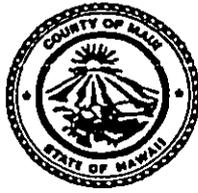


LINDA CROCKETT LINGLE
Mayor

CHARLES JENCKS
Director

DAVID C. GOODE
Deputy Director

AARON SHINMOTO, P.E.
Chief Staff Engineer



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

EASSIE MILLER, P.E.
Wastewater Reclamation Division

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

DAVID WISSMAR, P.E.
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

RECEIVED

COUNTY OF MAUI 95 SEP 27 10:35
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

September 18, 1995

Mr. Gary Gill, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

SUBJECT: NEGATIVE DECLARATION FOR KAHOLOPO BRIDGE REPLACEMENT
TMK: 1-4-07:04
HANA, MAUI, HAWAII

Dear Mr. Gill:

The County of Maui, Department of Public Works and Waste Management, has reviewed the comments received during the 30-day public comment period which began on April 23, 1995. The Department of Public Works and Waste Management has determined that this project will not have a significant environmental effect and has issued a negative declaration. Please publish this notice in the October 8, 1995 OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the final EA.

If you have any questions, please contact Mr. Cary Yamashita of our Engineering Division at (808) 243-7745.

Very truly yours,

A handwritten signature in black ink, appearing to read "Charles Jencks".

CHARLES JENCKS
Director of Public Works
and Waste Management

LL/CY:ch(ED95-1229)
Kaholopo,EOC

Enclosure

xc: GMP Associates, Inc., 841 Bishop Street, Suite 1501, Honolulu, HI 96813

128

1995-10-08-MA-PEA Kaholopo Bridge Replacement

OCT 8 1995

FILE COPY

FINAL
ENVIRONMENTAL ASSESSMENT
AND
NEGATIVE DECLARATION
FOR

Kaholopo Bridge Replacement
Job No. 94-40
TMK: 1-4-07:04

Hana Highway
Hana, Maui, Hawaii
Contract No. 936

THIS ENVIRONMENTAL DOCUMENT WAS PREPARED
PURSUANT TO
CHAPTER 343, HAWAII REVISED STATUTES

Proposing Agency:

Department of Public Works and Waste Management
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Responsible Official:


Charles Jencks
Director of Public Works and Waste Management

Date:

9/17/95

Prepared By:
GMP Associates, Inc.
841 Bishop Street, Suite 1501
Honolulu, Hawaii 96813

August 1995

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1.0 INTRODUCTION

1.1 Background

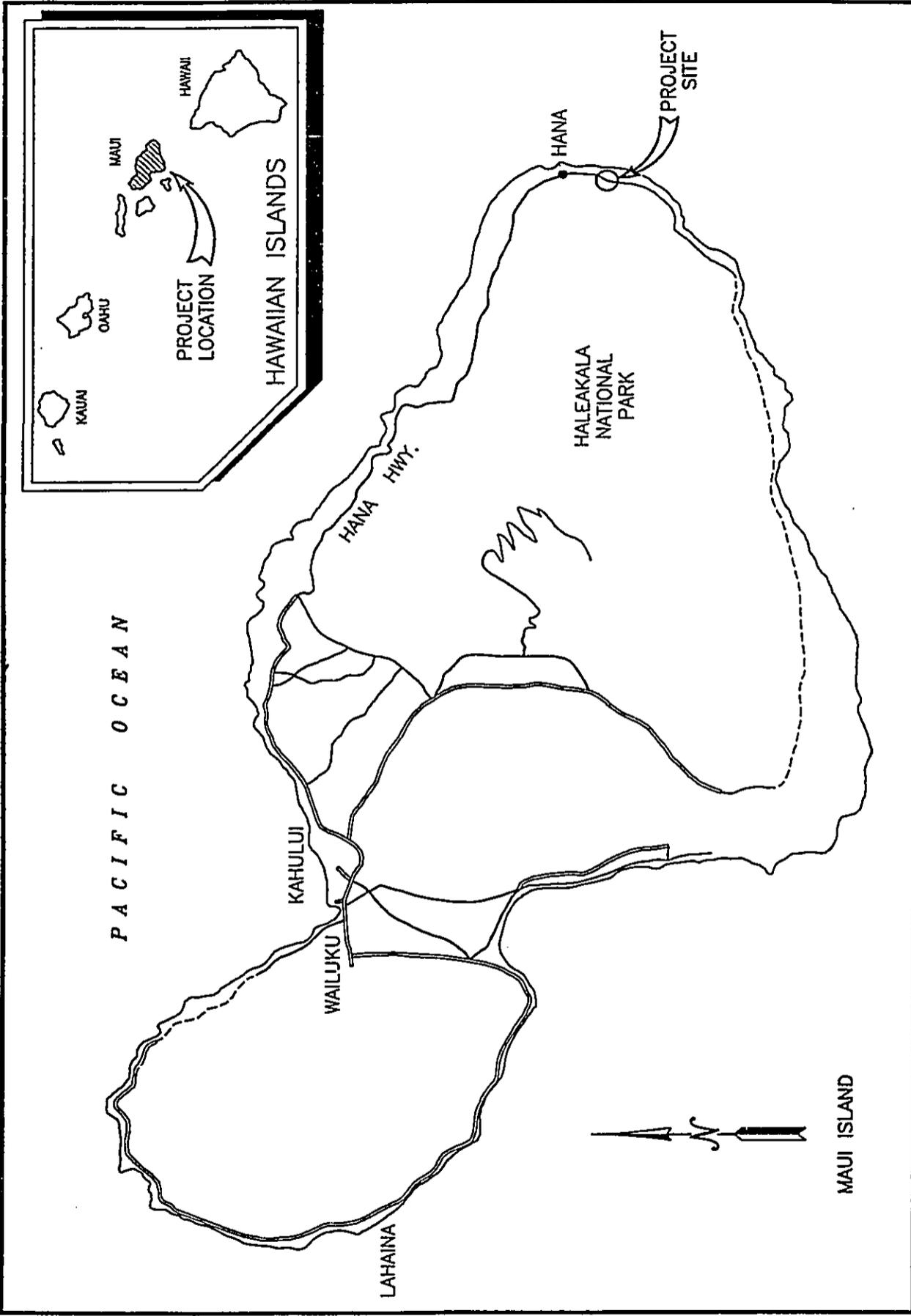
The County of Maui, Department of Public Works and Waste Management, has identified the need to reconstruct, repair, rehabilitate, or replace bridges on county roads which are functionally obsolete or structurally deficient. The Kaholopo Bridge in the Hana District of eastern Maui requires immediate replacement (Figure 1). This bridge is currently one lane, about 16 feet wide, and has a posted weight limit of 3 tons. Crossing the Haneoo Stream (Figure 2) this structure was constructed in 1917 and consists of a reinforced concrete deck supported by concrete rubble masonry (CRM) abutments and a CRM center pier.

The 1993 bridge inspection report, made by Maui County for this structure, summarized the condition rating as follows:

"This bridge is in poor structural condition because of increased areas of spalls, spalls with reinforcing exposed on underside of bridge deck. Because of iron rail reinforcing exposed, concrete slab deck design and increase in defects this bridge could be fracture critical. This bridge has been put on a 12-month inspection interval because of the increase in the deteriorated areas."

The proposed improvement will construct an independently supported bridge deck over the existing structure. This new bridge deck will span the entire channel (23 feet±) and extend upstream beyond the existing structure about 12 feet for a total width of

SC2391AA

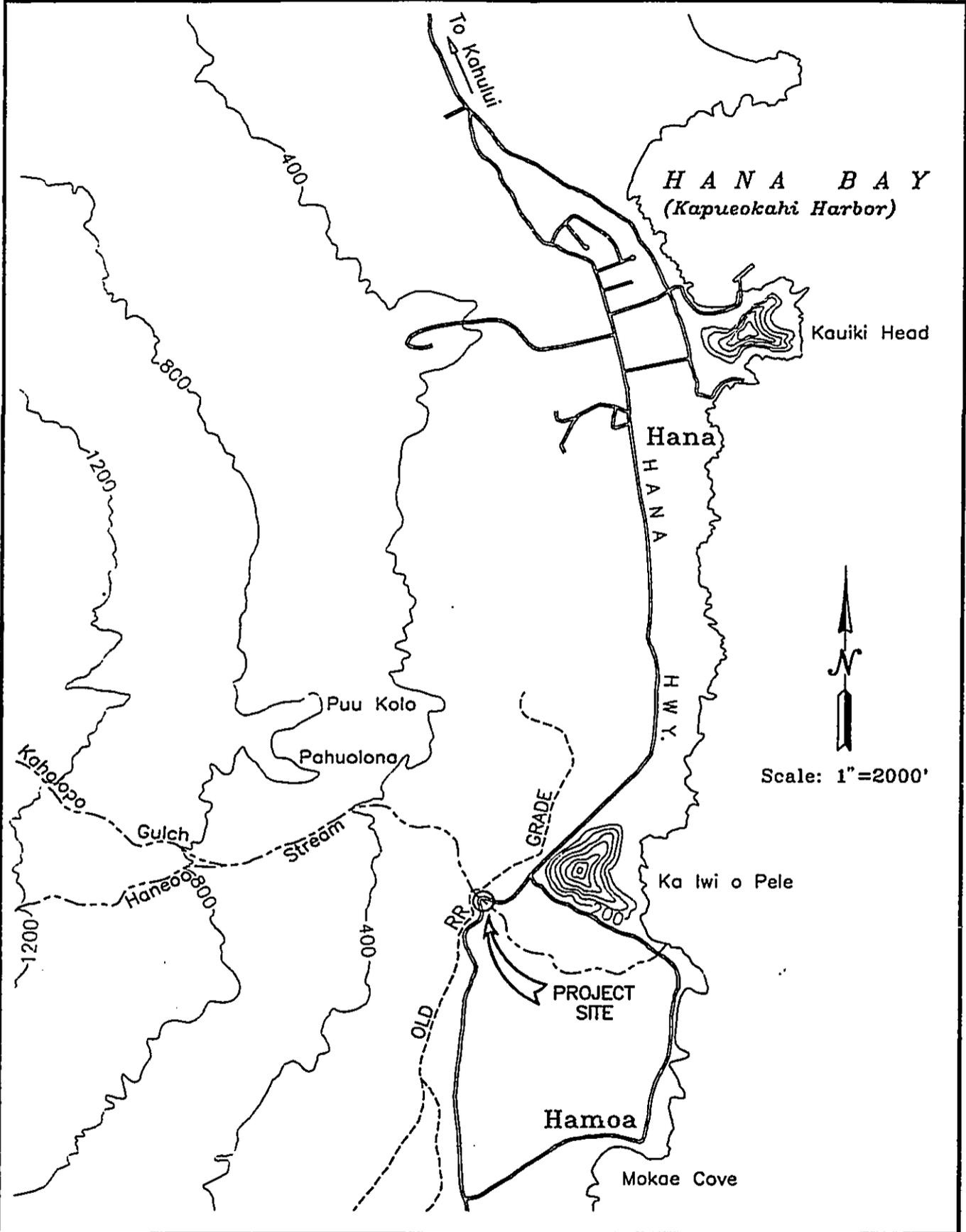


GMP ASSOCIATES, INC.

KAHOLOPO BRIDGE, PROJECT LOCATION MAP

FIGURE
1

SC2391AB



GMP ASSOCIATES, INC.

KAHOLOPO BRIDGE, SITE PLAN

FIGURE
2

28 feet. The road will be widened entirely on the mauka side, transitioning from the existing road width to the new bridge width. The objective is to achieve current bridge design standards without creating a detrimental impact on the Haneoo Stream or surrounding environment.

1.2 Applicant and Approving Agencies

This Environmental Assessment (EA) is being prepared for the County of Maui, Department of Public Works and Waste Management as the applicant or proposing agency. The EA is triggered by the use of county funds to rehabilitate the Kaholopo Bridge. The use of County funds (Chapter 343 HRS) for this project also requires that the Maui County Mayor's Office shall approve the findings of this Environmental Assessment. In addition, the County has filed their Programming Documents for Federal Aid with a request for a Categorical Exclusion (CE) under 23 CFR 771.117(d)(3) "bridge rehabilitation". CE actions, by definition, do not involve significant environmental impacts, either individually or cumulatively, to any natural, cultural, recreational, or historic resources, and exempts the action from NEPA requirements. Therefore, a Section 106 Review in accordance with the National Historic Preservation Act (NHPA) is not required.

Work will be outside the Special Management Area (SMA) in this location. This has been confirmed in writing by the Maui County Planning Department (see Appendix A - Correspondence).

The work is also beyond the existing bridge abutments, outside the stream channel, and no discharge of fill material is

anticipated to occur in the stream. Thus, an Army Corps of Engineers Section 404 Permit or an Office of State Planning Coastal Zone Management - Federal Consistency Determination are not required for this project. This has also been confirmed in writing by the Army Corps of Engineers (see Appendix A - Correspondence).

The work will not disturb the existing banks or stream channel bottom. Therefore, a State Department of Land and Natural Resources, Stream Channel Alteration Permit is not necessary for this project (see Appendix A - Correspondence). The Kaholopo Bridge project is surrounded by State land use, agriculture designated land and will not impact any State conservation district lands. Therefore, a Conservation District Use Application is not required for this project.

The project will not divert construction storm water runoff from an area greater than five acres, or involve discharges of construction dewatering off the site. Thus, a National Pollutant Discharge Elimination System (NPDES) permit is not required from the State Department of Health, Clean Water Branch. However, recommended Best Management Practices (BMP) to control pollution runoff from the site during construction are included in Appendix B to this Environmental Assessment.

1.3 Agencies Consulted

The following list of agencies have been contacted and/or consulted in the preparation of this EA for the Kaholopo Bridge replacement project:

<u>Agency</u>	<u>Input</u>
• Maui County, Public Works Department	Tax Maps, Right-of-Way width Traffic Assessment, Grading Permit
• Maui County, Planning Department	Special Management Area Assessment Land Use Maps Maui General Plan Hana Community Plan
• Keola Hana Maui	Hana Ranch Landowner
• State Department of Health - Clean Water Branch	NPDES General Permit, Section 401 Water Quality Certification
• State Department Land and Natural Resources - Historic Preservation - Commission on Water Resource Management	Historic and Archaeological Resources Stream Channel Alteration Permit
• Office of Environmental Quality Control	Public Notice of EA
• State Department of Transportation	Design Standards for New Bridge and approach road way signing
• United States Army, Corps of Engineers	Section 404 Permit Application

2.0 GENERAL DESCRIPTION OF PROPOSED PROJECT

2.1 Alternatives Analysis

Three alternative designs were evaluated qualitatively during the conceptual design stage of this project. These include:

1. Widen the bridge and roadway entirely along the outside (mauka) of the curve.
2. Widen the bridge and roadway entirely along the inside (makai) of the curve.
3. Widen the bridge and roadway symmetrically about the road centerline.

The first option, to widen the bridge on the mauka side, is preferable over the other two options. This option will have the least construction cost, shortest construction schedule and minimum impact on the surrounding environment. This is due to work being performed beyond the existing stream channel limits and constructing only limited new retaining walls. The second and third options would result in approximately 150 feet of new retaining walls, averaging 6 to 7 feet high along the downstream (makai) edge of roadway. Also, new bridge abutments would be constructed into the stream channel for these options.

The "NO-BUILD" or "DO NOTHING" alternative at this site would have at least three effects. These are:

- Current funding would be spent elsewhere to replace another Maui County bridge. The Hana community would probably not benefit from the replaced structure.

- The Kaholopo Bridge replacement project would be deferred until some future time. An emergency situation could arise where the bridge was closed and traffic be made to detour through Hamoa on a twelve foot wide road. This increase in traffic on a narrow side road could increase the number of accidents caused by unfamiliar drivers (visitors). Postponing the bridge replacement project could also raise construction costs by approximately five percent per year.
- The existing highway safety conflict of a one-lane bridge where vehicles must yield is not improved. Failure to improve this condition increases the accident potential at this site.

Therefore, the "NO BUILD" or "DO NOTHING" alternative is not a feasible course of action at this location. Short-term construction related impacts will be mitigated by the appropriate Best Management Practices included in Appendix B.

2.2 Technical Description

The proposed action will reconstruct the existing bridge to current Federal Highway Administration (FHWA) standards. These are based upon guidelines in the American Association of State Highway and Transportation Officials (AASHTO) "A Policy on Geometric Design of Highways and Streets, 1990." The design criteria used for the Kaholopo Bridge replacement project is as follows:

- Design speed of 20 miles per hour (mph).

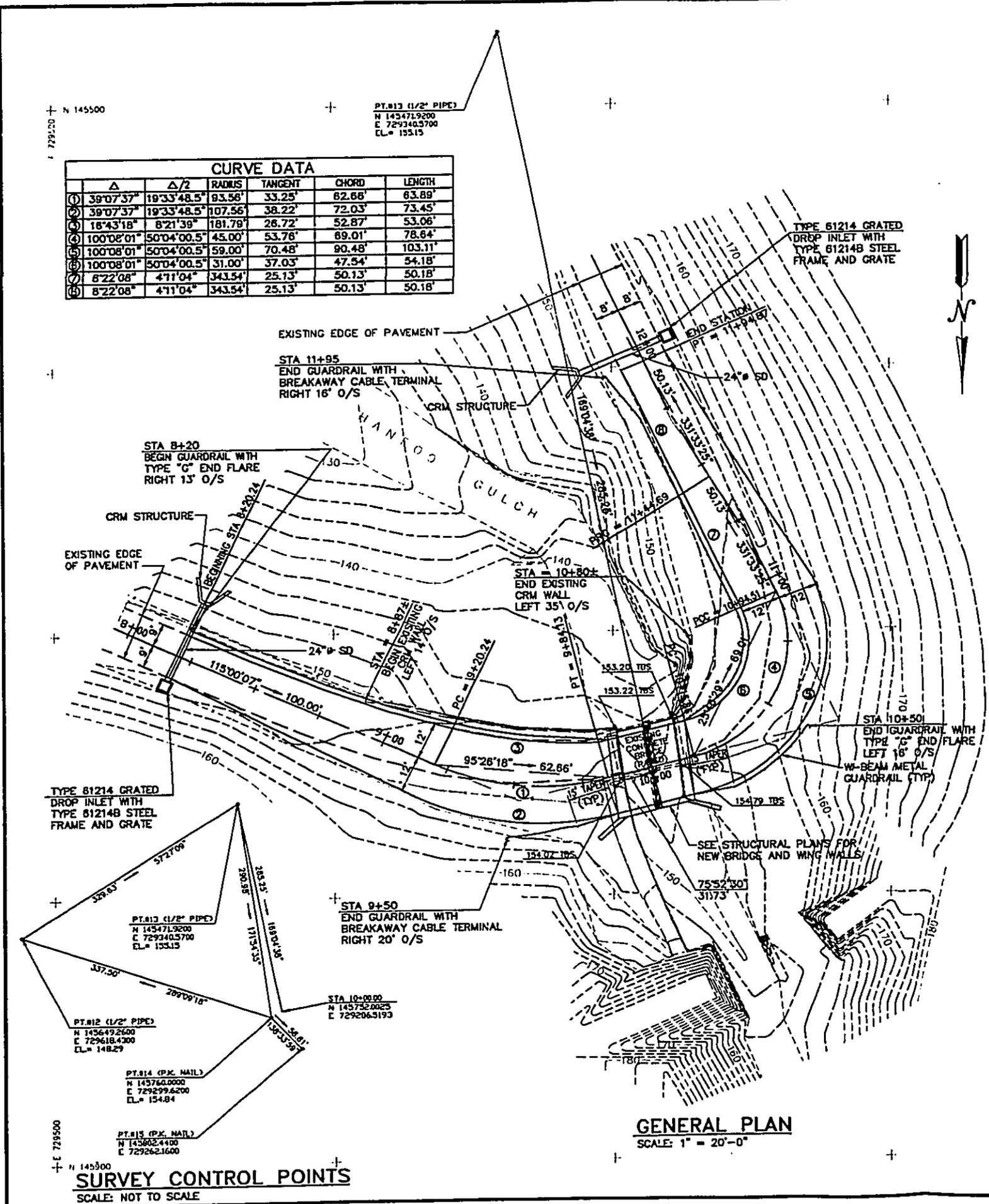
- Design hourly volume (DHV) of 200 to 400 vehicles in the afternoon peak hours.
- The width of traveled way is 24 feet.
- The minimum clear roadway width of bridge is an additional 2 feet on each side, for a total of 28 feet.

To meet this bridge width requirement 12 feet will be added to the existing bridge and road pavement on the mauka side only as illustrated in Figure 3, the General Plan. This plan also illustrates typical road sections. The 1993 Maui county bridge inspection report is attached as Appendix C.

The proposed bridge replacement objective is to build a new structure to current FHWA standards with a minimal impact on the stream and surrounding environment. The method of achieving this objective includes constructing new reinforced concrete abutments behind the existing CRM walls which support the clear span of a new deck. These new abutments will be socketed into a rock base. The asphaltic concrete (AC) pavement and fill material will be removed from the existing bridge deck which is then used as a bottom form to place a new reinforced concrete bridge slab. The new slab will be supported by the new abutments, creating a span of about 23 feet. Where the bridge widening occurs, temporary shoring will support the deck slab formwork until the reinforced concrete reaches the design strength.

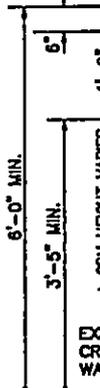
The approach road to the bridge should have a minimum radius of 127 feet for a 20 mph design speed and 4 percent super elevation based upon AASHTO design standards. This would not be possible without a major road and bridge realignment. It would also cause an associated significant environmental impact. The restriction is

CURVE DATA						
	Δ	$\Delta/2$	RADIUS	TANGENT	CHORD	LENGTH
①	39°07'37"	19°33'48.5"	83.56'	33.25'	82.66'	63.89'
②	39°07'37"	19°33'48.5"	107.56'	38.22'	72.03'	73.45'
③	18°43'18"	8°21'39"	181.79'	26.72'	52.87'	53.06'
④	100°08'01"	50°04'00.5"	45.00'	53.76'	89.01'	78.64'
⑤	100°08'01"	50°04'00.5"	59.00'	70.48'	90.48'	103.11'
⑥	100°08'01"	50°04'00.5"	31.00'	37.03'	47.54'	54.18'
⑦	8°22'08"	4°11'04"	343.54'	25.13'	50.13'	50.18'
⑧	8°22'08"	4°11'04"	343.54'	25.13'	50.13'	50.18'



SURVEY CONTROL POINTS
SCALE: NOT TO SCALE

GENERAL PLAN
SCALE: 1" = 20'-0"



PT.813 (1/2" PIPE)
N 145471.9200
E 729340.5700
EL = 153.15

PT.812 (1/2" PIPE)
N 145471.9200
E 729340.5700
EL = 153.15

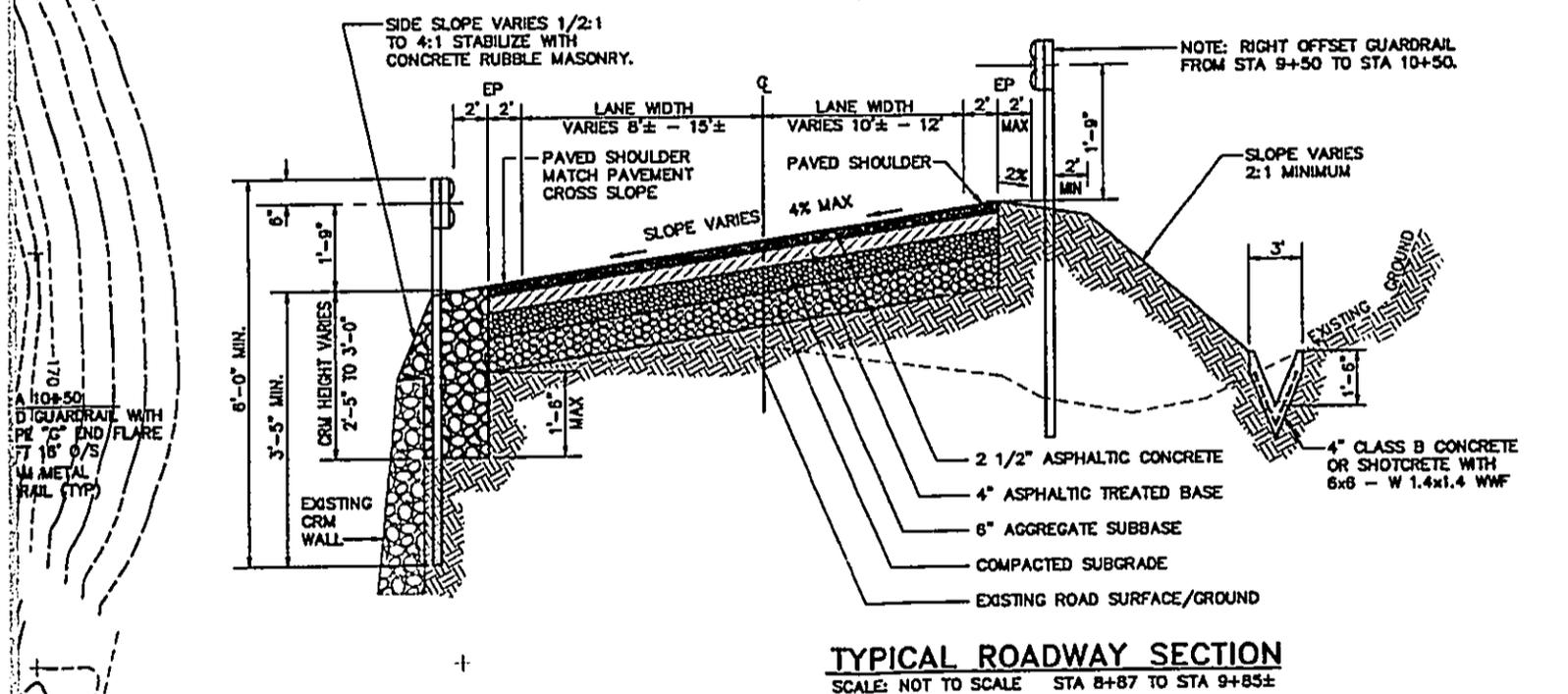
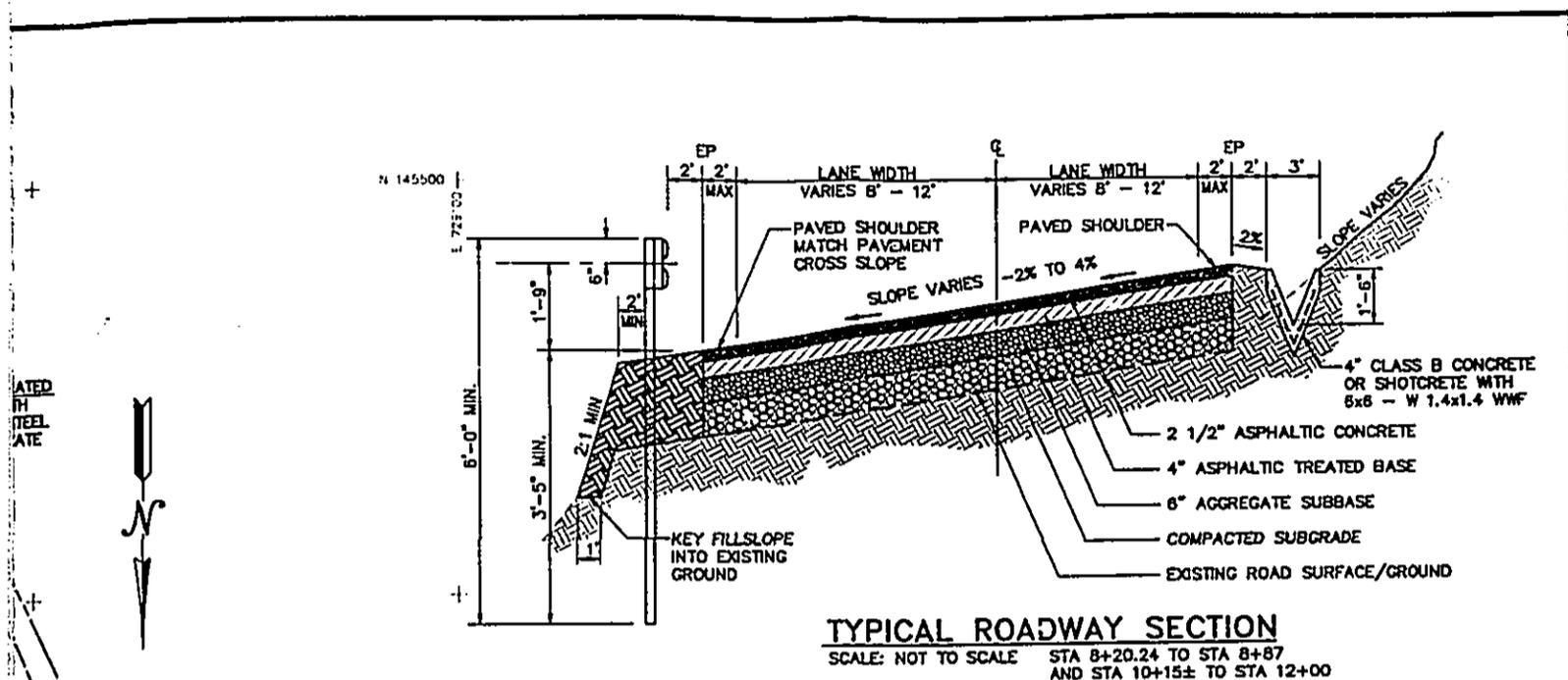
PT.812 (1/2" PIPE)
N 145471.9200
E 729340.5700
EL = 153.15

PT.814 (P.K. MAIL)
N 145760.0000
E 729299.6200
EL = 154.84

PT.815 (P.K. MAIL)
N 145802.4100
E 729262.1600

STA 10+00.00
N 145752.0025
E 729206.3193

PT.815 (P.K. MAIL)
N 145802.4100
E 729262.1600



A 10x50
 DIG GUARDRAIL WITH
 PE 70 END FLARE
 FT 18" O/S
 IN METAL
 RAIL (TYP)

REVISION NO.	DATE	DESCRIPTION	BY	CHKD BY	DATE
		DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT COUNTY OF MAUI WAILUKU, MAUI, HAWAII			
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. _____ Signature		KAHOLOPO BRIDGE REPLACEMENT JOB NO. 94-40 GENERAL PLAN			
GMP ASSOCIATES, INC. DESIGNED BY: AJS DRAWN BY: AML SCALE: AS NOTED		CHECKED BY: AKA APPROVED BY: TAC		FIGURE 3 DATE: 7/28/95 SHEET: C-1	

N 145500
E 729100

23914339

due to the sharp horseshoe bend in the road through the Haneo Gulch. Our solution is to use a minimum radius of 45 feet with traffic signs for large vehicles to stop at the bridge approach, see Figure 4, Signing and Pavement Markings Plan.

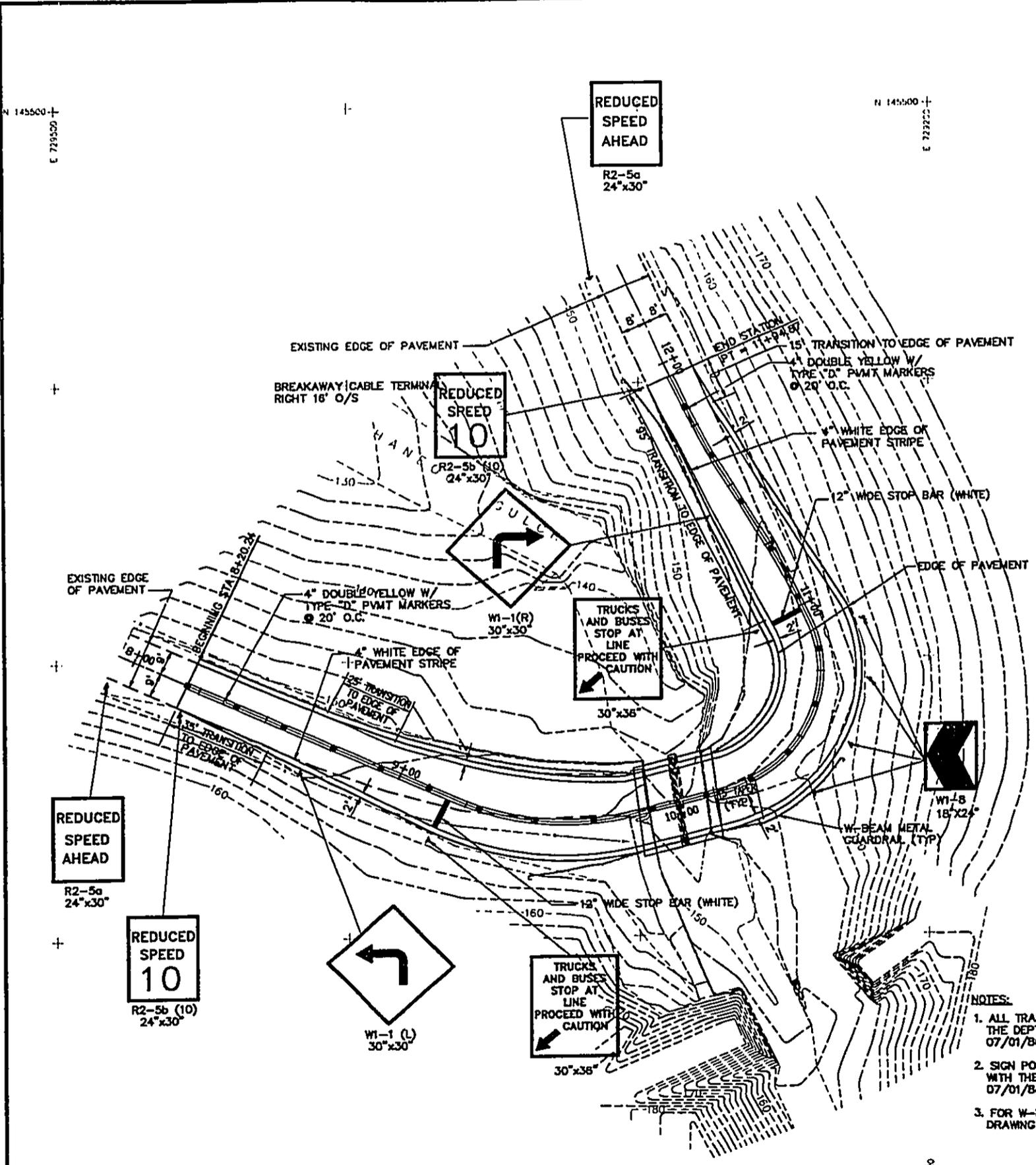
A preliminary cost estimate for this project is \$362,800. The work should take about six months to complete and a Notice to Proceed could be issued possibly by January 1996.

2.3 Socio-Economic Characteristics

The Kaholopo Bridge replacement project will have a minimal effect on the socio-economic characteristics of the Hana District. An estimated 1,900 persons resided in the Hana District in 1990, about double the 1970 population of 969 persons. The 20-year growth rate is 3.4 percent annually, the lowest of Maui's districts.

In 1990, Hana District contained 763 housing units, an increase by 50 percent over the 1980 estimate. Hana Town had, in 1990, approximately 217 housing units, which is relatively unchanged from the 1980 figure of 215. The total occupied units, or total households in 1990 are 589 in the Hana District and 179 in Hana Town. In general, the median size of housing units in Hana is two-thirds that of the islandwide median size of 1350 square feet. Also, average household size is larger in Hana at 4.04, compared to Maui's 2.99 persons.

Most of the local residents who are employed, work in the Hana District. A majority of these persons are employed at the Hana Hotel. The few construction jobs created by this bridge project



N 145500 +
E 729520 +

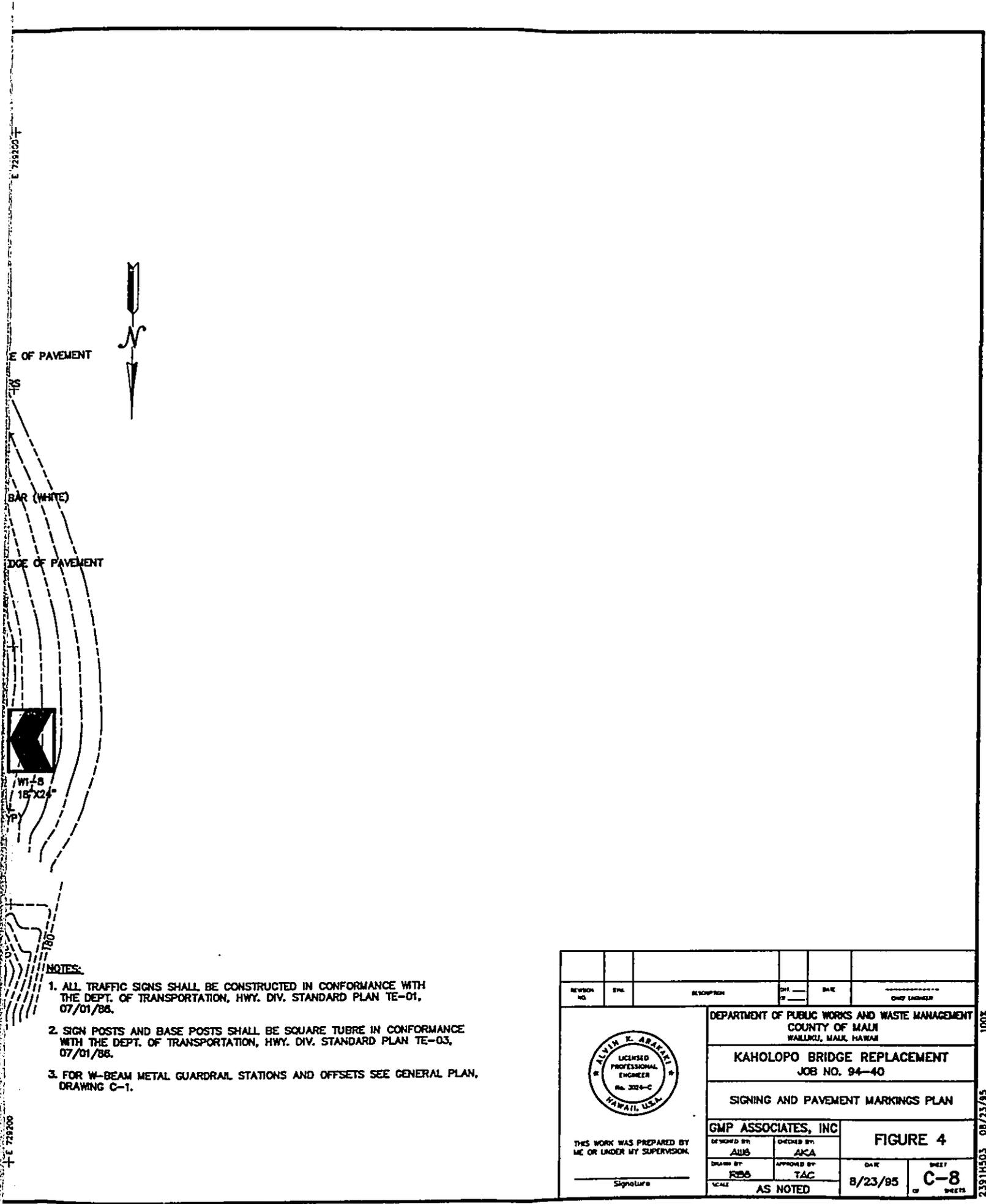
N 145500 +
E 729520 +

N 145900 +
E 729500 +

N 145900 +
E 729200 +

SIGNING AND PAVEMENT MARKINGS PLAN
SCALE: 1" = 20'-0"

- NOTES:**
1. ALL TRAFFIC SIGNS SHALL BE THE DEPT. OF TRANSPORTATION 07/01/88.
 2. SIGN POSTS AND BASE POSTS SHALL BE THE DEPT. OF TRANSPORTATION 07/01/88.
 3. FOR W-BEAM METAL GUARDRAIL SEE DRAWING C-1.



NOTES:

1. ALL TRAFFIC SIGNS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE DEPT. OF TRANSPORTATION, HWY. DIV. STANDARD PLAN TE-01, 07/01/88.
2. SIGN POSTS AND BASE POSTS SHALL BE SQUARE TUBRE IN CONFORMANCE WITH THE DEPT. OF TRANSPORTATION, HWY. DIV. STANDARD PLAN TE-03, 07/01/88.
3. FOR W-BEAM METAL GUARDRAIL STATIONS AND OFFSETS SEE GENERAL PLAN, DRAWING C-1.

REVISION NO.	SYMBOL	DESCRIPTION	DATE	BY	CHIEF ENGINEER
		DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT COUNTY OF MAUI WAILUKU, MAUI, HAWAII			
KAHOLOPO BRIDGE REPLACEMENT JOB NO. 94-40					
SIGNING AND PAVEMENT MARKINGS PLAN					
GMP ASSOCIATES, INC. DESIGNED BY: AUS DRAWN BY: RBS SCALE: AS NOTED			CHECKED BY: AKCA APPROVED BY: TAC DATE: 8/23/95 SHEET: C-8 OF 8 SHEETS		
FIGURE 4					

15' 723200
 15' 723200
 15' 723200

100X
 23911503 08/23/95

would be temporary and last only the duration of the contract. Another short-term effect may be from construction workers spending money on food and fuel in Hana Town; but, these are limited benefits from the project.

2.4 Environmental Characteristics

The Kaholopo Bridge replacement project (Maui County Bridge No. 31) is located on Hana Highway at Milepost 49.84. The project site is approximately two miles south of Hana Town, bordered by agricultural lands. The site is outside of any Special Management Area and is located in Zone C, an area of minimal flooding (FIRM Panel No. 150003-0320-B, dated June 1 1981). There are no wetlands nearby or unique habitats which require special mitigative measures. Based upon the Final EIS for the Hana Ranch Country Club, there are no threatened or endangered species of fauna or flora which will be affected by this project.

The site is located at an elevation of about 150 feet above mean sea level and receives an average annual rainfall of approximately 70 inches. Above the site, further inland about four miles and at elevations above 1000 feet, rainfall averages from 100 to 200 inches per year. However, at the project site, the Haneoo Stream is normally dry in the coastal reach.

Hana lies along the East Rift Zone of the Haleakala volcano. The Hana series of basalts were laid down by the most recent series of lava flows intercalated with buried ash and cinder deposits. These lava flows are mostly permeable and vary in thickness and weathering.

The soils in this area belong to the Hana-Makaalae-Kailua association which consists of moderately deep, well-drained soils underlain by a moderately fine-textured subsoil. The area is underlain by Hana silty clay loam (HKNC), with runoff being slow-to-medium and erosion hazard as slight-to-moderate. The surface layer is a dark brown silty clay loam with a reddish brown, very friable silty-clay loam subsoil. Bare weathered and smooth rock characterizes the stream bed at the project site. Figure 5 reproduces photographs of existing conditions at the project site.

2.5 Existing Roadways

Hana Highway is a state-maintained route (36) from Kahului to Hana Town. From Hana Town, the Hana Highway becomes a county-maintained route (360) through the project site to Lelekea. The Kaholopo Bridge replacement project is located at milepost 49.84 on the Hana Highway, about two miles south of Hana Town. The project site is also approximately 1000 feet south of the Tee intersection with Haneoo road. The Haneoo road is a narrow (12-foot-wide) county-maintained roadway which connects back to Hana Highway another mile or so south of the site.

There are approximately 3,000 vehicles per day (average daily traffic (ADT)) which travel the section of Hana Highway in the vicinity of the proposed project. Approximately 200 vehicles will traverse this section of road during the afternoon peak hour, from 2:00 to 3:00 p.m., based upon manual counts taken in August 1990. The directional split for this design hourly volume (DHV) is 50/50. The existing road width approaching the bridge varies from 16 to

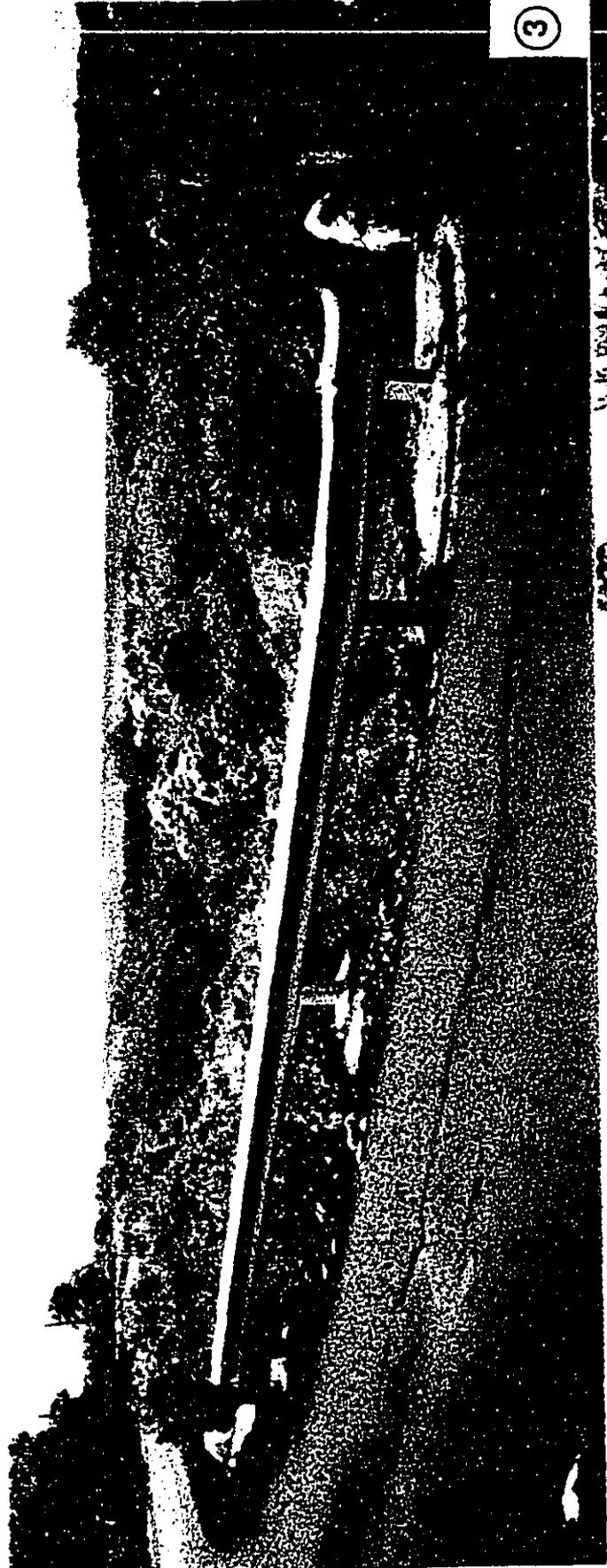
FIGURE 5

Kaholopo Bridge Replacement
Photographs of Existing Conditions

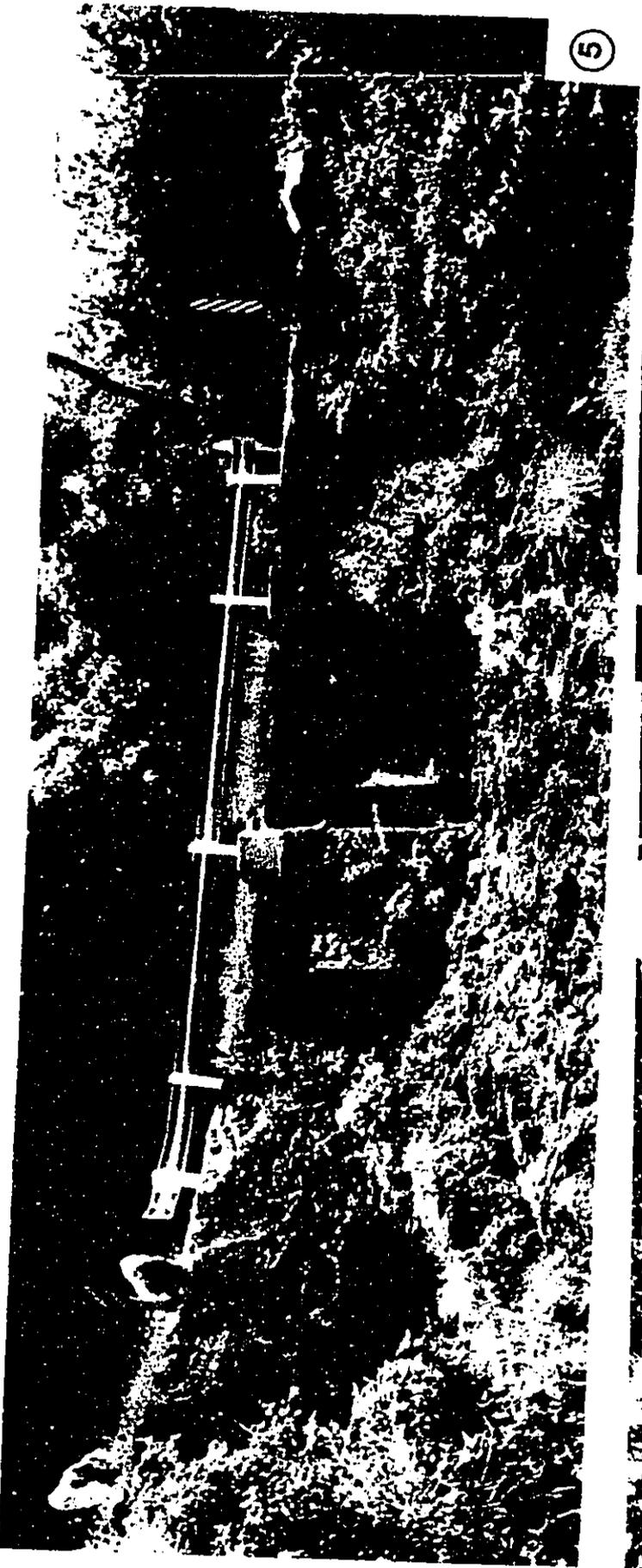
1. Kaholopo Bridge from Hana Highway, looking south.
2. Kaholopo Bridge from Hana Highway, looking in direction towards Hana Town.
3. Looking east from on top of Kaholopo Bridge, note pavement rutting.
4. Looking east from Haneoo Stream at downstream face of bridge.
5. Looking upstream at bridge from Haneoo Stream, note bare rock stream bed.
6. Looking upstream at abridge, close-up of right stream channel opening and CRM abutment.
7. Looking upstream at bridge, close-up of right stream channel opening and CRM abutment.
8. Looking downstream at bridge, note damaged CRM center pier.
- 9/10. Looking downstream at bridge, close-ups of left and right stream channel openings, respectively.
11. Close-up of CRM abutment under bridge deck, right side looking downstream, note bare rock stream bed.
12. Close-up of underside of bridge deck at center pier, downstream face.
13. Close-up of center pier, downstream face at stream bed.
14. Close-up center pier, upstream face, note damage to CRM from debris carried by high flows.



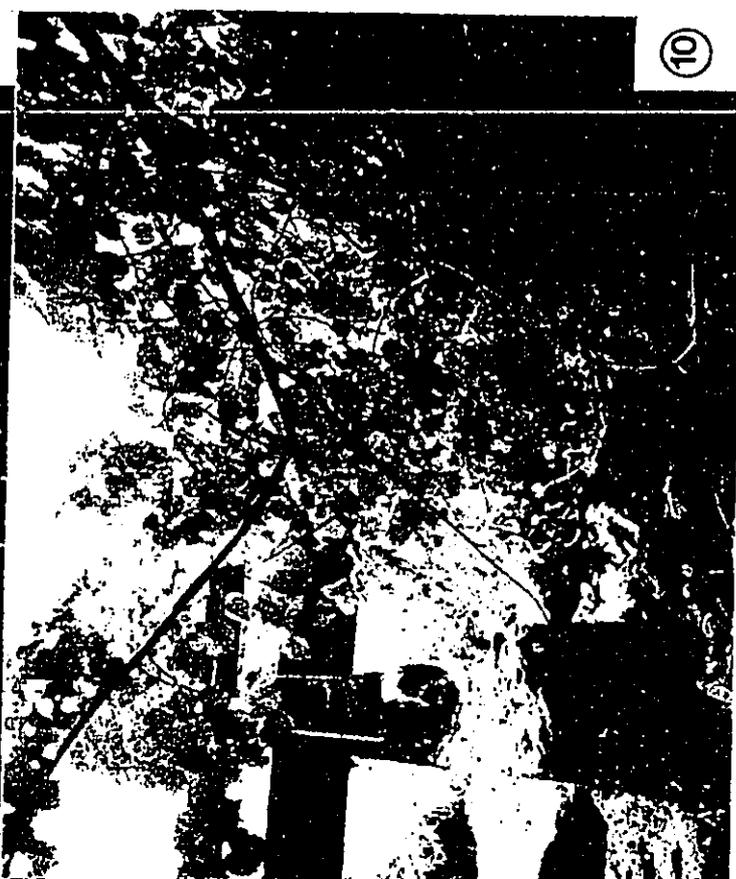
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10



9



8

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18 feet resulting in some conflicts when vehicles pass each other. The Hana Highway at the project site is typically a low volume, rural road. No significant traffic delays occur along this section.

This condition may change somewhat during construction. Even though traffic will be maintained on one lane through the project limits, short back-ups of traffic may occur during peak periods. A traffic control plan and maintenance of traffic will be included in the contract plans to designate the placement of signs, barricades, and temporary pavement markings. However, through traffic should be kept to the Hana Highway and restricted from using Haneoo Road as a detour route due to its narrow (12-foot) width. The Haneoo Road should be signed for "local traffic only" during the contract term.

Parking construction equipment along the roadside overnight and on weekends when the contractor is not working shall be prohibited.

3.0 IMPACTS AND MITIGATIVE MEASURES

3.1 Short-Term Impacts

The short-term impacts of the proposed action to widen the bridge and road will have minimal affects upon the surrounding environment.

No endangered species of native birds or mammals inhabit the project site. This location is not a special or unique habitat for either birds or mammals.

No endemic plants or officially-listed threatened and endangered plants are found on the site. No wetlands are on, or adjacent to, the site. The proposed project will not have a significant negative impact on the district's botanical resources.

The Kaholopo Bridge crosses the Haneoo Stream, which is classified as a perennial and interrupted stream by the DLNR Commission on Water Resource Management (CWRM). The shallow pools and smooth water-worn rocky stream bed signifies that substantial rainfall events creates periods of high runoff and water flow. The Haneoo Stream is included in the CWRM, 1990 Hawaii Stream Assessment (State Code: 6-5-02). But it is not included among the streams with important aquatic resources supporting native fauna and habitat. As a recreational resource, the Haneoo Stream is ranked a "moderate," the lowest rank given for activities such as hunting and hiking.

Except for occasional and minor emissions of fugitive dust, the proposed project will not cause any significant degradation of air quality. Traffic volumes along the roadway will not increase because of this project, and motor vehicle exhaust will, in the vicinity of the project, be at pollutant concentrations which should remain below state and national Ambient Air Quality Standards.

Traffic volume is not expected to increase on Hana Road because of this project, or throughout the duration of the contract. Because of construction equipment and methods, noise levels at the project site will temporarily increase. Due to the undeveloped area surrounding the site and absence of residences near to this location, the bridge replacement project should not

create any significant adverse noise impacts upon the Hana community. However, all equipment will have muffling devices to mitigate noise effects from engines and exhausts.

Two archaeological sites exist near the proposed site. A cane haul railroad berm and bridge foundation (State Site No. 50-5013-2742) is located about eighty (80) feet mauka or upstream of the Hana Road centerline. This structure is part of a 12-mile-long system utilized by the Hana Sugar Plantation from 1880 to 1940. What remains at this location are 30-foot-high concrete rubble masonry (CRM) abutments on cast-in-place concrete foundations and a 6-foot-high concrete center pier. The structure constitutes a grade separation and probably supported a wooden trestle across the Haneoo Stream. The railroad tracks and trestle have been removed, but the concrete foundation and CRM abutments appear stable and are not heavily deteriorated. The proposed project will not impact this site with the limit of construction approximately 50 feet away at its closest location.

The other archaeological site near the proposed project is three cave shelters (State Site No. 50-50-13-2718). These are located mauka of Hana Highway at the S-curve on the Hana Town side of Haneoo Gulch. These three caves are small, from 4 to 6 feet high, 5 to 8 feet wide, and 15 to 30 feet deep. The interior floors are level soil, covered with modern trash from the adjacent Hana Highway, indicating periodic flooding. The alluvial fill could cover a subsurface cultural deposit, or modern highway construction could have opened up these air pockets or lava tubes. The caves will not be impacted by the proposed project, which is situated about 300 feet away.

Material and equipment storage areas or "staging areas" for the Contractor will be located a sufficient distance away from the railroad berm (State Site No. 50-5013-2742) and cave shelters (State Site No. 50-50-13-2718). In addition, the Contractor will be required to follow Best Management Practices, similar to those listed in Appendix B of this EA document, to protect the surrounding environment. Special attention shall be paid to activities which could result in the deposition of trash, debris, or equipment oil and grease in nearby drainageways.

The Kaholopo Bridge slab was constructed in 1917. The CRM abutments are assumed to have been built about fifteen years earlier. An historical assessment was performed in 1991 documenting the Hana Historic Bridge district. The Kaholopo Bridge is included along with about 68 other structures. The evaluation made on these structures at the time rated the Kaholopo bridge only 14 out of a possible 40 points. The evaluation criteria contained aspects of a structures' technology, documentation and environmental setting. The proposed activity may have "no adverse effect" upon the historic resources of Maui and the Hana district. However, the State Historic Preservation Division has expressed a request to review plans for this project prior to granting written concurrence. See Appendix A - Correspondence.

The construction contractor may mobilize labor, equipment and materials from another location on Maui. Any direct economic benefits in Hana will be from the creation of construction jobs, workers spending money and the contractor leasing space or purchasing supplies locally.

3.2 Long-Term Impacts

There are two long-term impacts which will result from this proposed project. The bridge and road widening will improve the current highway safety conflict. Yield signage at both approaches to the bridge creates an uncertain condition that has a high accident potential. The new bridge deck will also support heavier structural loading allowing passage of 20-ton trucks. Both of these improvements are positive impacts generated as a direct result of the proposed bridge replacement project.

There are no identifiable long-term negative impacts which will occur as a result of the proposed Kaholopo Bridge replacement project.

4.0 NOTICE OF DETERMINATION

4.1 Notice of Negative Declaration

The proposed project will not have any significant, long-term, adverse impacts on the natural environment, since grubbing, grading, and construction for the road and bridge widening will be limited to the existing bridge site. A replacement bridge built to current FHWA standards is needed to assure the safe movement of vehicles along Hana Highway.

This Environmental Assessment has determined that the proposed project will not:

- A. Impact any natural or cultural resources such as historic or archaeological sites,

- B. Affect any rare or endangered species of flora or fauna,
- C. Result in substantial degradation of environmental quality,
- D. Negatively affect the economic or social welfare of the community,
- E. Have detrimental effects on the public's health, and
- F. Curtail beneficial uses of the environment.

Based on the preceding paragraphs, it has been determined that the proposed project will not have any significant, adverse effects on the environment and, accordingly, an Environmental Impact Statement would not be required. Consequently, a Negative Declaration is found to be appropriate for this bridge replacement project.

APPENDIX A
CORRESPONDENCE

<u>Date</u>	<u>From</u>	<u>To</u>	<u>Subject</u>
11/30/94	GMP	DPW	Transmittal Draft EA (DEA)
11/30/94	GMP	CORPS	Preliminary Review, DEA
11/30/94	GMP	CWRM	Preliminary Review, DEA
11/30/94	GMP	SHPD	Preliminary Review, DEA
11/30/94	GMP	MCPD	Preliminary Review, DEA
12/16/94 9/21/95	SHPD GMP	GMP SHPD	Section 106 Review
12/29/94	MCPD	GMP	SMA Review
2/22/95	DPW	GMP	MCPD Comments Response
4/10/95	DPW	OEQC	DEA Publication
7/20/95	CORPS	GMP	Section 404 Review
8/31/95	CWRM	GMP	Permit Review

Note:

DPW	-	MauI County Department of Public Works
MCPD	-	MauI County Planning Department
CWRM	-	Commission on Water Resources Management
SHPD	-	State Historic Preservation Division
OEQC	-	Office of Environmental Quality Control
CORPS	-	U.S. Army Corps of Engineers
SMA	-	Special Management Area
DEA	-	Draft Environmental Assessment



ASSOCIATES, INC.

Engineers/Architects

November 30, 1994

Mr. Cary K. Yamashita, P.E.
Assistant Division Chief
Engineering Division
Department of Public Works
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Re: Kaholopo Bridge Replacement, Contract No. 936

Dear Mr. Yamashita:

Attached herewith are two copies of the Draft Environmental Assessment for the above referenced project. Please return one copy to our office with your comments. We are also sending advance copies of this Draft EA to four other government regulatory agencies. These include:

Department of Planning, County of Maui
Commission on Water Resource Division, DLNR
State Historic Preservation Division, DLNR
Department of the Army, Regulatory Branch, POD

Copies of the respective transmittal letters are attached for your information. -Also will you be contacting the Hana Ranch landowner, Keolu Hana Maui, Inc., about this project or shall GMP take action?

Please do not hesitate to contact us if you have any questions regarding this matter.

Sincerely,

GMP ASSOCIATES, INC.

Ken K. Hayashida, P.E.
Project Engineer

KKH/jsm

239100.010-448

841 Bishop Street • Suite 1501 • Honolulu, Hawaii 96813 • Telephone (808) 521-4711 • Fax (808) 538-3269

LINDA CRÜCKETT LINGLE
Mayor

CHARLES JENCKS
Director
AARON SHINMOTO, P.E.
Chief Staff Engineer



RECEIVED
GMP ASSOCIATES, INC.

95 FEB 27 AM 8 29
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

EASSIE MILLER, P.E.
Wastewater Reclamation Division

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

DAVID WISSMAR, P.E.
Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

February 22, 1995

Mr. Ken Hayashida
GMP Associates, Inc.
841 Bishop Street
Suite 1501
Honolulu, Hawaii 96813

SUBJECT: KAHOLOPO BRIDGE REPLACEMENT
JOB NO. 94-40

Dear Mr. Hayashida:

This is in response to a comment made by the State of Hawaii, Department of Land and Natural Resources (DLNR) in its review of the Draft Environmental Assessment (DEA) for the subject project.

They expressed concerns regarding the location of the construction staging area. It is the contractor's responsibility to find a suitable area for equipment and material storage, and to get appropriate agency's approval as necessary.

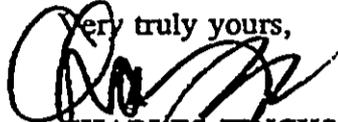
We could address this matter in the Special Provisions and have the potential bidders consult with the State DLNR and obtain approval of a staging site prior to bid opening.

Also, the conceptual design and DEA have been reviewed and are attached with our comments.



Mr. Ken Hayashida
February 22, 1995
Page 2

If you have any questions, please call Cary Yamashita of our Engineering Division at 243-7745.

Very truly yours,

CHARLES JENCKS
Director of Public Works
and Waste Management

Enclosure
LL/CY:c(ED95-252)
Kahalopo.GMP



ASSOCIATES, INC.

Engineers/Architects

September 22, 1995

Mr. David W. Blane, Director
Planning Department
County of Maui
250 S. High Street
Wailuku, Maui, HI 96793

Attn: Mr. Joseph Alueta

Re: Response to Draft Environmental Assessment
Waiale Drive, Mahalani Street, Imi Kala Street Extension
Wailuku, Maui, Hawaii

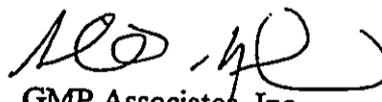
Dear Mr. Blane:

Thank you for your response letter to our Draft EA (dated December 29, 1994). We have addressed each of your comments in the following manner:

1. The Contractor will be required to follow Best Management Practices, similar to those listed in Appendix B of this EA document, to protect the surrounding environment. Special attention shall be paid to activities which could result in the deposition of trash, debris, or equipment oil and grease in nearby drainageways.
2. The construction plans have been revised to delete the "temporary pavement parking", as shown on page 11 of this EA document.

We appreciate your cooperation and input in this process, and thank you again for your time. If you have any further questions on the subject project, please call me at 521-4711.

Sincerely,


GMP Associates, Inc.
Michael Miyahira, P.E.

cc: Mr. Cary Yamashita, Maui DPWWM

APPENDIX B
BEST MANAGEMENT PRACTICES

The Kaholopo Bridge Replacement Project will require widening of about 300 feet of roadway, construction of unpaved road side drainage ditches for nearly the same length, installation of guardrail, grading, and paving all in addition to the bridge construction. The area to be cleared and graded is approximately 0.41 acres. Most of this area will be covered by compacted fill, basecourse and pavement. Exposed slopes will have ground cover.

The Best Management Practices (BMPs) contained herein shall be the minimum measures implemented by the Contractor to reduce the amount of soil erosion caused by stormwater runoff during construction. In general, the BMPs utilized shall include:

- Hydromulching and/or seeding disturbed areas immediately after grading is complete if not covered by basecourse, compacted fill, or pavement.
- Sediment barriers and perimeter runoff control.
- Placing and compacting fill as soon as practical after grading.
- Paving as soon as practical on compacted basecourse.

At the edge of roadway widening shoulders, the ditch will be graded towards silt fences to trap soil before runoff enters the stream. No debris or fill will be allowed to enter the stream channel. All temporary shoring for bridge widening shall be removed when the reinforced concrete deck slab design strengths are achieved. This shoring shall not be allowed to stand in the stream bed and must be fully supported by the existing CRM abutments. The

site shall be cleaned daily. Dust shall be kept to a minimum by mist-watering all exposed surfaces. Servicing of construction equipment shall not be allowed where fuels, oil or grease may spill directly onto the road, natural soil or stream.



Engineers/Architects

September 21, 1995

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
33 South King Street, 6th Floor
Honolulu, HI 96813

Attn: Ms. Tonia Moy,
Architectural Historian

Re: Environmental Assessment
Kaholopo Bridge, Haneoo Stream
TMK: 1-4-07:004, Hana, Maui

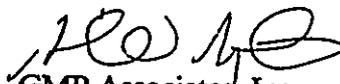
Dear Mr. Hibbard:

Thank you for your December 16, 1994 letter response (DOC NO 9412tm16) to our Draft Environmental Assessment. This project is, in fact, expected to encumber Federal funding under the Intermodal Surface Transportation Efficiency Act (ISTEA). However, the County has filed their Programming Documents for Federal Aid with a request for a Categorical Exclusion (CE) under 23 CFR 771.117(d)(3) "bridge rehabilitation". CE actions, by definition, do not involve significant environmental impacts, either individually or cumulatively, to any natural, cultural, recreational, or historic resources, and exempts the action from NEPA requirements. Therefore, a Section 106 Review is not anticipated. Your concurrence in this matter is requested. We will continue to process this EA document under Chapter 343, Hawaii Revised Statutes only.

The proposed improvements to the existing Kaholopo Bridge have remained the same since your last review. Therefore, the DEA's conclusions pertaining to existing archaeological resources remain the same. In addition, material and equipment storage areas or "staging areas" for the Contractor will be located a sufficient distance away from the previously identified railroad berm (State Site No. 50-5013-2742) and cave shelters (State Site No. 50-50-13-2718).

We appreciate your cooperation and input in this process, and thank you again for your time. If you have any further questions on the subject project, please call me at 521-4711.

Sincerely,


GMP Associates, Inc.
Michael Miyahira, P.E.

cc: Mr. Cary Yamashita, DPWWM Engineering Division

XEROX COPY WITH NON-REMOVABLE ATTACHMENT

BENJAMIN I. CAYetano
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

September 26, 1995

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

DEPUTIES

JOHN P. KEPPELER II

AQUACULTURE DEVELOPMENT PROGRAM

AQUATIC RESOURCES CONSERVATION AND

ENVIRONMENTAL AFFAIRS CONSERVATION AND RESOURCES ENFORCEMENT CONVEYANCES

FORESTRY AND WILDLIFE HISTORIC PRESERVATION DIVISION

LAND MANAGEMENT STATE PARKS WATER AND LAND DEVELOPMENT

LOG NO: 15572
DOC NO: 9509co22
Architecture

Mr. Michael Miyahira, P.E.
GMP Associates, Inc.
841 Bishop Street, Suite 1501
Honolulu, Hawaii 96813-3915

Dear Mr. Miyahira:

SUBJECT: Environmental Assessment
Kaholopo Bridge, Haneoo Stream
T.M.K. 1-4-07:004, Hana, Maui

Thank you for your letter dated September 21, 1995, regarding the Kaholopo Bridge at Haneoo Stream. We believe that the proposed "bridge rehabilitation", with the assurance that the contractor will locate the "staging areas" at least 50 feet away from previously identified sites; should have 'no effect' on any known historic resources, with respect to the Section 106 review. We concur with your determination that the proposed 'improvements' do not involve significant environmental impacts to historic resources.

There remains the possibility that historic sites, including human burials, will be discovered during routine construction activities. Should this be the case all work in the vicinity must stop and the Historic Preservation Division must be contacted at 587-0047.

Thank you for the opportunity to comment. If you have any questions, please have your staff contact Carol Ogata at 587-0004.

Aloha,

DON HIBBARD, Deputy
State Historic Preservation Division

CO:jk

PLEASE FAX
Post-It™ brand fax transmittal memo 7671 # of pages 1

To: M. MIYAHIRA	From: Don Hibbard
Co.	Co.
Dept.	Phone #
Fax # 538-3269	Fax #



ASSOCIATES, INC.

Engineers/Architects

November 30, 1994

Mr. Brian Miskae
Planning Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Re: Draft Environmental Assessment, Kaholopo Bridge

Dear Mr. Miskae:

Attached herewith is an advance copy of a Draft Environmental Assessment for the Kaholopo Bridge replacement project. This proposed project is located in Hana, Maui, on the Haneoo Stream. The Draft EA has been prepared on behalf of our client, the Maui County Department of Public Works.

We are requesting a review of the information being provided to your agency for the purpose of pre-application consultation. Will the proposed activity require a Special Management Area Assessment permit? We believe that the location of the project is outside the SMA, please confirm this observation.

Please do not hesitate to contact us if you have any questions regarding this matter.

Sincerely,

GMP ASSOCIATES, INC.

Ken K. Hayashida, P.E.
Project Engineer

KKH/jsm

cc: Cary K. Yamashita, P.E.
Maui County, Dept. of Public Works

239100.006-448

841 Bishop Street • Suite 1501 • Honolulu, Hawaii 96813 • Telephone (808) 521-4711 • Fax (808) 538-3269



ASSOCIATES, INC.

November 30, 1994

Engineers/Architects

Mr. Mike Lee, Chief
Regulatory Branch
Department of the Army, POD
Building T-1
Fort Shafter, Hawaii 96858-5440

ATTENTION MS. TERRELL KELLY

Re: Draft Environmental Assessment, Kaholopo Bridge

Dear Mr. Lee:

Attached herewith is an advance copy of a Draft Environmental Assessment for the Kaholopo Bridge replacement project. This proposed project is located in Hana, Maui, on the Haneoo stream. This Draft EA has been prepared on behalf of our client, the Maui County Department of Public Works.

We are requesting a review of the information being provided to your agency for the purpose of pre-application consultation. Will the proposed activity require a Section 404 permit? Is more information needed?

Please do not hesitate to contact us if you have any questions regarding this matter.

Sincerely,

GMP ASSOCIATES, INC.

Ken K. Hayashida, P.E.
Project Engineer

KKH/jsm

cc: Cary K. Yamashita, P.E.
Maui County Dept. of Public Works



DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

JUL 20 1995

95 JUL 24 1111 8 24

Regulatory Branch

Mr. Ken K. Hayashida
GMP Associates, Inc.
841 Bishop Street, Suite 1501
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

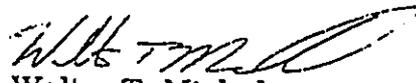
This letter is in response to your November 1994 Draft Environmental Assessment: Kaholopo Bridge Project located on the Hana Highway, at TMK:1-4-07-04.

The Kaholopo Bridge Project involves replacing the existing bridge which spans the Haneoo Stream as part of the Hana Highway, at TMK 1-4-07-04, on Maui. As your plans indicate, the replacement bridge is to be constructed over the existing bridge. The abutments to the new bridge will be constructed beyond the existing abutments outside the stream channel. Based the information you provided, no discharge of fill or excavation in waters of the United States shall occur, thus no Department of the Army (DA) permit is required.

Please notify us immediately if there are any changes to your draft environmental assessment, as it may affect the requirement for a DA permit.

File number NP 95-100 is assigned to this project. Please contact Terrell Kelley or myself at 438-9258, extension 13 or 14, if you have any questions.

Sincerely,


Walter T. Michel
Captain, U.S. Army
Project Manager



ASSOCIATES, INC.

November 30, 1994

Engineers/Architects

Ms. Rae M. Loui, P.E.
Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

ATTENTION MR. DAVID HIGA

Re: Draft Environmental Assessment, Kaholopo Bridge

Dear Ms. Loui:

Attached herewith is an advance copy of a Draft Environmental Assessment for the Kaholopo Bridge replacement project. This proposed project is located in Hana, Maui, on the Haneoo stream. This Draft EA has been prepared on behalf of our client, the Maui County Department of Public Works.

We are requesting a review of the information being provided to your agency for the purpose of pre-application consultation. Will the proposed activity require a Stream Channel Alteration permit? Is more information needed?

Please do not hesitate to contact us if you have any questions regarding this matter.

Sincerely,

GMP ASSOCIATES, INC.

Ken K. Hayashida, P.E.
Project Engineer

KKH/jsm

cc: Cary K. Yamashita, P.E.
Maui County Dept. of Public Works

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



35 NOV 02 1995
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P. O. BOX 821
HONOLULU, HAWAII 96809

MICHAEL D. WILSON
CHAIRPERSON
ROBERT G. GIRALD
DAVID A. NOBRIGA
LAWRENCE H. MIIKE
RICHARD H. COX
HERBERT M. RICHARDS, JR.
RAE M. LOUI, P.E.
DEPUTY

AUG 31 1995

Mr. Ken Hayashida, P.E.
GMP Associates, Inc.
841 Bishop Street, Suite 1501
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

This is in response to your inquiry regarding the need for a stream channel alteration permit for the proposed Kaholopo Bridge replacement project, Hana, Maui. The new bridge will use the existing pier and abutments in the stream channel without altering the bed or banks of the stream. Therefore, a stream channel alteration permit pursuant to Section 13-169-50, Hawaii Revised Statutes, will not be required for the proposed bridge modification.

We apologize for our delay in responding to you. Should you have any questions regarding this letter, please do not hesitate to call David Higa at 587-0249.

Sincerely,

Edwin T. Sakoda
for: RAE M. LOUI
Deputy Director

DH:ss



ASSOCIATES, INC.

Engineers/Architects

November 30, 1994

Ms. Tonia Moy
Architectural Historian
State Historic Preservation Division
Department of Land and Natural Resources
33 South King Street, 6th Floor
Honolulu, Hawaii 96813

Re: Draft Environmental Assessment, Kaholopo Bridge

Dear Ms. Moy:

Attached herewith is an advance copy of a Draft Environmental Assessment for the Kaholopo Bridge replacement project. This proposed project is located in Hana, Maui, on the Haneoo Stream. This Draft EA has been prepared on behalf of our client, the Maui County Department of Public Works.

We are requesting a review of the information being provided to your agency for the purpose of pre-application consultation. Will the proposed activity require a Section 106 permit? Can it be determined that there will be "No Adverse effect" even though the Kaholopo structure is included in the Hana Historic Bridge District?

Please do not hesitate to contact us if you have any questions regarding this matter.

Sincerely,

GMP ASSOCIATES, INC.

Ken K. Hayashida, P.E.
Project Engineer

KKH/jsm

cc: Cary K. Yamashita, P.E.
Maui County, Dept. of Public Works

239100.007-448

841 Bishop Street • Suite 1501 • Honolulu, Hawaii 96813 • Telephone (808) 521-4711 • Fax (808) 538-3269

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



KETH AHUE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY

JOHN P. KEPPELER II

AQUACULTURE DEVELOPMENT
PROGRAM

AQUATIC RESOURCES
CONSERVATION AND

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CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES

FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

RECEIVED
GMP ASSOCIATES
'94 DEC 23 5:01 PM

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

December 16, 1994

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

Mr. Ken K. Hayashida
Project Engineer
GMP Associates, Inc
841 Bishop Street, Suite 1501
Honolulu, HI 96813

LOG NO: 13487
DOC NO: 9412tm16
ARCHITECTURE

Dear Mr. Hayashida:

**SUBJECT: Draft Environmental Assessment
Kaholopo Bridge, Haneoo Stream
TMK: 1-4-07:004, Hana, Maui**

Thank you for sending us the Draft Environmental Assessment for the Kaholopo Bridge widening project. Since there are no Federal licenses or moneys involved in this project, a Section 106 review is not required. However, since the County of Maui is funding the project, under HRS Chapter 6E-8, the County must have written concurrence from the State Historic Preservation Division before commencing this project which will potentially affect the Kaholopo Bridge built in 1917.

By placing new concrete structures to the outside of the existing rubble masonry abutments and concrete slab, the historic fabric is kept and thus we feel the proposed project is sensitively designed for minimal impact to the historic character of the bridge. However, we are concerned about the archaeological sites near the bridge. Although you mention that the limit of construction is 50 feet away from the nearest site, where will the construction equipment and other necessary machinery be parked? We would appreciate the opportunity to review plans for the staging area before we concur with this proposal.

For your information, please find enclosed a brief overview of the Section 106 Review process. Should you have any questions, please call Tonia Moy at 587-0005.

Very truly yours,

DON HIBBARD, Administrator
State Historic Preservation Division

TM:ab

enclosure

LINDA CROCKETT LINGLE
Mayor



BRIAN W. MISKAE
Director

GWEN Y. OHASHI
Deputy Director

RECEIVED
GMP ASSOCIATES, INC.
'95 JAN 5 AM 9 19
COUNTY OF MAUI
PLANNING DEPARTMENT
250 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

MMM

AWS

December 29, 1994

Mr. Ken Kayashida
GMP Associates, Inc.
841 Bishop Street, Suite 1501
Honolulu, HI 96813

Dear Mr. Kayashida:

RE: Draft Environmental Assessment (EA.), Kaholopo Bridge.

Thank you for allowing us to comment on the above referenced project. Please be advised that the above project is located outside the Special Management Area (SMA) and not subject to the SMA Rules and Regulations. In review of the project's Draft EA., the Planning Department offers the following comments and concerns:

1. Measures shall be taken to prevent construction debris from impacting surrounding properties and the environment, (i.e., cement and petroleum products), especially in the natural drainageway.
2. On pg.13 of the Draft EA., a temporary pavement parking is indicated as part of a traffic control plan. The location of this temporary parking is not indicated on the site plan nor are its impacts addressed. Further, what will be the final disposition of the temporary parking once construction has ended?

Should you require further clarification, please contact Mr. Joseph Alueta of this office.

Very truly yours


BRIAN MISKAE
PLANNING DIRECTOR

xc: c.s.
joea

APPENDIX C

KAHOLOPO BRIDGE INSPECTION REPORT

DOCUMENT CAPTURED AS RECEIVED

***** IDENTIFICATION *****
 State : Hawaii 159
 STRUCTURE NUMBER: 009003600904984
 Inventory Route : on 141003604
 Highway Dist. : 20
 County Code: 009 4 Place code:
 Features Intrsct: HANEOO STRM-KAHOLOPO
 Facility Carried: HANA HWY.
 Location : 0.91MI N/RD TO HAMOA
 Milepoint : 049.840
 Lat: 20deg 44.0' 17 Long: 155deg 59.7'
 Border Br State :
 Border Br Stru #:

*** STRUCTURE TYPE & MATERIAL *****
 3 Stru Main Material- Concrete 119
 Type- Culvert
 Stru App Material- Other
 Type- Other 000
 5 # of Main Spans : 002
 # of App Spans : 0000
 Deck Stru - 1
 Wearing Surf/Protective Sys type
 A Wearing Surface - Bituminous 6
 B Membrane - Buile-up 1
 C Deck Protection - Other 9

***** AGE & SERVICE *****
 7 Year Built : 1917
 8 Year Reconstructed : 0000
 12 Type of Service on -Highway
 under: Waterway 15
 Lanes On Stru: 01 Under Stru: 00
 ADT : 002000
 30 Yr of ADT : 89 109 Truck ADT : %
 9 Bypass, Detour Length (miles) 99

***** GEOMETRIC DATA *****
 48 Length of Max Span (ft) : 0010
 9 Structure Length (ft) : 000023
 0 Curb/Sidewalk Width L: 00.0 R: 00.0
 51 Bridge Width, Curb-to-Curb : 015.0ft
 2 Deck Width, out-to-out : 017.0ft
 2 Approach Rdwy Width : 022ft
 3 Bridge median - No median
 34 Skew : 00 deg 35 Stru Flared: 0
 0 Inventory Rt Min Vert Clrn : 99'99"
 7 Inv. Rt Total Horz Clrn : 15.0ft
 3 Min Vert Clrn over Rdwy : 9999
 54 Min Vert Underclearance : N0000ft
 5 Min Lateral R Underclrn : N000ft
 6 Min Lateral L Underclrn : 000ft

***** NAVIGATION DATA *****
 8 Navigation Control : N
 1 Pier Protection-functioning:
 39 Navigation Vert Clrn : 000ft
 6 Vert Lift Br Min Clrn : ft
 0 Navigation Horz Clrn : 0000ft
 Data Recorded 10/05/93

NBI SI&A sheet 10/05/93
 Sufficiency Rating = 003.0
 Status = Functional obsolete

***** CLASSIFICATION *****
 112 NBIS Bridge Length : Y
 104 Hwy System of Inventory Rt: 8
 26 Functional Classification : 06
 100 Defense Hwy Designation : 0
 101 Parallel Stru Designation : N
 102 Direction of Traffic : 3
 110 Temporary Stru Designation:
 113 Designated Natl Network : 0
 20 Toll : 3
 21 Main - :County highway : 02
 22 Owner- County highway : 02
 37 Historical Significance : 4

***** CONDITIONS *****
 58 Deck : 4
 59 Superstructure : 3
 60 Substructure : 6
 61 Channel Protection : 7
 62 Culverts : N

***** LOAD RATING & POSTING *****
 31 Design Load - H 10 : 1
 64 Operating Rating : 104
 66 Inventory Rating : 102
 70 Posting - Unknown : 4
 41 Stru Open/Posted/Closed: P
 - Posted for load

***** APPRAISAL *****
 67 Structure Evaluation : 3
 68 Deck Geometry : 7
 69 Underclearance Vert/Horz : N
 71 Waterway Adequacy : 6
 72 Approach Roadway Alignmen : 3
 36 Traffic Safty Features : 0000
 113 Scour Critical Bridges : 6

***** PROPOSED IMPROVEMENTS *****
 75 Type of Work : 352
 76 Length of Stru Imprvmt : 000000
 94 Bridge Improvement Cost: 000000
 95 Roadway Imprvmt Cost : 000000
 96 Total Project Cost (K) : 000000
 97 Year of Imprvmt Cost Est. :
 114 Future ADT : 000000
 115 Year of Future ADT :

***** INSPECTIONS *****
 90 Insp Date: 08/93 91 Freq: 12mo
 92 Critical Feature Insp 93 Date
 A Frac. Crit Detail :Y 12 10/91
 B Underwater Insp :N /
 C Other Special Insp:Y 12 10/91
 Upload to Mainframe / /

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COUNTY OF MAUI
Department of Public Works
Engineering Division

BRIDGE INSPECTION REPORT

Date of Inspection AUG. 18, 1993
 Bridge Number 00900360090498 Bridge Name KAHOLOPO # 31
 Number of Spans 2
 Location: Island MAUI Route No. 360 Highway HANA HWY.
 Feature Intersected HANEEO STREAM
 Bridge Material: Superstructure CONC. Substructure CRM

36	TRAFFIC SAFETY FEATURES		Indicate if feature meets currently acceptable standards. 0-No 1-Yes 2-Not Applicable
1.	Bridge Railings	0	NEW GUARDRAILS INSTALLED ON BRIDGE, BY COUNTY CREWS, BUT NO APPROACH GUARDRAILS.
2.	Transitions	0	
3.	Approach Guardrail	0	
4.	Approach Guardrail Ends	0	

	CONDITION RATING	REMARKS
58	DECK - CONC. SLAB w/IRON PAIL REINFORCING	
1.	9	- RESURFACED IN 1992
2.	4	- AREAS OF DETERIORATION INCREASED ON UNDERSIDE OF DECK
3.	N	
4.	↓	
5.	N	
6.	N	
7.	4	- UPSTREAM/KAMPO POST RUSTED THROUGH
8.	N	
9.	↓	
10.	↓	
11.	↓	
12.	↓	
13.	N	
	4	- RATING DROPPED FROM 5 TO 4
	INSPECTOR'S CONDITION RATING	

59	SUPERSTRUCTURE		
1.	Bearing Devices	N	
2.	Stringers	↓	
3.	Girders, Beams, or Arches	↓	
4.	Floor Beams and Diaphragms	↓	
5.	Trusses - General	↓	
	- Portals	↓	
	- Bracing	↓	
6.	Paint	↓	
7.	Machinery (Movable Spans)	↓	
8.	Rivets and /or Bolts	↓	
9.	Welds - Cracks	↓	
10.	Rust	↓	
11.	Timber Decay	N	
12.	Concrete Cracking and /or Spalling	3	- UNDERSIDE OF SLAB, SPANS 1 & 2
13.	Collision Damage	N	
14.	Deflection Under Load	4	
15.	Alignment of Members	6	
16.	Vibrations Under Load	4	
17.	Flat Slab	3	- AREAS OF DETERIORATION INCREASED ON UNDERSIDE OF DECK
	Inspectors Condition Rating	3	

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Date of Inspection 8/18/93
Bridge Number 009003600904434 Bridge Name KALLOLOPO #7

93 CRITICAL FEATURE INSPECTION DATE

- 1. Fracture Critical Details Y12 - BECAUSE OF IRON BAIL REINFORCING EXPOSED.
- 2. Underwater Inspection _____ CONC. SLAB DECK DESIGN, AND INCREASE
- 3. Other Special Inspection Y12 - IN DEFECTS THIS BRIDGE COULD BE FRACTURE CRITICAL.

CONDITION RATING REMARKS

RESTRICTIONS:

- 1. Posted Loading

3
5
5

 - WT. LIMIT 3 TONS; "ONE LANE BRIDGE"
- 2. Legibility _____ AT BOTH APPROACHES
- 3. Visibility _____

REPAIRS AND IMPROVEMENTS: - SEE ATTACHED SHEETS

- 1. List all work done to this bridge since the last inspection including cost.
- 2. Indicate proposed and /or recommended improvements including estimated cost.
- 3. List any existing temporary conditions.

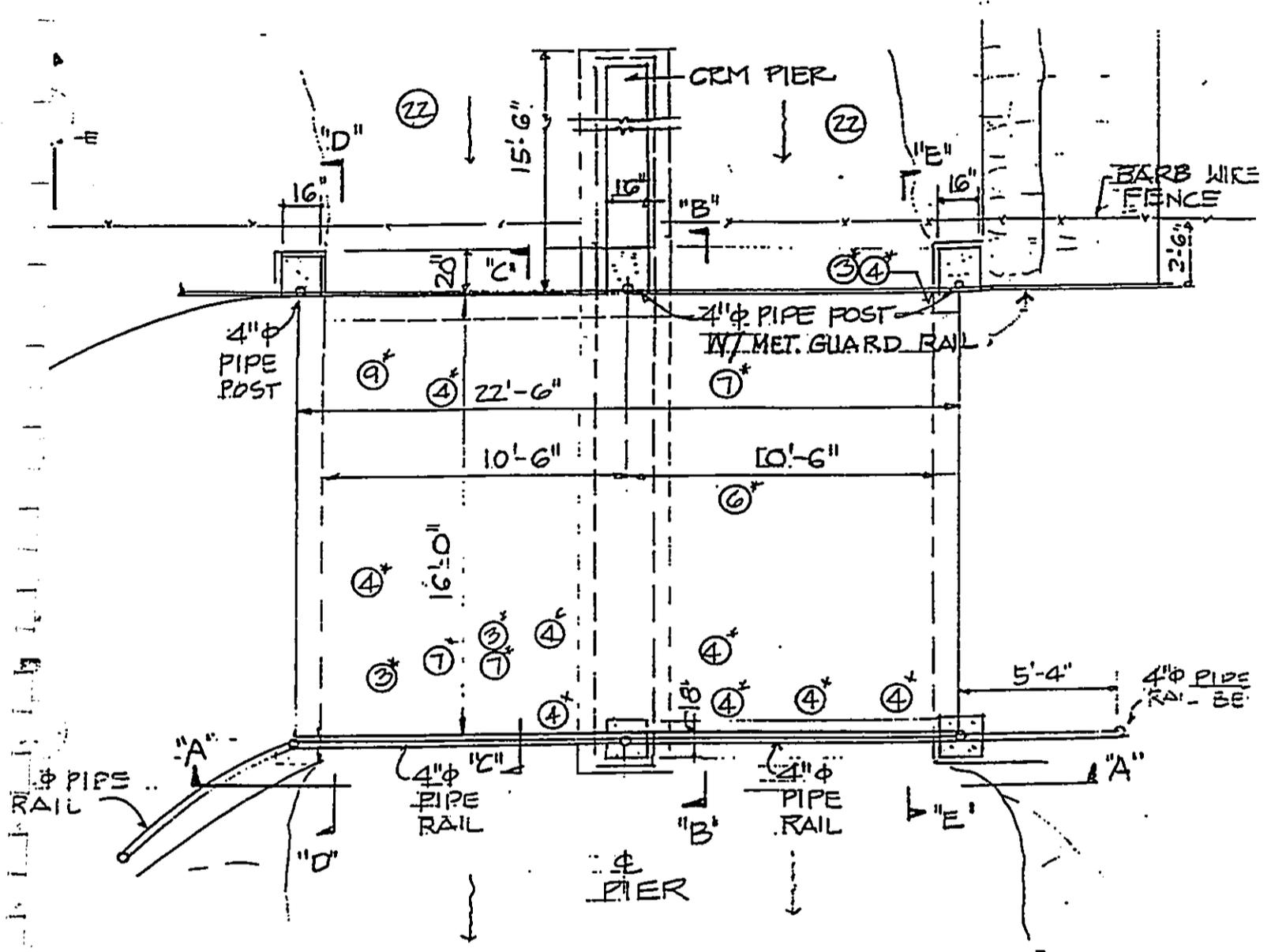
REMARKS AND RECOMMENDATIONS:

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

Inspected by: Signature A. Neer
Title Const. Insp. II

Supervised by: Signature [Signature] 10/7/93
Title Chief Engineering Division

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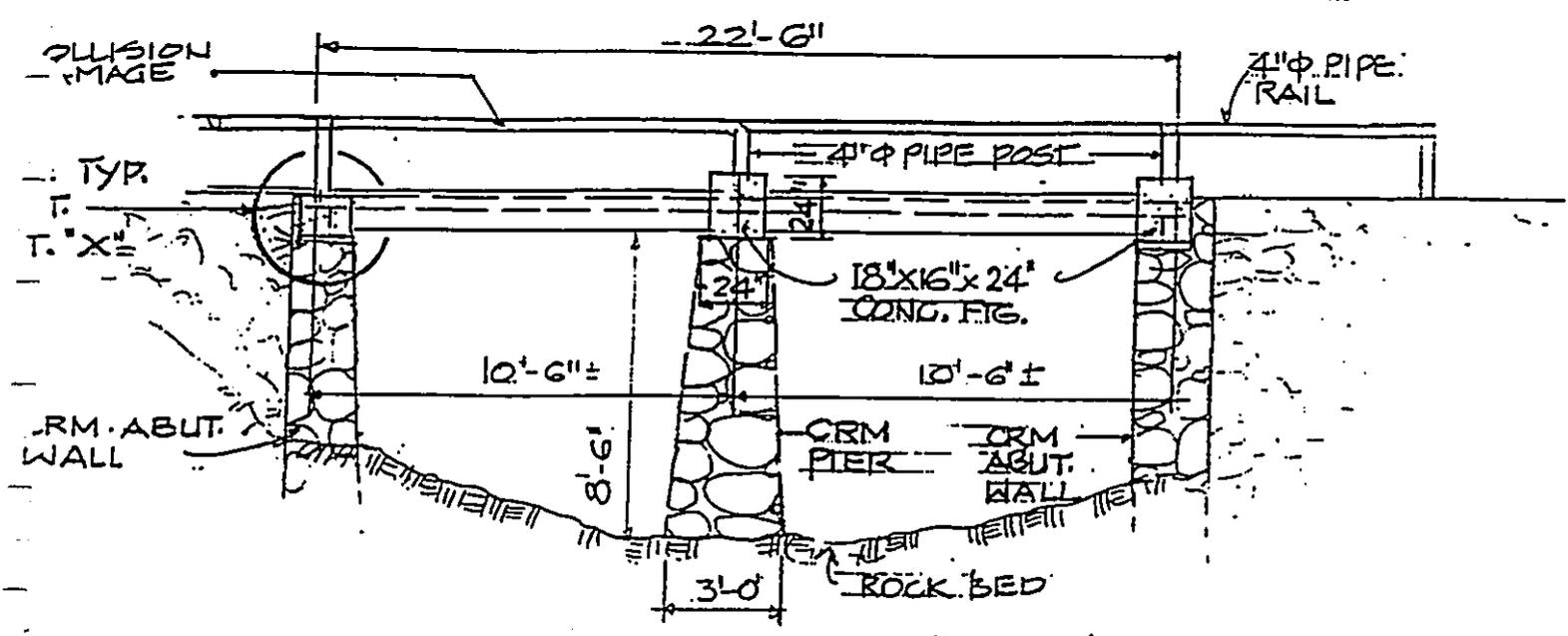


- DEFECTS
- * UNDERSIDE OF BRIDGE

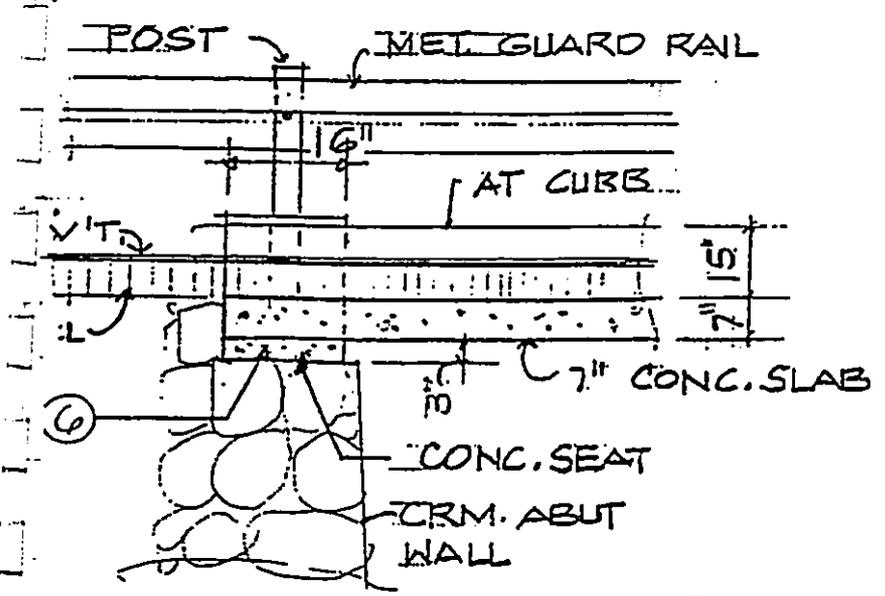
P L A N
SCALE: 3/16" = 1'-0"

KAHOLOPO BRIDGE @ HANA HWY / HANEEO STREAM.		
STRUCTURE NO.: #31	FEATURES INTERSECTED: HANEEO STREAM	COUNTY of MAUI DEPT. of PUBLIC WORKS
DISTRICT: EAST HANA		INVENTORY OF BRIDGES
LOCATION (T.M.K.): 1-4-07		SHEET 1 of 4 SHTS
INVENTORY ROUTE:	DATE:	PREP. BY:

DOCUMENT CAPTURED AS RECEIVED



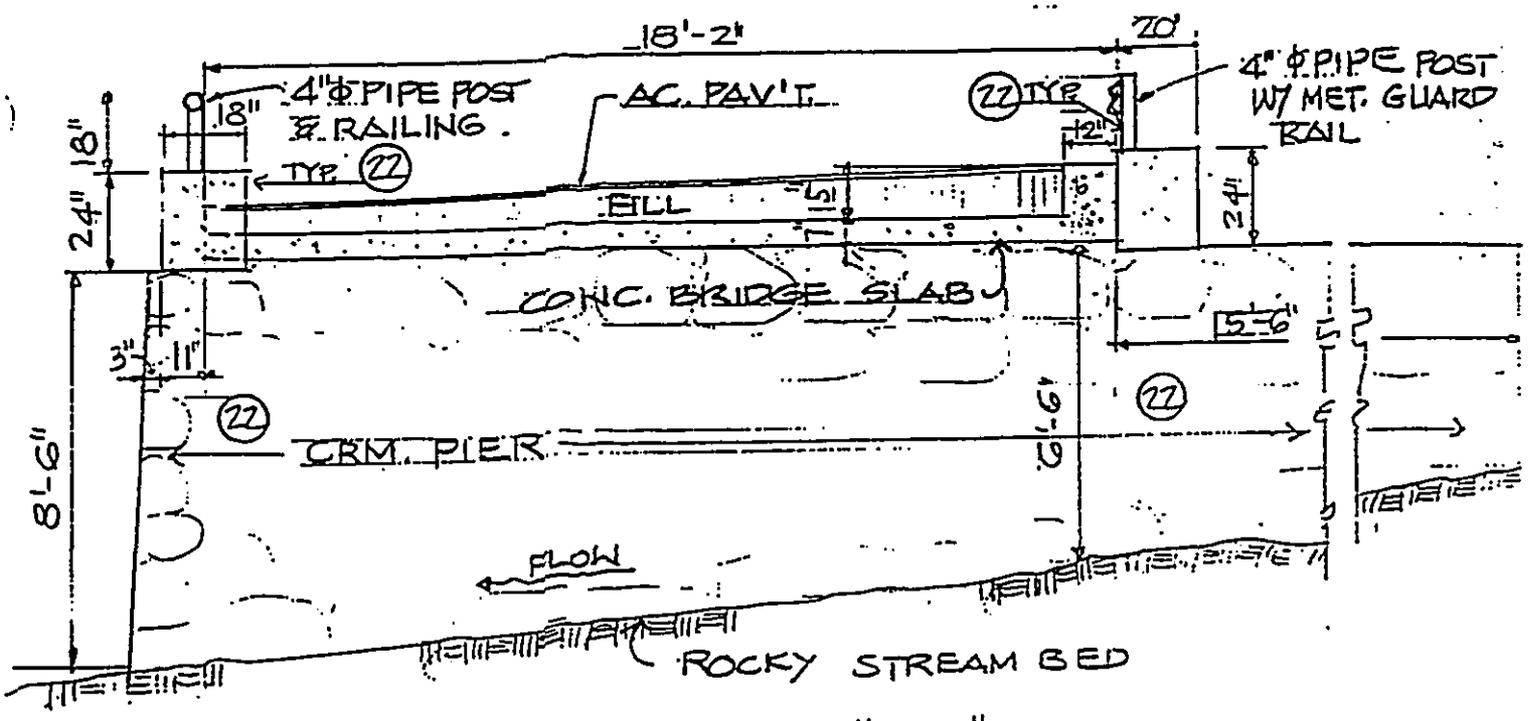
SOUTH ELEVATION "A-A"
SCALE: 3/16" = 1' - 0"



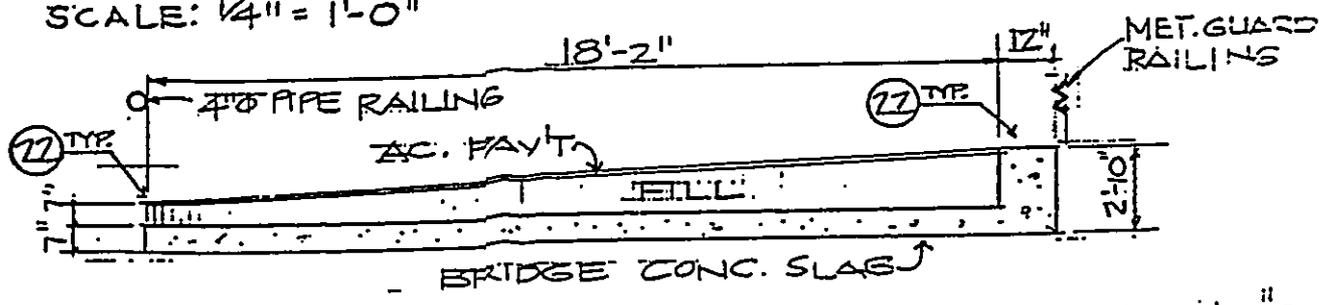
TYP. ABUT. DETAIL "X"
N.T.S.

