

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 57517

CR No. 63

OVER THE

THIEF RIVER

DISTRICT 2 - PENNINGTON COUNTY



AUGUST 16, 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. 57517, Piers 1 and 2, were in good condition with no defects of structural significance observed. The channel bottom appeared to be stable with no evidence of significant scour.

INSPECTION FINDINGS:

- (A) The 20 inch diameter steel pile encasements of both piers from the top of pile down 6 feet were coated. The coating has minor random areas of coating loss on less than one percent of total surface area. In areas of coating loss, the exposed steel exhibited minor corrosion with no appreciable section loss.
- (B) The 20 inch diameter steel pile encasement from 6 feet below the top of the pile to the channel bottom has no protective coating (primer only) and corrosion was observed on up to 75 percent of surface area consisting of rust nodules up to ½ inch diameter and minor pitting (less than 1/32 inch deep).
- (C) A light accumulation of timber debris consisting of 3 inch diameter and smaller branches was observed along both sides and in between all piles at Pier 2.
- (D) A moderate accumulation of timber debris consisting of 1 foot diameter and smaller branches was observed along both sides and in between all piles at Pier 1.

RECOMMENDATIONS:

- (A) Monitor the timber debris, and if found to be increasing in the future, removal operations may become warranted.
- (B) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of sixty (60) months.

Inspection Team Leader:

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.

Brian K. Schroeder

Name



Signature

Date 08/21/12

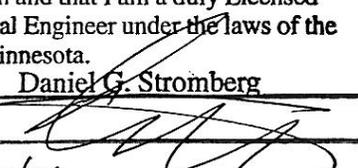
Registration No. 43576

Respectfully submitted,

PROFESSIONAL ENGINEER

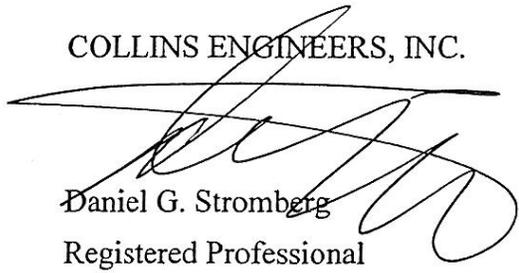
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

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: 57517

Feature Crossed: Thief River

Feature Carried: CR No. 63

Location: District 2 - Pennington County, City of Thief River Falls

Bridge Description: The Bridge is a three span structure consisting of a prestressed I-beam superstructure supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and two reinforced concrete pier caps founded on 7 piles. The piers are numbered 1 and 2 starting from the south end of the bridge. The abutment and pier footings are supported by steel H-piles.

2. INSPECTION DATA

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

Dive Team: Jason A. Cook, James A. Hitchman

Date: August 16, 2012

Weather Conditions: Sunny, 65°F

Underwater Visibility: 3.0 feet

Waterway Velocity: None/Negligible

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: A 3.5 feet wide by 3.5 feet high reinforced concrete cap supported by seven driven steel H-piles encased by 20 inch diameter steel shell encasements.

Maximum Water Depth at Substructure Inspected: Approximately 10.0 Feet.

4. WATERLINE DATUM

Water Level Reference: The top of the deck at the upstream end of Pier 1.

Water Surface: The waterline was approximately 14.5 feet below reference.
Waterline Elevation = 1110.88.

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/08/12

Item 113: Scour Critical Bridges: Code I

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 |
| 202 | Painted Steel Column | 14 | EA | 14 | | | | |
| 985 | Slopes | 1 | EA | 1 | | | | |



