I-20 Over Wateree River
Contract ID Number: 2847360
Kershaw County

South Carolina Department of Transportation

Proposed Repair Details & Quantities For Overflow Bridges Asset ID: 5780, 5785, 5781 & 5786

Prepared by:

RS&H

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Wateree River
Wateree River
Wateree Farm Pond Number Three
Buck Creek
Wateree River
Wateree River
Columbia
Google

Section 2: Top of Deck Repair

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Top of Deck Repair Summary:

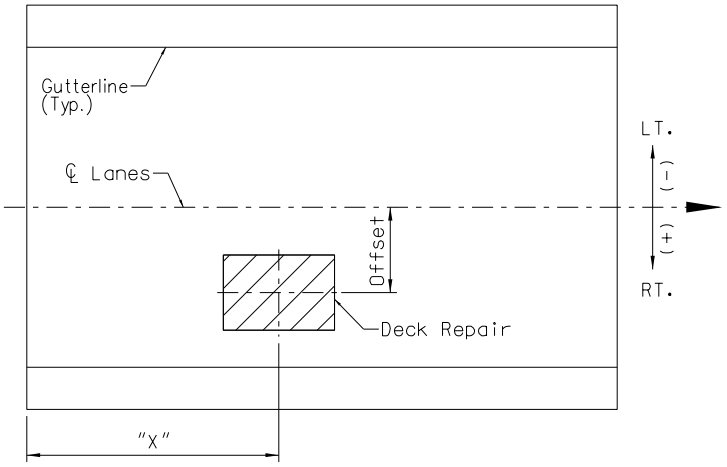
Standard Repair Notes:

1. Concrete for partial depth deck repairs shall be Class 4000 concrete.

2. Partial depth deck repairs shall be in accordance with section 702.4.10 of the SCDOT Standard Specifications. Remove concrete in all delaminated areas to a depth of 1" below the top mat of reinforcing steel. All reinforcing steel in areas of deck repair shall be blast cleaned.

3. Repair cracks greater than 1/8" wide using an injected epoxy adhesive, meeting the requirements of ASTM C881.

4. Cracks shall be repaired in accordance with section 702.4.9 of the SCDOT Standard Specifications and the manufacturer's specifications.

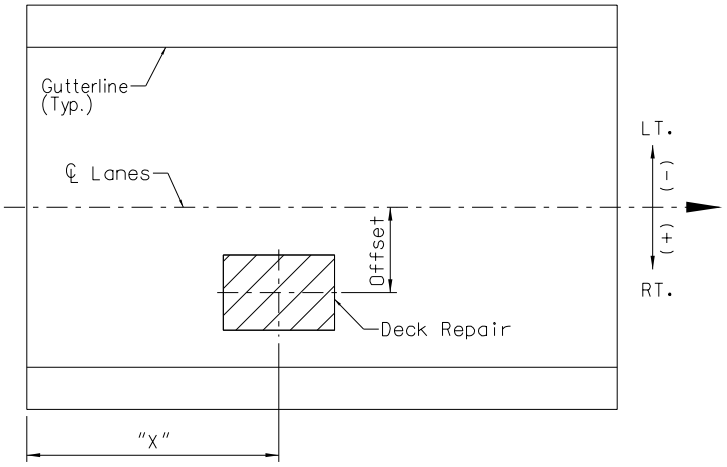


TOP OF DECK PLAN SCHEMATIC

"X" taken from ℄ joint at beginning of span.

DIRECTION OF STATIONING →

Bridge #	Repair Type	Span #	X (ft)	Offset (ft)	Partial Depth (SF)	Crack (LF)
5780	Crack	1	5	10		6
	Crack	1	6	8		8
	Crack	1	15	1		20
	Partial Depth	5	20	16.5	9	
	Partial Depth	7	8	1	4	
	Partial Depth	8	8	1.5	4	
	Partial Depth	10	8	1.5	4	
	Partial Depth	11	15	17.5	8	
	Partial Depth	11	19	17.5	9	
	Partial Depth	11	22.5	13	8	
	Partial Depth	12	11.5	1	10	
	Partial Depth	15	7.5	2	6	
	Partial Depth	16	26	1	8	
	Partial Depth	18	14	0	54	
	Partial Depth	20	7.5	1	6	
	Partial Depth	21	28	22	12	
5781	Partial Depth	7	25	18	10	
	Partial Depth	13	11.5	3.5	9	
5785	Partial Depth	2	11.5	-3	20	
	Partial Depth	3	17	6	4	
	Partial Depth	5	4.5	14.5	9	
	Partial Depth	5	11	-8	12	
	Partial Depth	5	25.5	14.5	9	
	Partial Depth	9	19	14.5	4	
	Partial Depth	9	24.5	14.5	4	
	Partial Depth	9	26.5	10	4	
	Partial Depth	16	7.5	-2.5	15	
	Partial Depth	16	19.5	15	8	
	Partial Depth	16	22	-3.5	16	
	Partial Depth	16	22.5	-15	4	
	Partial Depth	16	24	-0.5	12	
	Partial Depth	17	4	-4	4	
	Partial Depth	17	7.5	-4	4	
	Partial Depth	17	13	-4	6	
	Partial Depth	19	23	15.5	4	
	Partial Depth	21	24	-17.5	4	
	Partial Depth	23	11	-3	4	



TOP OF DECK PLAN SCHEMATIC

"X" taken from ℄ joint at beginning of span.

DIRECTION OF STATIONING →

Bridge #	Repair Type	Span #	X (ft)	Offset (ft)	Partial Depth (SF)	Crack (LF)
5786	Partial Depth	2	7.5	-3	9	
	Partial Depth	3	3	-14.5	4	
	Partial Depth	3	7.5	-21	4	
	Partial Depth	3	19	-4.5	5	
	Partial Depth	4	25.5	-20.5	4	
	Partial Depth	5	2.5	-16	4	
	Partial Depth	5	22	-19	5	
	Partial Depth	6	2.5	15	4	
	Partial Depth	7	3	-14.5	4	
	Partial Depth	7	17	15	4	
	Partial Depth	7	22	-15.5	5	
	Partial Depth	7	22	-17.5	5	
	Partial Depth	8	12.5	2	4	
	Partial Depth	10	19.5	-9.5	4	
	Partial Depth	10	28	10.5	4	
	Partial Depth	14	28	-14	4	
	Partial Depth	15	14.5	8.5	4	

Bridge #	Partial Depth (SF)	Crack (LF)
5780	142	34
5781	19	0
5785	147	0
5786	77	0
Total	385	34

Section 3: Joint Repairs/Replacement At Interior Bents

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Joint Repair Summary:

Due to the current age of the bridges and state of the current poor condition of the expansion joints, all joints will be repaired/replaced at Bents 2 – 25 for each bridge (5780, 5781, 5785 & 5786). Joints will be replaced with backer rod and cold applied elastic filler (details provided). Joint repairs have been divided into 5 types:

- Type 1: Joints measuring less than or equal to 2”
- Type 2: Joints measuring greater than 2”
- Type 3: Joints measuring less than or equal to 2” and requiring repair of deck build down
- Type 4: Joints measuring greater than 2” and requiring repair of deck build down
- Type 5: Joints measuring less than or equal to 2” and requiring repair of deck build down on both sides of joint

The existing barrier rail and end post will need to be partially removed and replaced during the deck build down repair. Details have been provided for removal and reconstruction of barrier rail and end post, see “Barrier Rail Retrofit” on page 17.

For proper joint repair performance, the bottom of the concrete removal shall be level.

Standard Repair Notes:

1. All areas to be replaced with Class 4000 Concrete.

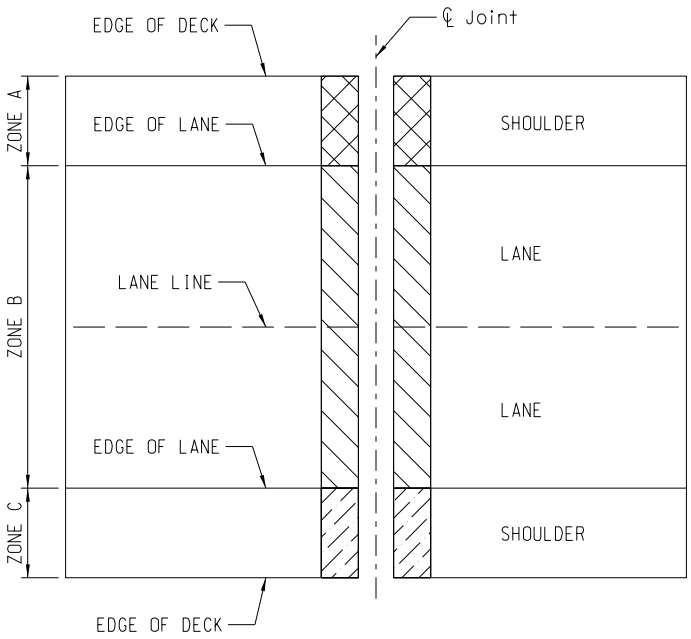
2. Saw-cut through 1” at the top of existing slab to remove the existing concrete as detailed. Be careful not to damage any existing reinforcing. Replace all reinforcing steel damaged during concrete removal as part of the repair.

3. Limit the maximum size of jackhammers to 15 pounds. Do not damage the vertical sides of the saw-cut during concrete removal. Apply an SCDOT approved rust inhibitor to all exposed reinforcing steel. Ensure that the exposed concrete surface is clean and dry. Apply inhibitor in accordance with manufacturer’s recommendations.

4. Remove all grease, dirt, oil, or foreign material from the patch areas by blast cleaning. Immediately before placing patching material, remove all dust, sand, and blasting debris with oil-free compressed air.

5. Paint the vertical and horizontal faces of the existing concrete with an SCDOT approved moisture insensitive bonding epoxy.

6. Depth of concrete removal shall not vary more than 1” +/- from dimension detailed. Horizontal surface of concrete removal area shall be intentionally roughened to an minimum amplitude of ¼”.

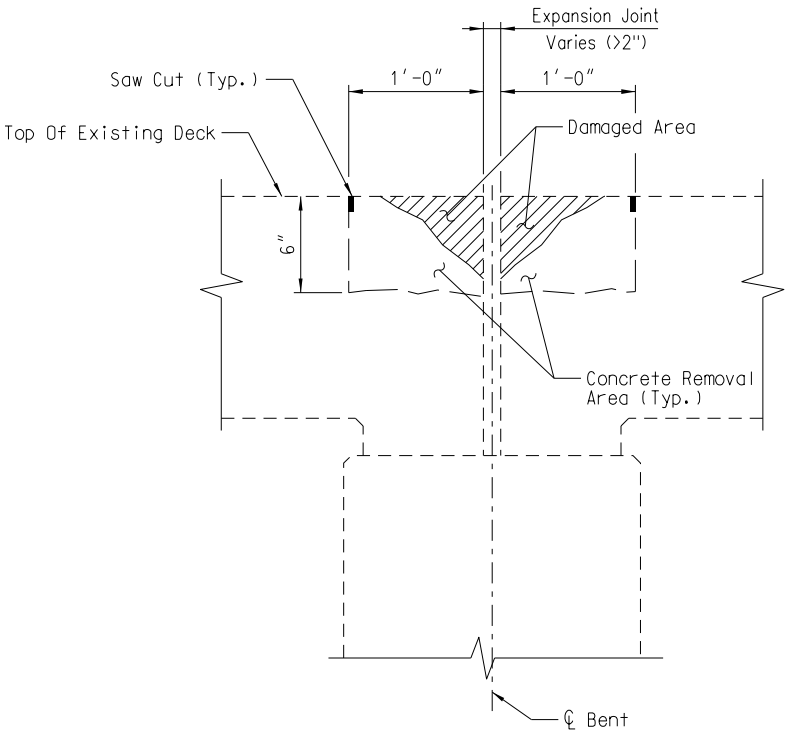


JOINT REPAIR PLAN SCHEMATIC

DIRECTION OF STATIONING

ZONE WIDTHS	5780	5781	5785	5786
ZONE A	7′-3½″	7′-3½″	11′-9½″	11′-9½″
ZONE B	24′-0″	24′-0″	24′-0″	24′-0″
ZONE C	11′-9½″	11′-9½″	7′-3½″	7′-3½″

Joint Repair Designation												
Pier	Bridge 5780			Bridge 5781			Bridge 5785			Bridge 5786		
	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C	Zone A	Zone B	Zone C
2	2	2	2	2	2	2	4	4	2	2	2	2
3	1	1	1	1	1	1	2	2	2	1	1	1
4	3	1	3	1	1	1	3	1	3	1	1	1
5	3	1	1	1	1	1	3	1	1	1	1	1
6	1	1	1	1	1	1	3	1	1	1	1	1
7	3	1	1	1	1	1	3	1	1	1	1	1
8	3	1	1	1	1	1	1	1	1	1	1	1
9	3	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1
11	5	1	3	1	1	1	3	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1	1	1	1	1	1	1	1	1	1	1
16	3	1	1	1	1	1	1	1	3	1	1	1
17	3	1	1	1	1	1	1	1	1	1	1	1
18	1	1	1	1	1	1	1	1	1	1	1	1
19	3	1	1	1	1	1	3	1	1	1	1	1
20	3	1	1	1	1	1	3	1	1	1	1	1
21	5	1	1	1	1	1	3	1	1	1	1	1
22	3	1	1	1	1	1	3	1	3	1	1	1
23	3	1	3	1	1	1	3	1	1	1	1	1
24	4	2	2	3	1	3	2	2	2	1	1	1
25	3	1	3	4	2	4	4	2	2	2	2	2



