

ALAN M. ARAKAWA  
Mayor



GLADYS C. BAISA  
Director

SHAYNE R. AGAWA, P.E.  
Deputy Director

**DEPARTMENT OF WATER SUPPLY**  
**COUNTY OF MAUI**  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793-2155  
www.mauiwater.org

July 23, 2018

Honorable Alan M. Arakawa  
Mayor, County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

For Transmittal to:

Honorable Alika Atay  
Chair, Water Resources Committee  
Maui County Council  
200 S. High Street  
Wailuku, Maui, HI 96793

Dear Chair Atay:

**SUBJECT: Wellhead Protection Overlay District (WR-18)**

Pursuant to the July 10, 2018 Water Resources Committee meeting to discuss a revised proposed resolution entitled, "REFERRING TO THE MAUI, MOLOKAI, AND LANAI PLANNING COMMISSIONS A PROPOSED BILL AMENDING TITLE 19, MAUI COUNTY CODE, RELATING TO WELLHEAD PROTECTION OVERLAY DISTRICT," DWS staff acknowledges the discrepancies to Appendix C, WPOD maps, of the subject proposed bill entitled "A BILL FOR AN ORDINANCE AMENDING TITLE 19, MAUI COUNTY CODE, TO ESTABLISH A WELLHEAD PROTECTION OVERLAY DISTRICT".

As per your request, please find attached the revised Appendix C with corrected WPOD maps for your review. Changes include:

1. Removed all private wells outside of delineated wellhead protection overlay districts.
2. A new ESRI topographical basemap.
3. Updated TMK parcels data from 2017.
4. A legend item added for the red lines ("MAJOR ROADS").
5. Removed "DRAFT" from all maps.

*"By Water All Things Find Life"*

RECEIVED  
2018 JUL 23 PM 12:48  
OFFICE OF THE MAYOR

RECEIVED  
2018 JUL 24 AM 10:59  
OFFICE OF THE COUNTY COUNCIL

APPROVED FOR TRANSMITTAL

  
\_\_\_\_\_  
Acting Mayor      7/23/18      Date

A total of four individual maps required specific changes on the basis of new, revised capture zone data from the USGS and updated wells data from the DWS. These include the following:

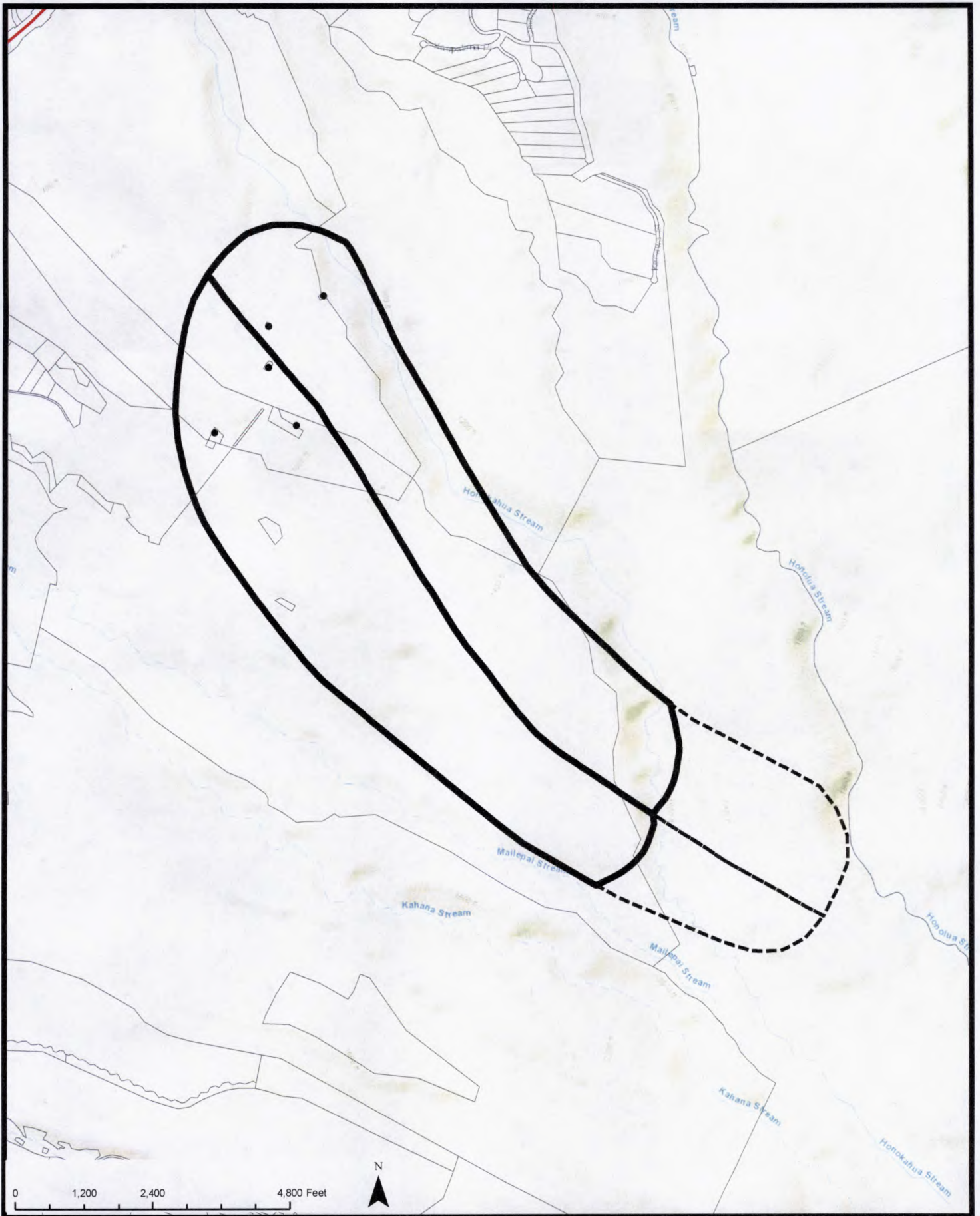
1. WPOD Map 3: Added Kanoa 2 Well. Used new capture zones layer provided by Bob Whittier (USGS). The spelling "KAHAKALOA" was corrected to "KAHAKULOLOA".
2. WPOD Map 4: Updated capture zone layers provided by DOH which reflects new pump rates for existing wells Waihee 1, 2 and 3, and Waiehu Heights 2.
3. WPOD Map 5: Updated capture zone layers which includes Wailuku Well 1 and Wailuku Well 2, and the revised pump rates for Iao Tank Site, Waikapu Tank Site, Mokuahu 1 and 3, and the removal of Shaft 33.
4. WPOD Map 8: Added well "Wakiu C" and used new capture zones layers.

