium Unit 2C ADDRESS: 21 Hansen Road, Kahului, HI 96732 CURRENT OWNER: Maui Economic Opportunity Condo-Master

Please email any information to:

Jeff King – Malama Environmental
Email: mev.llc.jeff@gmail.com
Phone: (808) 344-2871

Thank you for your assistance.

Sincerely yours,

Jeffrey R. King, CPG – Malama Environmental

May 17, 2023

Hawaii State Department of Health
2385 Waimano Home Rd. #100
Pearl City, Hawaii 96782
Attn: HEER Office

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project #:	T23-011
TMK, Name, Address, and Current Owner:	**TMK: (2) 3-8-006:004 (Central & Eastern Portion, appr. 166 acres)** NAME: MEO Condominium Unit 2C ADDRESS: 21 Hansen Road, Kahului, HI 96732 CURRENT OWNER: Maui Economic Opportunity Condo-Master

Please email any information to:

Jeff King – Malama Environmental
Email: mev.llc.jeff@gmail.com
Phone: (808) 344-2871

Thank you for your assistance.

Sincerely yours,

Jeffrey R. King, CPG – Malama Environmental

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: 5/17/2023

TO: Hazard Evaluation and Emergency Response Office, (Fax No. 586-7537)

FROM: Jeff King, Malama Environmental

Name or Alias Phone: (808) 344-2871

Contact Information Email: mev.llc.jeff@gmail.com

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject matter, date, location, purpose, or names of persons to whom the record refers, or other information that could help the agency identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site described below:

TMK: (2) 3-8-006:004 (Portion) ADDRESS: 21 Hansen Rd., Kahului, HI 96732

*PLEASE SEE THE ATTACHED COVER LETTER AND TMK MAP.

I WOULD LIKE: (please check one or more of the options below)

☐ **To inspect the government record.**

☒ **A copy of the government record:** **(**Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.

- ☐ Pick up at agency (**date and time**): _____
- ☐ Mail
- ☐ Fax (toll free and only if available)
- ☒ Other, if available (please specify): Email: mev.llc.jeff@gmail.com

☐ If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.

☒ Electronic ☐ Audio ☐ Other (please specify):_____

☐ Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

SEE BACK FOR IMPORTANT INFORMATION

FEES FOR PROCESSING RECORD REQUESTS

You may be charged fees for the services that the agency must perform when processing your record request, including fees for making photocopies and other lawful fees. **The first $30 of fees charged for searching for a record, reviewing, and segregating will not be charged to you. Any amount over $30 will be charged to you.** Fees are as follows:

Search for a Record	$2.50 for 15 minutes
Review and Segregation of a Record	$5.00 for 15 minutes

WAIVER OF FEES IN THE PUBLIC INTEREST

Up to $60 of fees for searching for, segregating and reviewing records may be waived when the waiver would serve the public interest as described in section 2-71-32, Hawaii Administrative Rules. If you wish to apply for a waiver of fees in the public interest, you must attach to this request a statement of facts, including your identity as the requester, to show how the waiver of fees would serve the public interest. The criteria for this waiver, found at section 2-71-32, Hawaii Administrative Rules, are:

(1) The requested record pertains to the operations or activities of an agency;
(2) The record is not readily available in the public domain; and
(3) The requester has the primary intention and the actual ability to widely disseminate information from the government record to the public at large.

AGENCY RESPONSE TO YOUR REQUEST FOR ACCESS

The agency to which you addressed your request must respond within a set time period. The agency will normally respond to you within 10 business days from the date it receives your request; however, in ***extenuating circumstances*** the agency must respond within 20 business days from the date of your request. If you have questions about the response time, you may contact the agency's UIPA contact person. If you are not satisfied with the agency's response, you may call the Office of Information Practices at 808-586-1400.

REQUESTER'S RESPONSIBILITIES

You have certain responsibilities under §2-71-16, Hawaii Administrative Rules. You may obtain a copy of these rules from the Lieutenant Governor's Office or from the Office of Information Practices. These responsibilities include making arrangements to inspect and copy records, providing further clarification or description of the requested record as instructed by the agency's notice, and making a prepayment of fees, if assessed.

Record Request HEER Office

version 1.5

(Submission #: HPT-Q76W-M2EZS, version 1)

Details

Submitted	5/17/2023 (0 days ago) by Jeffrey King
Submission ID	HPT-Q76W-M2EZS
Submission Reason	Survey/Other
Status	Submitted
Active Steps	Record Request Submitted

Form Input

1. Upload Record Request

Upload Record Request

HEER Office Letter T23-011.pdf - 05/17/2023 02:50 PM
MEO Tax Map.pdf - 05/17/2023 02:50 PM
HEER Office RAGR Form T23-011.pdf - 05/17/2023 02:50 PM

Comment

NONE PROVIDED

Attachments

Date	Attachment Name	Context	Confidential?	User
5/17/2023 2:50 PM	MEO Tax Map.pdf	Attachment	No	Jeffrey King
5/17/2023 2:50 PM	HEER Office RAGR Form T23-011.pdf	Attachment	No	Jeffrey King
5/17/2023 2:50 PM	HEER Office Letter T23-011.pdf	Attachment	No	Jeffrey King

Status History

	User	Processing Status
5/17/2023 2:49:23 PM	Jeffrey King	Draft
5/17/2023 2:50:43 PM	Jeffrey King	Submitting
5/17/2023 2:50:46 PM	Jeffrey King	Submitted

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted	Jeffrey King	5/17/2023 2:50:46 PM
Record Request Submitted		

May 17, 2023

Hawaii State Department of Health
2385 Waimano Home Road, Suite 110
Uluakupu Building 4
Pearl City, Hawaii 96782-1400
Attn: Safe Drinking Water Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project #:	T23-011
TMK, Name, Address, and Current Owner:	**TMK: (2) 3-8-006:004 (Central & Eastern Portion, appr. 166 acres)** NAME: MEO Condominium Unit 2C ADDRESS: 21 Hansen Road, Kahului, HI 96732 CURRENT OWNER: Maui Economic Opportunity Condo-Master

Please email any information to:

Jeff King – Malama Environmental
Email: mev.llc.jeff@gmail.com
Phone: (808) 344-2871

Thank you for your assistance.

Sincerely yours,

Jeffrey R. King, CPG – Malama Environmental

May 17, 2023

Hawaii State Department of Health
2827 Waimano Home Road #100
Pearl City, Hawaii 96782
Attn: Solid & Hazardous Waste Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project #:	T23-011
TMK, Name, Address, and Current Owner:	**TMK: (2) 3-8-006:004 (Central & Eastern Portion, appr. 166 acres)** NAME: MEO Condominium Unit 2C ADDRESS: 21 Hansen Road, Kahului, HI 96732 CURRENT OWNER: Maui Economic Opportunity Condo-Master

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Thank you for your assistance.

Sincerely yours,

Jeffrey R. King, CPG – Malama Environmental

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: 5/17/2023

TO: Department of Health, Solid & Hazardous Waste Branch

FROM: Jeff King, Malama Environmental

Name or Alias Phone: (808) 344-2871

Contact Information Email: mev.llc.jeff@gmail.com

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

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*PLEASE SEE THE ATTACHED COVER LETTER AND TMK MAP.

I WOULD LIKE: (please check one or more of the options below)

☐ **To inspect the government record.**

☒ **A copy of the government record:** **(**Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.

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- ☐ Mail
- ☐ Fax (toll free and only if available)
- ☒ Other, if available (please specify): Email: mev.llc.jeff@gmail.com

☐ If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.

☒ Electronic ☐ Audio ☐ Other (please specify):_____

☐ Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

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May 17, 2023

Hawaii State Department of Health
2827 Waimano Home Rd. #207
Pearl City, Hawaii 96782-1487
Attn: Wastewater Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project #:	T23-011
TMK, Name, Address, and Current Owner:	**TMK: (2) 3-8-006:004 (Central & Eastern Portion, appr. 166 acres)** NAME: MEO Condominium Unit 2C ADDRESS: 21 Hansen Road, Kahului, HI 96732 CURRENT OWNER: Maui Economic Opportunity Condo-Master

Please email any information to:

Jeff King – Malama Environmental
Email: mev.llc.jeff@gmail.com
Phone: (808) 344-2871

Thank you for your assistance.

Sincerely yours,

Jeffrey R. King, CPG – Malama Environmental

RICHARD T. BISSEN, JR.
Mayor

KEKUHAUPIO R. AKANA
Acting Managing Director

BRADFORD K. VENTURA
Fire Chief

GAVIN L.M. FUJIOKA
Deputy Fire Chief

DEPARTMENT OF FIRE & PUBLIC SAFETY
FIRE PREVENTION BUREAU
COUNTY OF MAUI
313 MANEA PLACE
WAILUKU, MAUI, HAWAI'I 96793
www.mauicounty.gov

May 23, 2023

Via Email: mev.llc.jeff@gmail.com

Malama Environmental
Attn: Jeffrey R. King
P.O. Box 880487
Pukalani, HI 96788

SUBJECT: TMK: (2) 3-8-006:004 21 Hansen Road, Kahului

Dear Jeffrey,

In response to your email requesting for information on any past or present information of environmental concern pertaining to the subject site regarding spills, permits, citations, inspections, and fires for the abovementioned property – we have found the following:

(2) 3-8-006:004 21 Hansen Road

- 2/10/2020 – Permit No. FTNK 2020-0002; 8,000 gal. gasoline *attached.

If there are any questions or comments, please feel free to contact me at (808) 876-4690 or by email at fire.prevention@mauicounty.gov

Sincerely,

Parrish Purdy
Captain - Fire Prevention Bureau

Fire Prevention Bureau
County of Maui
111 Mahalani Place
Wailuku, Hawai'i 96793
Phone: (808) 270-7561
Fax: (808) 244-1363

Address: [redacted]
Date/By: [redacted]
TMK:

Flammable/Combustible Liquid Tank Installation Permit Application

[redacted] Aboveground ☐ Underground

Permit Applicant Information

Business:	Hawaii Petroleum, Inc.	Phone:	(808) 871-2884 or (808) [redacted]
Contact Person:	Estefano Ferrari	Email:	jeferrari@hawaiipetroleum.com

Fuel Distributor Information (If Not Same As Applicant)

Company:		Phone:	
Contact Person:		Email:	

Tank Information

Location:	21 Hansen Rd. Kahului, HI 96732 (2) 3-8-008: 004		
Use of Property:	Maui Economic Opportunity	Phone:	(808) 243-4193 or (808) [redacted]
Contact Person:	Christine Cabaldon	Email:	christine.cabaldon@meoinc.org

	Tank #1	Tank #2	Tank #3	Use (Are Tanks)
Capacity:	8,000 gal	n/a	n/a	Aboveground/Underground/Both
Fuel Type:	gasoline/ethanol			5,000 - 10,000 gal:
UL142 or Tank Type:	U 12345			5,001 - 10,000 gal: 10 ft
Distance From Building:	250' ft			Tank Use:
Maximum Fuel Height:	7ft ft			Tank Use
Distance Between Tanks:	n/a ft			◯ Emergency
Fill Piping Information	**Size**	**Qty**	**Unit**	◉ Emergency
Is Tank in Flood Zone:		n/a	[redacted]	◯ Dispensing
If Yes, Special Flood Hazard Area Development Permit Obtained?				◯ Closed System
Vehicle Protection Required:	X			◯ Dispensing/Closed System

Tank Setback from Property Line	Size	Qty	Unit	Remarks
Proper Separation	[redacted]		Y	[redacted]

Contractor's Name (Electrician, Plumber, Tank Owner Installer, Other): _____ Registration Number: _____

Permission is hereby granted to install said tank(s) as described above, and in accordance with the Fire Code of the County of Maui, as it exists now, and as may hereafter be amended. It is understood that this Permit is not a waiver of any of the provisions of the Fire Code of the County of Maui, and that any violations of the Code or other laws that may exist are not covered by this Permit. The granting of this Permit does not presume to give authority to violate or cancel the provisions of the Fire Code of the County of Maui or other laws, nor shall the issuance of this Permit prevent the Fire Chief from thereafter requiring the correction of errors in plans or in construction or violations of the Fire Code of the County of Maui.

Fire Prevention Bureau Staff Member: _____ Date: _____

Note: [redacted]

COUNTY OF MAUI
DEPARTMENT OF PLANNING
One Main Plaza Building
2200 MAIN STREET, SUITE 315
WAILUKU, HAWAII 96793

Zoning Administration and
Enforcement Division (ZAED)
Telephone: (808) 270-7253
Facsimile: (808) 270-7634

LAND USE DESIGNATION FORM

TAX MAP KEY 2380060040001

PROPERTY ADDRESS 21 HANSEN RD, KAHULUI, HI 96732

☐ Yes ☑ No **Will this Land Use Designation Form be used with a Subdivision Application?**

IF YES, answer questions A and B below and comply with instructions 2 & 3 below:

A) ☐ Yes ☑ No **Will it be processed under a consistency exemption from** Section 18.04.030(B), MCC?
IF YES, which exemption? (No. 1, 2, 3, 4 or 5) _____

B) State the purpose of subdivision and the proposed land uses (ie 1-lot into 2-lots for all land uses allowed by law):
Environmental Site Assessment

INSTRUCTIONS:
1) **Please use a separate Land Use Designation Form for each Tax Map Key (TMK) number.**
2) **If this will be used with a subdivision application AND the subject property contains multiple districts/designations of (1) State Land Use Districts, (2) Maui Island Plan Growth Boundaries, (3) Community Plan Designations, or (4) County Zoning Districts; submit a signed and dated Land Use Designations Map, prepared by a licensed surveyor, showing the metes & bounds of the subject parcel and of each district/designation including any subdistricts.**
3) **If this will be used with a subdivision application AND the subject property contains multiple State Land Use Districts; submit an approved District Boundary Interpretation from the State Land Use Commission.**

(This section to be completed by ZAED)

LAND USE DISTRICTS/DESIGNATIONS (LUD) AND OTHER INFORMATION:[1]

☐ (SMA) Special Management Area

STATE DISTRICT: ☑ Urban ☐ Rural ☑ Agriculture ☐ Conservation

MAUI ISLAND PLAN
Growth Boundary:[2] ☑ Urban ☐ Small Town ☐ Rural ☐ Planned Growth Area ☑ Outside Growth Boundaries
Protected Area:[2] ☐ Preservation ☐ Park ☐ Greenbelt ☐ Greenway ☐ Sensitive Land ☑ Outside Protected Areas

COMMUNITY PLAN:[2] HEAVY INDUSTRIAL & LIGHT INDUSTRIAL & AGRICUTURE (Ord. 3709)

COUNTY ZONING: R-1 RESIDENTIAL & AGRICULTURE & M-1 LIGHT INDUSTRIAL & M-2 HEAVY INDUSTRIAL (Conditional) (Ord. 3710)

OTHER/COMMENTS: See Ordinance for conditions

☐ (PD) Planned Development
☐ (PH) Project District
☐ See Additional Comments (Pg. 2)
☐ See Attached LUD Map

FEMA FLOOD INFORMATION: A Flood Development Permit is required if any portion of a parcel is designated V, VE, A, AO, AE, AH, D, or Floodway, and the project is on that portion.

FLOOD HAZARD AREA ZONES[3] & BASE FLOOD ELEVATIONS: ZONE X

☐ FEMA DESIGNATED FLOODWAY

For Flood Zone AO, FLOOD DEPTH:

SUBDIVISION LAND USE CONSISTENCY: ☐ Not Consistent, (LUDs appear to have NO permitted uses in common).

_____ (Signature)

☐ Not Applicable, (Due to processing under consistency exemption No. ☐ 1, ☐ 2, ☐ 3, ☐ 4, ☐ 5).

☐ Interim Zoning, (The parcel or portion of the parcel that is zoned interim shall not be subdivided).

☐ Consistent, (LUDs appear to have ALL permitted uses in common).

☐ Consistent, upon obtaining an SMA, PD, or PH subdivision approval from Planning.

☐ Consistent, upon recording a permissible uses unilateral agreement processed by Public Works (See Pg. 2).

NOTES:
1) **The conditions and/or representations made in the approval of a State District Boundary Amendment, Community Plan Amendment, County Change in Zoning, SMA Permit, Planned Development, Project District and/or a previous subdivision, may affect building permits, subdivisions, and uses on the land.**
2) **Please review the Maui Island Plan and the Community Plan document for any goals, objectives, policies or actions that may affect this parcel.**
3) **Flood development permits might be required in zones X and XS for any work done in streams, gulches, low-lying areas, or any type of drainageway might require the following designations to be shown on the subdivision map: 100-year flood inundation limits; base flood elevations; drainage reserves,**
4) **Subdivisions will be further reviewed during the subdivision application process to verify consistency, unilateral agreement requirements, and the conditions associated with a unilateral agreement [Section 18.04.030.D, Maui County Code]**

REVIEWED & CONFIRMED BY:

Sheila Nakagawa

05/25/2023

Date

For: Planning Program Administrator

VALID FOR 2 YEARS FROM THE DATE ISSUED. DESIGNATIONS MAY CHANGE

mev.llc.jeff@gmail.com

From: Morikami, Lori <lori.morikami@doh.hawaii.gov>
Sent: Wednesday, May 17, 2023 3:44 PM
To: mev.llc.jeff@gmail.com
Subject: RE: [EXTERNAL] MEO Condominium Unit 2C Record Request

Happy Hump Day Wednesday May 17, 2023!
Helen Mirren – Morgana in Excalibur (1981) and Victoria in Red (2010). Awesome lady!

Good Afternoon Jeff,
Thank you for both the Tax Map Key (TMK) number & Address – helps confirm property's location.
Hope your day is going well!

For Wastewater Disposal Information Request at TMK (2) 3-8-006: 004 at 21 Hansen Road, MEO Cond. Unit 2C, Maui:
No Cesspool Card in our database.
No Septic Tank System in our database.
Appears to be connected to the County of Maui's Sewer System, (808) 270-7417 to confirm sewer connection.

We have searched our files and have not found any past or pending environmental permits, licenses, citations, releases or
other information pertaining to the site(s) described above.

Hope this helps! Have a good work day!
And, please continue emailing me directly with the TMK and/or Address. Mahalo!

Hoping for a HOPPY NEW (mo' betta with actual parties) YEAR!
Mahalo,
Lori M, WWB Oahu Office.
Masks are encouraged & appreciated! Please continue being safe! And Be Hawaii Strong!

Mahalo,
Lori Morikami, Planner
State Department of Health, Wastewater Branch, Oahu Office
Best to email - lori.morikami@doh.hawaii.gov

This is basic information and considered non-binding regarding the above subject matter.
All information given via email is subject to further discussion and/or approved by the
Department of Health's Wastewater Branch Engineering Staff.
Binding comments must be in writing and signed by the WW Branch Chief.

From: mev.llc.jeff@gmail.com <mev.llc.jeff@gmail.com>
Sent: Wednesday, May 17, 2023 3:21 PM
To: Morikami, Lori <lori.morikami@doh.hawaii.gov>
Subject: [EXTERNAL] MEO Condominium Unit 2C Record Request

Aloha Lori,
Please see attached request.
Mahalo,

Jeff King
Malama Environmental
(808) 876-0500 (O)
(808) 344-2871 (M)

Appendix F:

Qualifications

STATEMENT OF QUALIFICATIONS

for

Jeffrey R. King, Project Manager-Technical Services

Company Position:

Project Manager – Technical Services

Responsibilities and Duties:

- Phase I & II Environmental Site Assessments/Investigations
- Soil and Groundwater Investigation and Remediation Projects
- Underground Storage Tank (UST) Projects
- Asbestos, Lead-Based Paint, Hazardous Materials Inspections and Sampling
- Storm Water and Indoor Air Quality Investigations and Sampling
- Waste Management and Regulatory Compliance Projects
- Proposals, Contracts, Marketing

Experience:

- Soil and Groundwater Investigations/Remediation
- UST Investigations, Removal, and Closure
- Subsurface Investigations with Various Drill Rig Technologies
- Environmental Site Assessments, Property Condition Assessments
- Environmental Report Writing, Review, and Authorization
- Environmental Health and Safety
- Regulatory Compliance/Permitting
- Emergency Response

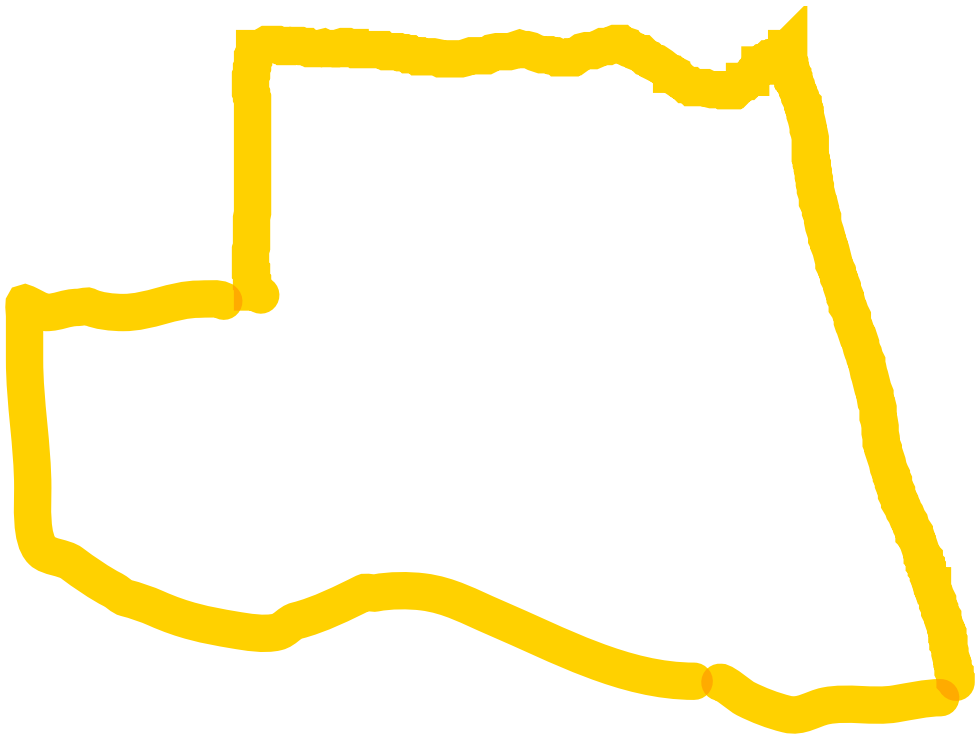
Training & Education:

- Bachelor of Science, Geology, University of California, Los Angeles, 1979
- Graduate Courses in Hazardous Materials Management, Wayne State University, Detroit, Michigan, 1988-89
- 40-hr OSHA HAZWOPER Course and current 8-hour refresher
- Certified Hazardous Materials Manager (CHMM) Overview Course, CHMM-Michigan
- Michigan Risk-Based Corrective Action (RBCA) Course
- Licensed Professional Geologist #1795, Indiana
- Certified Asbestos Inspector #HIASB-3545, Hawaii
- Certified Lead Risk Assessor #PB-0663, Hawaii

P.O. Box 880487 ♦ Pukalani, Hawaii 96788-0487 ♦ (808) 876-0500 Phone ♦ (808) 876-1900 Fax
Email: mauimalama@gmail.com ♦ Web: www.mauimalama.com

Appendix G:

Additional Documentation



Parcel Information

Parcel Number	380060040000
Location Address	21 HANSEN RD KAHULUI HI 96732
Neighborhood Code	3855-5
Legal Information	
Land Area	237.059 Acres
Parcel Note	Non taxable

View Map

Owner Information

Owner Names
MAUI ECONOMIC OPPORTUNITY CONDO- MASTER Fee Owner

Mailing Address
MAUI ECONOMIC OPPORTUNITY CONDO- MASTER

Assessment Information

⊞ Show Historical Assessments

Year	Tax Class	Market Land Value	Agricultural Land Value	Assessed Land	Building Value	Total Assessed Value	Total Exemption Value	Total Net Taxable Value
2023	AGRICULTURAL	$23,700	$0	$23,700	$0	$23,700	$0	$23,700

How to calculate real property taxes

Sales Information

Sale Date	Price	Instrument Number	Instrument Type	Valid Sale or Other Reason	Document Type	Record Date	Land Court #	Land Court Cert
12/23/2021	$0	A80270365	Easements		Grant of easement	12/23/2021		
6/7/2014	$0		Route slip		Grant of easement	6/7/2014		
11/10/2013	$0		Route slip		Grant of easement	11/10/2013		
12/27/2012	$0	A47440534	Easements		Grant of easement	12/27/2012		
12/27/2012	$0	A47440535	Easements		Grant of easement	12/27/2012		
12/27/2012	$0	A47440538	Easements		Grant of easement	12/27/2012		
12/27/2012	$0	A47440539	Easements		Grant of easement	12/27/2012		
12/27/2012	$0	A47440541	Easements		Cancellation of easememt	12/27/2012		
12/27/2012	$0	A47440542	Recorded document		Declaration of/Restatement of CPR	12/27/2012		
10/4/2001	$0	02-172919	Fee conveyance		Warranty deed	9/30/2002		
1/1/1997	$0	9700007145				1/15/1997		
11/25/1996	$0	9600170196				12/2/1996		
1/5/1996	$0	0000000000						
12/7/1993	$0	9400002351				1/6/1994		
12/12/1990	$0	0000000000						
6/18/1990	$0	0000000000						
8/29/1988	$0	0000000000						
3/6/1987	$0	8800034793	Fee conveyance			3/14/1988		

Maui's Automated Planning & Permitting System

Click Here to View All Planning and Permitting Info Regarding This TMK

Permit Information

Maui's Automated Planning & Permitting System link

Date	Permit Number	Reason	Permit Amount
6/14/1990	B901649		$170,000
6/14/1990	B901648		$470,000
6/14/1990	B901647		$1,300,000

Recent Sales In Area

Sale date range:

From:

05/14/2020

To:

05/14/2023

Sales by Neighborhood

Sales by Subdivision

1500

Feet

Sales by Distance

Generate Owner List by Radius

Distance:

100

Feet

Use Address From:

(•) **Owner** ( ) **Property**

Select export file format:

Address labels (5160)

International mailing labels that exceed 5 lines are not supported on the Address labels (5160). For international addresses, please use the xlsx, csv or tab download formats.

[x] Show All Owners

[ ] Show Parcel ID on Label

Skip Labels

0

Download

No data available for the following modules: Assessment Notices, Agricultural Assessment Information, Current Tax Bill Information, Historical Tax Information, Appeal Information, Home Exemption Information, Improvement Information, Commercial Improvement Information, Accessory Information, Sketches.

The Maui County Tax Assessor's Office makes every effort to produce the most accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use or interpretation.
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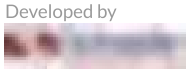
Developed by



Last Data Upload: 5/14/2023, 1:33:57 AM

Version 3.1.8

Overview

Legend

- Parcels (2023)
- Roads

Parcel ID	380060040000	**Situs/Physical Address**	21 HANSEN RD
Acreage	237.059	**Mailing Address**	MAUI ECONOMIC OPPORTUNITY
Class	AGRICULTURAL		CONDO- MASTER

Assd Land Value	$23,700
Assd Building Value	$0
Total Assd Value	$23,700
Exempt Value	$0
Taxable Value	$23,700

Last 2 Sales Date	**Price**	**Reason**	**Qual**
12/23/2021	0	n/a	U
6/7/2014	0	n/a	U

Brief Tax Description n/a

(Note: Not to be used on legal documents)

Date created: 5/14/2023
Last Data Uploaded: 5/14/2023 7:33:57 AM

Developed by Schneider GEOSPATIAL

TERRITORY OF HAWAII

FIELD BOOK LAND SHEET

DESCRIPTION	AGR-USE-VAL	Second DIVISION			
		ZONE	SEC.	PLAT.	PARCEL
		3	8	06	04

OWNER	TITLE HISTORY	MAILING ADDRESS
H.C.&S.Co., Ltd.	Area 521.47 Ac.	
	10/2/46 T. H. 4.38 Ac Lds Pendens (517.09 Ac)	
	3/21/47 Bk 2027 P 175 Cons.$18,900. F/O Cond. area 517.45 Ac.	
	R/S 1/23/50 L-12/15/49 to Puu.Hawn.Church .15 Ac $1. yr.12/20/49 Bk2290/419	517.30 Ac
	E/D;4/17/57 to Maui Electric 52,043 Ø 4/2/457 Bk 3253/33	516.11 Ac
	Lease HC&SCo. to Theo.H.Davies 5/29/58 40 yrs.$80.yr.for 1st 2 yrs.and $560.yr. 174,920 Ø or4.015 Acfor 8 yrs.	
	.536 Ac dropped into road Hensen Rd	512.095 Ac
Alexander & Baldwin, Inc.	TMB 1191 '61 1/2/62 Change of Name 1/3/62 Bk 4191/481	511.532 Ac
	TMB 1445 11/8/66 3-8-06-19 .150 Ac dropped into 3-8-06-04	
	TMB 102'69 Former zoning U & Ag Zoning remains the same but areas are rev 511.682	511.689 Ac
	Total area: 511.682 A Urban: 27.416 A Ag 484.266 A; Source TMB 6/24/69	
	Rt of Entry: 1/7/70 fr A&B to St of Hi 2/12/70 ~~fr~~ Bk 6890/386	
	Extn of Rt of Entry Agrmt 12/8/70 fr A&B to St of Hi fr 1/9/71 to 4/8/71 12/18/70 Bk 7318/255	
	D: 8/16/71 to State of Hawaii (2.066 A) dropped into Road 8/27/71 Bk 7762/50 From 3-8-006-005 (0.688 A) area & bdry changed	
	TMB 2303 74-75 Extn/Grant: 10/23/74 fr A&B to SH extn grant of esmt to 9/10/77 11/7/74 Bk 10229/250	510.304 A
	TMB M-224 74-75: 3/14/75 former zoning: A & U changed to: A & U - bdry changed. "A" - 484.304 A. "U" - 26.000 A. Total area = 510.304 A. NOTE: TMB M-102 '69, hereby cancelled. SOURCE: LUC M-5 12/20/74	510.304 A
	TMB 8763 1985 Grant of Esmt 9/3/85 fr A&B Inc to County of Maui, a non-exclusive esmt to construct, reconstruct, maintain, operate, repair & remove a waterline; Subj to wtrline Esmt "1"(1.348A) in favor of County of Maui Esmt "2" por of rd. 11/8/85 Bk 19066/747	

1975

YEAR	1959	1960	1961	1962	1963	1964	1965	1973	1974
AREA	512.095 Ac	512.095 Ac	512.095 Ac	511.532 Ac	511.532	511.532 Ac			
LAND	160,402.	199,090.	200,018.	199,945.	202499	219615 219615		343768	
IMP.	183,115.	248,071.	217,212.	182,469.	177431	184550		192258	213882
TOT.	343,517.	447,061.	417,230.	382,414.	379930	404165			
EX.	1,003.	1,009.	1,035.	1,035.	1035	1035			
NET	342,514.	447,052.	416,195.	381,379.	378895	403130	1106		
TAX	5,675.46	6,084.38	5,664.41	5190.57					

FORM A. D. 17-C

OAMA

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[illegible]

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Appeal: 21-0000 Doc: 00000000

Filed: 01/01/2021 Pg: 1 of 1

PLAINTIFF: ALEXANDER P. BENJAMIN
ATTY: MARGARET E. WILLIAMS
COURT: 0th Cir. 0-0000 DATE:

01/01 @ 10:00 AM ENTRY GRANTING MOTION FOR LEAVE TO FILE

DOCKET

DATE/ITEM	NAME	P	TC	D CHARGES	CITE/@ CHECK
0 ENTRY	ALEXANDER P. BENJAMIN				

Case 2:21-cv-00000-ABC-DEF Document 0 Filed 01/01/21 Page 1 of 1 Page ID #:0

Plaintiff Benjamin, Alexander

Defendant Williams, Margaret E.

Plaintiff Benjamin, Alexander
Defendant Williams, Margaret E.
Date Filed: 01/01/2021

Appeal: 21-0000 Doc: 00000000

Filed: 01/01/2021 Pg: 1 of 1

ORDERED: 01/01/2021 BY THE COURT

Plaintiff Benjamin, Alexander

Docket No. 2:21-cv-00000-ABC-DEF, Alexander P. Benjamin v. Margaret E. Williams, et al.

DOCKET

DATE/ITEM	NAME	P	TC	D CHARGES	CITE/@ CHECK
0 ENTRY	ALEXANDER P. BENJAMIN				

Case 2:21-cv-00000-ABC-DEF Document 0 Filed 01/01/21 Page 1 of 1 Page ID #:0

Plaintiff Benjamin, Alexander

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Plaintiff Benjamin, Alexander

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DOCKET

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Plaintiff Benjamin, Alexander

Docket No. 2:21-cv-00000-ABC-DEF, Alexander P. Benjamin v. Margaret E. Williams, et al.

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Plaintiff Benjamin, Alexander
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Date Filed: 01/01/2021

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Filed: 01/01/2021 Pg: 1 of 1

ORDERED: 01/01/2021 BY THE COURT

Plaintiff Benjamin, Alexander

Docket No. 2:21-cv-00000-ABC-DEF, Alexander P. Benjamin v. Margaret E. Williams, et al.

DEFENDANTS Ex-Parte Motion, ALEXANDER P. BENJAMIN v. MARGARET E. WILLIAMS, ET AL. Case Number 2:21-CV-00000-ABC-DEF
TO: ALEXANDER P. BENJAMIN v. MARGARET E. WILLIAMS, ET AL. Date: 01/01/2021 Time: 10:00 AM Location: COURTROOM
CONTROL BY THE COURT OF DOCUMENTS DATED 01/01/2021 ENTITLED

[illegible]

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[illegible]

PRELIMINARY INFORMATION
FOR ENVIRONMENTAL INVESTIGATION

According to ASTM Standard E1527-21, the user's (or client's) responsibility in this investigation is to help identify the possibility of recognized environmental conditions in connection with the property. In order to qualify for one of the Land Owner Liability Protections (LLPs) offered by the small Business Liability Relief and Brownfields Revitalization Act of 2001 (*the "Brownfields Amendments"*), the user must provide the following information (if available) to the *environmental professional*. Failure to provide this information could result in a determination that "*all appropriate inquiry*" is not complete. Please assist us by responding to the following request for ASTM required data and other MEV requested information you may have, or of which you may have some specialized knowledge. This questionnaire will be included in the Appendices of the final report as an indication of user assistance.

Property Name/Location: MEO Condominium Unit 2C, 21 Hansen Road, Puunene, HI
MEV Project No: T23-011

Please supply as many of the following documents as possible:

A. ☐ Tax Map Key Number/Tax Code Number: (2) 3-8-006:004 (Portion)

B. ☐ Title Information (*current, and any previous ownership*)
C. ☐ Property Legal Description (*if Title information is not available*)
D. ☐ Tax Map and/or Site Development Drawing/Plat
E. ☐ Special Property Information (*well development data, endangered species listings, historical registration or environmental deed restrictions*)
F. ☐ Real Estate Appraisal Report
G. ☐ Special Management Area Permit Report (SMA)

Please provide the following information to the best of your ability:

1. **Environmental clean-up liens that are filed or recorded against the site (40 CFR 312.25).**
   Are you aware of any environmental clean up liens against the property that are filed or recorded under federal, tribal, state or local law? If yes, please supply details.
   Not to my knowledge

2. **Activity and land use limitations (AULs) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26).**
   Are you aware of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state, or local law? If yes, please supply details.
   Not to my knowledge

3. **Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).**
   As the User of this ESA, do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

   No

4. **Relationship of the purchase price to the fair market value of the *property* if it were not contaminated (40 CFR 312.29).**
   Does the purchase price being paid for this *property* reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*?

   Price is of fair market value.

5. **Commonly known or reasonably ascertainable information about the *property* if it were not contaminated (40 CFR 312.30).**
   Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example, as the *User* of this ESA,

a. Do you know the past uses of the *property*? Please supply details.

   Agriculture producing as cane.

b. Do you know of specific chemicals that are present or once were present at the *property*? Please supply details.

   NO

c. Do you know of spills or other chemical releases that have taken place at the *property*? Please supply details.

   No

d. Do you know of any environmental cleanups that have taken place at the *property*? Please supply details.

   NO

6. **The degree of obviousness of the presence or likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).**
   Based on your knowledge and experience related to the *property*, are there any obvious indicators that point to the presence or likely presence of contamination at the *property*? If yes, please supply details.

   Am aware that the mill was directing water from the washing plant to locations on this parcel.

Additional Information Request:

1. Name of Current Owner and their contact information:

   Alexander & Baldwin (Maui Office)
   Jason Koga (808) 872-4310

2. Name of Former Owner and their contact information:

   same

3. Environmental Site Assessments (ESA): Are you aware of any previous assessments (Phase I/II ESAs, *Cleanup Closure Reports, Permit Characterization Reports*, etc.) conducted on the subject *property* or within the immediate area? If yes, please supply details.

   Not to my knowledge

4. Local-State-Federal Inspections: Are you aware of any environmental inspections *conducted by any regulatory agency*, i.e., Hawaii Dept. of Health (Environmental Health Services), OSHA, U.S. Army Corps of Engineers, Department of Land & Natural Resources, Fish & Wildlife Services, HUD, EPA, or County Wastewater or Solid Waste Division of the Public Works/Waste Management Department etc.? If yes, please supply details.

   Not to my knowledge

5. Structures/Buildings: Are there any as-built or other construction drawings available for review? Contact name and Telephone Number:

   No

6. Site Improvements? (*Renovation Date & Extent*)

   None

7. Proceedings against the Property: Are you aware of any administrative or legal proceedings against the property for environmental concerns, i.e., Compliance Orders, Notices of Violation? If yes, please supply details.

   No

8. Specialized Historic Information: Are you aware of any previous owner, neighbor, business affiliate, or other individual who might have knowledge of any special or unusual historic use of, and/or previous operations conducted on the subject property? *Contact Name and Telephone Number:*

   No

9. Manufacturing or Processing: If there are manufacturing or processing activities conducted on-site, is there an operation flow chart, diagram, or procedures manual available for review? *Contact Name and Telephone Number*.

   None

This Phase I ESA Report is being prepared for:

Attention:	Howard Kihune Jr
Organization:	Aina Lani Pacific LLC
Address:	360 Papa Place, #203, Kahului, HI 96732
Phone No.:	808-357-0514
Fax No.:	
Email:	

Please List Other Organizations (Lenders) Who Will Require a Listing as "Also Prepared For" on the Phase I ESA report cover and signature page.

(1)	**Attention:**	None
	Organization:	
	Address:	

(2)	**Attention:**	
	Organization:	
	Address:	

We will submit a color PDF report for each project. If hard copies are required, an additional fee will be charged for processing per the Professional Services Agreement.

Who prepared this Starter Package Information?

Name:	Howard Kihune Jr.	**Title:**	
Company:	Aina Lani Pacific LLC		
Address:	360 Papa Place, #203, Kahului, HI 96732		
Tel. No.:	808-357-0514	**Fax No.:**	
Email:			
Signature:		**Date:**	

SOILS INVESTIGATION
MAUI BUSINESS PARK, PHASE II
KAHULUI, MAUI, HAWAII
PORTIONS OF TMK: 3-8-01, 3-8-06, & 3-8-79

for

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

HIRATA & ASSOCIATES, INC.
W.O. 06-4381
February 20, 2009

Hirata & Associates
Geotechnical Engineering
Hirata & Associates, Inc.
99-1433 Koaha Pl
Aiea, HI 96701
tel 808.486.0787
fax 808.486.0870

February 20, 2009
W.O. 06-4381

Ms. Trang Nguyen
Austin Tsutsumi & Associates, Inc.
1871 Wili Pa Loop, Suite A
Wailuku, Hawaii 96793

Dear Ms. Nguyen:

Our report, "Soils Investigation, Maui Business Park, Phase II, Kahului, Maui, Hawaii, Portions of TMK: 3-8-01, 3-8-06, & 3-8-79," dated February 20, 2009, our Work Order 06-4381 is enclosed. This investigation was conducted in general conformance with the scope of services presented in our proposal dated June 16, 2006.

The surface soils throughout most of the North and South Project Areas were classified as reddish brown to brown clayey silt. The clayey silt was in a stiff condition, with occasional medium stiff sections and, with the exception of borings B23, B37, B45, B57, and B69, was underlain by weathered basalt at depths ranging from about 2.5 to 14.5 feet. The clayey silt in borings B23, B37, B45, B57, and B69 extended to the maximum depths drilled of about 14 to 19.5 feet. Laboratory testing on the surface clayey silt indicated a low expansion potential.

Underlying the clayey silt was highly to moderately weathered basalt extending to the maximum depths drilled. The highly weathered basalt was in a dense to medium hard to hard condition, while the moderately weathered basalt was in a medium hard to hard condition.

With the exception of boring B71, drilled in the existing retention basin, neither groundwater nor seepage was encountered in our borings.

From a geotechnical viewpoint, it is our opinion that the project site can generally be developed as planned. Geotechnical recommendations for development of the project site are presented in this report, including recommendations for site grading, flexible pavement for roadways, retaining walls, utility line support, trench excavation, and backfill.

We appreciate this opportunity to be of service. Should you have any questions concerning this report, please feel free to call on us.

Very truly yours,

HIRATA & ASSOCIATES, INC.

Paul S. Morimoto

Paul S. Morimoto Vice President

PSM:RIKY:ph

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ADDITIONAL SERVICES 10

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SOILS INVESTIGATION
MAUI BUSINESS PARK, PHASE II
KAHULUI, MAUI, HAWAII
PORTIONS OF TMK: 3-8-01, 3-8-06, & 3-8-79

INTRODUCTION

This report presents the results of our soils investigation performed for the proposed Maui Business Park, Phase II, in Kahului, Maui, Hawaii. Our services for this study included the following:

- A visual reconnaissance of the site to observe existing conditions which may affect the project. The general location of the project site is shown on the enclosed Location Map, Plate A2.1.

- A review of available in-house soils information pertinent to the site and the proposed project.

- Drilling and sampling 71 exploratory test borings to depths ranging from about 12 to 20.5 feet. A description of our field investigation is summarized on Plates A1.1 and A1.2. The approximate exploratory boring locations are shown on the enclosed Boring Location Plans, Plates A2.2 and A2.3, and the soils encountered in the borings are described on the Boring Logs, Plates A4.1 through A4.71.

- Laboratory testing of selected soil samples. Testing procedures are presented in the Description of Laboratory Testing, Plates B1.1 through B1.3. Test results are presented in the Description of Laboratory Testing, on the Boring Logs (Plates A4.1 through A4.71), Consolidation Test reports (Plates B2.1 through B2.12), Direct Shear Test reports (Plates B3.1 through B3.15), Modified Proctor Test reports (Plates B4.1 through B4.7), and CBR Test reports (Plates B5.1 through B5.7).

- Engineering analyses of the field and laboratory data.

- Preparation of this report presenting geotechnical recommendations for the design of retaining walls, flexible pavement for new roads including the Ho`okele Street Extension, infrastructure including underground pipe support, trench excavation and backfill, and mass grading.

PROJECT CONSIDERATIONS

The proposed Maui Business Park, Phase II, encompasses about 179 aces of land. The South Project Area consists of about 141 acres while the North Project Area consists of about 38 acres. The development is planned for commercial and light industrial businesses.

The project is divided into three phases. Phase 1 includes the North Project Area and offsite improvements which includes the extension of Ho`okele Street, connecting the existing east end of Ho`okele Street with Hana Highway. Although part of the Phase 1 North Project area, the Ho`okele Street extension is located in the South Project Area. We understand that a Pavement Justification Report will not be required for the Ho`okele Street and Hana Highway intersection. Phase 2 consists of the western half of the South Project Area and includes the Pakaula Street Extension. Phase 3 consists of the eastern half of the South Project Area.

Our scope of services was generally limited to the proposed roads and infrastructure, as well as site grading of parcels, including retaining walls if necessary. This report will not address the design of building foundations as we assume that the owners of individual parcels will be responsible for a geotechnical report addressing site specific improvements.

SITE CONDITIONS

The proposed Maui Business Park, Phase II is located in the eastern area of Kahului, Maui. The North Project Area is located on the north side of Hana Highway, east of its intersection with Keolani Place, while the South Project Area is located between Hana Highway and Mokulele Highway, east of its intersections with Dairy Road.

Haleakala Highway borders the North Project Area on the north, while Costco and K-Mart borders the site on the west. The old Central Power Plant parcel is located in the northwest portion of the North Project Area, and a pineapple processing

facility is located in the northeastern area. The remainder of the area is vacant of structures and covered with light vegetation. Old cane haul roads extend throughout the site.

Maui Business Park, Phase I, borders the South Project Area on the north, with Home Depot, Walmart, and other commercial parcels bordering the site on the west and northwest. Sugar cane fields borders the site on the east and southeast. The site is generally vacant of structures and covered with light to moderate vegetation. Two existing retention basins are located in the central portion of the site. Cane haul roads extend throughout this area.

SOIL CONDITIONS

With the exception of boring B9, the surface soils in both the North and South Project Areas were classified as brown to reddish brown clayey silt. The clayey silt was in a stiff condition, with occasional medium stiff sections and, with the exception of borings B23, B37, B45, B57, and B69, was underlain by weathered basalt at depths ranging from about 2.5 to 14.5 feet. The clayey silt in borings B23, B37, B45, B57, and B69 extended to the maximum depths drilled of about 14 to 19.5 feet. Laboratory testing on the clayey silt indicated a low expansion potential. Boring B9 encountered surface soil classified as brown silty gravel in a medium dense to dense condition, extending to a depth of about 6 feet.

Underlying the clayey silt and silty gravel was highly to moderately weathered basalt extending to the maximum depths drilled. The highly weathered basalt was in a dense to medium hard to hard condition, while the moderately weathered basalt was in a medium hard to hard condition.

Except in boring B71, drilled at the bottom of existing Retention Basin #2, neither groundwater nor seepage water was encountered in our borings. Groundwater was encountered in boring B71 at a depth of about 12.5 feet below existing grade.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our exploratory fieldwork and initial laboratory testing, it is our opinion that from a geotechnical viewpoint, the site can generally be developed as planned.

Site Grading

Groundwater - With exception of boring B71, neither groundwater nor seepage water was encountered in our exploratory borings. As a result, we believe that groundwater will not impact the proposed development. The need for subdrains in fill areas is not anticipated.

Site Preparation - The project site should be cleared of all vegetation, concrete footings and slabs-on-grade, debris, and other deleterious material. Prior to placement of fill, the exposed subgrade should be scarified to a minimum depth of 6 inches, moisture conditioned to about 2 percent above optimum moisture content, and compacted to a minimum 90 percent compaction as determined by ASTM D 1557.

Onsite Fill Materials - Laboratory testing on the onsite clayey silt indicate that the soil has a low expansion potential, as a result, the clayey silt will be acceptable for reuse in compacted fills. All rock fragments larger than 3 inches in maximum dimension should be removed prior to reuse.

Imported Fill Materials - Imported fill should be well-graded, non-expansive granular material. Specifications for imported granular structural fill should indicate a maximum particle size of 3 inches, and state that between 8 and 20 percent of soil by weight shall pass the #200 sieve. In addition, the plasticity index (P.I.) of that portion of the soil passing the #40 sieve shall not be greater than 10. Granular structural fill should also have a minimum CBR value of 12 and a CBR expansion value less than 1.0 percent when tested in accordance with ASTM D 1883.

Compaction - Backfill consisting of cohesive soils, such as the onsite clayey silt, should be placed in horizontal lifts restricted to eight inches in loose thickness, and compacted to at least 90 percent compaction as determined by ASTM D 1557.

Granular soils, such as imported granular fill, should also be placed in horizontal lifts restricted to eight inches in loose thickness, but should be compacted to a minimum 95 percent compaction as determined by ASTM D 1557.

Fill placed in areas which slope steeper than 5H:1V should be continually benched as the fill is brought up in lifts. Fill placed on slopes should be keyed and benched into the existing slope to provide stability for the new fill against sliding. Filling the slope with sliver fills should be avoided.

Rippability - Based on our exploratory borings, we believe that excavations into the onsite clayey silt can be accomplished using conventional earth moving equipment.

Slope Gradients - Cut and fill slopes may be designed for gradients of 2H:1V or flatter. Slopes should be planted as soon as practical upon completion of grading to reduce the effects of erosion and weathering.

Slopes exceeding 15 feet in height should include benches at least 8 feet in width. The benches should be constructed at vertical intervals not exceeding 15 feet in height.

Retaining Walls

Foundations - Finish grades were not available at the time of this report. However, we expect that mass grading for the project will consist of both cuts and fills, and that retaining walls may be required to accommodate grade changes. Foundation excavations for retaining walls are expected to expose both new compacted fill and

the onsite soils. Conventional spread footings bearing directly on either new compacted fill or stiff, undisturbed clayey silt may be used to support retaining walls.

Soft or loose soils exposed by structural excavations should be removed down to competent material, and recompacted to a minimum 90 percent compaction as determined by ASTM D 1557.

Foundations may be designed for an allowable bearing value of 3,000 pounds per square foot. The recommended allowable bearing value is for the total of dead and frequently applied live loads, and may be increased by one-third for short duration loading which includes the effect of wind and seismic forces.

Footings should be a minimum 16 inches in width and embedded at least 12 inches below finish adjacent grade. Footings located on, or near the top of slopes, should be embedded such that a minimum horizontal distance of 5 feet is maintained between the bottom edge of footing and slope face.

The bottom of all footing excavations should be thoroughly tamped and cleaned of loose material prior to placement of reinforcing steel and concrete.

Seismic Design - Based on the borings drilled as part of this study and our knowledge of the deep soil conditions in the area, the subsurface soils can be characterized as rock soil profile. Therefore, based on the 2003 International Building Code, Site Class B is recommended for this site.

Lateral Design - Resistance to lateral loading may be provided by friction acting at the base of foundations and by passive earth pressure acting on the buried portions of foundations.

A coefficient of friction of 0.4 may be used with the dead load forces. Passive earth pressure may be computed as an equivalent fluid having a density of 300 pounds per cubic foot with a maximum earth pressure of 3,000 pounds per square foot. Unless covered by pavement or concrete slabs, the upper 12 inches of soil should not be considered in computing lateral resistance.

For active earth pressure considerations, equivalent fluid pressures of 40 and 55 pounds per cubic foot may be used for freestanding and restrained conditions, respectively.

To prevent the buildup of hydrostatic pressures, retaining structures should be well-drained. The standard of practice consists of placing a minimum 12-inch thick layer of free-draining gravel at the back of the wall. The gravel should extend from the base of the wall, around subdrains and/or weepholes, and up to within 12 inches of finish grade. Alternatively, prefabricated drainage geocomposites, such as Miradrain or J-drain, may be used in lieu of the free-draining gravel. As with the free-draining gravel, the drainage geocomposites should be placed at the back of the wall, be connected with the weepholes and/or subdrains (in accordance with manufacturer's specifications), and extend to within 12 inches of finish grade.

For freestanding walls, the drainage system should be covered by at least 12 inches of low permeability soil, such as the onsite clayey silt. If the backfill is covered by interior or exterior concrete slabs, the gravel fill should extend to the bottom of slab cushion elevation.

Pavement Design

Only limited traffic data was available at the time of this report. However, based on the Traffic Impact Analysis Report for the Maui Business Park, Phase II and Ho'okele Street Extension, prepared by Phillip Rowell and Associates, a medium traffic level (average daily traffic between 3,000 and 10,000 vehicles, Pavement

Design Manual, HDOT) was assumed for the Ho`okele and Pakaula Street extensions, as well as for the new interior roads. The traffic volumes for the interior roads are expected to be less than for the Ho`okele and Pakaula Street extensions. We also assume that traffic will generally be limited to passenger vehicles, light trucks, and occasional tractor trailer type trucks. Flexible pavement may be based on the following sections.

Ho`okele and Pakaula Street Extensions

4.0"	Asphaltic concrete
8.0"	Aggregate base course (minimum CBR = 85)
12.0"	Select borrow (minimum CBR = 25)
24.0"	Total thickness

Interior Roads - North and South Sites

3.5"	Asphaltic concrete
6.0"	Aggregate base course (minimum CBR = 85)
8.0"	Select borrow (minimum CBR = 25)
17.5"	Total thickness

The pavement subgrade should be scarified to a minimum depth of 6 inches, moistened to about 2 percent above optimum moisture content, and compacted to a minimum 95 percent compaction as determined by ASTM D 1557. The base course and select borrow should also be compacted to a minimum 95 percent compaction as determined by ASTM D 1557.

A Pavement Justification Report is not be required for the Ho`okele Street extension and Hana Highway intersection. New pavement will be based on the minimum pavement section indicated on the Hawaii DOT Notes for Construction 5.c. Channelized Intersection and Utility Installations of Major Highways, or match existing, whichever is greater.

Pipe Support

Conventional crushed rock cradles may be used for the support of underground utility lines. The crushed rock material should also be placed along the sides of the pipes,

covering at least one-half the pipe diameter. The crushed rock material should conform to, and be placed in accordance with, the Standard Specifications for Public Works Construction and the Water System Standards, State of Hawaii.

Trench Excavation and Backfill

Trench excavations into the surface clayey silt can be accomplished using conventional excavating equipment. However, trench excavations extending into harder sections of weathered basalt may require pneumatic equipment.

Excavations into the clayey silt should stand at a 1H:1V gradient for temporary conditions. However, localized sloughing can be expected as the exposed soil dries out. Excavations into the weathered basalt should stand at a near vertical gradient for temporary conditions. It should be the Contractor's responsibility to conform to the OSHA safety standards for excavation.

The onsite clayey silt will be acceptable for backfill provided all rock fragments larger than three inches in maximum dimension are removed. Excavated basalt may also be used as backfill provided the material is processed or crushed to a well-graded consistency, with a maximum particle size of 3 inches. The materials should be moisture condition to about 2 percent above optimum moisture content prior to compaction.

If required, import borrow should conform to specifications in the Standard Specifications for Public Works Construction. All backfill should also be placed and compacted in accordance with specifications in the Standard Specifications for Public Works Construction and the Water System Standards, State of Hawaii.

Unless covered by concrete slabs or AC pavement, the upper 12 inches of trench backfill should consist of the onsite clayey silt compacted to a minimum 90 percent

compaction as determined by ASTM D 1557. The intent of this recommendation is to reduce the potential for surface water infiltration into the trench backfill material.

ADDITIONAL SERVICES

We recommend that we perform a general review of the final design plans and specifications. This will allow us to verify that the earthwork and geotechnical design recommendations have been properly interpreted and implemented in the design plans and construction specifications.

For continuity, we recommend that we be retained during construction to (1) observe mass grading and fill placement, and perform compaction testing, (2) review and/or perform laboratory testing on import borrow to determine its acceptability for use in compacted fills, (3) observe excavations for retaining wall footings prior to placement of reinforcing steel and concrete, and (4) provide geotechnical consultation as required.

Our services during construction will allow us to verify that our recommendations are properly interpreted and included in construction, and if necessary, to make modifications to those recommendations, thereby reducing construction delays in the event subsurface conditions differ from those anticipated.

LIMITATIONS

The boring logs indicate the approximate subsurface soil conditions encountered only at those times and locations where our borings were made, and may not represent conditions at other times and locations.

This report was prepared specifically for Austin Tsutsumi & Associates, Inc., and their sub-consultants for design of the proposed Maui Business Park, Phase II, in Kahului, Maui, Hawaii. The boring logs, laboratory test results, and recommendations presented in this report are for design purposes only, and are not

intended for use in developing cost estimates by the contractor. As previously stated, the opinions regarding probable foundation types and the estimated design parameters for new buildings are for planning and budgeting purposes only. Foundation investigations for development of individual lots and design of planned buildings, including exploratory borings, laboratory testing, and analyses, should be performed.

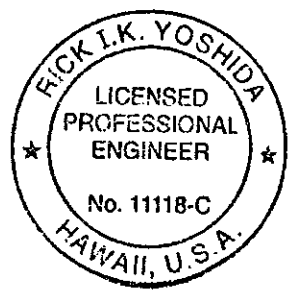
During construction, should subsurface conditions differ from those encountered in our borings, we should be advised immediately in order to re-evaluate our recommendations, and to revise or verify them in writing before proceeding with construction.

Our recommendations and conclusions are based upon the site materials observed, the preliminary design information made available, the data obtained from our site exploration, our engineering analyses, and our experience and engineering judgement. The conclusions and recommendations are professional opinions which we have strived to develop in a manner consistent with that level of care, skill, and competence ordinarily exercised by members of the profession in good standing, currently practicing under similar conditions. We will be responsible for those recommendations and conclusions, but will not be responsible for the interpretation by others of the information developed. No warranty is made regarding the services performed under this agreement, either express or implied.

Respectfully submitted,

HIRATA & ASSOCIATES, INC.

Rick Yoshida, Project Engineer



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APPENDIX A

FIELD INVESTIGATION

DESCRIPTION OF FIELD INVESTIGATION

GENERAL

The site was explored from September 30 to October 2, and from October 13 to November 5, 2008, by performing a visual site reconnaissance and drilling 71 exploratory test borings to depths ranging from about 12 to 20.5 feet with a Mobile B-53 truck-mounted drill rig.

During drilling operations, the soils were continuously logged by our field engineer and classified by visual examination in accordance with the Unified Soil Classification System. The boring logs indicate the depths at which the soils or their characteristics change, although the change could actually be gradual. If the change occurred between sample locations, the depth was interpreted based on field observations. Classifications and sampling intervals are shown on the boring logs. A Boring Log Legend is presented on Plate A3.1. The Unified Soil Classification and Rock Weathering Classification Systems are shown on Plates A3.2 and A3.3, respectively. The soils encountered are logged on Plates A4.1 through A4.71.

Boring locations were located in the field by measuring/taping offsets from existing site features shown on the site plan. Ground surface elevations at boring locations were estimated using the Topographic Map provided by Austin Tsutusmi & Associates, Inc. However, topographic data was not available for borings B53, B56 through B62, B65, and B67. The accuracy of the boring locations shown on Plates A2.2 and A2.3, and the surface elevations shown on the boring logs are therefore approximate, in accordance with the field methods used.

SOIL SAMPLING

Representative and bulk soil samples, as well as cores samples of rock, were recovered from the borings for selected laboratory testing and analyses. Representative samples were recovered by driving a 3-inch O.D. split tube sampler

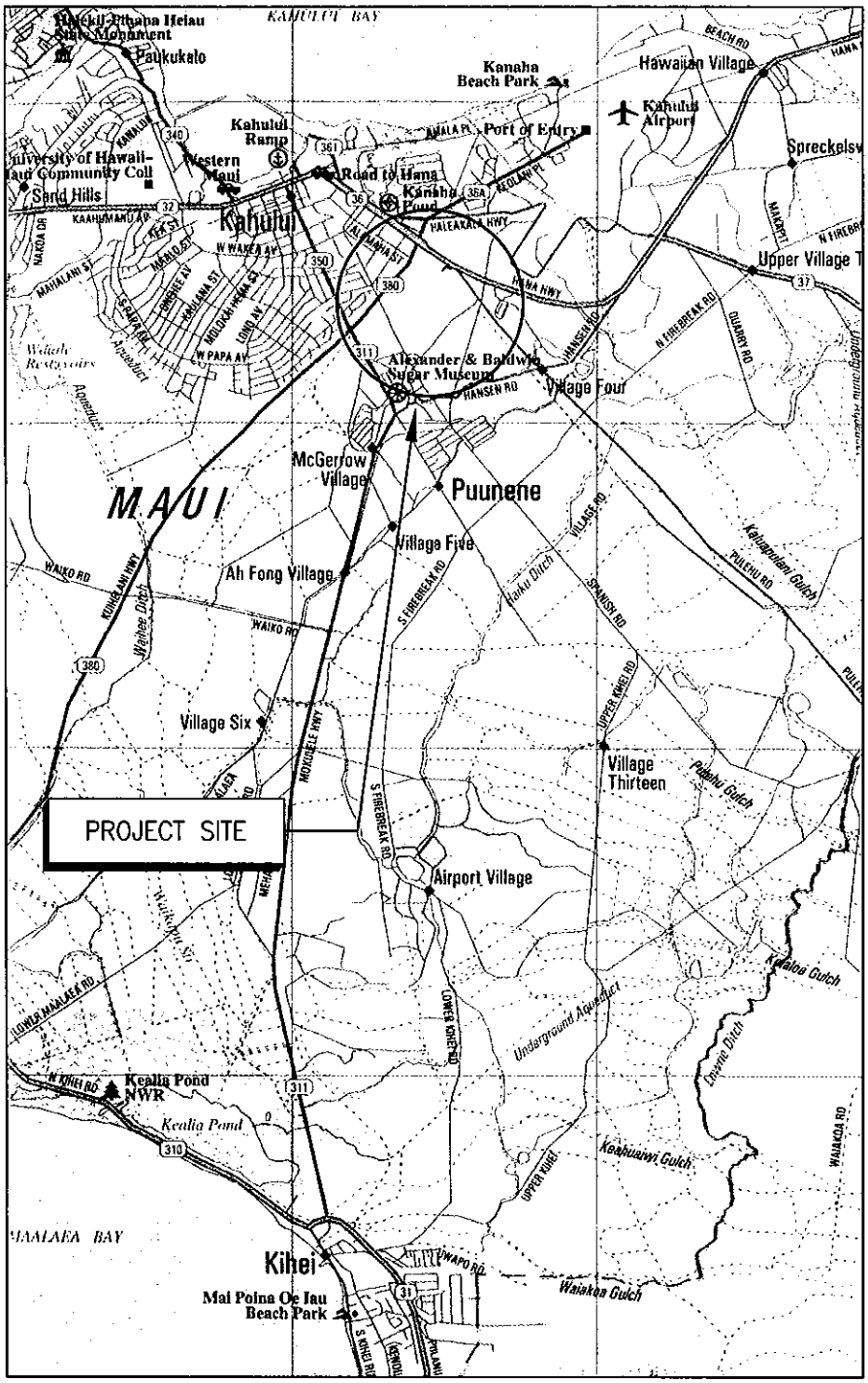
a total of 18 inches with a 140-pound hammer dropped from a height of 30 inches. The number of blows required to drive the sampler the final 12 inches are recorded at the appropriate depths on the boring logs, unless noted otherwise. Bulk soil samples were recovered from various locations throughout the site for selected laboratory testing that would aid in soil classification and pavement design.

Core samples were obtained by drilling with an NX core barrel having an inside diameter of 2.1 inches. Recovery percentages for each core run are shown on the enclosed Boring Log. The rock quality designation (RQD) for the core run is also shown on the Boring Log. This is a modified core recovery percentage which takes into account the number of fractures observed in the core samples. Only pieces of core 4 inches in length or longer, as measured along the centerline, were included in the determination of this modified core recovery percentage. Fractures caused by drilling or handling were ignored.

The following is a general correlation between RQD percentages and rock quality.

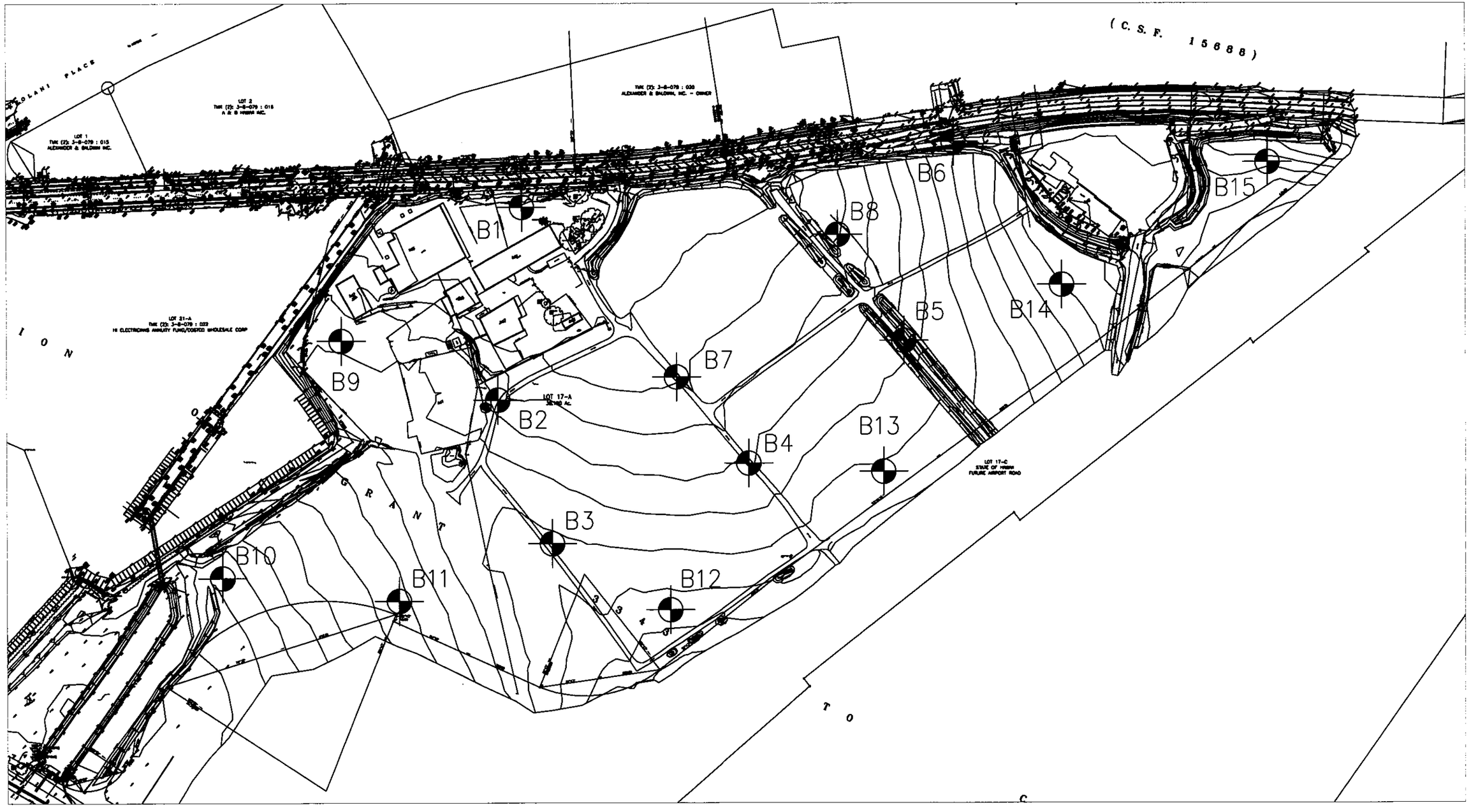
RQD (%)	Description of Rock Quality
0 - 25	Very Poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent

Reference: Tunnel Engineering Handbook, Second Edition, edited by J.O. Bickel, T.R. Kuesel, and E.H. King, 1996.



Reference: Bryan's Sectional Maps, 2003 Edition
(Copyright J.R. Clere, used with permission)

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	LOCATION MAP Plate A2.1



LEGEND:

Approximate location of borings

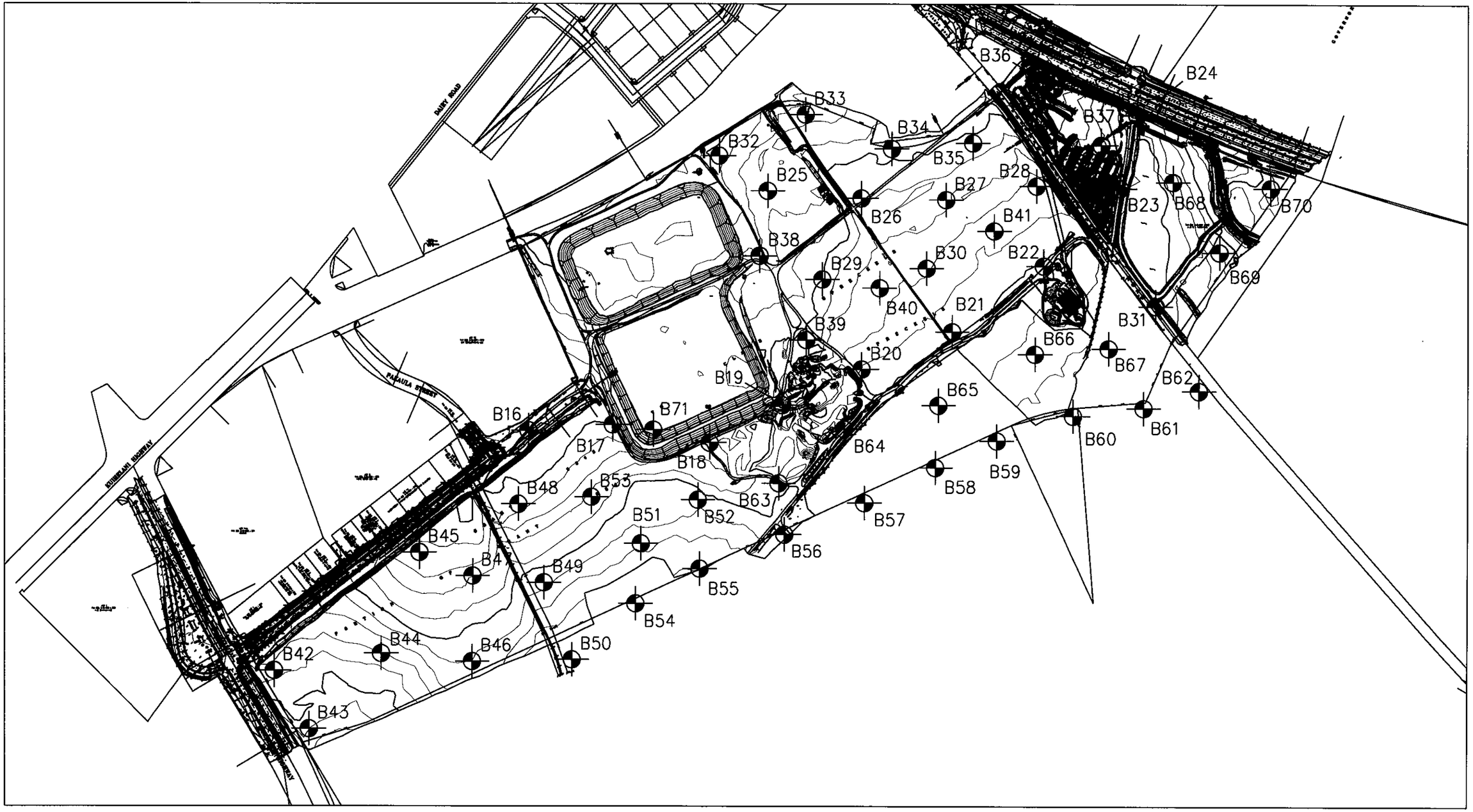
GRAPHIC SCALE:

0 100 200 400 FT.

1" = 200'

Reference: Topographic Survey provided by Austin Tsutsumi & Associates, Inc.

W.O. 06-4381	**Maui Business Park, Phase II**
Hirata & Associates, Inc.	BORING LOCATION PLAN Plate A2.2



LEGEND:

Approximate location of borings

GRAPHIC SCALE:

0 250 500 1000 FT.

1" = 500'

Reference: Topographic Survey provided by Austin Tsutsumi & Associates, Inc.

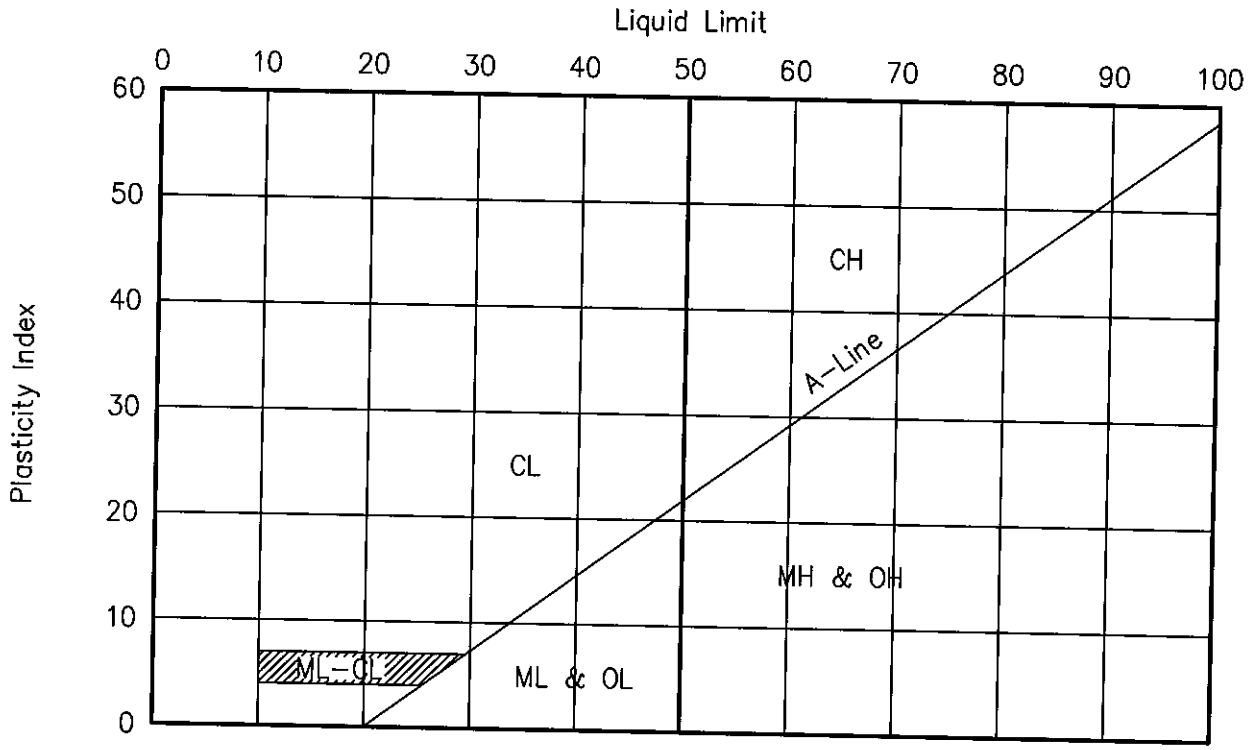
W.O. 06-4381	**Maui Business Park, Phase II**
Hirata & Associates, Inc.	BORING LOCATION PLAN Plate A2.3

MAJOR DIVISIONS			GROUP SYMBOLS		TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of the material is LARGER than No. 200 sieve size.)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size.)	CLEAN GRAVELS (Little or no fines.)		GW	Well graded gravels, gravel–sand mixtures, little or no fines.
				GP	Poorly graded gravels or gravel–sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines.)		GM	Silty gravels, gravel–sand–silt mixtures.
				GC	Clayey gravels, gravel–sand–clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size.)	CLEAN SANDS (Little or no fines.)		SW	Well graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines.)		SM	Silty sands, sand–silt mixtures.
				SC	Clayey sands, sand–clay mixtures.
FINE GRAINED SOILS (More than 50% of the material is SMALLER than No. 200 sieve size.)	SILTS AND CLAYS (Liquid limit LESS than 50.)			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50.)			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays.
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils.
					FRESH TO MODERATELY WEATHERED BASALT
					VOLCANIC TUFF / HIGHLY TO COMPLETELY WEATHERED BASALT
					CORAL

SAMPLE DEFINITION		
2" O.D. Standard Split Spoon Sampler	Shelby Tube	RQD Rock Quality Designation
3" O.D. Split Tube Sampler	NX / 4" Coring	Water Level

W.O. 06–4381	**Maui Business Park, Phase II**
Hirata & Associates, Inc.	# BORING LOG LEGEND
	Plate A3.1

PLASTICITY CHART



GRADATION CHART

COMPONENT DEFINITIONS BY GRADATION	
COMPONENT	SIZE RANGE
Boulders	Above 12 in.
Cobbles	3 in. to 12 in.
Gravel Coarse gravel Fine gravel	3 in. to No. 4 (4.76 mm) 3 in. to 3/4 in. 3/4 in. to No. 4 (4.76 mm)
Sand Coarse sand Medium sand Fine sand	No. 4 (4.76 mm) to No. 200 (0.074 mm) No. 4 (4.76 mm) to No. 10 (2.0 mm) No. 10 (2.0 mm) to No. 40 (0.42 mm) No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and clay	Smaller than No. 200 (0.074 mm)

W.O. 06-4381	**Maui Business Park , Phase II**
Hirata & Associates, Inc.	**UNIFIED SOIL CLASSIFICATION SYSTEM** Plate A3.2

Grade	Symbol	Description
Fresh	F	No visible signs of decomposition or discoloration. Rings under hammer impact.
Slightly Weathered	WS	Slight discoloration inwards from open fractures, otherwise similar to F.
Moderately Weathered	WM	Discoloration throughout. Weaker minerals such as feldspar decomposed. Strength somewhat less than fresh rock but cores cannot be broken by hand or scraped by knife. Texture preserved.
Highly Weathered	WH	Most minerals somewhat decomposed. Specimens can be broken by hand with effort or shaved with knife. Core stones present in rock mass. Texture becoming indistinct but fabric preserved.
Completely Weathered	WC	Minerals decomposed to soil but fabric and structure preserved (Saprolite). Specimens easily crumbled or penetrated.
Residual Soil	RS	Advanced state of decomposition resulting in plastic soils. Rock fabric and structure completely destroyed. Large volume change.

Reference: Soils Mechanics, NAVFAC DM-7.1, Department of the Navy, Naval Facilities Engineering Command, September, 1986.

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	ROCK WEATHERING CLASSIFICATION SYSTEM Plate A3.3

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B1 DRIVING WT. 140 lb. START DATE 11/3/08

SURFACE ELEV. 18±* DROP 30 in. END DATE 11/3/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, medium stiff. Covered by 1.5 inches of AC over 3 inches of base material.
			14	92	23	
5			12	92	24	
			13	85	34	Grayish brown color from 8 feet.
10						
			90	115	12	HIGHLY WEATHERED BASALT (WH) – Grayish brown, slightly moist, dense.
15						End boring at 14.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.1

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B2 DRIVING WT. 140 lb. START DATE 10/30/08

SURFACE ELEV. 24± DROP 30 in. END DATE 10/30/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			59	84	21	Grayish brown color with gravel from 2 feet.
5			49	78	21	
			50/3"	No Recovery		HIGHLY WEATHERED BASALT (WH) – Grayish brown, medium hard to hard.
10						
			54/6"	No Recovery		
15						
			50/5"	No Recovery		
20						End boring at 18.5 feet.
						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.2

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B3 DRIVING WT. 140 lb. START DATE 10/30/08

SURFACE ELEV. 28.5± DROP 30 in. END DATE 10/30/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			63	82	22	Grayish brown color with gravel from 1.5 feet.
5			37	84	25	
			50/3"		23	
10			80	109	9	HIGHLY WEATHERED BASALT (WH) – Grayish brown, slightly moist, medium hard.
15						End boring at 14.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.3

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B4 DRIVING WT. 140 lb. START DATE 10/30/08

SURFACE ELEV. 24± DROP 30 in. END DATE 10/30/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			63	77	24	Grayish brown color with gravel from 2 feet.
5			36	91	26	
			81/11"	98	28	
10			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Grayish brown, medium hard.
15						End boring at 13 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.4

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B5 DRIVING WT. 140 lb. START DATE 10/29/08

SURFACE ELEV. 26± DROP 30 in. END DATE 10/29/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			50	77	21	Grayish brown color from 1 foot.
			32	81	25	With gravel from 3 feet.
5			41	78	23	
			50/3"	No Recovery		
10						MODERATELY WEATHERED BASALT (WM) – Gray, slightly fractured, hard. Begin NX coring at 10.5 feet. 100% Recovery from 10.5 to 15.5 feet. RQD = 53%
15						100% Recovery from 15.5 to 20.5 Feet RQD = 100%
20						
						End boring at 20.5 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.5

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B6 DRIVING WT. 140 lb. START DATE 11/05/08

SURFACE ELEV. 32± DROP 30 in. END DATE 11/05/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff. Covered by 2 inches of AC over 3 inches of base material.
			56	83	24	
			65	80	34	
5			38	91	26	Grayish brown color with gravel from 5 feet.
			50/5"	87	31	
10			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.6

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B7 DRIVING WT. 140 lb. START DATE 10/30/08

SURFACE ELEV. 19.5± DROP 30 in. END DATE 10/30/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			65	73	23	
			83	78	25	Grayish brown color with gravel from 3 feet.
5			50	81	25	
10			60	94	28	
			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.7

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B8 DRIVING WT. 140 lb. START DATE 10/29/08

SURFACE ELEV. 21.5± DROP 30 in. END DATE 10/20/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			51	71	21	
5			40	75	20	
			50/4"	81	14	HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense to medium hard.
10						MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
			10/No Penetration			
15						End boring at 13 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.8

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B9 DRIVING WT. 140 lb. START DATE 11/03/08

SURFACE ELEV. 25.5± DROP 30 in. END DATE 11/03/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Silty GRAVEL (GM) – Brown, moist, medium dense.
			16	83	16	
5			29	75	16	
						HIGHLY WEATHERED BASALT (WH) – Grayish brown, slightly moist, dense to medium hard.
			50/5"	82	13	
10						
			81	116	7	
15						
			82	118	9	
20						End boring at 19.5 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.9

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B10 DRIVING WT. 140 lb. START DATE 11/03/08

SURFACE ELEV. 13± DROP 30 in. END DATE 11/03/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, medium stiff.
			23	100	21	
5			16	74	44	
			24	80	43	
10						
			40/3"	86	14	
15			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, fractured, medium hard to hard. Begin NX coring at 15 feet. 87% Recovery from 15 to 20 feet. RQD = 57%
20						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.10

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B11 DRIVING WT. 140 lb. START DATE 11/03/08

SURFACE ELEV. 21.5± DROP 30 in. END DATE 11/03/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			31	80	17	
			49	75	21	With gravel from 3 feet.
5			63	83	21	Grayish brown color from 5 feet.
						MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
10			10/No Penetration			
			10/No Penetration			
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.11

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B12 DRIVING WT. 140 lb. START DATE 11/03/08

SURFACE ELEV. 31± DROP 30 in. END DATE 11/03/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			38	77	23	
			68	75	21	
5			53	74	20	Grayish brown color and with gravel from 4 feet.
10			53	94	27	HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense.
15						MODERATELY WEATHERED BASALT (WM) – Gray, slightly fractured, hard. Begin NX coring at 13 feet. 100% Recovery from 13 to 18 feet. RQD = 97%
20						End boring at 18 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.12

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B13 DRIVING WT. 140 lb. START DATE 10/30/08

SURFACE ELEV. 28.5± DROP 30 in. END DATE 10/30/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			59	83	21	
						Grayish brown color with gravel from 2 feet.
			59	82	21	
5			40	89	22	
10						MODERATELY WEATHERED BASALT (WM) – Gray, slightly fractured, hard. Begin NX coring at 9 feet. 100% Recovery from 9 to 14 feet. RQD = 100%
15						100% Recovery from 14 to 19 feet. RQD = 62%
20						End boring at 19 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.13

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B14 DRIVING WT. 140 lb. START DATE 10/29/08

SURFACE ELEV. 38± DROP 30 in. END DATE 10/29/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			65	75	19	
5			63	69	31	
			61	86	26	Grayish brown color with gravel from 8 feet.
10						
			50/4"	94	23	
15			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
20						End boring at 18 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.14

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B15 DRIVING WT. 140 lb. START DATE 10/29/08

SURFACE ELEV. 39± DROP 30 in. END DATE 10/29/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0			37	76	18	Clayey SILT (ML) – Grayish brown, moist, stiff, with gravel.
5			63 60/6"	59 61	14 13	HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense.
10						MODERATELY WEATHERED BASALT (WM) – Gray, slightly fractured, hard. Begin NX coring at 7.5 feet. 87% Recovery from 7.5 to 12.5 feet. RQD = 40% Slightly fractured from 9 feet.
15						End boring at 12.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.15

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B16 DRIVING WT. 140 lb. START DATE 10/21/08

SURFACE ELEV. 30± DROP 30 in. END DATE 10/21/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0			10/No Penetration			Clayey SILT (ML) – Reddish brown, moist, stiff. Boulder from 1.5 to 3 feet.
			69	79	23	
5			48	77	25	
			63	100	16	HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense to medium hard.
10						
			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
15						End boring at 15 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.16

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B17 DRIVING WT. 140 lb. START DATE 10/20/08

SURFACE ELEV. 30± DROP 30 in. END DATE 10/20/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			79	76	22	
			10/No Penetration			
5						Boulder from 4 to 5 feet.
			97/10"	90	26	
10						HIGHLY WEATHERED BASALT (WH) – Grayish brown, medium hard.
15						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, slightly fractured, medium hard to hard. Begin NX coring at 13 feet. 83% Recovery from 13 to 18 feet. RQD = 76%
20						End boring at 18 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.17

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B18 DRIVING WT. 140 lb. START DATE 10/15/08

SURFACE ELEV. 35± DROP 30 in. END DATE 10/15/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff. Cobbles from 0.5 to 1.5 feet.
			58	81	22	
5			35	93	25	
						Cobble at 7 feet.
			22	83	28	
10						
			10/No Penetration			HIGHLY WEATHERED BASALT (WH) – Gray, slightly moist, dense to medium hard.
15			100	107	9	
			10/No Penetration			
20						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.18

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B19 DRIVING WT. 140 lb. START DATE 10/15/08

SURFACE ELEV. 36.5± DROP 30 in. END DATE 10/15/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						
			35	80	20	Clayey SILT (ML) – Reddish brown, moist, stiff.
			75	72	27	
5			57	72	23	
			50/6"	85	20	HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense to medium hard.
10						
			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.19

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B20 DRIVING WT. 140 lb. START DATE 10/2/08

SURFACE ELEV. 38± DROP 30 in. END DATE 10/2/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			55	79	21	
			83	86	19	
5			87/11"	88	21	
			50/5"	90	28	
10						
			50/5"	82	27	
15						MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
			10/No Penetration			
20						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.20

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B21 DRIVING WT. 140 lb. START DATE 10/1/08

SURFACE ELEV. 39± DROP 30 in. END DATE 10/1/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			88	91	21	
5			70	86	24	
			62	82	29	
10						
						HIGHLY WEATHERED BASALT (WH) – Grayish brown, medium hard.
15						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, slightly fractured, hard. Begin NX coring at 15 feet. 94% Recovery from 15 to 20 feet. RQD = 88%
20						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.21

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B22 DRIVING WT. 140 lb. START DATE 10/01/08

SURFACE ELEV. 40± DROP 30 in. END DATE 10/01/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			42	60	13	
5			52/6"	81	23	
			45	85	34	
10						MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
			10/No Penetration			
15						End boring at 13 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.22

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B23 DRIVING WT. 140 lb. START DATE 10/27/08

SURFACE ELEV. 41± DROP 30 in. END DATE 10/27/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, medium stiff. Covered by 1.5 inches of AC over 2 inches of base material.
			21	76	20	
5			26	81	23	
			41	98	24	
10						
			63	83	35	
15						
			21	76	38	Grayish brown color from 17 feet.
20						End boring at 19.5 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.23

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B24 DRIVING WT. 140 lb. START DATE 10/23/08

SURFACE ELEV. 43± DROP 30 in. END DATE 10/23/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff, with gravel.
			59	71	26	
			55	74	22	
5			50	81	31	
			14/6"			
10			38/6"	89	9	HIGHLY WEATHERED BASALT (WH) – Grayish brown, slightly moist, dense to medium hard.
			10/No penetration			
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.24

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B25 DRIVING WT. 140 lb. START DATE 10/02/08

SURFACE ELEV. 26± DROP 30 in. END DATE 10/02/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0			53/6"	69	16	Clayey SILT (ML) – Reddish brown, moist, stiff, with gravel.
5			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, slightly vesicular, hard. Begin NX coring at 5 feet. 100% Recovery from 5 to 10 feet. RQD = 100%
10						90% Recovery from 10 to 15 feet. RQD = 48% Slightly fractured from 10 feet.
15						End boring at 15 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.25

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B26 DRIVING WT. 140 lb. START DATE 10/14/08
SURFACE ELEV. 31.5± DROP 30 in. END DATE 10/14/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			52	74	19	
			98	91	20	
5			90	87	26	
						HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense to medium hard.
10			80/10"	95	13	
						MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
			10/No Penetration			
15						End boring at 14 feet.
						Neither groundwater nor seepage water encountered.
20						
25						
30						

Plate A4.26

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B27 DRIVING WT. 140 lb. START DATE 10/1/08

SURFACE ELEV. 33.5± DROP 30 in. END DATE 10/1/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			80	83	21	
5			86/11"	79	27	
			47	70	25	Grayish brown color with gravel from 8 feet.
10						
			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
15						End boring at 13 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.27

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B28 DRIVING WT. 140 lb. START DATE 9/30/08
SURFACE ELEV. 37± DROP 30 in. END DATE 9/30/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			34	83	23	
			94	88	21	Reddish brown color from 2.5 feet.
5			92	77	25	
10			53	86	30	Grayish brown color with gravel at 9 feet.
						MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
15						End boring at 15.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.28

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B29 DRIVING WT. 140 lb. START DATE 10/02/08
SURFACE ELEV. 30± DROP 30 in. END DATE 10/02/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0			56	86	19	Clayey SILT (ML) – Reddish brown, moist, stiff.
5			65	101	7	HIGHLY WEATHERED BASALT (WH) – Grayish brown, slightly moist, dense to medium hard.
			10/No Penetration			
10						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, hard. Fractured from 12 to 12.5 feet. Begin NX coring at 10 feet. 92% Recovery from 10 to 15 feet. RQD = 80%
15						100% Recovery from 15 to 20 feet. RQD = 93% Fractured from 19.5 to 20 feet.
20						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.29

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B30 DRIVING WT. 140 lb. START DATE 10/01/08
SURFACE ELEV. 36± DROP 30 in. END DATE 10/01/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			55	82	19	
			50/6"	83	19	
5			57	82	23	
10			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
15						End boring at 13 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.30

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B31 DRIVING WT. 140 lb. START DATE 10/28/08

SURFACE ELEV. 44.5± DROP 30 in. END DATE 10/28/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff, with gravel.
			82	75	14	
5			61	78	19	Reddish brown color from 4.5 feet.
			92/9"	91	25	
10						MODERATELY WEATHERED BASALT (WM) – Gray, slightly fractured, hard. Begin NX coring at 10 feet. 77% Recovery from 10 to 15 feet. RQD = 44%
15			29			HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense.
20						End boring at 17 feet. Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.31

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B32 DRIVING WT. 140 lb. START DATE 10/03/08
SURFACE ELEV. 21± DROP 30 in. END DATE 10/03/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, medium stiff, with gravel.
			14	75	14	
5			43	78	19	Reddish brown color at 4 feet. Stiff from 4 feet.
						Grayish brown color from 6.5 feet.
			62/8"	91	25	
10			10/No Penetration			HIGHLY WEATHERED BASALT (WH) – Grayish brown, slightly moist, dense to medium hard.
			10/No Penetration			
15			27/9"	89	13	
			10/No Penetration			
20			10/No Penetration			
						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.32

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B33 DRIVING WT. 140 lb. START DATE 10/14/08
SURFACE ELEV. 25±* DROP 30 in. END DATE 10/14/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			72	70	23	
			36/8"	76	21	
5			10/No Penetration			HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense to medium hard.
			76/10"	81	22	
10						
			10/No Penetration			
						End boring at 13 feet.
15						
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.33

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B34 DRIVING WT. 140 lb. START DATE 10/14/08

SURFACE ELEV. 29.5± DROP 30 in. END DATE 10/14/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			63	82	21	
5			73	82	22	
			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, fractured, hard.
10						Begin NX coring at 10 feet. 93% Recovery from 10 to 15 feet. RQD = 78%
15						90% Recovery from 15 to 20 feet. RQD = 45%
20						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.34

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B35 DRIVING WT. 140 lb. START DATE 9/30/08
SURFACE ELEV. 31± DROP 30 in. END DATE 9/30/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			50	76	19	
			85/11"	89	19	
5						Cobbles from 5.5 to 10 feet.
10			48	77	42	
						MODERATELY WEATHERED BASALT (WM) – Gray, slightly vesicular, slightly fractured, hard.
15						Begin NX coring at 14 feet. 96% Recovery from 14 to 19 feet. RQD = 96%
20						End boring at 19 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.35

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B36 DRIVING WT. 140 lb. START DATE 10/23/08
SURFACE ELEV. 32± DROP 30 in. END DATE 10/23/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			67	74	18	
			80	85	19	
5			85/10"	86	21	
			50/5"	72	31	
10						
			68	88	31	Grayish brown color from 14 feet.
15						
			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
						End boring at 19 feet.
20						
						Neither groundwater nor seepage water encountered.
25						
30						Plate A4.36

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B37 DRIVING WT. 140 lb. START DATE 10/23/08
SURFACE ELEV. 24.5± DROP 30 in. END DATE 10/23/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
		☐	71	86	19	
5		☐	85	92	19	
		▭	53/6"	80	20	
10		☐	65	76	17	Grayish brown color with gravel from 13 feet.
15						End boring at 14.5 feet.
20						
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.37

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B38 DRIVING WT. 140 lb. START DATE 10/02/08
SURFACE ELEV. 31± DROP 30 in. END DATE 10/02/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			72/11"	84	20	
			93/10"	77	17	Grayish brown color with gravel from 3 feet.
5			50/4"	77	21	
			10/No Penetration			HIGHLY WEATHERED BASALT (WH) – Grayish brown, dense to medium hard.
10			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
						End boring at 12 feet.
15						
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.38

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B39 DRIVING WT. 140 lb. START DATE 10/15/08
SURFACE ELEV. 35± DROP 30 in. END DATE 10/15/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			56	83	17	
5			53/6"	83	21	
						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, slightly fractured, hard. Begin NX coring at 6.5 feet. 100% Recovery from 6.5 to 11.5 feet. RQD = 83%
10						
						99% Recovery from 11.5 to 16.5 feet. RQD = 83%
15						
						End boring at 16.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						Plate A4.39

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B40 DRIVING WT. 140 lb. START DATE 10/02/08
SURFACE ELEV. 37.5± DROP 30 in. END DATE 10/02/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			36	74	21	
			56/6"	78	23	
5			50/3"	82	28	
			14/6"	74	24	
10			50/5"			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard. Vesicular and fractured from 10 to 15 feet. Begin NX coring at 10 feet. 72% Recovery from 10 to 15 feet. RQD = 33%
15						Slightly vesicular from 14 feet. 100% Recovery from 15 to 20 feet. RQD = 100%
20						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						Plate A4.40

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B41 DRIVING WT. 140 lb. START DATE 10/01/08
SURFACE ELEV. 47± DROP 30 in. END DATE 10/01/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			57	79	21	
			90/11"	77	22	
5			56/6"	79	26	
			38/6"	67	30	
10			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, slightly fractured, hard. Begin NX coring at 10 feet. 95% Recovery from 10 to 15 feet. RQD = 72%
15						100% Recovery from 15 to 20 feet. RQD = 90%
20						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.41

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B42 DRIVING WT. 140 lb. START DATE 10/22/08
SURFACE ELEV. 52± DROP 30 in. END DATE 10/22/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			52	77	18	
			87	85	19	
5						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, medium hard to hard. Begin NX coring at 5 feet. 100% Recovery from 5 to 10 feet. RQD = 100%
10						96% Recovery from 10 to 15 feet. RQD = 87%
15						End boring at 15 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.42

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B43 DRIVING WT. 140 lb. START DATE 10/21/08
SURFACE ELEV. 46± DROP 30 in. END DATE 10/21/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			55	71	20	Grayish brown color from 1.5 feet.
5			69	75	20	
			33	72	22	
10						HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense.
			65	84	21	
15						End boring at 14.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.43

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B44 DRIVING WT. 140 lb. START DATE 10/21/08

SURFACE ELEV. 33± DROP 30 in. END DATE 10/21/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, medium stiff.
			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, slightly fractured, hard. Begin NX coring at 2.5 feet. 76% Recovery from 2.5 to 7.5 feet. RQD = 43% Fractured from 4.5 to 7.5 feet.
5						100% Recovery from 7.5 to 12.5 feet. RQD = 80%
10						100% Recovery from 12.5 to 17.5 feet. RQD = 82%
15						
20						End boring at 17.5 feet. Neither groundwater nor seepage water encountered.
25						
30						Plate A4.44

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B45 DRIVING WT. 140 lb. START DATE 10/21/08

SURFACE ELEV. 42± DROP 30 in. END DATE 10/21/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			64	74	19	
5			73	81	20	
						Grayish brown color with gravel from 6.5 feet.
10			52/6"	74	19	
			54/6"	92	25	
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.45

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B46 DRIVING WT. 140 lb. START DATE 10/21/08

SURFACE ELEV. 47± DROP 30 in. END DATE 10/21/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			43	88	22	
						Reddish brown color from 3 feet.
5			49	90	30	
			15	80	37	
10						
						HIGHLY WEATHERED BASALT (WH) – Grayish brown, dense to medium hard.
15			10/No Penetration			
			10/No Penetration			
						End boring at 18 feet.
20						
25						Neither groundwater nor seepage water encountered.
30						Plate A4.46

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B47 DRIVING WT. 140 lb. START DATE 10/17/08

SURFACE ELEV. 31.5± DROP 30 in. END DATE 10/17/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			39	74	18	
						Reddish brown from 2 feet.
			84	67	21	
5			57	74	17	
						HIGHLY WEATHERED BASALT (WH) – Grayish brown, dense to medium hard.
10			10/No Penetration			
						MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
			10/No Penetration			
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.47

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B48 DRIVING WT. 140 lb. START DATE 10/16/08
SURFACE ELEV. 41± DROP 30 in. END DATE 10/16/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			50	88	23	
5			96	79	32	
			61	85	25	
10						Grayish brown color with gravel from 9.5 feet.
						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, fractured, medium hard to hard. Begin NX coring at 13 feet. 82% Recovery from 13 to 18 feet. RQD = 55%
15						
						End boring at 18 feet.
20						
25						Neither groundwater nor seepage water encountered.
30						Plate A4.48

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B49 DRIVING WT. 140 lb. START DATE 10/16/08

SURFACE ELEV. 50± DROP 30 in. END DATE 10/16/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			68	82	22	
			81	76	19	
5			22/6"	72	17	
			10/No Penetration			HIGHLY WEATHERED BASALT (WH) – Grayish brown, medium hard.
			10/No Penetration			
10						MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
						End boring at 12 feet.
15						
						Neither groundwater nor seepage water encountered.
20						
25						
30						

Plate A4.49

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B50 DRIVING WT. 140 lb. START DATE 11/04/08
SURFACE ELEV. 43.5± DROP 30 in. END DATE 11/04/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			29	77	19	
						Reddish brown color from 2 feet.
			86/11"	79	22	
5			95	78	29	
10			46	81	26	Grayish brown color from 9 feet.
						MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
			10/No Penetration			
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.50

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B51 DRIVING WT. 140 lb. START DATE 10/16/08
SURFACE ELEV. 41± DROP 30 in. END DATE 10/16/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			78/10"	81	19	
			54/6"	81	19	
5			50/5"	78	21	
			92/11"	85	15	Grayish brown color from 9 feet.
10						
15						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, fractured, medium hard to hard. Begin NX coring at 14.5 feet. 100% Recovery from 14.5 to 19.5 feet. RQD = 78%
20						End boring at 19.5 feet.
25						Neither groundwater nor seepage water encountered.
30						Plate A4.51

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B52 DRIVING WT. 140 lb. START DATE 10/15/08
SURFACE ELEV. 36.5± DROP 30 in. END DATE 10/15/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			73	77	22	
5			71	68	28	
			53/6"	77	22	
10			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard to hard.
15						End boring at 13 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.52

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B53 DRIVING WT. 140 lb. START DATE 10/16/08
SURFACE ELEV. NA DROP 30 in. END DATE 10/16/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			17/6"	61	20	
			10/No Penetration			
5			84	81	24	Grayish brown color from 5.5 feet.
10						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, fractured, medium hard to hard. Begin NX coring at 10 feet. 96% Recovery from 10 to 15 feet. RQD = 23%
15						96% Recovery from 15 to 20 feet. RQD = 69%
20						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						Plate A4.53

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B54 DRIVING WT. 140 lb. START DATE 11/04/08
SURFACE ELEV. 45.5± DROP 30 in. END DATE 11/04/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			40	81	19	Reddish brown color from 2 feet.
5			72	88	19	
						Boulder from 7 to 8 feet.
			32	80	29	
10						Grayish brown color from 9.5 feet.
			50/4"	63	27	
15						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, fractured, hard. Begin NX coring at 14 feet. 87% Recovery from 14 to 19 feet. RQD = 66%
20						End boring at 19 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.54

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B55 | DRIVING WT. 140 lb. | START DATE 11/04/08

SURFACE ELEV. 42.5± | DROP 30 in. | END DATE 11/04/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			71	77	20	Reddish brown color from 2 feet.
5			90	98	21	
			44	80	32	
10						HIGHLY WEATHERED BASALT (WH) – Grayish brown, dense to medium hard.
			10/No Penetration			MODERATELY WEATHERED BASALT (WM) – Gray, medium hard.
15						End boring at 13 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.55

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B56 DRIVING WT. 140 lb. START DATE 10/22/08
SURFACE ELEV. NA DROP 30 in. END DATE 10/22/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			54	86	20	
5			40	77	22	
10			22	98	25	Grayish brown color and medium stiff from 8 feet.
			50/5"	67	14	HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense.
15						End boring at 13.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.56

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B57 DRIVING WT. 140 lb. START DATE 11/04/08

SURFACE ELEV. NA DROP 30 in. END DATE 11/04/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
		☐	42	93	22	Reddish brown color from 2 feet.
5		☐	23	100	25	
		☐	27	94	28	
10		☐	38	88	31	Grayish brown color at 14 feet.
15						End boring at 14.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						Plate A4.57

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B58 DRIVING WT. 140 lb. START DATE 11/04/08
SURFACE ELEV. NA DROP 30 in. END DATE 11/04/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, medium stiff.
			15	84	28	
			12	95	29	Reddish brown color from 3 feet.
5			18	87	31	
10			54	81	40	Stiff from 9 feet. Cobble at 10.5 feet.
15			52/5"	69	48	HIGHLY TO COMPLETELY WEATHERED BASALT (WH–WC) – Grayish brown, moist, dense to medium hard.
20			92/11"	75	41	
						End boring at 20.5 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.58

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B59 DRIVING WT. 140 lb. START DATE 10/28/08
SURFACE ELEV. NA DROP 30 in. END DATE 10/28/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			31	90	30	
						Reddish brown color from 3 feet.
5			25	83	37	
			36	84	41	
10						
			56/6"	70	56	
15			10/No Penetration			HIGHLY WEATHERED BASALT (WH) – Grayish brown, dense to medium hard.
20						End boring at 18 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.59

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B60 DRIVING WT. 140 lb. START DATE 10/28/08
SURFACE ELEV. NA DROP 30 in. END DATE 10/28/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, medium stiff.
			15	77	37	
						Reddish brown color from 2 feet.
			22	78	41	
5			24	85	34	
			40	71	49	Stiff from 9 feet.
10						
15			74/10"	90	34	HIGHLY TO COMPLETELY WEATHERED BASALT (WH-WC) – Grayish brown, moist, dense to medium hard.
						End boring at 15.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						Plate A4.60

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B61 DRIVING WT. 140 lb. START DATE 10/28/08

SURFACE ELEV. NA DROP 30 in. END DATE 10/28/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, medium stiff.
			17	81	39	
			19	75	45	
5			21	92	29	Reddish brown color from 5 feet.
10			63	88	34	Stiff from 9 feet.
15			50/6"	57	57	HIGHLY TO COMPLETELY WEATHERED BASALT (WH–WC) – Grayish brown, moist, dense to medium hard.
20			50/6"	88	19	
						End boring at 20 feet.
25						Neither groundwater nor seepage water encountered.
30						

Plate A4.61

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B62 DRIVING WT. 140 lb. START DATE 10/28/08
SURFACE ELEV. NA DROP 30 in. END DATE 10/28/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			49	92	25	
5			28	86	35	
			27	77	42	
10						
			38	64	52	COMPLETELY WEATHERED BASALT (WC) – Grayish brown, moist, dense.
15						End boring at 14.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.62

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B63 DRIVING WT. 140 lb. START DATE 10/15/08
SURFACE ELEV. 39.5± DROP 30 in. END DATE 10/15/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			66	83	19	Reddish brown color from 2 feet.
			96/11"	90	19	
5			50/5"	95	20	
			38/6"	97	12	
10			10/No Penetration			HIGHLY WEATHERED BASALT (WH) – Grayish brown, dense to medium hard.
			10/No Penetration			
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.63

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B64 DRIVING WT. 140 lb. START DATE 10/22/08

SURFACE ELEV. 40.5 DROP 30 in. END DATE 10/22/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			54	68	28	
5			50	86	31	
			41	82	36	
10			50/4"	60	26	HIGHLY WEATHERED BASALT (WH) – Grayish brown, moist, dense to medium hard.
15						End boring at 13.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.64

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B65 DRIVING WT. 140 lb. START DATE 11/04/08

SURFACE ELEV. NA DROP 30 in. END DATE 11/04/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, medium stiff.
			19	89	31	Reddish brown color from 2 feet.
5			15	77	42	
			21	84	40	
10						
			54/8"	74	44	COMPLETELY WEATHERED BASALT (WC) – Grayish brown, moist, dense.
15						End boring at 14 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.65

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B66 DRIVING WT. 140 lb. START DATE 10/22/08
SURFACE ELEV. 43± DROP 30 in. END DATE 10/22/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			58	78	20	
			50/5"	83	24	
5						
			62	84	31	Reddish brown color from 8 feet.
10						MODERATELY WEATHERED BASALT (WM) – Gray, vesicular, fractured, medium hard to hard. Begin NX coring at 10.5 feet. 97% Recovery from 10.5 to 15.5 feet. RQD = 27%
15						85% Recovery from 15.5 to 20.5 feet. RQD = 42%
20						End boring at 20.5 feet.
25						Neither groundwater nor seepage water encountered.
30						Plate A4.66

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B67 DRIVING WT. 140 lb. START DATE 10/27/08
SURFACE ELEV. NA DROP 30 in. END DATE 10/27/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, stiff.
			60	69	25	
			49	79	24	
5			36	83	29	
10			25	73	40	COMPLETELY WEATHERED BASALT (WC) – Grayish brown, moist, dense.
15			96/10"	62	55	
						End boring at 15 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.67

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B68 DRIVING WT. 140 lb. START DATE 10/23/08

SURFACE ELEV. NA DROP 30 in. END DATE 10/23/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Reddish brown, moist, medium stiff.
			20	93	27	
5			29	94	29	
			39	75	45	
10						
			10/No Penetration			HIGHLY WEATHERED BASALT (WH) – Gray, dense to medium hard.
15						End boring at 15 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.68

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B69 DRIVING WT. 140 lb. START DATE 10/23/08
SURFACE ELEV. 48± DROP 30 in. END DATE 10/23/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Clayey SILT (ML) – Brown, moist, stiff.
			68	77	22	Reddish brown color from 1.5 feet.
			97/11"	91	19	
5			94/11"	88	19	
10			52/6"	95	23	
15			61	84	32	
						End boring at 15.5 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.69

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B70 DRIVING WT. 140 lb. START DATE 10/23/08
SURFACE ELEV. 62± DROP 30 in. END DATE 10/23/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0			71/11"	101	14	Clayey SILT (ML) – Brown, moist, stiff, with gravel.
5			50/5"	98	8	HIGHLY WEATHERED BASALT (WH) – Grayish brown, slightly moist, dense to medium hard.
10			10/No Penetration			
			50/3"	102	6	
15						End boring at 13 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						

Plate A4.70

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 06-4381

BORING NO. B71 DRIVING WT. 140 lb. START DATE 10/22/08
SURFACE ELEV. 12.5± DROP 30 in. END DATE 10/22/08

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						
			50/5"	82	12	Clayey SILT (ML) – Reddish brown, moist, stiff.
			10/No Penetration			HIGHLY WEATHERED BASALT (WH) – Grayish brown, dense.
5						
			13	65	22	Completely weathered basalt from 8 to 12.5 feet.
10						
			10/No Penetration			
15						End boring at 15 feet.
20						Neither groundwater nor seepage water encountered.
25						
30						Plate A4.71

APPENDIX B

LABORATORY TESTING

DESCRIPTION OF LABORATORY TESTING

CLASSIFICATION

Field classification was verified in the laboratory in accordance with the Unified Soil Classification System. Laboratory classification was determined by both visual examination and Atterberg Limit tests performed in general accordance with ASTM D 4318. Results of Atterberg Limit tests are presented in the table below. The final classifications are shown at the appropriate locations on the Boring Logs, Plates A4.1 through A4.71.

Location	Liquid Limit	Plasticity Index	Classification
B3 @ 1'	39	13	ML
B6 @ 2'	37	12	ML
B18 @ 1'	40	13	ML
B21 @ 1'	48	18	ML
B24 @ 1'	36	11	ML
B26 @ 1'	47	19	ML
B47 @ 2'	43	15	ML

MOISTURE-DENSITY

Representative samples were tested for field moisture content and dry unit weight. The dry unit weight was determined in pounds per cubic foot while the moisture content was determined as a percentage of dry weight. Samples were obtained using a 3-inch O.D. split tube sampler. Test results are shown at the appropriate depths on the Boring Logs, Plates A4.1 through A4.71.

CONSOLIDATION

Representative samples were tested for their consolidation characteristics. Test samples were 2.42 inches in diameter and 1 inch high. Porous stones were placed in

contact with the top and bottom of test samples to permit addition and release of pore fluid. Loads were then applied in several increments in a geometric progression, and the resulting deformations recorded at selected time intervals. Test results are plotted on the Consolidation Test Reports, Plates B2.1 through B2.12.

SHEAR TESTS

Shear tests were performed in the Direct Shear Machine which is of the strain control type. Each sample was sheared under varying confining loads in order to determine the Coulomb shear strength parameters, cohesion and angle of internal friction. Test results are presented on Plates B3.1 through B3.15.

SWELL TESTS

Swell tests were performed on representative soil samples by first placing a 90 psf surcharge load on one inch high specimens. The samples were inundated with water, and total expansion was recorded after a period of at least 24 hours. Swell test performed on near surface representative samples obtained from borings B8, B10, B32, B37, B40, B42, B58, B65, and B68 all resulted in no swell. The moisture content of these samples prior to testing ranged from about 14 to 31 percent. Swell tests performed on near surface representative samples obtained from borings B2, B19, B27, and B46 resulted in expansions ranging from 0.3 to 0.6 percent. Swell test results are indicated as a percentage of original height. The moisture content of these samples prior to testing ranged from about 20 to 22 percent.

PROCTOR TEST

Modified Proctor tests were performed on seven bulk samples in general accordance with ASTM D 1557. The test is used to determine the optimum moisture content at which the soil compacts to 100 percent density. Results are shown on Plates B4.1 through B4.7.

