



BRIDGE INSPECTION REPORT

Routine Inspection

BRIDGE NO.:
10C0146

STRUCTURE NAME:
ROBINSON CREEK

INSPECTION DATE:
February 15, 2024

BRIDGE LOCATION INFORMATION

(9) LOCATION	0.1 MI W OF SR 128	(7) FACILITY CARRIED	LAMBERT LANE
(11) POSTMILE	0	(6) FEATURE INTERSECTED	ROBINSON CREEK
(16) LATITUDE	39°00'30.13"	(5) INVENTORY RTE(ON/UNDER)	ON 140000000
(17) LONGITUDE	123°22'06.52"	(104) ON NATIONAL HIGHWAY SYSTEM	NOT ON NHS

STRUCTURAL HEALTH CONDITION SUMMARY INFORMATION

(58) DECK	5 FAIR	DECK AREA (M) ²	69
(59) SUPERSTRUCTURE	5 FAIR	SUFFICIENCY RATING	14.3
(60) SUBSTRUCTURE	0 FAILED	PAINT CONDITION	N/A
(62) CULVERT	N N/A (NBI)	STRUCTURALLY DEFICIENT (SD) STATUS	SD
(67) STRUCTURE EVALUATION	0 CLOSED (113) SCOUR	0 SC - BRIDGE FAILED	

PHOTOGRAPH IDENTIFICATION



Routine-Roadway View (05/20/2019)



Routine-Elevation View (05/20/2019)



Routine-Underside View (05/20/2019)



Routine-Map View (07/29/2022)

TEAM LEADER Eric Watson

REPORT AUTHOR Eric Watson

INSPECTED BY E.Watson/SW.Kung


Eric Watson (Registered Civil Engineer)

7/8/2024

Date



STRUCTURE OVERVIEW

AGENCY INFORMATION

INSPECTION INFORMATION

(1) STATE NAME	CALIFORNIA	069	(90) INSPECTION DATE	02/24	(91) FREQUENCY	24	MO
(2) HIGHWAY DISTRICT		01	(92) CRITICAL FEATURE INSPECTION		(93) CFI DATE		
(3) COUNTY CODE	(10)MENDOCINO		A) NSTM INSP	N-NO	MO A)	N/A	
(4) PLACE CODE	(00000) _____		B) UNDERWATER INSP	N-NO	MO B)	N/A	
(21) MAINTAIN	02 COUNTY HWY AGENCY		C) OTHER SPECIAL INSP	Y-YES	48 MO C)	02/22	
(22) OWNER	02 COUNTY HWY AGENCY						
(98) BORDER BRIDGE STATE CODE	N/A	% SHARE	N/A				
(99) BORDER BRIDGE STRUCTURE NUMBER			N/A				

CONSTRUCTION INFORMATION

(27) YEAR BUILT	1954	(45) MAIN SPANS	1	(43a) STRUCTURE TYPE MAIN	1: CONCRETE
(106) YEAR MODIFIED	N/A	(46) APPR SPANS	0	(43b) DESIGN TYPE MAIN	01: SLAB
(34) SKEW	12	(48) MAX SPAN (M)	8.1	(44a) STRUCTURE TYPE APPR	0: OTHER/ NOT APPLICABLE
(49) LENGTH (M)	8.8	(35) STR FLARE	0-NO	(44b) DESIGN TYPE APPR	00: OTHER/NOT APPLICABLE
(112) NBIS BR LENGTH	Y	JOINTS	0	NO. OF HINGES	0

STRUCTURE DESCRIPTION

Original Structure (1954):

Single span RC slab on closed end strutted abutments with flared wingwalls. All founded on spread foundations.

Temporary Structure (2019):

Bailey Type M2 Truss (15 Panels) on timber blocking on AC roadway.

