

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 28528

CSAH 25

OVER THE

ROOT RIVER

DISTRICT 6-HOUSTON COUNTY



OCTOBER 2, 2012

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 7423

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. 28528, Pier 2, was found to be in good condition. The concrete of the pier shaft was sound and exhibited no appreciable deficiencies. The channel bottom appeared stable with a minor scour depression along the south face of the pier.

INSPECTION FINDINGS:

- (A) The channel bottom material consisted of sand with 2 inches of standard probe rod penetration.
- (B) A scour depression was observed at the upstream nose and south face of Pier 2 measuring 5 feet wide and 2 feet deep relative to the adjacent channel bottom.

RECOMMENDATIONS:

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

Inspection Team Leader



Roy A. Forsyth, PE
Date 6/30/2014 License# 49270

Respectfully submitted,

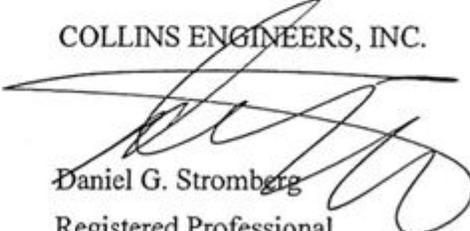
PROFESSIONAL ENGINEER

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: 28528

Feature Crossed: Root River

Feature Carried: CSAH 25

Location: District 6 - Houston County

Bridge Description: The bridge consists of four spans of precast concrete girders. The superstructure is supported by two reinforced concrete abutments and three reinforced concrete hammerhead piers. The piers are labeled Piers 1 through 3 starting from the southerly direction.

2. INSPECTION DATA

Professional Engineer/Team Leader: Roy A. Forsyth, P.E.

Dive Team: Charles R. Euwema, Jordan T. Furlan, P.E.

Date: October 2, 2012

Weather Conditions: Sunny, 70°F

Underwater Visibility: 3.0 feet

Waterway Velocity: 1.5 ft/s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 2.

General Shape: The piers consist of a rectangular concrete shaft with a hammerhead cap supporting six precast concrete girders. No plans were available and the foundation configuration is unknown.

Maximum Water Depth at Substructure Inspected: Approximately 5.0 feet.

4. WATERLINE DATUM

Water Level Reference: The top of shaft/bottom of hammerhead of Pier 2.

Water Surface: The waterline was approximately 11.5 feet below reference.
Assumed Waterline Elevation = 88.5

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/10/12

Item 113: Scour Critical Bridges: Code N

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

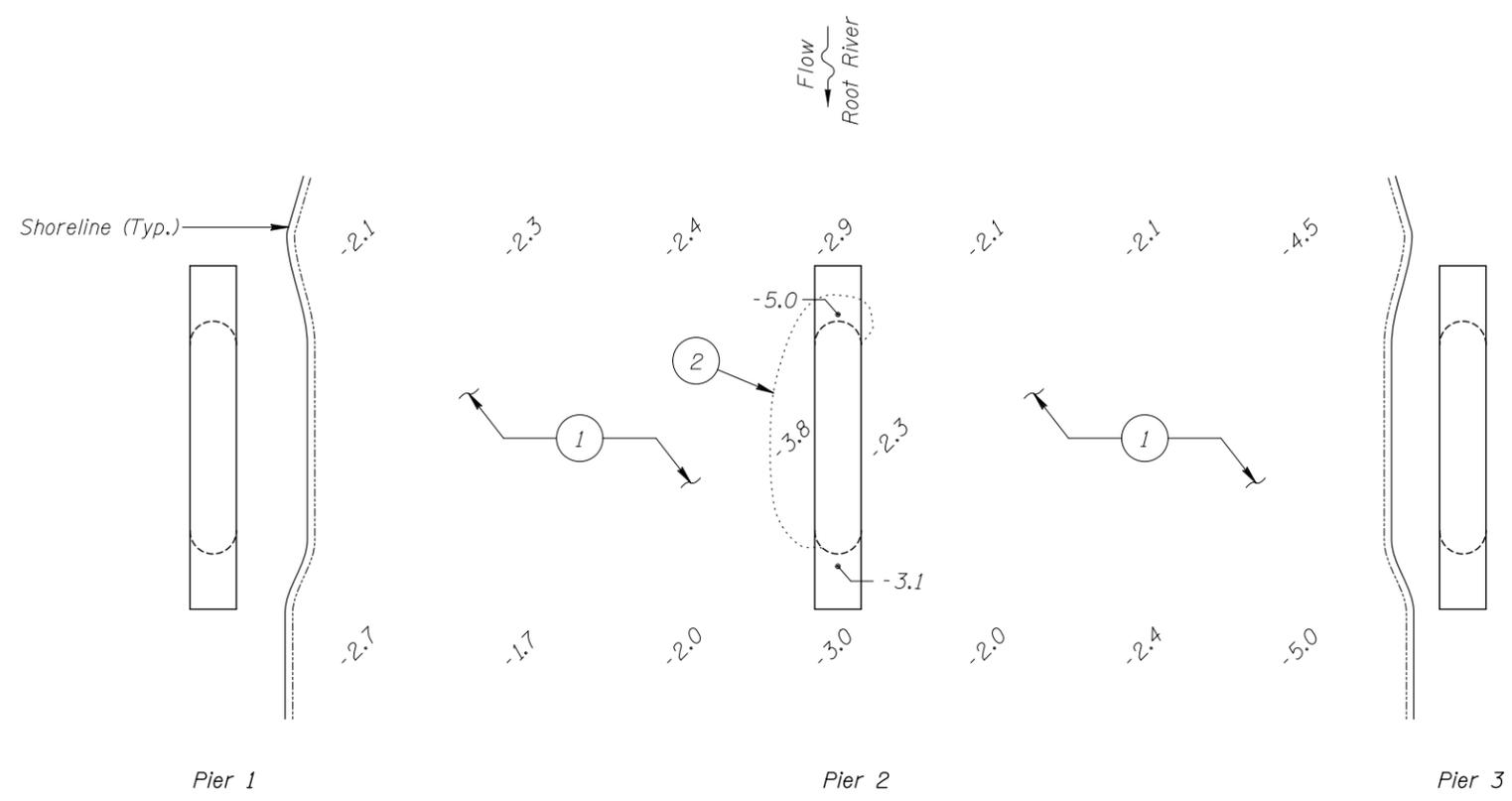
Item #	Element Description	Quantity	Unit	Conditions				
				1	2	3	4	5
210	Reinforced Concrete Pier Wall	18	LF	18				



Photograph 1. Overall View of Bridge, Looking East.



Photograph 2. View of Pier 2, Looking South.



SOUNDING PLAN

GENERAL NOTES:

1. Pier 2 was inspected underwater.
2. At the time of inspection on October 2, 2012, the waterline was located approximately 11.5 feet below the top of the pier shaft/bottom of the hammerhead of Pier 2. No plans were available so an elevation of 100.0 was assumed. This corresponds with a waterline elevation of 88.5 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.

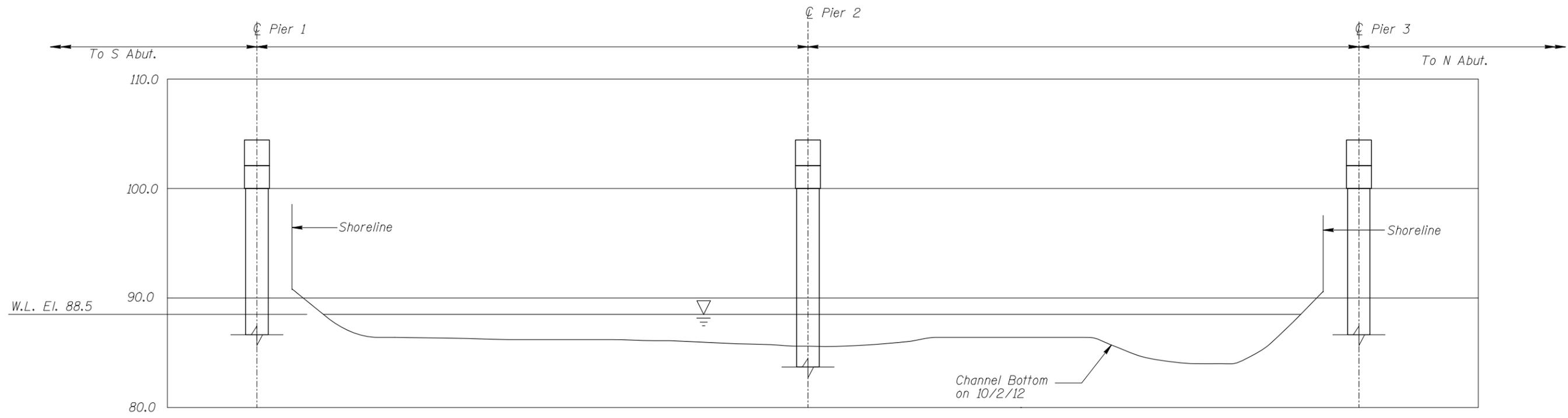
INSPECTION NOTES:

- ① The channel bottom material consisted of sand allowing 2 inches of standard probe rod penetration.
- ② A scour depression was observed at the upstream nose and south face of Pier 2, measuring 5 feet wide and 2 feet deep relative to the adjacent channel bottom.

