

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6.

MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIALS AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: ASTM A36 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO ASTM A123.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A1011 FOR GRADE 36, 40, 45 OR ASTM A1008 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A1011 FOR GRADE 36, 40, 45 OR ASTM A1008 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR MODIFIED TWO BAR METAL RAIL, SEE SPECIAL PROVISIONS.

PAY LENGTH = 162.64 * LIN. FT.

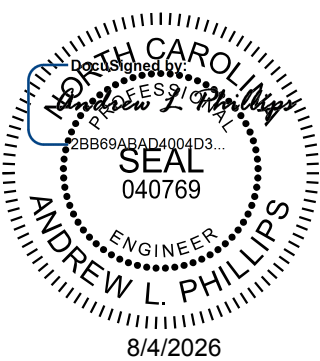
* INCLUDES MODIFIED 2 BAR METAL RAIL ON APPROACH SLABS

PROJECT NO. I-5715

MECKLENBURG COUNTY

STATION: 15+64.95 -Y3-

SHEET 1 OF 2



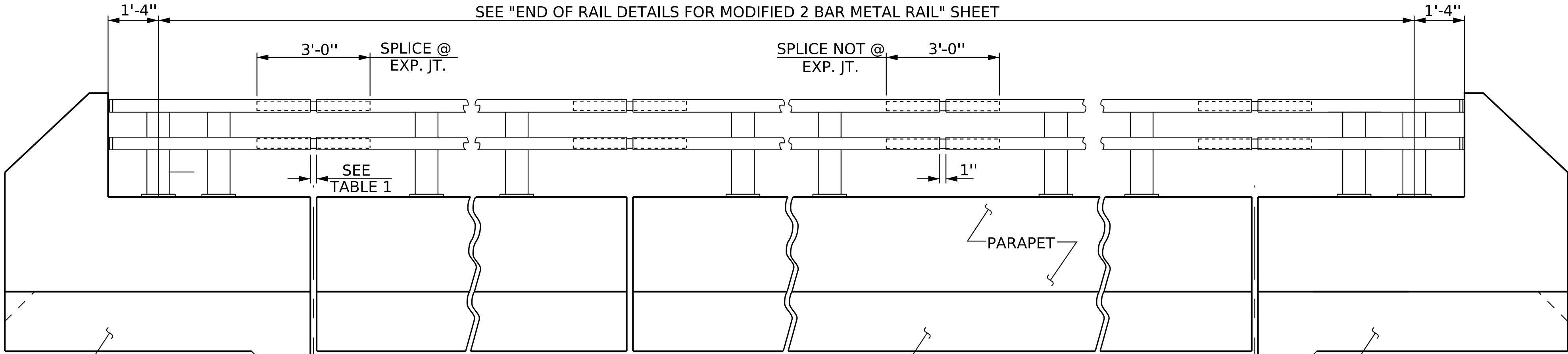
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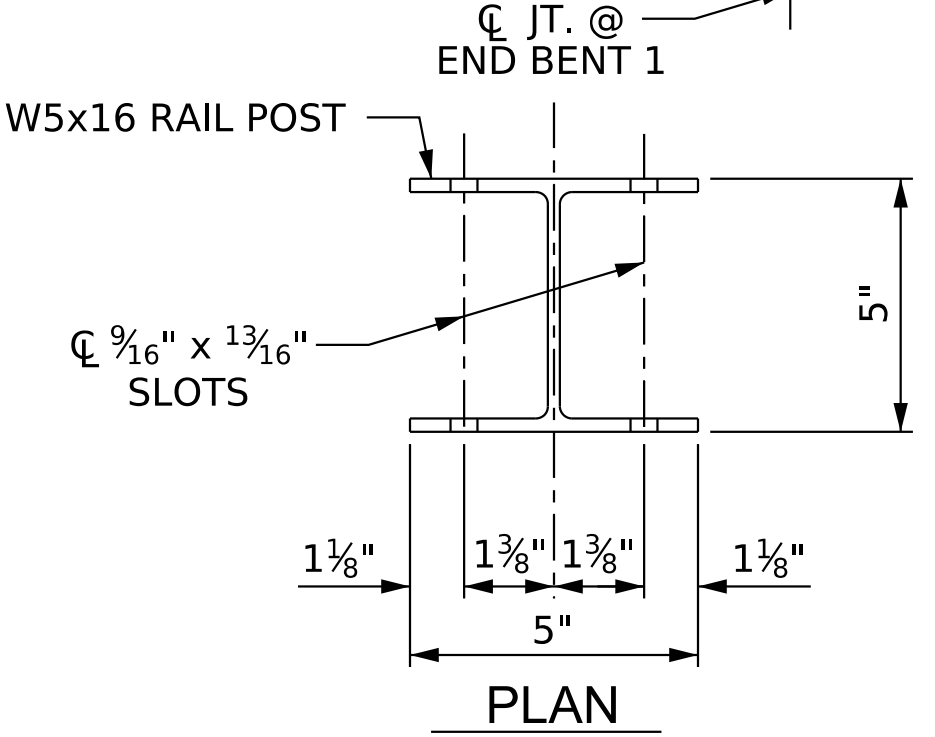
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE MODIFIED 2 BAR METAL RAIL (INTERIOR)					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					35

STR. #6

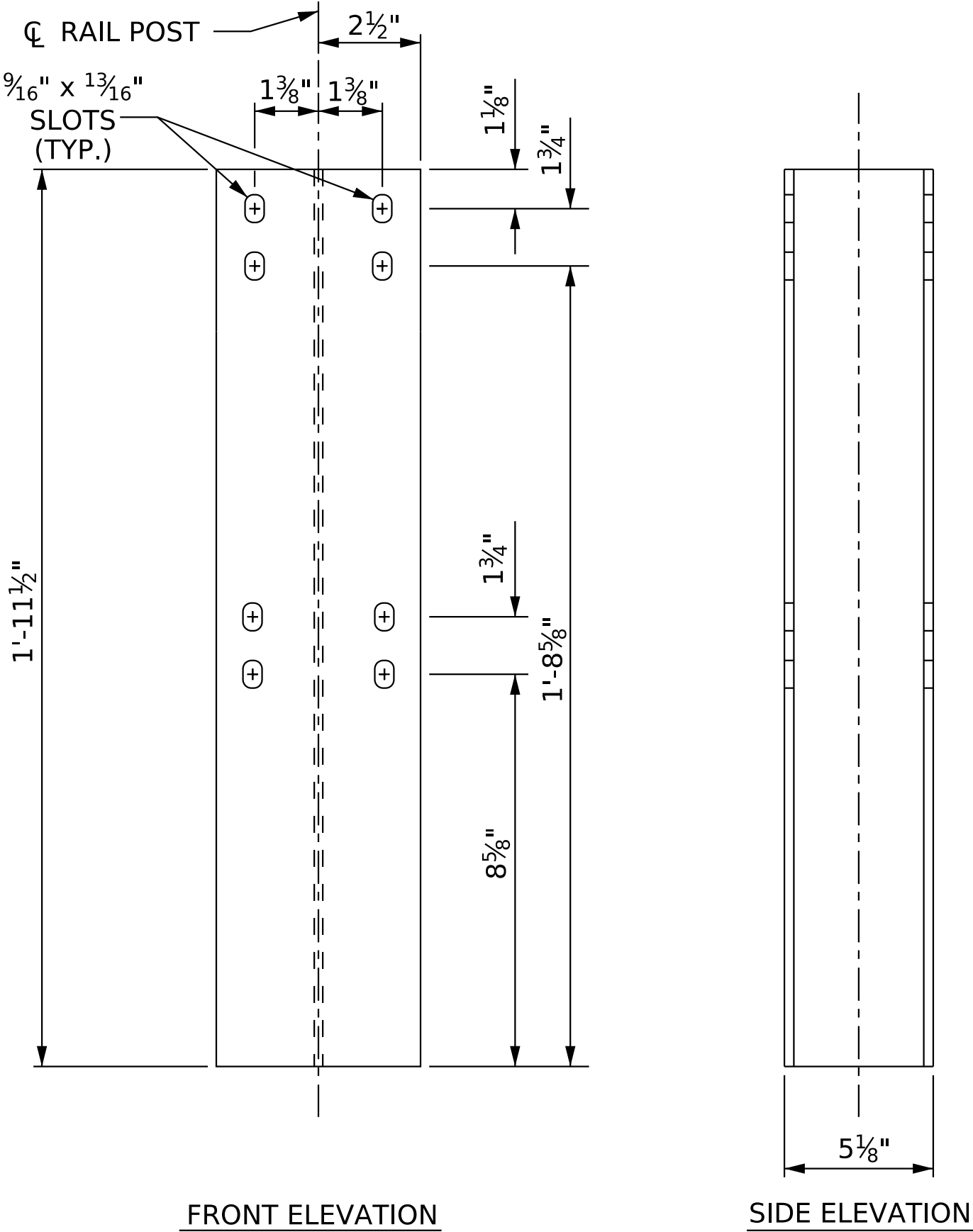


ELEVATION

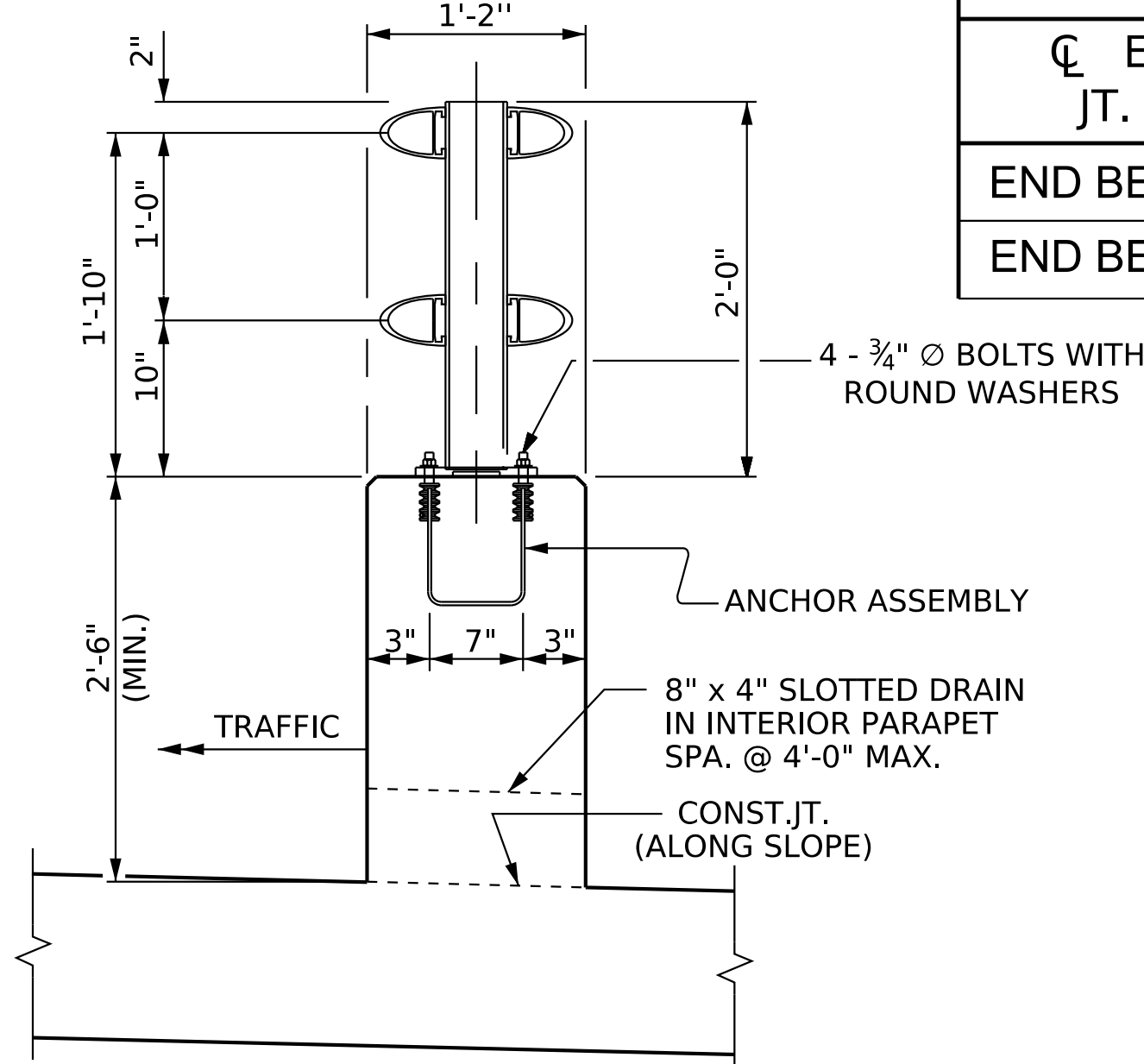
NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE "END OF RAIL DETAILS FOR MODIFIED 2 BAR METAL RAIL" SHEET.



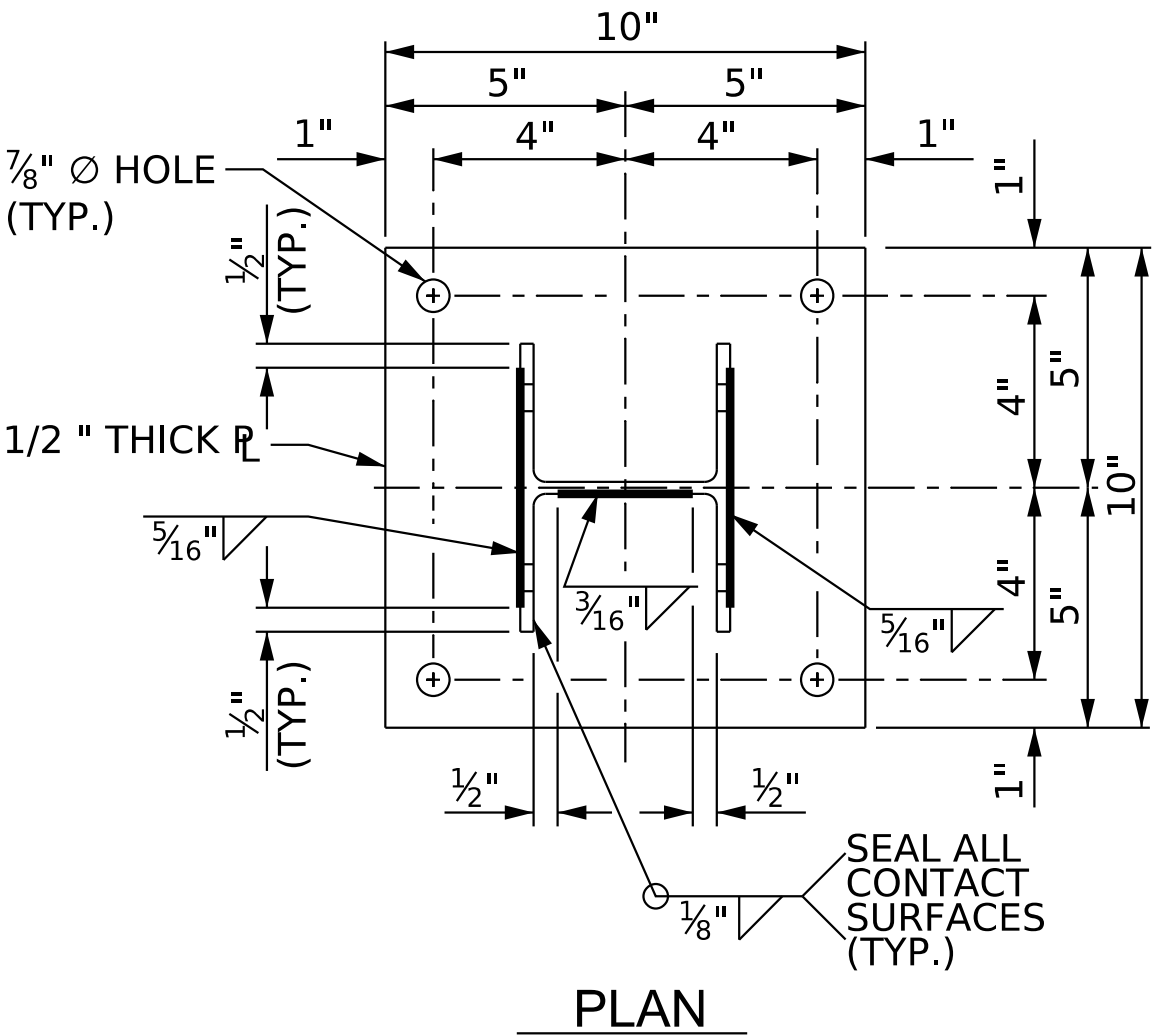
PLAN



DETAILS OF POST



SECTION THRU PARAPET AND RAIL



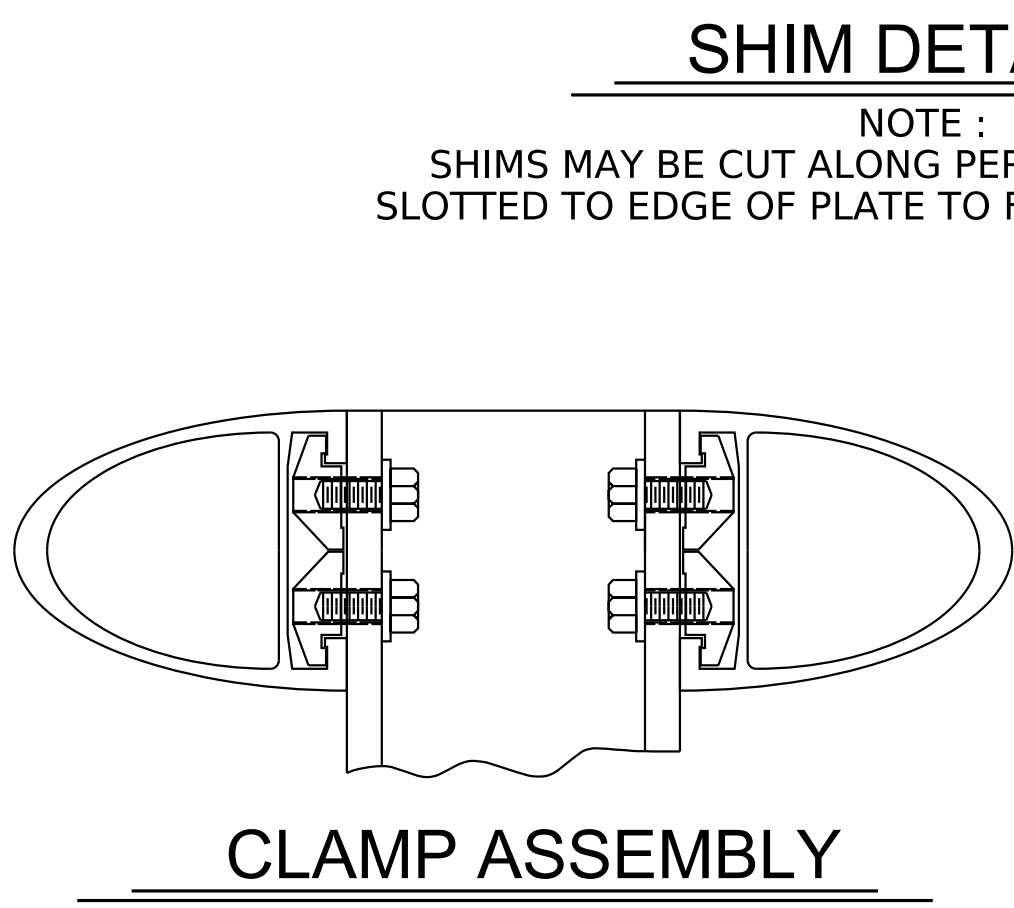
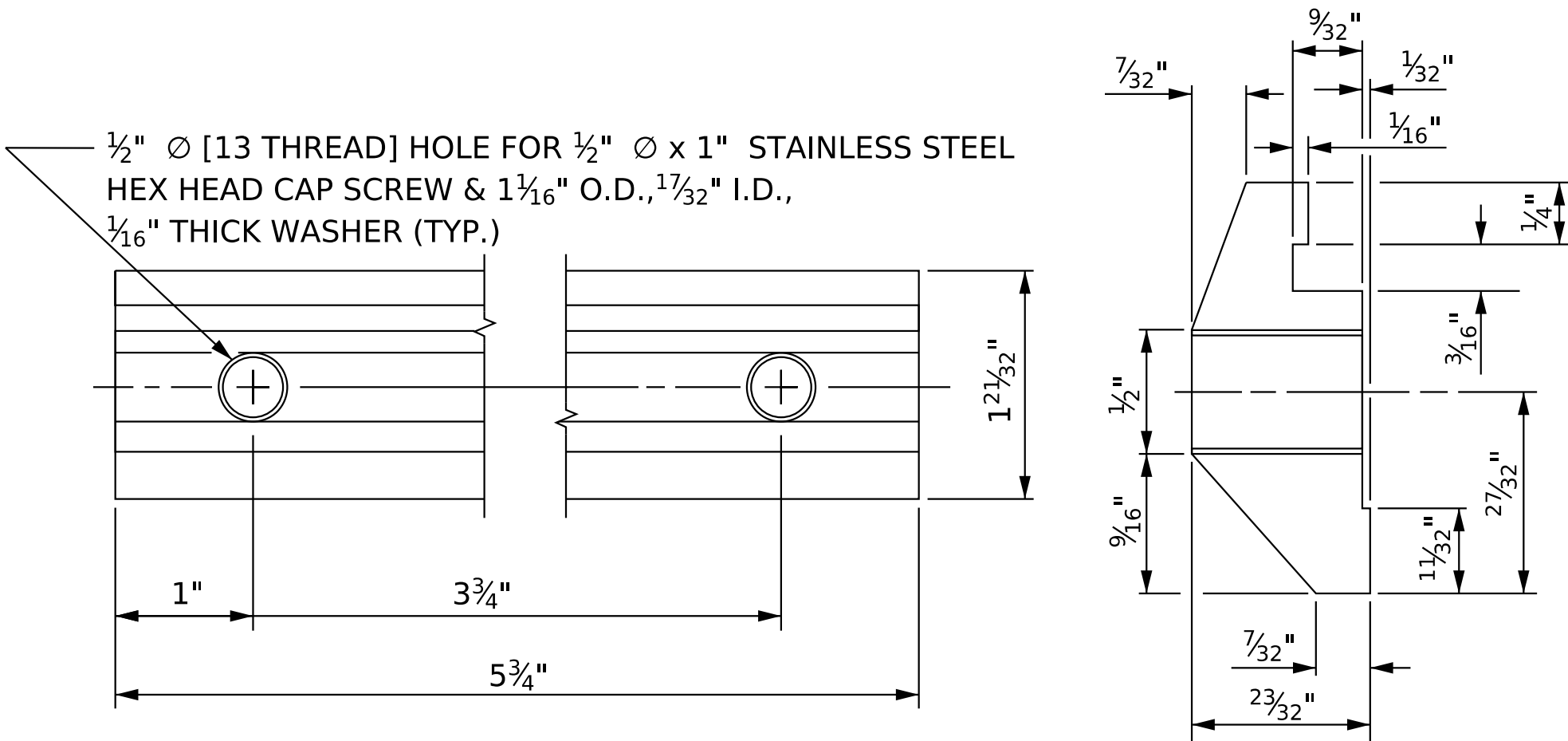
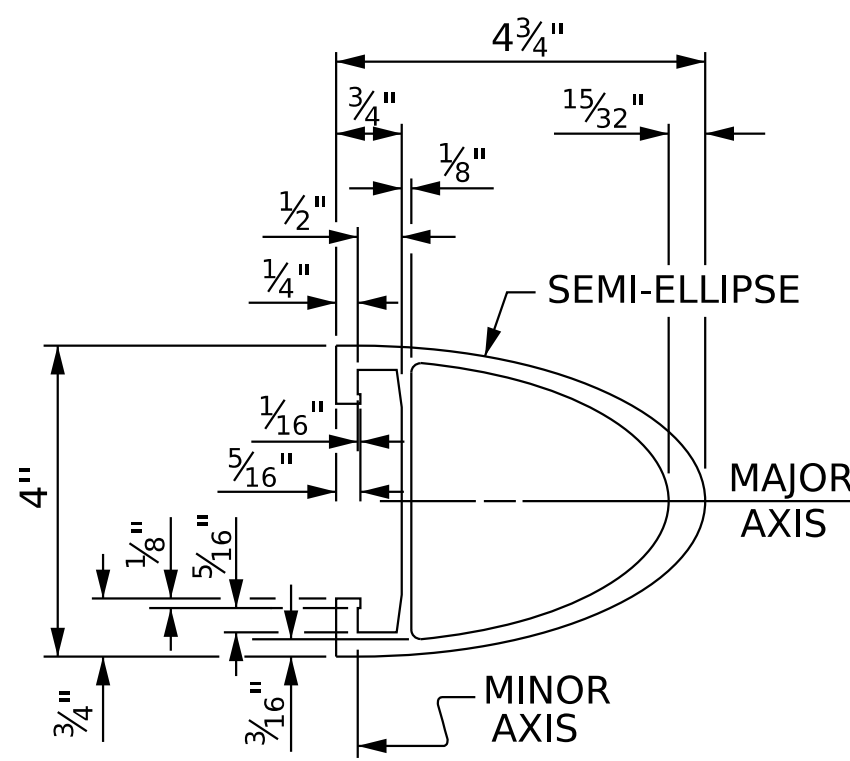
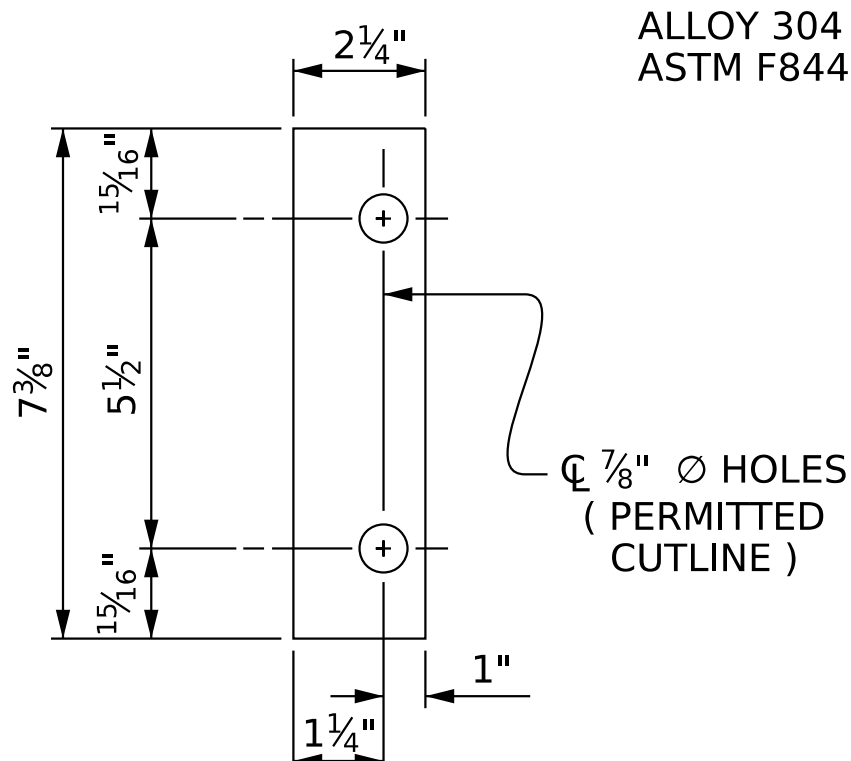
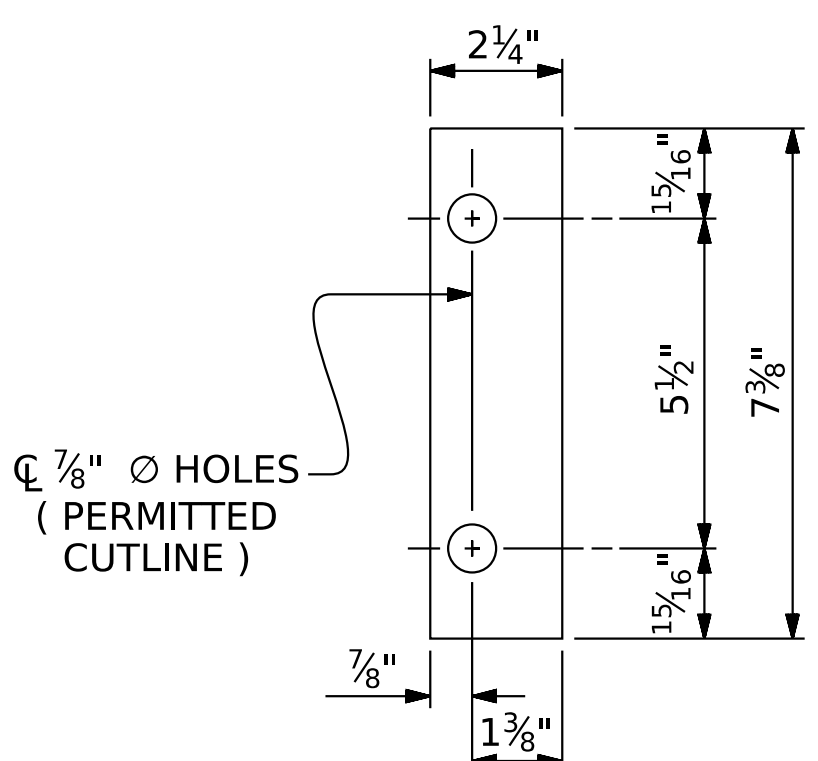
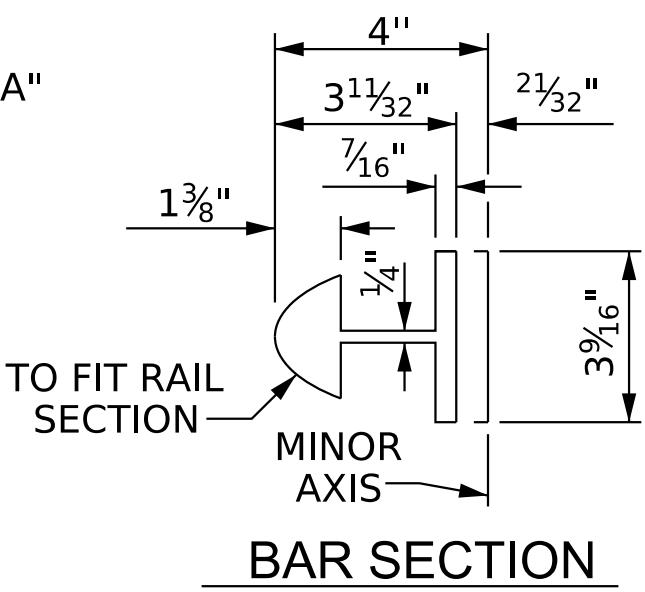
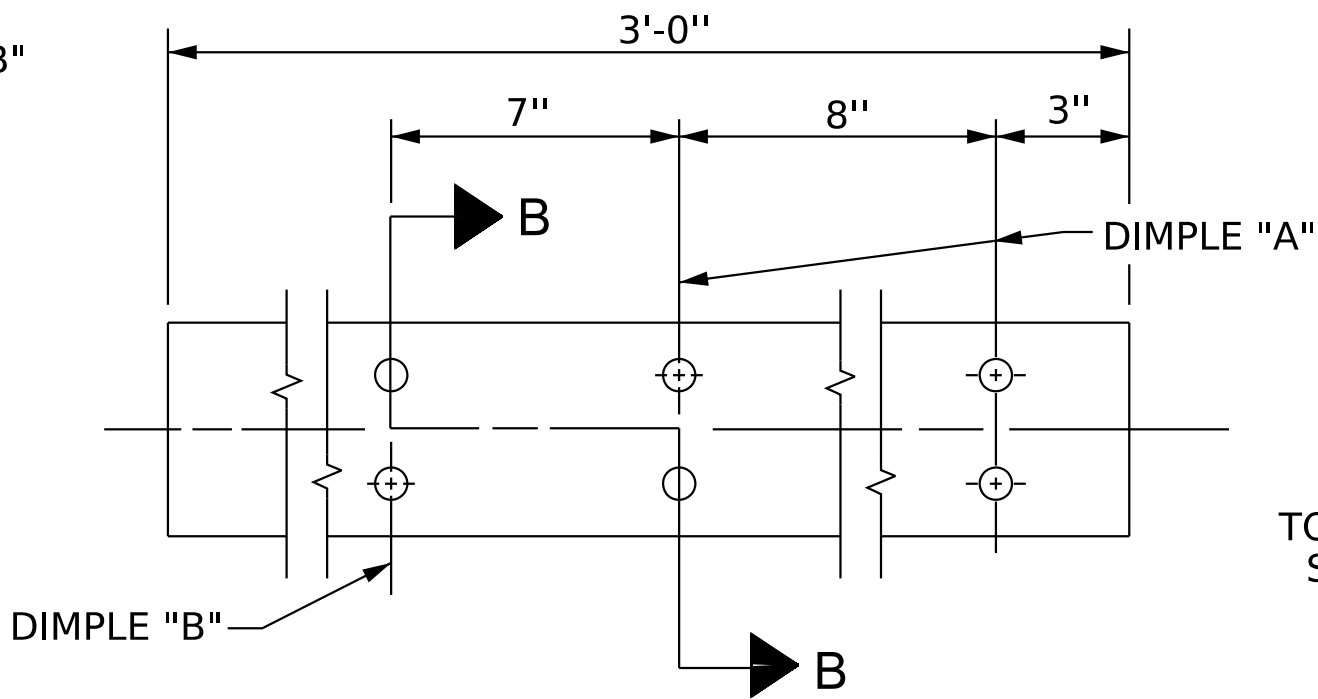
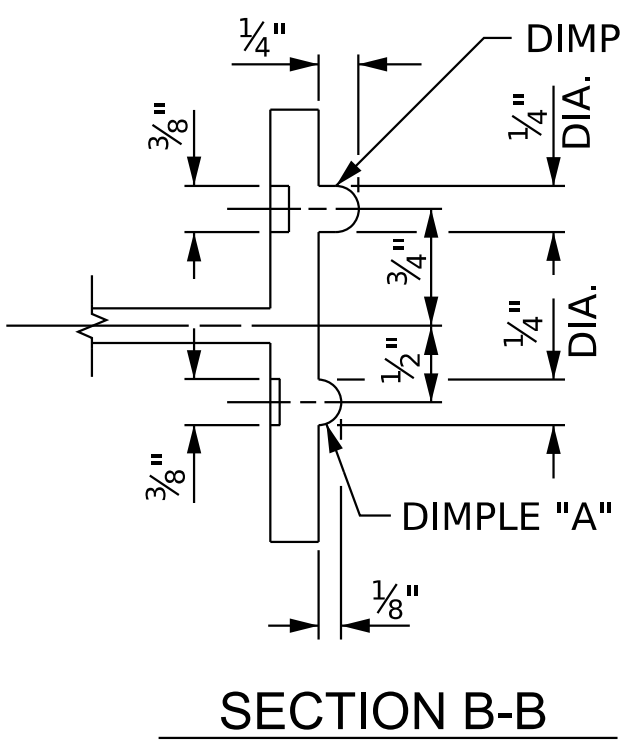
PLAN

POST BASE DETAILS

DRAWN BY: T. K. BOYD DATE: 03/2026
CHECKED BY: E. W. SPRABERRY DATE: 03/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 03/2026

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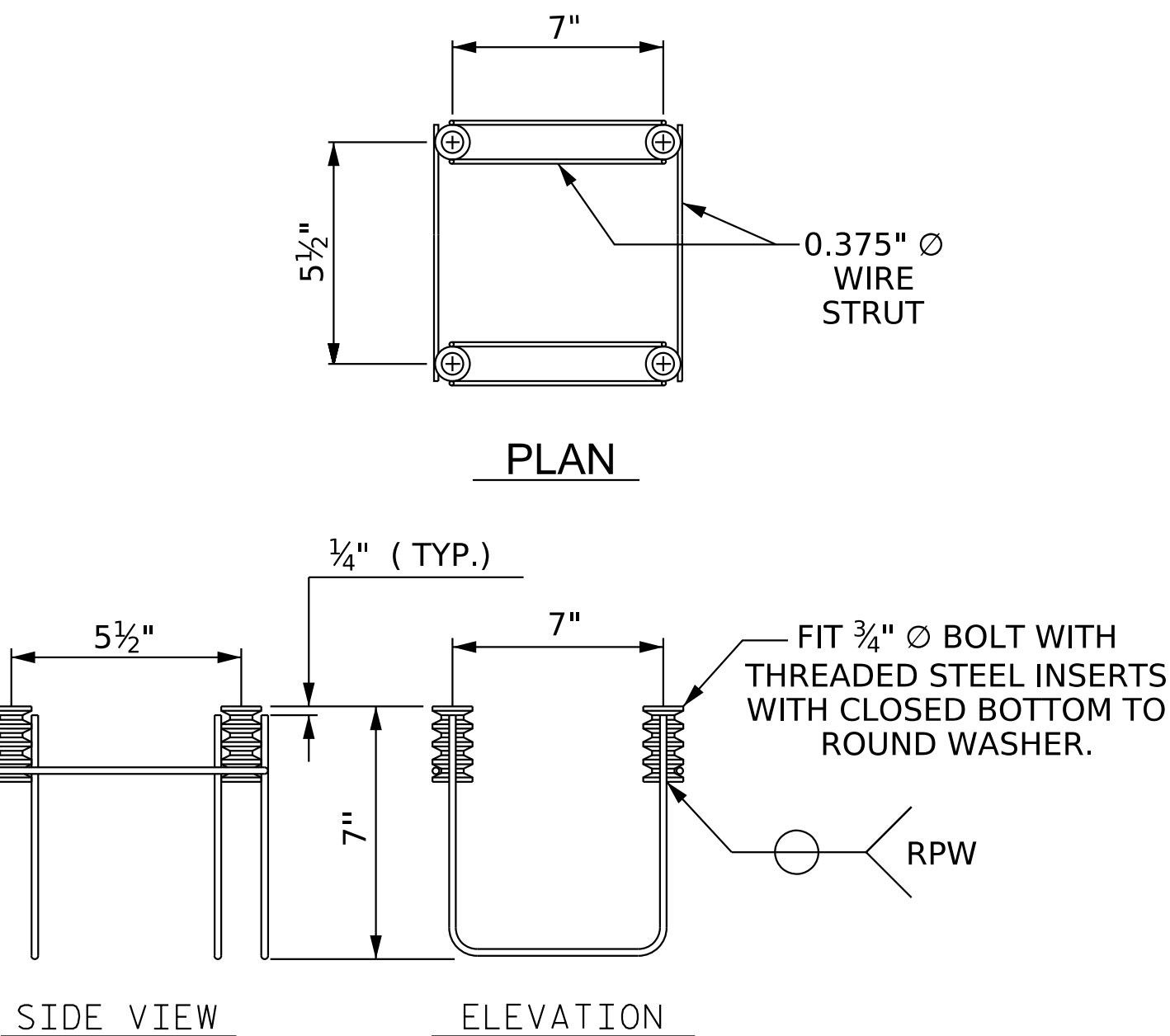
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8/2/2026



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CHECKED BY: E. W. SPRABERRY DATE: 03/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 03/2026

CLAMP BAR DETAIL
(4 REQUIRED PER POST)

4-BOLT METAL RAIL ANCHOR ASSEMBLY (28 ASSEMBLIES REQUIRED)



NOTES STRUCTURAL CONCRETE ANCHOR ASSEMBLY

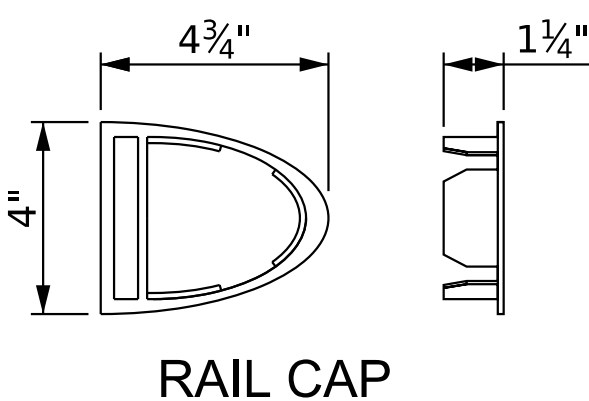
- THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
 - 4 - 3/4" $\varnothing$ x 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" $\varnothing$ x 2 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
 - WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" $\varnothing$ WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
 - THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF ASTM A123.
 - THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
 - BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" $\varnothing$ BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

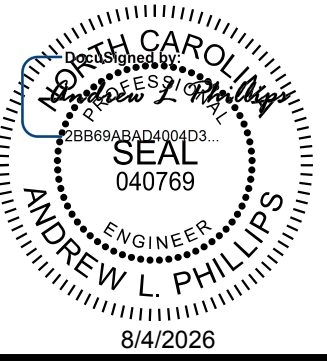
WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

SHIM DETAILS

NOTE :
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR
SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



CLAMP ASSEMBLY



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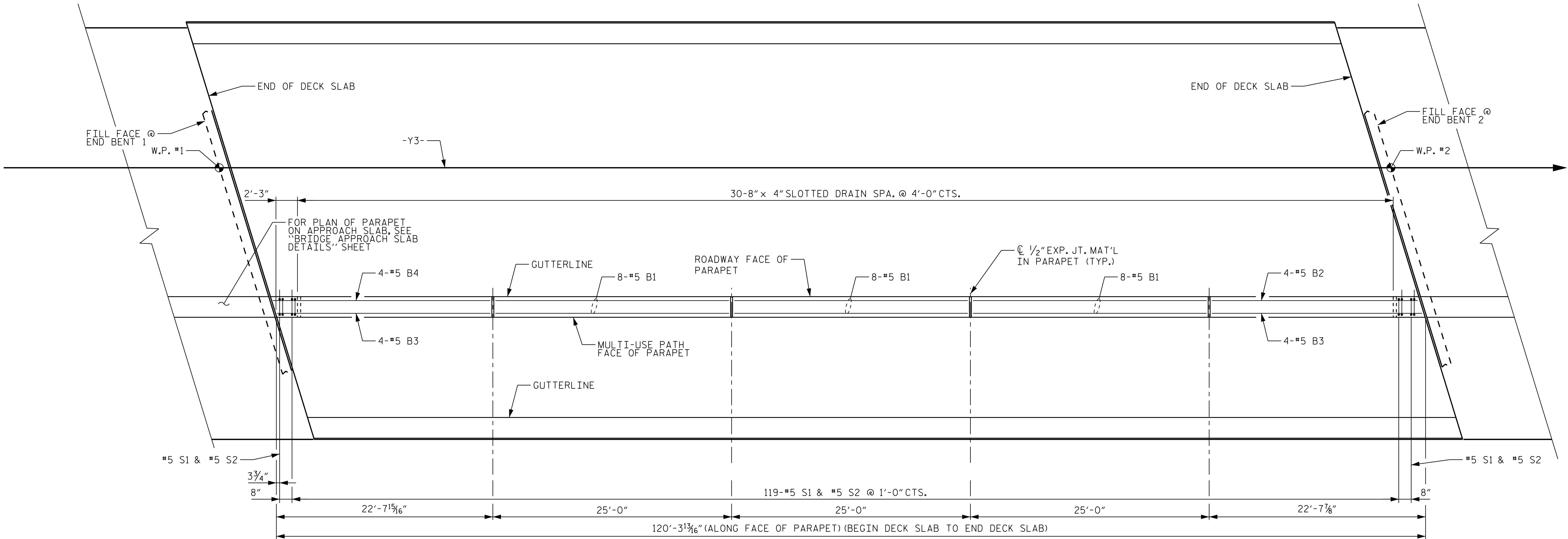
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STATION: 15+64.95 -Y3-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE MODIFIED 2 BAR METAL RAIL (INTERIOR)					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					35

STR. #6

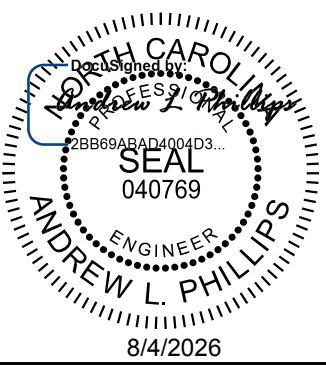
NOTES:
8" x 4" SLOTTED DRAIN HOLES MAY BE SHIFTED
SLIGHTLY TO AVOID CONFLICTS WITH #5 S1 & #5 S2.



