

ALAN M. ARAKAWA  
Mayor

WILLIAM R. SPENCE  
Director

MICHELE CHOUTEAU McLEAN  
Deputy Director



COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

May 18, 2016

CERTIFIED MAIL - # 7015 0640 0002 6767 4832

Mr. Ford N. Fuchigami, Director  
Hawaii Department of Transportation  
869 Punchbowl Street  
Honolulu, Hawaii 96813-5097

**Attn: Sharen Cho-Ibanez, Project Manager**

Dear Mr. Fuchigami:

**SUBJECT: APPROVAL OF REQUEST TO AMEND CONDITION NO. 1 OF A SPECIAL MANAGEMENT AREA (SMA) USE PERMIT FOR THE PROPOSED HONOAPILANI HIGHWAY SHORELINE PROTECTION, AT OLOWALU, ISLAND OF MAUI, HAWAII; TMK: (2) 4-8-003:006 (POR.) (SM1 2009/0005)**

Pursuant to Section 12-202-17(e) of the SMA Rules of the Maui Planning Commission (Commission), the Commission, at its regular meeting on May 10, 2016, reviewed the above request for a time extension of a SMA Permit, and after due deliberation, voted unanimously to acknowledge and waive review of the request.

Accordingly, the Department of Planning (Department) reviewed the subject request received on March 6, 2014, and hereby grants the request, subject to the following amended Condition No. 1 stated as: "That construction of the proposed project shall be initiated by **May 31, 2018**. Initiation of construction shall be determined as construction of onsite and/or offsite improvements, issuance of a foundation permit and initiation of construction of the foundation, or issuance of a building permit and initiation of building construction, whichever occurs first. Failure to comply by **May 31, 2018** will automatically terminate this SMA Use Permit unless a time extension is requested no later than ninety (90) days prior to **May 31, 2018**. A time extension shall be in accordance with the provisions of Section 12-202-17 of the SMA Rules for the Commission."

Thank you for your cooperation. If additional clarification is required, please contact Staff Planning Keith Scott at [keith.scott@mauicounty.gov](mailto:keith.scott@mauicounty.gov) or at (808) 463-3867.

Mr. Ford N. Fuchigami, Director  
Attn: Sharen Cho-Ibanez, Project Manager  
May 18, 2016  
Page 2

Sincerely,



WILLIAM SPENCE  
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator (PDF)  
John S. Rapacz, Planning Program Administrator (PDF)  
Keith C. Scott, Staff Planner (PDF)  
Carolyn Takayama-Corden (PDF)  
Karlynn Fukuda, Munekiyo & Hiraga, Inc.  
Development Services Administration  
Project File  
General File

WRS:KCS.LK

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Approval 2016.doc

16-913

DAVID Y. IGE  
GOVERNOR



FORD N. FUCHIGAMI  
DIRECTOR

Deputy Director  
JADE T. BUTAY  
ROSS M. HIGASHI  
EDWIN H. SNIFFEN  
DARRELL T. YOUNG

COUNTY OF MAUI  
DEPT OF PLANNING  
CURRENT DIV-RECEIVED

16 FEB 25 AIO :53

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:  
HWY-DS 2.0809

February 24, 2016

Mr. William Spence, Director  
Department of Planning  
County of Maui  
2200 Main Street, Suite 315  
Wailuku, Hawai'i 96793

16 FEB 25 10:53  
COUNTY OF MAUI  
DEPT OF PLANNING  
CURRENT DIV-RECEIVED

Dear Mr. Spence:

Subject: Special Management Area (SMA) Use Permit Time Extension Request for State of Hawai'i, Department of Transportation (HDOT) Proposed Honoapi'ilani Highway Shoreline Protection Project at Olowalu, Maui, Hawai'i (TMK (2) 4-8-003:006 (por.) (SM1 2009/0005) (SSV 2009/0001)

We are writing to you today to request consideration for a SMA Use Permit time extension for the Honoapi'ilani Highway Shoreline Protection project. This application to amend the time stipulation of the subject SMA Use Permit (SM1 2009/0005), as well as a time extension fee of \$165.00, are hereby being submitted to enable processing of this request.

At its meeting on April 26, 2011, the Maui Planning Commission voted to approve the SMA Use Permit and Shoreline Setback Variance (SSV) for the installation of an engineered shoreline protection measure to protect a portion of Honoapi'ilani Highway from high coastal wave action. An approximately 900-foot section of boulder fill was approved. A copy of the SMA Permit and SSV approval letter (dated May 18, 2011) is attached. See **Exhibit "A"**.

Standard Condition No. 1 of the SMA Use Permit reads as follows:

1. *That construction of the proposed project shall be initiated by May 31, 2014. Initiation of construction shall be determined as construction of onsite and/or offsite improvements, issuance of a foundation permit and initiation of construction of the foundation, or issuance of a building permit and initiation of building construction, whichever occurs first. Failure to comply within this three (3) year period will automatically terminate this SMA Use Permit unless a time extension is requested no later than ninety (90) days prior to the expiration of said three (3) year period. The Planning Director shall review and approve a time-extension request pursuant to Section 12-202-17 SMA Rules for the Commission.*

It is noted that a two (2) year time extension was sought in February 2014 for the project. At its May 27, 2014 meeting, the Maui Planning Commission voted to waive their review of the time extension request. The Project was granted an extension by the Department of Planning to initiate construction by May 31, 2016. See **Exhibit "B"**.

The following reason is offered as justification for the time extension request:

1. Since the granting of the SMA and SSV approvals for the project, HDOT secured other regulatory permit approvals needed to proceed with the project. Included in the regulatory reviews are Department of Army approvals, Conservation District Use Permit (filed with the Department of Land and Natural Resources (DLNR) in May 2013), as well as approval of the Categorical Exclusion (CatEx) by the Federal Highway Administration (FHWA) on the National Environmental Policy Act (NEPA) requirements for the project. The NEPA requirements are "triggered" by the use of Federal funds for the project. The CatEx approval for the project was received in September 2015.

HDOT is requesting a two (2) year time extension to initiate construction on the project. The contractor for the project has been selected by HDOT and is initiating the preliminary construction activities, however, actual construction is not anticipated to begin until the Fall of 2016 to avoid the coral spawning season as well as a reduced chance of high coastal wave action in the project area. Thus, the new date to initiate construction by would be May 31, 2018.

We also provide the following information to address the SMA time extension criteria by the Maui Planning Commission:

1. *An analysis of whether any changes have occurred within the special management area since the granting of the permit that may cause the permit holder's development to have a substantial adverse environmental or ecological effect.*

There have been no changes in the SMA in the vicinity of the project area which would alter the proposed action's impact on the environment. To our knowledge, construction activity in the Olowalu area has been minimal, with mainly individual residence construction, mauka of the Honoapi'ilani Highway.

2. *An analysis of whether any changes have occurred within the special management area since the granting of the permit that may cause the permit holder's development to adversely affect the capacity or condition of infrastructure.*

Since the granting of the SMA permit, there have been no significant changes in the local environment or surrounding properties which would otherwise affect changes in conditions to water and wastewater demand or capacity. Moreover, there have been no significant changes to surrounding conditions which would alter traffic or drainage impact parameters.

Mr. William Spence  
February 24, 2016  
Page 3

HWY-DS 2.0809

Should you have any questions regarding project documents, please contact our Project Manager, Ms. Sharen Cho-Ibanez, at (808) 692-7551, Technical Design Services Office, Design Branch, Highways Division or by email at [sharen.h.cho-ibanez@hawaii.gov](mailto:sharen.h.cho-ibanez@hawaii.gov).

Sincerely,



FORD N. FUCHIGAMI  
Director of Transportation

Enclosures

c: James Hatashima, Sato & Associates, Inc. (w/enclosures)  
Karlynn Fukuda, Munekiyo Hiraga (w/enclosures)

ALAN M. ARAKAWA  
Mayor

WILLIAM R. SPENCE  
Director

MICHELE CHOUTEAU McLEAN  
Deputy Director



Project File

COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

July 21, 2014

CERTIFIED MAIL - #7013 1710 0002 3790 8902

Mr. Glenn Okimoto, Ph.D, Director  
Department of Transportation  
Technical Design Services Office  
Design Branch, Highways Division  
869 Punchbowl Street  
Honolulu, Hawaii 96813-5097

**Attn: Shawn M. Clarke, Project Manager**

Dear Mr. Okimoto:

**SUBJECT: APPROVAL OF REQUEST TO AMEND CONDITION NO. 1 OF A SPECIAL MANAGEMENT AREA (SMA) USE PERMIT FOR THE PROPOSED HONOAPILANI HIGHWAY SHORELINE PROTECTION, AT OLOWALU, MAUI, HAWAII; TMK: (2) 4-8-003:006 (POR.) (SM1 2009/0005)**

Pursuant to Section 12-202-17(e) of the SMA Rules of the Maui Planning Commission (Commission), the Commission, at its regular meeting on May 27, 2014, reviewed the above request for a time extension of a SMA Permit, and after due deliberation, voted unanimously to acknowledge and waive review of the request.

Accordingly, the Department of Planning (Department) reviewed the subject request received on March 6, 2014, and hereby grants the request, subject to the following amended Condition No. 1 stated as: "That construction of the proposed project shall be initiated by **May 31, 2016**. Initiation of construction shall be determined as construction of onsite and/or offsite improvements, issuance of a foundation permit and initiation of construction of the foundation, or issuance of a building permit and initiation of building construction, whichever occurs first. Failure to comply by **May 31, 2016** will automatically terminate this SMA Use Permit unless a time extension is requested no later than ninety (90) days prior to **May 31, 2016**. A time extension shall be in accordance with the provisions of Section 12-202-17 of the SMA Rules for the Commission."

Mr. Glenn Okimoto, Ph.D, Director  
Attn: Shawn M. Clarke, Project Manager  
July 21, 2014  
Page 2

Thank you for your cooperation. If additional clarification is required, please contact Current Planning Supervisor Jeffrey Dack at [jeffrey.dack@mauicounty.gov](mailto:jeffrey.dack@mauicounty.gov) or at (808) 270-6275.

Sincerely,



WILLIAM SPENCE  
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator (PDF)  
John S. Rapacz, Planning Program Administrator (PDF)  
Jeffrey P. Dack, Current Planning Supervisor (PDF)  
Maui Planning Commission  
Karlynn Fukuda, Munekiyo & Hiraga, Inc.  
Development Services Administration  
Project File  
General File

WRS:JPD:nt

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- Attach this card to the back of the mailpiece, or on the front if space permits.

1 Article Addressed to:

Mr. Ford N. Fuchigami, Director  
 Hawaii Department of Transportation  
 869 Punchbowl Street  
 Honolulu, Hawaii 96813-5097



9590 9403 0534 5173 0305 70

2 Article Number (Transfer from service label)

7015 0640 0002 6767 4832

PS Form 3811, April 2015 PSN 7530-02-000-9053

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X F. Germain

- Agent
- Addressee

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MAY 23 2016

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COUNTY OF MAUI  
 Department of Planning  
 2200 Main Street, Suite 315  
 Wailuku, HI 96793





ALAN M. ARAKAWA  
Mayor

WILLIAM R. SPENCE  
Director

MICHELE CHOUTEAU McLEAN  
Deputy Director



MAY 24 2011

COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

May 18, 2011

CERTIFIED MAIL - #7008 0500 0002 0444 6495

Ms. Karen Chun, Project Manager  
Technical Design Services Office  
Design Branch, Highways Division  
Department of Transportation  
969 Punchbowl Street  
Honolulu, Hawaii 96813-5097

Dear Ms. Chun:

**SUBJECT: APPLICATION FOR A SPECIAL MANAGEMENT AREA (SMA) USE PERMIT AND SHORELINE SETBACK VARIANCE (SSV) FOR THE PROPOSED HONOAPI'LANI HIGHWAY SHORELINE PROTECTION, AT OLOWALU, ISLAND OF MAUI, HAWAII; TMK: (2) 4-8-003:006 (POR.) (SM1 2009/0005) (SSV 2009/0001)**

At the regular meeting on April 26, 2011, the Maui Planning Commission (Commission) reviewed the above applications, accepted testimony and exhibits, and after due deliberation, made the five determinations listed in the Recommendation report prepared by the Department of Planning (Department) for the April 26, 2011 meeting, and hereby orders approval of said Shoreline Setback Variance application, subject to the following conditions.

1. To maintain and require safe lateral access to and along the shoreline for public use.
2. To minimize risk of adverse impacts on beach processes.
3. To minimize risk of structures falling and becoming loose rocks or rubble on public property.
4. To minimize adverse impacts on public views to, from, and along the shoreline. For purposes of this section only, "adversely impacts public views" means the adverse impact on public views and open space resources caused by new building structures exceeding a one-story or thirty-foot height limitation.
5. To comply with Chapters 19.62 and 20.08, Maui County Code, relating to flood hazard districts and erosion and sedimentation control respectively.

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793  
MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7834  
CURRENT DIVISION (808) 270-8205; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

**EXHIBIT "A"**

Ms. Karen Chun, Project Manager  
May 18, 2011  
Page 2

The Commission also and hereby orders approval of said SMA Use Permit with the following conditions:

**STANDARD CONDITIONS:**

1. That construction of the proposed project shall be initiated by May 31, 2014. Initiation of construction shall be determined as construction of onsite and/or offsite improvements, issuance of a foundation permit and initiation of construction of the foundation, or issuance of a building permit and initiation of building construction, whichever occurs first. Failure to comply within this three (3) year period will automatically terminate this SMA Use Permit unless a time extension is requested no later than ninety (90) days prior to the expiration of said three (3) year period. A time extension shall be in accordance with the provisions of Section 12-202-17 of the SMA Rules for the Commission.
2. That the construction of the project shall be completed within five (5) years after the date of its initiation. Failure to complete construction of this project within this time period will require unfinished portions of the project to obtain a new SMA Permit. A time extension shall be requested no later than ninety (90) days prior to the completion deadline. A time extension shall be in accordance with the provisions of Section 12-202-17 of the SMA Rules for the Commission.
3. The permit holder or any aggrieved person may appeal to the Commission any action taken by the Planning Director on the subject permit no later than ten (10) days from the date the Director's action is reported to the Commission.
4. That final construction shall be in substantial compliance with the Boulder Fill Plan, Drainline Section, End and Typical Sections included in the Final Environmental Assessment, Proposed Honoapiilani Highway Shoreline Protection, Olowalu, Maui, dated July, 2010.
5. That appropriate measures shall be taken during construction to mitigate the short term impacts of the project relative to dust and soil erosion from wind and water, ambient noise levels, and traffic disruptions.
6. That the subject SMA Use Permit shall not be transferred without prior written approval in accordance with Section 12-202-17(d) of the SMA Rules of the Commission. However, in the event that a contested case hearing preceded issuance of said SMA Use Permit, a public hearing shall be held upon due published notice, including actual written notice to the last known addresses of parties to said contested case and their counsel.
7. That full compliance with all applicable governmental requirements shall be rendered.
8. That the Applicant shall submit plans regarding the location of any construction related structures such as, but not limited to trailers, sheds, equipment and storage areas and fencing to be used during the construction phase to the Department for review and approval.

9. That the applicant shall submit to the Department five (5) copies of a detailed report addressing its compliance with the conditions established with the subject SMA Use Permit. A preliminary report shall be reviewed and approved by the Department prior to the commencement of work on the site. A final compliance report shall be submitted to the Department for review and approval prior to the State's acceptance or completion of the work.
10. That the Applicant shall develop the property in substantial compliance with the representations made to the Commission in obtaining the SMA Use Permit. Failure to so develop the property may result in the revocation of the permit.

**PROJECT SPECIFIC CONDITIONS:**

11. That the Applicant shall obtain permits from the United States Army Corps of Engineers (Corps), pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, as well as a Section 401 Water Quality Certification, as applicable. The Applicant shall provide copies of the applications, approvals, and all correspondence to date with the Preliminary Compliance Report. Any subsequent correspondence or reports shall be included in the final compliance report.

Department of Health

12. That, to the satisfaction of the Clean Water Branch of the Department of Health, the Applicant shall coordinate with the Clean Water Branch to address applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for the project, if required, including the submittal of a Notice of Intent (NOI) for general permit coverage. Evidence of compliance with this condition shall be submitted with the Preliminary Compliance Report.
13. That the Applicant shall obtain permits from the Clean Water Branch of the Department of Health pursuant to Section 401 Water Quality Certification. The Applicant shall provide copies of the applications, approvals, and all correspondence with the Preliminary Compliance Report. Any subsequent correspondence or reports shall be included in the final compliance report.

Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD)

14. That, to the satisfaction of the DLNR-SHPD, a qualified archaeological monitor shall be present during those portions of the project which involve ground altering disturbance in order to document any historic properties which may be encountered and to provide mitigation measures as necessary. Please note that ground altering disturbance includes previously disturbed stratigraphy, as culturally significant subsurface deposits are often found in these contexts. As per Hawaii Administrative Rules (HAR), Section 13-279, prior to the commencement of ground altering disturbance associated with the proposed project, the project developer or developer's agent must submit an appropriately prepared monitoring plan to DLNR-SHPD for review and acceptance. Evidence of compliance with this condition shall be submitted with the Preliminary Compliance Report.

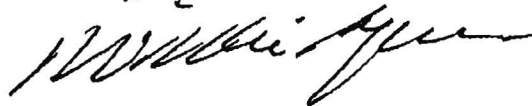
Ms. Karen Chun, Project Manager  
May 18, 2011  
Page 4

The conditions of this SMA Use Permit shall be enforced pursuant Section 12-202 et seq. of the *Special Management Area Rules for the Maui Planning Commission*.

Further, the Commission adopted the Report and Recommendation prepared by the Department for the April 26, 2011 meeting, as the Findings of Fact, Conclusions of Law, and Decision and Order, attached hereto and made a part hereof. Parties to proceedings before the Commission may obtain Judicial Review of Decision and Orders, issued by the Commission in the manner set forth in Chapter 91-14, Hawaii Revised Statutes.

Thank you for your cooperation. If additional clarification is required, please contact Current Planning Supervisor Jeffrey Dack at [jeffrey.dack@maulcounty.gov](mailto:jeffrey.dack@maulcounty.gov) or at (808) 270-6275.

Sincerely,



WILLIAM SPENCE  
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator  
Aaron H. Shinmoto, PE, Planning Program Administrator (2)  
John F. Summers, Planning Program Administrator  
Jeffrey P. Dack, AICP, Current Planning Supervisor  
Tara Miller Owens, UH Sea Grant Extension Agent  
Department of Public Works  
Department of Fire and Public Safety  
Police Department  
Civil Defense  
Natural Resources Conservation Service-USDA, Maui  
U.S. Army Corp. of Engineers  
U.S. Fish and Wildlife Service  
Department of Accounting and General Services  
Department of Education  
Department of Hawaiian Homelands  
Department of Health, Clean Water Branch  
Department of Health, Maui District Health Office  
Department of Health, Office of Environmental Quality Control  
Department of Land and Natural Resources-Office of Conservation and Coastal Land  
Department of Land and Natural Resources-State Historic Preservation Division  
Maui Electric Company  
Karlynn Kawahara, Munekiyo & Hiraga, Inc.  
Office of Hawaiian Affairs  
CZM File (SM1/SSV)  
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ALAN M. ARAKAWA  
Mayor

WILLIAM R. SPENCE  
Director

MICHELE CHOUTEAU McLEAN  
Deputy Director



JUL 21 2014

COUNTY OF MAUI

**DEPARTMENT OF PLANNING**

July 21, 2014

CERTIFIED MAIL - #7013 1710 0002 3790 8902

Mr. Glenn Okimoto, Ph.D, Director  
Department of Transportation  
Technical Design Services Office  
Design Branch, Highways Division  
869 Punchbowl Street  
Honolulu, Hawaii 96813-5097

**Attn: Shawn M. Clarke, Project Manager**

Dear Mr. Okimoto:

**SUBJECT: APPROVAL OF REQUEST TO AMEND CONDITION NO. 1 OF A SPECIAL MANAGEMENT AREA (SMA) USE PERMIT FOR THE PROPOSED HONOAPILANI HIGHWAY SHORELINE PROTECTION, AT OLOWALU, MAUI, HAWAII; TMK: (2) 4-8-003:006 (POR.) (SM1 2009/0005)**

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ONE MAIN PLAZA BUILDING / 2200 MAIN STREET, SUITE 315 / WAILUKU, MAUI, HAWAII 96793  
MAIN LINE (808) 270-7735 / FACSIMILE (808) 270-7634  
CURRENT DIVISION (808) 270-8205 / LONG RANGE DIVISION (808) 270-7214 / ZONING DIVISION (808) 270-7253

**EXHIBIT "B"**

Mr. Glenn Okimoto, Ph.D, Director  
Attn: Shawn M. Clarke, Project Manager  
July 21, 2014  
Page 2

Thank you for your cooperation. If additional clarification is required, please contact Current Planning Supervisor Jeffrey Dack at [jeffrey.dack@mauicounty.gov](mailto:jeffrey.dack@mauicounty.gov) or at (808) 270-6275.

Sincerely,



WILLIAM SPENCE  
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator (PDF)  
John S. Rapacz, Planning Program Administrator (PDF)  
Jeffrey P. Dack, Current Planning Supervisor (PDF)  
Maul Planning Commission  
Karlynn Fukuda, Munekiyo & Hiraga, Inc.  
Development Services Administration  
Project File  
General File

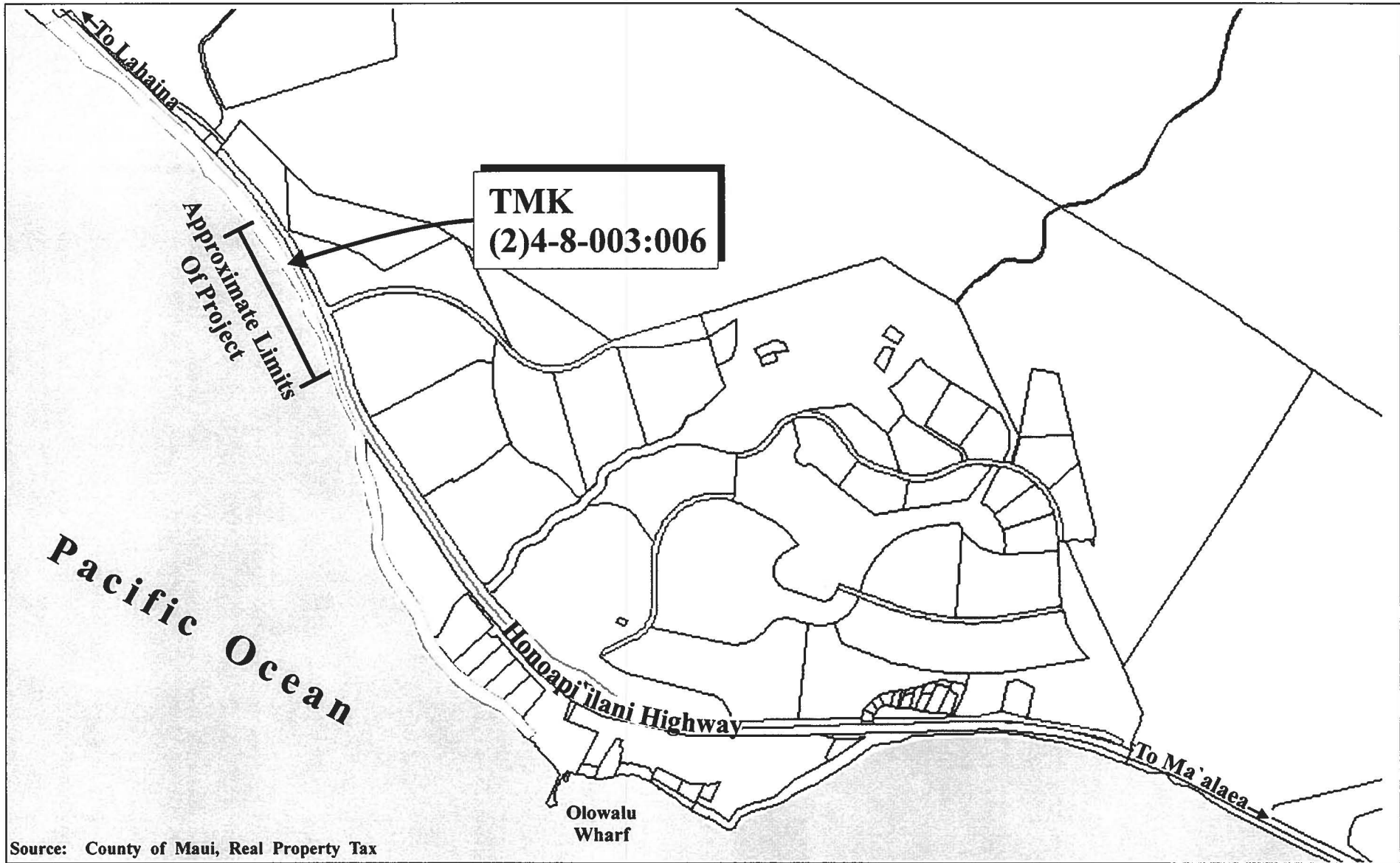
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**EXHIBIT A.**

**Site Location Map**

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Source: County of Maui, Real Property Tax

Proposed Honoapiilani Highway  
 Shoreline Protection  
 Site Location Map

NOT TO SCALE





**EXHIBIT B.**

**Site Plan**

---



AREA OF MAP

Approximate Limits of Boulder Fill

Approx. 900 Feet

To Lahaina

To Maalaea

Honoapiilani Highway

SHORELINE FOLLOWS ALONG TOP BANK AS LOCATED ON MARCH 13, 2008.

WATER LINE AS SURVEYED ON MARCH 13, 2008 @ 9:30 AM

BOULDER FILL SLOPE 1V:1.5H

EXTEND DRAINLINE/OUTLET

SHORELINE FOLLOWS ALONG TOP BANK AS LOCATED ON MARCH 13, 2008.

SHORELINE AS SURVEYED ON JULY 27, 2002 AND CERTIFIED BY THE STATE OF HAWAII ON OCTOBER 10, 2002.

O C E A N

Pacific Ocean

Source: Sato & Associates, Inc.

# Proposed Honoapi'ilani Highway Shoreline Protection Boulder Fill Plan

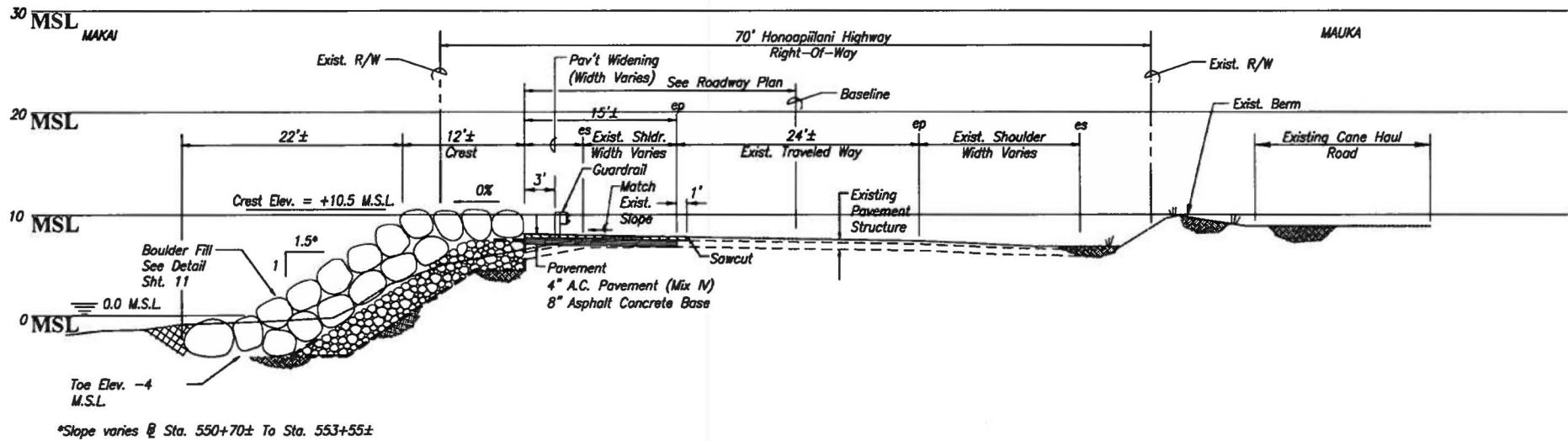
NOT TO SCALE



Prepared for: State of Hawaii, Department of Transportation

**EXHIBIT C.**

**Elevations**



## Typical Section

Source: Sato & Associates, Inc.

