

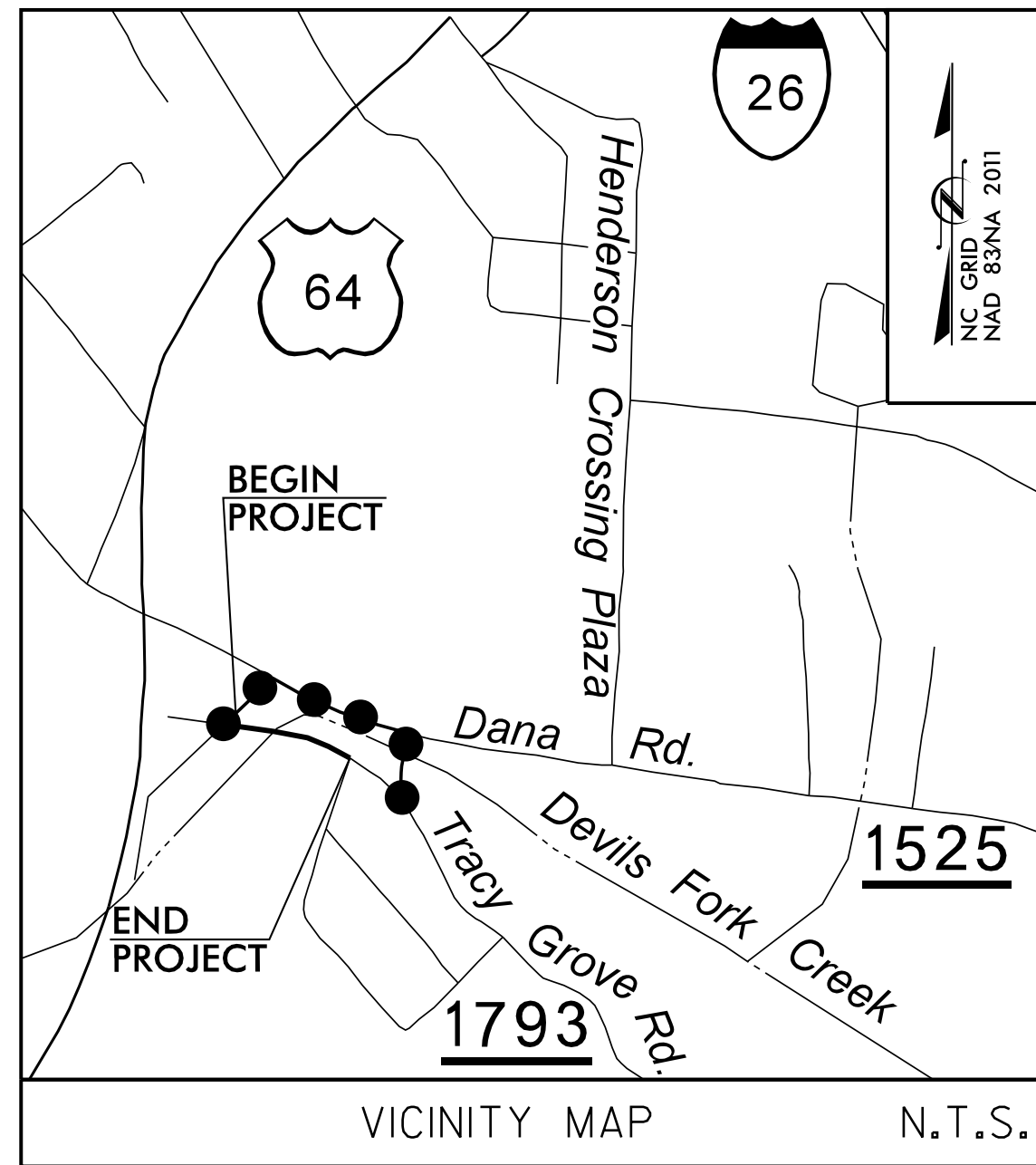
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for the convenience of the user
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numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

TIP PROJECT: B-5929

CONTRACT: DN01162



DETOUR ROUTE

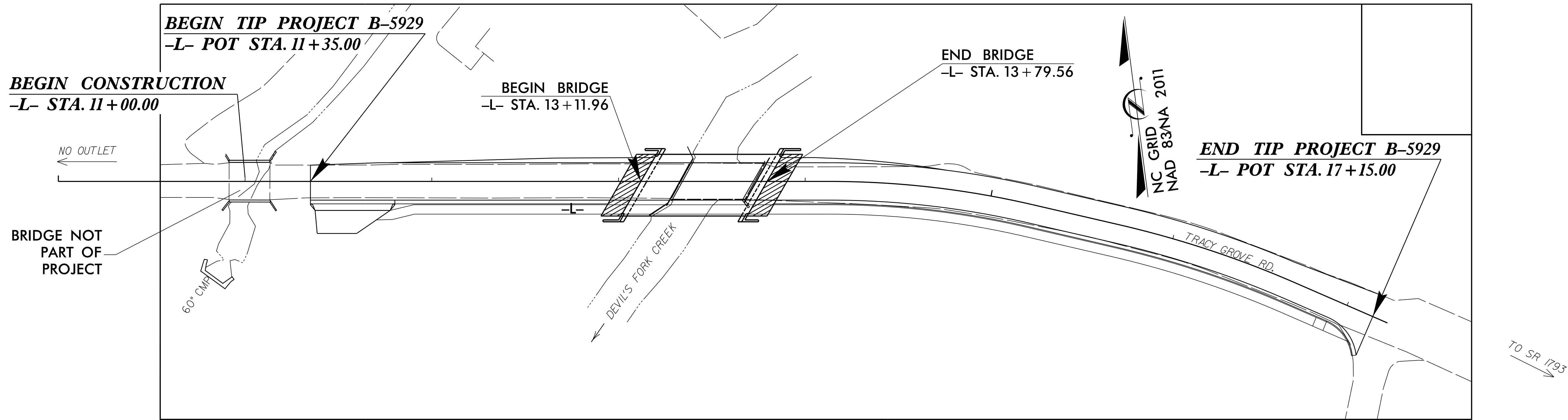
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

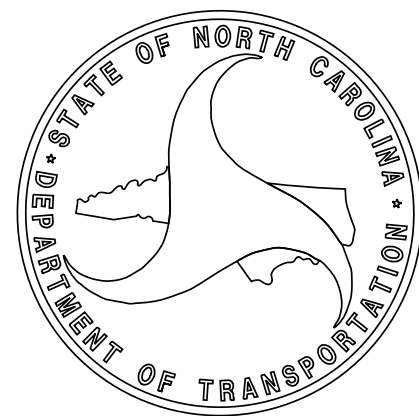
LOCATION: BRIDGE NO. 350 OVER DEVILS FORK CREEK
ON TRACY GROVE ROAD

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5929		
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
50150.1.1	BRSTP-1932(9)	P.E.	
50150.2.1	BRSTP-1932(9)	ROW/UTIL.	
50150.3.1	BRSTP-1932(9)	CONST.	



STRUCTURE



DESIGN DATA

ADT (2026) = 600
ADT (2046) = 1011
T = 7 %
V = 35 MPH

FUNC CLASS=LOCAL RURAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5929 = 0.097 MI.
LENGTH STRUCTURE TIP PROJECT B-5929 = 0.013 MI.
TOTAL LENGTH TIP PROJECT B-5929 = 0.11 MI.

Prepared for the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2024 STANDARD SPECIFICATIONS

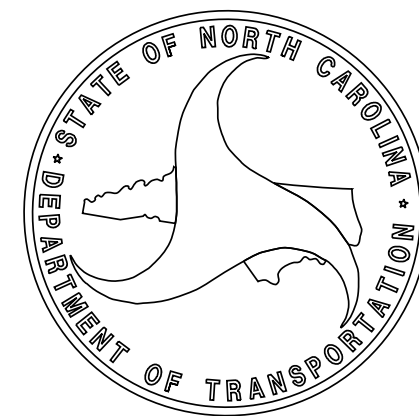
LETTING DATE:
OCTOBER 13, 2026

HARDY WILLIS, PE
PROJECT ENGINEER

RYAN SHIPMAN, PE
PROJECT DESIGN ENGINEER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



-0.3157% +1.0076%

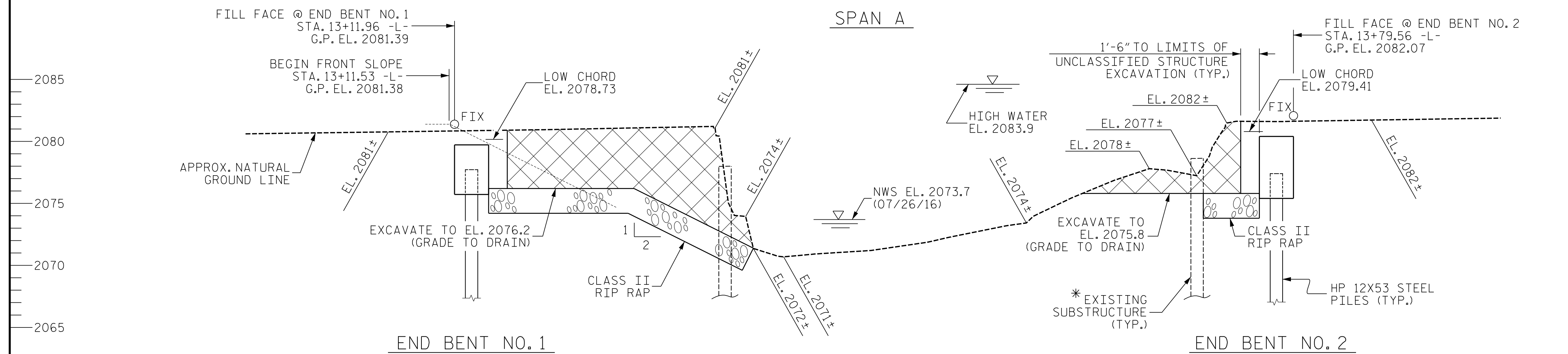
PI = 12+10.00 -L-
EL = 2080.36
VC = 80'

GRADE DATA -L-

+1.0076% +2.3376%

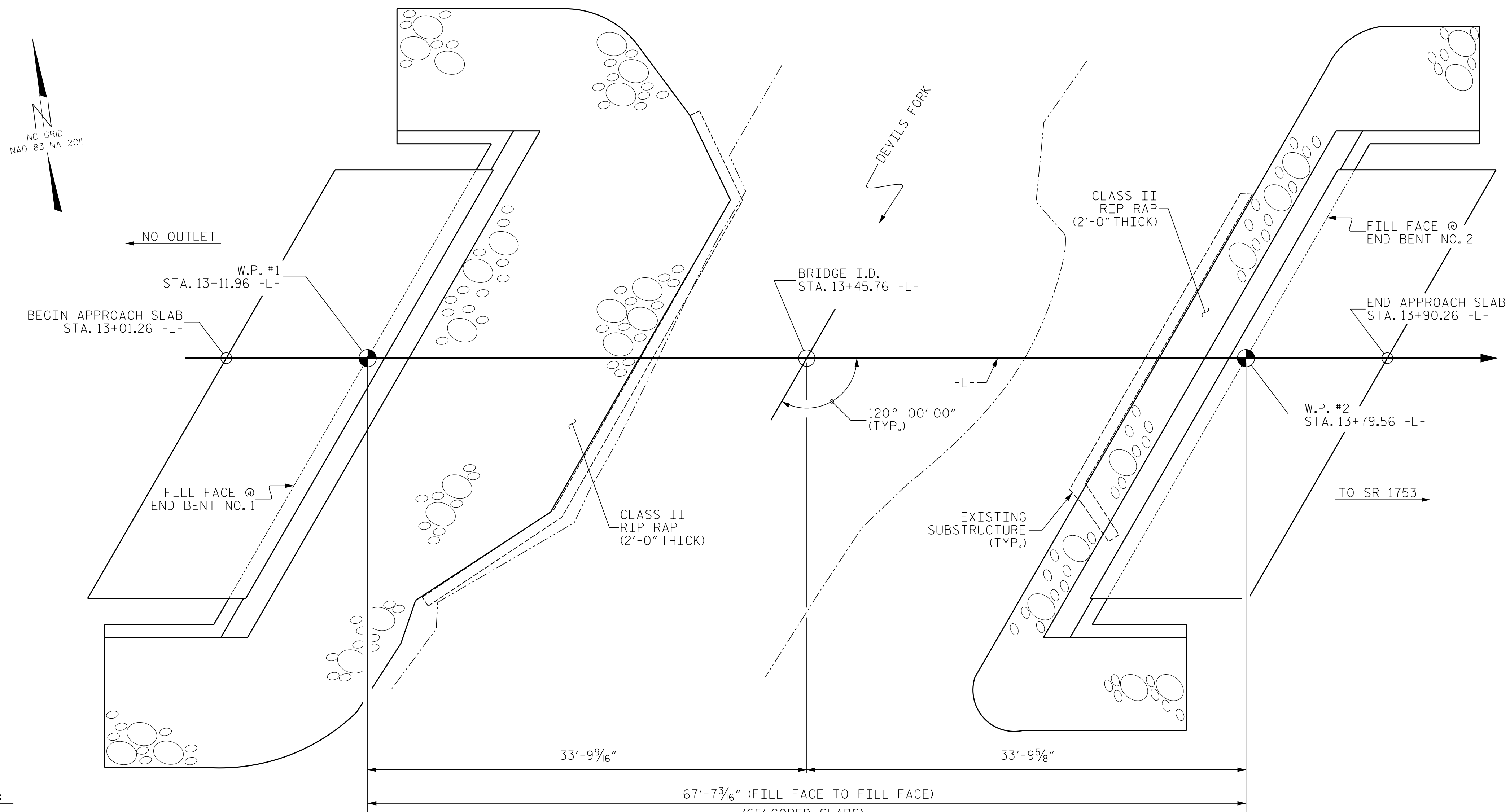
PI = 14+30.00 -L-
EL = 2082.58
VC = 80'

GRADE DATA -L-



SECTION ALONG Q SURVEY -L-

SECTIONS AT END BENTS ARE AT RIGHT ANGLES



NOTES:

END BENTS ARE PARALLEL.
CORED SLABS ARE PARALLEL TO -L-.

PLAN ALONG Q SURVEY -L-

(PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)

I HEREBY CERTIFY
THAT THESE PLANS
ARE THE
AS-BUILT PLANS.

PROJECT NO. B-5929

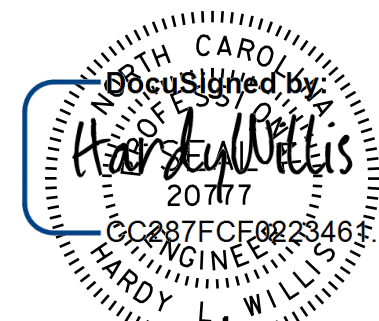
HENDERSON COUNTY

STATION: 13+45.76 -L-

SHEET 1 OF 2 REPLACES BRIDGE #350

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER DEVILS FORK
ON TRACY GROVE RD. BETWEEN
US HWY 64 & SR 1753

6/4/2026

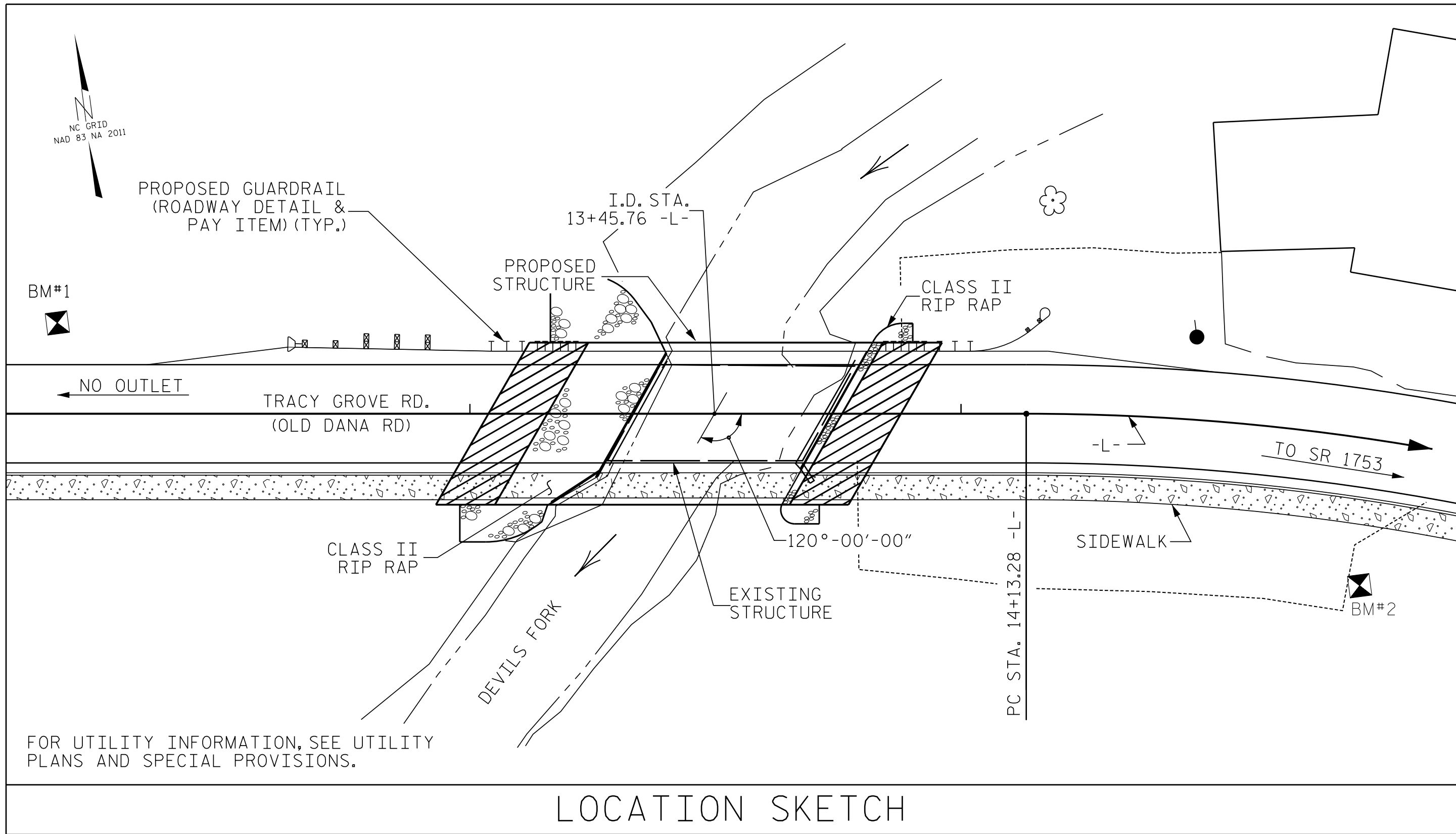
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED
JMT Johnson, Mirmiran, & Thompson Inc.
1318 Patton Ave Suite F,
Asheville, NC 28806
License No: C-3097

DWN. BY: WC DATE: 06/17
CHKD. BY: HLW DATE: 06/17
DSG. ENG. OF RECORD: RTS DATE: 06/17

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-1
2			4			
TOTAL SHEETS						25

V & M PROJECT NO.: 31640-05 HENDERSONVILLE B-5929

BM #1: CHISELED X IN TOP BOLT OF FIRE HYDRANT, 18.5' LEFT OF STA. 12+16 -L-, ELEV. 2082.70



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE = 1800 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 2082.2 FT
BASE DISCHARGE = 2600 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 2083.9 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 1930 CFS
OVERTOPPING FREQUENCY = 25+ YRS
OVERTOPPING ELEVATION = 2082.5 FT
DRAINAGE AREA = 8.24 SQ. MI.

GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 40'-8" OF TIMBER DECK ON STEEL I-BEAMS WITH A CLEAR RDWY WIDTH OF 19 FT., ON END BENTS OF TIMBER CAP, TIMBER PILES, AND REINFORCED CONCRETE, LOCATED AT THE PROPOSED SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

NOTE SPECIAL INSTRUCTIONS ON SHEET S-1 REGARDING REMOVAL OF EXISTING ABUTMENTS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18- EVALUATING SCOUR AT BRIDGES".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS (360,000 KG) OF REINFORCING STEEL, ONE 30 INCH (760 MM) SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS (360,000 KG) OF REINFORCING STEEL, TWO 30 INCH (760 MM) SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPliced BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

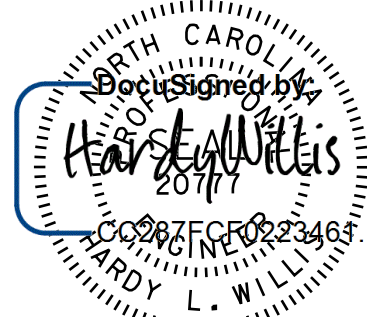
FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

FOR CORED SLAB AND BOX BEAM POST TENSIONING, SEE SPECIAL PROVISIONS.

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE:
SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND $f_y = 60\text{ksi}$.



6/4/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

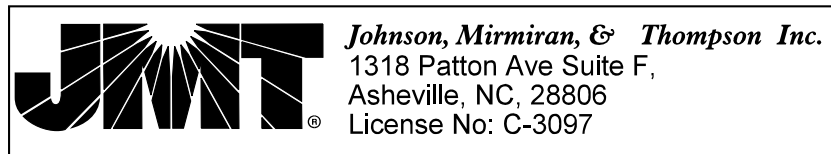
PROJECT NO. B-5929

HENDERSON COUNTY

STATION: 13+45.76 -L-

SHEET 2 OF 2 REPLACES BRIDGE #350

TOTAL BILL OF MATERIAL																			
	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS AA CONCRETE	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES	STEEL PILE POINTS	THREE BAR METAL RAIL	42" OREGON RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-0" PRESTRESSED CONCRETE CORED SLABS		
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YARDS	CU. YARDS	LUMP SUM	LBS.	LBS.	EACH	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	TONS	SQ. YARDS	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE				15.3		LUMP SUM		760					56.8	65.0			LUMP SUM	11	715.0
END BENT 1			LUMP SUM		24.5		2956		7	7	140	7			110	123			
END BENT 2			LUMP SUM		29.7		3220		7	7	105	7			40	42			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	15.3	54.2	LUMP SUM	6176	760	14	14	245	14	56.8	65.0	150	165	LUMP SUM	11	715.0



DWN. BY: WC
CHKD. BY: HLW
DSG. ENG. OF RECORD.: RTS

DATE: 06/17
DATE: 06/17
DATE: 06/17

REVISIONS						SHEET NO. S-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles **			Drilled-In Piles		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent #1	7	156	See Substructure Plans	20	n/a	2058.00	260							
End Bent #2	7	156	See Substructure Plans	15	n/a	2064.00	260							
TOTAL QUANTITY:														

* $RDR = \frac{Factored\ Resistance + Factored\ Drag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Drag\ Load\ Resistance + Nominal\ Resistance\ from\ Scourable\ Material$

** Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent #1				0.60		
End Bent #2				0.60		

* Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent #1				7
End Betn #2				7
TOTAL QUANTITY:				14

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
TOTAL QUANTITY:		

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT

* EST = Pile order lengths from estimated pile lengths; DPT = Pile order lengths based on Dynamic Pile Testing. For groups of end bents/bents with pile order lengths based on DPT testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the DPT.

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANARD SPECIFICATIONS.

PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 78 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE.

STEEL H-PILES POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO. 1 AND 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 20,000 TO 50,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-5929

Henderson COUNTY

STATION: 13+45.76 -L-

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Luis A Campos, #037845) on 07-19-2017.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

Sealed by Hardy Willis 07-19-2017 037845 HARDY L. WILLIS 6/4/2026 SIGNATUREDATE	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
	PILE FOUNDATION TABLES					
	REVISIONS					
	SHEET NO. S-3					
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	NO. 1 2	BY:	DATE:	NO. 3 4	BY:	DATE:
TOTAL SHEETS 25						

LOAD FACTORS: _____

NOTES:

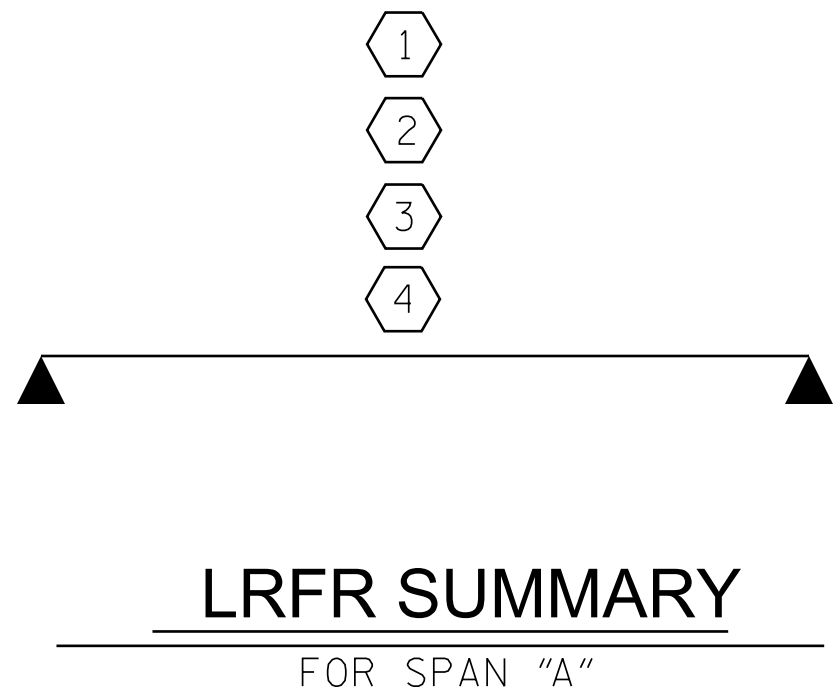
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
4	EMERGENCY VEHICLE LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER	
EL - EXTERIOR LEFT GIRDER	
ER - EXTERIOR RIGHT GIRDER	

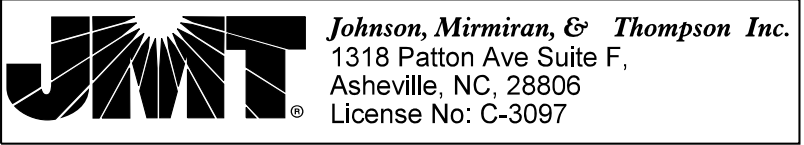


PROJECT NO. B-5929
HENDERSON COUNTY
 STATION: 13+45.76 -L-



6/4/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

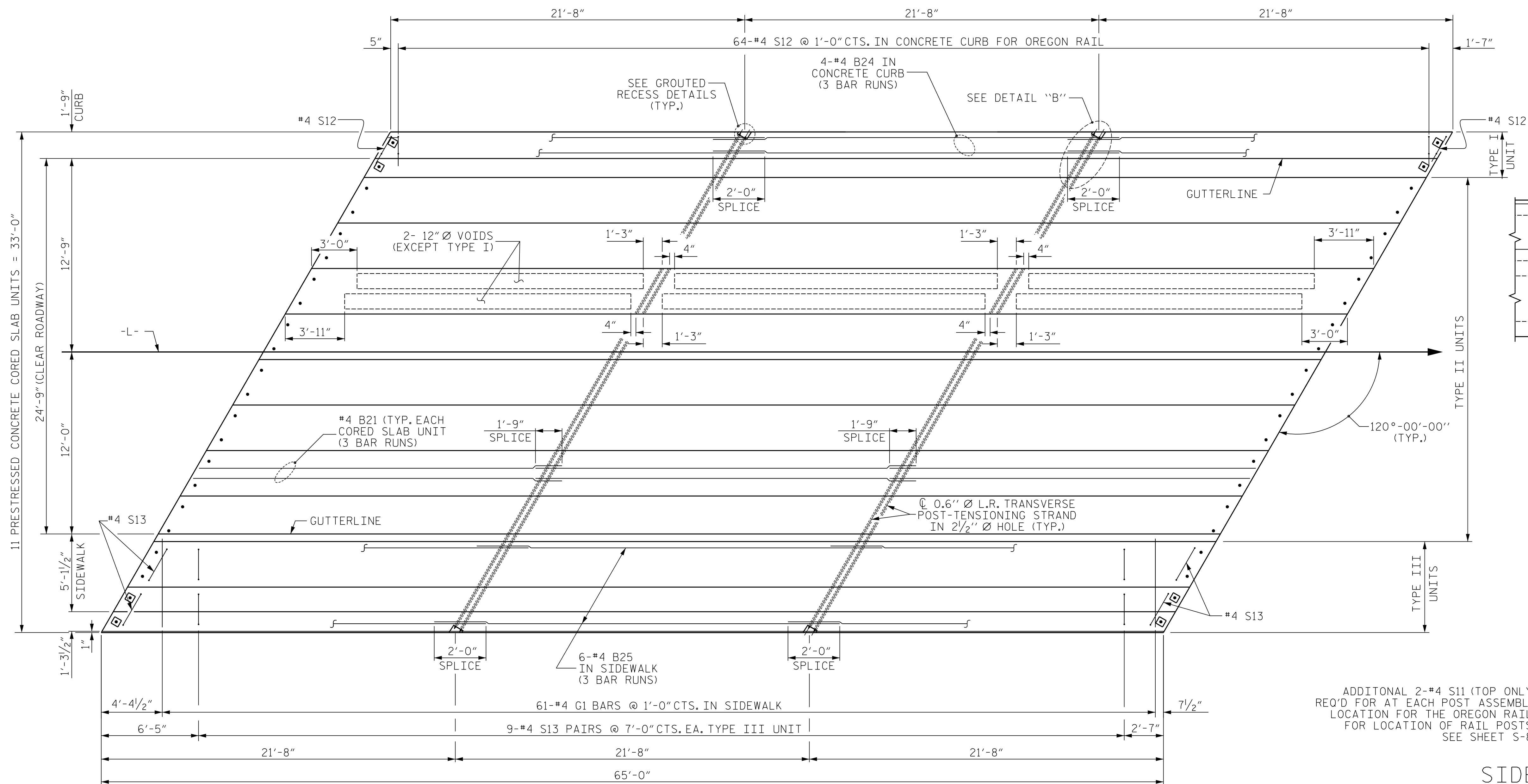


ASSEMBLED BY : WC		DATE : 6-2017	
CHECKED BY : RTS		DATE : 7-2017	
DRAWN BY : CVC	6/10	REV. BY : BNB/AKP	06/23
CHECKED BY : DNS	6/10	.	

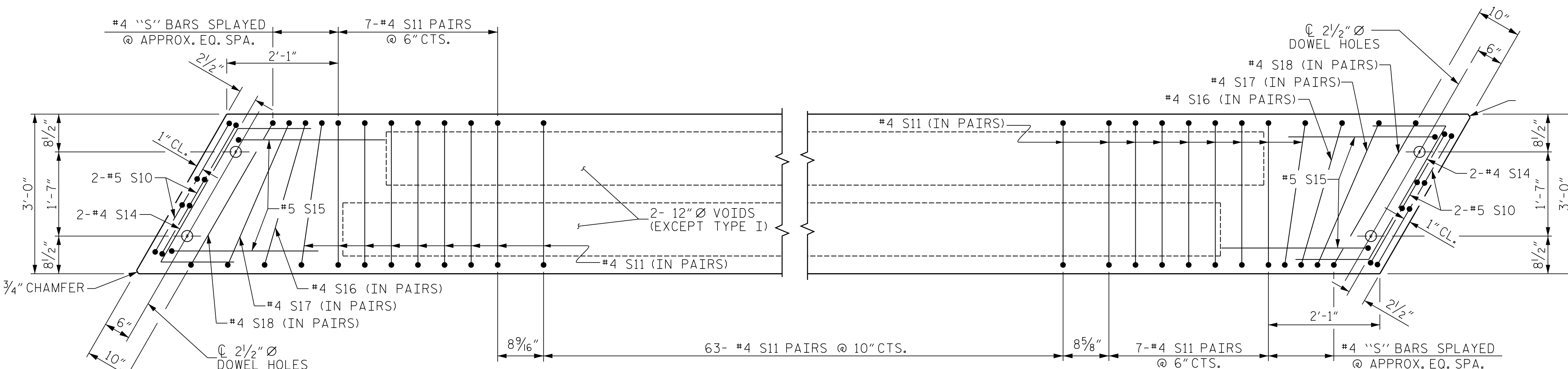
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD
LRFR SUMMARY FOR
65' CORED SLAB UNIT
120° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET
NO.	BY:	DATE:	NO.	BY:	DATE:	5-
1			3			TOTAL SHEETS
2			4			2

V & M PROJECT NO.: 31640-05 (HENDERSONVILLE B-5929)

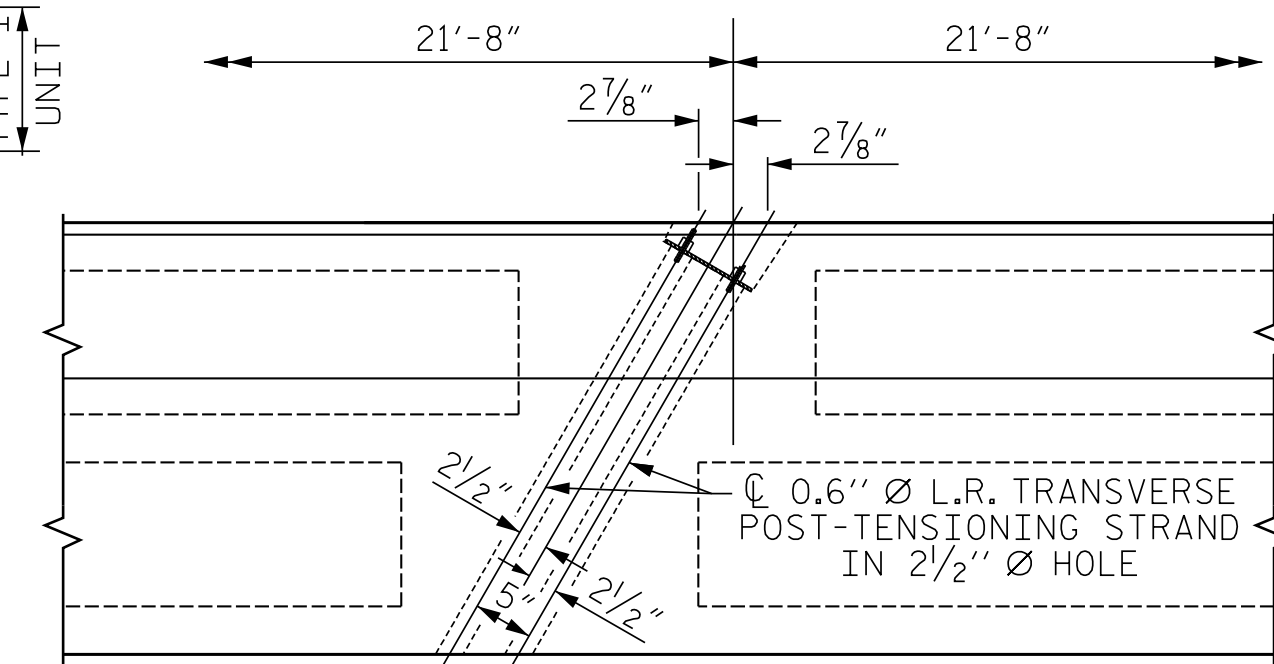


PLAN OF SPAN



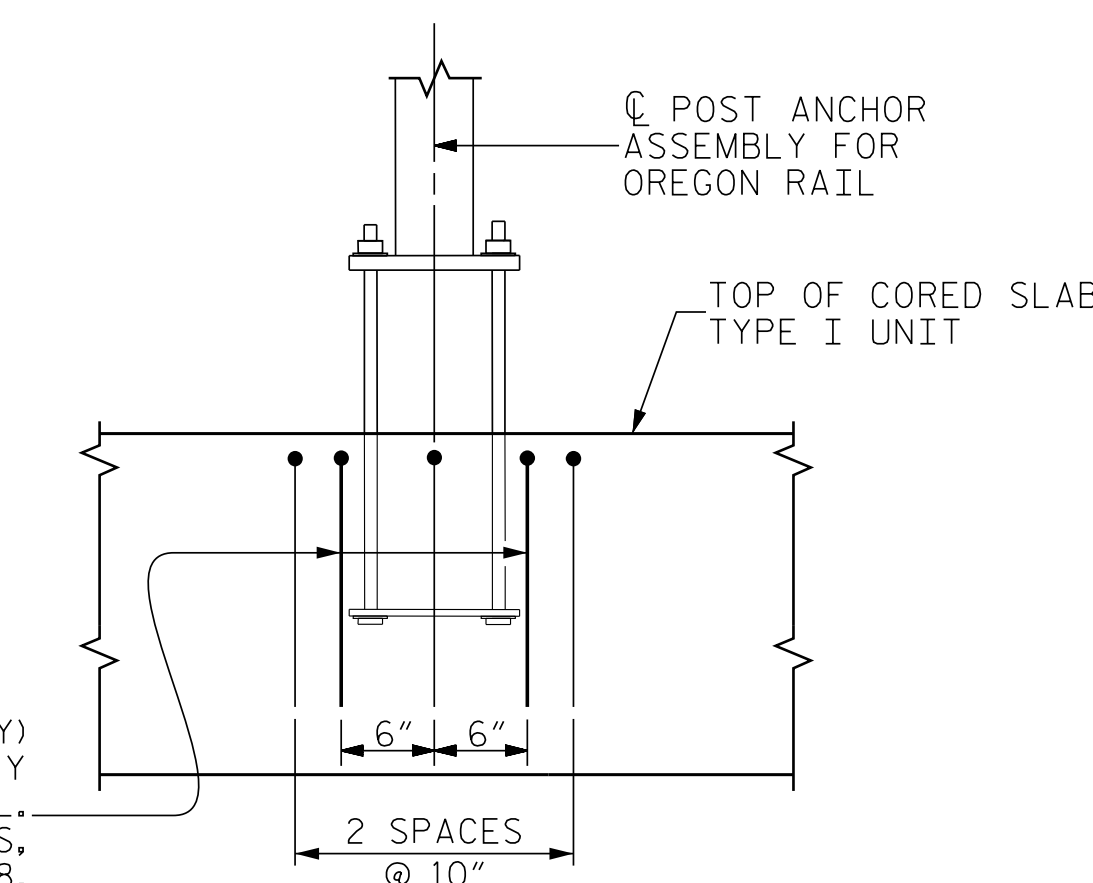
PLAN OF UNIT

(TYPICAL EACH UNIT)
(S12 AND S13 IN TYPE I AND
TYPE III UNITS NOT SHOWN)



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY
TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND
2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES



SIDE VIEW AT POST LOCATION

(SHOWING ADDITIONAL S11 BARS AT EACH POST ASSEMBLY
FOR OREGON RAIL)

PROJECT NO. B-5929

HENDERSON COUNTY

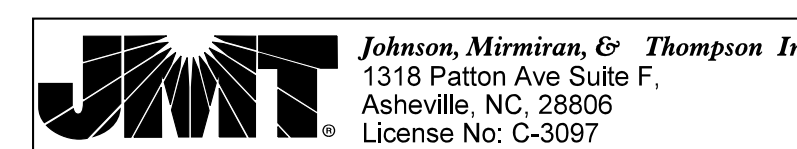
STATION: 13+45.76 -L-

SHEET 2 OF 3



6/4/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

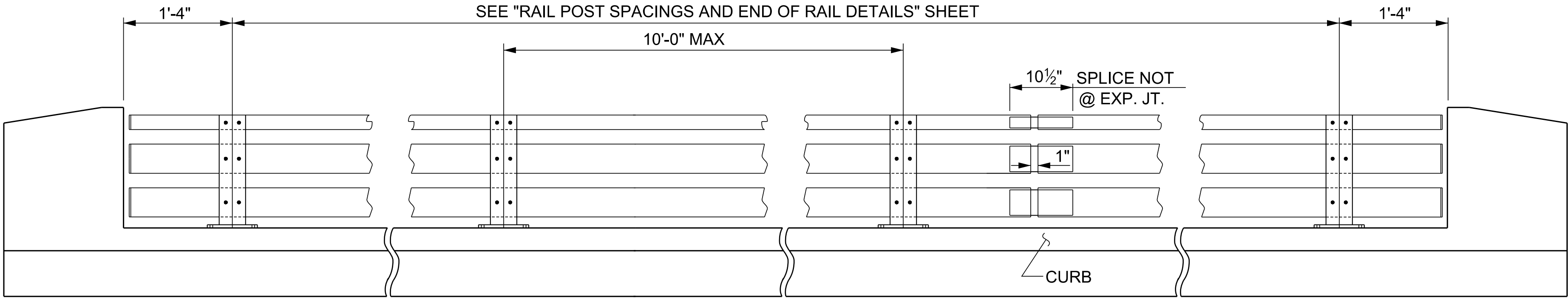


DWN. BY: WC DATE: 06/17
CHKD. BY: HLW DATE: 06/17
DSG. ENG. OF RECORD.: RTS DATE: 06/17

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

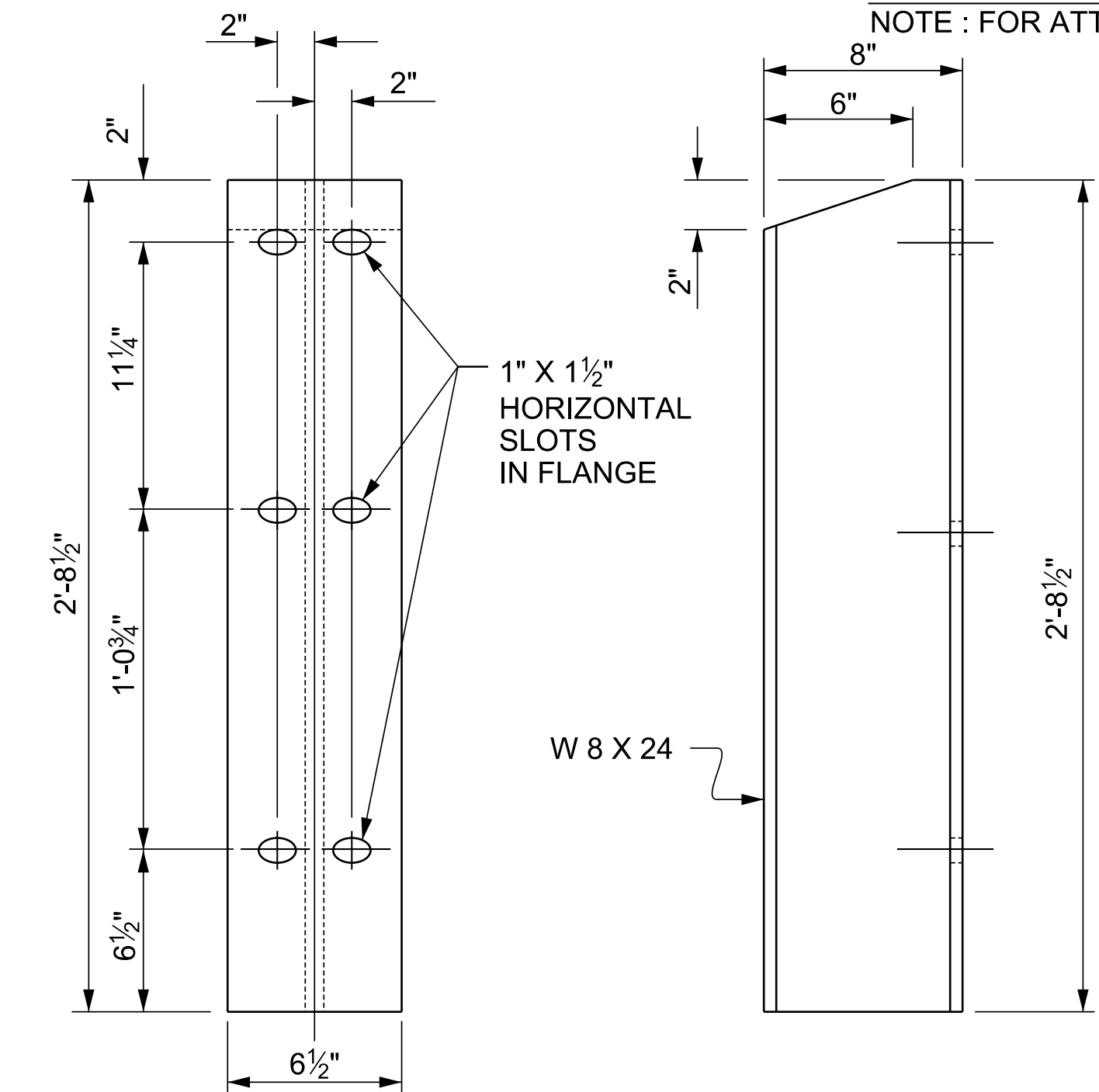
PLAN OF 65' UNIT
30'-10" CLEAR ROADWAY
120° SKEW

REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			



ELEVATION

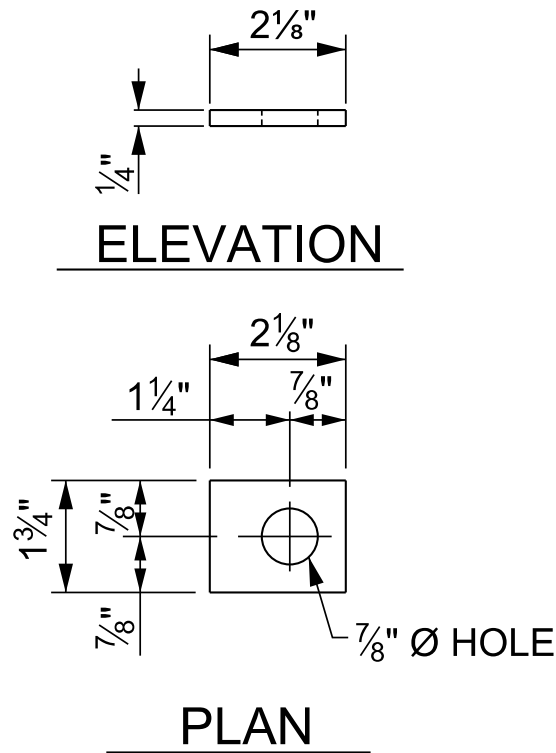
NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR11.



FRONT ELEVATION

SIDE ELEVATION

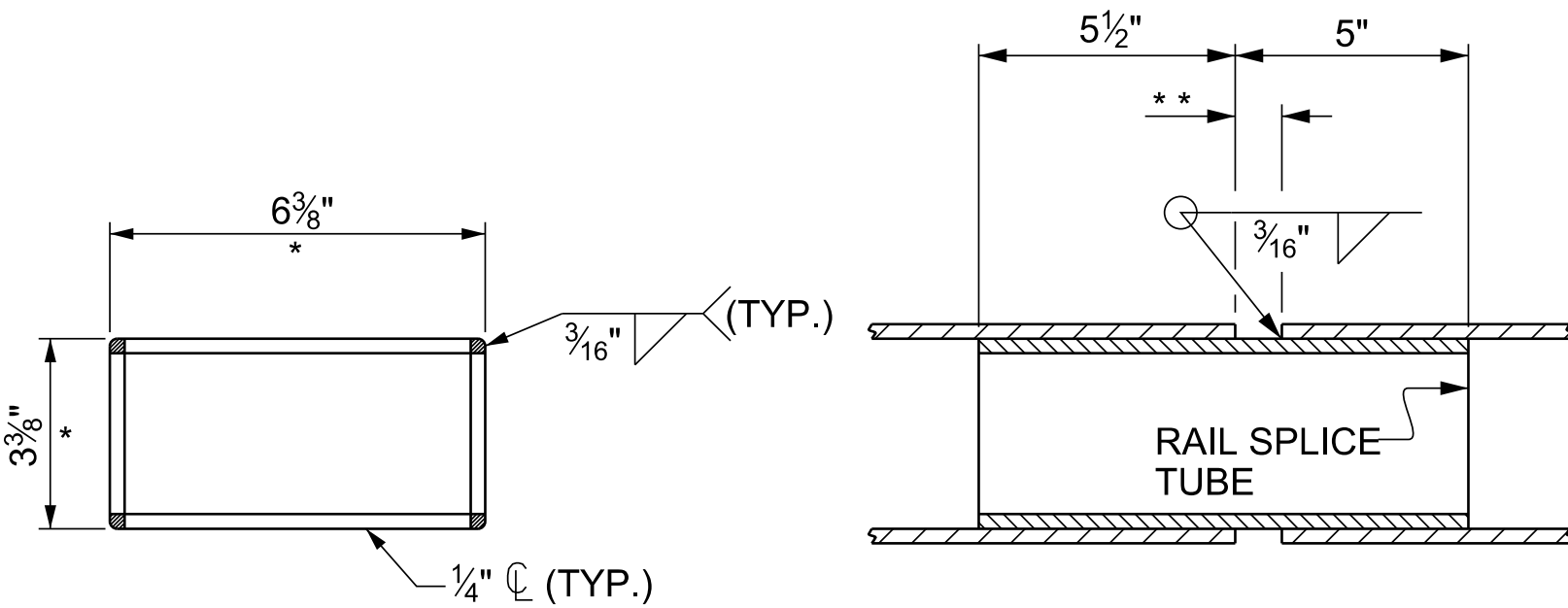
DETAILS OF POST



ELEVATION

PLAN

PLATE WASHER

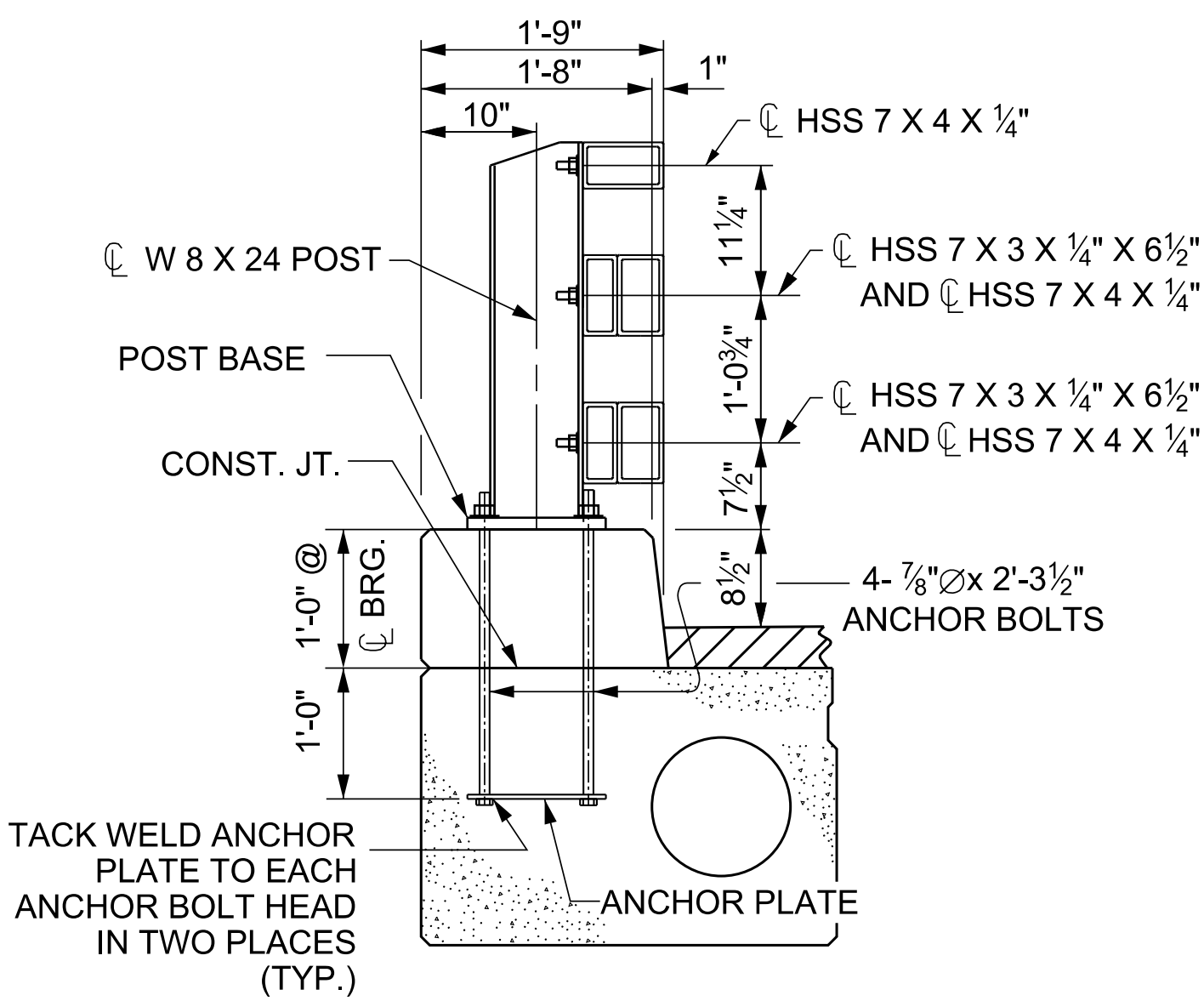


RAIL SPLICE DETAILS

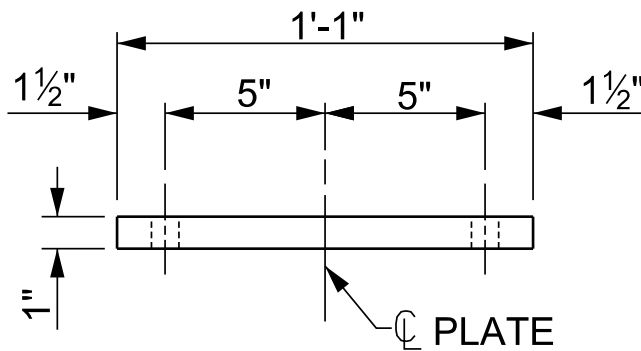
* - DIMENSION AFTER GRINDING RADIUS ON CORNERS TO MATCH INSIDE OF METAL RAIL. GRIND ALL EDGES PRIOR TO GALVANIZING TO ASSURE FIT.

** -1" FOR SPLICE NOT AT EXPANSION JOINT; SEE TABLE 1 FOR OPENING FOR SPLICES AT EXPANSION JOINTS.

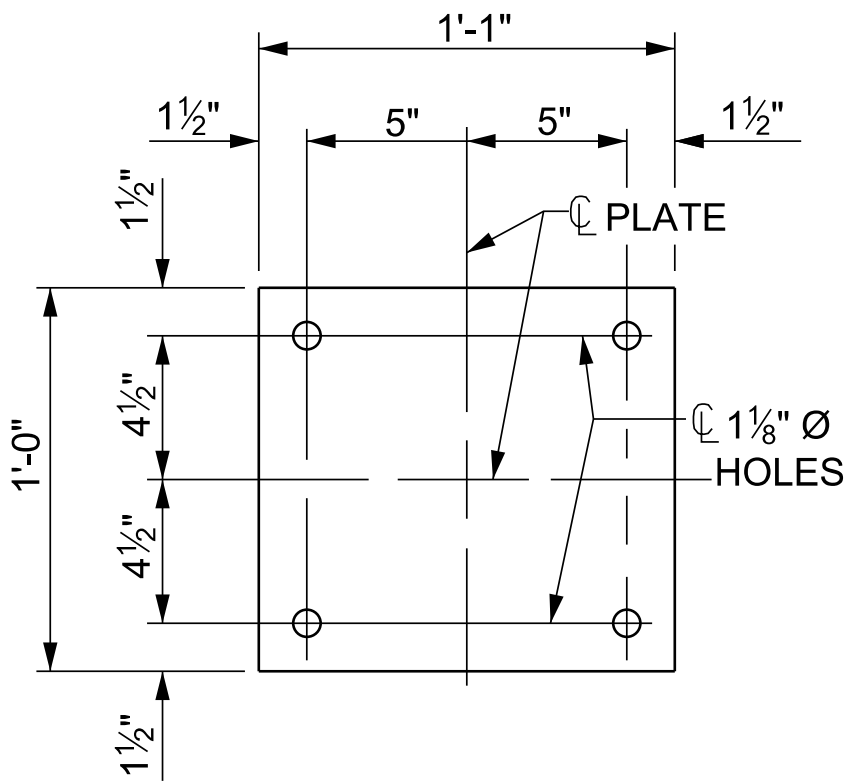
METAL RAIL LENGTH 65.0 LIN. FT.



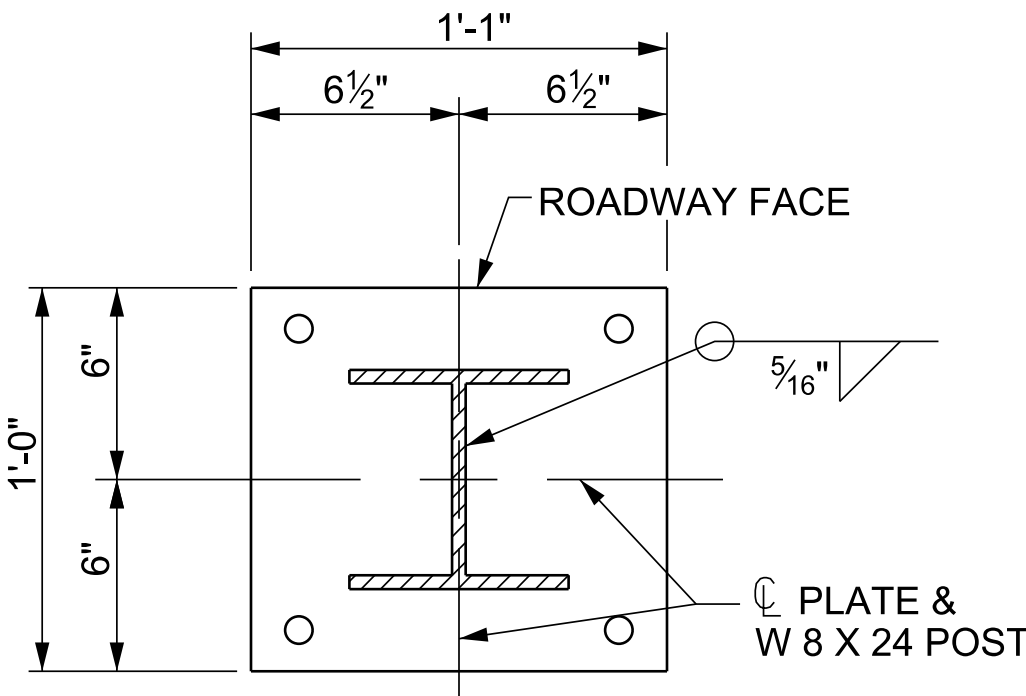
SECTION THRU RAIL



FRONT ELEVATION

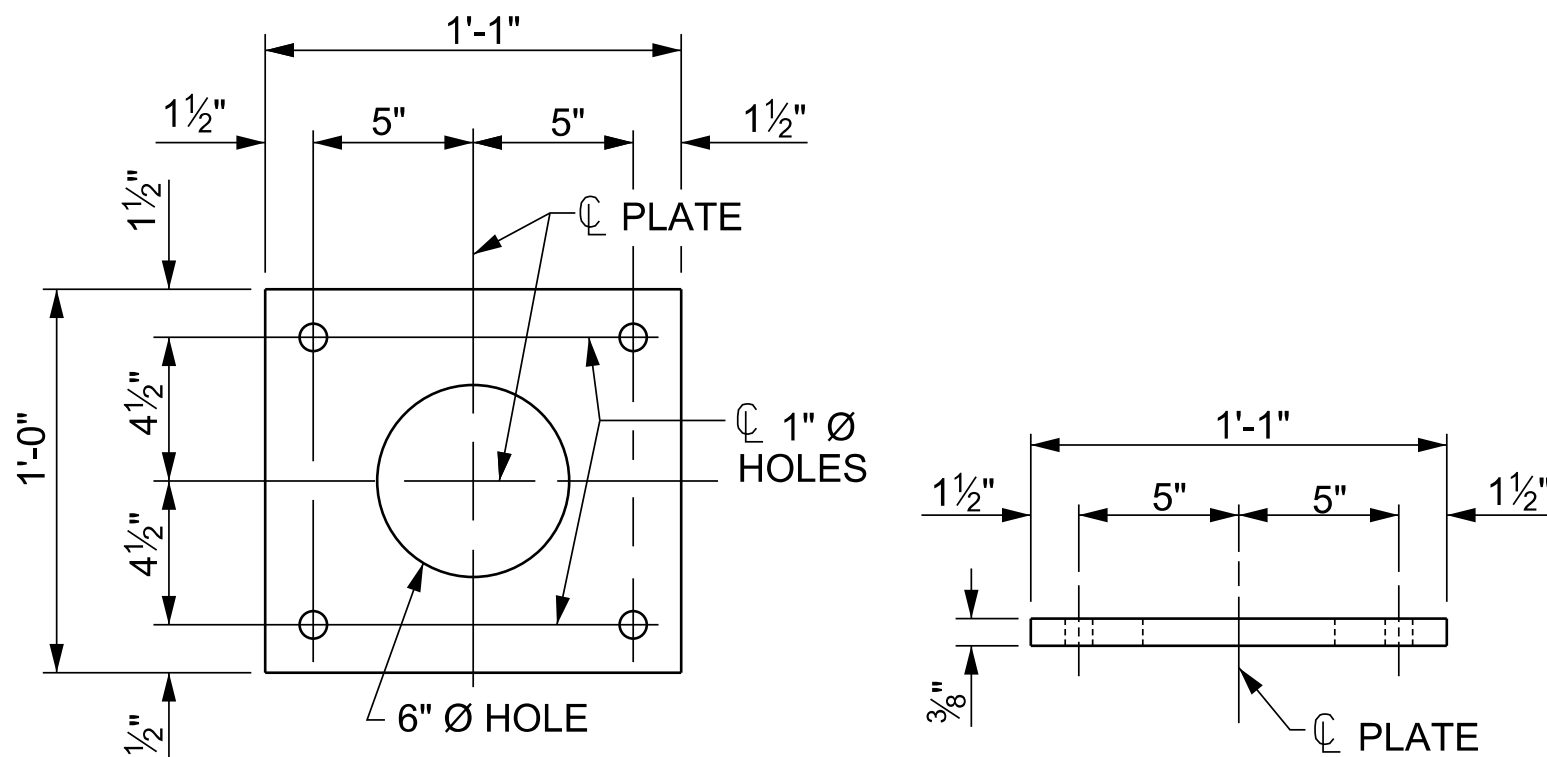


PLAN



POST ATTACHMENT DETAIL

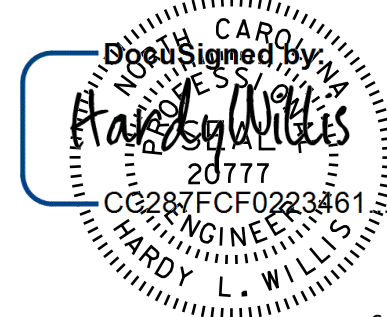
POST BASE DETAILS



PLAN

ELEVATION

ANCHOR PLATE DETAILS



6/4/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

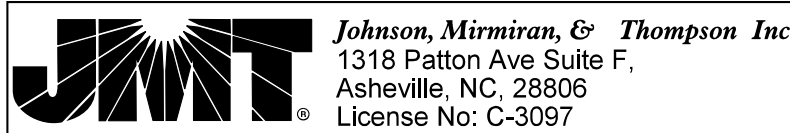
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

42" OREGON RAIL

REVISIONS						SHEET NO. S - 8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			



STD. NO. BMR10 Sht. 1

NOTES

STRUCTURAL CONCRETE INSERT

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

- A. FERRULE SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1½".
- B. 1 - ¾" Ø x 1⅝" 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 ¾" Ø x 1⅝" 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 STRUCTURAL CONCRETE INSERT DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A ⅞" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

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

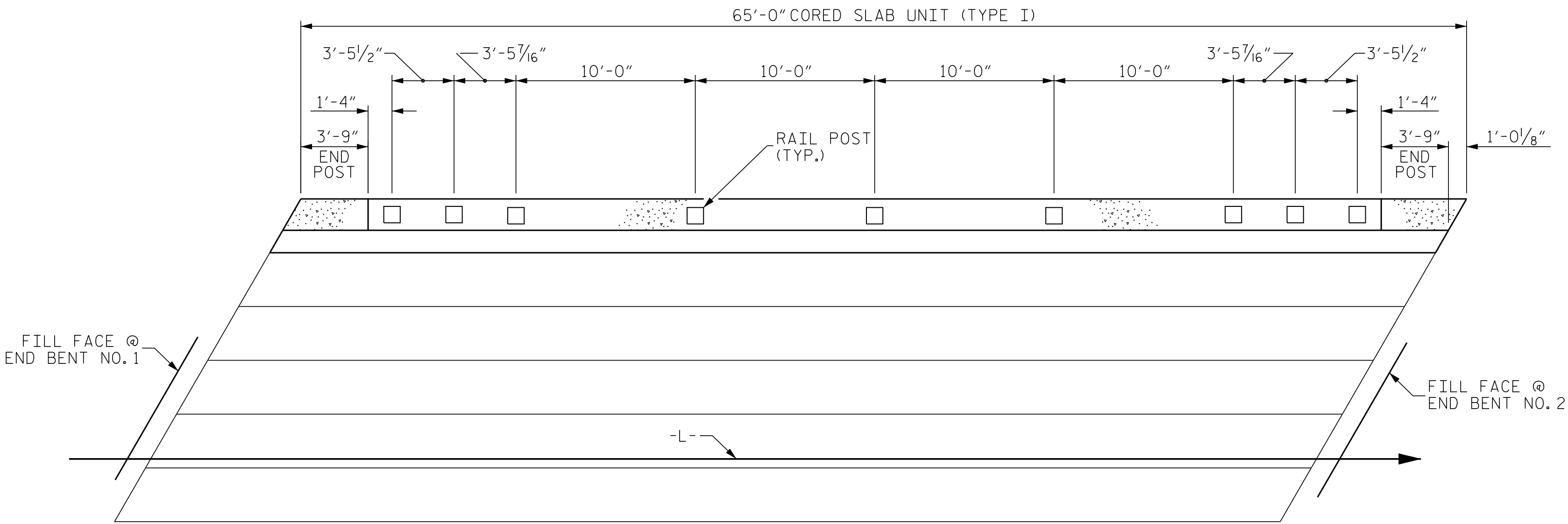
- A. ½" METAL BRACKET PLATE AND ¼" METAL RAIL INSERT TUBE SHALL CONFORM TO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION TO ASTM A123.

¾" STRUCTURAL CONCRETE INSERTS SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A ¾" Ø x 1⅝" BOLT WITH 2" O.D. WASHER IN PLACE. THE ¾" Ø x 1⅝" BOLT SHALL HAVE N. C. THREADS.

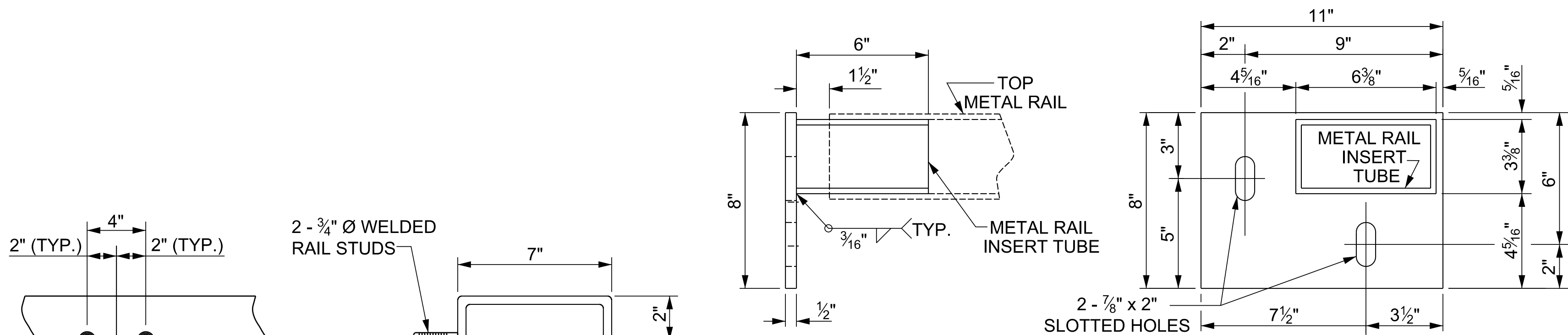
THE ¾" STRUCTURAL CONCRETE INSERTS WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE ¾" STRUCTURAL CONCRETE INSERT, THE ½" BRACKET PLATES, AND THE RAIL INSERT TUBES 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 ¾" Ø x 1⅝" BOLTS WITH WASHERS SHALL BE REPLACED WITH ¾" Ø x 6½" BOLTS AND 2" O.D. WASHERS. ALL SPECIFICATIONS THAT APPLY TO THE ¾" Ø x 1⅝" BOLTS SHALL APPLY TO THE ¾" Ø x 6½" BOLTS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

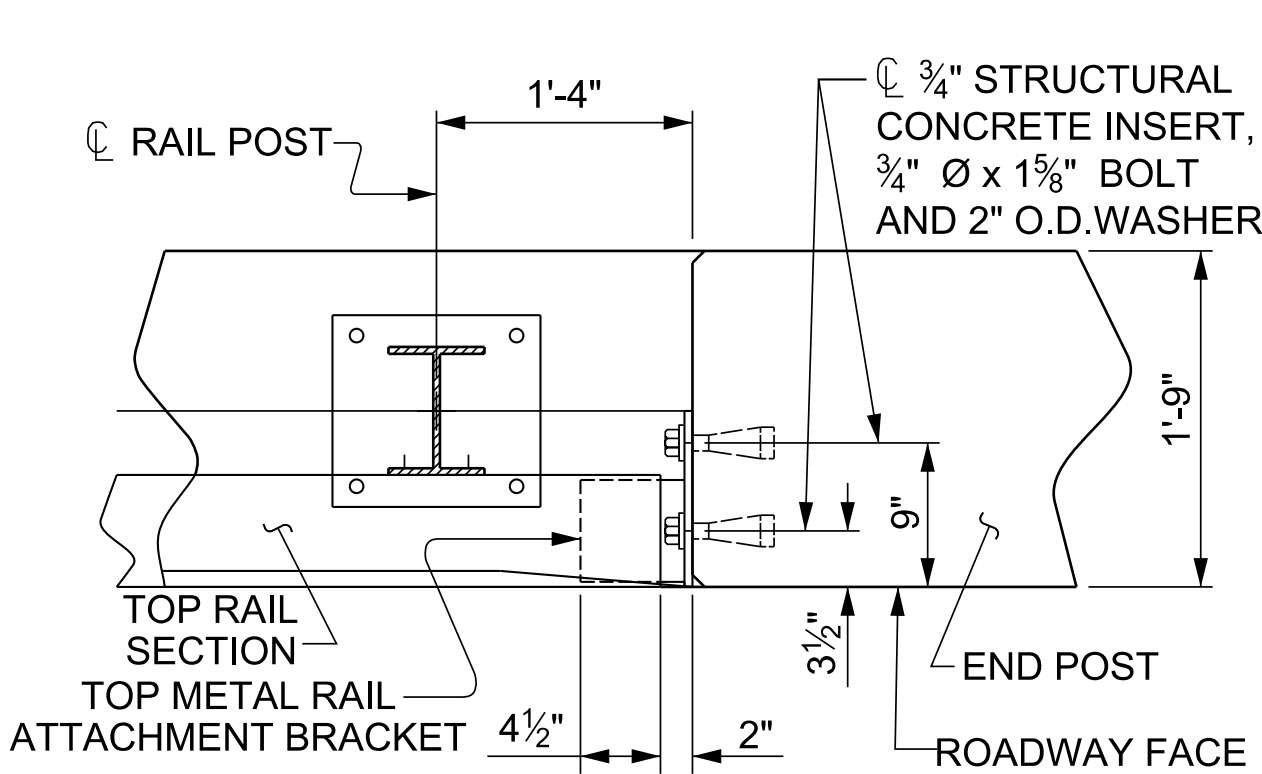


PLAN OF RAIL POST SPACINGS

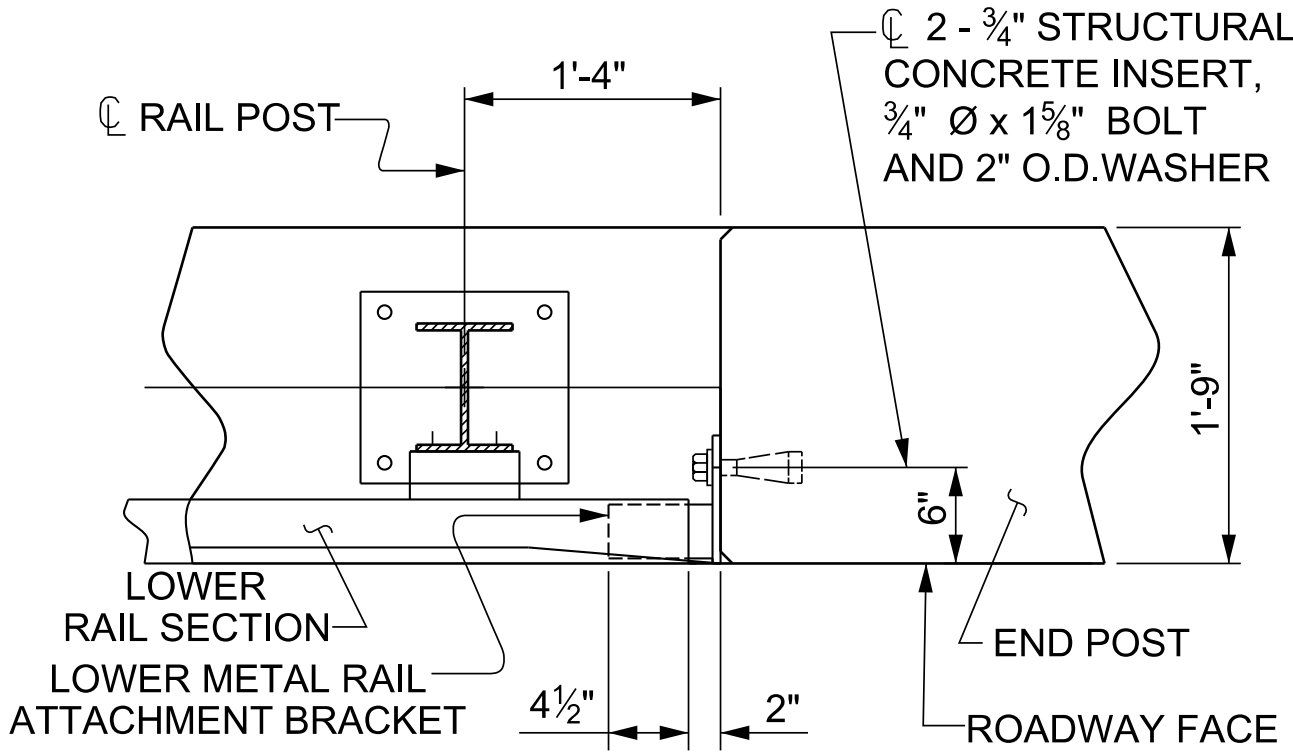


TOP METAL RAIL ATTACHMENT BRACKET

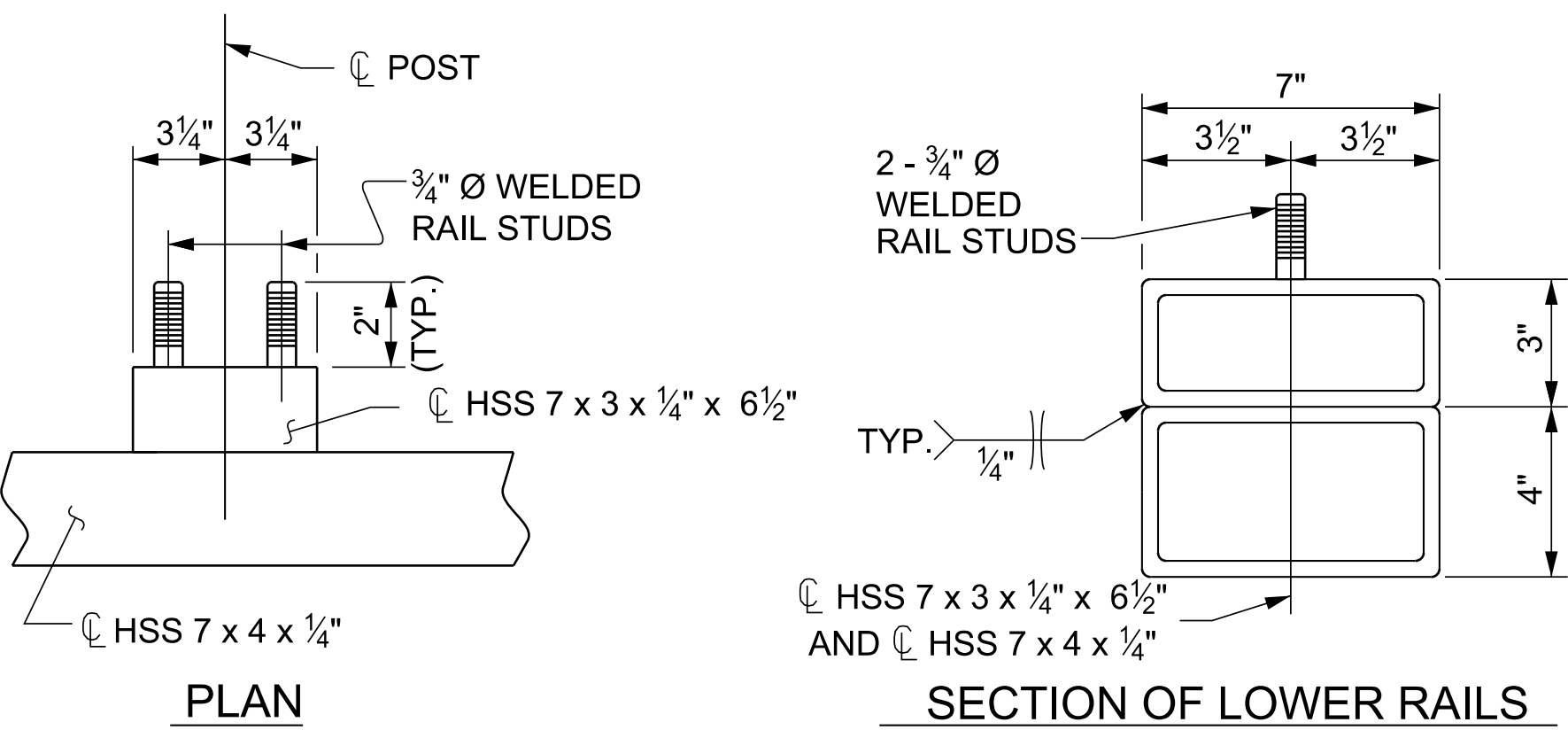
THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM ¼" PLATES.



PLAN - TOP RAIL AND END POST

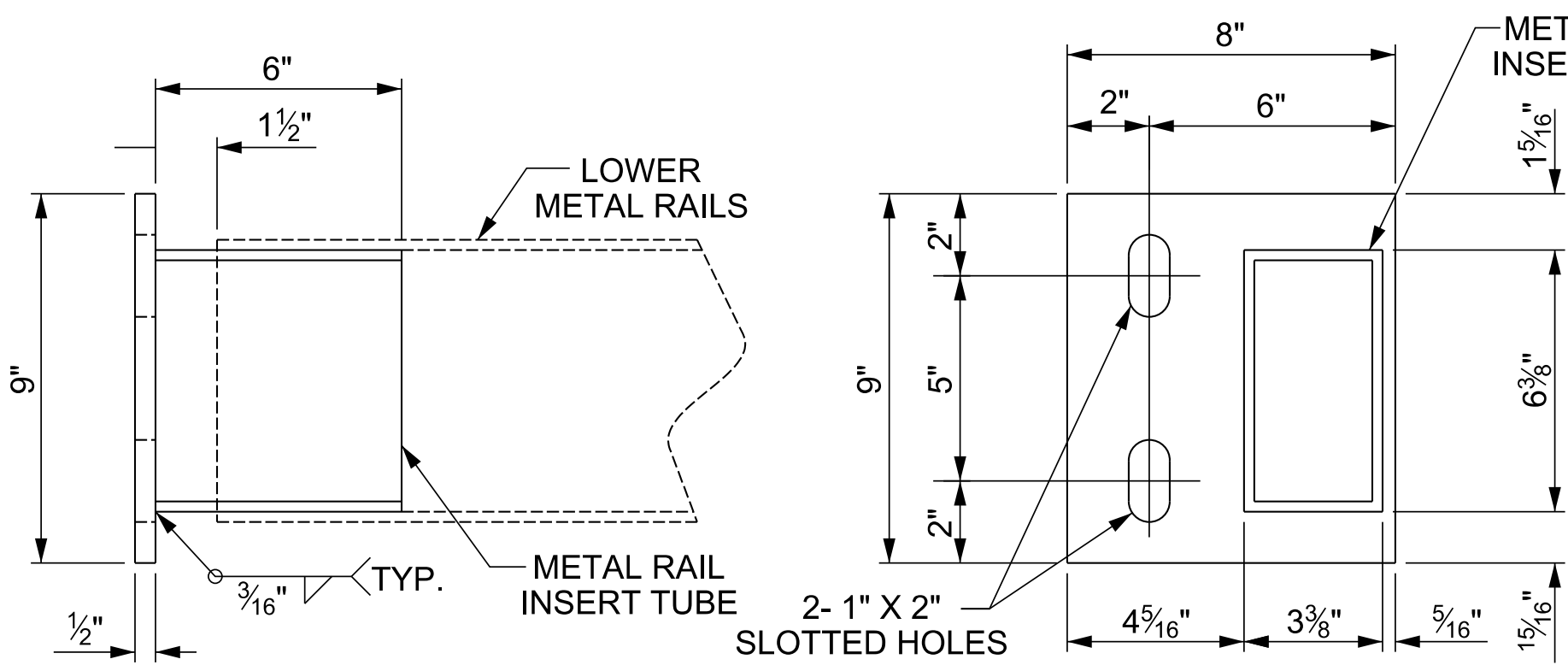


PLAN - LOWER RAILS AND END POST



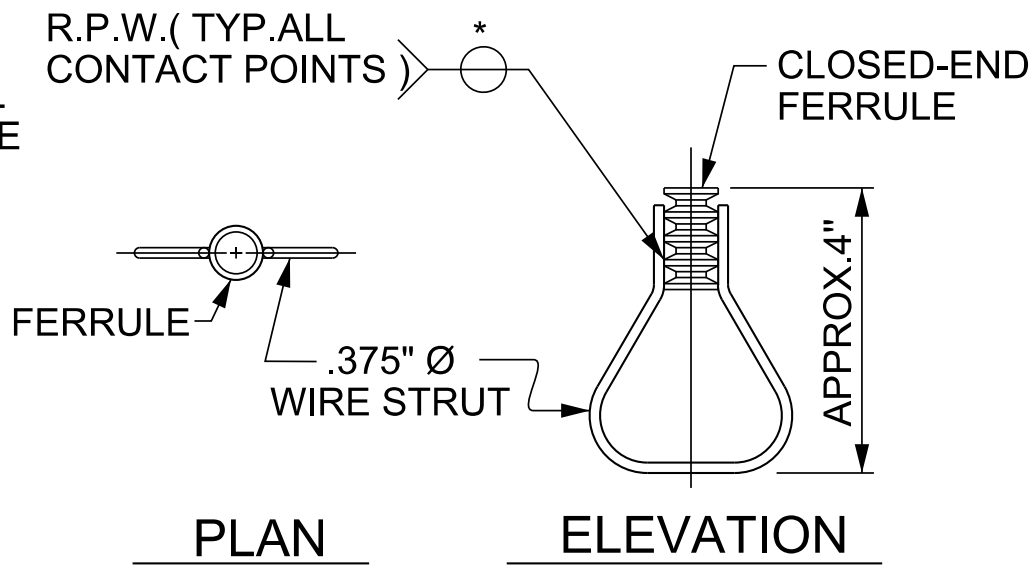
SECTION OF LOWER RAILS

RAIL STUD DETAILS



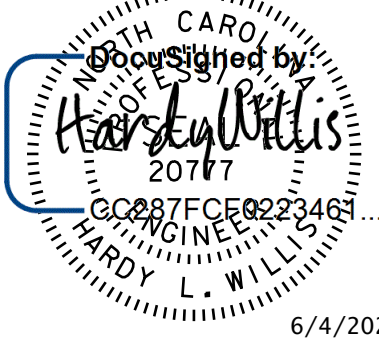
LOWER METAL RAILS ATTACHMENT BRACKET

THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM ¼" PLATES.



STRUCTURAL CONCRETE INSERT

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



PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

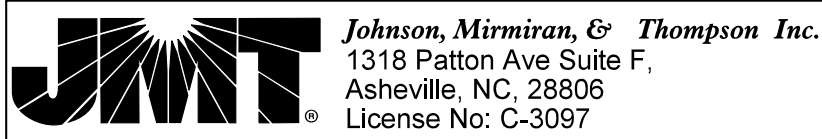
STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR 42" OREGON RAIL

REVISIONS					SHEET NO. S-9
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 25
2			4		

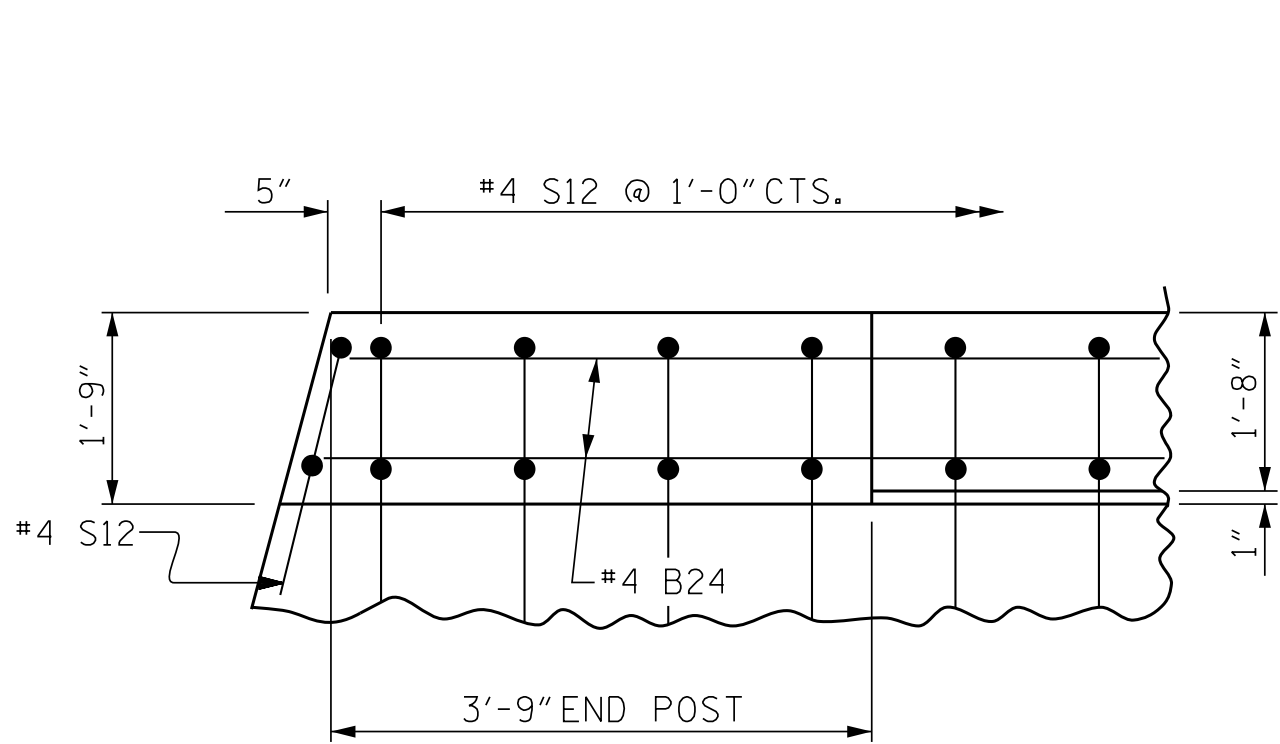
STD. NO. BMR11

ASSEMBLED BY : WC	DATE : 6-2017
CHECKED BY : RTS	DATE : 7-2017
DRAWN BY : RWW 7/14	REV. 12/17
CHECKED BY : TMG 7/14	REV. 10/23
	MAA/THC
	BNB/SNM

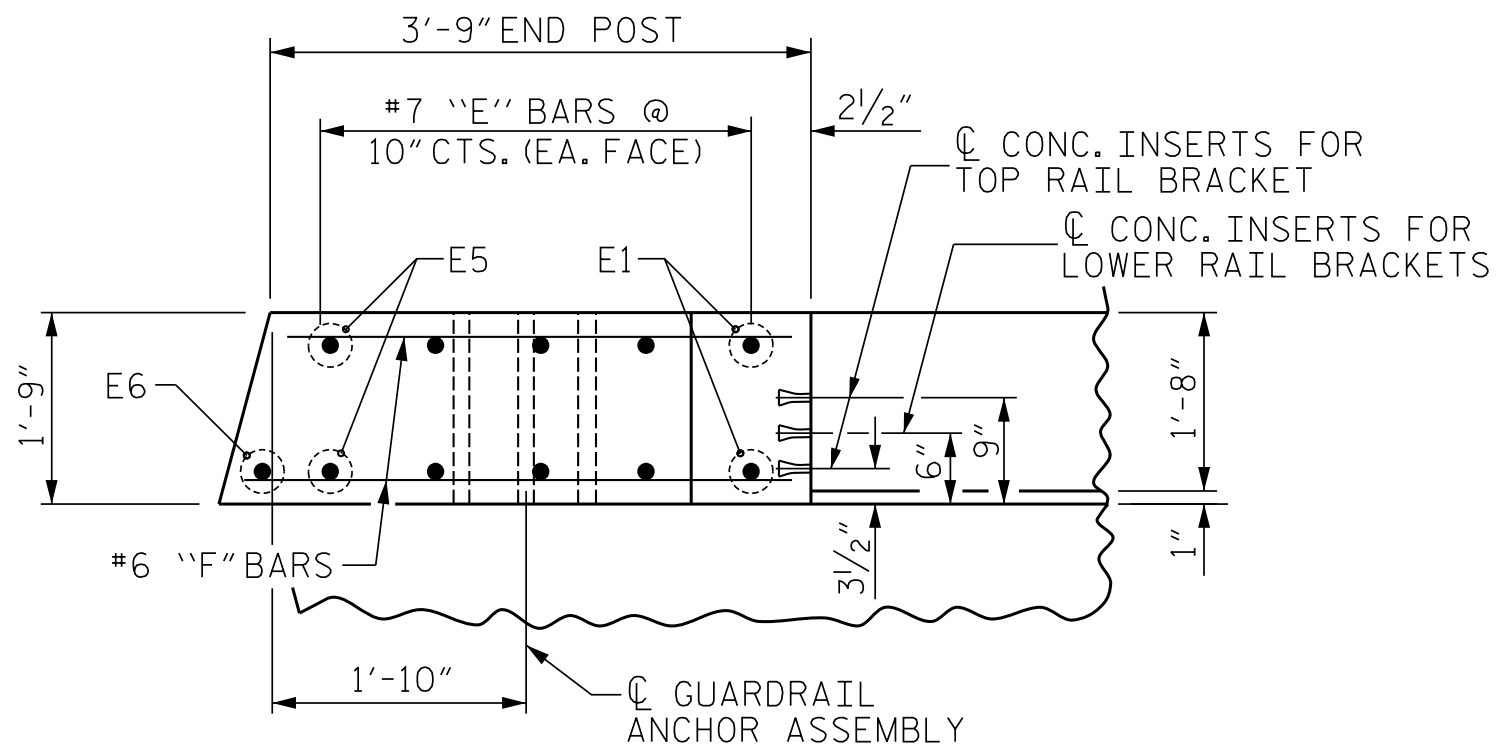
5/29/2026
*****DCN*****
RMoore2



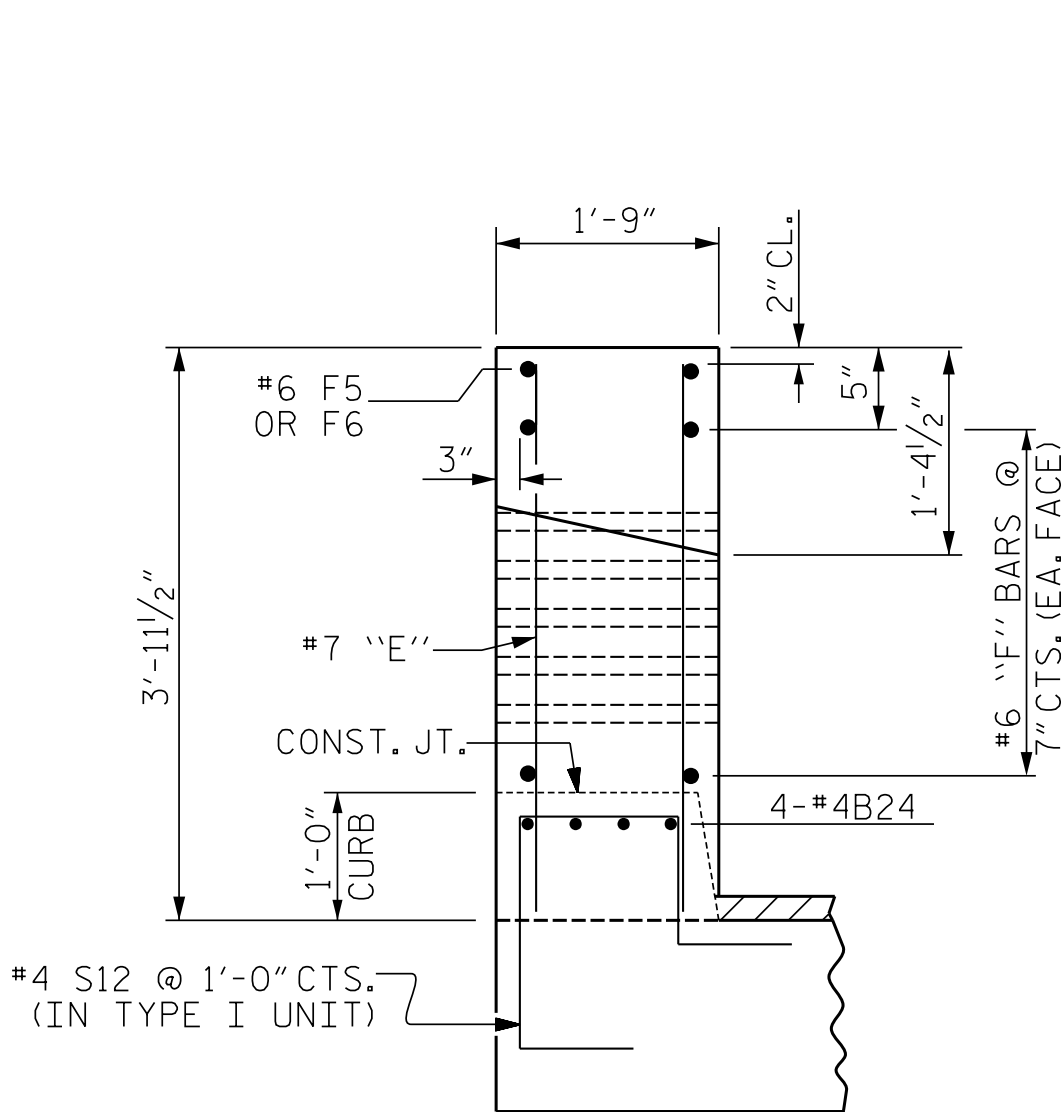
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



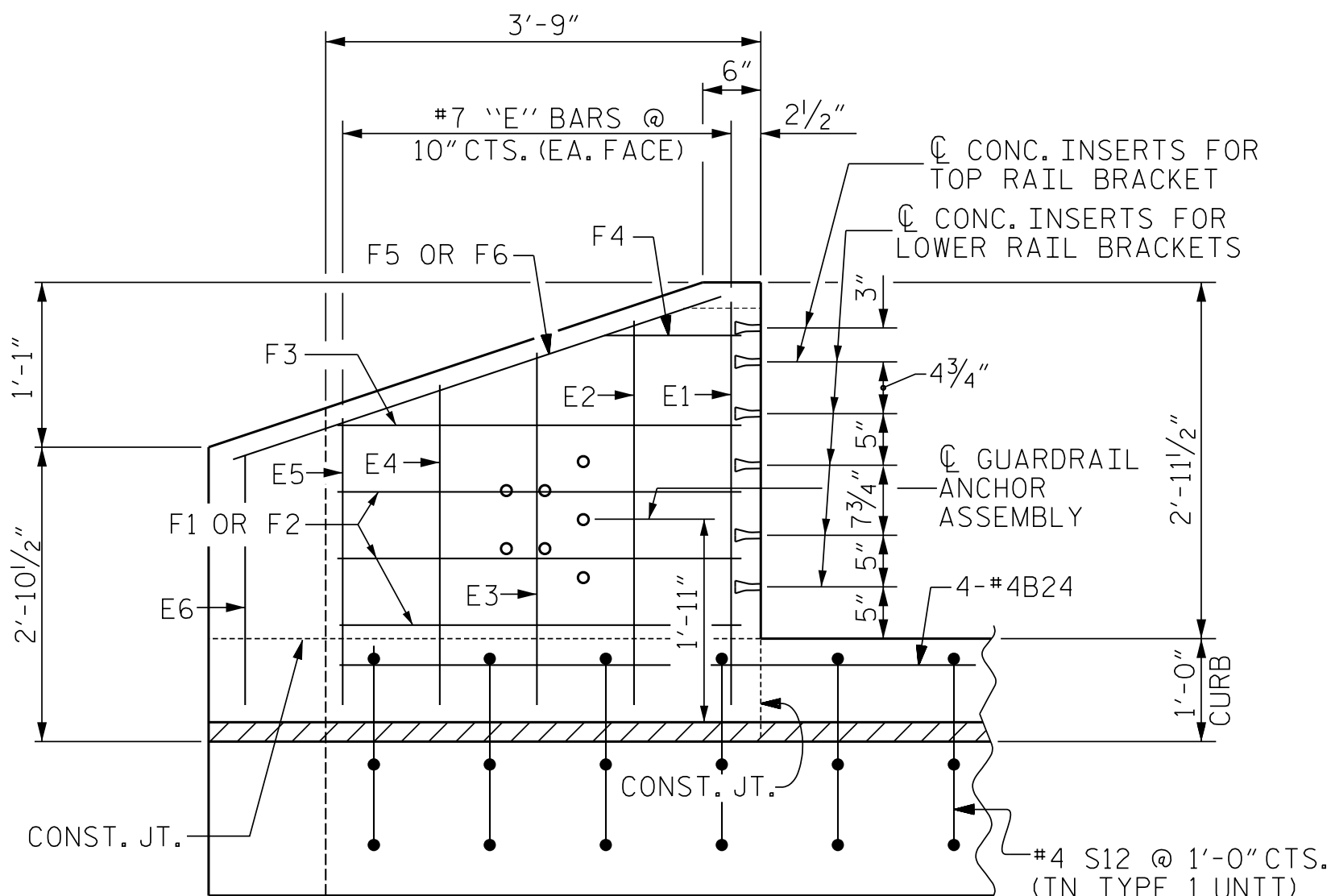
PLAN OF CURB



PLAN OF END POST



END VIEW



ELEVATION

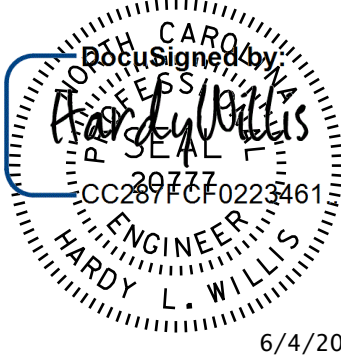
CURB AND END POST FOR 42" OREGON RAIL

BILL OF MATERIAL					
CURB AND 2 END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B24	12	#4	STR	22'-11"	184
* E1	4	#7	STR	3'-7"	29
* E2	4	#7	STR	3'-5"	28
* E3	4	#7	STR	3'-3"	27
* E4	4	#7	STR	3'-0"	25
* E5	4	#7	STR	2'-10"	23
* E6	2	#7	STR	2'-8"	11
* F1	6	#6	STR	4'-3"	38
* F2	6	#6	STR	3'-5"	31
* F3	4	#6	STR	3'-3"	20
* F4	4	#6	STR	1'-1"	7
* F5	2	#6	STR	4'-3"	13
* F6	2	#6	STR	3'-3"	10
* EPOXY COATED REINFORCING STEEL					446
CLASS AA CONCRETE					5.9 C.Y.

THE REINFORCING STEEL AND CONCRETE IN THE CURBS AND END POSTS ARE INCLUDED IN THE LIN. FT. PRICE FOR 42" OREGON RAIL.

PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
CONCRETE CURB AND END POSTS FOR 42" OREGON RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-10					TOTAL SHEETS 25

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS 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.

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

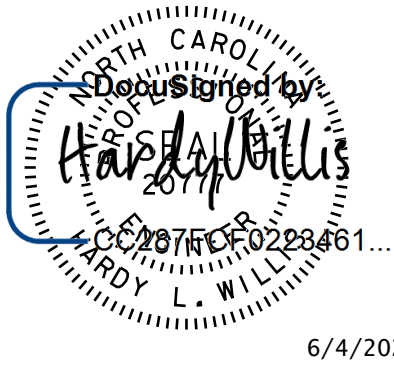
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SKETCH SHOWING
POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-



6/4/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

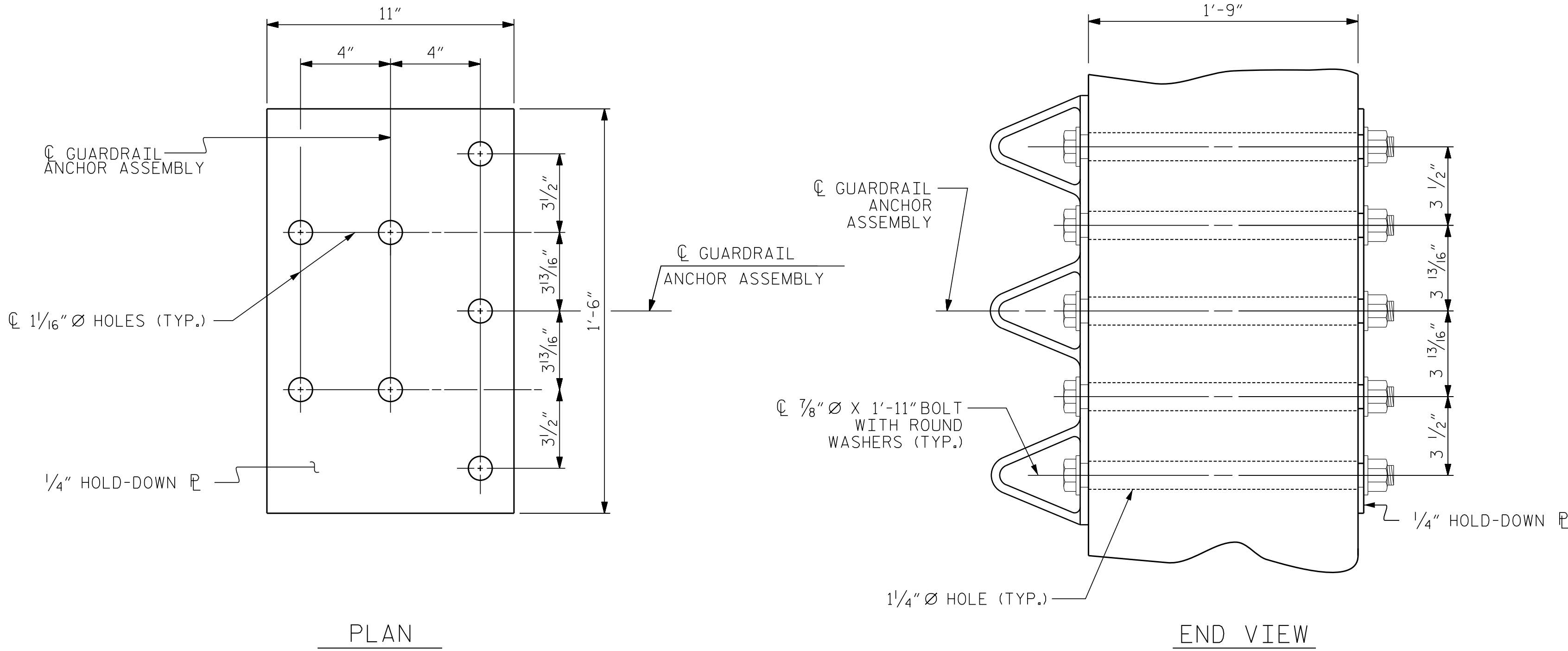


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

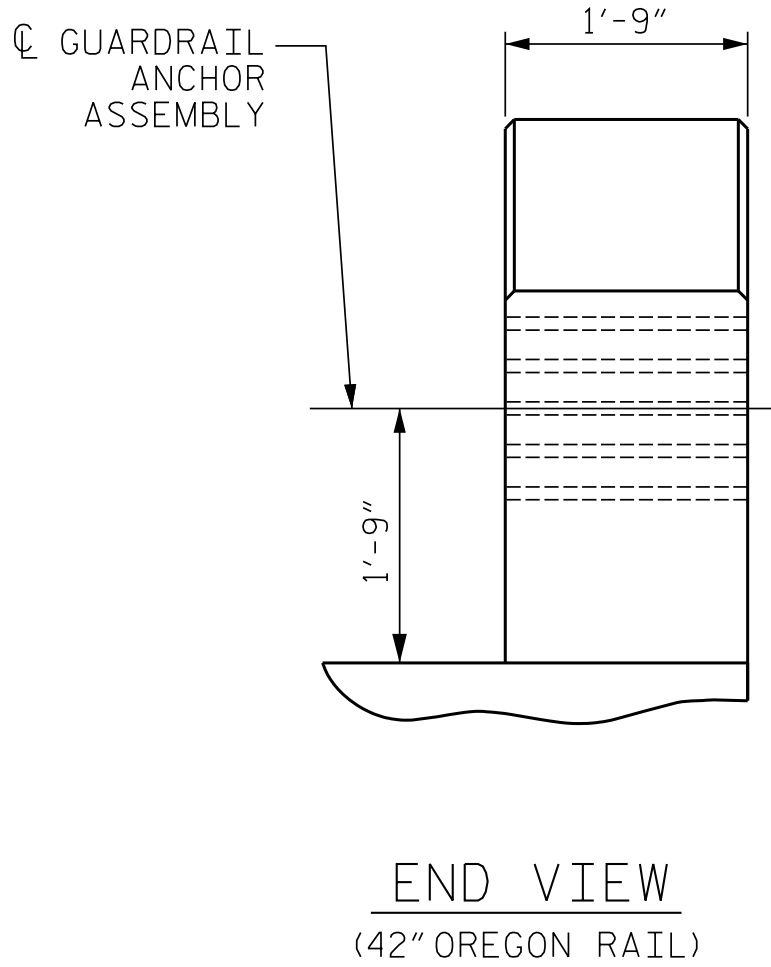
GUARDRAIL ANCHORAGE
DETAILS FOR 42"
OREGON RAIL

REVISIONS						SHEET NO. S-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

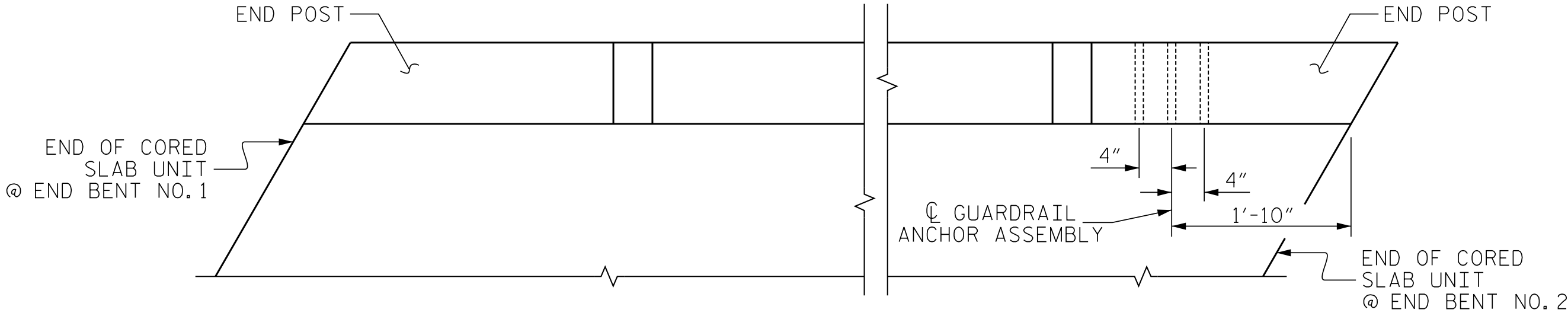
STD. NO. GRA3



GUARDRAIL ANCHOR ASSEMBLY DETAILS



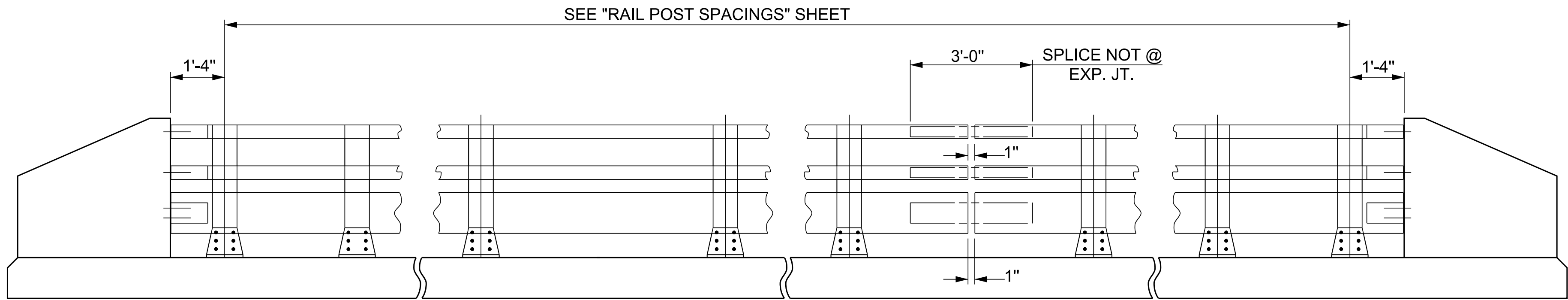
END VIEW
(42" OREGON RAIL)



PLAN

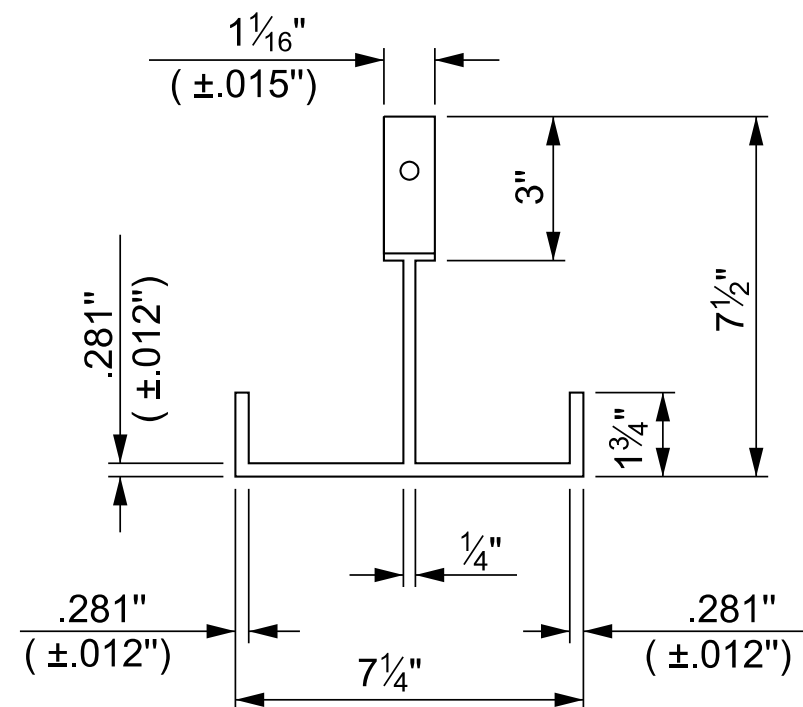
LOCATION OF ANCHORS FOR GUARDRAIL

ASSEMBLED BY : WC		DATE : 6/2017	
CHECKED BY : RTS		DATE : 7/2017	
DRAWN BY : MAA	5/10	REV. 1/15	MAA/TMG
CHECKED BY : GM	5/10	REV. 12/17	MAA/THC
		REV. 5/18	MAA/THC

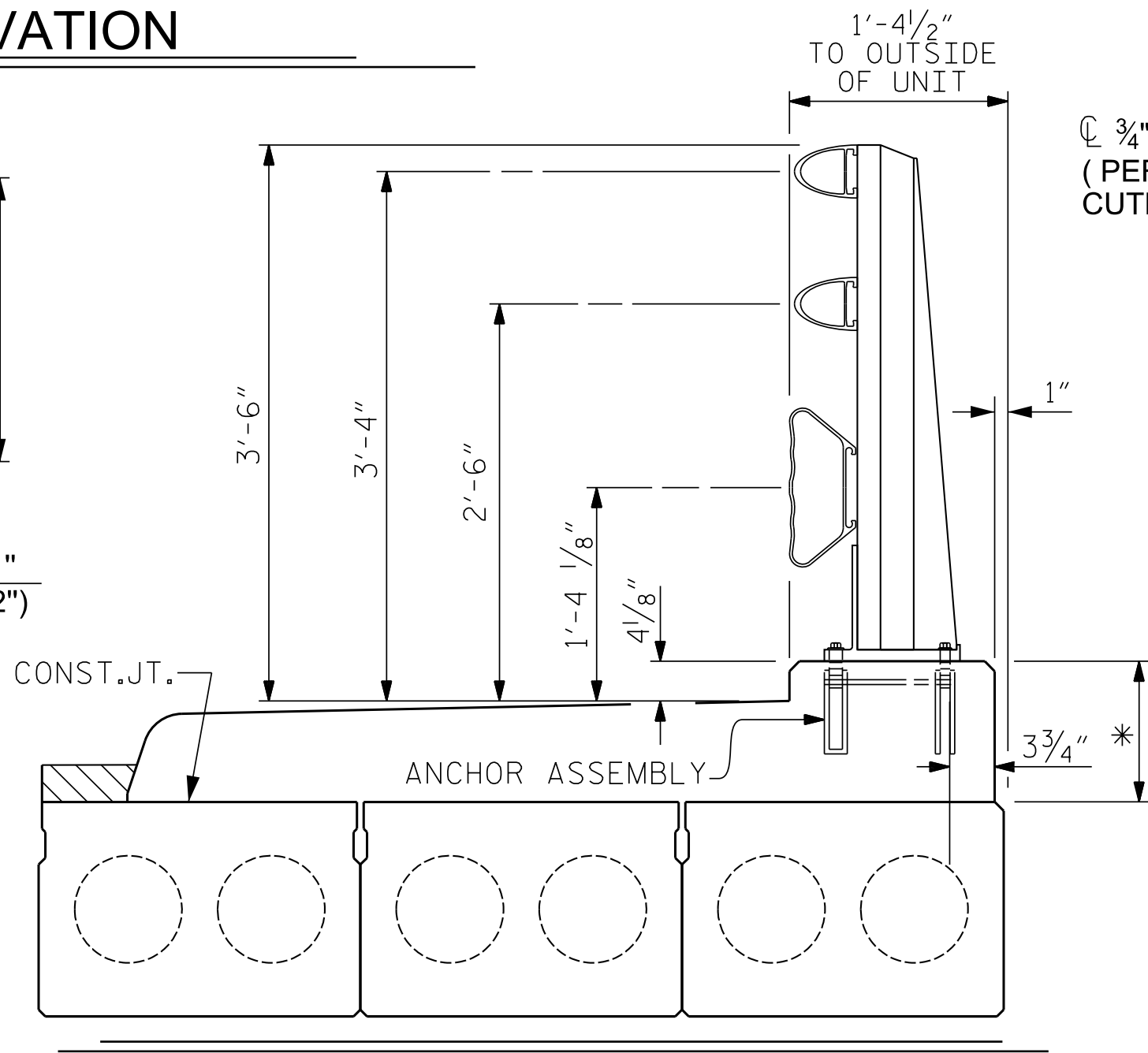


NOTE:
FOR ATTACHMENT OF METAL RAIL TO END
POST, SEE STANDARD NO. BMR7.

ELEVATION

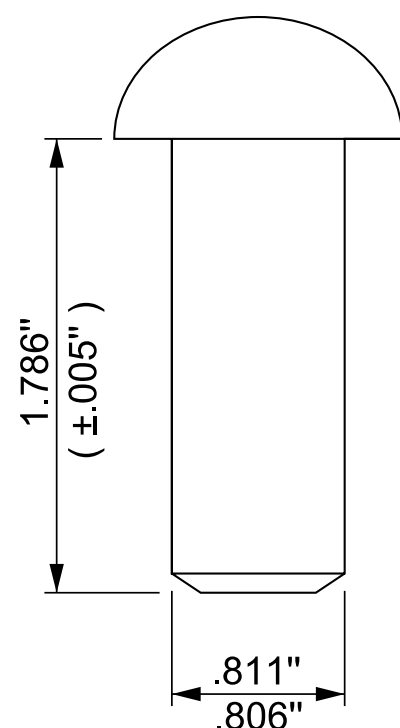


PLAN



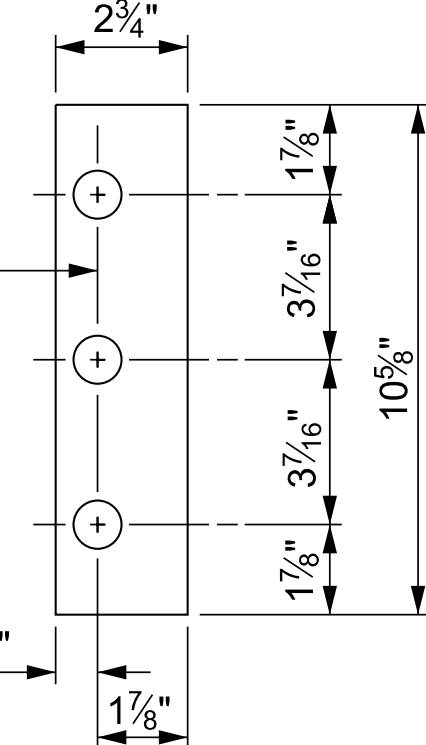
FOR ANCHOR ASSEMBLY, SEE "3 BAR METAL RAIL"
STD.No.BMR6

* VARIES. SEE "3 BAR METAL
RAIL END POST S AND
SIDEWALK DETAILS"
SHEET.



1" Ø HOLES
(PERMITTED
CUTLINE)

REAR PLATE

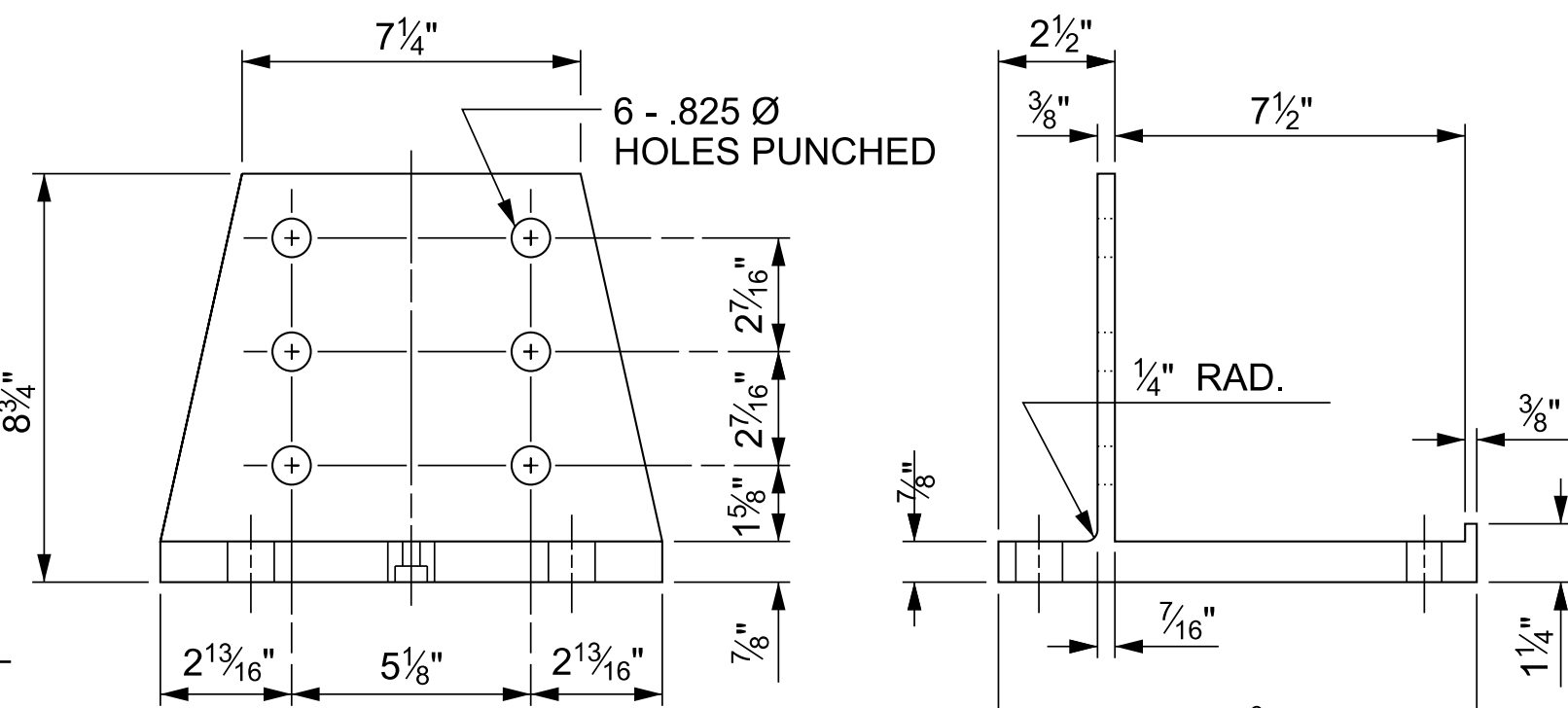


FRONT PLATE

SHIM DETAILS

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

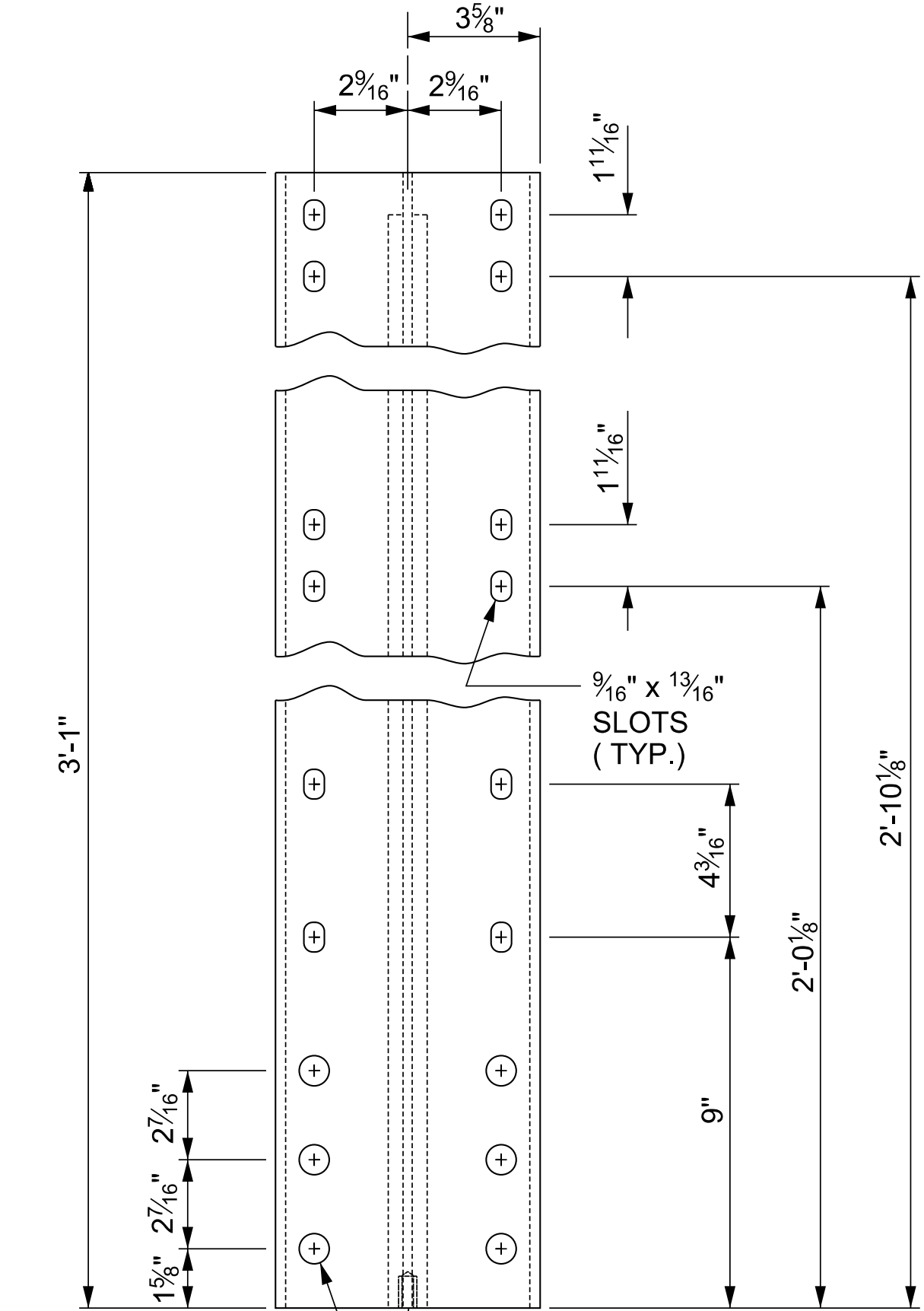
RIVET DETAIL



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST

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.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 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. PLACE ONE JOINT SPLICE JUST BEYOND THE 3RD RAIL POST FROM EACH END, TYPICALLY 14' FROM THE END. PLACE OTHER JOINTS AS NEEDED.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR7.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS FOR RAIL ATTACHMENT 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.

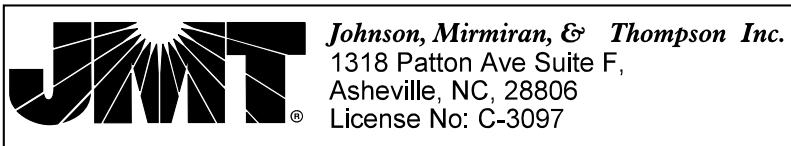
TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAIN VISIBLE AFTER RAIL PLACEMENT.

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.

PAY LENGTH = 56.8 LIN.FT.



PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3 BAR METAL RAIL



6/4/2026

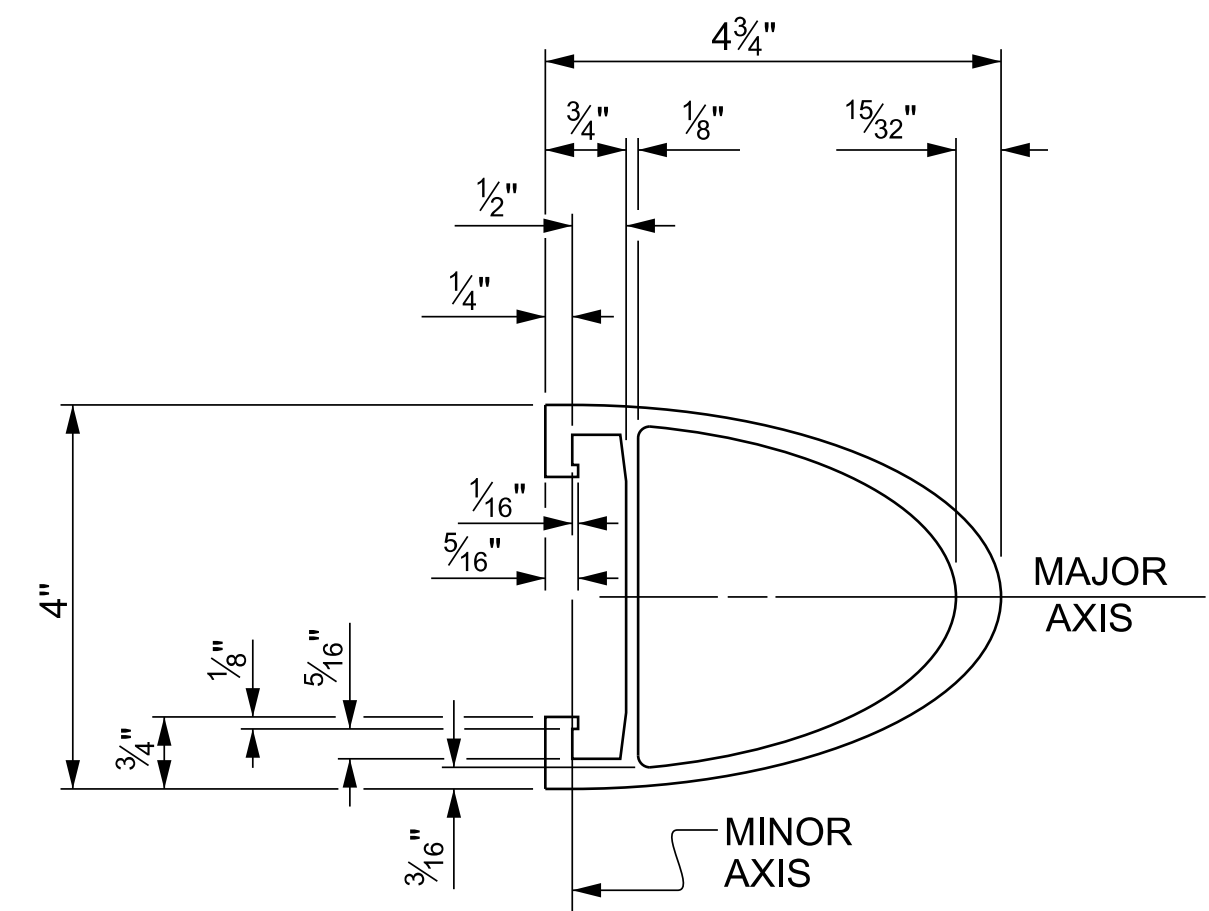
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS				SHEET NO.
NO.	BY:	DATE:	DATE:	
1				S-12
2				
				TOTAL SHEETS
				25

STD. NO. BMR5

ASSEMBLED BY : WC	DATE : 6/2017
CHECKED BY : RTS	DATE : 7/2017
DRAWN BY : JMB 1/88	REV. 10/1/11 MAA/GM
CHECKED BY : GGH 1/88	REV. 12/17 MAA/THC
	REV. 10/23 BNB/SHM

5/29/2026
*****DCN*****
RMOore2

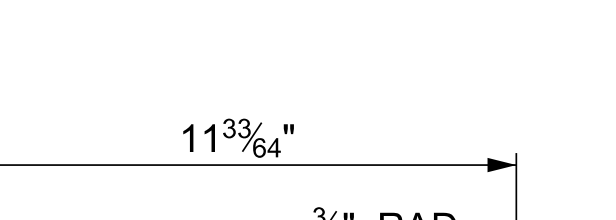


Technical drawing of a mechanical part with the following dimensions and features:

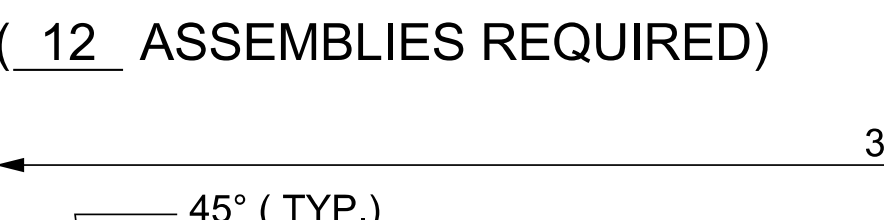
- Overall width: 5"
- Overall height: 12"
- Top left corner: 3/4" horizontal, 3/16" vertical.
- Left side: 6" vertical, 1/16" horizontal, 5/16" vertical.
- Bottom left corner: 1/2" vertical, 1/8" horizontal.
- Right side: 1" vertical, 3/32" horizontal.
- Internal features: 1" RAD. (radius), 3" RAD. (TYP.) (typical radius), 13/16" horizontal, 10° angle.
- Bottom left corner: .213" (TYP.) (typical dimension), 1" RAD. (radius).

5-BOLT METAL RAIL ANCHOR ASSEMBLY

(12 ASSEMBLIES REQUIRED)

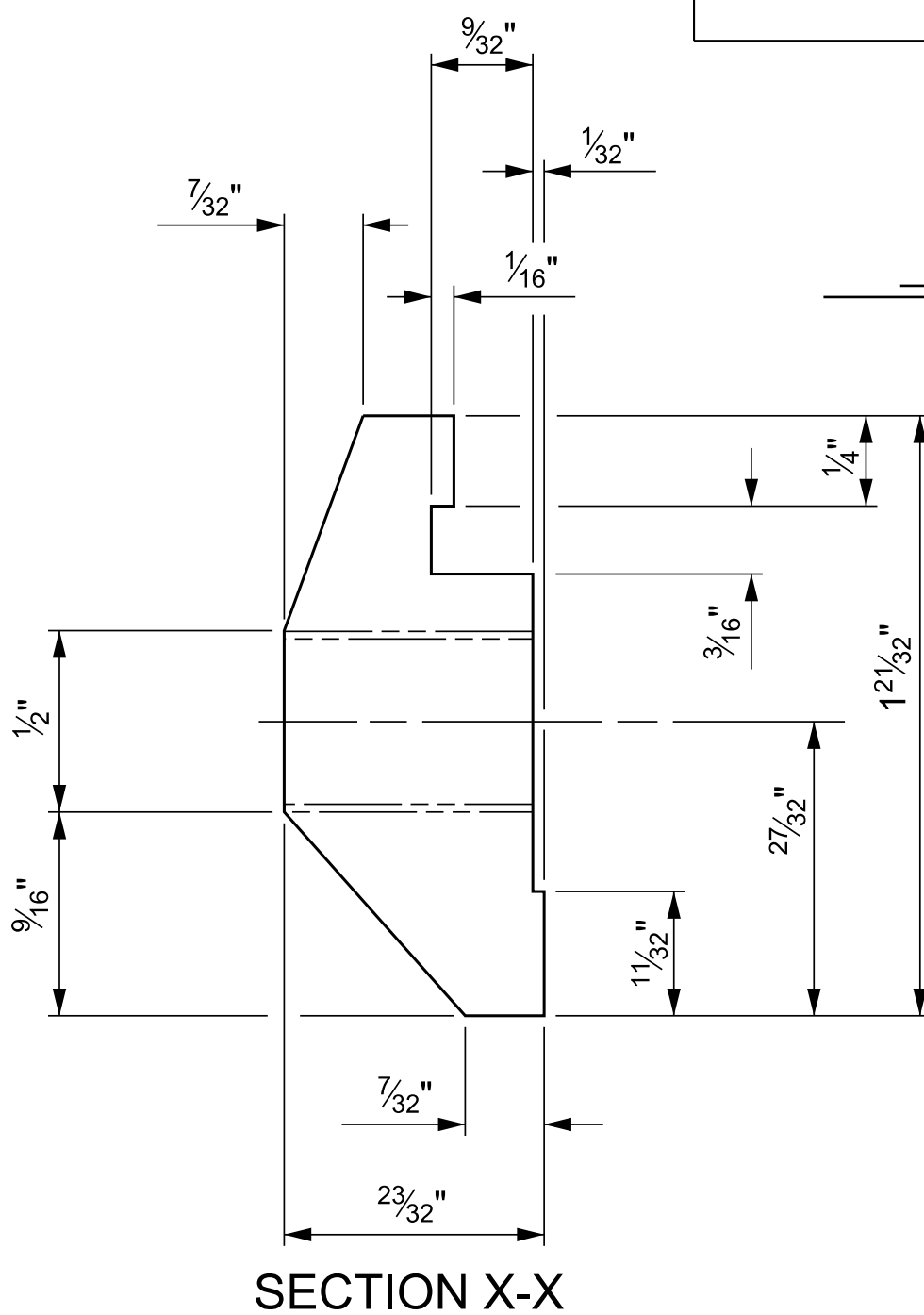


END VIEW



PLAN VIEW

BOTTOM RAIL EXPANSION BAR



CLAMP ASSEMBLY

TOP RAIL SHOWN
(MIDDLE & BOTTOM RAIL ARE SIMILAR)

12"

5"

6"

1 1/4"

BOTTOM RAIL CAP

JMT *Johnson, Mirmiran, & Thompson Inc.*
1318 Patton Ave Suite F,
Asheville, NC, 28806
License No: C-3097

PROJECT NO. B-5929
HENDERSON COUNTY
 STATION: 13+45.76 -L-

SHEET 2 OF 4

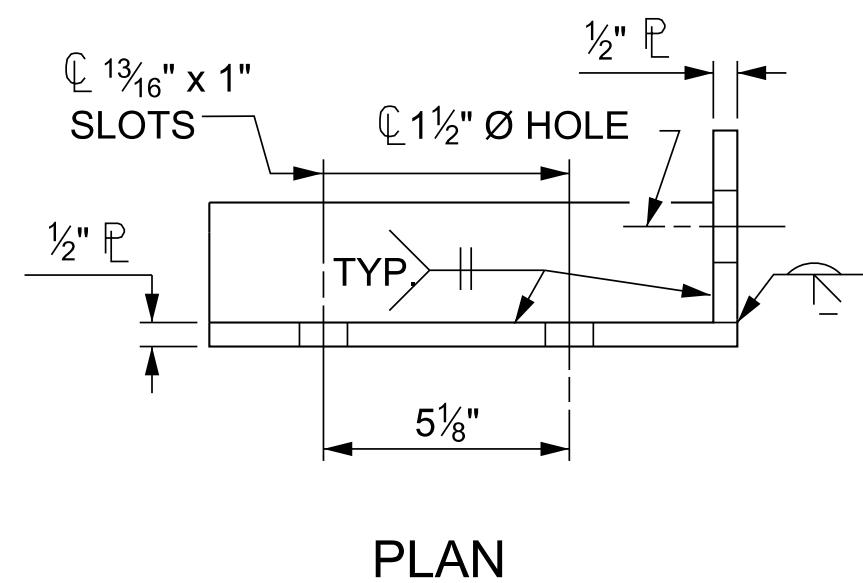
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3 BAR METAL RAIL

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	TOTAL DATE:	
1			3			TOTAL SHEETS 25
2			4			



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

- A. $\frac{1}{2}$ " PLATES SHALL CONFORM TO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. $\frac{3}{4}$ " STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A $\frac{3}{8}$ " $\varnothing$ x $1\frac{1}{8}$ " BOLT WITH 2" O.D. WASHER IN PLACE. THE $\frac{3}{4}$ " $\varnothing$ x $1\frac{1}{8}$ " 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. WASHERS FOR RAIL ATTACHMENT SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.
 - D. STANDARD CLAMP BARS (STD. No. BMR6).
- 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 3 BAR METAL RAIL.

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.

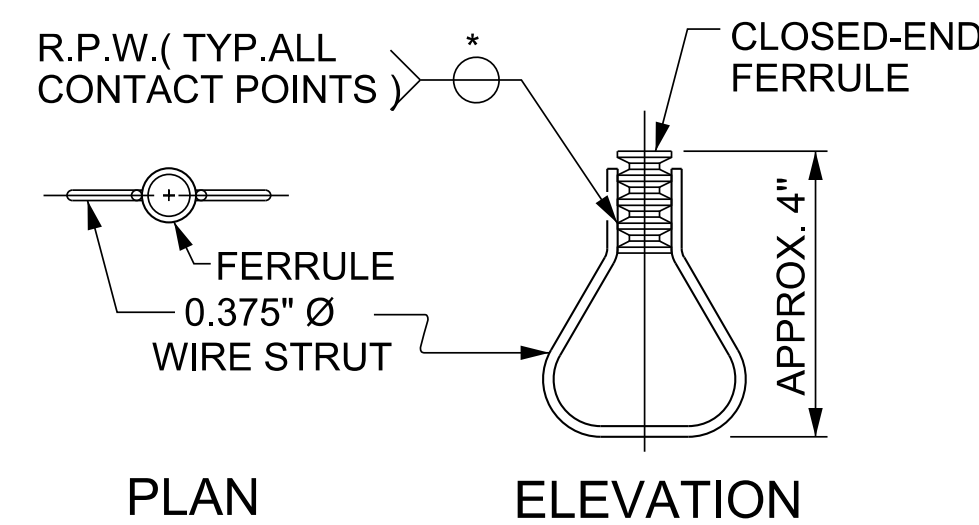
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE $\frac{3}{4}$ " $\times$ $1\frac{1}{8}$ " BOLT WITH WASHER SHALL BE REPLACED WITH A $\frac{3}{4}$ " $\times$ $6\frac{1}{2}$ " 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.

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 1½".
- B. 1 - ¾" Ø x 1⅝" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE ¾" Ø x 1⅝" 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 ⅞" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.



STRUCTURAL CONCRETE

INSERT

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

PROJECT NO. B-5929
HENDERSON COUNTY
 STATION: 13+45.76 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3 BAR METAL RAIL

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

STD. NO. BMR7

ASSEMBLED BY : WC		DATE : 6/2017	
CHECKED BY : RTS		DATE : 7/2017	
DRAWN BY : JMB	1/88	REV. 10/1/11	MAA/GM-
CHECKED BY : GGH	1/88	REV. 12/17	MAA/THC
		REV. 10/23	BNB/SNM

5/29/2026
 \$\$\$\$\$\$DGN\$\$\$\$\$
 RMoore2



* - HEIGHT OF TOE OF SIDEWALK VARIES
9 1/2" @ C BRG.
8 3/16" @ MIDSPAN

SHEET 4 OF 4

3 BAR METAL RAIL END POSTS AND SIDEWALK DETAILS

REVISIONS					SHEET NO. S-15
BY:	DATE:	NO.	BY:	DATE:	
		③			TOTAL SHEETS 25
		④			

BAR DIMENSIONS ARE OUT TO OUT

THE MINIMUM HEIGHT OF THE SIDEWALK IS SHOWN. THE HEIGHT OF THE SIDEWALK VARIES WHILE THE TOP OF THE SIDEWALK FOLLOWS THE PROFILE OF THE GUTTERLINE.

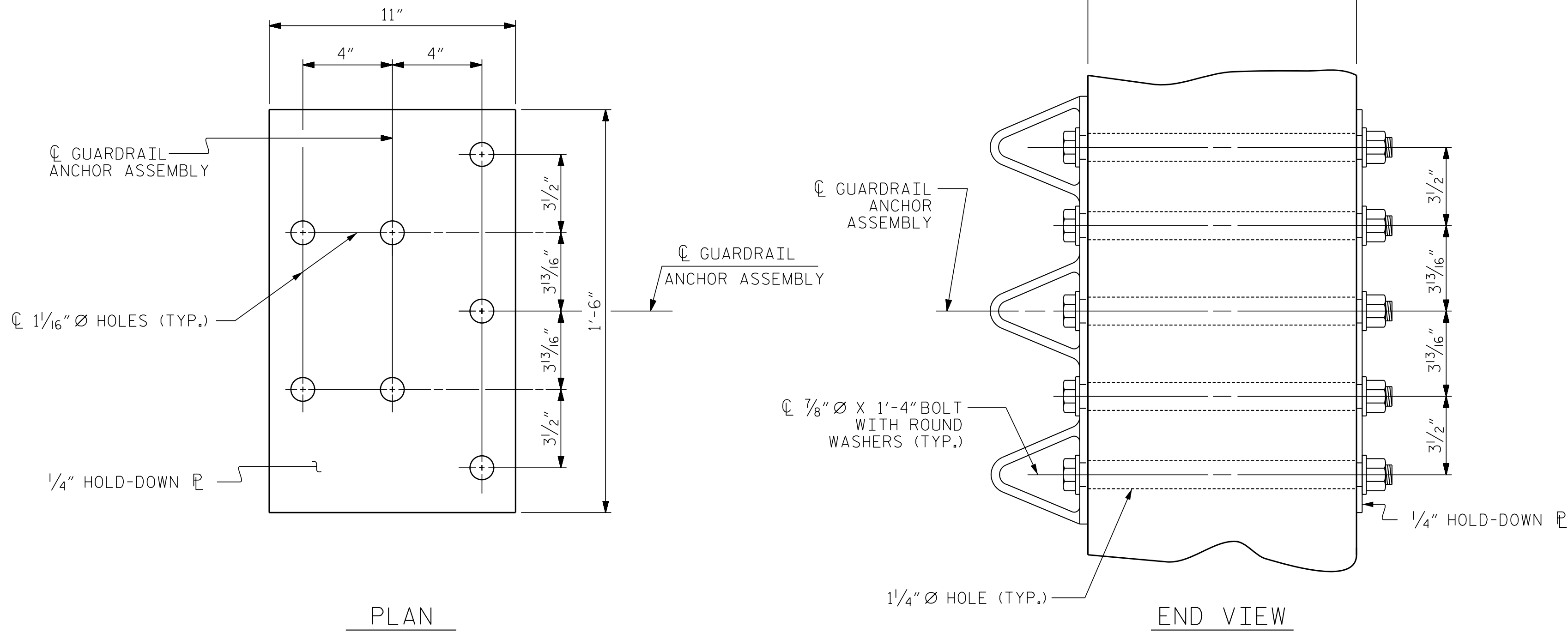
ASSEMBLED BY : WC	DATE : 6-2017
CHECKED BY : RTS	DATE : 7-2017



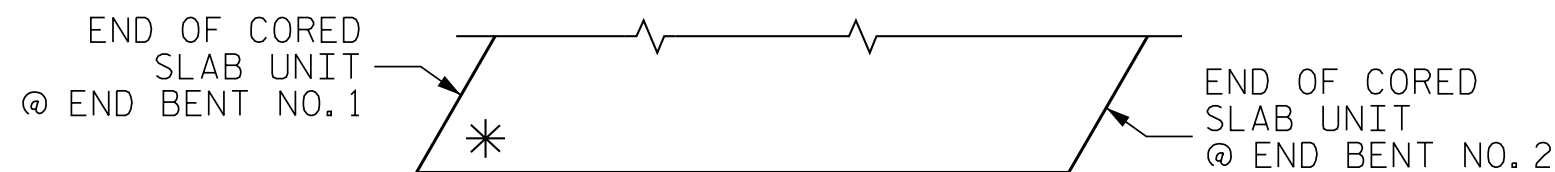
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FINAL UNLESS ALL
SIGNATURES COMPLETED



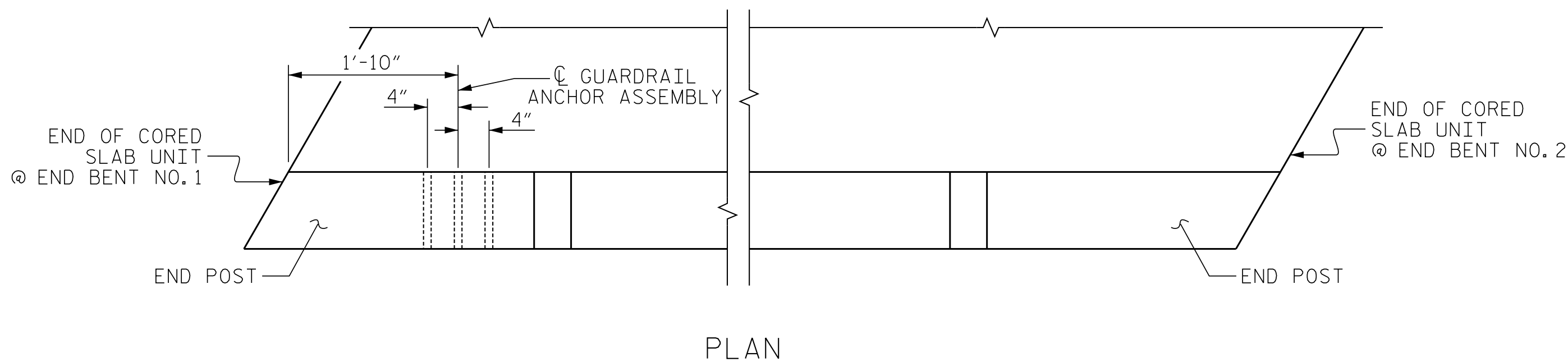
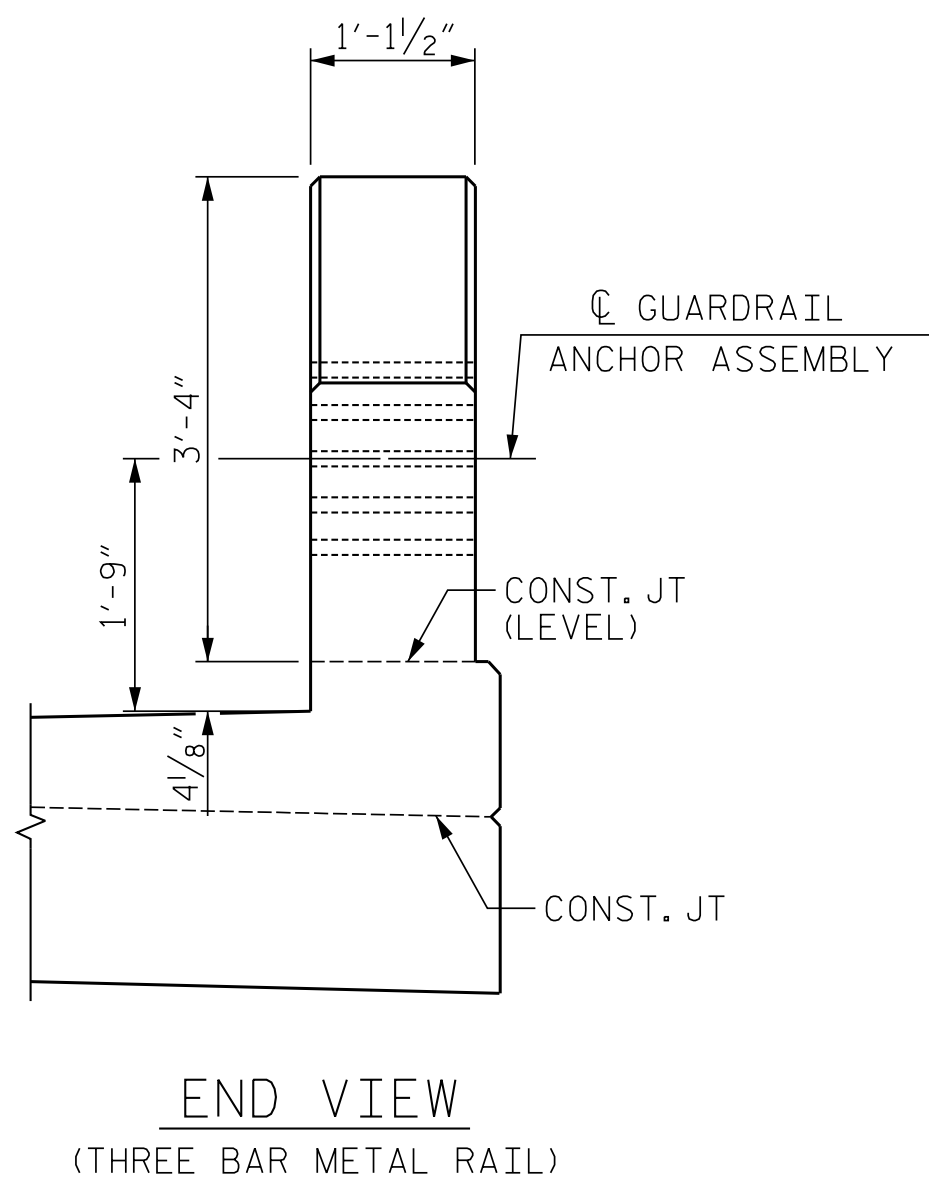
6/4/2026



GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS 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.

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

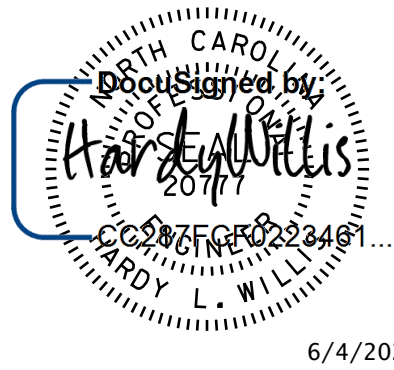
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

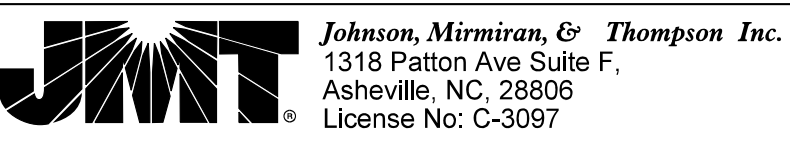
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-



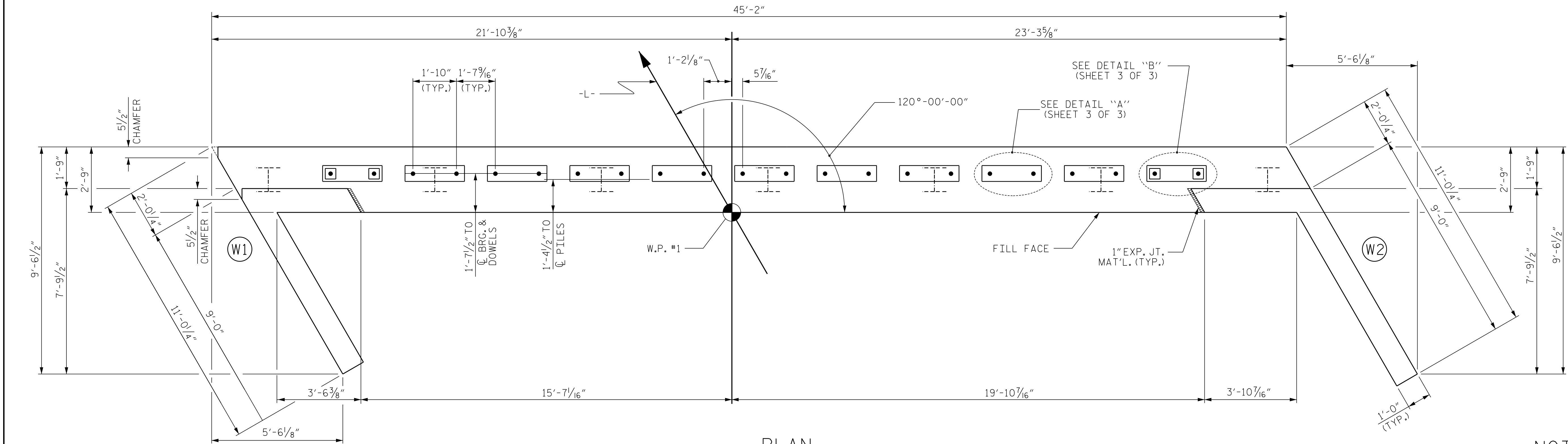
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
DETAILS FOR 3-BAR
METAL RAIL

REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

ASSEMBLED BY : WC	DATE : 6-2017
CHECKED BY : RTS	DATE : 6-2017
DRAWN BY : MAA 5/10	REV. 1/15 MAA/TMG
CHECKED BY : GM 5/10	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC



PLAN

TOP OF PILE ELEVATIONS	
①	2077.46
②	2077.30
③	2077.15
④	2076.99
⑤	2076.83
⑥	2076.68
⑦	2076.52

NOTES

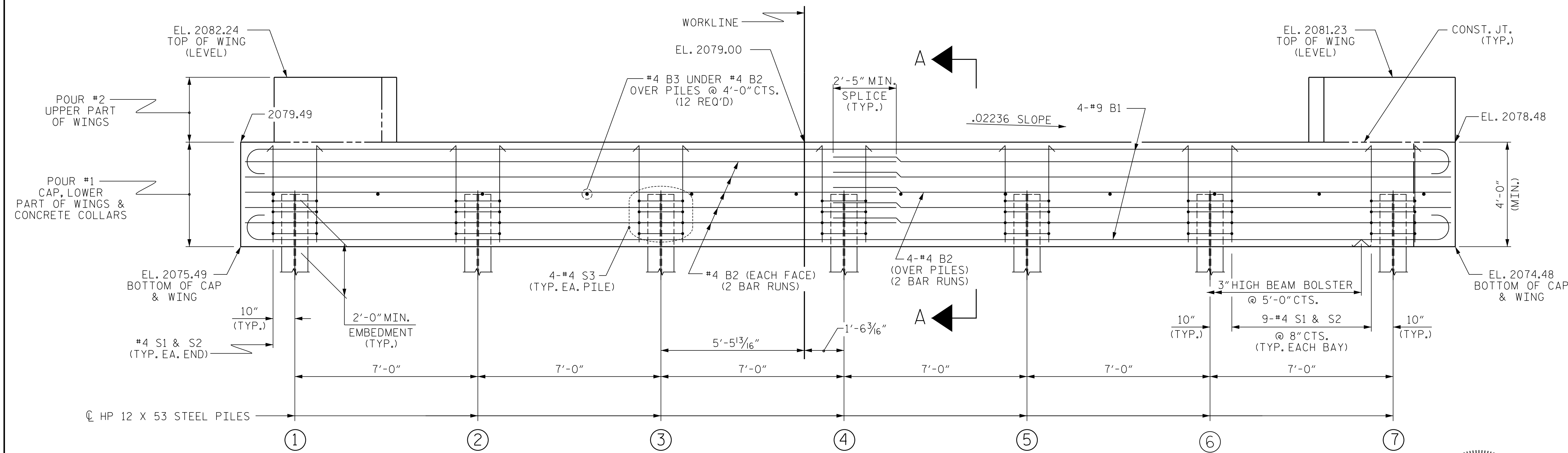
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. ANCHOR PLATES, WASHERS, AND NUTS SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

NO SEPARATE PAYMENT SHALL BE MADE FOR THE ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS. THE COST OF THE MATERIAL AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1

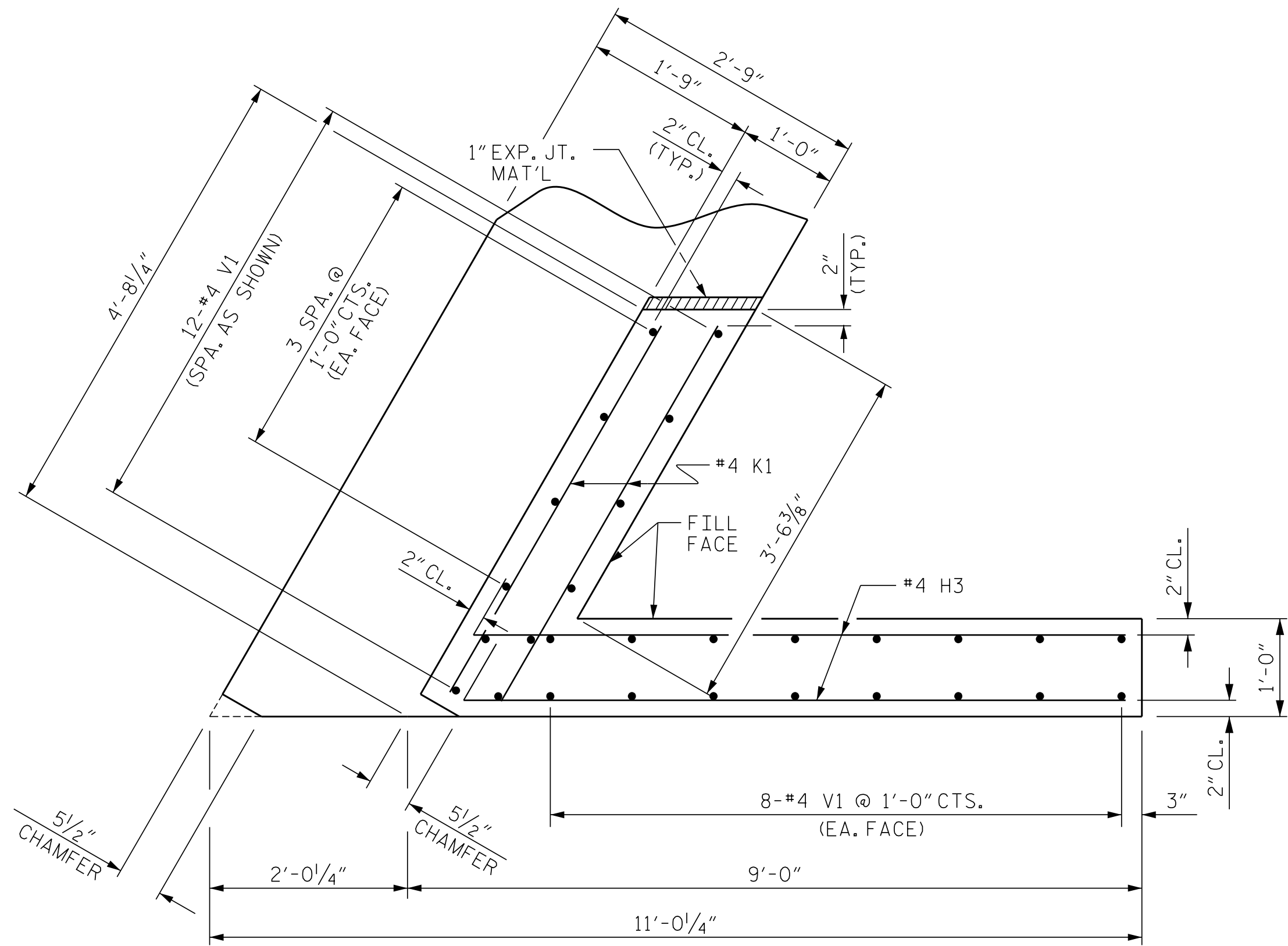
REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			



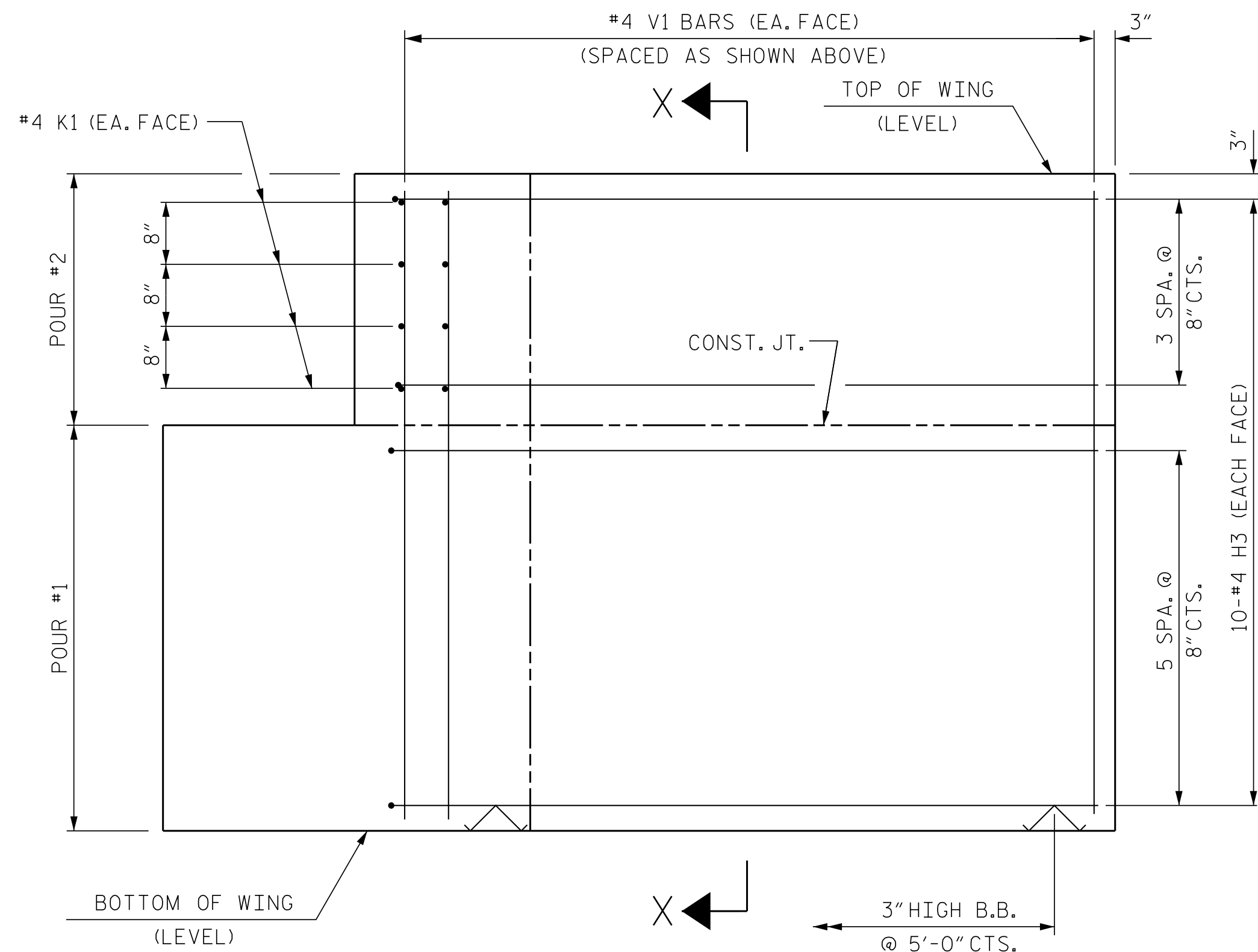
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

JMT Johnson, Mirmiran, & Thompson Inc.
1318 Patton Ave Suite F,
Asheville, NC, 28806
License No: C-3097

ASSEMBLED BY : WC		DATE : 6-2017	
CHECKED BY : RTS		DATE : 7-2017	
DRAWN BY : WJH	12/II	REV. 4/15	MAA/TMG
CHECKED BY : AAC	12/II		

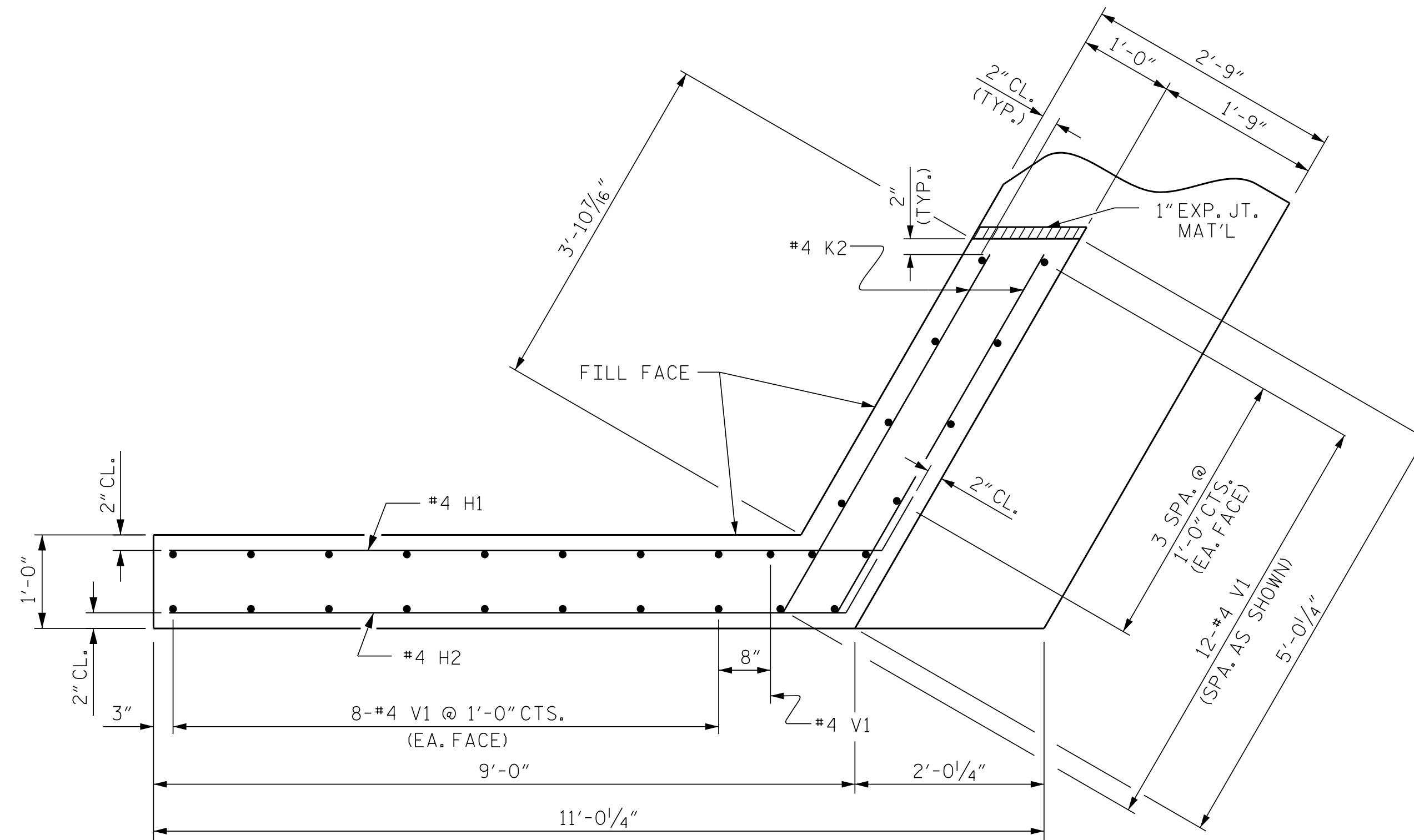


PLAN OF WING (W1)

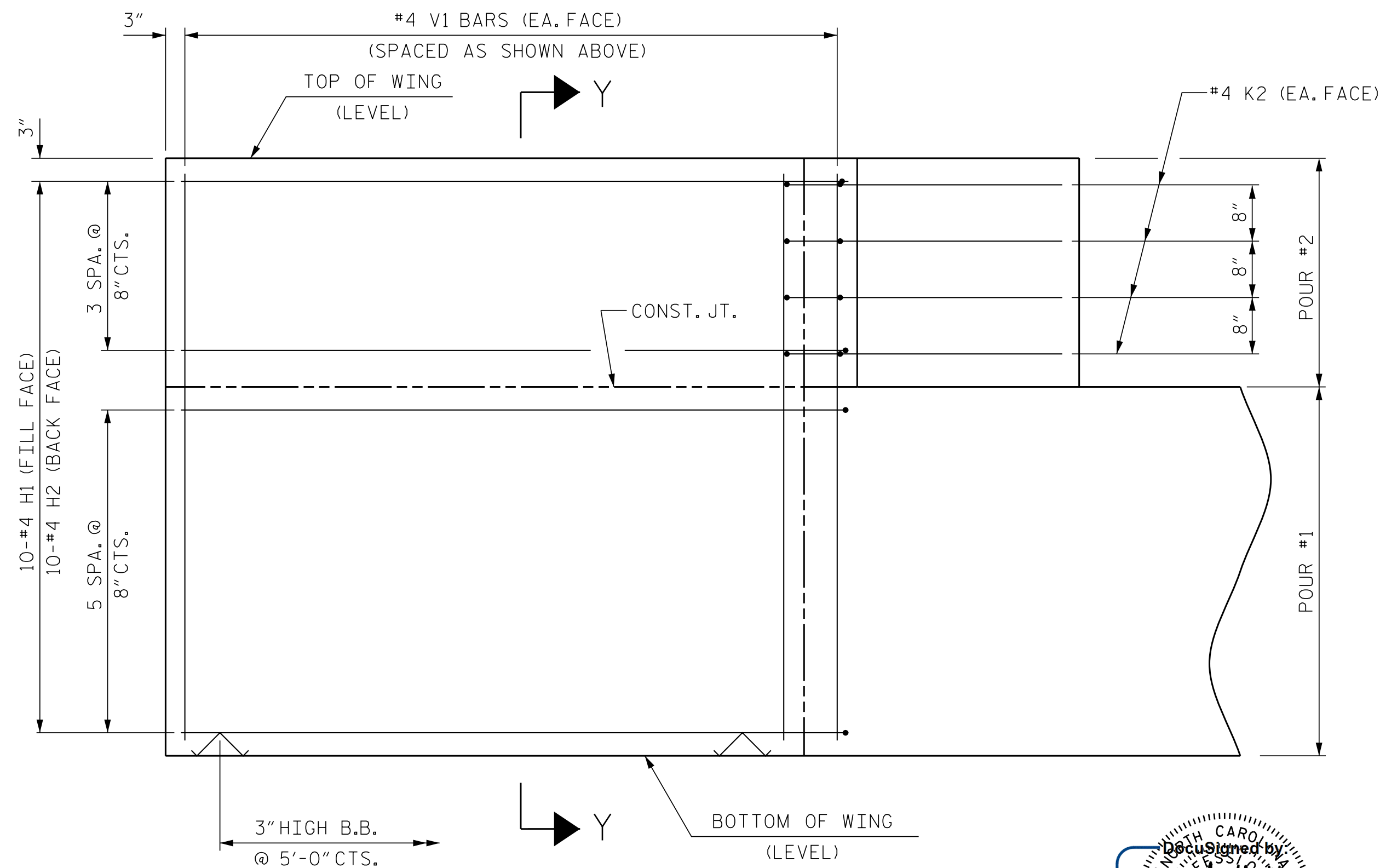


ELEVATION OF WING (W1)

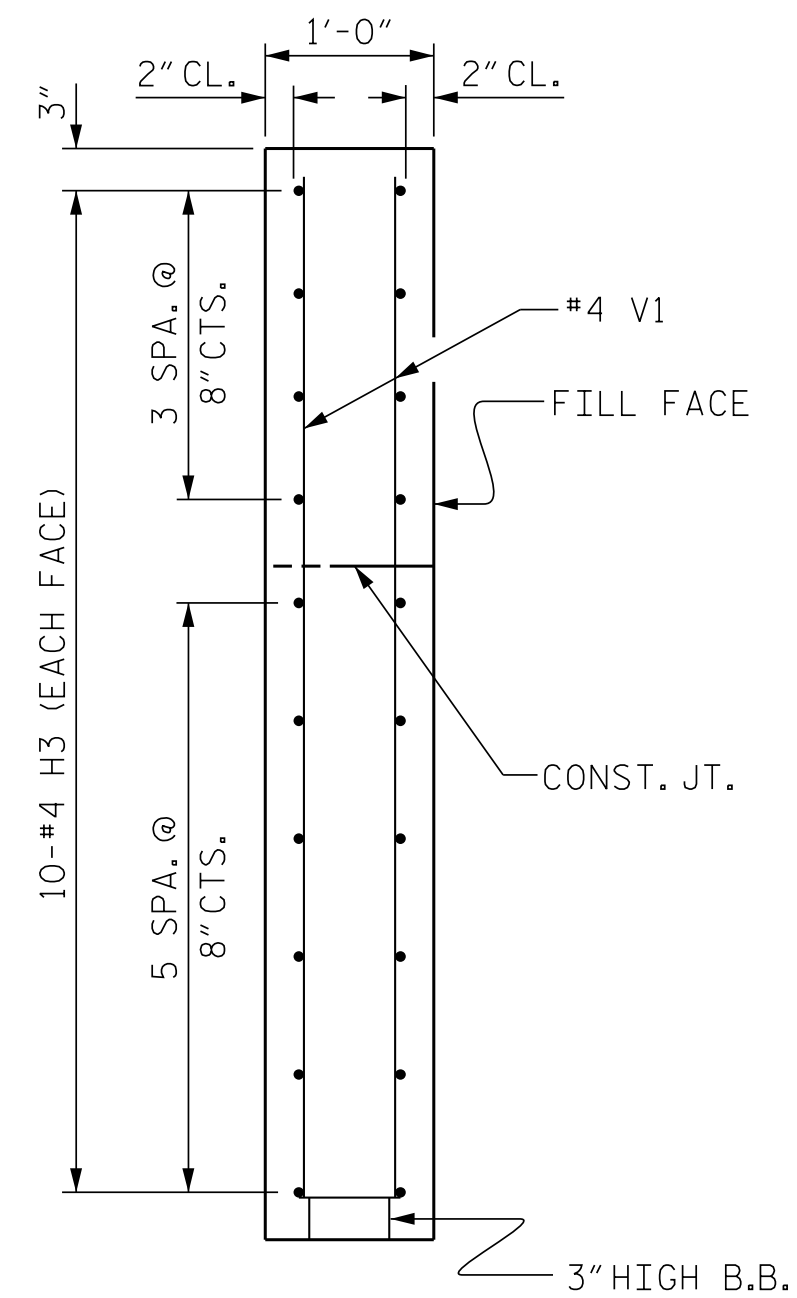
WING DETAILS



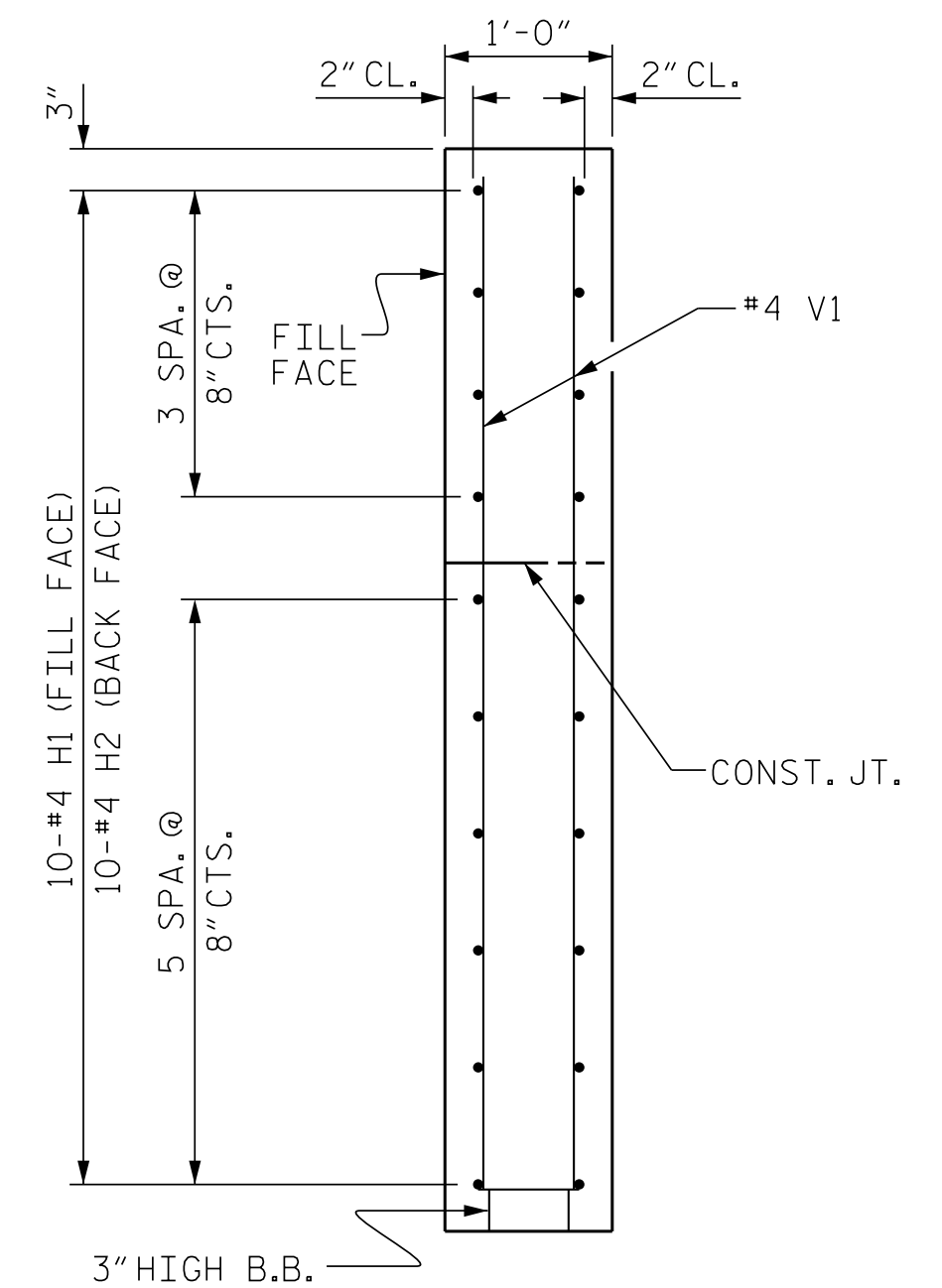
PLAN OF WING (W2)



ELEVATION OF WING (W2)



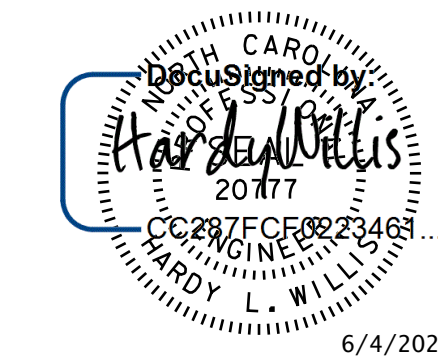
SECTION X-X



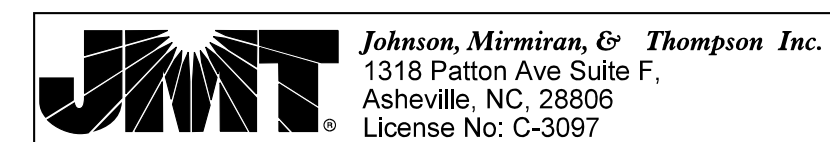
SECTION Y-Y

PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

SHEET 2 OF 3

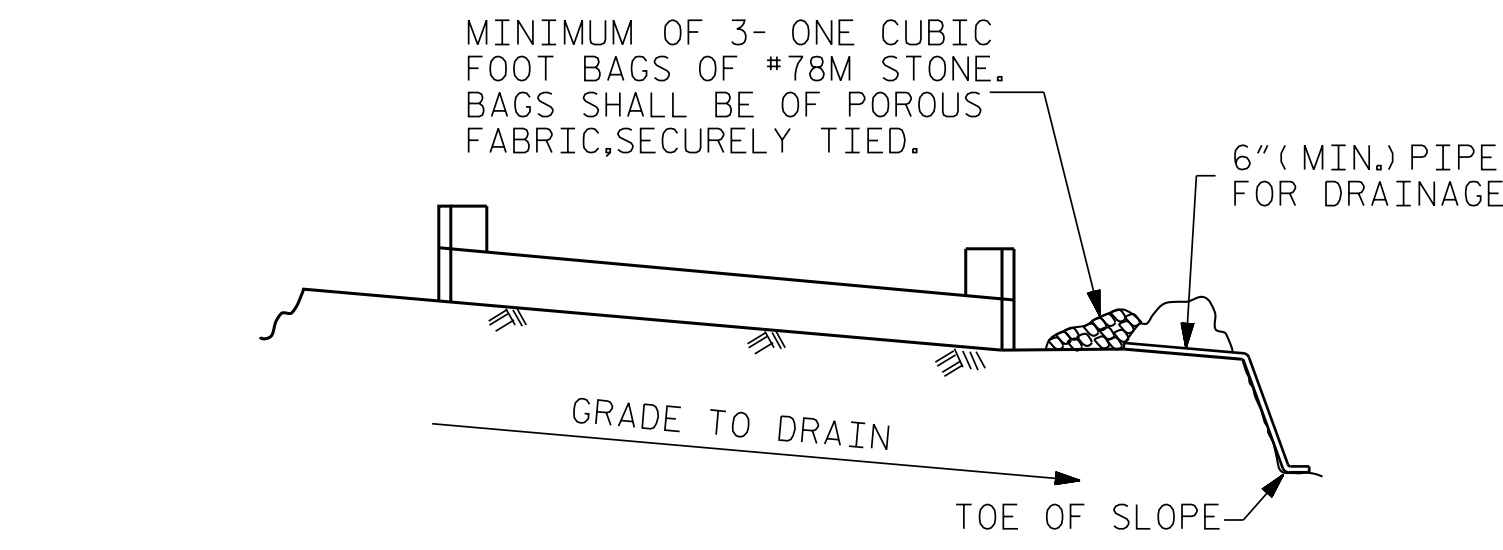


DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



ASSEMBLED BY :	WC	DATE :	6-2017
CHECKED BY :	RTS	DATE :	7-2017
DRAWN BY :	WJH 12/II	REV.	4/15
CHECKED BY :	AAC 12/II	MAA/TMG	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-18
2			4			TOTAL SHEETS 25

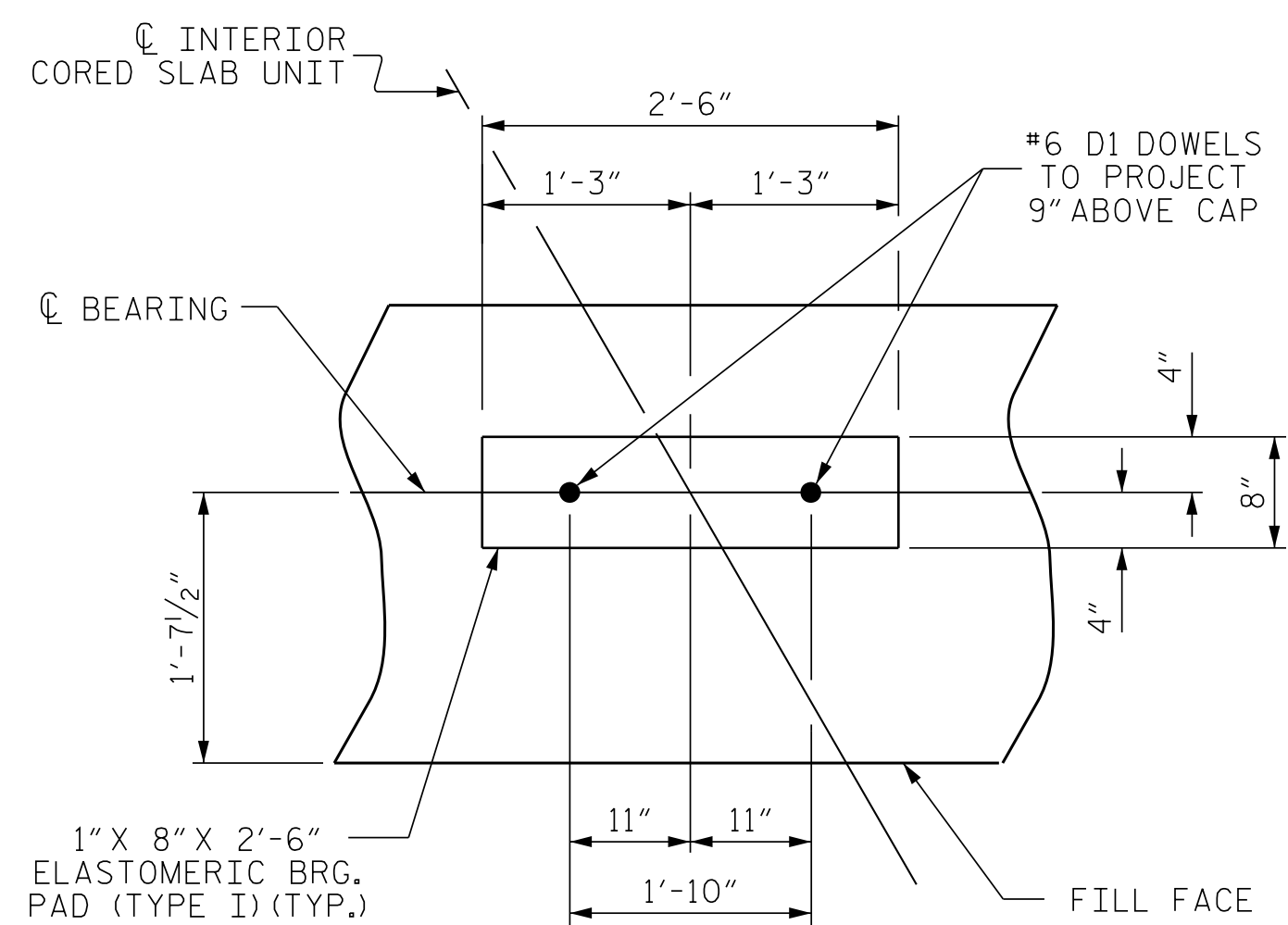


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

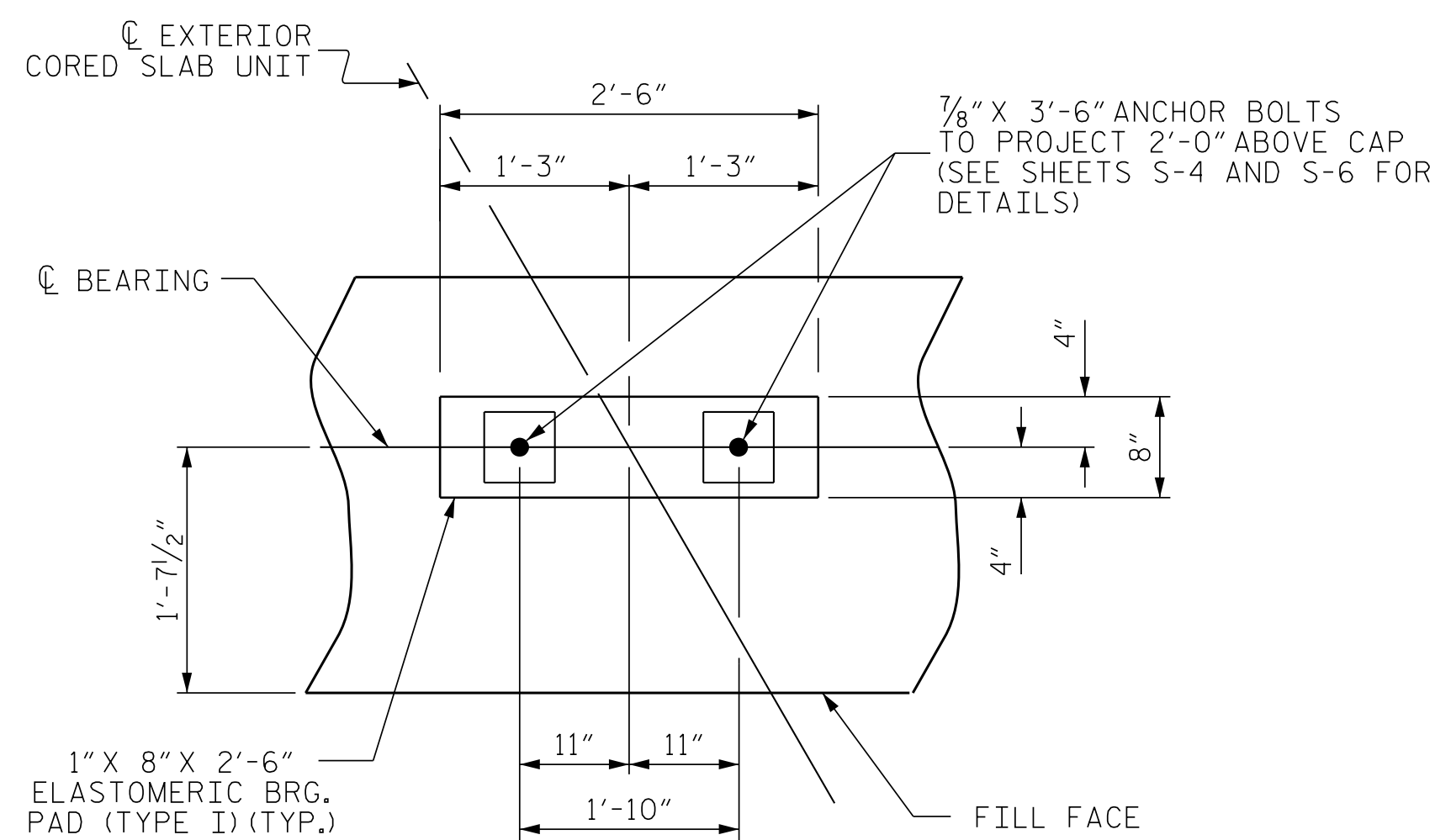
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

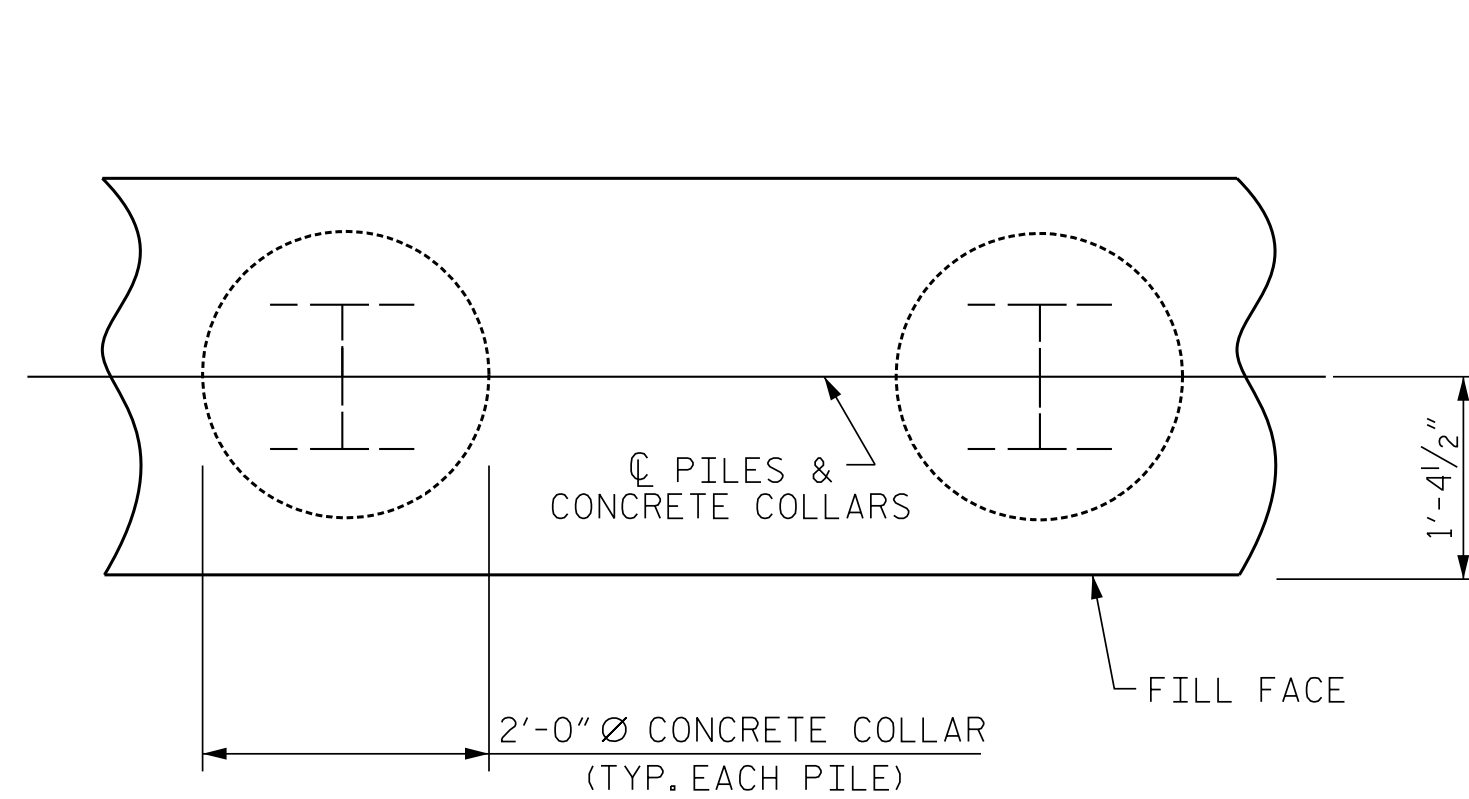
TEMPORARY DRAINAGE AT END BENT



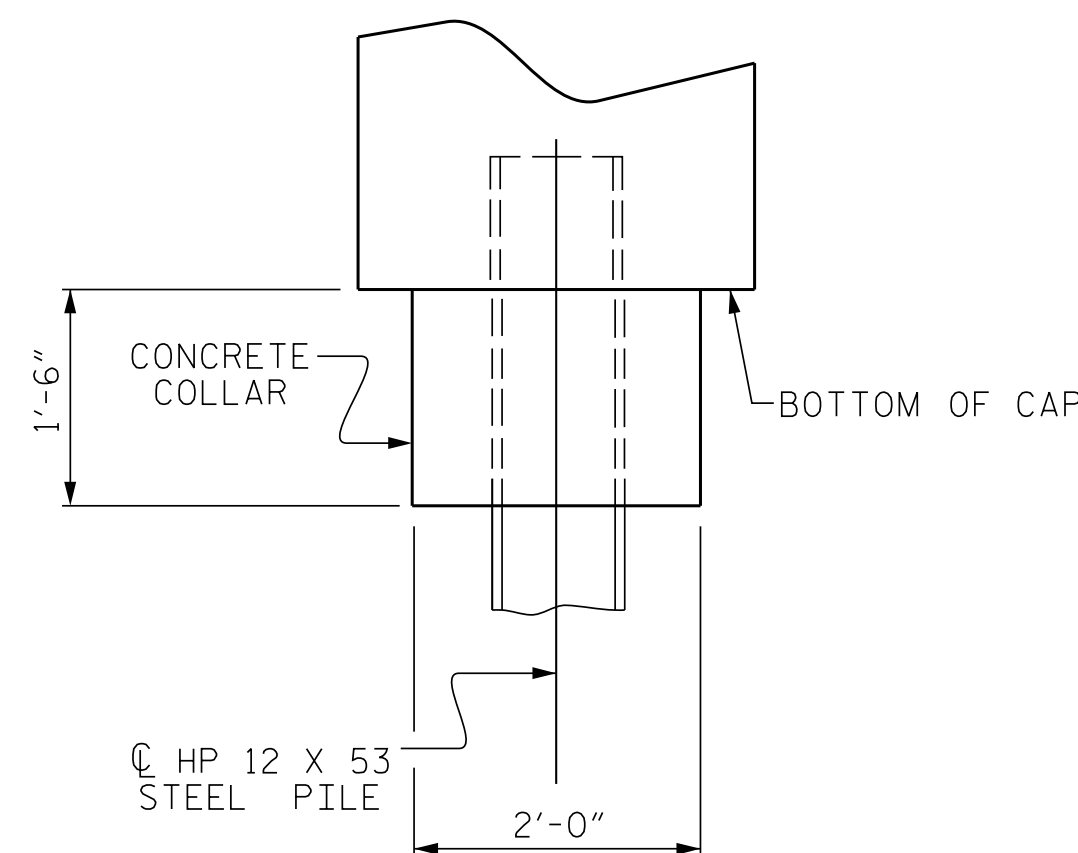
DETAIL "A"



DETAIL "B"

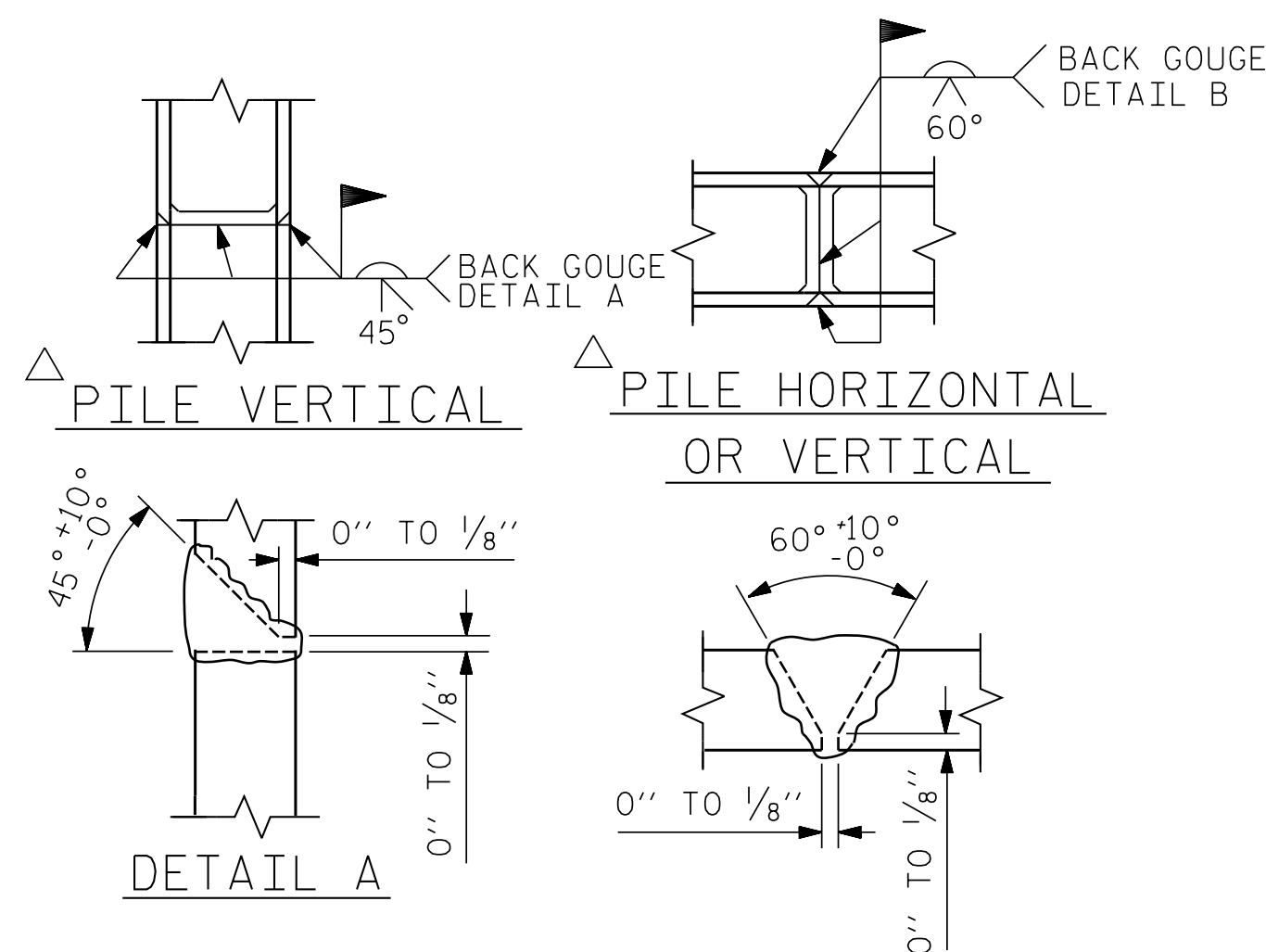


PLAN



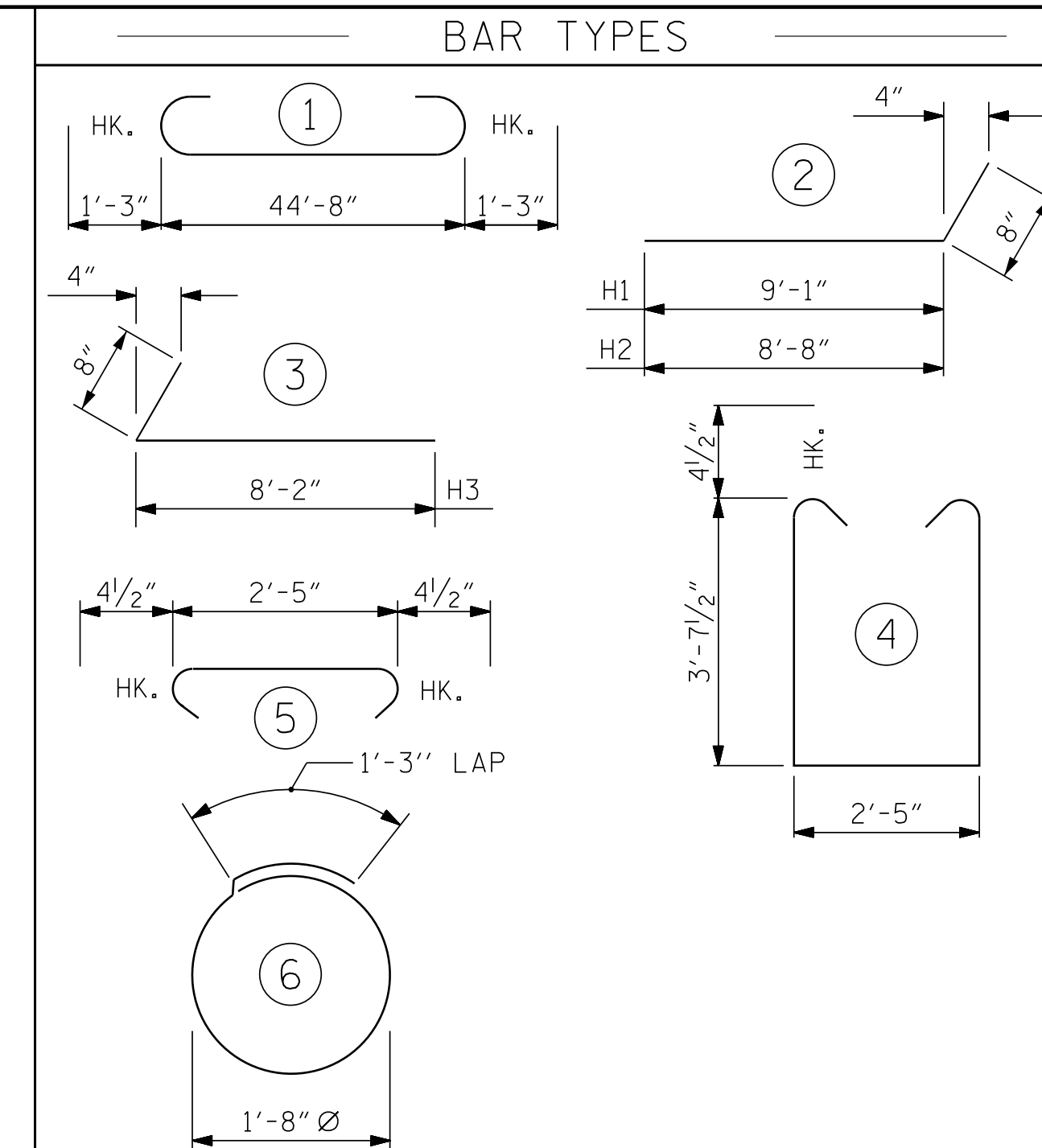
ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL



POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No.1

HP 12 X 53 STEEL PILES
NO: 7 LIN. FT.= 140

PILE DRIVING EQUIPMENT
SETUP FOR
HP 12 X 53 STEEL PILES
NO: 7

BILL OF MATERIAL FOR END BENT No. 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		47'-2"	1283
B2	28	#4	STR	23'-8"	443
B3	12	#4	STR	2'-5"	19
D1	22	#6	STR	1'-6"	50
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
H3	20	#4	3	8'-10"	118
K1	8	#4	STR	3'-11"	21
K1	8	#4	STR	4'-7"	24
S1	56	#4	4	10'-5"	390
S2	56	#4	5	3'-2"	118
S3	28	#4	6	6'-6"	122
V1	57	#4	STR	6'-4"	241

REINFORCING STEEL
(FOR ONE END BENT) 2956 LBS.

CLASS A CONCRETE BREAKDOWN
(FOR ONE END BENT)

POUR #1 CAP, LOWER PART
OF WINGS & COLLARS 21.9 C.Y.

POUR #2 UPPER PART OF
WINGS 2.6 C.Y.

TOTAL CLASS A CONCRETE 24.5 C.Y.

PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

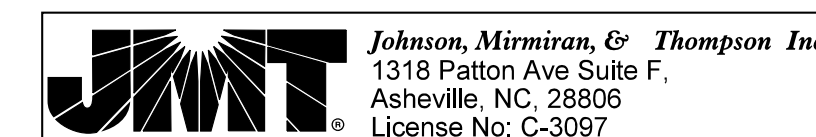
END BENT No.1
DETAILS

REVISIONS						SHEET NO. S-19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

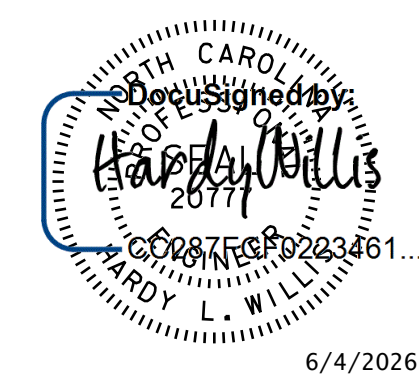
STD. NO. EB-33-120S4

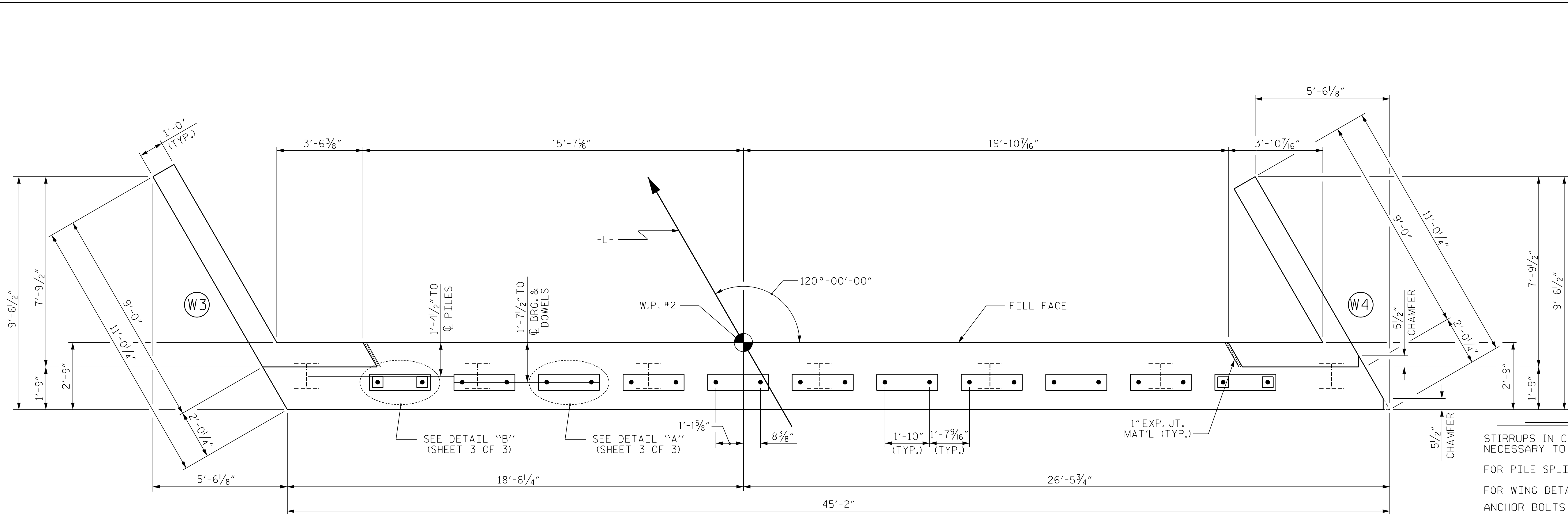
ASSEMBLED BY :	WC	DATE :	6-2017
CHECKED BY :	RTS	DATE :	7-2017
DRAWN BY :	WJH 12/II	REV.	4/17
CHECKED BY :	AAC 12/II	MAA/THC	

(CONCRETE COLLAR NOT SHOWN FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

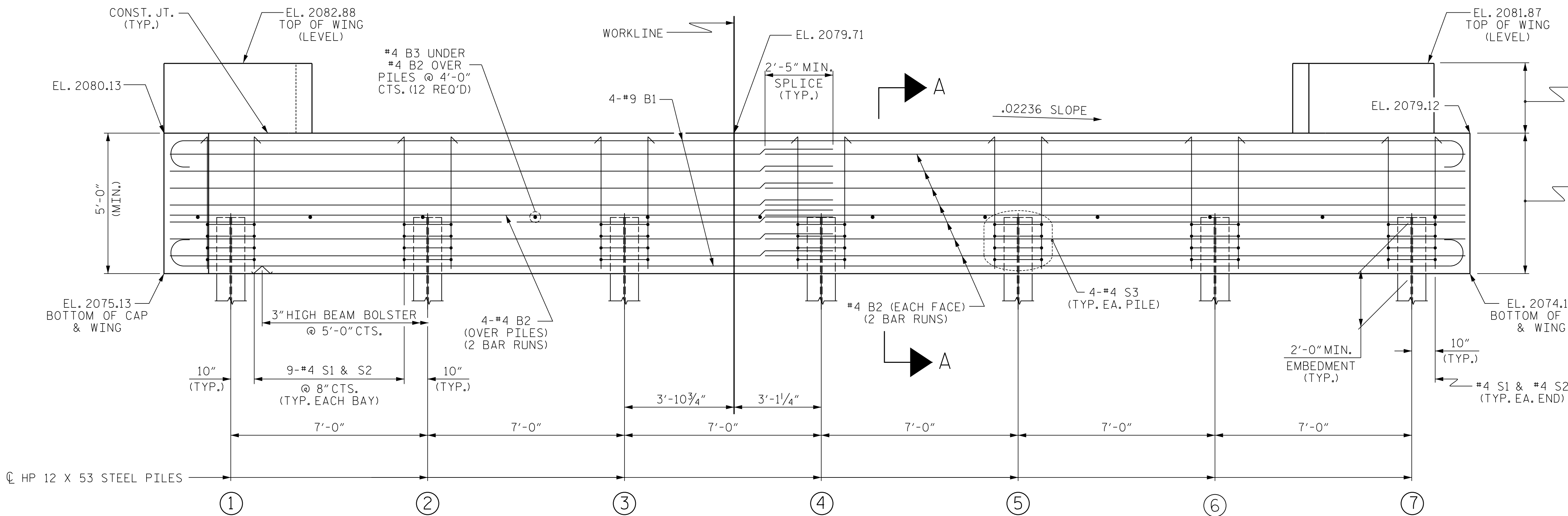


DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED





PLAN



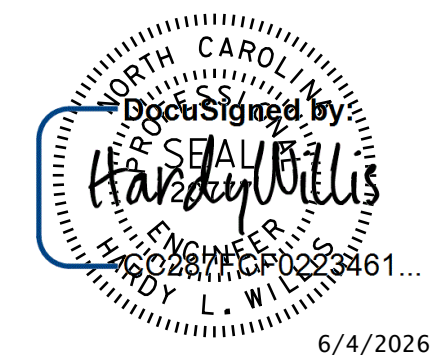
ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

TOP OF PILE ELEVATIONS	
①	2077.09
②	2076.94
③	2076.78
④	2076.63
⑤	2076.47
⑥	2076.31
⑦	2076.16

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.
- FOR WING DETAILS, SEE SHEET 2 OF 3.
- ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449, ANCHOR PLATES, WASHERS, AND NUTS SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- NO SEPARATE PAYMENT SHALL BE MADE FOR THE ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS. THE COST OF THE MATERIAL AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.



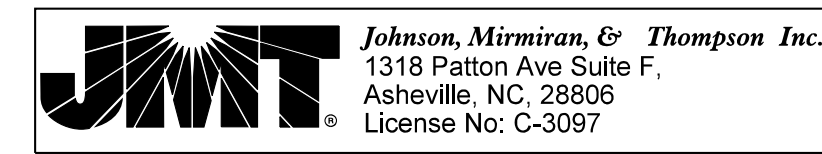
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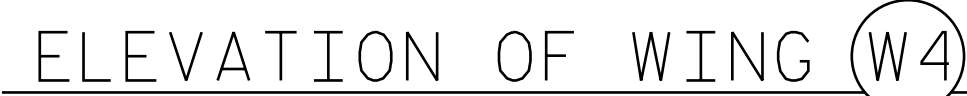
PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

SHEET 1 OF 3

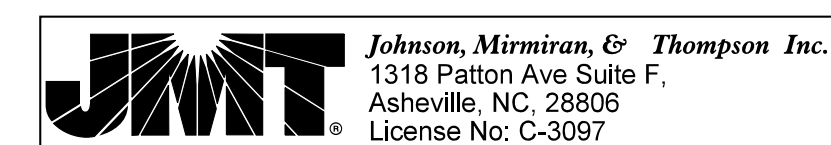
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-20
2			4			
TOTAL SHEETS						25

ASSEMBLED BY : WC		DATE : 6-2017	
CHECKED BY : RTS		DATE : 7-2017	
DRAWN BY : WJH	12/II	REV. 4/15	MAA/TMG
CHECKED BY : AAC	12/II		





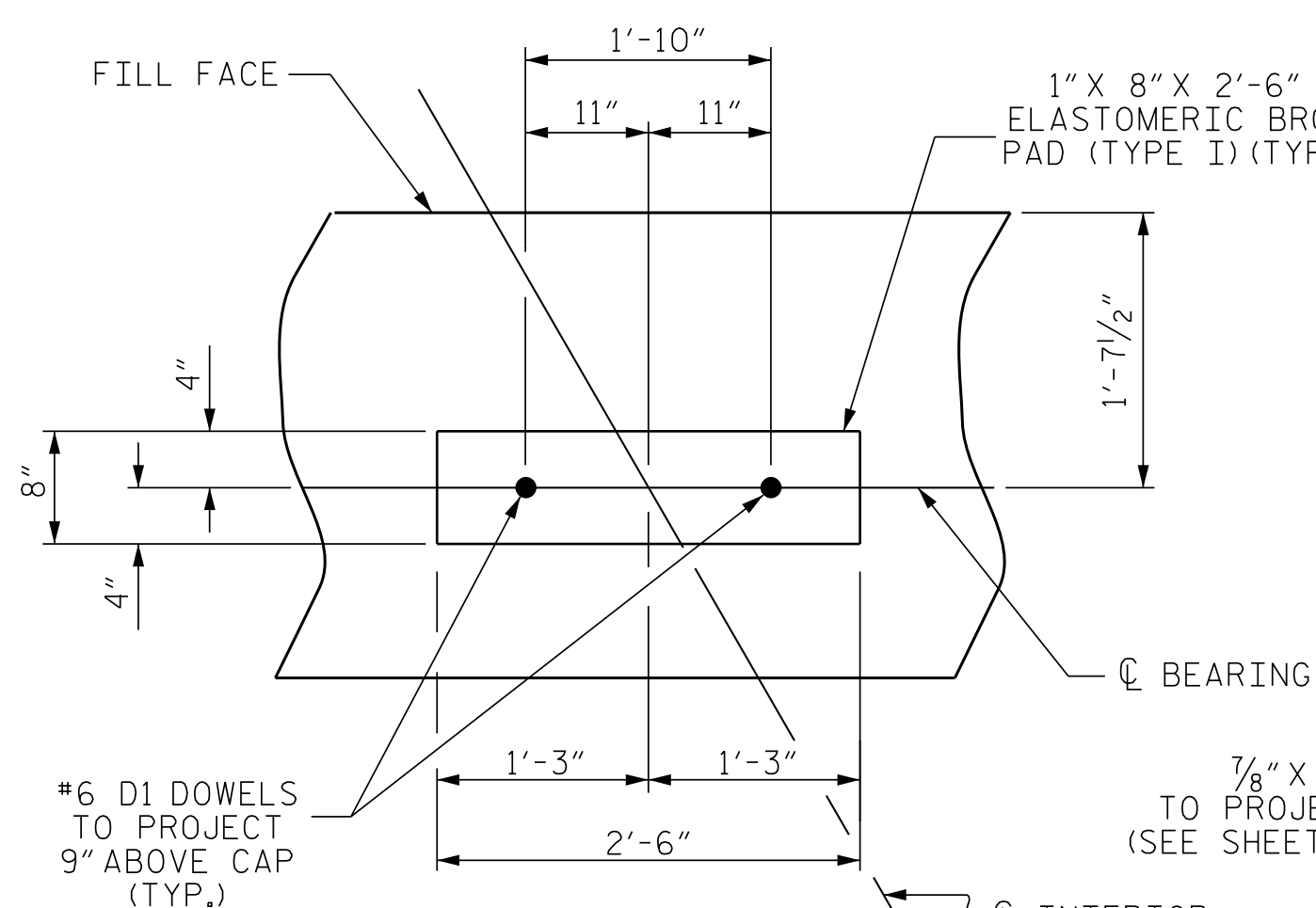
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			



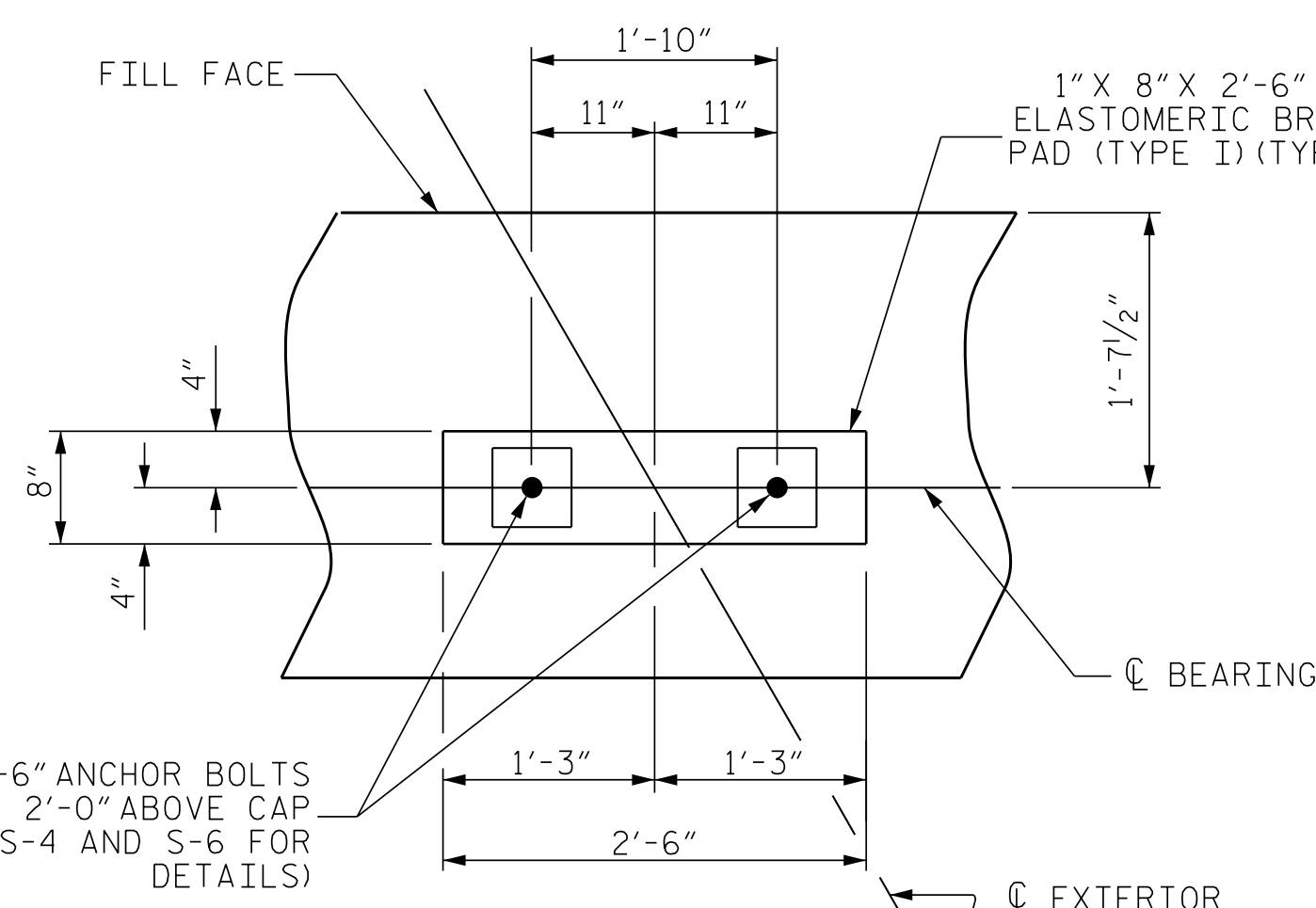
ASSEMBLED BY :	WC	DATE :	6-2017
CHECKED BY :	RTS	DATE :	7-2017
DRAWN BY :	WJH 12/II	REV. 4/15	MAA/TMG
CHECKED BY :	AAC 12/II		

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.

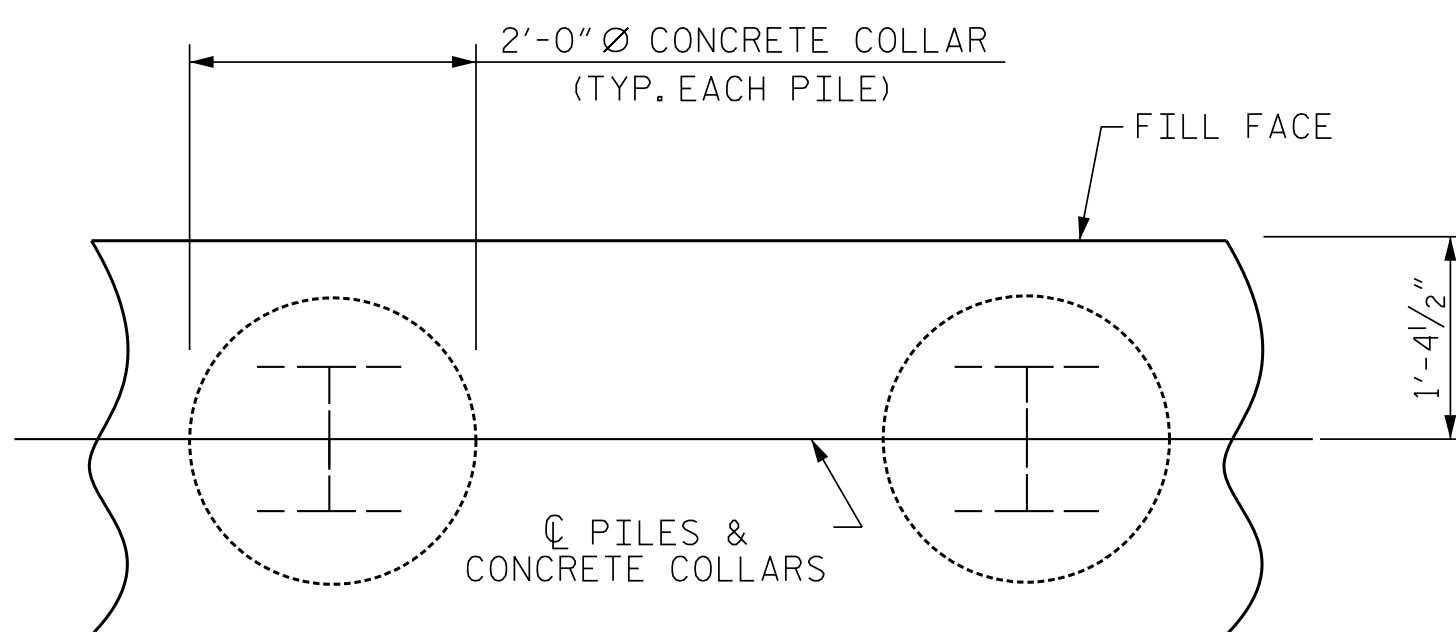
TEMPORARY DRAINAGE AT END BENT



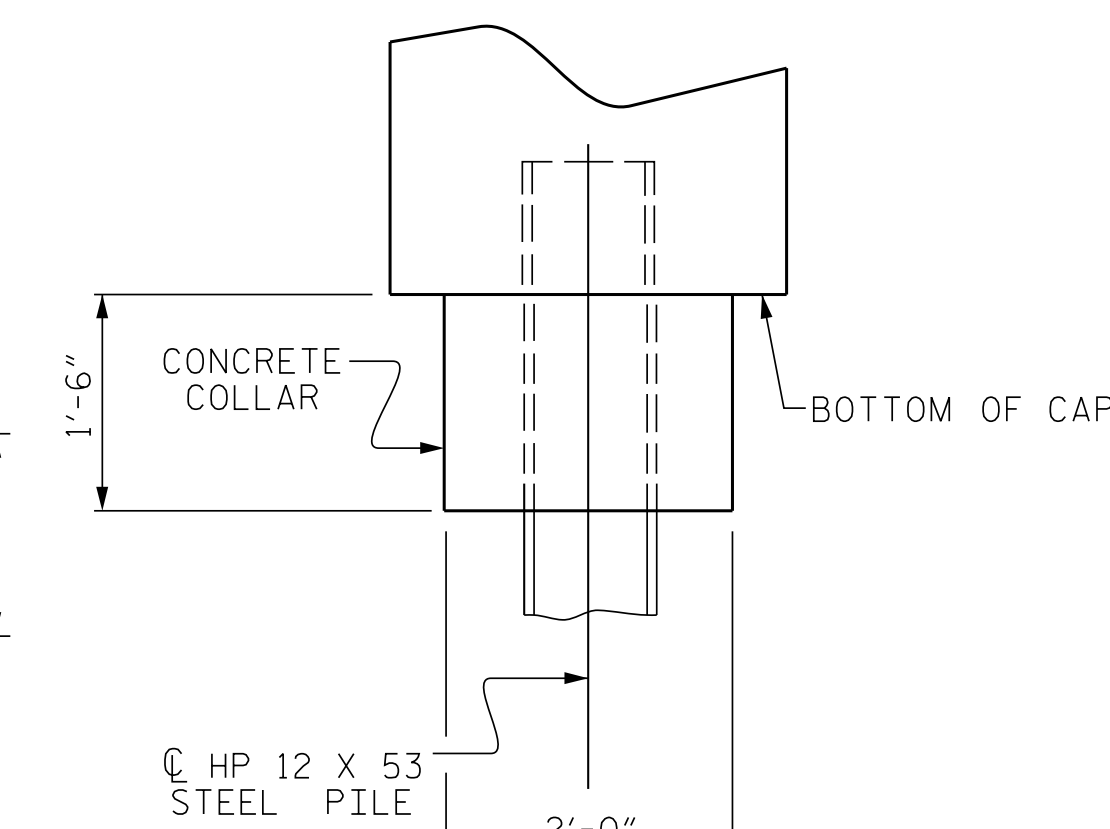
DETAIL "A"



DETAIL "B"

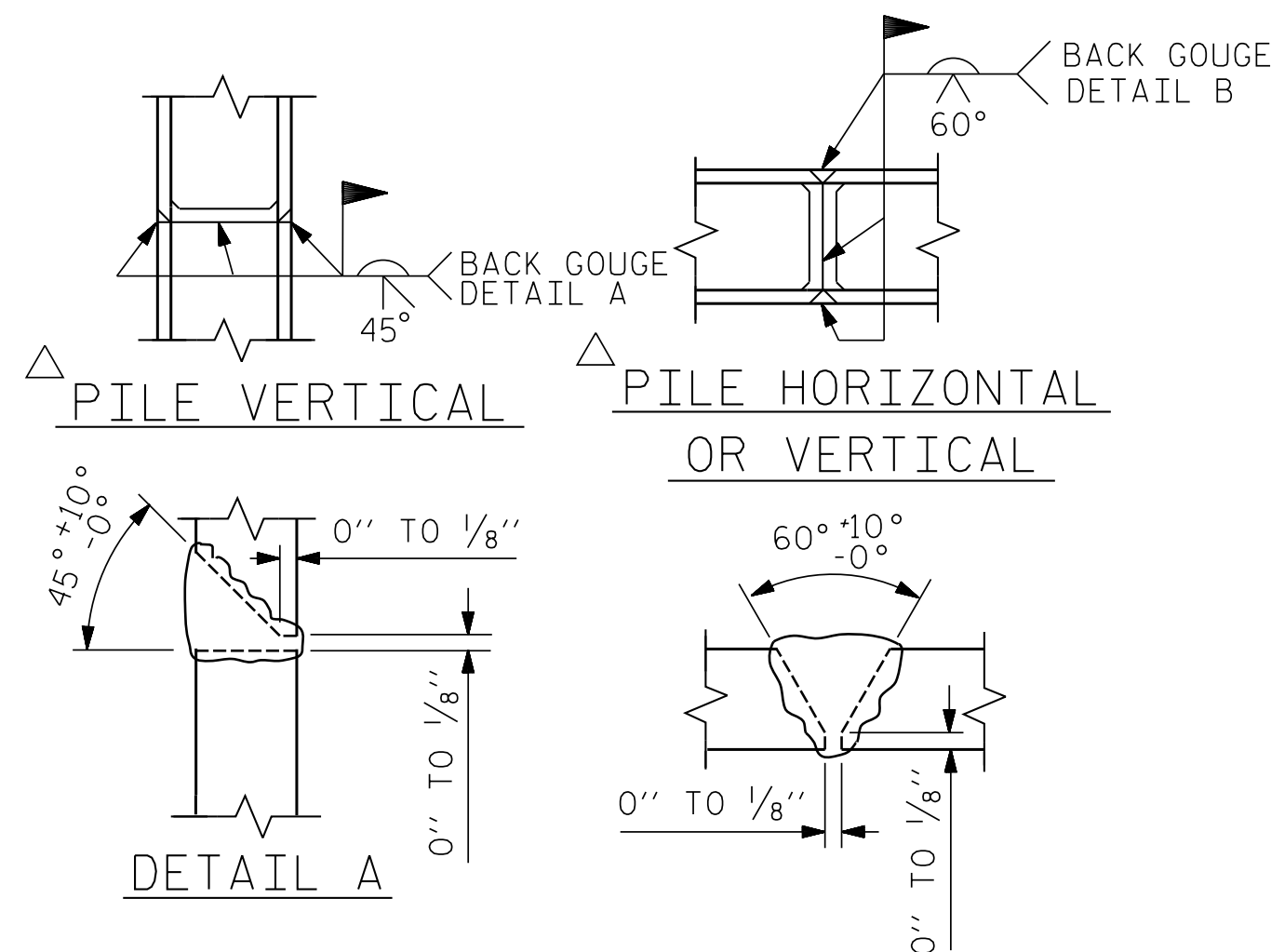


PLAN



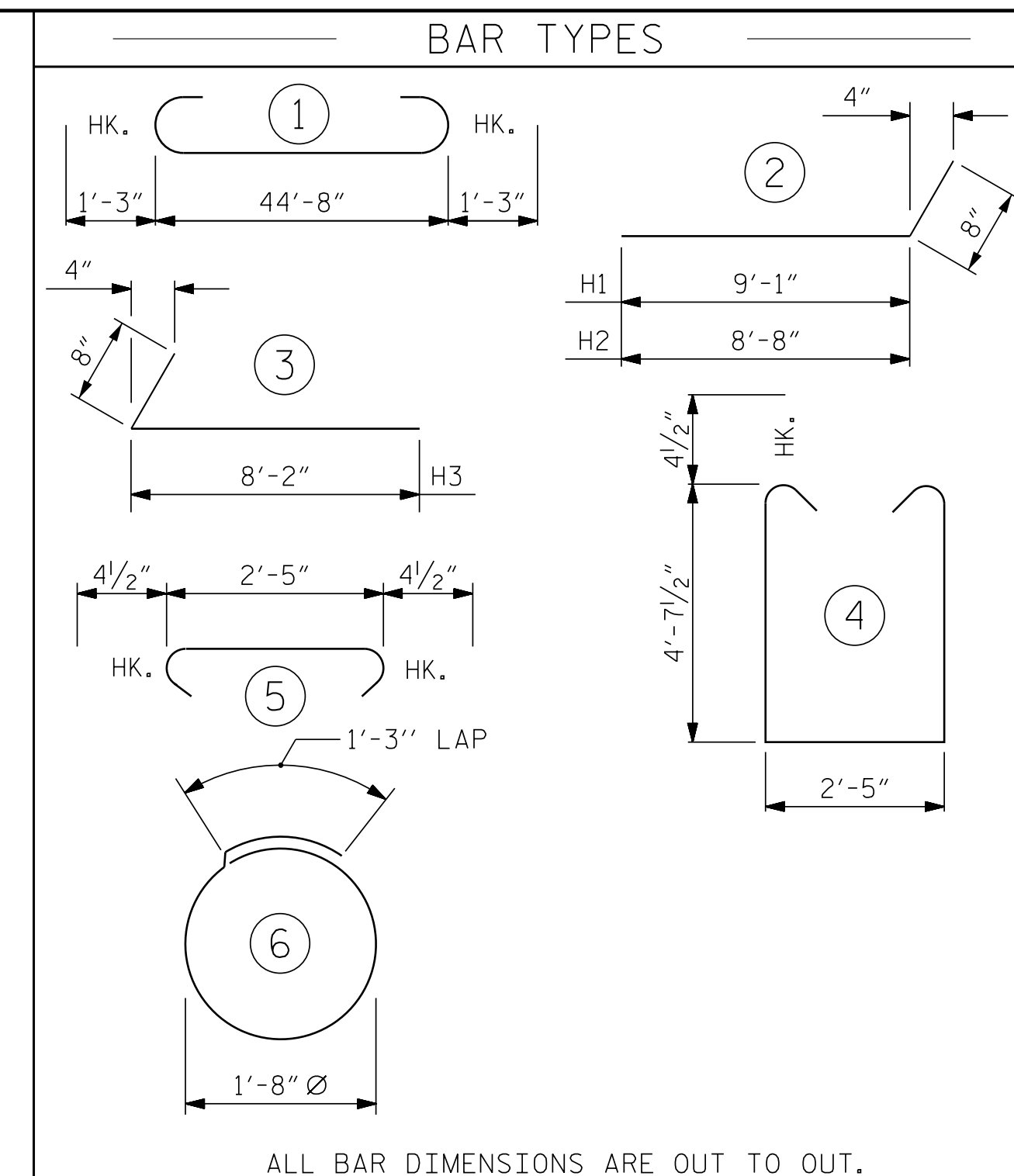
ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 2	
HP 12 X 53 STEEL PILES NO: 7	LIN. FT. = 10
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO:	

BILL OF MATERIAL					
FOR END BENT No. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGH
B1	8	#9	1	47'-2"	1283
B2	36	#4	STR	23'-8"	569
B3	12	#4	STR	2'-5"	19
D1	22	#6	STR	1'-6"	50
H1	11	#4	2	9'-9"	72
H2	11	#4	2	9'-4"	69
H3	22	#4	3	8'-10"	130
K1	16	#4	STR	4'-3"	45
S1	56	#4	4	12'-5"	464
S2	56	#4	5	3'-2"	118
S3	28	#4	6	6'-6"	122
V1	57	#4	STR	7'-4"	279

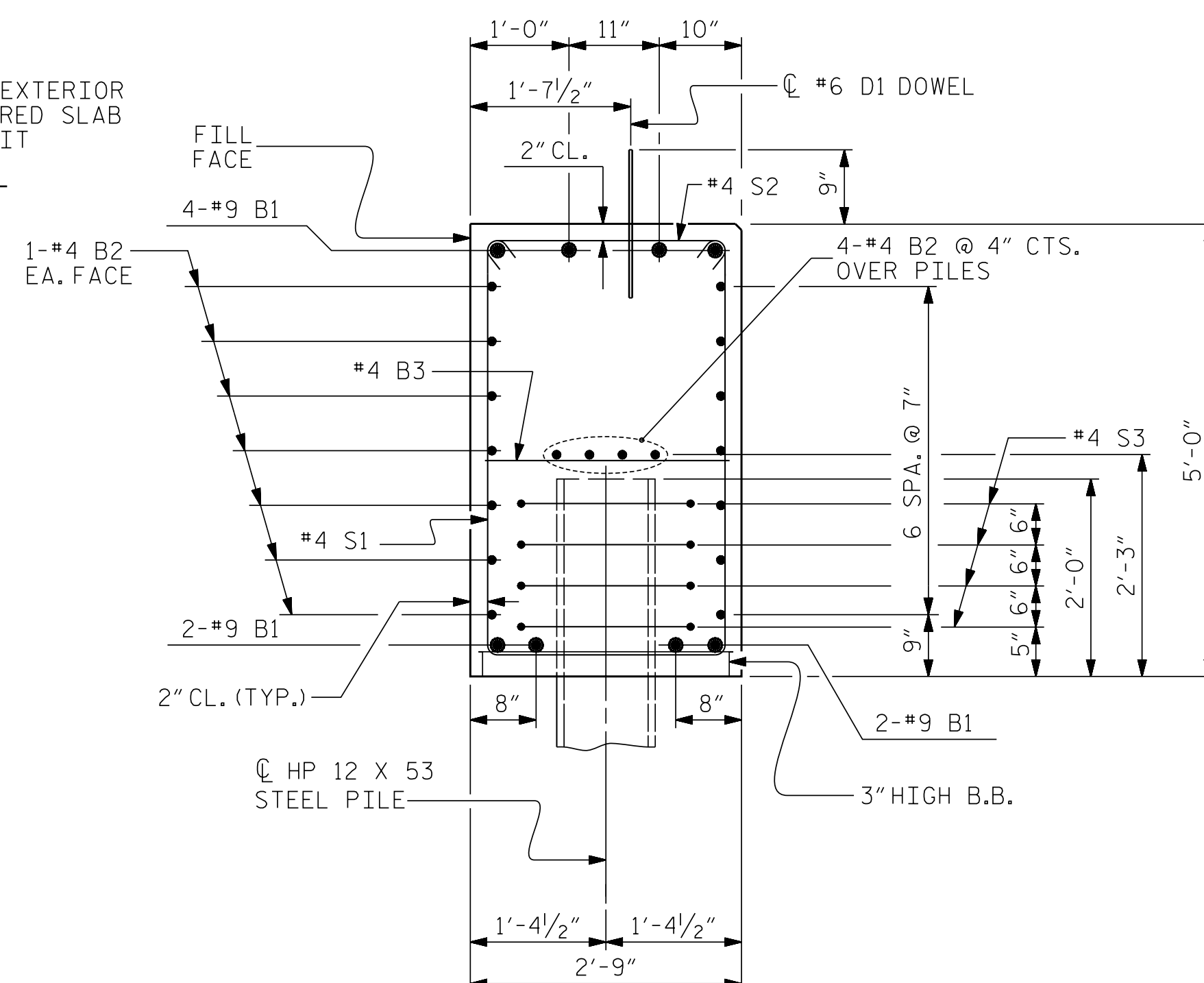
REINFORCING STEEL (FOR ONE END BENT)	3220 LBS.
---	-----------

CLASS A CONCRETE BREAKDOWN
(FOR ONE END BENT)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	27.1 C.Y.
---------	---------------------------------------	-----------

POUR #2 UPPER PART OF WINGS	2.6 C.Y.
-----------------------------	----------

TOTAL CLASS A CONCRETE	29.7 C.Y.
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SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



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Asheville, NC, 28806
License No: G-3097

DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

ASSEMBLED BY : WC		DATE : 6-2017	
CHECKED BY : RTS		DATE : 7-2017	
DRAWN BY : WJH		12/II	REV. 4/17 MAA/THC
CHECKED BY : AAC		12/II	

PROJECT NO. B-5929

HENDERSON COUNTY

STATION: 13+45.76 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

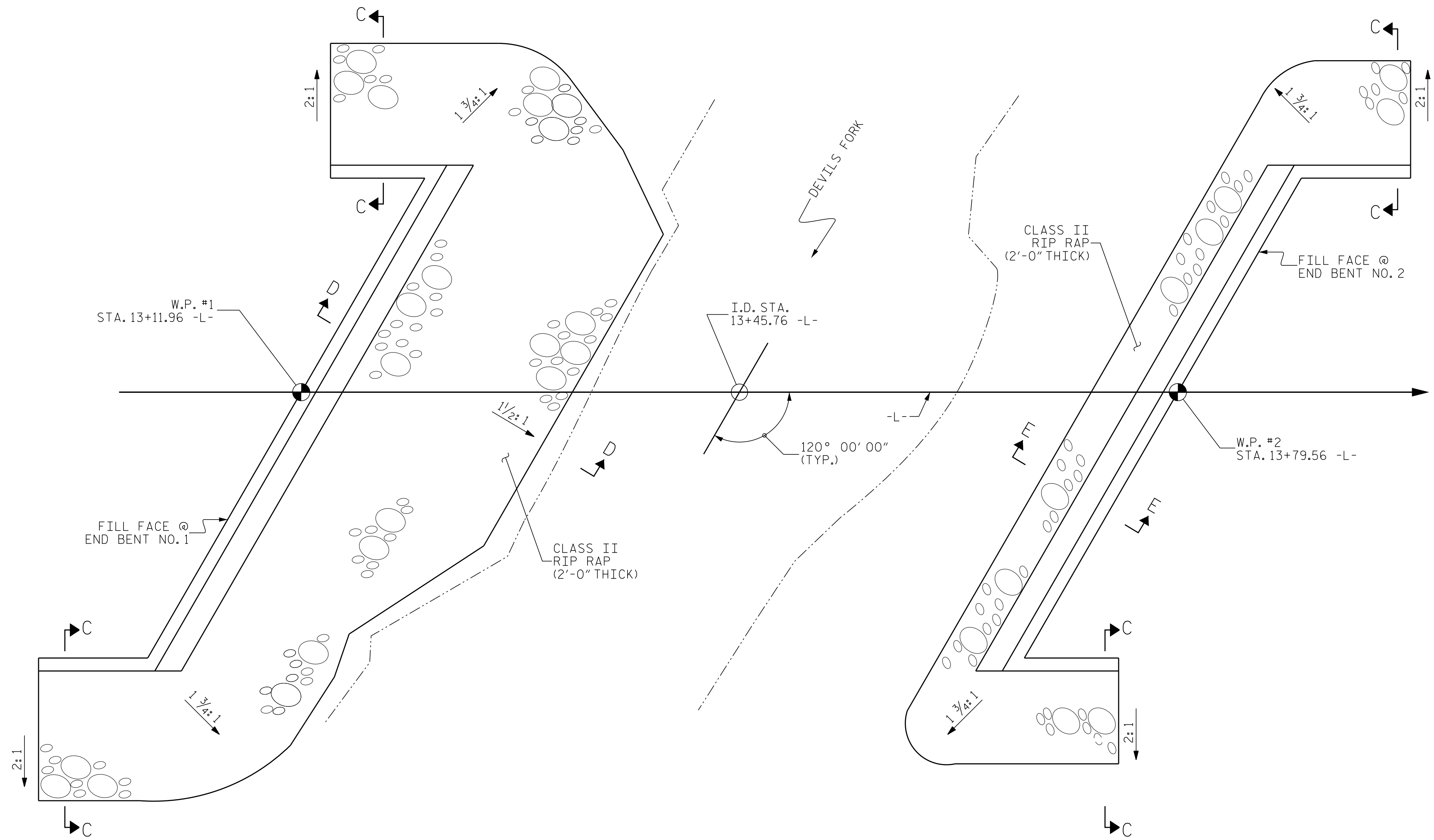
END BENT No. 2
DETAILS

STD. NO. EB_33_120S4

NOTES:

PLACE RIP RAP AS SHOWN IN PLAN VIEW.

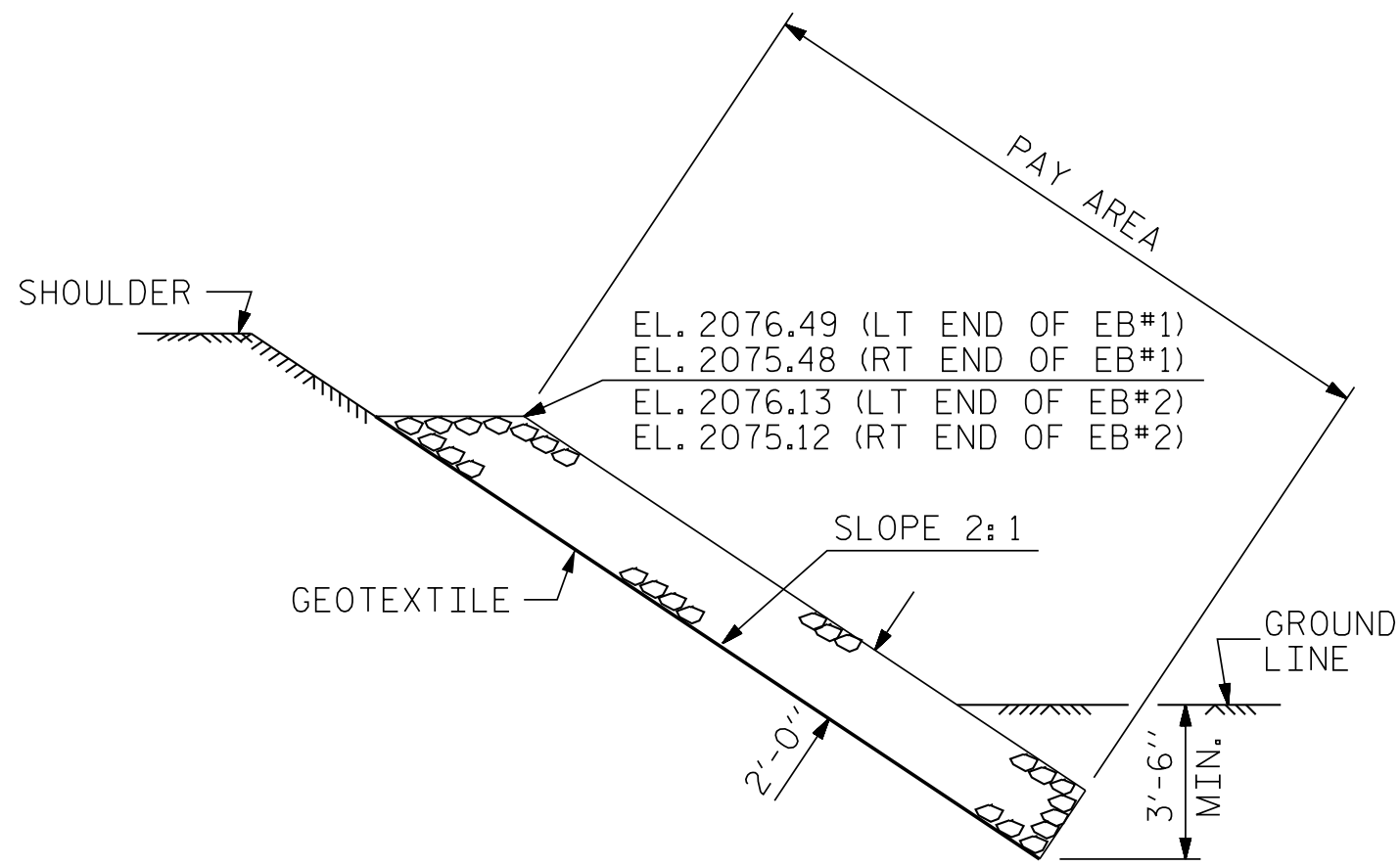
AT END BENT #2, PLACE RIP RAP BEHIND EXISTING BRIDGE ABUTMENT.



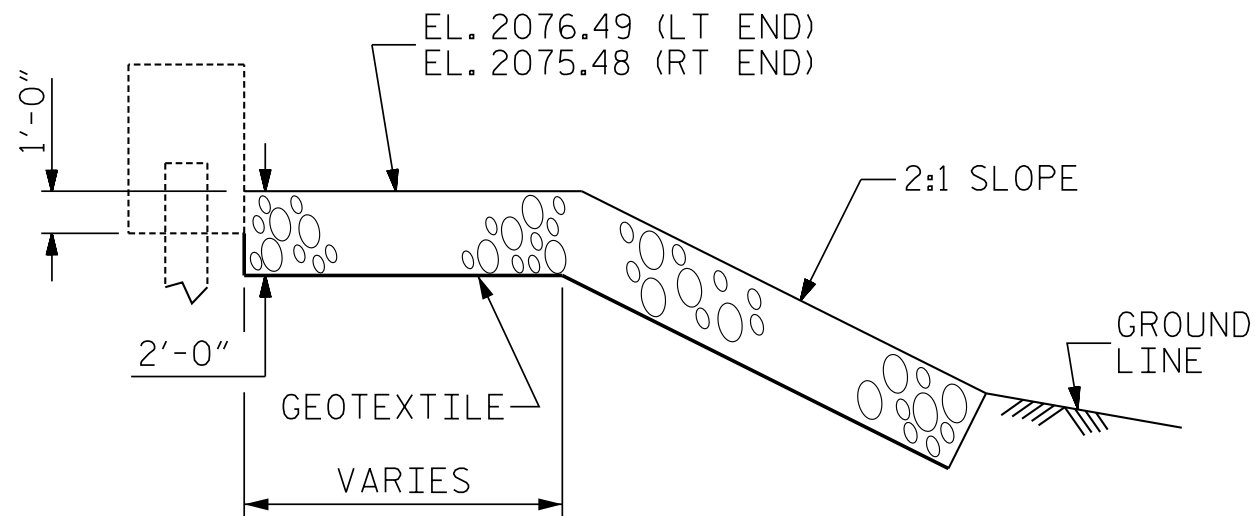
PLAN @ END BENT #1

PLAN @ END BENT #2

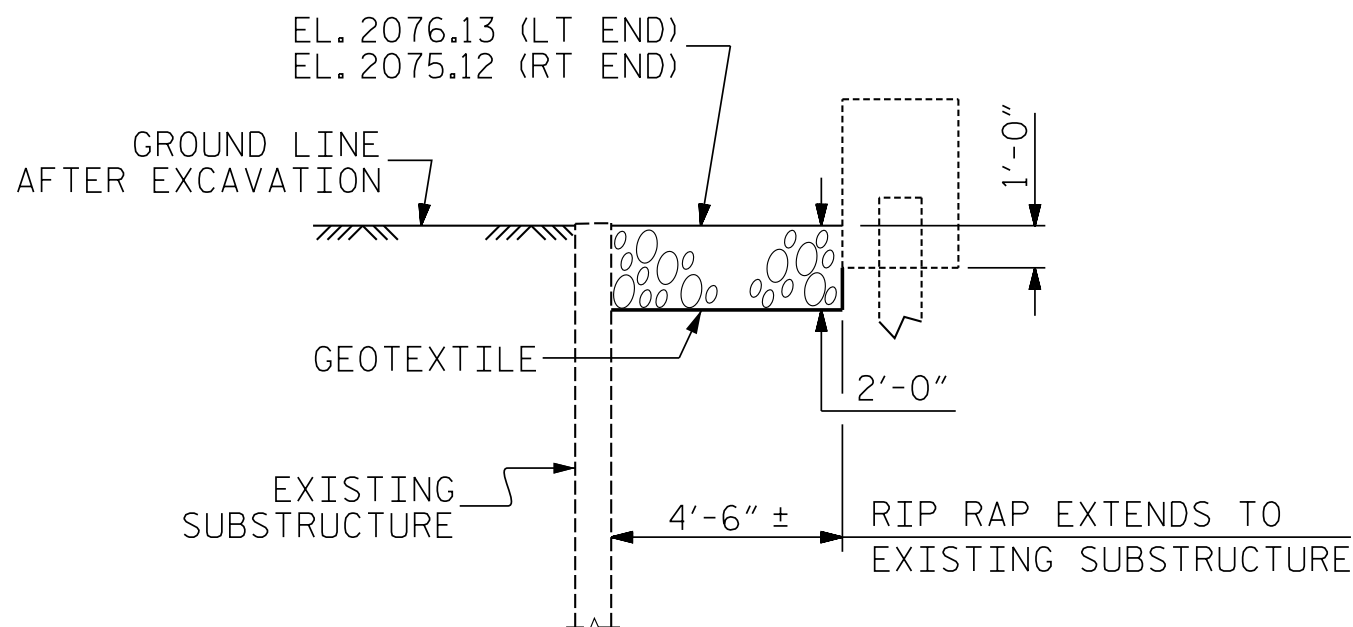
ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+45.76 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	110	123
END BENT 2	40	42



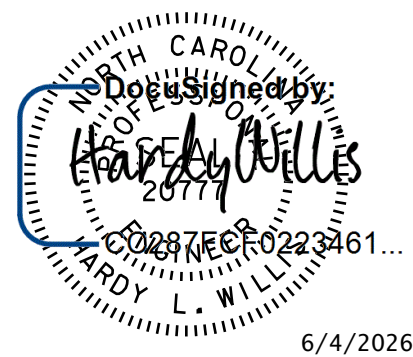
SECTION C-C



SECTION D-D



SECTION E-E



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SIGNATURES COMPLETED

PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

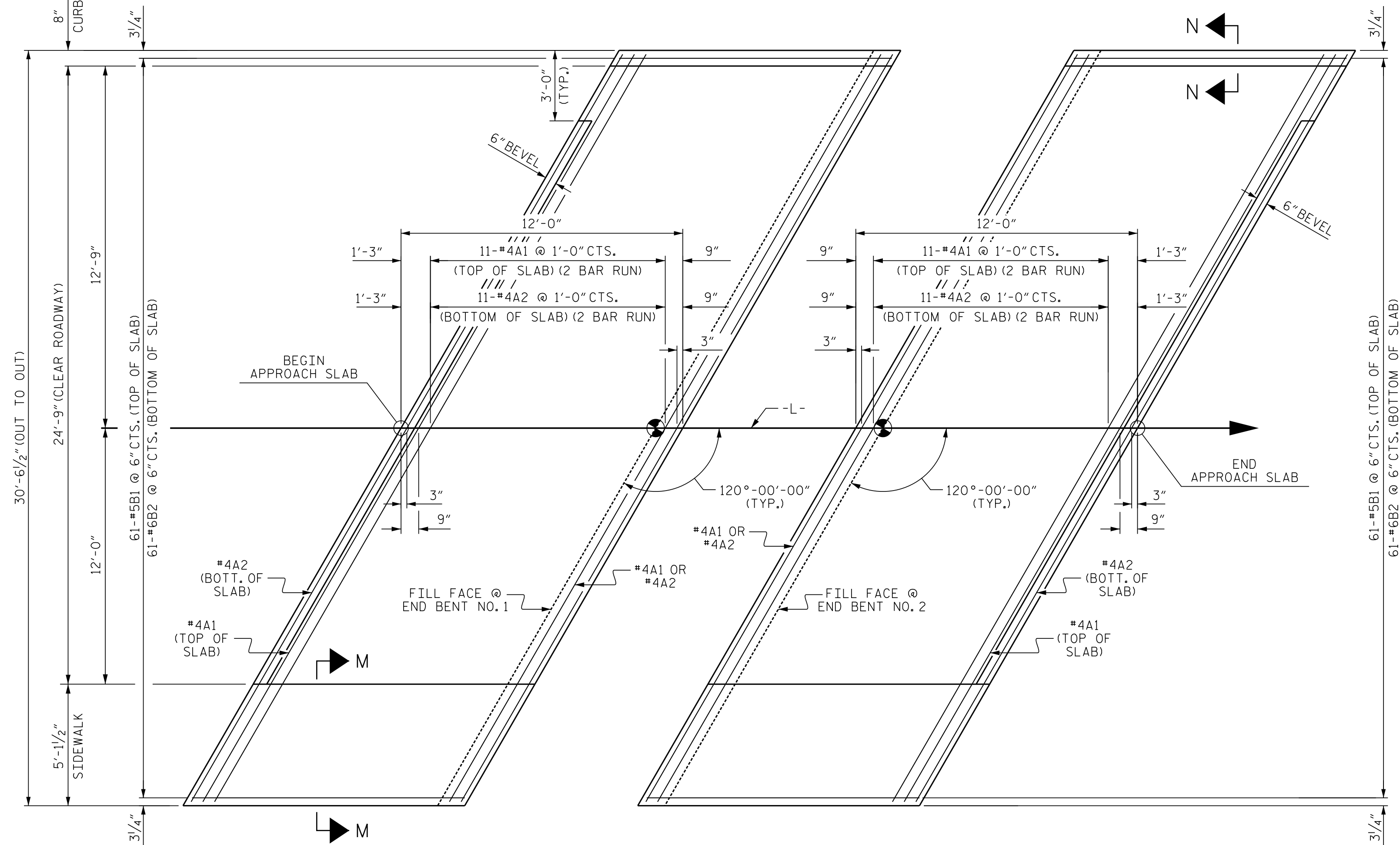
RALEIGH

RIP RAP
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			25

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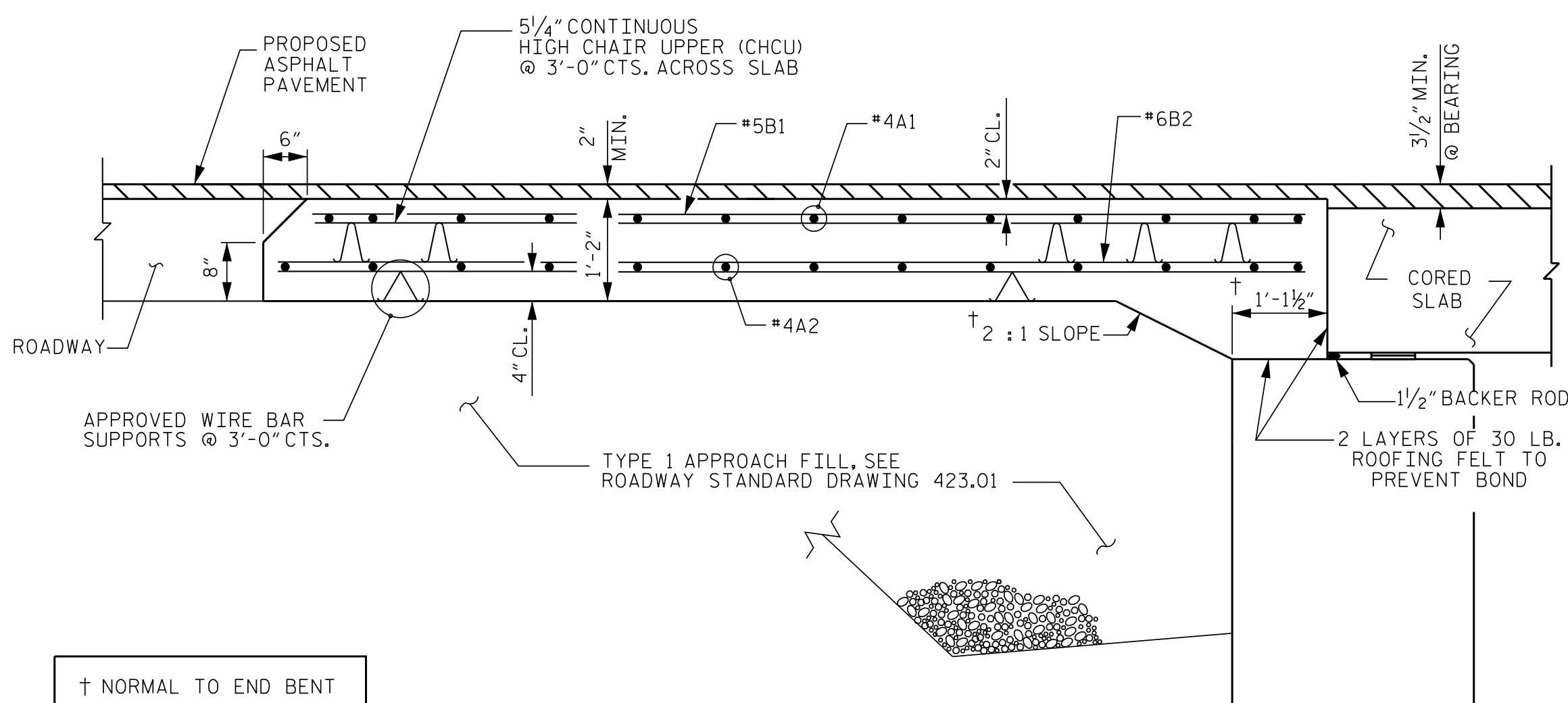
DWN. BY: WC DATE: 6/2017
CHKD. BY: HLW DATE: 6/2017
DES. EGR. OF RECORD: RTS DATE: 6/2017



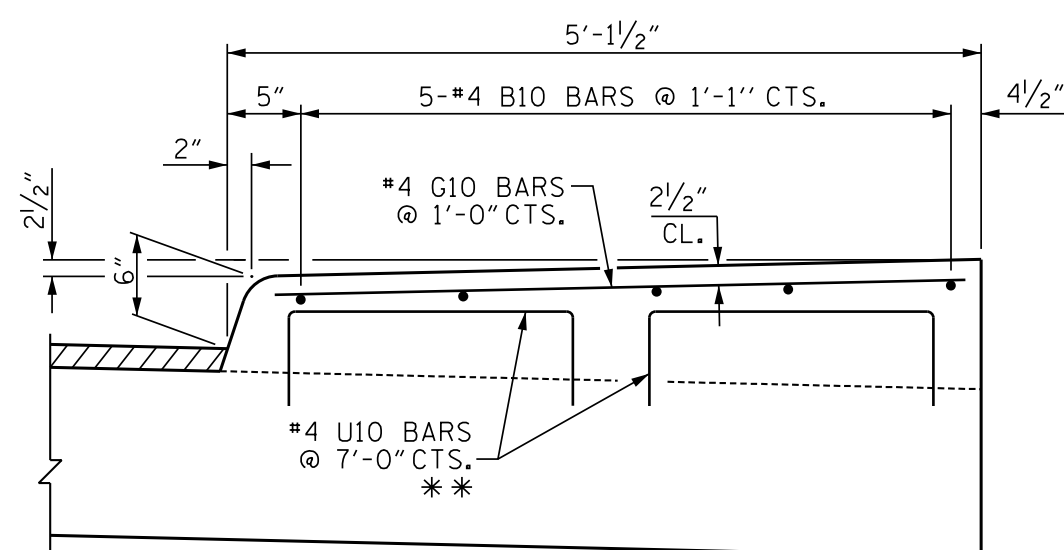
PLAN @ END BENT NO. 1

PLAN @ END BENT NO. 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

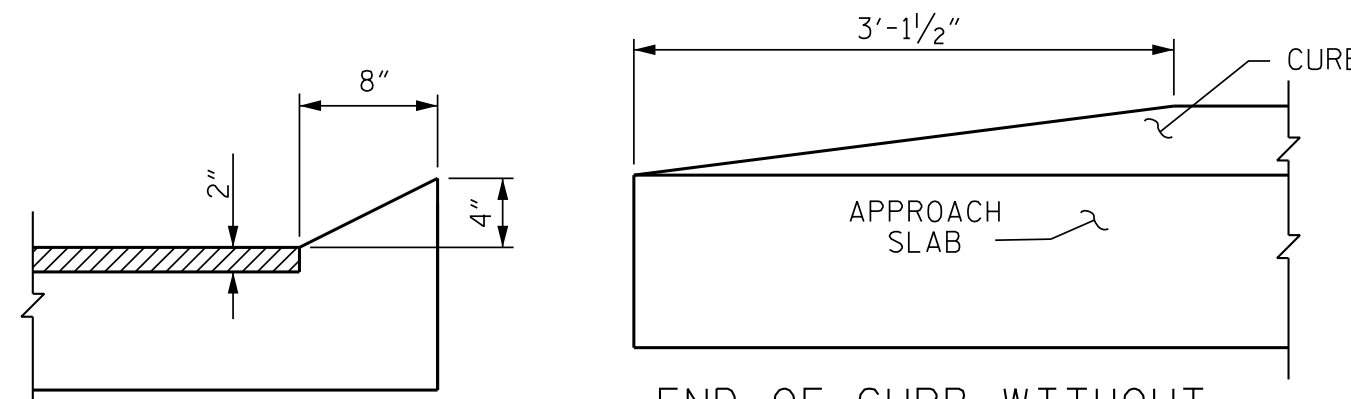


SECTION THRU SLAB



SECTION M-M

** THE #4 U10 BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER THE APPROACH SLAB HAS BEEN SCREENED OFF.

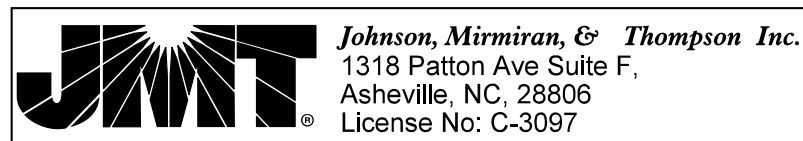
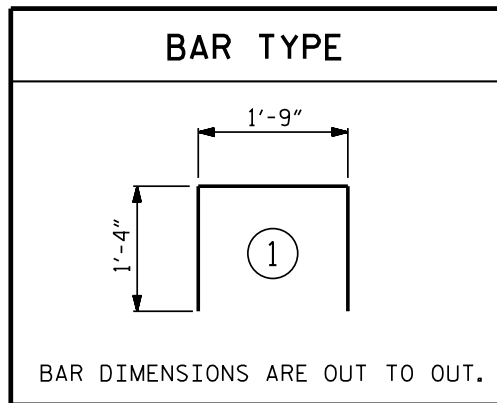


CURB DETAILS

SIDEWALK REINFORCING

(BARS SHOWN ARE TYP. EACH APPROACH SLAB)

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



BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	18'-5"	320
A2	26	#4	STR	18'-4"	318
* B1	61	#5	STR	11'-1"	705
B2	61	#6	STR	11'-7"	1061
* B10	5	#4	STR	11'-7"	39
* G10	13	#4	STR	4'-7"	40
* U10	8	#4	1	4'-5"	24

REINFORCING STEEL	LBS.	1379
* EPOXY COATED REINFORCING STEEL	LBS.	1128
CLASS AA CONCRETE	C. Y.	19.8

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	18'-5"	320
A2	26	#4	STR	18'-4"	318
* B1	61	#5	STR	11'-1"	705
B2	61	#6	STR	11'-7"	1061
* B10	5	#4	STR	11'-7"	39
* G10	13	#4	STR	4'-7"	40
* U10	8	#4	1	4'-5"	24

REINFORCING STEEL	LBS.	1379
* EPOXY COATED REINFORCING STEEL	LBS.	1128
CLASS AA CONCRETE	C. Y.	19.8



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PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

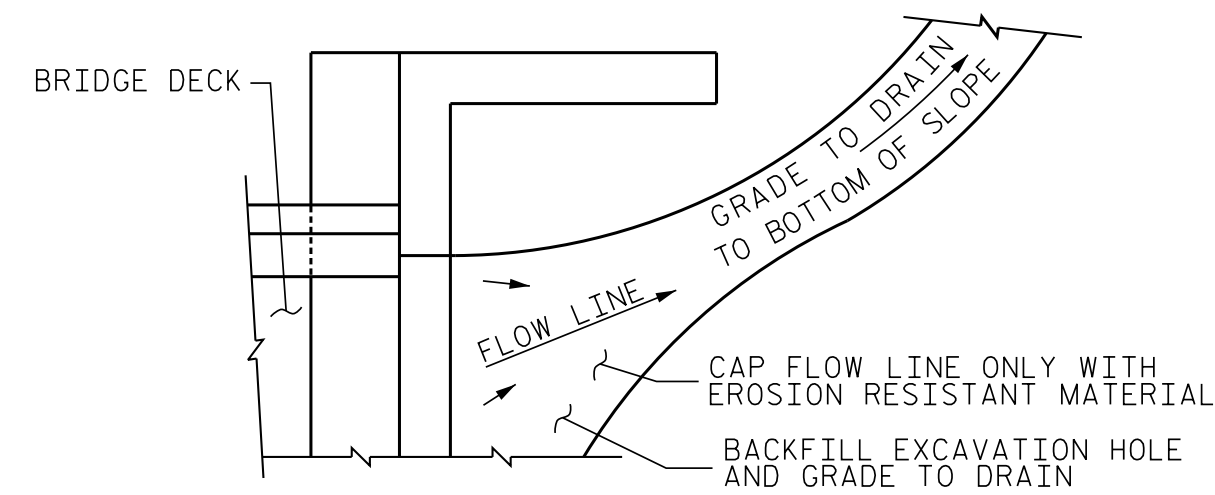
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)
120° SKEW

REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
				TOTAL SHEETS	25

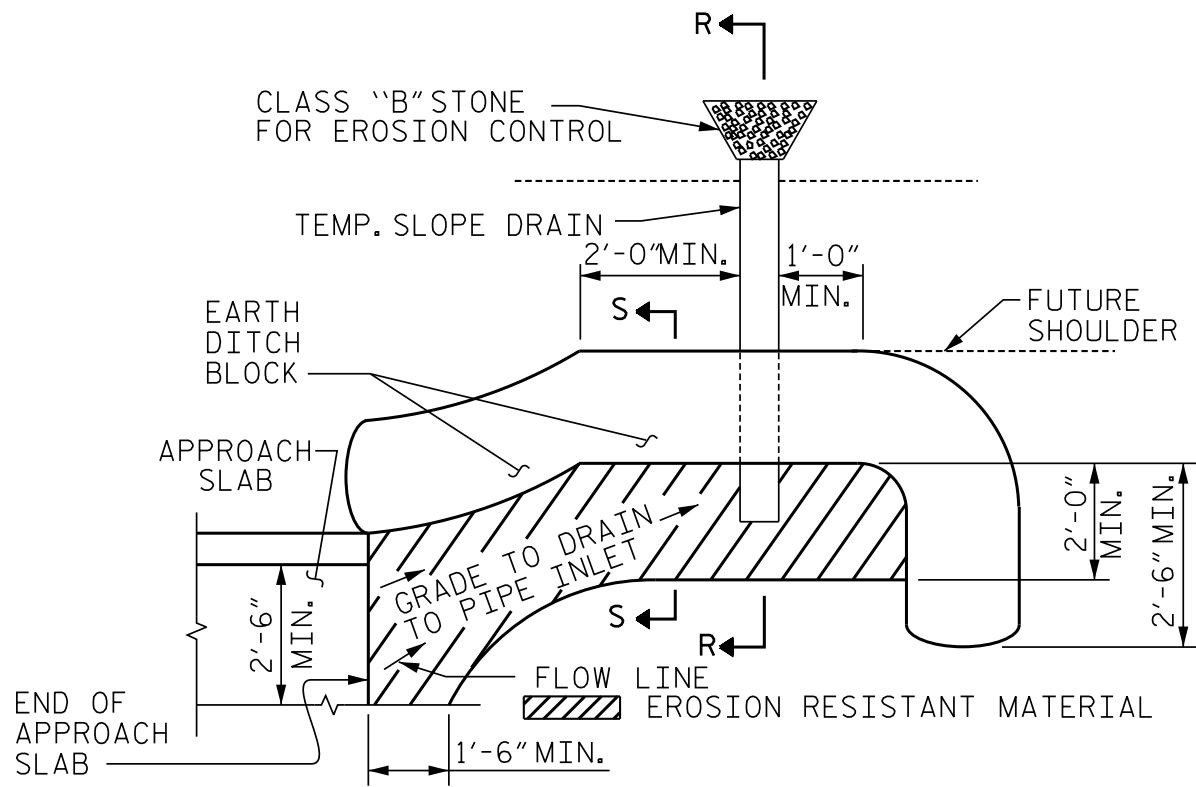
STD. NO. BAS6

ASSEMBLED BY: WC	DATE : 6-2017
CHECKED BY : RTS	DATE : 7-2017
DRAWN BY : KMM 3-08	REV. 06/19 MAA/THC
CHECKED BY : GM 3-08	REV. 08/19 BNB/THC
	REV. 07/23 BNB/SNM



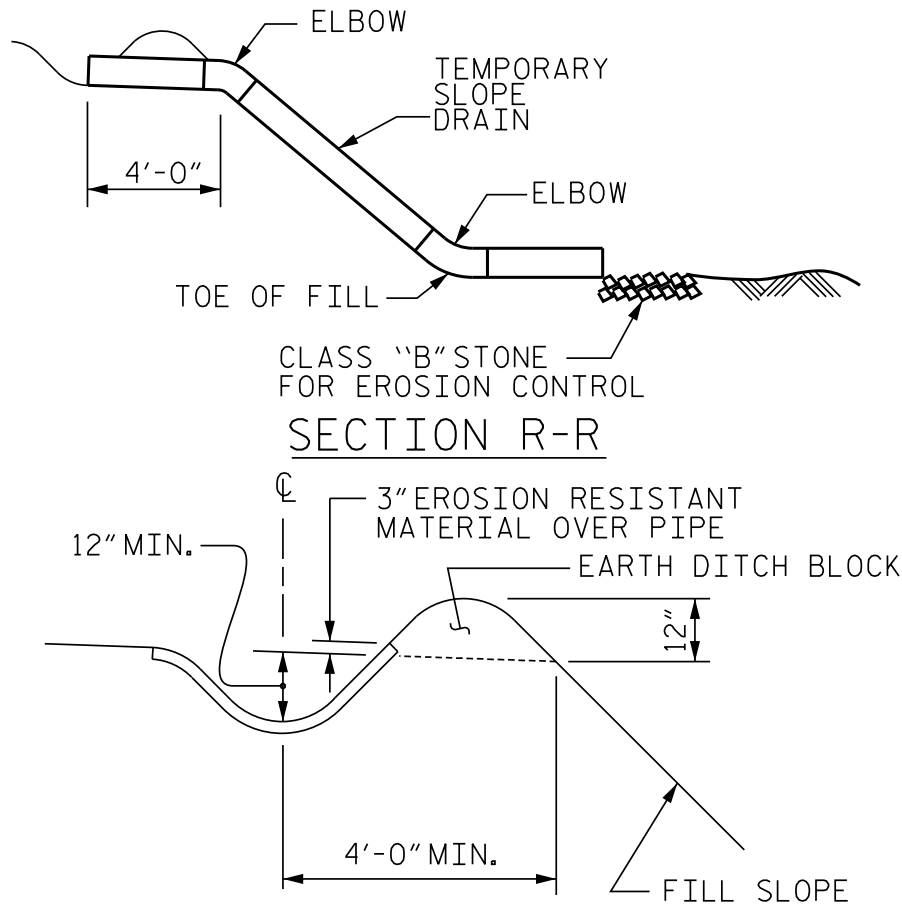
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW



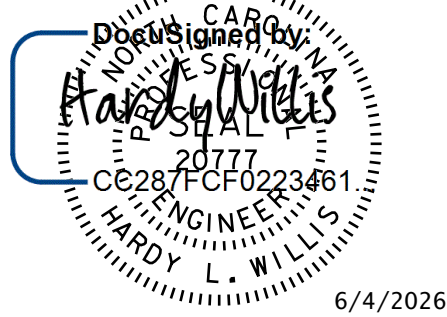
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

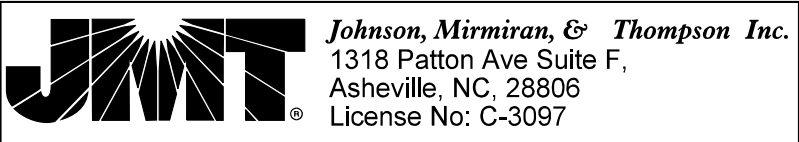
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

SHEET 2 OF 2



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)
120° SKEW

REVISIONS						SHEET NO. S-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

ASSEMBLED BY : WC	DATE : 6-2017
CHECKED BY : RTS	DATE : 7-2017
DRAWN BY : SHS/MAA 5-09	REV. 9-15
CHECKED BY : BCH 5-09	MAA/TMG