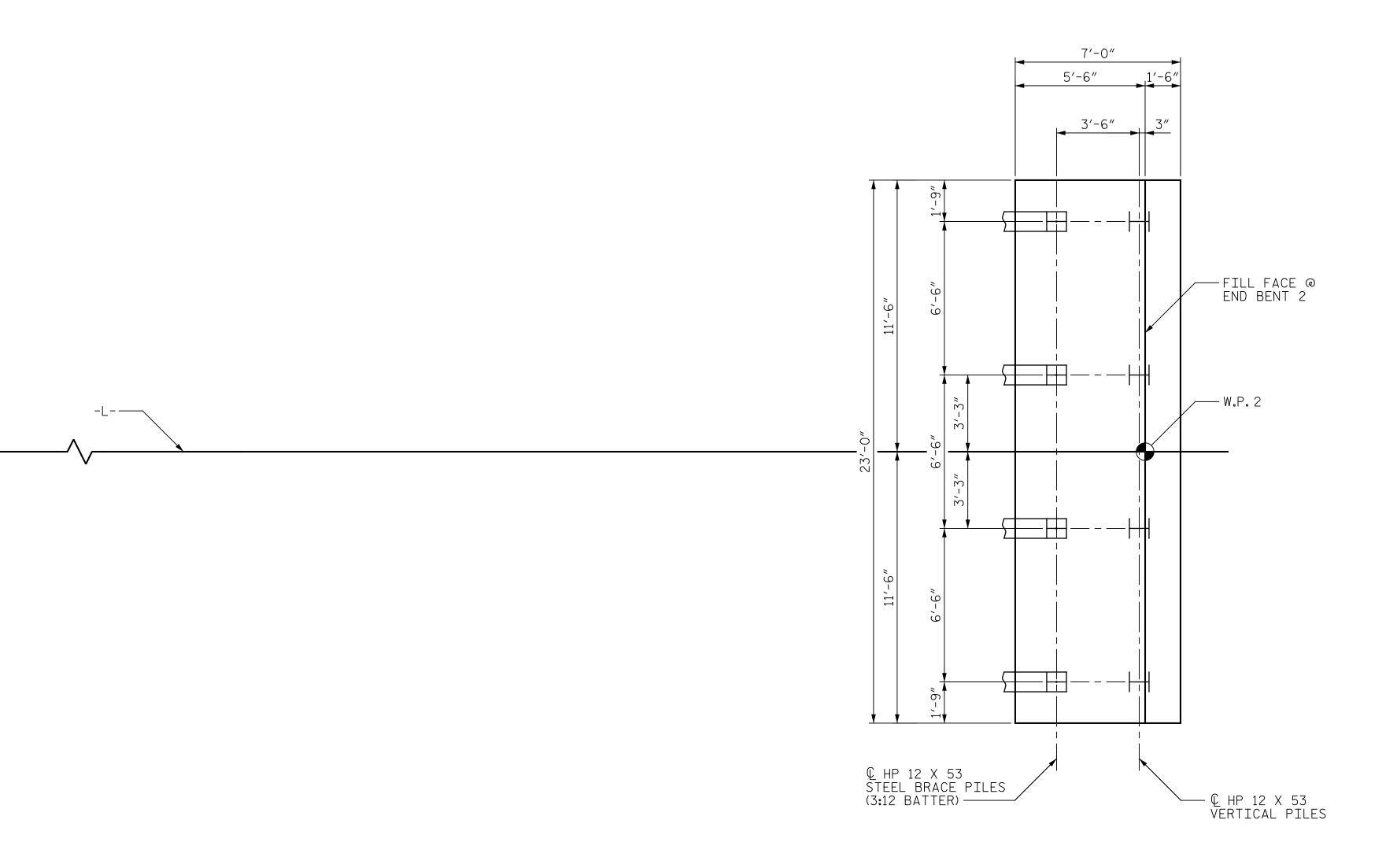


NOTES: FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.



END BENT 1

— Û HP 12 X 53 STEEL BRACE PILES (3:12 BATTER)

-90°-00′-00″

7′-0″

FILL FACE @ END BENT 1 —

W.P.1 —

© HP 12 X 53 VERTICAL PILES——

FOUNDATION LAYOUT PLAN

ALL PILES ARE HP X 53 STEEL PILES

PROJECT NO. \_\_\_\_51358

WILKES \_ COUNTY 12+66.52 -L-

STATION:\_ 11+37.12 -EY-

SHEET 2 OF 4

END BENT 2

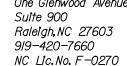
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

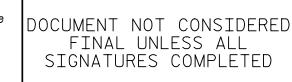
GENERAL DRAWING

FOR PEDESTRIAN BRIDGE OVER US 421 AT NORTH WILKESBORO SPEEDWAY



GANNETT One Glenwood Avenue Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270





7/26/2024

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1			3			TOTAL SHEETS
2			4			11

J. PARROTT \_\_ DATE : <u>07/2024</u> \_ DATE : <u>07/2024</u> R.FISHER DESIGN ENGINEER OF RECORD: \_\_\_\_\_R.FISHER \_\_\_ DATE: \_\_\_07/2024

DRAWN BY : \_ CHECKED BY:

#### SUIMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

					Driven Piles			Predrilling for Piles **			Drilled-In Piles		
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	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
4	160	1186.57	65			270							
4	160	1181.37	75			270							
	-												
	of Piles	of Piles per Pile KIPS  4 160	of Piles per Pile Elevation FT  4 160 1186.57	of Piles per Pile Elevation per Pile FT FT FT 65	of Piles Piles per Pile per LineResistance per Pile KIPS(Top of Pile) Elevation FTPile Length per Pile FTCritical Elevation FT41601186.5765	Number of Resistance per Pile KIPS FT Pile Cut-Off (Top of Pile) Elevation FT FT FT Stimated Pile Length per Pile FT	Number of Of Piles Piles per LineFactored Resistance Pile KIPSPile Cut-Off (Top of Pile) Elevation FTEstimated Pile Length Pile Tip No Higher Than) Elevation Pile KIPS41601186.5765270	Number of Piles per Pile KIPS FT	Number of Piles per Line KIPS Factored KIPS FT	Number of Piles Piles per Line KIPS Pile Cut-Off KIPS Pile Cut-Off Sesistance per Line 4 160 1186.57 65 Scour Sesistance of Pile Cut-Off (Top of Pile) Elevation FT Scour Critical Elevation FT Scour Critical Elevation FT Scour Critical Elevation FT Pile Tip (Tip No Higher Than) Elevation FT Scour Critical Elevation Pile Tip (Tip No Higher Than) Elevation FT Scour Critical Elevation (Tip No Higher Than) Elevation FT Scour Critical Elevation Redrives (RDR)* per Pile LIN FT Selevation (Elevation Not To Predrilling Elevation Not To Predrilling Elevation (Elevation Not To Predrilling Elevation Not To Predrilling Not To Predrilling Elevation Not To Predrilling Elevation Not To Predrilling Elevation Not To Predrilling Not To Predrilling No	Number of Piles Piles per Line KIPS PIE Cut-Off (Top of Pile) Elevation per Line 4 160 1186.57 65 Scour Scour Critical Pile Length per Pile FT A 160 Scour Scour Pile Cut-Off (Top of Pile) Elevation FT Scour Critical Elevation FT Pile Tip (Tip No Higher Than) Elevation FT Scour Critical Elevation Pile Tip (Tip No Higher Than) Elevation FT Predrilling Pile Tip (Tip No Higher Than) Elevation FT Predrilling Predrilling Predrilling Predrilling Diameter INCHES	Number of Piles per Line KIPS Factored Resistance per Pile KIPS A 160 1186.57 65 FT Required Driving Pile Cut-Off (Top of Pile) FT Required Pile Length per Pile Estimated Pile Length per Pile Elevation FT Required Driving Registrance (RDR)* per Pile KIPS Redrives Quantity EACH LIN FT Required Driving Resistance (RDR)* per Pile Length per Pile LIN FT Redrilling Elevation (Bottom of Hole) Elevation FT Redrilling Predrilling Redrives Quantity EACH LIN FT Redrilling Diameter INCHES Elevation FT Redrives Quantity Predrilling Diameter INCHES Elevation Predrilling Di	Number of Piles per Line Pile KIPS Predrilling Predril

#### 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, Piles 1-8	160			0.6		
End Bent 2, Piles 1-8	160			0.6		

<sup>\*</sup> Factored Dead Load is factored weight of pile above the ground line.