# Proposed Honoapi'ilani Highway Shoreline Protection Typical Section

NOT TO SCALE

Prepared for: State of Hawaii, Department of Transportation

**EXHIBIT D.**

**Drainage Report**



**DRAINAGE REPORT**

**HONOAPIILANI HIGHWAY SHORELINE PROTECTION  
OLOWALU, MAUI, HAWAII**

TMK: (2) 4-8-003:006(por.)

*Prepared for*

State of Hawaii

Department of Transportation, Highways Division

*Prepared by*



**Sato & Associates, Inc.**  
**Consulting Engineers**

2046 South King Street  
Honolulu, Hawaii 96826



This work was prepared by me or under my supervision.  
Expiration Date: 4/30/14

November 2012

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## **EXECUTIVE SUMMARY**

Currently along Honoapi'ilani Highway, a 900-foot stretch of shoreline is subject to erosion which has the potential to shut down the highway when large waves are present due to high-surf and storm events. It is the intent of this project to mitigate erosion and undermine of the roadway by installing a boulder fill. This report summarizes existing drainage patterns and analyzes the hydrological impacts due to new construction. It was determined that existing storm water runoff flow patterns are not altered post-development. An existing 24" drainline crossing Honoapi'ilani Highway will be extended to accommodate the boulder fill. The proposed improvements are not expected to adversely impact the adjacent properties.

## **INTRODUCTION**

### **Project Purpose**

This project entails preventative measures against erosion along Honoapi'ilani Highway, which falls under the jurisdiction of the State of Hawaii Department of Transportation. Honoapi'ilani Highway is a major access route to West Maui for commuters, visitors, and emergency vehicles traveling to and from the Central Maui area. A new boulder fill will serve as shoreline protection and reduce the frequency of road closures during high surf conditions and large wave action resulting from severe storms.

### **Scope of Work**

Within the project corridor, Honoapi'ilani Highway is a two-lane, paved roadway with paved shoulder areas on both sides. The improvements include placing boulders, geotextile fabric, filling and widening the existing road shoulder, and installing guardrail.

### **Location and Vicinity Maps**

The project is located in Olowalu, on the southern coast of the Island of Maui. The specific highway section is between approximate baseline stations 563+32 and 552+80 (mile post 15.7 to 15.9). Refer to Exhibits A and B.

## **GENERAL SITE CONDITIONS**

### **Land Use**

Surrounding land use includes the former Pioneer Mill Plantation Manager's residence property, Olowalu General Store, a restaurant and Camp Olowalu to the southwest. The Pacific Ocean is located to the west, and undeveloped agricultural land is located to the east.



**Time of Concentration (T<sub>c</sub>)**

Overland flow time is determined by using the hydraulic length and slope of the ultimate developed area to the intake point of the drainage system. The minimum time of concentration used was 10 minutes.

**Rainfall Intensity (I)**

Rainfall intensity is determined by the storm's duration and frequency for each drainage sub-area. The precipitation estimate was based on the "Point Precipitation Frequency Estimate" for 25-year, 1-hour storm in Lahaina, Hawaii (data prepared by the NOAA Hydrometeorological Design Studies Center).

**EXISTING DRAINAGE (OFFSITE AND ONSITE) CONDITIONS**

Narrative Description

For the majority of the area of improvement, the roadway slopes away from the ocean. The stormwater runoff generated on site flows off the roadway to an existing headwall with a 24" drainline. This drainline crosses under the roadway and outlets to the ocean.

An existing earth berm located east of Honoapiilani Highway intercepts offsite runoff from flowing onto the roadway. Offsite stormwater is diverted to an existing 48" and 24" drainline located to the north and south of the project site, respectively. These drainlines also cross under the roadway and discharge to the ocean.

Hydrologic and Hydraulic Calculation Results

Based on a 25-year recurrence interval, the total existing runoff discharging to the ocean is 4.76 cfs. See Appendix A for existing runoff calculations.

Drainage Maps

Refer to Exhibit C for a runoff map showing existing drainage conditions.

Topographic Map

Refer to Appendix B for topographic survey.

Photographs

Refer to Appendix C for photographs of existing conditions.

## **PROPOSED DRAINAGE (OFFSITE AND ONSITE) CONDITIONS**

### **Narrative Description**

The existing 24" drainline that crosses beneath the roadway and outlets to the ocean will be extended to accommodate the shoreline improvements. A new concrete jacket will be installed at the drainline outlet. Existing storm water runoff flow patterns are not altered by the proposed improvements. The proposed improvements do not appear to adversely impact any of the adjacent properties.

### **Hydrologic and Hydraulic Calculation Results**

The post-construction runoff is 4.76 cfs.

### **Drainage Maps**

Refer to Exhibit D for a runoff map showing developed drainage conditions.

### **Construction Plans**

Refer to Appendix D for Grading Plans and Typical Sections.

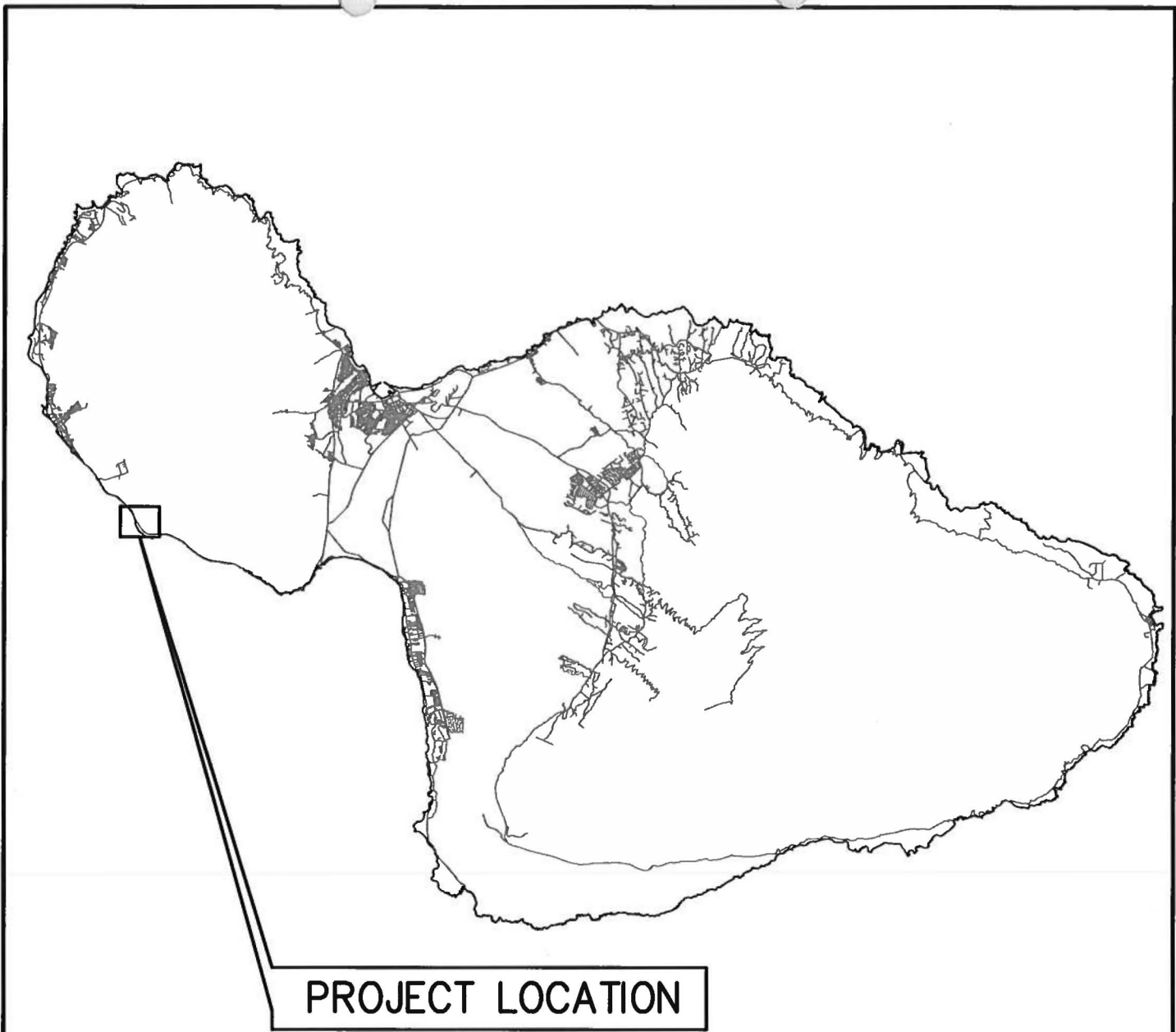
## **REFERENCES**

1. *Design Criteria for Highway Drainage*. October 2010. State of Hawaii, Department of Transportation, Highways Division.
2. "NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES." NOAA's National Weather Service Hydrometeorological Design Studies Center. Web. 12 Nov 2012. [http://hdsc.nws.noaa.gov/hdsc/pfds/pfds\\_map\\_hi.html](http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_hi.html)
3. *Final Environmental Assessment – Proposed Honoapiilani Highway Shoreline Protection, Olowalu, Maui (TMK (2)4-8-003:006(por.)) Project No. 30C-02-04*. July 2010. Prepared by Munekiyo & Hiraga, Inc.



# EXHIBITS

- A** – VICINITY MAP
- B** – LOCATION MAP
- C** – RUNOFF MAP – EXISTING CONDITIONS
- D** – RUNOFF MAP – DEVELOPED CONDITIONS



**ISLAND OF MAUI**  
NOT TO SCALE

**HONOAPIILANI HIGHWAY SHORELINE PROTECTION  
Drainage Report**

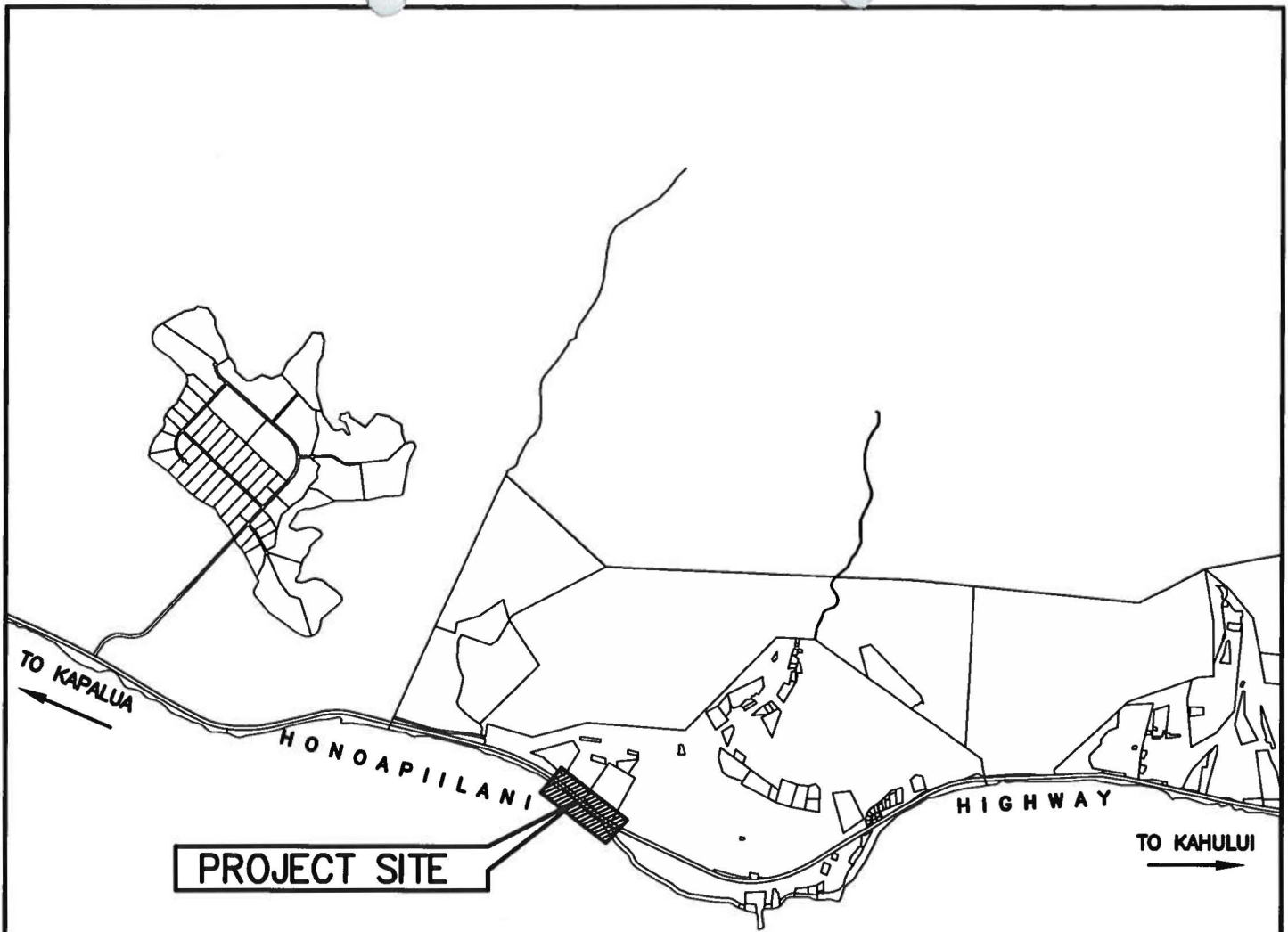


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**VICINITY MAP**

**SCALE: NTS**

**EXHIBIT A**



PACIFIC OCEAN



NORTH

## LOCATION MAP

NOT TO SCALE

### HONOAPIILANI HIGHWAY SHORELINE IMPROVEMENTS Drainage Report

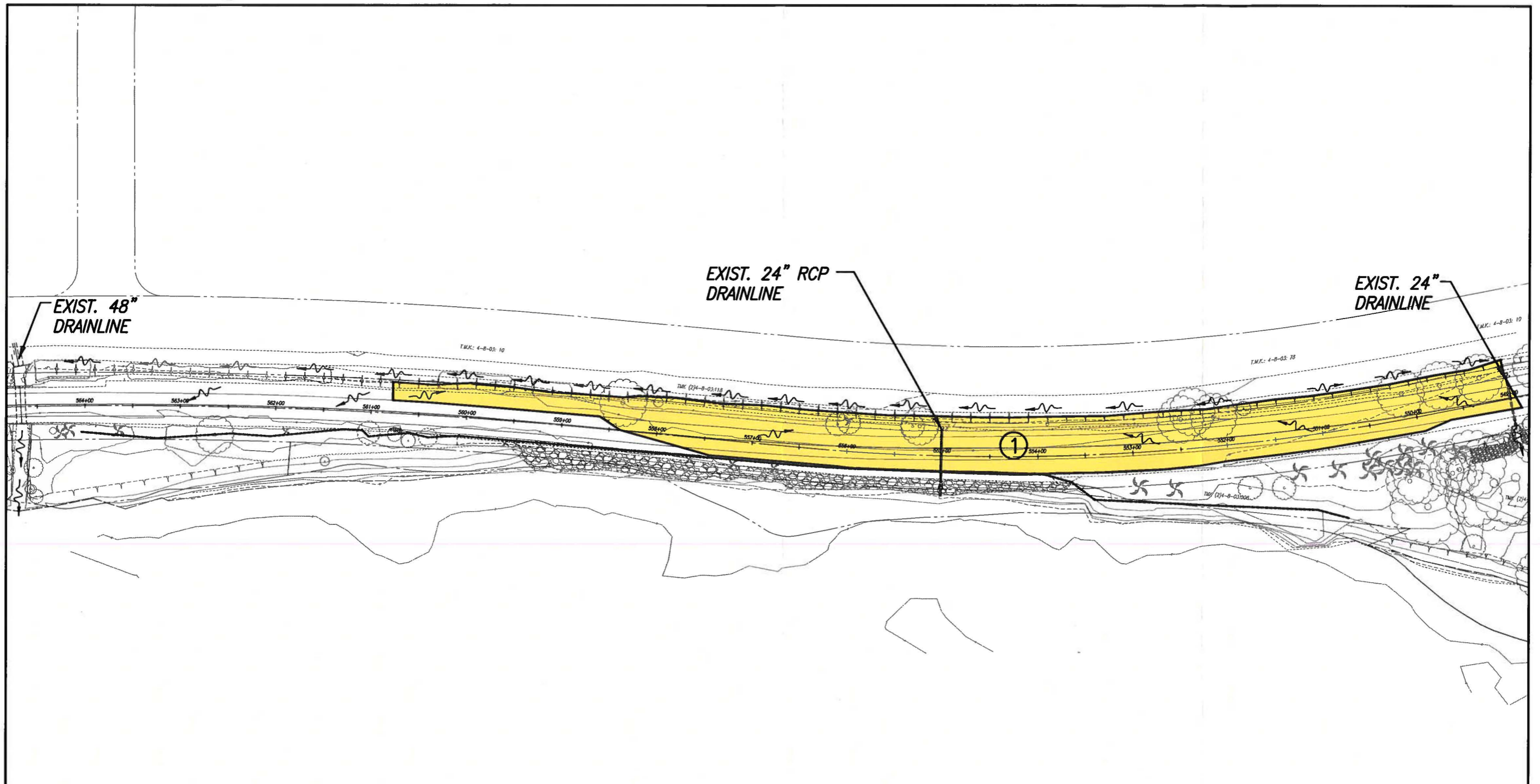


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LOCATION MAP

SCALE: As Shown

EXHIBIT B



NORTH

**EXISTING RUNOFF CONDITIONS**



SCALE: 1" = 100'



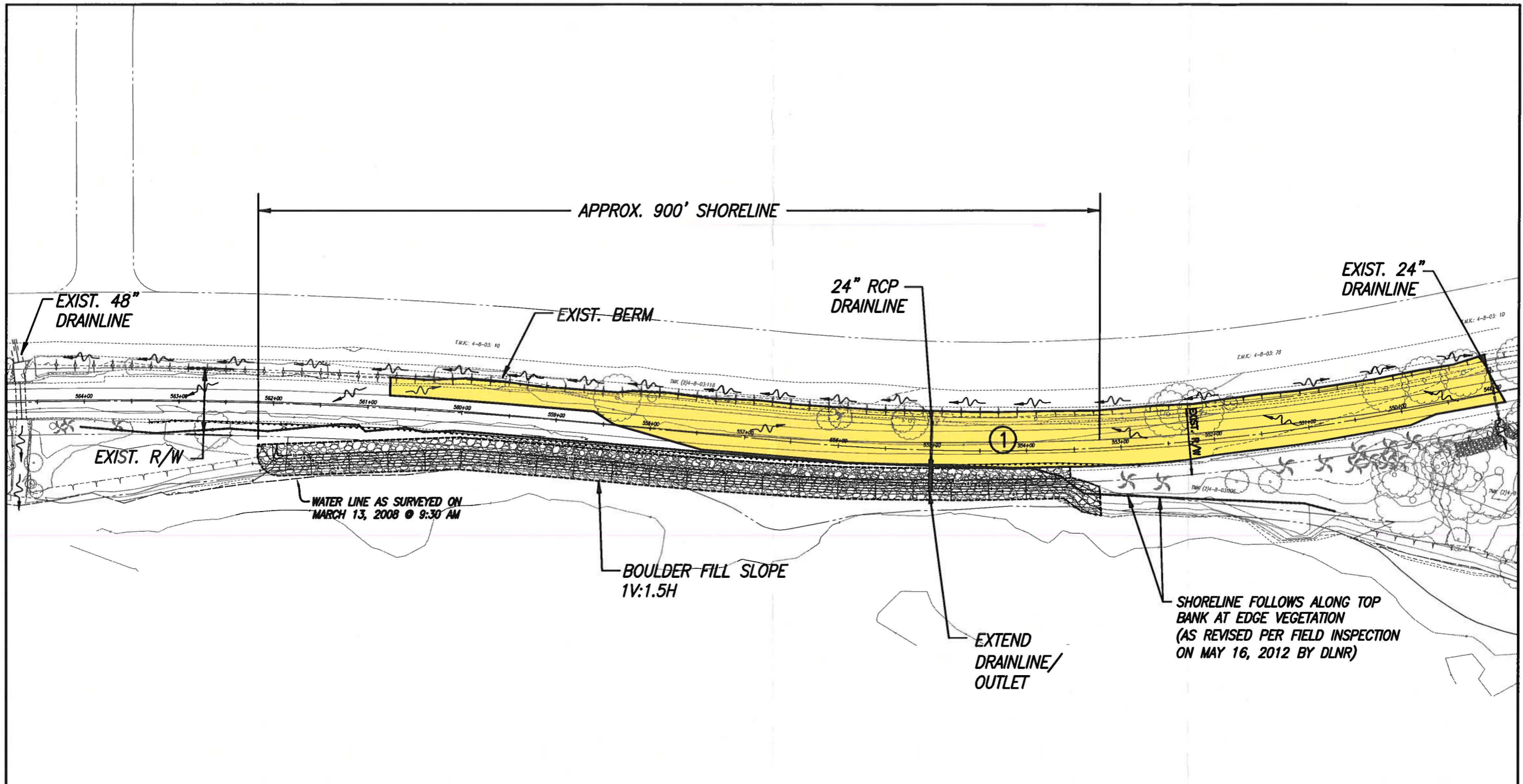
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HONOAPIILANI HIGHWAY SHORELINE PROTECTION

RUNOFF MAP – EXISTING CONDITION

SCALE: 1"=100'

EXHIBIT C



NORTH

## DEVELOPED RUNOFF CONDITIONS



SCALE: 1" = 100'

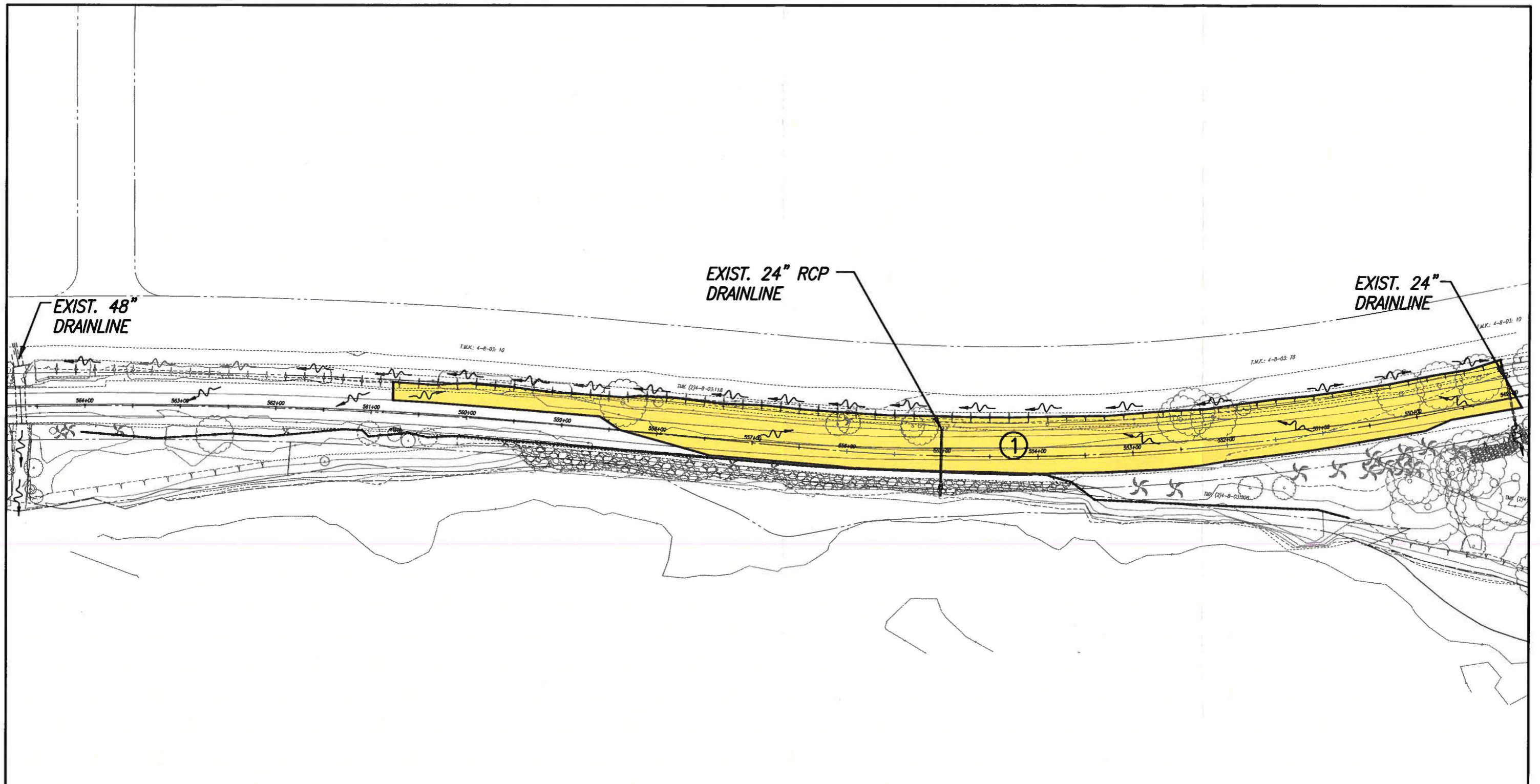
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**HONOAPIILANI HIGHWAY SHORELINE PROTECTION**

**RUNOFF MAP – DEVELOPED CONDITION**

SCALE: 1"=100'

EXHIBIT D



NORTH

**EXISTING RUNOFF CONDITIONS**



SCALE: 1" = 100'



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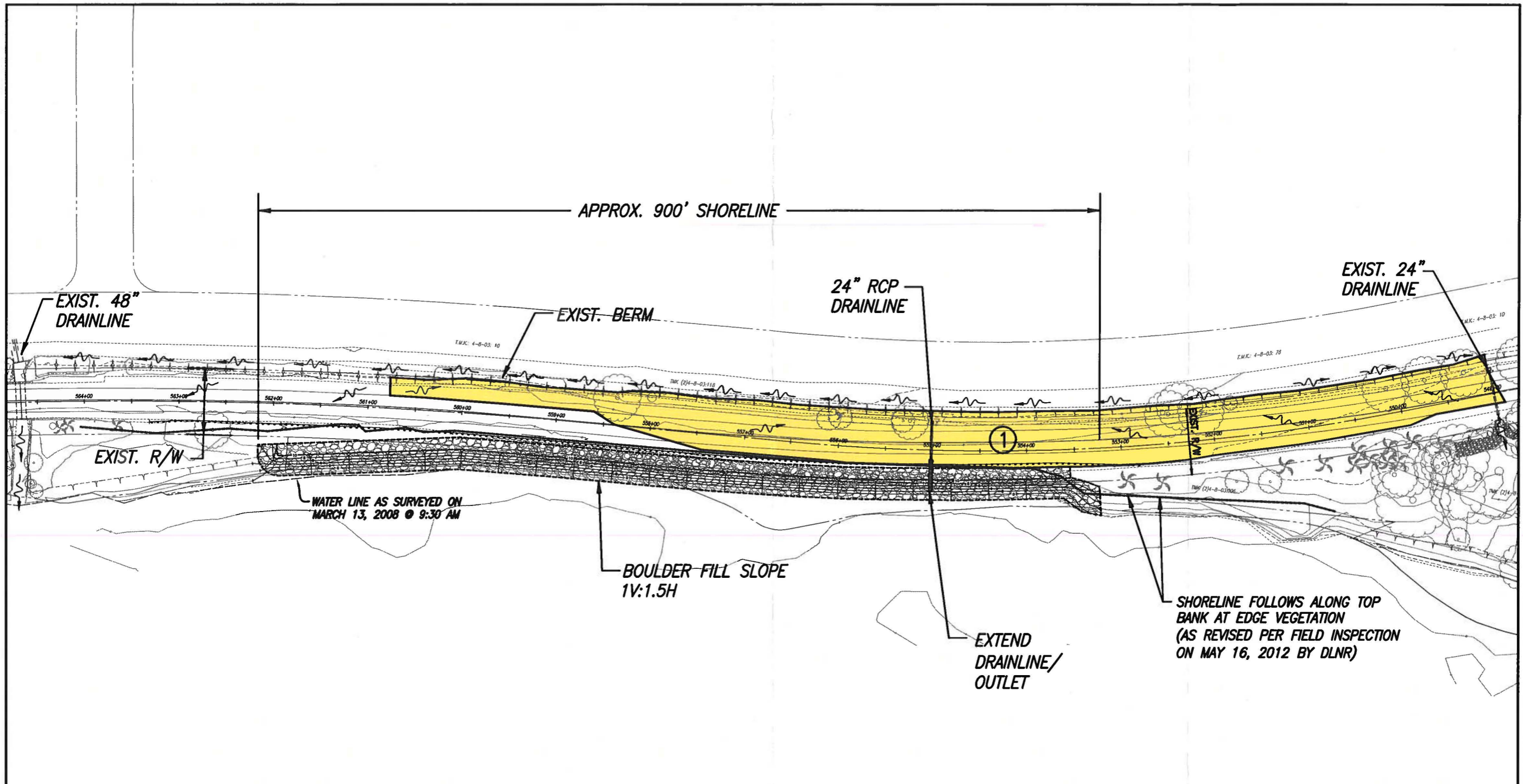
HONOAPIILANI HIGHWAY SHORELINE PROTECTION

RUNOFF MAP – EXISTING CONDITION

SCALE: 1"=100'

EXHIBIT C





NORTH

## DEVELOPED RUNOFF CONDITIONS



SCALE: 1" = 100'

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**HONOAPIILANI HIGHWAY SHORELINE PROTECTION**

**RUNOFF MAP – DEVELOPED CONDITION**

SCALE: 1"=100'

EXHIBIT D



# APPENDIX

- A – HYDROLOGIC RUNOFF CALCULATIONS**
- B – TOPOGRAPHIC SURVEY**
- C – PHOTOGRAPHS**
- D – GRADING PLANS & TYPICAL SECTIONS**

# APPENDIX A - HYDROLOGIC RUNOFF CALCULATIONS

PROJECT: HONOAPIILANI HIGHWAY SHORELINE PROTECTION  
 LOCATION: OLOWALU, MAUI, HAWAII  
 STORM WATER RUNOFF, EXISTING CONDITIONS

CALCULATIONS BY: KH  
 CHECKED BY: MI  
 DATE: 11/12/2012

Tm = 25 YR 1-HR. RAINFALL, i = 2.2 INCHES

AREA	AREA (SQ.FEET)	OVERLAND FLOW TIME	ADJUSTED I (IN./HR.)	C	A (ACRES)	Q (CFS)	INLET
		Tc (MIN.)					
1	57,563	10	4.5	0.80	1.32	4.76	D24"
					1.32	4.76	

PROJECT: HONOAPIILANI HIGHWAY SHORELINE PROTECTION  
 LOCATION: OLOWALU, MAUI, HAWAII  
 STORM WATER RUNOFF, DEVELOPED CONDITIONS

CALCULATIONS BY: KH  
 CHECKED BY: Mi  
 DATE: 11/12/2012

Tm = 25 YR

1-HR. RAINFALL, i = 2.2 INCHES

AREA	AREA (SQ.FEET)	OVERLAND FLOW TIME	ADJUSTED I (IN./HR.)	C	A (ACRES)	Q (CFS)	INLET
		Tc (MIN.)					
1	57,563	10	4.5	0.80	1.32	4.76	D24"
					1.32	4.76	



NOAA Atlas 14, Volume 4, Version 3  
 Location name: **Lahaina, Hawaii, US\***  
 Coordinates: **20.8129, -156.6191**  
 Elevation: **10 ft\***  
\* source: Google Maps



**POINT PRECIPITATION FREQUENCY ESTIMATES**

S. Perica, D. Martin, B. Lin, T. Parzybok, D. Riley, M. Yekta, L. Hiner, L.-C. Chen, D. Brewer, F. Yan, K. Maitaria, C. Trypaluk, G. M. Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.230 (0.205-0.262)	0.309 (0.267-0.355)	0.422 (0.363-0.487)	0.510 (0.436-0.592)	0.639 (0.538-0.747)	0.743 (0.617-0.876)	0.852 (0.693-1.02)	0.970 (0.771-1.18)	1.14 (0.871-1.40)	1.27 (0.947-1.59)
10-min	0.341 (0.304-0.388)	0.459 (0.396-0.527)	0.626 (0.538-0.722)	0.756 (0.646-0.878)	0.947 (0.797-1.11)	1.10 (0.914-1.30)	1.26 (1.03-1.51)	1.44 (1.14-1.74)	1.68 (1.29-2.08)	1.89 (1.40-2.37)
15-min	0.428 (0.381-0.487)	0.576 (0.497-0.662)	0.786 (0.676-0.907)	0.949 (0.812-1.10)	1.19 (1.00-1.39)	1.38 (1.15-1.63)	1.59 (1.29-1.90)	1.81 (1.44-2.19)	2.12 (1.62-2.61)	2.37 (1.76-2.97)
30-min	0.603 (0.537-0.686)	0.811 (0.699-0.931)	1.11 (0.951-1.28)	1.33 (1.14-1.55)	1.67 (1.41-1.96)	1.95 (1.62-2.30)	2.23 (1.81-2.67)	2.54 (2.02-3.08)	2.98 (2.28-3.67)	3.33 (2.48-4.18)
60-min	0.793 (0.706-0.902)	1.07 (0.920-1.23)	1.46 (1.25-1.68)	1.76 (1.50-2.04)	2.20 (1.85-2.58)	2.56 (2.13-3.02)	2.94 (2.39-3.51)	3.34 (2.66-4.05)	3.92 (3.00-4.83)	4.38 (3.26-5.50)
2-hr	1.06 (0.945-1.21)	1.45 (1.26-1.67)	1.98 (1.70-2.28)	2.38 (2.04-2.77)	2.96 (2.50-3.48)	3.43 (2.84-4.06)	3.90 (3.18-4.67)	4.42 (3.50-5.36)	5.12 (3.93-6.33)	5.68 (4.22-7.15)
3-hr	1.20 (1.06-1.36)	1.62 (1.42-1.88)	2.23 (1.92-2.57)	2.70 (2.30-3.14)	3.36 (2.82-3.94)	3.89 (3.21-4.60)	4.43 (3.59-5.30)	5.00 (3.96-6.06)	5.79 (4.43-7.17)	6.42 (4.76-8.09)
6-hr	1.50 (1.32-1.72)	2.04 (1.76-2.35)	2.81 (2.42-3.25)	3.42 (2.91-3.98)	4.27 (3.58-5.01)	4.95 (4.09-5.86)	5.66 (4.58-6.78)	6.39 (5.06-7.76)	7.43 (5.67-9.19)	8.24 (6.10-10.4)
12-hr	1.87 (1.62-2.12)	2.54 (2.19-2.93)	3.54 (3.05-4.08)	4.34 (3.70-5.04)	5.49 (4.61-6.43)	6.43 (5.31-7.59)	7.41 (6.00-8.85)	8.47 (6.68-10.2)	9.96 (7.58-12.3)	11.2 (8.22-14.0)
24-hr	2.27 (1.99-2.58)	3.14 (2.76-3.58)	4.43 (3.88-5.07)	5.49 (4.79-6.30)	7.05 (6.08-8.12)	8.34 (7.14-9.64)	9.74 (8.23-11.3)	11.3 (9.39-13.2)	13.5 (11.0-15.9)	15.3 (12.3-18.2)
2-day	2.80 (2.48-3.18)	3.92 (3.47-4.46)	5.55 (4.88-6.33)	6.91 (6.05-7.91)	8.89 (7.72-10.2)	10.5 (9.06-12.2)	12.3 (10.5-14.3)	14.3 (12.0-16.7)	17.1 (14.0-20.2)	19.5 (15.7-23.1)
3-day	3.02 (2.67-3.43)	4.22 (3.73-4.81)	5.97 (5.25-6.81)	7.42 (6.49-8.49)	9.51 (8.25-10.9)	11.2 (9.65-13.0)	13.1 (11.1-15.2)	15.1 (12.7-17.6)	18.0 (14.8-21.2)	20.4 (16.5-24.3)
4-day	3.24 (2.87-3.69)	4.52 (4.00-5.16)	6.38 (5.62-7.29)	7.92 (6.93-9.07)	10.1 (8.78-11.6)	11.9 (10.2-13.8)	13.9 (11.8-16.1)	16.0 (13.4-18.6)	19.0 (15.5-22.3)	21.4 (17.2-25.4)
7-day	3.60 (3.19-4.10)	5.03 (4.45-5.73)	7.09 (6.23-8.08)	8.74 (7.64-9.99)	11.1 (9.61-12.7)	13.0 (11.2-15.0)	15.0 (12.7-17.4)	17.2 (14.4-20.0)	20.2 (16.6-23.8)	22.7 (18.2-26.9)
10-day	3.92 (3.47-4.45)	5.48 (4.82-6.22)	7.68 (6.72-8.72)	9.44 (8.22-10.7)	11.9 (10.3-13.6)	13.9 (11.9-16.0)	16.0 (13.5-18.5)	18.2 (15.2-21.1)	21.3 (17.3-24.9)	23.7 (19.0-28.0)
20-day	4.63 (4.11-5.27)	6.46 (5.71-7.35)	8.98 (7.91-10.2)	11.0 (9.61-12.5)	13.7 (11.9-15.7)	15.8 (13.6-18.3)	18.0 (15.3-20.9)	20.3 (17.0-23.7)	23.5 (19.2-27.6)	25.9 (20.8-30.7)
30-day	5.20 (4.60-5.91)	7.25 (6.43-8.25)	10.1 (8.87-11.5)	12.2 (10.7-14.0)	15.2 (13.2-17.4)	17.4 (15.0-20.1)	19.7 (16.8-22.9)	22.1 (18.6-25.8)	25.3 (20.8-29.8)	27.8 (22.4-32.9)
45-day	6.06 (5.38-6.89)	8.46 (7.50-9.63)	11.7 (10.3-13.3)	14.2 (12.4-16.2)	17.5 (15.2-20.0)	20.0 (17.2-23.0)	22.5 (19.1-26.1)	25.0 (21.0-29.2)	28.4 (23.3-33.4)	30.9 (24.9-36.7)
60-day	6.76 (6.00-7.68)	9.44 (8.37-10.7)	13.0 (11.5-14.9)	15.7 (13.8-18.0)	19.3 (16.8-22.2)	22.1 (19.0-25.5)	24.8 (21.0-28.7)	27.5 (23.0-32.1)	31.1 (25.5-36.6)	33.8 (27.2-40.1)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

**PF graphical**

### Climatology

The town of Lahaina, which is 5.5 miles north of Olowalu, has recorded temperatures ranging from the high 80's to the low 60's. Rainfall in the Olowalu area ranges between 15 to 20 inches per year.

### Soil Type and Ground Cover

The soils underlying the site are from the Pulehu-Ewa-Jaucas association, which consist of well-drained soils developed in alluvium washed from igneous rock. Pulehu Cobbly Clay Loam and Pulehu Clay Loam are the specific soil types to the project site. Pulehu Cobbly Clay Loam is a well-drained soil with moderate permeability. Pulehu Clay Loam has similar characteristics, but is more excessively drained and calcareous.

### FEMA Flood Zone Delineation

Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency (FEMA), indicates that the project site is located within Zone VE. Zone VE is defined as a coastal flood zone with velocity hazard (wave action); base flood elevation determined.

## HYDROLOGIC AND HYDRAULIC METHODOLOGIES

The "Design Criteria for Highway Drainage", State of Hawaii Department of Transportation, Highways Division, dated October 1, 2010 will be used for determining existing and developed drainage conditions. The recurrence interval of 25 years was selected for the analysis of existing drainage facilities for a principal arterial.

The rational method ( $Q=CIA$ ) is used to estimate the storm runoff from drainage areas, where:

- Q = design rate of flow in cubic feet per second
- C = weighted rational coefficient for the drainage area
- I = rainfall intensity in inches per hour for a duration equal to the time of concentration
- A = drainage area in acres

### **Runoff Coefficient (C)**

The runoff coefficient was determined by the weighted average of the paved areas and grassed areas. A "C" value of 0.95 is used for the paved areas and a "C" value of 0.40 is used for the grassed areas.

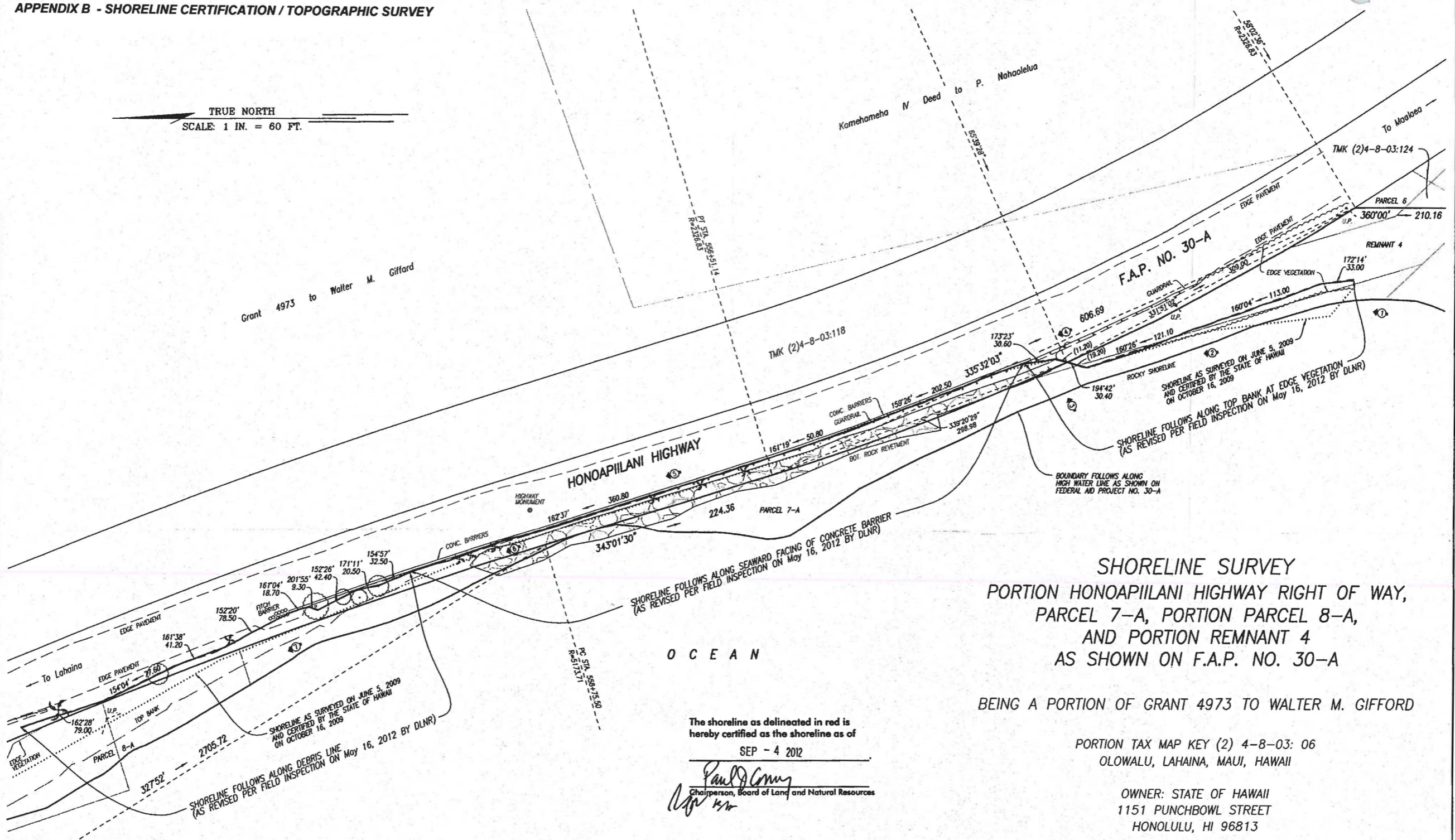
APPENDIX B - SHORELINE CERTIFICATION / TOPOGRAPHIC SURVEY

TRUE NORTH  
SCALE: 1 IN. = 60 FT.

Grant 4973 to Walter M. Gifford

Komehameha IV Deed to P. Nahaoleleua

To Maaloa



SHORELINE SURVEY  
PORTION HONOAPIILANI HIGHWAY RIGHT OF WAY,  
PARCEL 7-A, PORTION PARCEL 8-A,  
AND PORTION REMNANT 4  
AS SHOWN ON F.A.P. NO. 30-A

BEING A PORTION OF GRANT 4973 TO WALTER M. GIFFORD

PORTION TAX MAP KEY (2) 4-8-03: 06  
OLOWALU, LAHAINA, MAUI, HAWAII

OWNER: STATE OF HAWAII  
1151 PUNCHBOWL STREET  
HONOLULU, HI 96813

DATE: APRIL 13, 2012  
REVISED: JUNE 14, 2012

ControlPoint Surveying, Inc.  
1129 Lower Main Street, Suite 102  
Wailuku, HI 96793

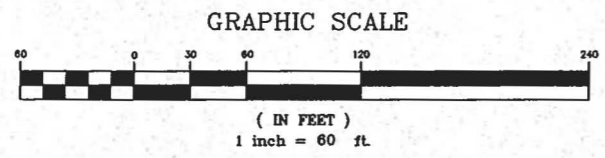
This work was prepared by me or under my supervision.  
*Norman K. Murakami*  
Norman K. Murakami  
Licensed Professional Land Surveyor  
Certificate No. LS-5824, Exp. 4/30/14



The shoreline as delineated in red is hereby certified as the shoreline as of  
SEP - 4 2012

*Paul D. Gray*  
Chairperson, Board of Land and Natural Resources

- Notes:
- ① indicates number and direction of photograph.
  - Boundary lines are referenced to the Highway Monument found at P.T. Sta. 533+73.66 as shown on construction plans for Lahaina - Wailuku Road, Olowalu Section F.A.P. No. 30-A.
  - Azimuths are referred to Government Triangulation Station "KILEA".
  - Shoreline survey performed on April 9, 2012.





## APPENDIX C – PHOTOGRAPHS

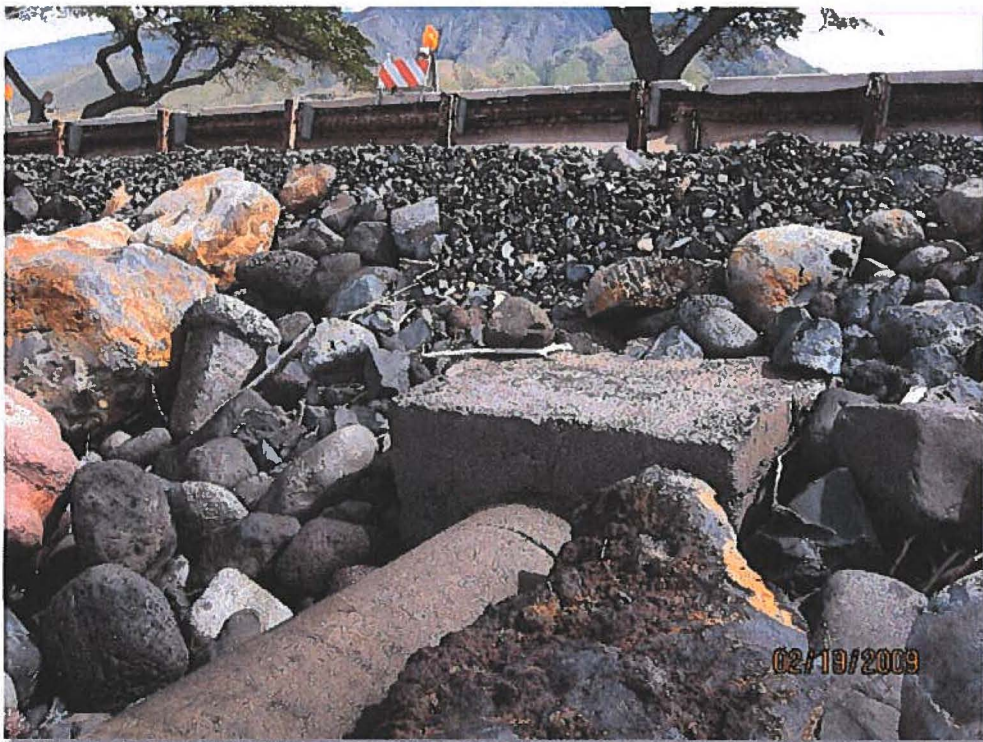


View of the project site, looking east. Photo taken in 2009.

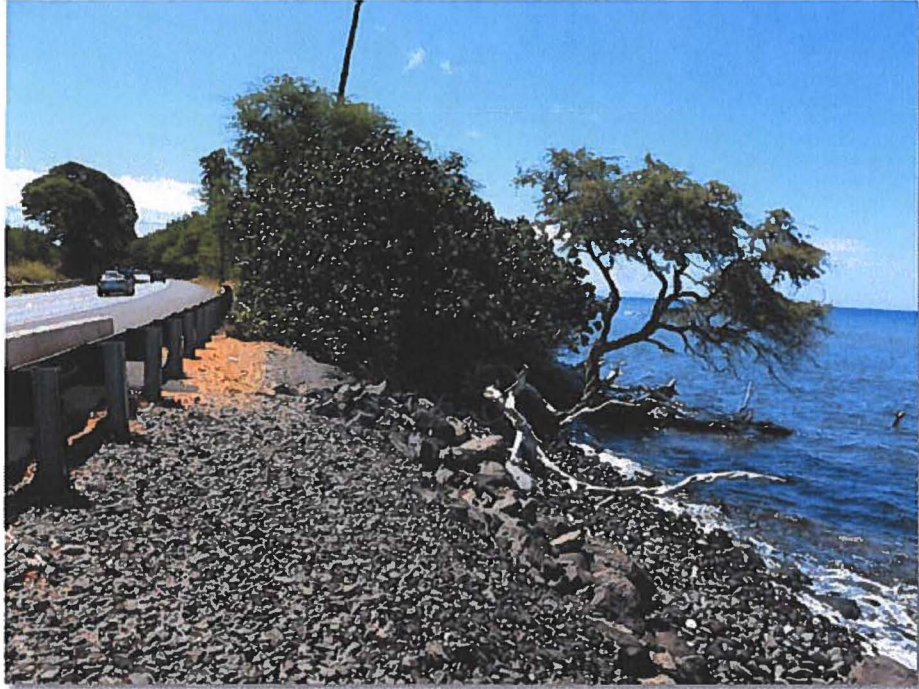


View of project site, looking west (toward Lahaina town).  
An emergency repair measure was constructed in 2009, shown in this photo taken in 2012.





Existing concrete drainline and concrete collar.



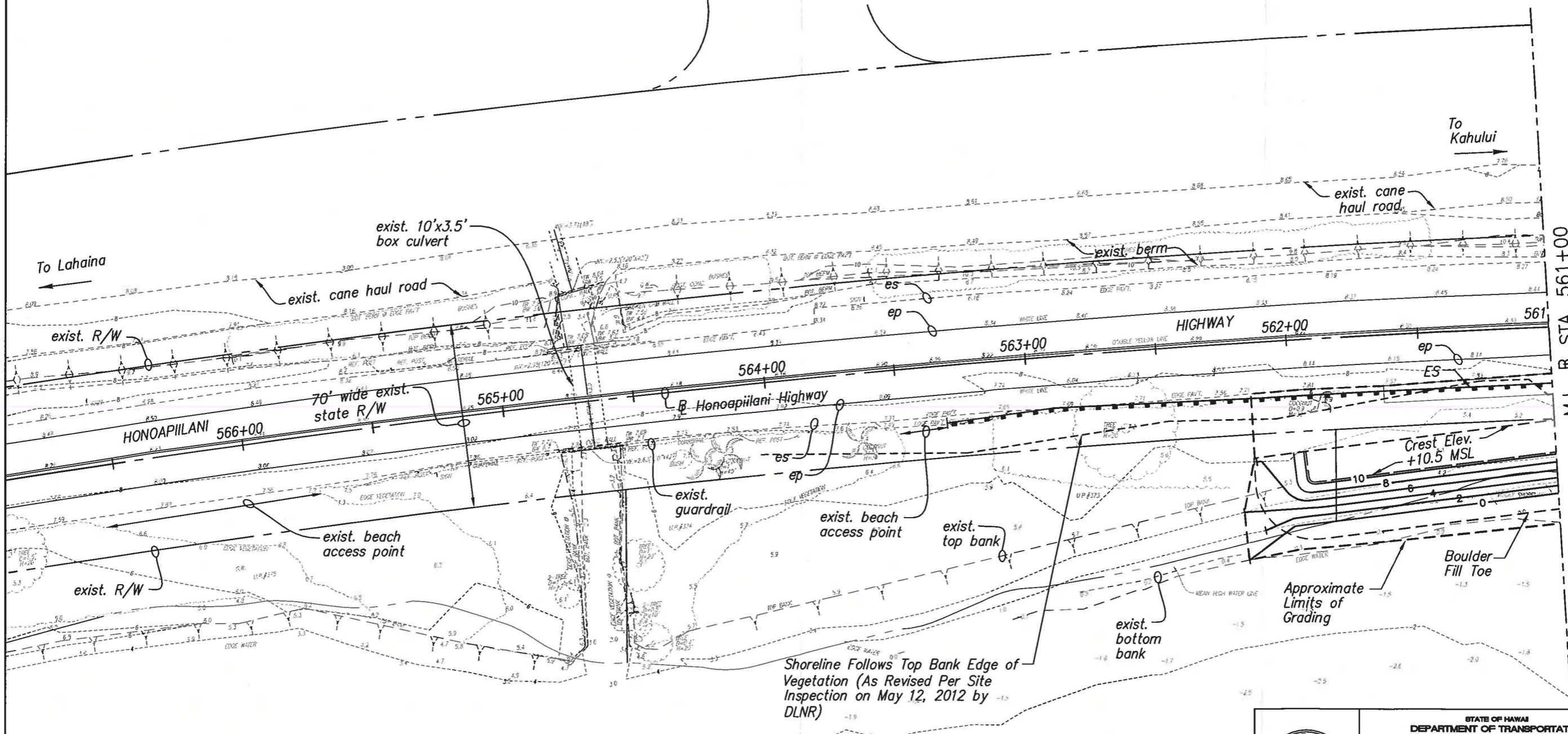
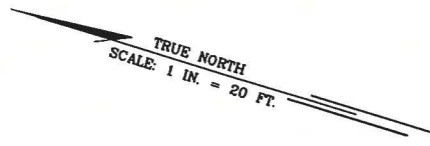
End of project site, marked by existing vegetation (looking east).



Existing beach access located west of the project site.  
Crash cushions shown in background mark the beginning of the project (looking east).

**APPENDIX D - GRADING PLANS & TYPICAL SECTIONS**

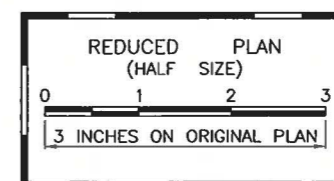
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	30C-02-04	2012	20	38



M.L. @ STA. 561+00  
REFER TO SHT. 21

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
QUANTIFIED BY	_____
CHECKED BY	_____
No.	_____

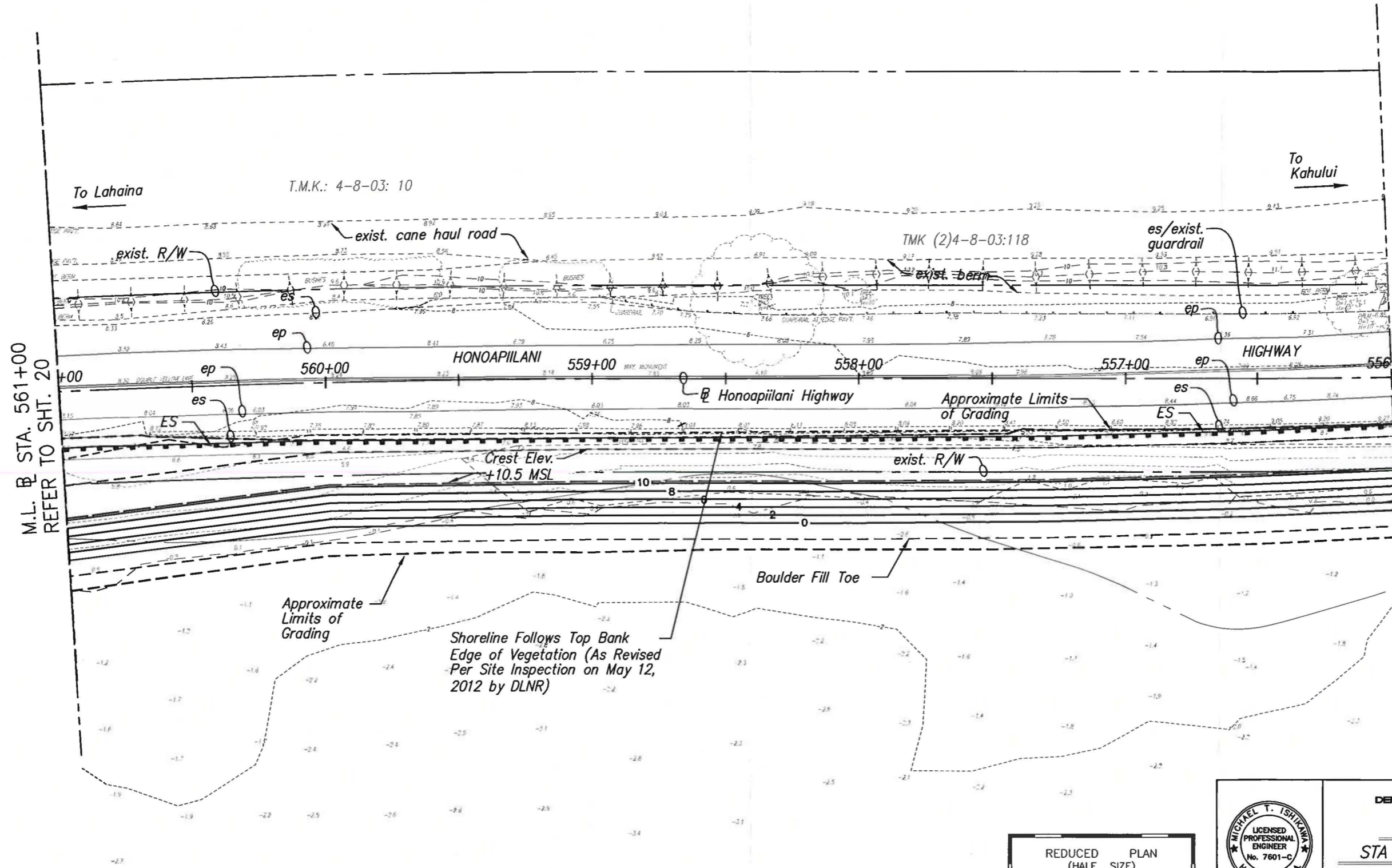
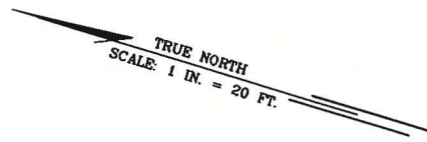
**GRADING PLAN**  
**STA 563+32± TO 561+00**  
 0 10 20 40 60 80  
 SCALE: 1" = 20'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
 SIGNATURE \_\_\_\_\_ EXPIRATION DATE OF THE LICENSE \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**GRADING PLAN**  
**STA 563+32± TO 561+00**  
 HONOAPIILANI HIGHWAY  
 Shoreline Improvements At Olowalu  
 Project No. 30C - 02 - 04  
 SCALE: 1" = 20' DATE: 07-02-2012  
**SHEET No. 1 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	30C-02-04	2012	21	38

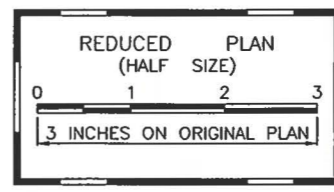


M.L. @ STA. 561+00  
REFER TO SHT. 20

M.L. @ STA. 556+00  
REFER TO SHT. 22

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
No.	

**GRADING PLAN**  
**STA 561+00 TO 556+00**  
 SCALE: 1" = 20'



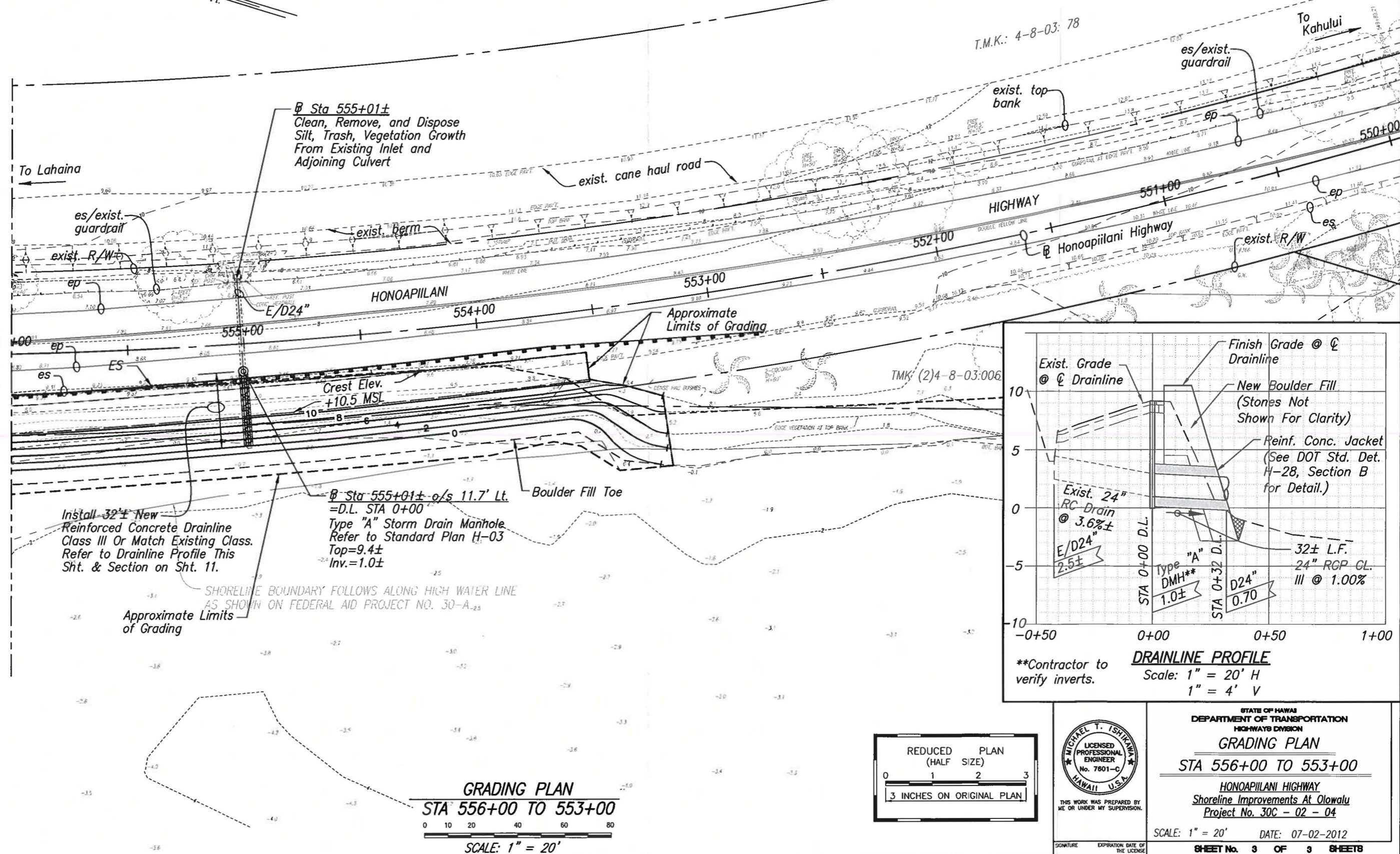
MICHAEL T. ISHIZUKA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 7601-C  
 HAWAII U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**GRADING PLAN**  
**STA 561+00 TO 556+00**  
 HONOAPIILANI HIGHWAY  
 Shoreline Improvements At Olowalu  
 Project No. 30C - 02 - 04  
 SCALE: 1" = 20'      DATE: 07-02-2012  
 SHEET No. 2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	30C-02-04	2012	22	38

TRUE NORTH  
SCALE: 1 IN. = 20 FT.

M.L. @ STA. 556+00  
REFER TO SHT. 21



DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
TRACED BY	_____
PLOTTED BY	_____
ORIGINAL PLAN No.	_____

**GRADING PLAN**  
STA 556+00 TO 553+00  
SCALE: 1" = 20'

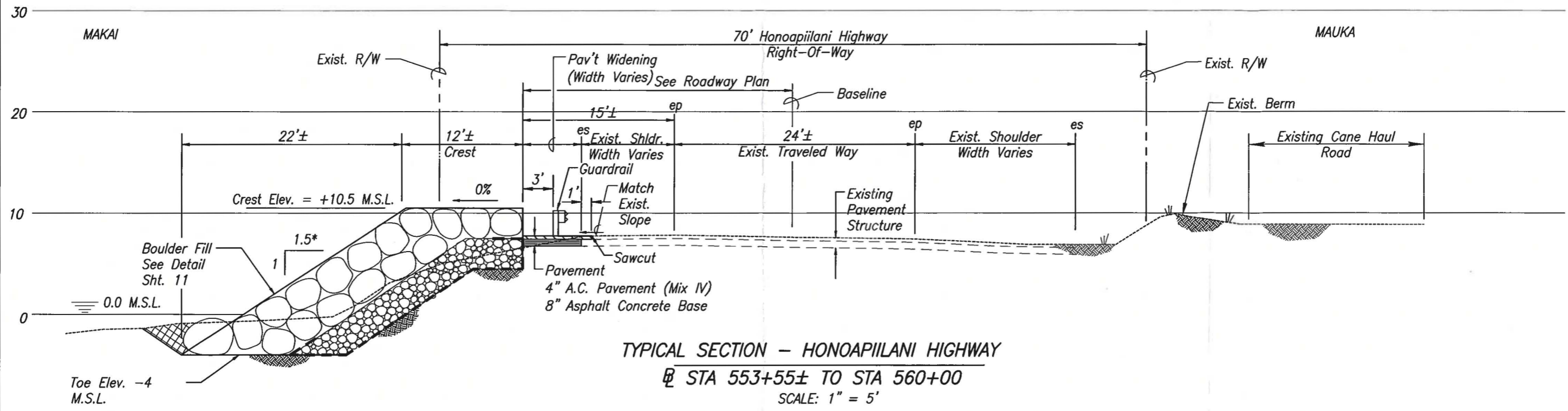
REDUCED PLAN (HALF SIZE)  
3 INCHES ON ORIGINAL PLAN



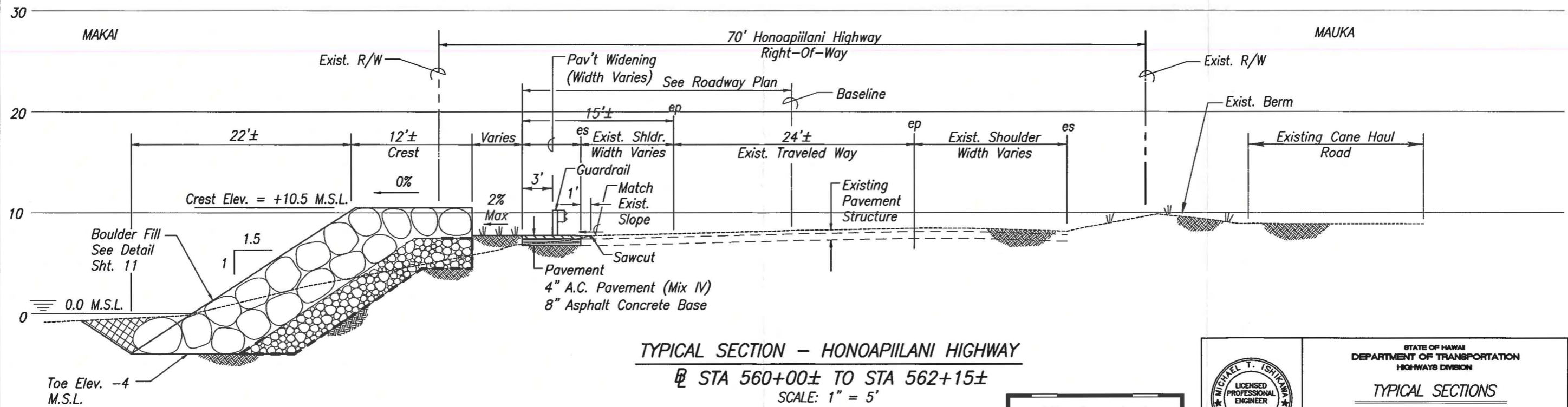
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
SIGNATURE \_\_\_\_\_ EXPIRATION DATE OF THE LICENSE \_\_\_\_\_

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**GRADING PLAN**  
STA 556+00 TO 553+00  
HONOAPIILANI HIGHWAY  
Shoreline Improvements At Olowalu  
Project No. 30C - 02 - 04  
SCALE: 1" = 20' DATE: 07-02-2012  
SHEET No. 3 OF 3 SHEETS

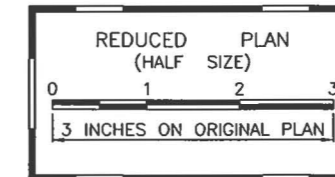
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	30C-02-04	2012	10	38



\*Slope varies @ Sta. 550+70± To Sta. 553+55±



DATE	_____
BY	_____
CHECKED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
NO. _____	



MICHAEL T. ISHIZAWA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 7601-C  
 HAWAII U.S.A.

4/30/2014  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

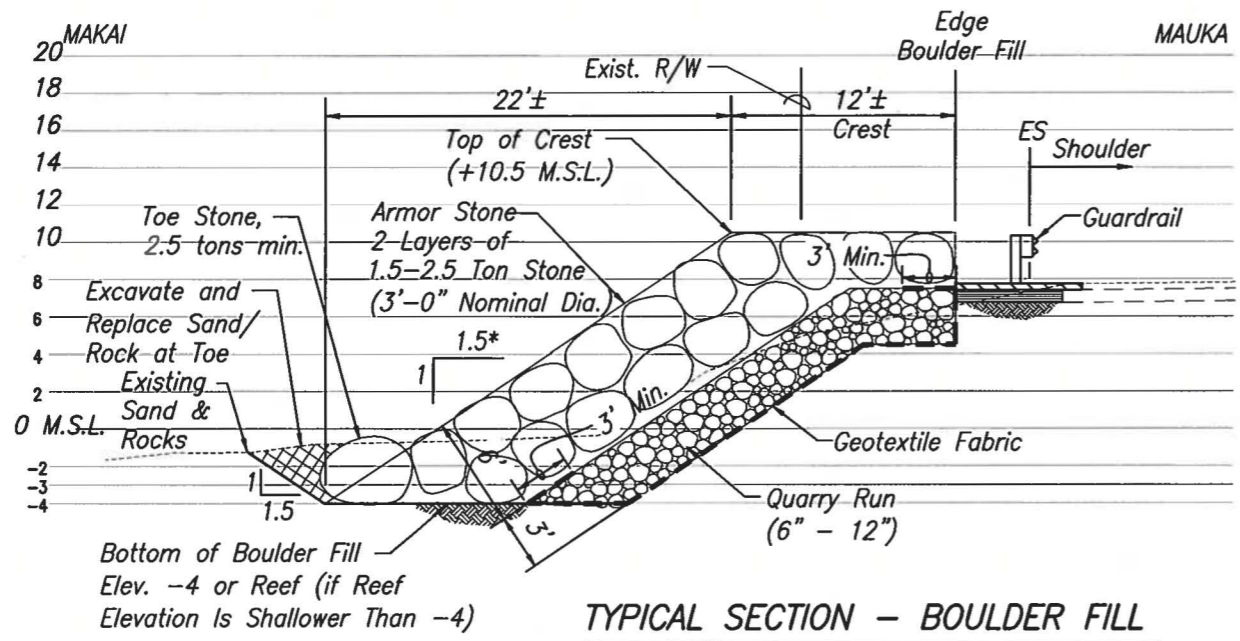
**TYPICAL SECTIONS**

HONOAPIILANI HIGHWAY  
 Shoreline Improvements At Olowalu  
 Project No. 30C - 02 - 04

SCALE: 1" = 5'      DATE: 07-02-2012

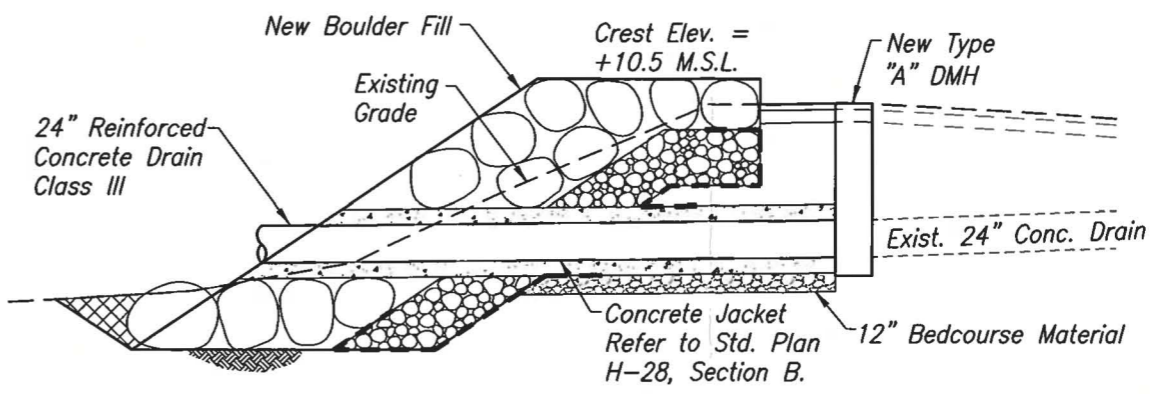
SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	30C-02-04	2012	11	38

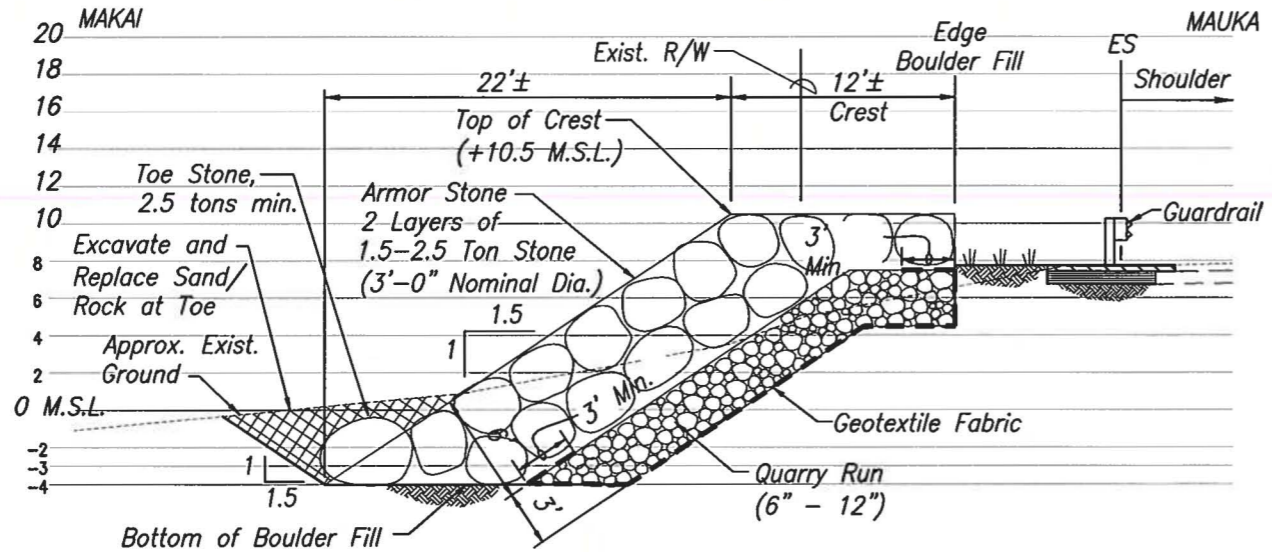


**TYPICAL SECTION - BOULDER FILL**  
 @ STA 553+55± TO STA 560+00±  
 SCALE: 1" = 5'

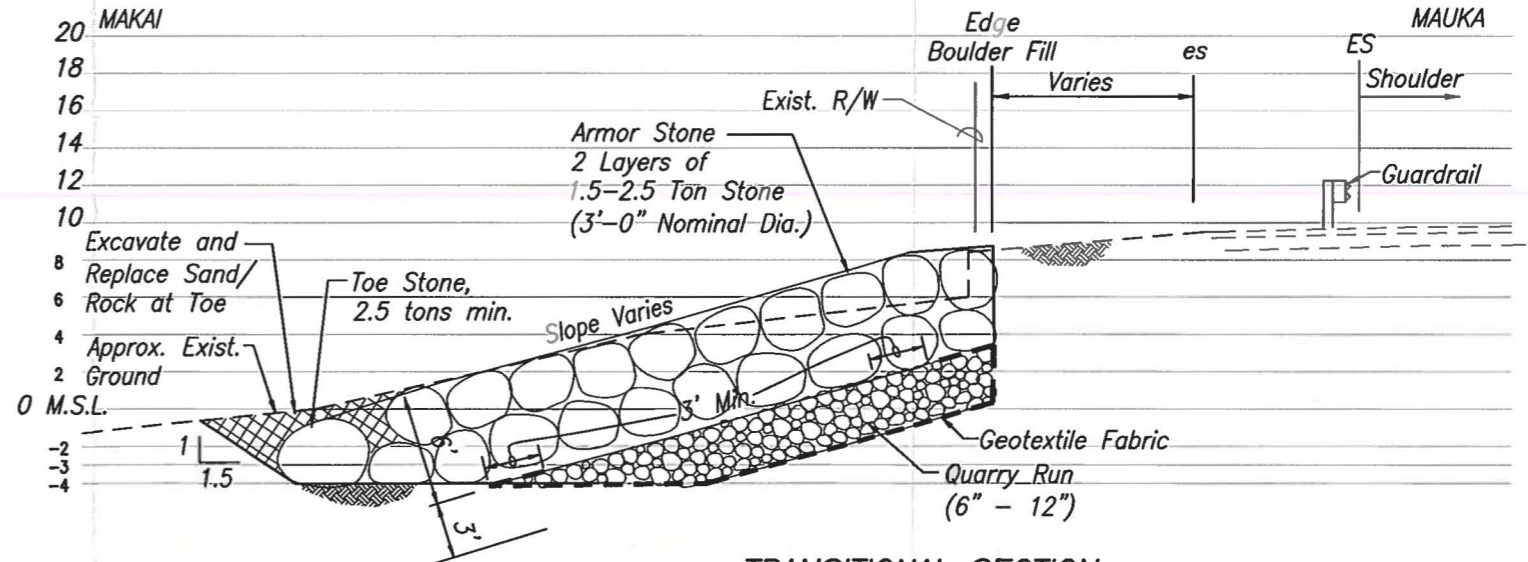
\*Slope varies @ Sta. 550+70± To Sta. 553+55±



**DRAINLINE SECTION**  
 @ STA 555+01  
 SCALE: 1/4" = 1'

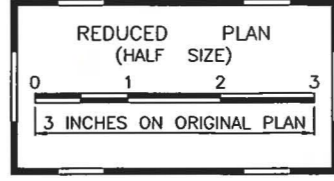


**TYPICAL SECTION - BOULDER FILL**  
 @ STA 560+00± TO STA 562+15±  
 SCALE: 1" = 5'



**TRANSITIONAL SECTION**  
 @ STA 553+25± TO STA 553+55±  
 SCALE: 1" = 5'

DATE: \_\_\_\_\_  
 SURVEY PLOTTED BY: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 ORIGINAL PLAN No. \_\_\_\_\_



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TYPICAL SECTIONS**  
 HONOAPIILANI HIGHWAY  
 Shoreline Improvements At Olowalu  
 Project No. 30C - 02 - 04  
 SCALE: AS NOTED DATE: 07-02-2012  
 SHEET No. 2 OF 2 SHEETS

**EXHIBIT E.**

**Validation of Drainage Report**





**Sato & Associates, Inc.**

**Consulting Engineers**

2115 Wells Street, Maui, Hawaii 96793  
OFFICES IN HONOLULU AND MAUI  
www.satoandassociates.com

Tel. (808) 244-9265  
Fax (808) 244-5303  
mailbox@satoandassociates.com

April 8, 2016

Keith Scott, Staff Planner  
Department of Planning  
County of Maui  
2200 Main Street, Suite 315  
Wailuku, Hawai'i 96793

**Subject:** Drainage Report for State of Hawai'i, Department of Transportation (HDOT) Proposed Honoapi'ilani Highway Shoreline Protection Project at Olowalu, Island of Maui, Hawai'i; TMK (2)4-8-003:006 (por.); SM1 2009/0005, SSV 2009/0001

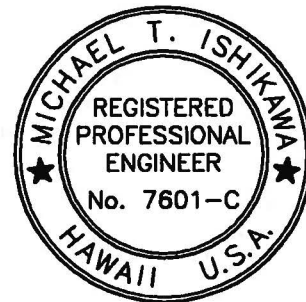
Dear Mr. Scott:

As a Licensed Professional Engineer in the State of Hawai'i, I certify that the Drainage Report for the Honoapi'ilani Highway Shoreline Protection Project in Olowalu, Maui, Hawai'i, prepared in November 2012 for the State of Hawai'i, Department of Transportation is valid for the purpose of said project.

Very truly yours,

SATO & ASSOCIATES, INC.

MICHAEL T. ISHIKAWA  
Vice President



cc: Gwendolyn Rivera, Munekiyo Hirage

DAVID Y. IGE  
GOVERNOR



FORD N. FUCHIGAMI  
DIRECTOR

Deputy Director  
JADE T. BUTAY  
ROSS M. HIGASHI  
EDWIN H. SNIFFEN  
DARRELL T. YOUNG

DEPT. OF TRANSPORTATION  
CURRENT DIV RECEIVED

16 FEB 25 10:53

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:  
HWY-DS 2.0809

February 24, 2016

Mr. William Spence, Director  
Department of Planning  
County of Maui  
2200 Main Street, Suite 315  
Wailuku, Hawai'i 96793

COUNTY OF MAUI  
DEPT. OF PLANNING  
CURRENT DIV RECEIVED

Dear Mr. Spence:

Subject: Special Management Area (SMA) Use Permit Time Extension Request for State of Hawai'i, Department of Transportation (HDOT) Proposed Honoapi'ilani Highway Shoreline Protection Project at Olowalu, Maui, Hawai'i (TMK (2) 4-8-003:006 (por.) (SM1 2009/0005) (SSV 2009/0001)

We are writing to you today to request consideration for a SMA Use Permit time extension for the Honoapi'ilani Highway Shoreline Protection project. This application to amend the time stipulation of the subject SMA Use Permit (SM1 2009/0005), as well as a time extension fee of \$165.00, are hereby being submitted to enable processing of this request.

At its meeting on April 26, 2011, the Maui Planning Commission voted to approve the SMA Use Permit and Shoreline Setback Variance (SSV) for the installation of an engineered shoreline protection measure to protect a portion of Honoapi'ilani Highway from high coastal wave action. An approximately 900-foot section of boulder fill was approved. A copy of the SMA Permit and SSV approval letter (dated May 18, 2011) is attached. See **Exhibit "A"**.

Standard Condition No. 1 of the SMA Use Permit reads as follows:

1. *That construction of the proposed project shall be initiated by May 31, 2014. Initiation of construction shall be determined as construction of onsite and/or offsite improvements, issuance of a foundation permit and initiation of construction of the foundation, or issuance of a building permit and initiation of building construction, whichever occurs first. Failure to comply within this three (3) year period will automatically terminate this SMA Use Permit unless a time extension is requested no later than ninety (90) days prior to the expiration of said three (3) year period. The Planning Director shall review and approve a time-extension request pursuant to Section 12-202-17 SMA Rules for the Commission.*

It is noted that a two (2) year time extension was sought in February 2014 for the project. At its May 27, 2014 meeting, the Maui Planning Commission voted to waive their review of the time extension request. The Project was granted an extension by the Department of Planning to initiate construction by May 31, 2016. See **Exhibit "B"**.

The following reason is offered as justification for the time extension request:

1. Since the granting of the SMA and SSV approvals for the project, HDOT secured other regulatory permit approvals needed to proceed with the project. Included in the regulatory reviews are Department of Army approvals, Conservation District Use Permit (filed with the Department of Land and Natural Resources (DLNR) in May 2013), as well as approval of the Categorical Exclusion (CatEx) by the Federal Highway Administration (FHWA) on the National Environmental Policy Act (NEPA) requirements for the project. The NEPA requirements are "triggered" by the use of Federal funds for the project. The CatEx approval for the project was received in September 2015.

HDOT is requesting a two (2) year time extension to initiate construction on the project. The contractor for the project has been selected by HDOT and is initiating the preliminary construction activities, however, actual construction is not anticipated to begin until the Fall of 2016 to avoid the coral spawning season as well as a reduced chance of high coastal wave action in the project area. Thus, the new date to initiate construction by would be May 31, 2018.

We also provide the following information to address the SMA time extension criteria by the Maui Planning Commission:

1. *An analysis of whether any changes have occurred within the special management area since the granting of the permit that may cause the permit holder's development to have a substantial adverse environmental or ecological effect.*

There have been no changes in the SMA in the vicinity of the project area which would alter the proposed action's impact on the environment. To our knowledge, construction activity in the Olowalu area has been minimal, with mainly individual residence construction, mauka of the Honoapi'ilani Highway.

2. *An analysis of whether any changes have occurred within the special management area since the granting of the permit that may cause the permit holder's development to adversely affect the capacity or condition of infrastructure.*

Since the granting of the SMA permit, there have been no significant changes in the local environment or surrounding properties which would otherwise affect changes in conditions to water and wastewater demand or capacity. Moreover, there have been no significant changes to surrounding conditions which would alter traffic or drainage impact parameters.

It is noted that a two (2) year time extension was sought in February 2014 for the project. At its May 27, 2014 meeting, the Maui Planning Commission voted to waive their review of the time extension request. The Project was granted an extension by the Department of Planning to initiate construction by May 31, 2016. See **Exhibit "B"**.

The following reason is offered as justification for the time extension request:

1. Since the granting of the SMA and SSV approvals for the project, HDOT secured other regulatory permit approvals needed to proceed with the project. Included in the regulatory reviews are Department of Army approvals, Conservation District Use Permit (filed with the Department of Land and Natural Resources (DLNR) in May 2013), as well as approval of the Categorical Exclusion (CatEx) by the Federal Highway Administration (FHWA) on the National Environmental Policy Act (NEPA) requirements for the project. The NEPA requirements are "triggered" by the use of Federal funds for the project. The CatEx approval for the project was received in September 2015.

HDOT is requesting a two (2) year time extension to initiate construction on the project. The contractor for the project has been selected by HDOT and is initiating the preliminary construction activities, however, actual construction is not anticipated to begin until the Fall of 2016 to avoid the coral spawning season as well as a reduced chance of high coastal wave action in the project area. Thus, the new date to initiate construction by would be May 31, 2018.

We also provide the following information to address the SMA time extension criteria by the Maui Planning Commission:

1. *An analysis of whether any changes have occurred within the special management area since the granting of the permit that may cause the permit holder's development to have a substantial adverse environmental or ecological effect.*

There have been no changes in the SMA in the vicinity of the project area which would alter the proposed action's impact on the environment. To our knowledge, construction activity in the Olowalu area has been minimal, with mainly individual residence construction, mauka of the Honoapi'ilani Highway.

2. *An analysis of whether any changes have occurred within the special management area since the granting of the permit that may cause the permit holder's development to adversely affect the capacity or condition of infrastructure.*

Since the granting of the SMA permit, there have been no significant changes in the local environment or surrounding properties which would otherwise affect changes in conditions to water and wastewater demand or capacity. Moreover, there have been no significant changes to surrounding conditions which would alter traffic or drainage impact parameters.

ALAN M. ARAKAWA  
Mayor

WILLIAM R. SPENCE  
Director

MICHELE CHOUTEAU McLEAN  
Deputy Director



MAY 24 2011

COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

May 18, 2011

CERTIFIED MAIL - #7008 0500 0002 0444 6495

Ms. Karen Chun, Project Manager  
Technical Design Services Office  
Design Branch, Highways Division  
Department of Transportation  
989 Punchbowl Street  
Honolulu, Hawaii 96813-5097

Dear Ms. Chun:

**SUBJECT: APPLICATION FOR A SPECIAL MANAGEMENT AREA (SMA) USE PERMIT AND SHORELINE SETBACK VARIANCE (SSV) FOR THE PROPOSED HONOAPI'LANI HIGHWAY SHORELINE PROTECTION, AT OLOWALU, ISLAND OF MAUI, HAWAII; TMK: (2) 4-8-003:006 (POR.) (SM1 2009/0005) (SSV 2009/0001)**

At the regular meeting on April 26, 2011, the Maui Planning Commission (Commission) reviewed the above applications, accepted testimony and exhibits, and after due deliberation, made the five determinations listed in the Recommendation report prepared by the Department of Planning (Department) for the April 26, 2011 meeting, and hereby orders approval of said Shoreline Setback Variance application, subject to the following conditions.

1. To maintain and require safe lateral access to and along the shoreline for public use.
2. To minimize risk of adverse impacts on beach processes.
3. To minimize risk of structures falling and becoming loose rocks or rubble on public property.
4. To minimize adverse impacts on public views to, from, and along the shoreline. For purposes of this section only, "adversely impacts public views" means the adverse impact on public views and open space resources caused by new building structures exceeding a one-story or thirty-foot height limitation.
5. To comply with Chapters 19.62 and 20.08, Maui County Code, relating to flood hazard districts and erosion and sedimentation control respectively.

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793  
MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7634  
CURRENT DIVISION (808) 270-8205; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

**EXHIBIT "A"**

Ms. Karen Chun, Project Manager  
May 18, 2011  
Page 2

The Commission also and hereby orders approval of said SMA Use Permit with the following conditions:

**STANDARD CONDITIONS:**

1. That construction of the proposed project shall be initiated by May 31, 2014. Initiation of construction shall be determined as construction of onsite and/or offsite improvements, issuance of a foundation permit and initiation of construction of the foundation, or issuance of a building permit and initiation of building construction, whichever occurs first. Failure to comply within this three (3) year period will automatically terminate this SMA Use Permit unless a time extension is requested no later than ninety (90) days prior to the expiration of said three (3) year period. A time extension shall be in accordance with the provisions of Section 12-202-17 of the SMA Rules for the Commission.
2. That the construction of the project shall be completed within five (5) years after the date of its initiation. Failure to complete construction of this project within this time period will require unfinished portions of the project to obtain a new SMA Permit. A time extension shall be requested no later than ninety (90) days prior to the completion deadline. A time extension shall be in accordance with the provisions of Section 12-202-17 of the SMA Rules for the Commission.
3. The permit holder or any aggrieved person may appeal to the Commission any action taken by the Planning Director on the subject permit no later than ten (10) days from the date the Director's action is reported to the Commission.
4. That final construction shall be in substantial compliance with the Boulder Fill Plan, Drainline Section, End and Typical Sections included in the Final Environmental Assessment, Proposed Honoapiilani Highway Shoreline Protection, Olowalu, Maui, dated July, 2010.
5. That appropriate measures shall be taken during construction to mitigate the short term impacts of the project relative to dust and soil erosion from wind and water, ambient noise levels, and traffic disruptions.
6. That the subject SMA Use Permit shall not be transferred without prior written approval in accordance with Section 12-202-17(d) of the SMA Rules of the Commission. However, in the event that a contested case hearing preceded issuance of said SMA Use Permit, a public hearing shall be held upon due published notice, including actual written notice to the last known addresses of parties to said contested case and their counsel.
7. That full compliance with all applicable governmental requirements shall be rendered.
8. That the Applicant shall submit plans regarding the location of any construction related structures such as, but not limited to trailers, sheds, equipment and storage areas and fencing to be used during the construction phase to the Department for review and approval.

9. That the applicant shall submit to the Department five (5) copies of a detailed report addressing its compliance with the conditions established with the subject SMA Use Permit. A preliminary report shall be reviewed and approved by the Department prior to the commencement of work on the site. A final compliance report shall be submitted to the Department for review and approval prior to the State's acceptance or completion of the work.
10. That the Applicant shall develop the property in substantial compliance with the representations made to the Commission in obtaining the SMA Use Permit. Failure to so develop the property may result in the revocation of the permit.

**PROJECT SPECIFIC CONDITIONS:**

11. That the Applicant shall obtain permits from the United States Army Corps of Engineers (Corps), pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, as well as a Section 401 Water Quality Certification, as applicable. The Applicant shall provide copies of the applications, approvals, and all correspondence to date with the Preliminary Compliance Report. Any subsequent correspondence or reports shall be included in the final compliance report.

Department of Health

12. That, to the satisfaction of the Clean Water Branch of the Department of Health, the Applicant shall coordinate with the Clean Water Branch to address applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for the project, if required, including the submittal of a Notice of Intent (NOI) for general permit coverage. Evidence of compliance with this condition shall be submitted with the Preliminary Compliance Report.
13. That the Applicant shall obtain permits from the Clean Water Branch of the Department of Health pursuant to Section 401 Water Quality Certification. The Applicant shall provide copies of the applications, approvals, and all correspondence with the Preliminary Compliance Report. Any subsequent correspondence or reports shall be included in the final compliance report.

Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD)

14. That, to the satisfaction of the DLNR-SHPD, a qualified archaeological monitor shall be present during those portions of the project which involve ground altering disturbance in order to document any historic properties which may be encountered and to provide mitigation measures as necessary. Please note that ground altering disturbance includes previously disturbed stratigraphy, as culturally significant subsurface deposits are often found in these contexts. As per Hawaii Administrative Rules (HAR), Section 13-279, prior to the commencement of ground altering disturbance associated with the proposed project, the project developer or developer's agent must submit an appropriately prepared monitoring plan to DLNR-SHPD for review and acceptance. Evidence of compliance with this condition shall be submitted with the Preliminary Compliance Report.

ALAN M. ARAKAWA  
Mayor

WILLIAM R. SPENCE  
Director

MICHELE CHOUTEAU McLEAN  
Deputy Director



COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

July 21, 2014

CERTIFIED MAIL - #7013 1710 0002 3790 8902

Mr. Glenn Okimoto, Ph.D, Director  
Department of Transportation  
Technical Design Services Office  
Design Branch, Highways Division  
869 Punchbowl Street  
Honolulu, Hawaii 96813-5097

**Attn: Shawn M. Clarke, Project Manager**

Dear Mr. Okimoto:

**SUBJECT: APPROVAL OF REQUEST TO AMEND CONDITION NO. 1 OF A SPECIAL MANAGEMENT AREA (SMA) USE PERMIT FOR THE PROPOSED HONOAPILANI HIGHWAY SHORELINE PROTECTION, AT OLOWALU, MAUI, HAWAII; TMK: (2) 4-8-003:006 (POR.) (SM1 2009/0005)**

Pursuant to Section 12-202-17(e) of the SMA Rules of the Maui Planning Commission (Commission), the Commission, at its regular meeting on May 27, 2014, reviewed the above request for a time extension of a SMA Permit, and after due deliberation, voted unanimously to acknowledge and waive review of the request.

Accordingly, the Department of Planning (Department) reviewed the subject request received on March 6, 2014, and hereby grants the request, subject to the following amended Condition No. 1 stated as: "That construction of the proposed project shall be initiated by **May 31, 2016**. Initiation of construction shall be determined as construction of onsite and/or offsite improvements, issuance of a foundation permit and initiation of construction of the foundation, or issuance of a building permit and initiation of building construction, whichever occurs first. Failure to comply by **May 31, 2016** will automatically terminate this SMA Use Permit unless a time extension is requested no later than ninety (90) days prior to **May 31, 2016**. A time extension shall be in accordance with the provisions of Section 12-202-17 of the SMA Rules for the Commission."

ONE MAIN PLAZA BUILDING / 2200 MAIN STREET, SUITE 315 / WAILUKU, MAUI, HAWAII 96793  
MAIN LINE (808) 270-7735 / FACSIMILE (808) 270-7634  
CURRENT DIVISION (808) 270-8205 / LONG RANGE DIVISION (808) 270-7214 / ZONING DIVISION (808) 270-7253

**EXHIBIT "B"**



Mr. Glenn Okimoto, Ph.D, Director  
Attn: Shawn M. Clarke, Project Manager  
July 21, 2014  
Page 2

Thank you for your cooperation. If additional clarification is required, please contact  
Current Planning Supervisor Jeffrey Dack at [jeffrey.dack@mauicounty.gov](mailto:jeffrey.dack@mauicounty.gov) or at (808) 270-6275.

Sincerely,



WILLIAM SPENCE  
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator (PDF)  
John S. Rapacz, Planning Program Administrator (PDF)  
Jeffrey P. Dack, Current Planning Supervisor (PDF)  
Maul Planning Commission  
Karlynn Fukuda, Munekiyo & Hiraga, Inc.  
Development Services Administration  
Project File  
General File

WRS:JPD:nt

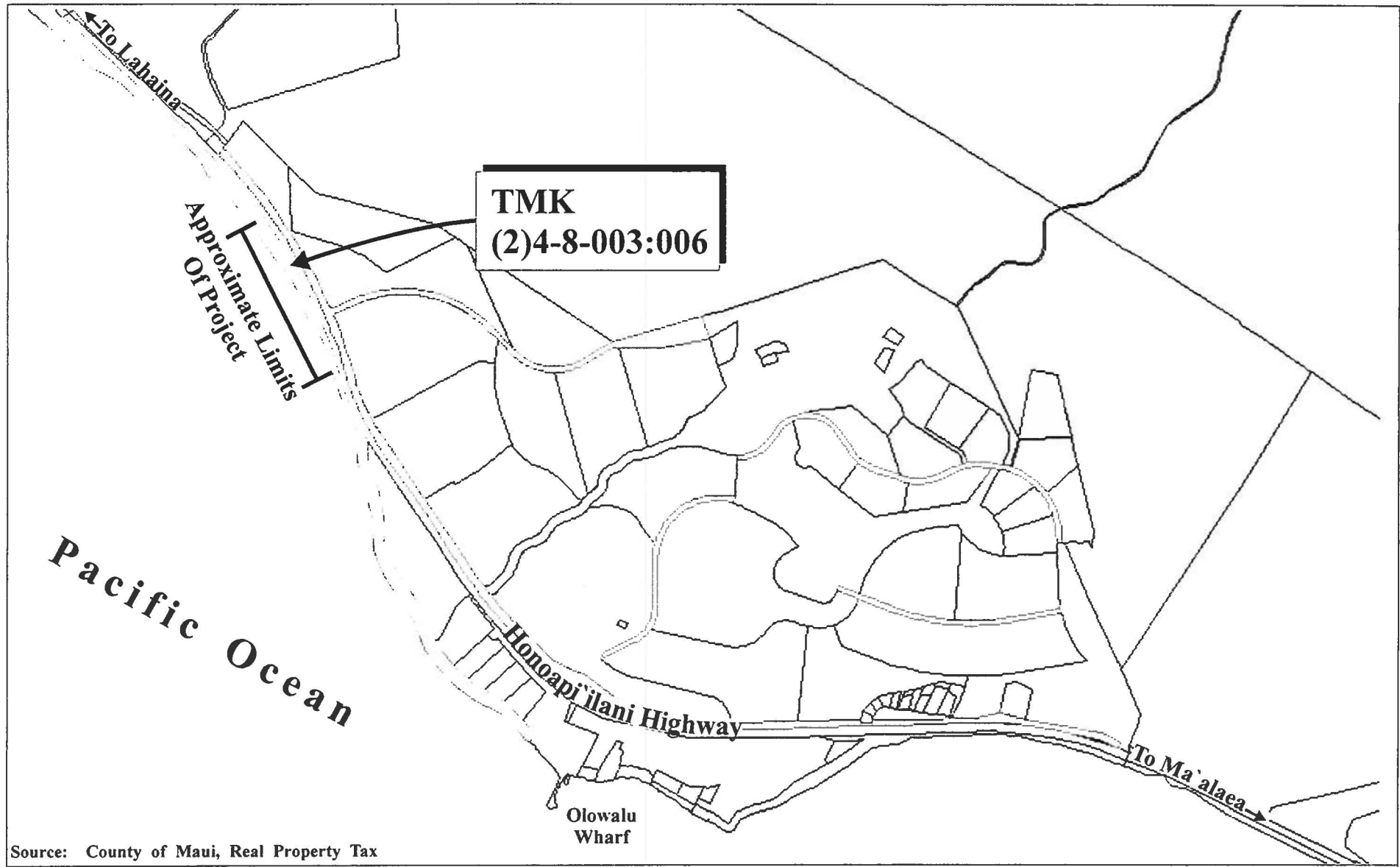
K:\WP\_DOCS\PLANNING\SM1\2009\0005\_Olowalu-revetment\Time Extension Approval 2014.doc

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**EXHIBIT A.**

**Site Location Map**

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Source: County of Maui, Real Property Tax

# Proposed Honoapiilani Highway Shoreline Protection Site Location Map

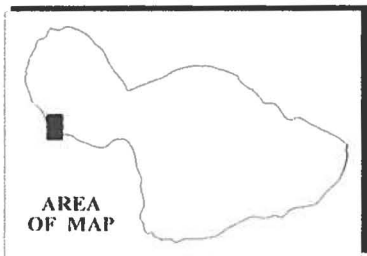
NOT TO SCALE



Prepared for: State of Hawaii, Department of Transportation

**EXHIBIT B.**

**Site Plan**



AREA OF MAP

Approximate Limits of Boulder Fill

Approx. 900 Feet

To Lahaina

To Maalaea

Honoapiilani Highway

SHORELINE FOLLOWS ALONG TOP BANK AS LOCATED ON MARCH 13, 2008.

BOULDER FILL SLOPE 1V:1.5H

EXTEND DRAINLINE/OUTLET

SHORELINE FOLLOWS ALONG TOP BANK AS LOCATED ON MARCH 13, 2008.

O C E A N

Pacific Ocean

Source: Sato & Associates, Inc.

### Proposed Honoapi'ilani Highway Shoreline Protection Boulder Fill Plan

NOT TO SCALE

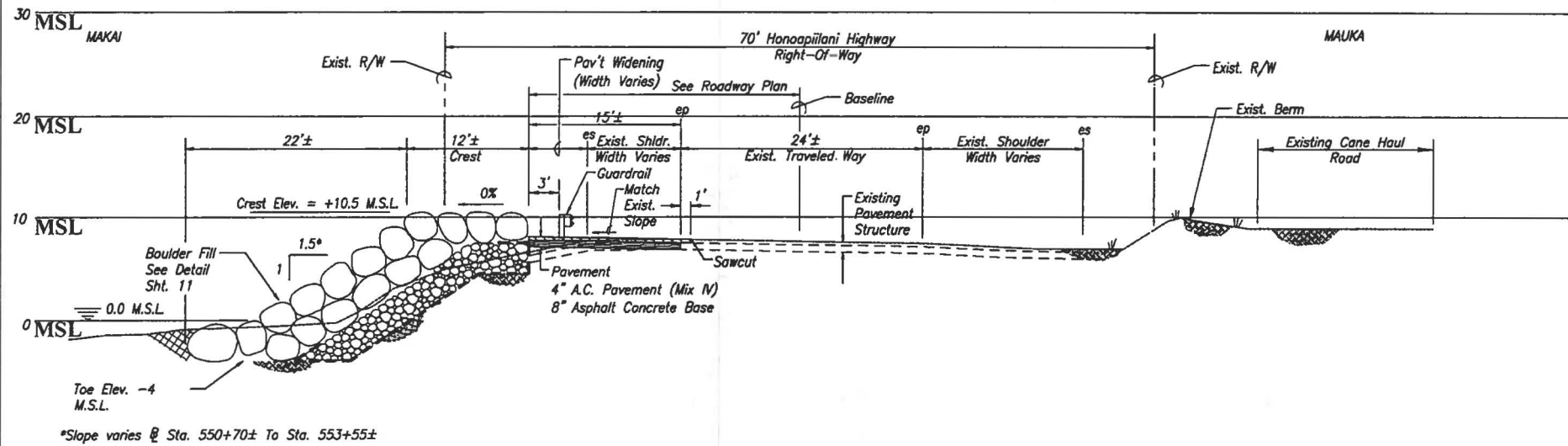


Prepared for: State of Hawaii, Department of Transportation

**EXHIBIT C.**

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**Elevations**



## Typical Section

Source: Sato & Associates, Inc.

# Proposed Honoapi'ilani Highway Shoreline Protection Typical Section

NOT TO SCALE

Prepared for: State of Hawaii, Department of Transportation

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**EXHIBIT D.**

**Drainage Report**

---



**EXHIBIT D.**

**Drainage Report**



## DRAINAGE REPORT

### HONOAPIILANI HIGHWAY SHORELINE PROTECTION LOWALU, MAUI, HAWAII

TMK: (2) 4-8-003:006(por.)

*Prepared for*

State of Hawaii

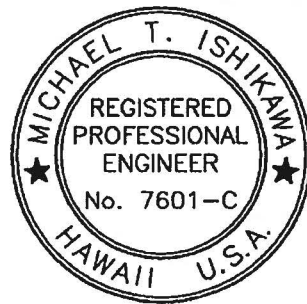
Department of Transportation, Highways Division

*Prepared by*



**Sato & Associates, Inc.**  
**Consulting Engineers**

2046 South King Street  
Honolulu, Hawaii 96826



This work was prepared by me or under my supervision.  
Expiration Date: 4/30/14

November 2012

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## **EXECUTIVE SUMMARY**

Currently along Honoapi'ilani Highway, a 900-foot stretch of shoreline is subject to erosion which has the potential to shut down the highway when large waves are present due to high-surf and storm events. It is the intent of this project to mitigate erosion and undermine of the roadway by installing a boulder fill. This report summarizes existing drainage patterns and analyzes the hydrological impacts due to new construction. It was determined that existing storm water runoff flow patterns are not altered post-development. An existing 24" drainline crossing Honoapi'ilani Highway will be extended to accommodate the boulder fill. The proposed improvements are not expected to adversely impact the adjacent properties.

## **INTRODUCTION**

### **Project Purpose**

This project entails preventative measures against erosion along Honoapi'ilani Highway, which falls under the jurisdiction of the State of Hawaii Department of Transportation. Honoapi'ilani Highway is a major access route to West Maui for commuters, visitors, and emergency vehicles traveling to and from the Central Maui area. A new boulder fill will serve as shoreline protection and reduce the frequency of road closures during high surf conditions and large wave action resulting from severe storms.

### **Scope of Work**

Within the project corridor, Honoapi'ilani Highway is a two-lane, paved roadway with paved shoulder areas on both sides. The improvements include placing boulders, geotextile fabric, filling and widening the existing road shoulder, and installing guardrail.

### **Location and Vicinity Maps**

The project is located in Olowalu, on the southern coast of the Island of Maui. The specific highway section is between approximate baseline stations 563+32 and 552+80 (mile post 15.7 to 15.9). Refer to Exhibits A and B.

## **GENERAL SITE CONDITIONS**

### **Land Use**

Surrounding land use includes the former Pioneer Mill Plantation Manager's residence property, Olowalu General Store, a restaurant and Camp Olowalu to the southwest. The Pacific Ocean is located to the west, and undeveloped agricultural land is located to the east.

### Climatology

The town of Lahaina, which is 5.5 miles north of Olowalu, has recorded temperatures ranging from the high 80's to the low 60's. Rainfall in the Olowalu area ranges between 15 to 20 inches per year.

### Soil Type and Ground Cover

The soils underlying the site are from the Pulehu-Ewa-Jaucas association, which consist of well-drained soils developed in alluvium washed from igneous rock. Pulehu Cobbly Clay Loam and Pulehu Clay Loam are the specific soil types to the project site. Pulehu Cobbly Clay Loam is a well-drained soil with moderate permeability. Pulehu Clay Loam has similar characteristics, but is more excessively drained and calcareous.

### FEMA Flood Zone Delineation

Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency (FEMA), indicates that the project site is located within Zone VE. Zone VE is defined as a coastal flood zone with velocity hazard (wave action); base flood elevation determined.

### HYDROLOGIC AND HYDRAULIC METHODOLOGIES

The "Design Criteria for Highway Drainage", State of Hawaii Department of Transportation, Highways Division, dated October 1, 2010 will be used for determining existing and developed drainage conditions. The recurrence interval of 25 years was selected for the analysis of existing drainage facilities for a principal arterial.

The rational method ( $Q=CIA$ ) is used to estimate the storm runoff from drainage areas, where:

- Q = design rate of flow in cubic feet per second
- C = weighted rational coefficient for the drainage area
- I = rainfall intensity in inches per hour for a duration equal to the time of concentration
- A = drainage area in acres

### **Runoff Coefficient (C)**

The runoff coefficient was determined by the weighted average of the paved areas and grassed areas. A "C" value of 0.95 is used for the paved areas and a "C" value of 0.40 is used for the grassed areas.

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### **Time of Concentration (Tc)**

Overland flow time is determined by using the hydraulic length and slope of the ultimate developed area to the intake point of the drainage system. The minimum time of concentration used was 10 minutes.

### **Rainfall Intensity (I)**

Rainfall intensity is determined by the storm's duration and frequency for each drainage sub-area. The precipitation estimate was based on the "Point Precipitation Frequency Estimate" for 25-year, 1-hour storm in Lahaina, Hawaii (data prepared by the NOAA Hydrometeorological Design Studies Center).

## **EXISTING DRAINAGE (OFFSITE AND ONSITE) CONDITIONS**

### **Narrative Description**

For the majority of the area of improvement, the roadway slopes away from the ocean. The stormwater runoff generated on site flows off the roadway to an existing headwall with a 24" drainline. This drainline crosses under the roadway and outlets to the ocean.

An existing earth berm located east of Honoapiilani Highway intercepts offsite runoff from flowing onto the roadway. Offsite stormwater is diverted to an existing 48" and 24" drainline located to the north and south of the project site, respectively. These drainlines also cross under the roadway and discharge to the ocean.

### **Hydrologic and Hydraulic Calculation Results**

Based on a 25-year recurrence interval, the total existing runoff discharging to the ocean is 4.76 cfs. See Appendix A for existing runoff calculations.

### **Drainage Maps**

Refer to Exhibit C for a runoff map showing existing drainage conditions.

### **Topographic Map**

Refer to Appendix B for topographic survey.

### **Photographs**

Refer to Appendix C for photographs of existing conditions.



## **PROPOSED DRAINAGE (OFFSITE AND ONSITE) CONDITIONS**

### **Narrative Description**

The existing 24" drainline that crosses beneath the roadway and outlets to the ocean will be extended to accommodate the shoreline improvements. A new concrete jacket will be installed at the drainline outlet. Existing storm water runoff flow patterns are not altered by the proposed improvements. The proposed improvements do not appear to adversely impact any of the adjacent properties.

### **Hydrologic and Hydraulic Calculation Results**

The post-construction runoff is 4.76 cfs.

### **Drainage Maps**

Refer to Exhibit D for a runoff map showing developed drainage conditions.

### **Construction Plans**

Refer to Appendix D for Grading Plans and Typical Sections.

## **REFERENCES**

1. *Design Criteria for Highway Drainage*. October 2010. State of Hawaii, Department of Transportation, Highways Division.
2. "NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES." NOAA's National Weather Service Hydrometeorological Design Studies Center. Web. 12 Nov 2012. [http://hdsc.nws.noaa.gov/hdsc/pfds/pfds\\_map\\_hi.html](http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_hi.html)
3. *Final Environmental Assessment – Proposed Honoapiilani Highway Shoreline Protection, Olowalu, Maui (TMK (2)4-8-003:006(por.)) Project No. 30C-02-04*. July 2010. Prepared by Munekiyo & Hiraga, Inc.

## **PROPOSED DRAINAGE (OFFSITE AND ONSITE) CONDITIONS**

### **Narrative Description**

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### **Hydrologic and Hydraulic Calculation Results**

The post-construction runoff is 4.76 cfs.

### **Drainage Maps**

Refer to Exhibit D for a runoff map showing developed drainage conditions.

### **Construction Plans**

Refer to Appendix D for Grading Plans and Typical Sections.

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1. *Design Criteria for Highway Drainage*. October 2010. State of Hawaii, Department of Transportation, Highways Division.
2. "NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES." NOAA's National Weather Service Hydrometeorological Design Studies Center. Web. 12 Nov 2012. [http://hdsc.nws.noaa.gov/hdsc/pfds/pfds\\_map\\_hi.html](http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_hi.html)
3. *Final Environmental Assessment – Proposed Honoapiilani Highway Shoreline Protection, Olowalu, Maui (TMK (2)4-8-003:006(por.)) Project No. 30C-02-04*. July 2010. Prepared by Munekiyo & Hiraga, Inc.



## EXHIBITS

- A** – VICINITY MAP
- B** – LOCATION MAP
- C** – RUNOFF MAP – EXISTING CONDITIONS
- D** – RUNOFF MAP – DEVELOPED CONDITIONS



PROJECT LOCATION



NORTH

ISLAND OF MAUI

NOT TO SCALE

**HONOAPIILANI HIGHWAY SHORELINE PROTECTION  
Drainage Report**

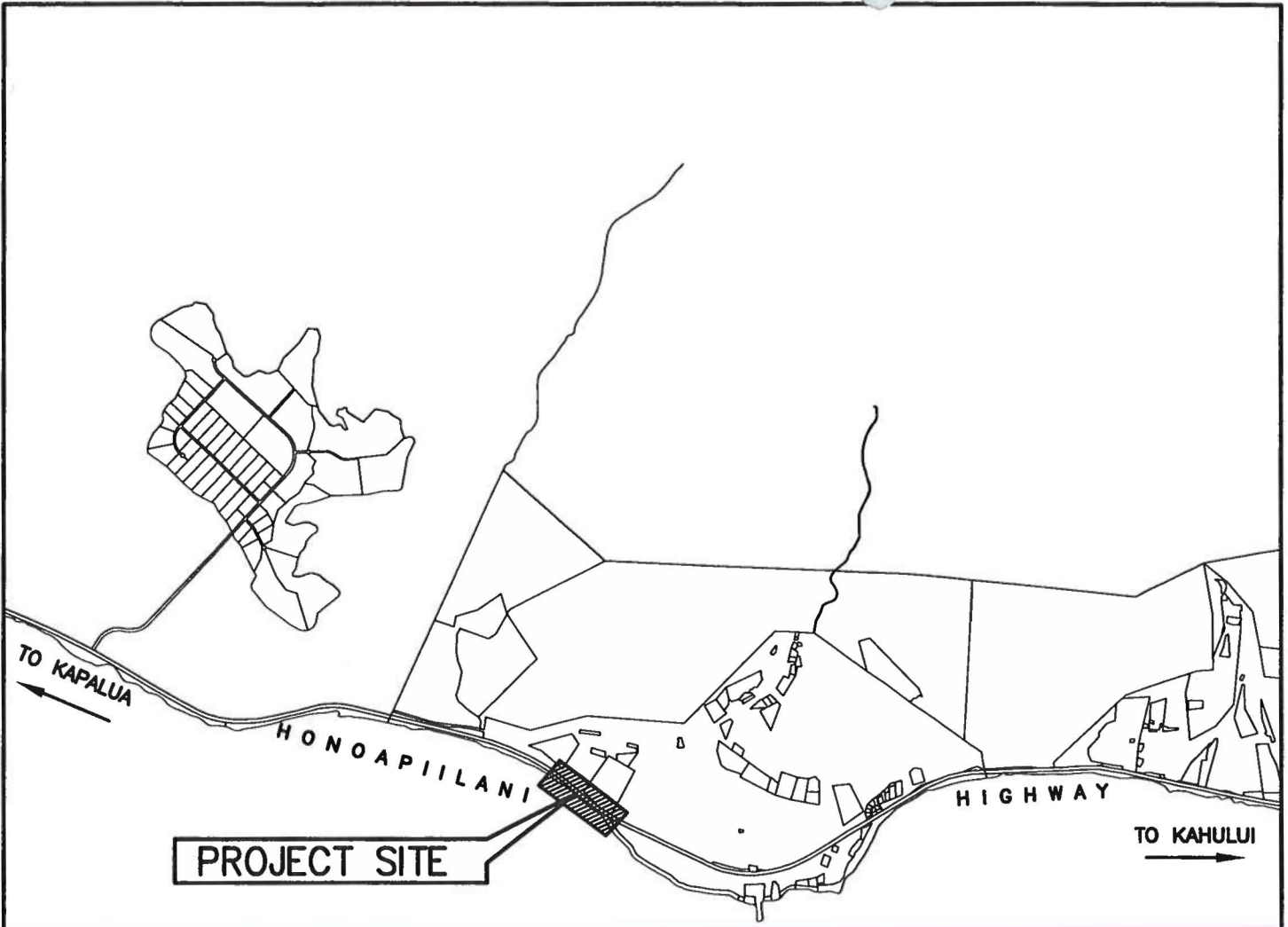


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**VICINITY MAP**

SCALE: NTS

EXHIBIT A



PACIFIC OCEAN



NORTH

# LOCATION MAP

NOT TO SCALE

## HONOAPIILANI HIGHWAY SHORELINE IMPROVEMENTS Drainage Report

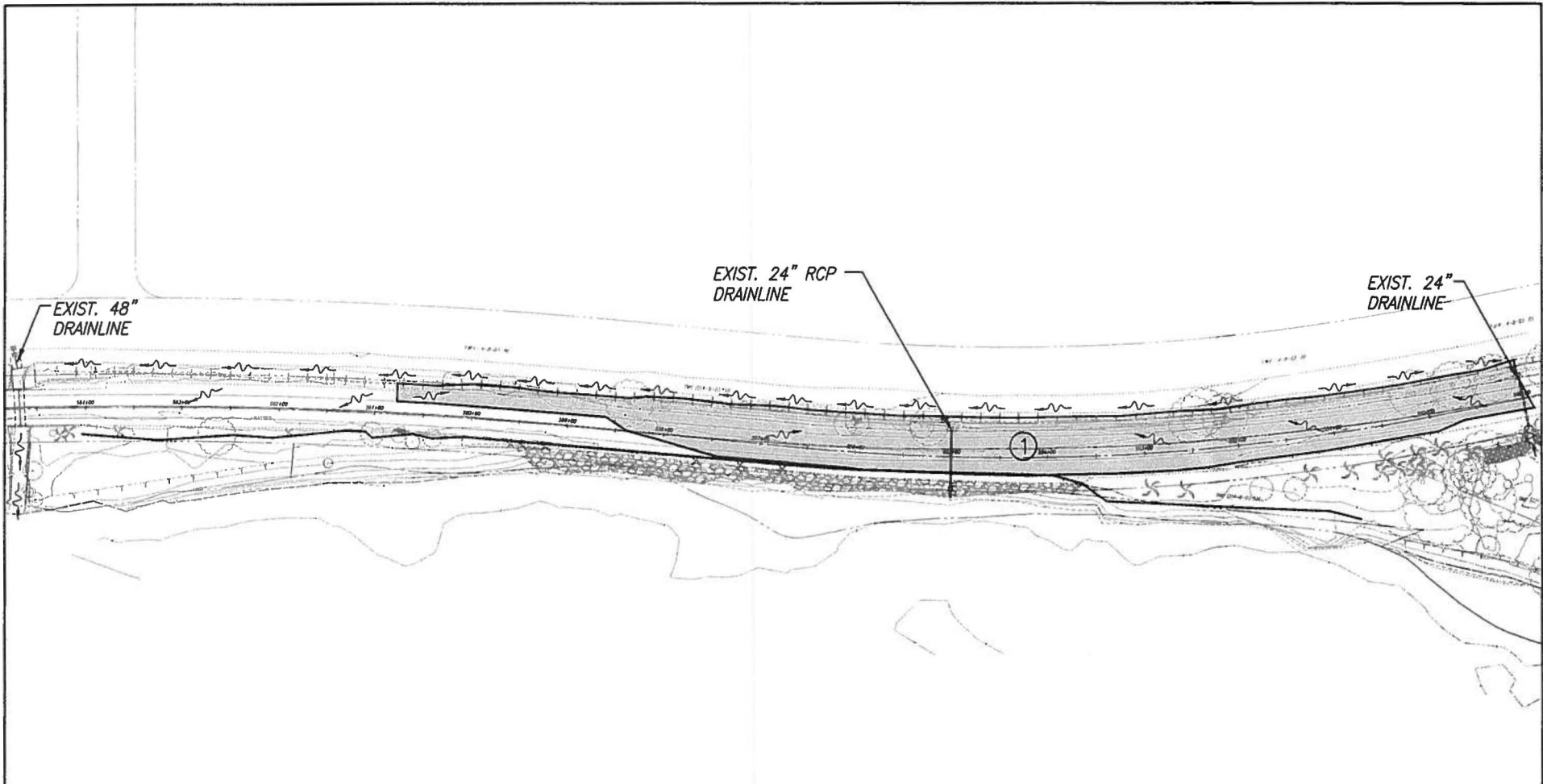


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LOCATION MAP

SCALE: As Shown

EXHIBIT B



EXIST. 24" RCP  
DRAINLINE

EXIST. 24"  
DRAINLINE

EXIST. 48"  
DRAINLINE




NORTH

**EXISTING RUNOFF CONDITIONS**



SCALE: 1" = 100'

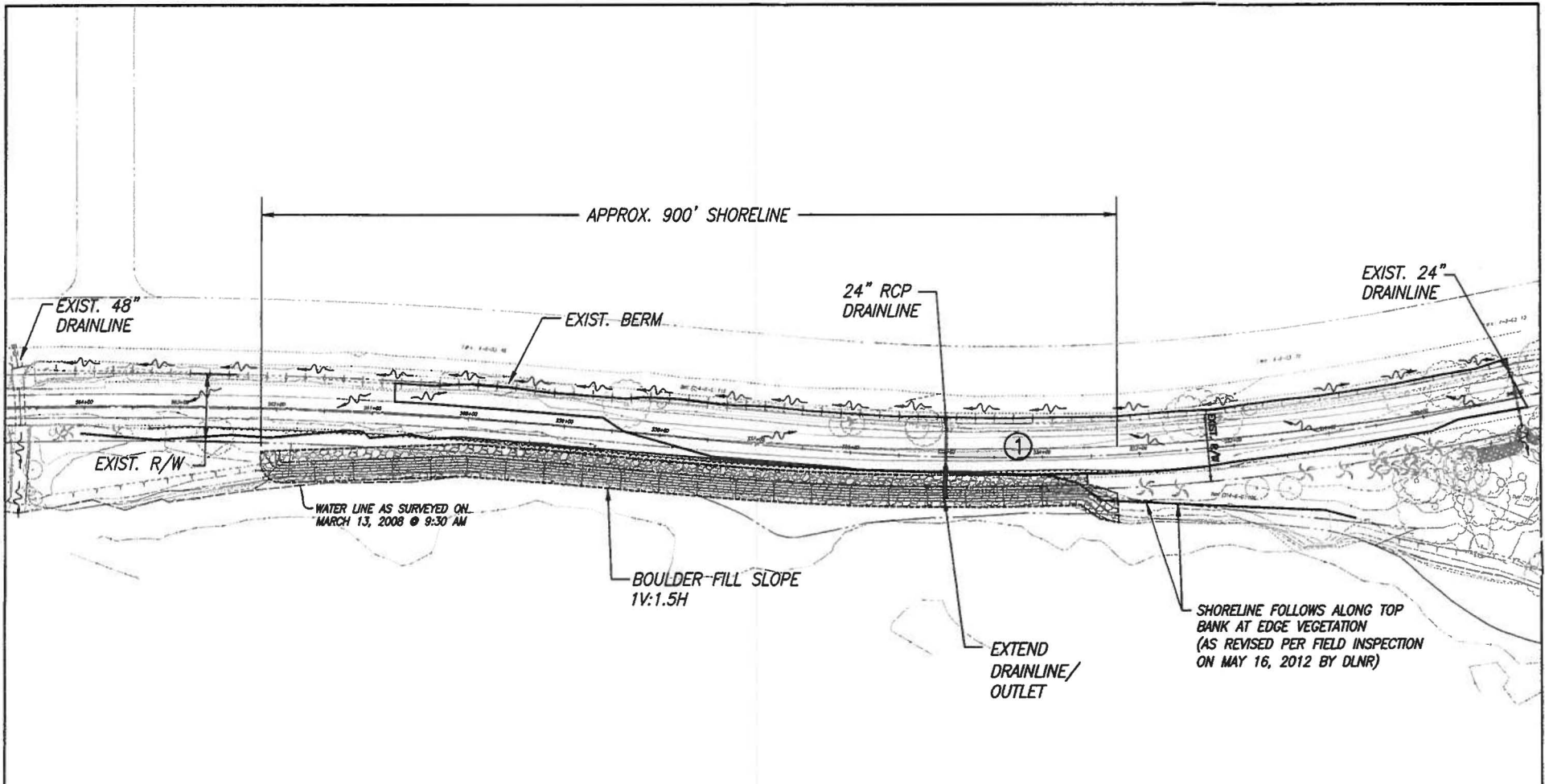
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**HONOAPIILANI HIGHWAY SHORELINE PROTECTION**

**RUNOFF MAP - EXISTING CONDITION**

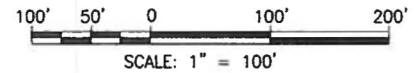
SCALE: 1"=100'

EXHIBIT C



NORTH

**DEVELOPED RUNOFF CONDITIONS**



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**HONOAPIILANI HIGHWAY SHORELINE PROTECTION**

**RUNOFF MAP - DEVELOPED CONDITION**  
 SCALE: 1"=100'      EXHIBIT D



# APPENDIX

- A** – *HYDROLOGIC RUNOFF CALCULATIONS*
- B** – *TOPOGRAPHIC SURVEY*
- C** – *PHOTOGRAPHS*
- D** – *GRADING PLANS & TYPICAL SECTIONS*



# APPENDIX A - HYDROLOGIC RUNOFF CALCULATIONS

PROJECT: HONOAPIILANI HIGHWAY SHORELINE PROTECTION  
 LOCATION: OLOWALU, MAUI, HAWAII  
 STORM WATER RUNOFF, EXISTING CONDITIONS

CALCULATIONS BY: KH  
 CHECKED BY: MI  
 DATE: 11/12/2012

Tm = 25 YR

1-HR. RAINFALL, i = 2.2 INCHES

AREA	AREA (SQ.FEET)	OVERLAND FLOW TIME	ADJUSTED I (IN./HR.)	C	A (ACRES)	Q (CFS)	INLET
		Tc (MIN.)					
1	57,563	10	4.5	0.80	1.32	4.76	D24"
					1.32	4.76	

PROJECT: HONOAPIILANI HIGHWAY SHORELINE PROTECTION  
 LOCATION: LOWALU, MAUI, HAWAII  
 STORM WATER RUNOFF, DEVELOPED CONDITIONS

CALCULATIONS BY: KH  
 CHECKED BY: MI  
 DATE: 11/12/2012

Tm = 25 YR

1-HR. RAINFALL, i = 2.2 INCHES

AREA	AREA (SQ.FEET)	OVERLAND FLOW TIME	ADJUSTED I (IN./HR.)	C	A (ACRES)	Q (CFS)	INLET
		Tc (MIN.)					
1	57,563	10	4.5	0.80	1.32	4.76	D24"
					1.32	4.76	



NOAA Atlas 14, Volume 4, Version 3  
 Location name: Lahaina, Hawaii, US\*  
 Coordinates: 20.8129, -156.6191  
 Elevation: 10 ft\*  
 \* source Google Maps



POINT PRECIPITATION FREQUENCY ESTIMATES

S. Perica, D. Martin, B. Lin, T. Parzybok, D. Riley, M. Yekta, L. Hner, L.-C. Chen, D. Brewer, F. Yan, K. Maitana, C. Trypaluk, G. M. Bonnini

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

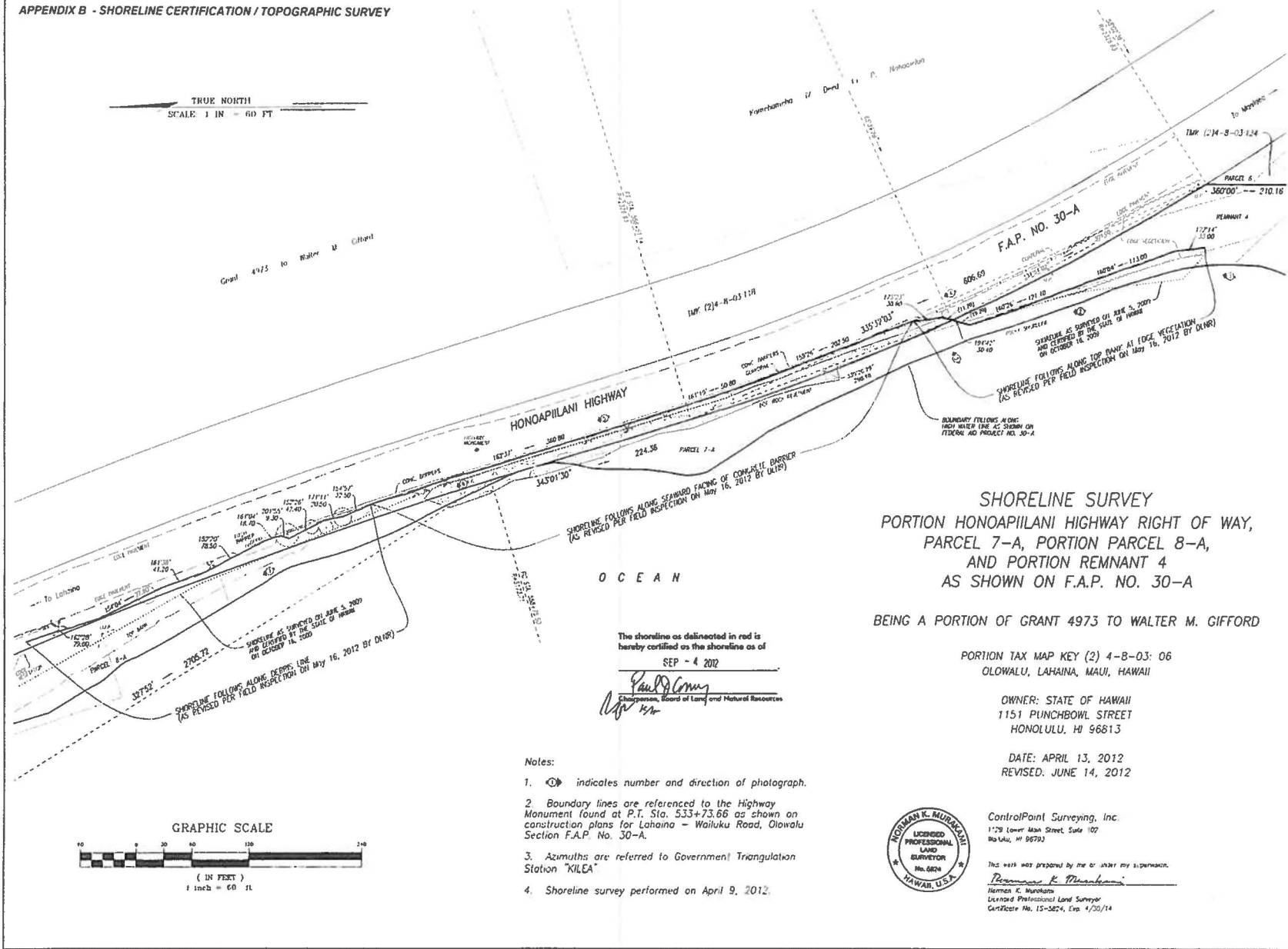
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.230 (0.205-0.262)	0.309 (0.267-0.355)	0.422 (0.363-0.487)	0.510 (0.436-0.592)	0.639 (0.538-0.747)	0.743 (0.617-0.876)	0.852 (0.693-1.02)	0.970 (0.771-1.18)	1.14 (0.871-1.40)	1.27 (0.947-1.59)
10-min	0.341 (0.304-0.388)	0.459 (0.396-0.527)	0.626 (0.538-0.722)	0.756 (0.646-0.878)	0.947 (0.797-1.11)	1.10 (0.914-1.30)	1.26 (1.03-1.51)	1.44 (1.14-1.74)	1.68 (1.29-2.08)	1.89 (1.40-2.37)
15-min	0.428 (0.381-0.487)	0.576 (0.497-0.662)	0.786 (0.676-0.907)	0.949 (0.812-1.10)	1.19 (1.00-1.39)	1.38 (1.15-1.63)	1.59 (1.29-1.90)	1.81 (1.44-2.19)	2.12 (1.62-2.61)	2.37 (1.76-2.97)
30-min	0.603 (0.537-0.686)	0.811 (0.699-0.931)	1.11 (0.951-1.28)	1.33 (1.14-1.55)	1.67 (1.41-1.96)	1.95 (1.62-2.30)	2.23 (1.81-2.67)	2.54 (2.02-3.08)	2.98 (2.28-3.67)	3.33 (2.48-4.18)
60-min	0.793 (0.706-0.902)	1.07 (0.920-1.23)	1.46 (1.25-1.68)	1.76 (1.50-2.04)	2.20 (1.85-2.58)	2.56 (2.13-3.02)	2.94 (2.39-3.51)	3.34 (2.66-4.05)	3.92 (3.00-4.83)	4.38 (3.26-5.50)
2-hr	1.06 (0.945-1.21)	1.45 (1.26-1.67)	1.98 (1.70-2.28)	2.38 (2.04-2.77)	2.96 (2.50-3.48)	3.43 (2.84-4.06)	3.90 (3.18-4.67)	4.42 (3.50-5.36)	5.12 (3.93-6.33)	5.68 (4.22-7.15)
3-hr	1.20 (1.06-1.36)	1.62 (1.42-1.88)	2.23 (1.92-2.57)	2.70 (2.30-3.14)	3.36 (2.82-3.94)	3.89 (3.21-4.60)	4.43 (3.59-5.30)	5.00 (3.96-6.06)	5.79 (4.43-7.17)	6.42 (4.76-8.09)
6-hr	1.50 (1.32-1.72)	2.04 (1.76-2.35)	2.81 (2.42-3.25)	3.42 (2.91-3.98)	4.27 (3.58-5.01)	4.95 (4.09-5.86)	5.66 (4.58-6.78)	6.39 (5.06-7.76)	7.43 (5.67-9.19)	8.24 (6.10-10.4)
12-hr	1.87 (1.62-2.12)	2.54 (2.19-2.93)	3.54 (3.05-4.08)	4.34 (3.70-5.04)	5.49 (4.61-6.43)	6.43 (5.31-7.59)	7.41 (6.00-8.85)	8.47 (6.68-10.2)	9.96 (7.58-12.3)	11.2 (8.22-14.0)
24-hr	2.27 (1.99-2.58)	3.14 (2.76-3.58)	4.43 (3.88-5.07)	5.49 (4.79-6.30)	7.05 (6.08-8.12)	8.34 (7.14-9.64)	9.74 (8.23-11.3)	11.3 (9.39-13.2)	13.5 (11.0-15.9)	15.3 (12.3-18.2)
2-day	2.80 (2.48-3.18)	3.92 (3.47-4.46)	5.55 (4.88-6.33)	6.91 (6.05-7.91)	8.89 (7.72-10.2)	10.5 (9.06-12.2)	12.3 (10.5-14.3)	14.3 (12.0-16.7)	17.1 (14.0-20.2)	19.5 (15.7-23.1)
3-day	3.02 (2.67-3.43)	4.22 (3.73-4.81)	5.97 (5.25-6.81)	7.42 (6.49-8.49)	9.51 (8.25-10.9)	11.2 (9.65-13.0)	13.1 (11.1-15.2)	15.1 (12.7-17.6)	18.0 (14.8-21.2)	20.4 (16.5-24.3)
4-day	3.24 (2.87-3.69)	4.52 (4.00-5.16)	6.38 (5.62-7.29)	7.92 (6.93-9.07)	10.1 (8.78-11.6)	11.9 (10.2-13.8)	13.9 (11.8-16.1)	16.0 (13.4-18.6)	19.0 (15.5-22.3)	21.4 (17.2-25.4)
7-day	3.60 (3.19-4.10)	5.03 (4.45-5.73)	7.09 (6.23-8.08)	8.74 (7.64-9.99)	11.1 (9.61-12.7)	13.0 (11.2-15.0)	15.0 (12.7-17.4)	17.2 (14.4-20.0)	20.2 (16.6-23.8)	22.7 (18.2-26.9)
10-day	3.92 (3.47-4.45)	5.48 (4.82-6.22)	7.68 (6.72-8.72)	9.44 (8.22-10.7)	11.9 (10.3-13.6)	13.9 (11.9-16.0)	16.0 (13.5-18.5)	18.2 (15.2-21.1)	21.3 (17.3-24.9)	23.7 (19.0-28.0)
20-day	4.63 (4.11-5.27)	6.46 (5.71-7.35)	8.98 (7.91-10.2)	11.0 (9.61-12.5)	13.7 (11.9-15.7)	15.8 (13.6-18.3)	18.0 (15.3-20.9)	20.3 (17.0-23.7)	23.5 (19.2-27.6)	25.9 (20.8-30.7)
30-day	5.20 (4.60-5.91)	7.25 (6.43-8.25)	10.1 (8.87-11.5)	12.2 (10.7-14.0)	15.2 (13.2-17.4)	17.4 (15.0-20.1)	19.7 (16.8-22.9)	22.1 (18.6-25.8)	25.3 (20.8-29.8)	27.8 (22.4-32.9)
45-day	6.06 (5.38-6.89)	8.46 (7.50-9.63)	11.7 (10.3-13.3)	14.2 (12.4-16.2)	17.5 (15.2-20.0)	20.0 (17.2-23.0)	22.5 (19.1-26.1)	25.0 (21.0-29.2)	28.4 (23.3-33.4)	30.9 (24.9-36.7)
60-day	6.76 (6.00-7.68)	9.44 (8.37-10.7)	13.0 (11.5-14.9)	15.7 (13.8-18.0)	19.3 (16.8-22.2)	22.1 (19.0-25.5)	24.8 (21.0-28.7)	27.5 (23.0-32.1)	31.1 (25.5-36.6)	33.8 (27.2-40.1)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

PF graphical

TRUE NORTH  
SCALE 1 IN = 60 FT



SHORELINE SURVEY  
PORTION HONOAPIILANI HIGHWAY RIGHT OF WAY,  
PARCEL 7-A, PORTION PARCEL 8-A,  
AND PORTION REMNANT 4  
AS SHOWN ON F.A.P. NO. 30-A

BEING A PORTION OF GRANT 4973 TO WALTER M. GIFFORD

The shoreline as delineated in red is hereby certified as the shoreline as of  
SEP - 4 2012  
*Paul D. Conroy*  
Chairperson, Board of Land and Natural Resources

PORTION TAX MAP KEY (2) 4-8-03: 06  
OLOWALI, LAHAINA, MAUI, HAWAII

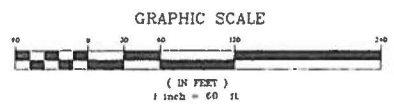
OWNER: STATE OF HAWAII  
1151 PUNCHBOWL STREET  
HONOLULU, HI 96813

DATE: APRIL 13, 2012  
REVISED: JUNE 14, 2012



ControlPoint Surveying, Inc.  
1120 Lower Aiea Street, Suite 107  
Maui, HI 96733  
This work was prepared by me or under my supervision.  
*Norman K. Murekawa*  
Norman K. Murekawa  
Licensed Professional Land Surveyor  
Certificate No. 15-3824, Exp. 4/30/14

- Notes:
1. indicates number and direction of photograph.
  2. Boundary lines are referenced to the Highway Monument found at P.T. Sta. 533+73.66 as shown on construction plans for Lahaina - Wailuku Road, Olowali Section F.A.P. No. 30-A.
  3. Azimuths are referred to Government Triangulation Station "KILEA"
  4. Shoreline survey performed on April 9, 2012.





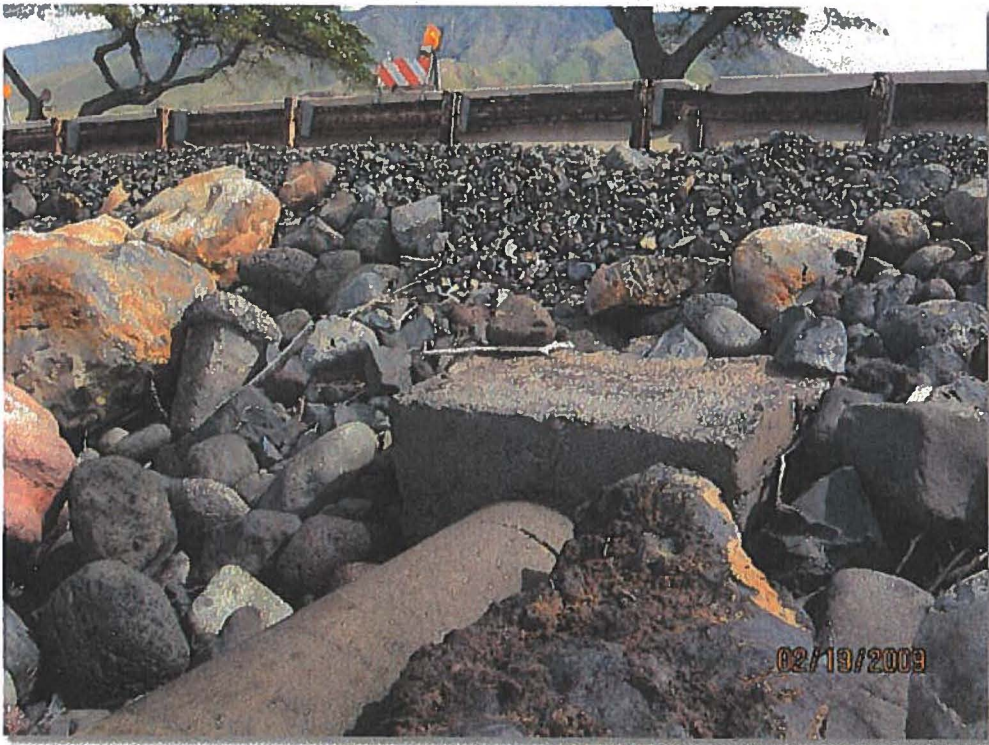
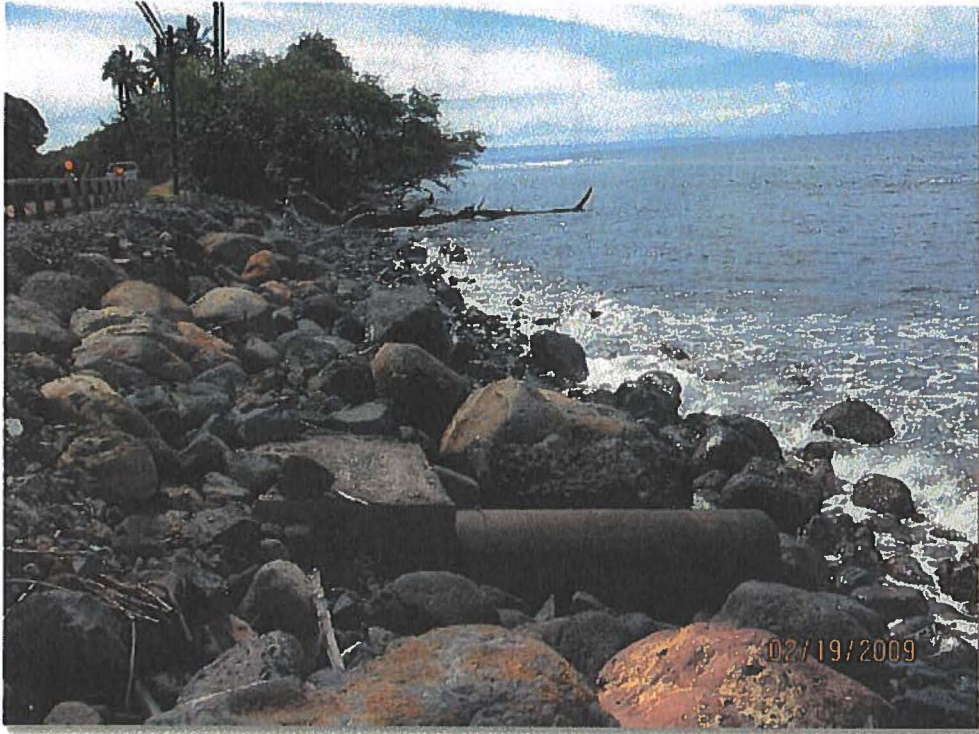
## APPENDIX C – PHOTOGRAPHS



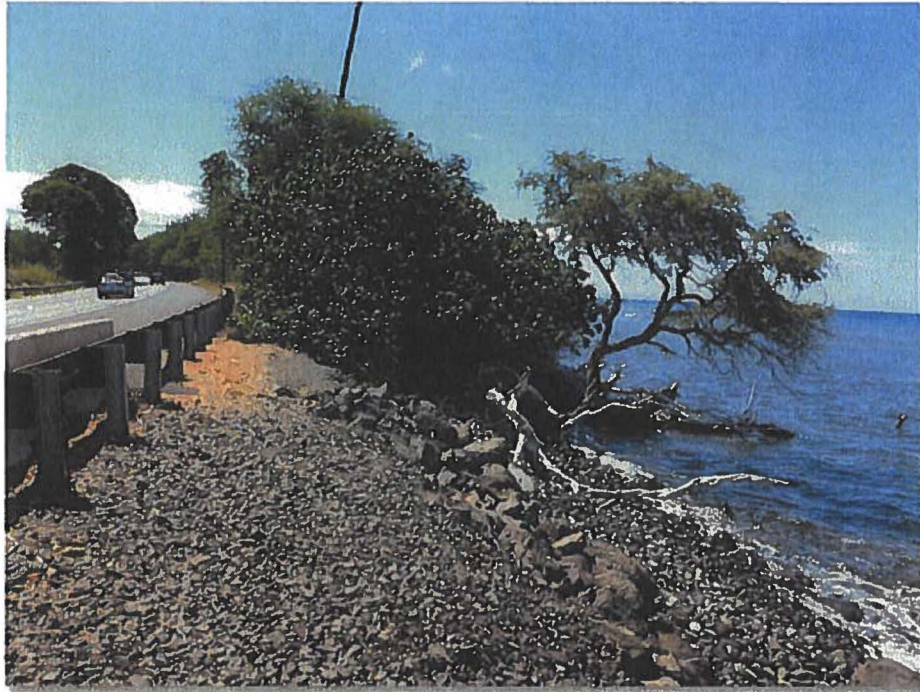
View of the project site, looking east. Photo taken in 2009.



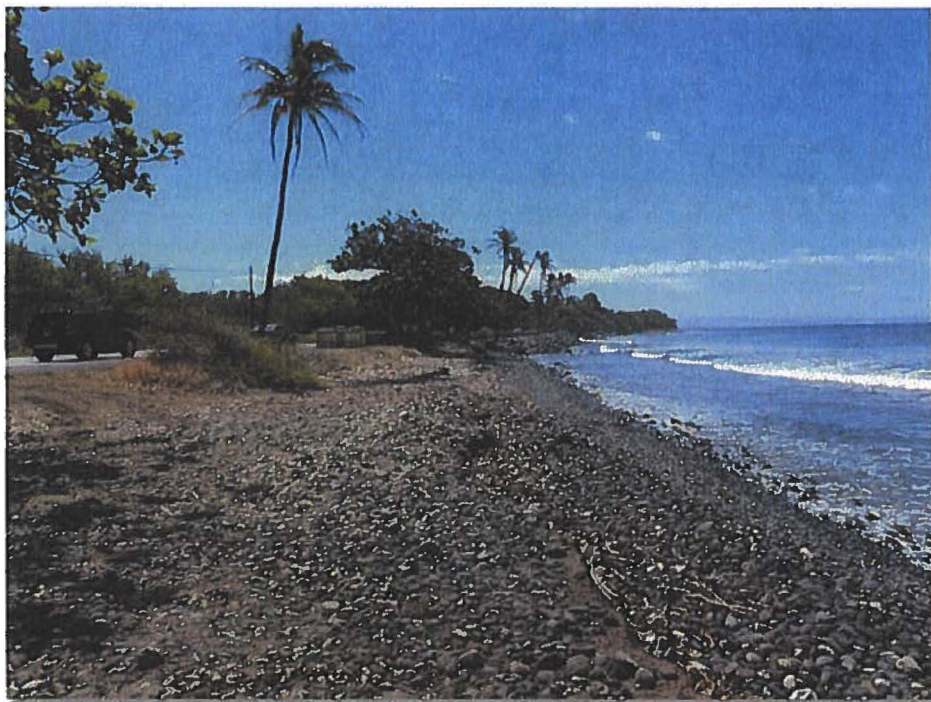
View of project site, looking west (toward Lahaina town).  
An emergency repair measure was constructed in 2009, shown in this photo taken in 2012.



Existing concrete drainline and concrete collar.



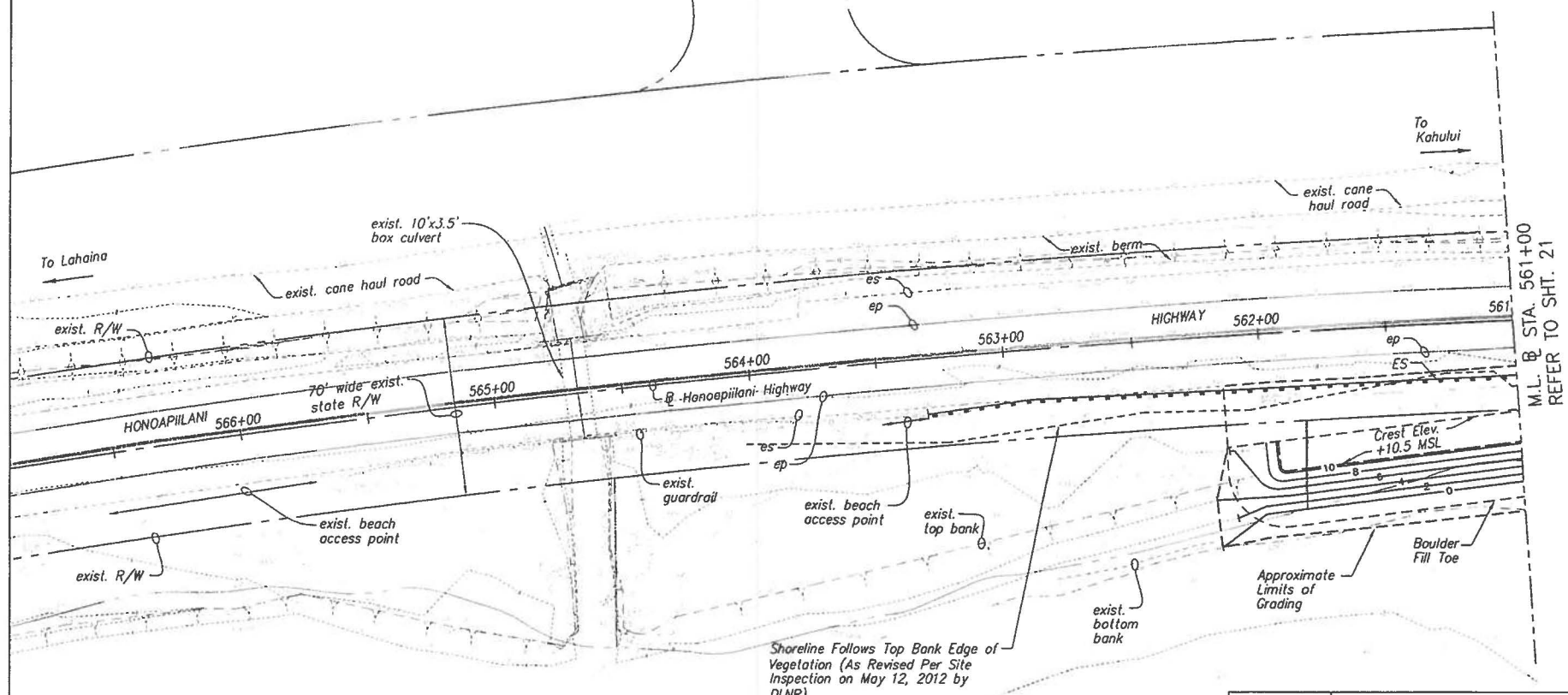
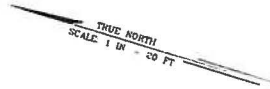
End of project site, marked by existing vegetation (looking east).



Existing beach access located west of the project site.  
Crash cushions shown in background mark the beginning of the project (looking east).

APPENDIX D - GRADING PLANS & TYPICAL SECTIONS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	30C-02-04	2012	20	38



**GRADING PLAN**  
**STA 563+32± TO 561+00**  
 0 10 20 40 60 80  
 SCALE: 1" = 20'

REDUCED PLAN  
 (HALF SIZE)  
 0 1 2 3  
 3 INCHES ON ORIGINAL PLAN

DESIGNED BY: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**GRADING PLAN**

**STA 563+32± TO 561+00**

HONOAPIILANI HIGHWAY  
 Shoreline Improvements At Oloulu  
 Project No. 30C-02-04

SCALE: 1" = 20'      DATE: 02-02-2012

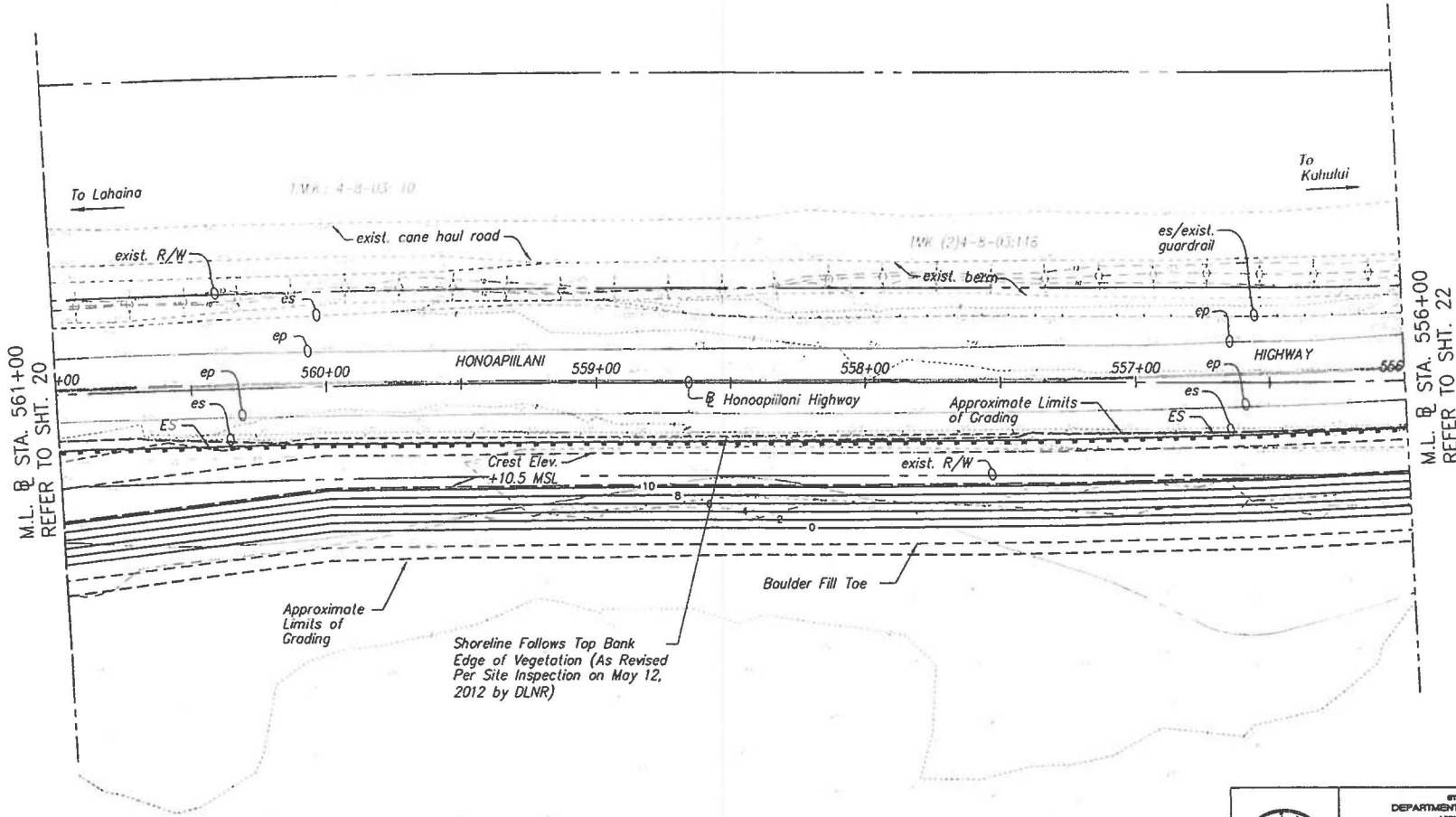
SHEET No. 1 OF 3 SHEETS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	300-02-04	2012	21	38

TRUE NORTH  
SCALE 1 IN. = 20 FT



M.L. B. STA. 561+00  
REFER TO SHT. 20

M.L. B. STA. 556+00  
REFER TO SHT. 22

DESIGNED BY	DATE

**GRADING PLAN**  
STA 561+00 TO 556+00  
SCALE: 1" = 20'



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**GRADING PLAN**

**STA 561+00 TO 556+00**

HONOAPIILANI HIGHWAY  
Shoreline Improvements At Otomalu  
Project No. 300 - 02 - 04

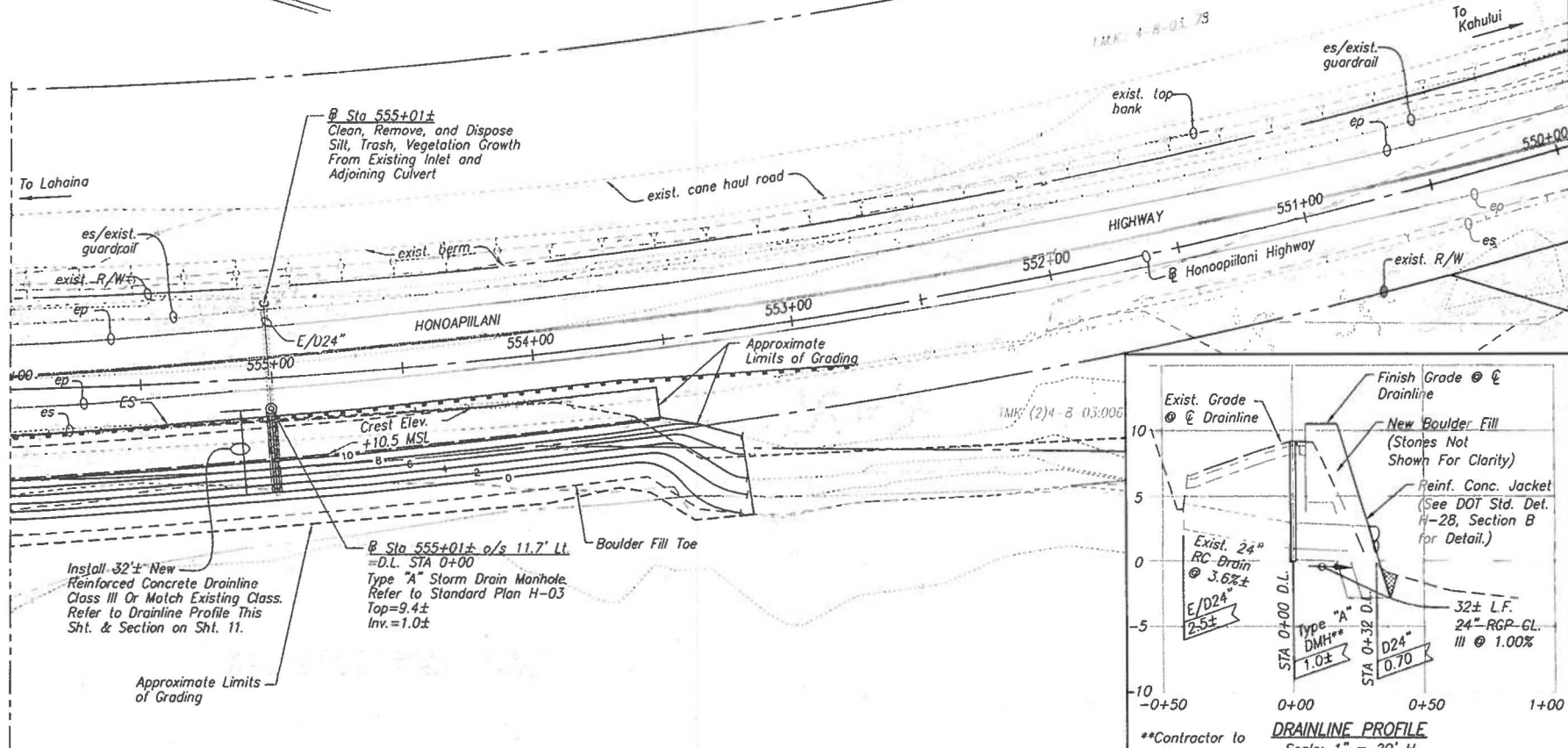
SCALE: 1" = 20'      DATE: 07-02-2012

SHEET No. 2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	30C-02-04	2012	22	38

TRUE NORTH  
SCALE 1 IN. = 20 FT

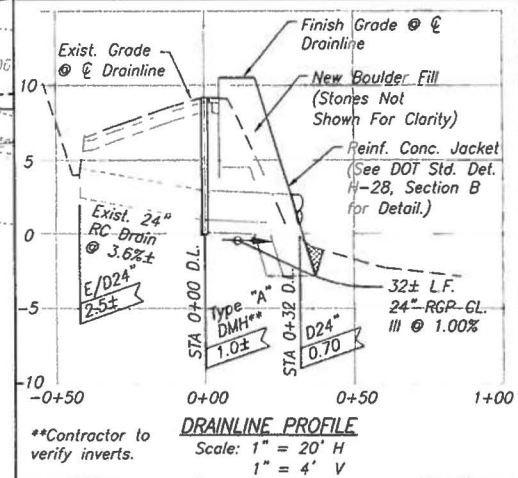
M.L. @ STA. 556+00  
REFER TO SHT. 21



Install 32"± New Reinforced Concrete Drainline Class III Or Match Existing Class. Refer to Drainline Profile This Sht. & Section on Sht. 11.

@ Sta 555+01± o/s 11.7' Lt. =D.L. STA 0+00 Type "A" Storm Drain Manhole. Refer to Standard Plan H-03 Top=9.4± Inv.=1.0±

Approximate Limits of Grading



\*\*Contractor to verify inverts.

**Drainline Profile**  
Scale: 1" = 20' H  
1" = 4' V

DATE	
DESIGNED BY	
CHECKED BY	
IN CHARGE	
DATE	
DESIGNED BY	
CHECKED BY	
IN CHARGE	

**Grading Plan**  
STA 556+00 TO 553+00  
SCALE: 1" = 20'

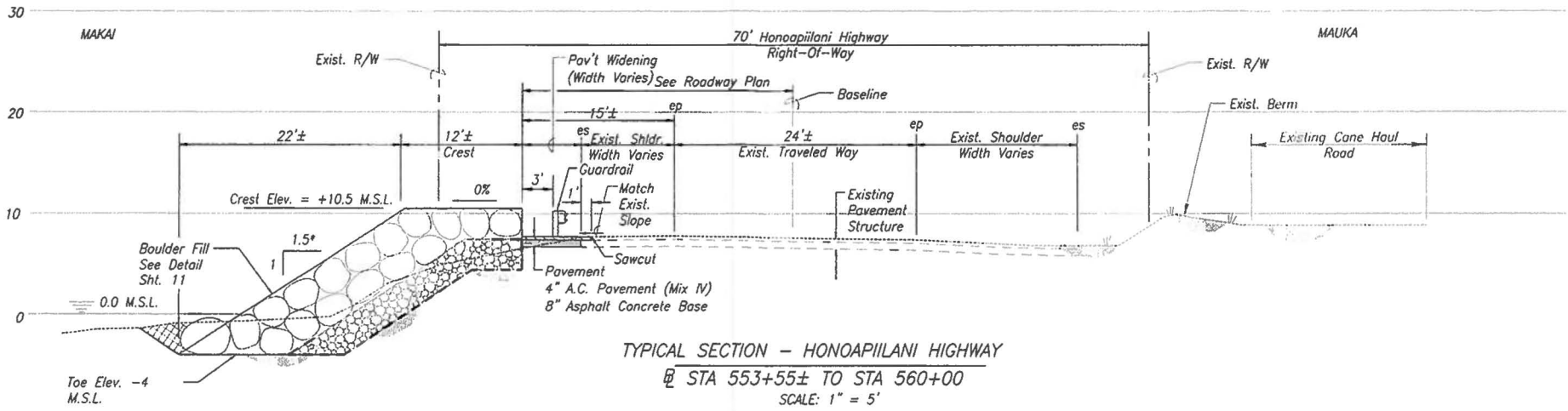
REDUCED PLAN  
(HALF SIZE)  
3 INCHES ON ORIGINAL PLAN



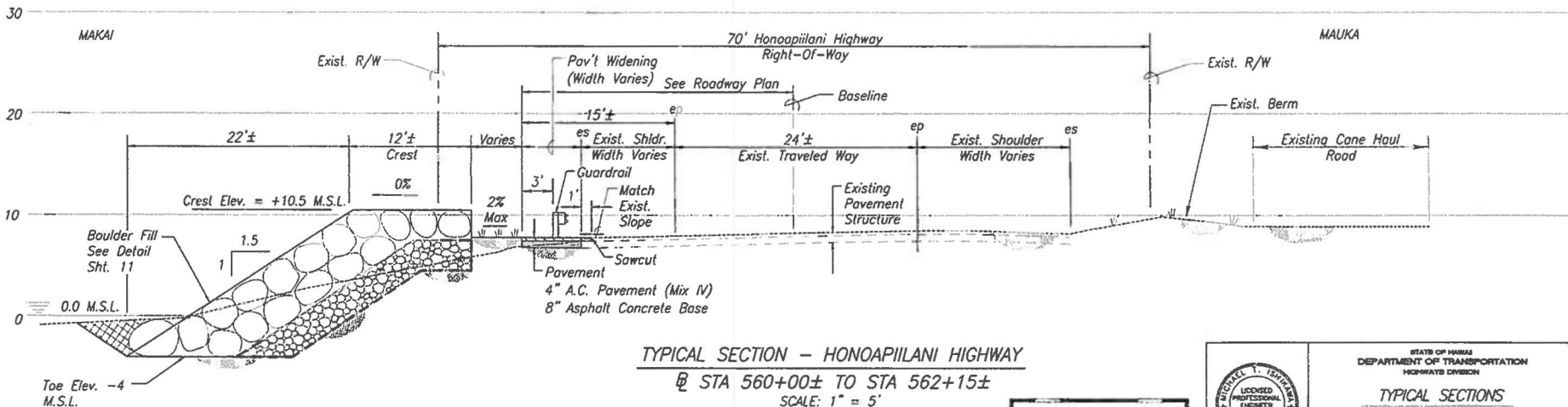
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
**Grading Plan**  
STA 556+00 TO 553+00  
HONOAPIILANI HIGHWAY  
Shoreline Improvements At Olonalo  
Project No. 30C - 02 - 04

SCALE: 1" = 20' DATE: 07-02-2012  
SHEET No. 3 OF 3 SHEETS

F.I.D. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	30C-02-04	2012	10	38



\*Slope varies @ Sta. 550+70± To Sta. 553+55±



DATE \_\_\_\_\_  
 DRAWN BY \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 NO. \_\_\_\_\_

REDUCED PLAN  
 (HALF SIZE)  
 0 1 2 3  
 3 INCHES ON ORIGINAL PLAN

REGISTERED PROFESSIONAL ENGINEER  
 No. 7601-C  
 HAWAII, U.S.A.

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TYPICAL SECTIONS**

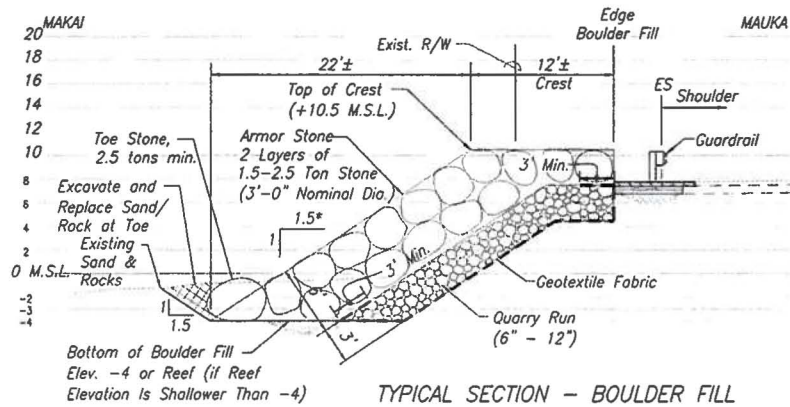
HONOAPIILANI HIGHWAY  
 Shoreline Improvements At Olowalu  
 Project No. 30C - 02 - 04

SCALE 1" = 5'      DATE: 07-02-2012

SHEET No. 1 OF 2 SHEETS

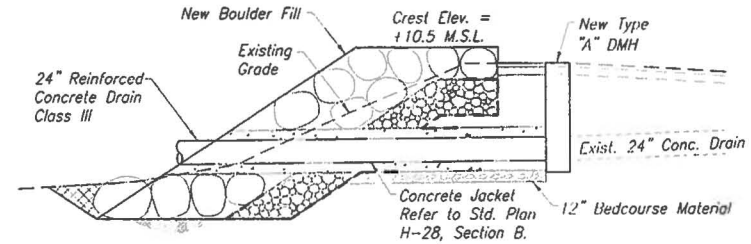


F.I.D. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	30C-02-04	2012	11	38

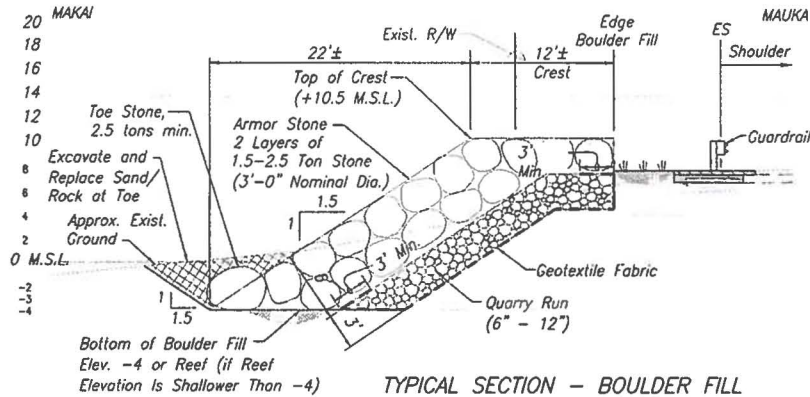


**TYPICAL SECTION - BOULDER FILL**  
 @ STA 553+55± TO STA 560+00±  
 SCALE: 1" = 5'

\*Slope varies @ Sta. 550+70± To Sta. 553+55±

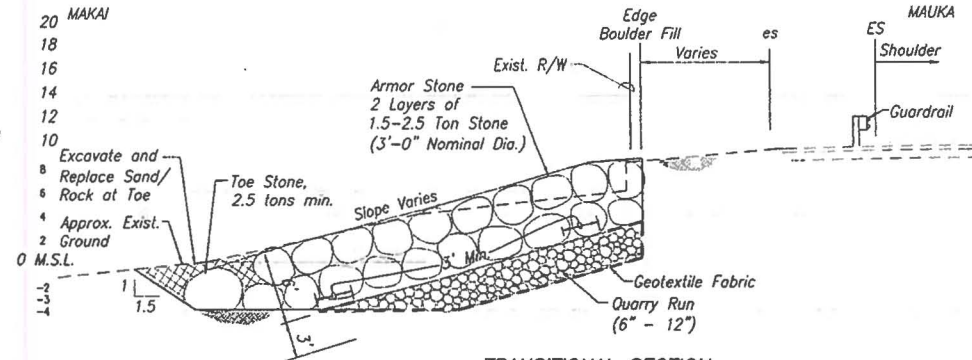


**DRAINLINE SECTION**  
 @ STA 555+01  
 SCALE: 1/4" = 1'



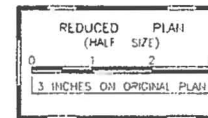
**TYPICAL SECTION - BOULDER FILL**  
 @ STA 560+00± TO STA 562+15±  
 SCALE: 1" = 5'

Bottom of Boulder Fill  
 Elev. -4 or Reef (if Reef  
 Elevation Is Shallower Than -4)



**TRANSITIONAL SECTION**  
 @ STA 553+25± TO STA 553+55±  
 SCALE: 1" = 5'

SURVEY & LITTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 NOTE BOOK: \_\_\_\_\_  
 NO: \_\_\_\_\_



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TYPICAL SECTIONS**

HONOLULU HIGHWAY  
 Shoreline Improvements At Olomalu  
 Project No. 30C - 02 - 04

SCALE: AS NOTED    DATE: 07-02-2012

SHEET No. 2 OF 2 SHEETS

**EXHIBIT E.**

**Validation of Drainage Report**



**Sato & Associates, Inc.**

**Consulting Engineers**

2115 Wells Street, Maui, Hawaii 96793

OFFICES IN HONOLULU AND MAUI

www.satoandassociates.com

Tel (808) 244-9265

Fax (808) 244-5303

mailbox@satoandassociates.com

April 8, 2016

Keith Scott, Staff Planner  
Department of Planning  
County of Maui  
2200 Main Street, Suite 315  
Wailuku, Hawai'i 96793

Subject: Drainage Report for State of Hawai'i, Department of Transportation (HDOT) Proposed Honoapi'ilani Highway Shoreline Protection Project at Olowalu, Island of Maui, Hawai'i; TMK (2)4-8-003:006 (por.); SM1 2009/0005, SSV 2009/0001

Dear Mr. Scott:

As a Licensed Professional Engineer in the State of Hawai'i, I certify that the Drainage Report for the Honoapi'ilani Highway Shoreline Protection Project in Olowalu, Maui, Hawai'i, prepared in November 2012 for the State of Hawai'i, Department of Transportation is valid for the purpose of said project.

Very truly yours,

SATO & ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read "Michael T. Ishikawa".

MICHAEL T. ISHIKAWA  
Vice President



cc: Gwendolyn Rivera, Munekiyo Hirage

1611704



**MUNEKIYO HIRAGA**

Planning. Project Management. Sustainable Solutions

COUNTY OF MAUI  
DEPT. OF PLANNING  
CURRENT DIV. RECEIVED

Michael T. Munekiyo  
PRESIDENT  
Karlynn K. Fukuda  
EXECUTIVE VICE PRESIDENT  
Mark Alexander Roy  
VICE PRESIDENT  
Tessa Munekiyo Ng  
VICE PRESIDENT

16 APR 11 P2:32

April 11, 2016

Keith Scott, Staff Planner  
Department of Planning  
County of Maui  
2200 Main Street, Suite 315  
Wailuku, Hawai'i 96793

**SUBJECT** Special Management Area Use Permit Time Extension Request for State of Hawai'i, Department of Transportation (HDOT) Proposed Honoapi'ilani Highway Shoreline Protection Project at Olowalu, Island of Maui, Hawai'i; TMK (2)4-8-003:006 (por.); SM1 2009/0005, SSV 2009/0001

Dear Mr. Scott:

Thank you for reviewing the above-referenced time extension request by the State of Hawai'i, Department of Transportation. As you requested in your email message of Thursday, March 31, 2016, we are providing the following additional documents in order to address the SMA time extension criteria by the Maui Planning Commission.

**Site Location Map**

A site location map is attached as **Exhibit "A"**.

**Site Plan (Original and Current)**

A site plan for the project is attached as **Exhibit "B"**. Please note that original site plan has not changed.

**Elevations**

An elevation drawing is attached as **Exhibit "C"**.



Keith Scott, Staff Planner  
April 11, 2016  
Page 2

**Current Drainage Report**

The drainage report prepared in November, 2012 is attached as **Exhibit "D"**. **Exhibit "E"** provides an authorized statement from the project's civil engineer that the drainage report is valid for the project.

Should you require any additional information regarding this time extension request, please feel free to contact me at 244-2015.

Very truly yours,



Gwendolyn Rivera  
Senior Associate

GR:lh

Attachments

cc: Karen Chun, State of Hawai'i, Department of Transportation (w/attachments)  
Sharen Cho-Ibanez, State of Hawai'i, Department of Transportation  
(w/attachments)  
James Hatashima, Sato & Associates, Inc. (w/attachments)  
Michael Ishikawa, Sato & Associates, Inc. (w/attachments)

K:\DATA\Sato\Olowalu Erosion\SMATime Extension\SMATimeExtAddlInfo letter.doc

DAVID Y. IGE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

FORD N. FUCHIGAMI  
DIRECTOR

Deputy Director  
JADE T. BUTAY  
ROSS M. HIGASHI  
EDWIN H. SNIFFEN  
DARRELL T. YOUNG

IN REPLY REFER TO:  
HWY-DS 2.0809

February 24, 2016

Mr. William Spence, Director  
Department of Planning  
County of Maui  
2200 Main Street, Suite 315  
Wailuku, Hawai'i 96793

Dear Mr. Spence:

Subject: Special Management Area (SMA) Use Permit Time Extension Request for State of Hawai'i, Department of Transportation (HDOT) Proposed Honoapi'ilani Highway Shoreline Protection Project at Olowalu, Maui, Hawai'i (TMK (2) 4-8-003:006 (por.) (SM1 2009/0005) (SSV 2009/0001)

We are writing to you today to request consideration for a SMA Use Permit time extension for the Honoapi'ilani Highway Shoreline Protection project. This application to amend the time stipulation of the subject SMA Use Permit (SM1 2009/0005), as well as a time extension fee of \$165.00, are hereby being submitted to enable processing of this request.

At its meeting on April 26, 2011, the Maui Planning Commission voted to approve the SMA Use Permit and Shoreline Setback Variance (SSV) for the installation of an engineered shoreline protection measure to protect a portion of Honoapi'ilani Highway from high coastal wave action. An approximately 900-foot section of boulder fill was approved. A copy of the SMA Permit and SSV approval letter (dated May 18, 2011) is attached. See **Exhibit "A"**.

Standard Condition No. 1 of the SMA Use Permit reads as follows:

1. *That construction of the proposed project shall be initiated by May 31, 2014. Initiation of construction shall be determined as construction of onsite and/or offsite improvements, issuance of a foundation permit and initiation of construction of the foundation, or issuance of a building permit and initiation of building construction, whichever occurs first. Failure to comply within this three (3) year period will automatically terminate this SMA Use Permit unless a time extension is requested no later than ninety (90) days prior to the expiration of said three (3) year period. The Planning Director shall review and approve a time-extension request pursuant to Section 12-202-17 SMA Rules for the Commission.*

It is noted that a two (2) year time extension was sought in February 2014 for the project. At its May 27, 2014 meeting, the Maui Planning Commission voted to waive their review of the time extension request. The Project was granted an extension by the Department of Planning to initiate construction by May 31, 2016. See **Exhibit "B"**.

The following reason is offered as justification for the time extension request:

1. Since the granting of the SMA and SSV approvals for the project, HDOT secured other regulatory permit approvals needed to proceed with the project. Included in the regulatory reviews are Department of Army approvals, Conservation District Use Permit (filed with the Department of Land and Natural Resources (DLNR) in May 2013), as well as approval of the Categorical Exclusion (CatEx) by the Federal Highway Administration (FHWA) on the National Environmental Policy Act (NEPA) requirements for the project. The NEPA requirements are "triggered" by the use of Federal funds for the project. The CatEx approval for the project was received in September 2015.

HDOT is requesting a two (2) year time extension to initiate construction on the project. The contractor for the project has been selected by HDOT and is initiating the preliminary construction activities, however, actual construction is not anticipated to begin until the Fall of 2016 to avoid the coral spawning season as well as a reduced chance of high coastal wave action in the project area. Thus, the new date to initiate construction by would be May 31, 2018.

We also provide the following information to address the SMA time extension criteria by the Maui Planning Commission:

1. *An analysis of whether any changes have occurred within the special management area since the granting of the permit that may cause the permit holder's development to have a substantial adverse environmental or ecological effect.*

There have been no changes in the SMA in the vicinity of the project area which would alter the proposed action's impact on the environment. To our knowledge, construction activity in the Olowalu area has been minimal, with mainly individual residence construction, mauka of the Honoapi'ilani Highway.

2. *An analysis of whether any changes have occurred within the special management area since the granting of the permit that may cause the permit holder's development to adversely affect the capacity or condition of infrastructure.*

Since the granting of the SMA permit, there have been no significant changes in the local environment or surrounding properties which would otherwise affect changes in conditions to water and wastewater demand or capacity. Moreover, there have been no significant changes to surrounding conditions which would alter traffic or drainage impact parameters.

Mr. William Spence  
February 24, 2016  
Page 3

HWY-DS 2.0809

Should you have any questions regarding project documents, please contact our Project Manager, Ms. Sharen Cho-Ibanez, at (808) 692-7551, Technical Design Services Office, Design Branch, Highways Division or by email at [sharen.h.cho-ibanez@hawaii.gov](mailto:sharen.h.cho-ibanez@hawaii.gov).

Sincerely,



FORD N. FUCHIGAMI  
Director of Transportation

Enclosures

c: James Hatashima, Sato & Associates, Inc. (w/enclosures)  
Karlynn Fukuda, Munekiyo Hiraga (w/enclosures)

bc: HWY-DS, HWY-M (FC)

sci/

ALAN M. ARAKAWA  
Mayor

WILLIAM R. SPENCE  
Director

MICHELE CHOUTEAU McLEAN  
Deputy Director



MAY 24 2011

COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

May 18, 2011

CERTIFIED MAIL - #7008 0500 0002 0444 6495

Ms. Karen Chun, Project Manager  
Technical Design Services Office  
Design Branch, Highways Division  
Department of Transportation  
989 Punchbowl Street  
Honolulu, Hawaii 96813-5097

Dear Ms. Chun:

**SUBJECT: APPLICATION FOR A SPECIAL MANAGEMENT AREA (SMA) USE PERMIT AND SHORELINE SETBACK VARIANCE (SSV) FOR THE PROPOSED HONOAPI'LANI HIGHWAY SHORELINE PROTECTION, AT OLOWALU, ISLAND OF MAUI, HAWAII; TMK: (2) 4-8-003:006 (POR.) (SM1 2009/0005) (SSV 2009/0001)**

At the regular meeting on April 26, 2011, the Maui Planning Commission (Commission) reviewed the above applications, accepted testimony and exhibits, and after due deliberation, made the five determinations listed in the Recommendation report prepared by the Department of Planning (Department) for the April 26, 2011 meeting, and hereby orders approval of said Shoreline Setback Variance application, subject to the following conditions.

1. To maintain and require safe lateral access to and along the shoreline for public use.
2. To minimize risk of adverse impacts on beach processes.
3. To minimize risk of structures falling and becoming loose rocks or rubble on public property.
4. To minimize adverse impacts on public views to, from, and along the shoreline. For purposes of this section only, "adversely impacts public views" means the adverse impact on public views and open space resources caused by new building structures exceeding a one-story or thirty-foot height limitation.
5. To comply with Chapters 19.62 and 20.08, Maui County Code, relating to flood hazard districts and erosion and sedimentation control respectively.

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793  
MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7634  
CURRENT DIVISION (808) 270-8205; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

**EXHIBIT "A"**

Ms. Karen Chun, Project Manager  
May 18, 2011  
Page 2

The Commission also and hereby orders approval of said SMA Use Permit with the following conditions:

**STANDARD CONDITIONS:**

1. That construction of the proposed project shall be initiated by May 31, 2014. Initiation of construction shall be determined as construction of onsite and/or offsite improvements, issuance of a foundation permit and initiation of construction of the foundation, or issuance of a building permit and initiation of building construction, whichever occurs first. Failure to comply within this three (3) year period will automatically terminate this SMA Use Permit unless a time extension is requested no later than ninety (90) days prior to the expiration of said three (3) year period. A time extension shall be in accordance with the provisions of Section 12-202-17 of the SMA Rules for the Commission.
2. That the construction of the project shall be completed within five (5) years after the date of its initiation. Failure to complete construction of this project within this time period will require unfinished portions of the project to obtain a new SMA Permit. A time extension shall be requested no later than ninety (90) days prior to the completion deadline. A time extension shall be in accordance with the provisions of Section 12-202-17 of the SMA Rules for the Commission.
3. The permit holder or any aggrieved person may appeal to the Commission any action taken by the Planning Director on the subject permit no later than ten (10) days from the date the Director's action is reported to the Commission.
4. That final construction shall be in substantial compliance with the Boulder Fill Plan, Drainline Section, End and Typical Sections included in the Final Environmental Assessment, Proposed Honoapiʻilani Highway Shoreline Protection, Olowalu, Maui, dated July, 2010.
5. That appropriate measures shall be taken during construction to mitigate the short term impacts of the project relative to dust and soil erosion from wind and water, ambient noise levels, and traffic disruptions.
6. That the subject SMA Use Permit shall not be transferred without prior written approval in accordance with Section 12-202-17(d) of the SMA Rules of the Commission. However, in the event that a contested case hearing preceded issuance of said SMA Use Permit, a public hearing shall be held upon due published notice, including actual written notice to the last known addresses of parties to said contested case and their counsel.
7. That full compliance with all applicable governmental requirements shall be rendered.
8. That the Applicant shall submit plans regarding the location of any construction related structures such as, but not limited to trailers, sheds, equipment and storage areas and fencing to be used during the construction phase to the Department for review and approval.

Ms. Karen Chun, Project Manager  
May 18, 2011  
Page 3

9. That the applicant shall submit to the Department five (5) copies of a detailed report addressing its compliance with the conditions established with the subject SMA Use Permit. A preliminary report shall be reviewed and approved by the Department prior to the commencement of work on the site. A final compliance report shall be submitted to the Department for review and approval prior to the State's acceptance or completion of the work.
10. That the Applicant shall develop the property in substantial compliance with the representations made to the Commission in obtaining the SMA Use Permit. Failure to so develop the property may result in the revocation of the permit.

**PROJECT SPECIFIC CONDITIONS:**

11. That the Applicant shall obtain permits from the United States Army Corps of Engineers (Corps), pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, as well as a Section 401 Water Quality Certification, as applicable. The Applicant shall provide copies of the applications, approvals, and all correspondence to date with the Preliminary Compliance Report. Any subsequent correspondence or reports shall be included in the final compliance report.

Department of Health

12. That, to the satisfaction of the Clean Water Branch of the Department of Health, the Applicant shall coordinate with the Clean Water Branch to address applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for the project, if required, including the submittal of a Notice of Intent (NOI) for general permit coverage. Evidence of compliance with this condition shall be submitted with the Preliminary Compliance Report.
13. That the Applicant shall obtain permits from the Clean Water Branch of the Department of Health pursuant to Section 401 Water Quality Certification. The Applicant shall provide copies of the applications, approvals, and all correspondence with the Preliminary Compliance Report. Any subsequent correspondence or reports shall be included in the final compliance report.

Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD)

14. That, to the satisfaction of the DLNR-SHPD, a qualified archaeological monitor shall be present during those portions of the project which involve ground altering disturbance in order to document any historic properties which may be encountered and to provide mitigation measures as necessary. Please note that ground altering disturbance includes previously disturbed stratigraphy, as culturally significant subsurface deposits are often found in these contexts. As per Hawaii Administrative Rules (HAR), Section 13-279, prior to the commencement of ground altering disturbance associated with the proposed project, the project developer or developer's agent must submit an appropriately prepared monitoring plan to DLNR-SHPD for review and acceptance. Evidence of compliance with this condition shall be submitted with the Preliminary Compliance Report.

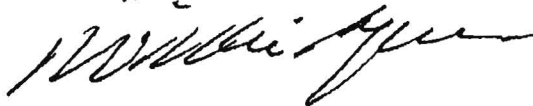
Ms. Karen Chun, Project Manager  
May 18, 2011  
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The conditions of this SMA Use Permit shall be enforced pursuant Section 12-202 et seq. of the *Special Management Area Rules for the Maui Planning Commission*.

Further, the Commission adopted the Report and Recommendation prepared by the Department for the April 26, 2011 meeting, as the Findings of Fact, Conclusions of Law, and Decision and Order, attached hereto and made a part hereof. Parties to proceedings before the Commission may obtain Judicial Review of Decision and Orders, issued by the Commission in the manner set forth in Chapter 91-14, Hawaii Revised Statutes.

Thank you for your cooperation. If additional clarification is required, please contact Current Planning Supervisor Jeffrey Dack at [jeffrey.dack@mauicounty.gov](mailto:jeffrey.dack@mauicounty.gov) or at (808) 270-6275.

Sincerely,



WILLIAM SPENCE  
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator  
Aaron H. Shinmoto, PE, Planning Program Administrator (2)  
John F. Summers, Planning Program Administrator  
Jeffrey P. Dack, AICP, Current Planning Supervisor  
Tara Miller Owens, UH Sea Grant Extension Agent  
Department of Public Works  
Department of Fire and Public Safety  
Police Department  
Civil Defense  
Natural Resources Conservation Service-USDA, Maui  
U.S. Army Corp. of Engineers  
U.S. Fish and Wildlife Service  
Department of Accounting and General Services  
Department of Education  
Department of Hawaiian Homelands  
Department of Health, Clean Water Branch  
Department of Health, Maui District Health Office  
Department of Health, Office of Environmental Quality Control  
Department of Land and Natural Resources-Office of Conservation and Coastal Land  
Department of Land and Natural Resources-State Historic Preservation Division  
Maui Electric Company  
Karlynn Kawahara, Munekiyo & Hiraga, Inc.  
Office of Hawaiian Affairs  
CZM File (SM1/SSV)  
Project File  
General File

WRS:JPD:rm

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