

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 62082
CR 3 (LAKE STREET)
OVER THE
MISSISSIPPI RIVER
DISTRICT 5- HENNEPIN COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION
BY
COLLINS ENGINEERS, INC.
JOB NO. 3512

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. 62082, Pier 5, was found to be in overall good condition with no defects of structural significance observed. In general, the concrete of the pier was good and sound with only some random minor hairline cracking. A scour depression with footing exposure was observed for the full depth of the footing with 2 to 4 inches of vertical face exposure of the seal at the upstream nose of the pier.

INSPECTION FINDINGS:

- (A) Scour depression with footing exposure was observed at the upstream nose of Pier 5 and extended for 3/4 of the pier length along both sides of the pier. At the upstream nose, the full 7.5 feet of the vertical face of the footing was exposed and 2 to 4 inches of the vertical face of the seal was also exposed.

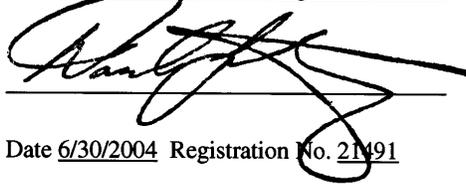
RECOMMENDATIONS:

- (A) Monitor the exposure of the entire footing and partial exposure of the seal at the upstream nose of the pier, and if found to be progressing, additional measures may then be warranted.

- (B) 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.

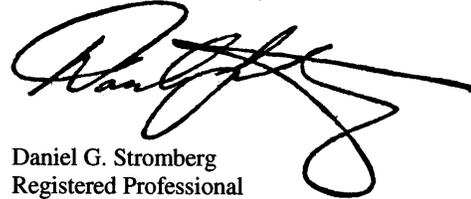
Daniel G. Stromberg



Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 62082

Feature Crossed: The Mississippi River

Feature Carried: CR 3 (Lake Street)

Location: District 5 – Hennepin County

Bridge Description: The bridge superstructure consists of a multi-span reinforced concrete arch. The superstructure is supported by two reinforced concrete abutments and eight reinforced concrete piers. The pier that is located in the center of the waterway is supported on caissons.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: October 1, 2002

Weather Conditions: Sunny, " 70E F

Underwater Visibility: " 2 Feet

Waterway Velocity: " 1.5 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 5

General Shape: Pier 5 is rectangular with pointed noses. The base of Pier 5 (rectangular footing and seal combination) is supported on twelve 7-foot-diameter caissons.

Maximum Water Depth at Substructure Inspected: Approximately 12.5 feet.

4. WATERLINE DATUM

Water Level Reference: The benchmark reference located on Pier 5.

Water Surface: The waterline was approximately 10.0 feet below reference.
Waterline Elevation = 725.0.

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

Item 60: Substructure: Code 7

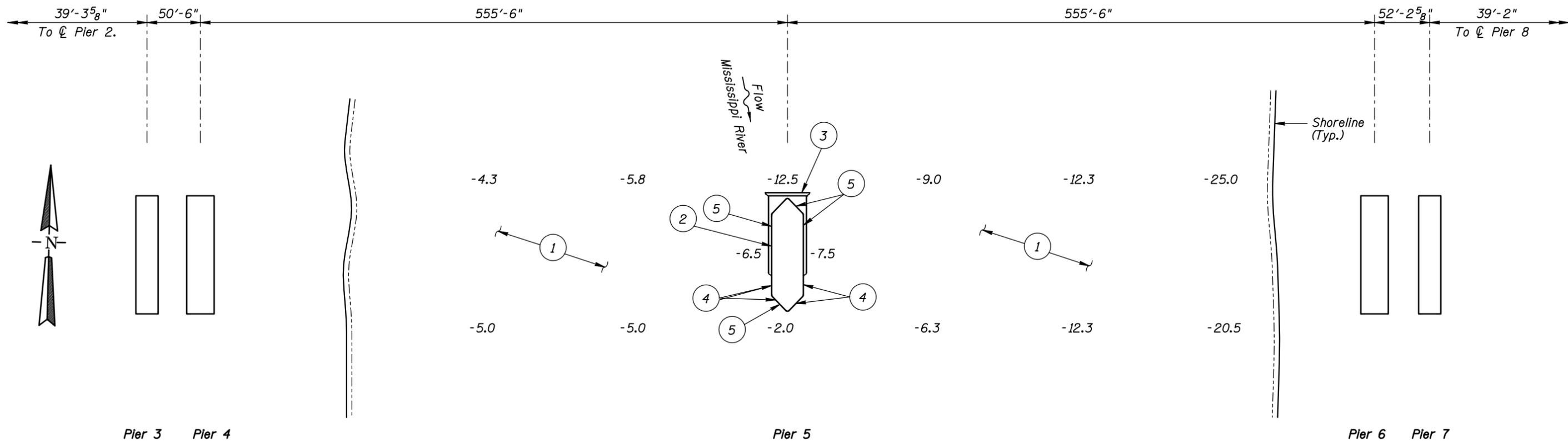
Item 61: Channel and Channel Protection: Code 6

Item 92B: Underwater Inspection: Code B/10/02

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



SOUNDING PLAN

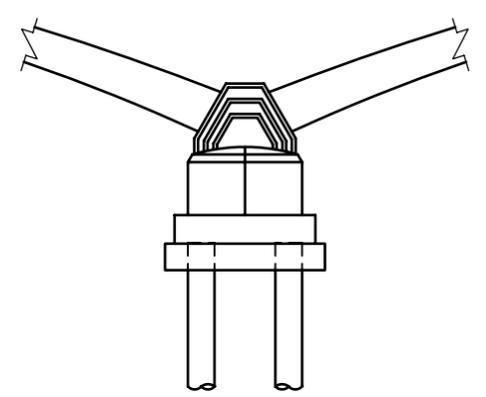
INSPECTION NOTES:

- 1 The channel bottom material consisted of sand and concrete rubble with up to 6 inches of probe rod penetration. There was also random pieces of scrap steel scattered around the pier on the channel bottom.
- 2 The concrete around the pier was in good and sound condition with a light layer of aquatic growth that extended from the waterline to the channel bottom.
- 3 Footing exposure was observed at the upstream nose of Pier 5 and extended for 3/4 of the pier length way along both sides of the pier. At the upstream nose, the full 7.5 feet of the vertical face of the footing was exposed and 2 to 4 inches of the vertical face of the seal was also exposed. The footing and seal exposure is due to localized scour, with an approximate depth of 5 to 7 feet, around the upstream end of the pier
- 4 A hairline vertical crack was observed that extended from the top of the pier to the channel bottom.
- 5 A hairline vertical crack was observed that extended from the top of the pier to 1 foot above the waterline.

GENERAL NOTES:

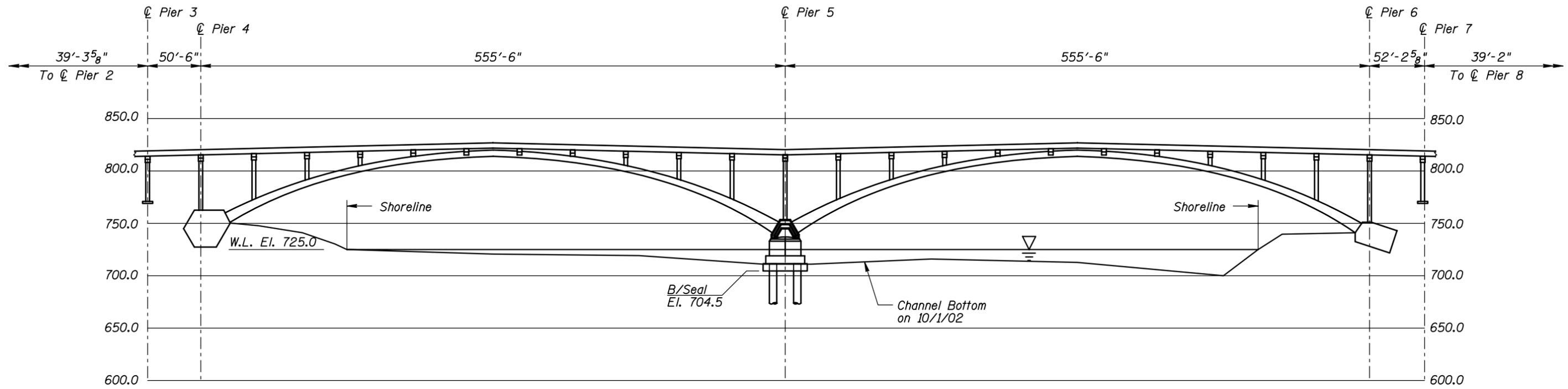
- 1 Pier 5 was inspected underwater.
- 2 At the time of inspection, on October 1, 2002, the waterline was located approximately 10.0 feet below the top of the pier shaft nose on the downstream end of Pier 5. This corresponds with a waterline elevation of 725.0 based on the design drawings.
- 3 Soundings 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
 -5.2 Sounding Depth from Waterline (10/1/02)

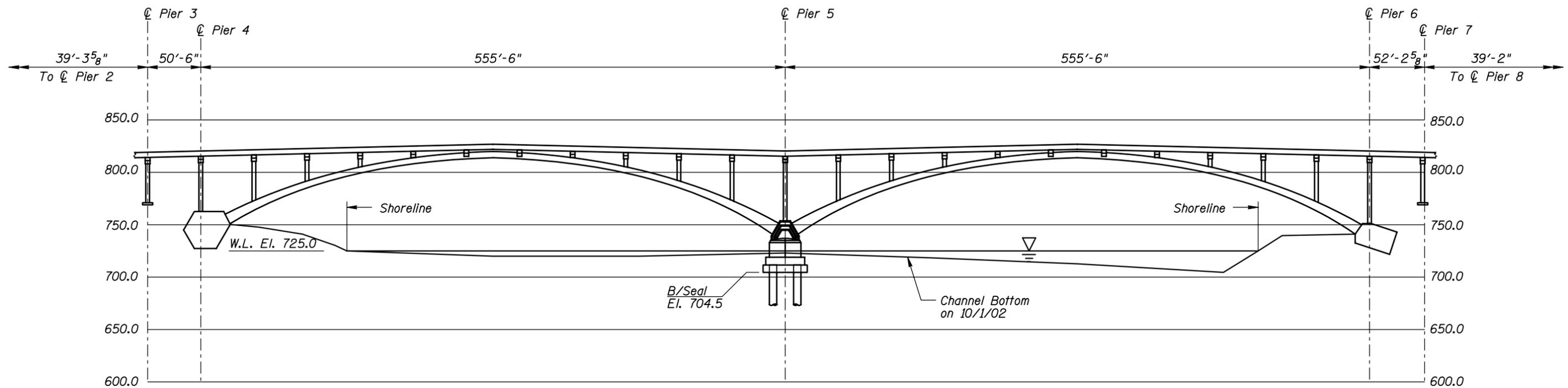


TYPICAL END VIEW OF PIER

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 62082 OVER THE MISSISSIPPI RIVER DISTRICT 5, HENNEPIN COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 351262082		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. 62082 OVER THE MISSISSIPPI RIVER DISTRICT 5, HENNEPIN COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: PRH	COLLINS ENGINEERS, INC. 300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Date: OCT. 2002
Checked By: MDK		Scale: 1"=100'
Code: 351262082		Figure No.: 2



Photograph 1. Overall View of Structure, Looking North.



Photograph 2. View of Pier 1, Looking Southwest.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 62082
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Mississippi River

INSPECTION DATE October 1, 2002
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
	Pier 5	12.5'	N	7	7	9	N	7	6	N	8	N	6	8	N	N	8	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the concrete surfaces of Pier 5 were in good condition below water with no defects of structural significance. A 5 to 7 foot deep scour depression with footing exposure was observed at the upstream nose and along both faces of the pier. The seal, beneath the footing, was exposed at the upstream nose of the pier.

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.