#### NOTES:

- 1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Cheng Wang, #048123) on 07-19-2024.
- 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.

PROJECT NO. 51358 WILKES COUNTY STATION: 12+66.52 -L-

11+37.12 -EY-SHEET 3 OF 4

DEPARTMENT OF TRANSPORTATION RALEIGH

GENERAL DRAWING

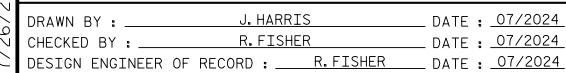
STATE OF NORTH CAROLINA

FOR PEDESTRIAN BRIDGE OVER US 421 AT NORTH WILKESBORO SPEEDWAY

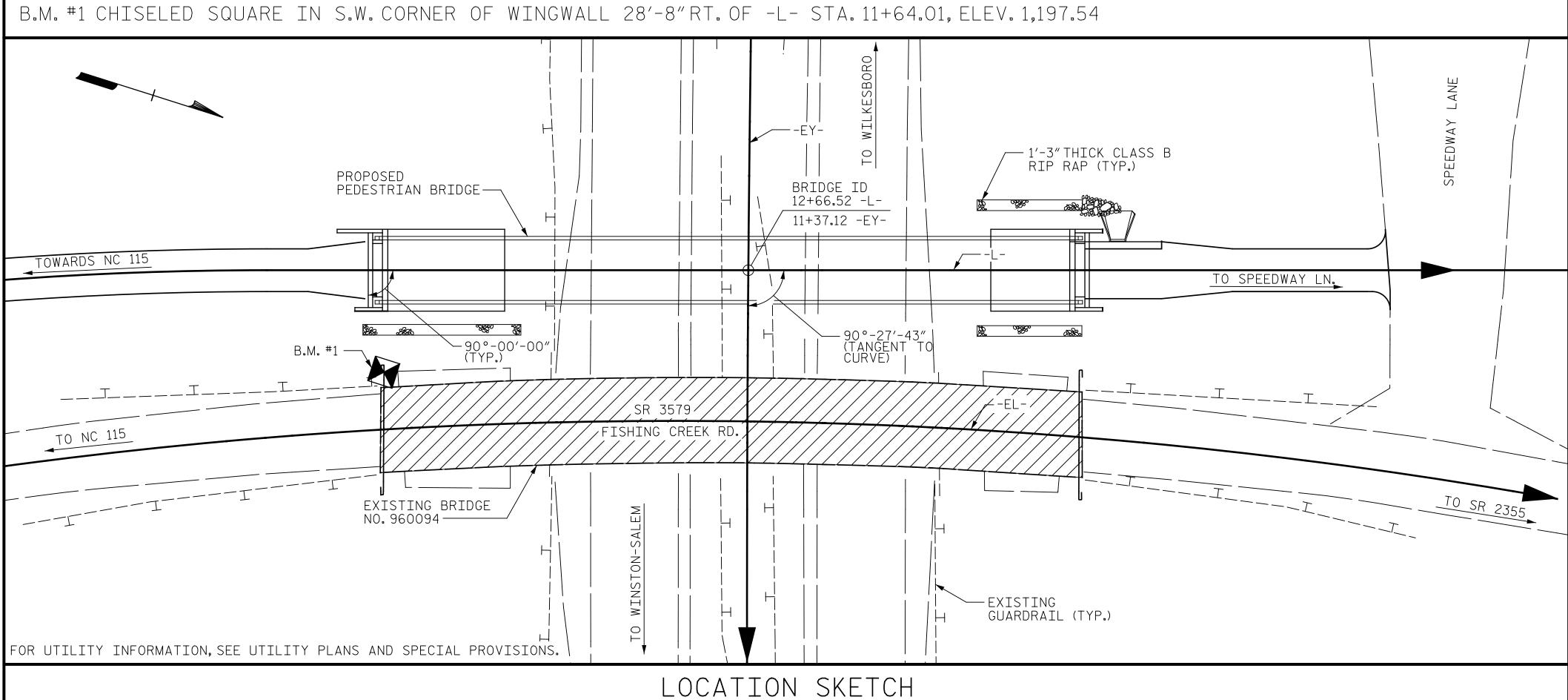


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<sup>\*\*</sup> Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.



				$\top \cap \top \wedge$	I DTI			$ \bigcirc$ $\top$ $\wedge$ $\bot$					
	TOTAL BILL OF MATERIAL TO THE PROPERTY OF THE												
	FOUNDATION EXCAVATION	CAVATION STRUCTURE CONCRETE CONCRETE STEEL EQUIP EXCAVATION DECK SLAB		PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	TUP STEEL PILES   53		1½″ GALVANIZED STEEL PIPE RAIL	4″SLOPE PROTECTION	FOAM JOINT SEALS	PRE-FABRICATED PEDESTRIAN BRIDGE			
	LUMP SUM	LUMP SUM	SQ.FT.	CU. YDS.	LBS.	EA.	NO.	LIN.FT.	LIN.FT.	SY YDS.	LUMP SUM	LUMP SUM	
SUPERSTRUCTURE			3,404								LUMP SUM		
END BENT 1	LUMP SUM	LUMP SUM		39.1	5,042	8	8	520	52.67	113			
END BENT 2	LUMP SUM	LUMP SUM		39.1	5,042	8	8	600	66.33	79			
TOTAL	LUMP SUM	LUMP SUM	3,404	78.2	10,084	16	16	1,120	119.00	192	LUMP SUM	LUMP SUM	

J. HARRIS \_ DATE : <u>07/2024</u> R. FISHER \_\_ DATE : <u>07/2024</u> ESIGN ENGINEER OF RECORD : R.FISHER



One Glenwood Avenue Sulte 900 Raleigh,NC 27603 919-420-7660 NC Lic.No.F-0270

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REVISIONS DATE: DATE:

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1. FOR OTHER DESIGN DATA AND GENERAL NOTES. SEE SHEET SN.

REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

EACH END BENT WAS DESIGNED TO CARRY A VERTICAL DEAD LOAD

THE END BENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE

OF 262.2 KIPS AND VERTICAL LIVE LOAD OF 152.4 KIPS. A PREFABRICATED BRIDGE WITH LARGER LOADS WILL NECESSITATE THE VERIFICATION OF

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

NOTES:

THE END BENT DESIGN.

FOR GROUT FOR STRUCTURES, SEE SPECAIL PROVISIONS.

