

BENJAMIN J. CAYETANO
GOVERNOR



KAZU HAYASHIDA
DIRECTOR
DEPUTY DIRECTORS
BRIAN K. MINAI
GLENN M. OKIMOTO

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

IN REPLY REFER TO:
HWY-DS
2.5395

'99 SEP 23 P 1:23 September 15, 1999

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

TO: GENEVIEVE SALMONSON, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: KAZU HAYASHIDA *K.H.*
DIRECTOR OF TRANSPORTATION

SUBJECT: FINAL ENVIRONMENTAL ASSESSMENT
HANA HIGHWAY, REPLACEMENT OF KAUPAKULUA BRIDGE AND
APPROACHES, DISTRICT OF MAKAWAO, ISLAND OF MAUI
PROJECT NO. BR-036-1(5)
TMK 2-7-13: (PORTIONS) 26, 27, 64, 71, 72

The Department of Transportation has reviewed the comments received during the 30-day public comment period which began on November 23, 1998. Concerns regarding construction activities being conducted during the rainy season are addressed in the Final Environmental Assessment. No other significant concerns were raised during the review period.

Best Management Practices and mitigation measures described in the Final Environmental Assessment will ensure that no significant negative impacts to water and air quality, flora and fauna, cultural and scenic resources, land use and community well-being will result from the proposed project.

The Department of Transportation has therefore determined that this project will not have significant environmental effects and hereby issues a finding of no significant impact. Please publish this notice in the October 8, 1999 OEQC Environmental Notice. ✓

We have enclosed a completed OEQC Environmental Notice Publication Form and four copies of the final EA. Please call Mr. Emilio Barroga, Jr. of our Highways Division at 692-7546 if you have any questions.

Enclosure

c: R. M. Towill Corporation (Craig Luke) w/o enc.

120

1999-10-08-MA-FA-

FILE COPY

OCT 8 1999

Hana Highway
Replacement of Three Timber Bridges
Kaupakulua Bridge and Approaches
Makawao District, Maui County, Hawaii
PROJECT NO. BR-036-1(5)

Final Environmental Assessment

July 1999

Prepared For:

State of Hawaii
Department of Transportation
Highways Division

OFFICE OF THE
QUALITY REVIEW

'99 SEP 23 P 1:24

RECEIVED

July 1999

**HANA HIGHWAY
REPLACEMENT OF THREE TIMBER BRIDGES
KAUPAKULUA BRIDGE AND APPROACHES
MAKAWAO DISTRICT, MAUI COUNTY, HAWAII
PROJECT NO. BR-036-1(5)**

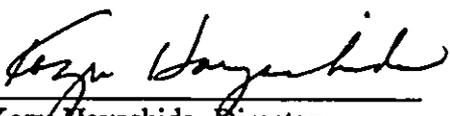
**Final
Environmental Assessment**

Prepared Pursuant to
Hawaii Revised Statutes, Chapter 343
and
Hawaii Administrative Rules, Title 11, Chapter 200

by the

State of Hawaii Department of Transportation
Highways Division

8/17/99
Date of Approval


Kazu Hayashida, Director
State of Hawaii Department of Transportation

The State of Hawaii Department of Transportation, Highways Division proposes to replace an existing wooden bridge on Hana Highway over Kaupakulua Stream with a new bridge. The project consists of construction of a new concrete bridge South of the existing bridge, realignment of the bridge approach roadways, and removal of the existing bridge. Based on the an assessment of the proposed project, the construction of the new bridge and approaches is not anticipated to result in any adverse environmental impacts.

TABLE OF CONTENTS

	<u>PAGE</u>
PROJECT SUMMARY	
CHAPTER 1 PURPOSE AND NEED FOR ENVIRONMENTAL ASSESSMENT	
1.1	PROJECT OVERVIEW 1
1.2	PURPOSE OF THE ENVIRONMENTAL ASSESSMENT 1
1.3	PURPOSE AND NEED FOR THE PROJECT 3
1.4	ALTERNATIVES 3
1.4.1	Alternative 1: No Action Alternative 4
1.4.2	Alternative 2: Delayed Action Alternative 4
1.4.3	Alternative 3: Rehabilitate Existing Bridge 4
1.4.4	Alternative 4: Replace Bridge - Makai (North) Alignment 5
1.4.5	Preferred Alternative: Replace Bridge - Mauka (South) Alignment 7
CHAPTER 2 PROJECT DESCRIPTION	
2.1	PROJECT LOCATION AND SITE CHARACTERISTICS 9
2.2	TECHNICAL CHARACTERISTICS 9
2.3	CONSTRUCTION ACTIVITIES 12
2.3.1	Mobilization 12
2.3.2	Installation of Discharge Pollution Prevention Measures 15
2.3.3	Realignment of Approach Roads 16
2.3.4	Construction of Proposed Bridge 20
2.3.5	Dismantling of Existing Bridge 21
2.3.6	Demobilization and Restoration 21
2.4	BEST MANAGEMENT PRACTICES 22
2.5	PROJECT SCHEDULE, COST, AND WORK FORCE 24
CHAPTER 3 ENVIRONMENTAL SETTING, POTENTIAL IMPACTS AND MITIGATION	
3.1	TOPOGRAPHY, CLIMATE, AND RAINFALL 25
3.1.1	Topography 25
3.1.2	Climate 25
3.2	GEOLOGY AND HYDROLOGY 26
3.2.1	Soils 26
3.2.2	Surface Water 26
3.2.3	Wetlands 28

	<u>PAGE</u>
3.2.4	Project Impacts 28
3.2.5	Mitigation Measures 30
3.3	NATURAL HAZARDS 31
3.3.1	Earthquake 31
3.3.2	Flood Zones 31
3.3.3	Project Impacts 31
3.3.4	Mitigation Measures 31
3.4	AIR QUALITY 33
3.4.1	Air Quality 33
3.4.2	Project Impacts 33
3.4.3	Mitigation Measures 33
3.5	NOISE 34
3.5.1	Noise 34
3.5.2	Project Impacts 34
3.5.3	Mitigation Measures 35
3.6	BIOLOGICAL RESOURCES 36
3.6.1	Flora 36
3.6.2	Fauna 36
3.6.3	Project Impacts 36
3.6.4	Mitigation Measures 37
3.7	HISTORIC AND ARCHAEOLOGICAL RESOURCES 37
3.7.1	Historic Resources 37
3.7.2	Archaeological Resources 37
3.7.3	Project Impacts 37
3.7.4	Mitigation Measures 38
3.8	SCENIC AND RECREATIONAL RESOURCES 38
3.8.1	Scenic Resources 38
3.8.2	Recreational Resources 38
3.8.3	Project Impacts 39
3.8.4	Mitigation Measures 40
3.9	TRAFFIC AND ROADWAYS 40
3.9.1	Site Access 40
3.9.2	Pedestrians and Bicyclists 40
3.9.3	Project Impacts 42
3.9.4	Mitigation Measures 43
3.10	LAND USE AND OWNERSHIP 44
3.10.1	Land Use 44
3.10.2	Ownership 44
3.10.3	Project Impacts 44
3.10.4	Mitigation Measures 46

	<u>PAGE</u>
3.11 DEMOGRAPHICS	47
3.11.1 Population and Housing	47
3.11.2 Project Impacts	47
3.11.3 Mitigation Measures	47
3.12 COMMUNITY AND ECONOMIC CONDITIONS	49
3.12.1 Economic Conditions	49
3.12.2 Project Impacts	50
3.12.3 Mitigation Measures	50
 CHAPTER 4 RELATIONSHIP TO LAND USE POLICIES, AND CONTROLS OF THE AFFECTED AREA	
4.1 OVERVIEW	51
4.2 STATE OF HAWAII	51
4.2.1 State Plan	51
4.2.2 State Functional Plans	52
4.2.3 State Land Use Commission	53
4.3 COUNTY OF MAUI	53
4.3.1 General Plan	53
4.3.2 Special Management Area	53
4.3.3 Pa'ia-Ha'iku Community Plan	54
 CHAPTER 5 NECESSARY PERMITS AND APPROVALS	
5.1 FEDERAL	55
5.2 STATE OF HAWAII	55
5.3 COUNTY OF MAUI	56
 CHAPTER 6 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY	57
 CHAPTER 7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES	58
 CHAPTER 8 ORGANIZATIONS AND AGENCIES CONSULTED DURING DEA PREPARATION AND 30-DAY COMMENT PERIOD	
8.1 FEDERAL GOVERNMENT	59
8.2 STATE GOVERNMENT	59
8.3 COUNTY OF MAUI	59

	<u>PAGE</u>
8.4 OTHER PRIVATE ORGANIZATIONS AND ELECTED OFFICIALS	60
 CHAPTER 9 DETERMINATION	
9.1 OVERVIEW	61
9.2 SIGNIFICANCE CRITERIA	61
9.3 FINDINGS	64
 REFERENCES	 65

FIGURES

Figure 1-1	Project Location	2
Figure 1-2	Design Alternative - Makai (North) Alignment	6
Figure 1-3	Recommended Alternative - Mauka (South) Alignment	8
Figure 2-1	Project Location	10
Figure 2-2	Tax Map Key Map	11
Figure 2-3	Project Site	13
Figure 2-4	Discharge Pollution Control Measures	17
Figure 2-5	Typical Silt Fence Detail	18
Figure 2-6	Typical Sediment Retention Berm	19
Figure 3-1	Soils Map	27
Figure 3-2	Surface Map	29
Figure 3-3	FEMA/FIRM Map	32
Figure 3-4	Area Road Map	41
Figure 3-5	Zoning and Land Use Map	45
Figure 3-6	1990 Census Tracts, County of Maui	48

APPENDICES

- Appendix A Correspondence
- Appendix B Botanical Resources Study, Kaupakulua Bridge Replacement Project, Makawao District, Maui
- Appendix C State of Hawaii, Department of Transportation, Highways Division, Bridge Inspection Report: Kaupakulua Bridge, Hana Highway, State Route 36, Makawao District, Maui
- Appendix D Comments and Responses to the Draft Environmental Assessment 30-Day Comment Period

PROJECT SUMMARY

Project	Hana Highway, State Route 36 Replacement of Kaupakulua Bridge and Approaches
Applicant:	State of Hawaii, Department of Transportation, Highways Division
Accepting Authorities:	State of Hawaii Department of Transportation U.S. Department of Transportation Federal Highways Administration
TMKs:	2-7-13: (portions) 26, 27, 64, 71, 72
Location:	Hana Highway (Route 36) at Kaupakulua Gulch, Ha'iku, Makawao District, island of Maui. 20°55'20" latitude and 156°18'00" longitude (approximate).
Project Area:	< 5 acres
Agent:	R. M. Towill Corporation 420 Waiakamilo Road, Suite 411 Honolulu, Hawaii 96817 Phone: (808) 842-1133 Facsimile: (808) 842-1937
Existing Land Uses:	Public Facilities - Existing Right of Way Agriculture
Proposed Action:	The proposed project involves replacing the existing bridge at Kaupakulua Gulch on the Hana Highway, State Route 36, with a new bridge to be constructed mauka (south) of the existing alignment. Included in the proposed bridge design are roadway shoulders, reinforced guardrails, and drainage features normally lacking in older bridge construction. The proposed project also involves construction of approach roads with retaining walls, and demolition of the existing bridge. An existing unpaved service road that provides access to the pier footings will also require widening to accommodate construction vehicles.
Required Permits	<ul style="list-style-type: none"> • Section 404 Department of the Army Nationwide Permit # 33 Temporary Construction, Access, and Dewatering • Section 401 Water Quality Certification • Stream Channel Alteration Permit • Section 106 Consultation • Coastal Zone Management Federal Consistency Review • County of Maui Subdivision for Highway Right-of-Way • Right-of-Entry from private land owners

CHAPTER 1 PURPOSE AND NEED FOR ENVIRONMENTAL ASSESSMENT

1.1 PROJECT OVERVIEW

The State of Hawaii Department of Transportation, Highways Division (SDOT-H) proposes to replace the Kaupakulua Bridge on the Hana Highway, State Route 36, and realign the approach roads. This improvement is recommended to mitigate bridge maintenance concerns, increase traffic safety, improve the road cross-section to conform with federal standards, and to meet the overall projected operating conditions of the Hana Highway. Included in the project are roadway shoulders, reinforced guardrails, and drainage features normally lacking in older bridge construction. **Figure 1-1, Project Location**, shows the project location and surrounding area.

Completion of the project will involve evaluation of environmental conditions and existing land uses to determine the overall impact of construction activities and the impacts of the bridge replacement on traffic safety and nearby land uses. Additionally, community input was sought early on in the development process to identify non-design issues in order to resolve them during the planning and design stage. All project activities were assessed for compliance with State and County policies and land use plans.

1.2 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT

State of Hawaii and federal funds will be used for development. This project, therefore, is subject to preparation of environmental documentation in concordance with requirements of Chapter 200, Title 11, Hawaii Administrative Rules (HAR), and Chapter 343, Hawaii Revised Statutes (HRS). This EA addresses the limited environmental impacts anticipated from development of the proposed project. A Finding of No Significant Impact (FONSI) will be filed by SDOT. This project is anticipated to qualify for a "documented categorical exclusion" under NEPA. A documentation for categorical exclusion will be prepared for FHWA's approval.

1.3 PURPOSE AND NEED FOR PROJECT

The State of Hawaii, Department of Transportation (SDOT) is mandated to maintain the functional and structural integrity of bridges on state roadways. In fulfillment of this mandate, SDOT conducts regular inspections of bridges within its jurisdiction and makes recommendations to modify or replace structurally deficient bridges to meet current standards for roadway widths and safety features as specified by the American Association of State Highway and Transportation Officials (AASHTO) and SDOT design criteria. The Kaupakulua Bridge was among the bridges that were prioritized for improvement by SDOT for the current fiscal year.

Built in 1941, the existing bridge carrying Route 36 over Kaupakulua Gulch measures 230 feet long with a maximum span length of 57 feet. It is constructed primarily of timber, with steel girders, timber guard railings, and an asphaltic-concrete deck. The latest SDOT inspection of Kaupakulua Bridge was undertaken on October 25, 1997. The inspection report notes several structural deficiencies, including deteriorated timber, rusted steel girders, and substandard bridge railings. These problems are cited -- along with the advanced age of the bridge and the increasing costs of maintenance projects to sustain its useful life -- in the report's recommendation to replace the bridge. (See **Appendix C, SDOT-H Bridge Inspection Report, 10/25/97.**)

The proposed Kaupakulua bridge replacement will provide a reinforced concrete bridge crossing over Kaupakulua Gulch. Current standards for highway speed, loading, sight distances, guard railings, and other safety measures will be used in the design of the project.

1.4 ALTERNATIVES

As part of the analysis for this project, several alternatives were considered to address the need for upgrading the bridge at Kaupakulua. The alternatives evaluated include the no action alternative, the delayed action alternative, rehabilitation of the existing bridge, as well as two different designs for bridge replacement.

1.4.1 Alternative 1: "No-Action"

State and Federal legislation require that a "no-action" alternative be considered to serve as a baseline against which potential actions can be measured. The no-action alternative would result in no effort to replace the bridge or repair it to current safety standards. Under this option, environmental impacts resulting from bridge replacement activities would be averted, and bridge replacement costs would be spared. However, the bridge would continue to deteriorate, requiring regular inspection and increasing maintenance to maximize its useful lifespan. Eventually, the bridge might no longer provide a safe support for vehicle traffic and have to be closed.

1.4.2 Alternative 2: Delayed Action

Under the delayed action alternative, the existing bridge would continue to be used indefinitely. Regular inspections and maintenance to prolong the useful life of the bridge would continue to be performed by SDOT-H until a future decision is made to undertake the replacement project. Under this alternative, resource expenditures for bridge replacement would be averted in the short-term, however project activities would ultimately incur higher development costs due to inflation while generating environmental outcomes similar to immediate action.

1.4.3 Alternative 3: Rehabilitate Existing Bridge

Rehabilitation of the existing bridge in its current location was considered. This option would require extensive replacement of elements of the superstructure and substructure, including steel girders, timber beams and braces. Additional supports and reinforcements might also be required, particularly to the bridge railings which do not meet currently acceptable safety standards (SDOT-H Bridge Inspection Report, 10/25/97). On-going and increasing maintenance of the bridge would also be required to ensure its safety.

While this option would likely result in less of an impact to the existing scenery and rustic character of the Kaupakulua Bridge crossing, it would also result in greater overall costs for rehabilitation and maintenance. Additionally, because the bridge would not conform to federal standards for bridge design and highway safety, even in rehabilitated condition, federal funds would not be available for bridge improvements and the entire cost of renovation and

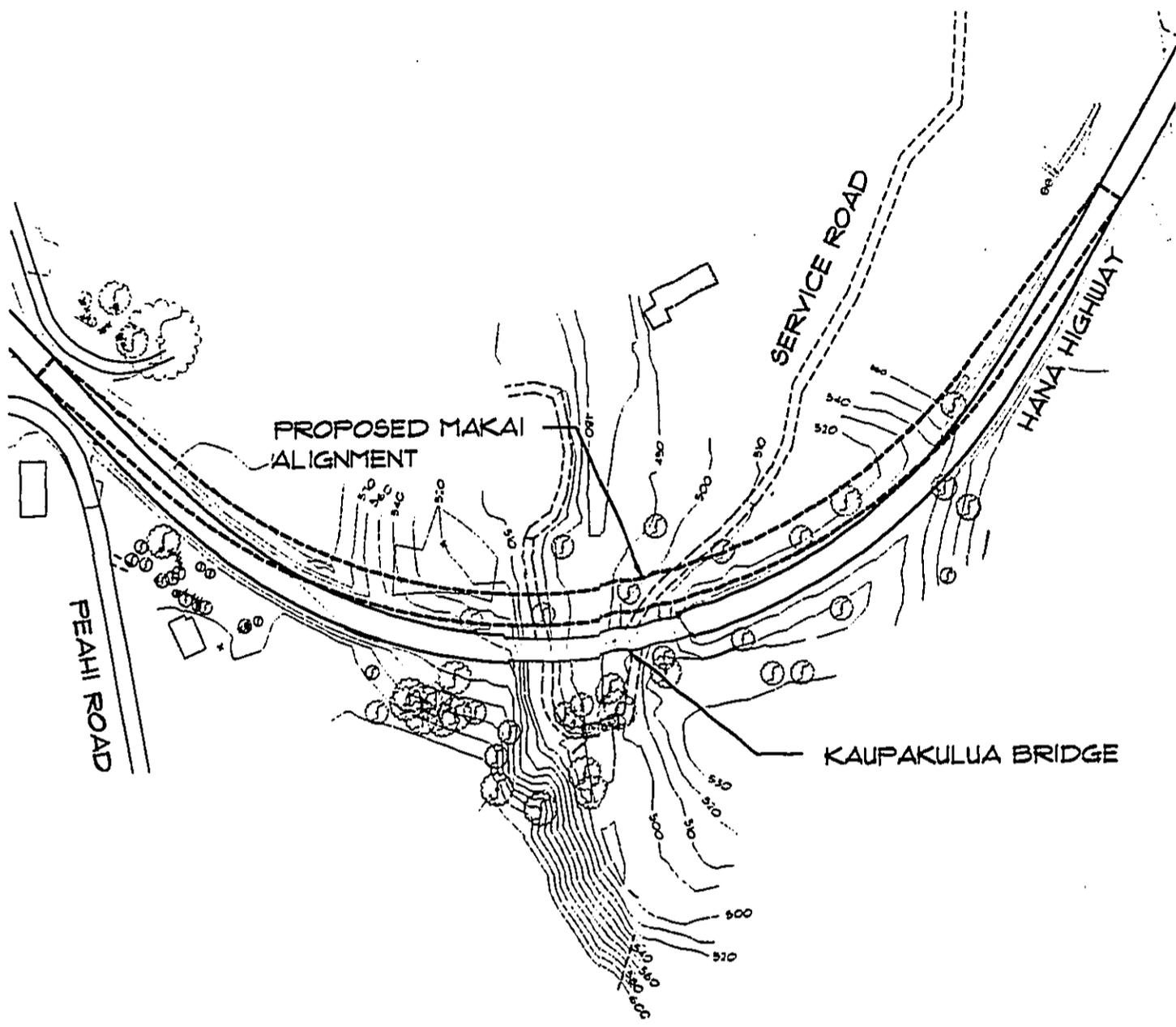
maintenance would have to be borne by the State. For these reasons, this option was considered, but not pursued.

1.4.4 Alternative 4: Replace Bridge - Makai (North) Alignment

In this alternative, a new bridge would be constructed on the makai (north) side of the existing bridge and the approach roads would be realigned from the new bridge to the Hana Highway. Modifications to the right-of-way would require the acquisition of property from four property owners comprising six individual TMK parcels. Construction would be similar to the recommended alternative, involving two support piers within Kaupakulua Gulch, cast-in-place abutments, and a reinforced, cast-in-place deck. Upon completion of the replacement bridge, the original bridge would be dismantled and removed leaving the pier footings and abutments abandoned in place. See Figure 1-2, Design Alternative, Makai (North) Alignment.

The benefits of a makai (north) alignment include a less-pronounced roadway curve, and thus a more direct line of sight, however this benefit would be minimal and would not noticeably improve driving safety more than the recommended alternative. Structural design considerations for a makai alignment would require a greater amount of fill beneath bridge abutments compared to a mauka (south) alignment, as well as the installation of retaining walls to stabilize the fill material. Although fill material can provide a suitably solid foundation for the bridge abutments, a cut foundation requires less effort in terms of engineering, design, and construction in addition to providing a more reliable base for building.

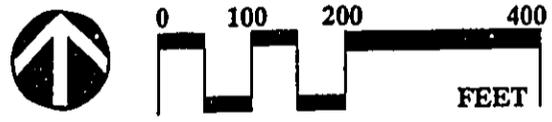
The cost of the makai (north) alignment is estimated at \$10,900,000. This is approximately \$900,000 greater than the estimated cost of the recommended alternative. The additional cost is attributable to the need to construct retaining walls beneath the bridge to stabilize fill material, a design feature not required in the mauka (south) alignment. The makai alignment also requires a longer bridge span than the recommended alternative, which would increase construction costs and effort. As a final consideration, a makai alignment places major construction within the County designated Special Management Area (SMA) and would require an additional level of regulatory oversight. For these reasons, the makai alignment was considered but not pursued.



