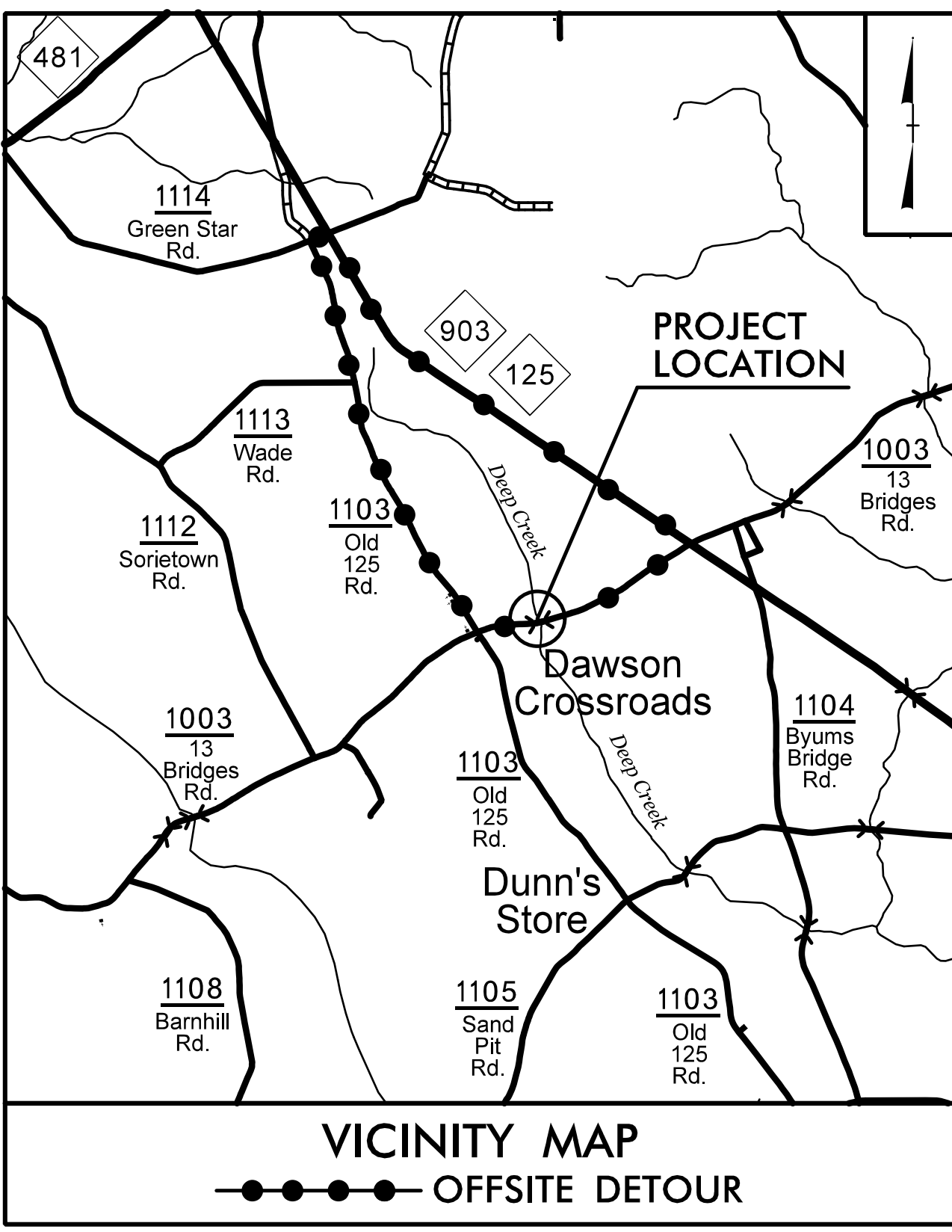


09/08/99

**PROJECT: BP4.R013.1**

**CONTRACT: DD00408**

See Sheet 1A For Index of Sheets  
See Sheet 1B for Conventional Symbols

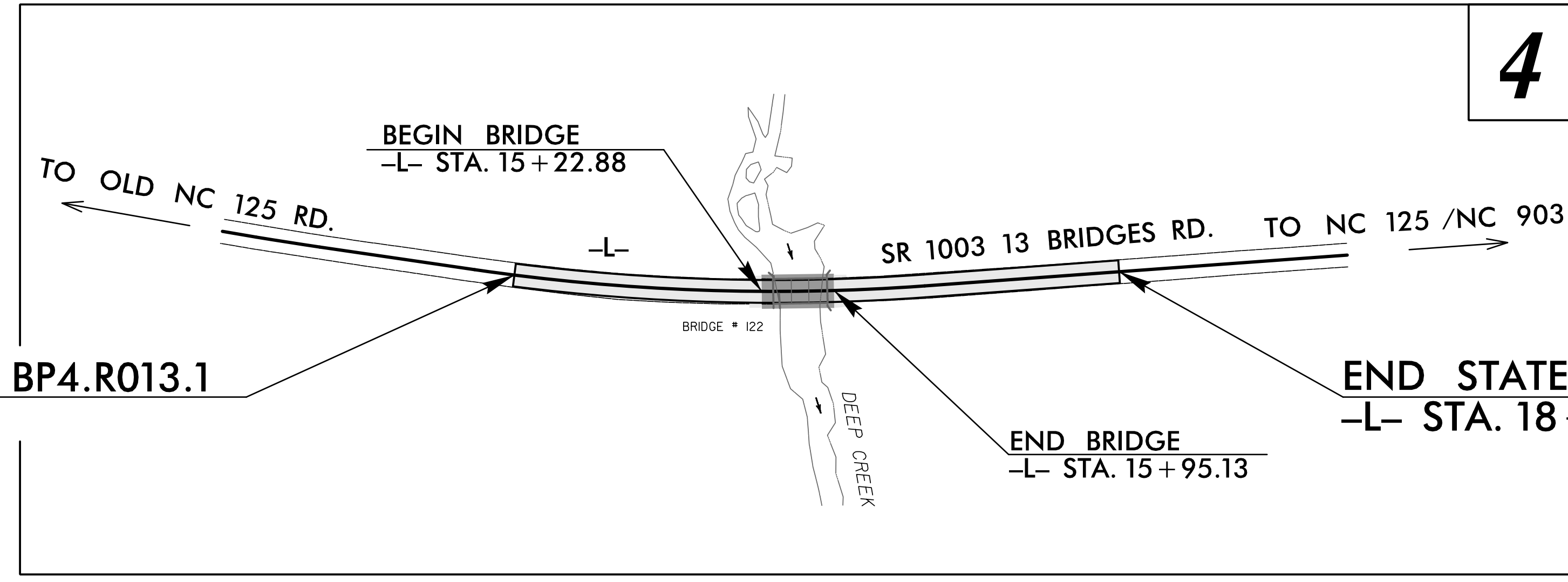
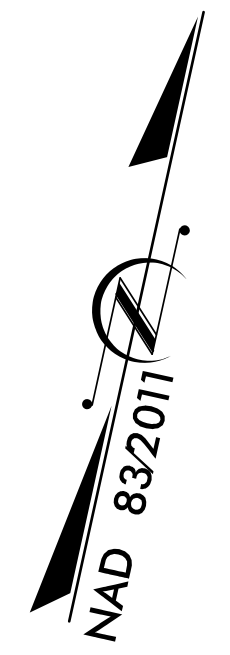


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**HALIFAX COUNTY**

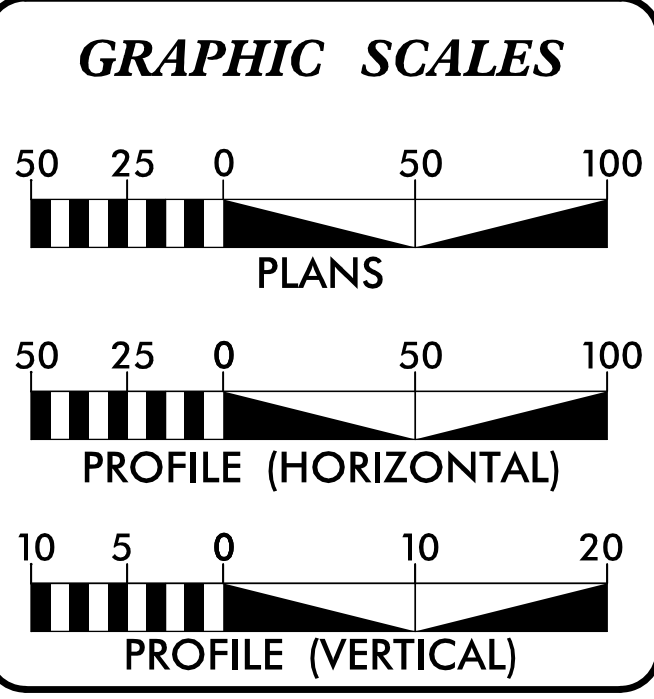
**LOCATION: REPLACE BRIDGE NO. 122 ON SR 1003  
OVER DEEP CREEK**

**TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>BP4.R013.1</b>	<b>1</b>	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP4.R013.1		PE	
BP4.R013.2		RAW, UTIL.	
BP4.R013.3		CONST.	



**DESIGN EXCEPTION**  
-L-  
Superelevation, Sta. 12+85 to Sta. 16+81.73



**DESIGN DATA**  
ADT 2018 = 800  
T = 7%  
V = 55 MPH

FUNCT CLASS=RURAL MAJOR COLLECTOR

SUB-REGIONAL TIER DESIGN STANDARDS

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT BP4.R013.1 = 0.097 mile  
LENGTH STRUCTURES PROJECT BP4.R013.1 = 0.014 mile  
TOTAL LENGTH PROJECT BP4.R013.1 = 0.111 mile

Prepared For:  
**DIVISION OF HIGHWAYS**  
509 Ward Blvd, Wilson NC, 27895

By:  
TGS ENGINEERS  
706 HILLSBOROUGH ST.  
SUITE 200  
RALEIGH, NC 27603

PH (919) 733-8887  
CORP. LICENSE NO.: C-0275

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 10, 2022

LETTING DATE:

BURKE EVANS, P.E.  
PROJECT ENGINEER

CHAD COGGINS  
PROJECT ENGINEER  
NC DOT DIVISION 4

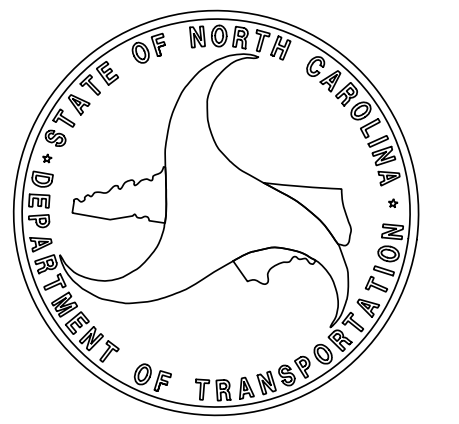
**HYDRAULICS ENGINEER**

Seal: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 41420  
Signature: Christopher R. Lewis  
P.E. 12/18/2023 9:55 AM EST

**ROADWAY DESIGN ENGINEER**

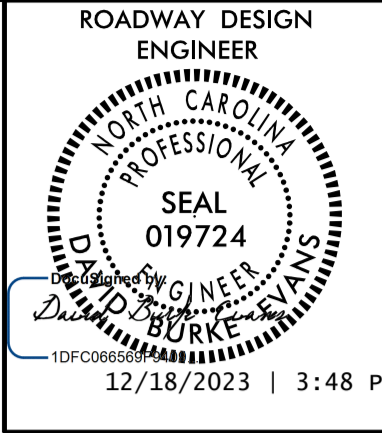
Seal: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019724  
Signature: Chad Coggin  
P.E. 12/18/2023 3:45 PM EST

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



12/18/2023  
xx:\ncdot\division 4 halifax 122\roadway\proj\410122\_Rdy\_tsh.dgn  
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
BP4.R013	1A
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



# INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, DETAIL FOR SHOULDER BERM GUTTER, DETAIL SHOWING METHOD OF WEDGING, AND INCIDENTAL MILLING DETAIL
2D-1	MODIFIED CONCRETE FLUME
3B-1	SUMMARY OF EARTHWORK, PAVEMENT REMOVAL SUMMARY, SUMMARY OF SHOULDER BERM GUTTER, & GUARDRAIL SUMMARY
4	PLAN/PROFILE SHEET
RW02C-1 THRU RW02D-1	RIGHT OF WAY SHEETS
TMP-1 THRU TMP-3	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU TMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
UC-1 THRU UC-4	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS SECTION SUMMARY SHEET
X-2 THRU X-4	CROSS SECTIONS
S-1 THRU S-15	STRUCTURE PLANS

# GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS EFFECTIVE: 01-16-2024  
REVISED:

GRADE LINE:  
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.

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

SUPERELEVATION:  
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 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.

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

SUBSURFACE DRAINS:  
SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

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.

SUBSURFACE PLANS:  
STRUCTURE SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT.

END BENTS:  
THE ENGINEER 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.

RIGHT-OF-WAY MARKERS:  
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

# STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 01-16-2024  
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:



















STD. NO.	TITLE
<b>DIVISION 2 – EARTHWORK</b>	
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
<b>DIVISION 4 – MAJOR STRUCTURES</b>	
423.01	Bridge Approach Fills – Type I Approach Fill – Approach Fill for Bridge Abutment
<b>DIVISION 5 – SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
<b>DIVISION 8 – INCIDENTALS</b>	
815.02	Subsurface Drain
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














# 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	_____ 
Existing Fence Line	_____ 
Proposed Woven Wire Fence	_____ 
Proposed Chain Link Fence	_____ 
Proposed Barbed Wire Fence	_____ 
Existing Wetland Boundary	_____ 
Proposed Wetland Boundary	_____ 
Existing Endangered Animal Boundary	_____ 
Existing Endangered Plant Boundary	_____ 
Existing Historic Property Boundary	_____ 
Known Contamination Area: Soil	_____ 
Potential Contamination Area: Soil	_____ 
Known Contamination Area: Water	_____ 
Potential Contamination Area: Water	_____ 
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	_____ 
Buffer Zone 1	_____ 
Buffer Zone 2	_____ 
Flow Arrow	_____ 
Disappearing Stream	_____ 
Spring	_____ 
Wetland	_____ 
Proposed Lateral, Tail, Head Ditch	_____ 
False Sump	_____ 













## RAILROADS:

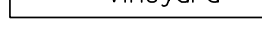
Standard Gauge	_____ 
RR Signal Milepost	_____ 
Switch	_____ 
RR Abandoned	_____ 
RR Dismantled	_____ 

## RIGHT OF WAY & PROJECT CONTROL:

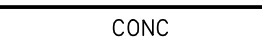




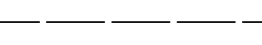

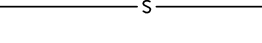

Primary Horiz Control Point	_____ 
Primary Horiz and Vert Control Point	_____ 
Secondary Horiz and Vert Control Point	_____ 
Vertical Benchmark	_____ 
Existing Right of Way Monument	_____ 
Proposed Right of Way Monument (Rebar and Cap)	_____ 
Proposed Right of Way Monument (Concrete)	_____ 
Existing 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	_____ 
Proposed Slope Stakes Fill	_____ 
Proposed Curb Ramp	_____ 
Existing Metal Guardrail	_____ 
Proposed Guardrail	_____ 
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	_____ 
Bridge Wing Wall, Head Wall and End Wall	_____ 
MINOR:	
Head and End Wall	_____ 
Pipe Culvert	_____ 
Footbridge	_____ 
Drainage Box: Catch Basin, DI or JB	_____ 
Paved Ditch Gutter	_____ 
Storm Sewer Manhole	_____ 
Storm Sewer	_____ 

## 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	_____ 
H-Frame Pole	_____ 
U/G Power Line Test Hole (SUE - LOS A)*	_____ 
U/G Power Line (SUE - LOS B)*	_____ 
U/G Power Line (SUE - LOS C)*	_____ 
U/G Power Line (SUE - LOS D)*	_____ 











## TELEPHONE:

Existing Telephone Pole	_____ 
Proposed Telephone Pole	_____ 
Telephone Manhole	_____ 
Telephone Pedestal	_____ 
Telephone Cell Tower	_____ 
U/G Telephone Cable Hand Hole	_____ 
U/G Telephone Test Hole (SUE - LOS A)*	_____ 
U/G Telephone Cable (SUE - LOS B)*	_____ 
U/G Telephone Cable (SUE - LOS C)*	_____ 
U/G Telephone Cable (SUE - LOS D)*	_____ 
U/G Telephone Conduit (SUE - LOS B)*	_____ 
U/G Telephone Conduit (SUE - LOS C)*	_____ 
U/G Telephone Conduit (SUE - LOS D)*	_____ 
U/G Fiber Optics Cable (SUE - LOS B)*	_____ 
U/G Fiber Optics Cable (SUE - LOS C)*	_____ 
U/G Fiber Optics Cable (SUE - LOS D)*	_____ 








## 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	_____ 









## TV:

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












## GAS:

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

## SANITARY SEWER:

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

## MISCELLANEOUS:

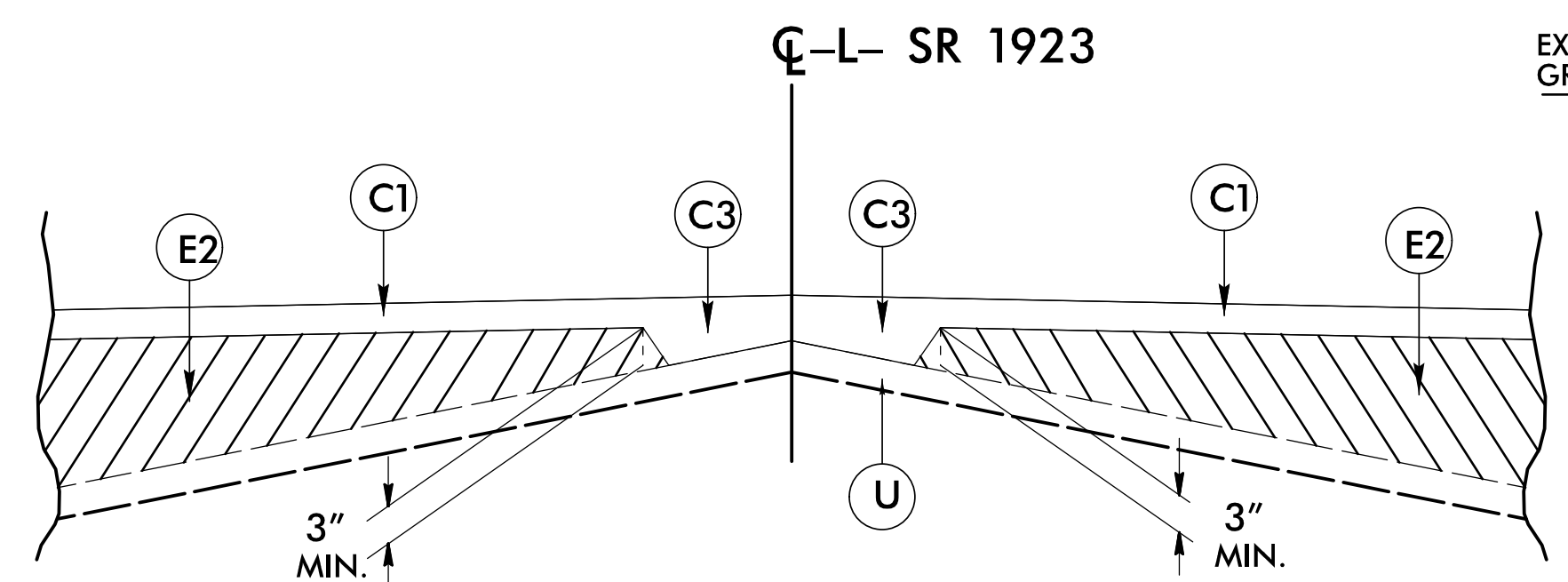
Utility Pole	_____ 
Utility Pole with Base	_____ 
Utility Located Object	_____ 
Utility Traffic Signal Box	_____ 
Utility Unknown U/G Line (SUE - LOS B)*	_____ 
U/G Tank; Water, Gas, Oil	_____ 
Underground Storage Tank, Approx. Loc.	_____ 
A/G Tank; Water, Gas, Oil	_____ 
Geoenvironmental Boring	_____ 
Abandoned According to Utility Records	_____ 
End of Information	_____ 

AATUR  
E.O.I.