FOR ELEVATION(S) AND CLEARANCE(S) SHOWN ON THE PLANS AT THE POINT(S) OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATION(S) ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE, REPORT ANY VARIATIONS TO THE ENGINEER, ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 20 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 EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

PLANS COORDINATION: THESE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION AND COORDINATED WITH SITE PLANS AND THE PRE-ENGINEERED BRIDGE MANUFACTURER'S PLANS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCING WITH CONSTRUCTION.

FOR PREFABRICATED PEDESTRIAN BRIDGE. SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

BEARING DETAILS INCLUDING ANCHOR BOLT SIZE AND SPACING SHALL BE COORDINATED WITH THE BRIDGE MANUFACTURER.

> 51358 PROJECT NO.

> > WILKES COUNTY

12+66.52 -L-STATION: 11+37.12 -EY-

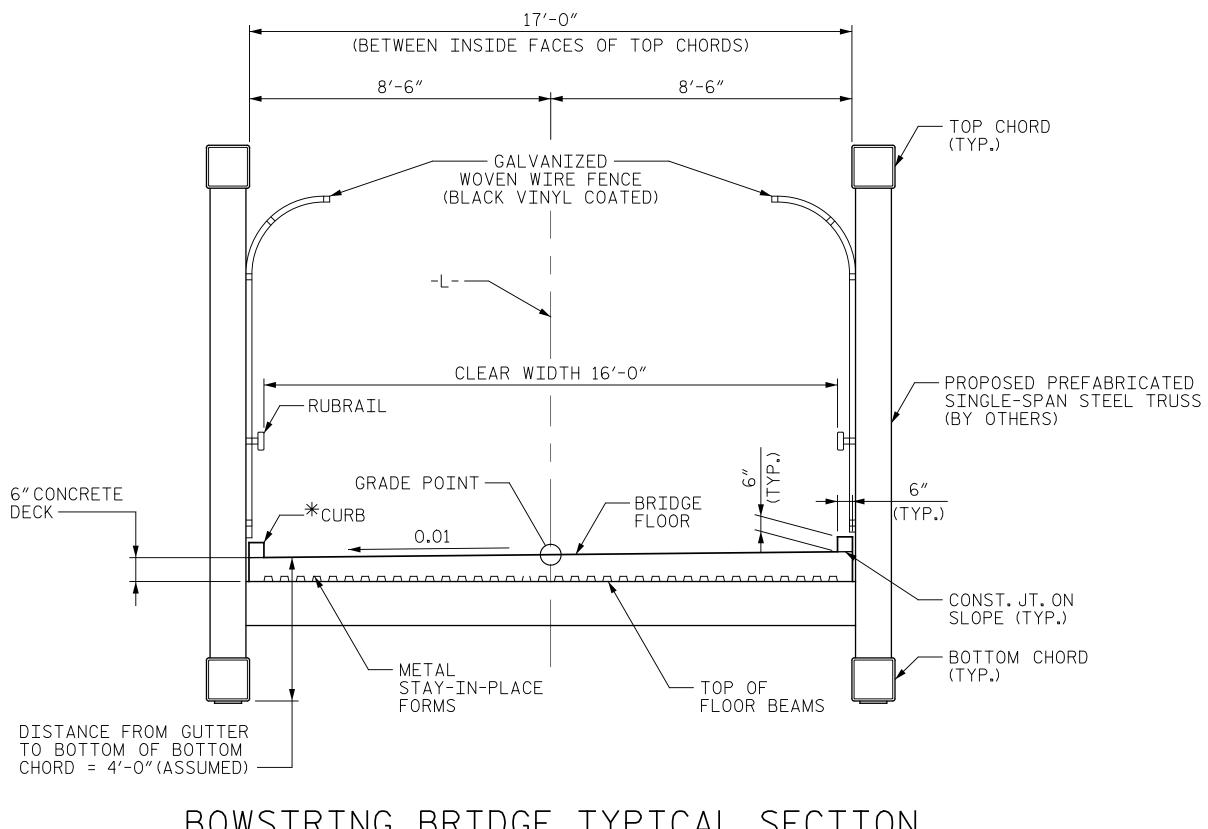
SHEET 4 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

GENERAL DRAWING FOR PEDESTRIAN BRIDGE OVER US 421 AT NORTH WILKESBORO SPEEDWAY

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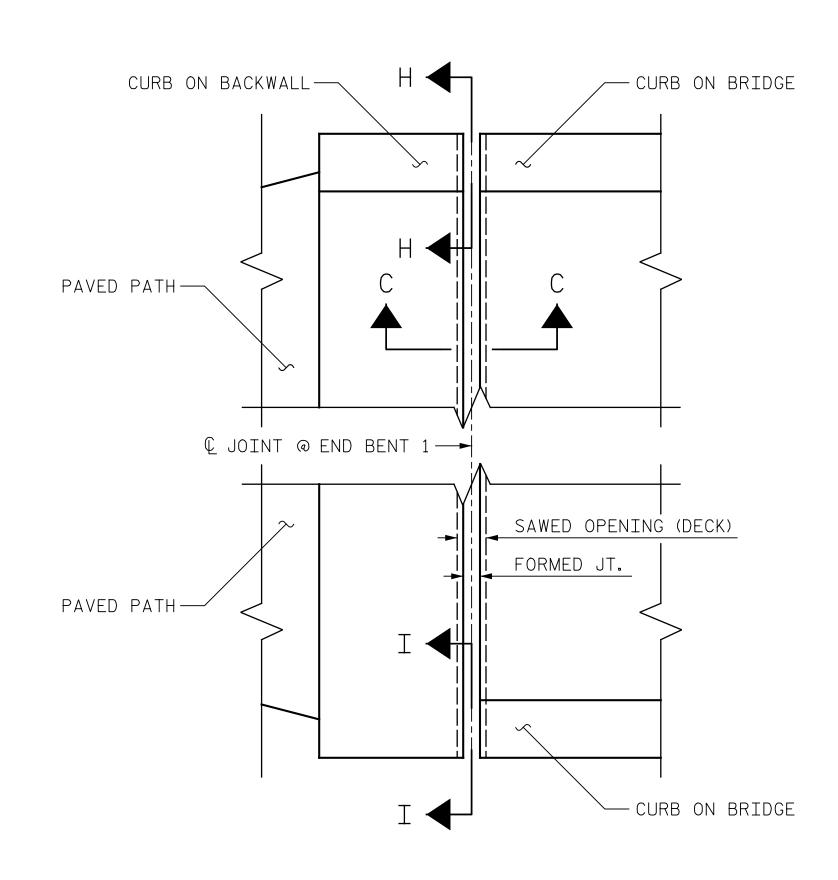
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# BOWSTRING BRIDGE TYPICAL SECTION

