

# 2016 UNDERWATER BRIDGE INSPECTION REPORT



## BRIDGE # 30507 CSAH 5 over RUM RIVER

DISTRICT: District 3

COUNTY: Isanti

CITY/TOWNSHIP: Isanti

STATE: Minnesota

Date of Inspection: 05/24/2016

Equipment Used:

Owner: County Highway Agency

Inspected By: Owens, Garrett; Stuber, Cory

Report Written By: Cory Stuber

Report Reviewed By:

Final Report Date:



## TABLE OF CONTENTS

	<b>PAGE NUMBER</b>
UNDERWATER SUMMARY	3
UNDERWATER INSPECTION	5
UNDERWATER INSPECTION PROCEDURES	7
STRUCTURE INVENTORY	8
ELEMENTS	9
PICTURES	13
DRAWINGS	17

## UNDERWATER INSPECTION

### REPORT SUMMARY

The substructure units inspected at Bridge No. 30507, Piers 1 and 2, were found to be in good to satisfactory condition with no structurally significant defects observed. A light to moderate accumulation of timber debris was observed at Piers 1 and 2. A 3 feet deep scour depression was observed along the entire west face of Pier 2, exposing the top of footing with no vertical exposure present. The extent of scour and footing exposure at Pier 2 and timber debris at both piers was comparable to the conditions found during the last inspection.

### INSPECTION FINDINGS

(A) All concrete surfaces from 4 feet below to 3 feet above the waterline exhibited light scaling with random pockets of poor consolidation with typical penetrations of 1/8 to 1/4 inch in depth.

(B) A light accumulation of timber debris consisting of 4 inch diameter and smaller logs and branches extended along the entire west face of Pier 2 and from the channel bottom up 2 feet.

(C) A 5 foot wide, 3 foot deep scour pocket was observed along the entire west side of Pier 2.

(D) The top of the footing was partially exposed along the west side of Pier 2 from the midpoint of the shaft to the downstream 1/4 point, and the exposed surface exhibited light scaling with typical penetrations of 1/8 to 1/4 inch in depth.

(E) The channel bottom consisted of silty sand with 3 inches of probe rod penetration with scattered random riprap around the perimeter of Pier 1.

(F) The channel bottom consisted of 1 foot diameter riprap with some sand and gravel with no appreciable probe rod penetration east of Pier 2.

(G) A light to moderate accumulation of 8 inch diameter and smaller timber debris was observed at the upstream nose of Pier 1 and extended from the channel bottom up 4 feet.

(H) Two 1 foot high areas of moderate scaling were located on the east face of Pier 1 at the waterline. One area was 2 feet long with up to 1 inch of penetration and was located 6 feet south of the upstream nose. The other area was 1 foot long with up to 1/2 inch of penetration and was located 14 feet south of the upstream nose.

(I) A 2 foot long area of moderate scaling was located at the western upstream side of Pier 1 at the waterline with up to 1/2 inches of penetration.

(J) The channel bottom consisted of sand with up to 3 inches of probe rod penetration west of Pier 2.

### RECOMMENDATIONS

(A) Monitor the timber drift that has accumulated around the piers, and if found to be progressing to the point of influencing or becoming excessive, then removal operations may become necessary.

(B) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of sixty (60) months. Continue to monitor the footing exposure at Pier 2 during future inspections.

Contractor: Collins Engineers, Inc.

Contractor Job Number: 63-9687

## UNDERWATER INSPECTION

### 1. BRIDGE DATA

Bridge #: 30507  
Feature Intersected: RUM RIVER  
Facility Carried: CSAH 5  
District: District 3  
County: 030 - Isanti  
Bridge Description:

The bridge superstructure consists of a three span prestressed concrete beam structure supported by two concrete hammerhead type piers on piles and two concrete abutments. The piers are numbered 1 and 2 starting from the west end of the bridge.

### 2. INSPECTION DATA

Professional Engineer/Team Leader: Cory R. Stuber, P.E.  
Inspection Diver: Garrett R. Owens, P.E.  
Date of Underwater Inspection: 05/24/2016  
Weather Conditions: Sunny, 75° F  
Underwater Visibility (feet): 1.0  
Waterway Velocity (ft/sec): 1.0

### 3. SUBSTRUCTURE INSPECTION DATA

Substructure(s) Inspected: Piers 1 and 2  
General Shape:

Each pier consists of an oblong rectangular shaft with rounded noses which rests upon a rectangular concrete footing supported on timber piles.

Maximum Water Depth at Substructure(s) Inspected (feet): 8.0

### 4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the upstream end of Pier 2.  
Waterline Elevation (feet): 896.0  
Description: The waterline was approximately 18.0 feet below reference.