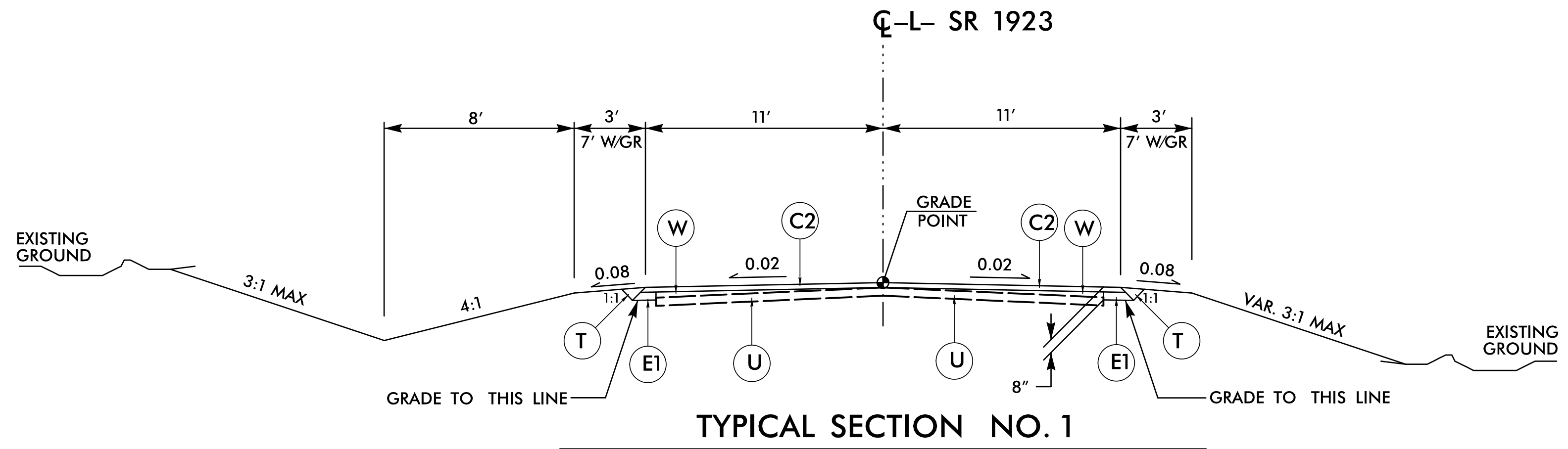
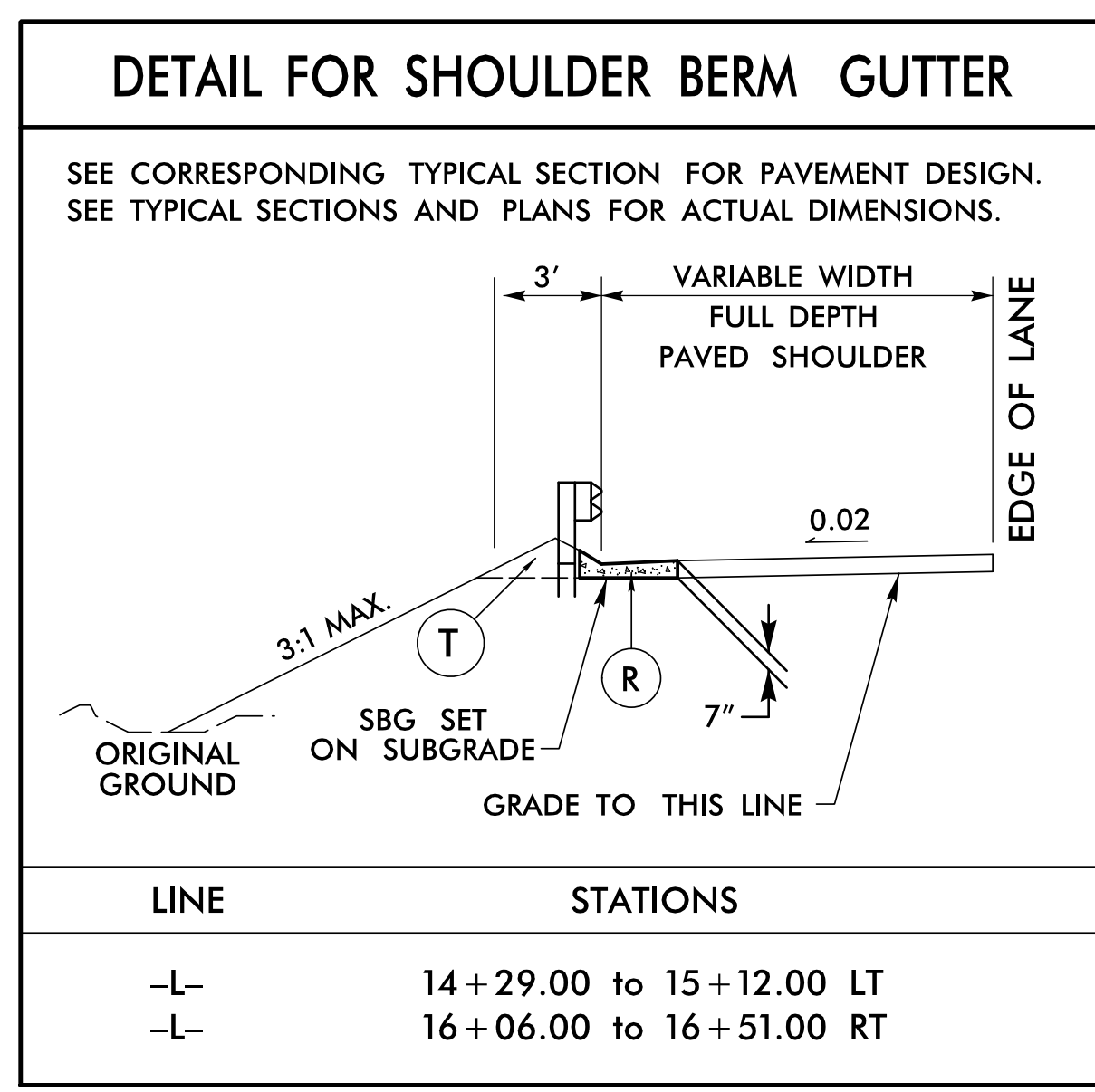
5/14/23

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN:	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	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.
C3	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 LESS THAN 1" IN DEPTH OR GREATER THAN 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.
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



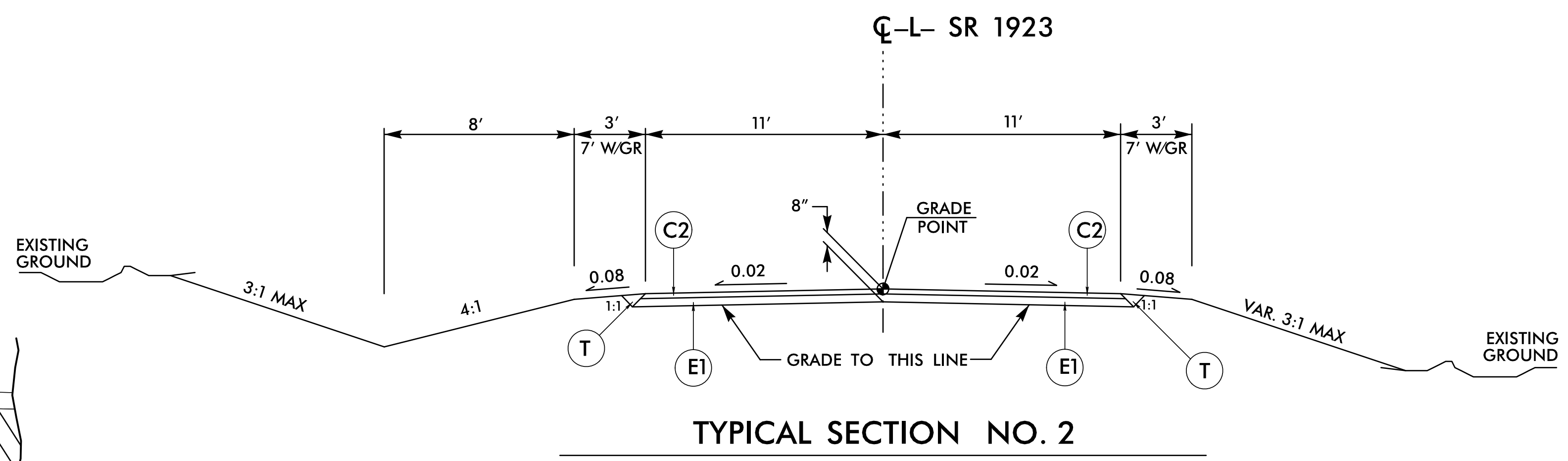
Detail Showing Method of Wedging (W)



USE TYPICAL SECTION NO. 1 AS FOLLOWS:

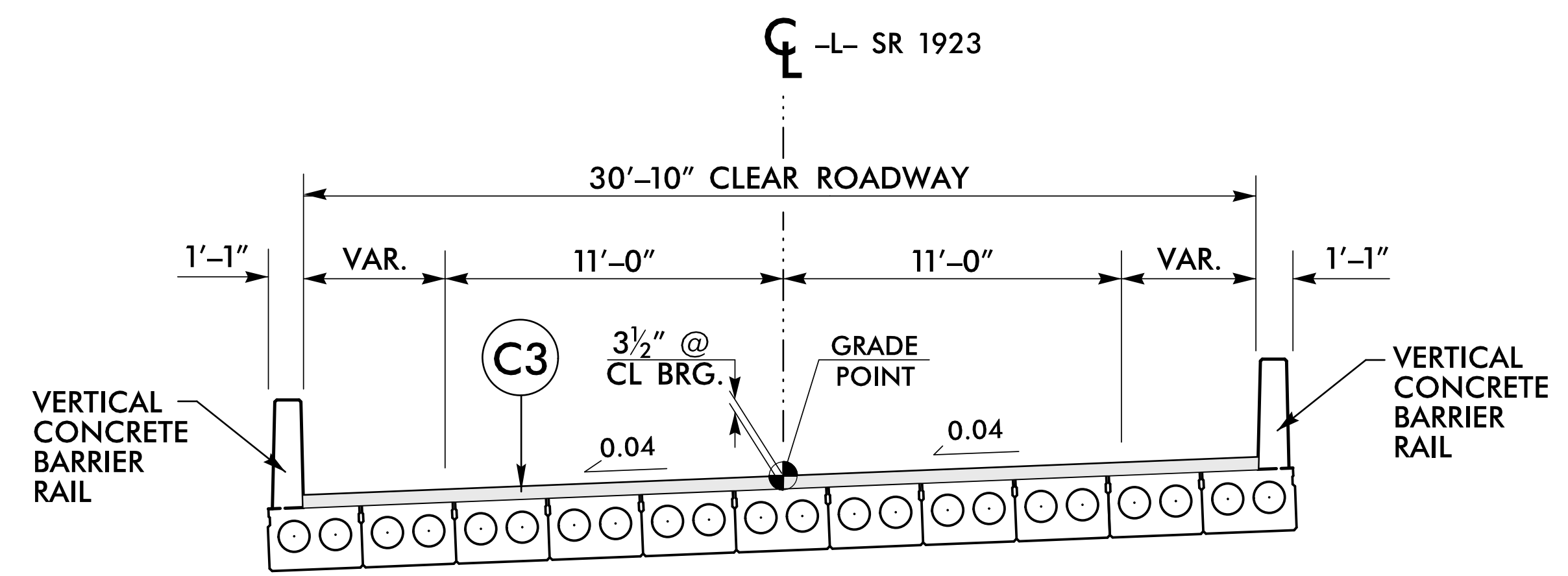
FROM -L- STA 12+85.00 TO STA 14+50.00  
FROM -L- STA 17+25.00 TO STA 18+70.00

NOTE: TRANSITION FROM EXISTING PAVEMENT WIDTH TO TYPICAL SECTION NO. 1 -L- STA 12+85.00 TO STA 13+35.00  
TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING PAVEMENT WIDTH -L- STA 18+20.00 TO STA 18+70.00



USE TYPICAL SECTION NO. 2 AS FOLLOWS:

FROM -L- STA 14+50.00 TO STA 15+22.88 (BEGIN BRIDGE)  
FROM -L- STA 15+95.13 (END BRIDGE) TO STA 17+25.00

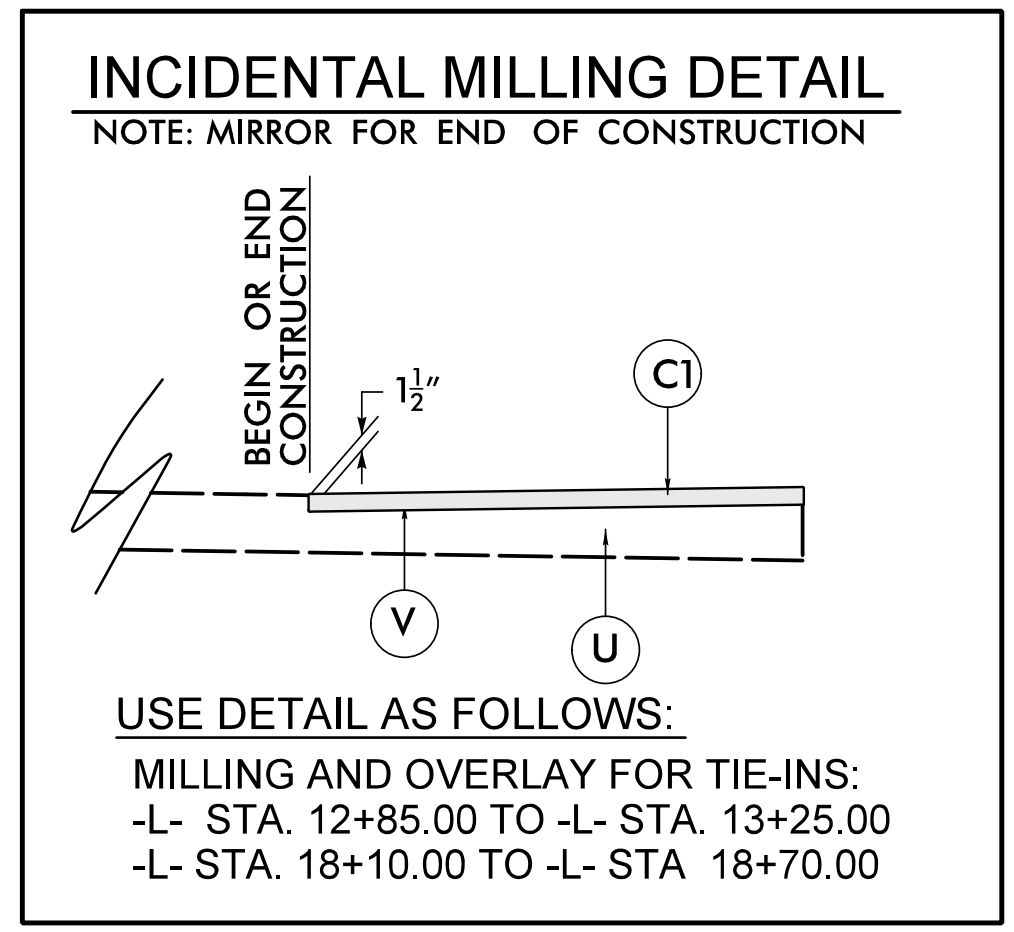


USE TYPICAL SECTION NO. 3 AS FOLLOWS:

FROM -L- STA 15+22.88 (BEGIN BRIDGE) TO STA 15+95.13 (END BRIDGE)

NOTE: SEE STRUCTURE PLANS FOR BRIDGE CONSTRUCTION DETAILS INCLUDING BARRIER RAIL HEIGHT AND ASPHALT THICKNESS DIMENSIONS

PROJECT REFERENCE NO. BP4.R0131	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 019724 12/18/2023   3:48 PM EST	PAVEMENT DESIGN ENGINEER SEAL 040774 12/18/2023   3:53 PM EST
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



12/15/2023 12:04:12 PM 122 Roadway\proj\1410122\_rdy\_typ.dgn



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

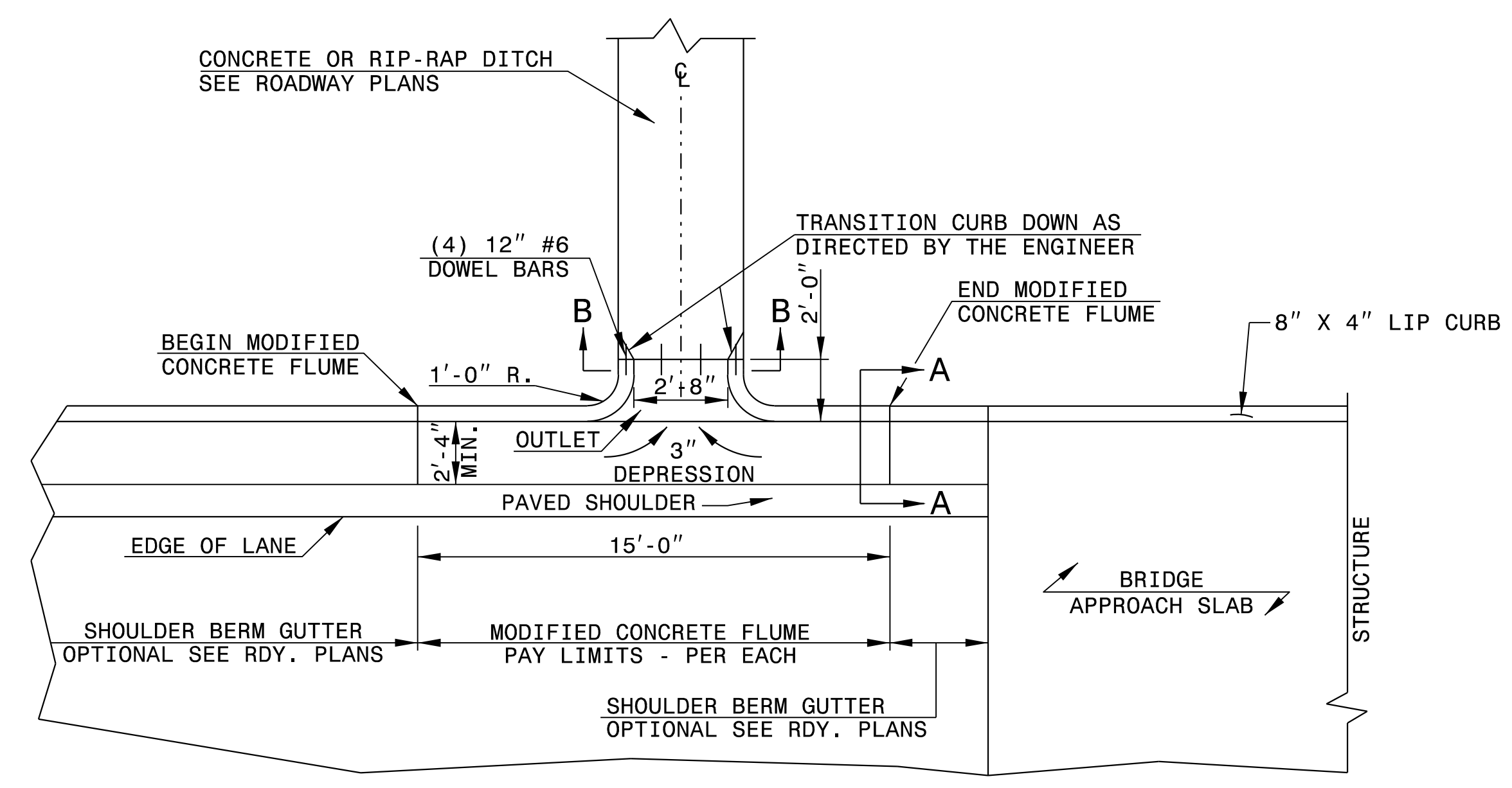
ENGLISH DETAIL DRAWING FOR  
**MODIFIED CONCRETE FLUME**  
WITH CONCRETE OR RIP-RAP DITCH

