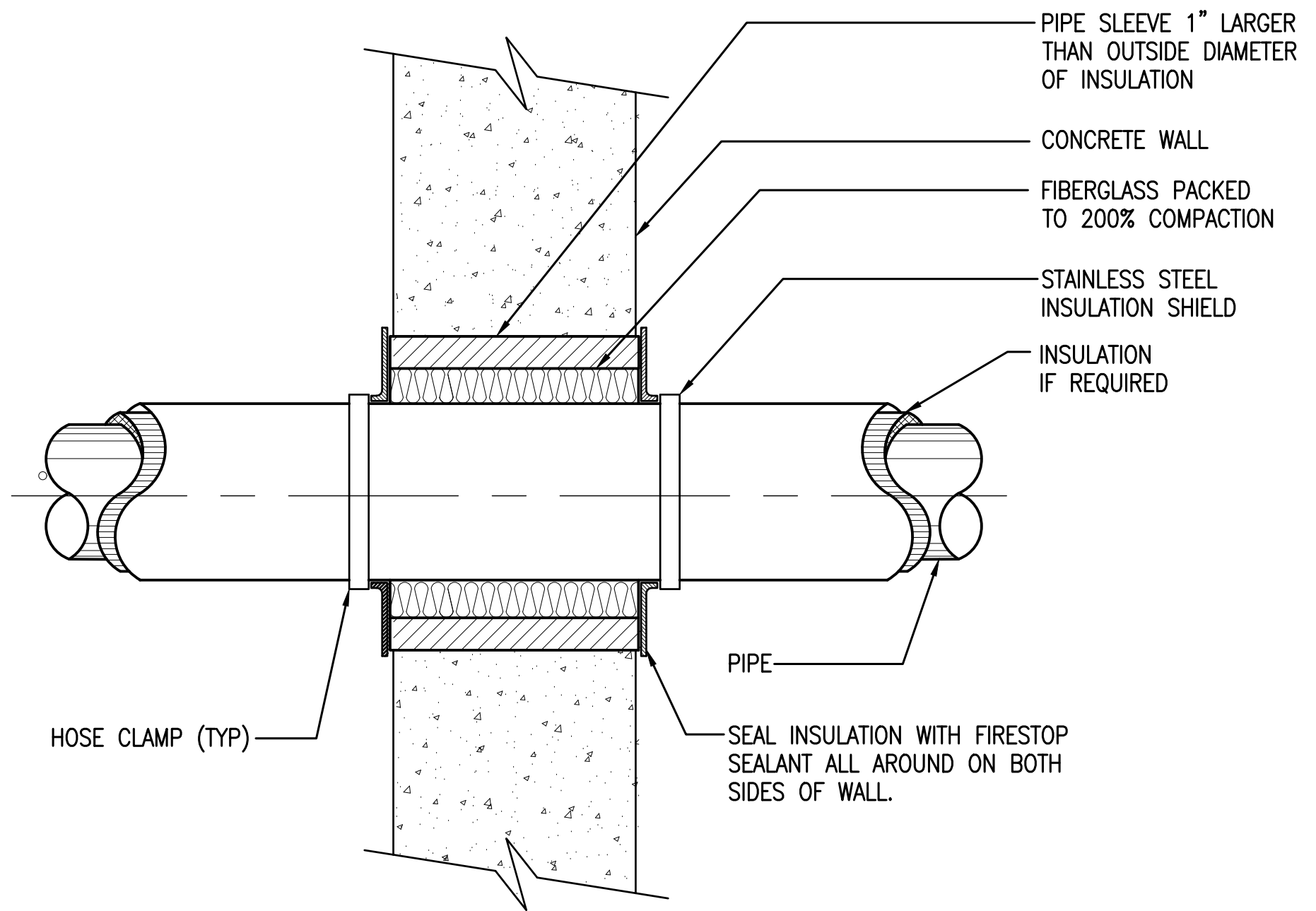
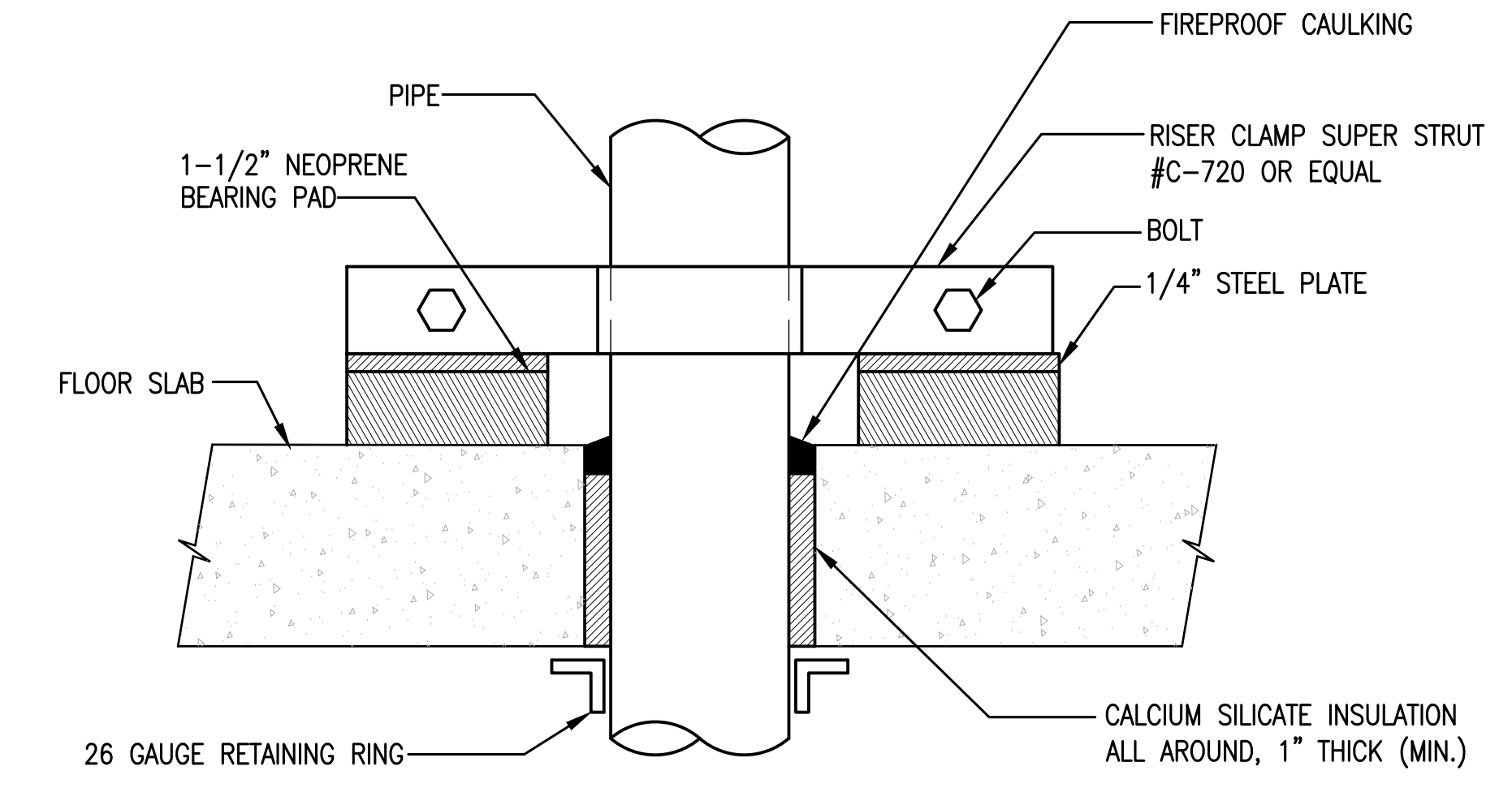


NOTE:  
 1. PROVIDE A SUMP PUMP WITH A MINIMUM DISCHARGE OF 50 GPM PER CAR.  
 2. LOCATE ELEVATOR SUMP PUMP CONTROLLER AT NEAREST ELECTRICAL ROOM



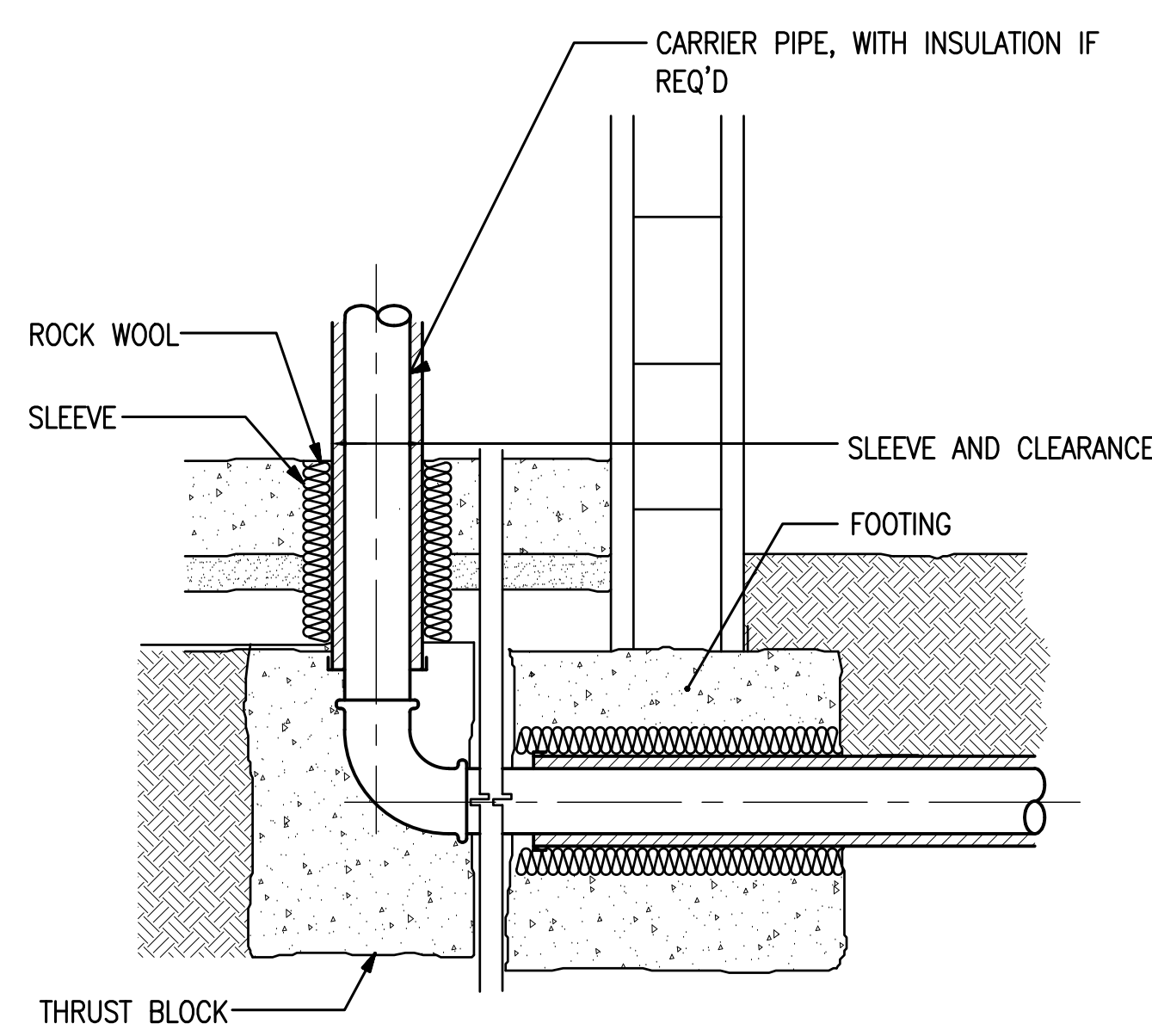
NOTE:  
 1. PIPE INSULATION TO BE CENTERED IN SLEEVE. DO NOT SUPPORT PIPE FROM SLEEVE.



1 RISER DETAIL  
 NOT TO SCALE

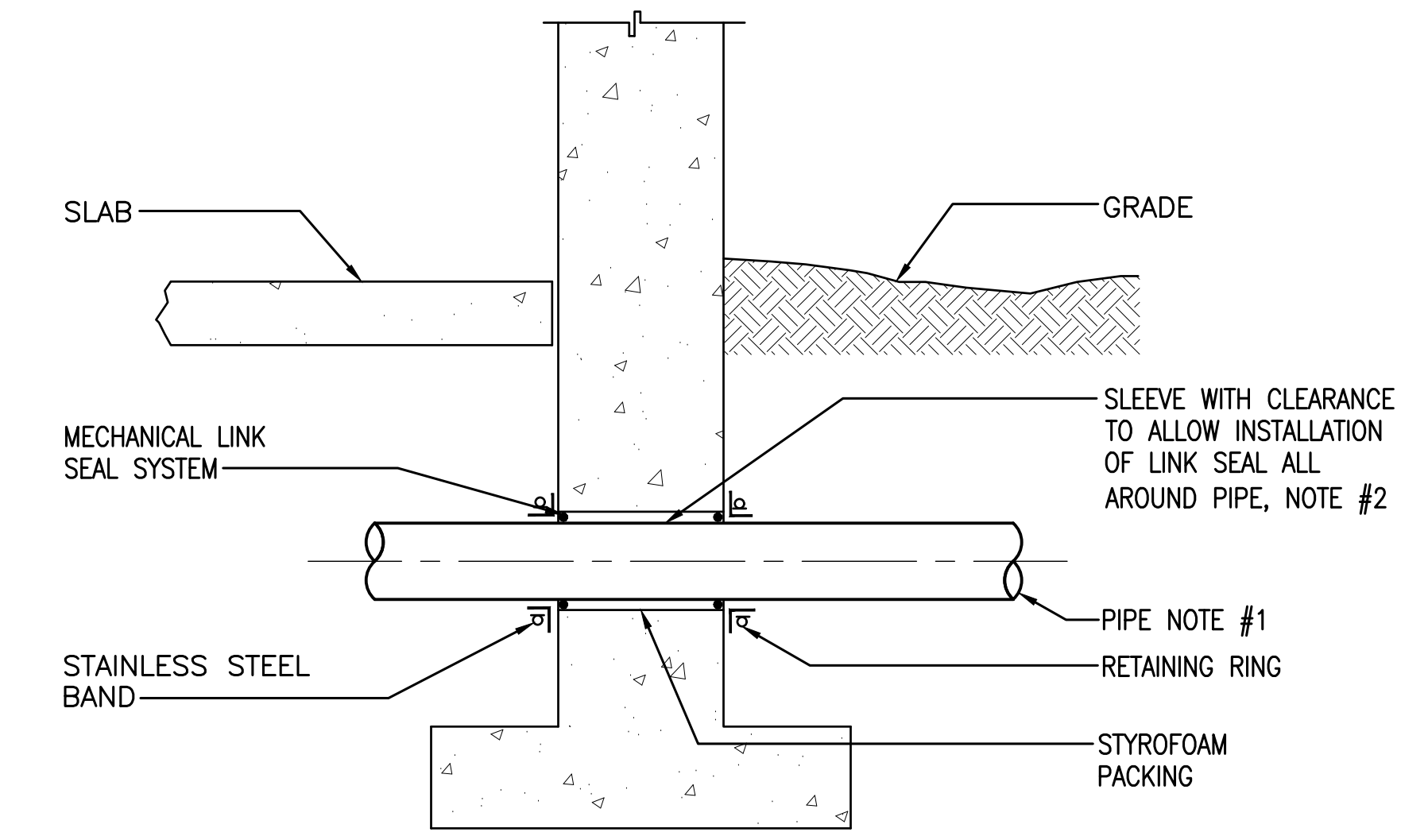
4 SUMP PUMP DETAIL - ELEVATOR  
 NOT TO SCALE

3 PIPE THRU CONCRETE WALL DETAIL  
 NOT TO SCALE



NOTE:  
 1. REFER TO STRUCTURAL FOR THRUST BLOCK AND FOOTING PENETRATION DETAILS.

5 UNDERGROUND PIPE THROUGH SLAB AND FOOTING DETAIL  
 NOT TO SCALE

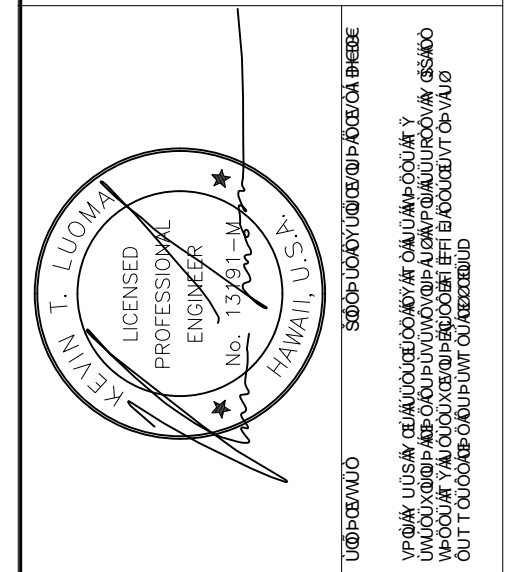


NOTES:  
 1. PIPE SHALL BE TREATED AS REQUIRED BY CODE FOR UNDERGROUND INSTALLATION.  
 2. COORDINATE ALL SLEEVES THROUGH FOOTINGS WITH STRUCTURAL ENGINEER.  
 3. LINK SEAL ONLY REQUIRED WHEN PIPE ENTERS BUILDING.

2 PIPE SLEEVE THROUGH FOOTING  
 NOT TO SCALE

**wsp**  
 WSP USA Buildings Inc.  
 1001 Bishop Street Suite 2400  
 Honolulu Hawaii 96813 USA  
 Telephone 808 536 1737  
 Facsimile 808 537 5829  
 honolulu@wsp.com

**FERRARO CHOI**



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 ÔXÔAOUT ÛSÖY  
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 FEEÄ ÅP ÖSÖUÖP  
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ÜP ÖÖÄVÄÄ/ÄÄ/ÖÖÄK	ÜP ÖÖÄVÄÄ/ÄÄ/ÖÖÄK	ÖÖVÖSÜ	ÖÖVÖSÜ
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ÖÖVÖSÜ	7/25/2019		
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# LIFE SAFETY NOTES

- A. FIRE SAFETY NOTE**
- STRUCTURES UNDERGOING CONSTRUCTION, ALTERATION, OR DEMOLITION OPERATIONS, INCLUDING THOSE IN UNDERGROUND LOCATIONS, SHALL COMPLY WITH NFPA 241, STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION, AND DEMOLITION OPERATIONS, AND THIS CHAPTER. 2012 NFPA 1.
- B. FIRE SAFETY DURING ALTERATION**
- 16.4.4.1 WHERE THE BUILDING IS PROTECTED BY FIRE PROTECTION SYSTEMS, SUCH AS SYSTEMS SHALL BE MAINTAINED OPERATIONAL AT ALL TIMES DURING ALTERATION.
  - 16.4.4.2 WHERE ALTERATION REQUIRES MODIFICATION OF A PORTION OF THE FIRE PROTECTION SYSTEM, THE REMAINDER OF THE SYSTEM SHALL BE KEPT IN SERVICE AND THE FIRE DEPARTMENT SHALL BE NOTIFIED.
  - 16.4.4.3 WHEN IT IS NECESSARY TO SHUT DOWN THE SYSTEM, THE AHJ SHALL HAVE THE AUTHORITY TO REQUIRE ALTERNATE MEASURES OF PROTECTION UNTIL THE SYSTEM IS RETURNED TO SERVICE.
  - 10.8.1.1 AS NECESSARY DURING EMERGENCIES, MAINTENANCE, DRILLS, PRESCRIBED TESTING, ALTERATIONS, OR RENOVATIONS, PORTABLE OR FIXED FIRE-EXTINGUISHING SYSTEMS OR DEVICES OR ANY WATCH SHALL BE REQUIRED AS SPECIFIED IN SECTIONS 13.3.4.3.5.2(3), 13.7.1.4.4, 16.5.4, 20.2.3.6, 34.6.3.3, 41.2.2.5, 41.2.2.6, 41.2.4, 41.3.4, 41.4.1, 34.5.4.3, 25.1.8 AT NO COST TO THE AHJ. NFPA 1, 2012, AS AMENDED.
- C. PORTABLE FIRE EXTINGUISHERS**
- 13.6.1 GENERAL REQUIREMENTS
  - 13.6.1.1 THE INSTALLATION, MAINTENANCE, SELECTION, AND DISTRIBUTION OF PORTABLE FIRE EXTINGUISHERS SHALL BE IN ACCORDANCE WITH NFPA 10, STANDARD FOR PORTABLE FIRE EXTINGUISHERS, AND SECTION 13.6. 2012 NFPA 1.

# FIRE SPRINKLER NOTES

PROVIDE COMPLETE AUTOMATIC FIRE SPRINKLER SYSTEM CONFORMING TO NFPA-13 2010. AUTOMATIC SPRINKLERS SHALL BE INSTALLED AND MAINTAINED IN FULL OPERATING CONDITION IN THE OCCUPANCIES SPECIFIED IN NFPA-13 2010 OR IN THE CODES OR STANDARDS REFERENCED IN CHAPTER 2 OF NFPA-1 2012. INSTALLATIONS SHALL BE IN ACCORDANCE WITH NFPA-13 2010, AS APPROPRIATE. AUTOMATIC SPRINKLER SYSTEMS INSTALLED TO MAKE USE OF AN ALTERNATIVE PERMITTED BY NFPA-13 2010 SHALL BE CONSIDERED REQUIRED SYSTEMS AND SHALL MEET THE PROVISIONS OF NFPA-13 2010 THAT APPLY TO REQUIRED SYSTEMS. AUTOMATIC FIRE SPRINKLER SYSTEMS SHALL BE PROVIDED WITH EARTHQUAKE BRACING IN ACCORDANCE WITH IBC 1613.1 & NFPA 13, 9.3.

STRUCTURES UNDERGOING CONSTRUCTION, ALTERATION, OR DEMOLITION OPERATIONS SHALL COMPLY WITH NFPA-241 2004 AND NFPA-1 2012, CHAPTER 16, AS AMENDED BY MAUI COUNTY. WHERE THE BUILDING IS PROTECTED BY EXISTING FIRE PROTECTION SYSTEMS, SUCH SYSTEMS SHALL BE MAINTAINED OPERATIONAL AT ALL TIMES DURING ALTERATION AND SHALL COMPLY WITH NFPA-1 2012, SECTIONS 1.3.6.2 AND 10.3.2. WHERE ALTERATION REQUIRES MODIFICATION OF A PORTION OF THE FIRE PROTECTION SYSTEM, THE REMAINDER OF THE SYSTEM SHALL BE KEPT IN SERVICE AND THE FIRE DEPARTMENT SHALL BE NOTIFIED. WHEN IT IS NECESSARY TO SHUT DOWN THE SYSTEM, THE AUTHORITY HAVING JURISDICTION SHALL HAVE THE AUTHORITY TO REQUIRE ALTERNATE MEASURES OF PROTECTION UNTIL THE SYSTEM IS RETURNED TO SERVICE.

AS NECESSARY DURING EMERGENCIES, MAINTENANCE, DRILLS, PRESCRIBED TESTING, ALTERATIONS, OR RENOVATIONS, PORTABLE OR FIXED FIRE-EXTINGUISHING SYSTEMS OR DEVICES OR ANY FIRE-WARNING SYSTEM SHALL BE PERMITTED TO BE MADE INOPERATIVE OR INACCESSIBLE. NFPA-1 2012, SECTION 10.8.1.1.

A FIRE WATCH SHALL BE REQUIRED AS SPECIFIED IN SECTIONS 13.3.3.6.5.2(3), 13.7.1.4.4, 16.5.4, 25.1.8, 34.5.4.3, 34.6.3.3 (4), 41.2.2.6, 41.2.2.7, 41.2.4, 41.3.5, AND 41.4.1 AT NO COST TO THE AUTHORITY HAVING JURISDICTION. NFPA-1 2012, AS AMENDED.

THESE FIRE SPRINKLER PLANS ARE SUBMITTED FOR CONDITIONAL APPROVAL OF THE FIRE AND BUILDING DEPARTMENTS. TWO (2) SETS OF COMPLETE WORKING PLANS AND HYDRAULIC CALCULATIONS, WHEN APPLICABLE, STAMPED AND SIGNED BY A HAWAII LICENSED MECHANICAL ENGINEER (ENGINEER OF RECORD) SHALL BE SUBMITTED BY THE CONTRACTOR TO THE FIRE PROTECTION SPECIAL INSPECTOR (FPSI) FOR CODE COMPLIANCE REVIEW. ONE (1) SET WITH THE FPSI APPROVAL STAMP SHALL BE SUBMITTED TO THE DPP BUILDING DIVISION ALONG WITH THE FPSI FINAL REPORT/LETTER PRIOR TO CLOSING OF THE BUILDING PERMIT.

BUILDING NAME: WAILUKU PARKING STRUCTURE  
WAILUKU, MAUI, HAWAII

- TAX MAP KEY: 9-1-134:006
- OCCUPANCY HAZARD AND SPRINKLER FLOW DATA:
    - ORDINARY HAZARD GROUP 2 ----MERCANTILE, PARKING GARAGE. 1500 SQ. FT. DESIGN AREA 0.20 GPM PER SQ. FT. DENSITY + 250 GPM FOR HOSE.
  - SPRINKLER HEADS:
    - SPRINKLER HEAD LOCATIONS SHALL BE SYMMETRICAL AND IN-LINE WITH EACH OTHER AND LIGHT FIXTURES IN ARCHITECTURAL FINISHED CEILING AREAS. IN TILED CEILING AREAS, SPRINKLERS SHALL BE IN THE CENTER ON THE TILE. FINAL APPROVAL OF THE SPRINKLER HEAD LOCATIONS ARE SUBJECT TO THE ARCHITECT AND ENGINEERS REVIEW.
    - BRASS UPRIGHT TYPE IN AREAS WITHOUT CEILINGS.
    - SPRINKLERS SHALL BE QUICK RESPONSE FACTORY MUTUAL APPROVED HEADS.
    - ALL HEADS LOCATED IN EXTERIOR LOCATIONS OR IN NATURALLY VENTILATED AREAS EXPOSED TO THE OUTSIDE ENVIRONMENT SHALL HAVE ELECTROLESS NICKEL PTFE CORROSION COATING OR EQUIVALENT ON THE HEAD.
  - SPARE SPRINKLER HEADS:
 

A SUPPLY OF SPARE SPRINKLERS (NEVER FEWER THAN SIX) SHALL BE MAINTAINED ON THE PREMISES SO THAT ANY SPRINKLERS THAT HAVE OPERATED OR BEEN DAMAGED IN ANY WAY CAN BE PROMPTLY REPLACED. THE SPRINKLERS SHALL BE KEPT IN A CABINET LOCATED WHERE THE TEMPERATURE IN WHICH THEY ARE SUBJECTED WILL AT NO TIME EXCEED 100°F. THE STOCK OF SPARE SPRINKLERS SHALL INCLUDE ALL TYPES AND RATINGS INSTALLED IN A LOCATION APPROVED BY THE FIRE CHIEF AND SHALL BE AS FOLLOWS:

    - 1-300 SPRINKLERS 06 HEADS
    - 301-1,000 SPRINKLERS 12 HEADS
    - OVER 1,000 SPRINKLERS 24 HEADS

IN ADDITION, THREE SPRINKLER STOPPERS AND A SPECIAL SPRINKLER WRENCH SHALL BE PROVIDED AND KEPT IN THE CABINET TO BE USED IN THE REMOVAL AND INSTALLATION OF SPRINKLER HEADS. ONE SPRINKLER WRENCH SHALL BE PROVIDED FOR EACH TYPE OF SPRINKLER HEAD INSTALLED.
  - SITE WATER PRESSURES:
 

IF THE SITE WATER PRESSURE IS NOT AVAILABLE OR NEEDS TO BE TESTED TO CONFIRM BWS VALUES, THE CONTRACTOR SHALL PERFORM THE TEST AS PART OF THE SCOPE OF THE PROJECT. PRELIMINARY INFORMATION IS AS FOLLOWS.

    - SPRINKLER SYSTEM FLOW REQUIREMENTS: 1250GPM
    - STATIC PRESSURE: 102PSI
    - RESIDUAL PRESSURE: 94PSI AT 2024GPM
  - PORTABLE FIRE EXTINGUISHERS:
 

THE INSTALLATION, MAINTENANCE, SELECTION, AND DISTRIBUTION OF PORTABLE FIRE EXTINGUISHERS SHALL BE IN ACCORDANCE WITH NFPA-10 2010 AND NFPA-1 2012, SECTION 13.6.
  - ACCEPTANCE TESTING:
 

THE AHJ SHALL HAVE THE AUTHORITY TO REQUIRE THAT CONSTRUCTION DOCUMENTS FOR ALL FIRE PROTECTION SYSTEMS BE SUBMITTED FOR REVIEW AND APPROVAL AND A PERMIT BE ISSUED PRIOR TO THE INSTALLATION, REHABILITATION OR MODIFICATION. FURTHER, THE AHJ SHALL HAVE THE AUTHORITY TO REQUIRE THAT FULL ACCEPTANCE TESTS OF THE SYSTEMS BE PERFORMED IN THE AHJ'S PRESENCE PRIOR TO FINAL SYSTEM CERTIFICATION.

FIRE ALARM SYSTEMS; FIRE HYDRANT SYSTEMS; FIRE-EXTINGUISHING SYSTEMS; STANDPIPES; AND OTHER FIRE-PROTECTION SYSTEMS AND APPURTENANCES REQUIRED BY THIS CODE SHALL BE APPROVED BY THE AHJ AS TO INSTALLATION AND LOCATION AND SHALL BE SUBJECT TO ACCEPTANCE TESTS REQUIRED BY THE APPROPRIATE COUNTY AGENCY. NFPA 1, CHAPTER 13 AS AMENDED.
  - FIRE DEPARTMENT CONNECTIONS:
 

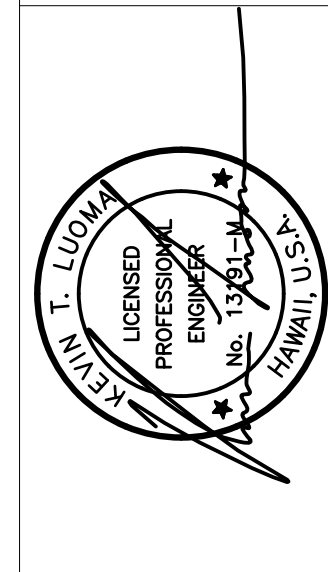
FIRE DEPARTMENT HOSE CONNECTIONS SHALL BE LOCATED MINIMUM OF 40 FEET FROM BUILDING AND WITHIN 20 FEET OF A FIRE APPARATUS ACCESS ROAD, NOT LESS THAN 18 INCHES AND NOT MORE THAN 4 FEET ABOVE GRADE, OR AS APPROVED BY THE AHJ. APPROPRIATE IDENTIFICATION SIGNS SHALL BE PROVIDED AS REQUIRED BY THE AHJ.

FIRE SPRINKLER LEGEND		
SYMBOLS	ABBR.	DESCRIPTION
PIPES		
	D	DRAIN PIPE
	FDC	FIRE DEPARTMENT CONNECTION
	FS	FIRE SPRINKLER PIPE
	FM	FIRE MAIN
		PIPING TURNED DOWN
		PIPING TURNED UP
SPRINKLERS		
		SEMI-RECESSED PENDENT SPRINKLER IN CEILING
		PENDENT SPRINKLER (IN CEILING)
		HORIZONTAL SIDEWALL SPRINKLER
		CONCEALED SPRINKLER HEAD
		UPRIGHT SPRINKLER HEAD
VALVES/SPECIALTIES		
		CHECK VALVE
		CONTROL VALVE WITH TAMPER SWITCH
		STANDPIPE FIRE HOSE CONNECTION WITH CAP
		FLOOR CONTROL VALVE
		FIRE DEPARTMENT CONNECTION
		POINT OF CONNECTION
		KEYNOTE
RISERS		
<b>RISER TYPES</b>		
	MWSP	MANUAL WET STANDPIPE
	AFS	AUTOMATIC FIRE SPRINKLER
<b>RISER NUMBER</b>	D	DRAIN

SYSTEM DESIGN DATA WAILUKU PARKING STRUCTURE			
SYSTEM TYPE	CALCULATED <input checked="" type="checkbox"/>	PIPE SCHEDULE <input type="checkbox"/>	
	WET <input type="checkbox"/>	DRY <input type="checkbox"/>	DELUGE <input type="checkbox"/> PREACTION <input type="checkbox"/>
HAZARD CLASSIFICATION	ORDINARY HAZARD II		
HYDRAULIC DESIGN DATA	DENSITY <u>20</u> GPM/SQ. FT.	<u>80</u> SQ. FT./HD.	
AREA OF APPLICATION	1500/AREA SQ. FT.	HOSE ALLOWANCES <u>250</u> GPM	
TOTAL SYSTEM REQUIREMENTS	<u>353.2</u> GPM AT <u>81.8</u> P.S.I. AT PUMP DISCHARGE		
WATER SUPPLY INFORMATION	2024 GPM AT 94 PSI		
SOURCE:	MAUI COUNTY - DEPARTMENT OF WATER SUPPLY		



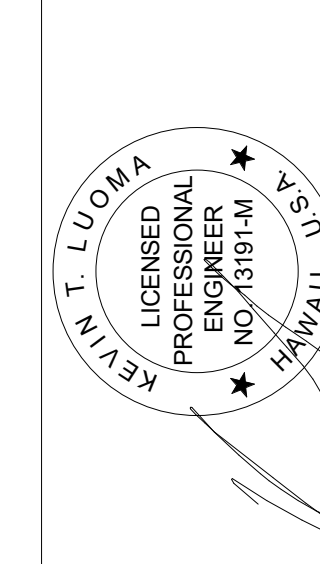
**FERRARO CHOI**  
 ENGINEER OF RECORD  
 LICENSE NO. 13761-H  
 HAWAII, U.S.A.



**Y OIESWSW**  
**ÔΧΩΑΟΥΤ ΨΣÒΥ**  
**ÛΠΘÛΟΑΦÓ**  
 FEEÁ ÁΡΧΙΤΕΚΤÓΝΩΠ  
 ΠΥΡΟΣΩΛΕÛΣ

ΟΧΩΑΟΥΤ ΨΣÒΥ  
 ΣΟΟΠΟΑΠΕÓ  
 ΠΥΡΟΥ

OFFICE	Y UÜ	7/25/2019	F001
DATE			
NO.			
REV.			



THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII. DEC. 16, 1915 (DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS)

**WAILUKU CIVIC COMPLEX PHASE 1B**  
**100 % FINAL DESIGN**  
 [PUYAROUUUPUWUWUP]

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**FIRE SPRINKLER SITE PLAN**

**CADD FILE:**

**PROJECT:** 2017-001

**REVISIONS:**

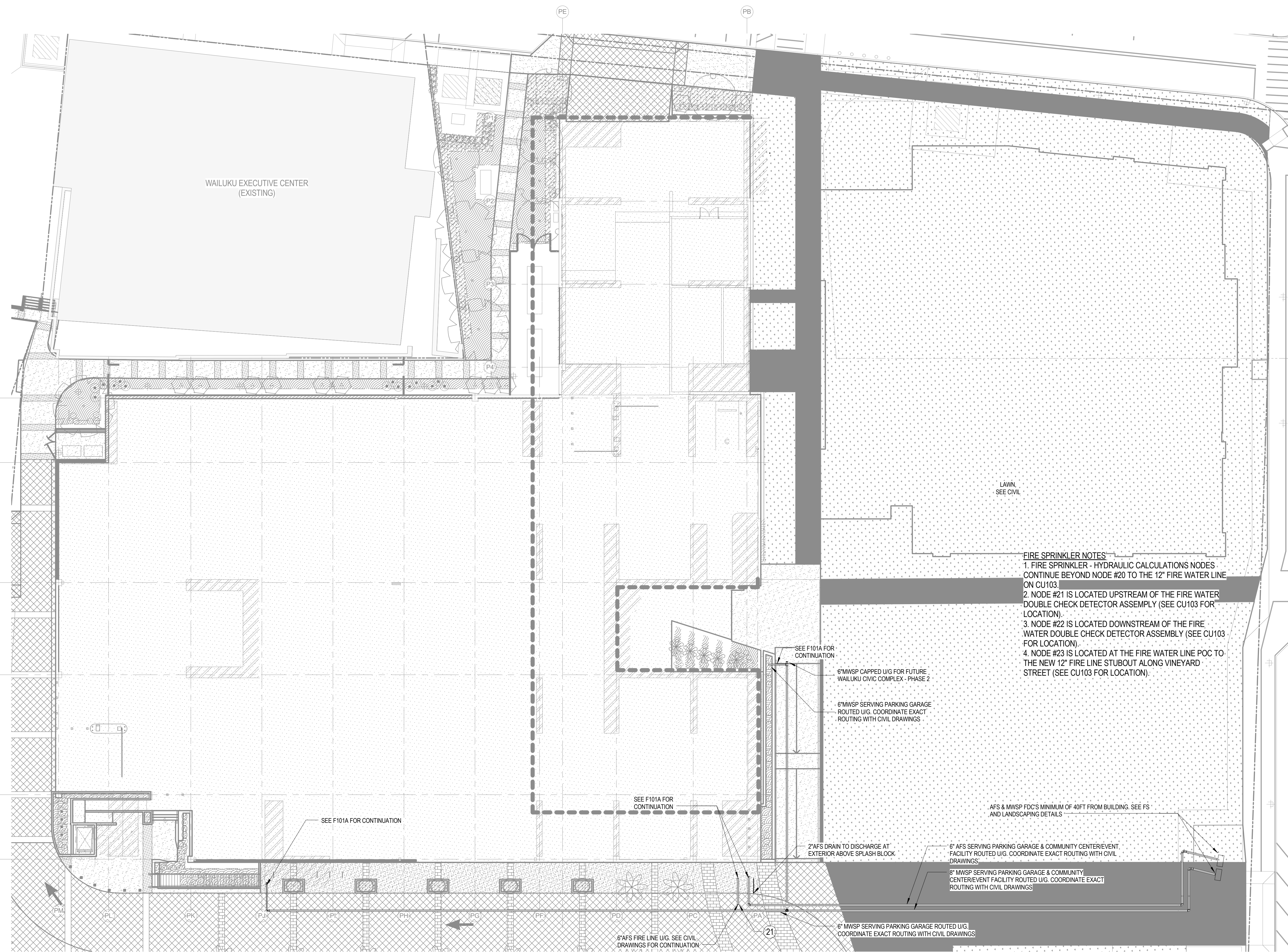
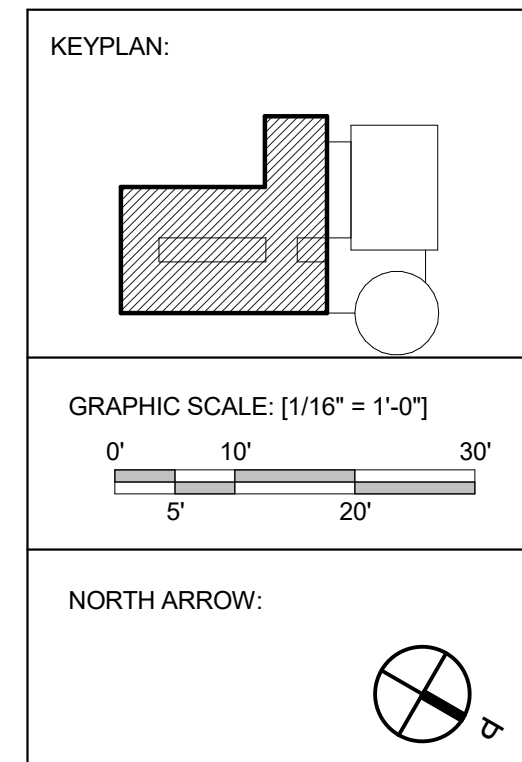
**DRAWN:** WSP

**DATE:** 7/25/2019

**PHASE SHEET**

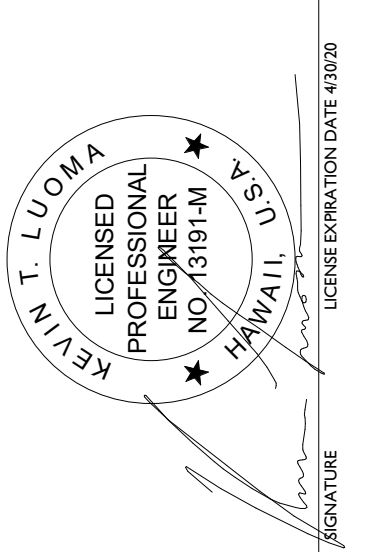
**1B F100**

**OF SHEETS**



- FIRE SPRINKLER NOTES**
1. FIRE SPRINKLER - HYDRAULIC CALCULATIONS NODES CONTINUE BEYOND NODE #20 TO THE 12" FIRE WATER LINE ON CU103.
  2. NODE #21 IS LOCATED UPSTREAM OF THE FIRE WATER DOUBLE CHECK DETECTOR ASSEMBLY (SEE CU103 FOR LOCATION).
  3. NODE #22 IS LOCATED DOWNSTREAM OF THE FIRE WATER DOUBLE CHECK DETECTOR ASSEMBLY (SEE CU103 FOR LOCATION).
  4. NODE #23 IS LOCATED AT THE FIRE WATER LINE POC TO THE NEW 12" FIRE LINE STUBOUT ALONG VINEYARD STREET (SEE CU103 FOR LOCATION).

**1 FIRE SPRINKLER SITE PLAN**  
 1/16" = 1'-0"



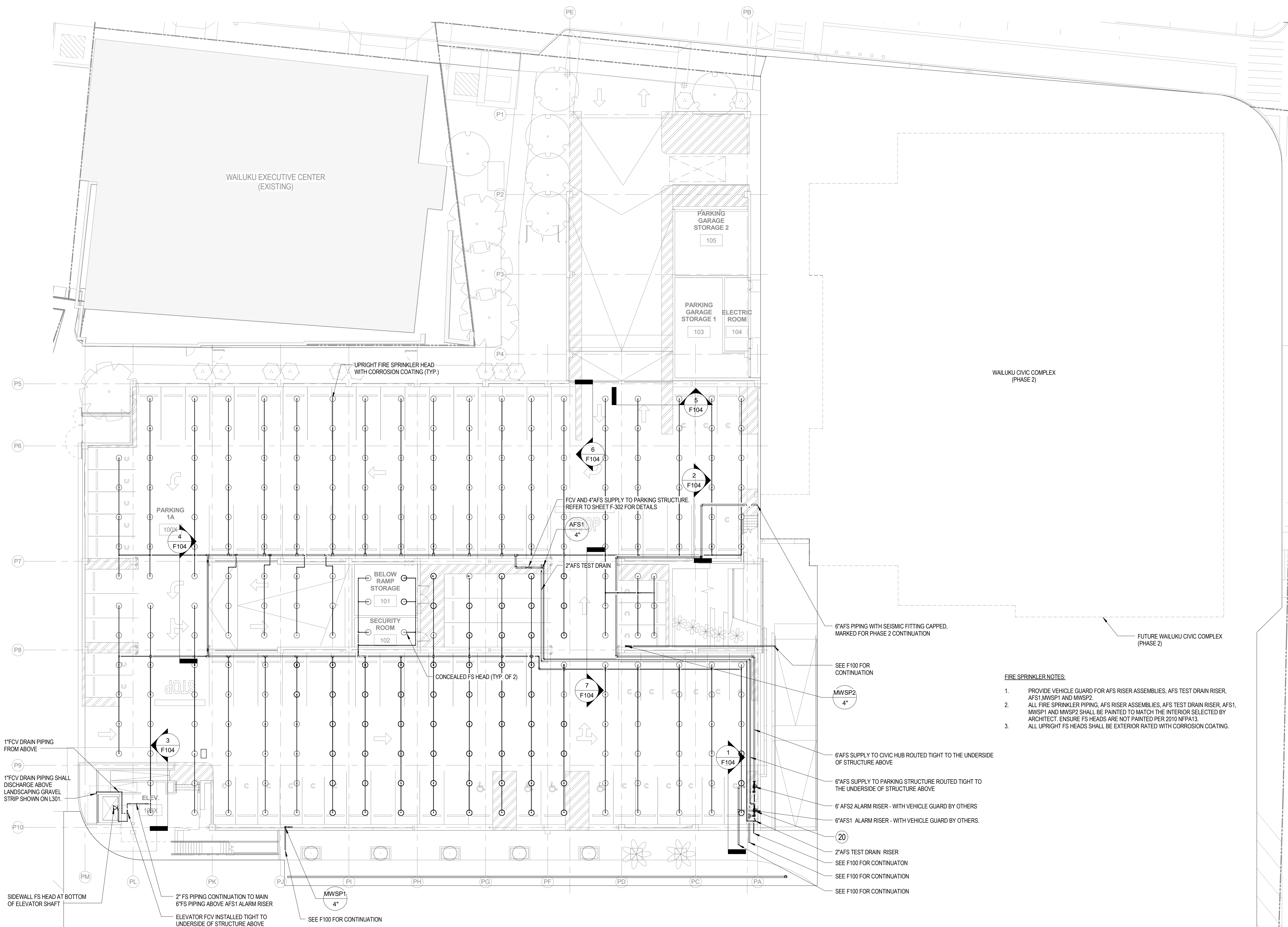
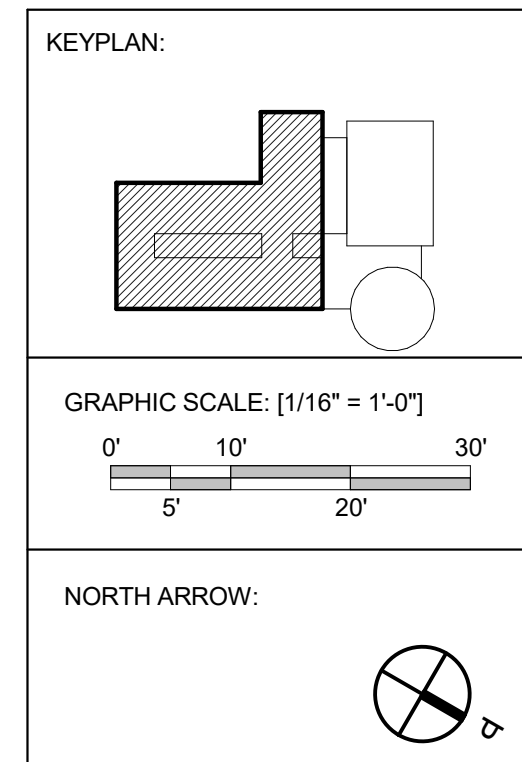
**WAILUKU CIVIC COMPLEX  
 PHASE 1B  
 100% FINAL DESIGN**

PROJECT FILE: [PROJECT ID]

**OVERALL FLOOR  
 FIRE SPRINKLER  
 PLAN - LEVEL 1A**

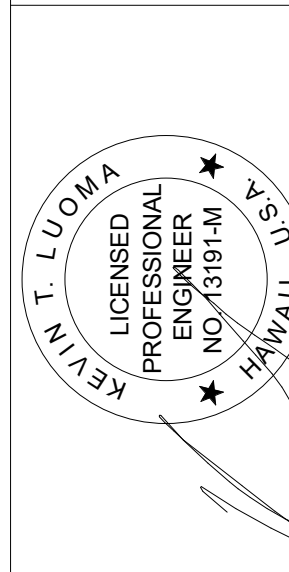
SHEET TITLE:  
 CADD FILE:

PROJECT:	2017-3001
DRAWN:	WSP
DATE:	7/25/2019
PHASE:	100% FINAL DESIGN
SHEET:	1B F101A
OF:	10



- FIRE SPRINKLER NOTES:**
1. PROVIDE VEHICLE GUARD FOR AFS RISER ASSEMBLIES, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2.
  2. ALL FIRE SPRINKLER PIPING, AFS RISER ASSEMBLIES, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2 SHALL BE PAINTED TO MATCH THE INTERIOR SELECTED BY ARCHITECT. ENSURE FS HEADS ARE NOT PAINTED PER 2010 NFPA13.
  3. ALL UPRIGHT FS HEADS SHALL BE EXTERIOR RATED WITH CORROSION COATING.

**1 OVERALL FLOOR FIRE SPRINKLER PLAN - LEVEL 1A**  
 1/16" = 1'-0"



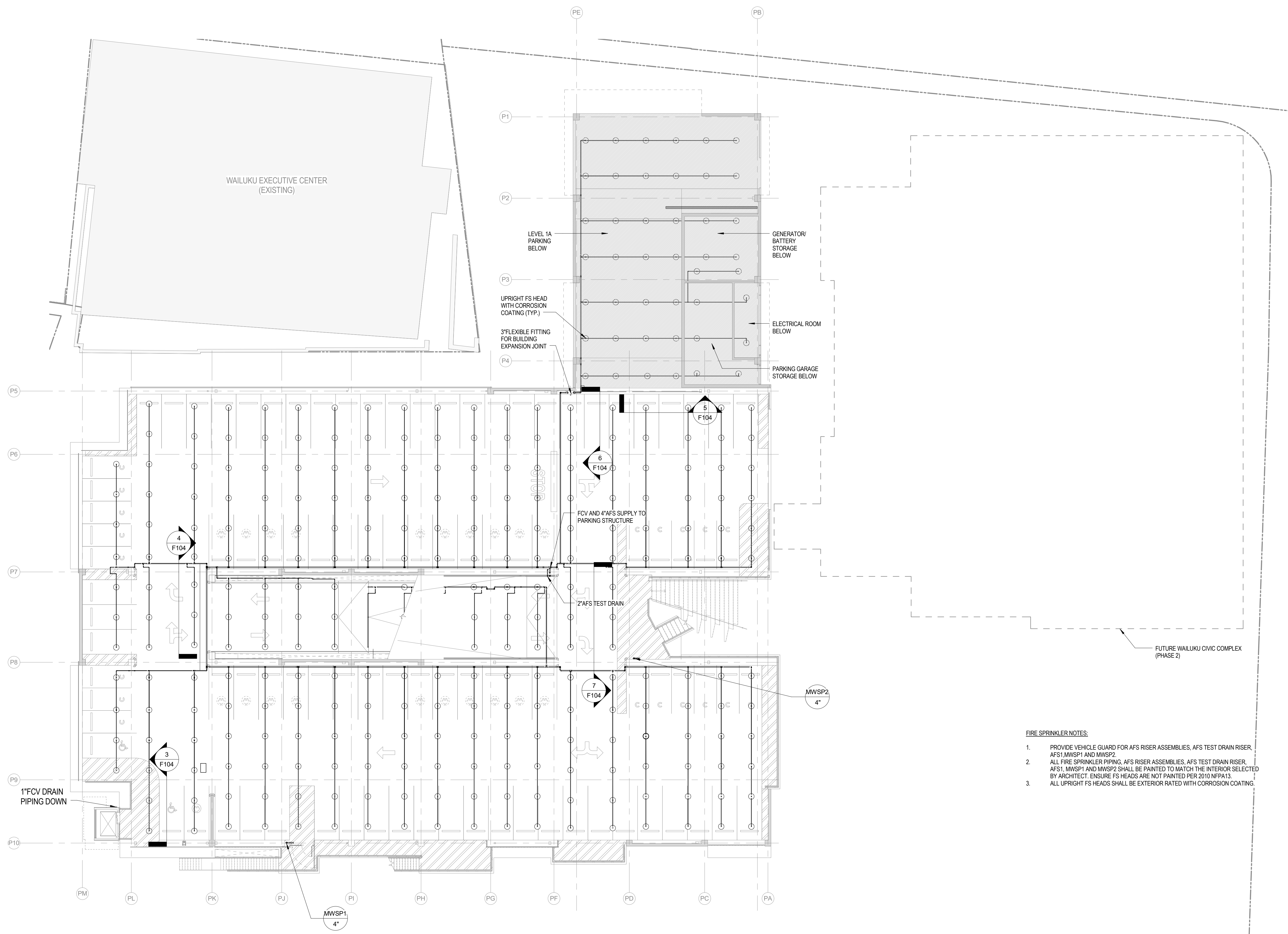
THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII. DEC 16 11:51 AM DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS

**WAILUKU CIVIC COMPLEX PHASE 1B**  
**100% FINAL DESIGN**  
 [PUY80U0UPJUVUW0P]

**OVERALL FLOOR FIRE SPRINKLER PLAN - LEVEL 1B**

PROJECT:	2017/2001
REVISIONS:	WSP
DRAWN:	7/25/2019
DATE:	
PHASE SHEET	
<b>1B F101B</b>	
OF SHEETS	

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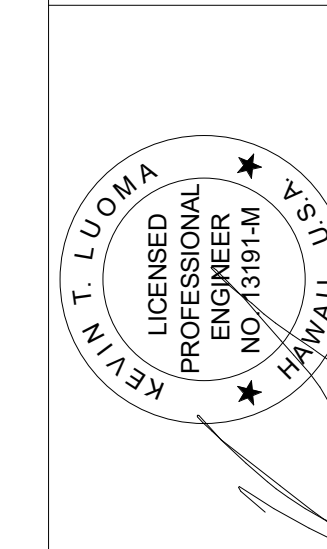
- FIRE SPRINKLER NOTES:**
1. PROVIDE VEHICLE GUARD FOR AFS RISER ASSEMBLIES, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2.
  2. ALL FIRE SPRINKLER PIPING, AFS RISER ASSEMBLIES, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2 SHALL BE PAINTED TO MATCH THE INTERIOR SELECTED BY ARCHITECT. ENSURE FS HEADS ARE NOT PAINTED PER 2010 NFPA13.
  3. ALL UPRIGHT FS HEADS SHALL BE EXTERIOR RATED WITH CORROSION COATING.

**KEYPLAN:**

**GRAPHIC SCALE: [1/16" = 1'-0"]**

**NORTH ARROW:**

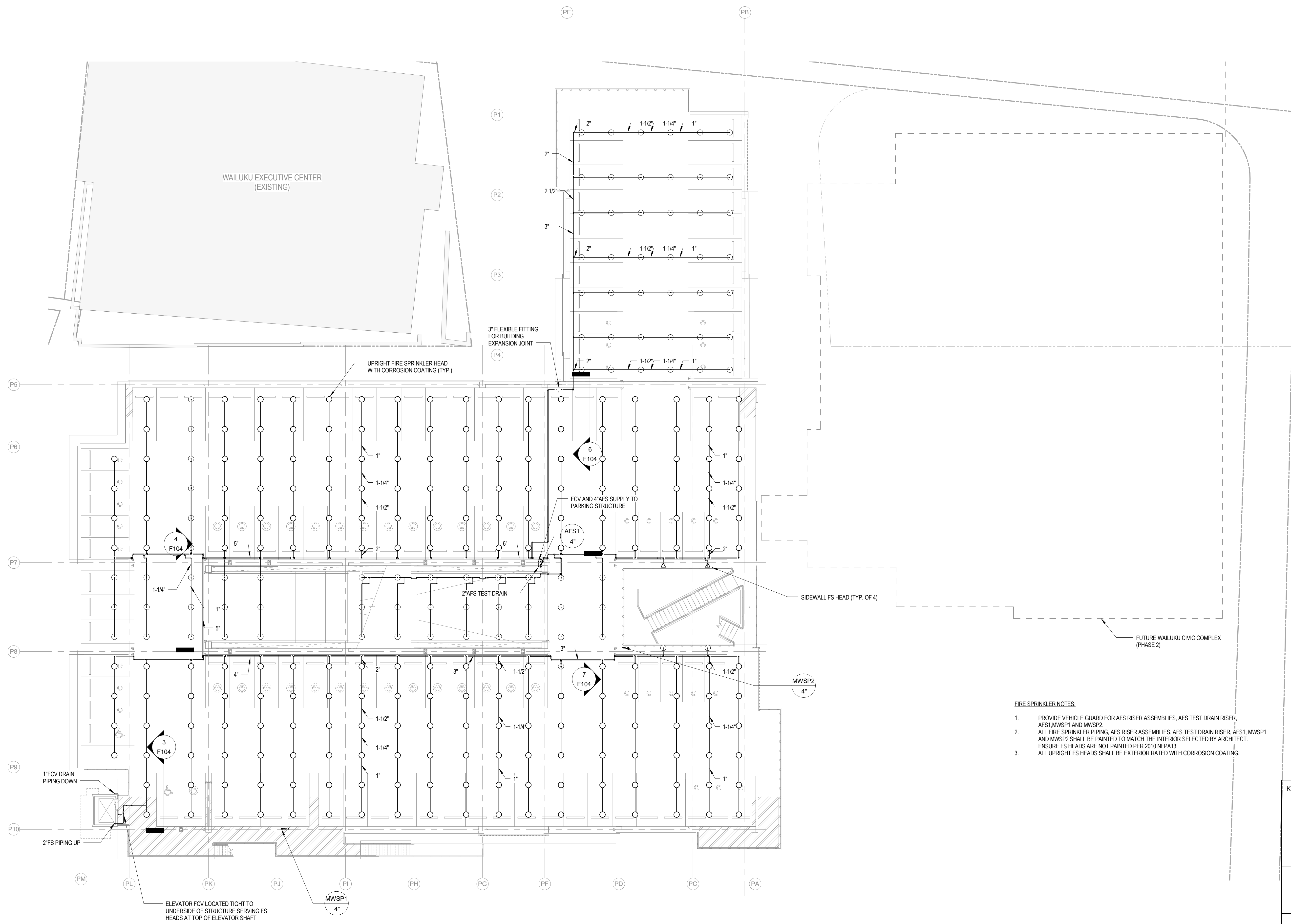
**1 OVERALL FLOOR FIRE SPRINKLER PLAN - LEVEL 1B**  
 1/16" = 1'-0"



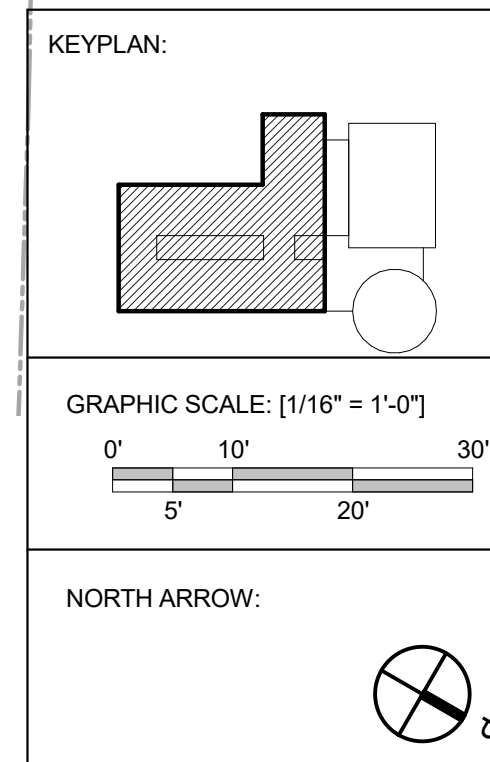
**WAILUKU CIVIC COMPLEX PHASE 1B**  
**100 % FINAL DESIGN**  
 [Signature]

**OVERALL FLOOR FIRE SPRINKLER PLAN - LEVEL 2**  
 SHEET TITLE: OVERALL FLOOR FIRE SPRINKLER PLAN - LEVEL 2  
 CADD FILE:

PROJECT:	2017301
DRAWN:	WSP
DATE:	7/25/2019
PHASE	1B
SHEET	F102
OF	SHEETS



- FIRE SPRINKLER NOTES:**
1. PROVIDE VEHICLE GUARD FOR AFS RISER ASSEMBLIES, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2.
  2. ALL FIRE SPRINKLER PIPING, AFS RISER ASSEMBLIES, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2 SHALL BE PAINTED TO MATCH THE INTERIOR SELECTED BY ARCHITECT. ENSURE FS HEADS ARE NOT PAINTED PER 2010 NFPA13.
  3. ALL UPRIGHT FS HEADS SHALL BE EXTERIOR RATED WITH CORROSION COATING.

