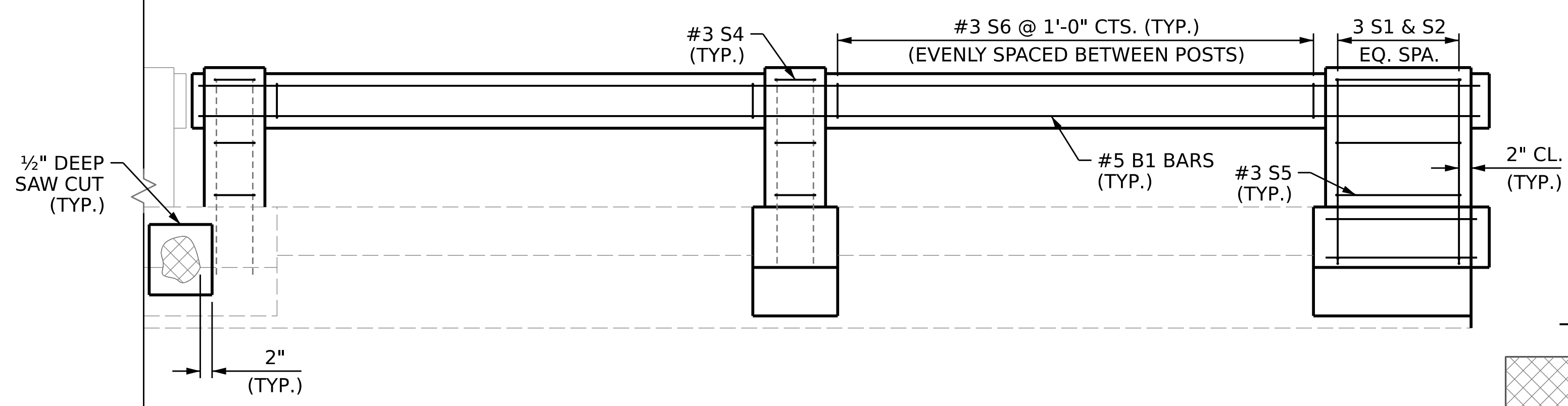
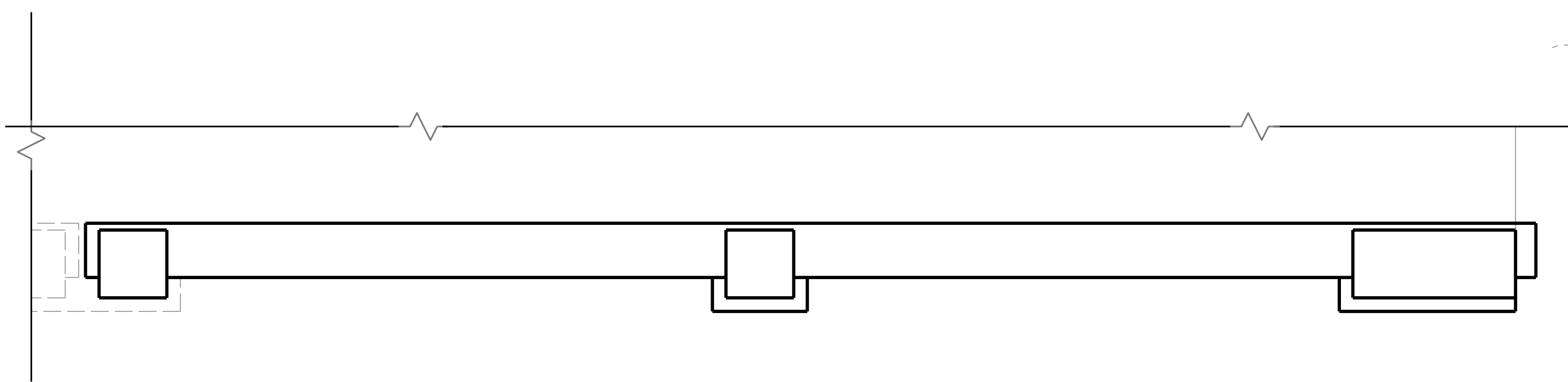
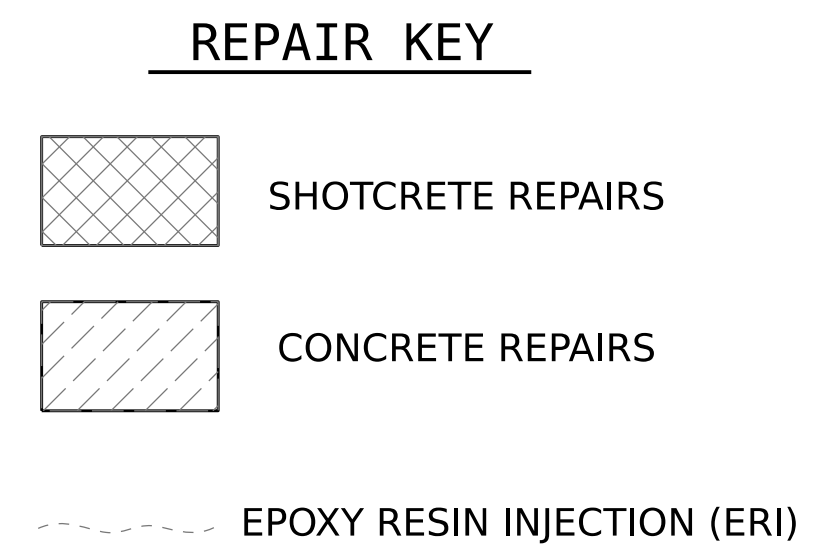


