BRIDGE INSPECTION REPORT
Routine Inspection

BRIDGE NO.: **10C0065**
STRUCTURE NAME: **ACKERMAN CREEK**
INSPECTION DATE: **February 11, 2022**

BRIDGE LOCATION INFORMATION

(9) LOCATION	0.2 MI N ORR SPRINGS RD	(7) FACILITY CARRIED			N STATE ST
(11) POSTMILE	0	(6) FEATURE INTERSECTED			ACKERMAN CREEK
(16) LATITUDE	39°10'44.5"	(5) INVENTORY RTE(ON/UNDER)		ON	140000000
(17) LONGITUDE	123°12'35.92"	(104) ON NATIONAL HIGHWAY SYSTEM			NOT ON NHS

STRUCTURAL HEALTH CONDITION SUMMARY INFORMATION

(58) DECK	7 GOOD	DECK AREA $(M)^2$	471
(59) SUPERSTRUCTURE	7 GOOD	SUFFICIENCY RATING	60.2
(60) SUBSTRUCTURE	5 FAIR	PAINT CONDITION	N/A
(62) CULVERT	N N/A (NBI)	STRUCTURALLY DEFICIENT (SD) STATUS	NOT SD
(67) STRUCTURE EVALUATION	5 ABOVE MIN TOLERABLE	(113) SCOUR	5 STABLE W/IN FOOTING

PHOTOGRAPH IDENTIFICATION

Routine-Roadway View (02/18/2016)

Routine-Elevation View (02/18/2016)

Routine-Underside View (02/18/2016)

Routine-Map View (07/06/2022)

TEAM LEADER: Chris V. Udarbe

REPORT AUTHOR: Chris V. Udarbe

INSPECTED BY: CV.Udarbe/KJ.Shurbert

C. V. Udarbe — 7/26/2022

Chris V. Udarbe (Registered Civil Engineer) — Date

PROFESSIONAL ENGINEER — REGISTERED — STATE OF CALIFORNIA
Chris V. Udarbe
No. 62985
Exp. 06/30/2024
CIVIL

STRUCTURE OVERVIEW

AGENCY INFORMATION

(1) STATE NAME	CALIFORNIA 069
(2) HIGHWAY DISTRICT	01
(3) COUNTY CODE	(10)MENDOCINO
(4) PLACE CODE	(00000) _____
(21) MAINTAIN	02 COUNTY HWY AGENCY
(22) OWNER	02 COUNTY HWY AGENCY
(98) BORDER BRIDGE STATE CODE	N/A % SHARE N/A
(99) BORDER BRIDGE STRUCTURE NUMBER	N/A

INSPECTION INFORMATION

(90) INSPECTION DATE	02/22	(91) FREQUENCY	24 MO
(92) CRITICAL FEATURE INSPECTION		(93) CFI DATE	
A) FRACTURE CRITICAL INSP	N-NO	MO A)	N/A
B) UNDERWATER INSP	N-NO	MO B)	N/A
C) OTHER SPECIAL INSP	N-NO	MO C)	N/A

CONSTRUCTION INFORMATION

(27) YEAR BUILT	1965	(45) MAIN SPANS	3	(43a) STRUCTURE TYPE MAIN	2: CONCRETE CONT
(106) YEAR MODIFIED	N/A	(46) APPR SPANS	0	(43b) DESIGN TYPE MAIN	01: SLAB
(34) SKEW	0	(48) MAX SPAN (M)	14.9	(44a) STRUCTURE TYPE APPR	0: OTHER/ NOT APPLICABLE
(49) LENGTH (M)	45	(35) STR FLARE	0-NO	(44b) DESIGN TYPE APPR	00: OTHER/NOT APPLICABLE
(112) NBIS BR LENGTH	Y	JOINTS	2	NO. OF HINGES	0

STRUCTURE DESCRIPTION

Continuous RC slab with AC overlay, on RC pierwalls and cantilever RC abutments with flared wingwalls. All founded on Class I concrete piles, alternative unknown.