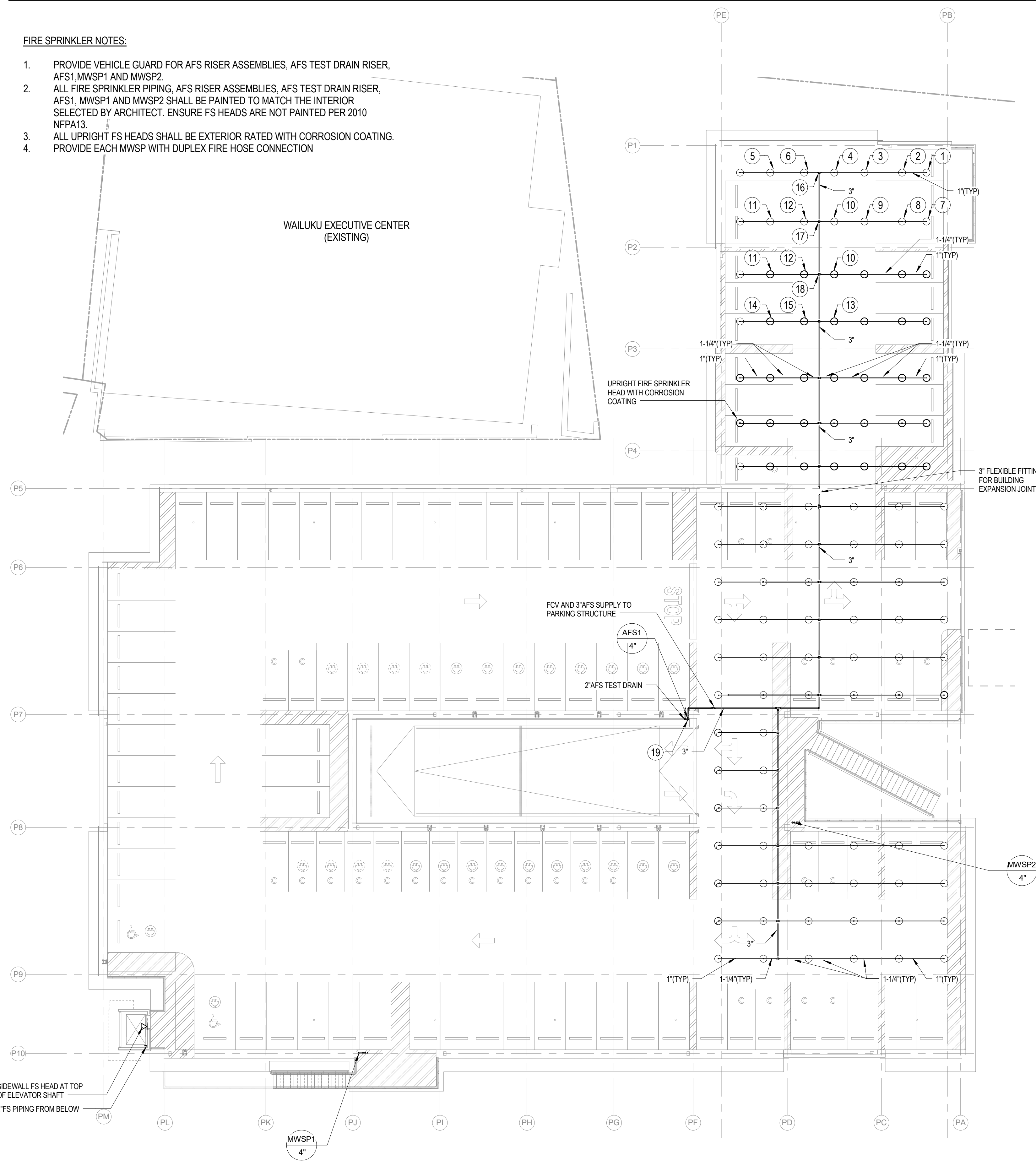


**1 OVERALL FLOOR FIRE SPRINKLER PLAN - LEVEL 2**  
 1/16" = 1'-0"

**FIRE SPRINKLER NOTES:**

1. PROVIDE VEHICLE GUARD FOR AFS RISER ASSEMBLIES, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2.
2. ALL FIRE SPRINKLER PIPING, AFS RISER ASSEMBLIES, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2 SHALL BE PAINTED TO MATCH THE INTERIOR SELECTED BY ARCHITECT. ENSURE FS HEADS ARE NOT PAINTED PER 2010 NFPA13.
3. ALL UPRIGHT FS HEADS SHALL BE EXTERIOR RATED WITH CORROSION COATING.
4. PROVIDE EACH MWSP WITH DUPLEX FIRE HOSE CONNECTION

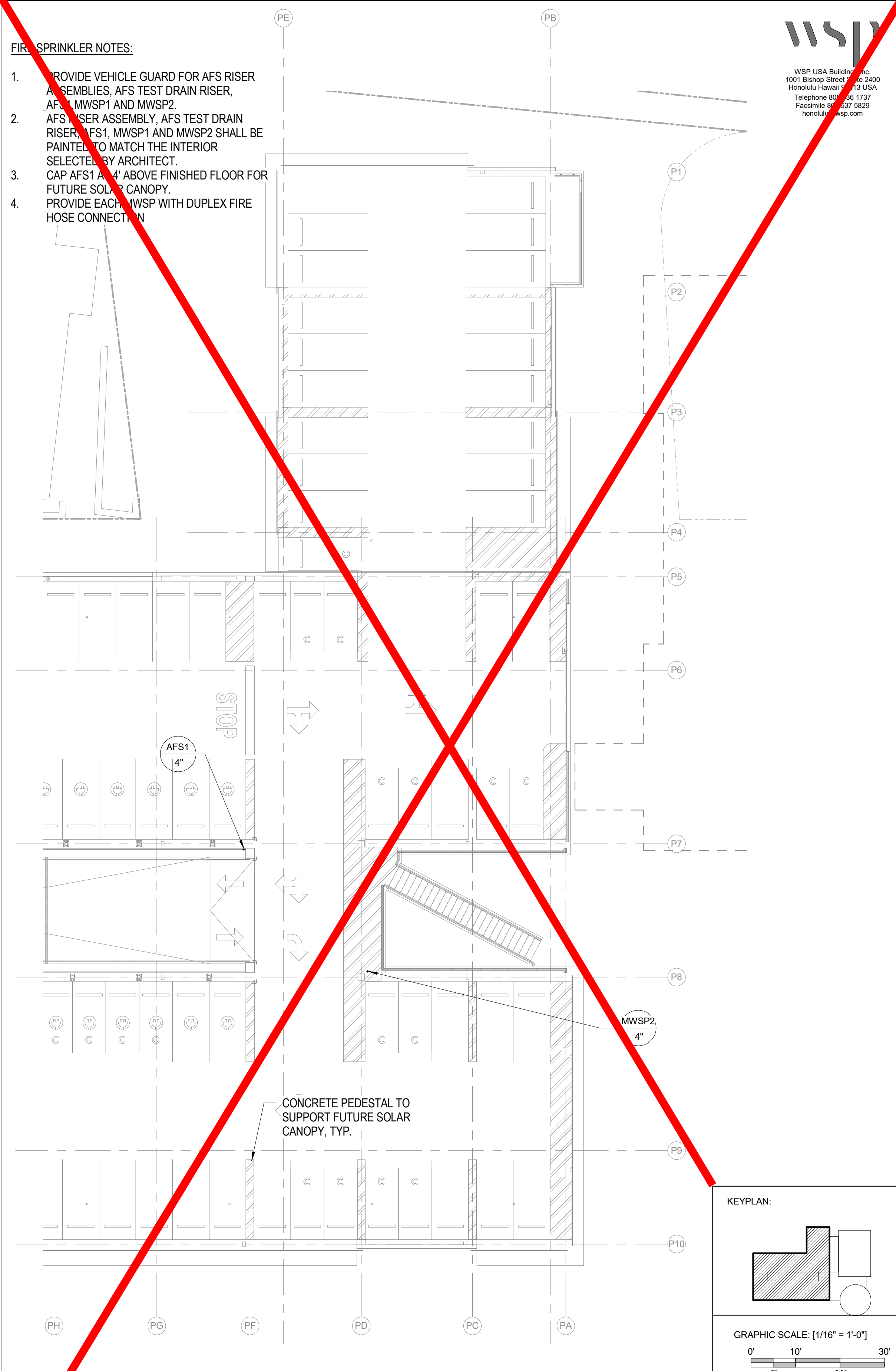
WAILUKU EXECUTIVE CENTER  
(EXISTING)



**1** OVERALL FLOOR FIRE SPRINKLER PLAN - LEVEL 3 - BASE BID  
1/16" = 1'-0"

**FIRE SPRINKLER NOTES:**

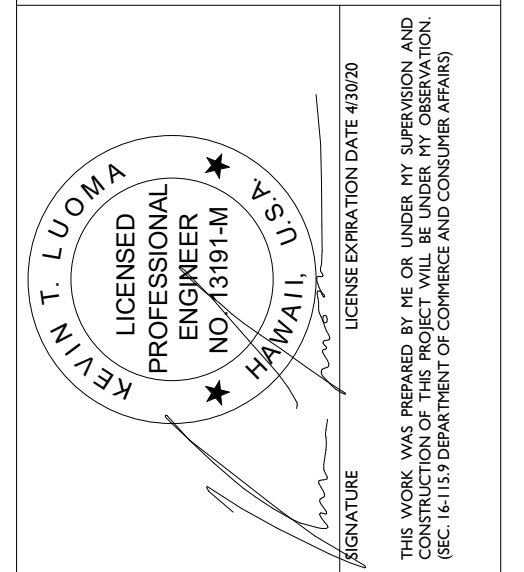
1. PROVIDE VEHICLE GUARD FOR AFS RISER ASSEMBLIES, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2.
2. AFS RISER ASSEMBLY, AFS TEST DRAIN RISER, AFS1, MWSP1 AND MWSP2 SHALL BE PAINTED TO MATCH THE INTERIOR SELECTED BY ARCHITECT.
3. CAP AFS1 4" ABOVE FINISHED FLOOR FOR FUTURE SOLAR CANOPY. PROVIDE EACH MWSP WITH DUPLEX FIRE HOSE CONNECTION
- 4.



**2** OVERALL FLOOR FIRE SPRINKLER PLAN - LEVEL 3 - REDUCTIVE ALTERNATE NO. B1  
1/16" = 1'-0"



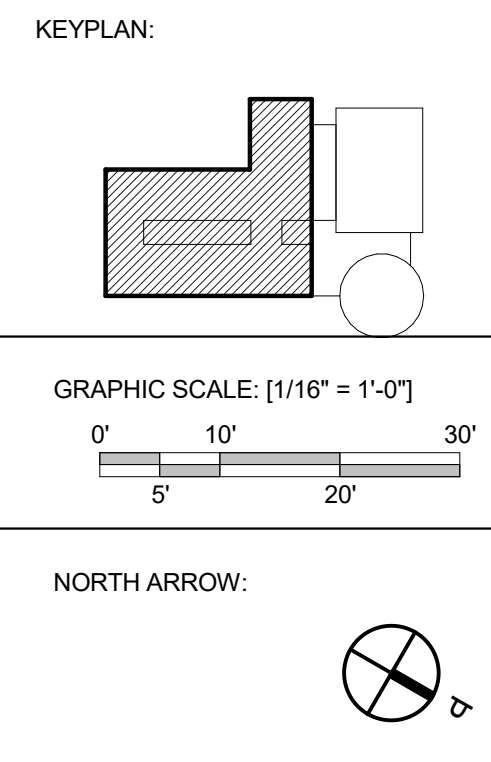
**FERRARO CHOI**  
FERRARO CHOI AND ASSOCIATES LTD  
ARCHITECTURE / INTERIOR ARCHITECTURE / RESEARCH  
1240 ALA MOANA BLVD. STE 510, HONOLULU, HI 96814  
TEL. 808.533.8880 FAX. 808.599.3769 www.ferrarochoi.com

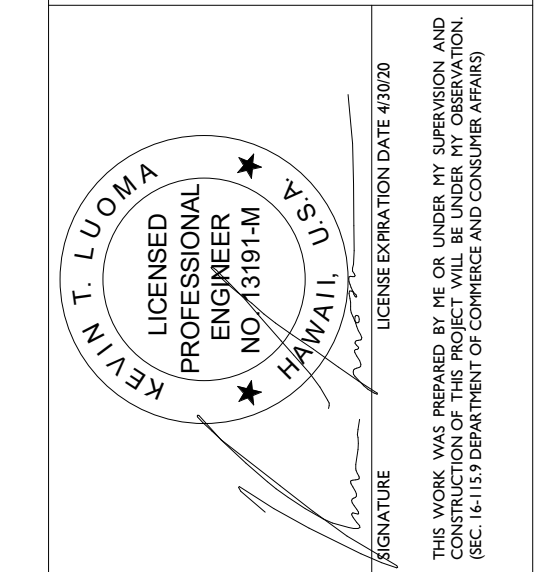


**WAILUKU CIVIC COMPLEX PHASE 1B**  
100% FINAL DESIGN  
[Signature]

**OVERALL FLOOR FIRE SPRINKLER PLAN - LEVEL 3**  
SHEET TITLE: CADD FILE:

PROJECT:	2017/301
DRAWN:	Author
DATE:	7/25/2019
PHASE	1B
SHEET	F103
OF	SHEETS

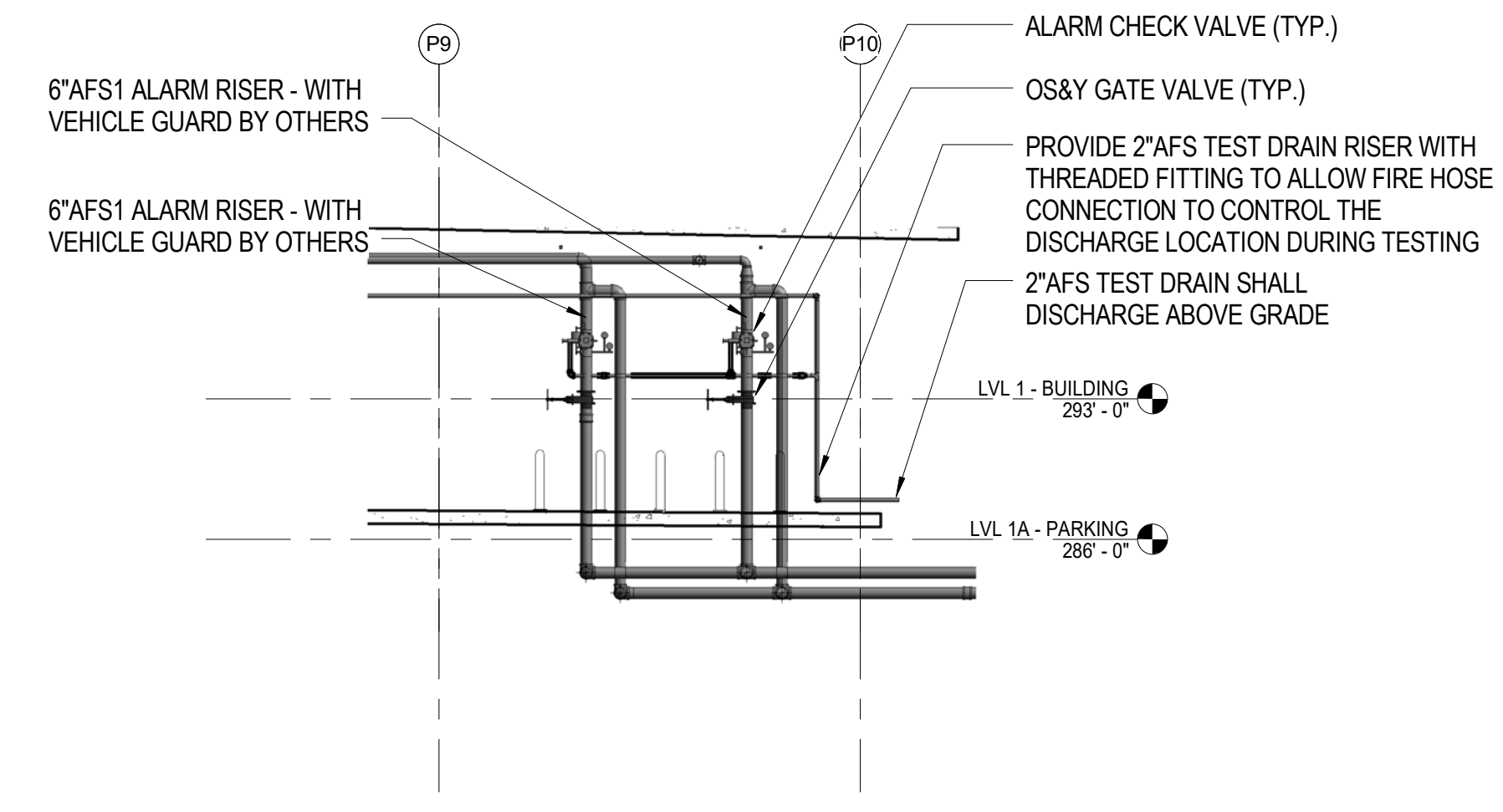




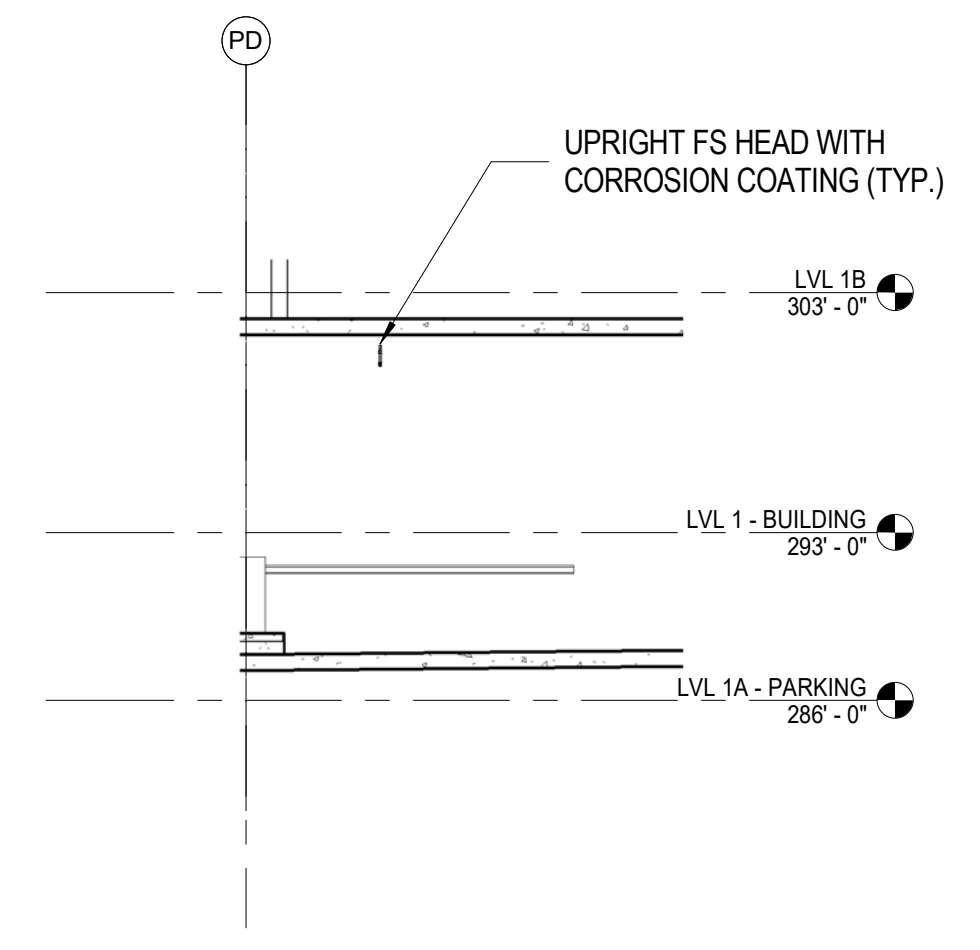
**WAILUKU CIVIC COMPLEX PHASE 1B**  
100% FINAL DESIGN  
[P104] [P105] [P106] [P107] [P108] [P109] [P110]

SHEET TITLE:  
**FIRE PROTECTION SECTIONS**  
CADD FILE:

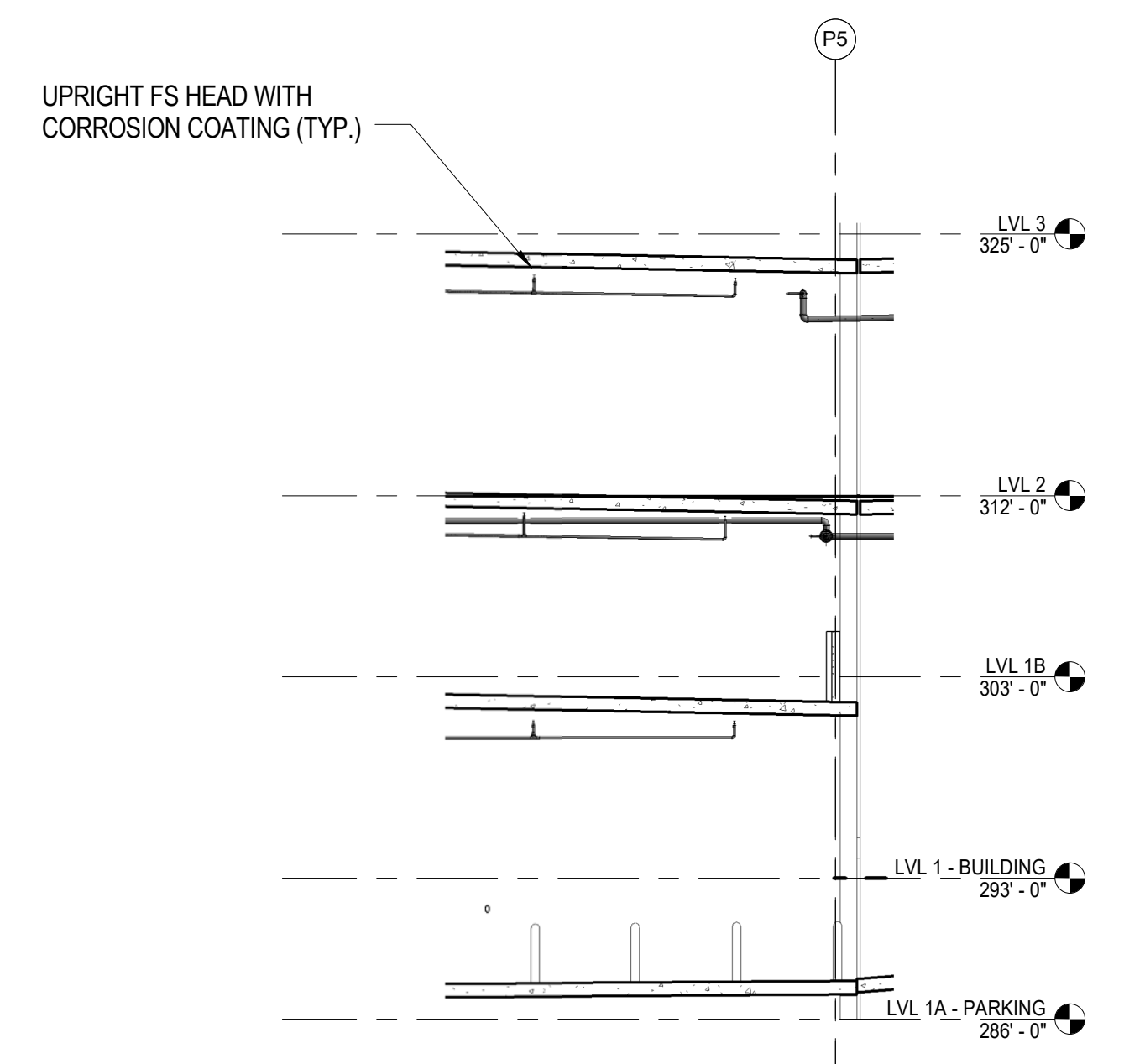
PROJECT:	2017-001	REVISIONS:	
DRAWN:	WSP		
DATE:	7/25/2019		
PHASE	SHEET		
<b>1B</b>	<b>F104</b>		
OF	SHEETS		



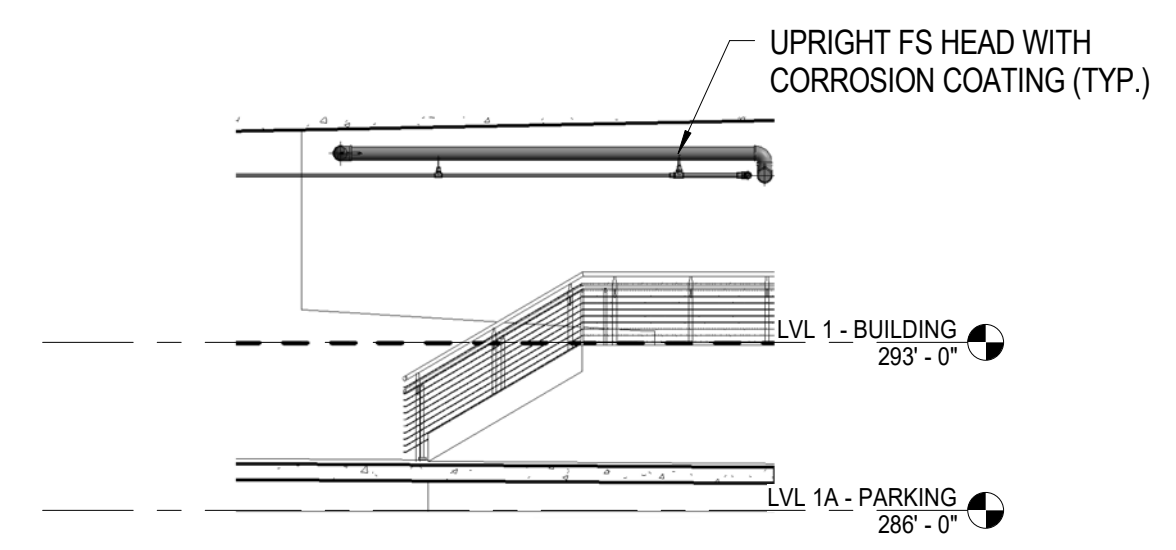
**1 LEVEL 1A FIRE SPRINKLER RISER**  
1/8" = 1'-0"



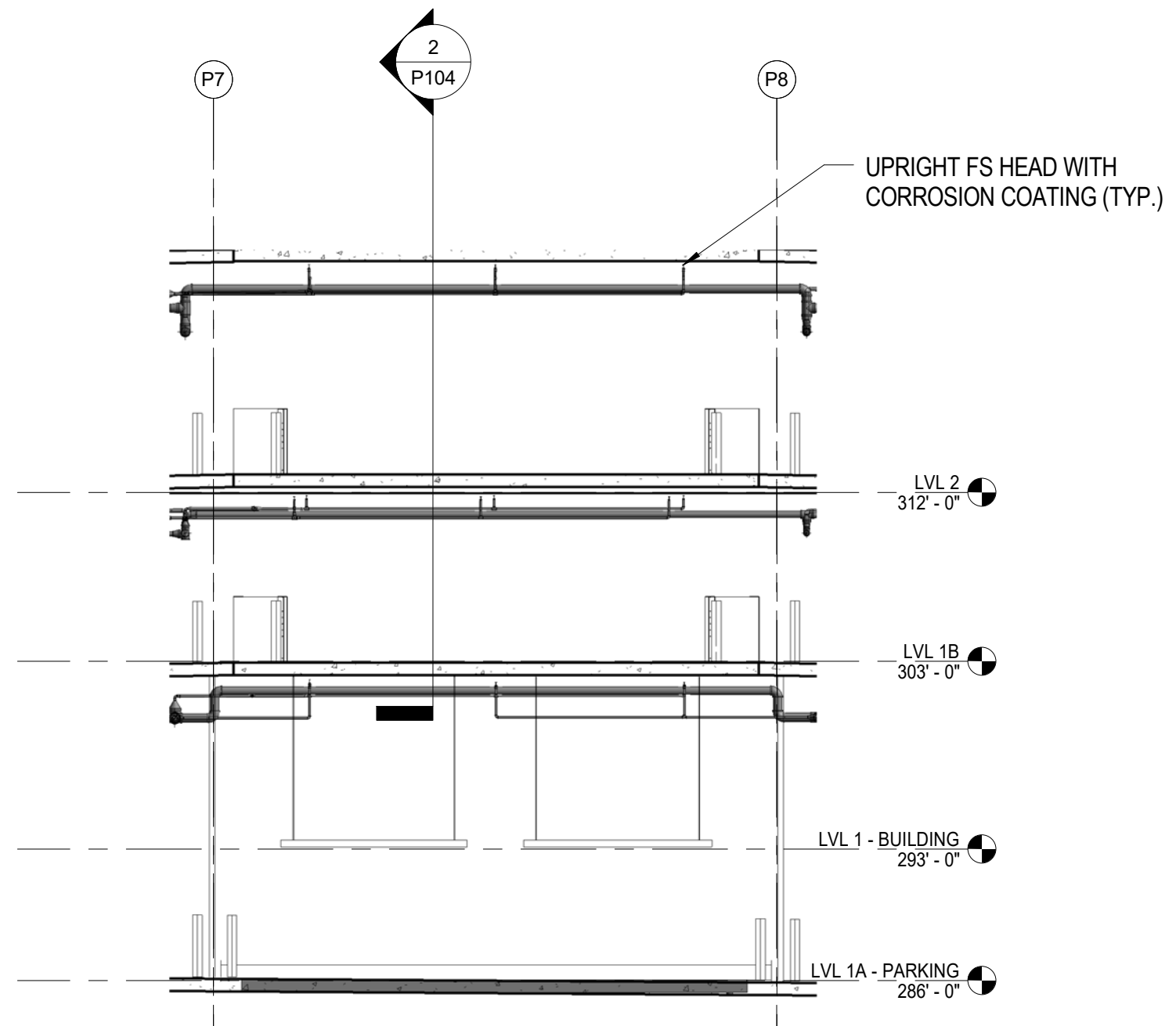
**5 PARKING ENTRANCE**  
1/8" = 1'-0"



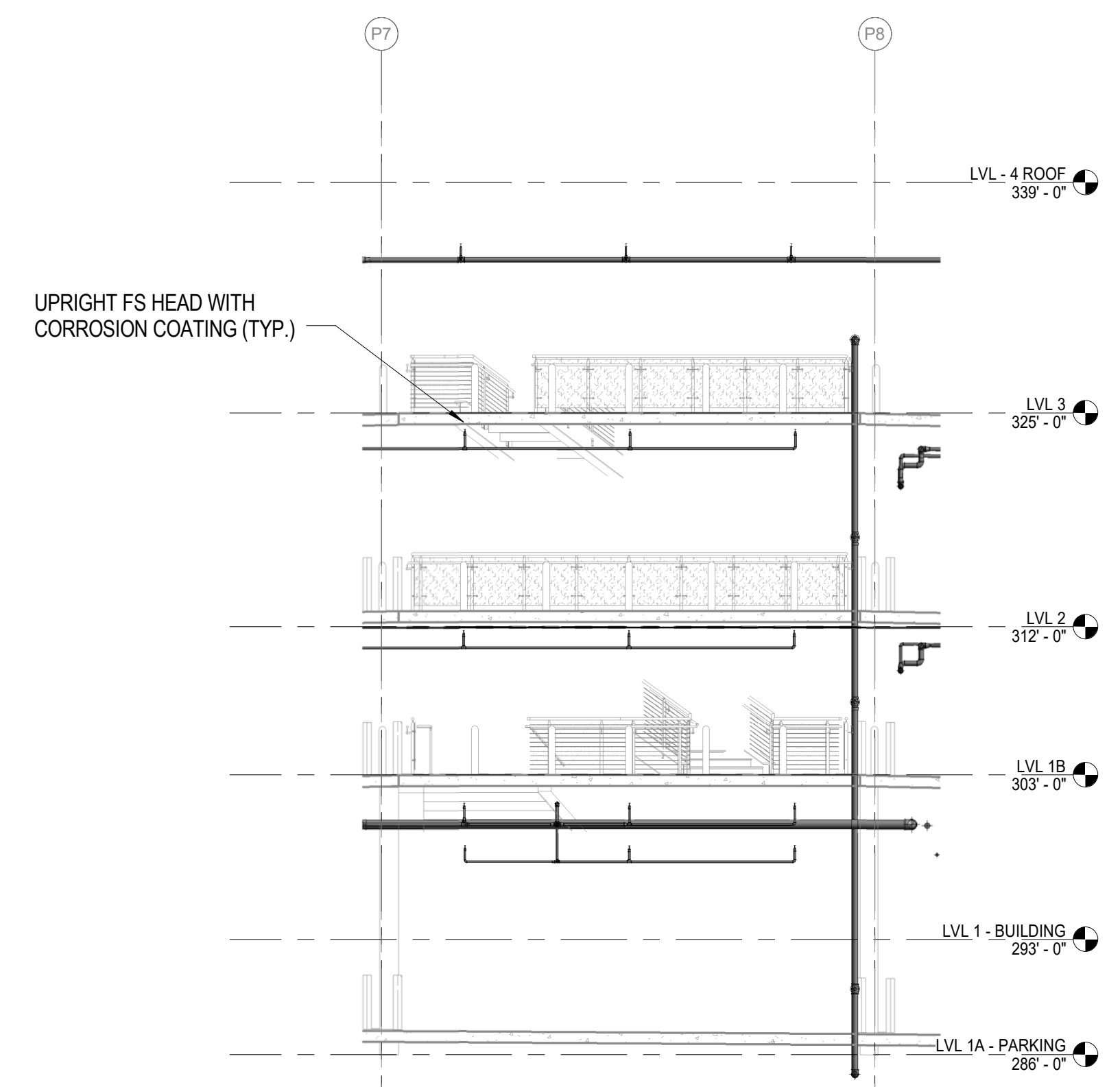
**6 SECTION AREA OF PARKING ENTRANCE**  
1/8" = 1'-0"



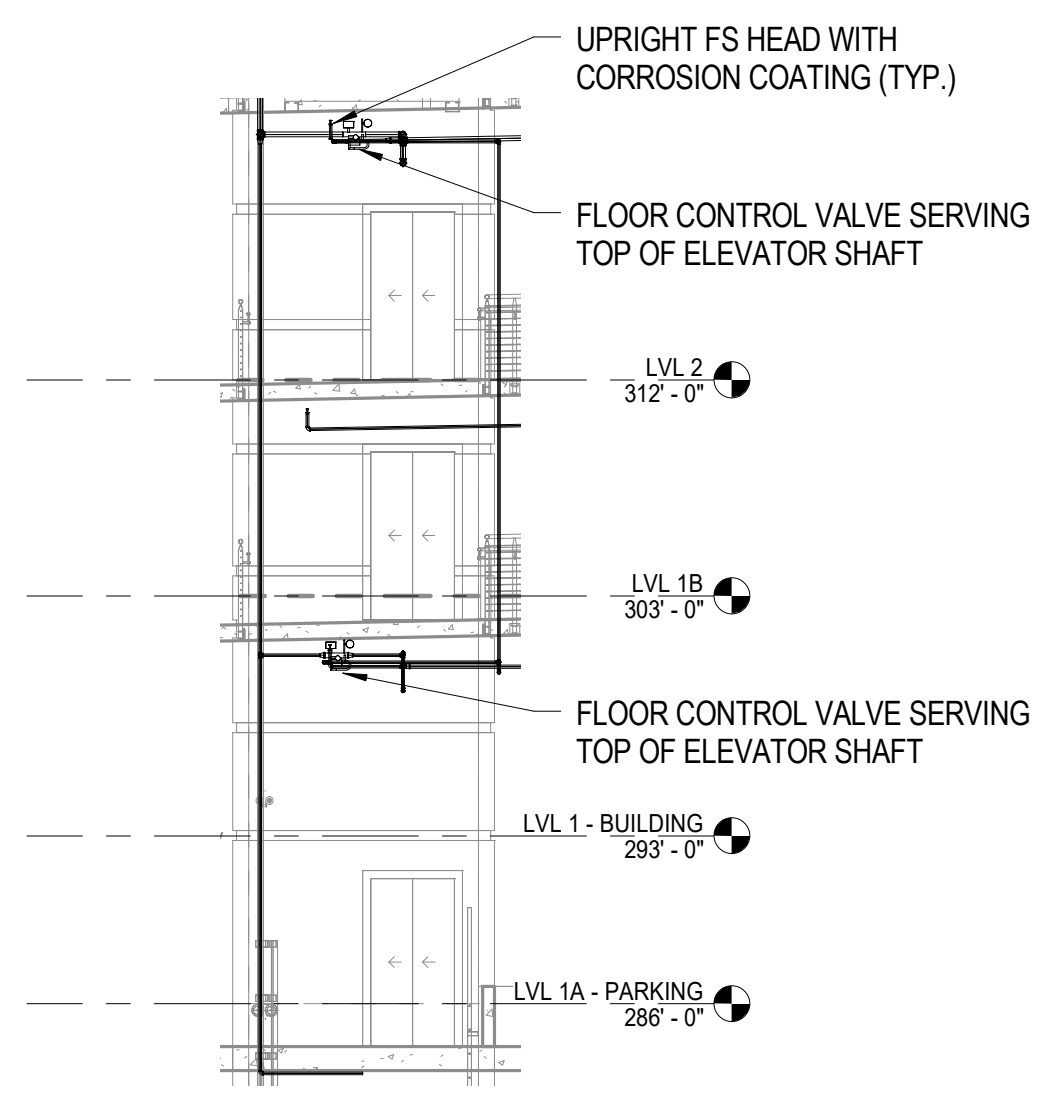
**2 AFS SUPPLY TO PHASE 2**  
1/8" = 1'-0"



**4 PARKING RAMP**  
1/8" = 1'-0"

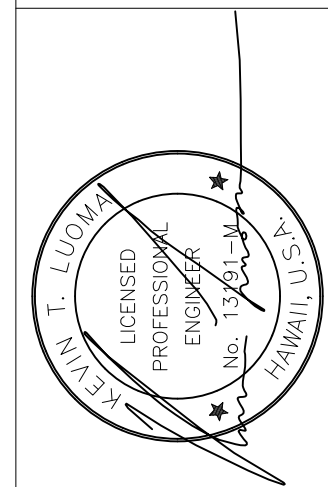


**7 GRAND STAIR**  
1/8" = 1'-0"



**3 FIRE CONTROL VALVE & TAMPER SWITCH**  
1/8" = 1'-0"





SEAL OF THE PROFESSIONAL ENGINEER  
 KEVIN T. LUCIANI  
 LICENSE NO. 13724-4  
 HAWAII, U.S.A.

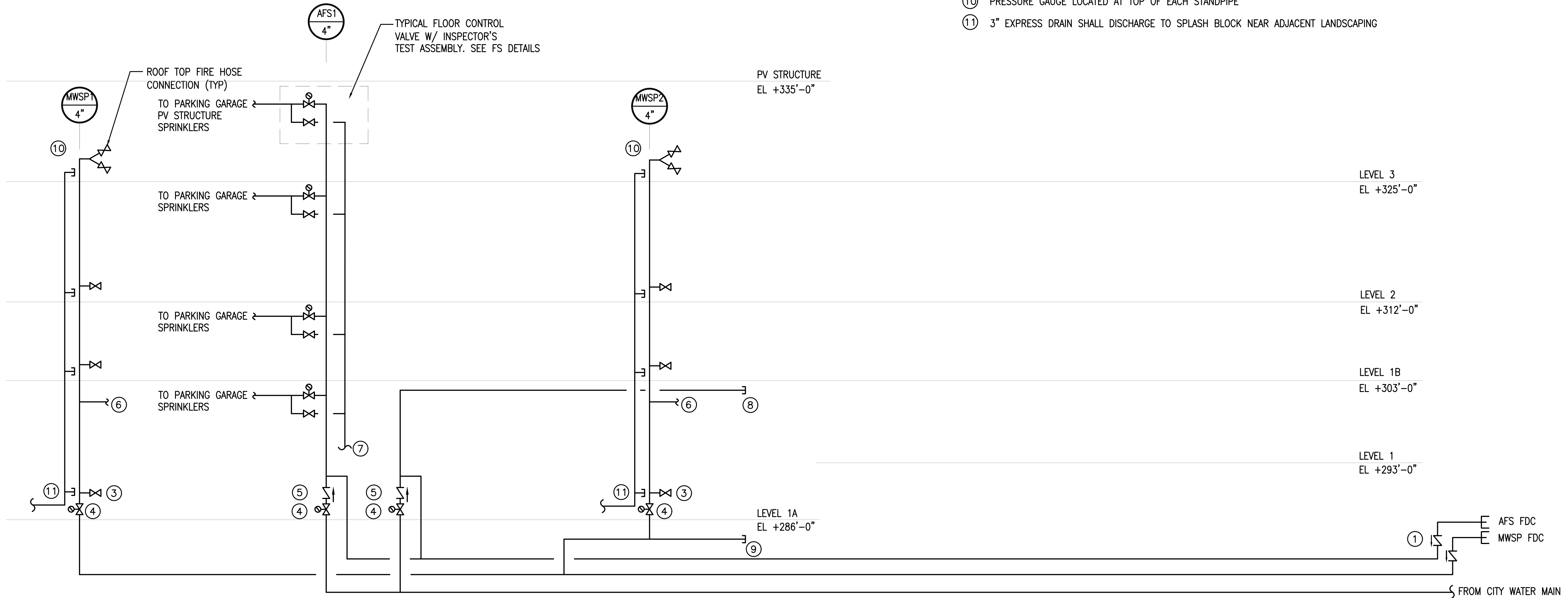
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 PUYBOU OUP YUVONOP

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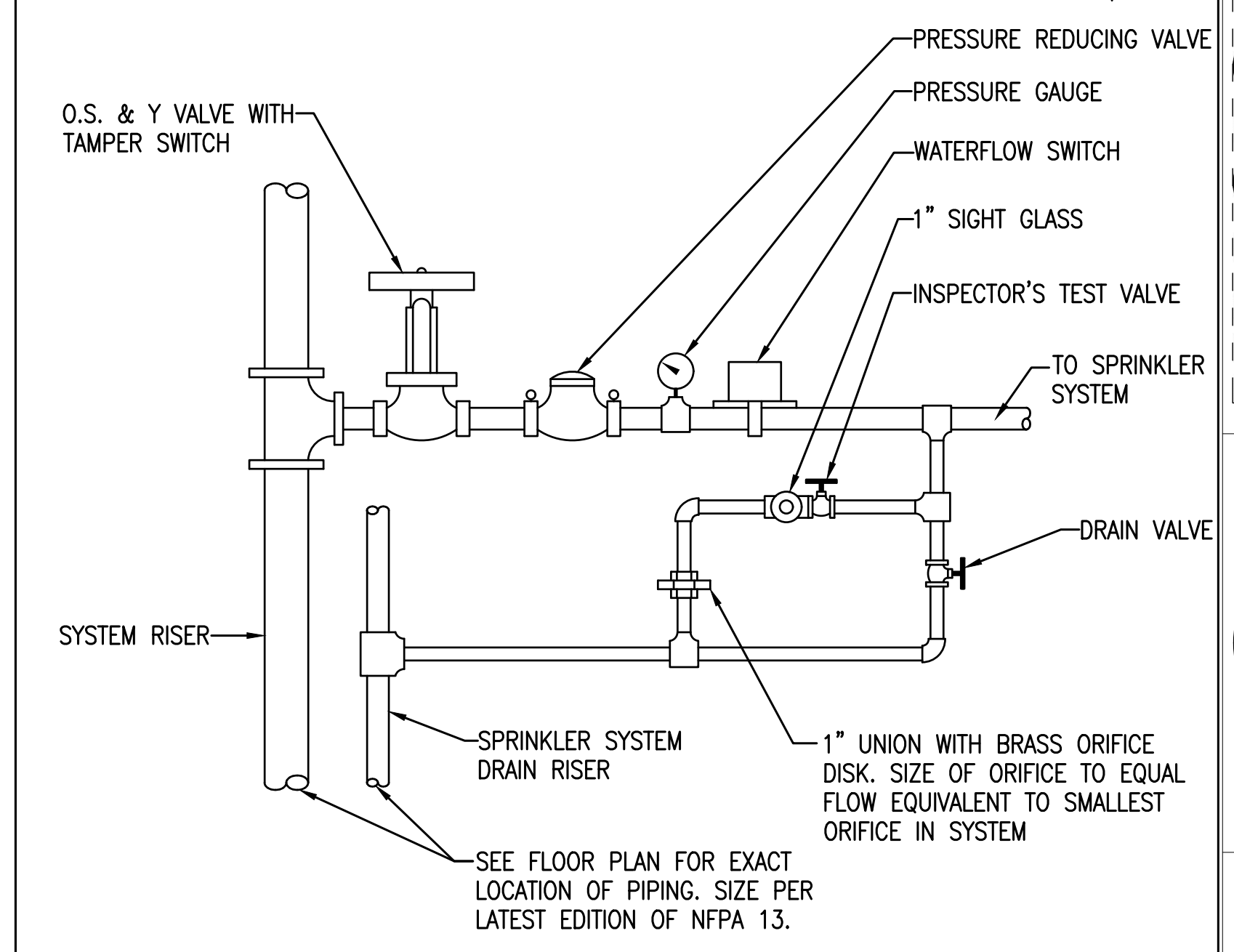
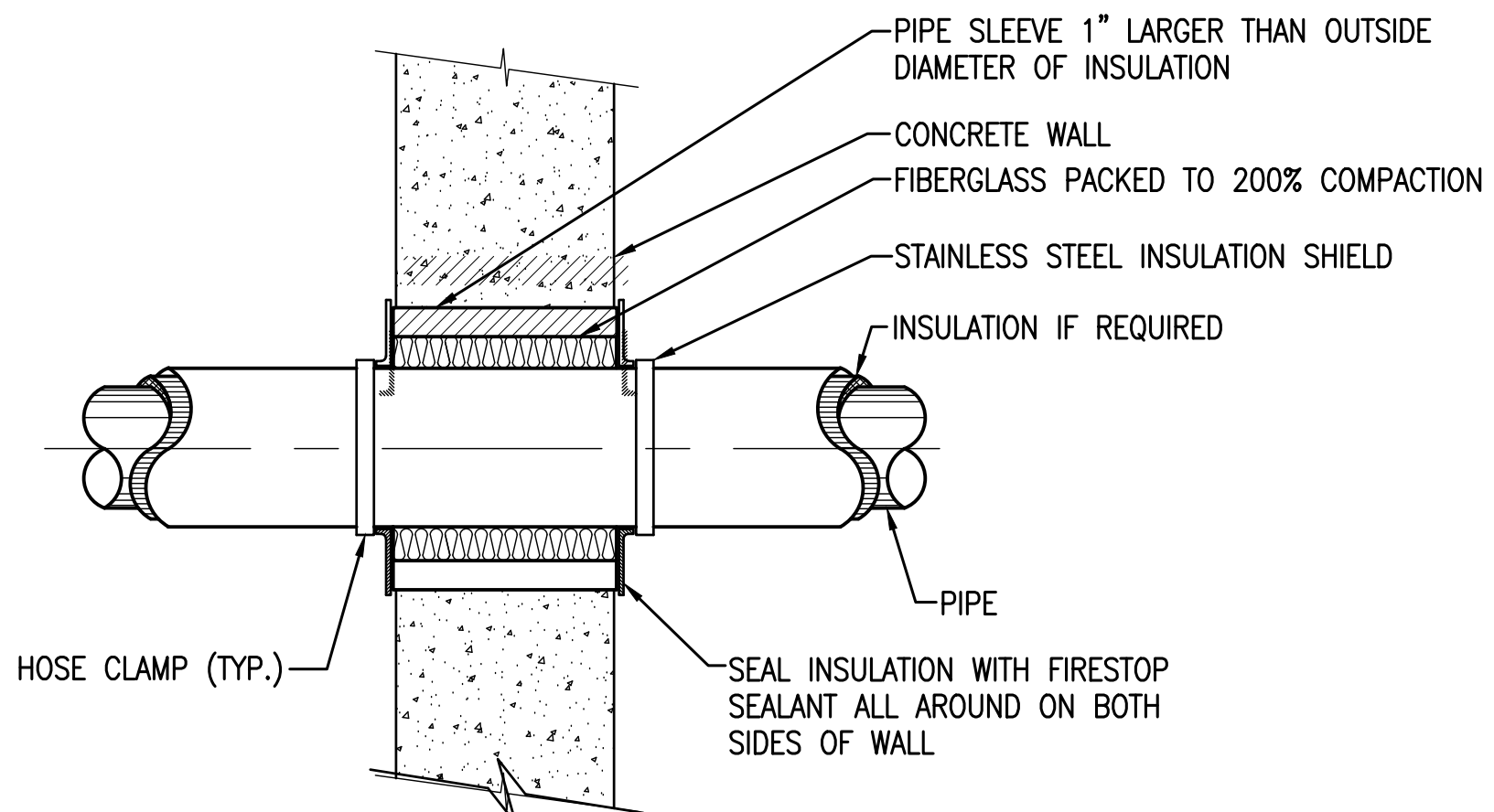
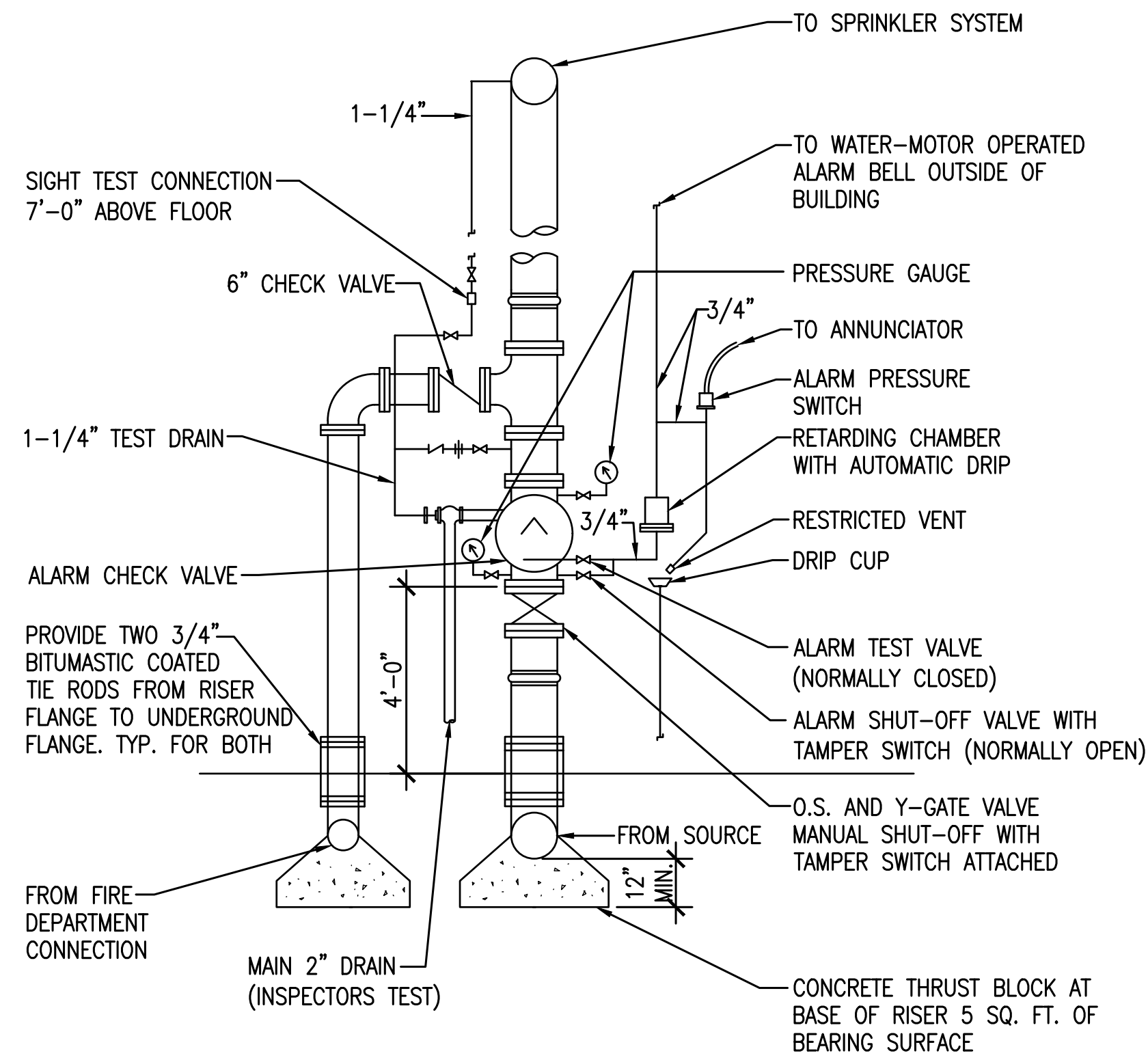
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FO	F200	UP DCU/UP
U/0		

**KEY NOTES:**

- ① FDC CHECK VALVE (TYP.)
- ② CONTROL VALVE WITH TAMPER SWITCH (TYP.)
- ③ 2 1/2" FIRE HOSE VALVE (TYP.), FIRE HOSE VALVE LOCATED AT THE BASE OF EACH STANDPIPE SHALL SERVE AS STANDPIPE DRAIN
- ④ CONTROL VALVE WITH TAMPER SWITCH
- ⑤ ALARM CHECK VALVE
- ⑥ DOMESTIC COLD WATER, POINT OF CONNECTION. PROVIDE WITH BACK WATER VALVE ON EACH MWSP.
- ⑦ AFS1 TEST DRAIN. SEE PLANS FOR TERMINATION.
- ⑧ 6" AFS PIPING CAPPED, MARKED FOR PHASE 2 CONTINUATION.
- ⑨ 6" MWSP CAPPED U/G, MARKED FOR PHASE 2 CONTINUATION
- ⑩ PRESSURE GAUGE LOCATED AT TOP OF EACH STANDPIPE
- ⑪ 3" EXPRESS DRAIN SHALL DISCHARGE TO SPLASH BLOCK NEAR ADJACENT LANDSCAPING



**PARKING STRUCTURE**

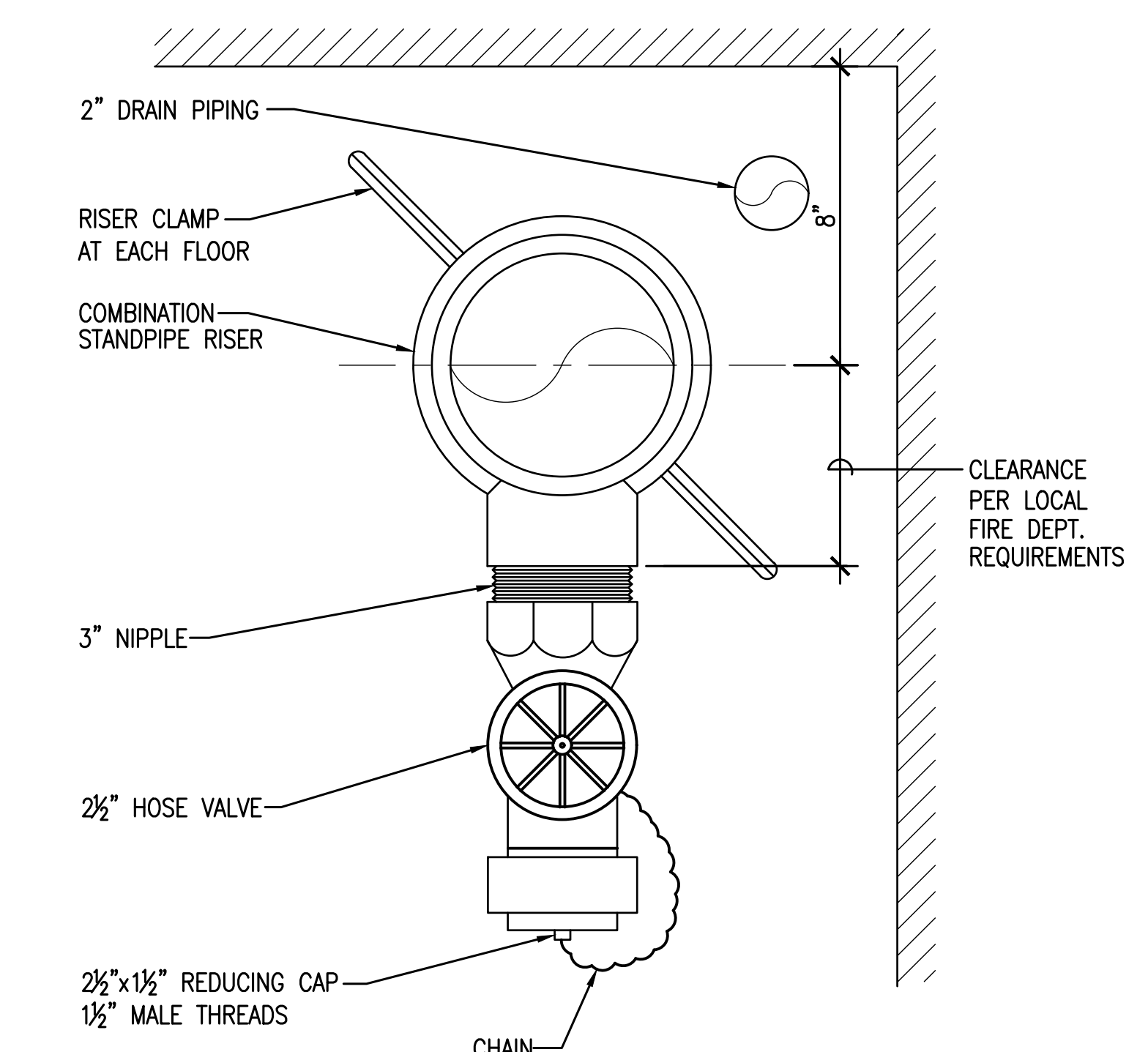
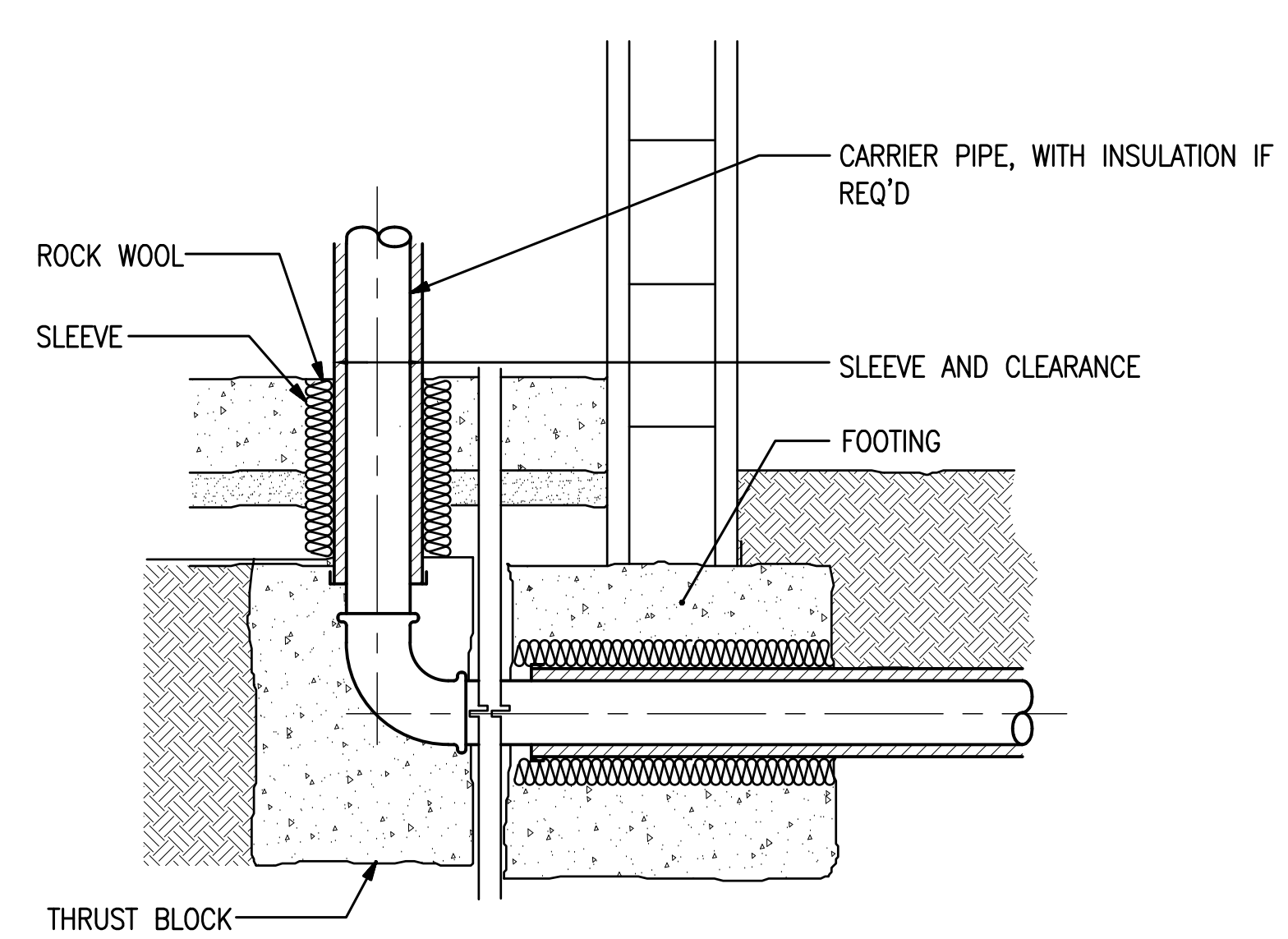


NOTE:  
1. PIPE INSULATION TO BE CENTERED IN SLEEVE. DO NOT SUPPORT PIPE FROM SLEEVE.

**5 FIRE SPRINKLER RISER DETAIL - SEPARATE FDC**  
NOT TO SCALE

**3 PIPE THRU CONCRETE WALL DETAIL**  
NOT TO SCALE

**1 FLOOR CONTROL VALVE**  
NOT TO SCALE



NOTE:  
1. REFER TO STRUCTURAL FOR THRUST BLOCK AND FOOTING PENETRATION DETAILS.

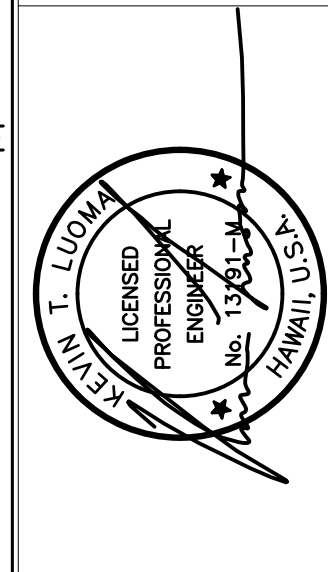
NOTE:  
1. MAINTAIN ALL CODE REQUIRED EXIT CLEARANCES IN STAIRWAYS AND EXIT CORRIDORS.