### 5. NBIS CODING INFORMATION

(Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code: 6  
Item 61: Channel and Channel Protection: Code: 6  
Item 62: Culvert: Code:  
Item 92B: Underwater Inspection: Code: Y 48 05/2016

Item 113: Scour Critical Bridge:

Code: I

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

Yes

No

(Mark your selection with an X)

6. STRUCTURAL ELEMENT CONDITION RATING

ELEM #	Element Description	Quantity	Unit	Conditions			
				CS1	CS2	CS3	CS4
210	Reinforced Concrete Pier Wall	89	LF	84	5		
220	Reinforced Concrete Pile Cap/Footing	11	LF		11		
885	Scour	1	EA		1		

## UNDERWATER INSPECTION

### INSPECTION PROCEDURES

The routine underwater inspection of Bridge 30507 (CSAH NO. 5 over the Rum River) was completed on May 24, 2016. The underwater inspection was conducted from shore and a 14 ft boat. The inspection was conducted by a team consisting of a PE-Diver with a valid MnDOT Team Leader certification, a backup diver and a dive tender. The inspection utilized commercial dive equipment and techniques (SSA and/or SCUBA) in accordance with OSHA regulations. Profiles were taken along the upstream and downstream faces of the bridge and around the periphery of substructure units to determine the presence, location and area of scour.

The bridge elements inspected consisted of Piers 1 and 2. According to the bridge inventory or design drawings, Piers 1 and 2 were founded on a rectangular concrete footing supported on timber piles. Inspection procedures followed FHWA guidance and the MnDOT Bridge and Structure Inspection Program Manual with channel bottom probing to search for foundations. The routine underwater inspection frequency is recommended to remain at a maximum of 60 months based on those findings and risk factors. Also, inspection procedures should continue to follow the above approach and standard guidance with 100% Level I and 10% Level II intensity efforts.