SPAN CONFIGURATION

3 @ 48.67 feet (CL support)

OPERATIONAL INFORMATION

LOAD CAPACITY

(31) DESIGN LOAD	6 MS18(HS20)+MOD	(65) CALC METHOD	1 LF LOAD FACTOR
(66) INVENTORY RATING	RF=1.00 =>32.4 metric tons	(63) CALC METHOD	1 LF LOAD FACTOR
(64) OPERATING RATING	RF=1.64 =>53.1 metric tons	(70) BRIDGE POSTING	5 AT/ABOVE LEGAL LOADS
(41) STRUCTURE STATUS	A-OPEN, NO RESTRICTION	PERMIT RATING	PPPPP
OVERLAY THICKNESS	2 inches		

POSTING LOADS

	Safe Loads	Existing Ordinance/Order	Posting Signs	
Type 3	Legal	N/A	N/A	U.S. Tons
Type 3S2	Legal	N/A	N/A	U.S. Tons
Type 3-3	Legal	N/A	N/A	U.S. Tons
Speed	50	N/A	N/A	MPH

Additional Ordinance/Order Requirements

NONE

Additional Signs

NONE

Posting Date N/A
Load Rating Summary Date 04/19/10
Load Rating Type Calculated
Load Rating Tool - Date None - 05/27/97

MINIMUM VERTICAL CLEARANCE

(53) MIN VERT CLEAR OVER BRIDGE RDWY	Unimpaired	
(54) MIN VERT UNDERCLEAR REF	N-NOT H/RR	0.00 M

MINIMUM LATERAL UNDERCLEARANCE

(55) MIN LAT UNDERCLEAR RT REF	N-NOT H/RR	0.0 M
(56) MIN LAT UNDERCLEAR LT		0.0 M

CONDITION INFORMATION

INSPECTION COMMENTARY

SCOPE AND ACCESS

Clear flowing water was present under Spans 2 and 3 up to 2 feet in depth. The entire length of Pier 3 was submerged.

Bridge elements that were not buried were visually inspected from the deck or ground in the channel. The submerged portions of bridge elements were viewed through the water or probed. No specialized field equipment was utilized to access bridge elements during this inspection. A complete routine inspection was performed.

MISCELLANEOUS

A routine map view of the bridge site is included with this report. See attached Photo 1.

DECK AND ROADWAY

Minor transverse and longitudinal cracks were present throughout the AC approaches at both ends of the bridge. The cracks were typically 0.25 to 0.5 inch in width and widely spaced. Refer to photographs 1 through 4 from the 02/20/2020 routine inspection.

The end of the metal beam guard rail at the left side of Abutment 4 was deflected outward 6 to 8 inches. Refer to photograph 5 from the 02/20/2020 routine inspection.

The metal beam approach rail at the left side of Abutment 4 was deflected outward 2 to 3 inches along a section 6 to 8 feet near the termination of the rail. Refer to photograph 6 from the 02/20/2020 routine inspection.

Type P object markers were present at the corners of the bridge at the ends of the bridge rails. Type L object markers were present at the corners of the bridge at the terminations of the approach rails.

SUPERSTRUCTURE

Graffiti and paint were present on superstructure elements within 12 feet of the ground. The paint obscured minor cracks and distress.

SUBSTRUCTURE

Graffiti and paint were present on substructure elements within 12 feet of the ground. The paint obscured minor cracks and distress.

A vertical cut was present in the ground under Span 1. The cut was approximately 1 to 3 feet in height and located as close as 10 feet from Abutment 1. Refer to photograph 7 from the 02/20/2020 routine inspection.

A local scour hole was present under the right side of Span 3. The hole was approximately 8 feet in diameter x 1 to 2 feet in depth. Refer to photograph 8 from the 02/20/2020 routine inspection.

