

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. L3907

352nd STREET

OVER

BELLE CREEK

GOODHUE COUNTY



MAY 24, 2012

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 7423

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. L3907, Bent 2, was found to be in good condition. Coating loss was observed on all piles extending from the channel bottom to 1 foot above the water line. The channel bottom appeared to be stable with no evidence of significant scour.

INSPECTION FINDINGS:

- (A) The channel bottom material at the downstream half of Bent 2 consisted of sand, gravel and construction debris.
- (B) The channel bottom material at the upstream half of Bent 2 consisted of silty clay with a probe rod penetration of up to 1.5 feet.
- (C) All piles exhibited coating loss, typically extending from the channel bottom to 1 foot above the water line.

RECOMMENDATIONS:

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

Inspection Team Leader:



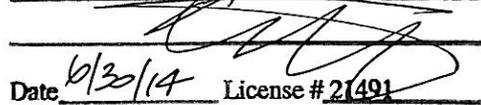
Ryan P. Breen, P.E.

Respectfully submitted,

PROFESSIONAL ENGINEER

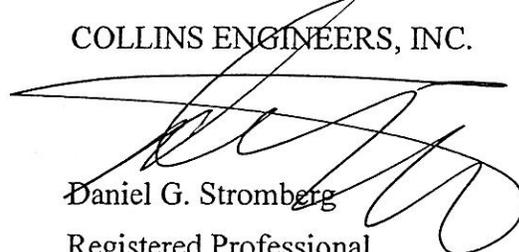
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg



Date 6/30/14 License # 21491

COLLINS ENGINEERS, INC.



Daniel G. Stromberg

Registered Professional

Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: L3907

Feature Crossed: Belle Creek

Feature Carried: 352nd Street

Location: Goodhue County, Township of Belle Creek

Bridge Description: The superstructure consists of a three span precast concrete slab.
The superstructure is supported by two concrete abutments and
two steel pipe pile bents.

2. INSPECTION DATA

Professional Engineer Diver: Ryan P. Breen, P.E.

Dive Team: Marc B. Parker, Michael J. Banasiak

Date: May 24, 2012

Weather Conditions: Cloudy, 70° F

Underwater Visibility: 1.5 feet

Waterway Velocity: 0.5 ft/s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Bent 2

General Shape: Bents 1 and 2 consist of a single line of four 14-inch diameter steel pipe piles supporting a concrete cap.

Maximum Water Depth at Substructure Inspected: Approximately 2.4 feet.

4. WATERLINE DATUM

Water Level Reference: Top of Bent cap at downstream nose of Bent 2.

Water Surface: The waterline was approximately 12.7 feet below the reference.

Waterline Elevation 87.3 (Assuming water level reference at elevation 100)

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/05/12

Item 113: Scour Critical Bridges: Code G

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

Yes No

6. STRUCTURAL MEMBER CONDITION RATING:

Item #	Element Description	Quantity	Unit	Conditions				
				1	2	3	4	5
419	Steel Pipe Piles	4	EA	4				
985	Slope and Slope Protection	2	EA	2				



