

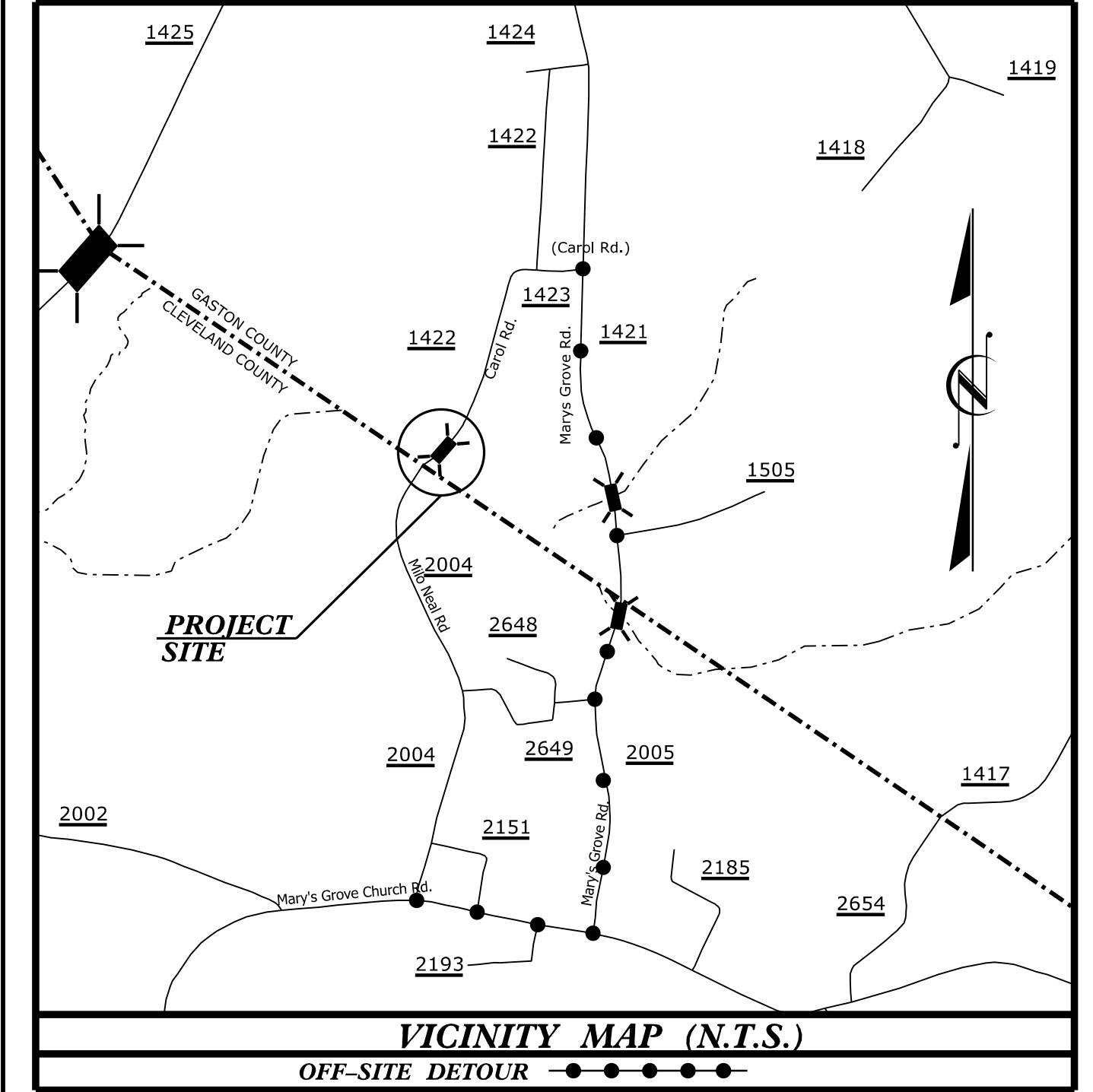
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09/28/2019

See Sheet 1-A For Index of Sheets
 See Sheet 1-B For Conventional Symbols
 See Sheet 1C-1 TO 1C-2 For Survey Control Sheets



PROJECT: 17BP.12.R.64

CONTRACT: DL00295

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

GASTON COUNTY

**LOCATION: BRIDGE NO. 350354 OVER GILLIAM CREEK
 ON SR 1422 (CAROL RD.)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

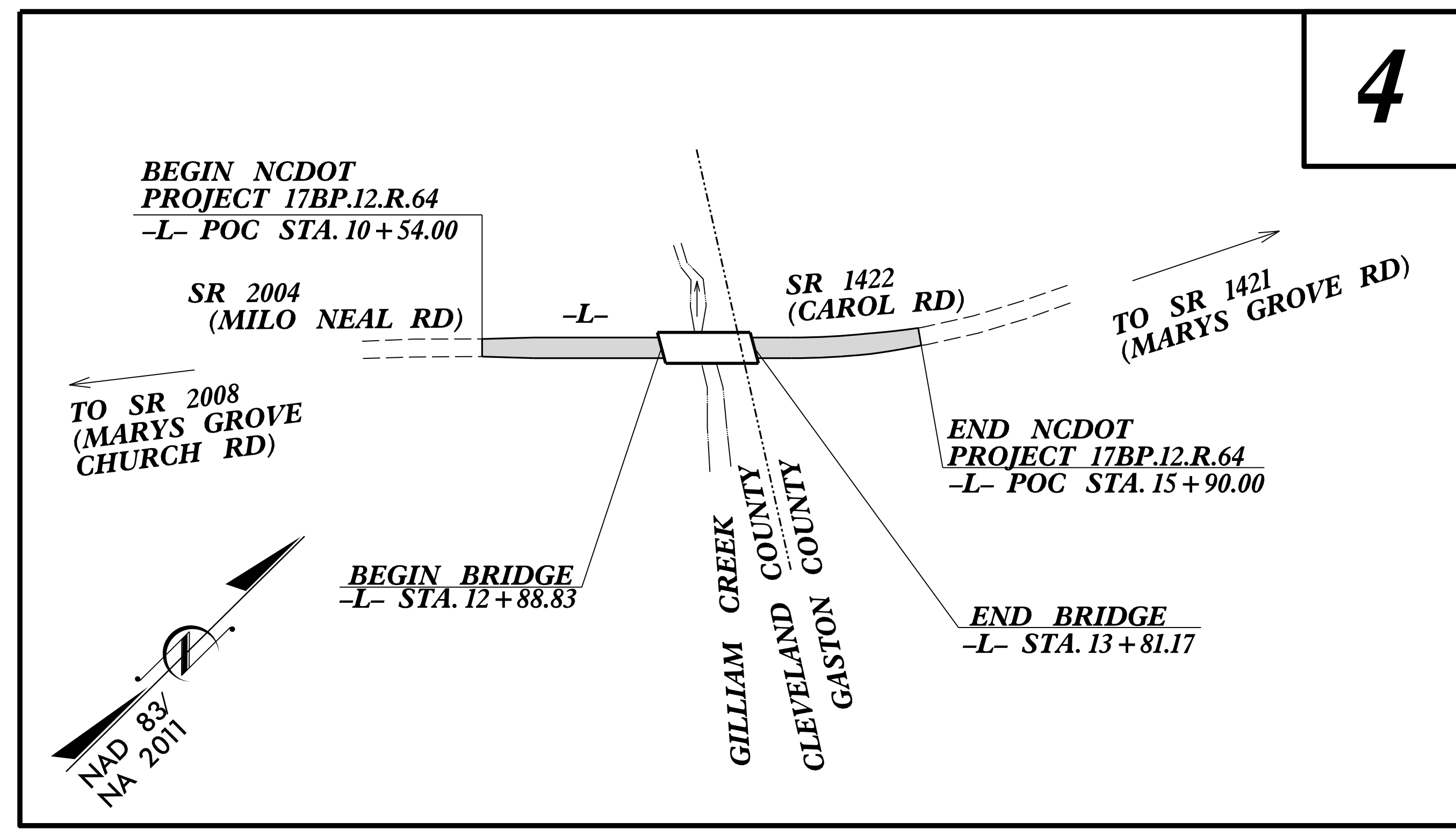
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.12.R.64	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.12.PE.64	N/A	PE	
17BP.12.ROW.64	N/A	ROW, UTIL.	
17BP.12.R.64	N/A	CONST.	

WETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 License No. F-0377
 Bus: 919 851 8077
 Fax: 919 851 8107

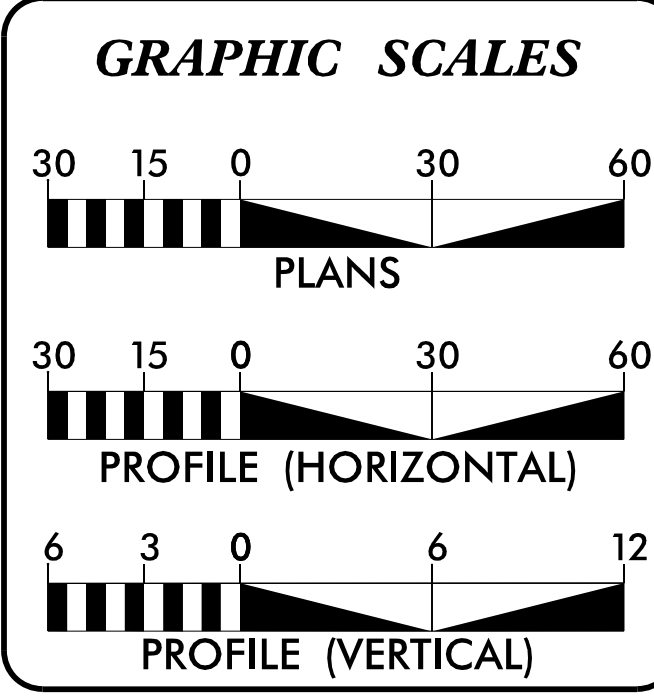
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

BRIDGE #350354

FINAL PLANS



DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA
 ADT 2018 = 350
 T = 6 % *
 V = 50 MPH
 * (TTST = 3% + DUAL = 3%)
 FUNC CLASS =
 RURAL LOCAL
 SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.12.R.64 =	0.085 MILES
LENGTH STRUCTURE PROJECT 17BP.12.R.64 =	0.017 MILES
TOTAL LENGTH PROJECT 17BP.12.R.64 =	0.102 MILES

NCDOT CONTACT: JOSH WHITE, PE, PLS
 DIVISION 12 DIVISION BRIDGE MANAGER

Prepared for:
DIVISION OF HIGHWAYS
DIVISION TWELVE
 1710 E. Marion St., Shelby NC, 28151

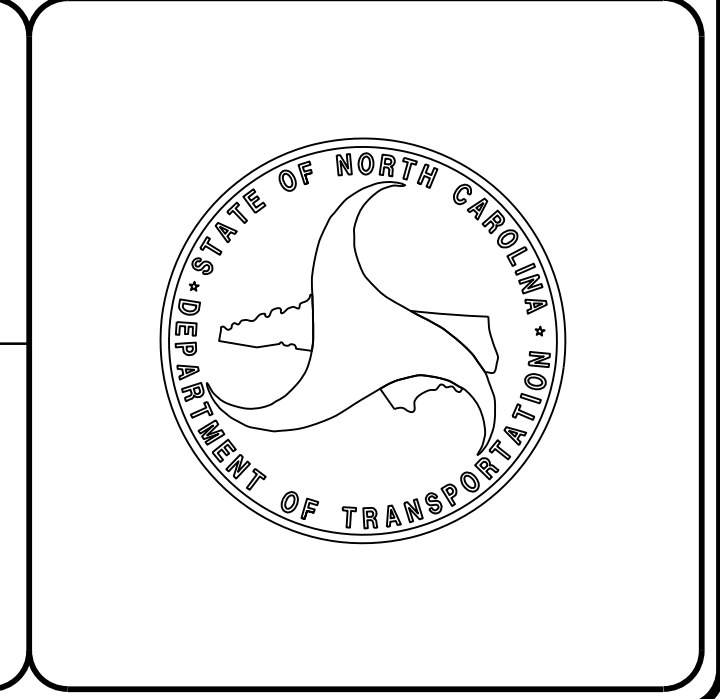
2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: AUGUST 10, 2022	EDWARD G. WETHERILL, PE PROJECT ENGINEER
LETTING DATE: DECEMBER 12, 2023	GREG S. PURVIS, PE PROJECT DESIGN ENGINEER

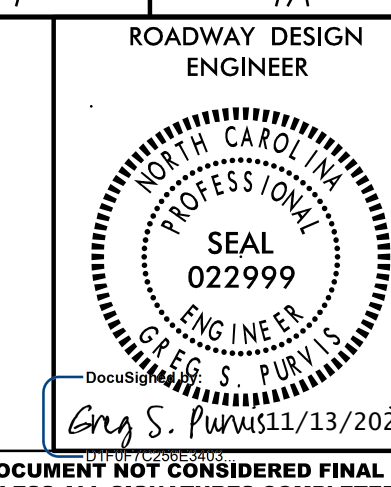
HYDRAULICS ENGINEER

DocuSigned by:
 Kevin B. Ayford
 2BE802BEB76D44D...
 10/18/2023 P.E.

ROADWAY DESIGN ENGINEER

DocuSigned by:
 Greg S. Purvis
 01F67C256E3403...
 10/18/2023 P.E.





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GENERAL NOTES

2018 ROADWAY ENGLISH STANDARD DRAWINGS

GENERAL NOTES: 2018 SPECIFICATIONS

EFFECTIVE: 01-16-2018
REVISED:

EFF. 01-16-2018
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N. C. Department of Transportation – Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	Method of Clearing – Method II
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 & 225 .05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

DIVISION 8 – INCIDENTALS	
840.25	Anchorage for Frames – Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

INDEX OF SHEETS

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

SHEET NUMBER SHEET

- 1
- 1A
- 1B
- 2A-1
- 2C-1
- 2C-2
- 2C-3
- 2D-1
- 3B-1
- 3G-1
- 4
- RW01 THRU RW04
- TMP-1 THRU TMP-4
- PMP-1 THRU PMP-2
- EC-1 THRU EC-5
- UO-1 THRU UO-2
- X-1A
- X-1 THRU X-5
- S-1 THRU S-15
- SN

- TITLE SHEET
- INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
- CONVENTIONAL SYMBOLS
- TYPICAL SECTIONS, PAVEMENT SCHEDULE, & MISCELLANEOUS DETAILS
- TYPE III ANCHOR UNIT DETAIL
- W BEAM RAIL SECTION DETAIL
- TYPE 1 BRIDGE APPROACH FILL DETAIL
- DRAINAGE DETAILS
- SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, EARTHWORK SUMMARY
- PAVEMENT REMOVAL SUMMARY, AND SHOULDER BERM GUTTER SUMMARY
- SUMMARY OF GEOTECHNICAL PILE FOUNDATION TABLES
- PLAN AND PROFILE SHEET
- SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES
- TRANSPORATION MANAGEMENT PLANS
- PAVEMENT MARKING PLANS
- EROSION CONTROL PLANS
- UTILITIES BY OTHERS PLANS
- CROSS-SECTION SUMMARY SHEET
- CROSS-SECTIONS
- STRUCTURE PLANS
- STRUCTURE NOTES

END BENTS:

THE SURVEYOR SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

RUTHERFORD ELECTRIC (POWER)
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin (EIP)	○
Computed Property Corner	×
Existing Concrete Monument (ECM)	◻
Parcel/Sequence Number	(23)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	-S-S-
Potential Contamination Area: Soil	-S-S-
Known Contamination Area: Water	-W-W-
Potential Contamination Area: Water	-W-W-
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	×
Foundation	▭
Area Outline	▭
Cemetery	⊕
Building	▭
School	▭
Church	⊕
Dam	▭

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⬇
Proposed Lateral, Tail, Head Ditch	→
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	◻
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Secondary Horiz and Vert Control Point	◆
Vertical Benchmark	⊕
Existing Right of Way Monument	△
Proposed Right of Way Monument (Rebar and Cap)	▲
Proposed Right of Way Monument (Concrete)	⊕
Existing Permanent Easement Monument	◇
Proposed Permanent Easement Monument (Rebar and Cap)	◆
Existing C/A Monument	△
Proposed C/A Monument (Rebar and Cap)	▲
Proposed C/A Monument (Concrete)	⊕
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Existing Control of Access Line	-----
Proposed Control of Access Line	-----
Proposed ROW and CA Line	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage/Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	CR
Existing Metal Guardrail	T T T
Proposed Guardrail	T T T
Existing Cable Guiderail	▭
Proposed Cable Guiderail	▭
Equality Symbol	⊕
Pavement Removal	▭
VEGETATION:	
Single Tree	○
Single Shrub	○
Hedge	-----

Woods Line	-----
Orchard	○
Vineyard	▭

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊕
Storm Sewer	S

UTILITIES:

* SUE - Subsurface Utility Engineering
LOS - Level of Service - A,B,C or D (Accuracy)

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊕
Power Transformer	⊕
U/G Power Cable Hand Hole	PH
H-Frame Pole	●
U/G Power Line Test Hole (SUE - LOS A)*	⊕
U/G Power Line (SUE - LOS B)*	-P-
U/G Power Line (SUE - LOS C)*	-P-
U/G Power Line (SUE - LOS D)*	-P-

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	PH
U/G Telephone Test Hole (SUE - LOS A)*	⊕
U/G Telephone Cable (SUE - LOS B)*	-T-
U/G Telephone Cable (SUE - LOS C)*	-T-
U/G Telephone Cable (SUE - LOS D)*	-T-
U/G Telephone Conduit (SUE - LOS B)*	-TC-
U/G Telephone Conduit (SUE - LOS C)*	-TC-
U/G Telephone Conduit (SUE - LOS D)*	-TC-
U/G Fiber Optics Cable (SUE - LOS B)*	-TFO-
U/G Fiber Optics Cable (SUE - LOS C)*	-TFO-
U/G Fiber Optics Cable (SUE - LOS D)*	-TFO-

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊕
Water Hydrant	⊕
U/G Water Line Test Hole (SUE - LOS A)*	⊕
U/G Water Line (SUE - LOS B)*	-----
U/G Water Line (SUE - LOS C)*	-----
U/G Water Line (SUE - LOS D)*	-----
Above Ground Water Line	A/G Water

TV:

TV Pedestal	⊕
TV Tower	⊕
U/G TV Cable Hand Hole	PH
U/G TV Test Hole (SUE - LOS A)*	⊕
U/G TV Cable (SUE - LOS B)*	-TV-
U/G TV Cable (SUE - LOS C)*	-TV-
U/G TV Cable (SUE - LOS D)*	-TV-
U/G Fiber Optic Cable (SUE - LOS B)*	-TV FO-
U/G Fiber Optic Cable (SUE - LOS C)*	-TV FO-
U/G Fiber Optic Cable (SUE - LOS D)*	-TV FO-

GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line Test Hole (SUE - LOS A)*	⊕
U/G Gas Line (SUE - LOS B)*	-G-
U/G Gas Line (SUE - LOS C)*	-G-
U/G Gas Line (SUE - LOS D)*	-G-
Above Ground Gas Line	A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-SS-
Above Ground Sanitary Sewer	A/G Sanitary Sewer
SS Force Main Line Test Hole (SUE - LOS A)*	⊕
SS Force Main Line (SUE - LOS B)*	-FSS-
SS Force Main Line (SUE - LOS C)*	-FSS-
SS Force Main Line (SUE - LOS D)*	-FSS-

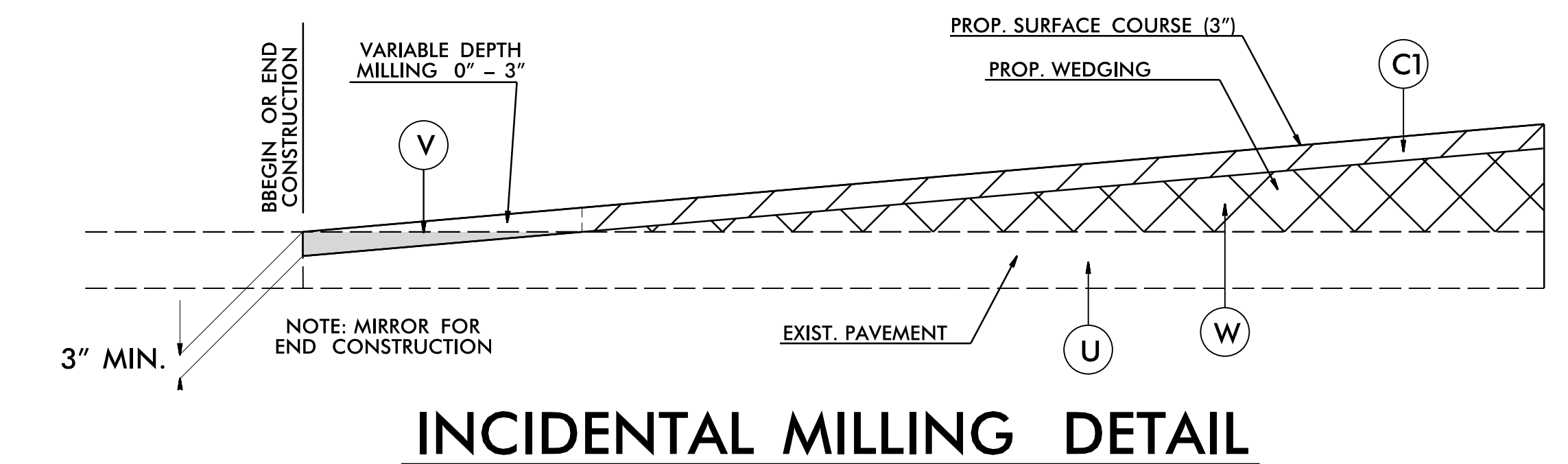
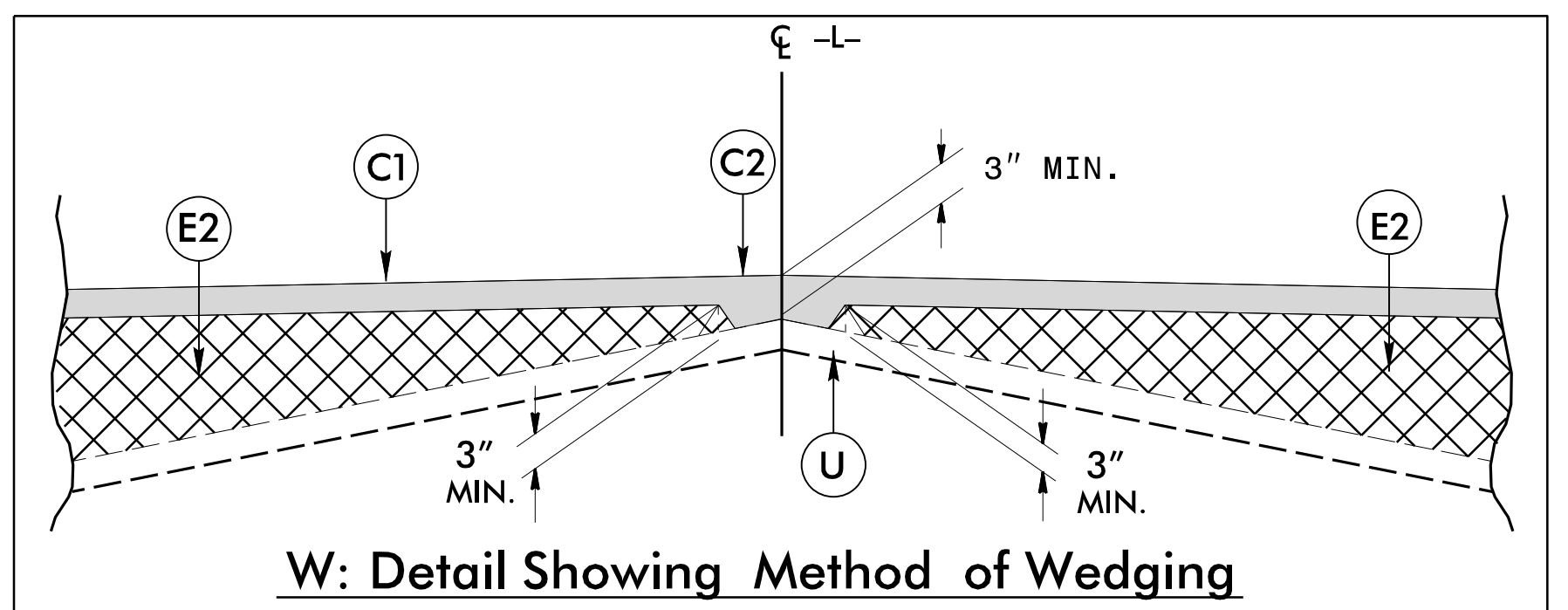
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line (SUE - LOS B)*	-UTL-
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	UST
A/G Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

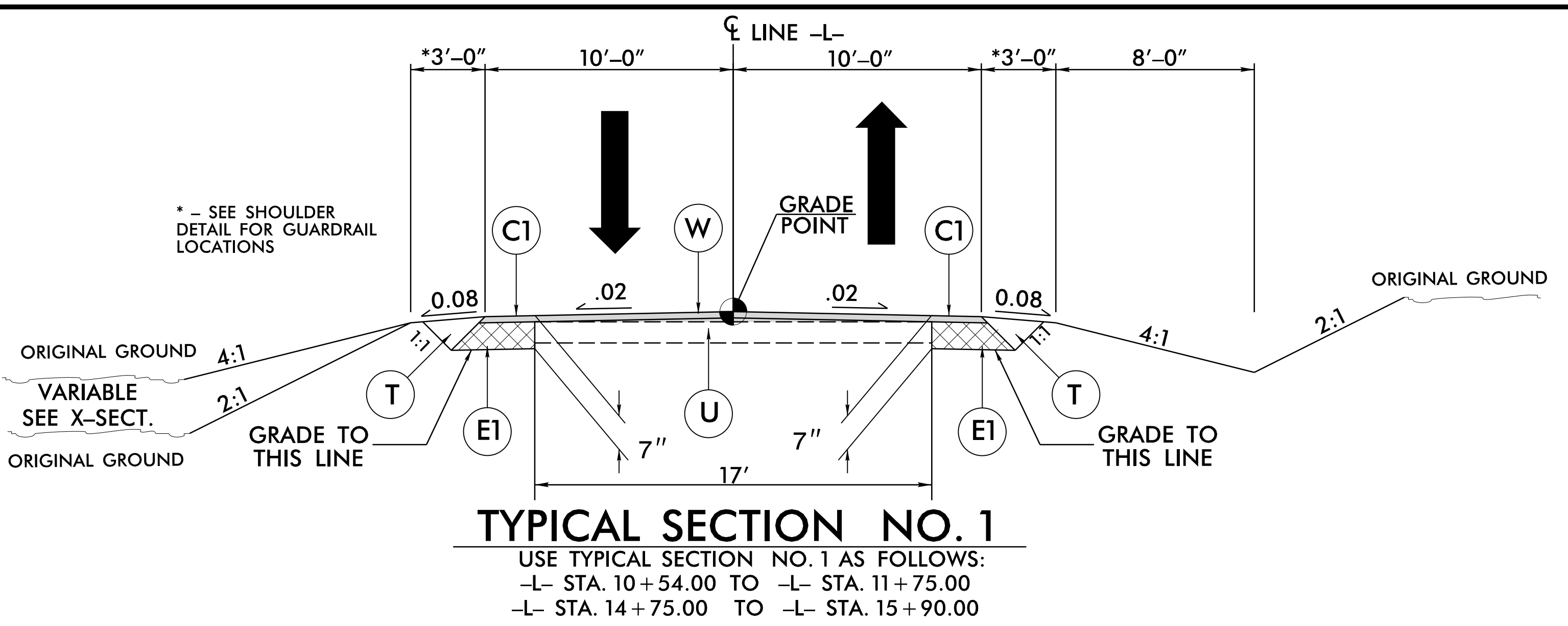
6/2/2023

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROP. APPROX. 6" INCIDENTAL STONE BASE
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

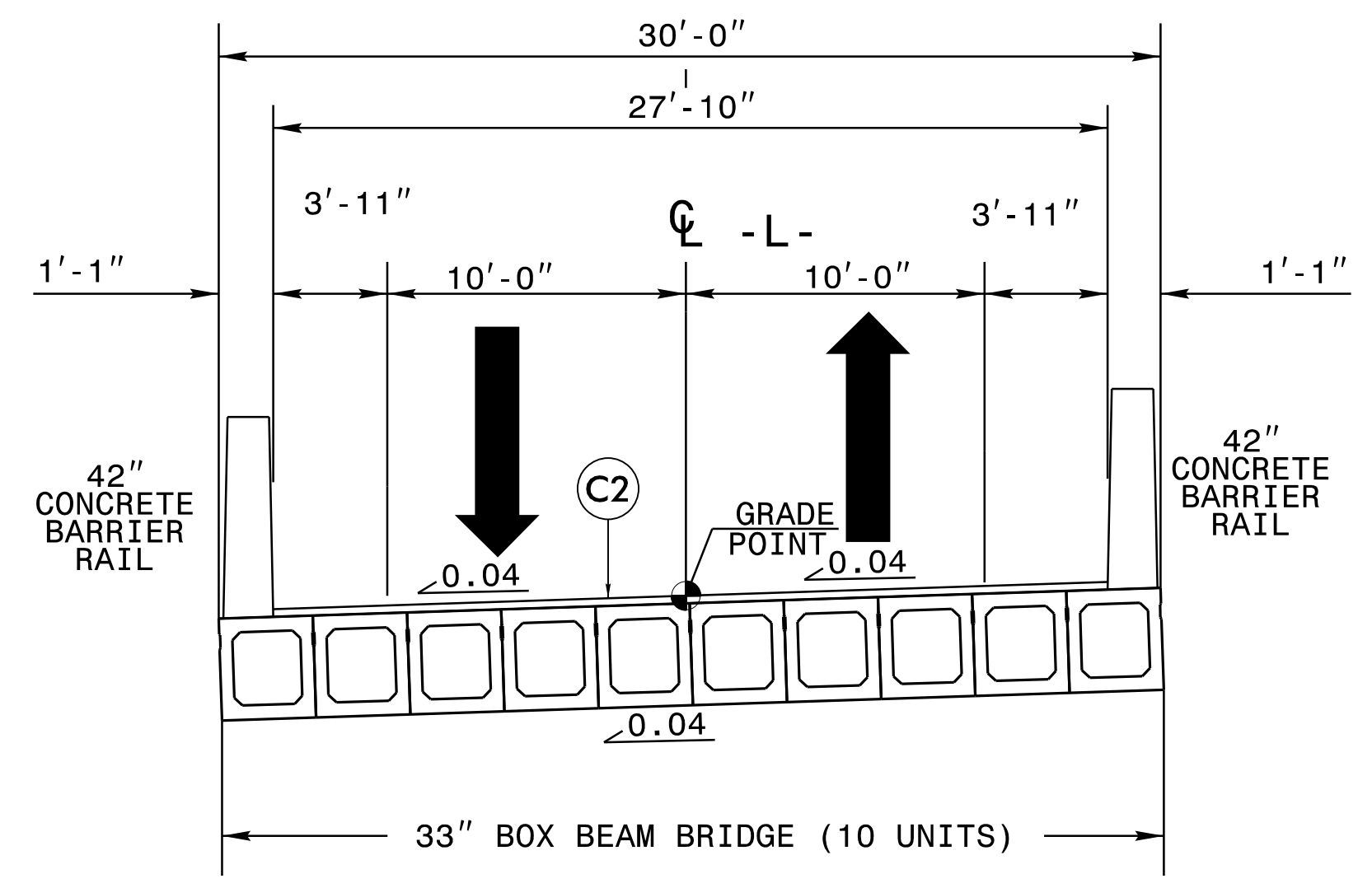
NOTES:
 1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
 2. PAVMENT DESIGN ENGINEER SEAL DOES NOT APPLY TO TYPICAL SECTION NO. 3.



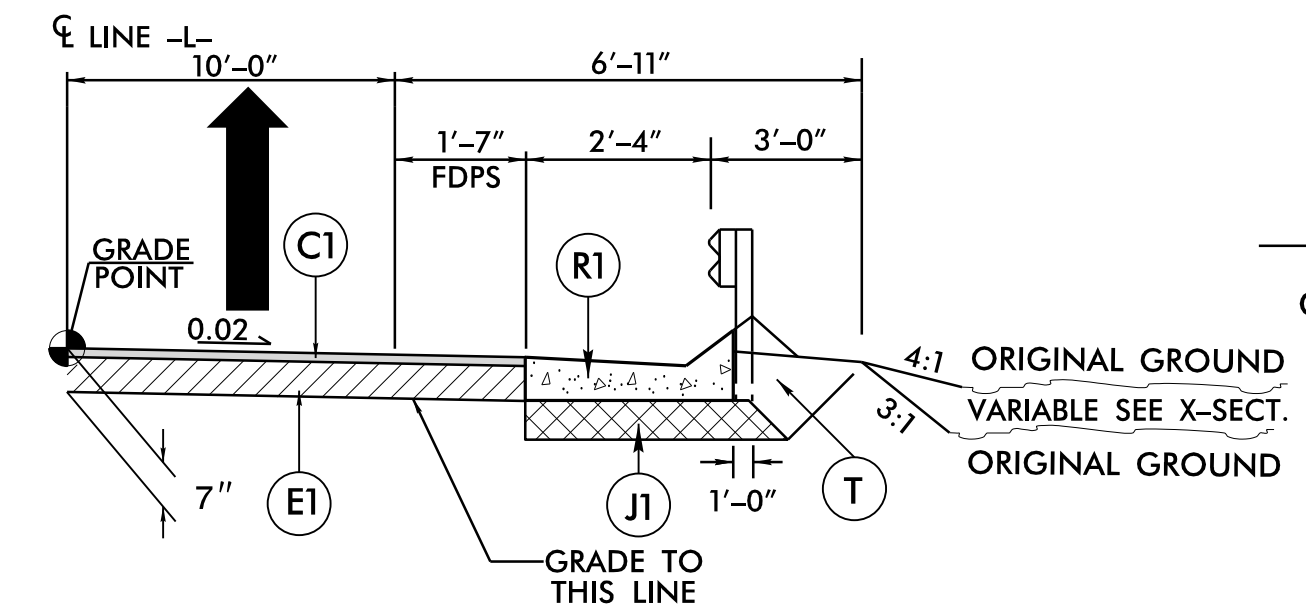
-L- STA. 10+54.00 TO -L- STA. 11+13.00
 -L- STA. 15+67.00 TO -L- STA. 15+90.00



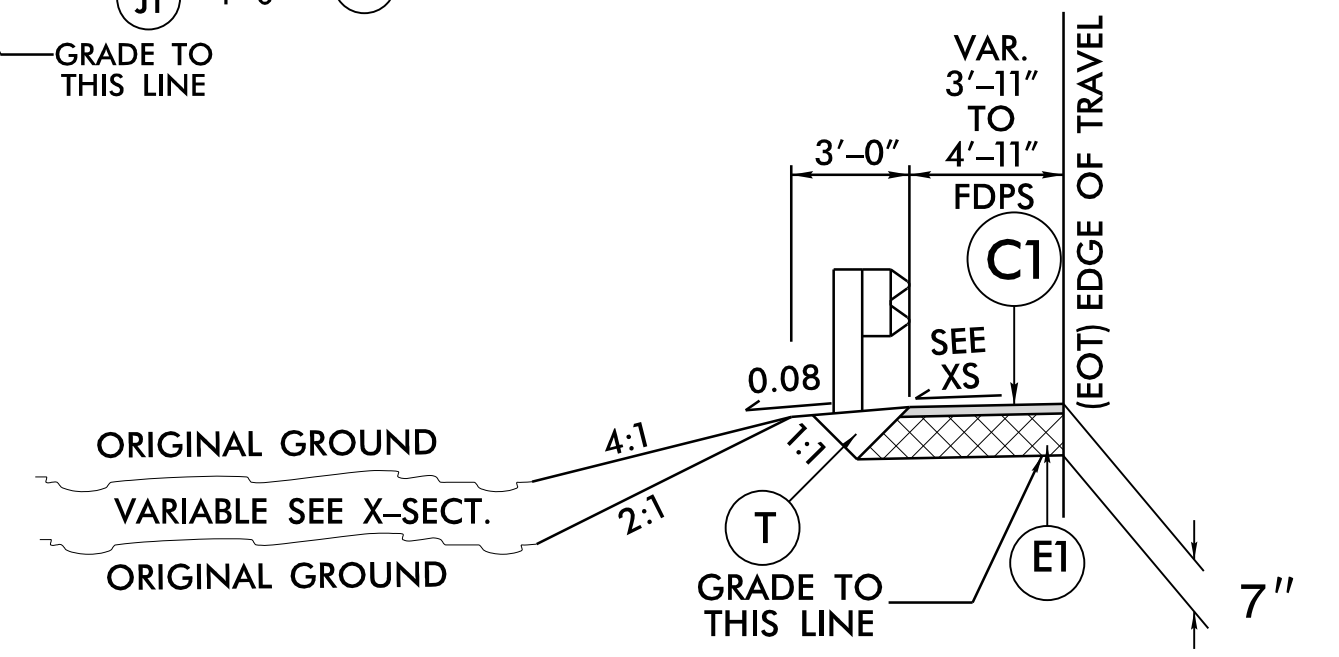
USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 10+54.00 TO -L- STA. 11+75.00
 -L- STA. 14+75.00 TO -L- STA. 15+90.00



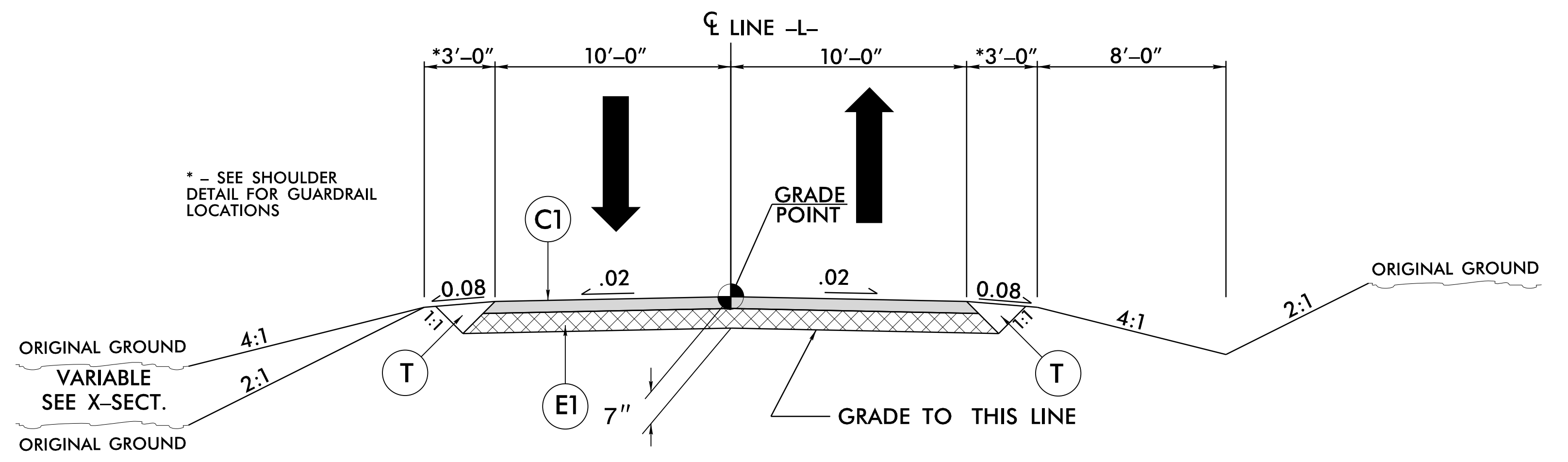
USE TYPICAL SECTION NO. 3 AS FOLLOWS:
 -L- STA. 12+88.83 (BEGIN BRIDGE) TO -L- STA. 13+81.17 (END BRIDGE)



USE SHOULDER DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 2:
 -L- STA. 12+58 TO -L- STA. 12+75 LT.



USE SHOULDER DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 2:
 -L- STA. 11+41.35 TO -L- STA. 12+85.10 RT.
 -L- STA. 11+48.81 TO -L- STA. 12+92.56 LT.
 -L- STA. 13+83.73 TO -L- STA. 14+52.44 RT.
 -L- STA. 13+84.90 TO -L- STA. 14+59.90 LT.



USE TYPICAL SECTION NO. 2 AS FOLLOWS:
 -L- STA. 11+75.00 TO -L- STA. 12+88.83 (BEGIN BRIDGE)
 -L- STA. 13+81.17 (END BRIDGE) TO -L- STA. 14+75.00

PROJECT REFERENCE NO. 17BPJ2.R.64	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 10/19/2023	PAVEMENT DESIGN ENGINEER 10/19/2023
 WETHERILL ENGINEERING TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

BRIDGE #350354

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 Howardton AT CSU-212855

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE	SHEET 1 OF 7 862D03
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> </div> <div style="width: 50%;"> <p>NOTE:</p> <ul style="list-style-type: none"> **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER. *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT. -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" X 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB. -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER). -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW. -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9. </div> </div>		
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE		

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER	SHEET 2 OF 7 862D03
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GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER		



DocuSigned by:
 Nicole M. Hecker
 584333334164C5...
 10/18/2023

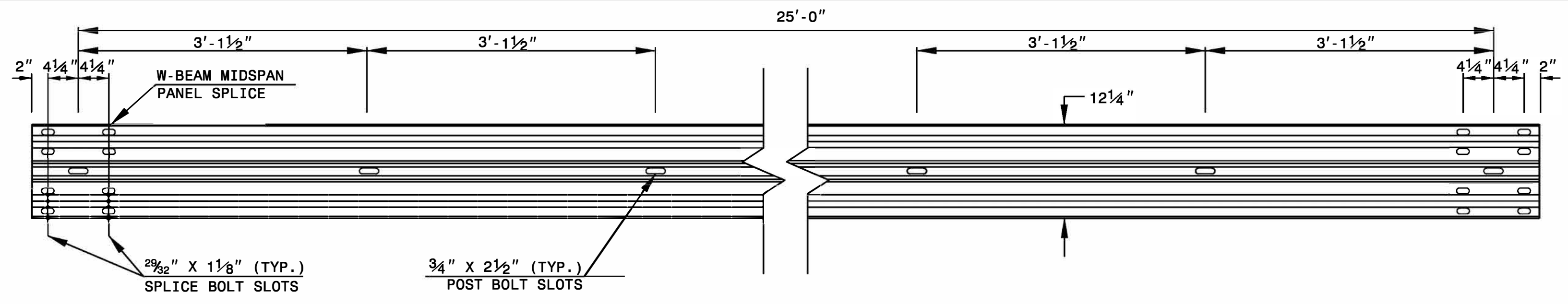
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CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
SEE TITLE BLOCK	
ORIGINAL BY: J. HOWERTON	DATE: 06-22-12
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

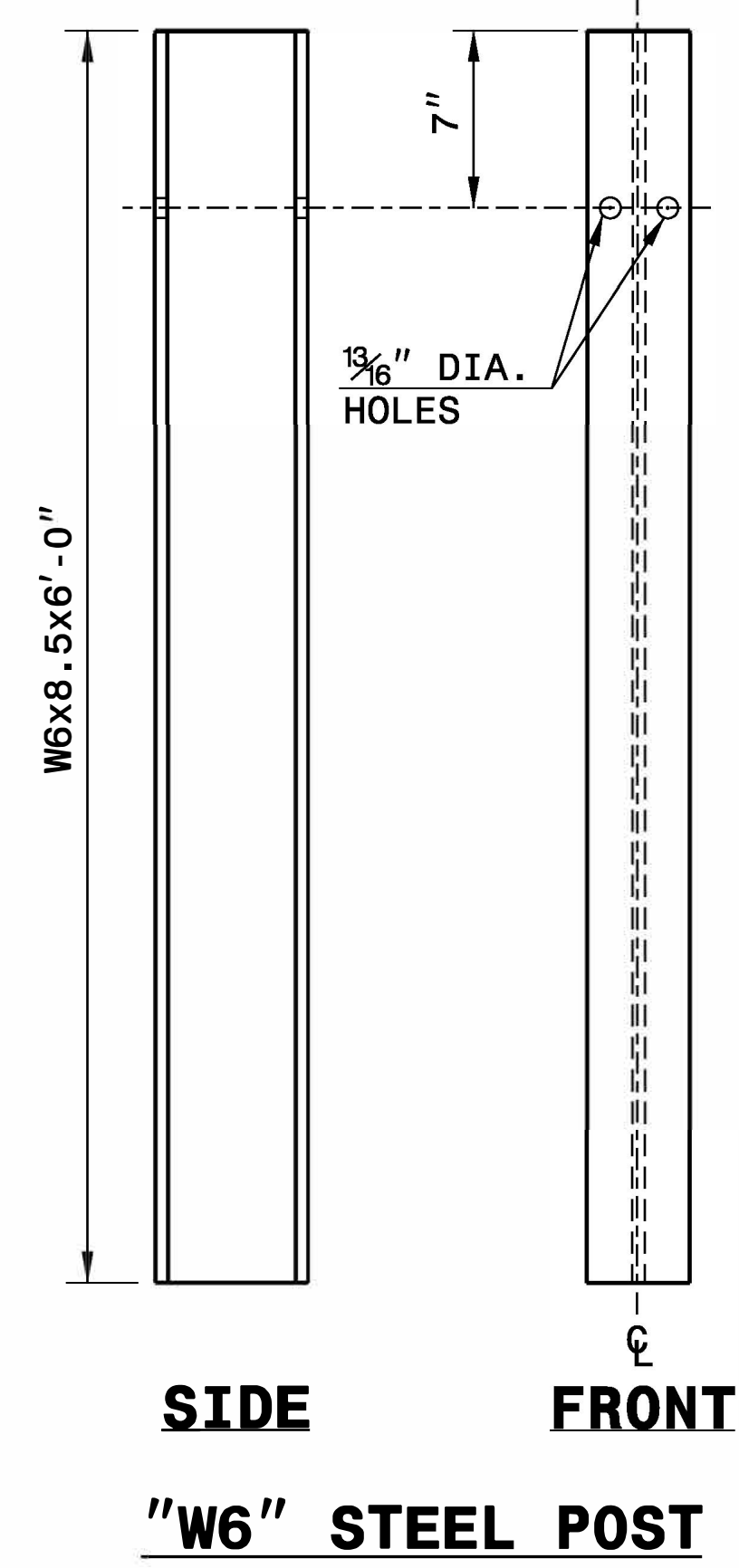
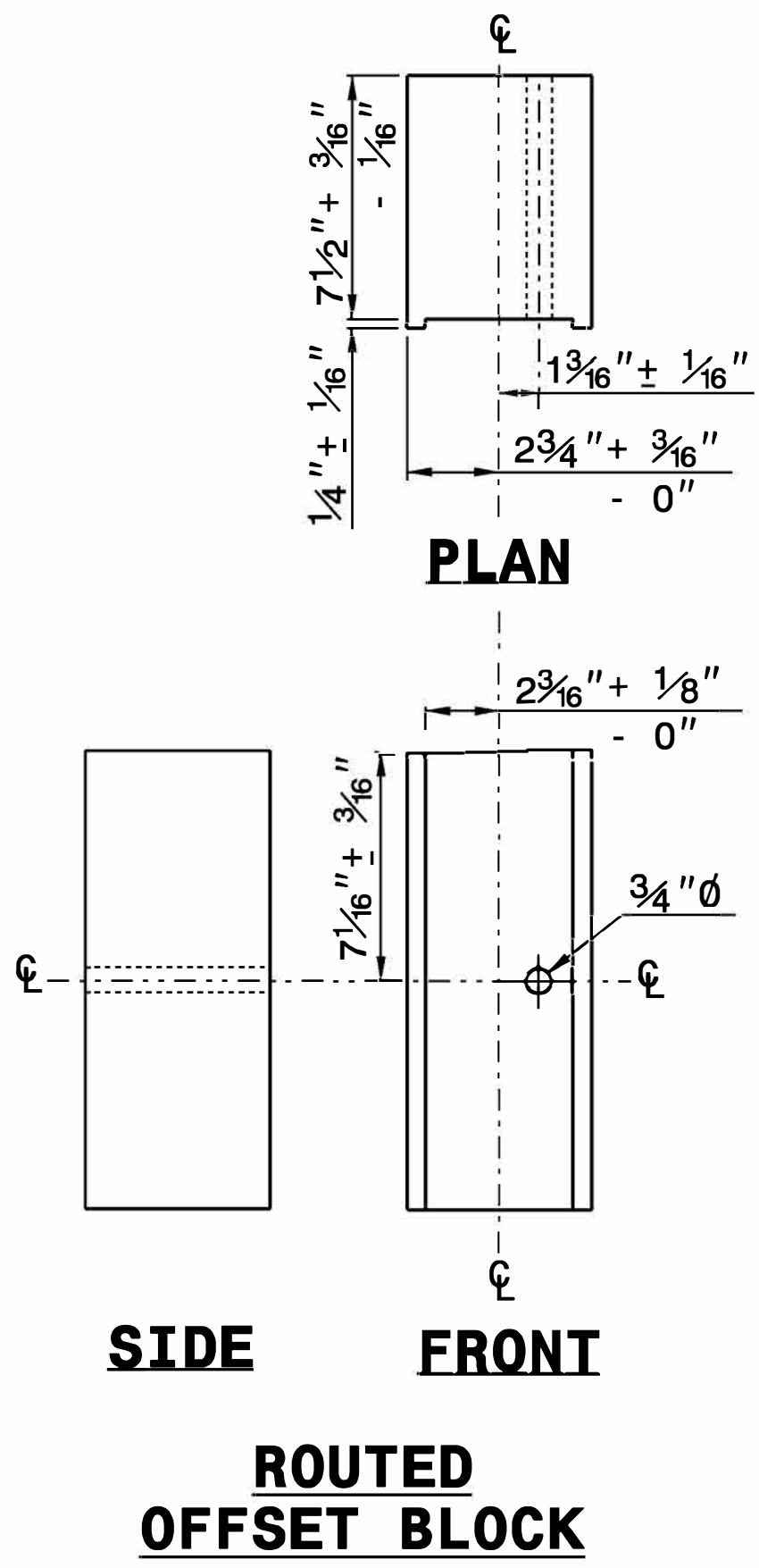
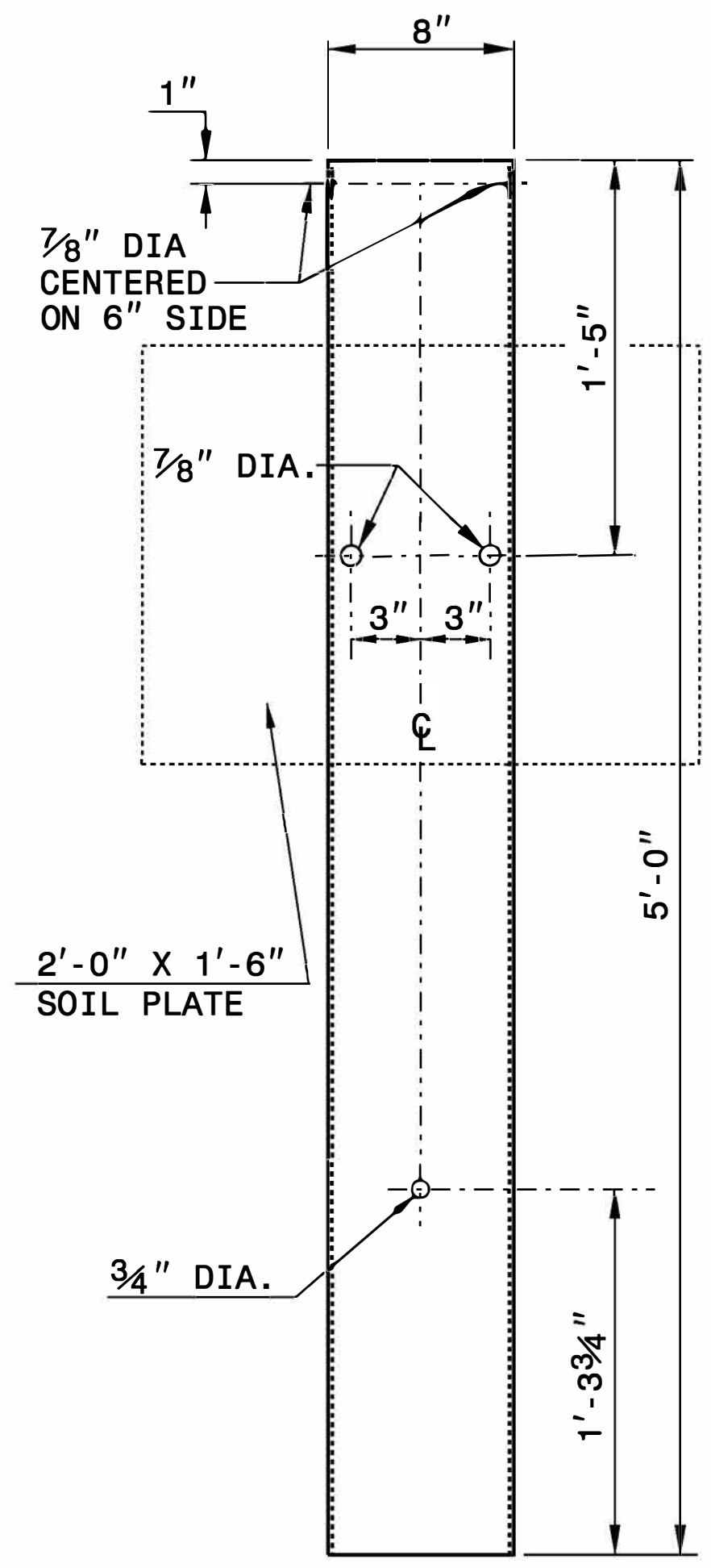
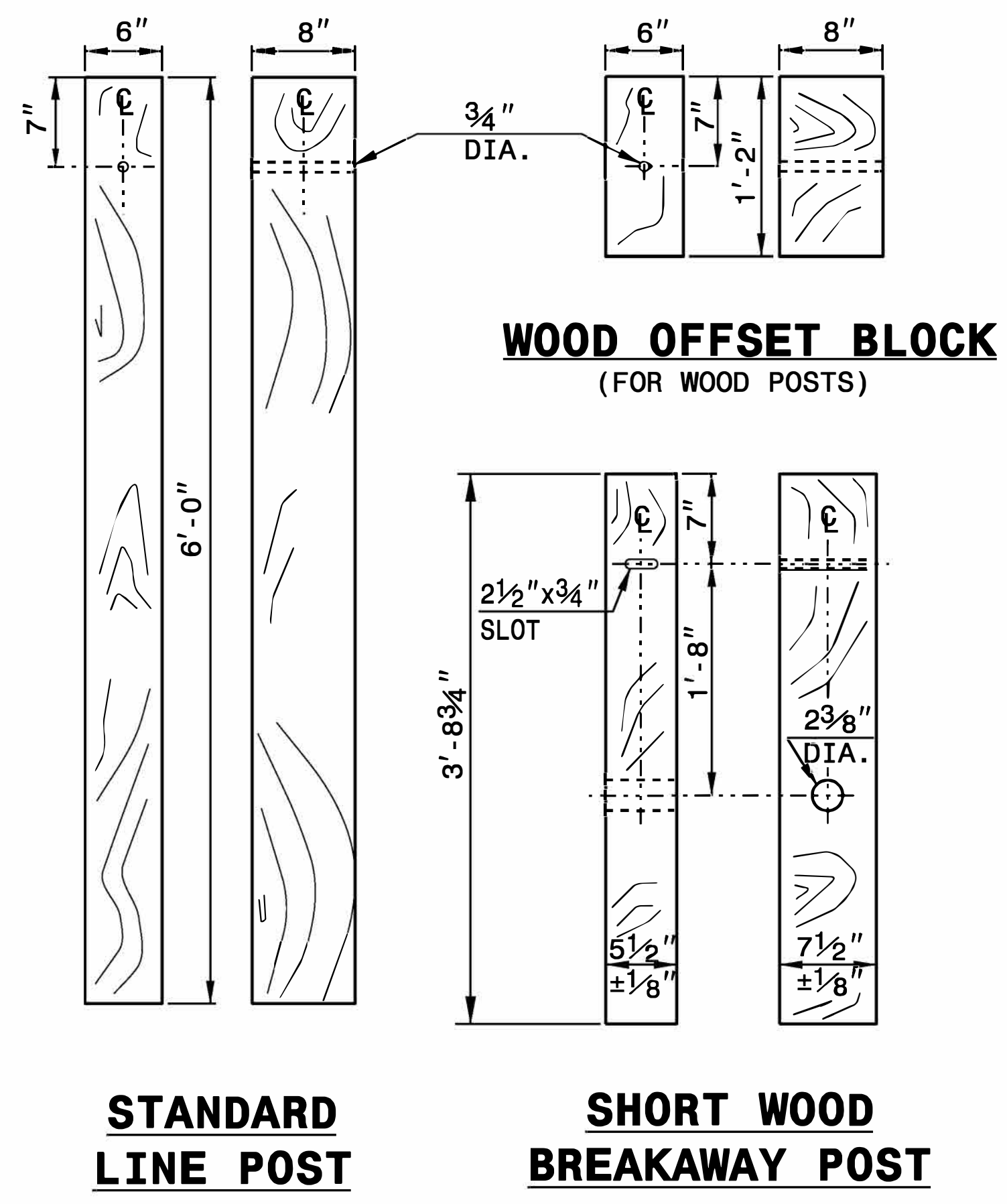
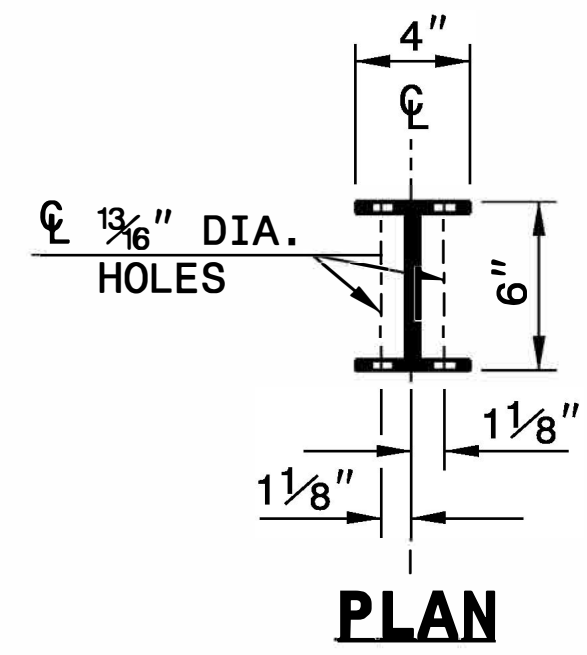
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL

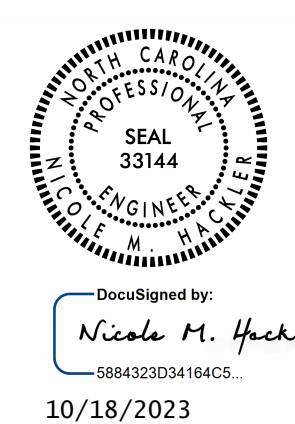


SYSTEM PARTS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

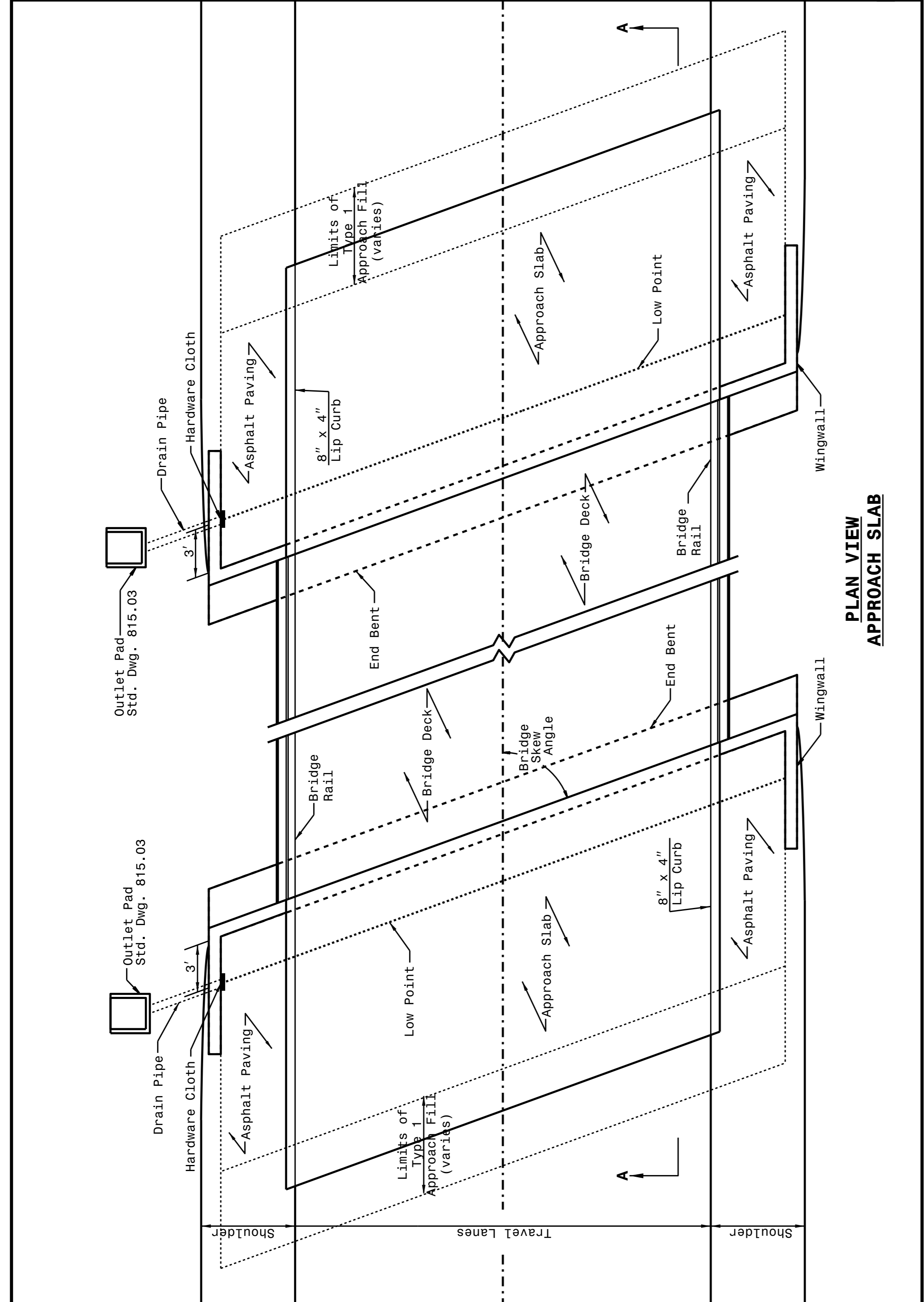


**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

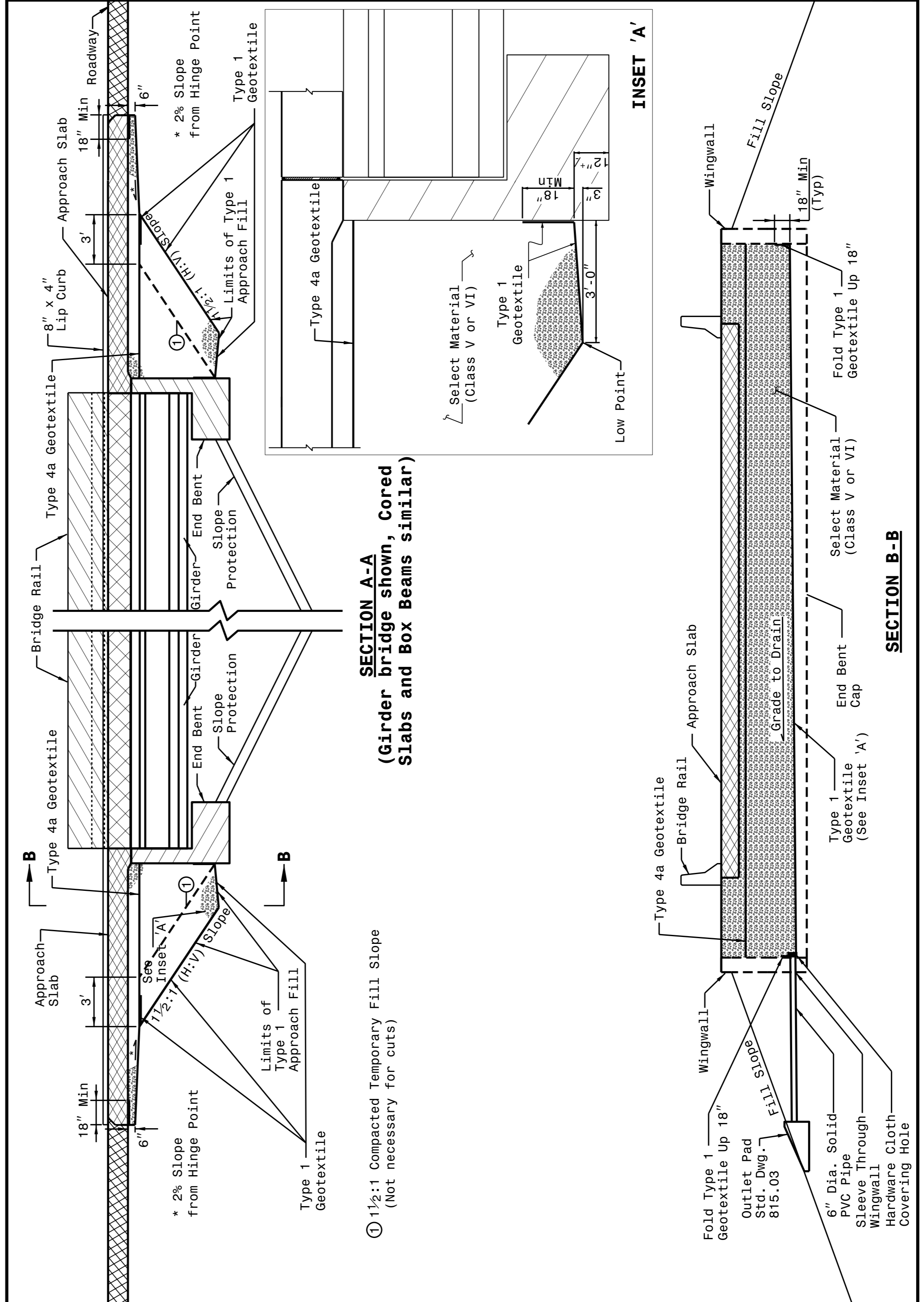
ORIGINAL BY: J. HOWERTON	DATE: 3-7-2018
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR BRIDGE APPROACH FILLS TYPE 1 APPROACH FILL FOR BRIDGE ABUTMENT
SHEET 1 OF 2



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR BRIDGE APPROACH FILLS TYPE 1 APPROACH FILL FOR BRIDGE ABUTMENT
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR BRIDGE APPROACH FILLS TYPE 1 APPROACH FILL FOR BRIDGE ABUTMENT
SHEET 2 OF 2



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR BRIDGE APPROACH FILLS TYPE 1 APPROACH FILL FOR BRIDGE ABUTMENT
SHEET 2 OF 2

30-JUN-2023 12:42
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\$\$\$\$\$USERNAME\$\$\$\$\$

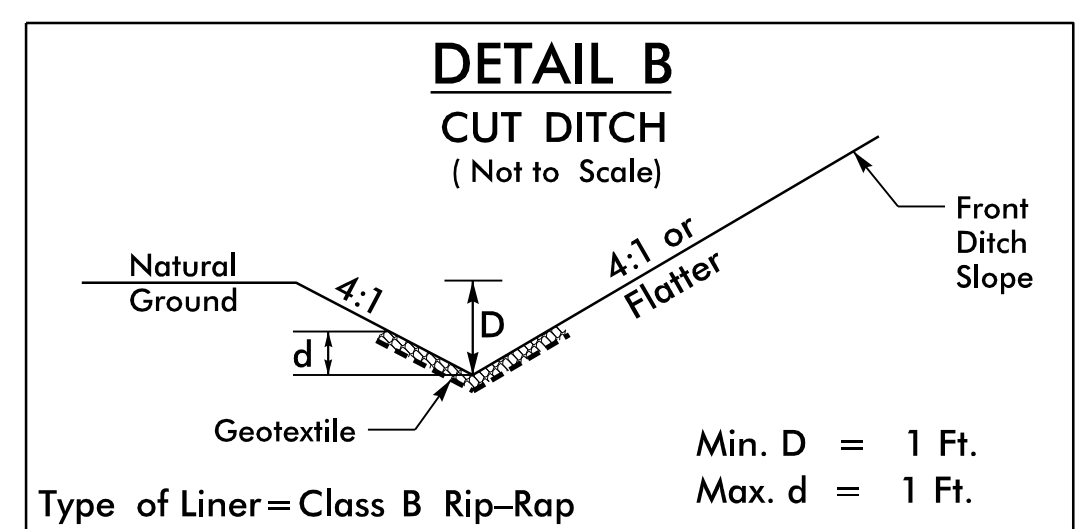
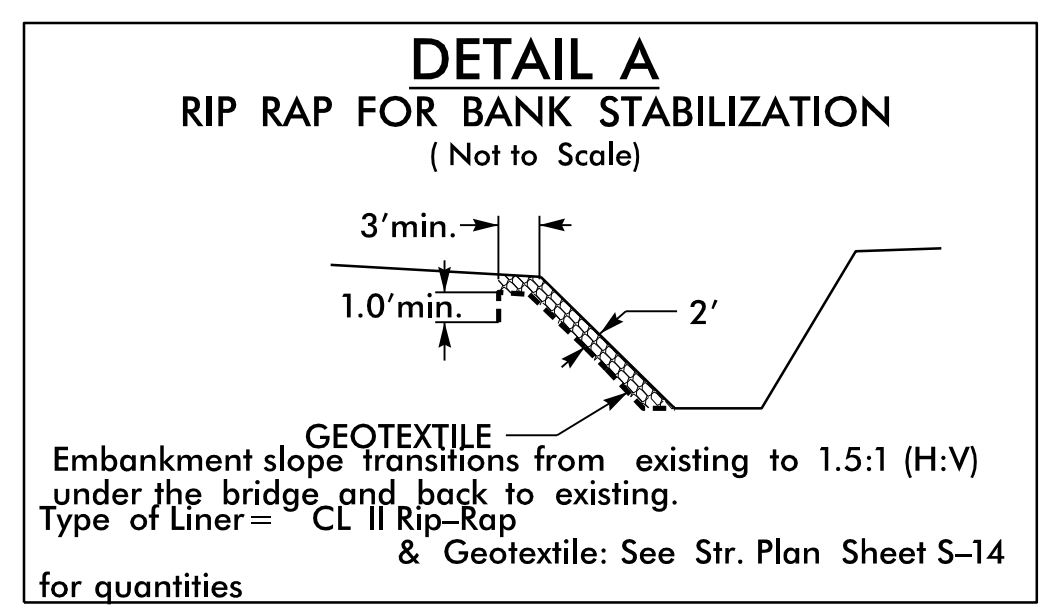


DocuSigned by:
Scott A. Hidden
E-790CA896FC4D3
11/2/2023

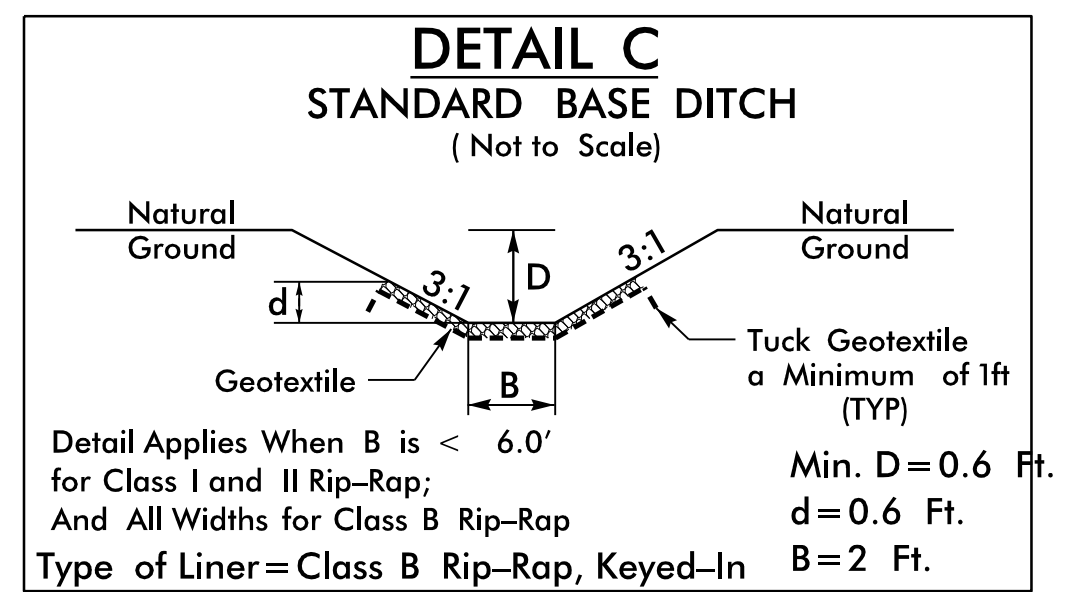
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119
SEE TITLE BLOCK

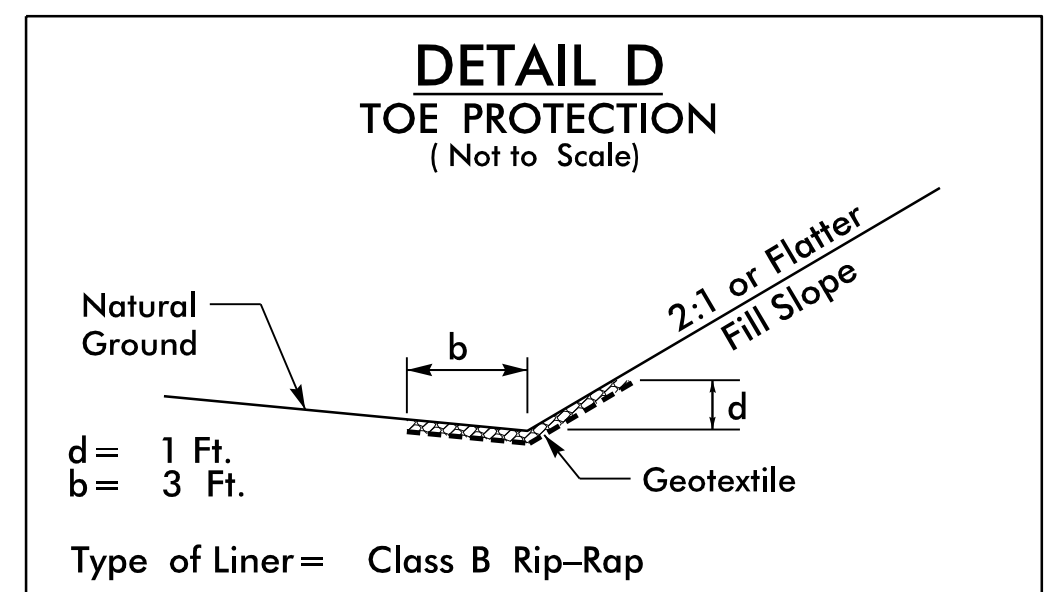
ORIGINAL BY: K KEMPFF DATE: 07-30-23
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____



FROM STA. 11+00 TO STA. 11+50 RT.
23 TONS CLASS B RIP-RAP, 46 SY GEOTEXTILE



FROM STA. 11+04 TO STA. 11+36 LT.
L=32', S=15%
11 TONS CLASS B RIP-RAP, 24 SY GEOTEXTILE



FROM STA. 11+36 TO STA. 11+50 RT
5 TONS CLASS B RIP-RAP, 10 SY GEOTEXTILE

PROJECT REFERENCE NO. 17BPJ2.R.64	SHEET NO. 2D-1
ROADWAY DESIGN ENGINEER 10/18/2023 Greg S. Purvis	HYDRAULIC ENGINEER 10/18/2023 Kevin B. Alford
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	
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BRIDGE #350354

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

12/06/07

COMPUTED BY: SLK DATE: 07/18/22
CHECKED BY: GSP DATE: 07/18/22

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BRIDGE #350354

PROJECT REFERENCE NO. 17BPJ2R64 SHEET NO. 3B-1

SUMMARY OF EARTHWORK

Table with columns: STATION, STATION, UNCL. EXCAV., EMBANK. + %, BORROW, WASTE. Includes subtotals and grand totals for earthwork quantities.

PAVEMENT REMOVAL SUMMARY

Table with columns: SURVEY LINE, STATION, STATION, LOCATION LT/RT/CL, YD. Includes subtotals and grand totals for pavement removal.

SHOULDER BERM GUTTER SUMMARY

Table with columns: SURVEY LINE, STATION, STATION, LENGTH. Includes subtotals and grand totals for shoulder berm gutter work.

ETHERILL ENGINEERING logo and contact information: 1223 Jones Franklin Rd, Raleigh, N.C. 27606. License No. F-0377. Includes disclaimer: DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED.

Note: Approximate quantities only.

SUB-REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

Main table for pipe and endwall summary. Columns include: STATION, LOCATION, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, DRAINAGE PIPE, C.S. PIPE, R.C. PIPE (CLASS III), R.C. PIPE (CLASS IV), ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, TYPE OF GRATE, CONCRETE TRANSITIONAL SECTION, and REMARKS.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

Table for guardrail summary. Columns include: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), TOTAL SHOUL. WIDTH, FLARE LENGTH, W, ANCHORS (XI MOD, TYPE III, GREU TL-3, AT-1, CAT-1, VI MOD, BIC, AT-1), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, and REMARKS.

10/16/2007 11:51:11 AM 17BPJ2R64_rdy_sum_3B-1.dgn

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")	Factored Resistance per Pile TONS	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		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Exc Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent No. 1	127	803.30	50			215							
End Bent No. 2, Piles 1-2	127	803.80	70			215							
End Bent No. 2, Pile 3	127	803.80	60			215							
End Bent No. 2, Piles 4-5	127	803.80	55			215							

*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.

**RDR =
$$\frac{\text{Factored Resistance} + \text{Factored Downdrag Load} + \text{Factored Dead Load}}{\text{Dynamic Resistance Factor}} + \text{Nominal Downdrag Resistance} + \frac{\text{Nominal Scour Resistance}}{\text{Scour Resistance Factor}}$$

SUMMARY OF PDA/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
End Bent No. 1	Maybe	55			

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

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 TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent No. 1	127			0.60			1.00
End Bent No. 2	127			0.60			1.00

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

PROJECT NO. 17BP.12.R.64

Gaston COUNTY

STATION: 13+35 -L-

NOTES:

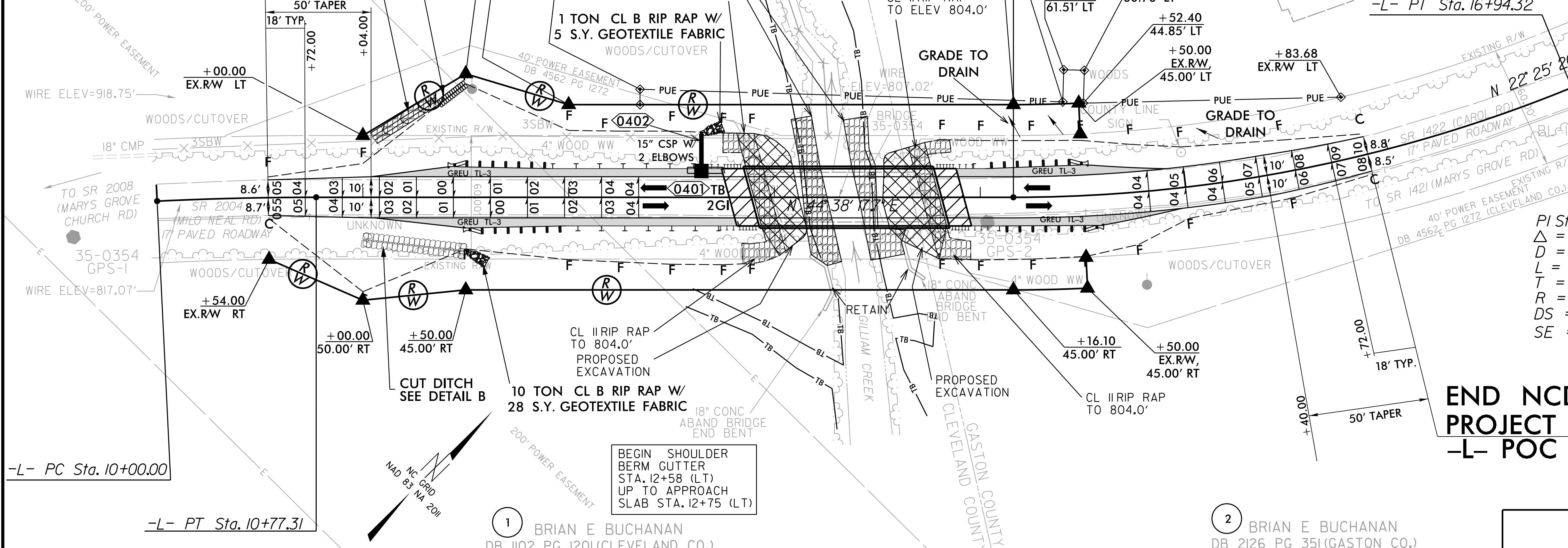
- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Thomas J. Daily, #045672) on 08-05-2019.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
- The Engineer will determine the need for PDA Testing and Pipe Pile Plates when PDAs or plates may be required.

SIGNATURE _____ DATE _____		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. 3G-1 TOTAL SHEETS
		PILE FOUNDATION TABLES						
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		REVISIONS						TOTAL SHEETS
		NO.	BY:	DATE:	NO.	BY:	DATE:	
		1			3			
		2			4			

8/17/19

BEGIN NCDOT PROJECT 17BP.12.R.64 -L- POC STA. 10+54.00

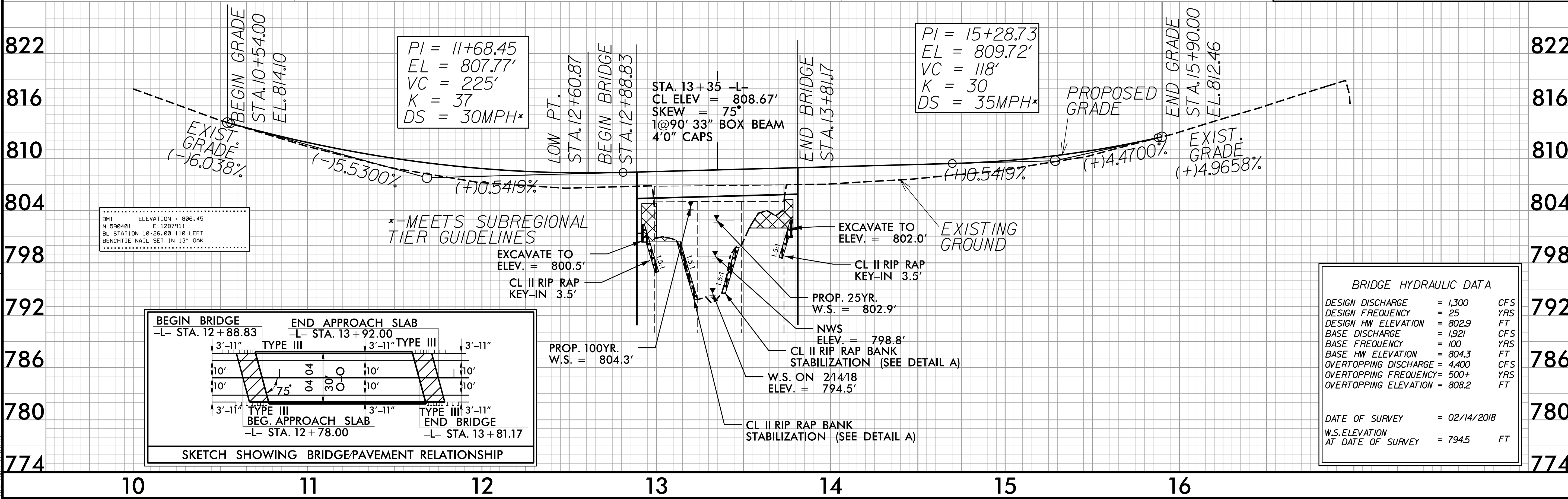
BRIDGE NO. 350354 FINAL PLANS	PROJECT REFERENCE NO. 17BP.12.R.64	SHEET NO. 4
	RW SHEET NO.	
ROADWAY DESIGN ENGINEER 10/18/2023	HYDRAULICS ENGINEER 10/18/2023	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107		
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



PI Sta 10+38.66	PI Sta 15+56.98
$\Delta = 2^\circ 45' 52.6"$ (RT)	$\Delta = 22^\circ 12' 56.8"$ (LT)
$D = 3^\circ 34' 32.9"$	$D = 7^\circ 59' 06.0"$
$L = 77.3'$	$L = 278.22'$
$T = 38.66'$	$T = 140.88'$
$R = 1,602.32'$	$R = 717.54'$
$DS = 50MPH$	$DS = 45MPH$
$SE = \text{SEE PLANS}$	$SE = \text{SEE PLANS}$

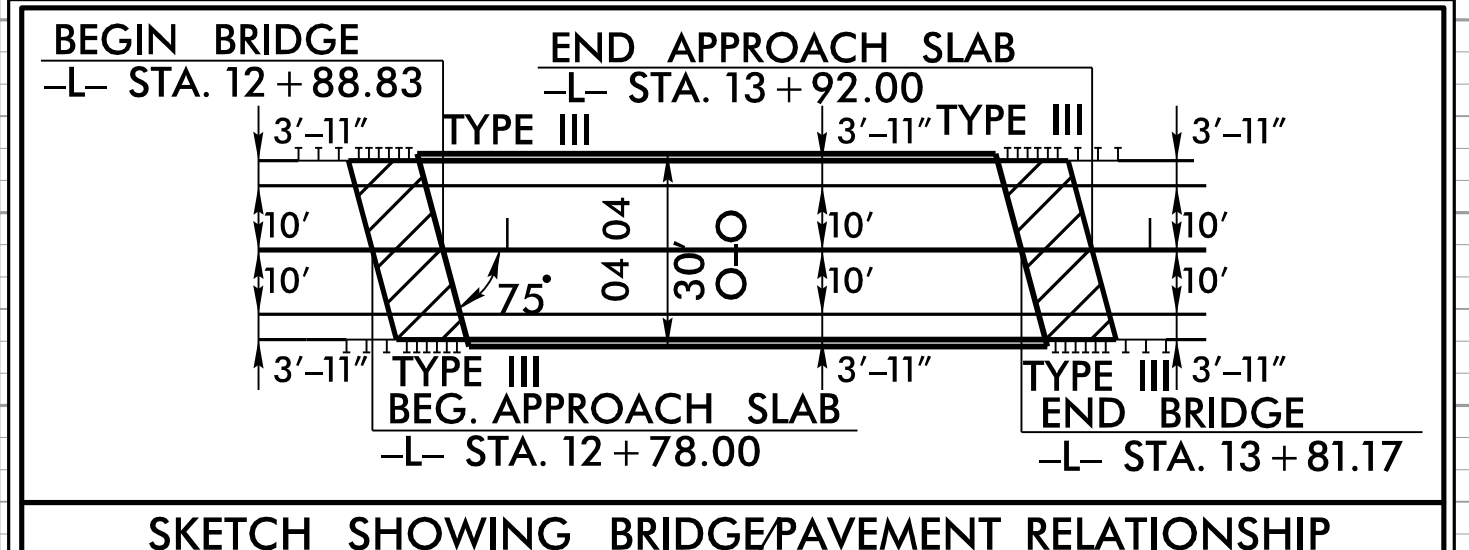
END NCDOT PROJECT 17BP.12.R.64 -L- POC STA. 15+90.00

SEE SHEETS S-1 THRU S-15 FOR STRUCTURE PLANS



BMI ELEVATION = 806.45
 N 590401 E 1287911
 BL STATION 10+26.00 118' LEFT
 BENCHMARK NAIL SET 1N 13' OAK

*-MEETS SUBREGIONAL TIER GUIDELINES



BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 1,300 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 802.9 FT
BASE DISCHARGE	= 1,921 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 804.3 FT
OVERTOPPING DISCHARGE	= 4,400 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 808.2 FT
DATE OF SURVEY	= 02/14/2018
W.S. ELEVATION AT DATE OF SURVEY	= 794.5 FT

REVISIONS

10/16/2023
17BP.12.R.64-350354.rdy_psh.dgn
17BP.12.R.64-350354

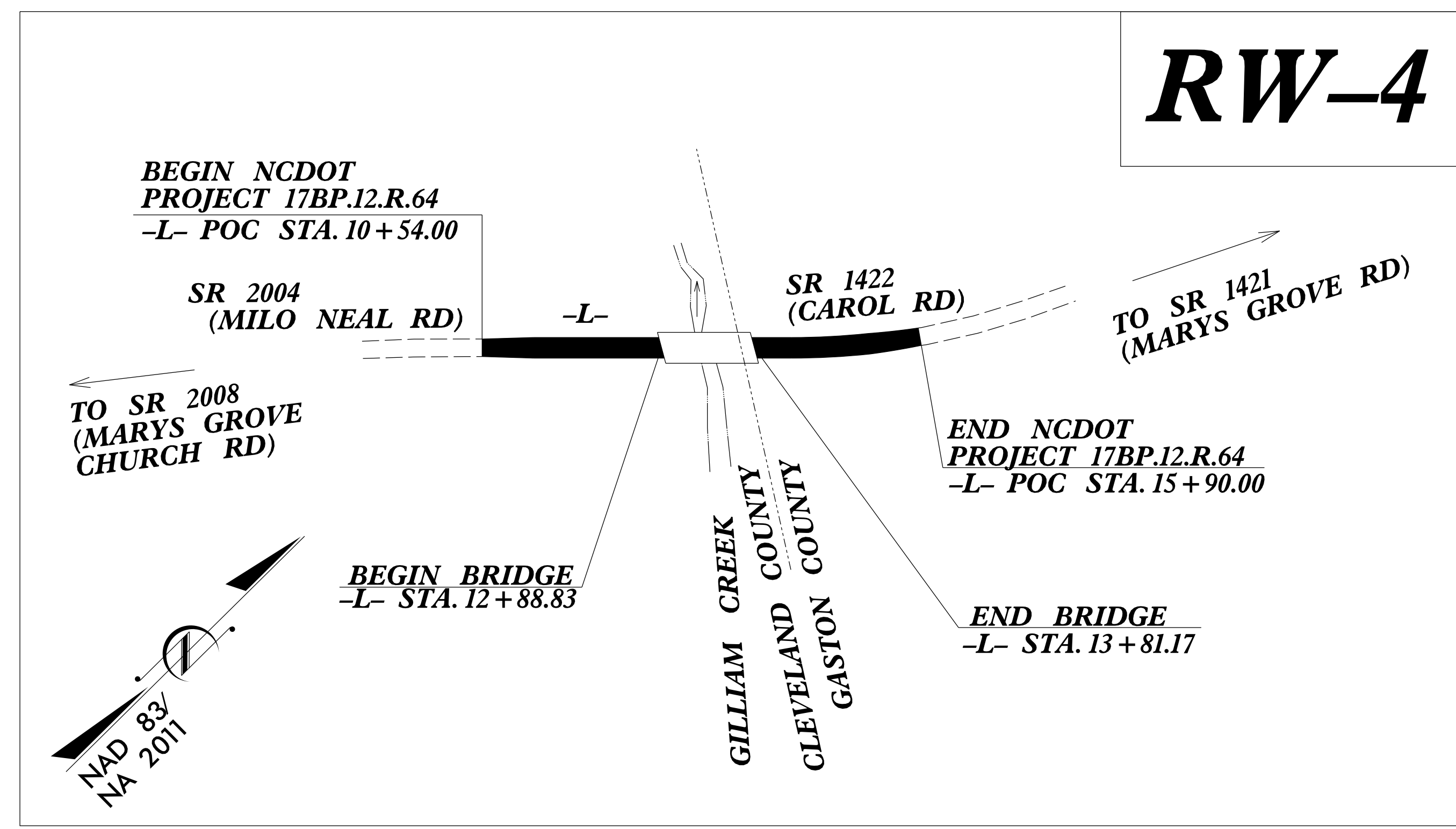
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.12.R.64	RW01	

TIP PROJECT: 17BP.12.R.64

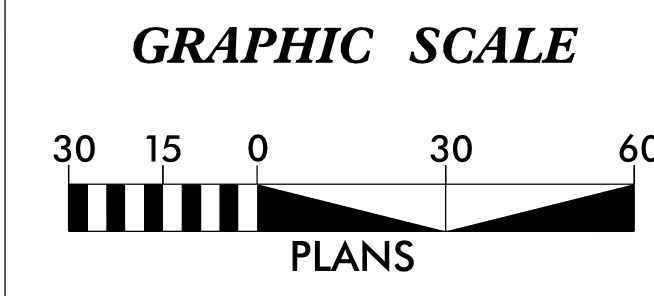
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES,
 RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

GASTON COUNTY



21-SEP-2022 12:53 P:\2021\NCDOT Location and Surveys\350354 RW Staking 22168.30\80-Drawings\FOR REVIEW\revised\350354_ls_r_w01.dgn amoor AT RAL-WS094



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "350354 GPS-2" WITH NAD 83/NSRS XXXX STATE PLANE GRID COORDINATES OF NORTHING: 589,991.464(ft) EASTING: 1,287,664.522(ft) ELEVATION: 806.70(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999840143

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "350354 GPS-2" TO -L- STATION 10+00.00 IS S 46-04'42.3" W 403.58(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 License No. F-0377
 Bus: 919 851 8077
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 7, 2022

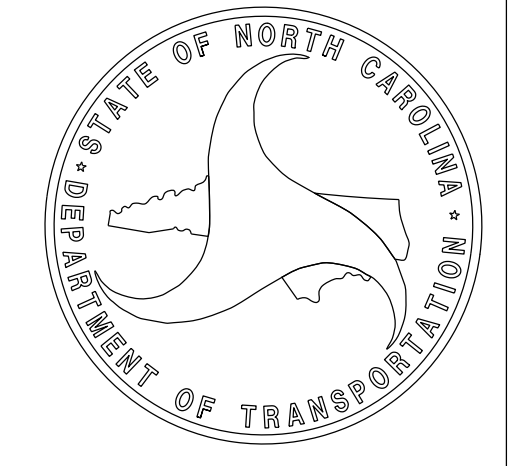
LETTING DATE:
MAY 23, 2023

PROFESSIONAL LAND SURVEYOR

DocuSigned by:
 Anthony K. Alford
 228A2982F6BA4E

9/21/2022

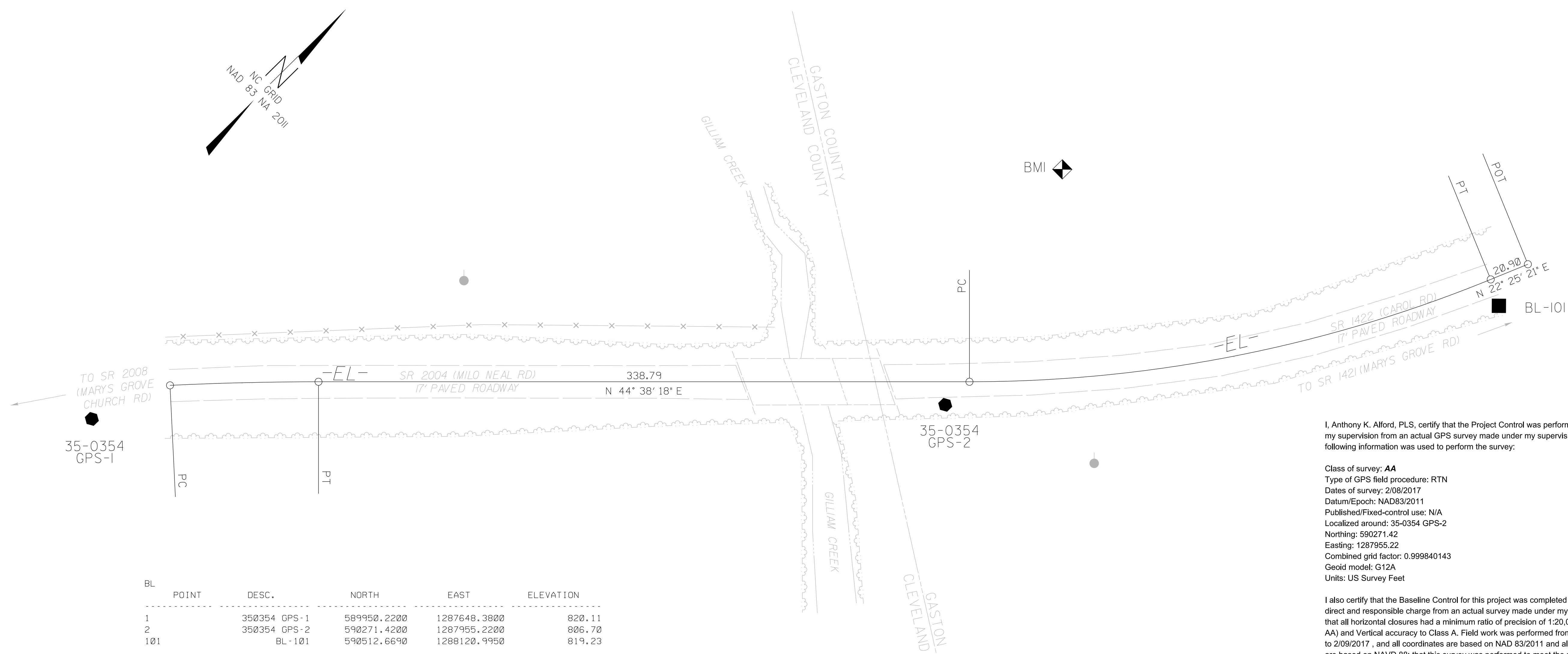
SIGNATURE: _____ Date: _____



SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. BP7.12.R.64	SHEET NO. RW02C-1
Location and Surveys	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</small>	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



BL	POINT	DESC.	NORTH	EAST	ELEVATION
1	350354	GPS-1	589950.2200	1287648.3800	820.11
2	350354	GPS-2	590271.4200	1287955.2200	806.70
101		BL-101	590512.6690	1288120.9950	819.23

.....
 BMI ELEVATION = 806.45
 N 590401 E 1287911
 BENCHTIE NAIL SET IN 13' OAK

I, Anthony K. Alford, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
 Type of GPS field procedure: RTN
 Dates of survey: 2/08/2017
 Datum/Epoch: NAD83/2011
 Published/Fixed-control use: N/A
 Localized around: 35-0354 GPS-2
 Northing: 590271.42
 Easting: 1287955.22
 Combined grid factor: 0.999840143
 Geoid model: G12A
 Units: US Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and vertical accuracy to Class A. Field work was performed from 2/08/2017 to 2/09/2017, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 20th day of September, 2022.

DocuSigned by:

 228A282F08A44E
 Professional Land Surveyor L-4372

EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
	PC	589991.464	1287664.522							
	CURVE			N 43°15'21.4" E	77.31	02°45'52.6"(RT)	03°34'32.9"	77.31	38.66	1602.32
	PT	590047.767	1287717.497							
	LINE			N 44°38'17.7" E	338.79					
	PC	590288.834	1287955.540							
	CURVE			N 33°31'49.3" E	276.48	22°12'56.8"(LT)	07°59'06.0"	278.22	140.88	717.54
	PT	590519.306	1288108.261							
	LINE			N 22°25'20.9" E	20.90					
	POT	590538.625	1288116.233							

NOTES:

- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.



REVISIONS

21-SEP-2022 12:54 Location and Surveys\350354 RW
 P:\2021\11\01\Drawings\350354_1s_rw02c-1.dgn
 Staking 22158.30\80-Drawings\350354_1s_rw02c-1.dgn
 AT RAL-WS094

REVISIONS

P:\SFB\2022\0730\001\Location and Surveys\350354 RM Staking 22158.30\80-Drawings\RW Sheets\350354_1s_rw02d-1.dgn
BY: [Signature] AT: RAJ-KVS094
enore

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.64	RW02D-1
Location and Surveys	
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Anthony K. Alford, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 19th day of September, 2022.

DocuSigned by:
Anthony K. Alford
22BA2982F0BA44E...

Professional Land Surveyor L-4372



L

TYPE	STATION	NORTH	EAST
PC	10+00.00	589991.4640	1287664.5220
PT	10+77.31	590047.7667	1287717.4973
PC	14+16.10	590288.8343	1287955.5399
PT	16+94.32	590519.3059	1288108.2614
POT	17+15.22	590538.6247	1288116.2329

NOTES:

- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.64	RW03E-1
Location and Surveys	
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</small>	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS

P:\SEP-2022\10457_Location and Surveys\350354_RM Staking 22158.30\80-Drawings\FOR REVIEW\revised\350354_1s_rw03e-1.dgn
21-SEP-2022 10:57 AM RAJ-WS094

ROW MARKER IRON PIN AND CAP

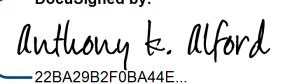
ALIGN	STATION	OFFSET	NORTH	EAST
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L	11+00.00	-30.00	590084.9876	1287712.0900
L	11+00.00	50.00	590028.7773	1287769.0146
L	11+50.00	-60.00	590141.6443	1287725.8747
L	11+50.00	45.00	590067.8683	1287800.5882
L	12+00.00	-45.00	590166.6827	1287771.6795
L	14+16.10	45.00	590257.2160	1287987.5599
L	14+16.10	-45.00	590320.4526	1287923.5198
L	14+50.00	45.00	590283.4362	1288012.2556
L	14+50.00	30.00	590293.4599	1288001.0965
L	14+50.00	-45.00	590343.5781	1287945.3007
L	14+50.00	-30.00	590333.5545	1287956.4599

PERMANENT EASEMENT MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+34.66	-52.48	590196.6032	1287790.7121
L	12+34.66	-45.00	590191.3474	1287796.0347
L	14+41.74	-45.93	590338.4743	1287939.4115
L	14+42.86	-61.51	590349.7724	1287928.6322
L	14+52.40	-44.85	590345.1549	1287946.9096
L	14+53.80	-60.76	590356.7007	1287935.8940
L	15+83.68	-30.00	590436.2459	1288032.7099



I, Anthony K. Alford, PLS, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 9/13/2022 to 9/15/2022, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of September, 2022.

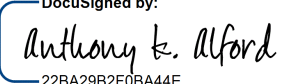
DocuSigned by:

 22BA2962F8044E
 Professional Land Surveyor L-4372

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 9/13/2022 TO 9/15/2022 .

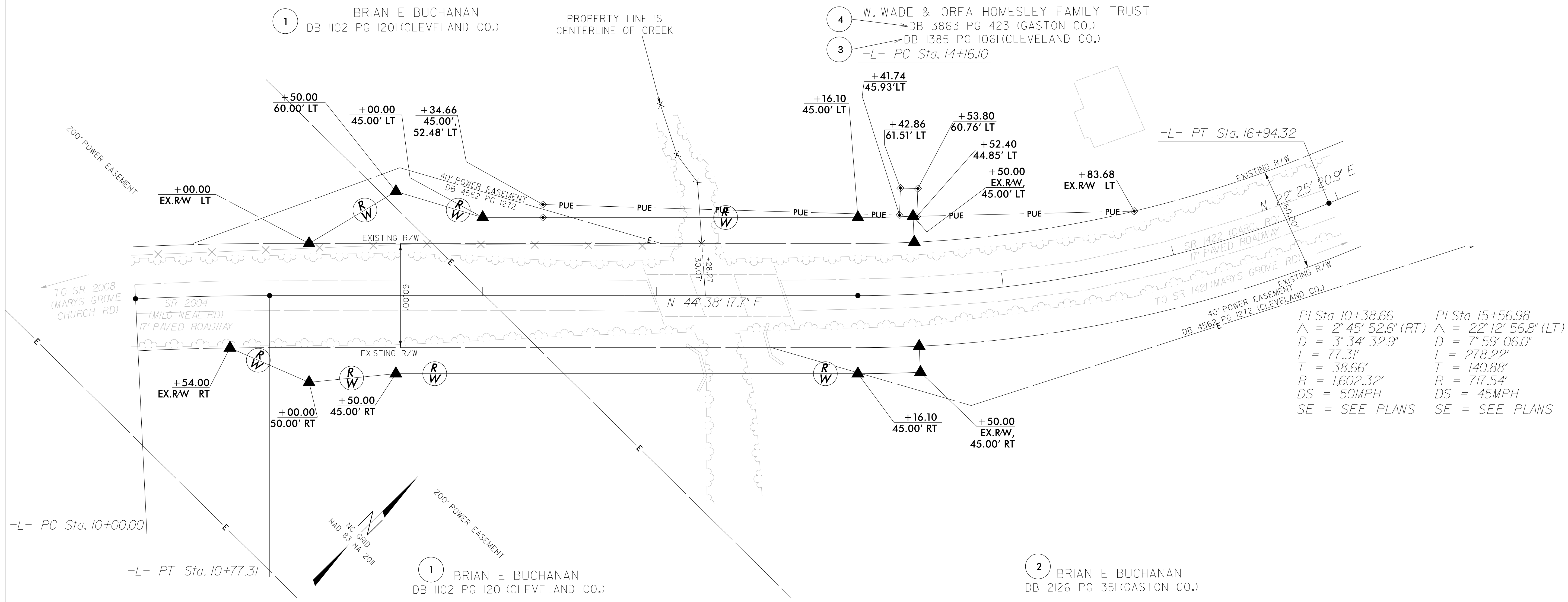
PROJECT REFERENCE NO. 17BP.12.R.64	SHEET NO. RW-4
Location and Surveys	
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Anthony K. Alford, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 9/13/2022 to 9/15/2022, and all coordinates are based on NAD83/2011. That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of September, 2022.
 DocuSigned by:

 228A282F9BA44E...
 Professional Land Surveyor L-4372

REVISIONS

P:\SEP-2022\10458\Location and Surveys\350354 RM Staking 22158.30\80-Drawings\FOR REVIEW\revised\350354_1s_rw_04.dgn
 P:\SEP-2022\10458\Location and Surveys\350354 RM Staking 22158.30\80-Drawings\FOR REVIEW\revised\350354_1s_rw_04.dgn
 AT RAL-WS914



PI Sta 10+38.66	PI Sta 15+56.98
$\Delta = 2^\circ 45' 52.6''$ (RT)	$\Delta = 22^\circ 12' 56.8''$ (LT)
D = 3' 34' 32.9"	D = 7' 59' 06.0"
L = 77.31'	L = 278.22'
T = 38.66'	T = 140.88'
R = 1,602.32'	R = 717.54'
DS = 50MPH	DS = 45MPH
SE = SEE PLANS	SE = SEE PLANS

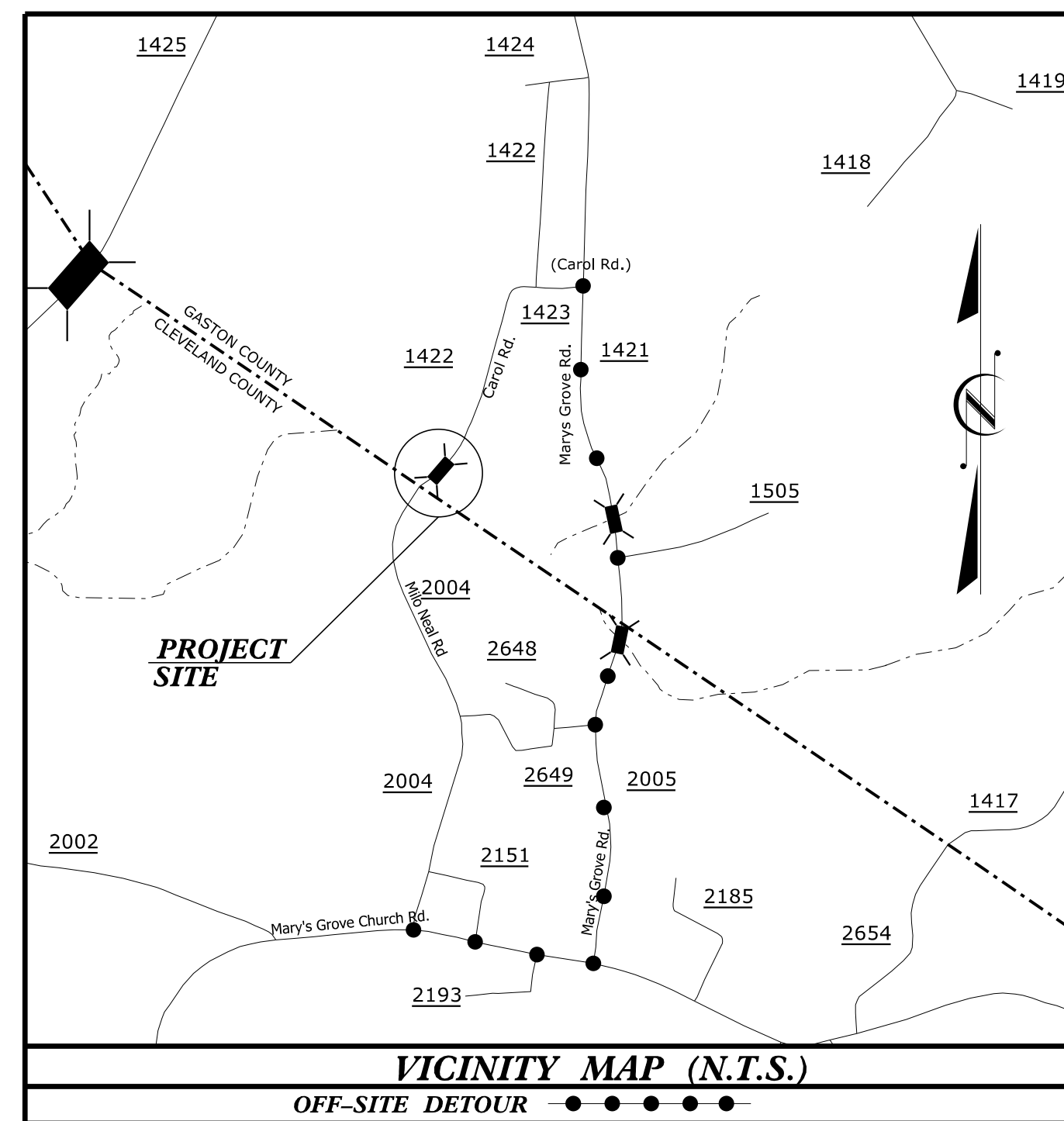
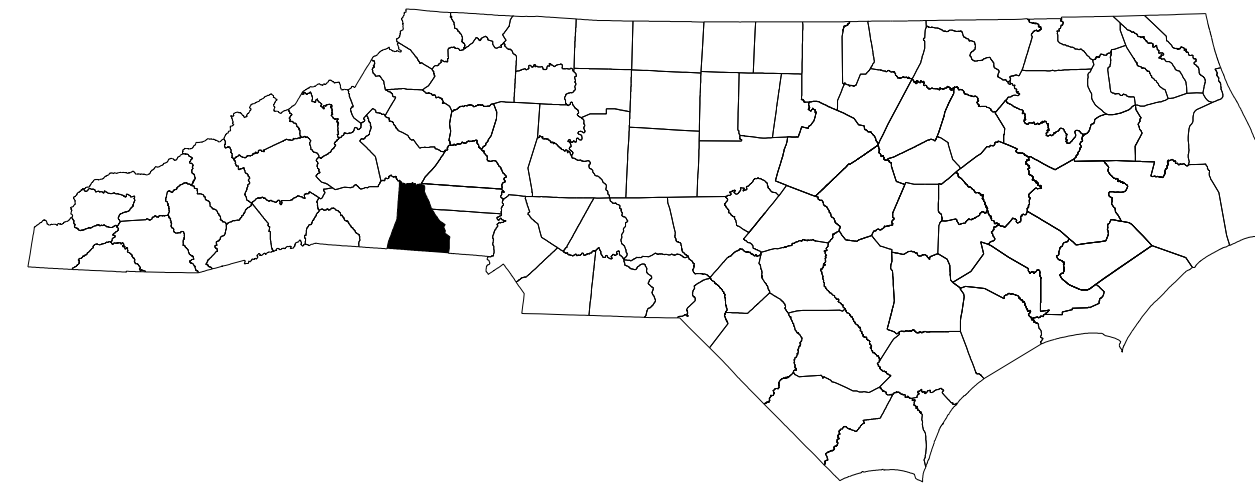
NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 9/13/2022 TO 9/15/2022 .