# Minnesota Structure Inventory Report

Bridge ID: 30507

CSAH 5 over RUM RIVER

Date: 08/29/2016

+ GENERAL +	+ ROADWAY +	+ INSPECTION +																				
<b>Agency Br. No.</b> Crew <b>District</b> 03 <b>Maint. Area</b> <b>County</b> 030 - Isanti <b>City</b> Isanti <b>Township</b> <b>Desc. Loc.</b> 0.4 MI W OF JCT CSAH 23 <b>Sect., Twp., Range</b> 25 - 035N - 24W <b>Latitude</b> 45 ° 29 ' 35.16 " <b>Longitude</b> 93 ° 15 ' 56.50 " <b>Custodian</b> 02 - County Highway Agency <b>Owner</b> 02 - County Highway Agency <b>BMU Agreement</b> <b>Year Built</b> 1978 <b>MN Year Reconstructed</b> <b>FHWA Year Reconstructed</b> <b>MN Temporary Status</b> <b>Bridge Plan Location</b> 3 - COUNTY <b>Date Opened to Traffic</b> <b>On - Off System</b> 1 - ON <b>Legislative District</b> 17A <b>Potential ABC</b> 2 - N/A	<b>Bridge Match ID (TIS)</b> 0 <b>Roadway O/U Key</b> Route On Structure <b>Route Sys</b> 04 - CSAH <b>Number</b> 5 <b>Roadway Name or Description</b> CSAH 5 <b>Level of Service</b> 1 - MAINLINE <b>Roadway Type</b> 2 - 2-way traffic <b>Control Section (TH Only)</b> <b>Reference Point</b> 014+00.430 <b>Detour Length</b> 14.0 mi. <b>Lanes</b> <b>ON</b> 2 <b>UNDER</b> 0 <b>ADT</b> 6500 <b>YEAR</b> 2008 <b>HCA DT</b> <b>ADTT</b> % <b>Functional Class</b> 07 - Rural - Major Collector	<b>Userkey</b> 70 <b>Structurally Deficient</b> N <b>Functionally Obsolete</b> N <b>Sufficiency Rating</b> 93.0 <b>Routine Inspection Date</b> 09/21/2015 <b>Routine Inspection Frequency</b> 24 <b>Inspector Name</b> Stuber, Cory <b>Status</b> A - Open																				
		<b>+ NBI CONDITION RATINGS +</b>																				
		<b>Deck</b> 6 <b>Unsound Deck %</b> <b>Superstructure</b> 7 <b>Substructure</b> 6 <b>Channel</b> 6 <b>Culvert</b> N																				
	<b>+ RDWY DIMENSIONS +</b>	<b>+ NBI APPRAISAL RATINGS +</b>																				
	<b>If Divided</b> <b>NB-EB</b> <b>SB-WB</b> <b>Roadway Width</b> 44.50 ft. ft. <b>Vertical Clearance</b> ft. ft. <b>Max. Vert. Clear.</b> ft. ft. <b>Horizontal Clear.</b> 44.4 ft. ft. <b>Lateral Clearance</b> ft. ft. <b>Appr. Surface Width</b> 44.0 ft. <b>Bridge Roadway Width</b> 44.5 ft. <b>Median Width On Bridge</b> ft.	<b>Structure Evaluation</b> 6 <b>Deck Geometry</b> 9 <b>Underclearances</b> N <b>Waterway Adequacy</b> 8 <b>Approach Alignment</b> 8																				
<b>+ STRUCTURE +</b>		<b>+ SAFETY FEATURES +</b>																				
<b>Service On</b> 5 - Highway-pedestrian <b>Service Under</b> 5 - Waterway <b>Main Span Type</b> 5 - Prestress or Precast <b>Main Span Design</b> 01 - Beam Span <b>Main Span Detail</b> <b>Appr. Span Type</b> <b>Appr. Span Design</b> <b>Appr. Span Detail</b> <b>Skew</b> 37 LEFT <b>Culvert Type</b> <b>Barrel Length</b> <b>Cantilever ID</b>	<b>+ MISC. BRIDGE DATA +</b>	<b>Bridge Railing</b> 1 - MEETS STANDARDS <b>GR Transition</b> 1 - MEETS STANDARDS <b>Appr. Guardrail</b> 1 - MEETS STANDARDS <b>GR Termini</b> 0 - SUBSTANDARD																				
	<b>Structure Flared</b> 0 - No flare <b>Parallel Structure</b> N - No parallel structure <b>Field Conn. ID</b> <b>Abutment Foundation (Material/Type)</b> 1 - CONC 3 - FTG PILE <b>Pier Foundation (Material/Type)</b> 1 - CONC 3 - FTG PILE <b>Historic Status</b> 5 - Not eligible	<b>+ IN DEPTH INSP. +</b>																				
		<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Y/N</th> <th style="text-align: center;">Freq</th> <th style="text-align: center;">Date</th> </tr> </thead> <tbody> <tr> <td><b>Frac. Critical</b></td> <td style="text-align: center;">N</td> <td></td> <td></td> </tr> <tr> <td><b>Underwater</b></td> <td style="text-align: center;">Y</td> <td style="text-align: center;">60</td> <td style="text-align: center;">05/24/2016</td> </tr> <tr> <td><b>Pinned Asbly.</b></td> <td style="text-align: center;">N</td> <td></td> <td></td> </tr> <tr> <td><b>Spec. Feat.</b></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Y/N	Freq	Date	<b>Frac. Critical</b>	N			<b>Underwater</b>	Y	60	05/24/2016	<b>Pinned Asbly.</b>	N			<b>Spec. Feat.</b>			
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<b>Spec. Feat.</b>																						
	<b>+ PAINT +</b>	<b>+ WATERWAY +</b>																				
<b>Number of Spans</b> <b>MAIN:</b> 3 <b>APPR:</b> 0 <b>TOTAL:</b> <b>Main Span Length</b> 107.1 ft. <b>Structure Length</b> 326.1 ft. <b>Deck Width (Out-to-Out)</b> 56.5 ft. <b>Deck Material</b> 1 - Concrete Cast-in-Place <b>Wear Surf Type</b> 1 - Monolithic Concrete <b>Wear Surf Install Year</b> <b>Wear Course/Fill Depth</b> 0.00 ft. <b>Deck Membrane</b> 0 - None <b>Deck Rebars</b> 1 - Epoxy Coated Reinforcing <b>Deck Rebars Install Year</b> 1978 <b>Structure Area (Out-to-Out)</b> 18425 sq. ft. <b>Roadway Area (Curb-to-Curb)</b> 14510 sq. ft. <b>Sidewalk Width</b> 50A. Lt 0.00 ft. 50B. Rt 8.00 ft. <b>Curb Height</b> Lt 0.00 ft. Rt 0.00 ft. <b>Rail Type</b> Lt 22 Rt 22	<b>Year Painted</b> <b>Unsound Paint %</b> <b>Painted Area</b> sq. ft. <b>Primer Type</b> <b>Finish Type</b>	<b>Drainage Area (sq. mi.)</b> 1260.0 <b>Waterway Opening (sf.)</b> 2750 <b>Navigation Control</b> 0 - No nav. control on <b>Pier Protection</b> <b>Nav. Clr. (ft.)</b> <b>Vert.</b> 0.0 <b>Horiz.</b> 0.0 <b>Nav. Vert. Lift Bridge Clear. (ft.)</b> <b>MN Scour Code</b> I - LOW RISK <b>Year</b> 1998																				
	<b>+ BRIDGE SIGNS +</b>	<b>+ CAPACITY RATINGS +</b>																				
<b>Posted Load</b> 0 - Not Required <b>Traffic</b> 0 - Not Required <b>Horizontal</b> 1 - Object Markers <b>Vertical</b> N - Not Applicable		<b>Design Load</b> 5 - HS 20 <b>Operating Rating</b> 2 - HS TRUCK 39.1 <b>Inventory Rating</b> 2 - HS TRUCK 24.0 <b>Posting VEH:</b> <b>SEMI:</b> <b>DBL:</b> <b>Rating Date</b> 01/14/2015 <b>Overweight Permit Codes</b> <b>A</b> N - N/A <b>B</b> N - N/A <b>C</b> N - N/A																				