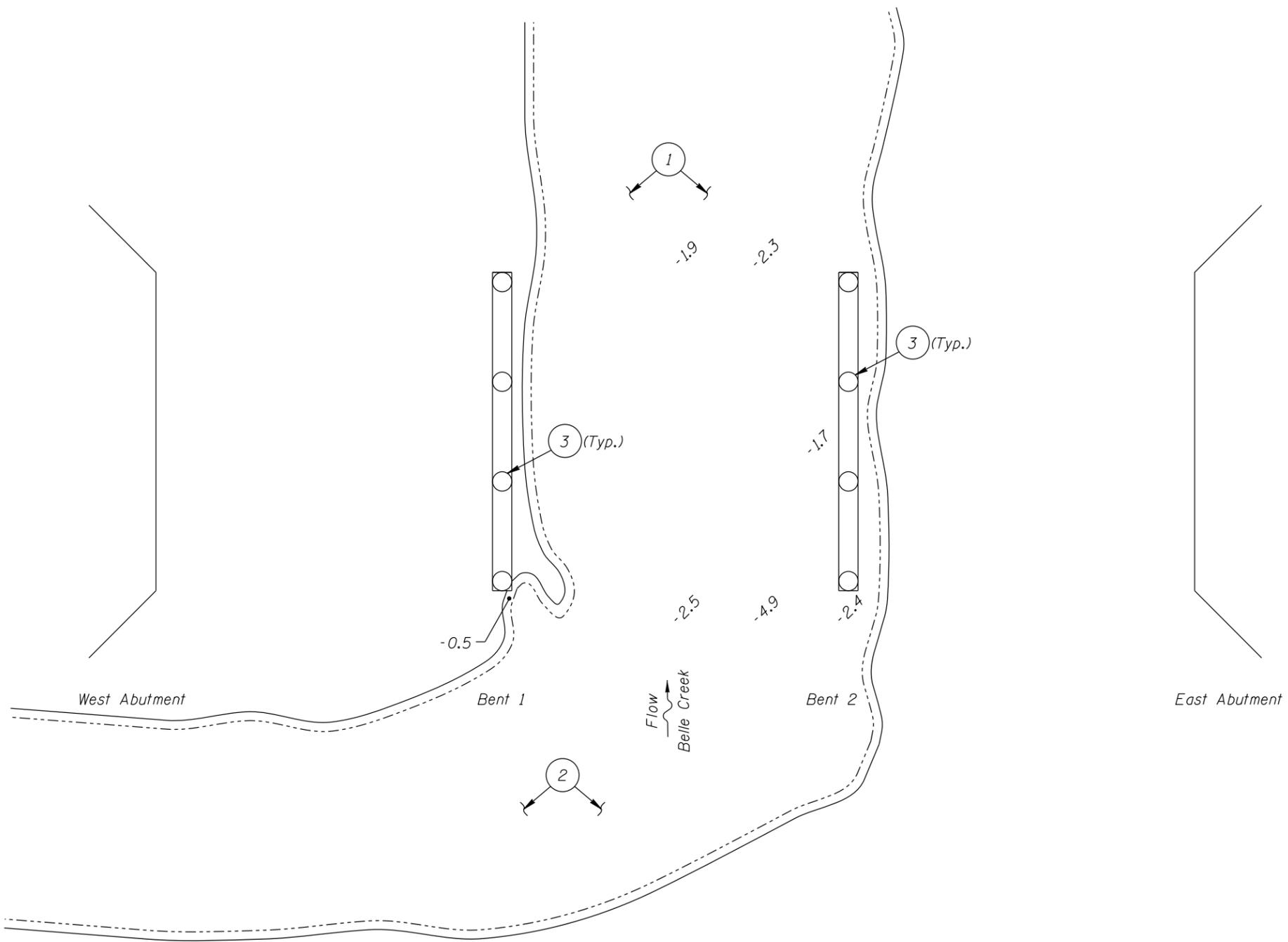
Photograph 1. Overall View of Structure, Looking Northwest



Photograph 2. View of Bent 1, Looking Northwest.



Photograph 3. View of Bent 2, Looking Southwest.



- INSPECTION NOTES:
- ① Channel bottom material consisted of sand and gravel with construction debris.
 - ② Channel bottom material consisted of silty clay with up to 1.5-feet of probe rod penetration.
 - ③ Steel piles were generally sound, with loss of coating extending 1 foot above the waterline to the channel bottom.

