

UNDERWATER BRIDGE INSPECTION REPORT

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STRUCTURE NO. 62555

WABASHA STREET

OVER THE

MISSISSIPPI RIVER

DISTRICT 9 - RAMSEY COUNTY

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PREPARED FOR THE  
MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 5221 (CEI 123)

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The concrete substructure unit inspected at Bridge No. 62555, Pier 3, was found to be in good condition with no defects of structural significance observed. The top of the footing was partially exposed around the East Column with no vertical exposure detected. Minor timber debris was observed on the channel bottom at the downstream end of the East Column. The channel bottom appeared stable at the time of the inspection with no significant scour.

INSPECTION FINDINGS:

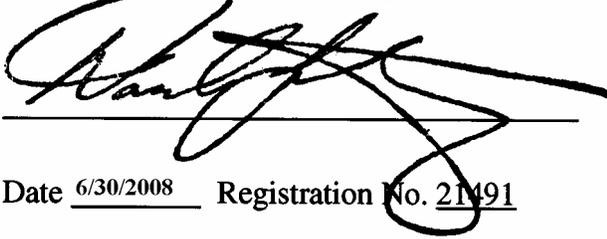
- (A) A 6 foot wide portion of the top of the footing was exposed along the entire upstream and north sides at the East Column. No vertical exposure was detected.
- (B) A minor accumulation of timber debris, consisting of 12 inch diameter logs, was observed on the channel bottom at the downstream end and sides and north face of the East Column.

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

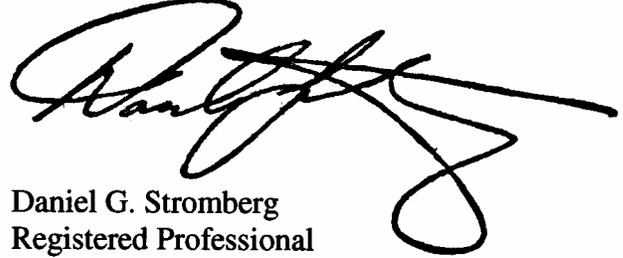


A large, stylized handwritten signature in black ink, appearing to read 'Dan G. Stromberg', is written over two horizontal lines.

Date 6/30/2008 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



A large, stylized handwritten signature in black ink, appearing to read 'Dan G. Stromberg', is written over two horizontal lines.

Daniel G. Stromberg  
Registered Professional  
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 62555

Feature Crossed: Mississippi River

Feature Carried: Wabasha Street

Location: District 9 – Ramsey County

Bridge Description: The bridge superstructure consists of two parallel four span bridges constructed of concrete segmental box girders. The superstructure is supported by two concrete abutments and three dual column concrete piers. The piers are numbered 1 to 3 starting from the north end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Daniel G. Stromberg, P.E., S.E.

Dive Team: Clayton G. Brookins, Valerie Roustan

Date: October 18, 2007

Weather Conditions: Partly Cloudy, 60°F

Underwater Visibility: 0.5 feet

Waterway Velocity: 1.5 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 3.

General Shape: The pier consists of two rectangular concrete columns on rectangular footings supported by steel H-piles.

Maximum Water Depth at Substructure Inspected: Approximately 15.2 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier stem at the downstream end of Pier 3.

Water Surface: The waterline was approximately 14.1 feet below reference.  
Waterline Elevation = 686.1