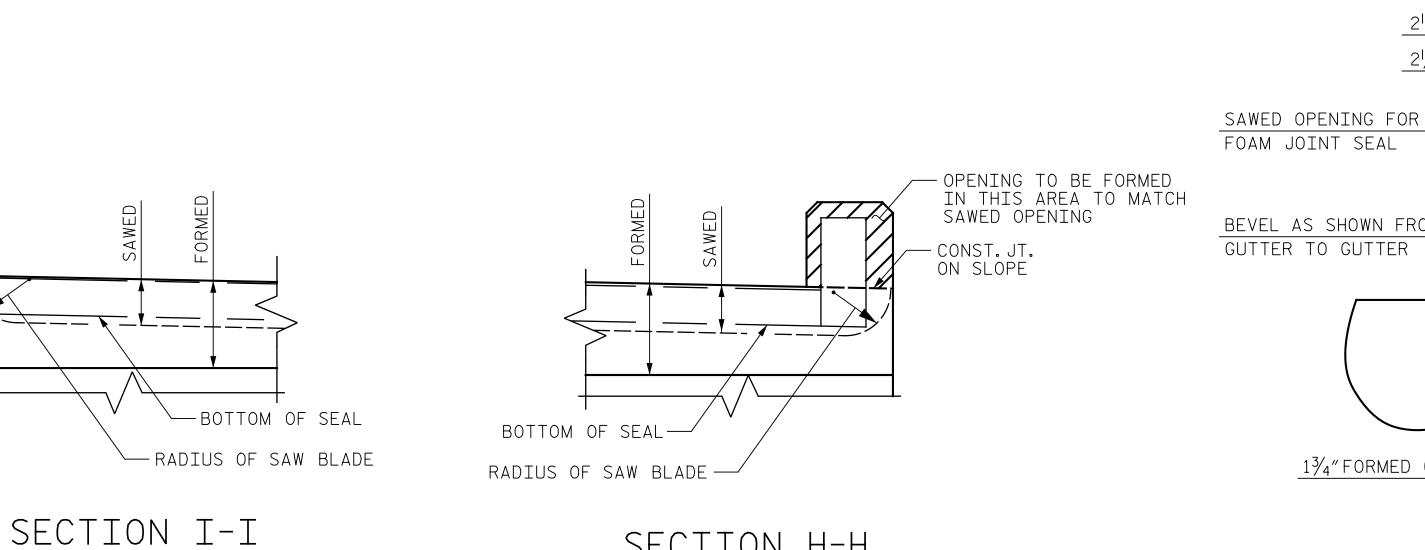
THIS CROSS SECTION DETAIL IS FOR ILLUSTRATION PURPOSES ONLY. THE PREFABRICATED BRIDGE SHALL BE MADE OF STEEL BY A NCDOT APPROVED PREFABRICATED BRIDGE MANUFACTURER.

\*CURBS WILL BE INCIDENTAL TO THE PAY ITEM FOR REINFORCED CONCRETE DECK SLAB. STEEL REINFORCEMENT (DETAILED BY OTHERS) SHALL BE USED TO CONNECT THE CURBS TO THE CONCRETE DECK.



# PLAN OF FOAM JOINT SEAL @ END BENT

(END BENT 1 SHOWN, END BENT 2 SIMILAR)



SECTION H-H

FOAM JOINT SEAL SHALL BE FACTORY FORMED OR CUT, HEAT WELDED AND TURNED UP PARALLEL TO FACE OF CURB.

├── Û JT.@ END BENT 1 ├── Û JT.@ END BENT 2 2<sup>15</sup>/<sub>16</sub>"@ 45° 2"SAWED OPENING FOR FOAM JOINT SEAL 2<sup>11</sup>/<sub>16</sub>"@ 60° 2<sup>|</sup>/<sub>4</sub>"@90° BEVEL AS SHOWN FROM GUTTER TO GUTTER BEVEL AS SHOWN FROM 1"FORMED OPENING SECTION C-C FOAM JOINT SEAL (FIXED)  $1\frac{3}{4}$ "FORMED OPENING

SECTION C-C

FOAM JOINT SEAL (EXPANSION)

51358 PROJECT NO.\_\_\_\_ WILKES \_ COUNTY STATION: 12+66.52 -L-

> STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION AND FOAM JOINT SEAL DETAILS



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J. PARROTT \_ DATE : <u>07/2024</u> R.FISHER \_ DATE : <u>07/2024</u> DESIGN ENGINEER OF RECORD: \_\_\_\_\_R.FISHER \_\_\_ DATE: \_\_\_\_07/2024