SAFE LOAD CAPACITY

Work Request 9631 is in process by the SM&I Load Ratings Branch to confirm the load rating calculations for the inclusion of the encroachments noted in the 2016 routine inspection report.

WATERWAY

A steel and timber check dam with fish ladder was present approximately 30 feet downstream from the bridge.

SPECIAL INSPECTION INFORMATION

STEEL INVESTIGATION DETAILS - NOT APPLICABLE FOR THIS BRIDGE.

UNDERWATER INVESTIGATION DETAILS - NOT APPLICABLE FOR THIS BRIDGE.

DECK AND ROADWAY

DECK CROSS SECTION

1.00 feet br, 2.00 feet cu, 28.00 feet, 2.00 feet cu, 1.00 br

DECK GEOMETRY

(49)	LENGTH	45.0 M
(51)	NET WIDTH	8.5 M
(52)	TOTAL WIDTH	10.3 M
(50)	CURB OR SIDEWALK	LEFT 0.6 M RIGHT 0.6 M
(32)	APPROACH RDWY WIDTH	8.5 M
(33)	BRIDGE MEDIAN	0 NO MEDIAN

DECK STRUCTURE INFORMATION

(107)	DECK STRUCTURE TYPE	1-CIP CONCRETE
(108)	WEARING SURFACE / PROTECTIVE SYSTEM	
A)	TYPE OF WEARING SURFACE	6-BITUMINOUS
B)	TYPE OF MEMBRANE	0-NONE
C)	TYPE OF DECK PROTECTION	0-NONE
	OVERLAY THICKNESS (inches)	2 inches
(29)	AVERAGE DAILY TRAFFIC	15534
(30)	YEAR OF ADT 2011	(109) TRUCK ADT % 5 %
(19)	BYPASS, DETOUR LENGTH	6 KM
(114)	FUTURE ADT	11423
(115)	YEAR OF FUTURE ADT	2044
(37)	HISTORICAL SIGNIFICANCE	5: NOT ELIGIBLE FOR NRHP

DECK ROADWAY/OPERATIONAL INFORMATION

(42a)	TYPE OF SERVICE	1-HIGHWAY
(12)	BASE HIGHWAY NETWORK	0-NOT ON NET
(13)	LRS INVENTORY RTE & SUBRTE	
(104)	NATIONAL HIGHWAY SYSTEM	0-NOT ON NHS
(26)	FUNCTIONAL CLASS	07-MAJOR COLLECTOR RURAL
(100)	DEFENSE HIGHWAY	0-NOT STRAHNET
(101)	PARALLEL STRUCTURE	N-NONE EXISTS
(102)	DIRECTION OF TRAFFIC	2-2 WAY
(10)	INVENTORY ROUTE MIN VERT CLEAR	99.99 M
(47)	INVENTORY ROUTE TOTAL HORIZ CLEAR	8.5 M
(68)	DECK GEOMETRY	2 INTOLERABLE - REPLACE
(72)	APPR ROADWAY ALIGN	6 EQUAL MIN CRITERIA
(105)	FEDERAL LANDS HWY	0-NOT APPLICABLE
(110)	DESIGNATED NATIONAL NETWORK	0-NOT ON NET
(20)	TOLL	3-ON FREE ROAD
(28a)	LANES	2
	SPEED	50
(103)	TEMPORARY STRUCTURE	N/A

DECK ELEMENT INSPECTION RATINGS AND NOTES

(58) DECK RATING = 7

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
38			**Slab-RC**	2	465	sq.m	393	72	0	0
	1080		**Delamination/Spall/Patched Area**	2	24		0	24	0	0
	1090		**Exposed Rebar (PS Conc./RC)**	2	1		0	1	0	0
	1130		**Cracking (RC and Other)**	2	47		0	47	0	0
	510		**Deck Wearing Surface-Asphalt**	2	384	sq.m	367	17	0	0
		3220	**Cracking-AC (WS)**	2	17		0	17	0	0

(38) Slab-RC

Minor fire soot staining was present on the soffit of the RC slab near the abutments. The staining appeared to be typically of small fires. No distress of the slab was evident due to the staining/fires.