LEGEND

- EXISTING ALIGNMENT
- - - - - ALIGNMENT CHANGE

**Figure 1-2
DESIGN ALTERNATIVE
MAKAI (NORTH) ALIGNMENT**



State of Hawaii
Department of Transportation
ROUTE 36 - HANA HIGHWAY
KAUPAKULUA BRIDGE
REPLACEMENT

R. M. TOWILL CORPORATION
July 1999

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

1.4.5 Preferred Alternative: Replace Bridge - Mauka (South) Alignment

In the recommended alternative, a new bridge would be constructed on the mauka (south) side of the existing bridge. New approach road alignments would be cut from the embankments immediately adjacent to the existing right of way. Retaining walls will be constructed along the makai side of the new alignment within the existing ROW. Foundations for bridge abutments would be cut into the banks of Kaupakulua Gulch, requiring little or no fill material. Two support piers would be anchored in the floor of Kaupakulua Gulch, outside of the existing stream channel, and a cast-in-place bridge deck would be built to cross the gulch in three spans of approximately 80 feet each. See **Figure 1-3, Preferred Alternative, Mauka (South) Alignment.**

Development on the mauka side of the proposed bridge would require ROW land acquisition from five individual land owners comprising five TMK parcels. During construction, the existing bridge would remain intact, to be used for uninterrupted vehicle transit. It would be dismantled upon completion of the replacement bridge and road realignment. The existing pier footings and bridge abutments would be abandoned in place.

Environmental outcomes and mitigation requirements would be similar under either of the design alternatives, however, the preferred alignment mauka (north) of the existing bridge is estimated to cost about \$10,000,000, nearly 10 per cent less than the makai (south) alignment. The preferred alternative would achieve design objectives with the least technical demand and investment of resources. The mauka alignment would use a cut foundation, which requires less effort in terms of engineering, design, and construction, in addition to providing a more reliable base for building. In addition to requiring little or no fill and no retaining wall beneath the bridge, the proposed design has a shorter bridge span, which further reduces construction costs. As a final consideration, building mauka of the existing right-of-way would require a minor permit. For these reasons, the mauka alignment is the recommended alternative.

CORRECTION

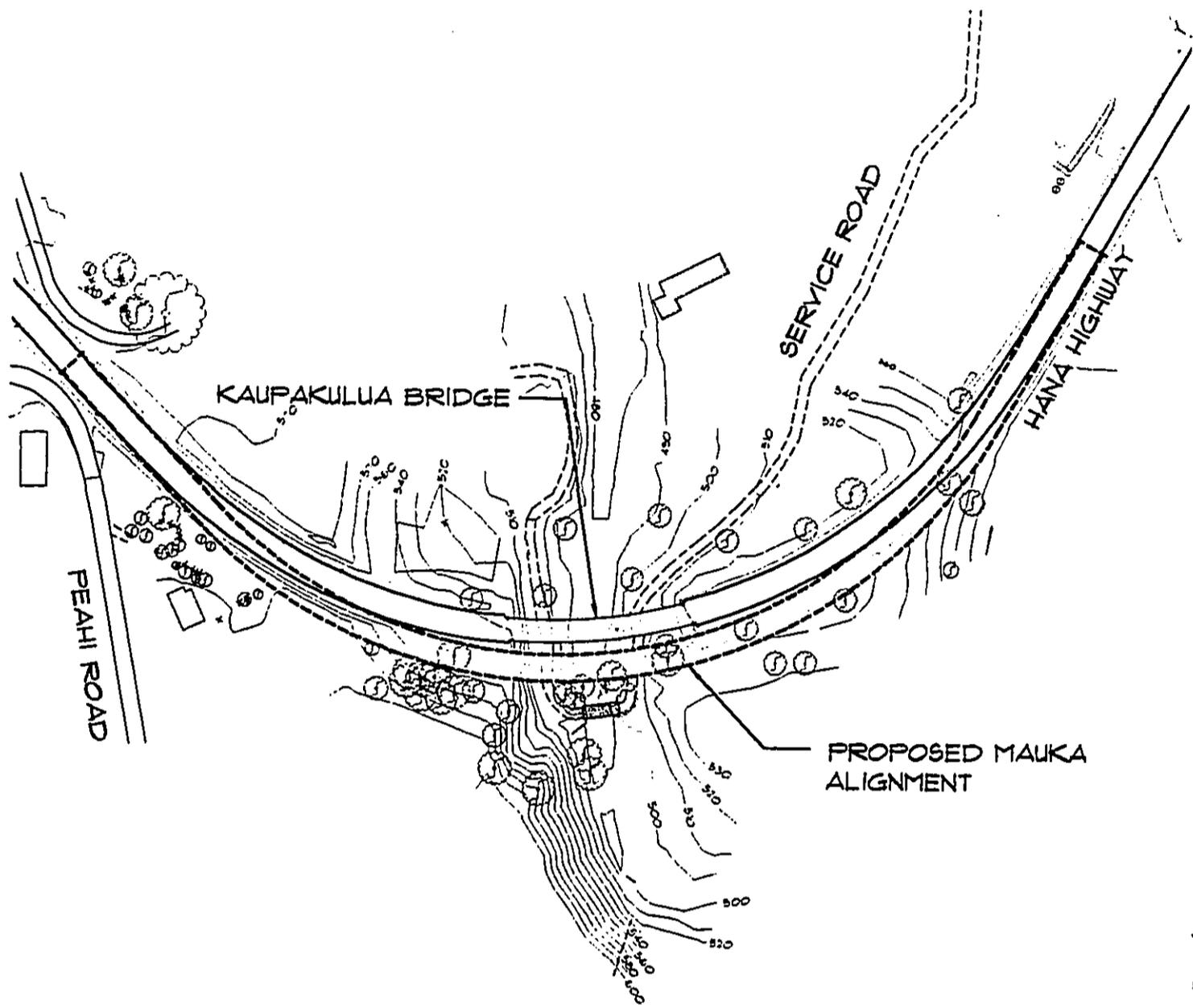
THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

1.4.5 Preferred Alternative: Replace Bridge - Mauka (South) Alignment

In the recommended alternative, a new bridge would be constructed on the mauka (south) side of the existing bridge. New approach road alignments would be cut from the embankments immediately adjacent to the existing right of way. Retaining walls will be constructed along the makai side of the new alignment within the existing ROW. Foundations for bridge abutments would be cut into the banks of Kaupakulua Gulch, requiring little or no fill material. Two support piers would be anchored in the floor of Kaupakulua Gulch, outside of the existing stream channel, and a cast-in-place bridge deck would be built to cross the gulch in three spans of approximately 80 feet each. See **Figure 1-3, Preferred Alternative, Mauka (South) Alignment.**

Development on the mauka side of the proposed bridge would require ROW land acquisition from five individual land owners comprising five TMK parcels. During construction, the existing bridge would remain intact, to be used for uninterrupted vehicle transit. It would be dismantled upon completion of the replacement bridge and road realignment. The existing pier footings and bridge abutments would be abandoned in place.

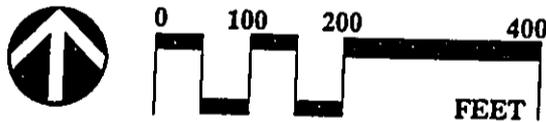
Environmental outcomes and mitigation requirements would be similar under either of the design alternatives, however, the preferred alignment mauka (north) of the existing bridge is estimated to cost about \$10,000,000, nearly 10 per cent less than the makai (south) alignment. The preferred alternative would achieve design objectives with the least technical demand and investment of resources. The mauka alignment would use a cut foundation, which requires less effort in terms of engineering, design, and construction, in addition to providing a more reliable base for building. In addition to requiring little or no fill and no retaining wall beneath the bridge, the proposed design has a shorter bridge span, which further reduces construction costs. As a final consideration, building mauka of the existing right-of-way would require a minor permit. For these reasons, the mauka alignment is the recommended alternative.



LEGEND

- EXISTING ALIGNMENT
- - - - - ALIGNMENT CHANGE

**Figure 1-3
RECOMMENDED ALTERNATIVE
MAUKA (SOUTH) ALIGNMENT**



State of Hawaii
Department of Transportation
ROUTE 36 - HANA HIGHWAY
KAUPAKULUA BRIDGE
REPLACEMENT

R. M. TOWILL CORPORATION
July 1999

CHAPTER 2 PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND SITE CHARACTERISTICS

The Kaupakulua Bridge carries Hana Highway, State Route 36, over Kaupakulua Gulch in the Makawao District of Maui. The existing bridge is located approximately two miles east of Ha'iku within the State right-of-way, identified by Tax Map Key (TMK) 2-7-13: 67. Lands surrounding the bridge are rural in character, privately owned and sparsely developed with single family residences. Vehicular access to the project site is provided by the Hana Highway, which has 12-foot lanes with paved shoulders in both directions of approach to Kaupakulua Bridge. Access to the gulch is via the privately owned Oili Road, a dirt access road that curves beneath Kaupakulua Bridge. See:

Figure 2-1, Project Location

Figure 2-2, Tax Map Key Location

Figure 2-3, Project Site.

2.2 TECHNICAL CHARACTERISTICS

The proposed replacement bridge will be constructed adjacent to the existing structure on the mauka (south) side of the Hana Highway. The proposed bridge will measure approximately 240 feet long by 44 feet wide to accommodate two 12-foot traffic lanes and two 10-foot shoulders. The bridge structure will be constructed of pre-cast and cast-in-place piers, pier footings, bridge abutments and concrete deck sections. The proposed design includes reinforced guardrails, drainage features, and striped shoulders. The bridge will include two support piers separated by an 80-foot span. The piers will be anchored in the bed of the Oili Road service road extension, a dirt road that accesses the gulch beneath the bridge site. Grouted rubble pavement (GRP) will be installed on the banks of the gulch beneath the bridge abutments to stabilize the embankment.

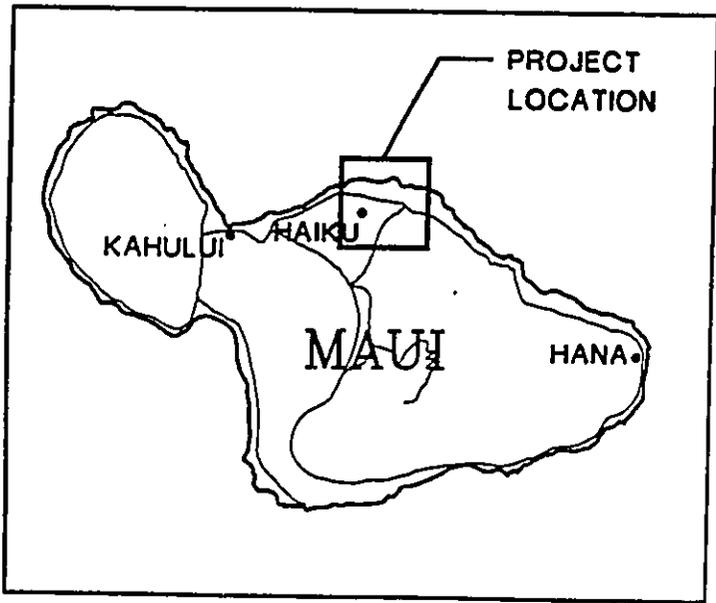
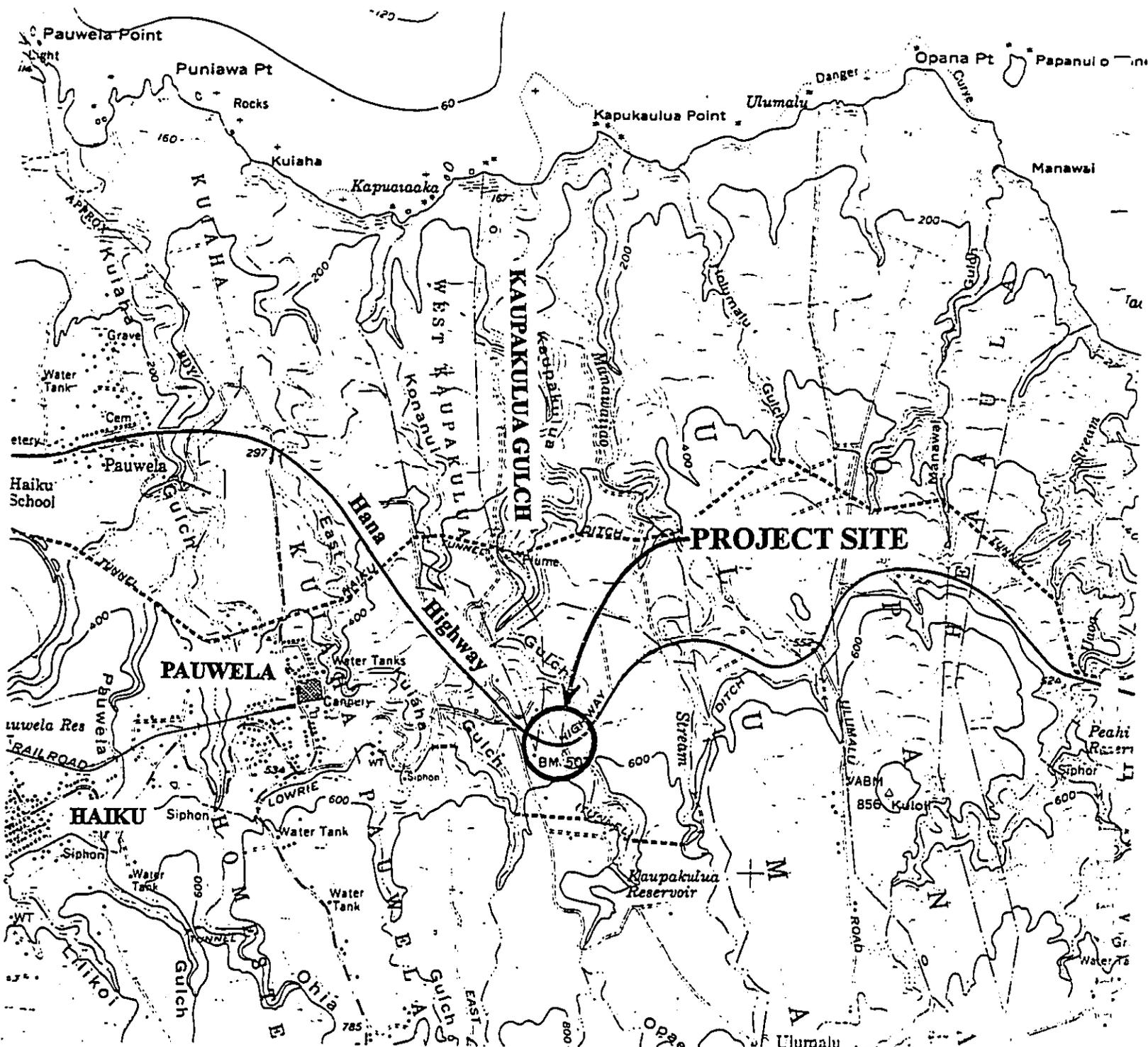
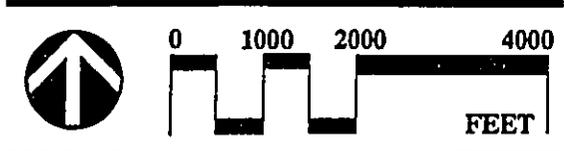
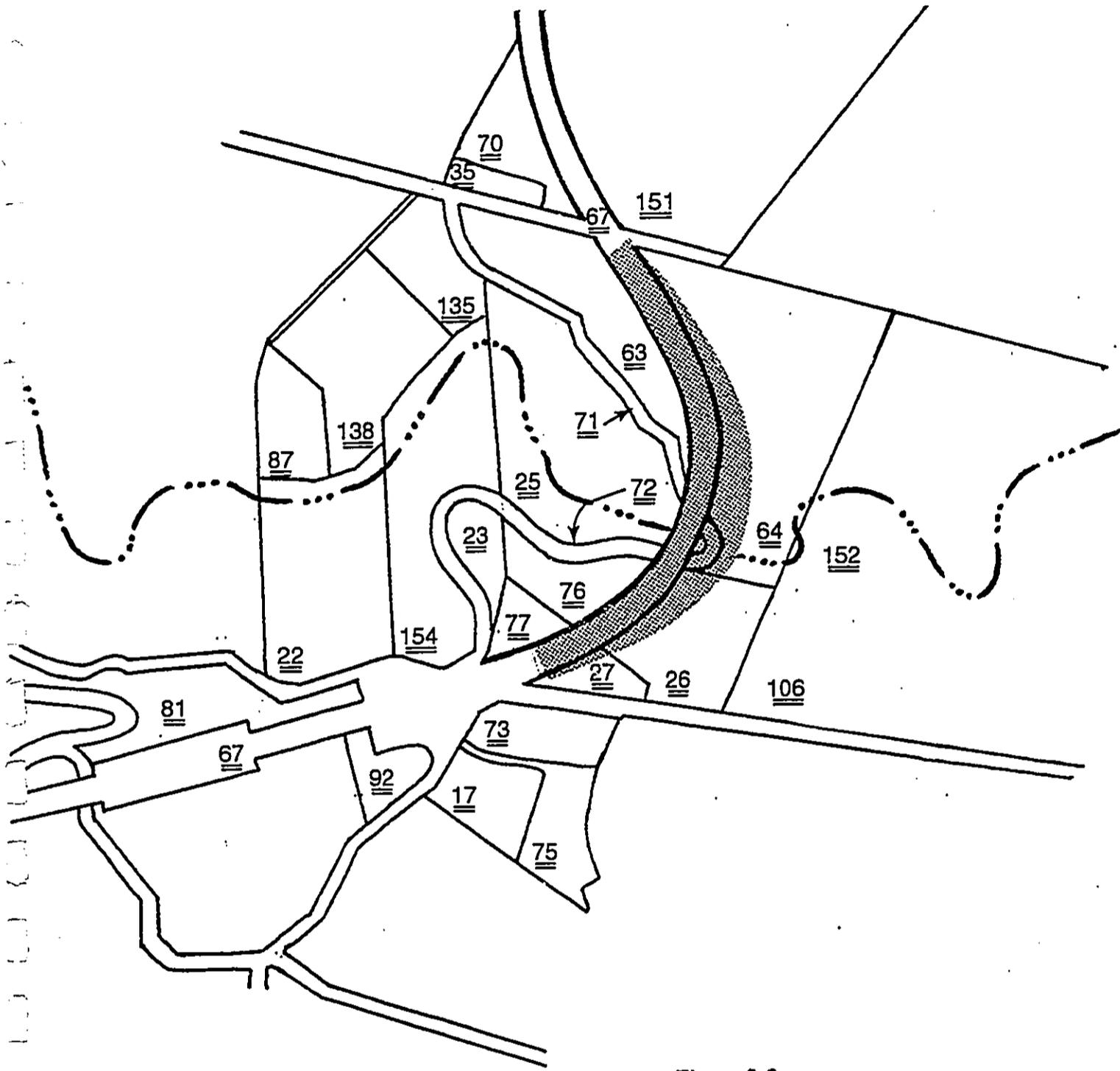


Figure 2-1
PROJECT LOCATION



State of Hawaii
Department of Transportation
ROUTE 36 - HANA HIGHWAY
KAUPAKULUA BRIDGE
REPLACEMENT

R. M. TOWILL CORPORATION
July 1999



DEPARTMENT OF TAXATION
 PROPERTY TECHNICAL OFFICE
 TAX MAPS BRANCH
 STATE OF HAWAII
 TAX MAP

FIRST TAXATION DISTRICT		
ZONE	SEC.	PLAT
2	7	13

Figure 2-2
 TAX MAP KEY LOCATION



Not to Scale

State of Hawaii
 Department of Transportation
 ROUTE 36 - HANA HIGHWAY
 KAUPAKULUA BRIDGE
 REPLACEMENT

R. M. TOWILL CORPORATION
 July 1999

Approach roads will be constructed and aligned to merge with the existing highway. The approach roads will be 40-feet wide to accommodate two 12-foot traffic lanes and two 8-foot paved shoulders. Two reinforced concrete retaining walls will be constructed on either end of the bridge along the makai alignment of the new approach road. The wall on the west side will measure approximately 270 feet in length by 9 ½ feet high. On the east side, the wall will be approximately 260 feet long by 14 ½ feet high. The bridge and approach roads shall conform to AASHTO and SDOT design criteria for roadway widths and safety features.

2.3 CONSTRUCTION ACTIVITIES

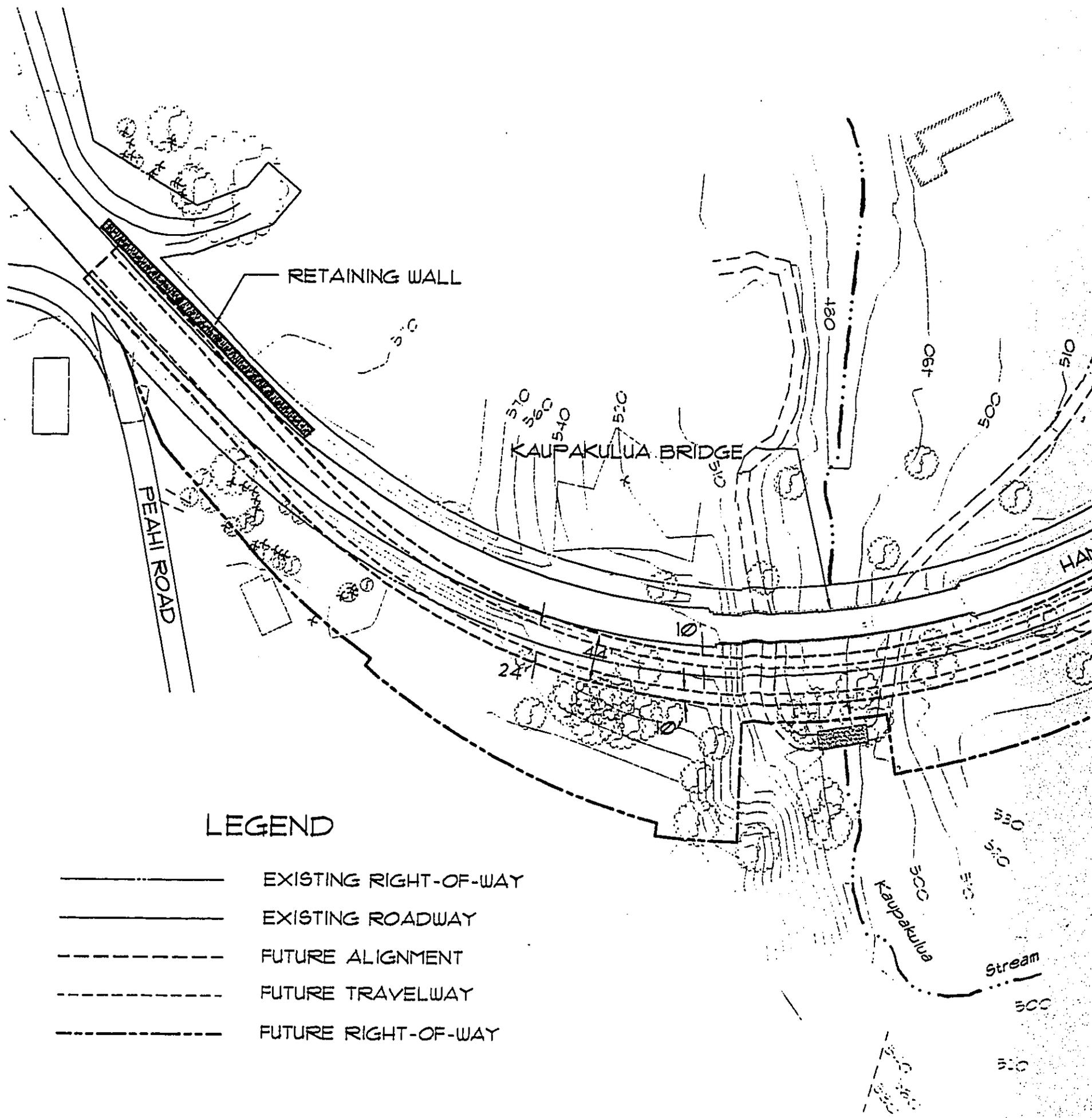
The proposed project will involve the following actions.