J. HARRIS

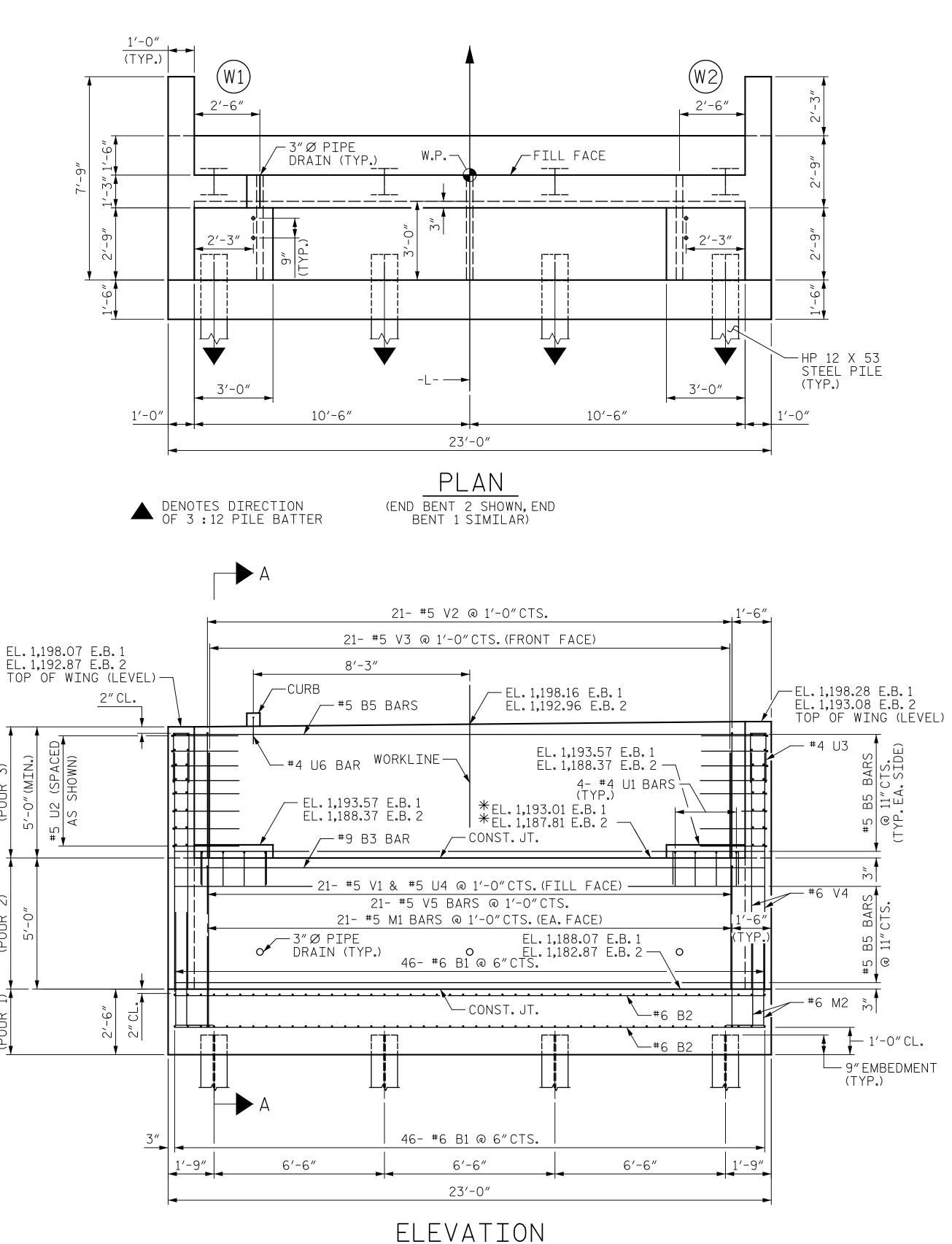
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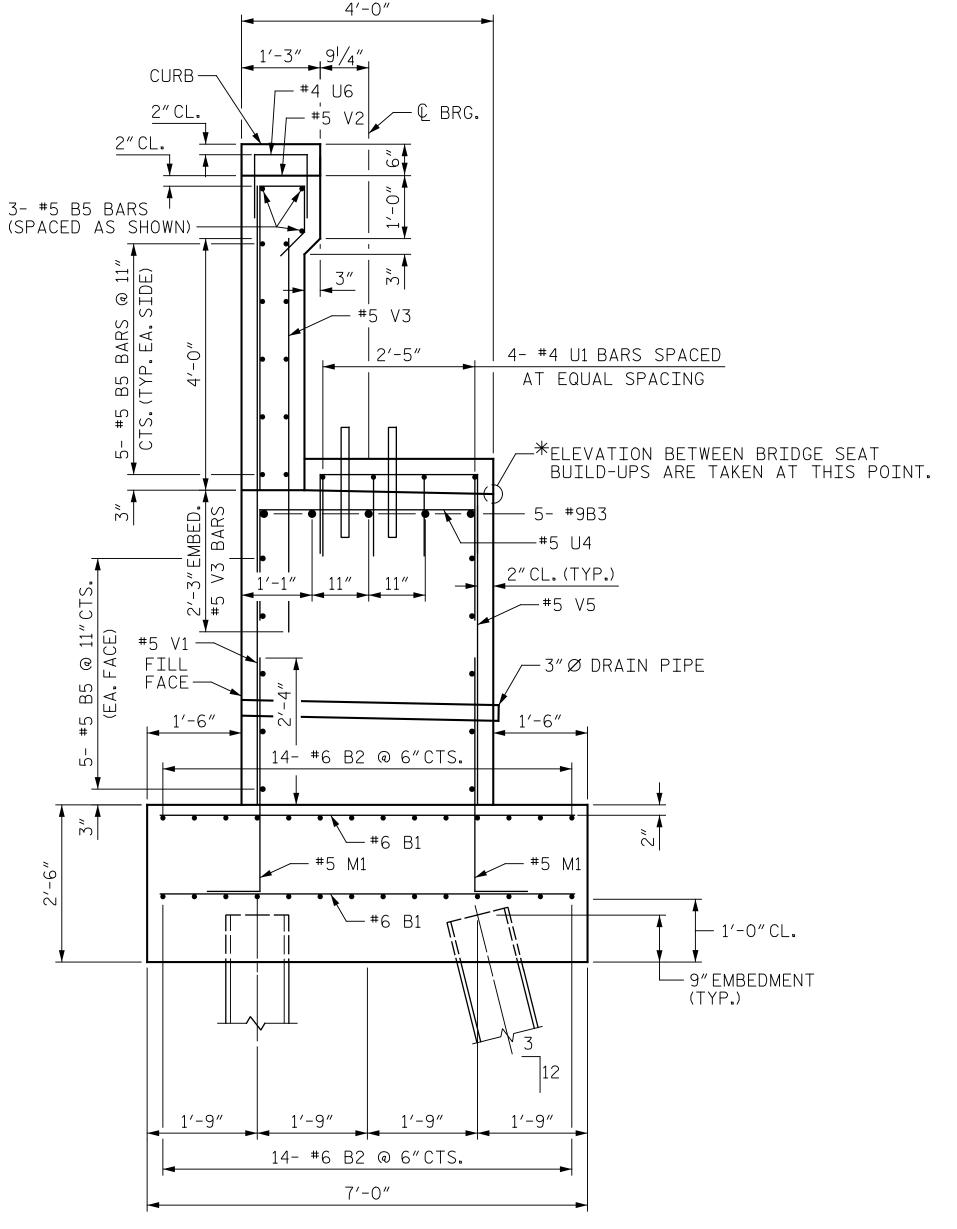
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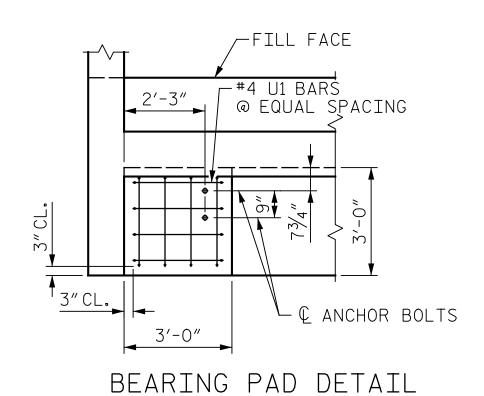
\_ DATE : <u>7/2024</u>



(END BENT 2 SHOWN, END BENT 1 SIMILAR)



SECTION A-A



One Glenwood Avenue Suite 900 Raleigh,NC 27603 919–420–7660 NC Lic.No.F–0270

7/26/2024 SHEET NO. REVISIONS DATE: BY: DATE:

NOTES

STIRRUPS IN CAPS MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE TOP SURFACE OF THE END BENTS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATION EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILD-UPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT A RATE OF 2%

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE BACKWALL AT THE END BENTS SHALL BE PLACED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

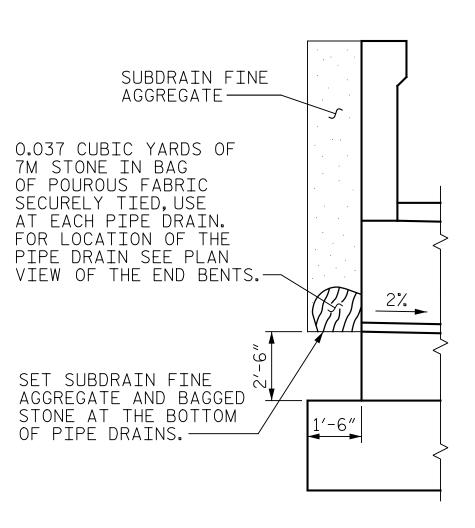
BACKWALL AND UPPER PART OF WINGWALLS SHALL BE PLACED AFTER BRIDGE HAS BEEN ERECTED.

PIPE DRAINS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND DOWELS.

FOR EPOXY PROTECTIVE COATING SEE SPECIAL PROVISIONS.

SIZE AND LOCATION OF ANCHOR BOLTS ARE FOR ILLUSTRATIVE PURPOSES ONLY, FINAL SIZE AND LOCATION TO BE DETERMINED BY AND COORDINATED WITH THE PREFABRICATED BRIDGE MANUFACTURER.

CONTRACTOR SHALL FIELD VERIFY EXISTING GRADES PRIOR TO FABRICATION AND SHALL NOTIFY THE ENGINEER IF DISCREPANCIES EXIST.