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

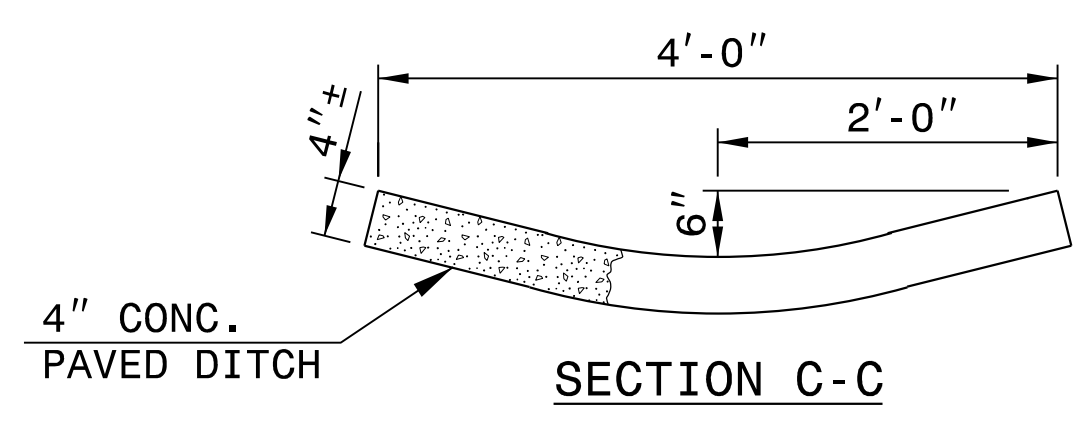
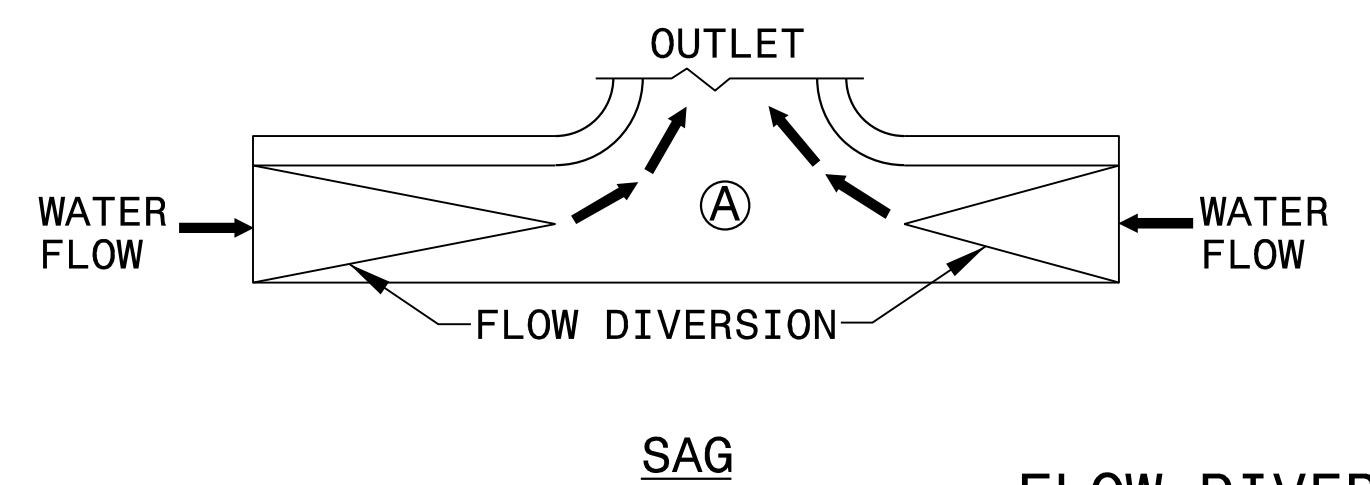
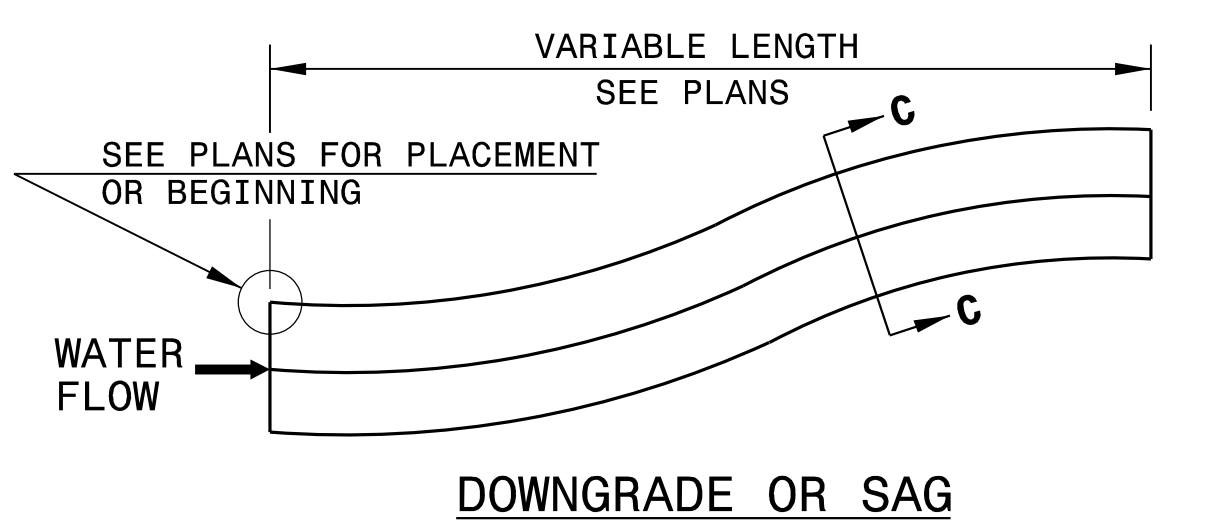
ENGLISH DETAIL DRAWING FOR  
**MODIFIED CONCRETE FLUME**  
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1  
MODFLMDTCH

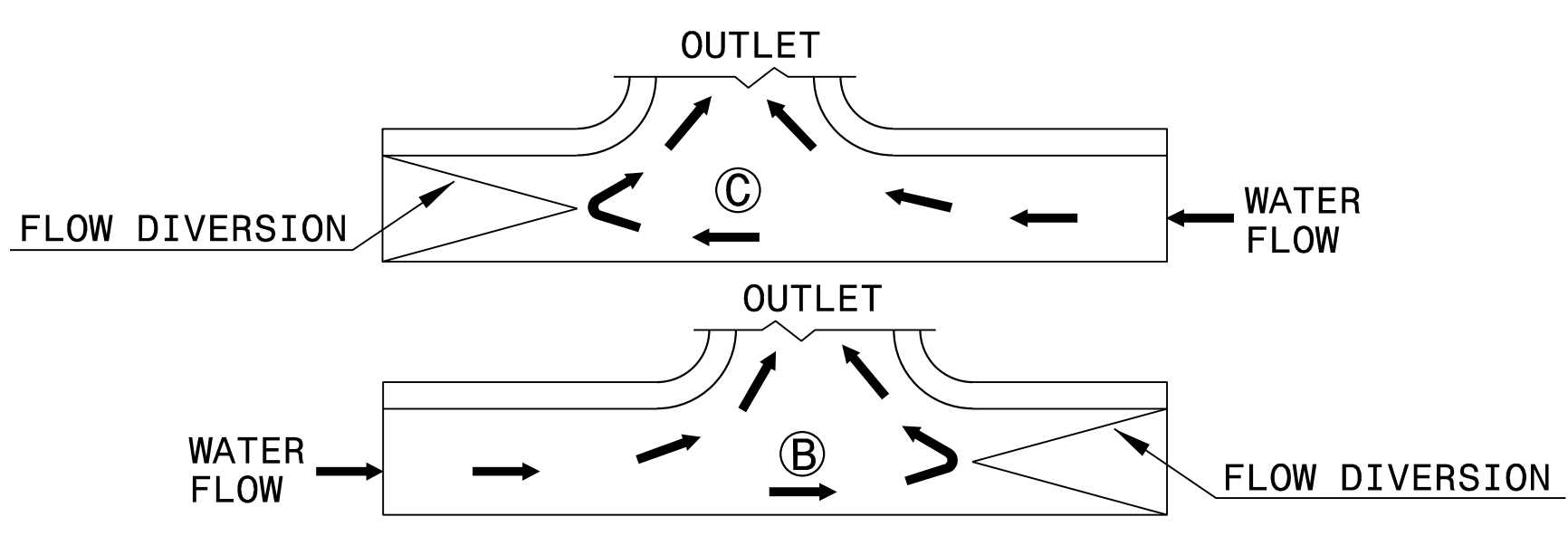
SHEET 1 OF 1  
MODFLMDTCH



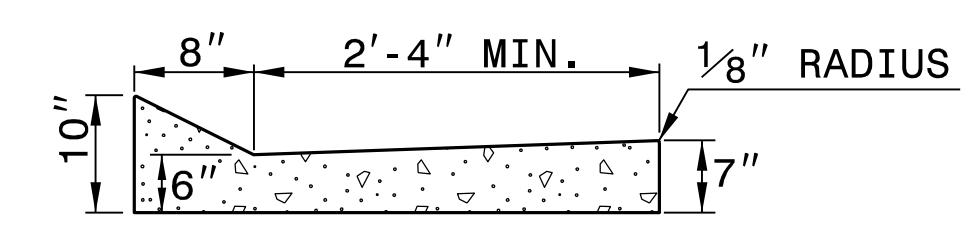
PLAN VIEW



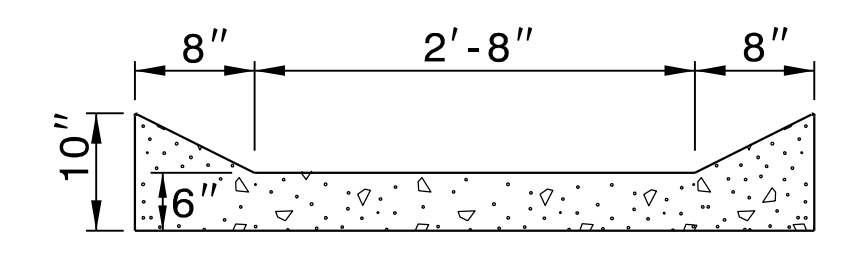
SECTION C-C



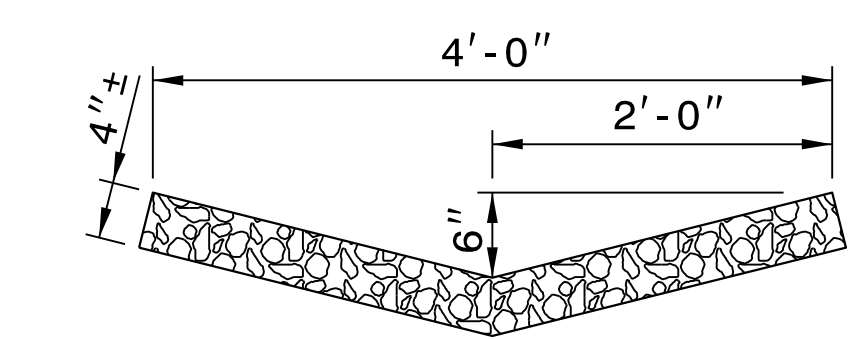
FLOW DIVERSION EXAMPLES



SECTION A-A



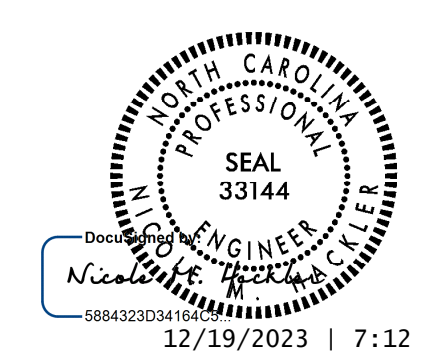
SECTION B-B



RIP-RAP LINED DITCH

- NOTES:
- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
  - CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
  - CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
  - CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
  - MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



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

**SEE PLATE FOR TITLE**

ORIGINAL BY: E.E. Ward DATE: Apr. 2002  
 MODIFIED BY: J.S. Howerton DATE: October 2017  
 CHECKED BY: DATE:  
 FILE SPEC.: w:\details\stand\modifiedflume.dgn

18-OCT-2017 14:17  
S:\Contracts\Contract35\Sggs\01\_Details\vertical\usr\details\modiflume.dgn  
Jhowerton AI CS0-2/2/95

6/21/00

COMPUTED BY: DBE DATE: 3 / 24 / 23  
 CHECKED BY: DATE:

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. SHEET NO.  
 BP4.R0131 3B-1

**SUMMARY OF EARTHWORK**  
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- 12 + 85.00 TO 15 + 22.88 (BEGIN BRIDGE)	61		187	126	
-L- 15 + 95.13 (END BRIDGE) TO 18 + 70.00	50		475	425	
<b>SUBTOTAL</b>	<b>111</b>		<b>662</b>	<b>551</b>	
<b>PROJECT TOTAL</b>	<b>111</b>		<b>662</b>	<b>551</b>	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				28	
<b>GRAND TOTAL</b>	<b>111</b>		<b>662</b>	<b>579</b>	
SAY	130			640	

ESTIMATED UNDERCUT = 300 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)  
 SELECT GRANULAR MATERIAL, CLASS II AND/OR CLASS III = 300 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)  
 GEOTEXTILE FOR SOIL STABILIZATION = 300 SY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

**PAVEMENT REMOVAL SUMMARY**  
 IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	14 + 50.00	15 + 35.50 (EX. BRIDGE)	CL	230
-L-	15 + 87.90 (EX. BRIDGE)	17 + 25	CL	362
<b>TOTAL:</b>				<b>592</b>
<b>SAY:</b>				<b>600</b>

**SUMMARY OF SHOULDER BERM GUTTER**  
 IN LINEAR FEET

STATION TO STATION	LOCATION	LF
-L- STA. 14 + 29.00 to 15 + 12.00	LT	83
-L- STA. 16 + 06.00 to 16 + 51.00	LT	45
<b>TOTAL</b>		<b>128</b>
<b>SAY</b>		<b>130</b>

**GUARDRAIL SUMMARY**

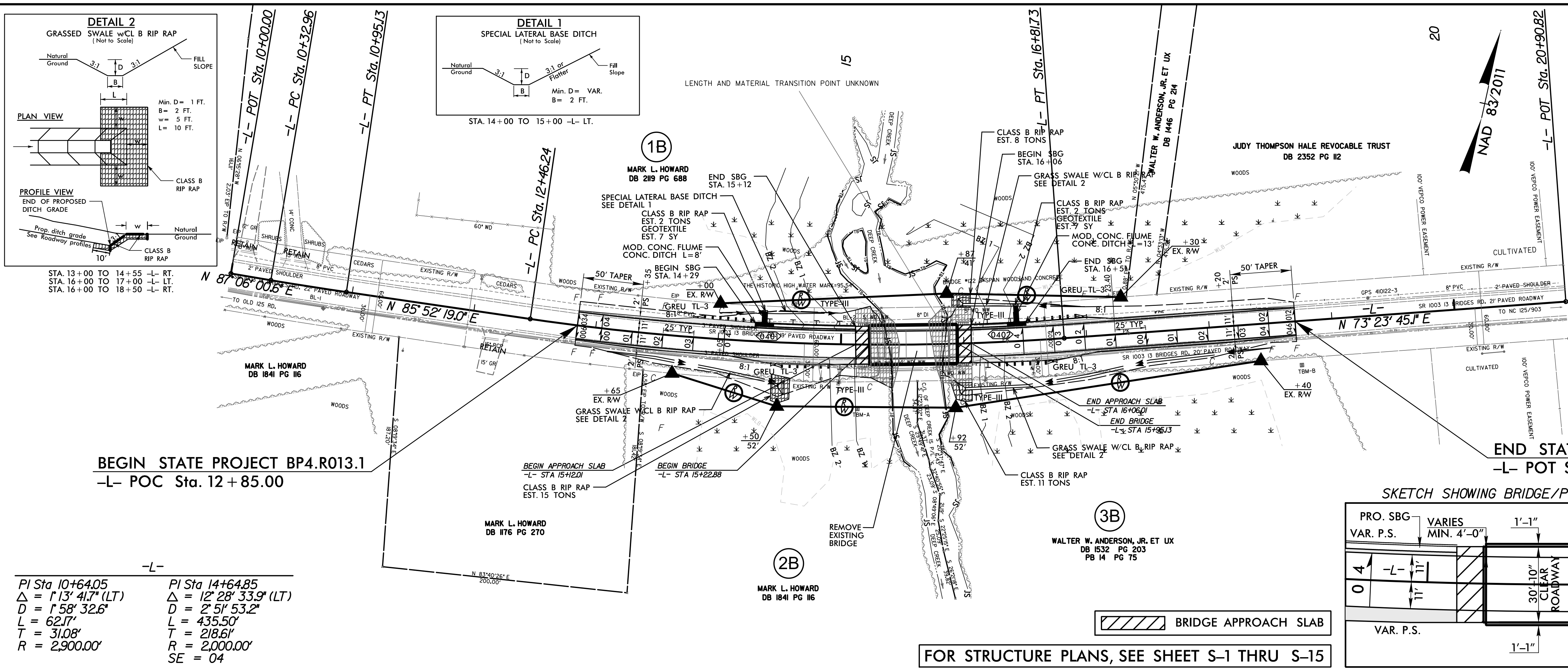
"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350			REMOVE EXISTING GUARDRAIL (LF)	REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE III	GRAU 350 (TL-3)	EA	G	NG						
-L-	13 + 79	15 + 24	LT	143.75'				15 + 24	VAR.	VAR.		50'		1'			1		1						
-L-	14 + 44	15 + 25	RT	81.25'				15 + 25	VAR.	VAR.		50'		1'			1		1						
-L-	15 + 95	17 + 01	LT	106.25'				15 + 95	VAR.	VAR.		50'		1'			1		1						
-L-	15 + 94	16 + 75	RT	81.25'				15 + 94	VAR.	VAR.		50'		1'			1		1						
				SUBTOTAL (LF)	412.50'							TOTAL ANCHORS (EA)					4		4						
				LESS ANCHORS (LF)	275'							ANCHOR UNIT LENGTH (LF)					18.75'		50'						
				TOTAL (LF)	137.50'							DEDUCTION PER TYPE (LF)					75'		200'						
				SAY (LF)	137.50'			ADDITIONAL GUARDRAIL POSTS: SAY 5 EA				TOTAL DEDUCTION (LF)					275'								



8/17/99



PROJECT REFERENCE NO. **BP4.R013.1** SHEET NO. **4**

ROADWAY DESIGN ENGINEER: [Signature]

HYDRAULICS ENGINEER: [Signature]

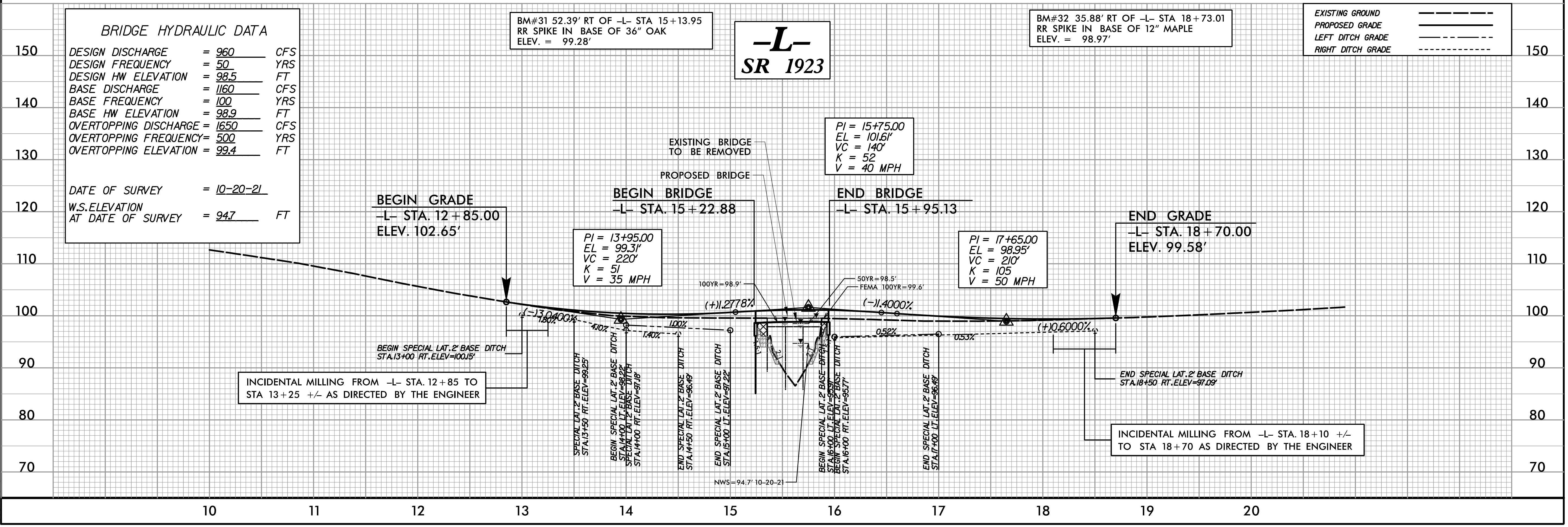
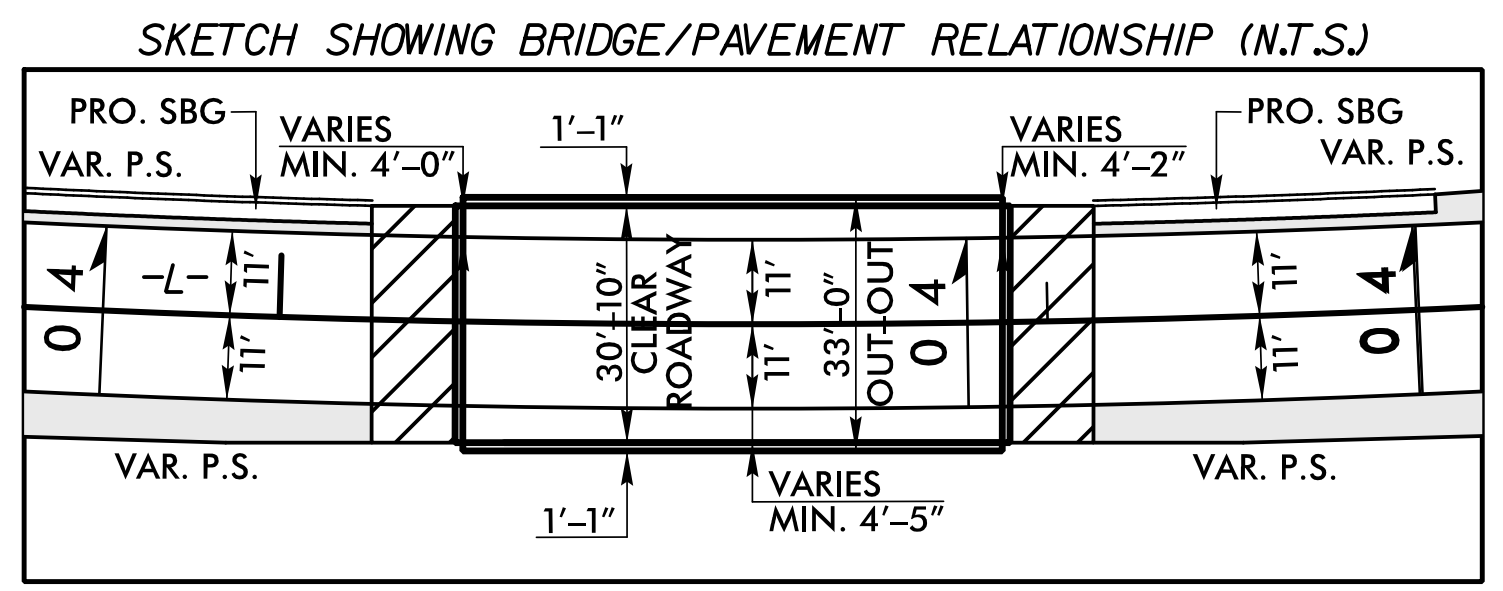
SEAL 019724