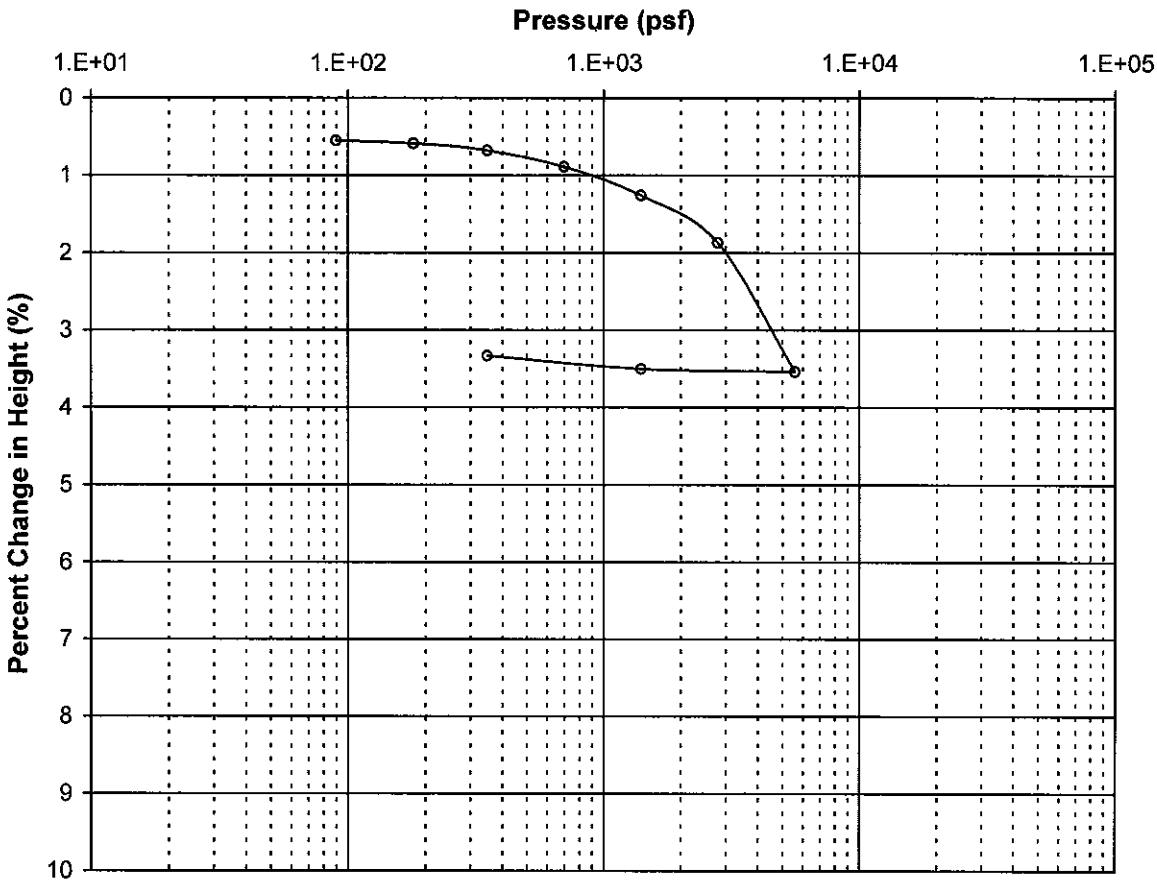
CALIFORNIA BEARING RATIO TEST

CBR tests were performed on seven bulk samples in general accordance with ASTM D 1883. The test is used to evaluate the relative quality of subgrade soils to be used in the design of flexible pavements. Results are shown on Plates B5.1 through B5.7.

EXPANSION INDEX TEST

Expansion index tests were performed in general accordance with ASTM D 4829. A surcharge load of 144 psf was placed on one-inch high by four-inch diameter specimens which were molded to about 50 percent saturation at the soil's approximate optimum moisture content. The samples were inundated with water, and total expansion recorded after volumetric equilibrium was reached. Expansion index tests performed on bulk samples obtained from borings B5, B14, B24, and B67 at depths ranging from between about 1 to 3 feet, resulted in expansion indices ranging from 11 to 24, which correspond to very low to low expansion potentials.

Consolidation Test Results



Sample Description

Boring No.: B1 Depth (ft): 4

Soil Description: Dark reddish brown clayey silt

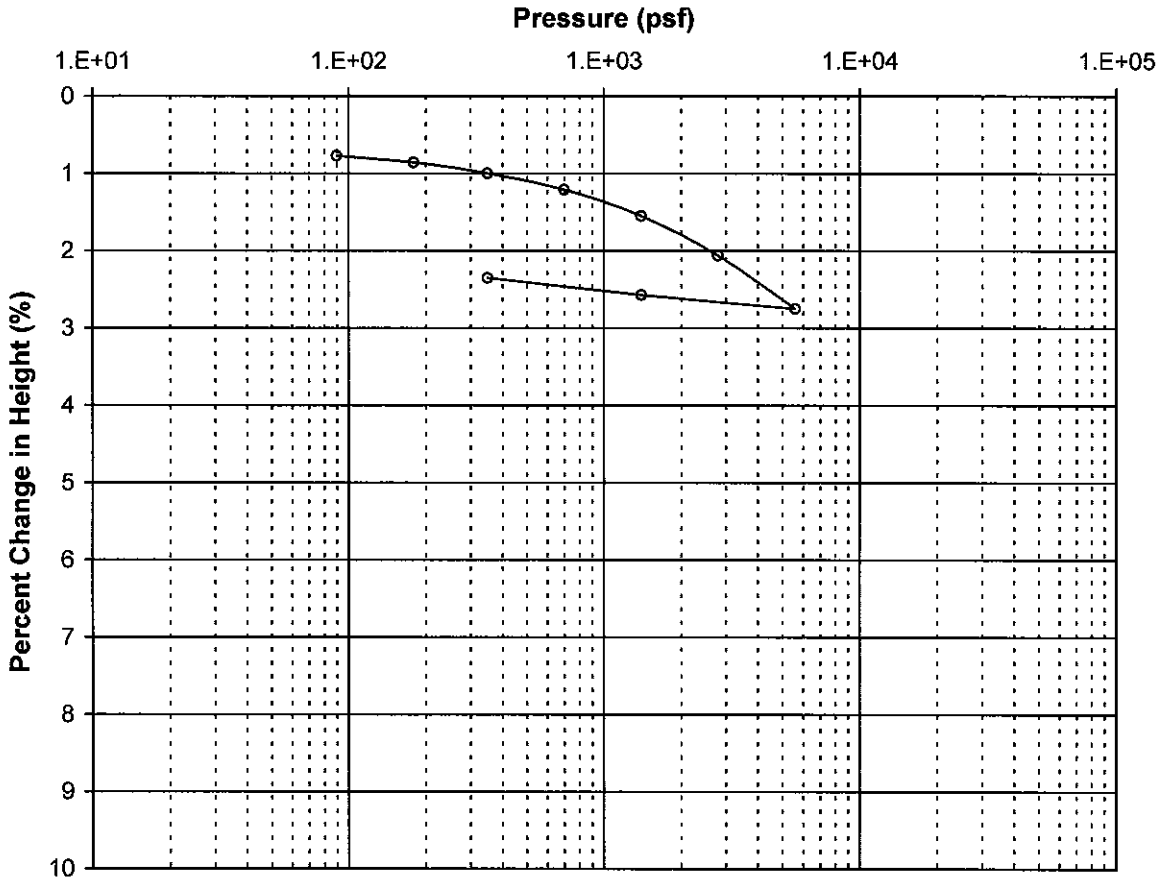
	Moisture Content (%)	Dry Density (pcf)
Initial	23.7	92.1
Final	22.9	95.3

Remark: 12/1/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.1

Consolidation Test Results



Sample Description

Boring No.: B4 Depth (ft): 8

Soil Description: Grayish brown clayey silt

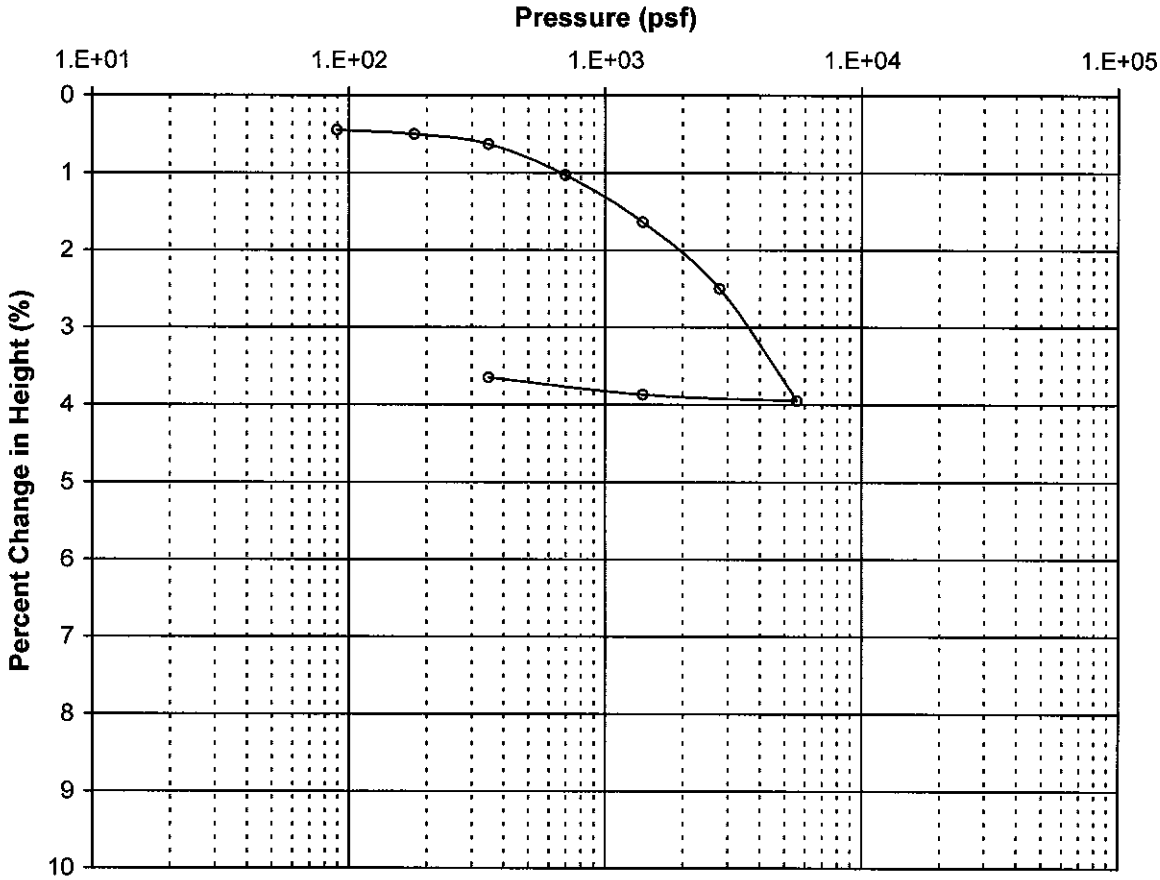
	Moisture Content (%)	Dry Density (pcf)
Initial	27.6	98.4
Final	26.9	100.8

Remark: 12/1/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.2

Consolidation Test Results



Sample Description

Boring No.: B7 Depth (ft): 5

Soil Description: Grayish brown clayey silt

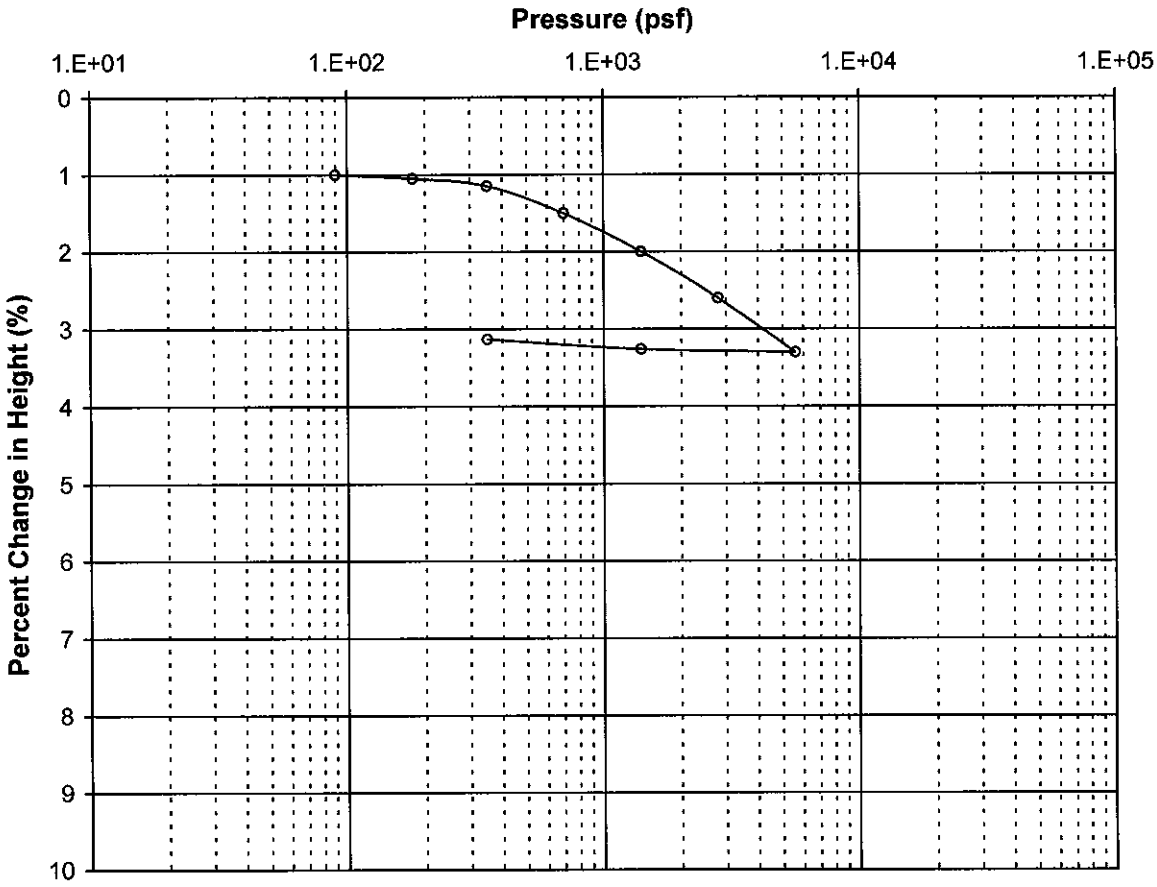
	Moisture Content (%)	Dry Density (pcf)
Initial	24.6	81.2
Final	23.8	84.3

Remark: 12/3/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.3

Consolidation Test Results



Sample Description

Boring No.: B20 Depth (ft): 3

Soil Description: Reddish brown clayey silt

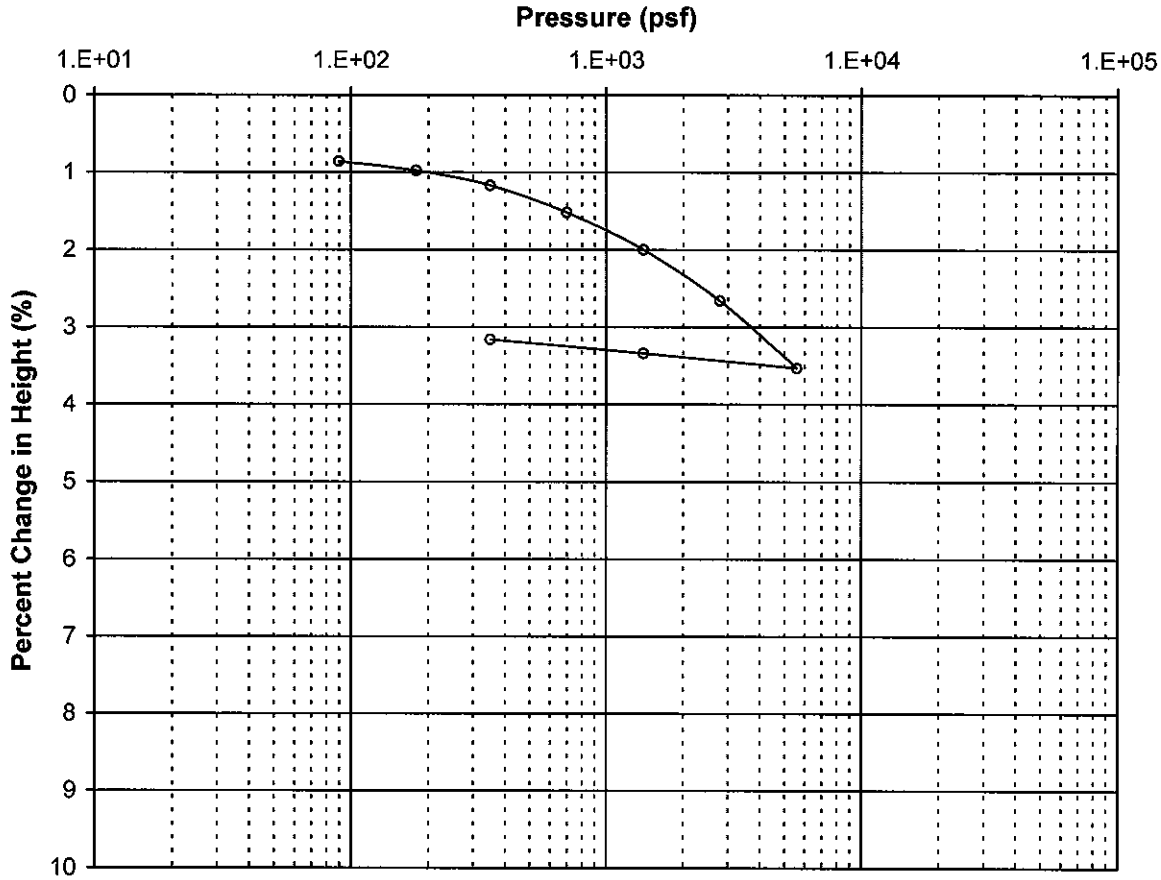
	Moisture Content (%)	Dry Density (pcf)
Initial	19.3	85.8
Final	17.9	88.6

Remark: 12/3/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.4

Consolidation Test Results



Sample Description

Boring No.: B28 Depth (ft): 5

Soil Description: Reddish brown clayey silt

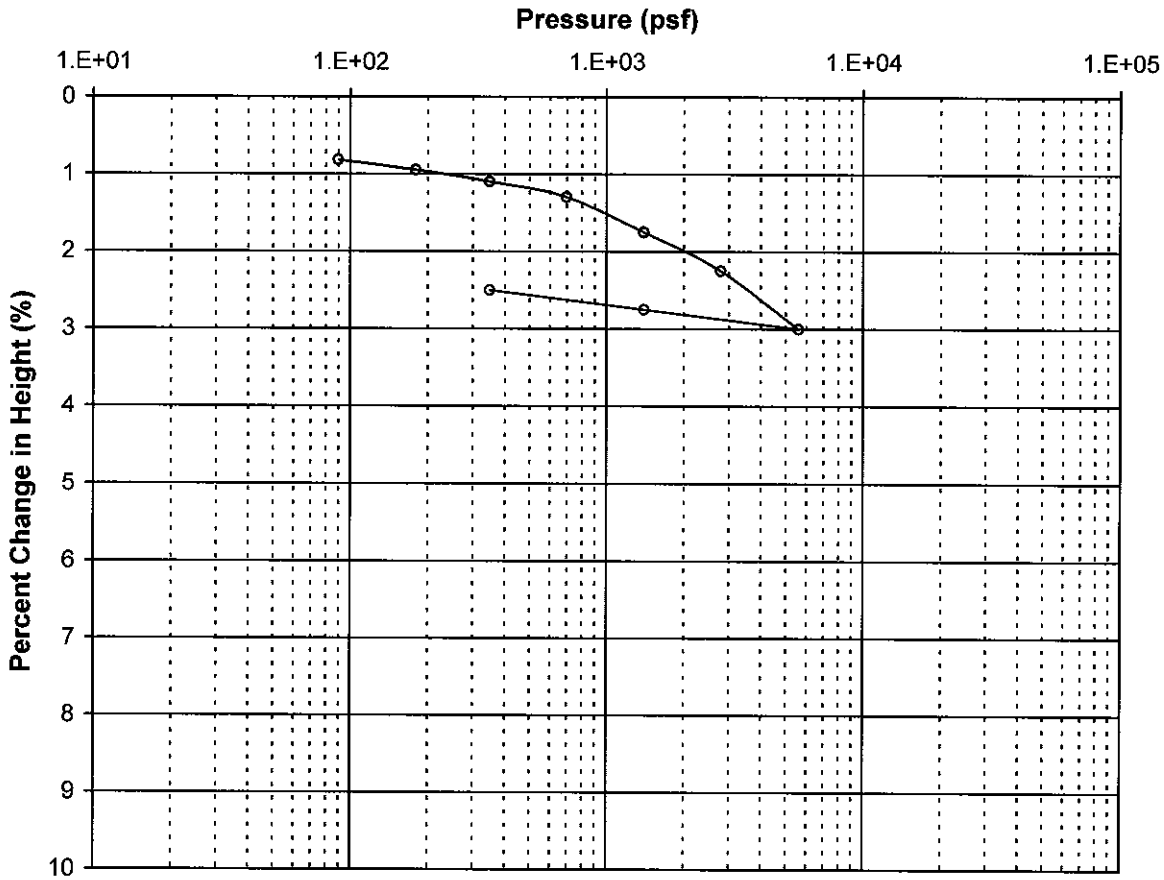
	Moisture Content (%)	Dry Density (pcf)
Initial	25.0	76.7
Final	23.7	79.2

Remark: 12/4/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.5

Consolidation Test Results



Sample Description

Boring No.: B34 Depth (ft): 4

Soil Description: Reddish brown clayey silt

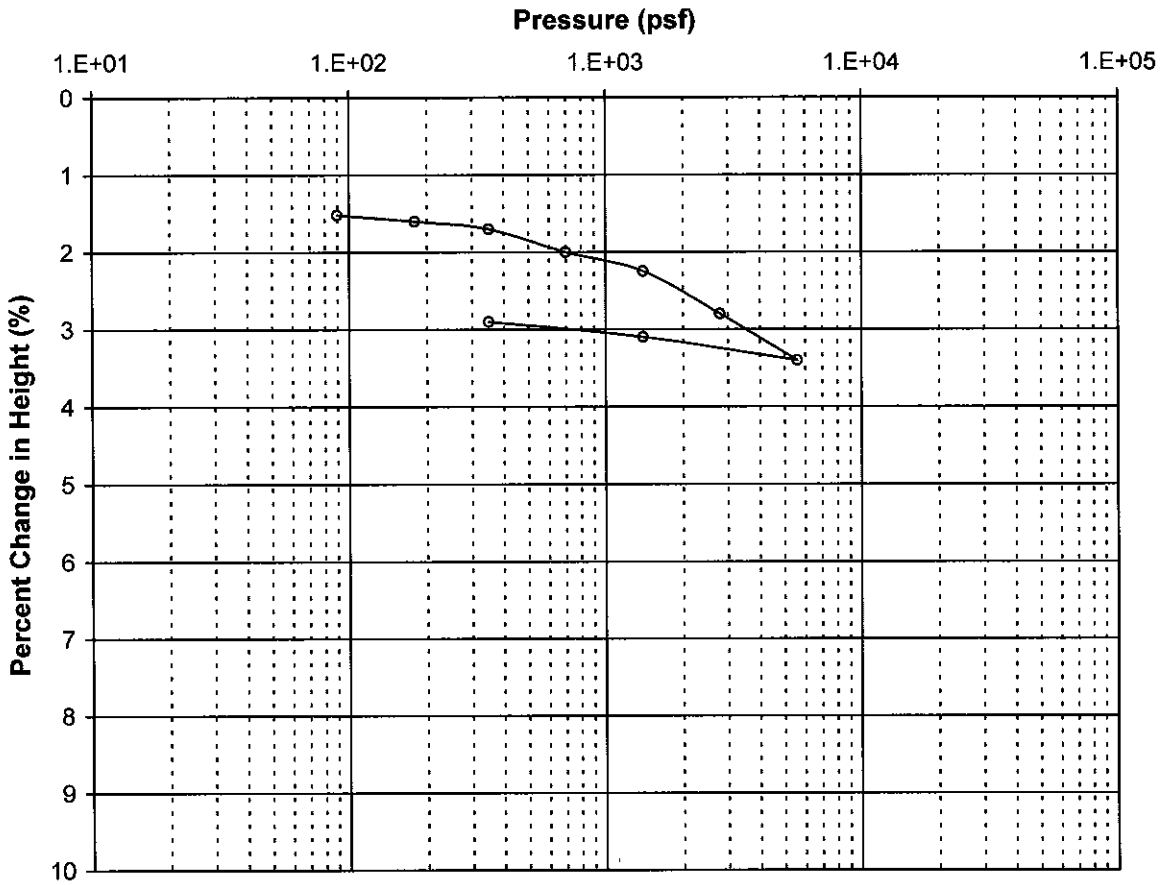
	Moisture Content (%)	Dry Density (pcf)
Initial	21.5	81.5
Final	18.2	83.6

Remark: 12/11/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.6

Consolidation Test Results



Sample Description

Boring No.: B43 Depth (ft): 4

Soil Description: Grayish brown clayey silt

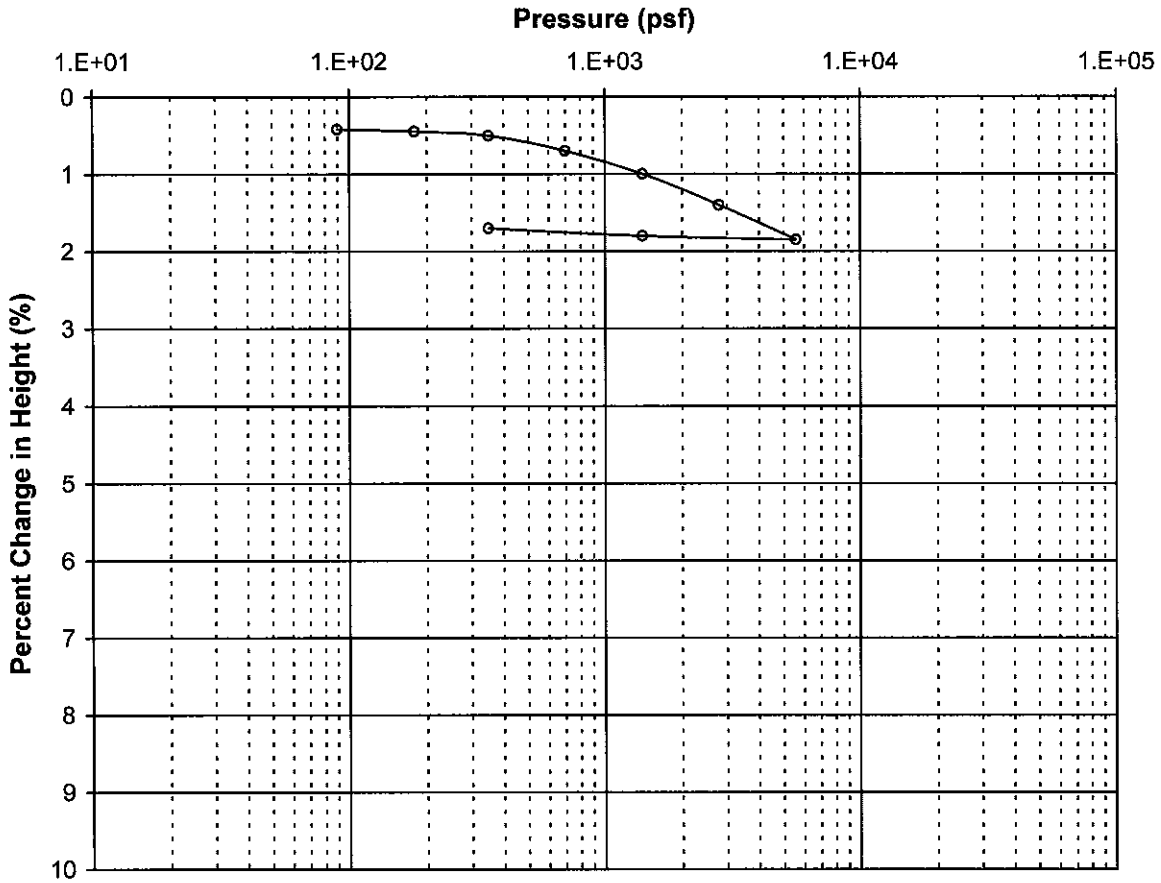
	Moisture Content (%)	Dry Density (pcf)
Initial	19.6	74.8
Final	16.9	77.0

Remark: 12/10/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.7

Consolidation Test Results



Sample Description

Boring No.: B52 Depth (ft): 4

Soil Description: Reddish brown clayey silt

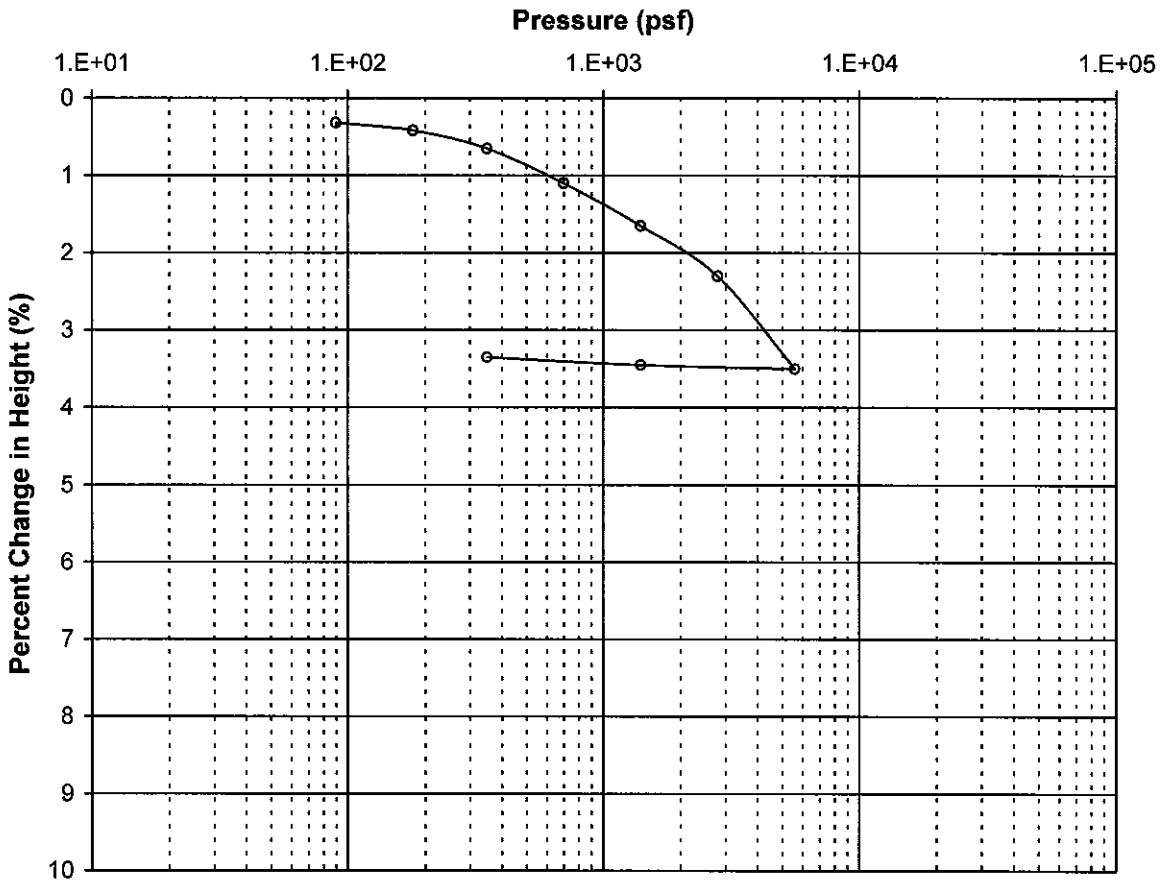
	Moisture Content (%)	Dry Density (pcf)
Initial	28.3	67.7
Final	27.8	68.9

Remark: 12/11/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	CONSOLIDATION TEST

Plate B2.8

Consolidation Test Results



Sample Description

Boring No.: B59 Depth (ft): 4

Soil Description: Reddish brown clayey silt

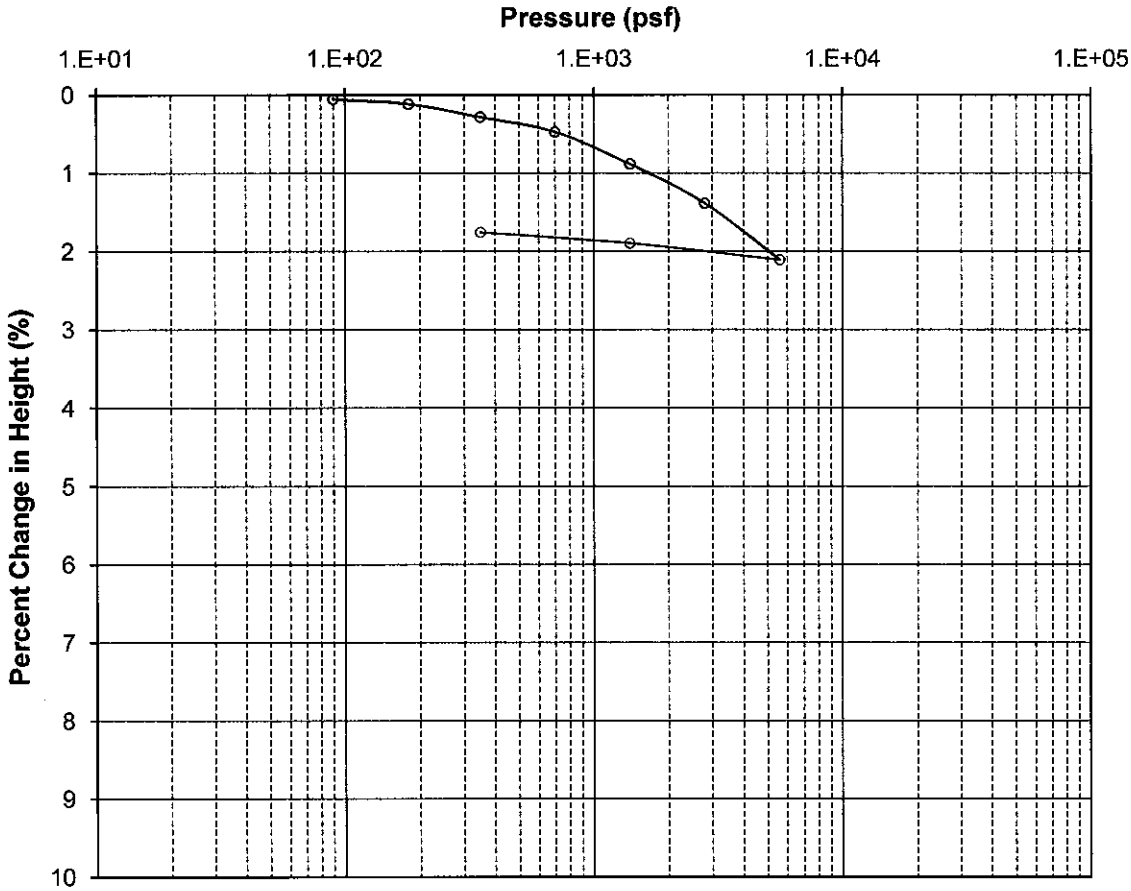
	Moisture Content (%)	Dry Density (pcf)
Initial	36.6	83.0
Final	36.2	85.9

Remark: 12/4/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.9

Consolidation Test Results



Sample Description

Boring No.: B63 Depth (ft) 5

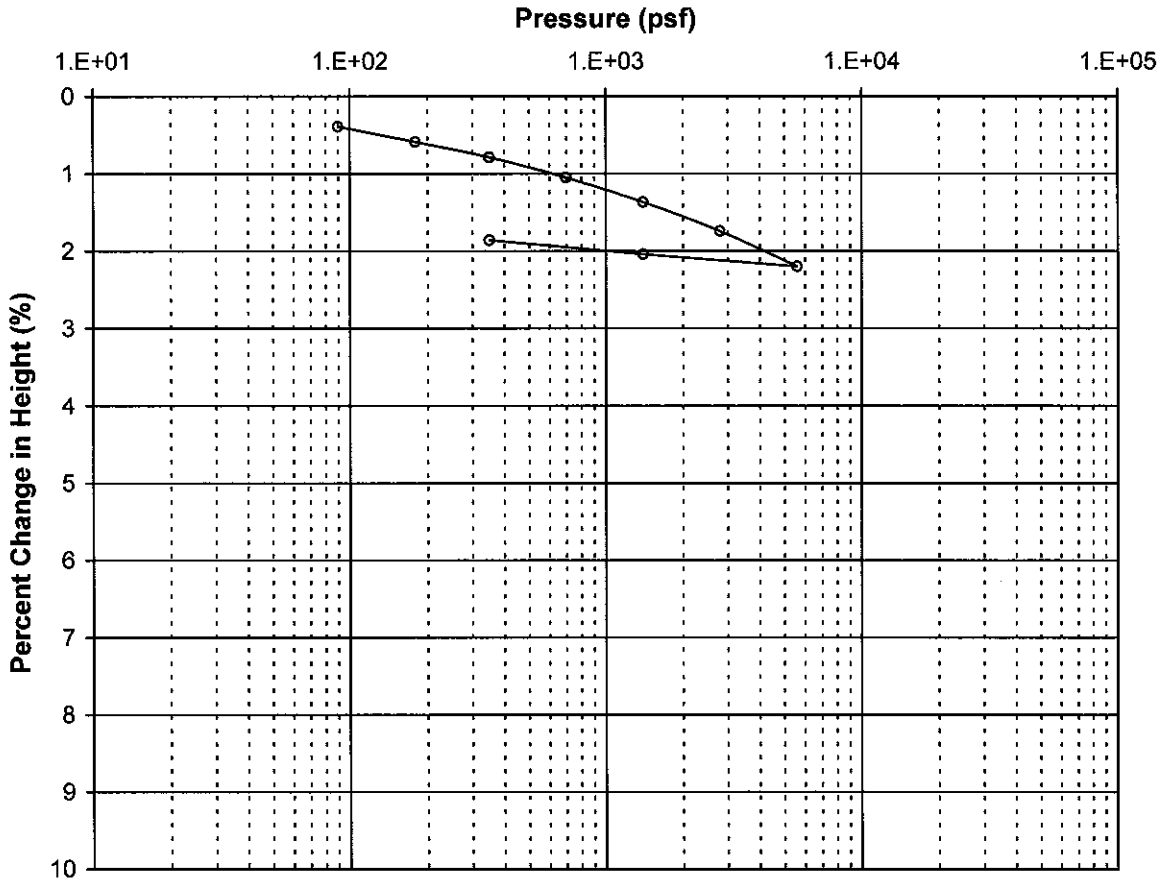
Soil Description: Reddish brown clayey silt

	Moisture Content (%)	Dry Density (pcf)
Initial	20.3	94.9
Final	19.2	96.6

Remark: 12/10/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST** Plate B2.10

Consolidation Test Results



Sample Description

Boring No.: B64 Depth (ft): 4

Soil Description: Reddish brown clayey silt

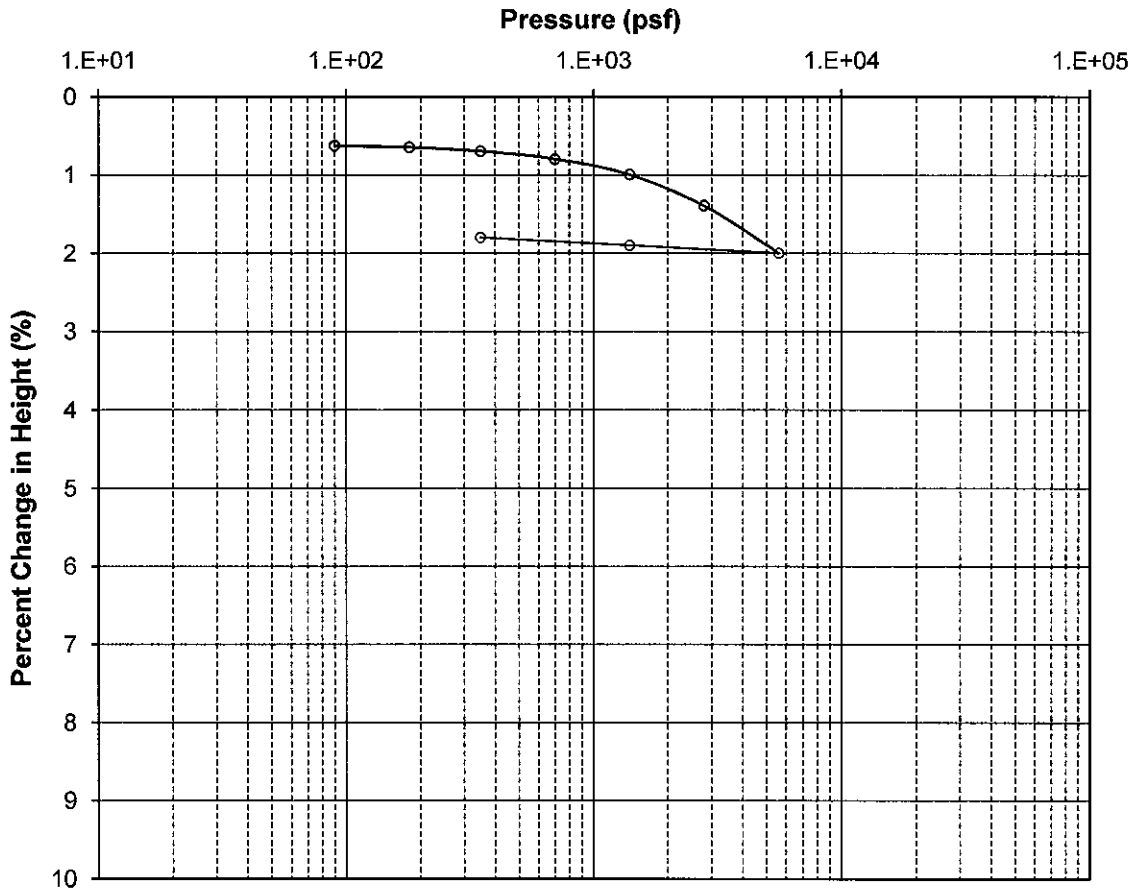
	Moisture Content (%)	Dry Density (pcf)
Initial	31.4	86.4
Final	30.2	88.0

Remark: 12/5/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.11

Consolidation Test Results



Sample Description

Boring No.: B66 Depth (ft) 4

Soil Description: Brown clayey silt

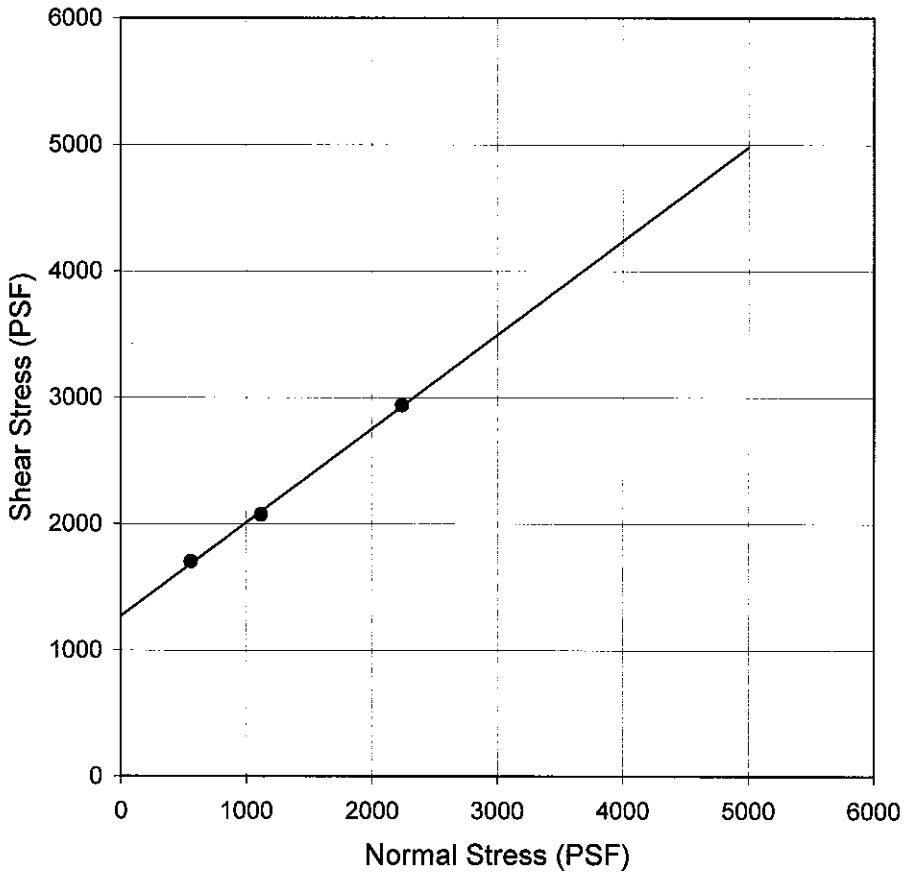
	Moisture Content (%)	Dry Density (pcf)
Initial	24.2	83.4
Final	23.8	84.9

Remark: 12/5/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**CONSOLIDATION TEST**

Plate B2.12

Direct Shear Test Results



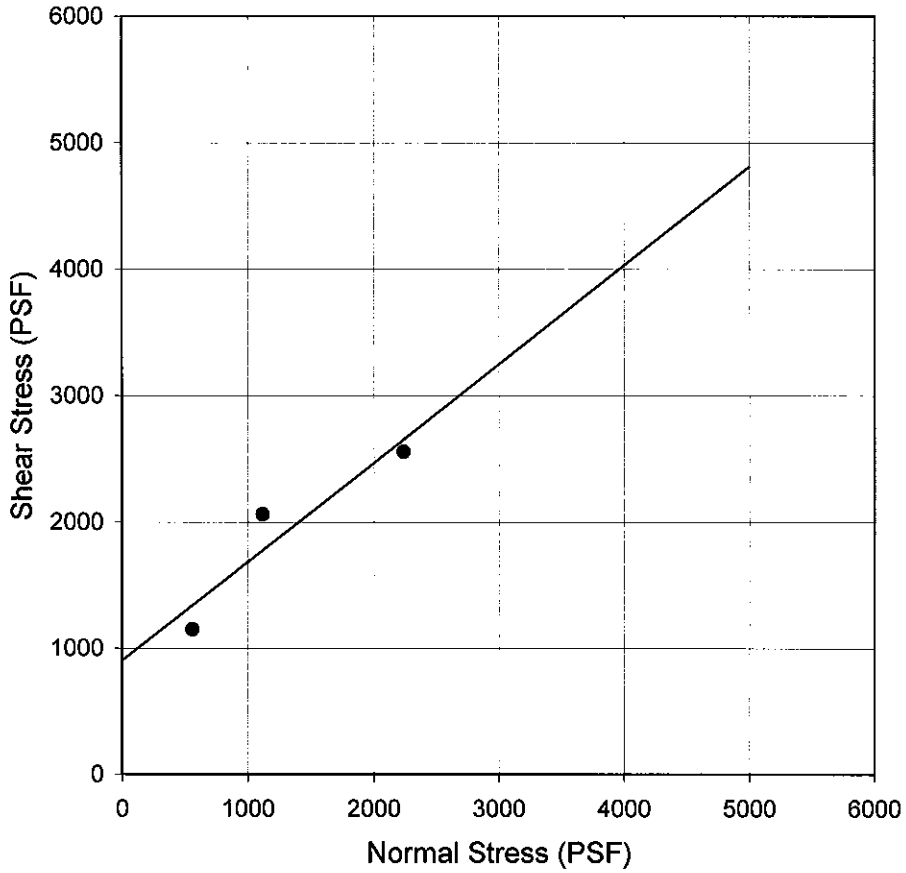
Sample Description

Boring No.: B3 Depth (ft): 4
Soil Description: Grayish brown clayey silt
Strength Intercept (C): 1266.6 PSF (Peak Strength)
Friction Angle (ϕ): 36.6 DEG (Peak Strength)

Remark: 11/2/2008

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.1

Direct Shear Test Results



Sample Description

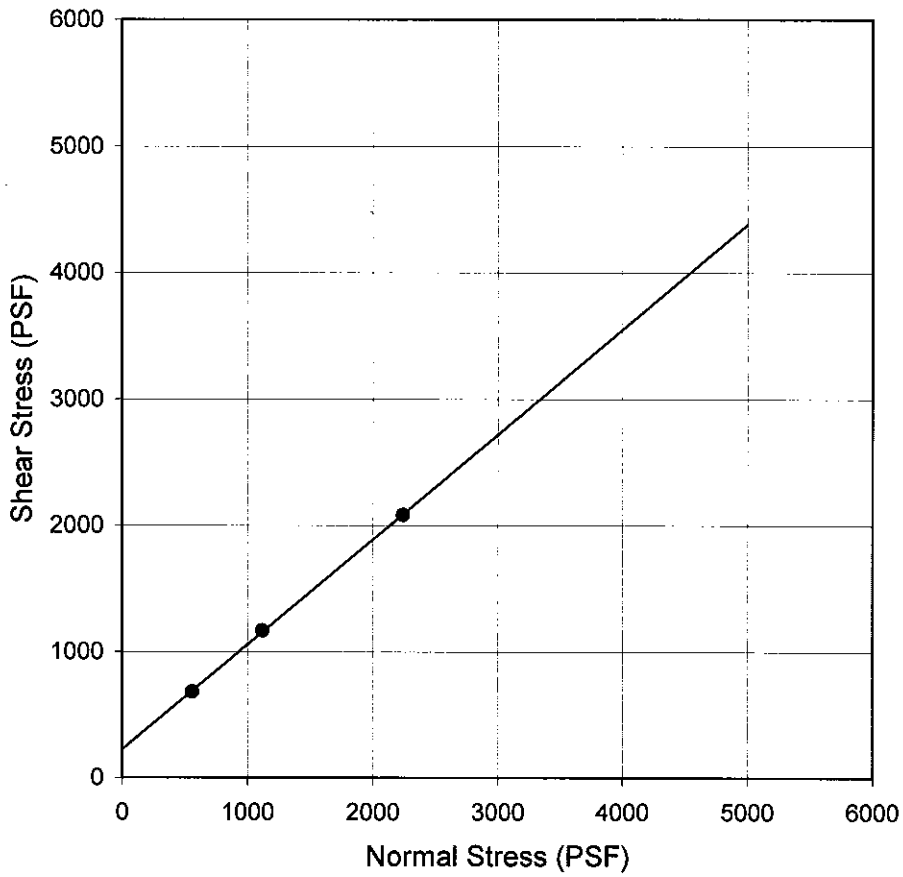
Boring No.: B5	Depth (ft): 5	
Soil Description:	Grayish brown clayey silt	
Strength Intercept (C):	900.1 PSF	(Peak Strength)
Friction Angle (ϕ):	38.0 DEG	(Peak Strength)

Remark: 12/03/08

W.O. 06-4381	**Maui Business Park, Phase II**
Hirata & Associates, Inc.	**DIRECT SHEAR TEST**

Plate B3.2

Direct Shear Test Results



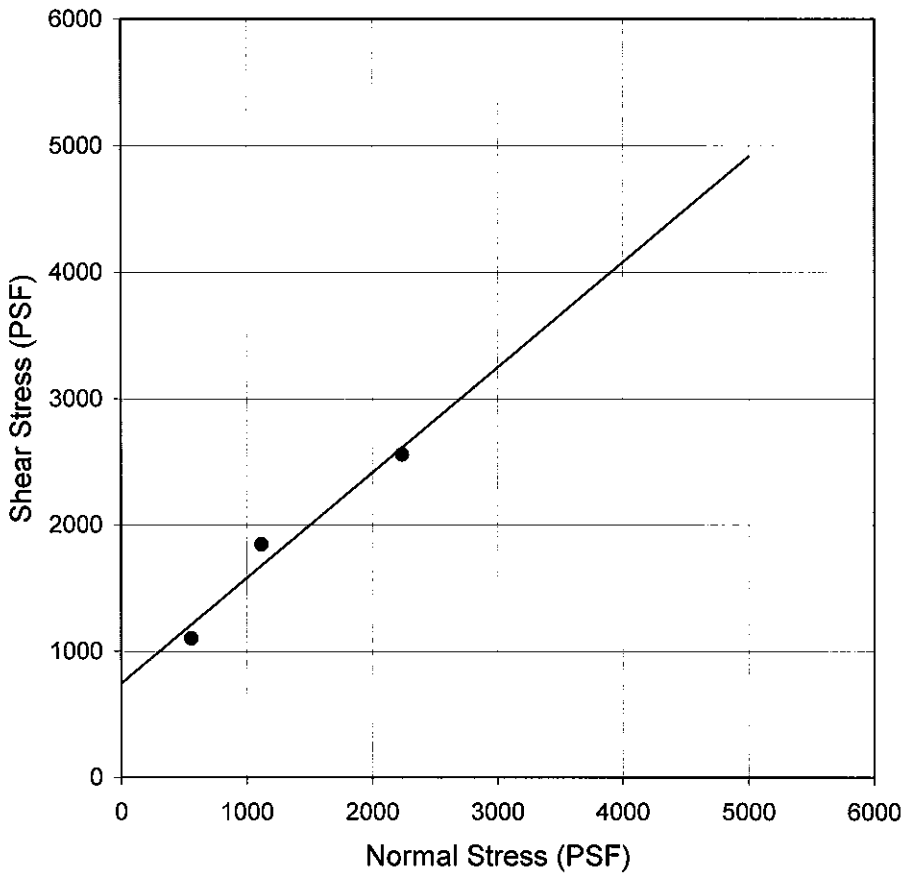
Sample Description

Boring No.: B12 Depth (ft): 3
Soil Description: Reddish brown clayey silt
Strength Intercept (C): 224.3 PSF (Peak Strength)
Friction Angle (ϕ): 39.7 DEG (Peak Strength)

Remark: 12/03/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.3

Direct Shear Test Results



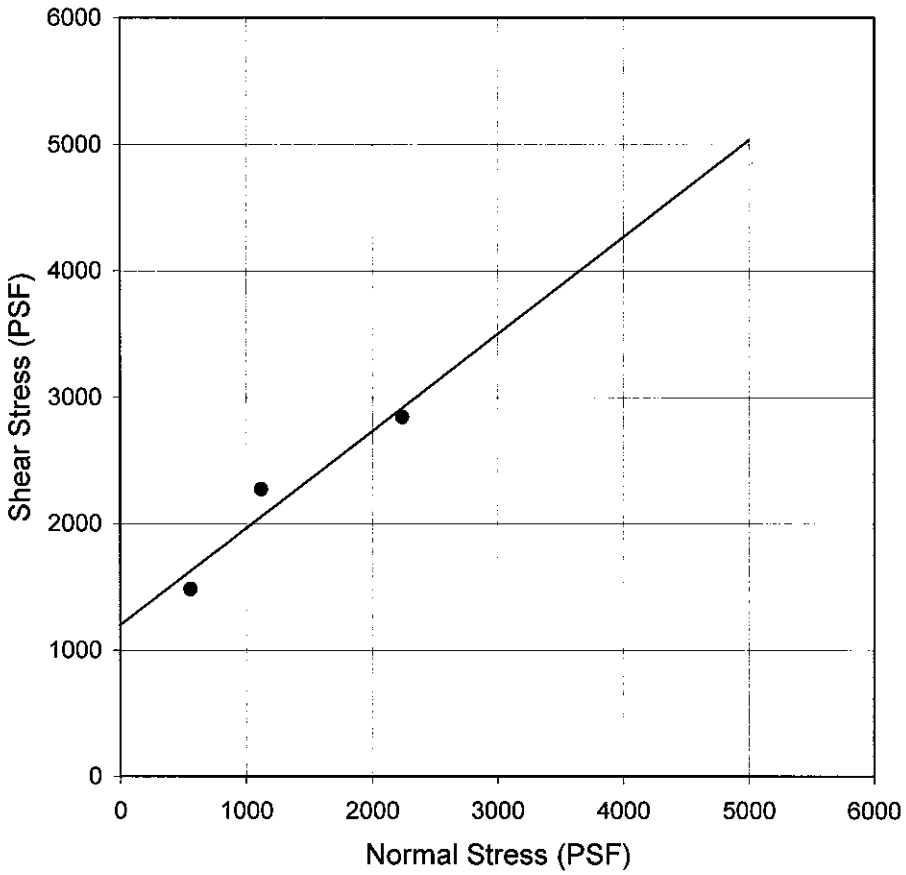
Sample Description

Boring No.:	B16	Depth (ft): 3	
Soil Description:	Reddish brown clayey silt		
Strength Intercept (C):		743.1 PSF	(Peak Strength)
Friction Angle (ϕ):		39.8 DEG	(Peak Strength)

Remark: 12/03/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST**
	Plate B3.4

Direct Shear Test Results



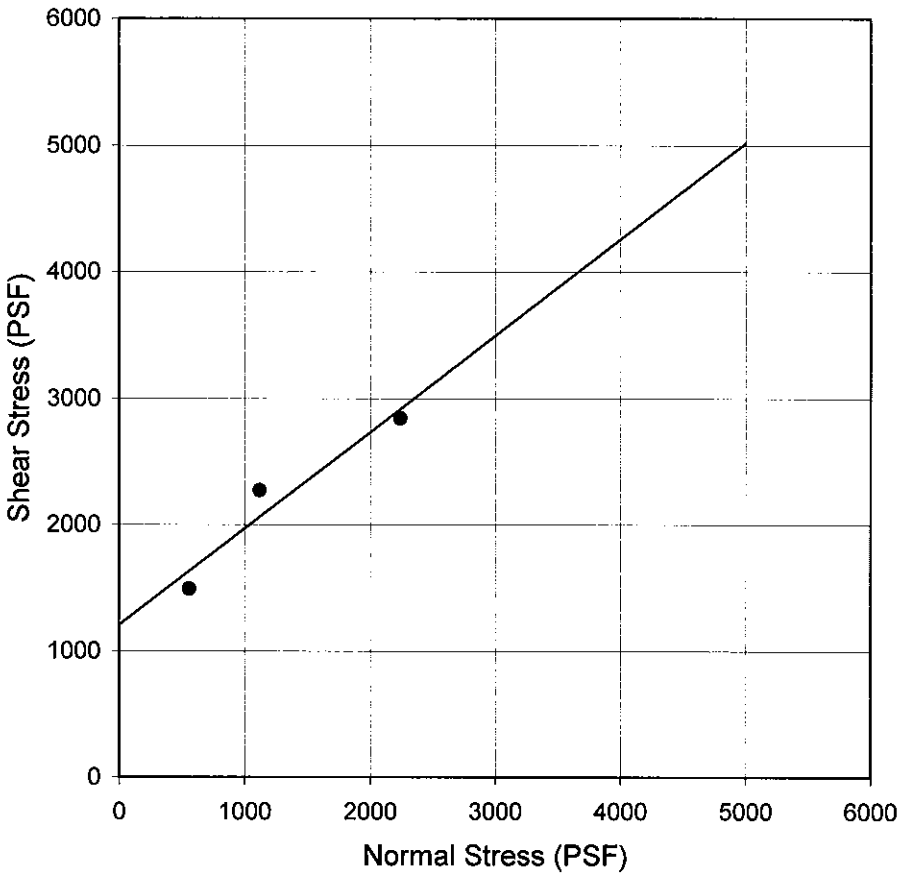
Sample Description

Boring No.: B18 Depth (ft): 2
Soil Description: Reddish brown clayey silt
Strength Intercept (C): 1195.2 PSF (Peak Strength)
Friction Angle (ϕ): 37.5 DEG (Peak Strength)

Remark: 12/03/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.5

Direct Shear Test Results



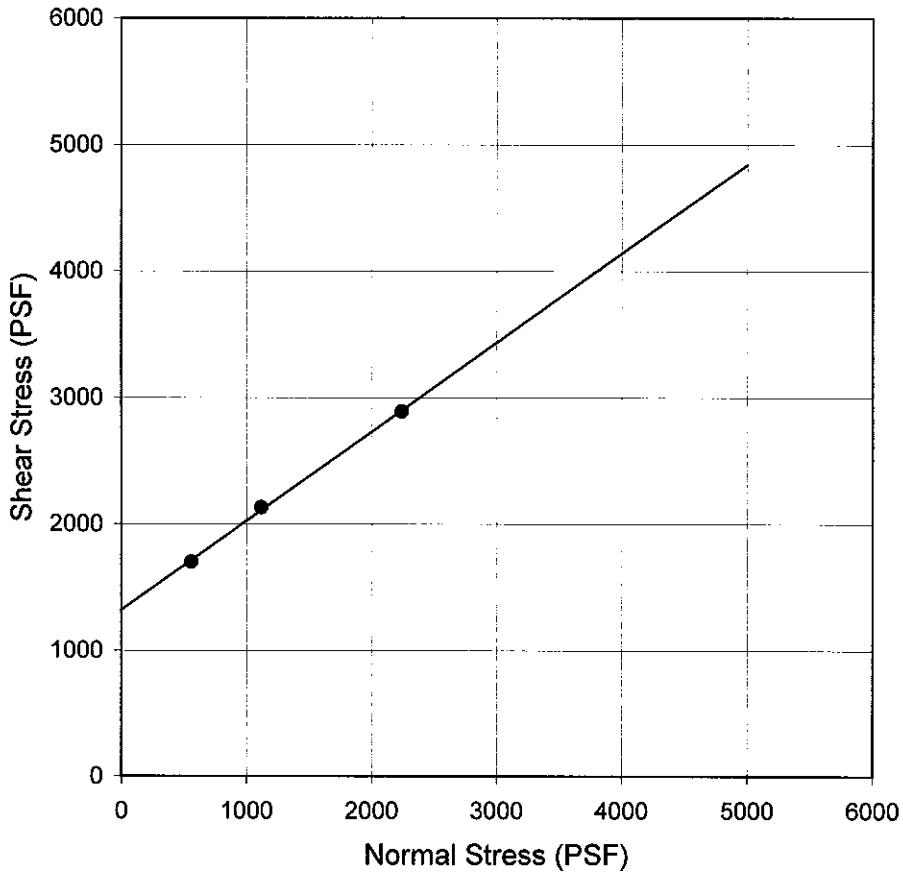
Sample Description

Boring No.: B21 Depth (ft): 4
Soil Description: Reddish brown clayey silt
Strength Intercept (C): 1204.7 PSF (Peak Strength)
Friction Angle (ϕ): 37.3 DEG (Peak Strength)

Remark: 12/03/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.6

Direct Shear Test Results



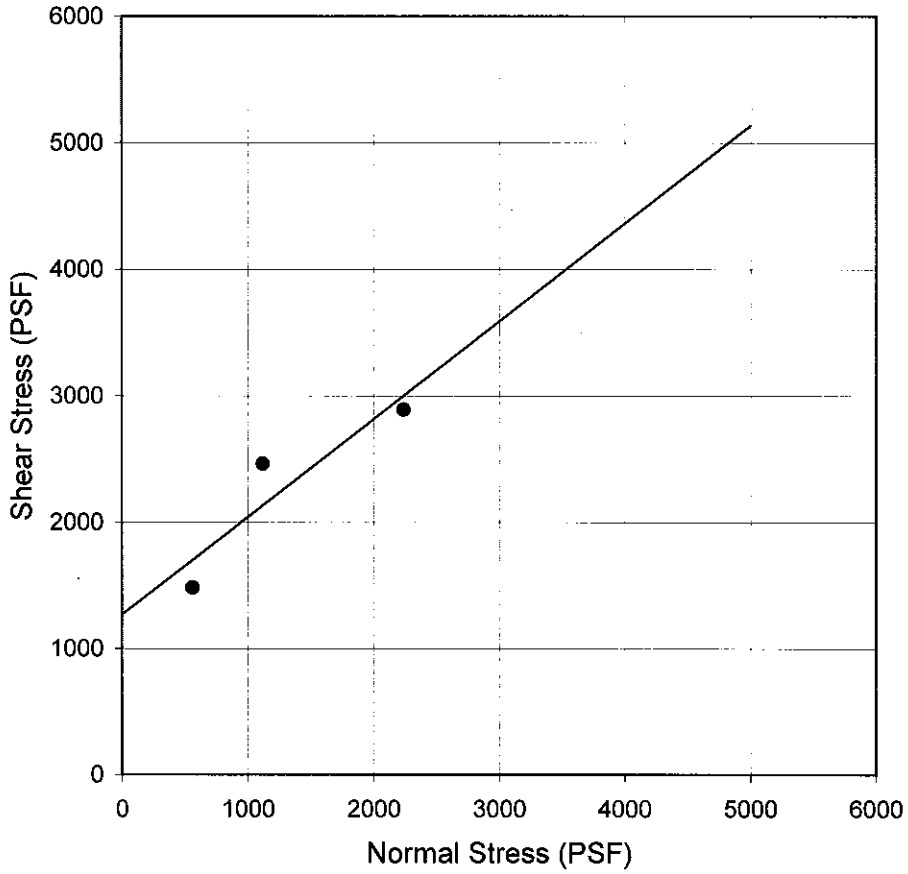
Sample Description

Boring No.: B23 Depth (ft): 8
Soil Description: Reddish brown clayey silt
Strength Intercept (C): 1318.9 PSF (Peak Strength)
Friction Angle (ϕ): 35.2 DEG (Peak Strength)

Remark: 12/05/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.7

Direct Shear Test Results



Sample Description

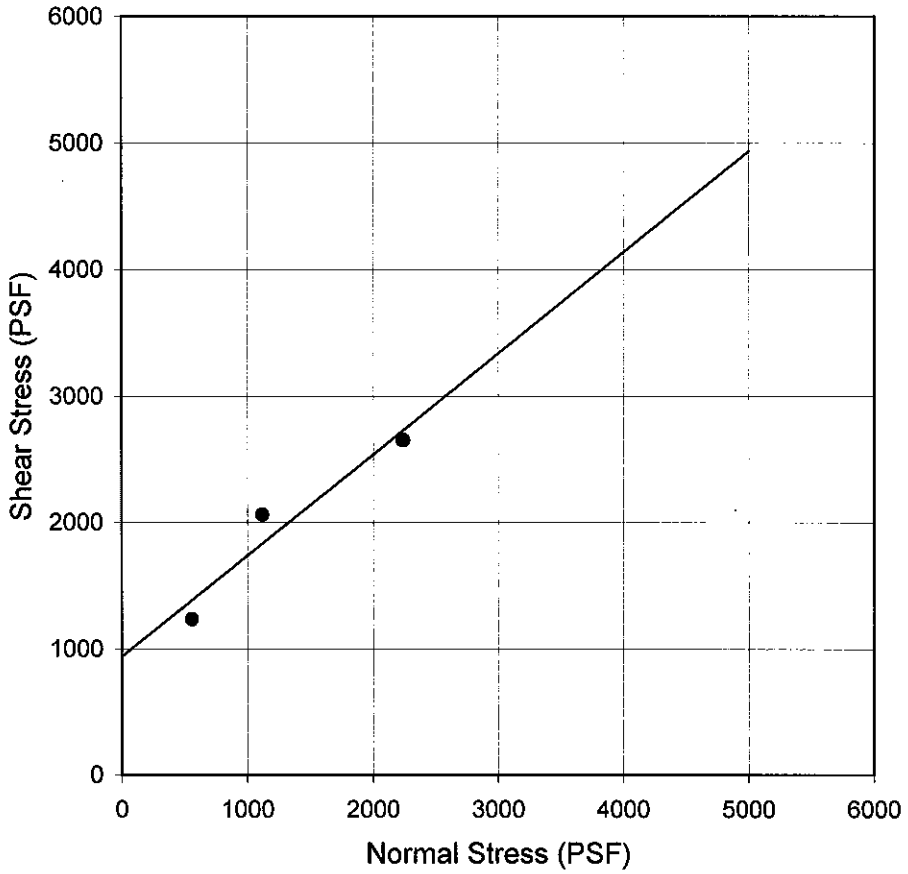
Boring No.: B24 Depth (ft): 5
Soil Description: Brown clayey silt
Strength Intercept (C): 1266.6 PSF (Peak Strength)
Friction Angle (ϕ): 37.7 DEG (Peak Strength)

Remark: 12/03/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST**

Plate B3.8

Direct Shear Test Results



Sample Description

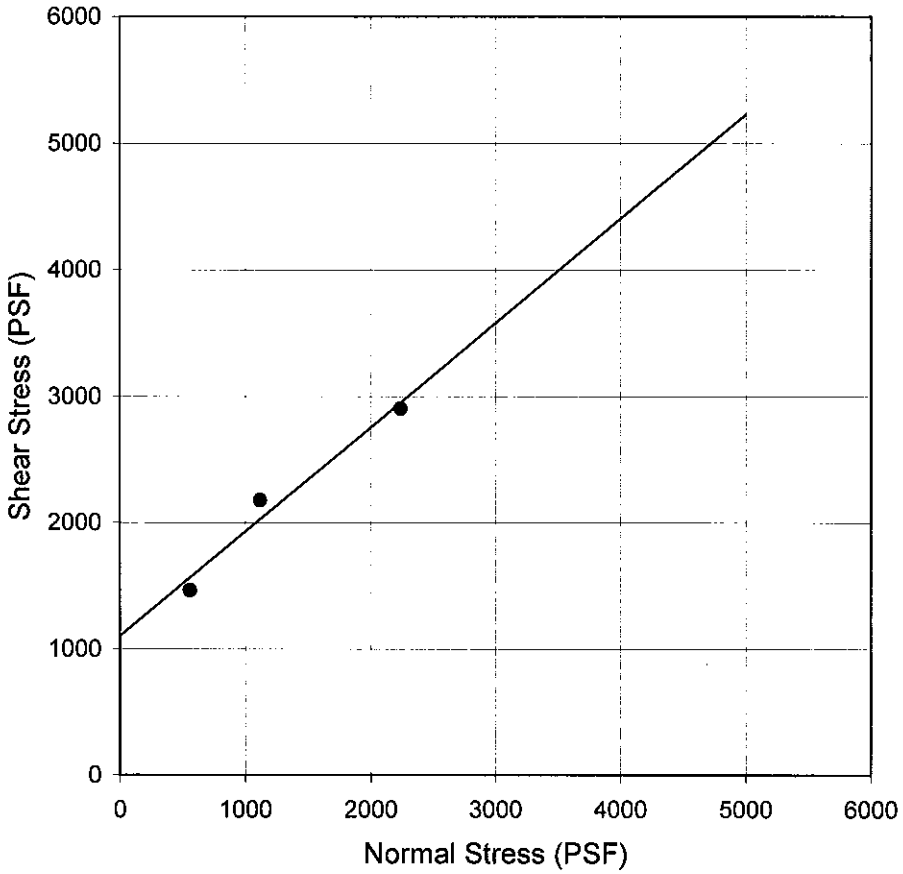
Boring No.:	B26	Depth (ft): 3	
Soil Description:	Reddish brown clayey silt		
Strength Intercept (C):		938.2 PSF	(Peak Strength)
Friction Angle (ϕ):		38.6 DEG	(Peak Strength)

Remark: 12/03/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST**

Plate B3.9

Direct Shear Test Results



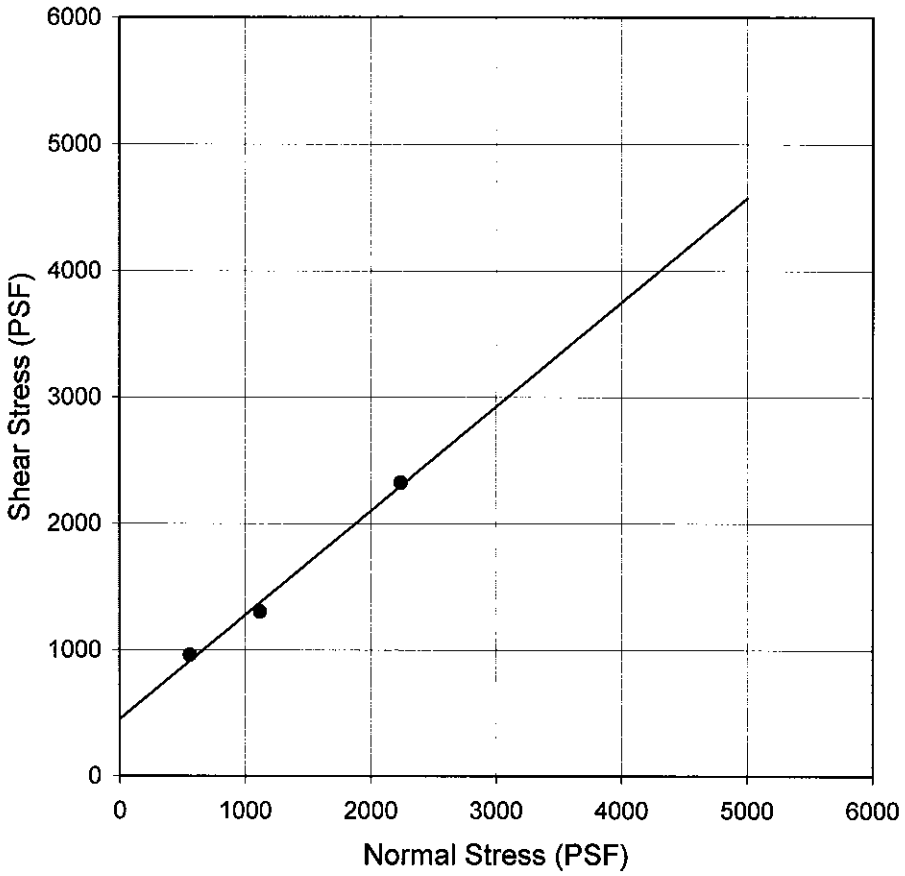
Sample Description

Boring No.: B31 Depth (ft): 4
Soil Description: Brown clayey silt
Strength Intercept (C): 1100.0 PSF (Peak Strength)
Friction Angle (ϕ): 39.5 DEG (Peak Strength)

Remark: 12/05/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.10

Direct Shear Test Results



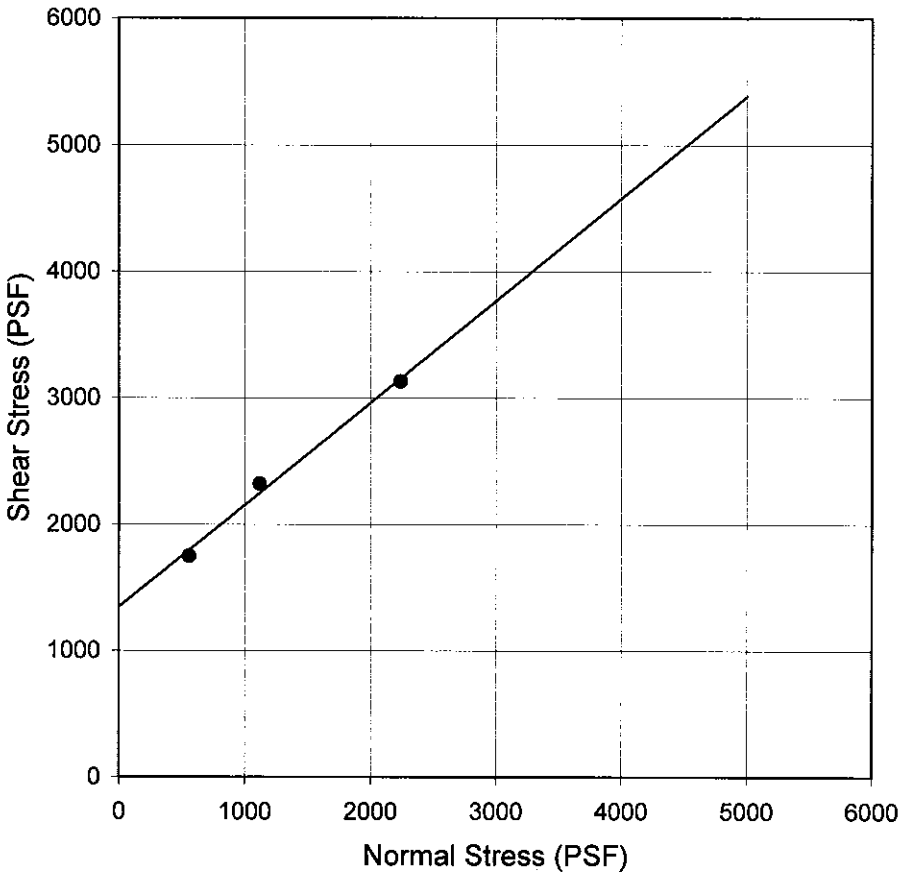
Sample Description

Boring No.: B49 Depth (ft): 5
Soil Description: Reddish brown clayey silt
Strength Intercept (C): 448.0 PSF (Peak Strength)
Friction Angle (ϕ): 39.5 DEG (Peak Strength)

Remark: 12/03/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.11

Direct Shear Test Results



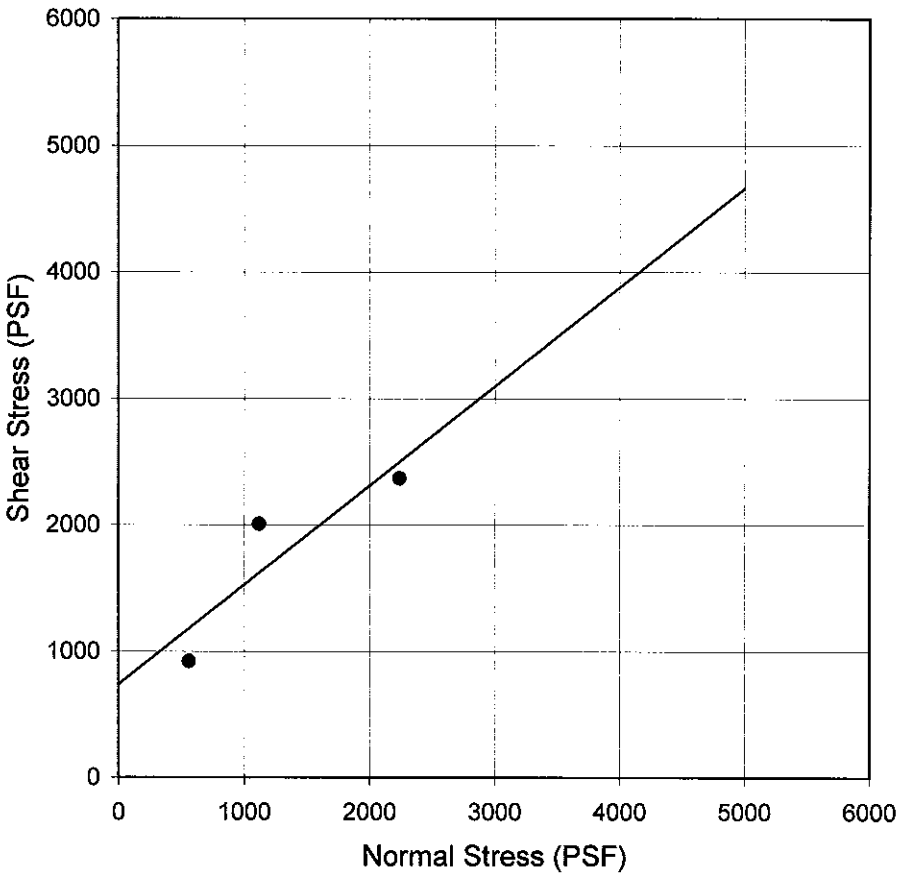
Sample Description

Boring No.: B55 Depth (ft): 4
Soil Description: Reddish brown clayey silt
Strength Intercept (C): 1342.7 PSF (Peak Strength)
Friction Angle (ϕ): 38.9 DEG (Peak Strength)

Remark: 12/03/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.12

Direct Shear Test Results



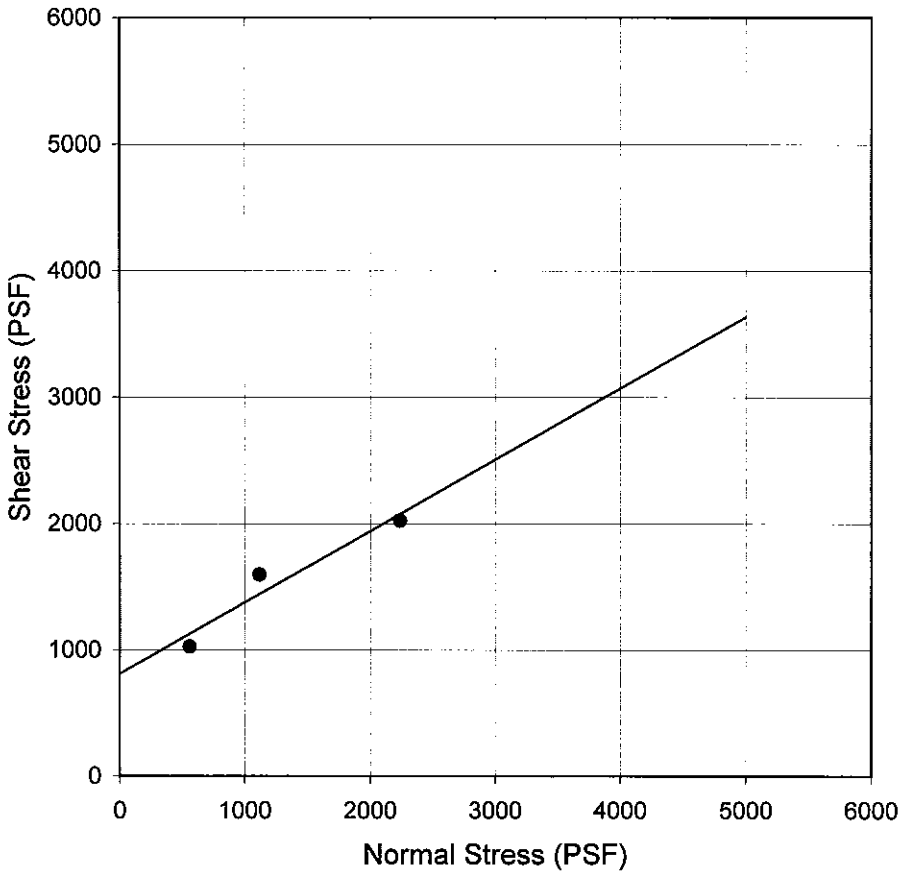
Sample Description

Boring No.: B56 Depth (ft): 4
Soil Description: Reddish brown clayey silt
Strength Intercept (C): 738.3 PSF (Peak Strength)
Friction Angle (ϕ): 38.1 DEG (Peak Strength)

Remark: 12/05/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.13

Direct Shear Test Results



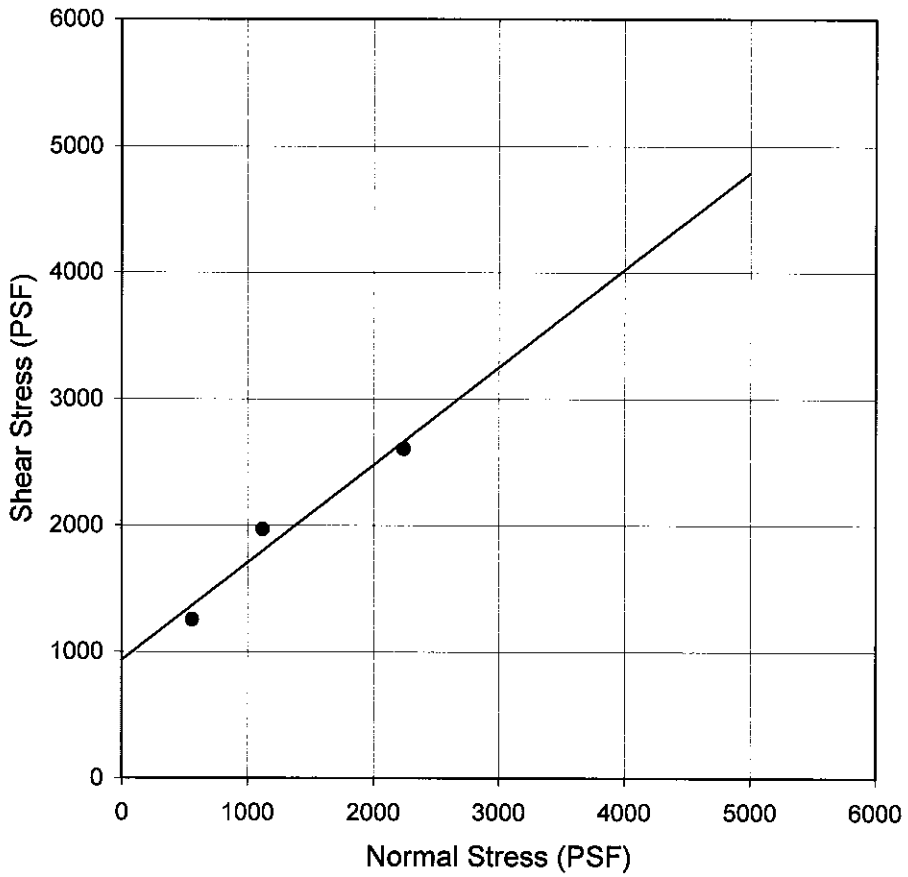
Sample Description

Boring No.: B57 Depth (ft): 8
Soil Description: Reddish brown clayey silt
Strength Intercept (C): 809.7 PSF (Peak Strength)
Friction Angle (ϕ): 29.4 DEG (Peak Strength)

Remark: 12/03/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.14

Direct Shear Test Results

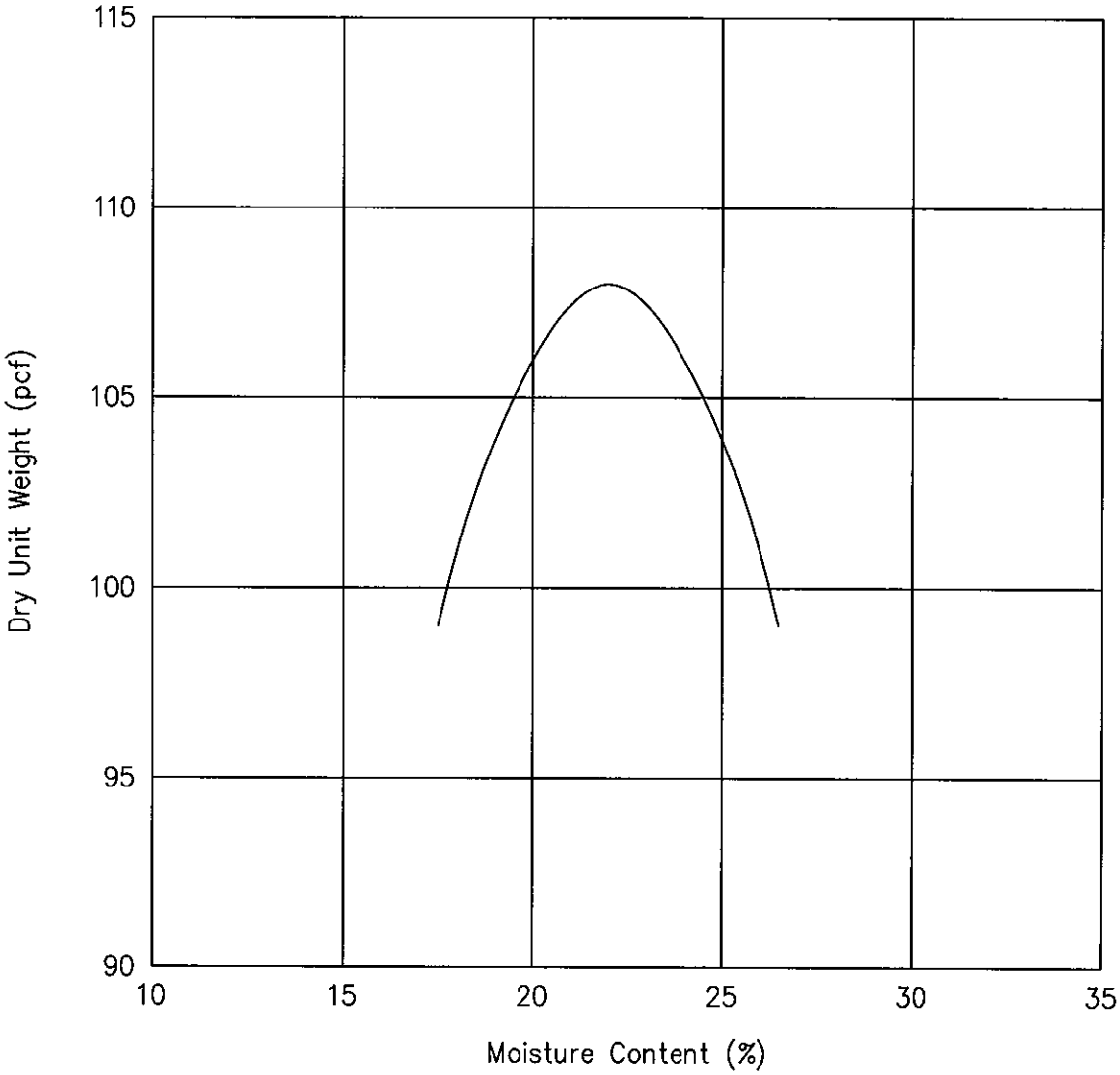


Sample Description

Boring No.: B61 Depth (ft): 5
Soil Description: Reddish brown clayey silt
Strength Intercept (C): 933.4 PSF (Peak Strength)
Friction Angle (ϕ): 37.6 DEG (Peak Strength)

Remark: 12/05/08

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	**DIRECT SHEAR TEST** Plate B3.15



Soil Data

Location: B3 at 1 foot

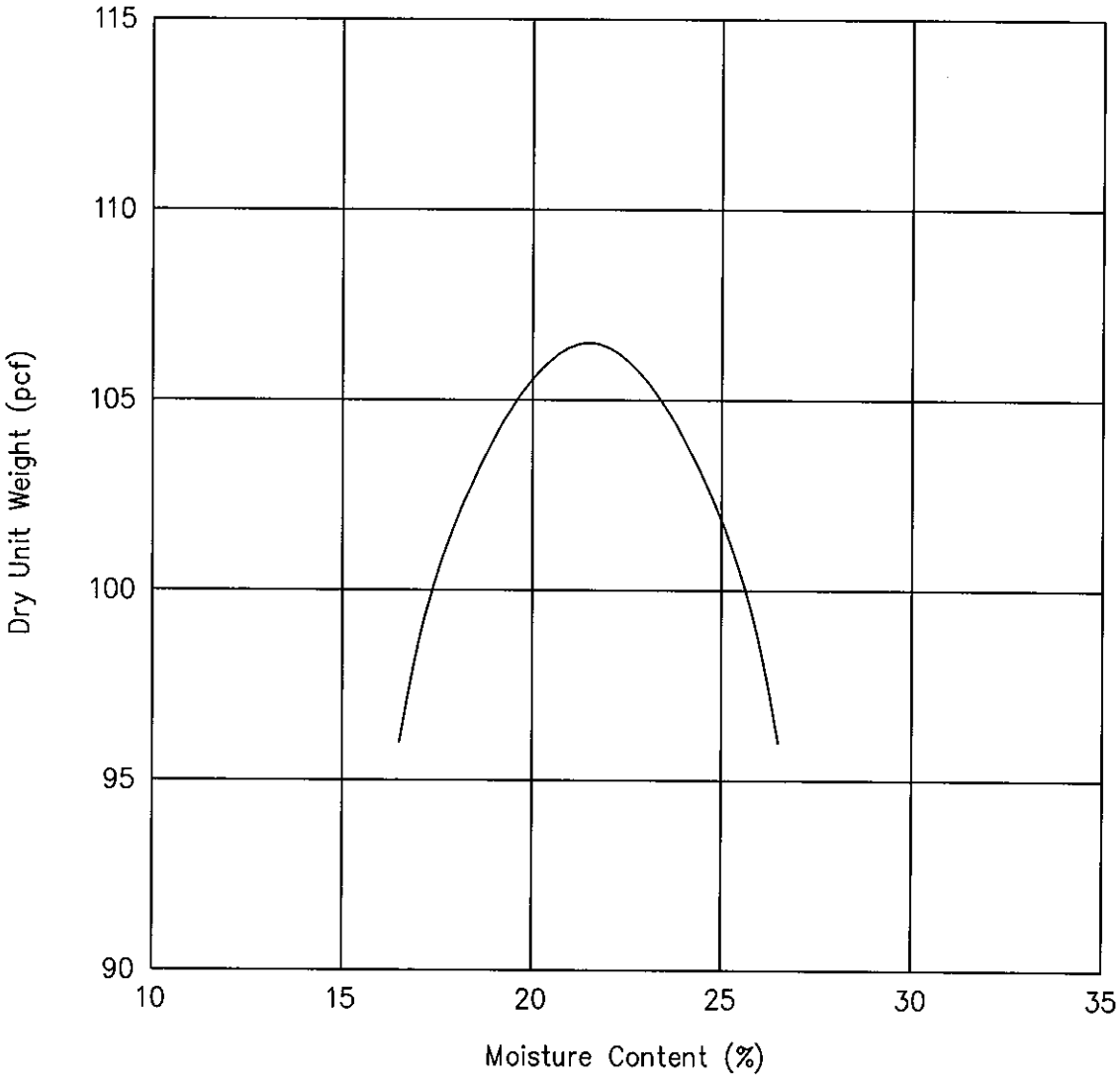
Description: Reddish brown clayey silt

Test Results

Maximum Dry Density: 108 pcf

Optimum Moisture Content: 22%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	MODIFIED PROCTOR CURVE Plate B4.1



Soil Data

Location: B6 from 1 to 2 feet

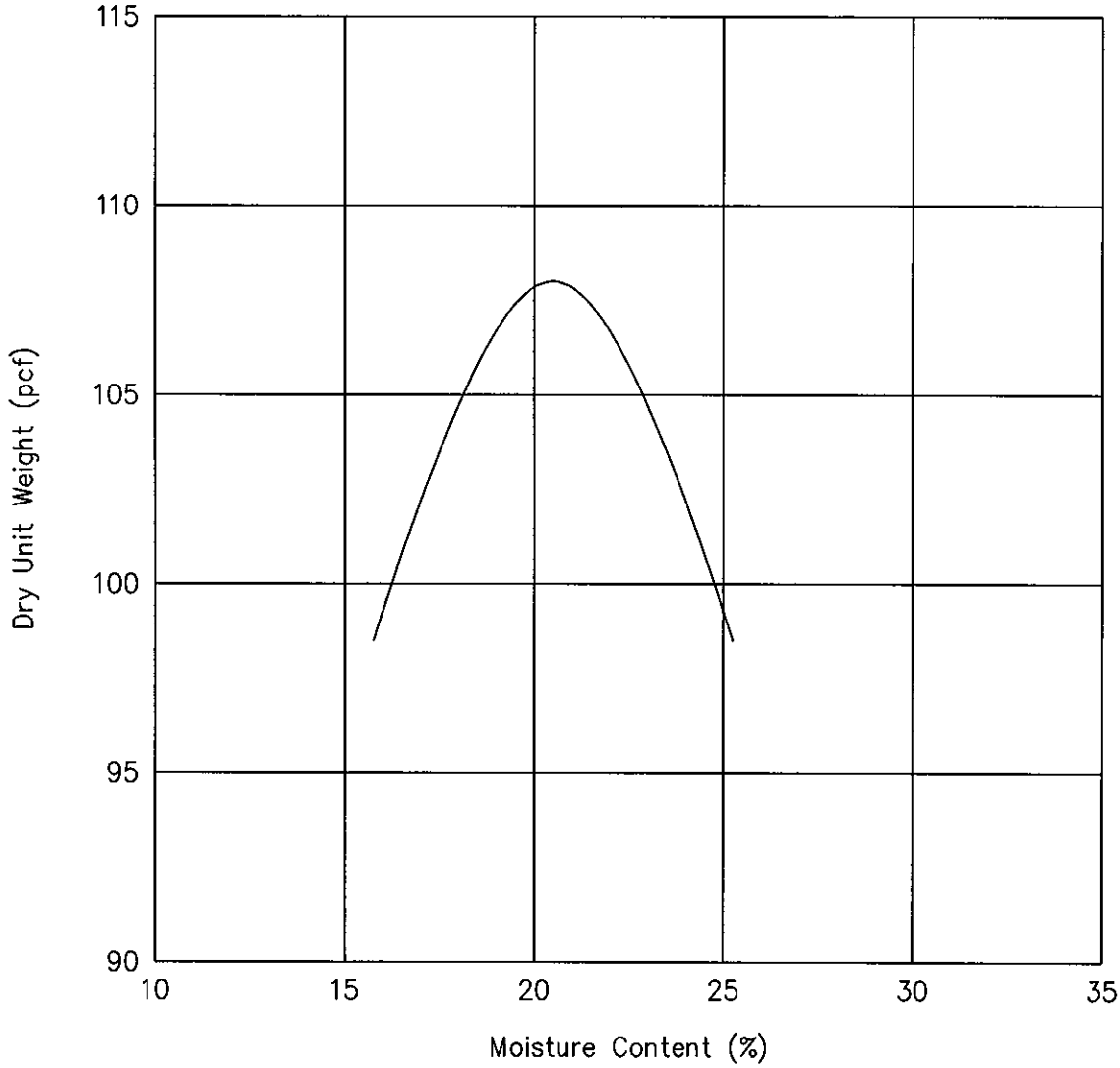
Description: Reddish brown clayey silt

Test Results

Maximum Dry Density: 106.5 pcf

Optimum Moisture Content: 21.5%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	MODIFIED PROCTOR CURVE Plate B4.2



Soil Data

Location: B18 at 1 foot

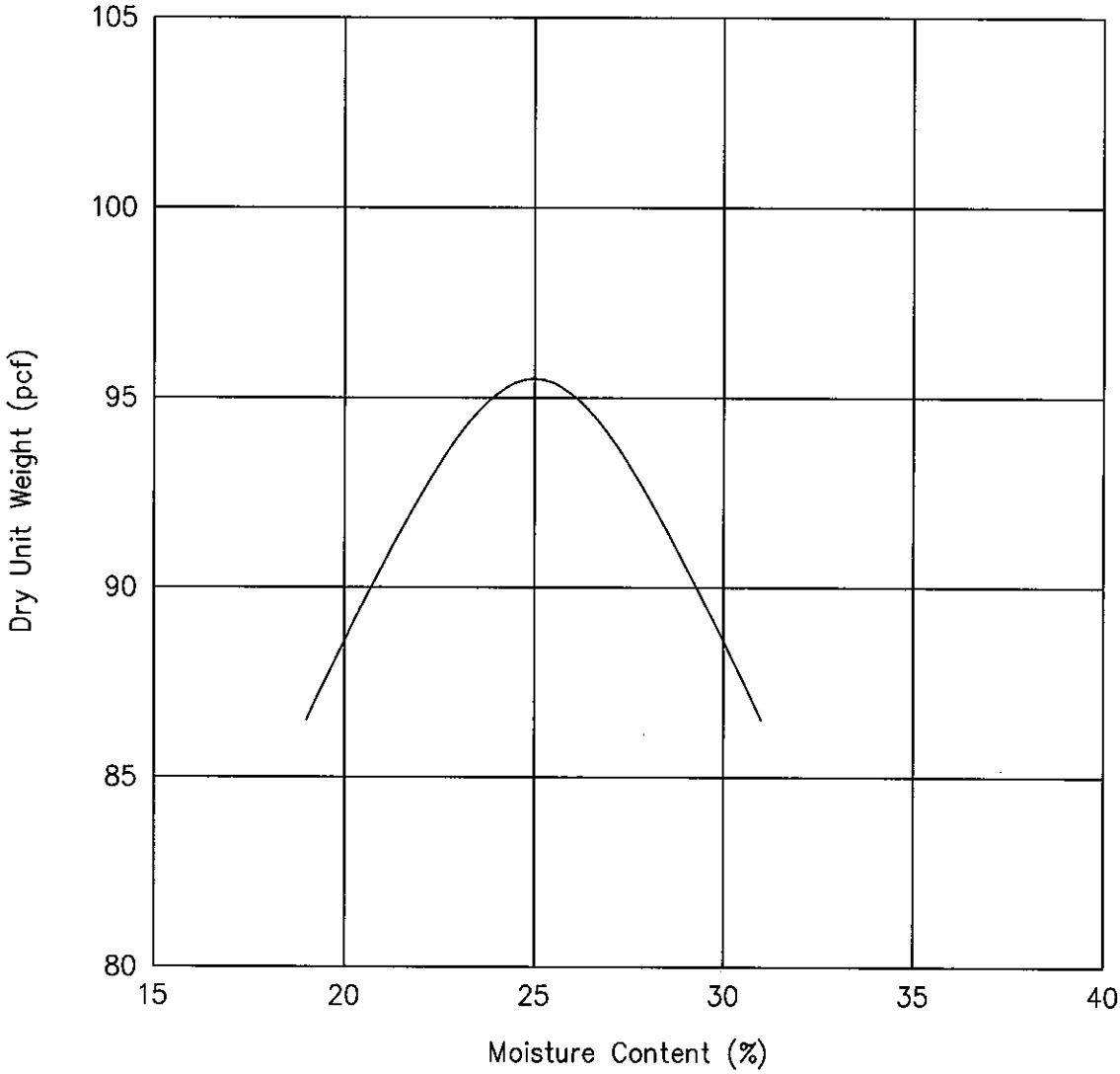
Description: Reddish brown clayey silt

Test Results

Maximum Dry Density: 108 pcf

Optimum Moisture Content: 20.5%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	MODIFIED PROCTOR CURVE Plate B4.3



Soil Data

Location: B21 at 1 foot

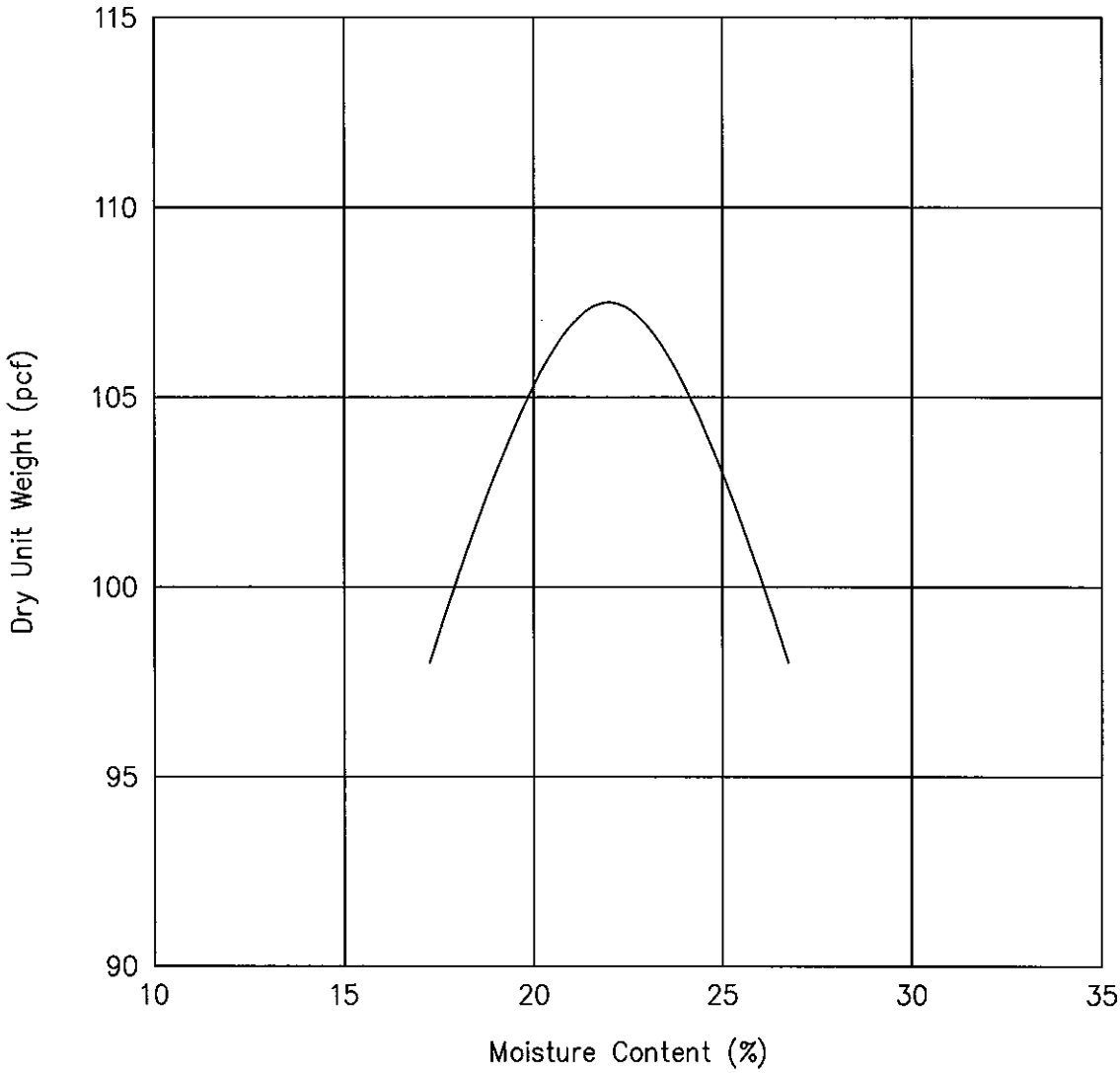
Description: Reddish brown clayey silt

Test Results

Maximum Dry Density: 95.5 pcf

Optimum Moisture Content: 25%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	MODIFIED PROCTOR CURVE Plate B4.4



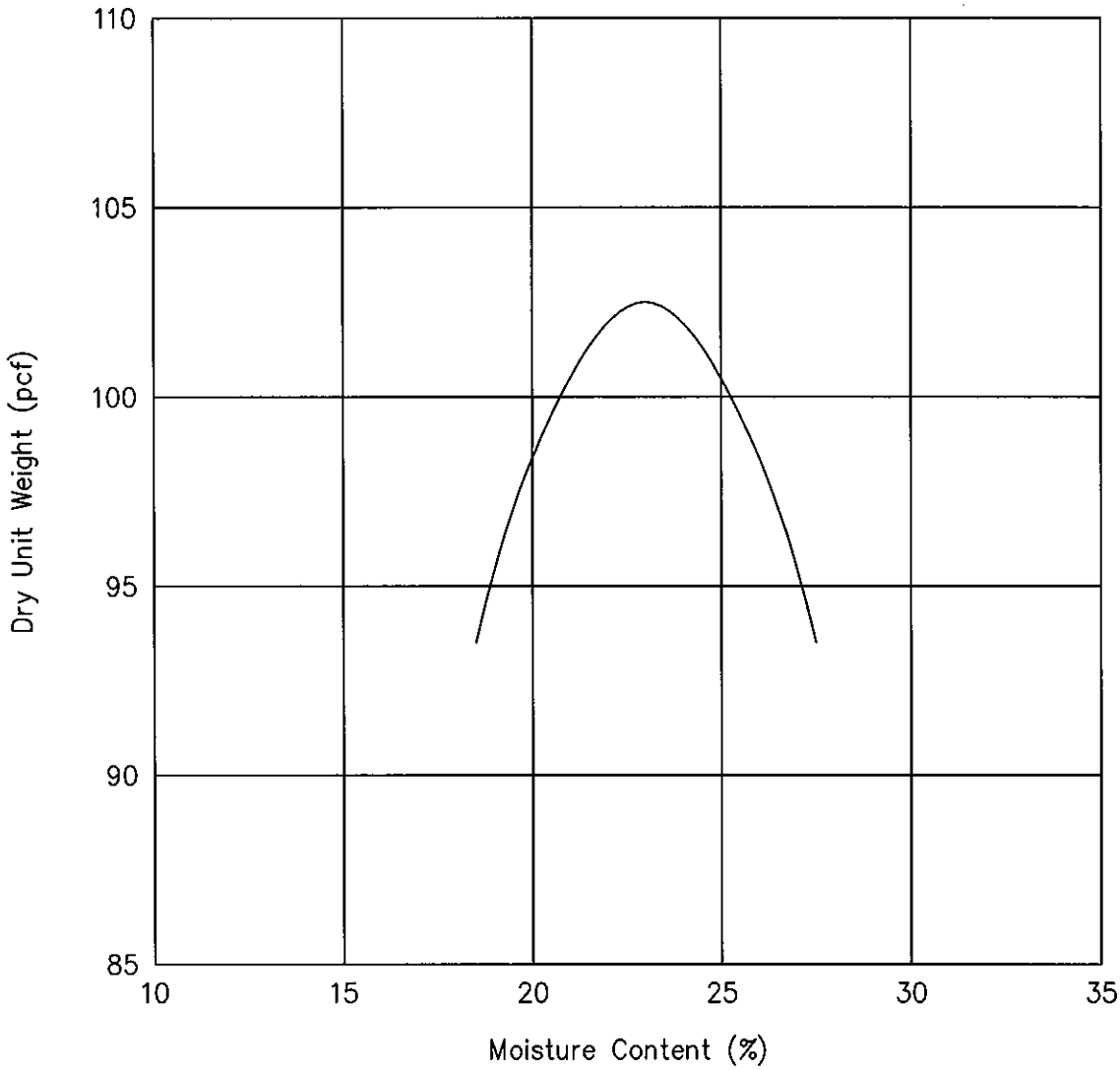
Soil Data

Location: B24 at 1 foot
Description: Brown clayey silt

Test Results

Maximum Dry Density: 107.5 pcf
Optimum Moisture Content: 21%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	MODIFIED PROCTOR CURVE Plate B4.5



Soil Data

Location: B26 at 1 foot

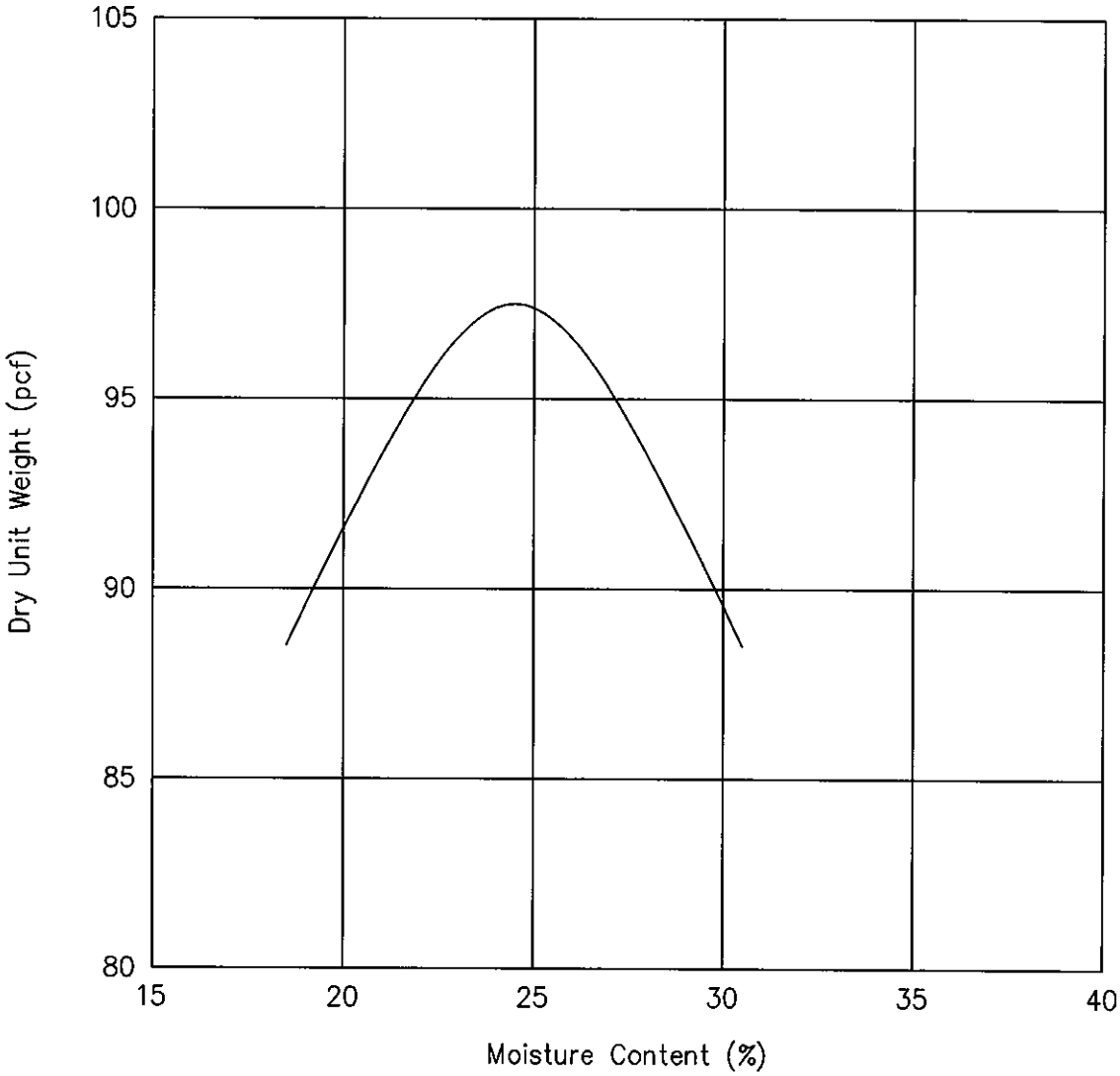
Description: Reddish brown clayey silt

Test Results

Maximum Dry Density: 102.5 pcf

Optimum Moisture Content: 23%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	MODIFIED PROCTOR CURVE Plate B4.6