SPAN CONFIGURATION

1 @ 26.55 feet (CL Supports)

OPERATIONAL INFORMATION

LOAD CAPACITY

(31) DESIGN LOAD	0 UNKNOWN	(65) CALC METHOD	0 FIELD EVAL/ENG JUDG.
(66) INVENTORY RATING	RF=0.75 =>24.3 metric tons	(63) CALC METHOD	0 FIELD EVAL/ENG JUDG.
(64) OPERATING RATING	RF=1.25 =>40.5 metric tons	(70) BRIDGE POSTING	5 AT/ABOVE LEGAL LOADS
(41) STRUCTURE STATUS	P-POSTED FOR LOAD	PERMIT RATING	OXXXX
OVERLAY THICKNESS	6 inches		

POSTING LOADS

	Safe Loads	Existing Ordinance/Order	Posting Signs		Additional Ordinance/Order Requirements
Type 3	<u>Legal</u>		<u>25</u>	U.S. Tons	NONE
Type 3S2	<u>Legal</u>		<u>25</u>	U.S. Tons	
Type 3-3	<u>Legal</u>		<u>25</u>	U.S. Tons	
Speed	<u>25</u>			MPH	
Agency Lowered			<u>Yes</u>		
Posting Order Date					Additional Signs
Load Rating Summary Date	Load Rating under review.				NONE
Load Rating Type	Assigned no plans				
Load Rating Tool - Date	SM&I Inspection Procedure Manual Section 5/10 - 02/21/19				

MINIMUM VERTICAL CLEARANCE

MINIMUM LATERAL UNDERCLEARANCE

(53) MIN VERT CLEAR OVER BRIDGE RDWY	Unimpaired	(55) MIN LAT UNDERCLEAR RT REF	N-NOT H/RR	0.0 M
(54) MIN VERT UNDERCLEAR REF	N-NOT H/RR 0.00 M	(56) MIN LAT UNDERCLEAR LT		0.0 M

CONDITION INFORMATION

INSPECTION COMMENTARY

SCOPE AND ACCESS

Clear flowing water up to 3 feet was present along and through the RSP wall at the right side of Abutment 1 and between the spread foundations under the bridge. Bridge elements that were not buried were visually inspected from the deck or ground. A complete routine inspection was performed.

A Special Feature Member Inspection of the Bailey Type M2 Truss was performed concurrently with this inspection. The Special Feature Member Inspection was conducted in accordance with the Special Feature Member Inspection Plan, dated 5/21/2019. A hands-on visual inspection was performed on (i) the tension stress areas in the truss members, including Category "D" and "E" welds and (ii) the pins connecting the truss panels. The findings from the Special Feature Member Inspection have been incorporated into this report.

HISTORY

The bridge has a history of scour since the original 1980 inspection report.

The foundation at Abutment 2 was first reported to be exposed in 1986, and first reported to be undermined in 2000.

The foundation at Abutment 1 was first reported to be exposed and undermined in 2008.

Failure of the channel wall/retaining wall between the channel and roadway at the right side of Abutment 1 was reported in the 2013 Routine Inspection. Due to the failure, the roadway approaching Abutment 1 was reduced to 1 lane. RSP was placed along the channel and the roadway was rebuilt between the 2016 and 2018 inspections, and the roadway was reopened.

The bridge was coded as scour critical based on a 2013 Hydraulic Inspection based on the undermining of the spread foundations at the abutments.

During the 2017 Hydraulic Inspection, Abutment 2 was critically undermined. A Report of Critical Finding was issued. Based on the critical finding the county placed load restriction signs at the bridge, restricting loads on the bridge to 10 Tons. Additionally, the county performed work to mitigate the undermining, by placing concrete under and at the base of Abutment 2. With the exception of the top face, the additional concrete obscured the original foundation at Abutment 2. The Report of Critical Finding and the load restriction recommendation were rescinded.

On 3/1/2019, Abutment 2 failed due to scour of the spread foundation during high flow. The RC slab bridge was closed. On 3/20/2019, a Panel Bridge Bailey Type M2 Class bridge was placed over and along the same alignment as the RC slab bridge. The Bailey bridge was posted for 25 Tons. Based on communication with Mendocino County personnel, the Bailey bridge is considered a temporary measure.

REVISIONS

Per 2020 FHWA audit, NBI Items 48, 49, 51, and 52 were revised from values previously reported in the 02/04/2020 routine inspection report. With this report, the Items reflect the original RC slab bridge.