**4 U/G PIPE THROUGH SLAB AND FOOTING DETAIL**  
NOT TO SCALE

**2 FIRE HOSE END VALVE DETAIL**  
NOT TO SCALE

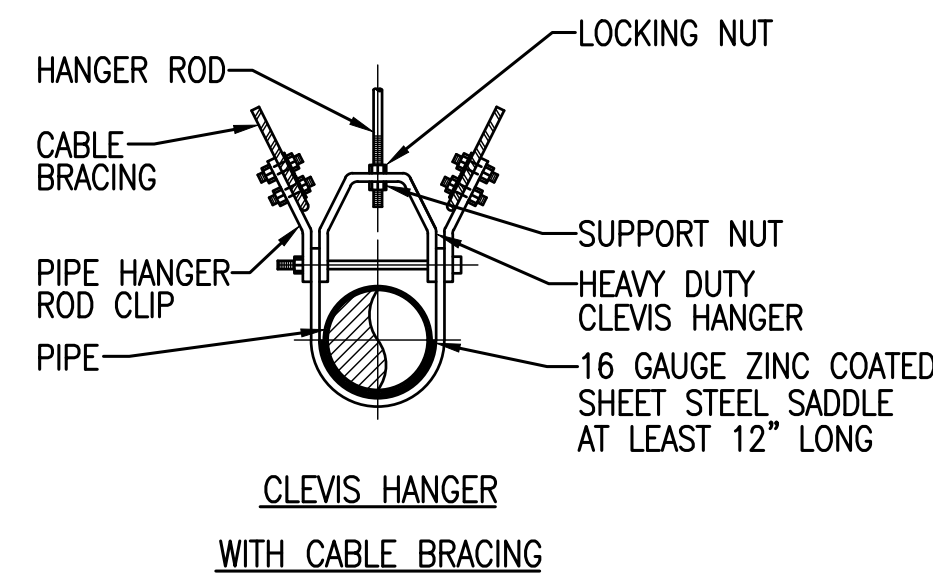
**wsp**  
WSP USA Buildings Inc.  
1001 Bishop Street Suite 2400  
Honolulu Hawaii 96813 USA  
Telephone 808 536 1737  
Facsimile 808 537 5829  
honolulu@wsp.com

**FERRARO CHOI**

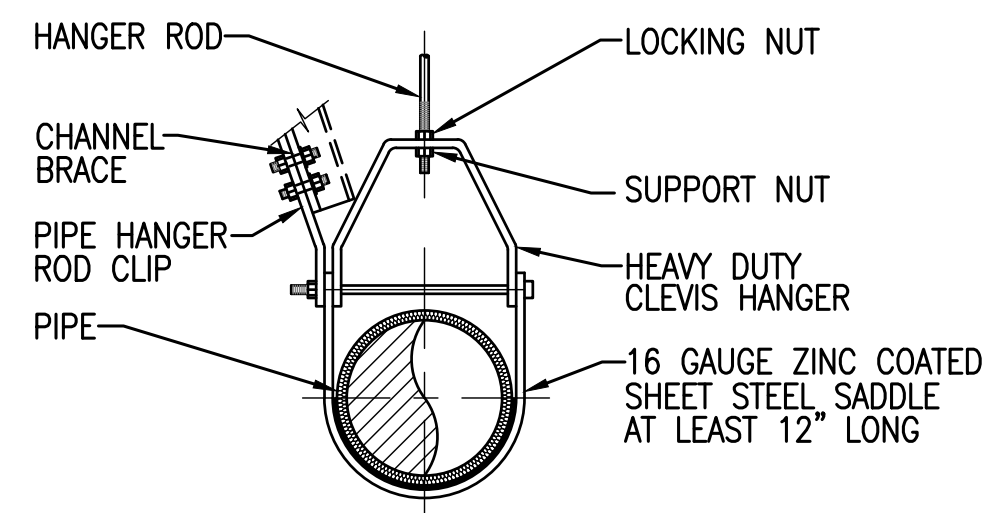


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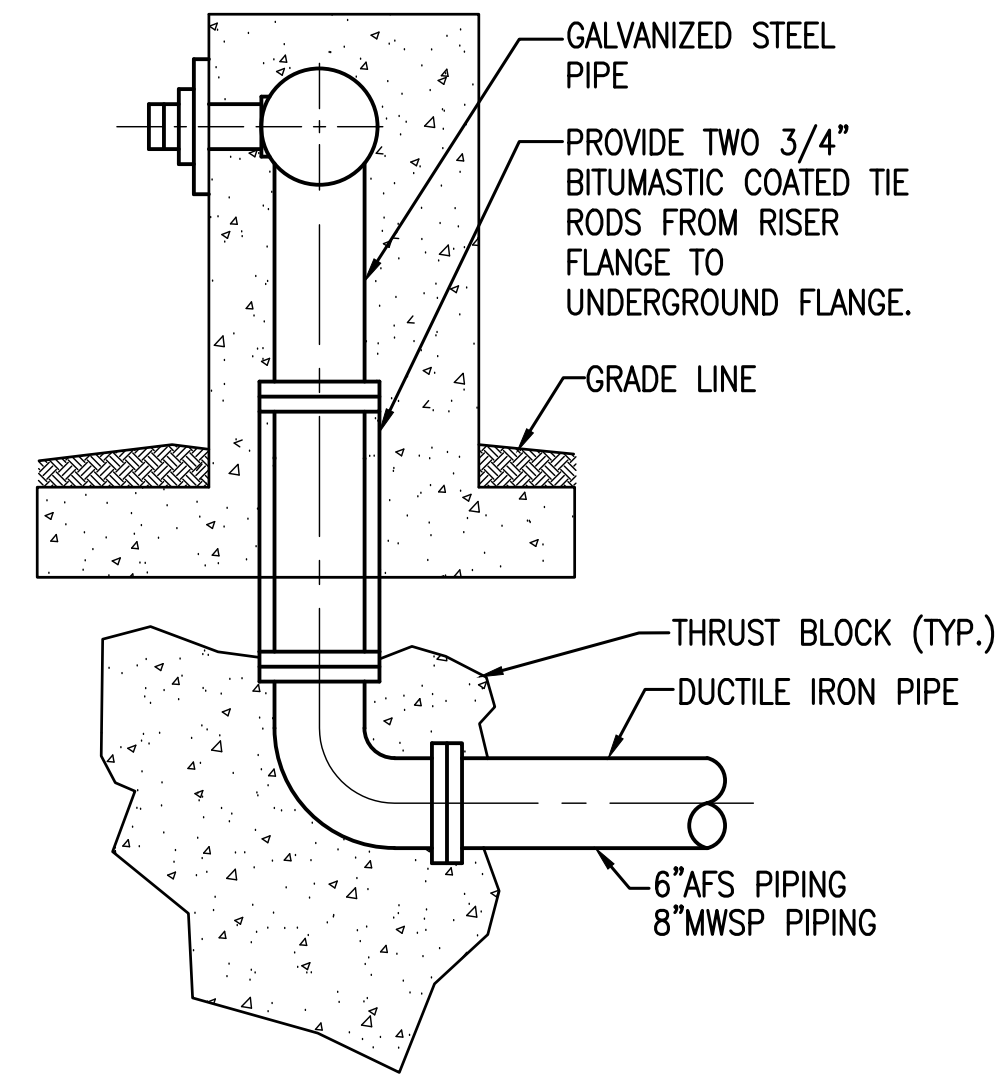


CLEVIS HANGER  
WITH CABLE BRACING

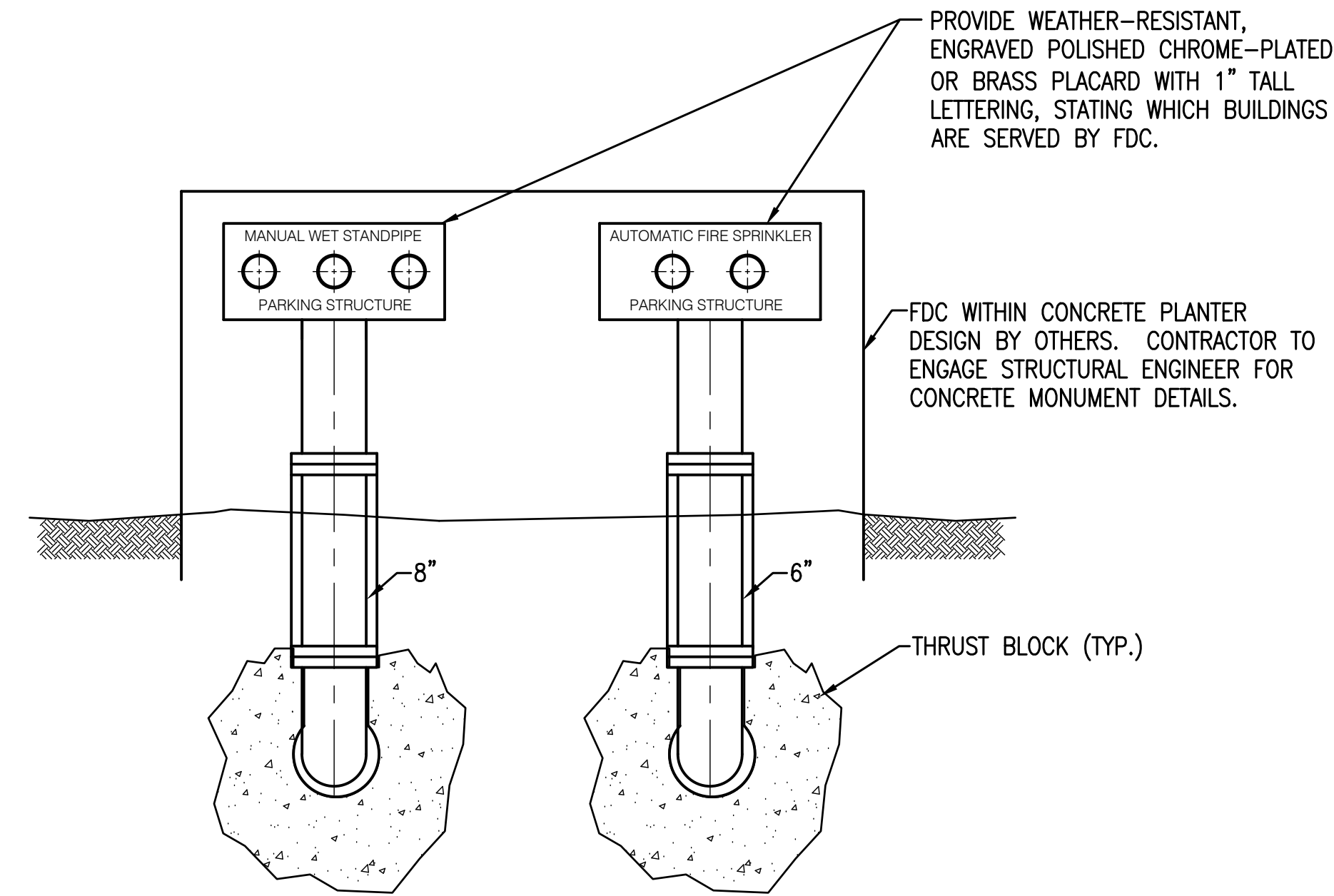


CLEVIS HANGER  
WITH CHANNEL BRACING

NOTE:  
1. PROVIDE SEISMIC BRACING WHERE REQUIRED.

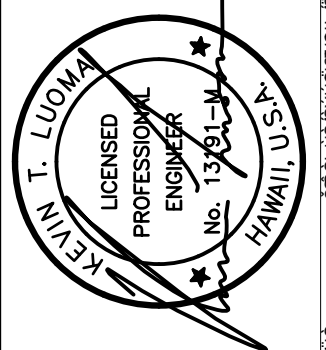


- NOTES:
1. PROVIDE FULL SWING CHECK VALVE IN FDC PIPE IF NONE IS PROVIDED AT CONNECTION TO FIRE SPRINKLER ALARM RISER OR IF FDC ONLY CONNECTS INTO THE A STANDPIPE SYSTEM.
  2. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED WITHIN 20' OF FIRE TRUCK ACCESS.
  3. IN MAUI COUNTY FDC SHALL BE LOCATED A MINIMUM OF 40' FROM BUILDING.
  4. THE FIRE DEPARTMENT CONNECTION SHALL BE LOCATED NO LESS THEN 18" AND NOT MORE THAN 4FT ABOVE ADJACENT GRADE OR ACCESS LEVEL.
  5. PROVIDE SIGNAGE AS REQUIRED BY AHJ. IN MAUI COUNTY WHEN SERVING MULTIPLE BUILDINGS A KEY PLAN WILL BE REQUIRED.



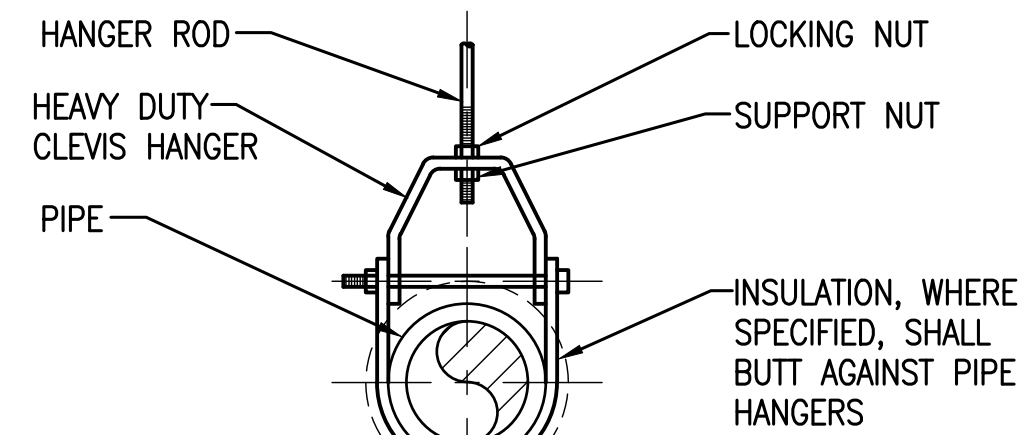
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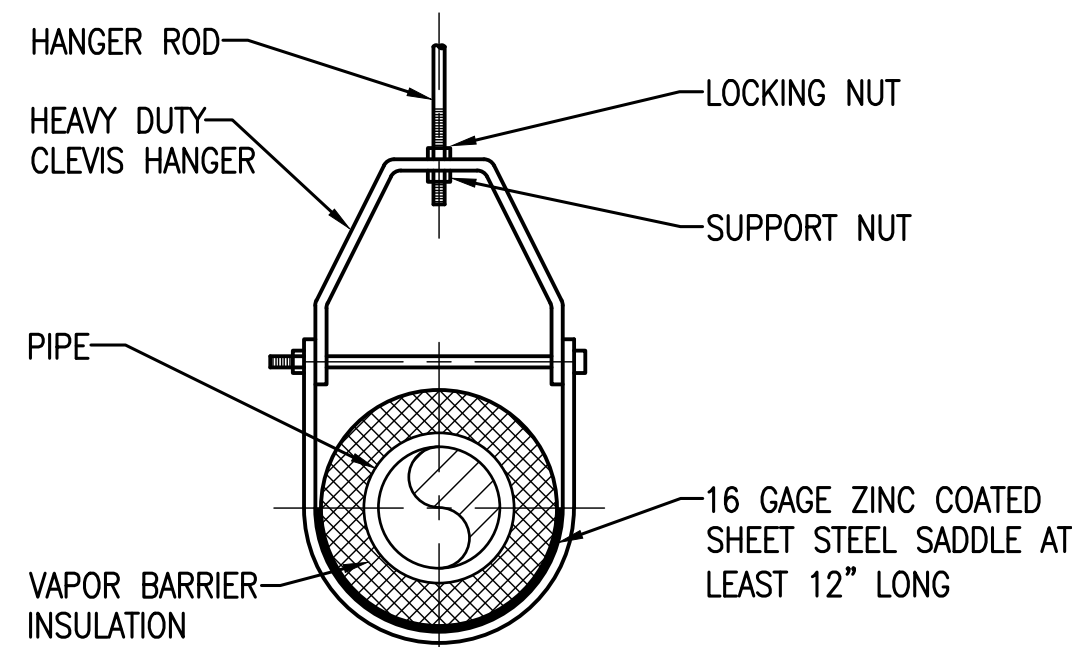


STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF PROFESSIONAL ENGINEERING  
KEVIN T. LUCIANI  
LICENSED PROFESSIONAL ENGINEER  
NO. 13761-H  
HAWAII, U.S.A.  
I hereby certify that the above-named individual is duly licensed as a Professional Engineer in the State of Hawaii, and is qualified to perform the duties of a Professional Engineer in accordance with the provisions of Chapter 100, Hawaii Revised Statutes.

**3 SEISMIC PIPING SUPPORTS**  
NOT TO SCALE



CLEVIS HANGER  
SINGLE HORIZONTAL RUNS, NO VAPOR BARRIER INSULATION



CLEVIS HANGER  
SINGLE HORIZONTAL RUNS, VAPOR BARRIER INSULATION

**4 CLEVIS PIPE SUPPORTS**  
NOT TO SCALE

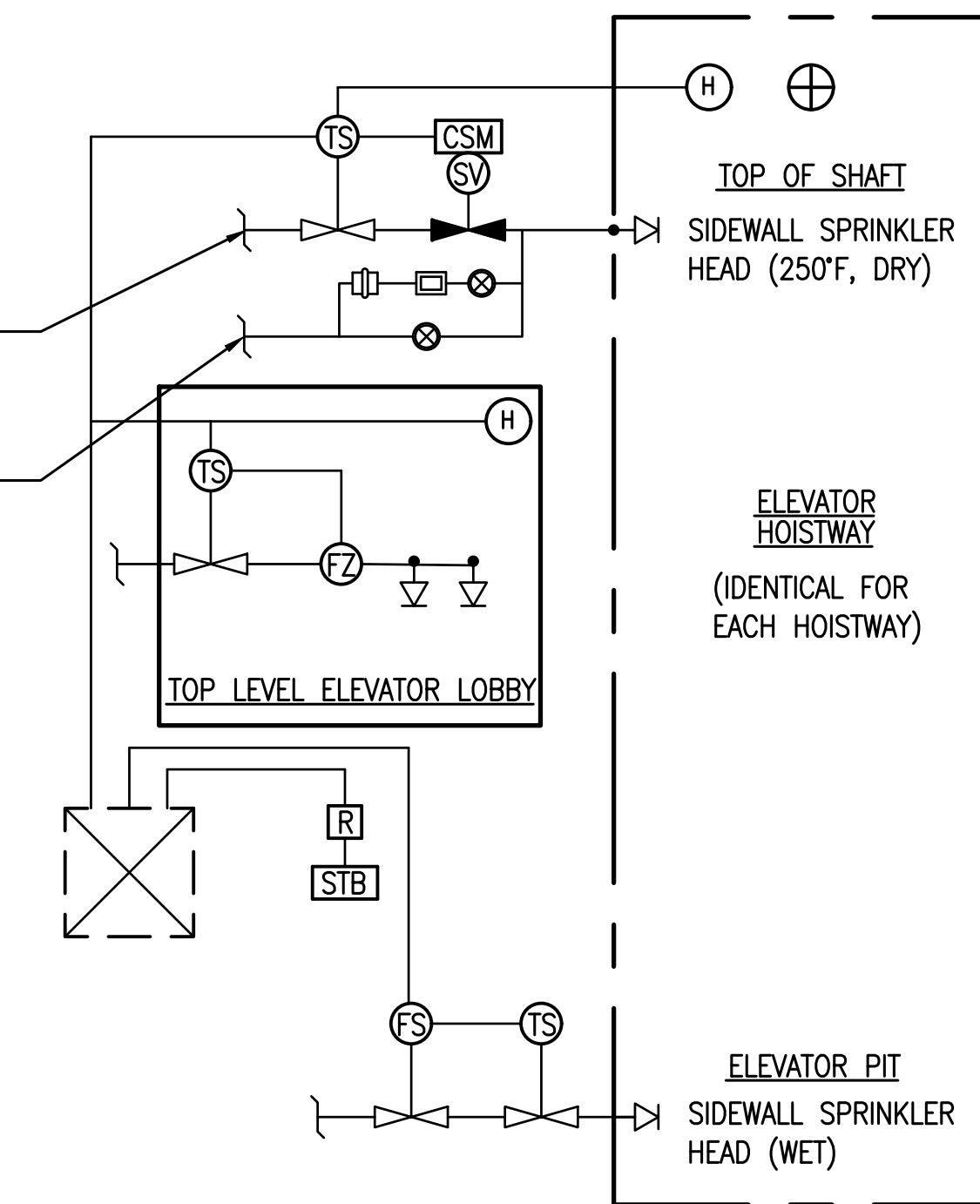
**1 FIRE DEPARTMENT CONNECTION DETAIL**  
NOT TO SCALE

FIRE SPRINKLER PIPING CONTINUATION (TYP. OF 2) (SEE FIRE SPRINKLER DRAWINGS)

FIRE SPRINKLER DRAIN PIPING CONTINUATION (TYP. OF 2) (SEE FIRE SPRINKLER DRAWINGS)

**ELEVATOR BANKS PREACTION CONTROL NOTES:**

1. SOLENOID FLOW CONTROL VALVE FOR PROTECTION OF ELEVATOR MACHINE ROOM/CLOSET. ACTIVATED FROM HEAT DETECTION IN THE MACHINE ROOM/CLOSET. PRIOR TO RELEASING SOLENOID VALVE POWER SHALL BE DISCONNECTED TO ELEVATOR.
2. SOLENOID FLOW CONTROL VALVE FOR PROTECTION OF ELEVATOR SHAFT. ACTIVATED FROM HEAT DETECTION IN THE SHAFT. PRIOR TO RELEASING SOLENOID VALVE, POWER SHALL BE DISCONNECTED TO ELEVATOR.
3. SHAFT SMOKE DETECTOR ACTIVATION SHALL INITIATE ELEVATOR RECALL.
4. TAMPER SWITCH FOR VALVE SUPERVISION ON PIPING TO ELEVATOR MACHINE ROOM AND TOP OF ELEVATOR SHAFT.
5. PROVIDE SIGNAL BOOSTERS AS REQUIRED FOR LONG WIRING RUNS. COORDINATE WITH ELECTRICAL CONTRACTOR.
6. ALL MODELS AND MANUFACTURERS SHOWN ARE BASIS OF DESIGN, APPROVED EQUALS ARE ACCEPTABLE.
7. SIDEWALL SPRAY SPRINKLERS SHALL BE INSTALLED AT THE BOTTOM OF EACH ELEVATOR SHAFT NOT MORE THAN 2 FEET ABOVE PIT FLOOR.



LEGEND	
(H)	HEAT DETECTOR, 200°F RATE OF RISE; SIMPLEX: 2098-9211 BASE W/ 4098-9410 HEAD
(CSM)	COIL SUPERVISION MODULE; SIMPLEX: 2081-9032
(R)	INTERFACE RELAY; SIMPLEX: 2088-9008
(SV)	AUTOMATIC SPRINKLER SOLENOID VALVE (24VDC); WITH SIMPLEX 2080-9029 DISCONNECT. COMPATIBLE FM APPROVED CONTROL SOLENOID VALVE: 1. ASCO CAT. No. 8210A107, R8210A107, OR T8210A107 24VDC COIL, 700 mA. 2. SKINNER CAT. No. LV2LBX25 24VDC COIL, 460 mA.
(WF)	AUTOMATIC WATER FLOW SWITCH
(FS)	FLOW SWITCH
(TS)	VALVE SUPERVISORY TAMPER SWITCH;
(STB)	SHUNT-TRIP BREAKER (ELEVATOR POWER); (SEE FIRE ALARM & ELECTRICAL)
(X)	OPEN SPRINKLER VALVE;
(X)	CLOSED SPRINKLER VALVE;
(FACP)	FIRE ALARM CONTROL PANEL (SEE FIRE ALARM & ELECTRICAL)
(H)	FIRE ALARM SMOKE DETECTOR (SEE FIRE ALARM & ELECTRICAL)
(—)	WIRING PER MANUFACTURER'S RECOMMENDATIONS

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**2 FIRE SPRINKLER ELEVATOR PRE-ACTION DETAIL**  
NOT TO SCALE

# ELECTRICAL LEGEND

NEW	DESCRIPTION
	LINEAR LED LUMINAIRE
	CEILING MOUNTED LUMINAIRE
	DUAL HEAD SPOTLIGHT LUMINAIRE
	POLE WITH ARM MOUNTED LUMINAIRE
	WALL MOUNTED EXIT SIGN. DARKENED SEGMENT INDICATES ILLUMINATED SIDE. ARROWS INDICATE DIRECTIONAL ARROWS
	CEILING MOUNTED EXIT SIGN. DARKENED SEGMENT INDICATES ILLUMINATED SIDE. ARROWS INDICATE DIRECTIONAL ARROWS
	WALL MOUNTED COMBINATION EXIT SIGN AND EMERGENCY LIGHT
18L-1.0	SUBSCRIPT ADJACENT TO LUMINAIRE INDICATES PANEL, CIRCUIT NUMBER AND SWITCH IDENTIFICATION, NL=NIGHT LIGHT, CL=CURFEW LIGHT
	LUMINAIRE TYPE IDENTIFIER, TYPE "A" INDICATED
	TOGGLE SWITCH SINGLE POLE, +48" MAX TO TOP OF DEVICE UNLESS OTHERWISE NOTED
	TOGGLE SWITCH SINGLE POLE, +48" MAX TO TOP OF DEVICE UNLESS OTHERWISE NOTED. SUBSCRIPT CORRESPONDS WITH CONTROLLED LUMINAIRES OR DEVICES
	TOGGLE SWITCH 3-WAY, +48" MAX TO TOP OF DEVICE UNLESS OTHERWISE NOTED. SUBSCRIPT CORRESPONDS WITH CONTROLLED LUMINAIRES OR DEVICES
	WALL MOUNTED OCCUPANCY SENSOR, +48" MAX TO TOP OF DEVICE UNLESS OTHERWISE NOTED
	CEILING MOUNTED OCCUPANCY SENSOR, OMNI DIRECTIONAL TYPE
	DUPLEX RECEPTACLE, +18" UNLESS OTHERWISE NOTED
	DUPLEX RECEPTACLE, GFCI TYPE, +18" UNLESS OTHERWISE NOTED
	DUPLEX RECEPTACLE, GFCI TYPE, WITH WEATHERPROOF COVER +18" UNLESS OTHERWISE NOTED
	FLOOR MOUNTED POWER OUTLET
	FLOOR MOUNTED OR CEILING MOUNTED POWER/TELEDATA OUTLET
	EQUIPMENT CONNECTION
	FLOOR OR CEILING MOUNTED JUNCTION BOX, 4-11/16" SQUARE
	WALL MOUNTED JUNCTION BOX, 4-11/16" SQUARE
	TELEDATA OUTLET PROVISION, +18" UNLESS OTHERWISE NOTED
	PANELBOARD
	TELEVISION/TELEPHONE BACKBOARD, 3/4" THICK PLYWOOD, SIZE AS NOTED
	DISCONNECT SWITCH, SIZE AND RATING AS NOTED
	MOTOR CONTROLLER, FURNISHED BY MECHANICAL, INSTALL BY ELECTRICAL CONTRACTOR
	RACEWAY AND CONDUCTORS BELOW FLOOR OR GRADE
	CONDUIT STUB OUT
	FLEX CONNECTION
	FIRE ALARM MANUAL PULL STATION, +48"
	COMBINATION AUDIBLE(SPEAKER)/VISIBLE NOTIFICATION APPLIANCE, CEILING MOUNTED
	COMBINATION AUDIBLE(SPEAKER)/VISIBLE NOTIFICATION APPLIANCE, WALL MOUNTED +80" TO BOTTOM OF LENS
	SMOKE DETECTOR, ADDRESSABLE, PHOTOELECTRIC
	HEAT DETECTOR, FIXED TEMPERATURE
	FIRE ALARM CONTROL PANEL, +72" TO TOP OF CABINET
18L-23	PANEL AND CIRCUIT DESIGNATION
	SHEET NOTE, SEE SAME SHEET
	REVISION DELTA

# ELECTRICAL NOTES

### PART 1 - GENERAL

- REFER TO COMPLETE CONTRACT DOCUMENTS FOR OTHER DETAILS AND REQUIREMENTS.
- CONFORM TO THE BUILDING, FIRE, AND ELECTRICAL CODES OF THE COUNTY OF HAWAII, LAWS AND REGULATIONS OF THE COUNTY OF MAUI AND STATE OF HAWAII.
- OBTAIN AND PAY FOR REQUIRED PERMITS, LICENSES, FEES, AND OTHER CHARGES. DELIVER CERTIFICATES OF COMPLETION AND INSPECTION TO THE OWNER. SUBCONTRACTORS SHALL BE LICENSED FOR THE WORK THEY PERFORM.
- PROVIDE 4 COPIES OF DATA ON LUMINAIRES, ELECTRICAL EQUIPMENT, AND WIRING DEVICES THAT HAVE BEEN CHECKED BY THE CONTRACTOR FOR ARCHITECT'S REVIEW AND APPROVAL. ALLOW TEN WORKING DAYS FOR REVIEW PROCESS. (IF SUBSTITUTE PRODUCTS ARE PROPOSED FOR USE, THE BIDDER SHALL, PRIOR TO BID OPENING, SUBMIT 4 COPIES OF SHOP DRAWINGS OR CATALOG CUTS FOR APPROVAL. SUBSTITUTIONS AFTER RECEIPT OF APPROVED SUBMITTALS SHALL NOT BE PERMITTED UNLESS APPROVED IN WRITING BY THE ARCHITECT.)
- FIRE ALARM, TELECOMMUNICATIONS, CABLE TELEVISION, AND FURNITURE SYSTEMS SHOP DRAWINGS (OBTAIN DRAWINGS FROM OWNER CONTRACTED VENDORS) ARE A PART OF THE CONTRACT DOCUMENTS.
- MAINTAIN A SET OF CONTRACT DRAWINGS AT THE JOB SITE MARKING THEM TO SHOW VARIATIONS BETWEEN CONSTRUCTION ACTUALLY PROVIDED AND THAT INDICATED ON CONTRACT DOCUMENTS. PRIOR TO FINAL INSPECTION, TRANSFER THESE DATA AND SUBMIT 1 SET OF CLEAN RECORD DRAWINGS TO THE ARCHITECT.
- EXISTING CONDITIONS ARE SHOWN IN AN APPROXIMATE WAY AND HAVE NOT BEEN VERIFIED BY THE ENGINEER OR HIS REPRESENTATIVE. VISIT THE JOB SITE AND BECOME AWARE OF EXISTING CONDITIONS. CONTRACTOR SHALL DETERMINE THE EXACT CONDITION OF EXISTING WIRING BEFORE COMMENCING WORK, AND SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE CONDITIONS.
- THE ELECTRICAL INSTALLATION SHALL BE GUARANTEED FOR ONE YEAR AFTER ACCEPTANCE BY THE OWNER. WHEN NOTIFIED BY THE OWNER OF FAILURE OF ANY PART OF THE INSTALLATION DURING THE GUARANTEE PERIOD, THE CONTRACTOR SHALL REPAIR OR REPLACE THE DEFECTIVE PART AT HIS OWN EXPENSE TO THE SATISFACTION OF THE OWNER.
- PROVIDE ALL COMPONENTS REQUIRED FOR A COMPLETE AND OPERABLE INSTALLATION.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY ON THE JOBSITE.
- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT FOR TEMPORARY CONSTRUCTION POWER AS REQUIRED.

### PART 3 - EXECUTION

- DRAWINGS ARE OF SMALL SCALE AND ARE SCHEMATIC. LOCATIONS OF EQUIPMENT AND SYSTEM ELEMENTS ARE APPROXIMATE. RELOCATE ANY DEVICE WITHIN 10 FEET PRIOR TO INSTALLATION, WITHOUT ADDITIONAL COST, AT THE DIRECTION OF THE OWNER.
- CONSULT THE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR DETAILS NOT SHOWN ON THE ELECTRICAL DRAWINGS. ANY CONFLICTS IN LOCATING EQUIPMENT SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION FOR RESOLUTION. IF DIRECTED BY THE ARCHITECT, THE CONTRACTOR SHALL MAKE REASONABLE MODIFICATION TO THE LAYOUT OF EQUIPMENT TO PREVENT CONFLICT WITH OTHER TRADES OR FOR THE PROPER EXECUTION OF THE WORK AT NO EXTRA COST.
- INSTALLATION AND WORKMANSHIP:
  - INSTALLATION SHALL CONFORM TO SEISMIC DESIGN REQUIREMENTS OF CHAPTER 16 OF THE 2006 INTERNATIONAL BUILDING CODE. PROVIDE SEISMIC BRACING FOR WALL MOUNTED ENCLOSURES, LUMINAIRES, AND OTHER ELECTRICAL EQUIPMENT.
  - COORDINATE OUTAGES ON ELECTRICAL SYSTEM IN WRITING WITH BUILDING MANAGEMENT 14 DAYS BEFORE DESIRED OUTAGE DATE. OUTAGES SHALL BE KEPT TO A MINIMUM IN DURATION AND QUANTITY. OUTAGES WILL BE GRANTED AT THE SOLE CONVENIENCE OF BUILDING MANAGEMENT.
  - WORK SHALL BE NEATLY EXECUTED, WORKMANLIKE IN APPEARANCE, SYMMETRICAL, PLUMB, UNIFORM, PROPERLY ALIGNED AND SECURED IN PLACE.
  - LAY OUT WORK IN ADVANCE. EXERCISE CARE WHERE CUTTING, CHANNELING, CHASING OR DRILLING FLOORS, WALLS, PARTITIONS, CEILINGS, OR OTHER SURFACES. FLOOR PENETRATIONS SHALL BE ACCOMPLISHED BY A LICENSED CORING CONTRACTOR. CONCRETE FLOOR SLABS SHALL BE X-RAYED BEFORE ANY CORING. REPAIR DAMAGE TO BUILDINGS, PIPING, AND EQUIPMENT USING SKILLED CRAFTSMEN OF TRADES INVOLVED. CUTTING, REPAIRS AND REFINISHING SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT.
  - FASTEN TO CONCRETE WITH EXPANSION BOLTS OR CONCRETE INSERTS; TO WOOD WITH WOOD SCREWS; AND TO LIGHT STEEL CONSTRUCTION WITH SHEET METAL SCREWS.
  - VERIFY LOCATIONS OF FLOOR PENETRATIONS, IF ANY REQUIRED, AND OUTLET LOCATIONS IN RELATION TO STRUCTURAL AND OTHER ELEMENTS. NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH ANY WORK.
  - REPAIR, PATCH, AND PAINT EXISTING CEILINGS AND WALLS AFFECTED BY ELECTRICAL WORK NOT COVERED BY GENERAL CONTRACTOR.
- WIRING METHOD:
  - USE ELECTRICAL METALLIC TUBING IN CONCEALED LOCATIONS AND SURFACE METAL RACEWAY IN EXPOSED LOCATIONS AS INSTRUCTED BY THE ARCHITECT. INSTALL RACEWAY PARALLEL WITH OR AT RIGHT ANGLES TO CEILINGS, WALLS, AND STRUCTURAL MEMBERS.
  - PROVIDE FLEXIBLE CONNECTION FOR EQUIPMENT SUBJECT TO VIBRATION AND LUMINAIRES MOUNTED ON ACCESSIBLE CEILING PANELS OR GRID.
  - FIRE ALARM WIRING WILL BE IN CONDUIT SYSTEM. JUNCTION BOXES SHALL BE SPRAYED RED AND LABELED "FIRE ALARM".
  - CONDUCTORS FOR 20 AMPERE BRANCH CIRCUITS OF 120 VOLTS MORE THAN 100 FEET LONG FROM PANEL TO CENTER OF LOAD SHALL NOT BE SMALLER THAN NO. 10.
  - MULTI-WIRE BRANCH CIRCUITS: COMBINE UP TO THREE (3) 20A, 1 POLE BRANCH CIRCUITS IN A SINGLE CONDUIT HOMERUN. SHARED NEUTRALS ARE NOT ALLOWED.
  - TELEPHONE AND DATA RACEWAY INSTALLATION SHALL BE IN ACCORDANCE WITH EIA/TIA 569.
  - BONDING. ALL METAL COMPONENTS SHALL BE BONDED TO PROVIDE A CONTINUOUS CONDUCTING PATH BACK TO THE SERVICE GROUND OR DERIVED SYSTEM GROUND.

- A GREEN EQUIPMENT GROUND CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN WITH THE CONDUCTORS FOR EACH FEEDER AND BRANCH CIRCUIT. CONDUIT ALONE AS EQUIPMENT GROUND CONDUCTOR IS NOT ACCEPTABLE.
- PROVIDE AND INSTALL ALL JUNCTION BOXES AND PULL BOXES REQUIRED FOR INSTALLATION OF ELECTRICAL DEVICES AND EQUIPMENT, WHETHER OR NOT SPECIFICALLY INDICATED ON THE PLANS. SIZING OF BOXES SHALL BE PER NEC.
- LABEL ALL JUNCTION BOXES AND PULL BOXES INDICATION PANEL NAME AND CIRCUIT NUMBERS OF ALL BRANCH CIRCUIT CONDUCTORS CONTAINED WITHIN THE BOX.
- INSTALL PULLSTRING (PLASTIC HAVING MINIMUM 200 POUND TENSILE STRENGTH) IN EMPTY CONDUITS IN WHICH WIRE IS TO BE INSTALLED BY OTHERS.
- SEAL OPENINGS AROUND NEW ELECTRICAL PENETRATIONS THROUGH FIRE RESISTANCE-RATED WALLS, PARTITIONS, FLOORS, OR CEILINGS TO MAINTAIN FIRE RESISTIVE INTEGRITY. WHERE AN EXISTING PENETRATION IS USED, SEAL PENETRATION AFTER WORK IS COMPLETED.
- COORDINATE ELECTRICAL WORK WITH OTHER TRADES AND WITH OWNER.
- FASTEN NAMEPLATES TO THE DEVICE WITH A MINIMUM OF TWO SHEETMETAL SCREWS OR TWO RIVETS.
- PERFORM AN OPERATIONAL TEST AFTER COMPLETING THE INSTALLATION TO ASSURE PROPER OPERATION OF ITEMS OF THE WORK.
- CLEAN UP DEBRIS AT END OF EACH DAYS WORK. REMOVE MARKINGS FROM ELECTRICAL EQUIPMENT AND DEVICES.

INTERIOR			
ILPA:	46,500 W		
CONNECTED:	37,725 W		
TYPE	AREA (SF)	WATTS/SF	WATTS
PARKING GARAGE	155000	0.3	46,500

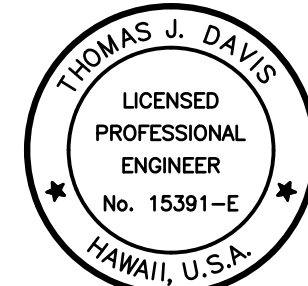
EXTERIOR			
ELPA:	6,827 W		
CONNECTED:	2,686 W		
TYPE	AREA (SF)	WATTS/SF	WATTS
WALKWAYS >10'	38,094	0.2	5,714
	LENGTH (LF)	WATTS/LF	WATTS
WALKWAYS <10'	453	1	453
MAIN ENTRIES	6	30	180
OTHER DOORS	24	20	480

COUNTY OF MAUI MAUI COUNTY CODE,  
CHAPTER 16.16A ENERGY CODE

To the best of my knowledge, this project's design substantially conforms to the Energy Code for:

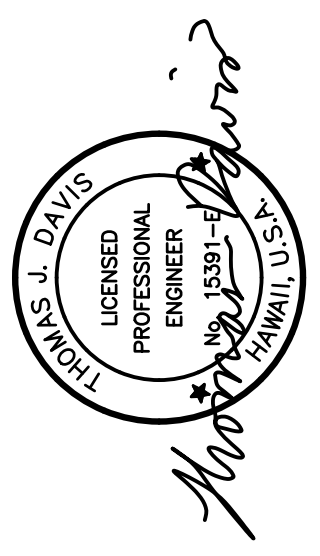
Building Component Systems  
 Electrical Component Systems  
 Mechanical Component Systems

Signature: *Thomas J. Davis* Date: 04/30/2018  
 Name: THOMAS DAVIS  
 Title: ELECTRICAL ENGINEER  
 License No: 15391-E



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 Telephone 808 536 1737  
 Facsimile 808 537 5829  
 honolulu@wsp.com

**FERRARO CHOI**



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HECO NOTES

1. LOCATION OF HECO FACILITIES
THE LOCATION OF HECO'S OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATIONS OF THE FACILITIES AND SHALL EXERCISE PROPER CARE IN EXCAVATING AND WORKING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES AND UTILITY CROSSINGS ARE SHOWN, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS AND CROSSINGS TO VERIFY THE DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO HECO'S FACILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLANS.
2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS
THE CONTRACTOR SHALL COMPLY WITH THE STATE OF HAWAII'S OCCUPATIONAL SAFETY AND HEALTH LAWS AND REGULATIONS, INCLUDING WITHOUT LIMITATION, THOSE RELATED TO WORKING ON OR NEAR EXPOSED OR ENERGIZED ELECTRICAL LINES AND EQUIPMENT.
3. EXCAVATION PERMIT
THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM HECO'S TECHNICAL DIVISION (543-5654) LOCATED AT 820 WARD AVENUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION. PLEASE REFER TO OUR REQUEST NUMBER AT THAT TIME.
4. CAUTION!!! ELECTRICAL HAZARD!!!
EXISTING HECO OVERHEAD AND UNDERGROUND LINES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION UNLESS PRIOR SPECIAL ARRANGEMENTS HAVE BEEN MADE WITH HECO. ONLY HECO PERSONNEL ARE TO HANDLE THESE ENERGIZED LINES AND ERECT TEMPORARY GUARDS TO PROTECT THESE LINES FROM THE CONTRACTOR SHALL WORK CAUTIOUSLY AT ALL TIMES TO AVOID ACCIDENTS AND DAMAGE TO EXISTING HECO FACILITIES, WHICH CAN RESULT IN ELECTROCUTION.
5. OVERHEAD LINES
STATE LAW (OSHA 1910.269(K)(2B)) REQUIRES THAT A WORKER AND THE LONGEST OBJECT HE OR SHE MAY CONTACT CANNOT COME CLOSER THAN A MINIMUM RADIAL CLEARANCE OF 10 FEET WHEN WORKING CLOSE TO OR UNDER ANY OVERHEAD LINES RATED 50KV AND BELOW. FOR EACH ADDITIONAL 10KV ABOVE 50KV, AN ADDITIONAL 4 INCHES SHALL BE ADDED TO THE 10-FOOT CLEARANCE REQUIREMENT. THE PRECEDING INFORMATION ON LINE CLEARANCE REQUIREMENTS IS PROVIDED AS A CONVENIENCE AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE INFORMED OF AND COMPLY WITH ANY REVISIONS OR AMENDMENTS TO THE LAW.
SHOULD THE CONTRACTOR ANTICIPATE THAT HIS WORK WILL RESULT IN THE NEED TO ENCR OACH WITHIN THE MINIMUM REQUIRED CLEARANCE AT ANY TIME, THE CONTRACTOR SHALL NOTIFY HECO AT LEAST FOUR (4) WEEKS PRIOR TO THE PLANNED ENCROACHMENT SO THAT, IF FEASIBLE, THE NECESSARY PROTECTIONS (E.G. RELOCATE OR DE-ENERGIZE HECO LINES) CAN BE INVESTIGATED. HECO MAY ALSO BE ABLE TO BLANKET ITS DISTRIBUTION (12KV AND BELOW) LINES TO PROVIDE A VISUAL AID IN PREVENTING ACCIDENTAL CONTACT. HECO'S COST OF SAFEGUARDING OR IDENTIFYING ITS LINES WILL BE CHARGED TO THE CONTRACTOR.
CONTACT HECO'S CUSTOMER INSTALLATIONS DEPARTMENT AT 543-7846 FOR ASSISTANCE IN IDENTIFYNG AND SAFEGUARDING OVERHEAD POWERLINES.
6. POLE BRACING
A MINIMUM CLEARANCE OF 10 FEET MUST BE MAINTAINED WHEN EXCAVATING AROUND UTILITY POLES AND/OR THEIR ANCHOR SYSTEM TO PREVENT WEAKENING OR POLE SUPPORT FAILURE. SHOULD WORK REQUIRE EXCAVATING WITHIN 10 FEET OF A POLE AND/OR ITS ANCHOR SYSTEM, THE CONTRACTOR SHALL PROTECT, SUPPORT, SECURE, AND TAKE ALL OTHER PRECAUTIONS TO PREVENT DAMAGE TO OR LEANING OF THESE THE CONTRACTOR IS RESPONSIBLE FOR ALL POLE BRACING DESIGNS AND STRUCTURAL CALCULATIONS, AS WELL AS THE ASSOCIATED COSTS TO BRACE, REPAIR, OR STRAIGHTEN POLES. ALL MEANS OF STRUCTURAL SUPPORT FOR THE POLE AND OR ANCHOR SYSTEM PROPOSED BY THE CONTRACTOR SHALL BE SUBMITTED TO HECO'S CUSTOMER INSTALLATIONS DEPARTMENT (543-7846) FOR REVIEW A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO IMPLEMENTATION. THE COST OF HECO'S REVIEW/ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF ITS POLES WILL BE CHARGED TO THE CONTRACTOR.
7. UNDERGROUND LINES
THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES. HECO'S EXISTING ELECTRICAL CABLES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION. ONLY HECO PERSONNEL ARE TO BREAK INTO EXISTING HECO FACILITIES, HANDLE THESE CABLES, AND ERECT TEMPORARY GUARDS TO PROTECT THESE CABLES FROM DAMAGE. THE COST OF HECO'S ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF ITS UNDERGROUND LINES WILL BE CHARGED TO THE CONTRACTOR. FOR ASSISTANCE/COORDINATION IN PROVODNG PROPER SUPPORT AND PROTECTION OF THESE LINES, THE CONTRACTOR SHALL CALL HECO'S CUSTOMER INSTALLATIONS DEPARTMENT AT 543-7846 A MINIMUM OF TEN (10) WORKING DAYS IN ADVANCE.

SPECIAL PRECAUTIONS ARE REQUIRED WHEN EXCAVATING NEAR HECO'S 138KV UNDERGROUND LINES (SEE HECO INSTRUCTIONS TO CONSULTANTS/CONTRACTORS ON ?EXCAVATION NEAR HECO'S UNDERGROUND 138KV LINES? FOR DETAILED REQUIREMENTS).
FOR VERIFICATION OF UNDERGROUND LINES, THE CONTRACTOR SHALL CALL THE HAWAII ONE CALL CENTER AT 866-423-7287 MINIMUM OF FIVE (5) WORKING DAYS IN ADVANCE.
8. EXCAVATIONS
WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH HECO'S EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR:
a) ARRANGING FOR HECO STANDBY PERSONNEL TO OBSERVE WORK AT CONTRACTOR'S COST.
b) SHEETING, BRACING, OR OTHERWISE SUPPORTING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE AND TO PREVENT POSSIBLE SLIDES, CAVE-INS, AND SETTLEMENTS.
c) PROPERLY SUPPORTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, UNDER-PINNINGS, OR OTHER NECESSARY METHODS TO FULLY PROTECT IT FROM DAMAGE.
d) BACKFILLING WITH PROPER BACKFILL MATERIAL INCLUDING SPECIAL THERMAL BACKFILL WHERE EXISTING (REFER TO ENGINEERING DEPARTMENT FOR THERMAL BACKFILL SPECIFICATIONS).
10. RELOCATION OF HECO FACILITIES
ANY WORK REQUIRED TO RELOCATE OR MODIFY HECO FACILITIES SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, AND SHALL PROVIDE NECESSARY SUPPORT FOR HECO'S WORK, WHICH MAY INCLUDE, BUT NOT BE LIMITED TO, STAKING OF POLE/ANCHOR LOCATIONS, IDENTIFYING RIGHT OF WAY AND PROPERTY LINES, EXCAVATION AND BACKFILL, PERMITS AND TRAFFIC CONTROL, BARRICADING, AND RESTORATION OF PAVEMENT, SIDEWALKS, AND OTHER FACILITIES.
ALL COSTS ASSOCIATED WITH ANY RELOCATION OR MODIFICATION (EITHER TEMPORARY

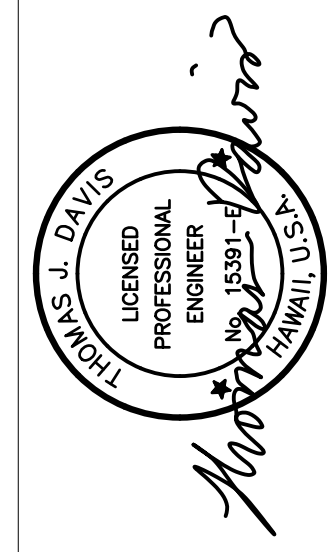
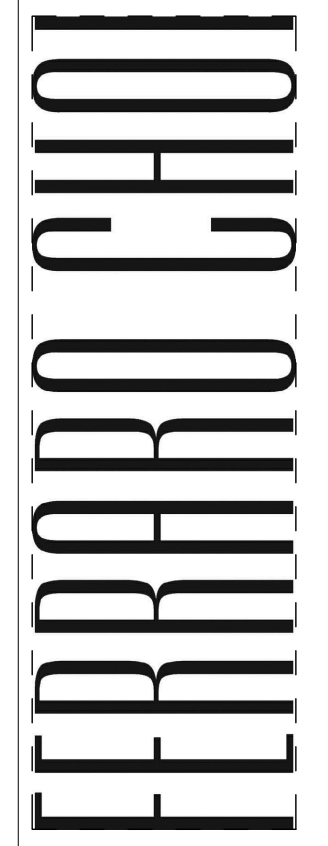
OR PERMANENT) FOR THE CONVENIENCE OF THE CONTRACTOR, OR TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS SHALL BE BORNE BY THE CONTRACTOR.
11. CONFLICTS
ANY REDESIGN OR RELOCATION OF HECO'S FACILITIES NOT SHOWN ON THE PLANS MAY BE CAUSE FOR LENGTHY DELAYS. THE CONTRACTOR ACKNOWLEDGES THAT HECO IS NOT RESPONSIBLE FOR ANY DELAY OR DAMAGE THAT MAY ARISE AS A RESULT OF ANY CONFLICTS DISCOVERED OR IDENTIFIED WITH RESPECT TO THE LOCATION OR CONSTRUCTION OF HECO'S ELECTRICAL FACILITIES IN THE FIELD, REGARDLESS OF WHETHER THE CONTRACTOR HAS MET THE REQUESTED MINIMUM ADVANCE NOTICES. IN ORDER TO MINIMIZE ANY DELAY OR IMPACT ARISING FROM SUCH CONFLICTS, HECO SHOULD BE NOTIFIED IMMEDIATELY UPON DISCOVERY OR IDENTIFICATION OF SUCH CONFLICT.
12. DAMAGE TO HECO FACILITIES
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL HECO SURFACE AND SUBSURFACE UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGES TO HECO'S FACILITIES AS A RESULT OF HIS OPERATIONS. THE CONTRACTOR SHALL IMMEDIATELY REPORT SUCH DAMAGES OR HAZARDOUS CONDITIONS RELATED TO HECO'S LINES TO HECO'S TROUBLE DISPATCHER AT 548-7961. REPAIR WORK SHALL BE DONE BY HECO OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION. COSTS FOR DAMAGES TO HECO'S FACILITIES SHALL BE BORNE BY THE CONTRACTOR.
13. HECO STAND-BY PERSONNEL
THE CONTRACTOR MAY REQUEST HECO TO PROVIDE AN INSPECTOR TO STAND-BY DURING CONSTRUCTION NEAR HECO'S FACILITIES. THE COST OF SUCH INSPECTION WILL BE CHARGED TO THE CONTRACTOR.
THE CONTRACTOR SHALL CALL HECO'S CUSTOMER INSTALLATION DEPARTMENT AT 5437846 A MINIMUM OF FIVE (5) WORKING DAYS IN ADVANCE TO ARRANGE FOR HECO STANDBY PERSONNEL.
14. CLEARANCES
THE FOLLOWING CLEARANCES SHALL BE MAINTAINED BETWEEN HECO'S DUCTLINE AND ALL ADJACENT STRUCTURES (CHARTED AND UNCHARTED) IN THE TRENCH:

Table with 5 columns: UTILITY BEING INSTALLED, EXISTING DIRECT BURIED CABLE, EXISTING DIRECT BURIED IN CONDUIT (NO CONCRETE ENCASEMENT), EXISTING 3" (MINIMUM) CONCRETE ENCASEMENT, APPLICABLE NOTES. Rows include HECO DB CONDUIT, HECO 3" ENCASEMENT, TELEPHONE/CATV DB, TELEPHONE/CATV DB DUCTS, TELEPHONE/CATV 3" ENCASEMENT, TRAFFIC SIGNAL, WATER DB, WATER SERVICE LATERALS, WATER (CONCRETE JACKETED), GAS DB, GAS (CONCRETE JACKETED), SEWER DB, SEWER (CONCRETE JACKETED), DRAIN, FUEL PIPELINES.

- NOTES:
1. WHERE SPACE IS AVAILABLE, PARALLEL CLEARANCE TO OTHER UTILITIES, OR FOREIGN STRUCTURES OTHER THAN COMMUNICATION OR TRAFFIC SIGNAL SHALL BE 36".
2. IF 36" CLEARANCE CANNOT BE MET: CLEAR < 12" - JACKET SEWERLINE WITH REINFORCED CONCRETE PER STD 30-1030 FOR A DISTANCE OF 5FT. + PIPE DIAMETER. 12" < CLEAR < 36" - JACKET SEWERLINE WITH PLAIN CONCRETE.
4. ALL FUEL PIPELINE CROSSING SHALL BE REVIEWED BY THE COMPANY THAT OWNS AND MAINTAINS IT.
5. 5 FEET CLEAR TO WATER MAINS 16 INCHES AND LARGER.
6. FOR SITUATIONS WITH 0 MINIMUM SEPARATION, A 6" SEPARATION IS RECOMMENDED.
7. CLEARANCES MEASURED FROM OUTER EDGES OR DIAMETERS OF UTILITIES.

Table with 5 columns: UTILITY BEING INSTALLED, EXISTING DIRECT BURIED CABLE, EXISTING DIRECT BURIED IN CONDUIT (NO CONCRETE ENCASEMENT), EXISTING 3" (MINIMUM) CONCRETE ENCASEMENT, APPLICABLE NOTES. Rows include HECO DB CONDUIT, HECO 3" ENCASEMENT, TELEPHONE/CATV DB, TELEPHONE/CATV DB DUCTS, TELEPHONE/CATV 3" ENCASEMENT, TRAFFIC SIGNAL, WATER DB, WATER SERVICE LATERALS, WATER (CONCRETE JACKETED), GAS DB, GAS (CONCRETE JACKETED), SEWER DB, SEWER (CONCRETE JACKETED), DRAIN, FUEL PIPELINES.

- NOTES:
1. IF 36" CLEARANCE CANNOT BE MET: CLEAR < 12" - JACKET SEWERLINE WITH REINFORCED CONCRETE PER STD 30-1030 FOR A DISTANCE OF 5FT. + PIPE DIAMETER. 12" < CLEAR < 24" - JACKET SEWERLINE WITH PLAIN CONCRETE.
2. 12" VERTICAL CLEARANCE FOR PIPE DIAMETER > 16".
3. ALL FUEL PIPELINE CROSSING SHALL BE REVIEWED BY THE COMPANY THAT OWNS AND MAINTAINS IT.
4. FOR SITUATIONS WITH 0 MINIMUM SEPARATION, A 6" SEPARATION IS RECOMMENDED.
5. CLEARANCES MEASURED FROM OUTER EDGES OR DIAMETERS OF UTILITIES.



THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER & HECO OF ANY HEAT SOURCES (POWER CABLE DUCT BANK, STEAMLINE, ETC.) ENCOUNDERED THAT ARE NOT PROPERLY IDENTIFIED ON THE DRAWING.

15. INDEMNITY
THE CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS HECO FROM AND AGAINST ALL LOSSES, DAMAGES, CLAIMS, AND ACTIONS, INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEY'S FEES AND COSTS BASED UPON OR ARISING OUT OF DAMAGE TO PROPERTY OR INJURIES TO PERSONS, OR OTHER TORTIOUS ACTS CAUSED OR CONTRIBUTED TO BY CONTRACTOR OR ANYONE ACTING UNDER ITS DIRECTION OR CONTROL OR ON ITS BEHALF; PROVIDED CONTRACTOR'S INDEMNITY SHALL NOT BE APPLICABLE TO ANY LIABILITY BASED UPON THE SOLE NEGLIGENCE OF HECO.
ADDITIONAL NOTES WHEN WORK INVOLVES CONSTR. OF HECO FACILITIES.

16. SCHEDULE
CONTRACTOR SHALL FURNISH HIS CONSTRUCTION SCHEDULE SIX (6) MONTHS PRIOR TO STARTING WORK ON HECO FACILITIES. CONTRACTOR SHALL GIVE HECO, IN WRITING, THREE (3) MONTHS NOTICE TO PROCEED WITH HECO'S PORTION OF WORK.

17. AUTHORITY
ALL CONSTRUCTION, RESTORATION WORK, AND INSPECTION SHALL BE SUBJECT TO WHICHEVER GOVERNMENTAL AGENCY HAS AUTHORITY OVER THE WORK.

18. SPECIFICATIONS
CONSTRUCTION OF HECO'S UNDERGROUND FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISIONS OF HECO SPECIFICATIONS CS7001, CS7003, CS7202, CS9301, AND CS9401 AND APPLICABLE HECO STANDARDS.

19. CONSTRUCTION
CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES TO PROPERLY PERFORM AND FULLY COMPLETE ALL WORK SHOWN ON THE CONTRACT, DRAWINGS, AND SPECIFICATIONS. ALL MATERIALS SHALL BE NEW AND MANUFACTURED IN THE UNITED STATES OF AMERICA. ALL MANHOLE, HANDHOLE, AND DUCTLINE INSTALLATIONS SHALL BE INSPECTED AND APPROVED BY HECO PRIOR TO EXCAVATION AND PRIOR TO PLACING CONCRETE. CONTRACTOR SHALL NOTIFY HECO'S INSPECTION DIVISION AT 543-7520 AT LEAST 48 HOURS PRIOR TO PLACING CONCRETE.

CONTRACTOR TO COORDINATE WORK TO BREAK INTO HECO'S EXISTING ELECTRICAL FACILITIES WITH HECO'S INSPECTION DIVISION AT 543-7520 AT LEAST TEN (10) WORKING DAYS IN ADVANCE.

20. STAKEOUT
THE CONTRACTOR SHALL ARRANGE FOR TONEOUTS OF ALL UNDERGROUND FACILITIES AND SHALL STAKEOUT ALL PROPOSED HECO FACILITIES WITHIN THE PROJECT AREA SO AS TO NOT CONFLICT WITH ANY UTILITY (EXISTING OR PROPOSED) AND ANY PROPOSED CONSTRUCTION OR IMPROVEMENT WORK FOR VERIFICATION BY HECO BEFORE PROCEEDING WITH HECO WORK.

15. DUCTLINES
ALL DUCTLINE INSTALLATIONS SHALL BE PVC SCHEDULE 40 ENCASED IN CONCRETE, UNLESS OTHERWISE NOTED. ALL COMPLETED DUCTLINES SHALL BE MANDREL TESTED BY THE CONTRACTOR IN THE PRESENCE OF HECO'S INSPECTOR USING HECO'S STANDARD PRACTICE. THE CONTRACTOR SHALL INSTALL 1/8" POLYOLEFIN PULL LINE IN ALL COMPLETED DUCTLINES AFTER MANDREL TESTING IS COMPLETE.

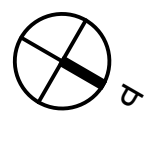
21. JOINT POLE REMOVAL
THE LAST JOINT POLE OCCUPANT OFF THE POLES SHALL REMOVE THE POLES.

22. AS-BUILT PLANS
THE CONTRACTOR SHALL PROVIDE HECO WITH TWO SETS OF AS-BUILT REPRODUCIBLE TRACINGS SHOWING THE OFFSETS, STATIONING, AND VERTICAL ELEVATION OF THE DUCT LINE(S) CONSTRUCTED.