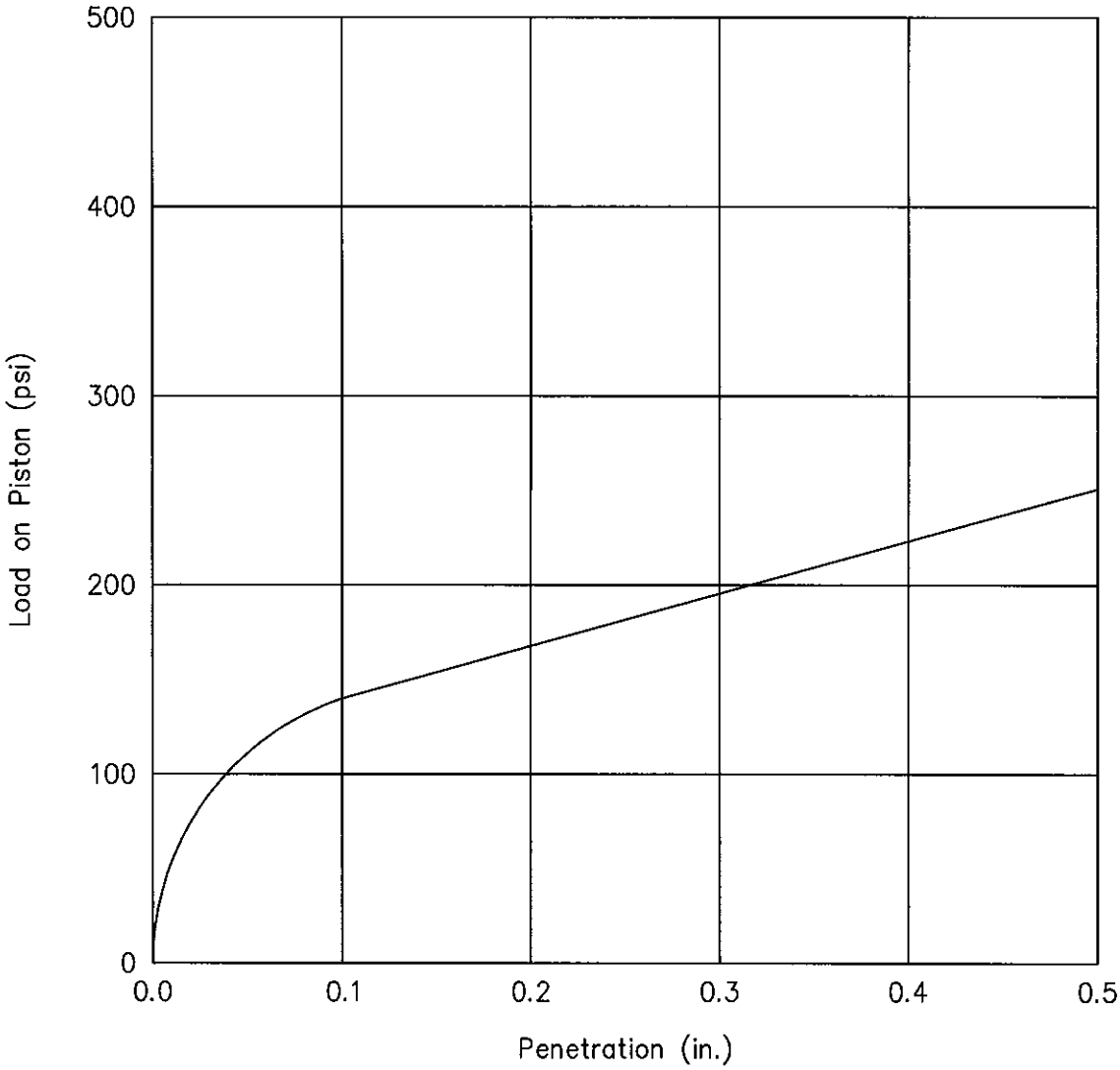
Soil Data

Location: B47 from 1 to 2 feet
Description: Brown clayey silt

Test Results

Maximum Dry Density: 97.5 pcf
Optimum Moisture Content: 24.5%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	MODIFIED PROCTOR CURVE Plate B4.7



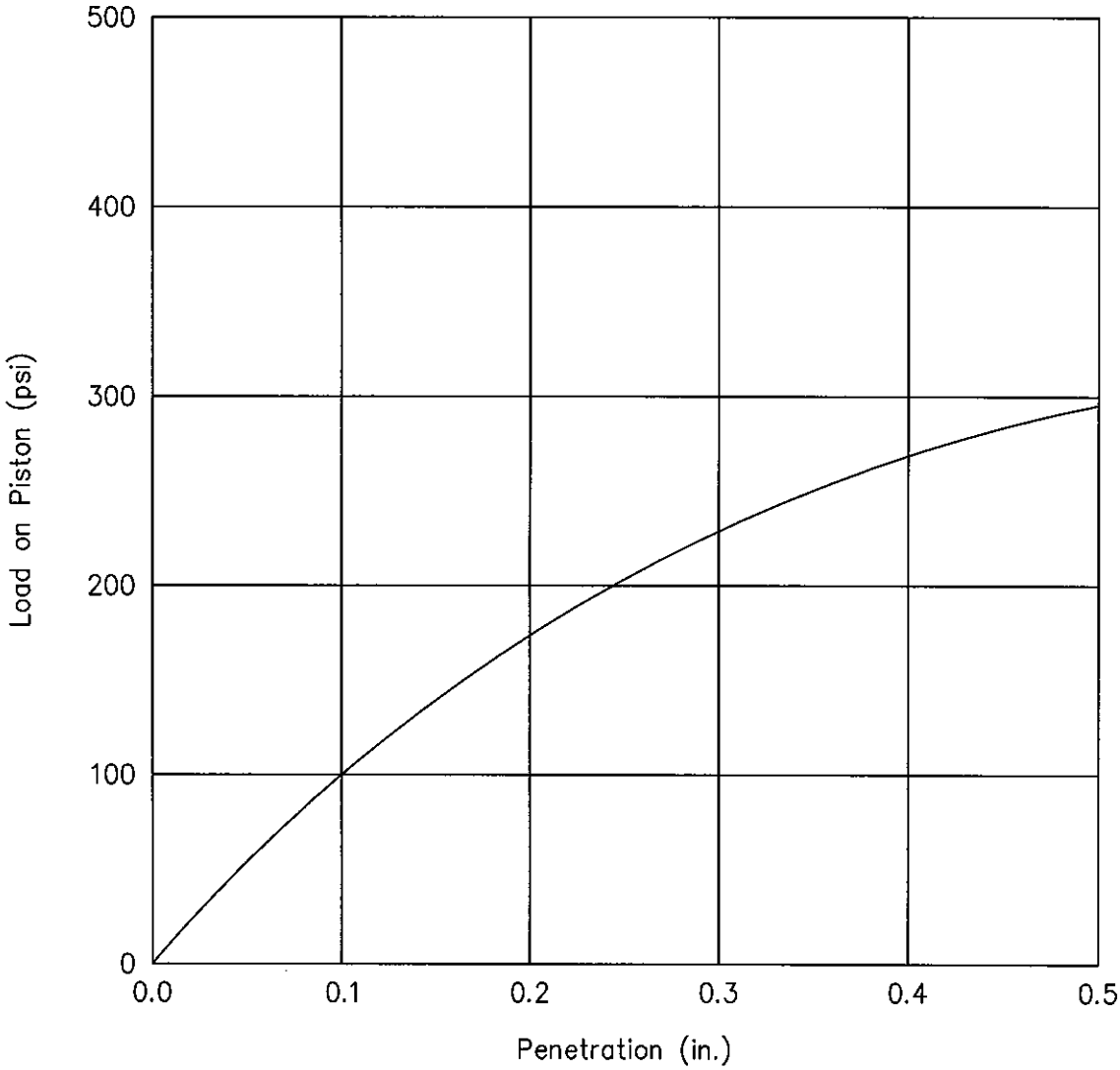
Soil Data

Location:	B3 at 1 foot
Description:	Reddish brown clayey silt
Sample Dry Density:	103 pcf
Sample Moisture Content:	22.5%

Test Results

CBR Value:	14%
Expansion:	0.7%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	CBR STRESS PENETRATION CURVE Plate B5.1



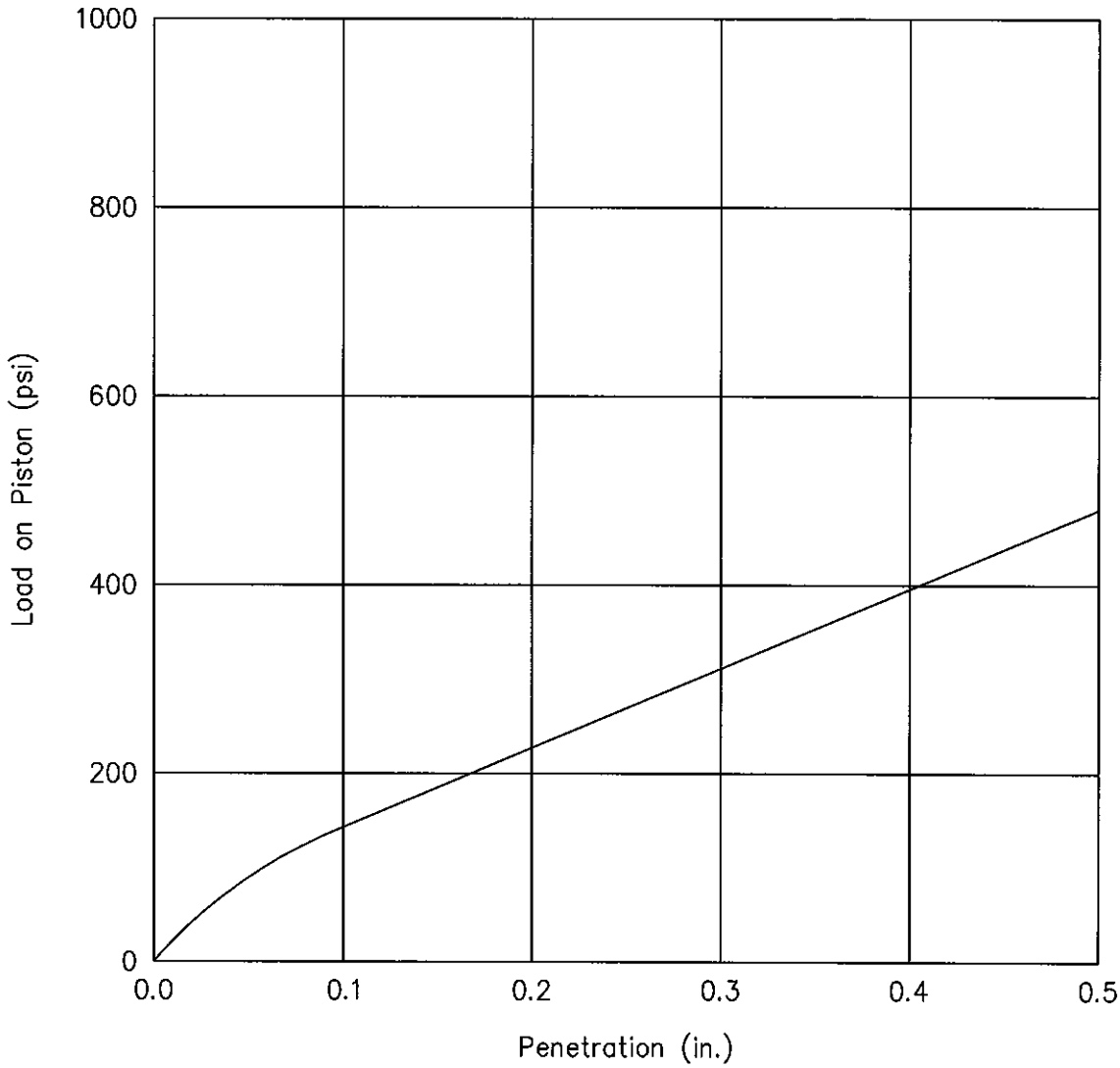
Soil Data

Location:	B6 from 1 to 2 feet
Description:	Reddish brown clayey silt
Sample Dry Density:	103.5 pcf
Sample Moisture Content:	21.5%

Test Results

CBR Value:	10%
Expansion:	0.9%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	CBR STRESS PENETRATION CURVE Plate B5.2



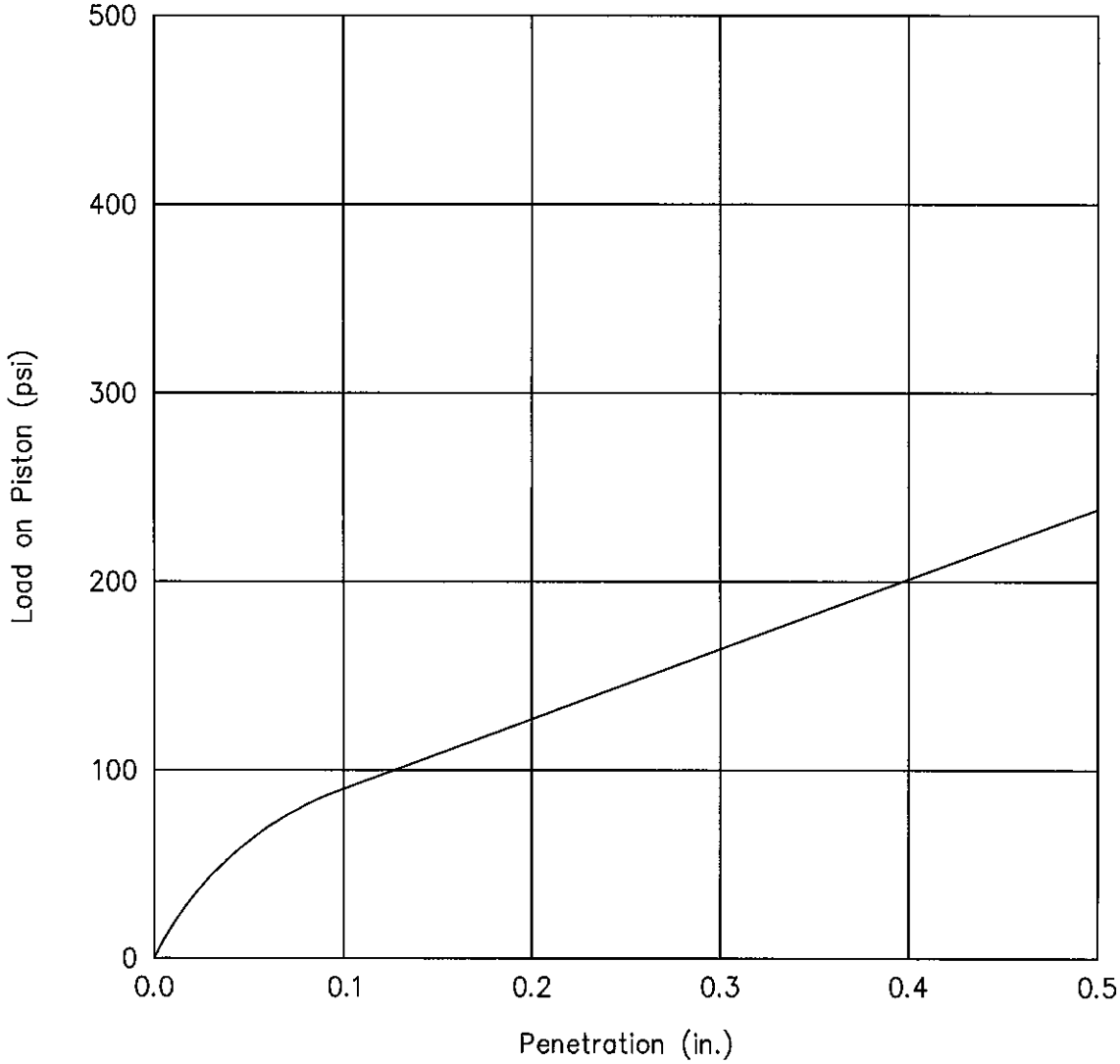
Soil Data

Location:	B18 at 1 foot
Description:	Reddish brown clayey silt
Sample Dry Density:	103.5 pcf
Sample Moisture Content:	21.5%

Test Results

CBR Value:	14%
Expansion:	0.7%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	CBR STRESS PENETRATION CURVE Plate B5.3



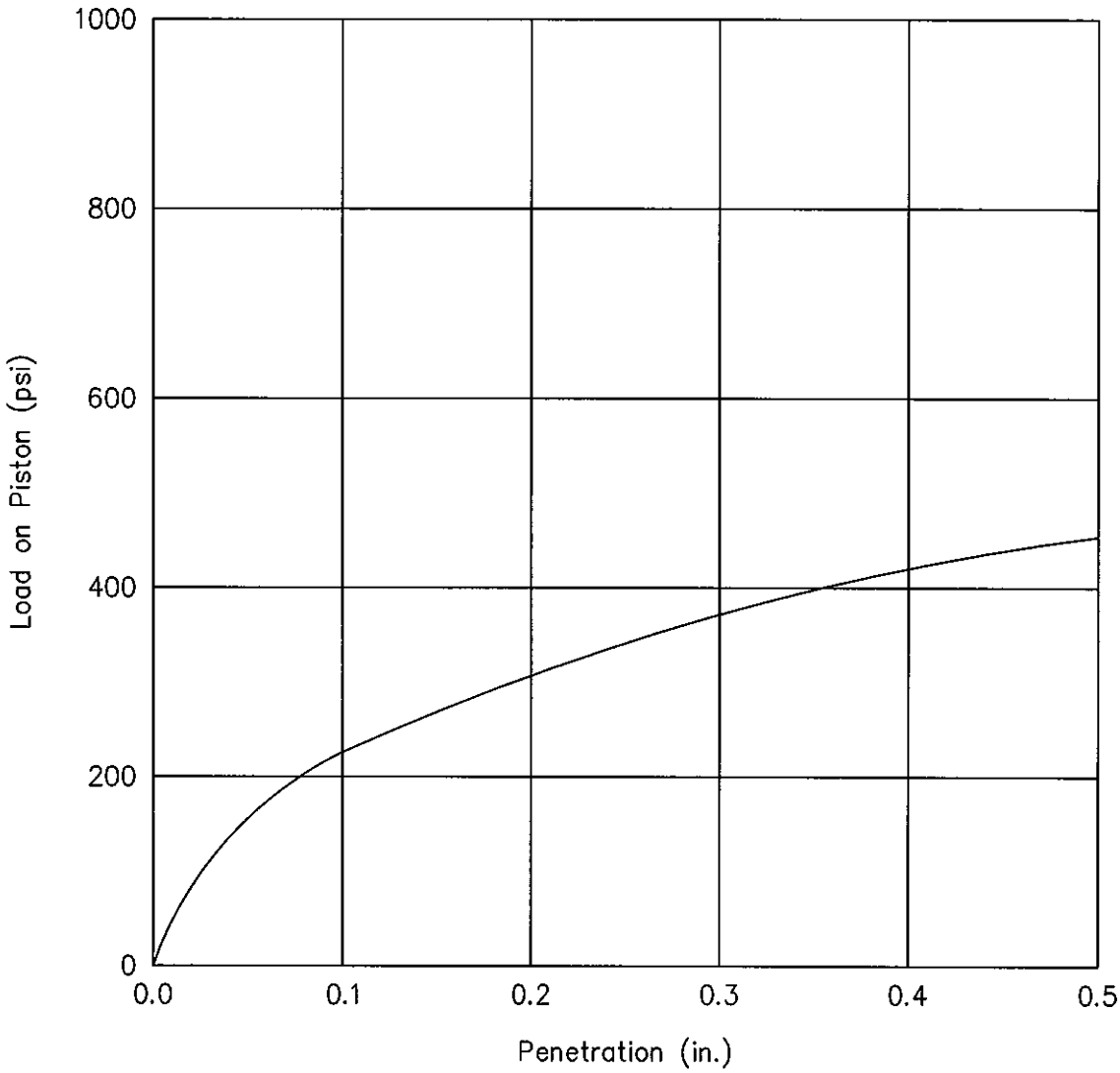
Soil Data

Location:	B21 at 1 foot
Description:	Reddish brown clayey silt
Sample Dry Density:	92 pcf
Sample Moisture Content:	25.5%

Test Results

CBR Value:	9%
Expansion:	1.6%

W.O. 06-4381	**Maui Business Park, Phase II**
Hirata & Associates, Inc.	CBR STRESS PENETRATION CURVE Plate B5.4



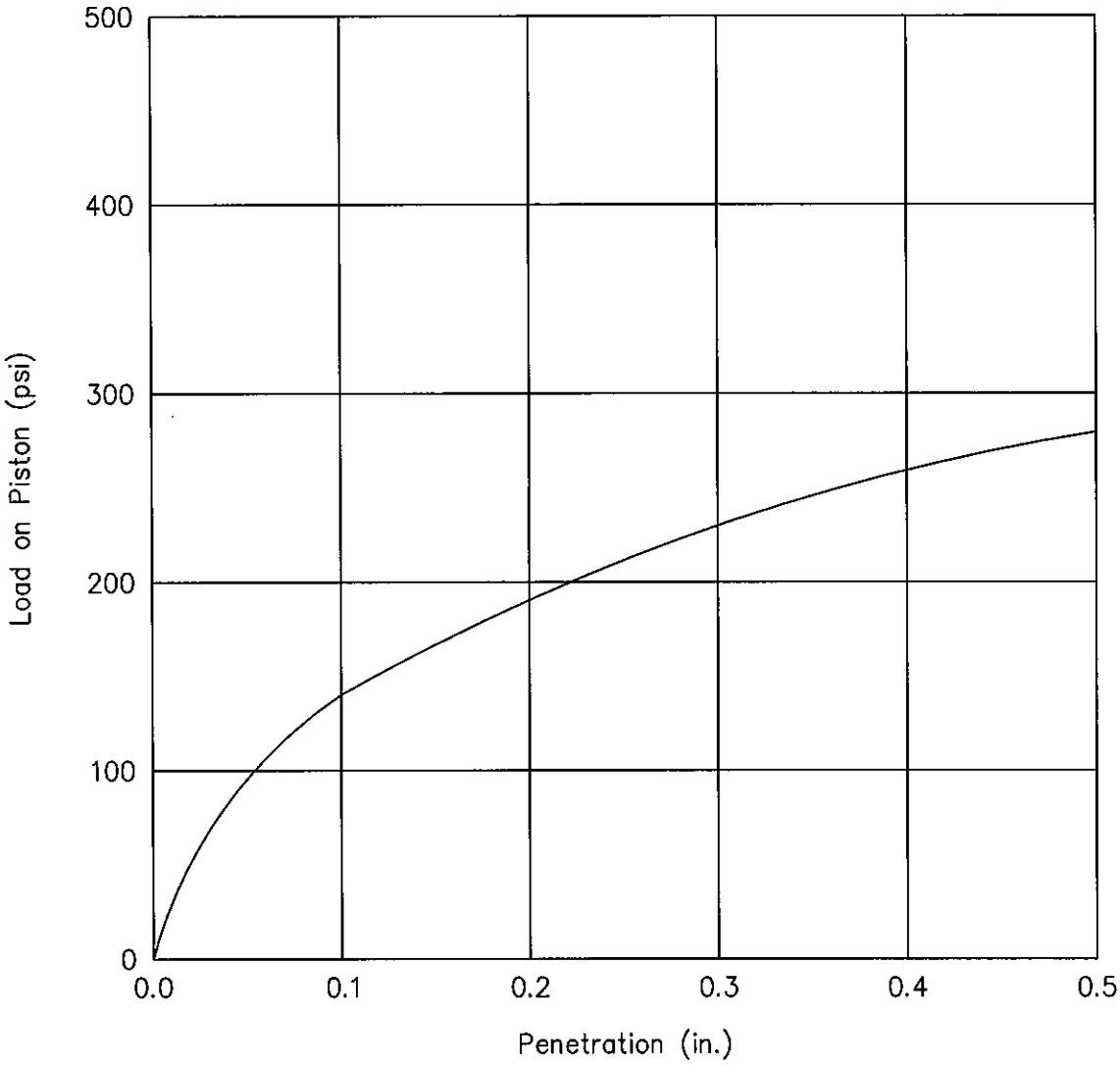
Soil Data

Location:	B24 at 1 foot
Description:	Reddish brown clayey silt
Sample Dry Density:	107.5 pcf
Sample Moisture Content:	21%

Test Results

CBR Value:	22%
Expansion:	0.6%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	CBR STRESS PENETRATION CURVE Plate B5.5



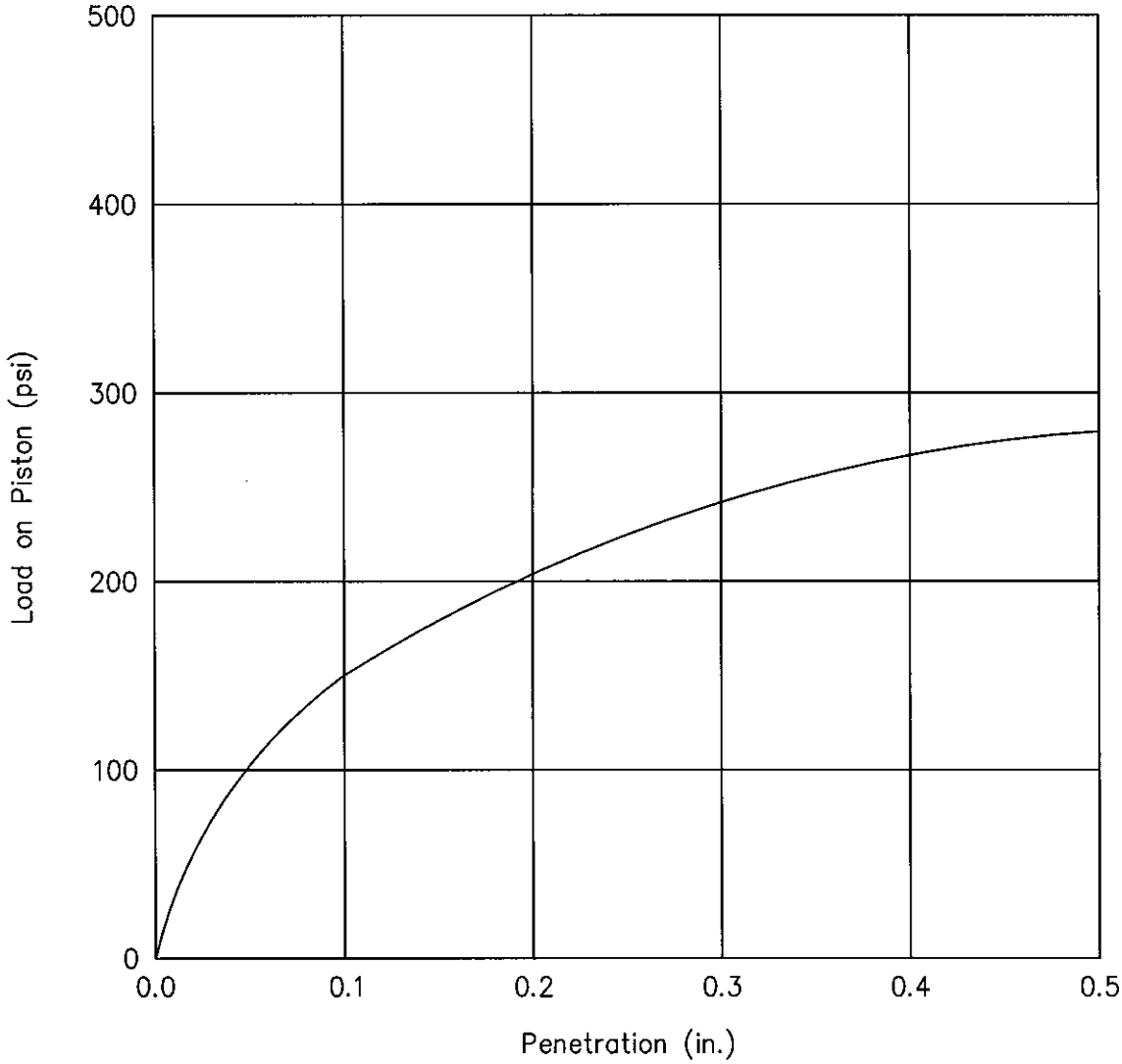
Soil Data

Location:	B26 at 1 foot
Description:	Reddish brown clayey silt
Sample Dry Density:	102.5 pcf
Sample Moisture Content:	23%

Test Results

CBR Value:	14%
Expansion:	1.3%

W.O. 06-4381	Maui Business Park, Phase II
Hirata & Associates, Inc.	CBR STRESS PENETRATION CURVE Plate B5.6



Soil Data

Location:	B47 from 1 to 2 feet
Description:	Brown clayey silt
Sample Dry Density:	97.5 pcf
Sample Moisture Content:	24.5%

Test Results

CBR Value:	15%
Expansion:	0.7%

W.O. 06-4381	**Maui Business Park, Phase II**
Hirata & Associates, Inc.	CBR STRESS PENETRATION CURVE Plate B5.7

EXHIBIT 31

Retail Demand Report

Ho'onani Village

Retail Demand Analysis

May 2024

Prepared For - Seaview Investors, LLC.

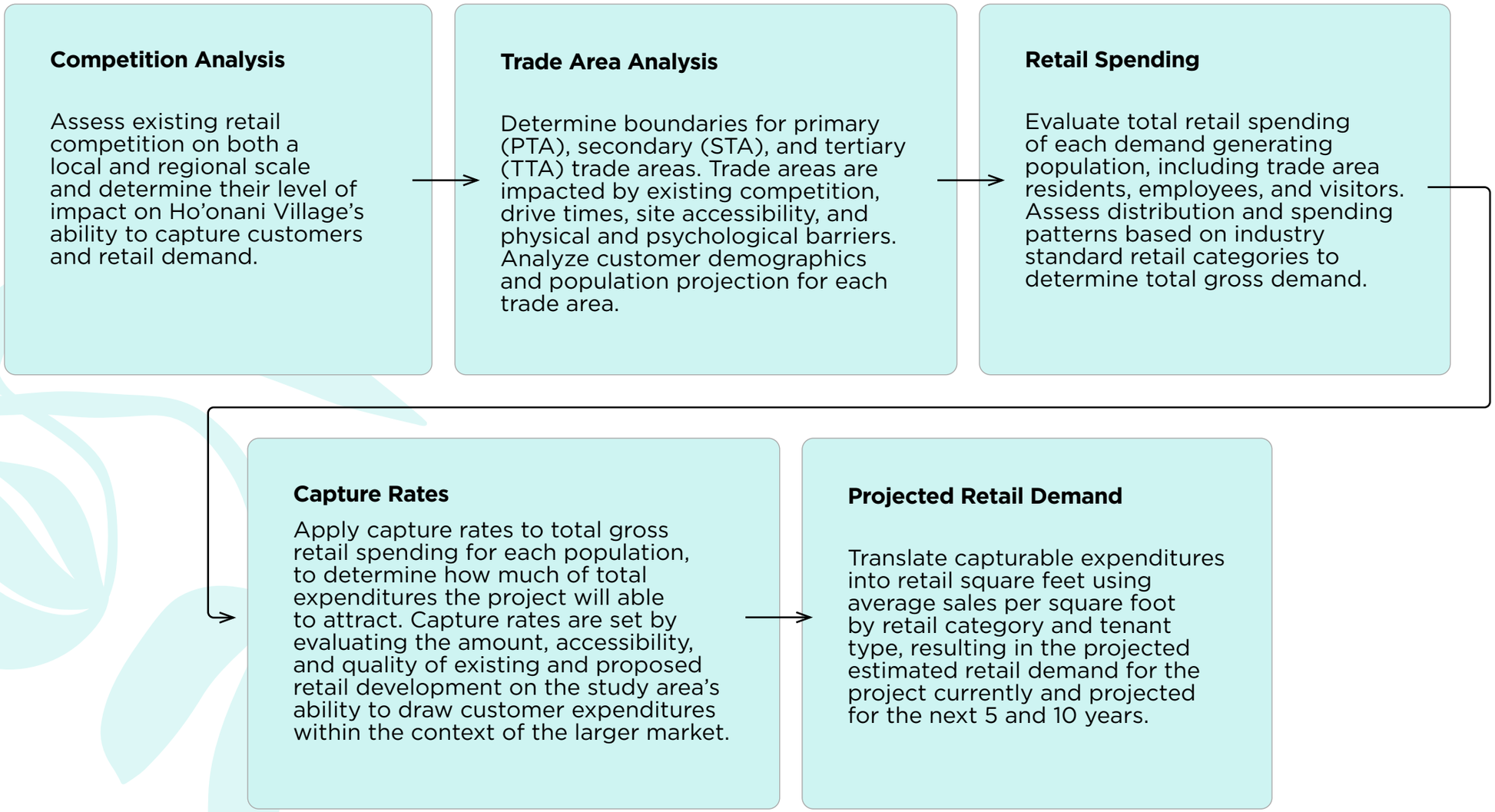
STREETSENSE

Table of Contents

Retail Demand Assessment.....9

Methodology

For the purposes of this assessment, the following tasks were undertaken to evaluate the retail opportunity at Ho'onani Village.



Retail Terminology

A healthy, vibrant retail place has all four components

Retail Uses
(considered in quantitative assessment)

Non-Retail Uses
(not considered in quantitative assessment)

GROCERY & SERVICES

Grocery Store

Neighborhood Market

Pharmacy/Drug Store

Dry Cleaner/Laundromat

Tailor/Seamstress

Nail/Hair Salon/Spa

Barber Shop

Fitness

FOOD & BEVERAGE (F&B)

Sit-Down Restaurant

Full-Service Restaurant

Fast-Casual Restaurant

Fast food Restaurant

Carry-out Restaurant

Ice Cream Shop

Coffee Shop

Cafe

GENERAL MERCHANDISE

Home Goods & Improvement

Furniture Store

Clothing Store

Electronics Store

Pet Store

Sports Store

Book Store

Music Store

NON-RETAIL USES

Given their extraordinary nuance, ancillary tenants (e.g. financial, educational, religious, governmental institutions, etc.) and entertainment establishments (e.g. arcades, movie theaters, bowling alleys, pickle ball, escape rooms, etc.) are considered to be non retail uses and are not factored into the quantitative retail demand model or included in retail demand calculations.

Project Understanding

Ho'onani Village is a proposed mixed-use development in southern Kahului, the commercial hub of Maui, HI. The 165-acre site on Pulehu Road is strategically located less than half a mile offset from the major intersection of Hana Highway and the new airport access road (Mayor Elmer F. Cravalho Way), providing easy access to the airport, downtown Kahului, and Kihei to the south.

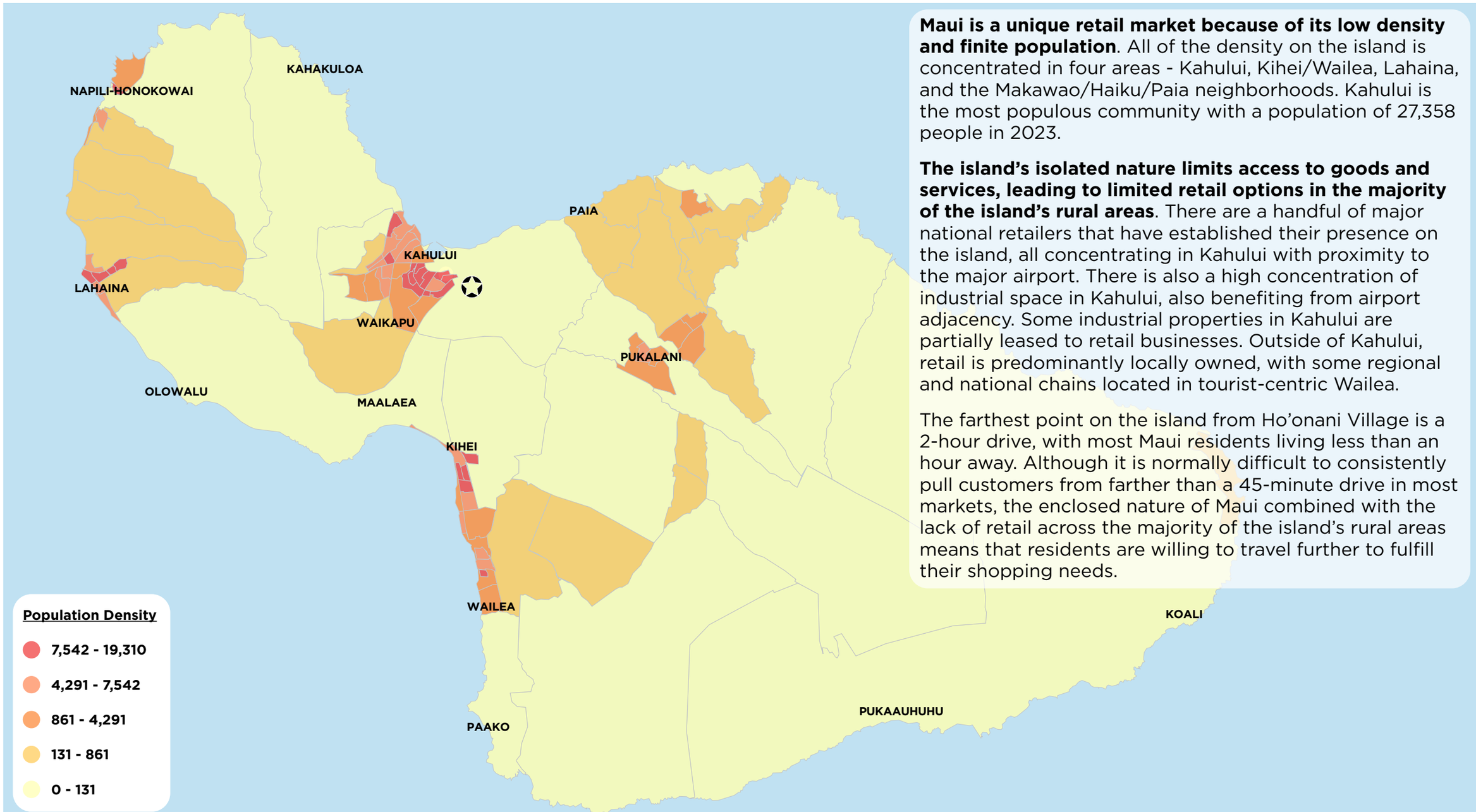
The project is envisioned as an accessible residential community bringing 1,600 rental apartments at full build-out, addressing Maui's housing needs with a phased approach bringing 200 units per year. Half of the residential units will be dedicated to affordable housing, catering to a multigenerational audience and providing high-quality, accessible housing options.

Ho'onani Village will incorporate extensive community recreational offerings to complement the residential offering, potentially including an amphitheater, pickleball/ basketball courts, multiple sports fields, and a dog park. Additionally, the plans show two 150-key hotels, and 50,000 SF of office and industrial space, respectively.

The community will be anchored by a central greenspace with retail along a pedestrian streetscape to create a walkable environment. The retail program is intended to serve local Maui residents, offering an authentic local offering in contrast to the big-box retailers in the area.

This analysis intends to determine the appropriate, sustainable level of retail space that could be supportable at Ho'onani Village based on customer spending and demographics, household growth, and the Maui competitive landscape.

Maui Market Context



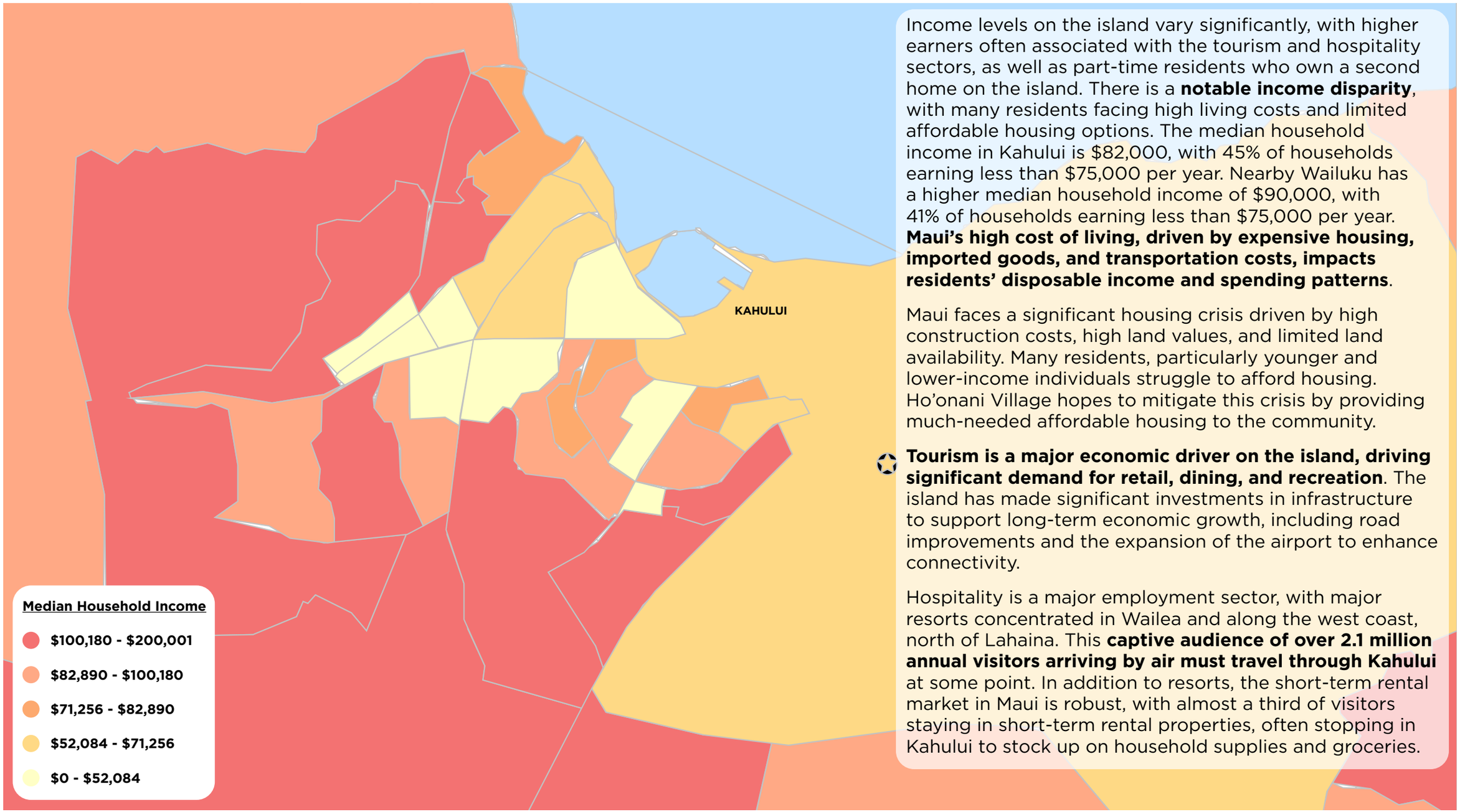
Maui is a unique retail market because of its low density and finite population. All of the density on the island is concentrated in four areas - Kahului, Kihei/Wailea, Lahaina, and the Makawao/Haiku/Paia neighborhoods. Kahului is the most populous community with a population of 27,358 people in 2023.

The island's isolated nature limits access to goods and services, leading to limited retail options in the majority of the island's rural areas. There are a handful of major national retailers that have established their presence on the island, all concentrating in Kahului with proximity to the major airport. There is also a high concentration of industrial space in Kahului, also benefiting from airport adjacency. Some industrial properties in Kahului are partially leased to retail businesses. Outside of Kahului, retail is predominantly locally owned, with some regional and national chains located in tourist-centric Wailea.

The farthest point on the island from Ho'onani Village is a 2-hour drive, with most Maui residents living less than an hour away. Although it is normally difficult to consistently pull customers from farther than a 45-minute drive in most markets, the enclosed nature of Maui combined with the lack of retail across the majority of the island's rural areas means that residents are willing to travel further to fulfill their shopping needs.

SOURCES: ESRI, US Census 2023, Hawaii Tourism Authority

Economic & Market Context



Income levels on the island vary significantly, with higher earners often associated with the tourism and hospitality sectors, as well as part-time residents who own a second home on the island. There is a **notable income disparity**, with many residents facing high living costs and limited affordable housing options. The median household income in Kahului is $82,000, with 45% of households earning less than $75,000 per year. Nearby Wailuku has a higher median household income of $90,000, with 41% of households earning less than $75,000 per year. **Maui's high cost of living, driven by expensive housing, imported goods, and transportation costs, impacts residents' disposable income and spending patterns**.

Maui faces a significant housing crisis driven by high construction costs, high land values, and limited land availability. Many residents, particularly younger and lower-income individuals struggle to afford housing. Ho'onani Village hopes to mitigate this crisis by providing much-needed affordable housing to the community.

Tourism is a major economic driver on the island, driving significant demand for retail, dining, and recreation. The island has made significant investments in infrastructure to support long-term economic growth, including road improvements and the expansion of the airport to enhance connectivity.

Hospitality is a major employment sector, with major resorts concentrated in Wailea and along the west coast, north of Lahaina. This **captive audience of over 2.1 million annual visitors arriving by air must travel through Kahului** at some point. In addition to resorts, the short-term rental market in Maui is robust, with almost a third of visitors staying in short-term rental properties, often stopping in Kahului to stock up on household supplies and groceries.

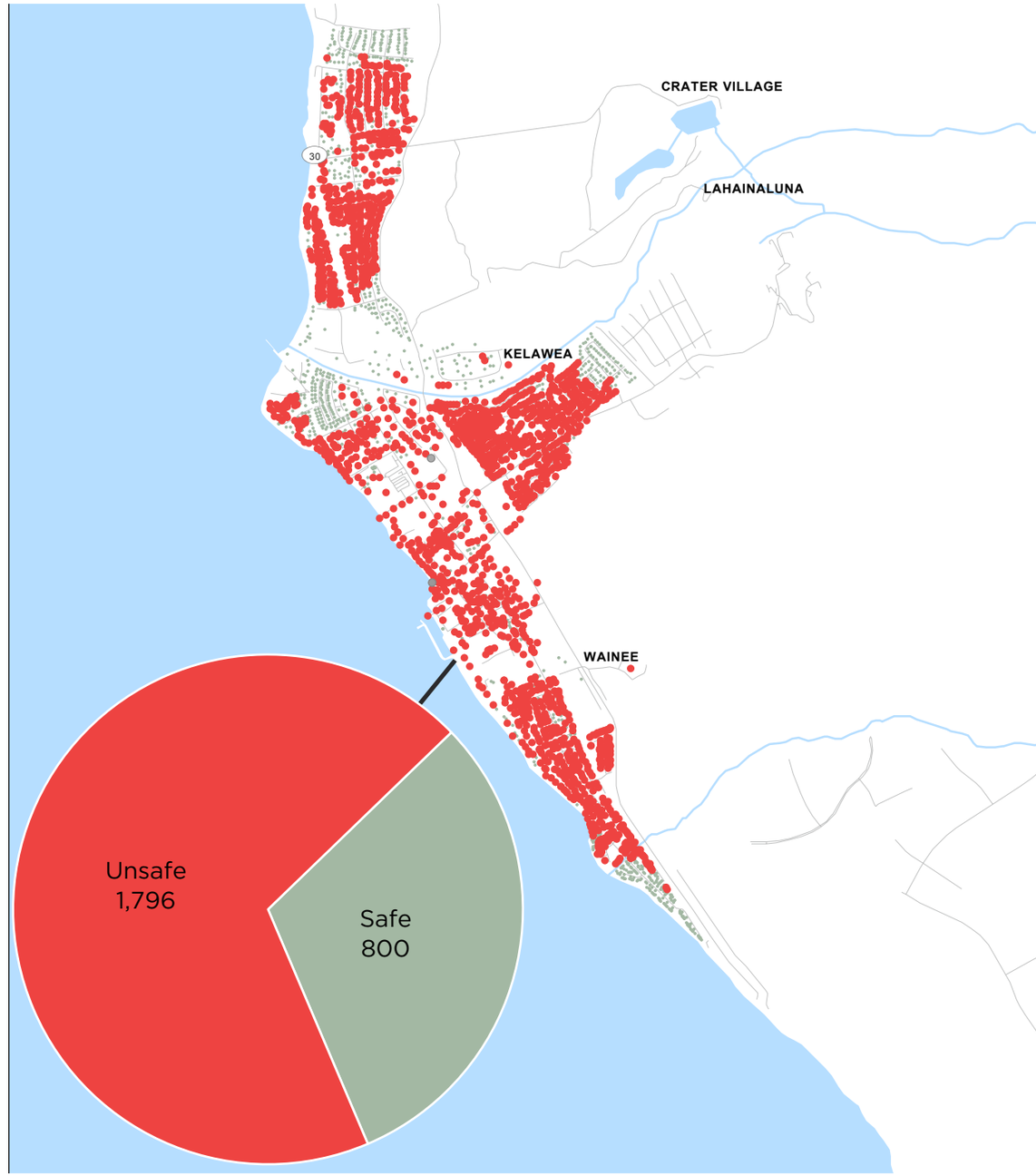
SOURCES: ESRI, US Census 2023, Hawaii Tourism Authority

Lahaina Fire impacts

The Lahaina fire in August 2023 dramatically impacted Lahaina and Maui overall. The third largest community on the island after Kihei and Kahului, Lahaina had a population of about 12,000 before the fire, the majority being displaced. **About 80% of the community was destroyed by the fire, which included 550,000 SF of retail space in downtown Lahaina**. Before the fire, Lahaina had one of the strongest retail environments on the island, with a walkable downtown along Front Street, a food truck park, the Wharf Cinema Center, and the Old Lahaina Shopping Center.

Two neighborhood-serving shopping centers in northern Lahaina, the Lahaina Cannery Mall, and Lahaina Gateway, survived the fire, reopening in Q1 2024. With the majority of retail space destroyed, residents living in the Lahaina region must travel to other retail nodes on the island to shop and fulfill daily needs.

As of the writing of this report, 95% of residential and 82% of commercial owners of properties affected by the fire have submitted right-of-entry applications. This is a positive indicator that the majority of property owners are committed to returning to their properties when they are able. However, the **recovery is still in an early stage**, with cleanup underway. **At this stage, it is not possible to determine what a revitalized Lahaina will look like, or the exact timeline for rebuilding**. However, it is unlikely that the retail that was destroyed will be fully rebuilt within the ten-year time horizon of this analysis.



SOURCES: CoStar, Maui Recovers

Retail Demand Assessment

Competitive Analysis Process

Due to the complexity and unique aspects of the Maui retail market, Streetsense took a layered approach for the competition analysis. Our analysis starts by looking at the retail environment in Kahului more granularly, as competition adjacent to Ho'onani Village will have the greatest impact on capturable demand. The analysis will then consider the retail landscape on the island as a whole beyond Kahului, and then will assess competition among nontraditional retail operators.

Regional and Local

Local Kahului Retail Landscape

Assessment of retail centers in Kahului that will directly compete with Ho'onani Village for both local customer spending as well as Maui-wide customer dollars, that are drawn to the area because of the density of retail.

Grocery

Local Kahului Grocery Environment

The local grocery environment will be highlighted separately and will consider both smaller local operators and big-box national chains. These competitive sites will have the strongest impact on Ho'onani Village's ability to attract grocery spending from across the island.

Regional and Local

Regional Competition - Outside of Kahului

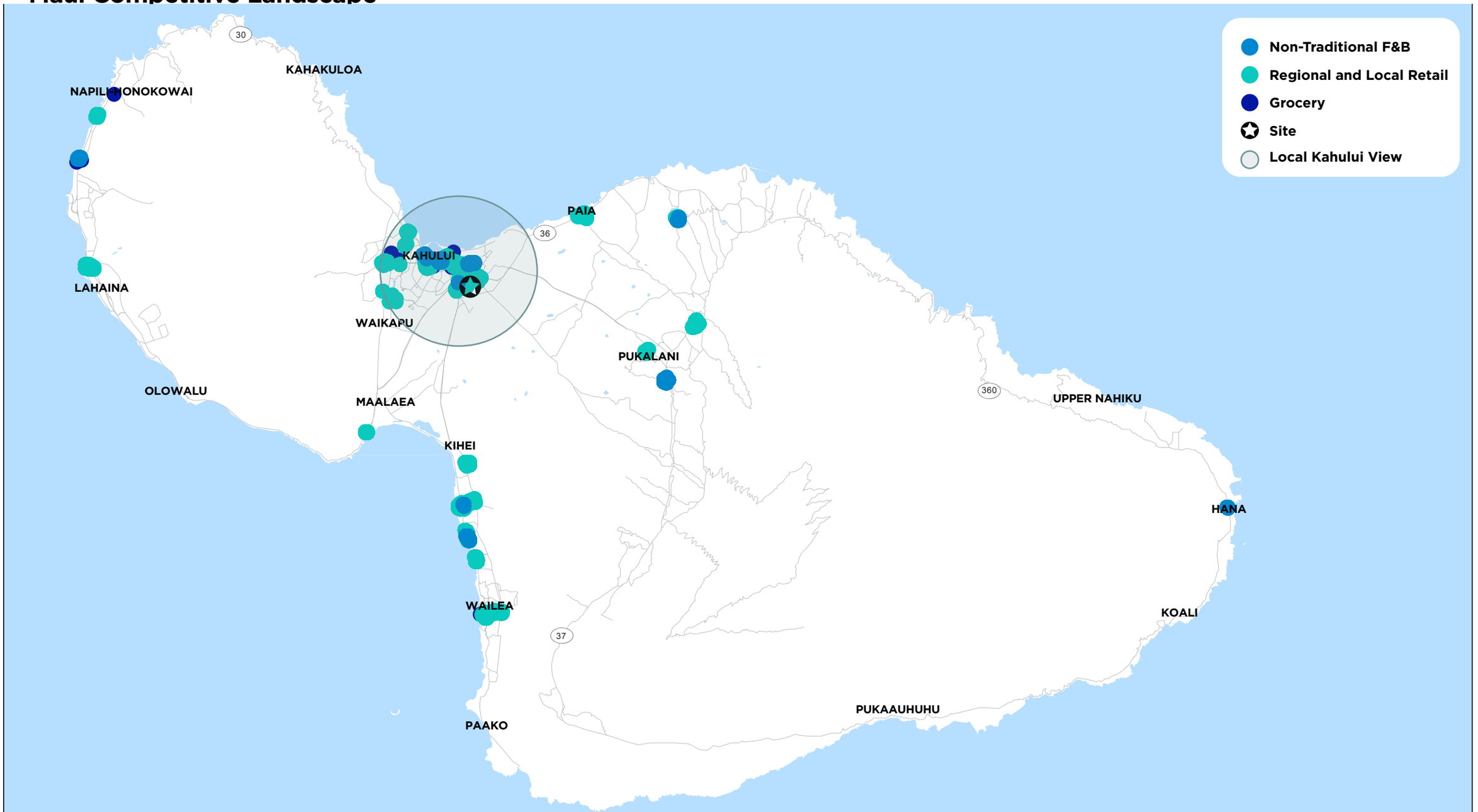
This section will account for traditional retail environments that are outside of Kahului, including centers and downtown environments. The quality and positioning of these sites will inform how trade areas outside of Kahului are formed.

Non-Traditional Retail

Non-Traditional Retail Environments

Nontraditional retail environments include food halls, food trucks, and farmer's markets. These environments often have an outsized customer draw due to their unique offerings or periodic operating schedules. Food truck parks will be highlighted in particular due to their prevalence across the island.

Maui Competitive Landscape



Kahului Retail Landscape

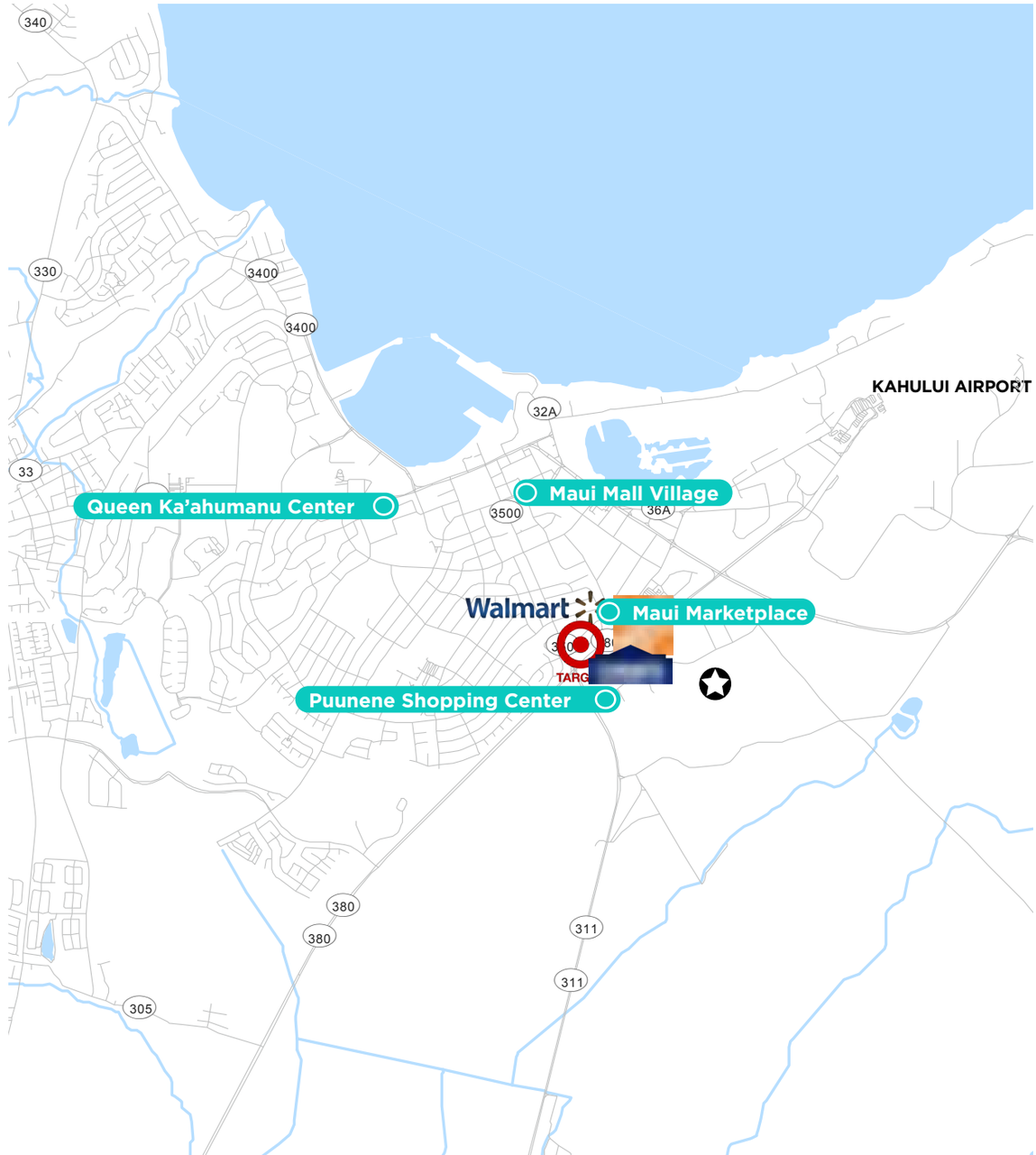
Competition in Kahului predominantly consists of big box retailers and power centers that serve populations across the island, attracted to the density of offerings. Retail in Kahului also benefits from its location next to the airport, attracting visitors as they arrive on the island.

Puunene Shopping Center is the newest on the island, delivering in 2015-2017. Anchored by Target, the center offers generic mass market retailers like Ulta Beauty, Planet Fitness, and Chick-fil-A, adjacent to Home Depot, Lowes, and Walmart centers. The center has experienced some vacancy, currently with a vacant 25,000 SF junior anchor.

Maui Marketplace is anchored by a Barnes & Noble and Office Max. The center has suffered elevated vacancy since the delivery of Puunene, totaling 136,000 SF available for lease. Plans are being implemented to revitalize the center, and specialty grocer Seafood City recently signed a deal for one of the anchor spaces.

Maui Mall Village stands out as a walkable environment with a central square, benches, and wayfinding signage. However, the Village's last major renovation was in 1995, with 18,000 SF total available for lease.

Queen Ka'ahumanu Center is an aging mall that has had difficulty attracting visitor traffic due to its distance from the airport. The mall has high vacancy, with 26% of retail space marketed as available, including a 77,000 SF Sears anchor. The mall also has multiple office tenants such as accountants and recruitment centers, indicating difficulty attracting retail tenants to fill space.



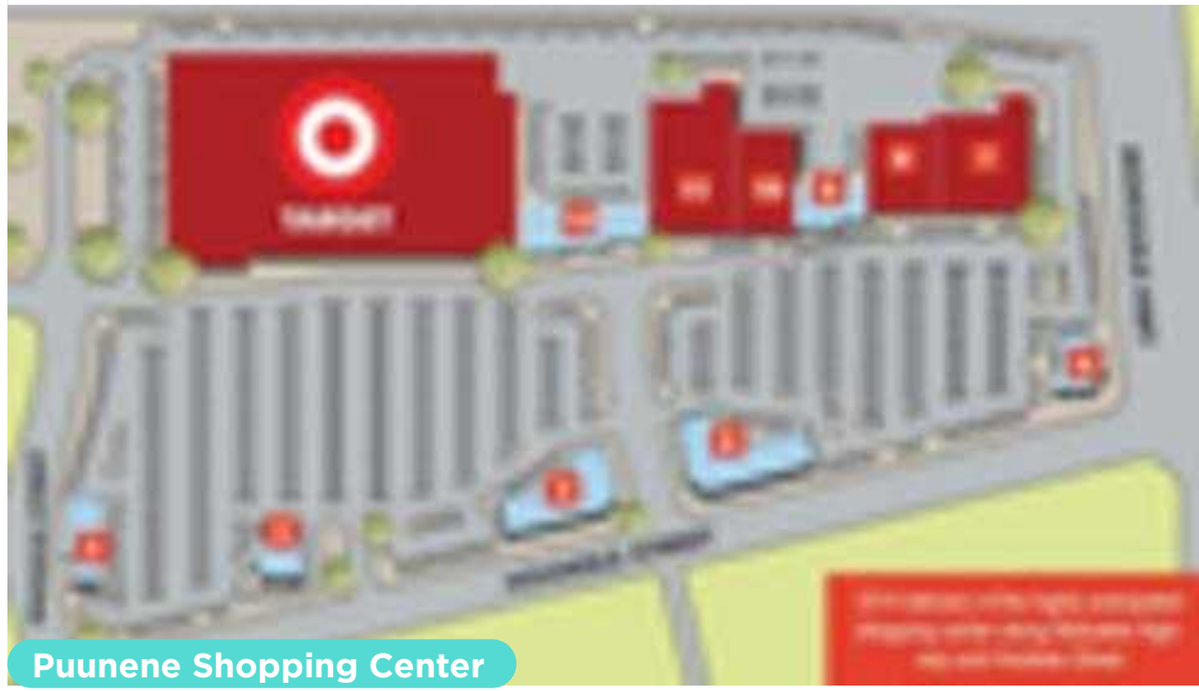
SOURCES: CoStar, Streetsense Research

Kahului Retail Landscape

Lack of strong retail environments in Kahului:

- Retail competition in Kahului is dense, but there is a lack of cohesive, inviting environments
- Puunene Village has island-wide customer draw but is a generic power center
- Kahului lacks a truly walkable downtown
- Adjacency to the airport is critical to driving foot traffic and visitation
- New airport access road improved airport connectivity and shifted retail landscape, leading to the relocation and expansion of Walmart followed by several other retailers
- Increased vacancy among spaces located off the main arteries
- Maui Mall Village and the Queen Ka'ahumanu Mall are aging and have elevated vacancy
- Stronger environments exist outside of Kahului but their tenanting and positioning is geared towards serving visitors over residents

While the dense competition takes away from the retail opportunity at Ho'onani Village, it will benefit from the already high visitation to the area. The poor quality of the retail offerings and environments leaves opportunity for smaller-scale complementary retail with a strong sense of place.



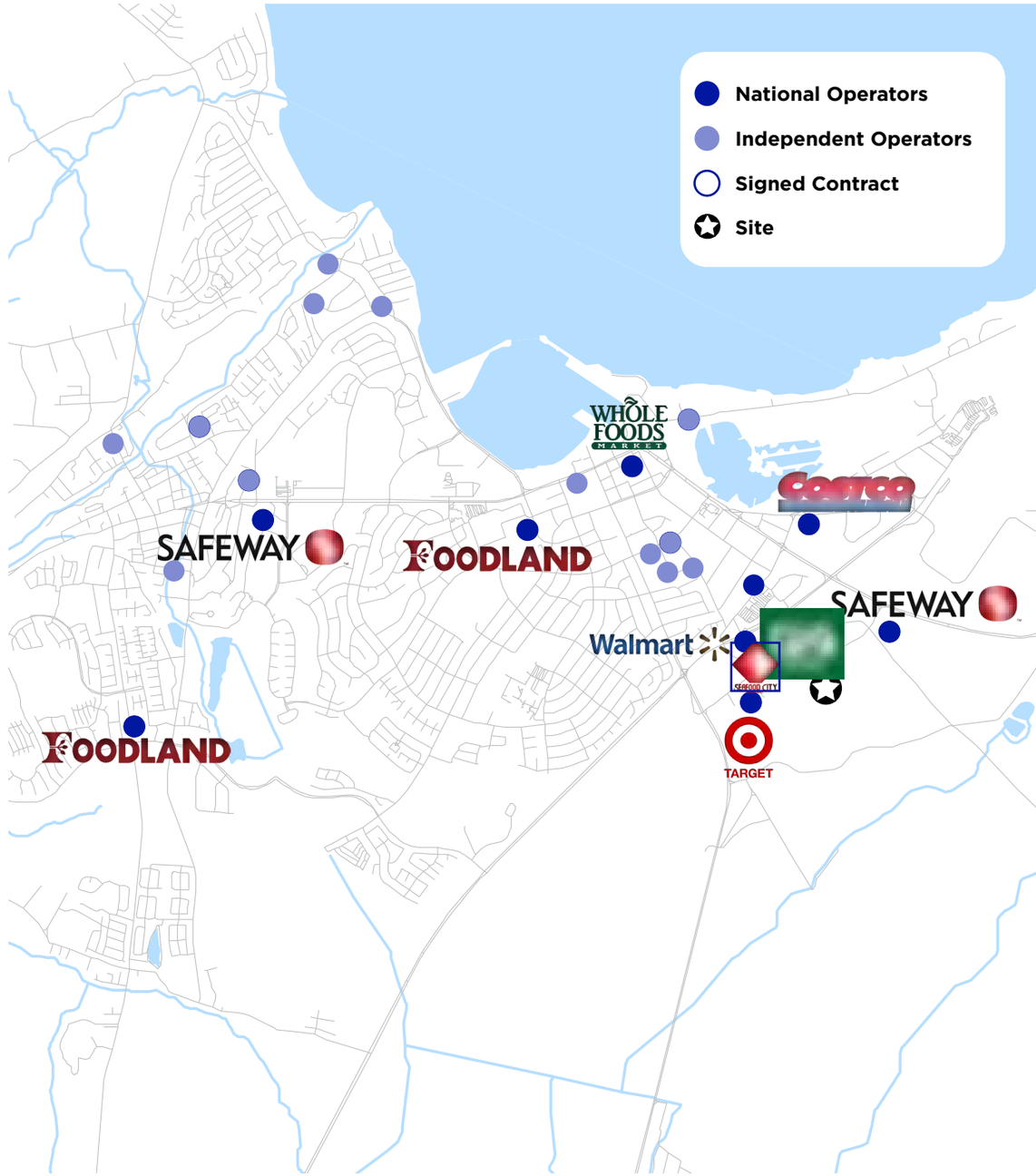
Images Sourced from Costar

Kahului Grocery Landscape

Saturated Grocery Market:

- Maui grocery competition is dense and highly varied, representing an array of operators from budget options to a Whole Foods, as well as 12 independent local operators
- Target, Walmart and Safeway (delivering in 2019 directly northeast of the site) surround and are directly adjacent to Ho'onani Village, satisfying a range of island residents' grocery needs
- Costco's position near the airport ideally places it to attract visitors for a pre-vacation grocery run
- Whole Foods will be difficult to outcompete for a high-end organic food market, coupled with local chain Down to Earth, and the two open-air markets
- Seafood City will make the immediate grocery environment even more crowded, adding a fifth grocery option within less than a five-minute drive

These factors combine to make it unlikely that Ho'onani Village can pull away enough spending from the competition to support even a smaller-format grocer.



SOURCES: CoStar, Streetsense Research

Regional Competition - Outside of Kahalui

Downtown retail offerings, like in Paia and Makwao, are known for their local boutiques and galleries, with limited F&B and grocery options, forcing those residents to travel to Kahului to fulfill their need for grocery and services.

Downtown Wailuku, Paia and Makawao

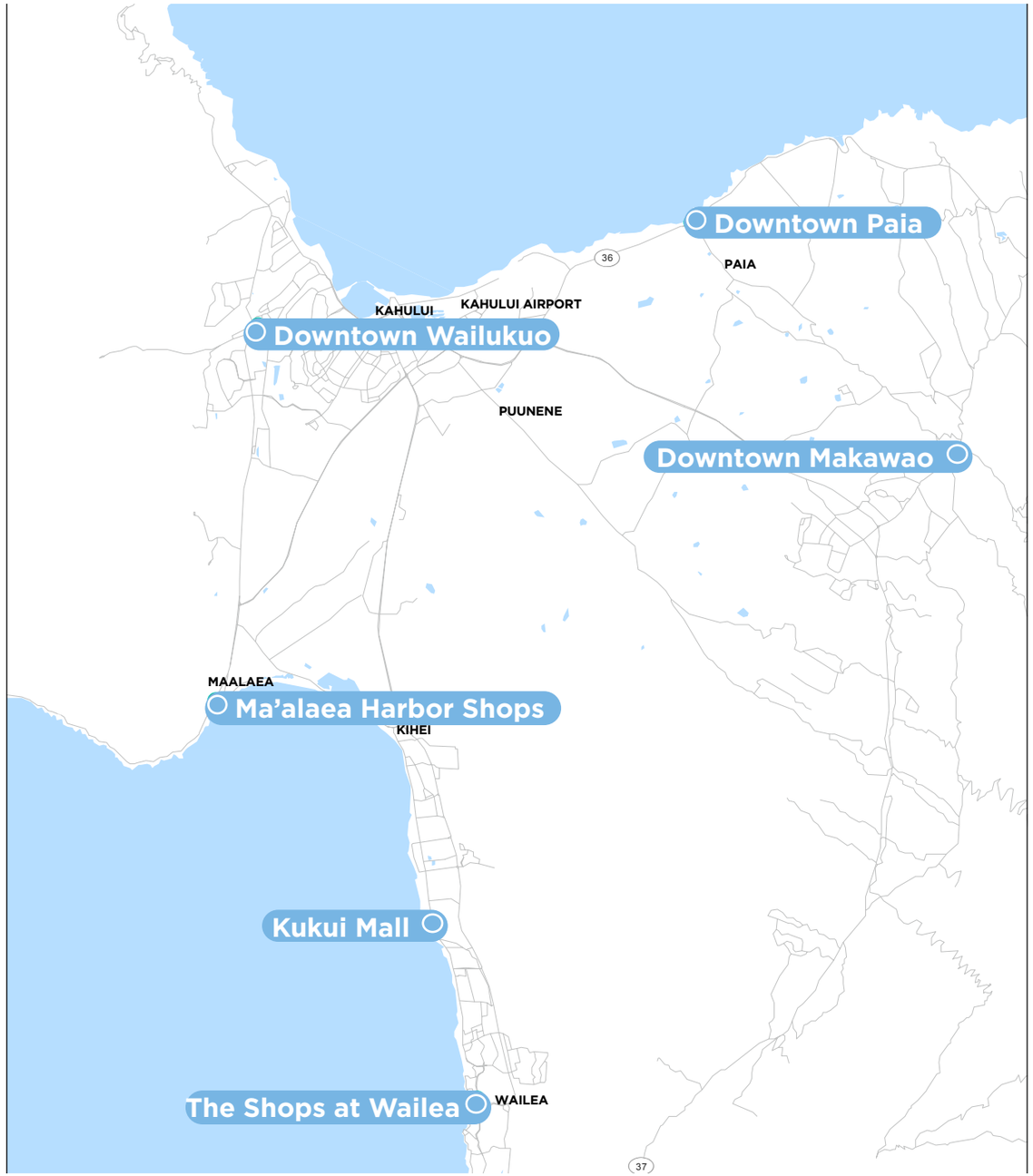
- Dominated by local businesses
- 50%+ businesses are general merchandise
- Prevalence of women's apparel and art galleries
- F&B and grocery options are limited
- High vacancy - Paia 11%

Lahaina area residents have lost significant retail due to the fires. Although a handful of grocery-anchored retail centers have reopened in north Lahaina, residents living on the west coast of Maui are traveling to Kahului periodically for larger shopping trips.

Tourist-serving retail

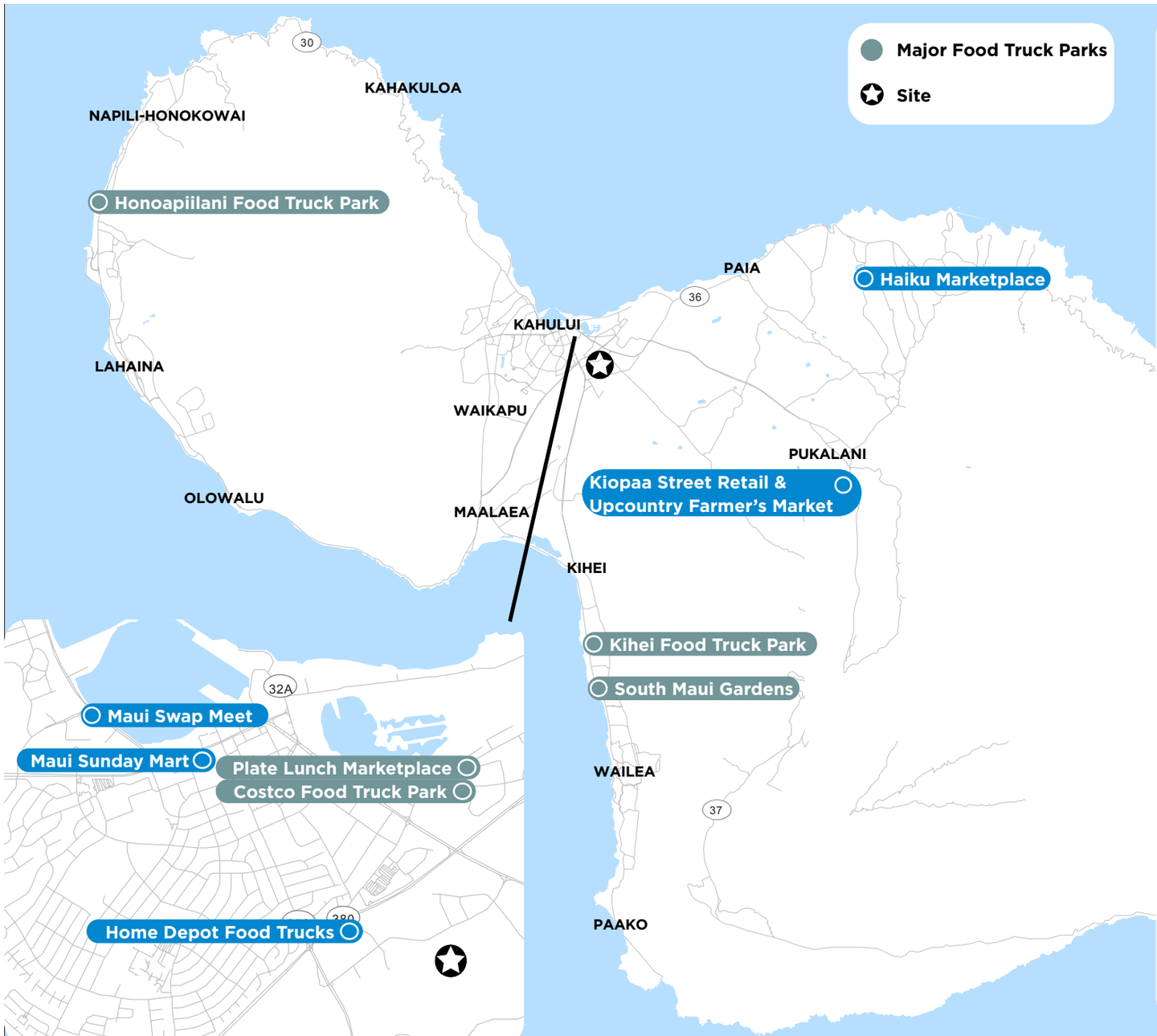
Ma'alaea Harbor Shops and The Shops at Wailea primarily serve tourists, offering luxury shopping, resort-wear and upscale dining. These environments are well-tenanted and walkable, but do not adequately fulfill the needs of the local community.

The devastating destruction of Lahaina's downtown retail has left a major void on the island for a walkable, place-based retail environment. By curating an authentic and locally-tenanted retail program that resonates with all underserved Maui residents, Ho'onani Village has the opportunity to become the island's community gather hub.



SOURCES: CoStar, Streetsense Research

Non-Traditional F&B Environments



Maui hosts numerous non-traditional retail environments, including food truck parks, farmer's markets, and other open-air markets. These are some of the island's most active retail offerings celebrating the island's diverse cuisines and serving as community hubs, while offering flexibility to local operators.

Food Trucks

Food truck culture is particularly strong, with numerous small food truck parks scattered across the island. There are five notable larger food truck parks that host at least five trucks, two of which are in Kahului, serving as direct F&B competition to Ho'onani Village.

Plate Lunch Marketplace is the more established of the two and includes some amenities like picnic tables and a large central tent. The **Costco food truck park** was established at the Costco parking lot in 2021, benefitting from the high foot traffic. That increased traffic is appealing to operators, attracting several popular Maui food truck operators to expand their operations, opening second trucks at the Costco location. Although much smaller and offering no amenities or infrastructure, there is also **a small food truck park active within the Home Depot parking lot**.

All of these locations are well-situated in highly trafficked locations, attracting both visitors flying into the island and locals shopping at existing retail. This indicates the importance of a steady flow of foot traffic to support the success of local entrepreneurs.

Similarly, the **Honoapiilani Food Truck Park** is well-positioned near resort hotels and has also seen an influx of patrons from Lahaina since the fire. **Kihei has two major food truck parks**, the larger and newer of which is at South Maui Gardens.

SOURCES: CoStar, Streetsense Research, GITNUX

Non-Traditional Retail Market

Farmer's Markets & Open Air Markets

Kahului hosts **two farmer's/open-air markets** that are each active on Saturdays and Sundays, respectively. These markets give local vendors the opportunity to sell fresh produce, handmade crafts, and local delicacies that resonate with locals, but also attract visitors looking for an authentic Maui experience. Retailers that are beloved by locals often appeal to visitors, expanding the customer base and driving success to business owners.

Both markets are conveniently located near the waterfront, with the Maui Swap meet being directly adjacent to The University of Hawaii Maui College, serving yet another customer base.

Hotel & Resort F&B

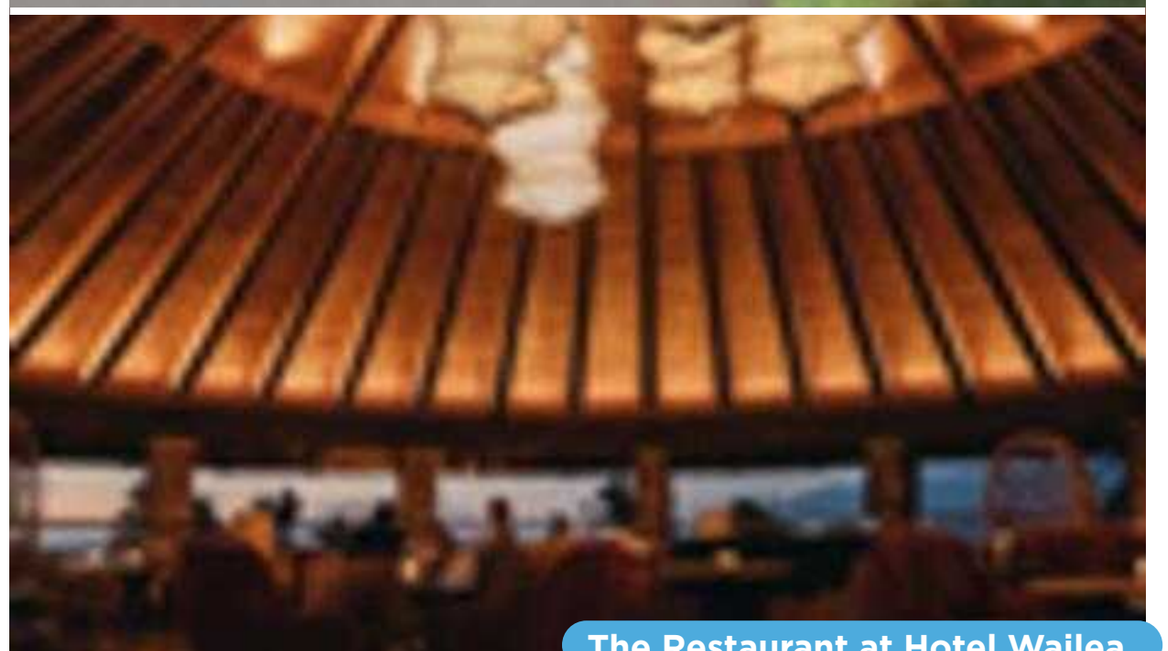
Hotels and resorts on the island often incorporate some level of retail catering to the captive tourist customer base, often offering a restaurant program, depending on the size and scale of the hotel or resort. Most full-service dining offerings in Maui are located within a hotel or resort, with limited standalone dining concepts. Larger resorts often supplement the offering with a mix of luxury boutiques, gift shops, and specialty shops.

Food Halls

There are no operating food halls on Maui, creating the opportunity to build upon and complement the existing food truck scene and foster entrepreneurship on the island. The growing popularity of food halls has spread to Hawaii's island of Oahu, with numerous food halls throughout Honolulu.

There are numerous operating models for food halls, some of which serve as incubators, offering low barriers to entry for local operators. Food halls in the continental US average 10,000 to 12,000 SF, encompassing both operator stalls and common areas. A food hall of this scale typically generates $8 million in total annual sales. There are no true food halls on Maui that will compete with Ho'onani Village, which provides the opportunity to support one onsite.

Maui Swap Meet



The Restaurant at Hotel Wailea

Images Sourced from Afar Media and Hotel Wailea

F&B Market Considerations

Opportunity for F&B in both brick-and-mortar and food truck formats:

- Brick-and-mortar restaurants in Kahului are frequently located in industrial properties or generic strip centers, which can detract from the customer experience.
- Existing downtown environments are very focused on general merchandise rather than F&B, requiring local residents to travel for diverse food options.
- Kahului hosts two of the island's largest food truck parks, benefitting from foot traffic to Costco but lacking a cohesive and comfortable dining environment.
- Despite their popularity, food truck parks mainly offer quick-service options and do not entirely fulfill the need for sit-down restaurants or fool halls.

Development Potential:

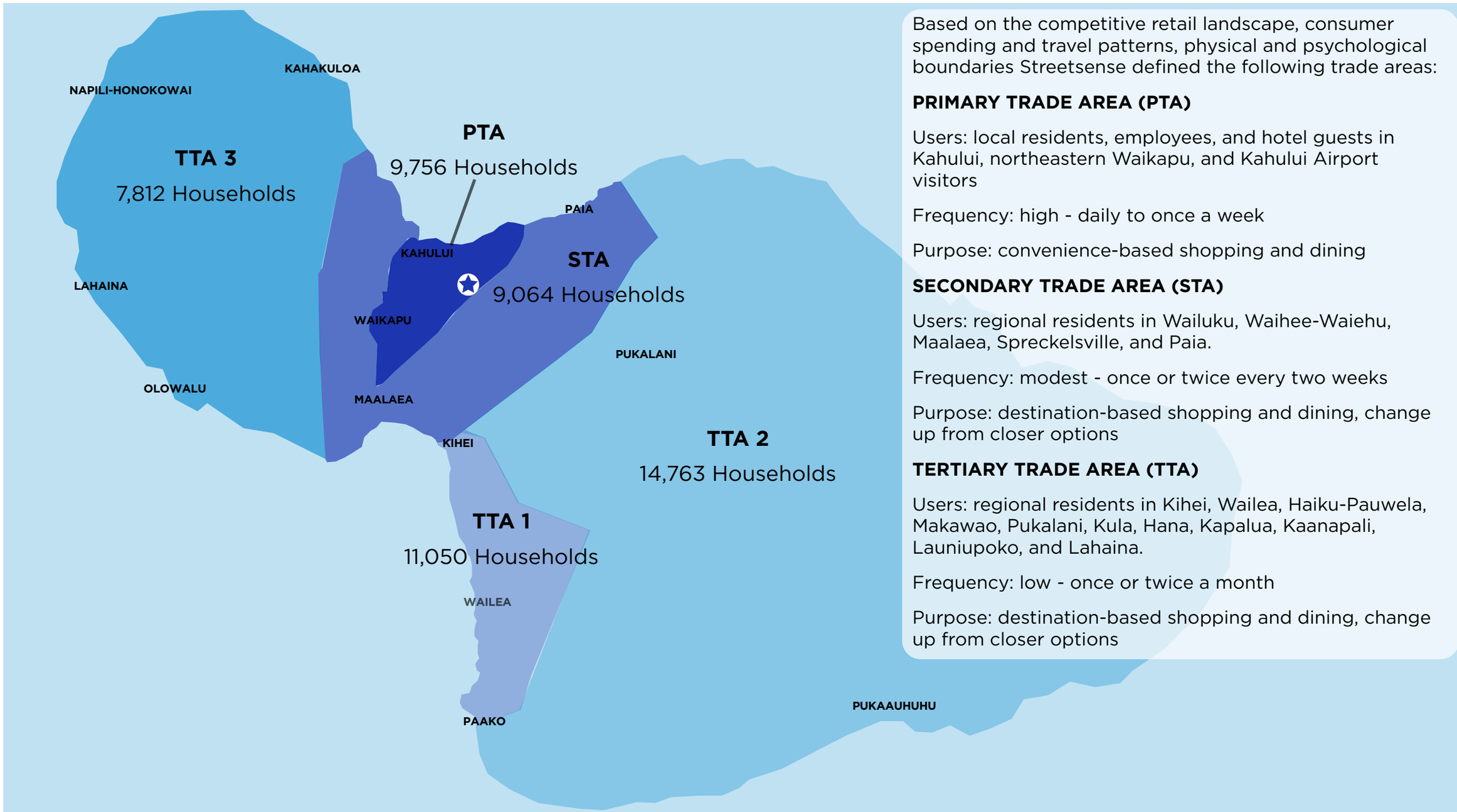
- Unique Dining Experience: Ho'onani Village presents an opportunity to create a unique, first-to-market food hall restaurant program to fill the void on the island.
- Purpose-Built Food Truck Area: There is potential to attract food trucks to a dedicated, purpose-built area within Ho'onani Village, providing a more structured and appealing environment compared to existing locations like Home Depot parking lot.
- A food hall with a central commissary kitchen creates additional opportunity to support the island's strong entrepreneurial spirit, offering new and existing small operators the opportunity to grow in a brick-and-mortar space, expand their existing food truck business, and/or provide catering services to diversify their revenue base.

Jack's Inn Restaurant

Place Lunch Marketplace

Images Sourced from Costar and The Hawaii Vacation Guide

Retail Trade Areas



Based on the competitive retail landscape, consumer spending and travel patterns, physical and psychological boundaries Streetsense defined the following trade areas:

PRIMARY TRADE AREA (PTA)

Users: local residents, employees, and hotel guests in Kahului, northeastern Waikapu, and Kahului Airport visitors

Frequency: high - daily to once a week

Purpose: convenience-based shopping and dining

SECONDARY TRADE AREA (STA)

Users: regional residents in Wailuku, Waihee-Waiehu, Maalaea, Spreckelsville, and Paia.

Frequency: modest - once or twice every two weeks

Purpose: destination-based shopping and dining, change up from closer options

TERTIARY TRADE AREA (TTA)

Users: regional residents in Kihei, Wailea, Haiku-Pauwela, Makawao, Pukalani, Kula, Hana, Kapalua, Kaanapali, Launiupoko, and Lahaina.

Frequency: low - once or twice a month

Purpose: destination-based shopping and dining, change up from closer options

Customer Profile

Understanding the demographic and psychographic profile of customers within the trade areas dictates the type of retail that would resonate with Ho'onani Village's customer base. Ultimately, retail spending levels among these customer groups drive retail demand on the site.

Trade Area / Statistic	PTA	STA	TTA 1	TTA 2	TTA 3
Households	9,756	9,064	11,050	14,763	7,812
Median Age	41	41	45	44	43
Average Household Size	3.4	3.1	2.5	2.8	3.0
Households with Children	34%	32%	24%	28%	26%
Median Household Income	$82,908	$91,497	$82,875	$89,215	$84,746
Average Household Retail Spending	$24,501	$24,794	$25,614	$26,246	$26,301

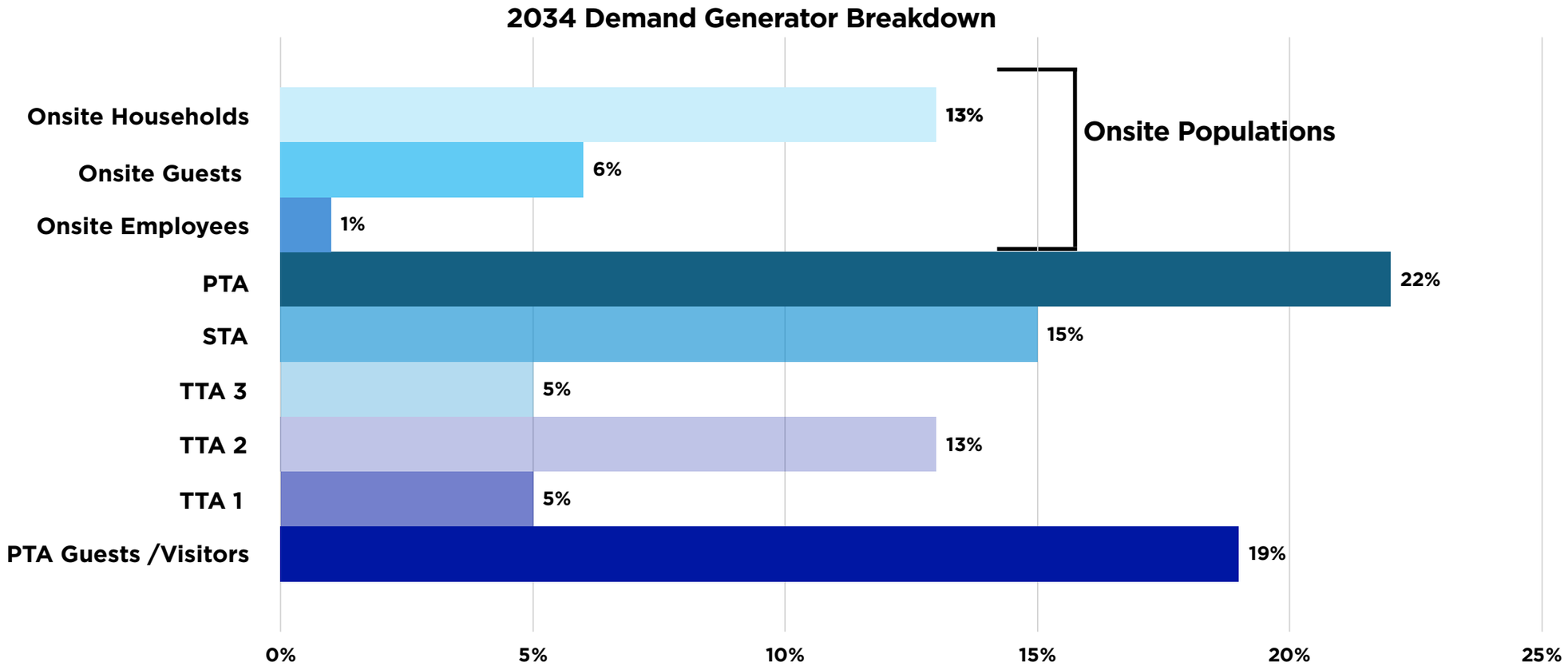
Key Takeaway

Household density is low island-wide, which limits total retail spending from locals. Residents also tend to be older, with median ages across the trade areas higher than the US median age of 39. Family households are in the majority and there is a high proportion of children. This is especially the case within the PTA and STA, which indicates the opportunity for family-friendly offerings and children's apparel. Median household incomes across the trade areas are relatively higher than the US median of $74,580, with the STA and TTA2 achieving the highest incomes. However, retail spending is restricted by the high cost of living on the island. Although the STA has the highest median household income, it has the second lowest average household retail spending, after the PTA.

SOURCES: Sitewise, US Census

2034 **Customer Segmentation**

The most successful retail environments appeal to a spectrum of users, serving a diverse customer base that creates consistent daypart activity to the community driving the success of businesses. It is important to identify the entire customer spectrum, analyzing each customer segment's wants and needs and prioritizing in a way that yields an experience equally magnetic to all users (albeit for different reasons). This approach will maximize Ho'onani Vilage's appeal and subsequent productivity.



Key Takeaway

Rather than being primarily driven by one customer segment, capturable retail demand at Ho'onani Village comes from multiple populations. The largest tranche of demand (22%) is driven by PTA residents, however hotel guests within the PTA and island visitors drive significant sales potential, contributing 19% of the total retail demand. It is critical to create a place that first and foremost serves the local Maui community by making the retail accessible and inviting so that it becomes a local staple on the island. By creating a welcoming and authentic retail environment that serves both locals and visitors, local operators will thrive, driving long-term economic growth for the asset and the Maui community overall.

SOURCES: Sitewise, Streetsense Research

Demand from Onsite Populations

The proposed onsite development program at Ho'onani Village consists of the following program by 2034.

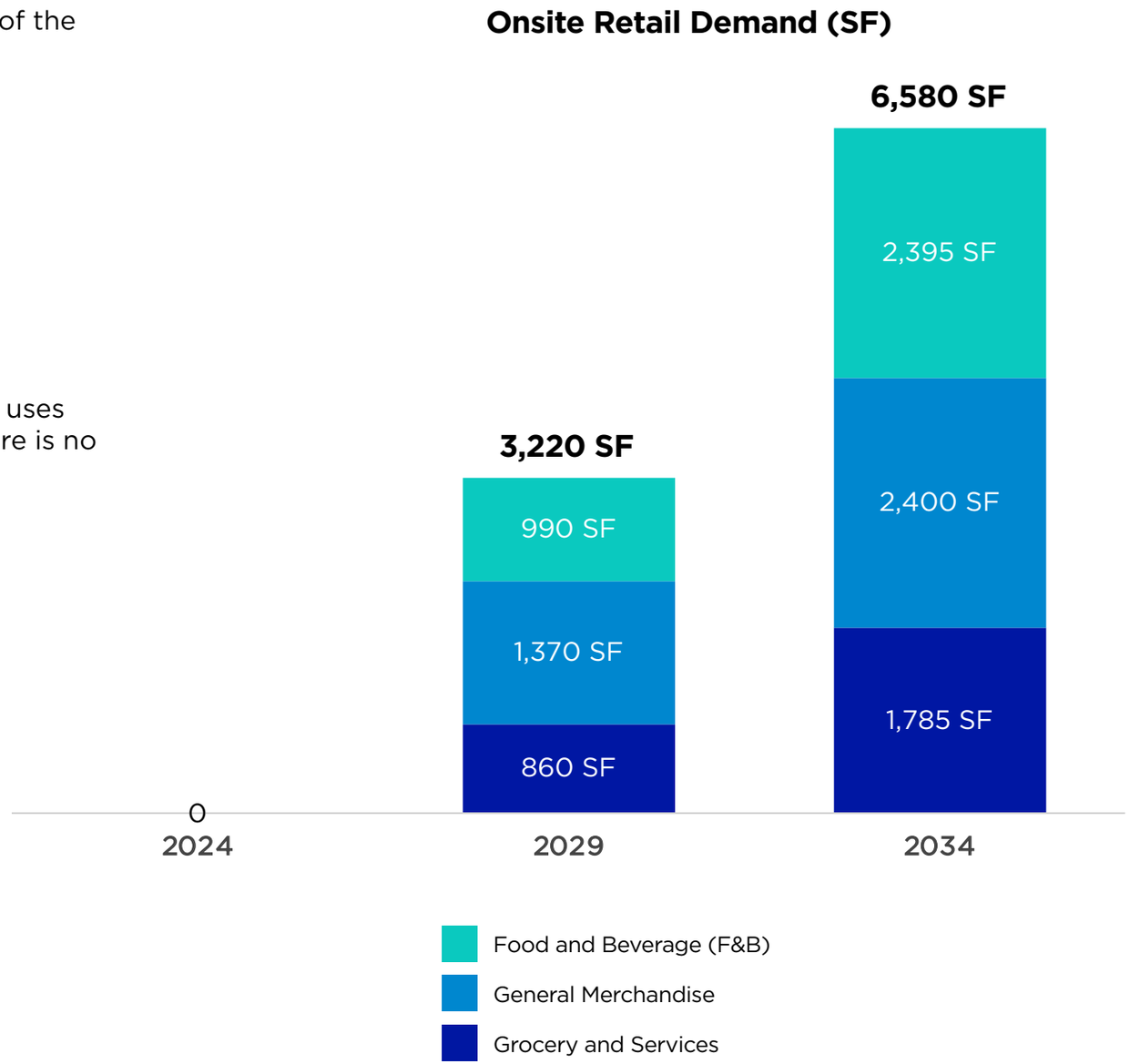
- 1,600 residential units
- 50,000 SF of office
- 50,000 SF of industrial and
- 300 hotel keys

For the purposes of this analysis, it is assumed that half of the proposed uses will be delivered by 2029. Because the site is currently undeveloped, there is no onsite demand in 2024.

Key Takeaway

Because onsite residents will be Ho'onani Village's most immediate customers, onsite residents have the highest level of spending capture. However, even the significant development program that is in place units only generates 6,580 SF of total retail demand at full build-out.

To achieve a robust retail program and highly vibrant and active environment, Ho'onani Village needs to attract spending from island residents living outside the Village and visitors to Maui.



SOURCES: Sitewise, Streetsense Research

Retail Scenarios

Scenario 1

Strong sense of arrival

Scenario 2

Streetsense assessed two development scenarios to understand the retail opportunity at Ho'onani Village.

Scenario 1 is based on the current plans showing retail located in the center of the residential community, creating a greater barrier for customers outside of the development to shop and dine.

In **Scenario 2**, greater emphasis is placed on attracting Maui residents as well as vacationers. An important factor for retail to thrive in a mixed-use environment include a strong sense of arrival and tenant visibility, which will be more difficult to achieve if retail is more centrally located in the development. By placing retail closer to Pulehu Road, Ho'onani Village's offerings will feel less "walled in" and more open to the community beyond the development itself. This will also assist with tenant attraction, as tenants frequently demand a degree of roadside visibility. By shifting the retail core, the site will be better positioned to attract and retain both customers and tenants without sacrificing the envisioned mixed-use, pedestrian only environment.

Retail Scenarios

As part of our analysis, Streetsense considered two potential scenarios.

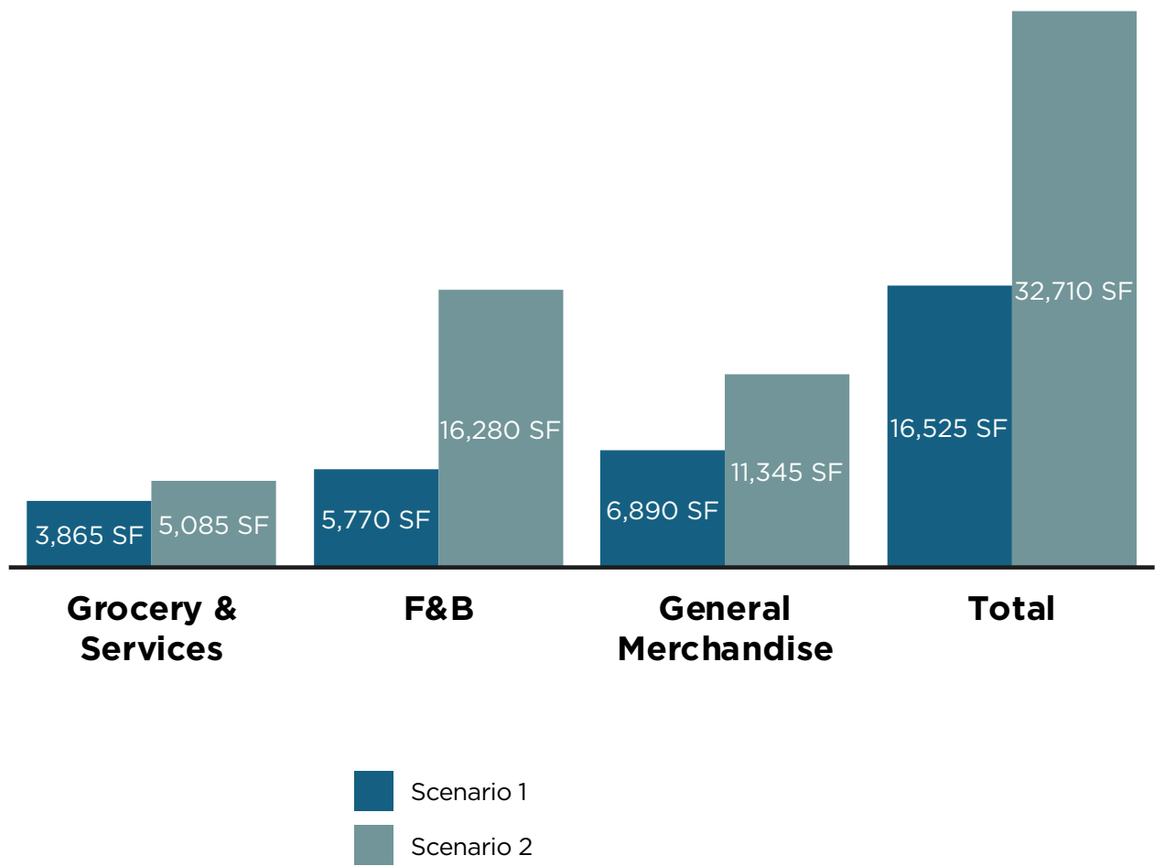
In **Scenario 1**, Streetsense assumed that the final build-out of Ho'onani Village would be similar to the plans depicted on page 5 of this document, with retail centrally located within the residential community. In this scenario retail at Ho'onani Village primarily serves onsite and Kahului residents, with less emphasis on attracting patronage from vacationers or residents living further out on the island, thereby capturing a smaller audience base and ultimately less retail demand, amounting to a total 16,525 SF in 2034.

Scenario 2 is reflected in the 32,710 SF of total capturable demand by 2034 presented in the Total Demand Projections. This scenario assumes that the walkable retail environment is placed closer to and facing Ho'okele Street or Pulehu Road. **Streetsense does not recommend placing retail directly on the street - rather the planned pedestrian-only environment should be shifted closer to the site's access points to facilitate customer draw and tenant visibility.**

Key Takeaway

Total demand in 2034 will be reduced by 16,185 SF in Scenario 1. F&B and General Merchandise are the most heavily impacted categories, with F&B demand being cut down by nearly two-thirds.

2034 Demand Scenario Comparison



SOURCES: Sitewise, Streetsense Research

Total Retail Demand Projections: Scenario 2

The site can currently support 23,985 SF of retail, growing to 32,710 SF over the next 10 years due to household growth on the island and the delivery of the onsite residential program bringing 1,600 additional captive households.

Based on consumer spending, local and regional retail competition, and projected household growth, the site can support the following:

$21,957,214 total captured annual expenditures

This translates to **32,710 SF total retail demand**

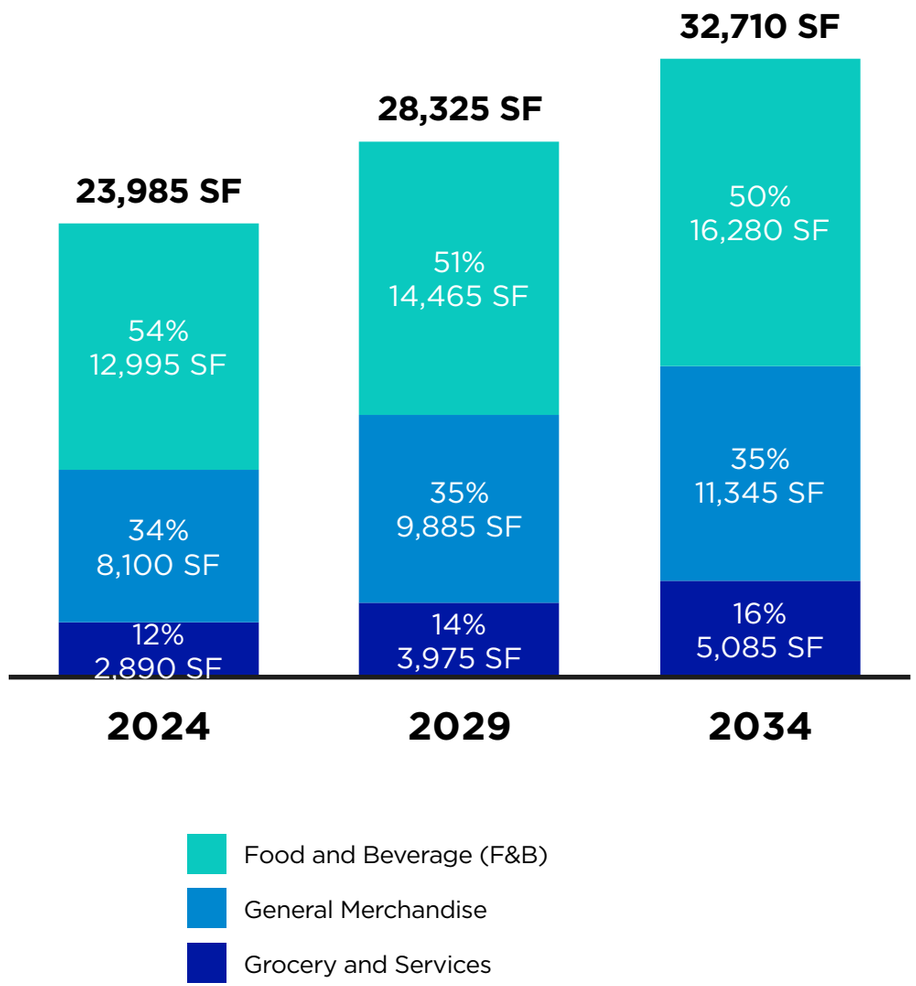
Grocery & Services Opportunity - 5,085 SF

Grocery & Services demand is limited by the density of a variety of grocery competition, despite the shortfalls of individual competitive sites. With this level of demand, a full-service grocery store or larger-format pharmacy is not supportable onsite. However, there is sufficient demand for a small convenience store, as well as personal services that serve as an amenity to future onsite residents, driving value to the residential program.

General Merchandise Opportunity - 11,345 SF

General Merchandise demand is more substantial, although is still limited by the density of competition within Kahului. There is sufficient demand for a moderate program primarily consisting of apparel and home furnishings. However, due to the site's direct adjacency to big-box retailers, local and specialty operators should be targeted in order to stand out from the more generic offerings provided by Target, Lowes, Home Depot and Walmart.

Total Demand Projections



SOURCES: Sitewise, Streetsense Research, CBRE

F&B Opportunity & Recommendations: Scenario 2

There is total $12.3 million in capturable F&B spending, this roughly equates to 16,280 SF of F&B demand. Given the nontraditional operations and footprints of food halls and food trucks, some of the recommendations are based on capturable sales volumes, while brick and mortar restaurant recommendations are expressed in square footage.

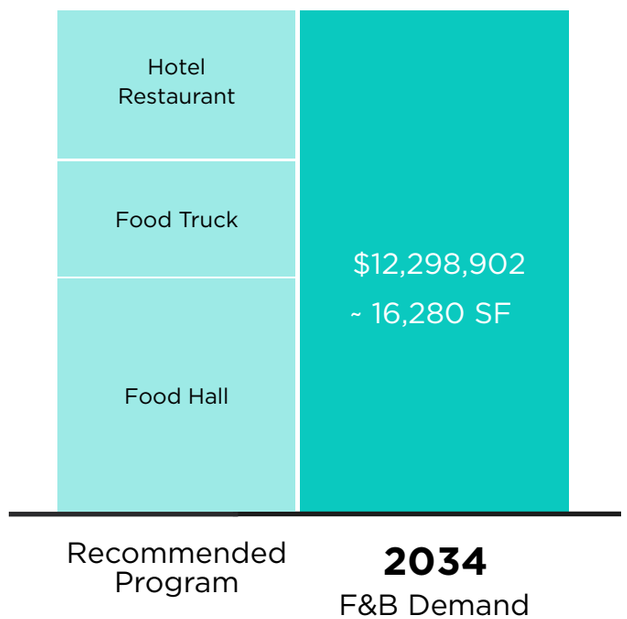
The following represent Streetsense recommendations for a potential F&B program based on the identified demand, conversations with local brokers, hospitality consultants and former operators, and our understanding of the market dynamics. These recommendations are not prescriptive, leaving flexibility based on the ongoing evolution of the site plan and market trajectory. Ultimately, our recommendations show a balance between

- Brick and mortar hotel restaurant
- Food truck
- Food hall

Brick And Mortar Recommendations

In order to support onsite hotel guests, **Streetsense recommends that 3,500 - 4,000 SF of F&B demand goes towards brick-and-mortal sit-down restaurant within the proposed hotels**. We do not recommend stand-alone brick-and-mortar restaurants beyond the hotel offering - remaining F&B demand will be met by the food truck park and food hall.

Food & Beverage Total Capturable Retail Spending



SOURCES: Sitewise, Streetsense Research, CBRE

F&B Opportunity & Recommendations

Food Truck Recommendations

According to CBRE research, some of the highest-performing food trucks on the island draw in $360,000 in net sales per year, with moderately performing trucks generating $250,000 in sales. **Streetsense recommends an initial program of 8 food trucks with flexibility to expand the park as the site establishes itself in the community, growing demand over time**.

There is an opportunity to pull food trucks away from the Home Depot and Lowes parking lots, which currently host four trucks collectively. Although these trucks have direct access to customers currently, they are not in an attractive, place-based environment that Ho'onani Village could foster. There is also opportunity to relocated food trucks that previously operated in the Lahiana Food Truck Park, formerly one of the island's largest and most successful food truck locations that has since been displaced by the fire.

The inclusion of an amphitheater will also help drive customers to both the food hall and food truck park. However, even high-performing Live Nation venues generally host 30 events per year, so amphitheater events should not be relied on too heavily as a source of F&B spending.

SOURCES: Sitewise, Streetsense Research, CBRE

F&B Opportunity & Recommendations

Food Hall Recommendations

This opportunity assumes the client's current operating plans, which follows a revenue share model, with a larger shared commercial kitchen and smaller prep areas within each stall, and shared seating. A shared commercial kitchen is a great advantage, because it can be used by food truck operators as well.

Streetsense recommends an average-sized food hall consisting of 9 food stalls, with each stall 400 - 600 SF, equating to approximately 3,600 - 4,500 SF for stalls total.

It is important to note that generally food halls' performance is driven by alcohol sales, with food sales on their own taking years to break even in many cases. As such, **we recommend a central bar serving the entire food hall that supplements the operator's revenue share**.