SEAL 41420

12/18/2023 | 3:48 PM EST 12/19/2023 | 9:59 AM EST

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

TGS ENGINEERS  
706 HILLSBOROUGH ST., SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

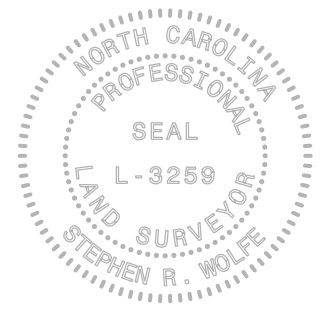


12/18/2023  
X:\ncdot\division 4\_half\122\roadway\proj\410122.RDY\_PSH\_04.dgn



# SURVEY CONTROL SHEET

## W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. BP4-R013	SHEET NO. RW02C-1
<b>Location and Surveys</b>	
JoynerKeeny, PLC 1051 N. Winstead Avenue Rocky Mount, NC 27804 252-977-3124 North Carolina Firm Number P-0551	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, STEPHEN R. WOLFE, 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:

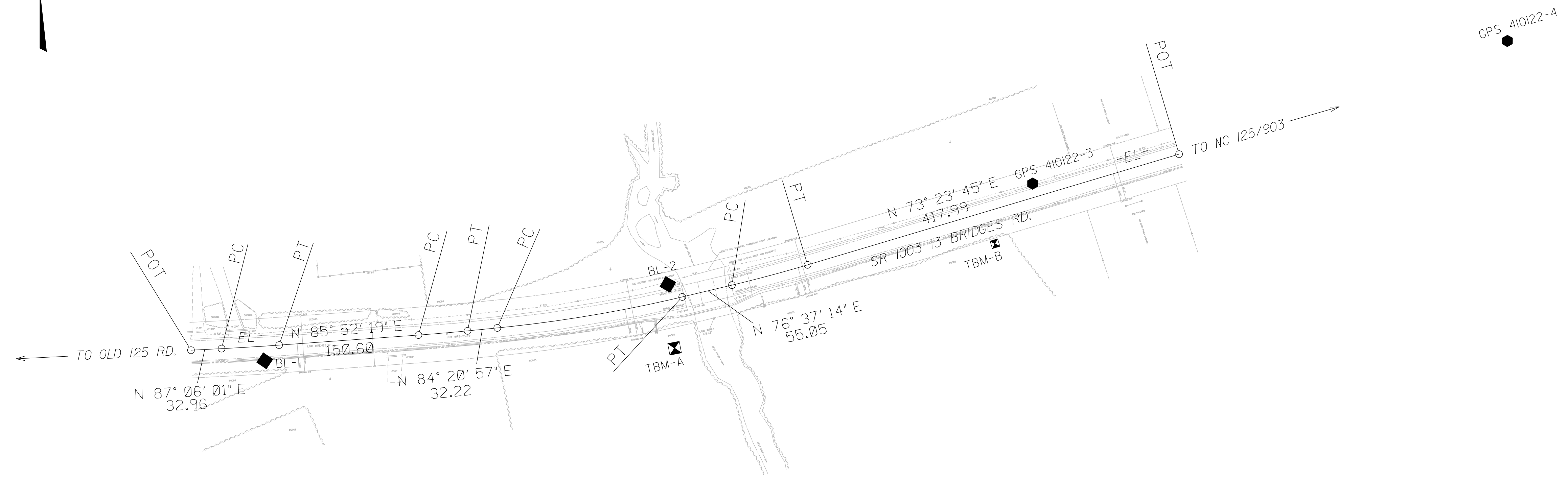
Class of survey: **AA**  
 Type of GPS field procedure: RTN  
 Dates of survey: 07MAR2019  
 Datum/Epoch: NAD83/2011  
 Published/Fixed-control use: NA  
 Localized around: GPS "410122-3"  
 Northing: 882233.8210  
 Easting: 2438311.9040  
 Combined grid factor: 0.99999754  
 Geoid model: 12B  
 Units: 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 on 07MAR2019, 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 28th day of April, 2022.

DocuSigned by:  
  
 3086875F3940446

Professional Land Surveyor L-3259



**SEE SHEETS RW02C-2, RW02C-3  
 FOR FURTHER  
 ALIGNMENT DETAILS**

**NOTES:**

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. 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

28-APR-2022 07:52  
 Z:\CAD\2019\190030C\NEED01\_410122.RW\_Halif\ex\SURVEY\DWG\WORK\RW\COMPS\bp4-r-013\_1s-r-w02c-1.dgn  
 jmatthews AT JKA-042



# SURVEY CONTROL SHEET

## W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP4-R013	RW02C-2
<b>Location and Surveys</b>	
JoynerKeeny, PLC 1051 N. Winstead Avenue Rocky Mount, NC 27804 252-977-3124 North Carolina Firm Number P-0551	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

BL	POINT	DESC.	NORTH	EAST	ELEVATION
1		BL-1	882042.6509	2437484.0775	109.18
2		BL-2	882124.9985	2437918.6474	98.03
3		GPS 410122-3	882233.8210	2438311.9040	99.30
4		GPS 410122-4	882387.7030	2438823.8019	106.70

I, STEPHEN R. WOLFE, 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: 29MAR2022  
 Datum/Epoch: NAD83/2011  
 Published/Fixed-control use: NA  
 Localized around: GPS "410122-3"  
 Northing: 882233.8210  
 Easting: 2438311.9040  
 Combined grid factor: 0.999999754  
 Geoid model: 12B  
 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 on 29MAR2022, 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 19th day of April, 2022.

DocuSigned by:  
  
 3106017573040460...

Professional Land Surveyor L-3259

\*\*\*\*\*  
 31 ELEVATION = 99.28  
 N 882056 E 2437926  
 TBM-A RR SPIKE IN BASE OF 36" OAK  
 \*\*\*\*\*

\*\*\*\*\*  
 32 ELEVATION = 98.97  
 N 882169 E 2438271  
 TBM-B RR SPIKE IN BASE OF 12" MAPLE  
 \*\*\*\*\*

**NOTES:**

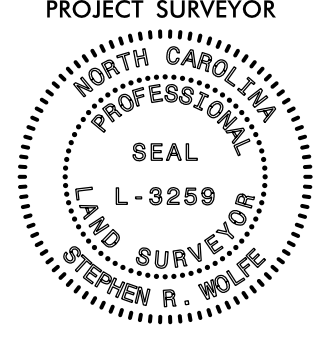
1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

19-APR-2022 11:57 AM  
 Z:\CAB\2022\150030C\NCD001-410122-RW\_Halifax\SURVEY\WORK\COMPS\bp4-r-013-1s-r-w02c-2.dgn  
 jmatthews AT JKA-042

# SURVEY CONTROL SHEET

## W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP4-R013	RW02C-3
<b>Location and Surveys</b>	
JoynerKeeny, PLC 1051 N. Winstead Avenue Rocky Mount, NC 27804 252-977-3124 North Carolina Firm Number P-0551	
PROJECT SURVEYOR 	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	882054.133	2437404.603	N 87°06'00.6" E	32.96					
LINE									
PC	882055.801	2437437.525	N 86°29'09.8" E	62.17	01°13'41.7"(L T)	01°58'32.6"	62.17	31.08	2900.00
CURVE	882059.611	2437499.574	N 85°52'19.0" E	150.60					
LINE									
PC	882070.452	2437649.778	N 85°06'38.0" E	53.15	01°31'22.0"(L T)	02°51'53.2"	53.15	26.58	2000.00
CURVE	882074.982	2437702.738	N 84°20'57.0" E	32.22					
LINE									
PC	882078.155	2437734.802	N 80°29'05.5" E	202.18	07°43'43.0"(L T)	03°49'11.0"	202.33	101.32	1500.00
CURVE	882111.577	2437934.201	N 76°37'14.0" E	55.05					
LINE									
PC	882124.315	2437987.757	N 75°00'29.5" E	84.41	03°13'28.9"(L T)	03°49'11.0"	84.42	42.22	1500.00
CURVE	882146.151	2438069.295	N 73°23'45.1" E	417.99					
LINE									
POT	882265.595	2438469.855							

I, STEPHEN R. WOLFE, 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: 29MAR2022  
 Datum/Epoch: NAD83/2011  
 Published/Fixed-control use: NA  
 Localized around: GPS "410122-3"  
 Northing: 882233.8210  
 Easting: 2438311.9040  
 Combined grid factor: 0.999999754  
 Geoid model: 12B  
 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 on 29MAR2022, 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 19th day of April, 2022.

DocuSigned by:  
  
 35808753540446

Professional Land Surveyor L-3259

### NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. 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.




6/2/19

REVISIONS

19 APR 2022 12:04  
2:17 PM 2019  
jmatthews  
AT JK-A-042  
Z:\AT\3030C\_NCDOT\_410122.RW\_Hellifox\SURVEY\WORK\RM\COMPS\bp4-r-013\_1s\_r-w02d-1.dgn

# PROPOSED ALIGNMENT CONTROL SHEET

TYPE	STATION	NORTH	EAST
POT	10+00.00	882054.1330	2437404.6026
PC	10+32.96	882055.8007	2437437.5250
PT	10+95.13	882059.6109	2437499.5738
PC	12+46.24	882070.4883	2437650.2858
PT	16+81.73	882148.6957	2438077.8290
POT	20+90.82	882265.5947	2438469.8554

PROJECT REFERENCE NO.	SHEET NO.
BP4-R013	RW02D-1
<b>Location and Surveys</b>	
JoynerKeeny, PLC 1051 N. Winstead Avenue Rocky Mount, NC 27804 252-977-3124 North Carolina Firm Number P-0551	
PROJECT SURVEYOR 	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

I, STEPHEN R. WOLFE, 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 April, 2022.

DocuSigned by:  
*Stephen Wolfe*  
30B6875F3040446

Professional Land Surveyor L-3259

### NOTES:

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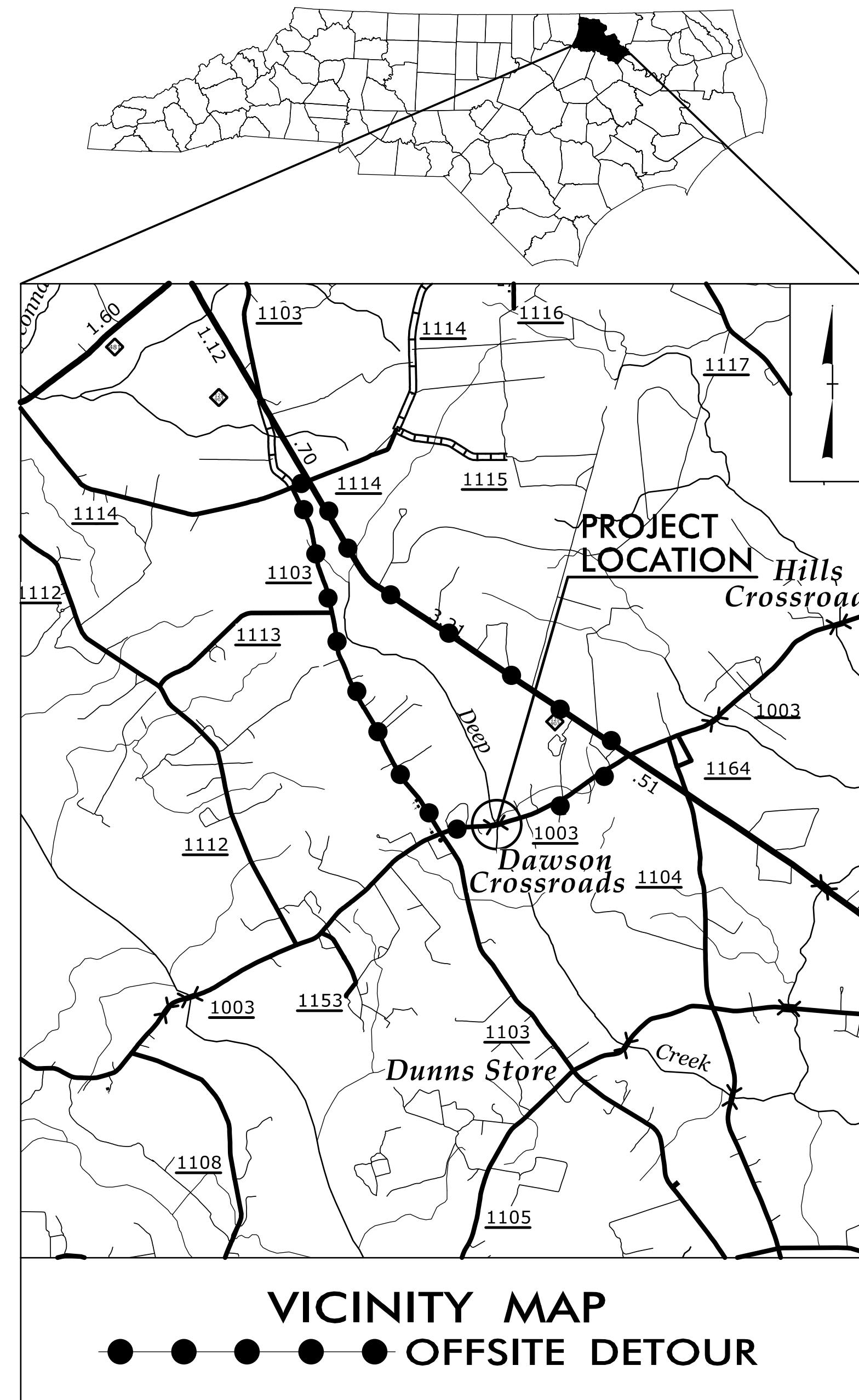
1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**HALIFAX COUNTY**

**LOCATION: BRIDGE NO. 122 OVER DEEP CREEK ON SR 1003**



**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1A	PHASING AND GENERAL NOTES
TMP-2	SIGN DESIGN
TMP-3	OFFSITE DETOUR DETAIL

**ROADWAY STANDARD DRAWINGS**

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

**LEGEND**

GENERAL

- ← DIRECTION OF TRAFFIC FLOW
- ➔ DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- ~ TEMP. SHORING (LOCATION PURPOSES ONLY)

■ WORK AREA

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- ▬ BARRICADE (TYPE III)

TEMPORARY SIGNING

- ⊞ PORTABLE SIGN
- ⊞ STATIONARY SIGN
- ⊞ STATIONARY OR PORTABLE SIGN

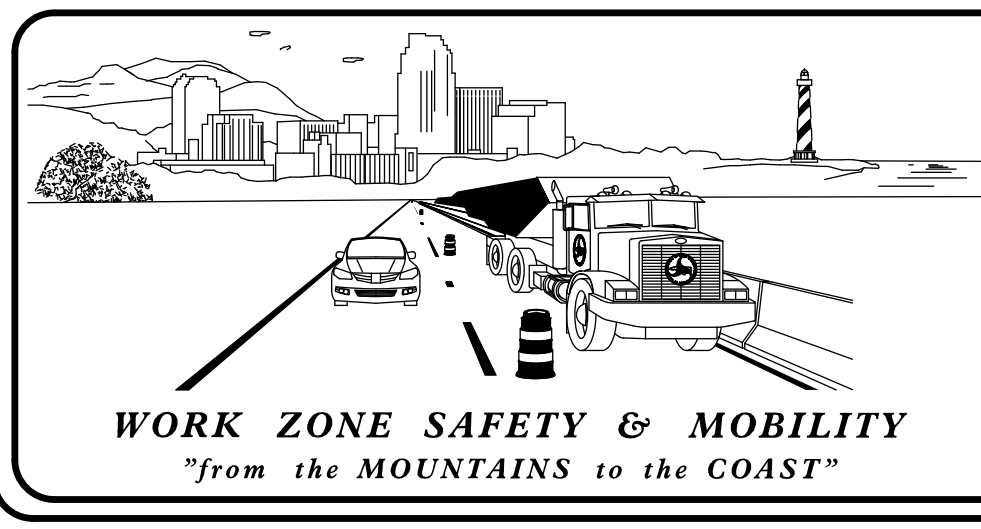
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UNLESS ALL SIGNATURES COMPLETED**

APPROVED: Don A. Parker  
DATE: 12/20/2023 | 8:27 AM EST



**PROJECT: BP4.R013.1**

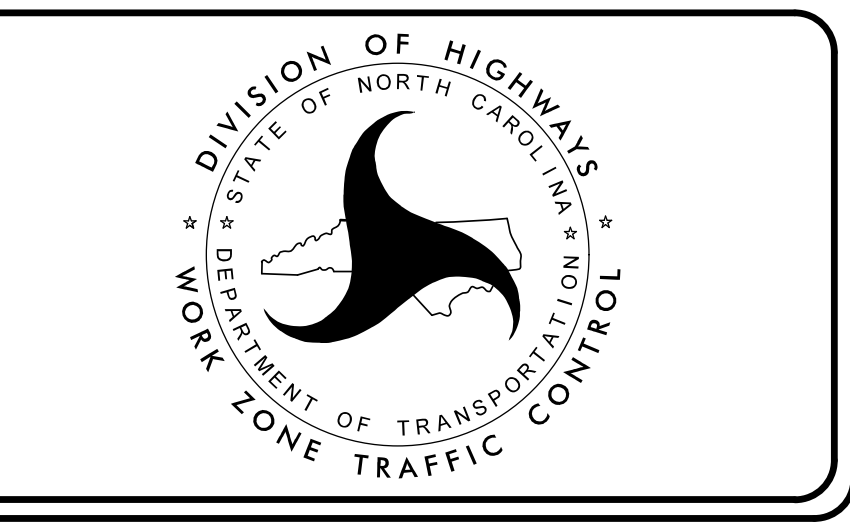
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PLAN PREPARED FOR N.C.D.O.T. BY: TGS ENGINEERS

**TGS ENGINEERS**  
706 HILLSBOROUGH ST.  
SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO. : C-0275

DON A. PARKER, PE PROJECT ENGINEER  
CODA BRANNAN, EI DESIGN ENGINEER





# 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 AT LEAST ON E MONEH 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.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR WHEN IN THE TRAFFIC CONTROL PLANS.

C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN 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 ENTURE ROADWAY.

### PAVEMENT MARKINGS AND MARKERS

F) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS SHOWN IN THE FINAL PAVEMENT MARKING PLAN.

G) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

# PHASING


STEP 1 -- INSTALL DETOUR ADVANCE WARNING SIGNS AND DETOUR TRAILBLAZING SIGNS. (SEE RSD 1101.01, SHEET 1 OF 9 AND TMP-3)

STEP 2 -- CLOSE SR 1003 TO THRU TRAFFIC.




STEP 3 -- CONSTRUCT PROPOSED BRIDGE AND APPROACHES INCLUDING THE FINAL LAYER OF SURFACE COURSE AND PLACE FINAL PAVEMENT MARKINGS.

