ROUTINE (PERIODIC) BRIDGE INSPECTION REPORT

NUAAILUA STREAM BRIDGE

BRIDGE NO. 009003600501540 MAUI, HAWAII



For

State of Hawaii Department of Transportation Highways Division

Prepared by

Nagamine Okawa Engineers Inc. 1003 Bishop Street Suite 2025 Honolulu, Hawaii 96813 Telephone: (808) 536-2626

FEBRUARY 2010

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

NBI BRIDGE INSPECTION REPORT

Bridg Num Loca Featu Bridg	ure Intersected e Material:	2/18/10 009003600501 1 Maui Nuaailua Strea Superstructure	Route No.	360 te_	A Additional Principles of the American Bridge D Highway Milepost Substructure Substructure For if feature meets currently a 1 - Yes N - Not Applie	Remarks acceptable standards.
3. 4.	Approach Guard Approach Guard		0	RM	-4 signs are damaged at the	e Kahului approach.
58	DECK	70 400				
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	Wearing Surface Decks - Structur Curbs Median Sidewalks Parapet Railing Paint Drains Lighting Standa Utilities Joint Leakage Expansion Joint Inspector's Confe	ral Condition rds s or Devices	N N N 6 6	stai		
59	SUPERSTRUC	TURE			#E5	3000 000 00 000 00 000 00 000 00 000 00
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17.	-Po -Braint Machinery (Mov Rivets and/or Bo Welds - Cracks Rust Timber Decay	, or Arches d Diaphragms eneral ritals acing eable Spans) olts ing and/or Spalling ge r Load embers r Load	N N N N N N N N N N N N N N N N N N N	ups spa	tream) near Hana abutment	n on bottom of girder G5 (from t. Girder G8 has several small ts upstream face is delaminated girders G1 to G3.

Date of Inspection

2/18/10

Bridge name

Nuaailua Stream Bridge

Bridge Number

60

1.

2.

3.

009003600501540

-Footing

-Piles

-Scour

-Settlement

Condition Rating Remarks SUBSTRUCTURE Abutment -Wings 6 1a. Wingwalls are covered with vegetation and moss. -Backwall/Breastwall 6/6 1b. Honeycombing between girders G6 and G7 (from upstream) -Footing 6 and delamination between girders G7 and G8 on backwall -Piles Ν of Kahului abutment. Dark water stains on the downstream half -Erosion 7 of Kahului abutment. -Settlement 1c. Abutments bear directly on bedrock. Unsound cement wash Piers or Bents -Caps N patch on upstream / Hana abutment. -Column/Wall N

- 4.
- Concrete Cracking and/or Spalling
- 5. Steel Corrosion

Pile bents

- 6. Timber Decay, etc.
- 7. Debris on Seats
- 8. Paint
- 9. Collision Damage
 - Inspector's Condition Rating
- 6 N Ν 7 N
- 8 6

N

Ν

Ν

N

N

- CHANNEL & CHANNEL PROTECTION
- 1. Channel Scour 2. **Embankment Erosion**
- 3. Drift
- 4. Vegetation
- Channel Change 5.
- Fender System 6.
- 7. Spur Dikes & Jetties
- 8. Rip Rap
- 9. Adequacy of Opening Inspector's Condition Rating
- 6 6 5 N N

N

6

6

6

4. Heavy vegetation growth in upstream channel.

CULVERT & RETAINING WALLS

- 1. Barrel -Concrete
 - -Steel
 - -Timber
- 2. Headwall
- 3. **Cutoff Wall**
- Adequacy 4.
- Debris
 - Inspector's Condition Rating

Ν	
N	
Ν	
Ν	
N	

N N Ν

Date	of Inspection	2/18/10	Bridge Name	Nuaailua Stream Bridge		
		0090036005015				
,						
93	CRITICAL FE	ATURE INSPECTI	ON DATE	Provide date if applicable.	50 P	
00	OTTITIO/TET E/	TOTAL INOT LOTT	ONDATE		th N	
1.	Fracture Critic	al Dotaila	Ν	If not applicable, indicate with N.		
			N		water Increation Depart	
2.	Underwater In	10 NO. 10	12	[If applicable, submit Under	water inspection Report]	
3.	Other Special	Inspection	N			
					Remarks	
ОТН	ER FEATURES		_	Y - Yes N - No		
1.	Bridge Posted	?	Y	Posted Limit = 10 Ton we	ight limit	
2.	Signage for Po	osting Legible/Visit	ole? N	Load posting sign is located ne	ar mile post 0.0 Route 360,	
3.	SOMETHING AND ADDRESS OF THE PROPERTY OF THE PARTY OF THE	(Roughness) Rat	The state of the s	and is used as a notice for all H		
Fi.50)		(1009000) 110.	9	3 - Smooth, 2 - Average, 1	V. 1971. (1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	
				o cinosin, z 7.verage, 1	1 001	
DED	AIRS AND IMPR	DOVEMENTS.				
IXLI	AING AND IVII I	TOVEINLIVIO				
4	ملم بالمورين المراجمة ا					
1.		107	ince the last inspection	including cost.		
	a) Repaved A.C	. overlay				
WW		and the same of	is and			
2.			10	including estimated cost.		
	a) Install guard	rail transitions, app	roach guardrails, and er	nd treatments to meet current a	cceptable	
	standard	ds (Cost Est. = \$50,0	000).			
	b) Upgrade rail	ing and parapet to i	neet current acceptable	standards (Cost Est. = \$120,000	0).	
		457 N	nd spalls in girders (Cos		•	
			d upstream of channel (
			signs (Maintenance Item			
	e, repair raila	idi approacii itili-4 t	signs (maintenance item)·		
2	Liet one evictin	a tomorous cond	Tions.			
3.	List any existir	ng temporary cond	itions.			
DEM	ADVO AND DE	COMMENDATION		1		
KEM	IARKS AND RE	COMMENDATION	<u>s</u>			
20		781 0 0				
1.	Samuel Samuel Control of the Control		on by Bridge Design Se		No	
	[This should or	nly be addressed b	by in-house inspectors was	who are not structural enginee	ers.]	
2.	Remarks: De	escribe defects. U	lse sketches, diagrams	and/or photographs where po	essible.	
				Erik-Jon Cabbab /	Certified	
		Inspected by:	Name (printed):	Cody Aihara	Title: Bridge Inspectors	
		mapeoted by.	Traine (printed).	Oddy Alliara	Inte bridge mapecials	
			Ciamatura:	ERA CERD,	11. 11	
			Signature:	13 000	lody were	
			Phone Number:	808.536.2626		
		D-000000000000000000000000000000000000				
		Supervised by:	Name (printed):	Dwight M. Okawa, S.E.	Title: V.P./Team Leader	
				1		
			Signature:	Wwight M. Ohava	-	
			Phone Number:	808.5%6.2626		

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION PONTIS BRIDGE INSPECTION REPORT

r10/8/07

Date of Inspection	2/18/10	Bridge Name	Nuaailua Stream Bridge
Bridge Number	009003600501540	Route No.	360
Number of Spans	1	Highway	Hana Highway
Location: Island	Maui	Feature Intersect	ed Nuaailua Stream

ELEM	ELEMENT	ENV.	TOTAL	UNIT	ST	ST	ST	ST	ST
NO.	DESCRIPTION	(Note 1)	QUANT.	5.00000000	1	2	3	4	5
013	DECK OR SLAB (Note 2)	2	735	SF.	735				
110	GIRDERS	2	248	LFT.	89	124	31		
215	ABUTMENTS	2	76	LFT.		76			
*	COLUMNS			EA.					
•	PIER WALL			LFT.					
•	PIER CAPS			LFT.					
001000000000000									
301	JOINTS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.)	2	42	LFT.		42			
331	BRIDGE RAILING	2	70	LFT.		70			
*	APPROACH SLABS		v	EA.		592			
*	BEARINGS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.)			EA.					
itticitaita *	CULVERT			LFT.	X				
000000000000	COLVENT		14 -000 000 000 000 000 000 000 000 000 0	LF1.		KON MORANGA	70070000000000000	1,0001000000000000	(0000)000000000000000000000000000000000
*	SMART FLAG: STEEL FATIGUE			EA.					
*	SMART FLAG: PACK RUST			EA.	2.5				
*	SMART FLAG: DECK CRACKING (ON TOP OF DECK ONLY)		•	EA.					
359	SMART FLAG: SOFFIT OF CONC. DECK OR SLAB (THIS SMART FLAG IS MANDATORY IF DECK OR SLAB HAS AN A.C. OVERLAY).	2	1	EA.		1			
*	SMART FLAG: SETTLEMENT			EA.					
*	SMART FLAG: SCOUR			EA.					
*	SMART FLAG: TRAFFIC IMPACT (TRAFFIC IMPACT TO SUPERSTRUCTURE ONLY)			EA.					
*	SMART FLAG: SECTION LOSS			EA.				1-1-1-1-1-1-1-1-1	
THERS:									<u> </u>
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,									NO.1800312

COMMENTS:			
			110000000000000000000000000000000000000

Note 1: For each element, the inspector shall code the type of environment from the following key:

Env 1: Benign & Low Env: Little or no env. conditions affecting deterioration. Past bridge inspections show that env. has caused little or no deterioration.

Env 2: Moderate: Moderate level of environmental influence or deterioration. Past bridge inspections show that environment has caused some deterioration.

Env 3: Severe: Severe level of environmental influence or deterioration. Past bridge inspections show that environment has caused significant.

Note 2: For DECKS ONLY: All quantity in one ST only. Deck/slab is rated from top of deck/slab only. Use soffit smart flag (elem 359) to rate soffit.

Use these re-	vised Condition States for rating Concrete Decks/Slabs
CS1	No patched areas, no potholes, no spalls and delams, etc.
CS2	Distressed areas are less than 2% of the total deck area.
CS3	Distressed areas are more than 2% but 10% or less of the total deck area.
CS4	Distressed areas are more than 10% but 25% or less of the total deck area.
CS5	Distressed areas are 25% or more of the total deck area.

Inspector's Name (printed):

Erik-Jon Cabbab / Cody Aihara

Title: Certified Bridge Inspectors

Inspector's Name (signature): Inspector's phone number:

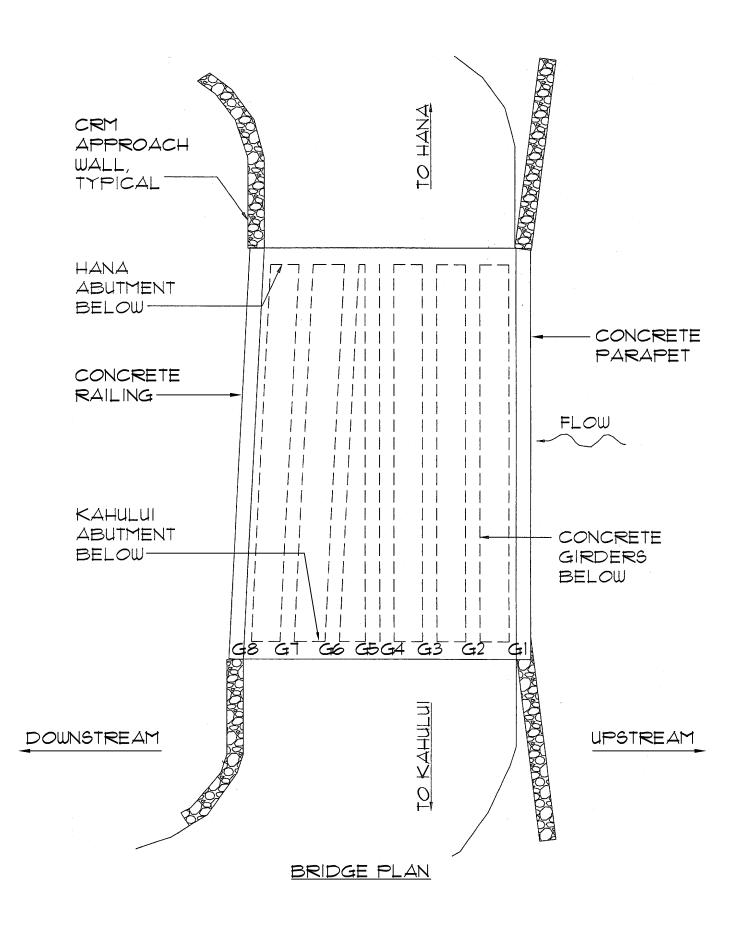
808.536.2626

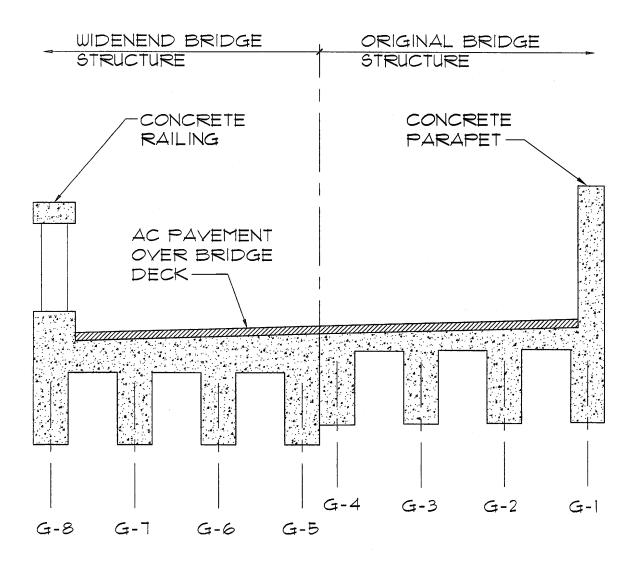
Dwight M. Okawa, S.E. Title: V.P. / Team Leader

Supervisor's Name (printed): Supervisor's Name (signature):

Dwight M. Ohawa

	HAWAII DEPARTMENT OF TR			STRUCTURAL INVENTORY	AND API	PRAISAL	DATE PRINTED: 01/2	22/2010
	Structure Number: 009003600					(209)	Str Name:	
	Geographic and Route	Data		Dimensional Data			: Rte: 360 Milepost	: 0.000
0.5	State	Hawaii		Approach Rdwy Width		4 M	Ä	
(2)	District	20		Navigation Vert Clr	000.0	0 M	Proposed Maintenand	ce
(3)	County	Maui	(40)	Navigation Horz clr	0000.0		Repair Priority	
(4)	Place	99999	(48)	Max Span Length	0009.1	1 M (213)	Proposed Maint Type	
(6)	Feature Under N	UAAILUA STRM	(49)	Str Length	00010.7	7 M (215)	Maintn Date Completed	1 1
(7)	Facility on	HANA HWY	(50)	Curb/Sidewalk Width I	Left 00.0	0 M (216)	Actual Maint Cost	0
	Location 1.18MI W/KEA	NAE HMSTD RD			ight 00.0			
		° 51' 30.00"	(51)	Brg Rdwy Width, curb-cu	rb 006.4	4 M		
		° 09' 48.00"	7000000000	Deck Width out-out	008.4		Inspection Data	0210
	Border Bridge			Min Vert Clr over	99.99	9 M (90)	Inspection Date (MoYr)	- 0108
	Border Brdige Str No		(54)	Min Vert Clr under	N 00.00	0 M (91)	Inspection Frequency	24 Mo
(103)	Temportary Str		(55)	Min Lat Underclr R	N 00.0		Critical Feature Insp	(93) Date
				Min Lat Underclr L	99.9	9 M	Frac Crit Insp : N	1
	On and Under Record Dat	a		NBIS Bridge Length		Y	Underwater Insp: N	1
		Route On	(116)	Navigation Min Vert Cl	.r	M	Other Spec Insp: N	/
(5)	Inventory Route	121003602				(207)	Inspection Quarter	4
	Min Vert Clr	99.99 M		Proposed Improveme	ents		Inspection Number	
	Kilometerpoint	0024.751	(75)	Type of Work	3	311 (210)		2/15/1996
	Detour Length	199 km		Improvement Length	000171		02	18/2010
	Toll	3		Bridge Improv Cost	11	142	Over 200 Items	
	Func Class	07		Rdwy Improv Cost			Princ Route Location	
(28)	Lanes on/under	0200		Total Proj Cost			Wear Surface Thickness	0.0 mm
	ADT	1720		Year of Cost Est			District Maint Org	
	Year of ADT	2007		Future ADT			Original Proj #	
	Total Horz Clearance	06.4 M	(115)	Year of Future ADT	20		Station Princ Rte	0.000
	Defense Hwy	0		NOTE CONTROL TO SERVICE OF			Bridge Rail Type	
	Parallel Str	N	7000	Condition Rating			Culvert Bbl Height	0.0 M
	Direction of Traffic	2	200000000000000000000000000000000000000	Deck	6		Culvert Bbl Length	0.0 M
	Hwy System	0		Superstructure			Culvert Fill Height	0.0 M
	Truck Traffic	00%		Substructure				/ /
(110)	Natl Truck Network	No		Channel & Channel Prot	.ect	. 01	Tracs No	
			(62)	Culverts			Bridge Crew Region	200 a 2
(04)	General Data	0.4					Total Deck Area (M^2)	0.0
	Maintenance Responsibility	01	(67)	Appraisal Rating			Superstr Unit Cost	0.00
	Owner	01		Structure Evaluation			Substr Unit Cost	0.00
	Design Load	0		Deck Geometry			Next Insp Due Date (Quar	tyr) 498
	Bridge Median	0		Underclrn Vert & Horz			Agency	360
,	Skew	00 deg		Waterway Adequacy	_		Principal Route Number	360
	Str Flared	No		Approach Rdwy Alignmen			Principal Route Letter	0.000
	Hist Significance	3	(36)	Traffic Safety Feature	S 00		Principal Route Milepost	0.000
	Navigation Control	. 0		Carres Daha		(300)	Comments:	
	Type of Service	15	(112)	Scour Data		0		
	Structure Type Main	104		Scour Critical Bridges		8		
	Structure Type Approach	000		Foundation Type	0.0			
	No of Span Main	001		Foundation Embedment	0.0	ותו י		
	No of Approach Spans	0000	(221)	Scour Countermeasures			Cuffigionar Dating - 027	0
	Year Built	1911 1940		Load Rate and Post			Sufficiency Rating = 037	. U
	Year Reconstructed Deck Str Type	1940	//11		Post	-od	Functionly Obsolete	
	Wear Surf/Protv Sys	600		Str Open/Post/Close	39.0 t			
	Nav Pier/Abut Protection	000		Operating Rating Inventory Rating	16.3 t			
(TTT)	May Fiet/Whit biorection			Bridge Posting	10.3 L	4		
				Posted Limit		4		
			1411	TODOG DIMIE				