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GASTON COUNTY



**LOCATION: BRIDGE NO. 350354 OVER GILLIAM CREEK
ON SR 1422 (CAROL RD.)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-01	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-01A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-01B	SIGN AND DEVICE LEGEND
TMP-02	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES) AND PHASING
TMP-03	SPECIAL SIGN DESIGN
TMP-04	OFFSITE DETOUR

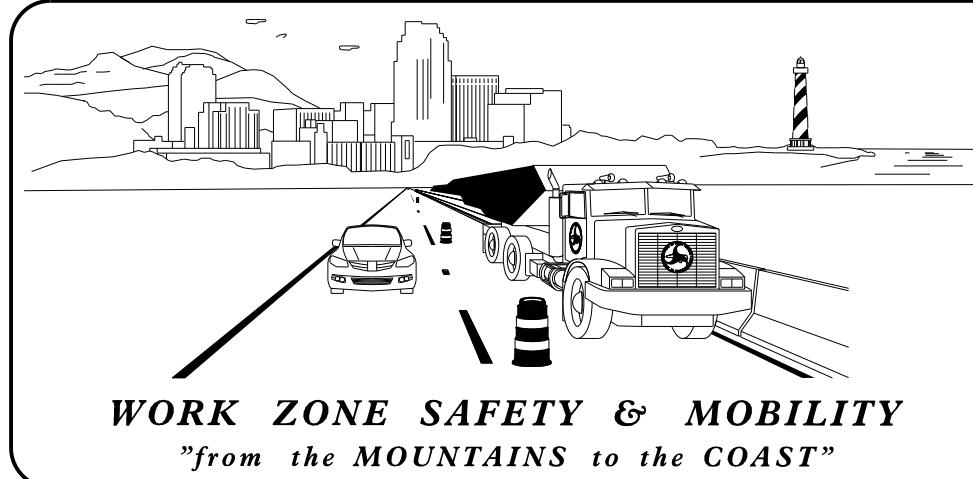
SHEET NO.

TMP-01

17BP.12.R.64

TIP PROJECT:

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

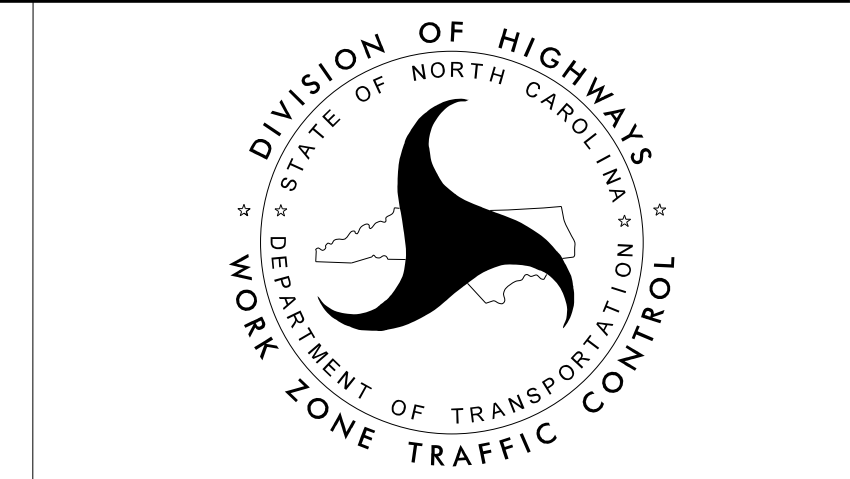


PLANS PREPARED BY:
GREG PURVIS, P.E.

D. ALLEN HAYES, E.I.

NCDOT CONTACTS:
ZACHARY CLARK, P.E.
PROJECT ENGINEER

KARMEN DIAS, P.E.
PROJECT DESIGN ENGINEER



BRIDGE #350354

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-6377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: Greg S. Purvis
DATE: 10/18/2023

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 22999
ENGINEER GREG S. PURVIS

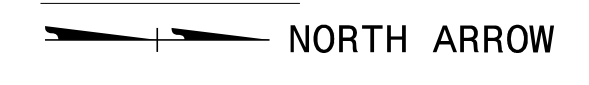
ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

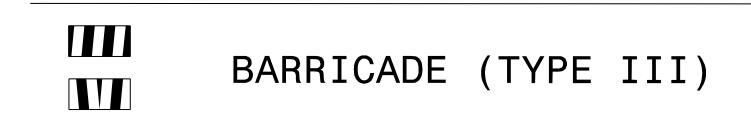
STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

LEGEND

GENERAL



TRAFFIC CONTROL DEVICES

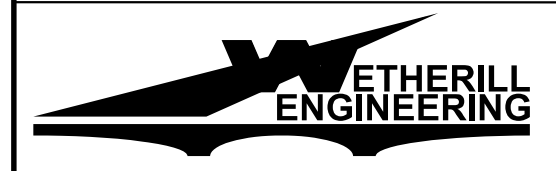


TEMPORARY SIGNING



10/18/2023
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User: AHayes

BRIDGE #350354



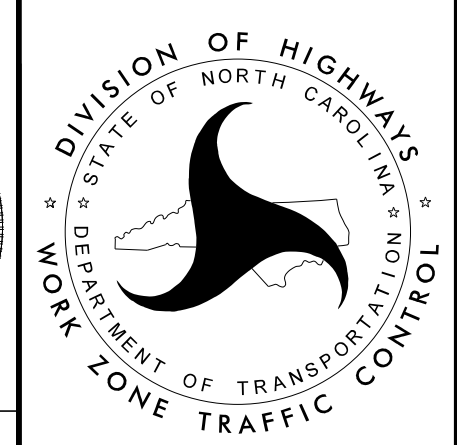
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

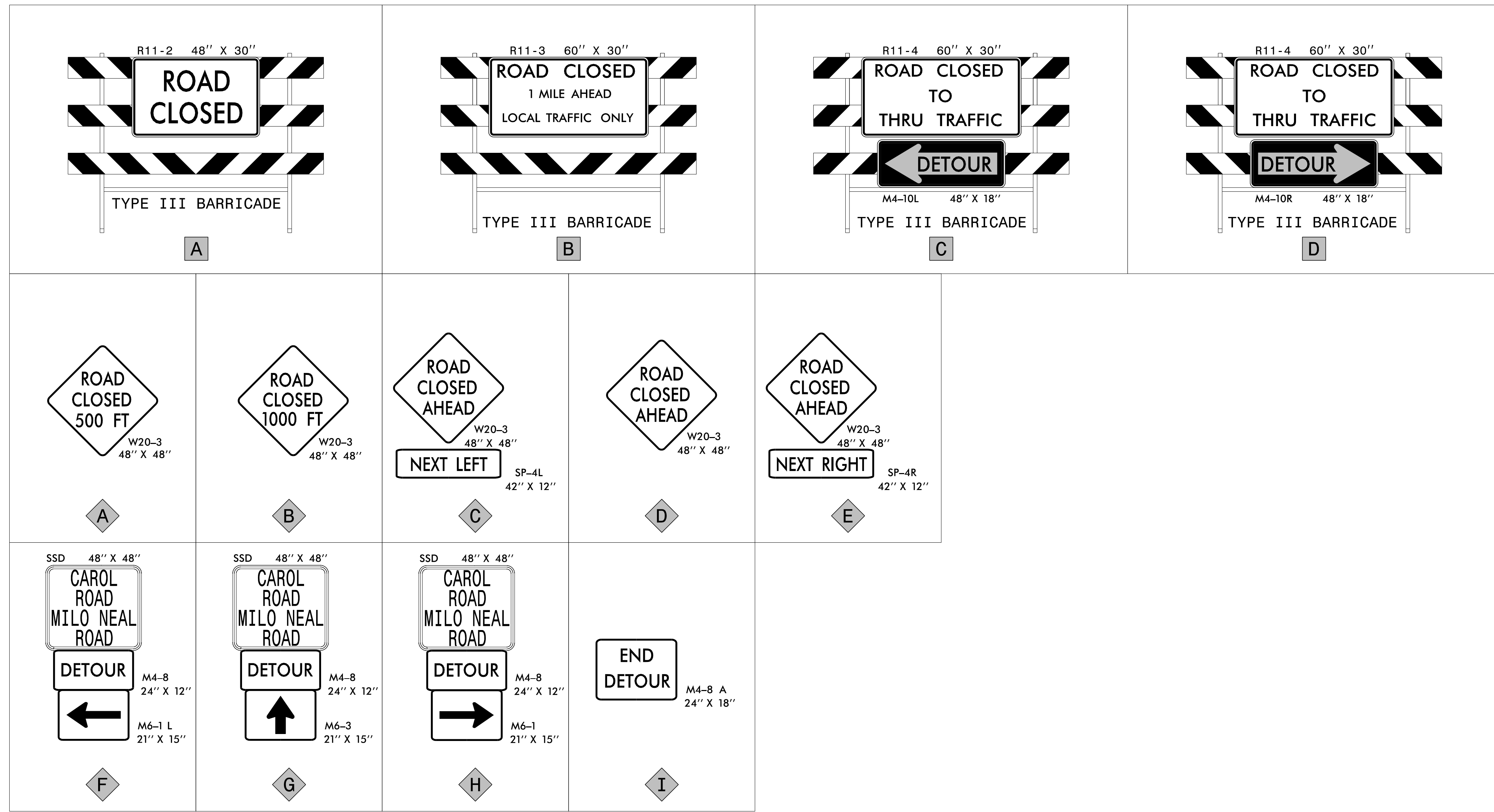
APPROVED: *Greg S. Purvis*
DATE: 10/18/2023



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



**ROADWAY STANDARD
DRAWINGS & LEGEND**



10/18/2023
P:\2017\1707\GASTON_354\Traffic\Traffic Design\Design\Pre-Let\Plan\WZTC\Sheets\17BP.12.R.64_TMP_01B_SDL.dgn
User: AHayes

X BARRICADES
-WITH MOUNTED SIGNING

X SIGNING
-STATIONARY MOUNTED

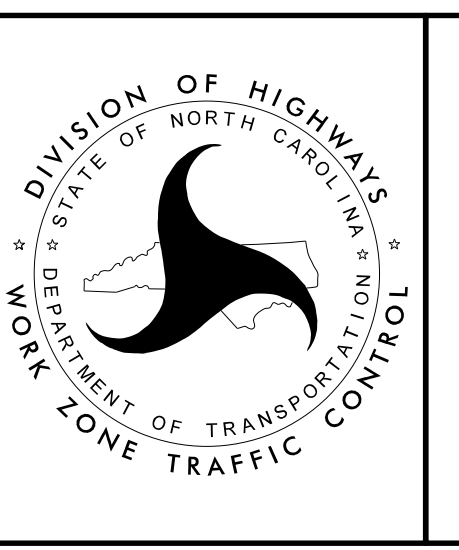
BRIDGE #350354

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Greg S. Purvis*
DATE: 10/18/2023

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



SIGN AND DEVICE LEGEND

PROJ. REFERENCE NO.	SHEET NO.
17BP.12.R.64	TMP-02

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

- A) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

AND

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

AND

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

- D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- E) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

MANAGEMENT STRATEGIES

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:
ONE-LANE, TWO WAY OPERATION (FLAGGING)
OFF-SITE DETOURS

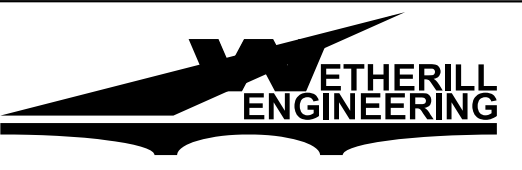
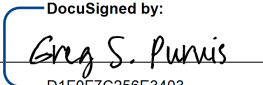
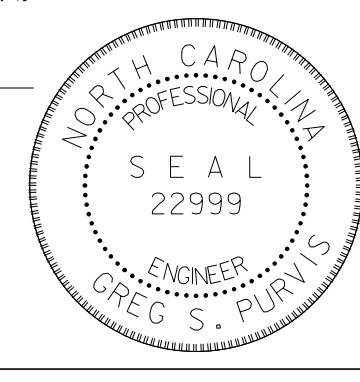

LOCAL NOTES

- 1) IN ORDER TO HAVE TIME TO ADEQUATELY REROUTE SCHOOL BUSESSES, GASTON COUNTY SCHOOLS WILL BE CONTACTED AT (704) 866-6180 AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.
- 2) GASTON COUNTY EMERGENCY MANAGEMENT WILL BE CONTACTED AT (704) 866-3212 LEAST ONE MONTH PRIOR TO ROAD CLOSURE TO MAKE THE NECESSARY TEMPORARY REASSIGNMENTS TO PRIMARY RESPONSE UNITS.
- 3) IN ORDER TO HAVE TIME TO ADEQUATELY REROUTE SCHOOL BUSESSES, CLEVELAND COUNTY SCHOOLS WILL BE CONTACTED AT (704) 476-8215 AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.
- 4) CLEVELAND COUNTY EMERGENCY MANAGEMENT WILL BE CONTACTED AT (704) 484-4841 LEAST ONE MONTH PRIOR TO ROAD CLOSURE TO MAKE THE NECESSARY TEMPORARY REASSIGNMENTS TO PRIMARY RESPONSE UNITS.

PHASING

- STEP 1) INSTALL ALL OFFSITE DETOUR SIGNING AND ROAD CLOSURE SIGNING. COVER SIGNS USING AN APPROVED METHOD PER THE DISCRETION OF THE ENGINEER. INSTALL SIGN ASSEMBLY "G" ON EACH SIDE OF THE COUNTY LINE ON SR 1421/SR 2005 (MARY'S GROVE RD). [SEE SHEETS TMP-01B & 04]
- STEP 2) WHEN READY TO CLOSE THE ROADWAY, UNCOVER THE DETOUR AND ROAD CLOSURE SIGNING, CLOSE -L- (SR 1422/SR 2004), AND DETOUR TRAFFIC. [SEE SHEETS TMP-01B & 04]
- STEP 3) AWAY FROM TRAFFIC, REMOVE EXISTING BRIDGE, AND CONSTRUCT PROPOSED -L- STRUCTURE AND APPROACHES FROM THE BEGIN PROJECT LIMITS TO THE END PROJECT LIMITS UP TO AND INCLUDING THE FINAL LIFT OF SURFACE COURSE, AND FINAL PAVEMENT MARKINGS. [SEE ROADWAY PLANS AND FINAL PAVEMENT MARKING PLAN]
- STEP 4) OPEN -L- TO THE FINAL TRAFFIC PATTERN, AND REMOVE ALL ROAD CLOSURE SIGNING, OFFSITE DETOUR SIGNING, TEMPORARY TRANSPORTATION MANAGEMENT DEVICES. [SEE SHEET TMP-04 FOR SIGN LOCATIONS]

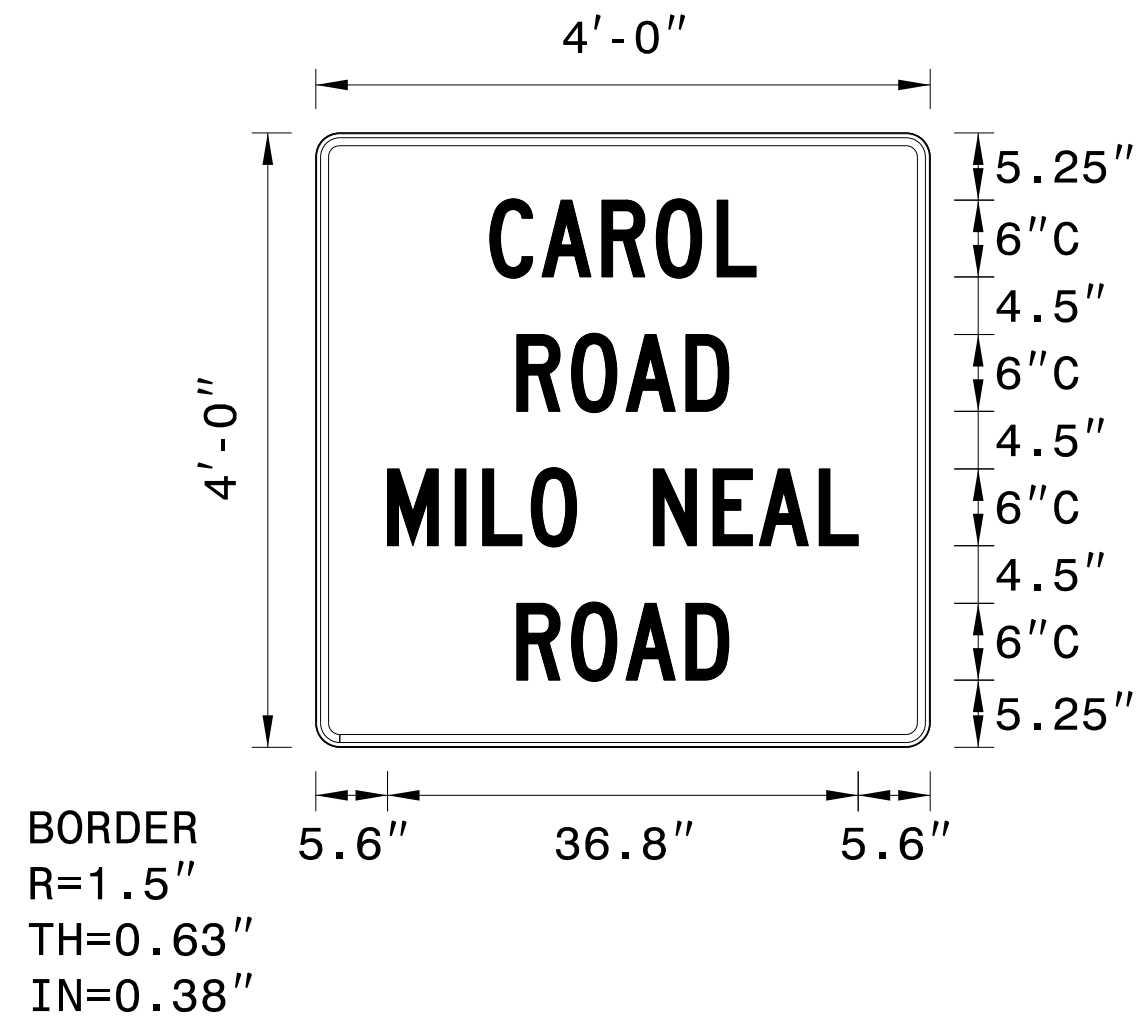
10/18/2023
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User: AHayes

	<p style="text-align: center;">BRIDGE #350354</p>  <p>1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107</p> <p>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</p>	<p>APPROVED:  DATE: 10/18/2023</p>  <p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>		<p style="text-align: center;">PROJECT NOTES AND PHASING</p>
--	---	---	---	--

SIGN NUMBER: name TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 4'-0" HEIGHT: 4'-0" TOTAL AREA: 16.0 Sq.Ft. BORDER TYPE: INSET RECESS: 0.38" WIDTH: 0.63" RADII: 1.5" NO. Z BARS: 2 LENGTH: 40.0	BACKG COLOR: Fluorescent Orange COPY COLOR: Black <table border="1"> <thead> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> MAT'L: 0.080" (2.0 mm) ALUMINUM	SYMBOL	X	Y	WID	HT																															DESIGN BY: DAH PROJECT ID: 17BP.12.R.64 CHECKED BY: WEI LOCATION: OFFSITE DETOUR May 4, 2022 DIV: 12
SYMBOL	X	Y	WID	HT																																	

USE NOTES: 1,2

- Legend and border shall be direct applied black non-reflective sheeting.
- Background shall be NC GRADE B fluorescent orange retroreflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

													Series/Size Text Length		
C	A	R	O	L											C 2000
13.6	17.7	22.4	26.6	31.4											20.8
R	O	A	D												C 2000
15.7	20	24.2	28.9												16.6
M	I	L	O		N	E	A	L							C 2000
5.6	10.9	13.1	16.8	20.4	26.4	31.1	34.7	39.3							36.8
R	O	A	D												C 2000
15.7	20	24.2	28.9												16.6

FILENAME: Gaston354_BTMP_BSSD NORTH CAROLINA D.O.T. SIGN DETAIL

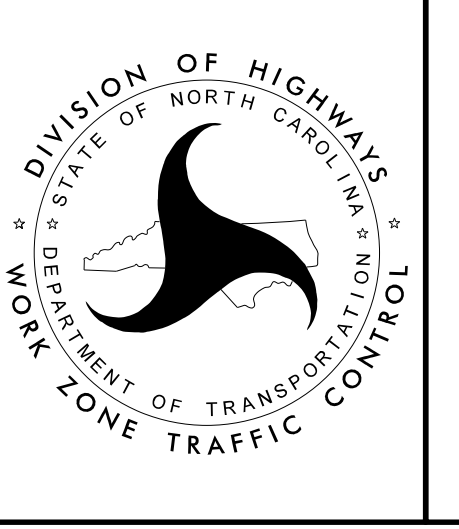
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BRIDGE #350354

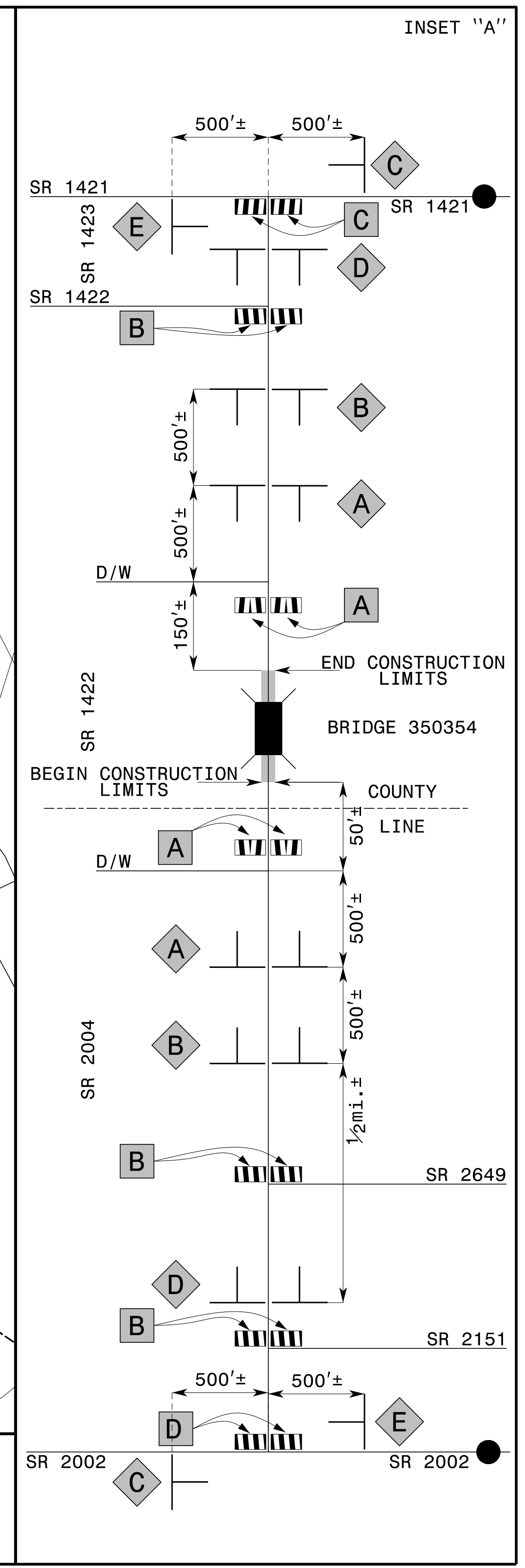
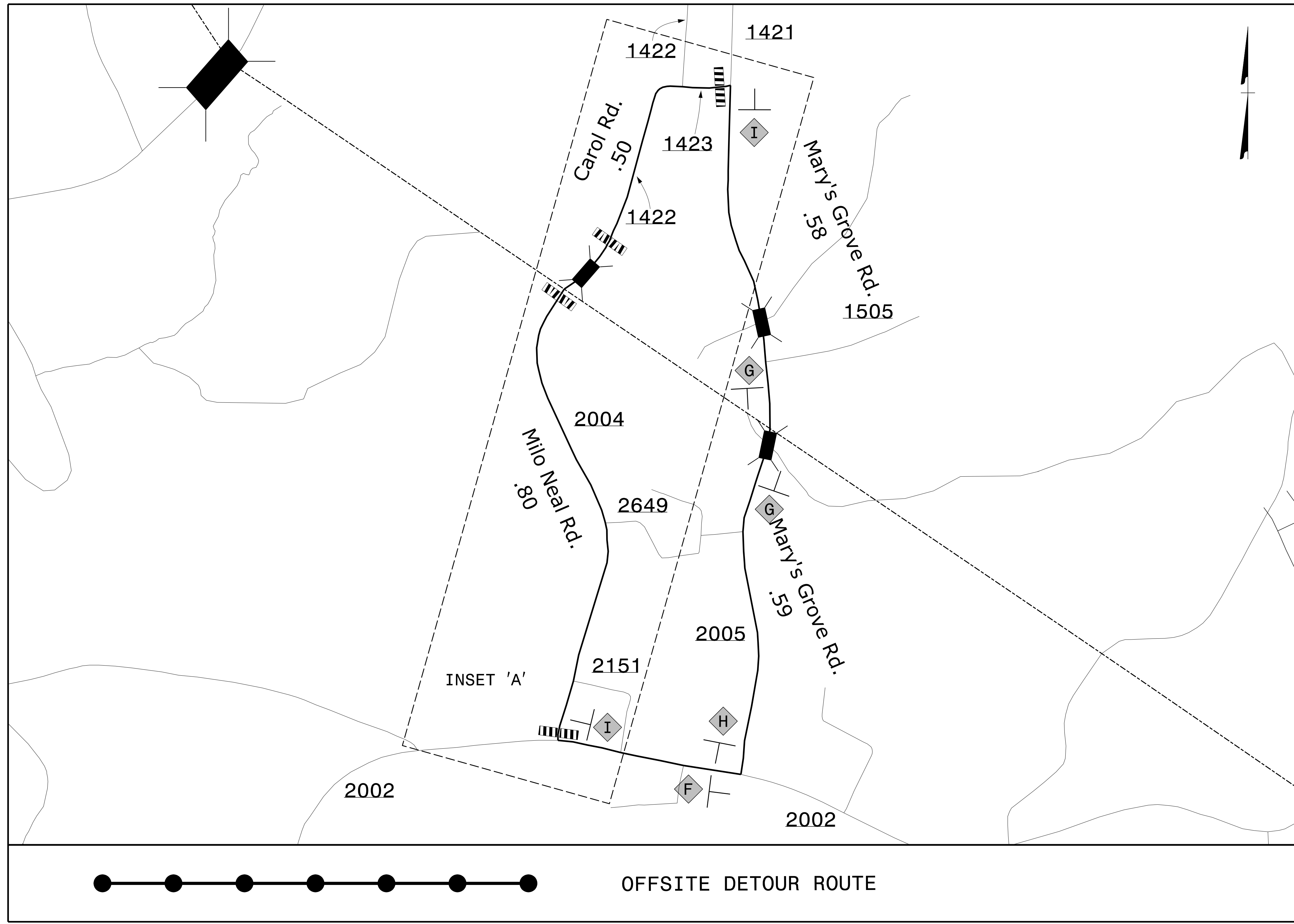
1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
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 Fax: 919 851 8107
 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Greg S. Purvis*
 DATE: 10/18/2023

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UNLESS ALL SIGNATURES COMPLETED**



SPECIAL SIGN DESIGN



10/18/2023
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 User: AHayes

NOTES:

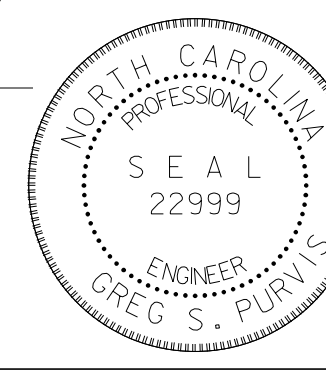
- 1) REFER TO SHEET TMP-01B FOR SIGN AND DEVICE LEGEND.
- 2) FOR INSET "A", REFER TO ROADWAY STANDARD DRAWINGS 1101.03, SHEETS 1 & 2 OF 9 FOR APPLICABLE NOTES.

BRIDGE #350354

ETHERILL ENGINEERING

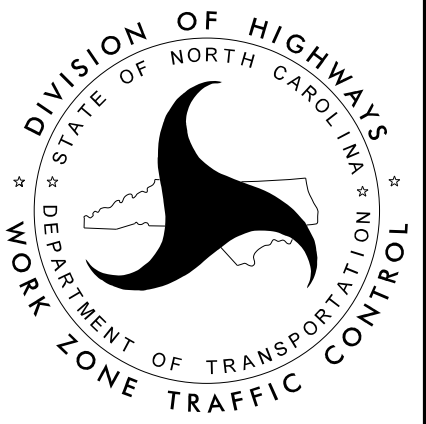
1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 License No. F-0377
 Bus: 919 851 8077
 Fax: 919 851 8107

APPROVED: *Greg S. Purvis*
DocuSigned by: Greg S. Purvis
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 DATE: 10/18/2023

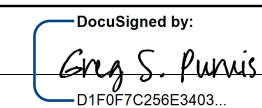
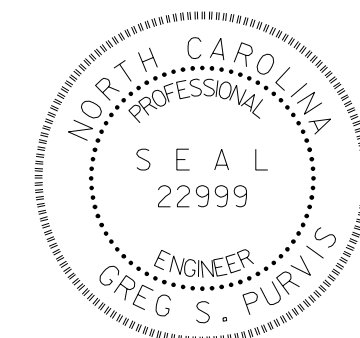

 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 ENGINEER
 GREG S. PURVIS

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

OFFSITE DETOUR



NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 WORK ZONE TRAFFIC CONTROL

TIP NO. 17BP.12.R.64	SHEET NO. PMP-01
APPROVED:  DATE: 10/18/2023	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN
GASTON COUNTY**

CONTRACT: NA T.I.P.: 17BP.12.R.64

INDEX

SHEET NO.	DESCRIPTION
PMP-01	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP-02	PAVEMENT MARKING DETAIL

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

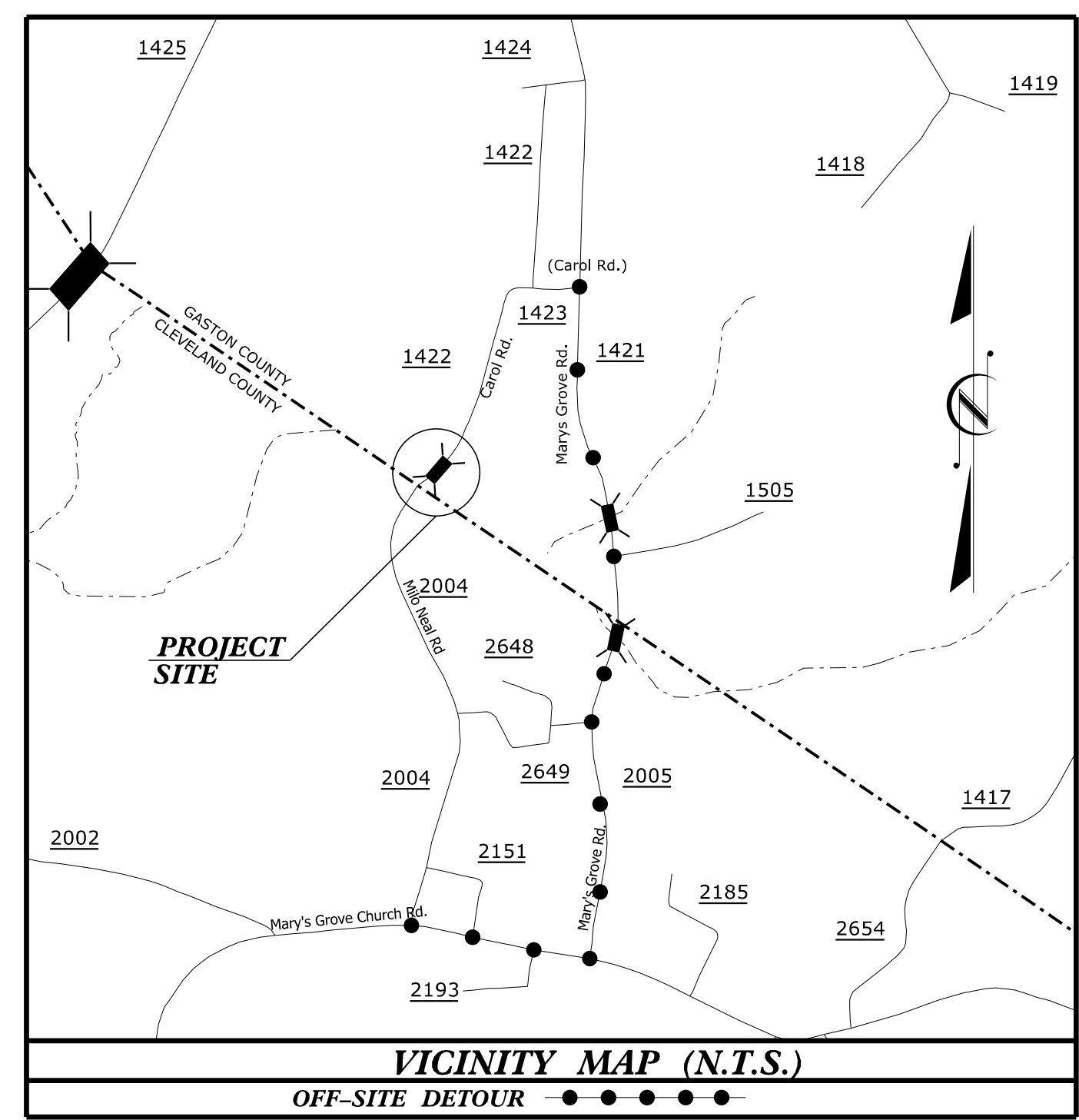
THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1422/ SR 2004	PAINT	NONE
- B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.
- C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.
- F) ALL STATIONS ARE CONSIDERED PLUS/MINUS (+/-).

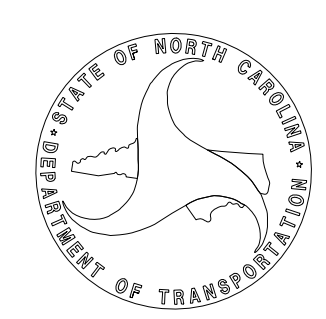
FINAL PAVEMENT MARKING SCHEDULE


SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY
P1	WHITE SOLID EDGE/LANE LINE	PAINT (4")	2340 LF
P13	YELLOW DOUBLE CENTER	PAINT (4")	2340 LF




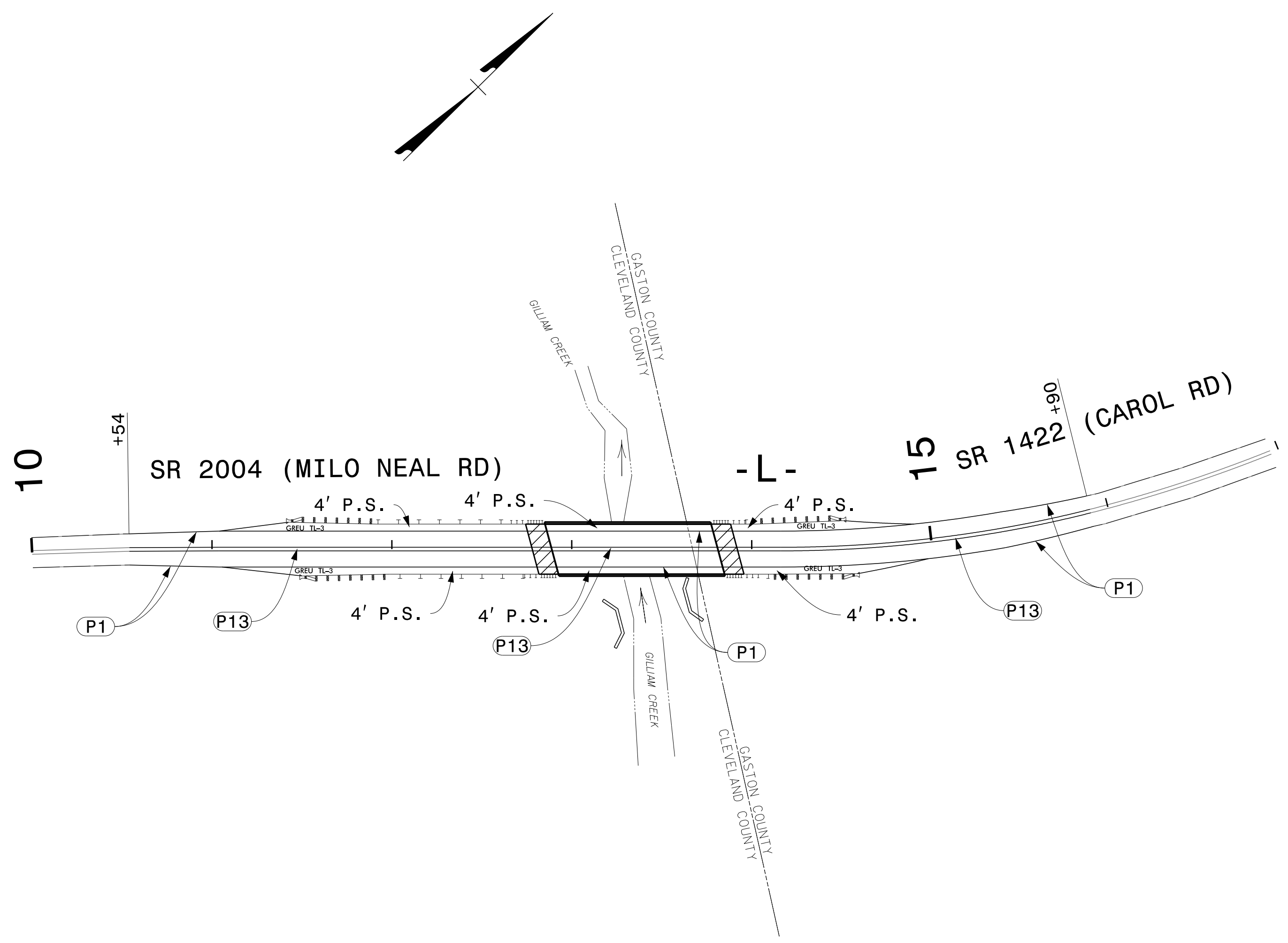
**LOCATION: BRIDGE NO. 350354 OVER GILLIAM CREEK
ON SR 1422 (CAROL RD.)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

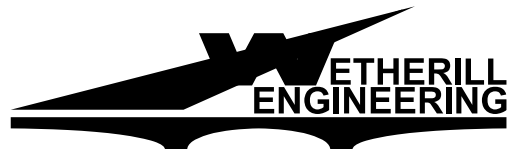
PLAN SUBMITTED TO: Kelvin L. Jordan, PE, Signing and Delineation Regional Engineer	
---	---

PLAN PREPARED BY: <i>Wetherill Engineering, Inc.</i> GREG PURVIS, P.E. PROJECT MANAGER D. ALLEN HAYES, E.I. TRAFFIC DESIGN ENGINEER	BRIDGE #350354  1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107 <small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</small>
---	--

TIP NO.	SHEET NO.
TIP#	PMP - 02
APPROVED: <i>Greg S. Purvis</i> 10/18/2023	
DATE: 10/18/2023	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



10/18/2023
 PX 2017/177.01_GASTON_35A_Traffic_Design\Traffic_Design\Design\Pre-Let\Plan\Pavement_Markings\Sheets\TBP.12.R.64_PMP_02.dgn
 User: AHoyes


**WETHERILL
ENGINEERING**
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 License No. F-0377
 Bus: 919 851 8077
 Fax: 919 851 8107
 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PAVEMENT MARKING DETAIL

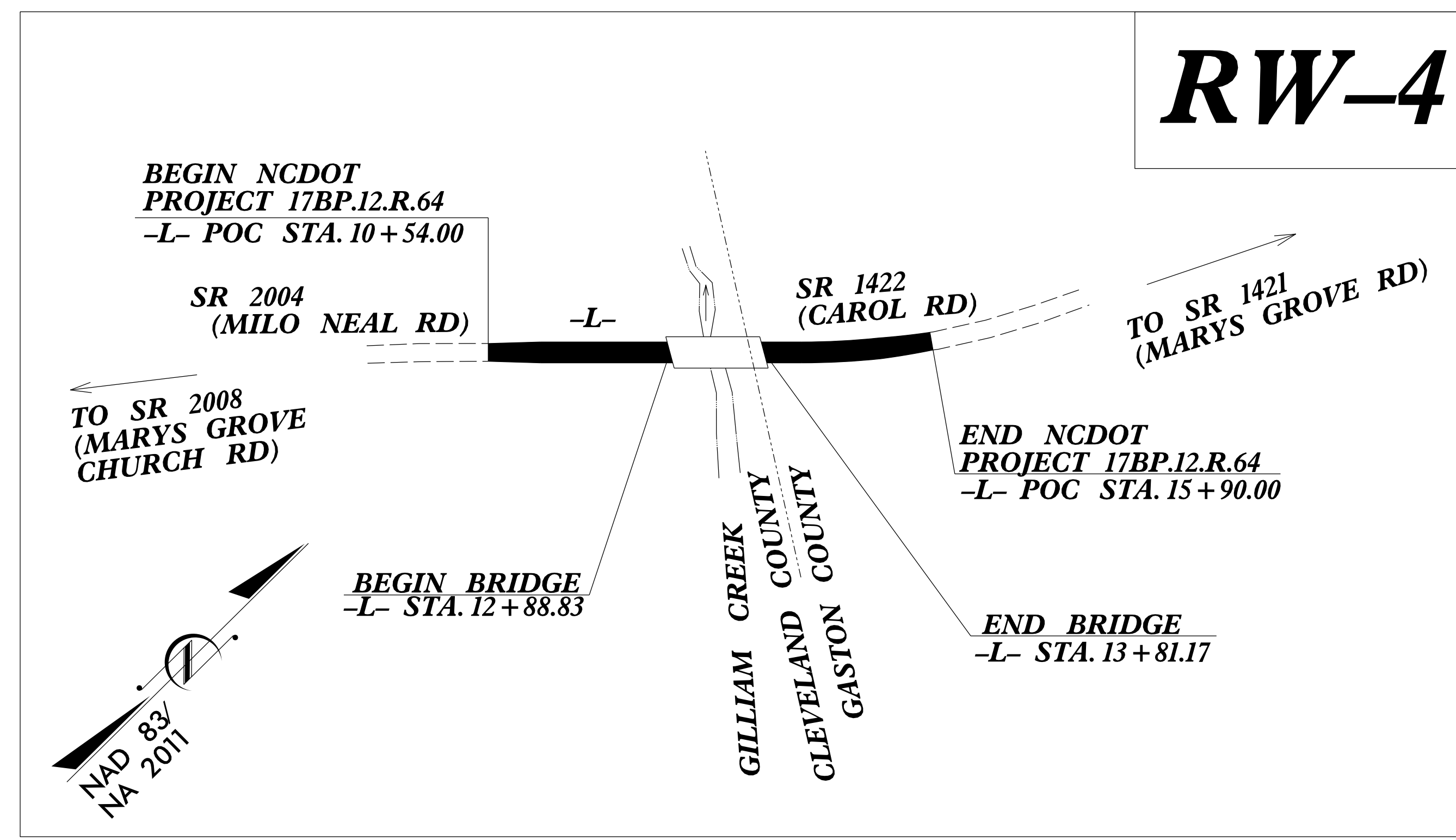
TIP PROJECT: 17BP.12.R.64

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.12.R.64	RW01	

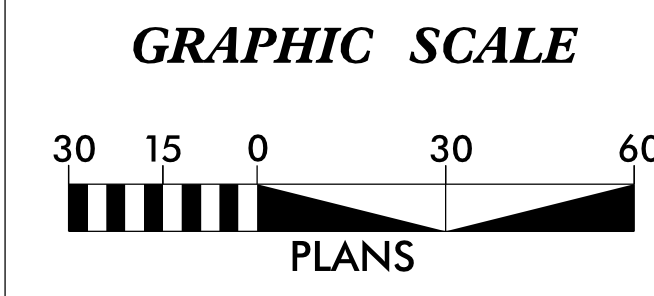
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

GASTON COUNTY



\$\$\$\$\$ SYSTEM \$\$\$\$\$\$
\$\$\$\$\$ DDN \$\$\$\$\$\$
\$\$\$\$\$ USERNAME \$\$\$\$\$\$



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "350354 GPS-2" WITH NAD 83/NSRS XXXX STATE PLANE GRID COORDINATES OF NORTHING: 589,991.464(ft) EASTING: 1,287,664.522(ft) ELEVATION: 806.70(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999840143

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GRID DISTANCE FROM "350354 GPS-2" TO -L- STATION 10+00.00 IS S 46-04'42.3" W 403.58(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

2018 STANDARD SPECIFICATIONS

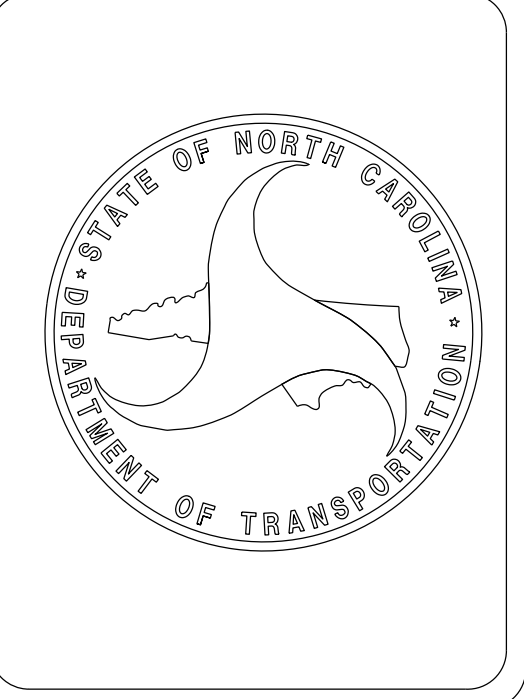
RIGHT OF WAY DATE:
JUNE 7, 2022

LETTING DATE:
DECEMBER 12, 2023

PROFESSIONAL LAND SURVEYOR

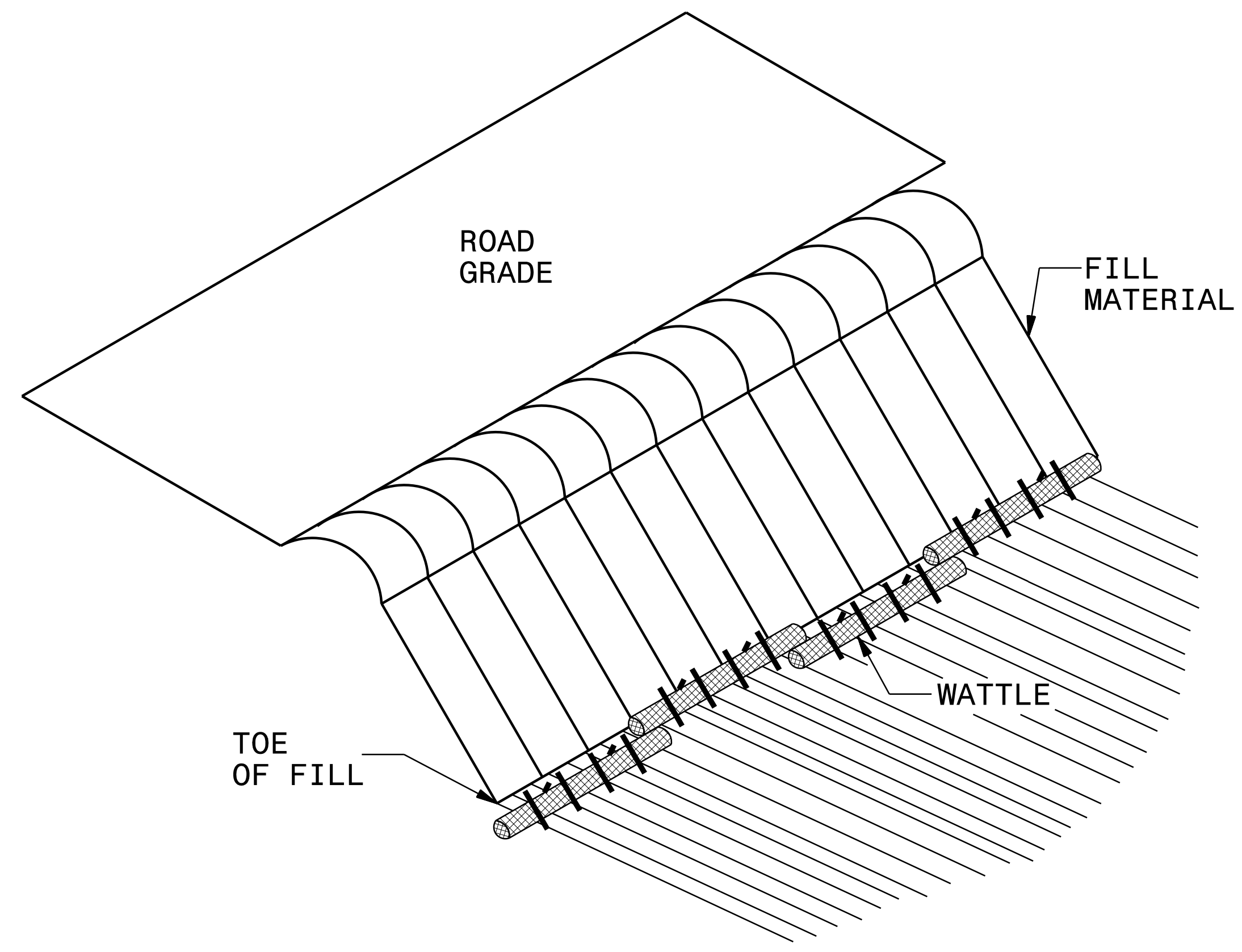
DocuSigned by:
Anthony K. Alford
10/13/2023

SIGNATURE: _____ Date: _____



PROJECT REFERENCE NO. 17BP12.R.64	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

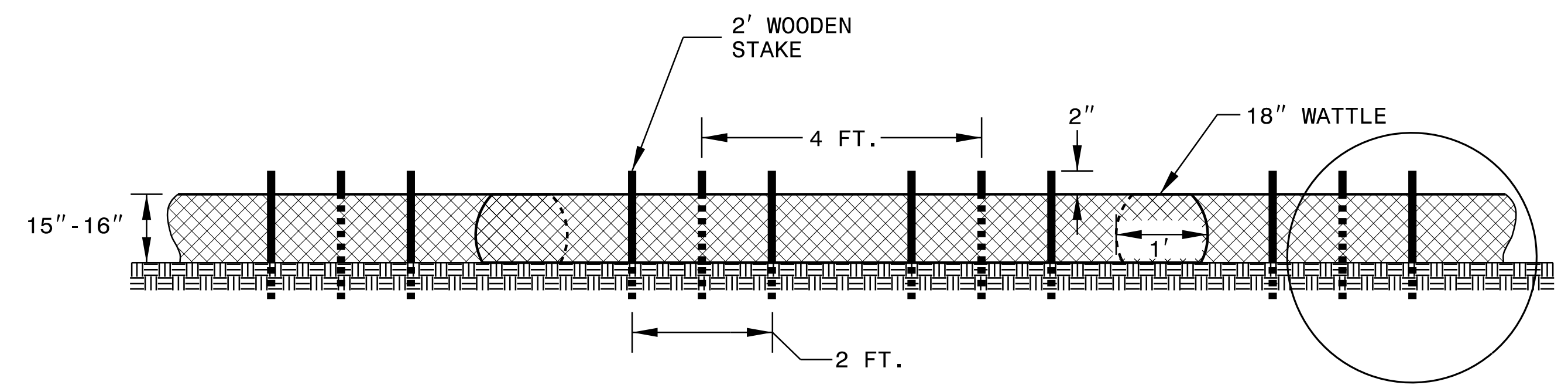
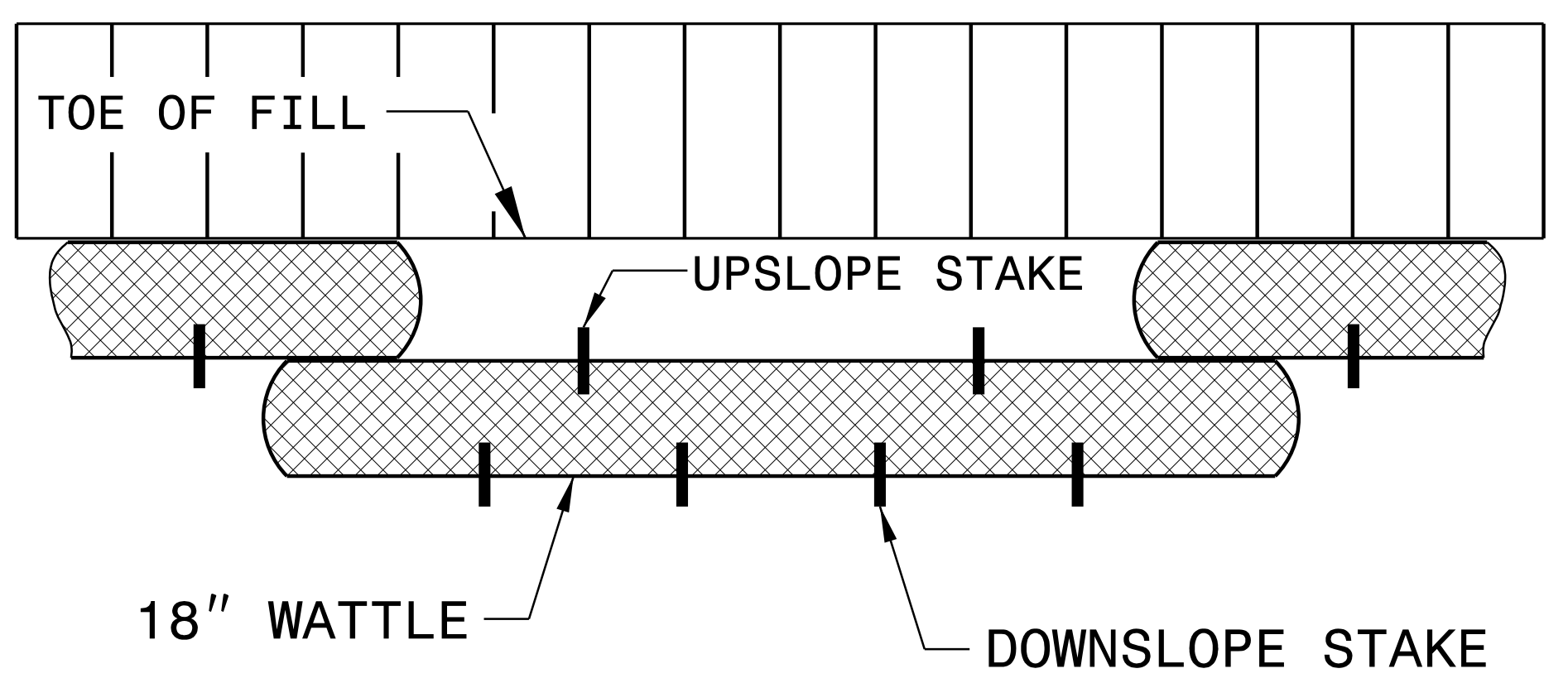
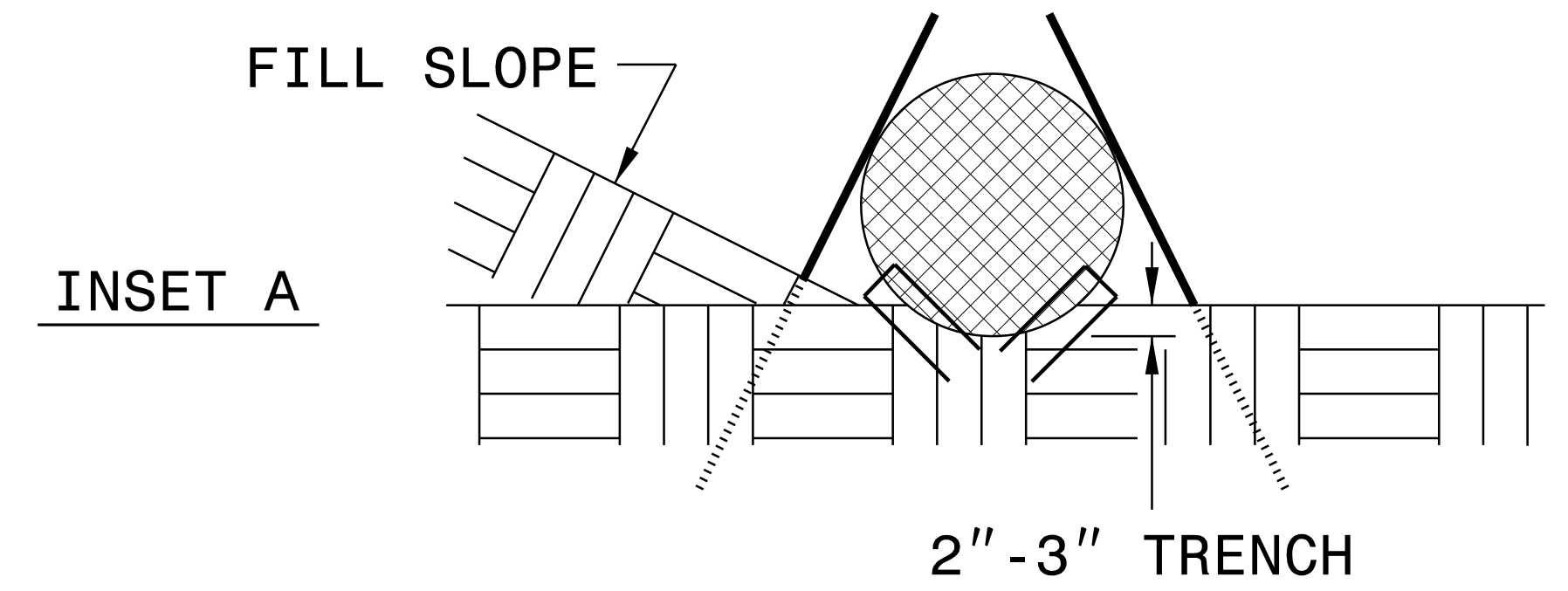
WATTLE BARRIER DETAIL



ISOMETRIC VIEW

NOTES:

- USE MINIMUM 18 IN. NOMINAL DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLES ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.



