

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 7105

CSAH NO. 14

OVER THE

DES MOINES RIVER

DISTRICT 7 - JACKSON COUNTY



OCTOBER 19, 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 units inspected at Bridge No. 7105 consisted of Pier 1 and the West Abutment. The concrete components of the substructure units were found to be in good to satisfactory condition with no defects of structural significance. The downstream column of Pier 1 had minor random areas of honeycombing. A moderate accumulation of debris was observed around each column of Pier 1. This report represents the initial underwater inspection for this structure.

INSPECTION FINDINGS:

- (A) Random areas of honeycombing were observed on the downstream column of Pier 1 measuring up to 10 inches in diameter and 1 inch deep
- (B) A moderate accumulation of debris, consisting of abandoned piles and boulders, was observed around each column at Pier 1 from the streambed up 4 feet extending 4 feet away from the columns.

RECOMMENDATIONS:

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

Inspection Team Leader

Ayres Associates, Inc.



Brian K. Schroeder
Registered Professional Engineer
State of Minnesota

Respectfully submitted,

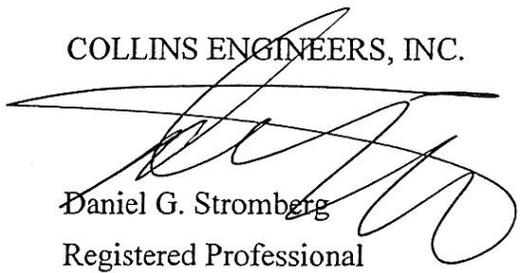
PROFESSIONAL ENGINEER

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: 7105

Feature Crossed: Des Moines River

Feature Carried: CSAH No. 14

Location: District 8 - Jackson County

Bridge Description: The superstructure consists of a two span steel girder bridge supported by one concrete pier and two concrete abutments.

2. INSPECTION DATA

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

Dive Team: Ricardo S. Narvaez, Adam J. Enderby

Date: October 19, 2012

Weather Conditions: Cloudy, Windy, 45°F

Underwater Visibility: 1.0 foot

Waterway Velocity: None/Negligible

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 1 and West Abutment

General Shape: Pier 1 consists of three hexagon shaped concrete columns supporting a concrete pier cap. No bridge plans were available and the foundation configuration is unknown.

Maximum Water Depth at Substructure Inspected: Approximately 8.6 feet.

4. WATERLINE DATUM

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

Water Surface: The waterline was approximately 6.1 feet below reference.
Assumed Waterline Elevation = 93.9

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 92B: Underwater Inspection: Code B/10/12

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	3	EA	2	1			
215	Concrete Abutment	40	LF	40				



Photograph 1. Overall View of Structure, Looking Southeast.