1. Mobilization
2. Installation of Discharge Pollution Prevention Measures
3. Realignment of Approach Roads
4. Construction of New Bridge
5. Dismantling of Existing Bridge
6. Demobilization and Restoration

2.3.1 Mobilization

Mobilization of equipment, materials, and workforce shall occur on an as needed basis, in schedule with the phases of construction. Construction activities require that staging areas be established on both sides of Kaupakulua Gulch. Construction activities will also be conducted from the deck of the existing Kaupakulua Bridge and within the gulch at the foot of the bridge pilings. Access into the gulch will be provided via a privately owned unpaved service road that extends off of Oili Road.

Prior to mobilization, the project contractor will identify staging and stockpiling areas for construction equipment and materials and will obtain necessary rights of access to private



LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING ROADWAY
- - - - - FUTURE ALIGNMENT
- - - - - FUTURE TRAVELWAY
- - - - - FUTURE RIGHT-OF-WAY

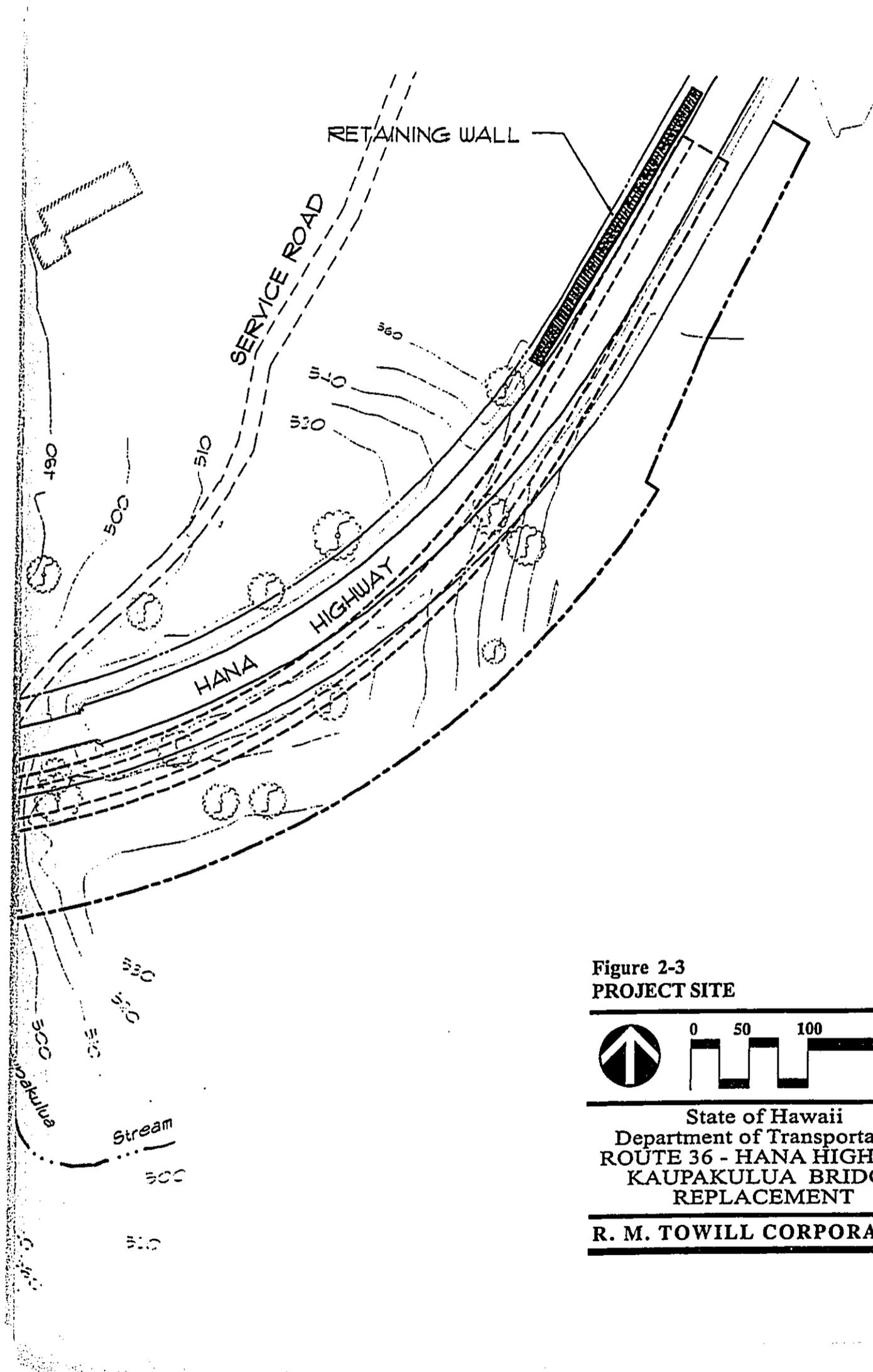
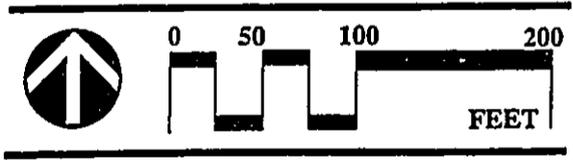


Figure 2-3
PROJECT SITE



State of Hawaii
Department of Transportation
ROUTE 36 - HANA HIGHWAY
KAUPAKULUA BRIDGE
REPLACEMENT

R. M. TOWILL CORPORATION
July 1999

property used for this purpose. The project contractor will also obtain rights of access to the Oili Road service road extension from the Keith & Karen Baxter Trust and Kevin Gillens Trust (jointly owned TMK 2-7-13: 71), and The Tamashiro Living Trust (TMK 2-7-13: 72) for work conducted within Kaupakulua Gulch. The contractor shall bear the liability for meeting property owners' terms for right of entry.

Staging and stockpile areas shall be prepared as necessary with appropriate discharge pollution prevention features, refuse containment, parking areas for workers, and clearly marked transit paths for heavy equipment. During mobilization, ground disturbance shall be held to the minimum area necessary to accommodate the heavy equipment and materials required for construction activities.

2.3.2 Installation of Discharge Pollution Prevention Measures

Discharge pollution prevention measures will be installed for each project action as required by the construction activities and project scheduling. Measures to prevent runoff and the release of sediment into Kaupakulua Stream during construction will be in place and functional before project activities begin and will be maintained throughout the construction period. Runoff and discharge pollution prevention measures will be incorporated into a site-specific Best Management Practices (BMP) plan by the project contractor. The contractor shall include, but not be limited to the following control measures in the BMPs. See **Figure 2-4, Discharge Pollution Control Measures**.

- A silt screen shall be installed across the stream channel approximately ten feet downstream of the project site. The silt screen shall consist of a filter fabric combined with a layer of polyester netting for support. The screen shall remain in place for the duration of project activities. (See **Figure 2-5, Typical Silt Fence Detail**)
- Sediment retention berms lined with silt screen shall be placed along the down-slope edge of active construction areas, and staging and stockpile areas. In particular, sediment retention berms shall be in place during installation of the pier footings and grouted rubble

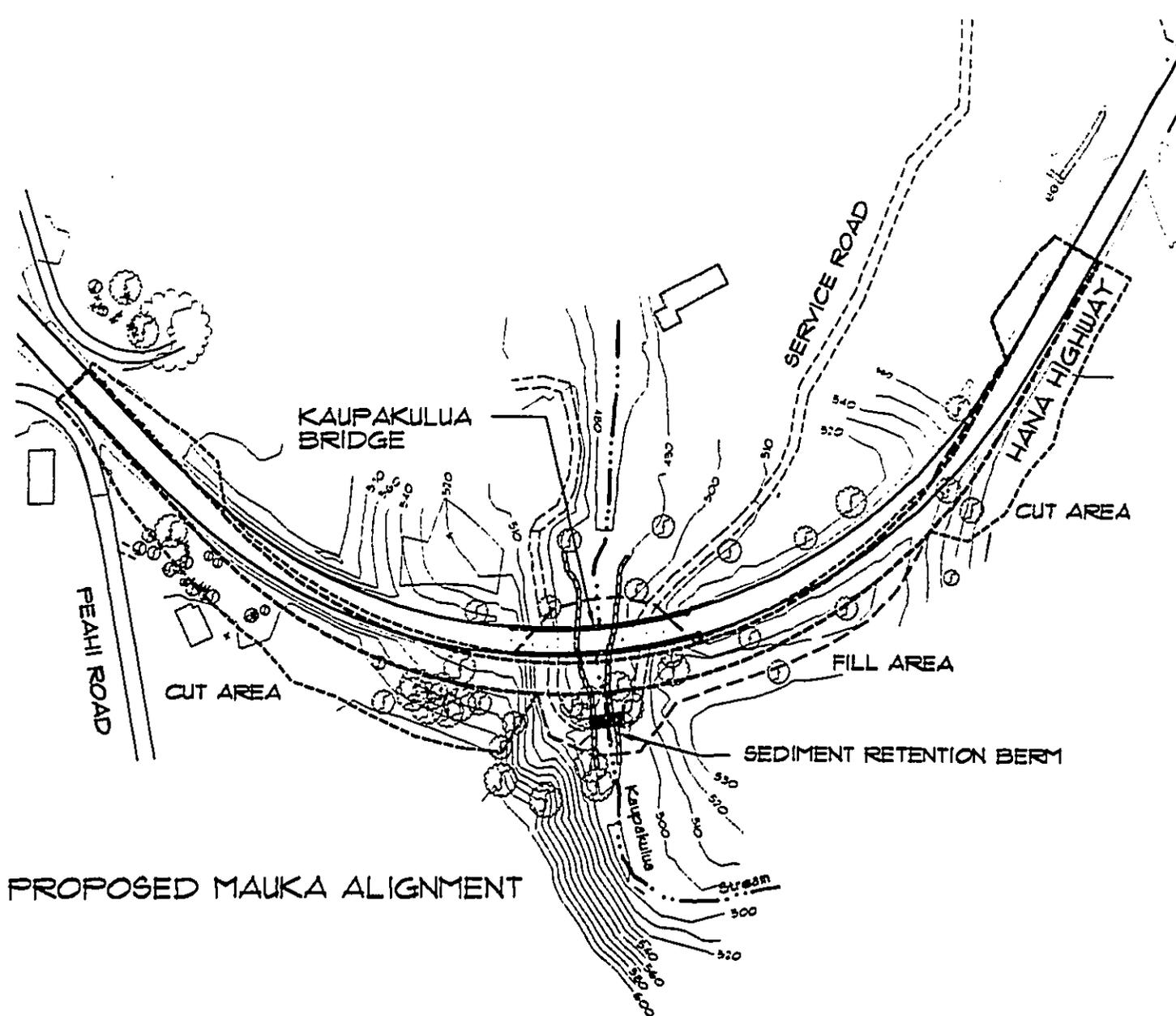
pavement bank stabilization features. These berms shall function to prevent sediment captured in storm runoff from entering Kaupakulua Stream. They shall be shaped to retain runoff and trap sediment before it leaves the construction site, and shall be sized to accommodate the volume of runoff generated by a one-inch storm. When construction is complete, the berms and all of their components shall be removed. See **Figure 2-6, Typical Sediment Retention Berm Detail.**

All discharge pollution controls shall be regularly monitored and maintained by the project contractor. In the event of rainfall of ½ inch or greater within a 24 hour period, discharge pollution control measures should be checked within 24 hours of the event. During prolonged rainfall, control measures should be checked daily. If a severe storm event such as a 100-year storm occurs, then construction activities shall stop, equipment and materials will be stored, relocated, or otherwise secured against storm impacts, and any discharge control features installed within the stream channel will be removed. The contractor shall be responsible for recovering any materials or equipment washed away by stream flow.

2.3.3 Realignment of Approach Roads

In both directions of approach to the bridge, new roadway alignments will be cut into the embankments mauka (south) of the existing ROW. On approach, the embankments gradually rise to approximately 30 feet above the roadway elevation. At the site of the new bridge abutments, the approach road alignment will cut approximately 45 feet into the embankment from the existing shoulder. Spoils removed from excavation of the embankment will be disposed of off-site by the project contractor in compliance with Maui County regulations.

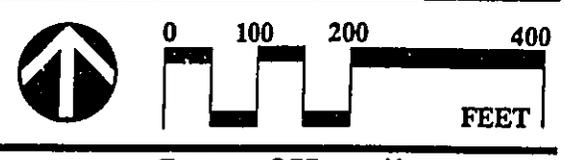
Upon completion of the new bridge, approach roads will be aligned from the new abutments to the existing road. The approach roads will be 40 feet wide to accommodate two 12-foot traffic lanes and two paved 8-foot shoulders that taper out to 10 feet at the bridge. Two retaining walls, one on each side of Kaupakulua Gulch, will be constructed on the makai side of the new roadway within the existing ROW. Approximately 600 feet of new roadway will be constructed on each



PROPOSED MAUKA ALIGNMENT

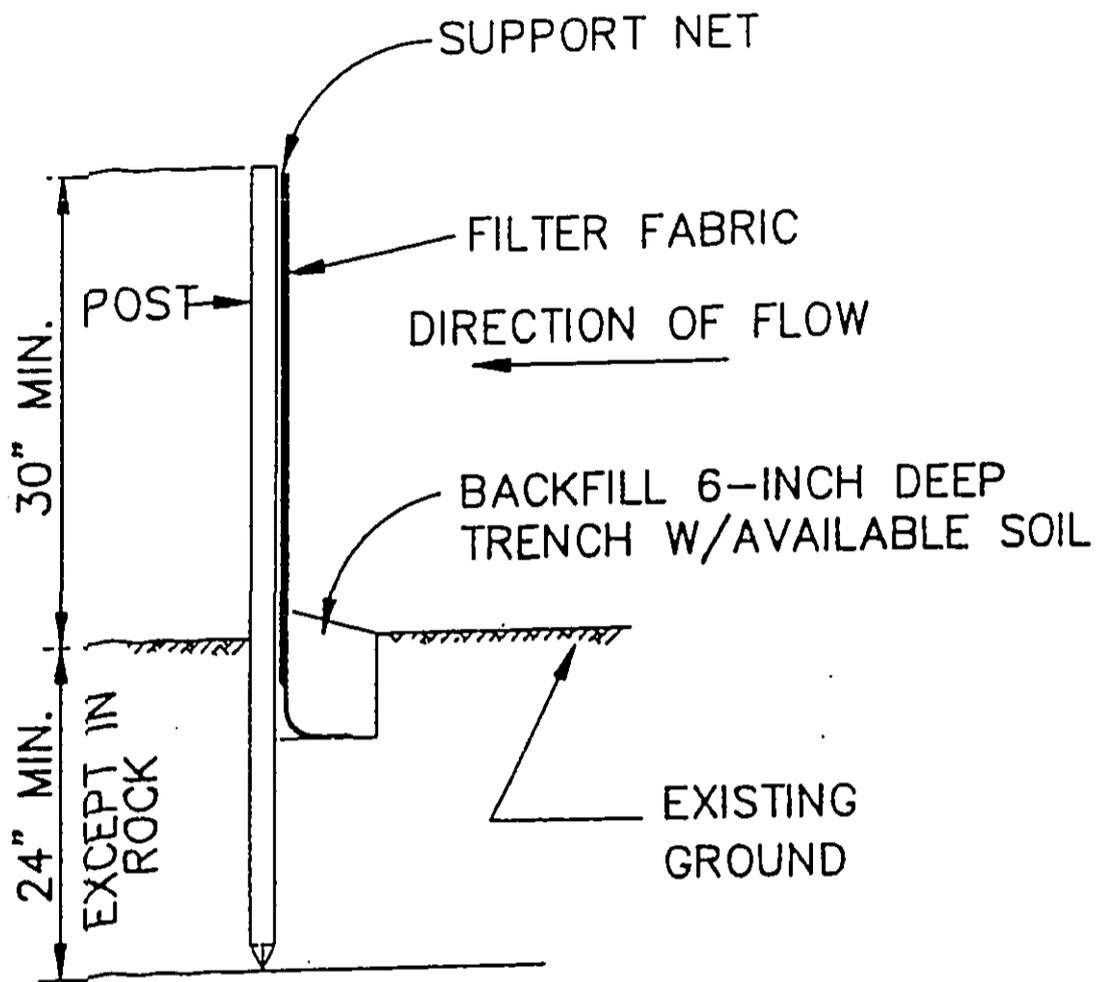
Figure 2-4
DISCHARGE CONTROL MEASURES

- LEGEND
- EXISTING ALIGNMENT
 - - - ALIGNMENT CHANGE



State of Hawaii
Department of Transportation
ROUTE 36 - HANA HIGHWAY
KAUPAKULUA BRIDGE
REPLACEMENT

R. M. TOWILL CORPORATION
July 1999



SILT FENCE DETAIL

Figure 2-5
TYPICAL SILT FENCE DETAIL

Not to Scale

State of Hawaii
Department of Transportation
ROUTE 36 - HANA HIGHWAY
KAUPAKULUA BRIDGE
REPLACEMENT

R. M. TOWILL CORPORATION July 1999

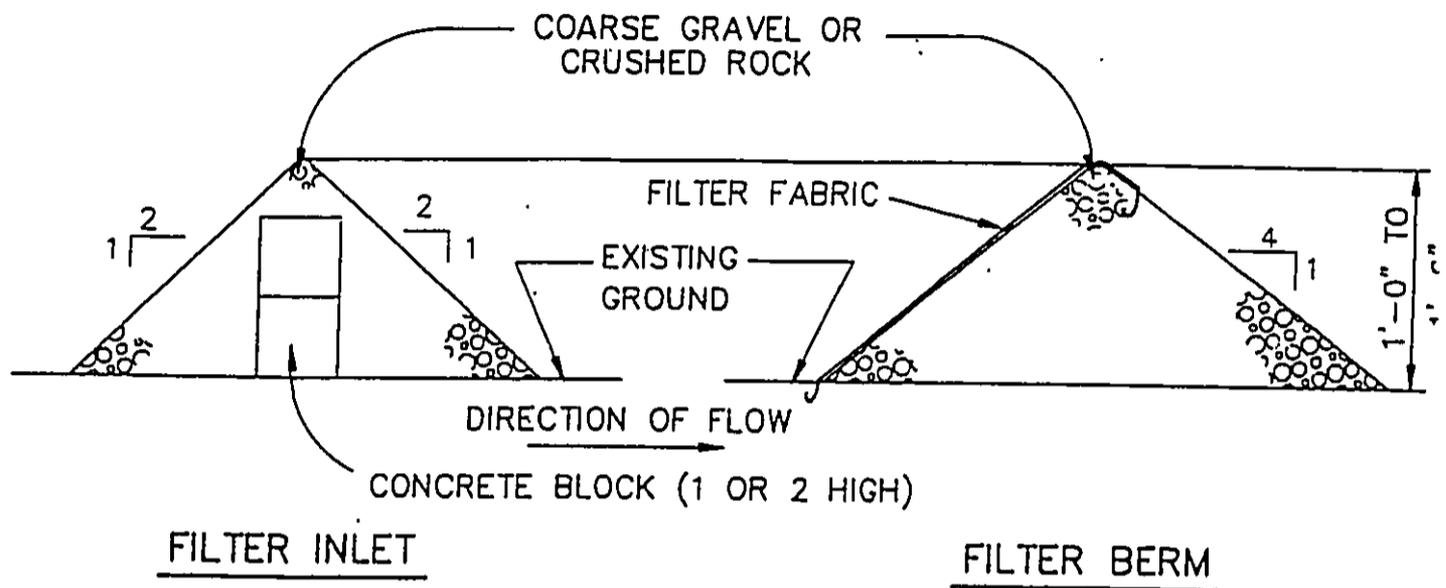


Figure 2-6
TYPICAL SEDIMENT
RETENTION BERM

Not to Scale

State of Hawaii
 Department of Transportation
 ROUTE 36 - HANA HIGHWAY
 KAUPAKULUA BRIDGE
 REPLACEMENT

R. M. TOWILL CORPORATION
 July 1999

side of the gulch to connect the new bridge with the existing Hana Highway alignment. Roadway construction will involve clearing, grubbing and grading the line of approach, preparing the road bed and laying down an asphalt road surface.

The present alignment of the Hana Highway will be modified to merge with the new approach roads. When the new approach roads and bridge are ready to open for service, traffic on the Hana Highway will be diverted to the new route, and the existing approach road to the old bridge will be demolished and removed. See **Figure 2-3, Project Site**, previous pages.