STEP 4 -- REOPEN SR 1003 TO THRU TRAFFIC

STEP 5 -- REMOVE ALL TRAFFIC CONTROL DEVICES

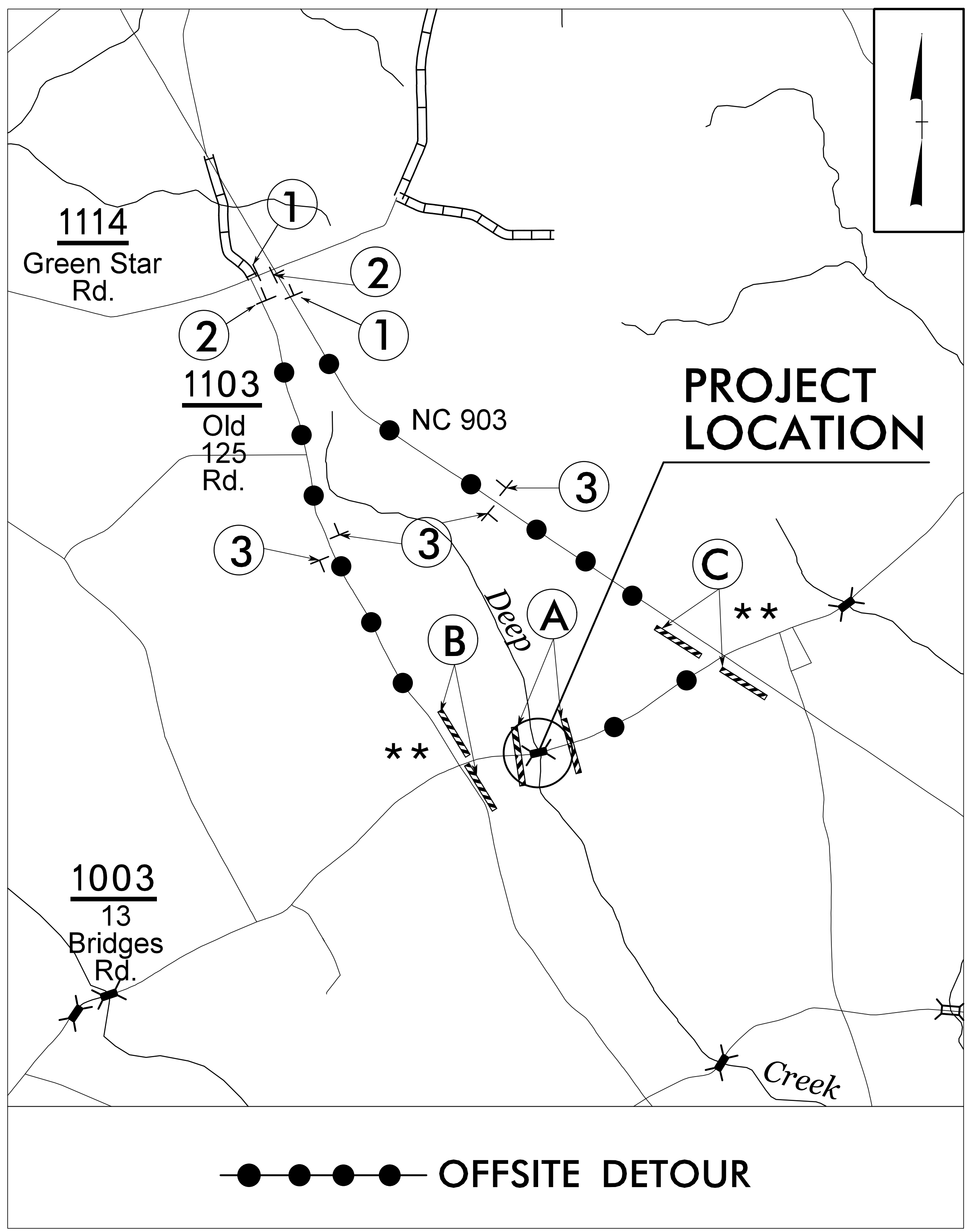
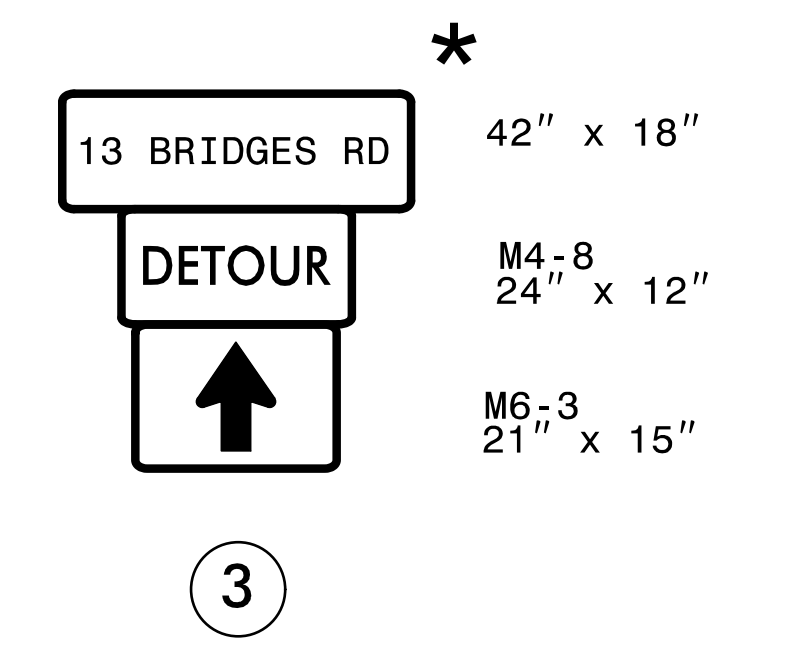
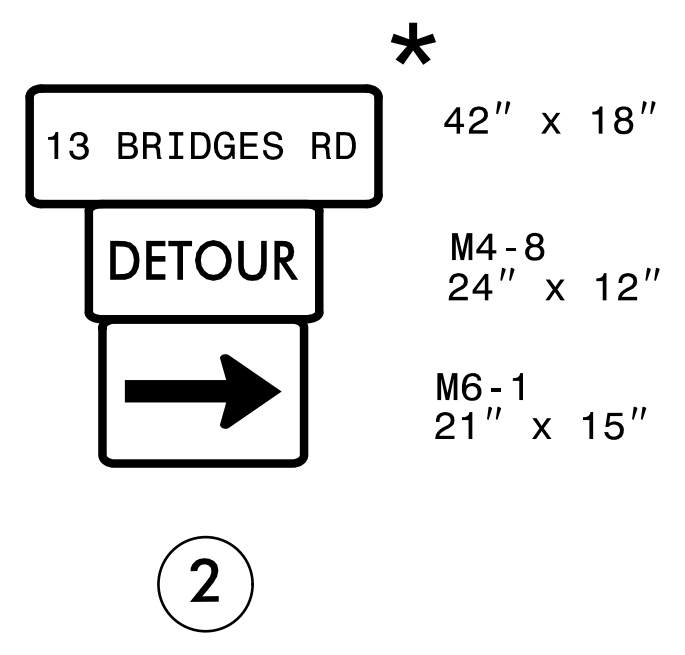
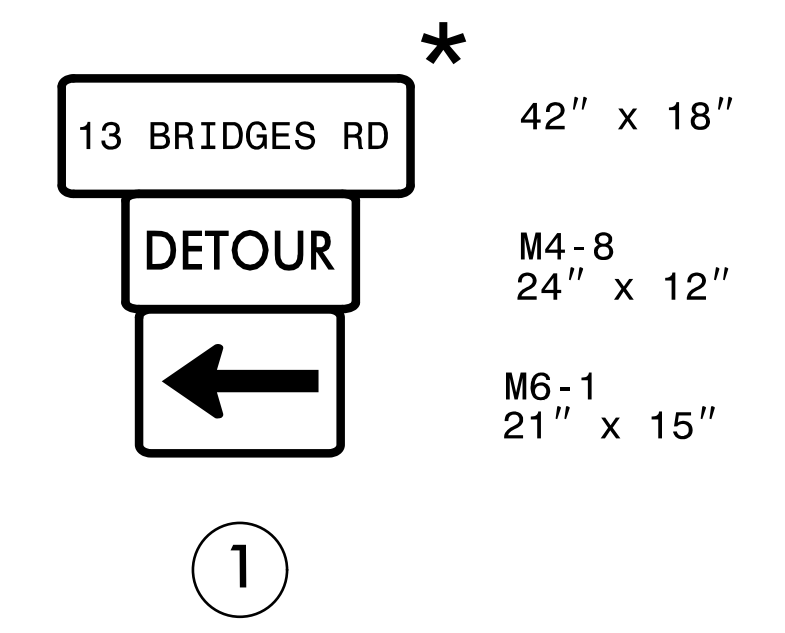
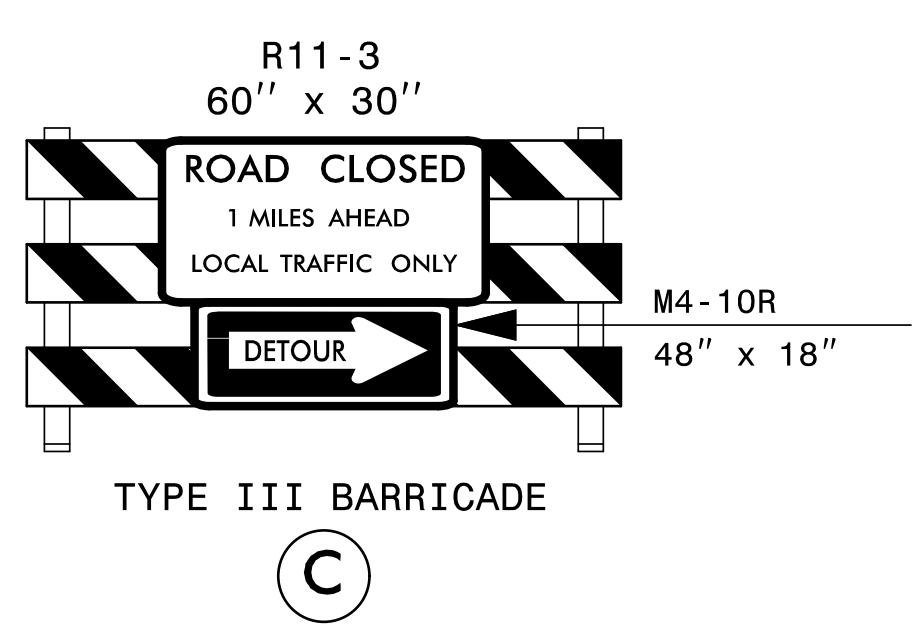
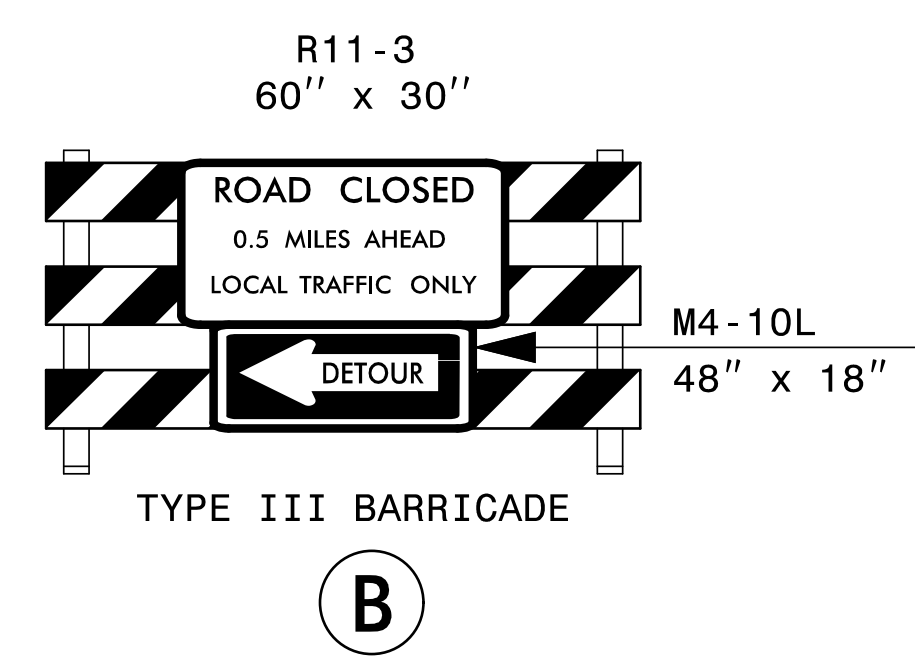
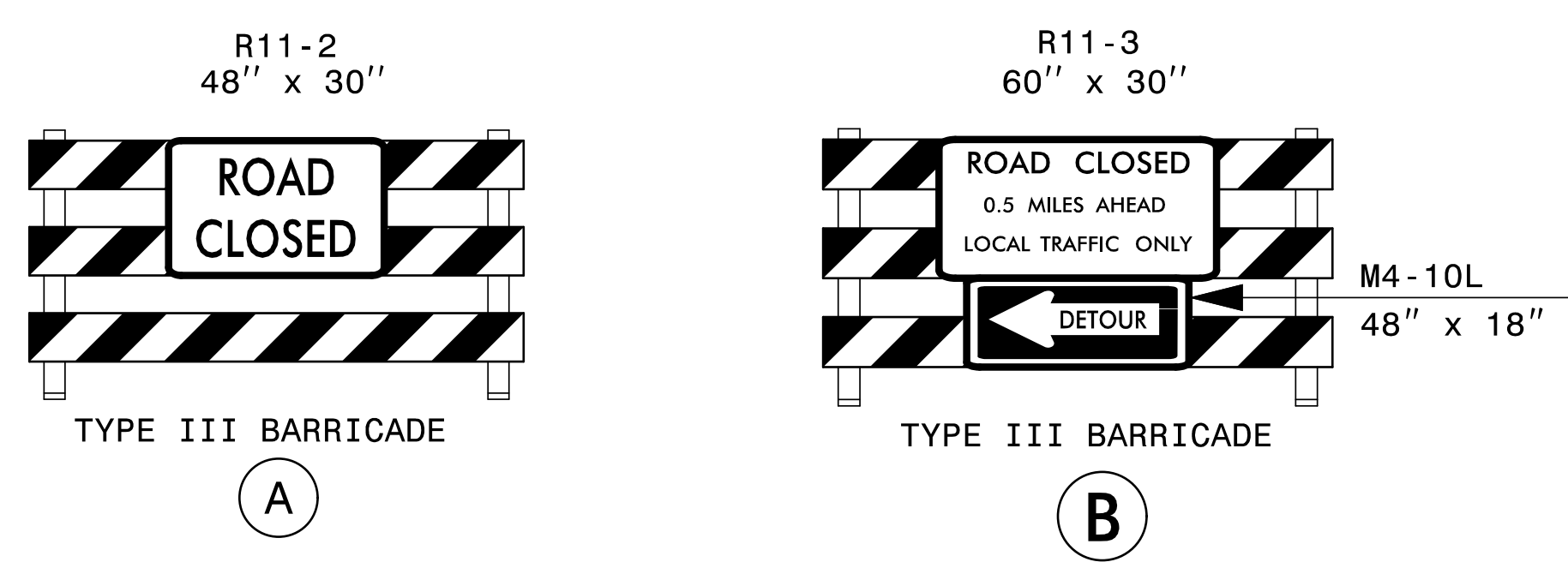
PROJ. REFERENCE NO.	SHEET NO.
BP4.R013.1	TMP-1A
 TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

11/28/2023 11:54:00 AM I:\28\division 4 halifax 122\traffic\trafficcontrol\top\410122-TC-TMP-1A.dgn User: jbr-cannan

APPROVED:  DATE: 12/20/2023   8:27 AM 		GENERAL NOTES & PHASING
<b>DOCUMENT NOT CONSIDERED FINAL          UNLESS ALL SIGNATURES COMPLETED</b>		



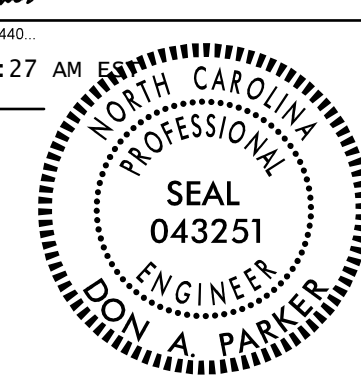




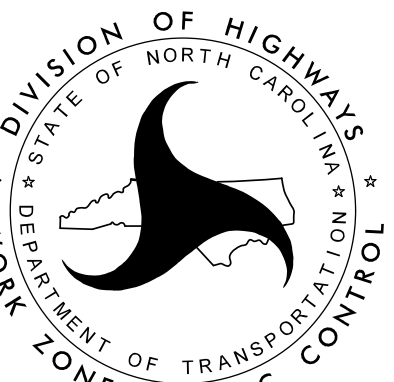
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 User: jbr-cannon

\* SEE TMP-2 FOR SIGN DESIGN  
 \*\* SEE RSD 1101.03, SHEET 1 OF 9 FOR DETOUR ADVANCE WARNING SIGNS

APPROVED: *Don A. Parker*  
 DATE: 12/20/2023 | 8:27 AM



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



DIVISION OF HIGHWAYS  
 NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

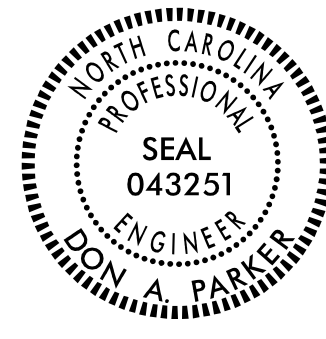
OFFSITE DETOUR  
 DETAIL

**PROJECT: BP4.R013.1**

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN  
HALIFAX COUNTY**

**LOCATION: BRIDGE NO. 122 OVER DEEP CREEK ON SR 1003**

TIP NO. BP4.R013.1	SHEET NO. PMP-1
Approved by: <u>Don A. Parker</u> <small>REGISTERED PROFESSIONAL ENGINEER</small> DATE: 12/20/2023   8:27 AM EST	
SEAL 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**INDEX**

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, GENERAL NOTES AND FINAL PAVEMENT MARKING SCHEDULE
PMP-2	PAVEMENT MARKING DETAIL

**FINAL PAVEMENT MARKING SCHEDULE**

SYMBOL	DESCRIPTION
PAVEMENT MARKINGS	
THERMOPLASTIC (4", 90 MILS)	
T1	(4") WHITE EDGELINE
T11	(4") YELLOW SINGLE CENTER
T12	(4") 10 FT. YELLOW SKIP

**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 2024 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 1003 -L-	THERMOPLASTIC	NONE

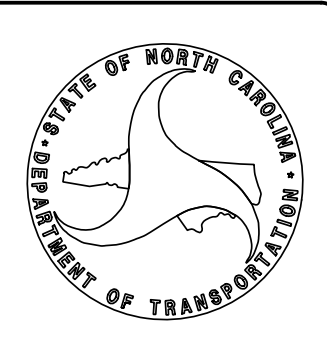
B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

**PLAN SUBMITTED TO: NCDOT**

CHAD COGGINS PROJECT ENGINEER NCDOT DIVISION 4



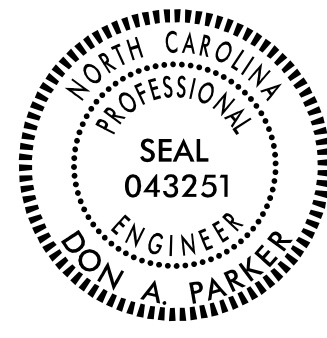

**PLAN PREPARED BY: TGS ENGINEERS**

DON A. PARKER, PE PROJECT ENGINEER  
CODA BRANNAN, EI DESIGN TECHNICIAN

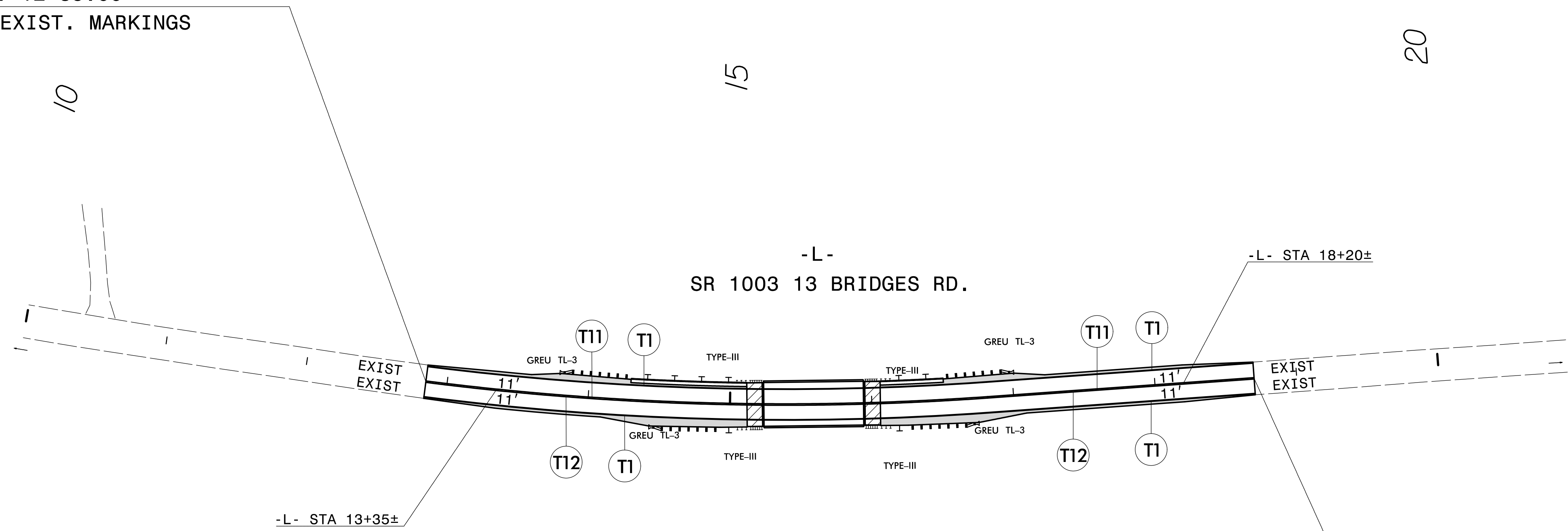


TGS ENGINEERS  
706 HILLSBOROUGH ST. SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275



TIP NO. BP4.R013.1	SHEET NO. PMP-2
APPROVED: <i>Don A. Parker</i> DATE: 12/20/2023   8:27 AM EST	
SEAL 	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