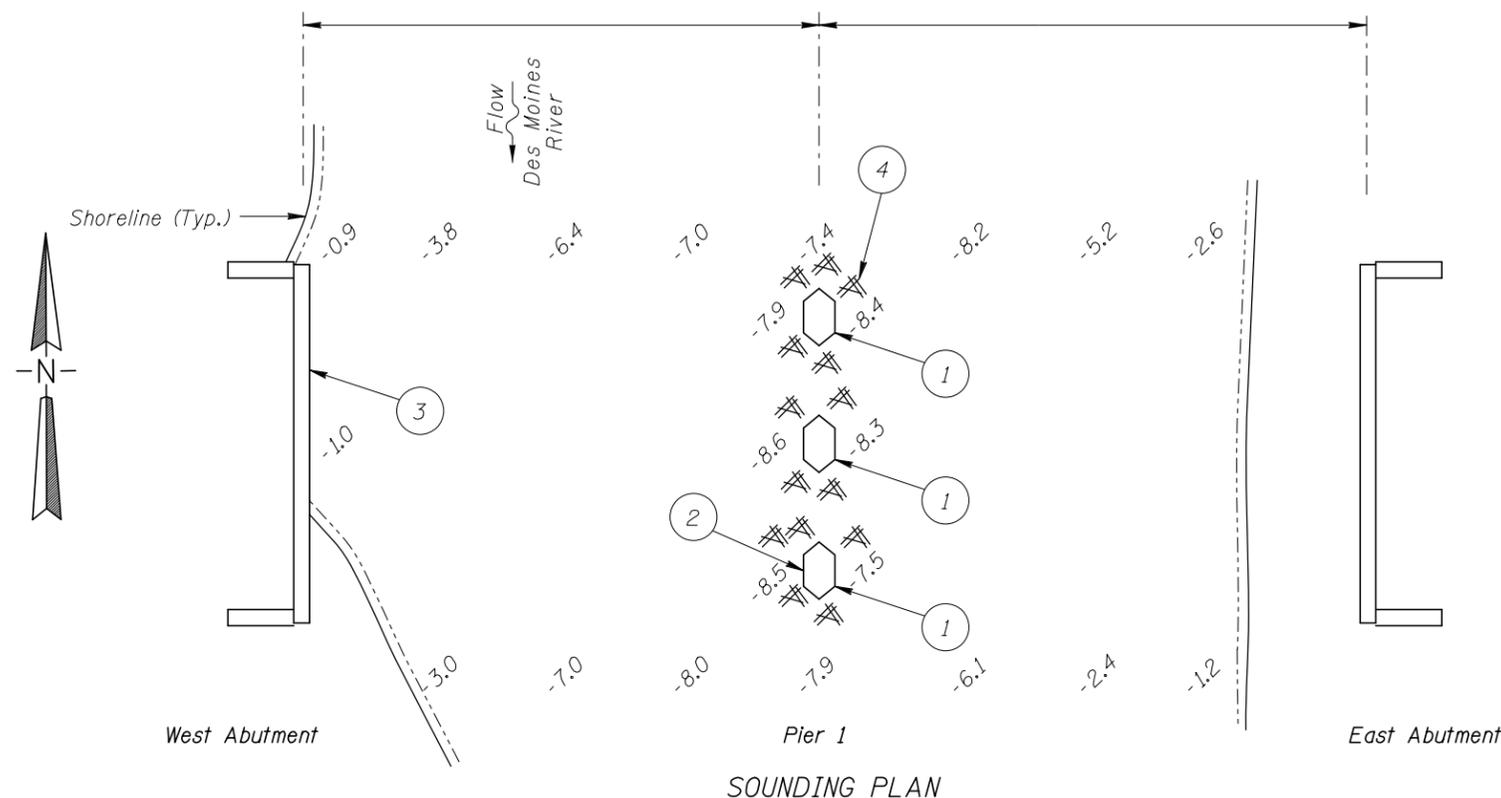
Photograph 2. View of West Abutment, Looking Southwest.



Photograph 3. View of East Abutment, Looking Southeast.



Photograph 4. View of Pier 1, Looking Southeast



SOUNDING PLAN

INSPECTION NOTES:

- ① The concrete columns of Pier 1 were sound and in good condition with no structurally significant defects.
- ② Random areas of honeycombing were observed at the downstream column of Pier 1 up to 10 inches in diameter and 1 inch deep.
- ③ The concrete at the West Abutment was sound and in good condition with no structurally significant defects.
- ④ Moderate debris, consisting of abandoned piles and boulders, was observed around each column from the streambed up 4 feet extending 4 feet away from the columns.

GENERAL NOTES:

- 1. Pier 1 and the West Abutment were inspected underwater.
- 2. At the time of inspection on October 19, 2012, the waterline was located approximately 6.1 feet below the top of the pier cap at the downstream end of Pier 1. Since no design plans were available the reference elevation was assumed to be 100.0 feet. This corresponds with an assumed waterline elevation of 93.9 feet.
- 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.

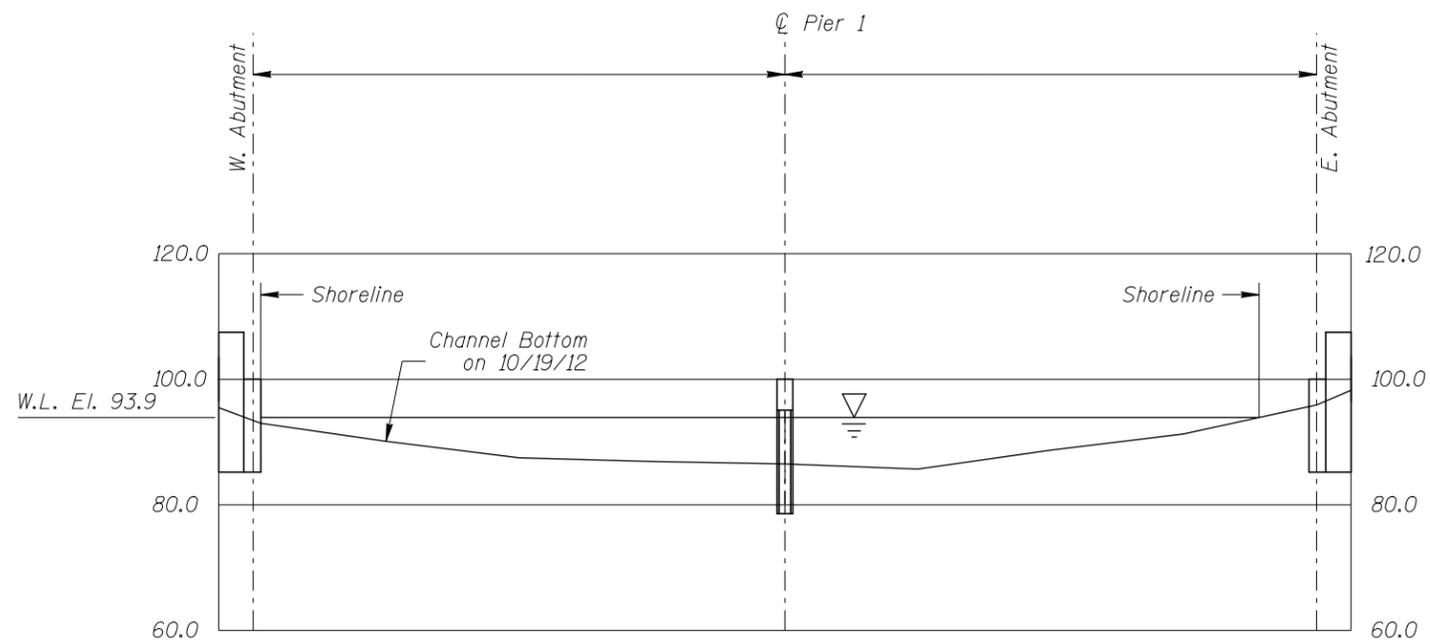
Legend

- 7.5 Sounding Depth from Waterline (10/19/12)
- Debris

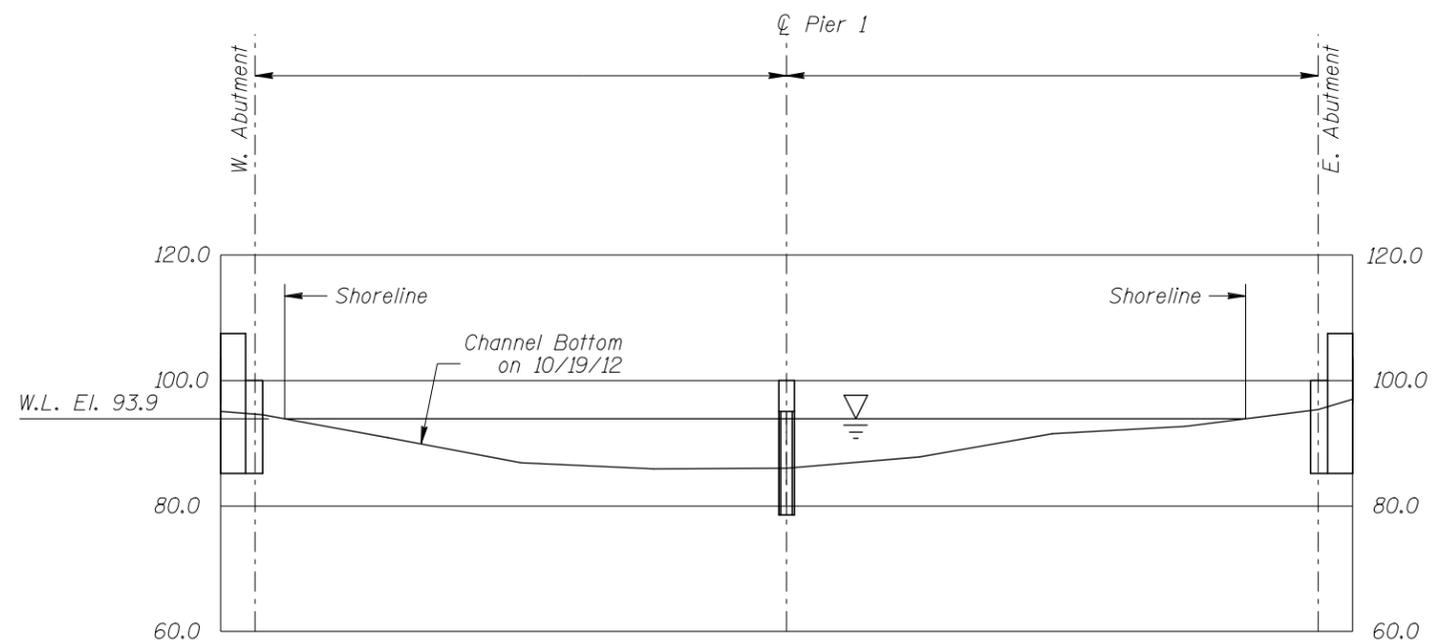
TYPICAL END VIEW OF PIERS

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 7105 OVER THE DES MOINES RIVER DISTRICT 8, JACKSON COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: JAC		Date: OCT. 2012
Checked By: BKS	<small>3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com</small>	Scale: NTS
Code:		Figure No.: 1

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UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:
Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 7105 OVER THE DES MOINES RIVER DISTRICT 8, JACKSON COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: JAC	AYRES ASSOCIATES <small>3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com</small>	Date: OCT. 2012
Checked By: BKS		Scale: 1"=30'
Code: 54739070		Figure No.: 2

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

INSPECTORS: Ayres Associates DATE: October 19, 2012

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

BRIDGE NO: 7105 WEATHER: Cloudy, Windy, 45°F

WATERWAY CROSSED: Des Moines River

DIVING OPERATION: _____ SCUBA SURFACE SUPPLIED AIR
_____ OTHER _____

PERSONNEL: Ricardo S. Narvaez, Adam J. Enderby

EQUIPMENT: SSA, Hammer, Sounding Rod, Camera, U/W Lights

TIME IN WATER: 10:45 AM

TIME OUT OF WATER: 11:15 AM

WATERWAY DATA: VELOCITY None/Negligible

VISIBILITY 1.0 foot