# MINNESOTA BRIDGE INSPECTION REPORT

09/09/2016

Inspector: CO Bridge

## BRIDGE 30507 CSAH 5 OVER RUM RIVER

County: Isanti	Location: 0.4 MI W OF JCT CSAH 23	Length: 326.1 ft.
City: Isanti	Route: 04 - CSAH 5 Ref. Pt.: 014+00.430	Deck Width: 56.5 ft.
Township:	Control Section:	Rdwy. Area/ Pct. Unsnd: 14510 sq. ft. / %
Section: 25 Township: 035N Range: 24W Maint. Area:		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 5 - Prestressed Concrete 2 - List: Stringer/Multi-beam or Girder	Local Agency Bridge Nbr.:	Culvert: N/A
NBI Deck: 6 Super: 7 Sub: 6 Chan: 6 Culv: N		Postings:
	Open, Posted, Closed: A - Open	
	MN Scour Code: I - LOW RISK	

Appraisal Ratings - Approach: 8 Waterway: 8		Unofficial Structurally Deficient N
Required Bridge Signs - Load Posting: 0 - Not Required	Traffic: 0 - Not Required	Unofficial Functionally Obsolete N
Horizontal: 1 - Object Markers	Vertical: N - Not Applicable	Unofficial Sufficiency Rating 93.0

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
12	Reinforced Concrete Deck	Underwater	05/24/2016	18425 SF	18056	0	369	0
		Migrated Values		18425 SF	18056	0	369	0
Notes: 2015- Deterioration along poured joints with rust staining under.								
2013- Deterioration along poured joints.								
510	Wearing Surfaces	Underwater	05/24/2016	14510 SF	14220	0	290	0
		Migrated Values		14510 SF	14220	0	290	0
Notes: Top of Concrete Deck with Uncoated Rebar Notes: (The sum of estimated unsound areas (spalls, delaminations, cracks and chain drag) during inspections was divided by the deck area).								
2015- Less than 2% unsound deck. Aged surface through out, spalling next to poured joints, roughened surface spot (+/- 16 sqft) at West 1/4 Pt. near center, spall holes near North rail (possibly where screed supports were), protection angle plates nicked & gouged and a longitudinal hairline crack along East bound lane in passenger wheel path.								
2013- Spalling next to poured joints.								
109	Prestressed Concrete Open Girder/Beam	Underwater	05/24/2016	1955 LF	1955	0	0	0
		Migrated Values		1955 LF	1955	0	0	0
Notes: 2015- NE corner of North Girder bottom outside has 4" chunk broken off.								
210	Reinforced Concrete Pier Wall	Underwater	05/24/2016	89 LF	84	5	0	0
		Migrated Values		89 LF	84	5	0	0
Notes: 2015- Upstream side of piers show wear and along the east side of the west pier. Minor scaling at water level.								
2013- Upstream side of piers show wear and along the east side of the west pier.								
215	Reinforced Concrete Abutment	Underwater	05/24/2016	175 LF	174	1	0	0
		Migrated Values		175 LF	174	1	0	0
Notes: [2016] Migrator added 40 LF to abutment quantity to account for wingwalls (CS1:40 CS2:0 CS3:0 CS4:0).								
2015- Minor spall at NW corner. East abutment has 3-4 vertical hairline cracks and West abutment has 1-2 vertical hairline cracks (through parapet, abutment & footing) per Girder bay.								
2013- Minor spall at NW corner.								
Wingwall notes: 2015- SE wingwall has erosion around the end. Some hairline cracks exist.								
2013- SE wingwall has erosion around the end.								