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/10/07

Item 113: Scour Critical Bridges: Code N/02

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

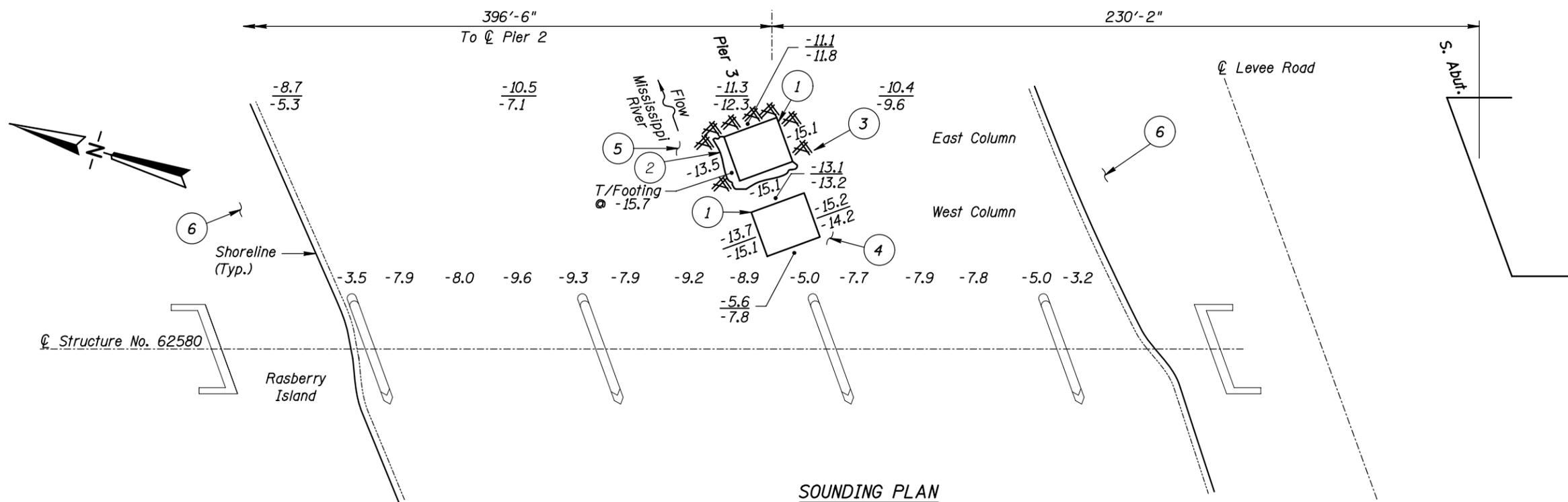
       Yes   X   No



Photograph 1. View of the Pier 3, Looking Southwest



Photograph 2. View of the Pier 2, Looking Southeast. Water depths at pier were 1 foot or less.



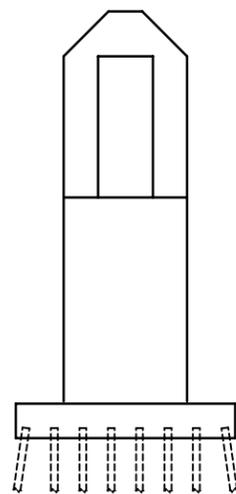
**SOUNDING PLAN**

**INSPECTION NOTES:**

- 1 The concrete was in good and sound condition with no structurally significant defects observed.
- 2 A 6 foot wide portion of the top of the footing was exposed along the entire upstream side and north face at the East Column.
- 3 A minor accumulation of timber debris, consisting of 12 inch diameter logs, was observed at the downstream end and sides of the East Column extending from the channel bottom up 1 to 3 feet.
- 4 The channel bottom consisted of riprap up to 1 foot in diameter at the upstream nose of the West Column.
- 5 The channel bottom downstream of West Column and all around the East Column consisted of sandy infilling with up to 1 foot of probe rod penetration.
- 6 The embankments were well armored with 1 foot diameter riprap.

**GENERAL NOTES:**

- 1 Pier 3 was inspected underwater.
- 2 At the time of inspection on October 18, 2007, the waterline was located approximately 14.1 feet below the top of the pier stem at the downstream end of Pier 3. This corresponds with a waterline elevation referenced to U.S.G.S. M.S.L. of 686.1.
- 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.



**TYPICAL END VIEW OF PIER**

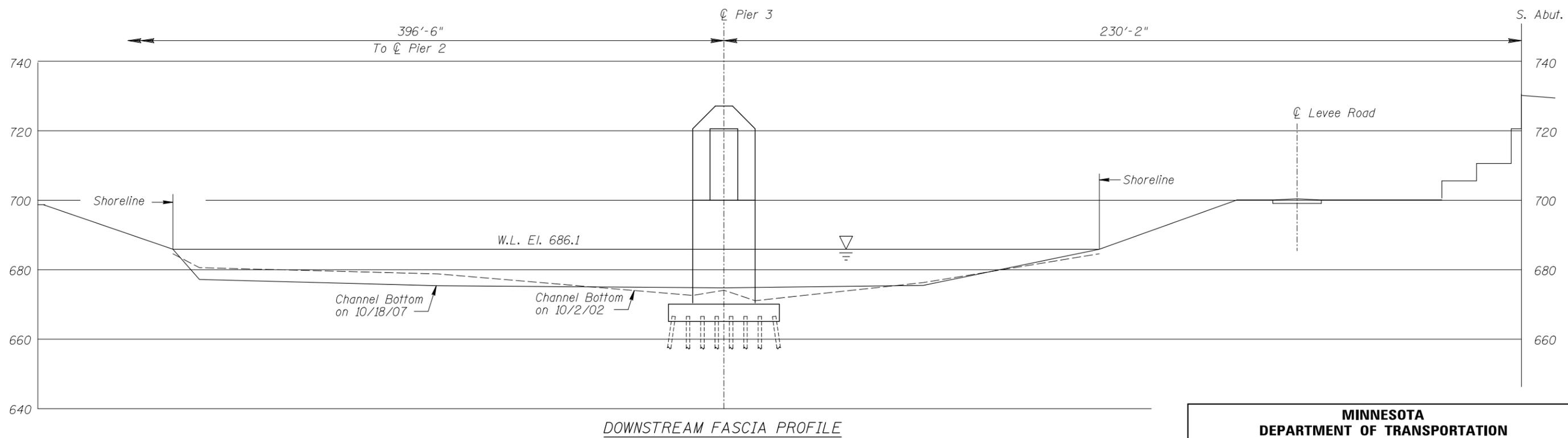
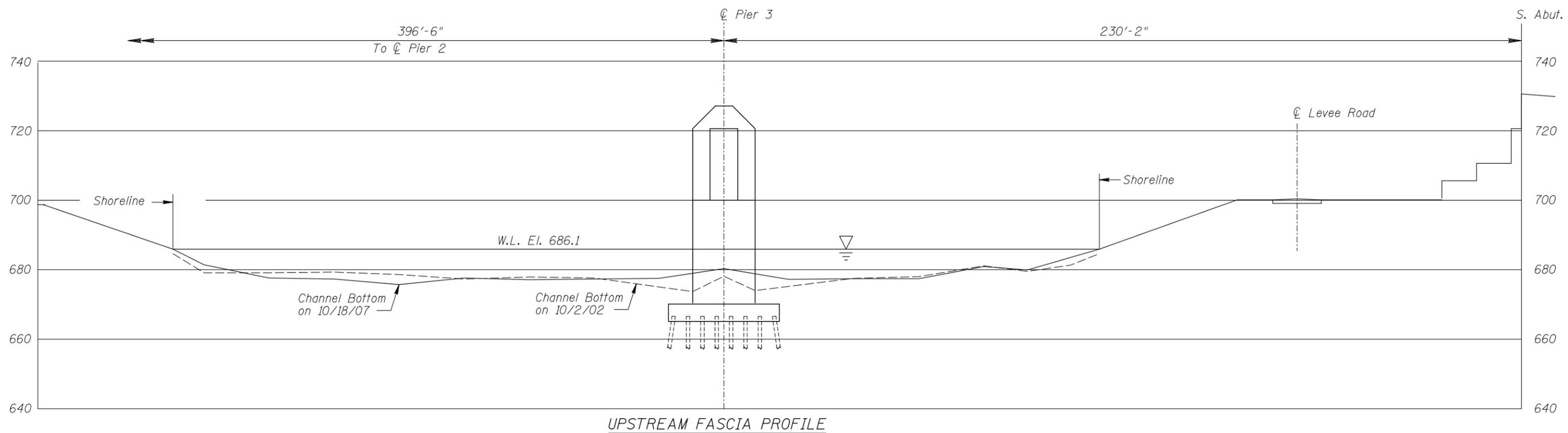
**Legend**

