

# 2016 UNDERWATER BRIDGE INSPECTION REPORT



## BRIDGE # 36517 CSAH 75 over LITTLE FORK RIVER

DISTRICT: District 1      COUNTY: Koochiching      CITY/TOWNSHIP: T - 63 R - 22  
STATE: Minnesota

Date of Inspection: 06/01/2016

Equipment Used:

Owner: County Highway Agency

Inspected By: Stromberg, Dan

Report Written By: Dan Stromberg

Report Reviewed By:

Final Report Date:



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## UNDERWATER INSPECTION

### REPORT SUMMARY

The substructure unit inspected at Bridge No. 36517, Pier 2, was found to be in good condition below water with no defects of structural significance. The channel bottom around Pier 2 was firm in makeup and appeared stable with no significant changes since the last inspection. The top of the footing was exposed at the upstream nose of the pier with no observed vertical exposure.

### INSPECTION FINDINGS

(A) The channel bottom material consisted of a firm, sandy gravel and riprap up to 1-foot-diameter allowing up to 1 inch of probe rod penetration. (B) A band of minor concrete scaling was present 2 feet above the waterline to 3 feet below water with 1/4 inch maximum penetration. (C) The footing was exposed at the upstream nose of the pier. The exposure was only the top of the footing with no vertical exposure. (D) A minor scour depression was present around the upstream nose with an approximate 10-foot-radius and 1 foot depth. (E) A 6-inch-diameter tree branch was located across the upstream nose of the pier.

### RECOMMENDATIONS

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of sixty (60) months

Contractor: Collins Engineers, Inc.

Contractor Job Number: 9687

## UNDERWATER INSPECTION

### 1. BRIDGE DATA

Bridge #: 36517  
Feature Intersected: LITTLE FORK RIVER  
Facility Carried: CSAH 75  
District: District 1  
County: 036 - Koochiching  
Bridge Description:

The superstructure is four spans of multiple steel stringers supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and three reinforced concrete piers. The pier and abutment footings are supported by steel H-piles. The piers are numbered 1 through 3 starting from the south end of the bridge.

### 2. INSPECTION DATA

Professional Engineer/Team Leader: Daniel G. Stromberg  
Inspection Diver: Daniel G. Stromberg  
Date of Underwater Inspection: 06/01/2016  
Weather Conditions: Cloudy, 60°F  
Underwater Visibility (feet): 2.0 feet  
Waterway Velocity (ft/sec): 1 ft/sec

### 3. SUBSTRUCTURE INSPECTION DATA

Substructure(s) Inspected: Pier 2  
General Shape:

Pier 2 consists of a rectangular pier cap with rounded ends supported by two circular shafts connected with a slender diaphragm wall. The pier shaft is supported on a continuous rectangular footing founded on piles.

Maximum Water Depth at Substructure(s) Inspected (feet): 4.5 feet

### 4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the upstream end of Pier 2.  
Waterline Elevation (feet): 1193.8 feet  
Description: The waterline was located approximately 23.0 feet below the 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: 7  
Item 62: Culvert: Code:  
Item 92B: Underwater Inspection: Code: Y 48 06/2016

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
205	Reinforced Concrete Column	2	EA	1	1		

## UNDERWATER INSPECTION

### INSPECTION PROCEDURES

The routine underwater inspection of Bridge 36517 (CSAH 75 over Little Fork River) was completed on June 1, 2016. The underwater inspection was conducted from shore. The inspection was conducted by a team consisting of a PE-Diver with a valid MnDOT Team Leader certification, a backup diver and dive tender. Due to waterway conditions at the time of the inspection, the inspection could be accomplished by wading in accordance with OSHA regulations. Channel bottom 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 one concrete pier. According to the bridge inventory, Pier 2 is supported by a continuous rectangular footing founded on piles. Inspection procedures followed FHWA guidance and the MnDOT Bridge and Structure Inspection Program Manual with channel bottom probing to search for foundations. The maximum routine underwater inspection frequency is recommended to remain at 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: 36517