2.3.4 Construction of Proposed Bridge

The proposed bridge will be constructed on the mauka (south) side of the existing bridge. Construction will involve installation of bridge abutments, pier footings, support piers, and deck. During construction, the existing bridge will remain open to maintain uninterrupted traffic flow on the Hana Highway.

Foundations for the bridge abutments will be cut into the top bank of Kaupakulua Gulch. Little or no fill is anticipated to be required for construction of the abutments. Grouted rubble pavement (GRP) will be installed beneath the bridge abutments along both embankments down to the edge of the stream bed to stabilize the banks against potential erosion damage. Material excavated from the foundation shall be used as practicable elsewhere in the project. Unused material will be transported off-site and disposed in compliance with Maui County regulations.

Two pier footings will be constructed in the floor of Kaupakulua Gulch within the bed of the Oil Road service road extension, above the existing stream channel. The road bed provides the best location for constructing the pier footings due to its easy accessibility and level topography. Foundations for the footings will be excavated several feet deep within the road bed. There is a possibility that groundwater will be encountered during excavation. If so, dewatering will be required. Additionally, there is the possibility that the construction area within the gulch may be inundated with water released from Kaupakulua Reservoir. (see Section 2.4, Best Management Practices).

Piers will be constructed on top of the footings to support the bridge deck. Staging of pier construction will be conducted primarily from the Oili Road service road extension within the gulch. The piers and bridge deck will be constructed of pre-cast and cast-in-place cement. Deck construction will include asphaltic concrete surfacing, reinforced guardrails, and drainage features.

2.3.5 Dismantling of Existing Bridge

The old Kaupakulua Bridge will be dismantled from the top down. The entire deck and superstructure, including the piers, shall be removed leaving the abutments and pier footings abandoned in place. Demolition shall be staged both from the top bank of Kaupakulua Gulch and from the Oili Road service road extension within the gulch.

Prior to demolition, the project contractor will identify any hazardous substances that might be present in the existing bridge. Demolition crews working on the bridge shall take precaution against exposure to pollutants from treated wood, paint, petroleum products, and other potentially hazardous materials. To prevent debris from entering the stream during demolition, safety nets will be installed beneath active demolition areas to catch falling material. Materials and debris from the demolished bridge shall be trucked off-site and disposed of by the contractor in compliance with Maui County regulations.

2.3.6 Demobilization and Restoration

Upon completion of the proposed improvements, the contractor shall restore the project site as much as possible to pre-project conditions:

- All construction-related material, including excavated material, fill material, and refuse shall be removed from the project site and disposed of properly by the contractor.
- All construction equipment shall be removed from the project site promptly after construction is complete.

- Any modifications to existing utilities, such as power lines or water sources, shall be repaired to their pre-existing condition.
- Roadways providing access to the site shall be cleared of construction debris and any damage from construction traffic will be repaired. Gates and/or fencing removed to provide access to the site shall be replaced and/or repaired. If necessary, the Oili Road service road extension shall be realigned around the pier footings.
- All areas damaged by construction staging shall be restored. Impacted pasturage, lawns, driveways or vegetated areas shall be replanted and restored. Exposed ground areas shall be seeded or hydro-mulched as appropriate.

2.4 BEST MANAGEMENT PRACTICES

A site-specific Best Management Practices (BMP) plan will be prepared by the project contractor as part of the project construction plan. The BMPs will include guidelines and mitigation measures to prevent runoff, discharge pollution, and other detrimental impacts related to construction activities. BMPs will be designed and implemented for normal stream flow conditions at the project site and will include contingency plans to respond to heavy rainfall conditions and the possibility of an emergency release of water from Kaupakulua Reservoir.

Regional and special conditions outlined by the Army Corps of Engineers (ACOE) and the State Department of Health (DOH) per requirements of Section 404 and 401 permits will also be addressed in the site-specific BMPs.

Mitigation measures, in addition to the discharge pollution controls described above, shall include, but not be limited to the following:

- Clearing and excavation shall be held to a minimum necessary to meet project design and construction plan requirements.

- Construction shall be phased to minimize the exposure time of cleared or excavated areas. Existing ground cover shall not be destroyed, removed or disturbed more than 20 calendar days prior to the start of construction.
- Stabilization shall be accomplished by temporarily or permanently protecting the disturbed surface from rainfall impacts and runoff.
- Storm water flowing toward active project areas shall be diverted as much as practicable using the appropriate controls, including berms and silt fences, as determined by the contractor according to site conditions.
- Areas that remain unfinished for more than 30 calendar days shall be hydro-mulched or seeded to provide temporary soil stabilization.
- The project contractor will select locations for stockpiling construction material. Stockpile sites will be identified in the site-specific BMPs and construction plans. A sediment retention berm or silt fence will be installed around the down-slope side of stockpile sites to retain sediment discharge during heavy rainfall.
- No fuel will be stored on the project site. Fueling of construction equipment will only be performed off-site or within an area designated by the contractor. Any site designated for refueling shall be located away from the stream, enclosed by a containment berm and constructed to contain spills and seepage and prevent storm water runoff from carrying pollutants into state coastal waters.
- If groundwater is encountered during excavation for the pier footings, dewatering will be required. Effluent water will be pumped from the excavation and routed by pipe through a filtration system before being discharged into Kaupakulua Stream. The filtration system will consist of an enclosed box containing at least two filter screens comprised of a geotextile filter fabric that allows water to flow through while capturing soil particles up to #70 sieve size. The project contractor will monitor the filtration system for clogging or failure and immediately repair or replace any damaged or ineffective components.

- To minimize impacts from reservoir drainage, the project contractor shall contact the East Maui Irrigation Company to coordinate construction activities with reservoir water release. To the extent practicable, water release shall be maintained at levels not exceeding normal water flow within the gulch. If it becomes necessary to release an amount of water that exceeds normal stream flow, East Maui Irrigation Co. will notify the project contractor as early as possible prior to opening the reservoir sluice.
- In the event of an emergency release from the reservoir, or a severe storm event that may result in flooding of the work site within the gulch, all construction equipment and materials, including discharge pollution prevention and dewatering measures, will be removed from the project site to a secure staging area above the potential flood level.
- During demolition of the old bridge, care will be taken to prevent bridge debris from falling into Kaupakulua Stream. Measures may include safety nets and screens installed under areas of active demolition to capture falling materials.

The contractor, based on professional experience and expertise, may modify the proposed BMP mitigation measures as necessary to account for unanticipated or changed site conditions.

2.5 PROJECT SCHEDULE, COST, AND WORK FORCE

Construction is scheduled to begin Spring of 2000 and last approximately twelve months. The first phase of construction, building the new bridge and approach roads, will take approximately nine months. The second phase, destroying the old bridge, will be accomplished within three months. The preliminary construction cost estimate for this project is \$10,000,000. Funding for this project will be provided by the Department of Transportation, State of Hawaii, and the Federal Highways Administration. The federal government will contribute approximately 80 percent of the construction cost towards completion of the Project with the State providing the remaining 20 percent. A detailed description of construction activities and final project design will be submitted with the Construction Plans pending selection of the contractor.

CHAPTER 3 ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATION

This chapter assesses the environmental consequences of the proposed action described in Chapter 1. Potential impacts are described and evaluated. Mitigation measures that would eliminate and/or reduce potential adverse impacts are identified.

3.1 TOPOGRAPHY, CLIMATE, AND RAINFALL

3.1.1 Topography

The proposed project site is located approximately 1 1/4 miles above Kapukaulua Point on the northeastern coastline of Maui at an elevation of 530 feet above mean sea level (msl). The coordinates for the point of crossing over Kaupakulua Gulch are approximately 20°55'20" latitude and 156°18'00" longitude. According to the SDOT bridge inspection report, roadway elevations along the bridge vary between 534 and 539 feet above msl. Kaupakulua Stream flows intermittently through Kaupakulua Gulch at the project site. The topography is characterized by moderate slopes of 7 to 15 percent. The most significant topographical feature in the vicinity of the project site is Kaupakulua Gulch, which drops as deep as 50 feet below the bridge deck to the stream bed.

3.1.2 Climate

The climate of the Pa'ia-Ha'iku area is comfortably uniform. The area is characterized by abundant sunshine, persistent northeast tradewinds, relatively constant temperatures, moderate humidities, and the infrequency of severe storms. Monthly temperatures in the project area, as recorded in Pauwela, are within the range of 76 degrees Fahrenheit mean temperature in August and 70 degrees Fahrenheit mean temperature in December. Temperatures of 80 degrees and higher are not uncommon throughout the year. The mean annual rainfall in the project area is approximately 50 inches with most of the rainfall occurring between October and March. (University of Hawaii 1983).

3.2 GEOLOGY AND HYDROLOGY

3.2.1 Soils

Soils within Kaupakulua Gulch are classified as Rough Broken Land (rRR). This soil type consists of very steep land broken by numerous intermittent drainage channels. It occurs in gulches and on mountainsides on all the islands except Oahu. The slope is generally 40 to 70 percent. Runoff is rapid, and geologic erosion is active. In most places some weathered rock fragments are mixed with the soil material. Small areas of rock outcrop, stones, and soil slips are common, as are areas of colluvium and alluvium along gulch bottoms.

Soils on the plains shouldering the gulch are classified as Ha'iku Clay, 7 to 15 percent slopes (HbC). This soil type occurs on uplands. In a representative profile the surface layer is dark-brown clay about 14 inches thick. The subsoil, about 31 inches thick, is yellowish-red, dark reddish-brown, and dark-red clay or silty clay. The substratum is soft, weathered, basic igneous rock. The soil is very strongly acid in the surface layer and extremely acid and very strongly acid in the subsoil and substratum. Permeability is moderately rapid. Runoff is slow to medium and the erosion hazard is slight to moderate. (U.S. Department of Agriculture, 1972). See **Figure 3-1, Soils Map.**

3.2.2 Surface Water

Kaupakulua Stream is assigned the code number 6-3-03 in the Hawaii Stream Assessment. It is described as an interrupted stream. Flow in the upper reaches may be continuous year-round, but flow in the lower reaches is intermittent. At the project site, Kaupakulua Stream is characterized as intermittent. Water flow depends on seasonal rainfall conditions and controlled discharges from Kaupakulua Reservoir, located approximately ½ mile upstream of the project site.

Upslope from the project site, Kaupakulua Stream is part of the East Maui Irrigation water system, with water diverted at several points upstream of the Kaupakulua Reservoir, and ditch water added at other points. (e.g., the New Hamakua Ditch terminates on Kalakohi Gulch and the water is transferred to the Kauhikoa Ditch further downstream.)

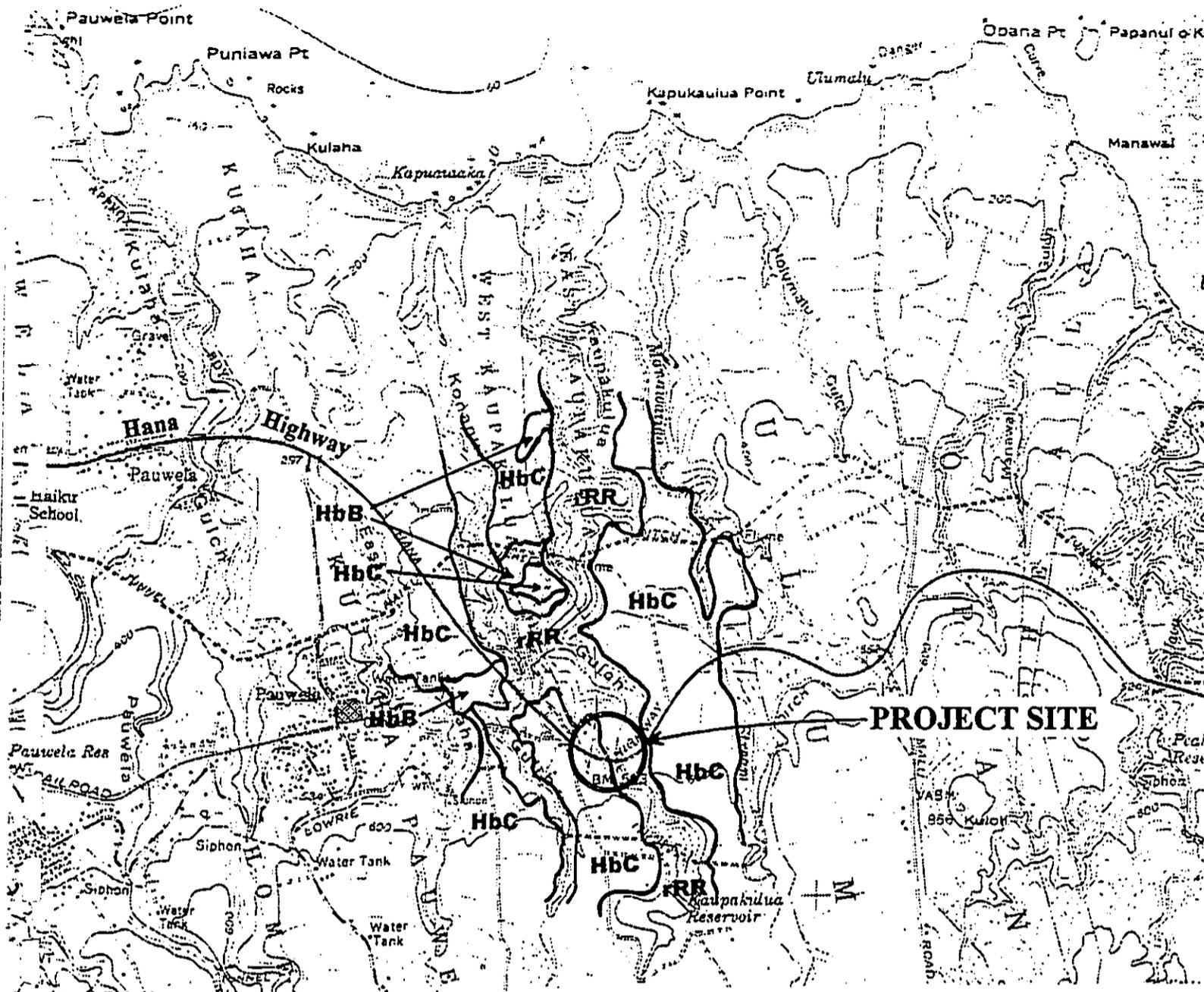
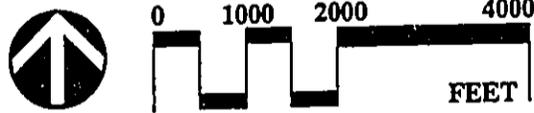


Figure 3-1
SOILS MAP

LEGEND

- rRR - Rough Broken Land
- HbB - Haiku Clay, 3-7% slope
- HbC - Haiku Clay, 7-15% slope

Source: U.S. Department of Agriculture,
Soil Conservation Service, 1972.



State of Hawaii
Department of Transportation
ROUTE 36 - HANA HIGHWAY
KAUPAKULUA BRIDGE
REPLACEMENT

R. M. TOWILL CORPORATION
July 1999

A continuous-record stream gage (No. 602400) was maintained on Awalau Gulch, a branch of Kaupakulua, at Kailiili between 1965 and 1971. Flow averaged 3.56 cfs (median flow is 2.7 cfs) from the drainage area of 0.23 square mile (147 acres or 59 hectares) above the gage (Hawaii Cooperative Park Service Unit, 1990). This area is the very uppermost end of the watershed contributing flow to Kaupakulua Stream. The total area of the Kaupakulua watershed is 2,420 acres (979 hectares) (OSP 1994). The elevation of Kaupakulua Stream's headwaters, i.e., the highest elevation at which a distinct channel for the stream is present, is approximately 610 feet above mean sea level (Aecos, Inc. 1995). See Figure 3-2, Surface Water.

3.2.3 Wetlands

Kaupakulua Stream is noted as having a "special area" wetland, referring to Kaupakulua Reservoir. On the USFWS map the reservoir is coded PUS3Ch. This code references a palustrine (pond, swamp, or marsh) wetland type: an unconsolidated shore, mud bottom, seasonally flooded impoundment (USFWS 1995). No other wetlands occur within Kaupakulua Gulch or the vicinity.

3.2.4 Project Impacts

Because the proposed project involves construction activities within the stream channel and extensive work in proximity to the stream, the potential for discharge pollution entering state waters does exist. In-stream activity includes installation of temporary sediment retention features and staging and maneuvering of heavy equipment. Near-stream work includes excavation and installation of pier footings, construction of piers, abutments, and road deck, and installation of GRP bank stabilization. Potential for pollutant discharge into State waters of Kaupakulua Stream during construction would primarily result from release of silt and suspended sediments during excavation and grading activities or during extreme storm conditions.

Materials that may potentially enter State waters due to construction activities include soil and vegetation from excavation activities, concrete, grouted rubble pavement (GRP), and fill material used in bridge construction, fuel and oil used by construction equipment, and sediment carried in storm water runoff from areas exposed by construction grading or excavation. If dewatering

becomes necessary, the effluent would be discharged into Kaupakulua Stream, posing a potential source of sediment pollution if not filtered first. Additionally, debris dropped during demolition of the existing bridge is a potential source of discharge pollution.

Materials to be placed temporarily in State waters include silt fencing with reinforcement netting, water monitoring devices, and heavy equipment used during bridge dismantlement. No structures or other materials will be placed permanently within state waters.

Kaupakulua Reservoir is the only wetland in the vicinity of Kaupakulua Gulch. The East Maui Irrigation Co. occasionally releases water from the reservoir to prevent overflowing, particularly following periods of heavy rainfall. Released water causes significant flows in Kaupakulua Stream that can potentially impact project activities within the gulch. No direct impacts to Kaupakulua Reservoir are anticipated from project activities because of the reservoirs location upstream of Kaupakulua Bridge, and the distance separating it from the project site.

3.2.5 Mitigation Measures

Pursuant to Section 14-12.22 Revised Ordinances of Honolulu 1990, as amended, and Section 401 of the Clean Water Act of 1977, SDOT-H will obtain Water Quality Certification from the State Department of Health (DOH) in conjunction with the Department of the Army Nationwide Permit. During all phases of the project, the stream will be monitored for water quality as outlined in a Water Quality Monitoring Plan to be submitted for review by DOH.

Discharge pollution prevention measures will be employed in all phases of the project. Control measures will be in place and functional before construction activities begin, and will be maintained throughout the construction period. A site-specific plan to prevent runoff and discharge of other pollutants into State waters, including removal procedures for the construction site BMPs, will be prepared by the project contractor as part of the project construction plan. The construction plan will be submitted to the Director of the DOH, Clean Water Branch for review. (See Section 2.3, Construction Activities, and Section 2.4, Best Management Practices.)

3.3 NATURAL HAZARDS

3.3.1 Earthquake

The Uniform Building Code (UBC) provides minimum design criteria to address potential for damages due to seismic disturbances. Range of seismic risk varies from Zone 0, indicating no damage, to Zone 4, indicating major damage. The island of Maui is in Seismic Zone 2, as established by the UBC, indicating a moderate risk of damage from earthquake.

3.3.2 Flood Zones

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate map (FIRM) of June 1, 1981 identifies the Kaupakulua Bridge project site as lying within "Zone C" - areas of minimal flooding. This designation indicates the site is not likely to be subject to floods that would impact the project. According to the County of Maui Department of Planning, Kaupakulua Gulch is not a designated floodway (Personal Communication 3/27/98). See **Figure 3-3, FEMA/FIRM Map.**

3.3.3 Project Impacts

The proposed project involves no channelization of the stream or gulch, nor will the project exacerbate conditions that would contribute to flooding. Additionally, because seismic risk at the project site is minimal, the proposed project is not likely to be affected by seismic activity.

3.3.4 Mitigation Measures

All structures proposed for this project will be built, at a minimum, according to standards for UBC Seismic Zone 2. Site-specific BMPs will include contingency plans to respond to heavy rainfall conditions and high-water flows. Additionally, the project design includes a grouted rubble pavement under the bridge abutment to prevent high-water flow from undermining the banks supporting the bridge.

3.4 AIR QUALITY

3.4.1 Air Quality

Presently, air quality in the vicinity of the project is good. The primary sources of air pollution are from auto emissions and agricultural activities. Agricultural sources of air pollution include burning of vegetation, spraying of insecticides and herbicides, and equipment emissions. To a lesser and occasional extent, air quality is impacted by natural pollution sources. Natural sources of air pollution that may affect the air quality of the site include the ocean, plants, wind-blown dust and distant volcanoes.

3.4.2 Project Impacts

If the proposed project is given the necessary approvals to proceed, it is inevitable that some short- and long-term impacts on air quality will occur either directly or indirectly as a consequence of project construction and use. Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, and from workers' vehicles may also affect air quality during the period of construction.

Long-term air quality impacts will result from the continued use of the bridge by automobile traffic on the Hana Highway. Such impacts will increase in relation to anticipated growth in traffic regardless of the type of bridge structure spanning Kaupakulua Gulch. Air quality impacts from automobiles traversing the proposed replacement bridge will not be measurably lesser or greater than those incurred from the continued use of the existing bridge. The new Kaupakulua Bridge will not, in and of itself, result in increased long-term air quality impacts.

3.4.3 Mitigation Measures

Both federal and state standards have been established to maintain ambient air quality at healthy levels. At present, seven parameters are regulated including: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone, and lead. In most cases, the State of Hawaii's air quality standards are more stringent than the comparable national limits.

State air pollution control regulations require that there be no visible fugitive dust emissions at the project boundary. Therefore, an effective dust control plan will be implemented by the project contractor to ensure compliance with state regulations. Fugitive dust emissions can be controlled to a large extent by watering of active work areas, using wind screens, keeping adjacent paved roads clean, and by covering open-bodied trucks. Exhaust emissions will be mitigated by ensuring that project contractors properly maintain their internal combustion engines and comply with DOH Rules Title 11, Chapter 59 and 60, regarding Air Pollution Control.

Due to the predicted minimal impact of the project, it appears that mitigation of any long-term impacts is unwarranted.

3.5 NOISE

3.5.1 Noise

Ambient noise levels in the area are currently dominated by traffic on the Hana Highway, with an occasional overflight by aircraft. Additional noise sources result from the use of agricultural equipment in the area, including tractors, compressors, and hand-held gas-powered tools.

3.5.2 Project Impacts

Construction of the proposed bridge will involve excavating, grading, concrete casting, the placement of pre-cast structural components, and paving. The various construction phases will likely generate noise which could impact nearby areas. The actual noise levels produced are dependent on the construction methods employed during each phase of the construction process. Earth moving equipment, such as diesel engine powered bulldozers, trucks, backhoes, front-end loaders, graders, etc., will probably be the noisiest equipment used during construction. However, as the noise will be temporary, no lasting impact from the proposed project is expected.