DECK AND ROADWAY

The approach roadway to the original bridge has begun to erode away on both sides.

Type P object markers were present at the corners of the bridge at the ends of the k-rail away from the bridge. Type P object markers were present at the right side of Abutment 1 and the left side of Abutment 2 at the ends of the Bailey bridge truss members.

SUPERSTRUCTURE

The Bailey bridge placed on 3/20/2019 is considered a temporary measure and does not warrant within the Element Inspection Rating and Notes of this report.

The Bailey bridge consisted of a single row of double height panels on each side of the bridge. The individual panels were approximately 10 feet in length x 6 feet in height x 2 feet in width. The trusses consisted of 15 panels and were 150 feet in length. The deck consisted of timber runners, on transverse timber members, on steel stringers, on steel floor beams. Between the 2019 and 2020 inspections, the runners were increased from 2 sets of 3 runners to 2 sets of 5 runners. Refer to photograph 3 from the 02/04/2020 routine inspection report.

The steel members exhibited peeled/worn paint and freckled rust on approximately 10 to 20% of the steel member surface areas, but the conditions were present along the full lengths of the trusses.

The top exterior diagonal member in Panel 2 on the left side of the bridge and second closest to Abutment 1 was distorted. At the third point of the member, the member was distorted 0.75 inch downward. No cracks or fractures were found along the member or at the connection to remaining portions of the truss. The distortion appeared to have occurred prior to the current placement of the bridge. Refer to photograph 4 from the 02/04/2020 routine inspection report.

The top exterior diagonal member in Panel 10 on the right side of the bridge and closest to Abutment 1 was distorted. At mid-length, the member was distorted 1 to 2 inches inward and downward. No cracks or fractures were found along the member or at the connection to remaining portions of the truss. The distortion appeared to have occurred prior to the current placement of the bridge.

CONDITION INFORMATION

INSPECTION COMMENTARY

Minor sporadic distortions were present throughout the flanges of the truss members. The edge of the flanges were typically distorted less than but up to 0.5 inch over sections 1 to 3 inches in length.

Two transverse cracks were present at the floor beam bracket to bottom chord connection in Panel 11 and on the right side of the bridge. The crack was located in the weld at the connection, located on the exterior side of the truss, and located at the Panel 10 side of Panel 11. The crack did not propagate to the main truss members or bracket. Refer to photograph 5 from the 02/04/2020 routine inspection report.

A transverse crack was present at the floor beam bracket to bottom chord connection in Panel 8 and on the right side of the bridge. The crack was located in the weld at the connection, located on the interior side of the truss, and located at the Panel 9 side of Panel 8. The crack did not propagate to the main truss members or bracket. Refer to photograph 6 from the 02/04/2020 routine inspection report.

No fractures or cracks were found in the Special Feature Members.

SUBSTRUCTURE

Due to data limitations the following has been included within the Inspection Commentary section instead of Defect 4000 under Element 215 within the Element Inspection Rating and Notes section of this report.

A vertical/diagonal crack was present on the RC curb and top of the wingwall at Abutment 1, at the left side of the bridge. The crack was up to 0.75 inch in width and was offset approximately 0.25 inch.

Horizontal and diagonal cracks were present on the face of Abutment 1.

One of the cracks was previously noted and located along the horizontal construction joint approximately 8 to 10 feet above the foundation. Along the abutment face the crack was typically less than but up to 0.25 inch in width. The crack was visible on the exposed face at the left side of the bridge. At the location the crack dissipated from 0.25 inch in width at the face of the abutment to 0.031 inch in width at the back of the abutment.

At the horizontal crack and at the left side of the bridge, a slight bow was visible. The face of the abutment was distorted to the channel. The bow was not measured during this inspection.

One horizontal crack was present on the face of Abutment 1 approximately 4 to 5 feet from the foundation. The crack was approximately 0.063 inch in width. Approximately 6 feet from the right side of the bridge, the crack transitioned to a diagonal crack that extended to the top right corner of the abutment face.

Diagonal cracks were present above the crack approximately 8 to 10 feet above the foundation. The cracks near the left side of the bridge were estimated to be up to 0.031 inch in width. The cracks near the right side of the bridge were estimated to be 0.063 to 0.125 inch in width.