CSAH 75 over LITTLE FORK RIVER

Date: 08/04/2016

+ GENERAL +	+ ROADWAY +	+ INSPECTION +																				
<b>Agency Br. No.</b> Crew <b>District</b> 01 <b>Maint. Area</b> <b>County</b> 036 - Koochiching <b>City</b> <b>Township</b> 36057 - T - 63 R - 22 <b>Desc. Loc.</b> 2.3 MI SE OF JCT TH 65 <b>Sect., Twp., Range</b> 13 - 063N - 22W <b>Latitude</b> 47 ° 56 ' 58.22 " <b>Longitude</b> 93 ° 6 ' 9.64 " <b>Custodian</b> 02 - County Highway Agency <b>Owner</b> 02 - County Highway Agency <b>BMU Agreement</b> <b>Year Built</b> 1985 <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> 10/1/1987 <b>On - Off System</b> 0 - OFF <b>Legislative District</b> 03A <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> 75 <b>Roadway Name or Description</b> CSAH 75 <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> 002+00.260 <b>Detour Length</b> 20.0 <b>mi.</b> <b>Lanes</b> <b>ON</b> 2 <b>UNDER</b> 0 <b>ADT</b> 20 <b>YEAR</b> 2008 <b>HCA DT</b> <b>ADTT</b> % <b>Functional Class</b> 08 - Rural - Minor Collector	<b>Userkey</b> 76 <b>Structurally Deficient</b> N <b>Functionally Obsolete</b> N <b>Sufficiency Rating</b> 92.0 <b>Routine Inspection Date</b> 09/13/2015 <b>Routine Inspection Frequency</b> 12 <b>Inspector Name</b> Stromberg, Dan <b>Status</b> A - Open																				
		<b>+ NBI CONDITION RATINGS +</b>																				
		<b>Deck</b> 7 <b>Unsound Deck %</b> <b>Superstructure</b> 6 <b>Substructure</b> 6 <b>Channel</b> 7 <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> 28.00 <b>ft.</b> <b>ft.</b> <b>Vertical Clearance</b> <b>ft.</b> <b>ft.</b> <b>Max. Vert. Clear.</b> <b>ft.</b> <b>ft.</b> <b>Horizontal Clear.</b> <b>ft.</b> <b>ft.</b> <b>Lateral Clearance</b> <b>ft.</b> <b>ft.</b> <b>Appr. Surface Width</b> 32.0 <b>ft.</b> <b>Bridge Roadway Width</b> 28.0 <b>ft.</b> <b>Median Width On Bridge</b> <b>ft.</b>	<b>Structure Evaluation</b> 6 <b>Deck Geometry</b> 7 <b>Underclearances</b> N <b>Waterway Adequacy</b> 9 <b>Approach Alignment</b> 4																				
<b>+ STRUCTURE +</b>		<b>+ SAFETY FEATURES +</b>																				
<b>Service On</b> 1 - Highway <b>Service Under</b> 5 - Waterway <b>Main Span Type</b> 4 - Steel Continuous <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> 0 <b>Culvert Type</b> <b>Barrel Length</b> <b>Cantilever ID</b> F - Friction Hinge		<b>Bridge Railing</b> 1 - MEETS STANDARDS <b>GR Transition</b> 0 - SUBSTANDARD <b>Appr. Guardrail</b> 0 - SUBSTANDARD <b>GR Termini</b> N - NOT REQUIRED																				
	<b>+ MISC. BRIDGE DATA +</b>	<b>+ IN DEPTH INSP. +</b>																				
<b>Number of Spans</b> <b>MAIN:</b> 4 <b>APPR:</b> 0 <b>TOTAL:</b> <b>Main Span Length</b> 110.0 <b>ft.</b> <b>Structure Length</b> 322.6 <b>ft.</b> <b>Deck Width (Out-to-Out)</b> 31.3 <b>ft.</b> <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 <b>ft.</b> <b>Deck Membrane</b> 0 - None <b>Deck Rebars</b> 0 - None <b>Deck Rebars Install Year</b> <b>Structure Area (Out-to-Out)</b> 10097 <b>sq. ft.</b> <b>Roadway Area (Curb-to-Curb)</b> 9031 <b>sq. ft.</b> <b>Sidewalk Width</b> <b>50A. Lt</b> 0.00 <b>ft.</b> <b>50B. Rt</b> 0.00 <b>ft.</b> <b>Curb Height</b> <b>Lt</b> 0.00 <b>ft.</b> <b>Rt</b> 0.00 <b>ft.</b> <b>Rail Type</b> <b>Lt</b> 22 <b>Rt</b> 22	<b>Structure Flared</b> 0 - No flare <b>Parallel Structure</b> N - No parallel structure <b>Field Conn. ID</b> 4 - Bolted <b>Abutment Foundation (Material/Type)</b> 3 - FTG PILE <b>Pier Foundation (Material/Type)</b> 3 - FTG PILE <b>Historic Status</b> 5 - Not eligible	<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></td> <td></td> <td></td> </tr> <tr> <td><b>Underwater</b></td> <td></td> <td style="text-align: center;">60</td> <td style="text-align: center;">06/01/2016</td> </tr> <tr> <td><b>Pinned Asbly.</b></td> <td></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>				<b>Underwater</b>		60	06/01/2016	<b>Pinned Asbly.</b>				<b>Spec. Feat.</b>			
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<b>Spec. Feat.</b>																						
	<b>+ PAINT +</b>	<b>+ WATERWAY +</b>																				
<b>Year Painted</b> 1985 <b>Unsound Paint %</b> <b>Painted Area</b> <b>sq. ft.</b> <b>Primer Type</b> D - Organic Zinc - 3309 <b>Finish Type</b> H - Vinyl		<b>Drainage Area (sq. mi.)</b> 1380.0 <b>Waterway Opening (sf.)</b> 3460 <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> 1992																				
	<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 34.4 <b>Inventory Rating</b> 2 - HS TRUCK 20.9 <b>Posting VEH:</b> <b>SEMI:</b> <b>DBL:</b> <b>Rating Date</b> 01/23/1991 <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

