

SCDOT BRIDGE INSPECTION FORM

(008) BRIDGE ID: 3210002000400	(005) ROUTE: LEXINGTON I-20
(420) ASSET NO: 4604	(006) CROSSING: SALUDA RIVER
(419) RAMP NO:	(009) LOCATION: 5MI NW OF COLUMBIA
(026) FUNCTIONAL CLASS: 11	(016) LAT: 34d 1m 32.16s (017) LON: 81d 7m 41.80s

GENERAL BRIDGE DATA

	EXISTING	REVISED		EXISTING	REVISED
(027) Year Built	1965		(042) Type Serv; On(A) Und(B)	1	5
(106) Year Recon	1991		(028) Lanes; On(A) Und(B)	6	0
(031) Design Load	6		(107) Deck Struct	1	
(36A) Railings	0		(108) Wear Surf/Membrane/Prot	1	0 0
(36B) Transitions	1			MAT-SUP-SUB	
(36C) Appr Guard	1		(043) Main Original (A)	5	2 1
(36D) Appr Guard End	1		Main Reconst (B)	5	02 1
(037) History	5		(044) Appr Original (A)	0	00 0
(319) Last Paint Date			Appr Reconst (B)	0	00 0

GEOMETRIC DATA

	EXISTING	REVISED		EXISTING	REVISED
				FT	IN
(032) Appr Rdway	102		(053) Vert Clr Above Deck	99	99
(033) Bridge Median	3		(54A) Vert Clear Ref	N	
(034) Skew	25		(54B) Vert Clear Right	0	0 0
(035) Flared	0		(54C) Vert Clear Left	0	0 0
(045) # Main Spans	9		(10A) Great Min Clr Over/Und	99	99
(046) # Appr Spans	0		(10B) Great Min Right	99	99
(048) Max Span Lgth	73		(10C) Great Min Left	99	99
(308) Appr Span Lgth	0				
(049) Struct Length	657		(55A) Lat Clear Ref	N	
(47A) Horz Clear Right	51		(55B) Lat Clear Right	0	
(47B) Horz Clear Left	51		(056) Lat Clear Left	0	
(47UA) Horz Clear Right	0	0			
(47UB) Horz Clear Left	0	0	(038) Navigation Cont	0	
(50B) Sidewalk Right	0		(039) Nav Vert Clear	0	
(50A) Sidewalk Left	0		(040) Nav Horz Clear	0	
(051) Curb to Curb	102		(111) Nav Pier Port		
(052) Deck Out-Out	107.30				

RATINGS DATA

	EXISTING	REVISED		EXISTING	REVISED
(58) Deck	7		(041) Traffic Status	A	
(59) Super Str	7		(063) Rating Method	8	
(60) Sub Str	6		(064) Operating Method	1.27	
(061) Channel	8	7	(065) Rating Method	8	
(062) Culv Ret	N		(066) Inventory Rating	0.77	
(071) Water Adeq	7		(411) Date Rated	02/2020	
(072) Appr Rdway	8		(418) Conditions During Rating	7	7 6
(113) Scour Critical	6			Freq	Mth/Year
(067) Structure	6		(091, 090) Routine Insp	24	11/2021
(068) Deck Geom	9		(92A, 93A) Fracture Critical	N	
(069) Underclear	N		(92B, 93B) Underwater Insp	Y60	10/2017
(070) Bridge Post	5		(92C, 93C) Special Insp	N	07/2018

Inspection Leader: JAKE COCHRAN, CONSOR	Reviewed By:
Date:	Date:

Bridge Element Group Textual Data

Bridge ID: 32-1-00020-0-04-00

30 Dec 2022

Abutments and/or Headwalls:

[2] End Bents with 2.5'x3.6' concrete caps and buried piles

Hairline cracks with efflorescence in headwalls. Minor erosion at Bent 3 and moderate erosion between Bents 7 and 8.

Bents and/or Piers:

[8] Interior Bents with 3.5'x4' caps and [5] RC columns per bent

Minor abrasions on columns at splash zone. Hairline vertical and diagonal cracks in caps with efflorescence at construction joints. Debris on most all caps. Minor spalls with rust in caps.

FOR LOCATION SPECIFIC NOTES SEE SKETCH SHEET.

Bearings:

No noteworthy defects at the time of inspection.

Girders/Floor Beams/Stringers and/or Beams:

19-Type III PRESTRESSED CONCRETE BEAMS PER SPAN

Hairline cracks and minor spalls at end of beam at and behind bearing area of original structure and in diaphragms.

FOR LOCATION SPECIFIC NOTES SEE SKETCH SHEET.

Truss Members:

N/A

Expansion Joints:

Expansion material is cracked, torn, pulled loose, and missing.

FOR LOCATION SPECIFIC NOTES SEE SKETCH SHEET.

Decks and/or Slabs:

Hairline to 0.05" transverse and map cracking, and minor spalls, several with rust on deck. Minor spalls at joints. Efflorescence bleeding through at construction joints between Beams 11 and 12, Bent 1 side, on underside of deck. (18) deck drains clogged along left bridge rail.

FOR LOCATION SPECIFIC NOTES SEE SKETCH SHEET.

Curbs:

N/A

Bridge Railing/Parapets and/or Median Barriers:

Bridge rail in place, approach rail on 3 corners, not WBL, West end, right side with traffic. Vertical cracking up to full height x 0.016" wide with efflorescence staining throughout bridge rails on both sides. Concrete median barrier separating traffic lanes on I-20.

-Spall up to 8" long x 2" wide x 1/2" deep on left bridge rail in Span 9.

Paint Systems:

N/A

Waterway and Scour:

See scour sheet.

Underwater inspection performed on 11/22/2022, see Underwater Bridge Inspection Report.

Fender System:

N/A

Roadway Alignment:

Hairline transverse, diagonal, and map cracking in approach slabs. Minor spalls in asphalt at approach slabs, both ends.

Traffic Signs:

2ea bridge end signs in place.

Encroachments:

4-4" plastic pipes right side, mounted to diaphragms w/hangers between Beams 18 and 19 on underside of deck.

2" metal pipe attached to parapet wall, left side.

Water monitoring station mounted to parapet wall, right side, between Bents 4 and 5.

Miscellaneous Notes:

I-20 M/M 62.7. Historical marker in place 'William Kinsler Beckham'.

BRIDGE ORIENTATION: Labeling diagram orientation is the same direction as the historic orientation of the bridge (W-E).

Bridge Asset ID is located on the southwest corner of the bridge.

Bridge Inspected on 11/21/2021. Cloudy, 52 degrees.

BITL: Eric Beach, Collins Engineers, Inc.

Assistants: Jonathan Little, Mikayla Young, Charlie Stephens

Underwater inspection performed on November 22, 2022. Cloudy, 58°F.

BITL: Jake Cochran, PE

Assistants: Scott Rowe, Andrew Harrison, Wesley Trescott

Bridge Element Level Data

30 Dec 2022

Element No	Element Name/Description	Units	Env	Defect	Quantity in Each Condition State				Total Qty
					1	2	3	4	
109	Prestressed Concrete Open Girder/Beam	feet	1	Yes					
109	Delamination/Spall/Patched Area	feet	1	1080	0	5	4	0	9
109	Exposed Rebar	feet	1	1090	0	2	2	0	4
109	Exposed Prestressing	feet	1	1100	0	0	2	0	2
109	Cracking (PSC)	feet	1	1110	0	18	0	0	18
109	Prestressed Concrete Open Girder/Beam	feet	1	Yes	12450	25	8	0	12483
12	Reinforced Concrete Deck	sq feet	1	Yes					
12	Delamination/Spall/Patched Area	sq feet	1	1080	0	12	0	0	12
12	Exposed Rebar	sq feet	1	1090	0	28	0	0	28
12	Efflorescence/Rust Staining	sq feet	1	1120	0	6264	0	0	6264
12	Cracking (RC and Other)	sq feet	1	1130	22695	10676	3559	0	36930
12	Reinforced Concrete Deck	sq feet	1	Yes	49979	16980	3559	0	70518
205	Reinforced Concrete Column	each	1	Yes					
205	Delamination/Spall/Patched Area	each	1	1080	0	0	1	0	1
205	Abrasion/Wear (PSC/RC)	each	1	1190	0	11	0	0	11
205	Reinforced Concrete Column	each	1	Yes	12	11	1	0	24
210	Reinforced Concrete Pier Wall	feet	1	Yes					
210	Abrasion/Wear (PSC/RC)	feet	1	1190	0	96	0	0	96
210	Reinforced Concrete Pier Wall	feet	1	Yes	96	96	1	0	193
215	Reinforced Concrete Abutment	feet	3	No	232	0	0	0	232
220	Reinforced Concrete Pile Cap/Footing	feet	1	Yes					
220	Delamination/Spall/Patched Area	feet	1	1080	0	0	3	0	3
220	Abrasion/Wear (PSC/RC)	feet	1	1190	0	366	0	0	366
220	Scour	feet	1	6000	0	0	0	3	3
220	Reinforced Concrete Pile Cap/Footing	feet	1	Yes	0	366	3	3	372
234	Reinforced Concrete Pier Cap	feet	1	Yes					
234	Delamination/Spall/Patched Area	feet	1	1080	0	8	0	0	8
234	Exposed Rebar	feet	1	1090	0	9	0	0	9
234	Reinforced Concrete Pier Cap	feet	1	Yes	911	17	0	0	928
301	Pourable Joint Seal	feet	1	Yes					
301	Seal Adhesion	feet	1	2320	0	0	154	0	154

301	Pourable Joint Seal	feet	1	Yes	70	0	154	0	224
302	Compression Joint Seal	feet	1	Yes					
302	Seal Damage	feet	1	2330	0	0	248	0	248
302	Compression Joint Seal	feet	1	Yes	648	0	248	0	896
310	Elastomeric Bearing	each	1	No	304	0	0	0	304
313	Fixed Bearing	each	1	No	38	0	0	0	38
321	Reinforced Concrete Approach Slab	sq feet	1	Yes					
321	Cracking (RC and Other)	sq feet	1	1130	2480	648	0	0	3128
321	Reinforced Concrete Approach Slab	sq feet	1	Yes	5472	648	0	0	6120
331	Reinforced Concrete Bridge Railing	feet	1	Yes					
331	Delamination/Spall/Patched Area	feet	1	1080	0	1	0	0	1
331	Efflorescence/Rust Staining	feet	1	1120	0	46	0	0	46
331	Cracking (RC and Other)	feet	1	1130	49	0	0	0	49
331	Reinforced Concrete Bridge Railing	feet	1	Yes	1924	47	0	0	1971

1.0 INTRODUCTION

1.1 Purpose and Scope

SCDOT Asset ID 04604 carries I-20 over Saluda River in Lexington County. On November 22, 2022, Consor Engineers, LLC performed a routine underwater investigation at the bridge to evaluate the condition of all substructure units (SSUs) located in the water. This report includes a general description of the structure and the method of investigation, as well as a detailed description of the conditions noted. In addition, this report contains an element level condition assessment of the bridge components evaluated and presents recommendations for structural repairs.

The scope of the investigation included a visual inspection of all accessible substructure units located in the water from the high-water mark to the channel bottom. Depth soundings were also taken along the upstream and downstream fascias of the bridge to assist in the identification and documentation of scour conditions.

The underwater investigation generally consisted of a Level I, “swim-by,” visual inspection over 100 percent of the accessible substructure unit surfaces from the high-water mark to the channel bottom. A Level II visual/tactile inspection was performed on at least 10 percent of the substructure units, which included cleaning marine growth at the waterline, mid-depth, and channel bottom to facilitate an evaluation of the underlying surfaces. Particular attention was given to any observed areas of excessive deterioration or apparent distress, and the condition of any repairs was noted.

An assessment of the waterway and streambed conditions in the vicinity of the bridge was conducted. The channel bottom material was noted, as well as the location and extent of any observed scour, riprap or debris.

The location of the waterline with respect to a fixed reference on the bridge was noted at the time of the inspection. Depth soundings were taken along the bridge fascias and around each substructure unit using a weighted tape.

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1.2 General Description of the Structure

A description of the bridge that was inspected can be found in Table 1. Refer to Figures 1 and 3 for a plan and elevation of the bridge and the typical substructure layout.

Table 1: Bridge Description

Date of As-Built Plans:	Original: October 1965 Widened: May 1987
Length of Bridge:	657 ft.
Number of Spans:	9
SSUs Inspected:	Bents 3 through 6
Superstructure Type:	Prestressed Concrete Girders
Substructure Type:	Reinforced Concrete Column Bents
Foundation Type:	Reinforced Concrete Spread Footings
Direction of Stationing:	West to East

1.3 Evaluation of Conditions Encountered

A summary of the environmental conditions encountered during the inspection can be found in Table 2.

Table 2: Environmental Conditions

Tidal: Yes/No	No
Time of Soundings (if tidal):	N/A
Tide Status:	N/A
Maximum Water Depth:	9.8 ft. @ U/S Bent 5
Maximum Current:	1.0 fps
Visibility:	3.0 ft.
Weather:	Cloudy, 58°F
Waterline Reference:	26.7 ft. Below Top of Deck, D/S Bent 4
Reference Point Elevation:	193.3 (Plans)
Waterline Elevation:	166.6
High Water Elevation:	170.6

1.4 Access and Procedures

A dive team led by a South Carolina-registered professional engineer-diver conducted the underwater inspection. All members of the team are ADCI commercial divers with associated required NHI training courses. Refer to Table 3 for the list of team members that conducted the inspection and to Table 4 for a summary of the access methods and equipment used to inspect the bridge.

Table 3: Inspection Team

Engineer/Team Leader:	Jake Cochran, PE
	Scott Rowe
Divers/Inspectors:	Andrew Harrison
	Wesley Trescott

Table 4: Inspection Access

Method of Inspection:	Commercial SCUBA
Dive Platform:	Shore
Access Location:	Southwest embankment
Equipment Required:	Standard underwater inspection equipment

2.0 INSPECTION FINDINGS

2.1 Item 61: Channel

Based on the Routine Inspection, the NBI Item 61 (Channel and Channel Protection) condition rating is 8.

Based on the Underwater Inspection, the NBI Item 61 condition rating is 7.

NBI Item 61 should decrease to 7 based on the Underwater Inspection.

- The west embankment has scattered riprap under Span 1 with erosion channels extending from Bent 2 to the channel bank, up to 2 ft. deep (Photo 5).
- The east embankment is unprotected and has erosion channels from Bent 8 to Bent 7, up to 2 ft. deep (Photo 6).
- The stream flow is well aligned with the bents in the waterway.
- Timber debris throughout channel along bents, up to 2 ft. diameter.
- The channel bottom primarily consists of silt and rock.

2.2 Item 113: Scour

There has been limited general and local scour at the bridge site since construction, resulting in up to 6 in. high undermining; however, the extent of vertical footing exposures and undermining have remained relatively unchanged since the 2017 underwater inspection. Refer to Table 5 for a listing of the sounding measurements and to Figure 1 for an illustration of the channel bottom profiles. Refer to Table 6 for a complete listing of observed footing and seal exposures.

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2.3 Item 60: Substructure

Based on the Routine and Underwater Inspections, the NBI Item 60 (Substructure) condition rating is 6.

NBI Item 60 should remain as assigned by the Routine Inspection.

General Notes:

- All inspected bents, from high watermark to channel bottom, abrasion, up to 1/8 in. deep, with exposed but secure coarse aggregate (Photos 8 and 9). [CS2]

Bent 3								
Element	Defect	Element/Defect Description	Total Qty.	Units	Condition State Quantity			
					CS1	CS2	CS3	CS4
205		Reinforced Concrete Columns	3	EA		3		
	1190	Abrasion/Wear	3	EA		3		
210		Reinforced Concrete Pier Wall	24	LF		24		
	1190	Abrasion/Wear	24	LF		24		
220		Reinforced Concrete Pile Cap/Footing	93	LF		91	1	1
	1080	Spalls/Delaminations/Patch Areas	1	LF			1	
	6000	Scour	1	LF				1
	1190	Abrasion/Wear	91	LF		91		

- Footing 3, along north face, undermining, up to 4 in. high x 4 in. penetration. [CS3]
- Footing 5, southwest corner, at top of footing, spall, 5 in. high x 8 in. long on west face x 6 in. long on south face x 1.5 in. deep. [CS3]

Bent 4								
Element	Defect	Element/Defect Description	Total Qty.	Units	Condition State Quantity			
					CS1	CS2	CS3	CS4
205		Reinforced Concrete Columns	3	EA		2	1	
	1190	Abrasion/Wear	2	EA		2		
	1080	Spalls/Delaminations/Patch Areas	1	EA			1	
210		Reinforced Concrete Pier Wall	24	LF	1	23		
	1190	Abrasion/Wear	23	LF		23		
220		Reinforced Concrete Pile Cap/Footing	93	LF		90	2	1
	1080	Spalls/Delaminations/Patch Areas	2	LF			2	
	6000	Scour	1	LF				1
	1190	Abrasion/Wear	90	LF		90		

- Column 1, northwest corner, at column/footing interface, void, 3 in. high x 5 in. wide x 2 in. deep. [CS3]
- Footing 3, along north face, undermining, up to 4 in. high x 5 in. penetration. [CS4]
- Footing 5, southeast corner at top of footing, spall, 1.2 ft. long x 5 in. high x 1 in. deep. [CS3]

Bent 5								
Element	Defect	Element/Defect Description	Total Qty.	Units	Condition State Quantity			
					CS1	CS2	CS3	CS4
205		Reinforced Concrete Columns	3	EA		3		
	1190	Abrasion/Wear	3	EA		3		
210		Reinforced Concrete Pier Wall	24	LF		24		
	1190	Abrasion/Wear	24	LF		24		
220		Reinforced Concrete Pile Cap/Footing	93	LF		92		1
	6000	Scour	1	LF				1
	1190	Abrasion/Wear	92	LF		92		

- Footing 1, northeast corner, undermining, 6 in. high x up to 6 in. penetration. [CS4]

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Bent 6								
Element	Defect	Element/Defect Description	Total Qty.	Units	Condition State Quantity			
					CS1	CS2	CS3	CS4
205		Reinforced Concrete Columns	3	EA		3		
	1190	Abrasion/Wear	3	EA		3		
210		Reinforced Concrete Pier Wall	24	LF		24		
	1190	Abrasion/Wear	24	LF		24		
220		Reinforced Concrete Pile Cap/Footing	93	LF		93		
	1190	Abrasion/Wear	93	LF		93		

- No additional significant deficiencies observed.

Refer to Table 7 for a summary of the elements inspected and defects observed during the underwater inspection. Refer to Figures 1 and 2 for detailed inspection notes and a plan view showing the existing conditions at each of the inspected bents.

Table 5: Bridge Soundings

SSU	Upstream Fascia			Downstream Fascia		
	Waterline To Channel Bottom (ft)	Top of Deck To Waterline (ft)	Top of Deck To Channel Bottom (ft)	Waterline To Channel Bottom (ft)	Top of Deck To Waterline (ft)	Top of Deck To Channel Bottom (ft)
1/2	-	-	20.3	-	-	20.3
3/4	4.1	26.2	30.3	4.4	26.3	30.7
Bent 3	8.8	26.2	35.0	2.9	26.3	29.2
1/4	7.8	26.2	34.0	6.5	25.4	31.9
1/2	7.0	26.3	33.3	5.2	26.5	31.7
3/4	6.2	26.4	32.6	7.0	26.6	33.6
Bent 4	8.3	26.5	34.8	5.7	26.7	32.4
1/4	5.6	26.6	32.2	6.1	26.8	32.9
1/2	8.1	26.7	34.8	5.9	27.0	32.9
3/4	7.8	26.9	34.7	5.4	27.1	32.5
Bent 5	9.8	27.0	36.8	4.3	27.2	31.5
1/4	8.6	27.2	35.8	5.4	27.4	32.8
1/2	8.7	27.3	36.0	5.2	27.5	32.7
3/4	7.1	27.4	34.5	5.8	27.7	33.5
Bent 6	5.0	27.6	32.6	4.0	27.9	31.9
1/4	6.6	27.8	34.4	4.8	28.2	33.0
1/2	3.2	28.0	31.2	5.4	28.4	33.8
3/4	2.0	28.2	30.2	-	-	28.4
Bent 7	-	-	24.7	-	-	-

Note: The numbers listed in this table represent distances and not elevations. Based on the available SCDOT as-built plans dated October 1965, the waterline elevation at the time of the readings was 166.6 based on a measurement taken in the field and calculations using the existing plans.

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Table 6: Vertical Footing/Seal Exposures

SSU	Northeast Corner (ft.)		Northwest Corner (ft.)		Southeast Corner (ft.)		Southwest Corner (ft.)	
	2017	2022	2017	2022	2017	2022	2017	2022
3-1	3.3 (F)	3.0 (F)	3.0 (F)	3.0 (F)	1.5 (F)	2.6 (F)	0.5 (F)	0.5 (F)
3-2	3.5 (F)	3.5 (F)	3.5 (F)	2.6 (F)	2.5 (F)	2.6 (F)	0.0 (F)	0.0 (F)
3-3	3.0 (F)	3.5 (F)	2.2 (F)	2.4 (F)	2.8 (F)	3.1 (F)	0.3 (F)	1.0 (F)
3-4	4.0 (F)	4.0 (F)	0.3 (F)	0.9 (F)	3.8 (F)	3.9 (F)	1.5 (F)	2.0 (F)
3-5	2.6 (F)	3.1 (F)	2.0 (F)	2.0 (F)	2.6 (F)	2.0 (F)	2.0 (F)	2.2 (F)
4-1	3.8 (F)	3.7 (F)	3.2 (F)	4.0 (F)	2.5 (F)	1.7 (F)	2.0 (F)	1.9 (F)
4-2	2.8 (F)	2.2 (F)	2.8 (F)	2.2 (F)	1.5 (F)	1.6 (F)	2.4 (F)	1.9 (F)
4-3	4.0 (F)	4.0 (F)	2.8 (F)	3.3 (F)	2.0 (F)	2.2 (F)	1.2 (F)	1.1 (F)
4-4	3.7 (F)	4.0 (F)	3.0 (F)	2.5 (F)	2.8 (F)	2.6 (F)	2.6 (F)	2.8 (F)
4-5	2.4 (F)	2.5 (F)	2.0 (F)	2.2 (F)	2.3 (F)	2.1 (F)	1.9 (F)	1.9 (F)
5-1	4.0 (F)	0.5 (U)	0.6 (U)	4.0 (F)	2.2 (F)	2.1 (F)	1.0 (F)	1.1 (F)
5-2	5.0 (F)	5.0 (F)	3.8 (F)	4.3 (F)	2.3 (F)	1.9 (F)	0.7 (F)	1.0 (F)
5-3	0.0 (F)	1.2 (F)	3.0 (F)	2.8 (F)	0.6 (F)	0.9 (F)	0.2 (F)	0.5 (F)
5-4	2.2 (F)	1.5 (F)	2.5 (F)	2.5 (F)	3.0 (F)	2.5 (F)	2.4 (F)	2.2 (F)
5-5	3.2 (F)	2.3 (F)	2.9 (F)	2.7 (F)	2.0 (F)	2.2 (F)	0.3 (F)	0.9 (F)
6-1	2.6 (F)	*	0.5 (F)	*	2.1 (F)	*	1.8 (F)	*
6-2	3.3 (F)	3.1 (F)	2.5 (F)	*	2.0 (F)	1.6 (F)	1.9 (F)	2.0 (F)
6-3	1.5 (F)	1.1 (F)	0.2 (F)	*	0.0 (F)	2.0 (F)	Covered	0.3 (F)
6-4	0.1 (F)	0.2 (F)	0.7 (F)	1.0 (F)	0.5 (F)	1.2 (F)	2.5 (F)	2.5 (F)
6-5	0.2 (F)	1.0 (F)	2.2 (F)	2.2 (F)	0.2 (F)	1.4 (F)	1.9 (F)	1.6 (F)

3.0 (F)	Partial footing exposure, measurements taken from the top of the footing to the channel bottom
3.5 (U)	Complete spread footing exposure and undermining, measurements taken from the bottom of the footing to the channel bottom
*	Location was inaccessible due to timber debris

Table 7: Underwater Inspection Elements

NATIONAL BRIDGE ELEMENTS RECORDING SHEET *								
	Asset ID: 04604	By: Consor Engineers, LLC	Date: 11/22/2022					
Element	Defect	Element/Defect Description	Total Qty.	Units	Condition State Quantity			
					CS1	CS2	CS3	CS4
SUBSTRUCTURE								
205		Reinforced Concrete Columns	12	EA		11	1	
	1080	Spalls/Delaminations/Patch Areas	1	EA			1	
	1190	Abrasion/Wear	11	EA		11		
210		Reinforced Concrete Pier Wall	96	LF		96		
	1190	Abrasion/Wear	96	LF		96		
220		Reinforced Concrete Pile Cap/Footing	372	LF		366	3	3
	1080	Spalls/Delaminations/Patch Areas	3	LF			3	
	1190	Abrasion/Wear	366	LF		366		
	6000	Scour	3	LF				3

*Includes only defects on the elements inspected during the underwater inspection.



Photo 1: Upstream/North Fascia



Photo 2: Downstream/South Fascia



Photo 3: View Upstream from On Bridge



Photo 4: View Downstream from On Bridge



Photo 5: West Channel Bank



Photo 6: East Channel Bank



Photo 7: Bent 3, West Face (Bents 3 through 6 Similar)

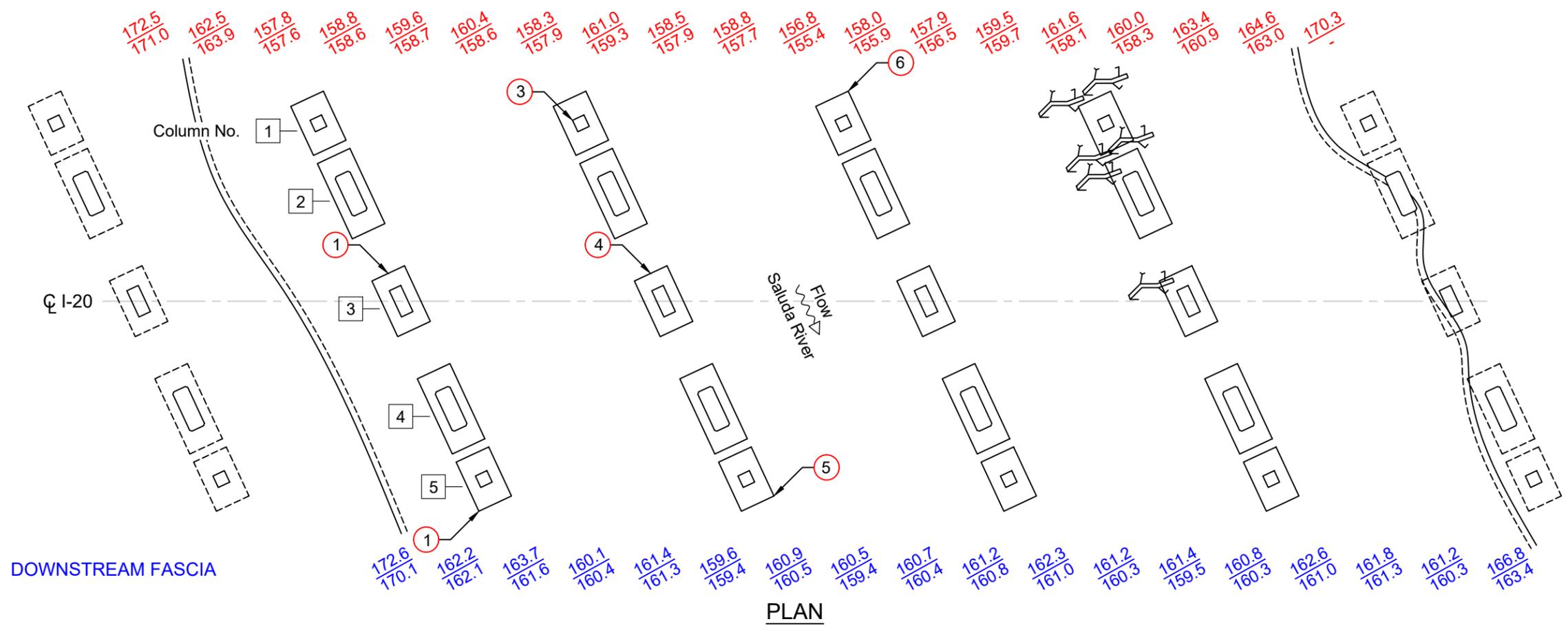


Photo 8: Typical Concrete Condition at Waterline, Bent 6, Column 3 Shown

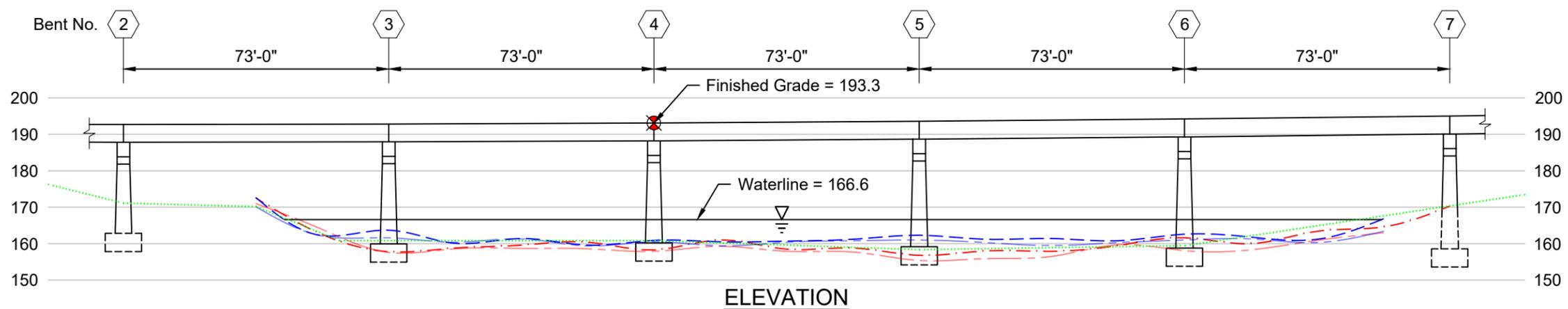


Photo 9: Typical Concrete Condition Below Waterline, Bent 6, Column 3 Shown

UPSTREAM FASCIA



PLAN



ELEVATION

Figure Notes:

- At the time of inspection, the waterline was located approximately 29.5 ft. below the top of the deck at the downstream side of Bent 4. This translates to a waterline elevation of 166.6 according to the available as-built plans.
- Soundings across the channel were taken parallel to the bridge at the bents and are actual channel bottom elevations in feet determined on November 22, 2022.
- This figure was developed from field notes, sketches, and South Carolina Department of Transportation as-built plans dated October 1965 and May 1987.

Inspection Notes:
Refer to Figure 2 for detailed inspection notes.

Legend

- 2017 Upstream Fascia
- 2022 Upstream Fascia
- Original Groundline
- 2017 Downstream Fascia
- 2022 Downstream Fascia
- Shoreline
- GN General Note
- # Inspection Note
- Waterline Reference Point
- Photograph
- Channel Bottom Elevation
- Timber Debris
- Riprap

GRAPHIC SCALE: 0 35' 70'

DATE: November 2022

consor

40 Concourse Way
Greer, SC 29650
PH: 864.595.8030

SCDOT
SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Asset ID: 04604

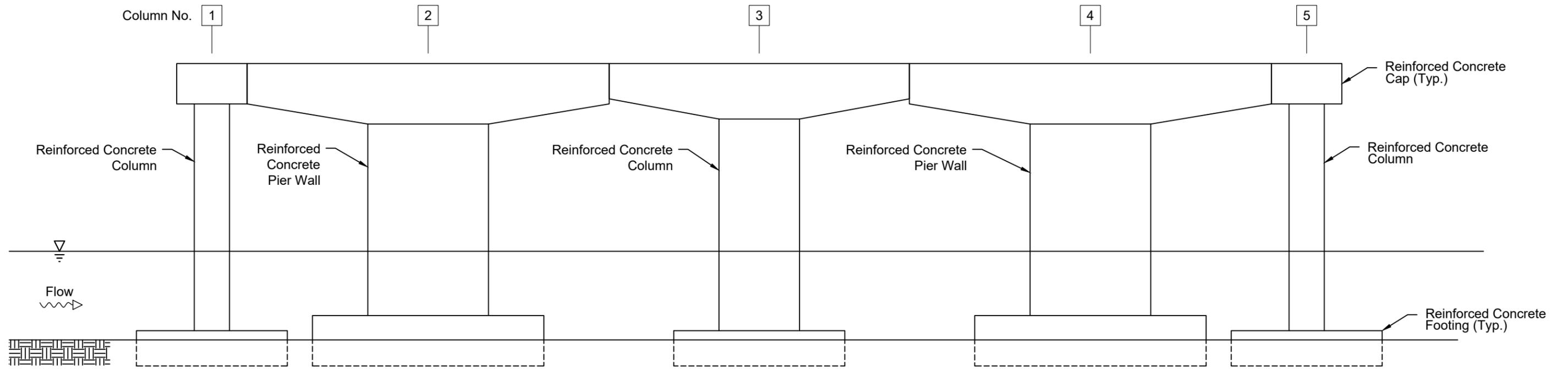
I-20 over Saluda River

Plan and Elevation

FIG NO. 1

Inspection Notes:

- GN All inspected bents, from high watermark to channel bottom, abrasion, up to 1/8 in. deep, with exposed but secure coarse aggregate.
- 1 Bent 3, Footing 3, along north face, undermining, up to 4 in. high x 4 in. penetration.
- 2 Bent 3, Footing 5, southwest corner, at top of footing, spall, 5 in. high x 8 in. long on west face x 6 in. long on south face x 1.5 in. deep.
- 3 Bent 4, Column 1, northwest corner, at column/footing interface, void, 3 in. high x 5 in. wide x 2 in. deep.
- 4 Bent 4, Footing 3, along north face, undermining, up to 4 in. high x 5 in. penetration.
- 5 Bent 4, Footing 5, southeast corner at top of footing, spall, 1.2 ft. long x 5 in. high x 1 in. deep.
- 6 Bent 5, Footing 1, northeast corner, undermining, 6 in. high x up to 6 in. penetration.



West Elevation
(Bents 3 through 6)

<p>GRAPHIC SCALE</p>	<p>DATE</p> <p>November 2022</p>	<p>40 Concourse Way Greer, SC 29650 PH.: 864.595.8030</p>	<p>SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION</p> <p>Asset ID: 04604</p>	<p>I-20 over Saluda River</p> <p>Typical Bent Elevation</p>	<p>FIG NO.</p> <p>3</p>
	<p>Asset ID: 04604</p>				



Scour Critical – Item 113 Re-Evaluation Form

REQUIRED STRUCTURE INFORMATION			
ASSET ID NUMBER (NBI 08):	NBI Condition Ratings and Current Value of NBI Item 113 from Attached Inspection Report		
04604	NBI 60 (Substructure): 6	NBI 61 (Channel Protection): 7	NBI 113 (Scour Critical): 6

Request By: _____ Company/Organization: Conсор Engineers, LLC
 BITL: Jake Cochran, PE (Print Name) District: 1
 Signed: Michael Dukes Digitally signed by Michael Dukes Date: 2022.12.30 09:45:03 -06'00' Date: 12/30/2022

The BITL has inspected the above described bridge and prepared the attached inspection report and is recommending a re-evaluation of Item 113 – Scour Critical Bridges for the following reasons:

- New structure (Initial Inspection)
- Substructure scour repairs have been performed and/or streambed scour countermeasures have been installed on a structure that is scour critical. Note improvement:

- Significant changes have occurred that have altered the stream bed or flow characteristics of the waterway

Please indicate what has occurred at the site:

- Natural scour improvements
- Channel changing course
- Evidence of erosion or scour around footings and embankments
- Large amount of debris around substructure
- Evidence or riprap, bank protection removed or altered
- Stream work performed by others that might change the hydraulic characteristic at the bridge
- Other: Item 113 rating is 6, needs to be evaluated.

**TRANSMITTED
12/30/2022**

- UW inspection is requested and Attachment 4.1 has been completed.

Bridge Maintenance Office Use – to be completed by: Bridge Inspection Program Manager (BIPM) (or designee)

BIPM (or designee): _____ (Print Name)

Signed: _____ Date: _____

- No change required
- Item 113 Coding change to:





Inspection Out-of-Frequency Form

REQUIRED STRUCTURE INFORMATION		
ASSET ID NUMBER: (NBI 08) 04604	DISTRICT # (NBI 02): District 1	COUNTY (NBI 03): Lexington
LOCATION (NBI 09): 5 MI NW OF COLUMBIA	FACILITY CARRIED (NBI 07): I-20	FEATURE INTERSECTED (NBI 06): SALUDA RIVER
STRUCTURE TYPE (MAIN, NBI 43): 5 - Prestressed Concrete		STRUCTURE TYPE (APPROACH, NBI 44): -

INSPECTION OCCURRING OUT OF FREQUENCY	
SUBJECT INSPECTION TYPE: -	
INSPECTION DUE DATE (IF INSPECTION IS LATE) : 10/31/2022	INSPECTION COMPLETION DATE (IF KNOWN): 11/22/2022
REPORT DUE DATE (IF REPORT IS LATE) :	REPORT COMPLETION DATE (IF KNOWN):
WRITTEN EXPLANATION OUT OF FREQUENCY: DUE TO LATE LNTP, BRIDGE WAS UNABLE TO BE INSPECTED IN OCTOBER 2022.	
NAME/POSITION OF PARTY NOTIFYING OUT-OF-FREQUENCY OCCURRENCE (blank if made by DBIS or Consultant PM)	
Name: _____ Position: _____	
Signed: _____	
SCDOT DBIS from District where bridge is located OR Consultant Project Manager (Consultant Inspection Only), Signature Required:	
Signed: _____	
Comments:	
SCDOT BIPM, Signature Required:	
Signed: _____	
Comments from SCDOT BIPM or from BMO:	
FHWA ACKNOWLEDGEMENT AND/OR APPROVAL: <input type="checkbox"/> A cknowledgem <input type="checkbox"/> Approval	
Signed: _____	
Comments from FHWA:	

TRANSMITTED 12/30/2022



Bridge Inspection QC Form (Consultant Inspection)

REQUIRED STRUCTURE AND INSPECTION INFORMATION	
ASSET ID (08): 04604	TEAM LEADER: Jake Cochran, PE
INSPECTION TEAM MEMBERS: Scott Rowe, Wesley Trescott, Andrew Harrison	INSPECTION TYPE: Underwater
CONSULTANT NAME: Conzor Engineers, LLC	
QUALITY CONTROL REVIEWER (QCR): (Print Name): Heath K. Pope, PE	

INSPECTION REPORT	OTHER
1) <input checked="" type="checkbox"/> SI&A: Reviewed Report Form SI&A Data (specifically ratings for NBI 58, 59, 60, 62, 71, 72	
2) <input checked="" type="checkbox"/> Textual: Reviewed the textual sections of the report for consistency and errors	
3) <input checked="" type="checkbox"/> Element-Level: Element Condition States/Defects reviewed and are consistent with NBI Items	
4) <input checked="" type="checkbox"/> Photographs: Reviewed photographs included in report, all included per BIGD 5.4.4.2	
5) <input checked="" type="checkbox"/> Previous Inspection Report: Reviewed against previous inspection, if there is no previous: N/A: <input type="checkbox"/>	
6) <input checked="" type="checkbox"/> Sketch Sheets/Attachments: Required items are included (BIGD 5.4.4.2) & reviewed, or if N/A: <input type="checkbox"/>	
7) <input type="checkbox"/> Condition Rating (58, 59, 60 or 62) 5 or Less: A photograph or attachment is included, or if N/A: <input checked="" type="checkbox"/>	
	8) <input type="checkbox"/> Repair Recommendations: Repair Recommendation Form completed and sent to DBIS, or if N/A: <input checked="" type="checkbox"/>
	9) <input type="checkbox"/> Critical Finding(s): If critical finding found, the Critical Findings Form was submitted, or if N/A: <input checked="" type="checkbox"/>
	10) <input checked="" type="checkbox"/> Requests to BMO (HO): Load Rating and/or Scour Re-Evaluation Request(s) sent, or if N/A: <input type="checkbox"/>
	11) <input type="checkbox"/> Posting: Need for load posting / weight restriction signs were coded as "Priority A Flag" - if N/A: <input checked="" type="checkbox"/>
	12) <input type="checkbox"/> Signs: Need for height clearance or narrow bridge signs were coded as "Priority A Flag" - if N/A: <input checked="" type="checkbox"/>

- Initial Inspection Only:** QCR has reviewed initial element quantities for Element-Level
- Initial Inspection Only:** QCR has reviewed inventory photos, correctly stored in Bridge File
- FCM Inspection Only:** Correct documentation was included, BSIP followed, required access gained
- UW Inspection Only:** Correct documentation was included, BSIP followed, required access gained
- Complex Bridge Only:** BSIP followed

QC Review Comments: (use another page if additional comments)

1	QC Subject: <u>SI&A Data</u> QC Comment: <u>Minor revision to SI&A Data</u> BITL Response to Comment: <u>Changes to be made during BIO entry.</u> QC Comment Closed? <input checked="" type="checkbox"/>
2	QC Subject: <u>Element and Defect Quantities</u> QC Comment: <u>Minor revision to element and defect quantities.</u> BITL Response to Comment: <u>Changes to be made during BIO entry.</u> QC Comment Closed? <input checked="" type="checkbox"/>
3	QC Subject: <u>-</u> QC Comment: _____ BITL Response to Comment: _____ QC Comment Closed? <input type="checkbox"/>
4	QC Subject: <u>-</u> QC Comment: _____ BITL Response to Comment: _____ QC Comment Closed? <input type="checkbox"/>

QC Review Complete

Signed and Dated by QC Reviewer: Heath K. Pope (Upload to BIO)

Digitally signed by Heath K. Pope
 DN: C=US, E=hkpop@consoreng.com, O="CONSOR Engineers, LLC",
 OU=Structural Assessment, CN=Heath K. Pope
 Date: 2022.12.30 10:48:20-08'00'