SOUNDING PLAN

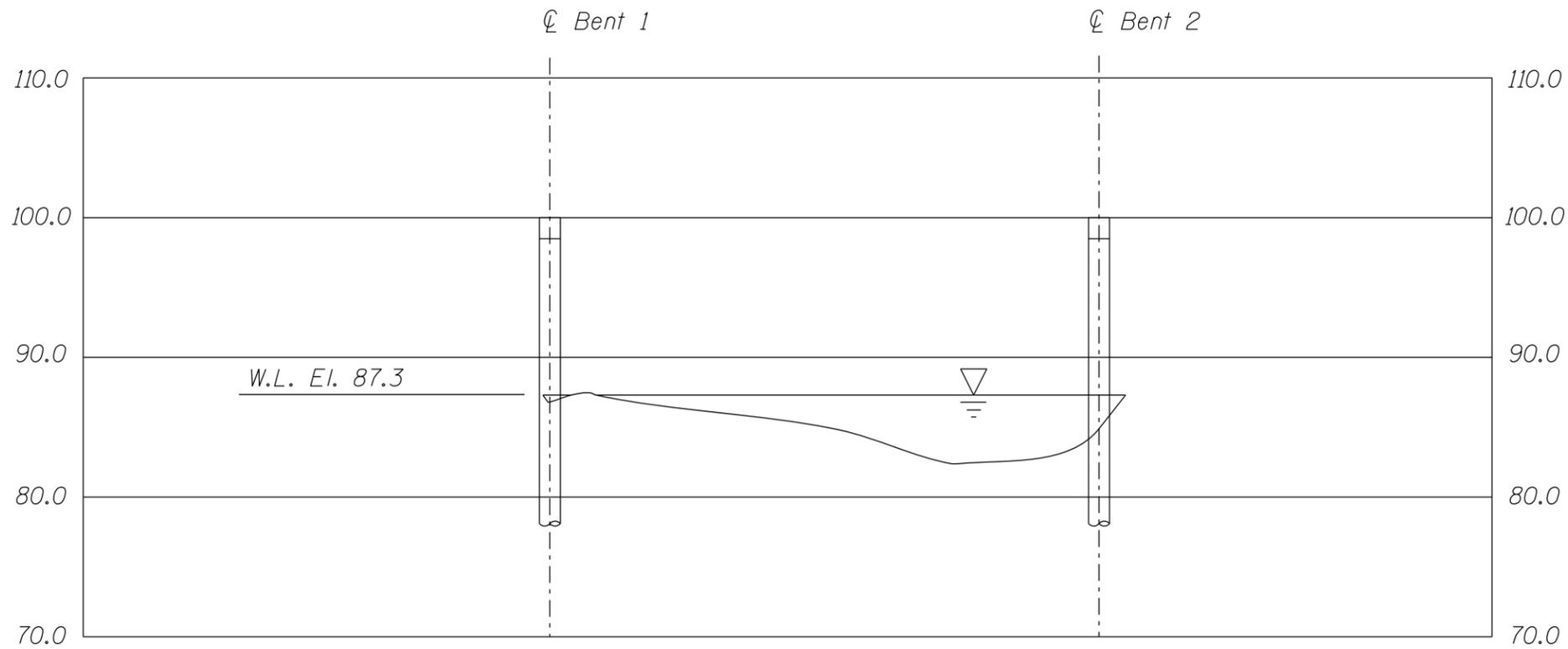
- GENERAL NOTES:
- 1. Bent 2 was inspected underwater.
 - 2. At the time of inspection on May 24, 2012, the waterline was located approximately 12.7 feet below the top of bent cap at downstream end of Bent 2. Since elevation information was not available a reference elevation of 100.0 was assumed. Based on the assumed reference the waterline elevation was 87.3.
 - 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.

- Legend
- 3.0 Sounding Depth from Waterline (5/24/12)
 - 14" Diameter Steel Pipe Pile