08/09/2016

Inspector: CO Bridge

## BRIDGE 36517 CSAH 75 OVER LITTLE FORK RIVER

County: Koochiching	Location: 2.3 MI SE OF JCT TH 65	Length: 322.6 ft.
City:	Route: 04 - CSAH 75 Ref. Pt.: 002+00.260	Deck Width: 31.3 ft.
Township: 36057 - T - 63 R - 22	Control Section:	Rdwy. Area/ Pct. Unsnd: 9031 sq. ft. / %
Section: 13 Township: 063N Range: 22W Maint. Area:		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 4 - Steel Continuous 2 -	Local Agency Bridge Nbr.:	Culvert: N/A
List: Stringer/Multi-beam or Girder		Postings:
NBI Deck: 7 Super: 6 Sub: 6 Chan: 7 Culv: N		
	Open, Posted, Closed: A - Open	
	MN Scour Code: I - LOW RISK	

Appraisal Ratings - Approach: 4 Waterway: 9		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 92.0

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	08/04/2016	10097 SF	9895	0	202	0
		Migrated Values		10097 SF	9895	0	202	0

**Notes:**

2015 - 12 major in N. span and 36 Major in middle span.  
 2014 - 36 middle span and 10 major North span.  
 2013 - N. middle spars - 22 salt lines.  
 2012 - Transverse cracks/salt line approximately every 10'. Only found 14 salt lines in north span instead of 17 in 2011.  
 2011 - 17 salt lines in north span and 34 in south. There is beam rust at exp gland on north underside.  
 2010 - few bird nests.  
 2009 - 37 salt lines in south span.  
 2007 - Concrete patch - SW corner - 12" X 36". Salt lines - 34 in south span and 16 in north span.  
 2006 - no change in salt lines due to power water blasting of deck.  
 2005 - 38 in so. span & 16 in no. span. Middle span - 36 salt lines & 16 in n span in 2003. 20 in n span and 17 in s in 1997. 39 salt lines in 1996. 35 in s half & 19 in north half in 1993. 18 in north half & 34 in s half in 1991.  
 Previous - 29 in 2nd span & 4 in 3rd span.  
 16 salt lines in north span and 34 in south span.

510 - Wearing Surfaces	Underwater	08/04/2016	9031 SF	8850	0	181	0
	Migrated Values		9031 SF	8850	0	181	0

Notes: Top of Concrete Deck with Uncoated Rebar Notes: 2015 - Trans crack in 2nd S. span looks bigger, more deck trans cracks.  
 2012 - Minor transverse cracks.  
 2010 - Agg polish more prevalent on south end. two entire E & W decks cracks & 1/2 dozen minor transverse cracks. between piers.  
 2008 - Agg showing in south span.  
 2007 - 25% of deck could be rated a 2. Agg is starting to polish on north end.  
 2006 - no gravel on deck.  
 2004 - minor gravel in NW gutter to 1st Pier. S Middle span - 36 salt lines. N Middle - 14. Agg. showing in south span. S SPAN - NO CRACKS. S MIDDLE SPAN - 34 SALT LINES. N. MIDDLE SPAN - 14 SALT LINES.