DRAIN DETAIL

51358 PROJECT NO.\_\_\_\_

> WILKES COUNTY

STATION: 12+66.52 -L-

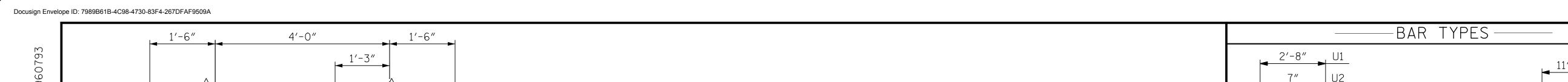
SHEET 1 OF 2

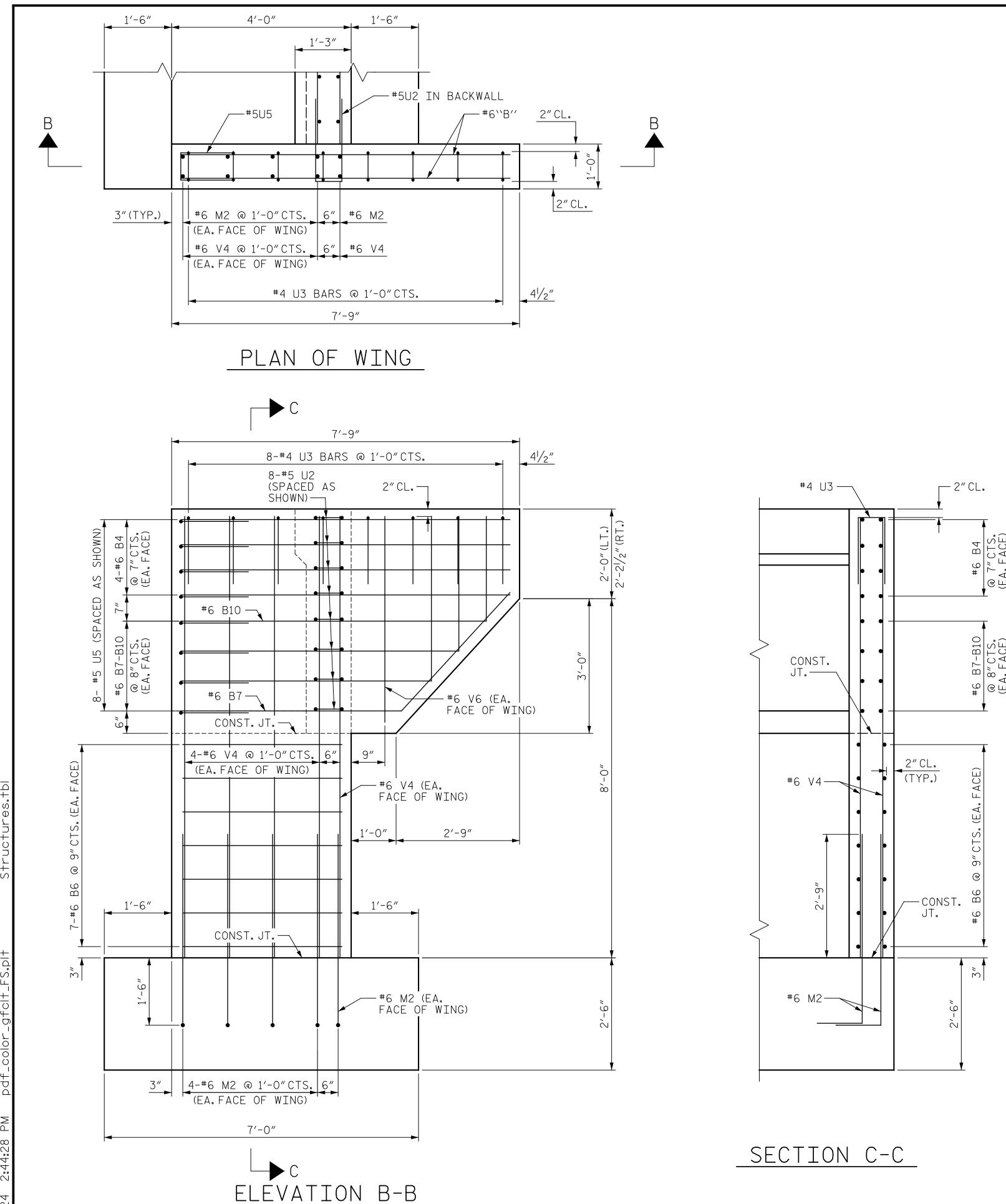
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SUBSTRUCTURE

END BENT 1 AND 2

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\_\_ DATE : <u>7/2024</u> \_\_ DATE : <u>7/2024</u>

J. HARRIS

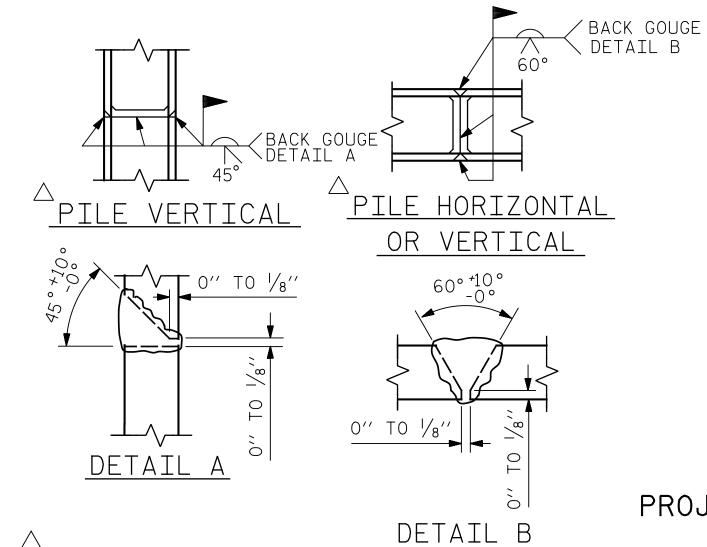
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DESIGN ENGINEER OF RECORD : \_\_\_\_\_R.FISHER\_\_\_\_ DATE : \_\_7/2024

DRAWN BY :

CHECKED BY :

BILL OF MATERIAL END BENT 1 OR 2 SIZE | TYPE | LENGTH | WEIGHT 3 9'-4" 205 158 U1 | 16 | 4 | 1 | 5'-8" 1 | 3'-8" 1'-0" 21 | 5 | STR. | 4'-10" 4 | 6 | STR. | 4'-8" 6′-3″ 6′-10″ REINFORCING STEEL 5,042 LBS. HP 12X53 STEEL PILES E.B. 1: 8 PILES 520 600 (4)E.B. 2: 8 PILES CLASS "A" CONCRETE BREAKDOWN FOOTING 14.9 CY CAP & WINGWALLS 17.4 5′-1″ BACKWALL & WINGS 6.8 TOTAL CLASS "A" CONCRETE ALL BAR DIMENSIONS ARE OUT TO OUT.