Should you have any questions, please feel free to contact me at ext. 7834.

Sincerely,



GLADYS C. BAISA,  
Director of Water Supply



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⋯ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



**NOTE:**

WPOD zones were delineated by the University of Hawaii Department of Geology & Geophysics utilizing fixed distance for the ZONE A nearest the well and Time of Travel (TOT) criteria for Zones B and C using the USGS 3-dimensional numerical groundwater model, MODFLOW, followed by the particle tracking program, MODPATH.

ZONE B is intended to designate a conservative estimate of the area that may contribute bacteria and viruses to the wellhead.

A 2-year TOT criterion is based on survival times for bacteria and viruses in soil and groundwater.

ZONE C is based on a 10-year TOT to allow sufficient time to implement management and remedial measures to mitigate contamination from accidental contaminant spills and other causes.

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**WELLHEAD PROTECTION  
OVERLAY DISTRICT  
MAP No. 1  
AREA SOUTH-EAST OF NAPILI, MAUI**

APPROVED:

COUNTY CLERK \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED:

PLANNING DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

PUBLIC HEARING: \_\_\_\_\_

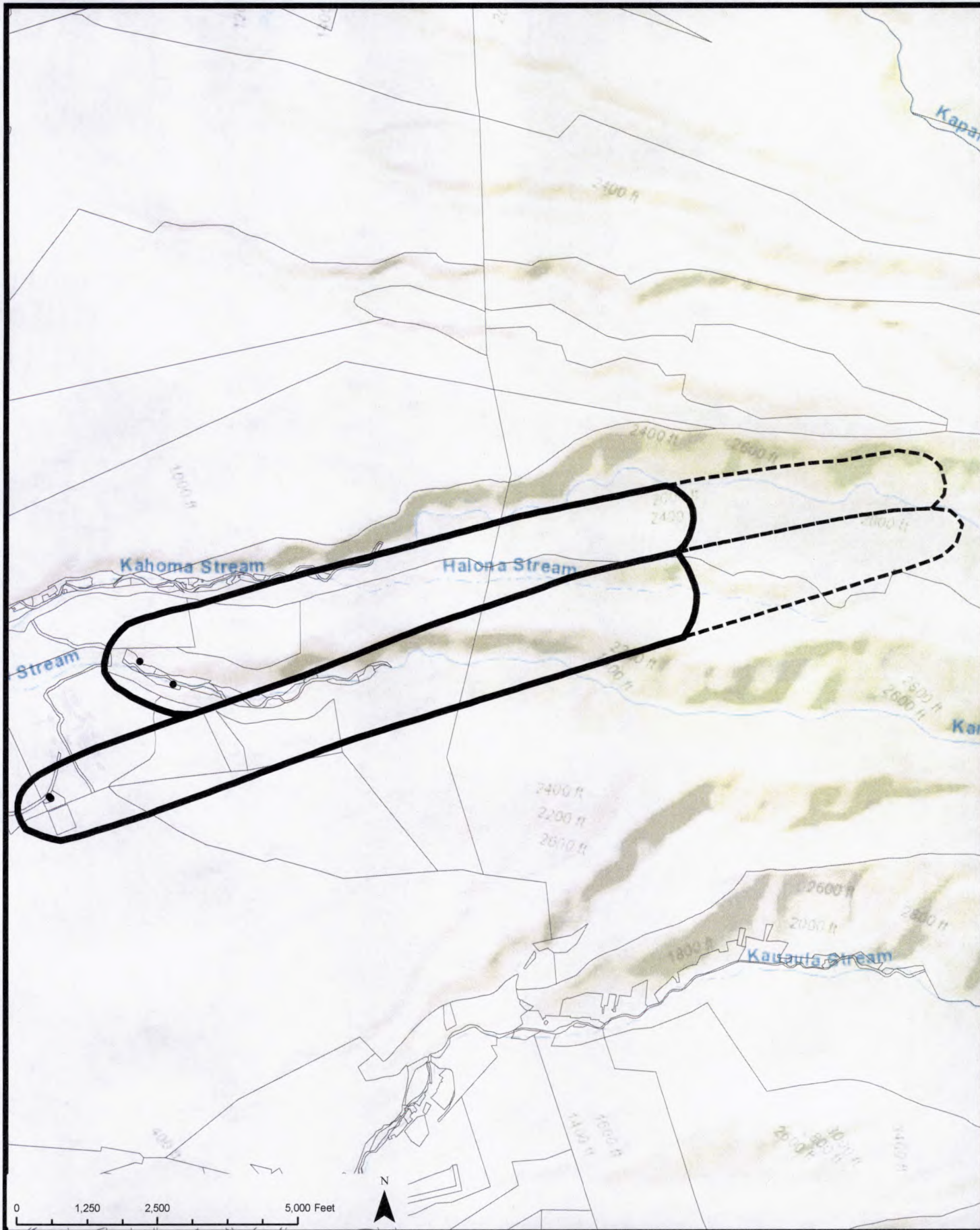
ADOPTED BY COUNCIL: \_\_\_\_\_

ADOPTED BY MAYOR: \_\_\_\_\_

BILL No./YEAR \_\_\_\_\_

ORDINANCE No. \_\_\_\_\_

**WPOD Map 1**



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⊖ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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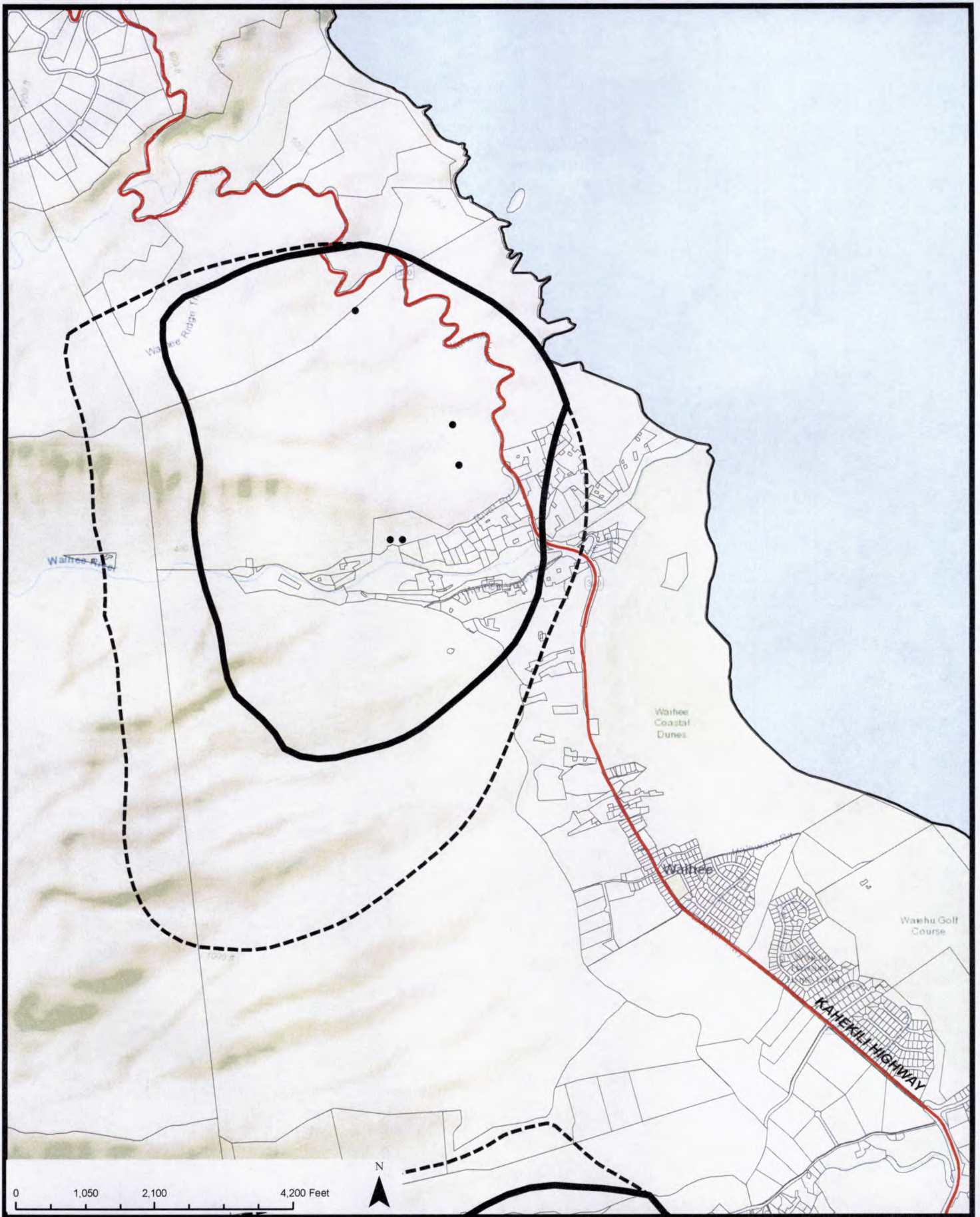
ZONE C is based on a 10-year TOT to allow sufficient time to implement management and remedial measures to mitigate contamination from accidental contaminant spills and other causes.