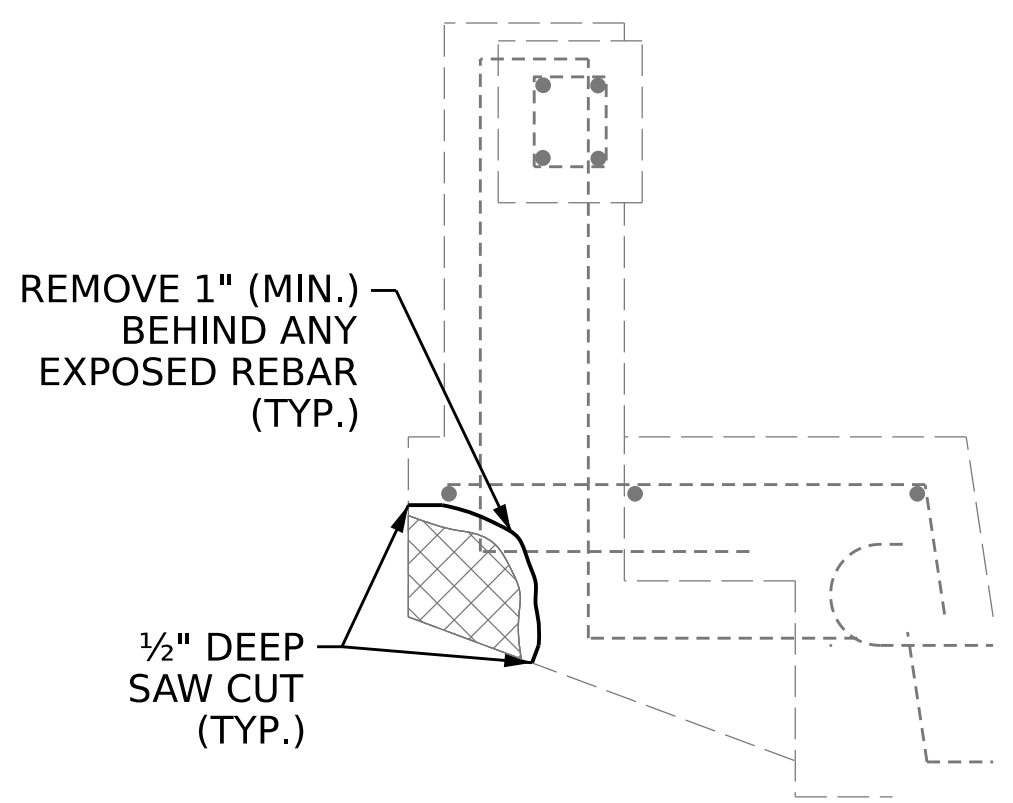
**EXISTING ELEVATION**



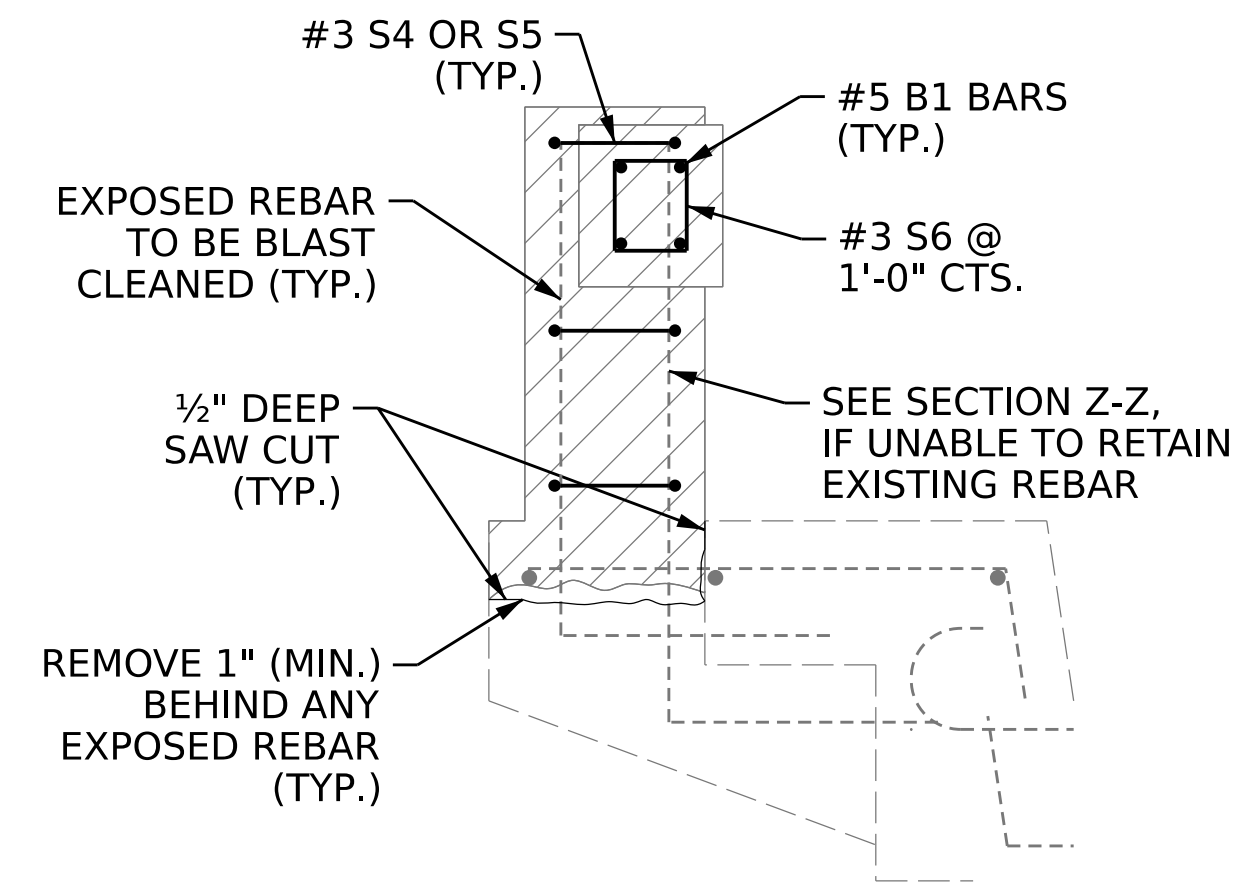
**PROPOSED ELEVATION**



**PLAN**



**SECTION X-X**



**SECTION Y-Y**

**NOTES**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

THE CONTRACTOR SHALL FIELD VERIFY THE EXACT DIMENSIONS OF THE SECTION(S) OF RAIL TO BE REPAIRED. REPAIRED SECTION(S) OF RAIL SHOULD MATCH EXISTING UNDAMAGED SECTIONS.

THE CONTRACTOR SHALL TAKE CARE DURING BARRIER RAIL REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALL BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE METHOD USED TO DELINEATE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL OR REQUIRE HARSH CHEMICALS TO REMOVE.

SAW CUT 1/2 INCH DEEP ALONG LAYOUT LINES INTO SOUND CONCRETE. CARE SHALL BE TAKEN NOT TO CUT OR DAMAGE REINFORCING STEEL DURING CONCRETE REMOVAL. ANY DAMAGED REINFORCING STEEL SHALL BE REPLACED WITH NEW REINFORCING STEEL AS DIRECTED BY THE ENGINEER.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO THE POINT WHERE IT IS SOUND. THE REPAIR AREA SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL MATCH EXISTING REINFORCING PLACEMENT, SIZE OR TYPE AND SHALL BE EPOXY COATED.

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUTS.

FOR BARRIER RAIL REPAIR QUANTITIES, SEE DECK SURFACE REPAIR SHEETS.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE BARRIER AND/OR TRAFFIC.

REMOVE ALL DAMAGED, LOOSE CONCRETE PRIOR TO PLACING FORMWORK.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED (ANCHOR BOLTS/DOWELS) IN PLACE OF REUSING EXISTING VERTICAL BARS. THE YIELD LOAD FOR THE #5 S1 AND S2 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SECTION 420-13 OF THE STANDARD SPECIFICATIONS.

TEMPORARY BRIDGE RAILS SHALL BE DESIGNED FOR THE AASHTO LRFD TEST LEVEL 3 (TL-3) CRASH TEST CRITERIA. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY BRIDGE RAILS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

**SPLICE LENGTH TABLE**

BAR SIZE	MIN. SPLICE LENGTH
#4	2'-9"
#5	3'-5"
#6	4'-4"

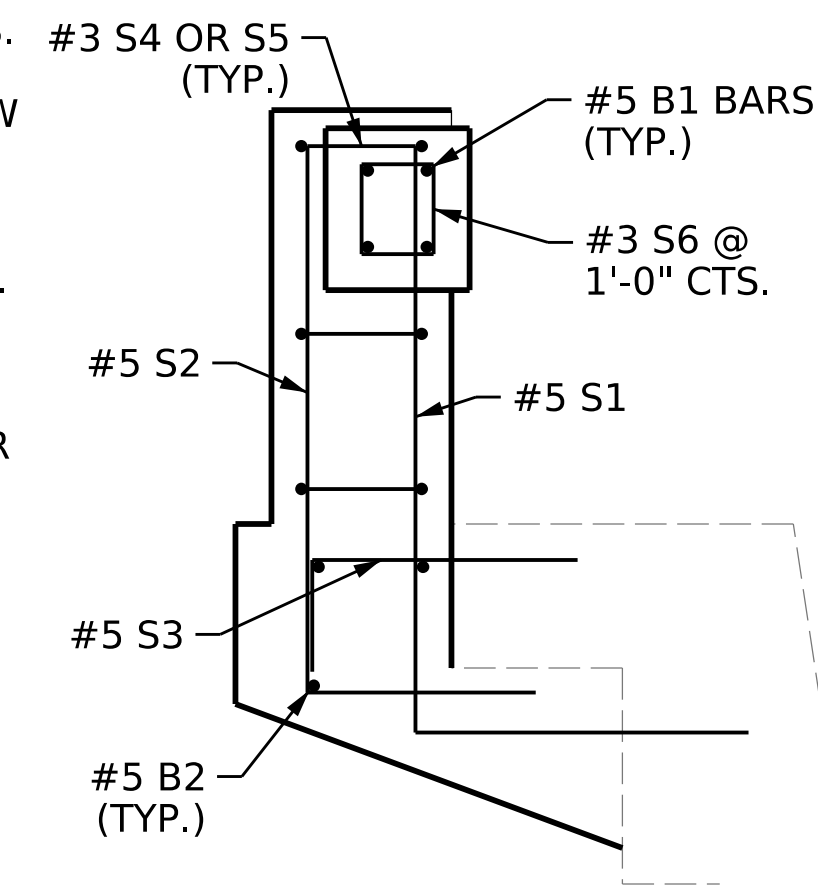
**BAR TYPES**

ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL FOR BARS AS-NEEDED**

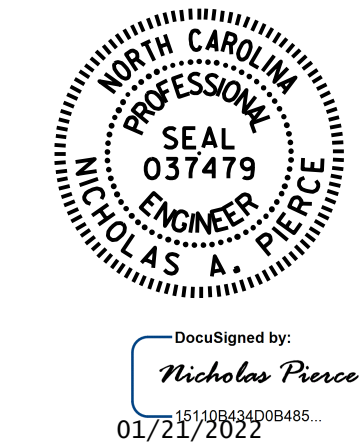
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
*S1	1	#5	1	4'-4"	5
*S2	1	#5	1	3'-7"	4
*S3	1	#5	1	1'-9"	2
*S4	1	#3	2	2'-0"	1
*S5	1	#3	2	4'-4"	2
*S6	1	#3	2	1'-6"	1

\* EPOXY COATED REINFORCING STEEL



**SECTION Z-Z**

PROJECT NO. **15BPR.49**  
**WAKE** COUNTY  
 BRIDGE NO. **910028**



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
**TYPE 11 CONCRETE BARRIER RAIL REPAIR DETAILS**

ASSEMBLED BY: N.A. PIERCE DATE: 10/2020  
 CHECKED BY: D.A. CANTRELL DATE: 11/2021  
 DRAWN BY:  
 CHECKED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-11
1			3			TOTAL SHEETS
2			4			74