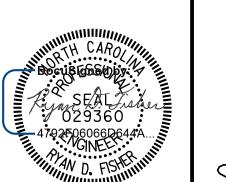


A POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

51358 PROJECT NO.\_\_\_\_ WILKES COUNTY STATION: 12+66.52 -L-

SHEET 2 OF 2



7/26/2024

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

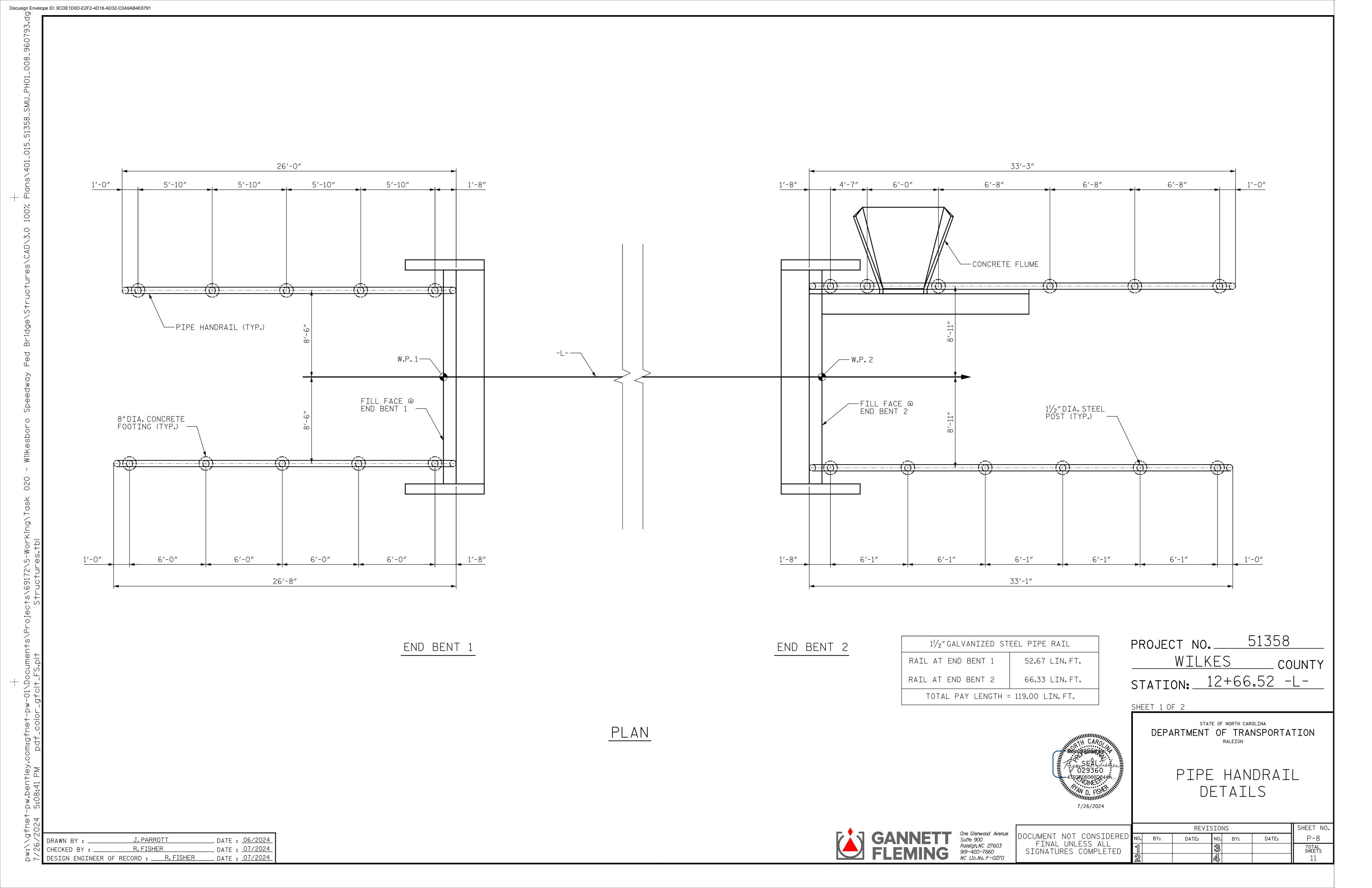
SUBSTRUCTURE

END BENT 1 AND 2 SECTION AND DETAILS



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Docusign Envelope ID: 7989B61B-4C98-4730-83F4-267DFAF9509A  $-1\frac{1}{2}$ "DIA.PIPE RAIL VARIES -CONCRETE ELEVATION OF HANDRAIL DATE : 06/2024
DATE : 07/2024 J. PARROTT R. FISHER

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF  $1\frac{1}{2}$ " DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

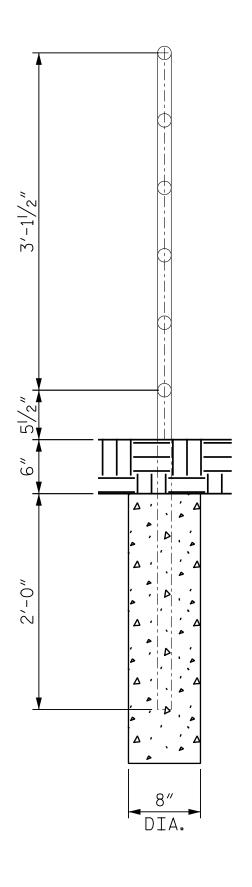
PAINT RAILS BLACK IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

PAINTING OF RAIL WILL BE INCIDENTAL TO THE PAY ITEM FOR  $1\frac{1}{2}$  GALVANIZED STEEL PIPE RAIL.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

THE COST OF THE CONCRETE FOOTING SHALL BE INCLUDED IN THE PRICE BID FOR  $1^{1}\!\!/_{2}{}''\varnothing$  GALVANIZED STEEL PIPE RAIL.



SECTION A-A

PROJECT NO. 51358

WILKES \_ COUNTY

STATION: 12+66.52 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

> PIPE HANDRAIL DETAILS

1'-8"