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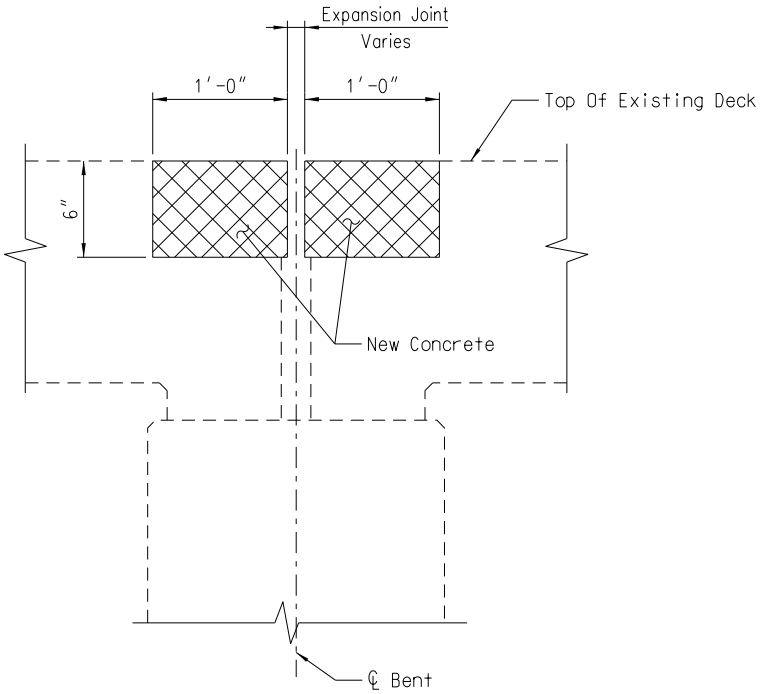
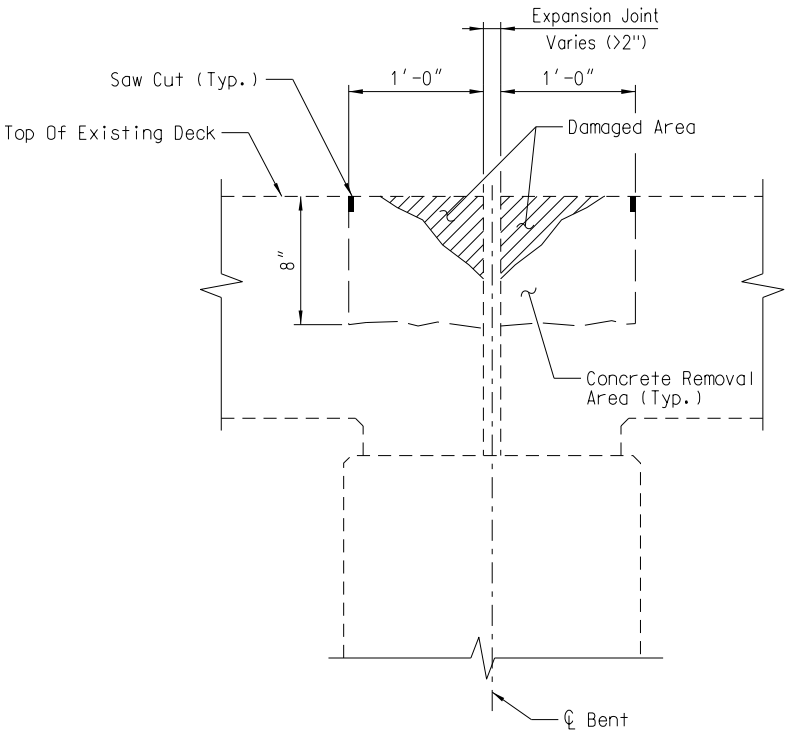


AFTER REPAIR

TYPE 1



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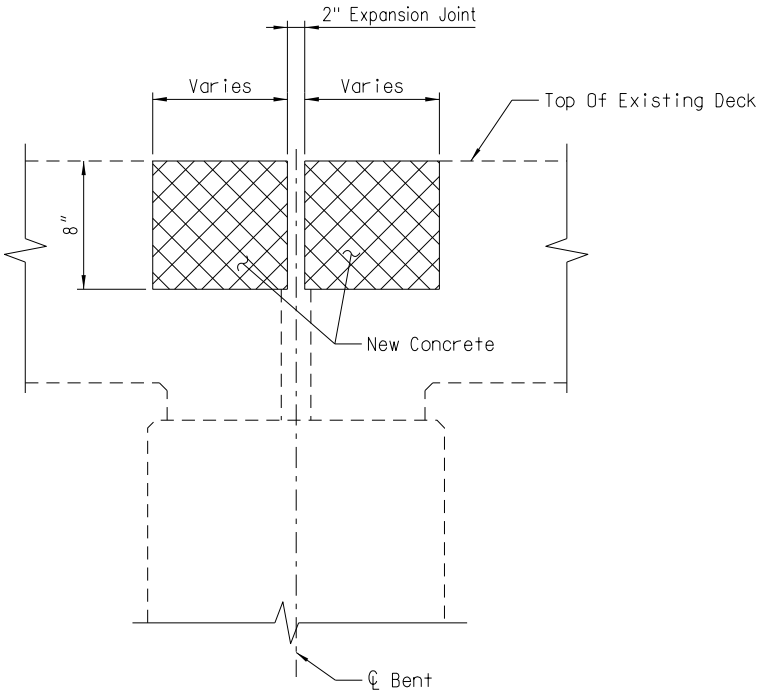

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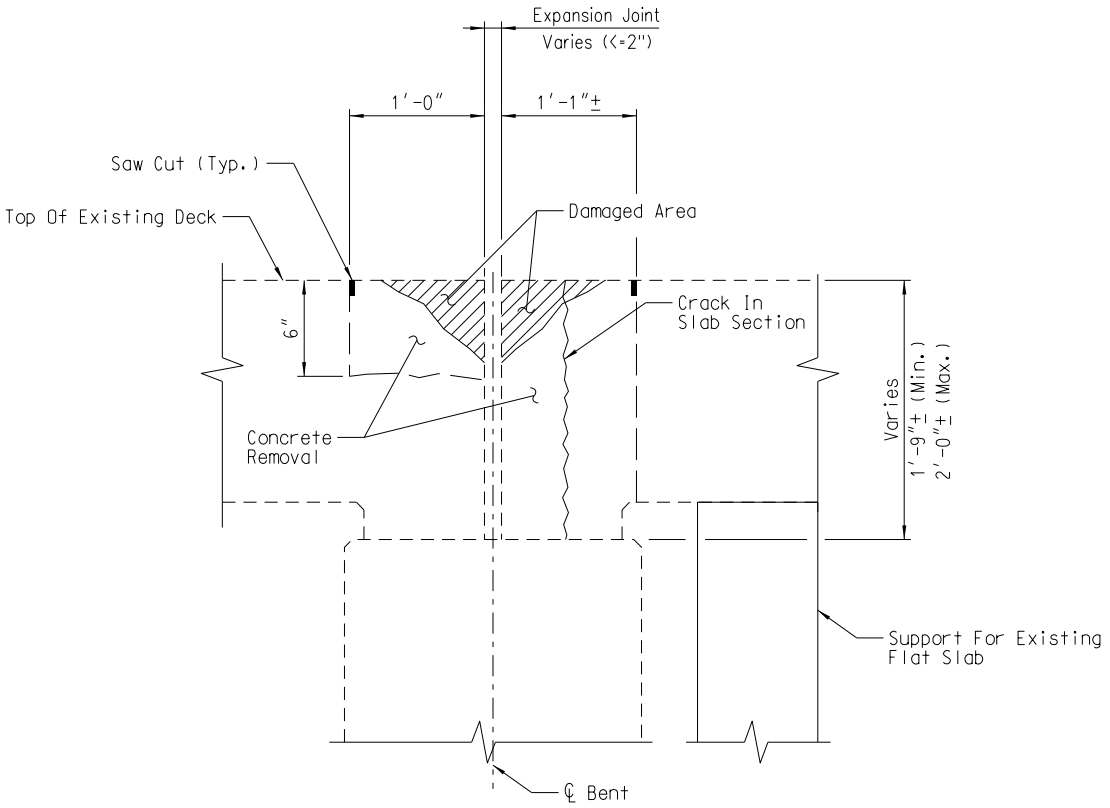
TYPE 2



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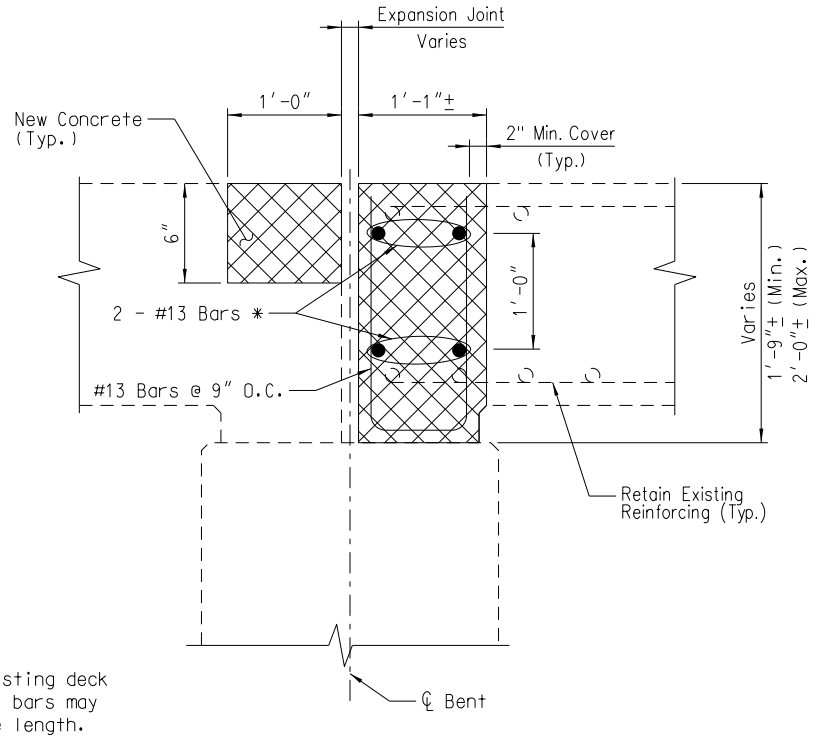
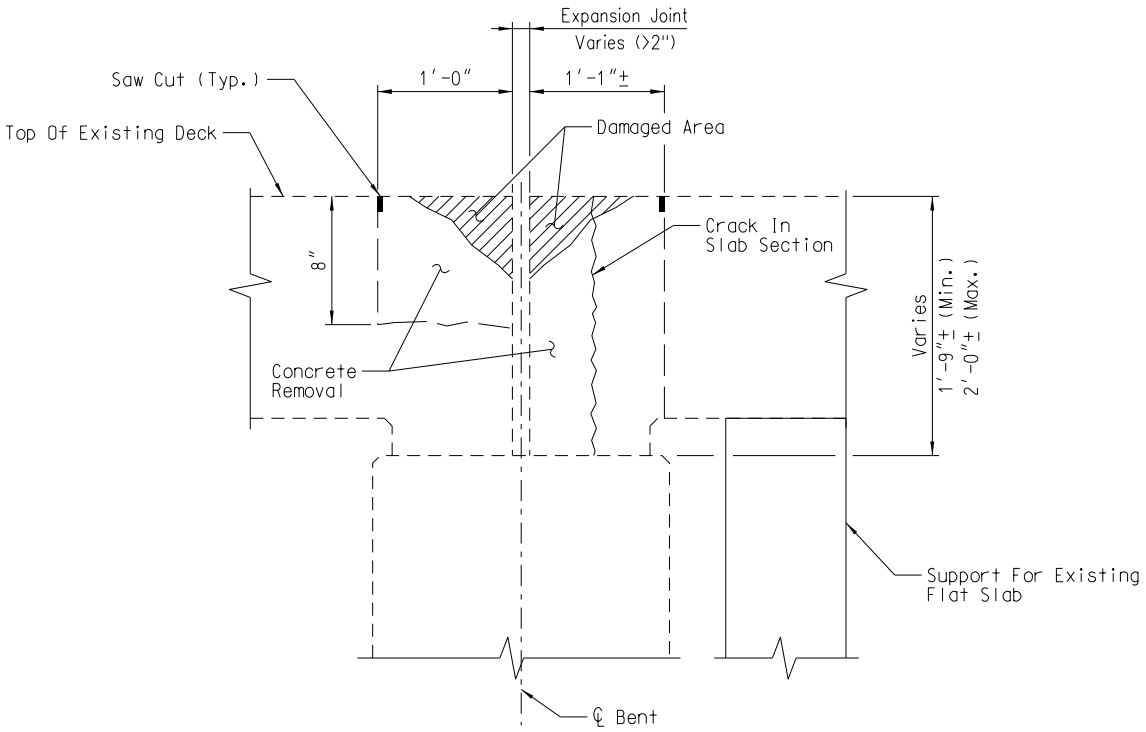


*Adhesively anchor #13 bars to existing deck with 6" min. embedment depth. #13 bars may be spliced with 2'-6" min. splice length.

AFTER REPAIR

TYPE 3



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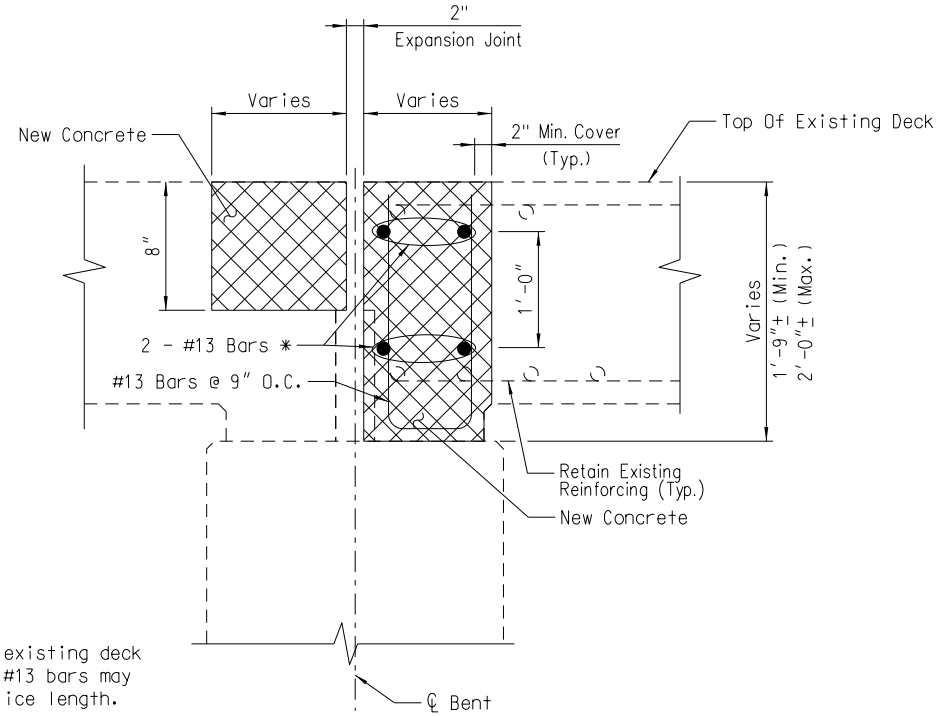
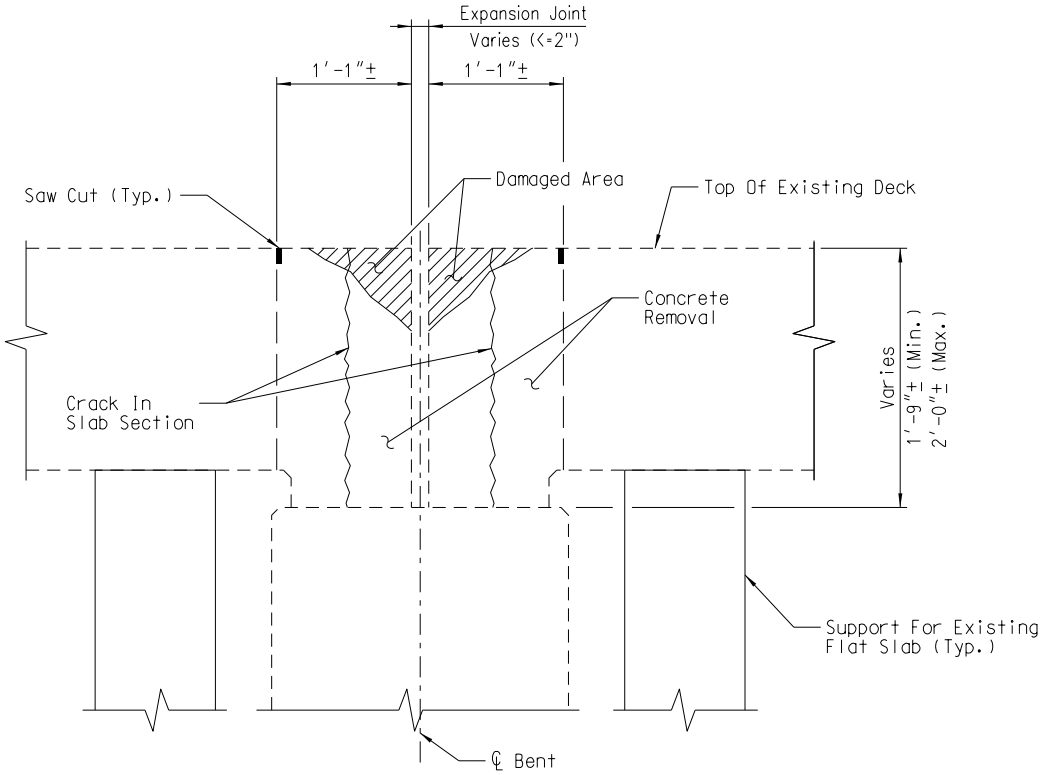


*Adhesively anchor #13 bars to existing deck with 6" min. embedment depth. #13 bars may be spliced with 2'-6" min. splice length.

AFTER REPAIR

TYPE 4



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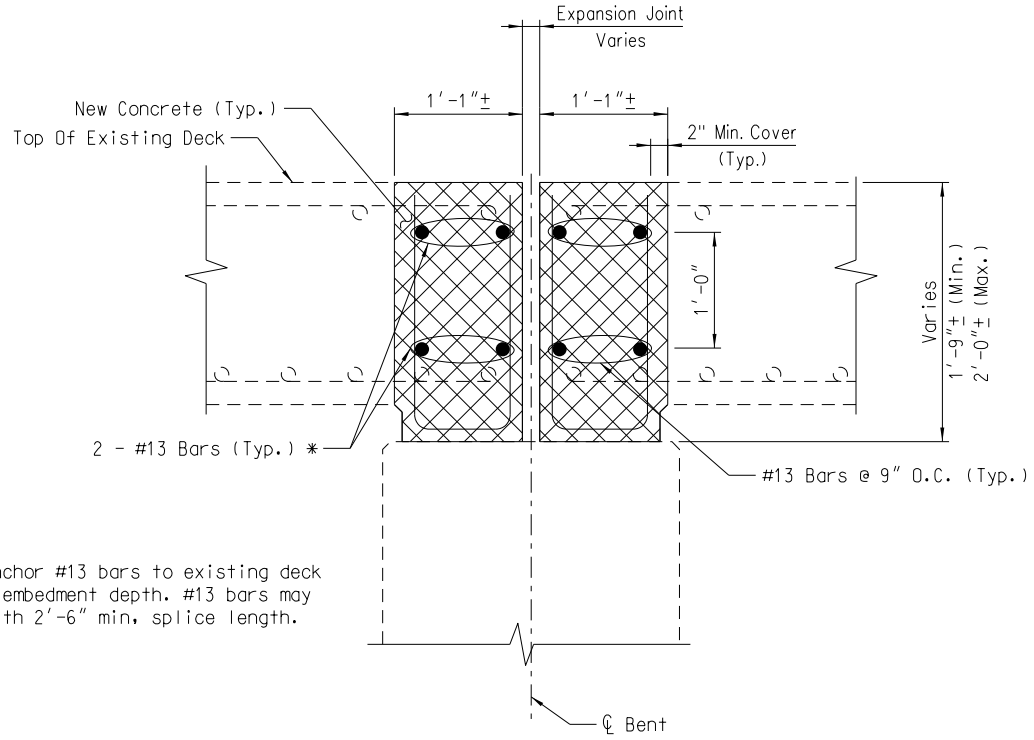
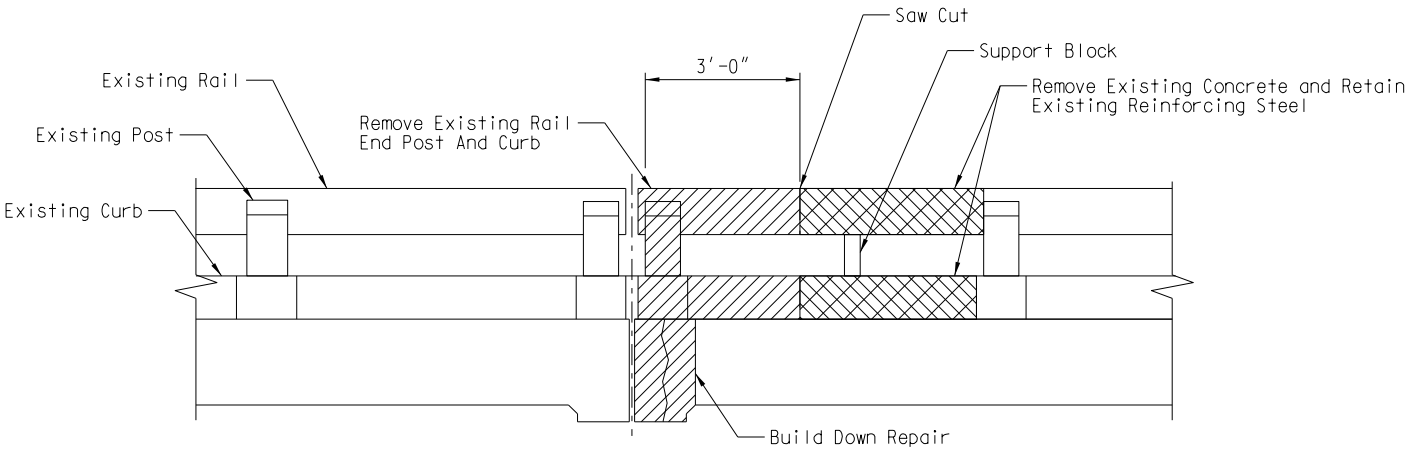


*Adhesively anchor #13 bars to existing deck with 6" min. embedment depth. #13 bars may be spliced with 2'-6" min. splice length.

AFTER REPAIR

TYPE 5



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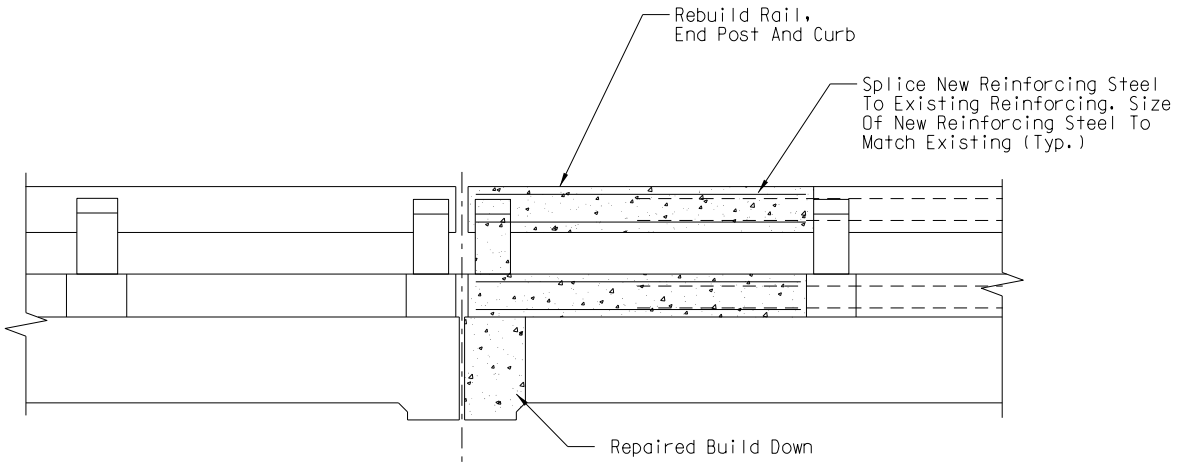
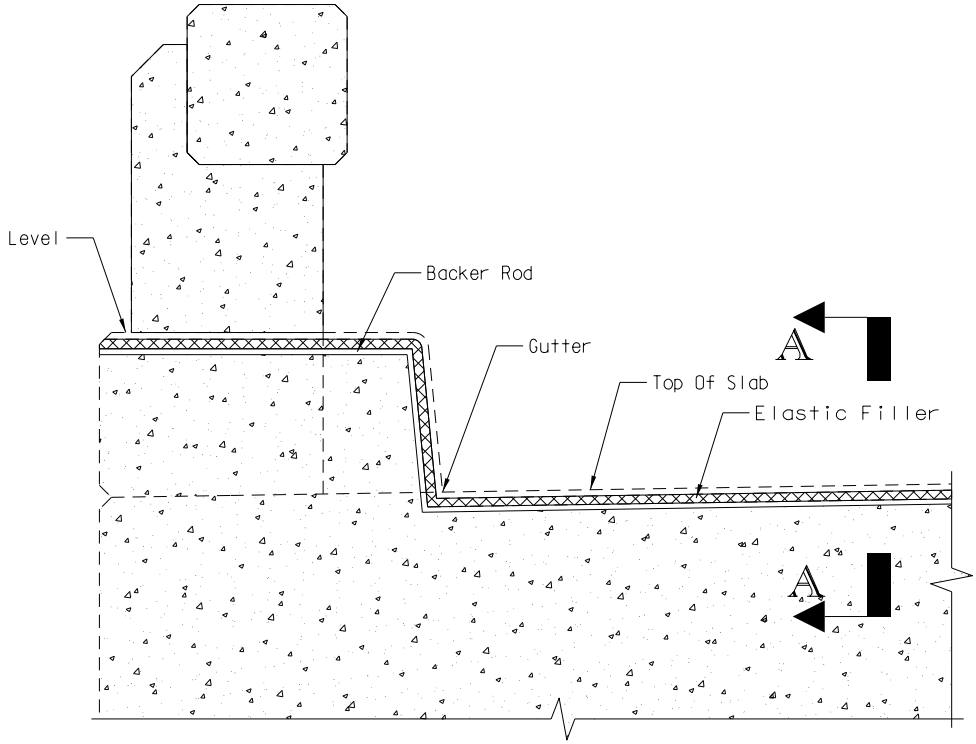
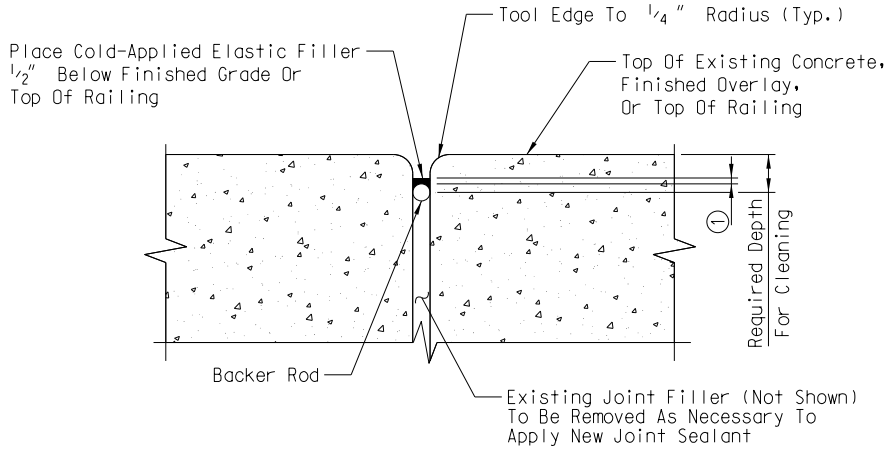


AFTER TO REPAIR

BARRIER RAIL RETROFIT: TYPES 3 - 5



SECTION THRU EXPANSION JOINT



SECTION A-A

EXPANSION JOINT REPLACEMENT

(1) Install new backer rod and silicone rubber sealant in accordance with Section 702.2.2.9 of the Standard Specifications. Set the depth of sealant in accordance with manufacturer's recommendations.

At gutter lines, turn backer rod up to follow face of railing (keeping it recessed 1/2" from the face and top of railing) and extend joint sealant to the outside edge of railing (each side of bridge).

Section 4: Barrier Rail Replacement

Barrier Rail Replacement Summary:

A section of the barrier rail is broken due to a vehicular impact. The full cross section of the barrier for the entire length of the span will be removed and replaced.

Standard Repair Notes:

1. All areas to be replaced with Class 4000 Concrete. Provide new reinforcing to match the size and location of rebar detailed in the existing plans.

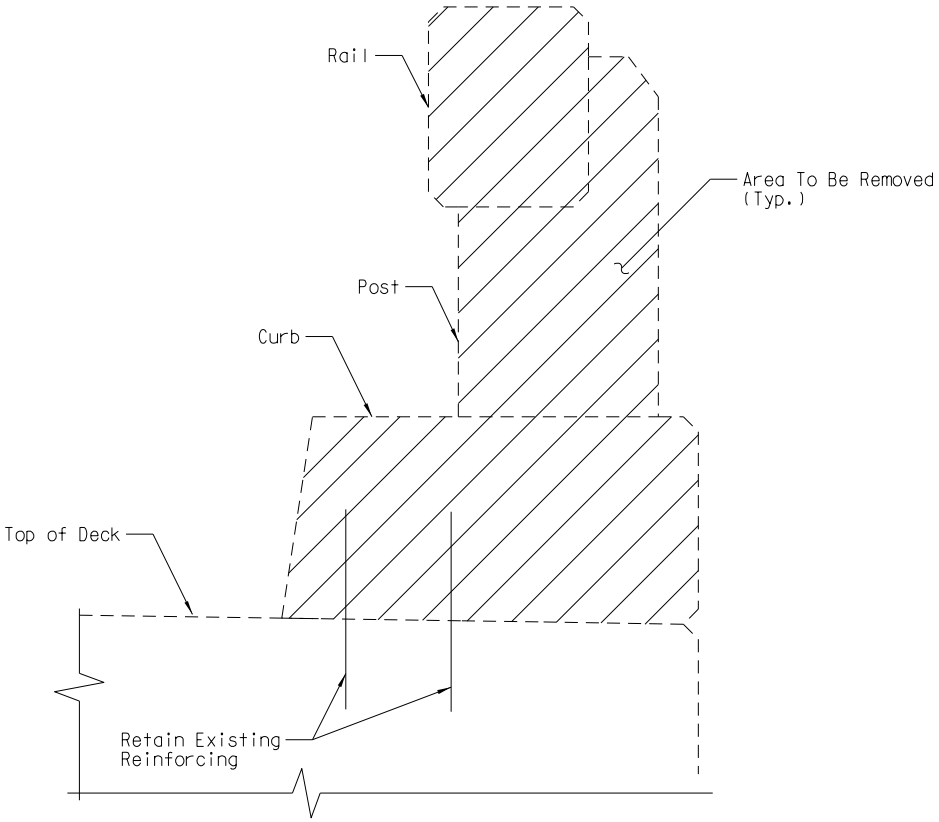
2. Length of area to be removed includes curb, posts and rail. New barrier rail shall be constructed to the same dimensions as the existing rail.

3. The deck under the curb is not to be damaged. Any damage to the deck or existing reinforcement extending out of the deck is to be repaired by the Contractor at no cost to the SCDOT.

4. Remove all grease, dirt, oil, or foreign material from the patch areas by blast cleaning. Immediately before placing patching material, remove all dust, sand, and blasting debris with oil-free compressed air.

5. Paint the vertical and horizontal faces of the existing concrete with an SCDOT approved moisture insensitive bonding epoxy.

6. Temporary barrier shall be utilized in accordance with the MOT plan during barrier rail replacement procedures.



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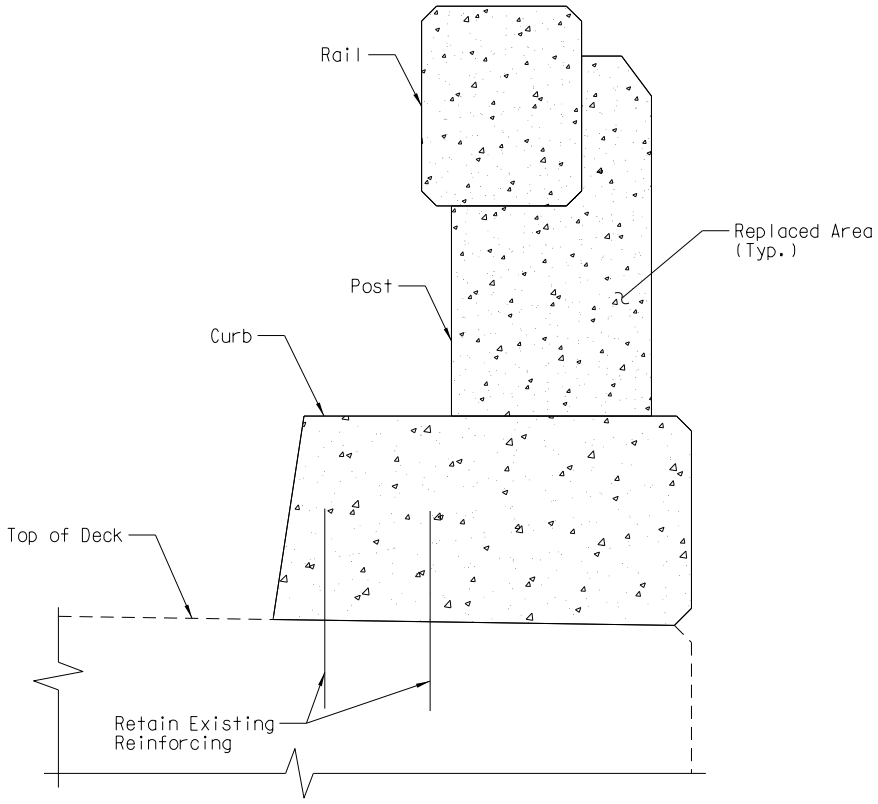

AFTER REPAIR

BARRIER RAIL REPLACEMENT

Location: Br. 5785
Span 23
Right Side (Looking Ahead Station)

Length: 30 Feet

Section 5: End Bent - Wing Wall Replacement

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End Bent – Wing Wall Replacement Summary:

The end bents on all four bridges have been pushed into the approach fill and broken off/cracked the wing wall behind the barrier rail. The existing wing walls are to be removed and replaced at all end bent locations on both sides of the end bent.

Standard Repair Notes:

1. All areas to be replaced with Class 4000 Concrete. Provide new reinforcing to match the size and location of rebar detailed in the existing plans.

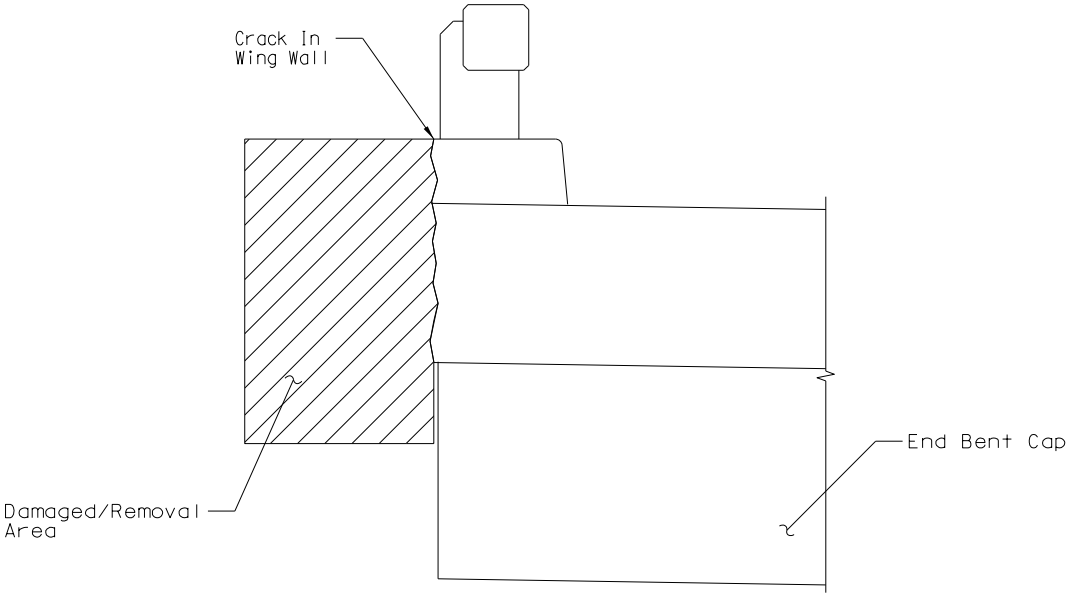
2. Saw-cut through the wing wall to remove the existing concrete as detailed. Roughen the saw-cut surface to an amplitude of ¼".

3. Apply an SCDOT approved rust inhibitor to all exposed reinforcing steel. Ensure that the exposed concrete surface is clean and dry. Apply inhibitor in accordance with manufacturer's recommendations.

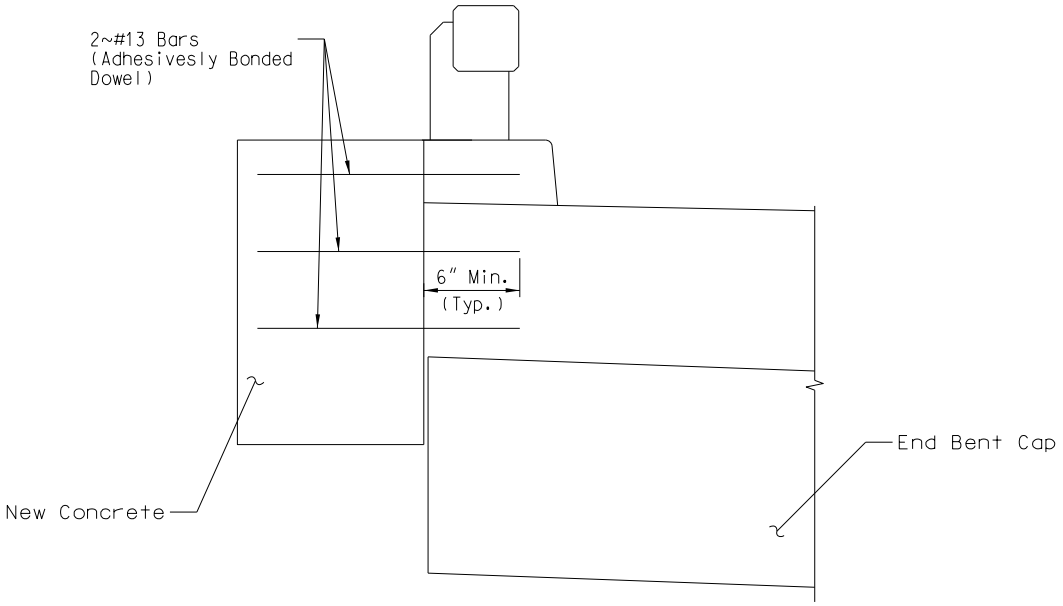
4. Remove all grease, dirt, oil, or foreign material from the patch areas by blast cleaning. Immediately before placing patching material, remove all dust, sand, and blasting debris with oil-free compressed air.

5. Paint the vertical and horizontal faces of the existing concrete with an SCDOT approved moisture insensitive bonding epoxy.

6. Install Adhesively Bonded Dowels in accordance with SCDOT Standard Details.



PRIOR TO REPAIR



AFTER REPAIR

END BENT - WING WALL REPAIR

Location: Br. 5780, 5781, 5785 & 5786
End Bents 1 & 26
Left & Right Sides

Quantity: 16 Total

Section 6: Spall/Delamination Repairs

Spall Repair Summary:

Areas of spalled concrete repairs have been quantified for all four bridges. Spalled areas have been summarized to the bottom of deck, guard rail anchor lug, barrier rail, bent cap and bent cap retainer lugs.

Standard Repair Notes:

1. Outline the defective areas and verify depth of concrete cover over reinforcing steel. Saw-cut the outlined areas to a minimum depth of 1 ½", if possible, without cutting any reinforcing steel.

2. Remove all defective and/or delaminated concrete in the outlined areas by used of jackhammers. Limit the maximum size of jackhammers to 15 pounds. Do not damage the vertical sides of the saw-cut during removal. Be careful not to damage any existing reinforcing. Replace all reinforcing steel damaged during concrete removal as part of the repair.

3. Remove concrete to a depth of no less than 1" behind the existing reinforcing steel.

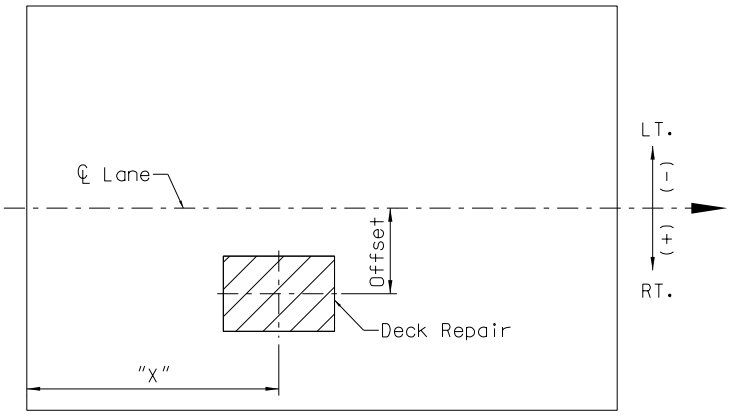
4. Remove all grease, dirt, oil, or foreign material from the patch areas by blast cleaning. Immediately before placing patching material, remove all dust, sand, and blasting debris with oil-free compressed air.

5. Apply an SCDOT approved rust inhibitor to all exposed reinforcing steel. Ensure that the exposed concrete surface is clean and dry. Apply inhibitor in accordance with manufacturer's recommendations.

6. Apply an SCDOT approved epoxy mortar/concrete patch in accordance with ASTM C881. Fill all voids. The material used shall be rated for vertical and overhead use.

7. Apply an SCDOT approved epoxy surface sealer to the perimeter of the repaired area.

6a: Bottom of Deck



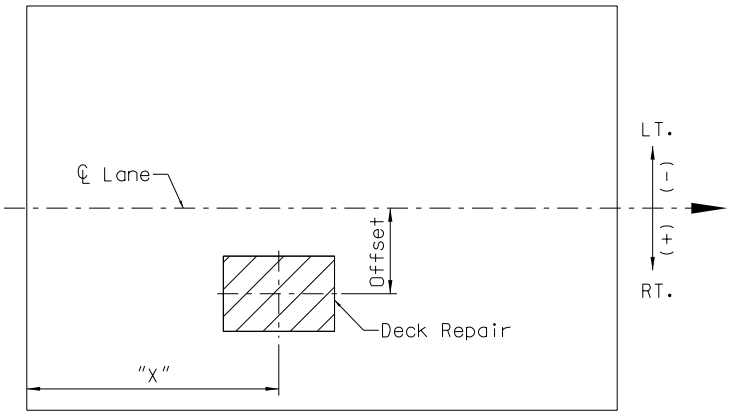
BOTTOM OF DECK PLAN SCHEMATIC

"X" taken from ℄ joint at beginning of span.

DIRECTION OF STATIONING →

Bridge #	Span #	X (ft)	Offset (ft)	Spall (SF)
5780	8	15	21	5
	12	11	-21	5
	15	3	-21	5
	18	8	21	5
	20	15	21	12
	21	2	-3	5
	21	3	21	5
	22	12	21	6
	22	18	21	13
	23	20	21	5
	23	23	21	5
	23	28	21	5
	24	2	-21	5
	24	16	21	6

Bridge #	Span #	X (ft)	Offset (ft)	Spall (SF)
5781	2	24	-21	5
	3	3	21	5
	3	5	-21	5
	3	12	-21	5
	3	19	-21	5
	3	28	21	5
	4	9	21	5
	5	18	21	5
	5	21	21	5
	6	15	-21	5
	6	15	21	5
	6	28	0	5
	8	8	-21	5
	8	13	21	5
	8	26	21	5
	9	23	21	5
	12	8	0	5
	12	17	0	5
	12	17	21	5
	13	4	-21	5
	13	20	21	5
	14	22	21	5
	16	9	21	5
	16	14	-21	9
	16	15	21	5
	16	20	21	5
	17	22	-21	5
	18	17	-21	5
	19	15	21	5
	20	6	-21	5
	22	14	-21	5
	22	18	-21	5
	22	18	21	5
	23	29	21	5
	24	13	-21	5
	25	7	21	5
	25	12	-21	14
	25	21	21	15

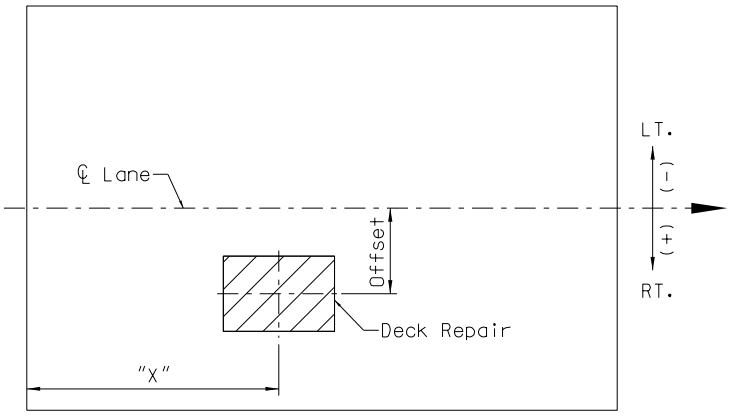


BOTTOM OF DECK PLAN SCHEMATIC

"X" taken from ℄ joint at beginning of span.

DIRECTION OF STATIONING →

Bridge #	Span #	X (ft)	Offset (ft)	Spall (SF)
5785	1	15	21	5
	2	10	21	5
	3	7	-21	5
	3	15	-21	5
	5	16	-21	5
	6	26	-21	5
	8	15	-5	5
	9	26	-21	5
	11	5	-21	5
	11	26	-21	5
	13	4	-12	5
	14	8	21	5
	14	25	21	5
	15	27	-21	5
	17	15	21	5
	17	27	-21	5
	18	7	21	5
	18	18	0	5
	19	22	-21	5
	20	13	21	5
	20	18	21	5
	20	23	21	5
	21	8	-21	5
	22	6	21	5
	22	18	21	5
	22	26	21	5
	22	28	-21	5
	23	3	-21	5
	23	15	-21	5
	24	10	-21	5
	24	20	21	5
	25	15	0	5
	25	15	21	5



BOTTOM OF DECK PLAN SCHEMATIC

"X" taken from ℄ joint at beginning of span.

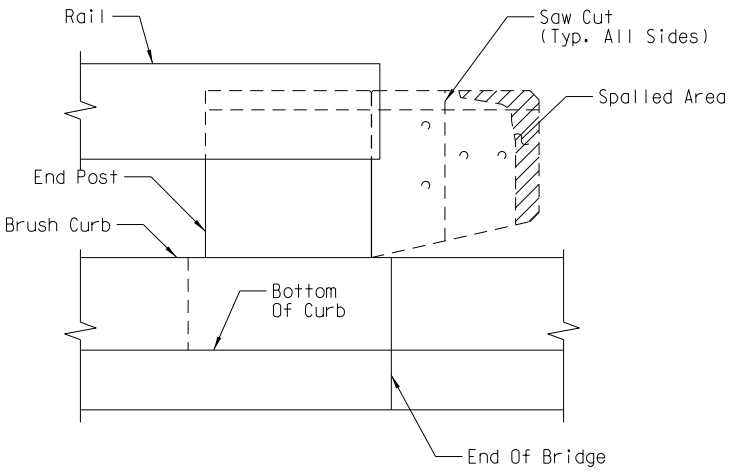
DIRECTION OF STATIONING →

Bridge #	Span #	X (ft)	Offset (ft)	Spall (SF)
5786	1	15	0	5
	1	26	-21	5
	2	17	-21	5
	2	18	21	5
	4	8	-21	5
	4	12	21	5
	5	22	21	5
	6	25	-21	5
	8	5	21	5
	8	7	-21	5
	8	20	21	7
	8	25	-21	5
	9	7	-21	5
	9	17	-21	5
	9	17	21	5
	9	23	-21	5
	9	25	21	5
	10	8	21	5
	10	15	-21	5
	10	22	-21	5
	10	28	21	5
	11	15	21	5
	11	28	-21	5
	12	4	-21	5
	12	7	21	8
	12	15	21	5
	12	20	21	8
	12	24	-21	5
	13	4	21	5
	13	15	21	5

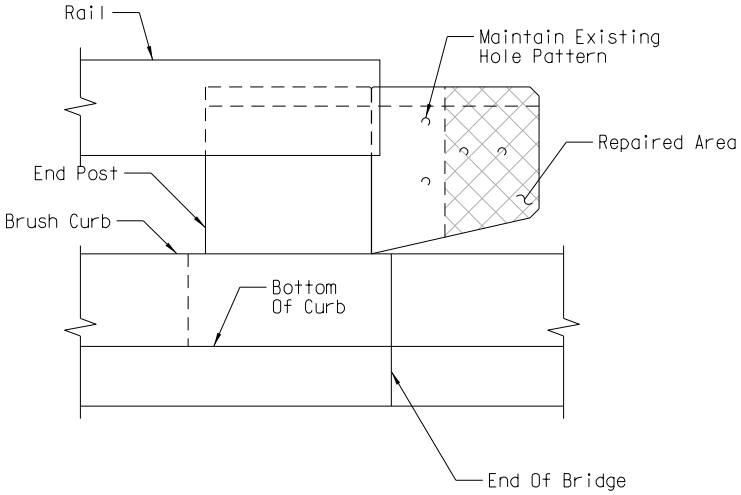
Bridge #	Span #	X (ft)	Offset (ft)	Spall (SF)
5786	13	16	-21	6
	14	4	-21	5
	14	8	21	12
	15	25	21	5
	15	28	-21	5
	16	7	-21	8
	16	22	21	5
	17	18	21	5
	17	27	-21	5
	18	4	-21	5
	18	4	21	5
	18	8	-21	5
	20	4	21	5
	21	5	21	5
	21	25	21	5
	22	7	-21	5
	22	15	21	5
	22	20	-21	5
	22	22	21	5
	23	5	21	5
	23	15	21	5
	23	21	-21	5
	24	5	-21	5
	24	10	21	9
	24	26	-21	5
	24	26	21	5
	25	3	21	5
	25	14	21	5
	25	18	-21	5

Summary Of Quantities	
Bridge #	Spall (SF)
5780	87
5781	213
5785	165
5786	318
Total	783

6b: Guard Rail Lug



PRIOR TO REPAIR



AFTER REPAIR

GUARD RAIL ANCHOR LUG REPAIR

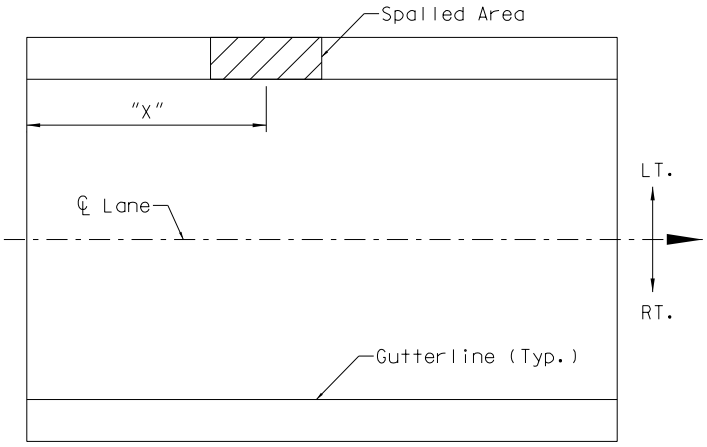
Location: Br. 5785
End Bent 26
Right Side (Looking Ahead Station)

Quantity: 1

NOTES:

1. Remove and replace guard rail during repair operations.

6c: Barrier Rail



BARRIER RAIL PLAN SCHEMATIC

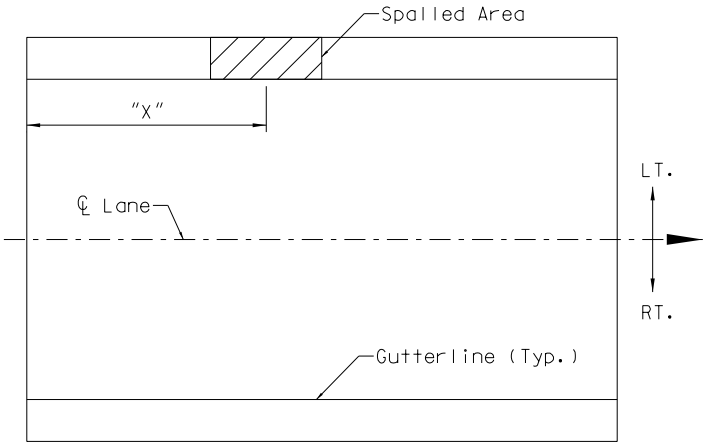
"X" taken from ℄ joint at beginning of span.

DIRECTION OF STATIONING →

Bridge #	Span #	X (ft)	Rail Side	Spall Repair (SF)
5780	1	4	Lt.	7
	2	23	Rt.	4
	2	29	Lt.	4
	7	15	Lt.	4
	12	1	Lt.	4
	12	15	Lt.	4
	12	23	Lt.	4
	16	15	Lt.	4
	16	29	Lt.	4
	20	1	Lt.	4
	20	8	Lt.	4
	21	27	Lt.	4
	22	23	Lt.	4
	23	15	Lt.	4
	23	18	Rt.	4
	23	29	Lt.	4
	24	8	Rt.	4
	24	20	Lt.	4
	25	1	Rt.	4
	25	8	Lt.	4
	25	8	Rt.	4

Bridge #	Span #	X (ft)	Rail Side	Spall Repair (SF)
5781	1	29	Lt.	4
	3	15	Lt.	4
	4	29	Lt.	4
	10	20	Lt.	4
	12	8	Lt.	4
	17	23	Lt.	4
	18	8	Lt.	4
	18	15	Lt.	4
	18	23	Lt.	4
	23	29	Rt.	4
	25	1	Rt.	4

Bridge #	Span #	X (ft)	Rail Side	Spall Repair (SF)
5785	1	1	Lt.	4
	1	4	Rt.	4
	1	29	Lt.	4
	2	1	Rt.	4
	2	27	Lt.	4
	2	29	Lt.	4
	3	1	Rt.	4
	3	8	Rt.	4
	3	29	Rt.	4
	4	25	Rt.	4
	5	27	Lt.	4
	6	29	Lt.	4
	7	8	Rt.	4
	9	5	Lt.	4
	11	18	Rt.	4
	11	28	Lt.	4
	12	20	Lt.	10
	14	1	Rt.	4
	14	20	Rt.	4
	14	25	Rt.	4
	14	29	Lt.	4
	15	29	Lt.	4
	17	23	Rt.	4
	17	26	Rt.	4
	19	29	Lt.	4
	21	15	Lt.	4
	21	27	Lt.	4
	21	29	Rt.	4
	22	15	Lt.	4
	25	29	Lt.	4



BARRIER RAIL PLAN SCHEMATIC

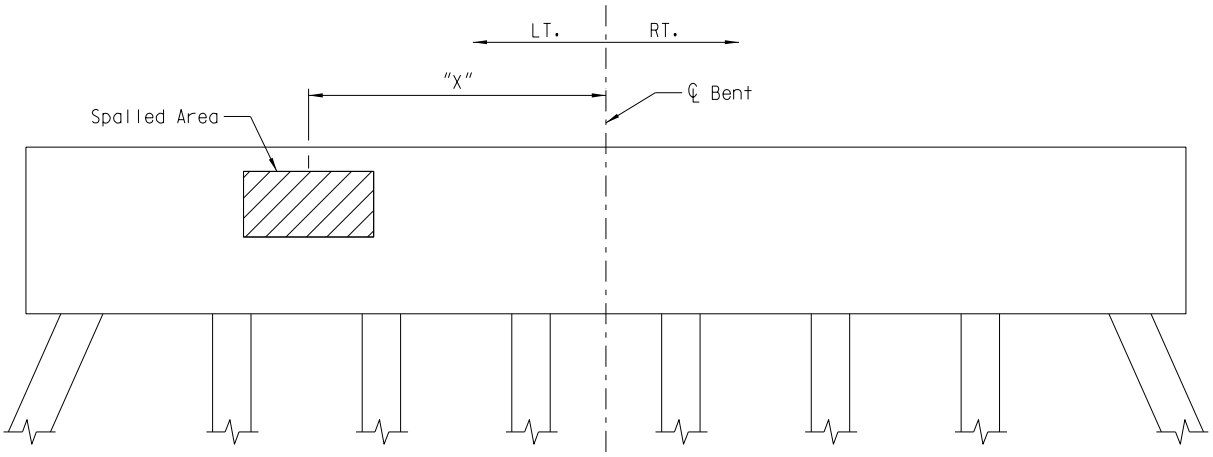
"X" taken from ℄ joint at beginning of span.

DIRECTION OF STATIONING →

Bridge #	Span #	X (ft)	Rail Side	Spall Repair (SF)
5786	6	1	Rt.	4
	6	4	Lt.	4
	6	15	Rt.	4
	6	23	Rt.	4
	7	1	Lt.	4
	7	8	Rt.	4
	7	18	Lt.	4
	7	23	Rt.	4
	7	29	Rt.	4
	8	18	Lt.	4
	9	9	Lt.	4
	9	11	Lt.	4
	10	11	Lt.	4
	11	25	Lt.	4
	11	27	Lt.	4
	12	27	Lt.	6
	13	29	Rt.	4
	16	29	Lt.	4
	18	29	Lt.	4
	19	23	Rt.	4
	19	29	Rt.	4
	20	23	Rt.	4
	20	25	Lt.	4
	22	1	Rt.	4
	23	3	Rt.	4
	23	4	Rt.	4
	23	10	Rt.	4
	23	17	Rt.	4
	23	27	Rt.	4
	24	1	Rt.	4
	24	2	Lt.	4
	24	23	Rt.	4
	25	28	Lt.	4
	25	29	Rt.	4

Summary Of Quantities	
Bridge #	Spall (SF)
5780	87
5781	44
5785	126
5786	138
Total	395

6d: Bent Cap

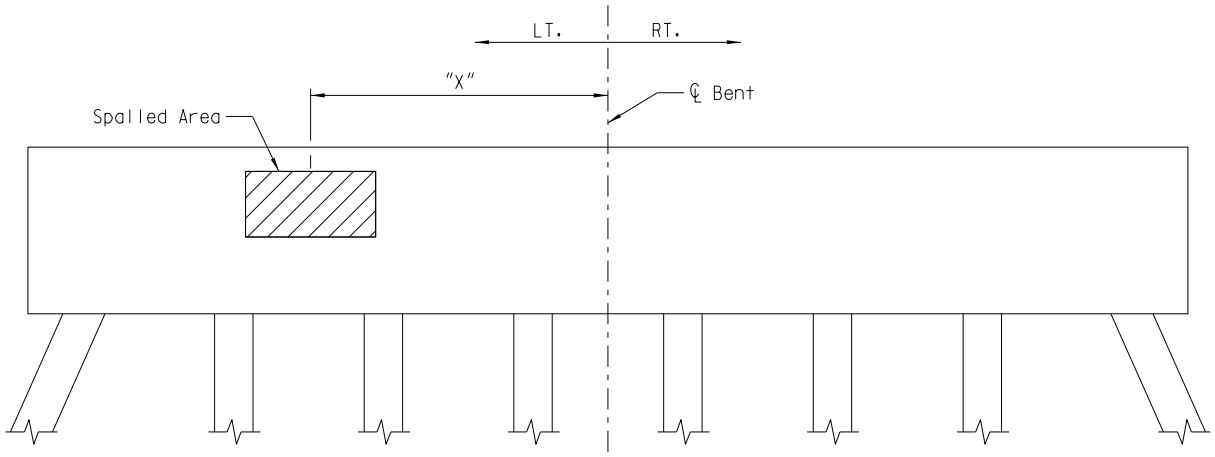


BENT CAP ELEVATION SCHEMATIC

(Looking Ahead Station)

			Offset	Face					Total Qty
Asset ID	Bent	X (ft)	Lt or Rt	Back	Ahead	Side Lt	Side Rt	Bottom	(sf)
5780	7	12	Lt					x	4.00
	11	12	Rt					x	4.00
	11	18	Rt					x	12.00
	15	6	Rt					x	4.00
	16	18	Rt					x	4.00
	16	22	Rt					x	4.00
	18	6	Lt					x	4.00
	18	6	Rt					x	4.00
	20	18	Lt					x	8.00
	20	12	Lt					x	6.00
	20	6	Lt					x	4.00
	20	6	Rt					x	4.00
	21	22	Rt	x					4.00

			Offset	Face					Total Qty
Asset ID	Bent	X (ft)	Lt or Rt	Back	Ahead	Side Lt	Side Rt	Bottom	(sf)
5781	3	17	Lt					x	4.00
	3	9	Lt	x					4.00
	4	17	Lt					x	4.00
	4	0	-					x	4.00
	6	3	Rt	x					4.00
	7	12	Lt					x	4.00
	7	0	-					x	4.00
	7	6	Rt					x	4.00
	10	3	Rt					x	4.00
	11	12	Rt					x	4.00
	12	3	Lt					x	4.00
	14	20	Rt		x				4.00
	17	17	Rt	x					7.00
	19	12	Rt					x	4.00
	21	12	Lt					x	4.00
	21	17	Rt					x	4.00
	22	17	Rt					x	4.00



BENT CAP ELEVATION SCHEMATIC

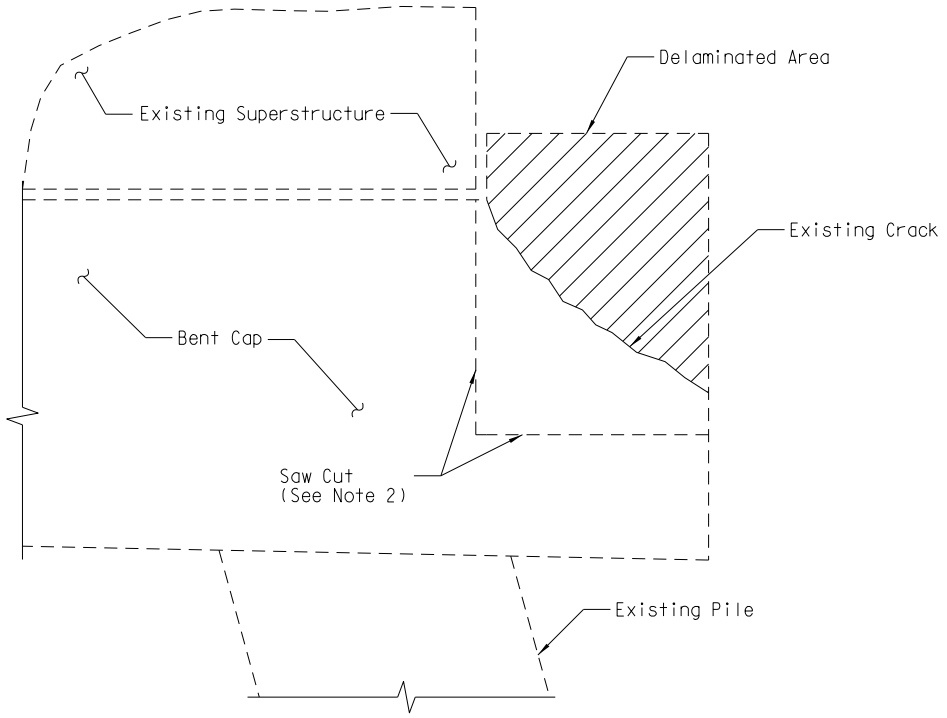
(Looking Ahead Station)

			Offset	Face					Total Qty
Asset ID	Bent	X (ft)	Lt or Rt	Back	Ahead	Side Lt	Side Rt	Bottom	(sf)
5785	3	9	Lt	x					9.00
	3	12	Rt	x					4.00
	4	3	Rt	x					5.00
	5	12	Rt	x					4.00
	5	21	Rt	x					4.00
	7	6	Lt	x					4.00
	7	6	Rt	x					4.00
	12	12	Lt					x	4.00
	12	3	Lt					x	4.00
	12	21	Lt	x					7.00
	13	22	Rt		x				4.00
	18	21	Lt	x					4.00
	19	22	Rt					x	4.00
	20	12	Lt					x	4.00
	20	22	Rt					x	4.00
	21	12	Lt					x	4.00
	21	6	Lt					x	4.00
	21	18	Rt					x	4.00
	22	18	Lt		x				4.00
	23	18	Lt					x	4.00
	23	12	Lt					x	4.00
	23	6	Lt					x	4.00
	23	0	-					x	4.00
	23	6	Rt					x	4.00
	23	12	Rt					x	4.00
	23	18	Rt					x	4.00
	23	18	Rt					x	4.00

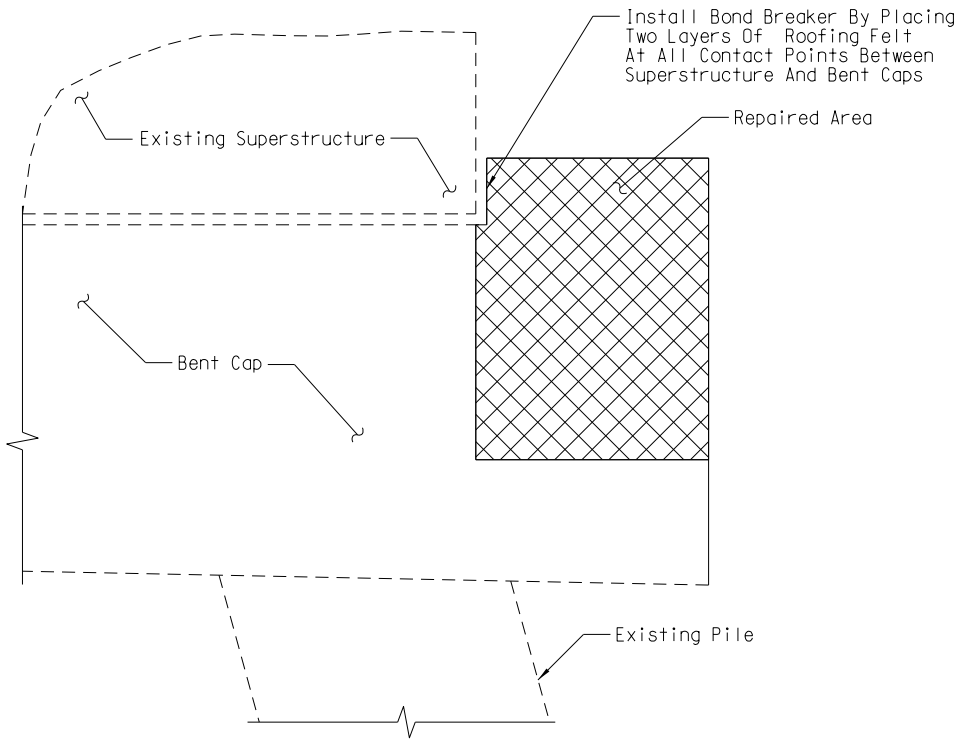
			Offset	Face					Total Qty
Asset ID	Bent	X (ft)	Lt or Rt	Back	Ahead	Side Lt	Side Rt	Bottom	(sf)
5786	5	21	Rt					x	4.00
	7	6	Lt					x	4.00
	7	0	-					x	4.00
	7	6	Rt					x	4.00
	7	12	Rt					x	4.00
	7	9	Rt		x				4.00
	12	3	Lt	x					4.00
	13	6	Lt					x	4.00
	15	17	Lt					x	4.00
	15	0	-					x	4.00
	18	12	Lt					x	4.00
	18	12	Lt					x	4.00
	21	20	Lt	x					4.00
	22	20	Lt		x				4.00

Summary Of Quantities	
Bridge #	Spall (SF)
5780	66
5781	71
5785	117
5786	56
Total	310

6e: Bent Cap – Retainer Lug



PRIOR TO REPAIR



AFTER REPAIR

RETAINER LUG REPAIR

Location:	Br. 5780 Bents 6 & 8-11 Right Side*	Br. 5785 Bents 4, 11, 12 & 14 Right Side*	Br. 5785 Bents 2 & 4 Left Side*
Quantity:	5	4	2

NOTES:

1. Delaminated area is typical on all faces of bent cap.
2. Saw cut and removal of existing concrete shall be done in accordance with Standard Repair Notes on page 26.

* (Looking Ahead Station)

Section 7: Bent Cap Retrofit

RS&H

Bent Cap Retrofit Summary:

Due to the malfunction of the joints, the centerline of joint is offset from the centerline of bent cap at specified bent locations. Significant spalling has also occurred on the face of the bent cap due to an anchored dowel extending from the bent cap into the flat slab. The width of the bent cap will be extended 6" on both faces to repair the spalled areas and provide an adequate support length for the flat slabs on the bent caps.

Standard Repair Notes:

1. All areas to be replaced with Class 4000 Concrete.

2. Remove all defective and/or delaminated concrete in the outlined areas by use of jackhammers. Limit the maximum size of jackhammers to 15 pounds. Do not damage the vertical sides of the saw-cut during removal. Be careful not to damage any existing reinforcing. Replace all reinforcing steel damaged during concrete removal as part of the repair with exception of dowels from cap into flat slab. If existing dowels are encountered, they shall be removed and not replaced.

3. Apply an SCDOT approved rust inhibitor to all exposed reinforcing steel. Ensure that the exposed concrete surface is clean and dry. Apply inhibitor in accordance with manufacturer's recommendations.

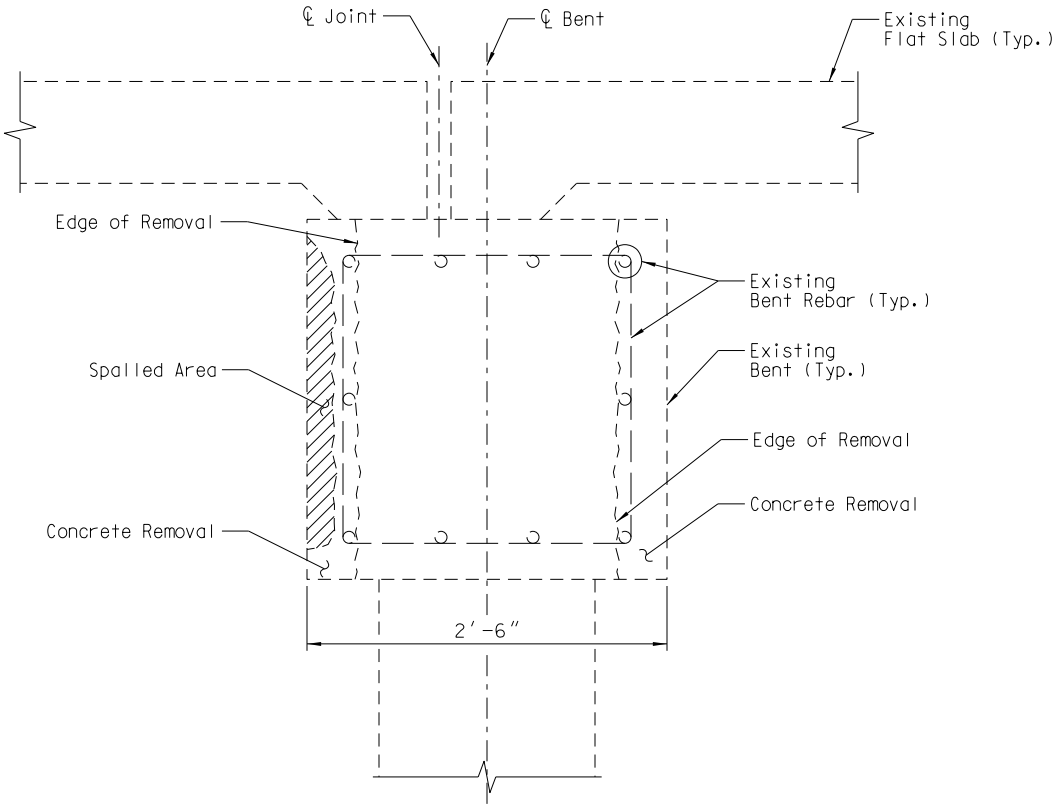
4. Remove concrete to a depth of no less than 1" behind the existing reinforcing steel.

5. Remove all grease, dirt, oil, or foreign material from the patch areas by blast cleaning. Immediately before placing patching material, remove all dust, sand, and blasting debris with oil-free compressed air.

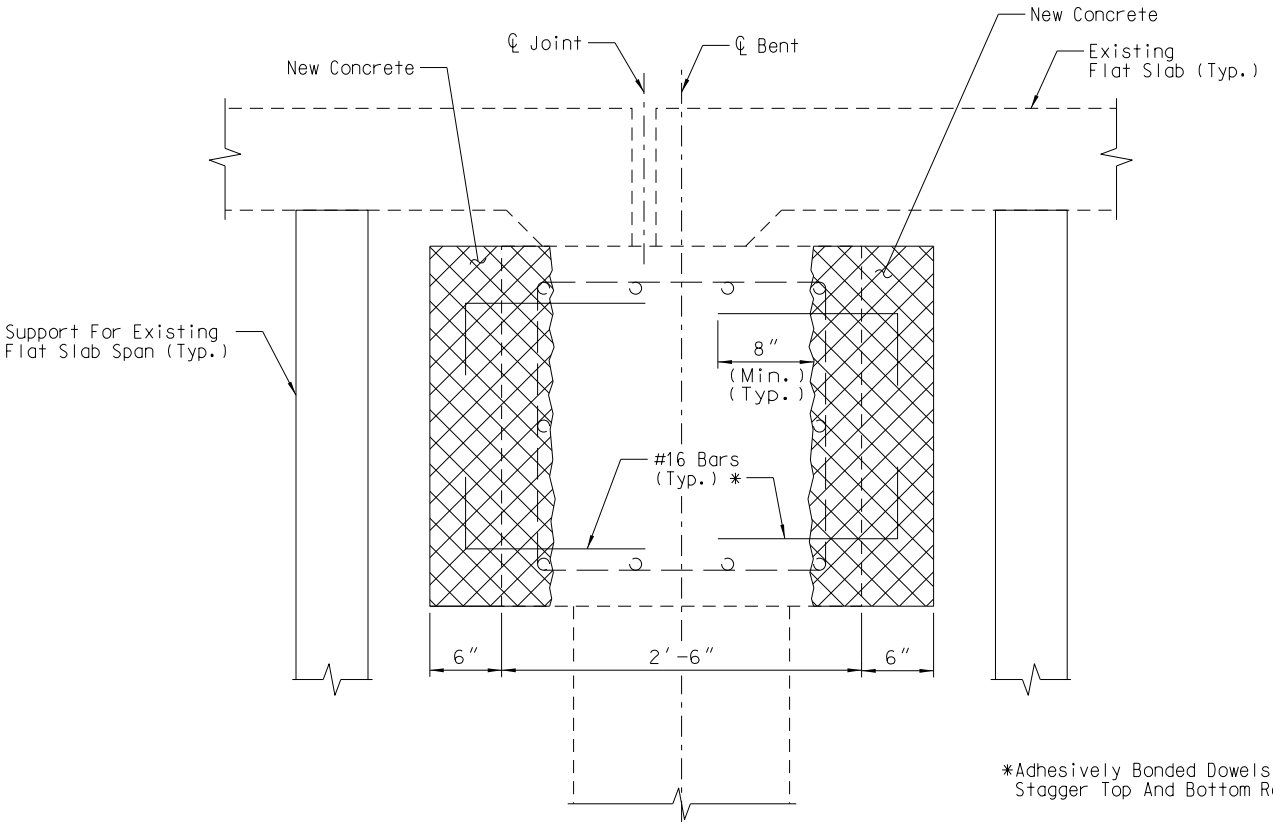
6. Paint the vertical face of the existing concrete with an SCDOT approved moisture insensitive bonding epoxy.

7. Install Adhesively Bonded Dowels in accordance with SCDOT Standard Details.

RS&H



PRIOR TO REPAIR



*Adhesively Bonded Dowels At 1′-0″ Cts., Stagger Top And Bottom Row

AFTER REPAIR

BENT CAP RETROFIT

Location:	Br. 5780 & 5785 Bents 2, 24 & 25	Br. 5781 & 5786 Bents 2 & 25
Quantity:	6 Total	4 Total

Section 8: Approach Slab Replacement

RS&H

Approach Slab Replacement Summary:

The movement of the superstructure has created a gap between the approach slab and the superstructure. Drainage is flowing through this gap and undermined a portion of the approach slab and end bent cap and washed out a portion of the slope embankment. The existing approach slab will be removed to fill any undermining locations and regrade the fill under the approach slab. A new approach slab will be constructed after all undermining and voids have been filled and will re-establish the deflection joint between the superstructure and approach slab. The washed out area of the slope embankment will be filled and have new rip rap installed for slope protection.

Standard Repair Notes:

1. Repairs on the approach slab will need to occur in stages and follow MOT guidelines for lane closures.

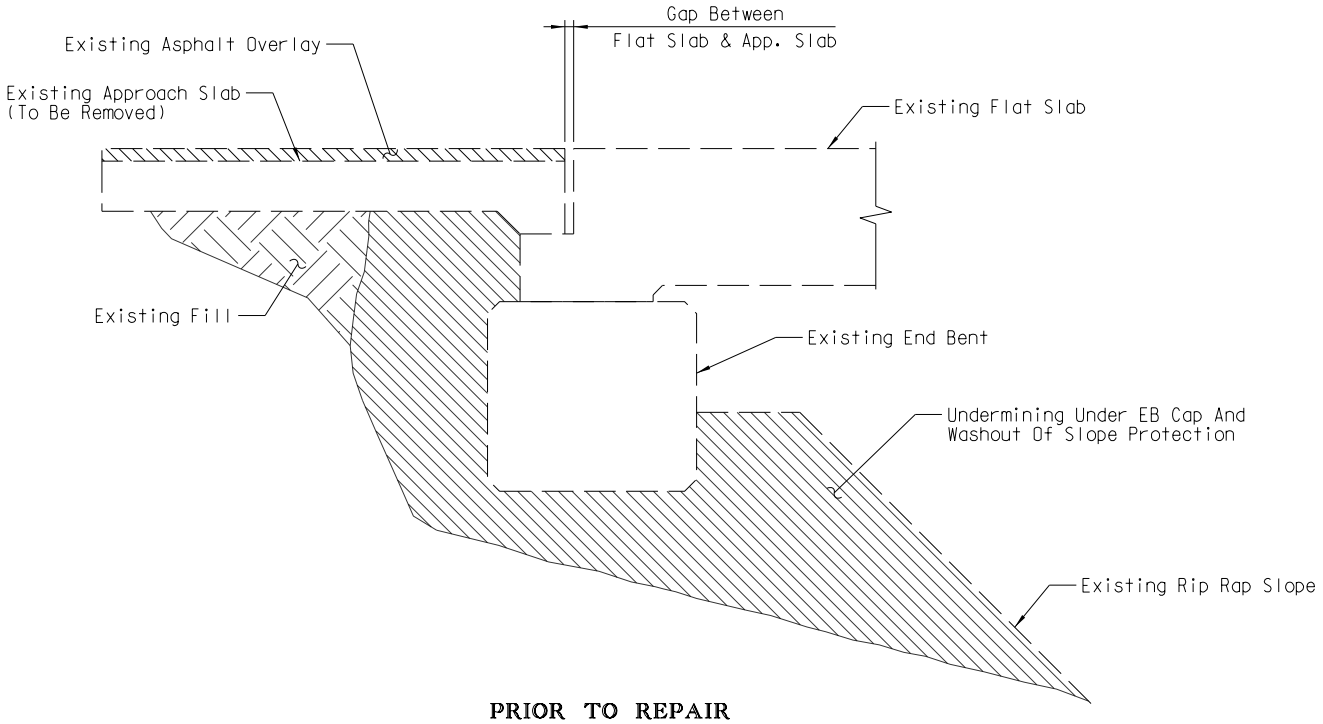
2. Construct approach slab to match the grades and elevations of the existing roadway.

3. Design and construct approach slabs in conformance with the SCDOT Bridge Drawings and Details, modified as necessary to attach to the existing end bent caps.

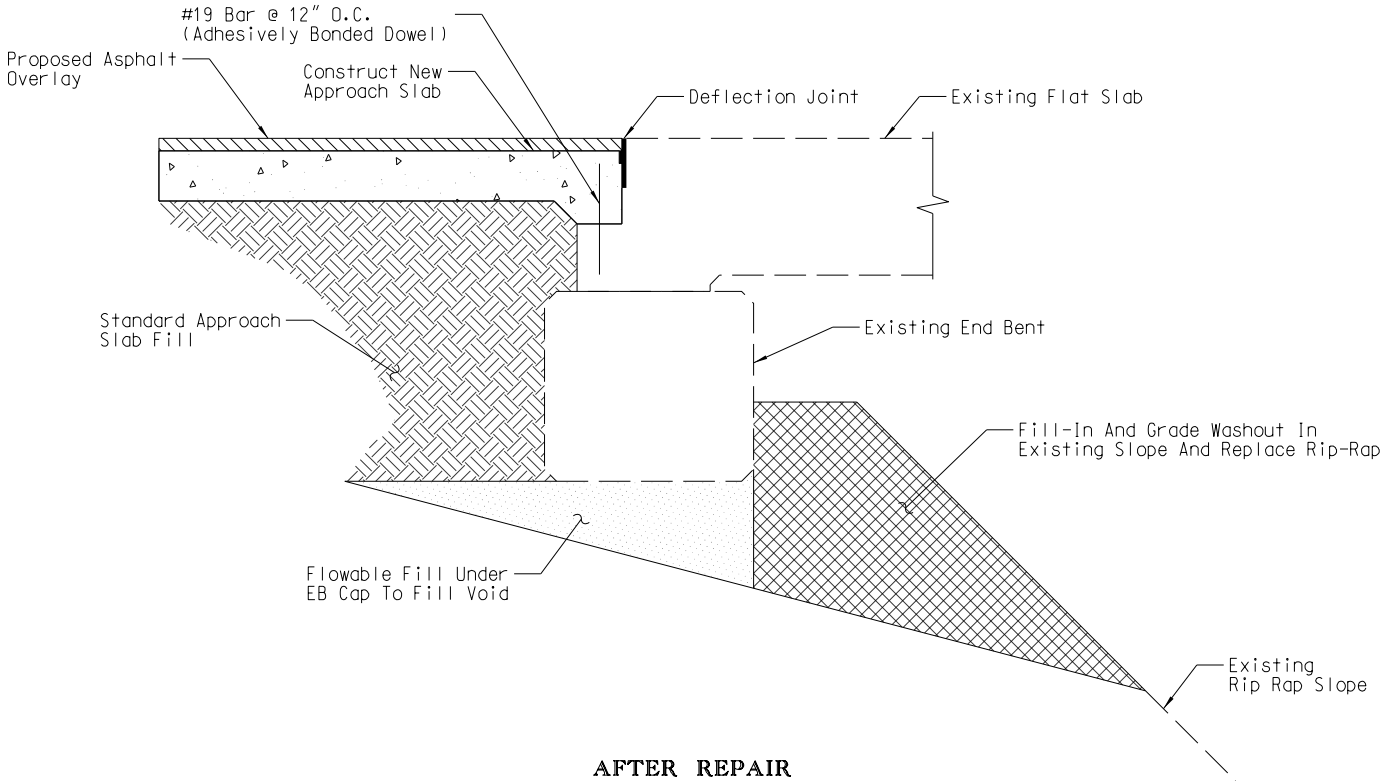
4. Flowable fill shall be placed in accordance with section 210 of the Standard Specifications.

5. Rip Rap and slope protection shall be constructed in accordance with section 804 of the Standard Specifications.

RS&H



PRIOR TO REPAIR



AFTER REPAIR

UNDERMINING & SLOPE PROTECTION REHABILITATION

APPROACH SLAB REPAIRS

Location: Br. 5780, 5781, 5785 & 5786
Bents 1 & 26

Section 9: Deck Drain Retrofit

Deck Drain Retrofit Summary:

Based on the buildup of debris at the end of the bridge, the current deck drainage system does not appear to be adequate. Additional deck drains will be required to ensure adequate drainage of the water on the bridge deck.

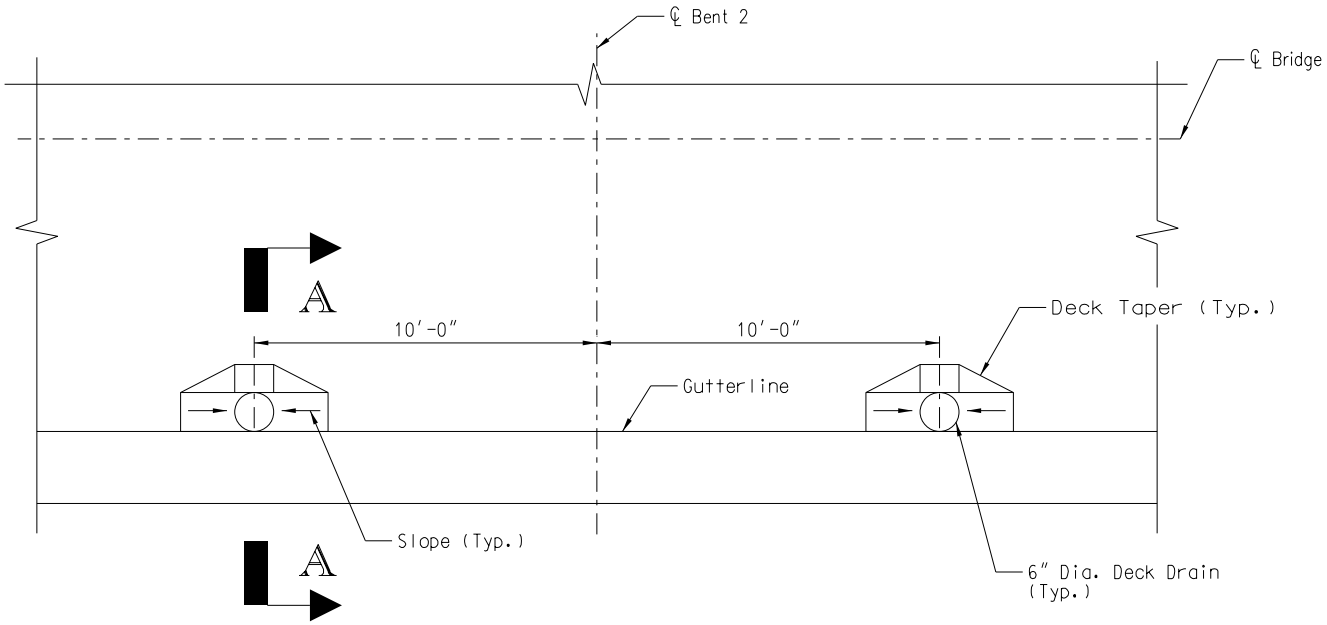
Standard Rehab Notes:

1. Core drill drain holes through the bridge deck at the locations specified. Provide 1" saw cut in a rectangular section around the core hole, chip out and remove the concrete bridge deck and pour back with latex modified concrete to provide a taper to the top of the cored hole.

2. Collect and dispose of the concrete cores and debris.

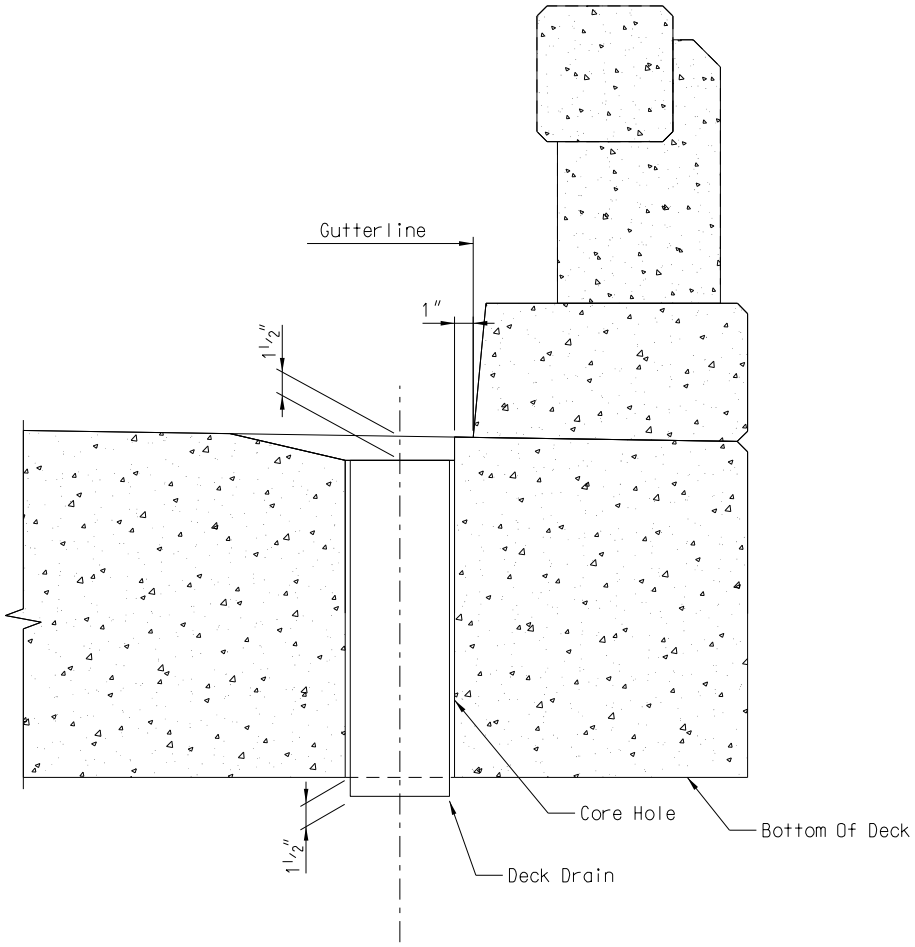
3. Coat the surface of the cored holes with epoxy bonding agent and set a bridge deck drain pipe sleeve in place. Ensure the void between the cored hole surface and the outside of the pipe sleeve is completely filled with epoxy bonding agent. Take appropriate measures to prevent the epoxy bonding agent from escaping the void and secure the pipe sleeve in position until the epoxy bonding agent is cured.

4. Deck drain construction shall be in general conformance with the SCDOT Bridge Drawings and Details, modified as necessary to fit in core hole.



PLAN

DIRECTION OF STATIOING →



SECTION A-A

DECK DRAIN DETAIL

Location: Br. 5785

Quantity: 2 Total