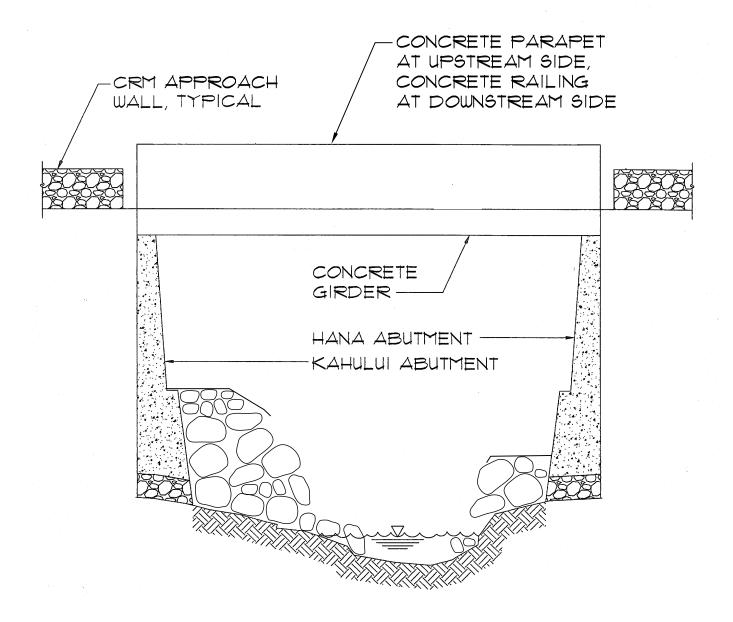




DOWNSTREAM

UPSTREAM

SECTION LOOKING TOWARDS HANA



UPSTREAM ELEVATION

NUAAILUA BRIDGE BRIDGE NO. 009003600501540

NUAAILUA STREAM BRIDGE PHOTO LOG

PHOTO NO.	DESCRIPTION
1	KAHULUI APPROACH LOOKING TOWARD HANA
2	HANA APPROACH LOOKING TOWARD KAHULUI
3	UPSTREAM / KAHULUI CRM WALL WITH COLLISION DAMAGE
4	DOWNSTREAM / KAHULUI GUARDRAIL AND CRM WALL
5	UPSTREAM / HANA CRM WALL
6	DOWNSTREAM / HANA GUARDRAIL AND CRM WALL
7	UPSTREAM PARAPET ELEVATION. NOTE: PARAPET HT = 42"
8	BACKSIDE UPSTREAM PARAPET ELEVATION
9	CLOSE UP OF SCRAPES ON UPSTREAM PARAPET NEAR HANA SIDE
10	DOWNSTREAM RAILING ELEVATION. NOTE: RAILING HT = 40"
11	BACKSIDE DOWNSTREAM RAILING ELEVATION. NOTE: DAMAGED RM-4 SIGN AT THE KAHULUI END OF RAILING
12	OVERALL A.C. PAVEMENT LOOKING TOWARD HANA
13	UPSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI
14	DOWNSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI WITH EFFLORESCENCE AND WATER STAINS. NOTE: DECK DRAINS HAVE BEEN PAVED OVER
15	DELAMINATION AND HAIRLINE CRACK (8' LONG) IN BOTTOM OF GIRDER G5 NEAR HANA ABUTMENT
16	OVERALL VIEW OF GIRDER G8 LOOKING DOWNSTREAM WITH SEVERAL SMALL SPALLS WITH EXPOSED REBAR AND DELAMINATION THROUGHOUT THE UPSTREAM FACE
17	CLOSE UP OF LARGE SPALL WITH EXPOSED REBAR IN BOTTOM OF GIRDER G8 NEAR KAHULUI ABUTMENT
18	KAHULUI ABUTMENT WITH DARK WATER STAINS
19	HANA ABUTMENT
20	HONEYCOMBING BETWEEN GIRDERS G6 AND G7 AND DELAMINATION BETWEEN GIRDERS G7 AND G8 ON BACKWALL OF KAHULUI ABUTMENT
21	UPSTREAM VIEW FROM TOP OF BRIDGE
22	UPSTREAM VIEW FROM UNDER BRIDGE

NUAAILUA STREAM BRIDGE PHOTO LOG

PHOTO NO.	DESCRIPTION			
23	DOWNSTREAM VIEW FROM TOP OF BRIDGE			
24	DOWNSTREAM VIEW FROM UNDER BRIDGE			



PHOTO 1 KAHULUI APPROACH LOOKING TOWARD HANA



PHOTO 2 HANA APPROACH LOOKING TOWARD KAHULUI



PHOTO 3 UPSTREAM / KAHULUI CRM WALL WITH COLLISION DAMAGE



PHOTO 4 DOWNSTREAM / KAHULUI GUARDRAIL AND CRM WALL



PHOTO 5 UPSTREAM / HANA CRM WALL



PHOTO 6 DOWNSTREAM / HANA GUARDRAIL END TREATMENT AND CRM WALL. NOTE: GUARDRAIL END TREATMENT HT = 26"



PHOTO 7 UPSTREAM PARAPET ELEVATION. NOTE: PARAPET HT = 42"



PHOTO 8 BACKSIDE UPSTREAM PARAPET ELEVATION



PHOTO 9 CLOSE UP OF SCRAPES ON UPSTREAM PARAPET NEAR HANA SIDE



PHOTO 10 DOWNSTREAM RAILING ELEVATION. NOTE: RAILING HT = 40"



PHOTO 11 BACKSIDE DOWNSTREAM RAILING ELEVATION. NOTE: DAMAGED RM-4 SIGN AT THE KAHULUI END OF RAILING



PHOTO 12 OVERALL A.C. PAVEMENT LOOKING TOWARD HANA



PHOTO 13 UPSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI



PHOTO 14 DOWNSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI WITH EFFLORESCENCE AND WATER STAINS. NOTE: DECK DRAINS HAVE BEEN PAVED OVER

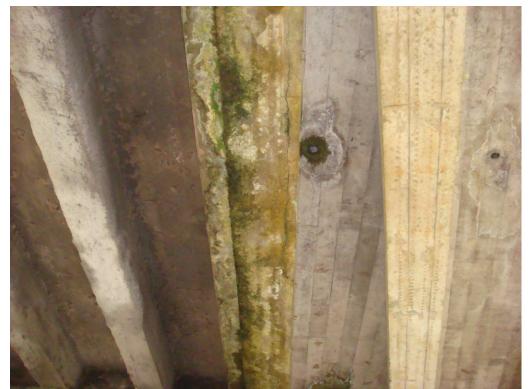


PHOTO 15 DELAMINATION AND HAIRLINE CRACK (8' LONG) IN BOTTOM OF GIRDER G5
NEAR HANA ABUTMENT



PHOTO 16 OVERALL VIEW OF GIRDER G8 LOOKING DOWNSTREAM WITH SEVERAL SMALL SPALLS WITH EXPOSED REBAR AND DELAMINATION THROUGHOUT THE UPSTREAM FACE



PHOTO 17 CLOSE UP OF LARGE SPALL WITH EXPOSED REBAR IN BOTTOM OF GIRDER G8 NEAR KAHULUI ABUTMENT



PHOTO 18 KAHULUI ABUTMENT WITH DARK WATER STAINS



PHOTO 19 HANA ABUTMENT



PHOTO 20 HONEYCOMBING BETWEEN GIRDERS G6 AND G7 AND DELAMINATION BETWEEN GIRDERS G7 AND G8 ON BACKWALL OF KAHULUI ABUTMENT



PHOTO 21 UPSTREAM VIEW FROM TOP OF BRIDGE



PHOTO 22 UPSTREAM VIEW FROM UNDER BRIDGE



PHOTO 23 DOWNSTREAM VIEW FROM TOP OF BRIDGE

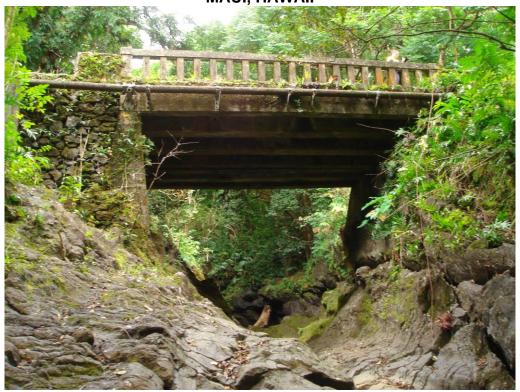


PHOTO 24 DOWNSTREAM VIEW FROM UNDER BRIDGE

ROUTINE (PERIODIC) BRIDGE INSPECTION REPORT

PIINAAU STREAM BRIDGE

BRIDGE NO. 009003600501662 MAUI, HAWAII



For

State of Hawaii Department of Transportation Highways Division

Prepared by

Nagamine Okawa Engineers Inc. 1003 Bishop Street Suite 2025 Honolulu, Hawaii 96813 Telephone: (808) 536-2626

FEBRUARY 2010

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

NBI BRIDGE INSPECTION REPORT

Bridg Numl Loca Feat	ure Intersected ge Material:	2/18/10 0090036005011 1 Maui Piinaau Stream Superstructure	Route No. Reinforced Concrete Condition Rating	Piinaau Stream Bridge 360 Highway Hana Highway Milepost 16.60 Substructure Reinforced Concrete Remarks Indicate if feature meets currently acceptable standards. 0 - No 1 - Yes N - Not Applicable 1. Bridge railings do not meet acceptable height standards.
2. 3. 4.	Transitions Approach Guar Approach Guar	drail	0 0	
1. 2. 3. 4. 5.	DECK Wearing Surfact Decks - Structu Curbs Median Sidewalks Parapet		N 6 2 N N N N 6	Water stains on soffit and minor edge spalls along upstream side of bridge.
7. 8. 9. 10. 11. 12.	Railing Paint Drains Lighting Standa Utilities Joint Leakage Expansion Join Inspector's Cor	ts or Devices	N N 6	8. This rating is for paint on the bridge railings. 12. Efflorescense and water stains on soffit and girders.
1. 2. 3. 4. 5.	SUPERSTRUC Bearing Device Stringers Girders, Beams Floor Beams ar Trusses -G	TURE s s, or Arches	N N 5 N N	3. Delaminations and cracks in girders.
6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16.	-B Paint Machinery (Mor Rivets and/or B Welds - Cracks Rust Timber Decay	racing veable Spans) solts king and/or Spalling ge er Load embers er Load	N N N N N	12. See Item 59.3

Date of Inspection 2/18/10			Bridge name	Piinaau Stream Bridge
Brid	ge Number	009003600501662		
			Condition Rating	Remarks
60	SUBSTRUCT	URE	<u> </u>	
1.	- - - -	Wings Backwall/Breastwall Footing Piles Erosion Settlement	7 7 - N 7	Abutment is bearing directly on bedrock.
2.	Piers or Bents		N N N N N	
3. 4. 5. 6. 7.	Pile bents Concrete Crac Steel Corrosic Timber Decay Debris on Sea	cking and/or Spalling on , etc.	N 7 N N N	
8. 9.	Paint Collision Dam		N 8 7	
61	CHANNEL &	CHANNEL PROTECT	ION	
1. 2. 3. 4. 5. 6. 7. 8. 9.	Channel Scou Embankment Drift Vegetation Channel Char Fender Syster Spur Dikes & Rip Rap Adequacy of O	Erosion nge m Jetties	7 7 7 7 7 7 N N N 7	
62	CULVERT & F	RETAINING WALLS		
1. 2. 3.	Barrel -Con -Stee -Timl Headwall Cutoff Wall	el	N N N N	
4. 5.	Adequacy Debris Inspector's Co	ondition Rating	N N N	

Date of Inspection 2/18/10		2/18/10	Bridge Name	Piinaau Stream Bridge				
Bridge Number 00900360050		0090036005016	662					
			1-111-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-					
93	CRITICAL FEA	TURE INSPECTI	ON DATE	Provide date if applicable.				
120				If not applicable, indicate with N.				
1.	Fracture Critica		N					
2.	Underwater Ins		N	[If applicable, submit Underwater Inspection Report]				
3.	Other Special I	nspection	N					
OTU				Remarks				
ОТНІ	ER FEATURES		_	Y - Yes N - No				
4	Deides Destad	,		Destadilization 40 T				
1.	Bridge Posted?		Y	Posted Limit = 10 Tons (See Comment Below)				
2.		sting Legible/Visil		2 C				
3.	Riding Surface	(Roughness) Rat	ing 2	3 - Smooth, 2 - Average, 1 - Poor				
				40.1				
			1	. 10-ton posted load limit on Hana Bridges at both				
DED/	AIRS AND IMPR	OVEMENTS		ends of Hana Hwy. No posting at the bridge.				
IXLI /	AINS AND IIVIF IN	OVEIVIENTS						
1.	List all work do	ne to this bridge s	ince the last inspection	including cost				
1.	None.	ne to this bridge s	ince the last inspection	Finduling cost.				
	rione.							
2.	Indicate propos	ed and/or recomm	nended improvements	including estimated cost.				
-			Est. Cost = \$22,000).	moduling estimated cost.				
			nations in girders (Est. Co	net = \$30,000\				
			ach guardrails (Est. Cost					
			dened portion of bridge (N					
	a. Coarjoint bett	vocii original and wi	defied portion of bridge (i	namenance nem).				
3.	List any existing	g temporary condi	tions					
0.	None.	g tomporary condi	dono.					
REMA	ARKS AND REC	OMMENDATION	S					
1.	Does this bridge	e require inspection	on by Bridge Design S	ection? Yes No X				
				who are not structural engineers.]				
				,				
2.	Remarks: De	scribe defects. U	se sketches, diagrams	and/or photographs where possible.				
			77 88					
				Certified				
		Inspected by:	Name (printed):	Garrett Nago & Robin Okawa Title: Bridge Inspector				
				N 1 per				
			Signature: /	Janto 1. Com				
			Phone Number:	808.536.2626				
			_					
		Supervised by:	Name (printed):	Dwight Okawa, S.E. Title: V.P.				
				h Lef				
			Signature:	Awight Mawa				
			Phone Number:	808.536.2626				

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION PONTIS BRIDGE INSPECTION REPORT

r10/8/07

Date of Inspection	2/18/10	Bridge Name	Piinaau Stream Bridge
Bridge Number	009003600501662	Route No.	360
Number of Spans	1	Highway	Hana Highway
Location: Island	Maui	Feature Intersec	cted Piinaau Stream

NO.		ENV.	TOTAL	UNIT	ST	ST	ST	ST	ST
	DESCRIPTION	(Note 1)	QUANT.		1	2	3	4	5
13	DECK OR SLAB (Note 2)	2	560	SF.	560				
110	GIRDERS	2	196	LFT.		196			
215	ABUTMENTS	2	48	LFT.	45	3			
*	COLUMNS			EA.					1
*	PIER WALL			LFT.					
*	PIER CAPS			LFT.					1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	JOINTS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.)	2	40	LFT.		40			
331	BRIDGE RAILING	2	56	LFT.	55	1			
*	APPROACH SLABS			EA.					
	BEARINGS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.)			EA.					
	CULVERT			LFT.					
	SMART FLAG: STEEL FATIGUE		***********	EA.	***************************************				
	SMART FLAG: PACK RUST			EA.					
*	SMART FLAG: DECK CRACKING (ON TOP OF DECK ONLY)			EA.					
359	SMART FLAG: SOFFIT OF CONC. DECK OR SLAB (THIS SMART FLAG IS MANDATORY IF DECK OR SLAB HAS AN A.C. OVERLAY).	2	1	EA.		1			
*	SMART FLAG: SETTLEMENT			EA.					
*	SMART FLAG: SCOUR			EA.					
	SMART FLAG: TRAFFIC IMPACT (TRAFFIC IMPACT TO SUPERSTRUCTURE ONLY)			EA.					
*	SMART FLAG: SECTION LOSS			EA.				(212121212121212121	
THERS								1	1
					,			-	<u> </u>

COMMENTS:			

Note 2: For DECKS ONLY: All quantity in one ST only. Deck/slab is rated from top of deck/slab only. Use soffit smart flag (elem 359) to rate soffit.