INTERIOR CONCRETE PARAPET LAYOUT

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SHEET 1 OF 3



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1			3			TOTAL SHEETS 35
2			4			

STR. #6

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DRAWN BY: T.K. BOYD DATE: 03/2026
CHECKED BY: E.W. SPRABERRY DATE: 03/2026
DESIGN ENGINEER OF RECORD: A.L. PHILLIPS DATE: 03/2026

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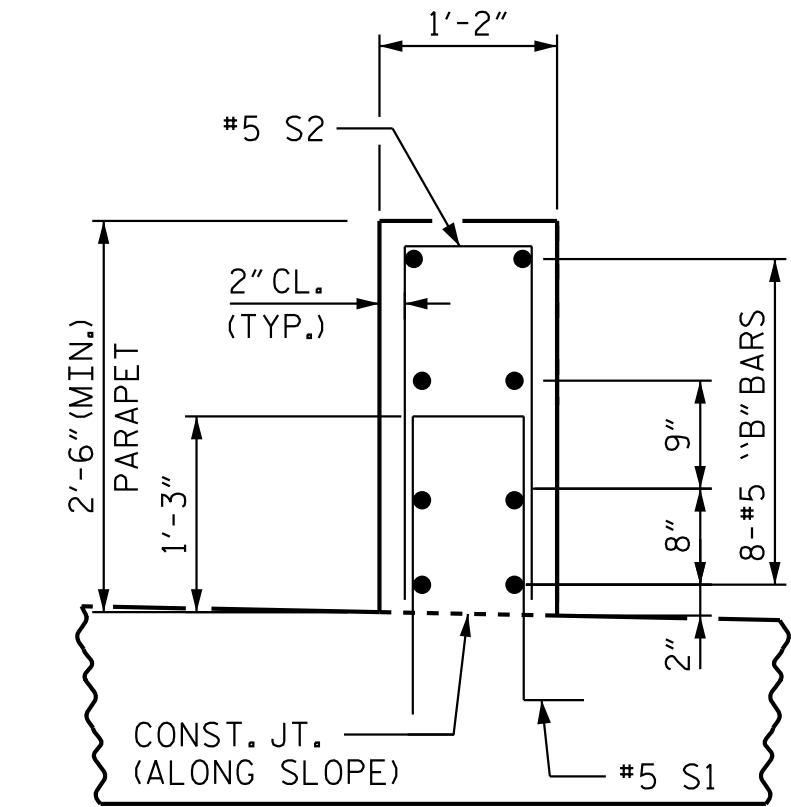
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DESIGN ENGINEER OF RECORD: A. L. PHILLIPS

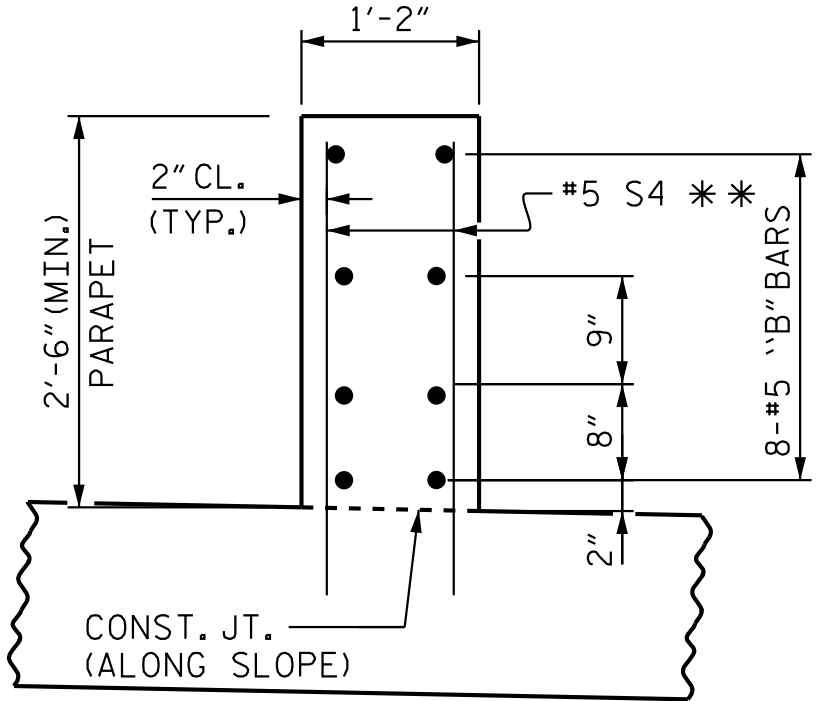
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DATE: 03/2026



SECTION THRU PARAPET



OPTIONAL SECTION THRU PARAPET

* FOR OPTIONAL ADHESIVE ANCHORING (NOT INCLUDED IN TOTAL QUANTITY)

NOTES

PARAPET IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN PARAPET SHALL BE EPOXY COATED.

THE #5 S1 AND #5 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN PARAPET.

FOR CONCRETE PARAPET ON APPROACH SLABS, SEE "APPROACH SLAB DETAILS" SHEET.

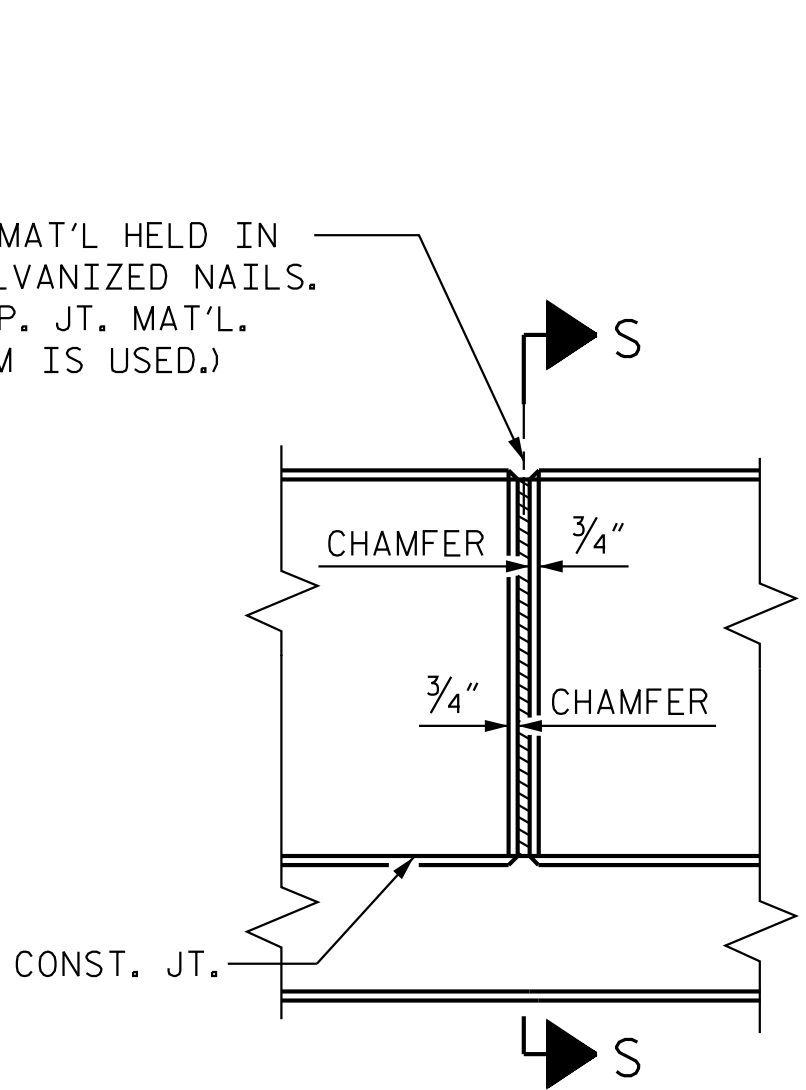
FOR GUARDRAIL ANCHORAGE ASSEMBLY, SEE "GUARDRAIL ANCHORAGE DETAILS FOR INTERIOR PARAPET METAL RAILS ON APPROACH SLAB" SHEET.

** GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

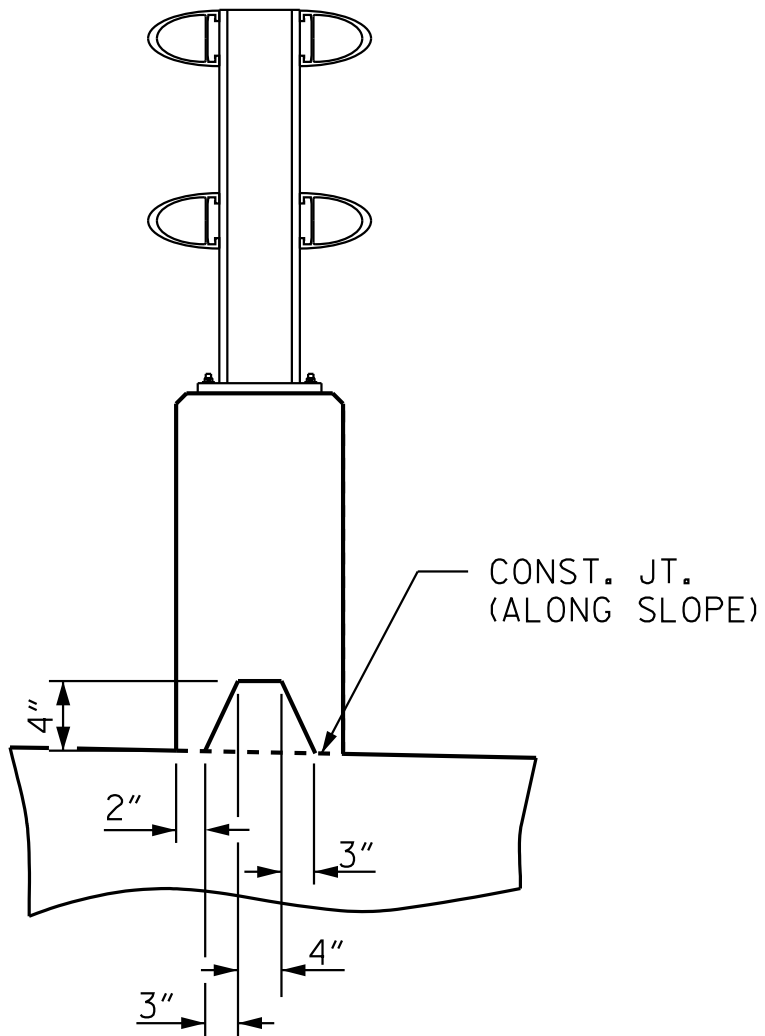
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED #5 S4 BARS. LEVEL 2 FIELD TESTING IS REQUIRED AND THE YIELD LOAD OF THE #5 S4 BARS IS 18.6 KIPS. FOR ADHESIVELY ANCHORED BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

INTERIOR CONCRETE PARAPET SHALL BE PAID FOR BY LINEAR FOOT OF 1'-2" X 2'-6" CONCRETE PARAPET.

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED.)

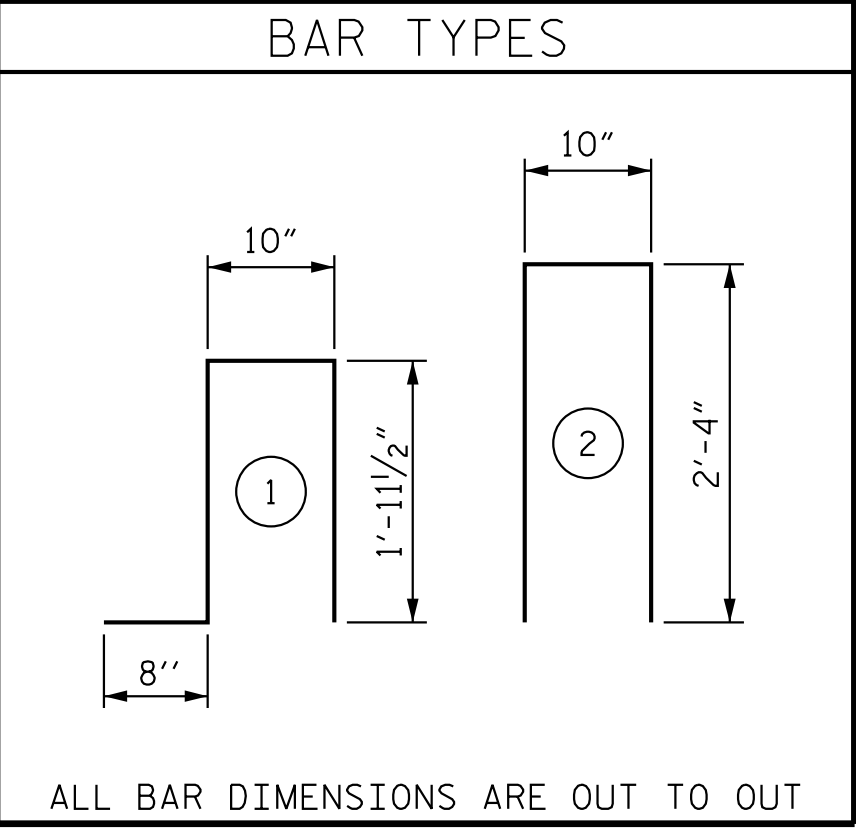


ELEVATION AT EXPANSION JOINTS



SECTION S-S AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

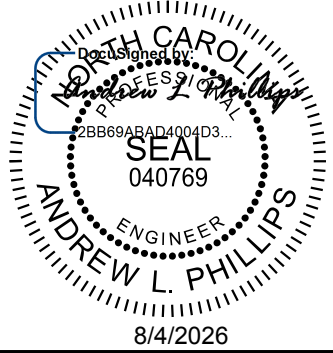
ELEVATION AT EXPANSION JOINTS



BILL OF MATERIAL					
CONCRETE PARAPET					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	24	#5	STR	24'-8"	617
* B2	4	#5	STR	22'-0"	92
* B3	8	#5	STR	22'-3"	186
* B4	4	#5	STR	22'-7"	94
* S1	121	#5	1	6'-11"	873
* S2	121	#5	2	5'-6"	694
* EPOXY COATED REINFORCING STEEL					2,543 LBS.
CLASS AA CONCRETE					18.9 C.Y.
INTERIOR CONCRETE PARAPET **					170.5 LIN. FT.
** INCLUDES INTERIOR CONCRETE PARAPET AND END POSTS ON APPROACH SLABS					

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SHEET 2 OF 3



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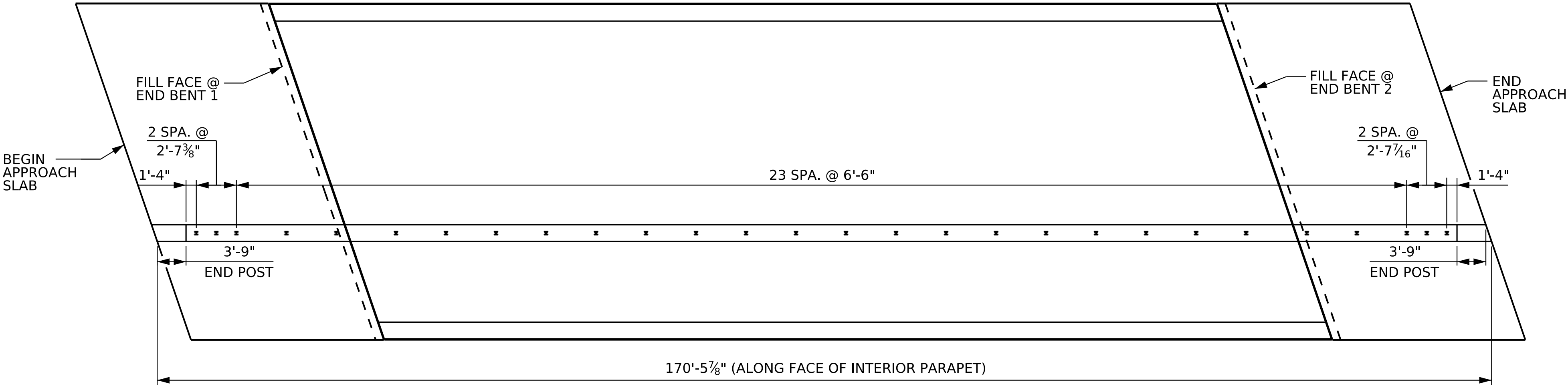
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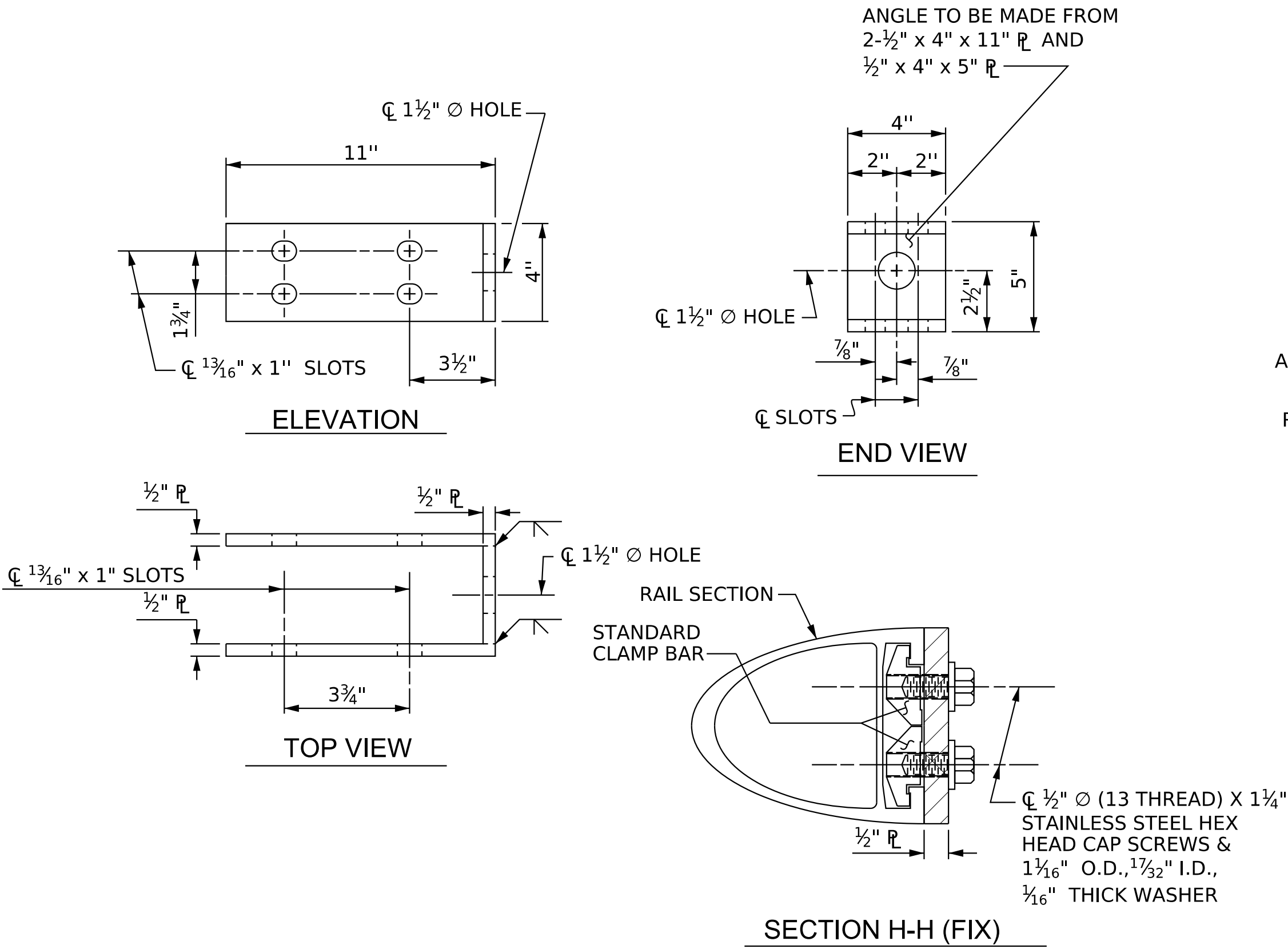
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE INTERIOR CONCRETE PARAPET DETAILS					
REVISIONS					
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1			3		
2			4		
SHEET NO. S6-25					TOTAL SHEETS 35

STR. #6

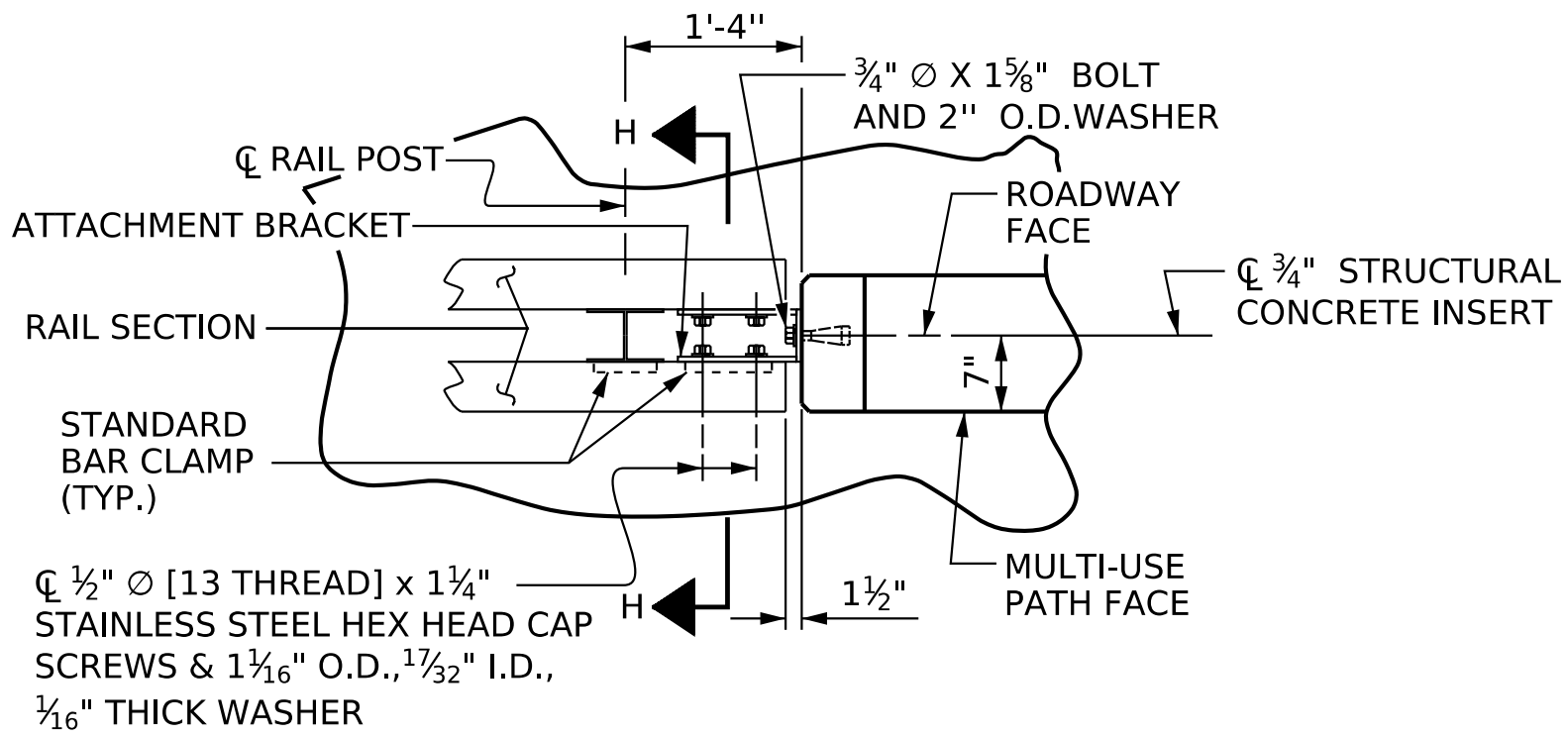
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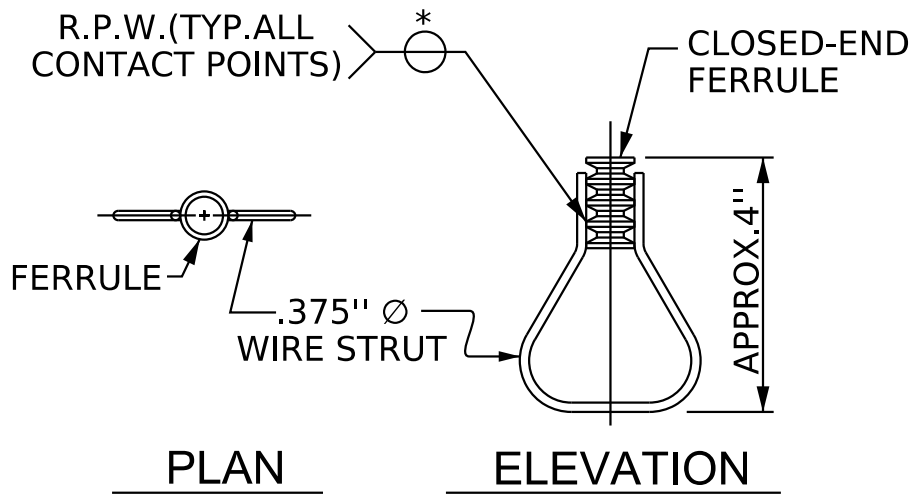
PLAN OF RAIL POST SPACINGS



FIXED

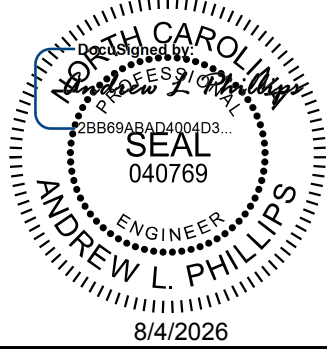


PLAN - RAIL AND END POST



STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



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NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1¹/₂".
- B. 1 - 3/4" x 1 1/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" x 1 1/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" x 1/2" WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. 1/2" PLATES SHALL CONFORM TO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" x 1 1/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" x 1 1/8" BOLT SHALL HAVE N. C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. 1/2" x 1/2" PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" x 1 1/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" x 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" x 1 1/8" BOLT SHALL APPLY TO THE 3/4" x 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 15+64.95 -Y3-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

END OF RAIL DETAILS
FOR MODIFIED 2 BAR
METAL RAIL

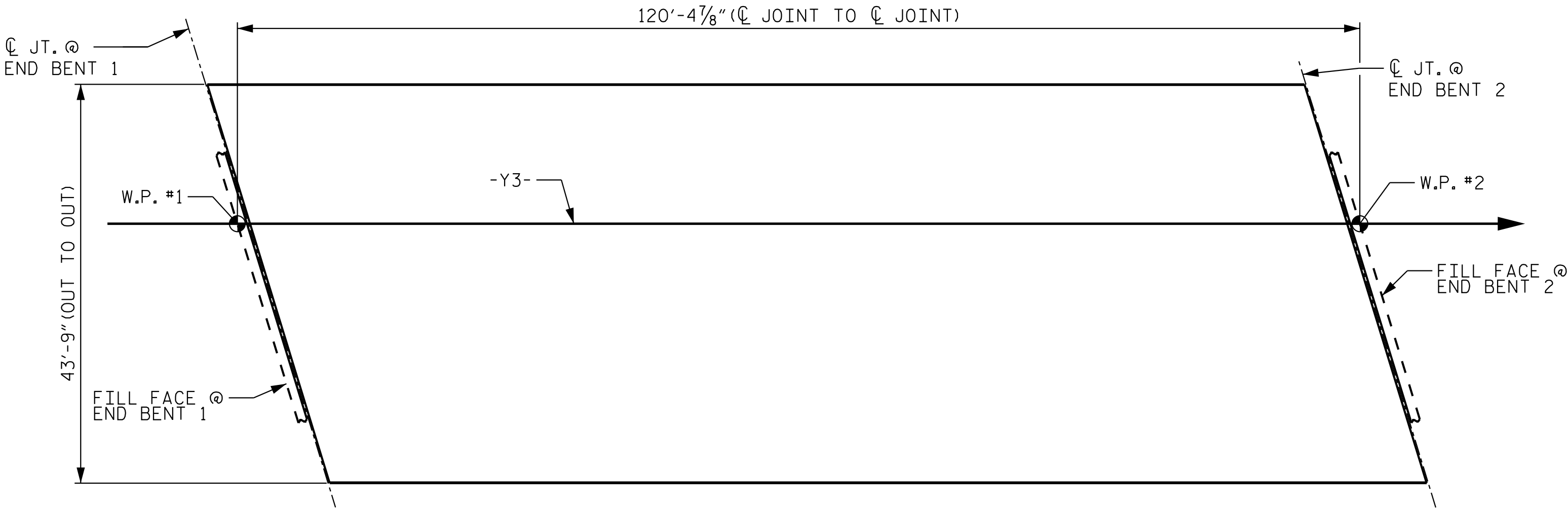
REVISIONS						SHEET NO. S6-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

STR. #6

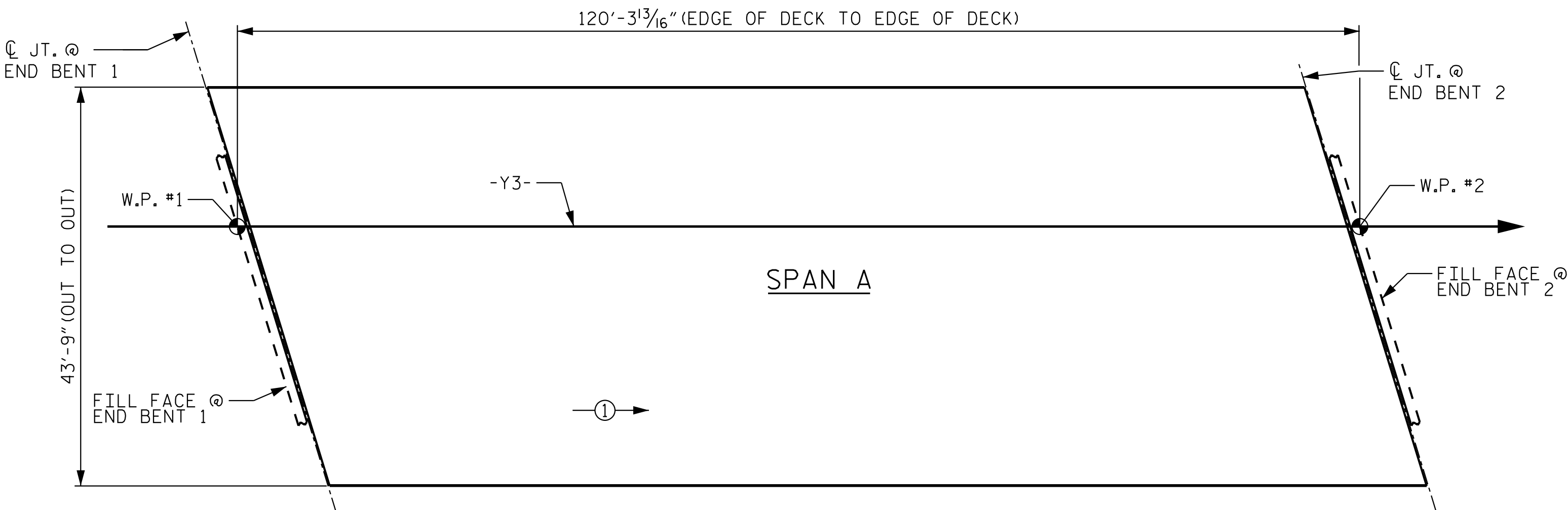
DRAWN BY: T. K. BOYD DATE: 03/2026
CHECKED BY: E. W. SPRABERRY DATE: 03/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 03/2026

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

K:\PDT_Structures\Bridge\N\01036524 - I-5715 Structure Design\Code\Sign\Site *3\Structure 6\Final\406.053.15115.SMU.BMI.591418.027.dgn 8/2/2026



LAYOUT FOR COMPUTING AREA
OF REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 5,264)

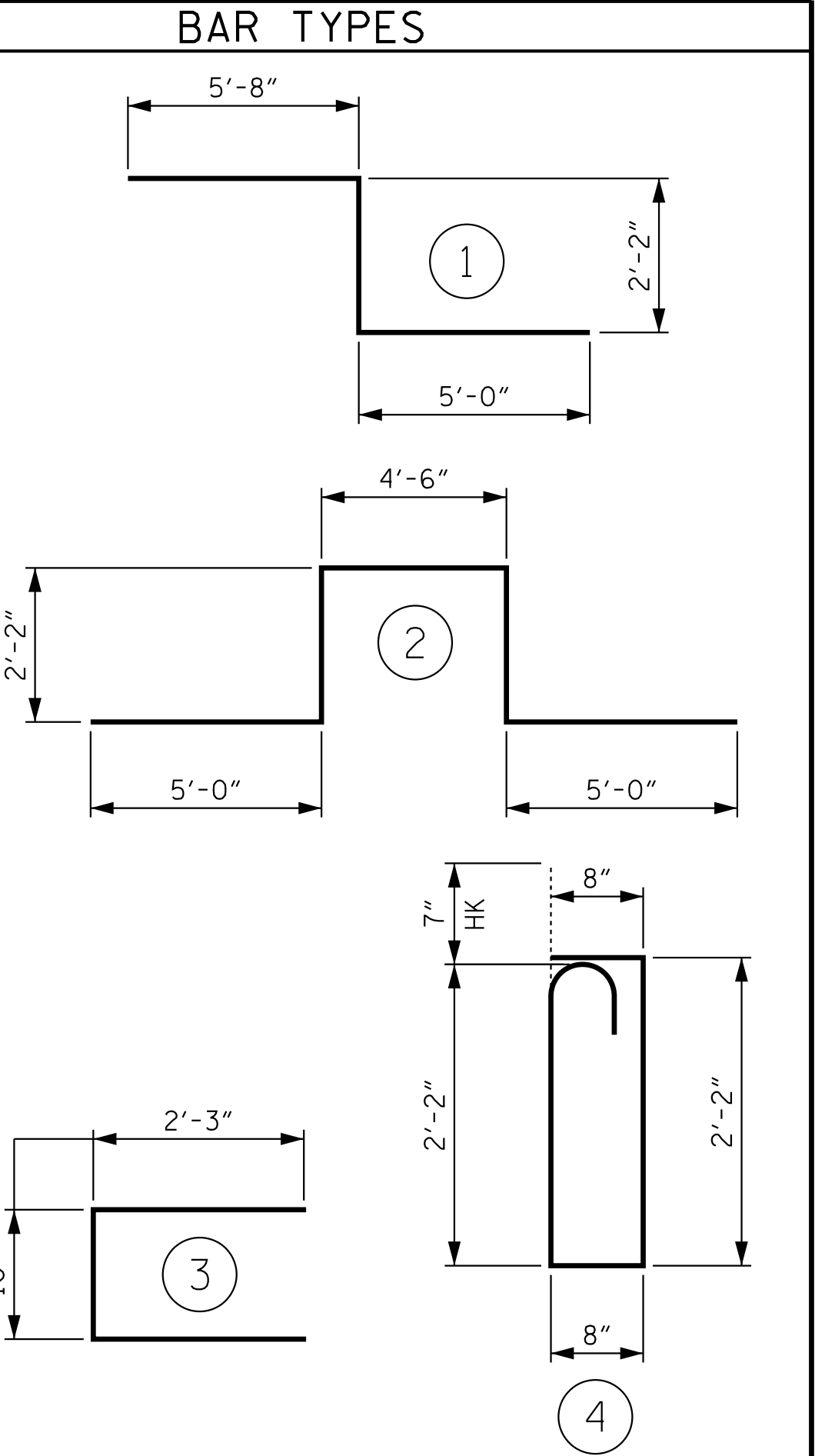


POUR SEQUENCE

GROOVING BRIDGE FLOORS	
APPROACH SLABS	1,688 SQ.FT.
BRIDGE DECK	4,079 SQ.FT.
TOTAL	5,767 SQ.FT.

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS					
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11"	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"	3'-1"
#6	2'-10"	2'-5"	3'-7"	2'-5"	3'-8"
#7	4'-2"	2'-9"			
#8	4'-9"	3'-2"			

BILL OF MATERIAL					
SUPERSTRUCTURE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	171	#5	STR	43'-5"	7,743
A2	171	#5	STR	43'-5"	7,743
*A101	2	#5	STR	42'-0"	88
*A102	2	#5	STR	40'-0"	83
*A103	2	#5	STR	37'-11"	79
*A104	2	#5	STR	35'-11"	75
*A105	2	#5	STR	33'-10"	71
*A106	2	#5	STR	31'-10"	66
*A107	2	#5	STR	29'-9"	62
*A108	2	#5	STR	27'-9"	58
*A109	2	#5	STR	25'-8"	54
*A110	2	#5	STR	23'-8"	49
*A111	2	#5	STR	21'-7"	45
*A112	2	#5	STR	19'-7"	41
*A113	2	#5	STR	17'-7"	37
*A114	2	#5	STR	15'-6"	32
*A115	2	#5	STR	13'-6"	28
*A116	2	#5	STR	11'-5"	24
*A117	2	#5	STR	9'-5"	20
*A118	2	#5	STR	7'-4"	15
*A119	2	#5	STR	5'-4"	11
*A120	2	#5	STR	3'-3"	7
*A121	4	#5	STR	1'-3"	5
A201	2	#5	STR	42'-0"	88
A202	2	#5	STR	40'-0"	83
A203	2	#5	STR	37'-11"	79
A204	2	#5	STR	35'-11"	75
A205	2	#5	STR	33'-10"	71
A206	2	#5	STR	31'-10"	66
A207	2	#5	STR	29'-9"	62
A208	2	#5	STR	27'-9"	58
A209	2	#5	STR	25'-8"	54
A210	2	#5	STR	23'-8"	49
A211	2	#5	STR	21'-7"	45
A212	2	#5	STR	19'-7"	41
A213	2	#5	STR	17'-7"	37
A214	2	#5	STR	15'-6"	32
A215	2	#5	STR	13'-6"	28
A216	2	#5	STR	11'-5"	24
A217	2	#5	STR	9'-5"	20
A218	2	#5	STR	7'-4"	15
A219	2	#5	STR	5'-4"	11
A220	2	#5	STR	3'-3"	7
A221	4	#5	STR	1'-3"	5
* B1	124	#4	STR	31'-6"	2,609
B2	84	#5	STR	41'-4"	3,621
* G1	2	#5	STR	45'-4"	95
* K1	8	#8	1	12'-10"	274
* K2	12	#8	2	18'-10"	603
* K3	24	#6	STR	5'-0"	180
* S1	40	#4	3	5'-4"	143
* S2	40	#5	4	6'-3"	261



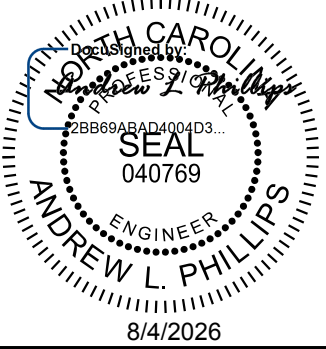
ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
SPAN A		12,314	12,856
POUR #1	156.5		
TOTALS **	156.5	12,314	12,856

** QUANTITIES FOR CONCRETE PARAPETS AND END
POSTS ARE NOT INCLUDED

* DENOTES EPOXY COATED REINFORCING

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 15+64.95 -Y3-



Kimley»Horn

421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000 NC LICENSE # F-0102

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE BILL OF MATERIAL					
REVISIONS					SHEET NO. S6-27
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					35

STR. #6

DRAWN BY: T. K. BOYD DATE: 03/2026
CHECKED BY: E. W. SPRABERRY DATE: 03/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 03/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



THE CONCRETE IN THE SHADED AREAS OF THE BACKWALL SHALL BE POURED AFTER THE PARAPETS ARE CAST IF SLIP FORMING IS USED.