Horizontal, vertical and diagonal cracks were present throughout the face and wingwalls of Abutment 2.

A horizontal crack was present mid-height of the abutment. The crack was approximately 1 to 1.25 inches in width.

At the horizontal crack, a bow was visible from Abutment 1. The face of the abutment was distorted to the channel. The bow could not be measured during this inspection.

At both sides of the bridge the horizontal cracks transitioned to diagonal cracks that extended to the top and bottom corners of the abutment face. The diagonal cracks at the right side of the bridge were 0.25 to 0.5 inch in width. The diagonal cracks at left side of the bridge and on the bottom half of the abutment face were typically 0.5 to 1.0 inch in width and offset 1 to 2 inches.

The diagonal cracks at the left side of the bridge and on the top half of the abutment face were within the failed areas of the abutment. A gap has developed between the portions of concrete.

Vertical cracks were present at the abutment face to wingwall interface. The cracks were up to 1 inch in width.

Diagonal cracks were present on the face of the wingwall at the right side of Abutment 2. The cracks on the upper half of the wingwall were estimated to be 0.5 to 0.75 inch in width. The cracks on the lower half of the wingwall were estimated to be 0.063 to 0.125 inch in width.

The top of the wingwall at the left side of Abutment 2 was rotated toward the channel. When measured perpendicularly to the back of the wingwall and at the abutment face to wingwall interface, the offset was approximately 16 inches.

The following has been included with this report based on this inspection. Due to data limitations the following has been included within the Inspection Commentary section instead of Defect 1080 under Element 215 within the Element Inspection Rating and Notes section of this report.

CONDITION INFORMATION

INSPECTION COMMENTARY

The previously noted delamination at the left side and at the top of Abutment 2 was located within the failed area of the abutment face. The delamination has deteriorated into spalling that could not be measured during this inspection.

Delaminations were present at the top right corner of the face of Abutment 2. The delaminations were estimated to be up to 4 to 5 feet in height x 1 foot in width and were offset from the abutment face 1 to 2 inches.

SAFE LOAD CAPACITY

Due to the failure of the RC slab bridge and the placement of the Bailey Type M2 Truss bridge, the previous Load Rating Summary Sheet dated 04/26/2010 is not applicable.

Work Request 9170 has been submitted to the SM&I Load Ratings Branch for review of the load rating. An updated Load Rating Summary Sheet will be archived when this review is complete.

The current rating has been temporarily assigned on 02/21/2019 based on the SM&I procedures.

OPERATIONAL SIGNS

Operational signs restricting loads were in place at or along the approaches at both ends of the bridge that indicated:

WEIGHT LIMIT 25 TONS

The stop signs were present along the roadway approaching both ends of the bridge.

The signs and conditions of the signs appeared to be consistent with recent inspection reports and photographs.

EXISTING POSTING

No load or speed postings are on file.

WATERWAY

A channel cross section was not taken during this inspection. The channel cross section dated 09/27/2017 was not checked. Due to the settlement of the RC slab, channel cross sections could not be compared. The truss was placed over the RC slab, and channel cross section could not be taken from the truss.

The Bridge Scour Evaluation - Plan of Action, dated 01/10/2014, was on file in the bridge book. The evaluation recommended monitoring the bridge site, proposed a countermeasure implementation project, and a closure plan as necessary. A check of accuracy or thoroughness of the evaluation was not completed during this inspection.

The embankment at the left side of Abutment 1 was eroding as noted since the 1980 inspection.

RECOMMENDATION

Revise the Plan of Action with current information regarding the scour and channel conditions at the bridge. For assistance, refer to the current version of FHWA Hydraulic Engineering Circular No. 23 ("Bridge Scour and Stream Instability Countermeasures: Experience, Selection and Design Guidance") or by structure rehabilitation or replacement.

