

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 15505
CR 23 OVER THE
CLEARWATER RIVER
DISTRICT 2 - CLEARWATER COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION
BY
COLLINS ENGINEERS, INC.
JOB NO. 5221 (CEI 33)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 15505, North and South Abutments, were found to generally be in good condition with no defects of structural significance. The channel bottom around the substructure units appeared stable with no evidence of significant scour.

INSPECTION FINDINGS:

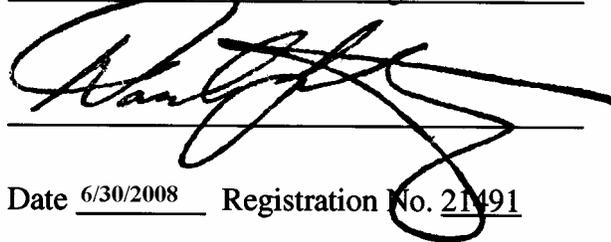
- (A) The timber piles, pile caps, and sheeting exhibited checking up to ¼ inch wide and allowed typical awl penetrations between ¼ inch and ½ inch in depth. The pile to sheeting connection hardware was galvanized steel with minor surface corrosion and no appreciable loss of section on the lower connections (1 foot above waterline). The joints between the wall sheeting were tight with no appreciable loss of fill observed.

RECOMMENDATIONS:

- (A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

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.

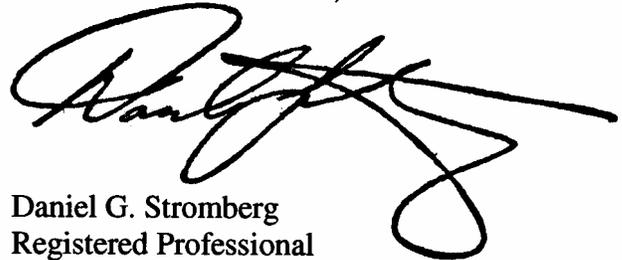
Daniel G. Stromberg



Date 6/30/2008 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 15505

Feature Crossed: Clearwater River

Feature Carried: TWP Road – CR 23

Location: District 2 - Clearwater County

Bridge Description: The bridge superstructure consists of a single span precast reinforced concrete deck beam structure supported by two timber pile abutments.

2. INSPECTION DATA

Professional Engineer/Team Leader: Bradley A. Syler, P.E., S.E.

Dive Team: John J. Loftus, Valerie Rouston

Date: August 17, 2007

Weather Conditions: Sunny, 70°F

Underwater Visibility: 3.0 feet

Waterway Velocity: None/Negligible

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: North and South Abutment.

General Shape: Abutments consisted of timber caps and wall sheeting supported by timber piles.

Maximum Water Depth at Substructure Inspected: Approximately 1.3 feet.

4. WATERLINE DATUM

Water Level Reference: The top of pile cap at east end of North Abutment.

Water Surface: The waterline was approximately 6.0 feet below reference.
Waterline Elevation = 94.0.