107	Steel Open Girder/Beam	Underwater	08/04/2016	1289 LF	0	1289	0	0
		Migrated Values		1289 LF	0	1289	0	0

**Notes:**

2014 - Beams are booming today with expansion. South joint is white at bottom. Rusting at the North joint.  
 2013 - Use scooper to inspect berms. Rust at S. exposed joint, W 2 south berm.  
 2012 - Hinge asseby rusted from glands leaking.  
 2010 - The beam web has vertical discolorations every 18" to 24" in the mid span. E central beam has weathering linevertical at midspan.  
 2009 - Rust on SW cantilver end of beams. Middle W girder on north end has rust on cantilver beam. DIAPHRAGMS RUSTING UNEVENLY

515 - Steel Protective Coating	Underwater	08/04/2016	999 SF	0	0	999	0
	Migrated Values		999 SF	0	0	999	0

Notes: [2016] Migrator assumed quantity of 999 SF and estimated the condition states.

**BRIDGE 36517 CSAH 75 OVER LITTLE FORK RIVER**

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
205	Reinforced Concrete Column	Underwater	08/04/2016	2 EA	1	1	0	0
		Migrated Values		2 EA	1	1	0	0
<p>Notes: 2013 - 3 vertical cracks now in diaphragm. 3 minor vertical cracks at S Pier. 2011 - 2 vertical cracks now in diaphragm. 3 minor vertical cracks at N Pier. 2010 - 45 degree hairline cracks from column to w central beam. ! vertical crack in diaphragm. No hairline cracks at N Pier. 2008 - some staining at north pier at OHW mark. Water depths: North Pier - NE side - 36". No. Middle - 36". NW - 48". SE - 40". So. Middle - 24". SW - 30". Really no need for underwater inspection.</p>								
215	Reinforced Concrete Abutment	Underwater	08/04/2016	102 LF	40	62	0	0
		Migrated Values		102 LF	40	62	0	0
<p>Notes: [2016] Migrator added 40 LF to abutment quantity to account for wingwalls (CS1:40 CS2:0 CS3:0 CS4:0).</p> <p>2014 - North abutment brown stain in middle. Green stain face of South abutment.                  2013 - N. 2nd east beam, red stain. Green stain - face of south abut. 2010 - strains from the beams at N Abut.                  2008 - mold on surface.                  Previous - S. ABUT - SOME STAINING</p> <p>Wingwall notes: 2013 - S. middle span - 38 salt lines. Some mold on top.</p>								
234	Reinforced Concrete Pier Cap	Underwater	08/04/2016	95 LF	63	32	0	0
		Migrated Values		95 LF	63	32	0	0
<p>Notes:                  2014 - South pier also has 2 vertical cracks at a 45 degree angle. Discoloration at ends of piers                  2013 - Mold on ends - pier 2. Can't see cracks in N. Pier.                  2012 - N Pier has 2 very minor vertical/diagonal cracks. S Pier also has 2 vertical cracks at a 45 degree angle.                  2010 - 45 degree hairline cracks, column to w central beam. ! vertical crack in diaphragm.                  2007 - 2 hairline cracks in south pier on west side.                  2006 &amp; before - N. PIER - STAINING &amp; MILDEW ON END. S. PIER - DISCOLORATION ON ENDS</p>								