BEGIN STATE PROJECT BP4.R013.1  
 -L- STA. 12+85.00  
 TIE TO EXIST. MARKINGS

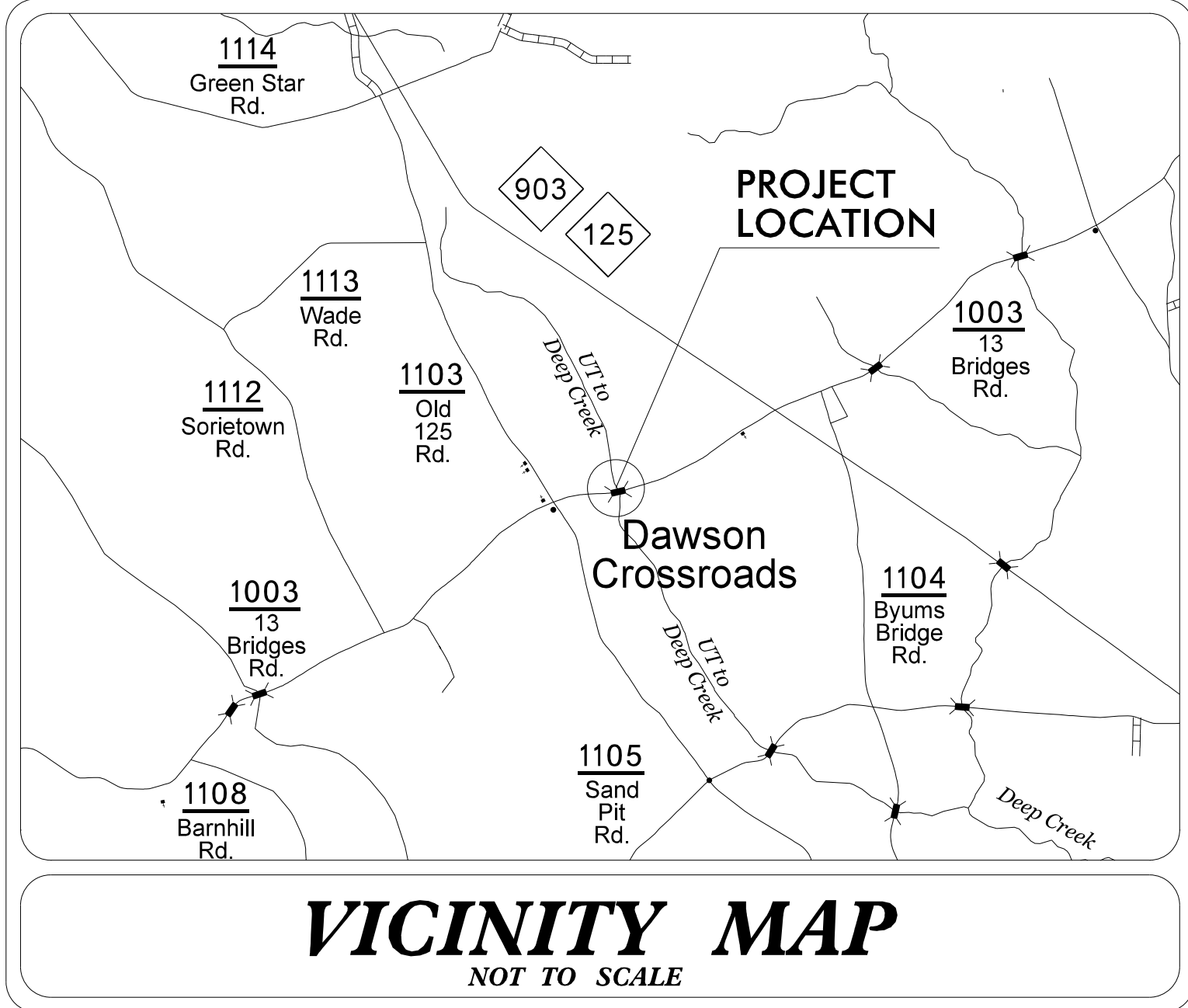


TIE TO EXIST. MARKINGS  
 END STATE PROJECT BP4.R013.1  
 -L- STA. 18+70.00

**PAVEMENT MARKING DETAIL**

11/28/2023  
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 User: tbrannan

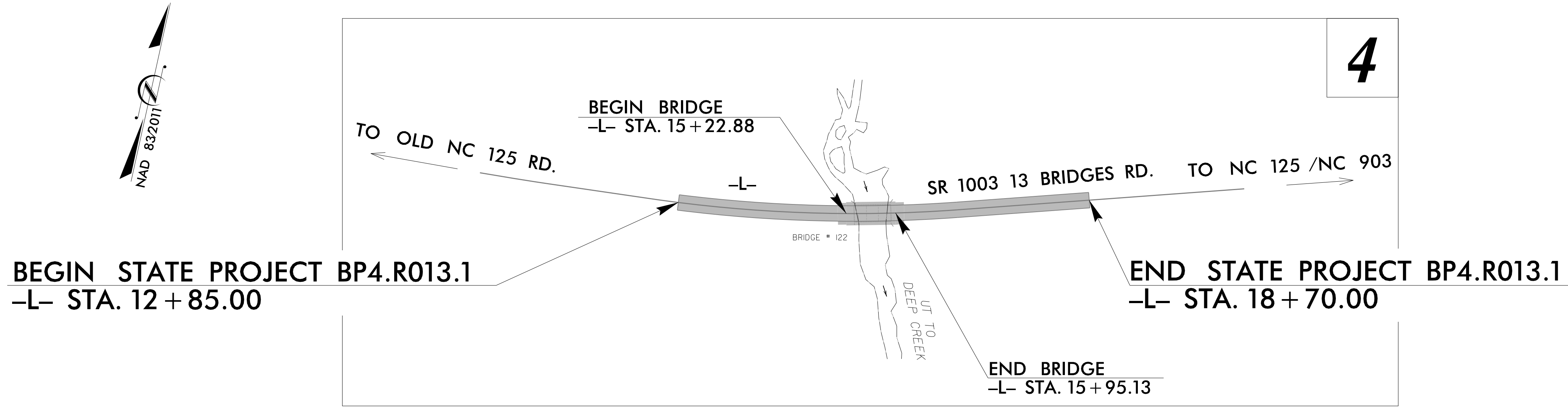
**TIP PROJECT: BP4.R013.1**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL  
HALIFAX COUNTY  
**LOCATION: BRIDGE NO. 122 ON SR 1003 (13 BRIDGES RD.) OVER  
UT TO DEEP CREEK**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4.R013.1	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

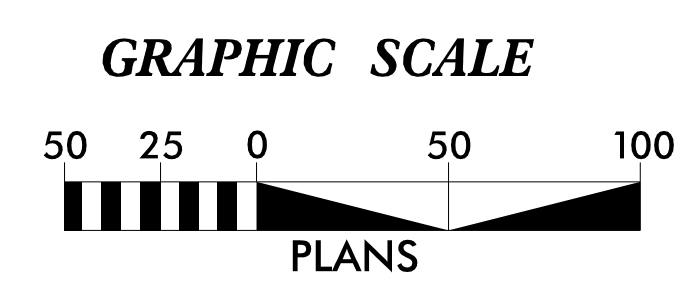


**303(d) IMPAIRED WATER(S) EXIST ON THIS PROJECT**  
303(d) Impaired Water Zone(s) Exist  
From Sta. -L- 12+85  
to Sta. -L- 18+70  
Refer To E. C. Special Provisions for Special Considerations.

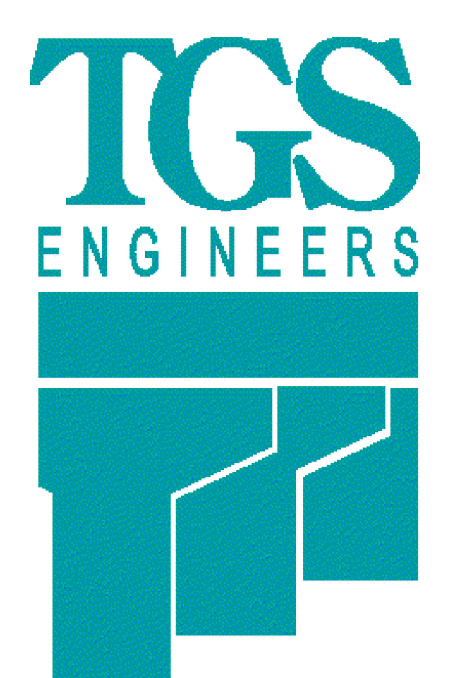
THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT  
Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.



Prepared in the Office of:  
**TGS ENGINEERS**  
706 HILLSBOROUGH ST. - SUITE 200  
RALEIGH, NC 27603

Designed by:  
Ben Henegar, PE 3564  
NAME LEVEL III CERTIFICATION NO.

**Roadway Standard Drawings**  
The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.



# DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

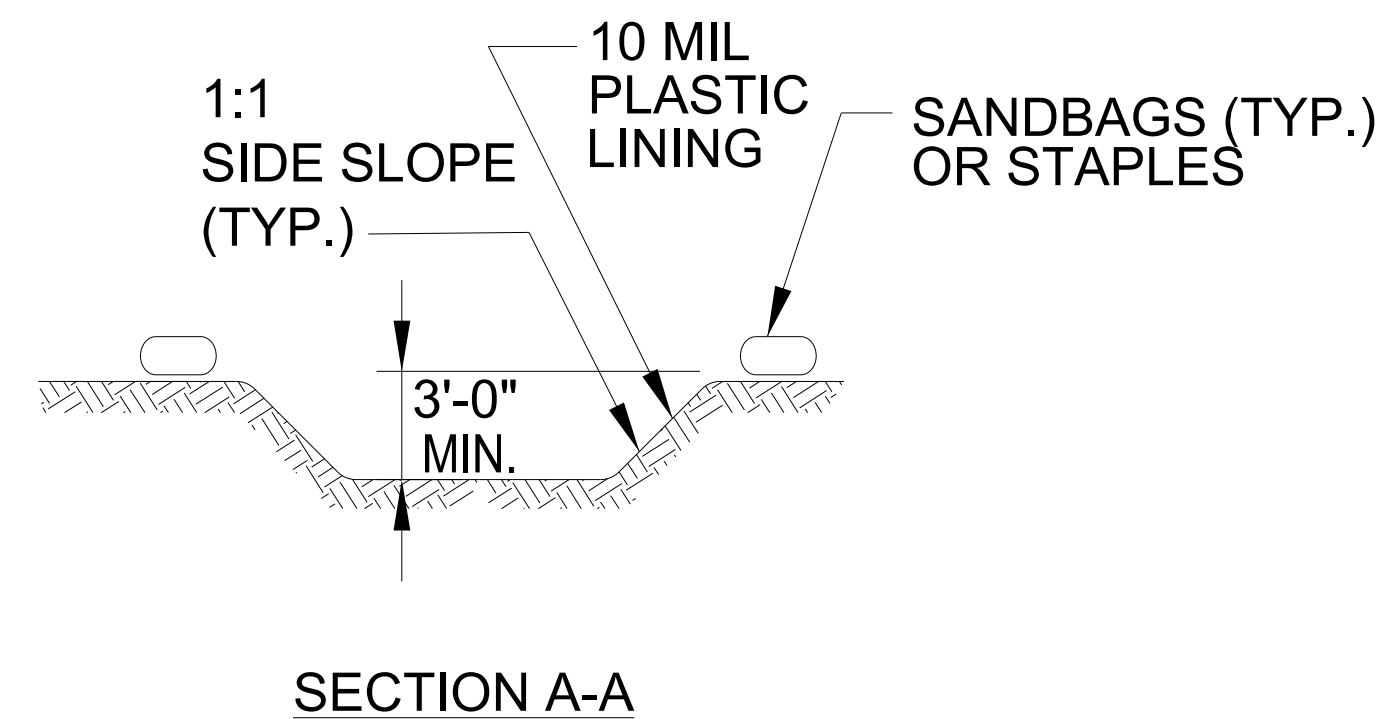
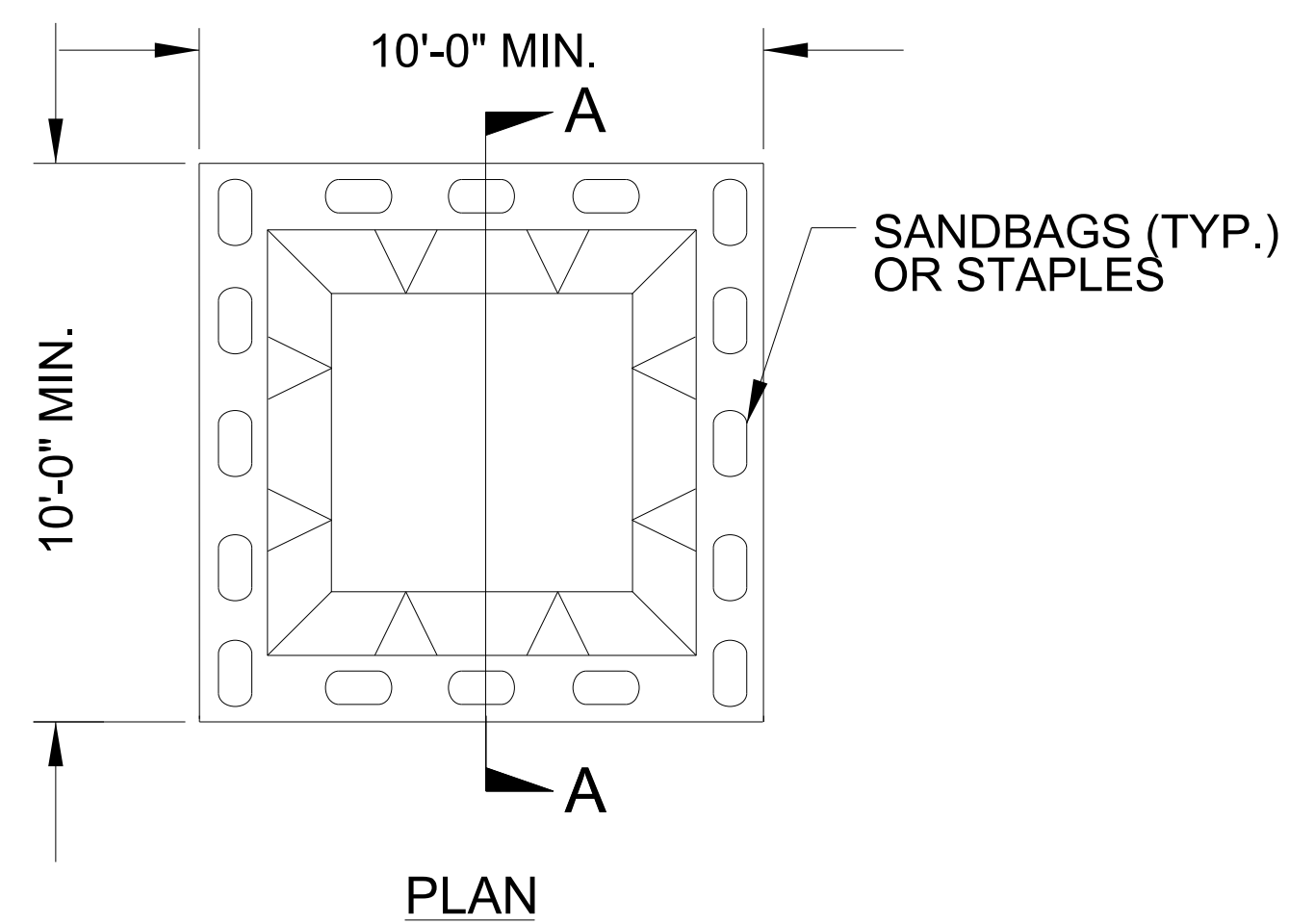
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

## EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol	Std. #	Description	Symbol
1605.01	Temporary Silt Fence		1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1630.02	Silt Basin Type B		1634.01	Temporary Rock Sediment Dam Type A	
1630.03	Temporary Silt Ditch		1634.02	Temporary Rock Sediment Dam Type B	
1630.04	Stilling Basin		1635.01	Rock Pipe Inlet Sediment Trap Type A	
1630.05	Temporary Diversion		1635.02	Rock Pipe Inlet Sediment Trap Type B	
1630.06	Special Stilling Basin		1636.01	Excelsior Wattle Check	
1630.07	Skimmer Basin		1636.01	Excelsior Wattle Check with Flocculant	
1630.08	Tiered Skimmer Basin		1636.01	Coir Fiber Wattle Check	
1630.09	Earthen Dam with Skimmer		1636.01	Coir Fiber Wattle Check with Flocculant	
	Infiltration Basin		1636.02	Silt Fence Excelsior Wattle Break	
	Rock Inlet Sediment Trap:			Silt Fence Coir Fiber Wattle Break	
1632.01	Type A		1636.03	Excelsior Wattle Barrier	
1632.02	Type B		1636.03	Coir Fiber Wattle Barrier	
1632.03	Type C				

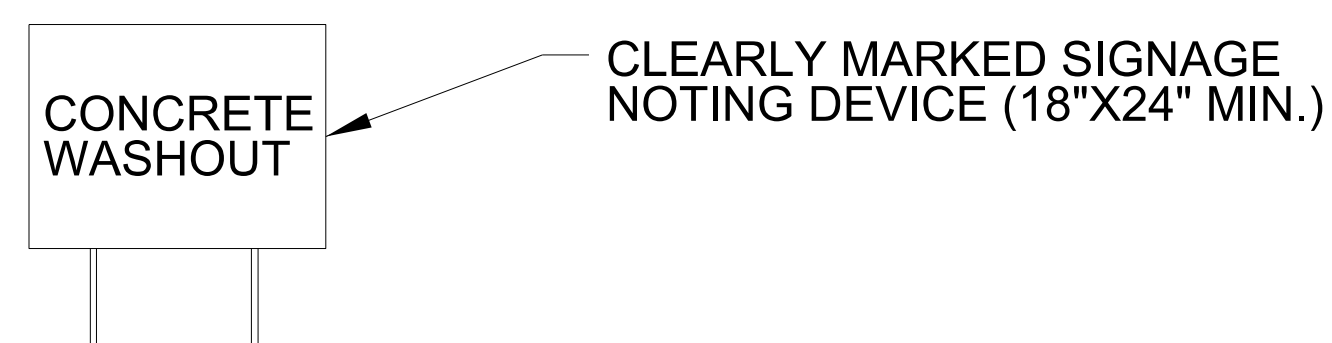
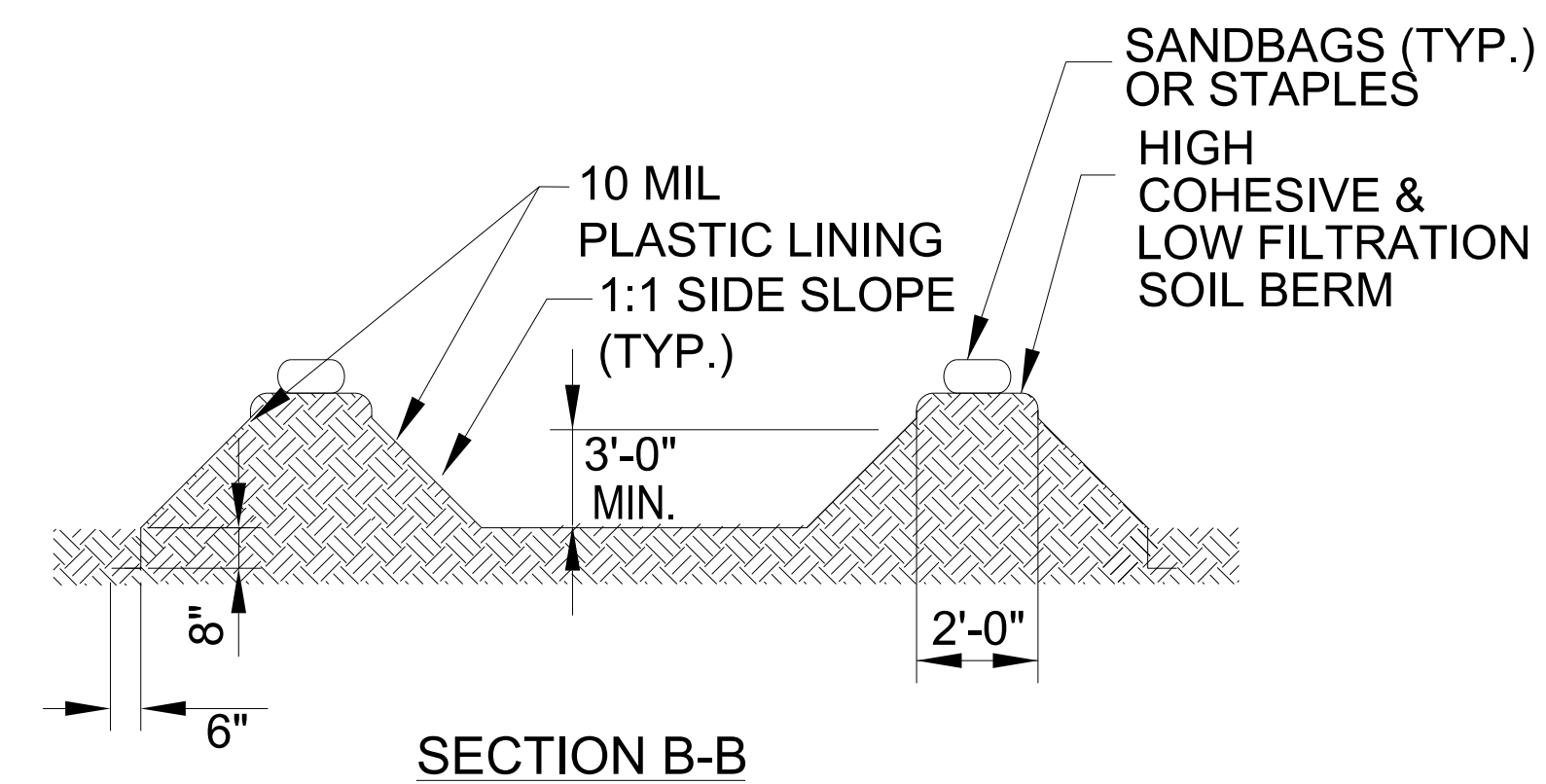
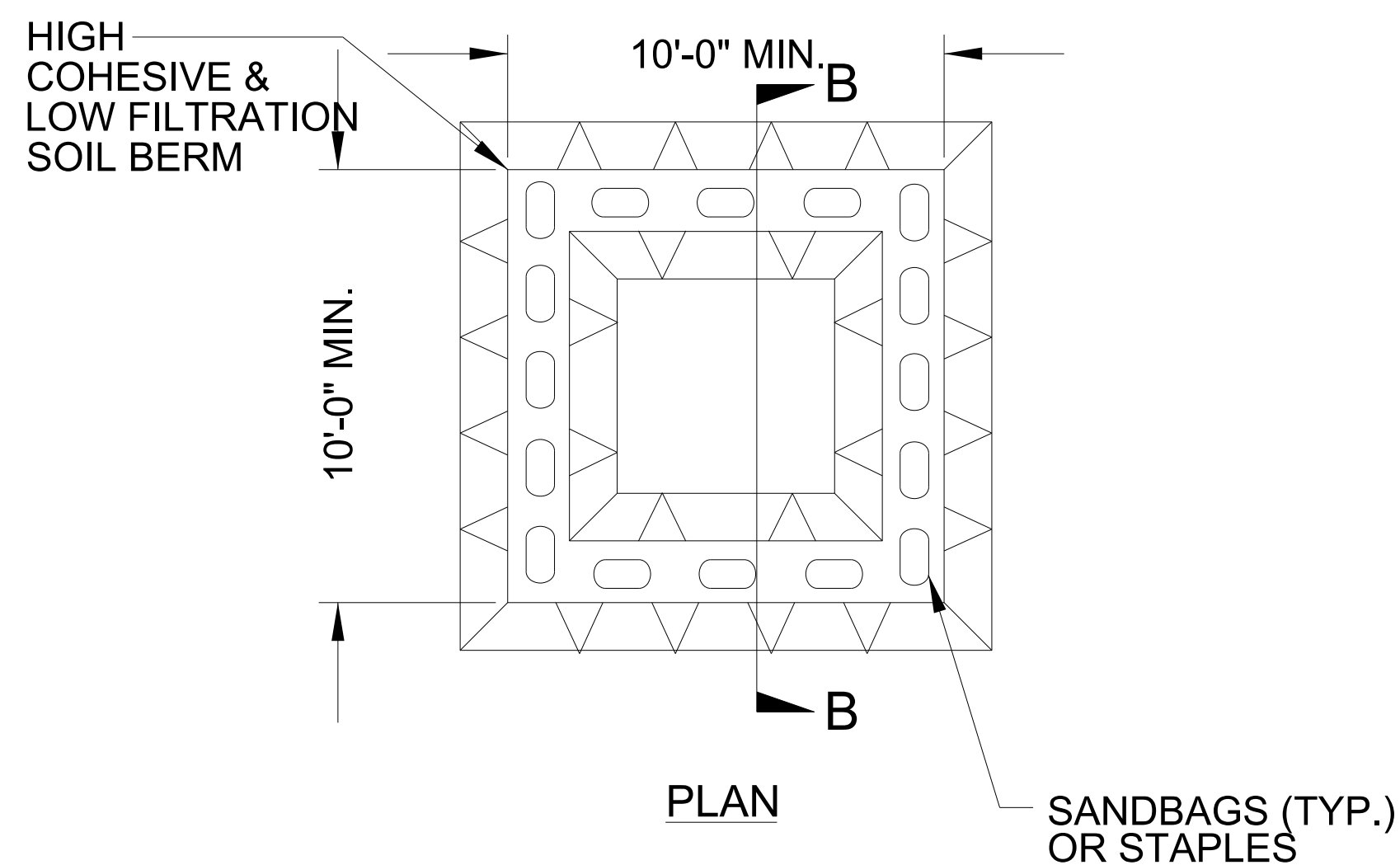
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BP4.R013.J		EC-2A	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

# ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



**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.



**ABOVE 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.



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>BP4.R013.I</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# SOIL STABILIZATION TIMEFRAMES

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

### MATTING FOR EROSION CONTROL (DITCHES)

<i>CONST SHEET NO.</i>	<i>LINE</i>	<i>FROM STATION</i>	<i>TO STATION</i>	<i>SIDE</i>	<i>ESTIMATE (SY)</i>
<i>4</i>	<i>-L-</i>	<i>14 + 00</i>	<i>15 + 00</i>	<i>LT</i>	<i>130</i>
<i>4</i>	<i>-L-</i>	<i>13 + 00</i>	<i>14 + 50</i>	<i>RT</i>	<i>195</i>
				<i>SUBTOTAL</i>	<i>325</i>
				<i>MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER</i>	<i>475</i>
				<i>TOTAL</i>	<i>800</i>
				<i>SAY</i>	<i>800</i>



# Halifax County Bridge# 410122

PROJECT REFERENCE NO. BP4.R013.1	SHEET NO. EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

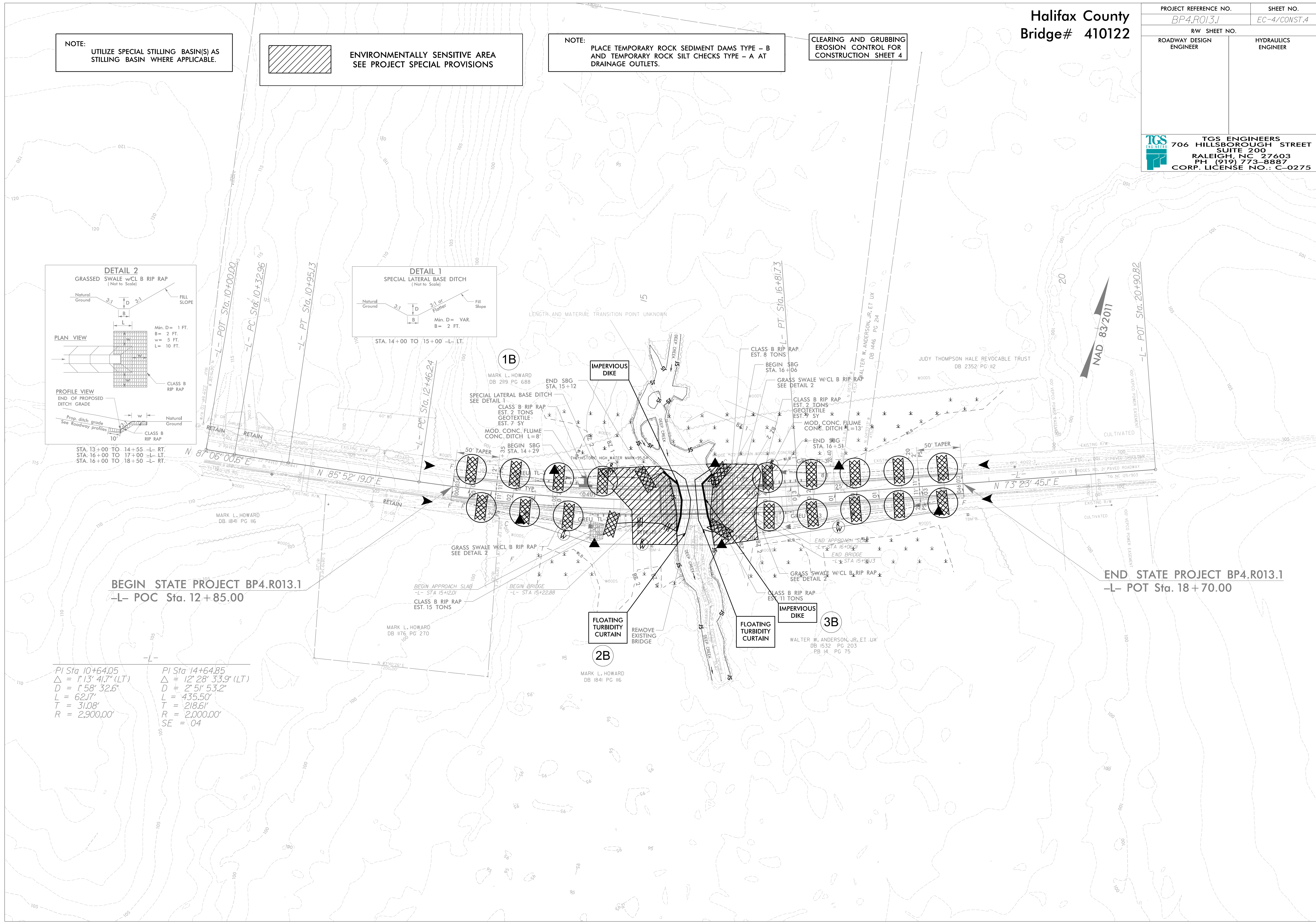
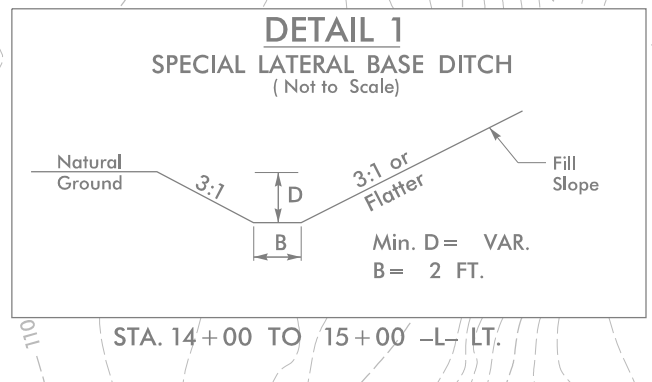
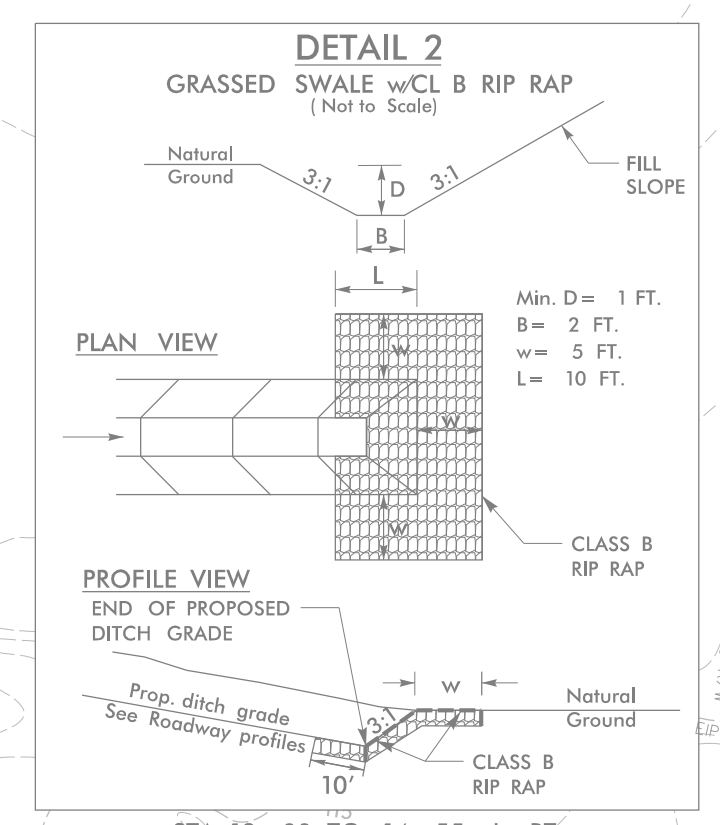
**TGS ENGINEERS**  
 706 HILLSBOROUGH STREET  
 SUITE 200  
 RALEIGH, NC 27603  
 PH (919) 773-8887  
 CORP. LICENSE NO.: C-0275

NOTE: UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

 ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4




PI Sta 10+64.05  
 $\Delta = 1' 13' 41.7''$  (LT)  
 $D = 1' 58' 32.6''$   
 $L = 62.17'$   
 $T = 31.08'$   
 $R = 2,900.00'$

PI Sta 14+64.85  
 $\Delta = 12' 28' 33.9''$  (LT)  
 $D = 2' 51' 53.2''$   
 $L = 435.50'$   
 $T = 218.61'$   
 $R = 2,000.00'$   
 $SE = .04$

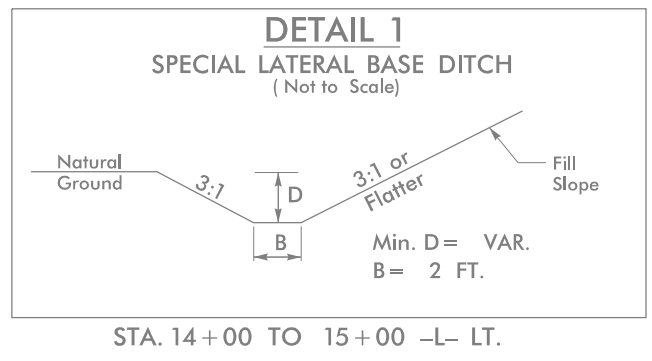
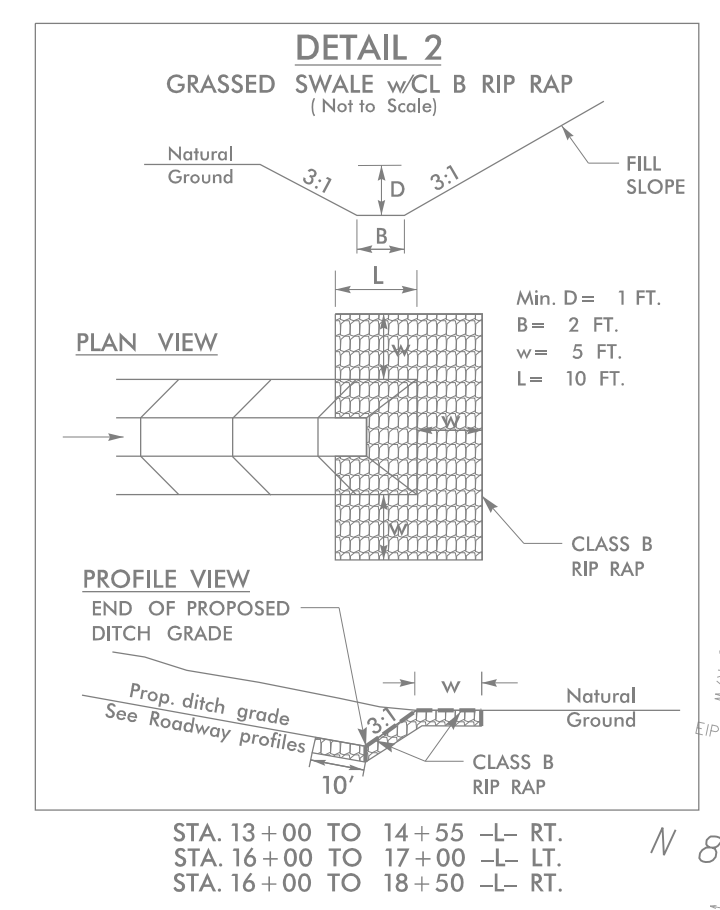
BEGIN STATE PROJECT BP4.R013.1  
 -L- POC Sta. 12+85.00

END STATE PROJECT BP4.R013.1  
 -L- POT Sta. 18+70.00



PROJECT REFERENCE NO. BP4.R013.J	SHEET NO. EC-5/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

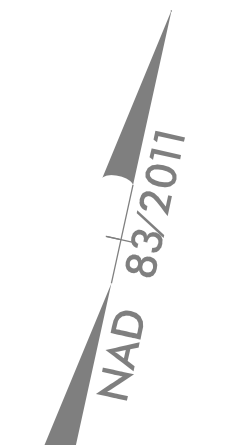
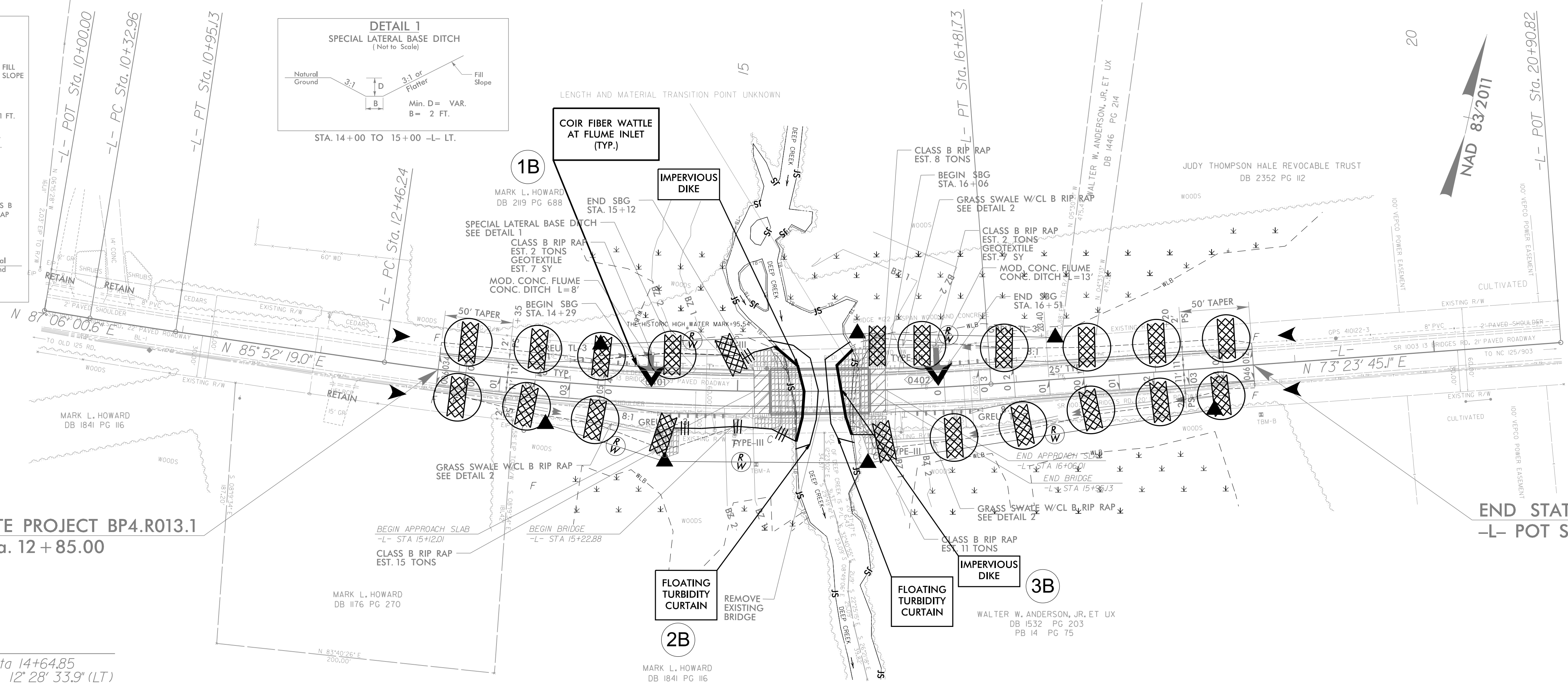
**NOTE:**  
UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.