CS1	No patched areas, no potholes, no spalls and delams, etc.
CS2	Distressed areas are less than 2% of the total deck area.
CS3	Distressed areas are more than 2% but 10% or less of the total deck area.
CS4	Distressed areas are more than 10% but 25% or less of the total deck area.
CS5	Distressed areas are 25% or more of the total deck area.

CS5 Distressed areas are 25% or	Distressed areas are 25% or more of the total deck area.					
Inspector's Name (printed): Inspector's Name (signature): Inspector's phone number:	Garrett Nago & Robin Okawa Sold Sold Sold Sold Sold Sold Sold Sold	Title: Cert. Bridge Inspector				
Supervisor's Name (printed): Supervisor's Name (signature):	Dwight Okawa, S.E.	Title: V.P.				

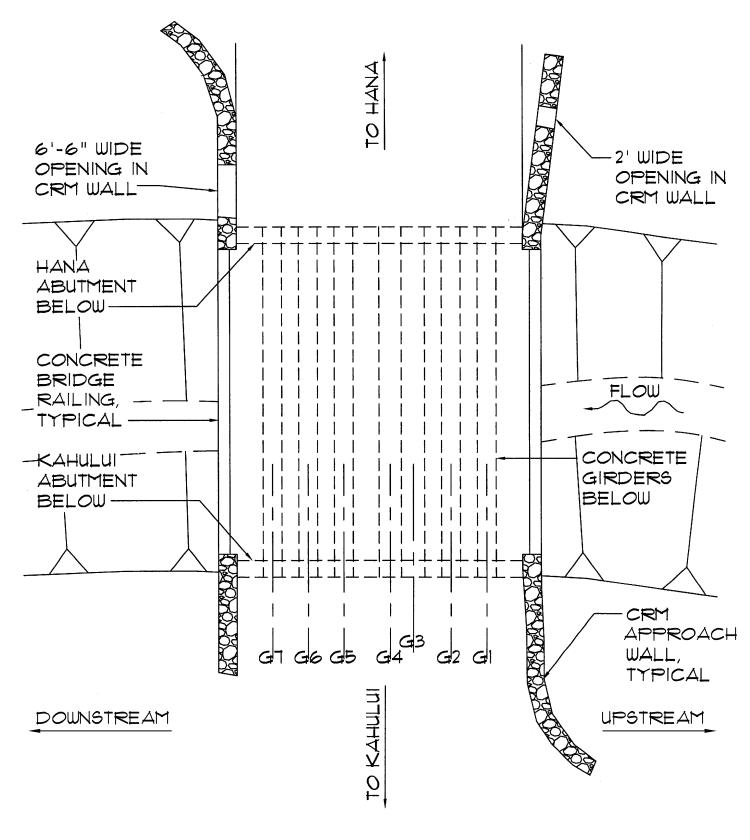
Note 1: For each element, the inspector shall code the type of environment from the following key:

Env 1: Benign & Low Env: Little or no env. conditions affecting deterioration. Past bridge inspections show that env. has caused little or no deterioration.

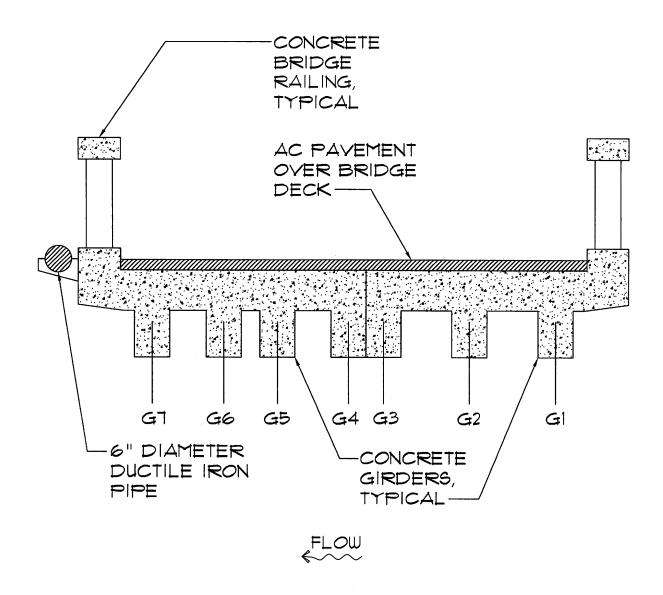
Env 2: Moderate: Moderate level of environmental influence or deterioration. Past bridge inspections show that environment has caused some deterioration.

Env 3: Severe: Severe level of environmental influence or deterioration. Past bridge inspections show that environment has caused significant.

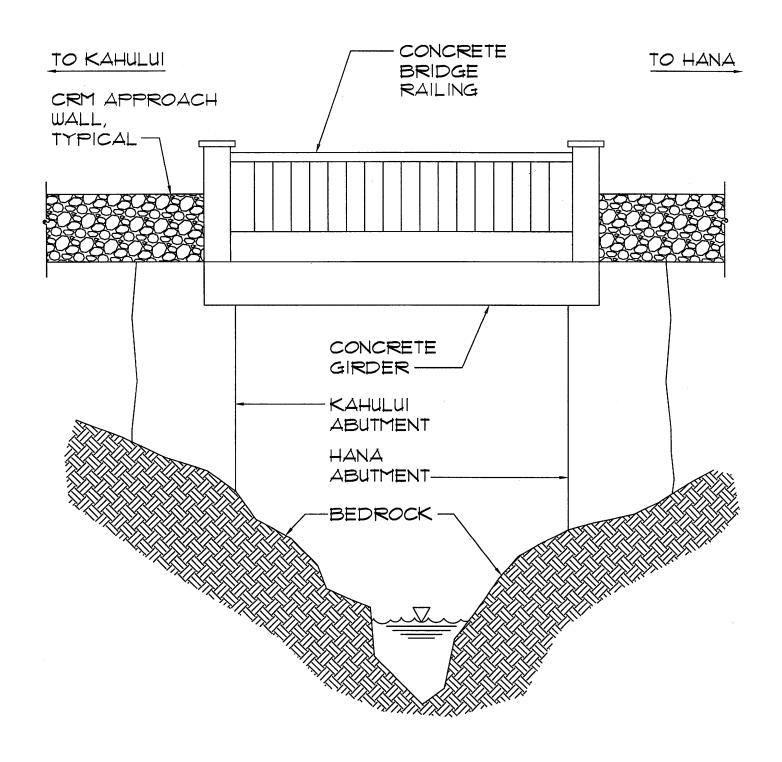
	HAWAII DEPARTMENT OF T	TRANSPORTATION		STRUCTURAL INVENTORY	AND APPRAIS	SAL	DATE PRINTED: 01/22/2010
	Structure Number: 00900360	00501662				(209)	Str Name:
	Geographic and Rout	ce Data		Dimensional Data		Princ	Rte: 360 Milepost: 0.000
	State	Hawaii	(32)	Approach Rdwy Width	6.1 M		
(2)	District	20		Navigation Vert Clr	000.0 M		Proposed Maintenance
	County	Maui		Navigation Horz clr	0000.0 M		Repair Priority
, ,	Place	99999		Max Span Length	0008.2 M		Proposed Maint Type
	Feature Under	PIINAAU STRM		Str Length	00008.5 M		Maintn Date Completed / /
	Facility on	HANA HWY	(50)	Curb/Sidewalk Width		(216)	Actual Maint Cost 0
		RANAE HMSTD RD			ght 00.0 M		
		00 51 42.00"		Brg Rdwy Width, curb-c			, h
7		60 09' 00.00"		Deck Width out-out	006.2 M		Inspection Data 0210
	Border Bridge		1	Min Vert Clr over	99.99 M		Inspection Date (MoYr) -0108
	Border Brdige Str No			Min Vert Clr under	N 00.00 M		Inspection Frequency 24 Mo
(103)	Temportary Str			Min Lat Underclr R	N 00.0 M	(92)	Critical Feature Insp (93)Date
				Min Lat Underclr L	99.9 M		Frac Crit Insp : N /
	On and Under Record Da			NBIS Bridge Length			Underwater Insp: N /
4-1		Route On	(116)	Navigation Min Vert C	lr M		Other Spec Insp: N /
	Inventory Route	121003602		9 20			Inspection Quarter 4
	Min Vert Clr	99.99 M	(88.	Proposed Improvem			Inspection Number
	Kilometerpoint	0026.714		Type of Work	311	(210)	Date of Inspection 12/15/1996
	Detour Length	199 km		Improvement Length	000149 M		02/18/2010
	Toll	3		Bridge Improv Cost	1000	(000)	Over 200 Items
, ,	Func Class	07		Rdwy Improv Cost	0		Princ Route Location
	Lanes on/under	0200		Total Proj Cost	1575		Wear Surface Thickness 0.0 mm
, ,	ADT	1515		Year of Cost Est	1999		District Maint Org
	Year of ADT	2007		Future ADT	2150		Original Proj #
, - ,	Total Horz Clearance	05.9 M	(115)	Year of Future ADT	2027		Station Princ Rte 0.000
	Defense Hwy	0		- 11.1			Bridge Rail Type
1	Parallel Str	N	(50)	Condition Rating			Culvert Bbl Height 0.0 M
	Direction of Traffic	2		Deck	6		Culvert Bbl Length 0.0 M
	Hwy System	0		Superstructure	5-6		Culvert Fill Height 0.0 M
, ,	Truck Traffic	00%		Substructure	7 6		Date of Load Rating / /
(110)	Natl Truck Network	No		Channel & Channel Pro			Tracs No
	01 P-t-		(62)	Culverts	N		Bridge Crew Region
/011	General Data	0.1		American Poblish			Total Deck Area (M^2) 0.0
	Maintenance Responsibility		1671	Appraisal Rating Structure Evaluation			Superstr Unit Cost 0.00
	Owner Design Load	01			6		Substr Unit Cost 0.00
	Bridge Median	0		Deck Geometry Underclrn Vert & Hors	2 N		Next Insp Due Date (QuartYr) 498
	Skew			Waterway Adequacy -			Agency Principal Route Number 360
	Str Flared	00 deg		Approach Rdwy Alignmen			
	Hist Significance	No 3		Traffic Safety Feature		(231)	Principal Route Letter Principal Route Milepost 0.000
	Navigation Control	0	(20)	maine Safety reacut	es 0000		Principal Route Milepost 0.000 Comments:
	Type of Service	15		Scour Data		(300)	Commercs.
	Structure Type Main	104	(113)	Scour Critical Bridges	s 8		
	Structure Type Approach	000		Foundation Type	0		
	No of Span Main	001		Foundation Embedment	0.0 M		
	No of Approach Spans	0000		Scour Countermeasures	0.0 H		
	Year Built	1916	(441)	prout conficetimensates			Sufficiency Rating = 044.2
, - ,	Year Reconstructed	1940		Load Rate and Post			Functionly Obsolete
	Deck Str Type	1	(41)	Str Open/Post/Close	Posted		ranceroury opporece
	Wear Surf/Protv Sys	000		Operating Rating	30.8 ton		
	Nav Pier/Abut Protection	000		Inventory Rating	22.7 ton		
1111	May Fiel/Abut Flocection			Bridge Posting	22.7 con		
				Posted Limit	7		
			1211	TOUCCU DIMEL			



BRIDGE PLAN



SECTION LOOKING TOWARD HANA



UPSTREAM ELEVATION

PIINAAU STREAM BRIDGE PHOTO LOG

PHOTO NO.	DESCRIPTION
1	APPROACH TO BRIDGE LOOKING TOWARD KAHULUI
2	ARRPOACH TO BRIDGE LOOKING TOWARD HANA
3	UPSTREAM HANA CRM WALL
4	UPSTREAM BRIDGE RAILING LOOKING TOWARD KAHULUI
5	DAMAGE TO END OF DOWNSTREAM KAHULUI CRM WALL
6	DOWNSTREAM BRIDGE RAILING LOOKING TOWARD KAHULUI
7	OPENING IN DOWNSTREAM HANA CRM WALL
8	BACK SIDE VIEW OF DOWNSTREAM END WITH UTILITIES
9	OVERALL VIEW OF AC PAVEMENT
10	UPSTREAM BRIDGE ELEVATION
11	DOWNSTREAM BRIDGE ELEVATION
12	OVERALL SOFFIT LOOKING DOWNSTREAM
13	UPSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI WITH EFFLORESCENSE AND MOSS. DELAMINATION IN GIRDER G4 NEAR HANA ABUTMENT AND VERTICAL CRACKS.
14	JOINT LEAKAGE IN SOFFIT LOOKING TOWARD KAHULUI WITH EFFLORESCENSE AND MOSS
15	DOWNSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI WITH EFFLORESCENSE AND MOSS. DELAMINATION IN GIRDER G6 DOWNSTREAM FACE NEAR KAHULUI ABUTMENT.
16	HONEYCOMBING IN CANTELEIVERED SOFFIT UPSTREAM END
17	UPSTREAM KAHULUI CRM WINGWALL
18	KAHULUI ABUTMENT
19	SOLID ROCK STREAM CHANNEL FRONTING KAHULUI ABUTMENT
20	DOWNSTREAM HANA CRM WINGWALL ABD UTILITY PIPE
21	HANA ABUTMENT
22	SOLID ROCK STREAM CHANNEL FRONTING HANA ABUTMENT
23	UPSTREAM VIEW OF STREAM CHANNEL
24	DOWNSTREAM VIEW OF STREAM CHANNEL

PIINAAU STREAM BRIDGE PHOTO LOG

PHOTO NO.	DESCRIPTION					
25	EROSION 2'x3' AT BASE OF KAHULUI CRM WALL					



PHOTO 1 APPROACH TO BRIDGE LOOKING TOWARD KAHULUI



PHOTO 2 ARRPOACH TO BRIDGE LOOKING TOWARD HANA



PHOTO 3 UPSTREAM HANA CRM WALL



PHOTO 4 UPSTREAM BRIDGE RAILING LOOKING TOWARD KAHULUI



PHOTO 5 DAMAGE TO END OF DOWNSTREAM KAHULUI CRM WALL



PHOTO 6 DOWNSTREAM BRIDGE RAILING LOOKING TOWARD KAHULUI



PHOTO 7 OPENING IN DOWNSTREAM HANA CRM WALL



PHOTO 8 BACK SIDE VIEW OF DOWNSTREAM END WITH UTILITIES



PHOTO 9 OVERALL VIEW OF AC PAVEMENT



PHOTO 10 UPSTREAM BRIDGE ELEVATION



PHOTO 11 DOWNSTREAM BRIDGE ELEVATION



PHOTO 12 OVERALL SOFFIT LOOKING DOWNSTREAM



PHOTO 13

UPSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI WITH EFFLORESCENSE AND MOSS. DELAMINATION IN GIRDER G4 NEAR HANA ABUTMENT AND VERTICAL CRACKS.