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**WELLHEAD PROTECTION  
OVERLAY DISTRICT  
MAP No. 2  
AREA NORTH-EAST OF LAHAINA TOWN, MAUI**

<b>APPROVED:</b>	PUBLIC HEARING: _____
COUNTY CLERK _____ DATE _____	ADOPTED BY COUNCIL: _____
<b>APPROVED:</b>	ADOPTED BY MAYOR: _____
PLANNING DIRECTOR _____ DATE _____	BILL No./YEAR _____ ORDINANCE No. _____

**WPOD Map 2**



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⊖ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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**WELLHEAD PROTECTION  
OVERLAY DISTRICT  
MAP No. 3**

**KAHAKULOA TO WAIHEE, MAUI**

<b>APPROVED:</b>	<b>PUBLIC HEARING:</b> _____
COUNTY CLERK _____ DATE _____	ADOPTED BY COUNCIL: _____
<b>APPROVED:</b>	ADOPTED BY MAYOR: _____
PLANNING DIRECTOR _____ DATE _____	BILL No./YEAR _____ ORDINANCE No. _____

**WPOD Map 3**



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⊖ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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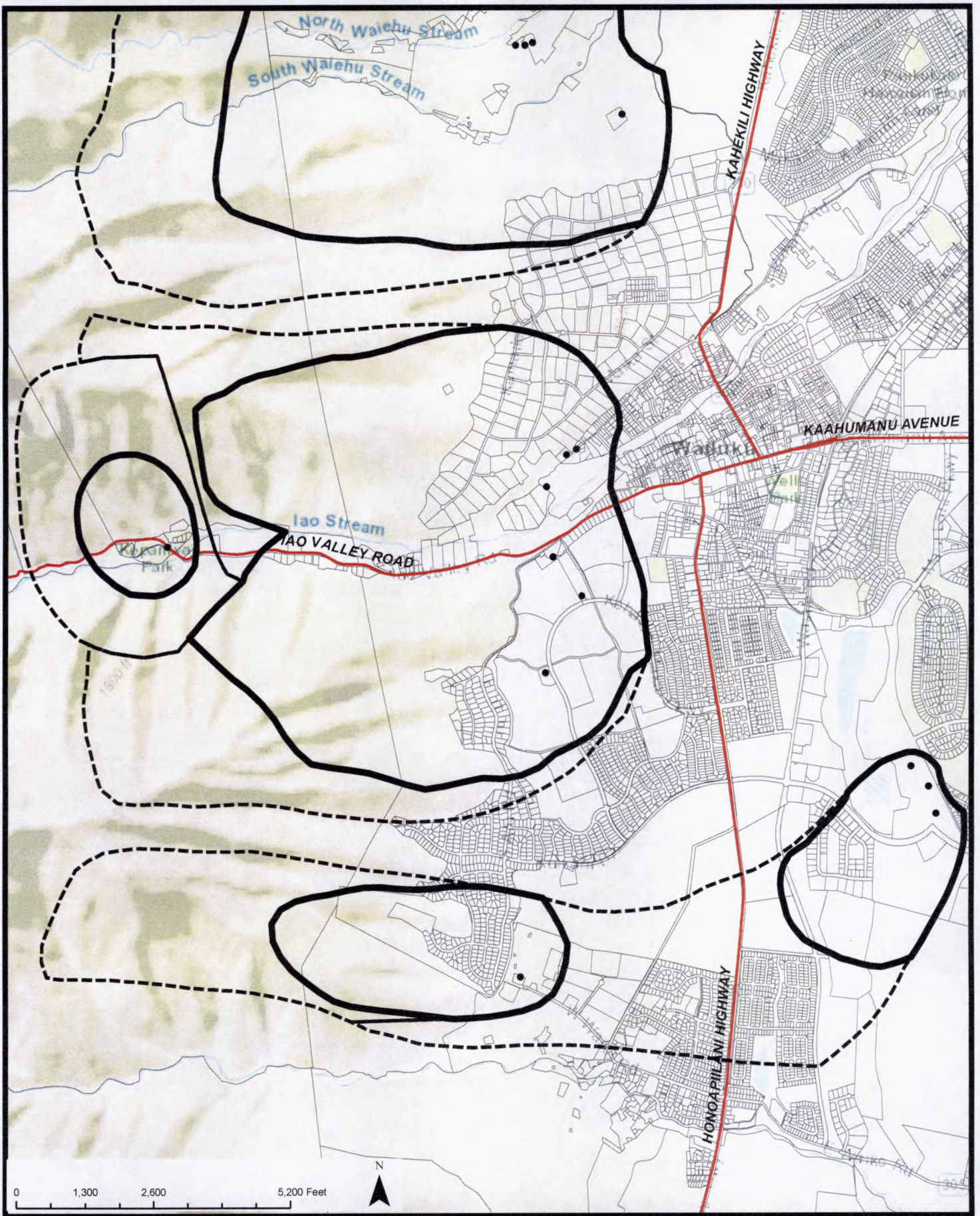
**OFFICE OF THE COUNTY CLERK**  
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**WELLHEAD PROTECTION  
OVERLAY DISTRICT  
MAP No. 4**