300	Strip Seal Expansion Joint	Underwater	08/04/2016	92 LF	52	0	0	40
		Migrated Values		92 LF	52	0	0	40
<p>Notes:                  2015 - 45 degree crack goes thru pier cap to column. 77 degrees SW 1 5/8", NW 1 1/8", SE 1 1/2", NE 1" North expansion joint is leaking and 2 W. beam expansion is rusting badly at cantilever. Replace N strip seal. Large screws missing in south plate.                  2014 - 72 degrees, NW 1-3/8" NE 1-1/4" SW 1-5/8" SE 1-1/3". Clean sand from joint.                  2013 - Replace N. end. 72 degrees SW 2", SE 1 7/8", NE 1 3/8", NW 1 1/2".                  2012 - NW - 1-5/8", NE - 1-1/2", SW 2-1/4", SE 2-1/8".                  2011 - 2-1/8" at SW corner, 2" at SE corner, 1-3/4" at NW corner, and 1-3/4" at NE corner at 55 degrees.                  2010 - Replace north gland &amp; clean south. 50 degrees. NW - 1-3/4", NE 1-1/2", SW - 2-1/8", SE - 2" gap.                  2009 - Replace north and clean N &amp; S. 60 degrees. NE &amp; NW - 1-3/4". SW &amp; SE 2-1/8".                  2008 - Replace north and clean south. 76 degrees and sunny. NW 1-1/2", NE 1-7/16", SE &amp; SW - 2".                  2007 - Clean sand out. Center of north gland pulled out. 50 degrees. NW - 1-3/4", NE - 1-7/8", SW - 2-1/4", SE - 2-1/4". Bit felt dropping out between some joints.                  2006 - 65 degrees. SW and SE - 1-3/4". NE - 1-1/4". NW - 1-3/8".                  2005 - 65 degrees: SE &amp; SW 2-1/4", NE 1-3/4", NW 1-7/8".                  2004 - North joint seal pulled out in middle for 6'. NW - 2" @ 60 degrees. NE - 1/304". SE - 2-1/8". SW - 2-5/16. Sand in south gland.                  2003 - NW 1-3/4', NE 1-5/8', SW &amp; SE 2-1/4'; 6' of gland pulled out on north joint.                  Previous comments &gt; SE = 2-5/8", SW = 2-3/4", NE = 2-3/8", NW = 2-1/2" at 25 degrees.                  2001- NW 2-1/2', NE 2-1/4', SW 2-3/8' SE 2-1/2'.                  11/1999 35 degrees NW &amp; NE 2-1/4', SW 2-5/8', SE 2-9/16'. Screw missing in SE expansion plates.                  1/1999 25 degrees &amp; sunny NW &amp; SW 2-3/8', NE 2-1/4', SE 2-1/4'.                  12/1997 40 degrees SE &amp; SW 2/3/4'. NW &amp; NE 2-1/2'.                  12/96 5 degrees NW &amp; NE 3', SE &amp; SW 3-1/8'.                  1/96 16 below NW 2-3/4', NE 2-7/8', SW &amp; SE 3-5/8'. S abut jacked back in 1995.                  1/95 22 degrees NW 2-1/4', NE 2-3/8', SW &amp; SE 1-3/8'.                  12/93 20 degrees NE &amp; NW 2-1/2', SE 1-3/4', SW - 1-5/8'.                  1/93 NW &amp; NE 2-7/8', NW &amp; SE 1-3/4'.                  1991 NE &amp; NW 3', SW 1-7/8', SE 1-3/4'. GLANDS - OK, BUT SAND IN BOTH</p>								
301	Pourable Joint Seal	Underwater	08/04/2016	92 LF	0	92	0	0
		Migrated Values		92 LF	0	92	0	0
<p>Notes:                  2014 - 3 NW panels look the worst. Lots of cracks.</p>								

**BRIDGE 36517 CSAH 75 OVER LITTLE FORK RIVER**

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
311	Movable Bearing	Underwater	08/04/2016	8 EA	8	0	0	0
		Migrated Values		8 EA	8	0	0	0
Notes: 2009 - bolt is missing on SE exp. plate. 2008 - Exp. with guide bars at Pier 1 & 3								
313	Fixed Bearing	Underwater	08/04/2016	4 EA	4	0	0	0
		Migrated Values		4 EA	4	0	0	0
Notes: 2012 - S sole plates have rust & loss of section. 2009 - rusting at S Abut. Fixed Type 1 at Pier 2								
331	Reinforced Concrete Bridge Railing	Underwater	08/04/2016	643 LF	0	322	322	0
		Migrated Values		643 LF	0	322	322	0
Notes: 2014 - Appearance is terrible. Black on sides. SW side 3" x 9" break at bottom. Pocks marks SE side. 2013 - West side worse. Black mold on top. As many as 5 cracks/seating. 2010 - 4th span in from north on east rail, the crack is vertical from top to bottom. Generally minor cracks that are vertical, some horizontal. 2009 - Outside is black also. SW side scraped by snowplow. 2008 - Top of rail is black. Cracks becoming more numerous. Cracks - 1" wide black strip on top of both rails. 2007 - More cracks in NW side. 2005 - Outside edge also discolored. SEVERAL MINOR CRACKS @ BASE OF RAIL. SE CORNER - LOTS OF CRACKS & MILDEW ON TOP. BLACK STREAK FACE OF NORTHERN END OF RAIL. TOP OF RAIL DISCOLORED. 2004 - Couple cracks on east side in the middle appear larger. SE rail - lot of hairline cracks at base.								
800	Critical Deficiencies or Safety Hazards	Underwater	08/04/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
Notes: NO CRITICAL FINDINGS OBSERVED DURING THE LAST INSPECTION. Glands must be cleaned and rubber joint replaced.								
891	Other Bridge Signing	Underwater	08/04/2016	1 EA	0	0	1	0
		Migrated Values		1 EA	0	0	1	0
Notes: 2006 - NC. 2004 - 4 delineators are up. 3 delineators down but informed contractor who removed them to take care of it.								
892	Slopes & Slope Protection	Underwater	08/04/2016	1 EA	0	1	0	0
		Migrated Values		1 EA	0	1	0	0
Notes: 2012 - Erosion just north of S pier. 2007 - minor erosion. 2005 - No riprap.								
894	Deck & Approach Drainage	Underwater	08/04/2016	1 EA	1	0	0	0
		Migrated Values		1 EA	1	0	0	0
Notes: Use this element to rate the condition, function, and adequacy of the drainage system.								
900	Protected Species	Underwater	08/04/2016	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: 2015 - D. Grindall, Erickson Engineering.  
 2014 - Inspected by D. Grindall Erickson Engineering. Water 1' to 2' deep.  
 2013 - Inspected by D. Grindall Erickson Engineering. Get sand out of expansion. Water very shallow - 12", abut. 18" below normal water.  
 2012 - DG & WH. Ave. river depth about 2'.  
 2011 - DG & WH. Get sand out of south span expansion joint. River depth about 12" which is 18" below normal stains on the pier.  
 2010 - DG & WH.  
 2009 - DG. Water is low, 6" to 12" deep. Bad hole on NE side of S Pier.  
 2008 - Water is low. Only 6" to 24" at piers. Cut & remove brush at SW corner.  
 2007 - DG. Water from 6" to 12" deep. Very rocky bottom. Deeper at piers. Underwater inspection - 8/25/07.  
 2005 - DG inspector. Water is down 30" below normal water mark. Water is from 6" to 24" deep at pier. No need for divers.  
 2004 - DG inspector.  
 06/01/2006 Underwater Inspection - Collins Engineers

58. Deck NBI:

36A. Brdg Railings NBI:

**BRIDGE 36517    CSAH 75 OVER LITTLE FORK RIVER**

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ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
	36B. Transitions NBI:							
	36C. Appr Guardrail NBI:							
	36D. Appr Guardrail Terminal NBI:							
	59. Superstructure NBI:							
	60. Substructure NBI:							
	61. Channel NBI:							
	62. Culvert NBI:							
	71. Waterway Adeq NBI:							
	72. Appr Roadway Alignment NBI:							
	Inventory Notes:							

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Inspector's Signature

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Reviewer's Signature

# Pictures



Photo 1 - Upstream Fascia, Looking Southeast

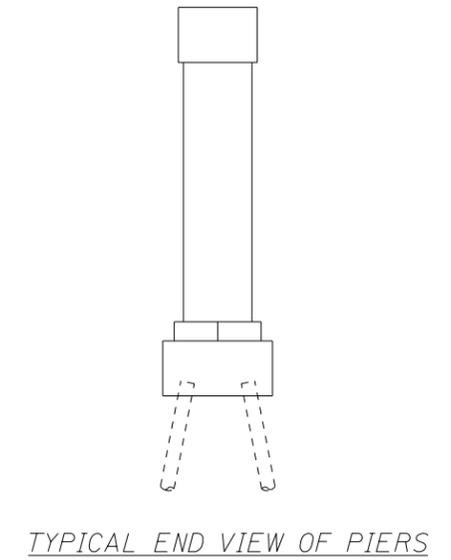
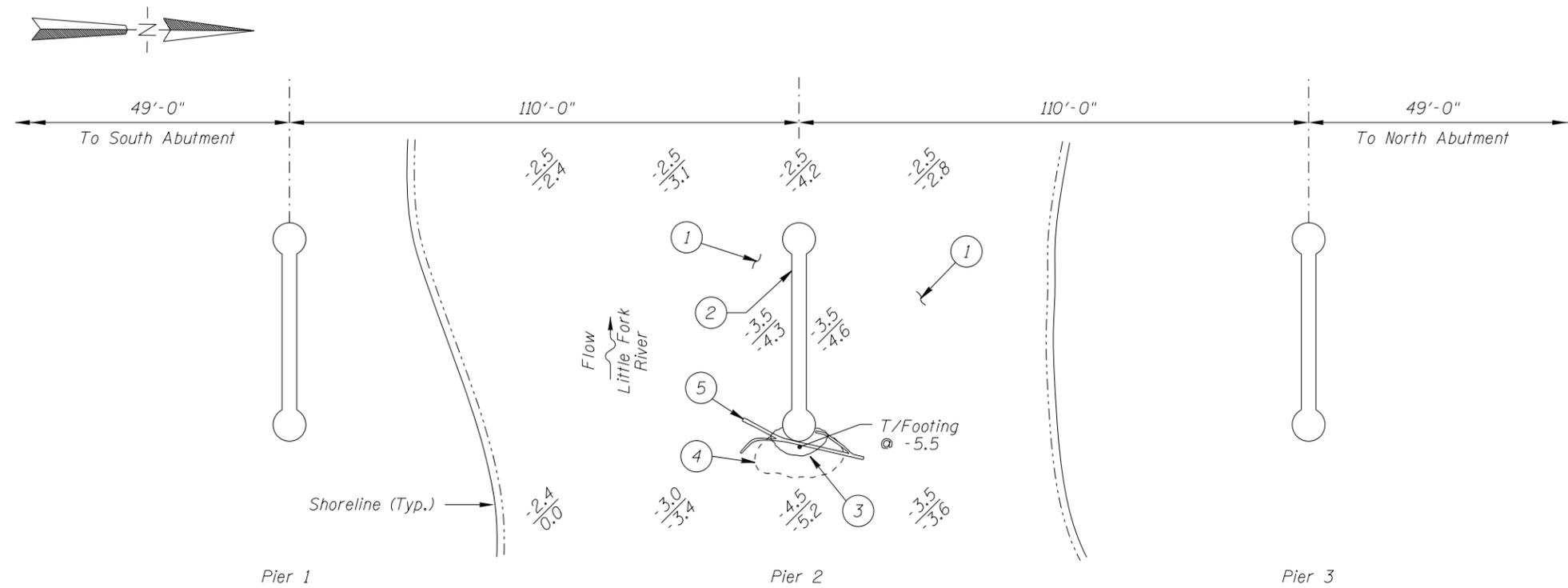


Photo 2 - Downstream Fascia, Looking Southwest

## Pictures



Photo 3 - Pier 2, Looking Southwest



SOUNDING PLAN

GENERAL NOTES:

1. Pier 2 was inspected underwater at this bridge.
2. At the time of inspection on June 1, 2016, the waterline was located approximately 23.0 feet below the top of cap on the upstream end of Pier 2. This corresponds to a waterline elevation of 1193.8.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

- ① The channel bottom material consisted of a firm, sandy gravel and riprap up to 1-foot-diameter allowing up to 1 inch probe rod penetration.
- ② A band of minor scaling was present 2 feet above the waterline to 3 feet below water with 1/4 inch maximum penetration.
- ③ The footing was exposed at the upstream nose of the pier approximately as shown. The exposure was only the top of the footing with no vertical exposure.
- ④ A minor scour depression was present around the upstream nose with an approximate 10-foot-radius and 1 foot depth.
- ⑤ A 6-inch-diameter tree branch was present across the upstream nose of the pier.

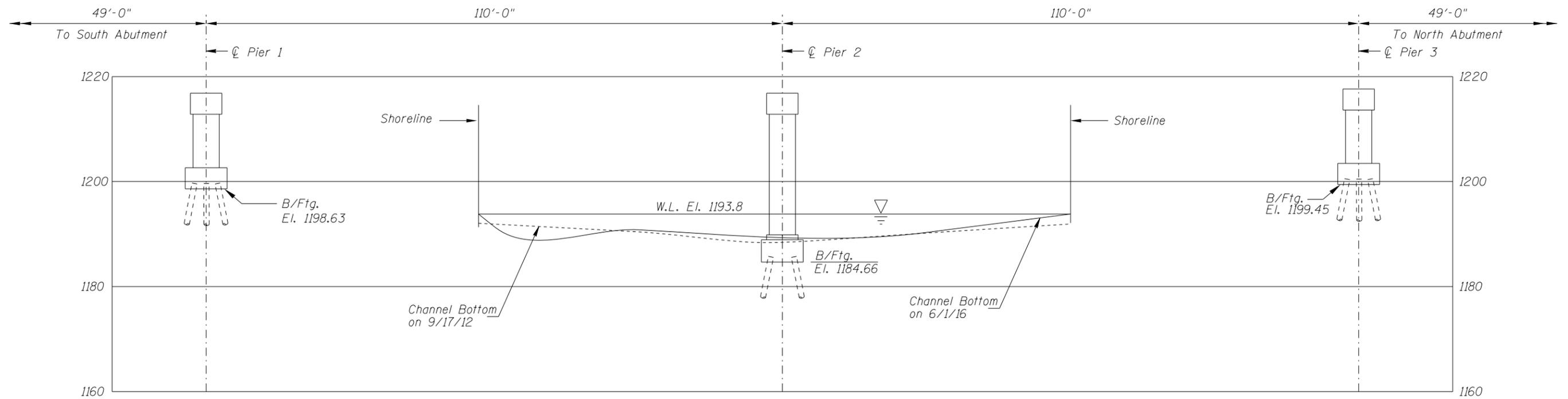
Legend

- 4.5 Sounding Depth (6/1/2016)
- 5.2 Sounding Depth (9/17/2012)

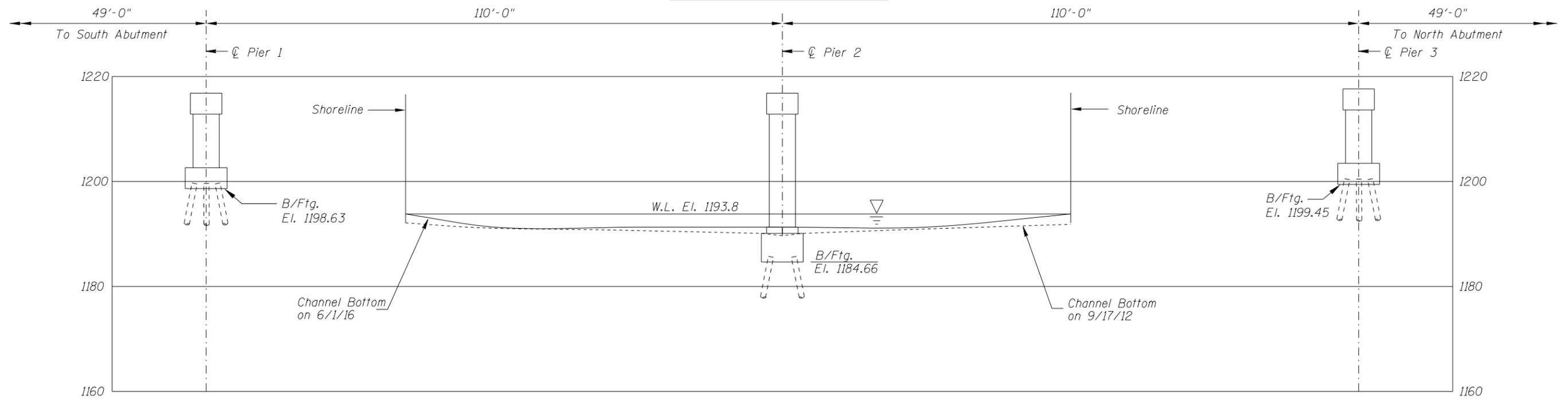
Note:

All soundings based on 2016 waterline location.

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 36517 CSAH 75 OVER THE LITTLE FORK RIVER KOOCHICING COUNTY		
INSPECTION AND SOUNDING PLAN		
DRAWN BY: ELN	<b>COLLINS ENGINEERS</b>	DATE: JUNE 1, 2016
CHECKED BY: DGS		SCALE: NTS
CODE: 968736517		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. 36517 CSAH 75 OVER THE LITTLE FORK RIVER KOOCHICHING COUNTY UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
DRAWN BY: ELN	<b>COLLINS ENGINEERS</b>	DATE: JUNE 1, 2016
CHECKED BY: DGS		SCALE: 1"=20'
CODE: 968736517		FIGURE NO.: 2