PHOTO 14 JOINT LEAKAGE IN SOFFIT LOOKING TOWARD KAHULUI WITH EFFLORESCENSE AND MOSS



PHOTO 15 DOWNSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI WITH EFFLORESCENSE AND MOSS. DELAMINATION IN GIRDER G6 DOWNSTREAM FACE NEAR KAHULUI ABUTMENT.



PHOTO 16 HONEYCOMBING IN CANTELEIVERED SOFFIT UPSTREAM END



PHOTO 17 UPSTREAM KAHULUI CRM WINGWALL



PHOTO 18 KAHULUI ABUTMENT



PHOTO 19 SOLID ROCK STREAM CHANNEL FRONTING KAHULUI ABUTMENT



PHOTO 20 DOWNSTREAM HANA CRM WINGWALL ABD UTILITY PIPE



PHOTO 21 HANA ABUTMENT



PHOTO 22 SOLID ROCK STREAM CHANNEL FRONTING HANA ABUTMENT



PHOTO 23 UPSTREAM VIEW OF STREAM CHANNEL



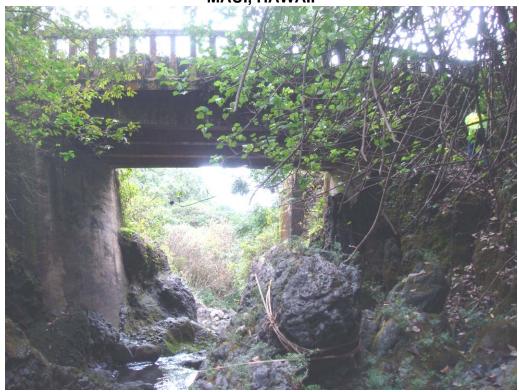
PHOTO 24 DOWNSTREAM VIEW OF STREAM CHANNEL



PHOTO 25 EROSION 2'x3' AT BASE OF KAHULUI CRM WALL

ROUTINE (PERIODIC) BRIDGE INSPECTION REPORT

PALAUHULU STREAM BRIDGE BRIDGE NO. 009003600501679 MAUI, HAWAII



For

State of Hawaii Department of Transportation Highways Division

Prepared by

Nagamine Okawa Engineers Inc. 1003 Bishop Street Suite 2025 Honolulu, Hawaii 96813 Telephone: (808) 536-2626

FEBRUARY 2010

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

NBI BRIDGE INSPECTION REPORT

	of Inspection je Number	2/18/10 0090036005016	Pridge Non		Dolaybuly Ctroom Dridge	
	ber of Spans	1	Bridge Nan	ie	Palauhulu Stream Bridge	
Loca		Maui	Route No.		360 Highway	Hana Hishway
	ure Intersected	Palauhulu Strea			Milepost	Hana Highway 16.77
	je Material:		Reinforced Concr	oto	Substructure	
Dilug	je materiai.	Superstructure _	Reilliorced Colici	ele	_ Substructure	Reinforced Concrete
36	TDAEEIC CAE	TY FEATURES	Condition Ratir			Remarks
30	TRAFFIC SAFE	TITEATURES	 -		licate if feature meets currently acc No 1 - Yes N - Not Applica	
1.	Bridge Railings				Bridge railings and guardrails do	
2.	Transitions		0		bridge failings and guardrails do	not meet current standards.
3.	Approach Guar	drail	0			
4.	Approach Guar		0			
82						
58	DECK		<u> </u>	2		
1.	Wearing Surface		7			
2.	Decks - Structu	ral Condition	6			
3.	Curbs		N			
4.	Median		N			
5.	Sidewalks		N			
6.	Parapet		N			
7.	Railing		7			
8. 9.	Paint Drains		N	•	B	
10.		rdo	0	9.	Deck drains have been paved over	er.
11.	Lighting Standa Utilities	irus	N 6	4.4	Confess assessing as well to be a	
12.	Joint Leakage		6		Surface corrosion on utility hange	
13.	Expansion Join	te or Dovices	N	12.	Water stains on both Hana and K	anului abutments.
13.	Inspector's Con		6			
	mopeotor 3 con	altion realing				
59	SUPERSTRUC	TURE				
1.	Bearing Devices	S	N			
2.	Stringers		N			
3.	Girders, Beams		5	3.	Spalls and cracks in girder G1.	
4.	Floor Beams ar		N			
5.		eneral	N			
		ortals	N			
•		acing	N			
6.	Paint		N			
7.	Machinery (Mov		N			
8.	Rivets and/or B	oits	N			
9.	Welds - Cracks Rust		N			
10.			N			
11. 12.	Timber Decay	ing and/or Spalling	N	40	Can lhave EO 2	
13.	Concrete Crack		7	12.	See Item 59.3.	
14.	Deflection Unde		7			
15.	Alignment of Me		7			
16.	Vibrations Unde		7			
17.	Flat Slab	LJUU	N			
	Inspector's Con-	dition Rating	5			

Date of Inspection Bridge Number

Bridge name

Palauhulu Stream Bridge

2/18/10 009003600501679

		Condition Rating]	Remarks
60	SUBSTRUCTURE	- Ti		
1.	Abutment -Wings -Backwall/Breastwall -Footing -Piles -Erosion -Settlement			Minor hairline cracks in both Hana and Kahului abutments. Abutment bears directly on bedrock.
3. 4. 5. 6. 7. 8.	Piers or Bents -Caps -Column/Wall -Footing -Piles -Scour -Settlement Pile bents Concrete Cracking and/or Spalling Steel Corrosion Timber Decay, etc. Debris on Seats Paint	N N N N N N N N N N N N N N N N N N N	4.	See Item 60.1.
o. 9.	Collision Damage	7		
Э.	Inspector's Condition Rating	6		
61	CHANNEL & CHANNEL PROTECTION	ON		
1.	Channel Scour	7		
2.	Embankment Erosion	7		
3.	Drift	7		
4.	Vegetation	6	4.	Vegetation along embankments upstream and downstream of
5.	Channel Change	7		bridge.
6.	Fender System	N		
7.	Spur Dikes & Jetties	N		
8. 9.	Rip Rap Adequacy of Opening	N 7		
٥.	Inspector's Condition Rating	7		
	mopositor o containent realing			
00.1	CHI VEDT & DETAINING WALL O			
62	CULVERT & RETAINING WALLS			
1.	Barrel -Concrete -Steel	N N		
2.	-Timber Headwall	N N		
3.	Cutoff Wall	N		
4.	Adequacy	N		
5.	Debris	N		
	Inspector's Condition Rating	N		

	of Inspection	2/18/10	Bridge Name	Palauhulu Stream Bridge				
Bridg	ge Number	0090036005016	579					
001	CDITICAL FE	ATURE INCRECT	ONDATE	Describe data if an alicable				
93 CRITICAL FEATURE INSPECTION DATE			Provide date if applicable. If not applicable, indicate v	with N				
1.	Fracture Critic	al Details	N	in not applicable, indicate v	VILITIN.			
2.	Underwater In		N	[If applicable, submit Unde	rwater Ins	pection Report]		
3.	Other Special	Inspection	N					
					Rem	narks		
ОТН	ER FEATURES			Y - Yes N - No				
		_	_					
1.	Bridge Posted		N Y	Posted Limit = 10 Ton w				
2. 3.	10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10-10 10	osting Legible/Visib e (Roughness) Rat		Load posting sign is located no				
Э.	Muling Surface	e (Noughness) Nat	g	and is used as a notice for all Hana bridges. 3 - Smooth, 2 - Average, 1 - Poor				
				J -,				
DED	ALDO AND HAD	20) (EMENTO						
KEP.	AIRS AND IMPE	ROVEMENTS						
1.	List all work do	one to this bridge s	ince the last inspection	on including cost.				
2.	Indicate propo	sed and/or recomr	mended improvement	s including estimated cost.				
~.				ului ends of bridge(Maintenance	Item).			
			n deck soffit (Est. Cos	a managar — Angeles and Liberto Leaders and Liberton — Headers and Liberton Liberton Liberton Liberton Action				
				end treatments to meet current a	acceptable			
		is (Cost Est. = \$50,0						
	d) Upgrade raili	ings to meet curren	t acceptable standards	(Cost Est. = \$118,000).				
3.	List any existin	ig temporary condi	tions					
		.9 .0						
				7 22 2				
REM	ARKS AND RE	COMMENDATION	<u>S</u>					
1.	Does this bride	ne require inspectio	on by Bridge Design S	Section? Yes	<u>=</u>	No -		
				who are not structural engine	ers.]			
				· ·				
_								
2.	Remarks: De	escribe defects. U	se sketches, diagram	s and/or photographs where p	ossible.			
				Erik-Jon Cabbab /		Certified		
		Inspected by:	Name (printed):	Cody Aihara	Title:	Bridge Inspector		
			0.	L1 -0001	11 1	1		
			Signature:	100 520 2000	Cody the			
			Phone Number:	808.536.2626	0			
		Supervised by:	Name (printed):	Dwight M. Okawa, S.E.	Title:	V.P./Team Leader		
			Signature:	Levist m. Thewa				
			Phone Number:	808 536.2626				

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION PONTIS BRIDGE INSPECTION REPORT

r10/8/07

Date of Inspection	2/18/10	Bridge Name	Palau	hulu Stream Bridge	
Bridge Number	009003600501679	Route No.	360		
Number of Spans	1	Highway	Hana	Highway	
Location: Island	Maui	Feature Intersec	ted	Palauhulu Stream	

ELEM	ELEMENT	ENV.	TOTAL	UNIT	ST	ST	ST	ST	ST
NO.	DESCRIPTION	(Note 1)	QUANT.		1	2	3	4	5
13	DECK OR SLAB (Note 2)	2	620	SF.	620				
110	GIRDERS	2	124	LFT.	106	18			
215	ABUTMENTS	2	50	LFT.	50				
*	COLUMNS			EA.		-	***		
*	PIER WALL			LFT.			12 163		
*	PIER CAPS			LFT.					
en marine mes				i de la composition della comp	obijski pri i prije na			i i	
301	JOINTS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.)	2	40	LFT.		40			
331	BRIDGE RAILING	2	69	LFT.	69				
*	APPROACH SLABS			EA.					
*	BEARINGS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.)			EA.					
<u>(1.08.30.30.30.30.</u> ★	CULVERT	201000010000000000000000000000000000000		LFT.					
*	SMART FLAG: STEEL FATIGUE			EA.				i	1
*	SMART FLAG: PACK RUST			EA.			10:117:111111		
*	SMART FLAG: DECK CRACKING (ON TOP OF DECK ONLY)			EA.	100307				
359	SMART FLAG: SOFFIT OF CONC. DECK OR SLAB (THIS SMART FLAG IS MANDATORY IF DECK OR SLAB HAS AN A.C. OVERLAY).	2	1	EA.	1				\$153\$453\$3\$35353\$353
*	SMART FLAG: SETTLEMENT			EA.					
*	SMART FLAG: SCOUR			EA.					
*	SMART FLAG: TRAFFIC IMPACT (TRAFFIC IMPACT TO SUPERSTRUCTURE ONLY)			EA.					
*	SMART FLAG: SECTION LOSS			EA.					
OTHERS:			A		***				

COMMENTS:			
	20 20 20 20 20 20 20 20 20 20 20 20 20 2	A STATE OF THE STA	

Note 1: For each element, the inspector shall code the type of environment from the following key:

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these rev	vised Condition States for rating Concrete Decks/Slabs
CS1	No patched areas, no potholes, no spalls and delams, etc.
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Inspector's Name (printed): Inspector's Name (signature): Inspector's phone number: Erik-Jon Cabbab / Cody Aihara

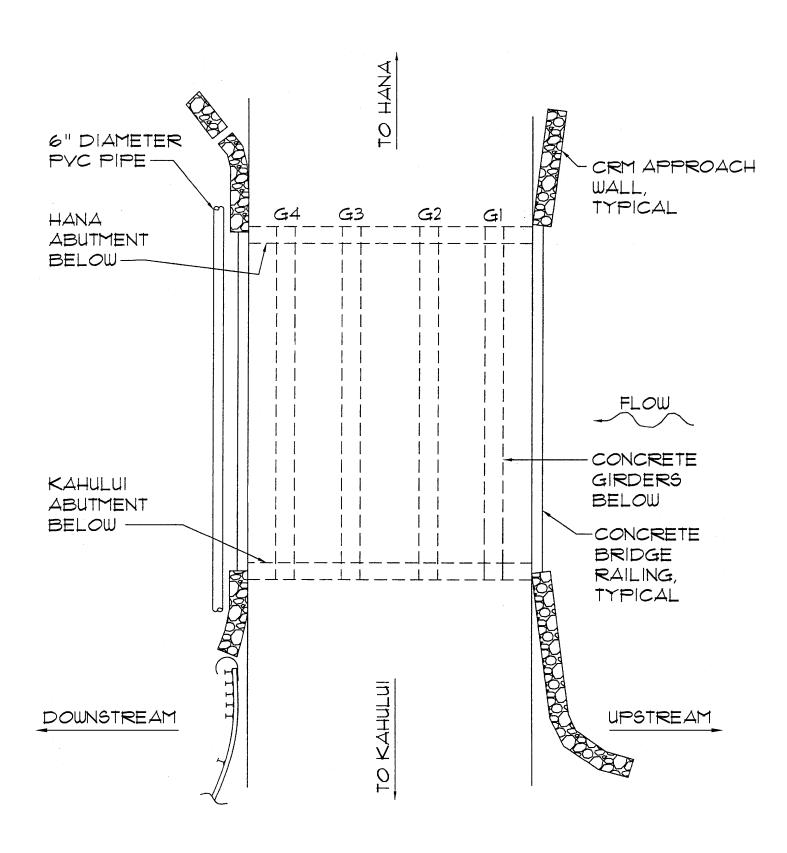
Title: Certified Bridge Inspector

Supervisor's Name (printed):
Supervisor's Name (signature):

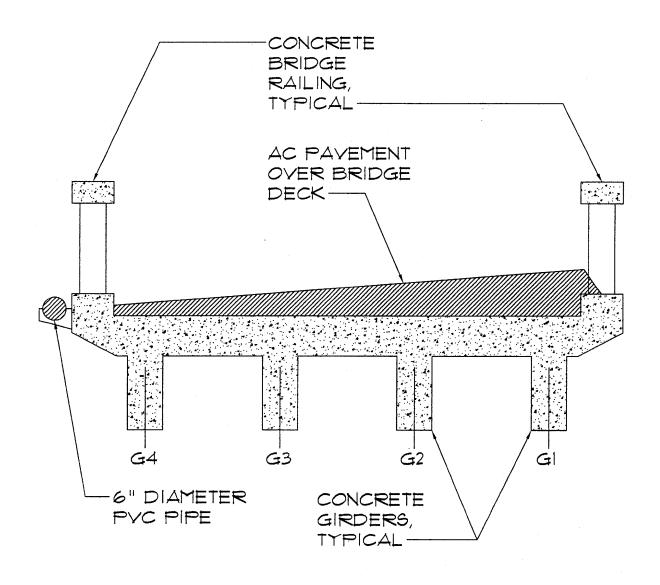
Dwight M. Okawa, S.E.