**KOPE GULCH TO IAO STREAM, MAUI**

<b>APPROVED:</b>  _____ COUNTY CLERK	DATE _____	<b>PUBLIC HEARING:</b> _____
<b>APPROVED:</b>  _____ PLANNING DIRECTOR	DATE _____	<b>ADOPTED BY COUNCIL:</b> _____  <b>ADOPTED BY MAYOR:</b> _____  BILL No./YEAR _____ ORDINANCE No. _____

**WPOD Map 4**



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⊖ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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**WELLHEAD PROTECTION  
OVERLAY DISTRICT  
MAP No. 5**

**IAO STREAM TO WAIKAPU, MAUI**

APPROVED:

COUNTY CLERK

DATE

APPROVED:

PLANNING DIRECTOR

DATE

PUBLIC HEARING: \_\_\_\_\_

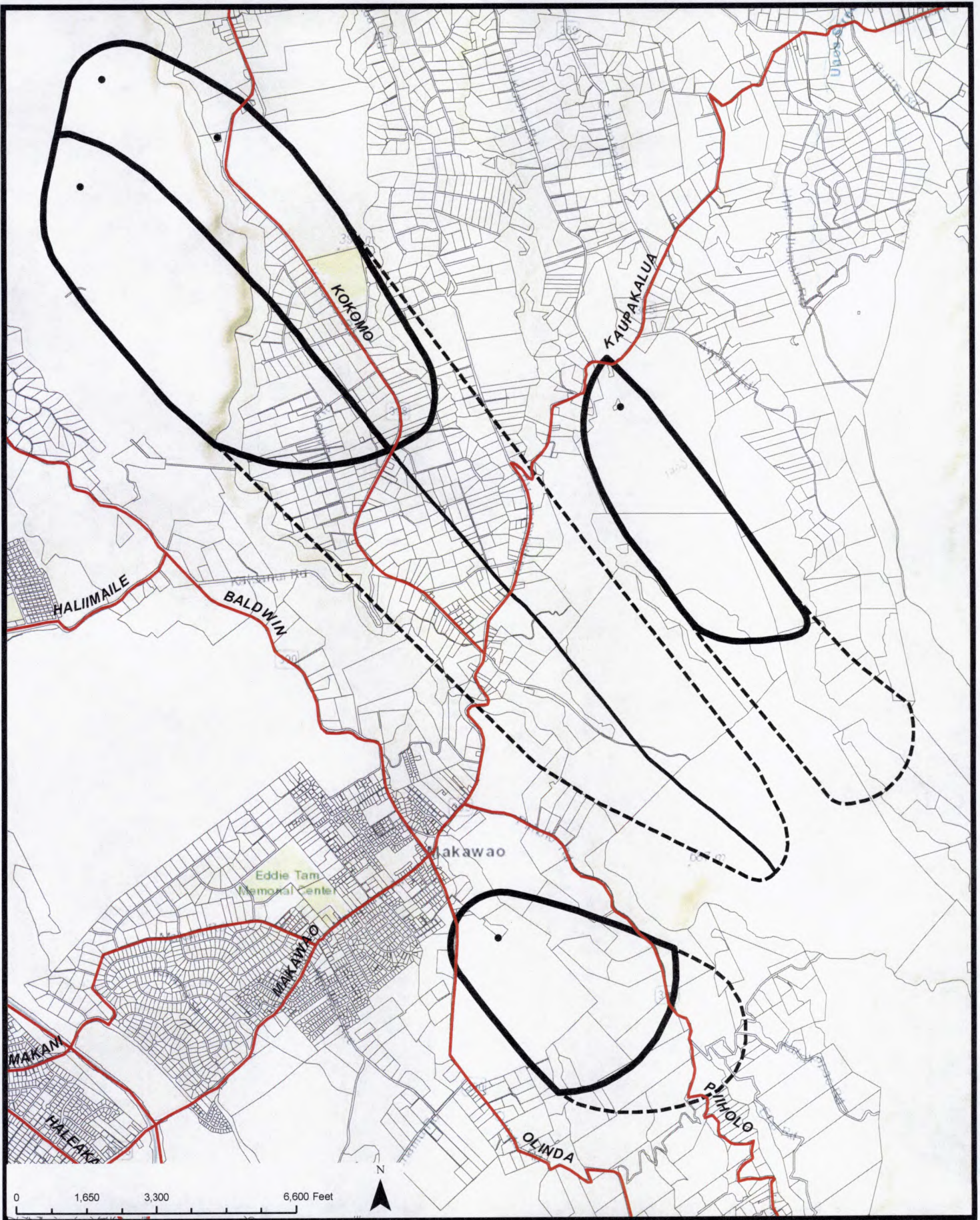
ADOPTED BY  
COUNCIL: \_\_\_\_\_

ADOPTED BY  
MAYOR: \_\_\_\_\_

BILL No./YEAR \_\_\_\_\_

ORDINANCE No. \_\_\_\_\_