SPECIAL INSPECTION INFORMATION

STEEL INVESTIGATION DETAILS

This structure qualifies for an in-depth Steel investigation because it possesses the following non-redundant steel tension members (NSTM) or fatigue prone details :

Truss with Category D Welds, Category E Welds

SFI Required	Yes	Last SFI	02/27/2022	SFI Freq.	48	months	Next SF Inspection	02/27/2026
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UNDERWATER INVESTIGATION DETAILS - NOT APPLICABLE FOR THIS BRIDGE.

DECK AND ROADWAY

DECK CROSS SECTION

1.5 feet br & cu, 24.17 feet, 1.50 feet br & cu

DECK GEOMETRY

(49) LENGTH	8.8 M
(51) NET WIDTH	7.3 M
(52) TOTAL WIDTH	7.9 M
(50) CURB OR SIDEWALK	LEFT 0.0 M RIGHT 0.0 M
(32) APPROACH RDWY WIDTH	6.1 M
(33) BRIDGE MEDIAN	0 NO MEDIAN

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	09-LOCAL 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	3.7 M
(68) DECK GEOMETRY	5 ABOVE TOLERABLE
(72) APPR ROADWAY ALIGN	8 EQUAL DESIRABLE CRIT
(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	25
(103) TEMPORARY STRUCTURE	T TEMPORARY

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)	6 inches
(29) AVERAGE DAILY TRAFFIC	379
(30) YEAR OF ADT 2014	(109) TRUCK ADT % 0 %
(19) BYPASS, DETOUR LENGTH	199 KM
(114) FUTURE ADT	55
(115) YEAR OF FUTURE ADT	2042
(37) HISTORICAL SIGNIFICANCE	5: NOT ELIGIBLE FOR NRHP

DECK ELEMENT INSPECTION RATINGS AND NOTES

(58) DECK 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
38		Slab-RC	2	69	sq.m	42	27	0	0
1130		Cracking (RC and Other)	2	27		0	27	0	0
510		Deck Wearing Surface-Asphalt	2	66	sq.m	66	0	0	0
(38) Slab-RC									
The deck of the RC slab was bare within sections, 1 foot in width, at the base of the RC curb.									
(38-1130) Cracking (RC and Other)									
Cracks were present throughout the soffit of the RC slab.									
A transverse/diagonal crack was present on the soffit of the RC slab. The crack was estimated to be up to 0.016 inch in width, predominantly located at the slab to Abutment 1 interface, ran diagonal at the right side of the bridge, and exhibited minor efflorescence. The distress did not appear to have changed when compared to the 2013 photograph.									
The following conditions appeared to have been due to the settlement of the abutments.									
Longitudinal cracks were present along the diagonal line between the left side of Abutment 1 and the right side of Abutment 2. The cracks were estimated to be less than but up to 0.016 inch in width, were 1 to 2 feet in length, were spaced as close as 6 to 12 inches in center, and exhibited minor efflorescence or seepage staining.									
Longitudinal cracks were present near the RC slab to Abutment 1 interface. The cracks were estimated to be less than but up to 0.016 inch in width, were 1 to 3 feet in length, were spaced as close as 6 to 12 inches in center, and exhibited minor efflorescence or seepage staining.									
Refer to photograph 9 from the 02/04/2020 routine inspection report.									
(38-510) Deck Wearing Surface-Asphalt									
The depth of the AC overlay on the deck of the RC slab could not be verified during this inspection. During a Quality Assurance inspection in February of 2019, the depth of the AC overlay was noted to be 4.5 to 6 inches. The AC overlay depth within this report was modified to reflect the 2019 finding.									

DECK ELEMENT INSPECTION RATINGS AND NOTES

(58) DECK 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

(38-510) Deck Wearing Surface-Asphalt

The AC overlay on the bridge deck appeared to be in adequate condition.

Offsets were present between the AC on the deck and the AC approaches that appeared to have been due to the settlement of the abutments. The condition did not warrant a defect of Element 510.

No significant defects were observed.

JOINT - APPROACH - RAIL**RAIL INFORMATION**

(36a) Rail Code 0 (36b) Transition 0 (36c) Appr Guardrail 0 (36d) Appr Guardrail End 0 Roadway Speed 25 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

332 Railing-Timber

2 17 m 15 0 2 0

1020 Connection

2 2 0 0 2 0

(332) Railing-Timber

The paint system on the timber bridge rail has worn from approximately 10% of the total area of the rail. Where the paint has worn, minor shallow checks, up to 0.016 inch in width, were observed throughout the rail. The conditions did not warrant defects.

