

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 7132

CSAH NO. 33

OVER THE

LAC QUI PARLE RIVER

DISTRICT 8 – LAC QUI PARLE COUNTY



OCTOBER 22, 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. 7132 consisted of Piers 1 and 2. The concrete columns of the substructure units were found to be in satisfactory condition with scaling up to 1/8 inch deep. The channel bottom material around the substructure units consisted of silt and appeared to be stable with no significant scour at the time of inspection. This report represents the initial underwater inspection for this structure.

INSPECTION FINDINGS:

- (A) The upstream and downstream columns of Piers 1 and 2 exhibited scaling up to 1/8 inch deep 1 foot above and below the waterline.
- (B) The streambed material at Piers 1 and 2 consisted of silt with up to 1 foot of probe rod penetration.
- (C) An accumulation of 1 foot diameter and smaller timber debris was observed between the upstream and downstream columns pier 1.

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

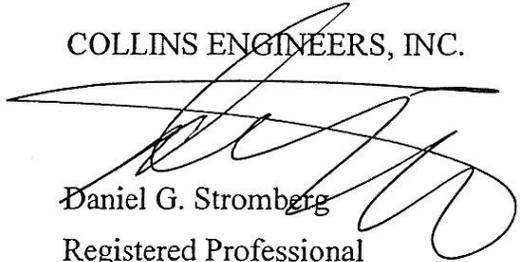
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

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: 7132

Feature Crossed: Lac Qui Parle River

Feature Carried: CSAH No. 33

Location: District 8 – Lac Qui Parle County

Bridge Description: The superstructure consists of a three span steel girder bridge supported by two concrete piers 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 22, 2012

Weather Conditions: Sunny, 50°F

Underwater Visibility: 2.0 feet

Waterway Velocity: None/Negligible

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2

General Shape: Piers 1 and 2 consist of two hexagon shaped reinforced concrete columns. The foundation configuration is unknown.

Maximum Water Depth at Substructure Inspected: Approximately 10.2 feet.

4. WATERLINE DATUM

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

Water Surface: The waterline was approximately 10.9 feet below reference.

Assumed Waterline Elevation = 89.1

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 7

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

Item 113: Scour Critical Bridges: Code R

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	4	EA		4			
361	Scour	1	EA	1				
985	Slopes and Slope Protection	1	EA		1			



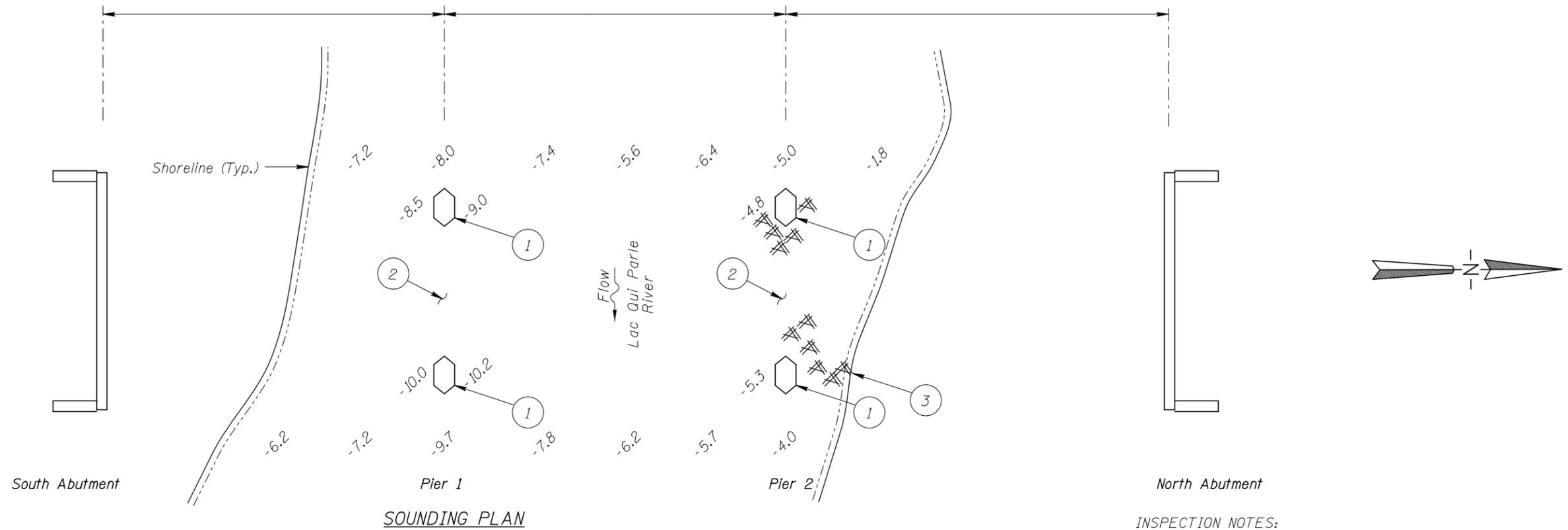
Photograph 1. Overall View of the Structure, Looking East



Photograph 2. View of Pier 1, Looking North.