**BRIDGE 30507 CSAH 5 OVER RUM RIVER**

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
220	Reinforced Concrete Pile Cap/Footing	Underwater	05/24/2016	11 LF	0	11	0	0
Notes: [2016] Underwater Inspection - The top of the footing was partially exposed along the west side of Pier 2 from the midpoint of the shaft to the downstream 1/4 point, and the exposed surface exhibited light scaling with typical penetrations of 1/8 to 1/4 inch in depth.								
234	Reinforced Concrete Pier Cap	Underwater	05/24/2016	135 LF	135	0	0	0
		Migrated Values		135 LF	135	0	0	0
Notes: 2015- Rust staining (dripped) running down cap under Girders.								
300	Strip Seal Expansion Joint	Underwater	05/24/2016	69 LF	0	69	0	0
		Migrated Values		69 LF	0	69	0	0
Notes: 2015- Needs cleaning. Various lengths through out gland are pulled out.								
2013- Needs cleaning.								
301	Pourable Joint Seal	Underwater	05/24/2016	135 LF	0	0	0	135
		Migrated Values		135 LF	0	0	0	135
Notes: 2015- Delaminations and leaking along joint.								
2013- Delaminations and leaking along joint.								
310	Elastomeric Bearing	Underwater	05/24/2016	18 EA	18	0	0	0
		Migrated Values		18 EA	18	0	0	0
Notes: (Elastomeric expansion bearings are at the West abutment and East Pier)								
2015- E Pier bearings appear in good condition, abutment pads in good condition and position.								
311	Movable Bearing	Underwater	05/24/2016	6 EA	6	0	0	0
		Migrated Values		6 EA	6	0	0	0
Notes: (Expansion bearings are at East abutment)								
2015- Expansion bearings appear to be functioning well.								
313	Fixed Bearing	Underwater	05/24/2016	12 EA	12	0	0	0
		Migrated Values		12 EA	12	0	0	0
Notes: (West pier is fixed)								
2015- W Pier bearings appear in good condition.								
330	Metal Bridge Railing	Underwater	05/24/2016	325 LF	325	0	0	0
		Migrated Values		325 LF	325	0	0	0
	515 - Steel Protective Coating	Underwater	05/24/2016	999 SF	999	0	0	0
		Migrated Values		999 SF	999	0	0	0
Notes: [2016] Migrator assumed CS1 and a quantity of 999 SF.								
331	Reinforced Concrete Bridge Railing	Underwater	05/24/2016	653 LF	0	653	0	0
		Migrated Values		653 LF	0	653	0	0
Notes: 2015- Spalling next to poured joints. Concrete is busted away behind the expansion plate at slot bolt on both rails. Railing has moderate scaling and 3-5 vertical hairline cracks per joint spaces.								
2013- Spalling next to poured joints. Concrete is busted away behind the expansion plate at slot bolt on both rails.								
800	Critical Deficiencies or Safety Hazards	Underwater	05/24/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
Notes: No critical structural deficiencies or serious safety hazards are present on this structure.								

**BRIDGE 30507 CSAH 5 OVER RUM RIVER**

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
810	Concrete Decks - Cracking & Sealing	Underwater	05/24/2016	0 LF	0	0	0	0
		Migrated Values		0 LF	0	0	0	0
	Notes: 2015- Moderate sized cracks along control joints and a hairline longitudinal crack along East bound lane in passenger's wheel path.							
	2013- Moderate sized cracks along control joints.							
815	Plow Fingers	Underwater	05/24/2016	1 EA	0	1	0	0
		Migrated Values		1 EA	0	1	0	0
	Notes: 2015- Some missing.							
	2013- About half missing.							
822	Bituminous Approach Roadway	Underwater	05/24/2016	2 EA	0	2	0	0
		Migrated Values		2 EA	0	2	0	0
	Notes: 2015- Settlement with potholes and patches on both approaches.							
	2013- Both ends have bumps and potholes.							
855	Secondary Members (Superstructure)	Underwater	05/24/2016	50 EA	40	3	7	0
		Migrated Values		50 EA	40	3	7	0
	Notes: (Element used for diaphragms)							
	2015- W and SE concrete end diaphragms are delaminated and spalling between girders and parapet. The NE 3 concrete end diaphragms have cracking. The steel diaphragms appear in good condition.							
	2013- W and SE concrete diaphragms are delaminated between girders and parapet.							
883	Concrete Shear Cracking	Underwater	05/24/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
885	Scour	Underwater	05/24/2016	1 EA	0	1	0	0
		Migrated Values		1 EA	1	0	0	0
	Notes: Underwater inspection on July 27, 2012.							
891	Other Bridge Signing	Underwater	05/24/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
892	Slopes & Slope Protection	Underwater	05/24/2016	1 EA	0	1	0	0
		Migrated Values		1 EA	0	1	0	0
	Notes: 2015- Erosion at W abutment is close to the bottom of the footings.							
	2013- Erosion at W abutment is close to the bottom of the footings.							
893	Guardrail	Underwater	05/24/2016	1 EA	0	1	0	0
		Migrated Values		1 EA	0	1	0	0
	Notes: 2015- Minor impact damage on all 4 rails. West post on SW rail is broken at ground, 1 spacer is split in half and 1 is gone.							
	2013- Minor impact damage on NE, SE and SW rails. 2 posts have rotted, 1 spacer is split in half and 1 is gone.							
894	Deck & Approach Drainage	Underwater	05/24/2016	1 EA	0	1	0	0
		Migrated Values		1 EA	0	1	0	0
	Notes: 2015- Surface runoff is affecting slope protection.							
	2013- Surface runoff is affecting slope protection.							