(38-1080) Delamination/Spall/Patched Area

Patches were present on the soffit of the RC slab. The patches were typically less than but up to 1 square yard, appeared sound, and appeared to be due to construction methods. The patches encompassed approximately 5% of the total slab area.

Refer to photographs 10 through 13 from the 02/20/2020 routine inspection.

(38-1090) Exposed Rebar (PS Conc./RC)

Minor rock pockets were present on the soffit of the RC slab.

The most predominant rock pocket was located in Span 1, approximately 10 feet from Abutment 1 and 4 feet from the right side of the bridge. The rock pocket was approximately 3 inches in diameter x 1 to 2 inches in depth, and exposed a segment of longitudinal rebar that exhibited little to no corrosion. Refer to photographs 14 and 15 from the 02/20/2020 routine inspection.

DECK ELEMENT INSPECTION RATINGS AND NOTES

(58) DECK RATING = 7

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4

(38-1130) Cracking (RC and Other)

Minor longitudinal cracks were present on the soffit of the RC slab. The cracks were typically less than but up to 0.016 inch in width, 5 to 15 feet in length, and were predominantly near the centerline of the bridge.

Minor transverse and longitudinal cracks were present on the soffit of the RC slab. The cracks were typically less than but up to 0.016 inch in width, spaced as close as 8 to 18 inches on center, and were predominantly located in the middle third of the spans.

The cracking encompassed approximately 10% of the total slab area. The conditions did not appear to have significantly changed when compared to previous inspection reports or photographs.

(38-510) Deck Wearing Surface-Asphalt

The AC overlay depth could not be verified due to the limited horizontal clearances and traffic conditions.

The most recent record of AC placement was included within the 2012 inspection, which noted the AC depth to be 2 inches. During this inspection, the noted depth appeared reasonable when compared to the concrete bridge rail.

(38-510-3220) Cracking-AC (WS)

Transverse cracks were present in the AC over the abutments. The cracks were typically up to 0.25 to 0.5 inch in width, located along the full width of the bridge, and did not exhibit raveling. Two cracks were present at Abutment 1. One crack was present at Abutment 4.

Minor sporadic transverse and longitudinal cracks were present in the AC throughout the bridge. The cracks were typically 0.125 to 0.25 inch in width, and formed pattern cracking in the southbound lane in Spans 1 and 3. The pattern cracks were spaced as close as 6 to 18 inches on center. Refer to photographs 16 and 17 from the 02/20/2020 routine inspection.

The cracking encompassed approximately 5% of the total AC overlay area.

JOINT - APPROACH - RAIL

RAIL INFORMATION

(36a) Rail Code 0 (36b) Transition 0 (36c) Appr Guardrail 0 (36d) Appr Guardrail End 0 Roadway Speed 50 MPH

JOINT/APPROACH/RAIL ELEMENT INSPECTION RATINGS AND NOTES

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
304			**Joint-Open Expansion**	2	21	m	21	0	0	0

(304) Joint-Open Expansion

Element 304 has been included to account for joints at the abutments based on the structure configuration. Joints and joint seals have not been noted in previous reports.

The joints were not exposed for visual inspection. No indication of joint distress was noted in adjacent bridge elements.

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
333			**Railing-Other**	2	90	m	90	0	0	0

(333) Railing-Other

The top of the sidewalks exhibited minor to moderate abrasion throughout the bridge. Small aggregate was visible but appeared sound. Refer to photograph 32 from the 02/20/2020 routine inspection.

Minor chip spalls were present throughout the interior corner of the sidewalks on both sides of the bridge. The spalls were up to 3 inches in length x 1 inch in depth, did not expose rebar, and appeared to be cause by minor vehicular impacts.