(332-1020) Connection

The timber rail post at the right side of Abutment 1 was out of plumb approximately 10 degrees towards Abutment 2.

The timber rail post at the left side of Abutment 2 was out of plumb approximately 45 degrees towards Abutment 2. The condition appeared to have been due to contact with the failed wingwall at the location. Refer to photograph 21 from the 02/04/2020 routine inspection report.

SUPERSTRUCTURE

SUPERSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES - NONE (59) SUPERSTRUCTURE RATING = 5

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	7 ABOVE MINIMUM	(39) NAVIGATION VERTICAL CLEARANCE	0.0 M
(61) CHANNEL PROTECTION	1 BR CLOSED - CORRECT	(116) VERT-LIFT BRIDGE NAV MIN VERTICAL CLEAR	M
(113) SCOUR	0 SC - BRIDGE FAILED	(40) NAVIGATION HORIZONTAL CLEARANCE	0.0 M
SCOUR POA DATE	01/10/2014		

CHANNEL DESCRIPTION

Sand and gravel

SUBSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(60) SUBSTRUCTURE RATING = 0

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

215 Abutment-RC

3 29 m 1 8 20 0

1080 Delamination/Spall/Patched Area

3 1 0 0 1 0

1130 Cracking (RC and Other)

3 5 0 0 5 0

4000 Settlement

3 22 0 8 14 0

(215) Abutment-RC

SUBSTRUCTURE

SUBSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(60) SUBSTRUCTURE RATING = 0

Elem No.	Defect/Prot Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State			
						CS 1	CS 2	CS 3	CS 4
(215) Abutment-RC									
Graffiti and paint were present on areas of abutments and wingwalls within 15 feet of the ground. The paint obscured minor cracks and distress.									
The length of the monolithic wingwalls have been included in the quantity of Element 215.									
(215-1080) Delamination/Spall/Patched Area									
At the end of wingwall at the right side of Abutment 1, spalls were present that correlated to previous distress on the wingwall and the channel wall that was previously located at the end of the wingwall. During this inspection, the spalls were observed as follows:									
- At the bottom of the bridge wingwall: A triangular section, 5 feet x 3 feet, has spalled that previously exhibited cracks and delaminations. - Six feet from the top of the wall: A spall, 5 feet x 2 feet x 3 inches in depth, was present on the bridge wingwall. No rebar was exposed.									
The abutment faces exhibited minor to moderate abrasion on the bottom 1 to 2 feet of the abutments.									
In addition to the abrasion, minor spalls and rock pockets were present.									
A spall was 12 inches x 6 inches by 2 inches in depth, located at the right side of Abutment 1. One section of vertical rebar was exposed and exhibited heavy corrosion including 50% section loss.									
Sporadic spalled rock pockets, up to 1 foot x 4 inches x 3 inches in depth, were present throughout the abraded area of the abutments.									
The conditions did not appear to have significantly changed when compared to previous inspection reports or photographs.									
Refer to the Inspection Commentary section of this report for additional information regarding Defect 1080.									
(215-1130) Cracking (RC and Other)									
Refer to the Inspection Commentary section of this report for information regarding Defect 1130.									
(215-4000) Settlement									
Refer to the Inspection Commentary section of this report for information regarding Defect 4000.									
220		Pile Cap/Footing-RC	2	24	m	0	0	9	15
1080		Delamination/Spall/Patched Area	2	4		0	0	4	0
6000		Scour	2	20		0	0	5	15
(220-1080) Delamination/Spall/Patched Area									
The vertical faces of the foundations exhibited moderate to severe abrasion, including deteriorated rock pockets and spalls.									
Deterioration was located at the right side of Abutment 1. The spalls in the deteriorated areas exhibited rebar with moderate corrosion with minor section loss. The conditions at Abutment 1 did not appear to have significantly changed when compared to previous inspection reports or photographs.									
Spalls were present along the vertical face of the exposed foundation at Abutment 2. The spalls were typically less than but up to 1 foot in diameter x 4 inches in depth and located along the full width of the bridge.									
(220-6000) Scour									
Abutment 1 undermining could not be verified due to the precarious access and structure for safety. The following are measurements from the 2022 BIR:									
-Exposed along the full width of the bridge. -Undermined 18 inches x 6 inches vertically along a section 10 to 12 feet near the right side of the bridge. -Undermined 3 inches x 3 inches vertically along a section 3 feet in length along the wingwall foundation at the right side of the bridge.									
Based on the scour findings of the 2017 Hydraulic Inspection, concrete was placed at the foundation of Abutment 2 prior to the 2018 inspection as follows:									
- Top of the additional concrete was placed level with the original foundation. - The vertical face of the additional concrete was approximately 12 inches beyond the original concrete, resulting in a foundation that was 28.5 inches in width. - The additional concrete was keyed into the channel.									

SUBSTRUCTURE

SUBSTRUCTURE ELEMENT INSPECTION RATINGS AND NOTES

(60) SUBSTRUCTURE RATING = 0

Elem No.	Defect/Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State			
							CS 1	CS 2	CS 3	CS 4
(220-6000) Scour										
Due to scour, the original and additional foundation at Abutment 2 failed on 03/01/2019.										
The scour and failure of the foundation at Abutment 2 is the reason for the bridge closure. Undermining could not be verified due to the precarious access and structure for safety. The following are measurements from the 2022 BIR:										
The wingwall foundation at the left side of the bridge was exposed along the full length of the wingwall but was not undermined.										
The original foundation along the face of the abutment and wingwall was at the right side of the bridge was estimated to be undermined 2 to 4 feet x 1 to 3 feet vertically.										
The additional concrete foundation, placed after the 2018 Hydraulic Inspection, has failed and broken from the original foundation along the face of Abutment 2 but remained at the base of the original foundation. The elevation of the top of the additional foundation was approximately 2 to 3 inches above the elevation of the bottom of the original foundation.										
Refer to photographs 18 through 20 from the 02/04/2020 routine inspection report.										
256			Slope Protection	2	1	ea.	0	0	0	1
6000			Scour	2	1		0	0	0	1
(256) Slope Protection										
No RSP was in place at the face of Abutment 2 or along the wingwall at the right side of Abutment 2.										
(256-6000) Scour										
The previously noted RSP protecting the base of the wingall at the right side of Abutment 2 has been removed and appeared to have migrated downstream.										

WORK RECOMMENDATIONS

DECK WORK RECOMMENDATIONS - NONE

JOINT/APPR/RAIL WORK RECOMMENDATIONS - NONE

SUPERSTRUCTURE WORK RECOMMENDATIONS

Rec Date	02/04/2020	Work By	LOCAL AGENCY	Est Cost		Dist Target
Status	PROPOSED	Action	Super-Misc	Str Target	ROUTINE	EA
Mitigate the cracking at the floorbeam to bottom chord connection in Panels 8 and 11 on the right side of the bridge.						

SUBSTRUCTURE WORK RECOMMENDATIONS

Rec Date	05/14/2013	Work By	LOCAL AGENCY	Est Cost		Dist Target
Status	PROPOSED	Action	Sub-Fix Scour Critic	Str Target	ROUTINE	EA
Mitigate the scour vulnerability of the bridge foundations by implementing scour countermeasures in accordance with the current version of FHWA Hydraulic Engineering Circular No. 23 ("Bridge Scour and Stream Instability Countermeasures: Experience, Selection and Design Guidance") or by structure rehabilitation or replacement. (note: this Work Recommendation revised by CalTrans Hydraulics Office on 10/17/2017)						

OTHER WORK RECOMMENDATIONS

Rec Date	02/21/2018	Work By	LOCAL AGENCY	Est Cost		Dist Target
Status	PROPOSED	Action	Scour-Place Counterterm	Str Target	ROUTINE	EA
Place countermeasures and protect the embankment at the left side of Abutment 1, where the embankment behind the wingwall has eroded and the previously noted trees and timber retaining wall were removed.						