- 4.1 Sounding Depth (10/18/07)
- 4.0 Sounding Depth (10/2/02)
- Timber Debris

**Note:**

All soundings based on 2007 waterline location.

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 62555 OVER THE MISSISSIPPI RIVER DISTRICT 9, WASHINGTON COUNTY		
<b>INSPECTION AND SOUNDING PLAN</b>		
Drawn By: PRH	<b>COLLINS ENGINEERS</b>	Date: OCT., 2007
Checked By: MDK	<small>133 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: NTS
Code: 522162555AB		Figure No.: 1



*Note:*  
Refer to Figure 1 for General Notes.

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 62555 OVER THE MISSISSIPPI RIVER DISTRICT 9, WASHINGTON COUNTY <b>UPSTREAM AND DOWNSTREAM FASCIA PROFILES - I</b>		
Drawn By: PRH	<b>COLLINS ENGINEERS</b>	Date: OCT., 2007
Checked By: MDK	<small>123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: 1"=30'
Code: 522162555AB		Figure No.: 2

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

INSPECTORS: Collins Engineers, Inc. DATE: October 18, 2007

ON-SITE TEAM LEADER: Daniel G. Stromberg, P.E., S.E.

BRIDGE NO: 62555 WEATHER: Partly Cloudy, 60°F

WATERWAY CROSSED: Mississippi River

DIVING OPERATION:  SCUBA  SURFACE SUPPLIED AIR  
 OTHER

PERSONNEL: Clayton G. Brookins, Valerie Roustan

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

TIME IN WATER: 6:15 p.m.

TIME OUT OF WATER: 7:00 p.m.

WATERWAY DATA: VELOCITY 1.5 f.p.s.

VISIBILITY 0.5 feet

DEPTH 15.2 feet maximum at West Column

ELEMENTS INSPECTED: Pier 3

REMARKS: Overall, the substructure unit was found to be in good and sound condition with no defects of structural significance observed. A 6 foot wide portion of the top of the footing was exposed along the entire upstream and north sides of the East Column. Minor timber debris, consisting of 12 inch diameter logs, was observed on the channel bottom at the downstream end and sides and north face of the East Column.

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. 62555  
 INSPECTORS Collins Engineers, Inc.  
 ON-SITE TEAM LEADER Daniel G. Stromberg, P.E., S.E.  
 WATERWAY CROSSED Mississippi River

INSPECTION DATE October 18, 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	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
	East Column	15.1'	N	7	7	9	N	7	7	8	8	7	7	7	N	N	N	N	N
	West Column	14.4'	N	7	N	9	N	7	8	8	8	N	8	7	N	N	N	N	N

\*UNDERWATER PORTION ONLY

REMARKS: Overall, the substructure unit was found to be in good and sound condition with no defects of structural significance observed. A 6 foot wide portion of the top of the footing was exposed along the entire upstream and north sides of the East Column. Minor timber debris, consisting of 12 inch diameter logs, was observed on the channel bottom at the downstream end and sides and north face of the East Column.

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.