DEPTH 8.6 feet at Pier 1

ELEMENTS INSPECTED: Piers 1 and West Abutment

REMARKS: Typically the concrete of Pier 1 and the West Abutment was in good condition with no defects of structural significance. Minor random areas of honeycombing were observed on the downstream column of Pier 1 up to 10 inches in diameter and 1 inch deep. A moderate accumulation of debris, consisting of abandoned piles and boulders, was observed around each column of Pier 1 from the streambed up 4 feet extending 4 feet away from the columns.

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. 7105
 INSPECTORS Ayres Associates
 ON-SITE TEAM LEADER Brian K. Schroeder, P.E.
 WATERWAY CROSSED Des Moines River

INSPECTION DATE October 19, 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	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
	West Abutment	1.0'	N	7	N	N	N	7	7	8	7	N	7	7	N	N	8	N	N
	Pier 1	8.6'	N	6	N	N	N	6	7	7	N	6	6	6	N	N	7	N	N

*UNDERWATER PORTION ONLY

REMARKS: Typically the concrete of Pier 1 and the West Abutment was in good condition with no defects of structural significance. Minor random areas of honeycombing were observed on the downstream column of Pier 1 up to 10 inches in diameter and 1 inch deep. A moderate accumulation of debris, consisting of abandoned piles and boulders, was observed around each column of Pier 1 from the streambed up 4 feet extending 4 feet away from the columns.

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.