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 8

Item 92B: Underwater Inspection: Code B/08/07

Item 113: Scour Critical Bridges: Code G/07

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

 Yes X No



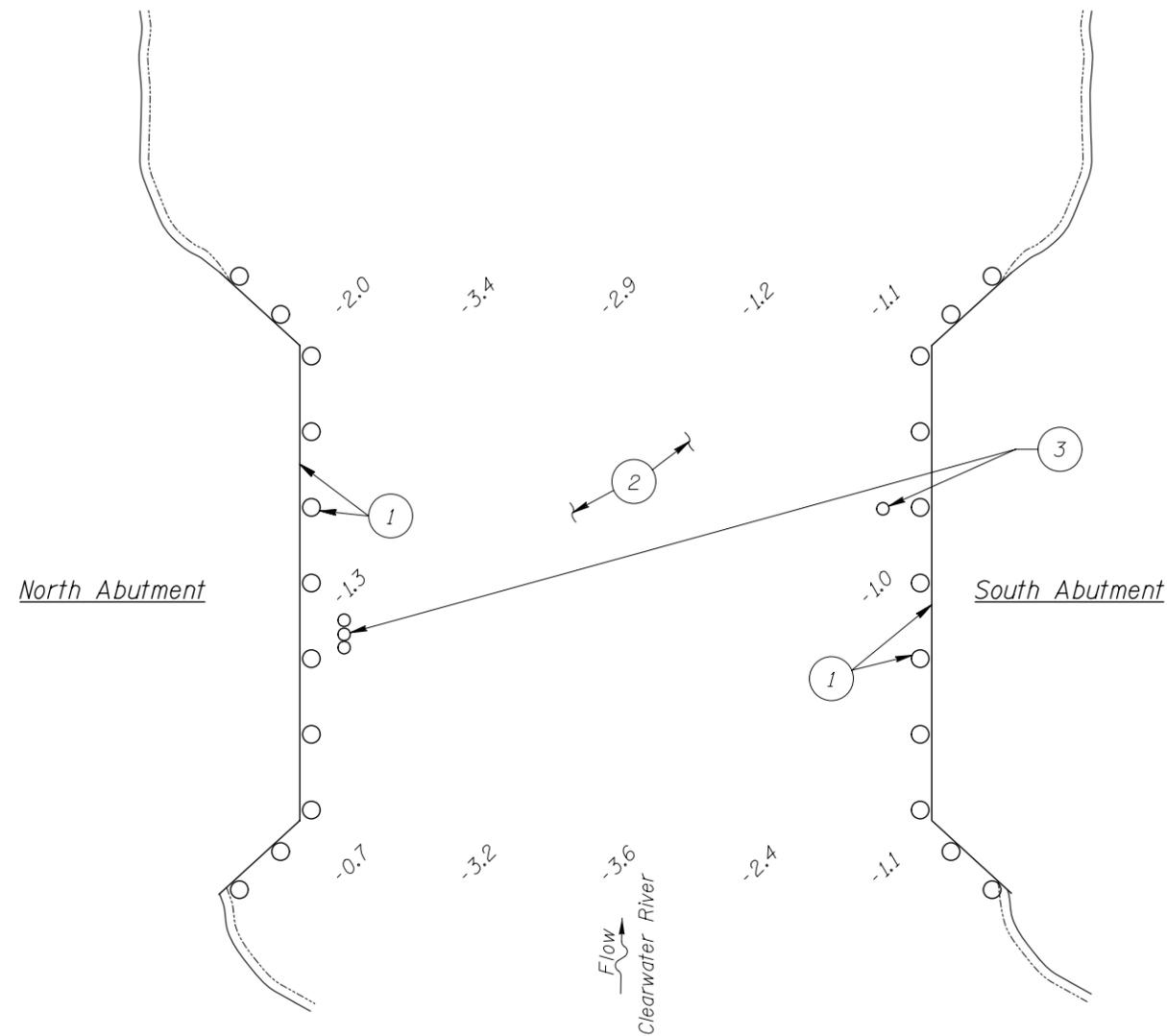
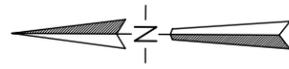
Photograph 1. Overall View of Bridge, Looking West.



Photograph 2. View of North Abutment, Looking North.



Photograph 3. View of South Abutment, Looking South.



SOUNDING PLAN

INSPECTION NOTES:

- 1 The timber piles, pile caps and backwall plank (sheeting) checked up to 1/4 inch wide and typical awl penetrations between 1/4 inch and 1/2 inch deep. The galvanized connection hardware exhibited minor surface corrosion on the lower connections with no appreciable loss of section.
- 2 The channel bottom consisted of silty sand with up to 2 feet of probe rod penetration.
- 3 Abandoned timber piles cut off approximately 1 foot above the waterline.

GENERAL NOTES:

1. The North and South Abutments were inspected underwater.
2. At the time of inspection, on August 17, 2007, the waterline was located approximately 6.0 feet below the top of the pile cap at the east end of the North Abutment. Since insufficient elevation information was available, an elevation of 100.0 was assumed. This corresponds to a waterline elevation of 94.0.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to upstream and downstream fascias at 1/4 point intervals.

Legend

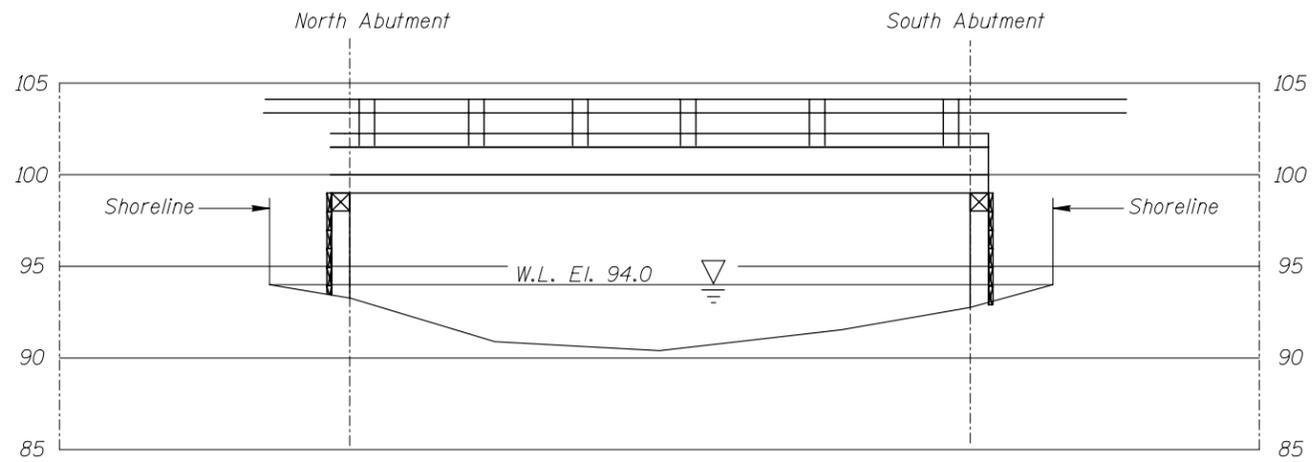
-0.4 Sounding Depth (8/17/07)

**MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION**

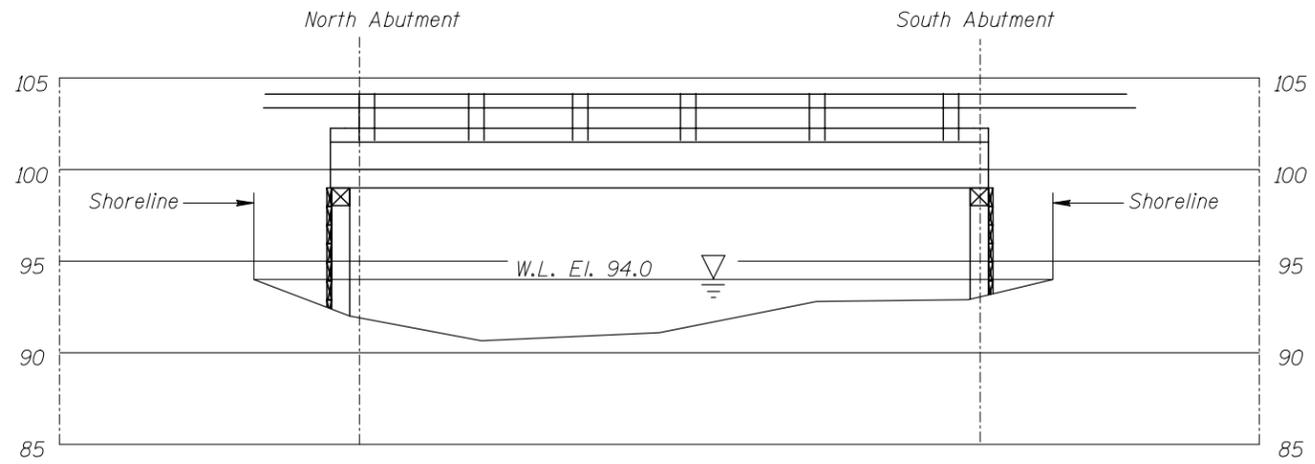
STRUCTURE NO. 15505
OVER CLEARWATER RIVER
DISTRICT 2, CLEARWATER COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: TWR	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: AUG. 2007
Checked By: DGS		Scale: NTS
Code: 52210033		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. 15505 OVER CLEARWATER RIVER DISTRICT 2, CLEARWATER COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: TWR	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: AUG. 2007
Checked By: DGS		Scale: 1" = 20'
Code: 52210033		Figure No.: 2

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

INSPECTORS: Collins Engineers, Inc. DATE: August 17, 2007

ON-SITE TEAM LEADER: Bradley A. Syler, P.E., S.E

BRIDGE NO: 15505 WEATHER: Sunny, 70°F

WATERWAY CROSSED: Clearwater River

DIVING OPERATION: SCUBA SURFACE SUPPLIED AIR
 OTHER

PERSONNEL: John J. Loftus, Valerie Roustan

EQUIPMENT: Scuba, Probe Rod, Lead Line, Sounding Pole, U/W Light, Scraper, Camera

TIME IN WATER: 2:00 p.m.

TIME OUT OF WATER: 2:30 p.m.

WATERWAY DATA: VELOCITY None/Negligible.

VISIBILITY 3.0 feet

DEPTH 1.3 feet maximum at North Abutment

ELEMENTS INSPECTED: North and South Abutments

REMARKS: Overall, the timber piles, pile caps, and wall sheeting exhibited checking up to 1/4 inch wide and allowed typical awl penetrations between 1/4 in. and 1/2 in. The pile to sheeting connection hardware was galvanized steel with minor surface corrosion and no appreciable loss of section on the lower connections (1 foot above waterline). The joints between the wall sheeting were tight with no appreciable loss of fill observed.

FURTHER ACTION NEEDED: YES NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 15505
 INSPECTORS Collins Engineers, Inc.
 ON-SITE TEAM LEADER Bradley A. Syler, P.E., S.E.
 WATERWAY CROSSED Clearwater River

INSPECTION DATE August 17, 2007
 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 (SHEETING)	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
	North Abutment	1.3'	7	7	N	8	7	7	8	8	N	N	8	N	N	7	N	N	N
	South Abutment	1.0'	7	7	N	8	7	7	8	8	N	N	8	N	N	7	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the timber piles, pile caps, and wall sheeting exhibited checking up to ¼ inch wide and allowed typical awl penetrations between ¼ in. and ½ in. The pile to sheeting connection hardware was galvanized steel with minor surface corrosion and no appreciable loss of section on the lower connections (1 foot above waterline). The joints between the wall sheeting were tight with no appreciable loss of fill observed.

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.