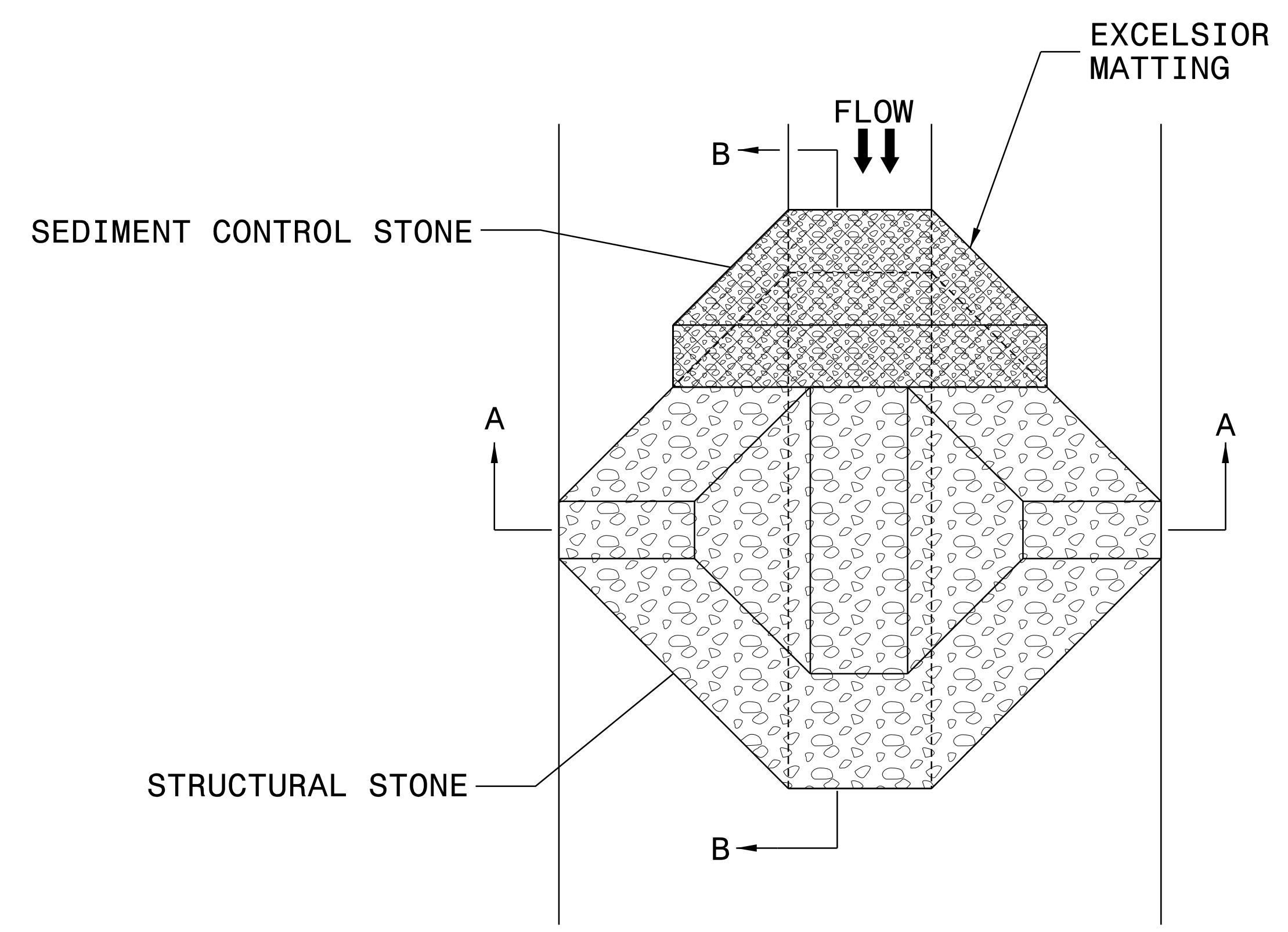
FRONT VIEW

TOP VIEW

SEE INSET A

PROJECT REFERENCE NO. 17BP12.R.64	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN

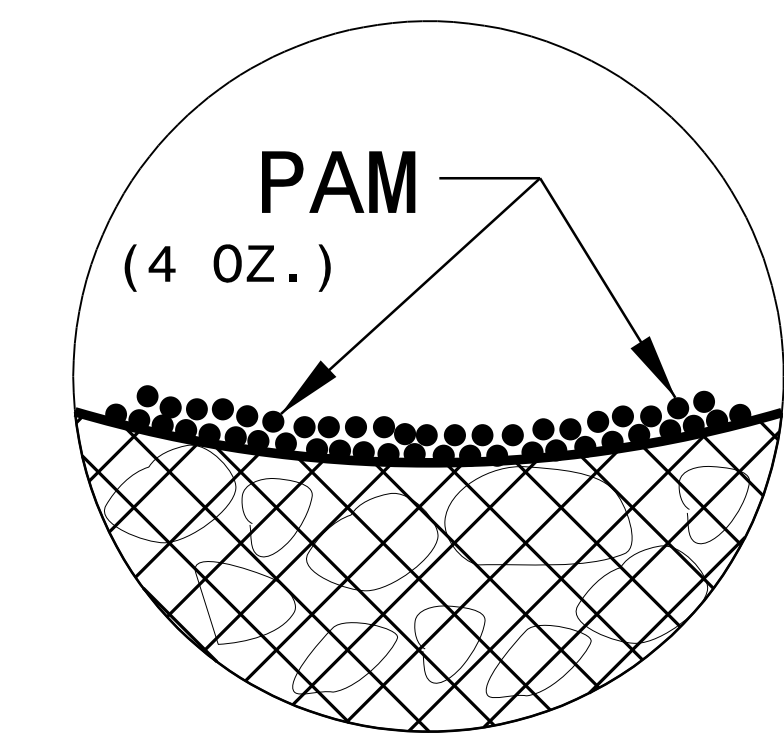
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

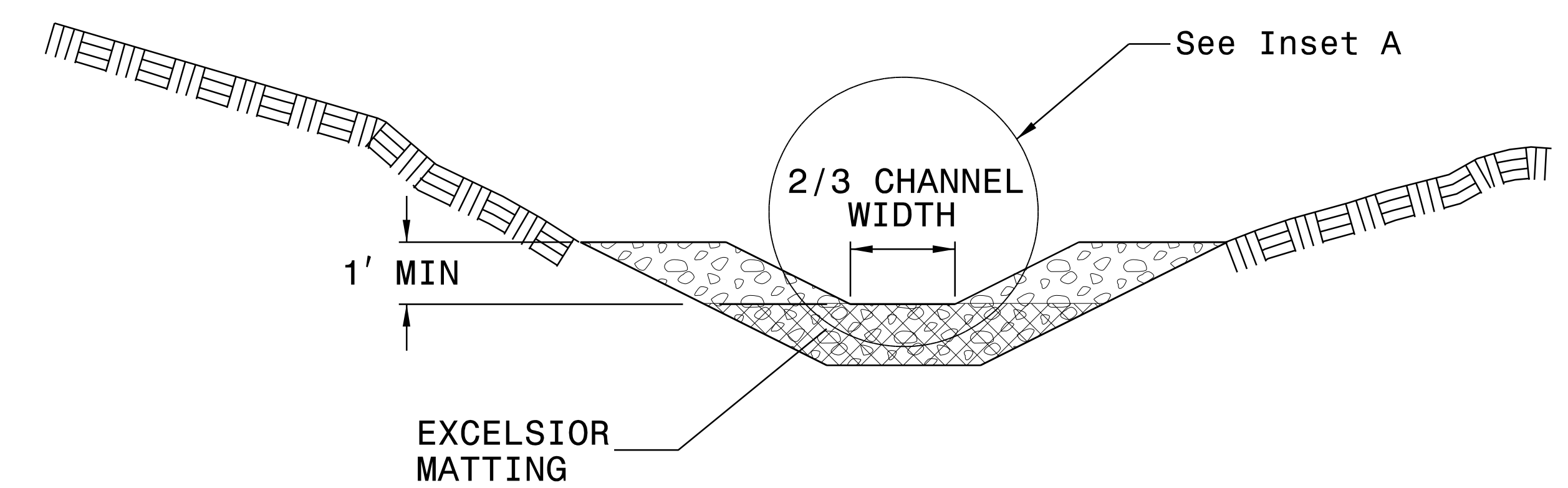
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

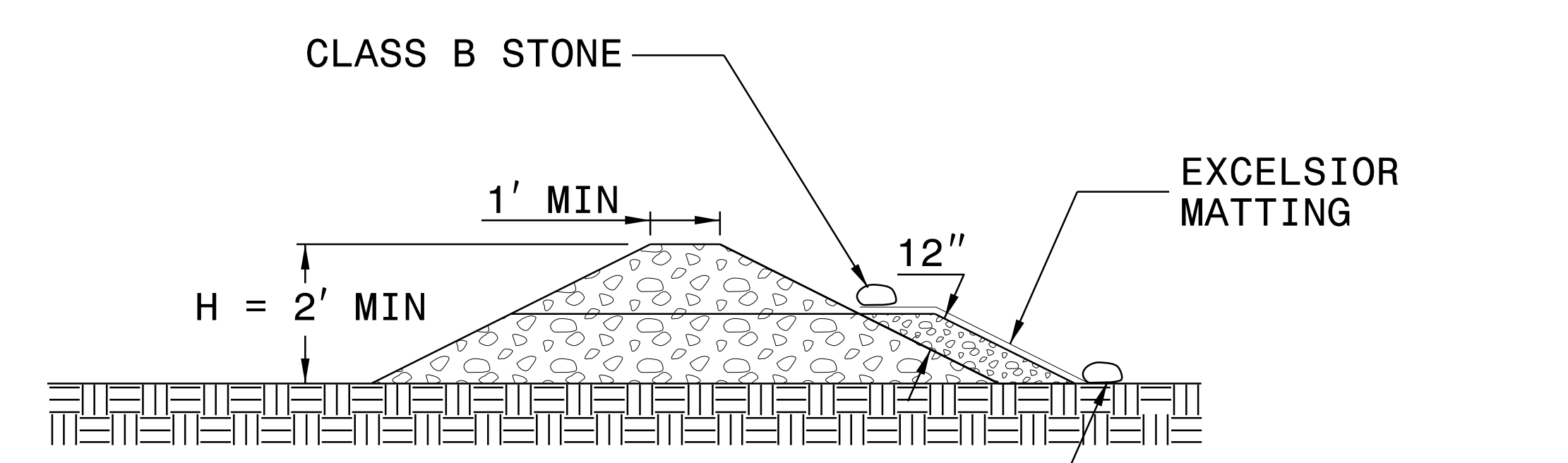
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A

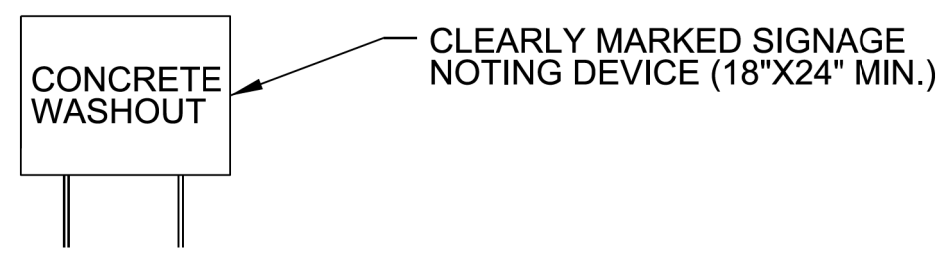
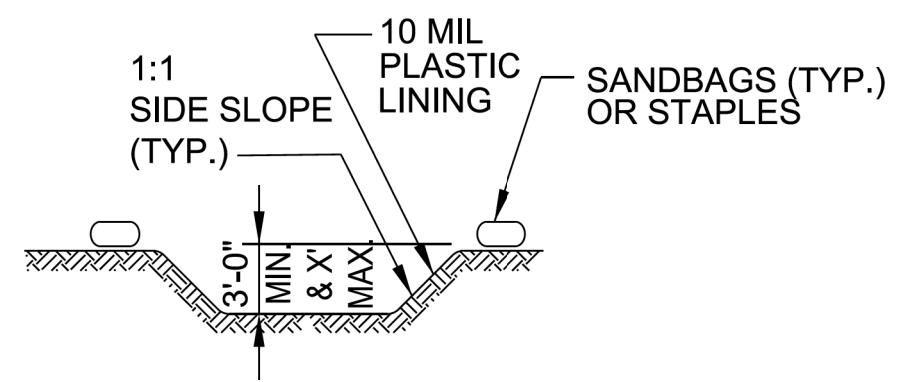
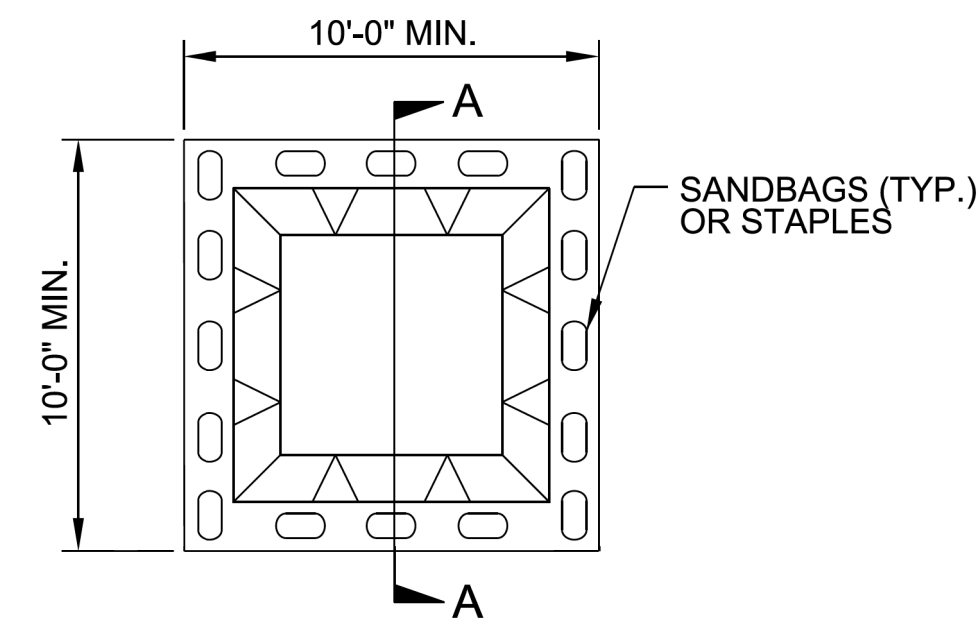


SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO. 17BP12.R.64	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

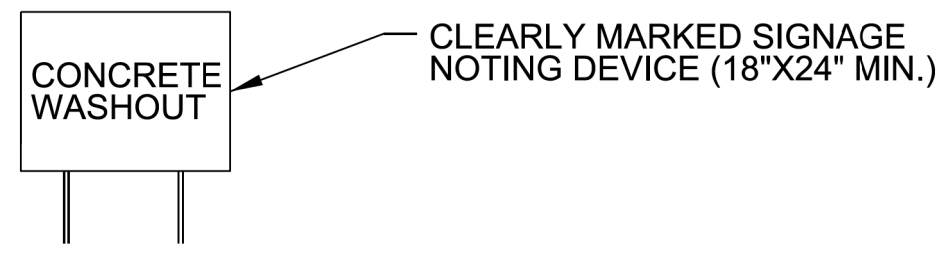
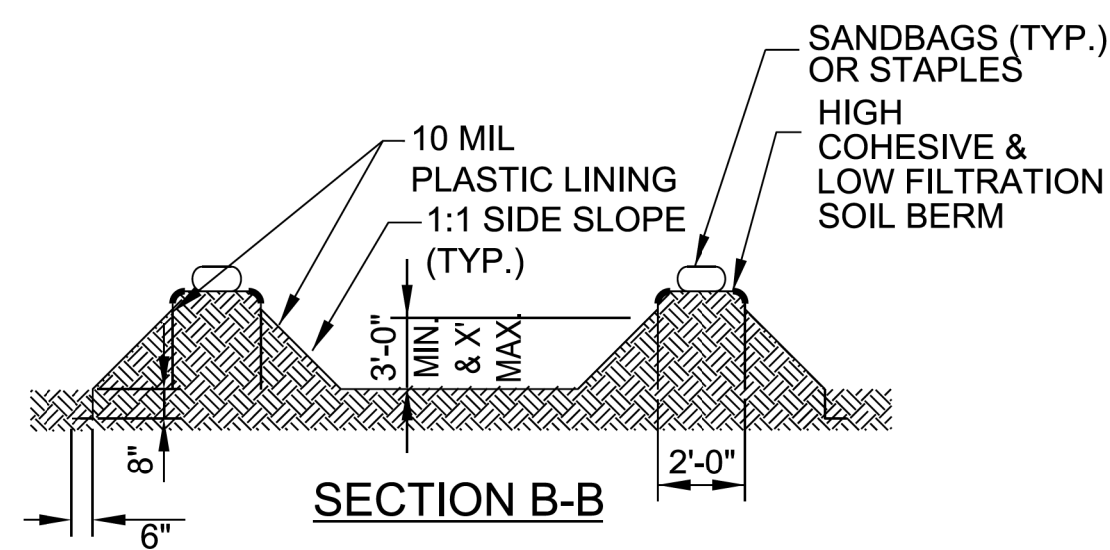
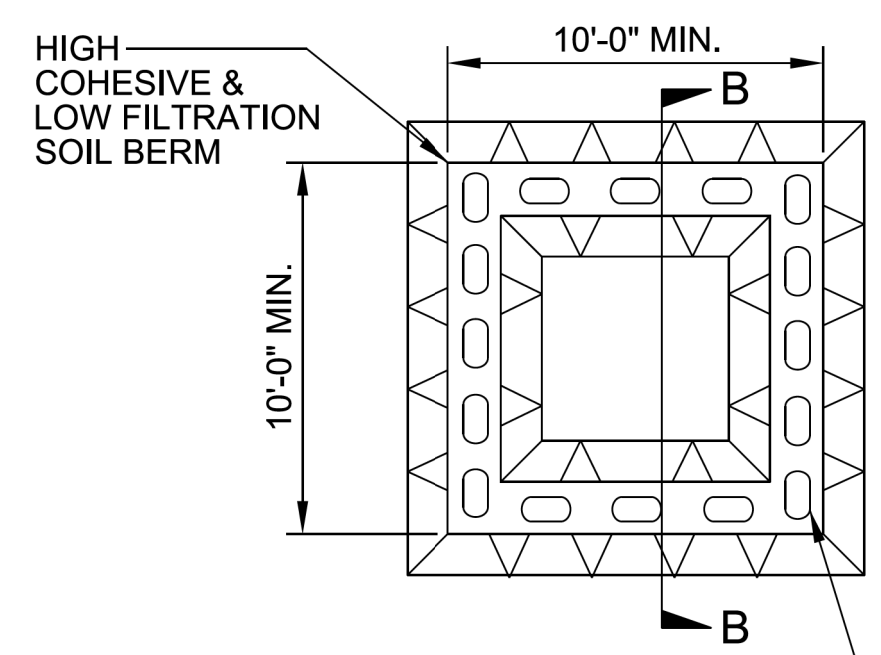


- SECTION A-A**
- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

PLAN

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

PLAN

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BPJ2R.64	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

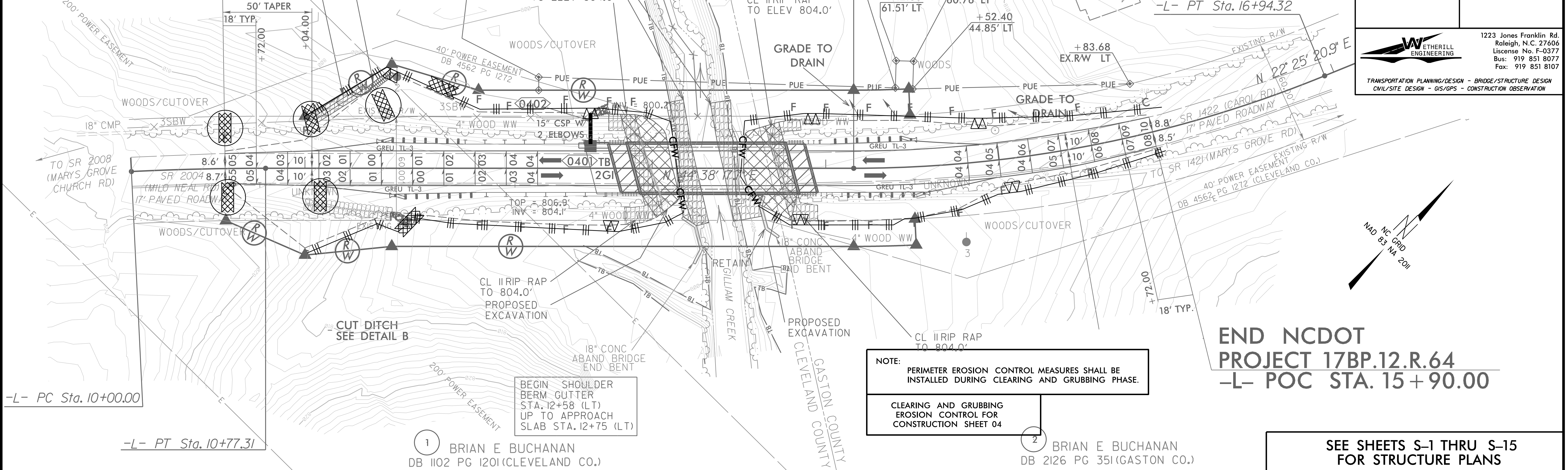
SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

8/17/99

BEGIN NCDOT PROJECT 17BP.12.R.64 -L- POC STA. 10+54.00

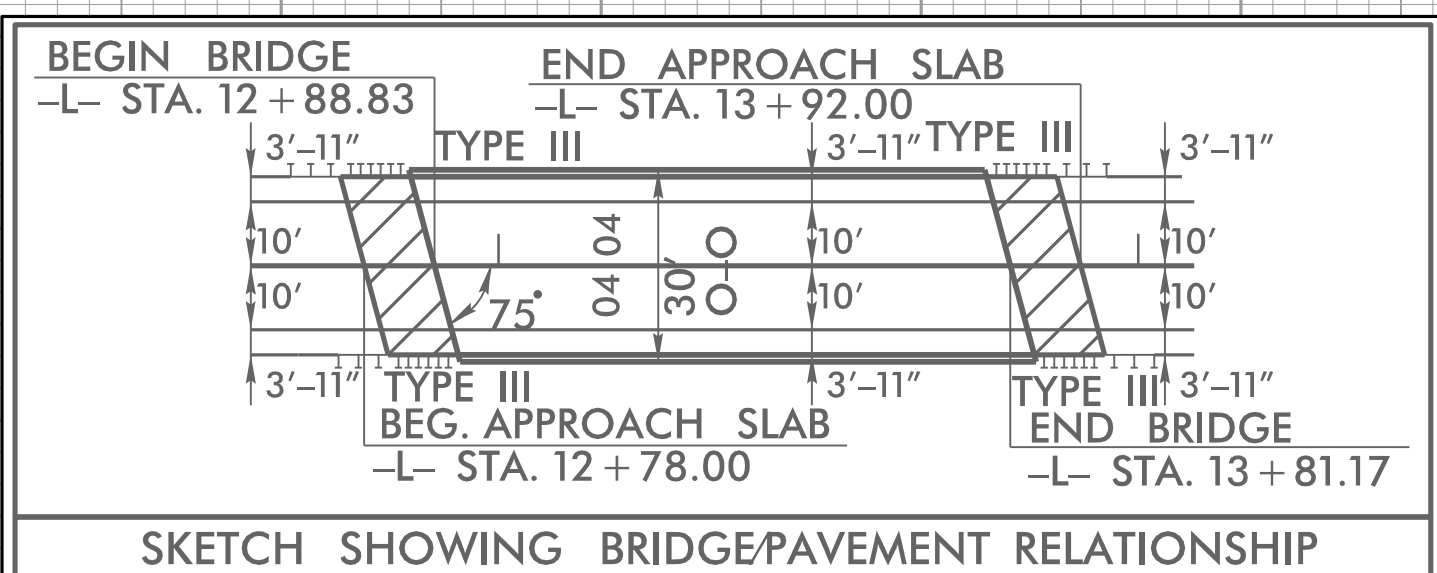
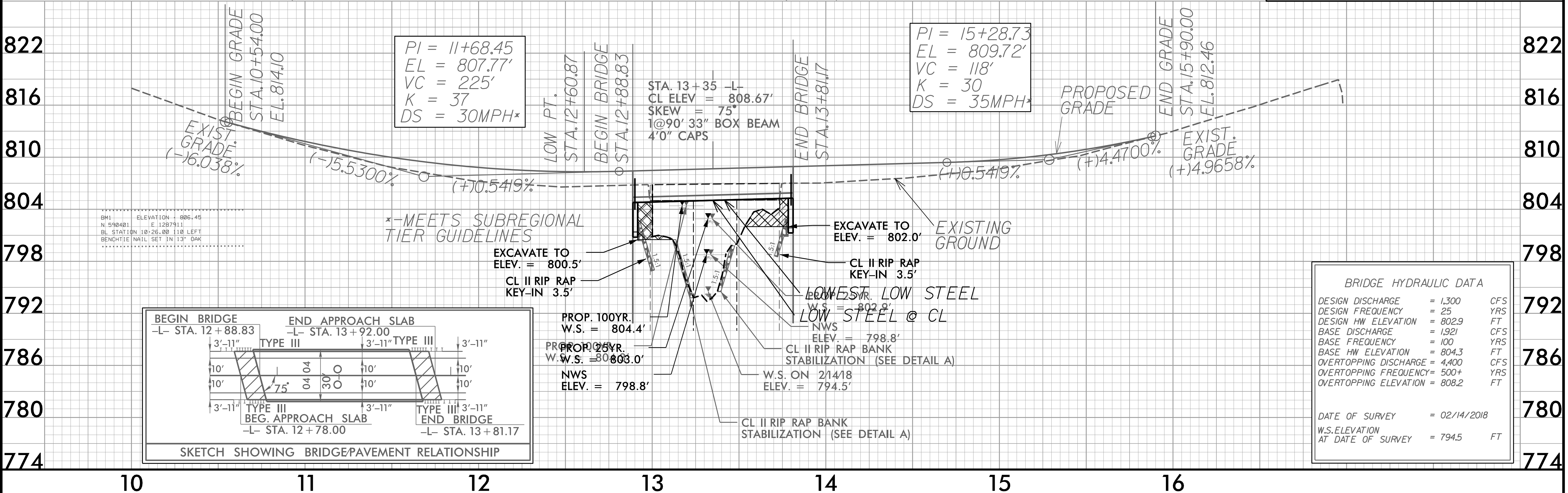
BRIDGE NO. 350354		PROJECT REFERENCE NO.	SHEET NO.
FINAL PLANS		17BP.12.R.64	EC-04/CONST.04
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
		1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
		TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	



NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 04

SEE SHEETS S-1 THRU S-15 FOR STRUCTURE PLANS



BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 1,300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 802.9	FT
BASE DISCHARGE	= 1,921	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 804.3	FT
OVERTOPPING DISCHARGE	= 4,400	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 808.2	FT
DATE OF SURVEY = 02/14/2018		
W.S. ELEVATION AT DATE OF SURVEY = 794.5 FT		

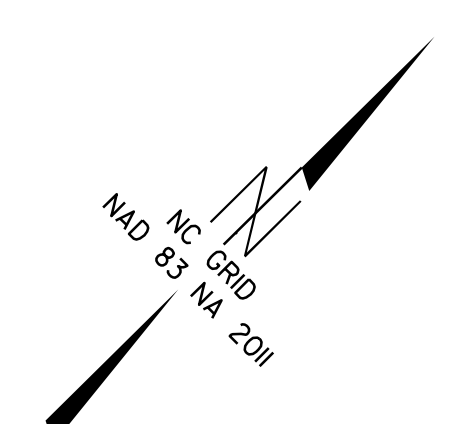
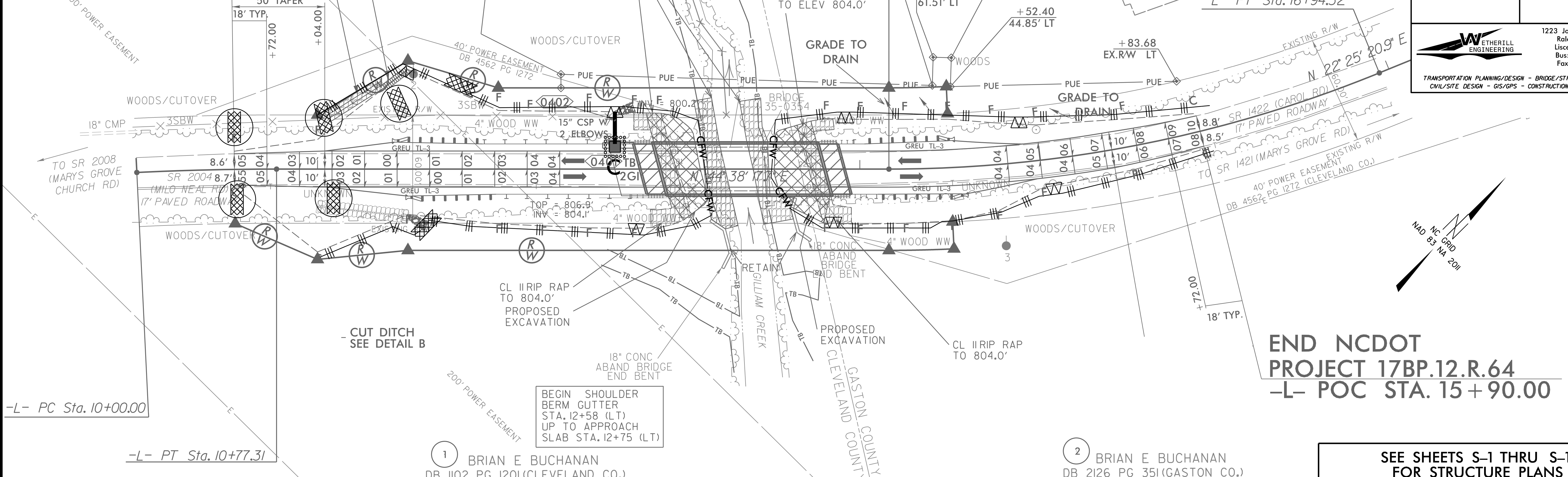
REVISIONS

2/8/2023
H:\DESIGN\17BP.12.R.64\EC-ps04.dgn

8/17/99

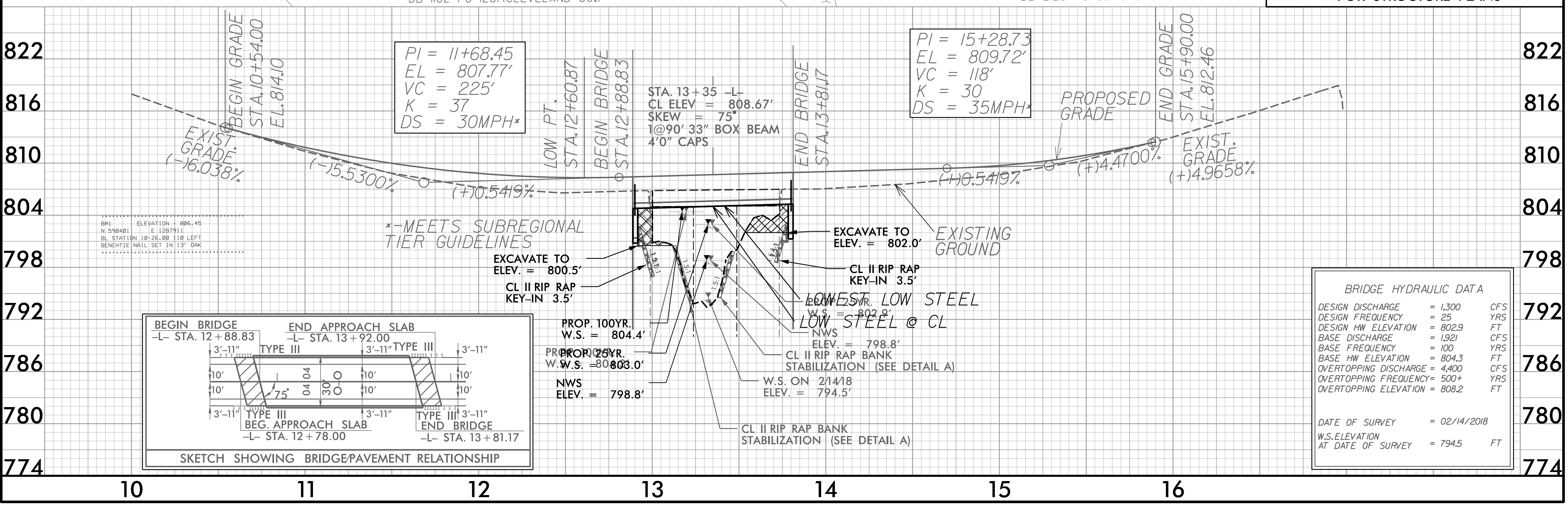
BEGIN NCDOT PROJECT 17BP.12.R.64 -L- POC STA. 10+54.00

BRIDGE NO. 350354		PROJECT REFERENCE NO.	SHEET NO.
FINAL PLANS		17BP.12.R.64	EC-05/CONST.04
		R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
		1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
		TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

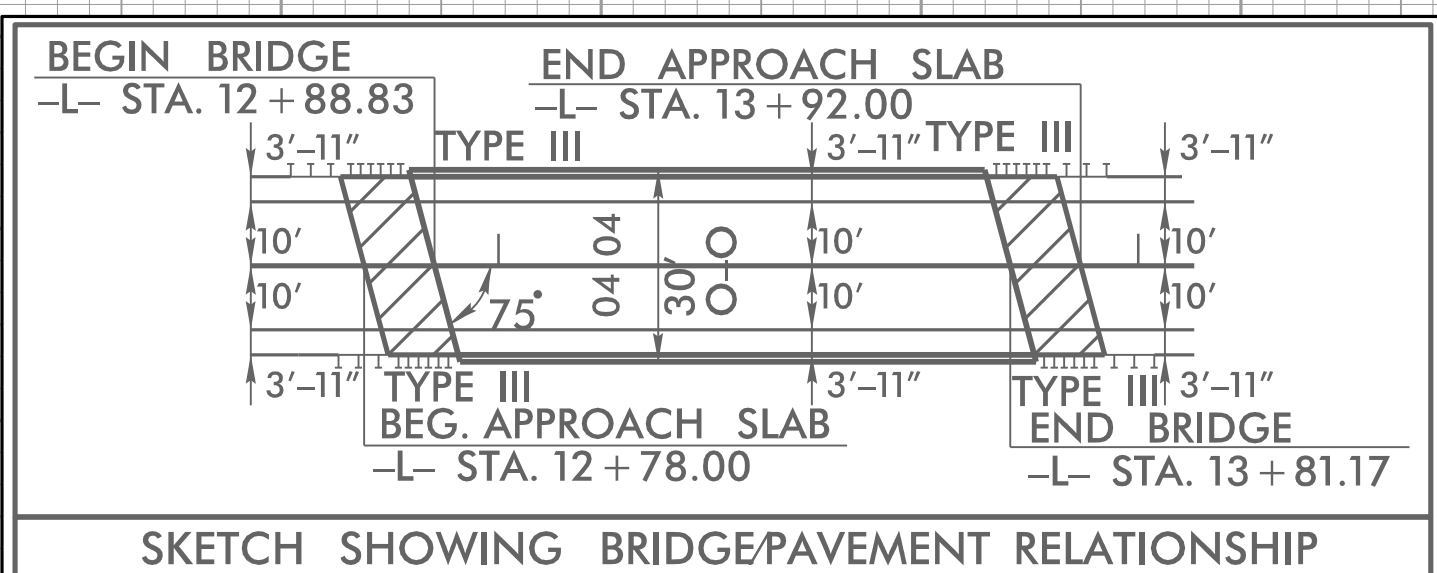


END NCDOT PROJECT 17BP.12.R.64 -L- POC STA. 15+90.00

SEE SHEETS S-1 THRU S-15 FOR STRUCTURE PLANS



B.M. ELEVATION = 806.45
 N. 590401 E. 1287911
 BL. STATION 10+25.00 110 LEFT
 BENCHM. NAIL SET IN 13" OAK



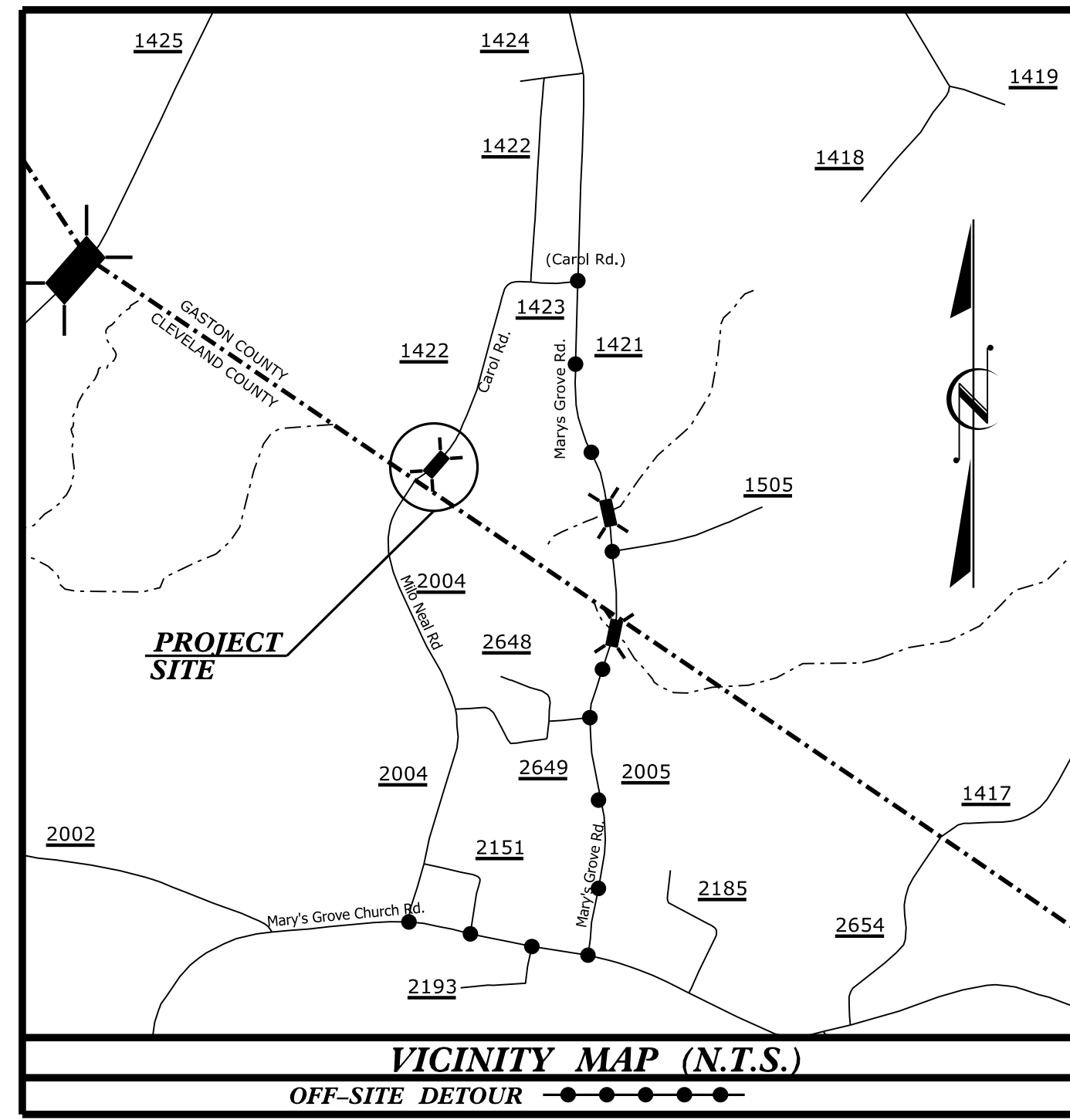
BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 1,300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 802.9	FT
BASE DISCHARGE	= 1,921	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 804.3	FT
OVERTOPPING DISCHARGE	= 4,400	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 808.2	FT
DATE OF SURVEY = 02/14/2018		
W.S. ELEVATION AT DATE OF SURVEY = 794.5 FT		

REVISIONS

2/8/2023
I:\PROJECTS\17BP.12.R.64\EC-ps05.dgn

09.08/99

TIP PROJECT: 17BP.12.ROW.64



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
GASTON COUNTY**

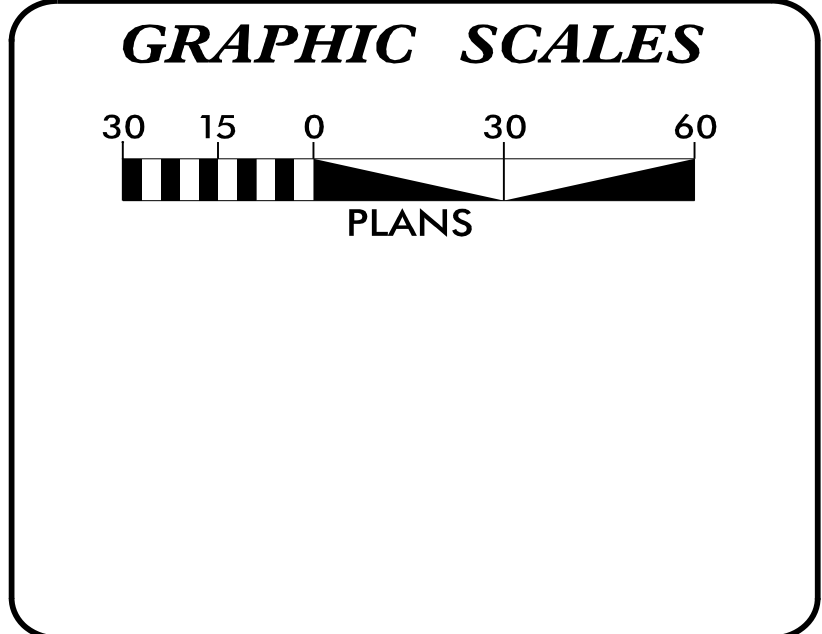
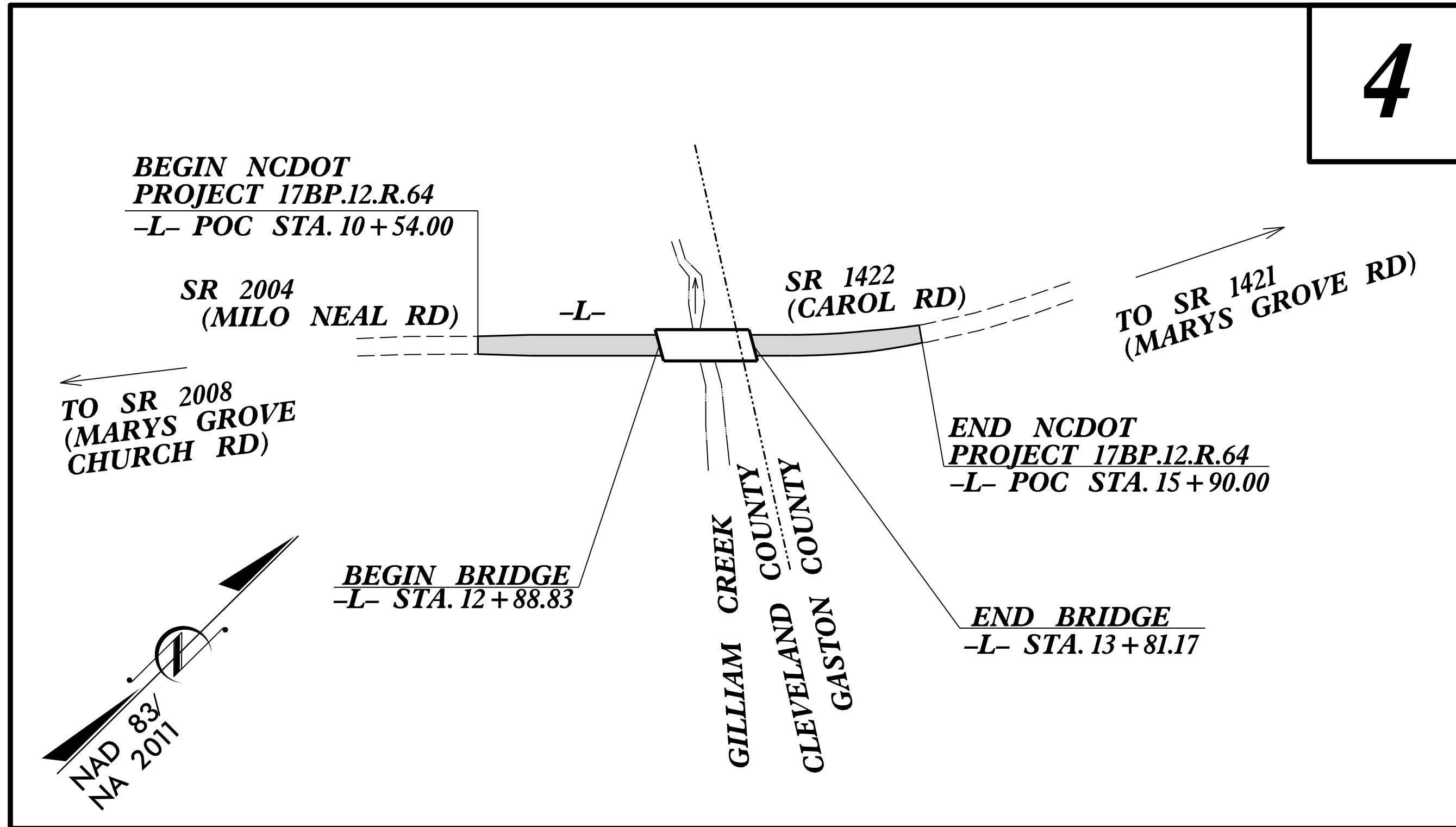
**LOCATION: BRIDGE NO. 350354 OVER GILLIAM CREEK
ON SR 1422 (CAROL RD.)**

TYPE OF WORK: OVERHEAD POWER RELOCATION

T.I.P. NO.	SHEET NO.
17BP.12.ROW.64	UO-1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

FINAL PLANS



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

(A) POWER - RUTHERFORD ELECTRIC

PREPARED IN THE OFFICE OF:

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - SURVEY/SUE - UTILITIES - CONSTRUCTION OBSERVATION

PANKIL K. PATEL UTILITY PROJECT MANAGER
TREVER REEVES PROJECT UTILITY COORDINATOR

**DIVISION OF HIGHWAYS
DIVISION TWELVE**

1710 E. MARION ST.
SHELBY NC, 28151

STEVE RACKLEY, PE DIVISION 12 BRIDGE MANAGER
CHAD DREWERY DIVISION 12 UTILITIES ENGINEER

8/17/2023
I:\Projects\350354_ut_+sh_u01_psh.dgn
USER: Reeves

UTILITIES BY OTHERS

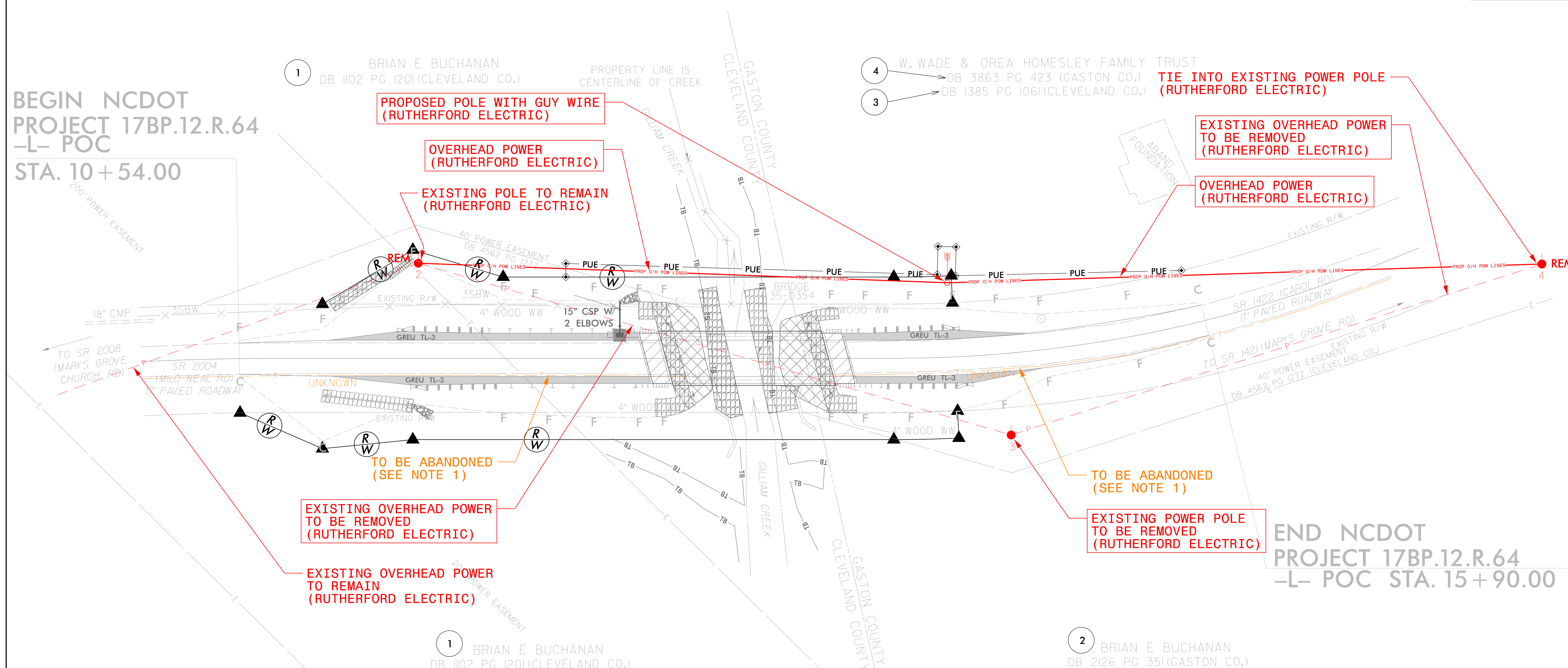
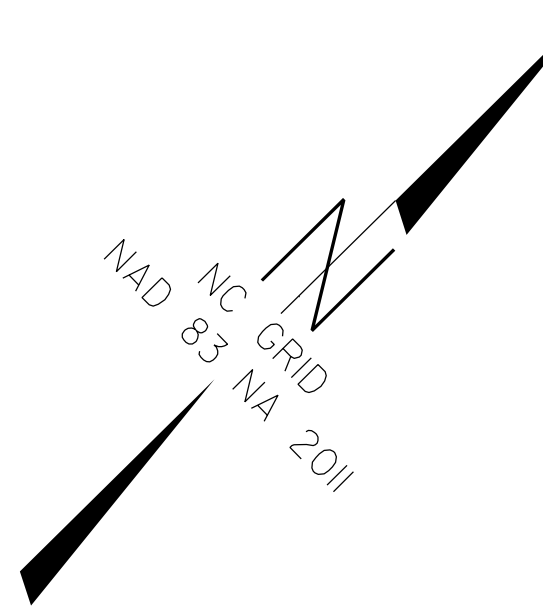
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

WETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - SURVEY/SUE - UTILITIES - CONSTRUCTION OBSERVATION

FINAL PLANS



BEGIN NCDOT
PROJECT 17BP.12.R.64
-L- POC
STA. 10 + 54.00

END NCDOT
PROJECT 17BP.12.R.64
-L- POC STA. 15 + 90.00

NOTES:

1. AT&T AND CHARTER HAVE CONFIRMED THAT THE UNKNOWN COMMUNICATIONS CABLE DOES NOT BELONG TO THEIR COMPANY

5/14/99
 P:\2017\17177.01.GASTON\354\Utilities\Engineer-mg\UBO\Proj\350354_ut_rdy4_UO2_psh.dgn
 8:55:21 AM
 10/17/2023

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJ. REFERENCE NO.	SHEET NO.
17BP.12.R.64	X-1A

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station	Uncl. Exc.	Embt
L	(cu. yd.)	(cu. yd.)
10+54.00	0	0
11+00.00	51	7
11+50.00	55	138
12+00.00	0	238
12+25.00	0	109
12+50.00	0	112
12+75.00	0	110
12+88.83	0	58

Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the lump sum price for "Grading".