Title: V.P. / Team Leader

	HAWAII DEPARTMENT OF	TRANSPORTATION		STRUCTURAL INVENTORY	AND APPRAIS	SAL	DATE PRINTED: 01/22/2010
	Structure Number: 0090036						Str Name:
	Geographic and Ro			Dimensional Data		Princ	Rte: 360 Milepost: 0.000
	State .	Hawaii		Approach Rdwy Width	7.6 M		a a
25.00	District	20		Navigation Vert Clr	000.0 M		Proposed Maintenance
20.02	County	Maui		Navigation Horz clr	0000.0 M		Repair Priority
1000	Place	99999		Max Span Length	0009.1 M		Proposed Maint Type
, ,		PALAUHULU STRM		Str Length	00009.4 M		Maintn Date Completed / /
	Facility on	HANA HWY	(50)	Curb/Sidewalk Width Le		(216)	Actual Maint Cost 0
		KEANAE HMSTD RD	(54)		ght 00.0 M		
		20° 51' 36.00"		Brg Rdwy Width, curb-cur			Townseller Dake
	Longitude 1 Border Bridge	L56° 08' 54.00"		Deck Width out-out Min Vert Clr over	006.6 М 99.99 М	(00)	Inspection Data 0210
	Border Brdige Str No						Inspection Date (MoYr) 9108
	Temportary Str			Min Vert Clr under Min Lat Underclr R	N 00.00 M N 00.0 M		Inspection Frequency 24 Mo
(102)	Temportary Str			Min Lat Underclr L	99.9 M	(94)	Critical Feature Insp (93)Date Frac Crit Insp: N /
	On and Under Record I)a ta		NBIS Bridge Length	99.9 M Y		Underwater Insp: N /
	on and onder Record I	Route On		Navigation Min Vert Cla			Other Spec Insp: N /
(5)	Inventory Route	121003602	(110)	Navigation min vert cir	r, r,	(2071	Inspection Quarter 4
	Min Vert Clr	99.99 M		Proposed Improvemen	nta		Inspection Quarter
100	Kilometerpoint	0026.988	(75)	Type of Work	311		Date of Inspection -12/15/1996
	Detour Length	199 km		Improvement Length	000158 M	(210)	02/18/2010
	Toll	3		Bridge Improv Cost	1061		Over 200 Items
	Func Class	07		Rdwy Improv Cost	0	(200)	Princ Route Location
	Lanes on/under	0200		Total Proj Cost	1672		Wear Surface Thickness 0.0 mm
	ADT	1515		Year of Cost Est	1999		District Maint Org
	Year of ADT	2007	40.00	Future ADT	2150		Original Proj #
(47)	Total Horz Clearance	06.2 M		Year of Future ADT	2027		Station Princ Rte 0.000
(100)	Defense Hwy	0				(206)	Bridge Rail Type
(101)	Parallel Str	N		Condition Rating		(217)	Culvert Bbl Height 0.0 M
(102)	Direction of Traffic	2	(58)	Deck	6	(218)	Culvert Bbl Length 0.0 M
(104)	Hwy System	0	(59)	Superstructure	56	(219)	Culvert Fill Height 0.0 M
(109)	Truck Traffic	00%		Substructure	6	(222)	Date of Load Rating / /
(110)	Natl Truck Network	No		Channel & Channel Prote	ect 7-6		Tracs No
	2 2 2 2		(62)	Culverts	N		Bridge Crew Region
	General Data			2752 F N 1950 & F			Total Deck Area (M^2) 0.0
	Maintenance Responsibility			Appraisal Rating			Superstr Unit Cost 0.00
	Owner	01		Structure Evaluation	5		Substr Unit Cost 0.00
	Design Load	0		Deck Geometry	2		Next Insp Due Date (QuartYr) 498
	Bridge Median	0 1		Underclrn Vert & Horz	N		Agency
	Skew	00 deg		Waterway Adequacy	6		Principal Route Number 360
	Str Flared Hist Significance	No		Approach Rdwy Alignment Traffic Safety Features			Principal Route Letter
	Navigation Control	3	(20)	Trailic safety reatures	0000		Principal Route Milepost 0.000 Comments:
	Type of Service	15		Scour Data		(2001	Conditerres:
	Structure Type Main	104	/1131	Scour Critical Bridges	8		
	Structure Type Approach	000		Foundation Type	O		
	No of Span Main	001		Foundation Embedment	0.0 M		
	No of Approach Spans	0000		Scour Countermeasures	0.0 H		
	Year Built	1916	1221	posar yourrestmeasures			Sufficiency Rating = 048.3
	Year Reconstructed	0000		Load Rate and Post			Functionly Obsolete
	Deck Str Type	1	(41)	Str Open/Post/Close	Posted		
	Wear Surf/Protv Sys	600		Operating Rating	29.0 ton		
	Nav Pier/Abut Protection	8		Inventory Rating	20.9 ton		
	Assertation (1977)			Bridge Posting	4		
				Posted Limit			



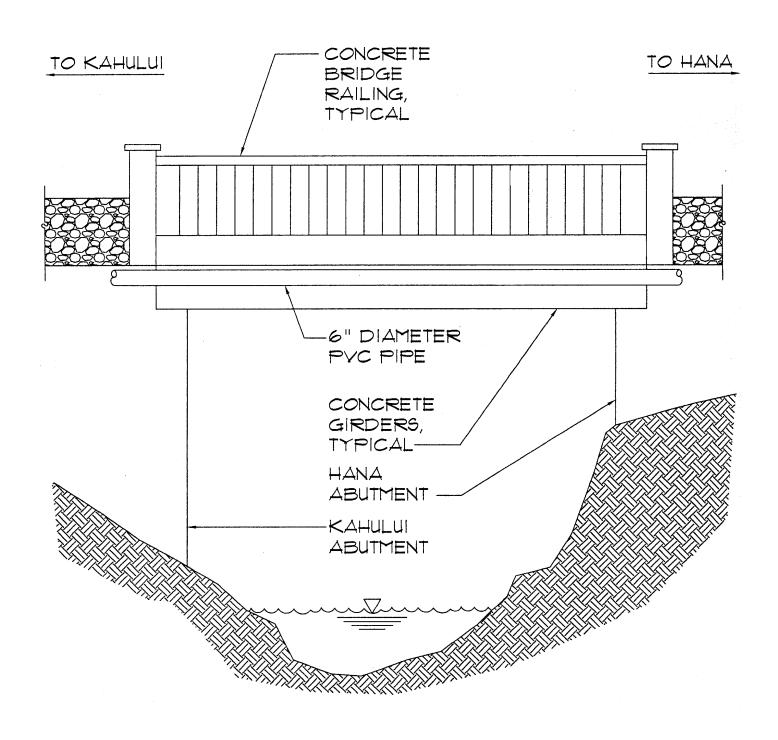
BRIDGE PLAN



DOWNSTREAM

UPSTREAM

SECTION LOOKING TOWARD HANA



UPSTREAM ELEVATION

PALAUHULU STREAM BRIDGE BRIDGE NO. 009003600501679

PALAUHULU STREAM BRIDGE PHOTO LOG Bridge No. 009003600501679

PHOTO NO.	DESCRIPTION
1	KAHULUI APPROACH TO BRIDGE LOOKING TOWARD HANA
2	HANA APPROACH TO BRIDGE LOOKING TOWARD KAHULUI
3	UPSTREAM / KAHULUI CRM WALL
4	DOWNSTREAM / KAHULUI GUARDRAIL END TREATMENT AND CRM WALL. NOTE: GUARDRAIL END TREATMENT HT = 36"
5	UPSTREAM / HANA CRM WALL
6	DOWNSTREAM / HANA CRM WALL
7	UPSTREAM BRIDGE RAILING. NOTE: RAILING HT = 24"
8	BACKSIDE UPSTREAM / KAHULUI BRIDGE RAILING ELEVATION
9	BACKSIDE UPSTREAM / HANA BRIDGE RAILING
10	DOWNSTREAM BRIDGE RAILING. NOTE: RAILING HT = 33"
11	OVERALL A.C. PAVEMENT LOOKING TOWARD HANA
12	UPSTREAM BRIDGE ELEVATION
13	DOWNSTREAM BRIDGE ELEVATION, BACKSIDE OF DOWNSTREAM BRIDGE RAILING AND CRM WALLS, AND UTILITY LINES ATTACHED TO SIDE OF BRIDGE
14	SUPPORTS FOR PVC PIPELINE ARE CORRODED ON THE DOWNSTREAM SIDE OF BRIDGE (SEE PHOTO 13)
15	OVERALL DECK SOFFIT VIEW LOOKING DOWNSTREAM
16	DELAMINATION IN DECK SOFFIT BETWEEN GIRDERS G3 AND G4 NEAR MID- SPAN
17	HAIRLINE LONGITUDINAL CRACK ALONG BOTTOM OF GIRDER G1
18	SMALL SPALL WITH EXPOSED REBAR IN BOTTOM OF GIRDER G1 NEAR HANA ABUTMENT
19	KAHULUI ABUTMENT
20	HANA ABUTMENT
21	UPSTREAM VIEW OF STREAM CHANNEL
22	DOWNSTREAM VIEW OF STREAM CHANNEL



PHOTO 1 KAHULUI APPROACHTO BRIDGE LOOKING TOWARD HANA



PHOTO 2 HANA APPROACH TO BRIDGE LOOKING TOWARD KAHULUI



PHOTO 3 UPSTREAM / KAHULUI CRM WALL



PHOTO 4 DOWNSTREAM / KAHULUI GUARDRAIL END TREATMENT AND CRM WALL.
NOTE: GUARDRAIL END TREATMENT HT = 36"



PHOTO 5 UPSTREAM / HANA CRM WALL



PHOTO 6 DOWNSTREAM / HANA CRM WALL



PHOTO 7 UPSTREAM BRIDGE RAILING. NOTE: RAILING HT = 24"



PHOTO 8 BACKSIDE UPSTREAM / KAHULUI BRIDGE RAILING ELEVATION



PHOTO 9 BACKSIDE UPSTREAM / HANA BRIDGE RAILING



PHOTO 10 DOWNSTREAM BRIDGE RAILING. NOTE: RAILING HT = 33"



PHOTO 11 OVERALL A.C. PAVEMENT LOOKING TOWARD HANA



PHOTO 12 UPSTREAM BRIDGE ELEVATION



PHOTO 13 DOWNSTREAM BRIDGE ELEVATION, BACKSIDE OF DOWNSTREAM BRIDGE RAILING AND CRM WALLS, AND UTILITY LINES ATTACHED TO SIDE OF BRIDGE



PHOTO 14 SUPPORTS FOR PVC PIPELINE ARE CORRODED ON THE DOWNSTREAM SIDE OF BRIDGE (SEE PHOTO 13)



PHOTO 15 OVERALL DECK SOFFIT VIEW LOOKING DOWNSTREAM



PHOTO 16 DELAMINATION IN DECK SOFFIT BETWEEN GIRDERS G3 AND G4 NEAR MID-SPAN



PHOTO 17 HAIRLINE LONGITUDINAL CRACK ALONG BOTTOM OF GIRDER G1

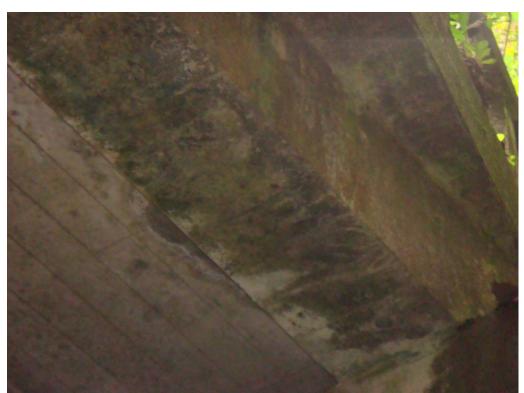


PHOTO 18 SMALL SPALL WITH EXPOSED REBAR IN BOTTOM OF GIRDER G1 NEAR HANA ABUTMENT



PHOTO 19 KAHULUI ABUTMENT



PHOTO 20 HANA ABUTMENT



PHOTO 21 UPSTREAM VIEW OF STREAM CHANNEL



PHOTO 22 DOWNSTREAM VIEW OF STREAM CHANNEL

ROUTINE (PERIODIC) BRIDGE INSPECTION REPORT

WAIKANI STREAM BRIDGE

BRIDGE NO. 009003600501942 MAUI, HAWAII



For

State of Hawaii Department of Transportation Highways Division

Prepared by

Nagamine Okawa Engineers Inc. 1003 Bishop Street Suite 2025 Honolulu, Hawaii 96813 Telephone: (808) 536-2626

FEBRUARY 2010

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

NBI BRIDGE INSPECTION REPORT

Bridg Num Loca Feat	of Inspection ge Number ber of Spans tion: Island ure Intersected ge Material:	2/18/10 0090036005019 1 Maui Waikani Stream Superstructure	Route No.	360	ni Stream Bridge Highway Milepost Substructure	Hana Highway 19.39 Reinforced Concrete
36	TDAEEIC SAE	TY FEATURES	Condition Rating			Remarks
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Bridge Railings Transitions Approach Guar Approach Guar DECK Wearing Surfact Decks - Structu Curbs Median Sidewalks Parapet Railing Paint Drains Lighting Standa Utilities Joint Leakage	drail drail Ends ce ral Condition	0 0 0 0 0 0	1. Pothole 2. Patche 3. Collisio parapel with CF 7. Delamii 3. Paint is	 Collision damage at u RM parapet built in front nation and spalls in pick faded and weathered o 	a A.C. overlay. offit spans. d rebar at the upstream / Hana upstream / Kahului parapet of damage. sets and railing cap.
13.	Expansion Join Inspector's Con	dition Rating	N 6		ne along the upstream for a supports.	face of the bridge has corroded
59 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17.	-Po -Br Paint Machinery (Mov Rivets and/or Br Welds - Cracks Rust Timber Decay	s, or Arches and Diaphragms eneral ortals racing reable Spans) olts ing and/or Spalling ge er Load embers er Load	6	/ Hana	nation in downstream fa column. Dark water stain s observed on several fla	

Waikani Stream Bridge Date of Inspection 2/18/10 Bridge name 009003600501942 Bridge Number Condition Rating Remarks SUBSTRUCTURE 60 1. Abutment -Wings 6 -Backwall/Breastwall 6/6 1b. Hairline cracks and water stains on abutments. -Footing 7 1c. Abutments bear directly on bedrock. -Piles Ν -Erosion 7 -Settlement 7 Piers or Bents -Caps N -Column/Wall 6 2b. Small spalls with exposed rebar in first upstream / Hana column. -Footing N Delaminated patches on columns. -Piles Ν -Scour Ν -Settlement N 3. Pile bents N Concrete Cracking and/or Spalling 7 4. 5. Steel Corrosion N Timber Decay, etc. N 6. 7. Debris on Seats N Paint N 8. 9. Collision Damage 8 Inspector's Condition Rating 6 CHANNEL & CHANNEL PROTECTION 61 1. Channel Scour **Embankment Erosion** 6 2. 3. Drift 6 Vegetation 6 4. Heavy vegetation growth along channel embankments. 4. 5. Channel Change Fender System 6. Ν 7. Spur Dikes & Jetties N 8. Rip Rap N Adequacy of Opening Inspector's Condition Rating **CULVERT & RETAINING WALLS** 62 -Concrete N 1. Barrel

N

N

N

N

N

N

N

-Steel

Headwall

Cutoff Wall

Adequacy

Debris

2.

3.

4.

5.