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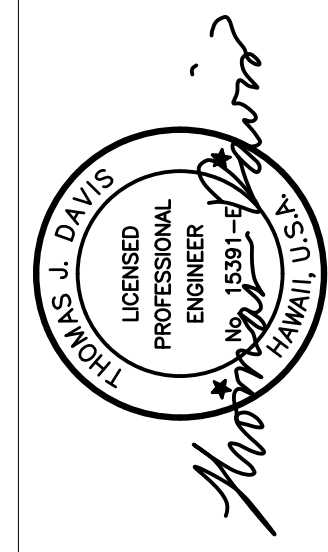


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FE	DESCRIPTION	LOCATION	MODULE	LUMENS	CR	TYPE	WATT	SPREAD	MATERIAL	MOUNTING	FINISH	TYPE	MODEL	NOTES	
FE1	16" SQUARE SURFACE MOUNTED LED LIGHT	PARKING	WHITE LED MODULE, 6930 DELIVERED LUMENS, 80 CRI	3000K	66 EA	INTEGRAL, ELECTRONIC INTEGRATED PROGRAMMABLE MULTI-LEVEL TECHNOLOGY BY CREE	120-277	TYPE V SHORT DISTRIBUION	IMPACT RESISTANT WHITE POLYCARBONATE	J BOX MOUNTING	ACRYLIC LENS	WHITE	CREE IG SERIES IG-JB IG-NM-5S-J-30K-UL-WH-PML		
FE2	SURFACE MOUNTED LENSED LED LIGHT	ELEVATOR WALL	WHITE LED MODULE, 471 LUMENS PER LINEAR FT, 60,000 HOURS RATED LIFE L70, 80CRI	3000K	9 PER LINEAR FT	INTEGRAL, ELECTRONIC, NON DIM	277	ASYMMETRIC, WALL WASH	HEAVY GAUGE EXTRUDED ALUMINUM	MOUNTED TO CEILING DECK	CLEAR ACRYLIC LENS	TBD	BIRCHWOOD VANESSA LED VAN-LED-WW-400-HLO-30-(LENGTH PER DWG)-CM-EF(FEED)-(FINISH)-277-EB	1. CONTRACTOR TO INSTALL FIXTURE IN APPROPRIATE OPERATION SO THAT LIGHT ILLUMINATE ADJACENT WALL.	
FE7	5" SQUARE SURFACE MOUNTED DOWNLIGHT	PARKING BLDG., UNDER CANOPY	WHITE LED MODULE 1475 DELIVERED LUMENS 50,000 HOURS RATED LIFE L70, 80 CRI	3000K	16 EA	INTEGRAL, ELECTRONIC, NON DIM (STANDARD FIXTURE IS DIMMABLE)	120-277	50" BEAM SPREAD	DIE CAST ALUMINUM	SURFACE, CEILING	SOLITE LENS	TBD	USAI, BEVELED BLOCK BLSDS-16C3-30KS-50-S-(FINISH)-CC-UNV-D2		
FE7A	5" SQUARE SURFACE MOUNTED DOWNLIGHT	PARKING BLDG LEVEL 1A	WHITE LED MODULE 2400 DELIVERED LUMENS 50,000 HOURS RATED LIFE L70, 80 CRI	3000K	24 EA	INTEGRAL, ELECTRONIC, NON DIM (STANDARD FIXTURE IS DIMMABLE)	120-277	50" BEAM SPREAD	DIE CAST ALUMINUM	SURFACE, CEILING	SOLITE LENS	TBD	USAI, BEVELED BLOCK BLSDS-24C3-30KS-50-S-(FINISH)-CC-UNV-D2		
FE8	SURFACE MOUNTED ADJUSTABLE LED ACCENT LIGHT	UNDER STAIR	WHITE LED MODULE 1186 DELIVERED LUMENS 50,000 HOURS RATED LIFE L70, 80 CRI	3000K	20 EA	INTEGRAL IN CANOPY, ELECTRONIC, NON DIM (STANDARD DRIVER IS DIMMABLE)	120-277	35" BEAM SPREAD	COPPER FREE ALUMINUM	MONOPOINT WITH POWER CANOPY	SOFT FOCUS LENS	TBD	BK LIGHTING DENALI DE-LED-X62-FL-(FINISH)-12-B CANOPY: PC-D20INC-MT	1. FIXTURE TO BE MOUNTED TO UNDERSIDE OF PARKING STRUCTURE SLOPE BRIDGE.	
FE8A	SURFACE MOUNTED ADJUSTABLE LED ACCENT LIGHT	ROOF CANOPY	WHITE LED MODULE 1186 DELIVERED LUMENS 50,000 HOURS RATED LIFE L70, 80 CRI	3000K	20 EA	INTEGRAL IN CANOPY, ELECTRONIC, NON DIM (STANDARD DRIVER IS DIMMABLE)	120-277	60" BEAM SPREAD	COPPER FREE ALUMINUM	MONOPOINT WITH POWER CANOPY	SOFT FOCUS LENS	TBD	BK LIGHTING DENALI DE-LED-X62-WFL-(FINISH)-12-B CANOPY: PC-D20INC-MT	1. FIXTURE TO BE MOUNTED TO UNDERSIDE OF PARKING ROOF STRUCTURE.	
FE9	STEM MOUNTED DUAL HEADS ADJUSTABLE LED SPOT LIGHT	ART WALL	WHITE LED MODULE 1627 DELIVERED LUMENS 50,000 HOURS RATED LIFE L70, 80 CRI	3000K	54 EA	REMOTE, INC, DIM TO 10%	120-277	15" BEAM SPOT	COPPER FREE ALUMINUM	STEM MOUNTED	SOFT FOCUS LENS	TBD	BK LIGHTING DENALI TWIN SIGN ST-(ARM LENGTH)-C-DE-LED-X65-SP-(FINISH)-12-A-SC DRM-D27INC-(FINISH)-MT OR PM2RM-(MOUNTING)-D27INC-(FINISH)-MT-OPTIONS AS REQUIRED.	1. FIXTURE TO BE ARM MOUNTED AT 9" LOWER THAN TOP OF THE ART WALL. 2. LOCATE REMOTE DRIVERS AND/OR POWER SUPPLIES IN A SECURE, CONCEALED, ACCESSIBLE AND WELL VENTILATED LOCATION IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS. 3. CONTRACTOR TO SELECT REMOTE DRIVER TYPE PER SITE CONDITIONS.	
FE12A	WET LISTED LENSED LINEAR LED STRIP LIGHT WITH COLORED LENS	PARKING BEAM, LVL 1A	WHITE LED MODULE, 225 LUMENS PER LINEAR FT, 50,000 HOURS, 95 CRI	4000K	2.8 LFT	REMOTE, NON DIM (DRIVER IS DIMMABLE)	120, 240, 277V PRIMARY/24V SECONDARY	175" BEAM SPREAD	ALUMINUM	MOUNTED TO BEAM	CUSTOM COLORED FROSTED LENS	TBD	AION HOUSING: WT802-FROSTED-(FINISH)-(LENGTH PER DWG)-CUSTOM COLOR LENS LED TAPE: 4924-40-LE-(LENGTH PER DWG). DRIVER: D300-DC3-277V PIVOT MOUNTING CLIP: COATING LENS WITH CUSTOM COLOR BY SPECIAL FX LIGHTING (HTTP://WWW.FXLIGHT.COM) COLOR TBD. COLOR VARIES PER LEVEL	1. FIXTURE TO BE MOUNTED TO SIDE OF BEAM AT LOWEST POINT. REFER ARCHITECTURAL DRAWINGS FOR MOUNTING DETAILS. 2. FULL SCALE MOCK UP IS REQUIRED TO DETERMINE FINAL LENS COLOR BASED OF APPROVED CEILING FINISH. CONTRACTOR TO PROVIDE PAINT FINISH, SAMPLE OF SPECIFIED LIGHT FIXTURE, AND COLOR GELS OF THREE COLOR OPTIONS FOR EACH FINISH, TOTAL 9 COLOR GELS. 3. LOCATE REMOTE DRIVERS IN A SECURE, CONCEALED, ACCESSIBLE AND WELL VENTILATED LOCATION IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.	
FE12B		PARKING BEAM, LVL 1B													
FE12C		PARKING BEAM, LVL 2													
FE13	SURFACE MOUNTED ADJUSTABLE LED ACCENT LIGHT	PILL STREET, NORTH SIDE OF PARKING STRUCTURE	WHITE LED MODULE 1782 DELIVERED BEAM LUMENS, 90 CRI	3000K	22 EA	INTEGRAL, ELECTRONIC, 0-10V, DIMMABLE	120-277	44" BEAM SPREAD WIDE BEAM	DIE CAST ALUMINUM	WALL MOUNTED	180° GLARE SHIELD	TBD	BEGA 77702-3K-(FINISH)-70757	1. FIXTURE TO BE MOUNTED TO THE SIDE OF LEVEL 1B FLOOR DECK	
FE13A	SURFACE MOUNTED ADJUSTABLE LED ACCENT LIGHT	PILL STREET, NORTH SIDE OF PARKING STRUCTURE	WHITE LED MODULE 1851 DELIVERED BEAM LUMENS, 90 CRI	3000K	22 EA	INTEGRAL, ELECTRONIC, 0-10V, DIMMABLE	120-277	30" BEAM SPREAD WIDE BEAM	DIE CAST ALUMINUM	WALL MOUNTED	180° GLARE SHIELD	TBD	BEGA 77701-3K-(FINISH)-70757	1. FIXTURE TO BE MOUNTED TO THE SIDE OF LEVEL 1B FLOOR DECK	
FE14	SURFACE MOUNTED LENSED LED LIGHT	ELEVATOR WALL - ROOF LEVEL PARKING GARAGE WALL - LEVEL 1A TO 2	WHITE LED MODULE, 374 LUMENS PER LINEAR FT, 60,000 HOURS RATED LIFE L70, 80CRI	3000K	4.4 PER LINEAR FT	INTEGRAL, ELECTRONIC, NON DIM	277	ASYMMETRIC	HEAVY GAUGE EXTRUDED ALUMINUM	WALL MOUNTED	CLEAR IMPACT RESISTANT LENS	TBD	BIRCHWOOD VANESSA LED VAN-LED-WG-400-SLO-30-(LENGTH PER DWG)-WM-(FEED)-(FINISH)-277-EB	1. CONTRACTOR TO INSTALL FIXTURE IN APPROPRIATE OPERATION SO THAT LIGHT ILLUMINATE ADJACENT WALL.	
FE14A	SURFACE MOUNTED LENSED LED LIGHT	ELEVATOR WALL - LEVEL 1A	WHITE LED MODULE, 719 LUMENS PER LINEAR FT, 60,000 HOURS RATED LIFE L70, 80CRI	3000K	9 PER LINEAR FT	INTEGRAL, ELECTRONIC, NON DIM	277	ASYMMETRIC	HEAVY GAUGE EXTRUDED ALUMINUM	WALL MOUNTED	CLEAR IMPACT RESISTANT LENS	TBD	BIRCHWOOD VANESSA LED VAN-LED-WG-400-HLO-30-(LENGTH PER DWG)-WM-(FEED)-(FINISH)-277-EB	1. CONTRACTOR TO INSTALL FIXTURE IN APPROPRIATE OPERATION SO THAT LIGHT ILLUMINATE ADJACENT WALL.	
FE15	WALL MOUNTED LED SCONCE	PILI STREET	WHITE LED MODULE, 1659 LUMENS PER LINEAR FT, 50,000 HOURS RATED LIFE L70, 80CRI	3000K	17 EA	INTEGRAL, ELECTRONIC, 0-10V, DIMMABLE	120-277	ASYMMETRIC	DIE CAST ALUMINUM	WALL MOUNTED	CLEAR SAFETY GLASS WITH OPTICAL TEXTURE	TBD	BEGA 33817-K3-(FINISH)	1. REFER DRAWING FOR MOUNTING HEIGHTS.	
FE16	WALL MOUNTED LED GLAZER LIGHT	ELEVATOR TOWER FAÇADE	WHITE LED MODULE 1034 DELIVERED LUMENS P 50,000 HOURS RATED LIFE L70, 84 CRI	3000K	19 EA	INTEGRAL, ELECTRONIC, 0-10V, DIMMABLE	277V	NARROW SPOT 10'	DIE CAST ALUMINUM	SURFACE MOUNTED	ANTI GLARE GRID WITHOUT CENTRAL ELEMENT	FERRITE GRAY	TARGETTI DART MEDIUM DAM-10-NS-L1-30-1E3025	1. FIXTURE TO BE MOUNTED ON THE RIB OF ELEVATOR TOWER FAÇADE AND FACING STRAIGHT DOWN. 2. ARCHITECT TO CONFIRM FERRITE GREY. 3. SITE MOCK UP IS REQUIRED TO DETERMINE FINAL FIXTURE SPECIFICATION AND OPTIC.	
FE16 (ALTER-NATE)	WALL MOUNTED LED GLAZER LIGHT	ELEVATOR TOWER FAÇADE	WHITE LED MODULE 80 DELIVERED LUMENS P 50,000 HOURS RATED LIFE L80, 80 CRI	3000K	6 EA	INTEGRAL, ELECTRONIC, 0-10V, DIMMABLE	277V	VERY NARROW SPIKE OPTIC	EXTRUDED ALUMINUM	SURFACE MOUNTED	TEMPERED CLEAR GLASS LENS	TBD	LIGMAN MATRIX 5 SURFACE UMT-31427-6W-W30-(FINISH)-120/277V-DIM-4J(IF REQ'D)	1. FIXTURE TO BE MOUNTED ON THE RIB OF ELEVATOR TOWER FAÇADE AND FACING STRAIGHT DOWN. 2. ARCHITECT TO CONFIRM FERRITE GREY. 3. SITE MOCK UP IS REQUIRED TO DETERMINE FINAL FIXTURE SPECIFICATION AND OPTIC.	
S	LED STRIPLIGHT	LEVEL 1B	WHITE LED MODULE	3000K	34 EA	INTEGRAL, ELECTRONIC, NON DIM	120-277	SYMMETRIC	STEEL	SURFACE MOUNTED	STANDARD LENS	WHITE	LITHONIA ZL1N L48 SMR 5000LM MVOLT 30K 80CRI WH		
SE	SAME AS S WITH 90-MINUTE BATTERY BACK-UP	LEVEL 1B	WHITE LED MODULE	3000K	34 EA	INTEGRAL, ELECTRONIC, NON DIM	120-277	SYMMETRIC	STEEL	SURFACE MOUNTED	STANDARD LENS	WHITE	LITHONIA ZL1N L48 SMR 5000LM MVOLT 30K 80CRI WH EL14		
X	LED EXIT SIGN, 90-MINUTE BATTERY BACK-UP	EXITS	LED WITH GREEN LETTERS AND 90 MINUTE BATTERY BACKUP										COOPER LIGHTING TPX717000GW		

- NOTES:
- REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND DETAILS TO DETERMINE NECESSARY FIXTURE MOUNTING ACCESSORIES AND FOR APPLICABLE BUILDING CODES FOR REQUIRED FIXTURE SUPPORTS AND FOR MAINTAINING CEILING FIRE RATINGS.
  - UNLABELLED LUMINAIRES CHOSEN BY THE ELECTRICAL ENGINEER WITHIN THE PARAMETERS NOTED ON THE DRAWINGS ARE TYPICAL FOR USE.
  - MANUFACTURERS LISTED IS TO DESCRIBE LUMINAIRE. EQUIVALENT LUMINAIRES MAY BE PROVIDED UPON APPROVAL BY THE ARCHITECT.
  - PROVIDE UNSWITCHED EMERGENCY CONDUCTOR TO EMERGENCY LUMINAIRES, EMERGENCY LIGHTING UNITS AND EXIT SIGNS.
  - REFER TO SPECIFICATION SECTION 26 51 00 ARCHITECTURAL LIGHTING FOR ADDITIONAL REQUIREMENTS.
  - FIXTURES SHALL BE ORDERED WITH NECESSARY POWER SUPPLIES, DRIVERS, LEADER CABLES, JUMPER CABLES, POWER FEEDS, TERMINATORS AND CONTROL INTERFACES FOR INSTALLATION OF A COMPLETE WORKING SYSTEM.



**FERRARO CHOI**



**Y OESMSW**  
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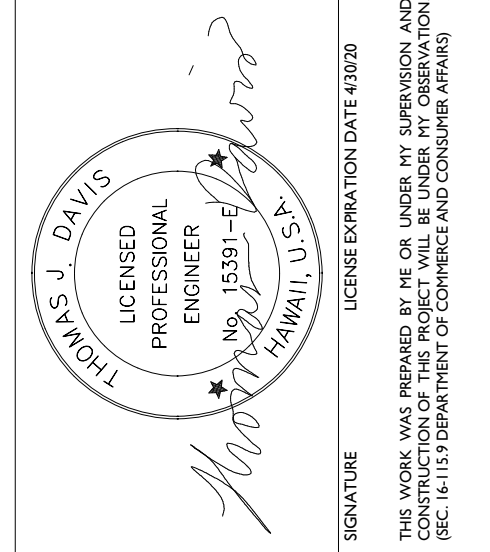




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WAILUKU CIVIC COMPLEX PHASE 1B  
100% FINAL DESIGN  
[Signature]

PROJECT:	2017-001	REVISIONS:	△
DRAWN:	Author		
DATE:	7/25/2019		
PHASE SHEET	1B E006		
	OF SHEETS		

### Switchboard: MSB

Location: ELECTRIC ROOM 104  
Supply From: MSB  
Mounting: FLOOR  
Enclosure: N1  
Volts: 480/277 Wye  
Phases: 3  
Wires: 4  
A.I.C. Rating: 65K  
Mains Type:  
Mains Rating: 1600 A  
MCB Rating: 1200 A

Notes:

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load	Remarks
1	NHP	3	400 A	150 A	52066 VA	
2	EHP	3	400 A	100 A	26843 VA	
3	EVH1	3	400 A	400 A	288442 VA	
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
<b>Total Conn. Load:</b>					388102 VA	
<b>Total Amps:</b>					443 A	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
HVAC	6440 VA	100.00%	6440 VA	
Lighting	38661 VA	125.00%	48326 VA	
Other	311841 VA	100.00%	311841 VA	
Power	11160 VA	100.00%	11160 VA	
				<b>Total Conn. Load:</b> 368102 VA
				<b>Total Est. Demand:</b> 377767 VA
				<b>Total Conn.:</b> 443 A
				<b>Total Est. Demand:</b> 454 A

Notes:

### Branch Panel: EVH1

Location: BELOW RAMP STORAGE 101  
Supply From: MSB  
Mounting: Surface  
Enclosure: Type 1  
Volts: 480/277 Wye  
Phases: 3  
Wires: 4  
A.I.C. Rating: 14K  
Mains Type:  
Mains Rating: 400 A  
MCB Rating:

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	XFMR TO EV1L	400 A	3	97200...	442 VA		1	20 A	L-STORAGE AND SECURITY ROOM	2
3	--	--	--	97200...	0 VA		1	20 A	Spare	4
5	--	--	--	93600...	0 VA		1	20 A	Spare	6
7										8
9										10
11										12
<b>Total Load:</b>				97642 VA	97200 VA	93600 VA				
<b>Total Amps:</b>				355 A	353 A	338 A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Lighting	442 VA	125.00%	553 VA	
Other	288000 VA	100.00%	288000 VA	
				<b>Total Conn. Load:</b> 288442 VA
				<b>Total Est. Demand:</b> 288553 VA
				<b>Total Conn.:</b> 347 A
				<b>Total Est. Demand:</b> 347 A

Notes:

### Branch Panel: EHP

Location: ELECTRIC ROOM 104  
Supply From: MSB  
Mounting: Surface  
Enclosure: Type 1  
Volts: 480/277 Wye  
Phases: 3  
Wires: 4  
A.I.C. Rating: 65K  
Mains Type:  
Mains Rating: 100 A  
MCB Rating:

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	
1	EM LIGHTING FE1-LEVEL 1A	20 A	1	1056...	0 VA		1	20 A	EXIT SIGNS	2	
3	EM LIGHTING FE1-LEVEL 1B	20 A	1		2310...	92 VA	1	20 A	L-ELEVATOR LANDING	4	
5						204 VA	1	20 A	L-ELECTRICAL AND BATTERY ROOM	6	
7	EM LIGHTING FE1+FE7-LEVEL 3	20 A	1	528 VA	1800...		1	20 A	EM LIGHTING - HANDRAILS	8	
9	L- STAIRS FE8	20 A	1		396 VA	6014...	3	30 A	ELEVATOR**	10	
11	L- EXT CORRIDOR FE7	20 A	1			1056...	6014...	--	--	12	
13	Spare	20 A	1	0 VA	6014...		--	--	--	14	
15	Spare	20 A	1		0 VA	1000...	1	20 A	ELEVATOR CONTROLLER**	16	
17	Spare	20 A	1			0 VA	360 VA	3	30 A	TEP TO PANEL ELP	18
19	Spare	20 A	1	0 VA	0 VA		--	--	--	20	
21	Spare	20 A	1		0 VA	0 VA	--	--	--	22	
23	Spare	20 A	1			0 VA	--	--	--	24	
<b>Total Load:</b>				9398 VA	9812 VA	7634 VA					
<b>Total Amps:</b>				35 A	36 A	28 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Lighting	7442 VA	125.00%	9303 VA	
Other	19041 VA	100.00%	19041 VA	
Power	360 VA	100.00%	360 VA	
				<b>Total Conn. Load:</b> 26843 VA
				<b>Total Est. Demand:</b> 28704 VA
				<b>Total Conn.:</b> 32 A
				<b>Total Est. Demand:</b> 35 A

Notes:

\*\* PROVIDE SHUNT TRIP BREAKER AND INTERCONNECT WITH ELEVATOR PRE-ACTION SYSTEM.

### Branch Panel: NHP

Location: ELECTRIC ROOM 104  
Supply From: MSB  
Mounting: Surface  
Enclosure: Type 1  
Volts: 480/277 Wye  
Phases: 3  
Wires: 4  
A.I.C. Rating: 65K  
Mains Type:  
Mains Rating: 200 A  
MCB Rating:

Notes:

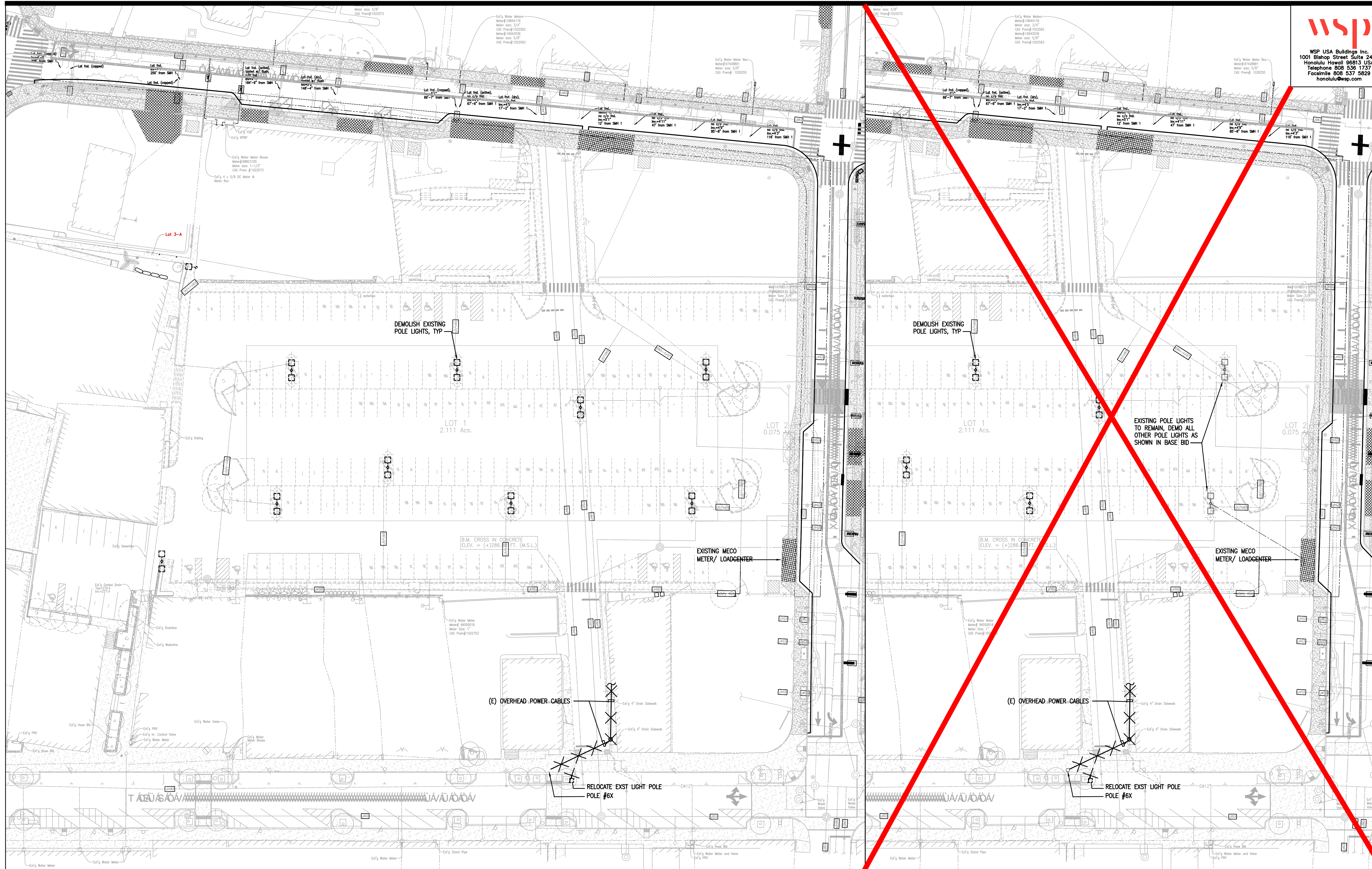
CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	
1	L-LEVEL 1A FE1	20 A	1	1122...	1458...		1	20 A	L-LEVEL 1B FE1	2	
3	L-LEVEL 1A FE12	20 A	1		3558...	3685...	1	20 A	L-LEVEL 1B FE12	4	
5	L-LEVEL 1A FE12	20 A	1			3478...	4034...	1	20 A	L-LEVEL 1B FE12	6
7	L-FE13 SCONCES	20 A	1	308 VA	1300...		1	20 A	L-HANDRAIL DECORATIVE	8	
9	L-LEVEL 2 FE1	20 A	1		1188...	68 VA	1	20 A	L-LEVEL 1B FE15	10	
11	L-LEVEL 2 FE12	20 A	1			4165...	198 VA	1	20 A	L-FE1+FE7 LEVEL 3	12
13	L-LEVEL 2 FE12	20 A	1	3459...	0 VA		1	20 A	L-FS1 TALL POLE	14	
15	L-EXT CORRIDOR FE7	20 A	1		1188...	70 VA	1	20 A	L-OUTDOOR LIGHTS	16	
17	L-FE9 ART WALLS	20 A	1			922 VA	0 VA	1	20 A	L-FS2 OUTDOOR LIGHTS	18
19	L-FE13A ART WALLS	20 A	1	44 VA	136 VA		1	20 A	L-GENERAL	20	
21	Spare	20 A	1		0 VA					22	
23	Spare	20 A	1			0 VA				24	
25	Spare	20 A	1	0 VA						26	
27	Spare	20 A	1		0 VA					28	
29	Spare	20 A	1			0 VA				30	
31	Spare	20 A	1	0 VA						32	
33	Spare	20 A	1		0 VA					34	
35	Spare	20 A	1			0 VA				36	
37	TNP TO NLP	30 A	3	8860...						38	
39	--	--	--		6354...					40	
41	--	--	--			6860...				42	
<b>Total Load:</b>				16687 VA	16111 VA	19657 VA					
<b>Total Amps:</b>				61 A	58 A	71 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
HVAC	6440 VA	100.00%	6440 VA	
Lighting	30777 VA	125.00%	38471 VA	
Other	4800 VA	100.00%	4800 VA	
Power	10800 VA	100.00%	10800 VA	
				<b>Total Conn. Load:</b> 52817 VA
				<b>Total Est. Demand:</b> 60511 VA
				<b>Total Conn.:</b> 64 A
				<b>Total Est. Demand:</b> 73 A

Notes:





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**FERRARO CHOI**

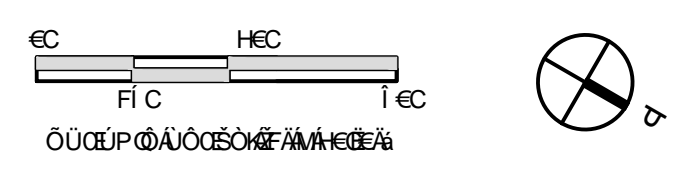
**TOMAS J. DAVIS**  
LICENSED PROFESSIONAL ENGINEER  
15391-1  
HAWAII, U.S.A.

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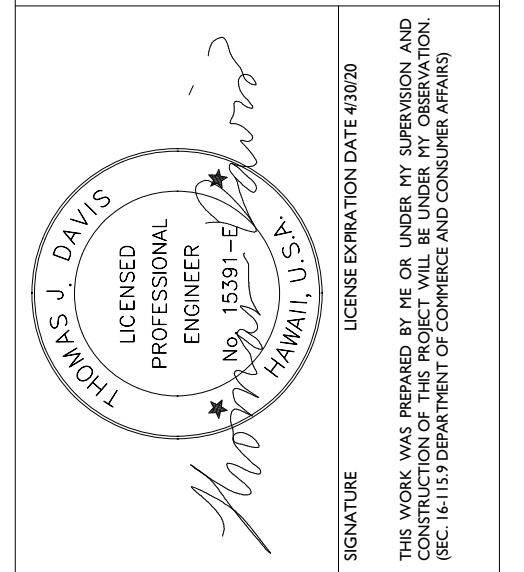
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ΎΣΟΨ ΑΠΟΤ ΎΣΟΨ

**1 ELECTRICAL SITE PLAN - DEMOLITION - BASE BID**  
1" = 30'-0"

**2 ~~ELECTRICAL SITE PLAN - DEMOLITION - DEDUCTIVE ALT B 2~~**  
1" = 30'-0"



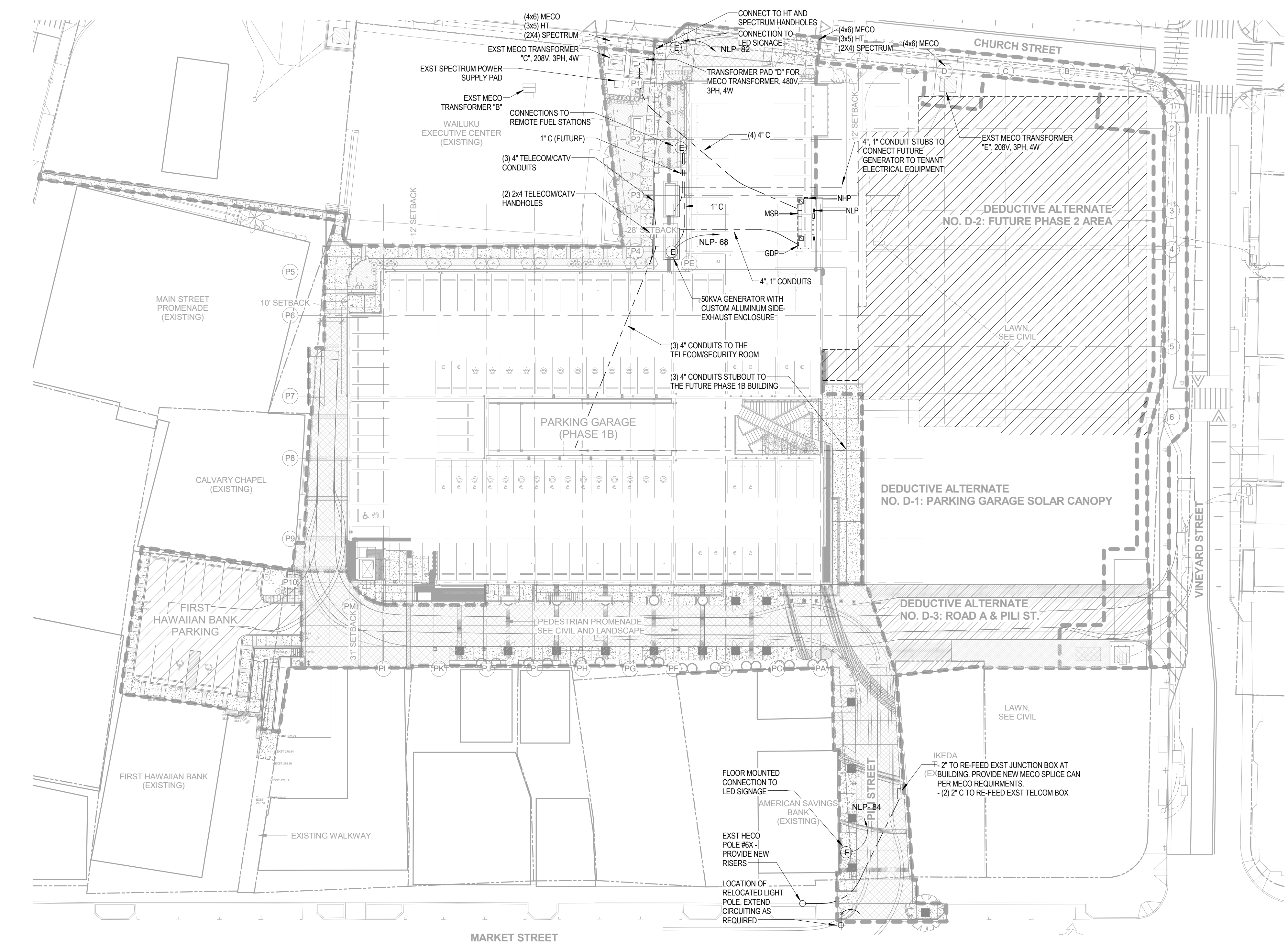
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**WAILUKU CIVIC COMPLEX PHASE 1B**  
 100% FINAL DESIGN  
 [NOT FOR CONSTRUCTION]

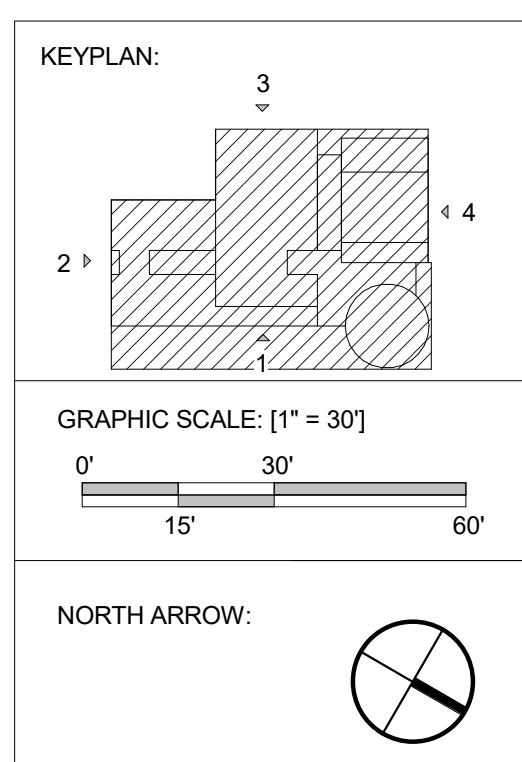
**ELECTRICAL SITE PLAN**

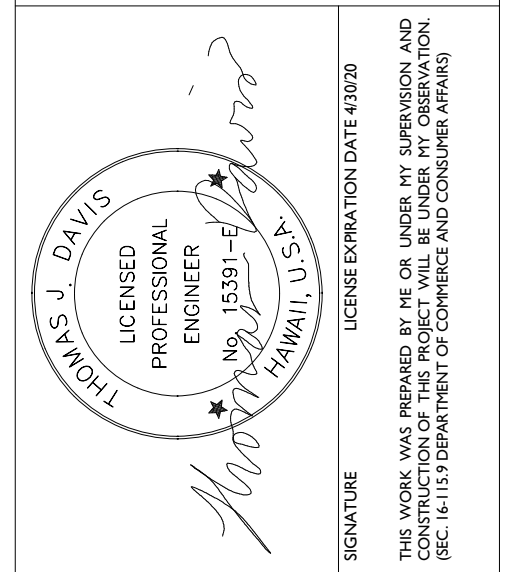
PROJECT:	2017-001	REVISIONS:	
DRAWN:	Author		
DATE:	7/25/2019		
PHASE	1B	SHEET	E100
		OF	SHEETS



**1 ELECTRICAL SITE PLAN**  
 1" = 30'-0"

**GENERAL NOTES:**  
 A. CONNECT ALL DEVICES TO PANEL NLP UNLESS OTHERWISE NOTED.

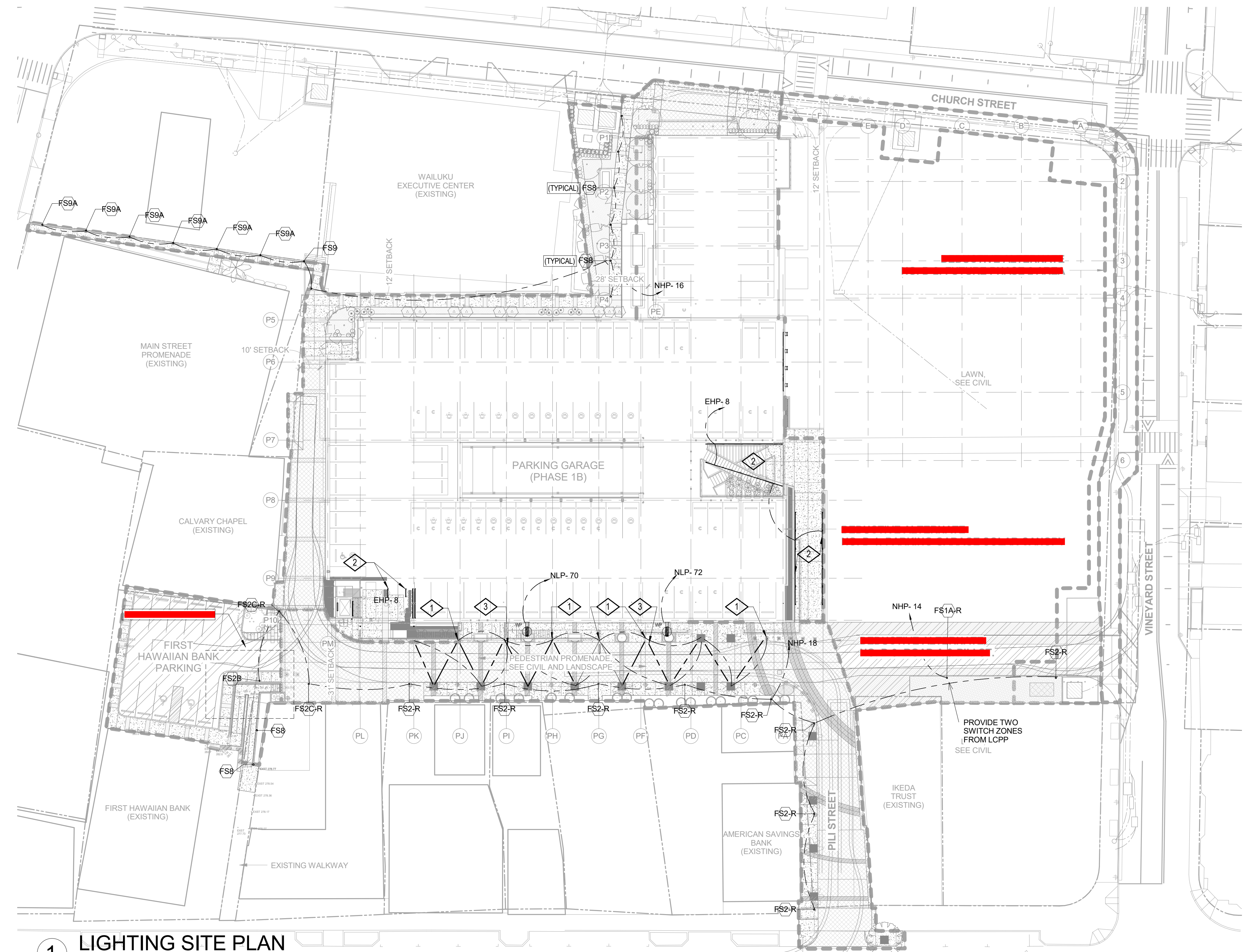




**WAILUKU CIVIC COMPLEX PHASE 1B**  
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SHEET TITLE:  
**LIGHTING SITE PLAN**

PROJECT:	2017-001	REVISIONS:	
DRAWN:	Author		
DATE:	7/25/2019		
PHASE	1B	SHEET	E101
		OF	SHEETS



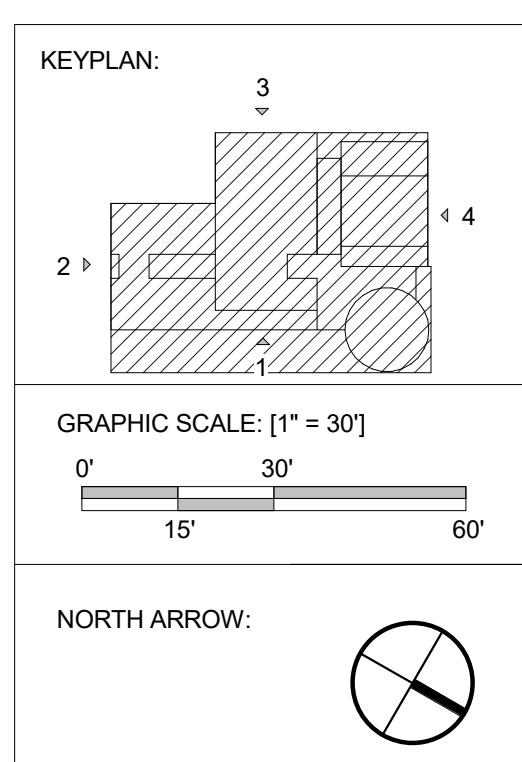
**1 LIGHTING SITE PLAN**  
 1" = 30'-0"

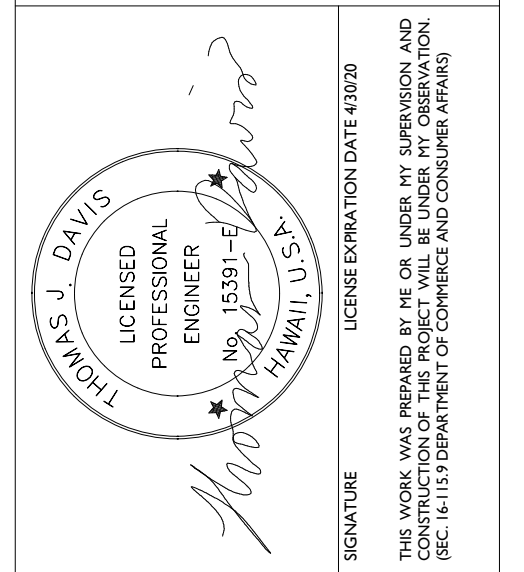
**KEYNOTES:**

- 1 PROVIDE MOUNTING ACCESSORIES ON PARKING STRUCTURE FACADE FOR FUTURE USE OF HOLIDAY LIGHTING. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL QUANTITIES AND LOCATIONS.
- 2 ILLUMINATED HANDRAIL. (LOCATIONS AND LENGTHS ARE FOR REFERENCE ONLY) TO BE PROVIDED BY OTHERS.
- 3 PROVIDE WEATHERPROOF RECEPTACLES FOR FUTURE STRING LIGHTING. (LOCATIONS AND LENGTHS ARE FOR REFERENCE ONLY) TO BE PROVIDED BY OTHERS.

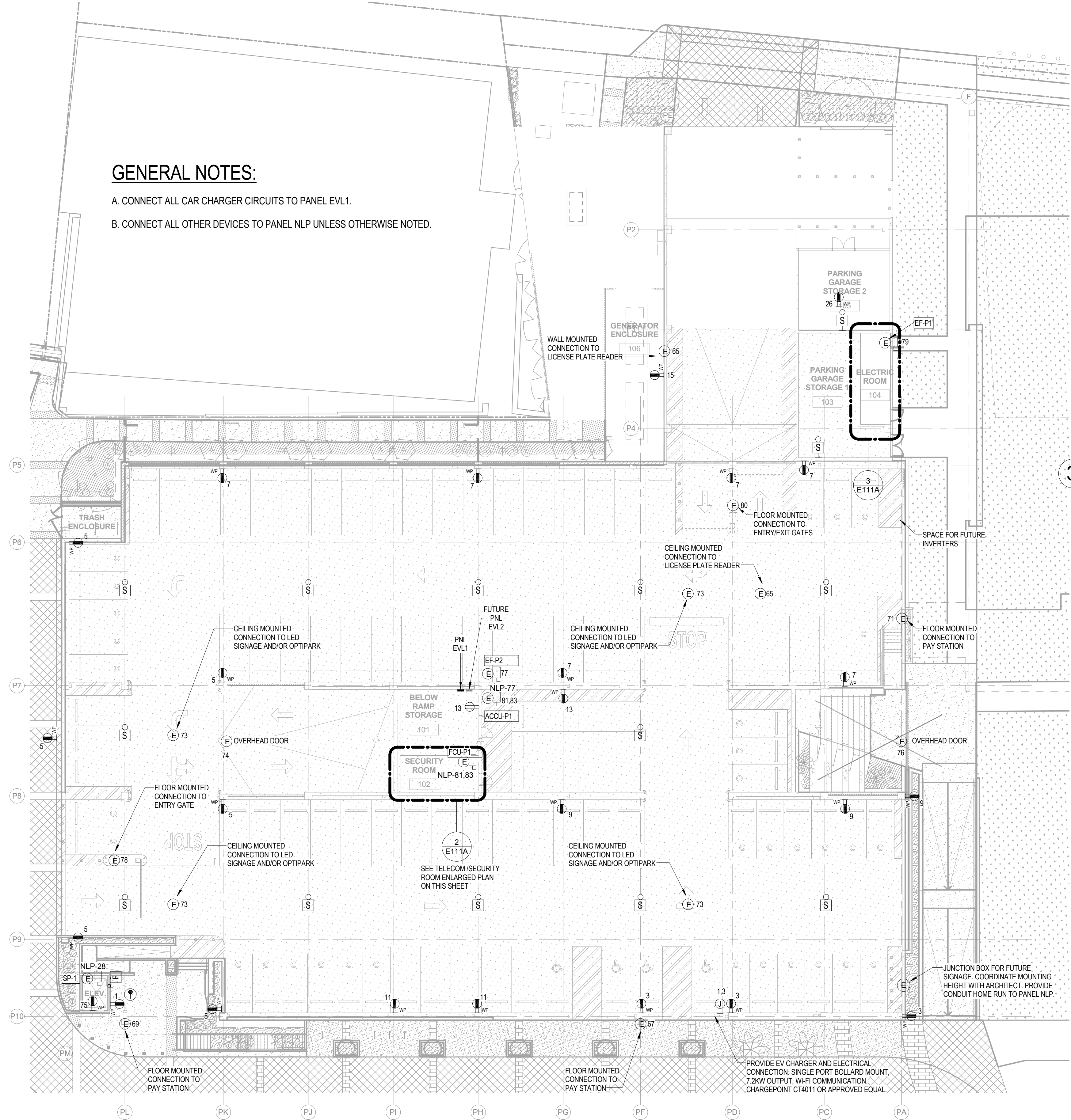
**GENERAL NOTES:**

- A. CONNECT ALL LIGHTING CIRCUITS THROUGH LIGHTING CONTROL PANEL "LCPP" PER DETAIL 1/E304.
- B. REFER TO RAISED CONCRETE BASE AND ANCHORAGE DETAIL SHOWN ON SHEET E304.

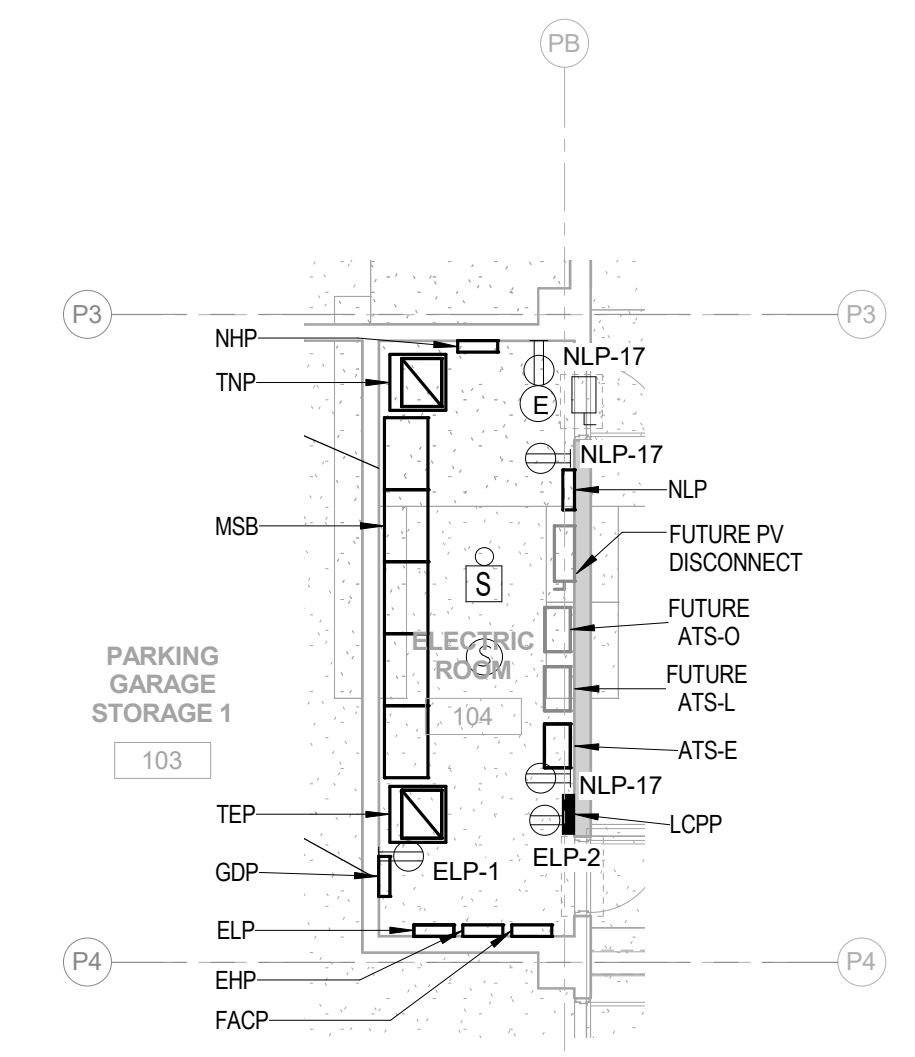




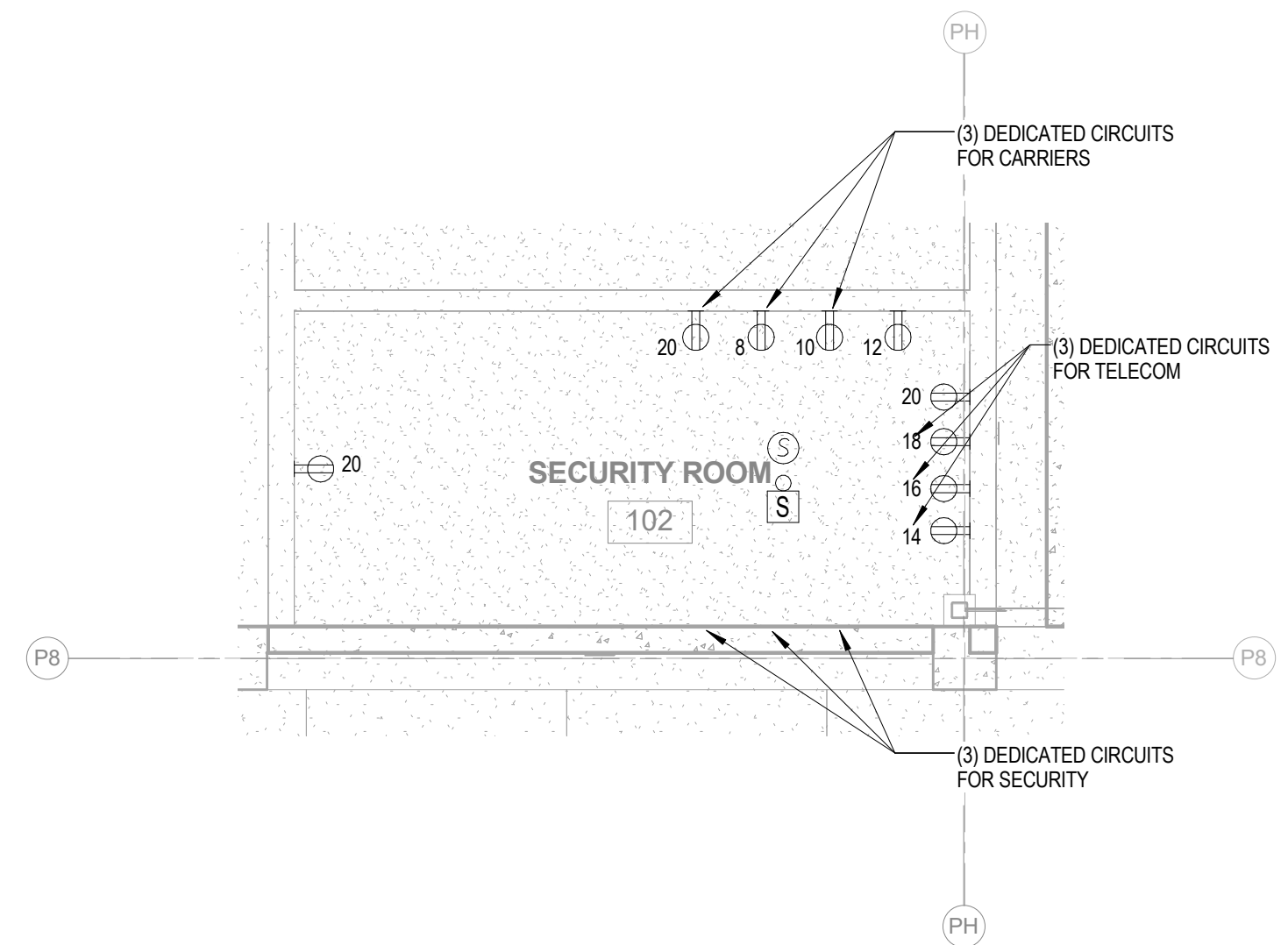
**GENERAL NOTES:**  
 A. CONNECT ALL CAR CHARGER CIRCUITS TO PANEL EVL1.  
 B. CONNECT ALL OTHER DEVICES TO PANEL NLP UNLESS OTHERWISE NOTED.



**1 ELECTRICAL PLAN - LEVEL 1A**  
 1/16" = 1'-0"



**3 ELECTRICAL ROOM ENLARGED PLAN**  
 1/8" = 1'-0"



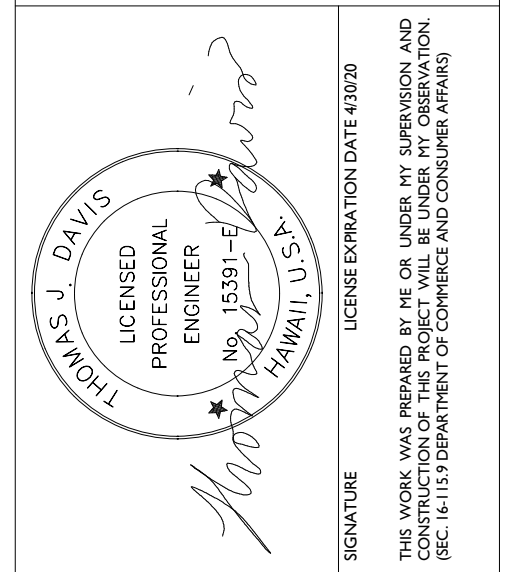
**2 TELECOM/SECURITY ROOM ENLARGED PLAN**  
 3/16" = 1'-0"

**KEYPLAN:**

**GRAPHIC SCALE:** [1/16" = 1'-0"]  
 0' 10' 30'  
 5' 20'

**NORTH ARROW:**

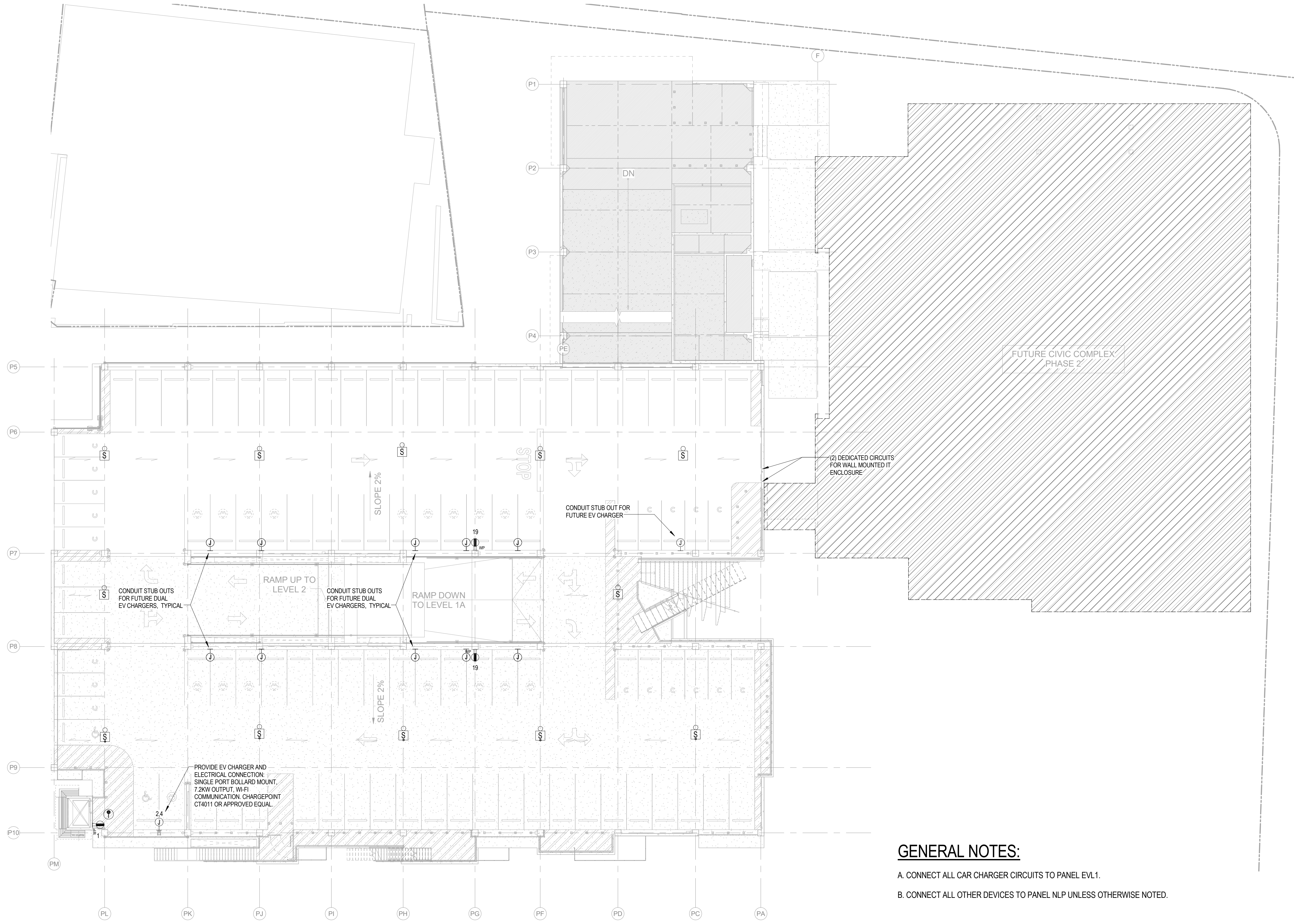
PROJECT:		2017-001		REVISIONS:	
DRAWN:		WSP			
DATE:		7/25/2019			
PHASE	SHEET	1B	E111A	OF	SHEETS
SHEET TITLE:		ELECTRICAL PLAN - LEVEL 1A		CADD FILE:	



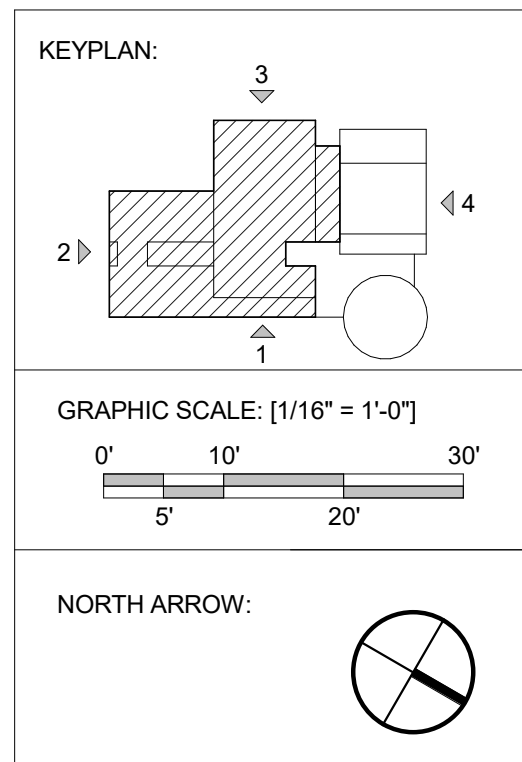
**WAILUKU CIVIC COMPLEX PHASE 1B**  
 100% FINAL DESIGN  
 [NOT FOR CONSTRUCTION]

SHEET TITLE:  
**ELECTRICAL PLAN - LEVEL 1B**  
 CADD FILE:

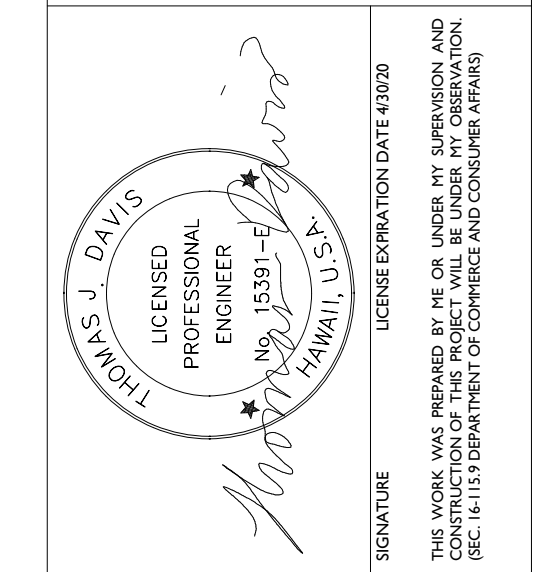
PROJECT:	2017-001	REVISIONS:	
DRAWN:	WSP		
DATE:	7/25/2019		
PHASE	1B	SHEET	E111B
		OF	SHEETS



- GENERAL NOTES:**
- A. CONNECT ALL CAR CHARGER CIRCUITS TO PANEL EVL1.
  - B. CONNECT ALL OTHER DEVICES TO PANEL NLP UNLESS OTHERWISE NOTED.



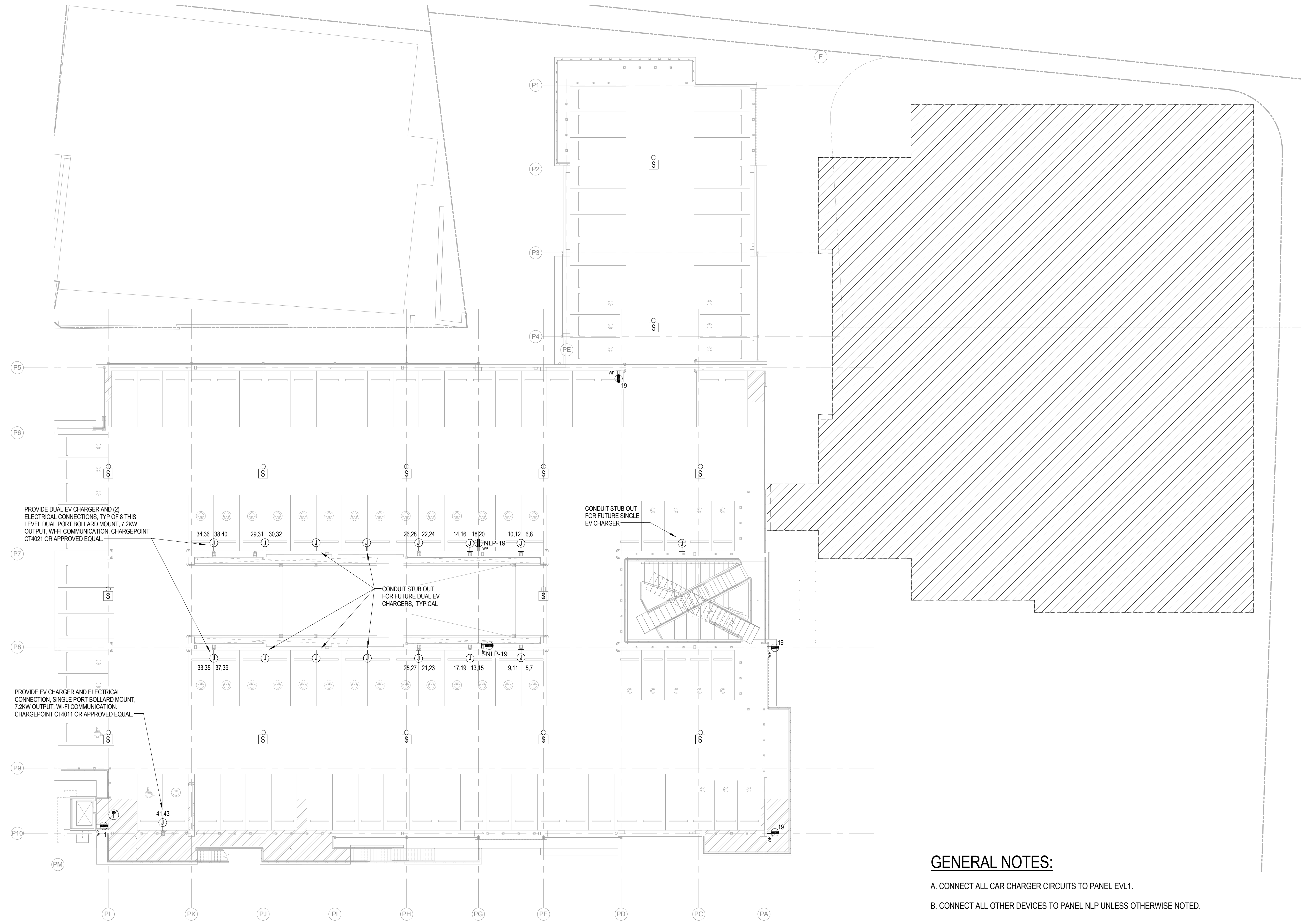
**1**  
**E111B** **ELECTRICAL PLAN - LEVEL 1B**  
 1/16" = 1'-0"



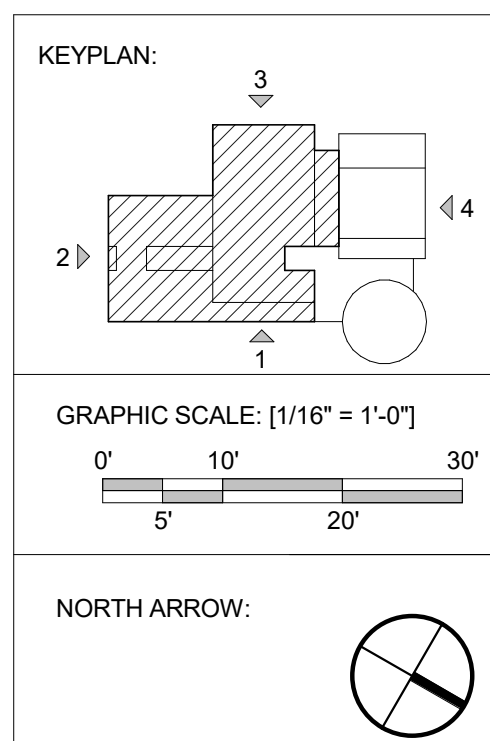
**WAILUKU CIVIC COMPLEX PHASE 1B**  
 100% FINAL DESIGN  
 [NOT FOR CONSTRUCTION]

SHEET TITLE:  
**ELECTRICAL PLAN - LEVEL 2**  
 CADD FILE:

PROJECT:	2017-001	REVISIONS:	
DRAWN:	Author		
DATE:	7/25/2019		
PHASE	1B	SHEET	E112
		OF	SHEETS

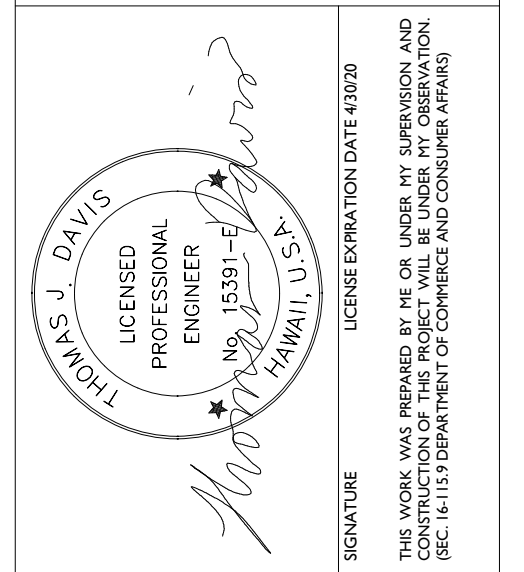


**GENERAL NOTES:**  
 A. CONNECT ALL CAR CHARGER CIRCUITS TO PANEL EVL1.  
 B. CONNECT ALL OTHER DEVICES TO PANEL NLP UNLESS OTHERWISE NOTED.