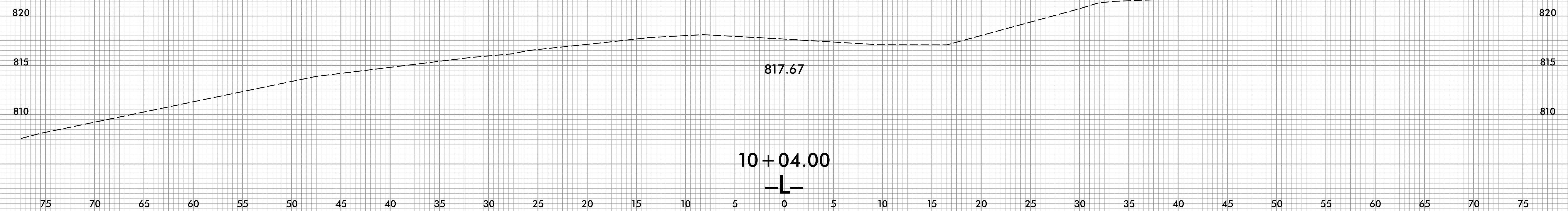
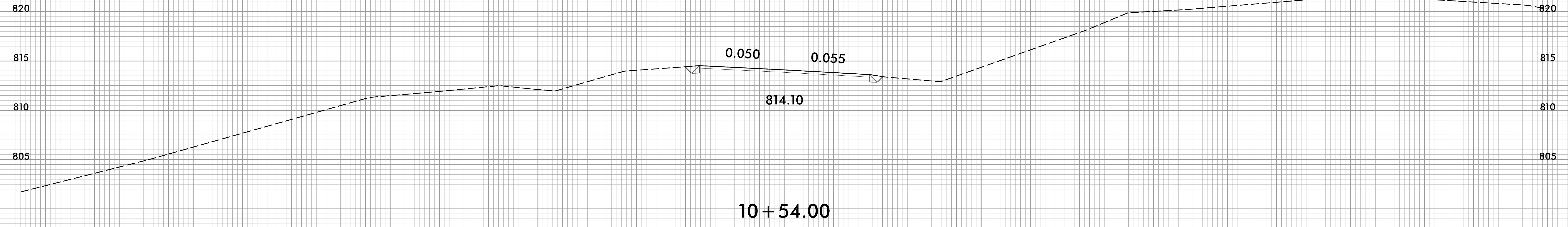
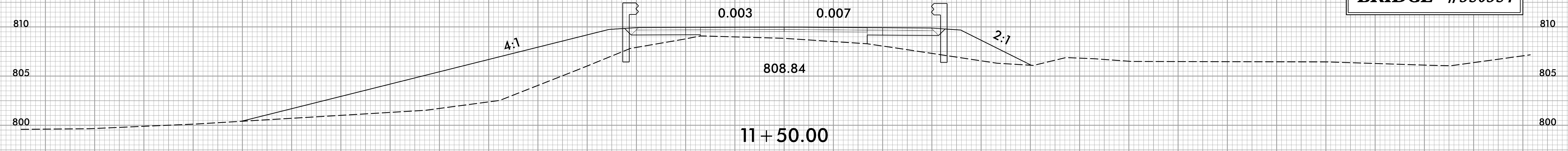
CROSS SECTION INDEX

Station	Uncl. Exc.	Embt
L	(cu. yd.)	(cu. yd.)
13+81.17	0	0
14+00.00	0	78
14+25.00	0	101
14+50.00	0	93
14+75.00	0	64
15+00.00	0	26
15+50.00	1	17
15+90.00	2	3

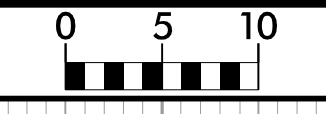
SHEET	LINE	BEGIN STATION	END STATION
X-1	-L-	10+04.00	11+50.00
X-2	-L-	12+00.00	12+75.00
X-3	-L-	12+88.81	13+50.00
X-4	-L-	13+81.17	14+50.00
X-5	-L-	14+75.00	16+40.00

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

BRIDGE #350354



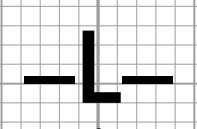
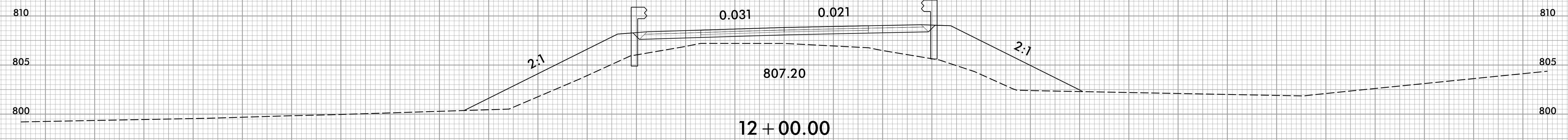
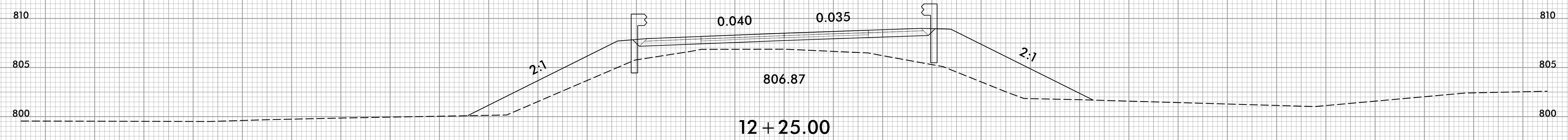
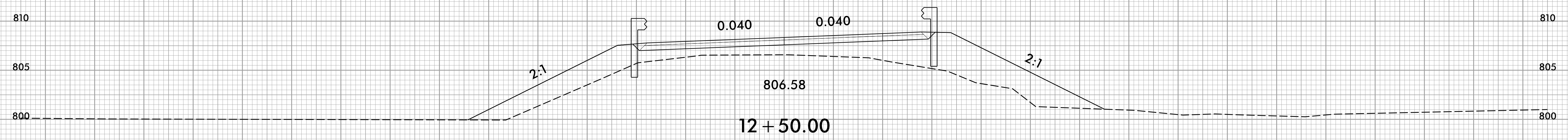
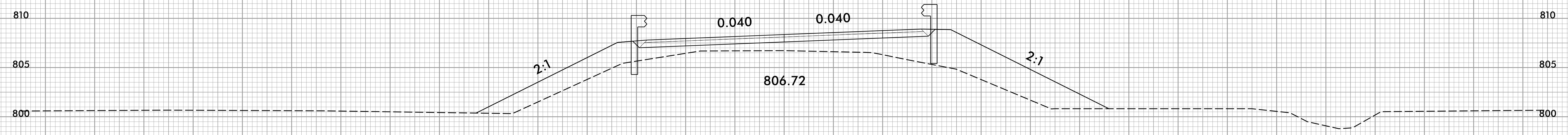
8/23/99



PROJ. REFERENCE NO.	SHEET NO.
17BP.12.R.64	X-2

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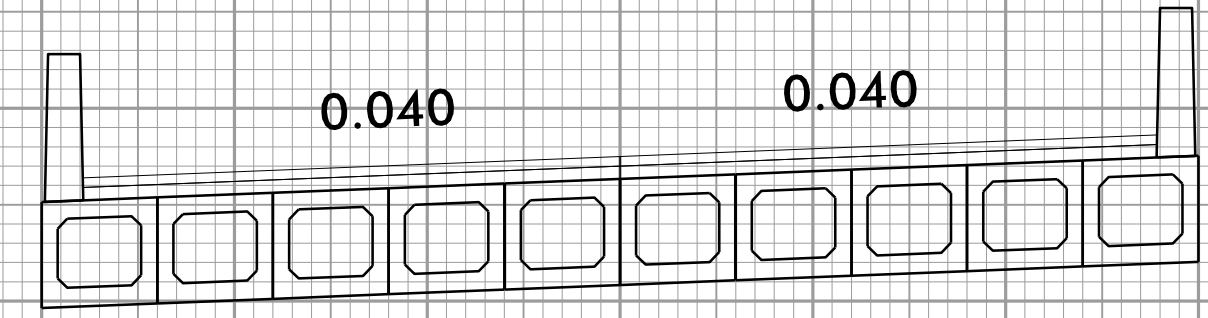
BRIDGE #350354



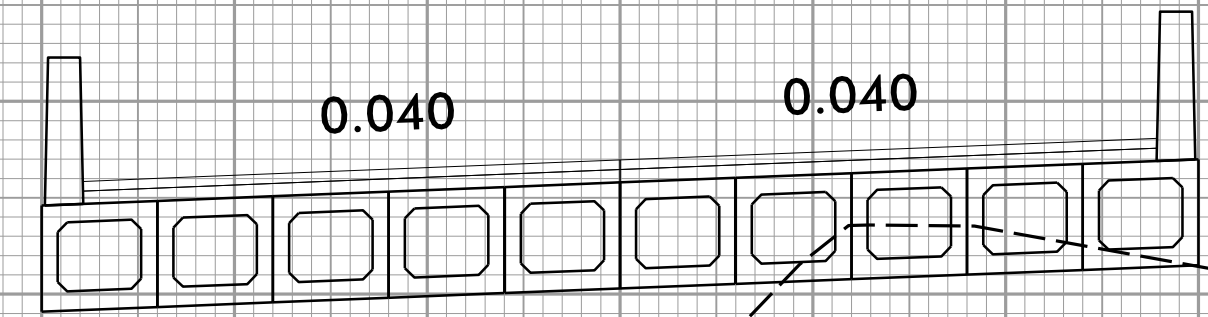
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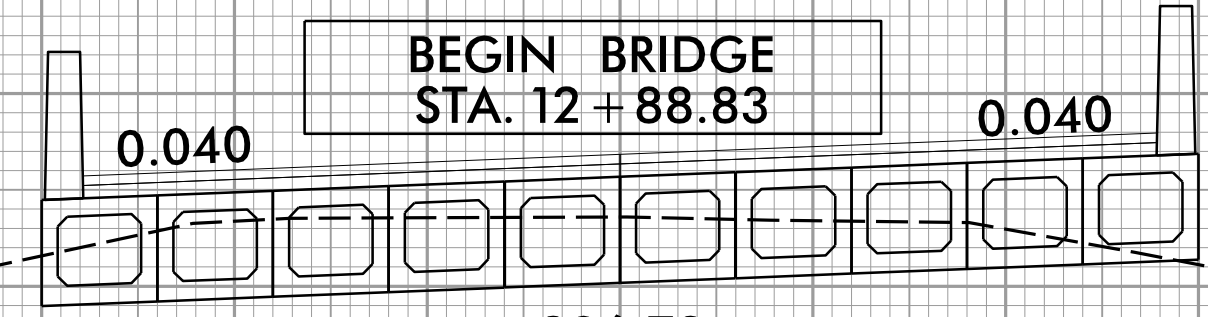
BRIDGE #350354



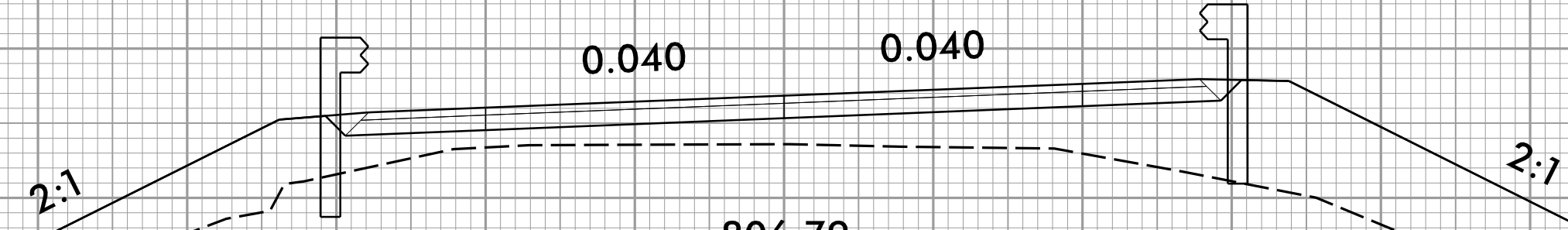
799.94
13 + 50.00



801.26
13 + 00.00



806.79
12 + 88.83

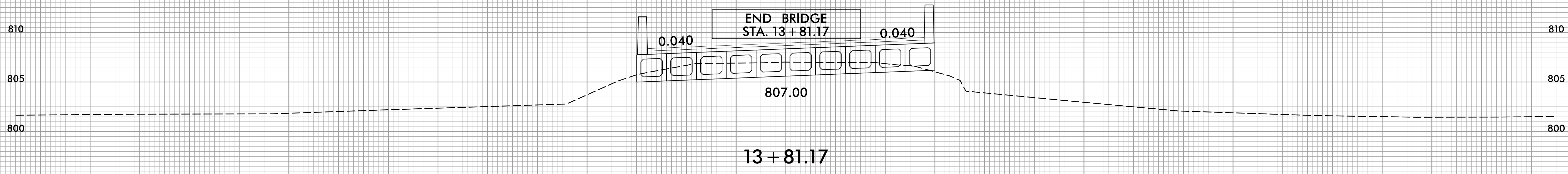
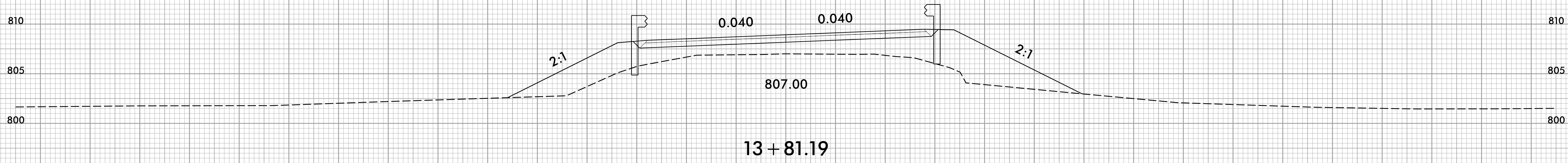
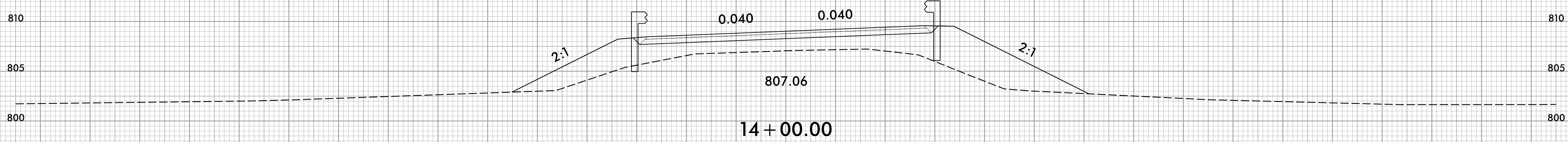
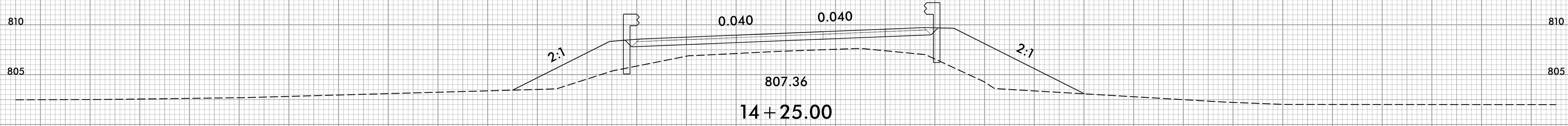
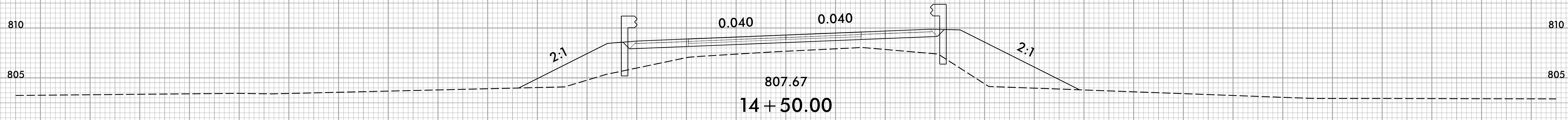


806.79
12 + 88.81

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BRIDGE #350354



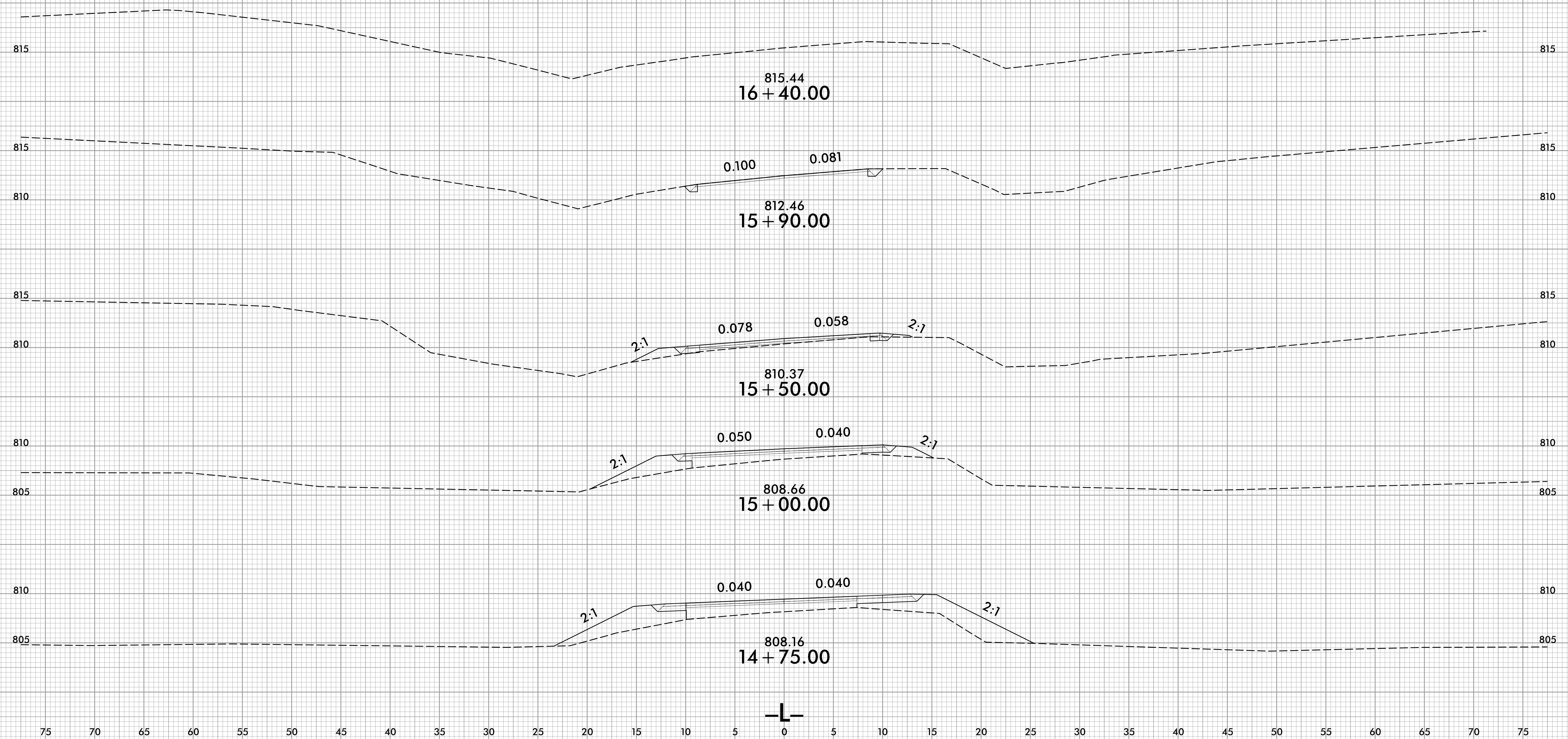
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.12.R.64	X-5

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

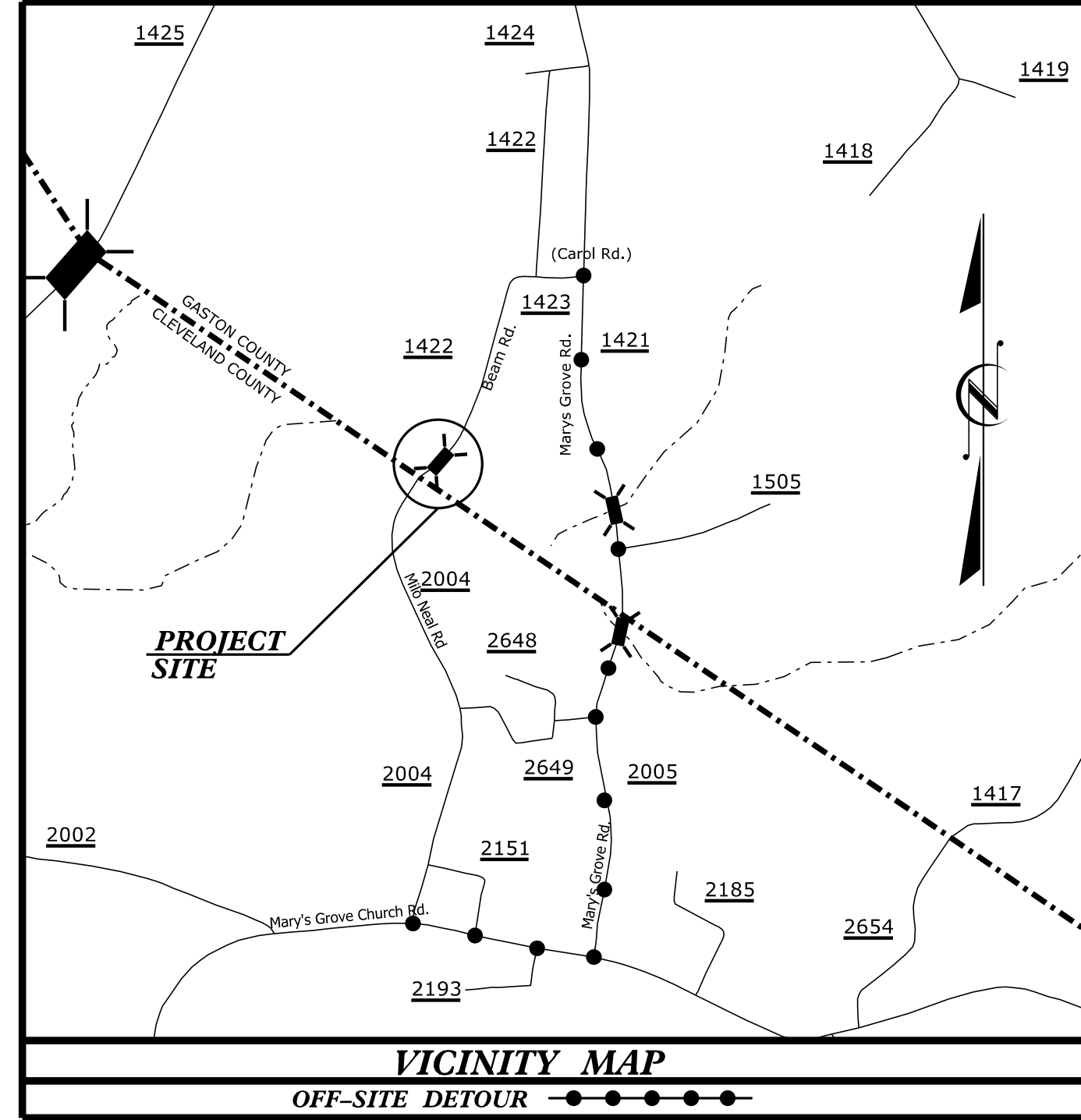
BRIDGE #350354



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09_08/99

PROJECT: 17BP.12.R.64



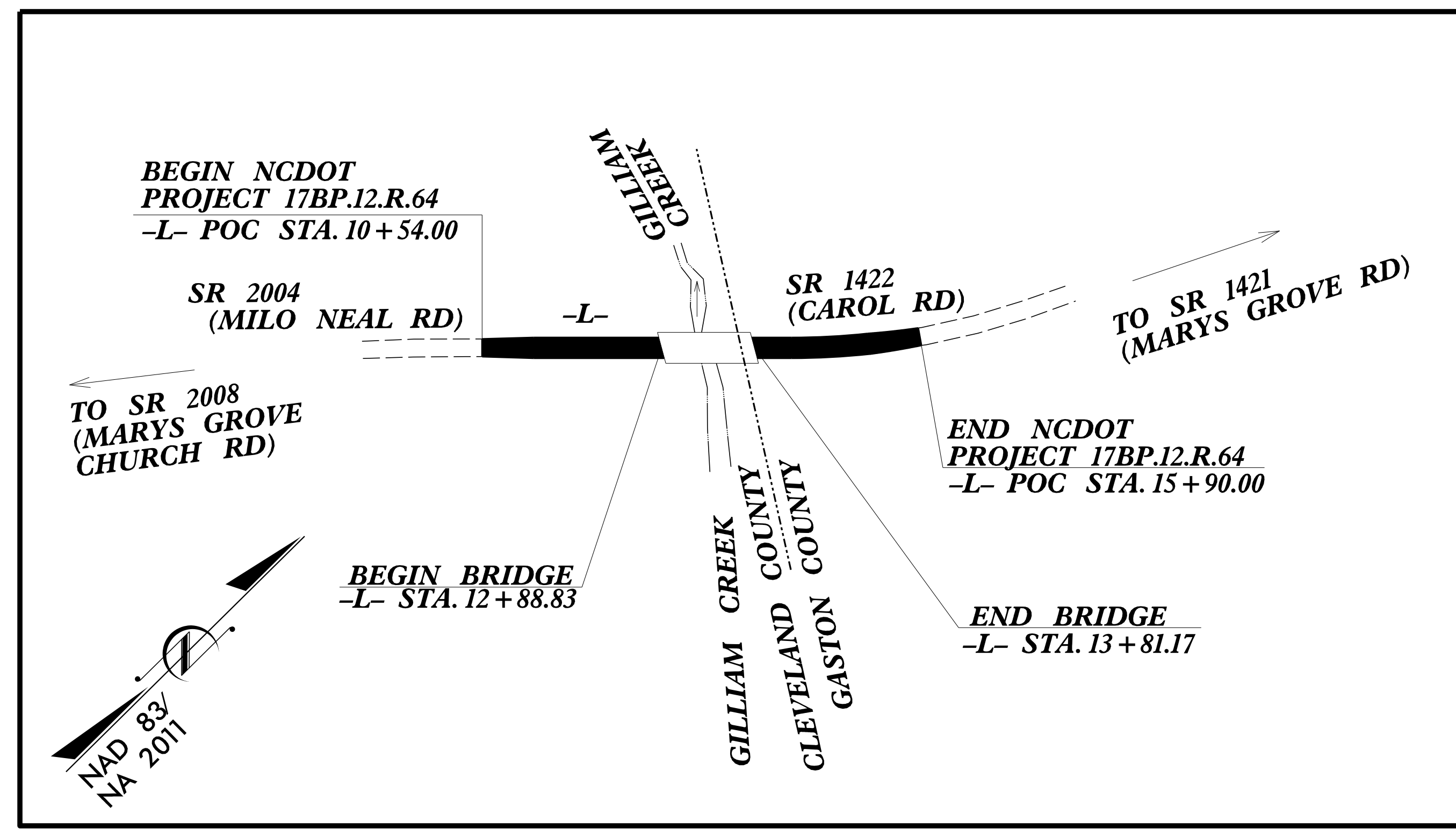
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GASTON COUNTY

**LOCATION: BRIDGE NO. 350354 OVER GILLIAM CREEK
ON SR 1422 (CAROL RD.)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STRUCTURE PLANS



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.12.R.64		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.12.PE.64	N/A	PE	
17BP.12.R.64	N/A	PE, UTIL., R/W	
17BP.12.R.64	N/A	CONST.	

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-03777
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

BRIDGE #350354

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

DESIGN DATA
ADT 2018 = 350
T = 6 % *
V = 50 MPH
* (TTST = 3% + DUAL = 3%)
FUNC CLASS =
RURAL LOCAL
SUBREGIONAL TIER

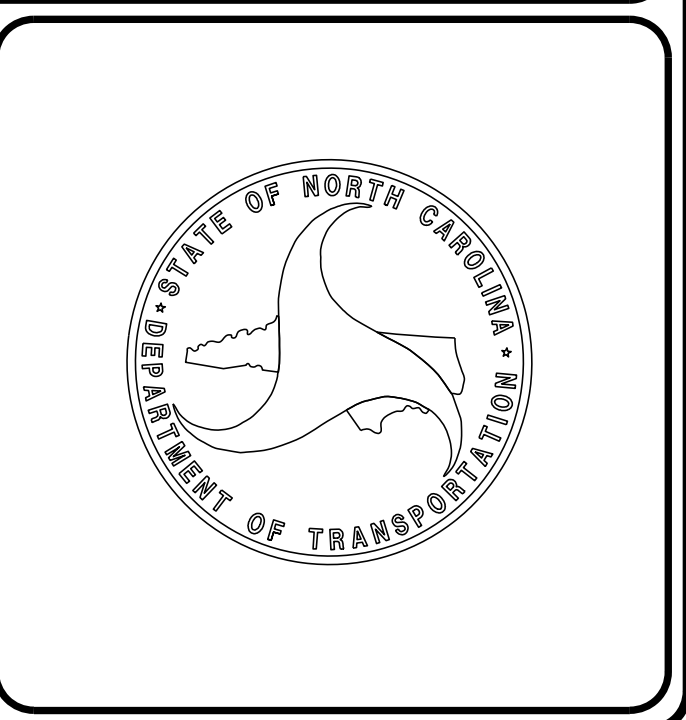
PROJECT LENGTH
LENGTH ROADWAY PROJECT 17BP.12.R.64 = 0.085 MILES
LENGTH STRUCTURE PROJECT 17BP.12.R.64 = 0.017 MILES
TOTAL LENGTH PROJECT 17BP.12.R.64 = 0.102 MILES
NCDOT CONTACT: <u>JOSH WHITE, PE, PLS</u> DIVISION 12 DIVISION BRIDGE MANAGER

Prepared for:

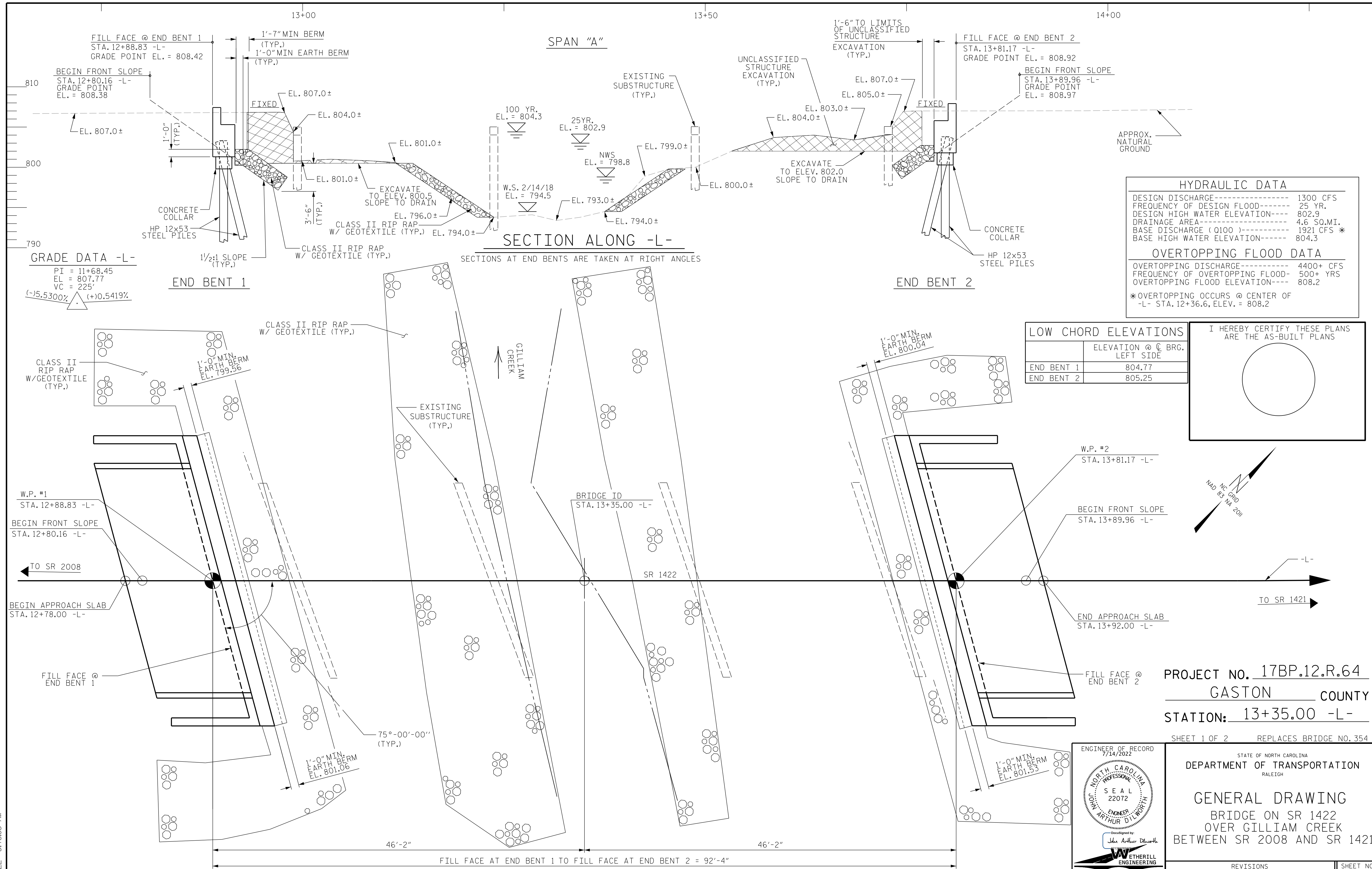
DIVISION OF HIGHWAYS
DIVISION TWELVE
1710 E. Marion St., Shelby NC, 28151

2018 STANDARD SPECIFICATIONS

<p>LETTING DATE: DECEMBER 12, 2023</p>	<p><u>EDWARD G. WETHERILL, PE</u> PROJECT ENGINEER</p> <p><u>JOHN A. DILWORTH, PE</u> PROJECT DESIGN ENGINEER</p>
--	---



10/17/2023 9:54:02 AM P:\2017\1777.01_GASTON_354\Structures\DGN\350354_SMU_L_TSH.dgn



GRADE DATA -L-

PI = 11+68.45
 EL = 807.77
 VC = 225'
 (-)5.5300% (+)0.5419%

HYDRAULIC DATA

DESIGN DISCHARGE-----	1300 CFS
FREQUENCY OF DESIGN FLOOD-----	25 YR.
DESIGN HIGH WATER ELEVATION----	802.9
DRAINAGE AREA-----	4.6 SQ.MI.
BASE DISCHARGE (Q100)-----	1921 CFS *
BASE HIGH WATER ELEVATION-----	804.3

OVERTOPPING FLOOD DATA

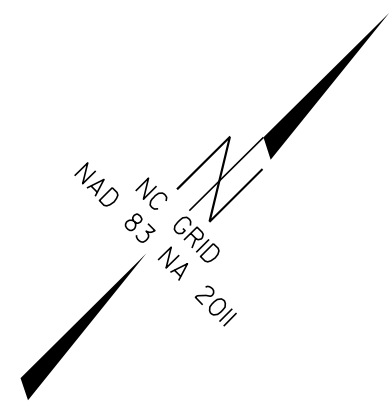
OVERTOPPING DISCHARGE-----	4400+ CFS
FREQUENCY OF OVERTOPPING FLOOD--	500+ YRS
OVERTOPPING FLOOD ELEVATION----	808.2

* OVERTOPPING OCCURS @ CENTER OF
 -L- STA. 12+36.6, ELEV. = 808.2

LOW CHORD ELEVATIONS

	ELEVATION @ C BRG. LEFT SIDE
END BENT 1	804.77
END BENT 2	805.25

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



DRAWN BY : J. PENDERGRAFT DATE : 10-18
 CHECKED BY : J. DILWORTH DATE : 10-18

PLAN
 (PILES NOT SHOWN IN PLAN VIEW)

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
 7/14/2022

 Arthur Dilworth
 ETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

PROJECT NO. 17BP.12.R.64
 GASTON COUNTY
 STATION: 13+35.00 -L-
 SHEET 1 OF 2 REPLACES BRIDGE NO. 354

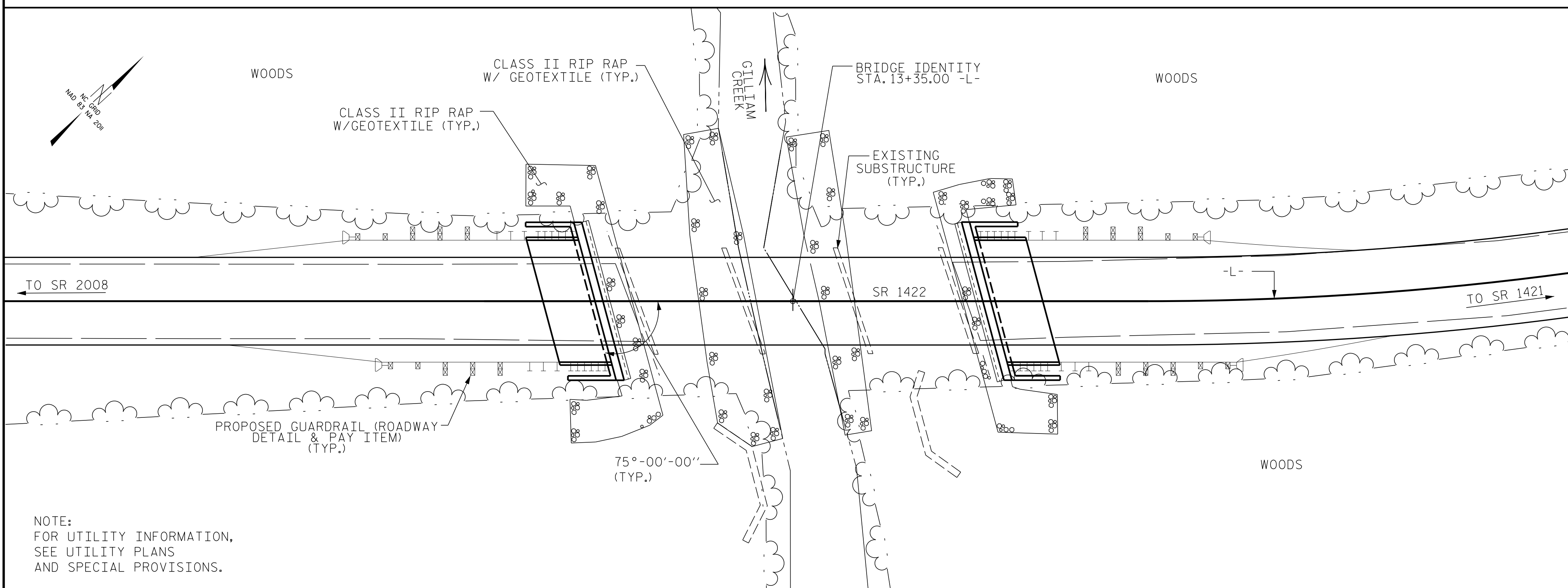
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1422
 OVER GILLIAM CREEK
 BETWEEN SR 2008 AND SR 1421

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

SHEET NO.				
S-1				
TOTAL SHEETS				
15				

BM-1 (BENCHTIE NAIL SET IN 13" OAK TREE) 108.6' LEFT -L- STA. 14+73,
EL. 806.45, N 590401 E 1287911



NOTE:
FOR UTILITY INFORMATION,
SEE UTILITY PLANS
AND SPECIAL PROVISIONS.

LOCATION SKETCH

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 127 TONS PER PILE.
DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 215 TONS PER PILE.
TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTIONS 450 OF THE STANDARD SPECIFICATIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE						LUMP SUM					180.00			LUMP SUM	10	900.00
END BENT NO. 1					24.4		3430	5	5	250		175	190			
END BENT NO. 2					24.4		3430	5	5	320		120	130			
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	48.8	LUMP SUM	6860	10	10	570	180.00	295	320	LUMP SUM	10	900.00

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH 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 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 ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 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.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 25'-3", 1 SPAN @ 25'-0", AND 1 SPAN @ 25'-3" WITH A TIMBER DECK ON I-BEAMS AND DOUBLE CHANNELS SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 24.5' ON A SUBSTRUCTURE CONSISTING OF TIMBER END BENTS AND BENTS ON PILES AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED. THE BRIDGE IS CURRENTLY POSTED FOR LOAD LIMIT.

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.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."
FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

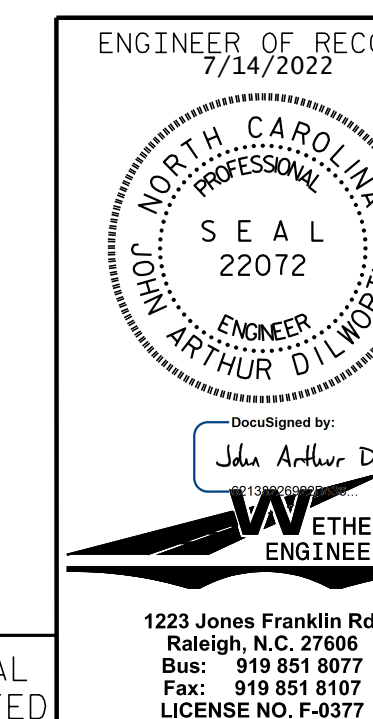
ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR REMOVAL OF EXISTING STRUCTURE AT STATION 13+35.00 -L-.

PROJECT NO. 17BP.12.R.64
GASTON COUNTY
STATION: 13+35.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE ON SR 1422
OVER GILLIAM CREEK
BETWEEN SR 2008 AND SR 1421

REVISIONS

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

SHEET NO.
S-2
TOTAL SHEETS
15

DRAWN BY: J. PENDERGRAFT DATE: 9-18
CHECKED BY: J. DILWORTH DATE: 10-18

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	1	1.126	--	1.75	0.267	1.49	90'	EL	44.224	0.584	1.15	90'	EL	8.845	0.80	0.267	1.13	90'	EL	44.224		
	HL-93 (OPERATING)	N/A		1.488	--	1.35	0.267	1.94	90'	EL	44.224	0.584	1.49	90'	EL	8.845	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.491	53.666	1.75	0.267	2.03	90'	EL	44.224	0.584	1.49	90'	EL	8.845	0.80	0.267	1.53	90'	EL	44.224		
	HS-20 (OPERATING)	36.000		1.932	69.567	1.35	0.267	2.63	90'	EL	44.224	0.584	1.93	90'	EL	8.845	N/A	--	--	--	--	--		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.573	48.237	1.4	0.267	5.92	90'	EL	44.224	0.584	4.53	90'	EL	8.845	0.80	0.267	3.57	90'	EL	44.224	
		SNGARBS2	20.000		2.611	52.229	1.4	0.267	4.33	90'	EL	44.224	0.584	3.19	90'	EL	8.845	0.80	0.267	2.61	90'	EL	44.224	
		SNAGRIS2	22.000		2.452	53.948	1.4	0.267	4.07	90'	EL	44.224	0.584	2.95	90'	EL	8.845	0.80	0.267	2.45	90'	EL	44.224	
		SNCOTTS3	27.250		1.777	48.412	1.4	0.267	2.95	90'	EL	44.224	0.584	2.26	90'	EL	8.845	0.80	0.267	1.78	90'	EL	44.224	
		SNAGGRS4	34.925		1.465	51.163	1.4	0.267	2.43	90'	EL	44.224	0.584	1.85	90'	EL	8.845	0.80	0.267	1.46	90'	EL	44.224	
		SNS5A	35.550		1.434	50.974	1.4	0.267	2.38	90'	EL	44.224	0.584	1.87	90'	EL	8.845	0.80	0.267	1.43	90'	EL	44.224	
		SNS6A	39.950		1.307	52.234	1.4	0.267	2.17	90'	EL	44.224	0.584	1.69	90'	EL	8.845	0.80	0.267	1.31	90'	EL	44.224	
	SNS7B	42.000		1.245	52.283	1.4	0.267	2.06	90'	EL	44.224	0.584	1.65	90'	EL	8.845	0.80	0.267	1.24	90'	EL	44.224		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.592	52.537	1.4	0.267	2.64	90'	EL	44.224	0.584	2.02	90'	EL	8.845	0.80	0.267	1.59	90'	EL	44.224	
		TNT4A	33.075		1.597	52.815	1.4	0.267	2.65	90'	EL	44.224	0.584	1.98	90'	EL	8.845	0.80	0.267	1.60	90'	EL	44.224	
		TNT6A	41.600		1.298	53.997	1.4	0.267	2.15	90'	EL	44.224	0.584	1.74	90'	EL	8.845	0.80	0.267	1.30	90'	EL	44.224	
		TNT7A	42.000		1.300	54.619	1.4	0.267	2.16	90'	EL	44.224	0.584	1.71	90'	EL	8.845	0.80	0.267	1.30	90'	EL	44.224	
		TNT7B	42.000		1.335	56.090	1.4	0.267	2.21	90'	EL	44.224	0.584	1.62	90'	EL	8.845	0.80	0.267	1.34	90'	EL	44.224	
		TNAGRIT4	43.000		1.278	54.943	1.4	0.267	2.12	90'	EL	44.224	0.584	1.57	90'	EL	8.845	0.80	0.267	1.28	90'	EL	44.224	
TNAGT5A		45.000		1.208	54.370	1.4	0.267	2.00	90'	EL	44.224	0.584	1.55	90'	EL	8.845	0.80	0.267	1.21	90'	EL	44.224		
TNAGT5B	45.000	3	1.197	53.852	1.4	0.267	1.98	90'	EL	44.224	0.584	1.50	90'	EL	8.845	0.80	0.267	1.20	90'	EL	44.224			
EMERGENCY VEHICLE (EV)	EV2	28.750		2.265	65.106	1.3	0.267	3.31	90'	EL	44.224	0.584	2.26	90'	EL	8.845	0.80	0.267	2.34	90'	EL	44.224		
	EV3	43.000	4	1.524	65.523	1.3	0.267	2.18	90'	EL	44.224	0.584	1.52	90'	EL	8.845	0.80	0.267	1.54	90'	EL	44.224		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

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)

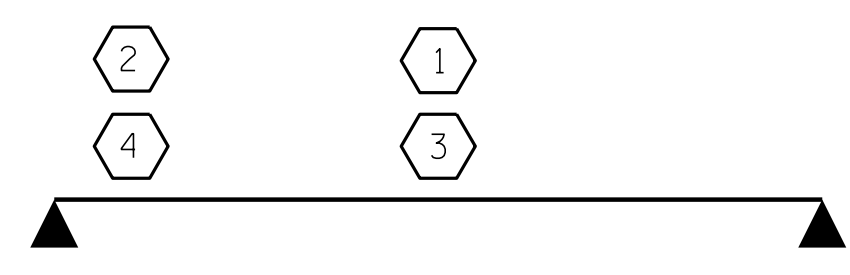
3 LEGAL LOAD RATING **

4 EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY
FOR SPAN "A"

PROJECT NO. 17BP.12.R.64
GASTON COUNTY
STATION: 13+35.00 -L-

\$FILE\$
\$DATE\$
\$TIME\$

ASSEMBLED BY : J. PENDERGRAFT	DATE : 11-23
CHECKED BY : J. DILWORTH	DATE : 11-23
DRAWN BY : TMG 11/11	REV. 06/23 AKP/AAT
CHECKED BY : AAC 11/11	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
11/2/2023

NORTH CAROLINA
PROFESSIONAL
SEAL
22072

ENGINEER
ARTHUR DILWORTH

DocuSigned by:
John Arthur Dilworth

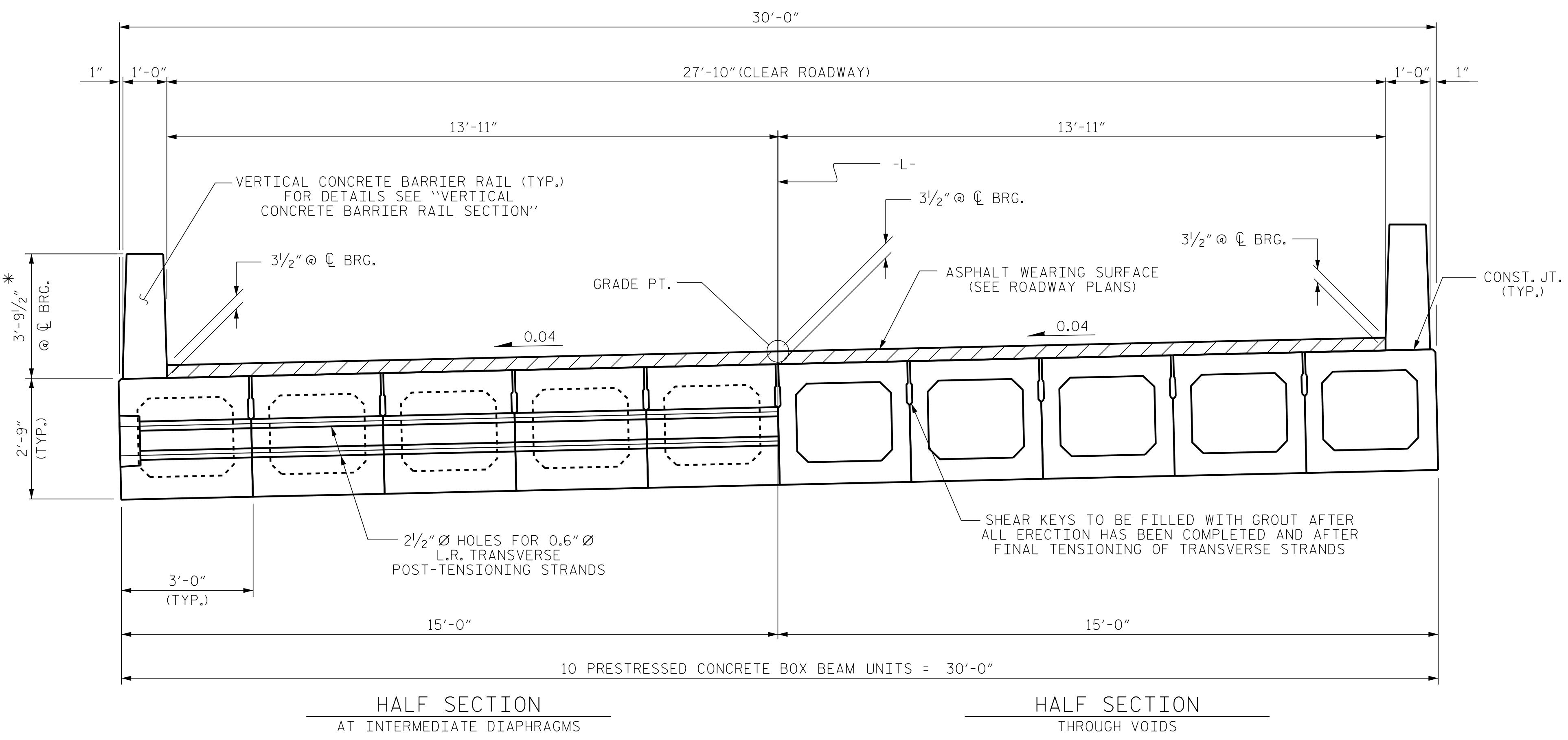
ETHERILL
ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
90' BOX BEAM UNIT
75° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			15



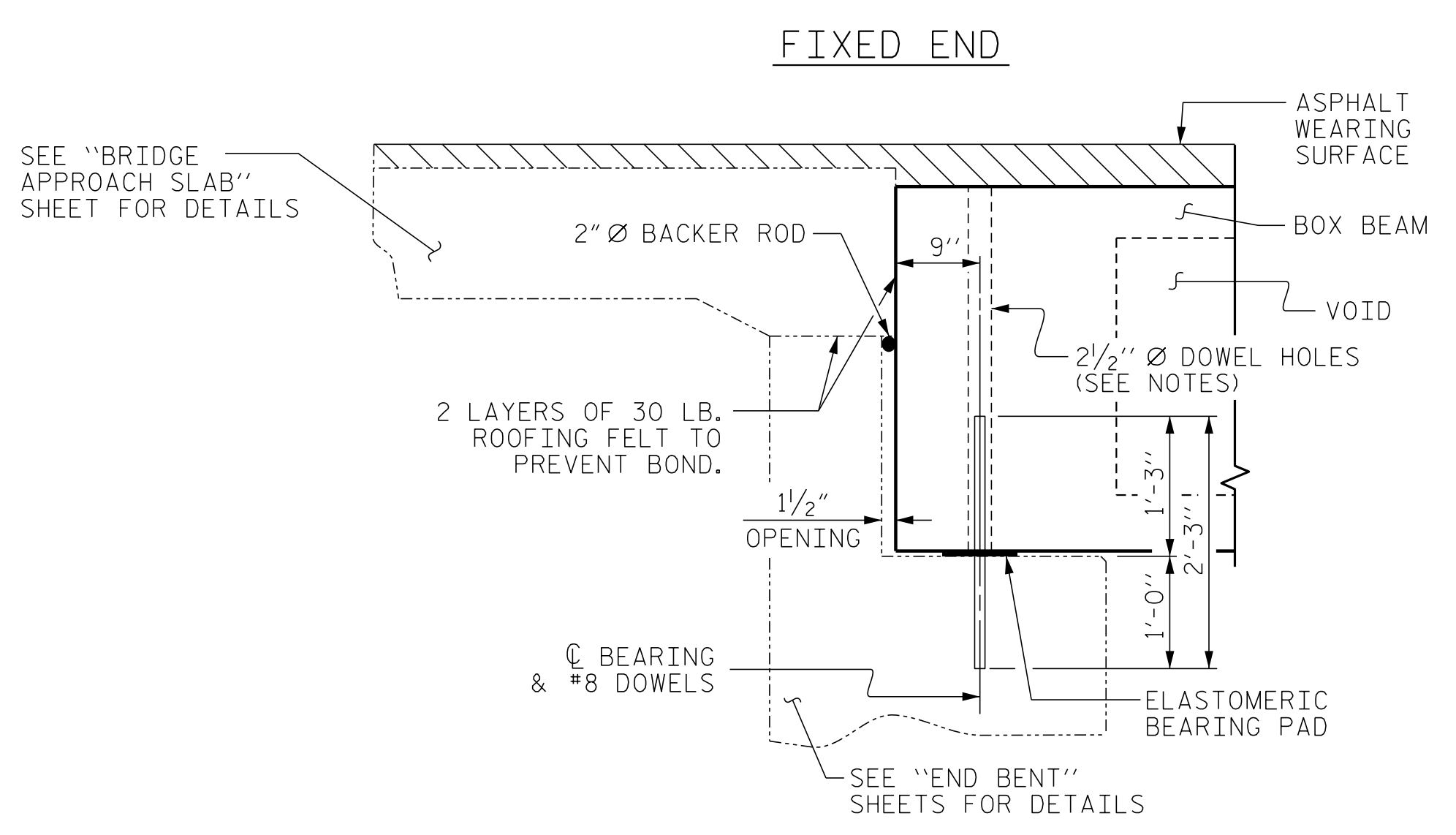
HALF SECTION AT INTERMEDIATE DIAPHRAGMS
 HALF SECTION THROUGH VOIDS

TYPICAL SECTION

* THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

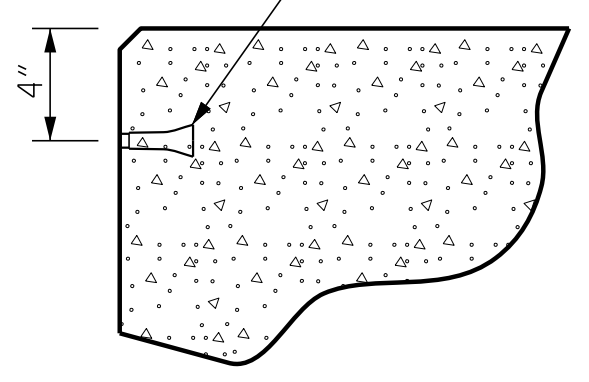
NOTES

- ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.
- FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.
- RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.
- THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.
- THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.
- THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.
- ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.
- PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.
- APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.
- VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.
- THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.
- THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.
- THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.
- THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.



