UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 32501

CSAH NO. 4

OVER THE

DES MOINES RIVER

DISTRICT 7 – JACKSON COUNTY

SEPTEMBER 26, 2012

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

AYRES ASSOCIATES & COLLINS ENGINEERS, INC.

JOB NO. 7423

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. 32501, Pier 1, was found to be generally in good condition with no defects of structural significance observed. The concrete was typically smooth and sound. Large rocks were observed around the perimeter of Pier 1 and appeared to be placed as a scour countermeasure. A large log was observed at the upstream nose of Pier 1. This report represents the initial underwater inspection of this structure.

INSPECTION FINDINGS:

(A) The concrete of Pier 1 was smooth, sound, and in good condition.

(B) Large rocks were observed around the perimeter of Pier 1. The rocks extended away from the pier 4 to 5 feet.

(C) A 10 inch diameter log was observed at the upstream nose of Pier 1.

RECOMMENDATIONS:

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

Respectfully submitted,

Inspection Team Leader

Ayres Associates, Inc.

Brian K. Schroeder
Registered Professional Engineer
State of Minnesota

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: 32501

Feature Crossed: Des Moines River

Feature Carried: CSAH No. 4

Location: District 7 – Jackson County

Bridge Description: The bridge structure consists of three spans of multiple steel beam superstructure. The superstructure is supported by two hammerhead shaped reinforced concrete piers and two reinforced concrete abutments. The piers are numbered 1 and 2 starting from the south end of the bridge. No design drawings were provided.

2. INSPECTION DATA

Professional Engineer/Team Leader: Brian K. Schroeder, P.E.

Dive Team: Jason A. Cook, Ricardo S. Narvaez

Date: September 26, 2012

Weather Conditions: Sunny, Clear 50 ºF

Underwater Visibility: 1.0 foot

Waterway Velocity: None/Negligible

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 1

General Shape: The piers consist of a rectangular shaft with rounded ends supporting a hammerhead cap.

Maximum Water Depth at Substructure Inspected: Approximately 2.7 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the downstream end of Pier 1.

Water Surface: The waterline was approximately 16.7 feet below reference.
Assumed Waterline Elevation = 83.3.

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/09/12

Item 113: Scour Critical Bridges: Code L

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

_____ Yes X No

6. STRUCTURAL ELEMENT CONDITION RATING

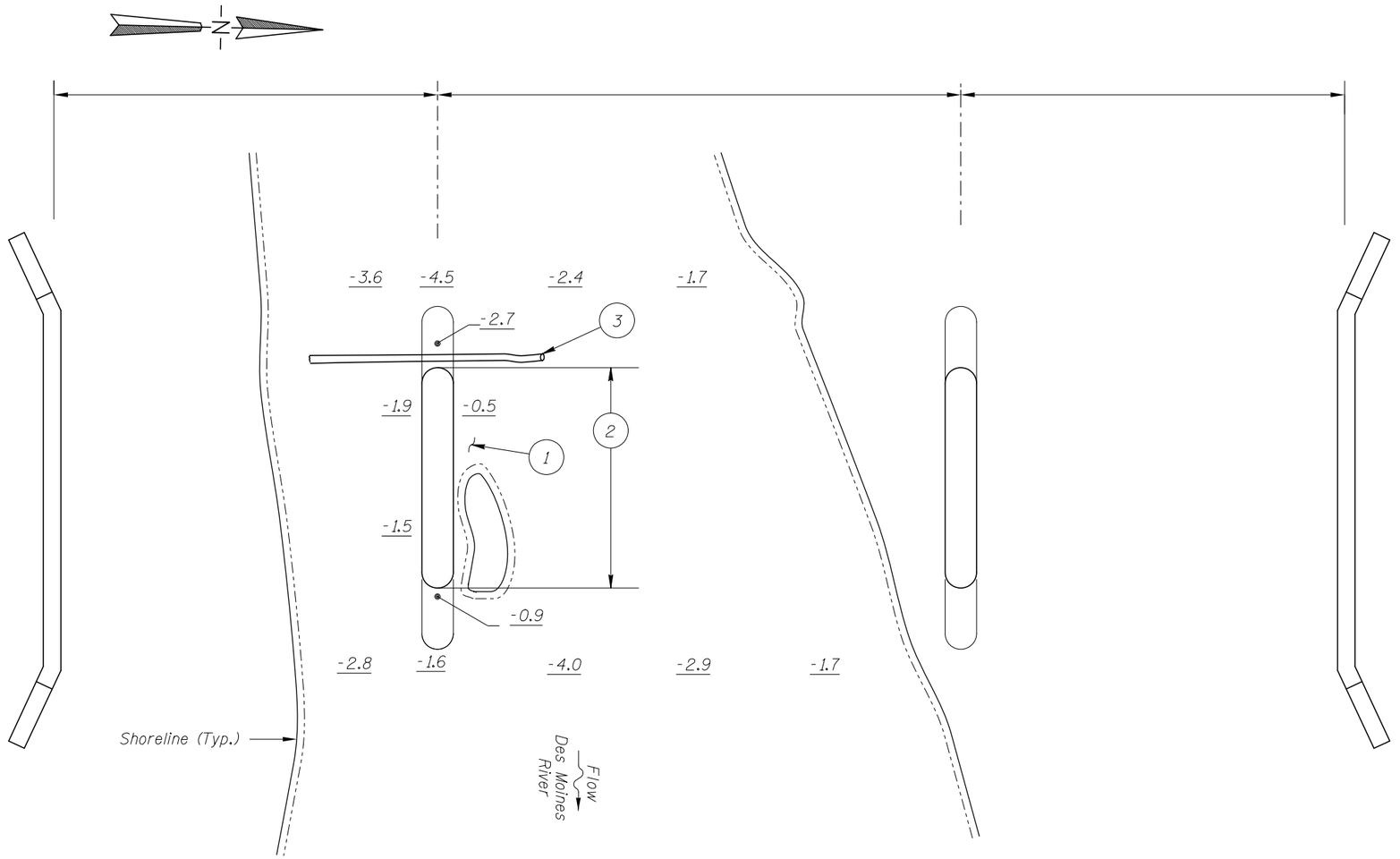
Item #	Element Description	Quantity	Unit	Conditions				
				1	2	3	4	5
205	Reinforced Concrete Column	1	EA	1				
985	Slopes and Slope Protection	1	EA	1				

Photograph 1. Overall View of the Structure, Looking West.

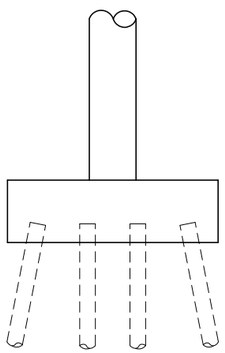
Photograph 2. View of Pier 1, Looking North.

Photograph 3. View of Pier 1, Looking South.

Photograph 4. View of Pier 2, Looking North.



SOUNDING PLAN



TYPICAL END VIEW OF PIERS

GENERAL NOTES:

1. Piers 1 was inspected underwater.
2. At the time of inspection on September 26, 2012, the waterline was located approximately 16.7 feet below the top of the pier cap at the downtream end of Pier 1. This corresponds with an assumed waterline elevation of 83.3.
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.

INSPECTION NOTES:

(1) Large rocks were observed on the channel bottom around the perimeter of Pier 1. The rocks extended 4 to 5 feet off the face of Pier 1.

(2) Overall the concrete surface of Pier 1 was smooth and sound.

(3) A 10 inch diameter log was observed at the upstream nose of Pier 1.

Legend

-2.0 Sounding Depth (9/26/12)

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

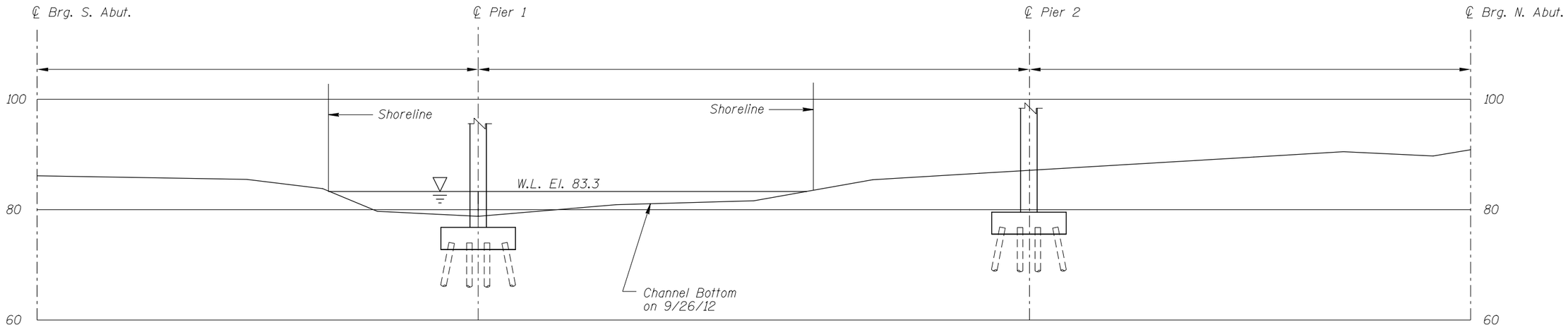
STRUCTURE NO. 32501
OVER THE DES MOINES RIVER
DISTRICT 7, JACKSON COUNTY

INSPECTION AND SOUNDING PLAN

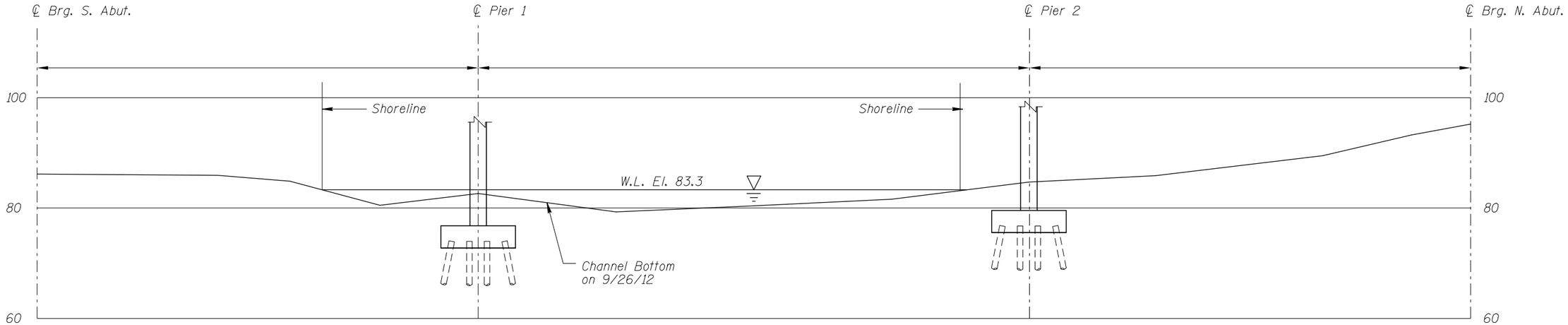
COLLINS ENGINEERS, INC.
123 North Wacker Drive
Suite 300
Chicago, IL 60606
(312) 704-9300
www.collinsengr.com

AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

Drawn By: JAC	Date: SEPT., 2012
Checked By: BKS	Scale: 1"=20'
Code: 52210055	Figure No.: 2



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

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UPSTREAM AND DOWNSTREAM FASCIA PROFILES

COLLINS ENGINEERS INC
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Suite 300
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(312) 704-9300
www.collinsengr.com

Drawn By: JAC	Date: SEPT., 2012
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AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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

INSPECTORS: Ayres Associates DATE: September 26, 2012

ON-SITE TEAM LEADER: Brian K. Schroeder, P.E.

BRIDGE NO: 32501 WEATHER: Sunny, Clear 50 ºF

WATERWAY CROSSED: Des Moines River

DIVING OPERATION: _____ SCUBA _____ SURFACE SUPPLIED AIR

X OTHER Wade

PERSONNEL: Jason A. Cook, Ricardo S. Narvaez

EQUIPMENT: Dry Suite, Hammer, Sounding Rod, Camera

TIME IN WATER: 9:50 AM

TIME OUT OF WATER: 10:05 AM

WATERWAY DATA: VELOCITY None/Negligible

VISIBILITY 1.0 feet

DEPTH 2.7 feet maximum at Pier 1

ELEMENTS INSPECTED: Pier 1

REMARKS: The concrete below water was in good condition. Large rocks were observed around the perimeter of Pier 1 and extended away from the pier 4 to 5 feet. A 10 inch diameter log was observed at the upstream nose of Pier 1.

FURTHER ACTION NEEDED: _____ YES X 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. 32501
INSPECTORS Ayres Associates
ON-SITE TEAM LEADER Brian K. Schroeder, P.E.
WATERWAY CROSSED Des Moines River

INSPECTION DATE September 26, 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

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	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
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	2.7’	N	7	N	N	N	7	7	7	7	7	7	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: The concrete below water was in good condition. Large rocks were observed around the perimeter of Pier 1 and extended away from the pier 4 to 5 feet. A 10 inch diameter log was observed at the upstream nose of Pier 1.

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.