Spacial recommendations for the seating area and shared commercial kitchen vary drastically depending on the specifics of the operations, and will need to be assessed in a more nuanced approach. However, the typical shared kitchen occupies between 2,500 - 5,000 SF, depending on the specifics of the operating models.

The **development can be flexible with limited indoor seating areas by leveraging the adjacent food truck park and creating more outdoor seating areas. Operable storefront/garage doors can help maximize seating capacity with a lower development risk**. This also creates a comfortable indoor-outdoor flow for customers access and are recommended for this project.

Potential Operators

There are numerous very successful food truck operators on the island that could also be attracted to opening additional locations onsite to benefit from access to the food halls' shared kitchen, creating opportunities to diversify their revenue streams by offering catering services or occupying a food hall stall at a fixed location onsite.

There is also opportunity to pull former Lahaina operators that have been displaced by the fires, providing them with operating and kitchen spaces while recovery efforts are ongoing. This will also serve to attract Lahaina customers who have lost their favorite local spots.

SOURCES: Sitewise, Streetsense Research, CBRE

Thank You

STREETSENSE

EXHIBIT 32

Flora & Fauna Survey

FLORA AND FAUNA SURVEY
FIRST ASSEMBLY OF GOD SUBDIVISION
KAHULUI, MAUI

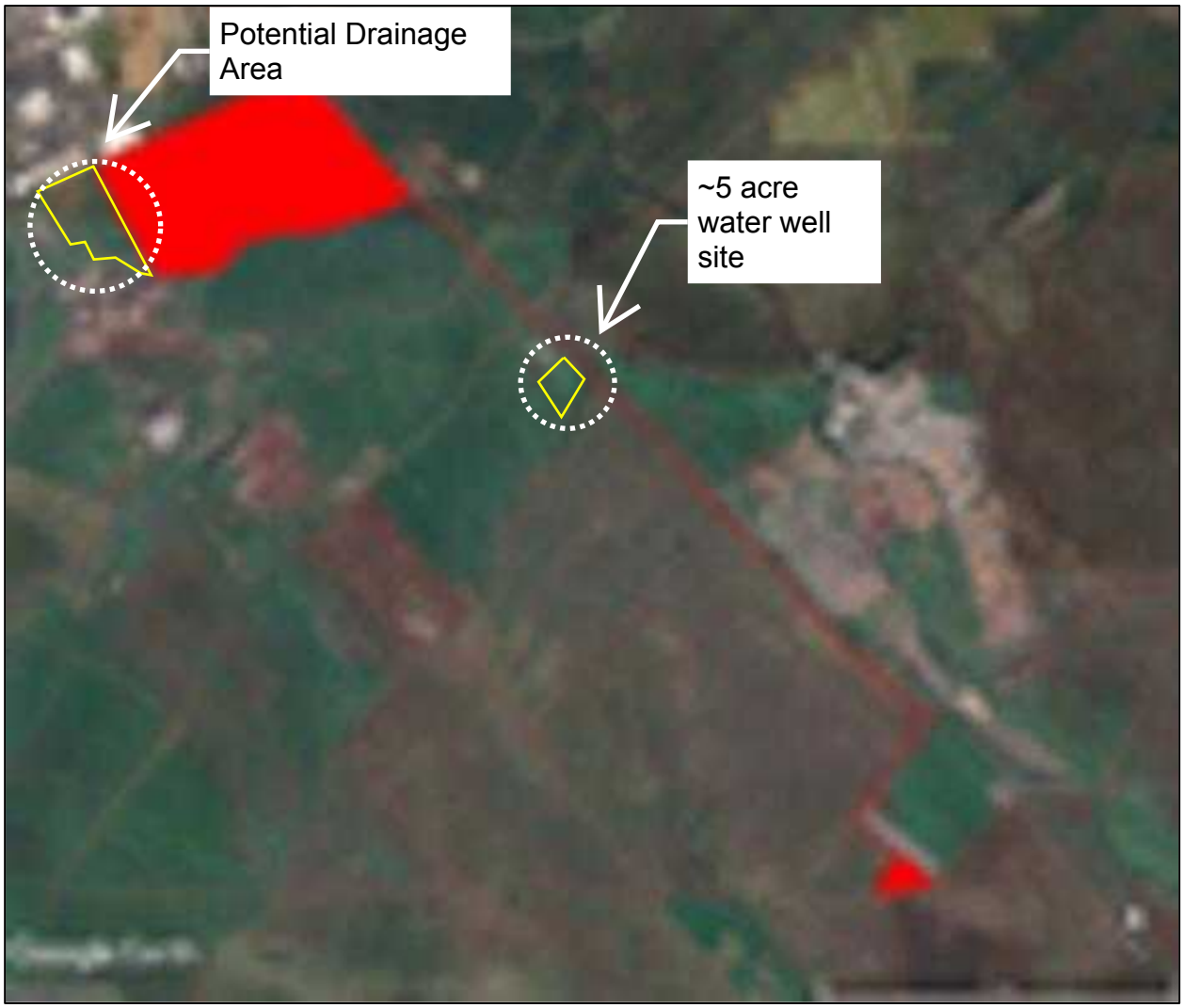
Prepared By:
FOREST & KIM STARR
STARR ENVIRONMENTAL

Prepared For:
LEHUA BUILDERS, INC.

2024

INTRODUCTION

Lehua Builders, Inc. is gathering information for construction of a proposed subdivision on about 190 acres, with an approximately 6 acre well and tank site, connected by a 2.6 mile water line in Kahului, Maui. This report focuses on the flora and fauna within the project site.



Project site.

SITE DESCRIPTION

The main project site is located in the dry isthmus of East Maui, at an elevation of about 50-80 ft. The terrain is relatively flat and was previously cultivated in sugar cane. The vegetation is mostly non-native grasses, shrubs, and small trees. The site is currently sitting idle. Most of the site has burned in the recent past.

The pipeline section, which runs from about 80-350 ft. elevation is similar to the main project site in the lower reaches, and is an active citrus field in the upper reaches. The well site, at about 350 ft. elevation, is also an active citrus field.

Terrain and vegetation at main project site.

Terrain and vegetation in lower reaches of pipeline corridor.

Terrain and vegetation in upper reaches of pipeline corridor and well site.

SURVEY OBJECTIVES

The objectives of the survey were to:

- Document what plant and animal species occur on the site or may likely occur in the habitat.

- Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.

SURVEY METHODS

The bulk of the main project area was surveyed in May 2024. An additional parcel in the main area, the well site, and the corridor pipeline connecting the two were surveyed in July 2024.

A walk-through survey method was used. Notes were made on plant and animal species encountered. Extra emphasis was made to look for species of conservation concern.

Taking notes on vegetation.

FLORA

The main project site and the lower reaches of the pipeline corridor are dominated by non-native grasses, mostly Guinea grass (*Megathyrsus maximus*) and buffel grass (*Cenchrus ciliaris*). In areas where grasses are thin, other aggressive non-native plants dominate, especially spiny amaranth (*Amaranthus spinosus*), lion's tail (*Leonotis nepetifolia*), golden crown-beard (*Verbesina encelioides*), and tumbleweed (*Salsola tragus*). Clumps of shrubby non-native fleabane (*Pluchea* spp.) also dot the fields of grass.

There are very few trees in the main project area. Most prevelant are hundreds of non -native tree tobacco (*Nicotiana glauca*). Though weedy and non-native, these small trees / large shrubs are potential host plants for the endangered Blackburn's Sphinx Moth (*Manduca blackburni*). There is more discussion about this in the insect section.

Other trees in the project area include groves of large haole koa (*Leucaena leucocephala*). A few monkey pods (*Samanea saman*). And a row of giant, mostly dead, elephant's ear pod (*Enterolobium cyclocarpum*) along Pulehu Rd. There are also scattered small kiawe (*Prosopis pallida*), Manila tamarind (*Pithecellobium dulce*), silky oak (*Grevillea robusta*), and date palms (*Phoenix* sp.). And at the well site and upper reaches of the pipeline corridor, there is an active citrus farm growing lime trees (*Citrus aurantifolia*).

The only native plant found on the main site was the common shrub ʻuhaloa (*Waltheria indica*). ʻUhaloa was also abundant at the well site and in the pipeline corridor, along with scattered vines of the native pāʻū o Hiʻiaka (*Jacquemontia sandwicense*).

The main site, mostly non-native grasses, especially Guinea grass (*Megathyrsus maximus*).

The lower reaches of the pipeline corridor, with large dead elephant's earpod trees (*Enterolobium cyclocarpum*) and an understory of non-native grasses and weeds.

Active citrus farm (*Citrus aurantifolia*) at well site and upper reaches of pipeline corridor.

Abandoned road in main site being colonized by tumbleweed (*Salsola tragus*).

Thickets of lion's tail (*Leonotis nepetifolia*) are common in areas with sparse grass cover.

One of a handful of monkey pod trees (*Samanea saman*) along Hansen Road.

Small Manila tamarind trees (*Pithecellobium dulce*) are scattered about the site.

Kiawe (*Prosopis pallida*) with understory of golden crown-beard (*Verbesina encelioides*).

Tree tobacco (*Nicotiana glauca*) is abundant at the main site.

Non-native Mexican poppy (*Argemone mexicana*) is locally common in the main site

Native ʻuhaloa (*Waltheria indica*) is present in the main site and pipeline corridor, and abundant in the rows between citrus trees.

Non-native obscure morning glory (*Ipomoea obscura*) is common in the citrus groves.

The native morning glory pāʻū o Hiʻiaka (*Jacquemontia sandwicense*) is also present.

Citrus farm (*Citrus aurantifolia*) at well site and upper reaches of pipeline corridor.

Cultivated lime (*Citrus aurantifolia*).

Plant Checklist

List of plants encountered during the survey.

Scientific Name	Common name	Nativity
Abutilon grandifolium	Hairy abutilon	Non-native
Alternanthera pungens	Khaki weed	Non-native
Amaranthus spinosus	Spiny amaranth	Non-native
Argemone mexicana	Mexican poppy	Non-native
Atriplex muelleri	Saltbush	Non-native
Bidens Pilosa	Beggarstick	Non-native
Boerhavia coccinea	Scarlet boerhavia	Non-native
Calotropis procera	Small crown flower	Non-native
Canavalia cathartica	Maunaloa	Non-native
Cenchrus ciliaris	Buffel grass	Non-native
Chamaecrista nictitans	Partridge pea	Non-native
Chenopodium murale	Lamb's quarters	Non-native
Chloris barbata	Fingergrass	Non-native
Citrus sp.	Citrus tree	Non-native
Coffea arabica	Coffee	Non-native
Crotalaria assamica	Rattle pod	Non-native
Cucumis dipsaceus	Wild cucumber	Non-native
Cynodon dactylon	Bermuda grass	Non-native
Cyperus rotundus	Nut-sedge	Non-native
Datura stramonium	Jimson weed	Non-native
Desmanthus pernambucanus	Slender mimosa	Non-native
Eleusine indica	Wire grass	Non-native
Enterolobium cyclocarpum	Elephant's earpod	Non-native
Eragrostis cilianensis	Stink grass	Non-native
Eragrostis pectinacea	Carolina love grass	Non-native
Grevillea robusta	Silky oak	Non-native
Heliotropium procumbens	Fourspike heliotrope	Non-native
Heterotheca grandiflora	Telegraph weed	Non-native
Indigofera suffruticosa	Upright indigo	Non-native
Ipomoea obscura	Obscure morning glory	Non-native
Jacquemontia sandwicense	Pāʻū o Hiʻiaka	Native
Leonotis nepetifolia	Lion's tail	Non-native
Lepidium sp.	Pepperweed	Non-native
Leucaena leucocephala	Haole koa	Non-native
Ludwigia octovalvis	Primrose willow	Non-native
Macroptilium atropurpureum	Vining cow pea	Non-native

Scientific Name	Common name	Nativity
Macroptilium lathyroides	Erect cow pea	Non-native
Malva parviflora	Cheeseweed	Non-native
Malvastrum coromandelianum	False mallow	Non-native
Megathyrsus maximus	Guinea grass	Non-native
Momordica charantia	Bitter melon	Non-native
Moringa oleifera	Drumstick tree	Non-native
Nicandra physalodes	Apple of Peru	Non-native
Nicotiana glauca	Tree tobacco	Non-native
Parthenium hysterophorus	Santa Maria	Non-native
Paspalum sp.	Paspalum	Non-native
Phoenix sp.	Date palm	Non-native
Pithecellobium dulce	Opiuma	Non-native
Pluchea carolinensis	Sourbush	Non-native
Pluchea indica	Indian fleabane	Non-native
Prosopis pallida	Kiawe	Non-native
Ricinus communis	Castor bean	Non-native
Salsola tragus	Tumble weed	Non-native
Samanea saman	Monkey pod	Non-native
Schinus terebinthifolius	Christmas berry	Non-native
Senna occidentalis	Coffee senna	Non-native
Setaria verticillata	Bristly fox-tail	Non-native
Sida ciliaris	Red sida	Non-native
Sida spinosa	Prickly sida	Non-native
Solanum lycopersicum	Wild tomato	Non-native
Syzygium cumini	Java plum	Non-native
Tridax procumbens	Coat buttons	Non-native
Vachellia farnesiana	Klu	Non-native
Verbesina encelioides	Golden crown-beard	Non-native
Waltheria indica	ʻUhaloa	Native

FAUNA

Below is a discussion of our findings and steps the U.S. Fish and Wildlife Service (FWS) recommends to prevent harm to rare native species that could occur within the project area.

BATS

Dedicated surveys for Hawaiian Hoary Bats (*Aeorestes semotus*) were not done, but bats are known to transit over broad areas and may forage at the site at times. Most of the trees at the project site are less than 15 ft. tall, though some are taller.

Hawaiian Hoary Bats roost and give birth to their young in tall trees. While tree trimming activities are not incompatible with bats, they have the potential to impact juvenile bats unable to fly away from a tree that is cut during the summer pupping season. For this reason, the FWS suggests that trimming woody plants more than 15 ft. tall should not occur between June 1 and September 15. Use of barbed wire is also discouraged, as it can entangle and kill bats.

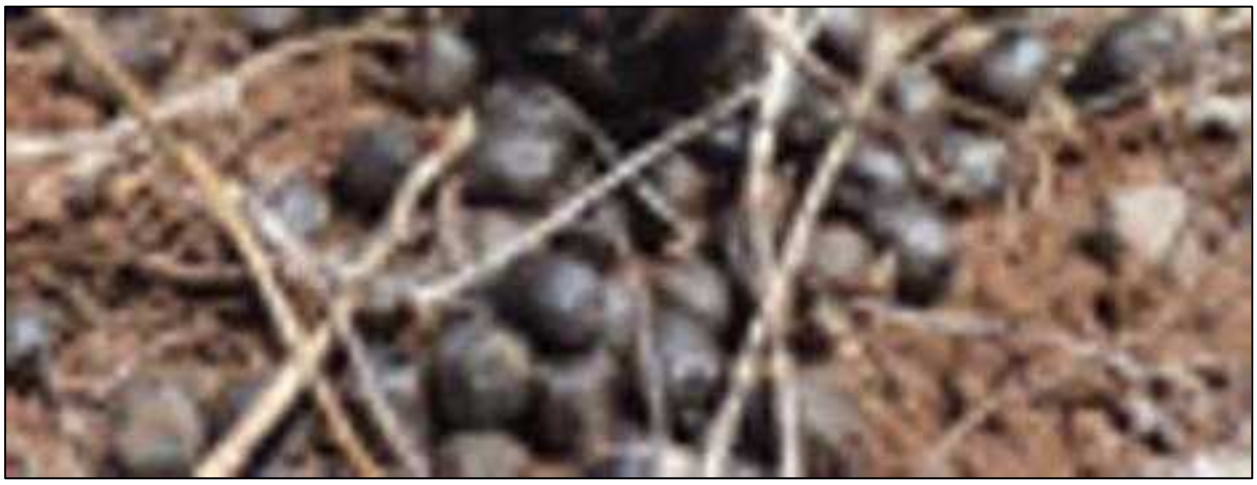
NON-NATIVE MAMMALS

The only non-native mammals observed at the site were a few dozen Axis Deer (*Axis axis*) at the main site and a herd of cows (*Bos taurus*) in the lower reaches of the pipeline corridor. Additionally, high levels of browsing, scat, game trails, digging, and rubbing were observed.

Non-native mammals that were not observed but likely occur in the project area at times include pigs (*Sus scrofa*), rats (*Rattus* spp.), mice (*Mus domesticus*), cats (*Felis domesticus*), dogs (*Canis familiaris*), and mongooses (*Herpestes auropunctatus*).

Herd of Axis Deer (*Axis axis*) in tree tobacco thicket at main site.

Axis Deer (*Axis axis*) rubbing on tree tobacco.



Fresh Axis Deer (*Axis axis*) scat.

Cows (*Bos taurus*) in lower reaches of pipeline corridor.

BIRDS

There were very few birds at the site. The bulk of the birds encountered during the survey were common non-native species. The birds were mostly transiting through the site, roosting in trees, and loafing on the ground. Birds were most common near the edges of the property, in areas that are lusher and have more structural diversity. Most abundant were Common Mynah (*Acridotheres tristis*) and Zebra Doves (*Geopelia striata*). A nest of non-native Black Francolin (*Francolinus francolinus*) was found at the base of a grass clump.

Dedicated seabird surveys were not done, and the habitat would likely be inhospitable to them. A lone Frigatebird or ʻIwa (*Fregata minor*) was observed riding thermals above the site and gliding to the south. Seabirds could also transit over the site at night. The FWS recommends using downward facing lights to minimize disorienting these night flying birds, and avoiding nighttime construction during September 15 through December 15 when young seabirds are fledging.

No Hawaiian Geese or Nēnē were encountered on the site, though they are known from the general area. The FWS recommends that folks do not approach, feed, or disturb Nēnē. If Nēnē start to become regularly observed on the project site, contact FWS for further guidance.

Bird Checklist

List of birds encountered during the survey.

Scientific Name	**Common name**	**Nativity**
Francolinus francolinus	Black Francolin	Non-native
Bubulcus ibis	Cattle Egret	Non-native
Acridotheres tristis	Common Mynah	Non-native
Ortygornis pondicerianus	Gray Francolin	Non-native
Passer domesticus	House Sparrow	Non-native
Fregata minor	ʻIwa, Frigatebird	Native
Spilopelia chinensis	Lace-necked Dove	Non-native
Cardinalis cardinalis	Northern Cardinal	Non-native
Lonchura sp.	Rice Birds	Non-native
Geopelia striata	Zebra Dove	Non-native

Frigatebird or ‘Iwa (*Fregata minor*) gliding on thermals above main site.

Looking and listening for birds.

Black francolin (*Francolinus francolinus*) eggs at base of grass tussock.

INSECTS

A survey of all the insects on the site was beyond the scope of this project. Conspicuous insects were noted, and insects of conservation concern were looked for.

The insects observed at the site were all common non-native insects one would expect in this habitat. Most conspicuous are numerous butterfly species including Monarch Butterfly (*Danaus plexippus*), Sleepy Orange Butterfly (*Eurema nicippe*), Bean Butterfly (*Lampides boeticus*) Western Pygmy Blue Butterfly (*Brephidium exilis*), and Citrus Swallowtail Butterfly (*Papilio xuthus*). Honey bees (*Apis mellifera*) were also buzzing about, and glaber ants (*Ochetellus glaber*) were present on many plants.

Of note, the main site has hundreds of tree tobacco (*Nicotiana glauca*) plants, virtually all of which are greater than three feet tall and nearing the end of their life cycle. Though non-native, this species can be a host for the endangered Blackburn's Sphinx Moth (*Manduca blackburni*). All the tree tobacco encountered were broadly scanned for obvious feeding damage and large larvae. About a hundred of the tree tobacco were more closely surveyed for eggs, small larvae, and frass. No signs of Blackburn's Sphinx Moth were encountered.

FWS recommends not allowing tree tobacco to grow greater than three feet tall in the project area, to minimize attraction of Blackburn's Sphinx Moth. Additionally, FWS requests they be contacted when tree tobacco greater than three feet tall is found on a site that is to be developed, so they can provide additional guidance to avoid impacts to the Blackburn's Sphinx Moth.

Painted Lady Butterfly (*Vanessa cardui*) sipping nectar from fleabane (*Pluchea*) flowers.

Citrus Swallowtail Butterfly (*Papilio xuthus*) ovipositing on citrus leaf.

Citrus Swallowtail Butterfly (*Papilio xuthus*) egg on citrus leaf.

One of the denser and healthier patches of tree tobacco (*Nicotiana glauca*) on the site.

Another patch of tree tobacco (*Nicotiana glauca*) that is mostly just dead stems.

Looking for signs of Blackburn's Sphinx Moth (*Manduca blackburni*) on tree tobacco.

Looking for signs of Blackburn's Sphinx Moth (*Manduca blackburni*) on tree tobacco.

Omnivorous leafroller moth (*Platynota stultana*) eggs on tree tobacco.

Omnivorous leafroller moth (*Platynota stultana*) larva on tree tobacco.

Spider, likely *Cheiracanthium*, in silked over tree tobacco leaf.

Soft scale (*Pulvinaria*) and armored scales (Diaspididae) feeding on tree tobacco.

Glaber ants (*Ochetellus glaber*) tending treehoppers (*Vanduzea segmentata*) on tree tobacco.

Tree tobacco (*Nicotiana glauca*) flowers, green fruit, and leaves.

Areas in yellow where tree tobacco (*Nicotiana glauca*) was observed. The bulk of the tree tobacco was observed in the eastern portion of the main site. Scattered individuals were also observed elsewhere in the main site and in the pipeline corridor up to the Haiku Ditch. No tree tobacco were observed in the rest of the pipeline corridor or at the well site.

Insect Checklist

List of insects encountered during the survey.

Order	Family	Scientific Name	Common name	Nativity
Araneae	Cheiracanthiidae	*Cheiracanthium*	Yellow sac spider	Non-native
Hemiptera	Coccidae	*Pulvinaria sp.*	Soft scale	Non-native
Hemiptera	Diaspididae	*Unknown*	Armored scale	Non-native
Hemiptera	Membracidae	*Vanduzea segmentata*	Treehopper	Non-native
Hymenoptera	Ampulicidae	*Ampulex compressa*	Emerald cockroach wasp	Non-native
Hymenoptera	Apidae	*Apis mellifera*	Honey bee	Non-native
Hymenoptera	Formicidae	*Ochetellus glaber*	Black household ant	Non-native
Lepidoptera	Crambidae	*Spoladea recurvalis*	Beet webworm	Non-native
Lepidoptera	Lycaenidae	*Brephidium exilis*	Western pygmy blue	Non-native
Lepidoptera	Lycaenidae	*Lampides boeticus*	Bean butterfly	Non-native
Lepidoptera	Nymphalidae	*Danaus plexippus*	Monarch butterfly	Non-native
Lepidoptera	Nymphalidae	*Vanessa cardui*	Painted Lady	Non-native
Lepidoptera	Papilionidae	*Papilio xuthus*	Citrus swallowtail	Non-native
Lepidoptera	Pieridae	*Eurema nicippe*	Sleepy orange butterfly	Non-native
Lepidoptera	Pieridae	*Pieris rapae*	Cabbage butterfly	Non-native
Lepidoptera	Tortricidae	*Platynota stultana*	Omnivorous leafroller moth	Non-native
Mantodea	Mantidae	*Unknown*	Preying mantis	Non-native
Orthoptera	Acrididae	*Schistocerca nitens*	Grasshopper	Non-native

Honey bee (*Apis mellifera*) foraging in purple crown flower (*Calotropis procera*).

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Wagner, W. L., D. R. Herbst, and S. H. Sohmer. 1999. Manual of the Flowering Plants of Hawai‘i. Univ. of Hawai‘i Press and Bishop Museum Press, Honolulu, HI.

Artistic rendering of site.

"E mālama ‘oe i ka ‘āina, e mālama ka ‘āina ia ‘oe."
Take care of the land, and the land will take care of you.

EXHIBIT 33

Air Quality & Climate Change Study

HOʻONANI VILLAGE MIXED-USE DEVELOPMENT PROJECT

Air Quality and Climate Change Study

Prepared for:
Hoʻonani Development LLC

Prepared by:
Terry A. Hayes Associates Inc.

May 2025

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1.0 SUMMARY OF FINDINGS

Terry A. Hayes Associates Inc. (TAHA) has completed an Air Quality and Climate Change Study (Study) for the Hoʻonani Village Mixed-Use Development Project (proposed project). Key findings are listed below.

- The proposed project would generate temporary construction emissions of criteria air pollutants. The primary sources of pollutant emissions during construction activities would be exhaust from diesel-powered equipment and trucks. Construction emissions would be temporary and would cease upon completion of activities.
- Construction activities could generate fugitive dust, although it would be minimized by utilizing control measures. The proposed project will follow reasonable control measures included in the Hawaii Department of Health (DOH) Clean Air Branch Fugitive Dust Fact Sheet (April 2019) to reduce fugitive dust. Control measures include, but are not limited to, fugitive dust control plans, watering as necessary to maintain soils in a damp condition, limiting the amount of exposed areas through planning and timing of project phases, and covering temporarily exposed areas with mulch. Which control measures to implement is/are the responsibility of the owner, project manager, or operator of the site in response to the County of Maui's grading permit and National Pollutant Discharge Elimination System (NPDES) permit requirements from the Hawaii DOH. The site topography and surroundings, soil conditions, meteorological conditions, site activities, site equipment, and types of material processed must be considered. Generally, dry and windy conditions will require more control measures than rainy and calm periods.
- The proposed project would not result in adverse effects related to regional operational emissions. Vehicle exhaust associated with residential trips would be the primary source of direct emissions. The entirety of Maui is designated as attainment of the ambient air quality standards, and mobile source emissions from the proposed project vehicle trips would not have the potential to compromise the attainment designations by deteriorating air quality.
- Implementation of the proposed project would generate temporary (e.g., construction equipment and vehicle exhaust) and permanent (e.g., residential vehicle exhaust, utility use) greenhouse gas (GHG) emissions. Construction-related GHG emissions, which are quantified and disclosed within the Study, would be temporary and not significant. Cumulatively, permanent emissions would be unavoidable but not significant because the proposed project would not interfere with the development of clean energy supply in Hawaii.
- The State of Hawaii is committed to renewable energy production, which does not generate GHG emissions. Hawaii has enacted a law that mandates that all of the State's electricity comes from renewable sources no later than 2045. The proposed project is anticipated to be fully built out by 2035. Project-related indirect emissions would decline as the State moves toward a fully renewable supply of energy.

2.0 INTRODUCTION

2.1 PURPOSE

The use of Maui County lands requires preparation of an Environmental Impact Statement (EIS) pursuant to Chapter 343-5(a)(1);(e) of the Hawaii Revised Statutes. This Study is intended to inform the EIS being prepared in accordance with the Hawaii Environmental Policy Act (HEPA). The purpose of the Study is to evaluate the potential for adverse air quality and GHG emissions effects associated with implementation of the proposed project. The Study addresses both temporary, short-term emissions that would be generated during construction of the proposed project, as well as long-term emissions associated with future operations.

2.2 PROJECT DESCRIPTION

The proposed project comprises a high-density mixed-use master-planned community that would include multi-family residential, commercial, and light industrial uses, as well as a wastewater treatment plant. Additionally, the proposed project would feature recreational and open space uses including a central promenade, trail network, botanical trail, outdoor amphitheater entertainment space, community gathering places and park areas in addition to sports fields.

The total land area is approximately 167 acres with 1,599 low-rise multi-family units proposed on approximately 83 acres. The project site is located in the Puʻunene area in Kahului, Maui. The regional location is shown in **Figure 1** and property location is shown in **Figure 2**.

Construction of the proposed project is anticipated to begin in June 2026 with anticipated completion in January 2035.

FIGURE 1
REGIONAL LOCATION MAP

SOURCE: COUNTY OF MAUI QPUBLIC GIS POWERED BY ESRI.

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: Vert. Scale: **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

FIGURE 2
PROPERTY LOCATION MAP

SOURCE: COUNTY OF MAUI QPUBLIC GIS POWERED BY ESRI.

Project HOONANI VILLAGE **No.** H109-001	Designed by TCC Date 08/2024 Drawn by TCC Date 08/2024 Horiz. Scale: Vert. Scale: **Type** PLANNING	PIONEER DESIGN GROUP – HAWAII LLC CIVIL ENGINEERING · LAND USE PLANNING CONSTRUCTION MANAGEMENT HONOLULU, HAWAII PH: 808.400.5959 WWW.PD-GRP.COM	**Sheet** 1 of 1

3.0 TOPICAL BACKGROUND & REGULATORY FRAMEWORK

This section provides an overview of how ambient air quality is characterized and the applicable regulations that have been established to protect public health and the environment, as well as a discussion of GHG emissions, how they contribute to climate change, and the regulatory framework developed to reduce GHG emissions. According to the DOH, air pollution is a general term that refers to the presence in the outdoor air of substances in quantities and for durations which may endanger human health or welfare, plant or animal life, or property, or may reasonably interfere with the comfortable enjoyment of life and property.

Through extensive scientific research, specific chemical substances have been identified as air pollutants that are known to cause adverse health effects and degradation of environmental quality. Concentrations of the following pollutants in ambient air are regulated at the federal and state level to protect public health and the environment. A separate discussion of GHG emissions and climate change is provided subsequently.

3.1 AIR POLLUTANTS

This Study discusses pollutants from two perspectives: the mass amount of emissions released to the atmosphere and pollutant concentrations in ambient air. "Emissions" refer to the quantity of pollutant released into the air, measured in pounds per day (ppd) or tons per year (tpy) in this Study. "Concentrations" refer to a way to describe how much of a pollutant is in the air. Concentration is usually shown as an amount, or mass, of pollutant per certain volume of air, measured in parts per million (ppm) for gaseous pollutants and micrograms per cubic meter ($\mu g/m^3$) for pollutants in the particulate phase in this Study.[1] Air pollutants are presented as criteria pollutants, GHGs, hazardous air pollutants (HAPs), and nuisance pollutants such as odors and dust.

Criteria Pollutants

Ozone (O_3). O_3 is the main constituent in photochemical air pollution. It is formed in the atmosphere by a chemical reaction of nitrogen oxides (NOx) and volatile organic compounds (VOCs) in the presence of sunlight. In the upper atmosphere, O_3 shields the earth from harmful ultraviolet radiation; however, at ground level, it can cause harmful effects in humans and plants.[2]

Nitrogen Dioxide (NO_2). NO_2 is a brownish, highly corrosive gas with a pungent odor. It is formed in the atmosphere from emissions of nitrogen oxides (NO_X). Sources of NO_X include electric utilities, industrial boilers, motor vehicle exhaust, and combustion of fossil fuels. NO_2 is also a component in the atmospheric reaction that produces ground-level ozone.[3]

Carbon Monoxide (CO). CO is a colorless, odorless, tasteless gas under atmospheric conditions. It is produced by the incomplete combustion of carbon fuels with the majority of emissions coming from transportation sources.[4] CO can be emitted by volcanoes. However, it is rarely abundant

[1] USEPA, *AirToxScreen Glossary of Terms*, 2023. Available at: https://www.epa.gov/AirToxScreen/airtoxscreen-glossary-terms; Accessed April 2, 2025.
[2] Hawaii State Department of Health, *Annual Summary 2023 Air Quality Data*, September 2024.
[3] I*bid*.
[4] I*bid*.

enough in volcanic gases to cause serious problems. Volcanic gases contain between 0.01 and two percent CO.[5]

Sulfur Dioxide (SO_2). SO_2 is a colorless gas that easily combines with water vapor forming sulfuric acid. Emissions of SO_2 are largely from sources that burn fossil fuels such as coal and oil. In Hawaii, another possible major source of SO_2 emissions is from any active eruption of Kilauea Volcano on the Big Island.[6]

Particulate Matter. Particulate matter refers to a wide range of solid or liquid particles in the atmosphere, including smoke, dust, aerosols, and metallic oxides. Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 micrometers or less. Some particulate matter, such as pollen, is naturally occurring. Particulate matter emissions in the Hawaiian Islands are typically caused by volcanic eruptions, combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Volcanic sources of particulate matter can be substantial in Hawaii depending on the activity and wind direction.[7] The United States Environmental Protection Agency (USEPA) Particulate Matter standards apply only to these fine particles.

Lead (Pb). Sources of lead emissions vary from one area to another. At the national level, major sources of lead in the air are ore and metals processing and piston-engine aircraft operating on leaded aviation fuel. Other sources are waste incinerators, utilities, and lead-acid battery manufacturers. The highest air concentrations of lead are usually found near lead smelters. As a result of USEPA's regulatory efforts including the removal of lead from motor vehicle gasoline, levels of lead in the air decreased by 98 percent between 1980 and 2014.[8]

Hazardous Air Pollutants (HAPs)

HAPs, also known as toxic air pollutants or air toxics, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Examples of toxic air pollutants include benzene, which is found in gasoline; perchloroethylene, which is emitted from some dry-cleaning facilities; and methylene chloride, which is used as a solvent and paint stripper by a number of industries. Examples of other listed air toxics include dioxin, asbestos, toluene, and metals such as cadmium, mercury, chromium, and lead compounds.[9]

Nuisance Pollutants (Odors and Dust)

Other air quality issues of concern include nuisance impacts of odors and dust. Objectionable odors may be associated with a variety of pollutants. Common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries, and chemical plants. Similarly, nuisance dust may be generated by a variety of sources including quarries, agriculture,

[5] University Corporation for Atmospheric Research, *Carbon Monoxide Fact Sheet*, 2017. https://scied.ucar.edu/learning-zone/air-quality/carbon-monoxide. Accessed April 2, 2025.

[6] Hawaii State Department of Health, *Annual Summary 2020 Air Quality Data*, December 2021.

[7] U.S. Geological Survey, *Frequently Asked Questions About Volcanic Smog* (VOG). 2023. https://www.usgs.gov/observatories/hawaiian-volcano-observatory/frequently-asked-questions-about-volcanic-smog-vog. Accessed April 2, 2025.

[8] USEPA, *Basic Information About Lead Air Pollution*, 2023. https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#how. Accessed April 2, 2025.

[9] USEPA, *What are Hazardous Air Pollutants?*, https://www.epa.gov/haps/what-are-hazardous-air-pollutants. Accessed April 2, 2025.

grading, and construction. Odors rarely have direct health impacts, but they can be very unpleasant and can lead to anger and concern over possible health effects among the public.

3.2 AIR QUALITY REGULATORY FRAMEWORK

Federal Regulations

United States Environmental Protection Agency (USEPA). At the federal level, the USEPA has been charged with implementing national air quality programs. The USEPA's authority over air quality is drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and most recently in 1990. The FCAA required the USEPA to establish primary and secondary National Ambient Air Quality Standards (NAAQS) — concentrations of pollutants with the goal that they are not to be exceeded—shown below in **Table 3-1**. If concentrations exceed the NAAQS threshold, the area is considered to be in nonattainment. The NAAQS were devised to protect public health, reduce smog, and prevent degradation of environmental quality. Attainment of the NAAQS is achieved by demonstrating that measured concentrations of criteria pollutants for a region remained below the designated thresholds over a period of three years. The attainment status for Hawaii for each criteria air pollutant is shown in **Table 3-1**.

The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. USEPA has responsibility to review all state SIPs to determine conformation to the mandates of the FCAAA and determine if implementation will achieve air quality goals. Hawaii does not have a SIP because, as shown in **Table 3-1**, the State is in attainment with all NAAQS.

State Regulations

Hawaii Department of Health (DOH). The DOH Clean Air Branch is responsible for air pollution control in the State. The primary services of the branch are provided by its three sections: Engineering, Monitoring, and Enforcement. These sections conduct engineering analysis and permitting, perform monitoring and investigations, and enforce the federal and State air pollution control laws and regulations. The DOH Hawaii Administrative Rules (HAR) include two chapters representing the Clean Air Branch. Chapter 59 identifies State ambient air quality standards (**Table 3-1**), and Chapter 60 discusses air pollution control methodology. Chapter 60 includes air permitting, sampling, modeling, and fugitive dust and motor vehicle provisions.

TABLE 3-1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS

Pollutant	Averaging Period	State		Federal	
		Standard	Attainment Status	Standard	Attainment Status
Ozone (O_3)	8-hour Average	0.08 ppm	Attainment	0.07 ppm (137 µg/m^3)	Attainment
Respirable Particulate Matter (PM_{10})	24-hour Average	150 µg/m^3	Attainment	150 µg/m^3	Attainment
	Annual Arithmetic Mean	50 µg/m^3	Attainment	--	--
Fine Particulate Matter ($PM_{2.5}$)	24-hour Average	--	--	35 µg/m^3	Attainment
	Annual Arithmetic Mean	--	--	9.0 µg/m^3	Attainment
Carbon Monoxide (CO)	8-hour Average	4.4 ppm	Attainment	9 ppm (10 mg/m^3)	Attainment
	1-hour Average	9 ppm	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.04 ppm	Attainment	53 ppb (100 µg/m^3)	Attainment
	1-hour Average	--	--	100 ppb (188 µg/m^3)	Attainment
Sulfur Dioxide (SO_2)	24-hour Average	0.14 ppm	Attainment	--	--
	3-hour Average	0.5 ppm	Attainment	0.5 ppm (1,300 µg/m^3)	Attainment
	1-hour Average	--	--	75 ppb (196 µg/m^3)	Attainment
	Annual Arithmetic Mean	0.03 ppm	Attainment	--	--
Lead (Pb)	Calendar Quarter	1.5 µg/m^3	--	--	--
	Rolling 3-Month Average	--	--	0.15 µg/m^3	--
Hydrogen Sulfide (H_2S)	1-hour Average	0.025 ppm	Attainment	--	--

SOURCE: Hawaii State Department of Health, *Federal and State Ambient Air Quality Standards*, November 19, 2015; Hawaii State Department of Health, *State of Hawaii Annual Summary 2023 Air Quality Data,* September 2024.

Chapter 60 §11-60.1-33 of the HAR includes the following fugitive dust prohibitions:

- No person shall cause or permit visible fugitive dust to become airborne without taking reasonable precautions. Examples of reasonable precautions are:
  - Use of water or suitable chemicals for control of fugitive dust in the demolition of any buildings or structures, construction operations, the grading of roads, or the clearing of land;
  - Application of asphalt, water, or suitable chemicals on roads, material stockpiles, and other surfaces which may result in fugitive dust;

  - Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Reasonable containment methods shall be employed during sandblasting or other similar operations;
  - Covering all moving, open-bodied trucks transporting materials which may result in fugitive dust;
  - Conducting agricultural operations, such as tilling of land and the application of fertilizers, in such manner as to reasonably minimize fugitive dust;
  - Maintenance of roadways in a clean manner; and
  - Prompt removal of earth or other materials from paved streets which have been transported there by trucking, earth-moving equipment, erosion, or other means.
- Except for persons engaged in agricultural operations or persons who can demonstrate to the director that the best practical operation or treatment is being implemented, no person shall cause or permit the discharge of visible fugitive dust beyond the property lot line on which the fugitive dust originates.

In regard to motor vehicles, Chapter 60 HAR §11-60.1-34 includes the following:

- No person shall operate a gasoline-powered motor vehicle which emits visible smoke while upon streets, roads, or highways.
- No person shall operate a diesel-powered motor vehicle which emits visible smoke for a period of more than five consecutive seconds while upon streets, roads, or highways.
- No person shall cause, suffer, or allow any engine to be in operation while the motor vehicle is stationary at a loading zone, parking or servicing area, route terminal, or other off-street areas, except:
  - During adjustment or repair of the engine at a garage or similar place of repair;
  - During operation of ready-mix trucks, cranes, hoists, and certain bulk carriers, or other auxiliary equipment built onto the vehicle or equipment that require power take-off from the engine, provided that there is no visible discharge of smoke and the equipment is being used and operated for the purposes as originally designed and intended. This exception shall not apply to operations of air conditioning equipment or systems;
  - During the loading or unloading of passengers, not to exceed three minutes; and
  - During the buildup of pressure at the startup and cooling down at the closing down of the engine for a period of not more than three minutes.
- No person shall remove, dismantle, fail to maintain, or otherwise cause to be inoperative any equipment or feature constituting an operational element of the air pollution control system or mechanism of a motor vehicle as required by the provisions of the Act except as permitted or authorized by law.

3.3 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Cumulative GHG emissions contribute to an increased greenhouse effect and global climate change, which influences sea level rise, changes in precipitation, habitat, temperature, wildfires, air pollution levels, and changes in the frequency and intensity of weather-related-events. This Study focuses on carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) because these are the primary GHGs emitted by land use development projects.[10] The individual pollutant's ability to retain infrared radiation represents its "global warming potential" (GWP) and is expressed in terms of CO_2 equivalents (denoted CO_2e); therefore, CO_2 is the benchmark GHG having a GWP value of one. For standardized GHG emissions inventory applications and based on the Intergovernmental Panel on Climate Change's Fourth Assessment Report, CH_4 has a GWP value of 28 and thus has a 28 times greater global warming potency per metric ton than CO_2.[11] N_2O has a global warming potential of 265. GHG emissions are generally expressed in units of annual metric tons of CO_2 equivalents (i.e., $MTCO_2e$/year).

3.4 CLIMATE CHANGE REGULATORY FRAMEWORK

Federal Laws

The United States Supreme Court has ruled that CO_2 and other GHGs are pollutants under the FCAA, which the USEPA may regulate. On December 7, 2009, the USEPA made two distinct findings: 1) that the current and projected concentrations of the six key GHGs (CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations; and 2) that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.[12]

The United States Supreme Court has ruled that the USEPA exceeded its statutory authority under the FCAA when it determined that stationary source emissions of GHGs would trigger permitting obligations under the Prevention of Significant Deterioration (PSD) program and Title V of the FCAA.[13] The Court, however, upheld those portions of USEPA's rulemaking that require a source to apply best available control technology (BACT) to GHG emissions where the source would otherwise trigger PSD permitting on account of its emissions of other pollutants. The Supreme Court's decision was limited to USEPA's regulation of GHG emissions under the PSD and Title V provisions of the FCAA, and it left unanswered other questions regarding USEPA's permitting and BACT authority under the PSD program, and the USEPA's efforts to regulate GHG emissions from stationary sources.

The Federal Greenhouse Gas Reporting Program (40 Code of Federal Regulations Part 98) requires mandatory reporting of GHG emissions from sources that emit 25,000 metric tons or more of carbon dioxide equivalent per year in the United States. Uses that are generally associated with this level of reporting include power plants, petroleum and natural gas refineries and other heavy manufacturing processes.

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[10] California Air Pollution Control Officers Association, *California Emissions Estimator Model Users Guide (Version 2022.1)*, April 2022.

[11] Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis – Technical Summary*, July 2007.

[12] Supreme Court of the United States, *Massachusetts et al. v. Environmental Protection Agency et al*., April 2, 2007.

[13] Supreme Court of the United States, *Utility Air Regulatory Group v. Environmental Protection Agency et al.*, June 23, 2014.

State Regulations

In 2007, Hawaii became the second State in the nation to set a binding cap on GHG emissions through Act 234: Hawaii's Climate Change Law, which declared a policy to reduce GHG emissions statewide to 1990 levels by the year 2020. Act 234 served as the foundation for the Hawaii Greenhouse Gas Program, which was established by the DOH to combat the threat of climate change and sea level rise. This Program utilizes the Air Pollution Control Permit process of DOH's Clean Air Branch to regulate GHG emissions statewide, in conjunction with other federal and State programs to mitigate GHGs. Parts of Act 234 are codified in Chapter 342B (Air Pollution Control) of the Hawaii Revised Statutes.

Senate Bill (SB) 559, which was signed into law on June 8, 2017, expands strategies and mechanisms to reduce GHG emissions in alignment with the principles and goals adopted in the Paris Agreement, discussed above. SB 559 documents the State's commitment to combat climate change by systematically reducing GHG emissions and improving resiliency to climate change aligned with the principles and goals set by the Paris Agreement. It expands on strategies and mechanisms to reduce GHG emissions through the reduction of energy use, adoption of renewable energy, and control of air pollution among all agencies, departments, industries, and sectors, including transportation. SB 559 states that, "Such strategies and mechanisms shall utilize the best available science, technologies, and policies to reduce GHG emissions and shall be closely aligned with the climate change principles and goals adopted in the Paris Agreement and Hawaii's share of obligations within the expectations apportioned to the United States in the Paris Agreement, regardless of federal action." In addition, "The State shall strive to formulate and communicate long-term low greenhouse gas emission development strategies and shall take actions to conserve and enhance long-term sinks and reservoirs of greenhouse gases, by prioritizing the development of parks, greenways, and restoration of native upland and coastal forests and wetlands."

In 2018, the State Legislature passed Act 15, to establish a permanent Greenhouse Gas Sequestration Task Force within the Office of Planning (now the Office of Planning and Sustainable Development). This task force will work to establish a baseline for GHG and short- and long-term benchmarks for increasing GHG sequestration in the agricultural and natural environment. The Act also establishes a statewide carbon net-negative goal by 2045.

In 2022, the State Legislature passed Act 238, which tasks the Hawaii State Energy Office to "analyze pathways and develop recommendations for achieving the State's economy-wide decarbonization goals." Additionally, the study will evaluate emission reduction pathways from all emitting sectors economy wide. Act 238 establishes a goal for the level of statewide GHG emissions to be at least 50 percent below 2005 levels by 2030 (including aviation emissions).

The DOH established the Hawaii GHG Program to combat the threat of climate change and sea level rise. The program utilizes the Air Pollution Control Permit process of the Clean Air Branch to regulate GHG emissions statewide. The Hawaii GHG program works in conjunction with other federal and State programs to mitigate GHG emissions. This includes the Priority Climate Action Plan (PCAP), which, when completed in 2024, will identify the most pressing areas in need of GHG reduction, and determine fitting implementation-ready measures. The PCAP will use the most recent statewide GHG inventory, which was completed in 2019, to produce an updated, more accurate inventory. The PCAP will be developed based on community engagement, and collaboration between the commission and community members throughout the planning process. The commission will host workshops to support community and stakeholder engagement and plan them in conjunction with neighborhood boards and councils. Information from these

meetings will be pivotal in both gathering information to be used for the plan, developing the plan, and revising existing plans.

The Comprehensive Climate Action Plan (CCAP), when completed in 2025, would build upon the PCAP and identify all major sources and sinks of GHGs, establish short- and long-term reduction goals, and fitting strategies and measures. The CCAP will examine current GHG emissions and projected emissions without any changes to status quo activities and compare these to projected emissions with economy wide GHG reduction activities fully carried out.

The State settled the *Navahine v. Hawai'i Department of Transportation (HDOT)* constitutional climate case in 2024. The settlement acknowledges the constitutional rights of Hawai'i's youth to a life-sustaining climate and confirms the commitment by HDOT to plan and implement transformative changes of Hawai'i's transportation system to achieve the State's goal of net-negative emissions by 2045. The agreement includes numerous provisions for immediate and ongoing action steps by HDOT. These include, for example:

- Establishing a GHG Reduction Plan within one year of the agreement, laying the foundation and roadmap to decarbonize Hawai'i's transportation system within the next 20 years.
- Creating a lead unit and responsible positions within HDOT to coordinate the mission of GHG reduction throughout the agency; oversee climate change mitigation and adaptation for the highways program; and ensure implementation of the Complete Streets policy of building and upgrading public highways for all users, ages, and abilities.
- Establishing a volunteer youth council to advise on HDOT mitigation and adaptation commitments in the years to come.
- Improving the state transportation infrastructure budgeting process to prioritize reduction of GHG and vehicles miles traveled (VMT) and transparently analyze and disclose the GHG and VMT impacts of each project and the overall program.
- Making immediate, ambitious investments in clean transportation infrastructure, including completing the pedestrian, bicycle, and transit networks in five years, and dedicating a minimum of $40 million to expanding the public electric vehicle charging network by 2030.

4.0 EXISTING ENVIRONMENTAL SETTING

4.1 CLIMATOLOGY

Maui has a semi-tropical climate with numerous distinct microclimates. The average annual temperature near sea level is around 75 degrees Fahrenheit. Most of the island's rainfall occurs on its northeast-facing shores, while the south and southwest coastal areas remain relatively dry.

Kahului experiences consistently warm temperatures throughout the year, with minimal seasonal fluctuations. Annual temperatures in the region average in the upper 70s to mid-80's. July through September are historically the warmer months of the year, while the cooler months are December through February. During the summer months, average daily temperatures in Kahului are slightly higher than in winter and typically range from the low to the mid 80's.

Average rainfall distribution in this region varies from 10 inches to 20 inches per year in the higher elevations. Rainfall in the Central Maui region is highly seasonal, with most of the precipitation occurring in the winter months from strong storm systems.

The northeast trade winds dominate about 80 to 85 percent of the time, typically averaging 10 to 15 miles per hour in the afternoons. Mornings and nights generally bring calmer or lighter winds. From October to April, southerly winds associated with Kona storms may also occur.

4.2 AIR MONITORING DATA

The project area in general does not experience adverse air quality conditions. Notable point sources of air contaminants in the local area can be attributed to vehicle exhaust as well as periodic events such as Hawai'i Island volcanic eruptions and Central Maui range fires. There are two active air monitoring sites in Maui County, and the closest DOH air monitoring site is Kahului station located approximately 2.5 miles to the west of the project site. This station monitors $PM_{2.5}$ concentrations only. **Table 4-1** shows that pollutant levels were significantly below the applicable federal standards from 2020 to 2022. In 2023 and 2024, 24-hour average $PM_{2.5}$ concentrations were measured above the NAAQS on one occasion due to the New Year's fireworks celebration. All other days in 2023 and 2024 were measured to be below the 24-hour average $PM_{2.5}$ NAAQS, and the annual average concentration still remained considerably below the federal standard.

TABLE 4-1: AIR MONITORING DATA SUMMARY

Pollutant	Averaging Period	Federal Standard	Maximum Measured Concentrations by Year				
			2020	2021	2022	2023	2024
$PM_{2.5}$	24-hour	35 $\mu g/m^3$	9.2	9.1	13.0	57.2	35.7
	Annual	9.0 $\mu g/m^3$	3.9	3.9	7.7	4.0	3.9

SOURCE: Hawaii State DOH, *2021 Hawaii Air Quality Data*, December 2022; Hawaii State DOH, *2022 Hawaii Air Quality Data*, September 2023; Hawaii State DOH, *2023 Hawaii Air Quality Data*, September 2024; USEPA, *Monitor Values Report*, available at: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report.

4.3 AIR QUALITY SENSITIVE RECEPTORS

Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Extra care must be taken when dealing with contaminants and pollutants in close proximity to areas

recognized as sensitive receptors.[14] The project area is located adjacent to the Wailuku-Kahului Community Plan Area within the Central Maui region. The surrounding area contains residential, commercial, agricultural, heavy industrial, public/quasi-public, and recreational uses. Additionally, Kahului Airport is located northeast of the project site.

4.4 STATEWIDE GREENHOUSE GAS EMISSIONS

The State recently published the *Hawai'i Greenhouse Gas Emissions Report for 2022* in April 2025.[15] The purpose of the report is to track progress toward achieving the State's 2020, 2030, and 2045 GHG reduction goals, as well as refining estimates of the statewide GHG emissions inventory for 1990, 2005, 2007, 2010, and 2015 through 2021. Based on the analysis presented in the report for estimated emissions through 2020, net GHG emissions in 2020—excluding the aviation sector and accounting for carbon sinks—were lower than net GHG emissions estimated for 1990. Therefore, the report determined that Hawaii continues to meet the 2020 statewide GHG emissions target established by Act 234 of 2007 with the updated quantification methodology.

In 2022, total GHG emissions in Hawaii were approximately 20.32 million metric tons of CO_2 equivalents per year ($MMTCO_2e$/year). Emissions from the energy sector accounted for the largest portion (88.4 percent) of total emissions in Hawaii followed by the agriculture, forestry, and other land use sectors (7.2 percent), the industrial processes and product use sector (4.2 percent), and the waste sector (1.9 percent). Total GHG emissions in Hawaii steadily grew by a total of 17.7 percent between 1990 and 2007, then subsequently decreased by approximately 24.6 percent between 2007 and 2022. Compared to 1990, total emissions in Hawaii in 2022 were roughly 11.3 percent lower, while net emissions were lower by 13.0 percent. Sources in Maui County accounted for approximately 15.3 percent of statewide emissions in 2022.

As the largest source of emissions in Hawaii, the energy sector is a major driver of the overall emissions trends. For the statewide GHG inventory, the energy-related sources comprise transportation, stationary combustion, incineration of waste, the oil and natural gas system, and a small amount of non-combustion uses. Transportation emissions accounted for the largest share of energy sector emissions in all inventory years, being approximately 56.3 percent in 2022. The trend in transportation emissions increased significantly from 1990 to 2007, decreased from 2007 to 2015, and subsequently increased between 2016 and 2019. Then, transportation emissions dropped significantly in 2020 due to the economic downturn associated with the COVID-19 pandemic before rebounding in 2021. Transportation emissions are largely driven by domestic aviation and ground transportation emissions, which together account for roughly 82.8 percent of transportation emissions.

Regarding forecasts for the statewide GHG inventory into the future, the 2022 report evaluated six potential scenarios that were differentiated by high versus low future oil price pathways (Alternative Scenarios 1A and 1B), continuation of the existing trend versus aggressive renewable energy deployment (Alternative Scenarios 2A and 2B), and high versus low electric vehicle (EV) market penetration (Alternative Scenarios 3A and 3B).

[14] USEPA, *Environmental Issues of Concern for Urban Communities: Resources*, 2023. https://www.epa.gov/newenglandhc/environmental-issues-concern-urban-communities-resources. Accessed April 2, 2025.

[15] Hawaii State DOH, *Hawai'i Greenhouse Gas Emissions Report for 2022*, April 2025.

Table 4-2 summarizes the emissions projections for the six Alternative Scenarios and their respective reductions relative to the 1990 emissions level expressed in percentage in the forecast years 2025, 2035, and 2045. The data presented include aviation emissions and carbon sinks for consistency with the GHG emissions reduction targets established by Act 15 (net-zero carbon emissions by 2045) and Act 238 (50 percent reduction relative to 2005 levels by 2030). As shown by the array of projections, the maximum emissions reduction in the horizon year of 2030 relative to 2005 would be 38.8 percent under Alternative Scenario 1A. There is no scenario identified that would achieve the 2030 or 2045 reduction targets established by the State Legislature. Thus, the State is not yet on trajectory to meet its ambitious statewide GHG emissions reduction goals. The State will continue to explore opportunities to reduce GHG emissions and further refine its inventory estimates in ensuing GHG emissions reports.

TABLE 4-2: STATEWIDE GHG EMISSIONS INVENTORY PROJECTIONS

Alternative Scenario	Parameter	2025	2030	2035	2040	2045
Baseline	Emissions ($MMTCO_2e$)	17.45	15.51	13.34	12.23	10.35
	Percent Redux from 2005	*23.4%*	*31.9%*	*41.4%*	*46.3%*	*54.6%*
1A (Higher Oil Prices)	Emissions ($MMTCO_2e$)	16.50	13.95	11.63	10.78	8.99
	Percent Redux from 2005	*27.6%*	*38.8%*	*49.0%*	*52.7%*	*60.5%*
1B (Lower Oil Prices)	Emissions ($MMTCO_2e$)	18.30	16.39	14.30	13.22	11.26
	Percent Redux from 2005	*19.7%*	*28.1%*	*37.2%*	*42.0%*	*50.6%*
2A (More Renewable)	Emissions ($MMTCO_2e$)	17.45	15.08	12.87	11.77	9.63
	Percent Redux from 2005	*23.4%*	*33.8%*	*43.5%*	*48.3%*	*57.7%*
2B (Less Renewable)	Emissions ($MMTCO_2e$)	17.45	16.05	13.97	12.89	10.99
	Percent Redux from 2005	*23.4%*	*29.6%*	*38.7%*	*43.4%*	*51.7%*
3A (Higher EV)	Emissions ($MMTCO_2e$)	17.45	15.42	13.00	11.75	9.84
	Percent Redux from 2005	*23.4%*	*32.3%*	*42.9%*	*48.4%*	*56.8%*
3B (Lower EV)	Emissions ($MMTCO_2e$)	17.45	15.51	13.40	12.53	11.09
	Percent Redux from 2005	*23.4%*	*31.9%*	*41.2%*	*45.0%*	*51.3%*
Minimum Forecast	**Emissions ($MMTCO_2e$)**	**16.50**	**13.95**	**11.63**	**10.78**	**8.99**
	Percent Redux from 2005	***27.6%***	***38.8%***	***49.0%***	***52.7%***	***60.5%***
Maximum Forecast	**Emissions ($MMTCO_2e$)**	**18.30**	**16.39**	**14.30**	**13.22**	**11.26**
	Percent Redux from 2005	***19.7%***	***28.1%***	***37.2%***	***42.0%***	***50.6%***

SOURCE: Hawaii State DOH, *Hawai'i Greenhouse Gas Emissions Report for 2022*, April 2025.

4.5 ELECTRIC UTILITY RENEWABLE ENERGY PORTFOLIO

The proposed project would be supplied with electricity by Hawaiian Electric. As of 2024, the electricity delivered to customers in Maui County was approximately 41.1 percent derived from renewable energy resources, and renewables accounted for 36 percent of total Hawaiian Electric electricity for all service areas.[16] The carbon intensity of electricity delivered to customers was approximately 1,195 pounds of CO_2e per megawatt-hour (lbs.-CO_2e/MWh) in 2024, and the target for 2035 when the proposed project is fully built-out is approximately 550 lbs.-CO_2e/MWh.

[16] Hawaiian Electric, *2024-2025 Sustainability Report & Maps*, March 2025.

5.0 SIGNIFICANCE CRITERIA

Chapter 60 §11-60.1-1 of the HAR includes rates of pollutant emissions that are considered significant for stationary sources (e.g., refineries and agricultural burning). These rates are provided for criteria pollutants, ozone precursors, and GHG emissions. The rates, shown in **Table 5-1**, are not directly relevant to land use development projects, although they provide emissions context in the absence of relevant adopted significance criteria.

TABLE 5-1: SIGNIFICANT EMISSION RATES PER THE HAWAII ADMINISTRATIVE RULES

	Annual Emissions (Tons per Year)						
Parameter	**VOC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**
Emission Rate	40	40	100	40	15	10	40,000

SOURCE: HAR Chapter 60§11-60.1-1.

6.0 ENVIRONMENTAL EFFECTS

6.1 CONSTRUCTION EMISSIONS OF CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS

Common sources of construction-related air pollution include equipment engine exhaust, as well as mobile source vehicle trips, all of which are temporary in nature and do not represent permanent sources of air pollutants. Hawaii does not have guidance or limitations related to exhaust emissions generated by heavy-duty equipment. Building and road construction are two examples of construction activities with high emissions potential. Emissions during the construction of a building or road can be associated with land clearing, ground excavation, cut and fill operations (i.e., earth moving), and construction of a particular facility itself. Emissions often vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing meteorological conditions.

Neither Hawaii nor the USEPA have created a model for efficiently estimating construction emissions. Equipment inventories for each phase of construction were populated in the California Emissions Estimator Model (CalEEMod, Version 2022.1.1.29), and the model was used to produce estimated emissions of VOC, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ during each year of construction activities. This model provides a reasonable estimation of construction emissions in Hawaii for planning only purposes as the equipment fleet in the model includes varying levels of engine emission controls.

Specific construction assumptions, such as a detailed schedule and equipment list, were not available when this analysis was prepared. Construction was assumed to begin in June 2026 and end in January 2035. Anticipated construction activities include site preparation, grading, building construction, paving, and architectural coating. All construction activities were assumed to occur daily within the construction period. Detailed modeling output files containing schedule and equipment information can be found in the **Appendix**.

Table 6-1 discloses the estimated annual criteria pollutant and ozone precursor emissions that would be generated during each year of proposed project construction. The emissions analysis was conservative in nature as it assumed that all equipment would operate continuously throughout an eight-hour workday for the entirety of the forecasted construction schedule. Construction emissions generated by the proposed project would be temporary and would cease upon completion of activities. As demonstrated by the analysis presented in **Table 6-1**, Annual construction emissions would not exceed the rates included in HAR Chapter 60 §11-60.1-1. Therefore, construction of the proposed project would not result in adverse air quality effects related to emissions of criteria pollutants and ozone precursors.

TABLE 6-1: CONSTRUCTION EMISSIONS OF CRITERIA POLLUTANTS AND OZONE PRECURSORS

Year	Maximum Annual Emissions (Tons per Year)					
	VOC	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2026	0.7	5.2	8.8	< 0.1	1.4	0.4
2027	3.8	9.6	17.6	< 0.1	2.8	0.9
2028	5.6	9.4	17.7	< 0.1	2.9	0.9
2029	5.5	8.9	17.3	< 0.1	2.8	0.8
2030	5.4	8.6	16.9	< 0.1	2.8	0.8
2031	5.4	8.4	16.6	< 0.1	2.8	0.8
2032	5.4	8.0	16.2	< 0.1	2.8	0.8
2033	5.3	7.8	15.9	< 0.1	2.8	0.8
2034	4.9	4.6	10.0	< 0.1	1.9	0.5
2035	0.3	0.3	0.6	< 0.1	0.1	0.0
2026	0.7	5.2	8.8	< 0.1	1.4	0.4
Maximum Annual	**5.6**	**9.6**	**17.7**	**< 0.1**	**2.9**	**0.9**
HAR Significant Emission Rates	***40***	***40***	***100***	***40***	***15***	***10***

SOURCE: TAHA, 2025.

Earthwork activities typically generate fugitive dust emissions. The proposed project would implement best management practices—such as periodic application of water onto exposed or disturbed ground areas and material stockpiles, dust and silt fencing for erosion control, maintaining equipment in accordance with manufacturer specifications, sweeping of dust track-out on surrounding roadways, and prompt revegetation of graded areas—to control fugitive dust emissions during active construction and during periods of downtime.

The DOH Clean Air Branch published a Fugitive Dust Fact Sheet, which was last revised in April 2019. The following are examples of reasonable precautions to reduce fugitive dust that could be implemented by the construction contractor. The examples are noted as not being requirements and are solely intended to aid in complying with the fugitive dust rules. The examples are common precautions used for various activities that may generate visible fugitive dust and are not meant to be exclusive nor comprehensive.

- General Measures
  - Design, develop, and implement a dust control plan.
  - Use water or suitable chemical compounds in the demolition of existing structures, construction operations, and grading or clearing of land.
  - Apply water, dust suppressants, or suitable compounds on roads and material stockpiles.
  - Pave ingress and egress points to the site.
  - Establish and monitor speed limits for on-site vehicles.
  - Cover all moving, open-bodied trucks transporting dusty materials.
  - Install and use enclosures, screens, hoods, vacuums, and filters to control the handling, sanding, or finishing of dusty materials.

  - Use trash chutes to direct waste downwards to the ground from upper levels.
  - Clean up material spills as soon as possible.
  - Promptly remove soil or other “carry out” materials from roads adjacent to the site.
  - Install dust screens or wind barriers around construction site.
  - Where practical, provide a buffer zone between fugitive dust activities and residential areas.
- Earth-moving Activities
  - Pre-apply and re-apply water as necessary to maintain soils in a damp condition.
  - Limit the amount of exposed areas through planning and timing of project phases.
  - Cover temporarily exposed areas with mulch.
- Stockpiles
  - Stabilize stockpile materials.
  - Keep stockpiles wet or damp as needed.
  - Keep drop or pile height as low as possible.
  - Install wind barriers.
  - Add or remove material from downwind portion of stockpile.
  - Maintain storage piles to avoid steep sides or faces.
- Trucking
  - Provide water while loading and unloading to prevent fugitive dust.
  - Maintain at least six inches of freeboard on haul vehicles.
  - Level the height of load.
  - Limit vehicular speed while traveling onsite.
  - Cover loads during transport.
  - Install a gravel pad at exit.
  - Reduce carry out with a tire wash or spray system.

The Clean Air Branch does not require specific precautions. Which precaution(s) to implement is/are the responsibility of the owner, project manager or operator of the site. Reasonable precautions to control fugitive dust are determined on a case-by-case basis. The site topography and surroundings, soil conditions, meteorological conditions, site activities, site equipment, and types of material processed must be considered. The use of any or all of the example measures does not directly correlate to compliance of the fugitive dust requirements. The owner, project manager, or operator should assess the project activities and conditions daily and make adjustments so that reasonable precautions are taken to prevent fugitive dust from becoming airborne and crossing the property lines. Generally, dry and windy conditions will require more control measures than rainy and calm periods.

6.2 OPERATIONAL EMISSIONS OF CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS

CalEEMod was also used to estimate operational emissions of criteria air pollutants and ozone precursors. Direct sources of operational emissions would include mobile source vehicle trips and area source emissions, such as consumer product use (i.e., household cleaners) and landscaping activities. Tailpipe emissions from on-road vehicle trips would be distributed along the surrounding roadway network and would not be heavily concentrated in one location. Regarding regional mobile source emissions, the transportation analysis concluded that the proposed project at full build-out would generate 20,314 total daily trips.[17] **Table 6-2** shows a summary of the daily trips generated by the proposed project.

TABLE 6-2: PROPOSED PROJECT WEEKDAY TRIP GENERATION

Land Use	Daily Vehicle Trips Generated
Multifamily Housing	9,480
Commercial	7,889
Future Commercial	1,104
Office	1,228
Industrial	613
Total	**20,314**

SOURCE: Fehr & Peers, *Ho'onani Village: TIAR*, March 31, 2025.

Indirect source emissions during operations would include energy consumption such as electricity for ventilation and air conditioning, water heating, stoves, lighting, and appliances. To more accurately represent emissions from water in the project area, the water-energy intensity for Maui from the *2016 Hawaii Energy Nexus Report* was used. Water-energy intensity is the amount of energy required to collect, treat, and distribute 1,000 gallons of water (kWh/kgal). The average water-energy intensity in Maui in 2015 was 4.3 kWh/kgal.[18] Detailed operational emissions data can be found in the **Appendix**. **Table 6-3** presents the results of the operational emissions modeling in the horizon year of 2035. Actual emissions associated with utility demand would likely be lower due to improvements in water conservation and energy efficiency. Nonetheless, annual operational emissions were found to be lower than the significant emission rates identified in HAR Chapter 60 §11-60.1-1 when utilizing conservative assumptions.

TABLE 6-3: PROPOSED PROJECT OPERATIONAL EMISSIONS (2035)

	Maximum Annual Emissions (Tons per Year)					
Emissions Source/Parameter	**VOC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Mobile Vehicle Trips	8.7	5.5	50.7	0.1	12.5	3.2
Area Sources	10.5	0.1	10.3	<0.1	<0.1	<0.1
Energy Sources	<0.1	0.4	0.4	<0.1	<0.1	<0.1
Total Ho'onani Village Operations	**19.2**	**6.0**	**61.4**	**0.1**	**12.6**	**3.3**
HAR Significant Emission Rates	***40***	***40***	***100***	***40***	***15***	***10***

SOURCE: TAHA, 2025.

[17] Fehr & Peers, *Ho'onani Village: Transportation Impact Analysis Report*, April 8, 2025.
[18] Department of Land and Natural Resources Commission on Water Resource Management, *2016 Hawaii Energy Nexus Report*, May 2017.

Regarding localized mobile source emissions, CO concentrations are often used as one indicator of pollutant exposure to sensitive receptors. USEPA has published guidance on prevention of CO "hot spots" at congested traffic intersections resulting from idling and slow-moving vehicles. The guidance focuses on the avoidance of localized spikes in CO concentrations causing violations of the ambient air quality standards that may occur at heavily trafficked and highly congested intersections. In response to the guidance promulgated by the USEPA, numerous regulatory agencies throughout the country undertook research to determine the types of intersections that may pose air quality concerns with regards to CO hot spots. Since the island of Maui has always been in attainment of the ambient air quality standards, local regulatory agencies did not have a need to conduct research to satisfy the air quality plan requirements. However, mobile source emissions of CO are of particular concern in California, where the South Coast Air Quality Management (SCAQMD) engaged in extensive research to demonstrate how the CO NAAQS could be attained for the region.

Research published in 2003 by the SCAQMD to support SIP documentation involved air dispersion modeling of mobile CO emissions at some of the busiest intersections in Southern California, where regional mobile source emissions are substantially higher than the project area on a per-square-mile basis. Results of the CO dispersion modeling exercise determined that an intersection experiencing a peak hour volume of approximately 10,000 vehicles per hour would generate a maximum 1-hour CO concentration approximately 77 percent below the ambient air quality standard.[19] The traffic analysis prepared for the proposed project demonstrates that local intersection volumes are nowhere near 10,000 vehicles per hour.[20] There is no potential for the proposed project to result in a CO hotspot and, therefore, no potential for the proposed project to result in substantial concentrations of related exhaust pollutants.

6.3 CONSTRUCTION GREENHOUSE GAS EMISSIONS

The State, through Act 234 and SB 559, has acknowledged that GHG emissions are a statewide impact. The proposed project would generate temporary GHG emissions through construction activities and permanent GHG emissions through new vehicle trips and energy use.

GHG emissions related to construction activities were estimated in a similar manner as the criteria pollutant emissions analysis presented above. The primary source of construction related GHG emissions would be exhaust from heavy-duty equipment. **Table 6-4** shows construction related GHG emissions. As previously discussed, total statewide GHG emissions are projected to be 17.45 $MMTCO_2e$/year in 2025. Construction-related GHG emissions associated with the proposed project would generate an annual maximum of approximately 3,708 $MTCO_2e$, which represents 0.02 percent of the statewide annual emissions inventory. Additionally, annual construction emissions would not exceed the 40,000 $MTCO_2e$ rate included in HAR Chapter 60 §11-60.1-1. Therefore, construction of the proposed project would not result in adverse environmental effects involving the annual magnitude of GHG emissions.

[19] South Coast Air Quality Management District, *Final 2003 AQMP Appendix V: Modeling and Attainment Demonstrations,* August 2003.

[20] Fehr & Peers, *Ho'onani Village: Transportation Impact Analysis Report*, April 8, 2025.

TABLE 6-4: CONSTRUCTION-RELATED GHG EMISSIONS				
	Annual Emissions (Metric Tons per Year)			
Year	CO_2	CH_4	NO_2	$MTCO_2e$
2026	1,749	0.1	0.1	1,777
2027	3,606	0.1	0.2	3,664
2028	3,650	0.1	0.2	3,708
2029	3,600	0.1	0.2	3,657
2030	3,561	0.1	0.2	3,616
2031	3,523	0.1	0.2	3,577
2032	3,497	0.1	0.1	3,539
2033	3,454	0.1	0.1	3,495
2034	2,322	0.1	0.1	2,348
2035	148	<0.1	<0.1	149
Maximum Annual	**3,650**	**0.1**	**0.2**	**3,708**

SOURCE: TAHA, 2025.

6.4 OPERATIONAL GREENHOUSE GAS EMISSIONS

GHG emissions related to operational activities were estimated in a similar manner as the criteria pollutant emissions analysis presented above. The proposed project would generate permanent GHG emissions through energy consumption, landscaping equipment, residential vehicular travel, water use, and waste generation. Hawaii is committed to renewable energy production, which does not generate GHG emissions. In 2023, approximately 31 percent of electricity in Hawaii was from renewable sources.[21] Hawaii has enacted a law that mandates that all of the State's electricity comes from renewable sources no later than 2045. **Table 6-5** shows the estimated annual operational GHG emissions. The proposed project would generate approximately 16,408 $MTCO_2e$ at full build-out in 2035 and approximately 13,288 $MTCO_2e$ in the horizon year of 2045. Annual operational emissions would not exceed the 40,000 CO_2e rate included in HAR Chapter 60 §11-60.1-1. Project-related indirect emissions would decline as the State moves toward a fully renewable supply of energy. In addition, the proposed project would not interfere with the development of clean energy supplies. Thus, the proposed project would not contribute to a significant increase in GHG emissions.

TABLE 6-5: ESTIMATED ANNUAL GREENHOUSE GAS EMISSIONS		
	Carbon Dioxide Equivalent Emissions (Metric Tons per Year)	
Scenario and Emission Source	2035	2045
Mobile Source Emissions (Direct)	12,000	12,000
Area Source Emissions (Direct)	28	28
Energy Source Emissions (Indirect)	3,120	-
Water Distribution Emissions (Indirect)	651	651
Waste Disposal Emissions (Indirect)	596	596
TOTAL	**16,408**	**13,288**
HAR Significant Emission Rates	***40,000***	***40,000***

SOURCE: TAHA, 2025.

[21]U.S. Energy Information Administration, *Hawaii State Energy Profile*, April 18, 2024.

7.0 CUMULATIVE EFFECTS

Section 11-200-2 of the HAR defines a cumulative impact as "the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

By its very nature, air pollution is largely a cumulative impact. Ambient air quality standards are violated or approach nonattainment levels due to past development that has formed the urban fabric. Attainment of these standards can be jeopardized by increasing emissions-generating activities in the region. The proposed site is located in an Attainment/Unclassified area for all NAAQS. The regional air quality in Hawaii is considered to be good. There is no existing cumulative air quality impact, and there is no potential for the project to significantly contribute to a cumulative air quality impact.

The State, through Act 234 and SB 559, has acknowledged that GHG emissions are a statewide impact. Emissions generated by the proposed project in combination with past, present, and reasonably probable future related projects could contribute to this impact. Although climate change is cumulative in nature, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment. The proposed project will explore ways to incorporate state-of-the-art energy conservation and green practices in the building development. The proposed project will not interfere with the development of clean energy supplies. Therefore, there is no potential for the project to significantly contribute to a cumulative GHG impact.

APPENDIX

EXHIBIT 34

Environmental Noise Assessment

D. L. ADAMS ASSOCIATES
acoustics | performing arts | technology

Environmental Noise Assessment
Ho'onani Village Development
Kahului, Maui, Hawaii

May 2025

DLAA Project No. 24-093

Prepared for:
Alpha Inc.
P.O. Box 330449
Kahului, HI 96733

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1.0 EXECUTIVE SUMMARY

1.1 The proposed action is the construction of a new Development in the Ho'onani Village project located between Maui Veterans Highway and Hana Highway, situated in the community of Kahului on the island of Maui, Hawaii. This site is in a suburban agricultural area with County of Maui AG and M-2 zoning districts indicating Agricultural and Heavy Industrial areas.

1.2 Ambient L_{eq} noise levels measured in the community surrounding the Ho'onani Village Development site ranged from 53dBA for nighttime hours to 59dBA during the day, with measured L_{dn} levels as high as 65.4dBA. The existing ambient noise levels within the project site are 8-10dBA higher than the maximum noise levels prescribed by the Hawaii Department of Health (HDOH) Community Noise Rule for areas Zoned for Class A, residential areas. A description of acoustic terminology can be found in Appendix A.

1.3 Aircraft Noise from the Kahului Airport was measured with three long-term site survey locations to assess the impacts on the community.

1.4 Construction noise levels were predicted using the CadnaA noise modeling software at residential and preservation noise receptor locations adjacent to the locations of the proposed action, and must comply with the HDOH Community Noise Control Rule [Reference 1], which stipulates maximum permissible noise limits at the property line.

1.5 The modeled receivers range from approximately from the construction activities. Construction noise levels at the nearest receiver locations are expected to increase but not exceed the Federal Transit Authority's (FTA) noise impact thresholds of 80 dBA for residential land uses. Noise levels may increase by up to 4 decibels (dB) over existing daytime noise levels in areas adjacent to construction activities occurring within the project site.

1.6 Traffic Noise and its predicted effects with and without the project generally was seen to increase predicted road noise, but not above levels deemed to be impactful to the surrounding residential areas or the future residents of the Development.

2.0 PROJECT DESCRIPTION

The proposed action is the construction of a new housing development in the Kahului located in Kahului on the Island of Maui, Hawaii.

The site of the proposed action is in a rural area that is zoned as AG zoning, indicating Agricultural land. Nearby zoning districts are classified as Commercial Mixed Use and M-2 Heavy Industrial. AG zoning districts are considered Class C according to The Hawaii Department of Health Hawaii Administrative Rules Title 11 Chapter 46 Community Noise Rule, requiring a maximum property line noise level of 70 dBA during daytime hours (7AM to 10PM) and 50 dBA at night (10PM to 7AM). The proposed project would be a multi-family area, likely to be zoned Class B, which has a maximum property line noise level of 60dBA during daytime hours and 50dbA at night.

A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

Compliance with the HDOH Community Noise rule is a regulatory requirement. The values and criteria stated in Tables 1, 2, and 3 should not be considered regulatory requirements because they are not associated with a specific governing document for the proposed action. However, these tables are useful in assessing the human perception to overall construction noise levels and general changes in sound levels and they are considered to be supplemental information to the governing State of Hawaii Community Noise Control Rule, which does not discuss community response to changes in noise levels or overall noise levels from construction activities.

2.1 State of Hawaii, Community Noise Control (HDOH)

The State of Hawaii Community Noise Control Rule [Reference 1] defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to *stationary* noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, etc. The Community Noise Control Rule does not address most *moving* sources, such as vehicular traffic noise, aircraft noise, or rail transit noise. However, the Community Noise Control Rule does regulate noise related to agricultural, construction, and industrial activities, which may not be stationary. In general, the HDOH Community Noise Rule only assesses the impact of a construction project as it relates to nuisance and hours of allowed activity and therefore does not state a maximum allowable noise level for the activities after a noise permit and/or variance has been granted.

The maximum permissible noise levels for stationary mechanical equipment and construction noise are enforced by the State HDOH for any location at or beyond the property line and shall not be exceeded for more than 10 percent (%) of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Figure 1. The proposed action has adjacencies to Class A zoning districts. In determining the maximum permissible

sound level, the background noise level is taken into account by HDOH in cases where the existing ambient level is already higher than the HDOH maximum permissible noise levels, the noise generated by the activities is normally allowed to be equal in level to the existing ambient environment.

2.2 Aircraft Noise

Aircraft noise was evaluated using long-term measurement locations on the planned project site, as well as the Kahului Airport Master Plan and Noise Compatibility Program Update, which describe the noise contours due to aircraft traffic and their extent to the surrounding community. Using the associated 65dBA Noise contour, no overlap is shown for the Ho'onani Development project area. However, the project site does fall inside the 60dBA noise contour according to the CY 2010 and the 2020 Forecasted Noise Contour provided by the Kahului Airport Master Plan and NCP. This is expected to be the largest contributor to the noise environment in the project area, and mitigation are recommended to reduce the impact on occupants going forward.

While it is not the intention of the FTA to specify standardized criteria for construction noise impact, it has defined guidelines for assessment [Reference 2]. According to the FTA, if the criteria shown in Table 1 are exceeded, there may be adverse community reaction.

Table 1. Federal Transit Administration Construction Noise Impact Threshold

	8- Hour L_{eq} (dBA)	
Land Use	Day (7 AM – 10 PM)	Night (10 PM – 7 AM)
Residential	80	70
Commercial	85	85
Industrial	90	90

2.3 Community Response to Change in Noise Level

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, the average ability of an individual to perceive changes in noise levels is well documented and has been summarized in Table 2 [Reference 3, 4]. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Table 2. Average Ability to Perceive Changes in Noise Level

Sound Level Change (dB)	**Human Perception of Sound**
0	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	Two times (or 1/2) as loud
20	Four times (or 1/4) as loud

A commonly applied criterion for estimating a community's response to changes in noise level is the 'community response scale' proposed by the International Standards Organization (ISO) of the United Nations [Reference 5]. The scale shown in Table 3 relates changes in noise level to the degree of community response and allows for direct estimation of the probable response of a community to a predicted change in noise level. The values are based on statistical analysis of previous projects that increased ambient noise levels in the surrounding community, and, therefore, are only a rule of thumb for estimating community response and not a prediction of this specific proposed action's expected community response.

Table 3. Community Response to Increases in Noise Levels

Sound Level Change (dB)	Category	Response Description
0	None	No observed reaction
5	Little	Sporadic Complaints
10	Medium	Widespread Complaints
15	Strong	Threats of Community Action
20	Very Strong	Vigorous Community Action

3.0 EXISTING ACOUSTICAL ENVIRONMENT

Continuous long-term ambient noise level measurements were conducted to assess the existing acoustical environment in the vicinity of the proposed action. Long-term measurements (taken continuously over the course of multiple days) offer a baseline for establishing existing ambient noise levels in the area and are used for estimating future noise levels by adding the ambient levels to other noise levels generated from the proposed action. These ambient levels were used to determine a baseline for probable nose impacts due to aircraft noise from the nearby Kahului Airport.

The methodology, locations, and results for each of the measurements are described below. The measurement locations are illustrated in Figure 2, and graphs of the measurement data for each site can be seen in Figures 3,4 and 5. Photographs of the measurement locations can be viewed in Appendix B.

3.1 Long-Term Noise Measurement

Ambient noise level measurements were conducted at each location from April 23 to April 30, 2025 to assess the existing acoustical environment on or near the proposed action. Continuous, hourly equivalent sound levels, Leq, were recorded at each location. The measurements were taken using Larson-Davis, Model 831 Type 1 Sound Level Meters. Calibration was checked before and after the measurements with a Larson-Davis Model CAL200 calibrator. The sound level meters and the calibrators have been certified by the manufacturer within the recommended 2-year calibration period. A windscreen covered the microphone during the entire

measurement period and the sound level meter was secured in a weather-resistant case.

3.1.1 Long-Term Noise Measurement Locations

Figure 2 provides a site map overview annotated with labels corresponding to the long term monitoring locations:

Location 1 (L1): The sound level meter was located at the rough center of the planned project site. The microphone was mounted approximately 5.5 feet above grade.

Location 2 (L2): The sound level meter was located on the east side of the intersection of Pulehu Road and Hansen Road. The microphone was mounted approximately 5 feet above grade.

Location 3 (L3): The sound level meter was located along the North side of Hansen Road. The microphone was mounted approximately 5 feet above grade.

Location 4 (L4): The sound level meter was located along the North side of the Pulehu Road. The microphone was mounted approximately 5 feet above grade. This microphone's data was not recovered from the field.

3.1.2 Long-Term Noise Measurement Results

The measured Leq, L90 and Lmax, in dBA are graphically presented in Figures 3 through 5 for each location. The Leq during the day (7:00 AM to 10:00 PM) and during the night (10:00 PM to 7:00 AM) and average calculated day-night level, Ldn, are summarized for each location below in Table 4.

Table 4. Summary of Noise Measurement Results (dBA)

Measurement Location	**Average Daytime L_{eq}**	**Average Nighttime L_{eq}**	**Average L_{dn}**
L1	59.3	53.1	63.7
L2	57.7	53.7	65.4
L3	58	51.5	60.8
L4	Not recovered	Not Recovered	Not Recovered

Average existing daytime and nighttime noise levels are quite similar across the site, with the highest Leq recorded at L1, central to the project site. However, the highest Ldn of 65.4dbA was recorded at L2, indicating that the traffic noise of large trucks coming to and from the nearby recycling facility are a significant noise source in this area.

According to historical weather data, average wind speeds were between 9 and 6mph, with no precipitation recorded during the measurement period. Traffic noise

from aircraft, cars, trucks and motorcycles was recorded at locations L2 and L3, with the dominant noise source of L1 being aircraft landing and taking off from Kahului Airport.

Location L1 represents the future multi-family uses of the Ho'onani Village and the impacts of Aircraft noise. The highest noise levels here correspond to the Kahului Airport Noise Contour map and are outside of HDOH Class A limits. This area is currently zoned for Agriculture and inside of the Class C limits. It is significant to note that even with the separation of this site from the nearby road noise, the measured levels are quite similar to locations in close proximity with the roadway, indicating that the aircraft flyover events are the dominant contributors to the site's noise environment.

Location L2 represents the commercial/heavy industrial-zoned areas nearby the project site likely to be affected by construction noise and increased traffic due to the project. Daytime Levels measured here were slightly higher than other locations, as well as the overall Ldn.

Location L3 represents residential receptors along the South perimeter of the project likely to be affected by increases in traffic based on project activity and aircraft noise. This is also a location on the project site furthest from the Kahului airport runway 2-20, and is placed along the flight line to represent the lowest aircraft noise area, while still being on the flight line. The highest noise levels recorded here are approximately 60 dBA, which is slightly higher than daytime Leq limits for its zoning.

Location L4 represented the highest noise area of the project site due to Aircraft flyover. This area was designated as inside the 65 LDN area of the 1992 Kahului Airport Noise Map and was reduced to the 60 LDN area in the 2012 Noise Map. This area was likely to experience the most amount of environmental noise due to traffic changes due to the project impacts as well. Unfortunately, this meter was stolen from the site and its data was not recovered.

4.0 PROJECT SITE NOISE IMPACTS

4.1 Aircraft Noise

The proposed project is within the noise contours of the Kahului Airport, as described in the Kahului Master Plan and NCP provided in figure 5 with an overlay of the Project site and long term monitoring locations. These isolines describe areas of similar Day/Night Levels or LDN due to aircraft operations from civil airports. The shape of the noise contours reflects the predominant use of the primary runways for commercial and private aircraft, as well as the heliport.

The long term noise monitoring setup results were heavily influenced by noise related to both takeoff and landing events. Kahului Airport's primary runway 2/20's approach and takeoff flight line crosses directly over the project site and is the primary runway for large commercial aircraft. Runway 5 use is discouraged because of its proximity to residential and noise sensitive areas along the shoreline west of the airport.

L1 location is the most isolated location from nearby roadway traffic noise, so it is the best direct measurement of the aircraft noise contribution to the future project site. The daytime levels ranged between 58 dBA and 55 dBA, while the nighttime levels were between 46 dbA and 58 dBA, resulting in a total Ldn of 63.7dBA. These levels are as much as 8dBA above the Class B zoning limits at night, but are within the Class C zoning limits.

This demonstrates that the current isolines properly represent the environment's noise levels due to aircraft activity and are an accurate representation of the current levels experienced by receptors within the project site during normal aircraft operations at Kahului Airport.

Based on the field test data, the Aircraft noise from the Kahului airport will be the primary contributor to the noise environment for the planned project action. The aircraft noise will be variable based on the takeoff and landing directions of the aircraft traffic and will be largely dependent on the weather conditions and type of aircraft activity at Kahului.
.

4.1.1 Exterior Glazing Construction Recommendations

Due to the presence of consistent aircraft noise disturbances throughout much of the project site, exterior glazing, wall and floor/ceiling construction will be particularly important to isolate the inhabitants.
Target levels for the interiors of residential structures is 45dBA according to the HDOH. The L1 site recorded 63.7 dBA Ldn over the 7 day measurement period. The current L1 levels is the key monitoring locations that will dictate the steady-

state environment and the worst-case scenario respectively, so their levels will be used to determine the performance of the window glazing and partition isolation.

The differences of ~18-20 dBA is the minimum specification for the attenuation of the window glazing and partition ratings for the on-site residential structures, or Outdoor-Indoor Noise Reduction (OINR).

Given these levels, minimum STC 32/OITC 25 rated windows, glazed with standard 1" I (consisting of two layers of 1/4" glazing separated by a 1/4" air space, STC 35/OITC 28) will be sufficient to reduce exterior aircraft noise to levels at or below the background noise criteria for residential units. For sliding glass lanai doors, we recommend that doors are selected which have acoustical tests provided by the manufacturer for their complete assembly; selections should not be made based on the expected acoustical performance of the glazing configuration alone.

Exterior partition ratings are critical to ensuring proper isolation from the exterior noise environment. Rooftop and ceiling constructions of IIC/STC 45-50 as well as Insulated exterior framing utilizing masonry and furred gypsum will properly reduce low frequency content of aircraft noise. Control penetrations in rooftop areas to prevent noise leakage, and ensure any necessary penetrations and ductwork is properly silenced or baffled before entering living/bedroom areas.

4.2 Construction Noise

The proposed action will involve mass grading, excavation and pouring concrete foundations which utilize various types of construction equipment, as described in **Table 5** below. Although specific equipment that will be used has not been finalized, the equipment described below represents a reasonable approximation of the type of equipment that will be used.

Table 5. General Construction Operations and Equipment

Construction Phase	Expected Equipment	Acoustical Use Factor (%)[N1]	L_{max} at 50 feet (dBA, slow) [N2]
Earthwork	Dozer	40	85
	Excavator	40	85
	Backhoe	40	80
	Front-End Loader	40	80
	Forklift	50	85
	Semi-Trucks	40	84
	Dump Trucks	40	84
	Grader	40	85
	Compactor	20	80
	Tractor	40	84
Utility Installation, Concrete & Paving	Dozer	40	85
	Excavator	40	85
	Backhoe	40	80
	Front-End Loader	40	80
	Forklift	50	85
	Semi-Truck	40	84
	Concrete Truck	40	85
	Concrete Mixers	50	85
	Dewatering pump	50	82
	Milling Machines	40	84
Vertical construction	Crane	16	85
	Concrete-pump	20	82
	Saws and other tools	50	85

Notes:

N1. The acoustical usage factor is an estimate of the fraction of time each piece of construction equipment is operating at full power (i.e., the equipment will be operating in its loudest condition). The usage factors value is based on the Federal Highway Administration Roadway Construction Noise Model (RCNM) [Reference 6] database. Where exact matches were not available in

the RCNM DLAA approximated noise levels based on equipment with similar functions

N2. The A-weighted maximum sound level (L_{max}) values are based on the RCNM construction equipment noise database.

The noise levels listed in Table 5 represent the A-weighted maximum sound level (L_{max}), measured 50-feet from the construction equipment. Noise levels are presented as worst-case noise levels that are expected from individual equipment and construction operations and not representative of the overall continuous noise levels. The projected worst case noise levels are expected to be short term in their nature when compared to the project overall schedule.

The construction operations are currently proposed for the project: mass grading, excavation for foundations, utility installation, site improvements for concrete work, concrete foundation work for slab-on-grade construction, framing and vertical construction. The earthwork accomplished by Excavators and Motor Graders, as well as concrete pouring equipment are expected to be the loudest pieces of equipment during their respective phases. However, the actual noise levels produced during construction will be a function of the methods employed during each stage of the construction process, the duration of construction activities, and the number of pieces of equipment used.

4.2.1 CadnaA Modeled Noise Receptors – Construction Noise Impact

The Datakustik CadnaA noise prediction software [Reference 6] model was used to estimate the construction noise level and impacts at residences within the community adjacent to the project site along. These receptors are expected to experience the loudest noise levels during construction operations. These predicted noise receptor locations are identified as C1 and C2 in this report.

4.2.2 Modeled Noise Receptor Locations

Commercial Receptor – 100 Ho'okele St (C1): C1 is a modeled analysis receptor at the beginning of the parking lot area of the commercial uses, closest to the project site. Existing noise levels at C1 are calculated using the CadnaA model and represent commercial uses west of the project site most likely to be affected by construction operations.

Commercial Receptor – 1090 Ho'okele St (C2): C2 is a modeled analysis receptor at the northernmost edge of the project site. Existing noise levels at C2 are calculated using the CadnaA model and represent commercial uses in proximity to the project site most likely to be affected by construction operations.

Table 6 below summarizes the results of the construction noise analysis for receptors located at the CadnaA Modeled Receptors C1 and C2. Detailed noise contours for existing and projected conditions can be provided as needed.

Table 6. Construction Noise Analysis Results

Receptor Locations	Approx. Minimum Distance[N1] to Construction Activities (ft.)	Minimum Hourly Existing Ambient Noise in Area (dBA)		Maximum Hourly Equivalent Predicted Total Noise with Construction [N2] (L_{eq} dBA)
		AM	PM	
C1[N3]	500	49.6	49.5	53.5
C2[N3]	600	62.5	63	63.7

Notes:

N1. The value is the approximate distance from the noise receptor to the location of the nearest proposed construction activities.

N2. The predicted construction noise levels are represented as L_{eq} and take into account the usage factor of each piece of equipment, as defined by the RCNM construction equipment database. The construction noise levels were modeled for all construction phases.

N3. Locations C1 and C2 existing ambient noise levels are calculated using CadnaA.

4.1.3 Modeled Construction Noise Results

At all the modeled receivers, the maximum predicted construction noise is 4.1dBA at C1, with the other locations only increasing in noise by ~ 1dBA. These increases will result in increased ambient noise levels that will be perceptibly louder during construction operations but will not be overly impactful to the surrounding community. This level of noise increase is not expected to require extensive mitigations, and proper scheduling of equipment usage is the best way to reduce any impact it may have.

4.3 Traffic Noise Prediction

4.3.1 CadnaA Modeled Noise Receptors

The existing road conditions were modeled for peak hour AM (10:00 AM) and PM (4:00 PM) traffic and a vehicular traffic noise analysis was completed at the C1 and C2 modeled receiver locations. Noise projections were calculated for the same receiver locations during the pea hour A and P traffic for the " 25 With Project", " 35 Without Project" analysis scenarios, with the results shown in **Table 7**, below:

Table 7: Modeled Vehicular Traffic Noise Community Receptors

Receptor Location	Distance to Road(ft.)	Existing 2024		2035 With Project -Difference		2035 Without Project- Difference	
		AM	PM	AM	PM	AM	PM
C1	50	49.6	49.5	+4.1	+4	+4	+4
C2	50	62.5	63	+2.6	+1.6	+3	+1

4.3.2 Vehicular Traffic Noise Projection: Future With Project

At Location C1, which represents residential receptors along Ho'okele Street, the highest noise levels are predicted to increase approximately 4 dBA at night and during the day. While this would be an incremental increase and noticeable, it will not be overly impactful to the surrounding community.

At Location C2, which represents residential receptors at the corner of Pulehu and Ho'okele street, the highest noise levels increase is approximately 3 dBA during the daytime and 1.6dBA at night. Noise level increases of this magnitude would be perceived as incrementally louder than ambient conditions. Increases of up to 3 dBA are generally considered imperceptible.

4.3.3 Vehicular Traffic Noise Projection: Future Without Project

In general, the vehicle traffic increase in the Future Without Project conditions were much lower across the modeled community receptors. The largest increases of approximately 4dBA at C1 and C2 is in line with standard vehicle traffic increases along Ho'okele Street. These increases are noticeable, but not impactful to the community.

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2. U.S. Department of Transportation - Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

3. *Highway Noise Policy and Abatement Guidelines*, Department of Transportation, Highways Division, State of Hawaii, April 25, 2011.

4. M. David Egan, *Architectural Acoustics*, McGraw-Hill Book Company, 1998

5. International Standards Organization ISO/TC 43, *Noise Assessment with Respect to Community Responses*, New York: United Nations, November 1969.

6. *DataKustik CadnaA software program*, Build 183.5110; DataKustik GmbH, 2021 MR1.

7. *Criteria for a Recommended Standard – Occupational Noise Exposure*, Department of Health and Human Services, Centers for Disease Control and Prevention, June 1998.

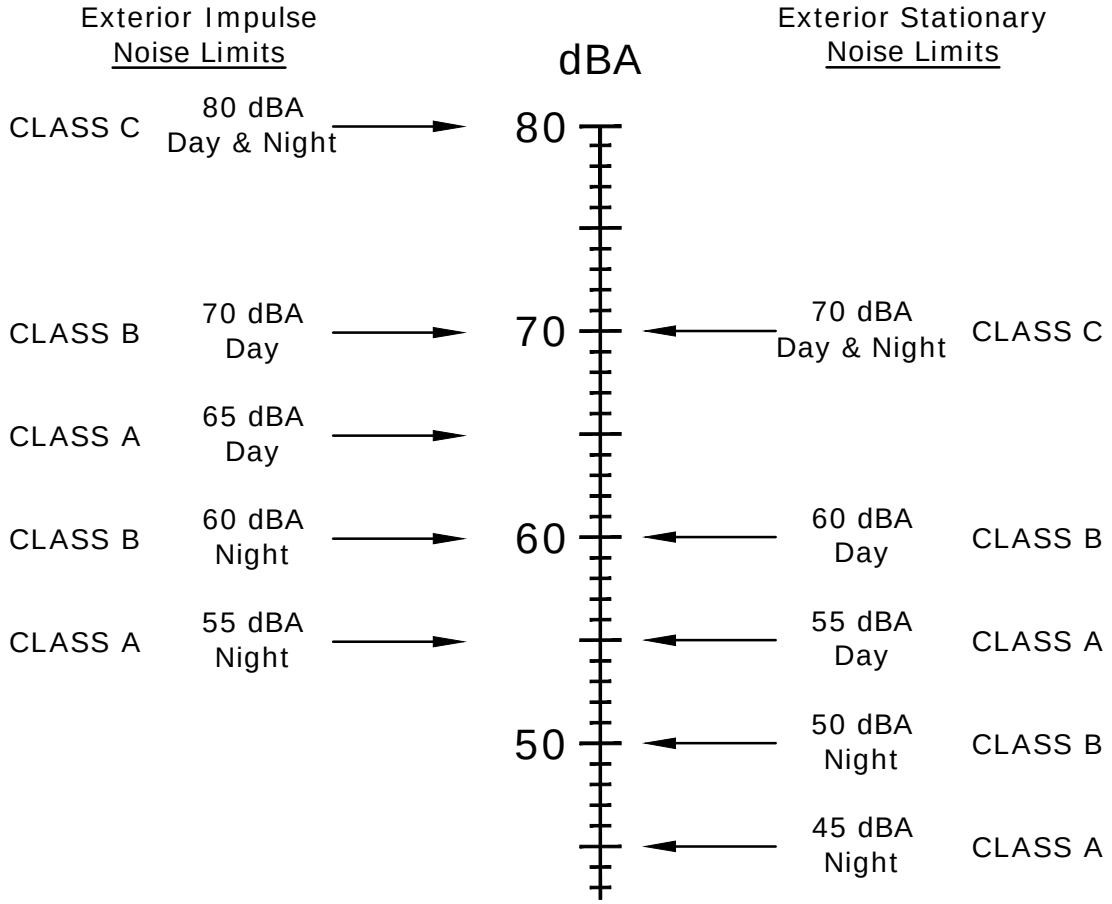
FIGURES

HAWAII DEPARTMENT OF HEALTH MAXIMUM PERMISSIBLE SOUND LEVELS FOR VARIOUS ZONING DISTRICTS

Zoning District	Day Hours (7 AM to 10 PM)	Night Hours (10 PM to 7 AM)
CLASS A Residential, Conservation, Preservation, Public Space, Open Space	55 dBA (Exterior)	45 dBA (Exterior)
CLASS B Multi-Family Dwellings, Apartments, Business, Commercial, Hotel, Resort	60 dBA (Exterior)	50 dBA (Exterior)
CLASS C Agriculture, Country, Industrial	70 dBA (Exterior)	70 dBA (Exterior)

IMPULSE NOISE:

The maximum permissible noise limit for impulse noise is 10 dBA above the stationary noise limits.



D. L. ADAMS ASSOCIATES

PROJECT: Ho'onani Village Development

PROJECT NO:	DATE:	FIGURE:
24-093	April 2025	1

Project Site and Noise Measurement Locations

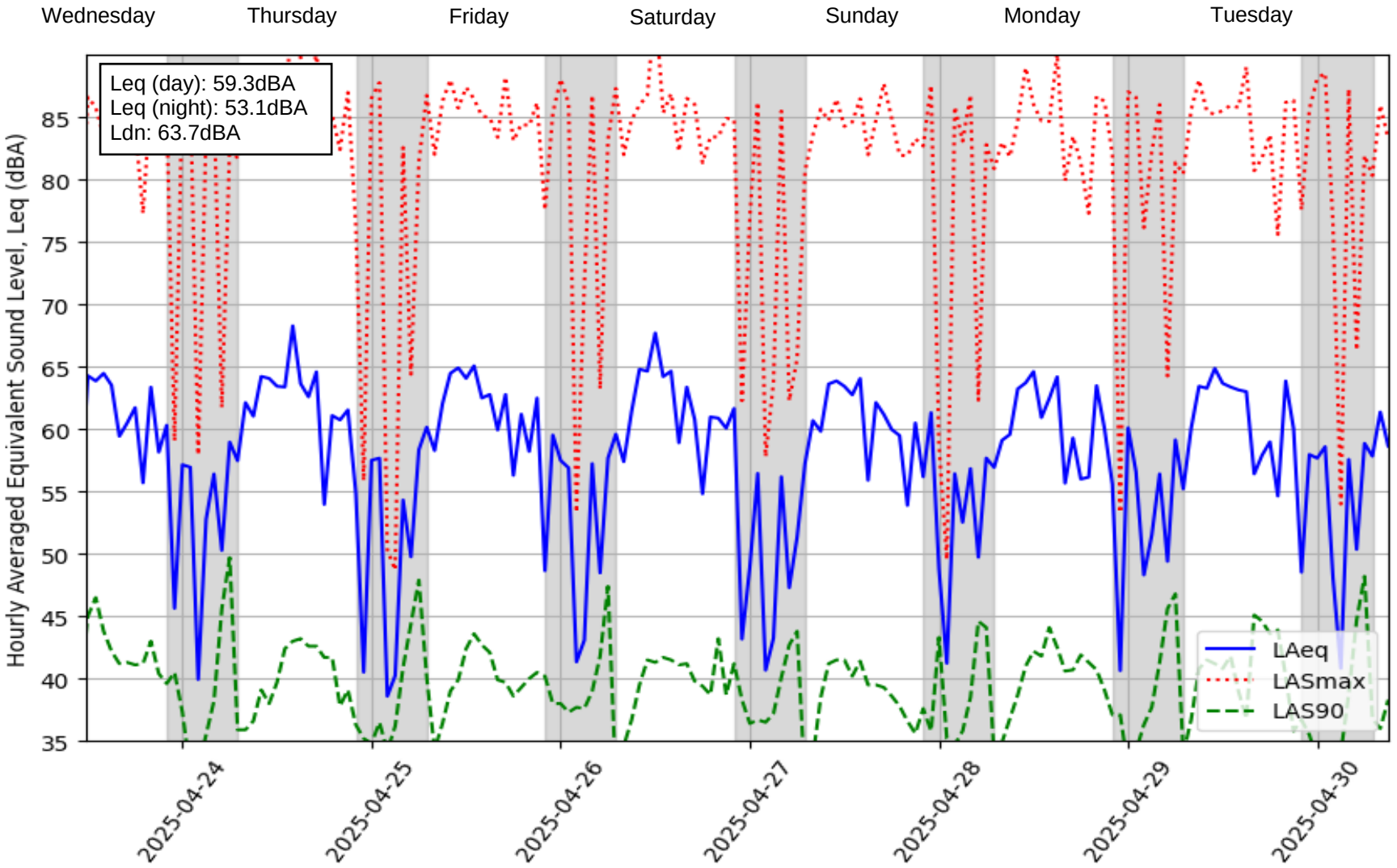
Legend

L1 - Long Term Noise Measurement Location

C1 - CadnaA Calculated Noise Receptor

D. L. ADAMS ASSOCIATES acoustics | performing arts | technology	PROJECT Ho'onani Village Development		
	PROJECT NO 24-093	DATE April 2025	DETAIL 2

L1 - Long Term Measurement Location

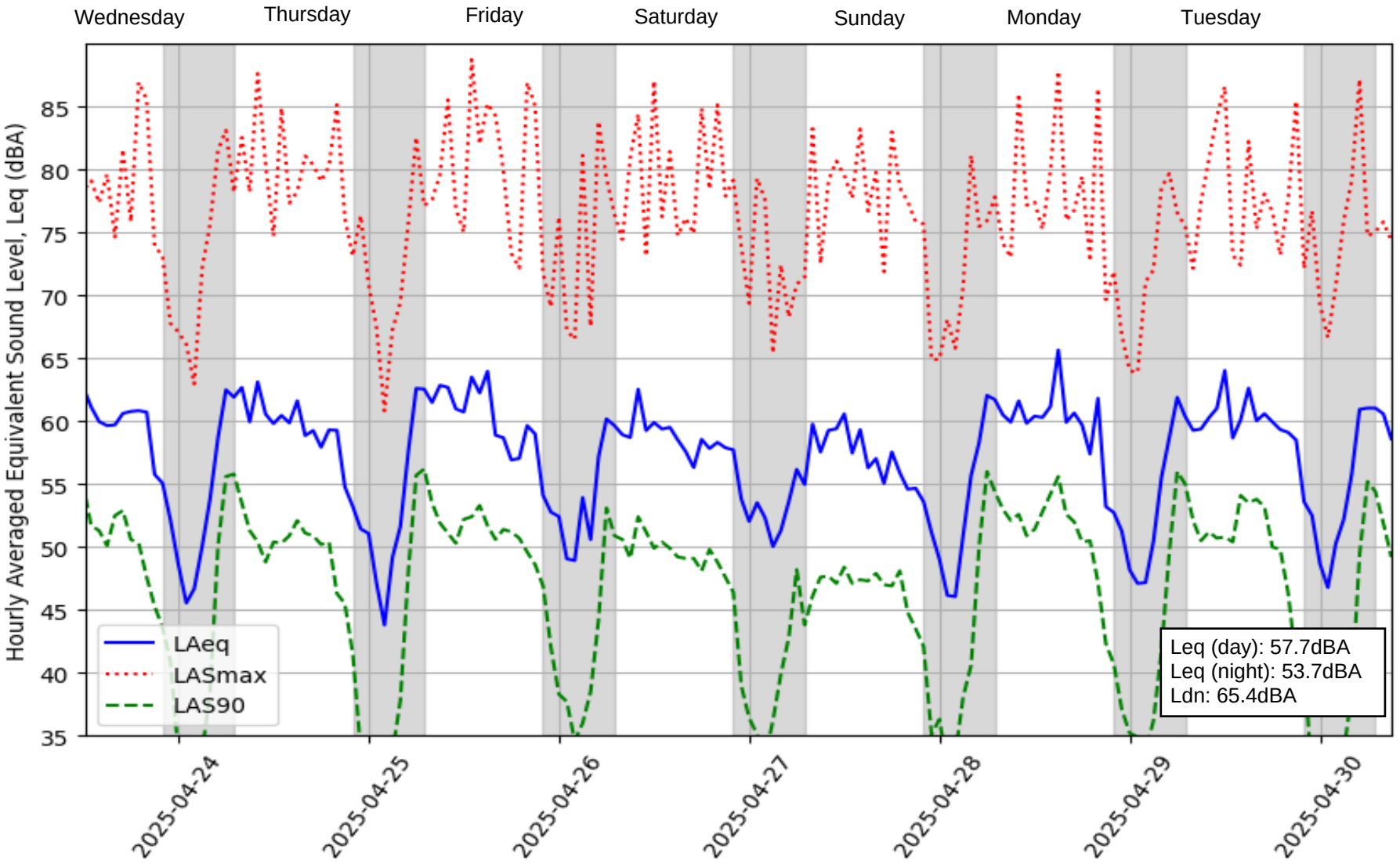


Date & Time of Measurement

L_{eq}: Equivalent Sound Level - Logrithmic average of sound levels of time.
L_{max}: Maximum Noise Level - Highest noise level reached during each hourly measurement
L_{90}: Ambient Noise Level: Highest noise level exceeded 90% of each hourly recording.

D. L. ADAMS ASSOCIATES acoustics | performing arts | technology	PROJECT: Ho'onani Village Development Project		
	PROJECT NO: 24-093	DATE: April, 2025	FIGURE: 3

L2 - Long Term Measurement Location

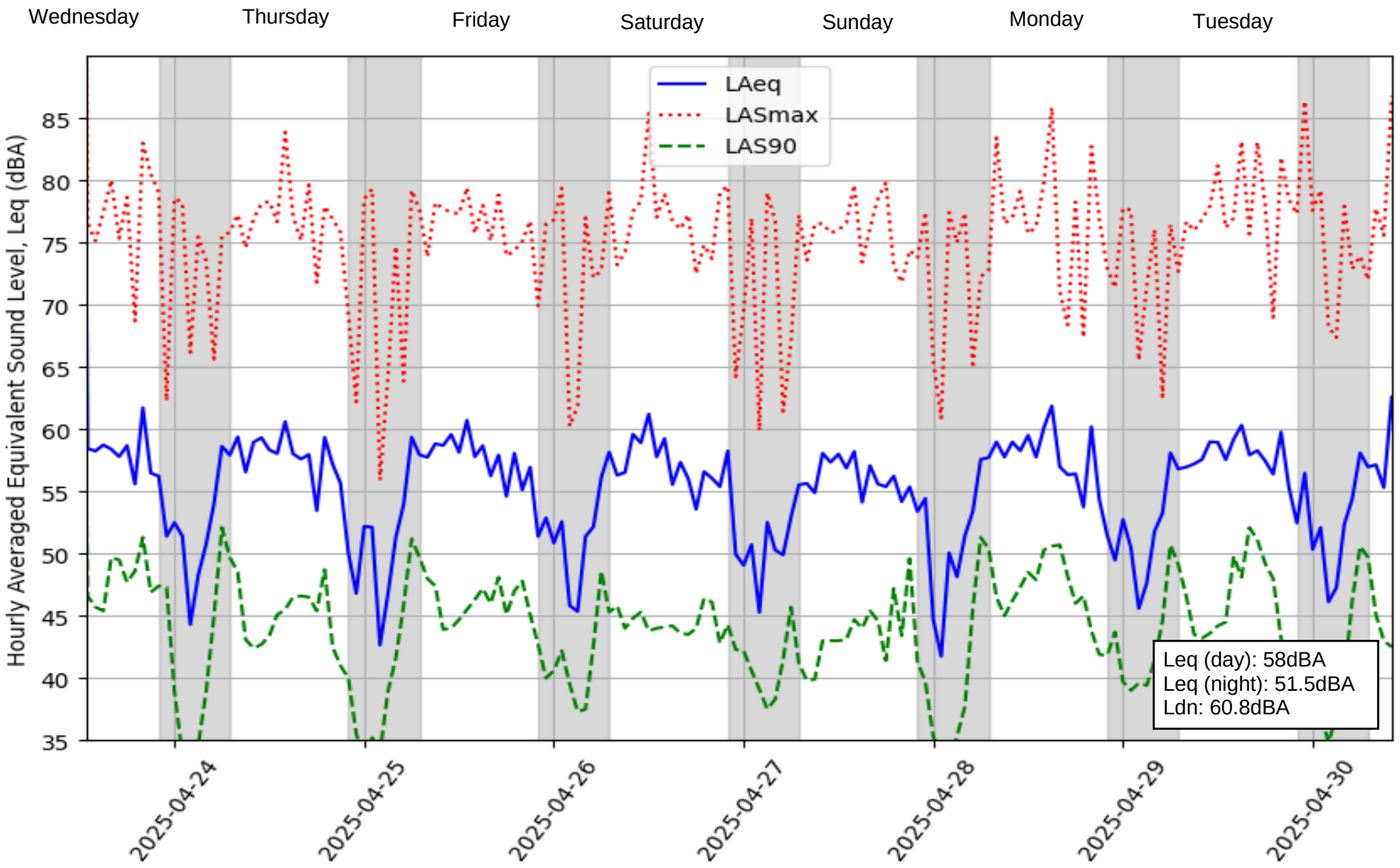


Date & Time of Measurement

L_{eq}: Equivalent Sound Level - Logrithmic average of sound levels of time.
L_{max}: Maximum Noise Level - Highest noise level reached during each hourly measurement
L_{90}: Ambient Noise Level: Highest noise level exceeded 90% of each hourly recording.