SECTION AT END BENT

PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL

PROJECT NO. 17BP.12.R.64
GASTON COUNTY
 STATION: 13+35.00 -L-
 SHEET 1 OF 5

ASSEMBLED BY : J. PENDERGRAFT	DATE : 9-18
CHECKED BY : J. DILWORTH	DATE : 10-18
DRAWN BY : DCE 8/11	REV. 8/14 MAA/TMG
CHECKED BY : TMG 11/11	

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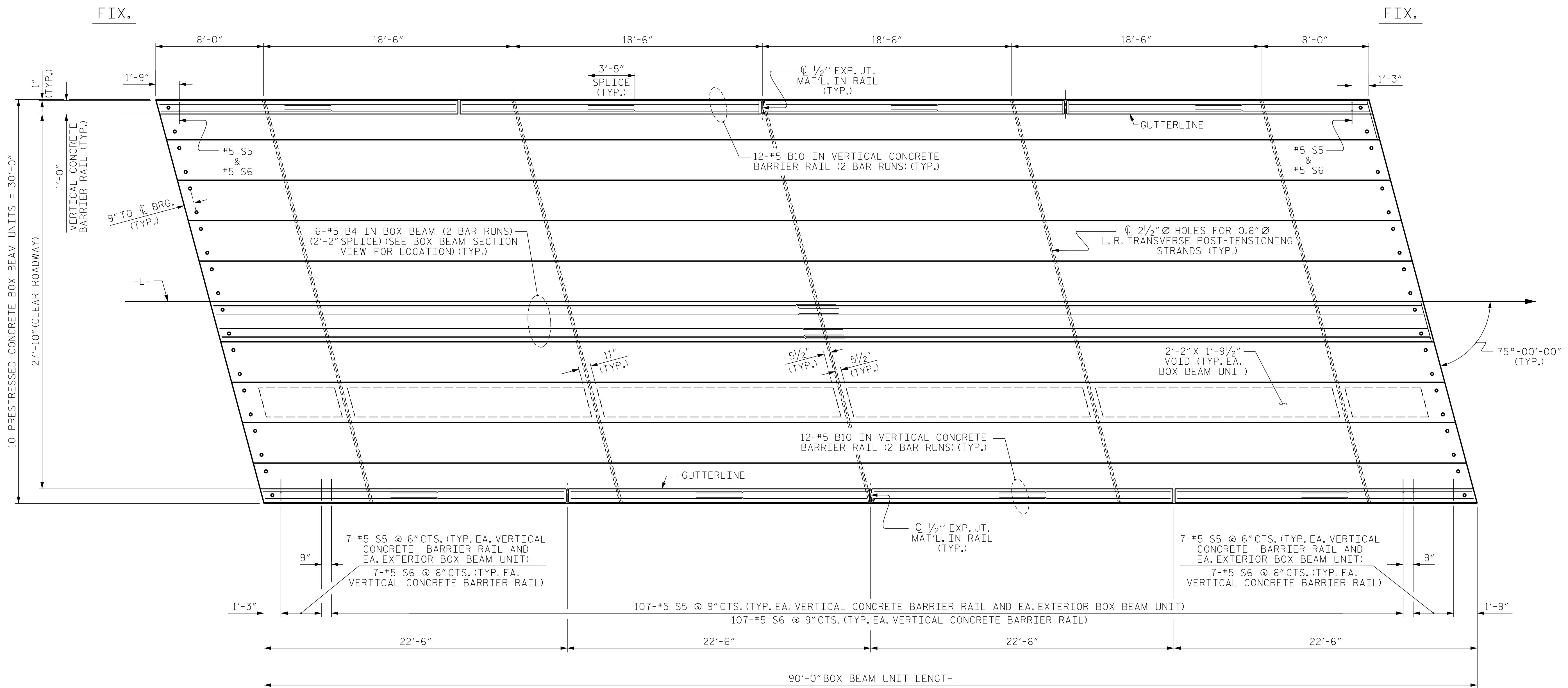
ENGINEER OF RECORD
 7/14/2022

 Dec. signed by:
 John Arthur Dilworth
 WETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

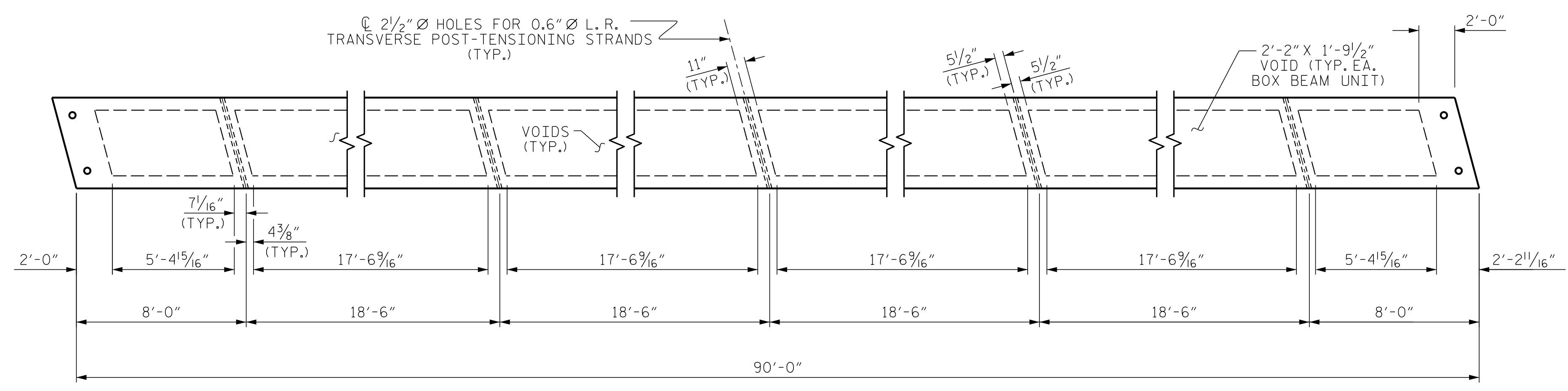
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD 3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-4					TOTAL SHEETS 15

STD. NO. STD.33PCBB1_30

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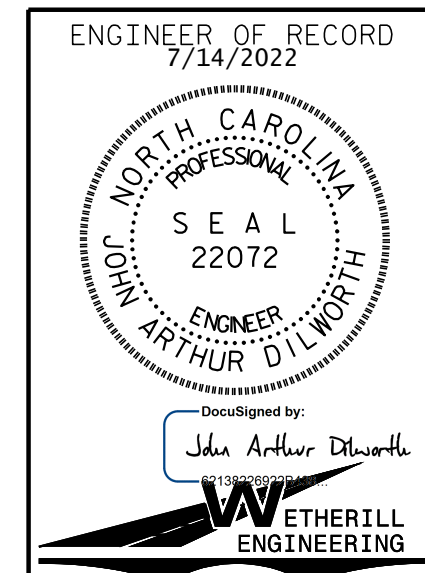


PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. 17BP.12.R.64
 GASTON COUNTY
 STATION: 13+35.00 -L-
 SHEET 2 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 90' UNIT
 27'-10" CLEAR ROADWAY
 75° SKEW

ASSEMBLED BY : J. PENDERGRAFT	DATE : 9-18
CHECKED BY : J. DILWORTH	DATE : 10-18
DRAWN BY : DGE	8/11
CHECKED BY : TMG	11/11
REV. 8/14	MAA/TMG

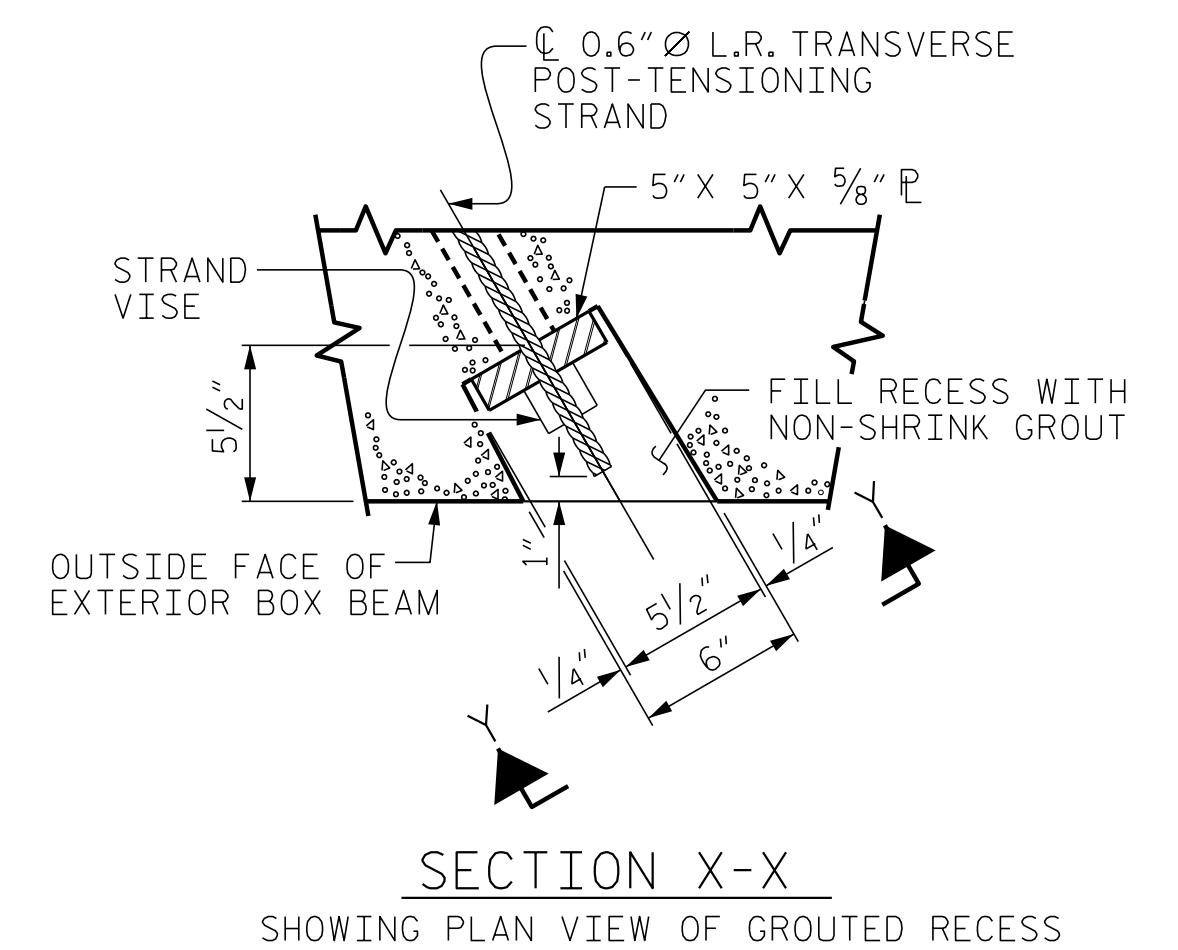
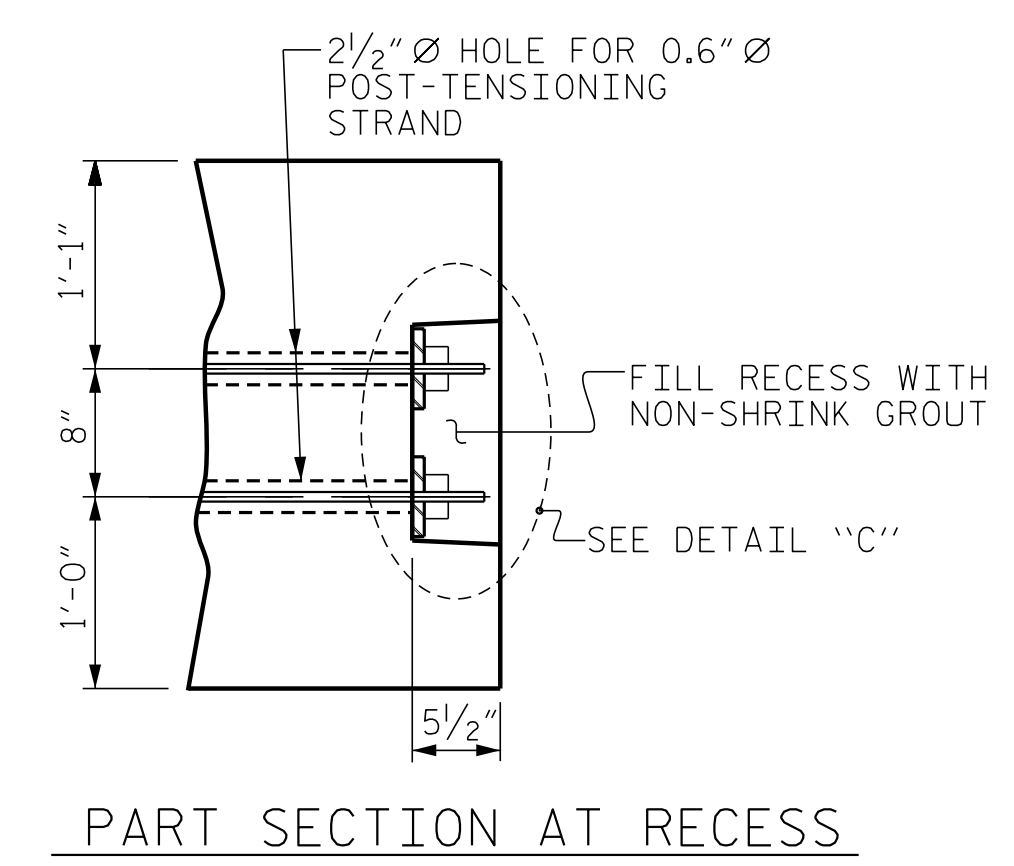
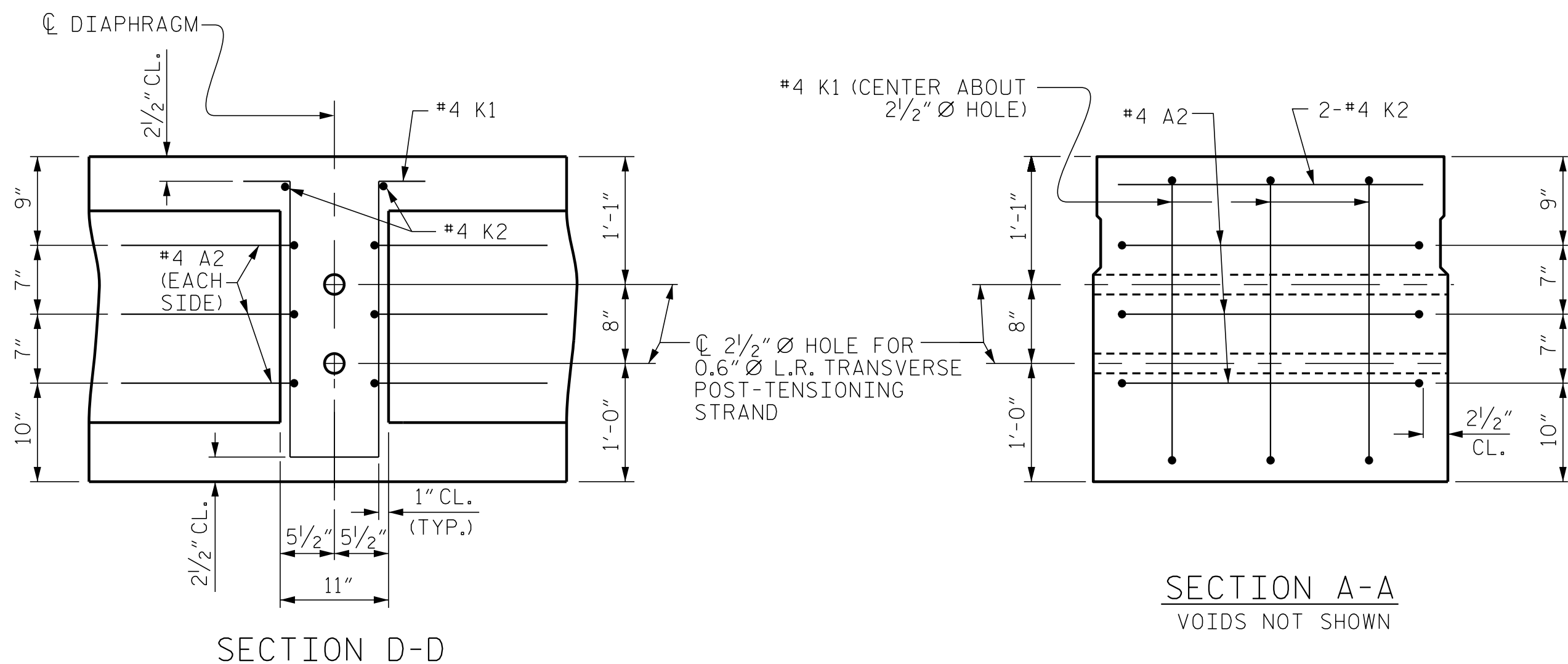
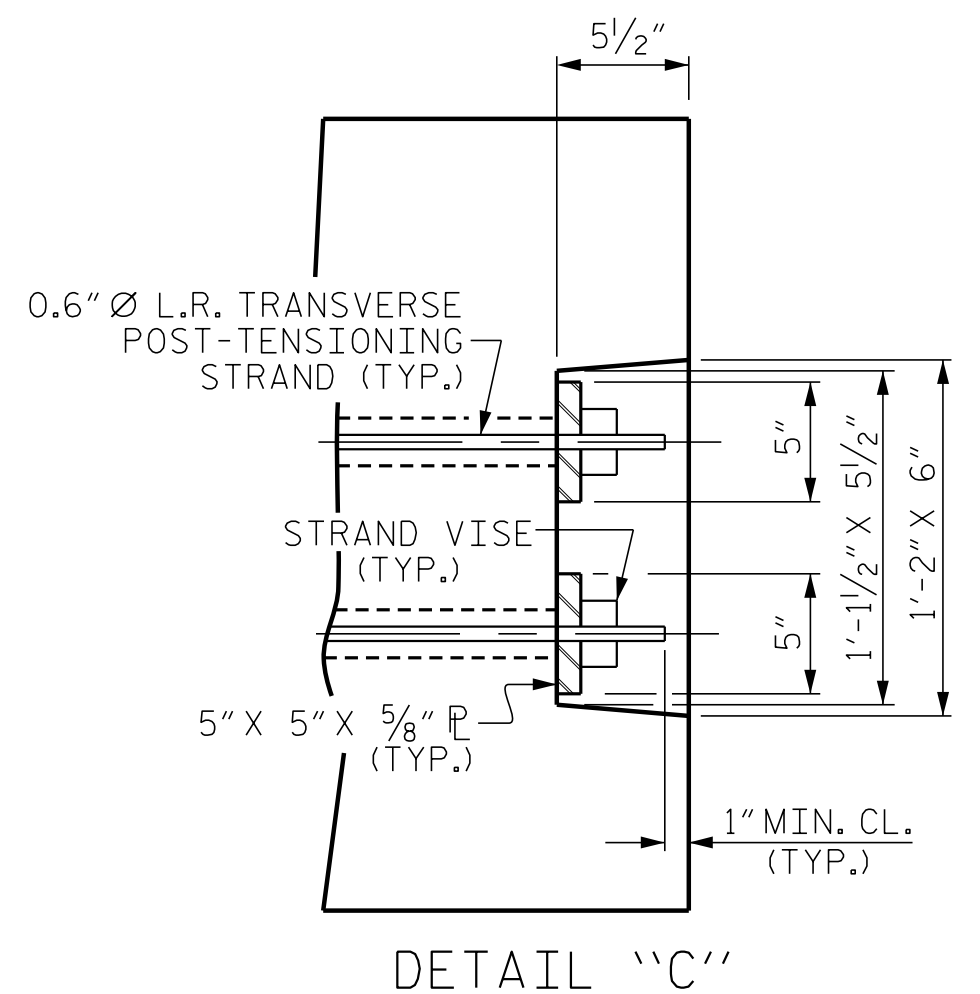
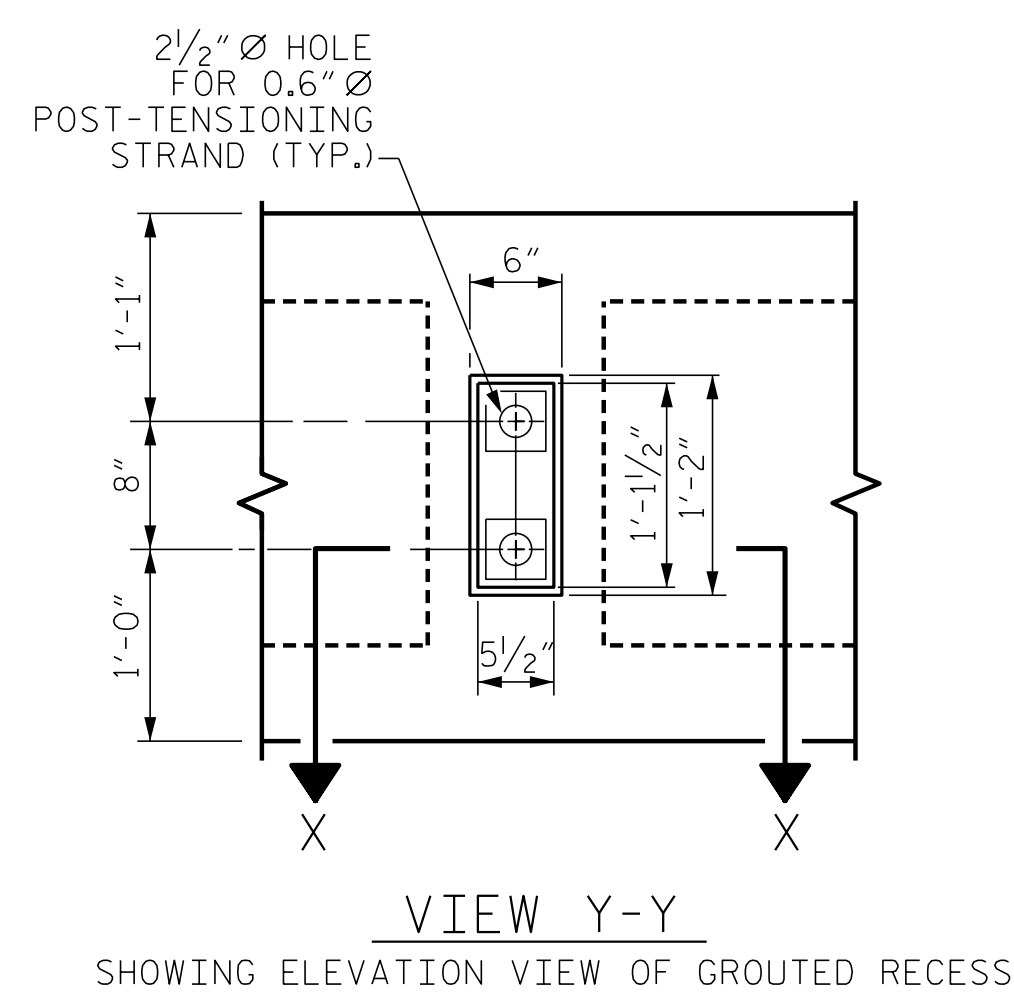
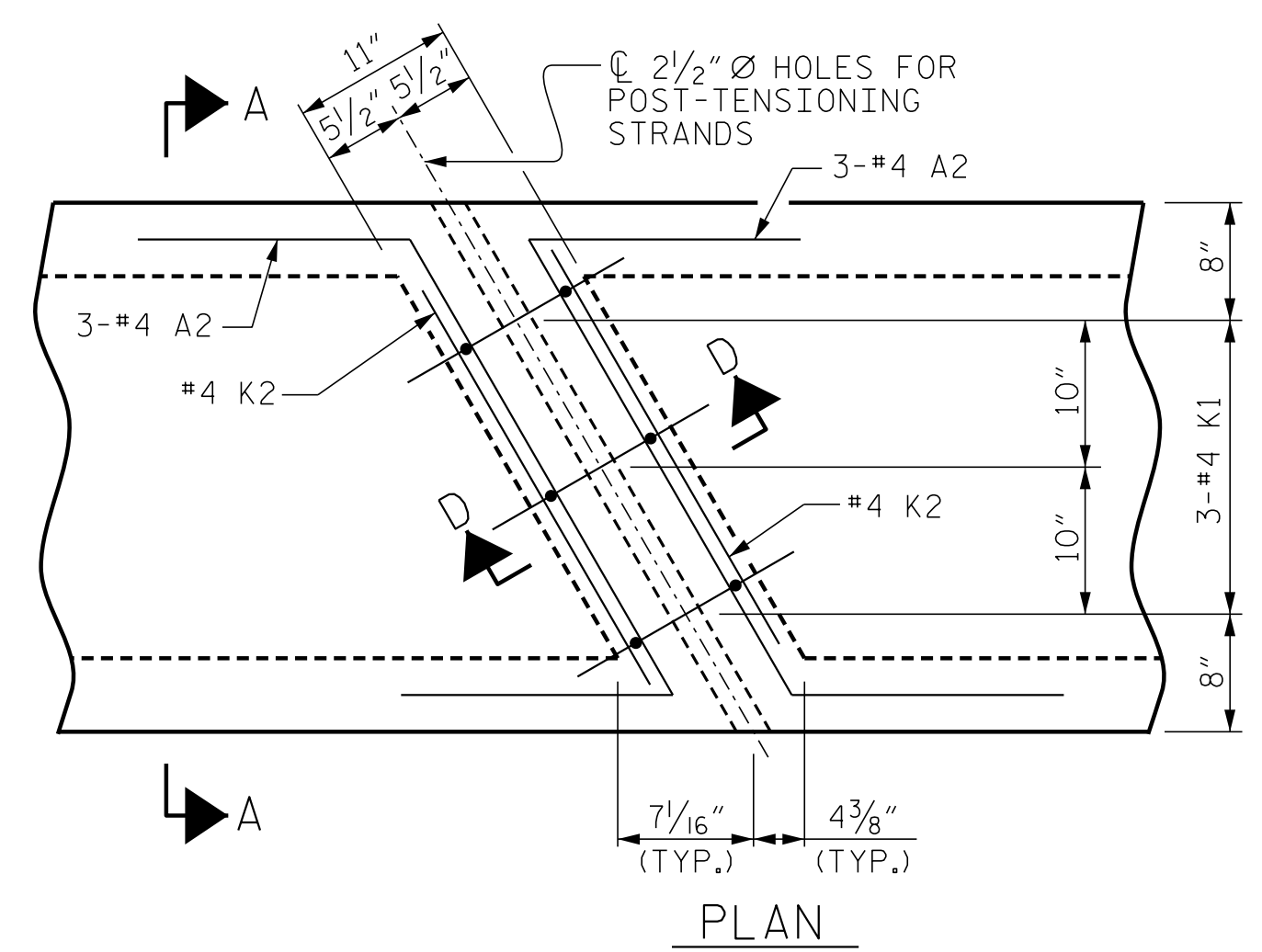
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			15

STD.NO.33PCBB_30_75S_90L

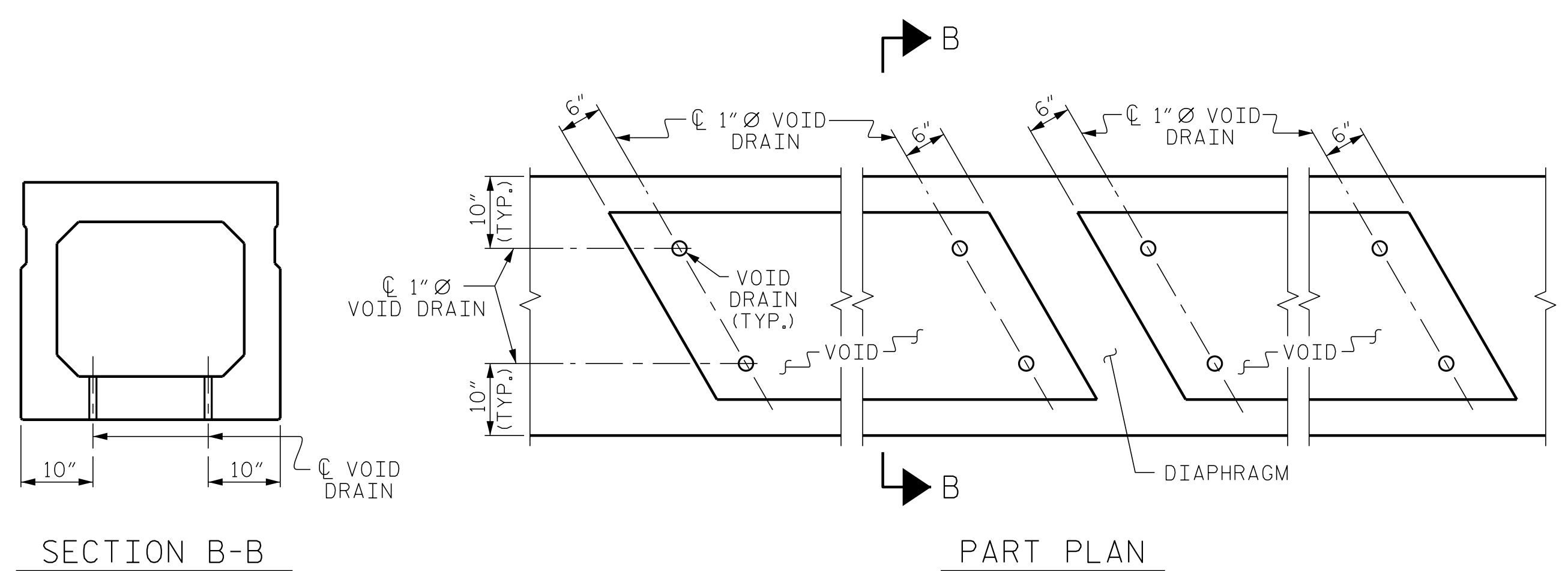
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DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.

GROUDED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM



VOID DRAIN DETAILS
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER	
90' BOX BEAM UNIT (SE)	3'-0" x 2'-9"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND 2 3/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/4" ↓
FINAL CAMBER	2" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 17BP.12.R.64
GASTON COUNTY
STATION: 13+35.00 -L-
SHEET 4 OF 5

ENGINEER OF RECORD
7/14/2022
NORTH CAROLINA PROFESSIONAL SEAL
22072
ENGINEER ARTHUR DILLON
DocuSigned by:
John Arthur Dillworth
ETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

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

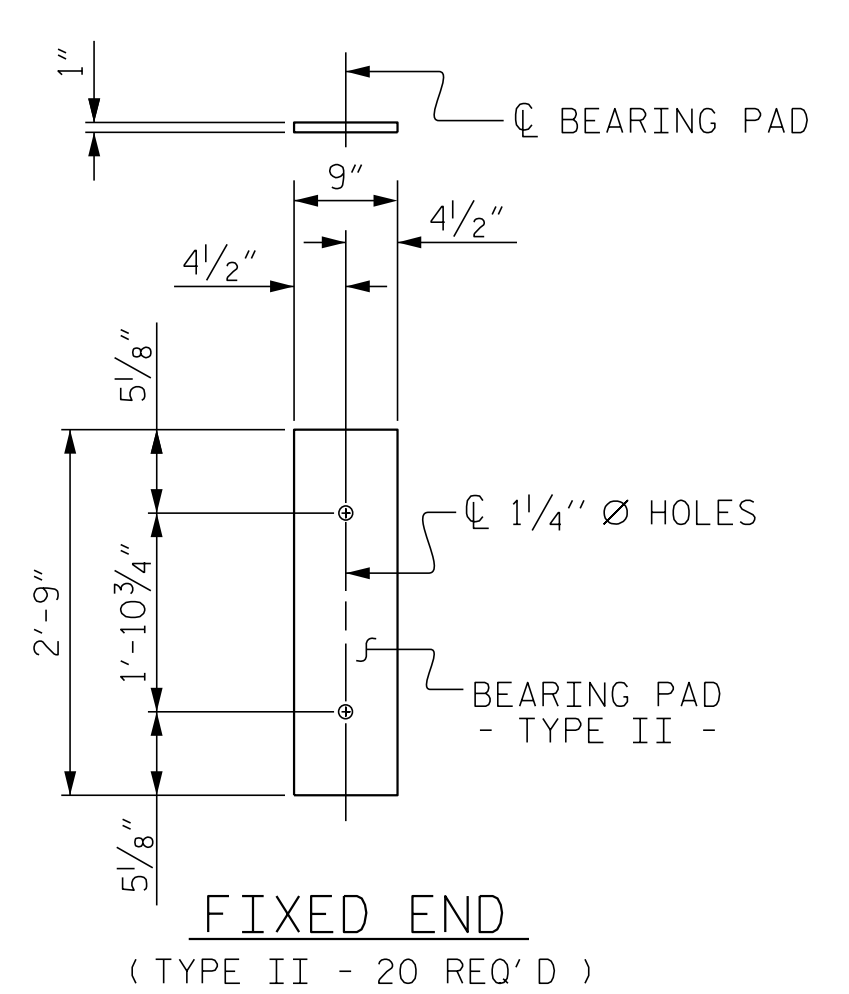
SHEET NO. S-7
TOTAL SHEETS 15

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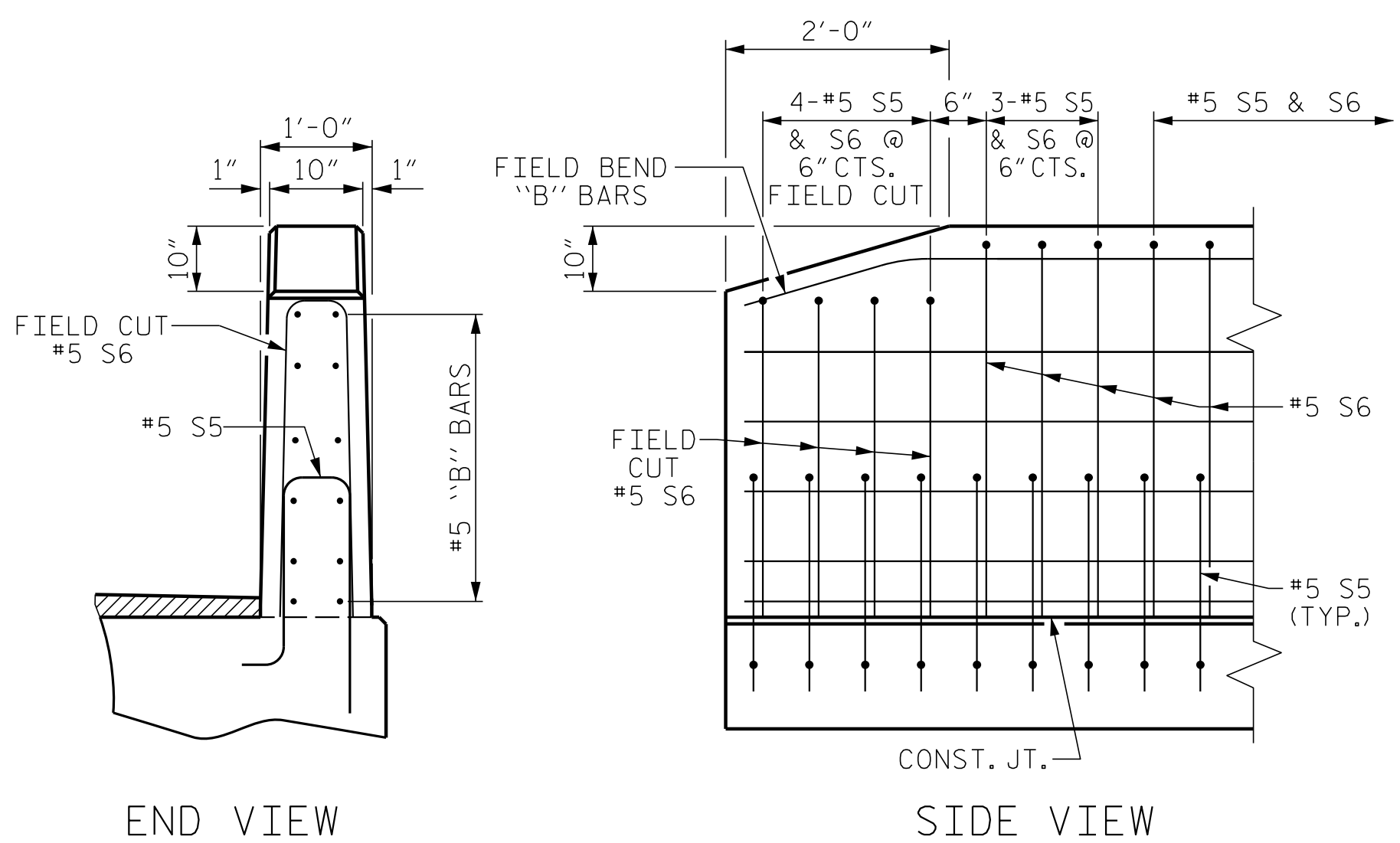
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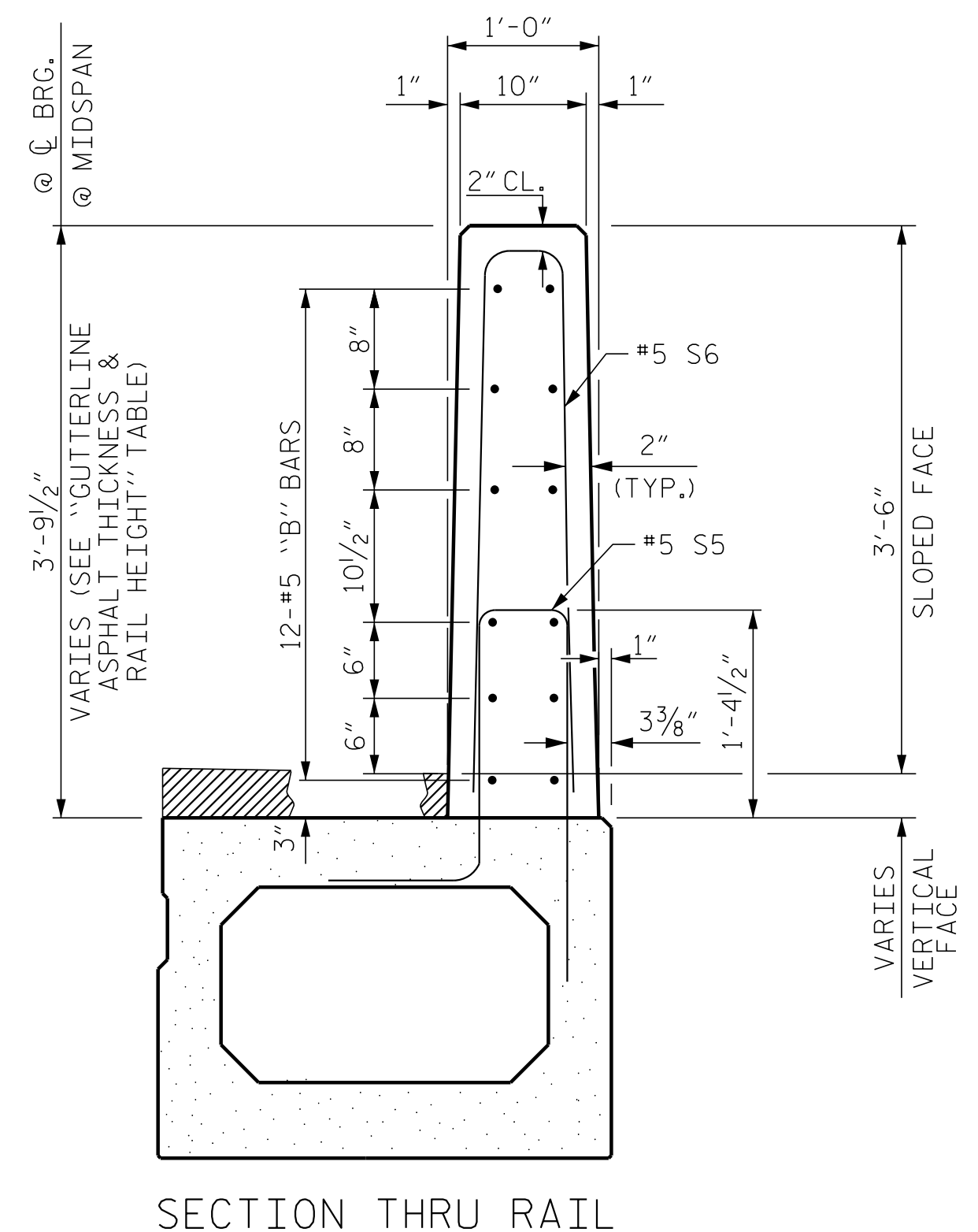
ASSEMBLED BY : J. PENDERGRAFT DATE : 9-18
 CHECKED BY : J. DILWORTH DATE : 10-18
 DRAWN BY : DGE II/II REV. 8/14 MAA/TMG
 CHECKED BY : TMG II/II



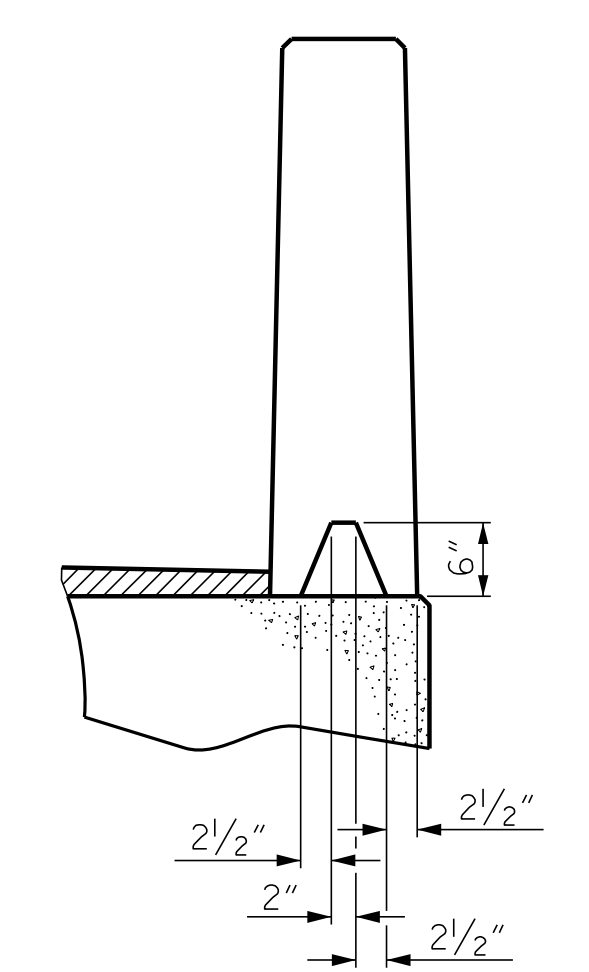
ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



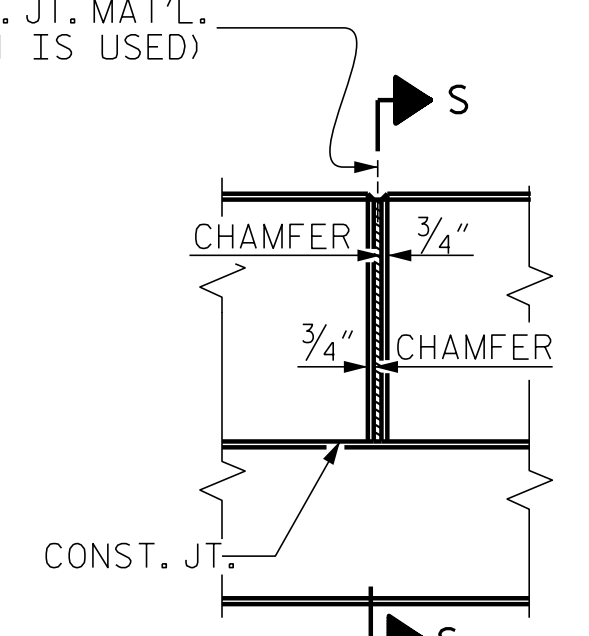
END OF RAIL DETAILS



VERTICAL CONCRETE BARRIER RAIL DETAILS

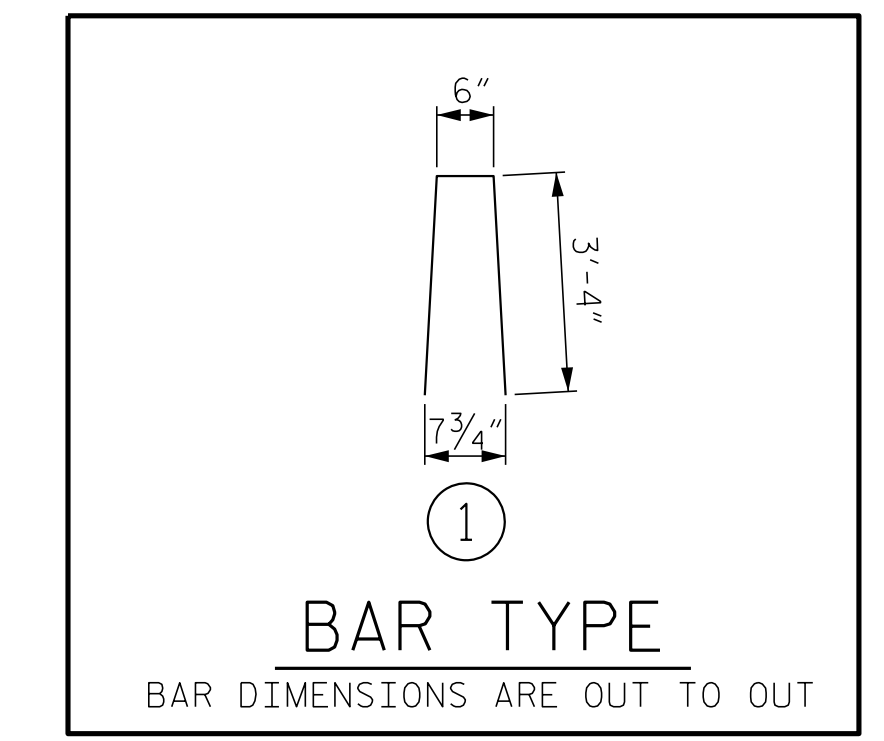


SECTION S-S AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

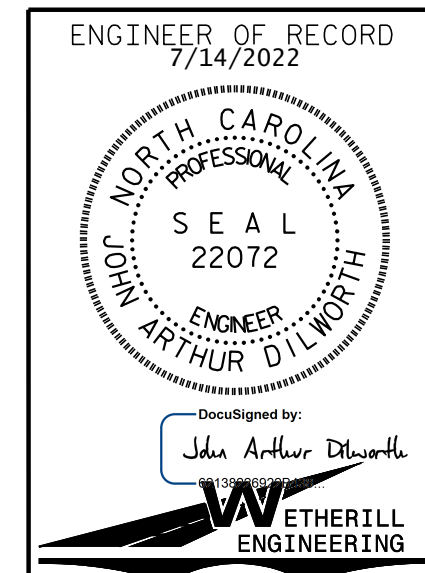
BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	90'-0"	180'-0"
INTERIOR B.B.	8	90'-0"	720'-0"
TOTAL	10		900'-0"



BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL					
BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT
	90' UNIT				
*B10	192	#5	STR	12'-10"	2570
*S6	242	#5	1	7'-2"	1809
* EPOXY COATED REINFORCING STEEL				LBS.	4379
CLASS AA CONCRETE				CU.YDS.	23.3
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.	180.0

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
30' SE		
90' UNITS	1 1/2"	3'-7 1/2"

PROJECT NO. 17BP.12.R.64
GASTON COUNTY
STATION: 13+35.00 -L-
SHEET 5 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

ASSEMBLED BY : J. PENDERGRAFT	DATE : 9-18
CHECKED BY : J. DILWORTH	DATE : 10-18
DRAWN BY : DGE 10/11	REV. 5/18
CHECKED BY : TMG 11/11	MAA/THC