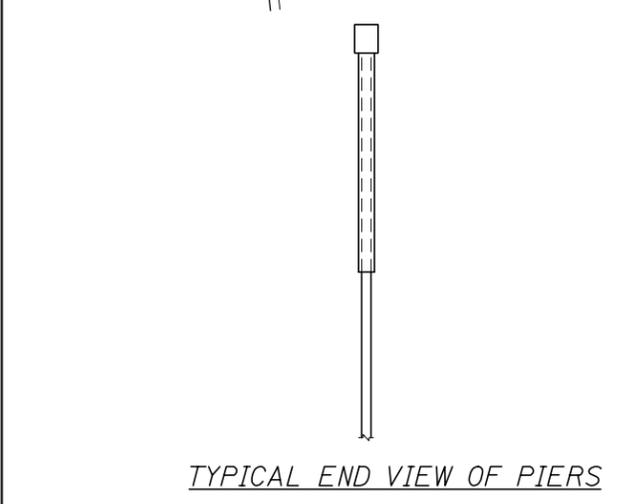
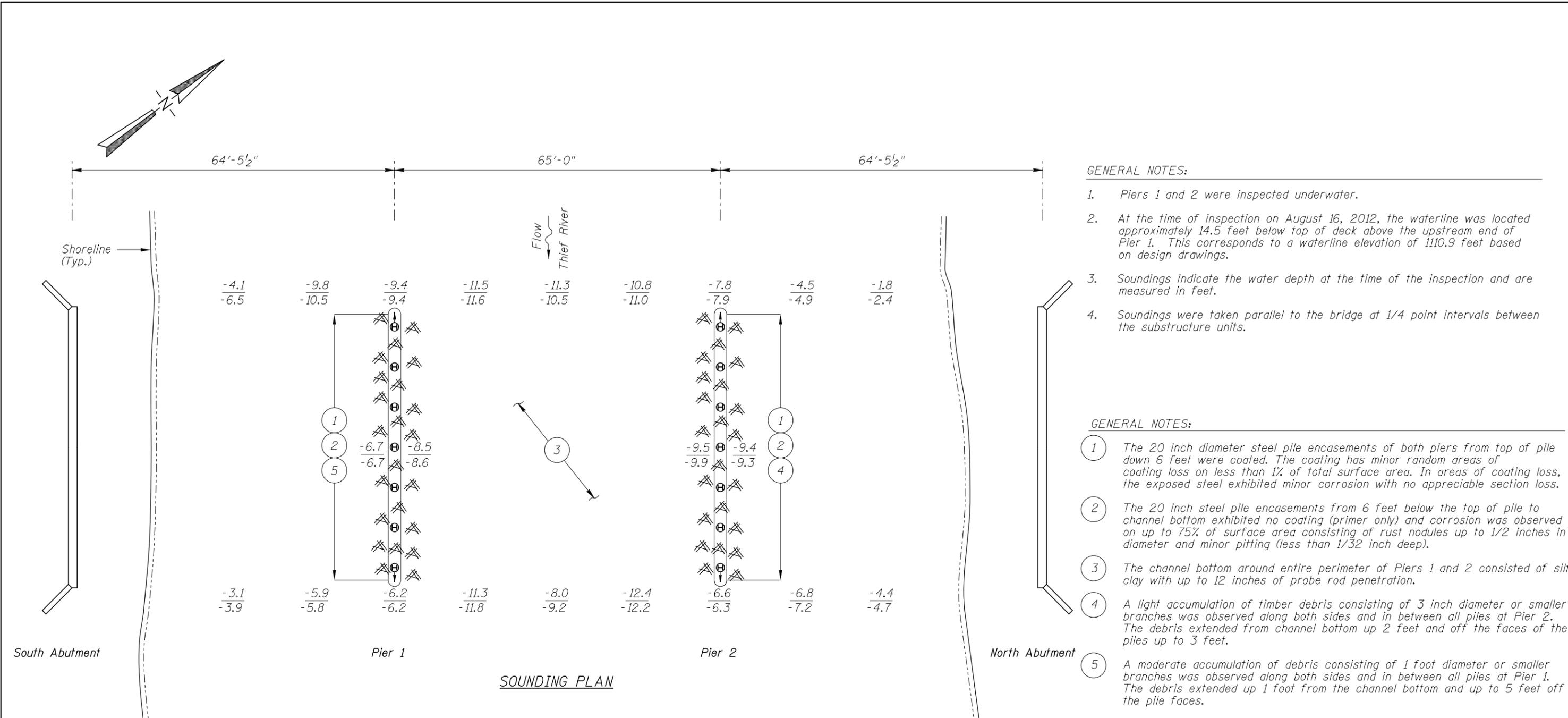
Photograph 1. Overall View of the Structure, Looking Northwest.



Photograph 2. View of Pier 1, Looking West.



Photograph 3. View of Pier 2, Looking West.

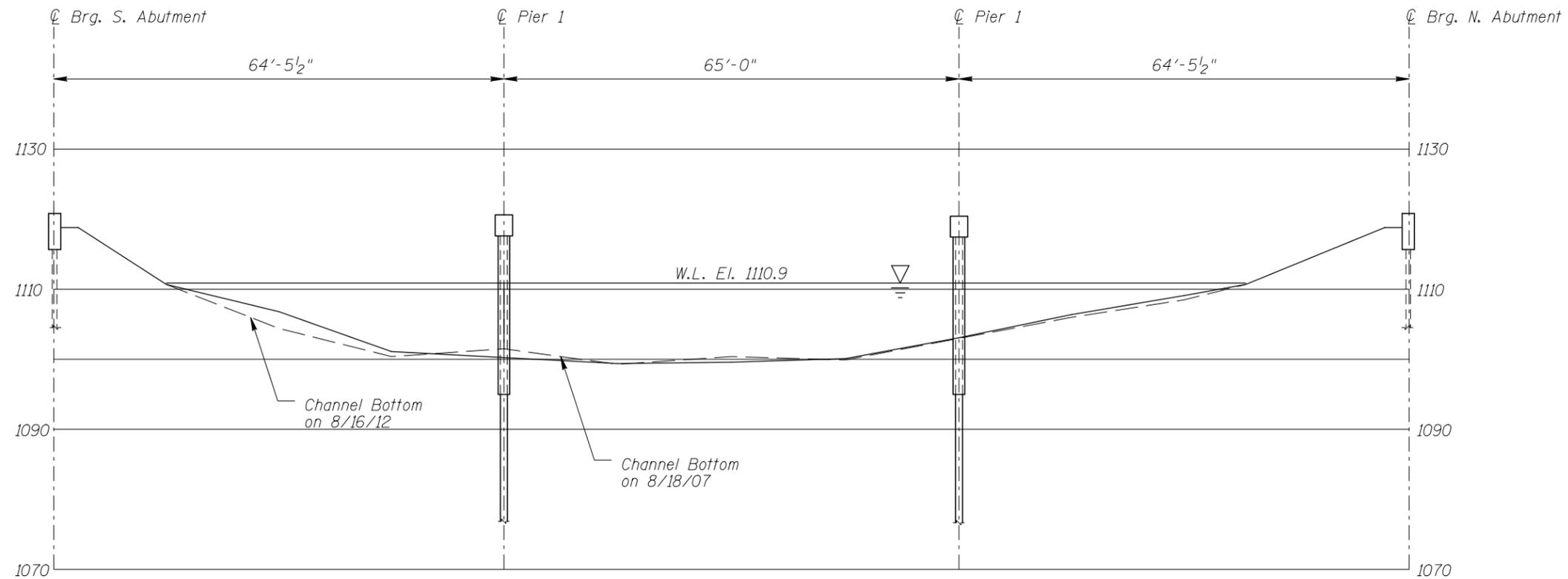


- Legend**
- 7.0 Sounding Depth (8/16/12)
 - 7.0 Sounding Depth (8/23/07)
 - ⊕ Steel Shell Encased H-pile
 - ⊕ Battered Steel Shell Encased H-Pile
 - Timber Debris

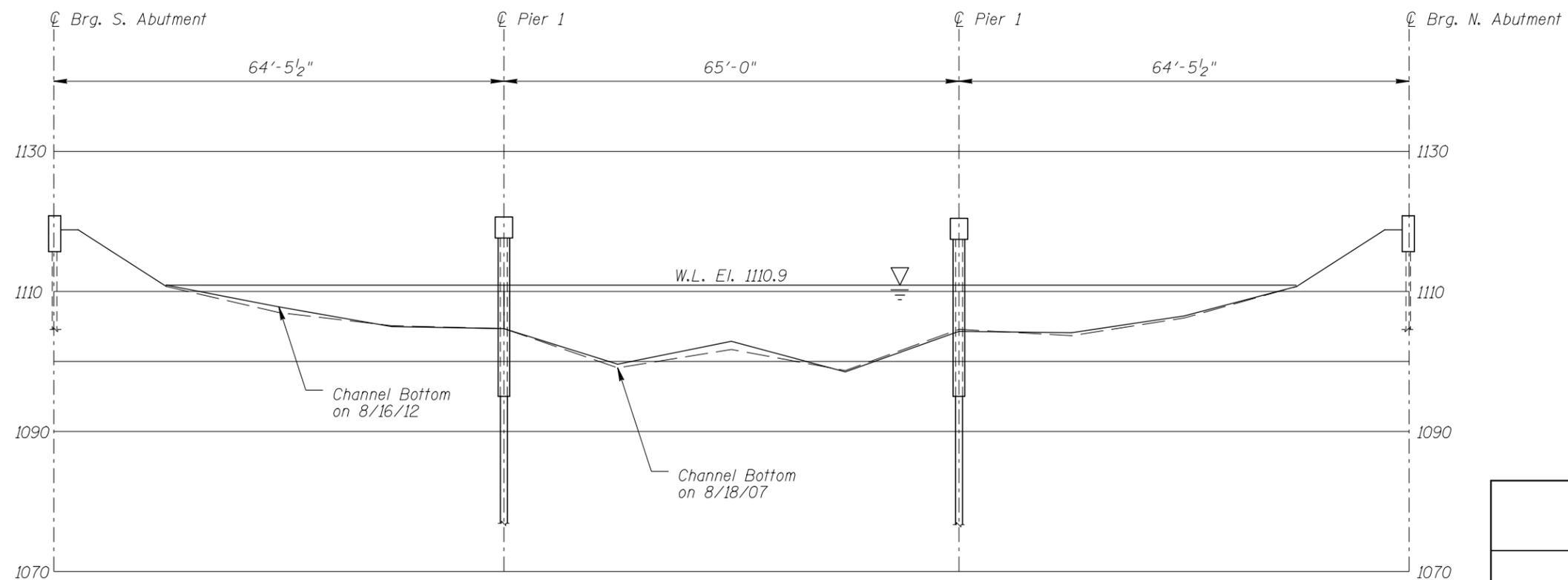
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| MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION | |
| STRUCTURE NO. 57517 OVER THE THIEF RIVER DISTRICT 2, PENNINGTON COUNTY, CITY OF THIEF RIVER FALLS | |
| INSPECTION AND SOUNDING PLAN | |
| Drawn By: JAC | Date: AUGUST, 2012 |
| Checked By: BKS | Scale: NTS |
| Code: 522157515 | Figure No.: 1 |

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



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note: _____
Refer to Figure 1 for General Notes.

| | | |
|--|---|---|
| MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION | | |
| STRUCTURE NO. 57517 OVER THE THIEF RIVER DISTRICT 2, PENNINGTON COUNTY, CITY OF THIEF RIVER FALLS UPSTREAM AND DOWNSTREAM FASCIA PROFILES | | |
| Drawn By: JAC Checked By: BKS Code: 522157515 |  123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com |  3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com |
| Date: AUGUST, 2012 | | Scale: 1"=20' |
| Figure No.: 2 | | |

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

INSPECTORS: Ayres Associates DATE: August 16, 2012

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

BRIDGE NO: 57517 WEATHER: Sunny, 65°F

WATERWAY CROSSED: Thief River

DIVING OPERATION: SCUBA SURFACE SUPPLIED AIR
 OTHER

PERSONNEL: Jason A. Cook, James A. Hitchman

EQUIPMENT: Commercial Scuba, U/W Light, Sounding Pole, Hammer, Camera.

TIME IN WATER: 3:20 p.m.

TIME OUT OF WATER: 3:50 p.m.

WATERWAY DATA: VELOCITY Negligible/None

VISIBILITY 3.0 feet

DEPTH 10.0 feet maximum at Pier 2.

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: The 20 inch diameter steel pile encasements of both piers from the top of pile down 6 feet were coated. The coating exhibited minor random areas of coating loss on less than one percent of total surface area. In areas of coating loss, the exposed steel had minor corrosion with no appreciable section loss. From 6 feet below the top of the pile to the channel bottom, the encasements exhibited no coating (primer only) and corrosion was observed on up to 75 percent of the surface area. A light to moderate accumulation of timber debris was observed at both piers. The channel bottom material was silty clay with up to 12 inches of probe rod penetration.

FURTHER ACTION NEEDED: YES NO

Monitor the timber debris, and if found to be increasing in the future, removal operations may become warranted.

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. 57517
 INSPECTORS Ayres Associates
 ON-SITE TEAM LEADER Brian K. Schroeder, P.E.
 WATERWAY CROSSED Thief River

INSPECTION DATE August 16, 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 |
| | Pier 1 | 9.4' | 7 | N | N | 8 | N | 7 | N | 8 | 8 | 7 | 7 | N | 7 | N | 7 | N | N |
| | Pier 2 | 10.0' | 7 | N | N | 8 | N | 7 | N | 8 | 8 | 7 | 7 | N | 7 | N | 7 | N | N |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

*UNDERWATER PORTION ONLY

REMARKS: The 20 inch diameter steel pile encasements of both piers from the top of pile down 6 feet were coated. The coating exhibited minor random areas of coating loss on less than one percent of total surface area. In areas of coating loss, the exposed steel had minor corrosion with no appreciable section loss. From 6 feet below the top of the pile to the channel bottom, the encasements exhibited no coating (primer only) and corrosion was observed on up to 75 percent of the surface area. A light to moderate accumulation of timber debris was observed at both piers. The channel bottom material was silty clay with up to 12 inches of probe rod penetration.

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.