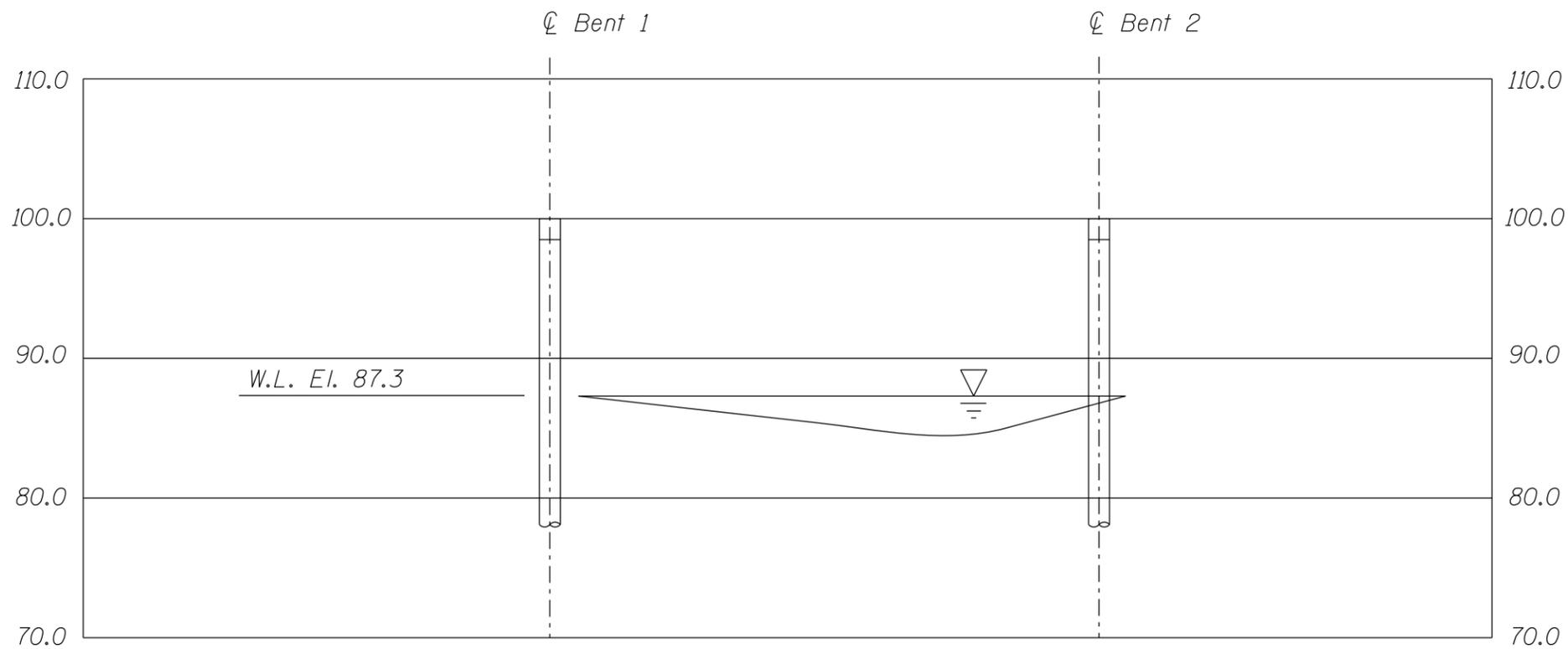
TYPICAL END VIEW OF PIERS



MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. L3907 352nd STREET OVER BELLE CREEK GOODHUE COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: BLV	COLLINS ENGINEERS	Date: MAY, 2012
Checked By: RPB	<small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: N.T.S.
Code: 7423L3907		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:
Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. L3907 352nd STREET OVER BELLE CREEK GOODHUE COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: BLV	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: MAY, 2012
Checked By: RPB		Scale: N.T.S.
Code: 7423L3907		Figure No.: 2

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: May 24, 2012

ON-SITE TEAM LEADER: Ryan P. Breen, P.E.

BRIDGE NO: L3907 WEATHER: Sunny, 70° F

WATERWAY CROSSED: Belle Creek

DIVING OPERATION: _____ SCUBA _____ SURFACE SUPPLIED AIR
 OTHER Wading

PERSONNEL: Marc B. Parker, Michael J. Banasiak

EQUIPMENT: Dry Suit, Scraper, Lead Line, Probe Rod, Camera

TIME IN WATER: 11:45 a.m.

TIME OUT OF WATER: 12:30 a.m.

WATERWAY DATA: VELOCITY 0.5 ft/s

VISIBILITY 1.5 feet

DEPTH 2.4 feet maximum at Bent 2

ELEMENTS INSPECTED: Bent 2

REMARKS: Overall, Bent 2 was found to be in good condition. Coating loss was observed on all piles extending from the channel bottom to 1 foot above the water line. The channel bottom appeared to be stable with no evidence of significant scour.

FURTHER ACTION NEEDED: _____ YES NO

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

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. L3907
 INSPECTORS Collins Engineers, Inc.
 ON-SITE TEAM LEADER Ryan P. Breen, P.E.
 WATERWAY CROSSED Belle Creek

INSPECTION DATE May 24, 2012

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	SUBSTRUCTURE					CHANNEL					GENERAL						
			PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER (BRACING)	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Bent 2	2.4'	7	N	N	8	N	7	N	N	7	N	7	N	7	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, Bents 1 and 2 were found to be in good condition. Coating loss was observed on all piles extending from the channel bottom to 1 foot above the water line. The channel bottom appeared to be stable with no evidence of significant scour.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO. USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.