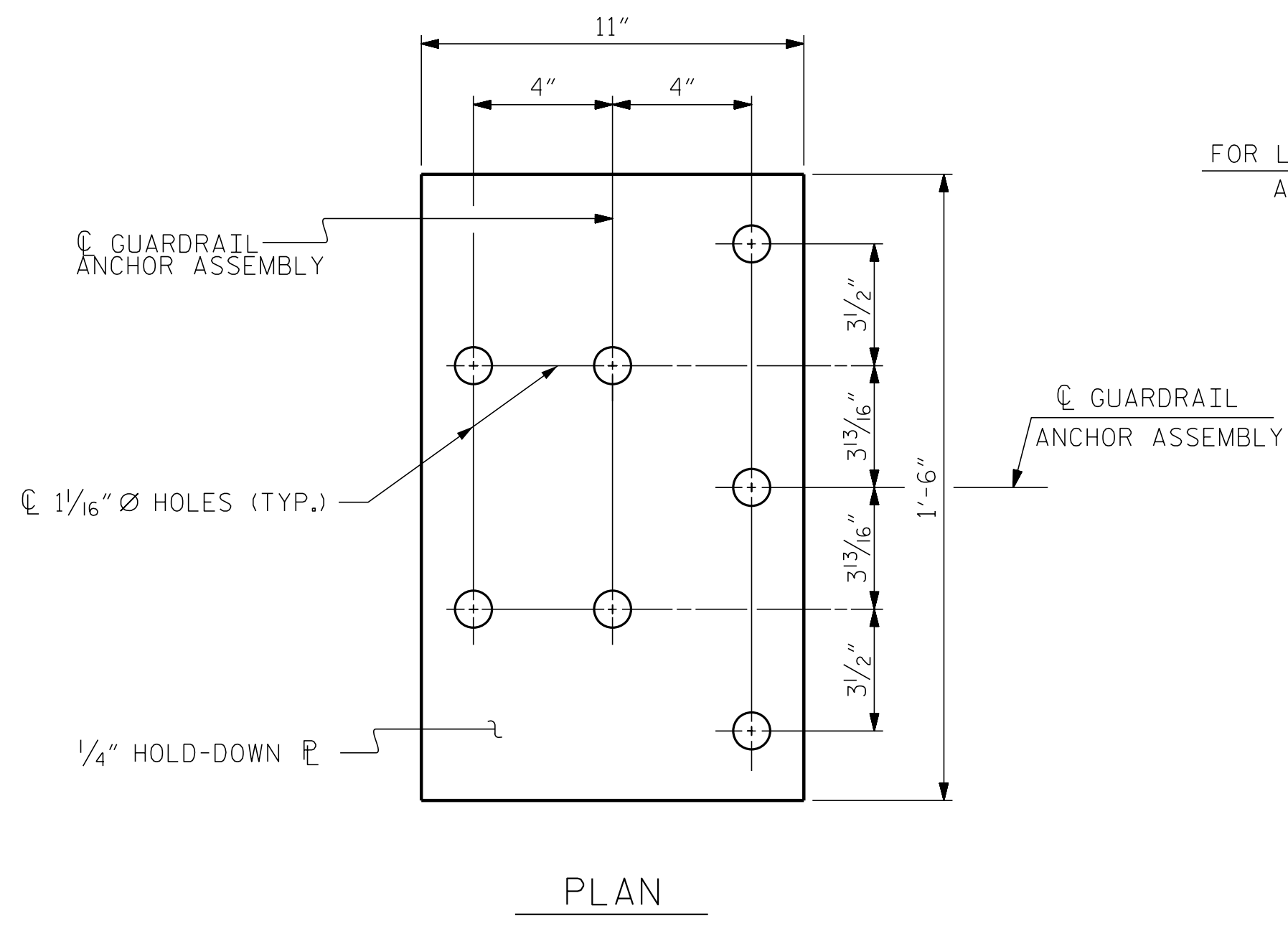
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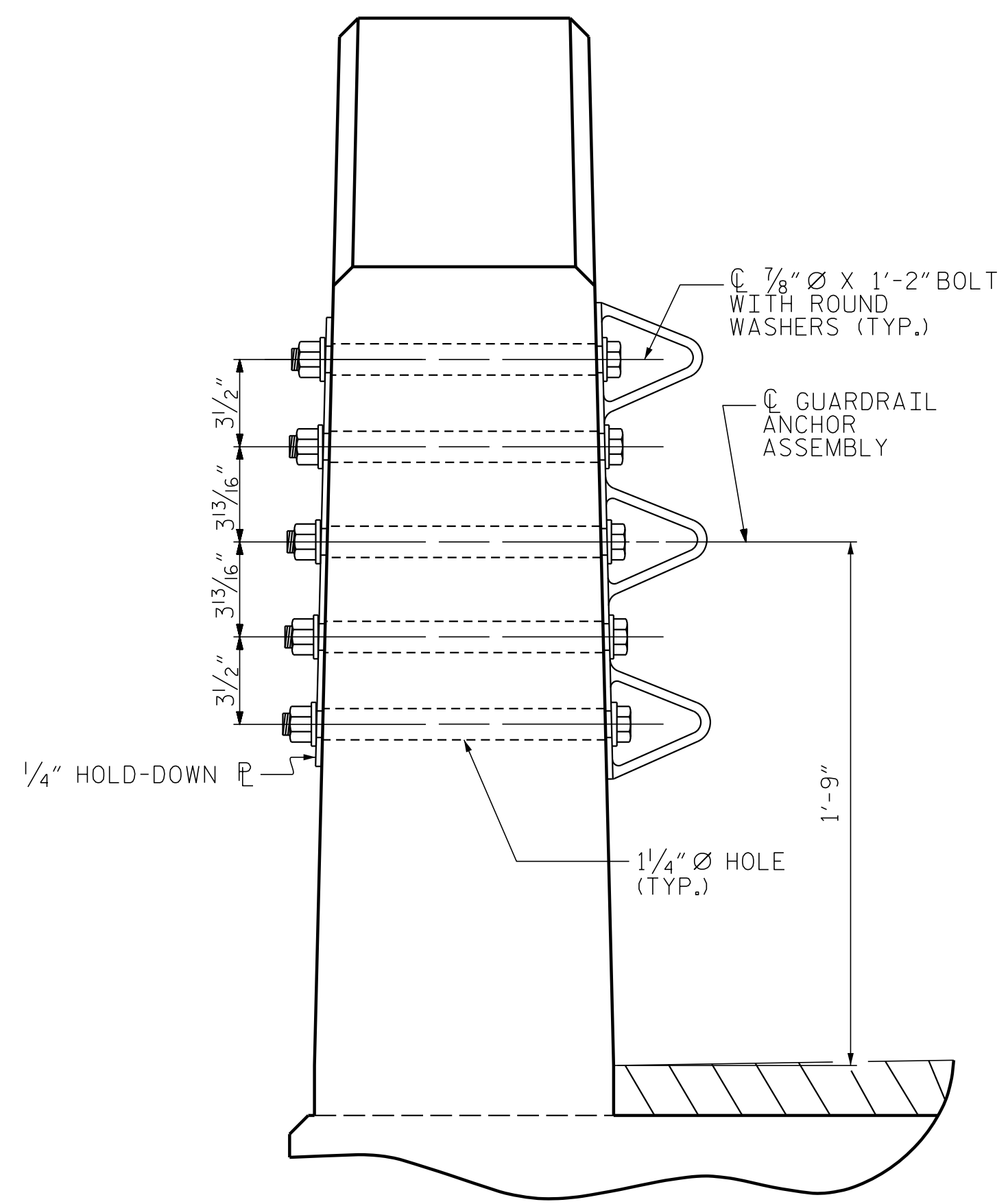
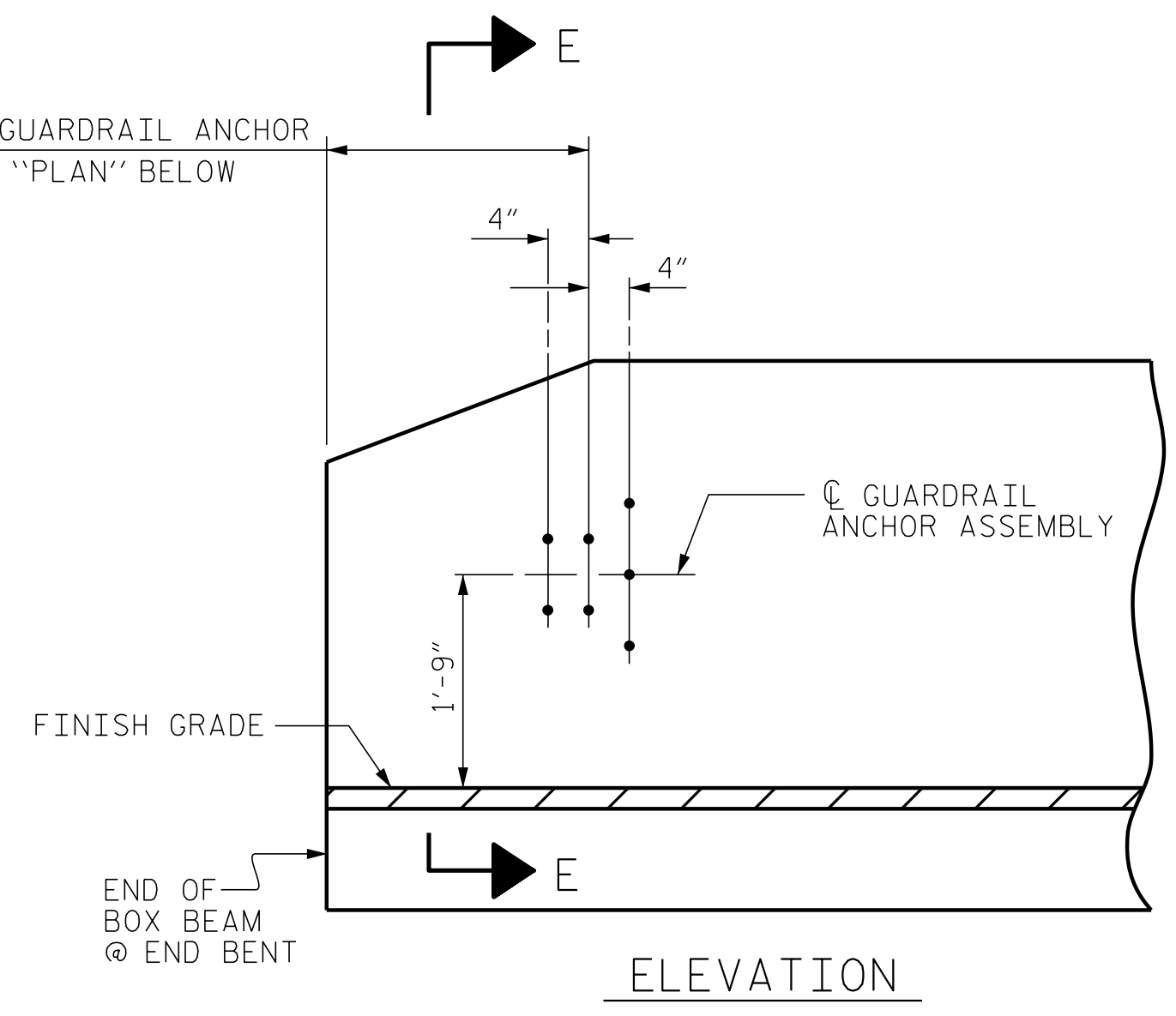
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			15

STD. NO. 33PCBB8_75&105S

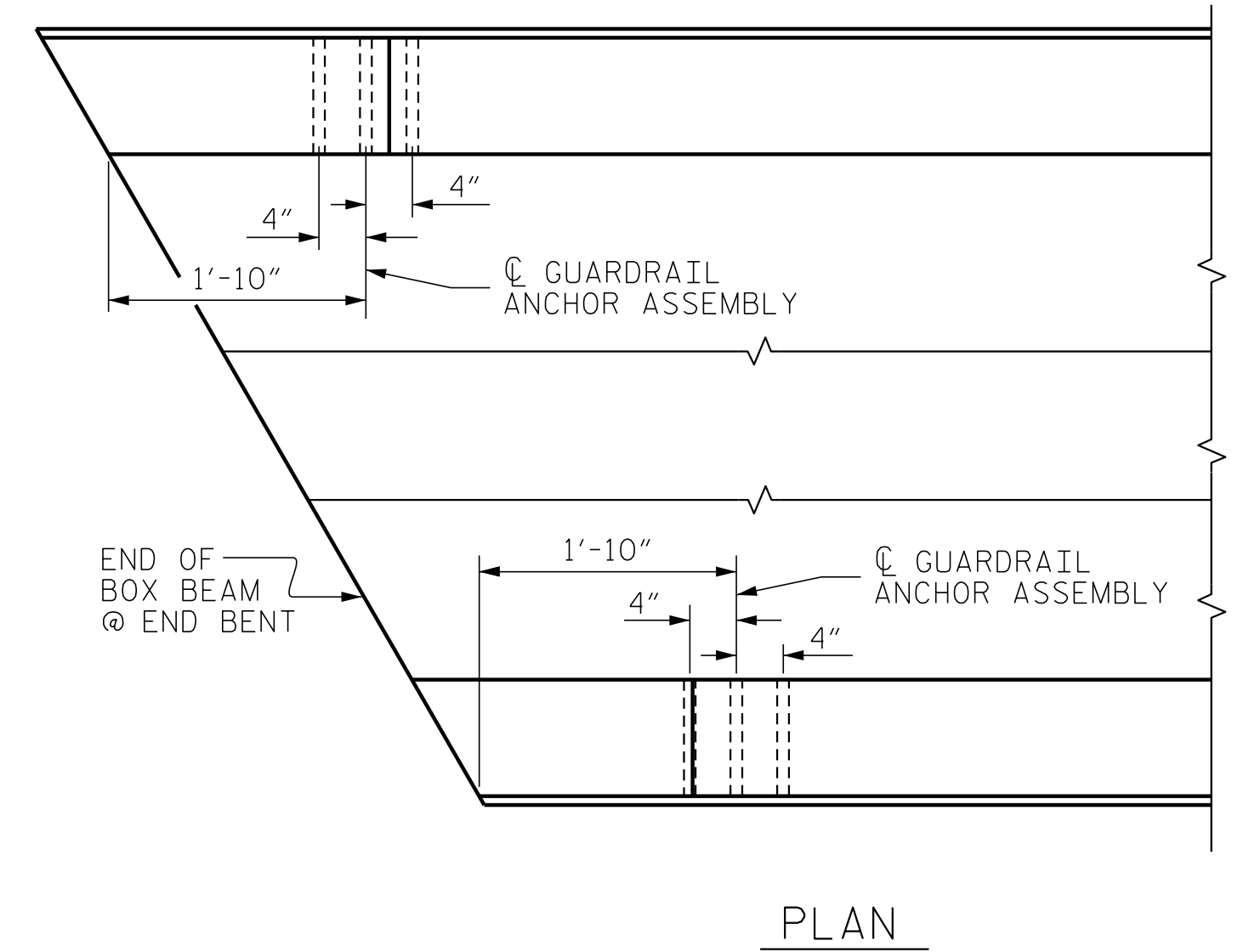
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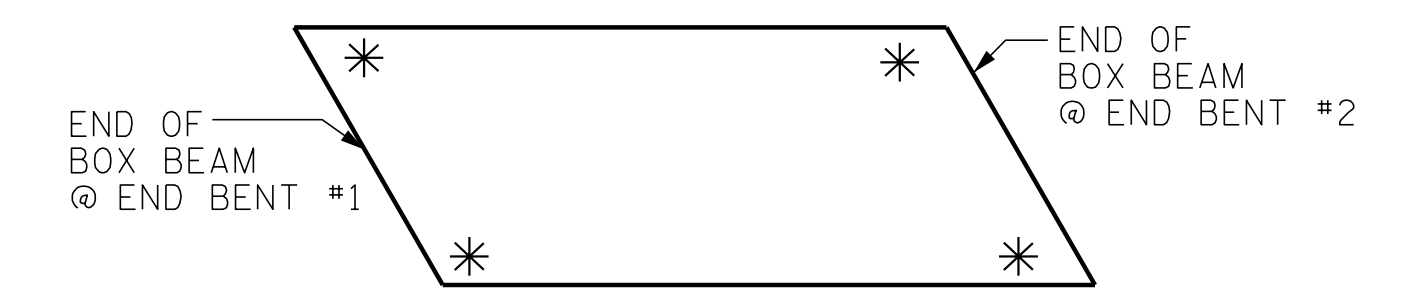
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL
END BENT #1 SHOWN, END BENT #2 SIMILAR.

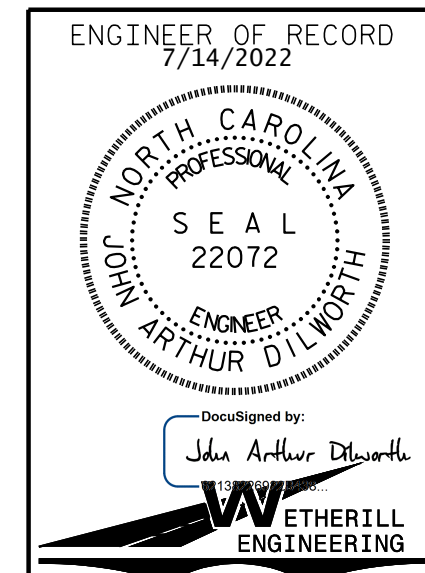


* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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 BARRIER RAIL. 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 ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.
- THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.
- THE 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. 17BP.12.R.64
GASTON COUNTY
STATION: 13+35.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
DETAILS
FOR VERTICAL CONCRETE
BARRIER RAIL

ASSEMBLED BY : J. PENDERGRAFT	DATE : 9-18
CHECKED BY : J. DILWORTH	DATE : 10-18
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

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			15

(SHT 1b) STD. NO. GRA3

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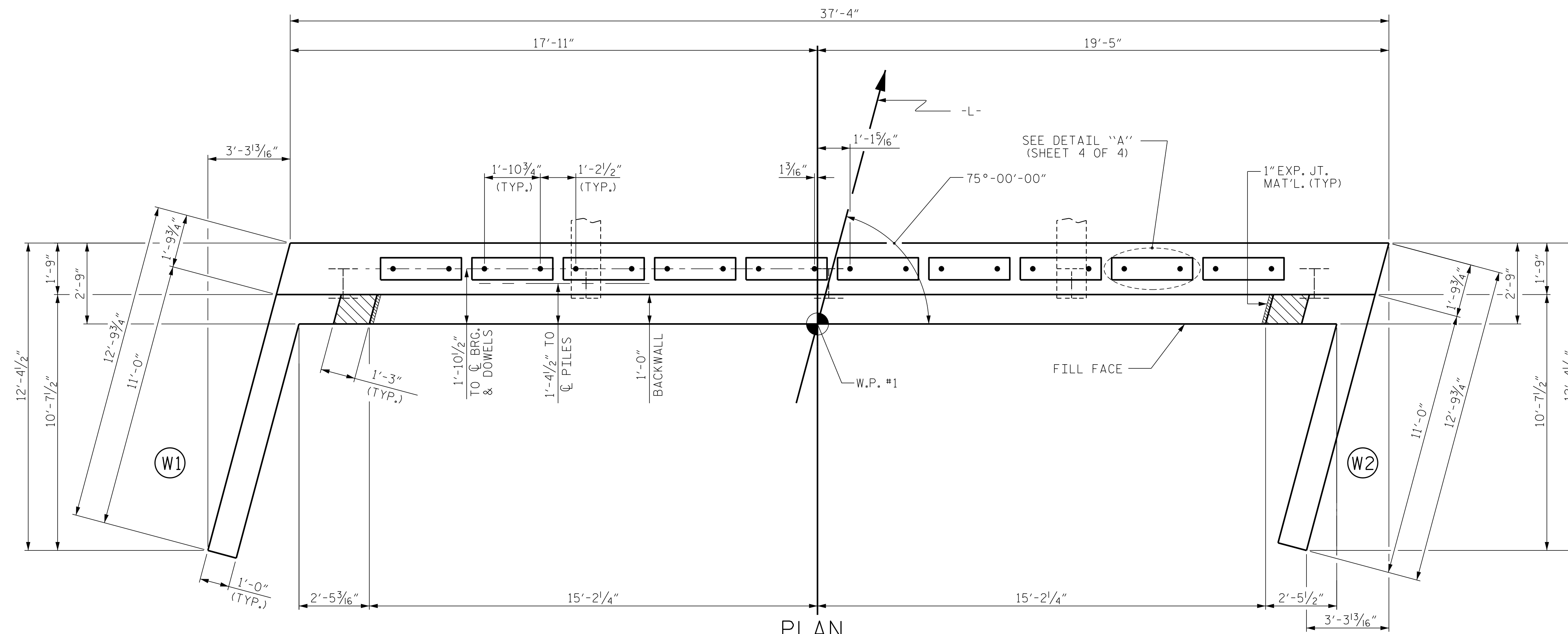
NOTES

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

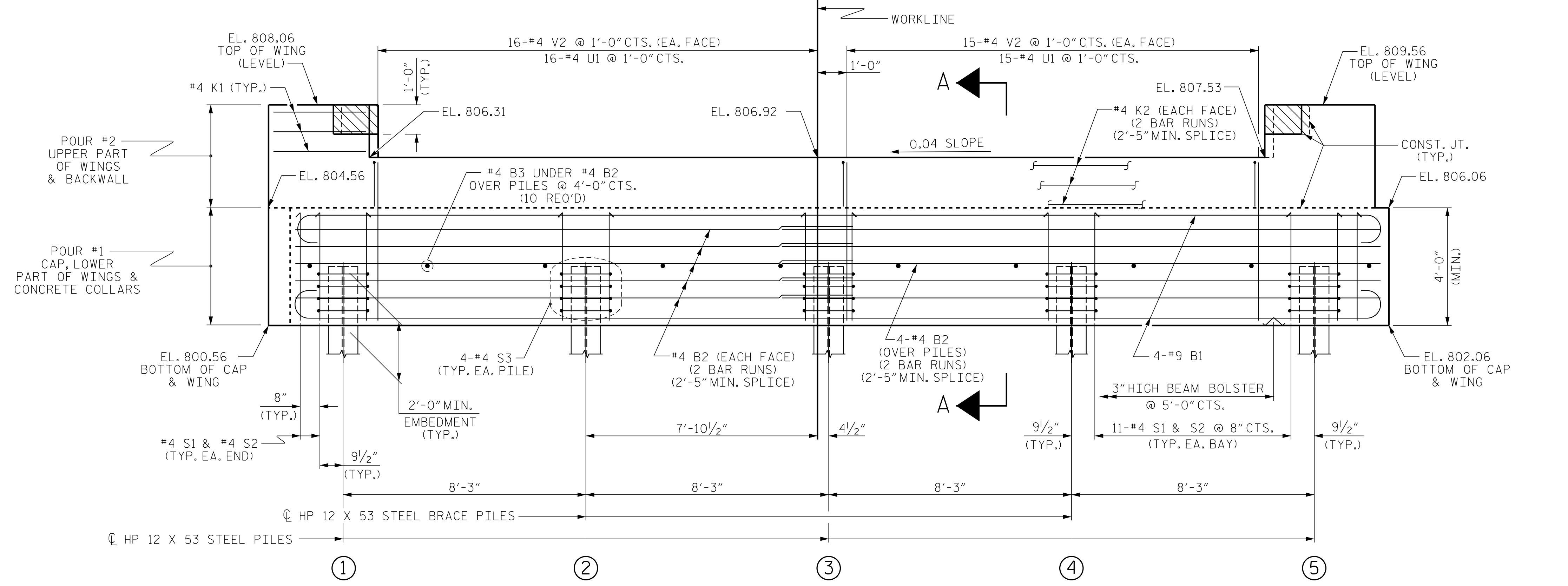
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



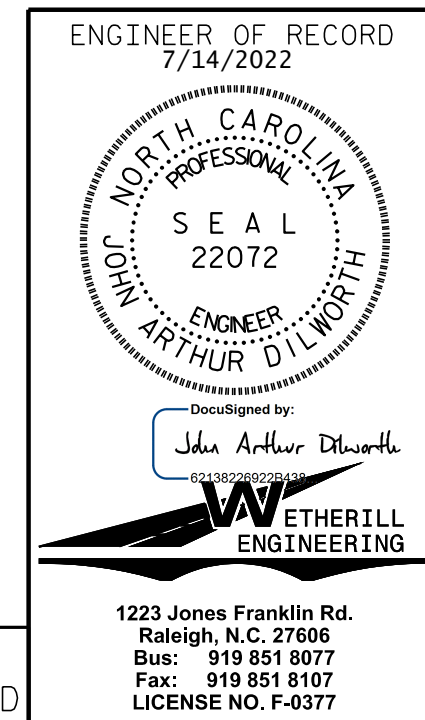
PLAN



ELEVATION

TOP OF PILE ELEVATIONS	
①	802.65
②	802.98
③	803.31
④	803.64
⑤	803.97

PROJECT NO. 17BP.12.R.64
 GASTON COUNTY
 STATION: 13+35.00 -L-
 SHEET 1 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			15

WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

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ASSEMBLED BY : J. PENDERGRAFT DATE : 9-18
 CHECKED BY : J. DILWORTH DATE : 10-18
 DRAWN BY : WJH 12/11 REV. 4/15 MAA/TMG
 CHECKED BY : AAC 12/11

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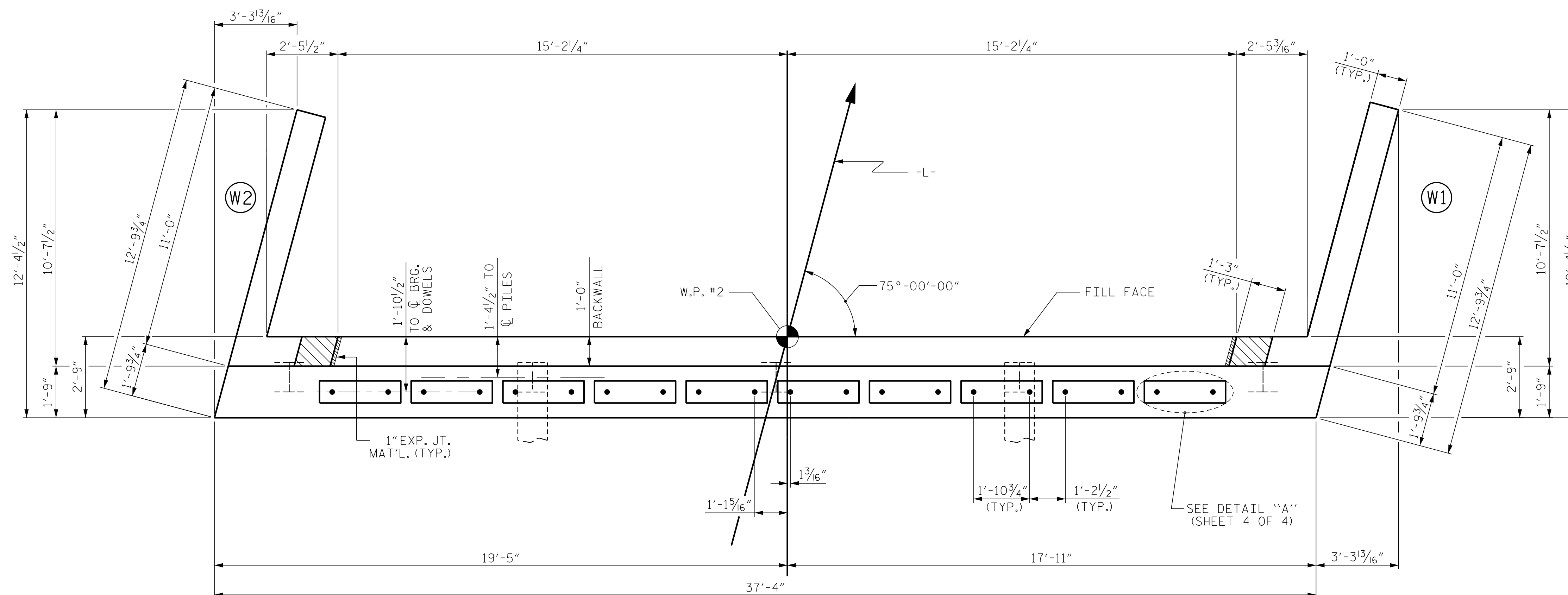
NOTES

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

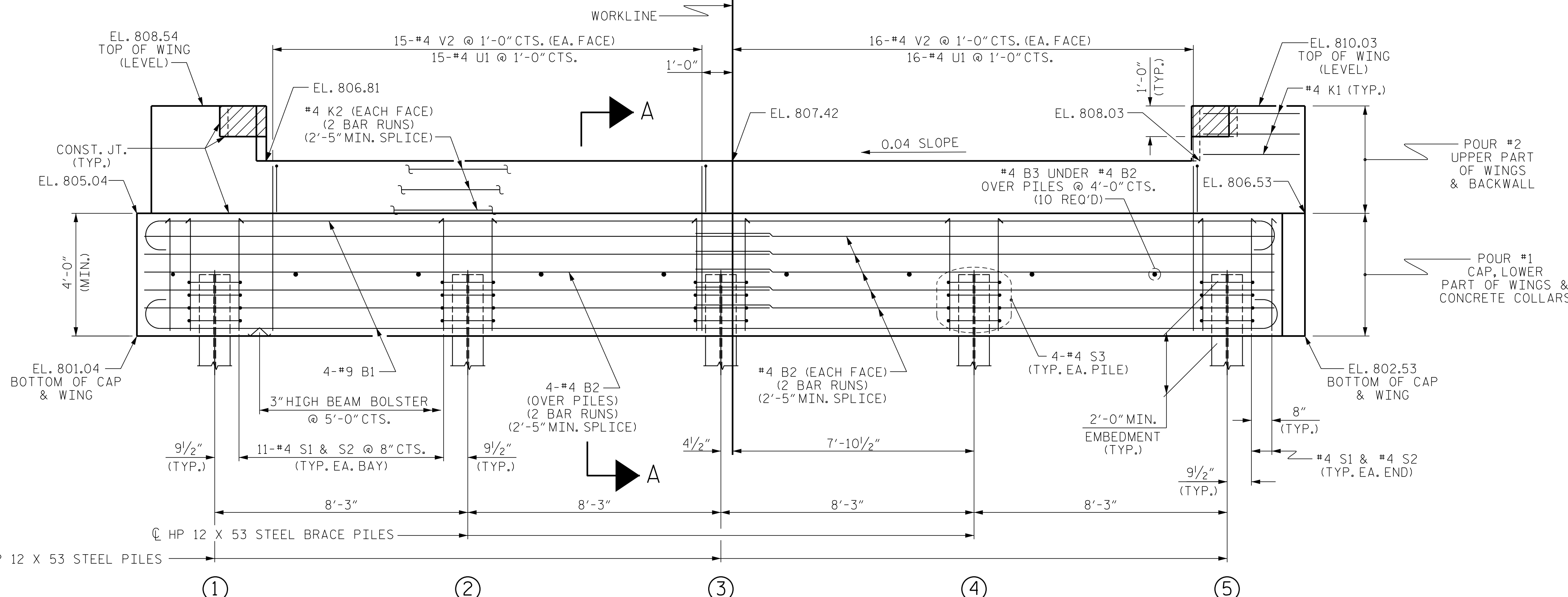
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

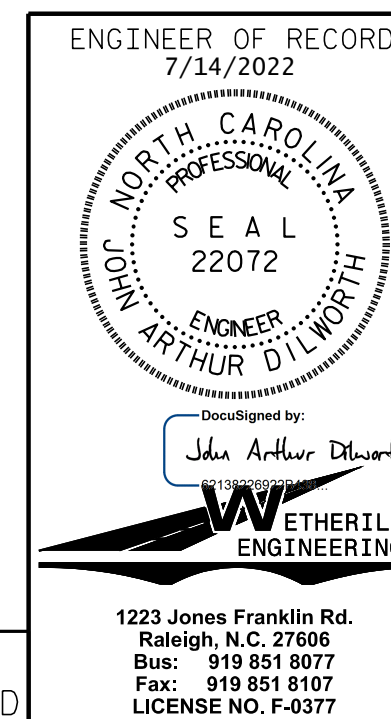


ELEVATION

TOP OF PILE ELEVATIONS	
①	803.13
②	803.46
③	803.79
④	804.12
⑤	804.45

PROJECT NO. 17BP.12.R.64
 GASTON COUNTY
 STATION: 13+35.00 -L-

SHEET 2 OF 4



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

STD. NO. EB_30_75S4_33BB

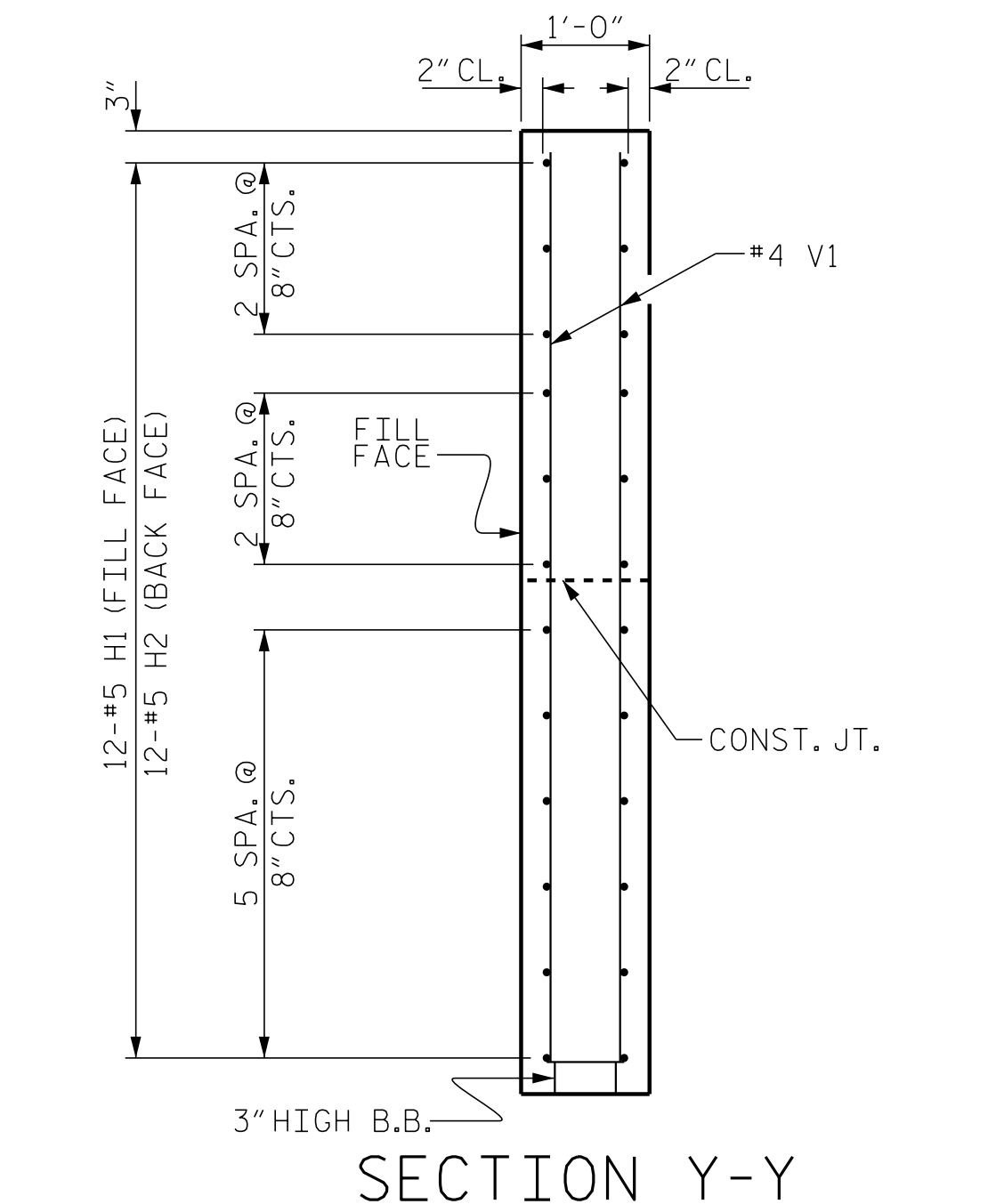
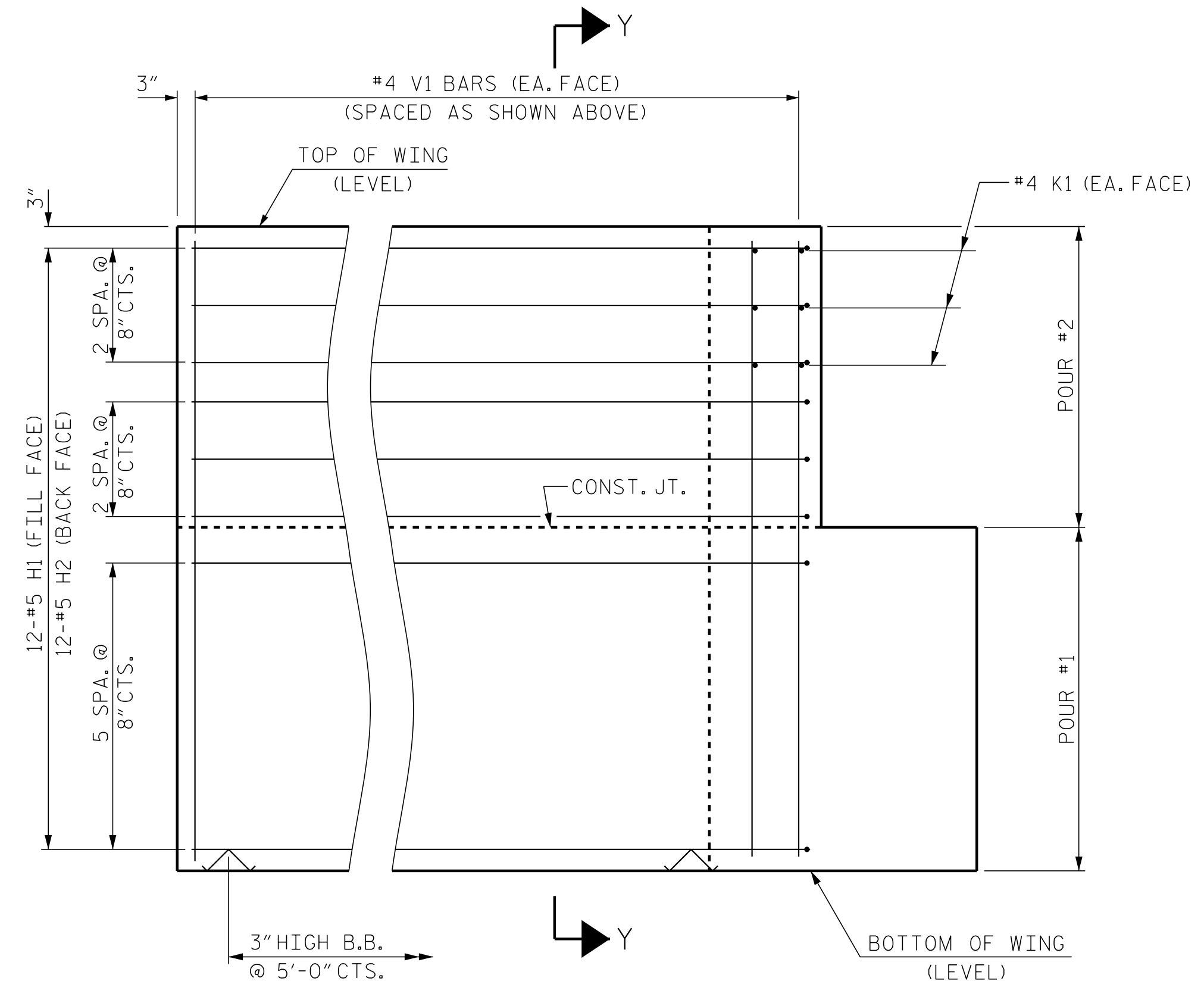
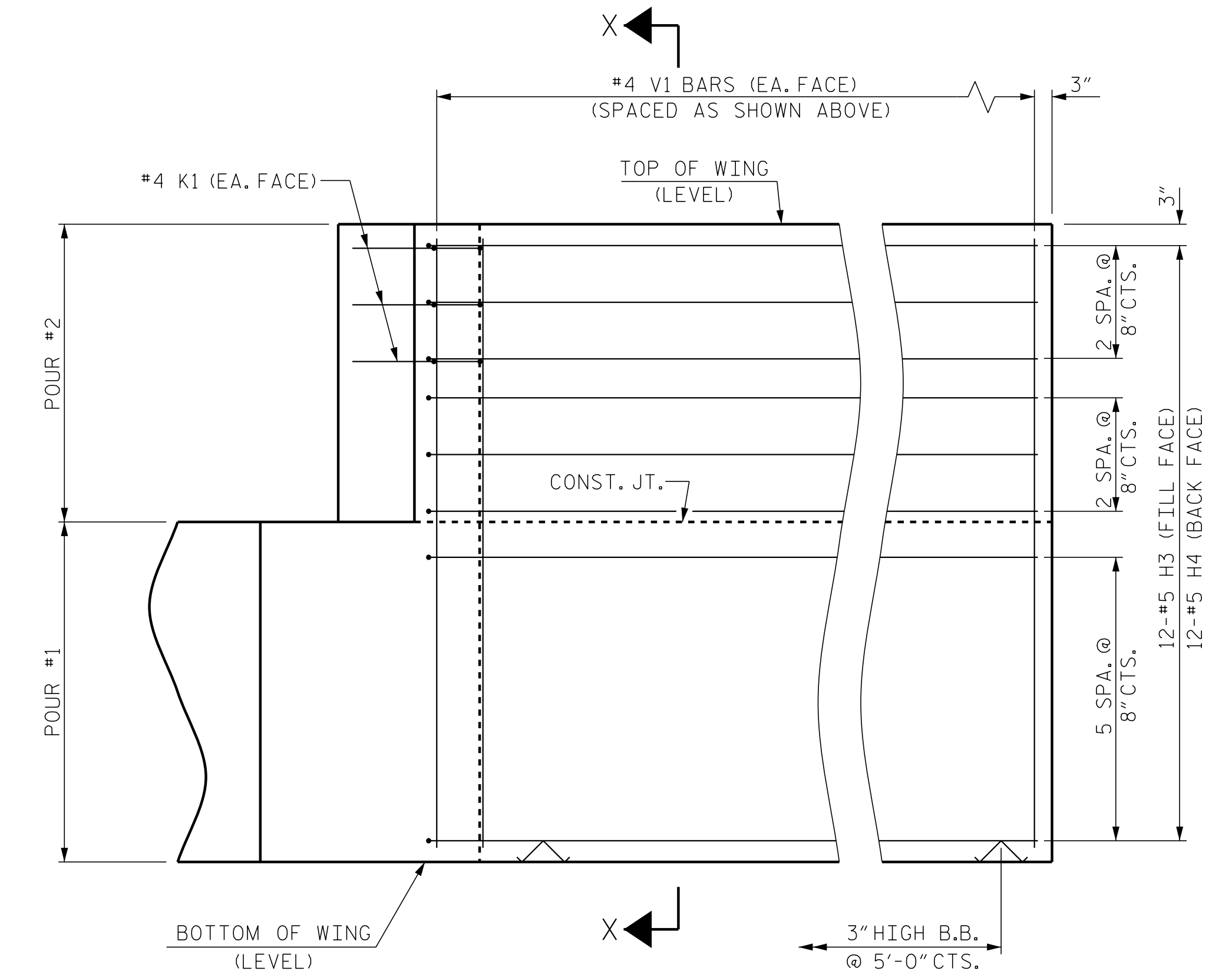
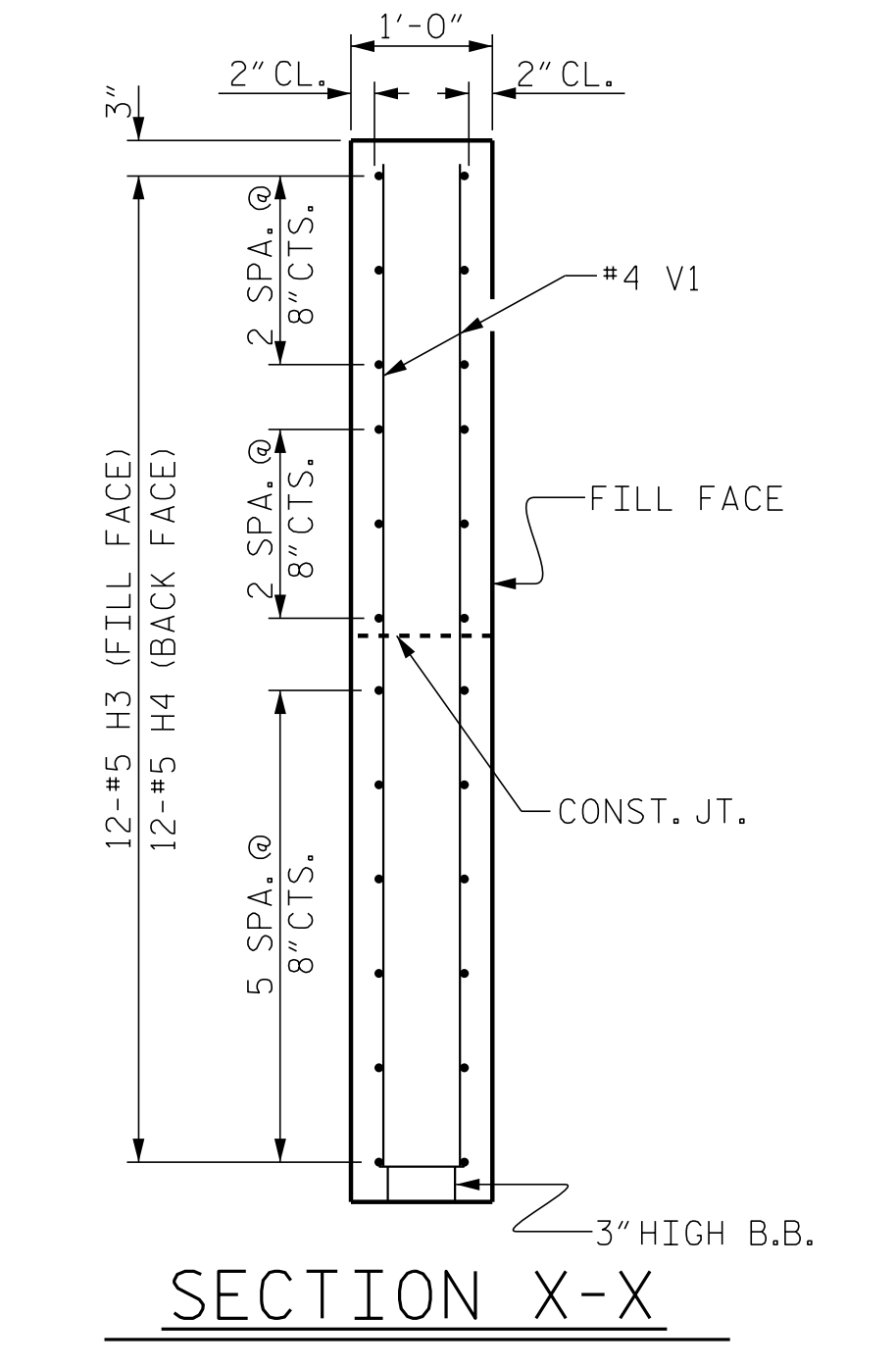
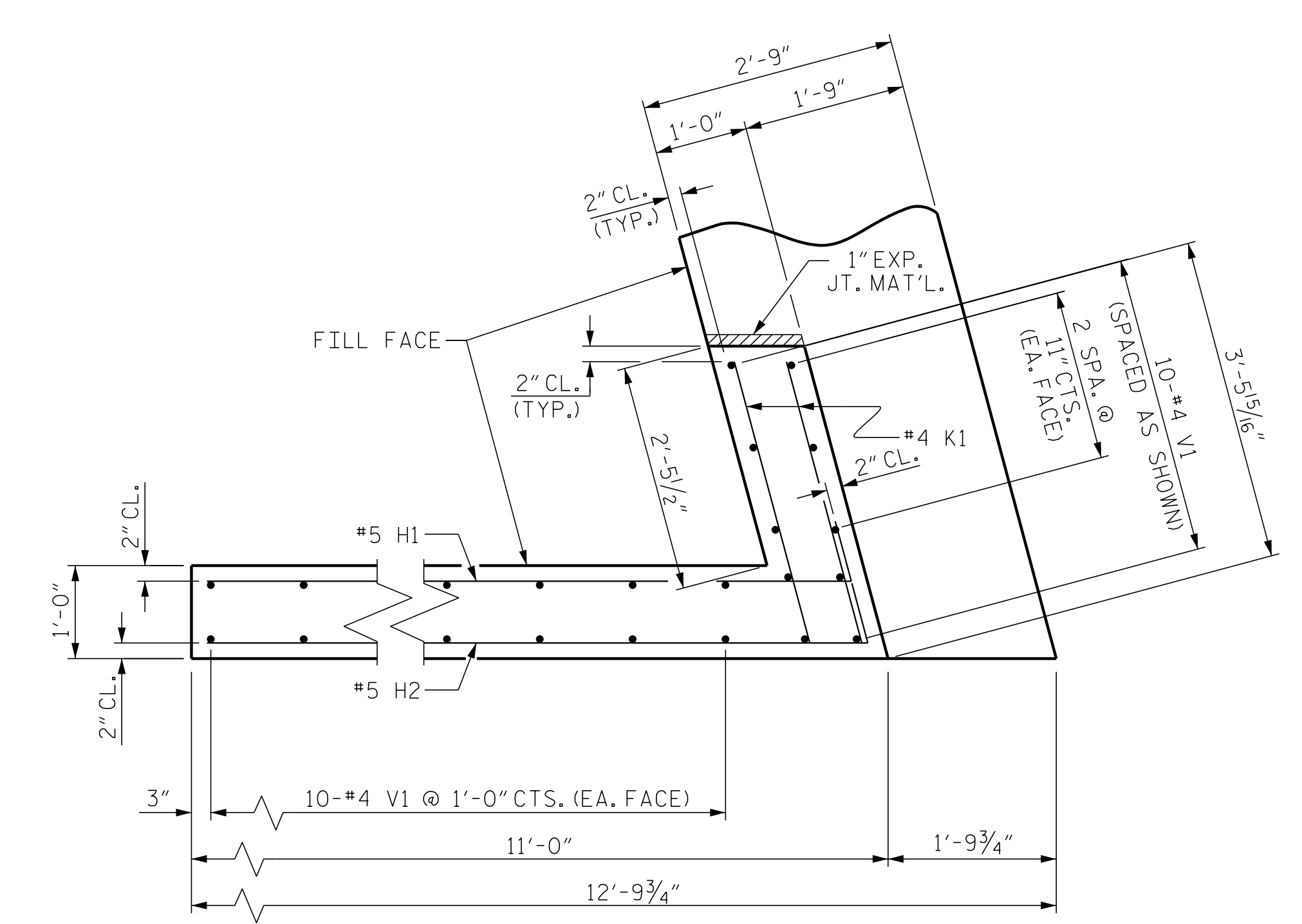
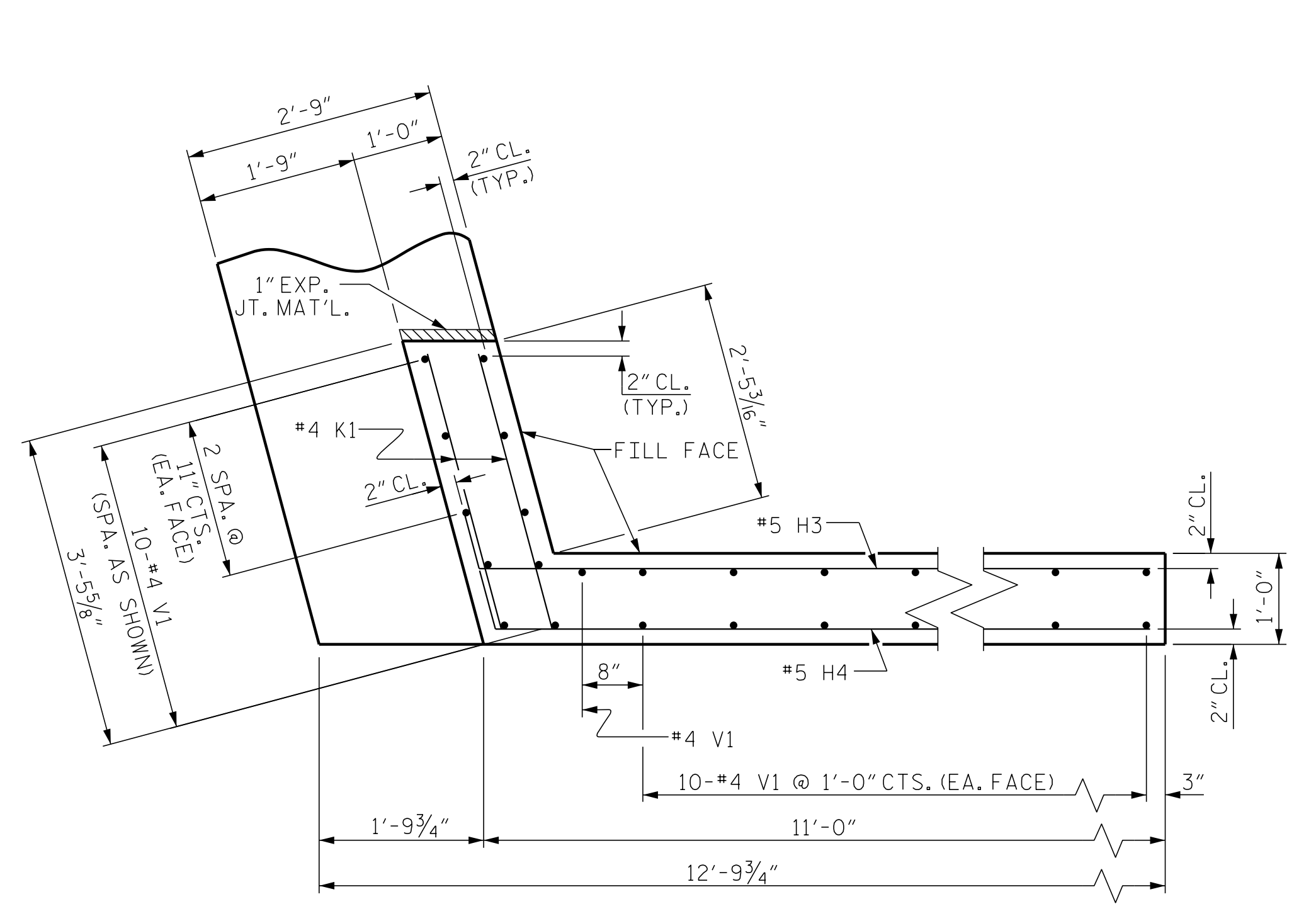
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ASSEMBLED BY : J. PENDERGRAFT	DATE : 9-18
CHECKED BY : J. DILWORTH	DATE : 10-18
DRAWN BY : WJH	12/11
CHECKED BY : AAC	12/11
REV. 4/15	MAA/TMG

WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

SHEET NO.	S-11
TOTAL SHEETS	15

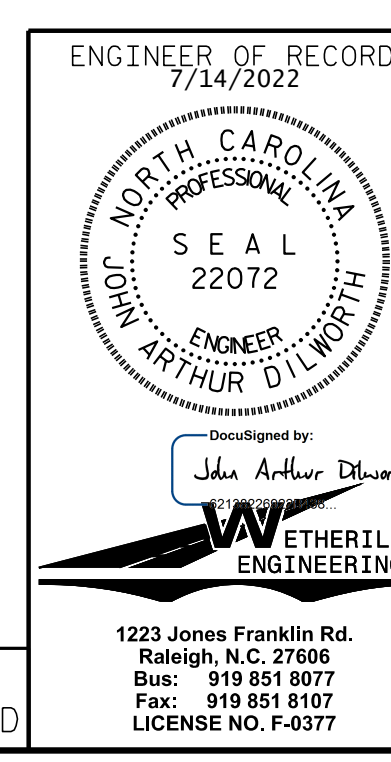


ELEVATION OF WING (W1)

ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. 17BP.12.R.64
 GASTON COUNTY
 STATION: 13+35.00 -L-
 SHEET 3 OF 4