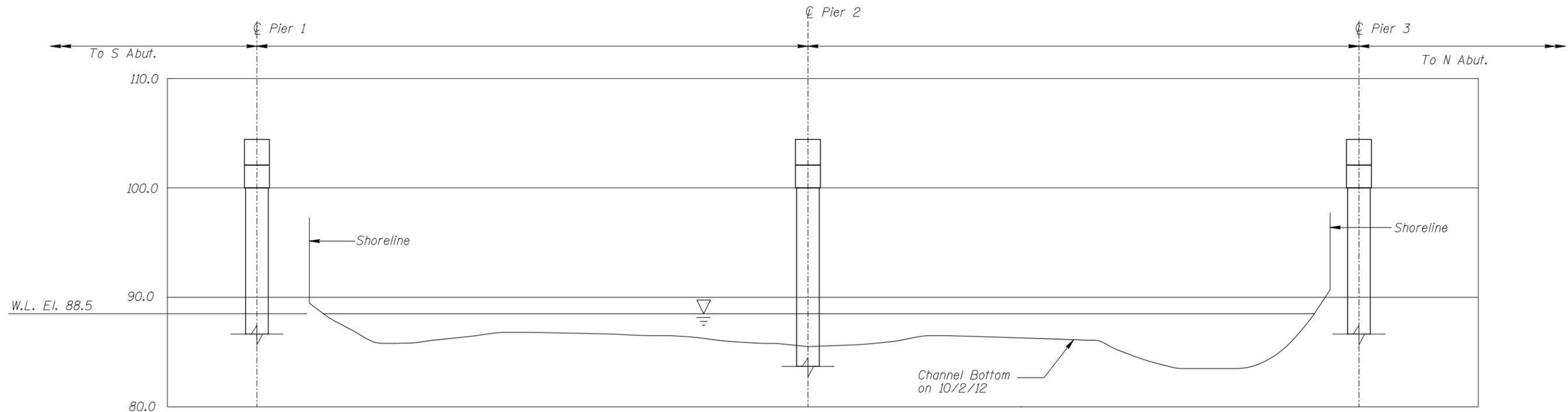
Legend

-12.7 Sounding Depth from Waterline (10/02/12)

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 28528 OVER THE ROOT RIVER DISTRICT 6, HOUSTON COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: JTF	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: OCT. 2012
Checked By: DGS		Scale: NTS
Code: 742328528		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. 28528 OVER THE ROOT RIVER DISTRICT 6, HOUSTON COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: JTF	COLLINS ENGINEERS	Date: OCT. 2012
Checked By: DGS		Scale: Scale 1"=50'
Code: 742328528		Figure No.: 1

123 North Wacker Drive
Suite 900
Chicago, IL 60606
(312) 704-9300
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MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 2, 2012

ON-SITE TEAM LEADER: Roy A. Forsyth, P.E.

BRIDGE NO: 28528 WEATHER: Sunny, 70°F

WATERWAY CROSSED: Root River

DIVING OPERATION: _____ SCUBA _____ SURFACE SUPPLIED AIR
X OTHER Wading inspection

PERSONNEL: Charles R. Euwema, Jordan T. Furlan, P.E.

EQUIPMENT: Waders, Sounding Pole, Lead Line, Probe Rod, Camera, Scraper

TIME IN WATER: 4:00 p.m.

TIME OUT OF WATER: 4:30 p.m.

WATERWAY DATA: VELOCITY 1.5 ft/s

VISIBILITY 3.0 feet

DEPTH 5.0 feet maximum at Pier 2

ELEMENTS INSPECTED: Pier 2

REMARKS: Overall Pier 2, was found to be in good condition. The channel bottom appeared stable with a minor scour depression around the south face of the pier. The concrete of the pier appeared sound with no appreciable defects.

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. 28528
 INSPECTORS Collins Engineers, Inc.
 ON-SITE TEAM LEADER Roy A. Forsyth, P.E.
 WATERWAY CROSSED Root River

INSPECTION DATE October 2, 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* (ENCASEMENTS)	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 2	5.0	N	7	N	8	N	7	7	N	7	N	7	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall Pier 2, was found to be in good condition. The channel bottom appeared stable with a minor scour depression around the south face of the pier. The concrete of the pier appeared sound with no appreciable defects..

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.