Long-term noise impacts from automobiles traversing the proposed replacement bridge will not be measurably lesser or greater than those generated from the continued use of the existing bridge. The new Kaupakulua Bridge will not, in and of itself, result in increased long-term noise impacts.

3.5.3 Mitigation Measures

In order to mitigate noise impacts, contractors will muffle all construction vehicles and machinery and maintain all noise attenuation equipment in good operating condition. Faulty equipment will be repaired or replaced. Additionally, construction activities and use of heavy equipment will be scheduled as much as possible during daylight hours to avoid disturbing area residents during the evening.

3.6 BIOLOGICAL RESOURCES

3.6.1 Flora

A botanical survey of the area proposed for the new bridge structure, the realigned approach roadways, and the area adjacent to and underneath the existing bridge was conducted by Char & Associates in May, 1998. The vegetation on the Kaupakulua Bridge replacement project site is dominated by introduced species such as Java plum (*Syzygium cumini*), Christmas berry (*Schinus terebinthifolius*), guava (*Psidium guajava*), elephant's foot (*Elephantopus mollis*), Hilo grass (*Paspalum conjugatum*), rose apple (*Syzygium jambos*), and molasses grass. Seven native species were found during the field studies. These seven species are: hau (*Hibiscus tiliaceus*), pakahakaha fern (*Pleopeltis thunbergiana*), moa (*Psilotum nudum*), uluhe fern (*Dicranopteris linearis*), pala'a (*Sphenomeris chinensis*), 'ulei (*Osteomeles anthyllidifolia*), and pukiawe (*Styphelia tameiameia*). The 'ulei and pukiawe are found just outside of the study site. All of the native plants are indigenous, that is, they are native to the Hawaiian Islands and also elsewhere throughout the Pacific and/or tropics. (See Appendix B, Botanical Resources Study, Kaupakulua Bridge Replacement Project, Makawao District, Maui.)

3.6.2 Fauna

Domestic animals, including cows and horses, are occasionally grazed in the pasture lands surrounding the project site. Introduced bird species, such as mynahs (*Acridotheres tristis*), doves (*Streptopelia chinensis*), ricebirds (*Padda oryzivora*), and house sparrows (*Passer domesticus*) are common in the Pa'ia-Ha'iku area. No threatened or endangered birds are known to inhabit the area.

Aquatic Fauna known from a previous survey of Kaupakulua Stream (AECOS, Inc., 1995) include toads (*Bufo Marinus*), bullfrogs (*Rana catesbeiana*), crayfish (*Procambarus clarki*), minnows, and guppies. Large, lavender dragonflies (Family Libellulidae) were also noted in the survey.

None of the plants found during the AECOS survey or animals known from the project vicinity is a threatened or endangered species or species of concern (U.S. Fish and Wildlife Service 1997). All of the plants and animals noted above can be found in similar environmental habitats throughout Maui and the other Hawaiian Islands.

3.6.3 Project Impacts

Project activities include clearing vegetation from construction and staging areas. None of the plant species that would be affected by these actions are rare or endangered, and native plants can be used in replanting for ground stabilization. Noise from heavy equipment and other construction activities might disturb domestic animals and livestock grazing in nearby pastures. Project activities also might alter the local distribution of birds presently visiting the site, but will not impact the overall abundance of these species on Maui. Aquatic biota is vulnerable to discharge pollution resulting from construction activities, however water quality monitoring and best management practices will be incorporated into the construction plans to minimize discharge sources.

Given the above findings, the proposed project will not have a significant negative impact on botanical or faunal resources.

3.6.4 Mitigation Measures

There are no reasons to impose restrictions, or impediments to the proposed project based on natural biological resources at the site. It is recommended that areas cleared of vegetation during construction be grassed over as soon as possible to prevent soil loss and discharge of sediments into the stream. Hilo grass, which is common on the study site, can be used. It is further recommended that the contractor coordinate with local landowners to relocate livestock to pasturage away from construction activities. No other mitigation measures are required or recommended for botanical and faunal resources.

3.7 HISTORIC AND ARCHAEOLOGICAL RESOURCES

3.7.1 Historic Resources

The existing bridge is a timber structure built in 1941. It is not rated as a historic bridge in the 1996 *State of Hawai'i, Historic Bridge Inventory and Evaluation* (Spencer Mason Architects), because of its lack of unique architectural properties and the absence of significant historical events associated with the bridge. No other historic sites occur within the vicinity of the project.

3.7.2 Archaeological Resources

According to a recent archaeological assessment (Colin & Hammatt 1995), there is only one previously recorded archaeological site within the entire *ahupua'a* of Kaupakulua. The Kaupakulua agriculture complex (State site 50-59-06-1221) is situated within Kaupakulua Gulch approximately 1/4 mile makai (north) of the Hana Highway. The site consists of irrigated terraces and associated features. It was recorded in the 1973 Statewide Inventory.

3.7.3 Project Impacts

The Historic Preservation Division of the Department of Land and Natural Resources (DLNR), State of Hawaii, was contacted for information regarding any significant historic or archaeological features within the project area. DLNR specialists in architecture and archaeology reviewed project plans and a map of the project site to assess the potential for project-related impacts to any cultural resources at or near the site.

Under consultation with DLNR, Historic Preservation Division, it has been determined that the proposed project design will have "no effect" on any historic or cultural resources. Additionally, based on DLNR's review of the project plans, and on the modified condition of the project area, it has been determined that the proposed bridge replacement will not adversely impact any archaeological resources. (See Appendix A, Correspondence, DLNR, Historic Preservation Division, April 8, 1998.) DLNR's determination of "no effect" satisfies Section 106 consultation requirements.

3.7.4 Mitigation Measures

There is always the possibility that previously unknown or unexpected subsurface cultural features, deposits, or burials may be encountered. To ensure that no subsurface cultural features will be destroyed during project construction, work within the project area will be monitored by the project contractor. In the unlikely event that archaeologically significant remains are encountered, work will cease in the immediate area and the DLNR, State Historic Preservation Division would be notified at (808) 587-0047 to determine significance and treatment of any findings.

3.8 SCENIC AND RECREATIONAL RESOURCES

3.8.1 Scenic Resources

The State and County have identified no view plains or scenic vistas in the project vicinity. The bridge is located in a rural gulch setting that offers limited views of the surrounding countryside. The view towards the ocean consists primarily of nearby residences and vegetated slopes rising out of the gulch. Towards the mountains, sight distance is limited by thick vegetation and the rise of gulch topography.

3.8.2 Recreational Resources

Recreational resources are limited at the project site. Swimming is the only recreational opportunity listed for Kaupakulua Stream, which was given a "moderate" ranking under Recreation in the Resource Assessment Summary (Hawaii Cooperative Park Service Unit 1990).

Some fishing is done at the reservoir upstream of the project site. Swimming and recreational fishing in the stream at the project site is not usually viable due to its intermittent flow. Because most of the surrounding area is privately held land, opportunities are further limited for other recreational pursuits, such as hiking and picnicking. The Hana Highway does however, serve as a transit route for recreational bicyclists and the occasional backpacker.

3.8.3 Project Impacts

Scenic impacts associated with the construction and use of the proposed bridge replacement are discussed in terms of short-term and long-term effects.

3.8.3.1 Short-Term Scenic Impacts

Short-term visual impacts associated with the project primarily relate to construction activities. Temporary signage, nighttime lighting, the presence of heavy construction equipment and ongoing modifications to the existing landscape will all create short-term impacts on the visual setting surrounding the project site. Construction activities will be apparent from the Hana Highway corridor and from several homes in the vicinity. Visual impacts related to construction activities are temporary in nature, however, and not considered significant.

3.8.3.2 Long-Term Scenic Impacts

The proposed project will result in long-term visual impacts in the form of a new bridge structure that is larger in scale and more modern in appearance than the existing bridge. On close inspection, the existing timber bridge retains a rustic appearance, with weathered beams, rusting girders, and trestle superstructure adorned with accumulated plant growth that blends into the surrounding vegetation. By contrast, the new bridge will be constructed of pre-cast and cast-in-place concrete abutments, girders and deck supported by two pre-cast concrete piers anchored in the bottom of the Gulch. The new bridge will be most noticeable from a few surrounding residences, but will not intrude on any existing view planes.

No significant negative impacts to recreational resources are anticipated from the proposed project. The new bridge will improve conditions for bicycle and pedestrian traffic transiting Kaupakulua Gulch by providing striped shoulders in both directions.

3.8.4 Mitigation Measures

To minimize the visual impact of construction activities, the project contractor will ensure that work crews, heavy equipment, signage and lighting will be utilized only to the extent required for project operations. Additionally, nighttime lighting shall be focused on work areas and shielded from adjacent areas as much as possible.

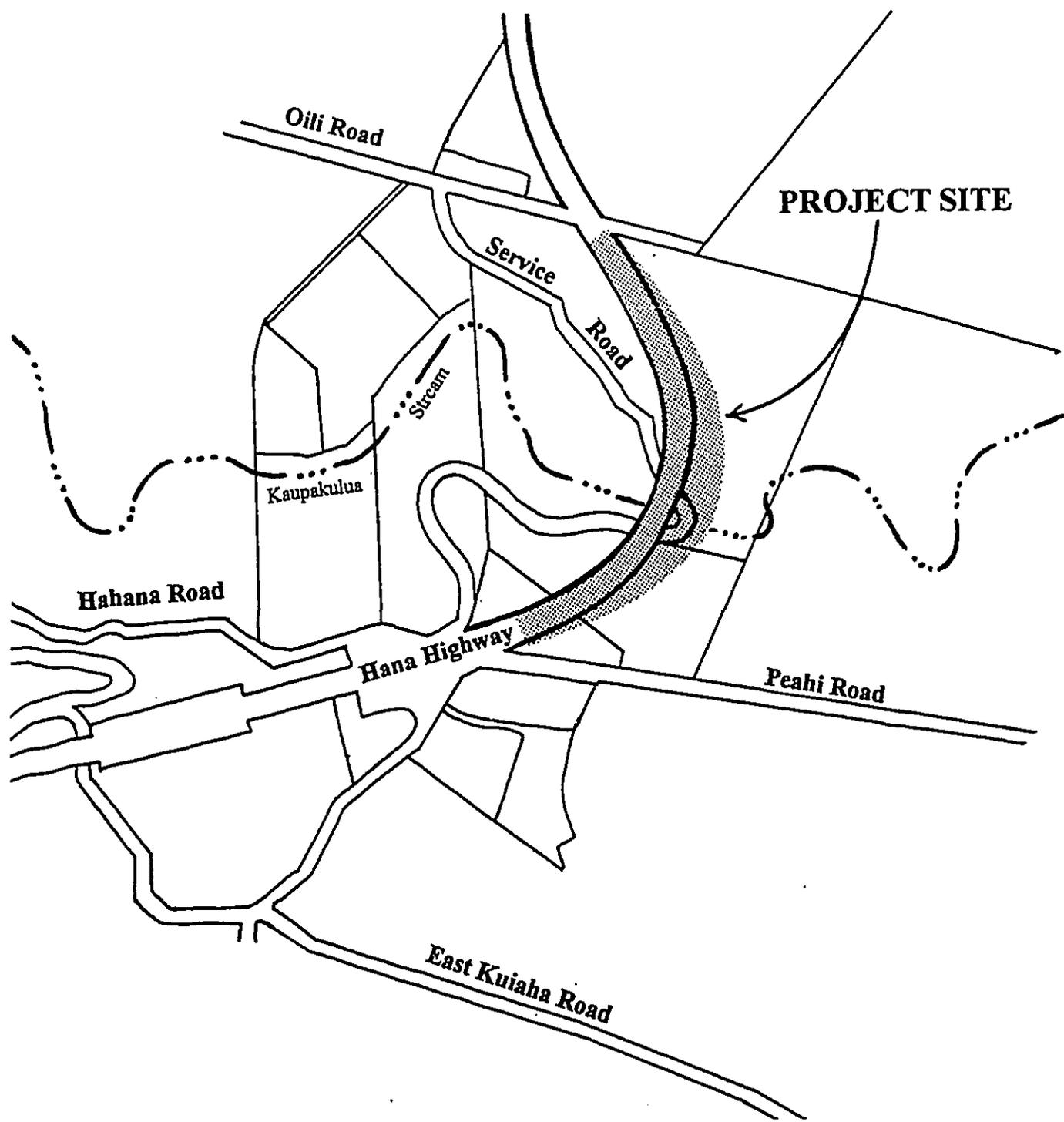
3.9 TRAFFIC AND ROADWAYS

3.9.1 Site Access

The Hana Highway is the only major arterial road crossing Kaupakulua Gulch. Several rural access roads branch off from the Hana Highway on the west end of Kaupakulua Bridge. These include: East Kuiaha Road, Peahi Road, Oili Road, and Hahana Road. Access to the project site and staging areas will be primarily via the Hana Highway. Access for work within the gulch will be provided via the Oili Road service road extension, a single-lane dirt road with entrances on both the east and west ends of Kaupakulua Bridge. The service road extension of Oili Road curves beneath the existing bridge structure and spans the Kaupakulua Stream on a small concrete bridge at an elevation approximately 40 feet below the existing Hana Highway span. This road is used for access by the owner of a cattle farm adjacent to Kaupakulua Bridge and by other area residents. See **Figure 3-4, Area Road Map**.

3.9.2 Pedestrians and Bicyclists

The rural setting, beautiful scenery, and mild climate of the Pa'ia-Ha'iku area make it well suited for walking and bicycling. Hana Highway provides the primary transportation corridor in the area and, as the only direct route between Pa'ia and Hana, is used daily by local residents, commuters, and visitors. Though traffic on the Hana Highway consists primarily of automobiles, area residents also transit the route on foot, bicycle, and occasionally by horse. The route is also popular among bicyclists and the occasional backpacker touring the Hana Belt Road.



**Figure 3-4
AREA ROAD MAP**



Not to Scale

State of Hawaii
 Department of Transportation
**ROUTE 36 - HANA HIGHWAY
 KAUPAKULUA BRIDGE
 REPLACEMENT**

R. M. TOWILL CORPORATION
 July 1999

In the vicinity of the project site, the Hana Highway has six-foot wide striped, paved shoulders going in both directions, however, the existing bridge crossing has no shoulder or sidewalk area. To safely accommodate pedestrian and bicycle traffic, the replacement bridge will provide eight-foot wide sidewalks with curbs in both directions.

3.9.3 Project Impacts

Work on Kaupakulua Bridge will result in a temporary rise in heavy truck traffic, particularly during mobilization and demobilization of the construction area. Heavy equipment operations during grading, bridge construction, and demolition and removal of the existing bridge will result in additional temporary impacts to traffic on the Hana Highway. Construction traffic on the Hana Highway will include movement of heavy equipment between staging areas and the active construction site, transportation of work crews, and truck traffic during removal of excavation spoils and demolition of the existing bridge. These activities are expected to impact regular traffic on the Hana Highway with temporary delays and the presence of large, slow-moving vehicles on the main roadway.

During construction of the new bridge, the existing bridge will remain open to traffic. It may be necessary, however, to temporarily stage some construction activities from the existing bridge. If so, traffic would be limited to one lane and would likely experience temporary delays as a result.

Further, project design involves anchoring the pier footings into the bed of the Oili Road service road extension. The road bed provides the best location for constructing the pier footings due to its easy access, level topography, and positioning beneath the proposed bridge crossing. Installation of the pier footings will encroach into the traffic way of the service road creating an obstruction to vehicles using the road. Additionally, construction activities and the use of heavy equipment will result in impacts to road conditions. Tracked vehicle and heavy truck traffic will rend the roadway surface, and preparation of a staging area and installation site for the pier footings will require clearing and grading that will alter the traffic way. Mitigation measures will be required to maintain access for area residents during construction and for returning Oili Road and the service road extension to serviceable condition following completion of construction.

No significant or long-term impacts to East Kuiaha Road, Peahi Road, or Hahana Road are expected from this project.

3.9.4 Mitigation Measures

To minimize traffic impacts to the nearby residents, the contractor will schedule heavy truck activity between the hours of 9:00 am and 3:00 pm on weekdays and will suspend activity on weekends and State holidays. If the existing bridge is used for staging construction activities, the contractor will likewise schedule the activities during off-peak traffic periods. If necessary, the Maui Police Department will be notified prior to periods of heavy truck activity or during transport and operation of heavy equipment. Approach signs and a flag person will be positioned to direct traffic. Construction of the new bridge and approach roads shall be completed and ready for service before the existing bridge is closed to traffic.

The State DOT shall secure an easement from the Keith & Karen Baxter Trust, Kevin Gillens Trust, and The Tamashiro Living Trust for the installation of the pier footings on the Oili Road service road extension. The project contractor shall obtain rights of access to Oili Road for construction activities conducted within the gulch. During construction activities, the project contractor shall maintain access on Oili Road and the service road extension for area residents, or will arrange a temporary detour for uninterrupted access.

The pier footings within the service road shall be designed and positioned to minimize obstruction and allow for continued vehicle access following construction. If the position of the footing does impede vehicle traffic within the existing roadway, then the roadway will be expanded around the footing to accommodate continued use by motor vehicles. Upon completion of the project, the road surface will be graded and compacted to correct construction damage and provide a level of service equal to pre-existing conditions. (See Section 2.3.6, Demobilization and Restoration.)

3.10 LAND USE AND OWNERSHIP

3.10.1 Land Use

Kaupakulua Bridge is located in the State Land Use Agricultural District. On the County of Maui's Pa'ia-Ha'iku Community Plan Land Use Map, the bridge is located within lands designated as Agriculture. The project site is situated just outside of the Special Management Area, which extends from the makai (north) boundary of the existing Hana Highway, Route 36 right-of-way down to the shoreline. (Consultation with County of Maui, Planning Department, March 24, 1998). See **Figure 3-5, Zoning and Land Use Map.**

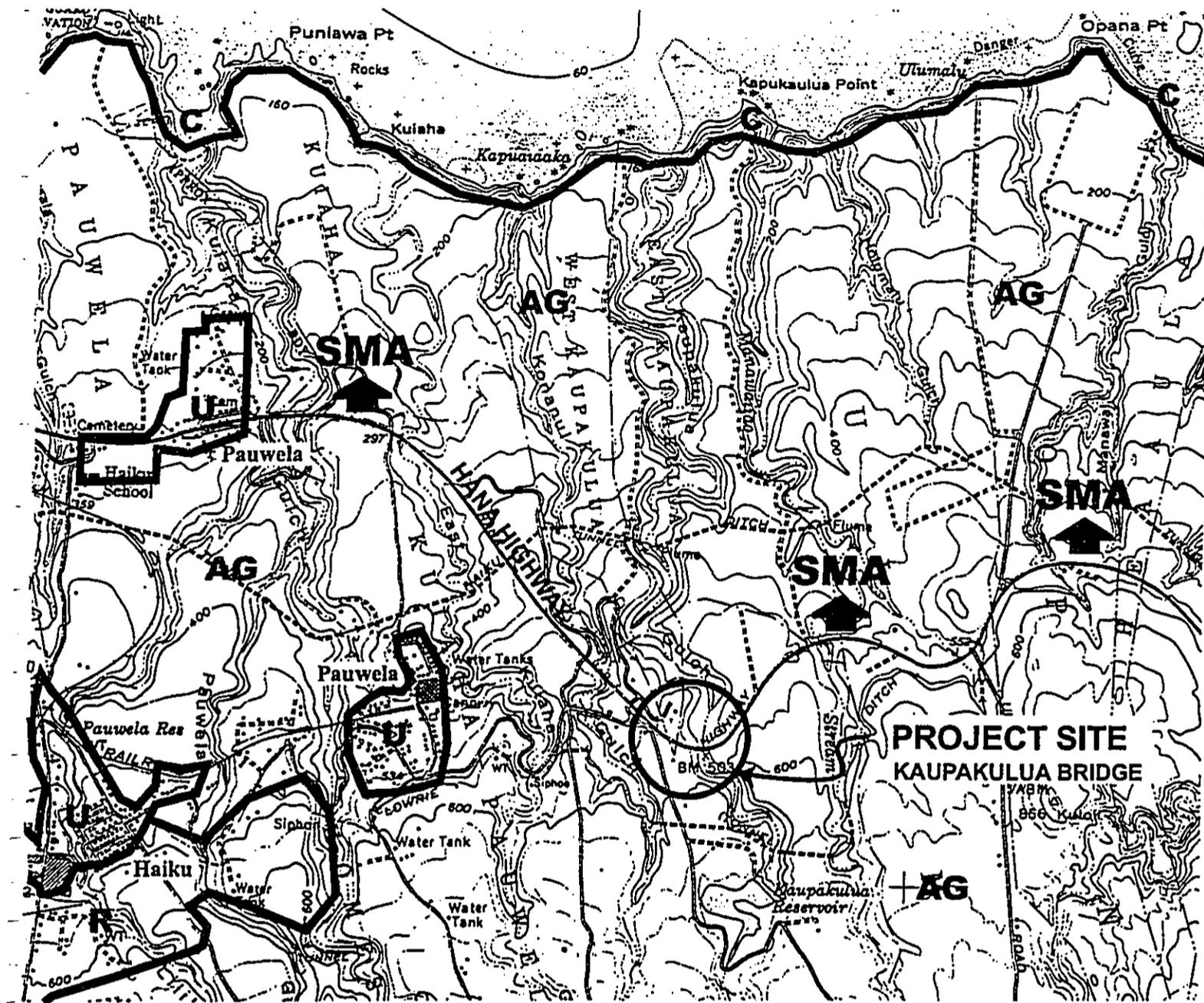
The predominant land use in the area is agriculture, consisting mainly of cattle ranching, taro production, and other diversified crop farming. Agricultural zoning standards have also permitted the subdivision of agricultural lands and the resulting growth of quasi-agricultural "country estate" developments.