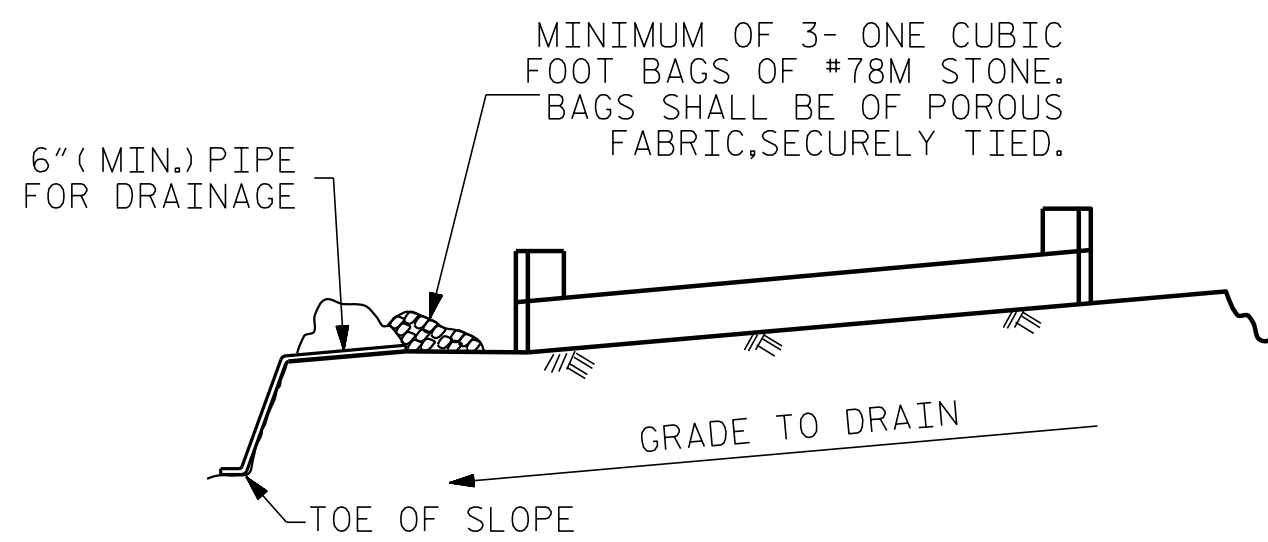
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-12
TOTAL SHEETS					15

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

STD. NO. EB_30_75S4_33BB

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ASSEMBLED BY : J. PENDERGRAFT	DATE : 9-18
CHECKED BY : J. DILWORTH	DATE : 10-18
DRAWN BY : WJH 12/11	REV. 4/15
CHECKED BY : AAC 12/11	MAA/TMG

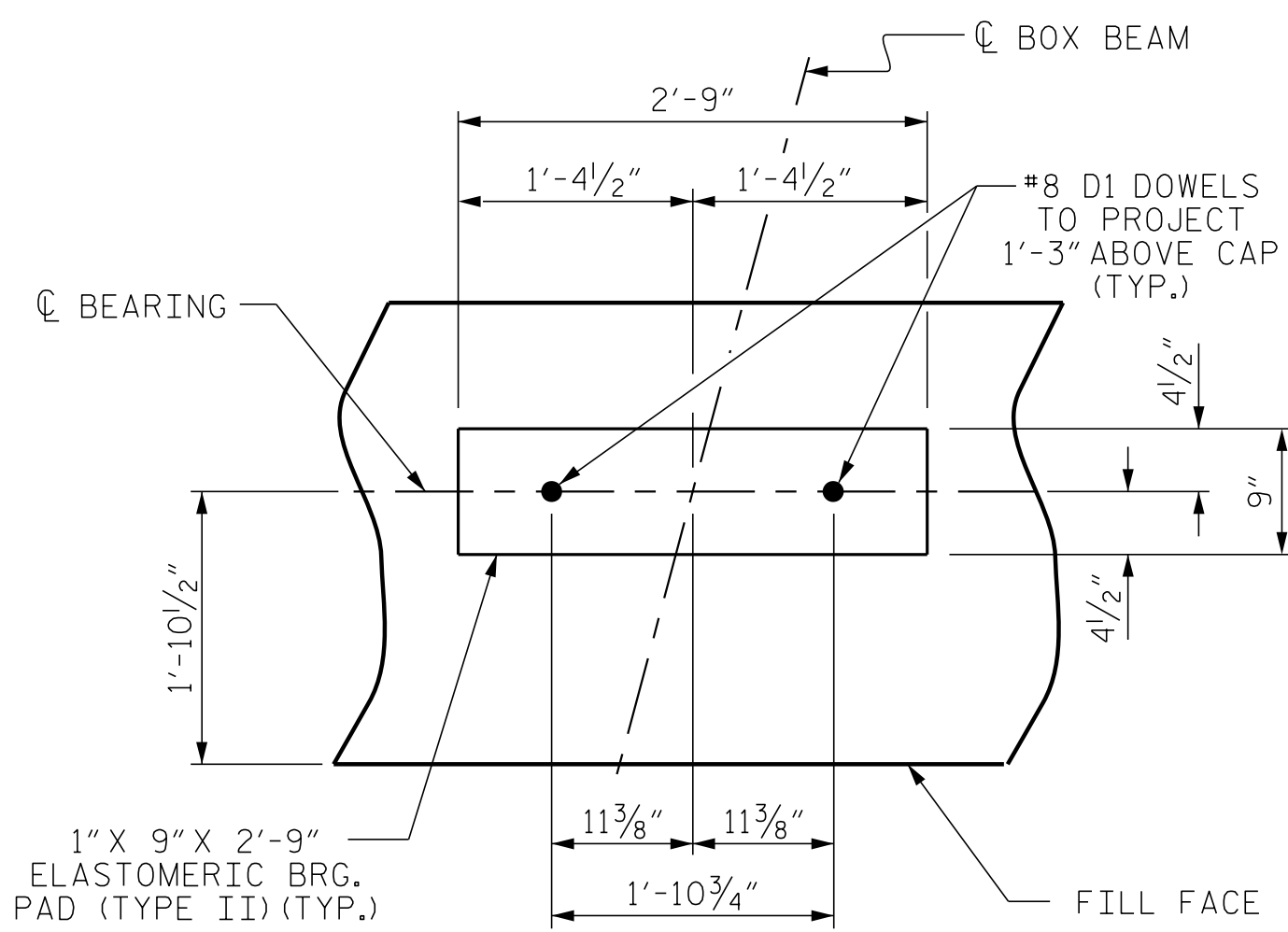


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

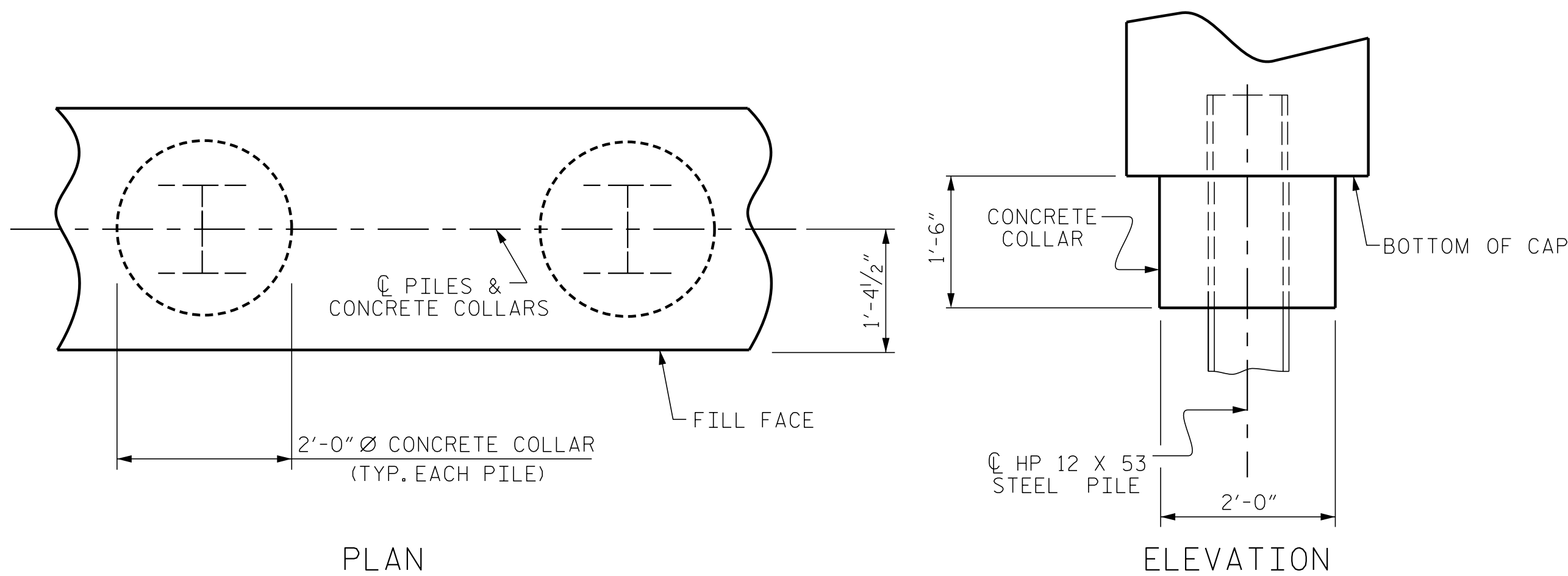
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



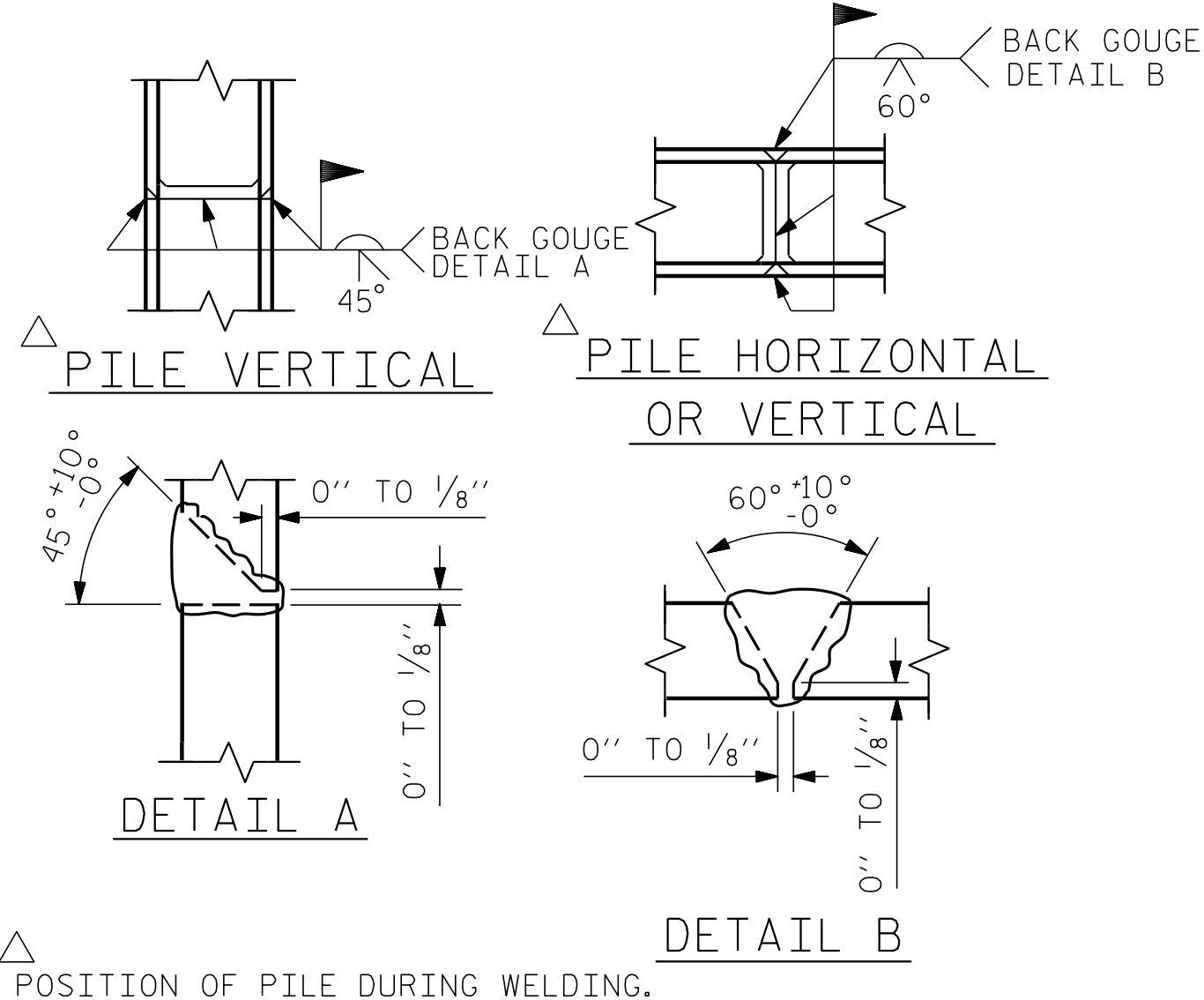
DETAIL "A"

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)

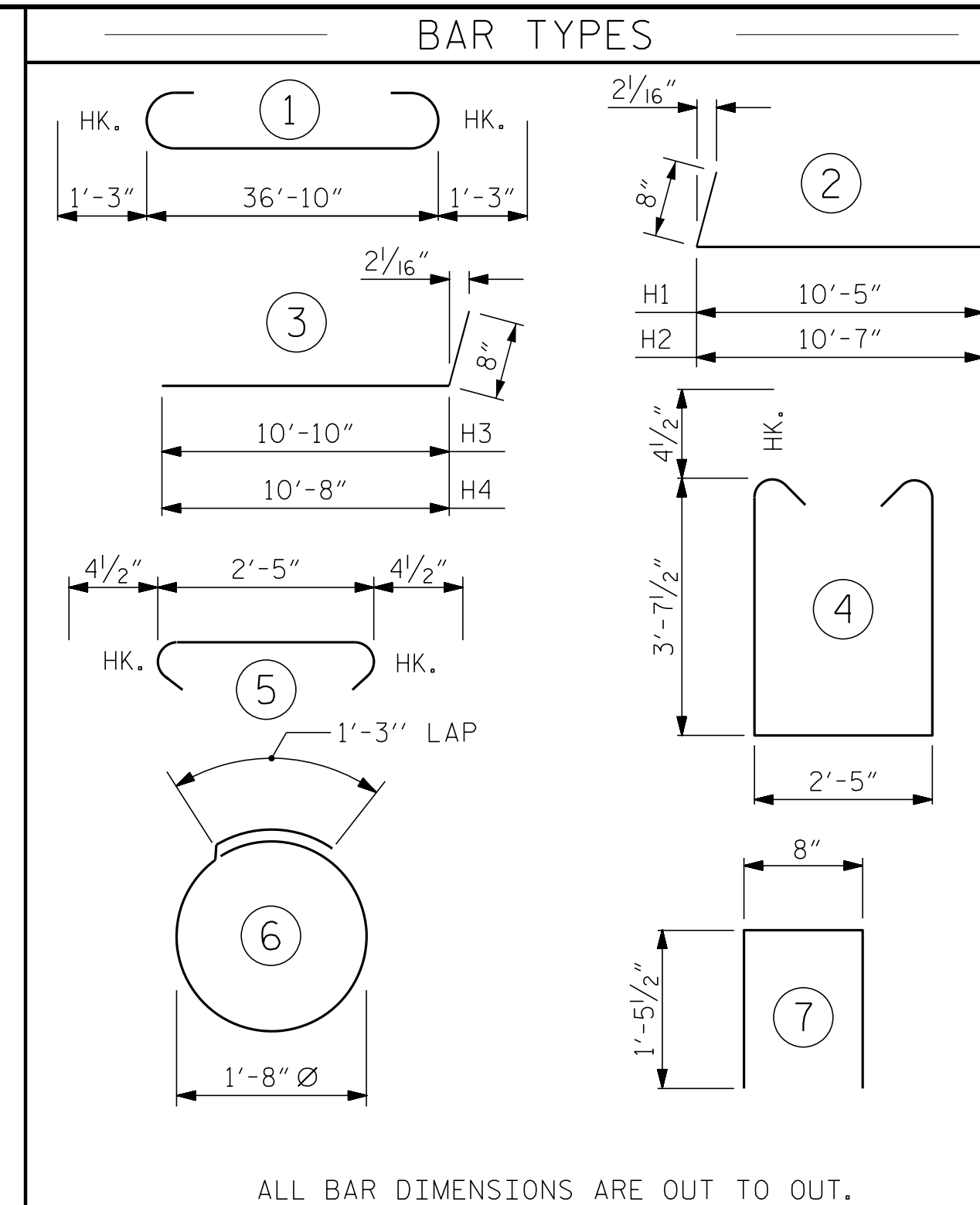


CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



PILE SPLICE DETAILS



BILL OF MATERIAL

FOR ONE END BENT

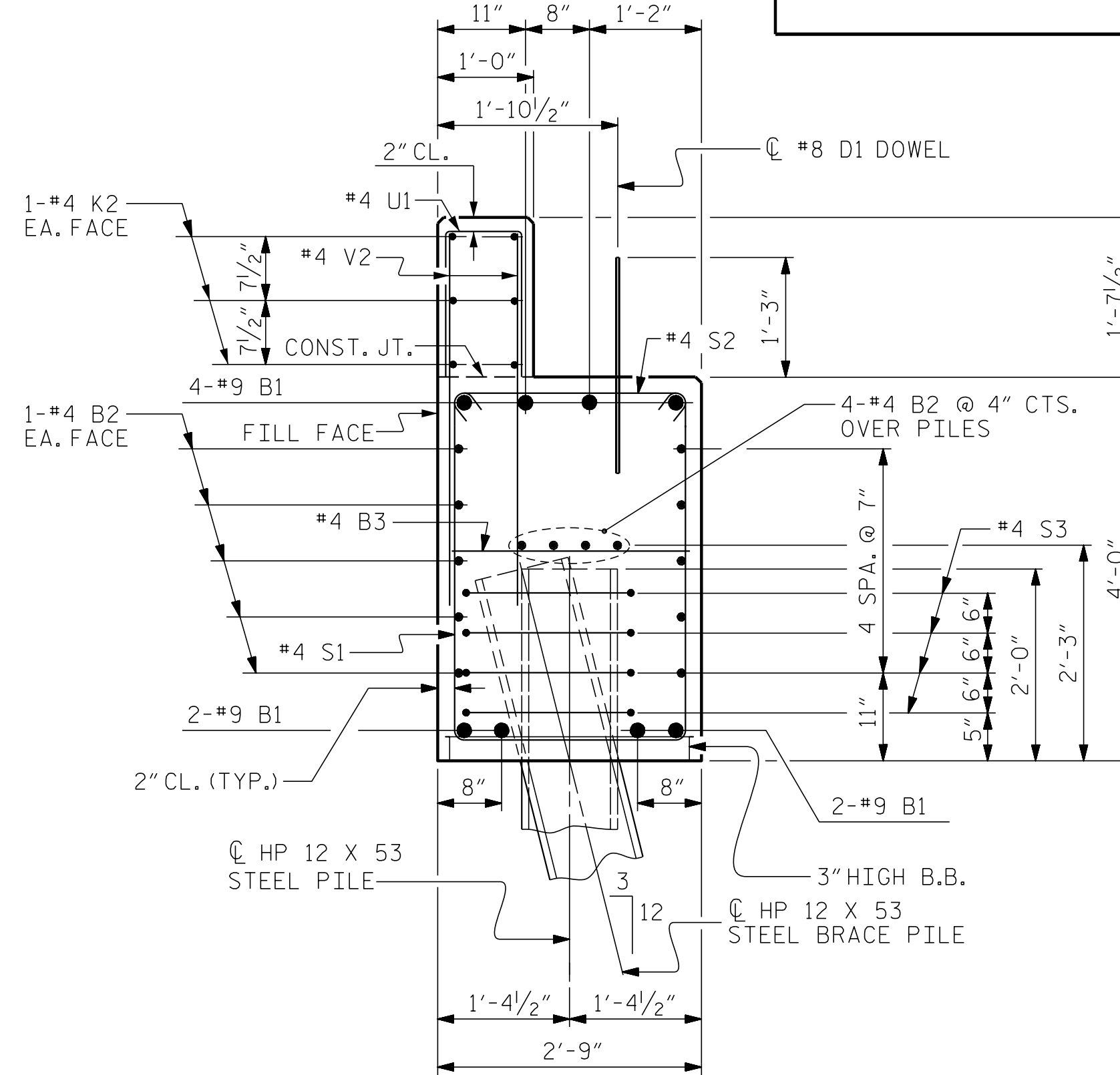
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	#8		39'-4"	1070
B2	#4	STR	19'-9"	369
B3	#4	STR	2'-5"	16
D1	#8	STR	2'-3"	120
H1	#5		11'-1"	139
H2	#5		11'-3"	141
H3	#5		11'-6"	144
H4	#5		11'-4"	142
K1	#4	STR	3'-1"	25
K2	#4	STR	19'-9"	158
S1	#4		10'-5"	334
S2	#4		3'-2"	102
S3	#4		6'-6"	87
U1	#4		3'-7"	74
V1	#4	STR	7'-2"	292
V2	#4	STR	5'-3"	217

REINFORCING STEEL (FOR ONE END BENT) 3430 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	19.1 C.Y.
POUR #2	BACKWALL & UPPER PART OF WINGS	5.3 C.Y.
TOTAL CLASS A CONCRETE		24.4 C.Y.

END BENT No. 1 HP 12 X 53 STEEL PILES NO: 5 LIN. FT. = 250	END BENT No. 2 HP 12 X 53 STEEL PILES NO: 5 LIN. FT. = 320
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 5	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 5



SECTION A-A

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

PROJECT NO. 17BP.12.R.64
GASTON COUNTY
STATION: 13+35.00 -L-
SHEET 4 OF 4

ENGINEER OF RECORD
7/14/2022

Disseminated by:
John Arthur Dillworth
ETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

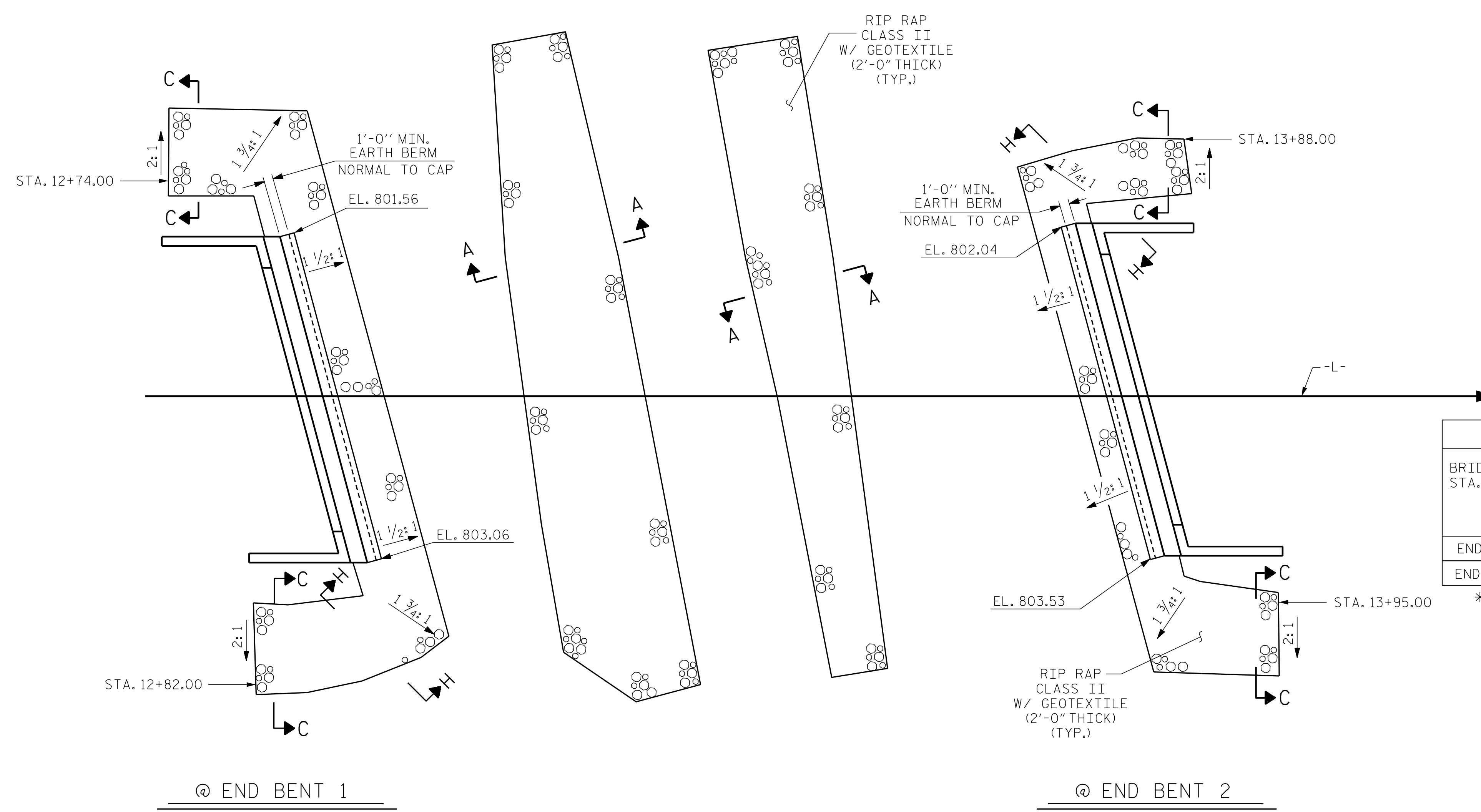
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1 & 2
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			15

ASSEMBLED BY: J. PENDERGRAFT	DATE: 9-18
CHECKED BY: J. DILWORTH	DATE: 10-18
DRAWN BY: WJH	12/11
CHECKED BY: AAC	12/11
REV. 4/17	MAA/THC

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



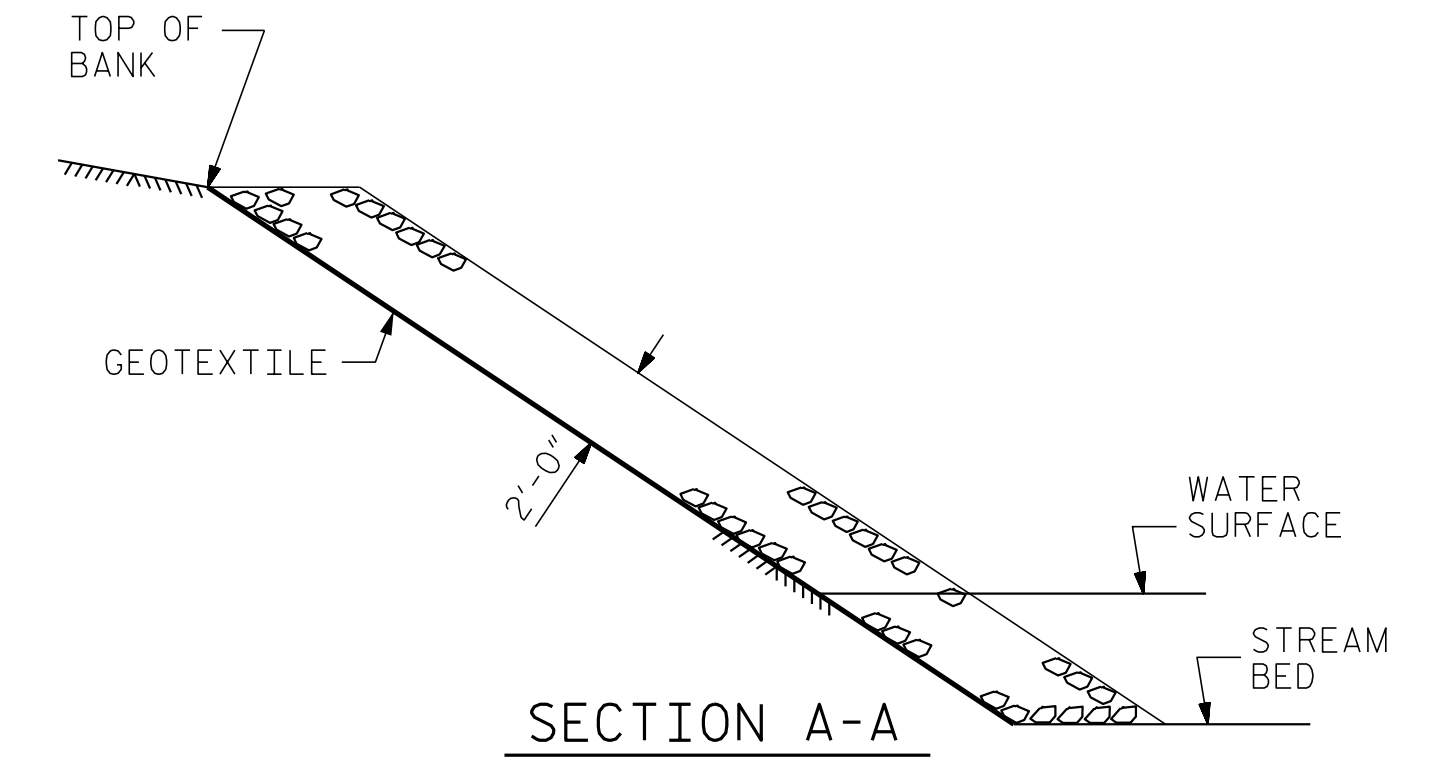
ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+35.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1 *	175	190
END BENT 2 *	120	130

* INCLUDES RIP RAP QUANTITY AT STREAM BANK

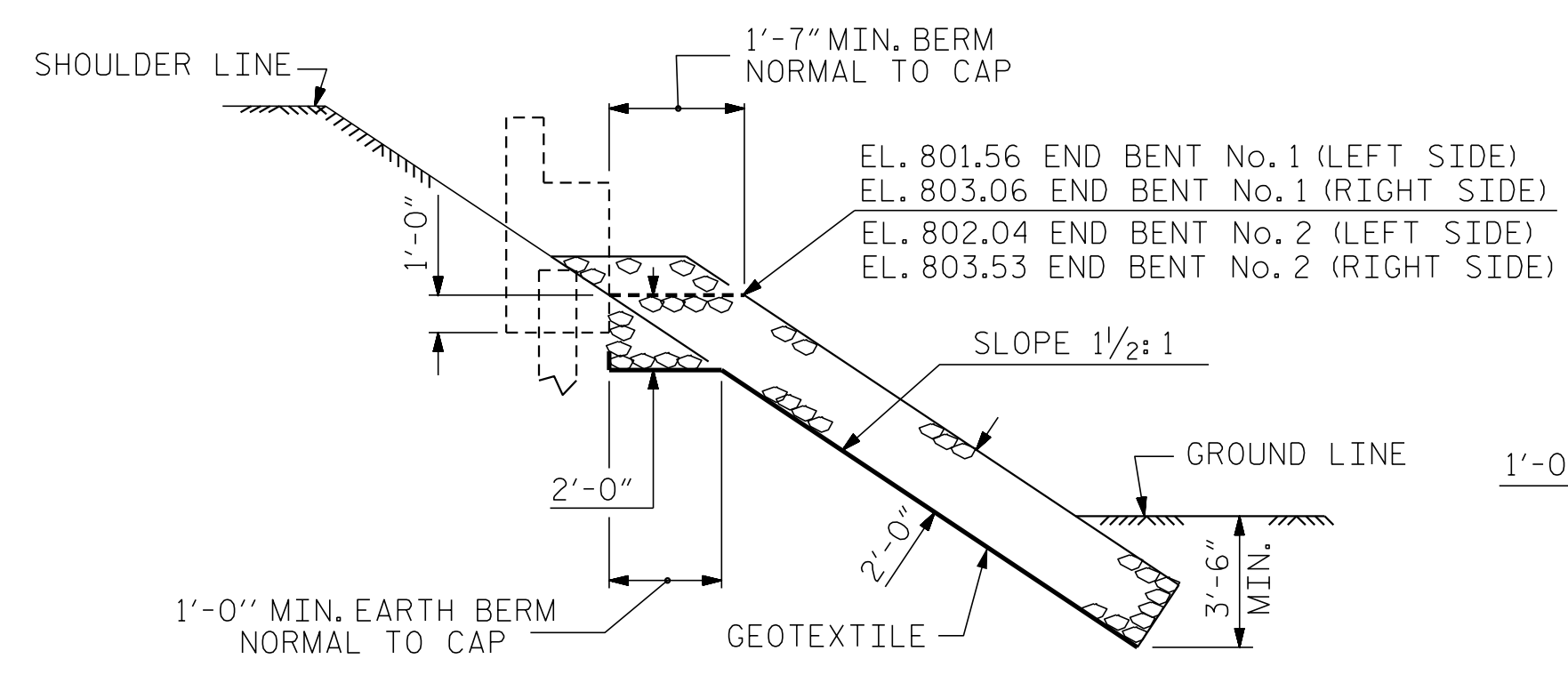
@ END BENT 1

@ END BENT 2

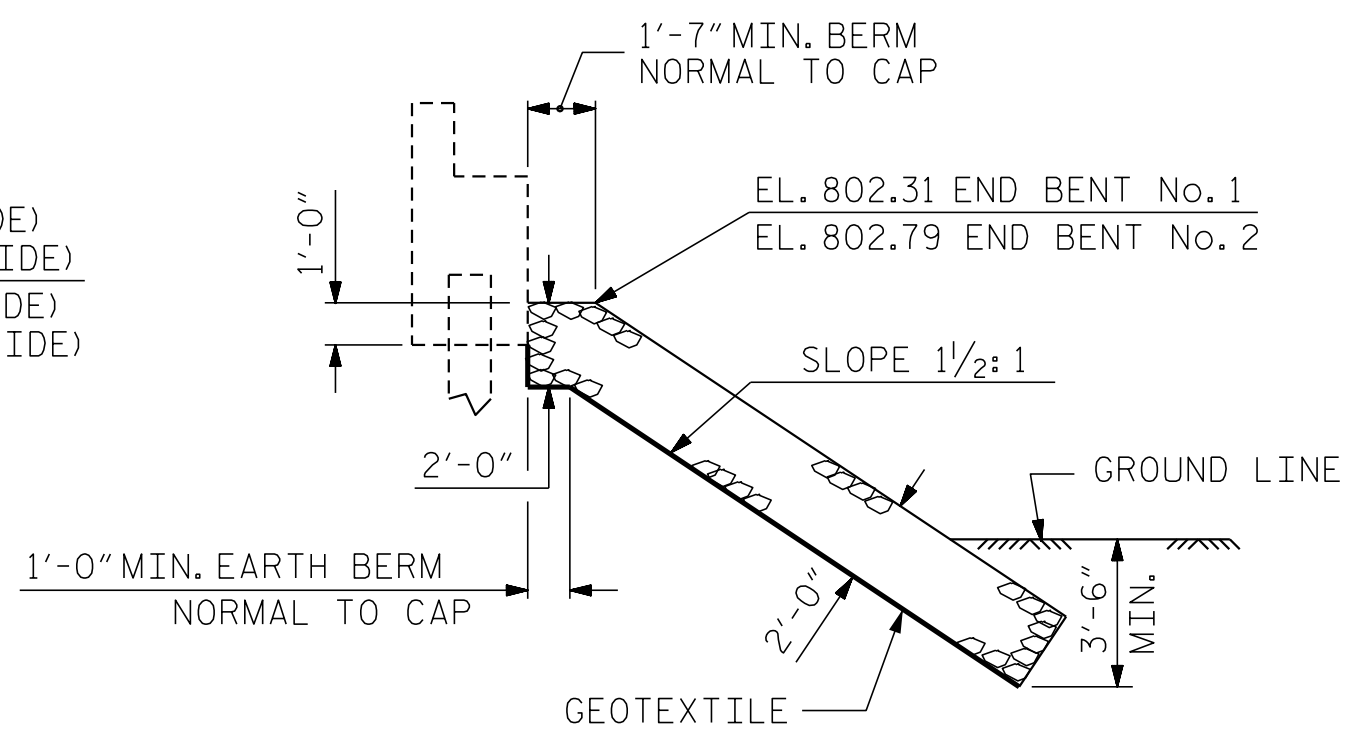
PLAN OF RIP RAP



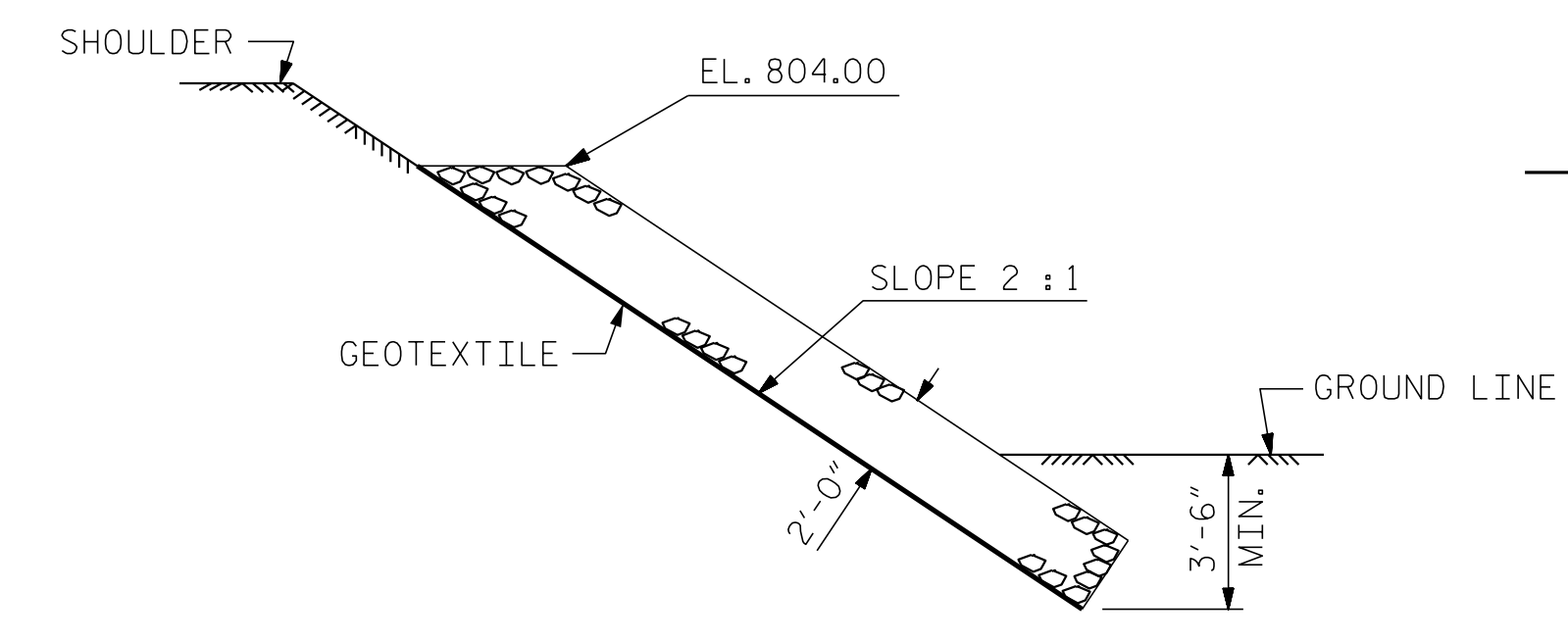
SECTION A-A



SECTION H-H



SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. 17BP.12.R.64
GASTON COUNTY
STATION: 13+35.00 -L-

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ASSEMBLED BY : J. PENDERGRAFT	DATE : 9-18
CHECKED BY : J. DILWORTH	DATE : 10-18
DRAWN BY : REK 1/84	REV. 10/1/11 MAA/GM
CHECKED BY : RDU 1/84	REV. 12/21/11 MAA/GM
	REV. 12/17 MAA/THC

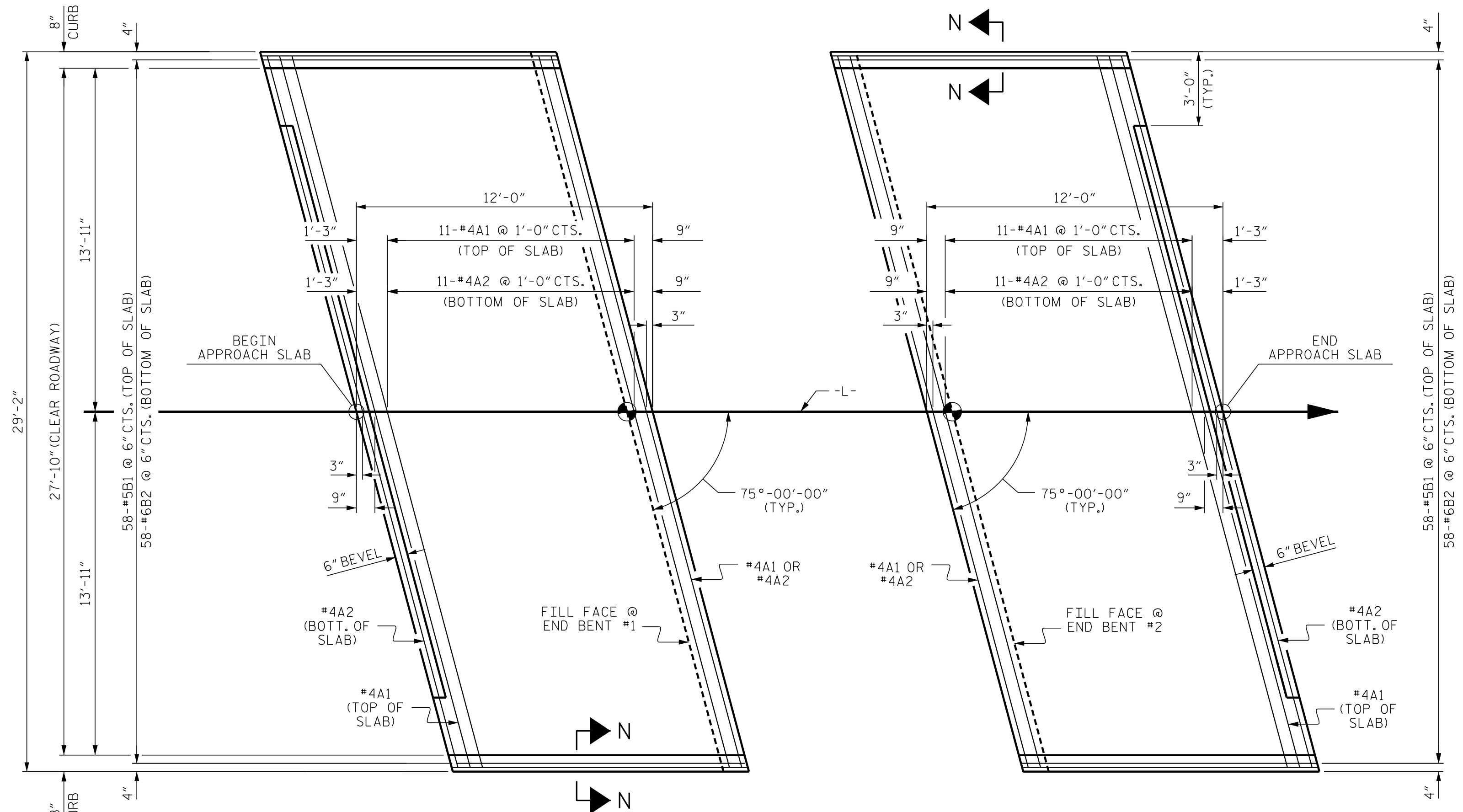
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
7/14/2022

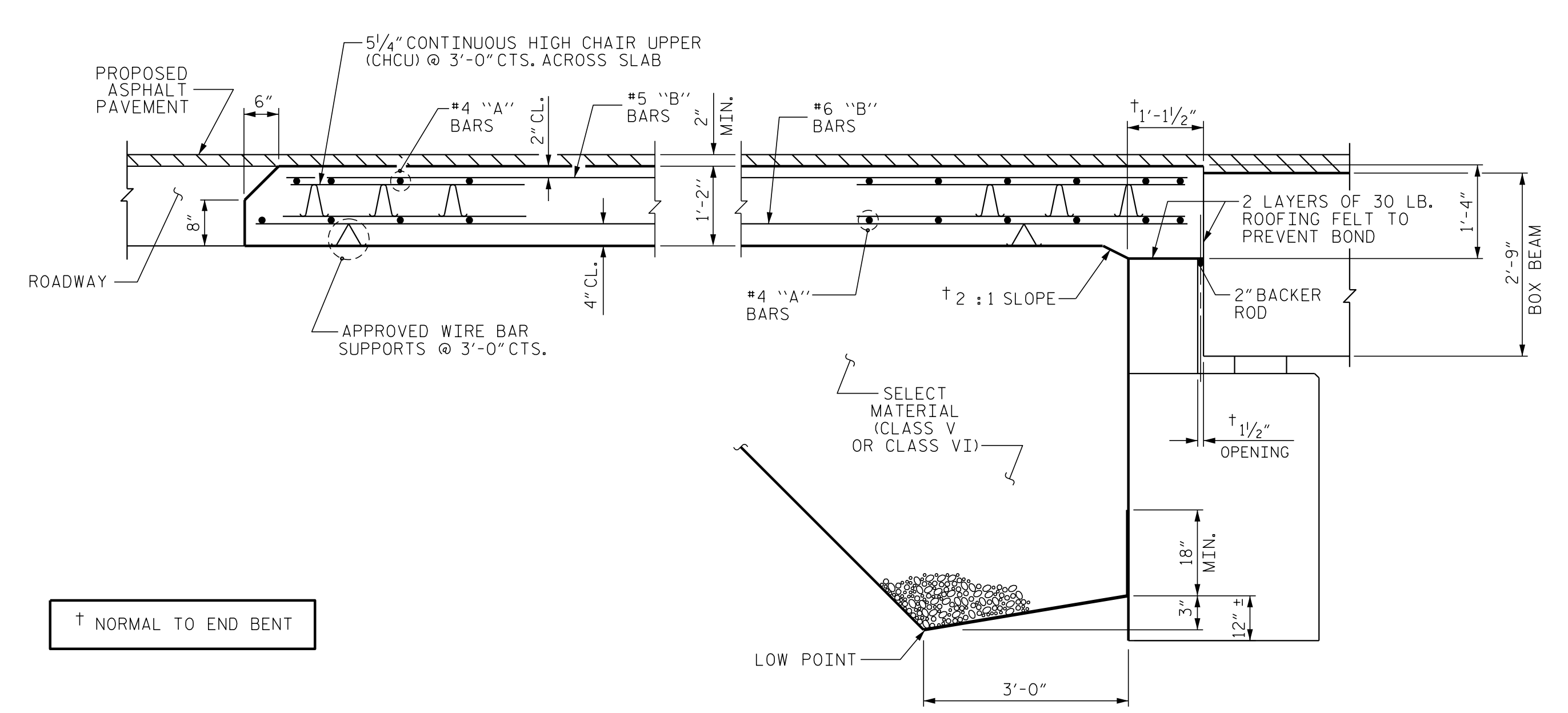
DocuSigned by:
John Arthur Dillworth
ETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-14
TOTAL SHEETS					15

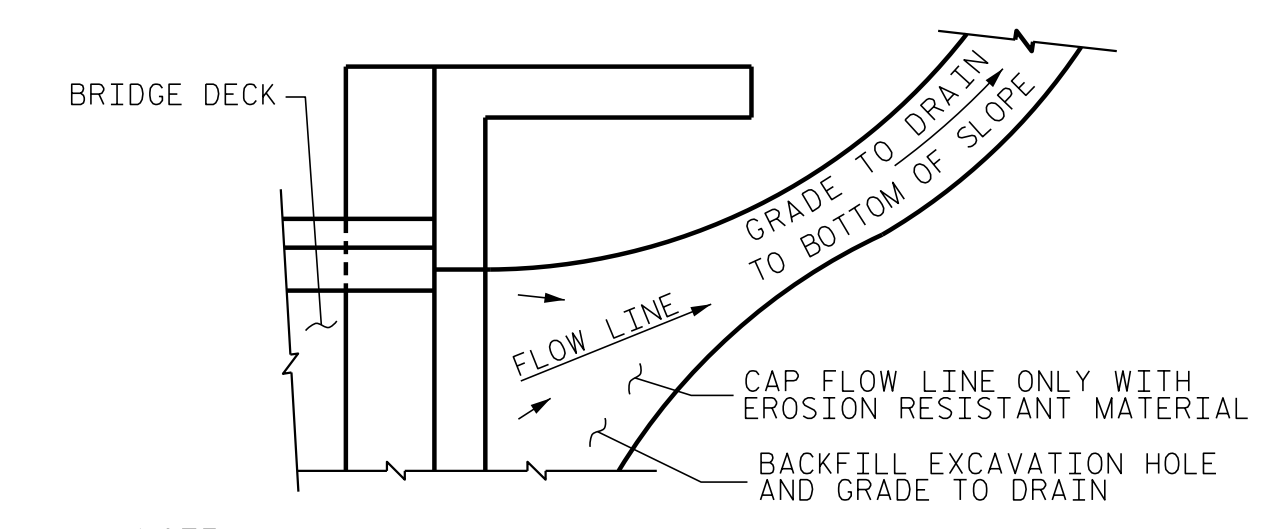


PLAN @ END BENT #1 PLAN @ END BENT #2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



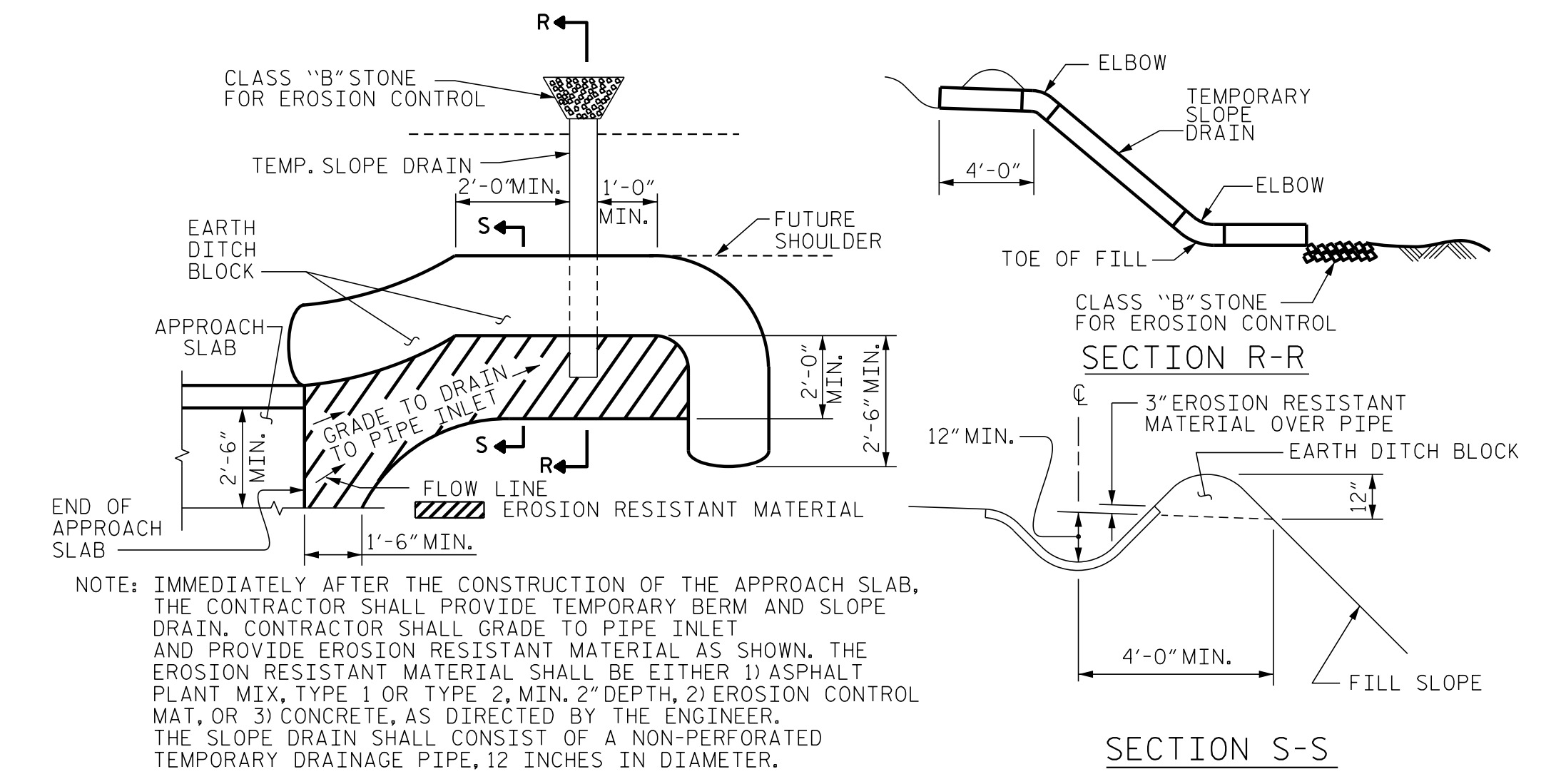
SECTION THRU SLAB
(TYPE 1 APPROACH FILL)

NOTES
FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
APPROACH SLAB GROOVING IS NOT REQUIRED.



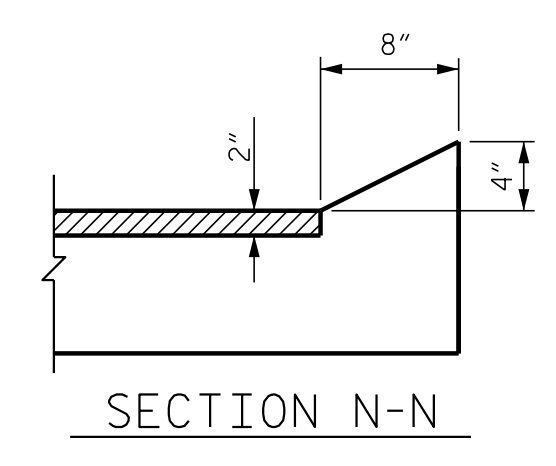
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N
CURB DETAILS

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	29'-10"	259	
A2	13	#4	STR	29'-10"	259	
*B1	58	#5	STR	11'-1"	670	
B2	58	#6	STR	11'-7"	1009	
REINFORCING STEEL					LBS.	1268
* EPOXY COATED REINFORCING STEEL					LBS.	929
CLASS AA CONCRETE					C. Y.	15.5
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	29'-10"	259	
A2	13	#4	STR	29'-10"	259	
*B1	58	#5	STR	11'-1"	670	
B2	58	#6	STR	11'-7"	1009	
REINFORCING STEEL					LBS.	1268
* EPOXY COATED REINFORCING STEEL					LBS.	929
CLASS AA CONCRETE					C. Y.	15.5

PROJECT NO. 17BP.12.R.64
GASTON COUNTY
STATION: 13+35.00 -L-

ENGINEER OF RECORD
11/2/2023
NORTH CAROLINA PROFESSIONAL SEAL
22072
ENGINEER ARTHUR DILWORTH
DocuSigned by:
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LICENSE NO. F-0377

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE BOX BEAM UNIT (SUB-REGIONAL TIER) 75° SKEW					
REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					15

STD. NO. BAS_BB_30.75S

\$FILE\$ \$DATE\$ \$TIME\$

ASSEMBLED BY : J. PENDERGRAFT DATE : 11-23
CHECKED BY : J. DILWORTH DATE : 11-23
DRAWN BY : MAA 11/11 REV. 12-17 MAA/THC
CHECKED BY : AAC 11/11 REV. 08-19 BNB/THC

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
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 A.A.S.H.T.O.
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 2018 "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 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 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 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 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 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 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 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN