

UNDERWATER BRIDGE INSPECTION REPORT

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STRUCTURE NO. 66513  
14<sup>th</sup> STREET (MSAS NO. 103)  
OVER THE  
STRAIGHT RIVER  
CITY OF FARIBAULT, RICE COUNTY

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SEPTEMBER 14, 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 units inspected at Bridge No. 66513, East and West Piers, were sound and in good condition with no structurally significant defects observed. The top face of footing at the East Pier was partially exposed along the west face of the pier.. The channel bottom appeared stable with no appreciable scour, however, the above mentioned footing exposure was not observed during the previous underwater inspection.

INSPECTION FINDINGS:

- (A) The top of the footing was partially exposed along the west face of the East Pier from upstream 1/4 point to downstream 1/4 point of the pier.
- (B) The concrete was in smooth and sound condition with no notable deterioration.
- (C) The channel bottom material consisted of 1 foot and smaller diameter stone.

RECOMMENDATIONS:

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

**Inspection Team Leader**



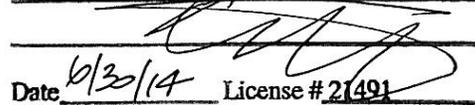
**Roy A. Forsyth, PE**  
**Date 6/30/2014 License# 49270**

Respectfully submitted,

**PROFESSIONAL ENGINEER**

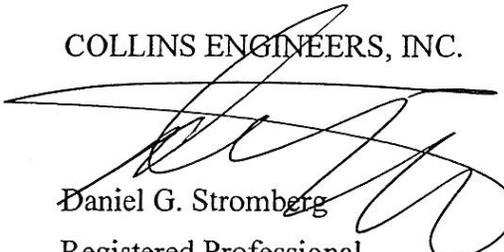
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

**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: 66513

Feature Crossed: Straight River

Feature Carried: 14<sup>th</sup> Street (MSAS No. 103)

Location: City of Faribault, Rice County

Bridge Description: The bridge consists of a continuous three span multiple steel girder superstructure supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and two reinforced concrete piers. No design drawings with foundation details were provided. The piers are designated as the East and West Piers.

2. INSPECTION DATA

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

Dive Team: Charles R. Euwema, Brandon Corr

Date: September 14, 2012

Weather Conditions: Sunny, 85° F

Underwater Visibility: 1.0 foot

Waterway Velocity: 1.0 ft/s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: East and West Piers.

General Shape: The piers are single stem hammerheads with oblong rectangular shafts and rounded ends. No foundation information was available

Maximum Water Depth at Substructure Inspected: Approximately 4.3 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the downstream end of East Pier.

Water Surface: The waterline was approximately 15.8 feet below reference.  
Assumed Waterline Elevation = 84.2.

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/9/12

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
210	Reinforced Concrete Pier Wall	50	LF	50				
985	Slopes and Slope Protection	1	EA	1				



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



Photograph 2. View of East Pier, Looking East.



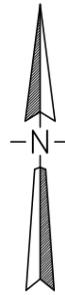
Photograph 3. View of West Pier, Looking East.



Photograph 4. View of West Abutment, Looking West.

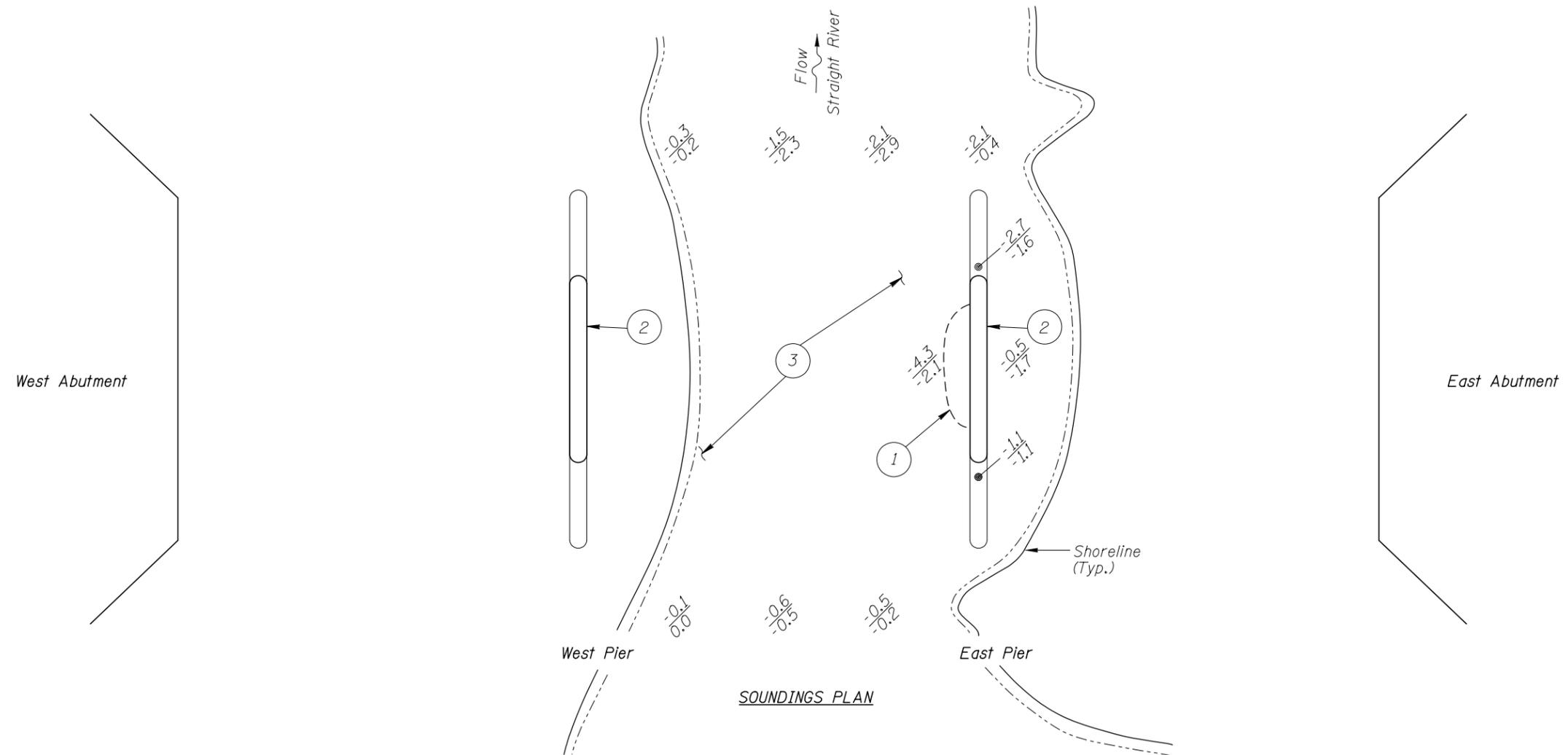


Photograph 5. View of East Abutment, Looking Southeast.



INSPECTION NOTES:

- 1 The top of the footing was partially exposed along the west face of the East Pier extending from the upstream 1/4-point to the downstream 1/4-point of the pier. No vertical face/footing edge exposure was present.
- 2 The concrete was in smooth and sound condition with no notable deterioration.
- 3 The channel bottom material consisted of 1 foot and smaller diameter stone.



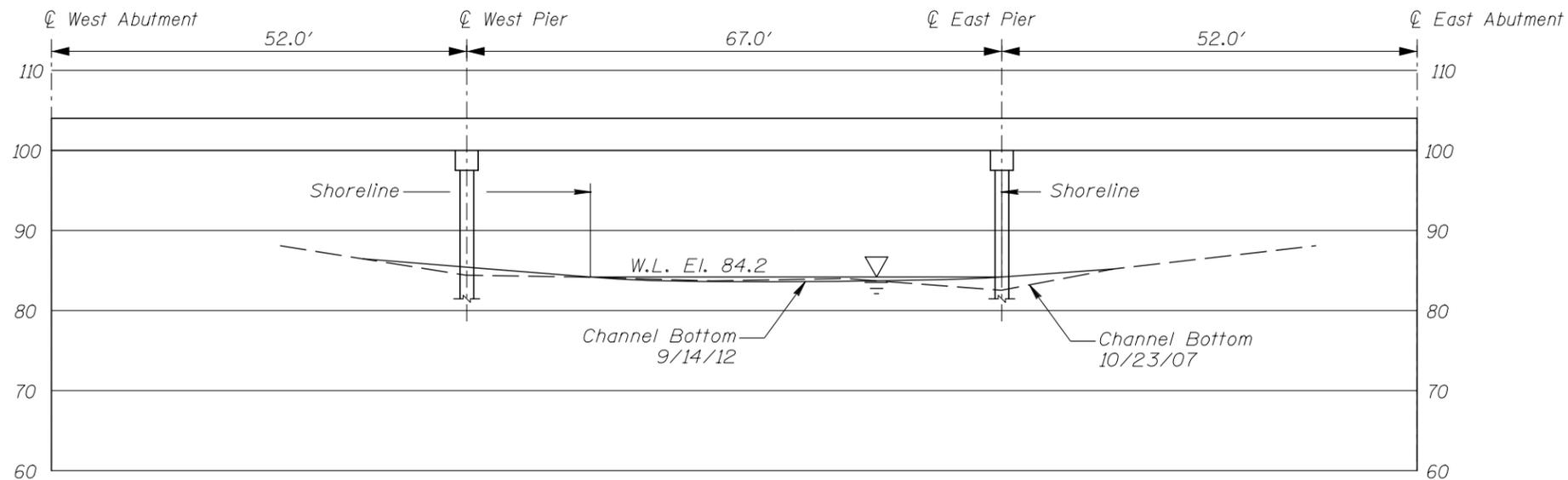
GENERAL NOTES:

1. The East and West Piers were inspected.
2. At the time of inspection, on September 14, 2012, the waterline was located approximately 15.8 feet below the top of the pier cap on the downstream end of the East Pier. Since insufficient elevation information was available, an elevation of 100.0 was assumed. This corresponds to a waterline elevation of 84.2.
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 as well as around the pier structures.

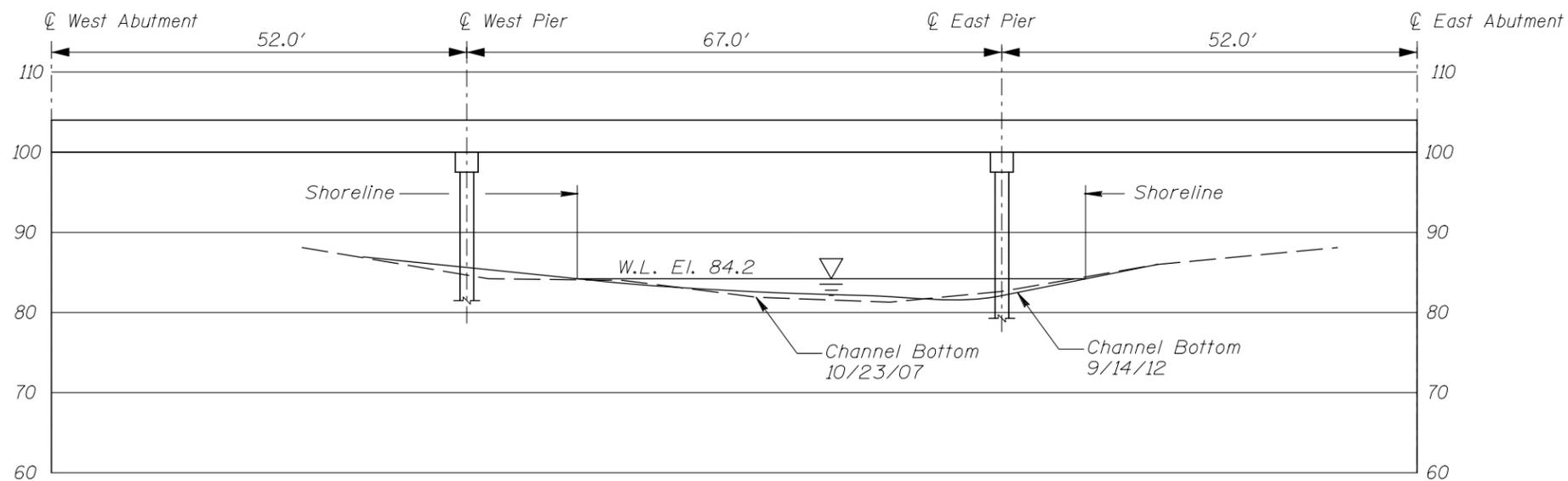
Legend

- 0.4 Sounding Depth (9/14/12)
- 0.4 Sounding Depth (10/23/07)
- Timber Debris

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 66513 OVER THE STRAIGHT RIVER CITY OF FARIBAULT, RICE COUNTY		
<b>INSPECTION AND SOUNDING PLAN</b>		
Drawn By: CRE	<b>COLLINS ENGINEERS</b>	Date: SEPT. 2012
Checked By: RAF	<small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: NTS
Code: 522166513		Figure No.: I



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:  
Refer to Figure 1 for General Notes.

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 66513 OVER THE STRAIGHT RIVER CITY OF FARIBAULT, RICE COUNTY		
<b>UPSTREAM AND DOWNSTREAM FASCIA PROFILES</b>		
Drawn By: CRE	<b>COLLINS ENGINEERS</b> <small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: SEPT. 2012
Checked By: RAF		Scale: 1"=20'
Code: 522166513		Figure No.: 2

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

INSPECTORS: Collins Engineers, Inc. DATE: September 14, 2012

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

BRIDGE NO: 66513 WEATHER: Sunny, 85° F

WATERWAY CROSSED: Straight River

DIVING OPERATION:  SCUBA  SURFACE SUPPLIED AIR  
 OTHER

PERSONNEL: Charles R. Euwema, Brandon Corr

EQUIPMENT: Commercial Scuba, Sounding Pole, Lead Line, Probe Rod, Camera, Hand Tools

TIME IN WATER: 3:15 p.m.

TIME OUT OF WATER: 3:45 p.m.

WATERWAY DATA: VELOCITY 1.0 ft/s.

VISIBILITY 1.0 foot

DEPTH 4.3 feet maximum at East Pier

ELEMENTS INSPECTED: East and West Piers

REMARKS: Overall, East and West Piers were sound and in good condition with no structurally significant defects observed. The top face of footing at the East Pier was exposed along the west face from upstream ¼ point to downstream ¼ point of the pier. The channel bottom appeared stable with no appreciable scour.

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. 66513  
 INSPECTORS Collins Engineers, Inc.  
 ON-SITE TEAM LEADER Roy A. Forsyth, P.E.  
 WATERWAY CROSSED Straight River

INSPECTION DATE September 14, 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 (BRACING)	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 Pier	4.3'	N	7	7	9	N	7	7	7	7	7	7	7	N	N	N	N	N
	West Pier	Dry	N	7	N	9	N	7	N	8	8	N	8	7	N	N	N	N	N

\*UNDERWATER PORTION ONLY

REMARKS: Overall, East and West Piers were sound and in good condition with no structurally significant defects observed. The top face of footing at the East Pier was exposed along the west face from upstream 1/4 point to downstream 1/4 point of the pier. The channel bottom appeared stable with no appreciable scour.

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.