3.10.2 Ownership

The land surrounding the project site is a patchwork of privately owned parcels. Three private parcels lie in the path of the proposed bridge right-of-way. These are identified by TMK: 2-7-13: 26, 27, and 64. Additionally, the privately owned Oili Road service road extension (TMK: 2-7-13: 71 & 72), which runs beneath the bridge site, is the proposed location for installation of the pier footings. Oili Road also provides access to the floor of Kaupakulua Gulch, which will be required for construction staging. The Hana Highway passes through the landscape on a State owned right-of-way identified by TMK: 2-7-13: 67. See **Figure 2-2, Tax Map Key Location.**

3.10.3 Project Impacts

The proposed bridge replacement is being developed as part of the State Department of Transportation's regular infrastructure maintenance program. The proposed project is consistent with existing State and County land use plans for the region. The project will require no land use zoning changes and is not expected to be a stimulus to unexpected growth. The bridge replacement would meet the transportation needs of resident and visitor traffic. In contrast, the



LEGEND

State Land Use Districts:

- AG - Agricultural District
- C - Conservation District
- R - Rural District
- U - Urban District

SMA - Special Management Area
(Hana Highway makai RW delineates SMA boundary)

Source: Pa'ia - Ha'iku Community Plan
County of Maui, May 17, 1995

State Land Use District Boundary Review
Office of State Planning, State of Hawaii, 1992

Figure 3-5
ZONING AND LAND USE MAP



Not to Scale

State of Hawaii
Department of Transportation
**ROUTE 36 - HANA HIGHWAY
KAUPAKULUA BRIDGE
REPLACEMENT**

R. M. TOWILL CORPORATION July 1999

"no-action" alternative would not support existing land use policies in that it would fail to maintain the necessary level of infrastructure service.

The project will not significantly change the character of the surrounding area: no zoning changes are required or presaged by the expansion. Aside from its function in meeting traffic safety standards for state highways, the potential social and economic effects of the new bridge are anticipated to be minimal.

The proposed bridge replacement and road realignment will require the acquisition of portions of property on the mauka (south) side of the highway. A revised right-of-way boundary will encroach upon three privately owned parcels, portions of TMK# 2-7-13: 26, 27, and 64. Additionally, the proposed installation of pier footings within the bed of the privately owned Oili Road service road extension would impact the owners' use of the road. Aside from the demolition of the existing bridge, no significant structures or land use activities will be displaced due to the proposed expansion.

3.10.4 Mitigation Measures

Prior to construction, SDOT-H will reach agreements with area landowners to amend the existing right-of-way to accommodate the proposed bridge and approach road alignment. Additionally, the State will obtain an easement for the installation of bridge pier footings within the Oili Road service road extension. The project contractor will secure rights-of-access from property owners to areas required for construction staging and stockpiling, and to Oili Road for work conducted within the gulch.

No other mitigation measures are recommended or required.

3.11 DEMOGRAPHICS

3.11.1 Population and Housing

Kaupakulua Bridge is located in the Ha'iku-Pauwela Census Designated Place, Census Tract 302, in Makawao District, Maui County. According to the U.S. Census (DBEDT 1996), the residential population of the island of Maui increased by 15.2% between 1990 and 1995, from 91,491 to 105,429 residents. Over the same period, the Makawao District population increased by 15.9%, from 29,207 to 33,854 residents. In 1990, Census Tract 302 contained 5,695 people in 1,916 households, with 4,509 of those residents located in the Ha'iku-Pauwela CDP. Assuming the district growth is constant at the CDP level, then the population of the Ha'iku-Pauwela CDP was approximately 5,225 residents in 1995. See **Figure 3-6, 1990 Census Tracts, County of Maui.**

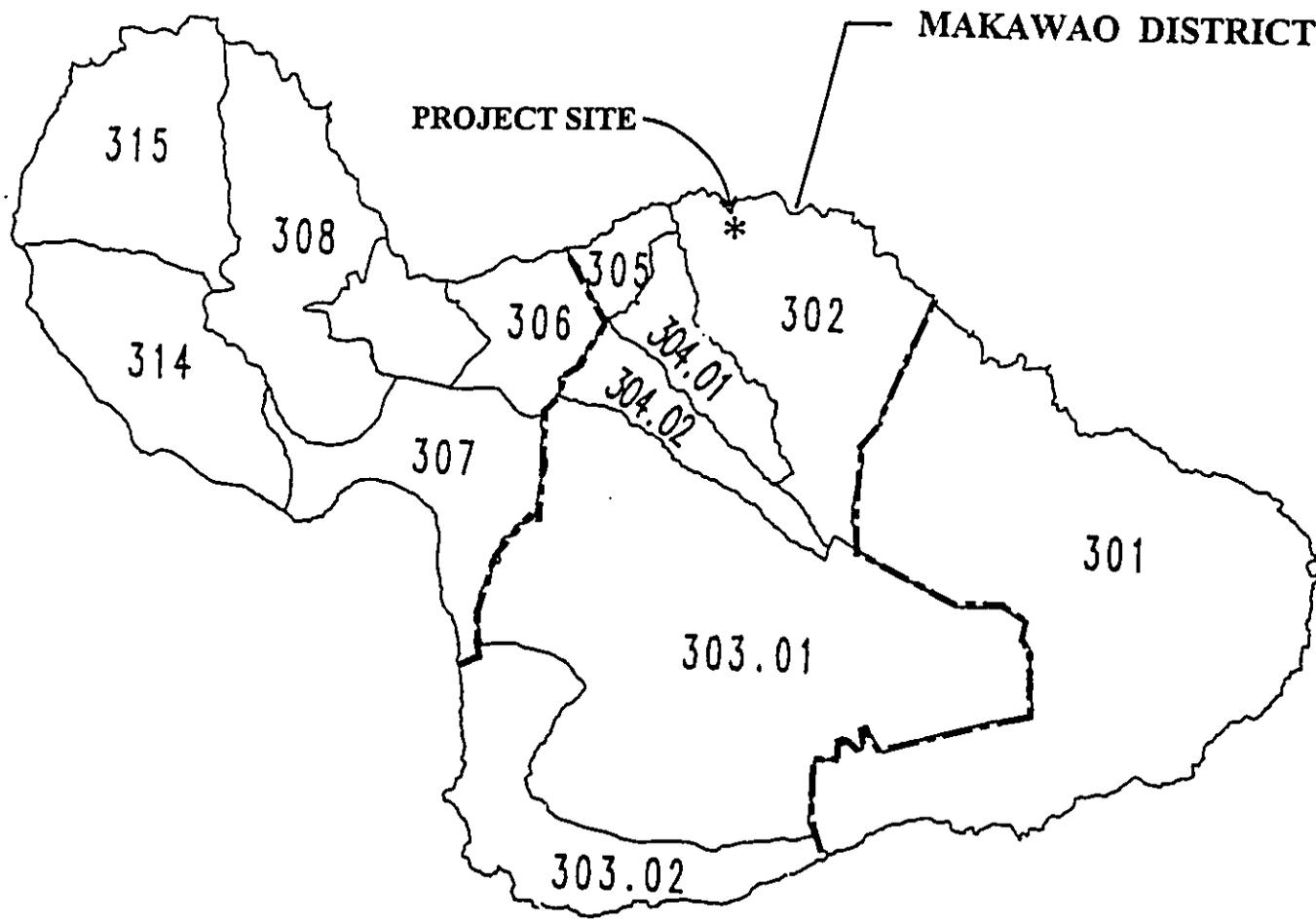
Housing in the vicinity of the bridge is sparse and rural in character. Area residences are primarily associated with agricultural activities. Over the past ten years, most of the residential growth in the area is a result of new subdivisions developed on agricultural lands. (County of Maui 1995)

3.11.2 Project Impacts

The proposed project is not anticipated to impact the population or housing conditions within the Pa'ia-Ha'iku area. The proposed bridge is designed to maintain the same level of service as the existing bridge with the added benefit of improved safety features. The new bridge will not, in itself, be an impetus to increased development or population growth.

3.11.3 Mitigation Measures

No mitigation measures are recommended or required.



LEGEND

Island of Maui
1990 Census Tracts

----- District Boundary

Source: The State of Hawaii Data Book 1996
DBED&T, State of Hawaii

Figure 3-6
1990 CENSUS TRACTS
COUNTY OF MAUI



Not to Scale

State of Hawaii
Department of Transportation
ROUTE 36 - HANA HIGHWAY
KAUPAKULUA BRIDGE
REPLACEMENT

R. M. TOWILL CORPORATION
July 1999

3.12 COMMUNITY AND ECONOMIC CONDITIONS

3.12.1 Economic Conditions

The primary economic activity in the Pa'ia-Ha'iku area is agriculture. Sugar cane and pineapple cultivation have been the historic mainstays. Sugar cane continues to comprise a major component of the local agricultural base, however production has undergone significant reductions in recent years and its future is uncertain. Taro and pineapple production are common, as are other diversified crops and nursery operations. Cattle ranching is prominent, while other livestock, including chickens and swine, are typically raised on a much smaller scale. (County of Maui 1995).

Service and retail activities along the Hana Highway and in the commercial nodes of Ha'iku and Pa'uwela comprise the next most significant source of employment. These enterprises primarily service residents in the outlying rural and agricultural areas, however they also rely heavily on visitor traffic between Wailuku-Kahului and Hana Town. Light industrial activities have also grown, mainly in Ha'iku, and now occupy several renovated facilities that were once pineapple canneries. (County of Maui 1995).

In the Pa'ia-Ha'iku Community Plan, the County of Maui addresses the need for economic diversification that "complements the rural character of the region". Towards this end, the plan sets forth objectives to:

- maintain agriculture as the primary economic activity;
- enhance opportunities for the cultivation and processing of local agricultural products;
- establish agricultural parks and support services to enhance diversified agricultural activities;
- establish opportunities for light industries which are related to the agricultural base;
- establish a farmers market at an appropriate site in the Pa'ia-Ha'iku area; and,
- consider "bed and breakfast" establishments within owner-occupant, single-family residences.

3.12.2 Project Impacts

The proposed Kaupakulua Bridge replacement is an integral component of SDOT's ongoing program to modify or replace functionally and structurally deficient bridges. The purpose and primary impact of the bridge replacement will be to improve traffic safety conditions for vehicles traversing Kaupakulua Gulch on the Hana Highway. Additionally, federal funding available for the project will save the State the increasing costs of maintenance to prolong the bridge's useful life and the eventual cost of bridge replacement.

The proposed bridge replacement will help maintain a level of service that supports social and economic activities in the area. Short-term economic impacts from the proposed project will result from construction jobs, services, and procurements in the form of construction supplies and equipment, however these benefits will be primarily be realized outside of the local community.

3.12.3 Mitigation Measures

No mitigation measures are required or recommended.

CHAPTER 4
RELATIONSHIP TO LAND USE POLICIES
AND CONTROLS OF THE AFFECTED AREA

4.1 OVERVIEW

State and County policy plans and land use plans and controls are established to guide development in a manner that enhances the overall living environment of Hawaii, and that ensures that long-term social, economic, environmental, and land use needs of the people of Hawaii are met.

All lands in the State of Hawaii are classified into one of four land use designations: Urban, Rural, Agricultural, and Conservation. The Kaupakulua Bridge is located within the State Agricultural District. On the County of Maui's Pa'ia-Ha'iku Community Plan Land Use Map the bridge is located within lands zoned for Agriculture. There is no county zoning in the area. The project is located outside of the County delineated Special Management Area. The use of the site to improve the existing bridge is in accord with State and County land use plans and policies, as discussed below.

4.2 STATE OF HAWAII

4.2.1 State Plan

The State Plan, adopted in 1978, consists of three parts:

- (1) an overall theme together with broad goals, objectives, and policies;
- (2) a system designed to coordinate public planning to implement the goals, objectives, and policies of the State Plan;
- (3) priority guidelines which are statements of Statewide interrelated problems deserving immediate attention.

Three broad goals in the areas of the economy, the physical environment, and the physical, social and economic well-being of the people express the ideal end-states of the State Plan.

The bridge replacement project supports the State Plan's general objectives and policies for a modern, statewide transportation system.

The proposed bridge replacement will be financed under the Federal Aid Highway Program with 80 percent of the funds contributed by the Federal Department of Transportation and 20 percent contributed by the State of Hawaii. Community needs, environmental concerns and cultural resources are considered in the Environmental Assessment and design process.

4.2.2 State Functional Plans

The State functional plans are intended to provide more detail to the State Plan. They serve to guide State and County actions under specific functional topics of governance. The functional plans relevant to the bridge replacement project are the Transportation Plan and Tourism Plan. Applicable objectives and policies from these plans are discussed below.

Transportation

Objective I.A: Expansion of the transportation system.

Policy I.A.1: Increase transportation capacity and modernize transportation infrastructure in accordance with existing master plans.

The Bridge replacement is proposed to upgrade the transportation infrastructure standards on the Hana Highway and improve roadway safety. The project is being conducted in compliance with existing state and county master plans and land use ordinances.

Tourism

Objective II.A: Development and maintenance of well-designed visitor facilities and related developments which are sensitive to the environment, sensitive to neighboring communities and activities, and adequately serviced by infrastructure and support services.

The Bridge replacement is consistent with this objective in ensuring a safe transportation infrastructure for visitors traveling on the Hana Highway. Potential social and environmental impacts are being addressed through the environmental assessment process.

4.2.3 State Land Use Commission

The State Land Use Commission classifies all lands in the State of Hawaii into one of four land use designations: Urban, Rural, Agricultural, and Conservation. The Kaupakulua Bridge is located within the State Agricultural District. It is not subject to state zoning controls.

4.3 COUNTY OF MAUI

4.3.1 General Plan

The General Plan for the County of Maui, first adopted in 1980 and updated in 1991, provides a statement of the long-range social, economic, environmental, and design objectives for the general welfare and prosperity of the people of Maui. Using a 20-year time horizon, broad policies are also specified to facilitate attainment of the objectives of the Plan. The proposed Kaupakulua Bridge replacement will be consistent with the following objective of the General Plan:

Transportation

Objective: To support an advanced and environmentally sensitive transportation system, which will enable people and goods to move safely, efficiently, and economically.

The proposed bridge replacement will provide a safe highway crossing over Kaupakulua Gulch and mitigate maintenance and safety concerns attributable to the substandard and declining condition of the existing bridge.

4.3.2 Special Management Area

Special controls on development in coastal areas are established to avoid the permanent loss of valuable coastal resources and the foreclosure of management options. Special Management

Area (SMA) boundaries are set by the County to delineate coastal zone areas subject to such controls. The County of Maui SMA Boundary Map for the Kaupakulua Bridge area shows the SMA running from the shoreline to the makai (north) edge of the existing Hana Highway, Route 36 right-of-way. Since the new bridge would be constructed mauka (south) of the existing bridge, the project does not intrude on the SMA.

4.3.3 Pa'ia-Ha'iku Community Plan

The Pa'ia-Ha'iku Community Plan is one of nine community plans for Maui County. The General Plan for the County of Maui mandated the formulation of the Pa'ia-Ha'iku Community Plan, which was first adopted by ordinance in 1983 and most recently updated in 1995. In accordance with the County of Maui Land Use Ordinance, the community plan provides specific recommendations to address the goals, objectives and policies of the County General Plan relative to the Pa'ia-Ha'iku region. The proposed Kaupakulua Bridge replacement will be consistent with the following goals and objectives of the Community Plan:

Transportation

Goal: Transportation systems that facilitate the safe and efficient movement of people, produce, and goods within and outside the region.

Government

Objective: Coordinate, direct and manage future development, and provide for necessary public services and infrastructure in an effective and timely fashion.

CHAPTER 5
NECESSARY PERMITS AND APPROVALS

5.1 FEDERAL

A Department of the Army Nationwide Permit, No. 33 - Temporary Construction, Access, and Dewatering will be required under Section 404 of the Clean Water Act (Consultation with the Corps of Engineers, March 19, 1998), as construction of the replacement bridge will require construction activities below the high water mark as defined by the Corps of Engineers.

Pursuant to Federal Highway Administration policy, a Federal Environmental Assessment, administered under the National Environmental Policy Act, is not required as the project qualifies for a Categorical Exclusion under Code of Federal Regulation 23 Chapter 1 Part 771.117(d)(3).

5.2 STATE OF HAWAII

5.2.1 Department of Health

Pursuant to Section 401 of the Clean Water Act, a Water Quality Certification from the Department of Health, Clean Water Branch will be required in conjunction with the Department of the Army Nationwide Permit.

5.2.2 Department of Land and Natural Resources (DLNR)

A Stream Channel Alteration Permit (SCAP) will be required for the project according to DLNR, Commission on Water Resource Management (Personal communication, David Higa, March 20, 1998). Although no structure will be constructed within the stream bed, the SCAP is required as the concrete footings and abutments of the replacement bridge will alter the condition of the stream banks.

Additionally, in conjunction with the Corps' Nationwide Permit, Section 106 consultation will be required from DLNR, State Historic Preservation Office (personal communication, Lolly Silva,

ACOE, March 19, 1998; and Carol Ogata, DLNR SHPO, March 20, 1998). Section 106 Consultation is necessary to assess any potential impacts the proposed project might have to historical or cultural resources in the area.

5.2.3 Office of State Planning

A determination of consistency with Federal Coastal Zone Management (CZM) requirements from the Office of State Planning is required in conjunction with the Department of the Army Section 404 Permit.

5.3 COUNTY OF MAUI

5.3.1 Department Planning

The County of Maui, Department of Planning was contacted for guidance regarding zoning issues. On the County of Maui's Pa'ia-Ha'iku Community Plan Land Use Map, the bridge is located within lands designated as Agriculture. There is no county zoning in the area. Further, the Special Management Area (SMA) runs from the shoreline to the makai (north) edge of the existing Route 36 right-of-way. Because the proposed bridge replacement will be constructed mauka (south) of the Hana Highway and will not expand outside of the existing right-of-way on the makai side, a SMA permit will not be required.

The State Department of Transportation, Highways Division and project contractor will obtain a right-of-entry from the surrounding land owners prior to conducting any site reconnaissance or construction activities.

THE COUNTY OF MAUI DEPARTMENT OF PLANNING

CHAPTER 6
RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND
MAINTENANCE AND ENHANCEMENT OF
LONG-TERM PRODUCTIVITY

Development of the proposed project will commit the necessary construction materials, human effort, and fiscal resource. Use of these resources will benefit residents and visitors to the County of Maui by improving transportation safety on the Hana Highway.

Long-term gains resulting from the proposed project include maintaining safety standards and a satisfactory level of service on the Hana Highway. Additionally, a new bridge will save on increasing maintenance costs imposed by efforts to preserve the useful life of a deteriorating bridge. Finally, the availability of federal funding for this project preserves significant fiscal resources for the State and County, which can be used to other local benefit.

CHAPTER 7
IRREVERSIBLE AND IRRETRIEVABLE
COMMITMENT OF RESOURCES

Development of the proposed project will involve the irretrievable loss of certain environmental and fiscal resources. However, the costs associated with the use of these resources should be evaluated in light of recurring benefits to the residents of Maui.

It is anticipated that the construction of the proposed project will commit the necessary construction materials and human resources (in the form of planning, engineering, construction and labor). Reuse for much of these resources is not practicable. Although labor is compensated during the various stages of development, labor expended for project development is non-retrievable.

CHAPTER 8
ORGANIZATIONS AND AGENCIES CONSULTED DURING DEA
PREPARATION AND 30-DAY COMMENT PERIOD

8.1 FEDERAL AGENCIES

U.S. Army Corps of Engineers
U.S. Department of Agriculture - Soil Conservation Service
U.S. Department of the Interior - Fish and Wildlife Service
U.S. Department of Transportation - Federal Highways Administration

8.2 STATE AGENCIES

Department of Accounting and General Services
Department of Business, Economic Development, & Tourism
Department of Health
 Clean Water Branch
 Noise and Radiation Branch
Department of Land and Natural Resources
 State Historic Preservation Division
Department of Transportation - Highways Division
Land Use Commission
Office of the Governor
University of Hawaii - Environmental Center

8.3 COUNTY OF MAUI

Department of Public Works, Bridge Section
Planning Department

8.4 OTHER PRIVATE ORGANIZATIONS AND ELECTED OFFICIALS

8.4.1 Private Organizations

Pa'ia Community Association

8.4.2 Elected Officials

State Senator Avery Chumbley, 6th District

State Representative Michael White, 7th District

CHAPTER 9 DETERMINATION

9.1 OVERVIEW

In accordance with the provisions set forth in Chapter 343, Hawaii Revised Statutes, and in Section 11-200-12 of Title 11, Chapter 200, Hawaii Administrative Rules (HAR), the proposed Bridge replacement has been assessed for short- and long-term and cumulative effects on the environment.

9.2 SIGNIFICANCE CRITERIA

Significance criteria set forth in Section 11-200-12 of Title 11, Chapter 200 HAR were used to evaluate the potential impacts of the proposed project on the environment. The thirteen criteria are listed below along with a brief discussion.

Criteria 1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

An assessment of flora and fauna, and historic and archaeological sites at and near the project area found no presence of natural or cultural resources that would be jeopardized by the proposed bridge replacement. Under consultation with DLNR, Historic Preservation Division, it has been determined that the proposed project design will have "no effect" on any historic or cultural resources (See Appendix D, Correspondence, DLNR, State Historic Preservation Division, April 8, 1998.) DLNR's determination of "no effect" satisfies Section 106 consultation requirements.

Criteria 2. Curtails the range of beneficial uses of the environment;

The proposed project site is located primarily within the existing traffic corridor. Some encroachment on adjoining land will not displace any structures or activities and would not detract from the function or use of the remaining area of those parcels. The replacement bridge would not significantly alter the existing use of the environment.

Criteria 3. Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in chapter 344, HRS;

The project proposal has been prepared according to State and County guidelines, plans, and policies and has been found to be in compliance with all relevant provisions.

Criteria 4. Substantially affects the economic or social welfare of the community or State; The proposed bridge replacement is expected to have little effect on the social and economic environment. In general, the expansion will serve to meet level of service needs and safety standards for transportation infrastructure required by area residents, businesses, and visitors.

Criteria 5. Substantially affects the public health; Factors affecting public health, including air quality, water quality, and noise levels, were assessed according to various project scenarios and determined to be only minimally affected or unaffected by the construction and use of the new bridge. Appropriate mitigation measures for short-term impacts are expressed in Best Management Practices to be followed by the project contractor.

Criteria 6. Involves substantial secondary impacts, such as population changes or effects on public facilities;

The proposed project will not, in its own right, stimulate unexpected change in the population, but will accommodate current and future vehicle use associated with economic and social activities in the area.

Criteria 7. Involves a substantial degradation of environmental quality; Analysis of air and water quality, noise levels, and land use associated with the construction and use of the bridge replacement has determined that the proposed project will not substantially degrade environmental quality.