D. L. ADAMS ASSOCIATES acoustics | performing arts | technology	PROJECT: Ho'onani Village Development Project		
	PROJECT NO: 24-093	DATE: April, 2025	FIGURE: 4

L3 - Long Term Measurement Location

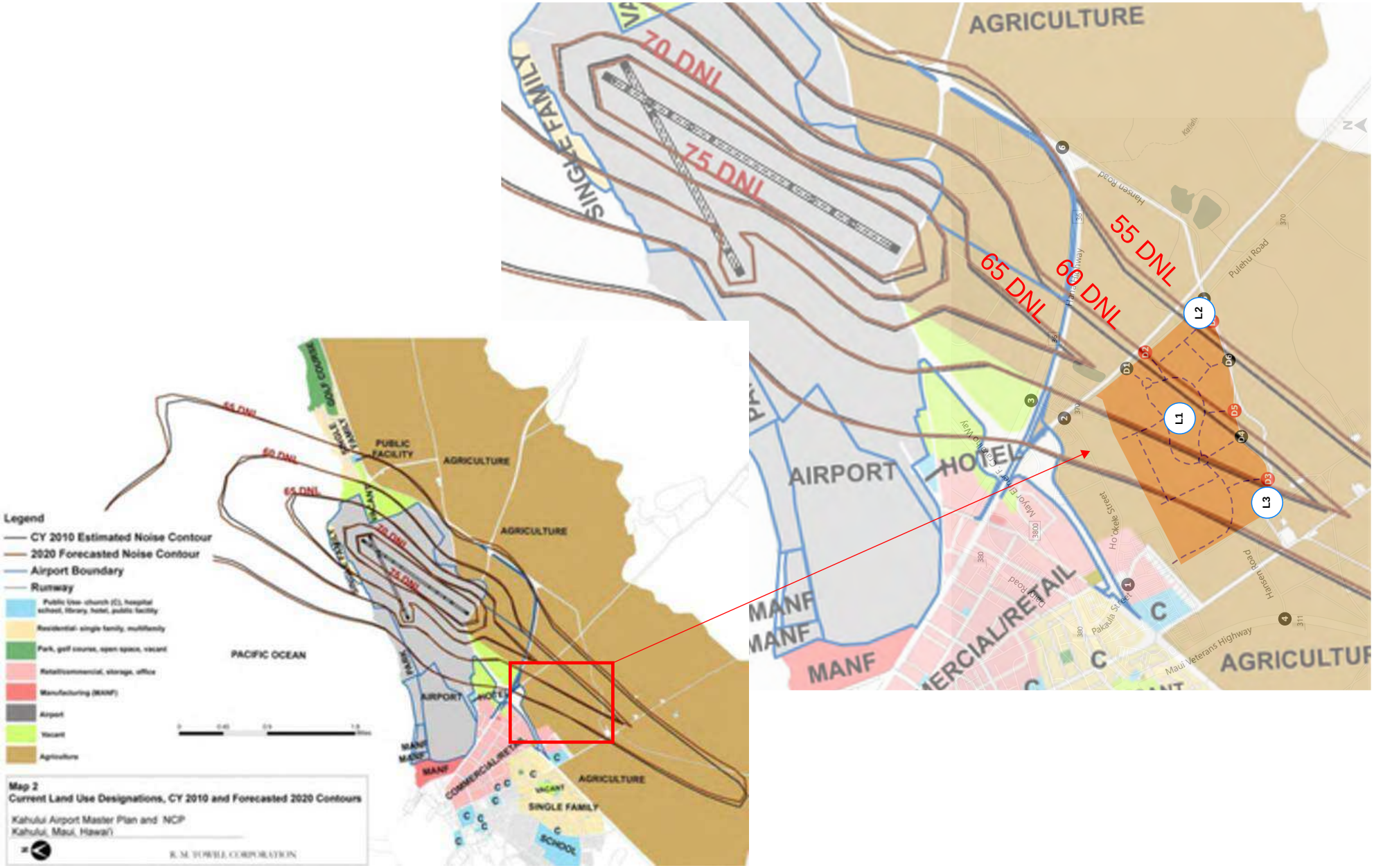


Date & Time of Measurement

L_{eq}: Equivalent Sound Level - Logrithmic average of sound levels of time.
L_{max}: Maximum Noise Level - Highest noise level reached during each hourly measurement
L_{90}: Ambient Noise Level: Highest noise level exceeded 90% of each hourly recording.

D. L. ADAMS ASSOCIATES acoustics | performing arts | technology	PROJECT: Ho'onani Village Development Project		
	PROJECT NO: 24-093	DATE: April, 2025	FIGURE: 5

Kahului Airport - 2010, 2020 Estimated Noise Contour - Project Overlay



D. L. ADAMS ASSOCIATES acoustics | performing arts | technology	PROJECT: Ho'onani Village Development Project		
	PROJECT NO: 24-093	DATE: April, 2025	FIGURE: 6

APPENDIX A

Acoustic Terminology

Acoustic Terminology

Sound Pressure Level

Sound, or noise, is the term given to variations in air pressure that are capable of being detected by the human ear. Small fluctuations in atmospheric pressure (sound pressure) constitute the physical property measured with a sound pressure level meter. Because the human ear can detect variations in atmospheric pressure over such a large range of magnitudes, sound pressure is expressed on a logarithmic scale in units called decibels (dB). Noise is defined as "unwanted" sound.

Technically, sound pressure level (SPL) is defined as:

$$SPL = 20 \log (P/P_{ref}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and P_{ref} is the reference pressure, 20 µPa, which is approximately the lowest sound pressure that can be detected by the human ear. For example:

If P = 20 µPa, then SPL = 0 dB
If P = 200 µPa, then SPL = 20 dB
If P = 2000 µPa, then SPL = 40 dB

The sound pressure level that results from a combination of noise sources is not the arithmetic sum of the individual sound sources, but rather the logarithmic sum. For example, two sound levels of 50 dB produce a combined sound level of 53 dB, not 100 dB. Two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, in general, a change of 1 or 2 dB in the level of sound is difficult for most people to detect. A 3 dB change is commonly taken as the smallest perceptible change and a 6 dB change corresponds to a noticeable change in loudness. A 10 dB increase or decrease in sound level corresponds to an approximate doubling or halving of loudness, respectively.

A-Weighted Sound Level

Studies have shown conclusively that at equal sound pressure levels, people are generally more sensitive to certain higher frequency sounds (such as made by speech, horns, and whistles) than most lower frequency sounds (such as made by motors and engines)[1] at the same level. To address this preferential response to frequency, the A-weighted scale was developed. The A-weighted scale adjusts the sound level in each frequency band in much the same manner that the

[1] D.W. Robinson and R.S. Dadson, "A Re-Determination of the Equal-Loudness Relations for Pure Tones," *British Journal of Applied Physics*, vol. 7, pp. 166 - 181, 1956. (Adopted by the International Standards Organization as Recommendation R-226.

human auditory system does. Thus the A-weighted sound level (read as "dBA") becomes a single number that defines the level of a sound and has some correlation with the sensitivity of the human ear to that sound. Different sounds with the same A-weighted sound level are perceived as being equally loud. The A-weighted noise level is commonly used today in environmental noise analysis and in noise regulations. Typical values of the A-weighted sound level of various noise sources are shown in Figure A-1.

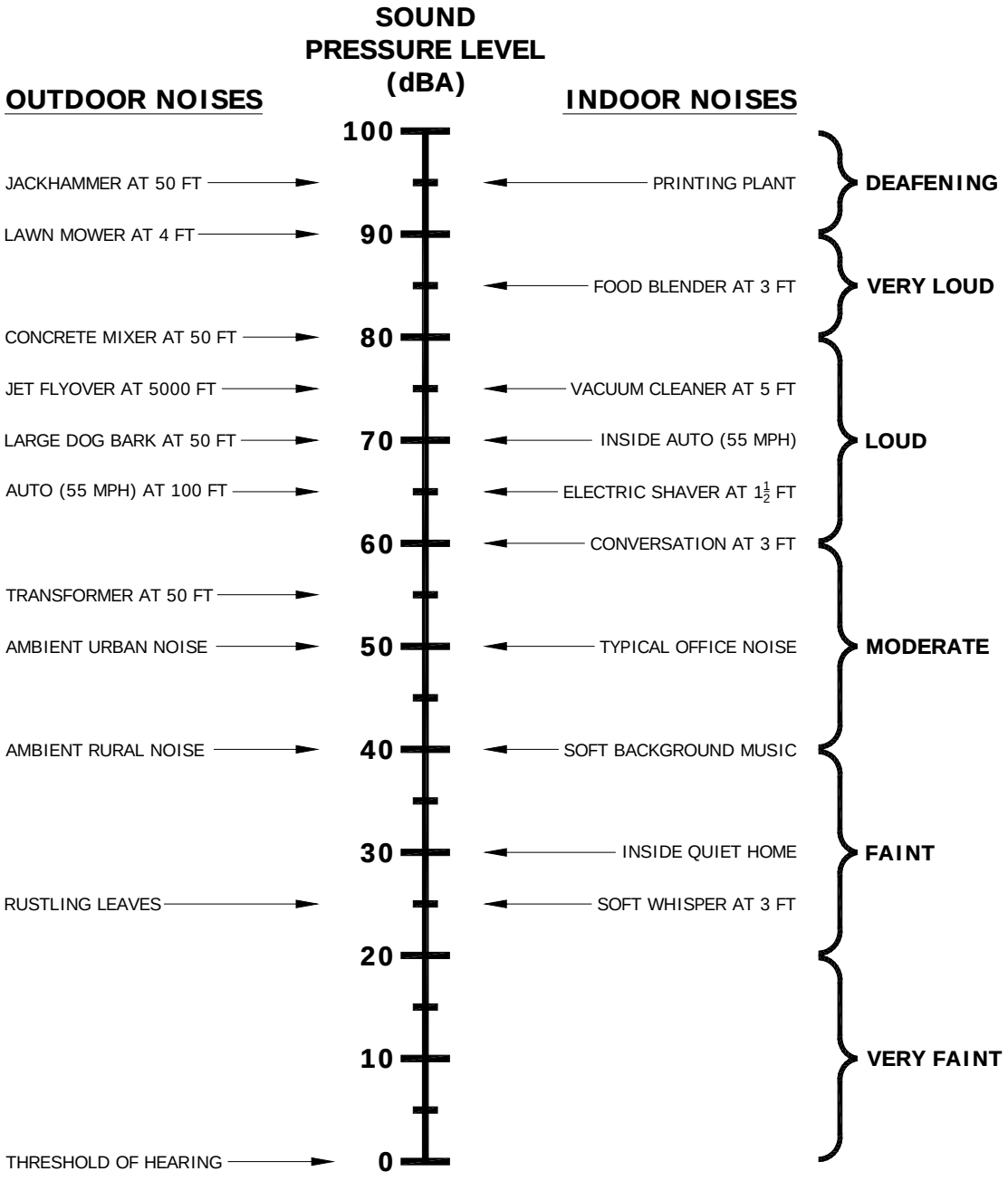


Figure A-1. Common Outdoor/Indoor Sound Levels

Equivalent Sound Level

The Equivalent Sound Level (L_{eq}) is a type of average which represents the steady level that, integrated over a time period, would produce the same energy as the actual signal. The actual *instantaneous* noise levels typically fluctuate above and below the measured L_{eq} during the measurement period. The A-weighted L_{eq} is a common index for measuring environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

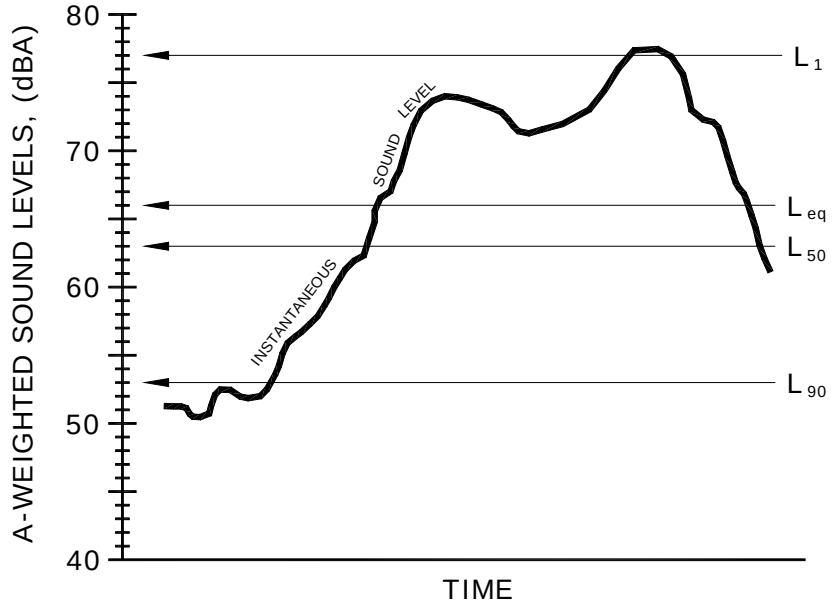


Figure A-2. Example Graph of Equivalent and Statistical Sound Levels

Statistical Sound Level

The sound levels of long-term noise producing activities such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, a statistically-based method of expressing sound or noise levels has been developed. It is known as the Exceedence Level, L_n. The L_n represents the sound level that is exceeded for n% of the measurement time period. For example, L_{10} = 60 dBA indicates that for the duration of the measurement period, the sound level exceeded 60 dBA 10% of the time. Typically, in noise regulations and standards, the specified time period is one hour. Commonly used Exceedence Levels include L_{01}, L_{10}, L_{50}, and L_{90}, which are widely used to assess community and environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

Day-Night Equivalent Sound Level

The Day-Night Equivalent Sound Level, L_{dn}, is the Equivalent Sound Level, L_{eq}, measured over a 24-hour period. However, a 10 dB penalty is added to the noise levels recorded between 10 p.m. and 7 a.m. to account for people's higher sensitivity to noise at night when the background noise level is typically lower. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is widely used by federal and local agencies and standards organizations.

APPENDIX B

Photographs of Sound Level Meter Locations

Noise Measurement Location L1

Noise Measurement Location L2

Noise Measurement Location L3

Noise Measurement Location L4

Paul M. Ueoka
paul@wslmaui.com

Jeffrey T. Ueoka
jeff@wslmaui.com

WELLS STREET LAW

A Limited Liability Law Company

(808) 481-4210

2145 Wells Street
Suite 406
Wailuku, Hawaii 96793

USPS Mailing Address:
P.O. Box 733
Wailuku, Hawaii 96793

January 12, 2026

Via email to: dlnr.cwrm@hawaii.gov

State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
ATTN: Ciara W.K. Kahahane - Deputy Director
P.O. Box 621
Honolulu, Hawaii 96809

Re: Response to DLNR CWRM Comments
Proposed Urban Boundary Change-Community Plan Amendment-Zoning Change for Ho'onani Village
Location: TMK(s): (2) 3-8-006:004-0005; Kahului, Maui

Dear Deputy Director Kahahane,

Thank you for the opportunity to review and respond to the Commission on Water Resource Management (CWRM) comments dated December 16th, 2025.

The project team has reviewed and appreciates the feedback and recommendations provided by CWRM. Responses to specific comments are provided below. For comments that may not be addressed below, please note that all feedback outlined in the CWRM comment letter has been reviewed and will be taken into consideration as the project continues to move forward.

As the project progresses through the applicable planning and review processes, the project team remains committed to ongoing communication and coordination with the appropriate agencies and stakeholders.

We look forward to continued collaboration.

1. *We recommend coordination with the county to incorporate this project into the next update of the county's Water Use and Development Plan (WUDP). Please contact the respective Planning Department and/ or Department of Water Supply for further information.*

Response:
The project team acknowledges the importance of coordination with the County Planning Department and the Department of Water Supply (DWS) regarding incorporation of the project

into the Water Use and Development Plan. The County of Maui DWS has also been consulted and is aware of this project.

4. *We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the project to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards LEED certification.*

Response:
The project team recognizes the importance of sound water management practices. As project planning advances and additional details such as potential use of water efficient fixtures are evaluated, water management considerations will be reviewed as appropriate. The project team also appreciates the reference to LEED certification as a potential resource.

5. *Use of BMP*

Response:
The project team recognizes the importance of BMP. As project planning advances the use of BMP will be implemented as appropriate. The project team also appreciates the reference to LEED certification as a potential resource.

6. *Use of Alternative Water Sources*

Response:
The project team recognizes the importance of alternative water sources. As project planning advances the use of alternative water sources will be implemented as appropriate.

7. *Hawaii Green Business Program*

Response:
The project team will further investigate participation in the Hawaii Green Business Program.

8. *Landscape Irrigation Conservation BMP*

Response:
The project team recognizes the importance of landscape irrigation conservation BMP. As project planning advances the BMP endorsed by the Landscape Industry Council of Hawaii will be implemented as appropriate.

12. *Well Construction Permits*

Response:
The project team recognizes this requirement.

13. *Pump Installation Permits*

Response:
The project team recognizes this requirement.

20. *The proposed water source(s) and projected water demands for the project, both potable and non-potable should be identified. If the project will be provided water by a local water system we recommend consultation with them to ensure the system capacity is available to supply wanted for this project.*

Response:
The preferred alternative is now to modify an existing water source versus creating a new source. The project team will continue consultation with both CWRM and DWS. The water resource report being prepared will be provided to both agencies. Although currently unavailable for the site, a proposed wastewater treatment plant is proposed onsite, which would produce R-1 water. Recycled water will be used wherever feasible.

Other:

Planning: *If the water will be provided by an existing water system, coordination is required with the Commission to determine any potential impacts that this project will have on the system's allocations.*

Response:
As previously noted, the Applicant will continue to consult with CWRM. A Preliminary Engineering and Drainage Report and information on the water system will be included in the Draft EIS and provided to CWRM for review.

Groundwater: *CWRM Comment- Impacts to ground water dependent ecosystems are becoming an emerging issue as impacts to these are related to impacts to traditional and customary practices of sustenance from these ecosystems. We recommend consultation with the region's (moku) Aha Moku Council on whether a land use conversion or project that uses water will impact any traditional and customary practices.*

Response:
We confirm that the Aha Moku Council representatives for the Wailuku, Kula and Hāmākuapoko Moku have been consulted on the project. The project is located within the Wailuku moku, but adjacent moku representatives were also notified. In addition, a Cultural Impact Assessment with Kapa'akai Analysis is being prepared and will be included and discussed in the Draft EIS.

Sincerely,

Jeffrey Ueoka
Project Attorney

cc: Kurt Wollenhaupt, *via e-mail to kurt.wollenhaupt@co.maui.hi.us*

Paul M. Ueoka
paul@wslmaui.com

Jeffrey T. Ueoka
jeff@wslmaui.com

WELLS STREET LAW

A Limited Liability Law Company

(808) 481-4210

2145 Wells Street
Suite 406
Wailuku, Hawaii 96793

USPS Mailing Address:
P.O. Box 733
Wailuku, Hawaii 96793

January 12, 2026

Via email to: dlnr.engr@hawaii.gov

State of Hawaii
Office of Planning & Sustainable Development
Engineering Division
ATTN: Dina U. Lau- Acting Chief Engineer
P.O. Box 621
Honolulu, Hawaii 96809

Re: Response to DLNR Engineering Division Comments
Proposed Urban Boundary Change-Community Plan Amendment-Zoning Change for Ho'onani Village
Location: TMK(s): (2) 3-8-006:004 0005; Kahului, Maui

Dear Acting Chief Engineer Lau,

The project team has reviewed the comments provided by the Department of Land and Natural Resources- Engineering Division, and appreciates the information and guidance related to floodplain regulations and applicable requirements.

The project team acknowledges that development within areas subject to flood hazards must comply with National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations, as well as any applicable State and County floodplain ordinances, including those that may be more restrictive.

We understand the responsibility to review applicable Flood Hazard Zone designations using FEMA Floods Insurance Rate Maps and to coordinate with the appropriate County agencies required. We note that the project is located outside of a Special Flood Hazard Area. The project is located within FEMA's FIRMette panel# 1500030411E, indicating the project is located in Flood Zone X, an area of minimal flood hazard.

Thank you for your valuable feedback and we look forward to continued coordination and communication as the project moves forward.

Sincerely,

Jeffrey Ueoka
Project Attorney

cc: Kurt Wollenhaupt, *via e-mail to kurt.wollenhaupt[redacted]co.maui.hi.us*

Paul M. Ueoka
paul@wslmaui.com

Jeffrey T. Ueoka
jeff@wslmaui.com

WELLS STREET LAW

A Limited Liability Law Company

(808) 481-4210

2145 Wells Street
Suite 406
Wailuku, Hawaii 96793

USPS Mailing Address:
P.O. Box 733
Wailuku, Hawaii 96793

January 12, 2026

Via email to: marc.takamori@co.maui.hi.us

Department of Transportation
County of Maui
ATTN: Marc I. Takamori, Director
200 South High Street
Wailuku, Hawaii 96793

Re: Response to Department of Transportation Comments
ZPA2025-00011
Proposed Ho'onani Village Mixed Use Development Project,
Location: TMK(s): (2) 3-8-006:004 0005; Kahului, Maui

Dear Director Takamori,

Thank you for the feedback regarding the Ho'onani Village project. The project team has reviewed and appreciates the comments provided by the Maui Department of Transportation. The feedback has been constructive and is acknowledged below. We value the guidance offered and remain committed to continued coordination and communication with MDOT and other relevant agencies as the project moves forward.

MDOT comment: Project site land designation as "Prime" ALISH, located out of the Urban Growth Boundaries, Policy considerations.

Response:
The project team acknowledges MDOT's comments regarding agricultural land classifications and urban growth boundary considerations. These policy matters are recognized as significant and are being evaluated through the appropriate land use entitlement and review processes associated with the proposed amendments.

MDOT comment: Existing Entitled Housing

Response:
The project team acknowledges MDOT's observations regarding existing entitled housing and the challenges associated with bringing such project to construction, while remaining committed to advancing the proposed project as a potential contribution to meeting the community's housing needs.

MDOT comment: Project Merits and Housing Contributions

Response:
The project team notes that the project's design, housing mix, and transportation features are intended to contribute to long-term community and transportation objectives. Further evaluation and refinement of these elements will continue as part of the overall planning process.

MDOT comment: Process and established order of operations for land use decision making.

Response:
The project team acknowledges MDOT's emphasis on the importance of the established regulatory framework and recognizes that environmental review and state-level processes are integral components of land use decision-making. As the project progresses through the necessary process, collaboration and communication with the proper agencies will continue to be prioritized.

Sincerely,

Jeffrey Ueoka
Project Attorney

cc: Kurt Wollenhaupt, *via e-mail to kurt.wollenhaupt[redacted]co.maui.hi.us*

Paul M. Ueoka
paul@wslmaui.com

Jeffrey T. Ueoka
jeff@wslmaui.com

WELLS STREET LAW

A Limited Liability Law Company

(808) 481-4210

2145 Wells Street
Suite 406
Wailuku, Hawaii 96793

USPS Mailing Address:
P.O. Box 733
Wailuku, Hawaii 96793

January 12, 2026

Via email to: liz.lee hisfa.org

Hawaii School Facilities Authority
ATTN: Liz Lee, Planning Officer
2759 South King Street, Room H201
Honolulu, Hawaii 96826

Re: Hawaii School Facilities Authority Agency Review
ZPA2025-00011
Ho'onani Village
Location: TMK(s): (2) 3-8-006:004-0005; Kahului, Maui

Dear Planning Office Lee,

Thank you for the opportunity to review and respond to the Hawai'i School Facilities Authority (SFA) comments dated December 23, 2025, regarding the proposed Ho'onani Village project.

The project team has reviewed and appreciates the feedback provided, including the observations related to existing school capacity, enrollment trends, and the potential timing of future residential development. The comments have been noted and will be taken into consideration as the project continues through the applicable planning and review processes.

Coordination with SFA is recognized as an important component in the process. As additional details related to housing phasing, population projections, and potential impacts to school capacity are further refined, the project team will be better positioned to evaluate these matters and provide additional information to the appropriate agencies and stakeholders.

The project team values continued communication and coordination and looks forward to ongoing collaboration as the project progresses.

Sincerely,

Jeffrey Ueoka
Project Attorney

cc: Kurt Wollenhaupt, *via e-mail to kurt.wollenhaupt co.maui.hi.us*

Paul M. Ueoka
paul@wslmaui.com

Jeffrey T. Ueoka
jeff@wslmaui.com

WELLS STREET LAW

A Limited Liability Law Company

(808) 481 4210

2145 Wells Street
Suite 406
Wailuku, Hawaii 96793

USPS Mailing Address:
P.O. Box 733
Wailuku, Hawaii 96793

January 12, 2026

Via email to: rachel.e.beasley@hawaii.gov

State of Hawaii
Office of Planning & Sustainable Development
ATTN: Rachel Beasley
P.O. Box 2359
Honolulu, Hawaii 96804

Re: Response to OPSD Comments
DTS 202511200840NA
ZPA2025-00011
Change in Zoning Community Plan Amendment Maui Island Plan Amendment
Ho'onani Village
Location: TMK(s): (2) 3-8-006:004-0005; Kahului, Maui

Dear Ms. Beasley,

Mahalo for the opportunity to review and respond to the Office of Planning and Sustainable Development's comments dated December 16, 2025.

The project team has reviewed the comments and feedback provided and appreciates OPSD's thoughtful input. Please find responses to specific sections below. As the project continues to advance, additional details will be developed, which would allow us to respond more fully to certain comments related to project design and infrastructure.

At this stage, and in the near term before the Maui Planning Commission, the focus of the application is on the proposed change in zoning. Detailed project level information will continue to be refined and addressed as the project progresses through the necessary process.

We truly value the continued communication and coordination with OPSD and look forward to ongoing collaboration as the project moves forward.

1. Conformance with State Land Use District (SLUD)

OPSD Comment:
The project site is in the SLUD Agricultural District. Pursuant to HRS 205, county zoning is to conform to SLU zoning, and therefore, the processing and decision of the DBA should occur prior

to county discretionary permitting decisions. Related to the appropriate land use for this project OPSD understands that the Maui County Planning Department is currently in the process of updating their Central Maui Community Plan. The Applicant should discuss proposed amendments to the Community Plan with the county of Maui During this update process.

Response:
The Applicant is currently pursuing a State Land Use District Boundary Amendment (DBA) from the State Land Use Commission. The Applicant seeks a change in zoning for the project site prior to completion of the DBA with the expectation that the Applicant will comply with HRS 205, and until the DBA is complete, the County is expected to enforce the appropriate statutes and ordinances and allow only the more restrictive use of land in the event of conflict. The applicant will consult with the County's Planning Department on the Wailuku-Kahului Community Plan update to ensure consistency with community plan designations.

2. Airport Proximity/ Noise

OPSD Comment:
OPSD recommends that the application includes a map showing HDOT airport constraints and noise contours in relation to the project area. Application should discuss issues likely to arise due to proximity to Kahului Airport.

Response:
The applicant acknowledges the proximity of the project site to Kahului Airport. The site identified is outside of the 65 Ldn noise contour. Similar to the FAA, HDOT expresses land use compatibility guidelines based on yearly day-night average sound levels (Ldn), due to aircraft operations. In most cases, the HDOT states maximum noise limits that are 5 decibels (dB) lower than the FAA. For example, HDOT states that residences outside of the 60LDN noise contour are compatible. Residences between 60 and 70 Ldn contours are only compatible if noise mitigations treatments are implemented.

Target levels for the interiors of residential structures is 45 dBA according to the HDOH. The L1 site recorded 63.7 dBA Ldn over the 7 day measurement period, which accounts for nighttime noise levels and well as daytime. Therefore, as detailed in the noise study, mitigation in the form of exterior glazing window and partition assemblies will be incorporated to target a minimum of 20dB noise reduction. Development of the project will conform to HDOH acceptable noise standards.

Please see the attached Kahului Airport – 2010, 2020 Estimated Noise Contour Overlay – Project Overlay.

3. Water

OPSD Comment:
The applicant states, "The proposed development will create an available water source..." and further states that "the groundwater salinity is too high for nearly all crops." The applicant should specify in the application what will be entailed for the development of a potable water source for this project. The applicant should consult with CWRM and the County of Maui on the feasibility and timeframe of the development of a new potable water source for the project. Further, the applicant may wish to consider recycled water for non-potable users.

Response:
The preferred alternative is now to modify an existing water source vs. create a new source. The project team has consulted with both CWRM and DWS. The water resource report being prepared will be provided to both agencies. Although currently unavailable for the site, a proposed waste water treatment plant is proposed onsite, which would produce R-1 water. Recycled water will be used wherever feasible.

4. Agricultural Land

OPSD Comment:
The project site land is designated "A" by the UH Land Study Bureau (LSB), which represents the highest productivity level and is designated "Prime" agricultural land by the Agricultural Lands of Importance in the State of Hawaii (ALISH). OPSD notes that this represents almost a quarter of agricultural land with soils rated "A" by the UH LSB and is designated "Prime" agricultural land by ALISH. OPSD recommends that the application note the loss of these highly rated in agricultural lands.

Response:
The project team acknowledges OPSD's comment. In addition to the discussion on loss of agricultural lands, an Agricultural Impact Report for the project is being updated and will be discussed and included in the Environmental Impact Statement (EIS).

5. Affordable Housing

OPSD comment:
OPSD recommends that the application clarify the target populations household incomes for affordable housing and consider some housing to target lower Area Median Income (AMI) housing.

Response:
All housing units are anticipated to be made available for rent to households earning up to 140% of area median income for a minimum period of 10 years. It is currently anticipated that approximately one-third of the units would be affordable to households earning 60 percent of area median income or below.

6. Transportation, Multimodal, and Walkability issues

OPSD comment:
The application should identify how the project site plan and layout will increase walkability and accommodate safe bicycle and pedestrian routes as well as connection to adjacent land uses. Consideration should also be given to activating streets for multimodal use (such as for pedestrians and bicyclists) by placement of buildings near along streets. It is unclear whether the Maui bus services will be accommodated onsite or will be readily accessible to project residents visitors.

Response:
Pedestrian and bicycle circulation will be incorporated throughout the project through on-street sidewalks and a network of multi-use paths connecting all phases of development. Coordination with MDOT regarding potential bus stop locations will continue as plans progress, along with coordination with DPW on appropriate sidewalk and bicycle path design standards.

7. Energy

OPSD comment:
The application should discuss if there will be a higher energy impact footprint due to noise impacts, which may require air-conditioning for noise mitigation and alternative forms of renewable energy to offset high energy uses.

Response:
An Air Quality and Climate Change Study prepared for the project considers energy use, including incorporation of air conditioning. The potential impacts will be discussed in the Draft EIS. Energy efficient appliances and features will be used whenever feasible.

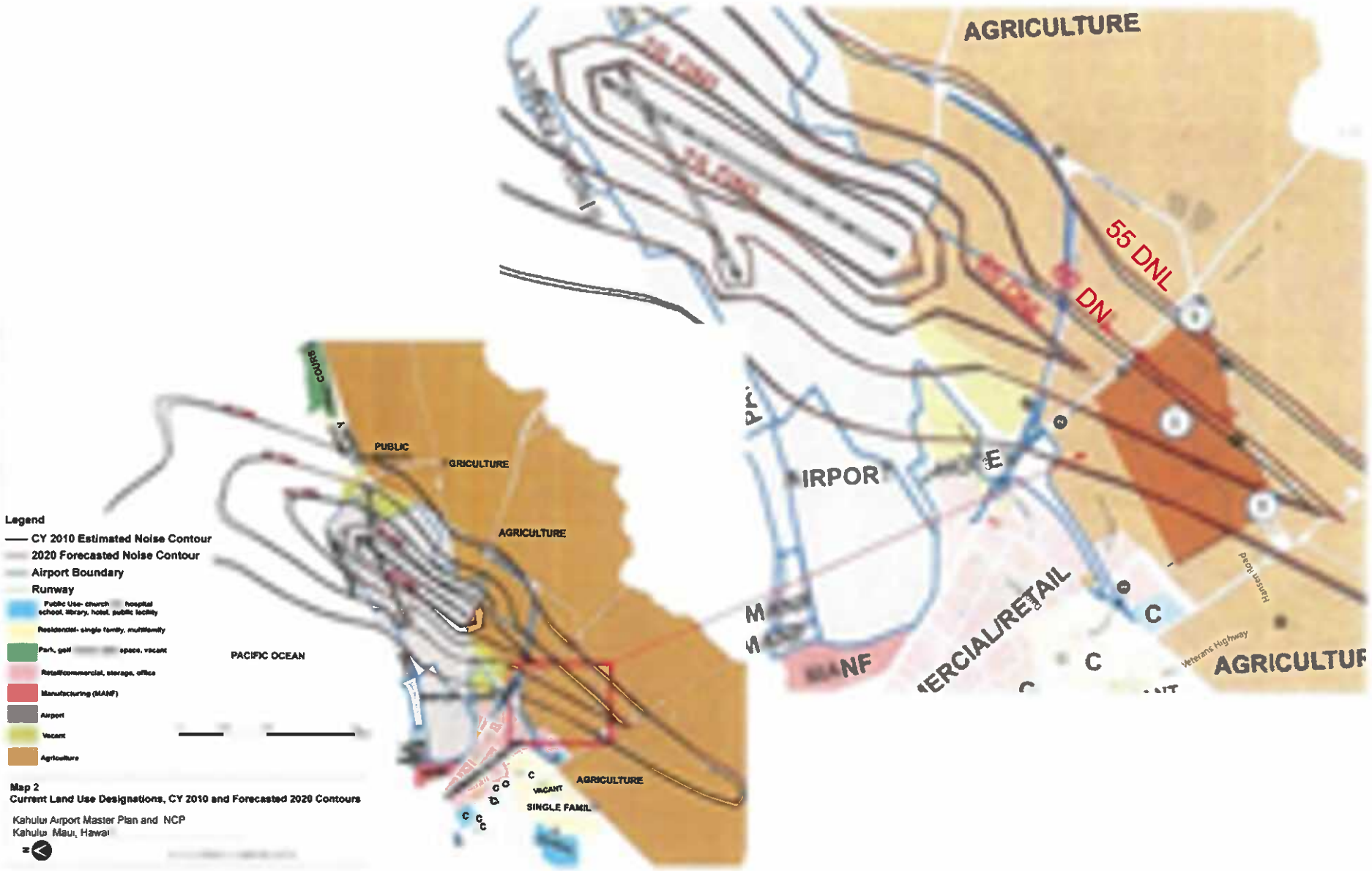
Sincerely,

Jeffrey Ueoka
Project Attorney

Encl.

cc: Kurt Wollenhaupt, *via e-mail to kurt.wollenhaupt@co.maui.hi.us*
Mary Alice Evans, *via e-mail to maryalice.evans@hawaii.gov*

Kahului Airport - 2010, 2020 Estimated Noise Contour - Project Overlay



D. L. ADAMS ASSOCIATES acoustics | performing arts | technology	PROJECT Ho'onani Village Development Project		
	PROJECT NO 24-093	DATE: April, 2025	FIGURE 6

Paul M. Ueoka
paul@wslmaui.com

Jeffrey T. Ueoka
jeff@wslmaui.com

WELLS STREET LAW

A Limited Liability Law Company

(808) 481-4210

2145 Wells Street
Suite 406
Wailuku, Hawaii 96793

USPS Mailing Address:
P.O. Box 733
Wailuku, Hawaii 96793

January 12, 2026

Via email to: blayne.h.nikaido@hawaii.gov

State of Hawaii
HDOT Statewide Transportation Planning Office
ATTN: Mr. Blayne Nikaido, Planner, Land Use Section
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Re: Response to HDOT Comments
STP 00950.25
STP 8.4013
Change in Zoning, General Plan Amendment, and District Boundary Amendment
ZPA2025-00011
Ho'onani Village
Location: TMK(s): (2) 3-8-006:004-0005; Kahului, Maui

Dear Mr. Nikaido,

Thank you for the feedback regarding the Ho'onani Village project. The project team has reviewed and appreciates the comments provided by the Hawai'i Department of Transportation. The feedback has been constructive and is acknowledged below. We value the guidance offered and remain committed to continued coordination and communication with HDOT and other relevant agencies as the project moves forward.

1. Technical Assistance Memorandum

The applicant will review the Technical Assistance Memorandum.

2. Federal Aviation Administration Grant Assurances

The applicant acknowledges the proximity of the project site to Kahului Airport. An environmental noise assessment has been prepared for the project, which will be included in the Draft EIS. The site identified is outside of the 65 Ldn noise contour. Similar to the FAA, HDOT expresses land use compatibility guidelines based on yearly day-night average sound levels (Ldn), due to aircraft operations. In most cases, the HDOT states maximum noise limits that are 5 decibels (dB) lower than the FAA. For example, HDOT states that residences outside of the 60LDN noise contour are compatible. Residences between 60 and 70 Ldn contours are only compatible if noise mitigations treatments are implemented.

Target levels for the interiors of residential structures is 45 dBA according to the HDOH. The L1 site recorded 63.7 dBA Ldn over the 7 day measurement period, which accounts for nighttime noise levels and well as daytime. Therefore, as detailed in the noise study, mitigation in the form of exterior glazing window and partition assemblies will be incorporated to target a minimum of 20dB noise reduction. Development of the project will conform to HDOH acceptable noise standards.

The project's noise study uses noise contours from 2010 and 2022. Please see the attached Kahului Airport – 2010, 2020 Estimated Noise Contour Overlay – Project Overlay.

3. ***Noise and avigation easement.***

Applicant will work with the Board of Land and Natural Resources on the grant of a noise and avigation easement.

4. ***Effects of aircraft operations.***

The applicant will ensure that future residents and users of are aware of potential single-event noise from aircraft operations, and that there is also the potential for fumes, smoke, vibrations, odors resulting from occasional flight operations over or near the project location, and that these impacts may increase or decrease over time and are dependent on airport operations.

5. ***FAA Form 7460-1/ Part 77***

Response Property owner will comply with the requirements.

6. ***Wildlife attractants***

The applicant acknowledges the importance of proper landscaping and vegetation in alignment with the FAA Advisory Circular 150 5200-33C, Hazardous Wildlife Attractants On or near airports. The Applicant confirms that the landscaping will be in compliance and there are no plans for water features, which can attract wildlife.

7. ***Solar Energy Photovoltaic***

The applicant acknowledges HDOT's comments regarding potential impacts associated with solar and photovoltaic systems, including glint, glare, and radio frequency interference. Should solar PV systems be proposed in future project plans phases the project team understands that additional FAA review may be required and will be addressed at that time.

8. ***Project Intersections***

The applicant will consult with HDOT on potential impacts.

9. Traffic Impact Analysis Report

Corrections regarding state jurisdiction over the Maui Veterans Highway have been forwarded to the project traffic consultant for revisions.

10. *Recommended conditions of approval.*

All housing units are anticipated to be made available for rent to households earning up to 140% of area median income for a minimum period of 10 years. It is currently anticipated that approximately one-third of the units would be affordable to households earning 60 percent of area median income or below. The applicant respectfully requests the exclusion of recommendations a and b, as requiring unknown and onerous traffic contributions will have a negative impact on this much needed housing project.

11. Carbon emission reduction strategies.

The applicant acknowledges HDOT's encouragement to incorporate strategies that reduce carbon emissions. The TIAR will include discussion of multi-modal strategies for potential implementation. Opportunities to support energy- efficient technologies, and sustainable practices may be evaluated as project design advances and implementation details are further refined.

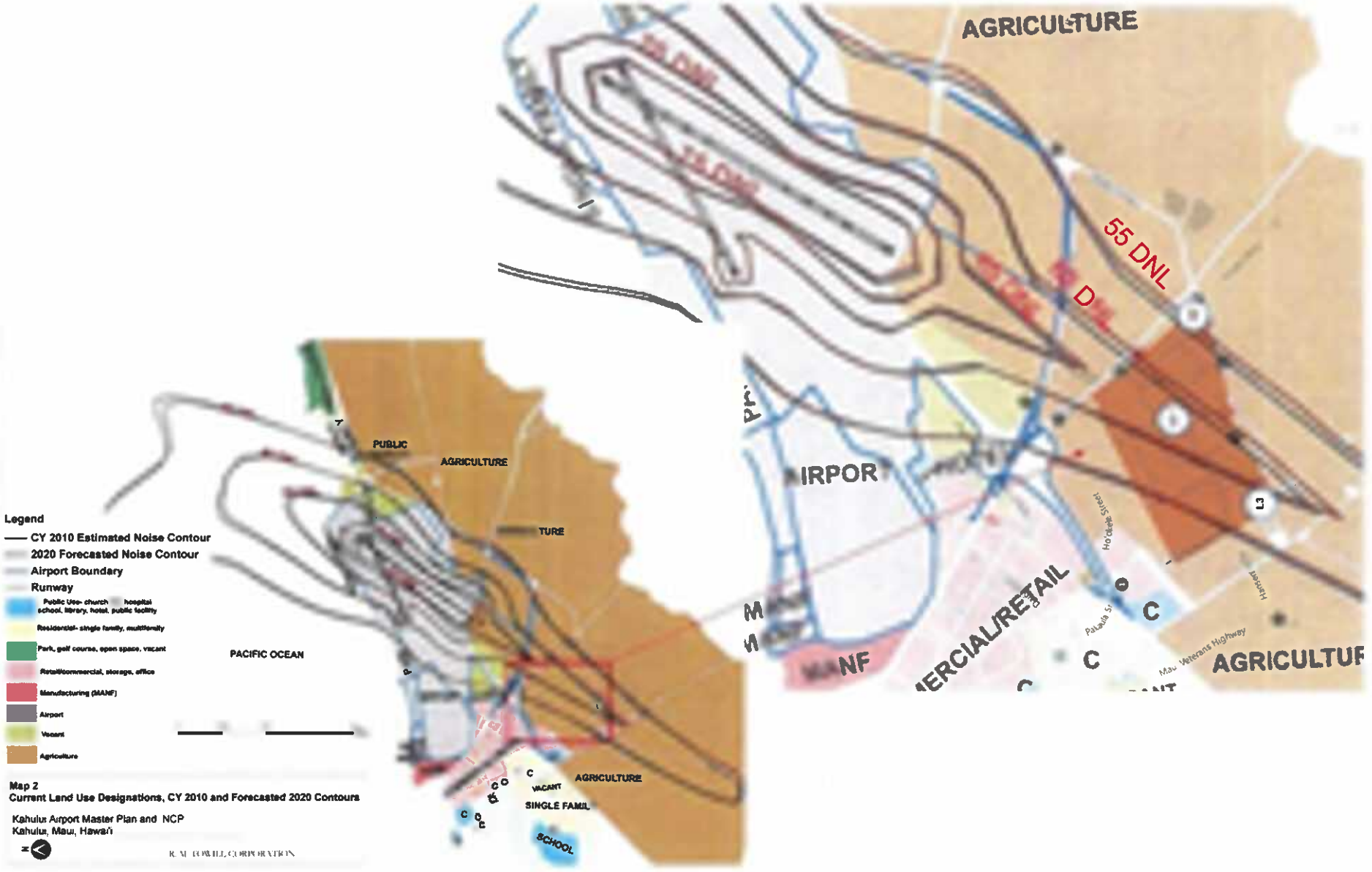
Sincerely,

Jeffrey Ueoka
Project Attorney

Encl.

cc: Kurt Wollenhaupt, *via e-mail to kurt.wollenhaupt@co.maui.hi.us*

Kahului Airport - 2010, 2020 Estimated Noise Contour - Project Overlay



D. L. ADAMS ASSOCIATES acoustics | performing arts | technology	PROJECT Ho'onani Village Development Project		
	PROJECT NO: 24-093	DATE April, 2025	FIGURE: 6

RICHARD T. BISSEN, JR.
Mayor

KATE L. K. BLYSTONE
Director

ANA LILLIS
Deputy Director

DEPARTMENT OF PLANNING
COUNTY OF MAUI
ONE MAIN PLAZA
2200 MAIN STREET, SUITE 315
WAILUKU, MAUI, HAWAIʻI 96793

December 30, 2025

Honorable Richard T. Bissen Jr.
Mayor, County of Maui
200 South High Street
Wailuku, Hawaiʻi 96793

For Transmittal to:

Honorable Tamara Paltin, Chair
Disaster Recovery, International Affairs, and Planning Committee
200 South High Street
Wailuku, Hawaiʻi 96793

Dear Chair Paltin:

SUBJECT: BILL 163 (2025), BILL 164 (2025), AND BILL 165 (2025), TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PULEHU ROAD), AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION, AND CHANGE THE ZONING FOR 166.511 ACRES SITUATED AT KAHULUI, HAWAIʻI (HOʻONANI VILLAGE) (DRIP-19)

Thank you for your December 26, 2025, letter regarding Bills 163, 164, and 165 (2025). The Department of Planning (Department) is sending a copy of your December 26, 2025, correspondence to the Maui Planning Commission as a part of the Commission's consideration of Hoʻonani Village at its January 13, 2026, meeting, per your request. Additionally, attached with this letter are numbered Land Zoning Map L-216 and Community Plan Map CP-436.

Thank you for the opportunity to provide our responses. Should you have any questions, please feel free to contact me.

Sincerely,

for: KATE L. K. BLYSTONE
Director

Attachments: Land Zoning Map L-216 and Community Plan Map CP-436
cc: Ana Lillis, Deputy Director (pdf)
Danny A. Dias, Planning Program Administrator (pdf)
Kurt Wollenhaupt, Planner (pdf)
KLKB:KFW:km
K:\WP_DOCS\Planning\ZPA\2025\00011_HoonaniVillage\Jan 13 2026 - MPC Meeting Staff Report and Exhibits\Addendum Received After Report\Response to Council Questions.pdf

Council Chair
Alice L. Lee

Vice-Chair
Yuki Lei K. Sugimura

Councilmembers
Tom Cook
Gabe Johnson
Tamara Paltin
Keani N.W. Rawlins-Fernandez
Shane M. Sinenci
Nohelani U'u-Hodgins

COUNTY COUNCIL
COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.MauiCounty.us

Director of Council Services
David M. Raatz, Jr., Esq.

Deputy Director of Council Services
Richelle K. Kawasaki, Esq.

December 26, 2025

Ms. Kate Blystone, Director
Department of Planning
County of Maui
Wailuku, Hawaii 96793

Dear Ms. Blystone:

SUBJECT: **BILL 163 (2025), BILL 164 (2025), AND BILL 165 (2025), TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PULEHU ROAD), AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION, AND CHANGE THE ZONING FOR 166.511 ACRES SITUATED AT KAHULUI, HAWAI'I (HO'ONANI VILLAGE)** (DRIP-19)

As a follow-up to my correspondence dated December 22, 2025, the Council's Disaster Recovery, International Affairs, and Planning Committee is in receipt of a proposed Land Zoning map from the landowner's representative.

As mentioned previously, the landowner is still requesting a Change in Zoning under Bill 165 (2025) from Agricultural District to M-1 Light Industrial District for the entire 166.511 acres.

May I please request you provide a copy of this correspondence to the Maui Planning Commission as a part of its consideration at the scheduled public hearing on January 3, 2026.

May I further request you insert a map number, if appropriate, and return the numbered Land Zoning map to drip.committee@mauicounty.us.

Should you have any questions, please contact me or the Committee staff (Jarret Pascual at ext. 7141, or Yvette Bouthillier at ext. 7758).

Sincerely,

Tamara A.M. Paltin

TAMARA PALTIN, Chair
Disaster Recovery, International Affairs,
and Planning Committee

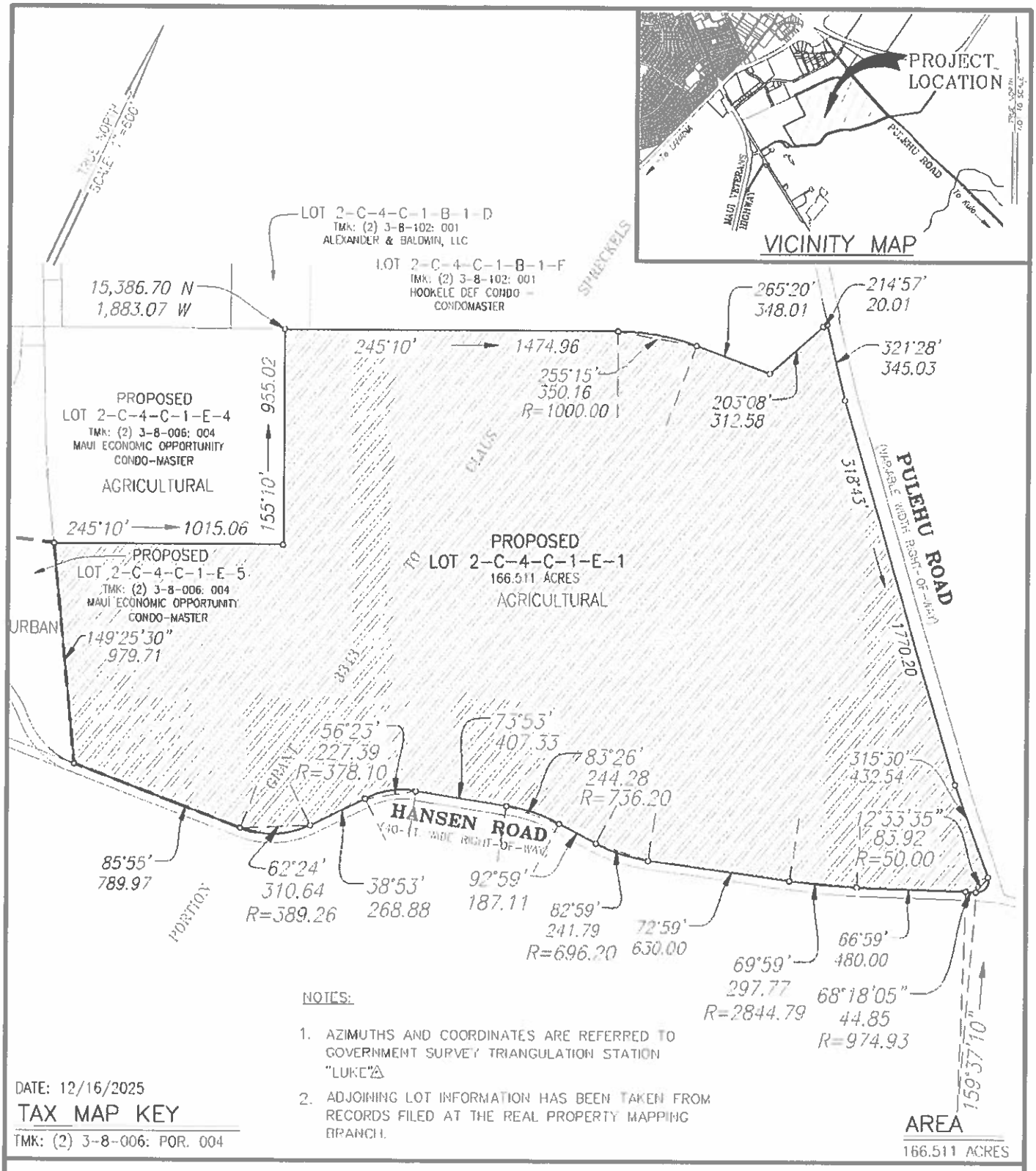
drip:ltr:019apl04:jpp

Attachment

cc: Mayor Richard T. Bissen, Jr.

LAND ZONING MAP NO. L-

CHANGE IN ZONING - PUUNENE, MAUI, HAWAII
FROM AGRICULTURAL DISTRICT TO M-1 LIGHT INDUSTRIAL DISTRICT

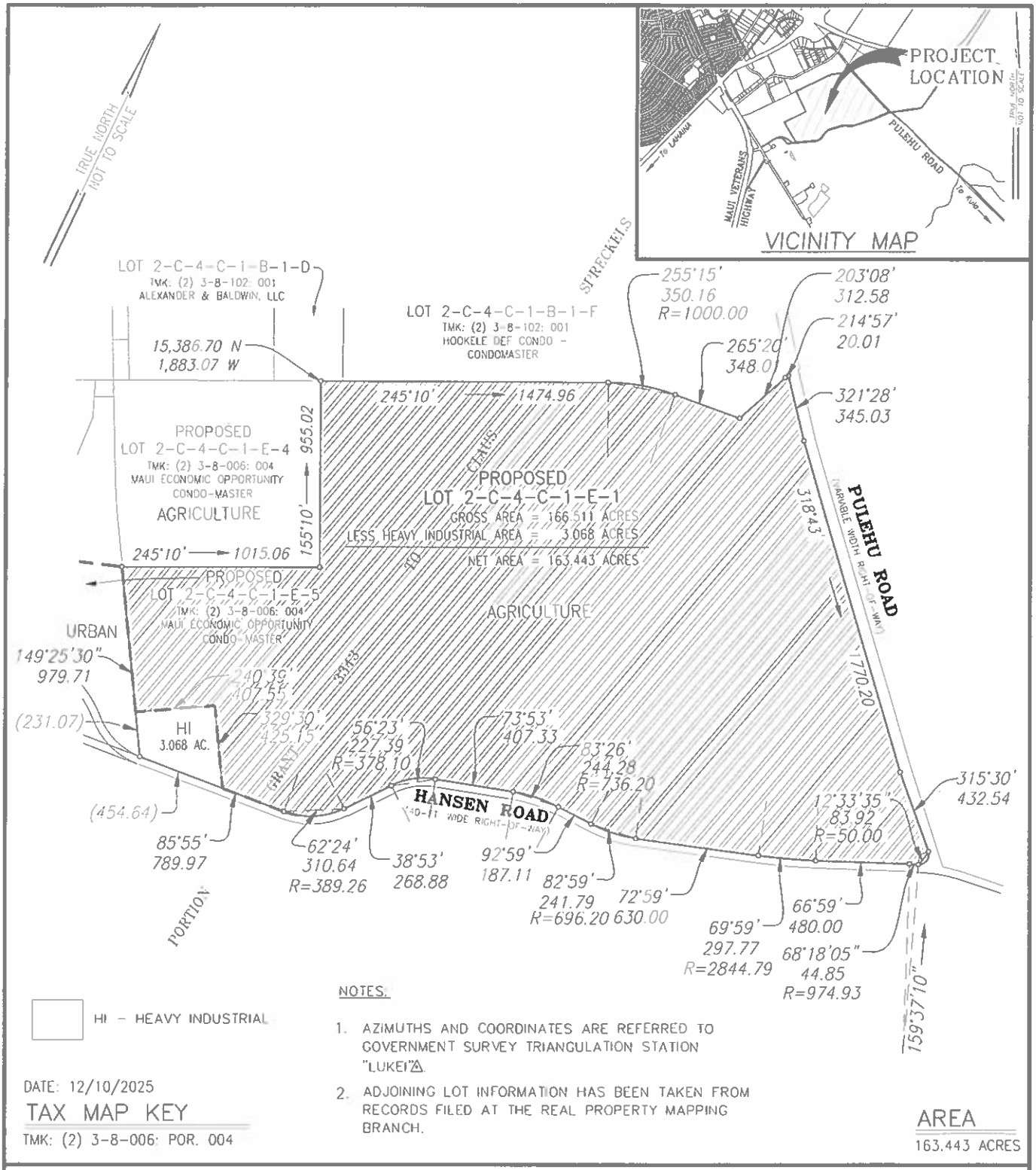


LAND ZONING MAP NO. L- 216

CHANGE IN ZONING - PUUNENE, MAUI, HAWAII

FROM AGRICULTURAL DISTRICT TO M-1 LIGHT INDUSTRIAL DISTRICT

EXHIBIT "_"



COMMUNITY PLAN MAP NO. CP-436

COMMUNITY PLAN AMENDMENT - PUUNENE, MAUI, HAWAII
FROM AGRICULTURE TO BUSINESS/MULTI-FAMILY

EXHIBIT "_"

Testimony for 13-January-2026
MAUI PLANNING COMMISSION

To: Director Blystone, Chair Kim Thayer and all Commissioners

From: Dick Mayer DICKMAYER@EARTHLINK.NET

Re: **Ho'onani Village proposals for land redesignations**

Aloha Director Kate Blystone and Maui Planning Commissioners,

I would like to congratulate the Planning Department for putting together a superb staff report covering many of the important issues that you will need to be aware of.

The request that you defer this matter is very well taken and they provide much good evidence for the reasons why the Maui Planning Commission should defer any decision making at this time. I would also assume that the lack of important information is reason enough for the Maui Planning Commission to not even use their valuable time to discuss this issue at this time.

For further information on this application, I am **ATTACHING my comments** to the applicant who is now preparing an environmental impact statement. Like the department's staff report, my comments cover many issues that the EIS must consider.

TO: Applicant: Ho‘onani Development LLC
Mr. Greg Sado **greg@alphahawaii.com** **January 5, 2026**

TO: Accepting Authority: State of Hawai‘i Land Use Commission
Ms. Martina Segura, Staff Planner **dbedt.luc.web@hawaii.gov**

TO: Consultant: Pioneer Design Group, Hawai‘i, LLC
Ms. Emily Murai and TC Campbell, P.E. **emurai@pdg-hawaii.com**

TO: Maui Planning Director
Ms. Kate Blystone **kate.blystone@mauicounty.gov**

FROM: Prof. Richard “Dick” Mayer **dickmayer@earthlink.net**

RE: Ho‘onani Village Mixed-Use Development - EIS Preparation Notice

Introduction

I very much appreciate having the opportunity to provide you with information regarding the Ho‘onani Village Environmental Impact Statements Preparation Notice (EISPN), and for allowing me to make recommendations on the potential environmental impacts that will need to be discussed in detail in the Ho’onani Village project Draft-EIS.

It is commendable that you wish to establish a housing project for 1,608 households in the Central Maui area. These houses, and in particular your effort to make many of the rental units available to low-income families, are exactly what Maui needs.

However, **the chosen location for these houses is terrible for one very significant reason. The 1,608 housing units lie directly under the flight path of planes landing at Kahului Airport**. The aircraft fly only 200 feet above the houses. Even worse, about 10% to 20% of the time (during Kona weather) those houses would be under the even noisier, take-off flight path from the airport. Each of us should ask: a) Would we like to live there? and b) Is it responsible and morally appropriate for us to place 1,608 households in that location?

We must constantly keep in mind that although we desperately need more affordable housing, it must be done correctly for the project’s new residents and it must be done in the right location. Are there better alternative sites?

We must keep in mind that this Ho’onani property will have **1,608 residential units and approximately 5,000 residents,** plus many industrial, commercial and office facilities on the property. This is large and complex project will have many impacts.

There are numerous matters that will need to be discussed for both potential impacts and the necessary **mitigation measures** to make life not just acceptable, but enjoyable for the residents who live there, for the businesses that operate there, and for the customers who will come to the stores and offices.

We need to make sure that the housing units meet the needs of the future residents. The project’s Draft-Environmental Impact Statement should provide details on the **types of housing**. To determine potential impacts, we will need to know: building heights; number of floors in each building; solar roofs which could provide cheap electricity, but also interfere (glare) with airplane landings; will there be elevators in every multi-story building; provision for disabled/handicapped; laundry facilities; adequate size of residential units (especially the affordable rentals); square footage; number of bedrooms; parking spaces (one or two cars per unit) for every unit; parking for visitors; parking for adjacent businesses and offices; etc.

Affordable vs. Market Priced Homes

The **sequencing of the affordable homes** in relationship to the market units. Which will come first. How will **future residents be selected** to move into the units? Who will have priority? Who will get the opportunity to purchase and who will get the opportunity to rent? How will local Maui residents who are in need of housing be given preference? All of these matters will need to be discussed to avoid future problems when the units are constructed.

Kahului Airport Operations and its Flight Path

When the present Maui Island Plan was developed and reviewed by the General Plan Advisory Committee, the Maui Planning Commission, and the Maui County Council, it was decided to exclude the lands where this project is located from being placed within the Urban Growth Boundary because it was directly under the low-level flight path leading into Kahului Airport. Maui General Plan's Maui Island Plan intentionally excluded this property from being within the Urban growth Boundary.

I was the Vice-Chair of the Maui Island General Plan Advisory Committee, and can certify that the preceding statement is the rationale for NOT including the project's site within the Urban Growth Boundary. Nothing has happened to make a change towards inclusion within the UGB.

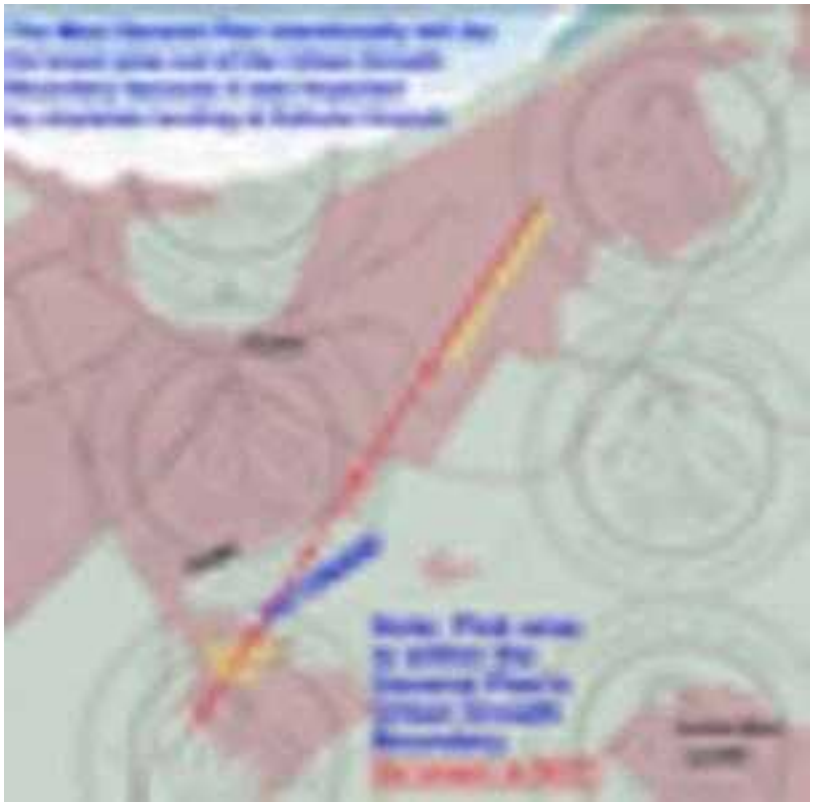


Figure 1. Showing the Maui Island Plan's Urban Growth Boundary's effort to exclude the Hoʻonani site from urban development because of potential noise disturbances.

Figure 2 The most recent 1992 Noise Level study (compiled for the Dept of Transportation-Airports) concerning noise levels around Kahului Airport. The noise levels today would be much higher, especially at night when residents would want to be sleeping.

Since the Maui Island Plan was developed, the situation has only gotten worse for this land parcel. When the Maui Island Plan was approved there was only one late night flight. Now there are many more passenger flights from the mainland USA and Canada coming into Kahului Airport between 9pm and mid-night. And from midnight to 6am, there are several freight flights being operated by Amazon, Aloha Airlines freight, FedEx, etc. These flights could be very sleep disturbing.

The Draft-EIS must make a major effort to address the project’s proximity to Kahului Airport and the **low-level landing flight path** leading into the airport and the considerable noise resulting from planes passing directly over the proposed residential housing units. Planes land at Kahului Airport and even mor noisily take off during Kona weather. (Please see the attached map that shows the flight path directly over the proposed project.) These night operations could be a major noise nuisance and make sleep and life in the Ho‘onani Village unbearable.

With the same level of detail that is included in a traffic TIAR, the Draft-EIS must include full disclosure of the number of daily flights during each hour of the day and night. Special disclosure should be included for the night-time period between 8pm and 7am each day, because children and working people will need a good sleeping environment free of disturbing noise.

The Draft-EIS should contain an impartial noise study by the Hawaii Department of Transportation’s Airports Division and a certification by the Airport management that the project will not interfere with present and future airport operations and plans.

Figure 3 The usual flight path would impact virtually all of the Hoʻonani Village residential units multiple times each night.

INFRASTRUCTRE IMPACTS

Education

One of the important impacts of this project will be the large number of young children who will be living in the 1,608 housing units. There will probably be approximately 400 to 600 children of school age. Unfortunately, this project is located far from any school and there will be a need to transport all the children to elementary, middle and high schools. Please include within the Draft-EIS a comprehensive report written by the Department of Education on how school enrollments will be handled with such a large influx of new students in a concentrated area. Do not make the assumption that the children will be merely moving from one part of Kahului into this project area. Many of the students will be coming from other parts of Maui.

Health Care

Hoʻonani Village will be a very large project and there will be a considerable need for health-care for the many residents and workers on the project site. Please include a health clinic or urgent-care clinic in the plans and if none is to be provided, indicate how disabled and handicapped people will be provided their needed healthcare.

Parks and Recreation

One of the biggest impacts will be the total lack of parks and recreation facilities in proximity to the Hoʻonani Village project. There will be a need to provide these facilities for the many children, adults, and the elderly. The project is located too far and across too many busy highways to expect that children will go to recreational facilities and parks in the existing Kahului and Maui Lani area.

Wastewater

The wastewater treatment plant at Kahului Harbor is probably close to capacity and there will be a need to provide a wastewater treatment plant for this large housing, industrial, and commercial project. Indicate where the wastewater treatment plant will be located, its impacts, and how will the wastewater and filtered waste will be disposed of.

Water Quality and Water Quantity

The EIS Prep Notice indicates the use of a well up above the project. On Pulehu Road. Please include in the Draft-EIS detailed data on the expected quantities of water that will be obtained and quality of the water. This is particularly important because for over 100 years the land above the well site has had considerable amounts of fertilizer, pesticides, and herbicides placed on the agricultural land. It is absolutely critical to have a reliable water source that will not depend on the Maui County Department of Water Supply. Past studies have shown that water from the lands under the former sugar plantation had excessive amounts of nitrates and nitrites due to the heavy fertilization practice by HC&S. What are the pollution levels? How will the fertilizer, pesticides, and herbicides that are found in the well water be mitigated?

If the well is already drilled and tested, provide the water quality results. If a well has not yet been drilled, the Draft EIS acceptance should await the results from a test of the well water. Clearly indicate the quality of water available for this project.

Maui Landfill A major consideration should be the fact that this proposed well is located close to and immediately below the very large Central Maui landfill site. It will be very important to examine any effects and impacts of the landfill on the proposed potable water source.

In addition to portable water, there will be extensive need for non-portable water for both landscaping and the numerous industrial uses. The Draft-EIS should indicate the water source and water amounts for these non-residential activities.

Traffic

The maps provided in the Preparation Notice indicate that there would be only two exits from the project: onto Hansen Road and on to Pulehu Road. The TIAR for the proposed project should very carefully examine the traffic on both of these roads, in particular, the traffic on Hansen Road, which includes not only the major link between East Maui and South Maui, but also the route used by the County's solid-waste trucks on their way to/from the landfill.

Because this project is very large, there should be an internal study of the traffic patterns within the project site itself. That would include sidewalks, street lights, traffic signage, parking, fire and emergency vehicles, etc. That would make it possible for the many residents to feel comfortable and safe walking as pedestrians within the project.

Post-construction Management of this project

A significant socio-economic impact of this project will be the need to maintain the property, provide security, collect rents, and the usual services provided by a Homeowner Association. The draft environmental impact statement should clearly indicate how this project will be managed after it is constructed and in operation. Will there be a homeowner association? Management by the construction company? Management by the developer of this project?

What will be the ability of the owners of property and the renters to make decisions about maintenance, security rental charges? The need to clarify this matter at an early stage is increased by the fact that the landowner of this project site is in South Dakota, far distant from the people who will be occupying and utilizing the project.

Impacts on Government

There has been just some discussion that the County and or the state may provide funding to make infrastructure improvements. It is absolutely essential that the Draft-EIS make it very clear what the expectations are for Maui County to provide personnel, facilities and a budget allocation for this project. What would be the impact on Maui County's operations? For example, Who will widen Hansen Road to the needed 4 lanes? The developer or the government?

The same issues need to be clarified for the State of Hawaii government. What will be the impacts of this project on the state's Budget, keeping in mind that the State provides educational services, transportation facilities, etc.

Alternatives to this project

After compiling information on the various impacts and the costs of mitigation, there may be a realization that this project will have too many significant impacts that cannot be mitigated. It may become necessary to look at alternatives locations to fill the housing needs of Central Maui. In fact, it may become obvious that there are far better sites to provide the needed residential units, leaving this site available for the planned NON-residential, commercial, industrial, and office uses. These uses and activities would be less affected by night noise from low-flying planes, and have no need for educational, school bus, park or recreational facilities.

Fortunately, there are several other land parcels that may be available for these 1,608 homes in better locations and not under the noisy flight path. When discussing alternatives to this proposal, please consider the following potentially available housing sites to meet the needs of Maui's affordable housing and market housing demands.

I strongly urge you to consider them as alternatives for this well-intentioned, but mis-located project. These recommended locations are all within the Urban Growth Boundary and already have multiple land-use and zoning entitlements, thus allowing development to happen much sooner.

Instead of the County providing expensive infrastructure improvements to Ho'onani Village, the funds could provide incentives to accelerate these alternatives. Property tax waivers/credits may be helpful to accelerate these projects that are near existing and adequate infrastructure. Here are 5 alternatives that should be considered.

#1 **Kahului** The proposed **apartments across from Sears store** and the Maui Beach hotel could be incentivized.

#2 **Kahului** The many housing units planned on the recently approved **Kaahumanu Shopping Center site**. These units have multiple entitlements and could be built quite soon.

#3 **Kahului** Create a housing project on the large almost vacant block where the **Old Kahului Shopping Center** was located.

#4 **Waikapu** The County owns **440 acres of land just makai of the soon-to-be-built Waiale Road Extension in Waikapu**. These lands would be adjacent to the already entitled Waikapu Country Town and its village center. This site may also be able to use water from the existing Waikapu wells, and the land is within the Urban Growth Boundary.

Figure 4 The Maui County owned lands in Waikapu that could provide the needed housing.

It would also have a significant advantage of being in close proximity to the new Waikapu Country Town's two proposed public schools, a primary and middle school with attached recreational areas. Unfortunately, the Ho'onani Village presently being proposed site is extremely far from both schools and from any recreational/park and ball-field areas. These are important considerations for a project with 1,608 household with many children,

#5 **Maui Lani** Here is a possible alternative site with many locational advantages. It may be a preferred location for these much-needed 1,608 units. It is in Maui Lani, near the former Dunes Restaurant and the golf course. The land is already designated and **fully entitled for residential housing**, unlike the proposed Ho'onani Village project location, which will need a State Land Use change, a Maui Island Plan Urban Growth Boundary revision, plus community plan and zoning changes.

It has an area of approximately 192 acres and is close to both schools and the large Central Maui playground area. It has good transportation access to both Wailuku and Kahului. It would complete the original Maui Lani Master Plan. Furthermore, the landowner recently (2021) tried to sell this land.

When these properties were assessed by the county's Real Property Tax division, the land owner appealed and said that the lands were worth less than they were being assessed. Therefore, a developer could make a good case to purchase these lands at a fair market price.

This area is outside of the airport flight path. The presently proposed Ho'onani village lands could be better utilized for future business, commercial, and industrial uses that would be less impacted by the nighttime flights in and out of Kahului Airport.

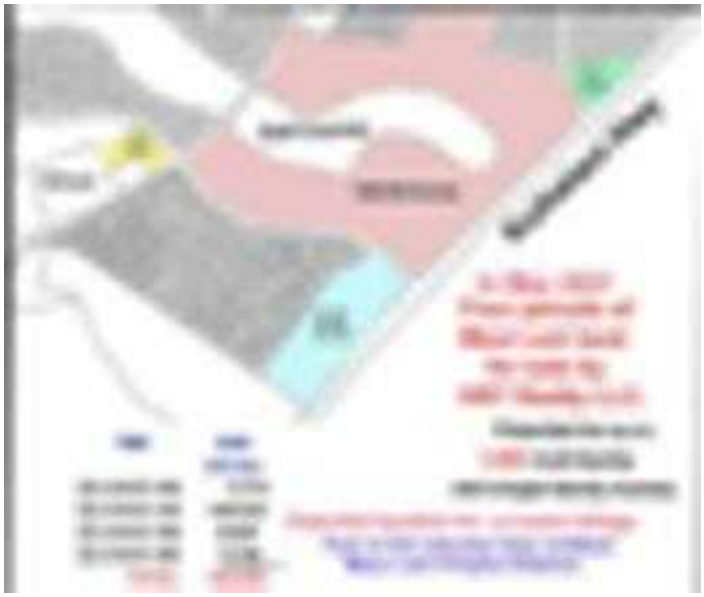


Figure 5 Possible alternative land site for much-needed Central Maui housing. Fully entitled for a large residential development with proximity to infrastructure (roads, schools, transportation, etc.)

January 13, 2026

Aloha Chair Thayer, VC Lindsey, and esteemed Commissioners,

As the introducer of this Resolution 25-132, this project has my full support. As a Councilmember and, more importantly, a member of this community, I understand Maui's housing crisis firsthand. The 45-page docket prepared by the Planning Department showed not only a disregard to this project as a microcosm, but for our housing crisis as a macrocosm. As a County Government we need to have more skin in the game to help solve our housing crisis. Creating an effective, more streamlined process for projects to go through the entitlement process does not require funding but creative thinking and a willingness to be proactive. A more streamline process will also help reduce the overall cost of housing for our residents during time of purchase or rent.

The report planning prepared requires more background, clarification, corrections, and questions that I have prepared below.

1. For a typical project that requires a zoning change requires a change in the Maui Island Plan, Community Plan amendment, District Boundary amendment then come back to the County for a Change in zoning. This process usually takes at least 12-18 months for the Change to the Island Plan and District Boundary amendment, another 12-18 months for the CIZ. Also, the DBA requires an EA/EIS which should take roughly 18-24 months. This entitlement process takes, at best, five years. Before this resolution was posted we worked with Mr. Dias, of the Planning Department, and Mr. Nunokawa, of Corporation Counsel, to make the CIZ process more efficient. Where instead of the ping-pong back and forth between the County and the State, it would be reviewed by the County and placed on a conditional zoning with a timeline for LUC approval, or the zoning would be reversed via resolution back to its original zoning. This was all discussed with Administration; the Director of Planning was not blindsided. Currently, Hawaii island has a similar process as described.
2. This is not an "applicant initiated", "developer initiated", or "property owner initiated" change in zoning, this is a Council initiated change in zoning request. There are three ways to achieve a CIZ per Maui County Charter- 1. Director initiated change in zoning, Council initiated change in zoning (both of which are held to the same standards) and applicant-initiated change in zoning, which the requirements are listed on pages 3-4. Planning Commission has received 3 Council initiated CIZ, two of which failed to be acted on by MPC and was

approved by Council. While this is a larger project than the other two, it is not the first.

3. Maui County Chater, page 28, section 8-8.6 states, “Any revision of the general plan, zoning ordinance, or other land use ordinance may be proposed by the Council and shall be reviewed by the appropriate planning commission *as if prepared by the planning director*. Any such revision shall be referred to the appropriate planning commission by resolution.”
4. Page 4, second to the last paragraph states, “council-initiated amendment does require a public hearing before the Planning Commission, because there is no associated application, there is no directed requirements to have the proposal reviewed by other State or County agencies.” Please note that the Planning Department has failed to create such an application process nor is this is mandated Charter process.
5. Page 5, paragraph 2- A Council-initiated change in zoning is a “normal process” recognized by the Maui County Charter. The constant comparison between an applicant-initiated change in zoning and a Director/Council initiated change in zoning is unnecessary. The Director of Planning has the same authority to request a change in zoning as Council.
6. Page 5, second to the last paragraph, states, “the Charter *implies* that the Planning commission shall provide comments and recommendations to the Council within 120 days of receipt of the resolution, which in this case would’ve been by October 14, 2025.” The Charter does not imply, it states that there is a 120-day deadline. The Department failed to send the resolution to MPC, and by default MPC failed to act.
7. Same paragraph also states, “the property owner had not submitted any permit applications or materials associated with the proposed project.” Again, there is no permit application requirement for a Council initiated change in zoning that the applicant must do. Indeed, the Charter places that responsibility on the Director to obtain any relevant information. The Department failed to communicate with me or the property owner requesting any information, details, reports, etc. Nonetheless, there were meets and bounds and maps provided with the resolution.
8. Page 7, second to the last paragraph to the end requires some clarification. The Planning Department abdicated their authority to be the accepting authority for the EIS and requested that the LUC be the entity. The sentence reads, “It should be noted that because the community plan amendment … was initiated by Maui County Council, the State of Hawaii Land Use Commission (LUC) has been deemed the accepting authority of the EIS.” This is an untrue statement. Maui

Planning Department could have been the accepting authority but chose not to. For more detail, because there is a future use of a wastewater treatment plant this allowed the LUC to be considered as an accepting authority.

9. Page 8, under Procedural Matters, there should be an added line regarding the 120 day deadline being missed on October 14, 2025. Furthermore, paragraph 3, states, "Corporation Counsel advised the DRIP Committee that the Resolution *must* be considered by the Planning Commission." This is untrue, the Corp Counsel suggested that the MPC *should*, not must, review the resolution. If this was the case, we would not have been able to vote on the other CIZ's that the MPC did not have an opportunity to view.
10. Page 14, 15 and 19- Urban Growth Area is mentioned several times- "project should be considered only after an analysis of the existing Urban Growth Area has been completed", "project may be more appropriate after ensuring that there are no further development opportunities within the currently mapped Urban Growth Boundary", "infill development opportunities within the growth boundaries should be exhausted prior to pursuing this project", "expanded urban boundaries should go through a rigorous and transparent evaluation process and should only occur after infill and redevelopment of underutilized urban lots within Urban Growth Boundaries." If the Planning Department is going to use the Urban Growth Boundary as reason to disapprove housing- it should not be an outdated unit of measure. The Urban Growth Area was decided in the Wailuku-Kahului Community Plans in 2002, the plan is supposed to be updated every 10 years. The plan should've been updated in 2012, this current plan is 14 years expired. There is hope that the new Wailuku-Kahului plan will be done in a few more years. This would be the community plan would be at best, nearly 20 years outdated. Why are we holding our community and housing hostage to outdated standards? How long should we wait for housing? The community plans are the Planning Departments responsibility to maintain. Furthermore, what is the Planning Department (or even Housing Department) doing regarding the existing spaces in the Urban Growth Boundary? Do we have a list of areas that are ripe for housing? Are we soliciting housing providers to work with us to provide housing for the community? This is an unrealistic redirect of focus while continuing to avoid the housing crisis and our responsibility to assist in providing necessary housing solutions.
11. Sections of pages 20 and 21 respectively state, "For the Wailuku-Kahului Community Plan Area, the 2014 report estimates net demand to 2035 is 10,272 units for residential, or 11,320 for resident + non-resident. Potential new supply is 11,642 units which results in a surplus of 1,370 units for resident demand, or 321

resident + non-resident." "If the average household size and vacancy rate for Ventral Maui remain constant over the 20-year period, the baseline forecast population growth would translate to a need for about 20,135 housing units by 2043… This represents an increase of roughly 695 units relative to the existing housing unit count." These two pages of text and especially these two statements undermine the severity of our housing crisis and the required work to significantly reduce the housing shortage and the allow retention of the local community and address the diaspora of our people. These pages do not address the wildfires of 2023 where the rest of Maui and Hawaii absorbed the Lahaina residents with welcoming arms for them to remain home. We lost a significant portion of our housing stock on this island in one night. These pages fail to recognize the underdevelopment of other areas of Maui, where Central and South Maui has been making slight progress to combat the housing crisis- the people of upcountry have been readjusting our perception of home ownership and renting by calling Central or South Maui home as we have limited access to water and infrastructure.

12. Page 23- out of the 45 pages of the docket there is one paragraph dedicated to housing for this housing project. The staff comment says, "The proposed project is partly consistent with Policies 2 and 3 in that it proposes land areas for new residential growth; however, it may need some modifications to maintain important agricultural lands and achieve efficient growth patterns such as infill." As a reminder, Puunene is not "new' growth. It might be new to some - but that it is our history. My grandmother was the third generation Japanese to live in Hospital Camp in Puunene. Sam Sato's, a local-food staple originated in Puunene. Iconic swimming coach Soichi Sakamoto taught children how to swim in the ditches of Puunene, creating national and Olympic champions. Why is the agricultural aspect and value of Puunene held in perpetuity but not its residential value?
13. Page 24 and page 40 discuss the proximity to of the proposed housing site to the airport. "Residential uses should be discouraged." "Puunene is now utilized for heavy industrial which is compatible with high noise levels." No one disagrees that noise mitigation will be required. The housing provider will do what is necessary for the life and comfort level of the hopeful future residents. However, what must be noted is that Puunene was plantation camps. The residential use of the use of that area predates the airport. A quick google search will state that OGG was in full swing in 1952. Flight patterns are determined by the wind pattern, but regardless planes fly over the multimillion-dollar homes of Spreckelsville.

14. Page 43 compares agricultural use and residential use. The proposed location is currently fallow and has been for quite some time. However, Puunene's agricultural use and residential use existed hand-in-hand. This potential zoning changes represents .023% of "high quality" ag land on Maui.
15. Page 45 states, "until the Final EIS is accepted, and the island-wide inventory of existing land uses is updated and indicates that additional urban density land is necessary to provide for the needs of the projected population growth." Who is doing an "island-wide inventory"? Planning? If so, can we have an update. How long should we wait or are we setting unrealistic goals for someone else to achieve to provide housing? This is why we have a housing crisis.
16. Lastly, page 46 states, "authorize the Planning Director to transmit said Report and Recommendation to the Maui County Council." Please don't send this back to us riddled with purposeful inaccuracies that codifies a careless approach to our housing crisis.

Mahalo for your time and consideration to address our housing crisis.

Aloha,

Nohelani Uu-Hodgins

Aloha Councilmembers,

My name is Scott Phillips, and I am a longtime resident of Maui. I respectfully submit this testimony in support of Hoʻonani Village and Bills 163, 164, and 165.

Maui is experiencing a severe housing shortage that continues to impact local families and essential workers. Too many residents who contribute to our community are being forced to leave the island because they cannot find housing they can afford. Quality workforce housing is critical to ensuring that Maui remains a place where local families can live, work, and build a future.

Hoʻonani Village offers a thoughtful, community-centered solution for Central Maui. The project provides attainable housing for local residents, creates jobs, and includes important infrastructure improvements that benefit the wider community. Developments like this are essential if we are serious about addressing the housing crisis and keeping Maui's people on Maui.

I urge the Council to support Hoʻonani Village and the associated bills as a meaningful step toward addressing Maui's housing needs and strengthening our community.

Mahalo for your time and consideration.

Respectfully submitted,

Scott Phillips
Phillips Household

To the Maui Planning Department,

Aloha. I previously submitted written and oral testimony to the Maui Planning Commission on multiple agenda items, including Hoʻonani Village, agricultural accessory uses, and accessory dwelling standards. I submit this follow-up to ensure that the full set of planning, process, and land-economics issues raised across those items is clearly and accurately reflected in the administrative record.

This submission is not intended to question motives or personal integrity. It is intended to clarify **what decision is actually being made**, **what precedents it sets**, and **what long-term consequences follow**, particularly given that this matter will ultimately proceed to the State Land Use Commission.

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1. What this proposal actually is

Hoʻonani Village should not be evaluated as a single housing project. It is a **Council-initiated, multi-decade land-use conversion framework** that would:

• Expand the Urban Growth Boundary
• Amend Community Plan land-use designations
• Introduce M-1 light industrial and commercial capacity
• Convert State Agricultural District land to Urban classification

Those actions collectively establish a **new urban-industrial growth node in the valley**, phased over many years.

Once those legislative changes occur, the long-term land-use direction is effectively fixed, regardless of how slowly or incrementally housing is delivered.

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2. Process concerns identified by the Commission itself

During deliberation, multiple commissioners expressed discomfort that:

• the matter appeared rushed,
• the proposal arrived in an unusual way,
• significant issues were being deferred to conditions, and
• the scale and precedent implications were not fully resolved.

That discomfort is understandable. This is not a routine applicant-initiated zoning request. It is a **Council-introduced planning action**, justified by reference to a specific development concept.

Because the amendments were Council-initiated rather than applicant-initiated, the normal private application and filing fee pathway does not appear to apply. As a result, County staff and consultant resources are being expended on legislative amendments that directly benefit a specific project concept, without the customary cost recovery that accompanies applicant-driven requests.

This is procedurally allowed, but it raises the level of scrutiny required.

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3. Urban expansion and sprawl risk

From a planning standpoint, this proposal meets the definition of **urban sprawl**, even though it is framed as workforce or affordable housing.

Key indicators include:

• expansion beyond existing urban boundaries,
• conversion of agricultural land to urban and industrial use,
• phased outward growth over decades, and
• irreversible change once initial entitlements are granted.

Sprawl is defined by **where and how growth occurs**, not by the income level of residents or the stated public benefit.

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4. Phasing and time horizon

The project is proposed in **nine phases**, with projected build-out extending into the **early 2040s under optimistic assumptions**. Projects of this scale, involving multiple legislative approvals, infrastructure expansion, and State review, often extend well beyond initial projections.

The critical planning issue is that **entitlements are front-loaded**, while impacts and adjustments are deferred. Once plan amendments and zoning are approved, later phases become matters of momentum rather than policy choice.

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5. Site suitability and equity concerns

The subject land is:

• former plantation cane land with legacy disturbance concerns,
• located under or near active airport flight paths with permanent noise exposure, and
• adjacent to or within an industrial buffer context.

These characteristics make the site **more suitable for noise-tolerant employment, logistics, infrastructure, and buffer uses** than for long-term residential communities.

Placing a large concentration of low-income and workforce housing in this environment raises an equity issue:
if the site is not suitable for market-rate or higher-income residential development, concentrating lower-income residents here creates a **permanent burden zone**, not equitable housing opportunity.

On an island, these siting decisions are effectively irreversible.

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6. Housing as an enabling mechanism for land-value conversion

From a real-estate and land-economics perspective, the requested actions represent a **conversion of agricultural land into higher-value urban and industrial land**.

In mixed-program developments, income-restricted housing often functions as the **enabling justification** for these conversions, while long-term financial value is generated through:

• industrial and commercial leases,
• logistics and warehouse uses,
• service retail, and
• appreciation of entitled land.

This is standard development economics, not an accusation. It is precisely why Planning must analyze the proposal as an **integrated land-use and value-uplift strategy**, not solely as a housing initiative.

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7. Long-term land-use conflict risk

Residential development adjacent to industrial and logistics uses predictably generates:

• noise and operational complaints,
• pressure to restrict employment uses,
• political conflict over mitigation, and
• eventual regulatory instability.

Conditions may mitigate impacts, but they do not resolve the underlying incompatibility once the land-use conversion occurs.

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8. Workforce housing versus workforce containment

Absent ownership pathways, time-limited affordability, or transition mechanisms, large-scale income-restricted rental housing tends to create **permanent renter populations**, not upward mobility.

When such housing is placed in noise-impacted or industrial-adjacent areas, it risks becoming **workforce containment**, not workforce opportunity.

If "quality workforce housing" is asserted as the public-interest justification, it must be supported by enforceable, long-term conditions, not aspirational language.

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9. Relationship to agricultural accessory use and ADU items

The issues raised in this proposal mirror concerns raised in other agenda items:

• Agricultural accessory use rules must distinguish between genuine farm-related sales and commercial food-truck operations that convert ag land into de facto commercial centers.
• ADU size standards must remain proportional to lot size and neighborhood context; allowing oversized cottages on small lots undermines planning logic and community compatibility.
• County-level housing rules should remain subject to existing CC&Rs where they exist, to avoid overriding private land-use agreements by ordinance.

These items reflect a broader pattern of **incremental erosion of planning boundaries through exceptions**, rather than comprehensive plan-based decision-making.

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10. County and State implications

One procedural point should be clearly acknowledged in the record:

County plan and zoning conformity is a prerequisite to a State Land Use Commission District Boundary Amendment. As a practical matter, once County planning documents are amended to support urban use, the subsequent State review focuses on statutory findings rather than whether the land should be urbanized at all.

For that reason, County-level recommendations at this stage function as a **threshold decision with long-term and largely irreversible consequences**.

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11. Questions that should be addressed explicitly

To ensure transparency and sound planning, the following questions should be answered in staff analysis and findings:

• What is the projected land-value differential between current agricultural status and the proposed entitlement stack?
• What share of long-term project revenue derives from industrial/commercial uses versus restricted residential rents?
• What enforceable mechanisms prevent program drift once housing is no longer the central narrative?
• Why is this valley the appropriate location for decades of growth compared to land already designated for urban use?
• How will noise, health, and compatibility impacts be monitored and enforced over the life of the project?

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12. Closing

This proposal is not simply about addressing immediate housing need. It is about whether Maui is prepared to commit this valley to **decades of phased urban and industrial development**, anchored by income-restricted housing in a compromised location.

That decision should be clearly identified, fully analyzed, and consciously made — not allowed to occur incrementally by default.

Respectfully submitted,

Edward Codelia, Realtor(S)
Maui Real Estate 808
Direct: 808-283-8288
Email: ecodelia@gmail.com

HOʻONANI VILLAGE SUPPORT TESTIMONY TEMPLATES

Aloha Chair and Councilmembers,

My name is Connor Apolo, and I am born and raised here on Maui. I am writing in support of Hoʻonani Village and Bills 163, 164 and 165.

There is no doubt for most people Maui urgently needs more homes for local families and our working community. I have seen friends and family who have used the terms like “escape” to try to get away and live a better life with a home for their children. All so they don’t have to grow up with the same unnecessary struggles they experienced growing up here I think its time for us to do better. With this being the first steps.

These bills will:

- Update the Maui Island Plan – Directed Growth Map to include this land in the Urban Growth Boundary
- Amend the Wailuku-Kahului Community Plan from Agriculture to Business/Multi-Family
- Change zoning to M-1 Light Industrial to support a master-planned mixed-use workforce village

This is what we need to move forward. Last time we all gathered to discuss these I sat and listened to a lot of opinions of people who used “What if” to try to sway the denial of our betterment for this community and as I agree there will be things to look for to ensure a safe process for the end goal.

I believe that these actions are necessary to allow the project to move forward and create housing and jobs for the community, consistent with the County’s referral and intent described in Resolution 25-132, FD1.

Hoʻonani Village will create workforce homes designed for Maui residents, not investors or short-term visitors. The project includes:

- Approximately 1,600 rental homes primarily for households up to 120% AMI, with flexibility to support local “gap group” families
- Housing opportunities for teachers, healthcare workers, first responders, and essential workers
- A complete community with parks, walkability and business space for local jobs and small businesses

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- A complete community with parks, walkability and business space for local jobs and small businesses

Ho’onani Village Testimony

Aloha,

My name is Daile Kapoi Vannatta, and I am a parent raising my family in Kula. Like so many local families, my greatest hope is that my children will be able to grow up here and still have the opportunity to stay on Maui—to live close to the places, people, and traditions that shaped who we are.

I know firsthand how difficult that has become. There was a time when my family had to move away from Hawai‘i because the cost of living made it impossible for us to afford staying. We were fortunate enough to find our way back home—but I think often about the many families who never get that chance. It is heartbreaking to see neighbors, friends, and relatives forced to leave the place they love simply because they can no longer afford to live here.

The data reflects what we are experiencing every day. The Office of Hawaiian Affairs confirmed U.S. Census data showing that in 2020, only 47 percent of Native Hawaiians lived in Hawai‘i—meaning more Native Hawaiians now live away from their homeland than within it. The U.S. Census Bureau has also reported that Hawai‘i has experienced population decline in recent years. Together, these numbers tell a troubling story: local people are being pushed out of the islands they call home.

Culture lives in people and place. If our families are forced to leave, our kids lose daily access to the community that teaches them who they are. Building homes like Ho‘Onani Village helps keep families here—so our children can learn culture by living it, surrounded by our ‘ohana, our kūpuna, and our community.

Ho‘Onani Village represents more than housing. It offers a real opportunity for Maui families to remain rooted here and continue contributing to the community they help sustain. It supports the workers, parents, and community members who keep Maui strong, and it may even give families who were forced to leave a chance to return home and reconnect with their roots.

I strongly support the Ho‘Onani Village project, and I respectfully ask for your support as well. Mahalo for your time, consideration, and commitment to the future of our community.

January 12, 2026

Aloha Chair and Councilmembers,

My name is Danielle Watimar and I am a Maui resident, mom and community supporter, writing in strong support of Hoʻonani Village and Bills 163, 164 and 165.

Maui urgently needs more homes for local families and our working community. Every day, we see friends, coworkers and even long-*me residents forced to leave Maui because they cannot find housing they can afford. This is not sustainable for our community, our economy or our future.

These bills will:

- Update the Maui Island Plan – Directed Growth Map to include this land in the Urban Growth Boundary
- Amend the Wailuku-Kahului Community Plan from Agriculture to Business/Mul*-Family
- Change zoning to M-1 Light Industrial to support a master-planned mixed-use workforce village

These actions are necessary to allow the project to move forward and create housing and jobs for the community, consistent with the County's referral and intent described in Resolution 25-132, FD1.

Hoʻonani Village will create workforce homes designed for Maui residents, not investors or short-term visitors. The project includes:

- Approximately 1,600 rental homes primarily for households up to 120% AMI, with flexibility to support local "gap group" families
- Housing opportunities for teachers, healthcare workers, first responders, and essential workers
- A complete community with parks, walkability and business space for local jobs and small businesses
- Infrastructure investments and a plan for recycled-water treatment to support responsible, sustainable growth
- Local-serving retail, meeting space, and community recreation areas that enhance central Maui for residents

This project transforms inactive plantation land into a thoughtfully planned, resident-focused community that reflects local values, honoring Maui's culture, supporting local workforces and ensuring people who serve this island can continue to live here and thrive.

We are in a critical moment for Maui's future. We cannot solve our housing crisis without bold, locally minded solutions. Hoʻonani Village represents a meaningful step toward keeping Maui residents on Maui and building a more resilient, equitable island community.

I respectfully ask for your support of Bills 163, 164 and 165.

Sincerely,

Danielle Watimar

Danielle Watimar

My name is Shiela Duque,

I am a Maui resident/worker asking for your support of Ho‘onani Village and Bills 163, 164 and 165.
Maui needs quality workforce housing so local families and essential workers can stay here and build a future.
Ho‘onani Village delivers homes Maui residents can afford, jobs, infrastructure improvements and a community-centered vision for Central Maui.

Mahalo!

Peaches Cernal
21 Aheahe Place
Makawao, Hawai‘i 96768

Aloha Chair and Councilmembers,

My name is Peaches Cernal, and I am a Maui resident born and raised here. I’m in support of Ho‘onani Village and Bills 163, 164, and 165.

I am deeply concerned about the growing number of young adults who are being forced to leave Maui. Not because they want to, but because they cannot afford to stay. Our keiki grow up here, go to school here, build friendships here, and dream of building a life here, yet too many are realizing that a future on Maui feels financially out of reach.

On Maui, the average worker earns roughly $4,500-$5,400 per month, while the cost of living is among the highest in the nation. The average rental can easily exceed $2,500–$3,000 per month, and purchasing a home often requires incomes far above what most local families earn. After covering rent, food, transportation, and basic necessities, there is often little left to save for emergencies, retirement, or homeownership. That is not thriving. That is just surviving!

Ho‘onani Village represents a meaningful step toward changing this reality. It focuses on housing for Maui’s working residents, not luxury buyers or investors, and helps create a community where teachers, healthcare workers, service workers, tradespeople, and young families can live close to their jobs, their schools, and their loved ones.

Housing is not just about shelter, it is about stability, community, and the ability to plan for the future. When our young adults can afford to stay, they strengthen our workforce, care for their elders, raise families, and invest back into the island that raised them.

I respectfully ask for your support of Ho‘onani Village and Bills 163, 164, and 165 so that Maui can remain a place where local people can not only live, but truly belong, grow, and thrive.

Mahalo for the opportunity to testify and for your thoughtful consideration.

Respectfully,
Peaches Cernal

Aloha Chair and Councilmembers,

My name is Maria Balcarcel, and I am writing in strong support of Ho'onani Village and Bills 163, 164, and 165.

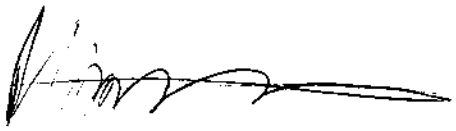
I have lived on Maui for the past 11 years, and during that time, I've witnessed countless local families being priced out of their homes. The housing crisis continues to worsen, and as a renter myself, my greatest concern is whether my family will be able to find affordable housing if we ever need to move. The reality is heartbreaking: every day, friends, coworkers, and long-time residents are forced to leave the island simply because they can no longer afford to live here. This trend is unsustainable—for our community, our economy, and our future.

Ho'onani Village offers a real solution. It's not another luxury development catering to short-term visitors. It's a project designed for Maui's working families—those who live here, work here, and contribute to the fabric of our island every day. We don't need more million-dollar homes that sit empty most of the year. We need homes that are attainable for the people who make Maui thrive.

I appreciate that this project is undergoing a thorough public process, and I believe it's critical that we support responsible development that prioritizes our local workforce. Projects like Ho'onani Village are essential to preserving our community and ensuring a future for our keiki.

I respectfully urge you to allow this project to move forward. Maui's working families deserve the opportunity to stay, grow, and continue supporting the island we all love.

Mahalo for the opportunity to testify.



Maria E. Balcarcel

January 12, 2026

Subject: Support for Hoʻonani Village and Bills 163–165

Aloha,

My name is Rowena Kauhane. I am a Maui resident & worker writing to respectfully ask for your support of Hoʻonani Village and Bills 163, 164, and 165.

Maui urgently needs quality workforce housing so local families and essential workers can remain on the island and build a secure future.

Hoʻonani Village offers homes that Maui residents can afford, creates local jobs, delivers infrastructure improvements, and reflects a strong, community-centered vision for Central Maui.

Mahalo for your consideration,

Rowena Kauhane

MAUI PLANNING COMMISSION
REGULAR MEETING
SUMMARY MINUTES
JANUARY 13, 2026

(TEAMS VIDEO HYPERLINK – PART 1)

(TEAMS VIDEO HYPERLINK – PART 2)

(TEAMS VIDEO HYPERLINK – PART 3)

(TEAMS VIDEO HYPERLINK – PART 4)

(TEAMS VIDEO HYPERLINK – PART 5)

CALL TO ORDER AND ROLL CALL

The regular meeting of the Maui Planning Commission was called to order by Chair Kim Thayer at approximately 9:07 a.m., Tuesday, January 13, 2026, in the Planning Department Conference Room, Kalana Pakui Building, 250 South High Street, Wailuku, Maui Hawai'i 96793 and online via TEAMS **Meeting ID: 297 714 275 941 2 Password: 4Fn3Ch6Y**

Roll call was taken by Planning Director Kate Blystone. Chair Thayer, Vice-Chair Lindsey (*left meeting at 3:00 PM and returned at 5:00 PM.) and Commissioner Ward, Deakos, Elizares and Circle-Woodburn were in attendance in-person. Commissioner Kealoha (*left meeting at 4:00 PM.) and Lind was in attendance via TEAMS.

Ms. Thayer: Recording Ok. Aloha kahahiaka kakou. Happy New Year everybody. Hau'oli makahiki hou. Welcome to our first Maui Planning Commission meeting of 2026. Director, roll call please.

Ms. Blystone: Mahalo Chair. Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: Here.

Mr. Ward: Here in here.

Ms. Blystone: Commissioner Elizares.

Ms. Elizares: Present.

Ms. Blystone: Commissioner Lind.

Mr. Lind: On TEAMS in Kipahulu and my office, alone. Thank you.

Ms. Blystone: Mahalo, Commissioner Lind. Commissioner Deakos.

Mr. Deakos: Happy New Year, everyone. I'm present.

Ms. Blystone: Commissioner Kealoha.

Ms. Kealoha: Good morning. Happy New year. I'm at home in my office.

Ms. Blystone: Ok, Commissioner Ward.

Mr. Ward: Hello. I'm present. Happy New Year to everybody.

Ms. Blystone: Mahalo. Commissioner, Vice-Chair Lindsey is running a little late… so she'll join us when she can and Chair Thayer.

Ms. Thayer: Yes, I'm here, present. Thank you.

Ms. Blystone: Mahalo, Chair. I'm gonna check with the online community to see who from our ex-officio members are here today. Is anyone from Department of Public Works here with us? OK, I'm gonna take that as a no… Department of a ʻŌiwi Resources. Is anyone here with us?

Ms. Robinson: Aloha. Good morning. Kekai Robinson, Deputy Director of the ʻOiwi Resources… aloha kahahiaka.

Ms. Blystone: Mahalo Deputy Director. Department of Water Supply (inaudible).

Ms. Blumenstein: Aloha, (inaudible) this is Eva Blumenstein.

Ms. Blystone: Mahalo, Eva. And Department of Environmental Management. All right. I'm gonna take that as a no. So, with you today you have Department of ʻŌiwi Resources and Department of Water Supply and they're available for you.

Ms. Thayer: Ok. Thank you. Appreciate you folks being here. All right, getting into our agenda, we have a bunch of public hearing items. Let us jump into item A.1, Director if you could read us into the record, please.

Ms. Blystone: Mahalo Chair.

Ms. Thayer: Vice-Chair Lindsey b….

Ms. Blystone: And… and acknowledging Vice-Chair Lindsey has joined us.

Ms. Lindsey: Aloha, mai kākou.

Ms. Blystone: Mahalo. So, Kate LK Blystone, Planning Director, transmitting Council Resolution No. 25-132, FD1 referring to the Maui Planning Commission three proposed bills to amend the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road). for 16… for 163.443 acres; to amend the Wahoo. Sorry, Wailuku-Kahului Community Plan Designation from Agricultural to Business/Multi-family for 163.443 acres; and to change the Zoning from Agricultural District to M1 Light Industrial for a 166.511 acre all or a portion of a parcel identified as Tax Map Key (2) 3-8-006:004-0005, situated Kahului, Maui, Hawaii. This is kind of affectionately known as Hoʻonani Village, and its ZPA 2025-00011. Your planner for this project today is Kurt Wollenhaupt.

A. PUBLIC HEARINGS

1. KATE L. K. BLYSTONE, Planning Director, transmitting Council Resolution No. 25-132, FD1, referring to the Maui Planning Commission three proposed bills to amend the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) for 163.443 acres; to amend the Wailuku-Kahului Community Plan Designation from Agriculture to Business/Multi-Family for 163.443 acres; and to change the Zoning from Agricultural District to M-1 Light Industrial, for a 166.511-acre all on a portion of a parcel identified as Tax Map Key (2) 3-8- 006:004-0005, situated at Kahului, Maui, Hawai'i (HO'ONANI VILLAGE) (ZPA2025-00011) (K. Wollenhaupt)

(Staff Report) **(Exhibits)** **(Numbered Maps)**

(Paltin's Letter on Map Numbering)

(Response Letter to Council's Questions)

(Documents Received After Posting)

(Submit Testimony) **(View Testimony Received)**

Ms. Blystone: But I also want to acknowledge that the staff report that you have in your packet today, was written by three divisions. So, we had zoning… zoning administration enforcement write the kind of beginning opening section that talks about the process and

the deep dive into our general plan was written by Jackie Takakura and Long Range. So, you'll have Greg Pfost from ZAED joining us to talk about the kind of processing questions. Jacky's here to talk about the general plan and Kurt is the orchestrator of everything. So, he will be here to talk about the larger project. We also have a project proponent who can answer specific questions about the project. Jeff Ueoka. So, I'll turn it over to Kurt at this point.

Ms. Thayer: Thank you, Director. And just for everybody's information, we'll have the presentation from staff in the project proponent and then we'll go into public testimony and then we'll do commissioner questions.

Mr. Wollenhaupt: Good morning, members of the Maui Planning Commission and those who are listening online. The item before you today is known as the Hoʻonani Village mixed-use development. This project was initiated and it's important to know this, and Mr. Pfost will go into greater detail on this. This project was initiated by the Council through Resolution 25-132, FD1, adopted on June 6, 2025. Now, why is that important? That's important because our pathway through this project is significantly different when a Council resolution is presented. Mr. Pfost will give a detailed explanation of how that differs, but on one of them this project has a Community Plan amendment proposed that in of itself triggers the need for an environmental assessment or an environmental impact statement as determined by the impacts of this project. But when it's initiated by the Council, that requirement is abrogated. Consequently, in today's review, the Council is asking the Planning Commission to give its recommendation on this project, but we have to understand that this environmental assessment or environmental impact statement document is not with us at the moment. It's with the State Land Use Commission, which then gets us to decide why are we here today? There are four discretionary permits that we're going to be looking at today. Three of which, the County, has purview over one of which the State Land Use Commission has purview over.

Let's take the State Land Use Commission first. Why are they involved in this? That's because this project involves a change of the State designation. The State district boundary from AG to urban. It's over fifteen acres that immediately sends it to the State Land Use Commission in order for their decision on a district boundary amendment, they need to have an environmental assessment or an environmental impact statement. Earlier in the year, the applicant went to the State Land Use Commission, in order to determine whether or not they would be the accepting authority for the environmental assessment or the environmental impact statement. It was also determined in that meeting that they would indeed be the accepting authority, and that we're moving directly to an environmental impact statement because there are going to be impacts to the environment that couldn't be mitigated as would normally be done in an environmental assessment…

whether determination of a fine of no significant impact. Or (inaudible). So, that process is moving at the moment. They're hoping that… the draft environmental impact statement will be reviewed by the State Land Use Commission sometime later this year, but nevertheless it is important to note that we don't have that document. That document is usually used as the guiding piece for a discussion of the three other discretionary permits… over which the County does have its authority. So, what are those three permits? So, the proposed Ho‘onani project was initiated by Council, and it was adopted on June 6, 2025. There are three bills that came down from the Council to the Planning Commission. Let's talk about the first one. Bill 163 amends the Maui Island Plan's Directed Growth Map to include the property…within the urban growth boundary, so why is that important? A Maui Island plan amendment shows growth boundaries. Where is the proposed growth to be? Well, the project today… of 163.443 acres, with a consideration that there's a small part that that we can talk about later, but the majority of this is outside of the urban growth boundary. Therefore, the Council needs to pass a bill in order to expand the urban growth boundary so that this project can move into it. That's the first bill under consideration today. Bill #164 amends the Wailuku-Kahului Community Plan Designation for the property from AG to business/ multi-family. So, now you have… a you have a piece of land out there that for the most part is… this State AG outside of the Maui… of the Maui Island growth boundary, Community plan AG and Zoning AG.

So, we have to change the Community plan and the proposal by the applicant is to go from agricultural to business/multi-family. And then finally, we have Bill #165 that was brought down from the Council and that is the applicant's request for a change in zoning from agricultural to M1 light industrial. So, you're looking today at three recommendations on those three separate bills. Maui Island Plan Amendment, Community Plan Amendment, change of zoning. So that being the case… the applicant will be talking about the specific project in general. Similar to the presentation that was given to the DRIP committee at the Council. What it includes highlights are sixteen hundred and eight units of multi-family housing. It's anticipated after discussion with the applicant, although it would be important that you would corroborate this, that the development of housing is likely going to pursue… be pursued by a 2O1H application… with the Hawaii Housing and Finance Development Corporation requiring at least fifty percent plus one additional unit be affordable to households with income at or below one hundred and forty percent of AMI. Mr. Ueoka, who's the applicant's representative, will go into greater…length upon questioning regarding the… the process by which they're going to pursue the affordable housing component. However, it is fair to say that, at least at this time. The highlight… the hallmark of this project is six hundred and eight multi-family units… to be affordable. Along with the multi-family housing component will be a blend of commercial, office, retail, restaurant, entertainment… light-industrial and possibly a hospitality or hotel use on the site, but all parties recognize that such a hospitality use would require another

discretionary process… most likely requiring hotel zoning. There is a 23-acre parcel on the northwest corner and that's not included in the project that is County land. As you may likely know, the project is located adjacent to Pulehu Road. approximately half a mile from the intersection of Hana Highway, and Mayor Elmer F. Cravalho Way. It's envisioned as an accessible, residential community. Which the applicant proposes to assist Maui's housing needs with a phased approach of approximately two hundred units coming online each year through a build out… I believe around 2042. The… because of the unique nature of this coming down from the Council. The agency review process for this has been somewhat constrained. And we do not have an environmental impact statement that has been accepted. Therefore, the Department is cautious upon its review of this project as we are waiting for additional information. We can talk more about that as we move through the project, but I think Mr. Pfost will give a brief discussion of how this… Council derived resolution is different from what an application would come through in a normal developer-initiated process.

Mr. Pfost: Thanks, Kurt. As noted within your report, there's an extensive executive summary section that is at the beginning of the report that talks about the processing of this particular project and the Department's concerns with the processing of this application. I might note that these similar concerns were also presented to the Council in the DRIP community back in November when they heard this item as well from the department. So, you may be familiar with when we do… General Plan amendments. We do them both on, on a decennial or non-decennial basis. On the decennial basis is like amendments to our Community plan. Like what we just finished with the South Maui Community plan. What we're currently doing currently doing with the Central Mali Community plan. So, those are decennial basis reviews or community plans, standard process where the Department takes over and does that does that and Jacky's actually in charge of that issue of that process. But what we have is we have a process within is described within our code. For non-decennial amendments to our general plan, and these are typical… might be they could be initiated either by Council.

They can be initiated by the Department, or they can be initiated by an applicant and when they're initiated by Council, it's a different process than if they're initiated by an applicant and I'd like to go through those and describe what those differences, because it's those differences and the… significance between those differences… of which concerns the Department and the review process that we've been going through. So, both the County Charter and Maui County Code Section 280B and Maui County Code section 19510 describe these processes for how you update a general plan, how you update or amend change in zoning and so forth. The… as I mentioned, there are really kind of two options. One is Council initiated, which this project… has been moving through that process. The other is developer-initiated. Both require Planning Commission review and

recommendation to the Council before a final decision. So, the typical process, what you may be used to is a developer-initiated process. So, a developer has a piece of property such as this one and wants to amend the general plan designation and propose a certain development and possibly a change in zoning. So, typically, what happens when a developer initiates that application for a change in zoning, Community plan amendment, and a Maui Island Plan amendment would be an application submittal. There's a robust analysis by the Department and the Planning Commission with that application submittal; the application submittal would also include fees. There would be a determination of completeness of that application by the Department. There are certain required documents that need to be submitted. Those are also outlined within the executive summary. There's some bullet points on pages three and four of your summary that talk about the types of documents that need to be submitted to the Department… various data, agency reports other information. So, the department can properly analyze.

Mr. Moran: (Inaudible)

Ms. Thayer: We all heard that whoever that was.

(Inaudible)

Ms. Thayer: Thank you, staff.

Mr. Pfost: So, all of this information is typically submitted by the applicant… Department reviews it, reviews it for completeness, and then prepares a report and analysis to you. And that usually includes also in some type of environmental assessment as well. Within the code, it identifies that applicant submitted process. There's also a public notice to surrounding properties, input from State and County agencies. And as I mentioned, the environmental analysis. So, all of that's required and mentioned within code that is required of an application that is initiated for the development. On the other hand, the process that is initiated by Council is slightly different, and this is all permitted… Council initiated requests like this is permitted and outlined within the code and within the Charter. So, I would make that clear. However, the process is different in some ways that… the Department has concerns, especially with a project of such significance, significant magnitude as a project like this, other perhaps smaller zone changes or… or things that are not so… not so difficult… Department doesn't have too much of a problem, but when we talk about a project of this magnitude, we have concerns with the Council initiative process. There is no application. There are no fees that are required to be submitted. There's no completeness review by the Department, so we don't analyze any information… the public notice… there is no public notice to surrounding properties. We do post a notice for this meeting… newspaper, however, there is no input from the State

and County agencies, however… as I'm not sure if Kurt mentioned this, but we did actually… reach out to County and State agencies… once we started receiving information and to ask County and State agencies to provide input prior to this meeting. And then there is possibly no environmental review which would consistent with HRS and depends… there's some situations that depend upon environmental review… some cases there are some cases there… if not. So, for this specific project, the Hoʻonani project as Kurt mentioned on June 6, the Council adopted Resolution 25-132 FD1. Forwarding the three bills for review by the Planning Commission, which is reviewing today. As I mentioned, there was no application material submitted with the resolution, so all we received from the department was just the resolution itself and the three bills that are before you. As you as I mentioned in prior meetings, the per the Charter and the Maui County Code, there's one hundred twenty-day time limit for which the Department needs to get this to the Planning Commission. The Planning Commission needs to make a decision. And for the Commission to submit its recommendation to Council. Well, the Council adopted the resolution on June 6th, the 120-day deadline was actually on October 14th. So, we've passed that deadline. Importantly though, on September 29th the Department informed the Council that based on materials, that we had not received any materials related to this project, the Council, the Department informed the Council that the Commission would not be able to make a recommendation, and we recommended at that time… that the Council… will not take action on the bills and request that the owner submit an application, so the project may be processed through a more typical developer-initiated application.

The Council then on November 5th and 6th at the Council's Disaster Recovery, International Affairs and Planning Committee meeting. The DRIP Committee meeting also heard this item while they were poised to potentially act on this project because the Planning Commission did not, Cooperation Council at that meeting made… made the point. That it was felt that from a legal perspective it would be advisable that the Planning Commission at least hear this item and potentially make some sort of recommendation and hence after the November 5th and 6th Council meeting, that's why we're back here at the Planning Commission meeting today. For you to review this project and make some sort of recommendation to the Council. Since the DRIP Committee meeting back in November, the applicant has submitted additional information, which is now part of your packet… today we've provided that to you. So, that that's under review. A lot of that information is the applicant preparing that information in response to the environmental document that the applicant is preparing to the State Land Use Commission. In summary, the Department feels that bypassing the normal application, environmental review procedures analysis expected by a private development project of this significant magnitude will result in a significant reduction in the level of impact analysis normally performed by the Department, the Planning Commission and the Council. Resulting in

relatively little community input and may result in potential impacts to the Community and therefore, due to the lack of information submitted, the Department is unable to complete a full analysis and thus recommends that the Commission is… that the Commission recommend to the Council deferral of the request until a more complete analysis can be undertaken. So, that concludes my comments and so I can answer any questions later if you like. Thank you.

Ms. Thayer: Thank you very much. Commissioners, did you write down questions? Do you need? Do you need to ask something now? Yeah, I was. I think we should. I know it's a lot to digest and I want to make sure everybody's following along. Yeah, we will, ok.

Ms. Takakura: Good morning, commissioners… Chair. Thayer, Vice-Chair Lindsey. My name is Jacky Takakura. I'm administrator for the Long-Range Division and the Long-Range Division is responsible for the General Plan documents, which includes the County Wide Policy Plan, the Maui Island Plan, and the Community Plans. Our role with permit applications, is to review the proposed project and provide comments regarding consistency with the General Plan documents. As you may know, Maui County Code Chapter 280B says that all community plans, zoning ordinances and subdivision ordinances shall conform to the General Plan. And also, Maui County Code Chapter 19.510 also has some requirements about meeting the intent of the General Plan and the objectives and policies of the Community Plans of the County. Now, I'm sure you read all forty-six pages of the staff report and one thousand-nine hundred twelve pages of the exhibits and all the testimony that's come in. So, I'm just going to summarize the issues that need some addressing for the project to be consistent with the General Plan documents and just want to say regarding like the Maui Island plan, the Community plans as you've seen when we've gone through the South Maui Community plan… those are kind of the voice of the community with the community envisions for its, you know…

it's home. So, that that's where that's coming from. The first thing and you've seen this in many documents is regarding infrastructure. Water, wastewater, roads, transit, bike and pedestrian paths, storm water and drainage, particularly for water. The applicant should provide redundancy plans and ensure the water meets all drinking water quality standards. This is a big project, also regarding traffic. That's in an area that already sees a lot of traffic, which means it has great potential. But it also means that roads, transit and pathways need to be carefully considered to minimize impacts. Secondly, as the central Maui or Wailuku-Kahului Community plan states that non-residential use is more appropriate for this area. I'm just going to quote from the Wailuku community, Wailuku-Kahului community plan… total closure of structures as well as air conditioning are generally required for this purpose for this particular area. Residential uses should be discouraged within the sixty LD and iso-line. And that's that line, that's due to the airport

impacts. So, you know they thought about that back in 2002. Thirdly, loss of agricultural land should be carefully considered. Fourthly, the inventory of existing available land is pending. Yes, we do need housing and there are opportunities for housing in areas. That are within the growth boundaries and have infrastructure. There are also projects that are entitled but waiting for infrastructure like Waikapu country town, their areas. So, what we're looking, doing in Long Range Division is looking at what we have and what's pending. We're updating the land use inventory and also, I want to remind you, you've seen Greg so many times before you because we've been updating Title 19 to add more opportunities for housing. Remember the kitchenettes… to allow for multi-general, generational housing in residential. Duplexes and multi-family and residential accessory dwelling unit reform for the number and the size and also allowing multi-family and residential in commercial areas. So, some of these you've already seen and more are coming, so those will also allow for a more housing opportunities in areas that are already designated and those can be actually, probably happen ministerially. So, they don't have to come back to Commission. Also, regarding the consistency of designations, so light industrial zoning and the Community Plan designation business multi-family, they're very different. The intense of what and the allowed uses in those two are very different and then also the hotel component that's proposed, that's also very different.

So, these issues would need to be resolved and just a reminder as you've heard. We cannot give it a Community plan designation until the Maui Island plan growth boundary is expanded. And then the zoning can't be… can't happen until the State Land Use designation is approved. As I mentioned, the hotel use must go through the public process and then the timing of the delivery amenities like the parks and other things they should be developed with the property and not after. So, if the project can be modified and the draft EIS completed in the land use inventory to show a need for the project with minimum and that the impacts would be minimal, then maybe it can move forward. But for now, we don't have enough information. So that's just a summary of… the application and the description of the project versus what the General Plan documents say, and so at this point we just don't have enough information to say yes, it's consistent and this is what the Community expressed it wants. So, maybe with more information we can make a better decision and that's, that's why one of the reasons why, as Greg mentioned, we're (inaudible) with recommending deferral for now. So, thank you.

Ms. Thayer: You very much. That all from the Planning Department. Ok, director.

Ms. Blystone: Well, I don't know if Jeff Ueoka was going to speak at this time or if we were going to push that to later or I defer to you.

Mr. Wollenhaupt: Normally the applicant gives their presentation so that the testifiers can understand what exactly is going on.

Ms. Blystone: And since… there's no applicant really at this point, we're gonna say the project proponent here. So, he'll speak and then I'll have a… a couple things to say, and I think that we can wrap up.

Ms. Thayer: Ok. And then go to public testimony, Ok. Go ahead, Mr. Ueoka.

Ms. Blystone: Also, Chair, if I may. You received a bunch of comments from Mr. Ueoka earlier today. Those are printed and in front of you and also uploaded at the link in for this item in the agenda. So, the… the public can take a look at the responses. And I ask Jeff to speak perhaps to those, since Commission hasn't had a time to read them since they came in so late.

Ms. Thayer: Yeah. And I think we'll provide time for everybody to read through this packet because it's a lot of information and we should take our time to read through it. So, after your presentation. We'll incorporate time for commissioners to review this.

Mr. Ueoka: Morning. Hello. Good morning. Yeah. Mind if I share my screen? So, Hoʻonani Village. My name is Jeff Ueoka. I'm the attorney for the project. (Inaudible). Sorry about that. Ok. Now it seems to work. Ok, sorry about that. So basically, the vision here is housing for local Maui families here. Kurt actually probably did a better job of introducing this project than I could ever do. But sixteen hundred-eight multi-family units and you know, creating authentic community gathering places for locals. That's the goal of this project. I can kind of generally see the overview of the site here. It's kinda located behind Lowe's and Maui Business Park. Behind Target. Sorta. Across the street from the Old Puunene Mill. This is the proposed layout of what we're looking at nine phases. You know, this is just a general idea. I think Kurt mentioned, we're looking at a seventeen year build out. So, things will, you know, kind of shift around and move as the community demand and we hear market demand more and more, but see that green spot in the lower right, that's going to be phase one. We're hoping two hundred sixty-eight units on about ten acres. So, this is the phasing… overall phasing schedule, so you can see we have market rate multi-family walk up. So, you're… so you guys understand for this project, we're willing to commit that everything will be one hundred forty percent AMI and below. That's what we're believing is the quote unquote market. When we say affordable in this piece, we're considering that LIHTC sixty percent and below. So, we're hoping to have in phases, four and six… a portion of it be LIHTC. We would push it forward earlier, but I'm sure you guys are aware of LIHTC application is not simple. It takes a lot of working through, so if there's a lot of demand, of course, we're always willing to flex and move things up as needed.

The commercial and retail in later phases… and just… I guess I should just get this out of the way now. We're not planning on doing the hospitality. It's just out there to discuss if it's wanted by the community at some point, we'll look into it. It was discussed by our team. It might be, might be a goal. We're not sure yet, but we just didn't wanna not mention it now and. five-seven years from now come back in. It'll be a surprise for everyone, so we just wanted to throw it out there. Out there for discussion, but as mentioned, it will need future entitlements and discretionary approvals. So, the features of this place are studios One, two and three bedrooms. It's gonna be ample parking. We hope for, you know, people. PV if it's feasible and allowable, we wanna work with the County Parks Department to get some civic uses in there. Hopefully a community center. We're not planning on building it, but we'll give the land for it. You know, this is a good spot that sustainable communities, it's next to Target, it's next to Safeway. It's down the street from Walmart. You know, there's all kinds of stuff right in there. So, either for employment, shopping or just, you know when you need stuff, right. It's also adjacent to the County's twenty-three-acre piece that they got from that trade when the County picked up Waiale from A&B. So, our Council already thought this area is a good spot to do some housing. It was picked up for housing to replace the piece that was in A&B's Waiale project, and we are looking at a very transient oriented design, walkable, bikeable. Hanson and Pulehu will be improved as part of this process, and we do intend on working with County DOT. We want bus stops in here and we want to coordinate that with them. So, it's, you know, a lot of transportation options. So, our timeline… for shooting for February of this year.

Our phase one design, we're hoping that we can get through this process so we can have some assurances from government that they wanna see this happen. We're hoping that a year or two from now we'll have the building permit issued for phase one and that by June 2029, we can have homes built ready for occupancy. Everything phases out over time if things move smoothly. Hoping for 2042 to be done, but. You know, this is one of the first crucial steps to give the… you know, development team assurances and confirmation County supports this project and wants to see it move forward. And you know, everything in here is about expediting, moving things faster. We all talk about the need for housing. We're hoping that things can be followed through on from, I guess the legislative standpoint to get entitlements for housing moving faster. As you can see, this is the existing urban growth boundary. Where that little spot… I guess over here and see my…that one hundred sixty-five acres. So, we're kind of filling in what was there the three point five-acre portion in the corner down here is already in the urban growth boundary. So, there's, you know, we're under… we're under the flight path… as you can see. We had our acoustical consultant take a look at it. And we're outside the sixty-five DNL line. That's the airport noise reading line. Where within the sixty portions of it. But as mentioned by Ms. Takakura, there are ways you can build to get the decibel level ratings down to appropriate levels. So, we're looking into that. We are working with… consultant. So, that's

the other thing. I didn't realize it when we first worked on this. We are going to ask you guys to suggest to the Maui County Council that we be placed into the transit-oriented Community plan designation. It doesn't exist in the Wailuku-Kahului Community plan from 2002, but it does exist in the recent South Maui Community Plan update… to be accepted by Council. It is in the West Maui Community Plan update. It was… brought to our attention… that there is no Wailuku-Kahului Community Plan designation in the 2002 one that does meet everything that's allowed in light industrial because light industrial has some, you know, lighter manufacturing type uses along with the residential. There's nothing that really fits so. At some point it's allowable. We prepared like a draft ordinance for hoping you guys can recommend it to the County Council, as part of your recommendation to put this one hundred sixty-three acres into the transit-oriented corridor. So, we're also asking for M1 light industrial zoning. It's not that we want to be doing a lot of manufacturing. We don't know what the various business owners or users of the light industrial commercial areas will want to do and we're hoping to have the most flexibility. M1, like I said earlier, still allows for multi-family, which is the primary goal of this project. The light industrial and. Commercial components are ancillary. More as amenities to the sixteen hundred eight units… and again for M1… a lot of flexibility. What we don't wanna see is some entrepreneur who wants a space that they might be able to use in Ho‘onani Village that they get told, “Oh well, that's not quite a permitted use under B1, B2, B3… you just have to go get a special use permit from the County or someone.” That you know that could kill this person's dream and possibly whatever endeavor they're gonna go into at the time constraints and delays. So, M1 just for the flexibility there. There's a laundry list of required permits and approvals. Please don't feel that once this gets its urban growth boundary inclusion, its community plan amendment, and its changing zoning that it's just free to run off and do whatever it wants. We do need the DBA, and we are doing an FEIS in coordination with that and my understanding is… you are able to change zoning prior to a community… or I'm sorry to district. Boundary Amendment. It's not illegal.

It's not the norm, but it's perfectly acceptable. The restriction comes, we won't be able to do any of the… we'll only be able to do the most restrictive uses. So, whatever State AG says, even though we have M1 light industrial (inaudible), we'll only be able to use those uses that overlap until we get the DBA completed. So, there are guardrails still in place after this County processes are done. We will be working with everyone on our EIS… You know you guys have all seen EIS's, you consult so. Noise permits will be required. CWRM, we’ll have to work with them. We hope to work with the County on our water system. So, we will work with them or if we go private, it'll be Department of Health, and they have a whole bunch of requirements before they let you run a water system. We're just asking to get all these processes started, do everything simultaneously rather than finish everything, then start the entitlements and then move forward to building. Trying to move fast. So, I think the normal process was described to you guys. So, Maui Island Plan, Community

Plan amendment, that's with you guys and the Council. Then we go to the State Land Use Commission for the DBA. Then we come back to the Maui Planning Commission and the County Council to get the change in zoning. We're hoping to expedite that process. And the Planning Department is indicating that they'll like to see the EIS accepted before considering the Maui Island Plan and Community Planning Plan amendment. And they would like us to go back to the State after we get the… I'm sorry for the DBA and then come back to the County for the change in zoning. But we're trying to do everything in an efficient manner, come to the County, then go to the State. Then we can build. That's our hope. We are going with the State LUC as our accepting authority after I believe that was at the… in conjunction with… or I should say coordination with the Planning Department. And we just want to see housing, build housing faster. County Council initiated these changes. We're working through the 343 EIS process concurrently with all these changes, we want to avoid the back and forth on County entitlements. We'd hope once we go through the County stuff, go to the State and then we can build and again design flexibility. So, the M1 designation I believe gives us the most flexibility for design… of the project as we build it out. So, as mentioned, normally or not, normally in 19.510.40M Maui County Code. So, we're looking to get the Community Plan amendment now to transit oriented corridor. That should be consistent with the M1 zoning designation. We feel that this proposed request meets the intent of the general plan and policies of the Community plans, consistent with the applicable Community land use map. Once we get the amendment done, and this should be light industrial as the project's being designed for. And this will all be fleshed out in the EIS. But if granted, this won't adversely affect any public or private schools. Consulted SFA. They let us know about moving people around. I guess I should. Let me clarify that a little more. We're not expecting sixteen hundred new families to move to Maui to occupy these units. Our hope are in… what we imagine is going to happen is it's really going to be a whole bunch of Maui families just relocating to this area. Hopefully some families moving back to Maui, that type of thing.

So, we don't feel as a big effect because it's relocating people. We're working on a private water system, working on a private wastewater facility. We're hoping for the first phase we can collect to the County system, but that remains to be seen. We're always required to do drainage, roadway and transportation system improvements. Other public requirements. So, going through the County wide policy plan, these are the main points I won't read into each one, but you know it's currently vacant land. So, this project will actually revitalize it. As far as local cultures and traditions, Puunene was a thriving plantation town at one point. You know, as time went on, everyone moved into Kahului, but Puunene was the place at one point. Improve education. Sixteen hundred eight units at one hundred forty percent and below. I hope it'll be teacher housing that's going to be a recurring theme. A lot of these, if we are able to build these sixteen hundred eight units, you know it'll just help the economy through providing housing. Same for social and

healthcare services. Expand housing opportunities. I don't even need to go into that one. That's pretty clear sixteen hundred eight units at one-forty or below. Strengthen the local economy. Our hope is that the light industrial and commercial areas will attract local entrepreneurs and give them a space to grow and thrive. And it's one hundred sixty-five acres. I think it's on a later slide, but I believe that represents point two three percent of the seventy-two thousand acres of land in AG, you know, good land…good AG land. So, you know, it's not a huge impact on the amount of available AG land. We have a lot of space in the project for parks and public facilities or, you know, just open space so. The need for a official park is probably less. We wanna work to diversify transportation options with Maui DOT and its walkable and bikeable. Improvement on physical infrastructure. Wanna work with DWS on water source development… Private wastewater, as I mentioned earlier, which would come directly with R1 reuse in the area. And you know, generally speaking right now. Central Maui, or most, a lot of Maui, were a little bit behind on our available public infrastructure. So, it's hard to keep developing, especially even in the urban core. Promote sustainable land use and growth management. Puunene was a large plantation camp. Again, I'll reiterate that. And I'm sure everyone here is familiar with this area. I don't think anyone's seen it actively farmed in a very long time. And so, AG hasn't worked in the area. So, let's… let's try and see if housing will and strive for good governance. I think this actually hits that pretty well. If this process works and everyone's comfortable with it or gets comfortable with it, it might be a new process for faster entitlements for housing, which I think we all agree we need. And mitigate climate change and work towards resilience. We want to be walkable. And use solar as much as we can. But you know, the solar comes with a price tag, so we're gonna try and make sure it works, but you know. That's just gonna depend on pricing when we actually get to build and, you know, make sure we use the proper landscaping.

We're working with local landscape architects on various things to make sure it's the right feel for the area. Oh, I guess I should mention we're outside of the SLRXA. We're not in the SMA, so you know, I think that feels a little bit. The Maui Island plan just generally there… I how I read these things is so interesting. There's so much foresight, it's amazing, but. Population one point one point one, greater retention and return of island residents for providing viable work, education and lifestyle options. I think that gets it right there. Heritage resources, you know again. This land sits vacant. I don't see anyone else doing anything with it for a long time. If we don't do this project, so let's allow it to contribute to the Community through this project. Natural hazards with proper coordination with government. Since we're building new, it'll be a newer, bigger development. So, there is the potential to include areas for disaster shelter facilities somewhere for people to go just working with government… to make sure, these things are addressed. Economic development, housing, together with the commercial light industrial opportunities will promote the island's economy. Housing sixteen hundred eight units at one hundred forty

percent and below. This project's going to create its own infrastructure where it can or work with the County on it. It's really an insignificant loss of AG land here, but it's a huge gain in housing and commercial, industrial opportunities, which could actually promote AG, you know, contribute to it. AG needs labor, housing. This could provide it. They need processing areas for their goods. This could provide it. You know, the Council saw this as a designated growth area by sending these to you, or at least wanted your comments on it. So, this is our process of seeking community input, so we appreciate the time. These are the various policies and objectives of the Wailuku-Kahului Community plan and… sure, you guys are sick of hearing (inaudible). I'll try and go quick. Economic activity. Small business opportunities. Accommodate mixed-use residential, commercial development as a transition between residential districts and the Civic Center and business, commercial districts compatible with the residential scale and character. And subject to a new zoning classification. So, it's a lot. But yes, this is a residential, commercial development. It's gonna be live, work, play where that's what we envision. Environment… going to support energy conservation measures. Cultural resources we have Honua consulting on as our consultant here, and they're gonna make sure we look at all of that's definitely being examined in the FEIS. And again, Puunene was a town at one point… I didn't. The indigenous architecture that was more for code provision, so I'm not sure how this particular project would advance that. Housing. Say it again, sixteen hundred eight units, one hundred forty percent AMI and below. Social infrastructure so. It basically… it states, develop and maintain an efficient and responsive system of public services which promotes a safe, healthy and enjoyable lifestyle, accommodates the needs of the young, disabled and disadvantaged persons and offers opportunities for self-improvement and community well-being. Again, this is supposed to be a village. It's going to have… we're hoping it'll have everything in it, you know, to support…a social life within this housing project. Government, we plan to work with government to support public and private partnerships to fund the planning and construction of infrastructure. Land use.

One of those things is to ensure that adequate lands are available to support the reasons regions, present and future agricultural activities. This area has a lot of AG surrounding it. Losing one hundred sixty-five acres is insignificant. Identify primer, productive agriculture land. Develop appropriate. Regulations for their protection, I guess I would say. On that note, the Community plans from 2002, nothing was ever done to create a law to like lock up this piece of very prime piece of agricultural land. In fact, when A&B did their IAL, they're… actually, important agricultural land designation. They did not include this portion, this parcel or area. Establish an adequate supply of urban land use designations to meet the needs of the community over the next twenty years. I. I don't know if that was done. It's been twenty years since 2002, and I don't know if there's enough urban land use designations. I don't feel there isn't. That's why we're here today asking for this. And again, as Ms. Takakura noted. We are within that sixty LDN iso-line on the airport map in the

Community plan, but it does say that ten of this district shall be to establish specific guidelines for development within the area which would define uses as compatible with the airport and appropriate design standards particular with respect to noise attenuation to reduce interior noise levels to the forty-five LDN level or less. And then she talked about the total closing of structures. But again… I don't think anything was ever done in regard to that. And we are working with our acoustical consultant to make sure we meet those requirements. Infrastructure. So, timely and environmentally sound planning, development, maintenance of infrastructure systems which serve to protect and preserve the safety and health of the region's residents, commuters and visitors through the provision of clean water, effective waste disposal and drainage system and efficient transportation systems which meet the needs of the community. So, we do feel we're going to do all that and those things are generally required as development standards for any project and urban design. I won't even read that. But generally speaking. This is vacant land. We feel this development will be better from an urban design standpoint. So, it was mentioned, I think in the forty-six pages about the application. So, we did present this to DRIP and just I'll go through it real quick. But policies objective is a general plan, the provisions plan… I went through that. But you know it's in the… it's in the DRIP presentation here it is to… land use history. Again, this area's always been, or I shouldn't say always, for a very long time…it's been associated with sugar cane. Archaeological and historical data, Honua Consulting did a CIA for us cultural impact assessment and, you know, archaeological noted that previous archaeologists included portion have only identified historic…period sites related to the plantation.

So, as we discussed earlier, it's been on… in AG for a long time. Consultation with OHA, DLNR, SHPD pending. So, there's a lot of secondary impacts for this project. I think you guys can imagine it. But again, I'll get on it. Housing… secondary impacts there are going to be impacts and we're going to work with DOT and all the various agencies to make sure those are mitigated through that FIS process. Traffic again. TIRS being conducted will make sure to work with the Public Works and State DOT. The impact on agriculture again. Ninety percent of land on Maui's designated AG conservation, and this represents point two three percent of the seventy-two thousand acres. Not, it's not IL again, water and sewer. I mentioned it. Nothing environmentally sensitive on this one hundred sixty-five acres, topo. It's pretty flat. Flora. Fauna. Nothing of significance again. A phase one, EA came up clean. Yes, finally you guys are making a recommendation to the Maui County Council on what you think about this project. So, I'm really hoping you guys can recommend approval of it. Of the three changes with the one modification to be transit oriented corridor. And we just would request if you do suggest any conditions, owning that timelines be based on matters under our control and avoid duplication and listing matters that are already required by law. And we'd like to avoid strict development standards,

which would limit the flexibility of the M1 zoning and annual compliance reporting always gets a little hairy, so appreciate if we could avoid that. Thank you. Sorry, took so long.

Ms. Thayer: Director

Ms. Blystone: Mahalo, Chair. I'll just wrap this up before we do the next step. Just to be clear. The Department and the administration are supportive of affordable housing, and we've put a number of items to this body and Council to increase affordable housing and work… Working closely with other projects that you haven't even seen yet. So, I want to just be really clear we support affordable housing and also to be very clear, this 201H project for the sixteen hundred and eight units mentioned by the project proponent could proceed today without any of the changes being discussed. It's because we're talking about a district boundary amendment and MIP amendment, a Community plan amendment and a change in zoning. That has includes, much more than just affordable housing that we need to be thoughtful and planful. So, our… our jobs as planners is to see around corners and anticipate unintended consequences of decisions just like this one. Our recommendation for deferral was in service of gathering more information. Namely, the EIS that the LUC will receive this year. So, we can collectively understand the impacts, because without understanding those impacts, the conditions of zoning, for example, that the Council could put on this item to ensure things like housing cannot be assured without… In… in that housing cannot be assured with just applying light industrial zoning. So, those conditions could be incomplete because we don't know the full impact of the project we're discussing. So again, we're very supportive of affordable housing. However, you wanna make sure this project works for the community, and we can't really know the impacts without a more complete analysis. So, the deferrals request to allow the project to gel more and for the project… potential impacts to be identified and addressed to the LUC process. So, that's the last thing that I wanted to say, Kurt. I… are we done? Is there anymore? We'll do the public hearing next and then we'll do the recommendation after that.

Ms. Thayer: Yes. And at this juncture, since we've been going for about an hour and I think we had a lot to digest and we still have this comment, well, I guess set of comment response letters that we just got from the proponent this morning, I'm gonna say let's take a… How long do you think you need for this? Fifteen minutes. Working in a… you know bio break as well. Ok, let us come back at 1:20. Sorry one, sorry, I was looking at the minute…hands on the clock, it is 10:05. Let us come back at 10:20 to give everybody time. So, Commissioners online, you got the link to this new comment letter making sure, ok, I see your thumbs up… up there. Ok. Oh yes, Mr. Hopper.

Mr. Hopper: This was, I believe, added to documents received after posting. Just wanna be clear so the public can access this new set of information at the in the documents received after posting. Link.

Ms. Thayer: Ok, so once again, we'll take a fifteen-minute break, after which time we will come back with public testimony. OK. Thank you everybody.

Ms. Thayer: Welcome back, everybody to our Maui Plan Commission meeting of Tuesday, January 13. Hope you all had a good break, and commissioners hope you're able to read through this pack of comment letters that we got. We will now jump into public testimony, and I believe we have some people in person and potentially more online. Let's do the in person first.

Ms. Ramoran-Quemado: Chair, let's start off with Joseph Maldonado to be followed by Peaches Cernal and James Legsay, the third.

Mr. Maldonado: Hi, good morning. Things loud. Yeah, I'm here to testify today on behalf of the Hoʻonani project. You know, I was talking to an old timer the other day, one of my grandpa's good friends and he was telling me he had twenty-six grandkids and four live in Hawaiʻi still… ninety percent of them go to college… by the time they graduate from college, they start looking for a home to move back. No more… so, he told me he just this last year. He had six more granddaughters graduate from College in California. Cannot find housing over here so. You know, as you start your family in the mainland ten years down the road, hey, there's houses now. Most people are not going to uproot all their kids, sell their home that they bought all this stuff for move back home. I mean, it's very rare. It just makes you really think like. People are always going to live here, but it's not going to be people from here. It's going to be people that can afford to live here. You know, I mean I… I think we can all agree like we need houses, not eventually, but immediately. So, thank you for your time.

Ms. Thayer: One second. Any questions for the testifier, commissioners? Ok, seeing none. Thank you.

Ms. Ramoran-Quemado: Your next testifier is Peaches Cernal to be followed by James Legsay the third, and I think it's Daice Kapoi Vannatta.

Ms. Cernal: My name is Peaches Cernal. I'm a resident of Maui, born and raised fourth generation, mother of seven. I'm a realtor on the island and I actually focus more on affordable rentals because obviously the price range of homes right now are not affordable

for people. So just trying to find my Community Housing is my goal. The average earner on Maui brings home between forty-five to fifty-four hundred dollars a month. That's our statistics for Maui County. Rents average twenty-five to three thousand and I know today's meeting is focused on the environmental impact statement. But honestly, as your citizen of your community and you all are our leaders and elected officials. I almost believe that the financial impact on our island is more important and I'm a kanaka. I should be worried about my native lands and the environmental impact, but I really believe the stress on my people, the financial stress is more important. The economical stress in Maui County is the number two cause of suicide. It doesn't draw… tourism, so they don't put it in the news. When I grew up in the seventies and eighties, suicide was in the news. It was like front page news. People don't hear about it anymore, on Maui, but average is eight to ten suicides a year, with economical stress being the number two reason. We need housing on our island. I think Maui County should really consider itself fortunate that you folks have developers coming to you with plans and projects. Yes, there's financial gain for them, but they're also bringing to the table for you folk's solutions and some skin in the game. You know, they'll do the improvements you need, the roads, the water, the whatnot. I just believe that Maui County.

(Inaudible)

Ms. Cernal: Believe that Maui County… can do better by its people. And it starts here, starts with projects like this. I did hear that there are a lot of projects out there that we don't know about. I would love it if before this meeting ends today, if you would share that. When are those homes due by? Cause Hoʻonani Village is giving a delivery date. If you folks could share when those homes are due by, that would be fantastic. Before I leave today the only other thing, I want to share is that. I know everyone in this room has somewhere to lay their head. We're all blessed that way. Shelter is so much more than stability. It's about community. It's about strengthening. Households raising children, creating healthy futures. No worries. I appreciate your time.

Ms. Thayer: Mahalo, for your testimony. Any questions for a testifier? Ok, seeing none. Thank you again.

Ms. Kealoha: Oh, sorry, Chair. Question?

Ms. Thayer: Yep. Commissioner Kealoha.

Ms. Kealoha: Mahalo for your testimony. I had a question about the… can you hear me, ok?

Ms. Thayer: Yeah, go ahead.

Ms. Kealoha: I had a question about the... the… stat that you mentioned… that the average rent is twenty-five hundred to three thousand. I think you said, and I was wondering if there's like… a number of bedrooms that that's tied to or if that's just like an average of all rental units… like is that for a two-bedroom or a three bedroom?

Ms. Cernal: So, for you working for the County, the best place that you, it's right at your fingertips. So, the County of Maui HUD offices just changed the rental allowance. So, January… January of 2026 is when it took place. So, if you were to do a simple Google search, Maui County HUD allowance, it'll show you that they just raised their allowance for… a three bedroom is the average home everyone looks for because it's the most common build. And I hope Maui County starts letting developers build bigger three bedrooms are not enough. But you know, when Maui was booming with construction seventies and eighties, it was three-bedroom homes. A HUD recipient can now get three thousand seven hundred sixteen dollars to pay their rent for a three bedroom. And they're not even out there. Three bedrooms are averaging forty-two and forty-five.

Ms. Kealoha: Ok. Thank you. I was just trying to connect it to the…

Ms. Cernal: You're welcome. Yeah. And for all of you folks, that's a great stat for you folks because it's right at your fingertips. HUD, it's County. It's there and it's factual. Thank you.

Ms. Kealoha: Yeah. And we can tie it to the… the table that the… I don't know if it was the applicant that presented or the applicant's representative, but there's a table in there that shows what the monthly rent will be for these different houses. So anyways, just thought I would mention that. Thank you.

Ms. Thayer: Thank you. Anymore… seeing none. Thank you.

Ms. Ramoran-Quemado: The next testifier is James Legsay the third, to be followed by Daice Kapoi Vannatta and Connor Apolo.

Mr. Legsay: Hi, good morning. My name is James Legsay the third. I think this whole Ho'onani project will have a great impact to the community being in… it's in the heart of Maui for everyday workers like myself because of the commute to job sites, is easier and closer. And creates more jobs and education for our children. It helps families who struggle with financial difficulties as well. To be honest, my family and I actually have to move to

the Big Island because we can't afford housing here and we can't afford housing in the Big Island. And I have a really big size family. I have. I strongly support, consider and believe that this project should proceed. Thank you.

Ms. Thayer: Mahalo, for your testimony. Any questions for the testifier? Ok, seeing none. Thank you.

Ms. Ramoran-Quemado: Next testifier is Daice Kapoi Vannatta to be followed by Connor Apolo and Nohelani U'u Hodgins.

Ms. Vanatta: Aloha, my name is Daice Kapoi Vannatta. I am a parent raising my family here in Kula like many local families, my greatest hope is that my children will be able to grow here and still have the opportunity to stay on Maui to live close to the places and people and traditions that shape who we are. I know first-hand how difficult that can be. There was a time when my family had to move away from Hawai'i because the cost of living made it impossible for us to afford staying. I was fortunate enough to be able to come home. But I often think about the many families who never get that chance. Data reflects what we experience every day. The Office of Hawaiian Affairs confirmed the US Census data, showing that in 2020 only forty seven percent of Native Hawaiians lived in Hawai'i, meaning more Native Hawaiians now live away from their homeland than within. The US Census Bureau also reported…that Hawaii experience population declined in the recent years. To me, these numbers tell a troubling story. Culture lives in people and place. If our families are forced to leave, our kids lose daily access to the community that teaches them who they are, building homes that Ho'onani Village helps keep our families here so our children can learn culture by living it… surrounded by their ohana, our kupunas and our community. Ho'onani Village represents more than just housing. It offers real opportunity for Maui families to remain rooted here and continue contributing to the community that they help sustained, it supports the workers, the parents and community members who keep Maui strong, and it may even give the chance for people who are forced to leave to return home and reconnect with their roots. I thank you for your time. Your consideration and the commitment to the future of our community.

Ms. Thayer: Mahalo for your testimony. Any questions for the testifier? I have one question. What made it possible for you to move back?

Ms. Vanatta: I mean, it took a lot of hard work from my husband and I to be able to have me move back. But then also the support of family members that I still had here, if it wasn't for them, then I wouldn't have been able to make that. And I mean that doesn't say that we're still not struggling, but the… the… support that I had recently. It has significantly helped me being able to move back home.

Ms. Thayer: And were you able to find housing before you moved back?

Ms. Vanatta: I mean, I… I did, but not, I mean, through my family, it wasn't. It's not a housing that I'm, you know, we found on our own. My family helped us with that.

Ms. Thayer: Ok. Thank you. Any additional questions? Seeing none. No sorry. Thank you.

Ms. Ramoran-Quemado: Testify as Connor Apolo, to be followed by Noelani U'u Hodgins and then after her, we'll go to online.

Mr. Apolo: Aloha Chair and council members. My name is Connor Apolo. I'm also born and raised here in Maui and I'm writing in support of Ho'onani Village and then the Bills 163,164, 165. There's no doubt for most people that Maui urgently needs more homes for local family and our working community. I've seen friends and families, and they've used use the terms like escape to try to get away, live a better life. They moved to the mainland with their home and their children also that they don't have to grow up with, you know, the same unnecessary struggles that comes with trying to live here. I think it's time for us to do better with these bills being the first steps. It's what we need to move forward and last time when we all gathered to discuss these, I sat, and I listened to a lot of opinions from people who use a bunch of what ifs. To try to sway the denial of the betterment for this community, and I agree that there's gonna be a lot of things that probably gonna have to get worked out to ensure a safe process for the end goal. But I believe working through stuff like that is gonna be necessary to allow the project to move forward and create housing and jobs for the community. I think for a lot of us here we don't wanna struggle. We want our kids to have a better chance that this is gonna take so much time. It's not for me. It's potentially, you know, I wanna have a family. I wanna have kids. But I don't want them to struggle the same way that me and a lot of my cousins and my brothers and my sisters have struggled. Let's try and just do better. Give them an opportunity that not a lot of us had, and that's all I have.

Ms. Thayer: Mahalo, for your testimony. Any questions for the testifier? Ok, seeing none. Thank you.

Ms. U'u Hodgins: Good morning, everyone. Thank you so much for being with us today. There's a couple of things I would like to address, and first I'm going to apologize because typically I'm not this adversarial, but I am going to disagree with the Planning Department on their forty-six-page report that they provided you… and I do want to state a couple of things. So, one we heard today that this is future growth, Newtown. Except that if you grew

up here, you know that this is an existing town. My grandmother grew up there. She moved out when Dream City was built. But for many of us, this is where our grandparents lived. For generations and generations. So, while it may be new, it's not that new. And it's definitely not new for us. Secondly, this is quite adjacent to the urban growth boundary as it exists now, so adding it is just kind of a continuation of what we already see in the Community plan would like to also mention the Community plan expired about…fourteen years ago, and in that time, I had three children. One of which is about taller than me…now he's a freshman in high school, so that's how old this plan is. This plan was completed in 2002. Every ten years we're supposed to redo this plan the way the South Maui plan is going, I'm hoping we're going to get to this plan…probably when half of you guys leave and when half of us are gone in the Council. So, that means we're going to look about twenty years after this community plan has expired. So, maybe we start talking about this project and in that time, we will lose so many people. That is, what do we call it? Unintended consequences of not permitting housing on time. The entitlement process takes far too long. So, what we're asking, I think you folks and the Council and the administration to do is realize how long that actually that process that we put on ourselves takes. And so, while we heard that this is a Council initiated change in zoning, that is absolutely correct. It is well within our Charter's provisions. It is also well within the Charter's provision… to have the Director or Administration do this project as well. The reason why I suggested this project and I'm happy to provide more on this, if necessary, is that I'm tired of waiting for housing providers to come to us. This is our problem. We know we have a housing crisis, and we wait until somebody comes to us and say, hey, let's build some homes and then we ask them to do a five year back and forth process with the State. They come to us… they go to you… they go to State…they come back to you, us, and we do this round and round and round for about five years. And so, nobody is saying they don't want to do the due diligence, but it's going to take five years before we even submit for building permits. Lastly, because I know I only have a few seconds left, is the EIS. The Planning Department abdicated their authority to be the accepting… reviewing agency here and asked the LUC to do that, and perhaps you should get some clarification. As I understand it, the reason why…

Mr. Quemado: Time.

Ms. U‘u Hodgins: The reason why… If I could finish up this…

Ms. Thayer: Please finish up…

Ms. U‘u Hodgins: The reason why the LUC was asked to be the accepting authority is cause there's a potential for the wastewater. Please have Corporation Council discuss

that with you today. So, they're asking you to pause your review because they decided for you guys not to review that EIS. Thank you. Oh, if you have any questions.

Ms. Thayer: Yea. Mahalo for your testimony, questions for the testifier? Commissioner Kealoha.

Ms. Kealoha: Mahalo for your testimony, Councilmember U'u Hodgins. I think I'm… my question and you brought it up. You mentioned you know… that you're tired of the normal process, which is we wait for developers to come to us. And because the way that this was initiated is not something that I've seen before and it's hard to like… it's hard to connect the dots because I'm… there's… there's not a lot of information on like who the developer is and who the partners are. And so, I was wondering if you could talk a little bit about…like that. Like how this came about.

Ms. U'u Hodgins: Sure. Happy to do so. So, couple of things. A project of this size, I will admit is not something that goes through this normal process, but the Council initiated change in zoning is not a new process. We actually had two of them earlier this term that was sent to you folks, which I don't think you guys actually reviewed it. So, it was sent back to us for us to make a decision. Those were two churches in Lahaina. After they… after the town, obviously… we all lived through it, caught on fire. In order for them to build back, they needed to have a change in zoning, and so we passed that at Council. It should have come to here, but I don't think you guys reviewed it in your 120 days and it was sent to us. It took us six votes, so this isn't… this shouldn't be the first time you guys have done this. First time you guys have done this on this scale probably… because again the Council and the Admin, not necessarily this Director or this Planning Department…but just admin in general, they don't necessarily solicit people to partner in this way. So, what happened was is this is a local housing provider. They do work here on this island and ingest casual conversation, ingest everyday conversations about our existing housing crisis. This project came up. They said, "Hey Nohe", we have this parcel, it's next to the County's parcel that we purchased… the County purchase a few years ago. With the hopes of creating housing, it's right next door to you folks. Here's what our plan is. We plan to do low-income rentals. This is how much it's gonna be. This is what it looks like, and it came to Council… A few years ago, when you guys were looking for exploratory wells and you guys… it was brought up to us then. And so, when they were going to do the beginning process… like if they were going to do a developer or a landowner or a project proponent application… they were like this is gonna take five years, give or take. And so, will you help us? Will you do a change in zoning from the Council? This will help you know… alleviate some of the time restraints on the entitlement process, so they came to Council, did a presentation and with that presentation we continue to have a discussion on how we can make this process more efficient.

Ms. Kealoha: Ok.

Ms. U‘u Hodgins: Did I answer your question, ok?

Ms. Kealoha: Yeah. Yes, thank you.

Ms. U‘u Hodgins: I do have written testimony that I submitted online. Oh, I'm sorry. That was left and I also printed up some for you guys. If can, I give that to you for their review? It does kind of. Thank you. Provide some clarity and context and some questions… I had while reading through this 46-page document. Thank you.

Ms. Thayer: Thank you. I have a follow up question to Commissioner Kealoha’s question just for… like clarity and how this came about for our understanding. So, this… the conversation with the housing provider started a few years ago when they started to explore this concept. Ok. So, like I'm… I'm just trying to like piece together what you were saying about, you know, a typical development process taking at least five years. But at the same time, the conversation about this project started several years ago also.

Ms. U‘u Hodgins: Yes. So, the conversation, like any other conversation, is obviously gonna take a long time before the application process even begins. That's the process that takes about five years. So, a few years ago, we were doing budget. And our former councilmember late Tasha Kama, had the developer in our… in her HOU committee then. And she was. Was it two years ago? About two years ago. So, not this budget cycle, but the previous one. And they were, you know, kind of testing the waters literally to figure out if this project could even pencil out. But that process between…the housing provider. That's a back-end conversation. And then when it comes to us, yes, that process starts with about five years… by the time they do all of their talking's and then it comes to us.

Ms. Thayer: Ok, ok. Sorry. Thank you. Just getting clarity on that, yep. Ok, I think my other questions are for the Department. Any other questions, Commissioner Ward.

Mr. Ward: Thank you, Chair. Thank you for your testimony. Sure. Could you provide some clarity as to… obviously we… we know there's other projects that are on the table. Why would… Council be supporting this one but not potentially doing the same for other projects that may be kind of in the pipeline… potentially further along, maybe, I don't know if that's true or not.

Ms. U‘u Hodgins: Sure.

Mr. Ward: Could you provide clarity as to why this one versus something that maybe is coming for us that we've had an EIS on and we have some clarity and some direction a little bit more structure of kind of what the goals are… and things of that nature?

Ms. U‘u Hodgins: Sure, happy to answer. So, this… I think it's fair to say that this is the very beginning of the project, and this will just help… support the project in condensing the timeline it takes to review. But I do support all the other projects. I have supported about every housing project that has been before Council. When I say I'm an advocate of affordable housing, there's no… “yeah, but” … behind my statement. So, I have. I don't. I heard Planning Director say that there's other projects that they're working on with people, but they haven't come before us yet and I don't know about those projects. Perhaps I'll… I can answer that later when I hear about other projects. But for right now this is kind of the only project in Central Maui. Before us in this stage, so when we had Kaahumanu, which was listed in your guy’s report that came to us, that required a zoning change. Which we supported because that's obviously a mall and malls unfortunately are dying. It is no longer the nineties, you know, and so they needed to revitalize. And so that came before us. I don't know where that project is, but that… I want to say is the… the last one that I wanna say was kind of an existing structure that needed a change in zoning and then the one next to it on the Sears side… we just had discussed that 201H project with the State, which was the Old Kahului School location. So, those are the ones and… probably Planning would know more... if I miss any that have come before us that we've recently approved. But it was in a different state… of the timeline process.

Mr. Ward: Thank you, clarify... other question is just really the flight path of the airport.

Ms. U‘u Hodgins: Sure.

Mr. Ward: I used to live back in the mainland in an area similar to that. It's annoying. And I guess I question is it the right location? Intent. Purpose. All that… completely. Is really the right location with that, because it's easy to overlook. And say it's not a big deal and we can do things to reduce the noise, but if you've lived in that type of environment, it's…

(Inaudible)

Ms. Thayer: Somebody online is unmuted. We can hear your conversation.

Mr. Ward: So, I guess the question is, where does that factor in? Because I think it's easy to want to support a project that's, I think, a very valuable project and benefits the community. But there's that little component if you're not living there, you're dealing with that.

Ms. U‘u Hodgins: Sure, I'm glad you asked. I grew up in Pā‘ia, so planes flew us across of us all the time. And I believe when this report was written. We had louder planes and planes have significantly reduced their noise, but that's not to say that… that shouldn't be a consideration. And I agree with you. So, in talking to the housing provider, they will do all the things they need to do to ensure that the place is comfortable and definitely livable. But what I would also like to say to that is that when we do have Spreckelsville and Spreckelsville is loud and those are multi-million-dollar homes and clearly, it's not bothering them enough to sell their multi-million-dollar homes. Secondly, the OGG went into full swing… because I looked it up cause I was curious while writing this. In 1952, which actually postdates the Pu‘unēnē Villages that existed before. So, you could argue that there were homes surrounding the airport long before the airport was ever made. And then they moved over to Dream City, which Dream City, as you know, still flies over the planes still fly over, but primarily that is a flight path. Unless it's Kona winds and then they fly over Pā‘ia, which in that case, that's when I also heard the face. Everybody gets it. Yeah, it… it is. It becomes. I don't want to say like normalized because like I live in, you know, a place that has a bunch of deer and peacock noise. And now I don't hear them anymore. And when people come over, they're like, how do you sleep? I'm like, I don't know. I don't hear it anymore, but they do what they need to do to make it very livable and comfortable, and they're willing to do so and I think they'll work with the required engineering to make it make the most sense but thank you for asking.

Ms. Thayer: Go ahead…

Mr. Ward: And I guess from a height… in apologize. I don't know the Community plan in detail in that area enough, but from a height structure and I'm not aviation either.

Ms. U‘u Hodgins: Same…

Mr. Ward: But I would imagine that height and reflective components such as PVE and you know solar, those have… Challenge potentially or restrictions for airlines? How is that being factored in? And obviously during affordable housing? There's a budget that's going to be much tighter and…

Ms. U‘u Hodgins: Sure…

Mr. Ward: It's about the things that we (inaudible) what we're going to try to do this. We're going to try to do that. How… how do we ensure that the outcome is what we want it to be and it's not impacting and not saying that tourism should take…

Ms. U‘u Hodgins: Sure…

Mr. Ward: Priority, but obviously planes can't get here and things that that's a whole other issue.

Ms. U‘u Hodgins: And we can't leave, and we can't go visit our families. That has unfortunately relocated to the continental United States, and they can't come home to visit. I… I get it. I think that's a really good question. That will probably be dictated by building requirements and standards and the energy code and all of those things. If I could just though I don't know, little sprinkle to that argument if we're gonna add. About a few years to the entitlement process, that's gonna cost money. That money could be going to help the building requirements to make it safer to make it noise requirement to help reduce the cost at the end. And so that's kind of why I'm advocating for a better, more efficient process is. So not only can we provide housing quicker, but let's reduce the cost because all of this entitlement process can sometimes cost just as much, if not more than the construction period. And these are all blind costs. That all of us end up paying what you didn't hear, Mr. Maldonado said. That his sister doesn't live here either. She's my best friend since the sixth grade. She's raising three kids in Vegas. I'm sure she would love to come back too. So yes, those building requirements are going to be discussed probably with you folks. And then when they start the construction design process. You have any questions…

Ms. Thayer: Go ahead.

Mr. Ward: (Inaudible) Sorry.

Ms. U‘u Hodgins: No, no, I'm happy. This is what I'm doing today so…

Mr. Ward: So, if and I agree with the streamlining and I think it is overburdened and there are costs that are not, it could be applied in much better ways than process and attorneys and litigation so…

Ms. U‘u Hodgins: So yes.

Mr. Ward: Why wouldn't we want to do that for all development then?

Ms. U‘u Hodgins: Great. I would love it if we could. I would love if we could expedite this process. Thank you for asking. I really wish that we took more of a strong stance when we discuss housing and when we discuss affordable housing. I really wish we would actually partner with our housing providers so that we can have the best projects. I don't

disagree with Planning when they want to do their very best due diligence to review any project and…and Godspeed on this as well. cause, that's what we're asking you to do, and that's what we're going to do. And I want that. But I just want us to be realistic when we put these requirements on our housing providers and where the cost actually ends up. And that's really in the cost of our housing and this is a Charter mandated process. Unfortunately, it is kind of difficult because we don't see too much of these. We have unfortunately, I think as a government… taken a back seat into our housing crisis and this is why… it's we've been having a housing crisis since as long as I've been alive. I'm forty. My kid, my oldest is eighteen. Me and my husband has had this conversation about where is he going to go. It's a struggle, you know, to have an eighteen-year-old in his house. Your house. When he's trying to figure out how to be a young adult and maybe. I'm not there and he's a little bit more in front of where I am, but there's no place for him to go. There's no place for my cousins, who are twenty something. There's no place for them to go. So, like Dale, she lives with her auntie, like so many of us. We just live in our auntie's rental unit. That's where we're going. And so, Jeff said, we don't anticipate a whole bunch of people moving back here just to live there unless they've already come from here. And so, it's just gonna be a redistribution of our population. So, we can no longer…forced to be living with her family, my brother so lives with my dad. He's thirty, with his wife and two kids, we are all just living in each other's homes, which is hidden homelessness, and it's called multi-generational homes now because we've just normalized it because that's what we're doing. And so, yes, I would love to see this more often. And yes, this is gonna require a little bit of growing pains, and it is gonna be a little bit uncomfortable. And I don't disagree. But until we're really willing to be slightly uncomfortable, then we're just gonna be sad watching our people leave. That's… that's what I have to say about that.

Mr. Ward: Thank you.

Ms. Thayer: Additional questions, Vice-Chair.

Ms. Lindsey: And my question first is for you is… because she introduced this… it… can we ask her questions later?

Ms. Thayer: I don't think so, Hopper. Mr. Hopper.

Mr. Hopper: I don't think we have a similar process to resource personnel designation. Generally, you open, and you close your testimony. And so, if you had questions, I think you'd want to ask now.

Ms. Lindsey: Ok. So, my… so my concerns and urgency planning is that, like kind of the incremental, you know, growing the agriculture zones are incrementally getting smaller. This is two percent, but the last one was two percent and the one before that…

Ms. U‘u Hodgins: Was actually 0.2.

Ms. Lindsey: Sorry, yes. Yeah. But I mean, there's been a few projects that come before us. Oh yeah. You know it's only point eight. It's only this and then cumulatively it's 15%

Ms. U‘u Hodgins: Yeah.

Ms. Lindsey: And then in addition to like this plan was made twenty years ago, it should have been updated recently. We're catching up, but. So, we couldn't have, I mean. I wouldn't imagine people anticipating the problem we're at. So, this problem didn't just show up today, it… it was kind of happening. I don't know if it happened before the plan or after the plan. And then now we're reacting to it, but the reaction is the concern. And then that's where EIS thing comes from. Like, ok, you know, we didn't think about this. This isn't the in within the urban growth strategy. We thought about all these other places and then, like where do we stop with the incremental growth? And I understand, you know, we've had a lot of historic events that has happened recent… in recent history that has also changed that in addition to just rage, property values, etcetera, etcetera. But. Applying these band-aids, which is kind of what this is, this is like a thirty-year band-aid to catch up with what we… What is the future of this? You know, I know this. The intention is to bring back local people. I saw all local people here today. I know that. All of us local families have that problem. So. How? Like how and when does this stop? Like, I agree, streamlining it would help. These houses could have happened X long ago and then we would be in this place. But at what? Where? How does this end? These bills affect the future and the future plan, and why the department is so concerned with, you know, we didn't make this plan yet. We got to think about this. Any comments on that.

Ms. U‘u Hodgins: Sure. I… I do think that's a good question. I think that's something we should absolutely consider and let me say that I think maybe if we would have updated this… a while ago, perhaps we would have included it like the County of Maui's piece. I'm too sure is in there, either. We intend to use it for housing. Another thing is that if it was already zoned urban, they would be coming to you. So, that's why you see the change from AG to urban. So, if it was zoned appropriately, they're not asking for your permission. So, that's why you're primarily seeing those changes. Another thing I think to consider is that when we… had the mono crop of sugar cane, this is when… those designations are made. So, if you look at the maps from before, we basically took everything A&B was already using, and MOP was already using like kay AG, pau… and we're kind of still using

the maps from like sixty-two and seventy-seven and then this one of course is from 2002 and primarily all of our land is in AG land, which is why we're asking, which is why people not just us… as you said, right? It's like zero point two here, zero point eight there and I get it. And we're slowly chipping away at some AG land, but when majority of it is in AG land… cumulatively it can add up, but cumulatively in the larger scale, we're not making a huge dent in my opinion. What we are seeing a huge dent in, is our people leaving. And so, I think we're going to and… and this report does ask you to consider… you know… the loss of AG land to the proposed benefits of this project and you are gonna have to weigh those two together. Right now, it's not being used for AG. So, I think what it is… is zoned as conceptual AG or yesterday's AG or last generation's AG. But it's not AG today. It hasn't been AG for a while. And if we're going to give this an add value and an AG aspect, then I think respectively we can also give it a residential use aspect. Because it went hand in hand. And so yes, it is zoned AG, yes, we are asking you to make a small dent in that AG land, but it was also used for residential use that went hand in hand. I don't think it's significant to what we're losing from what we can gain. So, for me, I am asking you to change it. You don't necessarily have to agree with me there. But I do think the potential use of low-income rentals outweigh the concept of AG land cause again, it's not in AG right now. So, perhaps when thinking about this project's zero-point two three percent and another projects point eight percent is… is it in AG now? Are we losing actual AG land or just the concept of yesterday's AG land?

Ms. Lindsey: Ok. Thank you.

Ms. U‘u Hodgins: I… I don't if that answered your question.

Ms. Lindsey: Well. I mean, that's kind of…

Ms. U‘u Hodgins: (Inaudible) it to myself.

Ms. Lindsey: Well, yeah. And it's, you know, finding that balance between where is the space, you know, cause we grow up here multi-generational families and we want to keep them. In addition to that, like the you brought up rentals. These are rentals. Rentals are more affordable because you're not paying this large mortgage, but also that doesn't actually bring the people back.

Ms. U‘u Hodgins: This is true.

Ms. Lindsey: So, we yeah.

Ms. U‘u Hodgins: Can I also add, if we don't get comfortable with losing small (inaudible) percentages of our AG land, then we're gonna have to go higher. Because our population is only growing. And they had seven kids. I had four. I thought four was a lot until she had seven. I thought four was a lot, until Auntie Tasha told me she had 11, and we're gonna need places for those people to go. And then we cannot prevent people from moving here. So, we're going to have to accommodate not only our growing families, but you know, the love that the entire world has for this tiny little island in the middle of the Pacific. So, if we don't get comfortable losing fallow AG land, then we're gonna have to get comfortable and probably do both with going higher. And that's not really what I want. I don't. We're gonna have to find that balance. I just came from Oahu; one of the three children I had since this plan was outdated. Just turned thirteen. And that's not the place I want to live. I don't like the whole huge skylights. It's… it's cute to look at for a while, but that's not what I call home. So, we're gonna have to find our balance in high rises and losing just a touch of fallow AG land.

Ms. Lindsey: Chair.

Ms. Thayer: Go ahead.

Ms. Lindsey: So, on Oahu I was just there yesterday and we were driving around, and I was looking at it. I'm like this kind of was… this is all reactionary. This is because they more people came, more people came. So, they kept on expanding. They kept on going out and then now they're going up. And… and I was like same. I never want to live here. I… I want to leave soon. But at the same time, I'm looking at this house and like that house was burned, that was made in the seventies, like the design. So, they've been doing this for seven years and continuing to expand and there's… there's no plan. They kind of were just like, oh, here. Oh, we need to start now, ok. Oh, now we need some more houses. Let's put an apartment here. Ok, now. Oh, we…we need to buy these five lots because now we need a sky rise and that… that is one of the problems. With… with the design and not. Not… not following the plan, which is my main concern. Like sure, we don't have a plan. We're… we're gonna return to Oahu. We… we need all these houses. They have more water than we have, like. That's a whole another…

Ms. U‘u Hodgins: Access to water, yeah.

Ms. Lindsey: And they have more people. And the way they group, like all of that is different. But in terms of not having a plan, this… this, I feel like is not… not a plan. You know, this is just a band-aid against you don't want too many band-aids. We, you know, we wanna plan and then moving forward. But thank you.

Ms. U‘u Hodgins: For sure. And I think if our plans and this is no… disrespect to Planning Department cause, I do recognize how difficult the Community plans are. But if we're going to say that you must follow in these… prescribed definitions of a what a community plan is. Then it should not be outdated. It should not be outdated by fourteen years. It should not be outdated by twenty years, so we're asking everybody to follow a plan that's extremely outdated. We wouldn't do that to ourselves, right? Like we update all of our plans, we try to update all of our plans and if we cannot do it in ten years, then let's be realistic with ourself and say kid, then let's plan for twenty. Let's plan for thirty. The Pā‘ia one, the Pā‘ia - Haiku, 1995. Yeah. So, if we are asking people to follow a plan and we're asking them to follow an outdated plan, then how does that reflect… a plan? You know what I mean? Like, I cannot. I cannot do that with my children. I cannot impose 1995 standards on where they are today. I think that's unrealistic. I would love to follow a plan. It's just not updated, and it should be, and we need to be realistic in how long the plans take and how much work is involved in those plans, because right now we're doing the South Maui one. That one's… outdated. This one I think is coming after the South Maui one so probably at that time… if it doesn't go through a quicker process, it'll be about twenty years outdated. The Pā‘ia one is like 1995. I think that's the same age as my brother, who's still living in my parent's house.

Ms. Thayer: So, I have a follow up question, if I may jump in here…

Ms. U‘u Hodgins: Please.

Ms. Thayer: So, the… the urban growth boundaries… were established within the Maui Island plan, which I believe was passed in 2010 and that went through the whole entire general plan. An advisory committee process like I was working and planning at the time and monitored like many of those meetings, my mom was on GPAC, and I like was very much in it and I know there was like a million hours of time put into determining the urban growth boundaries. The planning horizon I believe, was twenty years. They had population projections going through 2030 and 2035. So, I'm… I'm trying to reconcile with in all of this. It's like how much thought was put into defining the urban growth boundaries and with a planning horizon that we are… we are still within now, to your point. And so like, how are we to reconcile all of those hours of like thought and deliberation and community input that went into, like, very intentional growth boundaries around the island? And like this is obviously not going along with all of that. So, like, how do we reconcile expanding an urban growth boundary that was established with a huge amount of intent and thought and community conversation beyond just like a single Planning Commission meeting?

Ms. U‘u Hodgins: Sure. That's a really good question. I'm glad you asked. One, if you look at the map, it looks like this parcel was cut out. It… it just goes down and up, so yes.

It is not absolutely within the map, I agree. However, I wonder if that time if somebody goes, hey, we're gonna probably try to pull it sixteen hundred low-income rentals. Would you have included it, maybe and it just wasn't a thought then and so I'm not trying to disregard the… all the work cause I realize how much work it takes from everybody. But we are gonna need flexibility to solve our housing crisis. Period. If we said, oh, that's what we decided fifteen years ago, 2012. And not make any changes. Then we're not gonna actually solve our housing crisis. So, the… the line. I guess it's in his presentation goes… hold up… goes almost like it was left out. And it goes like this. So, this right here is what we're asking to do… is we're connecting this side to this side. But, and I… and I realized that. But I think we're gonna need some flexibility. Right now. We have a housing crisis, and we are going to need to get comfortable with how to actually figure that out and if it requires a line being drawn on a map so we can keep people here, then I'm willing to do that.

Ms. Thayer: Ok. Thank you. And one more follow up question. So… within all of these planning processes, we… we are, forever in this… well, we are forever seeking a balance between do we go up and do or do we sprawl out like, do we become Oahu, or do we just take up all of the available land that we have? And I think the answer is somewhere within the middle of that. So, just like to gauge where you are in this, like if there was the opportunity which I… which I hope is still alive to say… redevelop Kaʻahumanu Center.

Ms. Uʻu Hodgins: Yep.

Ms. Thayer: And we already saw the Kahului Civic Center, just a few weeks ago. Like… the well… how do you weigh those out between more sprawl, expanding Kahului further. Versus keeping Kahului where it is and just doing better with what we've got within there.

Ms. Uʻu Hodgins: That's a good question. I don't disagree that we're gonna need both. So, for me, Central Maui is already quite urbanized, and this is more of the same. This is again including Puʻunene... that for me, was already an existing housing space… like I don't not drive there with my grandma. She's like, oh, I used to live there in hospital camp. I'm sure all of you guys can say the same. So, in my head, while it just be memories of housing… memories of housing are so very much still there. So, I don't think I'm completely uncomfortable with the expansion because in my head that's already what was. And so, we're building, we're attempting to build what was… in my head. And so, we're going to have to find a balance between a slight expansion in our urban growth and go up a little bit. And I hope we can adjust… our housing crisis because as I said, it's been going on for so long. So, we are going to have… as we heard as we were talking about Bill 9, all the tools in the toolbox. Because I'm… it's been, again I'm forty. It's been so long that we've been having this housing crisis, and we keep making band-aid fixes… we keep.

I don't disagree, and that's all we've been doing. And meanwhile, like, we're just bleeding out. And so, we're gonna have to make change. We're going to have to figure this out. We're going to maybe have to go up a little bit in what we already know as an urban core and we're maybe gonna have to get out to what is an urban core. And unlike Oʻahu, which I don't disagree, starts crawling up that mountain, we don't really have that. Besides Wailuku and Kahului, we have… boundaries of our towns. We can see where Pāʻia begins and where Pāʻia ends, and where Haiku begins, and Haiku ends. Makawao begins and Haiku ends. But this is our urban core, so otherwise start touching each other… as well as Kahului as well as Puʻunene. But we are going to have to find a balance, in order for my kids to live here…we're gonna have to find that balance and we don't have any of the opportunity that this project is going to bring forward, upcountry. There's no affordable housing in Pāʻia. Not even a little bit. There's none upcountry. There is none in Kula. There is none in Pukulani except for Kulamalu that was built a long time ago and their waiting list is about seven years out. So, all of our people of upcountry were moving out. We're either going to the continent. Or we're moving down here, or we're moving in South Maui cause, they said the only places that has somewhat of an infrastructure to house more people. And so, this is our urban core. And we're gonna have to kind of get used to a little bit of flexibility and change in order for our people to continue calling Maui home.

Ms. Thayer: Follow up question.

Ms. Uʻu Hodgins: Sure.

Ms. Thayer: I'll go… to you next. So, like there… there are a list of projects that are within the urban growth boundary, many of which are already entitled or don't need entitlements because they're already zoned and everything like that. We've seen some of them come through ourselves. Some of them are arguably farther along in the process and closer to development than this one is. And so like, what happens if those all come to fruition and then we have this like extra that we've added? Potentially unnecessarily.

Ms. Uʻu Hodgins: That's a great question. Because I would love to hypothetically address if we ever had extra housing units. I don't think I've ever seen it. And so, if we ever get to the point that we have extra housing units. Let's all celebrate.

Ms. Thayer: Follow up question.

Ms. Uʻu Hodgins: Yes.

Ms. Thayer: So, all of those projects that have been listed all made similar promises to this one and those actually had like the developer themselves present. Or the landowner

themselves present. And like they've all been there to say, we're gonna do all of this. And this is all gonna come to fruition. Like we don't even have them here. And I appreciate you championing this project on your own as a Council member, as a proactive Council member. So, like what makes this project different than all of those cause? Arguably this one is like further back in the planning cause you have no infrastructure, you still have to like… change the whole State Land Use that… like what makes this one different? How do we know that this one is gonna be the one that comes true?

Ms. U‘u Hodgins: That's a… That's a really good question. I do appreciate that. So, Jeff is here to take your punches today, but he represents a few people. Obviously, he's not the landowner, he is the attorney. I don't know why they're not here today, but I'm here because I'm the applicant. A lot of those people don't live of the other housing projects. They don't live on this island… like I know Queen Ka'ahumanu. I was happy to support that project, but they don't live here and so these do. They're… these are people who are part of our everyday community, the people that were back here today work for the company that… is this project proponent. And so, they should be here. Don't get me wrong, but I don't think people realize how uncomfortable it is to attempt to provide housing. We are in this interesting situation. Where we know we have a housing crisis and yet we demonize housing providers. So, I'm not surprised that people don't come because we recognize our problem, but we do nothing to fix it. And we spend forty-six pages telling you why we shouldn't and, but instead, by the way, they didn't actually ask them for information. It's in here. They could be here, but we're going to need all the different projects in order to adequately address our housing crisis… crisis. And so, those people can come here whether or not their projects come through fruition or not, that's on them. I cannot speak for those other projects, but I do know how difficult it is to try to provide housing and be demonized for it. That's probably why they're not here today. But they can answer that themselves. I'm giving you, my opinion.

Ms. Thayer: Thank you, Commissioner Ward, and then Commissioner Circle-Woodburn.

Mr. Ward: Thank you, Chair. My question, I guess… I'll say maybe concern, but it's a question… is through this process with Council taking this approach which you have the jurisdiction to do, which understand… the public testimony, seems to be eliminated and with a Community plan that is so outdated…is that something that Council would be looking to do is to gain some Community input because…from my perspective, it almost seemed foolish with an outdated plan to assume the Council…all smart people, but none of us have the crystal ball…

Ms. U‘u Hodgins: Sure.

Mr. Ward: To overlook that component and just being on South Maui Community Plan Advisory Committee, the input and the passion of so many of individuals for South Maui specifically. Came across a lot…

Ms. U‘u Hodgins: Yes.

Mr. Ward: And I imagine other regions registries are the same. So, is that something that Council would be looking to maybe amend to seek to ensure that the Community has input before decisions are made? Because that for me, that kind of rubs me a little bit wrong.

Ms. U‘u Hodgins: Sure.

Mr. Ward: Because I think as we all sit and listen to testimony, hours and hours and hours, which is very welcome.

Ms. U‘u Hodgins: Same.

Mr. Ward: It almost seems like it… it. Going the wrong direction.

Ms. U‘u Hodgins: I would love… community support and community input. So, we had again this project come before us about two years ago where we had just like a quick overview of that process, which is a public meeting. Then we had this resolution come before us in a Council meeting, which is a public meeting, and then it was sent to you folks. You guys missed your deadline, so it was sent back to DRIP, which is a public meeting. And then this right now we're here today. This is a public meeting. I think this is a public hearing, yes. And then actually, as I was coming down the elevator, I saw that it was on… Maui now, which is a media news site forum. It's also… it also went to the LUC. That's a public hearing. It'll continue to go to the LUCs. That's a public hearing. They'll continue to come to you. That's another public hearing. They'll continue to come back to us. That's a public hearing and so. The public has ample opportunity to provide comment and input, and I hope they do. I hope they do. How they do it though, is difficult because your meeting is on a Tuesday. LUC is in the middle of the day. Our meetings are in the middle of the day. You know, it's difficult. The people that were here with us earlier today, they needed to take some time off. All of it's difficult, so I'm… I'm hoping, and I won't speak for him, but perhaps he can answer. How he plans to get more community input, but as far as us, this is all public meetings. These, I mean my face, your face, it's… it's everywhere.

Mr. Ward: So… so, if I could Chair.

Ms. Thayer: Go ahead.

Mr. Ward: So… I completely agree, and I think one of the things I hear from community members is they just don't know.

Ms. U‘u Hodgins: Sure.

Mr. Ward: And… which I think is a fair comment because quite honestly, before I got involved, I didn't know, and I probably know far too much. In a good way. So, I think that. My… my comment is what people don't know, they don't know. And unfortunately, sometimes what they then know isn't necessarily always the truth or facts. Or so I… I guess I would. More suggestion than anything is encourage to figure out a better or a… a very specific way to approach the community. To intentionally gather their… their feedback to make sure that's incorporated.

Ms. U‘u Hodgins: Sounds good.

Mr. Ward: Would be… is a suggestion so I just…

Ms. U‘u Hodgins: I don't disagree…

Mr. Ward: Versus kind of just rely on what kind of happens. Cause… some people show up, some people don't.

Ms. U‘u Hodgins: But you're right.

Mr. Ward: I… I think a…a strong effort for… for a project like this size.

Ms. U‘u Hodgins: Sure.

Mr. Ward: I think doing a specific community outreach would be something I think go a long way.

Ms. U‘u Hodgins: I appreciate that. Thank you. So, noted.

Ms. Thayer: Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: Thank you, Chair. Thank you, Council member, for being here and… and supporting this and bringing this to us. My question is actually a little bit more going back as a follow up to Chair's question about kind of the applicant. And obviously

seems like you're… you're quite confident and… and support this and have a lot of background.

Ms. U‘u Hodgins: At least I'm pretending to be right now. It takes a lot for me to stand up here…

Mr. Circle-Woodburn: And a lot of familiarity, and this is fairly new for us and so we don't necessarily have maybe the same confidence level yet that that you have. And maybe I missed it in the sixteen hundred rough or whatever twelve-hundred pages, that we have…

Ms. Thayer: Nineteen hundred something…

Mr. Circle-Woodburn: Ok. Just… just be accurate.

Ms. Thayer: Yeah.

Mr. Circle-Woodburn: So, and because you know, maybe the housing provider, the landowner, developer, whatnot are not here. I appreciate Jeff being here and his and… and his presence, but I guess the question is, do you… do you feel cause… because we're being asked to maybe approach this process a little bit differently and while I don't disagree that there's probably some room for improvement here. Do you feel that this project team, the consultants and… and whatnot have the ability to execute and… and really get this completed over the finish line? Because I don't know who it is. And like I said, unless I missed it, I don't know who these players are. They on island. Are they from the mainland? Are they? You know, how do you feel about if we're going…to sort of change this, not change the process, approach it differently. Is it gonna be followed through?

Ms. U‘u Hodgins: That's a good question and I appreciate that. And while I try to be more realistic than blindly optimistic in this case, yes, I do. They are on island, and they are local and so we do have the ability to hold them accountable because we're gonna see them quite often. What I will say though is that for me, at least, when it comes to housing, I… I have to be hopeful. I have to be. Or else I'm wasting my time. You're wasting your time, and I might as well just pack my kids up now, so I have to be hopeful. And with that, hope comes expectations, right? With that hope comes my willingness to be more proactive. Because I have to remain hopeful. And yes, I do hope that it goes through. I do understand that the developers are here. I do understand that, they have skin in the game, as we heard from Peaches earlier today and I think…. Moreover, the… the will and hope that it requires to do any housing project. You kind of gotta feel it. You kind of gotta understand why you're doing this. Why you all are volunteering your time… Why? I'm doing a job that really gets me to act outside of character because I really do hate public speaking. This

sucks for me, but I do it because I have to be hopeful. I do it because if not, my kids will be leaving, and I know they all feel the same. It is a local company with a local housing provider. That employs so many people that need homes that their children will need homes. And when you have a housing provider that's a part of your community, they have skin in the game. They know what's at risk and it's definitely more than finances. We are losing our local community, and I think for more people than not, especially when they're here, that that makes you do all kinds of crazy things, like try to get this entitlement process to be less long. Thank you for that question.

Mr. Circle-Woodburn: Thank you.

Ms. Thayer: Commissioner Deakos, did you raise your hand too? Then, Commissioner Elizares. Ok.

Mr. Deakos: Thank you.

Ms. U'u Hodgins: Thank you.

Mr. Deakos: Thank you, Council member, for your testimony today. A couple questions.

Ms. U'u Hodgins: Sure.

Mr. Deakos: You mentioned the landowners lives here locally.

Ms. U'u Hodgins: Yeah.

Mr. Deakos: The landowner. Yeah.

Ms. U'u Hodgins: Yeah.

Mr. Deakos: Second question to go back to the urban growth boundary. It's just to clarify, sounded like you said if there was recognition of a project like this maybe in 2002, they would have considered redrawing.

Ms. U'u Hodgins: I think in 2012.

Mr. Deakos: 2012. As far as I know, there has never been a dense urban residential area under an active low altitude corridor for… on any County on any island. It's generally poor planning to do that. So, you would feel comfortable. Be the first to put a dense urban

housing under a low altitude active corridor. And this is with flights increasing all the time, nighttime flights.

Ms. U‘u Hodgins: That's a good question. Thank you for that. I would feel comfortable if they were to do as they will. The required sound mitigation necessary to ensure that we are not disrupting their normal lives. As I said, skill village, not Spreckelsville. Sorry, I get those two confused. Spreckelsville is also under the flight patch. They come in one way and take off another, and so we do have development under the flight path now. It's just not low-income rentals though. Did I answer your question? Did you want me to…

Mr. Deakos: Well, I’m just trying to understand. Mitigation is… understand is the AC units with keeping them indoors. Double glass pane… pane windows. Seems… I don't know. So, you're keeping your kids inside with some noise.

Ms. U‘u Hodgins: Sure.

Mr. Deakos: I'm just trying to balance the quality of life.

Ms. U‘u Hodgins: I get it. I totally get it.

Mr. Deakos: People there versus the need for housing. Especially here… is every… is any affordable housing project good. No matter what, even if it's potentially a low-quality life situation.

Ms. U‘u Hodgins: I think, I think. That probably will be determined by the people who may want to live there, and so they are gonna have to work with sound engineers to provide sound mitigation. These are apartments, though, with some park and some other recreational area, so. Primarily they will be indoors like most apartment living I assume. It's like… I've never actually lived in apartment, except when I went to a dorm in college. So, it's a different lifestyle then you know your urban living for sure. But I'm comfortable if they do the required sound mitigation. Yes.

Mr. Deakos: Ok, last question. We hear this a lot about the… the time it takes to get projects through and it's just ridiculous long it's over regulated. At the same time, we have no water, we have traffic, we have buildings falling in the ocean. We've lost a lot of our beaches. You know prices have gone… So, the regulations I… I totally agree it's slow. It's not productive, but to just sort of blanket let's rush things through. How does that impact all of these other things that seem to be, you know, aren't being mitigated? Water in particular. So, if we brush projects through to… to lessen the regulation, does that not have… consequences to our community?

Ms. U‘u Hodgins: That's a good question. What I'll have to say is a couple of things is I don't think. If we condense this, sorry, I'm having some reverb…reverb. If we condense this version instead of the five-year…entitlement process. I think we're looking at about two to three years. So, I don't necessarily consider that rushed. So, there's that. I don't disagree with the required regulations and the required review process to do all of the things that we need to do to ensure the environmental concerns, and the traffic concerns you mentioned are adequately reviewed. I don't disagree. And we're going to, they're going to have to work on getting the water, their water, the access to water. I think that's more of our concern on this island is our access to water. And our usage of water. And so, we had crops in this area, right? And we had the thirstiest crops that ever lived in that area. And there is zero water. And so, we moved water for those crops. I would like to see the water be used for our residential use. And I don't think we're rushing it. And what I will say because I know that… I know that traffic is always a concern. And they're willing to do what is necessary to address traffic. But I gotta say, if I had to outweigh what is more important to me, if waiting in a car for an extra few minutes to get home to live on this island, that's worth it for me. Even if it's not my house. Even if I'm driving past it, it'll be worth it. To me, to wait in traffic for another five minutes if my kid can live here. If CJ's kids can live here, as Ashley's kids can live here, whoever's kids can live here, I will wait five more minutes in the traffic for your kids to live here. So, we have a traffic concern (inaudible), but we have a housing crisis and so if we are going to start always using traffic as a reason to say no and I'm saying you are. But it… then we're… then we're giving more weight to our traffic concerns and our housing crisis. Thank you though for asking me that question.

Mr. Deakos: Thank you. Thank you, Chair.

Ms. Thayer: Ok, Commissioner Elizares.

Mr. Elizares: I have 4 questions.

Ms. Thayer: Go ahead.

Ms. U‘u Hodgins: I wish I would have heard my comfortable shoes. Guys.

Mr. Elizares: Well, so on.

Mr. Circle-Woodburn: You know where you're coming.

Mr. Elizares: First question is actually for Corp Counsel.

Mr. Hopper: Don’t need to do that.

Ms. Blystone: You can't do that right now.

Mr. Elizares: Ok.

Mr. Hopper: Yeah, we… we would handle those questions during after public testimony. This is because you got a… a testifier still here you need to complete your questions of this testifier. And then move to the next testifier and complete public testimony. We generally wouldn't have staff questions during the testimony process.

Mr. Elizares: Ok. Sorry…

Ms. Thayer: Procedural…

Mr. Elizares: If I could ask you if…

Mr. Hopper: I mean… If it's related to the testimony. Yeah, I can answer that.

Mr. Elizares: But if we're sure that we cannot recognize a Council member as a resource for the rest of the meeting, she stated earlier in her testimony that she not doing not…

Ms. Thayer: (Inaudible) Nah, I hear… I defer to Corp council.

Mr. Hopper: Yeah, I mean… I because of the sunshine law, I would. And because we haven't had a clear process for that, I'd advise not doing that at this point.

Mr. Elizares: Ok.

Mr. Hopper: Yeah, I mean, if there's any reason you can't complete your questions, you could. I think you know, perhaps have those questions asked and… and then receive a response, but I don't know why. I think you have all the information. I mean, there's more information. You need. That's something you could ask for at some point, but yeah, at this point. I would. I mean… I would... I would complete these questions if you've got… there is a developer representative. So, you know, if that developer representative, you know is… is… is part of that, that presentation I think you know generally they're… they're considered the applicant. In this case, I suppose this person could be considered the applicant, since it's a Council resolution, but as a matter of process, you have historically, and because this isn't actually something you're approving, you would generally do this during the testimony process. If there's additional questions, normally you would request

that. Defer action and then hear back. But because of the timeliness of this, I would, you know, maybe advise not to do that because there's issues with your comment period deadline at this point. So, I would advise you to complete your questions to each testifier while they're… while they're up there.

Mr. Elizares: Just thinking about the other sunshine law, where the sun goes down and being mindful of everybody else… better, but I'll… I'll take that advice. Thank you very much. Ok. Three questions. Thank you for your choke testimony.

Ms. U‘u Hodgins: No worries. This is what I'm doing today as I said.

Mr. Elizares: So as a… and you mentioned in your… in your testimony, you've never lived in an apartment besides in college. I also cannot live in one apartment that for me, quality of life in one apartment sucks. But I know that a lot of people. Enjoy living in an apartment and… and living in apartment. And in their mainland, my mainland Maui, Hawaii. That… that outweighs everything you know. And then then moving away and then, you know, living in that box. This looks like we're suggesting all multi-family, so it would be all apartments. Or are you? Do you think there should be some? Would you recommend that there be some single-family homes in the area, or is that not what you think should… should be done in this in this space?

Ms. U‘u Hodgins: That's a good question. Personally, I prefer single-family homes, but I don't know if the zoning and this might be a better question for everybody else would allow it, because I think they're requesting M1 and M1 allows for multi-family… family use, but not necessarily single-family use. I think what is quite limiting, is the fact that, as Commissioner Deakos said, it is over a flight path, so the construction of a multi-family building is probably better for some sound mitigation. I'm with you on that. I also live in a single-family home, but if we don't start building more than I'm probably gonna have to flirt with the idea of living in an apartment so I can give one of my kids my home.

Mr. Elizares: Second question.

Ms. Thayer: Go ahead.

Mr. Elizares: Wait, I gotta find it now. I didn't agree and this is why I think, well, we are so ma‘a to the public notice… draft EIS, EA, FEIS…I didn't agree with some of the statements. I guess that's gonna go into comments later. About like the historical use of the space and the farming not being there for a long time, right? 2016 is when they stopped. There was grass and sugar cane. There's a grass farm, sugar cane. In that… in that space, which was ten years ago.

Ms. U‘u Hodgins: Yep.

Mr. Elizares: That doesn't seem that long ago to me. And if you could just confirm because or… or do not, I remember a Spanish camp, a Japanese camp in that space. I think Hamadas, which became Sam Soto's was in that space. And I remember being like, six years old riding in a bus. Right across the street and picking up children who live there in single family homes. Still… in Pu‘unēnē.

Ms. U‘u Hodgins: Yeah.

Mr. Elizares: Which how… we can do the math wasn't… wasn't that long ago.

Ms. U‘u Hodgins: Mm-hmm.

Mr. Elizares: Were all of those things there? And. Do you think something? Well, do you recognize or what are your thoughts on not going through that full process of getting a draft EIS, public testimony… all that?

Ms. U‘u Hodgins: So, I would love more public testimony. That's… that's my point. Is this is… as public as we can be… like these meetings, but I would love to see more. More public participation, I would. I would love that. And so that part, but that is out of my control and last, we decide to like…buy a banner outside. But it's posted, right? And they can probably solicit more public communication and public input. What I have to say about the EIS is… they're going to do it. They're going to do it. It's just that you guys aren't the reviewing and accepting agency. So, it has to be done. But the LUC has agreed to be that accepting authority. In… in the report, in that forty-six-page report, there's a sentence that says. And it's… it's on my… it's in my five-page testimony here. If I could find it. If you give me one second. OK. It's number eight, which is on the second page. On page seven. It says it should be noted that because of Community plan amendment was initiated by County Council, the State LUC… and I'm paraphrasing here, has been deemed the accepting authority of the EIS. So, that statement makes it seem that… because we or I. Submitted this resolution to you folks that… It automatically requires that LUC to be the accepting authority. You can confirm this with Mike Hopper, that maybe your question when I'm not standing at this podium, that's untrue. The reason that LUC was deemed to be one of the accepting authorities is because the future use of a wastewater. I have to call Corporation Council cause that's not what I understood when we were discussing this in the DRIP committee. And so, I want that to be reviewed it. Would have been great if it would have been reviewed by you and then we could have had a more thorough discussion. But the Planning Department sent it to the LUC. I don't know why, you can ask that. But I read it in Maui now. When I saw that the LUC was going to be the accepting authority. So, that puts us in a position… that puts you folks in a position to have to make

a decision without what I would love for you guys to have… that information at hand. But the LUC again is the… the accepting authority at this point, they decided that I wanna say…November. It was in that report.

Mr. Elizares: (Inaudible)

Ms. U‘u Hodgins: But they had to ask for them to be the accepting authority.

Mr. Elizares: Last question. Umm. Are there any ways to like create some type of legislation to guarantee like Hawaii families get affordable?

Ms. U‘u Hodgins: I would love that. And that's a question for Corp Counsel. We have the… we have a list that Housing Department is supposed to maintain, and at that time when it was passed, I think it was Housing and Human Concerns. Was it Bill 111… sounds? I think it was Bill 111. So, technically the county is supposed to maintain a list that. Is supposed to be used to determine who qualifies for… 21H projects or 2.96 projects. This is a 21H project and so they work with the State to expedite the zoning process. There's a requirement. That people… I wish there was a better requirement, but what they usually do… is they usually have to do… where you hand in physically your application to be a resident of this space and that should limit the ability for people who don't live here… to submit an application, but that is a Corp Council question because that is something that we have been discussing for a long time. I would love that to be the case. What I do think we have in our control though, is beyond the physical application submittal. Is like spaces like this. Spaces like in town, where it's not necessarily attractive to…the outside world to come and move in here because this is not necessarily the working version of Maui, is not conducive with their vacation version of Maui and this is not where they come to like… this side to live. They live where you and I grew up, you know, in a country, which is why we no longer have homes. So, if we can kind of control where we put these types of homes, it does… by market force limit the people interested. In these units. Until we can come up with some sort of legislation. But for right now, we don't.

Mr. Elizares: Thank you, Chair.

Ms. Thayer: Ok. Commissioners, any further questions for our testifier?

Ms. U‘u Hodgins: Thank you very much.

Ms. Thayer: Ok, seeing none. Thank you.

Ms. U‘u Hodgins: (Inaudible) you guys’ time.

Ms. Thayer: Appreciate your time. I think we should take a break. Do we have more people in person signed up to testify?

Ms. Ramoran-Quemado: None in person, but there is or there are three online.

Ms. Thayer: Three online. Ok, I think we probably need a break though. Looking around the room, that was a lot to digest. I'm pretty sure, Ok. And I believe our lunch is here. So, Commissioners, how long of a break would you stomach? Fifteen, twenty minutes. Twenty minutes, Ok. Let's do twenty minutes. Well, a little bit more. It's 11:43 AM right now. Let us come back at 12:05. Thank you everybody.

Ms. Thayer: Welcome back, everybody to our Maui Planning Commission meeting of Tuesday, January 13. We are just back from our quick little lunch break and about to resume public testimony. We've gone through all the testifiers who were here in person, and we will now move into those testifiers who are coming in online.

Ms. Ramoran-Quemado: Ok, Chair will start off with Dick Mayer, then to be followed by Albert Perez and Edward Cordelio. Cordelia, sorry.

Mr. Mayer: Thank you very much. Can you hear me?

Ms. Thayer: Yes, please go ahead.

Mr. Mayer: Very good. I first want to compliment the staff report under the Director of Plate… Planning Director Blystone and… and Kurt and his team put together the best staff report I've ever seen from the Department. Very analytical, very clear. Excellent recommendation to defer, and I'm urging you to do that. But let me give you some of the reasons why I say that there. There is much missing information that you do not have yet to make a positive recommendation. On these three bills, for example, water, they're… they're thinking about putting in one well above the property up… over the… what was formerly sugar cane lands, even if that water is safe. And it may not be because there's enormous amounts of nitrates and nitrate fertilizers that have been put into the watershed into the water table below that. So, that's a problem. But what happens if that well, for some reason the pump breaks or whatever, there's no backup system… that they have. That's the type of questions you'll need to be answering. Land ownership, it was mentioned quite a few times that the people are based on… on… on Maui. In fact, the land is owned by someone in South Dakota. Mr. Tanger in… in Sioux City, South Dakota owns the land, and he did not even put his name on the applications of the bills in front of you right now. The only reason I found out about it is because his name and… and address were given in the application to the State Land Use Commission, but it's nowhere to be found on the Maui application. With regard to airplane flights, the planes will be flying only

about 200-feet above these houses, and we don't even know how… how many stories these houses have. There's no information about the buildings themselves. We don't know whether they're two, three, four stories. The only indication we have is that these are all going to be walk ups and the initial map showed that these were four story buildings. That's a lot of walk ups for a lot of people carrying their groceries up four… four flights of stairs every time they want to go there. The airplane flights in… when the plans were initially put together. Usually, (inaudible) Aloha Airlines flight came in the middle of the night. Now there are multiple… FedEx, Aloha Airlines, case you… Amazon and others come at night. And average noise disturbance, these decibel level figures are very misleading because their average is for the whole day and including the nighttime, but they do not emphasize single events. So, every time an airplane goes over, it makes a lot of noise.

Ms. Ramoran-Quemado: 30 seconds.

Mr. Mayer: And then for 45 minutes or an hour, there may be no noise, and then all of a sudden, your sleep gets disturbed again. That's a very different thing. And so, we need to consider the type of noise, not just the average level of noise. Distance from schools. There are no schools anywhere near this with 1600- units, probably 400 to 600 children. How will they get to school? They will not be able to walk. They will not be able to bicycle.

Ms. Ramoran-Quemado: Time.

Mr. Mayer: Let me just finish one or two things. The TIAR for the project indicated… 2035 only half of the units will be built at that point, and they're already indicating twenty thousand... events coming in.

Ms. Thayer: Mr. Mayer: I'm sorry. I'm gonna have to hold you to the three minutes, but we do have your written testimony that you submitted in the Dropbox. I'm wondering if you can sum up your testimony in one sentence to summarize, and then we'll open up for questions from the Commission.

Mr. Mayer: Yes, there are numerous alternative sites in the Central Maui area that are within the urban growth boundary that many of them have complete entitlements. The Planning Director indicated these in their testimony in their submission to you and I would be glad to discuss these alternatives, which will be far quicker to get buildings built.

Ms. Thayer: Mahalo, for your testimony. Commissioners, questions for the testifier. Commissioner Deakos.

Mr. Deakos: Thank you, Mr. Mayer, for your testimony. You mentioned the... the other affordable housing units that already have entitlements. Can you clarify what you meant?

Mr. Mayer: Yes, yes. The… the Director gave you about seven of them that have already been entitled in one way or another. Most… many of them completely entitled, and they could build now. I'll give mention some… one, a large one is the County owned land. 300 acres just below the Waikapu Country town between the Waikapu Country town and Kuhelani Highway. That's within the urban growth boundary and would be ideal for a large housing development even larger than this one, and it wouldn't have to be quite as compact… in dense as these houses would be, and they wouldn't all have to be multi-story. Second one is… what used to be called the Dunes Restaurant in… Maui Lani, there's 160-acre parcel, the same size as this one, and that 160-acres is completely titled for residential use… the landowner, a few years ago, was trying to sell that land and it's available for… for residential and again it would be near schools, parks and have good access to roads and highways and would be part of the county water system. A third one is of course the one that you already mentioned. The Kaʻahumanu Shopping Center, which has already gone through all the certifications, all the entitlements and they are planning to put up several multi-story buildings in… in that area, take down a couple of the stores, maintain a urban core there of stores, but many, many apartments. Probably 500 to 1000 units could be put in…into that area. Next door is that Civic Center, next to the new transportation facility. There's three hundred housing units there. And lastly, I would mention the old Kahului Shopping Center. There's that big empty lot where Ah Fookʻs restaurant used to be located. That was an excellent site for additional housing. All again could be converted. Its right now business owned, but it could easily be made into a residential community. All of those have access to banks, libraries, shop stores, grocery stores, etc. So, those are things that they're there and that's in addition…there are Hawaiian homeland projects going up between… between Wailuku and Waikapu. So, there's a lot of other housing and the money that the County would be spending to support the infrastructure for this proposed. Hoʻonani Village project could be much better used to expedite those other projects that I mentioned. Either provide infrastructure or tax incentives like three years, five years of property tax abatement. So, all of that is… is… is possible in… in that area. And thanks for the good question.

Mr. Deakos: And thank you, Mr. Mayer. Thank you, Chair.

Ms. Thayer: Vice-Chair.

Ms. Lindsey: For… for those units, are you a little bit more familiar with those areas? Like for example… I would… I would imagine that the Maui Lani project would be on hold for archaeology. The… the grade of land, the… the one below Waikapu that is a higher

grade of agricultural use land. Then this unit we're talking about the… we need in the Ah Fook‘s one, that's an SMA that they need… all of those processes also take a long time. Are you familiar with any of these projects? And if that is like… done efficient… like as quickly as something like this?

Mr. Mayer: Well, I... I well, I don't think this one will be quick at all. This one will take a very thorough EIS review. It will have to go through the State Land Use Commission. It will probably then have to go through your process all to be completed. You'll have… when you finally have the information that you'll need to make a good decision on the project. There are many questions that will need to be answered with regard to housing, etcetera. With regard to the projects you mentioned, I think that they're within the urban growth boundaries, so there will be no need for any community plan to change. The one year. The Dunes does have residential zoning already there, so there's a question of whether that will be stopped because of the potential for archaeological sites there or iwi on that property. But at least it has all the existing… entitlements that… that would be needed there. The ones on Ka‘ahumanu Avenue, the three of them that I mentioned… Kahului Shopping Center, the Civic Center there and the old Kahului shopping center… none of those, I think would have significant problems and all could be expedited quite quickly.

Ms. Lindsey: SMA project…those three are within the SMA boundary. You are saying that the SMA is a quick process?

Mr. Mayer: Yes. They're within the SMA process, but I don't think that… that there's anything that… you already approved two of them, the shopping center and the 300 unit one and the other one, I think… if the other two could get approved within the SMA, I don't see any reason why they would not be approved for the old Kahului shopping center

Ms. Lindsey: I mean all of these… all of these units are needed for us. I'm just… given the urgency of the situation. How… how efficient these are? Thank you.

Mr. Mayer: Thank you… you are… You raise the… you're… you indicated that the number of units are needed. If you read the Planning Director's report. She gave an estimate of the number of housing units that will be needed in the area and those three projects alone. Even if you don't go to the Dunes or the Waikapu site, those three will more than fulfill. And then there are also the Hawaiian homelands. So, the number of units needed could easily be fulfilled by those other sites that… that I mentioned… that you don't need to go to this big project Ho‘onani or the other to meet the needs that have been… been raised by the Planning Department.

Ms. Lindsey: There are over eight thousand people in the Maui Hawaiian homes list and

the five hundred or so houses that are proposed for the Wailuku area. Maybe a little bit more is not even going to touch the 8000 units that is needed…

Mr. Mayer: Yeah, the… the...

Ms. Lindsey: For that. This and that… is a very small amount of our population… Hawaiians are… there's not that many, and I'd imagine that… many of them don't live here, so those I wouldn't even include in this process because it is special circumstance at a State or County. But thank you for your testimony.

Mr. Mayer: Are there any other questions?

Ms. Thayer: Additional… excuse me, additional questions for the testifier.

Mr. Elizares: Chair.

Ms. Thayer: Commissioner Elizares.

Mr. Elizares: Thank you, Mr. Mayer. I'm… I'm especially tickled for all of you people who refer to the Kahului Shopping Center as Ah Fook‘s. Ah Fook Tam is my… my great-grandfather. So that's why... I'm… thank you. Thank you for mentioning him and… and the store and the family, old family business. I…so, with that you was mentioning about these sites that have their entitlements already. Have you, is the Kahului Shopping Center, former home of Ah Fook‘s supermarket… residential… ready?

Mr. Mayer: I'm not sure what you mean by residential ready.

Mr. Elizares: Did they get their… is it land use designation.

Mr. Mayer: No, it would… It would… It would be within the urban growth boundary it would be… There would need to be a Community plan change, probably from business, which would probably, I don't know, exact classification, but it's probably one form of business or another and it would also have to get the zoning. But I do not think it… it has the… the burden there that would… that would exist with this Ho‘onani project. Let me get back one… one statement, I think that will give background to this. I was the Vice-Chair of the General Plan Advisory Committee that put together the Maui Island plan. In this particular area was specifically left out… when you looked at that map and saw that there was a vacant, like a puka in the middle of the urban growth boundary. That was very much intentional, and it was proved by the GPAC, the Planning Commission and the County Council not to have residential area in the largely… essentially because it was within the

flight path of Kahului airport. It was recognized that that is not a desirable place to put residences, so it has the… the sites you mentioned, the shopping center, the old shopping center…. Ka‘ahumanu… The Kahului mall area has much less of a burden to… to become residential than this particular parcel that you're now talking about. I'm… I'm… I'm urging you to try to find incentives for all these other projects. The money that the County and the State will be spending to provide the infrastructure that will be needed on Hanson Road, on… on widening, the wastewater treatment plant. Problems the… the adequate water supply, those are much greater burdens than I think would exist at most of the other sites.

Mr. Elizares: Need to follow up.

Ms. Thayer: Go ahead.

Mr. Elizares: And it's tied to Ah Fook‘s. When I was, when I was raised or when I… when I was young and my… my grandfather used to take us to watch the planes fly overhead and we would park under the… the flight path he shared with me because that used to be heavily farmed areas specifically. We had an area that was for vegetables grown there to be sold at Ah Fook‘s supermarket. Directly under the… the flight path, do you? Do you remember that area? And then that span of land?

Mr. Mayer: I'm not sure which area you're now talking about when you talk about where you were growing the vegetables. Clarify that and I'll try to… I'll answer the question.

Mr. Elizares: I think the airplanes would fly at about less than 100 feet above the… the farm air. So, if it's on the north side of Hana Highway.

Mr. Mayer: OK.

Mr. Elizares: Right underneath the flight… path of the plane.

Mr. Mayer: Well, yeah, I… I've been. I've been a resident of Maui for 58 years. And I used… I taught at the Community College for many of those years in the… in those days, many of the planes were propeller planes, and they flew in a flight pattern was to come north of Maui, pass Waihee and come over the college campus… and then… circle into Kahului airport. That was the normal flight pattern after many people in Kahului objected to all the planes flying over Kahului, they changed the flight pattern so the planes would have to fly South of Maalaea and come over the Central Valley into… into the airport, across the valley, as most of you know now. That… that became the (inaudible) with the jet planes that became the pattern, and those planes now go over this proposed Ho‘onani

site at around 200-foot elevation. If you've got a three or four story building there, it's gonna be close and they mentioned… acoustic…. activities that they could do. The major one they're recommending is air conditioning for all of the units so that people would never have to open their windows. They would have air conditioning running full time and I'm not sure how the people in the affordable units that this project will… will have or even the… the market units, that this project will have, how those people will afford the electric bill to run 24/7 air conditioning systems. They will not be able, probably to have solar panels on the roof because it causes glare for the airplane and the… and the airport people already said that it will potentially cause glare for landing flights… landing at the airport, so they will have to rely on Maui electric's very expensive electricity to air condition their units. Those are the types of problems I could go into many others, but that's the type of issues that you at this point don't have the information to make a positive decision today. That's why I'm asking you to follow the Planning Director's recommendation and defer this project.

Mr. Elizares: All right. Thanks for that. Well, my question was if you remember the farming area directly under the… the current flight plat path.

Mr. Mayer: Under the current flight path, I remember I was on Maui. There was still a plantation village there. I don't remember any particular farming, but I do remember a residential area. This was back in the sixties. The… the last of the plantation camps was still located under what would now be the flight path. But there was no flight path at that time over that village.

Ms. Thayer: Ok.

Mr. Mayer: So, I don't remember the I don't remember the farming itself. But.

Ms. Thayer: Thank you. Additional questions for the testifier. Seeing none, I just have a clarifying question, making sure I heard you correctly. Is that you recall during the time of GPAC? This parcel coming up for deliberation on whether or not to include it in the urban growth boundary.

Mr. Mayer: We looked at the urban growth boundaries, we… we the planning department gave us some maps. We discussed the… the urban growth boundaries, and we recognized that the… that… that this would not be an area that would, should be included within the urban growth boundary because of the the noise, yes.

Ms. Thayer: Ok. And at… and at that time, it was contemplated to be potentially a residential area.

Mr. Mayer: No, there was no particular recommendation of… of what it was. The community plan which had already been written prior to that date recommended that… that area not be residential because of the… the airport and that's what we complied with by drawing the urban growth boundary in a way that it would not allow for any kind of urban growth within that area.

Ms. Thayer: Ok. Thank you very much. Any additional questions? Ok, seeing none. Mahalo for your testimony.

Mr. Mayer: Thank you for taking it.

Ms. Ramoran-Quemado: Next testifiers is Albert Perez, to be followed by Edward Cordelia.

(Inaudible)

Ms. Thayer: Mr. Perez, are you there? He's online?

Ms. Ramoran-Quemado: Yeah, he's still online.

Ms. Thayer: Ok. Maybe we come back to him.

Ms. Ramoran-Quemado: So, we'll move on to Edward Cordelia.

Mr. Codelia: Codelia, can you hear me alright?

Ms. Thayer: Yes, please go ahead.

Mr. Codelia: Aloha, Chair Thayer and members of the Commission. My name is Edward Codelia. I provided written testimony on three items today. AG accessory uses and food trucks, accessory dwelling unit size, and Ho‘onani Village proposal. Rather than restate those points, I want to briefly tie them together with a single planning principle across all three items. The issue is where clear lines are drawn at the planning stage versus leaving ambiguity that creates conflict later. On AG land flexibility for farmers makes sense, but once AG parcels are used to host third party food trucks or rent based commercial activity, the principal use shifts from AG to commerce. That line matters, and it should be drawn clearly in zoning, not left to enforcement after the fact. On ADU‘s, I support additional housing, but on small lots, particularly in older subdivisions of 720 square foot detached cottage no longer functions as an accessory unit. It functions as a second house. This is

not a question of intent, but of scale and neighborhood compatibility. That same principle applies most strongly to Hoʻonani Village. I also want to acknowledge something that often comes up, developers and applicants frequently express frustration with how difficult it is to work through the County process. I don't dismiss that, but it's important to recognize that the difficulty often reflects the scale of what is being proposed. In this case, the applicant is asking for multiple legislative changes and urban growth boundary expansion, a community planned amendment and a zoning change on AG land under an active airport flight path. That is, by definition, an extraordinary request. The fact that it is difficult does not mean the system is failing. It means the proposals. Require careful scrutiny. I understand the urgency around workforce housing and low-income housing, and I respect the support this project has from people who need housing. But planning has an obligation to evaluate location, not just need. On the mainland, citing housing on the flight path or near industrial areas is sometimes treated as an accessible… acceptable trade off because people have alternatives. On an island with finite land, those decisions are permanent. And places that truly deliver quality workforce housing, that term comes with long term affordability covenants, enforceable health and noise mitigation and lasting oversight. Those… those conditions are not before you today. And one final note, particularly on the ADUʻs, County standard… standards should continue to operate subject to existing neighborhood covenants and restrictions where they exist. Those private frameworks remain important tools for compatibility. Thank you for the opportunity to submit written testimony and for the time to speak this morning and for your service to the County and the community. I'm done.

Ms. Thayer: Thank you. Mahalo for your testimony. Any questions for the testifier? Commissioners. Ok, seeing none. Thank you again.

Mr. Cordelia: Thank you.

Ms. Ramoran-Quemado: We'll go back to Albert Perez.

Mr. Perez: Aloha, can you hear me?

Ms. Thayer: Oh yes, please go ahead.

Mr. Perez: Oh, hi. Yeah. Good morning, commissioner. Oh, good afternoon, commissioners. Albert Perez with Maui Tomorrow Foundation and we submitted comments to the State Land Use Commission on the EIS Prep notice for this project just six days ago. A draft EIS hasn't even been produced, not to mention a final EIS. You are being asked to make a recommendation without even knowing what the impacts would be. County Code allows this to be brought to you before the State Land Use Commission

has even changed it from AG to urban. But that doesn't mean it's a good idea. Just because you can, doesn't mean you should. Yes, we should support housing projects that are appropriately cited and infrastructure ready. But this project is neither of those. We already know that there will be serious noise impacts from being cited directly under the airport flight path. And that those impacts will be way worse during Kona weather when planes take off using full jet thrust directly over people's homes. We already know that even if people think they're used to it, noise can have severe health impacts like stress, impaired learning for children, heart disease, high blood pressure, sleep disturbance, and that Native Hawaiians already experience higher rates of cardiovascular disease. You can mitigate the noise indoors. But do you want your kids to stay indoors all day? I wouldn't. Plus, we already know that if an aircraft crashes onto this property, we don't have enough hospital beds and there may also be casualties on the ground. So, building a housing project in this location would be a perfect example of environmental injustice. Also, there's a waste to fuels facility proposed next to an upwind of the site. That facility would process large quantities of solid waste and plastics through gasification incineration, generating air emissions and ash, and given the prevailing trade winds that industrial use would directly affect residents, again, environmental injustice. There are other housing projects coming online that are in better, safer locations, including the ones Dick Mayer mentioned, and 1400 homes at Waikapu Country Town. 500 affordables, more than they're required to provide... and that project is one that Maui Tomorrow's been supporting for over ten years. But Hoʻonani will only provide rentals for people who make up to 140% AMI for ten years.

Ms. Ramoran-Quemado: 30 seconds.

Mr. Perez: For ten years. We agreed that the County should take the lead for affordable housing like the County of Kauai does. I urge you to look at their Lima Ola project. Kauai County purchased land. Built the infrastructure for 550 homes, 100% affordable and families started moving in last year, so we urge you to recommend denial of this project because it's inappropriate for this unhealthy and dangerous location.

Ms. Ramoran-Quemado: Time.

Mr. Perez: Mahalo. Thank you.

Ms. Thayer: Mahalo. Yep. Mahalo for your testimony. Commissioners, any questions for the testifier? Ok, seeing none. Thank you again.

Mr. Perez: Ok, aloha.

Ms. Ramoran-Quemado: Thank you, Chair. There's no one else signed up either online or in person.

Ms. Thayer: Ok. Thank you. This will be last call for public testimony if you're online. Oh, is that somebody?

(Inaudible)

Ms. Thayer: Wishing to testify.

Mr. Cordelia: No.

Ms. Thayer: Oh.

(Inaudible)

Ms. Thayer: Ok, if you wish to testify, you can write to staff in the chat. Raise your hand or unmute yourself intentionally. Otherwise, public testimony will close in three, two, one. Now Commissioners, we have had lots of information to take in and digest. I presume you've been writing down or taking note of your questions. We can go around now. You can have questions of the project proponent, Mr. Ueoka, or the Planning Department staff. So, who would like to go first? Vice-Chair and we can try our, you know, keeping track of time. We can try five minutes a person and see how we do with that. Go ahead. Yep.

Ms. Lindsey: Ok. So, there's been much discussion around like… is this a local owner… who's putting this together… as I would imagine… that. That is the only way something like this could happen is because of pretty, you know, kind of established people who are familiar with the area. Maybe whatever their grandpa did this or that, and then those established relationships that kind of came with that. It was like, oh. We could potentially do this, but one of the testifiers said that there wasn't… is there… it's not owned by the… local people, somebody in South Dakota.

Ms. Thayer: Go ahead.

Mr. Ueoka: Oh, thank you, Chair. Thank you, Commissioner Lindsey. It's a South Dakota LLC that holds the property the… essentially the person in it is… Jason Stanger. He's a born and raised Maui boy. Alpha… I'm sure you've all heard of Alpha… the Construction company and this is… this is kind of his passion project right now.

Ms. Lindsey: Ok and he is not here because…

Mr. Ueoka: Oh, it's kind of… I… I work for… like I don't work for him. He's my client, so he entrusted this to me. These are…

Ms. Lindsey: Yeah, I wouldn't want to be here if I was him, but…

Mr. Ueoka: (laughter)

Ms. Lindsey: I just… like that's, you know, that's kind of, you know, if you're local, why don't you show up, you know?

Mr. Ueoka: We… I didn't even ask him to come. I thought this is a process where conditions will be discussed. Land use matters. I don't think it necessarily matters… if any of my clients ever stand before you and say I promise, I promise, I promise it needs to be in a condition. It needs to run with the land. You know, that type of thing. And today these are recommendations to the County Council, but he does support it. He's highly involved in the project, but today, it's me. We have a project manager. He's from Honolulu, but he's helping us. He has a lot of experience develop… just in development in general LIHTC project, so he's been essential. We have a engineering group helping us there based out of Honolulu, but their main, I guess not on the engineering side, but on the EIS side. Their main person, she's born and raised on Maui, she's helping us. So, it is a Maui group here. We're gonna try our best to use Maui contractors and everything. You know when we move forward with this. So, it… it's a Maui based project for sure.

Ms. Lindsey: I got that feeling when I had it, I just had to ask those questions. The…my… more concerned because these are all rentals. Is this also gonna be locally owned like? For a long time, like you know, typically you sign a lease. It's like a year, which doesn't kind of really provide you that security, that are like owning a home would provide you if you're talking about bringing people back. So, that local management… company or and owner of these rentals for the foreseeable future, they have. My question is if they have every intention to keep that property cause. I mean when you have 1200 rentals you are rich. And it is a valuable asset. In terms of our real estate portfolio and easy… easy to sell, because now you're you know… we have 1200 rentals. But so, that… that… that being said, how are you gonna maintain its local feel and identity and prioritize locals?

Mr. Ueoka: So. I've discussed this at length with Jason over time and… the goal here is… the reason why we're not saying we're 100% residential workforce housing. We're going to be all one… under 140% AMI and we'll commit to an extended period probably up to 30 years on that. But the reason why we're not saying 100% residential workforce

housing in accordance with 2.96, is you're required to have a lottery system there with the 2.96. What his vision really is… is he wants to partner with local businesses and say, “Hey, you need a block of apartments for your people” because 2.96 is a lottery. In theory, right? So, you don't get to say these will all go to Mahipono employees, Grand Wailea employees. You know, it's kind of whoever wins the lottery. So, his goal is to do some of that and in conjunction with that, his other goal is some of the smaller commercial light industrial. You know, they might be one man. They might be six, seven, ten people he wants to be able to offer them. “Hey, you want to lease some commercial space? Do you need housing for your people?” And that would be available through having the 16108 units, although deep down the light industrial and the commercial stuff is really an amenity for the housing. But we think it's a, it works a little bit both ways and as far as ownership, he does plan on holding as much as he can and as… as long as he can. But, end of the day, this is gonna be a very long, expensive build out. There probably will be Equity Partners brought in at some point. You know, I'm… but I believe he wants to maintain a controlling interest to keep it. You know, Maui.

Ms. Lindsey: Ok. I think that's all I have for now.

Ms. Thayer: Next. Commission Ward.

Mr. Ward: Thank you, Chair. My questions actually to the Planning Department. We've talked a lot about… there's various projects, various stages, sizes. Maybe provide a little more insight on what those are, where they're at. Because in my mind, a lot of stuff's always in motion, but it takes five, ten, 15, 20, 30 years depending on where it is. So, to me, the more pokers you have in the fire, something eventually is going to get done. So, that's not a bad thing, but then there's obviously the concern of too much. So, could you maybe provide some insight around what that looks like in conjunction with the Community plans and needs of housing for the island…its whole… not only just a specific area, but kind of maybe a bit more macro.

Ms. Blystone: Sure. So, if I may Chair, I'll start and then I… Jacky has done a deeper dive on this, the subject and… forgive us because we aren't the Department of Housing, but we actually don't know where all of these individual projects are. We only know from our… our… our slice of the puzzle. But if you look at page 20 of your staff report, there is a list of projects. That, either have been approved through various things, or are very close, or don't need our approval. So, for example, DHHL projects. There's three listed there Wailuku single family residential Pu’uhona, which is just over there. Waiehu Mauka, which is a very large project. That's mauka of Kahekili Highway. So Waikapū Country Town is the big… is the big one. 433… residential units plus 146 ohana. Those are all… those are all in the hopper and I, you know, I can't. I know the affordable ones are

happening more quickly than the other ones. We've seen drawings and Kurt stepped away for a moment. He'll be back soon, but we've seen drawings for those and those are moving through the process. Waikapū Development Venture is just down the street over here as well. On the makai side of Honoapiʻilani Highway. Waihee affordable housing is… I'm drawing a blank on that one. Kahului Civic Center you've seen just recently. Maui Lani, who the testifier spoke to. We've been in conversations. So, this among the things that I said that we are going on in the background that you haven't seen yet, we've been in conversation with them about swapping some of the uses that they have on their property to make some of that housing happen more faster. Sorry, I. Missed the last one, Hale Pilina. I'm not exactly sure where that one is in the process just yet; it… it stalled for a minute and then it came back. So, those are the ones, just like a… like a quick study of what we were able to find out. I'll turn it over to Jacky now and see if she has anything that she wants to add on that subject.

Ms. Takakura: Thank you, Director. So yes. The list on page 20 are some examples. Hale Pilina on Puʻunēnē Avenue is under construction. You folks have seen Civic Center, Maui Laniʻs been ongoing for a long time. Waikapū Country town is pending the wastewater facility. Queen Ka'ahumanu Center is not even on here, but as you know, they got their zoning correct. They would just need an SM1 permit. And then others, a Kahului Shopping Center, I've met a couple times with the representative of the property owner, but I can follow up with him on where that's going. They were trying to sell it to someone who could do follow up on the missing middle housing type… over there. We have been. We did start on our inventory. Update because the last one was done in 2014, and you know this is our second MIP Growth Boundary Amendment request. So, we haven't had to… you know, take a look at this as closely as we do now. And so, it's good timing because it's been about a decade and so… we are looking at that. There… there is land. I'm not ready to give any numbers because we haven't had this checked by our step… You know other divisions, but you know there could potentially be over 1000 acres available in central. That's within the MIP growth boundary, designated urban, and then from what we can see from our… our viewer, and you know permitting. It would be… Perhaps over thousand acres available in central. And like I said in the report, we should have that ready by mid… mid-year. This year, that would give us a better idea of… of the vacant lands available for that… could be development… that's not in state AG or not conservation and within the growth boundaries. So, preliminary numbers do show that there is some available, but I'll have that ready by middle of this year. Thank you.

Ms. Thayer: (Inaudible) on your question. Follow up.

Mr. Ward: Thank you for that. I guess I'm trying to wrap my head around. Mapping out the locality of each of those. What that density looks like from a traffic perspective, but

because they are kind of slightly dispersed areas. So, I'm just trying to, in my mind, kind of navigate like… is there a group over here and then another group over here that's kind of ok cause two separate district. So, to speak. I'm trying to see in my mind understand kind of… maybe overlap of these are too much in one area.

Ms. Thayer: Director.

Ms. Blystone: So, I would direct your attention to the letter we got from Hawaii Department of Transportation to talk about to… to kinda dive into the traffic impact perspective. I will say that I've heard from the Council member from the Waikapu area that they have gotten more than their share of projects recently, and they're kinda… they're kinda good with that number, but because those things do produce traffic and a lot of the traffic that occurs especially in this area is the result of people having to drive their kids to school. Because we don't have pedestrian pathways for… for kids to get to school safely. So, that's certainly something worth considering to and I… I didn't read the TIAR cover to cover like I'm sure you did. But there's kind of that, that the impact that traffic will have is reflected in that. So, that may be the place to do a deep dive to into like the… the potential impacts. On that initial TIAR, we will know, I think that we put it in our letter… cause we also respond to the EIS, PN, a few weeks ago. I think that's where we put in… a request for the applicant to study more than just the housing project because if you're doing a mixed-use development, we need to see all of the potential traffic that would be produced because people will be coming to this place in in addition to just living there, right? There will be. Conceivably, if it's built the way that it's been represented in the last three or four years that I've been hearing about this project, people will want to visit there as much as they'll want to… to look.

Mr. Ward: So, I guess where I was kind of going is that almost have a clean slate with this project. Where some of these others are existing kind of filling in. Which talking about walking past and like past maybe. Need more challenging to implement to have a good quality life that's fully encompassing. Whereas this project, kind of has a clean slate to be able to put those things in place, that's where I was kind of trying to balance out and… and understand.

Ms. Blystone: Sure.

Mr. Ward: Kind of density location and overlap things of that nature. So, it really wasn't question.

Ms. Thayer: Commissioner Deakos.

Mr. Deakos: Thank you, Chair. Mr. Yoka. I.... Few questions. The first that you mentioned now for construction. Can you explain why they're… why they registered in Dakota? If they're local construction company?

Mr. Ueoka: Well, it… it's actually, I'm sorry, Chair.

Ms. Thayer: Go ahead.

Mr. Ueoka: Oh, Commissioner Deakos, it's actually not the construction company that's doing this. I just referenced them because he's the... He was like the principal of the construction company. But this is his personal… I'm not sure why it's registered in South Dakota. But that's where the LLC was.

Mr. Deakos: Ok, so Jason is the landowner.

Mr. Ueoka: Basically…

Mr. Deakos: And his… ok… LLC is registered in South Dakota.

Mr. Ueoka: Yep, yep.

Mr. Deakos: The… you mentioned 140% AMI. We know that you… know the… the end goal here. We heard some testimony on the average income local families 40, 50 thousand a year. I mean, how are you? How are these families going to afford anything above eighty percent AMI?

Mr. Ueoka: So, the plan is we want to have some LIHTC which should be 60% and below. And I said, oh sorry, I shouldn't. I'm trying to be sassy here, but up to 140. You know, the market's going to support what the market supports here and there probably will be a mix of various income groups in the just meeting the 2.96 requirements. So, you know 25% would have to meet that. So, that's around 400 units. So, in there you'd have to have a certain percentage below 120, a certain percentage below 100. So, it'll be… it'll be worked out, but at the end of the day the market dictates what you can charge for rent. Putting 1600 out there probably will lead to lower rent prices. Which you know may not be the best for the bottom line, but it's… this is a more of a passion project than a lot of other things.

Mr. Deakos: Ok. There was some discussion about the… the noise monitoring. The DB levels were averaged out per day. Can you just address that?

Ms. Ueoka: So, that's the way those LDN. It's just the way they measure noise around airports. It's very interesting, but yeah, it's an average. So, a single event might be louder and again. Going to work with our professional consultants and its… as Commissioner Lindsey brought up. My client wants to be involved and control this project, so he's really not gonna build something that no one wants to live in. You know, it's gonna have to be built in a way where people want to live there. And yeah, the AC will probably be expensive, but I will say. The whole thing about PV on their… airports and stuff, I did talk to the State Airport DOT guy for another project. One time and he said, yeah, you just gotta work with us on it. But just for reference, Honolulu International Airport has a bunch of solar on it. So, it's not like impossible to do. So, he just said it's a matter of working through it. So, we will look at that… you know… see if it's feasible and try to keep those costs down for everyone as it's rentals.

Mr. Deakos: Yeah, I think they can put any glare stuff on it now. It's not as big a deal. Last question the so… because of the lack of infrastructure. Are you going to be asking the County to subsidize portions to bring that infrastructure up?

Mr. Ueoka: That's… I… thank you very much for that question…actually. Yes, we will be asking the County, we want to partner with them on the water system because we believe the source we've located, it'll need to be treated and you know… you'll have to meet all those, DOH requirements. I should say needs to be treated but. You'll have to meet certain water quality standards. And we want to work with the County. We believe the source can supply more than just our project. And on a broader infrastructure note, a lot of these other projects or areas that are entitled or within the urban growth boundary, I don't know if you guys read the newspaper too often, but Water Department has already said we're in some kind of stage drought, there's… there's no source. You know, even if they wanted to give you a meter, they don't have the source where it's very limited, I should say. Central wastewater treatment facilities, very much near capacity. I'm sorry. Wai… Kahului, they're building the central one, but you know that might be 2030, 2031 to be online. This project is… because of where it's located. It is kind of on the fringe, so we can bring resources in because there's existing, you know, AG wells out there in Central Maui, there's space on this property to build a small wastewater treatment facility. It's very costly. But at least it can be done. A lot of other infill projects either. No space to do that. Or, you know, those other projects will find that when they go to get their water meters for a big building or something. A line might not be big enough leading up to the building, so they'll have to run two miles of instead of eight-inch pipe, twelve-inch pipe. They might have to dig up Kaahumanu Avenue to do that. To get the sewage down to… or sorry, the wastewater. Down to the plant, you might have to upgrade the line to a… you know to another pump station… force mean. So, sometimes just because it's already in the area doesn't necessarily make it easier to develop it, and that might be why some of these have never

been full force moved ahead because they might have sat down and talked about civil engineering and… and got scared. So, my point on infrastructure. So yes, we will be reaching out to the County for assistance with infrastructure and I guess for me, it's not just for Hoʻonani Village, which is a big project, but the County's 23 acres is nested right in there. It was specifically acquired part of that A&B, Waiʻale purchase sale, and you know. We can work together to get their project moving forward. The twenty-three acres and ours. So that's our goal. So, thank you, Commissioner.

Mr. Deakos: Ok. And then just… as you said, the water is affecting every project. So, what is the plan? To find the water that doesn't exist.

Mr. Ueoka: So, there's an… well, I'm not gonna say it doesn't exist. It just isn't, hasn't been tapped as a resource necessarily. So, it'll be a process. We'll have to work with CWRM. We wanna work with the Department of Water Supply. We've talked internally with our team, and we don't believe it should be owned and run by, you know, one entity. It really should be where you develop it with the County and then you hand it to the County and the County gives all water meters as it sees fit in areas it sees fit where it can supply. But that's our plan. There's an existing source nearby. And it's chicken egg, right? Nobody wants to spend millions of dollars looking and developing and testing a water source if all of their entitlements are up in the air. Because all that could happen. Is they spend those millions of dollars and if this body or the Council or the State LU uses says… nah, we don't wanna do it. Just… all that money's gone. And somebody else might pick up the ball and run with it. And you know, that's a little concerning to us. So, that's why we're trying to get our entitlements done and then we'll move full blast into the water. Again, we don't do a thing until. Well, I'm sorry. Not we don't do a thing, but we can't develop Hoʻonani Village. Until the FEIS is accepted by the State LUC and then they give us a district boundary amendment from AG to urban, the uses we can do without that DBA are very limited. Not useful, you know. Very, but there is overlap. Don't get me wrong, between the uses but very limited.

Mr. Deakos: Ok. Thank you. One last question to State… to State… to the County. So, there was mention of these other projects have by all means… can you address the water? Do we still have? Find the water or what's the stat.

Ms. Thayer: I wonder if our ex-officio is still on… Miss Blumenstein. Are you still on the line with us?

Mr. Ueoka: Chair.

Ms. Thayer: Mr. Ueoka.

Mr. Ueoka: Oh, just a quick one… of the other list. I can only say for sure. Waikapū Country town has water. They don't have wastewater though, capacity. They have water, though.

Ms. Thayer: She's still in line? No. Ok, Director.

Ms. Blystone: Yeah, so I… I.

Ms. Thayer: Wow, today it is…

Ms. Blystone: One of those days with lots of interruptions. Thank you for muting your line. So, to answer… so the planning department is responsible for our area, right? So, but we often have situational awareness on other things because our job is to kind of cobble a lot of things together to make a recommendation. I will say without doing some more research I have old data in my head on this. I think it would be better if we could get Department of Water Supply to speak to some of these projects that would be… That would be much better, and I… I wouldn't want to lead you astray.

Mr. Deakos: Ok. Thank you, Chair.

Ms. Thayer: Commissioner Ward.

Mr. Ward: Thank you, Chair. There's a statement that was made around schools and it raises, I think, a valid question of… it's a lot of number of units in that area. Without that infrastructure of school system. And I don't know really who I'm addressing this to, but it… it kind of seems like an elephant in the room. So, to speak, of almost an injustice to families will be moving there… to have them say, hey, now you have to cart your kids off to school. It's kind of opposite of what we're trying to build, and I go… not looking for you to say you're gonna build schools, but I guess where does that fit in? I guess maybe it's planning. How does that get factored, in because I think it's an important component. Of you know, saying yes, let's proceed potentially. And then that type of infrastructure is not there. So, how does that work?

Ms. Thayer: Director.

Ms. Blystone: If I may. Clarifying question. You're asking how schools get built, or how the decision is made for where schools go?

Mr. Ward: I'm not sure what my question is.

Ms. Blystone: Ok, I'm gonna make some inferences based on the things that you said, so. So, the Planning Department, it says State, the State runs the school system as you know, and they go through their process to determine where schools are. It's usually by population density. We have not, and Kurt, correct me if I'm wrong, I don't believe we received any comments from Department of Education on this project, but I could be wrong.

Ms. Thayer: I believe there is a comment that is or maybe two of them.

Ms. Blystone: Ok, great. Is that a confirmation? So, I would defer to their letter. Whatever they said to you about… about this is… is where you should go.

Mr. Ward: Ok.

Ms. Blystone: Planning the… the most that we typically do is reflect the community sentiments. If there is a need for an additional school that the Community identifies during the Community planning process. We will reflect that in implementation actions that get assigned to the Department of Education, that they may or may not look at right. It's really, it's really up to them, but we do record that need from the community.

Ms. Thayer: Can I ask a follow up question to that? I'm pretty sure in my experience and what I've observed that usually you would… when you go through the Chapter 343 EA or EIS process one of the impacts you assess is, you know all the public infrastructure and facilities, which includes educational institutions. And that would say, this is in the Kahului school district and kids would go to this and this and this school. Presumably this is the capacity of the school. If they are at capacity or not, and then you would determine through that analysis whether potentially a school impact fee is charged or an assessed, or if you need to set aside land for a new school. But that would all come out, I believe, through the Chapter 343 process is that so, Director? Can you elaborate on that.

Ms. Blystone: Yes, you may ask. The… the project proponent how they're addressing that? And their development of their draft EIS.

Ms. Thayer: Would you like to propose that ok.

Mr. Ueoka: Sure. Thank you. Thank you. We… that is being studied, and we are reaching out to DOESFA school facilities authority for comment. They did write a letter. They said it probably should be studied, but recent… their statement is recent shifts in enrollment and associated redistricting. Redistricting in Central Maui highlight the importance of

understanding how Hoʻonani Village may or may not further impact area of school. So, it … it's just taking a look at. My understanding currently though from working on other projects is like Maui High, is a little underutilized right now with the opening of Kihei. I believe. Gosh, can't remember… I think it's intermediate schools are very, very much needed in metro Maui and they are developing one in Waikapū country town. There's a super school site which is supposed to have a elementary and… Intermediate School on one campus because A&B Waiʻale project was supposed to have the Intermediate School, but being that the County acquired it for conservation, it was moved out. I will say though. Gosh, if… if you wait for a school to be built before you build housing, it's gonna be a little while. It's… it's a very involved process. I'm not criticizing anyone involved. It's just a very involved process to build a school. I've kinda on the fringe of it and it's… it's tough. They do a… they do a lot of hard work to figure all of that out.

Ms. Thayer: Director.

Ms. Blystone: Chair. Just a couple things. We understand that Giovanna Torres from Department of Water supplies is on… may be able to answer questions. I'm not sure. Then also too, we noticed that Commissioner Kealoha's hand was up earlier, so I don't know if…

Ms. Thayer: Thank you. Sorry, Commissioner Kealoha. If I don't call on you, please make big movements. For… Commissioner Ward first… that's good for you. Ok, Commissioner Kealoha.

Ms. Kealoha: Thank you. I have a question for… Mr. Hopper, but now, I don't see him there.

(Inaudible)

Ms. Blystone: Every time he goes through it.

Ms. Kealoha: Well, it doesn't. It could be the probably the Department too, but I'm. I'm just wondering… like what is the process here? How does the Council user recommendation? I… I know in the past there's been… like they need to have two thirds vote to go against what we recommend or like what is? How does this all work out here?

Mr. Hopper: This is a Council resolution, so generally the Charter would say… that in order to pass this… in a manner inconsistent, if they do not adopt a… something consistent with your recommendations, essentially, they would need a two thirds vote, or if they don't get a recommendation and pass it. Despite not getting a recommendation,

they would need a two thirds vote so that… that's the general requirement. If… I think basically. If you… I think if you make a recommendation to them and you… and they don't adopt it, they do something inconsistent, then they would need a two thirds vote. It's a little, perhaps more complex than that, but they… they are… are more restricted by the action they would take on… on… on a Council initiated proposal than they would be for… a regular change in zoning application or a Planning Department-initiated proposal. So... So, they have to… when it comes down to is that…that they can ignore your recommendation, but they need six votes to do it.

Ms. Kealoha: Ok. Thank you. And then my question is for my next question, if I may have another question is for Mr. Ueoka. Can you clarify the project team and like… I guess the experience of the developer in producing a development of this capacity or of similar capacity in size.

Mr. Ueoka: Thanks, if I may Chair.

Ms. Thayer: Go ahead.

Mr. Ueoka: Ok. Thank you, Ms. Kealoha. I gotta say I don't know any team that's done a sixteen-hundred-unit project on Maui. To be fair, to be quite honest. Kehalani and Maui Lani? Kinda. They've gone through teams. They've… they're our biggest project districts for this team in particular. So, Jason and his group, their civil site work contractors, so they're very experienced there. We have Matthew Penaz (Last name unclear) from he's our project manager from Oahu. He's worked on a lot of large-scale projects. I'm not sure if any single project was ever 1600 units, but he's worked on many projects. We have PDG. They have experience based on Oahu, but they have a lot of experience doing projects on their parent company out of Portland. But they're very experienced here. They're working on multiple projects here on Maui. I'm the land use attorney. I… I work on a couple projects, here on Maui. I have one close to 1600 units, but not quite there. That's huge. I've worked on Kehalani and certain things in Maui Lani also… as far as when you go to build it, that's… they're not part of our team right now. We're just in the entitlement process. So, when you go to build, there'll be, you know, construction contracts, construction managers, that type of stuff that's brought on. But right now, we're just in the entitlement getting moving.

Ms. Kealoha: Ok. I am very supportive of affordable housing. I think everybody on this Commission is. I have… I guess my like two biggest concerns are like one that. It's not going through like the review, the same review that we see for like environmental review and so… socioeconomic impacts. And then the second one is. What the… Planning Department has brought up with like the YM1. Why not R2 and… and… And I understand

that you know there's a lot more flexibility with M… with M1, but the way that this project has been discussed… In this meeting is that it's being sold as like a housing development, but if you do the calculations, not even 40% of the land is… that's being converted, is being used for housing. So, anyone could argue that this is primarily commercial and industrial, with housing as a secondary component? Can you comment on that?

Mr. Ueoka: Of course, and please rest assured that this project will have to have a full FEIS accepted… accepting authority is the State LUC… as far as the… the land, it's 165 acres for the whole piece, you know built into there are some roads. Open space, drainage takes up a lot of space. We do have a bunch of acres. I can pull up the map. Have it somewhere.

Ms. Kealoha: Yeah, maybe my calculations are wrong. I mean, and if they are, please like let me know.

Mr. Ueoka: I've… to tell you the truth, I've never actually done in percentage acreage calculation of it. It's always just stuck in my mind that 16108 units is a lot of houses on 160, a 165 acres really isn't that much land and 1600 units on it is a pretty, you know, it's a pretty good size. It's a lot of land. Don't get me wrong, but it's not, Kehalani. I… I know it's Kehalani hundreds of acres. Maui Lani is spread over hundreds of acres. Waiʻkapū Country town is 500, something acres for the housing component. So, you know that's. Acreage wise, maybe there's a lot of open space and light industrial and commercial, but as far as the units, it's going to be, I believe six build outs at 268 and each ones are not ten acres. Six. Yeah, Six.

Ms. Kealoha: Ok.

Mr. Ueoka: And I guess I should say too. Because it's M1 light industrial. If there's no desire or need for some of the other types of uses, the availability, the flexibility is there to build more housing. Not gonna. You know, that's the flexibility.

Ms. Kealoha: Yeah, yeah. And I'm also supportive of industrial like I know that we… we do need more industrial on Maui too. So, it's not that I'm like against it. I just want to be just like very upfront. My… one more question, Chair if I may.

Ms. Thayer: Go ahead.

Ms. Kealoha: I'm… Is it true? I'm… I thought I read somewhere and maybe somebody brought it up, but after the ten years of affordable, does that mean it's not affordable anymore? The units. Are they only affordable for ten years?

Mr. Ueoka: So.

Ms. Thayer: Go ahead.

Mr. Ueoka: I mean, Chair. So, because we're doing rentals. Yeah, 201H talks about ten years, 2.96 it… It's a whole bevy of numbers and names and stuff, but 2.96 requires for rental projects to be at 30 years of affordability. So, all that happens is it no longer is subject to deed restrictions and affordability requirements. The projects willing to commit to 30 years of 140% or less. We can talk if there's a desire for longer, but that's our initial commitment and we believe that…this is… this is what this area will command. It's not gonna ever be a very… it's not gonna be Kakaʻako, you know, I don't see that. It's not gonna be like that type of rental demand in Kahului, behind Target and Lowe's next to Maui Business Park. And across the street from the old mill, you know, it's a rentals. They… they control themselves in a certain way too.

Ms. Kealoha: Ok, so the affordable units are not affordable in perpetuity. That's what I'm getting right. That's Ok. I'm just asking the question.

Mr. Ueoka: Yeah. No, no. Yeah, correct. We we're not seeing the word perpetuity. I will say the average building life is around 30 years without massive… reinvestment in it. So, you could say for the life of some of these buildings, they will be affordable.

Ms. Kealoha: Ok. Thank you. That's all the questions I have, Chair.

Ms. Thayer: Thank you, Commissioner Kealoha. Commissioner Ward.

Mr. Ward: Thank you, Chair. Speaking of the light industrial, if I recall South Maui Community plan, the base yard was expanding to do light industrial as well I recall correctly. So, I'm just taking a bigger picture. They're not that close to each other, but they're not that far from each other reason here. Are we having a saturation point of light industrial in kind of that corridor path?

Ms. Thayer: I… I would like to ask a follow up question because I believe I read this within the staff report that there was reference to a 2024… research paper in support of the Central Maui Community plan that called out a bunch of like policy recommendations. And planning principles and guidelines to go about planning for the Central Maui Community plan update and one of the specific line items within that was to… I believe something along the lines of my computer's off right now. So, I can't pull of… up that staff

report line, but... I believe it was something along the lines of reducing the amount of light industrial within Central Maui. Director.

Ms. Blystone: Chair, if I may, both these questions I think are best answered by Jacky. And it… so, I'll, I'll let her do that.

Ms. Takakura: Thank you, Director. Thank you, Chair. So, I believe Commissioner Ward was asking about another Maui Island plan amendment for Keokea Industrial. Is that what you're asking? That came up with the South Maui Community plan.

Ms. Blystone: Also, probably Pūlehunui, the space that's across this, the existing base yard that got expanded. But that's heavy industrial.

Ms. Thayer: Yeah.

Mr. Ward: So, it's heavy.

Ms. Blystone: Yeah.

Ms. Lindsey: And also, I think there was another. Special management use permit for the recycling area.

Ms. Takakura: Yes.

Mr. Ward: That's a little bit further down.

Ms. Lindsey: Yeah.

Ms. Takakura: I can speak to the Keokea Industrial ones. So, like this project, the Keokea Industrial for South Maui and this is where the… the Kihei recycling or Hawaii materials recycling facilities that and they have a special permit I believe. So, there's already some use, but the proposal is to expand the Maui Island plan urban growth boundary for that, and the South Maui Community Plan Advisory committee and this Commission recommended if the MIP urban growth Boundary Amendment does get approved, then that one would be industrial. So, that we… are actually on hold with that one too because like this one, we need to do this urban or this land inventory to see what do we have existing land that can be used for residential or in Keokea Industrials for industrial use? And so, once we have this and this is the one I was referring to very, very preliminary numbers, we can say yes, we need to expand the urban growth boundary or no, we don't need to. So, both of those are very similar where we need to do this deep dive into, well,

what do we have and what's available. And this is all in Maui Island Plan 8.1.B that says that before you expand these growth boundaries, you need to check this inventory… and like I mentioned, we've never had MIP amendments before. So, that's why we're a little bit… we've never had to do this inventory update. So, it's good timing. We need to anyway. So, that was question number one and then you asked Chair Thayer about some other recommendations in the Central Maui Community Plan update resource papers. So, I acknowledge we are behind in our community plans, and I can only speak from my time in Long Range division, which is from 2023 on. When Kate was there, they got West Maui done and that was great. And that kind of got the ball rolling for starting on central. I mean south, south that Kate was involved in also and we have also going central and we should have a draft plan by the middle of this year, hopefully by the end of June. But we do have these resource papers that we've had, we've published on the "We Are Central Maui" website and the one that Chair Thayer was looking at, is our economic development resource paper. And that's from last December. And just some of the recommendations from them is, encourage building upward rather than outward. Focusing on intensifying development in the existing more urban areas of central Maui, particularly along major corridors and within existing underutilized centers. I just want to add that when we're talking about building upward, it certainly does not need to look anything like Honolulu. What we would envision here for Maui would be more like a mid-level rise like maybe four to six stories at the most. So, don't. We'll never. Well, I hope we never look like Honolulu. But yeah, maybe four to six stories. That might be about as intense as we get. There's some other pointers from this. The core of Wailuku presents opportunities for infill and mixed-use development due to the amount of surface parking and adjacent low density residential areas. Ka'ahumanu Avenue corridor also offers potential to decrease the amount of low density residential designated land and help encourage delivery of more diverse housing types, including multi-family and then the last one I would just want to quote. Seek opportunities to reduce the amount of land designated for industrial development by striving to balance the short-term demand for new industrial space with limited long-term need. So, that means the consultant, when they did the forecast, they saw limited long-term need. There is some short-term demand, but the long-term need, they said we're going to be pretty good with that. So, that's I believe what you were asking about, Chair Thayer is that right?

Ms. Thayer: Yes.

Ms. Takakura: Ok.

Ms. Thayer: Thank you. Follow up question.

Mr. Ward: Yes, no, I guess I was remembering that South Maui that the central base yard that is currently in place believe they made a request to expand.

Ms. Takakura: So, Chair, if I may. I believe that was a request for some industrial expansion that was made by, I believe, Pacific Rim land… maybe. So, that one would have been outside the urban growth boundaries and I kind of think, I don't know if it gained any traction with the advisory group or the… or the Commission that it was brought to. And so that one is not included in the draft South Maui community plan. But they could. They could still go through this whole process with the MIP and Community Plan amendment and so forth.

Mr. Ward: Again, I was looking from a proximity, not from each other. So, is it? It's not in there then.

Ms. Thayer: Yep, nope. Worthy question, Director.

Ms. Blystone: Yeah. Chair also in the South Maui community plan, around that area though. There… there is some expansion of heavy industrial but not… not certainly to Jacky's point, that. That piece. That Pacific Rim land brought forward is… is not part of that. There's also been some movement, although not… not any proposals that I am aware of, for some discussions around the Puʻunēnē mill site… but nothing, nothing confirmed yet.

Mr. Ward: Yeah, I think it's my question really just be is… I think we need to be mindful of the macro in a lot of these cases cause it's easy to think to focus on the one specific project. But look in the adjacents that are next to it, because…

Ms. Thayer: Director.

Ms. Blystone: Chair, if I just may add some, like plan-ery stuff to the… the way that we do light industrial zoning here is very strange. This… this stacked zoning is what we're… what it's typically referred to. It's just like, yeah, all these light industrial uses plus everything else that is also in other districts, which is not… not good planning. And I'm sure during the Title 19 rewrite there will be a moment where we have to grapple with this question. So, that I think that's part of the reason why the project proponent likes this is because it does allow this maximum flexibility. But maximum flexibility is also not great for planning and thinking about infrastructure. And the future uses of that space. And so… so that's the reason why the Department, you know, kind of questions that… especially if the intention is to do something a little different, typically with a projects this big, what we would say is ok, where do you want these things to go…And then we… then we make a

plan that makes sense for that space. And sometimes it's not all one thing. A lot of cases, it's not all one thing, its many different things depending on… where those uses are expected to go. So, I'll stop there.

Ms. Thayer: Thank you, Commissioner Deakos, and then Commissioner Kealoha.

Mr. Deakos: Thank you, Chair. Just clarification, Mr. Hopper, so. I think you said it, but I just want to be clear. So, if we… for with Planning's recommendations that would require Council by vote if we make substantial changes to, for all that requires six vote. If it was a denial that requires a six vote.

Mr. Hopper: Well, I'm trying to. Well, it depends on a lot of it depends on what you recommend. If you if you recommend consistent with Planning, which I believe is to defer action until certain things happen, including the EIS is prepared and an application filed, the Council could override that by… by doing something else, such as passing the ordinances that would require a 2/3 vote or six votes, I would say, and I advise this Council against… adopting the zoning ordinance. Because, until the State Land Use designation has changed, because currently the zoning is aggregate, the State designation is agriculture, and the zoning is and… and the zoning is agriculture. You'd be changing to light industrial while the State is still agriculture. And I would generally advise against doing that. Strictly legally speaking, the… the… the urban growth or the Maui Island plan growth boundary. Community plan change and community plan change. I think those could happen prior to the land use Commission's action. In fact, I think the Land Use Commission has requested that if the project's going to go forward, that that should happen first. So, I do think the Council does have the ability to… to act on those two ordinances, but would I think strongly advise that the zoning ordinance not proceed until after the State Land Use Commission… changes the district boundary from agriculture to… to urban for… for the portion of that project. But speaking as far as the Charter, it's it's correct. Whatever you recommend. Whether it's consistent with Planning's recommendation or something else, the Council, if they, if they adopt something inconsistent with that, would generally need a 2/3 vote in order to do that. But… but could do that.

Mr. Deakos: Thank you.

Ms. Thayer: Commissioner Kealoha.

Ms. Kealoha: I lost my question. I forgot my question. Thank you. Sorry.

Ms. Thayer: I have a few questions, I'm making sure. Well, I have several questions. But I want to make sure, Commissioner Ward.

Mr. Ward: Thank you. Would… understand you want M1 as the designation. Would you be open to? Restricting certain types or limiting certain components out of that. So, I hang a full caveat of everything, whether it be ones that you'd be willing to eliminate… so, it's a little bit more focused for us.

Mr. Ueoka: Thank you, Chair or… open to it, of course. Could also do a acreage restriction or something to that effect, you know, or a restriction that you gotta hit. You know… the goal is to hit the 1600 units. You know… that that type of thing. Totally, totally open to getting creative in that sense.

Mr. Ward: Thank you.

Ms. Thayer: Vice-Chair.

Ms. Lindsey: Same topic. So, growing up as a kid, I grew up behind my parent's businesses. Lumber Yard, hardware store, restaurant, all of these places. Car repair place and those are… a lot of those I definitely would not expose my children to. Given the choice. But I do… I do understand the need for my parents to live near their work, which is why we were there. And really, I mean, if I were to imagine a great community, walkable and all of these things. You live near your works. You don't need to drive, eliminating traffic blah, blah. We talk about this all the time. But also having that lid open to expose them, potentially to… what I was exposed to, you know, auto detailing and, you know, car repairs, all of that like… no like we know that's toxic now. And so having this open, open top is a concern of mine just for the health and welfare of the people who maybe are not… like they're choosing to live there because that is what a… what is available given the choice like, I would rather live up country. I live in town, but this is what it is. So, like, I just want to… in terms of health and welfare, health of kids who, you know, were in me like how? How would you… you know, limit that or like, you know, kind of keep a cap on like, Ok. We know it's allowed in your use, but also there's a baby next door. How? Like how would you manage… cause you would be able to manage that because these are rentals. Do you have comments?

Mr. Ueoka: Yeah, of course. Again, like the focus here is housing, another percentages. So, thank you for pointing that out, Commissioner Kealoha. The percentages don't necessarily, you know… it's different cause it's dense housing. But yeah, the goal is to build a community where people want to come, where they want to live. And those things

you're talking about, you know, that isn't necessarily conducive to that. And we do have the ability through our, you know… It doesn't necessarily have to be because some County or government agency said you have to do this. People do the right thing because they want to build a good product. A lot of the time, you know… they there's gonna be ownership here and they're not gonna wanna… It's not gonna be want to create something that people don't wanna live in so. The way it's laid out currently, the light industrial uses near the wastewater treatment facility are separated, segregated from the housing areas. And that's completely on purpose, yeah.

Ms. Lindsey: Well, no, I just you know… just intention like… ok here. Have everything. Put it where you want. It's kind of where, you know… that's why that allows for flexibility, but that also allows for a lot of trust for us to have in you that you are going to do the right thing.

Ms. Thayer: Oh, go ahead, Commissioner Deakos.

Mr. Deakos: Just along those lines, I think someone mentioned that waste to energy going up on the county parcel next to this… is that.

Mr. Ueoka: So, if I may Chair. So across of, I always get this messed up. I think that's Lehu Road across from Pulehu Road by the Safeway. I believe… EA was submitted for a waste to energy plant, but… I… I could be wrong but… I would imagine that project would have to come to you guys either for some kind of conditional permit or a special permit depending on the size of it, they might have to go to the State LUC. I'm not sure, but that's just been discussed it. I… don't… you guys haven't seen it yet and I'm pretty sure it'll have to come here first.

Mr. Deakos: Thank you.

Ms. Thayer: I have a few follow up questions to everything that's been brought up here and I'm… I'm to be quite honest, I'm…. I'm having a hard time with our whole entire project questions only being able to be asked of you and I'm not discounting you, Mr. Ueoka, by any means at all. But like we've had very difficult projects and… and the project owner proponent has been present like they've… they've… they've taken the hits and if… if this is a passion project by a Maui guy and it's like as good as you are representing that it is. Like… why would he not be here to champion his project? I am. I'm… I'm having a hard time with that, in, that we've like, had to like pry and dig to understand like, who is the owner and who is the applicant like… That it's not just up front. I'm having a hard time understanding like why that would not be here and the benefit of having… the like… the owner and applicant here…present is like they're able to like, hear and feel… All of our

concerns, and quite often, even though they have their lawyer and their consultant and their whole entire team, they like hear and feel everything that is going on with us. And quite often they do come up to the podium and be able to like… speak for themselves and provide that. And we're being asked to like… trust a lot, which is all willing good, but it's hard to do that, when we don't have the actual person or persons here before us, and I just need to get that off of my chest. And… and we've heard reasons why. But again, I… I still can't fully embrace. Why not? This all being said. I have many questions. And I'm and I'm not sure where to start and maybe we just start in the beginning, if we can get like clarity one… on there's 16108 residential apartment units and it's been said in various places between… the various versions of the PowerPoint that were provided the like… follow up correspondence to County Council. The packet that was given to us. The follow up letters like, is it? Is it approximately 50% workforce housing? Is it 100% workforce housing? Is that even like known?

Mr. Ueoka: So, it's 100%... we can commit to 100%, 140 and below, whether or not they'll meet the requirements of 2.96 that's was discussed. We are planning on doing a 201H projects which will require a majority of the units to be to meet those income guidelines and requirements.

Ms. Thayer: Ok and then. Thank you for that. So, 100% AMI or below. Like would you be comfortable that being memorialized in a condition? Cause I think otherwise, we have no means of ensuring that that actually takes place.

Mr. Ueoka: If that's your condition, yeah, we'll… we'll. We're accepting of it. You know, we have no choice really. We prefer flexibility, but we I understand where you're coming from.

Ms. Thayer: Ok. Yeah, cause, you know, like in exchange for the trust, there's got to be something like, what are we trusting is going to happen. And then… are these… so these are multi-family units. I think I read somewhere within all of those pages that they would be three stories or less.

Mr. Ueoka: That is my understanding, construction standards might change if they find something more efficient to build it. But right now, the plan is three stories or less.

Ms. Thayer: Ok, but that's not like memorialized anywhere.

Mr. Ueoka: Correct. Those are… Those would be construction plan standards.

Ms. Thayer: Ok.

Mr. Ueoka: When they actually go to build it. Gonna have someone design it, and it'll probably be the design will. We're already working on design actually, but it'll be 100%, you know… Efficient and it'll have to work cost wise too.

Ms. Thayer: Ok. And I… I on that note, I think I heard it said that there would be like blocks would be given to local businesses for them to develop housing for their employees.

Mr. Ueoka: No. So, what I meant there was the flexibility by not being required to follow the lottery requirement of Chapter 2.96 would be there… where the owners would have the ability to work with local businesses to have units available for their employees, for the local businesses employees.

Ms. Thayer: Ok. I think I might need more clarity on how that would work.

Mr. Ueoka: So, there will be a, you know… perceivably a cap. That'll be a recommendation on cannot exceed 140% AMI, right? So, if there's 16108 units and 805 of them are under 201H, so those are those are required. I would assume County and HHFDC have a selection process that they'll require for those. The remaining units, the 50% minus 1, I guess. Would be open to standard rental processes where people apply, however. Some organization could come and say, “Hey, we need 30 units for our employees”. So therefore, as the landowner, you know… or probably it'll be the rent, they'll have a rental management company can work with that agency directly and work with them on providing direct leases… It'll be to their employees or to the entity.

Ms. Thayer: Ok. Thank you for the.

Mr. Ueoka: Different thought, for real.

Ms. Thayer: Yes. Ok. So. Within the three bills going through Council, there's and like between those and what's written in the EIS PN and what was in the presentation today, I feel like there's a little bit of. Maybe difference or discrepancy in what exactly is being sought? For example, the Community plan amendment from AG, I believe initially at some point said business multi-family and then it was light industrial. So, the PowerPoint to council said business multi-family. I think the EIS PN says light industrial. But then today in your presentation, you're seeing TOD? Or COC?

Mr. Ueoka: So. Ok. If, if I may Chair. So, three bills right, the first one is for inclusion in the urban growth boundary. That… that little difference was my fault. I didn't realize that there are already three acres in the corner that are included in the urban growth boundary,

so that was corrected. I worked with DRIP committee. That map was retransmitted. Community plan amendment was from AG to… I wanted a business multi-family after discussions with the Planning Department, over time, and at the DRIP committee, it was made clear that Planning Department's position is that business multi-family is not consistent with light industrial. The interesting part about that is nothing in the Wailuku Kahului Community plan of 2002 is fully consistent with light industrial. So, my goal is in this update I would hope that this Planning Commission's recommendation would be to the Council that… Instead of business multi-family, put them into… put this project into transit-oriented corridor, which per the West Maui Community Plan and South Maui Community plan seem to align directly with light industrial and the final bill is to go from AG zoning… to light industrial and you know we cited discuss the flexibility concerns and I understand that you know… we want as much flexibility as we can, but we understand there needs to be some trust. And you know, I get that and some guard rails. I will say I've worked on Project Districts. I've worked on form-based codes. It's not that simple to move things around, so that's why I'm looking for the flexibility, because I want to avoid…. Come in and get some kind of approval or something from someone or might even have to go back up to the Council for, you know… something that might be a manini change. But you know… if it's locked in there with no flexibility, I understand why it has to go through the processes. So, I'm trying to avoid that. So.

Ms. Thayer: OK.

Mr. Ueoka: That answers that.

Ms. Thayer: Yeah. Thank you. Follow up question on the Community Plan amendment because there is, from what I understand, that three acres. Piece… is heavy industrial within the community plan, but instead of just doing the whole thing, you want to keep that little bit as heavy industrial even though you weren't going for heavy industrial in the first place, you still want to keep the heavy industrial?

Mr. Ueoka: Yes.

Ms. Thayer: Because…

Mr. Ueoka: That's probably where we would slot our wastewater treatment facility.

Ms. Thayer: Ok. Ok.

Mr. Ueoka: I was gonna have to come in for a special use permit of sorts. But… actually, even with the light industrial zoning, we'll need to come in for that, but.

Ms. Thayer: Ok. And then? On the note of the wastewater treatment facility cause, I know when you initially came to Council, you said our goal is to tie into the County one. It sounds like you've arrived at the conclusion that that's not gonna be possible. So, then you're going to go build your own.

Mr. Ueoka: So, our latest discussion with the County was there may be the potential and they said they really can't tell us right now, you're close enough. But they said there is the potential where you could put the first phase into the Kahului wastewater facility. The first phase, they said after that, there's probably no chance and you'd probably have to do a whole bunch of incremental infrastructure upgrades to get the lines to the facility upgraded. So, our hope is we can utilize that for the first phase gives us more time to plan out, you know… get some cash flow and everything going to build the wastewater treatment facility. So, the goal… ultimate goal is to build a wastewater treatment. Cost to upgrade the lines to get to the Kahului facility from this parcel, which kinda…connects, I believe, right through Pakaula Street. That street between Lowe's and Target. It's pretty astronomical from what I understand… because it's already there, you have to rip up and stuff. So.

Ms. Thayer: So, like, how do you keep this affordable… if you have to build your own wastewater facility to realize the full development?

Mr. Ueoka: So, we plan on working with the County and to see if they would like to partner with us. I would imagine for them to develop their 23 acres; they would probably have to upgrade that line also. So, if they were to partner with us on our small-scale wastewater treatment facility… possibly there. Neighboring properties might want to share in the cost cause I'm sure other people have dreams of developing in the area. So, that's the goal there… we, it's… it's not easy. It's… it's very costly to develop anywhere on Maui.

Ms. Thayer: Mm-hmm. Yeah. So, like, having had that experience. I'm… I'm… I'm… I'm curious how you're gonna make it happen. Cause I'm pretty sure we've seen like the Waikapū Country Town wastewater facility actually come back before the Commission because of some kind of additional approval that it needed. But like yeah, I'm I guess how… how, what makes yours? Come to fruition faster than that one, for instance, because I believe that one was partnering with the County, as well.

Ms. Ueoka: Oh, I… I have a bit more knowledge about Waikapū Country town than most. So, I… I can say the plan initially was for a private wastewater facility. However, it always was contemplated to work with the County. When they started getting moving a lot faster, it was determined that Kahului was pretty much at capacity. It couldn't take all of Waikapū Country town. So, the private wastewater facility came into play. However, during that

period between when you know… they got their zoning and the FEIS, I believe was around 2020 right during COVID. But the County determined, we got to build something else. We need to build a central wastewater treatment facility, so Waikapū Country town pivoted and said there's really no point in having our small private one like a stone's throw away from your big public one. So, they pivoted and they're going there. I don't know what the focuses is now. So, I'm not speaking for Waikapū Country town right now, but that's the difference there and I believe one thing. Why this might be able to work here is, 16108 units and some light industrial commercial. You can spread that cost over a lot bigger of a base. And if we can get some assistance from the County. And fast. We're… we're here now trying to get it done.

Ms. Thayer: Thank you for that background. Appreciate it. On… on another subject, I'm sorry everybody. Does anybody have any other questions? I have a long list. Ok please jump in. When if you need to. I am curious about how like walkable and bikeable, this is. Because this is like across a big giant highway and like a huge intersection from well, I'm just thinking of like… say, it got brought up, the kids going to school at Kahului School, in Maui Waena, in Maui High like… I would say, this is not bikeable. Or walkable. So, like the cause, but it… but it's put in here that this is going to be a walkable and bikeable and pedestrian friendly community. Like where? Where are they going?

Mr. Ueoka: So, the walkable, bikeable within this community, there's gonna be a lot of amenities, so it's gonna be interior there. With… you can go up Hanson Road and you get to Safeway. You can go up. I'm assuming Pakaula Street will eventually be extended, but you can go up Pakaula Street. and you're at Target on your left and Lowe's on your right. You walk a little further down. You're at Walmart Those are walkable, I agree. There's there's no schools that, you know, I don't know what time you have to walk up. Wake up in the morning to start getting to school by 7:45, but hopefully there's buses. You know… school buses will come pick up the kids, take them to the school. So, it's not just walkable bikeable, but also, you know, multimodal transportation. So, that's our goal there on the school part and yeah. Not perfect, of course.

Ms. Thayer: Ok. Let's see. The note of meeting the noise requirements for the airplanes going over. Like… I had a couple of friends growing up with houses on Stable Road and we played outside in the yard, and you had to like, pause everything when the airplane went over and we used to, like, ride our bikes to Spreckelsville and anytime the airplane was riding over. We would have to like try and cover our ears as we like walked along like… it's super loud. It was super loud. And I guess to some extent we got used to the sound, but I like to meet, say the…. Health requirements of the 45 decibels and what I understand is you have to like completely enclose all of these rooms, which means… and you're in the middle of Kahului, hottest part of the island, practically. And so, you, like, you

have to have air conditioning. So, like how… do you reconcile the energy need with the energy costs? Because it's… it's expensive to run air conditioning all day, every day with the affordable rentals. Question.

Mr. Ueoka: I guess I… I'm going to say I don't know exactly what they're gonna require, but we are working with an acoustical consultant on it, and they'll figure that out. So, I'm not sure exactly what happens. We did have the site measured and sound studies done, so they're working on that, they are aware. They… and when I read their report, and I believe it's attached in that 19112-page exhibit. Might even be attached twice, but I think it's only once, but anyway, anyway. They didn't found any alarms or, you know… say, you know… they're… they're still professionals. They would have told us you can't do this, you know… So, it's… we want to trust them. We're going to listen to them as we progress with design and everything.

Ms. Thayer: Ok, Commission Ward.

Mr. Ward: Thank you, Chair. I guess for me there's a… it is my personal opinion, but there's a quality of life. You… if you're in Maui, being enclosed in air conditioning, seems like an oxymoron to me. Like, you wanna be outside. You want the windows open. You want the breeze. You want the trade winds. So, it. Just… in that context, it doesn't seem to gel in my mind. It's… it feels foreign to me. And having air condition, air condition would obviously be nice and helpful, but if that's… you're kind of being enclosed and that's why you have to have it… it seems opposite to me. Island vibe.

Mr. Ueoka: If I may Chair. So, I… we do understand that and it's you know… it's certain people like to live certain ways, and you know… we're find the right ones that want to come here of course. But I… But I think it's kind of like what Commissioner Elizares said, It's… it's going to be an apartment and we're hoping because of the way Hoʻonani is laid out, people will not necessarily just want to be cooped up in their apartment. They'll want to be outside enjoying the amenities in the area, which may or may not be directly under the flight path, you know. No, I not 100% familiar with that guide thing and. We're… we're trusting our noise. You know… shouldn't say trusting. We're relying on our noise consultants to make sure we build something that is usable for people.

Mr. Ward: Oh, and I… and I trust that. I mean, they'll give good advice. I'm just it was more of a.

Mr. Ueoka: Oh, yeah. No, no, no.

Mr. Ward: My opinion…

Mr. Ueoka: It's lifestyle thing.

Mr. Ward: It's just, it seems odd to me that you would want to live in air conditioning. To each his own.

Ms. Thayer: (Inaudible) Professor Kealoha, go ahead.

Ms. Kealoha: I just have a quick follow up question. Can you smell the dump from that property?

Mr. Ueoka: Not that… I'm… oh sorry…pardon me, Chair.

Ms. Thayer: Go ahead.

Mr. Ueoka: Not that I'm aware of.

Ms. Thayer: Ok.

Ms. Thayer: Commissioner Lind, sorry, go ahead. Thank you.

Mr. Lind: This is for Mr. Ueoka. Thanks, Chair. You mentioned something about bus service for the keiki that… that might possibly attend Kahului and Maui High School. Can you elaborate more on that?

Mr. Ueoka: So, thank you Chair. If I may... Commissioner Lind, so we're gonna work with the Maui bus and it's my understanding that the schools provide busing. If you live over a certain amount from the schools. And I know it's… it's hard. Like everything else, get hard time find bus drivers. But you know that's a plan right now. I don't. You know… that's the goal that they can get bused to the schools.

Mr. Lind: You know why? Because I'm looking at the (inaudible) map and I don't know how accurate, I'm sure it's accurate, but I miss trying to tag from Maui High School all the way back down to… What is it that road…. that's that goes to Kihei in the corner of Kuiheilani intersection. That'll be the fastest route and then back to Hanson Road, on your proposed… what was it nine entrance or exits? And that's less than… less than… less than one mile. Which is I think the DOE requirement is 1.5 miles for grade six to twelve. And for eligibility for bus service. So, like… like Commissioner Kealoha said. Concerned about… I think it was her about the… or was it Chair Thayer mentioned? It's not safe to cross Kuiheilani and then the Elmer Cravalho Road that goes straight to the airport, right?

I mean… on what… you know where I'm getting at, but maybe you could elaborate more on that.

Mr. Ueoka: Thank you, Commissioner… we'll check further into that. But were you doing it on like the… like, the way the crow flies or following all the roads?

Mr. Lind: I will… I will put a straight line, and it still is only like one, maybe half a mile, but that's not how the world works. The world works. I would talk to the bus company and maybe perhaps find the… the quickest route which is which is in the safest route to their residence. Proposed residence. Yeah.

Mr. Ueoka: My understanding was if you follow the roadways. It's over a… It's probably a couple miles from Maui High School. Initially, I think… so thank you.

Mr. Lind: Ok. Thank you.

Ms. Thayer: Vice-Chair and then Commissioner Elizares.

Ms. Lindsey: What is the? AG…Prime AG…land… AG… grade for that area A,B,C,D.

Ms. Ueoka: So, according to our AG study, there's, I guess there's three soils tests out there… I believe were prime A and class three.

Ms. Lindsey: Ok, thank you.

Ms. Thayer: Commissioner Elizares.

Mr. Elizares: Similar to… to Chair, I'm a little hurt that you… you stated that you didn't invite the landowner to… Yeah, it is really important to us that the… not just the… A representative comes, but like THE representative comes, especially as you say, the… the Maui boy with the… with the passion for this space. About that hurt. Where I'd go? Oh yeah, part of it is. And I'm gonna. I'll get to my question. But you had… you had mentioned earlier in your presentation, and I had talked to a testifier about this, some of your… why I think in EIS EA especially on the cultural and historical… and is important because I recognize some of your statements as being untrue as… I've lived through that. Right so. I wouldn't classify farming as not. Or to do away. AG land… AG has not been farmed for a long, long time. Nobody farmed it for a long, long time. It… it was farmed ten years ago. That's not that long for me. If you'd like to speak to that, that statement on just AG use in the area.

Mr. Ueoka: I'm talking about this particular spot.

Mr. Elizares: Yeah.

Mr. Ueoka: My understanding was yes, HCNS stopped production in 2016, but I don't think they use this as an active field for years before that. I… I can try double check some more, but that's my understanding from one of the cultural reports if I'm not mistaken.

Mr. Elizares: Yeah.

Mr. Ueoka: And we will be getting the full FEIS approved before we get the DBA that that's up one of the requirements of the District Boundary amendment.

Mr. Elizares: Right. And I think you can see that… how we are… because we're not ma‘a… ma‘a are used to. Usually, we… we get to see the whole process. And we aren't gonna be the body to approve that process or approve that whatever it's called, right? The FEIS.

Mr. Ueoka: FEIS.

Mr. Elizares: So, usually, we'll get to see all of these studies and… and not just have to take. Nothing against lawyers. You're a lawyer. Yeah.

Mr. Ueoka: Sort of.

Mr. Elizares: Take the lawyer's word. So, can you? My question is, can you verify? I noticed in testimony that you guys started the public notice for your EIS. And in that EIS, all of the same studies will be done. Similar as to what we review, but the reviewing agency will be the Land Use Commission?

Mr. Ueoka: So yeah, Commissioner Elizares, we… we did start the FEIS process. We recently had a scoping meeting. We've actually done two scoping meetings now, because at first, we were publishing with County accepting and then we did it with the State Land Use accepting. So, there was notification sent out for that and everything. I will say all the studies will be… it's a full EIS, it'd be the same thing you guys would be reviewing and some of the studies were included here and there to the Department and possibly in that 19112 pages of stuff. They're, you know, in there somewhere, along with some comment letters. So, the process is there, and it will be followed and we following cultural, we're working with the environmentals, you know… with the, you know… for a site assessment

to make sure everything's good and traffic TIRs being done. We will be consulting with State DOT and the County Public works or (inaudible).

Mr. Elizares: And I just wanted to one last one… to your historical no historical. To no traditional cultural, historical sites recorded in that space, is it? Would it not be that the sugar plantation and the multiple uses of that land over the past 100 years have wiped the surface, cultural material away? But there may be… because you guys haven't done subsurface material.

Mr. Ueoka: So, thank you for that. Yes, that's based on Honua Consulting did the cultural impact assessment of the area, but yeah, 100% plow blades only go down so deep. Excavation's gonna be a little different. It's just my understanding there were some other things nearby, but there have been. You know… there's been development in this area. You know Maui Business Park, Phase two is like right there and basically the understanding was or I'm not the cultural expert on all that, but my… my general understanding is that there wasn't a lot over there, so there might not… there probably won't be a lot over here, but like you said, you never know until you start going.

Ms. Thayer: Can I jump in real fast. I'm… I'm pretty sure if ʻŌiwi Resources is still on because they had a comment letter that I'm pretty sure said, although that this whole area was an AG and under sugar cane production that there was… Burials that were found with like… just the Target. Cause there's… there's burial like sites within the Target parking lot, which isn't very far from here, but I think I saw Janet Six raised her hand.

Ms. Six: Yeah. Hi. Can you hear me?

Ms. Thayer: Yes.

Ms. Six: Yeah, so… Director Molitau asked me, and I worked with Jeffrey Ueoka as well. And on just taking a look at this area and not on this parcel, but on an adjacent parcel, there's a documented heiau and also burials were found at Central Pacific Bank, American Savings Bank, Target. Again, there was one found. Some are disarticulated. As was mentioned, the plows doesn't go that deep. But this is also the area known for the Battle of Puʻunēnē, as well as possibly other battles. So, just… it's just be mindful that because it was under sugar, it doesn't mean there's nothing there as they… as they're… as they're well aware when they speak about it. So, that's what I just wanted to say. We did a… a brief letter looking at what's known through SHPD HICRIS database, but also just what we know about the history of the area. So, it is a concern given what was found on adjacent parcels. And we know there's at least one ceremonial site that was in this area as well. Thank you.

Ms. Thayer: Thank you.

Mr. Ueoka: Or if I may follow up, Commissioner, we will follow our cultural consultant, whatever they tell us to do.

Mr. Elizares: And this will be documented in… as part of the FAS.

Mr. Ueoka: FAS. Yeah, and probably anytime you want to get a building permit or something, you know… Chapter 60 has a process.

Mr. Elizares: Right.

Mr. Ueoka: 6E HRS. So, we'll follow. We're gonna do whatever. You know… we have no choice there. Yeah.

Mr. Elizares: I got a… sorry.

Ms. Thayer: Go ahead. No, no, go ahead.

Mr. Elizares: So, we… I did think about another. Another project was like 30 years ago, that does give the Planning Commission authority to decide. For instance, if there was a hotel that was gonna be there to… to allow a hotel or not. And amongst other things, is that something that…you think, the Council, will be ok as hearing as a recommendation that some of your projects in the light industrial use will come back to the Planning Commission to give final approval for those parts of the project to move forward.

Mr. Ueoka: Hotel for sure, cause that's not allowed in the zoning. The light industrial. You know… I… I can't stop anyone from making the conditions, but I would ask that you not include something where we have to come back through again because that just causes more. It's… it's time. You know… it's a lot of time and we're hoping that to save time here and build faster.

Mr. Elizares: Build…businesses faster or build the (inaudible) faster? Or are they? They go hand in hand, is what you're saying?

Mr. Ueoka: Yes, build faster. Yes, to all these. Yeah.

Mr. Elizares: Alright, that's all I got.

Ms. Thayer: Commissioner Deakos.

Mr. Deakos: Question. There's mention of drilling wells. Probably premature, but because of the legacy AG chemicals that have been there adjacent to the landfill of leachate. Per possibly contaminating the water in the area, is there any preliminary data on the water quality contamination?

Mr. Ueoka: Thank you, Chair. So, we're preliminary still, but… the… it's an existing well and the owner did do one of those tests to see if the water's safe and to drink and everything which you know, different than the some of the other CWRM tests. But this is more… is the water safe? I think is what you're asking. The answer was yes.

Mr. Deakos: Thank you.

Ms. Thayer: Commissioner Lind, is that your hand up?

Mr. Lind: Yeah. Well… Commissioner Deakos. Thanks, Chair. Commissioner Deakos has talked (inaudible) mentioned about the well. I can't reference to the 901,912 pages that you sent to the LUC. But where exactly on the map is the well? Mr. Ueoka, I'm sorry.

Mr. Ueoka: Well, thank you, Commissioner Lind. We haven't locked that up completely yet. We're working on that… were… it's mauka, though. It's well, I guess I shouldn't say, mauka. It's up Pulehu Road a bit.

Mr. Lind: On the… on your, on Maui economic unregistered. Yeah, property, right.

Mr. Ueoka: Oh no. On the.... on the neighboring property it's…

Mr. Lind: Yeah, because… because I remember growing up… that this should be the ditch coming from. Coming from up Haiku, and I think that ditch is still operational. So, I… I was wondering if… the Water Department is on will have some kind of… expertise on this matter. It's regarding the recharge or is the… or is that ditch still operational or… cause the last time I checked I saw a lot of people swimming over there. Or not from there or living in the cars. So, I'm just wondering, is that recharging the aquifer or is that water the same water that's going down? Is… is the ditches lined or should it… you know?

Ms. Thayer: Mahalo for your question. I think we had DWS online, Geovanna.

Ms. Torres: Hi, good afternoon. As far as the recharge, I don't have any information on that. I do know that. Some existing infrastructure is there. However, we have told the

applicant that they will need to have their own source and if they build anything. On the property that will affect our infrastructure, they need to do the improvements through DWS. So, that is the information that I have currently as far as the specifics of the existing wells, I believe that they're outside of the TMK and they have… believe it was brackish water. But that was just through the preliminary GIS layer that I've had access to. But Eva, I'm here on behalf of her. She might know the specific answer to your question. But that's the information that I have to share as far as our department is concerned.

Ms. Thayer: Go ahead, commissioner.

Mr. Lind: I have more question for the County department. How long… cause I think that ditch was operation since the plantation closed down in 2016, right? The one running mauka of the proposed land use change. Am I right? Yeah.

Ms. Torres: Yes.

Mr. Lind: And never stop flowing for 100 years, at least.

Ms. Torres: I can't confirm that I'm fairly new, so I'm still learning.

Mr. Lind: But no, I understand. Yeah, I can't find that information either, but that's… I'm just asking for the record. Thank you.

Ms. Torres: You're welcome.

Mr. Ueoka: If I may Chair.

Ms. Thayer: Go ahead.

Mr. Ueoka: Commissioner Lind. I won't be able to tell you all the specifics on the water, but we do have consultants that will be helping us with that, and SWRM will definitely be involved if we're going to use that water source.

Ms. Thayer: (Inaudible)

Mr. Lind: Excuse me, Chair, sorry. Thank you, Mr. Ueoka, and the Department of Health in monitoring a water source through. Thank you.

Mr. Ueoka: Yes, Sir.

Ms. Thayer: I have a follow up question for Department of Water Supply. Do you have? Handy in front of you. The like… sustainable yield for that aquifer system.

Ms. Torres: Umm. The current pumpage in the Pāʻia aquifer… that's not it. Yes, it is. The existing use for the… the infrastructure that we have is currently serving MEO which is in the front of the TMK as far as this project, they won't be using our infrastructure. They're proposing a private water use.

Ms. Thayer: And you don't have that… that I think the water use and development plan has like the maps of the sustainable yields for the aquifers within each system. Sorry, my computer's out of batteries.

Ms. Torres: I believe is 1,000,000 gallons a day for the (inaudible) aquifer.

Ms. Thayer: And that's I think about the water demand of this project.

Mr. Ueoka: Yes.

Ms. Torres: Yes.

Ms. Thayer: Ok. So, it would be up to the sustainable yield for that aquifer what this would draw.

Mr. Ueoka: Thank you, chair. So sustainable yield is there, correct? Historically, we believe this well had a lot of use… heavy usage over time and we're going to have to work with CWRM on determining that. I could be mistaken, but I believe on one of their recent agendas they did talk about looking at the… the drawing of those aquifer lines. And re-looking at them and we will, we will need to go and work with CWRM.

Ms. Thayer: Ok. Commissioner Deakos and then Commissioner Circle-Woodburn and then Commissioner Lind.

Mr. Deakos: Thank you, Chair. A follow up on the water question… because I think, the applicant mention the preliminary results were potable, but I think you said that the well was brackish. Can you help me understand? The… the two… this for a water department. So, the well… existing well is brackish. Is your understanding from the math.

Ms. Torres: Yes.

Mr. Deakos: Ok. So, Mr. Ueoka, when you mentioned that it's potable, you just meant no contaminants, not… you can drink salt water.

Mr. Ueoka: No. So, there's no contaminants. We've done preliminary testing and pumping it. It looks ok, but there's gonna be a lot of testing required before you can…. I think it was mentioned redundancy and all that kind of stuff. The water development is gonna be very serious and we have consultants working. We're gonna be working with Tom Nance. And just to make sure that this water system is capable.

Mr. Deakos: Ok. Was it brackish?

Mr. Ueoka: The initial chloride tests were fine.

Mr. Deakos: Ok.

Mr. Ueoka: But I don't know what happens when you pump. Testing, testing, testing to make sure it's safe.

Mr. Deakos: Ok. Thank you.

Ms. Thayer: Commissioner Circle-Woodburn. And then, Commissioner Lind.

Mr. Circle-Woodburn: Thanks, Chair. But just on that, on the water in the yield, do you have a… a location or availability to do like tank or water storage to offset how much you need to pull per day or?

Mr. Ueoka: Thank you, Commissioner. Yes, the proposed location we're looking at will include space for treatment and storage or treatment if necessary. Storage all that stuff, it'll… it's required for a properly operating water system.

Mr. Circle-Woodburn: Oh, ok. Thank you.

Ms. Thayer: Commercial Lind.

Mr. Lind: Thanks, Chair. I was just wondering. I'm kinda little bit puzzled with this one to have some thoughts about the 1,000,000, 1 million sustainable yield, MGDs. Is that… is that what I heard? Geo.

Ms. Torres: Yes, I was mistaken. It's actually under the… the current pumpage and the

Pāʻia aquifer is 13.6 million gallons a day and the aquifer sustainable yield is 7,000,000 gallons per day.

Mr. Lind: Go ahead, go ahead.

Ms. Torres: And that was on a letter that was originally, composed on November the 20… November 4th, 2025, to the… I believe… to Chair Tamara Patlin… Paltin.

Mr. Lind: So… so, if it's (inaudible) or brackish. And they need… how much do you need, Mr. Ueoka, for your million gallons. For your… for your project.

Ms. Torres: Almost.

Mr. Lind: 800.

Ms. Thayer: (Inaudible) like 900 something thousand…

Mr. Ueoka: Approximately 1,000,000.

Mr. Lind: So, how much all that draw has to be converted to drinkable water before you remove the excess saline? If it's… if it's… if that… If that's what Geovanna was saying that is kind of brackish.

Mr. Ueoka: So, right now we don't know. We gotta… we gotta test it. There's a lot of testing to be done.

Mr. Lind: Ok. That's good. Great. There's a lot. There's a lot more. A lot more…

Mr. Ueoka: Yes.

Mr. Lind: What you call… work needs to be done. Ok. Thank you, aloha.

Mr. Ueoka: Well, testing, yeah.

Ms. Thayer: Commissioner Deakos.

Mr. Deakos: So, I'm not sure I heard that correctly from the water department. Did… did I get the numbers right? 13.6 is the current draw and seven is the sustainable yield.

Ms. Torres: Yes, the pump is 13.6 while the sustainable yield is seven.

Mr. Deakos: So, it's… it's currently being drawn twice to sustainable yield.

Ms. Torres: Yes, correct.

Mr. Deakos: Thank you.

Ms. Thayer: Ok. I think we may need a five-minute break. Yes, ok. It is 2:16 right now actually. How about we come back at 2:25 and we'll resume any questions we may have, and we can go on from there.

Ms. Thayer: Good afternoon, everybody. Welcome back to our Maui Planning Commission meeting of Tuesday, January 13th. We've had a good break as you can hear. Thank you for bearing with us, everybody. We are rounding out our commissioner questions for all the parties we have the proponent, Planning Departments, our ex-officio departments. Again, thank you for being here. It's very helpful. Any last questions, Commissioners, before we go into deliberation. Commissioner Deakos.

Mr. Deakos: Thank you, Chair. Just to follow up with Water department. I think they were going to look into a water availability for some of the other entitle projects in Central Maui.

Ms. Thayer: She's up here?

Ms. Torres: Sorry, can you repeat that question?

Mr. Deakos: Yeah, there's been talk about other affordable housing projects that...

(Inaudible)

Mr. Deakos: That exist in Central Maui. Some have entitlements already. We were just curious because of the water concerns and particularly because of the numbers you just mentioned about being above sustainable yield. Can you talk about some of those projects and what the water situation is? Do they already have the water? Is that still in flux?

Ms. Torres: Some of the projects because they're affordable housing, they get an exemption of the rule. It doesn't mean that they get an exemption of the water. They're… we're currently working on developing new source to alleviate and allow these other affordable housing and just housing projects in general to take place. That's an ongoing conversation and study that we're working with the engineering department. So, some of

them might have received an allocation, but I can't at the top of my head really speak to who has it and who doesn't, and how much is left.

Mr. Deakos: Ok. Thank you. Just, but… just to clarify to some already have and I think there was mention like Waikapū Town has their water and you're saying there's several others, you just don't know exactly which ones.

Ms. Torres: Right, I know the Kahului Civic Center, or the Kahului housing component has… is one that was just recently or is actually actively, you know, speaking to in the project I know is very controversial. And I guess… in around town. But that again… that is a State project. Not a State project, but a public… it's going to serve the public. So, it falls under the exemption. So, I think that. A lot of people approach it like, well, they're getting the water. Why can't we get our water? But the matter of the fact still remains that we do have a water problem and we're working on it and we're… we're still trying to figure out how to accommodate both the development of water with the planning development. And the projects that are coming in.

Mr. Deakos: Thank you. Thank you, Chair.

Ms. Thayer: Follow-up question, I think this is to both Department of Water Supply and the project proponent. There was a comment letter that…this project should be incorporated into the water use and development plan, and I believe the response letter said yes, yes, we'll do that. But I'm curious if you could expand on that and for the Department, I guess what that looks like, but I'll have the proponent go first.

Mr. Ueoka: (Inaudible) So, yeah, we'll work with the Water Department to talk about the inclusion in the water use development plan. But the goal here is to create source via that existing well and work with the Water Department on, you know… owning operating. So… so, County agreement with the developer.

Ms. Thayer: Ok. And then Department of Water Supply, if there's anything for you to add to that?

Ms. Torres: I would defer to Eva. She's… she was on earlier, but she had to go to another meeting. I don't wanna speak to or give you the incorrect information. I'm trying to get in hold of her, so maybe she can chime in in a few minutes.

Ms. Thayer: Thank you, Commissioner Deakos.

Mr. Deakos: Just one clarification for Water department. So, the… the waiver for affordable housing, that's for… for residential housing as well as rentals or is that just for houses?

Ms. Torres: That's just affordable housing, and it has to be 100%. And now we're having the applicants go through the housing development in order for them to get that certified by them as far as because we have a lot of applicants that come in, they say, yeah, we're going to do a affordable housing because we're exempt from the water rule. However, we can't as a Planning, Water Research and Planning Division we can't determine…whether they fall into that category or not, so we have to, we're having them go through the housing development for them to determine whether, yes, they are affordable and how what percentage that is. Otherwise, we'll just assume that it's just regular consumption and they have to fall under the water standards.

Mr. Deakos: Ok. And whether it's 100% rental or 100% housing? Makes no assumption.

Ms. Torres: 100. Right, right. As long as it's a development that…falls under that category versus market rate.

Mr. Deakos: Ok. Thank you.

Ms. Thayer: Commission all questions. Oh, Ms. Takakura.

Ms. Takakura: Excuse me, Chair. I'm sorry to interrupt, but I do have the sustainable yield map from the Water Commission. I can share screen if you just wanted to look at that. I just want to put… put that up there if you wanted to look at the sustainable yields.

Ms. Thayer: Commissioners, you want to see.

Ms. Takakura: That a yes, Ok. This… So, this is from the State Water Resources, CWRM. And so, you can see in the…middle… the pinkish color. Sorry, Kahului and Pāʻia areas and you can see the name of the aquifer and then like under Kahului you see one MGD 1,000,000 gallons per day would be the sustainable yield and then Pāʻia… 7,000,000 gallons per day. Generally, you want to stay within 90% of that. So. That's just how it how it is. But those are the numbers from the State… hydrologic units.

Ms. Thayer: Thank you. Appreciate that.

Ms. Takakura: Can I share one more screen? I'm very sorry, but so… there's two different agencies that regulate water. One is the Water Commission, which you see this map of which… you would have to get a well pump permit from. But let's see if I can get to the

other map… without… ok, just a second. I'm gonna move this screen bar on the top. There's another agency that regulates water, which is a Safe Drinking Water Branch. And so, I used to work at Water Department. So, I know a tiny bit, but probably only enough to get in trouble. But down here in Puʻunēnē, you see these. This is the map from the Safe Drinking Water Branch, and they have some sample testing so you would see like in this area there could be atrazine in the water. So, I mean it's easily removed through granular activated carbon, but they would want to make sure that there's testing for water quality and any filtration. That's needed would be installed, but yeah, that that's a common pesticide that was used on sugar cane. So, Safe Drinking Water Branch and this Commission. So, two different agencies that regulate water. Thank you. I'll stop sharing there.

Ms. Thayer: Thank you very much. I have two questions for the department. I think we're coming to the end… our questions. One is the question of, why you went for the Land Use Commission, to be the accepting authority for the EIS and then the other one is if you could put in… plain english and maybe provide a reference to like what the assessment criteria is for adding land to the urban growth boundary. Because I believe that is set forth within the island plan.

Ms. Blystone: Great questions, Chair. Thank you for asking. I'm going to defer the second question to Jacky, who I think is already looking for that specific language. As far as the EIS goes, the Department had no trigger for being the receiving agency for the EIS. That is the reason why. So, the original project when the project was being discussed with how (inaudible) and his group was going to be initiated by the applicant at that time, because a Community plan amendment triggers… a… an EA, which in this case was kicked over to an EIS. That… that amendment would have triggered the EA. But since the Council initiated this item, there's no longer a requirement for that. Which, Greg very clearly lays out in his… in… in the part that he wrote in the staff report. So, the LUC was left to be the only requirement for an EA. And so, it would be inappropriate for us to have taken that on. So, the LUC agreed with that with our assessment and acknowledge that they would be the accepting authority. So, I… thank you for the opportunity to clear the air on that. As far as the criteria for expanding the urban growth boundary, I think. Jacky can speak to that.

Ms. Takakura: Yes, thank you. Thank you, Chair Thayer and thank you, Director. So, the Maui Island plan, which was approved in 2012, has a whole chapter on directed growth and the goal… goal 8.1 is that Maui will have well serviced complete and vibrant urban communities and traditional small town through sound planning and clearly defined development expectations. So, under this goal, is this particular policy, policy 8.1.B? Amendments to a urban growth, urban growth boundary or small-town boundary shall be reviewed as an MIP amendment and urban growth boundary or small-town boundary shall

only be expanded if the island wide inventory, which is maintained by the Department of Planning. If the island wide inventory of existing land uses and that's residential, commercial and industrial, indicates that additional urban density land is necessary. To provide for the needs of the projected population growth within 10 years of that inventory or during the decennial update of the MIP. So, that's where we get that requirement to look at the existing inventory and that's what we're working on. Thank you.

Ms. Thayer: Thank you very much. Commissioners, any further questions, Vice -Chair?

Ms. Lindsey: To understand you folks have started the process for the Wailuku Community plan. Thus far, has there been any comments on this parcel? I mean this would be off of your memory because I'm sure this is a very…. We're in the very beginning stages.

Ms. Takakura: If I may, Chair. Thank you. So, we have started on the Central Maui Community Plan update. We've been doing some community engagement and so there have been a few mentions here and there of about allowing for… Development in the Puʻunēnē area from the community so that… that is something that if the advisory committee wants to do and the… you know and it goes through the process of the Planning Commission and so forth and that certainly could be. But like I mentioned, the urban growth boundary would have to be expanded first. So, we're talking about that and some of the resource papers, though they… they really strongly recommended infill in looking at existing areas. You know like Kahului Shopping Center and so forth. So, it's gonna be really what the community says whatever direction they want to take in on these topics. Thank you.

Ms. Thayer: Go ahead.

Ms. Lindsey: So, kind of on that topic. So, I went to three of the four of these meetings and it seems to be that Wailuku people are less vocal than other communities in our island. So, that being said. How many? I mean, how do you hope to engage the community? I mean, you got a lot of people here today who were like, oh, yeah, I remember this and all these things that happened. How… how are you gonna include the community in those? And I… ideally everybody would show up and come to these testify and go to one of these 15 meetings that we're gonna have. But I mean, given the reality of the situation. That… this is how it is. Do you… Do you have any other ways that you plan on engaging the community?

Mr. Ueoka: Thank you, (inaudible) So, we're… we've done our EIS PN scoping meetings and like you said, we had a similar result. Not very well attended. We will work with…

probably in like some kind of like outreach, community outreach group and see if we can get something going there. But yeah, Wailuku, Kahului, a little bit different, I think you know what I mean? Or you know, so thank you.

Ms. Lindsey: Ok. Yeah, no cause. I mean, there wasn't that many people at those meetings for the Community plan I expect less at yours. I don't know how to advertise for these things or anything else but. The community impact, you know, is important there. They're going to be living there. The local people who are in this community will be there. And if you're bringing back people, those people don't even know that this exists. So, engaging the communities.

Mr. Ueoka: I guess on opposite side like. People might not be objecting to it. It's been in Maui now a bunch of times and they don't find it horrible or, you know, worth their time to come out and be against. Also, you know it doesn't necessarily just have to be people coming out and saying I support. It can also be the lack of negative comment by the Wailuku people.

Ms. Lindsey: Yeah, no, I mean community engaging in either way, engaging at all.

Mr. Ward: Just engaged.

Ms. Thayer: I have a quick question I'm curious about. It's written in the EIS PN that the project will take aesthetic cues from Lahaina. Can you expand on why Lahaina?

Ms. Ueoka: I believe that's based on like the small-town. Town concept. That's why that was put in there with our… with the design teams.

Ms. Thayer: Ok. Ok. Any other questions? Commissioner Elizares.

Mr. Elizares: So, working with the guy's neighbors right to get the… to get the water down there. And then I look forward to, well, we'll see where this goes, but I like traffic. I like to sit in my air-conditioned cause I work in like 85 to 90°. So having a… a longer time sitting in my 60° truck on my way up country, especially on Hanson Road, which is my main way home. I might appreciate that. But working with your neighbors. Have you guys, discussed and all the… the first Japanese Christian Church is going to be taken down. That is on your neighbor's property. But there also was a school, a meat factory. Is there any… at school was operational… recently. Do you know if there… you guys are going to explore that or if… if it's been explored, so maybe you reopen that school or make that school active again?

Mr. Ueoka: We got comments on the EIS PN from I think DOE and they kind of said there's declining attendance at a lot of the schools, so it'll be up to them. Of course, it's not really our call, but we will consult with the DOE and SFA.

Mr. Elizares: To open, potentially reopen Puʻunēnē school.

Mr. Ueoka: Yeah, that… that would be their call, but we will consult with them on what they need from us. SFA basically said we will owe the school impact fee. That was the one underlying comment in their letter to us.

Ms. Thayer: I'm pretty sure they said in their letter it may result in redistricting. They said they have to study it. Yeah, and the DOE said kind of had a separate letter, but that was in the EIS PN comments.

Ms. Thayer: Yes, Ok. Sorry, I have another question on the EIS PN comments from DO… State DOT and they talked about the study intersections. The study area should be expanded, but I don't see you addressing that in your response letter to them. Are you going to do that?

Mr. Ueoka: Yeah, we're going to work with State DOT. Our TIR consultant will… will need to work with them. Yes.

Ms. Thayer: So, will you expand your study area as they asked for?

Mr. Ueoka: Yeah, we'll work with them. Correct. Yeah.

Ms. Thayer: Ok. Ok. Commissioner Kealoha.

Ms. Kealoha: I just have one question. Umm. You brought up Lahaina. And it made me think, you know, the Puʻunēnē area is so windy and dry, and even the Department of ʻŌiwi Resources brought up the… the importance of the trade winds. And there's been a lot of, you know, there's been some fires in that area. So, maybe this is something that's addressed in the EIS, but I mean. Has that already been discussed? Like what is? What is the… is there sufficient infrastructure to evacuate? Or will new roads need to be built?

Mr. Ueoka: Thank you. From… with these units, we will be getting comments from the Fire Department at that time, but. I'm not sure if there's… once this is built out, there's… I believe this is a brush area right now, so hopefully. Internal roads can handle it. On Pakaula Street, Hanson and Pulehu and Veterans Highways nearby, as is a connection to Hana (inaudible). But we will work with the Department of Fire and I'm sure at some

point. Oh boy, I… I don't know what MEMAs, Maui Emergency Management Agency. I still know them as Civil Defense, but I'm sure they'll be consulted at a certain point too.

Ms. Kealoha: Thank you.

Ms. Thayer: Sorry, follow up question. On the note of roadway improvements, are those gonna be done by the developer? Are you gonna seek the County to do those? Are you cost share? Is there a plan for that?

Mr. Ueoka: I'm we're… we're gonna hope we can get financial assistance from the County and I'm confident that they will require the roadway improvements as part of our… when we're doing a construction plans or civil plans for overall infrastructure. The Hanson and Pulehu Road and the TR… TIAR will also dictate impacts on the State. We're hoping since this will be 140% of below project, we can get some assistance on the… if there's any State improvements also.

Ms. Thayer: But that's all to be determined with the EIS process.

Mr. Ueoka: Yes.

Ms. Thayer: Ok. Further questions, commissioners. Commissioner Elizares… Commissioner Elizares.

Mr. Elizares: Can you clarify… what is… he said Veterans Road or something.

Mr. Ueoka: Oh, I believe Mokulele is now Veterans Highway.

Mr. Elizares: Oh, Roger. Thank you.

Ms. Thayer: I'm sorry, your traffic consultant. I'm… I got a little bit hung up on how Maui Veterans Highway got initially classified as a County roadway and then got corrected to be a State roadway like… I don't know, how does that happen?

Mr. Ueoka: I don't know. I don't… I don't know.

Ms. Thayer: Ok.

Mr. Ueoka: Yeah.

Ms. Thayer: I'm… I'm just thinking about, like, the integrity of this report and what we're basing everything on. You know, I feel like that's a pretty fundamental. Piece of information.

Mr. Ueoka: Yeah, I… I would imagine. Chalk it up as a typo, but I could be wrong. I wasn't. I didn't produce it.

Ms. Thayer: Ok.

Mr. Ueoka: We will. We will work with them on that though.

Ms. Thayer: Ok, good. Thank you. Additional questions, Commissioners, or we can go into the next phase of our public hearing and if we need to rehear the recommendation from the Planning Department and then we can go into… Entertaining a motion and deliberation. Director, anything else you'd like to say.

Ms. Blystone: No Chair. I don't think you've actually heard the recommendation yet.

Ms. Thayer: Ok.

Ms. Blystone: Whatever you're…

Ms. Thayer: Yeah. So, any further questions or are we ready to hear the recommendation from staff? Looks like recommendation from staff.

Mr. Wollenhaupt: As this discussion today has been centered around three different discretionary items. The first, the Maui Island growth boundary amendment. The second the Community plan amendment and the third the change in zoning. Normally they are taken up individually for the Maui Island growth boundary amendment, the recommendation is to defer the item. Sending that recommendation of deferral to the Maui County Council for the amendment to the Maui Island plans directed growth map. To include the property within the urban growth boundary until the final EIS is accepted and the island wide inventory of existing land uses is updated and indicates that additional urban density lands are necessary to provide for the needs of the projected population growth. The second discretionary item is the Community plan amendment. The Planning Department recommends to the Commission that it recommend deferral to the Maui County Council for the amendment to the Wailuku, Kahului Community Plan designation. For the property from agricultural to business multi-family again until the EIS is accepted, and the Maui Island Plan urban growth boundary is expanded. And the change of zoning, the Planning department recommends to the Maui Planning Commission that it recommend deferral to the Maui County Council for the change in zoning for the property

from agricultural district to M1 Light… district until the Land Use Commission of the State of Hawaii approves the district boundary amendment. And their criteria, described in the Maui County Code 19510, are met. Those are the recommendations for the three discretionary permits under review today.

Ms. Thayer: Thank you very much. Everybody caught that. Any clarifying questions for Mr. Wollenhaupt. Ok. So, long story short, staff recommendation I guess… Mr. Hopper, do we have to… and we do these all as a group or individually?

Mr. Hopper: I would, before taking action, I would think about all three of them. I think you could maybe do them in separate motions. A lot of… sometimes like for the for example, if you… at some point decided to either recommend passage of the change in zoning, the conditions would only be on the change in zoning ordinance. They wouldn't be on the other ordinances if you… if you had conditions. So, because action on the first two are recommended action… and the first two would… could affect the last one. I think you probably want to start your discussion on all of them, but you probably want to deal with them in in separate motions. Just you. Yeah, I think it would be easier to work… work through them that way. So, maybe have some preliminary discussion. I know it's a bit unusual under Robert's rules they have a bit of preliminary discussion before you come up with a motion to see where the group is at and you know if… if… if it's gonna be a… it's going to agree with the Department's Recommendation that's consistent with all of them. If you're looking to take some action, there is also the potential for acting on recommending action on the plan changes, but not the zoning. And then you could also recommend conditions of zoning that would be undertaken after the Land Use Commission acts too. There's a lot of different things, so you may want to start discussion before a motion. If someone's confident enough to do a motion on all three of them. Now I… I suppose they could do that. But I would suggest maybe some discussion to see where the group is at before coming up with an actual motion, because you might not want to get too far down one path and then have to… to back up. That's sort of how I'm thinking about it in my mind.

Ms. Thayer: OK. And I think I'll try and break these down by pieces and staff, please help me out if I don't cover everything… for a go awry. So, first one would be the Maui Island plan amendment to expand the urban growth boundary. The second one would be the Community plan Amendment to go from AG to…

Mr. Ward: DLC…

Ms. Thayer: I guess TOC, but in a way that doesn't exist yet. And so, it would be business multi-family or light industrial? Something to be teased out, Director?

Ms. Blystone: Chair, I would ask your attorney to opine on the subject of TOC and what would need to happen. It is different than what was submitted to us, so he has some thoughts. I suspect…

Mr. Hopper: Well, just… this appears to be from looking at the ordinance. I think it would have to be tweaked, but it sounds like the… the… the… the Wailuku Kahului Community plan does not currently have the transient oriented corridor designation. It is possible for the Council to establish such a designation. Normally it would do that by an amendment to… not just this this property, but of the whole plan. And normally that would be separate agendas. Now this came to you as a change from…agriculture to… it was business commercial I… I believe.

Ms. Thayer: Business multi-family.

Ms. Blystone: Yeah, business multi-family was the request…

Ms. Thayer: That's on our agenda is business multi-family.

Mr. Hopper: Now. I'm not saying you could necessarily not recommend something that's different than that, you could consider it. You could perhaps recommend to Council. We think you should do something different. There's a discussion of…light industrial, there was a discussion of other things. It is… It's… it is unusual to request something that's not in the plan and establish a brand-new plan designation. For the first time at… at… the you know, before you hear. So, perhaps we could find some way to do that as a piece meal. This property only designation. My concern is establishing a broader designation in the plan. Now, without noticing that what you're doing is establishing a broader designation, basically creating the transient oriented corridor designation in the plan could be problematic from a notice perspective, if you wanted to look for a way to… to create the transient oriented corridor designation for this parcel only because…that's… that's to me is potentially within your abilities, but. I… I would… I probably recommend at this point to look to an existing classification in the plan that's available, just because I've, I don't think we've ever for the first time established a new designation in the plan for the first time at the Commission without that being the agendized thing, I think it's possible for you to say well instead of… the recommended designation, we're going to do something else, and I guess you could custom write a new one potentially, but. That's a new process that I've… I've never been a part of. If you wanted to say, I think we've been in a case where they found. Oh, instead of this designation, it should be, you know, a different designation in the plan and… and… and it's already in the plan. So, that's… that's the only sort of iffy thing. I don't know if you wanted to discuss with… with the project proponent on that… on

that issue, but that's… that's sort of my, where I'm at with… with that because it's… it's sort of different to establish a brand-new classification for the first time before you hear. Without that, you know such a thing actually being noticed.

Ms. Thayer: Ok, Director.

Ms. Blystone: Just to add to that a little bit. I wanna be really clear that the Department doesn't oppose business multi-family community plan. We oppose it. Compare… paired with M1, because it's not an appropriate pairing. So, we offered in the staff report on page 22. Two other alternatives if the M1 zoning was the preferable… one would be business, industrial or light industrial to pair with that M1. But as far as the project goes, business multi-family, as they're describing the project, is the appropriate designation. So, when it comes to the issue that the department has, it's with zoning that's being applied that we think B2 zoning is a more. (Inaudible.) Just to help the Commission understand our perspective.

Ms. Thayer: Ok, I saw the two of you with your hand-up Commission Ward, then Commissioner Deakos.

Mr. Ward: Thank you. Chair. This is for Corp Counsel. I guess, I… my question is around the… the TOC, cause if that's the way forward of all the Community plans, it's not like we had a choice to say, oh, we don't want TOC in South Maui like, which is not quiet, but it's it's a category there wasn't a choice if they're in the process of doing their community plan. That's in their packet, so it's not as if it would be introducing something new. I mean, it's something that's across the board… my understanding. So, I guess I would… I would just ask why we wouldn't be able to use it cause it it's there, it's.

Mr. Hopper: If you read the Wailuku-Kahului community plan, it's not listed in the text to the document. It's certainly possible for the Council to say, for every community plan to go to each individual one and amend those ordinances to say we're going to have a transient or… oriented corridor classification available in all of these plans and anybody can… can… can request this. To me, it's more of a noticing issue. This was sent down with the notice of… you're going to go from one to another. Not that you're going to generally establish a brand-new category for everyone in Wailuku Community Plan area that they can go to. However, if you were to somehow limit this designation only to this property. Which I mean, that's just a thought in my head. Would… that would take some work and some… some thought here to… to… to do this and so I'm not. I suppose you could make a recommendation along those lines, and we would have to figure out how to do it. The… the current draft ordinance has… normally what you have is you change from… from one to another. But then, if you're amending the text of the document, you would normally have

Section 2, the Wailuku-Kahului Community plan is amended by adding the new designation for the property designated at blah… blah… blah. And then write down the… you know that… that information. Then you're actually going and amending the text to… to have that included. It's been done before for projects like for example for like a project district. You know, Wailea 670 is, an example, you could amend the actual plan language. I… I think we did that in the…

Mr. Ward: We did that…

Mr. Hopper: But… but for other projects we've amended. Kahoma was an example. You amended the actual language in the Community plan to… to change it for that particular project, and that could potentially be within the noticing of… of today's item because you gave the public notice that you would be looking at the appropriate designation here. But it's just, it's just very unusual to establish a brand-new classification. Normally, if you're going from one to another, you would pick an existing classification. So, I don't know if it's possible to work out the consistency issues and still have a designation that is consistent with everything the… the… the… the proposed project is… is discussing and also be consistent with the zoning or if… if we would have to go this route, but. I to me that that could add complications that if it's possible to come up with. A plan designation that's existing. That is consistent with the zoning and allows everything that that would be. I think it would be… be easier, but we could potentially come up with. It would be something like this and then Section 2 would be a bit different. It would say. Identifying the area and saying for this area only the transient oriented corridor designation is… is applicable and it's this. And then the map would be changed to transient oriented corridor I suppose. But look, I just. I got this this morning with along with you, and that's something I'd probably want to discuss with, with planning on how they would implement something like that. I… I… it could be similar to these project specific plan amendments that have been done from time to time, but I just don't know off hand. The best way to do that for… for this one normally I'd recommend amend all the plans to put this in there as an option and then once that's there, that's simple. It's just a noticing issue and there's a timeliness issue with this because based on the timeline, I think if you don't make a recommendation today, Council could be looking to take action without a recommendation.

Ms. Lindsey: Chair.

Ms. Thayer: Think Vice-Chair is going to have to go very soon.

Ms. Lindsey: Yeah, I'm leaving. I just wanted to say my comments, if that's ok.

Ms. Thayer: Yeah.

Mr. Lindsey: So, I… I have major hesitancies with the M1 use, because just because it's kind of almost limitless, there's limits to it. But that is open, and the trust needs to be there. I'm not saying it's not there, but I'm not saying it's there. The. Expanding. I… I… my although my preference is to do all of the infill projects for housing because there's already established roadways and places where we travel. I… based on my understanding of the Wailuku-Kahului area. I don't think those will be here in time for the need for the community to grow. Which is why I think this is a good option because it is right next to the urban growth boundary. That being said, there's lots of concerns at the end of the day. It… it having local people stay or come back or and or be here a part of the community which it seems like they kind of really thought about how to legally figure it out so that it focuses on local people. That absolutely takes precedence over these smaller, these concerns that are… we can mitigate or. Kind of plan around for that being said, I don't like that. It is part… it is not part of the plan, or is it? It isn't… isn't included in the plan. But also, you know, our plan is old. You know that the places where there is light industrial and stuff, isn't places where is light industrial uses now, so that is another concern of mine. But again, at the end of the day, we need the housing for local people. We need people to stay. And this seems like a good project to at least try to do it. As I listen to Mr. Ueoka, there's a lot of, like, we're going to try. We're going to try if they give us some funding, we're going to try. And so, like that, those kinds of hesitancies make me, hesitant on saying here. Yeah, we're gonna give it to you, cause. You're a local guy, and you're probably gonna do it, but that's again, a lot of trust. And it's like… it's a lot of money to put this together in the front end and everything. So. Yep, that's all. Thank you.

Ms. Thayer: Thank you very much.

Ms. Lindsey: Good luck.

Mr. Circle-Woodburn: Thanks.

Ms. Thayer: Ok, Director had something else to say. Sorry, after Mr. Hopper.

Ms. Blystone: Yes, I did. Thank you so much. Sorry, I just had to recall it. The other thing is, as several people mentioned, I can't remember who specifically. We are in the middle of the Community plan process for Central Maui. So, when we have developed community plans in the past, we have typically looked at the existing Community plan designation and the zoning to find the appropriate land designation for that space. Often times the developer will say. You know, Project (inaudible) will come into the… the CPACs , and say, but you should also include me though and… and so the CPAC would consider that, and they would add them. And so, some of those things have come forward to you if the

Council chooses to change this to say something that that we recommend that's more in alignment with M1 or even the proposed business multi-family, we will then take that instruction and apply it to the Community plan update. So, there's no need to jump the queue and say like. You know. we have to do TOC now even though TOC doesn't exist. I just wanna make that clear to the Commission that if… if the recommendation is made and Council chooses to go with business multi-family, that doesn't mean that TOC couldn't be applied during the Community plan process. In fact, that would be the likely designation, given the types of uses that are proposed.

Ms. Thayer: Follow up question for clarity. So, like the recommendation could be for AG to business multi-family.

Ms. Blystone: Yep

Ms. Thayer: Understanding that Planning Department would like keep tabs on this property and be like this was put in as business multi-family, but it's really this. So, we'll just go ahead and put it as TOC.

Ms. Blystone: But still like to be clear that's gonna go through Planning Commission so that the draft will go through Planning Commission. The draft will go through Council as well. So, there's plenty of opportunities to tweak. But yeah, I think our Departmental proposal would be something like transit oriented corridor to the CPAC. CPAC would have that conversation as well, but they, you know, the rationale for that would be business multi-family is the Community plan designation. Again, if you defer this and the Community plan starts outpacing this process, I'm not saying if this… if you recommend deferral and Council agrees with you and the Community plan starts outpacing this process in that draft Community plan, we can put TOC. Do you see what I'm saying? So, we won't hold with the old version.

Mr. Ward: Right.

Ms. Thayer: It would be updated with the update.

Ms. Blystone: Correct. I just wanted to make that clear.

Ms. Thayer: Thank you. Appreciate that. Commissioner Deakos, you had a question.

Mr. Deakos: I… I was just gonna. I know we're gonna go into discussion before a motion on the table. My concerns? We might go down 1,000,000 rabbit holes anticipating what concerns people might have. Whereas if we just put a motion down, we could begin the

discussion and… and then people can just express their concerns, and I'm happy to make a motion.

Ms. Thayer: Ok. But we would have, if I'm understanding Mr. Hopper correctly, we would have three motions to consider, the first one being for the Maui Island plan urban growth boundary amendment, the second being for the Community plan amendment from AG to whatever. And then the third would be the change in zoning from AG to something also.

Mr. Hopper: I mean, if you wanted to do the Department's recommendation, that's probably simple enough to do in one motion. And if you wanted to do this all-in-one motion, you could. I'm just saying that…

Ms. Thayer: We have to cover those things.

Mr. Hopper: Yeah, the motion would have to be… what are you going to do for each of those three items? And if you're going to recommend, I… I suppose you could recommend zoning conditions, but still deferral of action on the… on the zoning because you won't see that again even if Council waits for the LUC, the LUC comes back similar to what's done for…for Pūlama Lana‘i’s project in Koele. You may wanna have a recommendation on… on zoning conditions in the event that you know that… that… that comes before… before the Council. So, that… that was my main thing. That's gonna be the most different of the three, I think, but any of it is possible. It's sort of up to you. I'm just giving you my thoughts to maybe make it a little simpler, but that's sort of up to the body how you want to handle those.

Ms. Thayer: Ok. Thank you. Mr. Deakos, do you want to make a motion?

Mr. Deakos: Yeah. So, I'll… I'll make the motion to defer. Based on the planner…

Ms. Thayer: Recommend deferral of all three based on the Planning Department's recommendations until the EIS process is done.

Mr. Deakos: Yeah. Is that the Department's recommendation? I don't know if that's the exact wording, but…

Ms. Thayer: Oh, you want to go.

Ms. Blystone: Go ahead, Director.

Ms. Blystone: It might be as clean as to just go with the Department's recommendation and then make amendments. If there's any amendments. Generally speaking, that's correct. But it might just be… since there's three recommendations in the staff report to say, you know, make a motion for all three recommendations. To carry forward, you know. For that… that our recommendation is. Like the… sorry, Planning Department's recommendation.

Ms. Thayer: Ok. So go with. Well, I guess your motion is go with the Planning Department's recommendation as written in the staff report.

Mr. Deakos: Yes.

Ms. Thayer: Ok. Go ahead.

Mr. Hopper: Just clarify what the items were that the Department is recommending that the Council wait for, and then does it mean they're asking the Council? You're asking the Council to send it back to you after you get them, or, you know, those are a couple of clarification points. One defer until when, I know it's in the report. But you should probably state it cause. I don't think it was just the… just necessarily the EIS, I think there were others, but I think that should be clarified and then? And then if that's it, are they looking at you, looking at recommending the Council wait until that happens and then act on it? Or I… I don't know. If there was any anything else? So, just maybe get that clarification from the Department. Or… or … or not. But that was a point that I that I heard you say, the EIS. Now, if it's just that.

Ms. Thayer: Director? I'm trying to pull up my staff report.

Ms. Blystone: If I may run through the three. So, our recommendation on that… Maui Island plan growth boundary amendment was that we recommend deferral to the Maui County Council for the amendment. So, deferral that the Maui County Council defer this amendment. Until the final EIS is accepted, and the island wide inventory of existing land uses is updated and indicates the additional urban density land is necessary to provide for the needs of the projected population growth. So, there are two pieces there. Well, three. Technically three. So, the final EIS, the island wide inventory which Jacky mentioned during her time. It's underway currently and then… that also… this need for additional urban density is… is shown through that process, so that's… that's one. The Community plan amendment. We are recommending deferral until the EIS is accepted and then also that the urban growth boundary is expanded. So, that's… so, the CPA is dependent on the change to the MIP and the change in zoning recommends that the… that we recommend that… they recommend deferral to the County Council for the change

in zoning for the property. And tell the LUC approves the district boundary amendment. And the criteria described in MCC 19.510.040 A4, which are described earlier in the staff report, are met. So, those are the things I… I think there's some discussion to be had about Mr. Hopper's question, though, because this is very strange. I mean, I… I think I've said 1000 times just last week how great it would be to be in charted territory instead of uncharted territory. But this is a bit uncharted territory. I think the ideal scenario is, yeah, we get the EIS, and the Commission has a chance to look at it again. I don't know if there's a mechanism by which to do that, so I… I leave that to Hopper to kind of opine on whether or not there's a mechanism by which once they send their recommendation to Council for it to come back.

Mr. Hopper: I would say if you can recommend that and I suppose the Council could send something back to you, but they absolutely don't have to after they get your recommendation. As long as they get a 2/3 vote, they… they could pass these out. I would say I do have a legal concern with them passing the change of zoning at this point, but I do think the Council would be fully, you know, within the scope of the law to pass the plan, amendment and change in zoning. Items you know or not that, the… the… the plan amendments, the… the directed growth map and the Community Plan amendment. I think they've got the discretion to… to do that. The zoning I have legal concerns with, but as far as all three of them, even if there is a deferral of the zoning, like for example for the Pūlama Lānaʻi project that went through the Planning Commission, they came up with a recommendation on the zoning. The zoning was not acted upon. Before the plan amendments, that's going to the land use Commission when it comes back from the Land Use Commission, I don't think the Council's necessarily going to send that back to the Planning Commission because they already got the Commission's recommendations. So, I just want to be clear on that. You can recommend that. You could recommend that, or you can recommend. I think the Department's recommendation is not that specific, but I… I just wanted you to consider, and the Council can absolutely just say, well, they could disagree with all of it. But even if they adopt those recommendations, it… it. Could just not send them back to you.

Ms. Thayer: Director.

Ms. Blystone: Just if I can add on to that too, I think our… our thought process with the recommendation that we made is that we… we definitely want, and Council is the ultimate deciding factor here. We want them to have the best information available as well. So, even if… even if it never comes back to you, you know. The… this body making that recommendation says you guys need to take a look at these things when… when this stuff is available. And…and that is you, kind of recording like this is good planning. This is what we do, when we think about these things. So, that's the last thing I'll say.

Ms. Thayer: Thank you. Commissioner Kealoha, you have a question.

Ms. Kealoha: Yeah, I have a… a question for the Department. You had mentioned like all of the things that kind of need to happen if this were deferred and. I mean, I hear like the frustration with how long things take. So, like if we were to defer, how long are we talking? Like what is the max amount of time, min and max?

Ms. Blystone: Chair, if I may.

Ms. Thayer: Go ahead.

Ms. Blystone: I'll start. I'll start the answer to this question. So, I think I want to make one thing very, very clear. The 2O1H could start today and it doesn't need this change in zoning. It doesn't need a community plan amendment. They could do it without all of that. So, I just want to be very clear about that. So, that timeline could be whatever the 2O1H time is for them to get their stuff together and do that. For all of these other things. Like I said with. What's it called here? Hold on. Island wide inventory of existing land uses that is underway currently, and I think it's mid-year… mid-year that we're looking to complete that. So, that will show us whether or not there's an additional need to provide more space for projected population growth. So, that that is underway. So, mid-year, that's about when we would expect to see that. You'll have to ask the applicant on his timing for or not the applicant. The project proponent on his timing for the final, the draft, and the final EIS. Our understanding was mid-year also for the draft EIS with the final by the end of the year if I'm not mistaken. But I can't speak to that piece. As far as the you know, meeting the criteria described in Maui County Code and also the standards set in the Maui Island plan for expanding the urban growth boundary as soon as we have that data, we can make that… we can make that determination. So…. I, you know, I don't think. It is really up to the project proponent to move their project through the process, I cannot speak to the length of time the Land Use Commission is going to take on the district boundary amendment either, because this is a change from agricultural to urban. They have historically cared very much about this, and so I don't know how. I don't how that process is going to go in front of them. It really depends on… on who's in those seats at that time. That's what I know.

Ms. Kealoha: Ok. Ok. Thank you.

Ms. Thayer: Yes. Ok. So back to Commissioner Deakos, making your motion, per the recommendations in the staff report as written on page 45 and 46 for those following along on the PDF

Mr. Ward: For discussion purposes.

Ms. Thayer: OK, second for discussion. Commissioner Deakos, would you like to speak to your motion?

Mr. Deakos: Yeah, I think first, I just state we all agree affordable housing is the number one crisis, and we need to get housing for people here. But I don't think. Recklessly doing it is the right way to do it. You know, trust was mentioned a lot of times. There's very little

information that we have, and I think that's why we're all struggling. What is this gonna be? It's M1. It's a mix of this. Well, it's resident. We keep hearing the affordable housing, affordable housing, affordable housing. There's no promise in any of this going through that there'll be any housing, affordable housing, how much of it is 140%. How much is actual affordable? All of that is just trust. The applicant. Itself, not even here to answer some questions that those are huge concerns. Just the full infrastructure analysis, making a decision of this size, you know, around water, wastewater, traffic, schools, emergency survey, all of that. And none of it. We… we are not equipped to know any of that to make those decisions. The completed environmental review, we have none of that to make the decision. You know M1. And allow pretty big. You know, this could go in any direction. So, it's a huge gamble to go on trust, to just say, ok, we heard, and we'll try to do this. We'll try to do that, you know. No guarantees. I mean, we also heard what the market dictates. You know, we'll go with the market dictates, and I think we know which way the market takes things. So, I… you know. On the other side of that is, you know, I understand the process is slow, but we've all sat through the Community plan process, island plan process. This is where the Community comes out. Voices themselves to just dismiss that because it's… it's aged. It's a long time ago. I don't think is, you know, a few people in this room to decide. Well, that's old. We'll just ignore it. I don't think that's a fair process. I think there are ways to speed up these projects. But this isn't the way to do it. You know the Community plan process is on coming up. You know, like you said, they're going to go through all of this pretty soon. Get a very updated community, needs and… and want so to jump the gun on that seems premature. And I do want to go back to the… the, you know, what is this all for? We're all… we hate to deny affordable housing projects. We don't know if that's actually going to be built and if it does build, we're putting that under an active… airport corridor at 200 feet. I mean, there's a reason Planning doesn't put residential unit there hasn't been done in Hawaii because it's a bad place to put resident homes, especially high density. And I don't think you know if there wasn't any alternative. May want to push the needle on that, but we have alternatives that have infrastructure that have water. This project's going to take resources. We're hoping the County's going to work on the wastewater, on the potable water, on the, you know, the… the highway improvements. You know, that's all money that could push these other affordable housing projects along the way. So, I think it deters from stuff that's more appropriate for smart growth, building growth It's not an appropriate place to put dense housing, so. Personally, I would want to deny this project as from what I hear, but we don't have enough information. That's why I'm willing to defer until there's actual information that can be acted upon, and I hope we share that with the Council. Thank you, Chair

Ms. Thayer: Thank you, Commissioner Deakos.

Mr. Hopper: I just wanted to be clear. I think everyone's clear, but this is not a deferral. We're not. The Commission's not voting to defer the item. You're voting…

Ms. Thayer: We're recommending. (Inaudible)

Mr. Hopper: To the Council. Wait, before any action to do certain things. So yeah, just be clear. I think that's clear, but just for the record, let's make sure we're clear.

Ms. Thayer: Commissioner Ward.

Mr. Ward: Thank you, Chair. I would echo Commissioner Deako's comments around not having enough information. Not just for ourselves, but I think for… for Council as well, I will say that I agree with the concerns and the motivation to want to move this forward. The need of affordable housing. And that's I applaud Council for trying something and pushing the envelope a little bit and trying something different that maybe hasn't been tried to…. Turn the tide in a way that's favorable for our… our excuse me, our residents and families and future generations, but I do have concerns on the community not having an opportunity to be… potentially participate as much as I think they may need to. Because it is a significant. Size of a project. I think it was scale was a little bit smaller. There was a couple 100. I… I think that's something that maybe I feel a little bit more comfortable. You could gamble, but with 1600 that's it's a lot and I think the community has a right and I think we have a responsibility to ensure the community has a voice that cause that's… that's their place, that's where they're living. So, being from South Mali, I'm not the guy to say, hey, that's appropriate or not appropriate because it's not where I live. I can have a reputation in my thoughts, but I think the Community needs to be engaged in. So that's what I would also encourage Council to, if I could add that as a amendment, I think Council should have. Community engagement specifically on this project to really understand is this a community. Because if the community says yes, this is what we want. I don't say it's a no brainer, but great. But if the community's saying no, it's not what we want. I think that needs to at least be heard. And then incorporated as decisions are made.

Ms. Thayer: Thank you.

Mr. Ward: But I do fully support the concept and motivation and again taking not the risk but taking a different slice and how to approach stuff. So, I think that's important to acknowledge the Council as well.

Ms. Thayer: Thank you, Commissioner Ward. Further discussion, commissioners. Commissioner Elizares.

Mr. Elizares: It's not particular to this, but it's more for getting our motions and… and all of that. So, when I was… my (inaudible) taught me to… to look for who I know now when we start and we start things and when we move into to the different spaces, right? So, like if we gonna go holo, I gonna look for what kind of fish is in the clouds or what? What is whispered to us. What are there's gonna be like? So, I know what… what kind of ea to forget or what kind of day it's gonna be. The wispy clouds coming. It's gonna be windy. Buckle up and maybe I stay on shore. This morning, my (inaudible) was. The discussion of describing… was it Guardians of the Galaxy… Hitchhikers Guide to the Galaxy. And I didn't know. I wasn't aware until we started to have the conversations, even before the testimony, and that's when it started to show. The vogons. Like super vogon? I feel like. We're playing hot potato. Between the Council and… and us and then the state, while our risks are tied together. It sucks. Umm. So, I don't. I don't know if we're gonna be vogons and destroy earth to put one highway through it or I don't know. I never watched that. Wait, I was young. When the (inaudible). But, and then even the books, I don't know what happens to them, so I don't know how to navigate this and. You know, like Commissioner Lind mentioned. Well, the other (inaudible) was… was all this talk about the (inaudible) or the (inaudible), the… the different types of bitter waters or brackish waters. It sounds like such a great thing, but it's hard to… to drink. I've… I've traveled around, drank brackish

water. It's hard to drink this it… it sounds like great freshwater spring right here. This new… new thing filled with the life for our community. But then it's hard to… to drink it down. You can taste it. It… it tastes just like (inaudible) fishy. That's. That's all I'll say to… to as we move forward into these space. It's… what's it… the comments on my mind about as we move through this motions.

Ms. Thayer: Thank you. Appreciate that. Other commissioners. Commissioners Circle-Woodburn.

Mr. Circle-Woodburn: I'm trying to formulate what my exact sort of question is cause I don't wanna belabor this longer than we have to, but I just need to understand for myself. I think, if we didn't want to take the Department's recommendation, do we have to? We can't just say no to deferral, we have to… We're… we have to make a motion to do… to make, to do something or is it still just a recommendation? Whatever we do for Council to vote on.

Ms. Thayer: Mr. Hopper.

Mr. Hopper: You would need… you would need five votes to do something if this motion, if you did not support the Department's recommendation, you would vote no on this motion. And if there's either, if there's not enough votes, then someone can make a different motion to make. A different recommendation. You could amend the motion potentially, but if I mean if the motion is to adopt the recommendation, I'm not sure which you'd amend it to do. I think your vote would be a no-vote. And then there would be a different motion, which would be to do something different than what the Department recommended. In either case, you're making a recommendation to the Department. So, if you would recommend instead to… to you know to… to recommend the Council take action on some of these rather than, you know, not take the… recommendations basically, don't take action on these until certain things happen. So, don't consider them until those things happen. If you disagree with that and thought, you could recommend that the Council take action, and how… how to recommend it. Action on them. The resolution was sent to you to… to consider three different actions and so you can make a different recommendation. You could say, we recommend that you adopt those… those ordinances as they were sent to you. But yeah, for this motion because this is consistent with the Department's recommendation, which is to not take action on these until certain things happen. You would be voting no. I would say… if that's, if you did not support that.

Ms. Thayer: Answer your question.

Mr. Circle-Woodburn: Even if we…

Mr. Hopper: Right.

Mr. Circle-Woodburn: Even if we go with the recommendation, they could still. Council could still decide not to take our recommendation.

Ms. Thayer: With it, with a two third vote.

Mr. Circle-Woodburn: Right. Because at the risk of completely oversimplifying this whole thing, I think some of the requests from Councilmember Hodgins, U‘u Hodgins and the

applicant was… to try to reduce some of the… the back and forth between coming to us to get approvals, going to the State and then coming back… back and forth right so. By taking the count, the Planning Department's recommendation to defer this. That doesn't help achieve. It… it's still gonna… they're still gonna have to go back to us, to the right.

Ms. Thayer: I'm pretty sure they don't. This is this is the last time this project will come before us. Because it is Council initiated.

Mr. Hopper: Even if they would agree with your recommendation, presumably they would wait until the information's provided and then take their action based on… on the information provided. So that's, you know that would be that would be different. So yeah, there's… there's a strong possibility, at least for… for these items that you would never see these again, even if you adopt as recommended by the Department, at least unless I'm missing something. But that's… that's.

Mr. Circle-Woodburn: Would it come back to Council later?

Mr. Hopper: This goes to Council…

Mr. Circle-Woodburn: Now, but then if, if they, what am I trying to say? If… if we agree with the Department's recommendation, does that not help? Maybe change this process or speed this process up a little bit for the applicant. Am I making sense?

Ms. Thayer: Director? I think… I think.

Ms. Blystone: Yeah. So, here's what I… I think so you, there is a way to cut a step out of the process, but it would require waiting for the DBA to be complete. Because what really holds up the change in zoning is the fact that the DP… DBA is done, and Counsel… Corp Counsel has opined on this subject a little bit. And I'm certain we'll be asked multiple times in multiple formats of sessions in front of Council on the same question. Our concern was that combining these processes into one thing doesn't allow for that district boundary amendment process to happen. Also, the… the LUC traditionally prefers to have us to the Community plan amendment and the urban growth boundary amendment first so that they know we're on board. We, collectively being the Council with making this area urbanized. So, you know what we're saying with the CPA and the… and the amendment is there a couple things, pieces of information that are important. One the… the CIS into the land capacity or not the land capacity. But you know what I mean the… yes, so. So, so there is a potential that if they waited for the DBA to be complete, they could do all threes at the same time because it would be set. And there are many of times where we run a ZPA that already has the… the district boundary. You know, like there is no need for a district boundary amendment. So, we can run the Community plan, and we can run the change in zoning all at the same time. That is not the case here, which is why it's a little awkward and uncomfortable.

Mr. Circle-Woodburn: Ok.

Ms. Thayer: Does that answer your question?

Mr. Circle-Woodburn: Yes.

Ms. Thayer: As much as you need it to, ok. Ok. So further discussion, Commissioner Kealoha or Commissioner Lind.

Ms. Kealoha: I've been going back and forth a lot during this meeting. I. Shucks, I do. I really. I support the project. Like I trust the intention. But I… it the project is. It's just such a big project that without like having the information from the EIS like I think that needs to be reviewed. So, I'm… I'm really getting held up there. Yeah, I'm just. I keep going back and forth on my head. That's really all I have to say right now.

Ms. Thayer: Thank you, Commissioner Kealoha, Commissioner Lind.

Mr. Lind: I believe the County Council has the ability to decide this issue. You know, let them… you know. Take it on and then that's where it's going so. I support affordable housing. I'm not against it. And I think we need more information so. And they need more information. Rather, the County Council. So, deferral sounds good to the County Council.

Ms. Thayer: Thank you, Commissioner Lind. Appreciate it. And just to add in where I'm at on this, I'm… I think I feel the same way as everybody here weighing this all out. I... I… I do think in some ways, you know, like slow is smooth and smooth is fast. That philosophy, and this feels like. Rushed in some ways and like I… I completely understand how long the land use entitlement process can take, like it is people have lifetime sometimes before you see stuff come to fruition like that is not lost on me. What I'm getting hung up on is like how much? Thought and study and effort went into establishing the urban growth boundaries and how much this is trying to truncate like that was not a small thing to set where the urban growth boundaries are. And that was not willy nilly. That was not over one meeting in one day. That was over like years of deliberation. And like for us to think we're going to decide that today, without an actual analysis report, seems a little bit irresponsible. Like I… I do appreciate that. Like we have a passionate person behind this, and we have a passionate Council member and a team. I think there is a team of…

Mr. Ward: People.

Ms. Thayer: Consultants behind this. But I think I'm with Commissioner Elizares, that like there's… there's just something that's just missing. For me in this and I feel like due diligence in all respects would be to at the very least have the EIS and it may show that this is in fact well thought out, that there is going to be some provision for the noise and the traffic and the roadways and the schools and the pathways and things, but we… we just it's… it's hard to know that and none of it is in writing. Well, a lot of it is not in writing, even like I appreciate Mr. Ueoka being here and fielding all of our questions because I know it's not been an easy or simple day. So, you are earning your keep today, but I feel like it would be prudent to it at the very least have the EIS and then Council can go through all the entitlements all at one time. I think if they want to. And that at least can be faster.

Mr. Ward: Chair.

Ms. Thayer: Commissioner Ward.

Mr. Ward: Thank you, Chair. I throw this out as a discussion point. Not that I'm making a proposed amendment. Could we be hearing that… we're trying to cut some of the time out

of this. What are maybe other people's thoughts around instead of the final EIS that it's the draft EIS, which I know is not a deal? It's not perfect. It's not where we normally would want to go. But it's a little give and take that we're saying you need something, so don't go blind. But at least with the draft, you may have more information, and they can. Around that. Scooching out a little bit of time. I… I threw that out as just a thought. To… to try to do something different where it's you are trying to influence change and we're trying to do the right thing, but we're not doing it blindly.

Ms. Thayer: Yeah, no. Appreciate that… that thought occurred to me also because I'm pretty sure we've gotten some project applications where the assessment report is like the draft EA, but those are times when I think the Commission is the approving agency or accepting authority for those environmental assessments or EIS's. Is that correct?

Ms. Blystone: I… I can't speak to the ones that you're… that you're thinking of, but I will say that lately you've had a lot of EIS's come in front of you for comments. What I will say just kind of from the Department's perspective. The draft EIS is… is very like. It's much more robust than what you have in front of us now, for example. However, there are things that come up through the draft release that are addressed and, you know, cleared in the final. So, it's just it's just something to consider that the draft, as the name suggests, is not done. So, there may be stuff that comes out through the comment period that you wouldn't know until… until you saw the final. So, I just… I wanted to put that in your in your bucket as you think.

Ms. Thayer: Commissioner Deakos.

Mr. Deakos: Yeah, just to add on top of that, you know our… our role here. Is to, you know, understand the impacts generally environmental impacts and we heard that's a big disruptor that's slowing everything down. And so, if we can chop that out, maybe we can speed things up, I mean. You know, I've seen a lot of draft EIS's that intentionally leave out the really important stuff to see if they can… cause those are the hard pieces to fill in. A project this size to just go based on the draft EIS, I don't feel comfortable with that. And you know, we heard just, you know. Traffic near was blown off as how important is that? But water. I think we can all agree water is… you can have all affordable housing you want. If you don't have water, people cannot survive. We heard from the Water Department that we are over drawing twice the sustainable yield. Water is an impact that we have to understand, and we can't be… right, you know we… are in charge of protecting those public trusts so future generations can have access to that. That's our job, so I know it's irritating to go through the environmental impact, but I think it's partly it's our job. It's… it's important. And I… I don't think it's worth cutting corners on that. Thank you, Chair.

Ms. Thayer: Thank you, Commissioner Deakos. The couple other thoughts going through my mind are this being productive AG land and I think highly valuable AG land from my understanding because it is flat and it's close to town and roadways. So, a lot of the challenges that people have with AG land being far away and having to truck your stuff into town gets alleviated from this. That's just a thought. And then the other. Thought I have was I… I… I like the nostalgia of the old plantation village around here, and I also have aunties and uncles who were born there and lived their whole lives there and got married and started their life and everything there. The one thing I think about that though, like that was all centered around like the employment hub like that was already in place. The hospital was there, the school was there. The ball fields were there. The swimming

ditches were there, like everything was there and it made sense for it all to be there cause it was all in one place, like it was a live, work, play and learn kind of situation which I think this is a little bit different. I think it's getting back to that to some extent because you're in proximity to everything, but it's… I think there is a little bit of a distinction there. At the same time. But yeah, we need… we need creative solutions for housing as well. Cause, obviously we don't have enough, and I would say my… my brother moved away many years ago for the same challenges that everybody's bringing up today and I don't know if he'll ever move back either. My niece and nephew are Minnesota kids and not Maui kids. And that hurts me a lot as well. So, I feel that. But this being said, thinking about this going through Council eventually. And if… if we go through with this recommendation for deferral until the EIS process is done and Council takes this up and it sounds like they're all favorable for it and would go towards passing this, I would want to suggest potential conditions on the change in zoning. Which, if anybody would want to entertain this as a friendly amendment. Director.

Ms. Blystone: Chair, I have an idea for that.

Ms. Thayer: Yeah.

Ms. Blystone: That… that perhaps in addition to your… And maybe, maybe friendly amendment. Someone's mic is open, and they are coughing, and I wish you the best of luck. So, it could be a friendly amendment. It could be an amendment that… that… that is just your comments, the Commission's overall comments and one of those things could be suggested conditions if they choose to go forward. Against what you recommend. So, I just wanted to put that out there as kind of a way to structure it.

Ms. Thayer: Ok. But just to put this out there for consideration by the Commissioners. I would suggest potentially. Three, which would be as represented that it is 100%. Affordable housing. At or below 140% AMI. I heard also that it would be affordable for at least 30 years and then I would say yes to have annual compliance reports because that may be the only way that community gets to hold this project accountable to all the representations. For entertaining by the Commission.

Mr. Hopper: So, that would be sort of in the form of in the event the Council does eventually decide to grant the change in zoning, you would recommend those as conditions.

Ms. Thayer: Correct.

Mr. Hopper: Ok. Something like that. Someone would need to. I think…

Ms. Thayer: Someone would need to make that motion…

Mr. Ward: So, moved.

Mr. Elizares: I beat you.

Ms. Thayer: Oh, Elizares… Elizares. Second by Commissioner Ward, would you like to speak to your motion?

Mr. Elizares: Nope.

Ms. Thayer: Commissioner Ward. Any oh… Commissioner Kealoha?

Ms. Kealoha: Yeah Chair, I just wanted to mention while you were discussing those conditions earlier, there was some mention of like three stories or less. And I'm just wondering if we want to recommend some height limits.

Ms. Thayer: Ok. We can take that up next.

Ms. Kealoha: Ok.

Ms. Thayer: Friendly amendment. Thank you. All right. Any further discussion on this? Seeing. First, second. Elizares and Ward, Ok. Let's take a vote on this.

Ms. Blystone: Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: No.

Ms. Blystone: Commissioner Elizares.

Mr. Elizares: Aye

Ms. Blystone: Commissioner Lind.

Mr. Lind: Yes.

Ms. Blystone: Commissioner Deakos.

Mr. Deakos: Aye.

Ms. Blystone: Commissioner Kealoha.

Ms. Kealoha: Aye.

Ms. Blystone: Commissioner Ward.

Mr. Ward: Aye.

Ms. Blystone: Chair, that's five votes in favor.

Ms. Thayer: Ok, motion carries.

It was moved by Mr. Elizares, seconded by Mr. Ward, then

VOTED: ***To enter a motion for a friendly amendment: Three conditions - To include that it is 100% affordable housing. At or below 140% AMI. It would be affordable for at least 30 years and to have an annual compliance report, as discussed.***
(Assenting: C. Elizares C. Lind, M. Deakos, A. Kealoha, B. Ward)
(Dissenting: J. Circle-Woodburn)

*(Excused absence: A. Lindsey *left meeting after 3:00 PM)*

(Motion carries.)

Ms. Blystone: Commissioner Lindsey, Vice-Chair Lindsey is absent.

Ms. Thayer: Ok. Commissioner Kealoha.

Ms. Kealoha: Yeah, I mean, I just. I… I remember the discussion about possibly trying to keep it the development under three stories or three stories or less. I'm just throwing it out there. If… that's something we want to consider as a condition, I guess it just open for discussion. I'm… I would be supportive.

Ms. Thayer: Would you like to make… Commissioner Deakos. Go ahead. Commissioner Kealoha, and then Commissioner…

Ms. Kealoha: I mean, I guess they. Oh, sorry. I mean, I guess they would have some height limits anyways like restrictions as part of that like being in the airport… area.

Mr. Ward: (Inaudible).

Ms. Kealoha: So maybe we don't even have to condition that. I don't know.

Ms. Thayer: The zoning district would have a height limit.

Mr. Pfost: It's 60 feet for maximum building height with five or more apartments. A dwelling units on Maui and Lānaʻi is 60 feet. The M1.

Ms. Thayer: But I think there would be the FAA would come in…

Ms. Blystone: Perfect.

Ms. Thayer: Ok, so at that… might be taken care of, Commissioner Kealoha, unless you wanted to reduce the allowable height.

Ms. Kealoha: If… if it's gonna be taken care of by the FFA… FAA, then I can trust that process.

Ms. Thayer: Ok. Thank you. Thanks for thinking of that. Anybody else, Commissioner Ward.

Mr. Ward: Can I make a friendly amendment to have Council do an outreach program to the community for feedback?

Mr. Hopper: Chair. Is that for Council to do that or to have the… the… the landowner do that? Well, I guess it's the Council's proposal, but I don't know to what extent the County Council would be doing an outreach program. I don't know. Maybe you could recommend that before action. It's something be done, but just… just consideration.

Mr. Ward: You don't necessarily have to do it more… that a outreach program is initiated to get community feedback. It'd just be my recommendation.

Mr. Hopper: So… so, is this a? This is not a condition of zoning. This is additional recommendation that you're making separate from anything in the… Yeah, it's just an additional recommendation.

Ms. Thayer: Ok. Sounds like overall.

Mr. Ward: Just a general… just to make sure cause, again, I think the Community should have a voice. And if that's, you know, supportive voice, that's… that's great.

Ms. Thayer: So, you're… it would be a… a comment to include in our transmittal letter to say encourage the Council to conduct some kind of public engagement about this project. Ok, is it you want to make a motion for that?

Mr. Ward: So, moved.

Ms. Thayer: So, moved. Is there a second? Question first, Commissioner Deakos.

Mr. Deakos: So, the Commission, sorry, the Council meeting is the public process. So, you're asking for an addition. Above the testimony that we give to Council meeting. So interesting.

Mr. Ward: Yeah, I guess so. I… I guess my thought here thinking is that it's just a large project. That it may… it may come out in the Community plan process as well. So, depending on timing, I just think that the size of the project, the community. And I guess it could come up at their meeting and have (inaudible) there. I seen, (inaudible) what we've seen, sometimes it comes sometimes to be wrong. Just a thought.

Ms. Thayer: I am not seeing a second. But I think our Councilmember is here and is probably taking note of this discussion. Yes, ok. Anything else? Commissioners… Commissioner Deakos.

Mr. Deakos: I just had a question on… so do you… you added some portable housing conditions…

Ms. Thayer: Or suggested…

Mr. Deakos: Suggestions?

Ms. Thayer: Yeah.

Mr. Deakos: There was some height limitation. Suggestions. If one's counsel passes this M1. TOC. What are… what boundaries are there on what they can and can't develop like? Are they bound to housing for (inaudible)? And they just do all commercial.

Mr. Hopper: I can answer that.

Ms. Thayer: Mister Hopper.

Mr. Hopper: I can help, if… if a project gets a zoning designation, they could do any of the uses in that designation unless there's conditions limiting that ability. So, if it was just M1 without any conditions, there would not be any requirement to build housing or any particular use. So, that's why, you know, generally you would need to condition to say what would be in that… in that project. Otherwise, yeah, if you get just… if you just get M1 with nothing else and no other conditions, then you can generally do any of the uses in that in that district.

Mr. Deakos: So, I'm trying to understand once it leaves… once the Council votes on it, the County Council votes on it. If there's no details on… we're gonna have this… this. We're gonna have the residents here will have a commercial area here will have light industrial over here. It's a blank slate once it leaves them, they can do whatever they want.

Mr. Hopper: Well, if the project… since the project is not State urban, they have to go to the Land Use Commission and their process is… is very, is generally, much more detailed because they have to represent what they're going to do. Talk about the number of units, go through that process. My…my… If… If you and the Council proceed as… as I would advise, it would be, it would be not to take action on the zoning until the district Boundary amendment process is completed. The Council, I think, could adopt the Community Plan and growth boundary changes. In fact, the Land Use Commission has said we need you to do that before we take action. But I would generally advise if… if the Council were to somehow take action on the zoning, it would allow all of those uses but would be inconsistent with the State boundary which what I would have the issue with. If it waits, which is I think, more of the typical process for the district boundary amendment, the district boundary amendment, would set limits on. Even if the Council would then adopt the M1 zoning, the more strict of the two would apply. So, the State Land use designation conditions which are recorded and run with the land would still apply, but just generally from the Council zoning perspective. A… A… A designation of light industrial zoning without any conditions on it, would allow any of the uses in any proportion in the M1 zoning district that… that there would not be limitations in there. Practically speaking for this project, the district Boundary Amendment would… would… would impose some. But in general, a… a zoning of M1 light industrial without any conditions would, just like any zoning district. If there's, there's just a parcel zoned, the limitations are within that zoning district. They have development standards, height limits, setbacks, things like that. But the issue with M1 is it allows commercial, industrial and in some cases residential uses. So, there's a variety of uses there.

Mr. Deakos: And just to clarify, the recommendation from the Department was that they not decide until the DVA was finalized.

Ms. Blystone: That's correct. And just to… to add a little bit to, so I… I think to make it very clear what Mr. Hopper is saying is that there is no guarantee that these houses will be built, that this housing will be built unless there is either conditions in the DBA or in the conditions of zoning. So, if you are considering conditions of zoning, you can say…and for example, the… the 1600 units need to be built first, or they need to be built at all. I mean that… that could be a condition of zoning that you want to put, that you may want to consider, but. Like Mr. Hopper said, that is one of the bigger concerns that the Department has with just applying M1 zoning is it means they can do M1 zoning, which is.

Not housing. Necessarily. And that district was not designed for housing. It allows housing, but that's not what it was designed for.

Ms. Thayer: But right now, our motion on the floor is the department's recommendation essentially, to defer all action until the final… final EIS is done with a couple of other studies. Plus, suggested conditions of zoning for all the housing to or all the units to be for 140% or below AMI, 30 years of affordability and compliance reports. We did not put in there actually a number of units to be developed. That's all just in the representations from the project proponent, but I'm pretty sure the EC application would have that all fleshed out and we… just to rekindle your memories and not all of you were here for this. But we like, have seen LUC conditions on approval, carry through a project like Piilani Promenade was one of those where we… we had to take those into account. When we were deliberating on that project. So, like that will probably be in this DBA, I surmise. Commissioner Deakos. Oh, Commissioner, and then Commissioner Elizares

Mr. Elizares: Where can we put it in now?

Ms. Thayer: We could put it in, now. Yeah, we could. Oh…Well, the DBA.

Ms. Blystone: So, Chair, you could add like you did, where the other three items that you just did, an amendment that says you know…

Ms. Thayer: For the change in zoning, we could make suggested conditions on the change in zoning.

Ms. Blystone: So, you actually can't make conditions, but like chair said, you can suggest that Council make these conditions.

Mr. Elizares: So ok, I'd like to make a motion to suggest. That. (Inaudible) a hand in hand. Throwing out an idea here. That 40 units be built out of time as the other M1 pieces come up? Parcel up to 1600 units. No less than 1000 units. Affordable housing. Does that make sense? It's 1000 / 40.

Ms. Thayer: It's 25.

Mr. Elizares: Multiple of 40. I'm just making stuff up here. I just think. Trying to be creative. You said, be creative.

Ms. Thayer: Go ahead, Director.

Ms. Blystone: Yeah. So, the… so you're saying that instead of front loading all of the affordable housing that they at minimum build (inaudible). 40 housing units, with each commercial and light industrial component, is that what you're saying?

Mr. Elizares: Minimum. Yeah.

Ms. Blystone: Minimum.

Mr. Elizares: Trying to be.

Mr. Ward: But wasn't phase one, all affordable housing?

Ms. Blystone: I don't have a map in front of me.

Mr. Ward: I'm just cautioned we don't undo… something that might be in play that's better.

Mr. Elizares: I don't what was represented. What did they say… that they would build all 1600 units first?

Ms. Thayer: In the phasing plan, that is in the slide deck in our 1900 pages of exhibits, there is a phasing plan that has, oh, I'm look at the, it's a spreadsheet.

Mr. Hopper: Right next.

Ms. Thayer: Yeah. But this says phase one is 268 market rate multi-family which I think goes against… maybe inconsistent with what we've heard. So, phase one phase two, phase three are all market rate in the phasing plan. There's 10,000 square feet of commercial. In phase 2… 75,000 square feet of light industrial in phase three, phase four is when we would see some multi-family affordable.

Mr. Elizares: (Inaudible) I don't know. I don't know how things cancel out there with them in the door.

Ms. Thayer: Director.

Ms. Blystone: It does seem like you could do an amendment and achieve what you're trying to achieve by locking them into the phasing plan that was represented to us at this time.

Mr. Elizares: Yeah.

Ms. Blystone: Is that what you're thinking?

Mr. Elizares: Yes, please.

Ms. Blystone: Ok.

Mr. Ward: I second that.

Ms. Thayer: Commissioner Lind… question.

Mr. Lind: Chair. I have confidence that the County Council, when they get this after us, this application, this topic that we're discussing right now, that they will, they will make amendments to make sure that the that the developer will comply with what he applied for. So that's, that's what I think. Yeah.

Ms. Thayer: Thank you, Commissioner Lind. Sorry, making sure I heard your motion correctly. Can you restate that?

Mr. Elizares: As represented.

Mr. Blystone: Right at me:

Ms. Thayer: As represented, the 268 units at a time.

Ms. Blystone: I could say. That the applicant will keep to the phasing plan that was represented to the Commission at… at this time.

Ms. Thayer: Well, I think noting that they said it would be all affordable units. Is there a clarification? Are there actual market rate units… cause I thought I asked a question, and I thought you said they would all be affordable.

Mr. Ueoka: Sorry, I know this is not normal. I did say in my presentation that in this case the mean market as 140 and below and affordable as 60% and below. Like I said, I said that in my presentation.

Ms. Thayer: Ok… ok… ok. Thank you. So, what is listed as market rate within this phasing plan for the record is 140 and below and what is listed as affordable… Is 60% and below.

Mr. Ward: So, we don't really need.

Ms. Thayer: Well, I think otherwise we don't. Otherwise, that's not in anything.

Mr. Circle-Woodburn: They don't have to do that.

Ms. Thayer: Yeah. Commissioner Deakos.

Mr. Deakos: So, 2 questions. One, there's no numbers, right? There's no percentage of units.

Ms. Thayer: There's number of units, 268, phase One, 268, phase two.

Mr. Deakos: Under… under the 60%...

Ms. Thayer: That says market rate, which is what we were just told is 140% AMI and below.

Mr. Deakos: But they don't call out… if they… if he's calling affordable 60% AMI, there's no number next to the 60% AMI. There is…

Ms. Blystone: Kind of.

Ms. Thayer: It's… it's some portion of 268.

Ms. Blystone: In phases

Ms. Thayer: In phases four and six.

Mr. Deakos: Ok. And question about introducing numbers in an ordinance, cause we've seen projects 700, 450 and basically the argument was it just falls back on to what chapter 96? Is it 96?

Ms. Thayer: Two point 96.

Mr. Deakos: 2.96 requires? We've heard that from developers saying, yeah, those numbers are meaningless. Our minimum requirements, Chapter 29… 2.96. So maybe, Mr. Hopper, you can address whatever numbers we shove in here. Does it have any legal? Binding down the road.

Mr. Hopper: I mean, I… I… I think the… the property if unless it does something different would generally still have to comply with 2.96. You've got both affordable criteria and phasing requirements here if you want to be more specific as to the numbers. You… you can be. If so, I would consider the language of your… of the condition your asking the County Council to… to look at. Adding, if it would be you would want to identify if you wanted to say shall be in substantial compliance with the I think it's called preliminary site plan. And list of phases on and… and… and incorporate those by reference. I suppose you can. I will also note that if this goes how sort of, you're proposing the State Land Use Commission will have already completed this, their district boundary amendment process with those types of conditions before the Council takes final action on this. Now the Council. So… so, I think you know, that's that might be more… more specifically defined and the site plan may change throughout the DBA process. But if the… you know, so I want to note that. But if… if the intention is to say the project has to be in substantial compliance with the preliminary site plan. And you could reference this plan and the and which I… I believe would include the... I guess it's just the phases slide on the next page. So that's, you know that's which… which you could do if you want to be more specific as to the affordable, you certainly can be. So, the… the condition if it's specific, would generally if it's more… if it's more… If it's more restrictive than 2.96, the condition would apply. But I think the issue with the other that you're referring to is when there was a condition that says you shall comply with 2.96 and then the 450 language was in a… was in a in a site plan. I don't want to get too detailed into that, but if you're going to have this condition, I would be as specific as… as possible. If that's a concern of yours. So, that that's kind of all I can say, but if you're looking at having the site plan as well as the phases slide listed next made a requirement doing that as a condition of zoning would be a possibility.

Mr. Deakos: So, just to clarify not to dig up old wounds but if there was no mention of 2.96 in that ordinance, there was a mention of 450 required housing. We were…

Mr. Hopper: There was a mention of 2.96.

Mr. Deakos: Not in that ordinance, in the second ordinance that accompanied it for the other 250…

Mr. Hopper: Right, which is where you would have the mitigated measures. You would not have generally mitigated measures in a… in a project district that outlined the different types of uses. Where you had the mitigative measures was… was the area and you know the Circuit Court looked at that and said it was consistent. But guess what? You guys are doing this right now from scratch, so you can be as specific as possible if you want to set a minimum number of units and all of the requirements of all of those units, you can

recommend that to Council. And Council can be as clear as they would like to be so as to avoid any type of confusion in the future because you're doing that now. So, you can certainly do that.

Mr. Deakos: Ok. And… and just to clarify. So, because it's some Chapter 2.96 changes, right all the time, if the number we recommend now is greater than the minimum required or if it's less than the minimum required, how does that change the actual requirement?

Mr. Hopper: If you don't tie your condition to 2.96 and say you shall comply with 2.96, you could state, some conditions, I think say provide a minimum number of units. Although of 2.96 changes, you have to provide more. There's a variety of different ways you could do it, but in and of itself, 2.96 change… changing wouldn't make you know that in and of itself. I don't know if it's going to go to like, you know, if you're thinking it's going to go to like 10% or 15% or something, that wouldn't generally affect a zoning condition if that zoning conditions not tied to 2.96. 2.96 would… would still apply, but if the zoning conditions more… more specific as to the… the requirements and they're more restrictive that… that would be what would have to be followed, because they'd have to both be followed.

Mr. Deakos: So, if it went to 50%, they would have to follow the new 50%.

Mr. Hopper: If it increased, that would perhaps be a different issue. So, I don't know if you would want to say this is a… this is a minimum as far as the… the number of units you know. At this point. What's being defined as affordable? What's being represented? It is affordable. You would want to. You know you would want to state what you want in… in here as far as what's affordable. I mean 2.96 could… could completely change there. So, you know that's… I would…. I would state what you want in this project area as clear as possible.

Ms. Thayer: Director and then Commissioner Ward.

Ms. Blystone: I just want to remind the Commission where we're at. So, you have passed an amendment that said that you want 100% of the units built to be 140% AMI or below. So, you've already said that. No need. No need to beat that to death, but the… the question that has not been answered is whether or not you wanna require that housing be built at all. And so, I believe we have a… a motion and a second for this item and it may be that we're just mildly wordsmithing the item slightly. But it's basically what you motioned and seconded was to build a project to the phasing plan that was represented to the Commission. That's where you're at. And that would address the question of like the number of housing units, what it doesn't address is if, as a result of the conversations that

are happening after we have the EIS and we have more information, we may want to increase number of units, reduce number of units. Like so, it doesn't allow for some flexibility. I just wanted to bring that to the Commission's attention as you deliberate.

Mr. Ward: What Council could change that?

Ms. Blystone: Yes. And just to be clear. These are all, if the Council decides to move ahead and disregard, assuming you pass this, disregard your request, then we… you are asking them to say please condition it in this way. But they can also disregard that as well.

Ms. Thayer: So, the making sure we're clear on the motion on the floor and it was moved by Commissioner Elizares, second by Ward. Ok? Oh, for yes. And it is... we are we at following the phasing plan because initially you were saying 40 units at a time concurrent? Following the phasing plan…

Mr. Elizares: Following the phasing plan with a minimum of 1000 units. And maxing out 1600.

Ms. Blystone: Chair, if I may.

Mr. Circle-Woodburn: 8.

Ms. Blystone: Yeah, 1608 was the number that that is represented, yeah.

Ms. Thayer: Min 1000, Max 1608.

Mr. Ward: Why? Why would we want to put the Max?

Mr. Hopper: How would we enforce it?

Ms. Thayer: Ok. I have two questions came up. How do we enforce the minimum? And do we want to have a max?

Mr. Ward: Let's say no to max, because if they go through the process, they can determine they can build more than why would we not want if honestly you need?

Mr. Elizares: I think I'm looking around the corner and knowing that they're gonna run into some archaeology problems. They're not gonna be able to build out, so rather than extend into parked areas. I don't know…I don't know… what were on. Yeah, let him build more affordable housing. Yeah, makes sense.

Mr. Ward: I… I agree with the minimum. Max, I would say. They could do it and they make more than go for it. So, just minimum 1000, follow the phasing plan and build out minimum 1000 residential units.

Mr. Elizares: Yup.

Ms. Thayer: Ok. That's good with the movant. That's good with the second? Question from Ms. Takakura.

Ms. Takakura: I'm sorry to interrupt you Chair Thayer, but in our report, we had asked that the amenities such as the civic and commercial and recreational entertainment and so forth be built with the project and not in phase nine at the end. Thank you.

Mr. Elizares: Is that caught? In the original motion.

Ms. Thayer: So, if they follow the yeah, like she said, if they follow the phasing plan that we're talking about. The commercial and civic center, the recreation and Entertainment Park and the civic use TBG, would all be phase nine. So, that's like 3 phases after the last house is built.

Mr. Elizares: Can I add that in…

Ms. Blystone: So, we can add that to the end, Chair if you'd like, or… kind of in the middle I think might be best. So, build a project to the phasing plan that was represented to the Commission, except with the recreation. What were the… sorry, the amenities again?

Ms. Thayer: There is, well… Civic, recreation, entertainment and park. There are three future phases.

Ms. Blystone: So, what I would say is build the project to the phasing plan that was represented at the Commission, except with the civic, recreation, entertainment and park to be built… concurrently with a minimum of 1000 residential units or something like that.

Ms. Thayer: Is that good with you, Commissioner Elizares? If you're in the 1900-page document, it's page 69.

Mr. Elizares: Of course it is.

Mr. Ward: Chair.

Ms. Thayer: Commissioner Ward.

Mr. Ward: Thank you, Chair. My thought would be, is that 1000 might be too high of a number. To use a threshold to have it done currently.

Ms. Blystone: Could just say built concurrently...

Mr. Ward: Phase 2?

Ms. Blystone: With phase 2?

Mr. Ward: Starting with… phase one, it's 268. I think it was. I don't think they need a full entertainment. Concurrently. But now he's starting to get 500, 600.

Ms. Thayer: So, the…

Mr. Ward: That's a greater scale.

Ms. Thayer: Phase two has retail and restaurant. Phase three… well, yeah, phase three has light industrial, phase four office building. Phase five, you get food hall entertainment space. More commercial retail restaurant. Yeah. So, like the… the… the people spaces aren't until much later. Go ahead.

Mr. Elizares: I'm not a construction guy, but it seems like the sequencing may have to do with like the type of construction that would be happening in the space. Taking a shot in the dark there.

Mr. Ward: Like I would say, it's probably more financial that…

Mr. Elizares: You think so…

Mr. Ward: You would want the businesses to be able to produce money to be able to.

Ms. Thayer: Yeah.

Mr. Elizares: So, would they be…

Ms. Thayer: Parks don't make money.

Mr. Elizares: (Inaudible) Would they be able to? Do you think that'd be even feasible? Would that…

Ms. Thayer: Director.

Ms. Blystone: Well, what you could do is instead of being so specific and saying phase two, it said… you could say in earlier phases or something like that. Move… move some… some version of that so to be built during earlier phases because again these are recommendations that. The Council may or may not even. Take up, but I think the important thing that you're trying to reflect is that these amenities need to happen well before all the other housing is built. Otherwise, it's people just living in a dirt space.

Ms. Thayer: It's the other thing to point out here is they have the hospitality use coming two phases before the civic spaces. Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: But that is… they can't do that without…

Ms. Thayer: Without…

Mr. Circle-Woodburn: A lot of input…

Ms. Thayer: Another Land Use entitlement process. Yeah, but I guess I don't know what I'm reading from this is like after we've exhausted everything else, then we'll put in parks.

Mr. Circle-Woodburn: Yeah, maybe upon 50% of the housing being built.

Ms. Thayer: Oh, there you go. Yeah, that would be another way.

Mr. Circle-Woodburn: The goal is obviously to get the houses built. We don't want to impede them so much financially…

Ms. Thayer: Right.

Mr. Circle-Woodburn: They can't even build the house… Cause they're not selling these. These are just rentals, so they… to generate any funds to be able to build amenities.

Ms. Thayer: Yes.

Mr. Circle-Woodburn: I think we might be boiling the ocean.

Ms. Thayer: Ok.

Ms. Blystone: So, the Commission, comfortable with earlier just saying earlier phases.

Ms. Thayer: Or…Circle Woodburn's suggestion of you know, 50% of the units or something, but I guess you don't know how many units are going to be. So, if 50% might be 500 or it might be 800 or yeah. Commissioner Deakos.

Mr. Deakos: So, we're outlying what we want to see for residential housing. You know, we put a caveat in there that says unless the EIS determines. High density housing in this area is a very, very bad idea. Yeah, like. Or do we wanna force? Do we wanna force housing regardless of what?

Ms. Thayer: Well, let's… can we close out this item, this motion first and then we'll…

Mr. Deakos: But I thought it was tied. It would be tied.

Ms. Thayer: I guess it could be tied. Yeah.

Mr. Hopper: I would note a condition of zoning. Wouldn't… if they just deny the zoning? The conditions of zoning won't be effective anyway. So, if they make the decision ultimately to not pass the zoning because it's not justified, then the conditions would make a difference just… just as a note, if it's a denial, then the conditions…

Ms. Thayer: It's a moot point.

Mr. Hopper: Don't really make the point. Just a note.

Mr. Deakos: I'm not sure I understand.

Ms. Thayer: Like if the EIS comes back and says this is not feasible at all, then like…

Mr. Deakos: For the… for, we don't recommend all the light industrial think it's great, but you don't want to put housing in this. It wouldn't be the whole EIS gets rejected. Just the recommendation is this is not a bad… it's not a place to put.

Mr. Hopper: They could modify the conditions at that point too. I mean you can… You can certainly add whatever you like, but it's like there are a lot of… kind of some of the issues are running into in general with this process, but there could be a lot

of things that come from the EIS that alter how the Council or the Land Use Commission ends up, you know, changing this. But you know, so you could, you could discuss that certainly. But it's gonna be tough I think if you look at every possible change. Just my thought.

Ms. Thayer: Mr. Wollenhaupt.

Mr. Wollenhaupt: 1000 houses would be ok and the minimum. I'm confused and it's minimum of 1000. Even though we're talking about 1600, but if 1000 is good, well, that's enough. I… I'm.

Mr. Elizares: I can speak to that.

Mr. Wollenhaupt: I'm trying to figure… 1600, but now we're going minimum of 1000.

Mr. Elizares: Well, so in Honua'ula there was a… there was a project that… that went through… there was like… they represented 700 something. At the time 20, 19 years ago or something that they were gonna build 700 affordable housing. And then a few years ago, they went down to 450 because they were adjusting right. The number based on the percentage. And then recently they went even lower to like 2 something. And I think it just went through Council a couple months ago where they… they went to a different number, right. So, it's to hold them, the developer, the proponent at that… that number, minimum number. Not holding them at the 1600, but…

Mr. Ward: Because we might find out (inaudible).

Mr. Elizares: Right. Which is the problem that happened in Honua'ula? Or they (inaudible) more, more spaces that couldn't be developed at all. I was on the (inaudible), not ike.

Ms. Thayer: Difference, there is a difference, yes, Commissioner Ward.

Mr. Ward: These are also just recommendations.

Ms. Thayer: These are also recommendations and again in… in theory it's pending the findings of the EIS. Maybe there's an AIS done as part of the EIS and they do sub surface testing and like this ground is not buildable or something, then you have 80 acres instead of 160 acres. Whatever the case may be. There's a lot of hypotheticals out here cause there's a lot. Yeah, ok. So, motion now… is follow the phasing plan provided to the Commission. Building out minimum thousand residential units. With the future phase civic

recreation, entertainment park spaces, are we going to say built concurrently or built in earlier phases? In earlier phases, ok. All right.

Mr. Elizares: You, second I said earlier phase. You, seconded it now.

Ms. Thayer: Ok…

Mr. Ward: We got you…

Ms. Blystone: An hour and a half ago.

Ms. Thayer: I think we've discussed this one enough, but just making sure. Ok. Let's vote on this amendment.

Ms. Blystone: Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: Yes.

Ms. Blystone: Commissioner Elizares.

Mr. Elizares: Yes

Ms. Blystone: Commissioner Lind.

Mr. Lind: Yes.

Ms. Blystone: Commissioner Deakos.

Mr. Deakos: No.

Ms. Blystone: Commissioner Kealoha is absent.

Ms. Blystone: Commissioner Ward.

Mr. Ward: Aye.

Ms. Blystone: Vice-Chair, is absent, so we will need your vote… Chair Thayer.

Ms. Thayer: I'll vote with the majority.

Ms. Blystone: That would be five votes in favor. Chair, the amendment passes.

It was moved by Mr. Elizares, seconded by Mr. Ward, then

VOTED: ***To enter a motion for a friendly amendment: To a condition that the applicant build the project to the phasing plan that was represented to the Commission, except with the civic recreation, entertainment and park to be built in earlier phases. And currently with a minimum of 1000 residential units, as discussed.***
(Assenting: J. Circle-Woodburn, C. Elizares, C. Lind, B. Ward, K. Thayer)
(Dissenting: M. Deakos)

*(Excused absence: A. Lindsey *left meeting after 3:00 PM, A. Kealoha *left meeting after 4:00 PM)*

(Motion carries.)

Ms. Thayer: OK, any further proposed amendments? Ok, seeing none, we can go back to the main motion. Which was following the recommendation from the Staff report plus these two amendments that we've added. You need to review those. Well, they were sort of for, but they were in two motions, yes. Everybody clear what we're voting on? Yes.

Mr. Circle-Woodburn: No. Didn't we? What did we vote on before? Didn't we vote on the… on taking Planning Commission? I mean Department.

Ms. Blystone: No.

Ms. Thayer: No, so that was our main motion. And then we've made an amendment for three suggested conditions and then we made this latest amendment for one other suggested condition.

Mr. Ward: (Inaudible)

Mr. Circle-Woodburn: So, now we're voting all of these now...

Ms. Thayer: Now we're voted on the… we're voting on the full package.

Mr. Hopper: Yes, it's to recommend consistent with the Planning Departments recommendation, but in the… and then in the event or I guess eventually if the Council does go to change the zoning that they impose these conditions, I suppose you could be consistent with the Department's recommendation. Wait for those actions to happen and then the Council will eventually get to a change in zoning process. And I think you're saying

if they get back to that after they get that information, you would recommend these conditions be added as those conditions. I think that's the idea.

Ms. Thayer: Correct.

Ms. Blystone: Correct.

Mr. Elizares: (Inaudible)

Ms. Thayer: Go ahead, Commissioner Elizares, are you in the mic?

Mr. Elizares: That it's… the what you were just talking about the DBA stuff.

Mr. Hopper: Well. It… it… it… it? Yeah, I would say yes. It requires certain things before the Community plan and district and… and island plan growth boundary changes happen and would allow for those to happen and then after the DBA happens, you'd go back to the zoning. I… I suppose you would also need a application submitted with application inform, then… in addition to all of that, but then if that happens, the Council could take that up and… and vote on it eventually. So yeah, the… the… the Commission's or the Director's recommendation does include that the Community Plan amendment and the. And the… the growth boundary amendment happened prior to the district boundary amendment or… or prior that happened prior to the district boundary amendment and change in zoning. Then the district boundary amendment happened. And then additional application information be provided as well as the you know, and… and then that go to… that go… go to the Council and then eventually the Council would take action based on the conditions you're also recommending.

Mr. Elizares: So, all of this will help in concurrently.

Mr. Hopper: Kind of at different times. Actually, I think the first thing if I read the… the Department's recommendation correctly, they want the… they if… if you… if the Council follows their recommendation. And let me look at their recommendation again. But. Yes. So, first they would get the EIS. They would defer until, the final EIS is accepted by the Land Use Commission and an island wide inventory of existing land uses is updated and… and has certain indications and then. The Planning, the… the Community Plan Amendment will be deferred until the EIS is accepted. And the growth boundary expanded. So, first they would wait for the EIS and the… the… the… the inventory to be done. Then Council would adopt both the island growth boundary amendment and the Community Plan amendment. That would be done. Then it would go to the Land Use Commission for the district boundary amendment. The Land Use Commission will consider the district

boundary amendment if they pass the district boundary amendment. Then it would come back to the Council for final consideration of the change in zoning. The Commission's recommendation is that… that happen and also there are additional application information. There's additional application information provided in addition to what is normally just required by the Council member-initiated change in zoning provided to be… provided to, you know, by the applicant to the Council before their action, and then the last thing would be the change in zoning. So, first EIS. Then island growth boundary community plan amendment. Then Land Use Commission for the DBA and then the change in zoning would happen. So, that's why we've got issues with the land use process in… in Hawaii, but that's… that would, those would be the tiers. If I'm… if I'm misstating anything, please Planning explain to me. But I think I've got that part of it. After 20 years of doing.

Ms. Thayer: But so, you got the island plan amendment, and the Community Plan amendment can be at the same time.

Ms. Blystone: Correct…

Mr. Hopper: Correct, after the EIS. If it's according to this, after the EIS is done and the inventory completed.

Ms. Thayer: Yes. And Council could take up. I think I saw it written somewhere they could, or other Counties do a provisional. Change in zoning approval dependent on the Land Use Commission approval. So, I think in theory Council, maybe, I don't know if there's legislation, you would need a pass for this, but Council in theory could do Maui Island Plan Amendment, Community Plan amendment and provisionally the change in zoning pending LUC approval of the DBA.

Mr. Hopper: I've… I've got legal concerns.

Ms. Thayer: Ok. Yeah, that's why I said. I don't know if that takes a legislative amendment, but that was suggested somewhere in the 1900s.

Mr. Hopper: Not with the overall issue, but the issue of doing a zoning prior to the Land Use Commission for… for a variety of reasons, but I can elaborate further, you probably don't want me to, but I can and have…

Mr. Thayer: You know you can.

Mr. Hopper: I have addressed that with Council. So, sorry,

Ms. Thayer: Yes, no, appreciate it. Mr. Deakos.

Mr. Deakos: So, I have one more.

Ms. Thayer: Yep.

Mr. Deakos: Condition for discussion I think is important just since we're bound by Chapter 174 C, which is the public trust doctrine. That the applicant demonstrates through verified documentation that the project's water demand will not exceed or exacerbate maximum sustainable view.

Ms. Thayer: I think… they… that would… CWRM would take care of that when they're developing their water source. I think that gets covered, but. I would ask staff to verify that.

Mr. Takakura: This is Jackie. So yes, the state has the jurisdiction to issue well permits and determine the pumping levels so. It might be best to leave it to them. They make all those decisions and then water quality is all determined by the safe drinking water branch.

Mr. Deakos: So, just for clarification. If it exceeds maximum sustainable yield. The Water Department would recommend against it. Is that?

Ms. Thayer: I'm pretty sure they would need like some kind of water source development perimeter, something from CWRM.

Ms. Takakura: That is correct.

Ms. Thayer: Yeah. And CWRM would for sure assess that.

Ms. Takakura: And because this would be a private water system, the County could… the Department of Water Supply would likely comment on it. But they wouldn't be the applicant or the, you know.

Ms. Thayer: Appreciate their concern. Ok. Is the horse beaten dead?

Mr. Elizares: Nope. Chair

Ms. Thayer: Yes, Commissioner Elizares.

Mr. Elizares: So, the Council could… could start… are… are we saying this, that the Council could start the process…to apply for all these changes in zoning but wouldn't be voted on like no action would be taken until the EIS, the FEIS is accepted. Is that what we're saying?

Ms. Thayer: We are saying I believe, well, if they go with our recommendation, they would not be able to deliberate on the Maui Island plan amendment and the Community Plan amendment until the FEIS is done and until that is done, LUC would not take up the DBA and until that is done… They wouldn't get the change in…. They wouldn't take up the change in zoning. Anything further? Or are we ready to vote on the main motion? I think Commissioner Elizares might be still weighing things out.

Mr. Elizares: Always.

Ms. Thayer: Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: I'll just say something, maybe or ask a question while he's… waiting. That the question he asked in the process that Corp Council described. By the… by… by Council sending us that resolution, it was to try to shorten some of that. Is that correct? Like they were, Council was asking us to consider approving… this resolution, not deferring it back to them for approval of the EIS, correct?

Mr. Hopper: I… I was… they sent it to you cause they're required to under the Charter. Any changes are required to come to you. So, this was… I think the difference thing is that a Council member submitted this instead of an applicant submitting it. That happens from time to time because the a Councilmember does have the ability to submit a resolution to change zoning or, you know, zoning designations and things like that. But the fact that came to you, that's because all of those have to come to you. So, whether it's the Council by resolution, whether it's by a… a… a landowner or by the… the Planning Department, they all have to come to you for a recommendation and then you can make whatever recommendation you would like to the Council. But the… the requirement is that they send it to you to get a recommendation, or a clock runs out and then they are able to… to take action. But the Charter says you've got to review it.

Mr. Circle-Woodburn: Ok.

Ms. Thayer: Commissioner Deakos.

Mr. Deakos: Yeah, I tried to look up the minutes from the… I don't think there was a whole lot of discussion. I think we're doing a lot of the discussion.

Mr. Circle-Woodburn: Ok.

Mr. Deakos: I'm looking at the Council member list. (Inaudible), ok.

Ms. Thayer: We're not supposed to… yes, yeah.

Mr. Elizares: Figure out how to… I guess we cannot if that's the… let's vote.

Ms. Thayer: Ready. Ok

Mr. Deakos: Chair, just…

Ms. Thayer: Oh, Commissioner Deakos.

Mr. Deakos: One last comment. I… I totally agree we need to speed up this process, but it doesn't all fall on decision makers. You know, if we had applications that had everything and we've had… a rare, but when they come before us and wow, this is a great project. We move them, we move through them quickly. So, and this whole discussion of how do we speed things up? It does help if applicants give us a project that meets all the... the requirements. So, I just want to put that on record. Thanks, Chair.

Ms. Thayer: Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: I mean it's just discussion, but I mean even, I think to that point, we're not necessarily even approving the project at this point, there… even if we approve the… the resolution. I mean, there's still… still have to do the EIS, they still have to get all these changes. Approved. So, I think all we would be doing is helping. Maybe eliminate some of that back and forth. They still have to get. They still have to obtain the approvals and go through these reviews, so I think that's where my struggle of not necessarily wanting to support deferring it to then wait for this EIS. I mean, they still have to do the EIS. I was just trying to help speed… speed it up a little bit. It doesn't mean that they're not doing these processes or getting these approvals having these hearings. But anyway, that's… I think where we're… my struggle with.

Ms. Thayer: Appreciate that. Yeah, it's a tough balance. If this was, you know. On the other side of the road, it would be a much easier thing to deliberate on cause. It would be within the urban growth boundary, and I think it would be very straightforward, and I think we wouldn't even be here today or if this was like Kahului Shopping Center in Ah Fook's this would be I think a lot faster. It's just by virtue of where it is, yeah. And that's… it's

where within the framework that has been set up by predecessors of ours and trying to be as creative as possible within that. Yeah.

Mr. Elizares: I have something.

Ms. Thayer: Commissioner Elizares.

Mr. Elizares: Yeah, I don't. I… I hear that part about being outside the urban growth boundary, but I don't agree with the Ah Fook's spot… right, because of the… the… the SMA and had this area…and this project been in the urban growth boundary, it would have gone straight through, just like Hoo'ula up in. What is that place? Hali'imaile… If it was zoned for or residential, and for the things… right to have the right zoning and was inside that that urban growth boundary from these invisible lines that a lot of people worked really hard to put on… on the map. We wouldn't have… have seen it on. And uh… yeah… SMAs are… are way more nuts, especially that close to the ocean.

Ms. Thayer: As if I may, the one thing I would point out SMA is it's only one body. Like, if you're going through change in zoning and community plan, you got to go through two. You would have to go through us and then go through County Council. So, I think all things considered, I would say SMA would maybe… SMA with a fully entitled piece of land that's like… Community business. You know, it's already in the urban district. It's already close to all the stuff, and it's within the urban growth boundary. It's got the right zoning and community plan designation. Like SMA, it would just be one public hearing potentially before us.

Mr. Elizares: Hopefully.

Ms. Thayer: Well, hopefully we saw a big, you know, six-story apartment complex that came through in one day. Ok. I think we are. We could probably go on, maybe. Yes, we do have three other items. I see our… our gas tanks are…

Mr. Ward: Running low.

Ms. Thayer: Running low. Let us call for a vote.

Ms. Blystone: Commissioner Circle Woodburn.

Mr. Circle-Woodburn: No.

Ms. Blystone: Commissioner Elizares.

Mr. Elizares: No.

Ms. Blystone: Commissioner Lind.

Mr. Lind: Yes.

Ms. Blystone: Commissioner Deakos.

Mr. Deakos: Aye.

Ms. Blystone: Commissioner Ward.

Mr. Ward: Aye.

Ms. Blystone: Chair, even with your vote…

Ms. Thayer: It's not going to do anything.

Ms. Blystone: Have a majority.

It was moved by Mr. Deakos, seconded by Mr. Ward, then

VOTED: ***Main Motion: To enter a motion to go with the Planning Department's recommendation as written and outlined in the staff report. To defer all action until the final EIS is done with a couple of other studies. Plus, suggested conditions of zoning. Also, to include the friendly amendments as discussed.***
(Assenting: C. Lind, M. Deakos, B. Ward, K. Thayer
(Dissenting: J. Circle-Woodburn, C. Elizares

*(Excused absence: A. Lindsey *left meeting after 3:00 PM, A. Kealoha *left meeting after 4:00 PM)*

(Motion fails.)

Ms. Thayer: Yeah. Ok, back to the drawing board. Everybody.

Mr. Ward: Those are additions.

Ms. Thayer: Yes. Yeah. Well, we… we have a record of everything that we thought about. So, the question is, I think to maybe the folks who voted no what would do it for you or what would you support?

Mr. Elizares: Anything that makes it faster.

Mr. Ward: Can I ask just to… if… we're our recommendation, just failed was to get the EIS…

Ms. Thayer: Final EIS.

Mr. Ward: So, they're gonna be, to your point… they're doing that anyways, so it doesn't really change the timeline because they still have to. They're still doing it. So, all we're saying is just wait for that EIS. Correct. I'm making sure…

Ms. Thayer: We are saying wait for the EIS.

Mr. Ward: Which they're gonna do anyways…

Ms. Thayer: Correct.

Mr. Ward: So, we're not really slowing anything down because their… still doing it, correct? I just wanna make sure like… I'm talking about. (Inaudible)

Ms. Thayer: Yeah, I think the… the difference is that they could potentially get to the State Land Use Commission a little bit faster because Council could deliberate and decide on the island plan amendment and Community Plan amendment. And then for the next step with Land Use Commission, it would… it would have to go through final EAS… EIS. But they're the accepting authority… for that.

Ms. Thayer: Commissioner Circle-Woodburn, then Commissioner Elizares.

Mr. Circle-Woodburn: Yeah. So, I was just gonna say. That if this sort of came from Council because they were trying to help… approve those items. Maybe that, they could to stop some of that back and forth and, as even Commissioner Lind said that he has faith that the in the County Council, that they'll make the proper decisions, or that do what they need to do, I think I'm trying to help support them… to make those decisions and not put that, that they have to wait for the EIS before they can make some of those decisions. And so. I don't know if that means we're proving that resolution that was sent. So that they can, they can move forward without a… a deferral.

Ms. Thayer: Director.

Ms. Blystone: This may be a great question for your attorney, but as I understand that the fact that you've had this conversation today, it gives the Council all they need to move forward if they choose to move forward.

Mr. Hopper: Well, I mean, I think you can still see if you can deliberate to come to a vote of some kind of a recommendation. But I think it, I mean, as far as timings concerned. There's the issue of… of Council taking action without your recommendation, but if you want a shot at a recommendation, I think now would be the time to… to make it. If you, there's continued discussion on things like recommending approval of the growth Boundary Amendment and Community plan amendment. And deferral of the change in zoning until after LUC action. That's something that's certainly within your scope, you know, or a variety of other things if… if, if not, then and you can't come to a consensus, I suppose you could defer on this. But I don't think the Council necessarily at that point has to wait for your… your recommendation. So, I… I think I would generally advise that you continue to see if there's other motions that maybe you could get five votes on. Because there's a lot of, there's a lot of different things you could do recommend with us.

Ms. Thayer: Commissioner Lind, were you raising your hand?

Mr. Lind: Yeah, I'm just, you know, kind of like tired, but it's… it's part of the procedure. So, that's why it'll be important if we defer it or so whatever, it'd be quicker. Turn it to the County Council right away. Maybe tomorrow they can start working on it. Instead of waiting for. Anyway, they're the next part of the… the next point anyway.

Ms. Thayer: Oh, Mr. Wollenhaupt. And then, Mr., Commissioner Deakos.

Mr. Wollenhaupt: Oh, no. I… I was just. I think, I was agreeing with the Director when she said that the task… I may be wrong, but the task, but the Planning Department is… is to report out of this Commission meeting what transpired. So, if there is… if what transpired was that there was a vote that didn't come to a recommendation then that's what's transpired. I think that's what the Director was pointing. So, we would have… we would… we would have met the purpose of having the meeting.

Mr. Hopper: Yeah, I… I think the idea is to get an actual recommendation, because if nothing happens, there's actually nothing to send. I mean they can send minutes, but normally the Council or the Commission, as you know, makes a recommendation. You vote on something, and that's going to be the letter that goes to the Council. That will also determine to the Council what they may need… may need 2/3 vote for. So, I think that's the significant stuff. If you can't come to an agreement, then you know if you can't get five votes, that's fine. But generally, my advice is to see if you can come to a five-vote action,

whatever that is. Otherwise, you… you will have nothing on record as far as what you actually recommend it as a… as a Commission.

Ms. Thayer: Ok. So, coming back, thinking about a compromise, resurrecting an idea that got brought up earlier is that Council defer until the draft EIS is published. Then at least there is a comprehensive report so everybody can get a full understanding of potential impacts and everything that we discussed today in theory would have answers. And studies to back them up there would be a clearer picture. It was projected to be completed by mid-2026. At…around which time the Planning Department's inventory of urban and industrial spaces within the existing urban growth boundary would be done by around that time. So, there would be like a lot more information, concrete information as best as it could be at that point. And it's, I don't think would hold things up as much because a lot of that would have to be fleshed out again because the full EIS, the final EIS would be like sometime after that. So, this would be like six months-ish until there is at least the draft EIS done with all the consultant reports answering all these comment letters from the agencies that all express questions and potential concerns. That would all be fleshed out in addressed, so that when Council does pick up the Maui Island plan amendment and the Community Plan amendment, there is at least a more full picture of what we're faced with.

Mr. Elizares: DEIS, rather than on the first one we were talking about, the F…

Ms. Thayer: Correct, yeah.

Mr. Elizares: I compromised. I'd make a motion for that…

Ms. Thayer: Ok. So…

Mr. Elizares: As the same as before. As what… The failed motion was but instead of the FEIS, it's the DEIS.

Ms. Thayer: DEIS.

Mr. Elizares: I'll be able to speak to the motion after…

Ms. Thayer: Ok.

Mr. Ward: Second.

Ms. Thayer: Ok, motion by Commissioner Elizares, second by Commissioner Ward. Would you like? Did you have something?

Ms. Blystone: Yeah. Just to clarify, just to confirm for the folks keeping minutes, what you're saying is the first two amendments that passed before the main amendment or the main motion failed, you would like to keep as part of this motion, but that say also that the Council defer these items until the draft EIS is published. There were other items in the original motion. Include Mr. Harper mentioned to the… the piece regarding our… our land inventory that we're gonna be doing. Is that not of interest? You just wanna focus on the draft EIS. I just wanna make sure that's clear.

Mr. Hopper: Yeah, cause the draft E… the EIS wasn't the only thing the Department had recommended the Council wait for, so I don't know if you also want the Council to wait for the other items or just the DEIS. So yeah, that might be more than just that substituting that.

Ms. Thayer: But we were told this they would be done in around mid-year around the same time.

Mr. Elizares: Yeah. We just said that it was all gonna be done at the same time.

Ms. Thayer: And then I think… thinking about. You know the framework we're operating within the urban growth boundary criteria for adding on says there should be an inventory done at least. So, then everybody would at least be in compliance with that. But Commissioner Circle Woodburn.

Mr. Circle-Woodburn: It's ok right now.

Ms. Thayer: Ok, Commissioner Deakos.

Mr. Deakos: I'm just trying to understand… so if… if there's no unit, there's no five-vote today, it goes to Council. Without recommendations from the Planning Department, right?

Ms. Thayer: Commission, Planning Commission.

Mr. Deakos: Sorry the…

Mr. Ward: And they can do what they want.

Mr. Deakos: What about the Planning Department's recommendation? Does that go directly to Council?

Ms. Thayer: Director.

Ms. Blystone: So typically, I'm going to ask staff to correct me if I'm wrong on this, but typically we'll report on what happened at the meeting. So, we'll talk about the various things that you did. We'll give them our staff report, probably so that they can see that and then so the, so they'll know what… what our perspective is. They'll know what your perspective is through the minutes. Even if you don't come to a resolution.

Mr. Deakos: Ok, but it. The 5-6 vote. I'm confused.

Mr. Hopper: You need five votes. The Council would need six votes for our 2/3 majority in a case they either don't get a recommendation from you or they decide to do something different than the recommendation. For you here today, you don't need a 2/3 vote for any of this. This is just a recommendation. That's for Council later on.

Mr. Deakos: Ok, so they can vote everything through as is, on a five-vote.

Mr. Hopper: Well, no. You'd have to make your recommendation. And then they would either have to be consistent with your recommendation with five votes, or they could do basically whatever they wanted with six votes. If it's inconsistent with your recommendation, they would just need those six votes.

Mr. Deakos: Without recommendation.

Mr. Hopper: If there's no recommendation, then that would be six votes also, because they would be taking action without getting your recommendation.

Mr. Deakos: Thank you.

Ms. Thayer: Would you like to speak to your motion?

Mr. Elizares: Yeah, I think the DEIS, the DEIS will… will give enough information for our elected officials to make the right decisions for our community, and I think the project as presented is the right decision for our community.

Ms. Thayer: Thank you. Commissioner Ward.

Mr. Ward: Second that.

Ms. Thayer: Further discussion.

Mr. Circle-Woodburn: Yeah, I agree. I think my only question is, are we putting in the study from Planning or we just keeping it to the draft EIS?

Ms. Thayer: I think we said keep it in.

Mr. Elizares: Keep everything…

Ms. Thayer: The only thing switching is draft EIS instead of final EIS.

Mr. Hopper: So, the word…

Ms. Thayer: What we've been told is they would both come out mid, this year.

Mr. Hopper: So, the word draft would be added to this recommendation essentially.

Ms. Thayer: Wherever it says final EIS, it would instead say draft EIS.

Mr. Circle-Woodburn: I saw what happens if the applicant has draft EIS complete, but the Department does not have that study done.

(Inaudible)

Mr. Elizares: It's bold, you know, and Council can't move on. It's bold.

Mr. Hopper: Chair, maybe.

Ms. Thayer: Director.

Ms. Blystone: Sorry I was having a choking fit. But since today is all about trust. You know Jacky's team is already underway on this. So, and it won't take much more. It's really about they're to the point of needing to just have discussions with… with other divisions to confirm something. So, I don't think you should be concerned about the timing of that.

Mr. Circle-Woodburn. Ok. Thank you. Thank you.

Ms. Thayer: Thank you. No, good… Commissioner Deakos.

Mr. Deakos: Sorry. When the final EIS is done, when does that get reviewed and by whom?

Mr. Ward: Land Use.

Ms. Thayer: That's just State Land Use Commission.

Mr. Deakos: Ok.

Ms. Thayer: So, what this kind of buys time for… and again, this is a little bit of a compromise. So, this would enable Council to at least take action on the Maui Island plan urban growth boundary amendment and the Community Plan amendment so that the State Land Use Commission can consider the DBA, but they would still need to accept the final EIS. It's just that there would be at least a little bit of a shorter timeline for State Land Use Commission to wait for Council to act on those first two.

Mr. Deakos: So, it leaves Council, goes to Land Use and then…

Ms. Thayer: And then… no. Then it goes back to Council for the change in zoning. So, Council will still get it twice. It's just that their first step can happen probably several months sooner than otherwise.

Mr. Deakos: Ok.

Mr. Ward: Which Land Use wants done anyways?

Ms. Thayer: Yes.

Mr. Hopper: Just to note, Council will also have access to the final EIS when it reviews its change in zoning.

Ms. Thayer: Yeah. The final EIS will be… will have been done by the time they're deliberating on the change in zoning.

Mr. Deakos: Ok. Sorry, so the… if there's no recommendation, they move forward with their decision without any DEIS or EIS. Any… any of that.

Ms. Thayer: They can do…

Mr. Deakos: If we… what we're recommending. Is the… Department's recommendations, except for changing the F to a D. Is that what we're voting on?

Ms. Thayer: With the conditions we added also, yes. Everybody clear? I think we can call for a vote on this motion. All-encompassing.

Mr. Ward: Yes.

Ms. Blystone: Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: Yes.

Ms. Blystone: Commissioner Elizares

Mr. Elizares: Yes.

Ms. Blystone: Commissioner Lind.

Mr. Lind: Aye.

Ms. Blystone: Commissioner Deakos

Mr. Deakos: Aye.

Ms. Blystone: Commissioner Ward.

Mr. Ward: Aye.

Ms. Blystone: Chair with Commissioners Kealoha and Lindsay absent, that is five votes in favor.

Ms. Thayer: OK, motion carries.

It was moved by Mr. Elizares, seconded by Mr. Ward, then

VOTED: ***New Main Motion: To enter a motion to go with the Planning Department's recommendation as written and outlined in the staff report. To defer all action until the draft EIS is done with a couple of other studies. Plus, suggested conditions of zoning. Also, to include the friendly amendments as discussed.***

(Assenting: J. Circle-Woodburn, C. Elizares C. Lind, M. Deakos, B. Ward)

*(Excused absence: A. Lindsey *left meeting after 3:00 PM, A. Kealoha *left meeting after 4:00 PM)*

(Motion carries.)

Mr. Ward: Yea.

Ms. Thayer: Good work team. You earned…you earned your keep today.

Mr. Elizares: We get dinner? To work through the next three items…

Ms. Blystone: I only budgeted for lunch.

Mr. Elizares: This is the beginning of the year.

Ms. Thayer: Yeah.

Ms. Blystone: So sorry.

Ms. Thayer: On the plus side, Ichiban is open.

Ms. Blystone: Chair. I have some thoughts on the next three items.

Ms. Thayer: Ok.

Ms. Blystone: Would be helpful.

Ms. Thayer: Yes, I was gonna.

Ms. Blystone: So, you have three items in front of you that were referred to you by Council resolution. And I… I… I think, Commissioner Elizares said it best about, you know, as the day wears on, the decisions get maybe a little less clear and a little less awesome. We have some space on your next agenda. If the Commission wishes to defer these three items to the next agenda, we could accommodate them there. That would be January 27th.

Mr. Ward: So, moved.

Ms. Thayer: I was gonna ask if we could just do #2. If that would be relatively quick cause we already heard this one before.

Ms. Blystone: That's true.

Ms. Thayer: But I… I

Mr. Ward: Well, everybody heard 2.

Ms. Thayer: I don't know if everybody heard this one before. Did you hear this one before? Yeah, you did cause this. Oh, yeah. Commissioner Lind was here because we had Hana take it up.

Mr. Ward: Oh, yeah, yeah, yeah,

Mr. Elizares: I would ask to take a break.

Ms. Thayer: Yeah. Oh, no. We'll take a break for sure. For sure. I'm just wondering if we take a break and then at least try do this A.2. Or if you can't do this anymore, I'm just thinking if we try and take stuff off of this agenda, then it's less for future.

Mr. Elizares: Call for a vote?

Ms. Thayer: Now we take a… By consensus, can we take like a 10-minute break?

Mr. Elizares: Sure.

Ms. Thayer: Ok. I believe in you folks. I appreciate you very much. Ok. It is 5:00. Well, it is almost 5:00. Let us come back at 5:10. Thank you very much.

Ms. Thayer: Ok. Welcome back, whoever is still with us. Thanks, in commendations. Appreciate you all. Welcome back to our we are… still on our January 13th my Planning Commission meeting. About to take up item A.2., which may or may not be our last item for the day. We will see how we go.

Ms. Blystone: Ok.

Ms. Thayer: Yep.

Ms. Blystone: So, Bill for an ordinance amending Chapter 19.30A, agricultural district, Maui County Code, which would amend the definitions of agricultural retail structure and farmer's market to include vehicle and structure on wheels as types of agricultural retail structures. There's a long paragraph that explains this, but I… I'm gonna turn it over to your planner, Greg Pfost. Who will take you the rest of the way. He's been in front of you on this item before. This is coming back to you from Hana Advisory Committee. (Inaudible).

Mr. Pfost: Thank you. Thank you, Kate.

Ms. Blystone: You're welcome, Greg.

Mr. Pfost: What I'm gonna do is… I do have a PowerPoint. I'm gonna go over this again real quick. cause. It's been a while since you heard this. I'll try and be quick here. You may recall that the Council adopted a resolution back in February referring this bill to the Planning Commission's… turn down. (Inaudible) Ok, good, good. Ok. It was heard actually last June by the Lānaʻi and Molokaʻi Planning Commission's, and then you heard this back in July, at which time, upon recommendation by Councilmember Sinenci you've forwarded this to the Hana Advisory Committee for review and comment. The Hana Advisory Committee meeting held this and held a meeting and reviewed this back in August of 2025, and we're finally back here today to talk about what they did. The next steps is hopefully we get a decision today from the Maui Planning Commission and then the Department will transmit your… all the recommendations from all the Planning Commissions, including Hana Advisory Committee to Council for consideration. Next slide please. If I can just give you a little bit of background to make sure we're talking about the same terminology here. The Maui County Code within the Agricultural District and the permitted uses describes principal, accessory and special uses allowed in the agriculture district. Principal uses mainly what you would think is agriculture and animal, livestock raising, etcetera. Accessory uses are those that are considered like farm dwellings, agricultural structures such as barns and so forth. And also importantly, commercial AG structures. And then we have special uses that allow for additional farm dwellings over and what, above would be permitted or commercial AG structures beyond would be permitted. But what we're focused on today is commercial AG structures. The commercial AG structure is basically what the farmer uses to sell their product in the AG districts. And there's four different types of commercial AG structures. There's agricultural food establishments, which are basically preparers and serves food at retail. Agricultural product stand, which is basically what you might think of as a standby the side of the road that is partially enclosed and for the display and sale of AG products and agricultural retail structure, which is what you might think of as maybe a small retail store. It's actually fully enclosed for the display and sale of AG products and also logo items as well related to the producers AG operations. Then there's of course a farmer's market. I think we all know what a farmer's market is and allows for the both the outdoor or indoor sale of products. within space or stalls for AG products. Importantly, commercial AG structures.

There's a variety of standards within our code that they have to comply with. Two things importantly is that they have to be registered with the County through the Planning Department, and then they're allowed two per lot. Next slide please. You may recall that you reviewed an ordinance quite some time ago regarding mobile food trucks. This was an amendment to two of those commercial AG structure definitions. One was the agriculture food establishment. And so that now allows mobile food trucks within the agricultural food establishment definition. The Council adopted this resolution or dropped it, adopted this ordinance back in July. So now we allow mobile food trucks in the AG district under the commercial AG structure of what's called AG food establishment. The Council also at that time adopted as part of that ordinance that within the Hana Community plan only 25 mobile food trucks could be established. Next slide please. As part of that approval by the Council, that ordinance also included a change to the second type of commercial AG structure, which is the agricultural product stand and what that change did was it allowed agricultural product stands to now sell their product, or an agricultural

product stand could now be a stand that is on wheels or movable. So, it could be in the bed of a pickup truck that you can now sell your product. In an AG stand or it could be a trailer, that the truck might pull, they might sell their AG products. So, that was a change that the Council adopted.

So those are the two changes to the definition. Importantly, at that time, the Council did not make a change to either of the two definition of agricultural retail structure. The small retail structure in an area or farmers market, so there were no changes at that time. Next slide, please. So, what the proposal is before you is to amend those two remaining definitions of AG retail structure and farmers market. And simply it's basically allowing that these two definitions also allow for the sale of products in, in a vehicle or structure on wheels so that you can actually sell at a farmers' market. You can actually have a pickup truck with your stuff in the back that you can sell or you can pull a trailer and so that you can legally sell the AG product as well. And in agricultural retail structure, although it is still a fully enclosed structure, it can be now on a vehicle or a structure on wheels. So, you can actually pull it out to the to the to the front of the lot, or by side of road and actually have a retail structure that sells AG products. So those, that's what's being proposed before you next slide please. The Department is recommending approval of these minor revisions, but we've done some slight modification to some of the grammatical… some of the more grammatical changes then anything to keep the intent of what an agriculture retail structure is, and you'll see that both in the slide and within the report. And additionally, with… we're supporting recommendation… supporting the proposed change to farmers market as well and change that a little bit just from to make sure it… it keeps the intent of what a farmer's market is. But more importantly in regards to farmer's market, we added a sentence to farmer's market that the Council did not initiate, but the Department felt that it would be important to allow for the sale of serving of food at retail in a farmer's market. So right now, you might go to a farmer's market. You'll see a stand, and someone might be selling and serving food. Currently, that's not permitted in the definition of farmer's market, but we thought well, for clearing up definitions, let's go ahead and add that and allow that to continue to occur in farmer's markets as it's currently doing right now. Subsequently, the Lānaʻi and Molokaʻi Planning Commissions, as I indicated, have reviewed this and they recommended approval of the bill with the Department's proposed recommended changes. Again, as I mentioned, we took this to the Hana Advisory Committee meeting on August 19th. At that meeting, the Hana Advisory Committee recommended, also recommended approval of proposed bill with the Department's minor modifications. They had some other comments which I will be forwarding to the Council. For the Council to consider. They recommended that we look… that the Council look at a better definition of temporary as it relates to farmer's markets, because they're seeing farmer's markets and being at permanent use as opposed to a temporary use as it's defined in the definition and they're recommending the Council consider a better definition for lot. It's defined two different ways within our municipal code. One is based on TMK, which is in Title 14 and the other one is in Title 19 which is more based upon a lot more the use of itself. The use that is occurring on the (inaudible). They also recommended that the Council consider increasing enforcement action and education, especially with mobile food trucks within the Hana area, and then express some other general concerns about unintended and unknown impacts in Hana, mainly because Hana is so separated from the rest of the community that they want some more engagement with code enforcement in that area. With that… next slide, please. That concludes my presentation. The options before you today are recommending approval of the proposed bill to the County Council, recommend approval of the proposed bill with

amendments to the County Council, which may or may not include those proposed by the Department. Recommend denial, the proposed bill by the Council or vote to defer action on the bill to gather more information. That concludes my presentation. Thank you.

Ms. Thayer: Thank you very much. Do we have anybody signed up to testify?

Ms. Ramoran-Quemado: No, there's no one online or in person.

Ms. Thayer: Ok, seeing nobody in person, we'll do a last call for online testimony. If there's anybody wishing to testify on this item A.2. on our agenda, you can raise your hand write to staff in the chat or unmute yourself and say hello. Otherwise, public testimony on item A.2. will close in three, two, one. Commissioners' questions for the Department. Commissioner Deakos.

Mr. Deakos: Chair. Umm. Just one question, there was some concern about once you add the wheels and the intent was farmers directly selling their food from the farm, but they would now have offsite lease their front yard. So, that other mobile units could come and sell product on there. Is that being addressed?

Mr. Pfost: It's… within the… within the code, it talks about actually on who can be. Basically, who sells when. When we went into the mobile food truck bill, we actually strengthen that a little bit to make sure that the… it has to one be on a farm. In fact, most of the all of these have to be actually on a farm and… and so I think that is… it is basically being addressed. So, it's not just anybody can sell anything. It has to be related basically to the farm and the farmer.

Mr. Deakos: To the… to the farm that the vehicle is on.

Mr. Pfost: Yes, that's correct.

Mr. Deakos: Thank you. Chair.

Ms. Thayer: Sure, any additional questions? Commissioner Elizares.

Mr. Elizares: Was there? I can't. I don't see it here. Was there any recommendation based on the testimony based on the cap? I guess these wagons.

Mr. Pfost: Currently within the code, you're allowed two commercial AG structures per lot. So, in other words, you can actually only have two of these, at per farm. So, you basically your farm, you could have a stand and a retail establishment. You could have a mobile food truck. You can have two mobile food trucks, but it's limited to two per farm. So, that's already capped within the code. What Hana did or what the Council did in relationship to Hana, is when they looked at the mobile food truck bill, they were concerned about too many food trucks within the Hana area. And so, they capped that at no more than 25 within the whole Hana Community Plan area. But otherwise, I think to answer your question on each farm you can only have two of these structures, to have any of these four.

Mr. Elizares: One more.

Ms. Thayer: Go ahead.

Mr. Elizares: And as far… is there a mechanism for enforcement or was that cleared up with the testifiers during the Hana Community Advisory Committee meeting.

Mr. Pfost: Yeah, currently enforcement right now is more complaint based, right? So, when we hear… get a complaint about an (inaudible) in the food trucks, then we will go out there and investigate and they have to… in order to do any of these commercial AG structures, you need approval from the Planning Department. Some people don't get that approval. So, we will require them to get that approval if they have to do that and they will make sure that they comply with all the codes. But again, it's only a complaint base. So, when we went to Hana advisory Committee. That's when… the one of the public speakers mentioned that they would like to see more enforcement. In fact, one of the Commissioners said that as well. And so that was the recommendation to Council to… for the Council to look at whether or not we should increase enforcement within the Hana Advisory Committee area. So, that's what they were concerned about.

Ms. Thayer: Ok. Any additional questions? We are on item A.2. Commissioner Lind, anything from Hana?

Mr. Lind: Yeah, I… I believe… so. What I'm trying to understand is that the County Council passed their food truck bill, so food trucks are now allowed without what we're… we're dealing with right now, so. And we're trying to amend the code to include. What you said earlier in your slide, I'm just worried about like…. How is there something in the code that's cause? I'm still kinda blind to this. This is kinda why I don't wanna deal with it today, but. Dictates like a percentage of what needs to be sold. Cause I know at the last meeting with the food truck issue was people going to Costco and bringing it in and reselling it instead of selling things on their farm. So, it's the same issue. I'm… I'm concerned with and then over commercialization of the AG District in Hana. Not consistent maybe with the Community plan. Does that make sense? Does that make sense?

Mr. Pfost: I believe so. So, unfortunately, the code doesn't actually identify a certain percentage, so it doesn't say that 90% of your food for example, needs to be actually grown on… on... on Maui. The code does indicate for each one of, these it does state generally. That, for example, under the agricultural food establishment that… it's using agricultural products grown raised or caught in the County. And value-added products that were produced using AG products grown in Hawaii. So, it's general in a sense and it doesn't give a specific percentage.

Mr. Lind: Ok. You know cause, we grow tarot for poi, we make kulolo value added stuff. My family's been farming corn. You know all that kind of stuff in this… in the… in the 70s and 80s. We in fact we sold to Ah Fook's, I think back in the 80s. Anyway, Foodland, you know Kula Produce when it was Kula. You know the exchange. So, I just worry about the integrity, what we're trying to trying to do in the AG district. It was recommended here by somebody who wrote something. Edward Padillia had the same concern about the over commercialization and how we gonna be holding these people accountable. I mean, I know it's complaint base, so that's… that sucks for us and Hana cause is such a small community. But I think, I think. I need more time on this too, but I think. That… if the other Commissioners we can open up for. You know not only Hana, but the rest of the AG district of Maui who may, who may need it. So, I… I have to reach a compromise to understand

this in its entirety. Yeah. So, let me think about some more things and then we can continue on. Thank you.

Ms. Thayer: Thank you, Commissioner Lind. Hearing his concerns throwing out. Thinking about potential ideas, could there be, within our recommendation to Council, say increasing the budget for zoning inspectors to address enforcement. Director.

Ms. Blystone: If you want the Planning Department to speak to that, I I'm happy to do so. We have enough inspectors for the moment, and we are a complaint driven system. So, it would require. You know, we would require a complaint to move forward. So, I think our, I think our staffing level right now is 7. 7 inspectors if I'm not, I'm… I don't have the number in my head. I'm sorry it's too late in the day to access that information in my brain. I don't think additional staff. Additional budget for inspectors is necessary.

Ms. Thayer: Ok, Commissioner Lind.

Mr. Lind: Yea, I… I was just… I had somebody ask me too. Is the concern about the… the rubbish that's being generated. And it ends up. And so, if it… if these are commercial businesses don't, wouldn't they have to be taxed at the rubbish dump level? All the food trucks I… I just wanted to bring that awareness up to the Planning Department. Thank you.

Ms. Thayer: Thank you, Commissioner Lind. Commissioners, any additional questions? For the department. Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: Just a quick one. The… for the agricultural product stand, I don't think you're amending that this time. Is that correct? I guess the… the question really is just if it can now be on wheels or mobile, are they… are those still required to be 25% open?

Mr. Pfost: Yes. They're still the… the stand is supposed to be partially oh, you know, partially enclosed. The other one, the retail structure is supposed to be fully enclosed.

Mr. Circle-Woodburn: Ok, so same apply whether it's on wheels or not.

Mr. Pfost: Yea. Yes.

Ms. Thayer: Just a follow-up question to Commissioner Lind's previous comments and questions for the, you know, contemplating a say, percentage requirement for the products being grown on the farm or on island or in the State. That would be a separate piece of legislation for us to consider.

Mr. Pfost: Yes, I would think so.

Ms. Thayer: (Inaudible)

Mr. Pfost: That wasn't part of what the Council's proposal was.

Ms. Thayer: Ok.

Mr. Pfost: Maybe that could be a comment that you forward to the Council, maybe they consider another code amendment to pursue in… in order to do that.

Ms. Thayer: So, we could note that in our potential recommendation?

Mr. Pfost: I could bring that as a comment to the Council. You know this.

Ms. Thayer: Ok. Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: I guess a follow up on that, aside from I… I think the gist of this is that it's meant to be. Grown and produced in the states, some sort of AG product grown, raised. Caught what? Not so. Does that mean that like at these quote unquote, farmer's markets, all of these stands that we see where people are selling? More arts and crafts stuff. They're not supposed to be selling jewelry. Other things like even those are made here supposedly, but it's not AG related. So is that. Are we? Sort of. Saying those are not really allowed.

Mr. Pfost: Well, I think important you have to distinguish between different types of farmer's markets. A farmer's market that's on an AG lot should theoretically be dealing mostly with AG products. You have farmer's markets that aren't on AG lots that… that maybe selling other type products. So, I think there's a there's some weird local too, right?

Ms. Thayer: Yes.

Mr. Circle-Woodburn: Ok.

Mr. Pfost: So, what we're talking about here is this definition of farmer's market is specifically in the AG District. So, there's a difference between the two.

Mr. Circle-Woodburn: Ok.

Ms. Thayer: Good distinction. Any additional questions?

Mr. Pfost: And… and if I may add to that, I'm not saying that they're not also problem. They may be selling those kinds of things also in a farmer's market that's in an AG lot, but again that's an enforcement issue of how far do you want to go and enforcing farmer's markets as well.

Ms. Thayer: Yeah, unless. Well, it could be fiber material that they're growing, like Hala.

Mr. Circle-Woodburn: Could be.

Ms. Thayer: Could be. Any additional questions or we can think about? Hearing the recommendation and figuring out a motion, Commissioner Lind.

Mr. Lind: You know, it says right here that the… (inaudible) glasses… farmer's market to include. In the AG District, so this is not… we're not talking about other farmer's markets but. Products, agriculture grown… products grown, raised or caught in the County and value-added products are produced using agriculture products in Hawaii (inaudible). Not talking about the cottage industry. But also, about like or like, you know, native made stuff

like (inaudible). You know (inaudible) like seeds? I'm more concerned with the… the fish. Like the near shore fishery. If we permit this. I see. Possibly in the future that it'll put pressure on the Hana fishery. Well, not only Hana, but like in east, in East Maui or East Maui district. Because that's the only thing that you can actually catch and process. So, if you go… like I grow chickens, rabbits, we grow chickens, rabbits, cows… pigs. In a… in the whole district, but we can't slaughter that because there's no slaughterhouse. So hence we have to go to some of our people, you know, cousins included, have to go to Costa and purchase pork and chicken and meat and beef. Because the slaughter is too expensive for us to send it to the Mahi pono, or even the (inaudible) still open that have a return for the for sale. So, I just worried about the… The only thing you can actually catch is fish. Like whether it may be like moi, āholehole. You know, like when in season lobster. And that kind of… kind of worries me in a way. That… that… that… that is… that would be encoded into the County code. Cause for Hana like our consumption level is mostly tourist space and I know like a lot of business probably. Food truck. My parents tried in the 70s, got shut down by the… the… the complaint driven in the 70s were the first food truck in Wailua and we had to wait almost 30-40 years before we could go through this. Because it was illegal, but now it's legal. So. I just wanna. Listen to what… the Department has to say as far as. The… what kind of amendments we can make to reach a common goal, especially for East Maui. Yeah, I'm kind of like… kind of like, sorry, chair. I'm kind of like a little bit. Laundered about this because it's a sensitive issue here. In Hana, you know, maybe not for the other districts. That's why Shane Sinenci had recommended 25 and I… I believe he's spaced it apart 500 feet. Is that true? Mr. Pfost?

Mr. Pfost: No, I think it's bear with me for a moment. I thought it was just 25 total in Hana. Originally, the Department was recommending a spacing of 500 feet. But let me check on that real quick. I can find it. Pretty sure was just the 25 total, but not the 500 feet. I'm gonna have to pull up on the code real quick. If I can find it.

Ms. Thayer: That was part of the other bill that we reviewed.

Mr. Pfost: Yes, that was the mobile food truck bill that you reviewed. And if you may recall, the Department had expressed concerns about commercialization in the AG District on that one. And so, the Department was actually proposing a lot of other requirements, such as 500 feet apart and… and limitation stuff like that. The Council ended up. Approving it without the Department's additional limitations, but then, with the Hana Advisory Committee. Well, not the Hana Advisory Committee… Councilmembers, Sinenci, I believe, discuss it with folks in Hana and then added that as an amendment to that ordinance so that there are a maximum of 25 within the Hana Community Plan area. So, the Department then now regulates that because we have to get them registered and so we will not register more than 25 in the Hana area. So, that's how that got controlled. I don't believe it's the 500 foot is still there, but I'd have to check in the code real quick.

Mr. Lind: You know, it's ok. It's ok. Sorry, Chair, if I can address Mr. Pfost again because I understand like water is an issue, potable water for this… for this farm structures outside of the County water area so. I…want to... You know, I… that's what I worry about. You know what goes for one, goes for all. So, if you're outside of, like, if you're in the district of Kipahulu and Kaupo… Kaupo… Kaupo has though… doesn't have County water not potable water anyway. Or if… I don't know who controls it… Kamehameha schools, I think… Kipahulu, they're off of two… two nonprofits to control the water. Then you have the delivery water… delivery service, or non-potable water, agriculture, water, and then

you have parts of (inaudible) that don't even have water at all. In my… my district and then Kailua. Maybe they might be hooked up to the system. I… I'm not too sure about the County out there from that side and I support them. I'm not going against it, but also for Hana itself, the outliers of the Hana district that I'm just sticking under within the traditional moku complex. Um. They don't have County water, so I just. I just wanna make sure that the… that you guys are fair, and you know this… and educate people about the issues that… that we face so that people are have a safe. You know and healthy… way to buy agriculture products in these areas, that's all.

Ms. Thayer: Any comments?

Mr. Pfost: I know that… I'm not sure how to how to address a comment. I don't know if I have a comment. I just want to make sure what we're talking about today is just really changes to two definitions. I recommend that if, if the Commission has other concerns related to the AG district that are perhaps being mentioned by the Commissioner, that you put those in comments to the Council so that they can perhaps consider those along with the Hana Advisory Committee, also had some comments and. So, the Council can consider that. And whether the Council wants to pursue additional code amendments to address or bring up those issues to discuss. So, I'd recommend you bring those as forward as comments to the Council.

Mr. Lind: Yes. Take… excuse me, Chair. But yeah, I understand that this is… this is a more. Concerned with the commercialization of the AG districts, especially in my district. And it's all based on our road. So, I think I wanna just go forward with the recommendation of the… when we get there. All the… all the Department.

Ms. Thayer: Ok. Thank you. And I want to acknowledge Vice-Chair Lindsey is back with us again. I… doesn't look like anybody has any other questions. We can entertain the recommendation from staff.

Mr. Pfost: It's the recommendation is, as the Department has recommended, is minor modifications to the proposal that the Council put forward, so the Commission today is can either. Recommend approval of the proposed changes to the Commission. Recommend approval of the changes with modifications. Recommend denial of the application or defer the application for more information.

Ms. Thayer: Ok. So, we could recommend approval. Heard the comments in the staff report from the Planning Department and Hana Advisory Committee.

Mr. Ward: So, moved.

Ms. Thayer: So, moved by Commissioner Ward, do we have a second? Looks like Commissioner Deakos. Discussion…

Mr. Ward: Nope.

Ms. Thayer: Discussion. Ok. I would just wonder if we would want to have a friendly amendment to include something along the lines of the concerns that Commissioner Lind brought up in terms of Council considering… the portion of the AG zoning ordinance that

discusses like percentage of products being sold… being grown within the County or the State. Does that capture what you're going for, Commissioner Lind?

Mr. Lind: Yeah. Yes. And you know, just out… just out in this agriculture in… in general is hard to bring. You know the taro, we were told that there's no money in taro unless you're… you're a commercial grower. Then you're a big time and you have a market and a distance to market is… is the road. We can't take our products out to Kahului because that's a lot of petrol to burn. But then again, we're bringing stuff in. But yeah, that sounds like a good thing. Chair. Thank you.

Ms. Thayer: Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: But I don't understand that really, I guess because aren't they? Isn't it saying that it's all supposed to be…

Ms. Thayer: What he's saying is that there's no like required percentage, so you could have like, I don't know, make lemon bars or something.

Mr. Circle-Woodburn: Oh, I see what you mean…

Ms. Thayer: You know, and you were like, well, my lemons were grown here, but everything else wasn't. So, is that like a true agricultural product? I think it's kind of what he's saying.

Mr. Circle-Woodburn: So, kinda like how. It's made in Maui. You have to…

Ms. Thayer: Yeah.

Mr. Circle-Woodburn: Do that worksheet to say how much you're…

Ms. Thayer: Yes.

Mr. Circle-Woodburn: You have your value added 50% or whatever.

Ms. Thayer: Yes.

Mr. Circle-Woodburn: Ok.

Ms. Thayer: Just putting that out for consideration. Vice-Chair.

Ms. Lindsey: But a value-added product as much… a value-added product… lemon bar is different than a muffin from Costco.

Ms. Thayer: Yeah, I would. Yeah, just trying to find an example of…

Mr. Circle-Woodburn: I… I

Ms. Thayer: To illustrate… right…

Mr. Circle-Woodburn: Muffins from Costco.

Ms. Thayer: Yes.

Ms. Lindsey: I mean that was an example.

Mr. Circle-Woodburn: Yeah. Yeah…

Ms. Lindsey: So.

Ms. Thayer: And we were not trying to wordsmith anything. It would just say Council, please consider this within the AG district. But if you know… I'm just trying to give him credence to what he raised. Go ahead, Commissioner Elizares.

Mr. Elizares: So, a chocolate muffin from Costco covered in moi in season moi slime is… is that value added as a percentage?

Mr. Thayer: I think right now there… there is no percentage. So, you could have. Yeah, you could sprinkle pa'akai on whatever you're buying from Costco and be like it has…stuff from Hawaii. I don't know. You know, like, I think that… that the integrity of the products being sold I think is his concern that they are actually legitimately grown here and not from Costco. Commissioner Lind, maybe you should, you should verbalize this.

Mr. Lind: Maybe Chair…First, I wanted to ask Mr. Pfost, what is the current farmers market… acreage allowed in the AG district, I mean like, what's the size that's allowable for… for food market to be operational? 4 acres. Five acres, do you? Do you have that information?

Mr. Pfost: What is the size of the… the farm or the size of the farmer's market?

Mr. Lind: The… the lot, the lot that… that can.

Mr. Pfost: No, there's no. There's no requirement on the size of the lot.

Mr. Lind: So, you could (inaudible) have a one-acre lot and you can have 20 people selling stuffs on it and that would be ok with the County… is… I'm ignorant on that.

Mr. Pfost: Bear with me for a moment, but I believe that is correct. The farmer's market, there is a limit on the size of the farmer's market and if you go over a farmer's market that is more than 3000 square feet in total floor area shall require a special use permit. So, you're limited on the size of a farmer's market. Farm Market should operate only during daylight hours.

Mr. Lind: Sunrise or sunset? Yes, that I know.

Mr. Pfost: Yeah, but I don't believe that there is a criteria for the size of the lot itself, in which the farmer's market is located. So, I don't believe that… that's a requirement.

Mr. Lind: And ok. Thank you and through…

Mr. Pfost: (Inaudible) I'm sorry, but if I may importantly, you do need to get a registration

with the Department. So, we made sure that you… you have a certain size of it. We make sure that a variety of other things are… are… are done with the farmer's market. But there is no restriction on size of the lot.

Mr. Lind: Ok, Ok. Thank you.

Ms. Thayer: Ok so. No? Amendment then just making sure we're just with the main motion.

Ms. Lind: And, oh, Chair, one more question and to Mr. you know… you know, I was thinking more like moi with, like, shallots that's caramel in fresh sugar cane has been reduced a little bit into it's kind of like, you know, like sugar and brown sugar and dehydrated in the kitchen. Or in the food truck. And it has more authentic feeling rather than something served from Costco, which of course moi is in season from like September to whenever. Or, you know, like, but as a kanaka. As somebody come from a fisher family that is kind of like levels of kapu and I know everybody doesn't respect that and I understand the need to… to make money. So, right now, we're… I'm growing shallots… (inaudible) full Filipino community. I'm part of Filipino too but and I can imagine all the great stuff we can make. We know with Ulu noodles and all this stuff and that's the kind of stuff we need is innovation. Rather than just reselling stuffs from. You know, 100 miles round trip from the other side, but I'm not condoning that. I understand the need for not being able to have a farm in AG district and be able to…. I mean not being able to have all that ingredients needed to produce, especially like the chicken. You know, you want to make chicken, you want to grow peanuts and make packing on your, I don't know, which ain't that hard to grow. That's what I'm trying to get at, is that authentic feeling for Hana to be innovative in producing this quality, things that we can brand ourselves with rather than you know. But also, not deplete our resources. That's what I'm getting at.

Ms. Thayer: Thank you, Commissioner Lind.

Mr. Elizares: I'd make that…

Ms. Thayer: Commissioner Elizares. Ok. Yeah,

Mr. Elizares: To what you said.

Ms. Thayer: Ok, for the Council to consider some kind of, like, required percentage for your ingredients being from County or State.

Mr. Elizares: Yup.

Ms. Thayer: Ok, Vice -Chair.

Ms. Lindsey: This has been my passion project for over 12 years in Hawai‘i and Maui County and this… become…becomes a very slippery slope with percentage cause it's percentage of ingredients. Are we talking about or we like? There's twenty ingredients in a cake, or is it? Or is it volume? So, like you make pudding, so you use local water and then all of the other things could. Be you know. So, that I highly recommend not going with a percentage or you know like or defining that or advising to define that because. It… it gets really confusing.

Ms. Thayer: So, you're saying best to not have it and just keep it as it is.

Ms. Lindsey: There should be a reference to value added products and products used within the State grown and created in the State, but the percentage gets tricky.

Ms. Thayer: Ok. So, it would… like because this is not part of this bill that we are deliberating over. I'm just trying to capture. Commissioner Lind's sentiments on this,

Mr. Lind: I could…

Ms. Thayer: So, this is purely just to give Council a thrust to consider this within the AG district ordinance. Go ahead, Commissioner Lind.

Mr. Lind: Sorry, Chair, I agree with what Commissioner Lindsey is getting at I totally agree with that. I mean, you gotta bake a cake. At least try to conform with some percentage of olu or something… flower in your cake or something, or your cookie. But that's not always the case. So yeah, I think that's like a slippery slope too. So, I think I… I rather stay out of that too, but yeah. I just wanted to bring that up for everybody to be aware of what's going on in the AG district, having been around that, that idea of commercialization for food for a long time since the since the 70s, yeah. And there's no opportunity to go into the Land Use Commission. My dad then did everything the… you know they couldn't. You know, it took a long time, so I just wanted to say… just to share that you know, we would have been. You know, had a lot more money. But anyway, that's my point is. I just want to share my little moʻolelo of what's going on out here. Thank you.

Ms. Thayer: Thank you. Appreciate that. Ok. So…

Mr. Elizares: Yep, I'd still like to…

Ms. Elizares: You still want to make that?

Mr. Elizares: Recommendation for Council to talk to, because this is a Hana Community bill… to go back and… and talk to them about their… sounds like they're gonna have a hard time… What? What did they… ratting out their neighbors? Right. Or complaint based, so that the Council member from Hana can have a better idea of what his community is facing, and he could propose potentially proposed bills that could help the Kahana community move forward instead of just talking about it for 40 years.

Ms. Thayer: Sounds good.

Mr. Elizares: It's my right.

Ms. Thayer: Ok.

Mr. Elizares: What is it? Friendly amendment.

Ms. Thayer: Friendly amendment motion, for a friendly amendment to include that as a comment, along with our recommendation. So moved, by Commissioner Elizares, second by Commissioner Ward, I think you've spoken to your motion.

Mr. Elizares: Yup.

Ms. Thayer: Yup. Would you like to speak to that as a second? Any discussion? Ok. Oh, Commissioner Deakos.

Mr. Deakos: So, it just, it sounds like there's a concern about commercialization. But there's nobody, has a solution for it that we could recommend. So, the recommendation is maybe Council.

Ms. Thayer: Yes.

Mr. Deakos: Figure out a solution.

Ms. Thayer: Again, the scope of the bill before us is just to add the vehicle or structure on wheels as something that you can have. As an AG retail structure or within a farmer's market like, it's so that you can have a trailer or like a back of a pickup truck to sell your stuff out of. Which apparently people do all the time anyway. So, that's just the scope of this bill. We're just saying, Council as you consider this, think about the broader situation with the AG district, especially in Hana. Yeah. Commissioner Lind.

Mr. Lind: Yes, thank you. And I… I believe in opportunities, especially out this side with the AG product. So, I just want that for the record. It's not like I'm against this at all. Thank you.

Ms. Thayer: Thank you. Appreciate it. Ok. I think we are all good with this. Let… yeah, Ok. Let's call for a vote.

Ms. Blystone: Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: Yes.

Ms. Blystone: Commissioner Elizares.

Mr. Elizares: "nod in the affirmative"

Ms. Blystone: Commissioner Lind.

Mr. Lind: Yes.

Ms. Blystone: Commissioner Deakos.

Mr. Deakos: Aye.

Ms. Blystone: Commissioner Ward.

Mr. Ward: Aye.

Ms. Blystone: Vice-Chair Lindsey

Ms. Lindsey: Aye.

Ms. Blystone: Chair that six votes in favor of the motion passes.

It was moved by Mr. Elizares, seconded by Mr. Ward, then

VOTED: ***To enter a motion for a friendly amendment: Comment for Council to go back and talk to the Hana Community about this bill.***

(Assenting: J. Circle-Woodburn, C. Elizares C. Lind, M. Deakos, B. Ward, A. Lindsey

*(Excused absence: A. Kealoha *left meeting after 4:00PM)*

(Motion carries.)

Ms. Thayer: Ok, very good. Thank you very much everybody. Can we defer the rest of our agenda?

Ms. Blystone: No, that was the amendment, Chair.

Ms. Thayer: Oh, that's right. Never mind, sorry. Thank you for keeping me in my place. That is in a friendly amendment. Do we have any other amendments to this motion? The main motion, ok. So, we have the main motion with the additional comments and the main motion being to take the Department's recommendation, along with Hana Advisory Committee. Recommendation and advance that to Council, with our added comment from Commissioner Elizares. Ok, everybody, good. Now let's vote on this main motion.

Ms. Blystone: Commissioner Circle-Woodburn.

Ms. Circle-Woodburn: Aye.

Ms. Blystone: Commissioner Elizares.

Mr. Elizares: Yeah.

Ms. Blystone: Commissioner Lind.

Mr. Lind: Yes.

Ms. Blystone: Commissioner Deakos:

Mr. Deakos: Aye.

Ms. Blystone: Commissioner Ward.

Mr. Ward: Aye.

Ms. Blystone: Vice-Chair Lindsey.

Ms. Lindsey: Aye.

Ms. Blystone: Chair, that six votes in favor of motion to carry.

It was moved by Mr. Ward, seconded by Mr. Deakos, then

VOTED: ***Main Motion: To enter a motion to recommend approval of the staff report from the Planning Department and the comments made from the Hana Advisory Committee. Also to include the friendly amendment as discussed.***

(Assenting: J. Circle-Woodburn, C. Elizares C. Lind, M. Deakos, B. Ward, A. Lindsey

*(Excused absence: A. Kealoha *left meeting after 4:00PM)*

(Motion carries.)

Ms. Thayer: Ok. Now act 2 is done, can we defer the rest of our agenda.

Ms. Blystone: You need to take a vote on it.

Ms. Thayer: Ok, so moved by Commissioner Ward, second by Commissioner Elizares.

Ms. Blystone: Oh, Chair.

Ms. Thayer: Hold on. Mr. Pfost.

Mr. Pfost: You're continuing it to the next meeting. I want to make sure…

Ms. Thayer: To a date certain.

Ms. Blystone: Really clear what you're doing…

Ms. Thayer: Yes.

Ms. Blystone: I would ask that you'd allow me to do the Director's Report.

Ms. Thayer: Ok.

Ms. Blystone: Before we carry on.

Ms. Thayer: So, we're deferring A.3. and A.4…

Ms. Blystone: To the next meeting, which will be January 27th.

Ms. Thayer: Ok.

Mr. Hopper: At… at 9:00 AM here in the Kalana Pakui Building, correct.

Ms. Blystone: Yup.

Ms. Thayer: Yes. So same good with Commissioner Ward. As the movant, good with Elizares as a second… Ok voting. Deferring A.3. and A.4. to our next January agenda.

Ms. Blystone: Mahalo, Chair Commissioner Circle-Woodburn.

Mr. Circle-Woodburn: Aye.

Ms. Blystone: Commissioner Elizares.

Mr. Elizares: Yes.

Ms. Blystone: Commissioner Lind.

Mr. Lind: Yes.

Ms. Blystone: Commissioner Deakos.

Mr. Deakos: "nod in the affirmative"

Ms. Blystone: Commissioner Ward.

Mr. Ward: Aye

Ms. Blystone: Vice-Chair Lindsey.

Ms. Lindsey: Aye.

Ms. Blystone: Chair that six votes in favor to defer these items.

3. A BILL FOR AN ORDINANCE AMENDING CHAPTER 19.35 OF THE MAUI COUNTY CODE REVISING THE MAXIMUM GROSS COVERED FLOOR AREA REQUIREMENTS FOR ACCESSORY DWELLINGS (Item was scheduled on the 09/23/25 & 10/28/25 MPC agenda. Commissioners, please refer to the materials provided in the 09/23/25 & 10/28/25 meeting packet.)

Ms. Kate L.K. Blystone, Planning Director, referring to the Maui Planning Commission, a proposed bill amending Maui County Code Chapter 19.35 – Accessory Dwellings. The proposed bill initiated by the County Council through Resolution No. 25-142 would increase the maximum gross covered floor area for accessory dwelling units from 500 to 720 square feet on lots less than 7,500 square feet, and from 600 to 720 square feet on lots less than 10,000 square feet. The proposed bill also increases the maximum cumulative floor area for covered and uncovered decks, walkways, lanais or similar structures from 200 to 280 square feet on lots less than 7,500 square feet, and

from 240 to 280 square feet on lots less than 10,000 square feet. (G. Pfost)

The entire text of the proposed bill for ordinance is available at: https://www.mauicounty.gov/DocumentCenter/View/154297/Reso-25-142

(Memorandum / Staff Report) **(Materials / Attachment)**

(September / October 2025 Presentation / Slides)

(Documents Received After Posting)

(Submit Testimony) **(View Testimony Received)**

4. **A BILL FOR AN ORDINANCE AMENDING CHAPTER 19.36.B OF THE MAUI COUNTY CODE REGARDING ELECTRIC VEHICLE PARKING REQUIREMENTS (Item was scheduled on the 09/23/25 & 10/28/25 MPC agenda. Commissioners, please refer to the materials provided in the 09/23/25 & 10/28/25 meeting packet.)**

Ms. Kate L.K. Blystone, Planning Director, referring to the Maui Planning Commission, a proposed bill amending Maui County Code Chapter 19.36.B – Off-Street Parking and Loading. The proposed bill initiated by the County Council through Resolution No. 23-163, CD1 would require newly constructed places of public accommodation outside of the erosion hazard line with at least 50 parking spaces to provide two parking spaces designated for electric vehicles and equipped with electric vehicle charging systems. Additionally, for each additional increment of 50 parking spaces, two additional parking spaces and vehicle charging systems would be required. The proposed bill

mandates that the vehicle charging systems must be in working order and references Hawaii Revised Statutes for definitions of "electrical vehicle charging system" and "place of public accommodation." The proposed bill also provides that any conflict with Maui County Code Title 16's Energy Code will be resolved in favor of the stricter provision. (G. Pfost)

The entire text of the proposed bill for ordinance is available at: ttps://www.mauicounty.gov/DocumentCenter/View/154438/Reso-23-163- CD1

(Memorandum / Staff Report) **(Material / Attachment)**

(September / October 2025 Presentation / Slides)

(Documents Received After Posting)

(Submit Testimony) **(View Testimony Received)**

It was moved by Mr. Ward, seconded by Mr. Elizares, then

VOTED: ***To enter a motion to defer Items A.3 and A.4 on the agenda to the January 27, 2026, meeting here in the Kalana Pakui Building, Planning Department Conference room at 9:00 AM.***

(Assenting: J. Circle-Woodburn, C. Elizares C. Lind, M. Deakos, B. Ward, A. Lindsey

*(Excused: A. Kealoha *left meeting after 4:00PM)*

(Motion carries.)

Ms. Thayer: Thank you. Director's Report.

Ms. Blystone: Hold on. Yes, moving quickly.

Ms. Thayer: I guess. Is there anybody sign up to testify on the Director's Report?

Ms. Ramoran-Quemado: No Chair.

Ms. Thayer: Last call for public testimony. There's nobody here with us in person anymore. Anybody online? Write to staff in the chat or raise your hand or unmute yourself and holler at us. Otherwise, testimony closes in three, two, one. Go ahead, Director.

Ms. Blystone: Mahalo, Chair. So, for items one and two, we've got Danny here. I imagine to potentially answer any questions about minors or exemptions that were submitted. I, as you know, you can always look these up and also reach out to us if you ever have questions. So, pause there. All right, hearing no questions, your future Planning Commission agenda is January 27th. You've got now 4 items. The Haiku Fire Station is first up and that is going to be awesome. We've got great folks. There's also another ZPA for Paia Mill. We'll be… have a conversation about that and then these two items that you just deferred from the agenda. The last thing I just want to say. Uh. Is that? Today is my last meeting with you all. It was a barn burner. Good job guys. Didn't expect to cry. I expected to be more awake at this point, so I apologize. I resigned from my position for personal reasons and offline I can talk with you about that if you'd like, but I just wanted to say. That it's been a pleasure work alongside you for these last two years we've been through some really tough stuff. Big projects, you know, we did a community plan together. We did Bill 9 before it was called Bill 9 and so many Council initiated resolutions with Greg that, I've completely lost count. Some of them we've seen like five times back and forth. So, I wish the public understood how difficult your job is and that you're all volunteers, and you give your time to this community twice a month. I am in awe of your dedication and perseverance. And I'm gonna miss these marathons. Two times a month and I wanted to let you know that because my phone is blowing up, the whole universe knows now that Jacky is gonna be replacing me in this role. So, you spent plenty of time with her today. You got a sense of what she's like. And she… I have no question that she is gonna be great for you. She's… she's an amazing person and she's been with the Department in the County for a long time. So, last thing I just want to say is thank you for letting me

support you. And listening to me, a lot of the time. So, thanks guys. That's all I had to say, so I won't be with you on the 27th. Danny's gonna be filling in for the… in that meeting and then Jacky starts February 1st, so. That's all I had to say. Thank you, Chair.

Mr. Ward: Well, thank you.

Ms. Thayer: Thank you, Director.

Mr. Lind: Thank you. Aloha oe.

Ms. Thayer: Thank you very much. It's been very good. Appreciate you very much. Thank you.

Ms. Blystone: Sorry guys.

Ms. Thayer: Tears of gratitude.

Ms. Blystone: You guys cry all the time?

Ms. Thayer: Yes, there is warranted. Warranted. Yes, we've done a lot together. That is true.

Ms. Lindsey: You're welcome to the marathons.

Ms. Thayer: Yes, you know where to find us, yes. Hope you're not losing you forever.

Ms. Blystone: I'm hoping to stay in the Maui… in… in Maui… on the island for sure and we don't know what's next, so we'll see. I hope so. Yup.

Ms. Thayer: Thank you very much. That's all…

Ms. Blystone: Sorry to everyone online. Who had endured my…

Ms. Thayer: No, it's quite a way to close this meeting, but full gratitude again. And appreciation for your dedication too. I think with that we are at the conclusion of our meeting. We've gone through our agenda. Good job today, everybody. That was a lot. Good first meeting of the year. Way to get her done. We'll see you in two weeks. A hui hou.

NEXT REGULAR MEETING DATE: January 27, 20256

ADJOURNMENT

The meeting adjourned at 6:02 P.M

Respectfully Submitted by,

GENO QUEMADO

Secretary to Boards and Commissions II

RECORD OF ATTENDANCE

Present:
Kim Thayer, Chairperson – in person
Ashley Lindsey, Vice-Chairperson – in person (*left meeting at 3:00 PM and returned at 5:00 PM.)
Brian Ward – in person
Mark Deakos, PhD. – in person
Andrea Kealoha, PhD. – via TEAMS (*left meeting at 4:00 PM.)
Christopher Elizares – in person
Joshua Circle-Woodburn – in person
Crichton Lind – via TEAMS

Others
Kate Blystone, Planning Director, in person
Jacky Takakura, Planning Program Administrator, Long Range Division, in person
Danny Dias, Planning Program Administrator, Current Division, in person
Greg Pfost, Admin Planning Officer, ZAED, in person
Candace Thackerson, Planner VI, Supervisor to Boards and Commission, via TEAMS
Scott Forsythe, Planning Program Manager, PID, via TEAMS
Kurt Wollenhaupt, Planner VI, in person
Collette Cardoza, Planner VI, via TEAMS
Karen Comcowich, Planner V, via TEAMS
Aliki Binaris, Planner V, via TEAMS
Robin Lilies, Planner IV, via TEAMS
Carly Watanabe, Planner III, via TEAMS
Lakshimi Crane, Planner III, via TEAMS
Brailey Gonzales, Planner, via TEAMS
Michael Hopper, Deputy Corporation Counsel, in person
Kekai Robinson,ʻŌiwi Deputy Director, via TEAMS
Geovanna Torres, Planner VI – DWS Water Resources, via TEAMS
Geno Quemado, Secretary to Boards and Commissions II, Current Planning Division, in person
Leilani Ramoran-Quemado, Secretary to Boards and Commissions II, Current Planning Division, in person
Jacob Alison, Secretary to Boards and Commission I, Current Planning Division, in person

RICHARD T. BISSEN, JR.
Mayor

JACKY TAKAKURA
Acting Director

ANA LILLIS
Deputy Director

DEPARTMENT OF PLANNING
COUNTY OF MAUI
ONE MAIN PLAZA
2200 MAIN STREET, SUITE 315
WAILUKU, MAUI, HAWAI'I 96793

February 2, 2026

Mr. Jeffrey T. Ueoka
Attorney at Law
Wells Street Law
Post Office Box 733
Wailuku, Hawai'i 96793

Dear Mr. Ueoka:

SUBJECT: MAUI PLANNING COMMISSION RECOMMENDATION OF DEFERRAL IN THE MATTER OF MAUI COUNTY COUNCIL RESOLUTION NO. 25-132, FD1, HO'ONANI VILLAGE TO AMEND THE MAUI ISLAND PLAN'S DIRECTED GROWTH MAP C5 (PŪLEHU ROAD) FOR 163.443 ACRES; TO AMEND THE WAILUKU-KAHULUI COMMUNITY PLAN DESIGNATION FROM AGRICULTURE TO BUSINESS/MULTI-FAMILY FOR 163.443 ACRES; AND TO CHANGE THE ZONING FROM AGRICULTURAL DISTRICT TO M-1 LIGHT INDUSTRIAL DISTRICT FOR 166.511 ACRES ON A PORTION OF A PARCEL IDENTIFIED FOR REAL PROPERTY TAX PURPOSES AS TMK: (2) 3-8-006:004-0005, SITUATED AT KAHULUI, MAUI, HAWAI'I (ZPA2025-00011)

At a regular meeting on January 13, 2026, the Maui Planning Commission (Commission) reviewed the above applications, received public testimony, and after due deliberation, recommended the Maui County Council's (Council) deferral of the Maui Island Plan's Directed Growth Map Amendment, Community Plan Amendment, and Change in Zoning (CIZ) for the Ho'onani Village. Deferral is recommended pending receipt of further information such as the submission of the Draft Environmental Impact Statement (EIS) to the State Land Use Commission (SLUC) and the receipt of a final decision on the District Boundary Amendment by the SLUC prior to a decision on the CIZ.

The recommendation of the Commission to the Council is as follows:

MAUI ISLAND GROWTH BOUNDARY AMENDMENT

The Commission recommends "deferral" to the Council for the Amendment to the Maui Island Plan's Directed Growth Map C5 (Pūlehu Road) to include the property within the Urban Growth Boundary, until the Draft EIS is submitted to the SLUC, and the island-wide inventory of existing land uses is updated and indicates that additional urban density land is necessary to provide for the needs of the projected population growth.

COMMUNITY PLAN AMENDMENT

The Commission recommends "deferral" to Council for the Amendment to the Wailuku-Kahului Community Plan designation for the property from Agriculture to Business/Multi-Family, until the Draft EIS is submitted to the SLUC and the Maui Island Plan Urban Growth Boundary is expanded.

CHANGE IN ZONING

The Commission recommends "deferral" to the Council for the CIZ for the property from Agricultural District to M-1, Light Industrial District, until the SLUC approves the District Boundary Amendment, and the criteria described in Maui County Code (MCC) 19.510.040.A.4 are met.

Furthermore, in the event the Council decides to move forward on these matters, the followings "recommended" conditions are for the Change in Zoning.

1. That all residential units will be rented at or below 140 percent of Area Median Income Level rental rates.

2. That all residential units will be rented at or below 140 percent of Area Median Income Level rental rates for a minimum of 30 years.

3. That Annual Compliance Reports shall be submitted to the Department of Planning.

4. That Ho'onani Village will have a minimum of 1,000 residential units and that Ho'onani Village will be built according to the phasing plan as represented in the presentation to the Commission on January 13, 2026, with the exception that the civic, recreation, entertainment, and park elements are to be built concurrently or in earlier phases than represented in the phasing plan. (Exhibit 1 is the phasing plan presented at the Commission Meeting of January 13, 2026.)

Thank you for your cooperation. If additional clarification is required, please contact Planner Kurt Wollenhaupt at kurt.wollenhaupt@mauicounty.gov or at (808) 270-1789.

Sincerely,

JACKY TAKAKURA
Acting Director

Attachment: Phasing Plan
cc: Danny A. Dias, Planning Program Administrator (PDF)
Gregory Pfost, Planning Officer (PDF)
Kurt F. Wollenhaupt, Planner (PDF)
Jeffrey T. Ueoka, Project Attorney (PDF)
JT:KFW:lp
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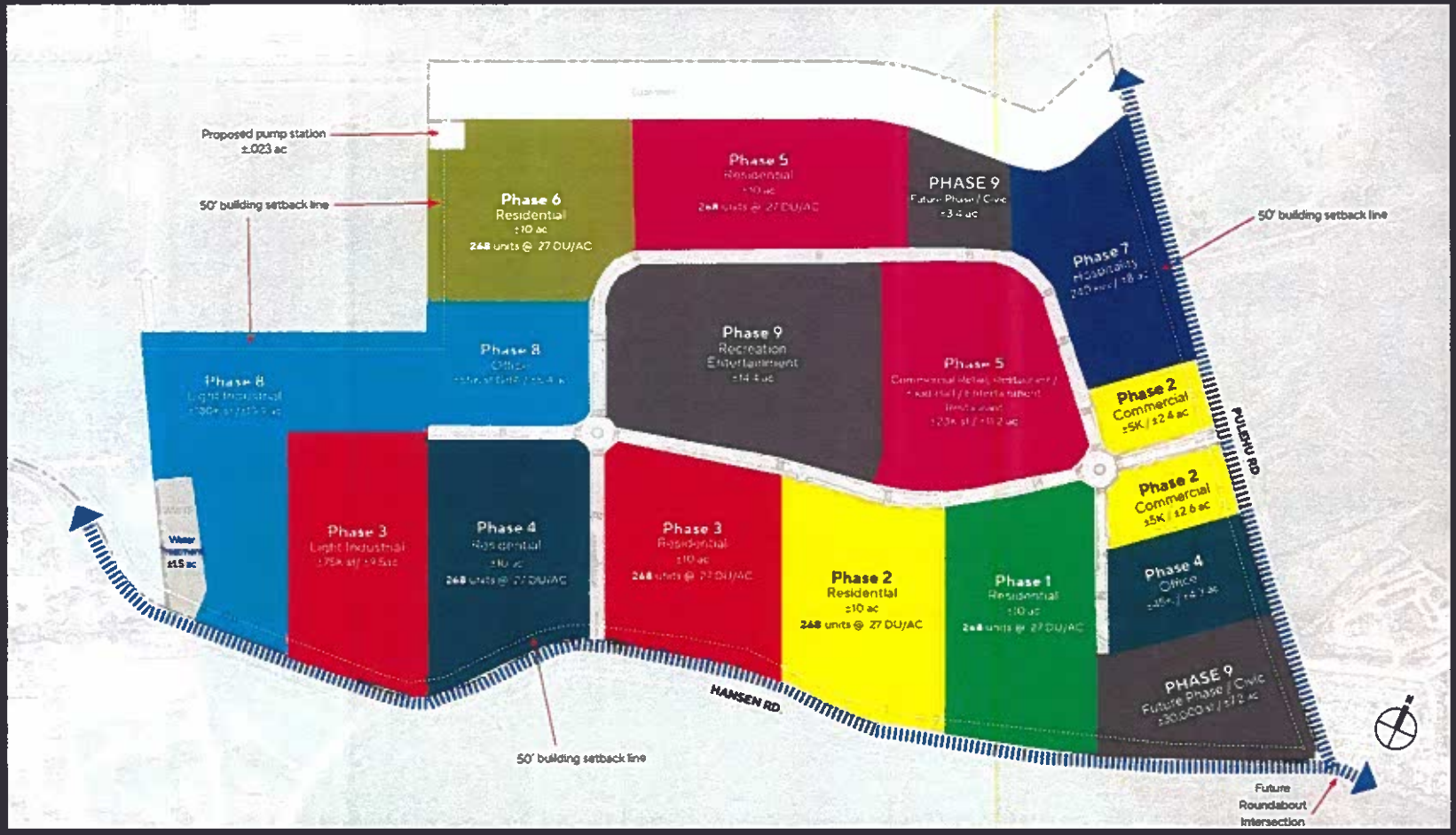
Site Map


Proposed pump station
±.023 ac
50' building setback line
Phase 6
Residential
±10 ac
268 units @ 27 DU/AC
Phase 5
Residential
±10 ac
268 units @ 27 DU/AC
PHASE 9
Future Phase / Civic
±3.4 ac
Phase 7
Hospitality
50' building setback line
Phase 8
Phase 9
Recreation
Entertainment
±14.4 ac
Phase 5
Phase 2
Commercial
±5K / ±2.4 ac
Phase 8
Light Industrial
Phase 2
Commercial
±5K / ±2.6 ac
Phase 3
Light Industrial
±9.5 ac
Phase 4
Residential
±10 ac
268 units @ 27 DU/AC
Phase 3
Residential
±10 ac
268 units @ 27 DU/AC
Phase 2
Residential
±10 ac
268 units @ 27 DU/AC
Phase 1
Residential
±10 ac
268 units @ 27 DU/AC
Phase 4
Office
PHASE 9
Future Phase / Civic
±30,000 sf / ±1.2 ac
PALISADE RD
HANSEN RD
50' building setback line
Future
Roundabout
Intersection

Phases

Land Use Summary - 2025.10.24

uses	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	PHASE 9 / PHASE PARCEL	TOTAL KEYS	TOTAL GSA	TOTAL PARCEL ACREAGE	TOTAL UNIT
Multi-Family													
Market Rate Multi-Family (Walk-up) 7	268	268	268	268	268	268							1608
Affordable Multi-Family (Walk -up) 7				Part of 268		part of 268							TBD
Acreage	10	10	10	10	10	10						60	
Commercial & Others													
Commercial Retail & Restaurant 1		10,000			23,000						33,000	16.2	
Food Hall 2					7,000						7,000	(Part of 16.2)	
Entertainment Space 3					5,000						5,000	(Part of 16.2)	
Light Industrial Park 4			75,000					180,000			255,000	23.4	
Office Building 5				45,000				55,000			100,000	9.7	
Hospitality 6							240*			240*		8.0	
Future Phase Commercial / Civic 9									30,000		30,000	7.2	
Future Phase (Recreation / Entertainment / Park) 9									TBD		TBD	14.4	
Future Phase / Civic 9									TBD		TBD	3.4	
Parcel Acreage		5	9.5	4.3	11.2		8	19.3	25			82.3	
Total										240*	430,000	142	1608

* Dual-brand Hotels site with shared common amenities; Circulation major ROW, water treatment and pump station site area are excluded