No significant defects were observed.

SUPERSTRUCTURE

SUPERSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(59) SUPERSTRUCTURE RATING = 7

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
312			**Bearing-Enclosed**	2	2	each	2	0	0	0

SUPERSTRUCTURE

SUPERSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(59) SUPERSTRUCTURE RATING = 7

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4

(312) Bearing-Enclosed

The bearing element has been included to indicate the presence of bearings on this structure at the abutments. The bearings were not exposed for visual inspection. No indication of bearing distress was noted in superstructure or substructure elements.

SUBSTRUCTURE

DESCRIPTION UNDER STRUCTURE

(42b) TYPE OF SERVICE UNDER	5-WATERWAY	(38) NAVIGATION CONTROL	0: NO CONTROL
(69) UNDERCLEARANCES V - H	N NOT APPLICABLE (NBI)	(111) PIER PROTECTION	**N/A**
(71) WATER ADEQUACY	8 EQUAL DESIRABLE	(39) NAVIGATION VERTICAL CLEARANCE	0.0 M
(61) CHANNEL PROTECTION	7 MINOR DAMAGE	(116) VERT-LIFT BRIDGE NAV MIN VERTICAL CLEAR	M
(113) SCOUR	5 STABLE W/IN FOOTING	(40) NAVIGATION HORIZONTAL CLEARANCE	0.0 M
SCOUR POA DATE	N/A		

CHANNEL DESCRIPTION

Silty sand and gravel, braided stream, many large bushes in channel.

SUBSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(60) SUBSTRUCTURE RATING = 5

Elem No.	Defect/ Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4
210			**Pier Wall-RC**	2	21	m	16	5	0	0
	1130		**Cracking (RC and Other)**	2	5		0	5	0	0

(210-1130) Cracking (RC and Other)

Sporadic vertical and diagonal cracks were present on the RC pierwalls. The cracks were typically less than 0.016 inch in width, partial to full height of the support, spaced as close as 8 feet on center, and did not exhibit efflorescence or staining. The conditions were first noted in the 1972 inspection report and did not appear to have significantly changed.

215			**Abutment-RC**	2	37	m	27	5	5	0
	1080		**Delamination/Spall/Patched Area**	2	5		0	0	5	0
	1130		**Cracking (RC and Other)**	2	5		0	5	0	0

(215) Abutment-RC

Moderate to heavy water staining and moss on the abutment faces.

SUBSTRUCTURE

SUBSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(60) SUBSTRUCTURE RATING = 5

Elem No.	Defect/ Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State CS 1	CS 2	CS 3	CS 4

(215-1080) Delamination/Spall/Patched Area

Diagonal cracks extending from the shear keys have formed into delaminations and spalls on both abutment faces. Delaminations and patched spalls have been noted at the shear key on the left side of Abutment 1 and at the two shear keys on the left side of Abutment 4. The distress was first noted in the original 1972 report, formed into delamination by 1974, and was patched prior to the 1976 inspection.

During this inspection, the patch at the left side of Abutment 4 has failed and formed into a delamination that was approximately 18 inches in height x 22 inches in width and offset from the abutment face approximately 1 inch.

During this inspection, the conditions at the left side of Abutment 1 and right side of Abutment 4 were obscured by the paint on the abutment faces but did not appear to have significantly changed when compared to recent reports.

Refer to photographs 19 and 20 from the 02/20/2020 routine inspection.

A spall was present on the top and exterior corner of the wingwall at the right side of Abutment 1. The spall was approximately 12 inches in length x 5 inches in height x 1 inch in depth and did not expose rebar. Refer to photograph 21 from the 02/20/2020 routine inspection.

A spall was present at the second shear key at the left side of Abutment 4. The spall was approximately 8 inches in height x 4 inches in width x 1 to 2 inches in depth and did not expose rebar. Refer to photograph 20 from the 02/20/2020 routine inspection.