Photograph 3. View of Pier 2, Looking North.



- INSPECTION NOTES:**
- ① The upstream and downstream column of Piers 1 and 2 exhibited scaling up to 1/8 inch deep, 1 foot above and below the waterline.
 - ② The streambed material at Piers 1 and 2 consisted of silt allowing a probe rod penetration of up to 1 foot.
 - ③ 1 foot diameter and smaller timber debris was observed between the upstream and downstream columns at Pier 2.

- GENERAL NOTES:**
1. Piers 1 and 2 were inspected underwater.
 2. At the time of inspection on October 22, 2012, the waterline was located approximately 10.9 feet below the top of the pier cap at the upstream end of Pier 1. Since no bridge plans were available a reference elevation of 100.0 was assumed. This corresponds with an assumed waterline elevation of 89.1 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.

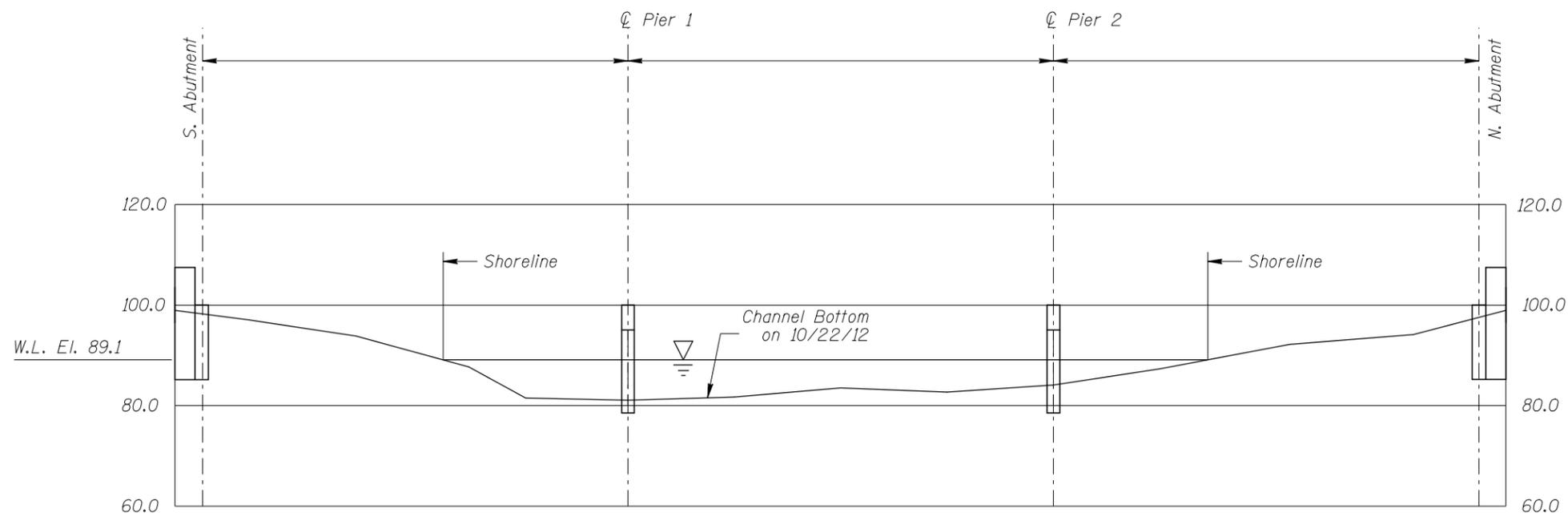
Legend
 -7.5 Sounding Depth from Waterline (10/22/12)
 Debris



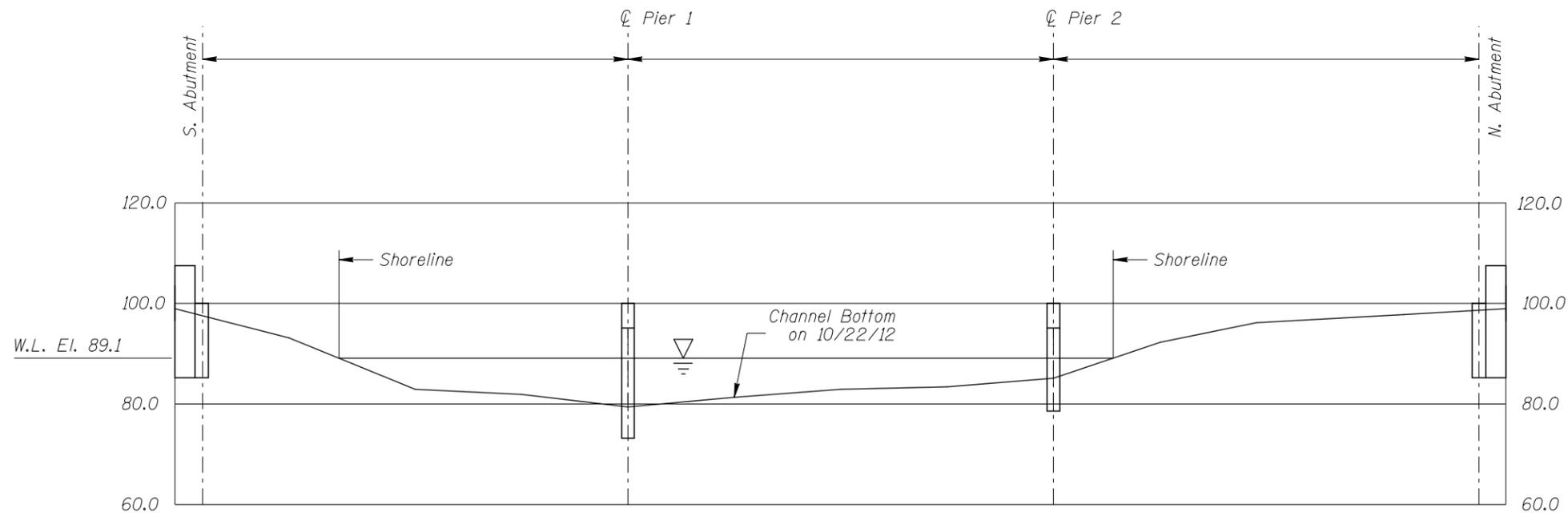
TYPICAL END VIEW OF PIERS

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 7132 OVER THE LAC QUIPARLE RIVER DISTRICT 8, LAC QUIPARLE 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. 7132 OVER THE LAC QUIPARLE RIVER DISTRICT 8, LAC QUIPARLE COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: JAC	AVRES ASSOCIATES <small>3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com</small>	Date: COT., 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 22, 2012

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

BRIDGE NO: 7132 WEATHER: Sunny, 50°F

WATERWAY CROSSED: Lac Qui Parle River

DIVING OPERATION: _____ SCUBA SURFACE SUPPLIED AIR
_____ OTHER _____

PERSONNEL: Ricardo S. Narvaez, Adam J. Enderby

EQUIPMENT: SSA, U/W Light, Hammer, Sounding Pole, Probe Rod, Camera

TIME IN WATER: 1:20 PM

TIME OUT OF WATER: 1:35 PM

WATERWAY DATA: VELOCITY None/Negligible

VISIBILITY 2.0 feet

DEPTH 10.2 feet maximum at Pier 1

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: The upstream and downstream columns of Piers 1 and 2 exhibited scaling up to 1/8 inch deep 1 foot above and below the waterline. The streambed at Piers 1 and 2 consisted of soft silt. An accumulation of 1 foot diameter and smaller timber debris was observed between the upstream and downstream columns of Pier 2.

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. 7132
 INSPECTORS Ayres Associates
 ON-SITE TEAM LEADER Brian K. Schroeder, P.E.
 WATERWAY CROSSED Lac Qui Parle River

INSPECTION DATE October 22, 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	10.2'	N	6	N	N	N	6	7	8	7	N	7	6	N	N	N	N	N
	Pier 2	5.3'	N	6	N	N	N	6	7	8	7	6	7	6	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: The upstream and downstream columns of Piers 1 and 2 exhibited scaling up to 1/8 inch deep 1 foot above and below the waterline. The streambed at Piers 1 and 2 consisted of soft silt. An accumulation of 1 foot diameter and smaller timber debris was observed between the upstream and downstream columns of Pier 2.

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.