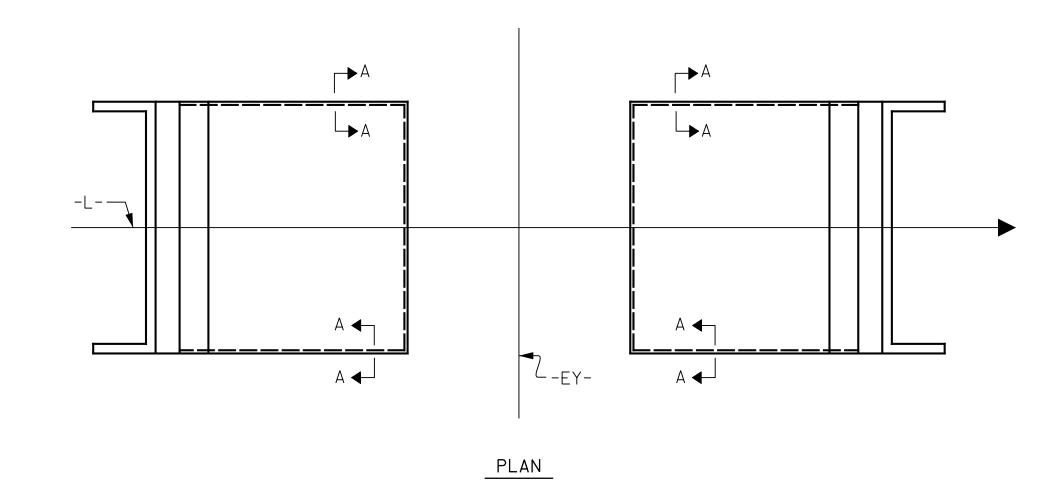


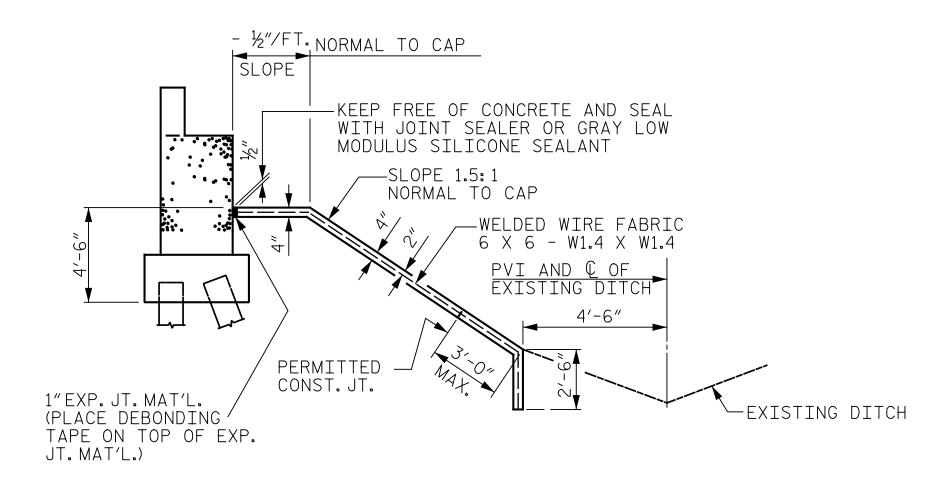
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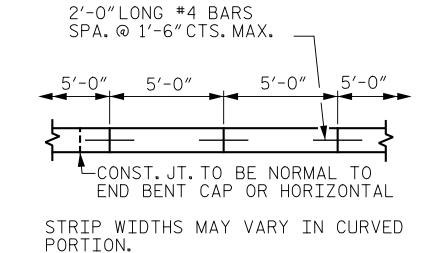
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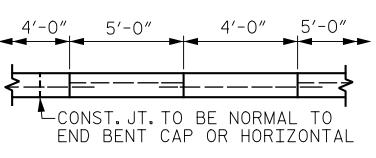




SECTION ALONG & SURVEY WHEN FILL CATCHES IN DITCH



POURING DETAIL



POUR A 4'-0" STRIP FIRST, STRIP WIDTHS MAY VARY IN CURVED PORTION.

OPTIONAL POURING DETAIL

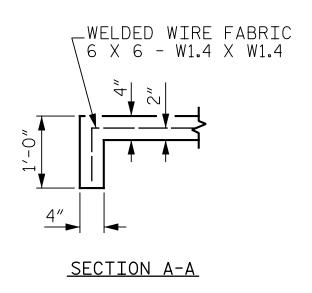
#### GENERAL NOTES

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 SLOPE PROTECTION 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.

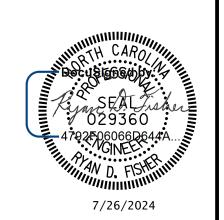
BRIDGE @ STA.12+66.52 -L-	4"INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	113	211
END BENT 2	79	147

\*QUANTITY SHOWN IS BASED ON 5' POURS.



51358 PROJECT NO. WILKES COUNTY STATION: 12+66.52 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD

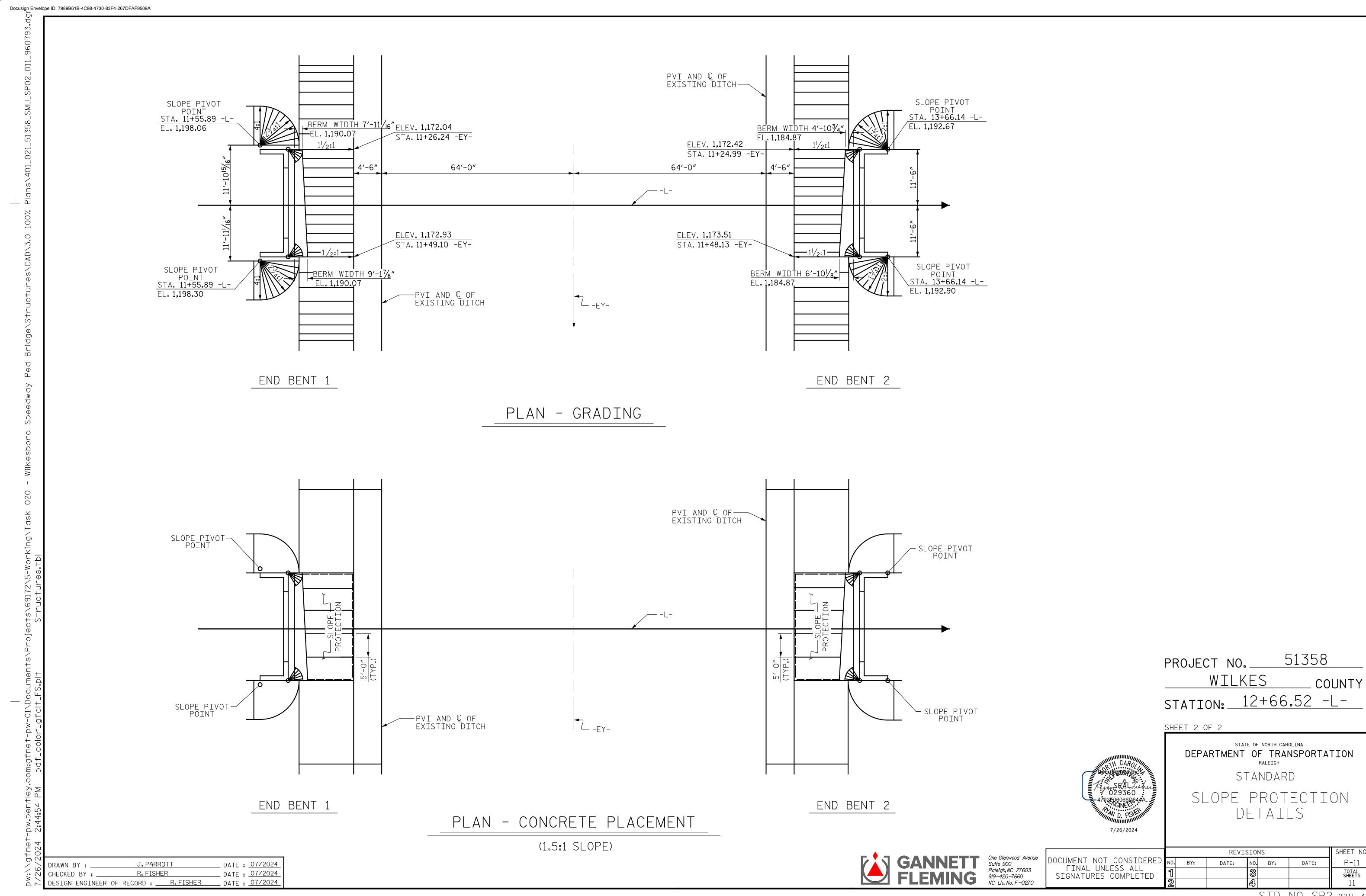
SLOPE PROTECTION DETAILS



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VISIONS P-10 DATE:

J. PARROTT \_ DATE : <u>07/2024</u> DRAWN BY : \_ DATE : <u>07/2024</u> R.FISHER CHECKED BY : \_\_\_ DATE : <u>07/2024</u> DESIGN ENGINEER OF RECORD : R.FISHER



STD. NO. SP2 (SHT 4)

## 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	
	STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.	
	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 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO  $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A  $\frac{1}{4}$ " 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  $\frac{1}{4}$ " 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  $\frac{7}{8}$ "  $\emptyset$  SHEAR STUDS FOR THE  $\frac{3}{4}$ " Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF  $\frac{7}{6}$ "  $\emptyset$  STUDS ALONG THE BEAM AS SHOWN FOR  $\frac{3}{4}$ "  $\emptyset$  STUDS BASED ON THE RATIO OF 3 -  $\frac{7}{8}$ "  $\emptyset$ STUDS FOR 4 -  $\frac{3}{4}$ " 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  $\frac{5}{16}$ " 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  $\frac{1}{16}$ " 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. FINS 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.