SHEET 1 OF 2



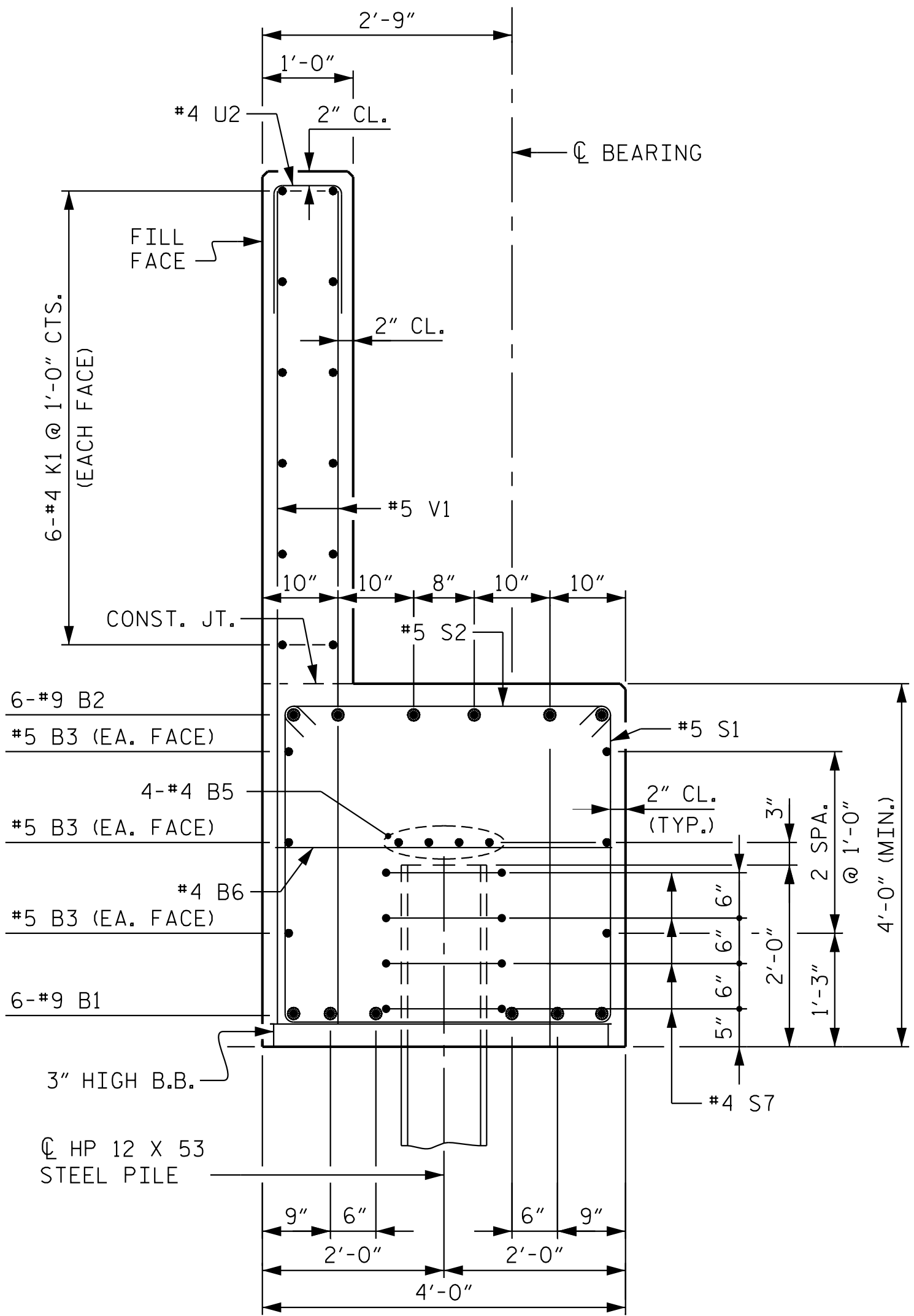
421 Fayetteville Street, Suite 600
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Phone (919) 677-2000 F-0102

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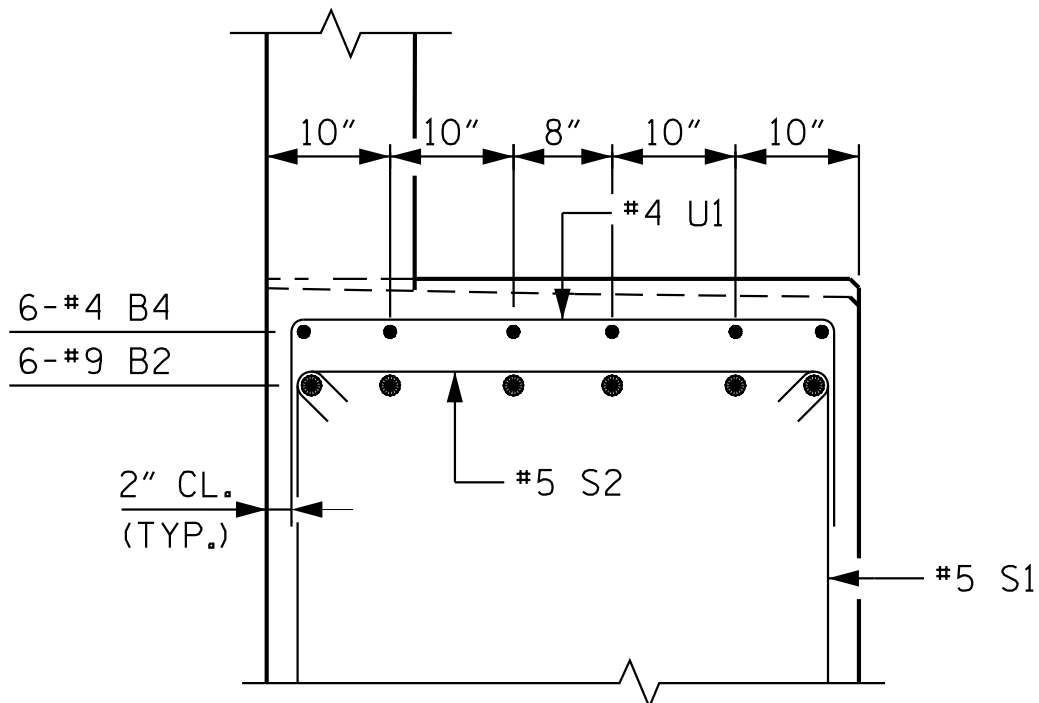
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2			4			

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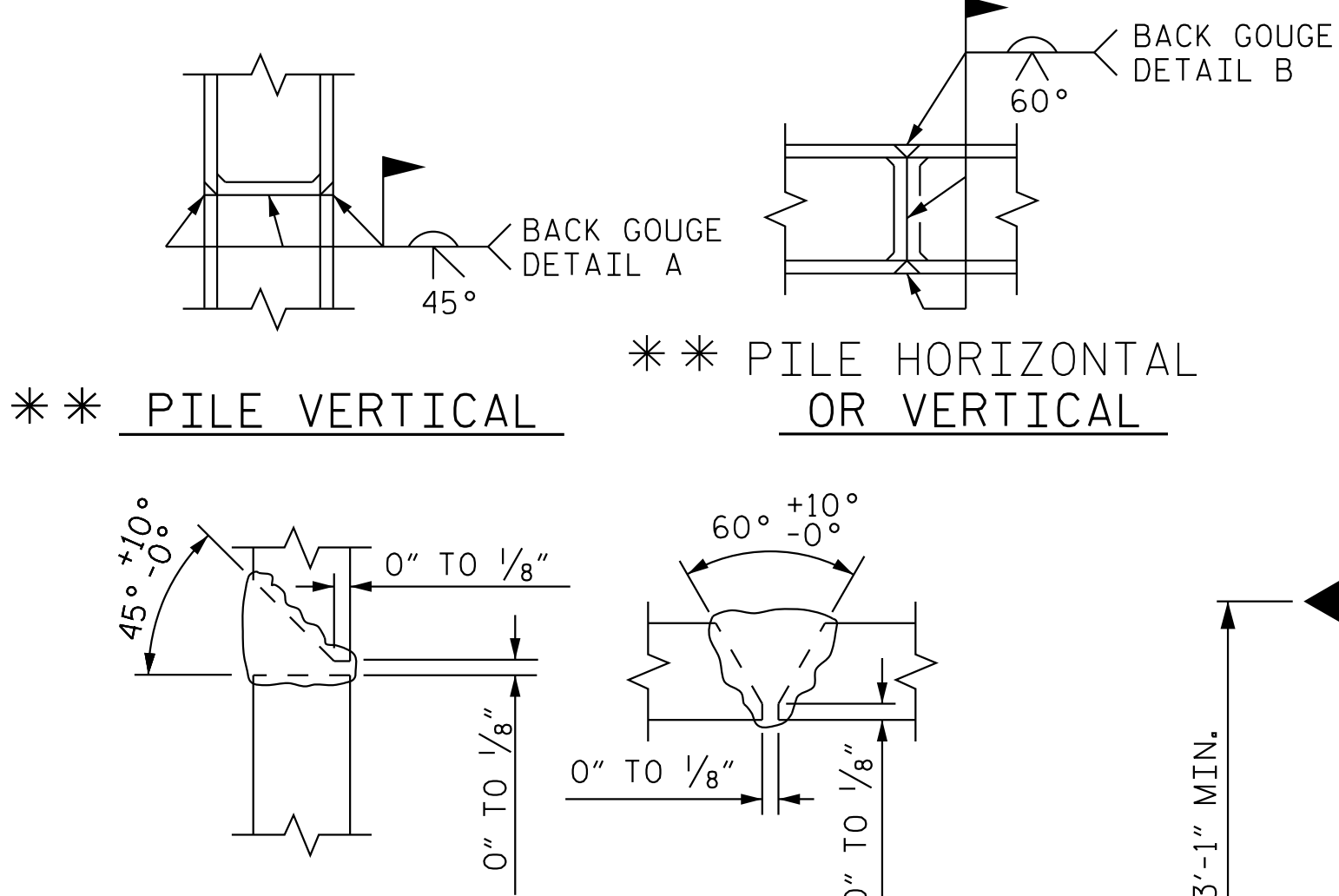
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SECTION A-A

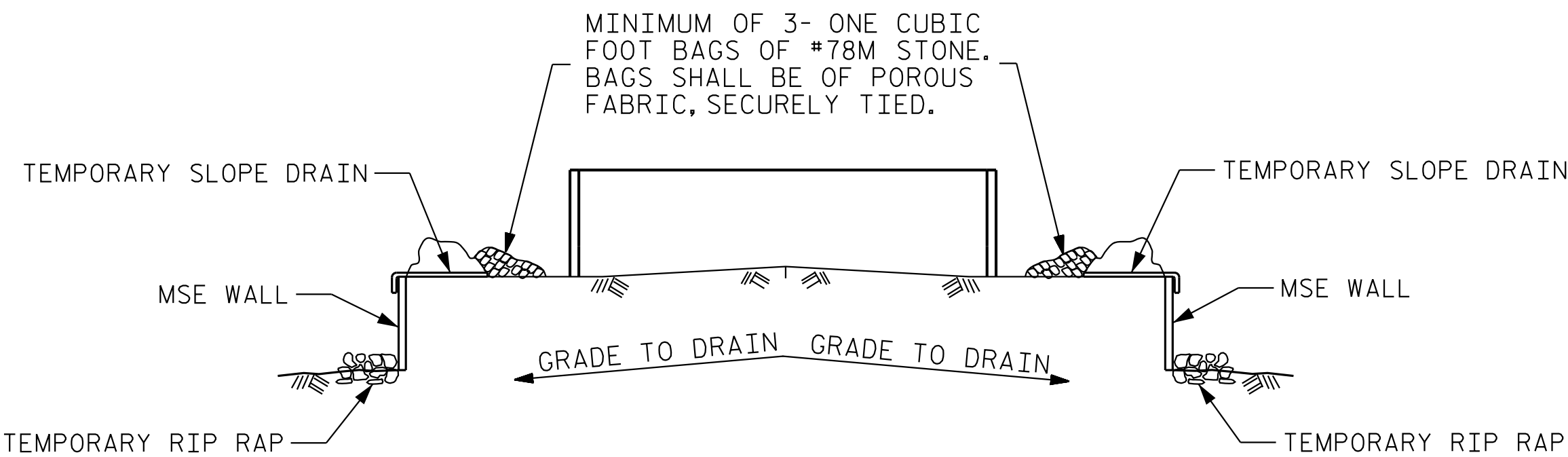


PARTIAL SECTION B-B



DETAIL A
DETAIL B
PILE SPLICE DETAILS

** POSITION OF PILE DURING WELDING.



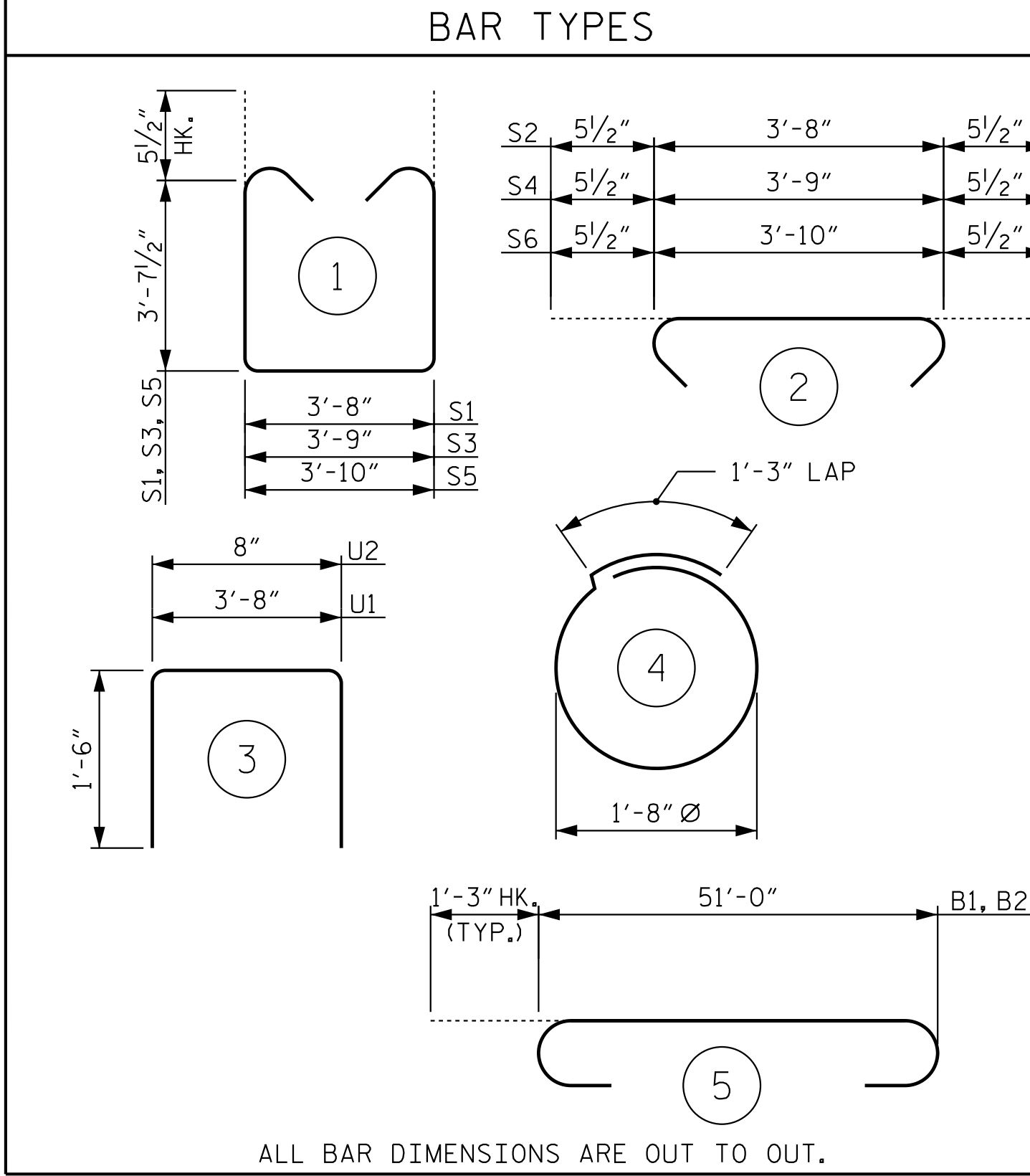
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

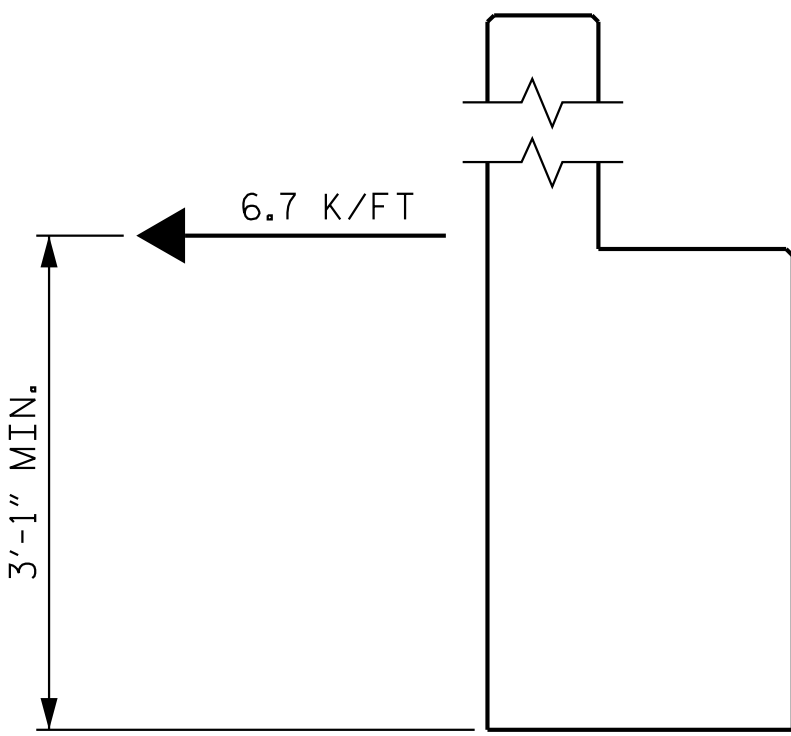
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

DRAWN BY: T. K. BOYD DATE: 03/2026
CHECKED BY: E. W. SPRABERRY DATE: 03/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 03/2026



ALL BAR DIMENSIONS ARE OUT TO OUT.



MSE REINFORCING STRAP
LOAD DETAIL

MSE REINFORCING STRAP NOTES

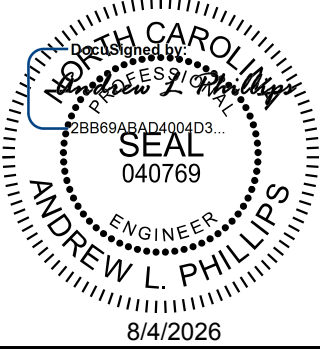
MSE REINFORCING STRAPS SHALL BE ATTACHED TO THE END BENT CAP AND/OR BACKWALL. FOR DESIGN CRITERIA AND DETAILS, SEE MSE WALL SHEETS AND SPECIAL PROVISIONS.

PLANS, WORKING DRAWINGS, AND DESIGN CALCULATIONS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND APPROVAL, SEE SPECIAL PROVISIONS.

PLANS SUBMITTED FOR REVIEW SHALL INCLUDE THE FOLLOWING: PLAN VIEW, ELEVATION VIEW, TYPICAL SECTIONS, AND STRAP DETAILS.

THE MSE REINFORCING STRAPS SHALL BE DESIGNED TO CARRY THE LOADS FROM THE BRIDGE SUPERSTRUCTURE AS INDICATED IN THE "MSE REINFORCING STRAP LOAD DETAIL". IN ADDITION, THE MSE REINFORCING STRAPS SHALL ALSO BE DESIGNED TO CARRY LOADS FROM SOIL PRESSURE AS OUTLINED IN THE SPECIAL PROVISION.

THE LOADS IN THE DETAIL ABOVE ARE FACTORED LOADS.



Kimley»Horn

421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000 NC LICENSE # F-0102

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**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	5	53'-6"	1,091
B2	6	#9	5	53'-6"	1,091
B3	6	#5	STR	51'-0"	319
B4	6	#4	STR	24'-2"	97
B5	8	#4	STR	26'-9"	143
B6	13	#4	STR	3'-8"	32

S1	74	#5	1	11'-10"	913
S2	74	#5	2	4'-7"	354
S3	2	#5	1	11'-11"	25
S4	2	#5	2	4'-8"	10
S5	2	#5	1	12'-0"	25
S6	2	#5	2	4'-9"	10
S7	40	#4	4	6'-6"	174

U1	17	#4	3	6'-8"	76
U2	52	#4	3	3'-8"	127
V1	92	#5	STR	8'-8"	832
V2	12	#5	STR	10'-1"	126

K1	24	#4	STR	26'-7"	426
K2	8	#4	STR	2'-10"	15

REINFORCING STEEL 5,886 LBS.

CLASS A CONCRETE BREAKDOWN

POUR 1 (CAP) 31.5 C.Y.

POUR 2 (BACKWALL) 10.8 C.Y.

TOTAL CLASS A CONCRETE 42.3 C.Y.

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 15+64.95 -Y3-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1
DETAILS AND
BILL OF MATERIAL

REVISIONS						SHEET NO. S6-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

STR. #6



THE CONCRETE IN THE SHADED AREAS OF THE BACKWALL SHALL BE POURED AFTER THE PARAPETS ARE CAST IF SLIP FORMING IS USED.



RALEIGH

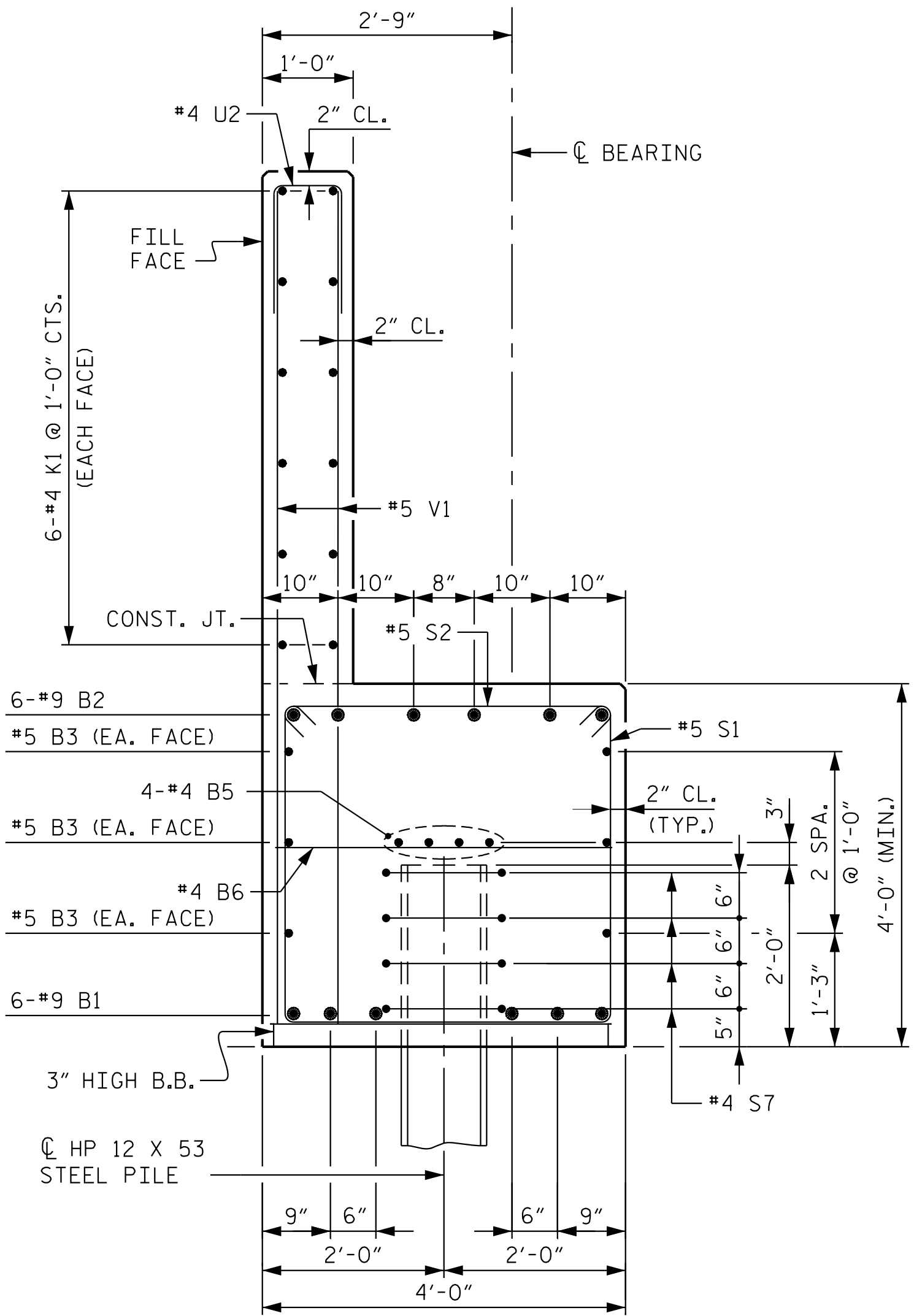
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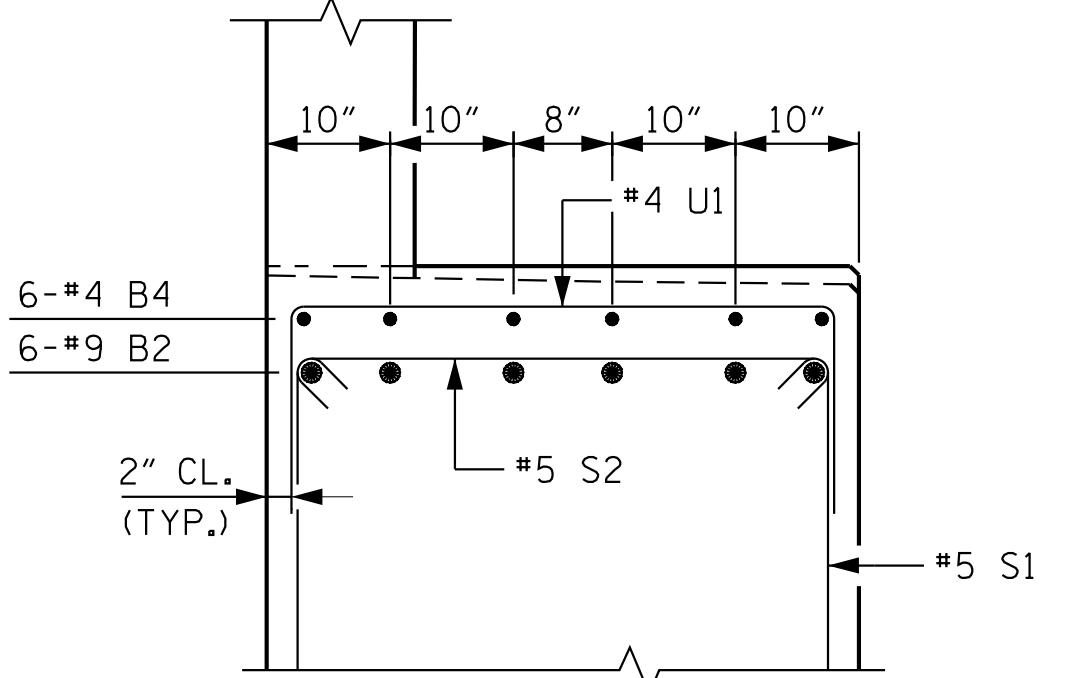
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2			4			

STR. #6

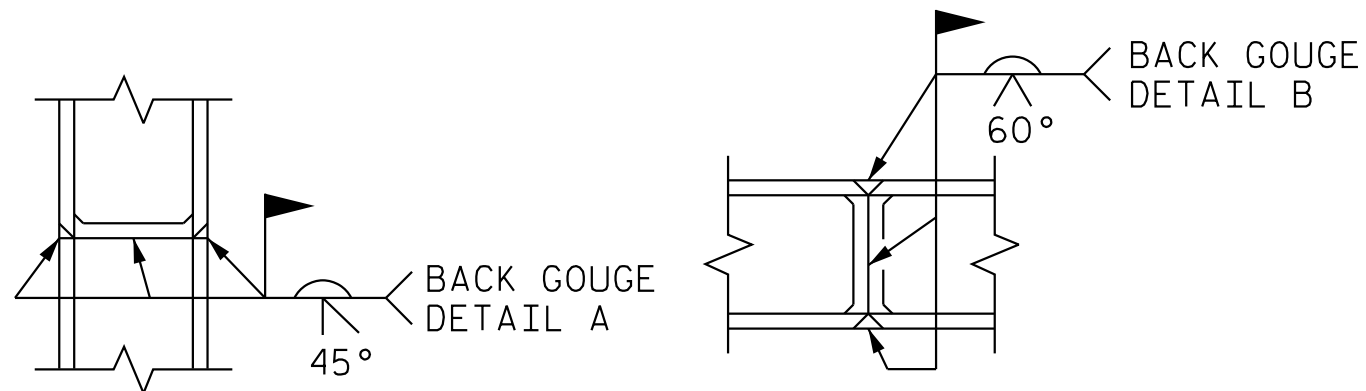
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SECTION A-A



PARTIAL SECTION B-B



DETAIL A

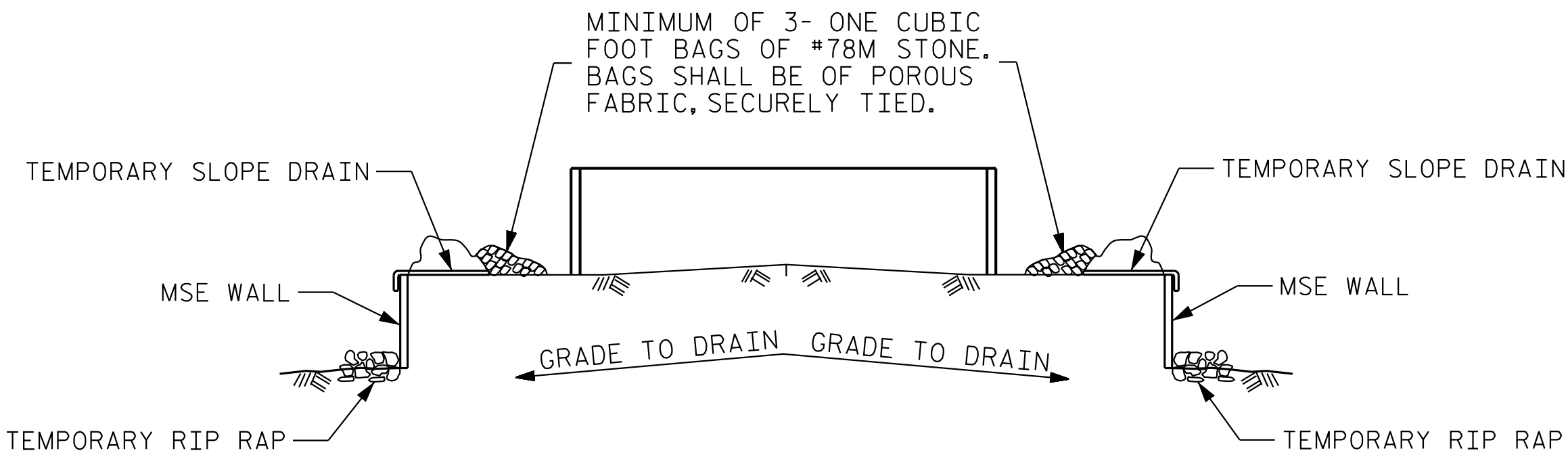
DETAIL B

PILE SPLICE DETAILS

** POSITION OF PILE DURING WELDING.

** PILE VERTICAL

** PILE HORIZONTAL OR VERTICAL

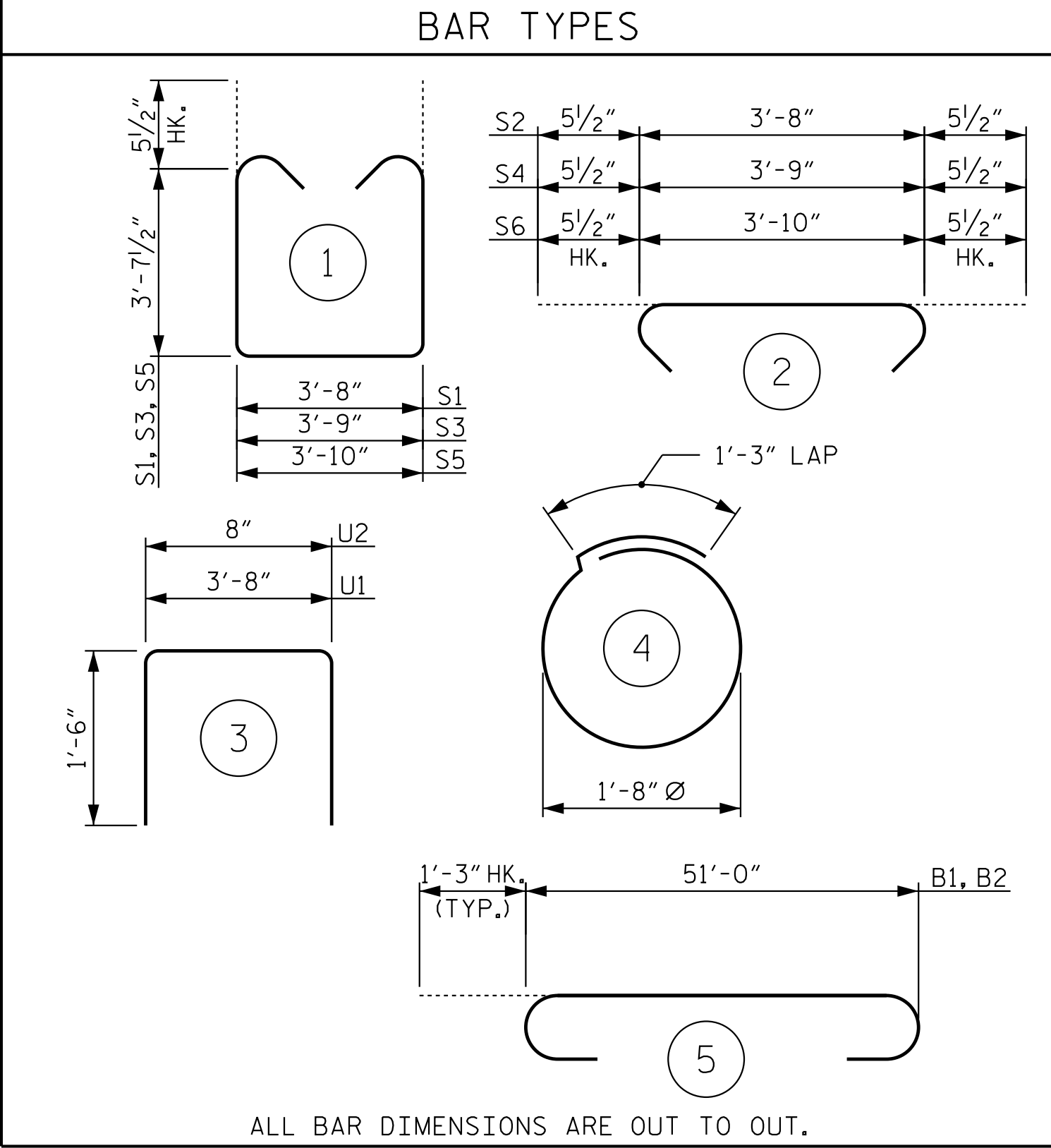


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

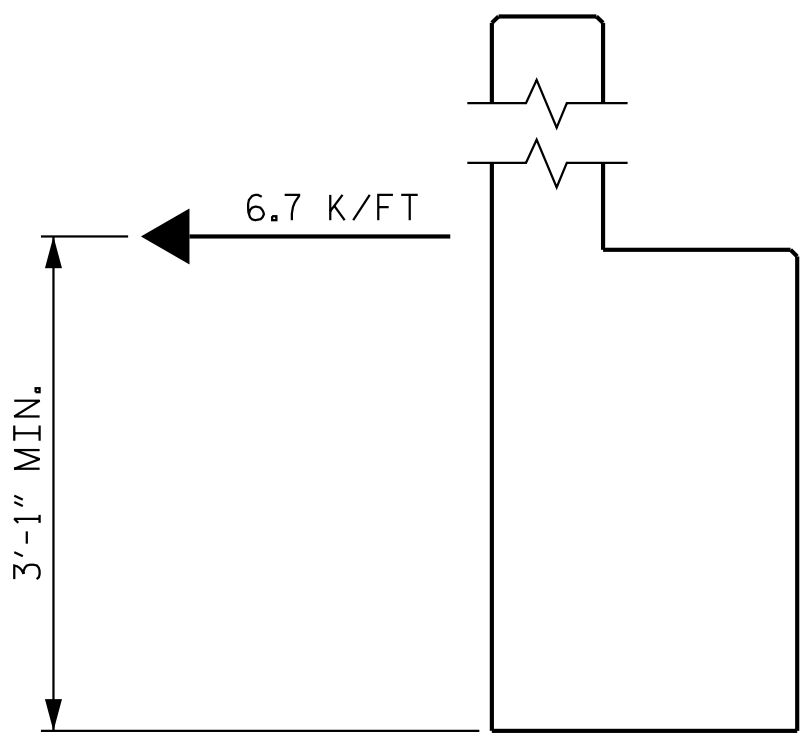
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NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.



MSE REINFORCING STRAP
LOAD DETAIL

MSE REINFORCING STRAP NOTES

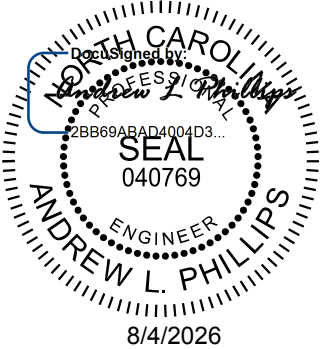
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Kimley»Horn

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BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	5	53'-6"	1,091
B2	6	#9	5	53'-6"	1,091
B3	6	#5	STR	51'-0"	319
B4	6	#4	STR	24'-2"	97
B5	8	#4	STR	26'-9"	143
B6	13	#4	STR	3'-8"	32

S1	74	#5	1	11'-10"	913
S2	74	#5	2	4'-7"	354
S3	2	#5	1	11'-11"	25
S4	2	#5	2	4'-8"	10
S5	2	#5	1	12'-0"	25
S6	2	#5	2	4'-9"	10
S7	40	#4	4	6'-6"	174

U1	17	#4	3	6'-8"	76
U2	52	#4	3	3'-8"	127
V1	92	#5	STR	8'-8"	832
V2	12	#5	STR	10'-1"	126

K1	24	#4	STR	26'-7"	426
K2	8	#4	STR	2'-10"	15

REINFORCING STEEL 5,886 LBS.

CLASS A CONCRETE BREAKDOWN

POUR 1 (CAP) 31.5 C.Y.

POUR 2 (BACKWALL) 10.8 C.Y.

TOTAL CLASS A CONCRETE 42.3 C.Y.

PROJECT NO. I-5715

MECKLENBURG COUNTY

STATION: 15+64.95 -Y3-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2
DETAILS AND
BILL OF MATERIAL

REVISIONS						SHEET NO. S6-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

STR. #6

DRAWN BY: T. K. BOYD DATE: 03/2026
CHECKED BY: E. W. SPRABERRY DATE: 03/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 03/2026

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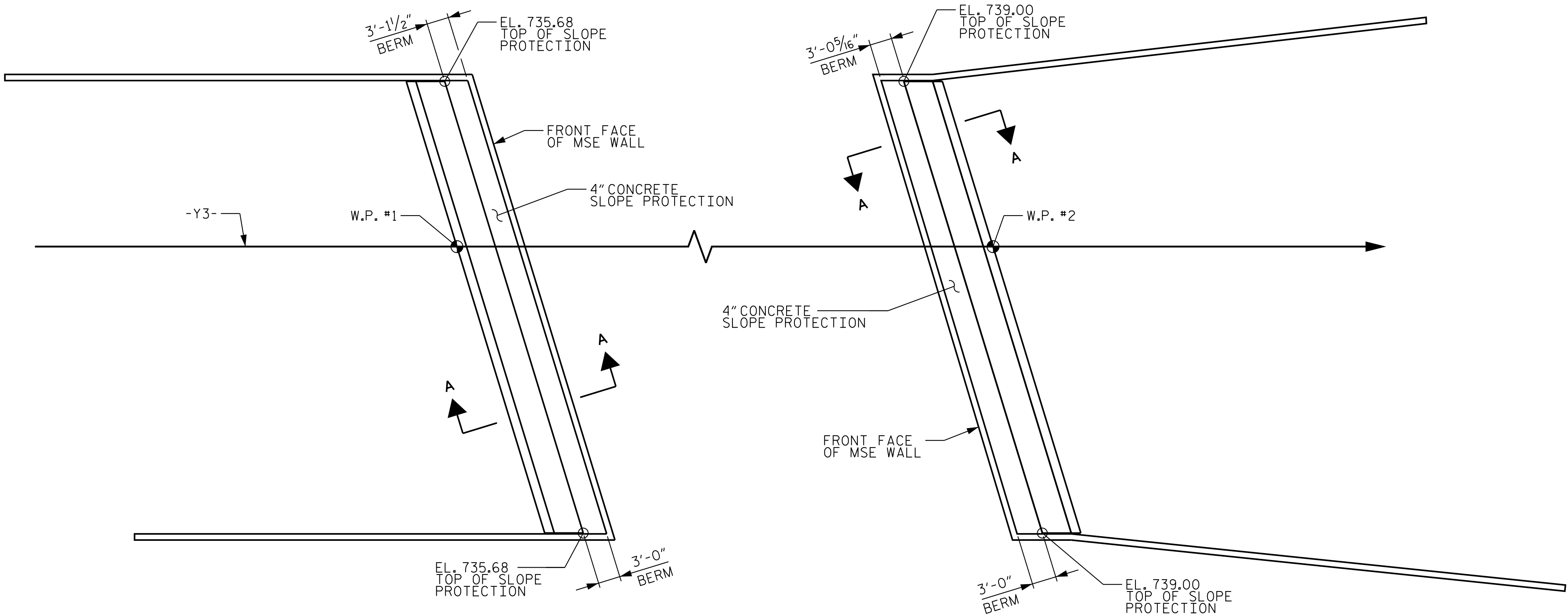
NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

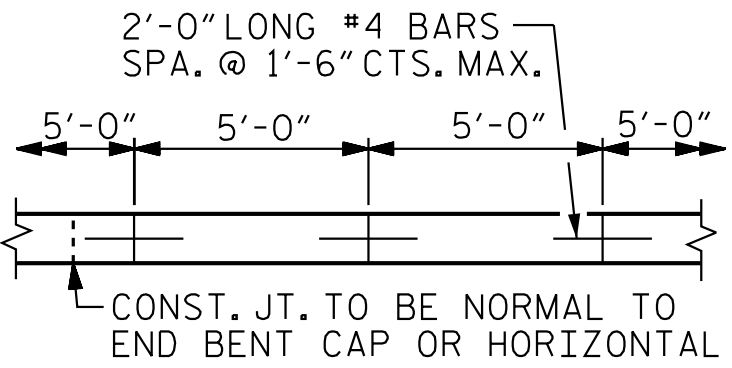
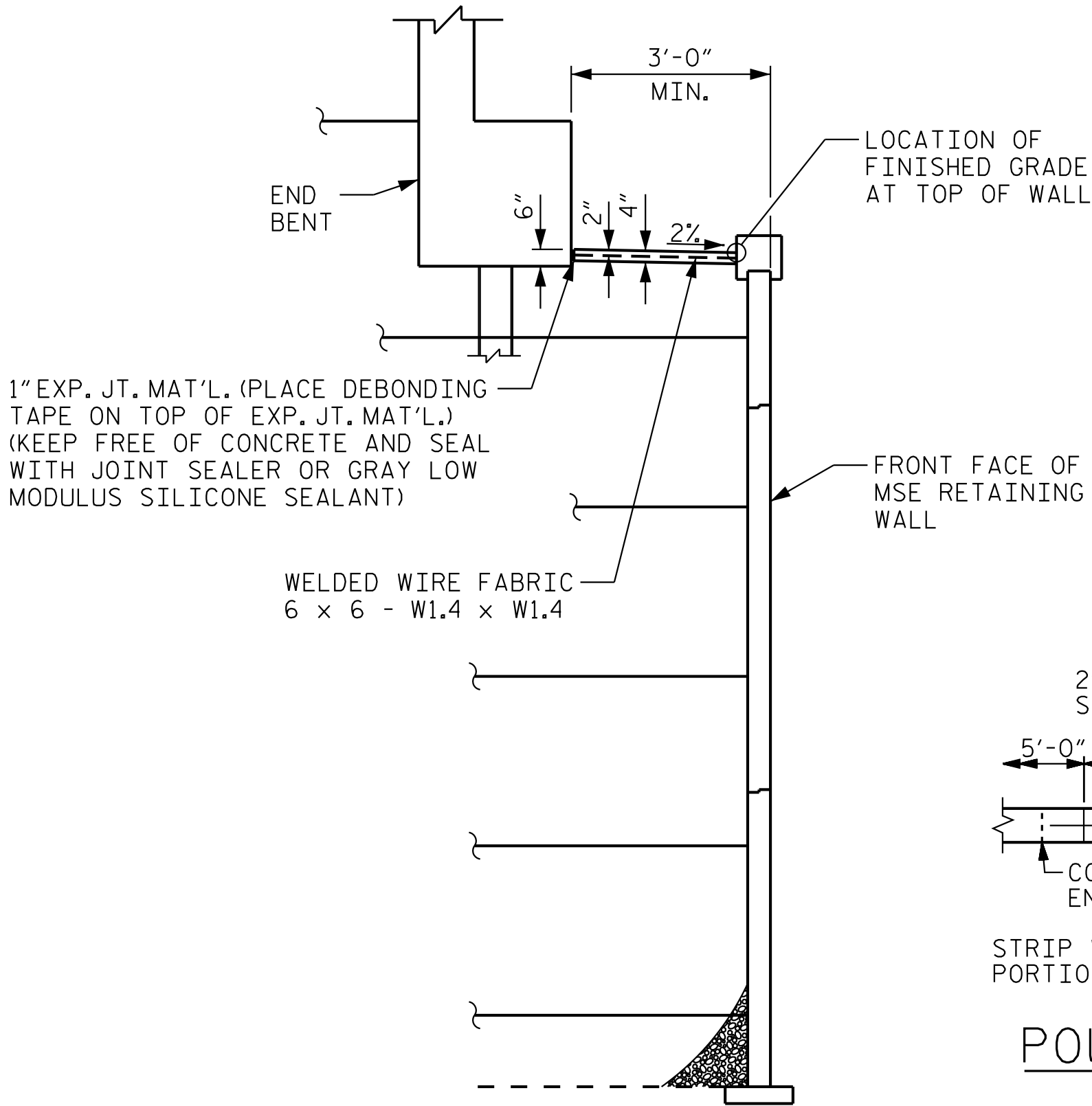
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

BRIDGE @ STA. 15+64.95 -Y3-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	14.4	28
END BENT 2	14.4	28

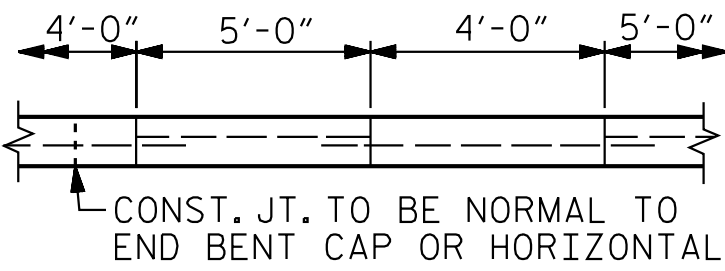
* QUANTITY SHOWN IS BASED ON 5' POURS.



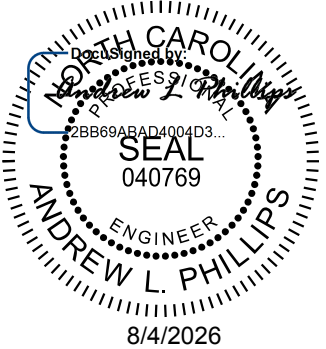
PLAN



POURING DETAIL



OPTIONAL POURING DETAIL



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PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 15+64.95 -Y3-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
SLOPE PROTECTION
DETAILS

REVISIONS						SHEET NO. S6-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

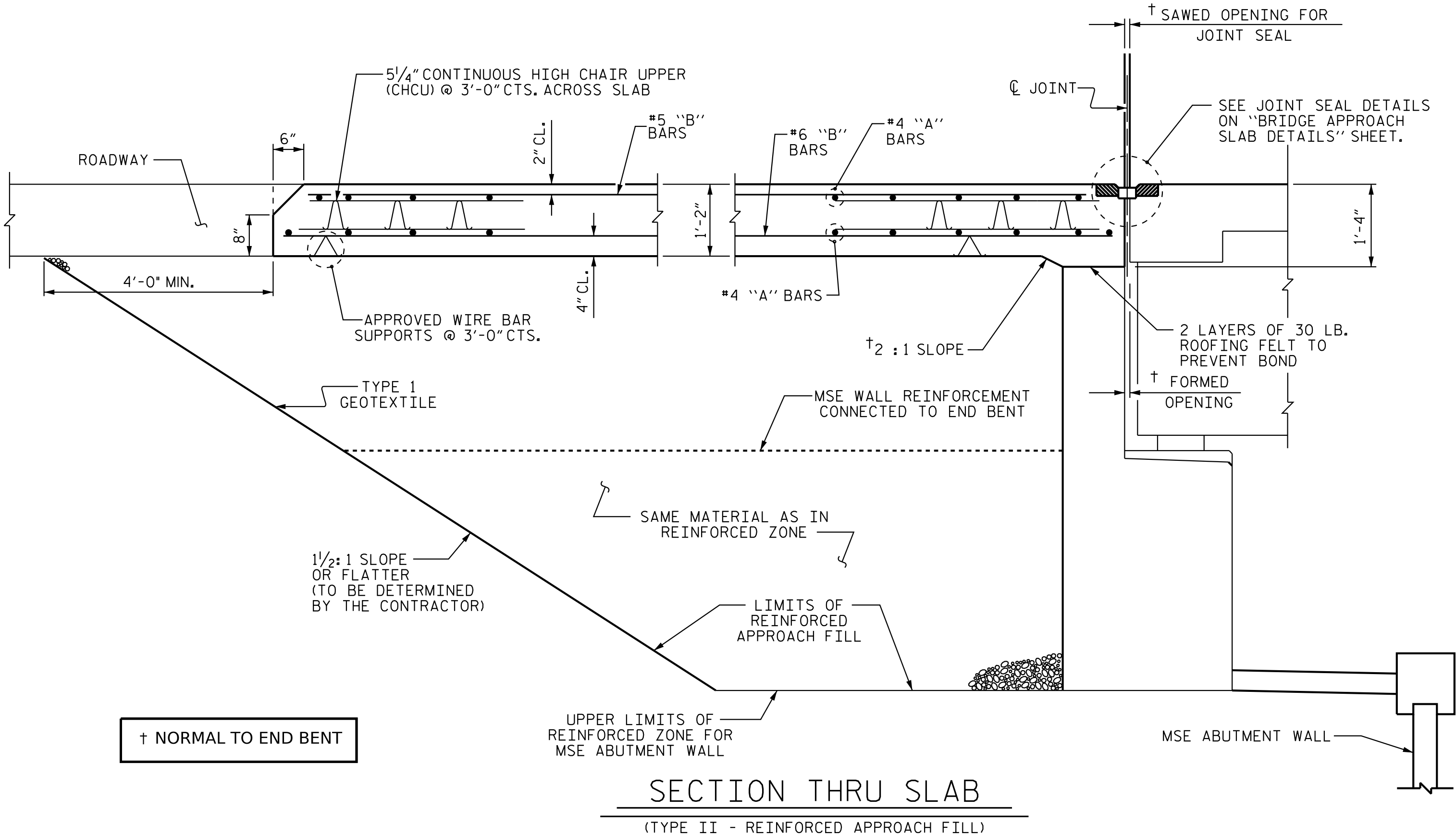
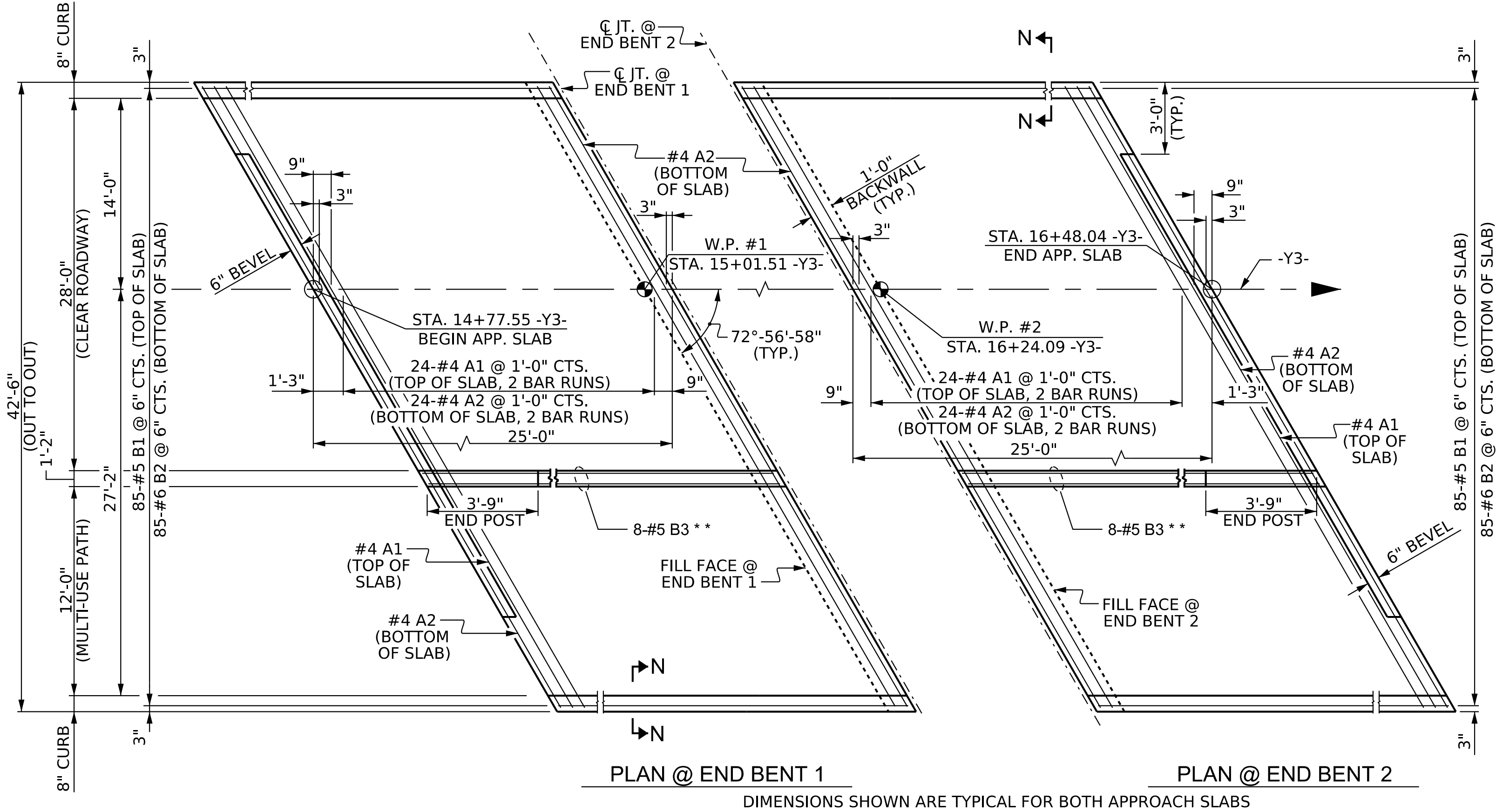
STR. #6

STD. NO. SP1

DRAWN BY: T. K. BOYD DATE: 03/2026
CHECKED BY: E. W. SPRABERRY DATE: 03/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 03/2026

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8/2/2026



NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL OR PARAPET AND END POST.

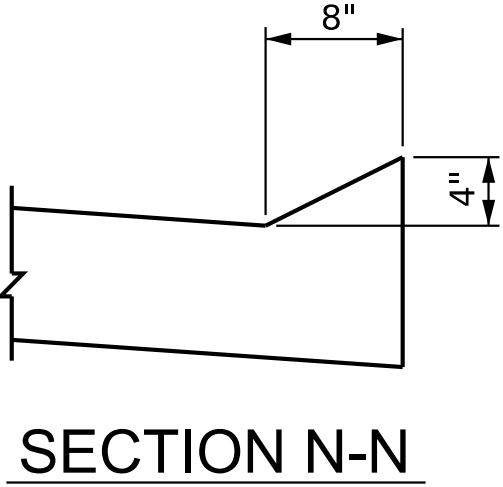
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2" AT END BENT NO. 1, 2. FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

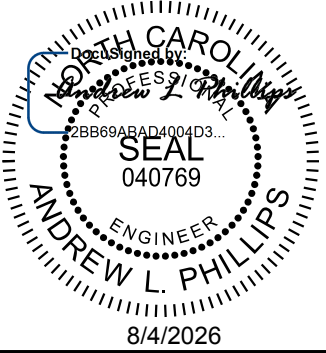
SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	



BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	50	#4	STR	23'-7"	788
A2	52	#4	STR	23'-6"	816
* B1	85	#5	STR	24'-1"	2,135
B2	85	#6	STR	24'-7"	3,139
REINFORCING STEEL **				3,955 LBS.	
* EPOXY COATED REINFORCING STEEL **				2,923 LBS.	
CLASS AA CONCRETE ** 46.3 C. Y.					
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	50	#4	STR	23'-7"	788
A2	52	#4	STR	23'-6"	816
* B1	85	#5	STR	24'-1"	2,135
B2	85	#6	STR	24'-7"	3,139
REINFORCING STEEL **				3,955 LBS.	
* EPOXY COATED REINFORCING STEEL **				2,923 LBS.	
CLASS AA CONCRETE ** 46.3 C. Y.					
** QUANTITIES FOR PARAPET AND END POST ARE NOT INCLUDED. SEE SHEET 2 OF 2.					

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 15+64.95 -Y3-

SHEET 1 OF 2



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					35

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STR. #6 STD. NO. BAS2



* BASED ON THE MINIMUM BLOCKOUT SHOWN.

ALL REINFORCING STEEL IN CONCRETE PARAPETS SHALL BE EPOXY COATED.

THE #5 S3 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

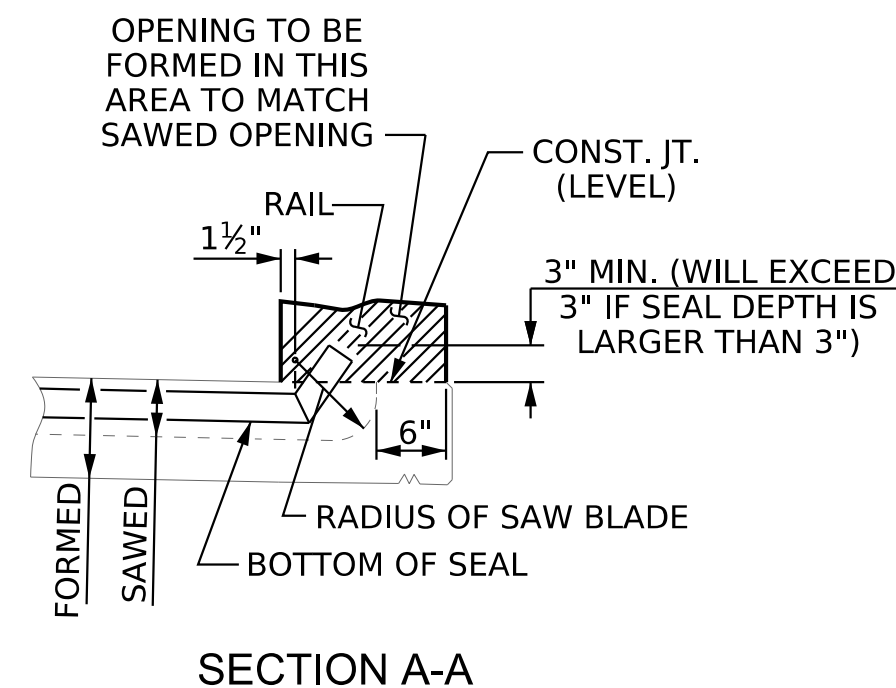
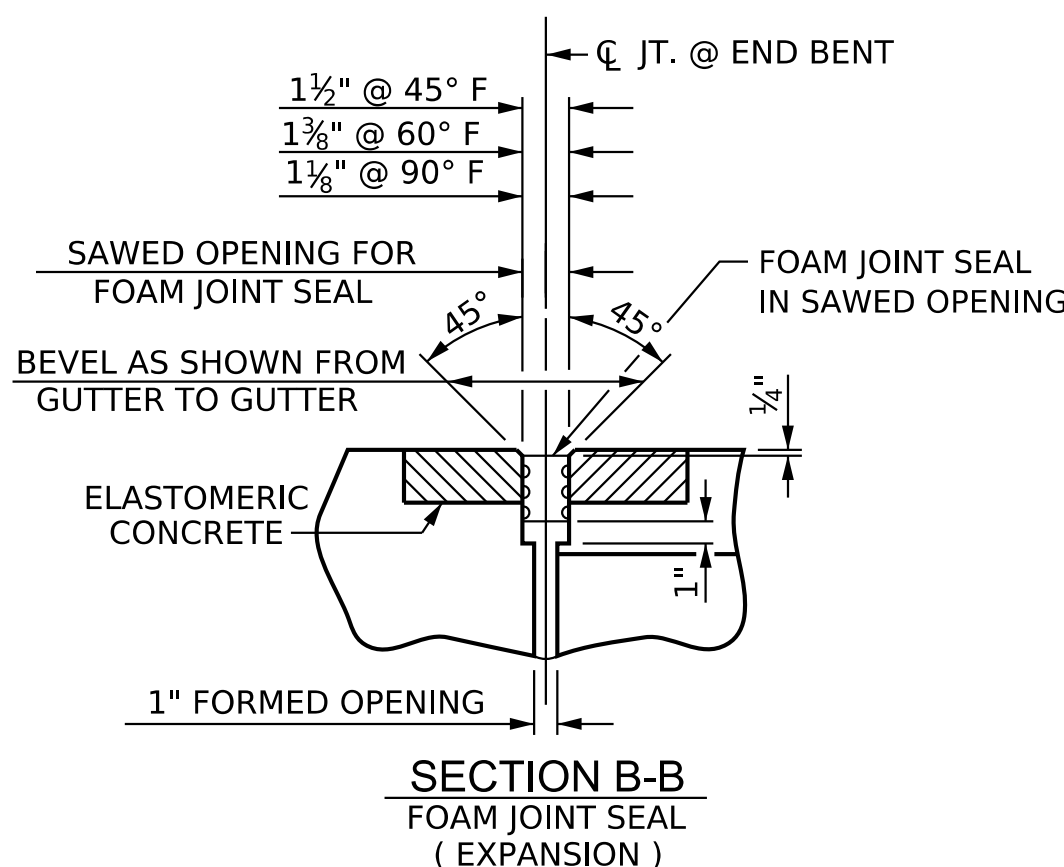
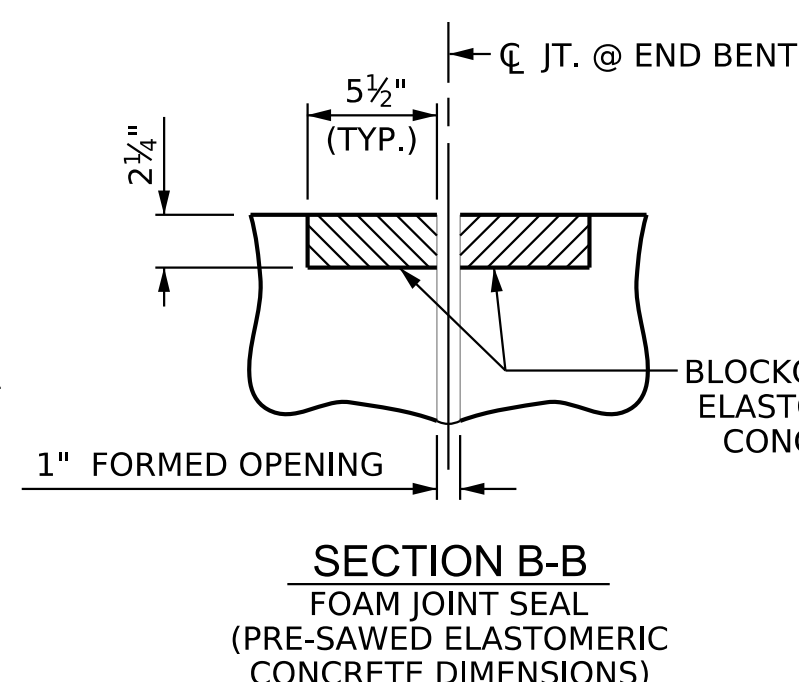
** THE CONTRACTOR MAY USE ADHESIVELY ANCHORED #5 S4 BARS. LEVEL 2 FIELD TESTING IS REQUIRED AND THE YIELD LOAD OF THE #5 S4 BARS IS 18.6 KIPS. FOR ADHESIVELY ANCHORED BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

INTERIOR CONCRETE PARAPET ON APPROACH SLAB SHALL BE PAID FOR BY LINEAR FOOT OF INTERIOR CONCRETE PARAPET.

MODIFIED 2 BAR METAL RAIL ON APPROACH SLAB SHALL BE PAID FOR BY LINEAR
FOOT OF MODIFIED TWO BAR METAL RAIL.



* FOR OPTIONAL ADHESIVE ANCHORING
(NOT INCLUDED IN TOTAL QUANTITY)



2 CONCRETE PARAPET AND 2 END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B3	16	#5	STR	24'-7"	410
* E1	4	#7	STR	2'-6"	20
* E2	4	#7	STR	3'-0"	25
* E3	4	#7	STR	3'-6"	29
* E4	4	#7	STR	4'-0"	33
* E5	4	#7	STR	4'-4"	35
* F1	2	#6	STR	1'-9"	5
* F2	2	#6	STR	1'-11"	6
* F3	2	#6	STR	2'-11"	9
* F4	2	#6	STR	3'-2"	10
* F5	2	#6	STR	3'-8"	11
* F6	2	#6	STR	3'-10"	12
* S1	42	#5	1	6'-11"	237
* S2	42	#5	2	5'-6"	241
* S3	16	#5	STR	3'-0"	50

* EPOXY COATED REINFORCING STEEL	1,146 LBS.
-------------------------------------	------------

Diagram illustrating the reinforcement details for two vertical bars, labeled 1 and 2.

- Bar 1:** A U-shaped bar with a total height of $1'-11\frac{1}{2}"$ and a width of $10"$. It has 2 BAR at the top and bottom.
- Bar 2:** A straight bar with a height of $2'-4"$ and a width of $10"$. It has 2 BAR at the top.
- The bars are spaced $8"$ apart.

ALL BAR DIMENSIONS ARE OUT TO OUT

NOTE: FOR PARAPET LENGTHS AND OTHER
QUANTITIES, SEE INTERIOR CONCRETE
PARAPET DETAILS SHEET 2 OF 3.

SHEET 2 OF 2

STANDARD

BRIDGE APPROACH
SLAB DETAILS

REVISIONS						SHEET NO. S6-34
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1			3			TOTAL SHEETS 35
2			4			

STR. #6

STD. BAS4

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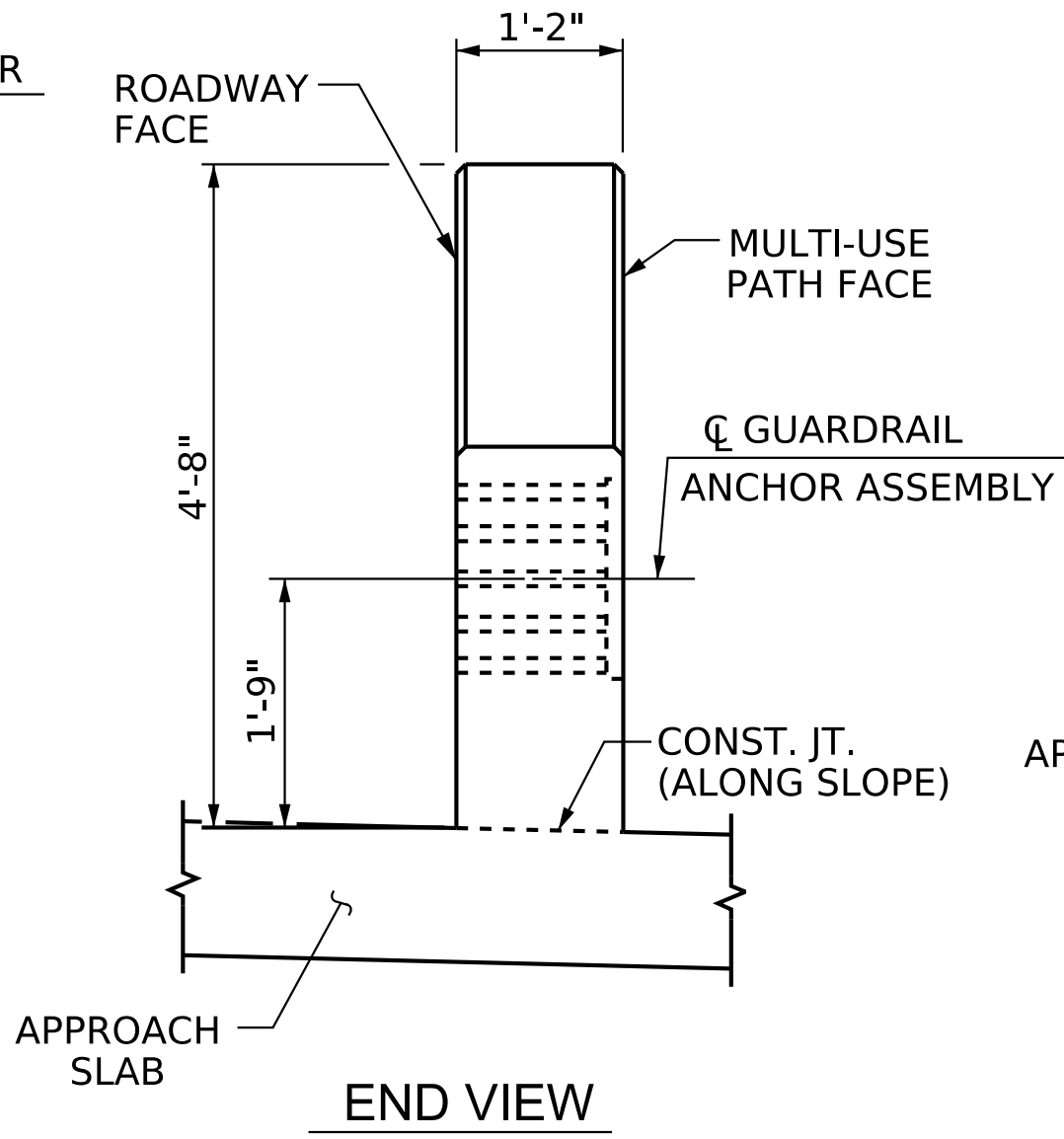
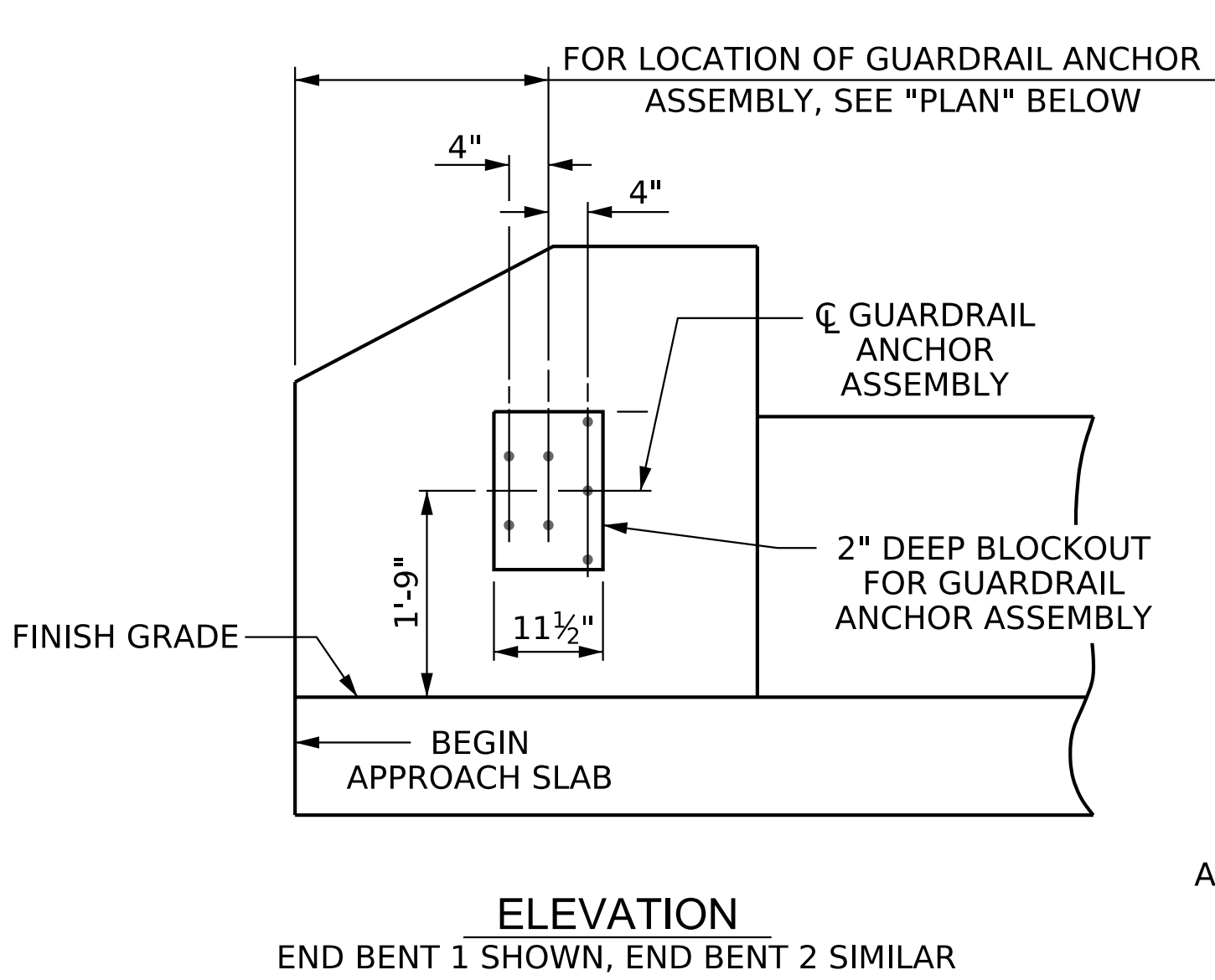
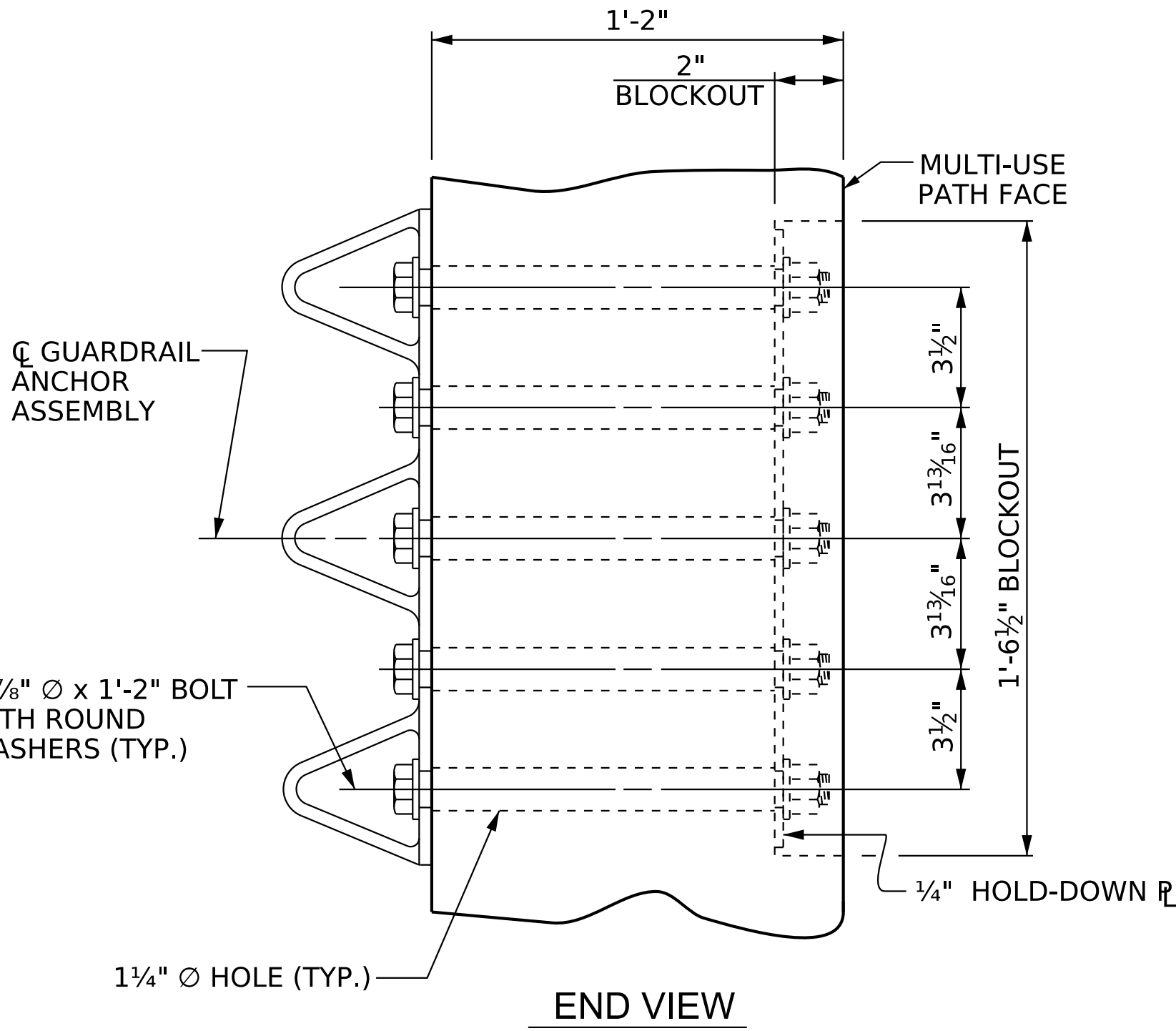
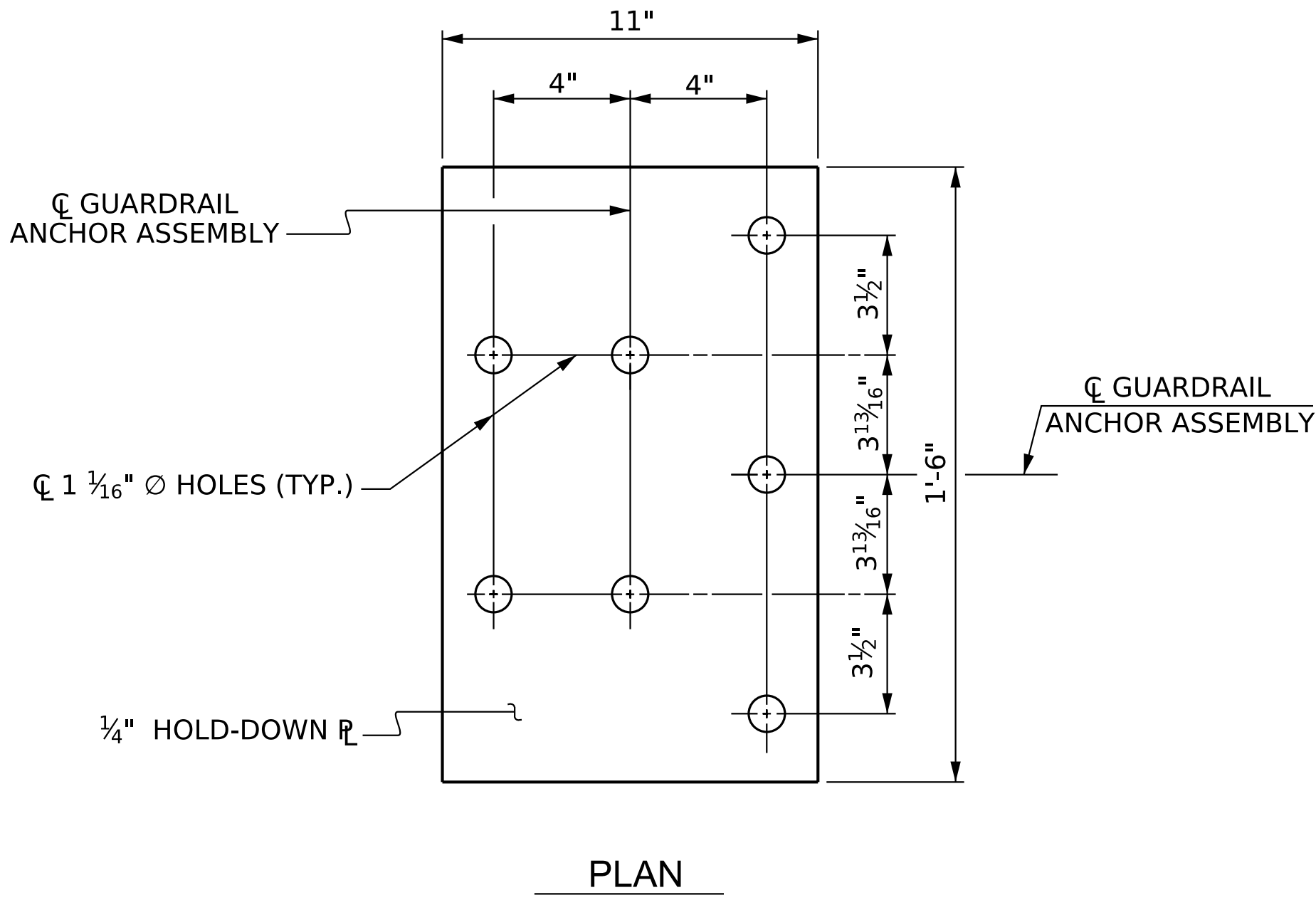
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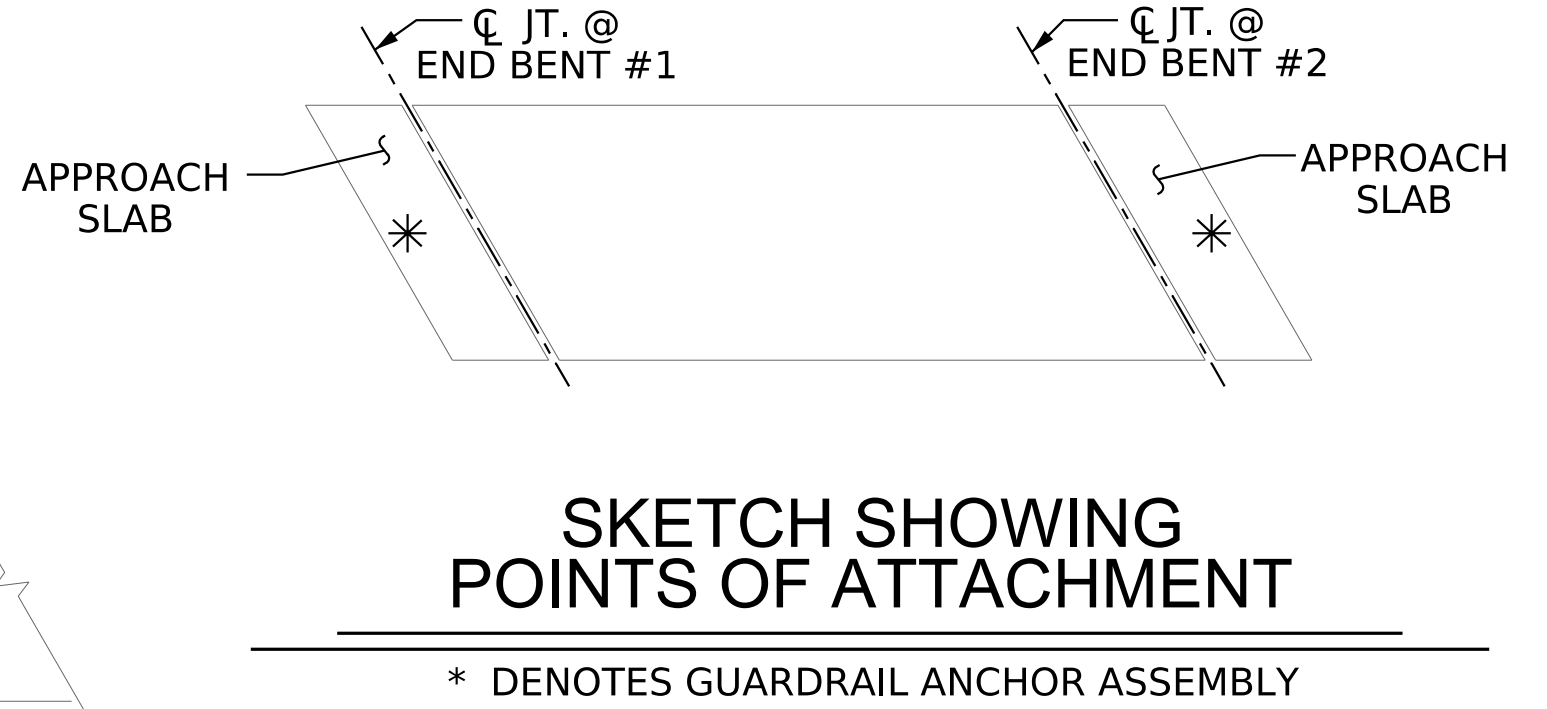
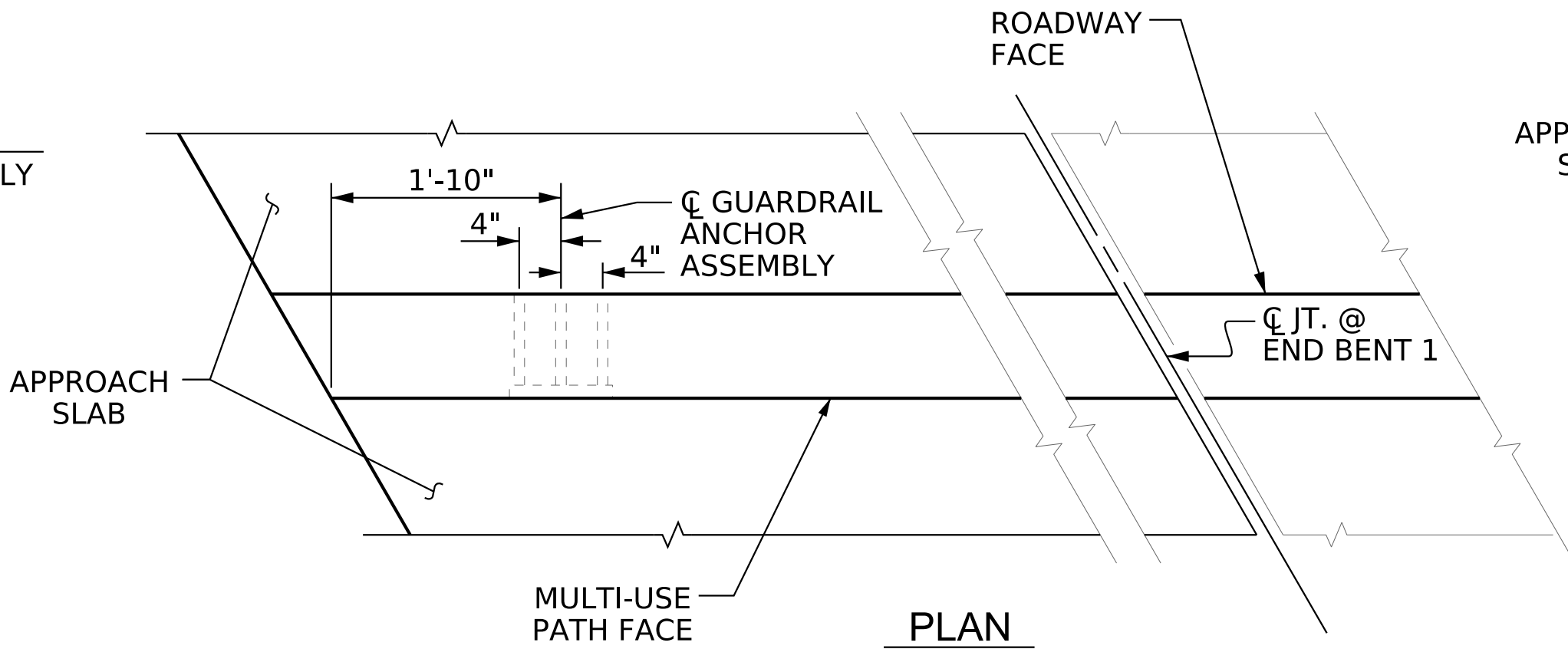
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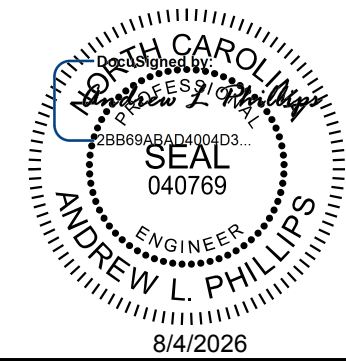


LOCATION OF ANCHORS FOR GUARDRAIL

BEGINNING OF APPROACH SLAB SHOWN, END APPROACH SLAB SIMILAR



PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 15+64.95 -Y3-



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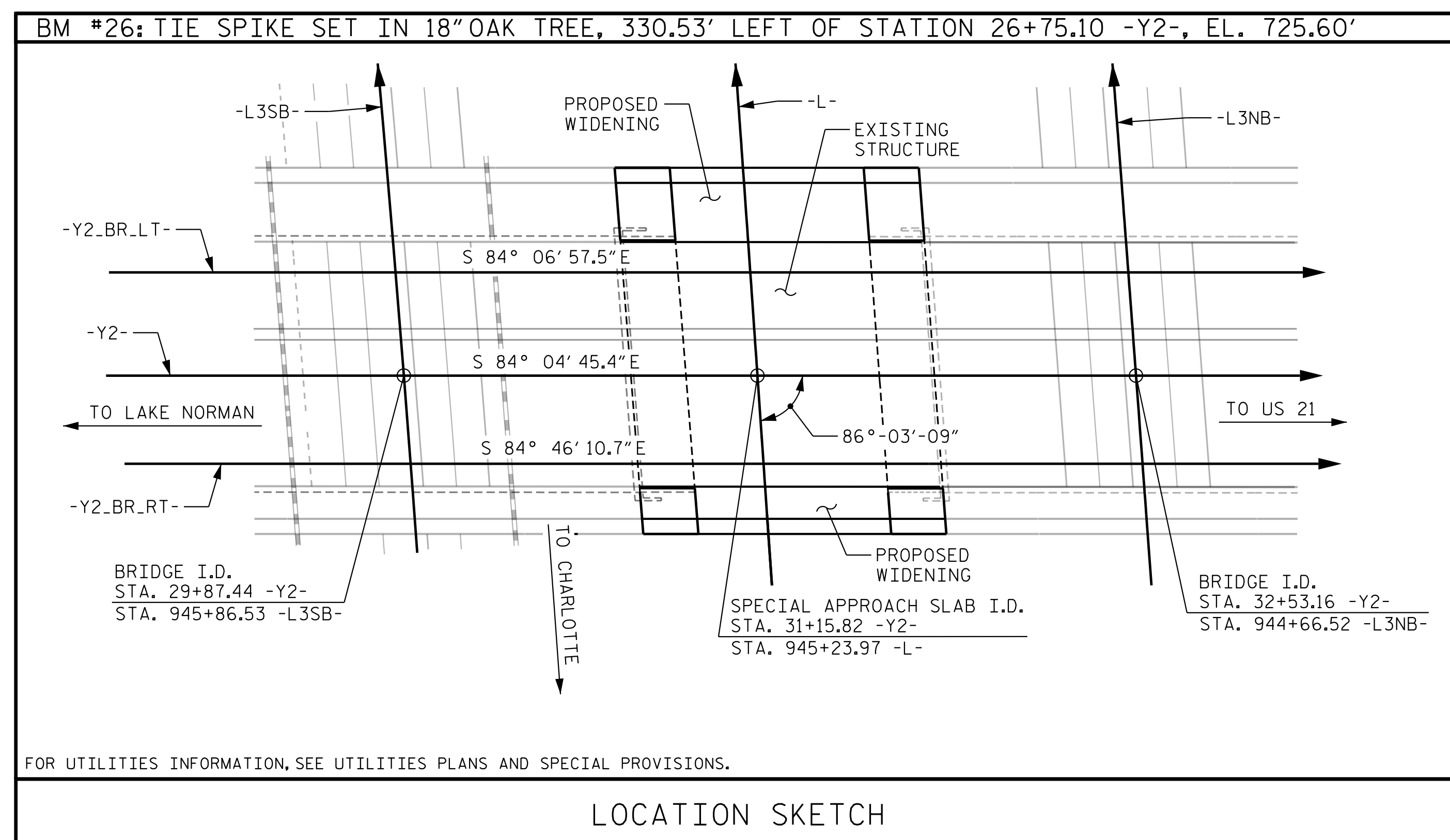
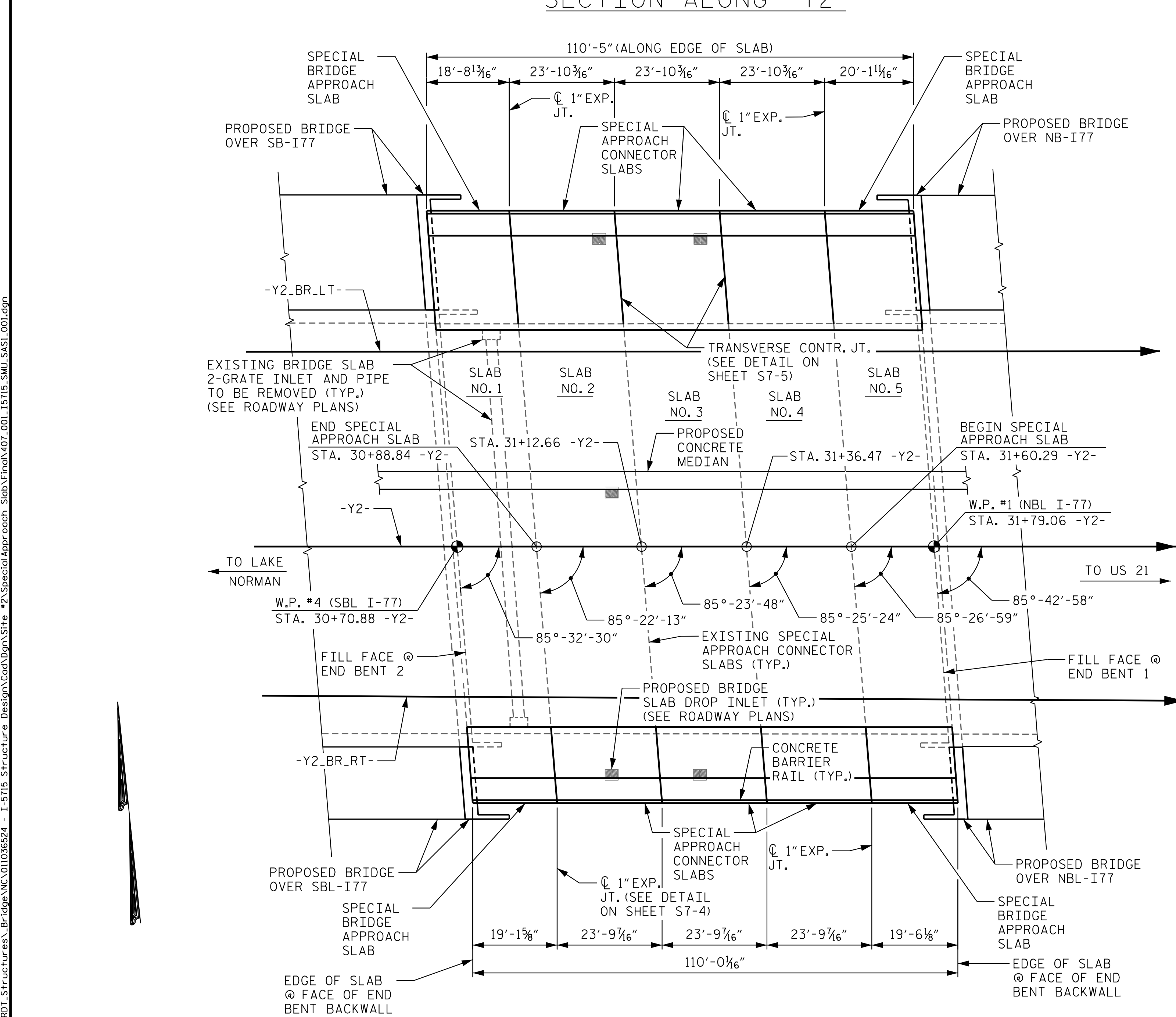
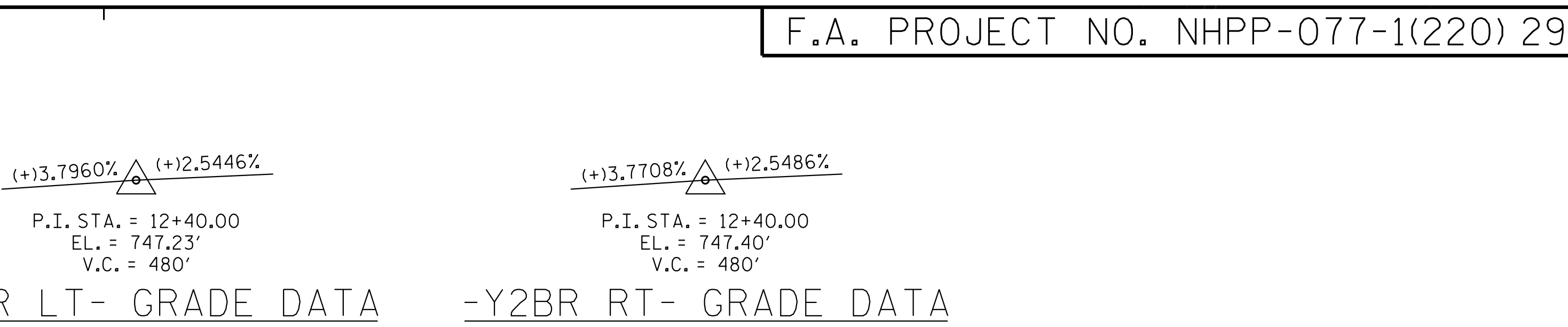
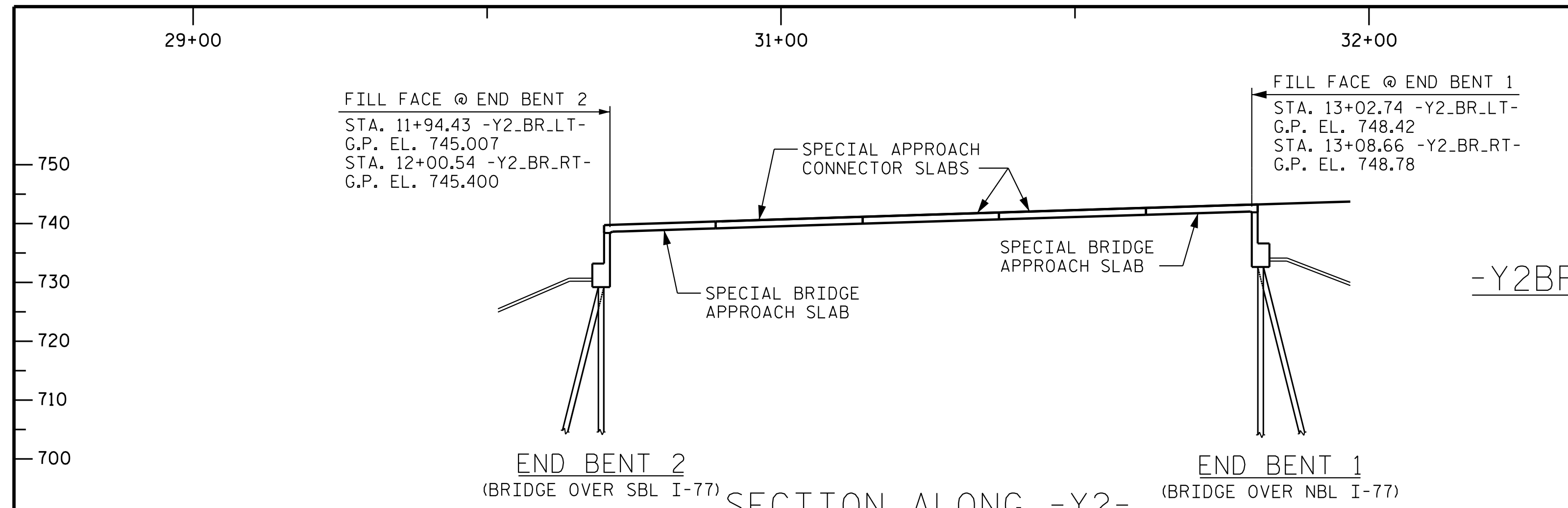
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**GUARDRAIL ANCHORAGE
DETAILS FOR
INTERIOR PARAPET
METAL RAILS ON
APPROACH SLAB**

REVISIONS						SHEET NO. S6-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

STR. #6



TOTAL BILL OF MATERIAL						
REMOVAL OF EXISTING STRUCTURE @ STA. 31+15.82 -Y2-	ASBESTOS ASSESSMENT	TWO BAR METAL RAIL	1'-2" x 3'-2 3/4" CONCRETE PARAPET	SPECIAL APPROACH SLABS @ STA. 31+15.82 -Y2-	GROOVING BRIDGE FLOORS	ASPHALT CONCRETE BASE COURSE, TYPE B25.0C
LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LUMP SUM	SQ. FT.	TONS
LUMP SUM	LUMP SUM	220.4	220.4	LUMP SUM	3,300.3	153

NOTES

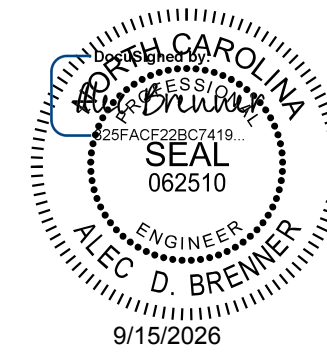
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SPECIAL APPROACH SLAB, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.



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MECKLENBURG COUNTY
STATION: 31+15.82 -Y2-
945+23.97 -L-

SHEET 1 OF 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

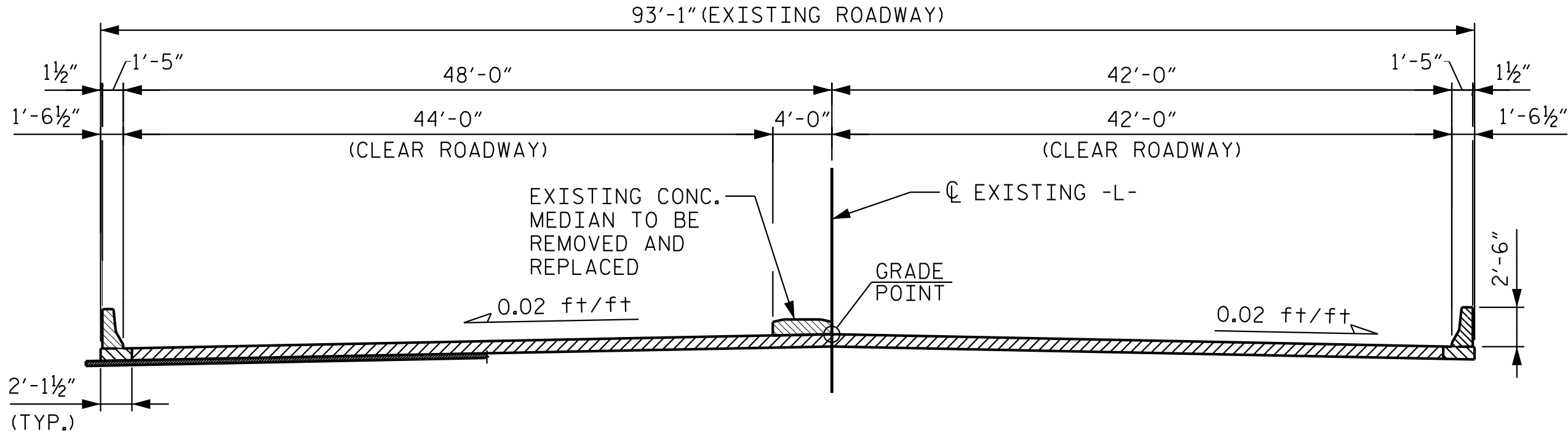
GENERAL DRAWING
FOR SPECIAL APPROACH SLABS
ON SR 2145/NC 73 BETWEEN
LAKE NORMAN & US 21

REVISIONS						SHEET NO. S7-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

DRAWN BY: R. C. GIESEN DATE: 04/2026
CHECKED BY: A. D. BRENNER DATE: 04/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 04/2026

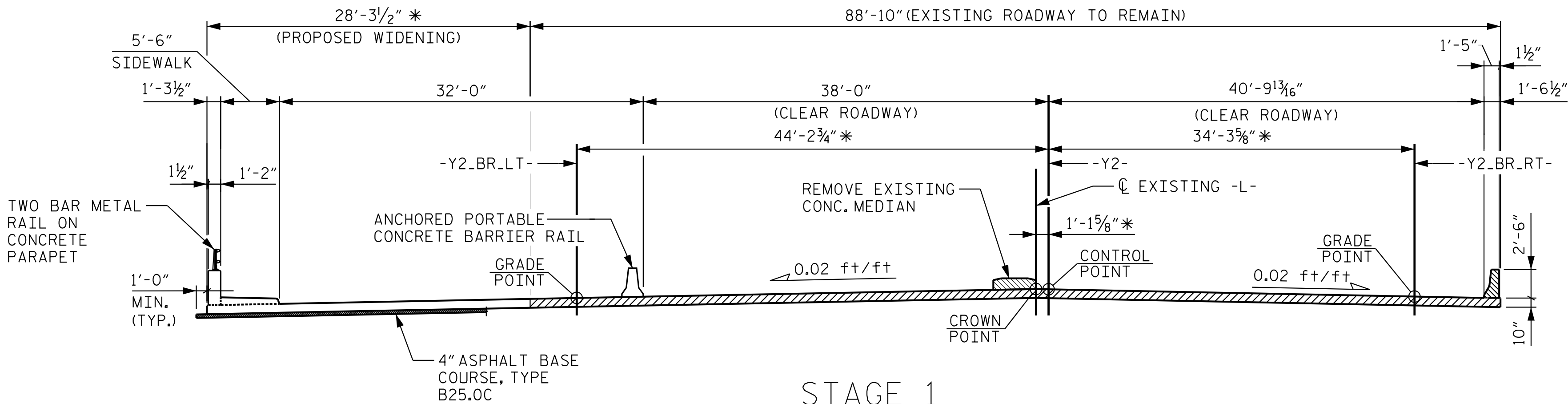
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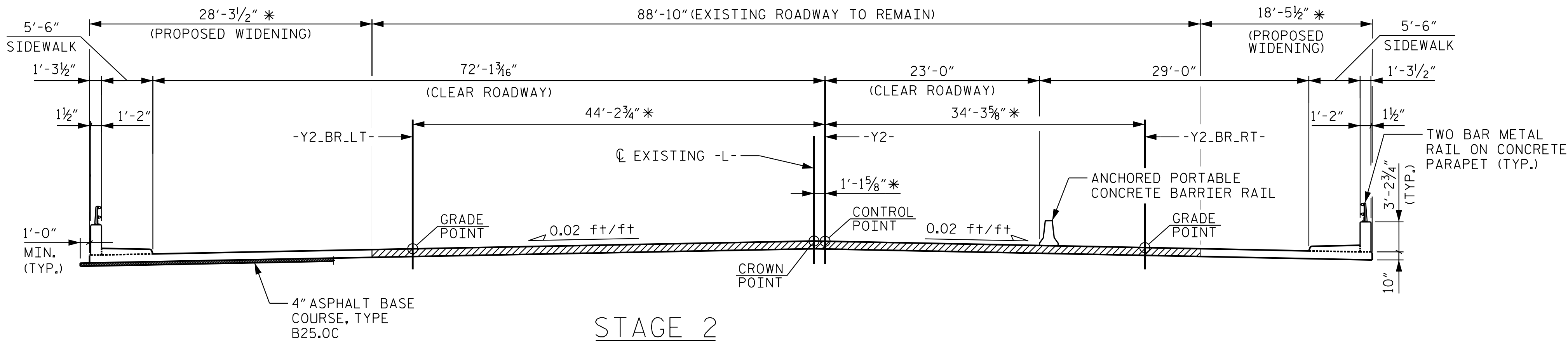
EXISTING STRUCTURE

- EXISTING APPROACH SLAB OR CONNECTOR SLAB TO REMAIN
- EXISTING PARAPET OR APPROACH SLAB TO BE REMOVED



STAGE 1

* DIMENSIONS VARY
DIMENSIONS TAKEN AT SPECIAL APPROACH SLAB I.D. STATIONS (PERPENDICULAR TO -Y2-)



STAGE 2

* DIMENSIONS VARY
DIMENSIONS TAKEN AT SPECIAL APPROACH SLAB I.D. STATIONS (PERPENDICULAR TO -Y2-)

GENERAL STAGING NOTES:

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMIT OF THE PORTABLE CONCRETE BARRIER.

CARE SHALL BE TAKEN DURING THE PARTIAL REMOVAL OF THE EXISTING STRUCTURE. DAMAGE TO THE REMAINING STRUCUTRE SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE DEPARTMENT. THE REPAIR METHOD SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.

EXISTING BRIDGE WIDTHS ARE BASED ON EXISTING BRIDGE PLANS.

FOR CONCRETE SIDEWALK DETAILS, SEE "SIDEWALK DETAILS" SHEET.

FOR CONCRETE PARAPET DETAILS, SEE "CONCRETE PARAPET DETAILS" SHEET.

FOR CONCRETE MEDIAN DETAILS, SEE "CONCRETE MEDIAN DETAILS" SHEET.

STAGE 1:

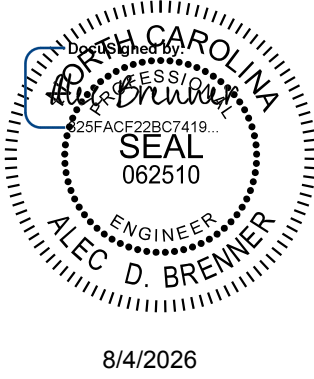
- REMOVE EXISTING CONCRETE MEDIAN.
- PLACE TEMPORARY BARRIER ALONG LEFT EDGE OF STRUCUTRE AND SHIFT TRAFFIC LANES.
- REMOVE EXISTING 2-GRATE INLET AND PIPES (SEE ROADWAY PLANS).
- INSTALL PROPOSED CATCH-BASINS, GRATE INLETS, AND PIPES.
- CUT AND REMOVE EXISTING SLAB AND BARRIER RAIL ON LEFT SIDE OF BRIDGE.
- CONSTRUCT LEFT WIDENING BEHIND TEMPORARY BARRIER.

STAGE 2:

- MOVE TEMPORARY BARRIER ALONG RIGHT EDGE OF STRUCUTRE AND SHIFT TRAFFIC LANES.
- REMOVE EXISTING DROP INLET GRATE (SEE ROADWAY PLANS).
- CUT AND REMOVE EXISTING SALB AND BARRIER RAIL ON RIGHT SIDE OF BRIDGE.
- CONSTRUCT RIGHT WIDENING BEHIND TEMPORARY BARRIER.

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 31+15.82 -Y2-

SHEET 1 OF 2



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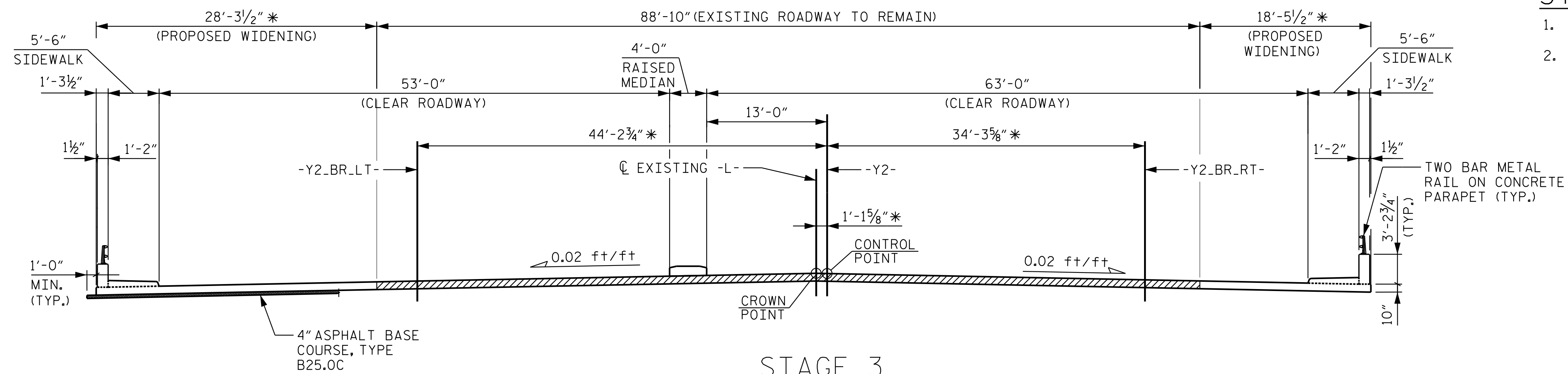
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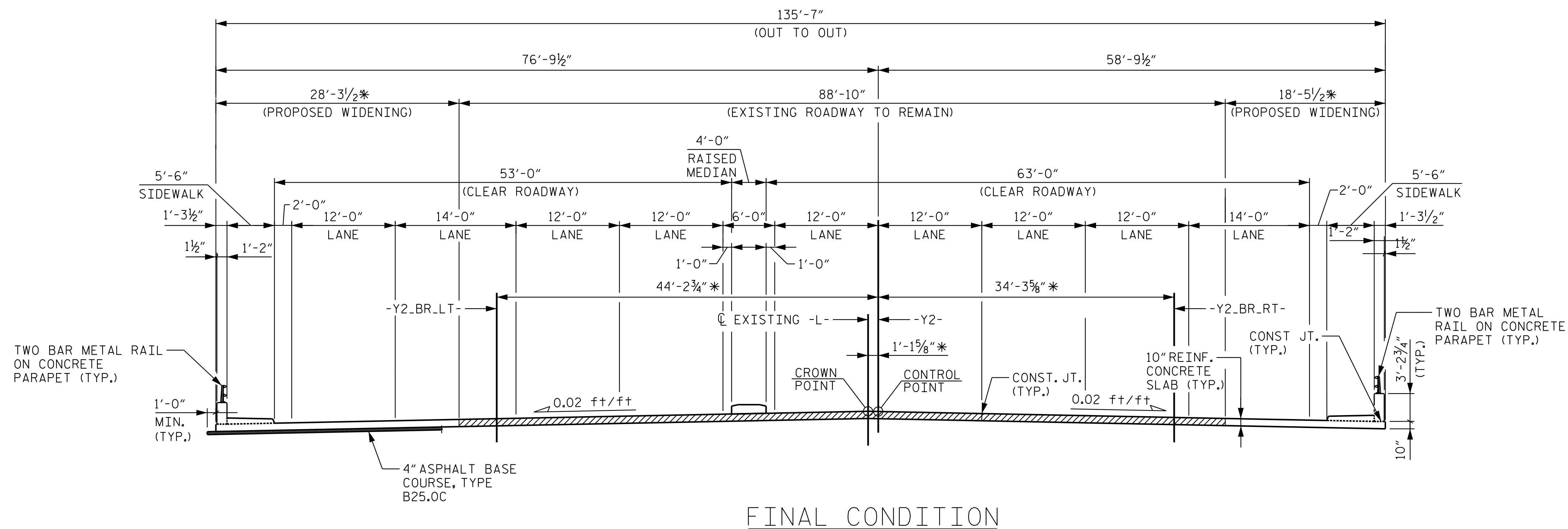
STR. #7



STAGE 3

STAGE 3:

1. CONSTRUCT CONCRETE MEDIAN.
2. REMOVE TEMPORARY BARRIER AND OPEN TRAFFIC TO FINAL CONFIGURATION.

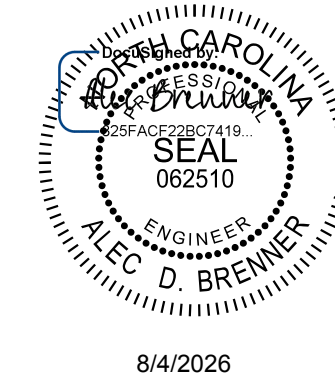


FINAL CONDITION

 EXISTING APPROACH SLAB OR CONNECTOR SLAB

* DIMENSIONS VARY

DIMENSIONS TAKEN AT SPECIAL APPROACH SLAB I.D. STATIONS (PERPENDICULAR TO -Y2-)



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DESIGN ENGINEER OF RECORD: <u>A. L. PHILLIPS</u>	DATE: <u>04/2026</u>

PROJECT NO. I-5715
MECKLENBURG COUNTY
 STATION: 31+15.82 -Y2-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RALEIGH

APPROACH SLAB CONSTRUCTION SEQUENCE

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

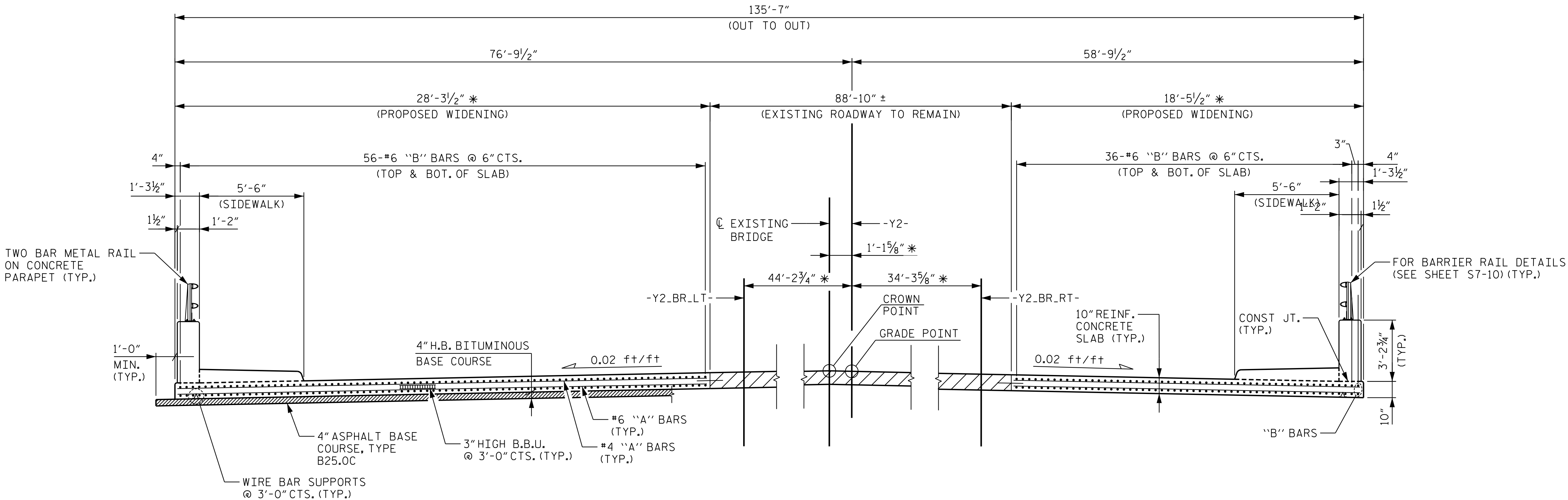
SHEET NO.

S7-3

TOTAL
SHEETS
13

STR. #7

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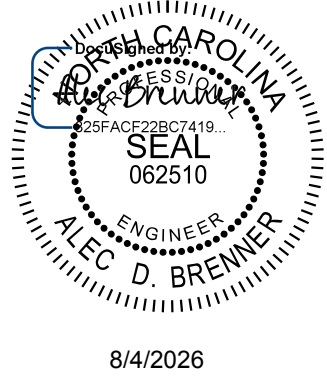


TYPICAL SECTION

EXISTING APPROACH SLAB OR CONNECTOR SLAB

* DIMENSIONS VARY
DIMENSIONS TAKEN AT SPECIAL APPROACH SLAB I.D. STATIONS (PERPENDICULAR TO -Y2-)

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 31+15.82 -Y2-



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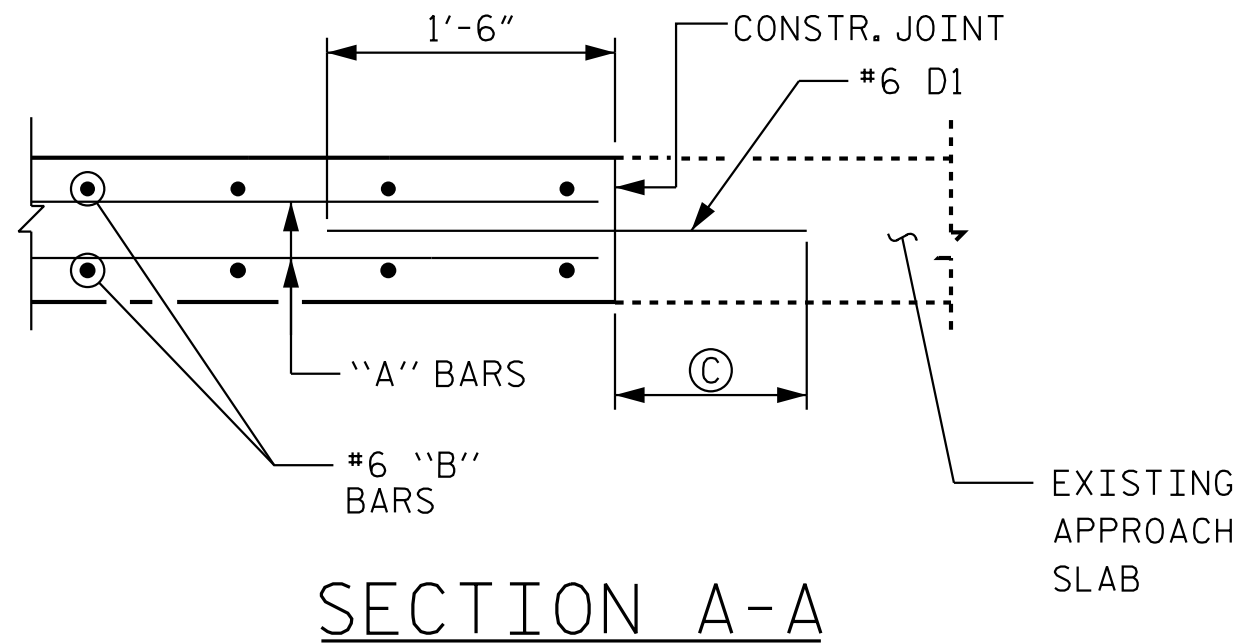
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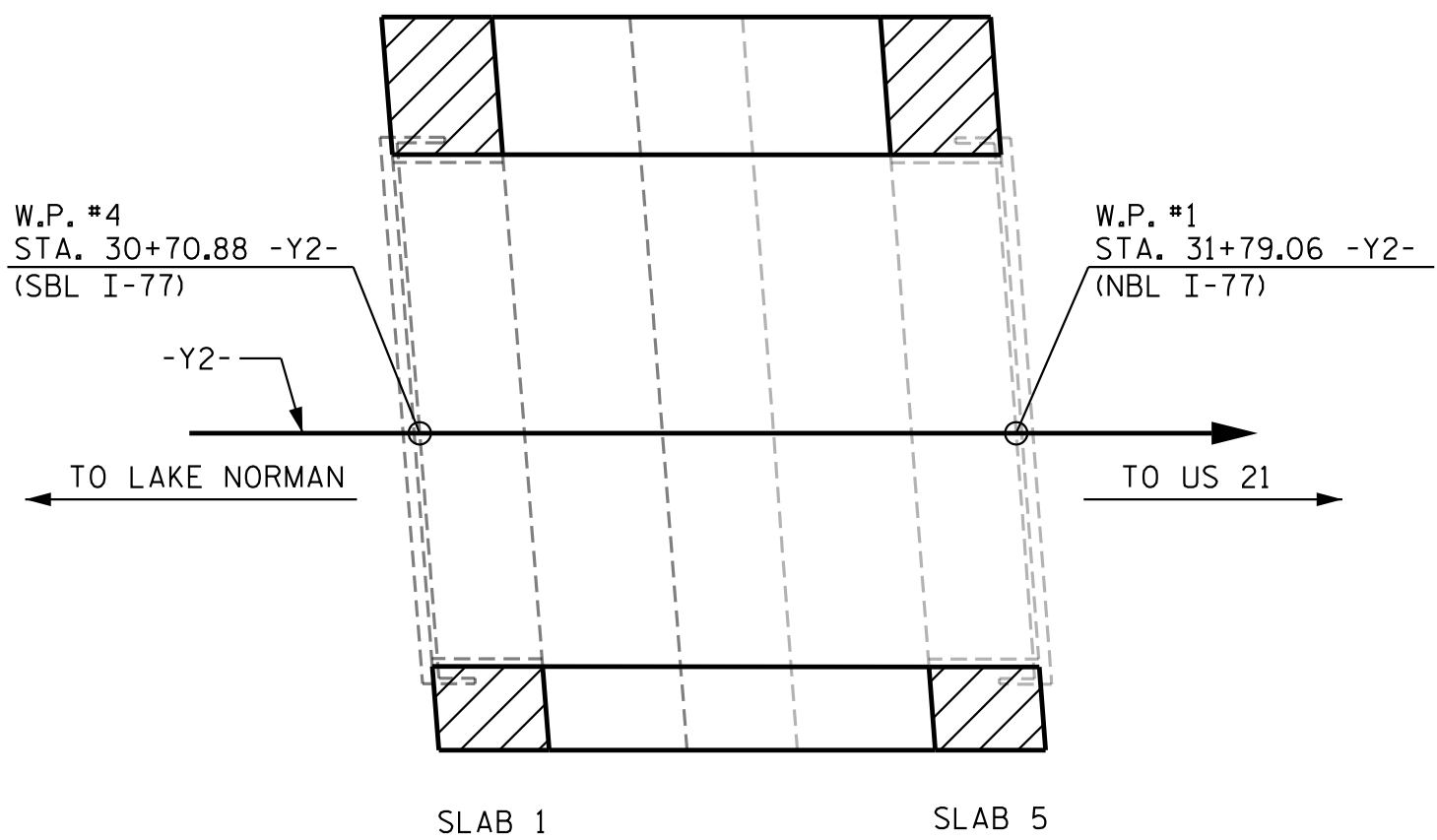
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SPECIAL APPROACH SLAB TYPICAL SECTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S7-4					TOTAL SHEETS 13

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DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 04/2026

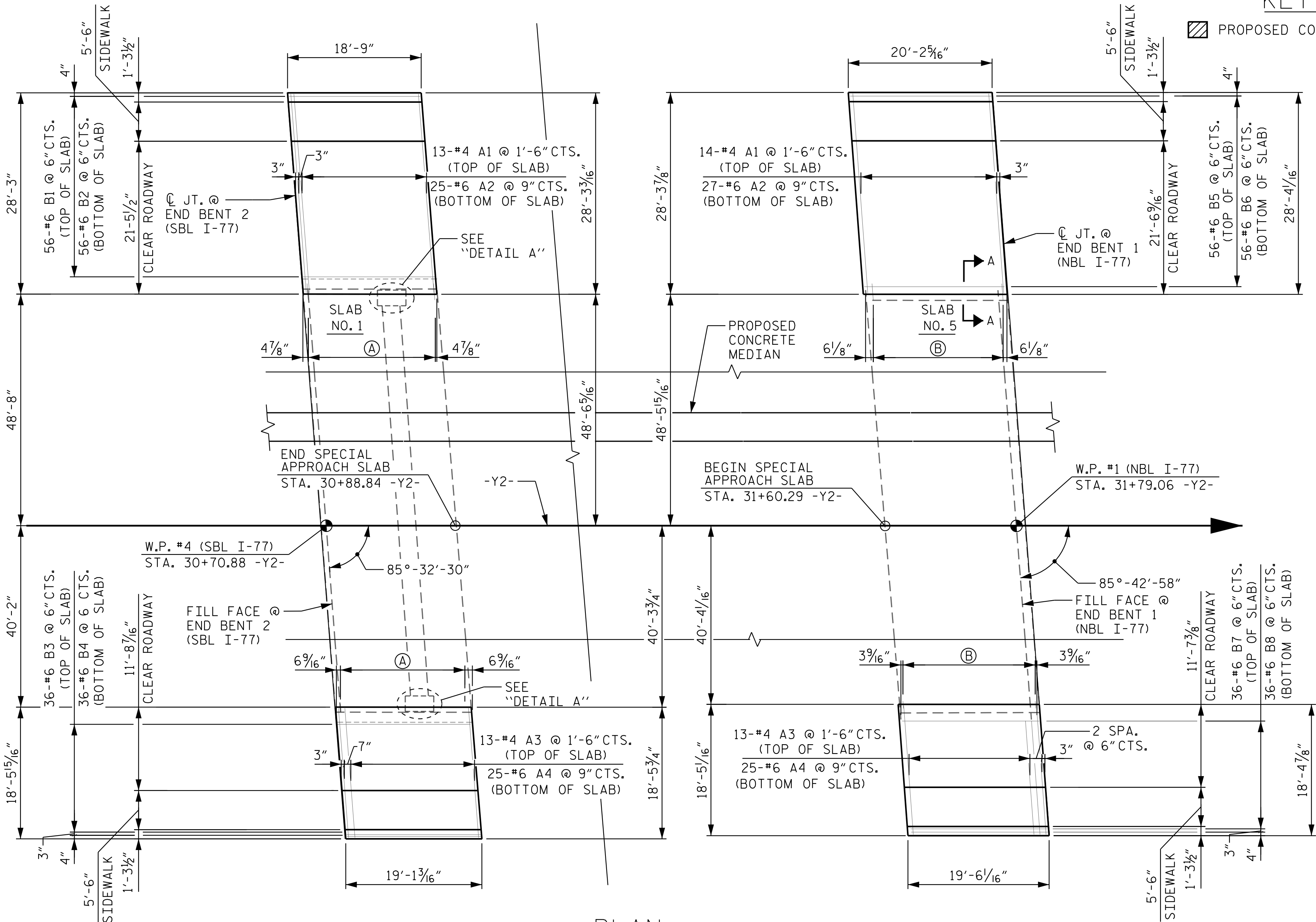
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8/2/2026



- Ⓐ 19-#6 DOWELS @ 1'-0" CTS. ADHESIVELY ANCHORED IN THE SAME HORIZONTAL PLANE AS THE TOP MAT OF REINFORCING STEEL
- Ⓑ 20-#6 DOWELS @ 1'-0" CTS. ADHESIVELY ANCHORED IN THE SAME HORIZONTAL PLANE AS THE TOP MAT OF REINFORCING STEEL
- Ⓒ #6 DOWELS PLACED IN THE EXISTING SLAB SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE DOWELS IS 13.2 KIPS. OVERALL DOWEL LENGTH SHALL PROVIDE 1'-6" MIN. EXTENSION INTO THE PROPOSED SLAB. EMBEDMENT LENGTH TO BE DETERMINED BY THE MANUFACTURER OF THE ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS



PROPOSED CONCRETE DETAILED ON SHEET



PLAN

SIDEWALK, CONCRETE BARRIER RAIL, AND MEDIAN REINFORCEMENT NOT SHOWN FOR CLARITY.

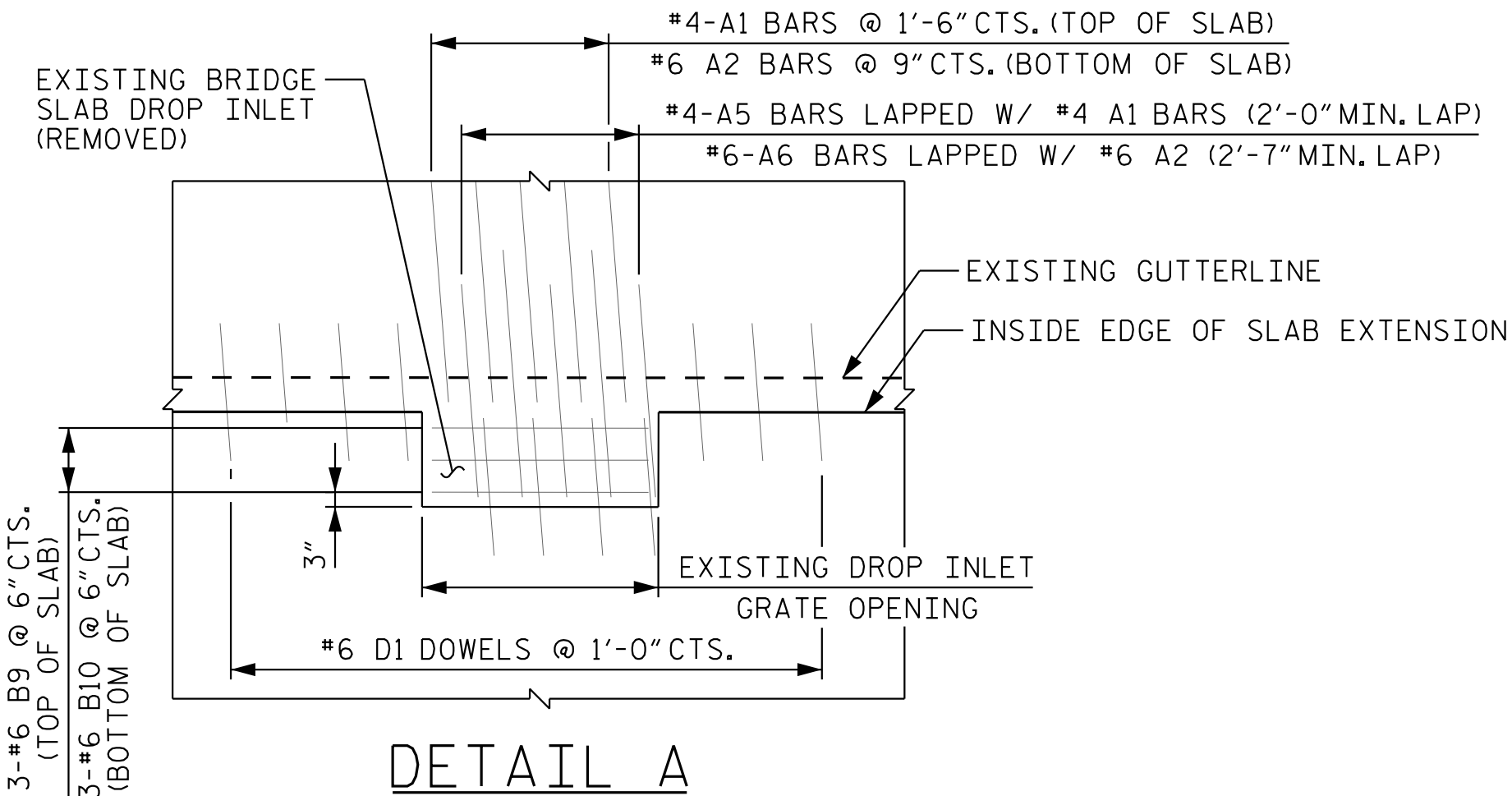
FOR SIDEWALK DETAILS, SEE "SIDEWALK DETAILS" SHEET.

FOR CONCRETE PARAPET DETAILS, SEE "CONCRETE PARAPET DETAILS" SHEET.

FOR MEDIAN DETAILS, SEE "MEDIAN DETAILS" SHEET.

DRAWN BY: R. C. GIESEN DATE: 04/2026
CHECKED BY: A. D. BRENNER DATE: 04/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 04/2026

BILL OF MATERIAL													
SLAB 1						SLAB 5							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
* A1	14	4	STR	28'-1"	263	* A1	14	4	STR	25'-11"	242		
A2	26	6	STR	28'-1"	1,097	A2	27	6	STR	25'-11"	1,051		
* A3	14	4	STR	18'-3"	171	* A3	14	4	STR	18'-3"	171		
A4	26	6	STR	18'-3"	713	A4	27	6	STR	18'-3"	740		
* A5	5	4	STR	3'-8"	12								
A6	10	6	STR	4'-3"	64	* B5	56	6	STR	19'-8"	1,654		
						B6	56	6	STR	19'-8"	1,654		
* B1	56	6	STR	18'-5"	1,549	* B7	37	6	STR	19'-2"	1,065		
B2	56	6	STR	18'-5"	1,549	B8	37	6	STR	19'-2"	1,065		
* B3	37	6	STR	18'-9"	1,042								
B4	37	6	STR	18'-9"	1,042	* D1	40	6	STR	2'-4"	140		
* B9	6	6	STR	3'-8"	33								
B10	6	6	STR	3'-8"	33								
* D1	38	6	STR	2'-4"	133								
REINFORCING STEEL					LBS.	4,498	REINFORCING STEEL					LBS.	4,510
*EPOXY COATED REINFORCING STEEL					LBS.	3,203	*EPOXY COATED REINFORCING STEEL					LBS.	3,272
CLASS AA CONCRETE					C.Y.	28.2	CLASS AA CONCRETE					C.Y.	29.3
GROOVING BRIDGE FLOORS					SQ. FT.	563.6	GROOVING BRIDGE FLOORS					SQ. FT.	593.5



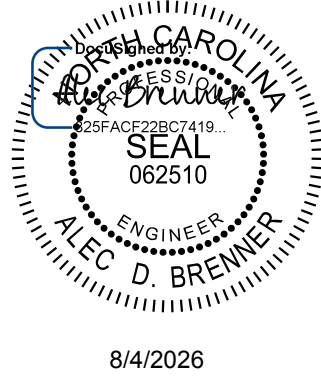
DETAIL A

LEFT EXTENSION SHOWN, RIGHT EXTENSION SIMILAR

"A" BARS OUTSIDE OF GRATE OPENING NOT SHOWN FOR CLARITY

REINFORCEMENT AND DOWELS MAY BE SHIFTED SLIGHTLY TO FIT OR AVOID GRATE OPENING

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 31+15.82 -Y2-



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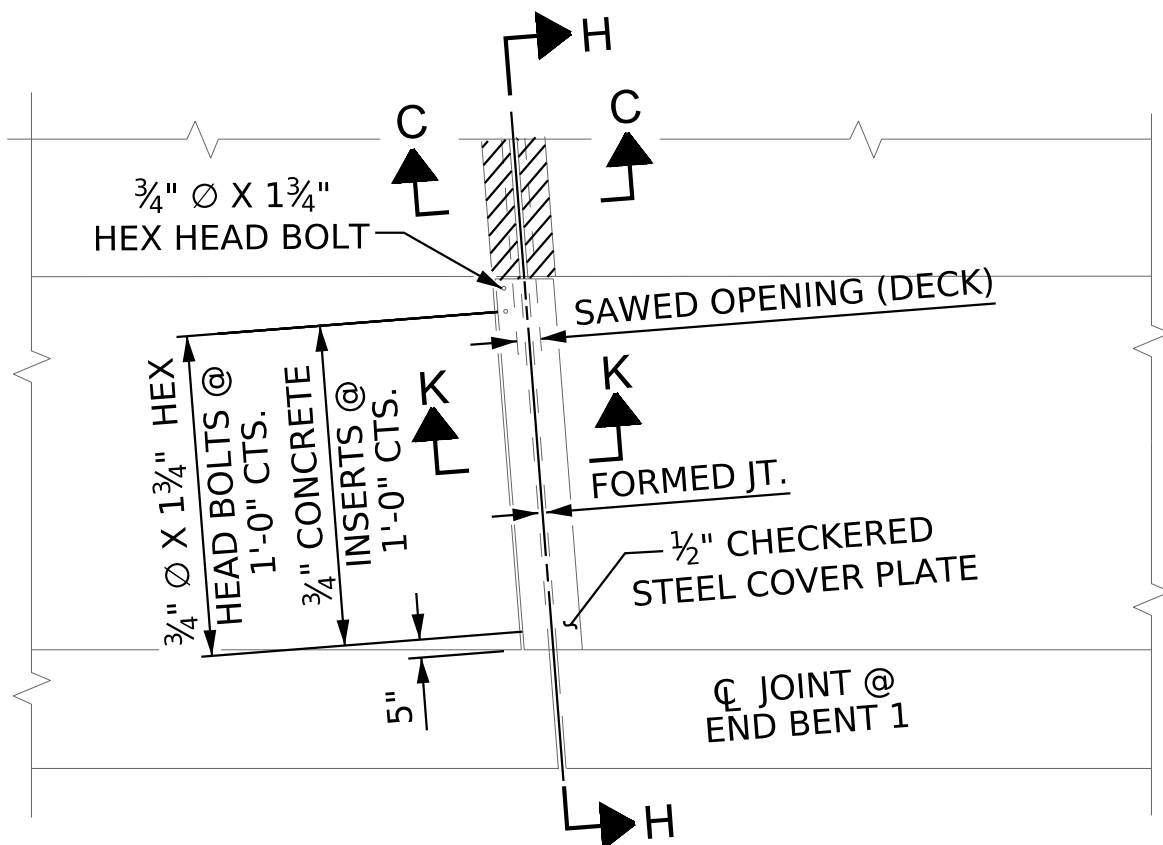
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SPECIAL BRIDGE
APPROACH SLAB PLAN

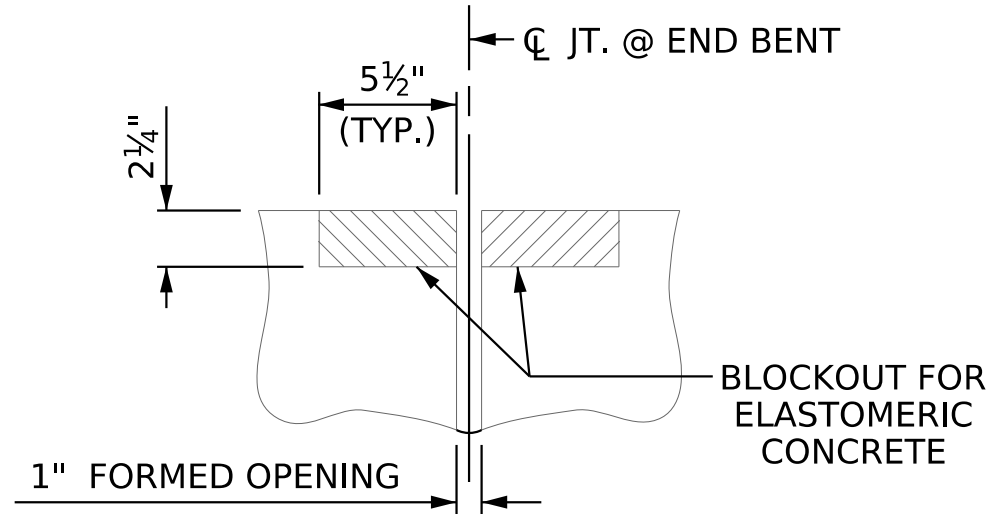
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

STR. #7

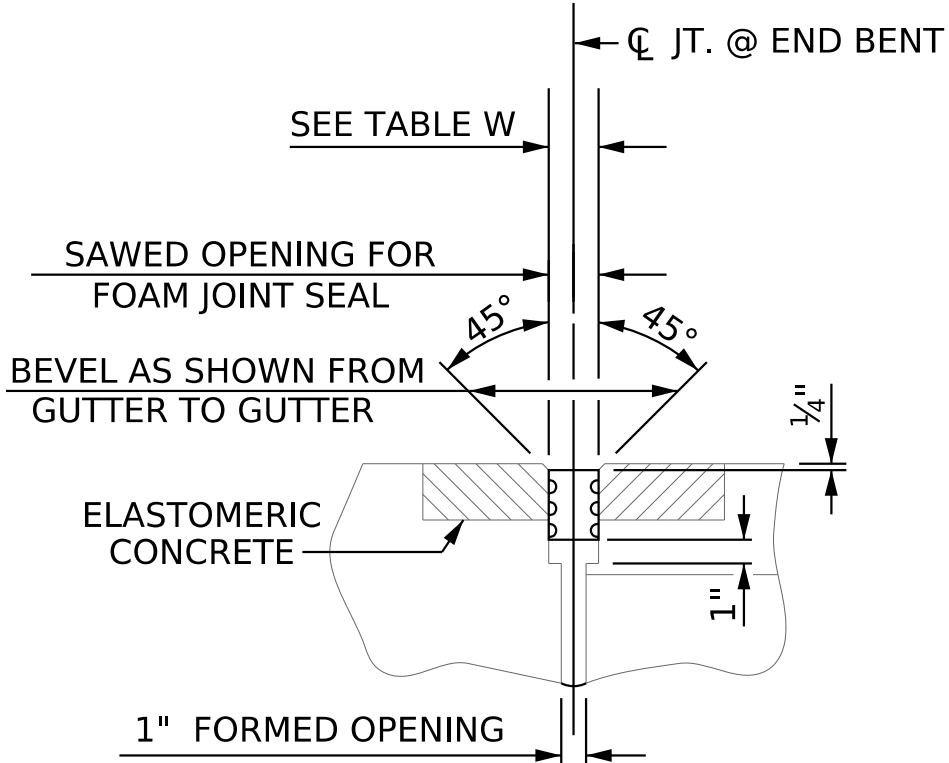
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8/2/2026



PLAN OF FOAM
JOINT SEAL @ END BENT



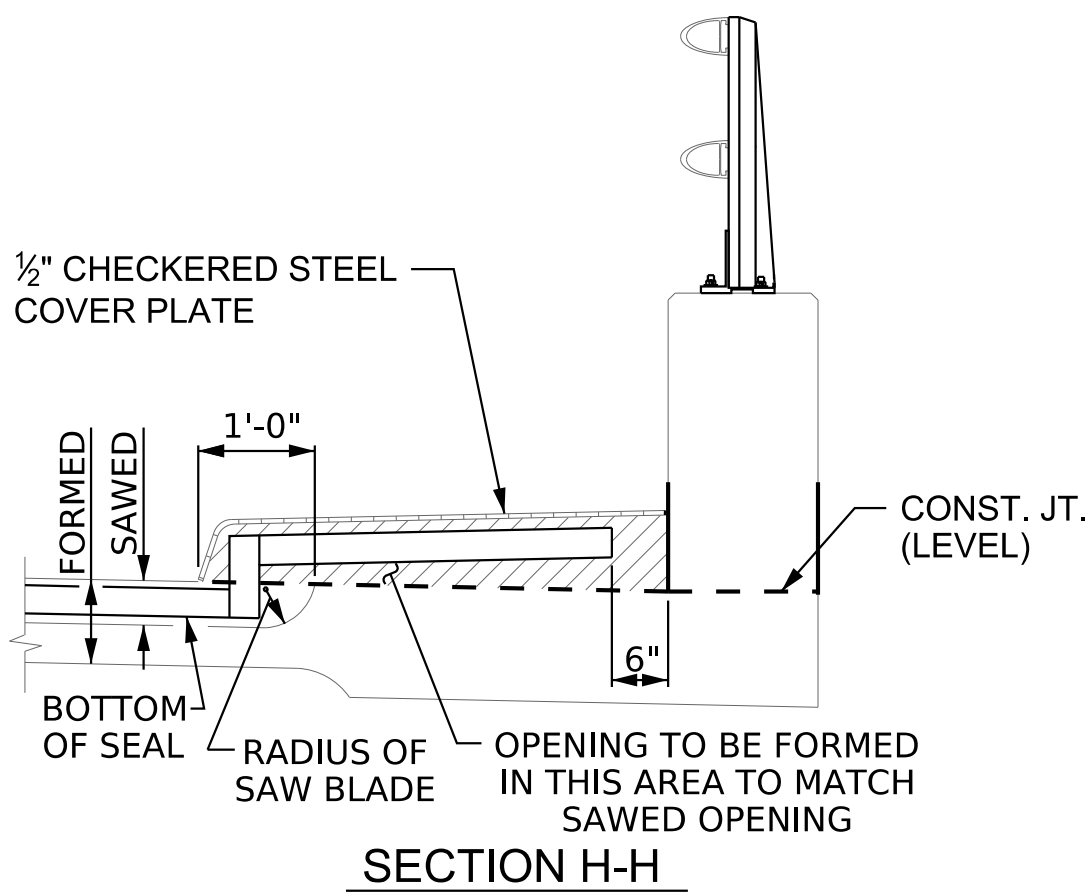
SECTION C-C
FOAM JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



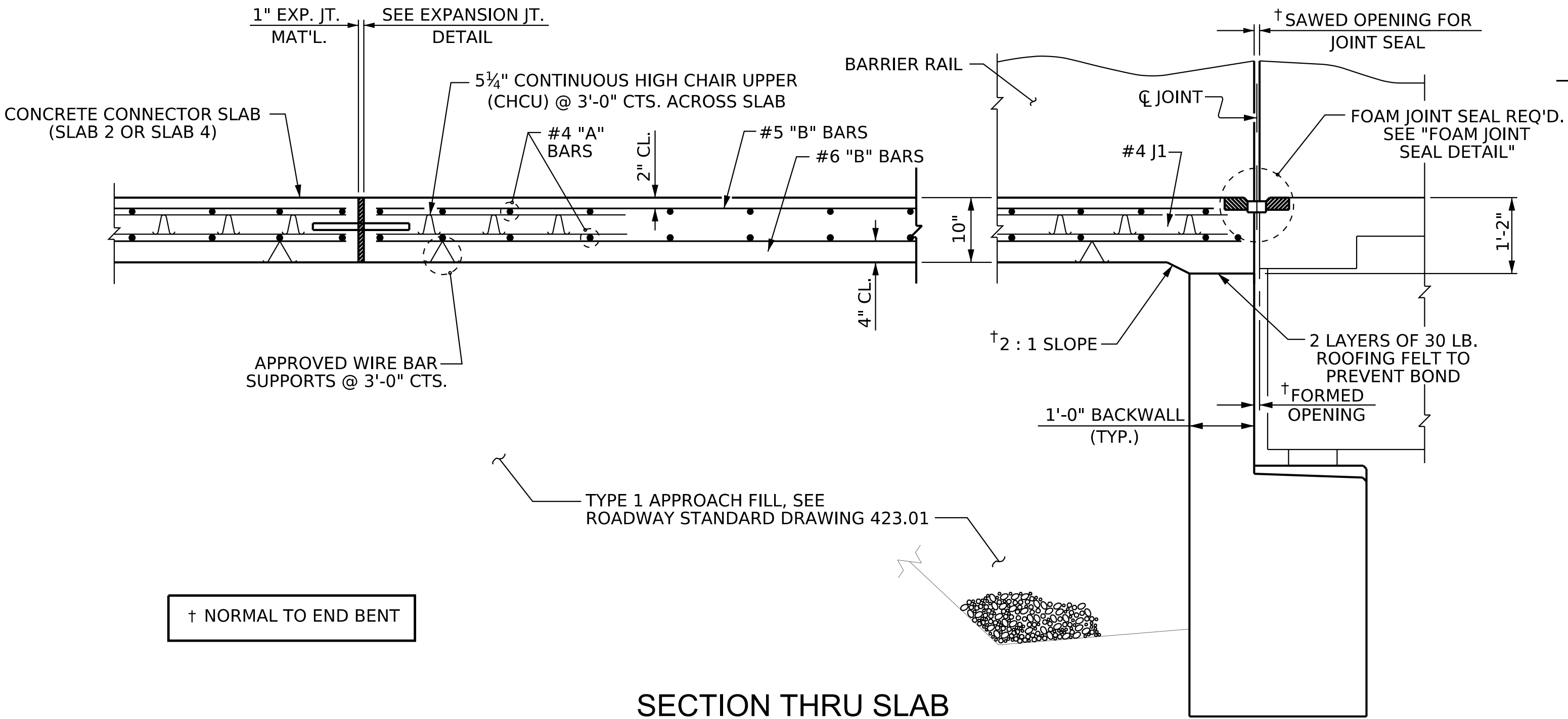
SECTION C-C
FOAM JOINT SEAL
(EXPANSION)

TABLE W			
JT. WIDTH @	45° F	60° F	90° F
SLAB NO. 1	1 3/8"	1 9/16"	1 7/16"
SLAB NO. 5	1 5/8"	1 1/16"	1 1/2"

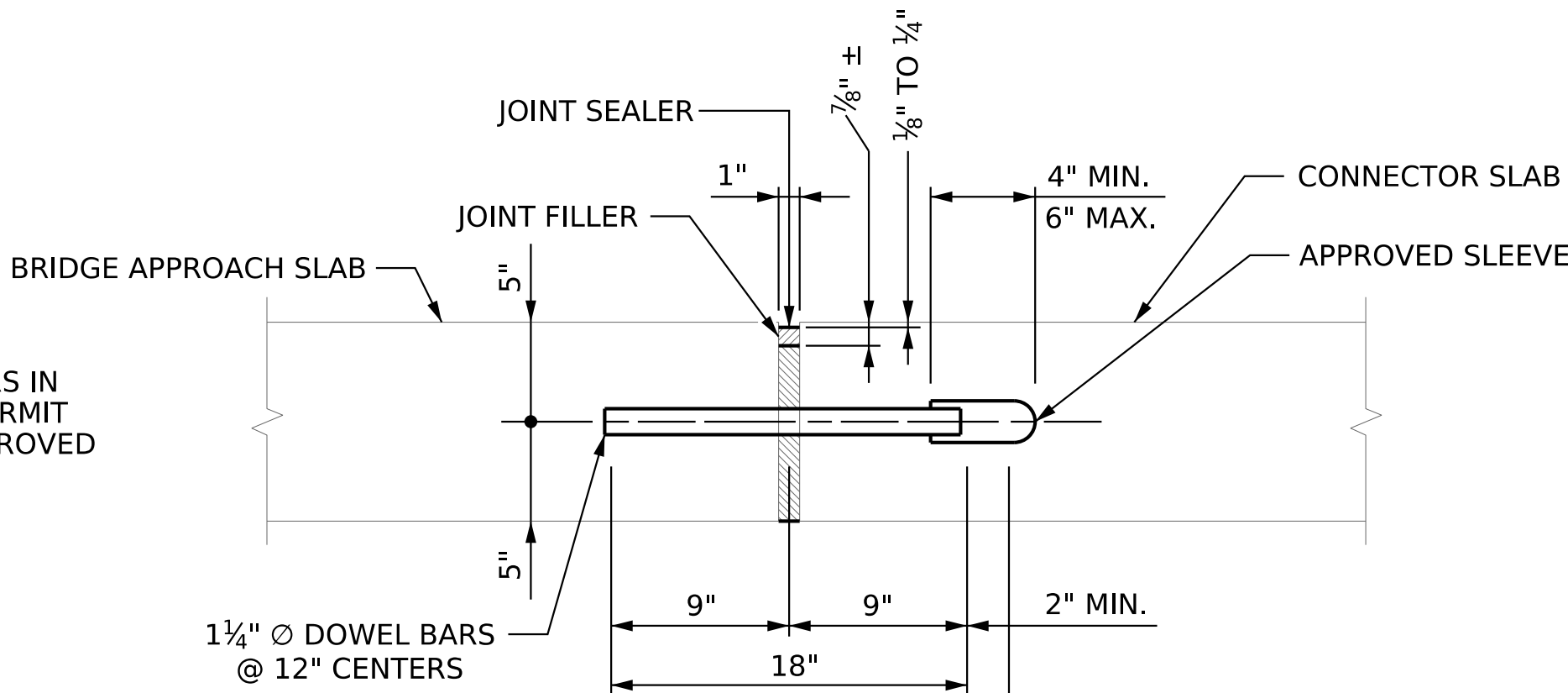
- NOTES: 1. AN APPROVED TYPE OF JOINT ASSEMBLY SHALL BE USED IN THE TRANSVERSE EXPANSION JOINTS. THE JOINT ASSEMBLY SHALL BE OF RIGID CONSTRUCTION CAPABLE OF HOLDING THE DOWEL BARS IN PROPER POSITION DURING PLACEMENT OF CONCRETE, AND SHALL BE OF SUCH DESIGN AS TO PERMIT UNRESTRICTED MOVEMENT OF THE PAVEMENT SLAB. THE JOINT ASSEMBLY SHALL HAVE BEEN APPROVED BY THE ENGINEER PRIOR TO USE.
2. THE FREE HALF OF EACH DOWEL BAR SHALL BE COATED WITH 600W HEAVY GREASE. APPROVED PLASTIC COATED BARS MAY BE USED IN LIEU OF PAINTED AND GREASED BARS.
3. THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".



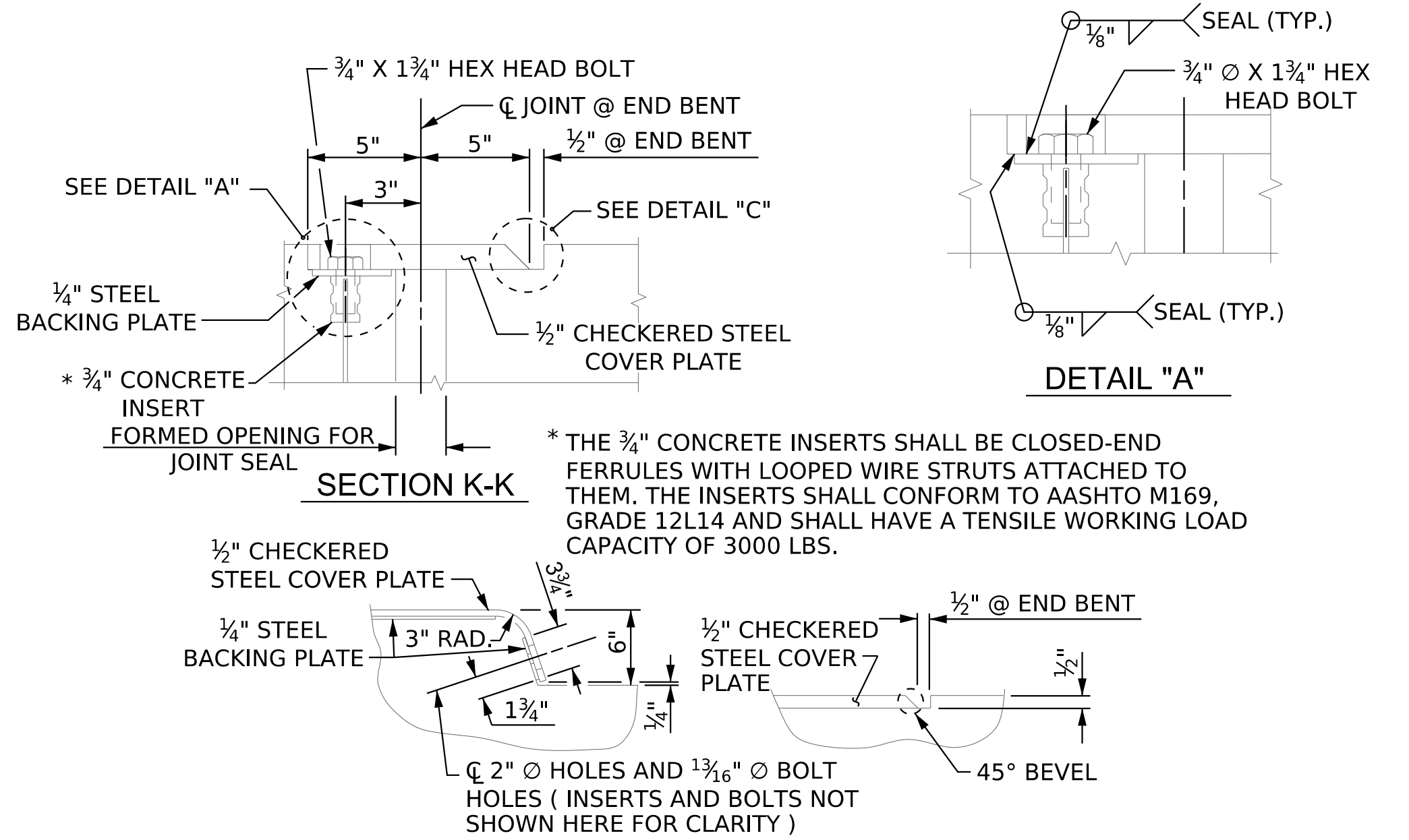
SECTION H-H



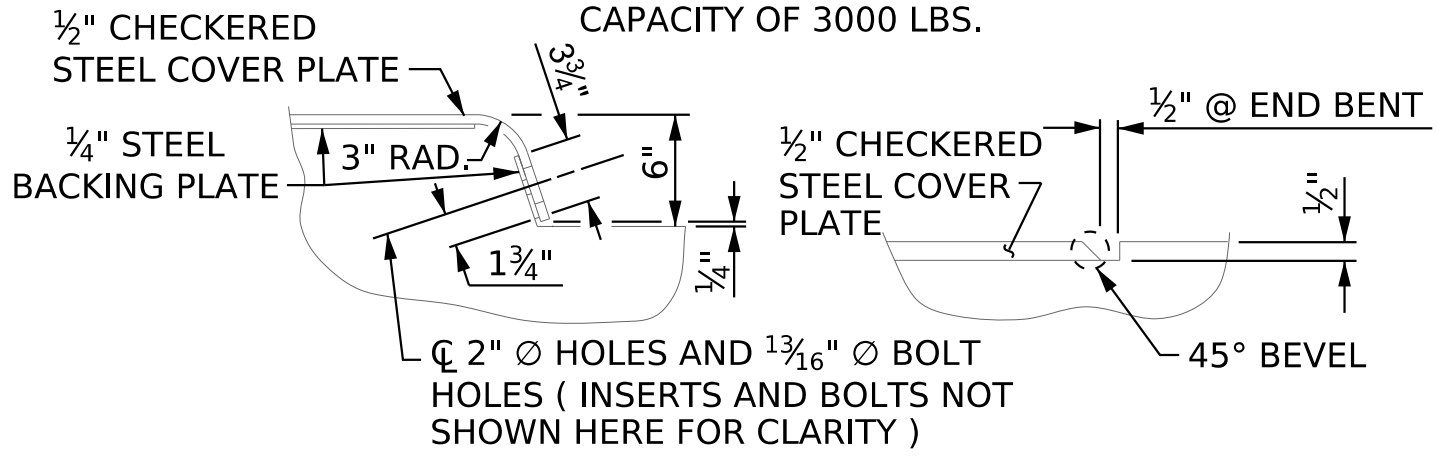
SECTION THRU SLAB



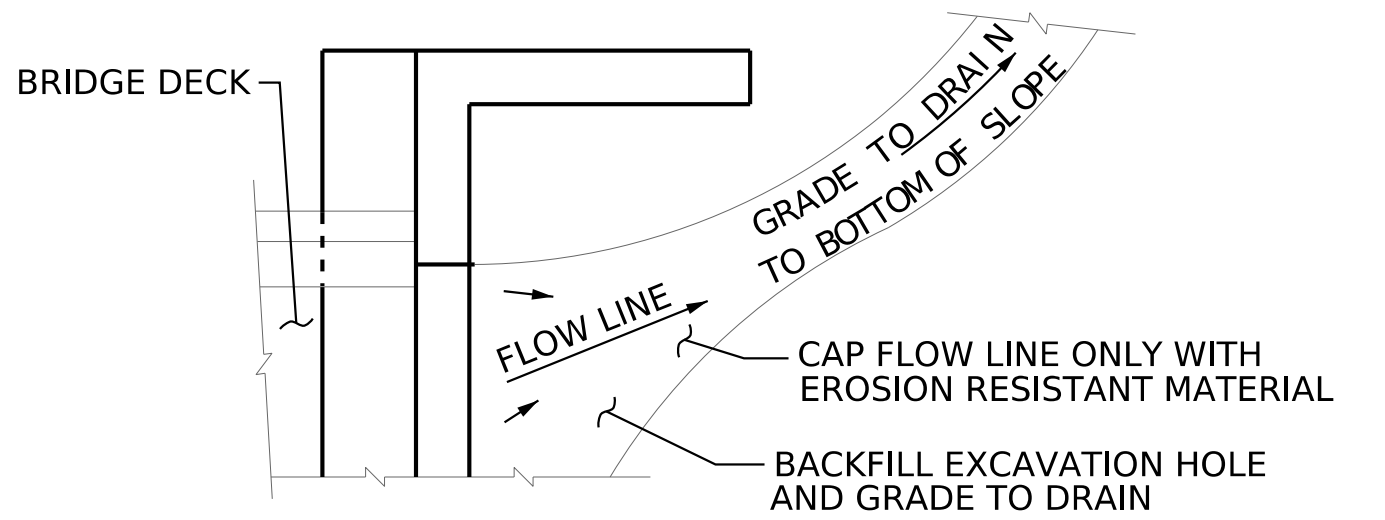
EXPANSION JOINT DETAIL



SECTION K-K



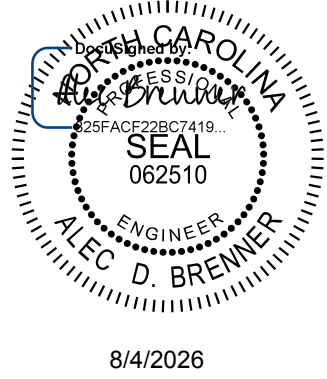
DETAIL "B" DETAIL "C"
JOINT SEAL DETAILS @ END BENT



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 31+15.82 -Y2-



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SPECIAL BRIDGE
APPROACH SLAB DETAILS

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2			4			13

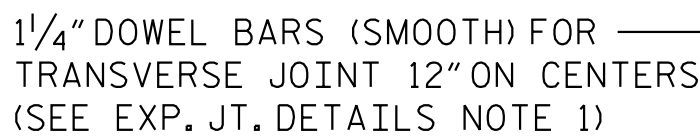
STR. #7

DRAWN BY: R. C. GIESEN DATE: 04/2026
CHECKED BY: A. D. BRENNER DATE: 04/2026
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 04/2026

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FOR GRATE AND DROP INLET DETAILS, SEE ROADWAY PLANS.



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- ① 16-#9 D10 @ 1'-0" CTS.
(TYP. @ RIGHT EXT. CONT. JT.)

W.P. #4
STA. 30+70.88 -Y2-
(SBL I-77)

-Y2-

TO LAKE NORMAN

W.P. #1
STA. 31+79.06 -Y2-
(NBL I-77)

TO US 21

SLAB 2 SLAB 3 SLAB 4

KEY PLAN

PROPOSED CONCRETE DETAILED ON SHEET

1'-6"

CONSTR. JOINT

#6 D1

#6 "A" BARS

#6 "B" BARS

B

EXISTING APPROACH SLAB



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PROJECT NO. I-5715
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SPECIAL APPROACH
CONNECTOR SLAB PLAN

REVISIONS						SHEET NO. S7-7
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2			4			

STR. #7

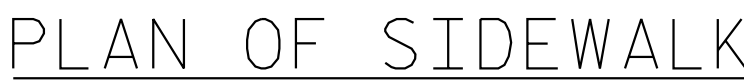
ALL REINFORCING STEEL IN THE SIDEWALK SHALL BE EPOXY COATED.

*#4 U1 MAY BE PUSHED INTO GREEN CONCRETE AFTER THE DECK HAS BEEN SCREEDED OFF.

SIDEWALK SHALL BE PAID FOR WITH THE LUMP SUM UNIT PRICE OF
"SPECIAL APPROACH SLABS @ STA. 31+15.82 -Y2-".

BILL OF MATERIAL

*EPOXY COATED REINFORCING STEEL	LBS.	1,643
CLASS AA CONCRETE	C.Y.	26.7



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SIDEWALK DETAILS

STR. #7

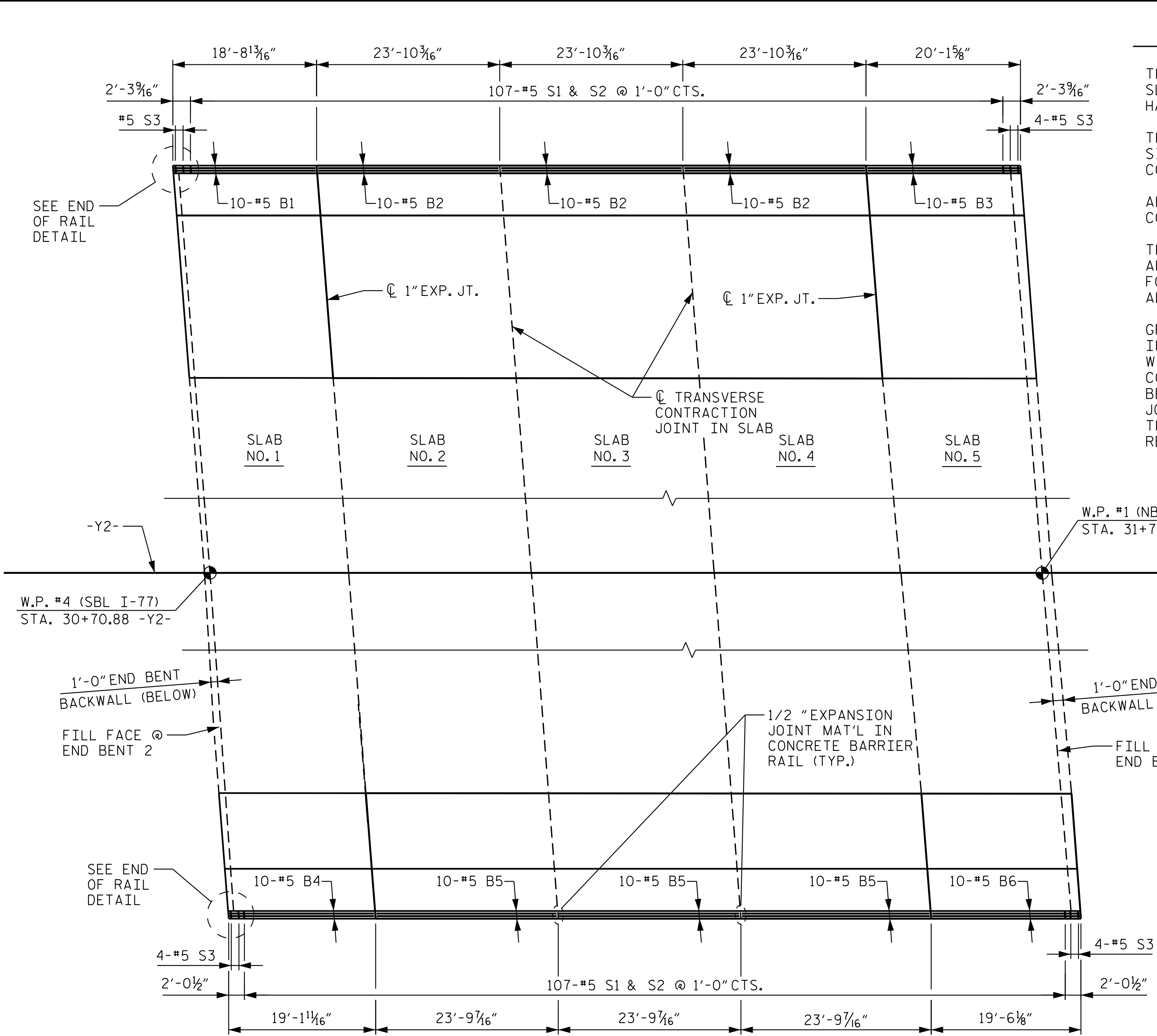
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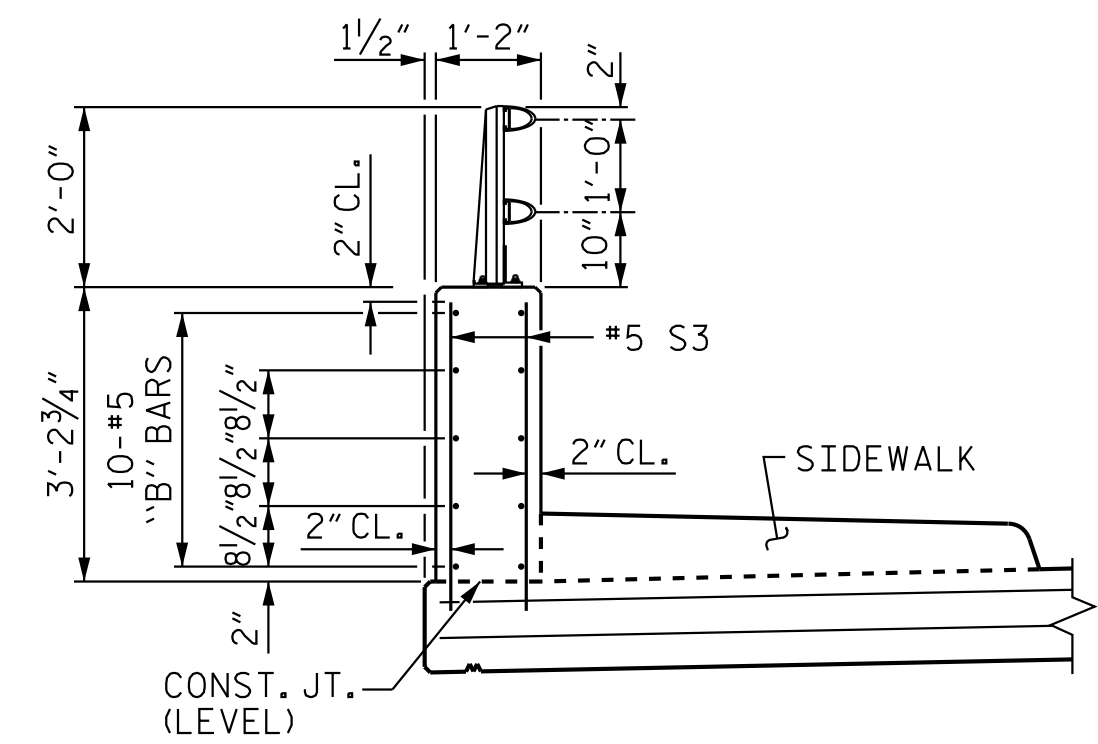
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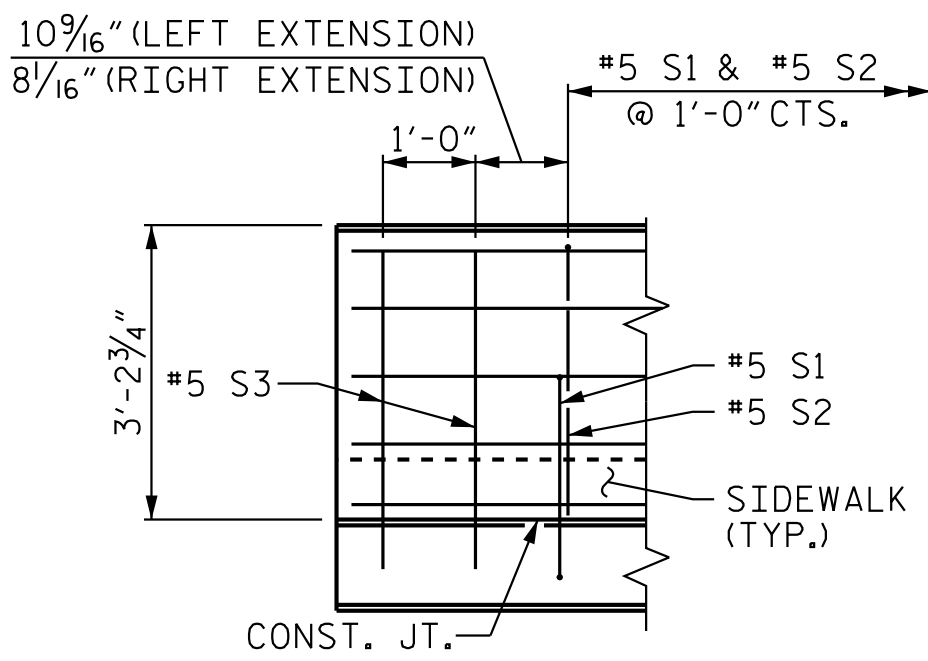
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8/2/2026



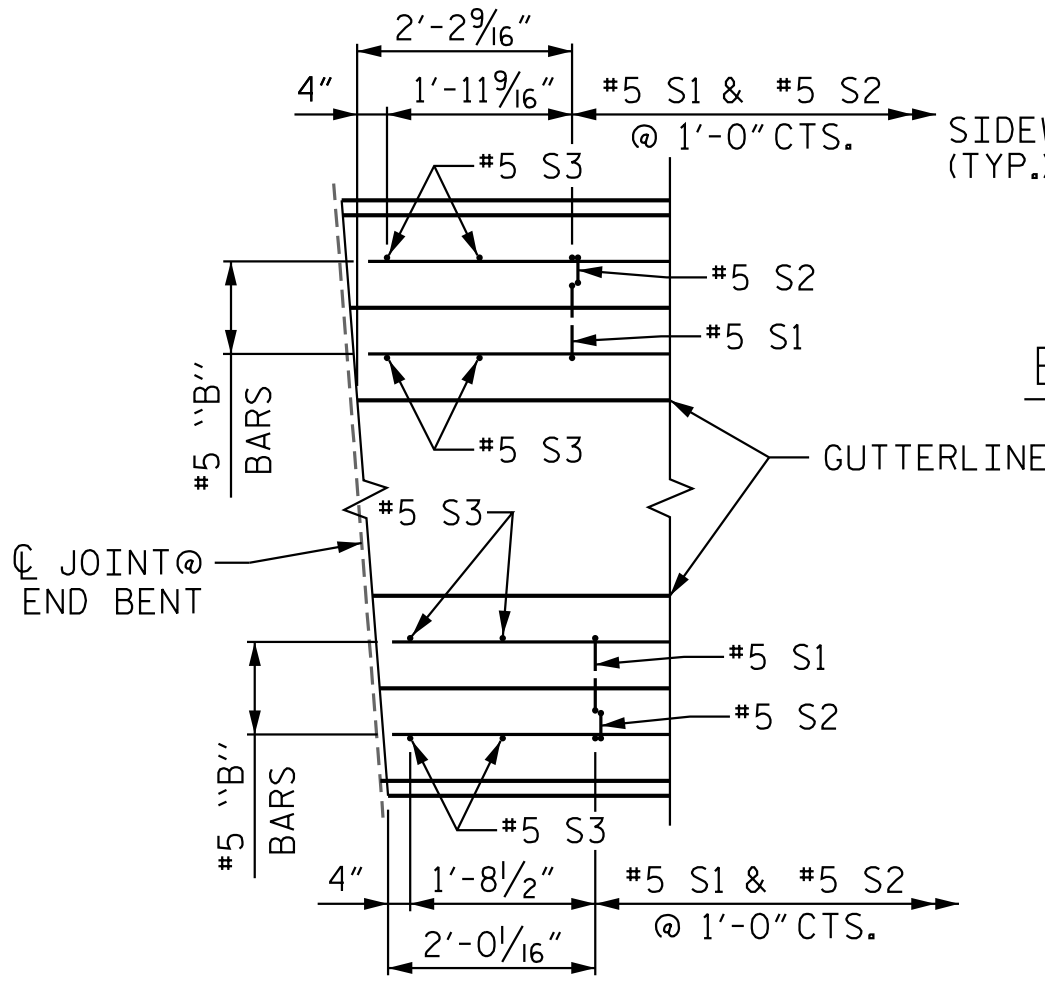
PLAN



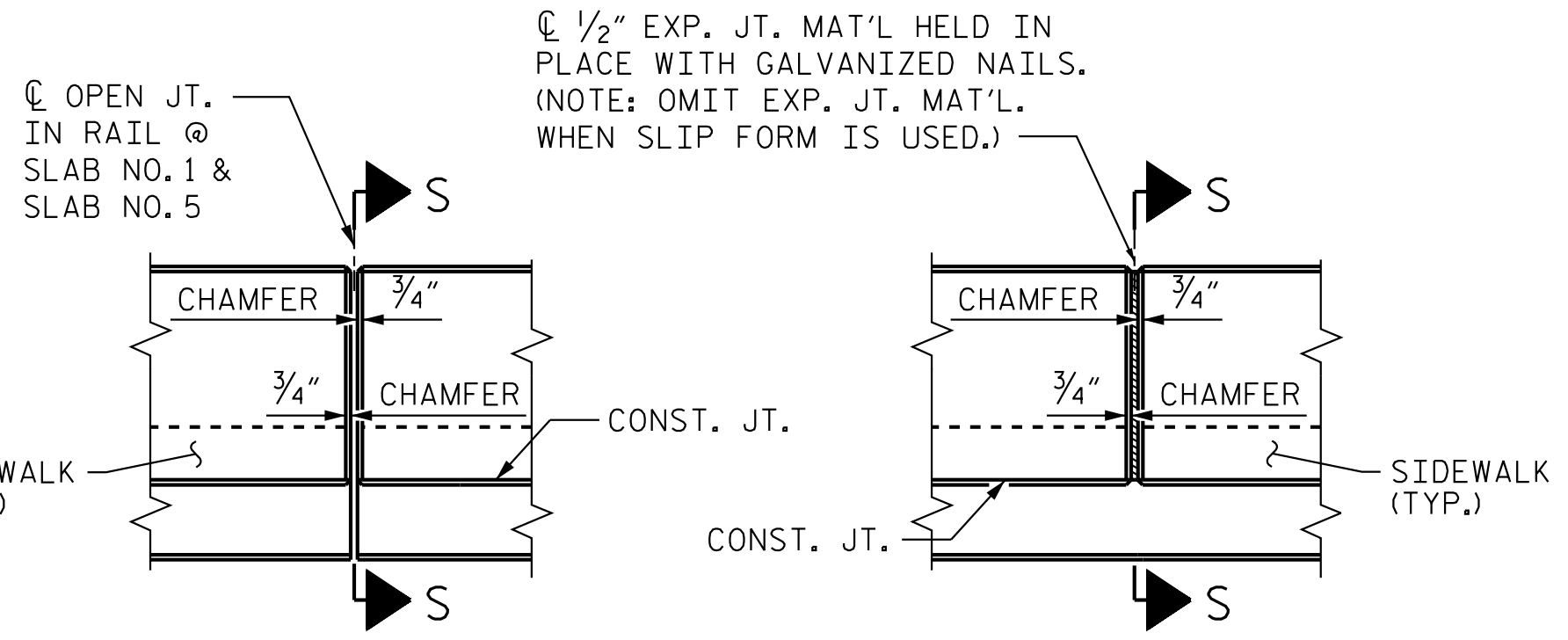
END VIEW



SIDE VIEW



PLAN



ELEVATION AT 1" EXPANSION JOINT IN SLAB

ELEVATION AT TRANSVERSE CONTRACTION JOINT IN SLAB

BARRIER RAIL DETAILS

DOCUMENT NOT CONSIDERED FINAL
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NOTES

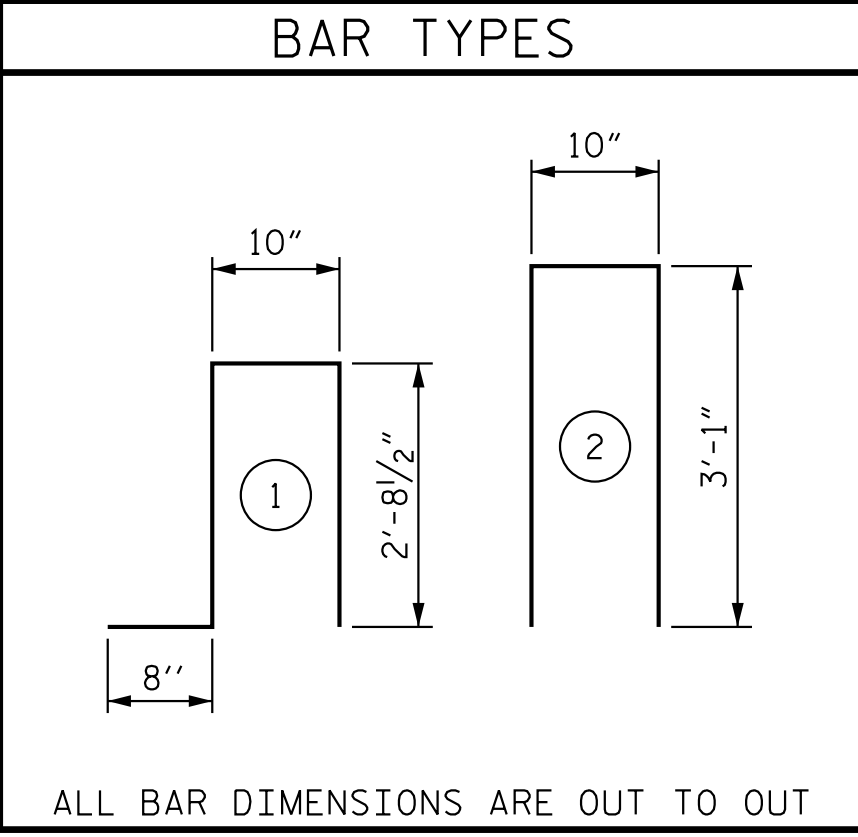
THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB AND SIDEWALK CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSION STRENGTH OF 3,000 PSI.

THE FOAM JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK AND SIDEWALK SHALL BE SAWED PRIOR TO THE CASTING OF VERITCLAL CONCRETE BARRIER RAIL.

ALL REINFORCING STEEL IN THE BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

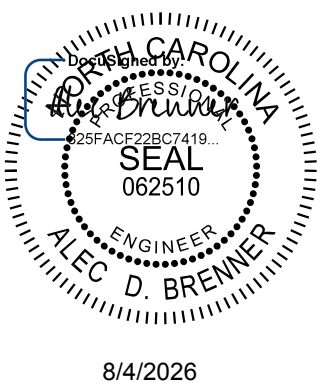
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
CONCRETE PARAPET					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	10	5	STR	18'-4"	191
* B2	30	5	STR	23'-6"	735
* B3	10	5	STR	19'-9"	206
* B4	10	5	STR	18'-9"	196
* B5	30	5	STR	23'-5"	733
* B6	10	5	STR	19'-2"	200
* S1	214	5	1	6'-11"	1,544
* S2	214	5	2	7'-0"	1,562
* S3	16	5	STR	3'-9"	63
*EPOXY COATED REINFORCING STEEL					
				LBS.	5,430
CLASS AA CONCRETE				C.Y.	31.0
1'-2" X 3'-2 3/4" CONCRETE PARAPET				LF	220.4

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 31+15.82 -Y2-



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING CONCRETE PARAPET DETAILS					
REVISIONS					
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1			3		
2			4		
SHEET NO. S7-9					TOTAL SHEETS 13

STR. #7

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIALS AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: ASTM A36 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO ASTM A123.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A1011 FOR GRADE 36, 40, 45 OR ASTM A1008 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A1011 FOR GRADE 36, 40, 45 OR ASTM A1008 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

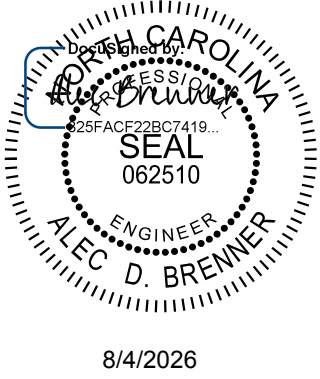
MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

PAY LENGTH = 220.4 LIN. FT.

PROJECT NO. I-5715
MECKLENBURG COUNTY
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SHEET 1 OF 3



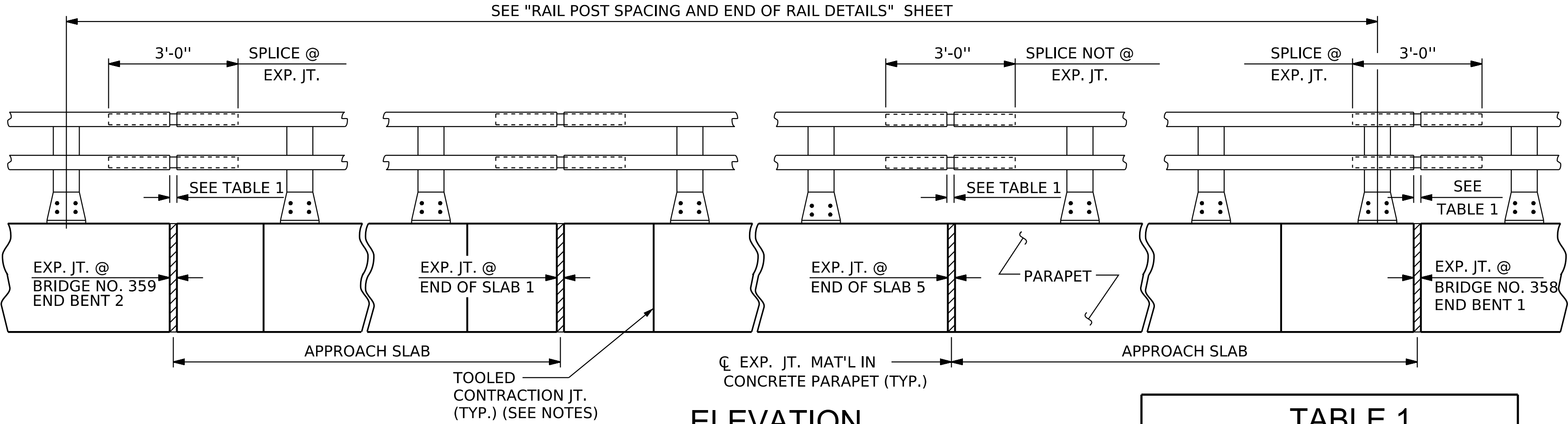
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1			3			TOTAL SHEETS 13
2			4			

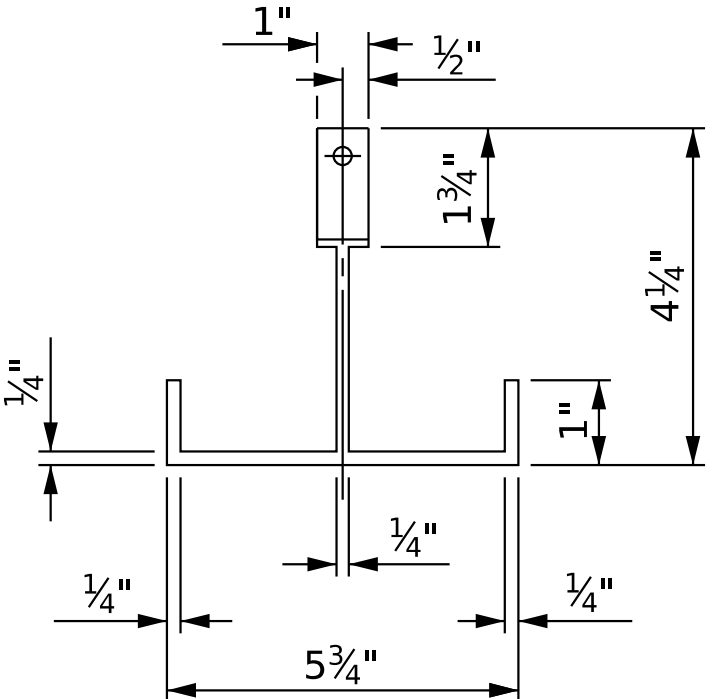
STR. #7 STD. NO. BMR3



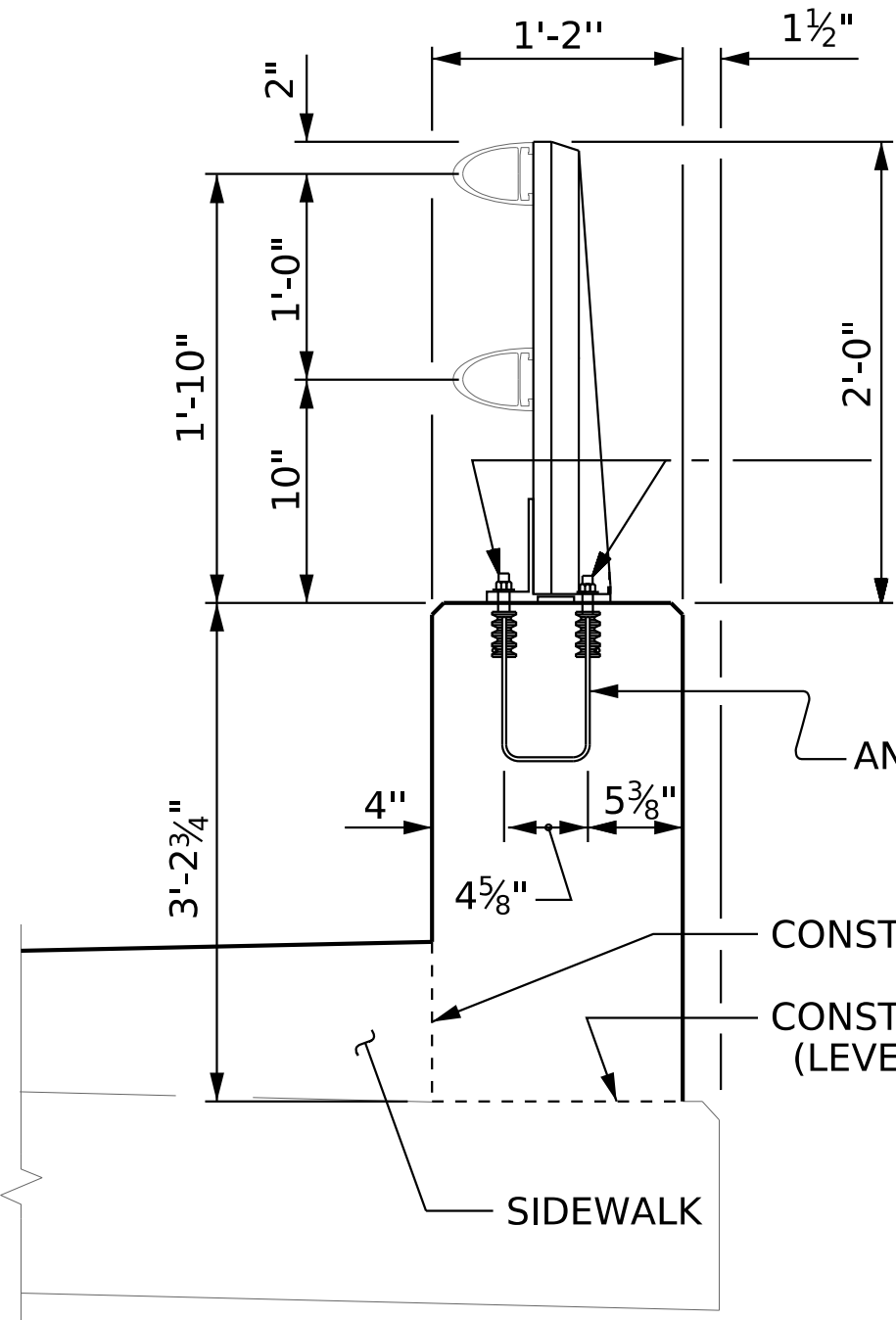
ELEVATION

NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS"

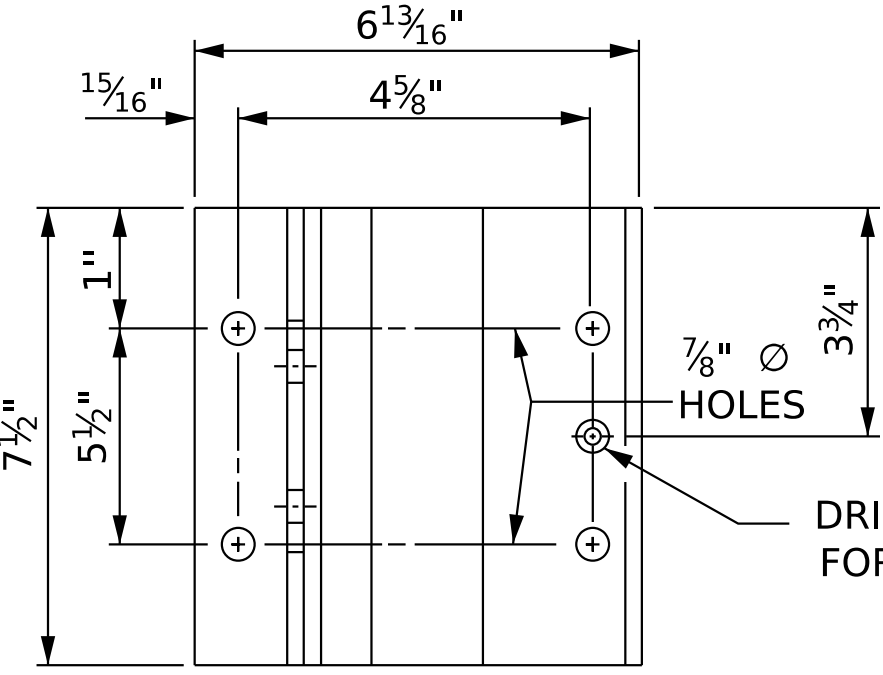
TABLE 1	
CL EXP. JT. @	RAIL OPENING
EXP. JT. @ BRIDGE NO. 359 END BENT 2	1"
SLAB 1/2	1"
SLAB 4/5	1"
EXP. JT. @ BRIDGE NO. 358 END BENT 1	1"



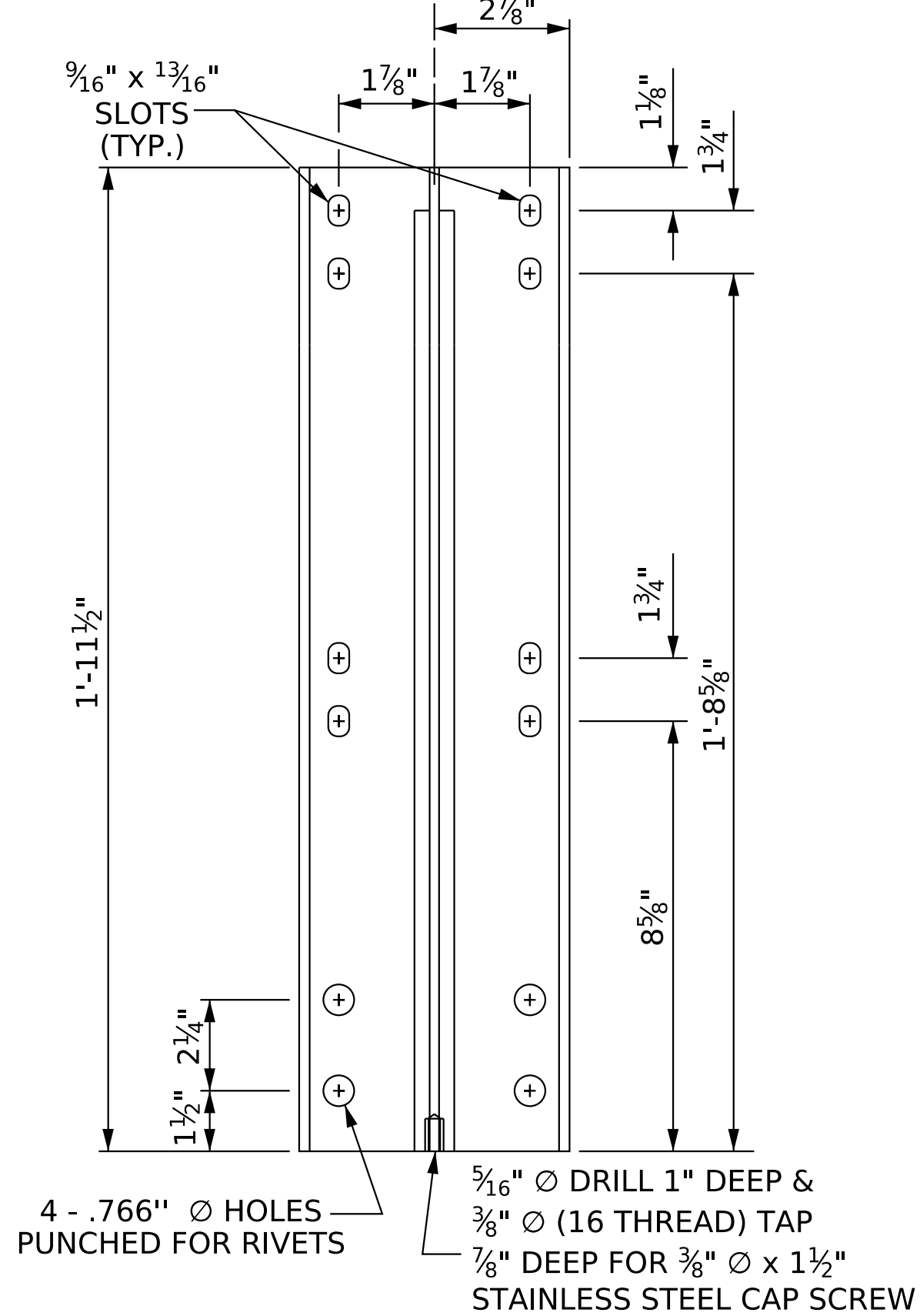
PLAN



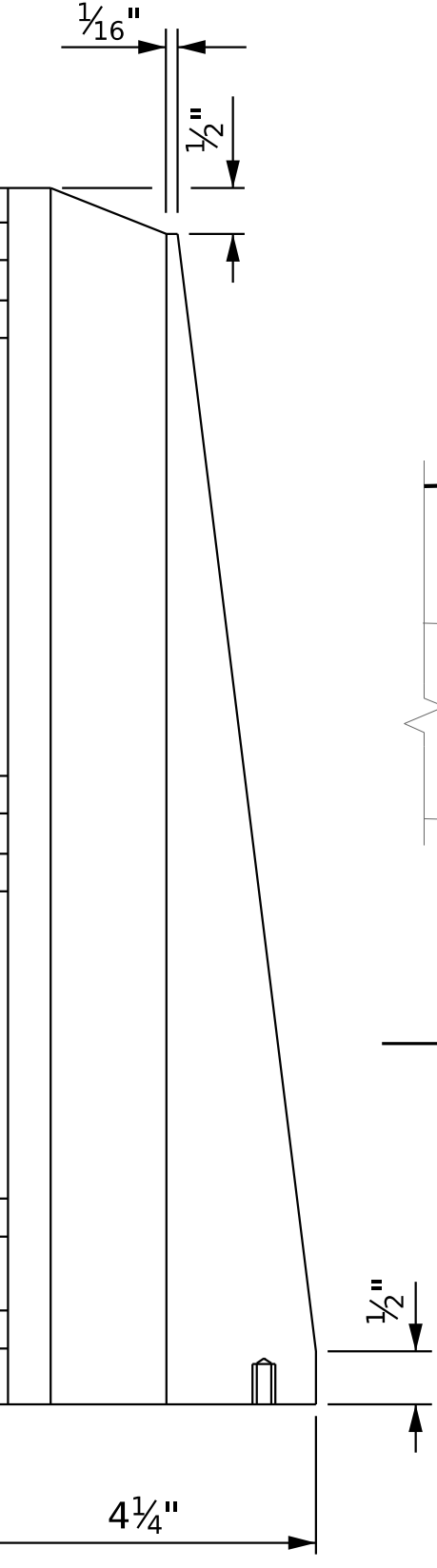
SECTION THRU PARAPET AND RAIL



PLAN

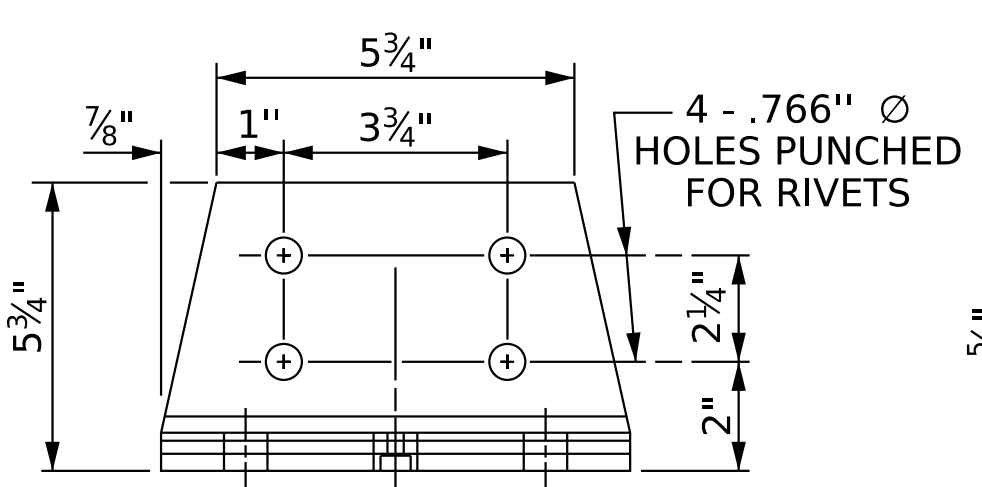


FRONT ELEVATION

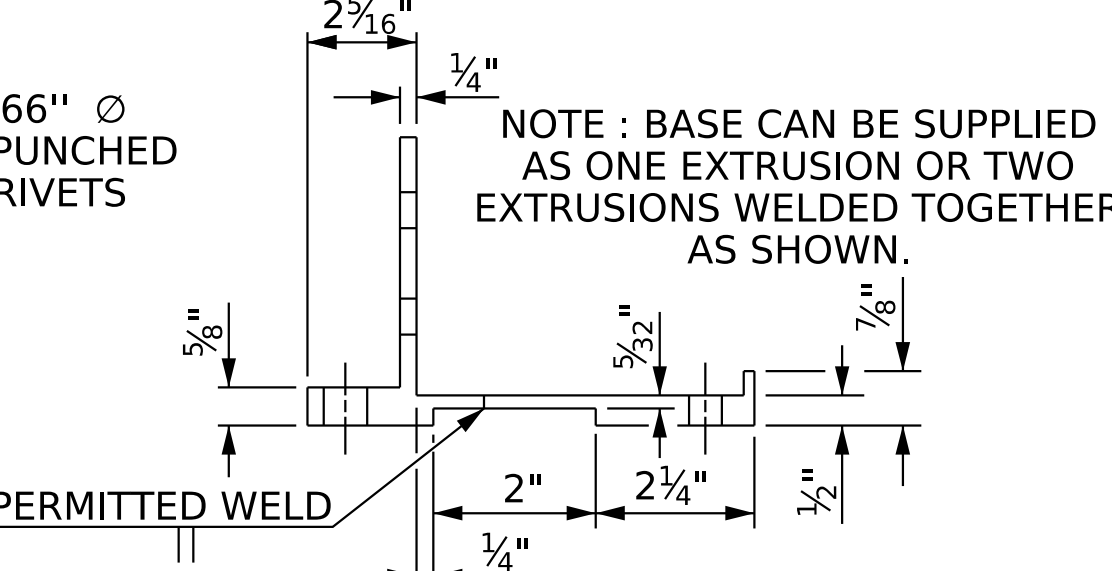


SIDE ELEVATION

DETAILS OF POST

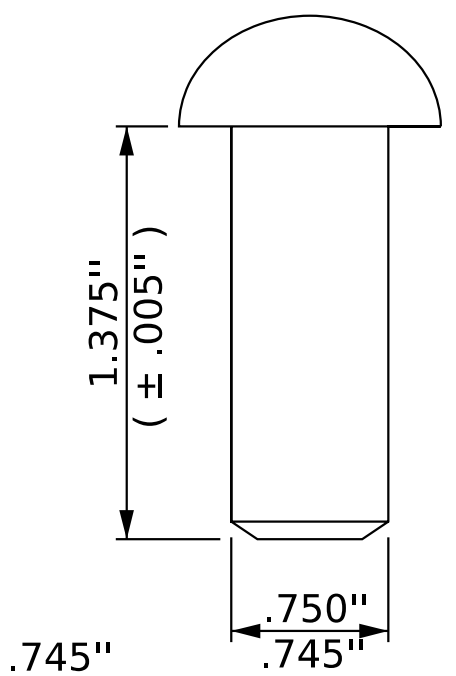


FRONT ELEVATION



SIDE ELEVATION

POST BASE DETAILS



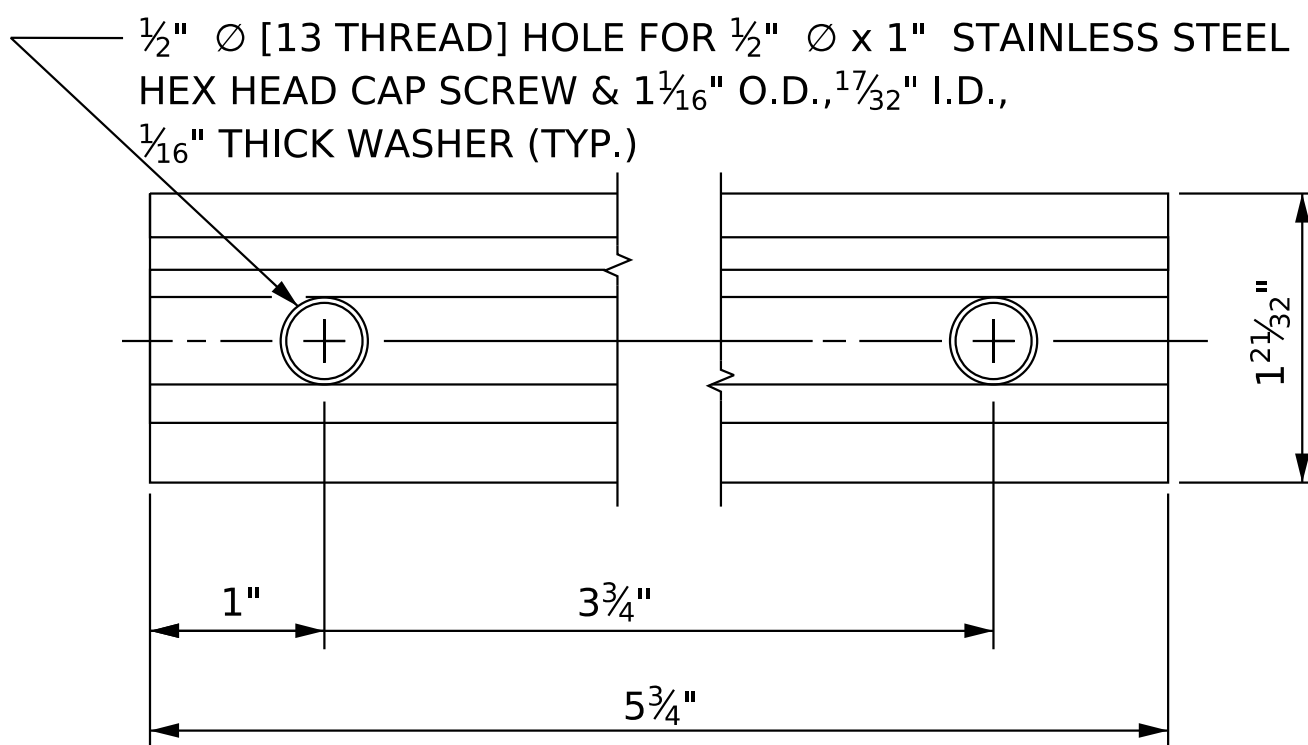
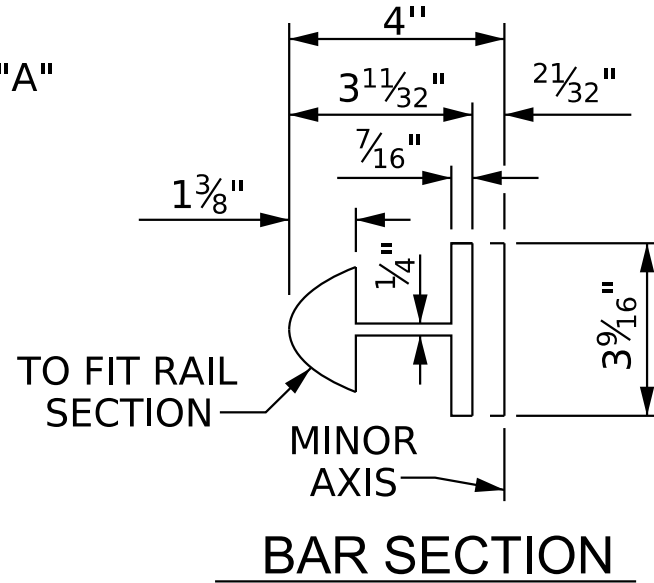
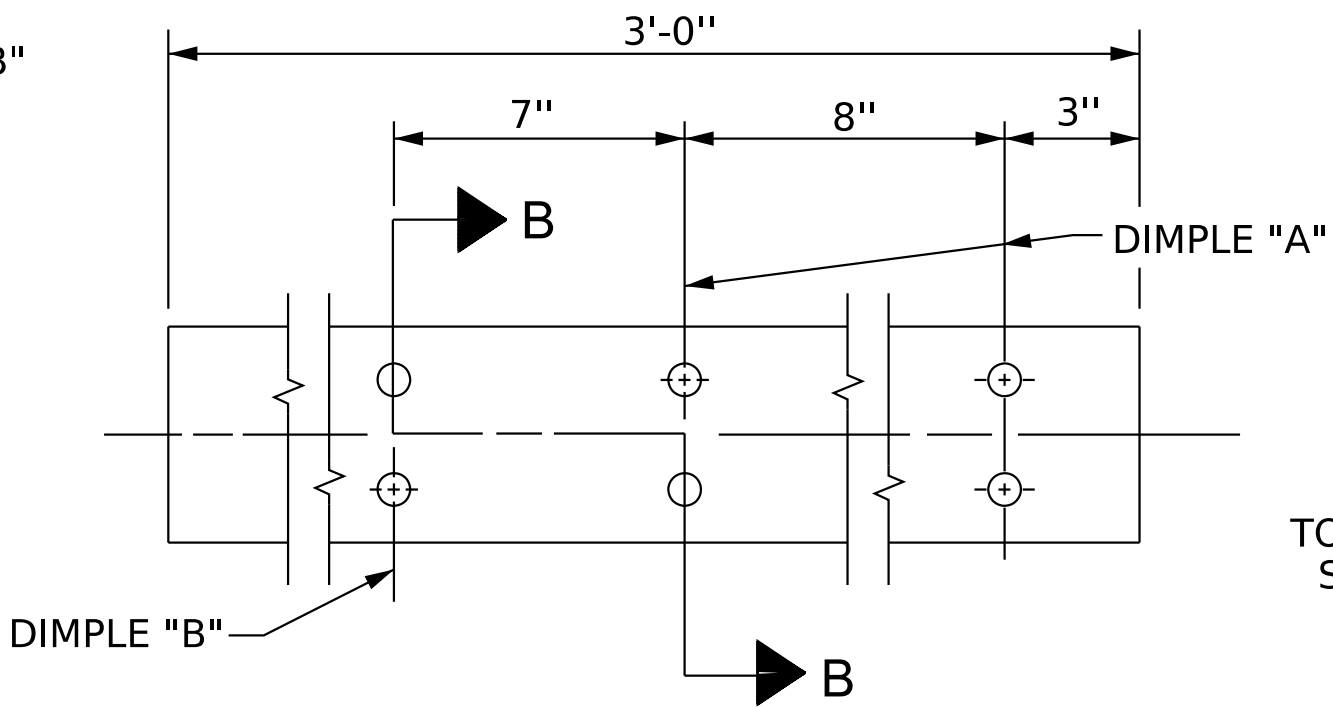
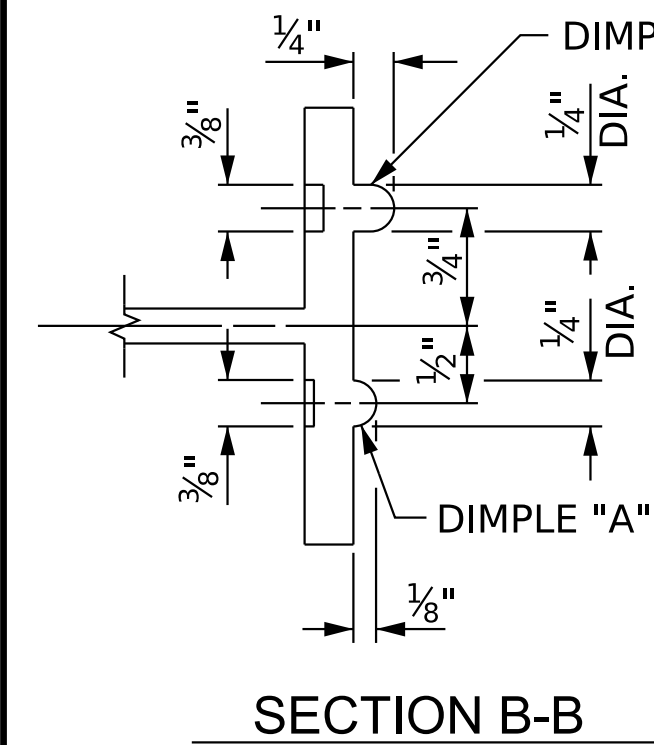
RIVET DETAIL

ASSEMBLED BY : R.G. GIESEN	DATE : 04/2026
CHECKED BY : A. L. PHILLIPS	DATE : 04/2026
DRAWN BY : EEM 6/94	REV. 6/13 MAA/GM
CHECKED BY : RGW 6/94	REV. 12/17 MAA/THC
	REV. 10/23 BNB/SNM

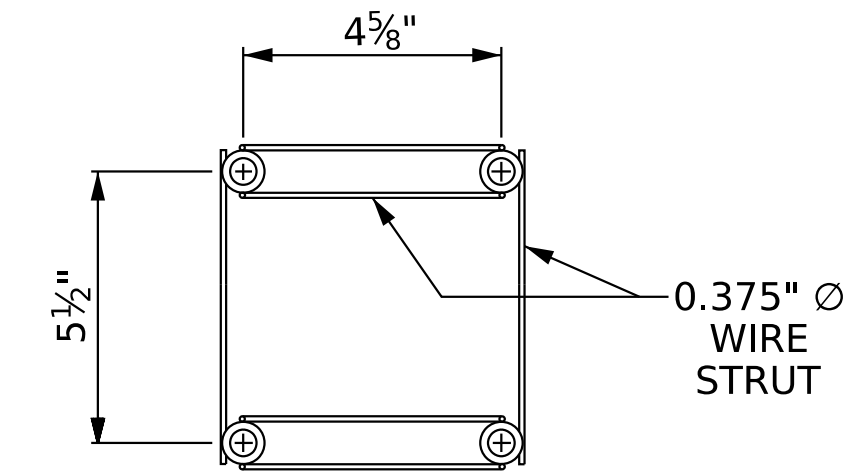
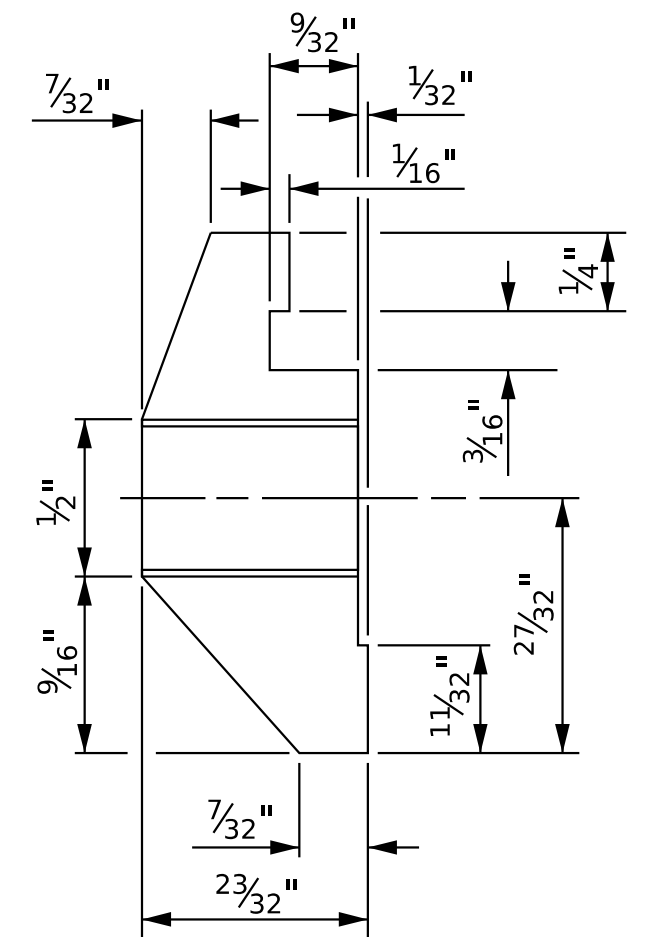
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K:\B01_Structures\Bridges\N\01036524 - I-5715 Structure Design\Coord\Drawn\Site *2\Special Approach Sub\Final\407_021_I5715_SML_SAS11_01.dgn 8/2/2026

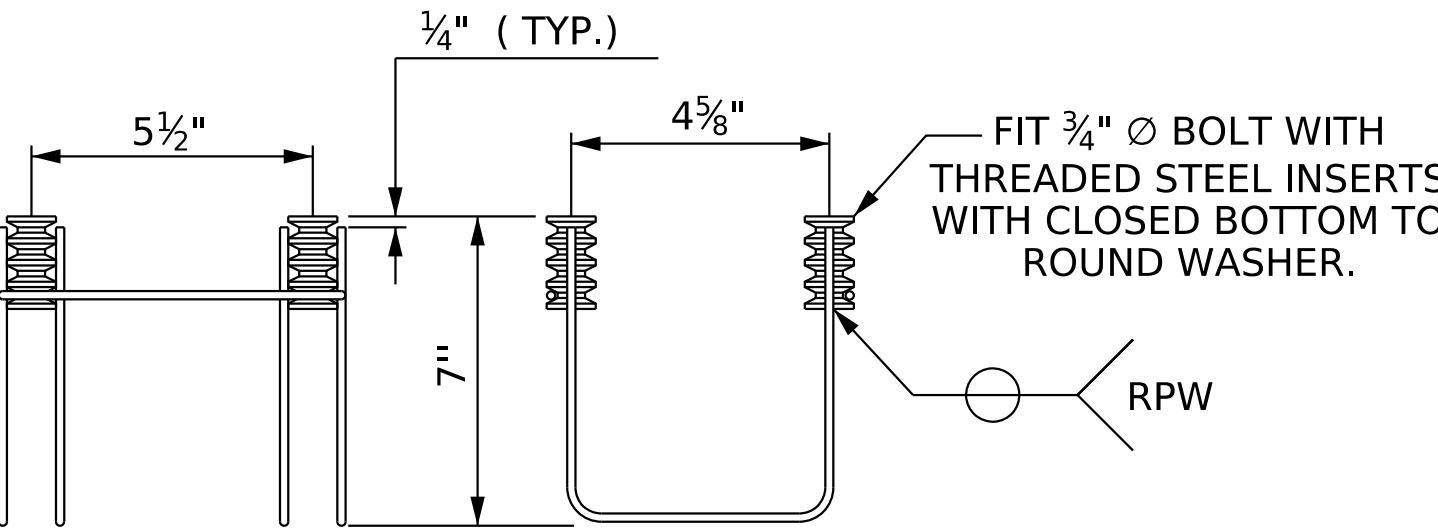
ASSEMBLED BY : R.G. GIESEN	DATE : 04/2026
CHECKED BY : A. L. PHILLIPS	DATE : 04/2026
DRAWN BY : EEM 6/94	REV. 6/13 MAA/GM
CHECKED BY : RGW 6/94	REV. 12/17 MAA/THC
	REV. 10/23 BNB/SNM



CLAMP BAR DETAIL
(4 REQUIRED PER POST)



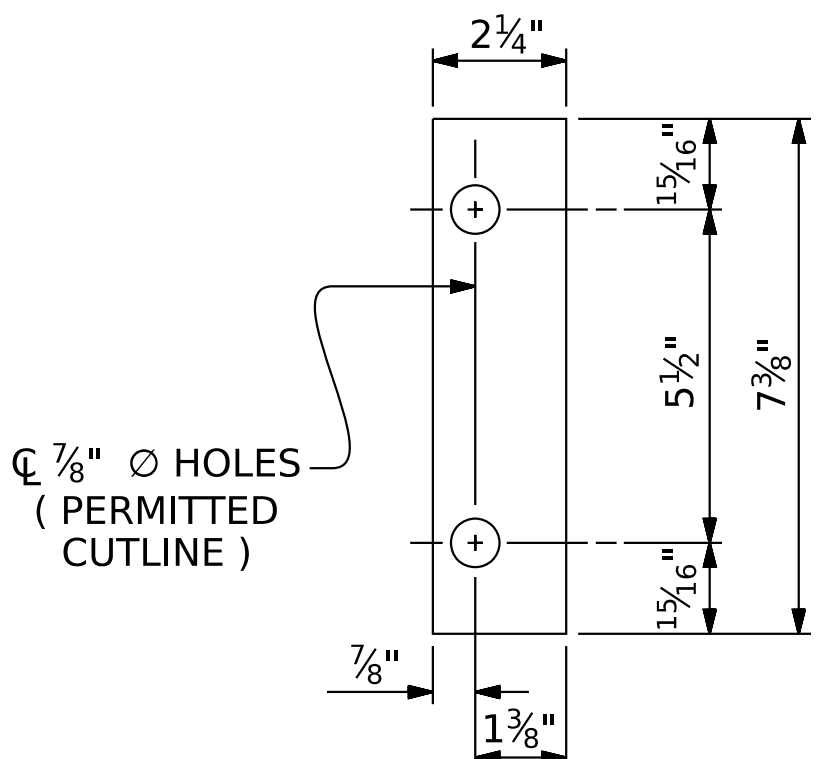
PLAN



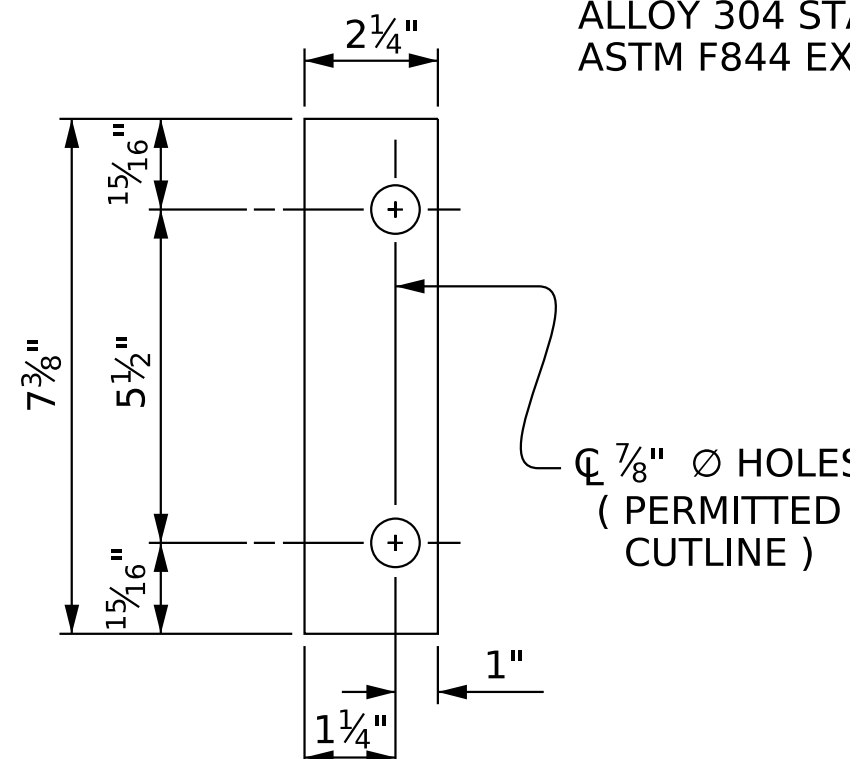
SIDE VIEW

ELEVATION

4-BOLT METAL RAIL ANCHOR ASSEMBLY
(40 ASSEMBLIES REQUIRED)



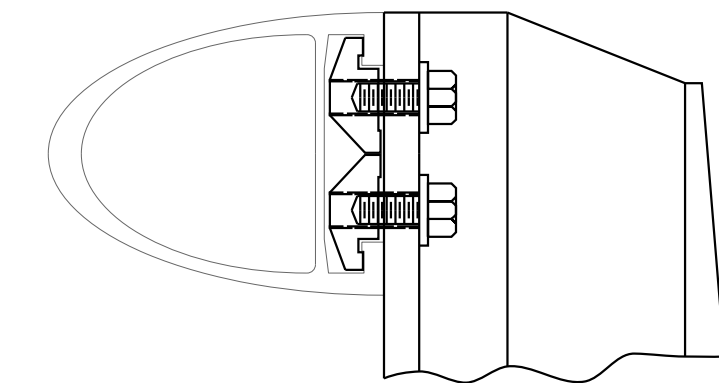
FRONT PLATE



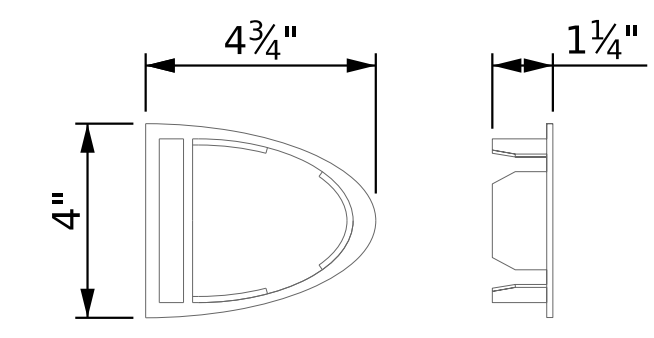
REAR PLATE

SHIM DETAILS

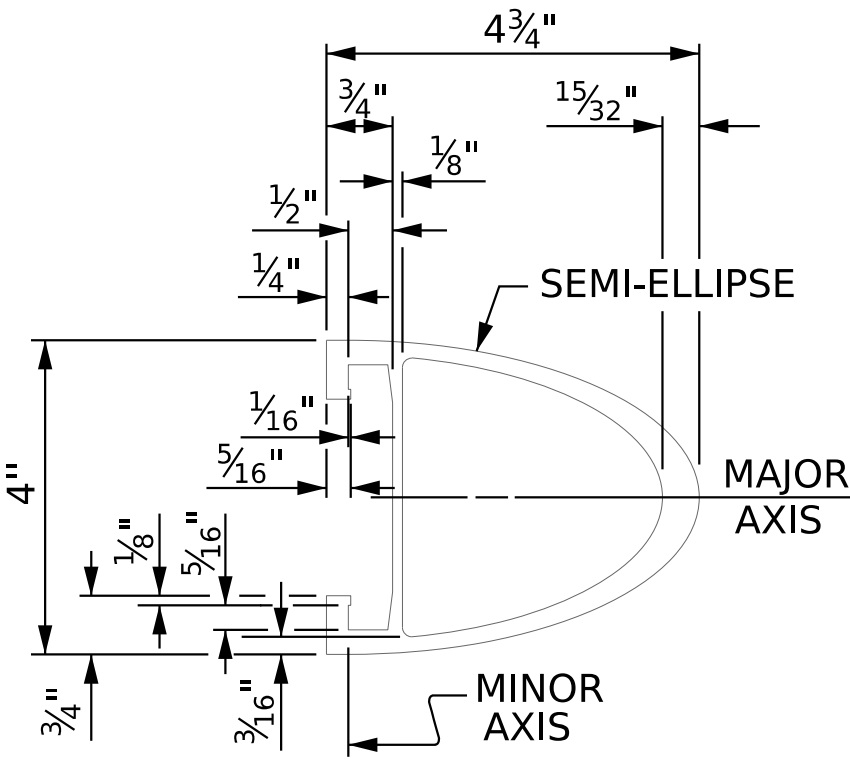
NOTE :
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR
SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



CLAMP ASSEMBLY



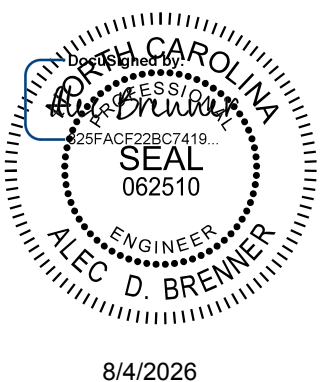
RAIL CAP



RAIL SECTION

PROJECT NO. I-5715
MECKLENBURG COUNTY
STATION: 31+15.82 -Y2-

SHEET 2 OF 3



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2			4			

STR. #7 STD. NO. BMR4

- NOTES**
- STRUCTURAL CONCRETE ANCHOR ASSEMBLY**
- THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
 - B. 4 - 3/4" Ø x 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø x 2 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
 - C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
 - D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF ASTM A123.
 - E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
 - F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.
- THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.
- WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF $1\frac{1}{2}$ ".
- B. $1 - \frac{3}{4}" \text{ } \varnothing \times 1\frac{5}{8}"$ BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE $\frac{3}{4}" \text{ } \varnothing \times 1\frac{5}{8}"$ GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A $\frac{7}{16}" \text{ } \varnothing$ WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS.

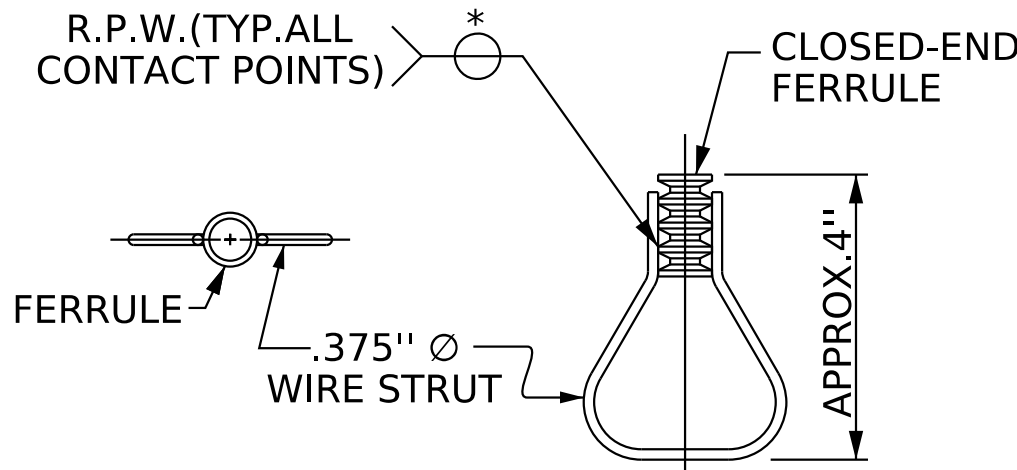
- A. ½" PLATES SHALL CONFORM TO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. ¾" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A ¾" Ø x 1½" BOLT WITH 2" O.D. WASHER IN PLACE. THE ¾" Ø x 1½" BOLT SHALL HAVE N. C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. ½" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE ¾" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP

THE COST OF THE ¾" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE ½" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE $\frac{3}{4}$ " $\times$ $1\frac{1}{8}$ " BOLT WITH WASHER SHALL BE REPLACED WITH A $\frac{3}{4}$ " $\times$ $6\frac{1}{2}$ " BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE $\frac{3}{4}$ " $\times$ $1\frac{1}{8}$ " BOLT SHALL APPLY TO THE $\frac{3}{4}$ " $\times$ $6\frac{1}{2}$ " BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. I-5715
MECKLENBURG COUNTY
 STATION: 31+15.82 -Y2-

SHEET 3 OF 3

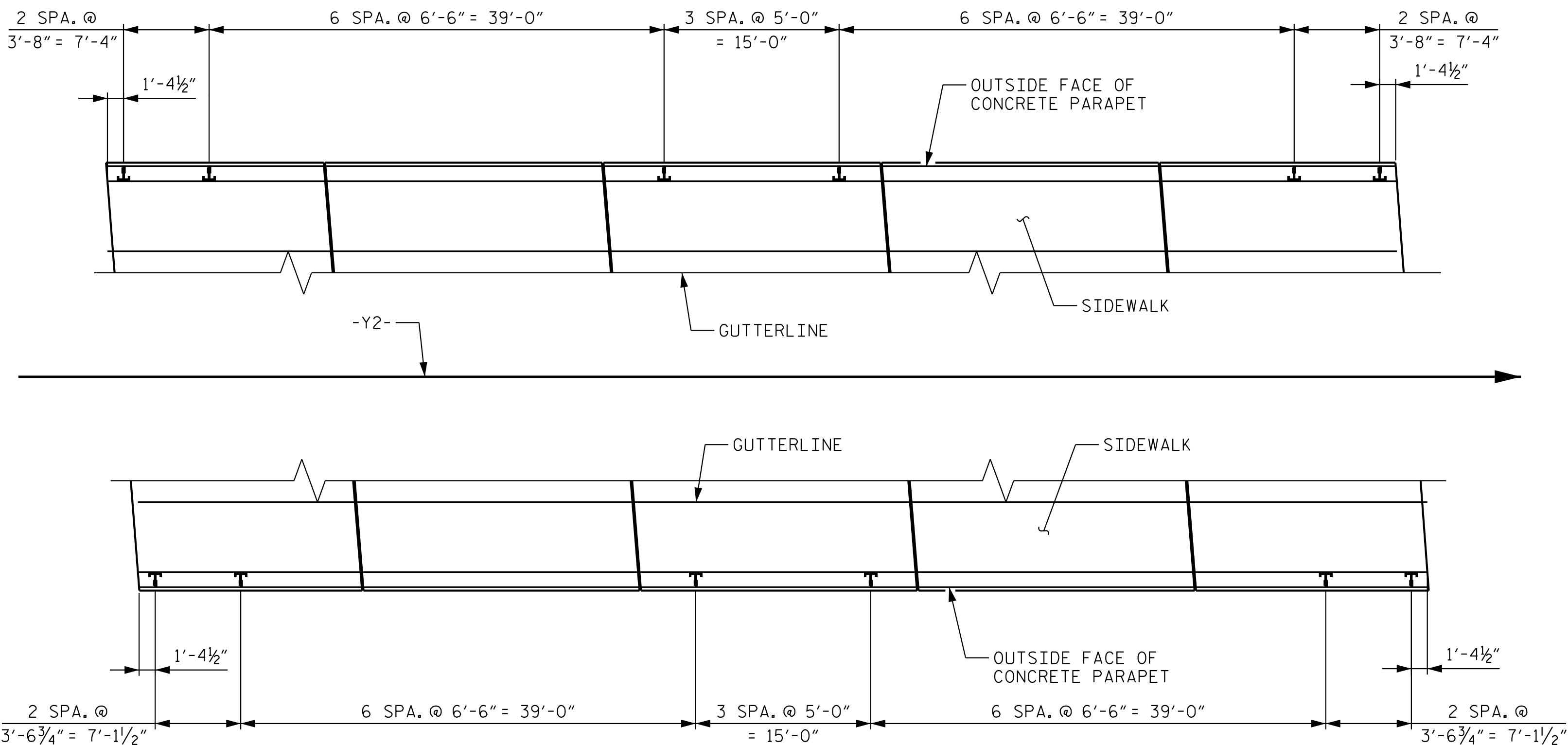
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

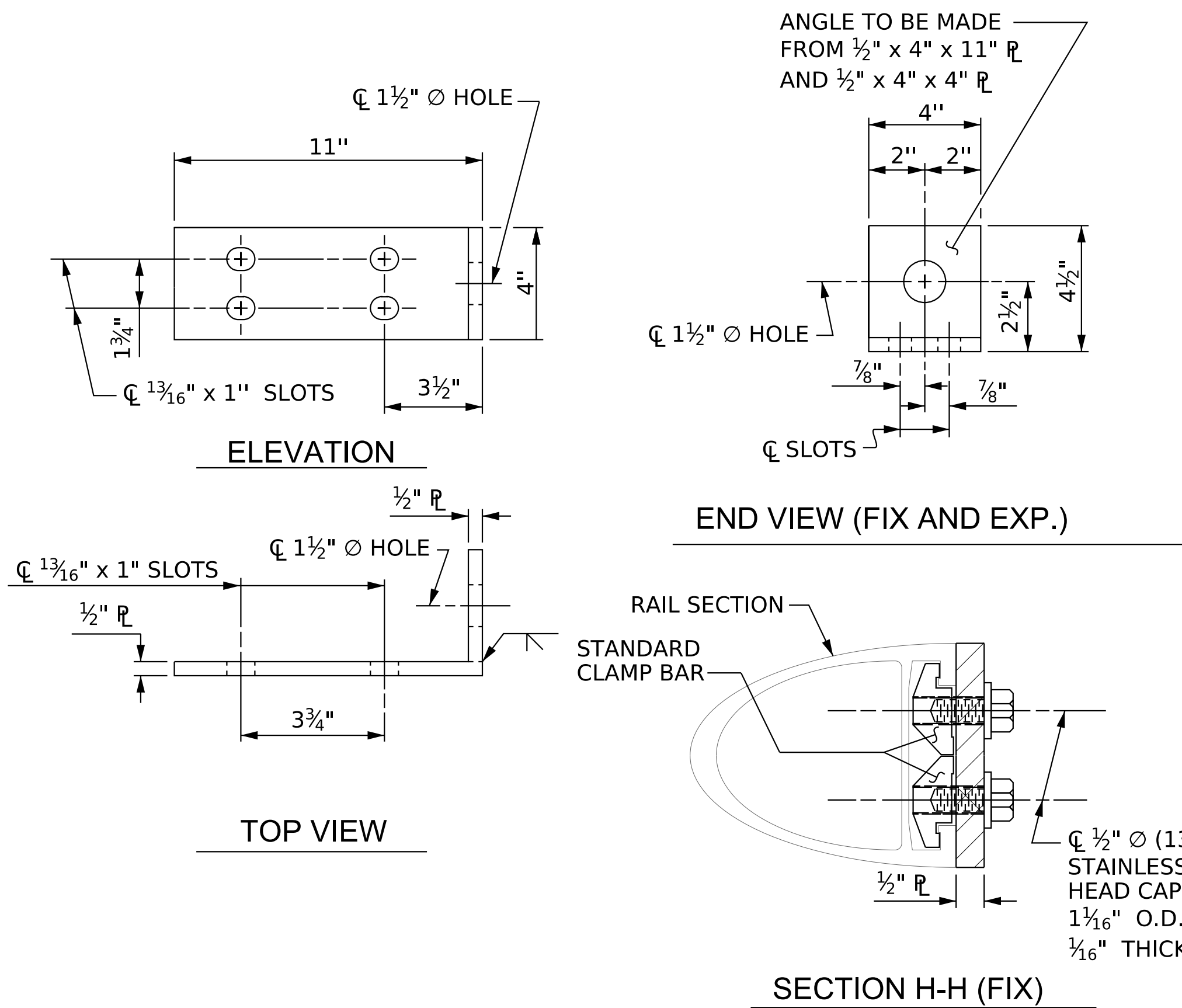
RAIL POST SPACINGS AND END OF RAIL DETAILS

REVISIONS						SHEET NO. S7-12
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1			3			TOTAL SHEETS 13
2			4			

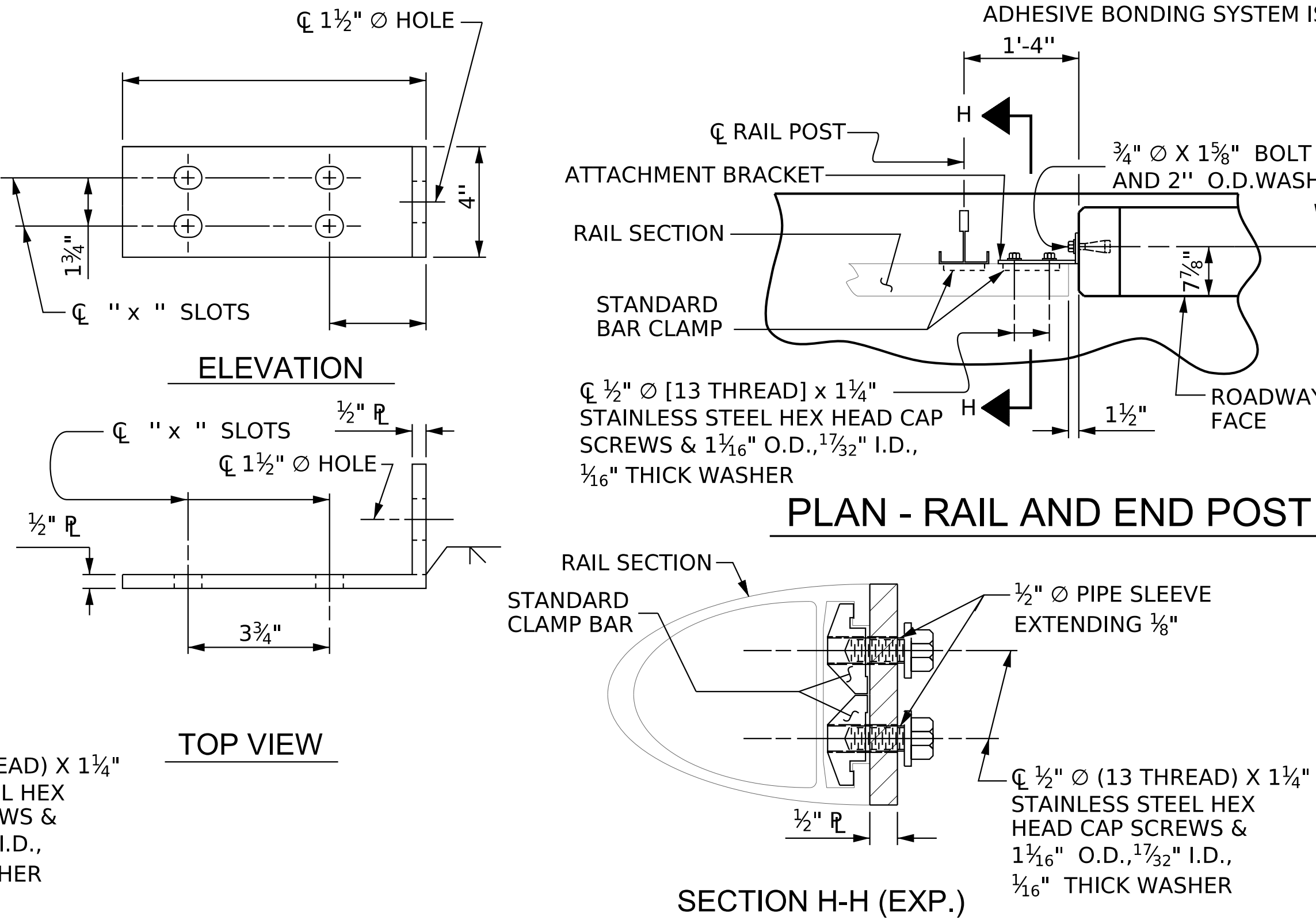
STR. #7 STD. NO. BMR2



PLAN OF RAIL POST SPACING



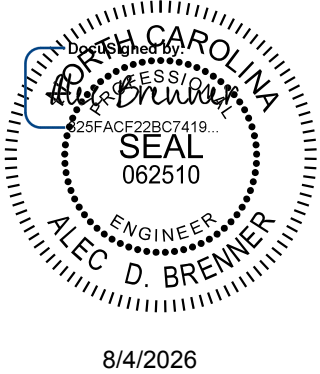
FIXED



EXPANSION

DETAILS FOR ATTACHING METAL RAIL TO END POST

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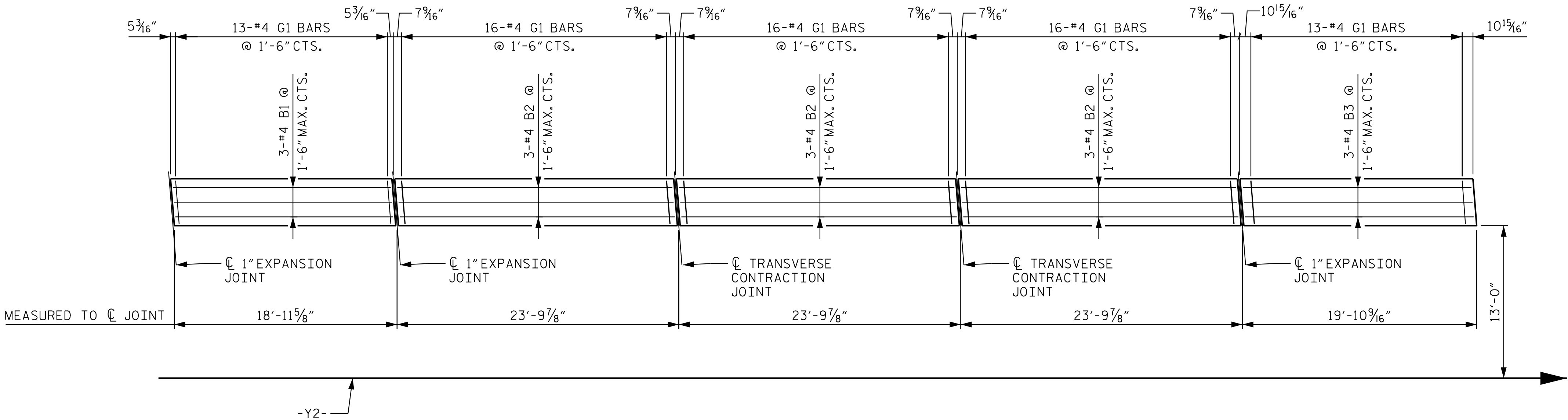


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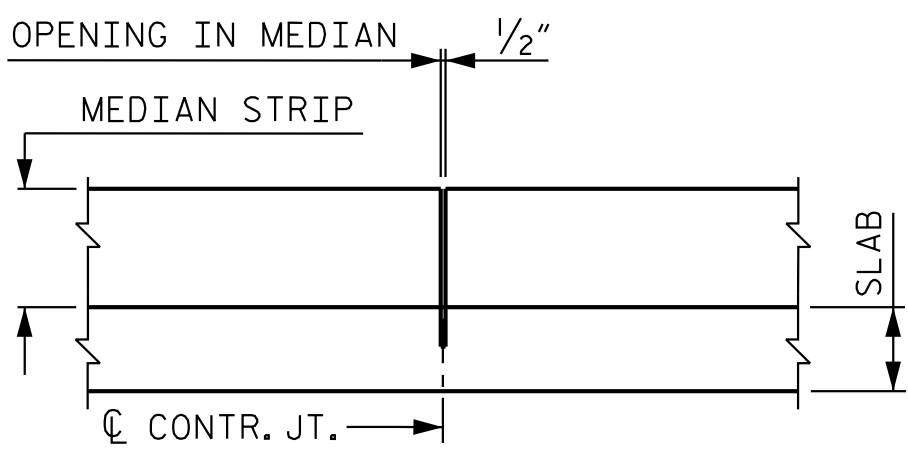
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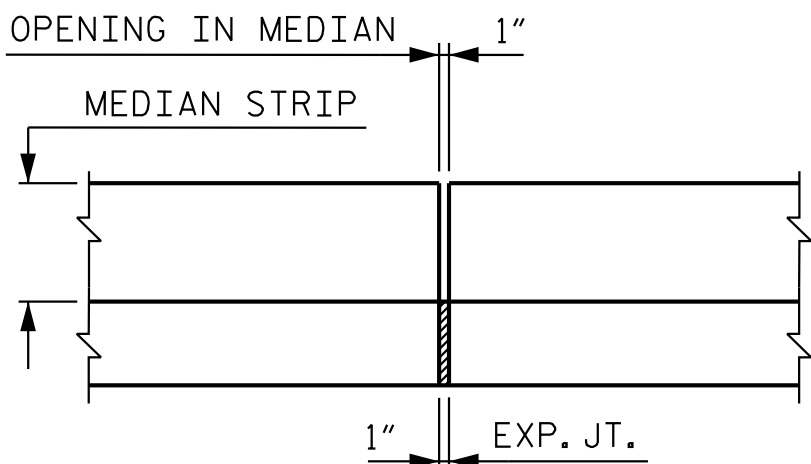
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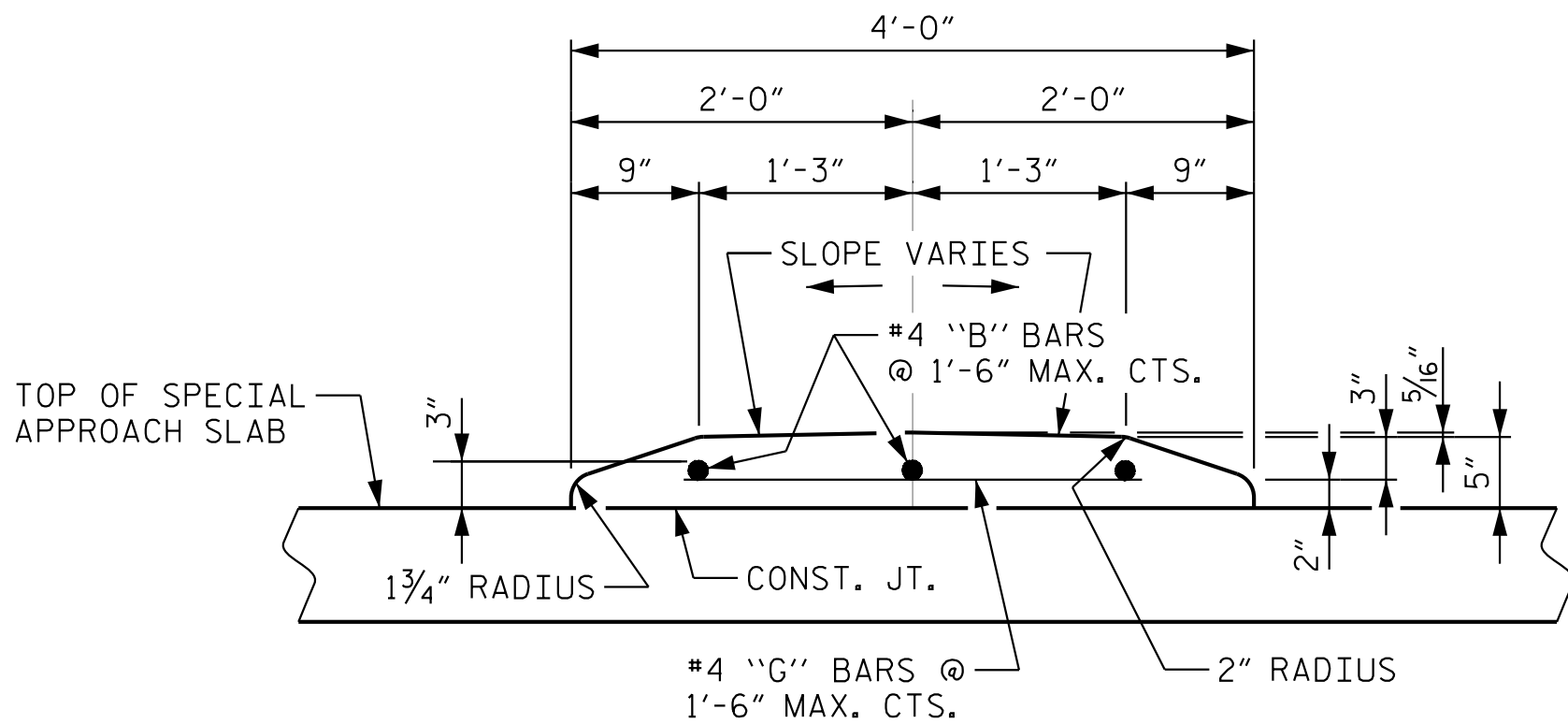
PLAN OF MEDIAN



DETAILS AT CONTRACTION JT.



DETAILS AT 1" EXPANSION JT.
AT EXPANSION JOINTS BETWEEN APPROACH
SLABS AND CONNECTOR SLABS



SECTION THRU MEDIAN

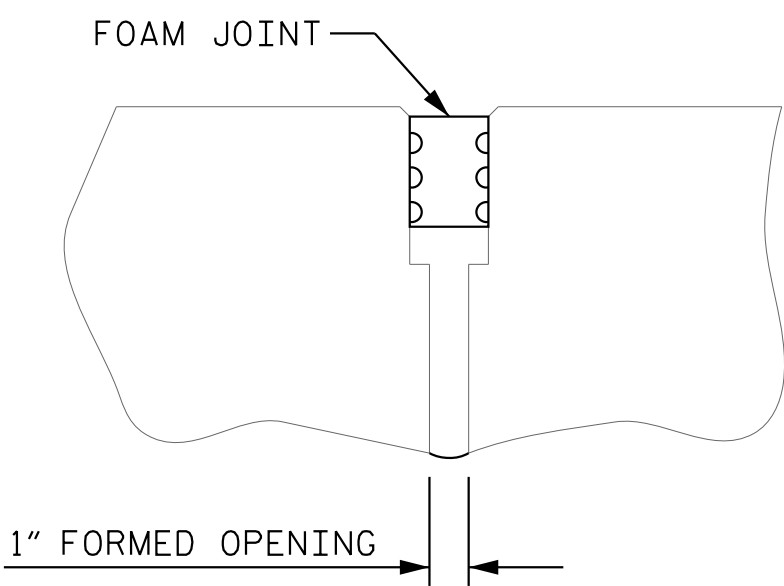
NOTES

ALL REINFORCING STEEL IN THE MEDIANS SHALL BE EPOXY COATED.

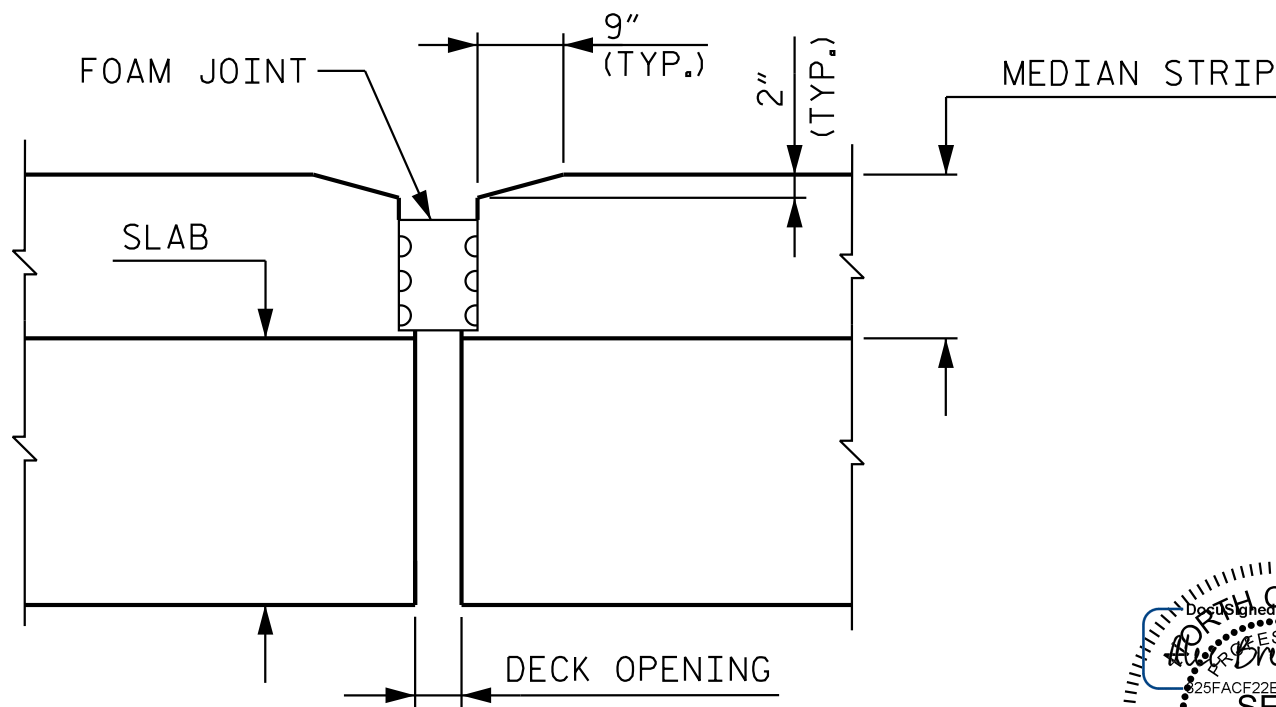
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINT WILL BE REQUIRED IN SEGMENTS LESS THAN 10 FEET IN LENGTH.

NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR MATERIALS OR LABOR REQUIRED TO CONSTRUCT MEDIAN. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR BRIDGE APPROACH SLABS.

REINFORCED CONCRETE MEDIAN SHALL BE PAID FOR WITH THE LUMP SUM UNIT PRICE OF "SPECIAL APPROACH SLABS @ STA. 31+15.82 -Y2-".



DETAILS AT EXPANSION JOINT
AT EXPANSION JOINTS BETWEEN APPROACH
SLABS AND BEGIN AND END BRIDGE



BILL OF MATERIAL

CONCRETE MEDIAN

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	3	4	STR	18'-6"	37
* B2	9	4	STR	23'-5"	141
* B3	3	4	STR	19'-5"	39
* G1	74	4	STR	3'-8"	181

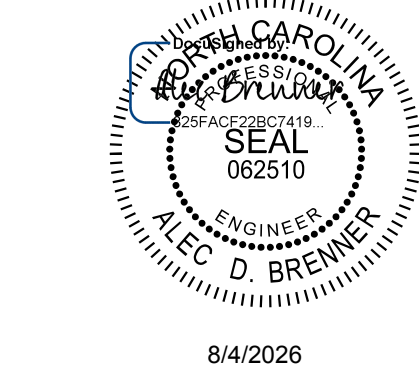
*EPOXY COATED REINFORCING STEEL	LBS.	398
CLASS AA CONCRETE	C.Y.	6.0

PROJECT NO. I-5715
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE MEDIAN
DETAILS

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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS.....	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE.....	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W ...	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞"Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST ⅝" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY ⅛" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.