**BRIDGE 30507 CSAH 5 OVER RUM RIVER**

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
895	Sidewalk, Curb, & Median	Underwater	05/24/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
900	Protected Species	Underwater	05/24/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0

Notes: Use this element to track the presence of protected species living on this structure.

General Notes: Needs riprap on the NE and NW bank to prevent further lateral movement.

East abutment bearings cleaned with wire brush and sprayed with anti-rust lubricant annually for some years now.

58. Deck NBI: 2015- 6, Spalling next to poured joints, aging surface through out, roughened surface spot (16 sqft) West 1/4 Pt. at center, hairline longitudinal crack along east bound wheel path, spall holes near north rail (possibly where screed supports were), nicked and gouged protection angle plates and cracks with rust staining on under deck below poured joints.

36A. Brdg Railings NBI:

36B. Transitions NBI:

36C. Appr Guardrail NBI:

36D. Appr Guardrail Terminal NBI:

59. Superstructure NBI: 2015- 7, Weathering/aging Girders, end diaphragms have delamination and spalling.

60. Substructure NBI: 2015- 7, Minor cracking on abutments and minor scaling on Piers. Isolated spall on NW corner of West abutment.

61. Channel NBI: 2015- 6, Some lateral movement of upstream banks. Moderate erosion of slopes under bridge.

62. Culvert NBI:

71. Waterway Adeq NBI:

72. Appr Roadway Alignment NBI:

Inventory Notes: Underwater inspection on July 27, 2012.  
 Inspection Code: B/07/12  
 Scour Critical Code: O/96  
 MN Scour Code: O-STBC Year-2012

Cory Stuber

Inspector's Signature

Reviewer's Signature

# Pictures



Photo 1 - North Elevation, Looking South



Photo 2 - South Elevation, Looking North

## Pictures



Photo 3 - Typical View of Pier 1, Looking West



Photo 4 - Typical view of Pier 2, Looking East

## Pictures



Photo 5 - View of West Shoreline, Looking Southwest

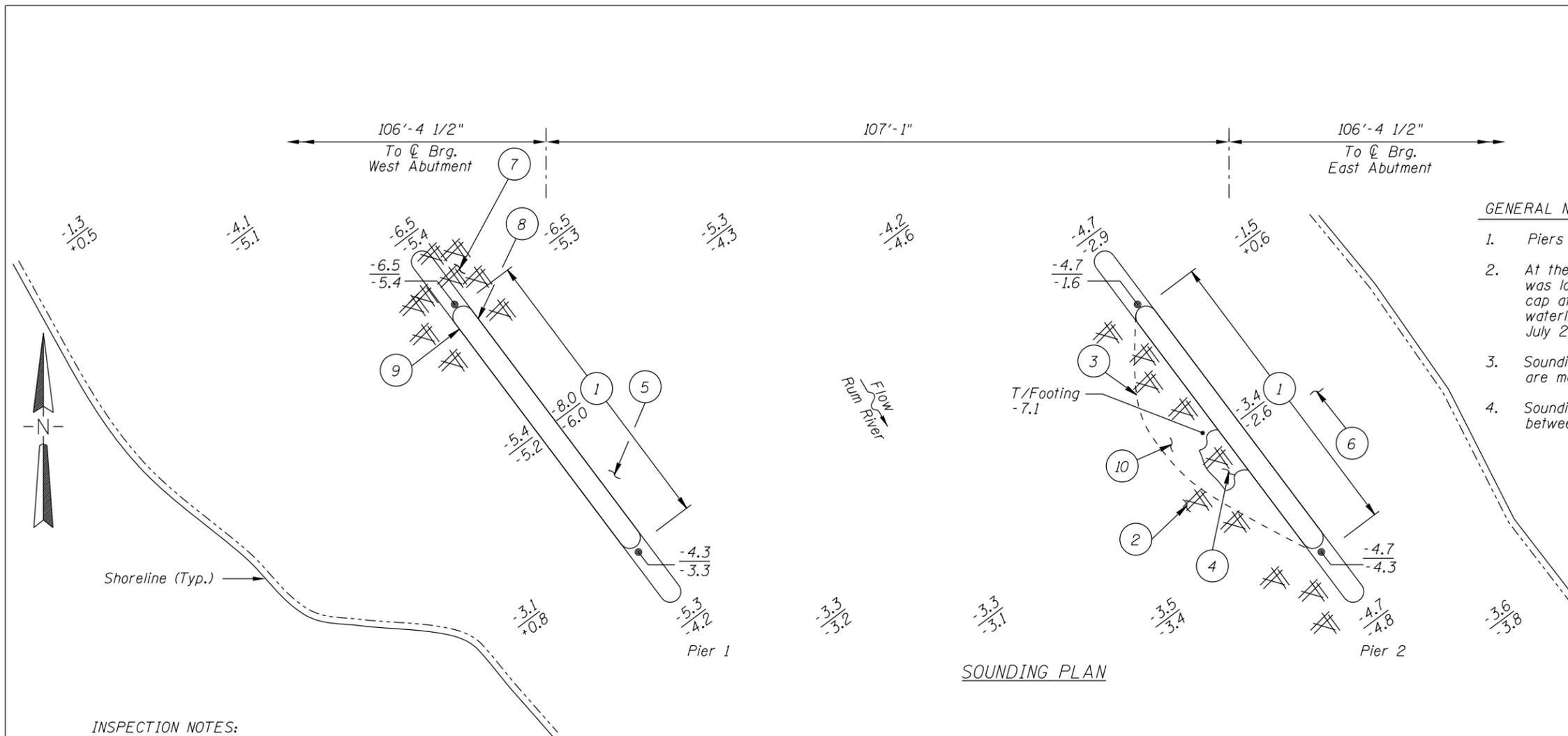


Photo 6 - View of East Shoreline, Looking Southeast

## Pictures



Photo 7 - Typical Concrete Scaling at Waterline

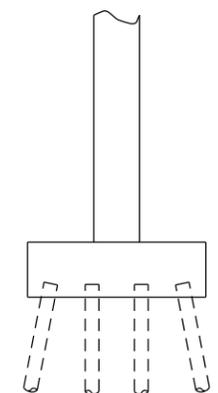


- GENERAL NOTES:**
- Piers 1 and 2 were inspected underwater.
  - At the time of inspection on May 24, 2016, the waterline was located approximately 18.0 feet below the top of the pier cap at the upstream end of Pier 2. This corresponds to a waterline elevation of 896.0 based on the previous report dated July 27, 2012.
  - Soundings indicate the water depth at the time of inspection and are measured in feet.
  - Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

**INSPECTION NOTES:**

- All concrete surfaces from 4 feet below to 3 feet above the waterline exhibited light scaling with random pockets of poor consolidation with typical penetrations of 1/8 to 1/4 inch in depth.
- A light accumulation of timber debris consisting of 4-inch-diameter and smaller logs and branches extended along the entire west face of Pier 2 and from the channel bottom up 2 feet.
- A 5-foot-wide, 3-foot-deep scour pocket was observed along the entire west side of Pier 2.
- The top of the footing was partially exposed along the west side of Pier 2 from the midpoint of the shaft to the downstream 1/4 point, and the exposed surface exhibited light scaling with typical penetrations of 1/8 to 1/4 inch in depth.
- The channel bottom consisted of silty sand with 3 inches of probe rod penetration with scattered random riprap around the perimeter of Pier 1.
- The channel bottom consisted of 1-foot-diameter riprap with some sand and gravel with no appreciable probe rod penetration.
- A light to moderate accumulation of 8-inch-diameter and smaller timber debris was observed at the upstream nose of Pier 1 and extended from the channel bottom up 4 feet.
- Two 1-foot-high areas of moderate scaling were located on the east face of Pier 1 at the waterline. One area was 2 feet long with up to 1 inch of penetration and was located 6 feet south of the upstream nose. The other area was 1 foot long with up to 1/2 inch of penetration and was located 14 feet south of the upstream nose.
- A 2-foot-long area of moderate scaling was located at the western upstream side of Pier 1 at the waterline with up to 1/2 inches of penetration.
- The channel bottom consisted of sand with up to 3 inches of probe rod penetration.

**Note:**  
All soundings based on 2016 waterline location.

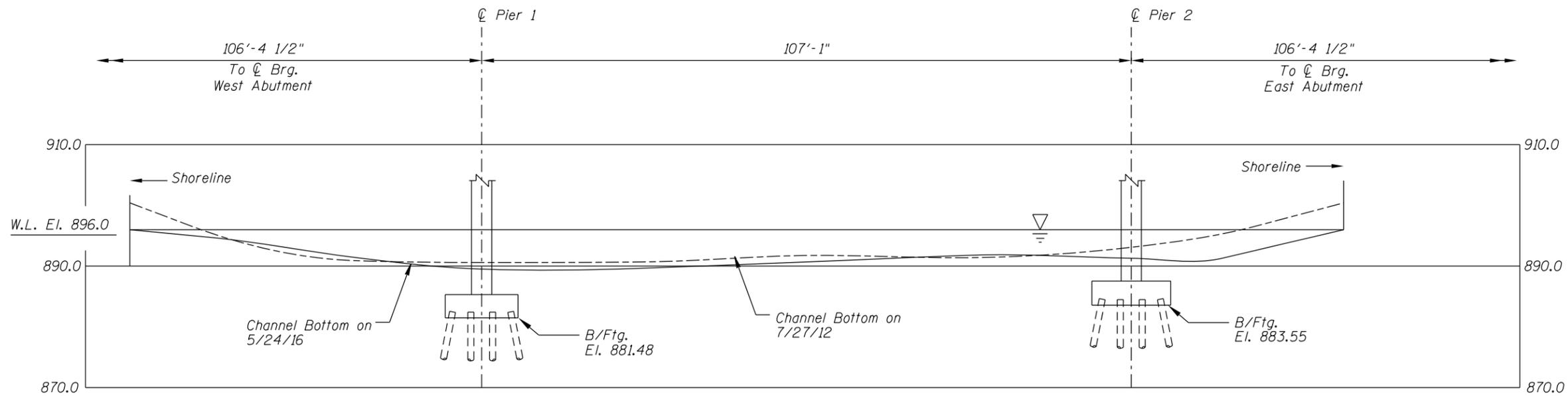


**TYPICAL END VIEW OF PIERS**

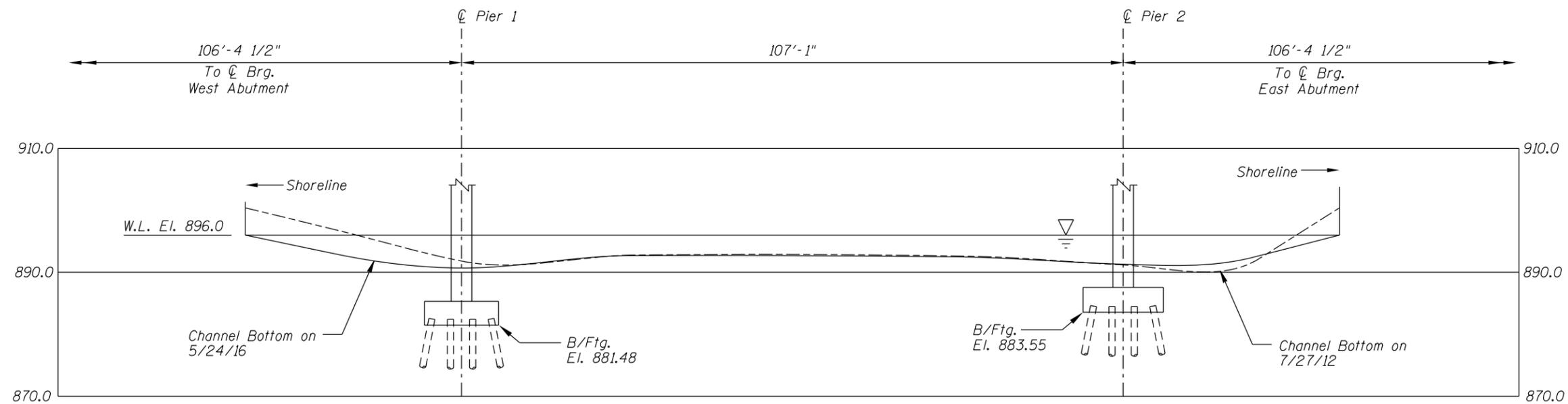
**Legend**

-2.0	Sounding Depth (5/24/16)
-5.2	Sounding Depth (7/27/12)
	Timber Debris
	Scour Depression

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 30507 OVER THE RUM RIVER DISTRICT 3, ISANTICOUNTY		
<b>INSPECTION AND SOUNDING PLAN</b>		
Drawn By: BGDO	<b>COLLINS ENGINEERS</b> <small>1399 Selby Avenue Suite 206 St. Paul, MN 55104 (651) 646-8502 www.collinsengr.com</small>	Date: JUNE 2016
Checked By: BRL		Scale: NTS
Project: 63-9687		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:  
Refer to Figure 1 for General Notes.

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 30507 OVER THE RUM RIVER DISTRICT 3, ISANTICOUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: BGDO	<b>COLLINS ENGINEERS</b> <small>1399 Selby Avenue Suite 206 St. Paul, MN, 55401 (651) 646-8502 www.collinsengr.com</small>	Date: JUNE 2016
Checked By: BRL		Scale: 1"=20'
Project: 63-9687		Figure No.: 2