-Timber

Inspector's Condition Rating

Date	of Inspection	2/18/10	Bridge Name	Waikani Stream Bridge		
Bridg	ge Number	0090036005019	42			Vivinacionación o a los estats ou
					deta está	
93	CRITICAL FEA	TURE INSPECTI	ON DATE	Provide date if applicable.		
				If not applicable, indicate wit	h N.	
1.	Fracture Critica		N			National Action (Action Control Action Control Cont
2.	Underwater Ins	40	N	[If applicable, submit Underv	vater Ins	spection Report]
3.	Other Special I	nspection	N			
					Ren	narks
ОТН	ER FEATURES		_	Y - Yes N - No		
15		28	200		1 0 10 10	
1.	Bridge Posted?		Y	Posted Limit = 10 Ton wei	-	
2.		sting Legible/Visit		Load posting sign is located near		
3.	Riding Surface	(Roughness) Rat	ing 2	and is used as a notice for all H	0.70	es.
				3 - Smooth, 2 - Average, 1 -	Poor	
555	1100 1110 ILION	OUELIEUTO	32-98-00-00-00-00-00-00-00-00-00-00-00-00-00			
REP.	AIRS AND IMPR	OVEMENTS				
2				3 1 6		
1.	List all work do	ne to this bridge s	ince the last inspection	n including cost.		
_	to divide a second		d.d:	In all officers and the stand and a		
2.				including estimated cost.		
				nd treatments to meet current ac	ceptable	
		s (Cost Est. = \$50,0				
			t acceptable standards			
			ream / Hana parapet (Co			
	-			ch, and columns (Cost Est. = \$50,	000).	
			pipe supports (Mainter	ance Item).		
	f) Repair pothole	es in A.C. overlay (Cost Est. = \$50,000).			
_						
3.	List any existing	g temporary condi	itions.			
DE14	ADICO AND DEC	00 40 4E 10 4 E 10 1				
KEM	ARKS AND REC	COMMENDATION	8			
	D #1:- 1-:1-			- His - O		Ma
1.			on by Bridge Design S		- 1	_No
	[I nis snould on	ily be addressed b	by in-nouse inspectors	who are not structural engineer	S.]	
2	Damarka, Da				حاطنم	
2.	Remarks: De	escribe defects. U	ise sketches, diagrams	and/or photographs where pos	isible.	
				Erik-Jon Cabbab /		Certified
		Inches de de les se	Name (mainted).		Tille.	
		Inspected by:	Name (printed):	Cody Aihara	_ Title:	Bridge Inspectors
			Cimatura	ER 1 /000.		11 11
			Signature:	000 500 0000		ody un-
			Phone Number: _	808.536.2626		
		Communication	Nama (mrintari).	Dwight M. Olsawa C.F.	T:41-	VD (Tooms I and a
		Supervised by:	Name (printed):	Dwight M. Okawa, S.E.	Title:	V.P./Team Leader
			C:	Devisht M. phawa		
			Signature:			
			Phone Number:	808.5/36.2626		

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION PONTIS BRIDGE INSPECTION REPORT

r10/8/07

Date of Inspection	2/18/10	Bridge Name	Waikani Stream Bridge	
Bridge Number 009003600501942		Route No.	360	
Number of Spans	1	Highway	Hana Highway	
Location: Island	Maui	Feature Intersec	cted Waikani Stream	

ELEM NO.	ELEMENT DESCRIPTION	ENV. (Note 1)	TOTAL QUANT.	UNIT	ST 1	ST 2	ST 3	ST 4	ST 5
NO.		(Note 1)	QUANT.	-			-	+ 4	5
013	DECK OR SLAB (Note 2): UNPROTECTED DECK W/ A.C. OVERLAY	2	1836	SF.		1836			
155	FLOOR BEAM: REINF CONC	2	180	LFT.	180				
215	ABUTMENTS: REINF CONC	2	58	LFT.	58				
205	COLUMNS; REINF CONC	2	18	EA.	16	2			
*	PIER WALL			LFT.	2				
*	PIER CAPS			LFT.					
144	ARCH: REINF CONC	2	152	LFT.	149	3			
	IONITA (NODESTOD NEEDO TO NOUT ELEMANO A			T T					
301	JOINTS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.): POURABLE JOINT SEAL	2	34	LFT.		34			
331	BRIDGE RAILING: REINF CONC	2	221	LFT.	171	50			
*	APPROACH SLABS		2	EA.					
*	BEARINGS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.)			EA.					
*	CULVERT			LFT.					
20000000000000 *	SMART FLAG: STEEL FATIGUE	(24080808080000		I EA.	99000 9000900		T	1	T*******
*	SMART FLAG: STEEL FATIGUE			EA.					
				EA.					
*	SMART FLAG: DECK CRACKING (ON TOP OF DECK ONLY)			EA.	5534 PSW(4190)	150			
359	SMART FLAG: SOFFIT OF CONC. DECK OR SLAB (THIS SMART FLAG IS MANDATORY IF DECK OR SLAB HAS AN A.C. OVERLAY).	2	1	EA.	1				
*	SMART FLAG; SETTLEMENT			EA.					
*	SMART FLAG: SCOUR			EA.					
*	SMART FLAG: TRAFFIC IMPACT (TRAFFIC IMPACT TO SUPERSTRUCTURE ONLY)			EA.					
*	SMART FLAG: SECTION LOSS			EA.				101010101010100	
		AND THE RESIDENCE OF THE PARTY				Lancas and the second		1	1-1-1-1-1-1-1-1-1-1

COMMENTS:						
			10	312.	52(5	

Note 1: For each element, the inspector shall code the type of environment from the following key:

Env 1: Benign & Low Env: Little or no env. conditions affecting deterioration. Past bridge inspections show that env. has caused little or no deterioration.

Env 2: Moderate: Moderate level of environmental influence or deterioration. Past bridge inspections show that environment has caused some deterioration.

Env 3: Severe: Severe level of environmental influence or deterioration. Past bridge inspections show that environment has caused significant.

Note 2: For DECKS ONLY: All quantity in one ST only. Deck/slab is rated from top of deck/slab only. Use soffit smart flag (elem 359) to rate soffit.

CS1	No patched areas, no potholes, no spalls and delams, etc.
CS2	Distressed areas are less than 2% of the total deck area.
CS3	Distressed areas are more than 2% but 10% or less of the total deck area.
CS4	Distressed areas are more than 10% but 25% or less of the total deck area.
CS5	Distressed areas are 25% or more of the total deck area.

Inspector's Name (printed): Inspector's Name (signature):

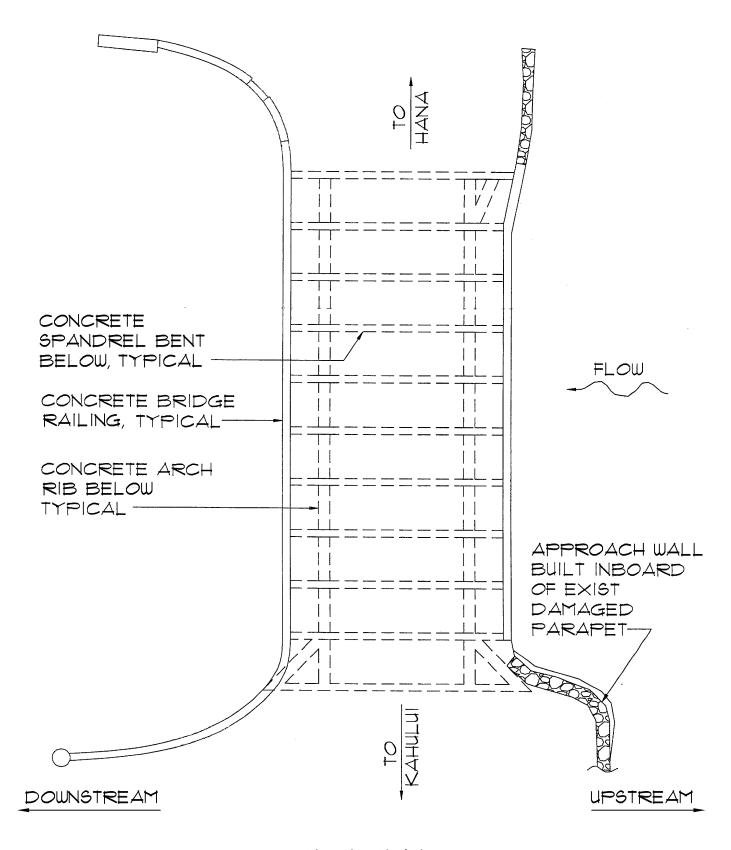
Title: Certified Bridge Inspectors

Inspector's phone number:

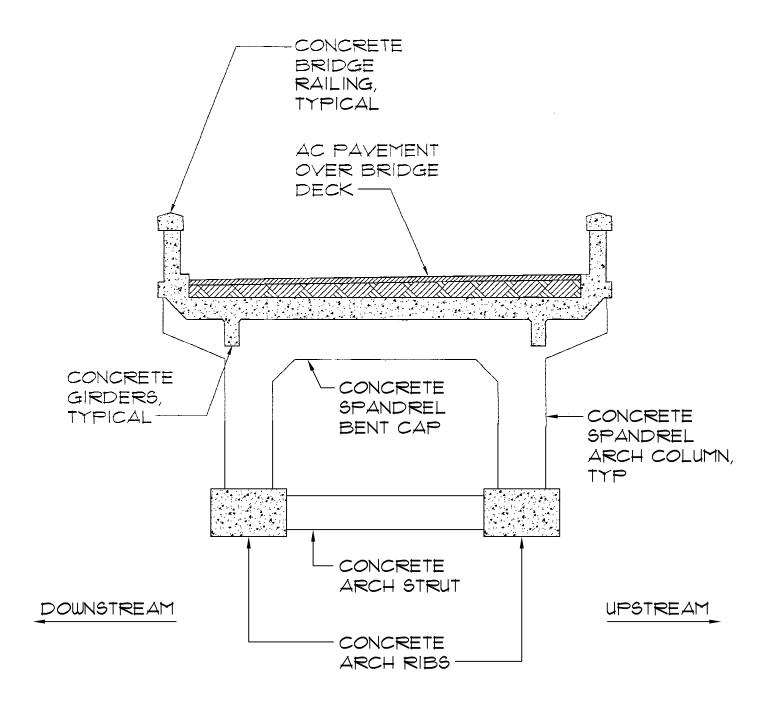
Dwight M. Okawa, Ş-E Title: V.P. / Team Leader

Supervisor's Name (printed): Supervisor's Name (signature):

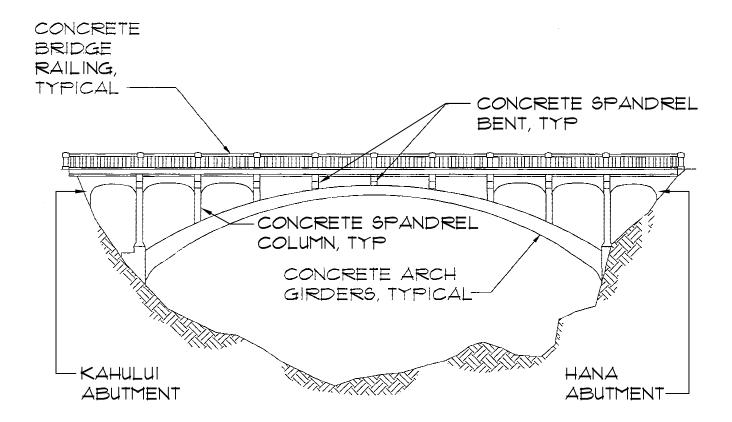
	HAWAII DEPARTMENT OF TR	ANSPORTATION		STRUCTURAL INVENTORY	AND .	APPRAIS	AL	DATE PRINTED: 01/2	22/2010
	Structure Number: 009003600	501942					(209)	Str Name:	
	Geographic and Route	Data		Dimensional Data			Princ	Rte: 360 Milepost	: 0.000
	State	Hawaii		Approach Rdwy Width		8.2 M			
	District	20		Navigation Vert Clr		0.0 M		Proposed Maintenand	e
100	County	Maui		Navigation Horz clr		0.0 M		Repair Priority	
	Place	11350		Max Span Length		5.3 M		Proposed Maint Type	
		WAIKANI STRM		Str Length		2.9 M		[[] [] [] [] [] [] [] [] [] [] [] [] []	/ /
	Facility on	HANA HWY	(50)	Curb/Sidewalk Width			(216)	Actual Maint Cost	0
9200	Location 0.33MI E/WAIL		(54)		Right 0				
		0 50' 06.00"		Brg Rdwy Width, curb-c				Towns at the Date	Service annual
	Longitude 156 Border Bridge	° 08' 30.00"	20 70	Deck Width out-out Min Vert Clr over		6.1 M .99 M	(00)	Inspection Data	0210
	Border Brdige Str No			Min Vert Clr under		.99 M		Inspection Date (MoYr) Inspection Frequency	-0108 24 Mo
	Temportary Str			Min Lat Underclr R		0.0 M		Critical Feature Insp	(93) Date
(103)	remportary ser			Min Lat Underclr L		9.9 M	(34)	Frac Crit Insp : N	(33) Date
	On and Under Record Data	a		NBIS Bridge Length	٥.	y Y		Underwater Insp: N	1
	on and under necord back	Route On		Navigation Min Vert C	rlr	M		Other Spec Insp: N	,
(5)	Inventory Route	121003602	(110)	navigation min vere c			(207)	Inspection Quarter	4
	Min Vert Clr	99.99 M		Proposed Improvem	ents			Inspection Number	•
	Kilometerpoint	0031.204	(75)	Type of Work		311			/15/1996
	Detour Length	199 km		Improvement Length	0003	399 M			118/2010
(20)	Toll	3		Bridge Improv Cost		2774		Over 200 Items	12/10
(26)	Func Class	07		Rdwy Improv Cost		0	(200)	Princ Route Location	
(28)	Lanes on/under	0100	(96)	Total Proj Cost		4732	(201)	Wear Surface Thickness	0.0 mm
(29)	ADT	1515	(97)	Year of Cost Est		1999	(203)	District Maint Org	
	Year of ADT	2007		Future ADT		2150	(204)	Original Proj #	
	Total Horz Clearance	05.2 M	(115)	Year of Future ADT		2027		Station Princ Rte	0.000
	Defense Hwy	0						Bridge Rail Type	
	Parallel Str	N		Condition Rating		2		Culvert Bbl Height	0.0 M
	Direction of Traffic	3	48	Deck		6		Culvert Bbl Length	0.0 M
	Hwy System	0		Superstructure		6		Culvert Fill Height	0.0 M
	Truck Traffic	00% N=		Substructure	44	6.		iegistoreora (i.c prigrijato a ocezitatori) — iegistici (i.e. eta s≇)	/ /
(110)	Natl Truck Network	No		Channel & Channel Pro Culverts	tect	7 N	(S) (S)	Tracs No	
	General Data		(02)	Curverts		N		Bridge Crew Region Total Deck Area (M^2)	0.0
(21)	Maintenance Responsibility	01		Appraisal Rating				Superstr Unit Cost	0.00
	Owner	01	(67)	Structure Evaluation		4		Substr Unit Cost	0.00
800000 h 600	Design Load	0		Deck Geometry		2		Next Insp Due Date (Quar	
	Bridge Median	0		Underclrn Vert & Hor	7.			Agency	CII, 450
	Skew	00 deg		Waterway Adequacy	_	5		Principal Route Number	360
	Str Flared	Yes		Approach Rdwy Alignme	nt	2		Principal Route Letter	
(37)	Hist Significance	5		Traffic Safety Featur		0000		Principal Route Milepost	0.000
	Navigation Control	0						Comments:	
(42)	Type of Service	15		Scour Data					
(43)	Structure Type Main	211	(113)	Scour Critical Bridge	S	8			
(44)	Structure Type Approach	000	(202)	Foundation Type					
(45)	No of Span Main	001		Foundation Embedment	C	0.0 M			
	No of Approach Spans	0000	(221)	Scour Countermeasures					
	Year Built	1926		and to half we was \$1.50 Ps				Sufficiency Rating = 046	.0
	Year Reconstructed	0000		Load Rate and Post	3250000			Functionly Obsolete	
	Deck Str Type	1		Str Open/Post/Close		sted			
	Wear Surf/Protv Sys	600		Operating Rating) ton			
(111)	Nav Pier/Abut Protection			Inventory Rating	17.2	2 ton			
				Bridge Posting		4			
			(411)	Posted Limit					



BRIDGE PLAN



TYPICAL BRIDGE SECTION



UPSTREAM ELEVATION

WAIKANI STREAM BRIDGE BRIDGE NO. 009003600501942

WAIKANI STREAM BRIDGE PHOTO LOG

Bridge No. 009003600501942

PHOTO NO.	DESCRIPTION*
1	KAHULUI APPROACH LOOKING TOWARD HANA
2	HANA APPROACH LOOKING TOWARD KAHULUI
3	UPSTREAM / KAHULUI CRM WALL
4	COLLISION DAMAGE WITH EXPOSED REBAR AT FORMER CONCRETE BRIDGE RAILING AT UPSTREAM / KAHULUI SIDE
5	DOWNSTREAM / KAHULUI GUARDRAIL TRANSITION AND CRM WALL. NOTE: GUARDRAIL TRANSITION HT = 34"
6	UPSTREAM / HANA CONCRETE PARAPET WITH COLLISION DAMAGE AND EXPOSED REBAR. NOTE: PARAPET HEIGHT VARIES DUE TO COLLISION DAMAGE
7	CLOSE UP OF COLLISION DAMAGE AT UPSTREAM / HANA CONCRETE PARAPET
8	DOWNSTREAM / HANA GUARDRAIL AND CRM WALL. NOTE: GUARDRAIL HT = 27"
9	UPSTREAM RAILING ELEVATION. NOTE: RAILING HT = 29"
10	PARTIAL VIEW OF DOWNSTREAM RAILING ELEVATION NEAR KAHULUI. NOTE: RAILING HT = 33"
11	PARTIAL VIEW OF DOWNSTREAM RAILING ELEVATION LOOKING TOWARD HANA
12	PARTIAL VIEW OF DOWNSTREAM RAILING ELEVATION NEAR HANA
13	CLOSE UP OF SPALL WITH EXPOSED REBAR IN DOWNSTREAM RAILING CAP
14	DELAMINATION ON SECOND PICKET AT DOWNSTREAM / KAHULUI RAILING
15	OVERALL A.C. PAVEMENT LOOKING TOWARD HANA
16	DECK DRAIN ALONG DOWNSTREAM RAILING
17	UPSTREAM ELEVATION AND UTILITY LINE ALONG BASE OF RAILING
18	DOWNSTREAM ELEVATION
19	DELAMINATION (1' (H) X 3' (W)) IN DOWNSTREAM FACE OF ARCH RIB UNDER DOWNSTREAM / HANA SPANDREL COLUMN
20	OVERALL SOFFIT VIEW LOOKING TOWARD KAHULUI
21	SOFFIT VIEW NEAR KAHULUI END OF BRIDGE
22	SOFFIT VIEW OF CENTER OF BRIDGE

WAIKANI STREAM BRIDGE PHOTO LOG

Bridge No. 009003600501942

PHOTO NO.	DESCRIPTION*
23	SOFFIT VIEW NEAR HANA END OF BRIDGE
24	PATCHES IN SOFFIT NEAR HANA END
25	PATCHES IN SOFFIT BETWEEN SPANDREL BENT 1 AND 2. NOTE: SPANDREL COUNT STARTS FROM HANA ABUTMENT.
26	KAHULUI ABUTMENT
27	HANA ABUTMENT
28	SMALL SPALL WITH EXPOSED REBAR ON HANA FACE OF UPSTREAM SPANDREL COLUMN IN SPANDREL BENT 1.
29	UPSTREAM VIEW FROM TOP OF BRIDGE
30	UPSTREAM VIEW FROM UNDER BRIDGE
31	DOWNSTREAM VIEW FROM TOP OF BRIDGE
32	DOWNSTREAM VIEW FROM UNDER BRIDGE

NOTE: * (H) = HEIGHT; (W) = WIDTH



PHOTO 1 KAHULUI APPROACH LOOKING TOWARD HANA



PHOTO 2 HANA APPROACH LOOKING TOWARD KAHULUI



PHOTO 3 UPSTREAM / KAHULUI CRM WALL



PHOTO 4 COLLISION DAMAGE WITH EXPOSED REBAR AT FORMER CONCRETE BRIDGE RAILING AT UPSTREAM / KAHULUI SIDE



PHOTO 5 DOWNSTREAM / KAHULUI GUARDRAIL TRANSITION AND CRM WALL. NOTE: GUARDRAIL TRANSITION HT = 34"



PHOTO 6 UPSTREAM / HANA CONCRETE PARAPET WITH COLLISION DAMAGE AND EXPOSED REBAR. NOTE: PARAPET HEIGHT VARIES DUE TO COLLISION DAMAGE



PHOTO 7 CLOSE UP OF COLLISION DAMAGE AT UPSTREAM / HANA CONCRETE PARAPET



PHOTO 8 DOWNSTREAM / HANA GUARDRAIL AND CRM WALL. NOTE: GUARDRAIL HT = 27"



PHOTO 9 UPSTREAM RAILING ELEVATION. NOTE: RAILING HT = 29"



PHOTO 10 PARTIAL VIEW OF DOWNSTREAM RAILING ELEVATION NEAR KAHULUI.
NOTE: RAILING HT = 33"



PHOTO 11 PARTIAL VIEW OF DOWNSTREAM RAILING ELEVATION LOOKING TOWARD HANA



PHOTO 12 PARTIAL VIEW OF DOWNSTREAM RAILING ELEVATION NEAR HANA



PHOTO 13 CLOSE UP OF SPALL WITH EXPOSED REBAR IN DOWNSTREAM RAILING CAP



PHOTO 14 DELAMINATION ON SECOND PICKET AT DOWNSTREAM / KAHULUI RAILING



PHOTO 15 OVERALL A.C. PAVEMENT LOOKING TOWARD HANA



PHOTO 16 DECK DRAIN ALONG DOWNSTREAM RAILING



PHOTO 17 UPSTREAM ELEVATION AND UTILITY LINE ALONG BASE OF RAILING



PHOTO 18 DOWNSTREAM ELEVATION



PHOTO 19 DELAMINATION (1' (H) X 3' (W)) IN DOWNSTREAM FACE OF ARCH RIB UNDER DOWNSTREAM / HANA SPANDREL COLUMN



PHOTO 20 OVERALL SOFFIT VIEW LOOKING TOWARD KAHULUI



PHOTO 21 SOFFIT VIEW NEAR KAHULUI END OF BRIDGE



PHOTO 22 SOFFIT VIEW OF CENTER OF BRIDGE



PHOTO 23 SOFFIT VIEW NEAR HANA END OF BRIDGE



PHOTO 24 PATCHES IN SOFFIT NEAR HANA END



PHOTO 25 PATCHES IN SOFFIT BETWEEN SPANDREL BENT 1 AND 2. NOTE: SPANDREL COUNT STARTS FROM HANA ABUTMENT.



PHOTO 26 KAHULUI ABUTMENT



PHOTO 27 HANA ABUTMENT



PHOTO 28 SMALL SPALL WITH EXPOSED REBAR ON HANA FACE OF UPSTREAM SPANDREL COLUMN IN SPANDREL BENT 1.



PHOTO 29 UPSTREAM VIEW FROM TOP OF BRIDGE



PHOTO 30 UPSTREAM VIEW FROM UNDER BRIDGE



PHOTO 31 DOWNSTREAM VIEW FROM TOP OF BRIDGE



PHOTO 32 DOWNSTREAM VIEW FROM UNDER BRIDGE

ROUTINE (PERIODIC) BRIDGE INSPECTION REPORT

WAIOKAMILO STREAM BRIDGE BRIDGE NO. 009003600501811

MAUI, HAWAII



For

State of Hawaii Department of Transportation Highways Division

Prepared by

Nagamine Okawa Engineers Inc. 1003 Bishop Street Suite 2025 Honolulu, Hawaii 96813 Telephone: (808) 536-2626

FEBRUARY 2010

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

NBI BRIDGE INSPECTION REPORT

Date of Inspection Bridge Number Number of Spans Location: Island Feature Intersected Bridge Material:		1 Maui	009003600501811 Bridge Name 1 Maui Route No. Waiokamilo Stream		Highway Milepost Substructure	y Hana Highway t 18.07		
Dila	ge Material.	Cuperstructure	Condition Rating	-	Cubstructure	Remarks		
36	TRAFFIC SAF	ETY FEATURES	Ir		ture meets currently ac	ceptable standards.		
1. 2. 3. 4.	Bridge Railings Transitions Approach Guar Approach Guar	rdrail	0 1	. Bridge railir	ng does not meet acce	ptable standards.		
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	DECK Wearing Surface Decks - Structure Curbs Median Sidewalks Parapet Railing Paint Drains Lighting Standa Utilities Joint Leakage Expansion Join Inspector's Cor	ural Condition ards arts or Devices	7 7 N N N N 7 4 N N 7 N N 7	. This rating	is for paint on railings.			
59 1. 2. 3. 4. 5.	Trusses -G -P	es .	N N 5 N N N		ons, spalls with expose growing from girders.	ed rebar, water stains, and		
6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16.	Paint Machinery (Mo Rivets and/or E Welds - Cracks Rust Timber Decay	veable Spans) Bolts king and/or Spalling age er Load embers er Load	N N N N N N N N N N N N N N N N N N N	2. See Item	59.3			

Waiokamilo Stream Bridge Date of Inspection 2/18/10 Bridge name Bridge Number 009003600501811 **Condition Rating** Remarks 60 SUBSTRUCTURE Abutment -Wings 6 Minor cracks in abutment wingwalls. -Backwall/Breastwall -Footing Ν Abutment bears on solid rock base. -Piles Ν -Erosion 6 Roadway run-off has undermined upstream Hana wingwall. -Settlement 7 2. Piers or Bents -Caps Ν -Column/Wall Ν -Footing Ν -Piles N -Scour Ν -Settlement Ν 3. Pile bents Ν Concrete Cracking and/or Spalling 4. 6 4. See Item 60.1 5. Steel Corrosion Ν 6. Timber Decay, etc. Ν Debris on Seats 7 7. Paint Ν 8. Collision Damage 8 9. Inspector's Condition Rating 61 **CHANNEL & CHANNEL PROTECTION** 1. **Channel Scour** 2. **Embankment Erosion** 7 3. Drift 7 4. Vegetation **Channel Change** 5. Fender System 6. Ν Spur Dikes & Jetties 7. Ν Rip Rap 8. Ν 9. Adequacy of Opening 7 Inspector's Condition Rating 62 **CULVERT & RETAINING WALLS** Barrel -Concrete Ν 1. -Steel Ν Ν -Timber Headwall Ν **Cutoff Wall** 3. Ν Adequacy 4. N Debris N

Ν

Inspector's Condition Rating

Date	of Inspection	2/18/10	Bridge Name	Waiokamilo Stream Bridge
Bridg	je Number	0090036005018		
93	CRITICAL FEA	TURE INSPECTI	ON DATE	Provide date if applicable.
4	F1	15.1.1		If not applicable, indicate with N.
1.	Fracture Critica		N	
2. 3.	Underwater Ins	•	N N	[If applicable, submit Underwater Inspection Report]
3.	Other Special I	nspection		
				Remarks
ОТНІ	ER FEATURES			Y - Yes N - No
			_	
1.	Bridge Posted?	>	Y	Posted Limit = 10 Tons (See comment below)
2.	Signage for Po	sting Legible/Visil	ble? N	· · · · · · · · · · · · · · · · · · ·
3.	Riding Surface	(Roughness) Rat	ing N	3 - Smooth, 2 - Average, 1 - Poor
			30	
			1	. 10-ton posted load limit on Hana Bridges at both
				ends of Hana Hwy. No posting at the bridge.
REPA	AIRS AND IMPR	OVEMENTS	_	
4	Link allanlı ala	nn da dhia baidan a	dana dha land tanan ada	North Process
1.		ne to this bridge s	since the last inspection	n including cost.
	None.			
2.	Indicate propos	ed and/or recomm	mended improvements	including estimated cost.
۷.			nd shoulder (Maintenance	
			e guardrails (Est. cost = \$	
			girders (Est. cost = \$9,0	
		The state of the s	t walls (Est. cost = \$4,00	
			the state of the s	n-off away from CRM wingwall footing (Est. cost = \$11,000)
		irder (Est. cost = \$6		The away not of the wingwar rooting (Est. 60st - \$11,000)
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,000,	
3.	List any existing	temporary cond	itions.	
	None.	, , ,		
REMA	ARKS AND REC	OMMENDATION	S	
1.			on by Bridge Design S	
	[This should on	ly be addressed b	y in-house inspectors	who are not structural engineers.]
2.	Remarks: De	scribe defects. U	lse sketches, diagrams	and/or photographs where possible.
				0-45-4
		Inancated by	Name (nainted).	Certified
		Inspected by:	Name (printed):	Garrett Nago & Robin Okawa Title: Bridge Inspector
			Signature:	January M. D. D.
			Phone Number:	808.536.2626
			- Hone Number.	000.000.2020
		Supervised by:	Name (printed):	Dwight Okawa, S.E. Title: V.P.
				()
			Signature:	Deright thawa
			Phone Number:	808.536.2626

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION PONTIS BRIDGE INSPECTION REPORT

r10/8/07

Date of Inspection	2/18/10	Bridge Name	Waio	kamilo Stream Bridge	
Bridge Number 009003600501811		Route No.	360		
Number of Spans	1	Highway	Hana Highway		
Location: Island	Maui	Feature Intersec	cted Waiokamilo Stream		1000

ELEM	ELEMENT	ENV.	TOTAL	UNIT	ST	ST	ST	ST	ST
NO.	DESCRIPTION	(Note 1)	QUANT.		1	2	3	4	5
13	DECK OR SLAB (Note 2)	2	864	SF.	864				
110	GIRDERS	2	192	LFT.	152	25	15	1	
215	ABUTMENTS	2	72	LFT.	62	10			
*	COLUMNS			EA.					
*	PIER WALL			LFT.					
*	PIER CAPS			LFT.					

301	JOINTS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.)	2	72	LFT.		72			
331	BRIDGE RAILING	2	48	LFT.	48	1,527			
*	APPROACH SLABS			EA.				Ť T	
*	BEARINGS (INSPECTOR NEEDS TO INPUT ELEM NO. & QTY.)			EA.					
*	CULVERT			LFT.					
	OCEVERY			LFI.			***************************************		
*	SMART FLAG: STEEL FATIGUE			EA.					
*	SMART FLAG: PACK RUST	2000		EA.				1	
*	SMART FLAG: DECK CRACKING (ON TOP OF DECK ONLY)			EA.					
359	SMART FLAG: SOFFIT OF CONC. DECK OR SLAB (THIS SMART FLAG IS MANDATORY IF DECK OR SLAB HAS AN A.C. OVERLAY).	2	1	EA.	1				
*	SMART FLAG: SETTLEMENT			EA.					
361	SMART FLAG: SCOUR	2	1	EA.	1				
*	SMART FLAG: TRAFFIC IMPACT (TRAFFIC IMPACT TO SUPERSTRUCTURE ONLY)			EA.					
*	SMART FLAG: SECTION LOSS			EA.					
THERS							1		1

COMMENTS:			
			-

Env 3: Severe: Severe level of environmental influence or deterioration. Past bridge inspections show that environment has caused significant.

Note 2: For DECKS ONLY: All quantity in one ST only. Deck/slab is rated from top of deck/slab only. Use soffit smart flag (elem 359) to rate soffit.

CS1	No patched areas, no potholes, no spalls and delams, etc.			
CS2	Distressed areas are less than 2% of the total deck area.			
CS3	Distressed areas are more than 2% but 10% or less of the total deck area.			
CS4	Distressed areas are more than 10% but 25% or less of the total deck area.			
CS5	Distressed areas are 25% or more of the total deck area.			

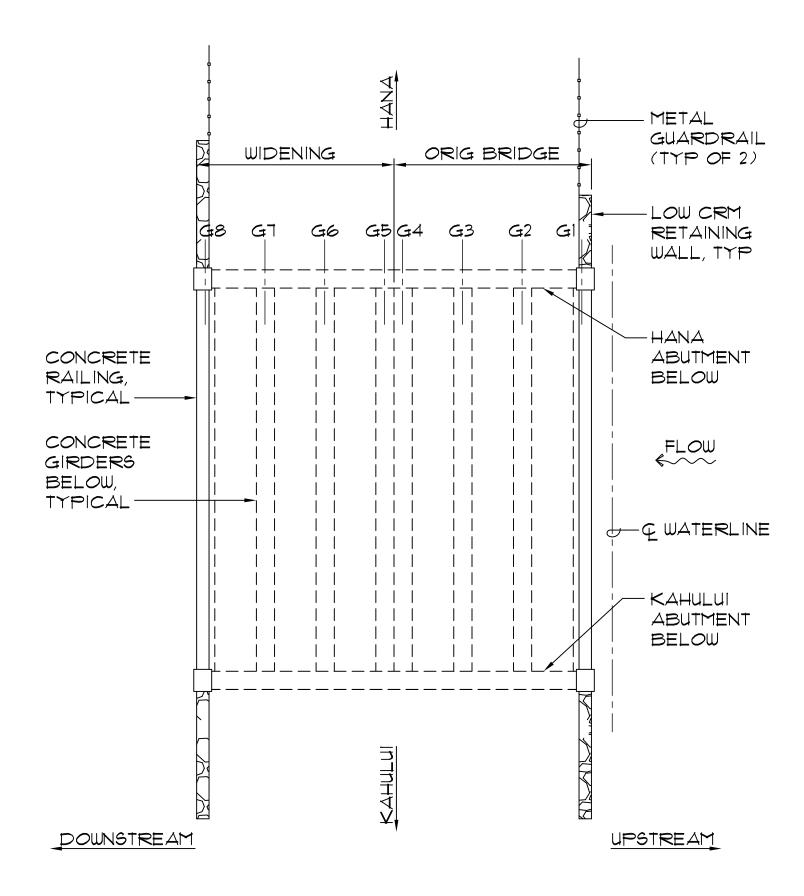
CS5	Distressed areas are 25% or]	
Inspector's	Name (printed): Name (signature): phone number:	Garrett Nago & Robin Okawa Bautan 1 20 21. 0 808.536.2626	Title: Cert. Bridge Inspector
	Name (printed): Name (signature):	Dwight Okawa, S.E.	Title: V.P.

Note 1: For each element, the inspector shall code the type of environment from the following key:

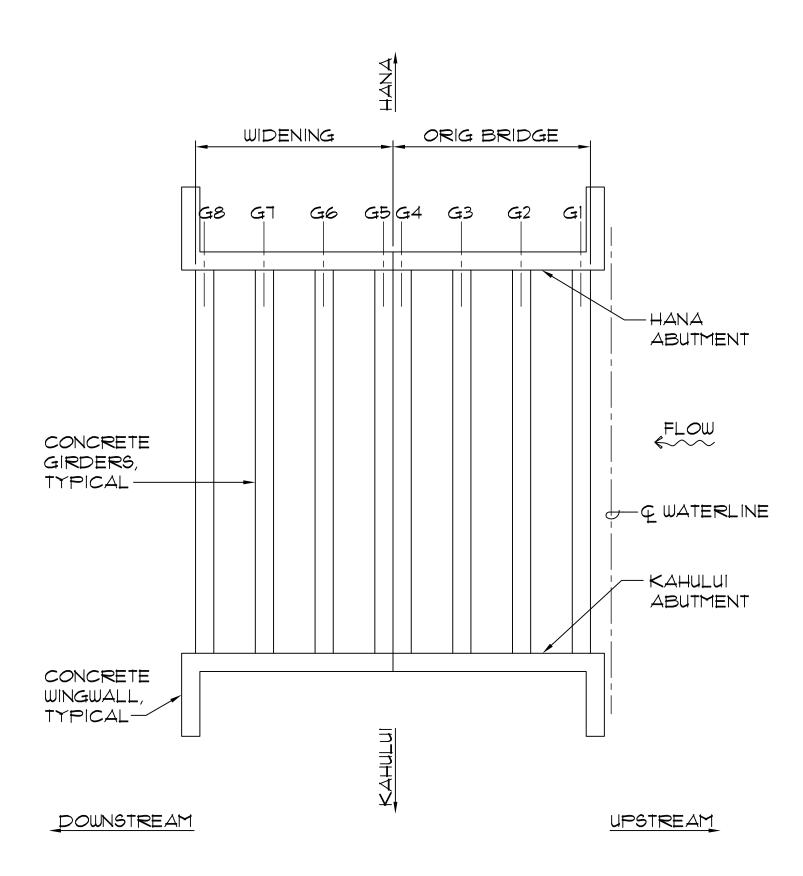
Env 1: Benign & Low Env: Little or no env. conditions affecting deterioration. Past bridge inspections show that env. has caused little or no deterioration.

Env 2: Moderate: Moderate level of environmental influence or deterioration. Past bridge inspections show that environment has caused some deterioration.

	HAWAII DEPARTMENT OF Structure Number: 00900360			STRUCTURAL INVENTORY	AND APPRAIS		DATE PRINTED: 01/22/2010 .
	Geographic and Route Data			Dimensional Data			Rte: 360 Milepost: 0.000
(1)	(1) State Hawaii			Approach Rdwy Width	8.2 M		nee! ou militagest. o.ou
	(2) District 20			Navigation Vert Clr			Proposed Maintenance
	(3) County Maui				0000.0 M	(212)	Repair Priority
	Place	99999		Max Span Length	0006.1 M		Proposed Maint Type
		IOKAMILO STRM		_	00007.3 M		Maintn Date Completed / /
	Facility on	HANA HWY		Curb/Sidewalk Width Le			Actual Maint Cost 0
		ILUA HMSTD RD	1 1		ght 00.0 M	(/	
(16)		0° 51' 06.00"	(51)	Brg Rdwy Width, curb-cur			
(17)	Longitude 15			Deck Width out-out	011.0 M		Inspection Data 0210
	Border Bridge		(53)	Min Vert Clr over	99.99 M	(90)	Inspection Date (MoYr) 0208
(99)	Border Brdige Str No		. (54)	Min Vert Clr under	N 00.00 M	(91)	Inspection Frequency 24 Mo
(103)	Temportary Str		(55)	Min Lat Underclr R	N 00.0 M	(92)	Critical Feature Insp (93)Date
			(56)	Min Lat Underclr L	99.9 M		Frac Crit Insp : N /
	On and Under Record Da	ta	(112)	NBIS Bridge Length	Y		Underwater Insp: N /
		Route On	(116)	Navigation Min Vert Clr	m M		Other Spec Insp: N /
	Inventory Route	121003602					Inspection Quarter 4
. ,	Min Vert Clr	99.99 M		Proposed Improvemen			Inspection Number
	Kilometerpoint	0029.080		Type of Work	311	(210)	Date of Inspection 12/15/1996
	Detour Length	199 km		Improvement Length	000134 M		02/18/2010
	Toll	3		Bridge Improv Cost	898	(000)	Over 200 Items
	Func Class	07		Rdwy Improv Cost	0	,	Princ Route Location
	Lanes on/under	0200		Total Proj Cost	1415		Wear Surface Thickness 0.0 mm
	ADT	1515 2007		Year of Cost Est	1999		District Maint Org
	Year of ADT Total Horz Clearance	06.8 M	,	Future ADT Year of Future ADT	2150 2027		Original Proj # Station Princ Rte 0.000
	Defense Hwy	0.0 1	(117)	ieal of ruture wor	2021		Station Princ Rte 0.000 Bridge Rail Type
	Parallel Str	N		Condition Rating			Culvert Bbl Height 0.0 M
	Direction of Traffic	2	(58)	Deck	76		Culvert Bbl Length 0.0 M
	Hwy System	0		Superstructure	56		Culvert Fill Height 0.0 M
	Truck Traffic	00%		Substructure	7		Date of Load Rating / /
	Natl Truck Network	No		Channel & Channel Prote			Tracs No
				Culverts	N		Bridge Crew Region
	General Data						Total Deck Area (M^2) 0.0
(21)	Maintenance Responsibility	01		Appraisal Rating			Superstr Unit Cost 0.00
	Owner	01	(67)	Structure Evaluation	6		Substr Unit Cost 0.00
(31)	Design Load	0	(68)	Deck Geometry	6	(228)	Next Insp Due Date (QuartYr) 498
(33)	Bridge Median	0	(69)	Underclrn Vert & Horz	N	(229)	Agency
	Skew	00 deg		Waterway Adequacy	5		Principal Route Number 360
	Str Flared	No		Approach Rdwy Alignment		(231)	Principal Route Letter
	Hist Significance	3	(36)	Traffic Safety Features	0000		Principal Route Milepost 0.000
	Navigation Control	0				(300)	Comments:
	Type of Service	15		Scour Data			
	Structure Type Main	104		Scour Critical Bridges	8		
	Structure Type Approach	000		Foundation Type	0.0 **		
	No of Span Main	001		Foundation Embedment	0.0 M		
	No of Approach Spans	0000 1921	(4ZI)	Scour Countermeasures			Cufficiency Pating 070 1
	Year Built	0000		Load Rate and Post			Sufficiency Rating = 070.1
	06) Year Reconstructed 0000 07) Deck Str Type 1		(41)	Str Open/Post/Close	Posted		
	18) Wear Surf/Protv Sys 600			Operating Rating	53.5 ton		
	Nav Pier/Abut Protection	000		Inventory Rating	27.2 ton		
,/				Bridge Posting	4		
				Posted Limit	- 1		

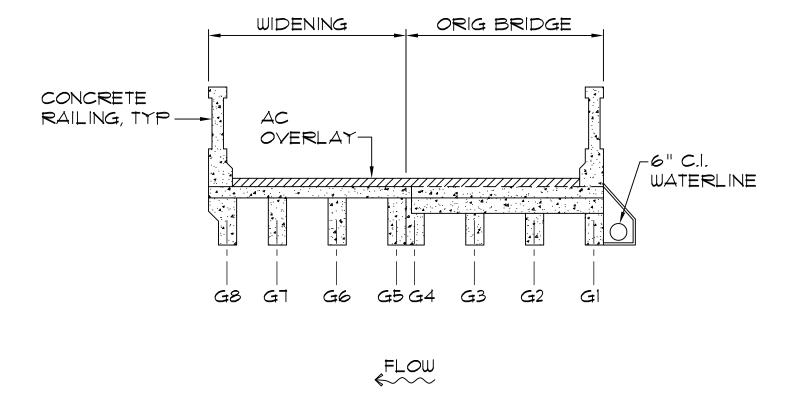


BRIDGE DECK PLAN



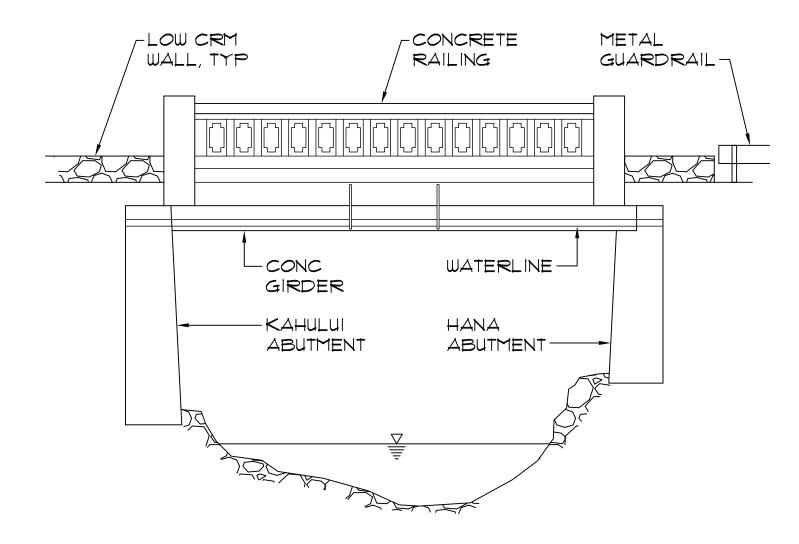
BRIDGE SOFFIT PLAN

WAIOKAMILO STREAM BRIDGE BRIDGE NO. 009003600501811 DOWNSTREAM



BRIDGE SECTION LOOKING TOWARD HANA

KAHULUI



UPSTREAM ELEVATION

WAIOKAMILO STREAM BRIDGE BRIDGE NO. 009003600501811

WAIOKAMILO STREAM BRIDGE PHOTO LOG

Bridge No. 009003600501811

PHOTO NO.	DESCRIPTION					
1	APPROACH TO BRIDGE LOOKING TOWARD KAHULUI					
2	APPROACH TO BRIDGE LOOKING TOWARD HANA					
3	UPSTREAM HANA CRM WALL					
4	UPSTREAM BRIDGE RAILING LOOKING TOWARD HANA					
5	UPSTREAM KAHULUI CRM WALL					
6	DOWNSTREAM KAHULUI CRM WALL					
7	DOWNSTREAM BRIDGE RAILING LOOKING TOWARD HANA					
8	DOWNSTREAM HANA CRM WALL					
9	OVERALL VIEW OF AC PAVEMENT OVER BRIDGE					
10	BACKSIDE OF UPSTREAM RAILING AND UTILITY PIPE					
11	CLOSE UP OF UTILITY PIPE AND HANGERS ON UPSTREAM SIDE OF BRIDGE					
12	UPSTREAM BRIDGE ELEVATION					
13	DOWNSTREAM BRIDGE ELEVATION					
14	DOWNSTREAM HALF OF SOFFIT LOOKING TOWARD HANA					
15	JOINT IN SOFFIT					
16	UPSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI					
17	6' DELAMINATION IN GIRDER G8					
18	DELAMINATION AND UNSOUND PATCH IN GIRDERS G5 AND G6 NEAR KAHULUI ABUTMENT					
19	SPALL WITH EXPOSED REBAR AND UNSOUND PATCH IN GRIDER G4					
20	DELAMINATION AND VEGETATION GORWING IN GIRDERS G4 AND G5					
21	DOWNSTREAM HALF OF KAHULUI ABUTMENT GIRDER SEAT					
22	DOWNSTREAM HALF OF HANA ABUTMENT					
23	UPSTREAM HALF OF HANA ABUTMENT					
24	UNDERMINING AT UPSTREAM HANA CRM WALL					
25	UPSTREAM HANA ABUTMENT GIRDER SEAT					
26	LOOSE ROCKS IN UPSTREAM KAHULUI CRM WALL					

WAIOKAMILO STREAM BRIDGE PHOTO LOG

Bridge No. 009003600501811

PHOTO NO.	DESCRIPTION
27	UPSTREAM HALF OF KAHULUI ABUTMENT
28	DOWNSTREAM HALF OF KAHULUI ABUTMENT
29	MINOR UNDERMINING AT DOWNSTREAM END OF KAHULUI ABUTMENT
30	SPALL IN KAHULUI ABUTMENT UNDER GIRDERS G4 AND G5
31	UPSTREAM VIEW OF STREAM CHANNEL
32	DOWNSTREAM VIEW OF STREAM CHANNEL



PHOTO 1 APPROACH TO BRIDGE LOOKING TOWARD KAHULUI



PHOTO 2 APPROACH TO BRIDGE LOOKING TOWARD HANA



PHOTO 3 UPSTREAM HANA CRM WALL



PHOTO 4 UPSTREAM BRIDGE RAILING LOOKING TOWARD HANA



PHOTO 5 UPSTREAM KAHULUI CRM WALL



PHOTO 6 DOWNSTREAM KAHULUI CRM WALL



PHOTO 7 DOWNSTREAM BRIDGE RAILING LOOKING TOWARD HANA



PHOTO 8 DOWNSTREAM HANA CRM WALL



PHOTO 9 OVERALL VIEW OF AC PAVEMENT OVER BRIDGE



PHOTO 10 BACKSIDE OF UPSTREAM RAILING AND UTILITY PIPE



PHOTO 11 CLOSE UP OF UTILITY PIPE AND HANGERS ON UPSTREAM SIDE OF BRIDGE



PHOTO 12 UPSTREAM BRIDGE ELEVATION



PHOTO 13 DOWNSTREAM BRIDGE ELEVATION



PHOTO 14 DOWNSTREAM HALF OF SOFFIT LOOKING TOWARD HANA



PHOTO 15 JOINT IN SOFFIT



PHOTO 16 UPSTREAM HALF OF SOFFIT LOOKING TOWARD KAHULUI



PHOTO 17 6' DELAMINATION IN GIRDER G8



PHOTO 18 DELAMINATION AND UNSOUND PATCH IN GIRDERS G5 AND G6 NEAR KAHULUI ABUTMENT



PHOTO 19 SPALL WITH EXPOSED REBAR AND UNSOUND PATCH IN GRIDER G4



PHOTO 20 DELAMINATION AND VEGETATION GORWING IN GIRDERS G4 AND G5



PHOTO 21 DOWNSTREAM HALF OF KAHULUI ABUTMENT GIRDER SEAT



PHOTO 22 DOWNSTREAM HALF OF HANA ABUTMENT



PHOTO 23 UPSTREAM HALF OF HANA ABUTMENT



PHOTO 24 UNDERMINING AT UPSTREAM HANA CRM WALL



PHOTO 25 UPSTREAM HANA ABUTMENT GIRDER SEAT



PHOTO 26 LOOSE ROCKS IN UPSTREAM KAHULUI CRM WALL



PHOTO 27 UPSTREAM HALF OF KAHULUI ABUTMENT



PHOTO 28 DOWNSTREAM HALF OF KAHULUI ABUTMENT



PHOTO 29 MINOR UNDERMINING AT DOWNSTREAM END OF KAHULUI ABUTMENT



PHOTO 30 SPALL IN KAHULUI ABUTMENT UNDER GIRDERS G4 AND G5



PHOTO 31 UPSTREAM VIEW OF STREAM CHANNEL



PHOTO 32 DOWNSTREAM VIEW OF STREAM CHANNEL