**1 ELECTRICAL PLAN - LEVEL 2**  
 1/16" = 1'-0"

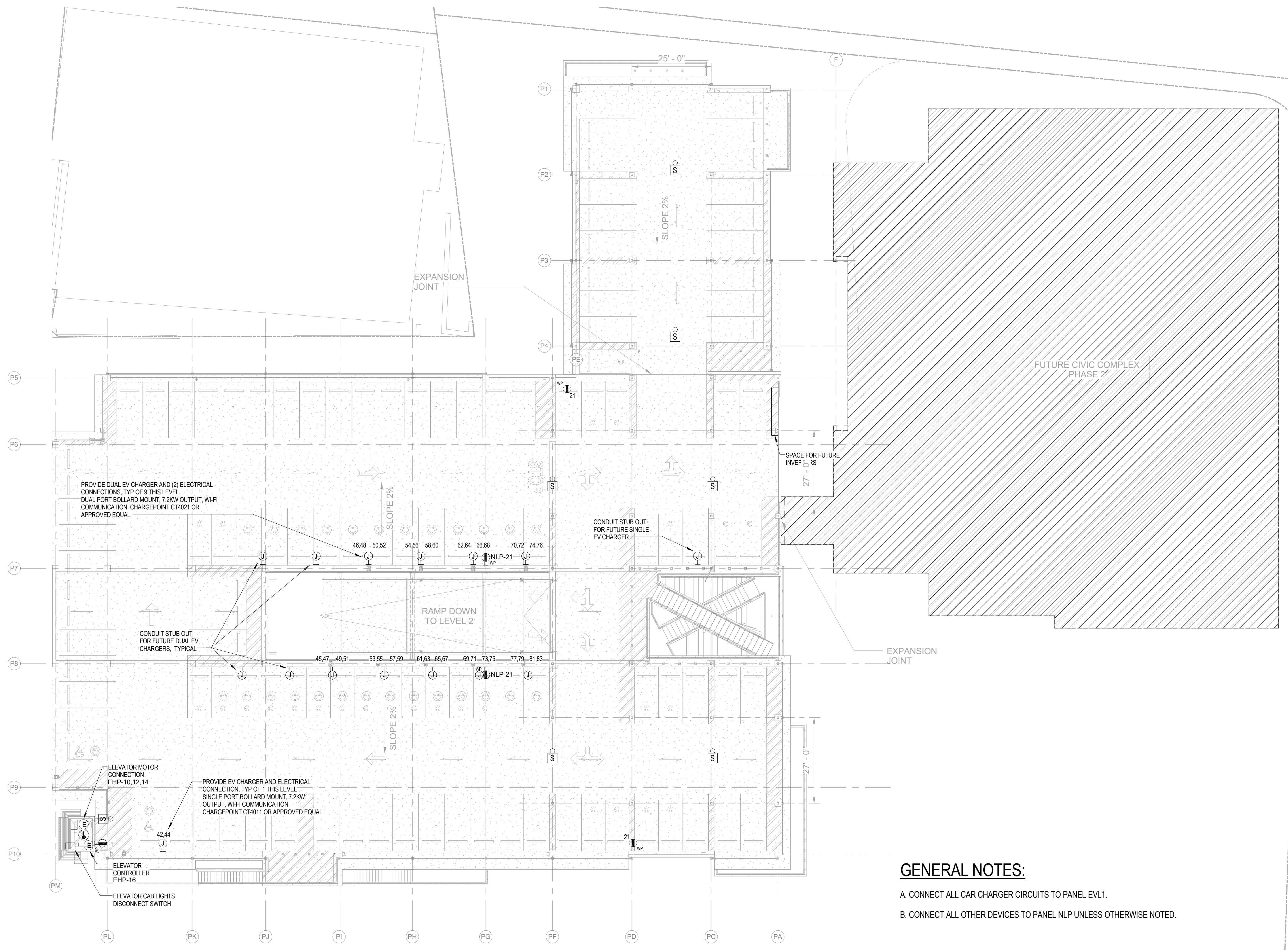




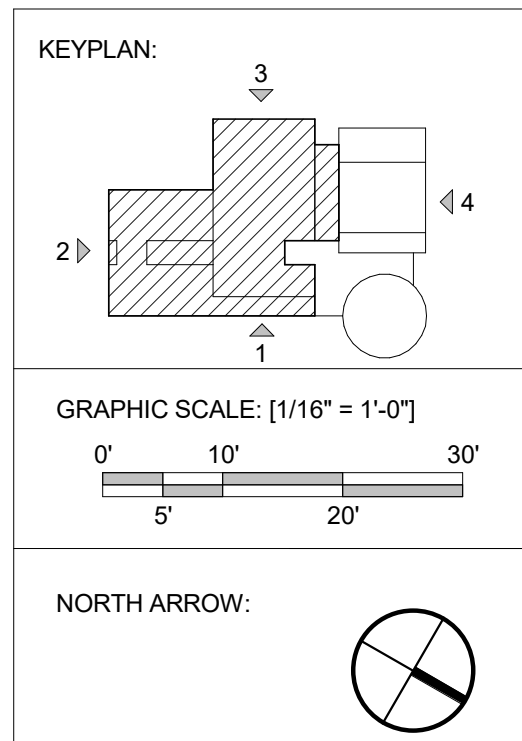
**WAILUKU CIVIC COMPLEX PHASE 1B**  
 100% FINAL DESIGN  
 [NOT FOR CONSTRUCTION]

SHEET TITLE:  
**ELECTRICAL PLAN - LEVEL 3**  
 CADD FILE:

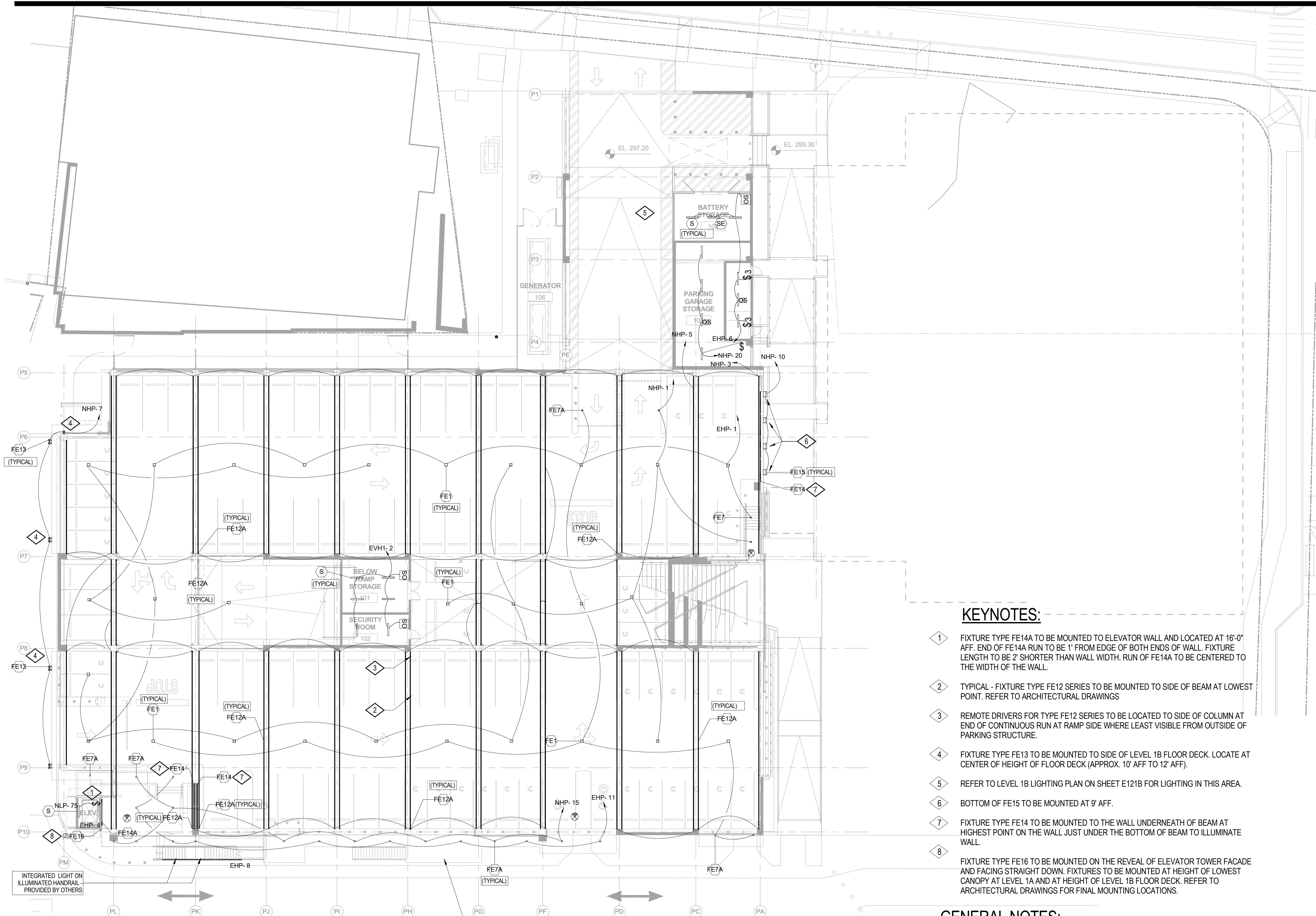
PROJECT:	2017-001	REVISIONS:	
DRAWN:	WSP		
DATE:	7/25/2019		
PHASE	1B	SHEET	E113
		OF	SHEETS



**GENERAL NOTES:**  
 A. CONNECT ALL CAR CHARGER CIRCUITS TO PANEL EVL1.  
 B. CONNECT ALL OTHER DEVICES TO PANEL NLP UNLESS OTHERWISE NOTED.



**1**  
**E113**  
**ELECTRICAL PLAN - LEVEL 3**  
 1/16" = 1'-0"



**1** LIGHTING PLAN - LEVEL 1A  
E121A 1/16" = 1'-0"

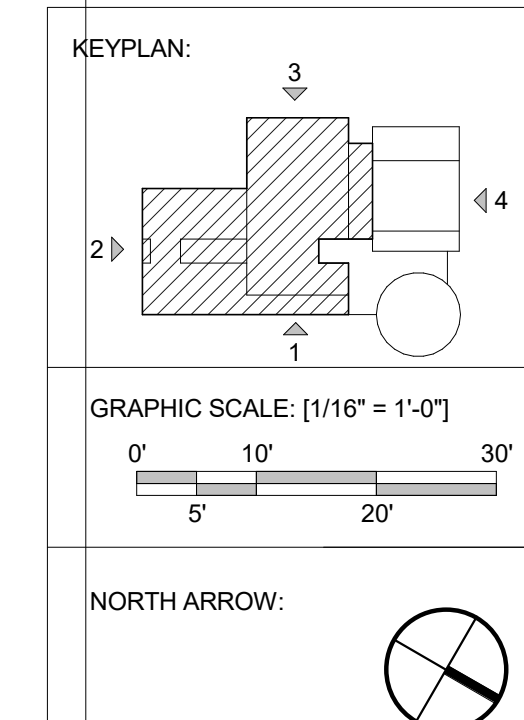
PROVIDE MOUNTING ACCESSORIES ON PARKING STRUCTURE FACADE FOR FUTURE USE OF HOLIDAY LIGHTING. REFER TO ARCHITECTURAL DRAWINGS FOR QUANTITIES AND LOCATIONS.


**KEYNOTES:**

- 1 FIXTURE TYPE FE14A TO BE MOUNTED TO ELEVATOR WALL AND LOCATED AT 16'-0" AFF. END OF FE14A RUN TO BE 1' FROM EDGE OF BOTH ENDS OF WALL. FIXTURE LENGTH TO BE 2' SHORTER THAN WALL WIDTH. RUN OF FE14A TO BE CENTERED TO THE WIDTH OF THE WALL.
- 2 TYPICAL - FIXTURE TYPE FE12 SERIES TO BE MOUNTED TO SIDE OF BEAM AT LOWEST POINT. REFER TO ARCHITECTURAL DRAWINGS
- 3 REMOTE DRIVERS FOR TYPE FE12 SERIES TO BE LOCATED TO SIDE OF COLUMN AT END OF CONTINUOUS RUN AT RAMP SIDE WHERE LEAST VISIBLE FROM OUTSIDE OF PARKING STRUCTURE.
- 4 FIXTURE TYPE FE13 TO BE MOUNTED TO SIDE OF LEVEL 1B FLOOR DECK. LOCATE AT CENTER OF HEIGHT OF FLOOR DECK (APPROX. 10' AFF TO 12' AFF).
- 5 REFER TO LEVEL 1B LIGHTING PLAN ON SHEET E121B FOR LIGHTING IN THIS AREA.
- 6 BOTTOM OF FE15 TO BE MOUNTED AT 9' AFF.
- 7 FIXTURE TYPE FE14 TO BE MOUNTED TO THE WALL UNDERNEATH OF BEAM AT HIGHEST POINT ON THE WALL JUST UNDER THE BOTTOM OF BEAM TO ILLUMINATE WALL.
- 8 FIXTURE TYPE FE16 TO BE MOUNTED ON THE REVEAL OF ELEVATOR TOWER FACADE AND FACING STRAIGHT DOWN. FIXTURES TO BE MOUNTED AT HEIGHT OF LOWEST CANOPY AT LEVEL 1A AND AT HEIGHT OF LEVEL 1B FLOOR DECK. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL MOUNTING LOCATIONS.

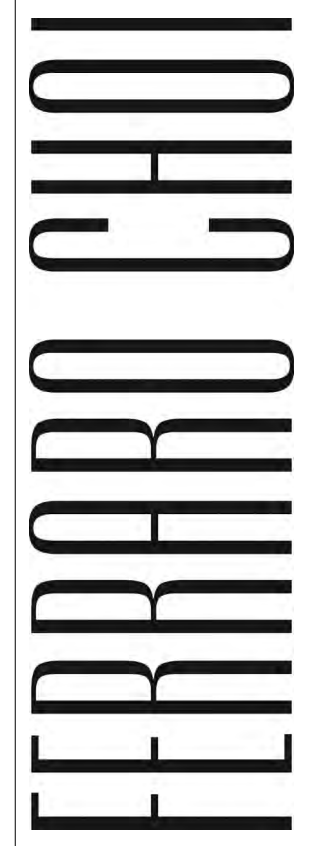
**GENERAL NOTES:**

- A. CONNECT ALL LIGHTING CIRCUITS THROUGH LIGHTING CONTROL PANEL "LCPP" PER DETAIL 1/E304
- B. CONNECT ALL EXIT SIGNS TO CIRCUIT EHP-2.

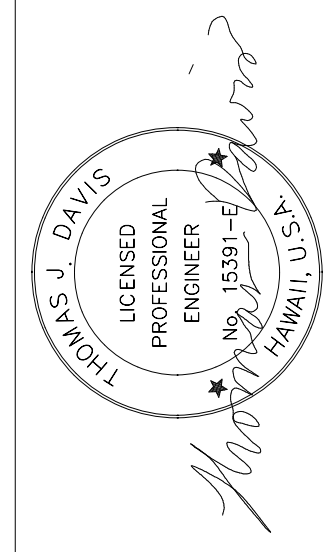




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TEL 808 533 8880 FAX 808 599 3769 www.ferrarochoi.com



THOMAS J. DAVIS  
LICENSED PROFESSIONAL ENGINEER  
NO. 15391-E  
HAWAII, U.S.A.  
LICENSE EXPIRATION DATE 4/30/20

THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND I AM A duly Licensed Professional Engineer in the State of Hawaii, Department of Commerce and Consumer Affairs.

**WAILUKU CIVIC COMPLEX PHASE 1B**  
**100% FINAL DESIGN**  
**NOT FOR CONSTRUCTION**

SHEET TITLE:  
**LIGHTING PLAN - LEVEL 1A**

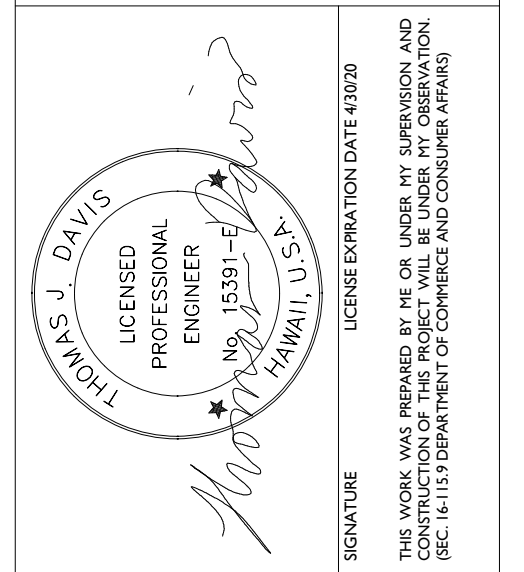
CADD FILE:

PROJECT:	REVISIONS:	DRAWN:	DATE:	SHEET	OF
2017-001		WSP	7/25/2019	<b>1B E121A</b>	

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 honolulu@wsp.com

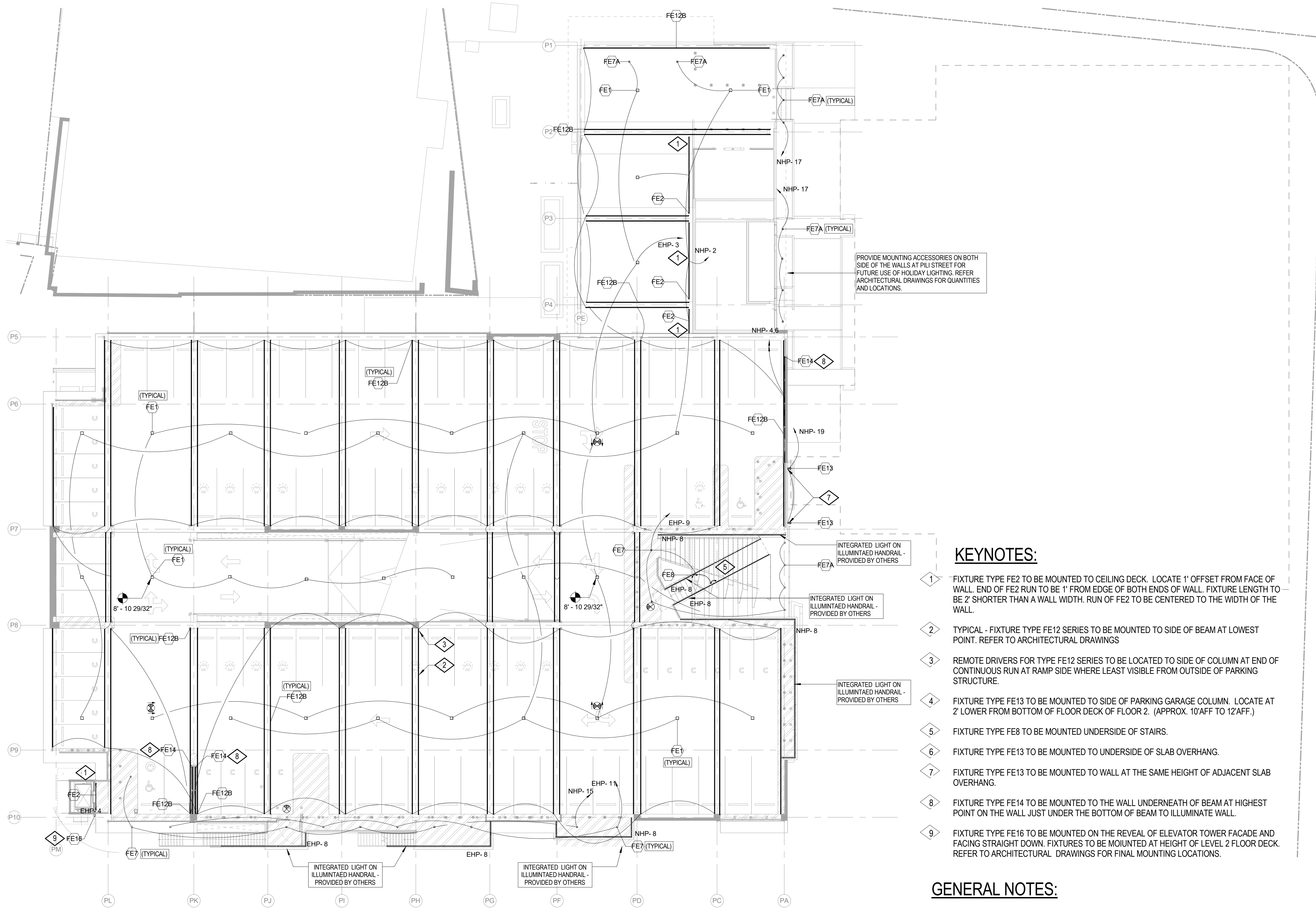
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**WAILUKU CIVIC COMPLEX PHASE 1B**  
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SHEET TITLE:  
**LIGHTING PLAN - LEVEL 1B**

PROJECT:	2017-001	REVISIONS:	
DRAWN:	WSP		
DATE:	7/25/2019		
PHASE	SHEET		
<b>1B</b>	<b>E121B</b>		
OF	SHEETS		

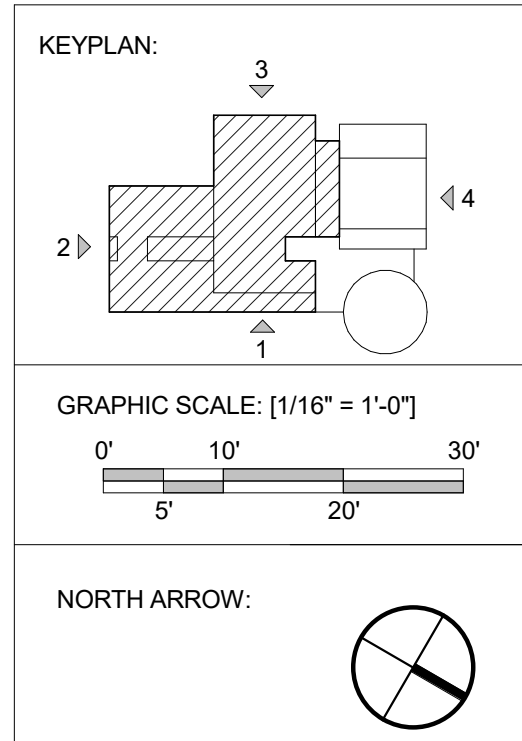


**KEYNOTES:**

1. FIXTURE TYPE FE2 TO BE MOUNTED TO CEILING DECK. LOCATE 1' OFFSET FROM FACE OF WALL. END OF FE2 RUN TO BE 1' FROM EDGE OF BOTH ENDS OF WALL. FIXTURE LENGTH TO BE 2' SHORTER THAN A WALL WIDTH. RUN OF FE2 TO BE CENTERED TO THE WIDTH OF THE WALL.
2. TYPICAL - FIXTURE TYPE FE12 SERIES TO BE MOUNTED TO SIDE OF BEAM AT LOWEST POINT. REFER TO ARCHITECTURAL DRAWINGS
3. REMOTE DRIVERS FOR TYPE FE12 SERIES TO BE LOCATED TO SIDE OF COLUMN AT END OF CONTINUOUS RUN AT RAMP SIDE WHERE LEAST VISIBLE FROM OUTSIDE OF PARKING STRUCTURE.
4. FIXTURE TYPE FE13 TO BE MOUNTED TO SIDE OF PARKING GARAGE COLUMN. LOCATE AT 2' LOWER FROM BOTTOM OF FLOOR DECK OF FLOOR 2. (APPROX. 10' AFF TO 12' AFF.)
5. FIXTURE TYPE FE8 TO BE MOUNTED UNDERSIDE OF STAIRS.
6. FIXTURE TYPE FE13 TO BE MOUNTED TO UNDERSIDE OF SLAB OVERHANG.
7. FIXTURE TYPE FE13 TO BE MOUNTED TO WALL AT THE SAME HEIGHT OF ADJACENT SLAB OVERHANG.
8. FIXTURE TYPE FE14 TO BE MOUNTED TO THE WALL UNDERNEATH OF BEAM AT HIGHEST POINT ON THE WALL JUST UNDER THE BOTTOM OF BEAM TO ILLUMINATE WALL.
9. FIXTURE TYPE FE16 TO BE MOUNTED ON THE REVEAL OF ELEVATOR TOWER FACADE AND FACING STRAIGHT DOWN. FIXTURES TO BE MOUNTED AT HEIGHT OF LEVEL 2 FLOOR DECK. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL MOUNTING LOCATIONS.

**GENERAL NOTES:**

- A. CONNECT ALL LIGHTING CIRCUITS THROUGH LIGHTING CONTROL PANEL "LCP" PER DETAIL 1/E304
- B. CONNECT ALL EXIT SIGNS TO CIRCUIT EHP-2.

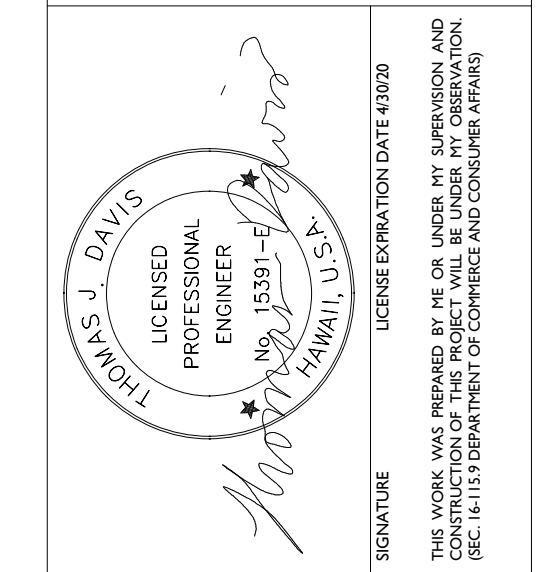


**1 LIGHTING PLAN - LEVEL 1B**  
 E121B 1/16" = 1'-0"

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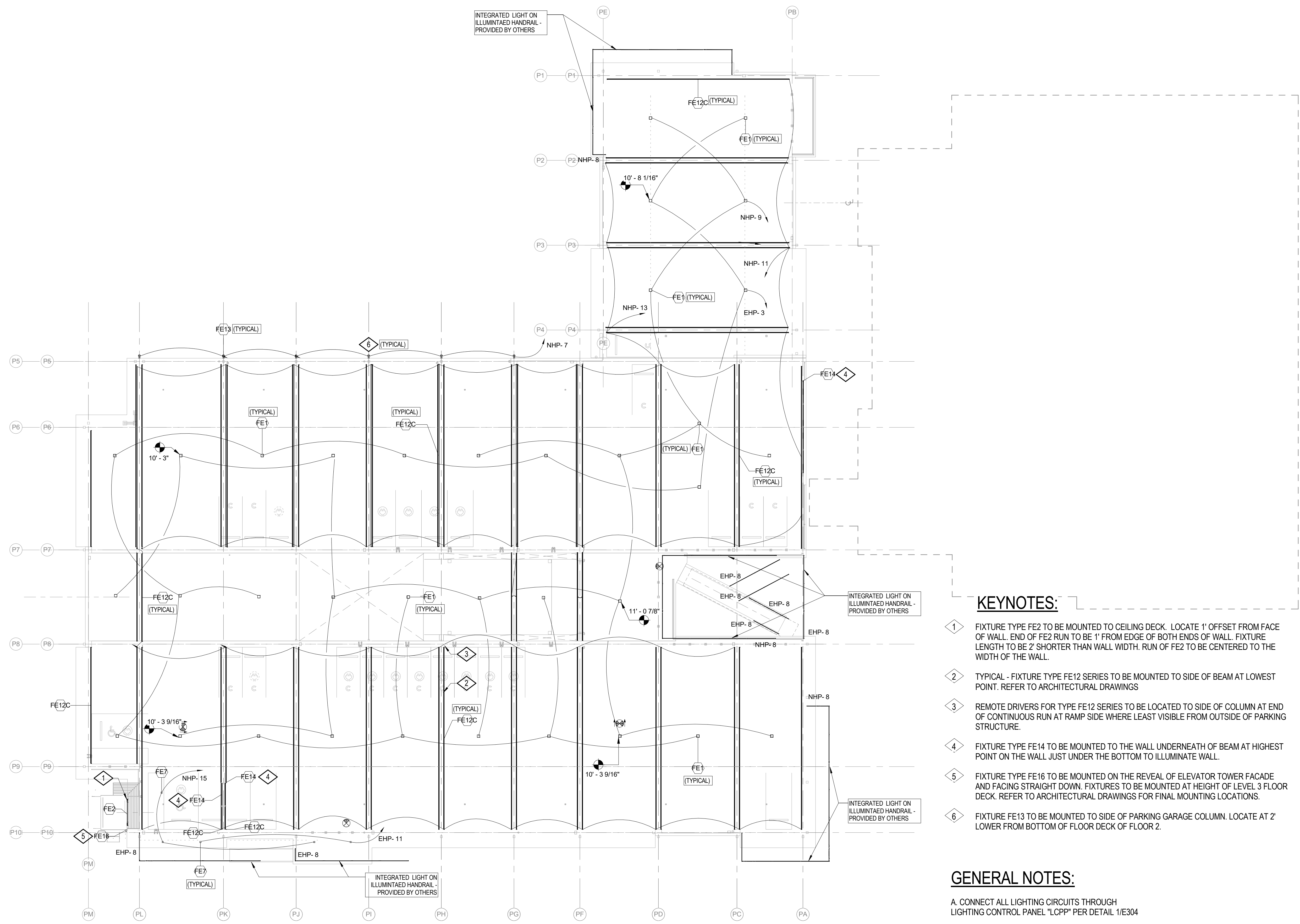
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**WAILUKU CIVIC COMPLEX PHASE 1B**  
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 [NOT FOR CONSTRUCTION]

SHEET TITLE: <b>LIGHTING PLAN - LEVEL 2</b>		CADD FILE:	
PROJECT:	2017-001	REVISIONS:	
DRAWN:	Author		
DATE:	7/25/2019		
PHASE	1B	SHEET	E122
		OF	SHEETS

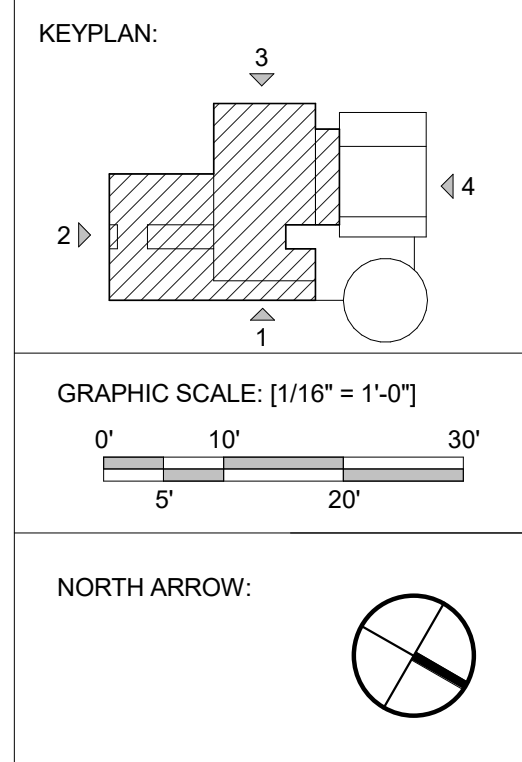


**KEYNOTES:**

1. FIXTURE TYPE FE2 TO BE MOUNTED TO CEILING DECK. LOCATE 1' OFFSET FROM FACE OF WALL. END OF FE2 RUN TO BE 1' FROM EDGE OF BOTH ENDS OF WALL. FIXTURE LENGTH TO BE 2' SHORTER THAN WALL WIDTH. RUN OF FE2 TO BE CENTERED TO THE WIDTH OF THE WALL.
2. TYPICAL - FIXTURE TYPE FE12 SERIES TO BE MOUNTED TO SIDE OF BEAM AT LOWEST POINT. REFER TO ARCHITECTURAL DRAWINGS
3. REMOTE DRIVERS FOR TYPE FE12 SERIES TO BE LOCATED TO SIDE OF COLUMN AT END OF CONTINUOUS RUN AT RAMP SIDE WHERE LEAST VISIBLE FROM OUTSIDE OF PARKING STRUCTURE.
4. FIXTURE TYPE FE14 TO BE MOUNTED TO THE WALL UNDERNEATH OF BEAM AT HIGHEST POINT ON THE WALL JUST UNDER THE BOTTOM TO ILLUMINATE WALL.
5. FIXTURE TYPE FE16 TO BE MOUNTED ON THE REVEAL OF ELEVATOR TOWER FACADE AND FACING STRAIGHT DOWN. FIXTURES TO BE MOUNTED AT HEIGHT OF LEVEL 3 FLOOR DECK. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL MOUNTING LOCATIONS.
6. FIXTURE FE13 TO BE MOUNTED TO SIDE OF PARKING GARAGE COLUMN. LOCATE AT 2' LOWER FROM BOTTOM OF FLOOR DECK OF FLOOR 2.

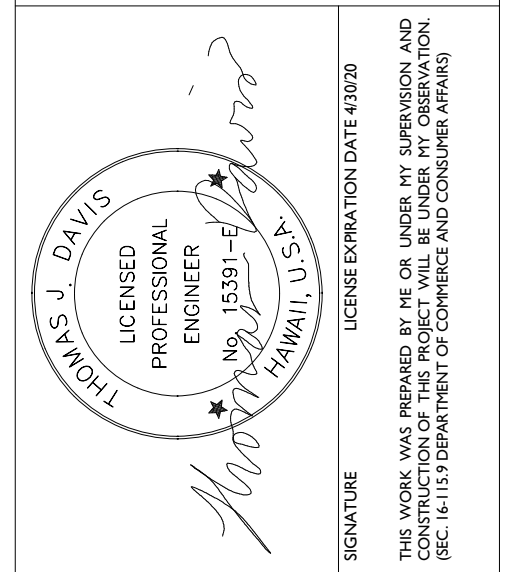
**GENERAL NOTES:**

- A. CONNECT ALL LIGHTING CIRCUITS THROUGH LIGHTING CONTROL PANEL "LCPP" PER DETAIL 1/E304
- B. CONNECT ALL EXIT SIGNS TO CIRCUIT EHP-2.



**1 LIGHTING PLAN - LEVEL 2**  
 E122 1/16" = 1'-0"

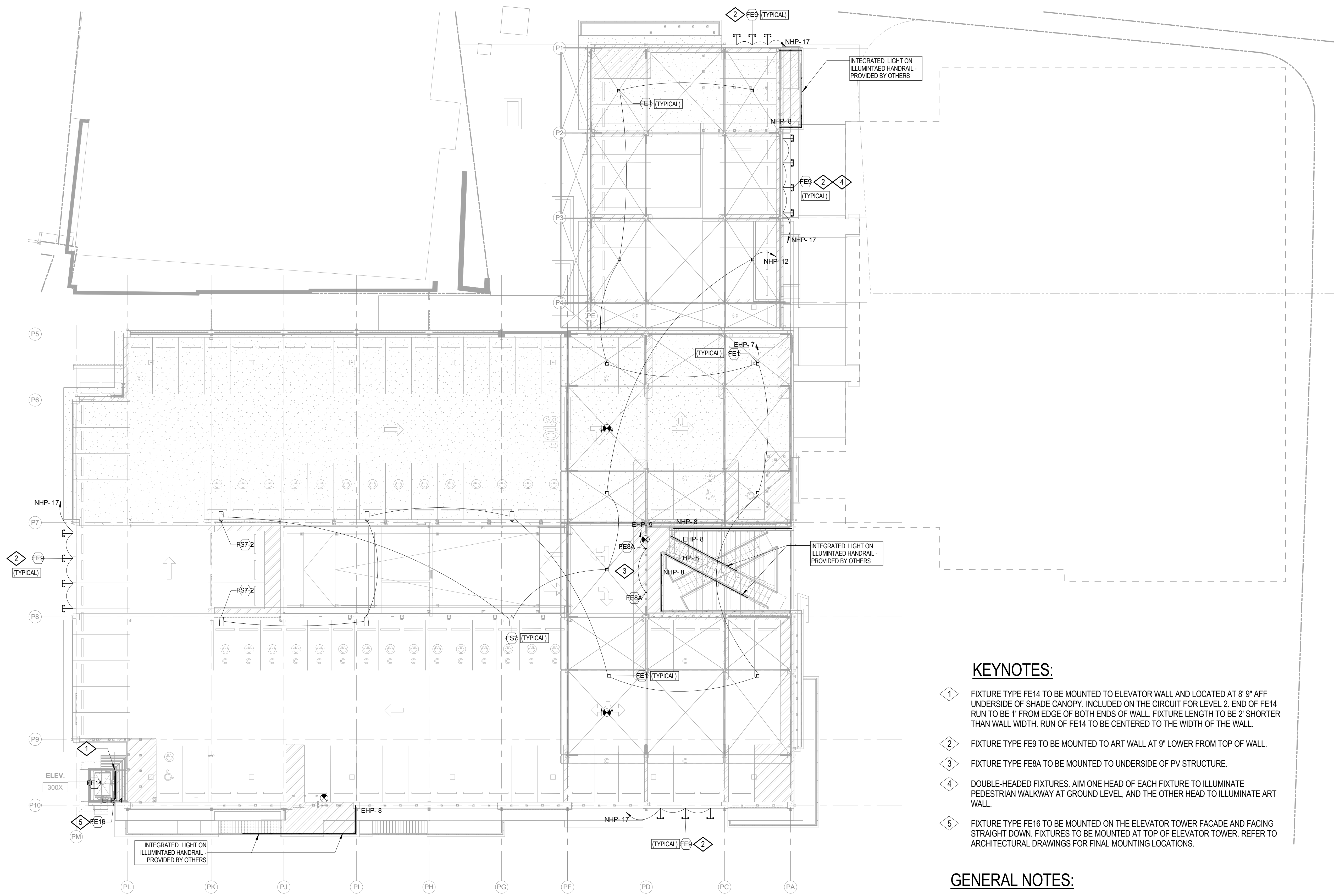
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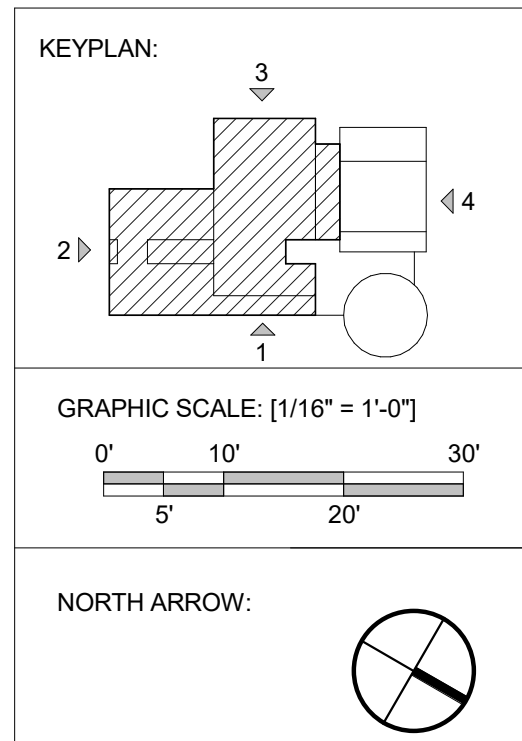
SHEET TITLE:  
**LIGHTING PLAN - LEVEL 3 (BASE BID)**

PROJECT:	2017-001	REVISIONS:	
DRAWN:	WSP		
DATE:	7/25/2019		
PHASE	1B	SHEET	E123
		OF	SHEETS



- KEYNOTES:**
- 1 FIXTURE TYPE FE14 TO BE MOUNTED TO ELEVATOR WALL AND LOCATED AT 8' 9" AFF UNDERSIDE OF SHADE CANOPY. INCLUDED ON THE CIRCUIT FOR LEVEL 2. END OF FE14 RUN TO BE 1' FROM EDGE OF BOTH ENDS OF WALL. FIXTURE LENGTH TO BE 2' SHORTER THAN WALL WIDTH. RUN OF FE14 TO BE CENTERED TO THE WIDTH OF THE WALL.
  - 2 FIXTURE TYPE FE9 TO BE MOUNTED TO ART WALL AT 9" LOWER FROM TOP OF WALL.
  - 3 FIXTURE TYPE FE8A TO BE MOUNTED TO UNDERSIDE OF PV STRUCTURE.
  - 4 DOUBLE-HEADED FIXTURES. AIM ONE HEAD OF EACH FIXTURE TO ILLUMINATE PEDESTRIAN WALKWAY AT GROUND LEVEL, AND THE OTHER HEAD TO ILLUMINATE ART WALL.
  - 5 FIXTURE TYPE FE16 TO BE MOUNTED ON THE ELEVATOR TOWER FACADE AND FACING STRAIGHT DOWN. FIXTURES TO BE MOUNTED AT TOP OF ELEVATOR TOWER. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL MOUNTING LOCATIONS.

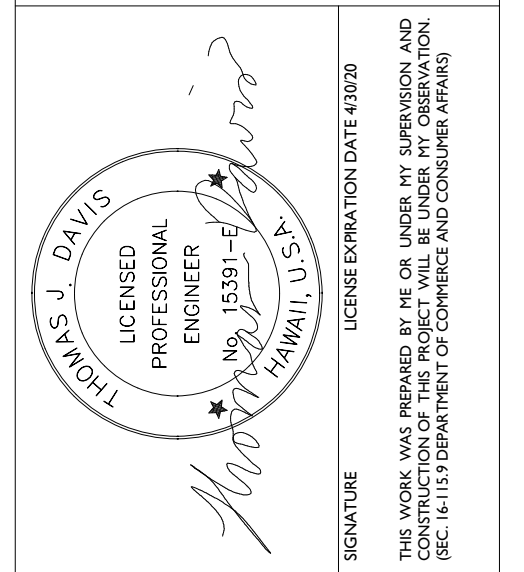
- GENERAL NOTES:**
- A. CONNECT ALL LIGHTING CIRCUITS THROUGH LIGHTING CONTROL PANEL "LCPP" PER DETAIL 1/E304
  - B. CONNECT ALL EXIT SIGNS TO CIRCUIT EHP-2.



**1** LIGHTING PLAN - LEVEL 3 (BASE BID)  
 E123 1/16" = 1'-0"

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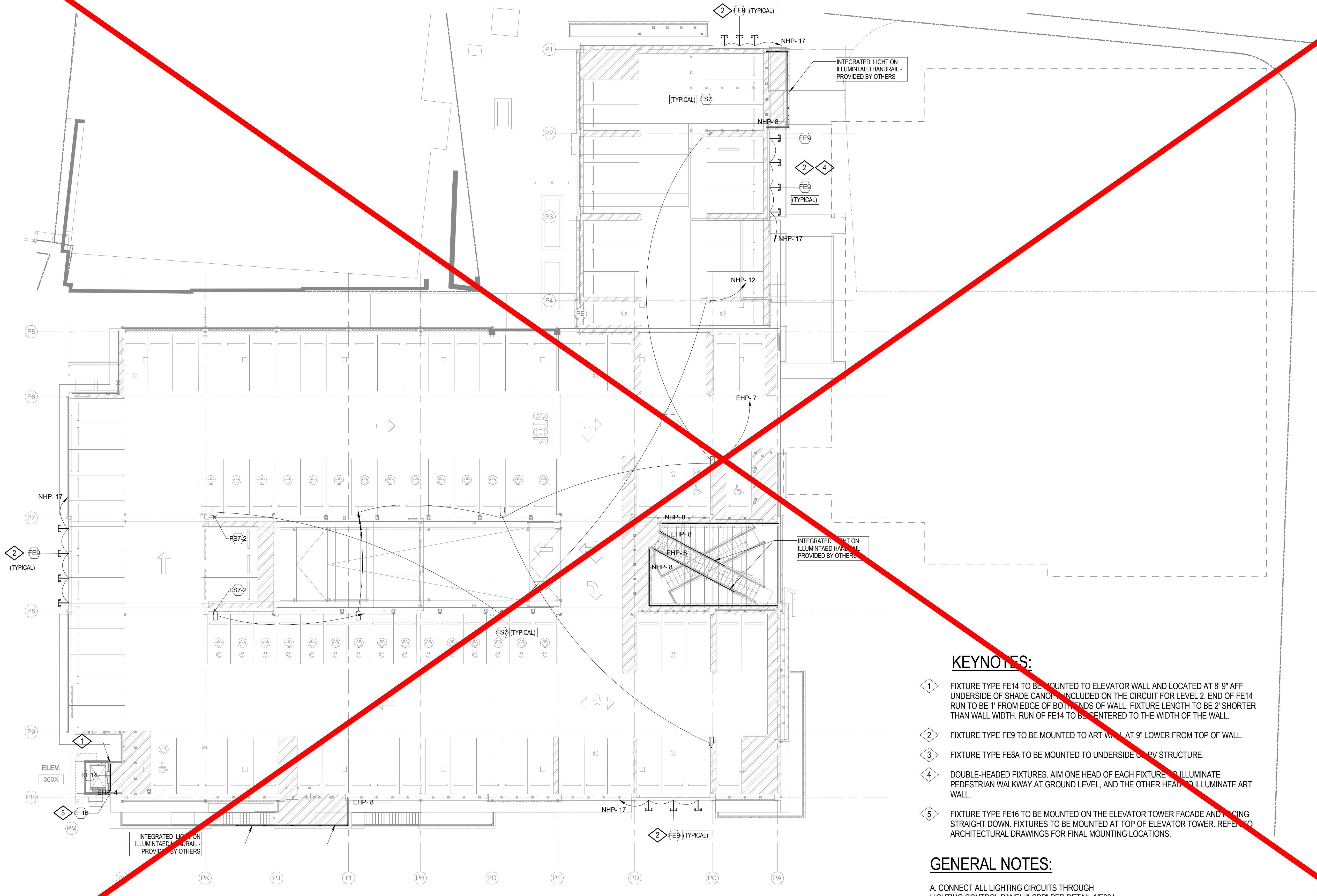
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**WAILUKU CIVIC COMPLEX PHASE 1B**  
 100% FINAL DESIGN  
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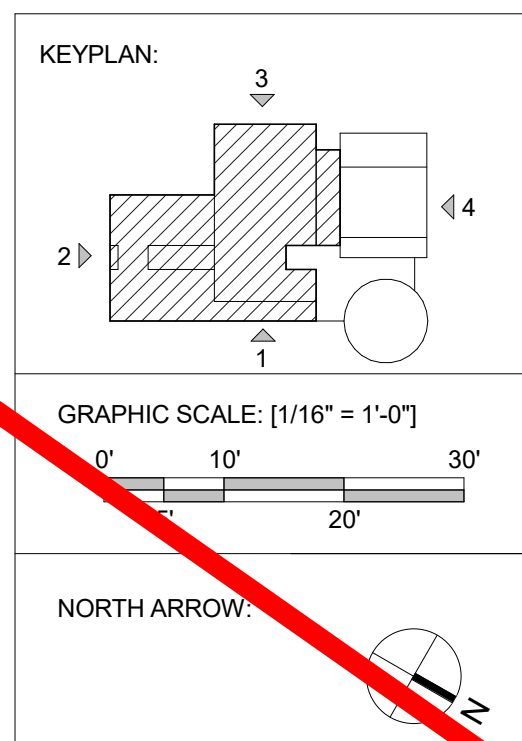
SHEET TITLE:  
**LIGHTING PLAN - LEVEL 3**  
 (DEDUCTIVE ALTERNATE NO. D 1)

PROJECT:	2017-001	REVISIONS:	
DRAWN:	Author		
DATE:	7/25/2019		
PHASE SHEET			
<b>1B E123.1</b>			
OF SHEETS			



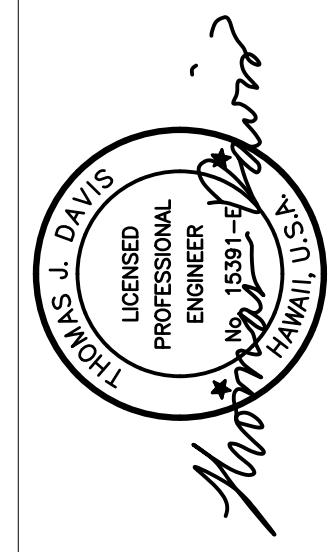
- KEYNOTES:**
- 1 FIXTURE TYPE FE14 TO BE MOUNTED TO ELEVATOR WALL AND LOCATED AT 8" 9" AFF UNDERSIDE OF SHADE CANOP. INCLUDED ON THE CIRCUIT FOR LEVEL 2. END OF FE14 RUN TO BE 1" FROM EDGE OF BOTH ENDS OF WALL. FIXTURE LENGTH TO BE 2" SHORTER THAN WALL WIDTH. RUN OF FE14 TO BE CENTERED TO THE WIDTH OF THE WALL.
  - 2 FIXTURE TYPE FE9 TO BE MOUNTED TO ART WALL AT 9" LOWER FROM TOP OF WALL.
  - 3 FIXTURE TYPE FE8A TO BE MOUNTED TO UNDERSIDE OF PV STRUCTURE.
  - 4 DOUBLE-HEADED FIXTURES. AIM ONE HEAD OF EACH FIXTURE TO ILLUMINATE PEDESTRIAN WALKWAY AT GROUND LEVEL, AND THE OTHER HEAD TO ILLUMINATE ART WALL.
  - 5 FIXTURE TYPE FE16 TO BE MOUNTED ON THE ELEVATOR TOWER FACADE AND PLACING STRAIGHT DOWN. FIXTURES TO BE MOUNTED AT TOP OF ELEVATOR TOWER. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL MOUNTING LOCATIONS.

- GENERAL NOTES:**
- A. CONNECT ALL LIGHTING CIRCUITS THROUGH LIGHTING CONTROL PANEL "LCPP" PER DETAIL 1/E304
  - B. CONNECT ALL EXIT SIGNS TO CIRCUIT EHP-2.



**1**  
 E123.1  
 1/16" = 1'-0"

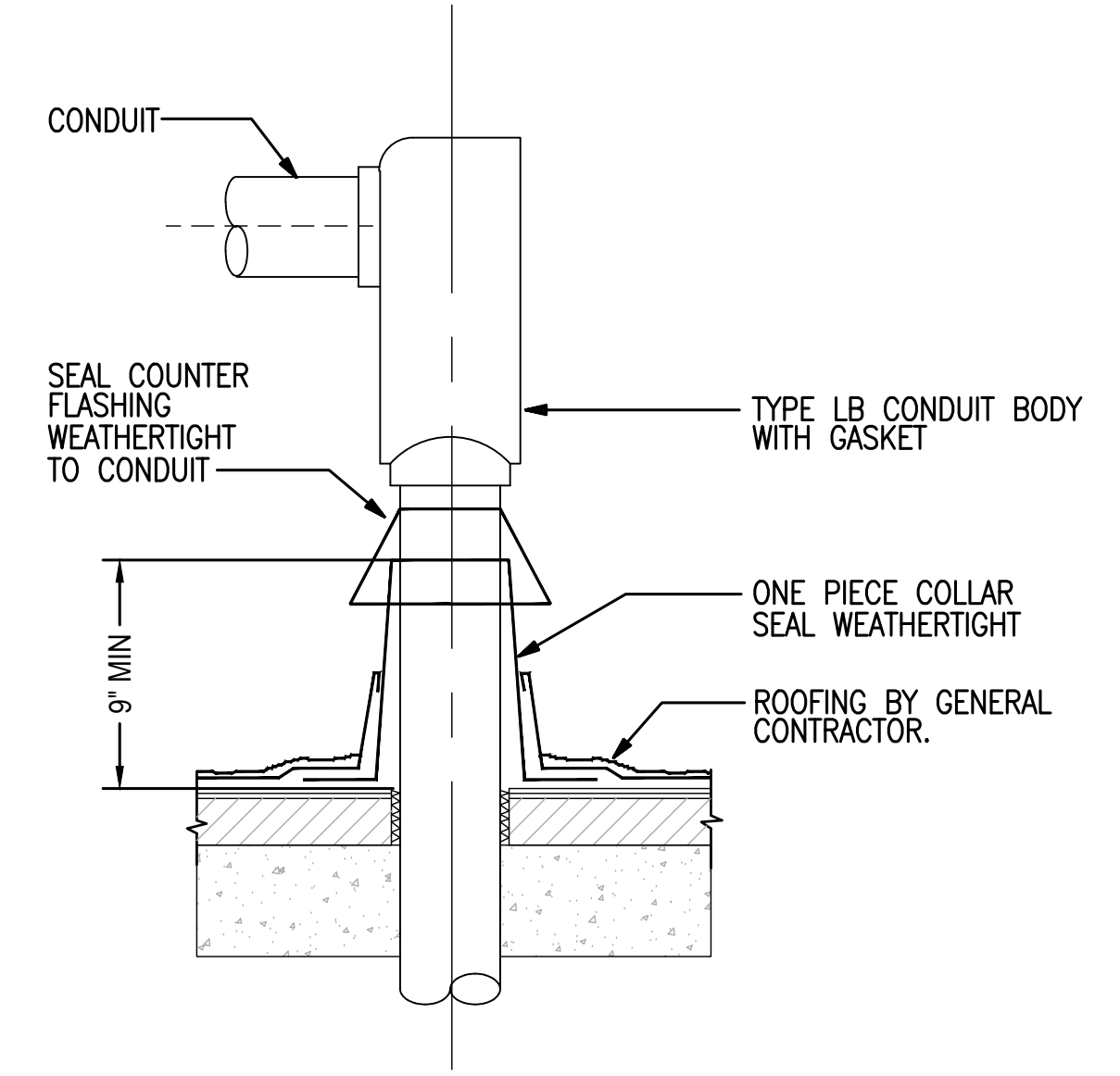
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THOMAS J. DAVIS  
 LICENSED PROFESSIONAL ENGINEER  
 LICENSE EXPIRATION DATE 4/30/20  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND I AM A duly Licensed Professional Engineer under the provisions of Chapter 101, Part II, Section 1910, Hawaii Revised Statutes, and Chapter 460, Part II, Section 1910, Hawaii Administrative Code.

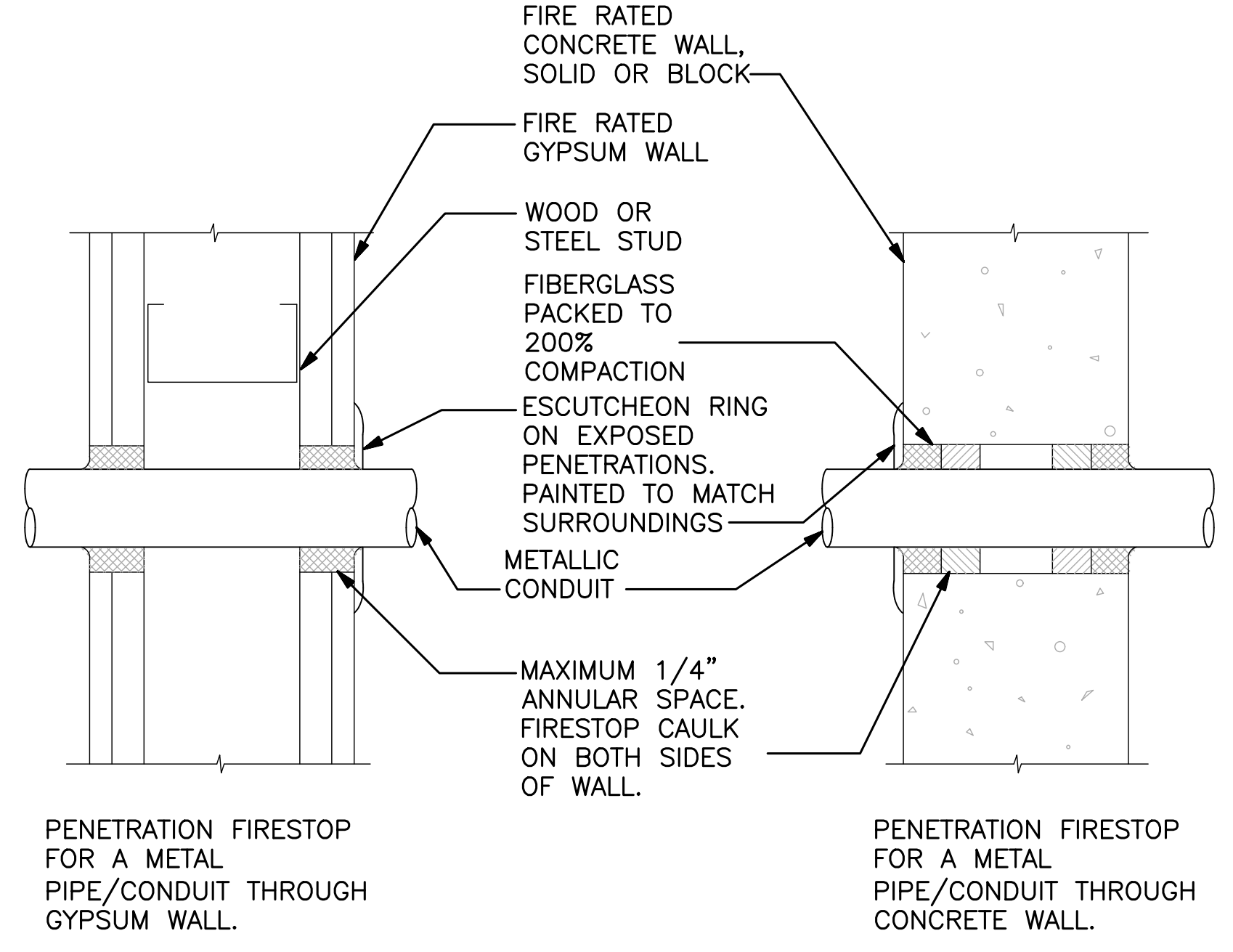
**WAILUKU CIVIC COMPLEX PHASE 1B**  
 100% FINAL DESIGN  
 [NOT FOR CONSTRUCTION]

PROJECT:	2017-001	REVISIONS:	△	SHEET TITLE:	DETAILS
DRAWN:	WSP		△		
DATE:	7/25/2019		△		
PHASE	1B	SHEET	E301	CADD FILE:	
		OF	SHEETS		



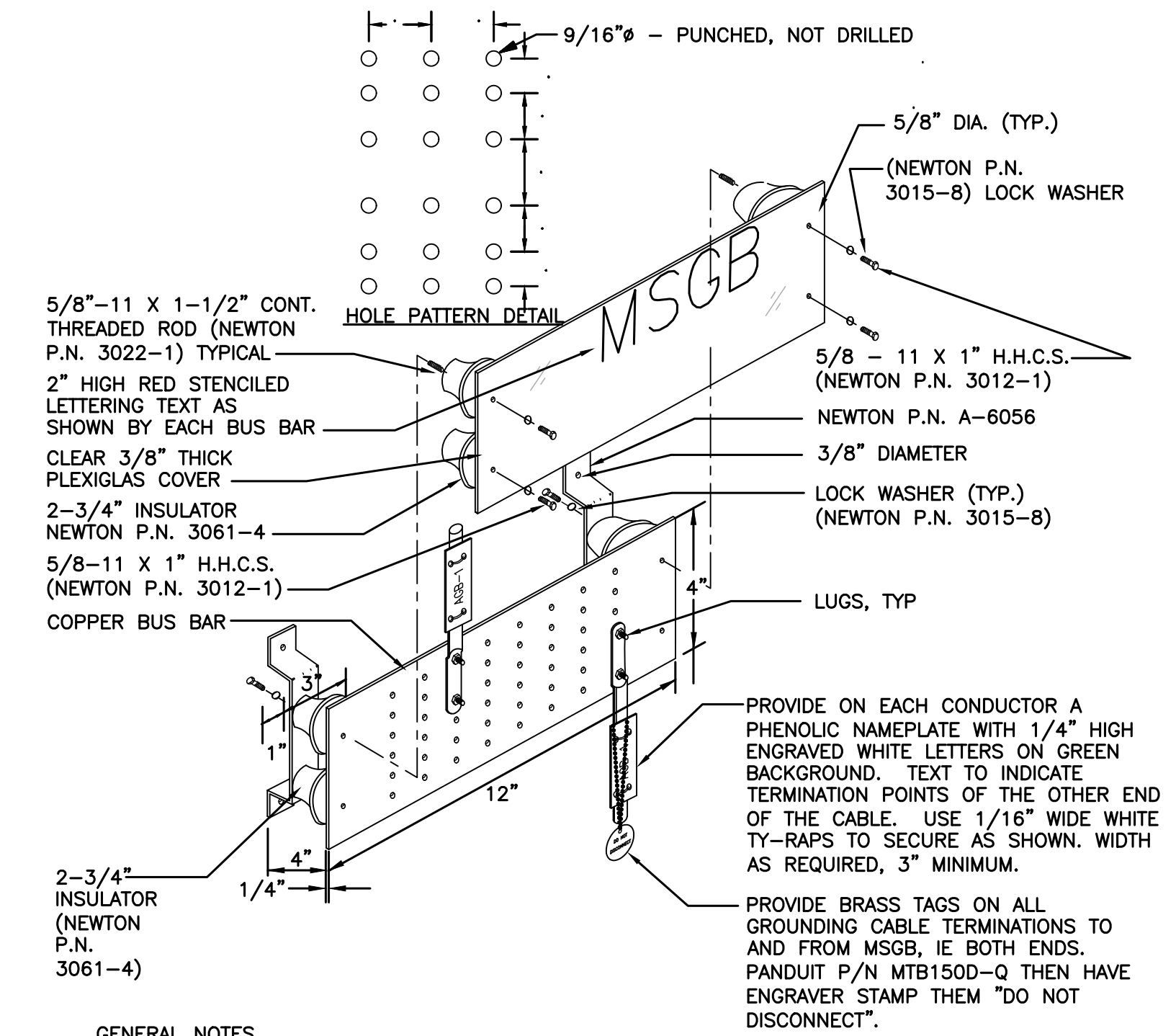
- GENERAL NOTES**
- A. USE THIS DETAIL ONLY WHERE REQUIRED. STUB-UP THROUGH MECHANICAL EQUIPMENT ROOF CURBS WHEREVER POSSIBLE.
  - B. DO NOT GANG CONDUITS. PROVIDE 12" MINIMUM SPACING BETWEEN CONDUITS.

**2 CONDUIT ROOF PENETRATION**  
 NOT TO SCALE



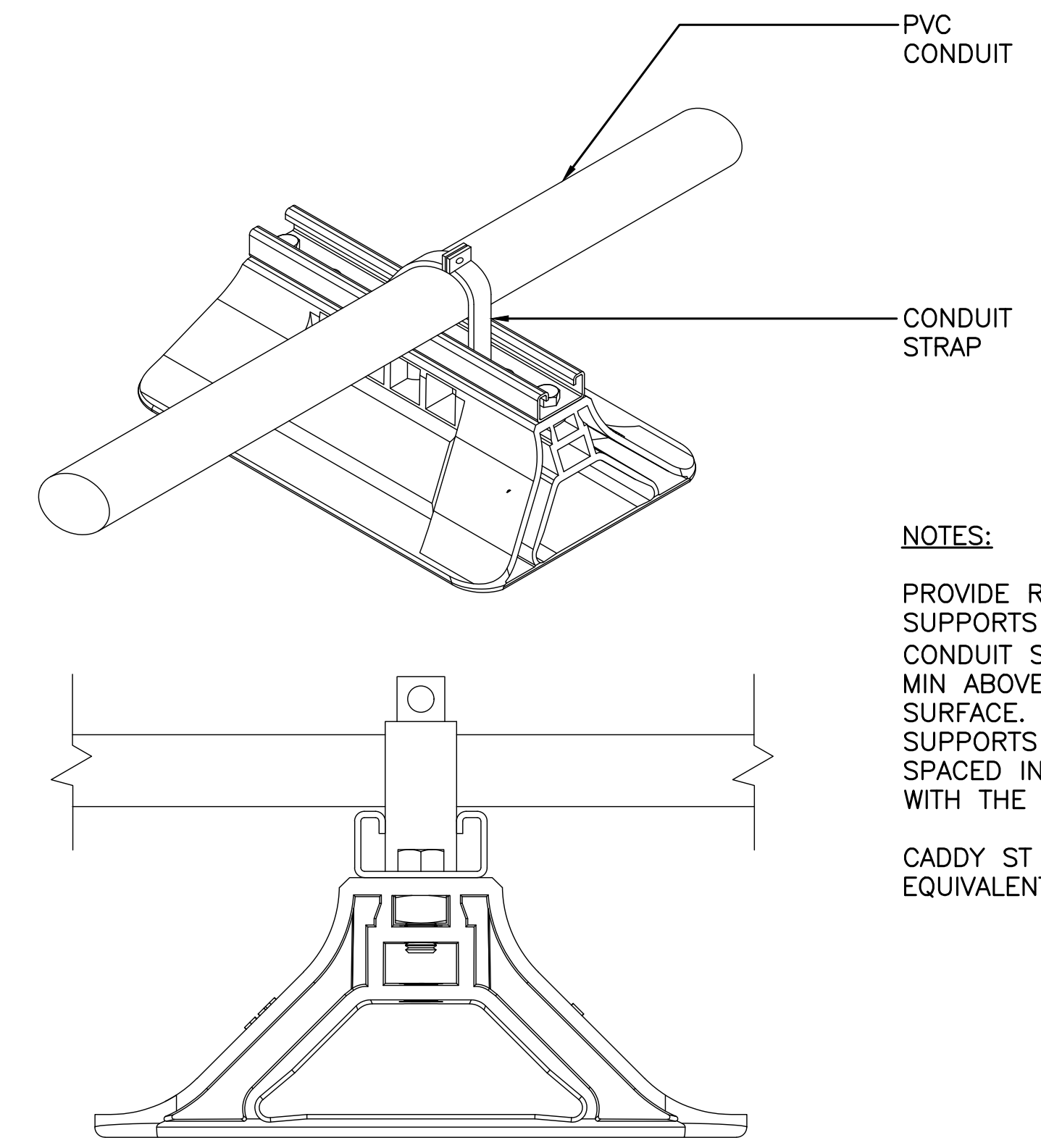
- NOTES:**
- A. INSTALL FIRE STOP SYSTEMS IN STRICT CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS.
  - B. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE RATED WALLS AND FLOORS.
  - C. VERIFY UL APPROVED DETAIL REQUIRED FOR EACH CONDITION WITH ARCHITECT. SUBMIT FOR APPROVAL COPY OF DETAIL TO BE USED, PRIOR TO INSTALLATION.

**4 FIRE RATED WALL CONDUIT PENETRATION**  
 NOT TO SCALE



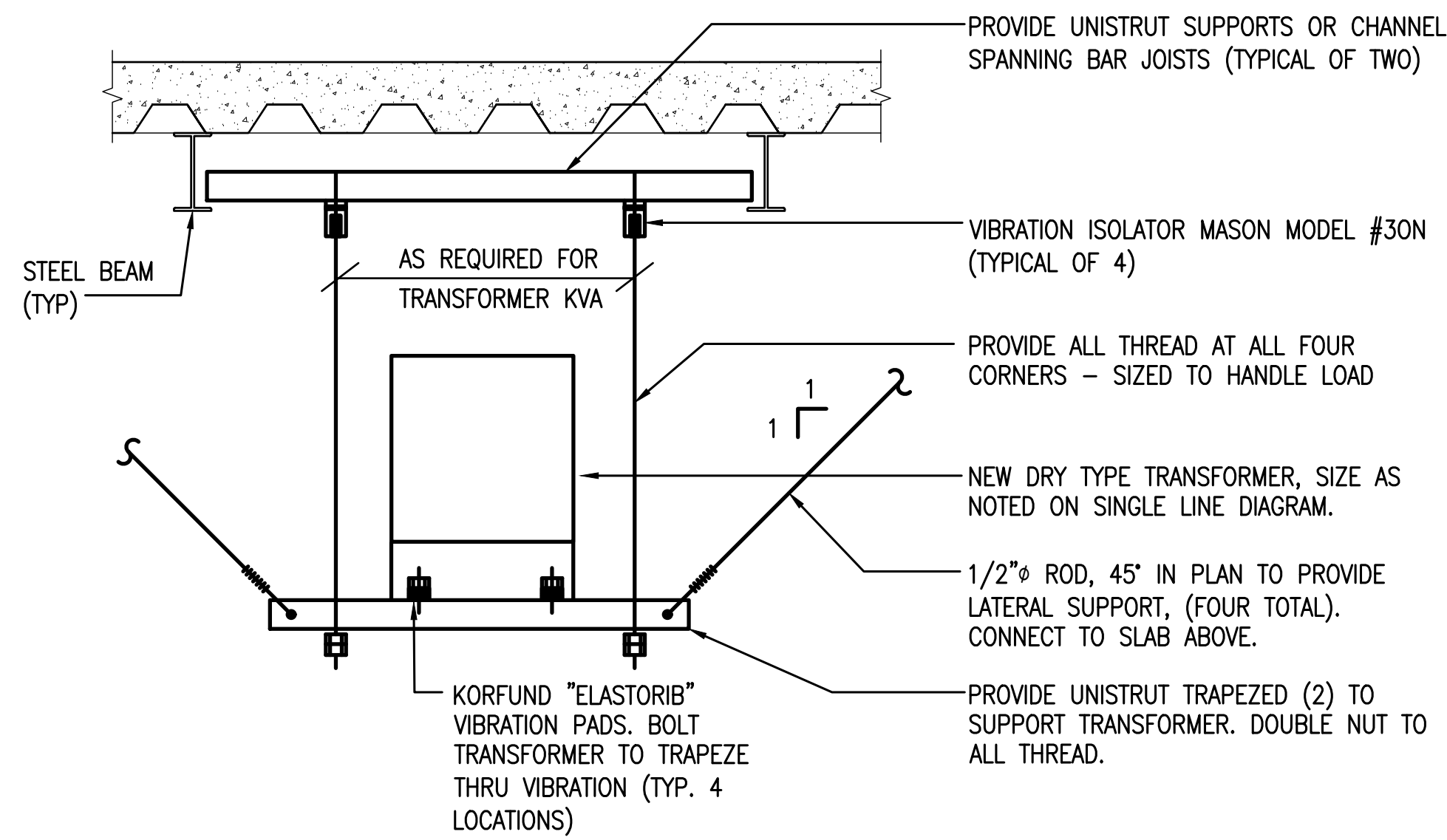
- GENERAL NOTES**
- A. BUS BARS OVER 20" IN LENGTH REQUIRE AT LEAST ONE ADDITIONAL 2-3/4" INSULATOR (NEWTON P.N. 3061-4) SUPPORT.
  - B. MOUNT AT HEIGHT SCHEDULED ON GROUNDING DIAGRAMS, E6 SERIES.
  - C. COORDINATE WITH ARCHITECT TO PROVIDE METAL BACKING BEHIND SHEET ROCK WALLS.
  - D. TERMINATE CONDUCTORS COMING FROM ABOVE ON TOP THREE ROWS OF HOLES AND USE BOTTOM THREE ROWS FOR CONDUCTORS COMING FROM BELOW.

**1 GROUND BAR DETAIL**  
 NOT TO SCALE

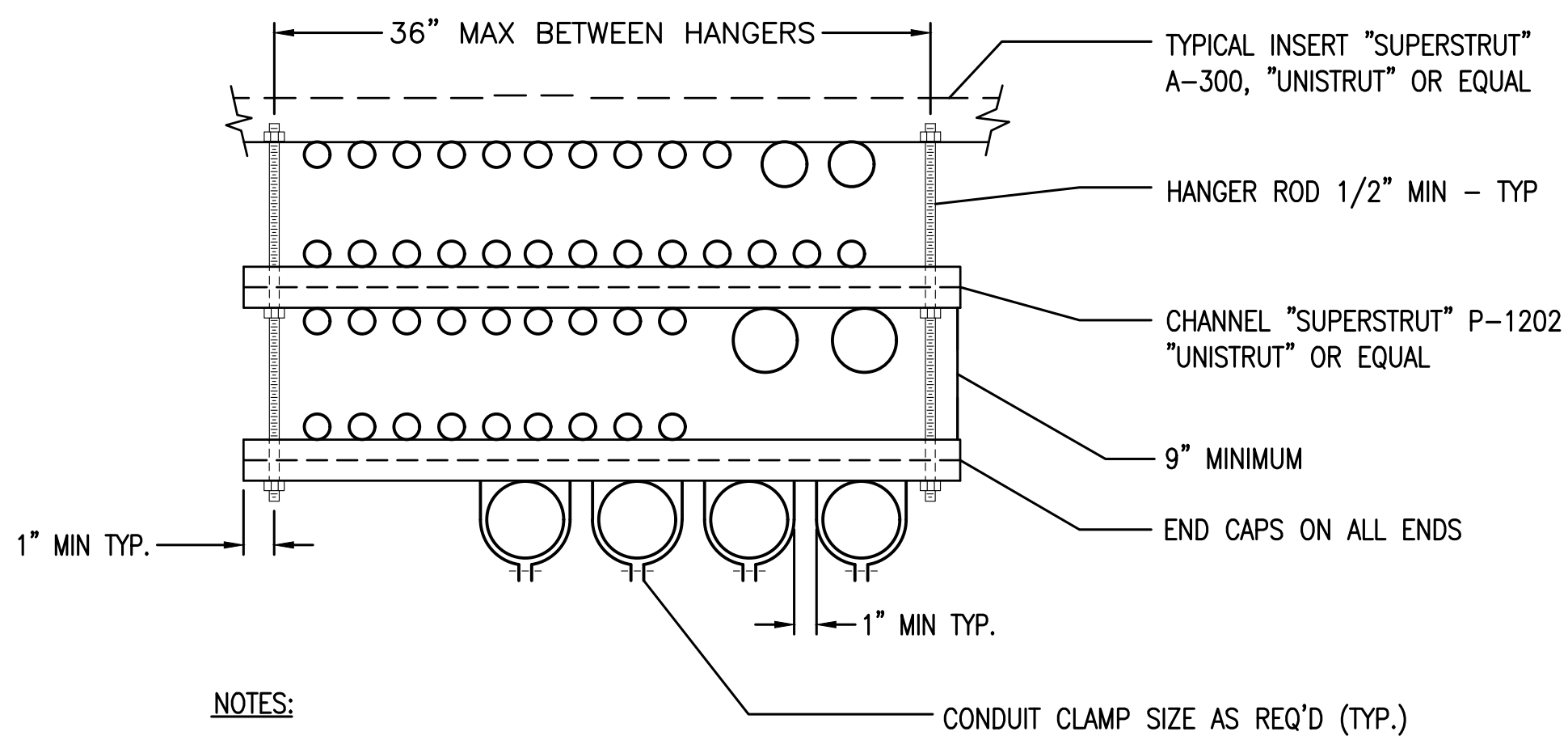
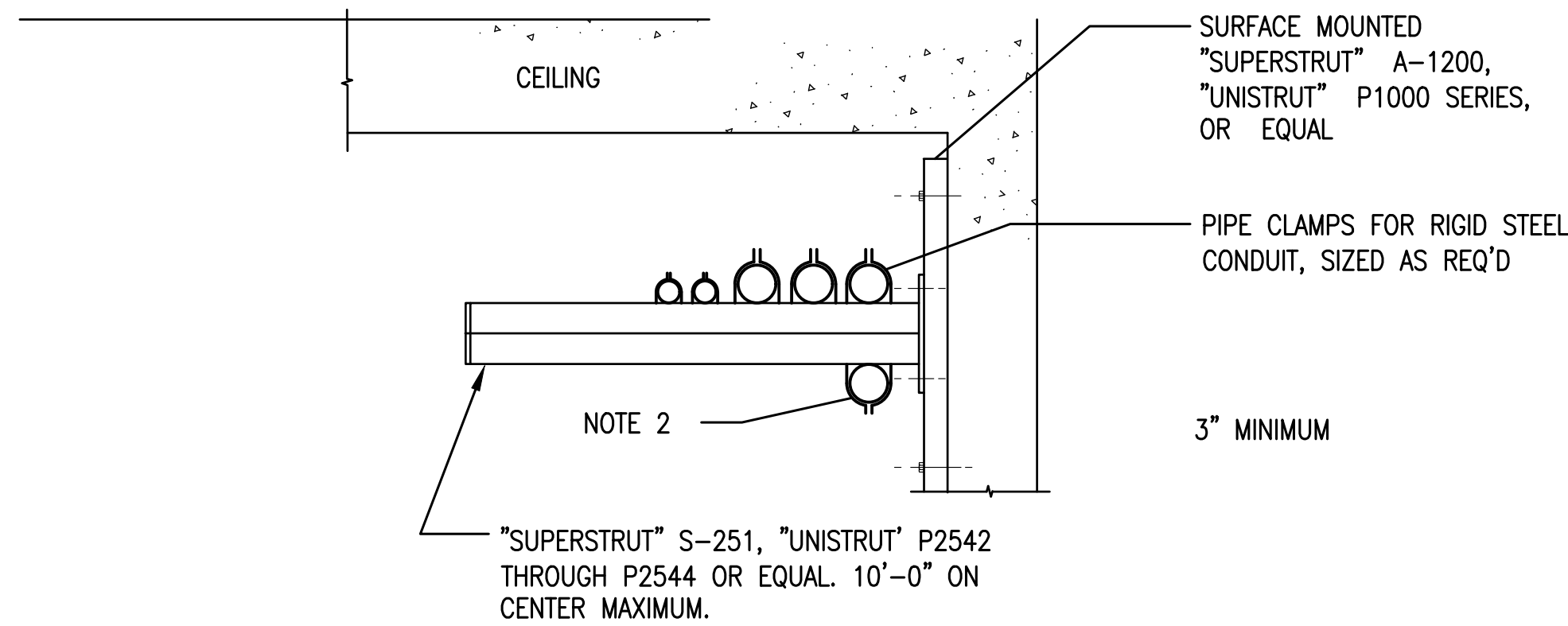


- NOTES:**
- PROVIDE ROOFTOP SUPPORTS FOR CONDUITS. CONDUIT SHALL BE 4" MIN ABOVE ROOF SURFACE. ROOF SUPPORTS SHALL BE SPACED IN ACCORDANCE WITH THE NEC.
  - CADDY ST SERIES OR EQUIVALENT.

**3 CONDUIT ROOF SUPPORT DETAIL**  
 NOT TO SCALE

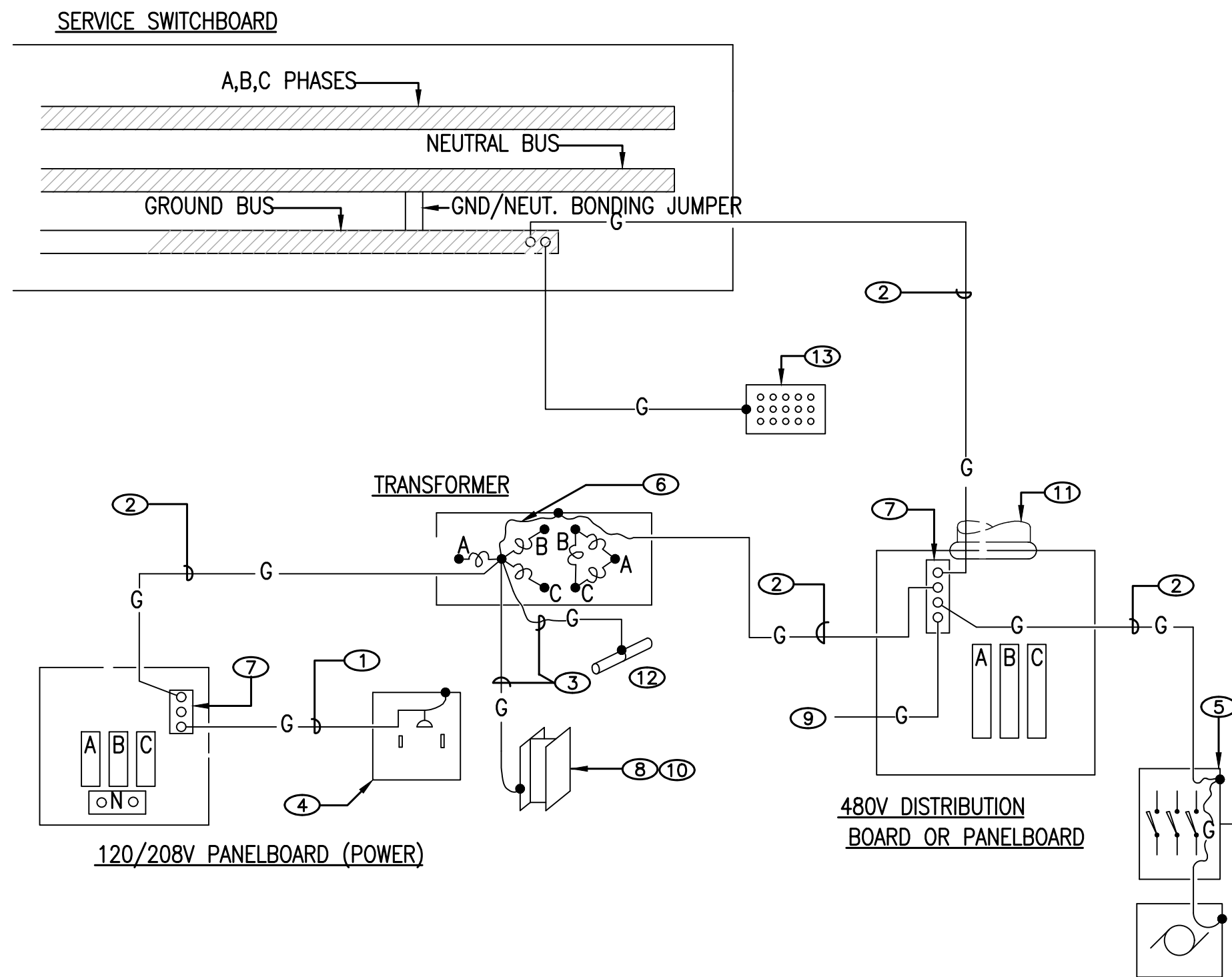
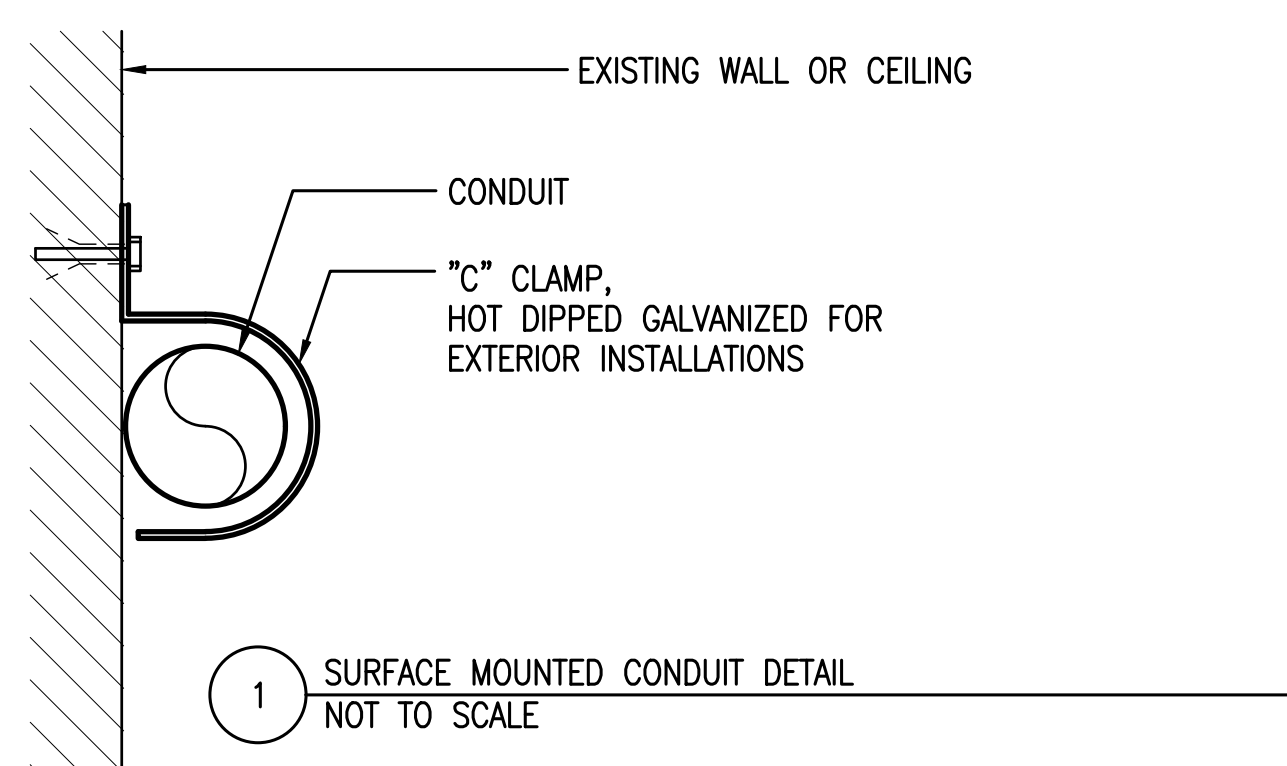


**2 TRANSFORMER TRAPEZE DETAIL**  
NOT TO SCALE

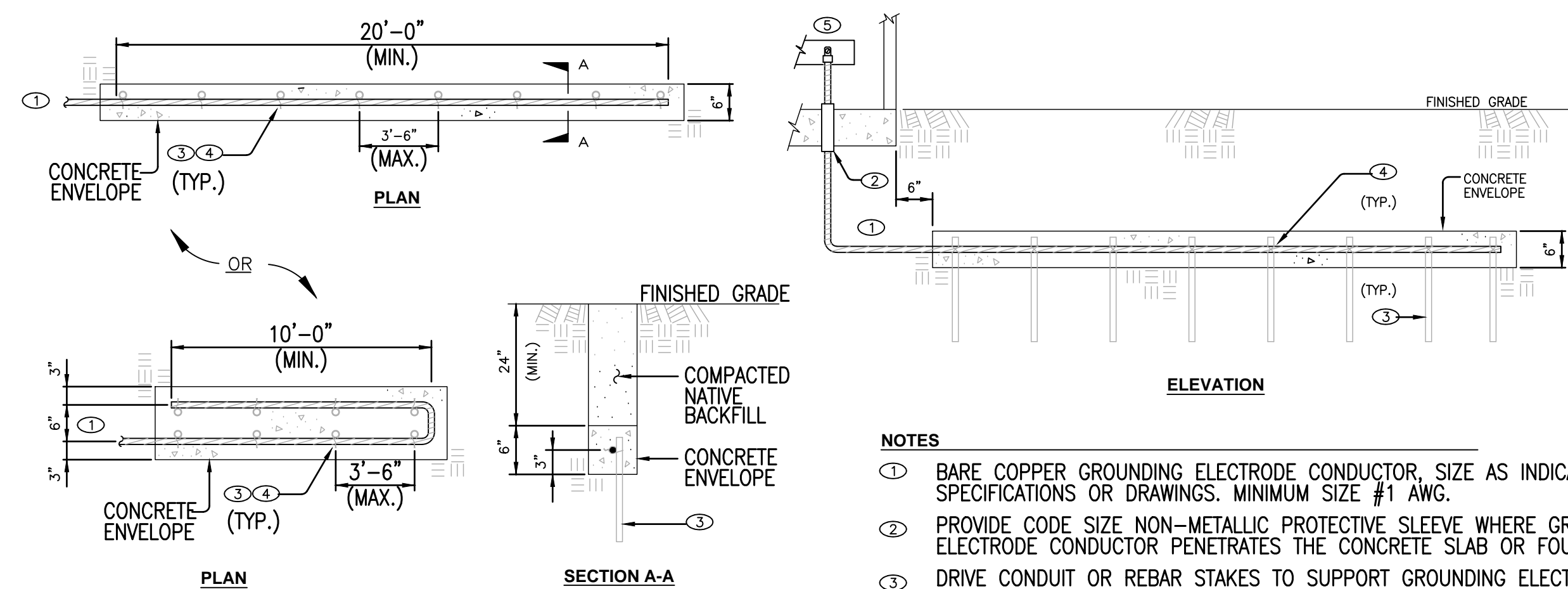


- NOTES:**
- HARDWARE SHALL BE HOT DIP OR MECHANICALLY GALVANIZED AFTER FABRICATION.
  - MAXIMUM UNIFORMLY DISTRIBUTED LOAD (CONDUIT AND FILL) PER UNIT TO BE 1000 LBS. CONTRACTOR SHALL PROVIDE CALCULATIONS WHEN ANY CONDUIT IS OVER 2" IN SIZE OR IF CONDUIT IS INSTALLED ON TOP AND BOTTOM OF RACK.
  - HOLE SIZES ON FITTINGS SHALL BE 9/16" DIA. WITH 1/2" HEX HEAD CAP SCREW 15/16" LONG AND 1/2" CLAMP NUT WITH SPRING.

**5 TYPICAL CONDUIT RACK DETAIL**  
NOT TO SCALE



**3 ELECTRICAL DISTRIBUTION SYSTEM GROUNDING DIAGRAM**  
SCALE: NONE



**4 ENCASED ELECTRODE (UFER)**  
SCALE: NONE

**NOTES**

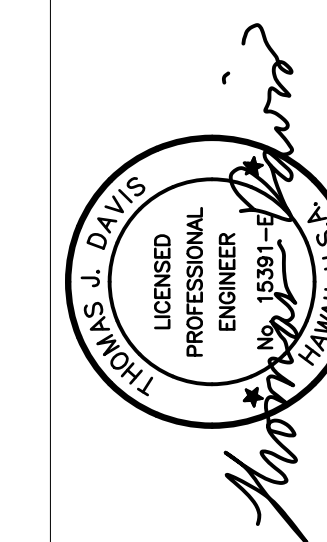
- ALL EQUIPMENT GROUNDING CONDUCTORS FOR RECEPTACLE BRANCH CIRCUITS SHALL BE SIZED PER N.E.C. TABLE 250.122. MULTIPLE BRANCH CIRCUITS IN EACH HOMERUNS SHALL USE ONLY ONE EQUIPMENT GROUNDING CONDUCTOR, UON.
- SIZE EQUIPMENT GROUNDING CONDUCTORS FOR FEEDER CIRCUITS PER FEEDER SCHEDULE OR IF NOT SHOWN PER N.E.C. TABLE 250.122.
- ROUTE ONE COPPER GROUNDING ELECTRODE CONDUCTOR, SIZED PER N.E.C. TABLE 250.66, IN CONDUIT TO GROUNDING ELECTRODES SHOWN. UFER GROUND. REFER TO SPECIFICATIONS AND DETAIL NOTED.
- TYPICAL RECEPTACLE WITH EQUIPMENT GROUNDING CONDUCTOR AND BONDING JUMPER. OTHER DIRECT-CONTACT METHODS NOT ALLOWED. GROUND PER N.E.C. 250.146.
- CONNECT EQUIPMENT GROUNDING CONDUCTORS TO GROUND LUG BONDED TO THE ENCLOSURE.
- MAIN BONDING JUMPER: SIZE PER N.E.C. 250.30(A)(1) AND TABLE 250.66.
- EQUIPMENT COPPER GROUNDING BAR BONDED TO ENCLOSURE.
- NEAREST EFFECTIVELY GROUNDING BUILDING STEEL.
- TO LIGHTING OR OTHER 277/480 VOLT BRANCH CIRCUIT.
- SEPARATELY DERIVED SYSTEM GROUNDING ELECTRODE PER N.E.C. 250.30. CONNECT TO MAIN BUILDING REFERENCE GROUND BUS IF IN SAME ROOM.
- BOND PARALLEL METALLIC CONDUITS TOGETHER USING GROUNDING BUSHINGS AND ONE GROUNDING CONDUCTOR IDENTICAL IN SIZE TO GROUNDING CONDUCTOR IN EACH OF THE PARALLEL CONDUIT RUNS.
- COLD WATER PIPE PER N.E.C. 250.50(A).
- CONNECT TELCOM GROUND BAR DIRECTLY BACK TO MAIN BUILDING GROUND BUS.

**NOTES**

- BARE COPPER GROUNDING ELECTRODE CONDUCTOR, SIZE AS INDICATED IN THE SPECIFICATIONS OR DRAWINGS. MINIMUM SIZE #1 AWG.
- PROVIDE CODE SIZE NON-METALLIC PROTECTIVE SLEEVE WHERE GROUNDING ELECTRODE CONDUCTOR PENETRATES THE CONCRETE SLAB OR FOUNDATION.
- DRIVE CONDUIT OR REBAR STAKES TO SUPPORT GROUNDING ELECTRODE CONDUCTOR AS REQUIRED. MAXIMUM DISTANCE BETWEEN STAKES IS 42'.
- SUPPORT GROUNDING ELECTRODE CONDUCTOR USING TIE WIRES. CONDUCTOR SHALL NOT DEVIATE FROM POSITION SHOWN BY MORE THAN 1/2".
- MAIN BUILDING REFERENCE GROUND BUS.



**FERRARO CHOI**



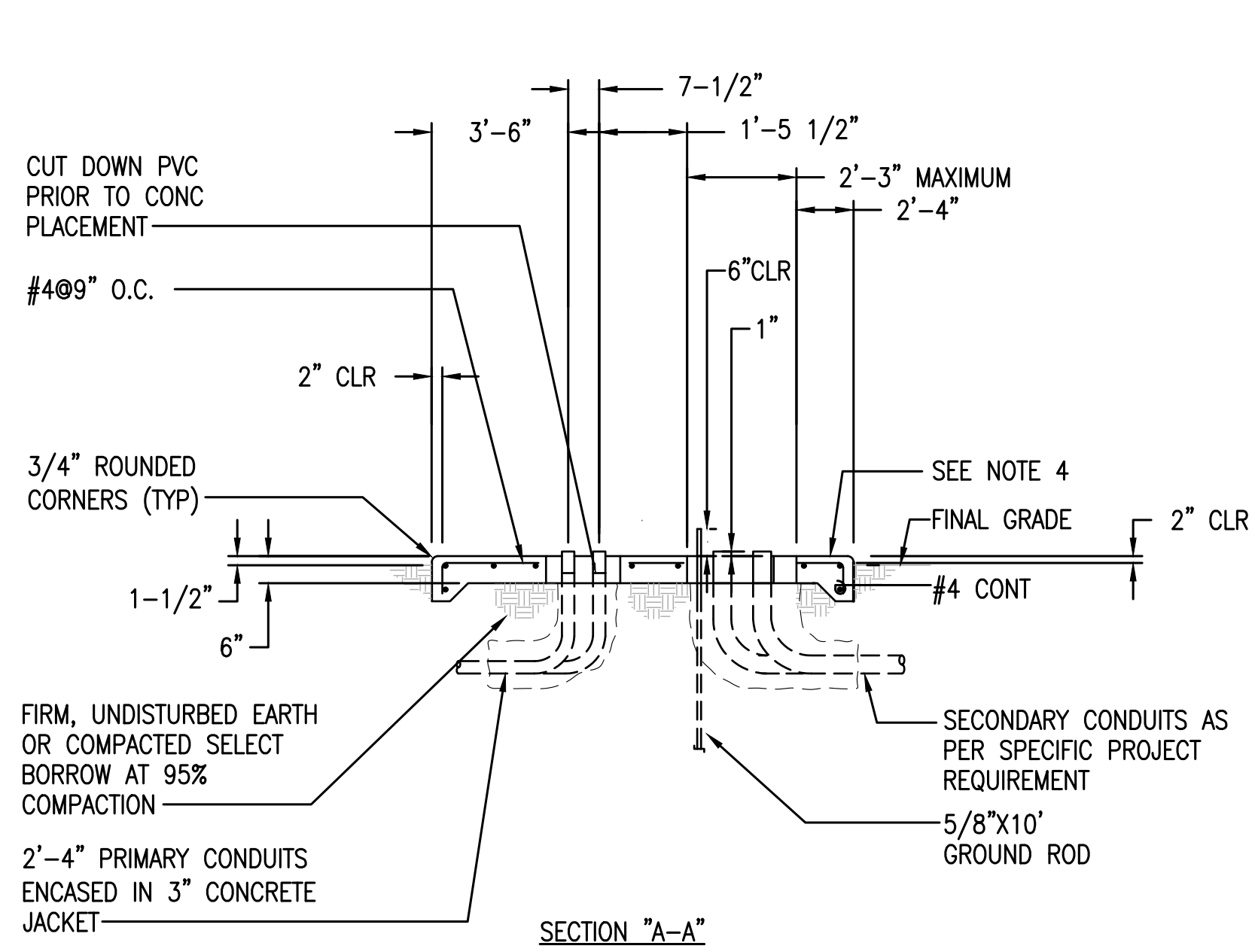
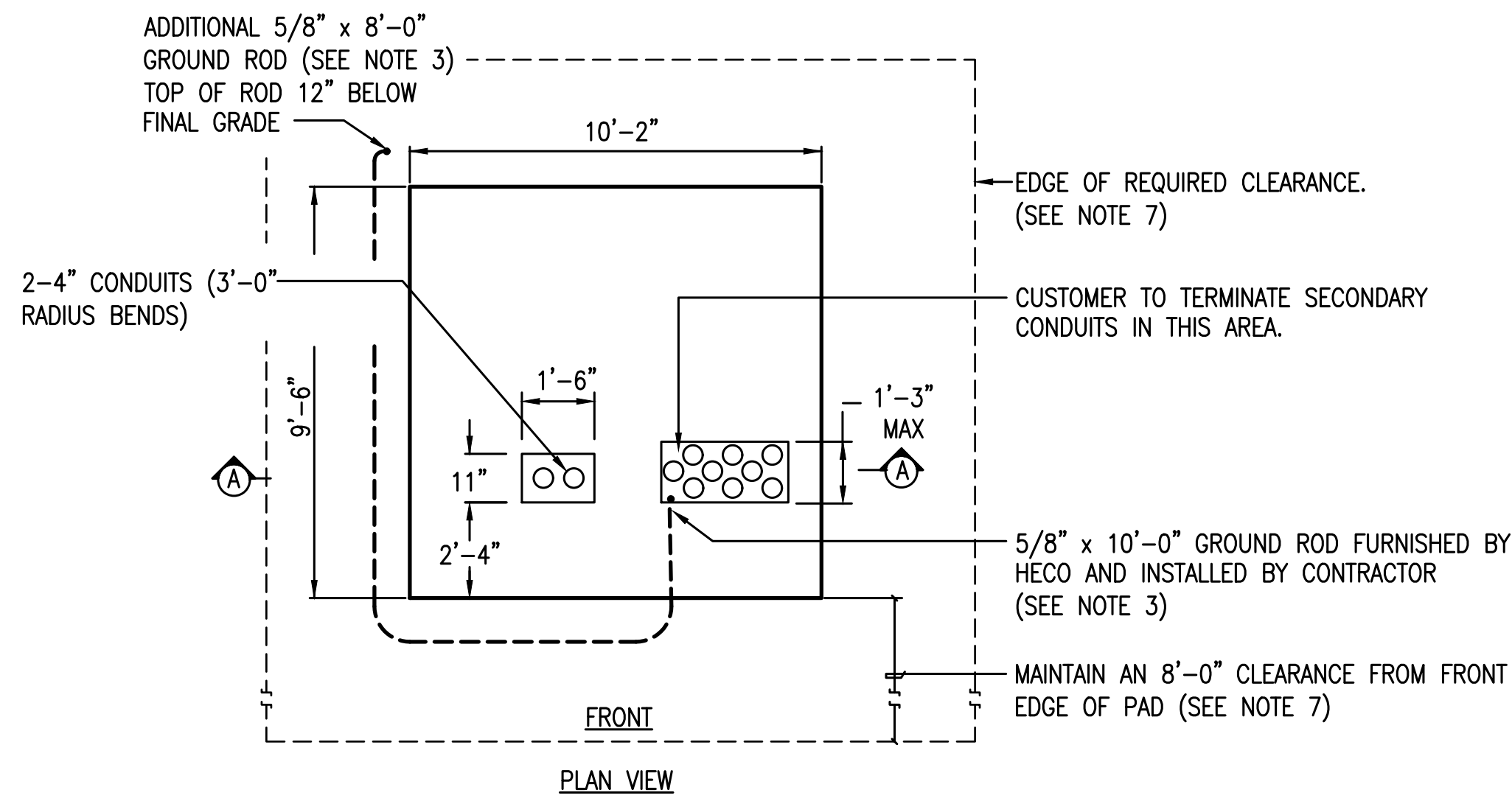
**WAILUKU CIVIC COMPLEX PHASE 1B**  
100% FINAL DESIGN  
[NOT FOR CONSTRUCTION]

PROJECT:	2017-001	REVISIONS:		SHEET TITLE:	DETAILS
DRAWN:	WSP				
DATE:	7/25/2019				
PHASE:	1B	SHEET:	E302		
		OF:	SHEETS		
				CADD FILE:	

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THOMAS J. DAVIS  
LICENSED PROFESSIONAL ENGINEER  
HAWAII, U.S.A.  
LICENSE EXPIRATION DATE: 4/30/20  
THIS WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A MEMBER OF THE BOARD OF PROFESSIONAL ENGINEERS AND SURVEYORS (COMMERCE AND CONSUMER AFFAIRS)

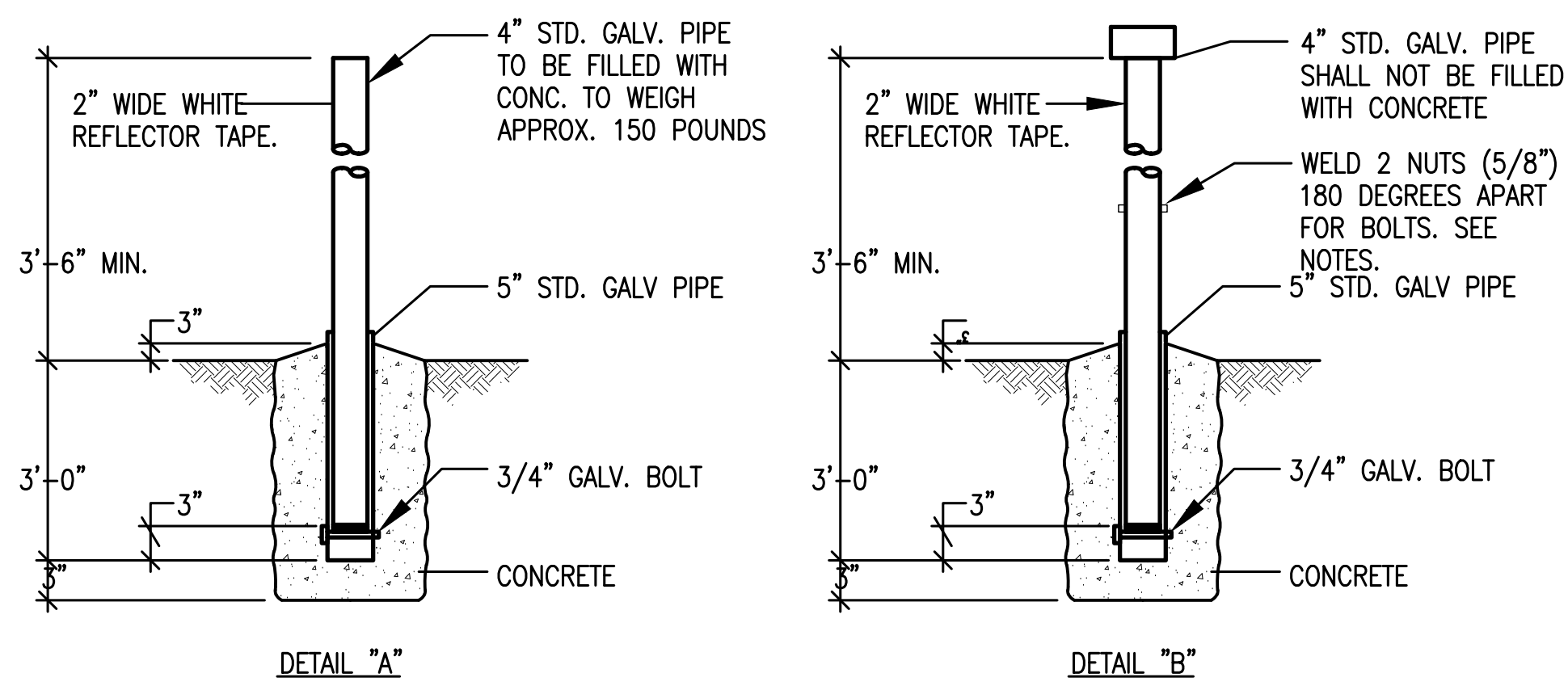




**NOTES:**

1. REFER TO STD. 30-5017 FOR LOCATIONS AND CLEARANCES.
2. REFER TO STD. 22-2005 FOR 3 PHASE PADMOUNTED TRANSFORMER REQUIREMENTS.
3. 5/8" DIAMETER x 10'-0" GROUND ROD (STOCK CODE 193457) FURNISHED BY HECO AND INSTALLED BY CONTRACTOR. IF GROUND RESISTANCE IS MORE THAN 25 OHMS, INSTALL ADDITIONAL 5/8" DIAMETER x 8'-0" GROUND ROD (STOCK CODE 101527) AND CONNECT 4/0 BARE COPPER GROUND WIRE BETWEEN GROUND RODS. A MINIMUM OF 6'-0" SHALL BE MAINTAINED BETWEEN THE DRIVEN GROUND RODS. PROVIDE A SECOND GROUND ROD WHEN SOIL RESISTIVITY IS GREATER THAN 67 OHM-METERS.
4. CONCRETE: 3000 PSI COMPRESSIVE STRENGTH IN 28 DAYS. MOISTURE CURE CONCRETE PAD A MINIMUM OF 7 DAYS. DO NOT INSTALL TRANSFORMER UNTIL CONCRETE COMPRESSIVE STRENGTH REACHES 1,500 PSI MINIMUM OR AFTER 14 DAYS.
5. REINFORCING: ASTM A615, GRADE 40 MINIMUM.
6. LOCATE, SECURE, AND CAP ALL CONDUITS BEFORE POURING PAD. TOP OF CONCRETE TO BE SMOOTH AND TRUE, WOOD-FLOAT FINISH, FREE OF DEFECTS, AS PER APPLICABLE CITY AND COUNTY SPECIFICATIONS. ROUND ALL EXPOSED EDGES TO 3/4" CHAMFER.
7. MAINTAIN A RELATIVELY LEVEL, MINIMUM CLEARANCE OF 2'-6" FROM THE SIDES OF THE PAD, 2'-0" FROM THE BACK OF PAD, AND 8'-0" IN FRONT OF PAD. EXTEND CONCRETE PAD AN ADDITIONAL 8'-0" IN FRONT IF LOCATED IN PLANTING AREA.

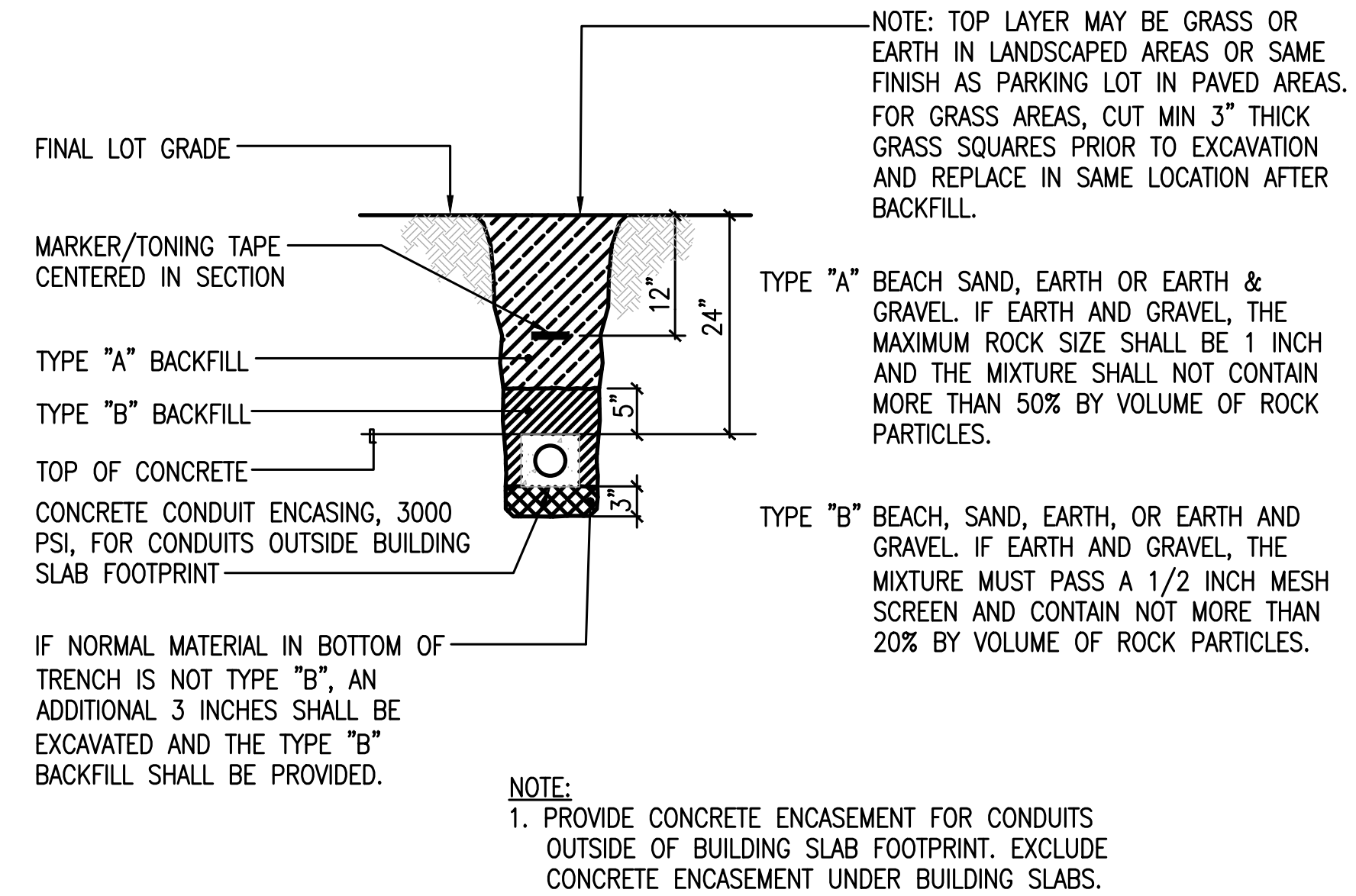
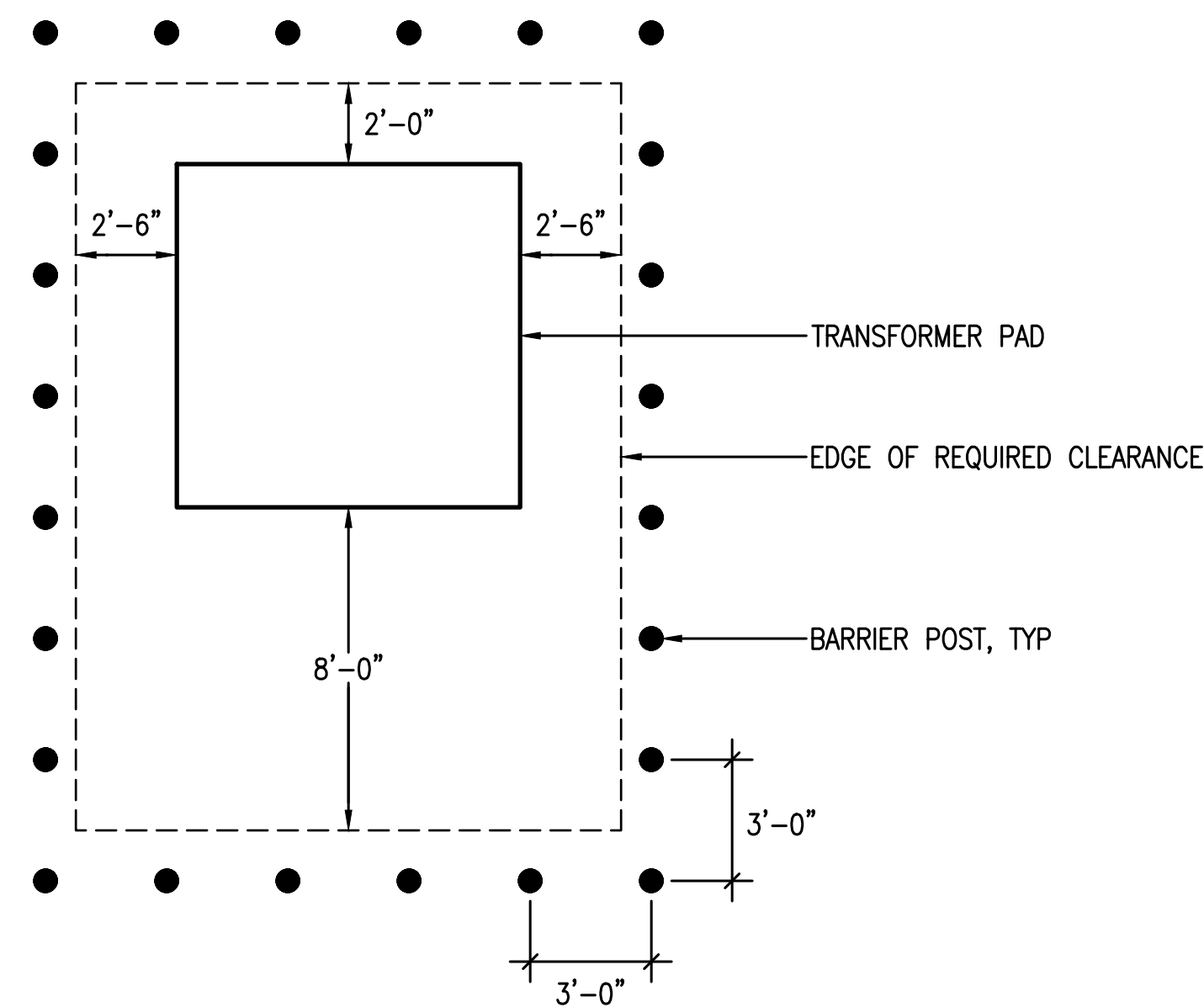
**1 1000-1500 KVA TRANSFORMER PAD DETAIL**  
NOT TO SCALE



**NOTES:**

1. BARRIER POSTS ARE TO BE PAINTED YELLOW AS PER ANSI SPEC Z535.1 TO COMPLY WITH OSHA STANDARDS FOR COLORING CODE.
2. THE PIPE THAT IS TO BE PLACED DIRECTLY IN FRONT OF THE DOORS SHALL NOT BE FILLED WITH CONCRETE. THE PIPE SHALL BE CAPPED AND THE WELDED NUTS USED FOR SCREWING IN BOLTS TO BE USED AS "HANDLES" FOR LIFTING. THE BOLTS ARE TO BE REMOVED AFTER INSTALLATION.

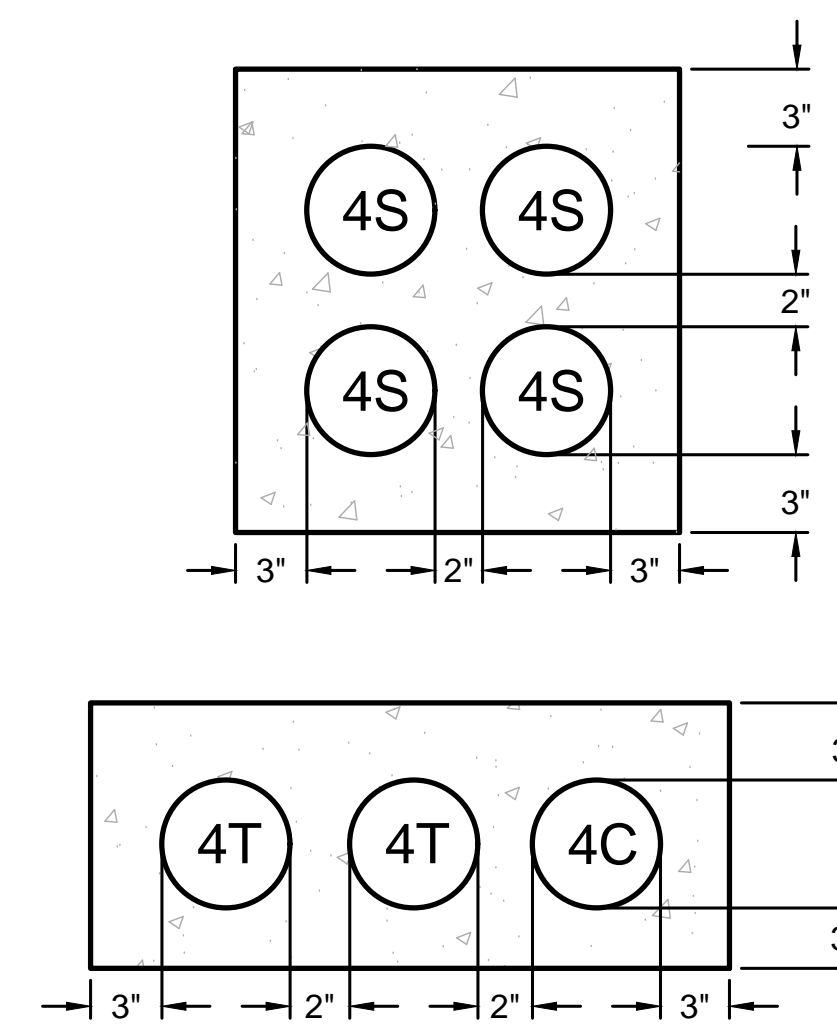
**2 BARRIER POST DETAILS**  
NOT TO SCALE



**NOTE:**

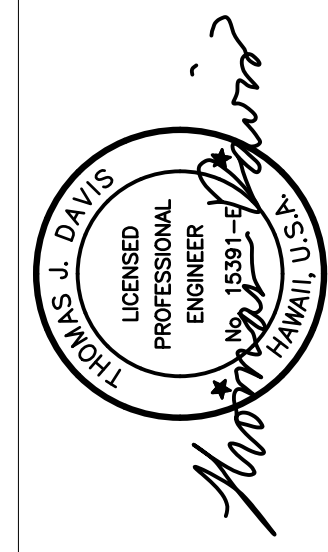
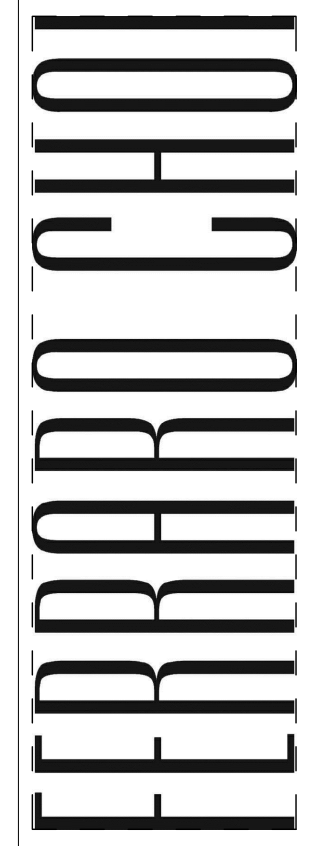
1. PROVIDE CONCRETE ENCASEMENT FOR CONDUITS OUTSIDE OF BUILDING SLAB FOOTPRINT. EXCLUDE CONCRETE ENCASEMENT UNDER BUILDING SLABS.

**3 DUCT SECTION DETAIL**  
NOT TO SCALE



**DUCT SECTION LEGEND**

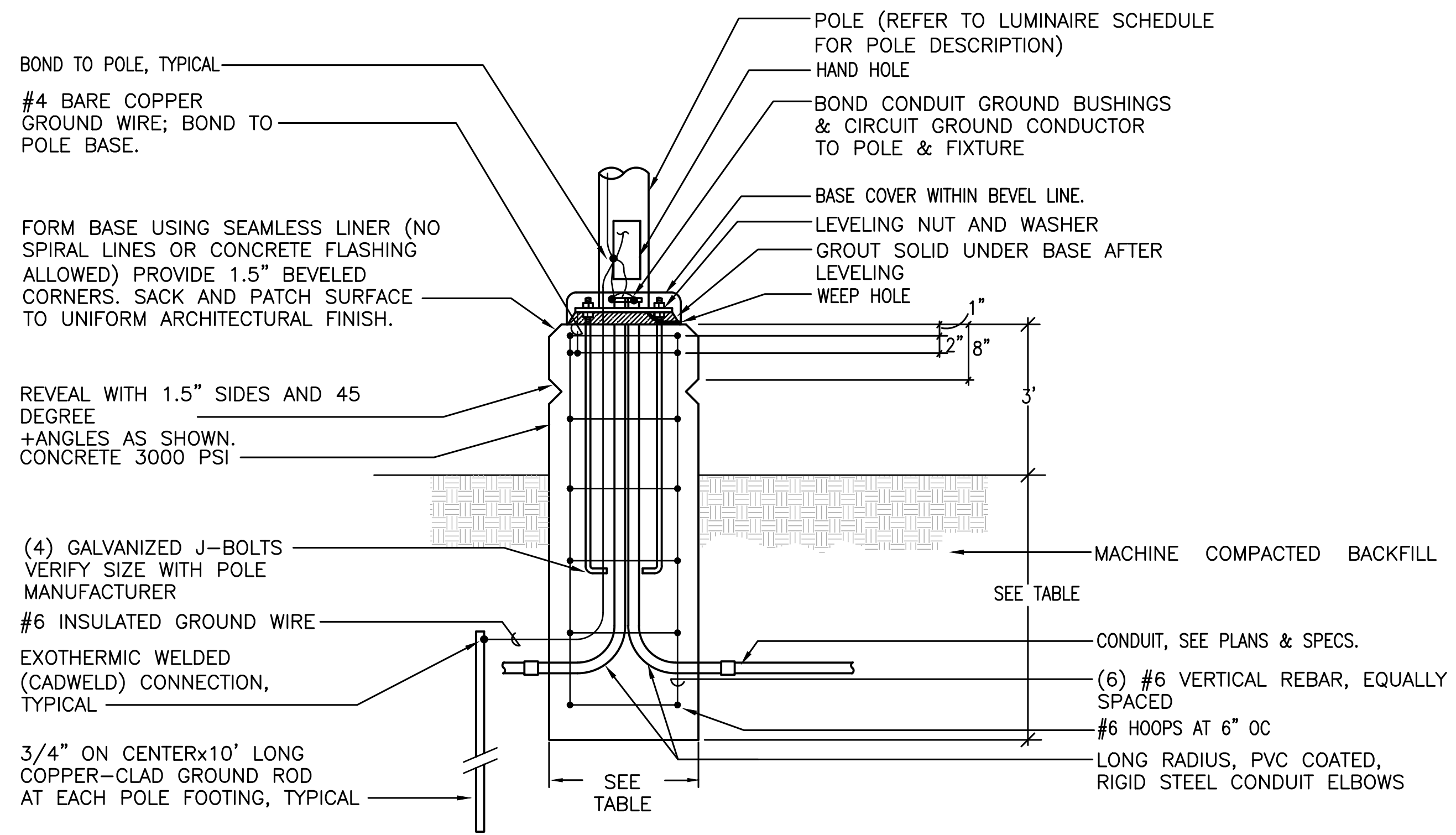
# INDICATES DIAMETER (INCHES)  
T: HAWAIIAN TELCOM  
C: CATV  
S: MECO SECONDARY



**WAILUKU CIVIC COMPLEX PHASE 1B**  
100% FINAL DESIGN  
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PROJECT:	2017-001	REVISIONS:		SHEET TITLE:	DETAILS
DRAWN:	WSP				
DATE:	7/25/2019				
PHASE:	1B	SHEET:	E303	CADD FILE:	
		OF:	SHEETS		

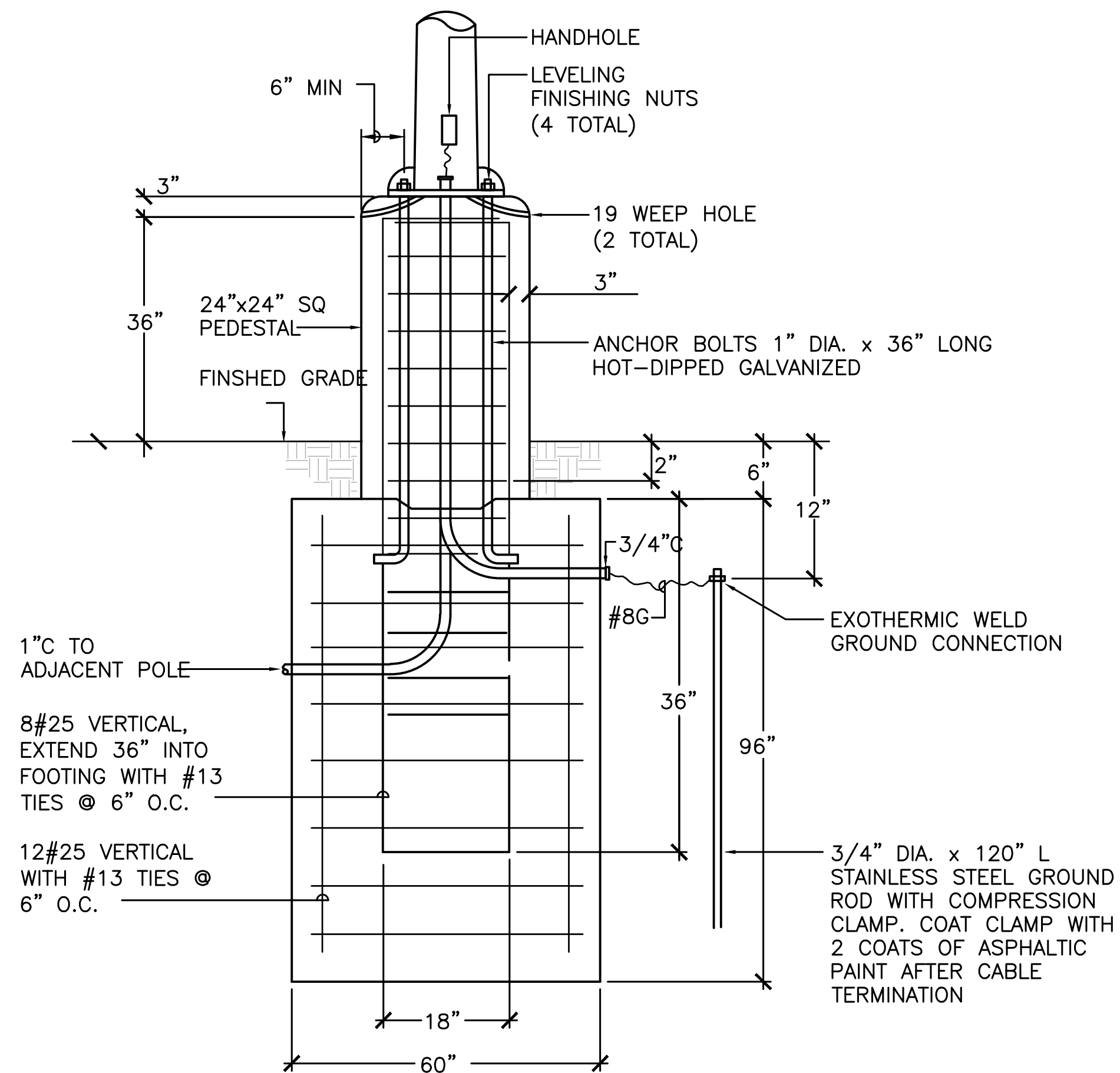
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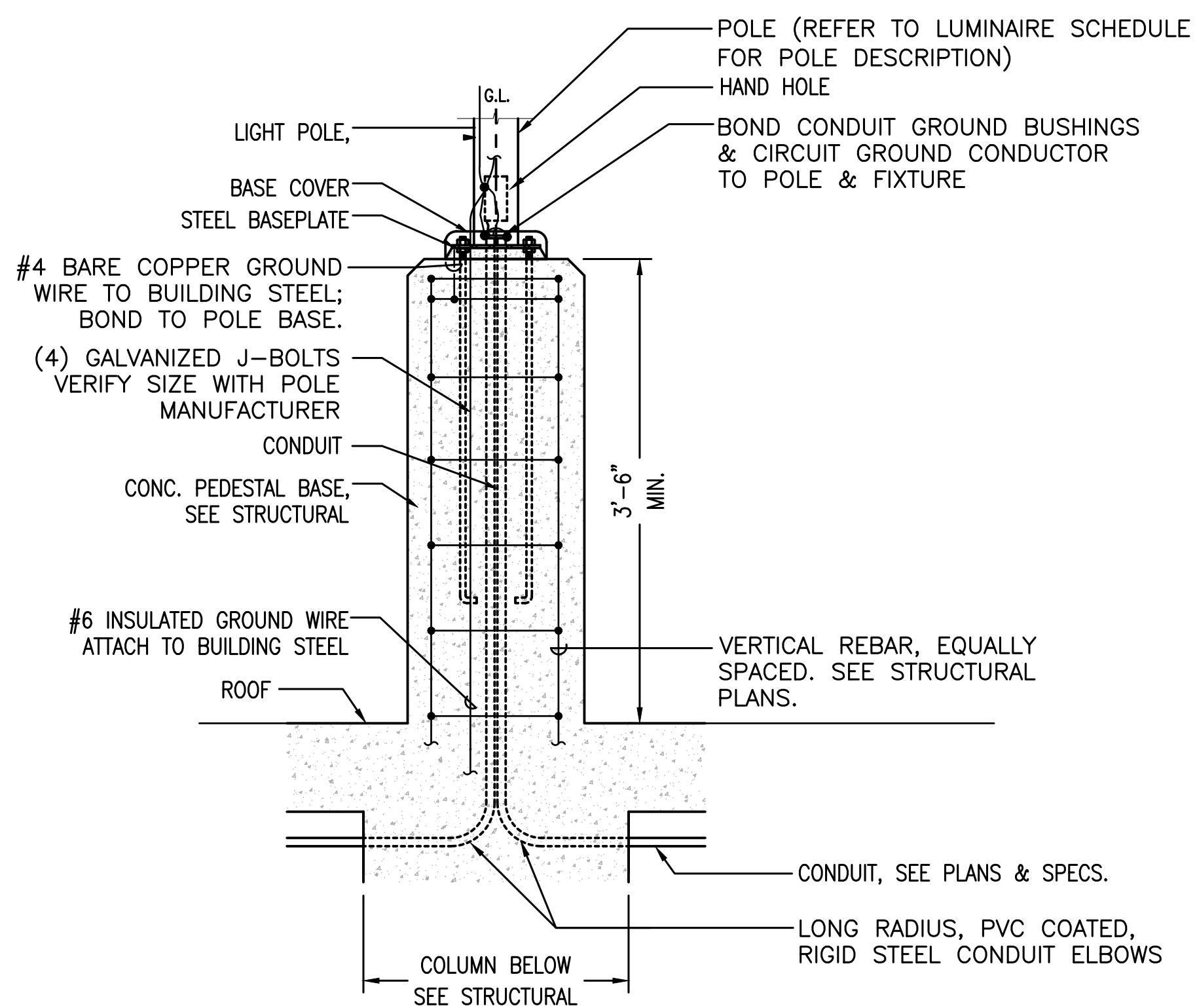
POLE HEIGHT	BASE DIAMETER	BASE DEPTH
12-20 FT.	24" MIN.	6'-6" MIN.

**2 LIGHT POLE BASE DETAIL**  
NOT TO SCALE

**NOTE:**  
1. VERIFY WITH STRUCTURAL ENGINEER DEPTH AND DIAMETER OF POLE BASE PRIOR TO FORMING.



**3 LIGHT POLE BASE DETAIL - POLES HIGHER THAN 20'**  
NOT TO SCALE

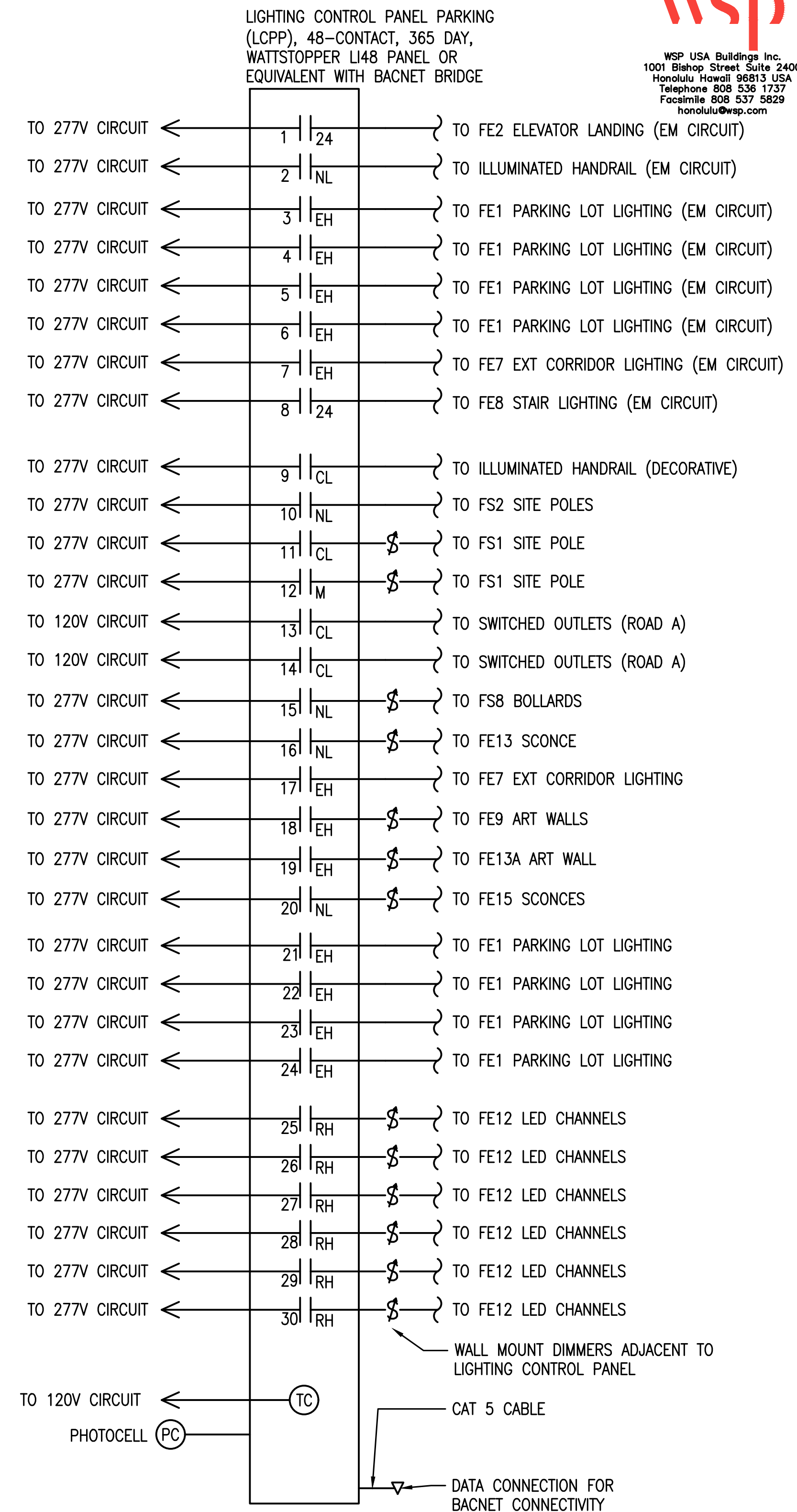


POLE HEIGHT	BASE DIAMETER
12-20 FT.	24" MIN.

**4 LIGHT POLE ON PEDESTAL DETAIL**  
NOT TO SCALE

**NOTE:**  
1. VERIFY WITH STRUCTURAL ENGINEER DEPTH AND DIAMETER OF POLE BASE PRIOR TO FORMING.

GALVANIZED J-BOLTS,



**1 LIGHTING CONTROL PANEL DETAILS**  
NOT TO SCALE

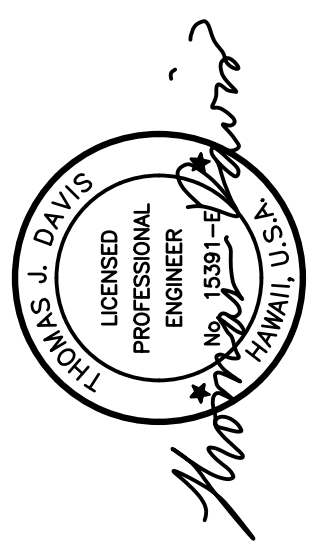
**SCHEDULES:**

VERIFY PROGRAMMING REQUIREMENTS WITH OWNER AND PROGRAM LIGHTING RELAY PANELS.

REGULAR HOURS (RH): 6AM ON, 10PM OFF  
EXTENDED HOURS (EH): 5AM ON, 12AM OFF  
NIGHT LIGHT (NL): DUSK ON, DAWN OFF  
CURFEW LIGHT (CL): DUSK ON, 10PM OFF  
MANUAL (M): MANUAL ON, 10PM OFF  
24 HOURS (24): ON 24 HOURS A DAY



**FERRARO CHOI**

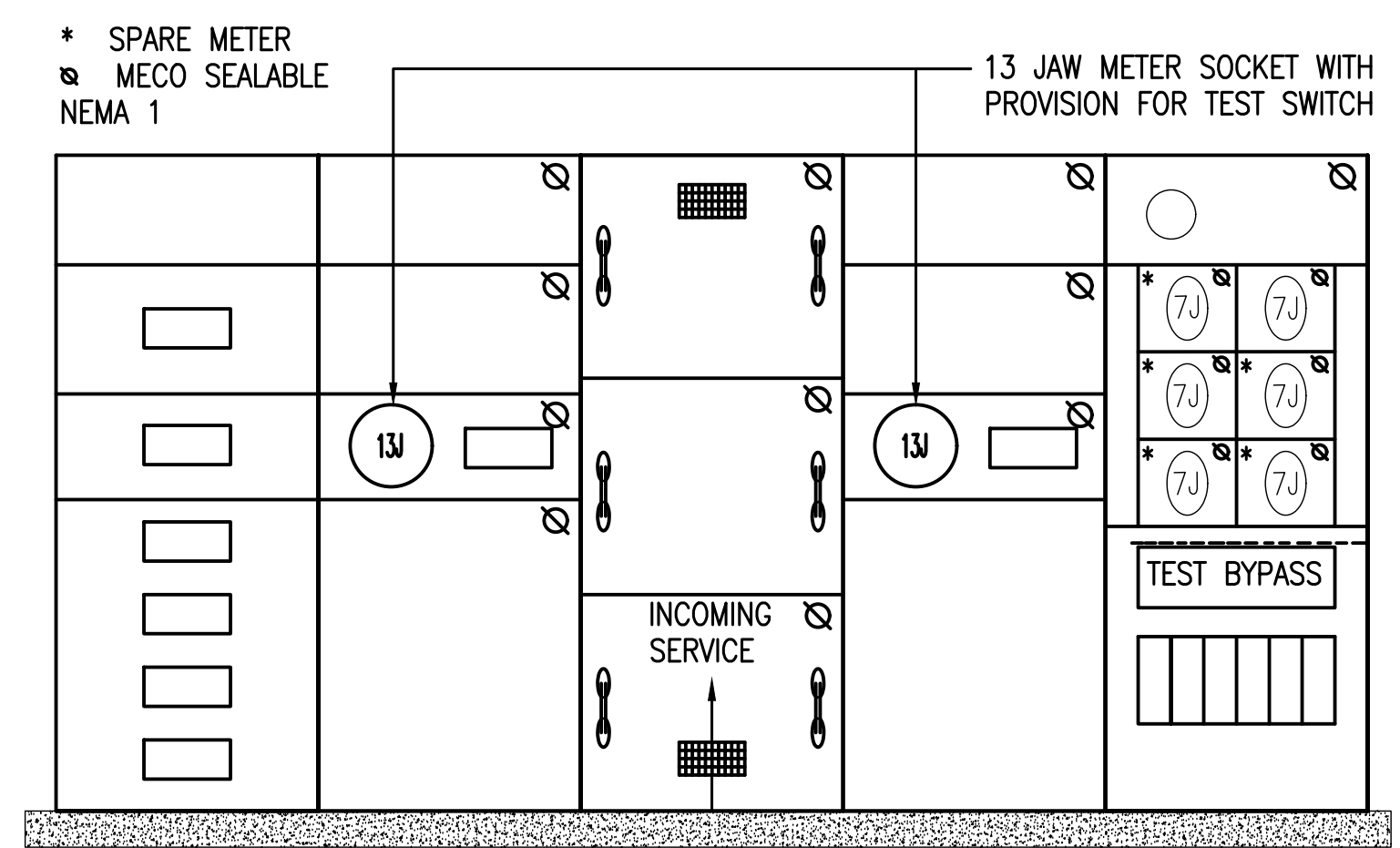
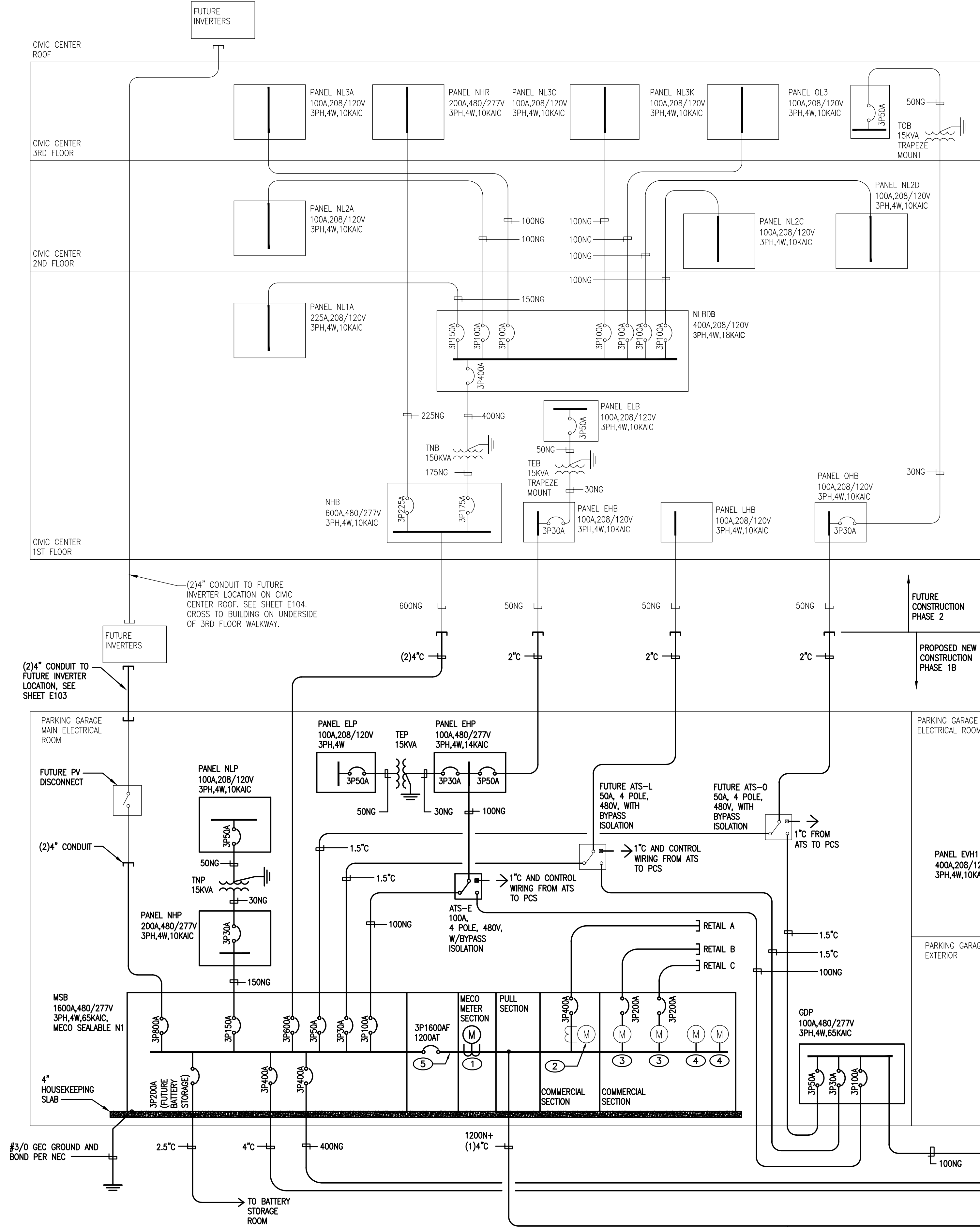


**WAILUKU CIVIC COMPLEX PHASE 1B**  
100% FINAL DESIGN  
[NOT FOR CONSTRUCTION]

PROJECT:	REVISIONS:	SHEET:	OF SHEETS:
2017-001	WSP	E304	1B
DRAWN:	DATE:	PHASE:	OF SHEETS:
7/25/2019	1B		

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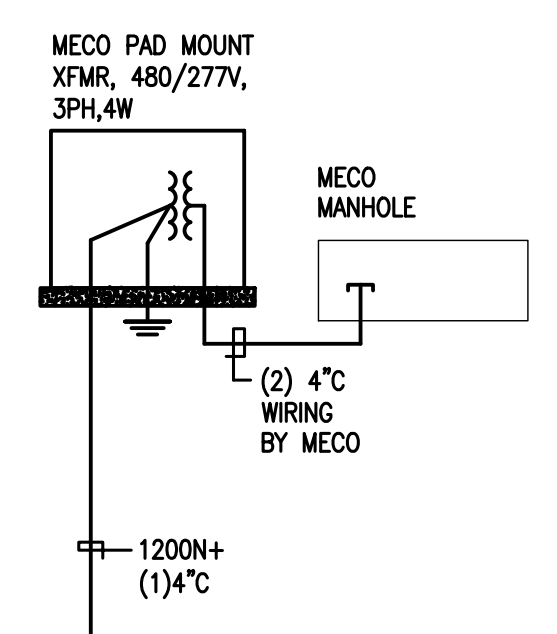
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- NOTES:**
- GROUND AND BOND PER NEC.
  - PROVIDE A MINIMUM OF 4' CLEAR AND LEVEL WORKSPACE CLEARANCE IN FRONT OF METERING AND SERVICE EQUIPMENT. PROVIDE MINIMUM 6" CLEARANCE ON ALL SIDES OF METER ENCLOSURE.
  - COORDINATE ACCESS TO METER ROOM WITH PLANNER FOR READILY ACCESS TO METERING EQUIPMENT.
  - PROVIDE SURGE PROTECTION DEVICE (SPD) FOR EACH SWITCHBOARD.
  - CUSTOMER SHALL COMPLY WITH ALL OF:
    - APPLICABLE "EUSERC" DRAWING REQUIREMENTS.
    - MECO'S ESIM REQUIREMENTS.

- MECO NOTES:**
- MECO'S SERVICE CONDUCTORS SHALL BE SEPARATED BY SUITABLE BARRIERS FROM THE CUSTOMER'S LOAD CONDUCTORS. ALSO, THE CUSTOMER'S LOAD CONDUCTORS SHALL NOT PASS THROUGH MECO'S SEALABLE SECTIONS OR COMPARTMENTS.
  - PROVIDE A PERMANENT IDENTIFICATION LABEL FOR ALL METER SOCKETS TO IDENTIFY THE UNIT OR SPACE SERVED.
  - AT TIME OF INSTALLATION, PROVIDE AND INSTALL METER SOCKET COVER (PLASTIC) AND BANDS FOR ALL BLANK METER SOCKETS. IDENTIFY COVERS SO COVERS CAN BE RETURNED.
  - THE RECOMMENDED HEIGHT FOR THE METERS ON THE SWITCHBOARDS IS 5'6" ABOVE FINISH FLOOR.
  - SWITCHBOARDS SHALL BE INSTALLED ON A 4" THICK CONCRETE PAD.

- GENERAL NOTES:**
- GROUND AND BOND PER NEC. PROVIDE GROUNDING SYSTEMS AS INDICATED ON ELECTRICAL AND TELECOM DRAWINGS.
  - ALL BREAKERS LARGER THAN 400A SHALL BE ELECTRONIC TRIP.
  - PROVIDE ARC-FLASH WARNING SIGNS PER NEC 110.16 FOR ALL EQUIPMENT.
- KEY NOTES:**
- MECO CT METER. SEE SWITCHBOARD ELEVATIONS FOR SWITCHBOARD SECTION DETAILS.
  - FUTURE MECO CT METER. SEE SWITCHBOARD ELEVATIONS FOR SWITCHBOARD SECTION DETAILS.
  - FUTURE MECO METER. SEE SWITCHBOARD ELEVATIONS FOR SWITCHBOARD SECTION DETAILS.
  - SPARE MECO METER SOCKET.
  - PROVIDE POWER QUALITY METER, GE PQMII OR COMPATIBLE APPROVED EQUAL.



**wsp**  
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 1001 Bishop Street Suite 2400  
 Honolulu Hawaii 96813 USA  
 Telephone 808 536 1737  
 Facsimile 808 537 5829  
 honolulu@wsp.com

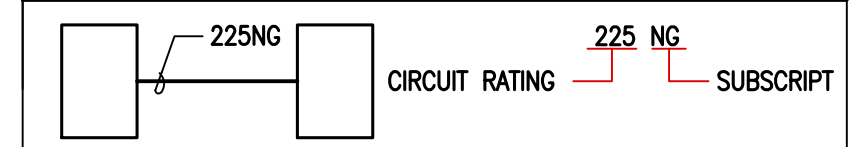
**WIRING SCHEDULE - COPPER CONDUCTORS (0-600V)**

CIRCUIT RATING	CONDUIT SIZE (INCHES)			CONDUCTOR SIZE	
	G	N	NG	PHASE/NEUTRAL	GND
15	0.75	0.75	0.75	12	12
20	0.75	0.75	0.75	12	12
30	0.75	0.75	0.75	10	10
40	0.75	0.75	1	8	10
50	1	1	1.25	6	10
60	1.25	1.25	1.25	4	10
70	1.25	1.25	1.25	4	8
80	1.25	1.25	1.25	3	8
90	1.25	1.25	1.5	2	8
100	1.5	1.5	2	1	8
110	1.5	1.5	2	1	6
125	1.5	1.5	2	1	6
150	2	2	2	1/0	6
175	2	2	2	2/0	6
200	2	2	2.5	3/0	6
225	2.5	2.5	2.5	4/0	4
250	2.5	2.5	3	250	4
300	3	3	3.5	350	4
350	4	4	4	500	2
400	4	4	4	500	2
450	2Ø2.5	2Ø2.5	2Ø2.5	4/0	2
500	2Ø2.5	2Ø2.5	2Ø3	250	1
600	2Ø3	2Ø3	2Ø3.5	350	1
700	2Ø4	2Ø4	2Ø4	500	1/0
800	2Ø4	2Ø4	2Ø4	500	1/0
1000	3Ø3	3Ø3	3Ø3.5	400	2/0
1200	3Ø4	3Ø4	3Ø4	600	3/0
1600	4Ø4	4Ø4	4Ø4	600	4/0
2000	5Ø4	5Ø4	5Ø4	600	250
2500	7Ø4	7Ø4	7Ø4	600	350
3000	8Ø4	8Ø4	8Ø4	500	500
3200	8Ø4	8Ø4	8Ø4	600	500
3500	8Ø4	8Ø4	8Ø4	500	500
4000	8Ø4	8Ø4	8Ø4	600	500

**SUBSCRIPT KEY**

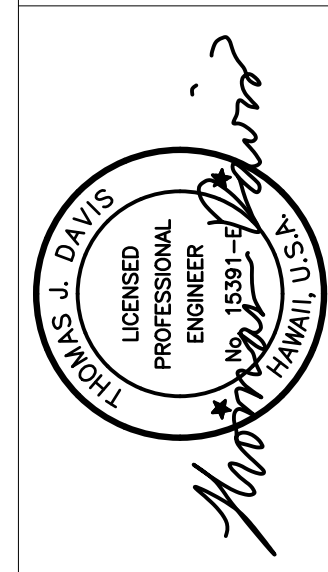
SUBSCRIPT	CONDUCTORS PER CONDUIT
NONE	3 PHASE CONDUCTORS, CONDUIT GROUND
G	3 PHASE CONDUCTORS, 1 GROUNDING CONDUCTOR
N	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, CONDUIT GROUND
NG	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, 1 GROUNDING CONDUCTOR

**EXAMPLES**



- NOTES:**
- \*\* PARALLEL CONDUCTORS ARE NOT PERMITTED UNDER 1/0.
  - 1. SCHEDULE IS BASED ON 3 CURRENT CARRYING CONDUCTORS IN RACEWAY, CABLE OR EARTH AT AMBIENT AIR TEMPERATURE OF 30°C (86°F).
  - 2. MODIFY IF USE OF 600 MCM OR LARGER CONDUCTORS IS DESIRED. CONFIRM LUG SIZES ARE AVAILABLE.

**FERRARO CHOI**



**WAILUKU CIVIC COMPLEX PHASE 1B**  
 100% FINAL DESIGN  
 [NOT FOR CONSTRUCTION]

**SINGLE LINE DIAGRAM**

PROJECT:	2017-001
DRAWN:	WSP
DATE:	7/25/2019
PHASE SHEET	<b>E401</b>
OF SHEETS	1B

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 LICENSE EXPIRATION DATE: 4/30/20  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER UNDER MY OBSERVATION (SEC. 19-115, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS)  
 SIGNATURE: *Thomas J. Davis*  
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## TECHNOLOGY NOTES AND ABBREVIATIONS

### TECHNOLOGY GENERAL NOTES

1. THE LOCATIONS AND ELEVATIONS OF TECHNOLOGY DEVICES SHOWN ON THESE DRAWINGS ARE SCHEMATIC UNLESS ACTUAL DIMENSIONS ARE SHOWN ON THE DRAWINGS. REFER TO THE ARCHITECTURAL PLANS AND OBTAIN THE APPROVAL OF THE ARCHITECT FOR THE ACTUAL LOCATIONS AND ELEVATIONS OF ALL DEVICES.
2. CONTRACTOR SHALL ENSURE THAT ALL MOUNTING HEIGHTS COMPLY WITH CURRENT ADA REQUIREMENTS.
3. ABOVE COUNTER DEVICES SHALL BE MOUNTED 8" ABOVE COUNTER OR A MAXIMUM OF 44" AFF (TO TOP OF DEVICE).
4. PROVIDE SUPPORTS AND ANCHORING FOR PIPING, CONDUIT, DUCTS, EQUIPMENT, AND OTHER NON-STRUCTURAL ELEMENTS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
5. PROVIDE SOUND PUTTY PADS IN ALL BACK BOXES.
6. FIRESTOPPING: ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS AND CONDUIT/SLEEVE OPENINGS SHALL BE SEALED WITH MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES, HOT GASSES AND SMOKE WHEN SUBJECTED TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIC FOR ALL APPLICABLE CODES.
7. ALL COMMUNICATIONS CONDUIT, CABLE TRAYS, LADDER RACKS AND EQUIPMENT RACKS SHALL BE BONDED TO BUILDING GROUND SYSTEM PER NEC 250 AND ANSI/TIA-607-B.
8. LABEL ALL CLOSETS, RACKS, FRAMES, CABINETS, TERMINATION BLOCKS, CABLES, TERMINATIONS, RACEWAYS, ETC. IN ACCORDANCE WITH ANSI/TIA-606-B.
9. ALL COMMUNICATIONS RACEWAYS AND PATHWAYS SHALL BE INSTALLED TO MINIMIZE UNNECESSARY CABLE LENGTHS AND MAINTAIN INDUSTRY STANDARD LENGTH LIMITATIONS FOR HORIZONTAL CABLE DISTRIBUTION (E.G. CAT 6). BASIC LINK CABLE LENGTH SHALL NOT EXCEED 295-FT (90M) FOR UTP CABLE, 200-FT (60M) FOR SERIES-6 COAXIAL CABLE.
10. ALL COMMUNICATIONS CABLE SHALL BE PLENUM RATED (CMP), RISER RATED (CMR) AND UNDERGROUND RATED (WATERBLOCK) ACCORDING TO USE AND ENVIRONMENTAL CONDITIONS.
11. PROVIDE PROTECTIVE BUSHINGS ON ALL COMMUNICATIONS CONDUITS AND WHERE CABLING ROUTES THROUGH METAL STUDS.
12. ALL NON-ARMORED FIBER OPTIC CABLE SHALL BE INSTALLED IN APPROVED INNERDUCT.
13. ALWAYS INSTALL LOW-VOLTAGE CABLES IN CONDUITS, CABLE TRAYS, WIREWAYS OR OTHER APPROVED CABLE MANAGEMENT DEVICES OR SYSTEMS. NEVER INSTALL CABLES IN SUCH A MANNER THAT THEY ARE SUPPORTED BY CEILING SYSTEMS (CEILING TILE OR GRID, GYPSUM BOARD, LATH & PLASTER), HVAC DUCTS OR PIPES, LIGHTING FIXTURES, ELECTRICAL CONDUITS OR CABLES, PLUMBING/FIRE PROTECTION PIPES, OR ANY OTHER DEVICES NOT INTENDED FOR THE SUPPORT OF LOW-VOLTAGE CABLING.
14. PROVIDE WEATHERPROOF, IN-USE COVER FOR EXTERIOR DATA DEVICES.
15. ALL CABLE TRAY MOUNTING HEIGHTS INDICATED ON FLOOR PLANS ARE TO THE BOTTOM OF CABLE TRAY SUPPORTS.
16. SEISMIC BRACING FOR ALL CABLE TRAYS SHALL BE PROVIDED AS REQUIRED BY CODE, LOCAL GOVERNING JURISDICTION AND CABLE TRAY MANUFACTURER SPECIFICATIONS.
17. ALL CABLE TRAY ROUTING THROUGH ELECTRICAL ROOMS SHALL BE FULLY ENCLOSED. REFER TO CABLE TRAY DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
18. REUSABLE VELCRO TIES SHALL BE USED TO BUNDLE OR MANAGE CABLES. PLASTIC ZIP TIES ARE NOT APPROVED FOR USE.
19. SIZE AND ORIENTATION OF ALL TELECOM PULL-BOXES SHALL MEET OR EXCEED THE BICSI TDMM REQUIREMENTS.
20. ALL LOW-VOLTAGE CONDUIT LARGER THAN 2" SHALL HAVE A MINIMUM BEND RADIUS OF 10:1 OF THE INSIDE DIAMETER FOR ALL ELBOWS. ALL LOW-VOLTAGE CONDUIT 2" AND SMALLER SHALL HAVE A MINIMUM BEND RADIUS OF 6:1 OF THE INSIDE DIAMETER FOR ALL ELBOWS.
21. ALL CONDUITS SHALL BE INSTALLED WITH PULL-STRINGS.
22. PARKING CONTROL SYSTEM BY OTHERS.
23. ALL CEILING-MOUNTED DEVICES SHOULD MAINTAIN MINIMUM VEHICULAR CLEARANCE HEIGHTS.

### ABBREVIATIONS

AC	ABOVE COUNTER
ADA	AMERICANS WITH DISABILITIES ACT
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ALT	ALTERNATE
AMP, A	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ATR	ALL THREADED ROD
AV	AUDIOVISUAL
AWG	AMERICAN WIRE GAUGE
BDA	BI-DIRECTIONAL ANTENNA
BFC	BELOW FINISHED CEILING
BFG	BELOW FINISHED GRADE
BICSI	BUILDING INDUSTRY CONSULTING SERVICES INTERNATIONAL
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAT	CATEGORY
CATV	COMMUNITY ANTENNA TV (CABLE TV)
CLEC	COMPETITIVE LOCAL EXCHANGE CARRIER
CL	CLOSET
CLG	CEILING
CMP	COMMUNICATIONS PLENUM CABLE
CMR	COMMUNICATIONS RISER CABLE
CO	CENTRAL OFFICE
COAX	COAXIAL
CT	CABLE TRAY
DAS	DISTRIBUTED ANTENNA SYSTEM
DB	DECIBEL
DEMARC	DEMARICATION
DIA	DIAMETER
DWG	DRAWING
(E)	EXISTING TO REMAIN
E.G.	FOR EXAMPLE
EIA	ELECTRONICS INDUSTRY ALLIANCE
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EMI	ELECTROMAGNETIC INTERFERENCE
EMT	ELECTRICAL METALLIC TUBING
EP	EXPLOSION PROOF
ERRCS	EMERGENCY RESPONDER RADIO COVERAGE SYSTEM
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FCC	FEDERAL COMMUNICATIONS COMMISSION
FO	FIBER OPTIC
FR	FIRE RATED
FT	FOOT/FEET
GB	GIGABYTE
GBPS	GIGABITS PER SECOND
GC	GENERAL CONTRACTOR
GE	GROUNDING EQUALIZER
GMP	GUARANTEED MAXIMUM PRICE
GND	GROUND
GUI	GRAPHICAL USER INTERFACE
HC	HORIZONTAL CROSS-CONNECT
HVAC	HEATING, VENTILATING, AND AIR-CONDITIONING
ID	INSIDE DIAMETER
IDF	INTERMEDIATE DISTRIBUTION FRAME
IEC	INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT - SEE NEC ARTICLE 342
INT	INTERCOM
IP	INTERNET PROTOCOL
ISO	INTERNATIONAL ORGANIZATION OF STANDARDS
J-BOX, JB	JUNCTION BOX
KCMIL	THOUSANDS OF CIRCULAR MILLS

### ABBREVIATIONS

KM	KILOMETER
KVA	KILOVOLT AMPERES
KW	KILOWATT
LAN	LOCAL AREA NETWORK
LEC	LOCAL EXCHANGE CARRIER (OR SP)
LED	LIGHT-EMITTING DIODE
M	METER
MAG	MAGNETIC
MAN	METROPOLITAN AREA NETWORK
MAX	MAXIMUM
MB	MEGABYTE
MBPS	MEGABITS PER SECOND
MC	MAIN CROSS-CONNECT
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MI	MILE
MIN	MINIMUM
MM	MILLIMETER
MMFO	MULTIMODE FIBER OPTIC
MPOE	MAIN POINT OF ENTRY
NEC	NATIONAL ELECTRIC CODE - NFPA 70
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NETWORK INTERFACE CARD
NID	NETWORK INTERFACE DEVICE
NM	NANOMETER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OEM	ORIGINAL EQUIPMENT MANUFACTURER
OS	OPERATING SYSTEM
OSP	OUTSIDE PLANT
PA	PUBLIC ADDRESS
PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE
PBX	PRIVATE BRANCH EXCHANGE
PB	PULL-BOX (SIZED PER BICSI TDMM)
PC	PERSONAL COMPUTER
PCN	PERSONAL COMMUNICATIONS NETWORK
PCS	PERSONAL COMMUNICATIONS SYSTEMS
PIR	PASSIVE INFRARED
POTS	PLAIN OLD TELEPHONE SERVICE
PR	PAIRS (NUMBER OF PAIRS IN COPPER CABLE)
PROX	PROXIMITY
PVC	POLYVINYL CHLORIDE
PWR	POWER
RCDD	REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
RFI	RADIO FREQUENCY INTERFACE
RM	ROOM
RMC	RIGID METALLIC CONDUIT
SCTP	SCREENED TWISTED PAIR
SMFO	SINGLEMODE FIBER OPTIC
SPOE	SECONDARY POINT OF ENTRY
SP	SERVICE PROVIDER
STD	STANDARD
STP	SHIELDED TWISTED PAIR
SW	SWITCH
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TBD	TO BE DETERMINED
TCP/IP	TRANSMISSION CONTROL PROTOCOL W/ INTERNET PROTOCOL
TDMM	TELECOMMUNICATIONS DISTRIBUTION METHODS MANUAL
TEL	TELEPHONE
TELECO	TELEPHONE COMPANY (SP)
TELECOM	TELECOMMUNICATIONS
TEMP	TEMPERATURE
TGB	TELECOMMUNICATIONS GROUND BUS BAR

### ABBREVIATIONS

TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
TMGB	TELECOMMUNICATIONS MAIN GROUND BUS BAR
TR	TELECOMMUNICATIONS ROOM
TV	TELEVISION
TYP	TYPICAL
UC	UNDER COUNTER
UG	UNDERGROUND
UL	UNDERWRITER LABORATORIES
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
V	VOLT
W	WATT
WAN	WIDE AREA NETWORK
WLAN	WIRELESS LOCAL AREA NETWORK
WP	WEATHERPROOF
(X)	EXISTING - TO BE DEMOLISHED

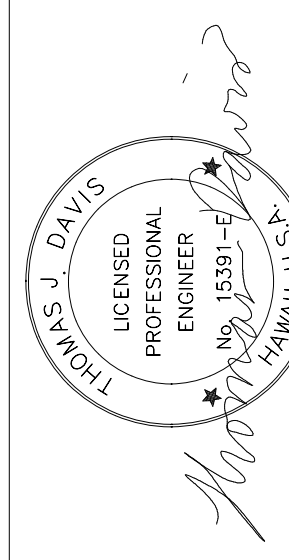
### TECHNOLOGY DRAWING LIST

DRAWING NO.	DESCRIPTION
T001	TECHNOLOGY NOTES AND ABBREVIATIONS
T002	TECHNOLOGY LEGEND
T101A	OVERALL TECHNOLOGY PLAN - LEVEL 1A
T101B	OVERALL TECHNOLOGY PLAN - LEVEL 1B
T102	OVERALL TECHNOLOGY PLAN - LEVEL 2
T103	OVERALL TECHNOLOGY PLAN - LEVEL 3
T141	TECHNOLOGY ENLARGED PLAN
T200	TECHNOLOGY PATHWAY RISER DIAGRAM
T300	TECHNOLOGY SYSTEM DETAILS

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SIGNATURE  
 LICENSE EXPIRATION DATE 4/30/20  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII, U.S.A. (DEC. 14, 1915) DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS

**WAILUKU CIVIC COMPLEX PHASE 1B**

100% FINAL DESIGN

[NOT FOR CONSTRUCTION]

SHEET TITLE:  
**TECHNOLOGY NOTES AND ABBREVIATIONS**

PROJECT:	2017-001	REVISIONS:			
DRAWN:	WSP				
DATE:	7/25/2019				

PHASE	1B	SHEET	T001	OF	SHEETS
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# TECHNOLOGY LEGEND

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 No. 15391-5  
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 THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF IT COMPLIES WITH ALL APPLICABLE REQUIREMENTS OF THE HAWAII DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS.

**WAILUKU CIVIC COMPLEX PHASE 1B**  
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SHEET TITLE:  
**TECHNOLOGY LEGEND**

PROJECT: 2017-001  
 DRAWN: WSP  
 DATE: 7/25/2019  
 SHEET: 1B T002  
 OF SHEETS: 1 OF 1  
 REVISIONS:  
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	CONDUIT CONCEALED ABOVE CEILING OR WITHIN WALL
	CONDUIT BELOW GRADE
	CONDUIT EMBEDDED IN SLAB
	CONDUIT UP
	CONDUIT DOWN
	CONDUIT STUBBED OUT WITH BUSHING NOTE: PROVIDE PULL-STRING IN EACH RACEWAY
	CONDUIT STUBBED OUT AND CAPPED NOTE: PROVIDE PULL-STRING IN EACH RACEWAY
	TELECOMMUNICATIONS CABLE TRAY
	TELECOMMUNICATIONS SURFACE MOUNTED RACEWAY
	PULL-BOX (SIZED PER BICSI TDDM STANDARDS)
	UNDERGROUND MANHOLE
	UNDERGROUND HANDHOLE
	WALL MOUNTED J-BOX; +18" AFF U.O.N.
	CLG MOUNTED J-BOX; +06" ABOVE ACCESSIBLE CLG, FLUSH IN HARD CLG, OR TIGHT TO STRUCTURE IF CLG DOES NOT EXIST.
	WALL MOUNTED FURNITURE FEED WITH COVER PLATE AND FLEXIBLE WHIP; +18" AFF U.O.N.
	FLOOR MOUNTED FURNITURE FEED WITH COVER PLATE AND FLEXIBLE WHIP.

	SHEET KEYNOTE		
	REVISION NUMBER		
	CALLOUT		CALLOUT NUMBER
			SHEET NUMBER
	SECTION		SECTION NUMBER
			SHEET NUMBER

	WALL MOUNTED TELECOM OUTLET, SUBSCRIPT # DENOTES NUMBER OF CAT.6 CABLES; +18" AFF U.O.N.
	FURNITURE MOUNTED TELECOM OUTLET, (#) CAT.6 CABLE(S); MOUNTED WITHIN MODULAR FURNITURE SYSTEM.
	ELECTRIC VEHICLE CHARGING OUTLET. MOUNT IN OR ADJACENT TO CHARGING STATION. COORDINATE EXACT MOUNTING LOCATION WITH ARCHITECT.
	WALL PHONE OUTLET, (1) CAT.6 CABLE; +48" AFF.
	ELEVATOR TELECOM OUTLET, (1) CAT.6 CABLE; +48" AFF U.O.N.
	WALL MOUNTED WLAN OUTLET, (#) CAT.6 CABLE(S); +6" BFC U.O.N.
	WALL MOUNTED IP CAMERA OUTLET, (1) CAT.6 CABLE; MOUNTING HEIGHT AS INDICATED ON SECURITY SCHEDULE.
	WALL MOUNTED TV OUTLET, (1) CAT.6 AND (1) RG-6 CABLE; MOUNTING HEIGHT TBD BY ARCHITECT.
	WALL MOUNTED POINT-OF-SALE OUTLET, (#) CAT.6 CABLE(S); +18" AFF U.O.N.
	WALL MOUNTED AUTOMATIC TELLER MACHINE OUTLET, (#) CAT.6 CABLE(S); +18" AFF U.O.N.
	WALL MOUNTED IP CAMERA OUTLET, 2-STRAND MMFO CABLE; MOUNTING HEIGHT AS INDICATED ON SECURITY SCHEDULE.
	WALL MOUNTED OUTLET FOR BLUE LIGHT PHONE. REFER TO DETAIL DRAWING FOR ADDITIONAL INFORMATION. MOUNTING HEIGHT AT 42 INCHES AFF.
	CEILING MOUNTED TELECOM OUTLET, (#) CAT.6 CABLE(S); MOUNTED FLUSH IN CEILING OR TIGHT TO STRUCTURE IF CEILING DOES NOT EXIST.
	CEILING MOUNTED WLAN OUTLET, (#) CAT.6 AND (1) RG-6 CABLE; +06" ABOVE ACCESSIBLE CEILING, FLUSH IN HARD CEILING, OR TIGHT TO STRUCTURE IF CEILING DOES NOT EXIST.
	CEILING MOUNTED IP CAMERA OUTLET, (1) CAT.6 CABLE; +06" ABOVE ACCESSIBLE CEILING, FLUSH IN HARD CEILING, OR TIGHT TO STRUCTURE IF CEILING DOES NOT EXIST.
	CEILING MOUNTED TV OUTLET, (1) CAT.6 AND (1) RG-6 CABLE; MOUNTED FLUSH IN CEILING OR TIGHT TO STRUCTURE IF CEILING DOES NOT EXIST.
	COMBINATION POWER/TELECOM RECESSED FLUSH FLOOR BOX, (#) CAT.6 CABLE(S). COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.
	COMBINATION POWER/TELECOM RECESSED FLUSH FLOOR BOX, (1) CAT.6 CABLE & (1) RG-6 CABLE. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.
	COMBINATION POWER/TELECOM POKE-THRU FLOOR BOX, (1) CAT.6 CABLE, (1) RG-6 CABLE. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.

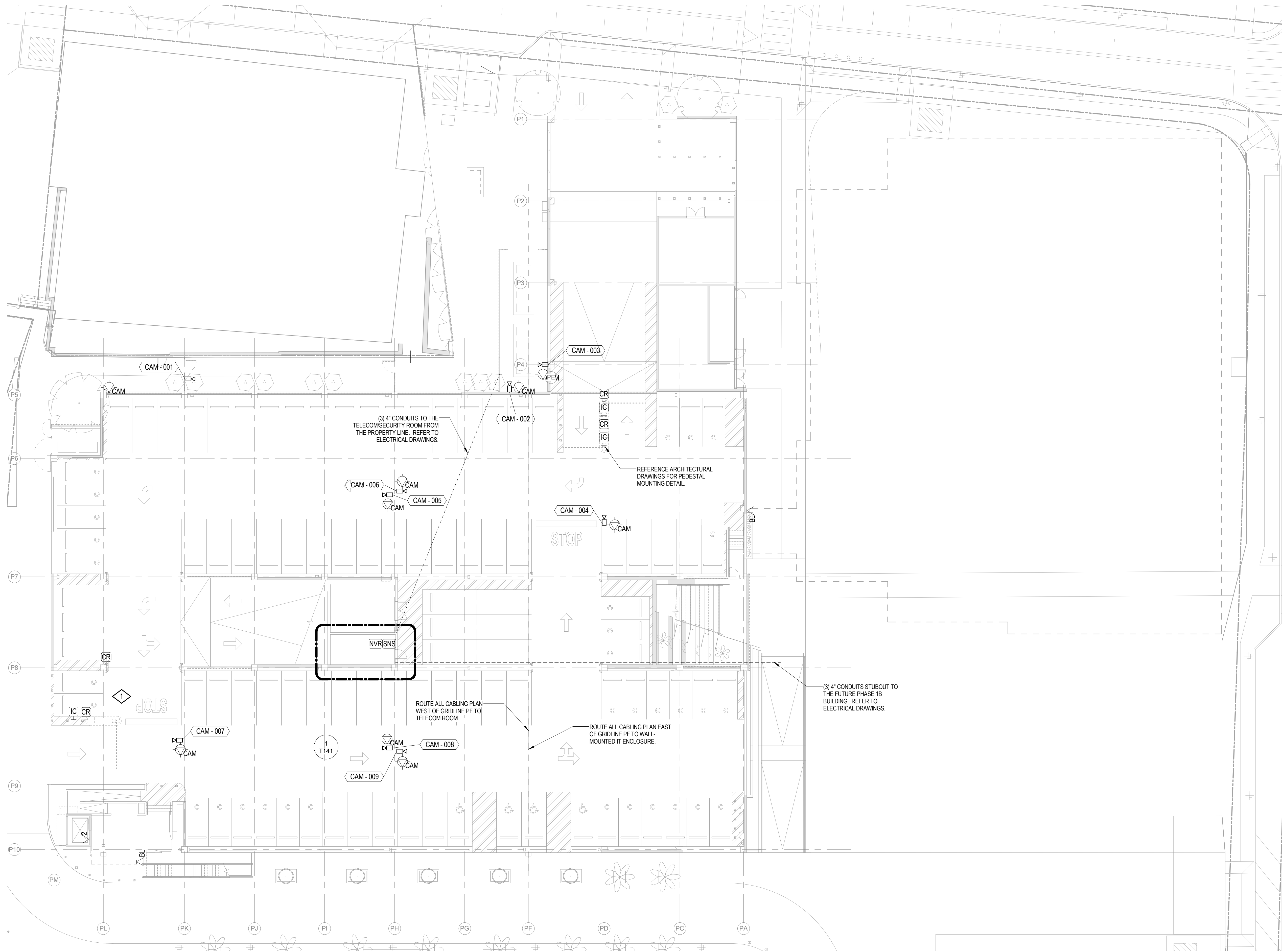
	COPPER MAIN CROSS-CONNECT (MC)
	FIBER OPTIC MAIN CROSS-CONNECT (MC)
	COPPER INTERMEDIATE CROSS-CONNECT (IC)
	FIBER OPTIC INTERMEDIATE CROSS-CONNECT (IC)
	COPPER SERVICE TIE CROSS-CONNECT (ST)
	FIBER OPTIC SERVICE TIE CROSS-CONNECT (ST)
	HORIZONTAL CABLING DISTRIBUTION PATCH PANEL
	CABLE SERVICE LOOP; # DENOTES LENGTH (FEET)
	TELECOMMUNICATIONS MAIN GROUND BUSBAR
	TELECOMMUNICATIONS GROUND BUSBAR

	FIXED SECURITY CAMERA
	PAN-TILT-ZOOM (PTZ) SECURITY CAMERA
	180-DEGREE SECURITY CAMERA
	REQUEST-TO-EXIT
	DOOR CONTACT
	CARD READER
	KEYPAD
	BIOMETRIC READER
	ELECTRIFIED LOCK
	DURESS ALARM BUTTON
	DOOR RELEASE BUTTON
	MOTION SENSOR (PIR); ARROW INDICATES DIRECTION OF SENSOR
	GLASS BREAK SENSOR
	AUDIO INTERCOM STATION
	VIDEO INTERCOM STATION
	MASTER INTERCOM STATION
	GUEST TELEPHONE ENTRY CALL-BOX
	LONG DISTANCE VEHICLE ENTRY TRANSPONDER
	EMERGENCY TWO-WAY COMMUNICATIONS SUBSTATION
	EMERGENCY TWO-WAY COMMUNICATIONS MASTER STATION
	DEVICE CIRCUITING; X=CAMERA NUMBER.
	DEVICE CIRCUITING; X=SECURITY NUMBER. EACH DEVICE SHALL HAVE INDIVIDUAL HOMERUN TO CONTROL PANEL.

	SECURITY WORKSTATION
	FLAT PANEL DISPLAY MONITOR
	NETWORK VIDEO RECORDER
	ACCES CONTROL PANEL
	INTRUSION DETECTION REMOTE PANEL
	INTRUSION DETECTION CONTROL PANEL
	INTERCOM CENTRAL EXCHANGE
	SECURITY SERVER
	SECURITY NETWORK SWITCH
	PROGRAMMABLE LOGIC CONTROLLER

CAM NUM	DES.	NO.	DRAWING	MOUNTING TYPE	ORIGIN	INTENDED VIEW
CAM 001	T101A	WALL SURFACE	SECURITY/TELECOM ROOM 102	EXTERIOR WALKWAY		
CAM 002	T101A	WALL SURFACE	SECURITY/TELECOM ROOM 102	EXTERIOR WALKWAY		
CAM 003	T101A	WALL SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	EXTERIOR WALKWAY		
CAM 004	T101A	CEILING SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	VEHICLES ENTERING GARAGE		
CAM 005	T101A	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 006	T101A	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 007	T101A	CEILING SURFACE	SECURITY/TELECOM ROOM 102	VEHICLES ENTERING GARAGE		
CAM 008	T101A	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 009	T101A	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 010	T101B	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 011	T101B	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 012	T101B	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE RAMP		
CAM 013	T101B	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE RAMP		
CAM 014	T101B	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 015	T101B	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 016	T101B	CEILING SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	STAIRS		
CAM 017	T102	CEILING SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		
CAM 018	T102	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 019	T102	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 020	T102	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE RAMP		
CAM 021	T102	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE RAMP		
CAM 022	T102	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 023	T102	CEILING SURFACE	SECURITY/TELECOM ROOM 102	PARKING GARAGE		
CAM 024	T103	CANOPY SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		
CAM 025	T103	CANOPY SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		
CAM 026	T103	CANOPY SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		
CAM 027	T103	CANOPY SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	STAIRS		
CAM 028	T103	CANOPY SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		
CAM 029	T103	CANOPY SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		
CAM 030	T103	LIGHT POLE SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		
CAM 031	T103	LIGHT POLE SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		
CAM 032	T103	LIGHT POLE SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	STAIRS		
CAM 033	T103	LIGHT POLE SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		
CAM 034	T103	LIGHT POLE SURFACE	LEVEL 1B WALL-MOUNTED IT ENCLOSURE	PARKING GARAGE		

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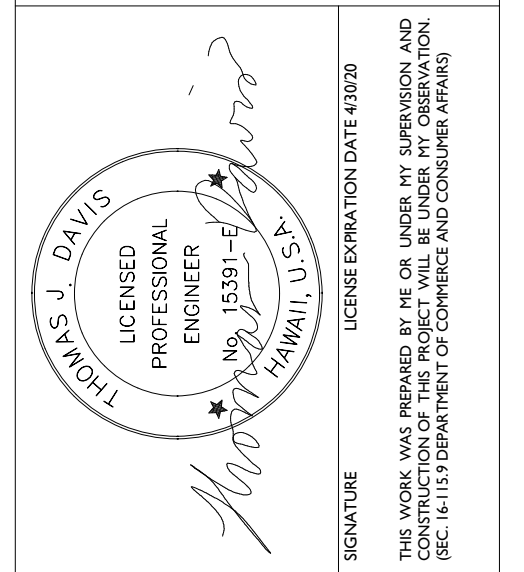


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**KEY NOTES**

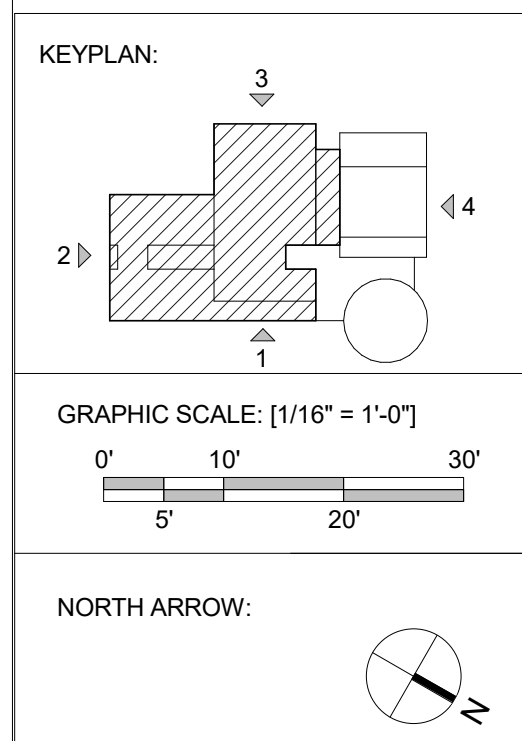
- 1 DURING NORMAL BUSINESS HOURS THE ROLL-UP DOOR IS UP AND THE GATE ARM IS DOWN. A VALID CARD SHALL ACTIVATE THE GATE ARM. OUTSIDE OF NORMAL BUSINESS HOURS, THE ROLL-UP DOOR IS DOWN AND THE GATE ARM IS DOWN. A VALID CARD SHALL ACTIVATE THE GATE ARM AND THE ROLL-UP DOOR.

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**WAILUKU CIVIC COMPLEX PHASE 1B**  
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**OVERALL TECHNOLOGY PLAN - LEVEL 1A**



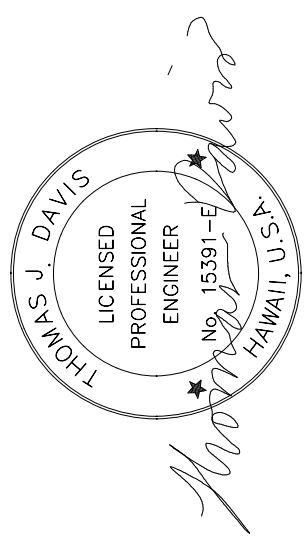
PROJECT:	2017-001	REVISIONS:	
DRAWN:	WSP		
DATE:	7/25/2019		
PHASE	1B	SHEET	T101A
		OF	SHEETS



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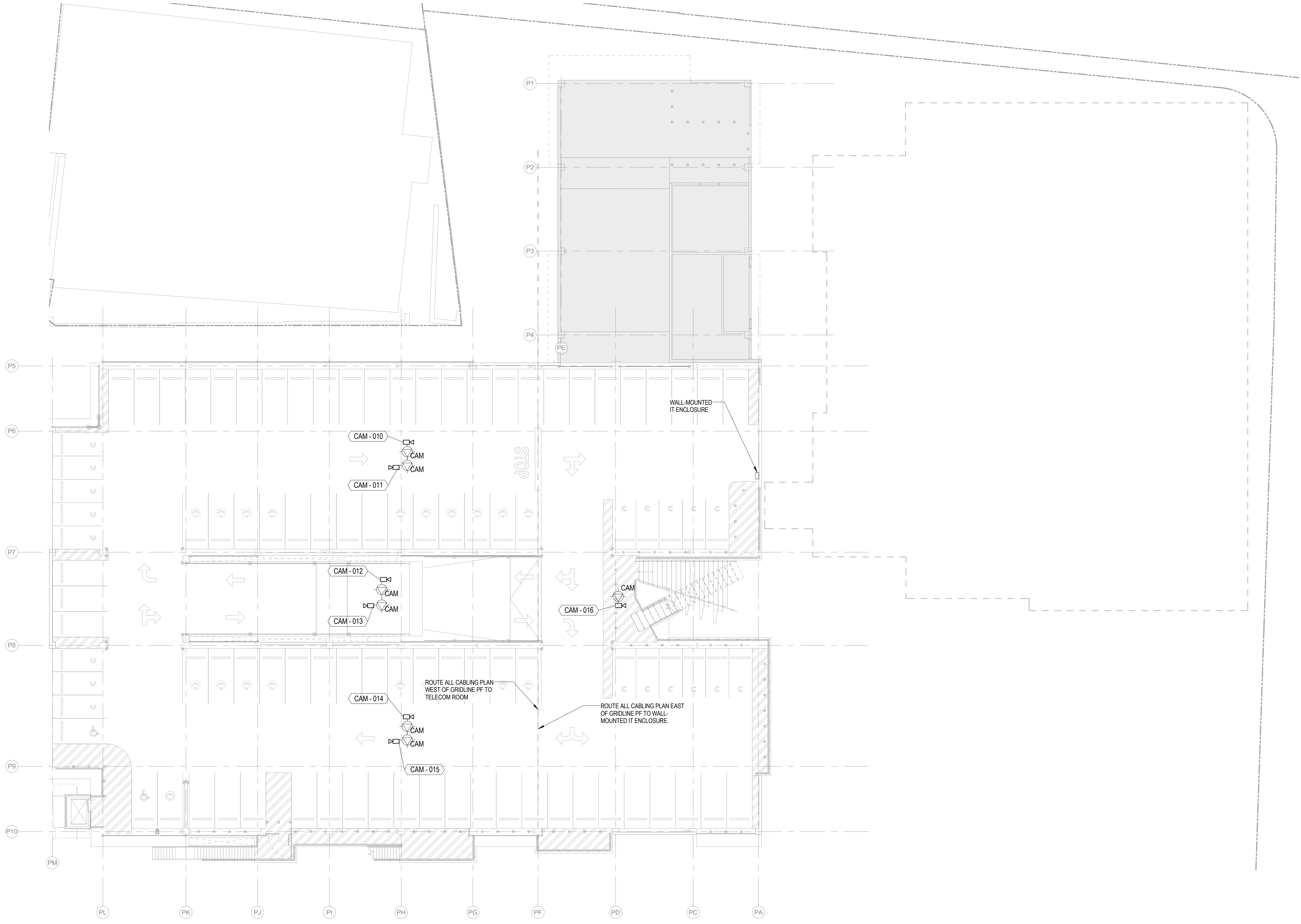


THOMAS J. DAVIS  
LICENSED PROFESSIONAL ENGINEER  
LICENSE EXPIRATION DATE 4/30/20  
THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONTROL AND I AM A MEMBER OF THE BOARD OF PROFESSIONAL ENGINEERS IN THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS.

**WAILUKU CIVIC COMPLEX PHASE 1B**  
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**OVERALL TECHNOLOGY PLAN - LEVEL 1B**

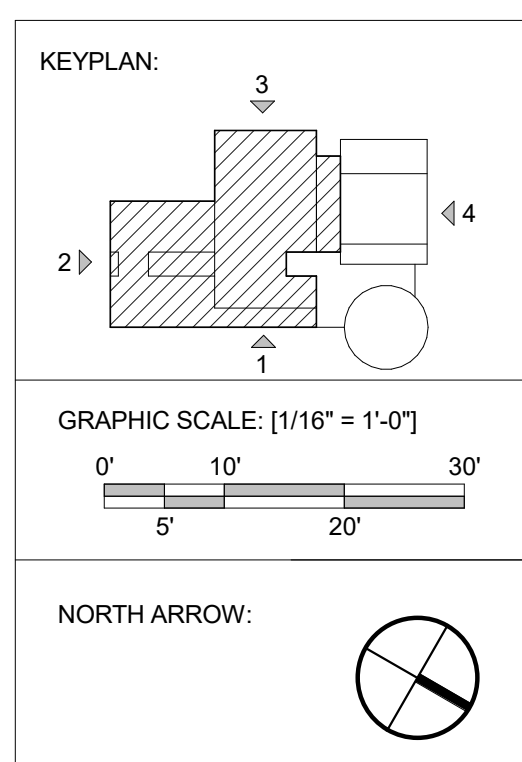
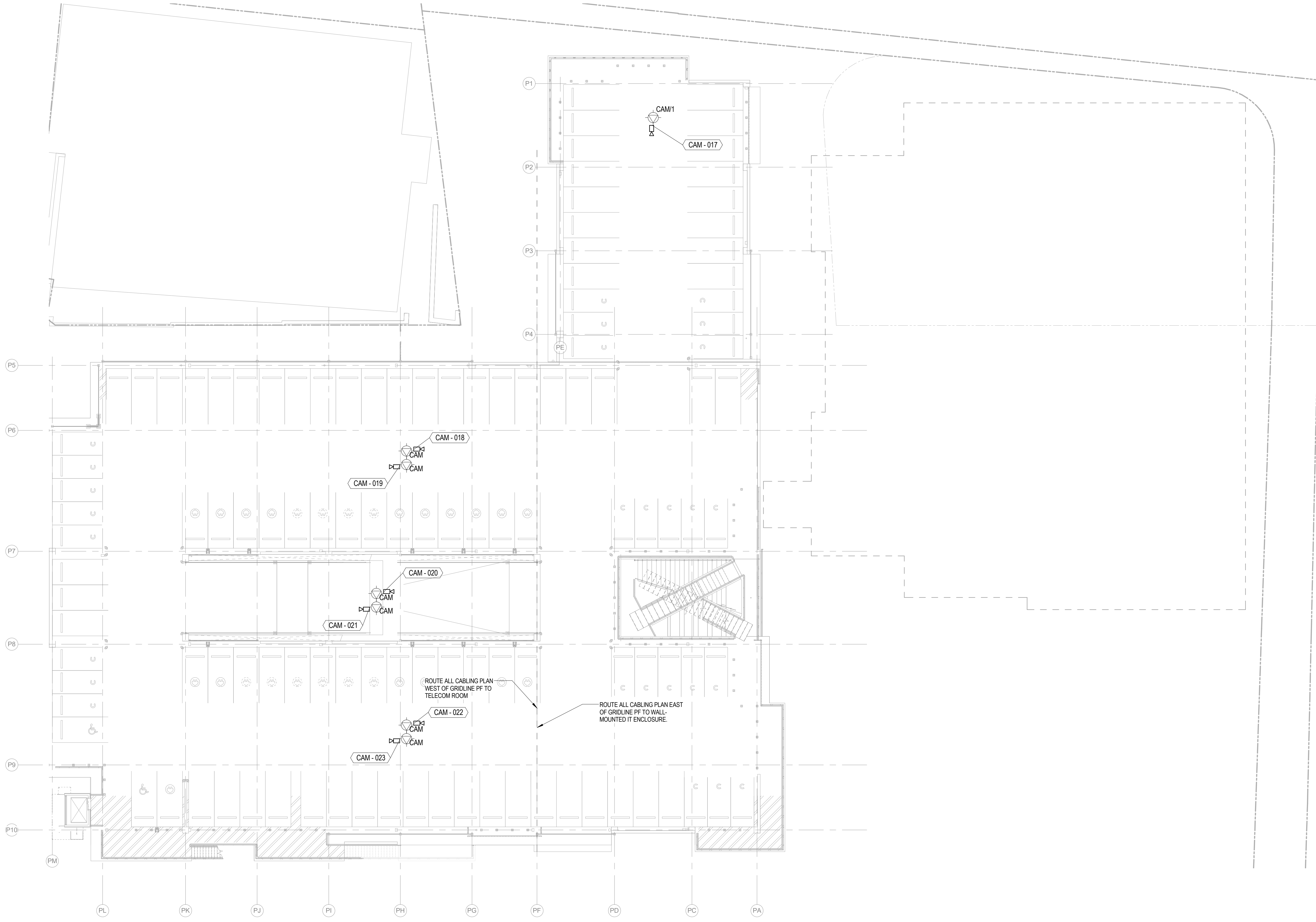
PROJECT:	2017-001	REVISIONS:	
DRAWN:	WSP		
DATE:	7/25/2019		
PHASE	1B	SHEET	T101B
OF		SHEETS	



**KEYPLAN:**

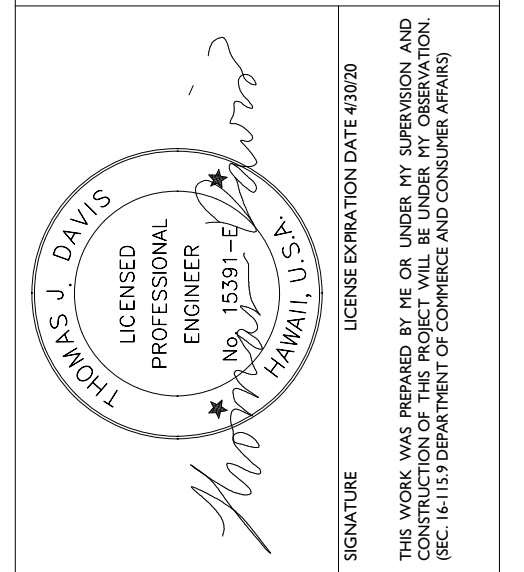
**GRAPHIC SCALE: [1/16" = 1'-0"]**

**NORTH ARROW:**



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**WAILUKU CIVIC COMPLEX PHASE 1B**  
 100% FINAL DESIGN  
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SHEET TITLE:  
**OVERALL TECHNOLOGY PLAN - LEVEL 2**  
 CADD FILE:

PROJECT:	2017-001	REVISIONS:	
DRAWN:	WSP		
DATE:	7/25/2019		
PHASE	1B	SHEET	T102
		OF	SHEETS



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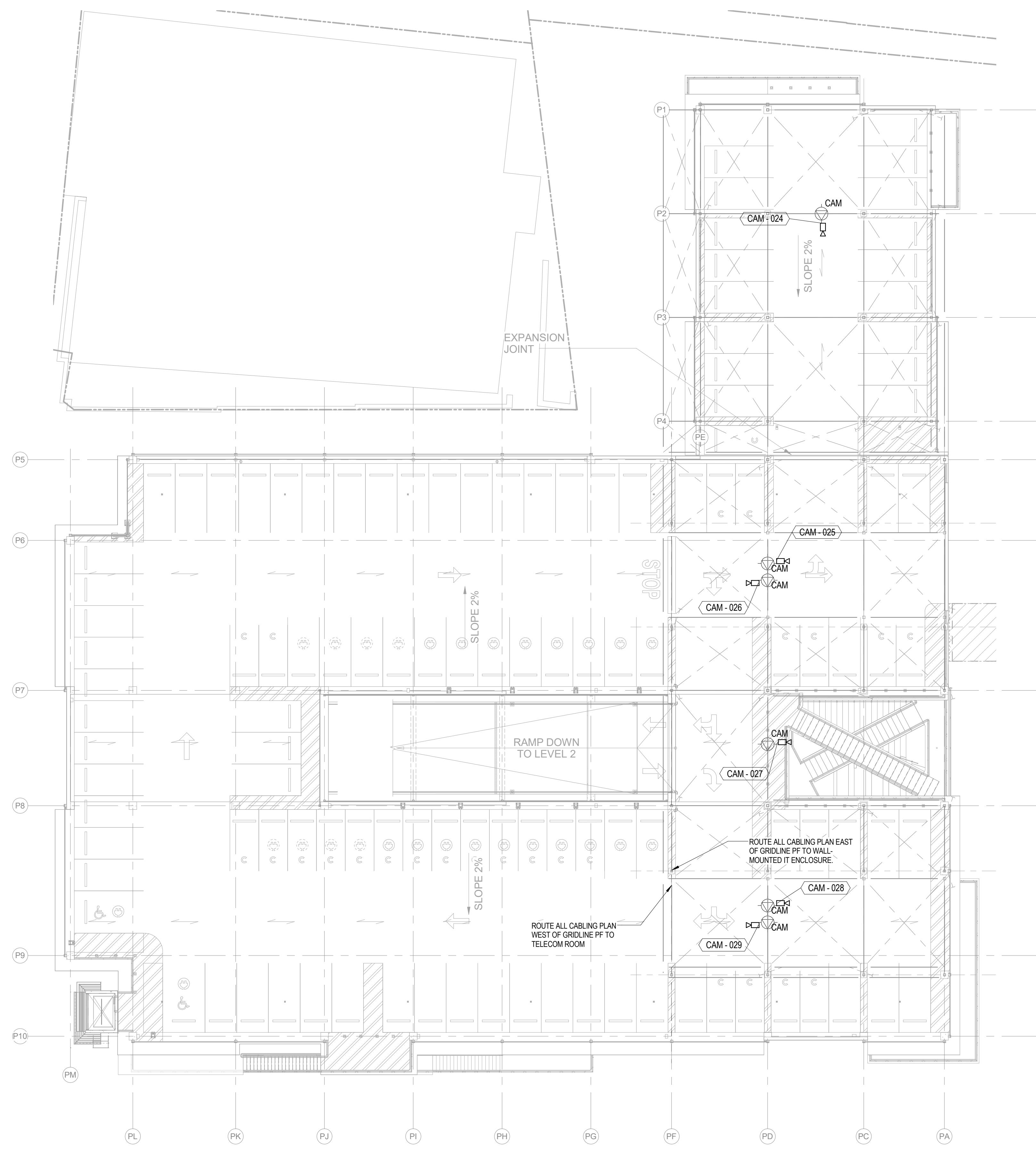
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THOMAS J. DAVIS  
 LICENSED PROFESSIONAL ENGINEER  
 No. 15391-5  
 HAWAII, U.S.A.  
 LICENSE EXPIRATION DATE 4/30/20  
 SIGNATURE  
 THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND I AM A duly Licensed Professional Engineer in the State of Hawaii, Department of Commerce and Consumer Affairs.

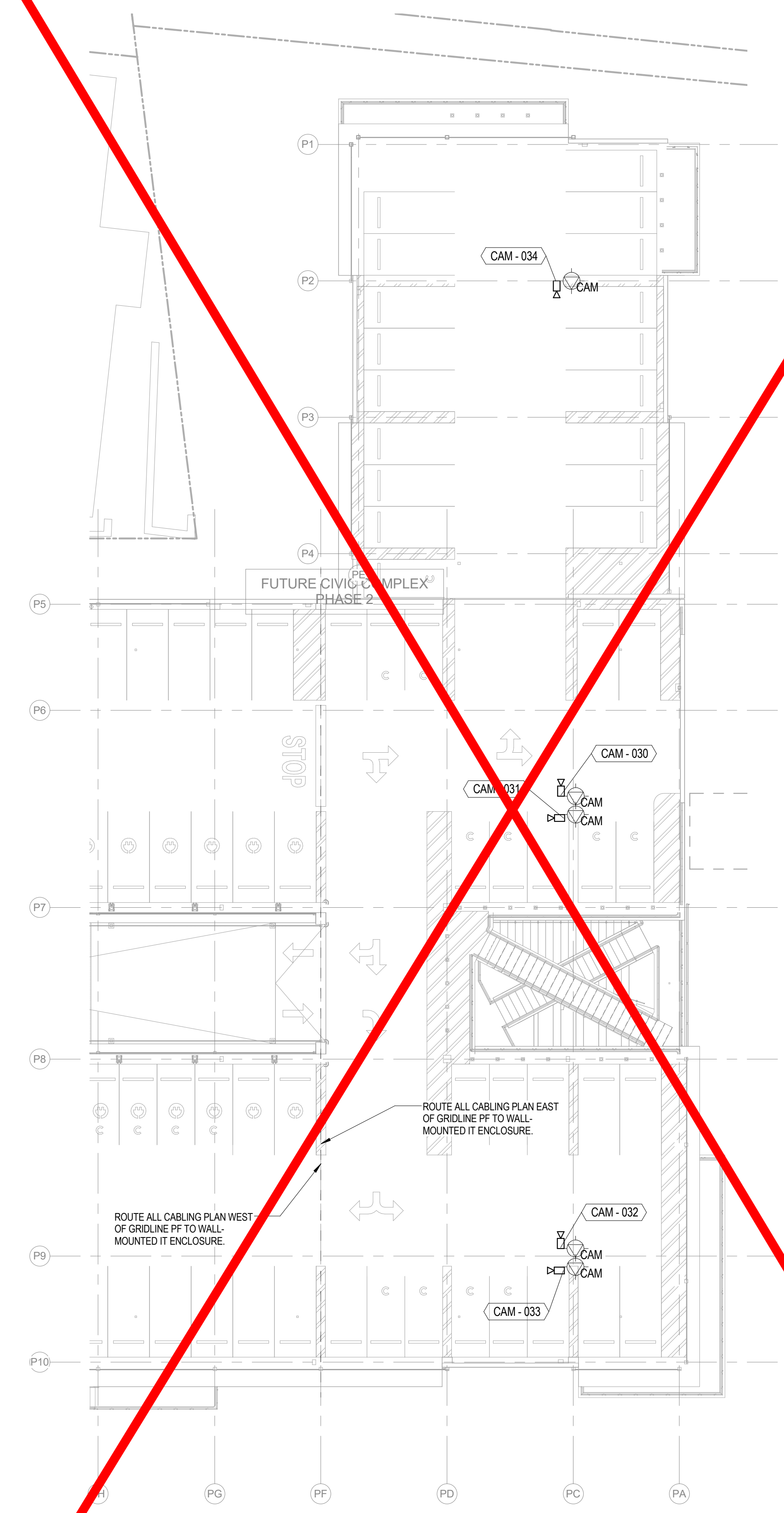
**WAILUKU CIVIC COMPLEX PHASE 1B**  
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SHEET TITLE:  
**OVERALL TECHNOLOGY PLAN - LEVEL 3**  
 CADD FILE:

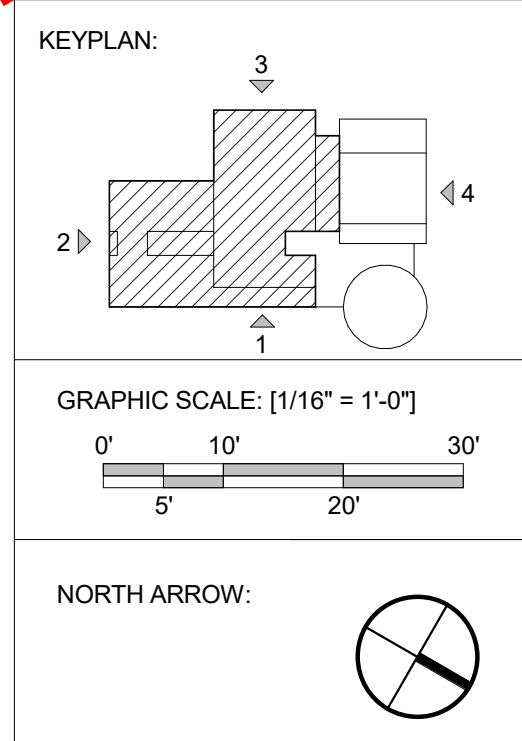
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DRAWN:	WSP		
DATE:	7/25/2019		
PHASE	1B	SHEET	T103
		OF	SHEETS



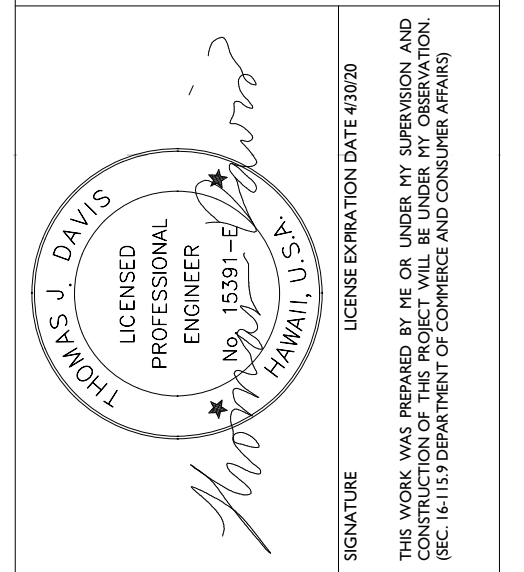
**1 OVERALL TECHNOLOGY PLAN - LEVEL 3**  
 1/16" = 1'-0"



~~**2 OVERALL TECHNOLOGY PLAN - LEVEL 3 - DEDUCTIVE ALTERNATE NO. D-1**~~  
 1/16" = 1'-0"

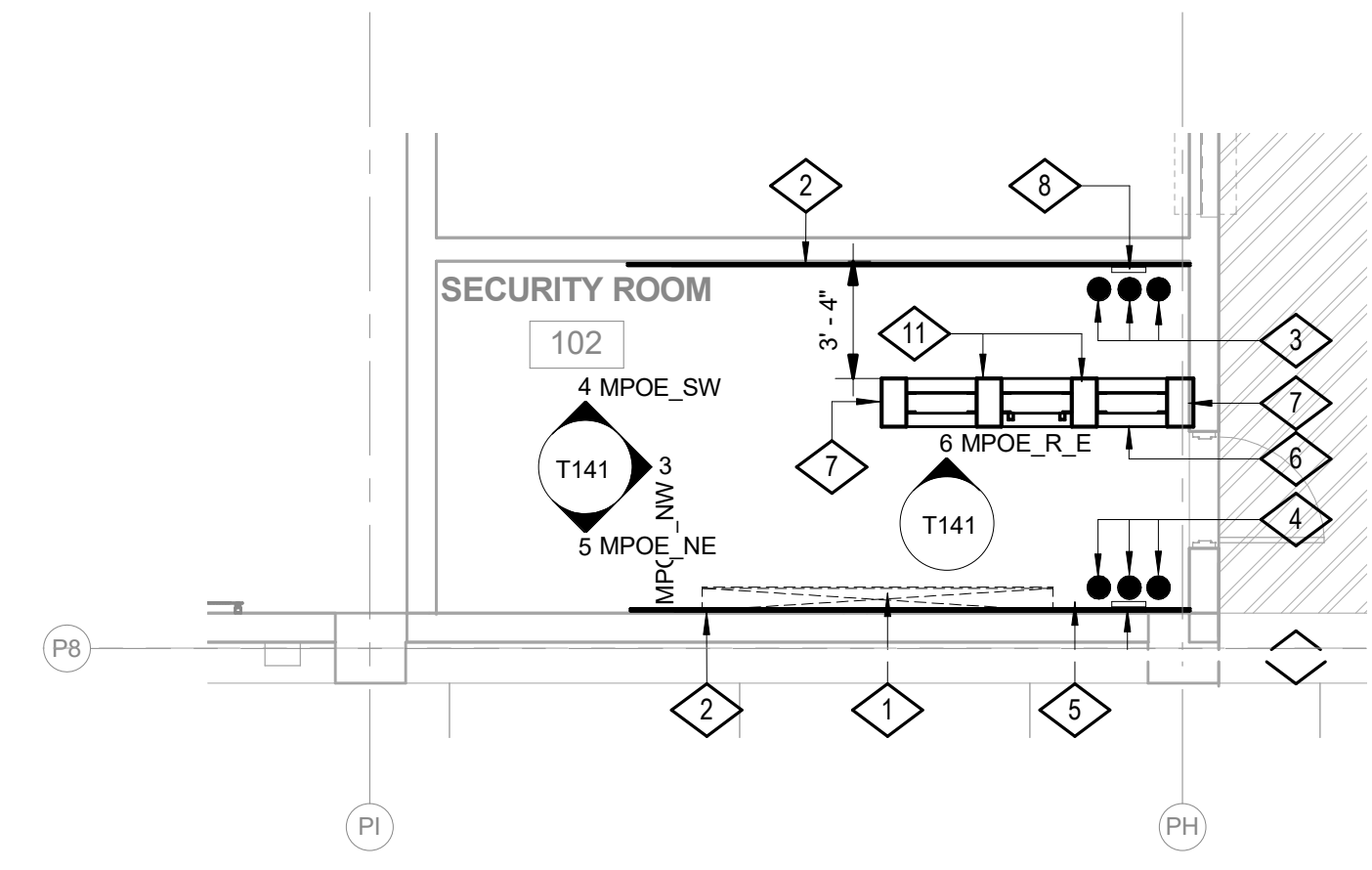


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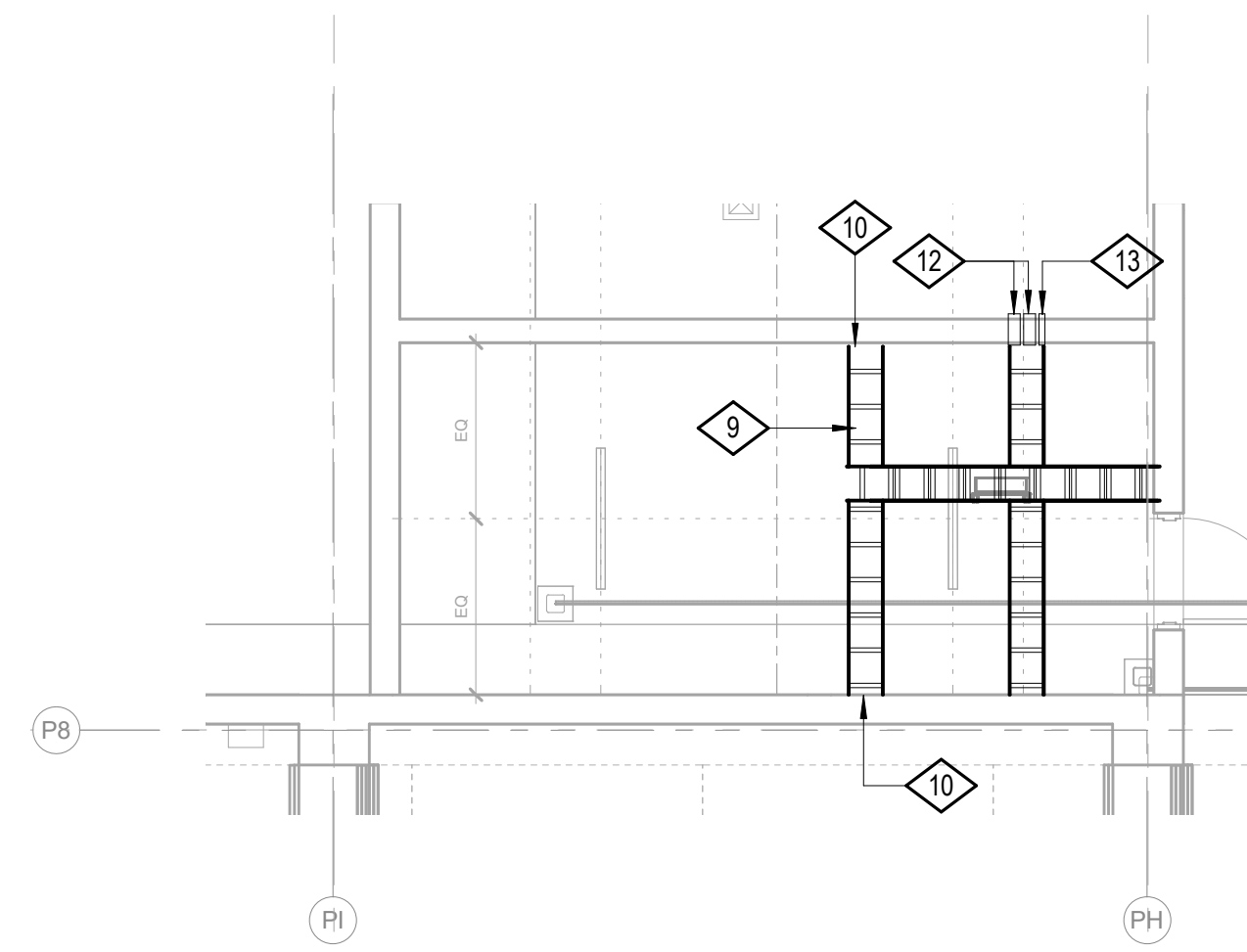


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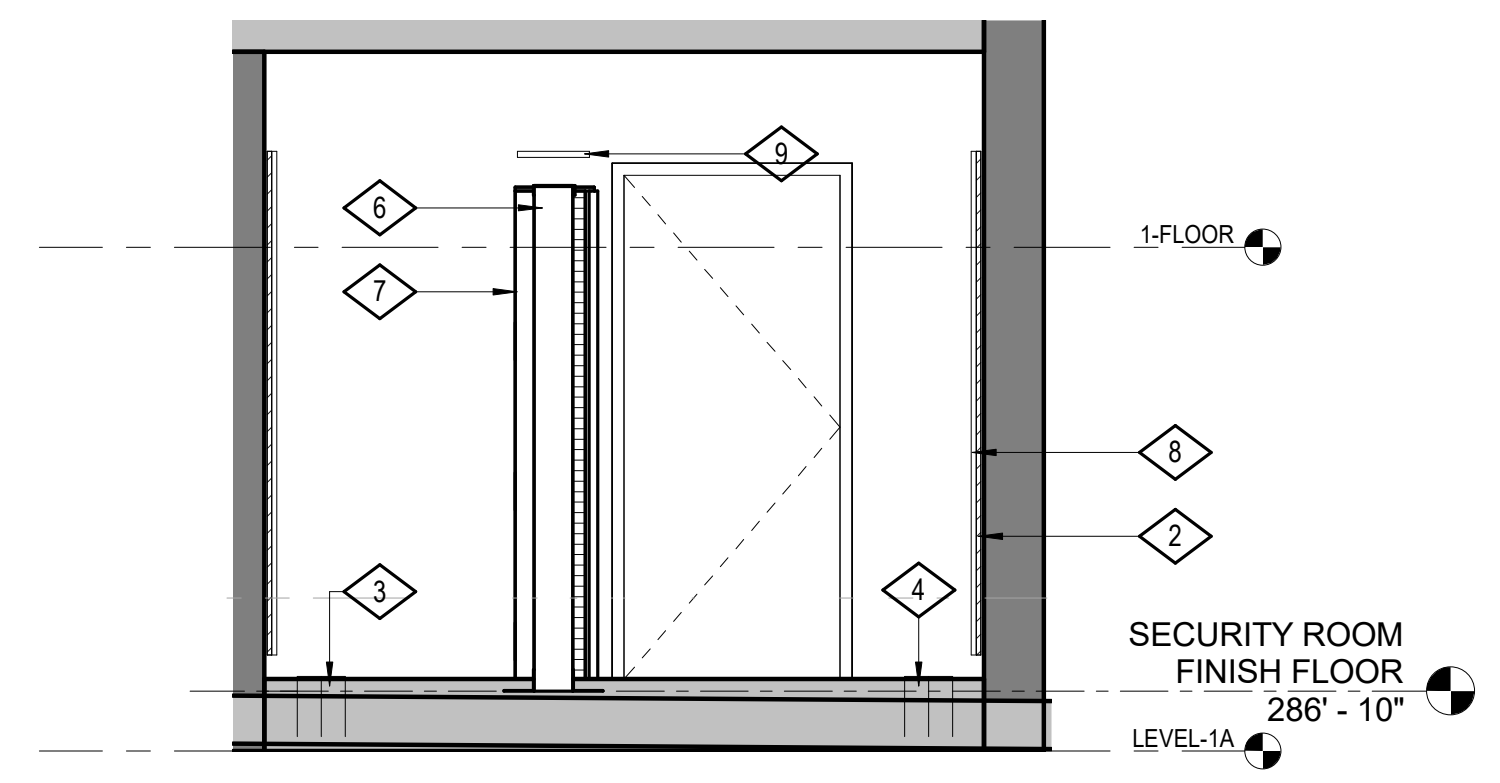
PROJECT:	2017-001	REVISIONS:		SHEET TITLE:	TECHNOLOGY ENLARGED PLAN
DRAWN:	WSP				
DATE:	7/25/2019				
PHASE	1B	SHEET	T1141	CADD FILE:	
		OF	SHEETS		



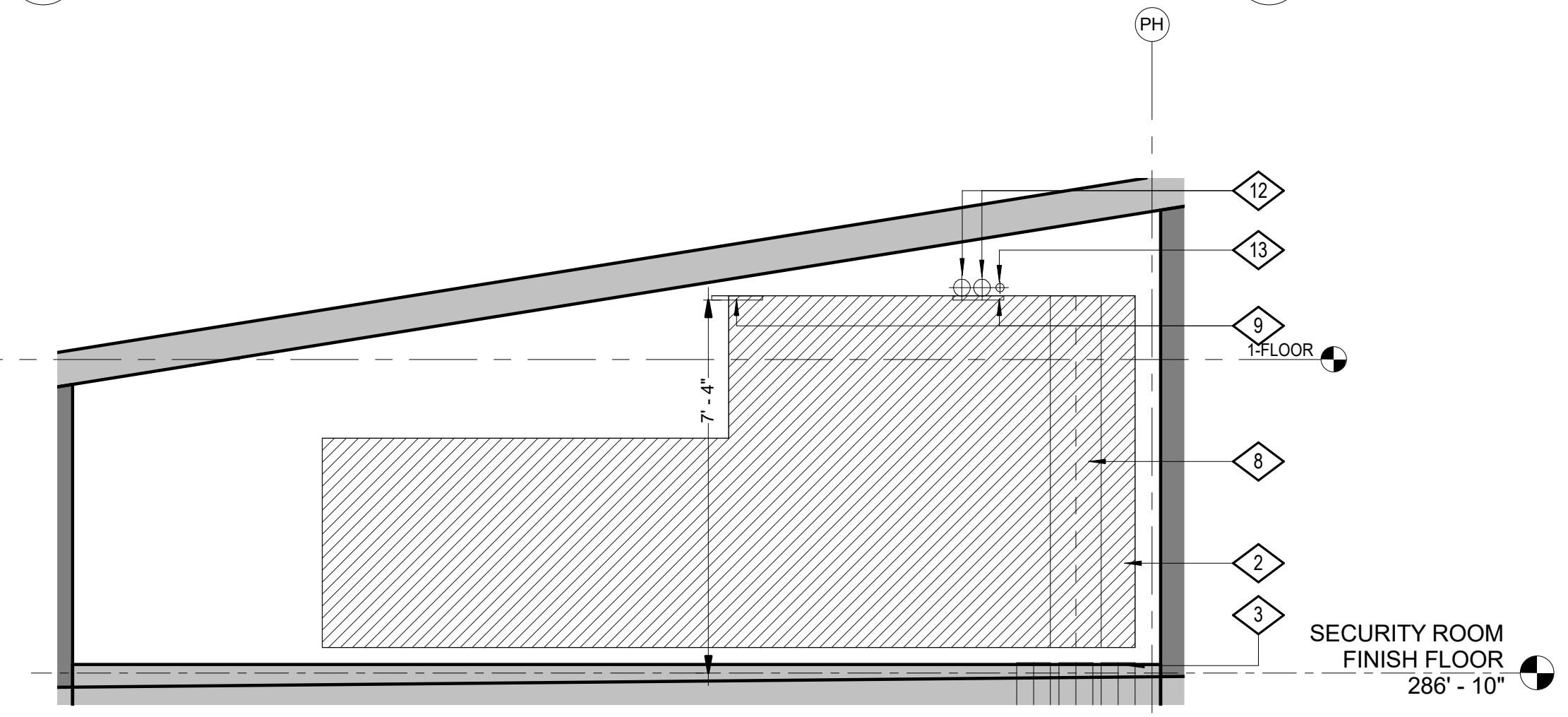
**1 TELECOM/SECURITY ROOM ENLARGED PLAN**  
3/16" = 1'-0"



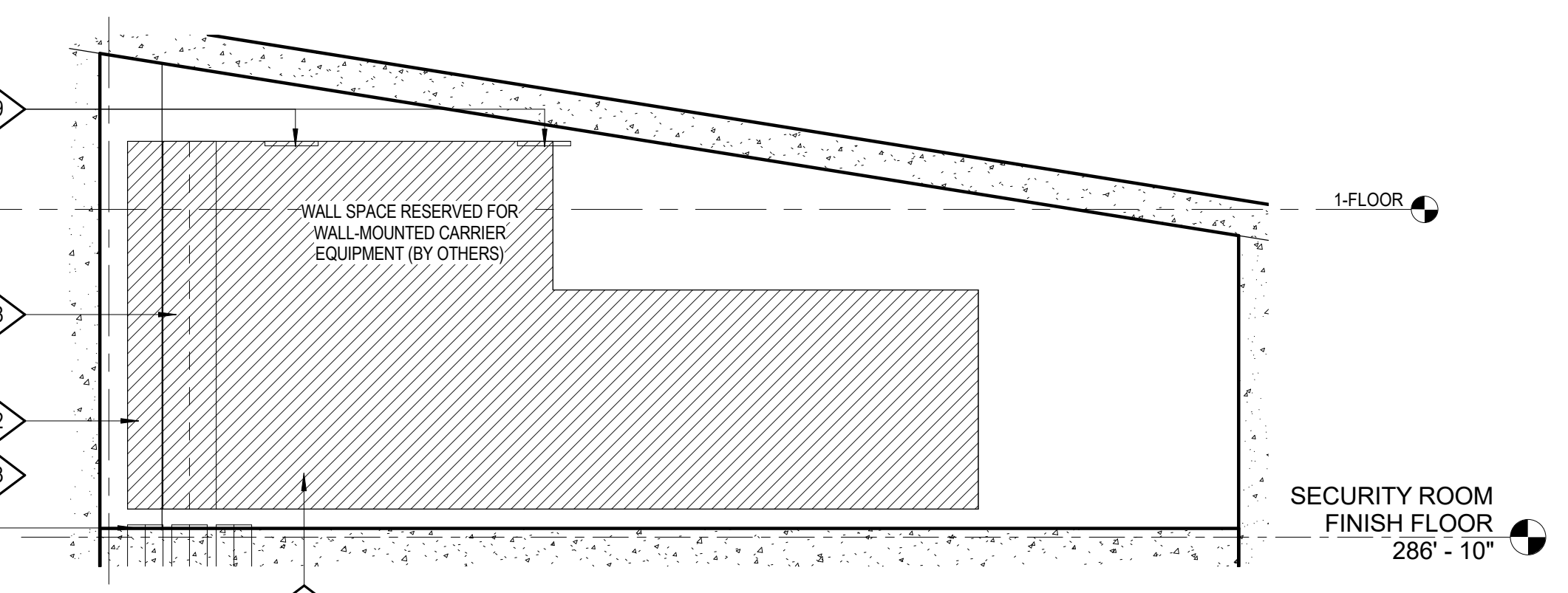
**2 TELECOM/SECURITY ROOM ENLARGED RCP**  
3/16" = 1'-0"



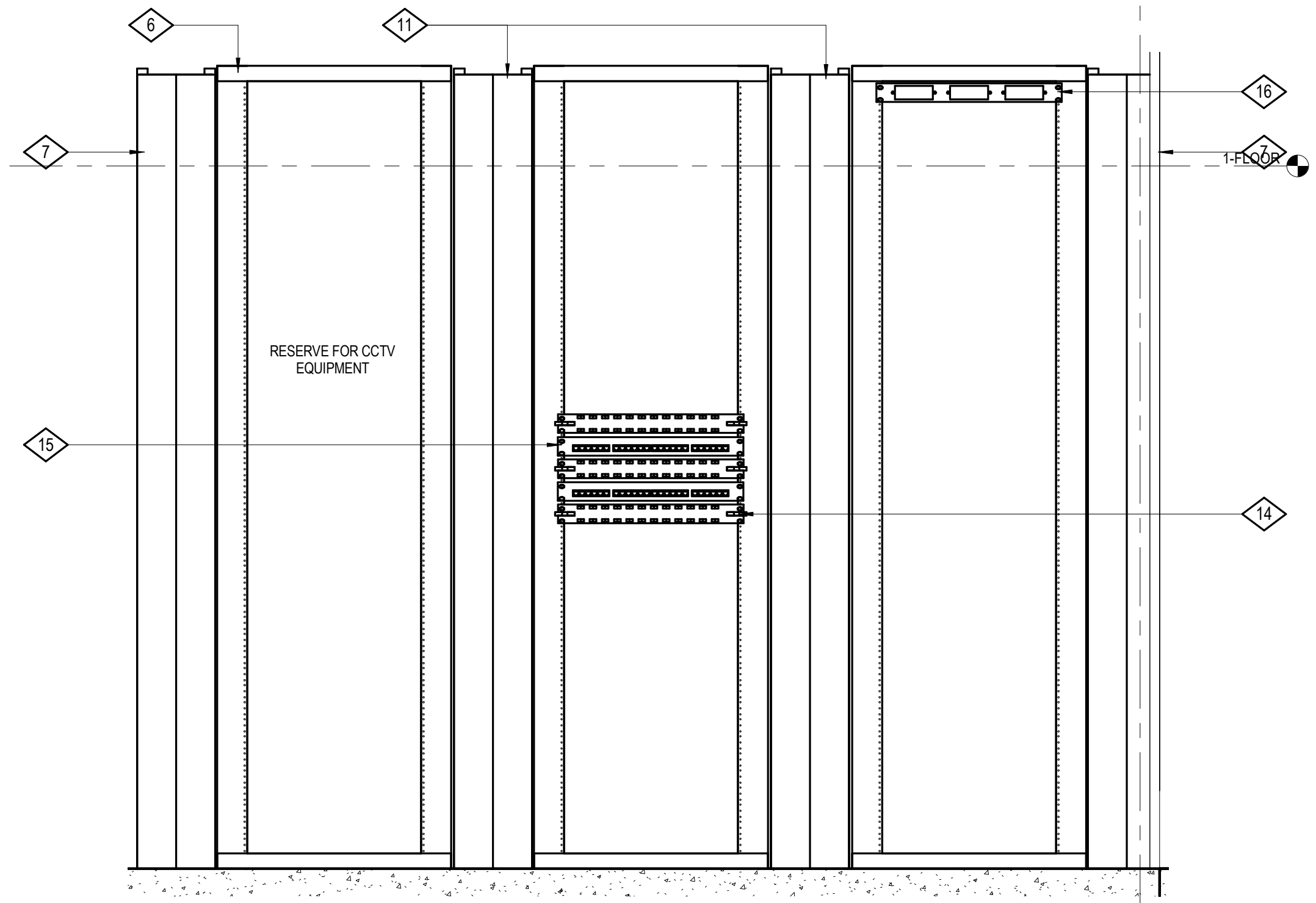
**3 TELECOM/SECURITY ROOM NW ELEVATION**  
3/8" = 1'-0"



**4 TELECOM/SECURITY ROOM SW ELEVATION**  
3/8" = 1'-0"



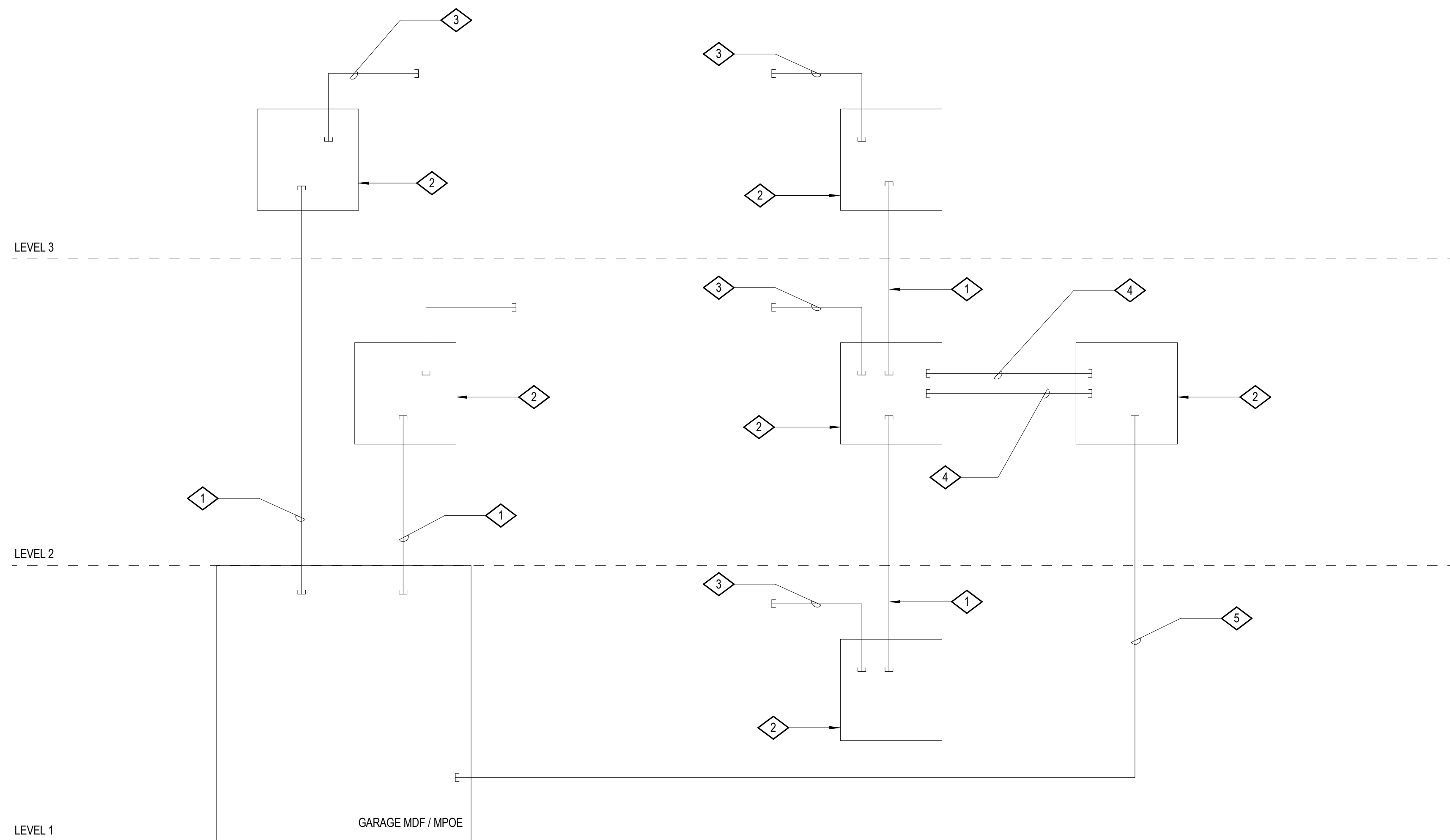
**5 TELECOM/SECURITY ROOM NE ELEVATION**  
3/8" = 1'-0"



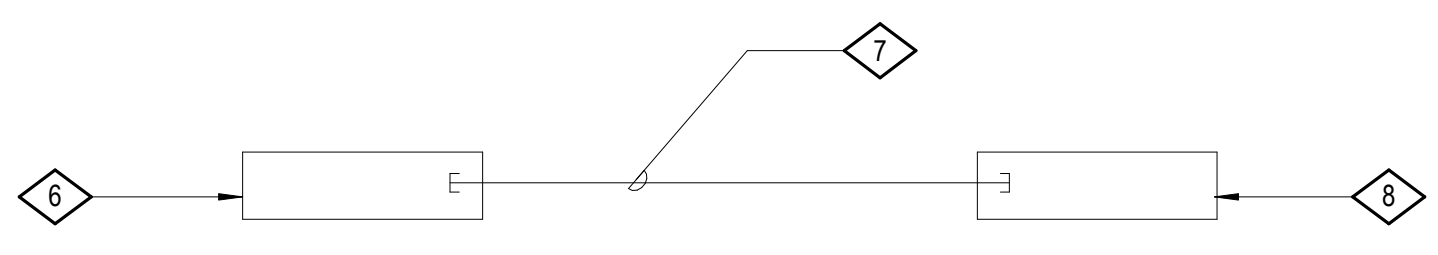
**6 TECHNOLOGY RACK ELEVATIONS**  
1" = 1'-0"

**KEY NOTES**

- 1 SPACE RESERVED FOR WALL-MOUNTED CARRIER EQUIPMENT.
- 2 PROVIDE 3/4" FIRE-RESISTANT, AC-GRADE PLYWOOD BACKBOARD MOUNTED AT 6" AFF TO 102" AFF. PLYWOOD SHALL BE INSTALLED WITH A MINIMUM LENGTH OF 16". PLYWOOD SHALL BE PAINTED (WHITE MINIMUM). RATING STAMP ON EACH SHEET OF PLYWOOD SHALL NOT BE PAINTED.
- 3 PROVIDE (3) 4" CONDUIT STUBS FOR CONDUIT FROM PROPERTY LINE.
- 4 PROVIDE (3) 4" CONDUIT STUBS FOR CONDUIT TO PHASE 2 BUILDING.
- 5 20"X4"X1/4" TELECOM MAIN GROUND BUSBAR (TMGB).
- 6 PROVIDE 2-POST EQUIPMENT RACK (TYP.).
- 7 PROVIDE 6" W X 7H VERTICAL CABLE MANAGER WITH DOOR (TYP.).
- 8 PROVIDE 12" WIDE CABLE BASKET TRAY MOUNTED VERTICALLY ON WALL. EXTEND TRAY FROM CONDUIT STUB UPS TO HORIZONTAL WIRE BASKET CABLE TRAY.
- 9 PROVIDE 12"W X 2"D WIRE BASKET CABLE TRAY MOUNTED AT 9'-1 1/2" AFF (TYP.). TRAY SHALL NOT INTERFERE WITH DOORS OR DOOR FRAMES.
- 10 LOCATION FOR LEVEL 1 DISTRIBUTION CONDUIT.
- 11 PROVIDE 8" W X 7H VERTICAL CABLE MANAGER WITH DOOR.
- 12 PROVIDE 4" CONDUIT TO 24" X 24" X 6"D BOXES ON LEVEL 1 AND LEVEL 2.
- 13 PROVIDE 2" CONDUIT TO WALL-MOUNTED IT-ENCLOSURE.
- 14 1U HORIZONTAL MANAGER (TYP.).
- 15 1U 24-PORT, FLAT PATCH PANEL.
- 16 1U FIBER PANEL FOR 2X6 STRAND MMFO CABLE TO WALL-MOUNTED IT RACK.



**1** TECHNOLOGY CONDUIT RISER DIAGRAM  
NOT TO SCALE



**2** TECHNOLOGY FIBER RISER DIAGRAM  
NOT TO SCALE

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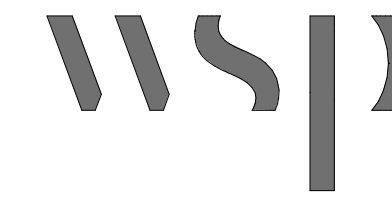
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THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF IT COMPLIES WITH ALL APPLICABLE REQUIREMENTS OF THE HAWAIIAN DEPARTMENT OF TECHNOLOGY AND CONSUMER AFFAIRS.

- KEY NOTES**
- 1 PROVIDE (1) 4" CONDUIT.
  - 2 PROVIDE (1) 24" X 24" 6"D BOX.
  - 3 PROVIDE (1) 3/4" CONDUIT TO OUTLET / CAM (TYP.).
  - 4 PROVIDE (1) 2" CONDUIT.
  - 5 PROVIDE (1) 1" CONDUIT.
  - 6 RACK-MOUNTED FIBER TERMINATION PANEL IN TELECOM / SECURITY ROOM.
  - 7 ARMORED 6 STRAND MM FIBER VIA (2) 2" CONDUIT.
  - 8 TERMINATION PANEL MOUNTED WITHIN WALL-MOUNTED TELECOM ENCLOSURE.

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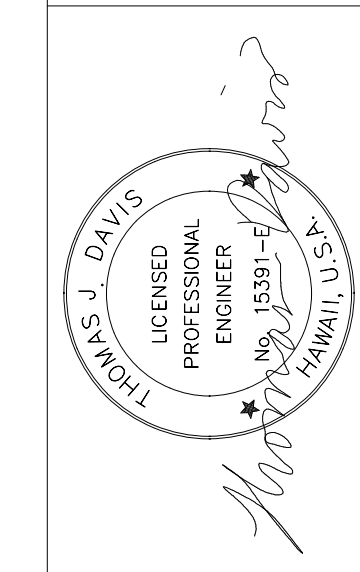
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DRAWN:	WSP		△				
DATE:	7/25/2019		△				
PHASE	1B	SHEET	T200				
OF		SHEETS					



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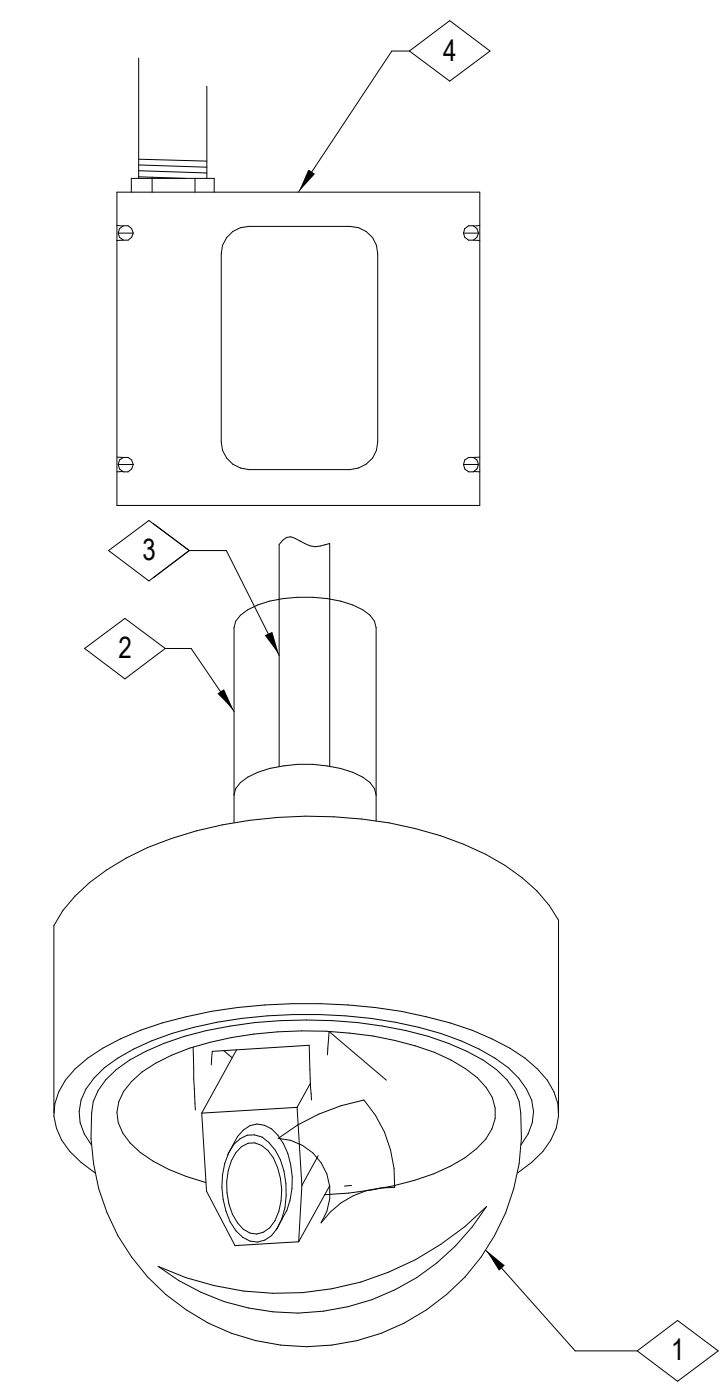
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PROJECT:	2017-001	REVISIONS:		SHEET TITLE:	TECHNOLOGY SYSTEM DETAILS
DRAWN:	WSP				
DATE:	7/25/2019				
PHASE	1B	SHEET	T300	CADD FILE:	
		OF	SHEETS		



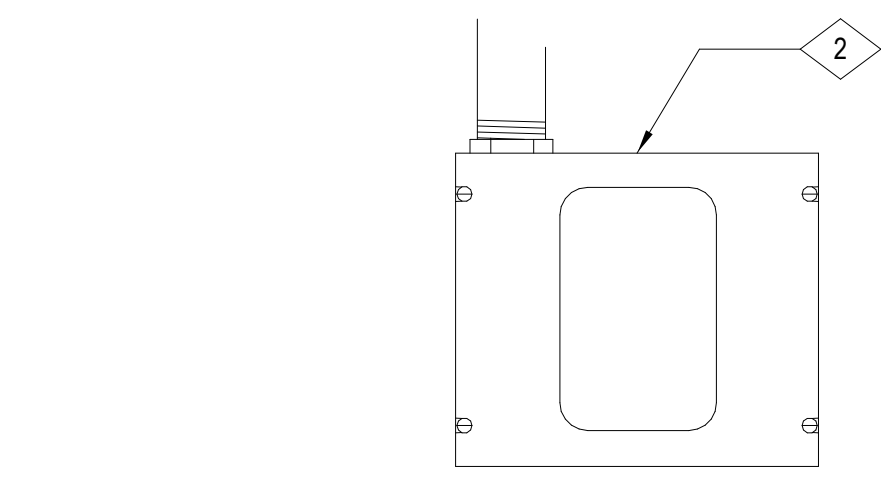
**GENERAL NOTES:**

- REFER TO SECURITY SCHEDULES AND WRITTEN SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE WEATHER PROOF / WATER RESISTANT ENCLOSURE WITH HEATER / BLOWER FOR ALL EXTERIOR CAMERAS.

**KEY NOTES:**

- 1 **CAMERA:** PROVIDE MINI-DOME TYPE CAMERA WITH ENCLOSURE SURFACE MOUNTED DIRECTLY TO BACK-BOX OR PENDANT MOUNTED FROM BACK-BOX.
- 2 **EXTENSION:** PROVIDE PENDANT MOUNT EXTENSION AS REQUIRED BASED ON CAMERA MOUNTING HEIGHT.
- 3 **CONDUIT:** PROVIDE (1) 1-INCH CONDUIT ROUTED FROM CAMERA TO DATA DEVICE BACK-BOX.
- 4 **BACK-BOX:** CAMERA CABLE BACK-BOX SURFACE MOUNTED TO STRUCTURE. REFER TO ET4-1M FOR ADDITIONAL REQUIREMENTS.

**1 FIXED OVERHEAD MOUNT CCTV CAMERA**  
NOT TO SCALE



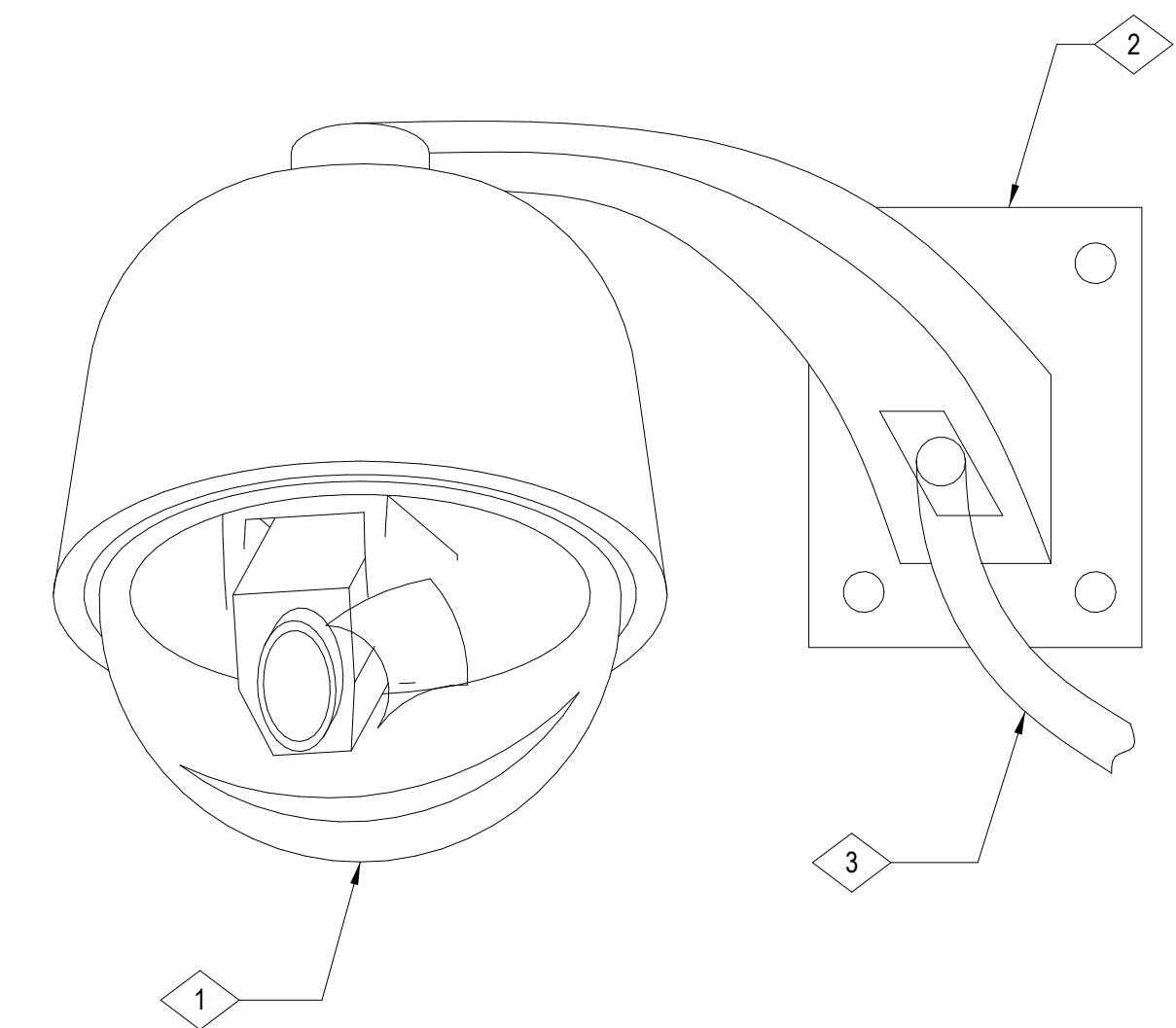
**GENERAL NOTES:**

- REFER TO SECURITY SCHEDULES AND WRITTEN SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE WEATHER PROOF / WATER RESISTANT ENCLOSURE WITH HEATER / BLOWER FOR ALL EXTERIOR CAMERAS.

**KEY NOTES:**

- 1 **CAMERA:** PROVIDE MINI-DOME TYPE CAMERA WITH ENCLOSURE.
- 2 **BACK-BOX:** CAMERA DATA CABLE BACK-BOX MOUNTED FLUSH IN WALL. REFER TO CAMERA DATA DEVICE DETAIL FOR ADDITIONAL REQUIREMENTS.

**2 FIXED WALL SURFACE MOUNT CCTV CAMERA**  
NOT TO SCALE



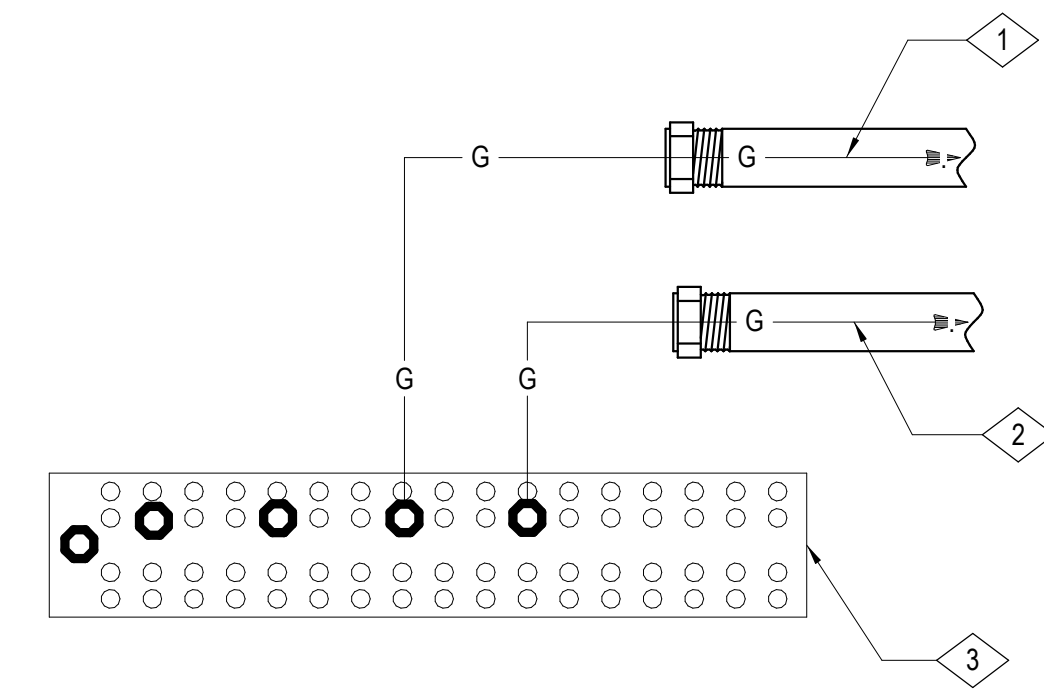
**GENERAL NOTES:**

- REFER TO SECURITY SCHEDULES AND WRITTEN SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE WEATHER PROOF / WATER RESISTANT ENCLOSURE WITH HEATER / BLOWER FOR ALL EXTERIOR CAMERAS.

**KEY NOTES:**

- 1 **CAMERA:** PROVIDE MINI-DOME TYPE CAMERA WITH ENCLOSURE.
- 2 **MOUNTING BRACKET:** PROVIDE CAMERA MOUNTING ARM AND BRACKET. REFER TO MANUFACTURER RECOMMENDATIONS FOR ADDITIONAL MOUNTING REQUIREMENTS.
- 3 **DATA FLEXIBLE WHIP:** PROVIDE CONTINUOUS FLEXIBLE WHIP ROUTED FROM CAMERA TO DATA DEVICE TO PROTECT AND CONCEAL DATA PATCH CABLE.
- 4 **POWER FLEXIBLE WHIP:** PROVIDE CONTINUOUS FLEXIBLE WHIP (WHERE APPLICABLE) ROUTED FROM CAMERA TO 120V POWER OUTLET TO PROTECT AND CONCEAL POWER CABLE FOR HEATER / BLOWER ON EXTERIOR CAMERAS.

**3 FIXED PENDANT MOUNT CCTV CAMERA**  
NOT TO SCALE



**KEYNOTES:**

- 1 PROVIDE (1) #3/0 AWG INSULATED STRANDED COPPER CONDUCTOR BONDED TO NEAREST BUILDING STRUCTURAL STEEL. CABLE SHALL BE INSTALLED IN 1-INCH CONDUIT.
- 2 PROVIDE (1) #3/0 AWG INSULATED STRANDED COPPER CONDUCTOR BONDED TO NEAREST ELECTRICAL SWITCH ROOM GROUND BUS. CABLE SHALL BE INSTALLED IN 1-INCH CONDUIT.
- 3 TMGB: PROVIDE (1) 24" X 4" X 1/4" TINNED COPPER BUS ON ISOLATED STAND-OFF INSULATORS. GROUND BUS SHALL HAVE PRE-DRILLED HOLES FOR DUAL HOLE MOUNTING LUGS. REFER TO ENLARGED TELEPHONE ROOM PLAN SHEETS FOR LOCATIONS.

**4 TELECOMMUNICATIONS MAIN GROUND BUSBAR (TMGB)**  
NOT TO SCALE