**WPOD Map 5**



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⊖ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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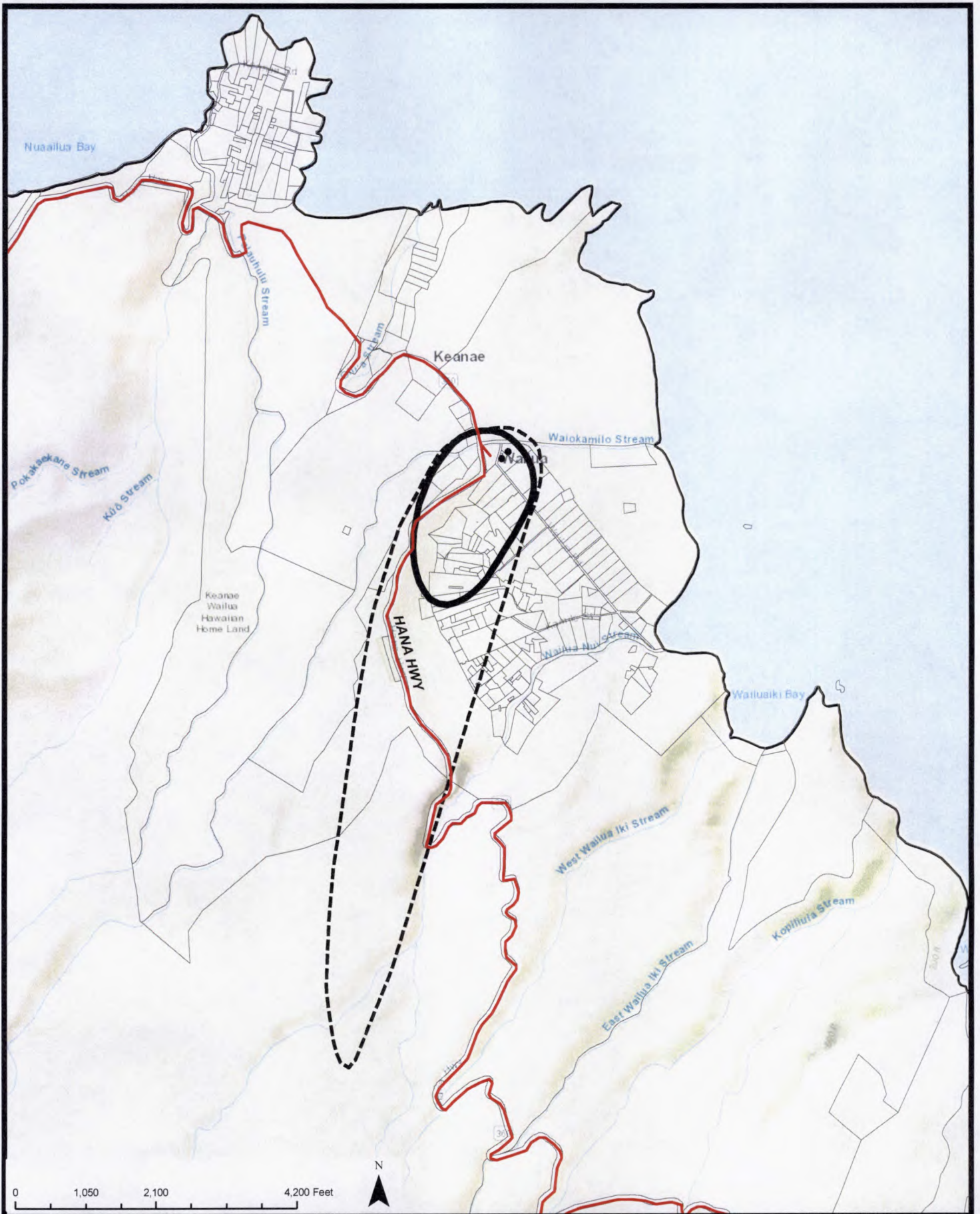
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**WELLHEAD PROTECTION  
OVERLAY DISTRICT  
MAP No. 6  
KOKOMO - PIIHOLO - AWALAU, MAUI**

<b>APPROVED:</b>	<b>PUBLIC HEARING:</b> _____
COUNTY CLERK _____ DATE _____	ADOPTED BY COUNCIL: _____
<b>APPROVED:</b>	ADOPTED BY MAYOR: _____
PLANNING DIRECTOR _____ DATE _____	BILL No./YEAR _____ ORDINANCE No. _____

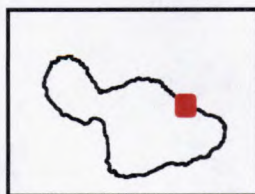
**WPOD Map 6**





**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⊖ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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**WELLHEAD PROTECTION  
OVERLAY DISTRICT  
MAP No. 7  
KEANAE - WAILUA, MAUI**

APPROVED:

COUNTY CLERK \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED:

PLANNING DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

PUBLIC HEARING: \_\_\_\_\_

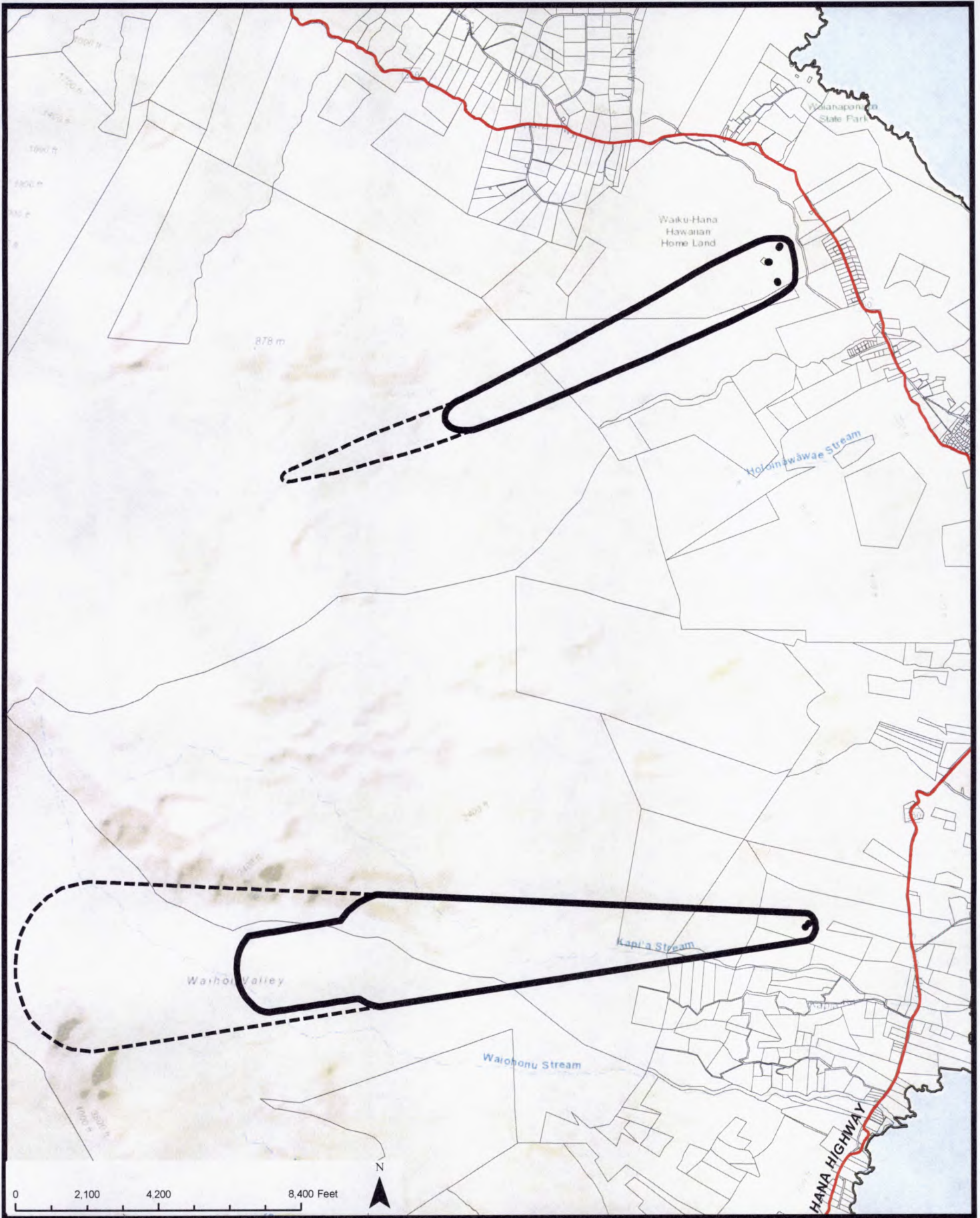
ADOPTED BY COUNCIL: \_\_\_\_\_

ADOPTED BY MAYOR: \_\_\_\_\_

BILL No./YEAR \_\_\_\_\_

ORDINANCE No. \_\_\_\_\_

**WPOD Map 7**



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⊖ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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<b>WELLHEAD PROTECTION OVERLAY DISTRICT</b> <b>MAP No. 8</b> <b>KAWAIPAPA GULCH TO WAIHOI VALLEY, MAUI</b>	
APPROVED: _____ COUNTY CLERK                      DATE	PUBLIC HEARING: _____ ADOPTED BY COUNCIL: _____
APPROVED: _____ PLANNING DIRECTOR                      DATE	ADOPTED BY MAYOR: _____ BILL No./YEAR _____ ORDINANCE No. _____
WPOD Map <span style="font-size: 1.5em; font-weight: bold;">8</span>	



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⋯ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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**WELLHEAD PROTECTION  
OVERLAY DISTRICT  
MAP No. 9  
AREA SOUTH OF KALAE, MOLOKAI**

APPROVED:

COUNTY CLERK \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED:

PLANNING DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

PUBLIC HEARING: \_\_\_\_\_

ADOPTED BY COUNCIL: \_\_\_\_\_

ADOPTED BY MAYOR: \_\_\_\_\_

BILL No./YEAR \_\_\_\_\_

ORDINANCE No. \_\_\_\_\_

**WPOD Map 9**



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⊖ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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**WELLHEAD PROTECTION  
OVERLAY DISTRICT  
MAP No. 10  
KAWELA, MOLOKAI**

APPROVED:

COUNTY CLERK

DATE

APPROVED:

PLANNING DIRECTOR

DATE

PUBLIC HEARING: \_\_\_\_\_

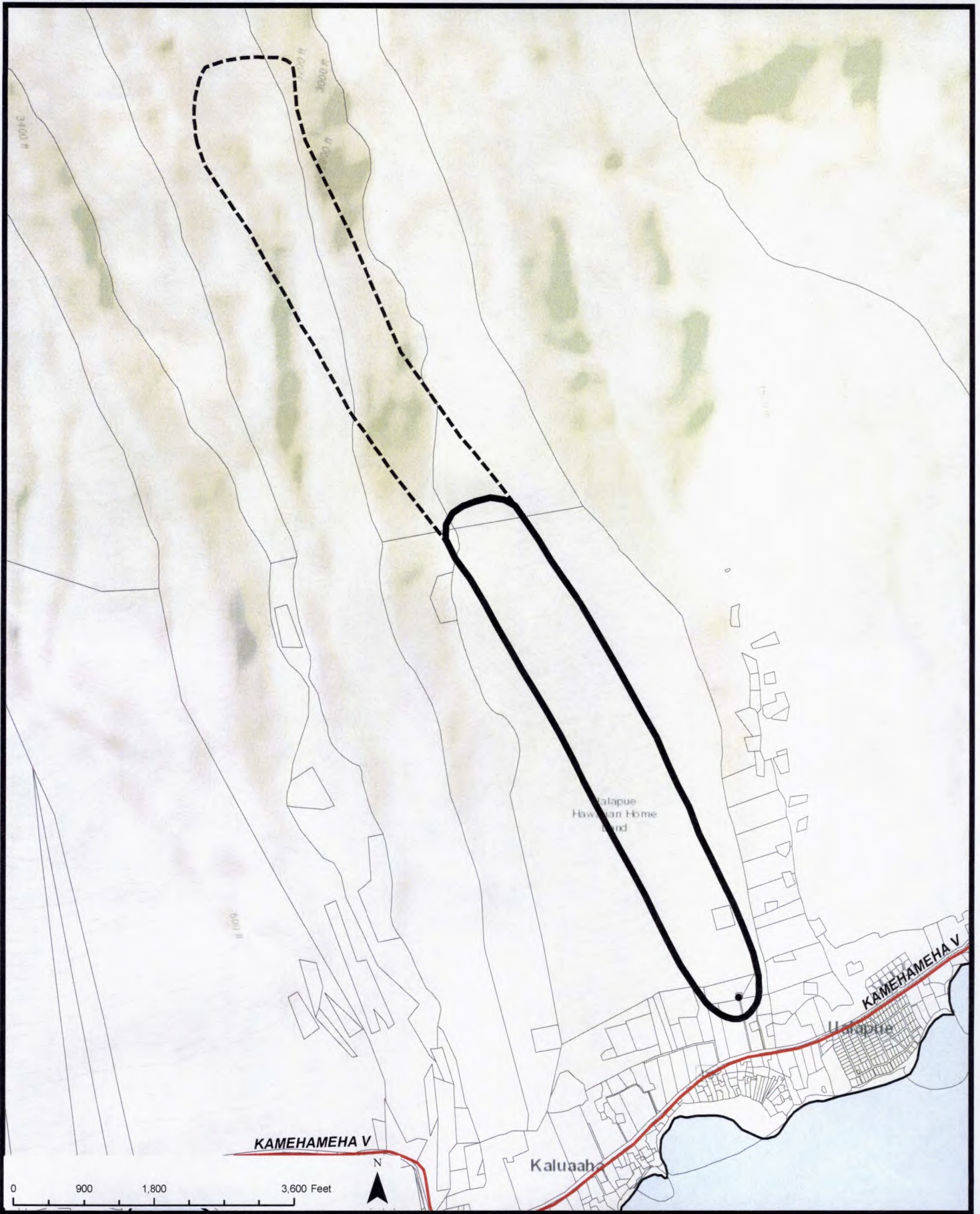
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COUNCIL: \_\_\_\_\_

ADOPTED BY  
MAYOR: \_\_\_\_\_

BILL No./YEAR \_\_\_\_\_

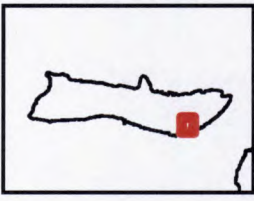
ORDINANCE No. \_\_\_\_\_

**WPOD Map 10**



**LEGEND**

- WPOD ZONE A
- WPOD ZONE B - 2 year
- ⋯ WPOD ZONE C - 10 year
- 2017 PARCEL
- MAJOR ROADS



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<b>WELLHEAD PROTECTION OVERLAY DISTRICT</b> <b>MAP No. 11</b> <b>UALAPUE, MOLOKAI</b>	
<b>APPROVED:</b>  COUNTY CLERK _____ DATE _____	<b>PUBLIC HEARING:</b> _____  <b>ADOPTED BY COUNCIL:</b> _____
<b>APPROVED:</b>  PLANNING DIRECTOR _____ DATE _____	<b>ADOPTED BY MAYOR:</b> _____  <b>BILL No./YEAR</b> _____ <b>ORDINANCE No.</b> _____
WPOD Map <u>  11  </u>	