Criteria 8. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The proposed project is being developed as part of the State's ongoing effort to modify or replace structurally deficient bridges to meet current standards for roadway safety and design.

The proposed replacement is a component of the State's commitment to maintain a safe and efficient transportation infrastructure, but will not, of itself, involve a commitment for larger actions.

Criteria 9. Substantially affects a rare, threatened, or endangered species, or its habitat; An investigation of flora and fauna in the project vicinity discovered no species that are listed as rare, threatened, or endangered by the State or Federal government. Agricultural activities and intensive modifications in the project area have long since replaced native habitat.

Criteria 10. Detrimently affects air or water quality or ambient noise levels; Analysis of air and water quality, and ambient noise levels associated with the construction and use of the new bridge have determined that effects to these environmental measures will be minimal or temporary.

Criteria 11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters; The project site is located inland from any coastal waters within an area determined by the Federal Emergency Management Agency to be at only minor risk of flooding. All structures proposed for this project will be built according to standards for seismic zone 2, as established by the Uniform Building Code. The project is not likely to affect or suffer damage from natural forces.

Criteria 12. Substantially affects scenic vistas and view planes identified in County or State plans or studies;

The project site is not located within any scenic vista or view plane identified in County or State Plans. The appearance of the new bridge would differ in appearance from the existing bridge in the materials used and in its wider dimensions. The difference would be noticeable to drivers in the form of a visually broader roadway and sturdier bridge railings. The supporting structure would be visible only to those on foot or on adjacent government roads and would not detract significantly from existing views. Visual impacts associated with construction activities will be temporary.

Criteria 13. Requires substantial energy consumption.

Construction activities associated with the bridge replacement would require high, short-term energy use, however, the project would prevent energy consumption associated with ongoing maintenance activities necessary to sustain the useful life of the existing, increasingly deteriorated bridge.

9.3 FINDINGS

In accordance with the provisions set forth in Chapter 343, Hawaii Revised Statutes, and the significance criteria in Section 11-200-12 of Title 11, Chapter 200, this assessment has determined that the project will have no significant adverse impact to water quality, air quality, existing utilities, noise levels, social welfare, archaeological sites, or wildlife habitat. All anticipated impacts will be temporary and will not adversely impact the environmental quality of the area.

It has been determined that an Environmental Impact Statement (EIS) will not be required, and that a Finding of No Significant Impact (FONSI) be issued for this project.

REFERENCES

- County of Maui, Department of Planning, Personal Communication with Mike Summers, Planner, March 27, 1998.
- Akinaka & Associates, Ltd., *Environmental Impact Assessment/Negative Declaration for Hoolawa Bridge Replacement at Hana Belt Road*, Hoolawa, Makawao, Maui, Hawaii, 1990.
- Char & Associates, *Botanical Resources Study, Kaupakulua Bridge Replacement Project, Makawao District, Maui*, Honolulu, Hawaii, May 1998.
- Colin, Brian L., and Hammatt, Hallett H., *Archaeological Assessment of the Proposed Bridge Replacement Site at Kaupakulua, Hamakualoa District, Island of Maui*, Prepared for Wilson Okamoto & Associates by Cultural Surveys Hawaii, Honolulu, Hawaii, 1995.
- County of Maui, *Pa'ia-Ha'iku Community Plan, County of Maui*, 1995.
- Spencer Mason Architects, *State of Hawai'i Historic Bridge Inventory and Evaluation*, Prepared for State of Hawai'i, Department of Transportation, Highways Division, May 1996.
- State of Hawaii, Department of Business, Economic Development & Tourism (DBEDT), *The State of Hawaii Data Book, 1995*. Honolulu, Hawaii, 1995.
- State of Hawaii, Department of Business, Economic Development & Tourism (DBEDT), *Restoring Hawaii's Economic Momentum, 1996*. Honolulu, Hawaii, 1996.
- U.S. Department of Agriculture, Soil Conservation Service, *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*, with University of Hawaii Agricultural Experiment Station, August 1972.
- U.S. Department of Commerce, Bureau of the Census, *1990 Census of Population and Housing, Hawaii*, Washington, D.C., 1990.
- U.S. National Park Service Western Region Natural Resources and Research Division Hawaii Cooperative Park Service Unit, *Hawaii Stream Assessment - A Preliminary Appraisal of Hawaii's Stream Resources Report R84*, Prepared for the State of Hawaii Department of Land and Natural Resources Commission on Water Resource Management, December 1990.
- Wilson Okamoto and Associates, Inc., and AECOS, Inc., *Kaupakulua Bridge Replacement Application for Section 401 Water Quality Certification, TMK 2-7-13:8 (por.) and 31 (por.)*, Haiku, Maui, Hawaii, 1995.

Appendices

Appendix A

Correspondence

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

BENJAMIN J. CAYetano
GOVERNOR OF HAWAII

RECEIVED

'98 APR 13 P7:32



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

April 8, 1998

MEMORANDUM

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

GILBERT COLOMA-AGARAN

MANUFACTURE DEVELOPMENT
PROGRAM

AQUATIC RESOURCES
CONSERVATION AND

RESOURCES ENFORCEMENT

CONVEYANCES

FORESTRY AND WILDLIFE

HISTORIC PRESERVATION

DIVISION

LAND DIVISION

STATE PARKS

WATER AND LAND DEVELOPMENT

RECEIVED
APR 13 2 42 PM '98
DEPT. OF TRANSPORTATION
HIGHWAYS DIVISION

LOG NO: 21293
DOC NO: 9804tm03
Architecture

TO: Mr. Pericles Manthos, Administrator
Highways Division
Department of Transportation

FROM: *To* Michael D. Wilson, Chairperson and
State Historic Preservation Officer *Michael D. Wilson*

SUBJECT: Section 106 Compliance
Hana Highway, Replacement of Timber Bridges
Kaupakulua Bridge & Uaoa Bridge, Maui
Project No. BR-036-1(5)

We concur that the latest draft of the Historic Bridge Inventory does not recommend Kaupakulua Bridge or Uaoa Bridge to be listed on the Hawaii or National Register of Historic Places, individually or as part of the Hana Historic Bridges District. According to the study, the recommended historic district begins at Hoalua Stream Bridge and therefore does not include Kaupakulua or Uaoa Bridge. Therefore, we concur that the replacement of these bridges will have "no effect" on the historic character of the Hana Historic Bridges District.

Thank you for the opportunity to comment. Should you have further questions, please call Tonia Moy at 587-0005.

TM:jk

c: Elizabeth Anderson

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



[Handwritten signature]
MAY 26 1998

MICHAEL D. WILSON
CHAIRPERSON
ROBERT G. GIRALD
DAVID A. NOBREGA
LAWRENCE H. MIY
RICHARD H. COX
HERBERT M. RICHARDS, JR.
TIMOTHY E. JOHNS
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P. O. BOX 621
HONOLULU, HAWAII 96809

MAY 22 1998

Mr. Chester Koga
R.M. Towill Corporation
420 Waikamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Dear Mr. Koga:

This is in response to your letter dated March 24, 1998 requesting a determination if a Stream Channel Alteration Permit (SCAP) application would be required for the proposed Kaupakulua Bridge replacement, Hana Highway, State Route 36, Haiku, Maui. A site inspection was conducted by a member of the Aquatics Division, DLNR on May 13, 1998, who confirmed that the watercourse is naturally flowing with instream uses. The proposed work involves the bed and bank of this stream, therefore, a Stream Channel Alteration Permit would be required.

Thank you for consulting us in this matter. Should you have any questions, please contact David Higa of the Commission staff at 587-0249.

Sincerely,

[Handwritten signature: Timothy E. Johns]
TIMOTHY E. JOHNS
Deputy Director

SKS:fc

c: Department of Transportation, Highways Division

Appendix B

Botanical Resources Study,
Kaupakulua Bridge Replacement Project,
Makawao District, Maui

Char & Associates

May 1998

BOTANICAL RESOURCES STUDY
KAUPAKULUA BRIDGE REPLACEMENT PROJECT
MAKAWAO DISTRICT, MAUI

by

Winona P. Char
CHAR & ASSOCIATES
Botanical Consultants
Honolulu, Hawai'i

Prepared for:
R.M. TOWILL CORPORATION

May 1998

BOTANICAL RESOURCES STUDY
KAUPAKULUA BRIDGE REPLACEMENT PROJECT
MAKAWAO DISTRICT, MAUI

INTRODUCTION

Kaupakulua Bridge is located on Hana Highway (Route 36) along the north coast of Maui, east of Haiku Town. On some TMK maps the bridge is also identified as "Kaupakalua", but it should be Kaupakulua as found on the USGS maps and in Pukui et al. (1974). The existing, two-lane, wooden bridge crosses over East Kaupakulua Gulch and stream. The existing bridge is 40 ft. wide and 1,500 ft. long, and about 100 ft. high.

The new bridge will be located on the mauka (south) side of the existing bridge; it will be built as close as possible to the existing bridge. The proposed project also requires realignment of the approach highways. Once the new bridge and the approach highways are completed, the existing bridge will be demolished.

Field studies of the area proposed for the new bridge structure and the realigned approach roadways were conducted on 08 May 1998 by two botanists. The area under and adjacent to the existing bridge structure was also surveyed as the vegetation in this area would be disturbed when the bridge is demolished. The primary objectives of the field studies were to:

- 1) provide a general description of the vegetation on the project site;
- 2) search for threatened and endangered plants as well as species of concern protected by Federal and State endangered species laws; and

- 3) identify areas of potential environmental problems or concerns and propose appropriate mitigation measures.

SURVEY METHODS

Prior to undertaking the field studies, topographic maps and the new bridge plan were examined to determine terrain characteristics, access, boundaries, and reference points.

Access into the gulch area was from the undeveloped residential lots east (Hana side) of the existing bridge; a foot trail on Lot A follows along the gently sloping portion of the gulch down to the stream. A walk-through (pedestrian) survey method was used. Notes were made on plant associations and distribution, substrate types, drainage, exposure, disturbances, topography, etc.

DESCRIPTION OF THE VEGETATION

The flowering plant names used in the discussion below follow the most recent treatment of the Hawaiian flora by Wagner et al. (1990) and Wagner and Herbst (1995). The names of the ferns and fern allies are in accordance with Lamoureux (1988).

Bridge Area

Where the proposed new bridge and the existing old bridge cross the gulch and stream, the vegetation is introduced forest composed primarily of Java plum trees (Syzygium cumini) with smaller, scattered stands or individuals of mango (Mangifera indica), kukui (Aleurites moluccana), rose apple (Syzygium jambos), albizia (Paraserianthes falcataria), and hau (Hibiscus tiliaceus); tree height is 40 to 50 ft. Under the tree cover, there are scattered shrubs of Christmas berry (Schinus terebinthifolius), guava (Psidium guajava), coffee (Coffea arabica), koa haole (Leucaena

leucocephala), lantana (Lantana camara), and young trees of velvet leaf (Chrysophyllum oliviforme). Ground cover is patchy. Where the tree cover is more open and more light reaches the ground, there are clumps of grasses and herbaceous species such as Hilo grass (Paspalum conjugatum), oriental hawksbeard (Youngia japonica), elephant's foot (Elephantopus mollis), wood-fern (Christella parasitica), Asiatic pennywort (Centella asiatica), blechnum fern (Blechnum occidentale), etc. Along the bottom of the gulch where it is wetter, there are clumps of mosses and liverworts on the trunks of trees and rocks. Also found here are the native pakahakaha fern (Pleopeltis thunbergiana) and moa (Psilotum nudum).

A well-used dirt road which crosses under the existing bridge and a small concrete bridge over the stream are found along the gulch bottom. Along the dirt road the vegetation is more open and grassy. Hilo grass, Guinea grass (Panicum maximum), palmgrass (Setaria palmifolia), and smaller herbaceous species such as elephant's foot, oriental hawksbeard, nettle-leaved vervain (Stachytarpheta urticifolia), and honohono (Commelina diffusa) are abundant. The cut banks along the dirt road are largely barren with only a few clumps of plants which include blechnum fern, wood-fern, and maidenhair fern (Adiantum raddianum).

Approach Highways

On the west side of the approach highway, the steeply cut banks of the existing highway support a low mat uluhe fern (Dicranopteris linearis) with scattered patches of pala'a (Sphenomeris chinensis), swordfern (Nephrolepis multiflora), broomsedge grass (Andropogon virginicus), and molasses grass (Melinis minutiflora). The slopes above the cut banks are covered by molasses grass with smaller mats of Spanish clover (Desmodium incanum) and a large stand of swamp mahogany (Eucalyptus robusta). Two native shrubs, pukiawe

(Styphelia tameiameia) and 'ulei (Osteomeles anthyllidifolia), are found under the swamp mahogany, just outside of the project corridor.

On the east side of the approach highway, the vegetation consists of dense Christmas berry thicket, up to 15 ft. tall, with scattered clumps of guava shrubs and rose apple trees. A few avocado trees (Persea americana) are found closer to the existing highway. Ground cover consists largely of elephant's foot and swordfern with smaller patches of wood-fern, rose apple seedlings, laua'e fern (Phymatosorus scolopendria), and palmgrass.

DISCUSSION AND RECOMMENDATIONS

The vegetation on the Kaupakulua Bridge replacement project site is dominated by introduced species such as Java plum, Christmas berry, guava, elephant's foot, Hilo grass, rose apple, and molasses grass. Introduced or alien species are all those plants which were brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact, that is, Cook's discovery of the islands in 1778.

Seven native species were found during the field studies and are mentioned in the vegetation description section. These seven species are: hau, pakahakaha fern, moa, uluhe, pala'a, 'ulei, and pukiawe. The 'ulei and pukiawe are found just outside of the study site. All of the native plants are indigenous, that is, they are native to the Hawaiian Islands and also elsewhere throughout the Pacific and/or tropics.

None of the plants found during the field studies is a threatened or endangered species; nor is any plant a species of concern (U.S. Fish and Wildlife Service 1997). All of the plants can be found in similar environmental habitats throughout the Hawaiian

Islands. A very recent survey of the vegetation on the nearby Uaoa Bridge project site (Char 1998) also recorded similar findings.

The proposed Kaupakulua Bridge replacement project is not expected to have a significant negative impact on the botanical resources as the vegetation on the site is composed largely of introduced plants; the few native plants are widespread throughout the Hawaiian Islands and elsewhere. It is recommended, however, that areas cleared of vegetation during construction be grassed over as soon as possible to prevent soil loss and discharge of sediments into the stream. Hilo grass which is common on the study site can be used.

LITERATURE CITED

- Char, W.P. 1998. Botanical Resources Assessment, Uaoa Bridge Replacement, Makawao District, Maui. Prepared for Environmental Communications. April 1998.
- Lamoureux, C.H. 1988. Draft checklist of Hawaiian pteridophytes, "Kupukupu O Hawai'i Ne'i". Lyon Arboretum, University of Hawai'i, Manoa.
- Pukui, M.K., S.H. Elbert, and E.T. Mookini. 1974. Place names of Hawaii. Revised edition. University Press of Hawaii, Honolulu.
- U.S. Fish and Wildlife Service. 1997. U.S. Fish and Wildlife Service species list, plants. September 25, 1997. Pacific Islands Ecoregion Office, Honolulu, HI.
- Wagner, W.L., D.R. Herbst, and S.H. Sohmer. 1990. Manual of the flowering plants of Hawai'i. 2 vols. University of Hawai'i Press and B.P. Bishop Museum Press, Honolulu. B.P. Bishop Museum Special Publication 83.
- Wagner, W.L. and D.R. Herbst. 1995. Contributions to the flora of Hawai'i. IV. New records and name changes. B.P. Bishop Museum Occasional Papers 42: 13-27.

Appendix C

Bridge Inspection Report: Kaupakulua Bridge,
Hana Highway, State Route 36
Makawao District, Maui

State of Hawaii
Department of Transportation
Highways Division

October 25, 1997

State of Hawaii
Department of Transportation
Highways Division

DOT 321A
Rev. 08/4/78

BRIDGE INSPECTION REPORT

Date of Inspection 10-25-97
 Bridge Number 0090000361304 Bridge Name KAUPAKALUA
 Number of Spans 10
 Location: Island MAUI Route No. 360 Highway HANA
 Feature Intersected STREAM
 Bridge Material: Superstructure TIMBER STEEL Substructure CONC. TIMBER MASONRY

36	TRAFFIC SAFETY FEATURES		Indicate if feature meets currently acceptable standards. 0-No 1-Yes 2-Not Applicable
1.	Bridge Railings	0	TRAFFIC SAFETY FEATURES IMPROVED UNDER PROJ. NO. STP-C900(39)
2.	Transitions	1	
3.	Approach Guardrail	1	
4.	Approach Guardrail Ends	1	

58	DECK	CONDITION RATING	REMARKS
1.	Wearing Surface	7	A.C. PAVEMENT DEFECTS AS LAST REPORTED WAS IMPROVED UNDER PROJ. NO. STP-C900(39) PLUM FERN GROWN @ OUTSIDE DECK SECTION. TIMBER STRINGERS SOFFIT HAS WATER STAIN & EFFLORESCENCE.
2.	Deck - Structural Condition	5	
3.	Curbs	N	
4.	Median	1	
5.	Sidewalks	1	
6.	Parapet	N	
7.	Railing	4	
8.	Paint	5	
9.	Drains	5	
10.	Lighting Standards	N	
11.	Utilities	5	
12.	Joint Leakage	N	
13.	Expansion Joints or Devices	N	

59	SUPERSTRUCTURE		
1.	Bearing Devices	N	STEEL GIRDERS PROTECTIVE FINISHES HAVE DETERIORATED REVEALING RUST
2.	Stringers	5	
3.	Girders, Beams, or Arches	5	
4.	Floor Beams and Diaphragms	5	
5.	Trusses - General	N	
	- Portals	1	
	- Bracing	1	
6.	Paint	1	
7.	Machinery (Movable Spans)	N	
8.	Rivets and /or Bolts	N	
9.	Welds - Cracks	5	
10.	Rust	5	
11.	Timber Decay	5	
12.	Concrete Cracking and /or Spalling	N	
13.	Collision Damage	1	
14.	Deflection Under Load	1	
15.	Alignment of Members	1	
16.	Vibrations Under Load	4	
17.	Flat Slab	N	
	Inspectors Condition Rating	5	

Date of Inspection 10-25-97

Bridge Number 00900020030/304 Bridge Name KAUAIKALAU

		CONDITION RATING	REMARKS
60	SUBSTRUCTURE		
1.	Abutment - Wings	4	BRACING BETWEEN BENTS AND WING PLATE PLATE @ KAHILU/ ABUTMENT (UPSTREAM) TOP FRAMING HAD WORSEEN.
	- Backwall	4	
	- Footing	5	
	- Piles	N	
	- Erosion	4	
	- Settlement	G	
2.	Piers or Bents - Caps	5	
	- Column	5	
	- Footing	G	
	- Piles	N	
	- Scour	G	
	- Settlement	G	
3.	Pile Bents	N	
4.	Concrete Cracking and /or Spalling	5	
5.	Steel Corrosion	4	
6.	Timber Decay, etc.	5	
7.	Debris on Seats	N	
8.	Paint	N	
9.	Collision Damage	G	
	Inspectors Condition Rating	5	

61	CHANNEL & CHANNEL PROTECTION		
1.	Channel Scour	5	HEAVY VEGETATION BOTH SIDES OF EMBANKMENT & CHANNEL AS WELL BUT IT DOESN'T AFFECTED THE WATERWAYS.
2.	Embankment Erosion	4	
3.	Drift	G	
4.	Vegetation	5	
5.	Channel Change	G	
6.	Fender System	N	
7.	Spur Dikes & Jetties	N	
8.	Rip Rap	N	
9.	Adequacy of Opening	G	
	Inspectors Condition Rating	5	

62	CULVERT & RETAINING WALLS	
1.	Barrel:	N
	Concrete	
	Steel	
	Timber	5
2.	Headwall	
3.	Cutoff Wall	5
4.	Adequacy	
5.	Debris	5
	Inspectors Condition Rating	N

Date of Inspection 10-25-97
 Bridge Number C900000001004 Bridge Name NAIPANALUA

93 CRITICAL FEATURE INSPECTION DATE

- 1. Fracture Critical Details _____
- 2. Underwater Inspection _____
- 3. Other Special Inspection _____

CONDITION RATING REMARKS

RESTRICTIONS:

- 1. Posted Loading

--
- 2. Legibility

--
- 3. Visibility

--

REPAIRS AND IMPROVEMENTS:

- 1. List all work done to this bridge since the last inspection including cost.
*TRAFFIC SAFETY FEATURES, A.C. PAVEMENT IMPROVED CINDER PROJ. NO. STP. C-2001
 REMAIN THE RAILINGS, & REPLACED THE ROTEN POSTS.*
- 2. Indicate proposed and /or recommended improvements including estimated cost.
REPLACE THE BRIDGE / MONITOR THE TAMBOR STRUCTURE DEFECT.
- 3. List any existing temporary conditions.