STRUCTURE NO: #31 KAHOLOPO BR.	FEATURES INTERSECTED: HANEOO STREAM	COUNTY of MAUI DEPT. of PUBLIC WORKS:
DISTRICT: EAST HANA		INVENTORY OF BRIDGES:
LOCATION (TMK): 1-4-07		
INVENTORY ROUTE:	DATE: 11/20/07	PREP. BY: C.V.
		SHEET 2 of 4 SHTS

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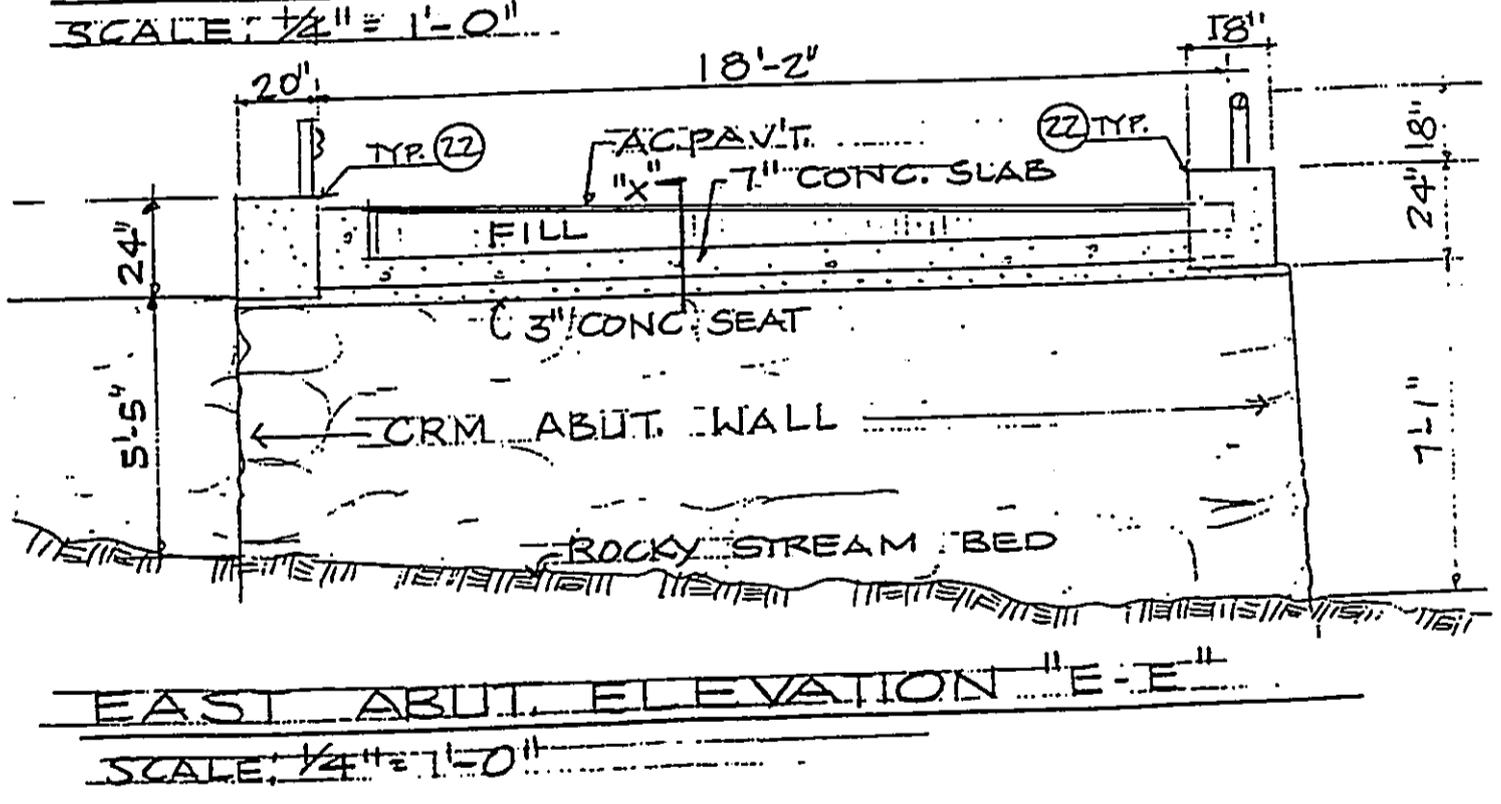
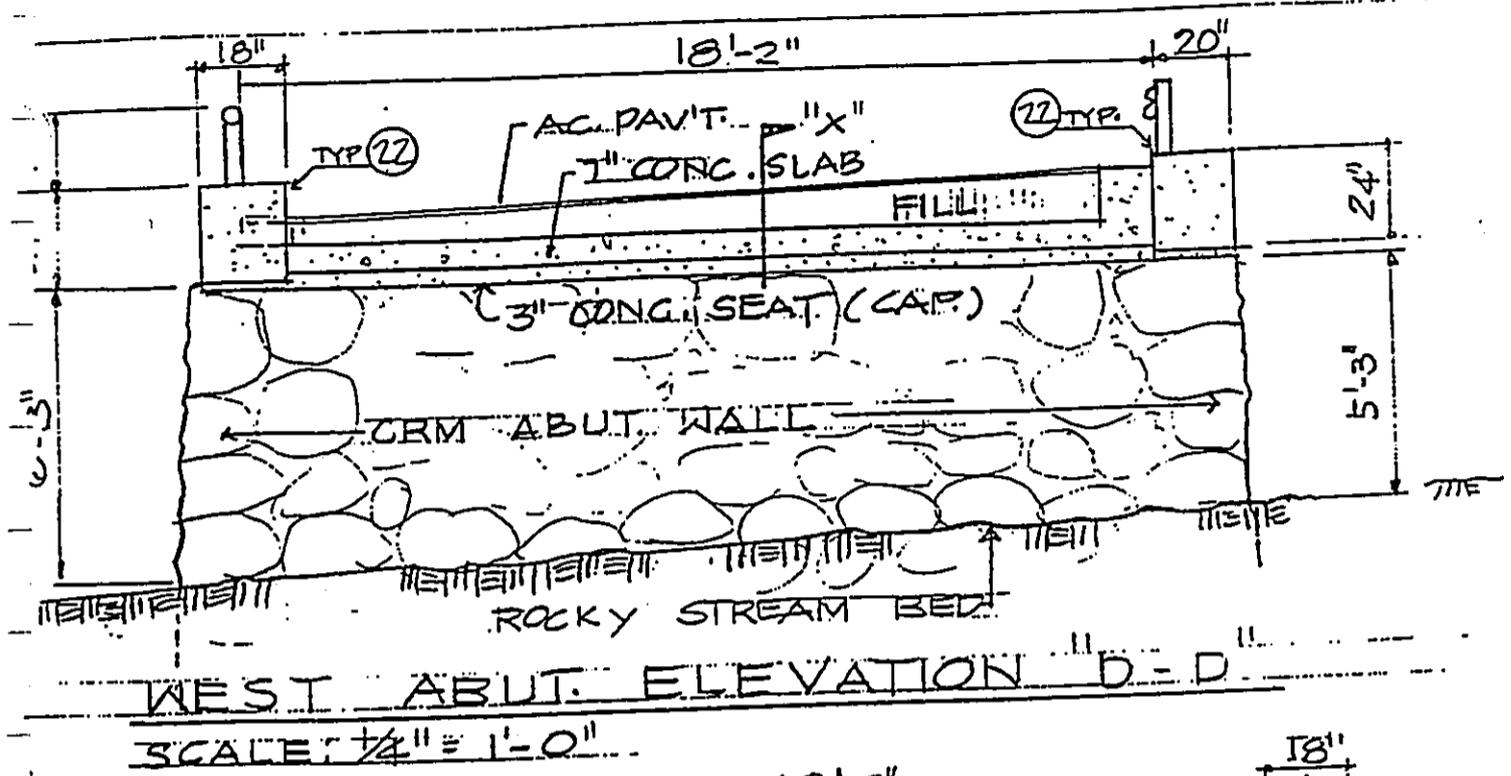
CRM PIER ELEVATION "B-B"
SCALE: 1/4" = 1'-0"



TYPICAL BRIDGE CROSS-SECTION "C-C"
SCALE: 1/4" = 1'-0"

STRUCTURE NO: 31 KAHOLOFO DR	FEATURES INTERSECTED: HANEHO STREAM	COUNTY of MAUI DEPT. of PUBLIC WORKS
DISTRICT: EAST HANA		
LOCATION (TMK): 1-4-07		INVENTORY OF BRIDGES
INVENTORY ROUTE:	DATE: PREP. BY:	SHEET 3 of 4 SHTS.

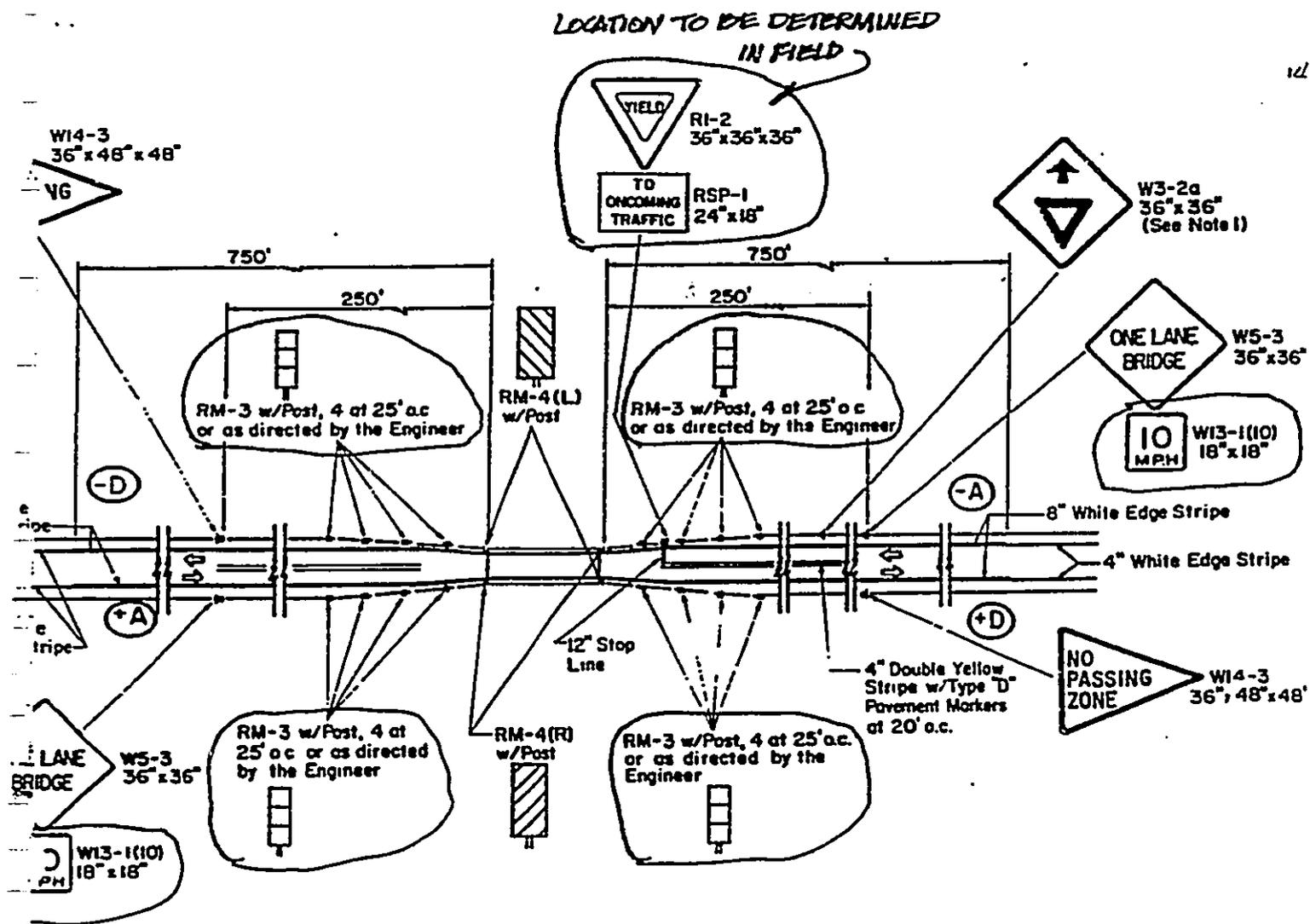
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STRUCTURE NO: F31 KAHGLOPO	FEATURES INTERSECTED: HANEOD STREAM	COUNTY of MAUI DEPT. of PUBLIC WORKS
DISTRICT: EAST HANA		
LOCATION (TMK): 1-4-07		INVENTORY OF BRIDGES
INVENTORY ROUTE:	DATE: 10 20 01	PREP. BY: C K
		SHEET 4 of 4 SHTS

DEFECTS CODING GUIDE

<u>Material</u>	<u>Code No.</u>	<u>Description of Defect</u>
Concrete	1	Hairline Cracks in Concrete
Concrete	2	Cracks in Concrete
Concrete	3	Spalled Concrete
Concrete	4	Spalled Concrete with reinforcing exposed
Concrete	5	Scaling
Concrete	6	Honeycomb Voids
Concrete	7	Efflorescence
Concrete	8	Rust Stains
Concrete	9	Weathered/Waterstained
Timber	10	Split Timber
Timber	11	Decayed Timber
Timber	12	Crushed Timber
Timber	13	Splintered Timber
Timber	14	Weathered/Worn Timber
Timber	15	Insufficient Nailing or Bolting
Steel	16	Rusted Steel
Steel	17	Corroded Steel
Other	18	Erosion
Other	19	Undermining
Other	20	Footing exposed
Other	21	Settlement of Pavement
Other	22	Vegetation Growth
Other	23	Debris
Other	24	Scour
Other	25	Cracks on Pavement



TYPICAL ONE LANE BRIDGE DELINEATION

NOTES:

YIELD AHEAD sign (W3-2a) shall be installed only on approaches to a YIELD sign (RI-2) that is not visible for a sufficient distance to permit a driver to bring his vehicle to a stop at the YIELD sign. Final location will be determined in the field by the Engineer.

Stop line and YIELD signs shall be installed on the approach that has the longer or better sight distance. Final location will be determined in the field by the Engineer.

Signs shall be spaced a minimum of 125 feet apart in the same direction of traffic.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION		
STANDARD PLAN TE-67		
DELINEATION AND PAVEMENT MARKINGS AT BRIDGES		
<i>Eiichi Tanaka</i> APPROVED		<i>2/20/86</i> DATE

DATE	REVISION	APP'D

STANDARD PLAN TE-67 07/01/86

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Recommended Repair of cracks and spalls in concrete

Cracks

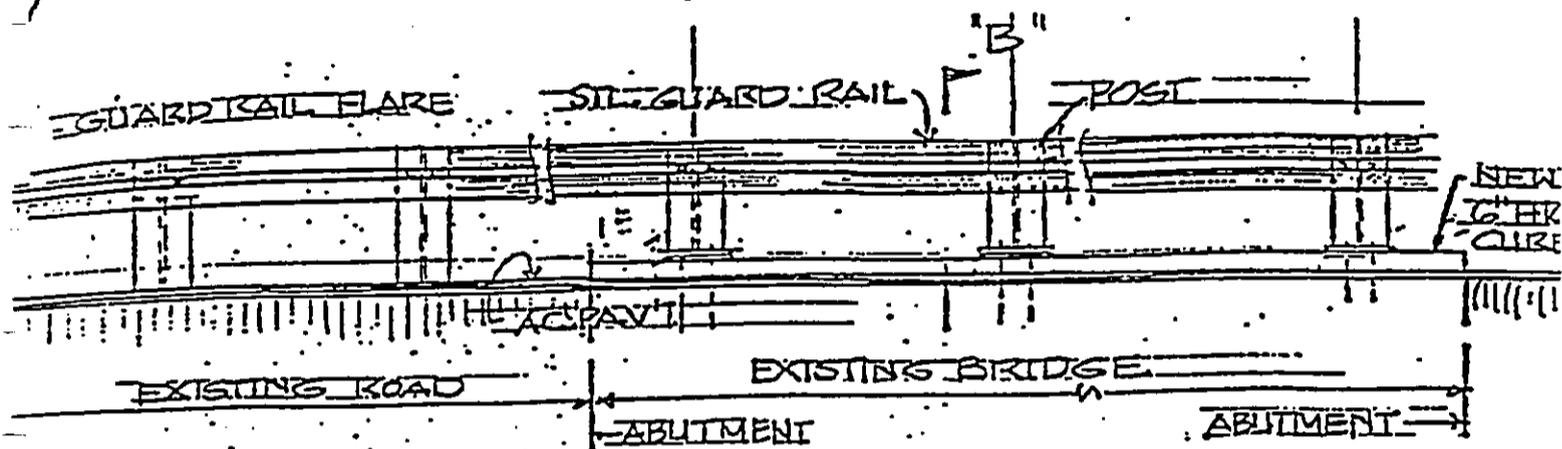
1. Rout crack with concrete saw or chipping tools
2. Flush out crack with water or solvent
3. Allow surface to dry (use hot-air jet, if required)
4. Drill 3/4" ϕ holes, approximately 3/4" deep @ 6" to 12" o.c., into crack.
5. Surface seal crack with joint sealant & install epoxy injection valves in 3/4" ϕ holes, secured with epoxy bonding compound.
6. Inject epoxy bonding compound into crack until the compound flows out of the adjacent sections of the crack or begins to bulge out of the surface seals.

Spalls

1. Remove all unsound, damaged and undesirable concrete.
2. If reinforcing is exposed, remove undesirable concrete around reinforcing, to a sound substrate. Clean reinforcing steel free of rust, scales, oils, and other foreign matter deleterious to bonding. (Sandblasting is desirable).
3. Clean surface to be joined free of moisture, dust, rust, etc.
4. Apply epoxy bonding compound to surface to be joined.
5. Apply lean, stiff mix concrete to repair area. If form work is involved, new concrete can be applied pneumatically.

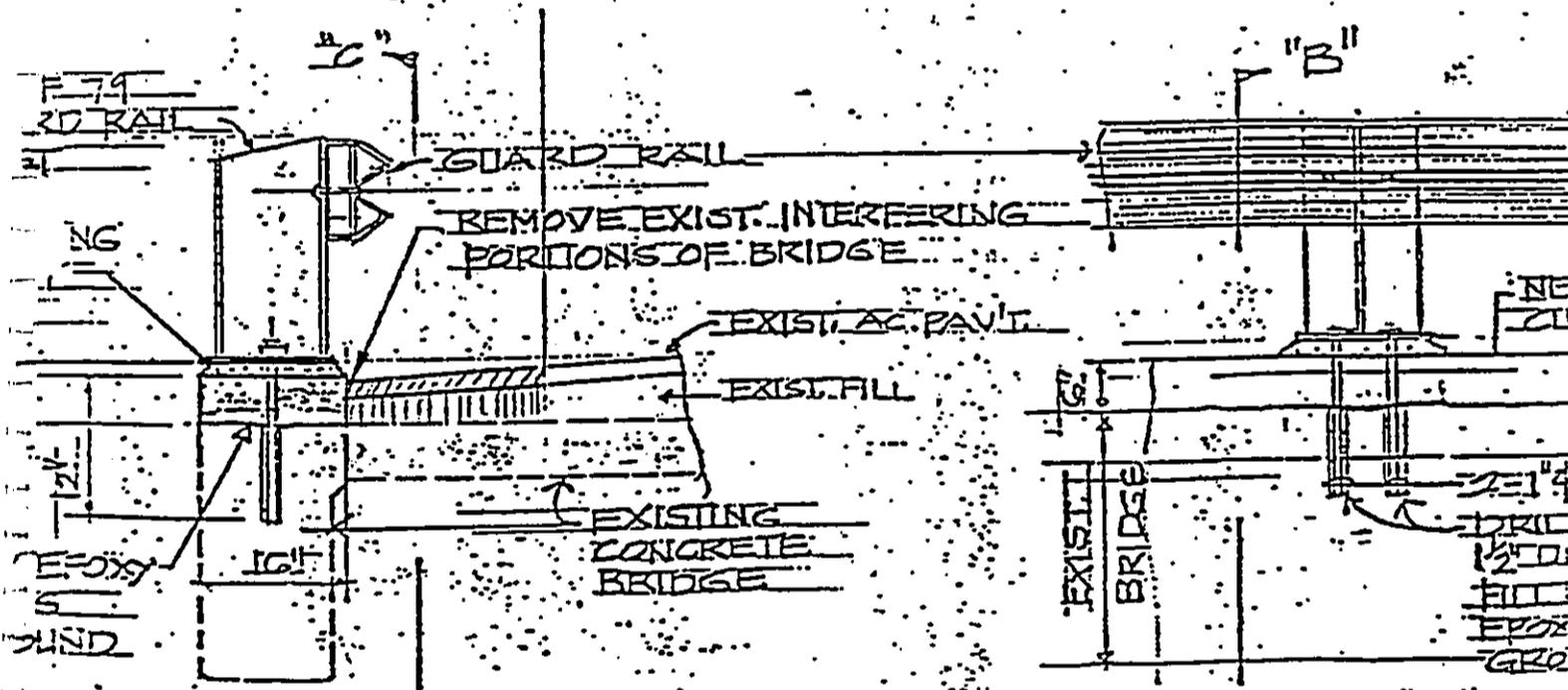
KAHOLAPO # 31

STRUCTURE NO.: 009000310904984	FEATURES INTERSECTED: HANEOD STREAM	COUNTY of MAUI DEPT. of PUBLIC WORK
DISTRICT: HANA		INVENTORY OF BRIDGE
LOCATION (T.M.K.): MC 049.890		
INVENTORY ROUTE: HANA HWY	DATE: 9/14/93	PREP. BY: A. W.
		SHEET ___ of ___ SHTS



NEW GUARD RAIL AT BRIDGE SIDES

A.I.S.



RECOMMENDED STEEL GUARD RAIL ON EXISTING BRIDGE

A.I.S.

Kaholopo Bridge		FEATURES INTERSECTED: Haneo Stream	COUNTY of MAUI DEPT. of PUBLIC WORKS
STRUCTURE NO.: 31			
DISTRICT: Maui			INVENTORY OF BRIDGES
LOCATION (T.M.K.): 1-4-07			
INVENTORY ROUTE:	DATE:	PREP BY:	SHEET 3 of 3

County of Maui
Dept. of Public Works
Engineering Division

KAHOLOPO #31
REPAIRS & IMPROVEMENTS

1. Work completed since last inspection.
 - a. In 1992, deck was resurfaced by private contractor.
 - b. In 1993, County crews installed guardrails on both sides of bridge.

2. Proposed or recommended improvements.
 - a. The guardrail post on the upstream / Kaupo side of bridge should be replaced because it is rusted completely thru at the base.
 - b. All concrete defects should be repaired as recommended on attached sheet.
 - c. RM-3's should be installed on both approaches and tailends of bridge because of hairpin turn.
 - d. Item 58: ICR dropped from 5 to 4 because the deterioration of the underside of the deck has increased. Also, the Kaupo-upstream railing post has rusted through.

Inspected By: Signature A. Niwa
Title Const. Insp. II

Reviewed By: Signature [Signature] 10/7/92
Title Chief, Engineering Division

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COST OF IMPROVEMENTS

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>COST</u>
Repair spalls	50 SF	\$ 250.00/SF	\$12,500.00
Install guardrails at approaches	100 FT	\$ 65.00/FT	\$ 6,500.00
*Remove vegetation from channel			
*Install additional signs & 8" edge pavement striping at designated areas as per Standard Detail Plan TE-67 (Typical One Lane Bridge Delineation)			

Subtotal	\$ 19,000.00
20% Contingency	3,800.00
Total	\$ 22,800.00
CALL	\$ 23,000.00

*Work to be done by Maui County maintenance forces.

STRUCTURE: KAHOLOPO BRIDGE #31	FEATURES INTERSECTED: HANEEO STREAM	COUNTY of MAUI DEPT. of PUBLIC WORKS
DISTRICT: EAST HANA		
LOCATION (T.M.K.): 1-4-07		INVENTORY OF BRIDGE
INVENTORY ROUTE: HANA HIGHWAY	DATE: 9/22/93	PREP. BY: A.N.
		SHEET ___ of ___ SHEETS

County of Maui
Dept. of Public Works
Engineering Division

KAHOLOPO #31
SUMMARY OF RECOMMENDATIONS.

This bridge is in poor structural condition because of increased areas of spalls, spalls with reinforcing exposed on underside of bridge deck. Because of iron rail reinforcing exposed, concrete slab deck design and increase in defects this bridge could be fracture critical. This bridge has been put on a 12 mo. inspection interval because of the increase in the deteriorated areas.

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ARCHITECTURAL
 STRUCTURAL
 CIVIL
 PLANNING

WILSON OKAMOTO & ASSOCIATES
ENGINEERS, ARCHITECTS AND PLANNERS

COMPUTED BY RKH
 CHECKED BY _____
 DATE August 1977

KAHOLOPO BRIDGE
31

PROJECT C2368-01
 SHEET NO. 1 OF 1 SHEETS

2 SPAN CONCRETE SLAB BRIDGE

INVENTORY: OPERATING:
 $f_c = 2000 \text{ psi}$ $f_c = 11000 \text{ psi}$
 $f_s = 18000 \text{ psi}$ $f_s = 25000 \text{ psi}$
 $n = 15$

$t = 7"$ $d = 7 - 2.5 = 5.5"$ $A_s = .01(3.3)(12) = .66$
 $\frac{12E_c}{2} - 15(.66)(k'd + 5.5) = 0$
 $2^2 + 1.62kd - 9.08 = 0$
 $k'd = 2.30"$ $jd = 4.73"$

$M_s = \frac{18}{12} \times 4.73 \times .66 = 4.68 \text{ k-ft}$ $M_c = \frac{8}{2} \times 2.3 \times 4.73 = 4.35 \text{ k-ft}$

CHECK DEAD LOAD MOMENT:

$W_{DC} = \frac{2}{12} \times 144 = 24 \text{ #/ft}$
 $W_{DL} = \frac{17}{12} \times 120 = 170 \text{ #/ft}$
 $\frac{7/2 \times 150}{281.5 \text{ #/ft}} = 87.5$
 $M_{INV} = 4.35 - 3.1 = 1.25 \text{ k-ft}$ $M_{OPER} = 5.98 - 3.1 = 2.88 \text{ k-ft}$
 $M = \frac{.2815(10 \text{ ft})^2}{10} - 3.10 \text{ k-ft}$

CHECK ICE LOADING:

$M = 900 \times 10.5 \times 1.3 = 12.29 \text{ k-ft}$

INVENTORY:

$\frac{1.25}{12.29} \times 20 = 1.203$

OPERATING:

$\frac{2.88}{12.29} \times 20 = 4.69$

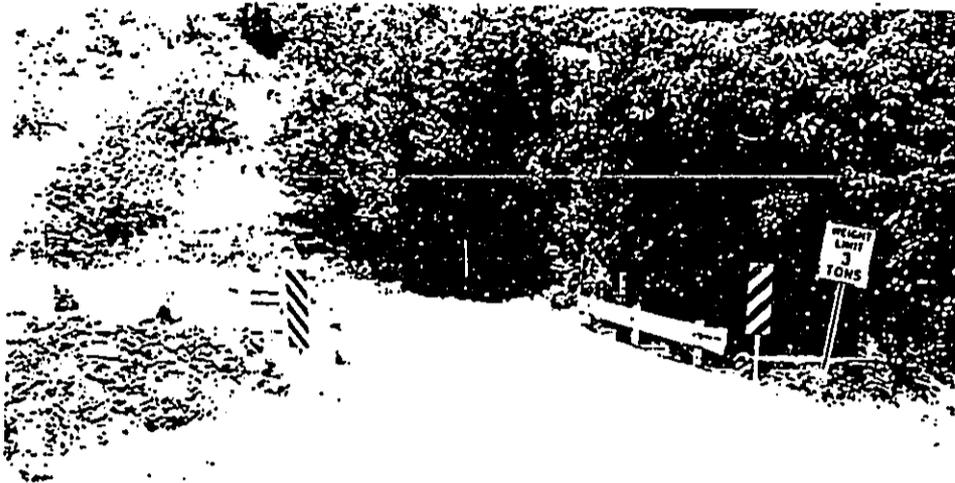
POSTED GVW:
 AFTER REPAIRS:
 $\frac{4.69}{1.05} = 4 \text{ TONS}$
 BEFORE REPAIRS:
 $\frac{4.69 \times 0.85}{1.05} = 3.7$

MOMENT → BRIDGE DESIGN PRACTICE

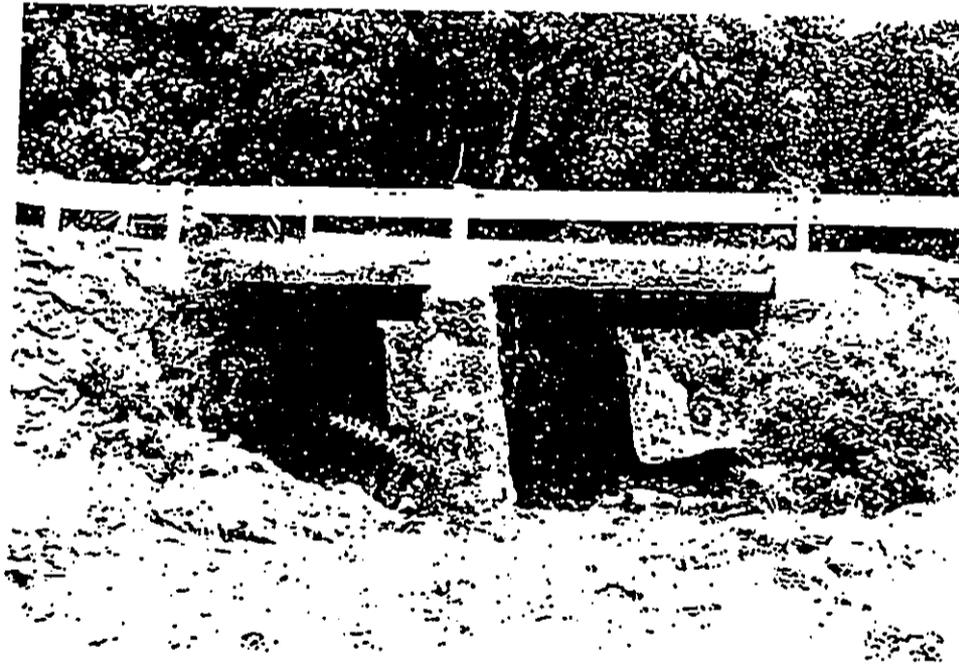
$M = 5.67 \text{ k-ft}$

$\frac{1.25}{12.29} \times 20 = 1.203$

OPERATING: $\frac{2.88}{12.29} \times 20 = 4.69$



APPROACH TOWARD KAUPO



ELEVATION LOOKING MAUKA

STRUCTURE: KAHOLOPO # 31	FEATURES INTERSECTED: KANEHO STRM	COUNTY of MAUI DEPT. of PUBLIC WORKS
DISTRICT: E. HANA		
SECTION (T.M.K.): 1-4-07		INVENTORY OF BRIDGE
INVENTORY ROUTE: HANA HWY	DATE: 9/21/93 PREP BY: SRN	SHEET 1 of 7 SHEETS