(215-1130) Cracking (RC and Other)

Sporadic vertical and diagonal cracks were present on the RC abutment faces. The cracks were typically less than 0.016 inch in width, partial to full height of the support, spaced as close as 8 feet on center, and did not exhibit efflorescence or staining. The conditions were first noted in the 1972 inspection report and did not appear to have significantly changed.

220		**Pile Cap/Footing-RC**	2	10	m	0	10	0	0
	6000	**Scour**	2	10		0	10	0	0

(220-6000) Scour

On the Span 2 side of Pier 3, the top of the foundation was exposed along a section approximately 12 feet in length with vertical exposure up to 13 inches. On the Span 3 side of Pier 3, the top of the foundation was exposed the full width of the bridge with vertical exposure up to 6 inches.

The Pier 3 foundation was undermined up to 1 foot in height from the left side of the bridge for an approximate distance of 3 feet. The undermining appeared in a triangular fashion extending up to the full pier cap width at the upstream (left) end.

Refer to photographs 2 and 3.

227		**Pile-RC**	2	1	ea.	1	0	0	0

(227) Pile-RC

The pile element has been included to indicate the presence of piles on this structure at all supports. The piles were not exposed for visual inspection. No indication of pile distress was noted in substructure elements.

Pile exposure at Pier 3 was not evident during this inspeciton. Exposure of piles at Pier 3 has not been recorded in previous reports.

256		**Slope Protection**	2	2	ea.	2	0	0	0

(256) Slope Protection

Element 256 was included to account for the paved concrete slope protection at the corners of the bridge.

During this inspection, the vertical faces at the base of the slope protection were exposed. The most significant exposure was located at the left side of Abutment 4 and was estimated to be 1 to 2 feet. The as-built plans noted the original ground line was located at the bottom of the slope section of the concrete.

Refer to photographs 26 through 29 from the 02/20/2020 routine inspection.

No significant defects were observed.

SUBSTRUCTURE PHOTOGRAPHS

SUBSTRUCTURE

SUBSTRUCTURE PHOTOGRAPHS

Photo 2
Showing the exposed footing from the right, downstream, end of Pier 3 (Span 3 side).

Photo 3
Showing the exposed footing from the left, upstream, end of Pier 3 (Span 3 side).

OTHER PHOTOGRAPHS

Photo 1
Routine map view of bridge location.

WORK RECOMMENDATIONS

DECK WORK RECOMMENDATIONS - NONE

JOINT/APPR/RAIL WORK RECOMMENDATIONS - NONE

SUPERSTRUCTURE WORK RECOMMENDATIONS - NONE

SUBSTRUCTURE WORK RECOMMENDATIONS

Rec Date	02/20/2020	Work By	LOCAL AGENCY	Est Cost		Dist Target
Status	PROPOSED	Action	Sub-Patch spalls	Str Target	2 YEARS	EA

Remove unsound concrete, clear exposed rebar, and patch the spalls on the abutment faces.

OTHER WORK RECOMMENDATIONS

Rec Date	02/20/2020	Work By	LOCAL AGENCY	Est Cost		Dist Target
Status	PROPOSED	Action	Scour-Place Counterm	Str Target	2 YEARS	EA

Mitigate the exposure of the pile cap at Pier 3.

For guidance in choosing and installing appropriate scour countermeasures, refer to HEC-23, "Bridge Scour and Stream Instability Countermeasures: Experience, Selection, and Design Guidance - 3rd Edition", Publication Nos. FHWA-NHI-09-111 and FHWA-NHI-09-112, September 2009.

Photo #1

Routine map view of bridge location.

Photo #2
Showing the exposed footing from the right, downstream, end of Pier 3 (Span 3 side).

Photo #3
Showing the exposed footing from the left, upstream, end of Pier 3 (Span 3 side).