REMARKS AND RECOMMENDATIONS:

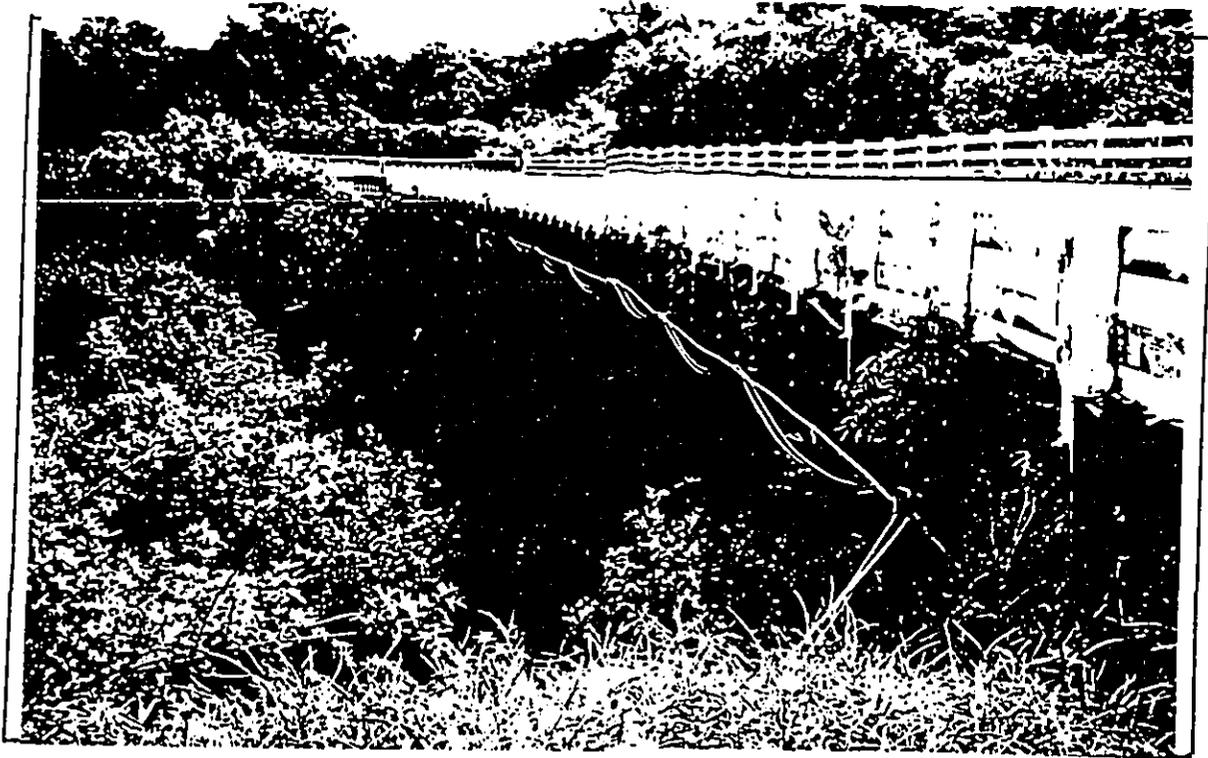
- 1. Does this bridge require inspection by Bridge Design Section? Yes No
- 2. Remarks: Describe defects. Use sketches, diagrams, and /or photographs where possible.

MAR

Inspected by: Signature CRISANTO RASASA
 Title CE

Supervised by: Signature Widmann Cepuzel
 Title CR

BRIDGE NO. _____



GENERAL PERSPECTIVE VIEW



FORM: MOSS GROWING @ RAILING DECK SECTION

BRIDGE NO. 221-10-100



ROADWAY ALIGNMENT LOOKING TOWARD KANAWHA



LOOKING TOWARD PANIA

State of Hawaii
Department of Transportation
Highways Division

DOT 4-33
(Hwy 08)

BRIDGE INVENTORY SHEET

DATE: Jan 1985
BY: GH

IDENTIFICATION:

Name of Bridge KAUPAKALUA Island MAUI
 1 State: Hawaii 12 Road Section No. 73
 2 Hwy District: MAUI 13 Defense Bridge Letter R
 3 County MAUI 14 Defense Milepoint 10.72
 4 City/Town Kaupakalua, HIKIU 15 Defense Rd. Section Length 17.1 mi.
 5 Inventory Route: Principal Other 16 Latitude 20°-55.3'
 6 Feature Intersected STREAM 17 Longitude 156°-17.0'
 7 Facility Carried By Structure HANO HWY. 18 Physical Vulnerability STL. STRGR
 8 Structure No. 00900740301 of 1 19 By-pass, Detour Length _____
 9 Location 0.19 mi. E. of HIKIU & ULUMUHI 20 Toll Bridge On Toll Road On Free o
Rd. N. of Kaupakalua Reservoir in Makawo 21 Custodian: State DOT Hwy. Div.
 10 Route No. FAP 36 22 Owner: State DOT Hwy. Div.
 11 Milepoint 13.63 mi. 23 F.A.P. No. F-334 (1)

CLASSIFICATION:

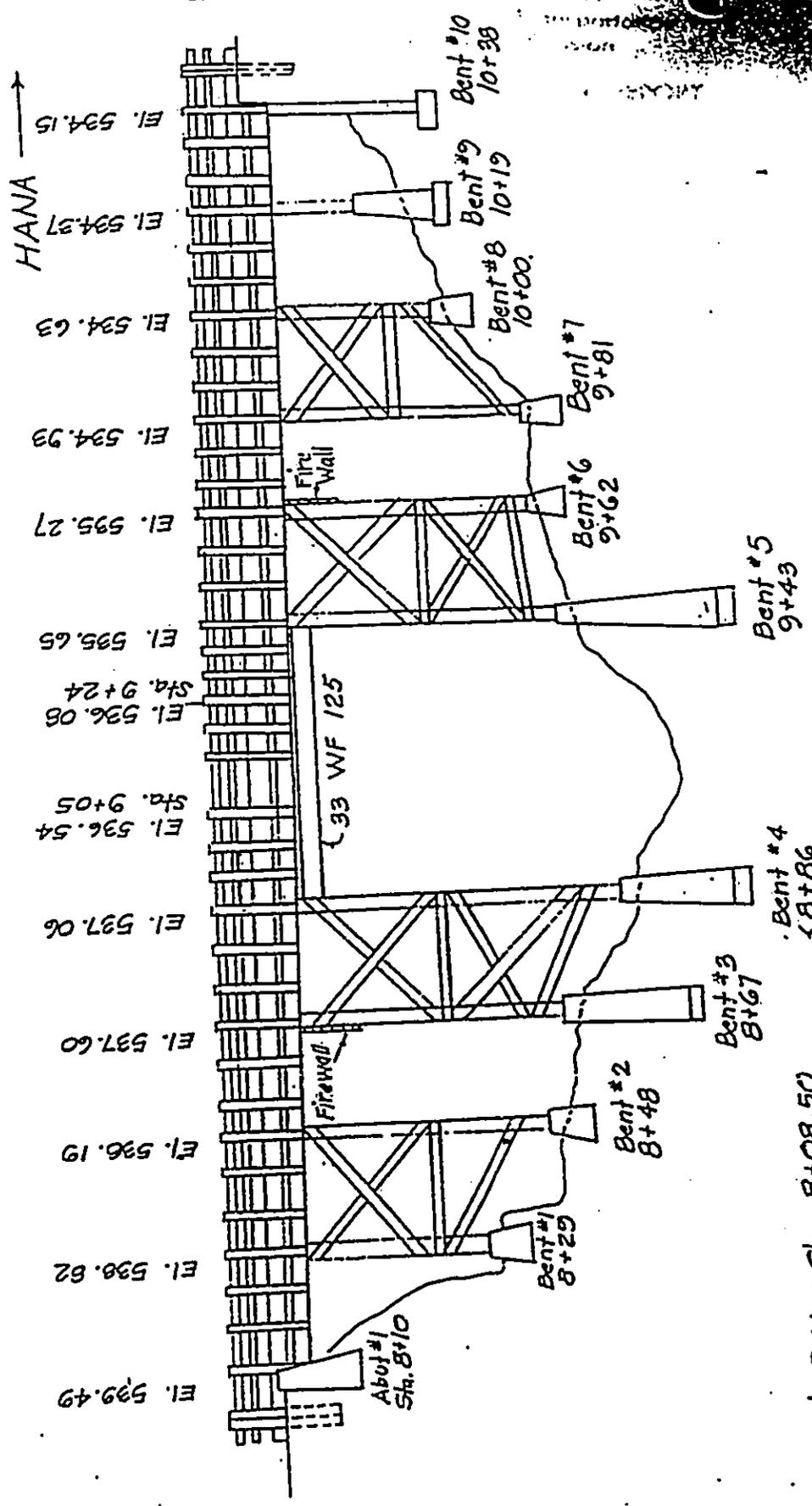
24 Fed. Aid System RURAL - FEDERAL AID PROGRAM
 25 Administrative: State
 26 Functional RURAL - MAJOR

STRUCTURE DATA:

27 Year Built 1941 43 Structure Type-Main TIMBER ON
 28 Lanes on Structure 2 Under 0 WF STRGR
 29 AOT on Structure 1840 44 - Approach _____
 30 Year of AOT 1981 45 No. of Spans-Main 10
 31 Design Load H 20 S16 46 - Approach _____
 32 Appr. Rdwy. Width w/Sh'd. 34.0' 47 Railing Type TIMBER
 33 Br. Median None Open Closed 48 Max. Span Length 57.0
 34 Skew 0°-00'-00" 49 Structure Length 230.33'
 35 Structure Flared Yes No 50 Sidewalk Rt. 0 Ft. Lt. _____
 36 Clearance Soffit to High Water _____ 51 Br. Roadway Width (Curb-Curb) 36'
 37 Clearance Soffit to Stream Bed 48' 52 Deck Width (Out-Out) 29'
 38 Navigation Control Yes No 53 Vertical Clearance Over Deck _____
 39 - Vertical _____ Ft. 54 Under Clearance - Vertical _____
 40 - Horizontal _____ Ft. 55 - Lateral Right _____
 41 Alignment Tangent _____ Curve Radius 56 - Lateral Left _____
 42 Type Service HWY. OVER WATERWAY 57 Wearing Surface A.C.

Transfer of Date _____ By _____ Date _____
 Maintenance Insp. _____
 Condition Analysis _____

Appraisal _____
 Cost Estimate _____
 General Review _____



Begin Bridge Sta: 8+08.50
 End Bridge Sta: 10+38.83

LONGITUDINAL SECTION

Note: Elevations at \pm Roadway - top pavement.
 Sketch drawn from bridge plans.

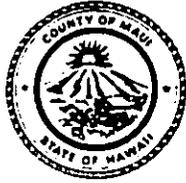
Appendix D

Comments and Responses to the
Draft Environmental Assessment
30-Day Comment Period

JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

January 8, 1999

1/10			
REC'D	JAN 11 1999	BASTC	
		ELC	

Mr. Chester Koga, Project Manager
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Dear Mr. Koga:

RE: Draft Environmental Assessment (EA) - Kaupakulua Bridge and Approaches, Replacement of Three Timber Bridges, TMK: 2-7-13: Portions 26, 27, 64, 66, 67, 71, 72, Hana Highway (State Route 36), at Kaupakulua Gulch, Haiku, Makawao District, Island of Maui, Hawaii (DOT Project No. BR-036-1(5))

The Maui Planning Department (Department) reviewed the Draft EA for the above subject bridge replacement. The Applicant, State of Hawaii, Department of Transportation, Highways Division, proposes to replace the existing bridge at Kaupakulua Gulch on the Hana Highway with a new bridge to be constructed mauka (south) of the existing alignment. Included in the proposed bridge design are roadway shoulders, reinforced guardrails, and drainage features normally lacking in older bridge construction. The proposed project also involves construction of approach roads and demolition of the existing bridge.

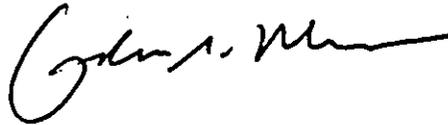
According to the Draft EA, the proposed realignment is outside the County's Special Management Area (SMA). A makai alignment was considered but dismissed on the basis that in addition to structural design considerations that would have cost more, development costs would have also increased if the makai alignment had been selected because of the SMA requirements. Therefore, an SMA review by the County will not be required with the selection of the mauka alignment.

Because of the steep slope, high rainfall between October and March, and proximity of the site to the ocean, consideration should be given to reducing major excavation and grading work during the rainy season.

Mr. Chester Koga, Project Manger
January 8, 1999
Page 2

The Department has no further comments at this time. Should you have any questions, please call Julie Higa, Staff Planner, of this office at 243-7814.

Very truly yours,



JOHN E. MIN
Director of Planning

JEM:JH:cmb

c: Clayton Yoshida, Deputy Director of Planning
Julie Higa, Staff Planner
Project File
General File
S:\ALL\JULIE\ENVIRONM\KAUPAKUL.EA

BENJAMIN J. CAYETANO
GOVERNOR



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

KAZU HAYASHIDA
DIRECTOR
DEPUTY DIRECTORS
BRIAN K. MINAII
METHUEN OKIMOTO

IN REPLY REFER TO:

HWY-DS
2.2994

June 15, 1999

Mr. John E. Min, Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

Subject: Hana Highway, Replacement of Timber Bridge,
Kaupakulua Bridge and Approaches, Island of Maui
Federal-Aid Project No. BR-036-1(5)
Your Letter Dated January 8, 1999 Regarding the Draft
Environmental Assessment

Dear Mr. Min:

Thank you for reviewing the Draft Environmental Assessment for the proposed Kaupakulua Bridge replacement project. We note your recommendation that major excavation and grading work be undertaken during the non-rainy season. Consideration will be given to this concern during the construction scheduling.

We further note your concurrence that the proposed roadway alignment and new bridge will be constructed outside of the County's Special Management Area (SMA), and that a SMA review by the County will not be required.

If you have additional questions or comments, please contact Emilio Barroga, Jr. of our Design Branch, Highways Division, at 692-7546.

Very truly yours,

A handwritten signature in cursive script that reads "Kazu Hayashida".

KAZU HAYASHIDA
Director of Transportation



BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. (P) 1015.9

JAN 13 1999

TO: The Honorable Kazu Hayashida, Director
Department of Transportation

ATTENTION: Mr. Emilio Barroga, Jr., Highways Division

SUBJECT: Hana Highway, Replacement of Three Timber Bridges,
Kaupakulua Bridge and Approaches, Maui County

Thank you for the opportunity to review the subject draft Environmental Assessment which we received on December 24, 1998.

The project will not impact on any of our existing or proposed facilities. Therefore, we have no comments.

In the future, when actions described by Environmental Assessments, Environmental Impact Statement Preparation Notices, Environmental Impact Statements, Plan Review Use, etc., do not impact on specific State plans or facilities, we for work reasons will not provide a "no comments" or a "good planning principles evaluation" type of response. But, since we are still interested in knowing what is going on planning-wise in our State, we would still appreciate the opportunity to review all such documents.

If you should have any questions, please have your staff call Mr. Ronald Ching of the Public Works Division at 586-0490.


RAYMOND H. SATO
State Comptroller

BENJAMIN J. CAYETANO
GOVERNOR



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

March 16, 1999

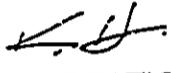
KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAII
GLENN M. OKIMOTO

IN REPLY REFER TO:

HWY-DS
2.2995

TO: RAYMOND SATO, COMPTROLLER
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

FROM: KAZU HAYASHIDA 
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
HANA HIGHWAY, REPLACEMENT OF TIMBER BRIDGE
KAUPAKULUA BRIDGE AND APPROACHES, DISTRICT OF MAKAWAO
ISLAND OF MAUI
PROJECT NO. BR-036-1(5)
TMK 2-7-13: (PORTIONS) 26, 27, 64, 66, 67, 71, AND 72

Thank you for reviewing the Draft Environmental Assessment for the proposed Kaupakulua Bridge replacement project. We acknowledge that the subject project will not impact any existing or proposed facilities under your supervision.

We further note that, in the future, you will not provide a written "no comments" or "good planning principles" type of response when reviewing environmental documents for projects that do not impact on specific State plans or facilities. We will, however, continue to provide you with an opportunity to review such documents.

Should you have additional questions or comments, please call Emilio Barroga, Jr. of our Design Branch, Highways Division, at 692-7546.

BENJAMIN J. CAYETANO
GOVERNOR



ESTHER UEDA
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION

P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

January 5, 1999

Mr. Emilio Barroga, Jr.
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Barroga:

Subject: Draft Environmental Assessment (DEA) for Hana Highway, Replacement of Three Timber Bridges, Kaupakulua Bridge and Approaches, Makawao District, Maui County, Hawaii, TMK 2-7-13: (portions) 26, 27, 64, 66, 67, 71, and 72

We have reviewed the DEA for the subject project and confirm that the project site, as represented on Figure 1-1, is located within the State Land Use Agricultural District. We note that on page 43, paragraph 3.10.1, the Agricultural District is incorrectly referenced as the "Agriculture" District.

We suggest that the Final EA include a map showing the project in relation to the State land use districts.

We have no further comments to offer at this time. We appreciate the opportunity to comment on the subject application.

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

A handwritten signature in black ink, appearing to read "Esther Ueda".

ESTHER UEDA
Executive Officer

EU:th

cc: Chester T. Koga
OEQC

BENJAMIN J. CAYETANO
GOVERNOR



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

March 16, 1999

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:

HWY-DS
2.2997

TO: ESTHER UEDA, EXECUTIVE OFFICER
LAND USE COMMISSION
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT
AND TOURISM

FROM: KAZU HAYASHIDA *KH*
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
HANA HIGHWAY, REPLACEMENT OF TIMBER BRIDGE
KAUPAKULUA BRIDGE AND APPROACHES, DISTRICT OF MAKAWAO
ISLAND OF MAUI
PROJECT NO. BR-036-1(5)
TMK 2-7-13: (PORTIONS) 26, 27, 64, 66, 67, 71, AND 72

Thank you for reviewing the Draft Environmental Assessment for the proposed
Kaupakulua Bridge replacement project.

We note that the proposed project site, identified as TMK 2-17-13:(portions) 26, 27, 64,
66, 67, 71, and 72, is within the State Land Use Agricultural District. The reference on
page 43, paragraph 3.10.1, will be corrected to read "Agricultural District".

In response to your recommendation that a map be included in the Final EA showing
the project in relation to the State land use districts, Figure 3-5, Zoning and Land Use,
on page 45 will be revised to identify the boundaries of the State Land Use Agricultural
District in the vicinity of the project.

Should you have additional questions or comments, please call Emilio Barroga, Jr. of
our Design Branch, Highways Division, at 692-7546.

"KIMO" APANA
Mayor

CHARLES JENCKS
Director

DAVID C. GOODE
Deputy Director

Telephone: (808) 243-7845
Fax: (808) 243-7955



COUNTY OF MAUI
**DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT**
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

February 8, 1999

Mr. Emilio Barroga
State of Hawaii, Department of Transportation
Highways Division
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Barroga:

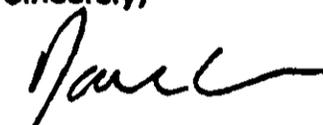
**SUBJECT: REPLACEMENT OF THREE TIMBER BRIDGES, KAUPAKULUA
BRIDGE AND APPROACHES
TMK: (2) 2-7-013:26, 27, 64, 66, 67, 71 & 72**

We reviewed the subject submittal and have the following comments.

1. Grinding and re-use of demolition waste should be considered as well as recycling options.
2. Parcels 64 and 66 have been consolidated with Parcel 152 and resubdivided, creating a private road running parallel with Olili Road (LUCA File No. 2.2438).

If you have any questions, please call David Goode at 243-7845.

Sincerely,


CHARLES JENCKS
Director of Public Works
and Waste Management

DG:co/mt

S:\LUCA\CAZAR\BRIDGES.WPD

BENJAMIN J. CAYETANO
GOVERNOR



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

KAZU HAYASHIDA
DIRECTOR
DEPUTY DIRECTORS
BRIAN K. AMATAI
GLENN M. OKIMOTO

IN REPLY REFER TO:

HWY-DS
2.4120

June 15, 1999

Mr. Charles Jencks, Director
Department of Public Works and Waste Management
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Jencks:

Subject: Hana Highway, Replacement of Timber Bridge,
Kaupakulua Bridge and Approaches, Island of Maui
Project No. BR-036-1(5)
Your Letter Dated February 8, 1999 Regarding the Draft
Environmental Assessment

Thank you for reviewing the Draft Environmental Assessment for the proposed Kaupakulua Bridge replacement project. We note your recommendation for grinding and re-use of demolition waste. This and other recycling options will be relayed to the project contractor for consideration.

Regarding your information concerning the consolidation of TMK parcels 2-7-13:64 and 66 with parcel 2-7-63:152, communication with the City and County of Honolulu Tax Map Office confirmed that parcel 66 has been dropped into parcel 64 and is no longer active. Parcel 64 now comprises 6.106 acres. Parcel 152 comprises 20.260 acres and also remains active. The Final EA will be revised to reflect these changes to the TMK boundaries.

If you have additional questions or comments, please direct them to the attention of Emilio Barroga, Jr. of our Design Branch, Highways Division.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

KAZU HAYASHIDA
Director of Transportation

BENJAMIN J. CAYETANO
GOVERNOR



FILE COPY

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

December 21, 1998

Mr. Kazu Hayashida, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Segmentation of Hana Highway Bridge Projects

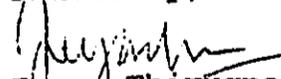
In the past two weeks, we have received two separate environmental assessments for projects associated with Hana Highway Bridges. We received environmental assessments for: i) Uaoa Bridge & Approaches; and ii) Kaupakulua Bridge & Approaches.

Section 11-200-7, Hawaii Administrative Rules, states that "a group of actions proposed by an agency or applicant shall be treated as a single action when: (1) the component actions are phases or increments of a larger total undertaking; (2) an individual project is a necessary precedent for a larger project; (3) an individual project represents a commitment to a larger project; or (4) the actions in question are essentially identical and a single statement will adequately address the impacts of each individual action and those of the group of actions as a whole."

Accordingly, we recommend that a single final environmental assessment be prepared for the projects mentioned above.

Should you have any questions, please call Nancy Heinrich at 586-4185.

Sincerely,


Jeyan Thirugnanam
Planner

c: Environmental Communications
R.M. Towill

BENJAMIN J. CAYETANO
GOVERNOR



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

January 11, 1999

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAII
GLENN M. OKIMOTO

IN REPLY REFER TO:

HWY-DS
2.2339

TO: DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
ATTENTION: JEYAN THIRUGNANAM

FROM: *for* PERICLES MANTHOS *Jerry Lopez*
ADMINISTRATOR
HIGHWAYS DIVISION

SUBJECT: HANA HIGHWAY, REPLACEMENT OF TIMBER BRIDGES
UAOA BRIDGE AND APPROACHES AND
KUAPAKULUA BRIDGE AND APPROACHES, MAUI
PROJECT NO. BR-036-1(5)
DRAFT ENVIRONMENTAL ASSESSMENTS

Thank you for your letter of December 21, 1998, regarding your comments on the separate Draft Environmental Assessments for the two bridges.

Uaoa Bridge and Kaupakulu Bridge, which are about two miles apart, are entirely two separate highway facilities. Construction documents are being prepared by two different consultants and construction work will be staggered depending on the availability of funds. To save time and additional consultant fees that may be incurred by combining the Final Environmental Assessments into one, we prefer to have a separate Final Environmental Assessment for each bridge.

Should you have any questions, please call Emilio Barroga, Jr. at 692-7546.