**BEGIN STATE PROJECT BP4.R013.1**  
-L- POC Sta. 12+85.00

**END STATE PROJECT BP4.R013.1**  
-L- POT Sta. 18+70.00

-L-	
PI Sta 10+64.05	PI Sta 14+64.85
$\Delta = 1' 13" 41.7" (LT)$	$\Delta = 12' 28" 33.9" (LT)$
$D = 1' 58" 32.6"$	$D = 2' 51" 53.2"$
$L = 62.17'$	$L = 435.50'$
$T = 31.08'$	$T = 218.61'$
$R = 2,900.00'$	$R = 2,000.00'$
	$SE = 04$





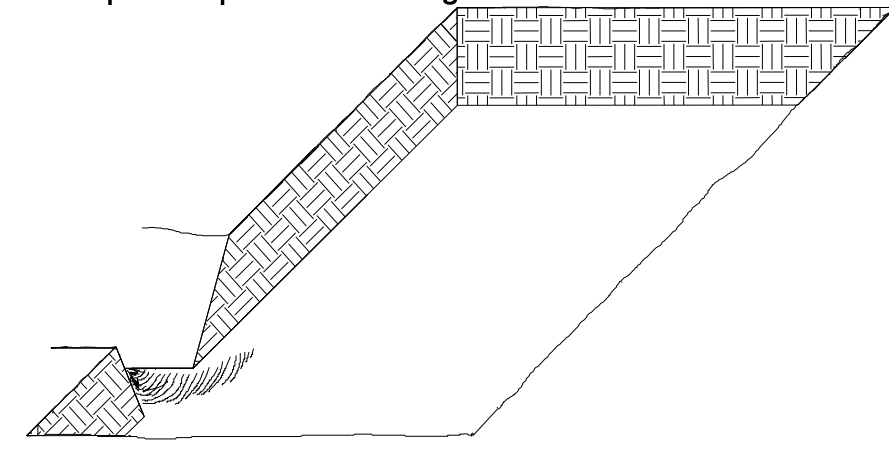
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4.R013.1	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

# PLANTING DETAILS

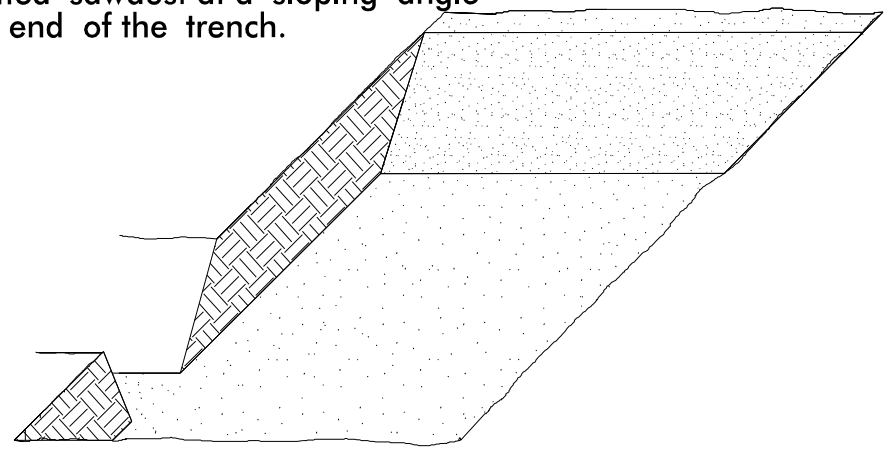
## SEEDLING / LINER BAREROOT PLANTING DETAIL

### HEALING IN

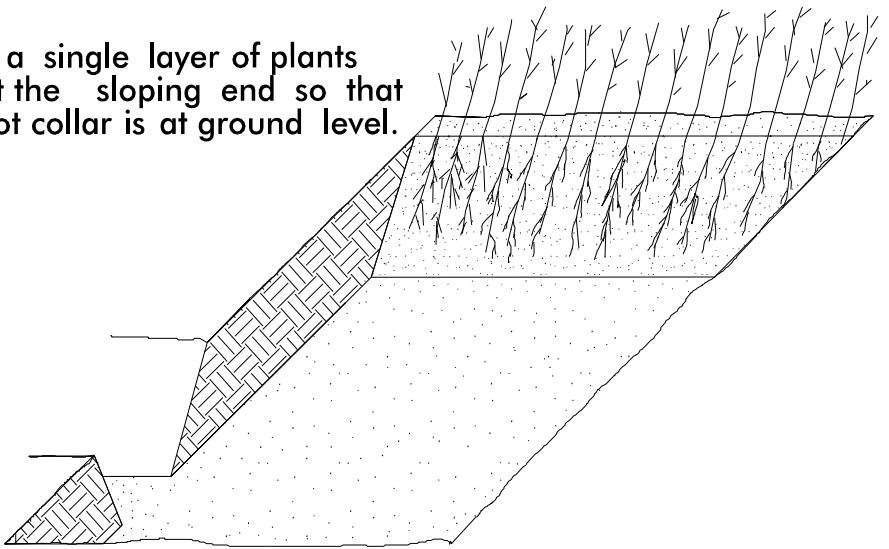
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



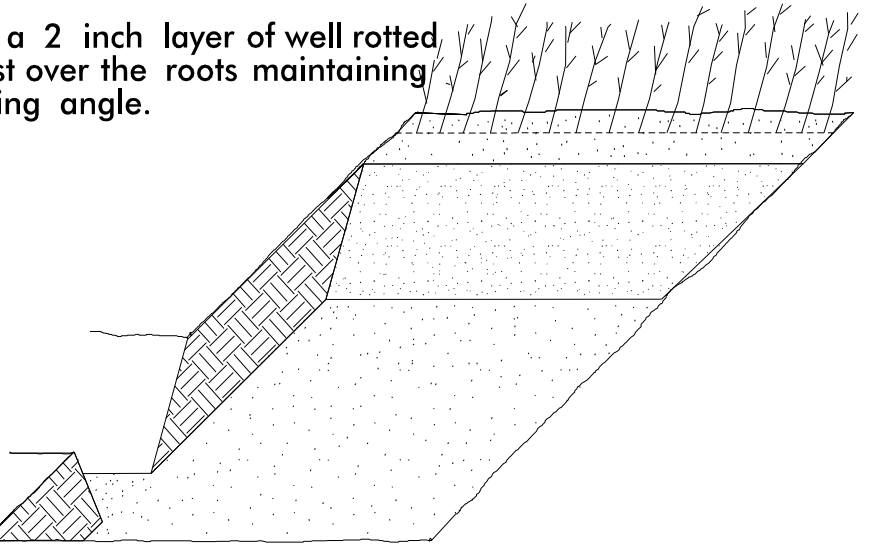
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

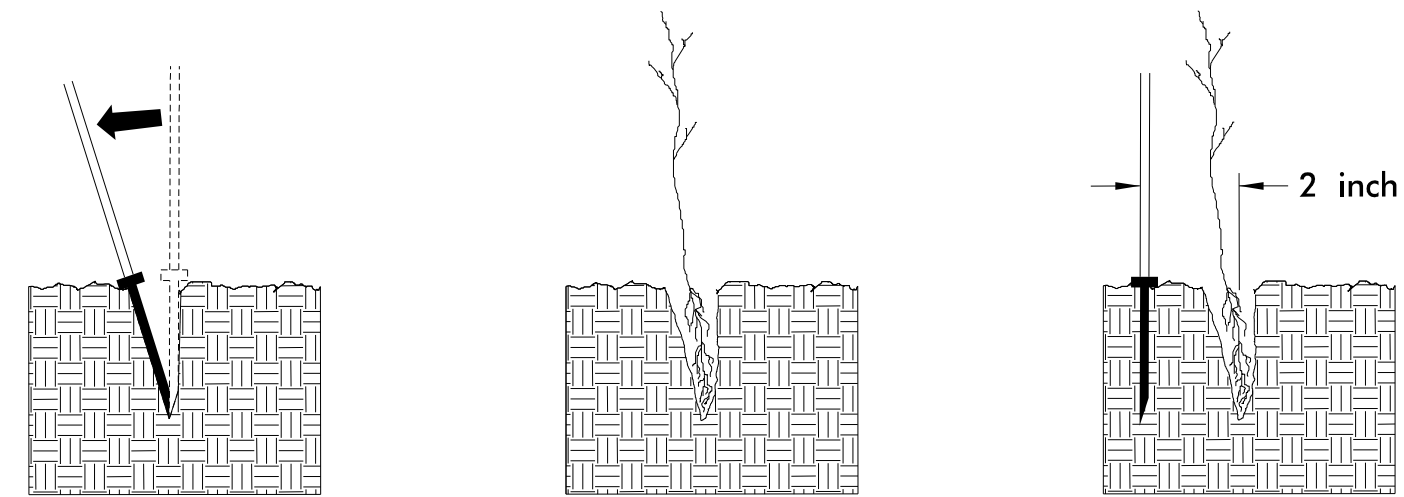


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

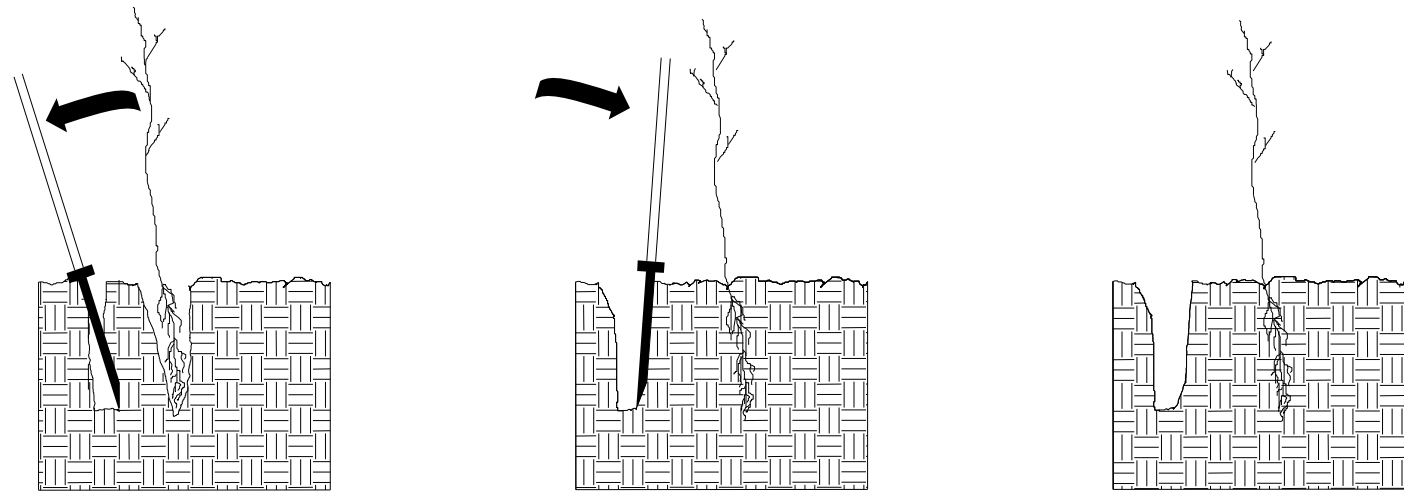


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

### DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.



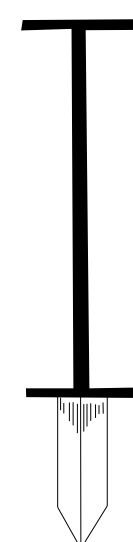
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

### PLANTING NOTES:

**PLANTING BAG**  
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



**KBC PLANTING BAR**  
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



**ROOT PRUNING**  
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

# REFORESTATION

- TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

### REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR
25%	NYSSA SYLVATICA	BLACK GUM	12 in – 18 in BR

## REFORESTATION DETAIL SHEET

N.C.D.O.T. – ROADSIDE ENVIRONMENTAL UNIT

**PROJECT: BP4.R013.1**

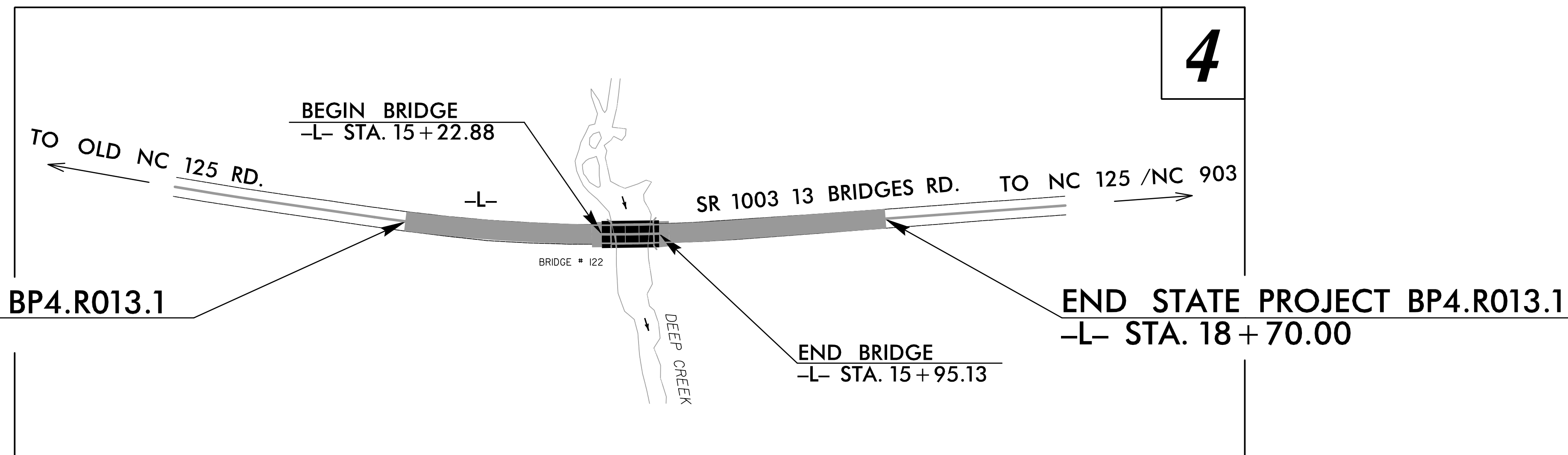
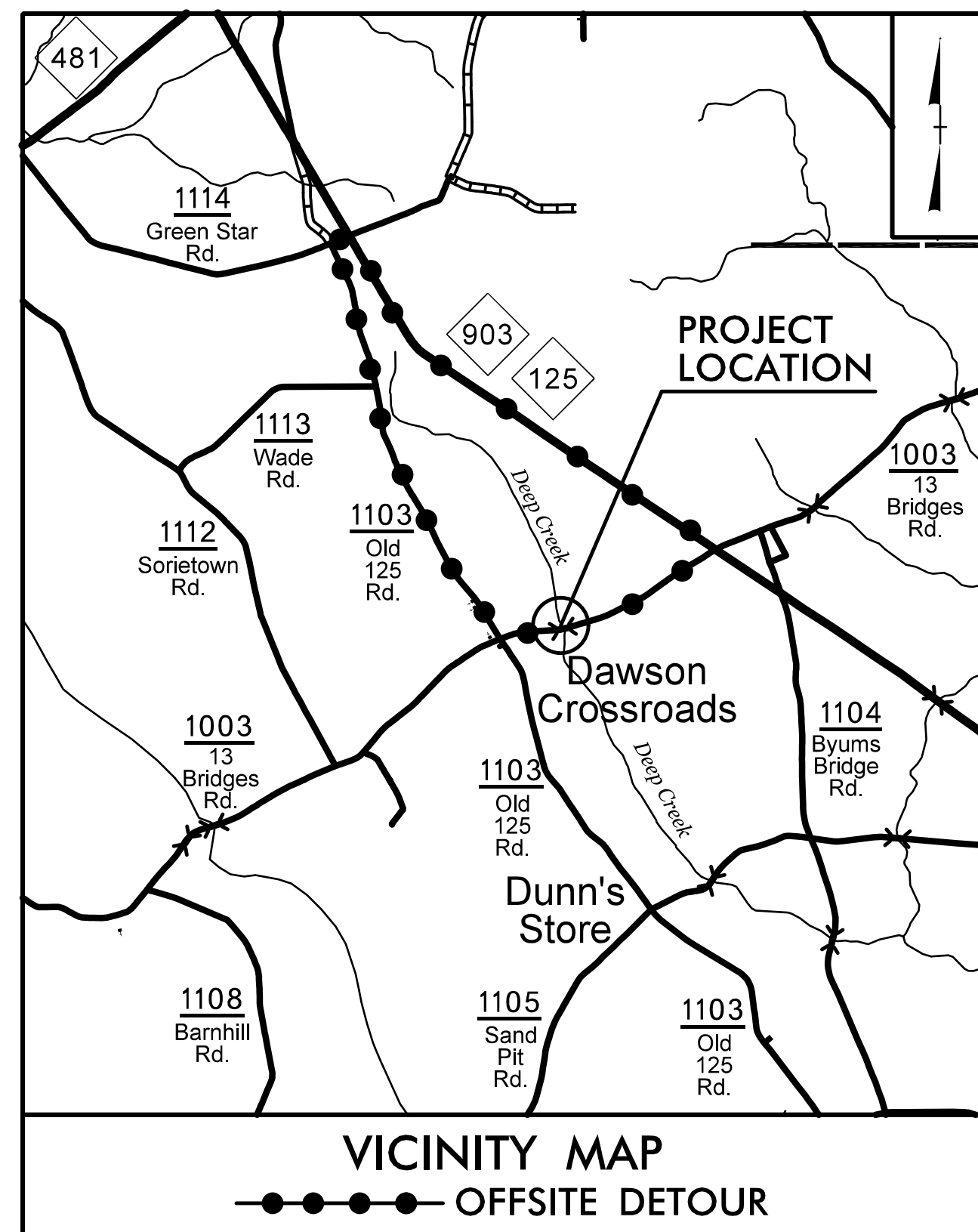
T.I.P. NO.	SHEET NO.
BP4.R013.1	UC-1

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

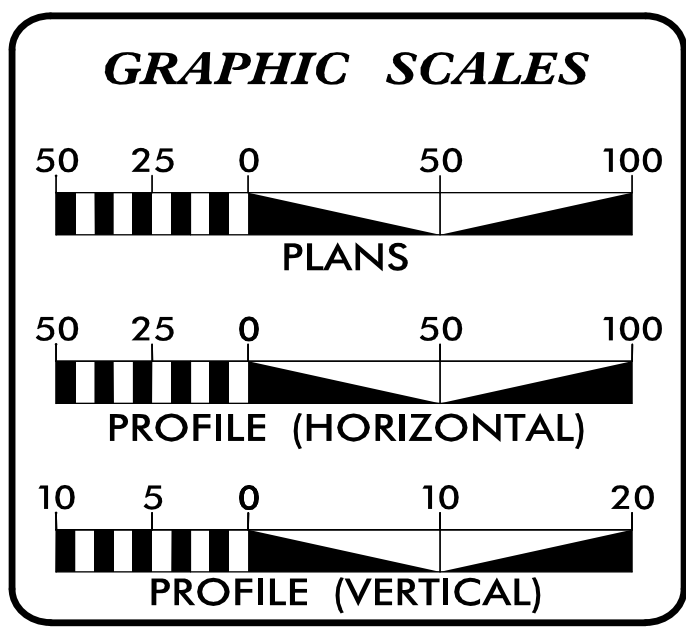
**UTILITY CONSTRUCTION PLANS  
HALIFAX COUNTY**

**LOCATION: BRIDGE 122 OVER DEEP CREEK ON SR 1003 (13 BRIDGES RD)**

**TYPE OF WORK: WATER MAIN RELOCATION**



DOCUMENT NOT CONSIDERED FINAL  
UNTIL ALL SIGNATURES ARE COMPLETED



**INDEX OF SHEETS**

SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A	DETAILS
UC-4	UTILITY CONSTRUCTION SHEETS

**WATER AND SEWER OWNERS ON PROJECT**

(A) WATER - HALIFAX COUNTY PUBLIC UTILITIES

PREPARED IN THE OFFICE OF

**TGS ENGINEERS**  
201 W. MARION ST., SUITE 200  
SHELBY, NC 28150  
PH (704) 476-0003  
CORP. LICENSE NO.: C-0275

**B. CHAD HOUSER PE**      **UTILITY ENGINEER**

SEAL

12/19/2023 | 12:04 PM PST

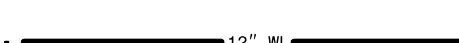





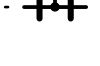

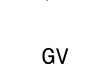


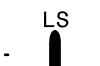














NCDOT  
HIGHWAY DIVISION 4  
509 Ward Blvd.  
PO Box 3165  
Wilson, 27895  
(252) 640-6437

**KYLE PLEASANT**      **DIVISION UTILITY ENGINEER**




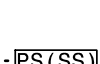
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## UTILITIES PLAN SHEET SYMBOLS





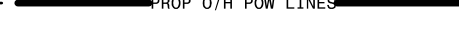
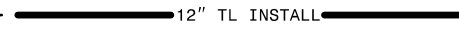
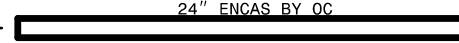
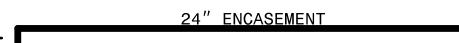
### PROPOSED WATER SYMBOLS


Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

### PROPOSED SEWER SYMBOLS


Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

### PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

### EXISTING UTILITIES SYMBOLS

Power Pole		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records		Sanitary Sewer Cleanout	
End of Information			

\*For Existing Utilities  
 Utility Line Drawn from Record (Type as Shown)  
 Designated Utility Line (Type as Shown)



# UTILITY CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP4.R013.1	UC-3
DESIGNED BY: BCH	
DRAWN BY: KSA	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

## GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.
2. THE EXISTING UTILITIES BELONG TO HALIFAX COUNTY PUBLIC UTILITIES.
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, "SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

## PROJECT SPECIFIC NOTES:

1. ALL PROPOSED WATER LINE INSTALLED BY OPEN CUT SHALL BE C900 DR 18 PVC. ALL PROPOSED WATER LINE INSTALLED BY HDD SHALL BE HDPE DR 11.
2. PVC TO HDPE TRANSITION SHALL UTILIZE A RESTRAINED COUPLING.
3. ALL WATER LINE FITTINGS SHALL BE PRESSURE CLASS 350 DUCTILE IRON RESTRAINED JOINT IN ACCORDANCE WITH ANSI A21.10 / AWWA C110 AND ANSI A21.4 / AWWA C104.
4. WATER LINE UTILIZING RESTRAINED JOINTS SHALL BE TYTON JOINT, HP LOK, AMERICAN "FAST GRIP", US PIPE "FIELD-LOK" OR APPROVED EQUAL.
5. ALL WATER LINE SHALL HAVE COATED TRACER WIRE NO SMALLER THAN 12 AWG SOLID COPPER. FOR THE WATER LINE THAT IS INSTALLED BY HDD, A TRACER WIRE DESIGNED FOR TRENCHLESS INSTALLATION SHALL BE UTILIZED.
6. RESILIENT WEDGE INSERTION GATE VALVES SHALL MEET OR EXCEED ALL PERTINENT REQUIREMENTS OF ANSI/AWWA C515-15 GATE VALVE STANDARD. THE VALVE BODY, BONNET, STUFFING BOX AND OPERATING NUT SHALL BE MADE OF ASTM A536 DUCTILE IRON. THE BODY AND BONNET SHALL ADHERE TO THE MINIMUM WALL THICKNESS AS SET FORTH IN AWWA C515-15 TABLE 3, SECTION 4.4.1.2. WALL THICKNESSES THAT DO NOT MEET AWWA MINIMUMS ARE NOT ACCEPTABLE
7. EACH VALVE BURIED IN THE GROUND SHALL BE PROVIDED WITH AN APPROVED TYPE OF VALVE BOX AND COVER. THE BOXES SHALL BE ADJUSTABLE SCREW TYPE 24-INCH OR 36-INCH.
8. ALL VALVE BOXES SHALL BE CONSTRUCTED OF CAST IRON THAT COMPLIES WITH THE REQUIREMENTS OF ASTM A48. VALVE BOXES SHALL BE THE APPROPRIATE RANGE OF ADJUSTMENT FOR THE SITE AND CONTRACTOR SHOULD MINIMIZE THE USE OF EXTENSIONS.

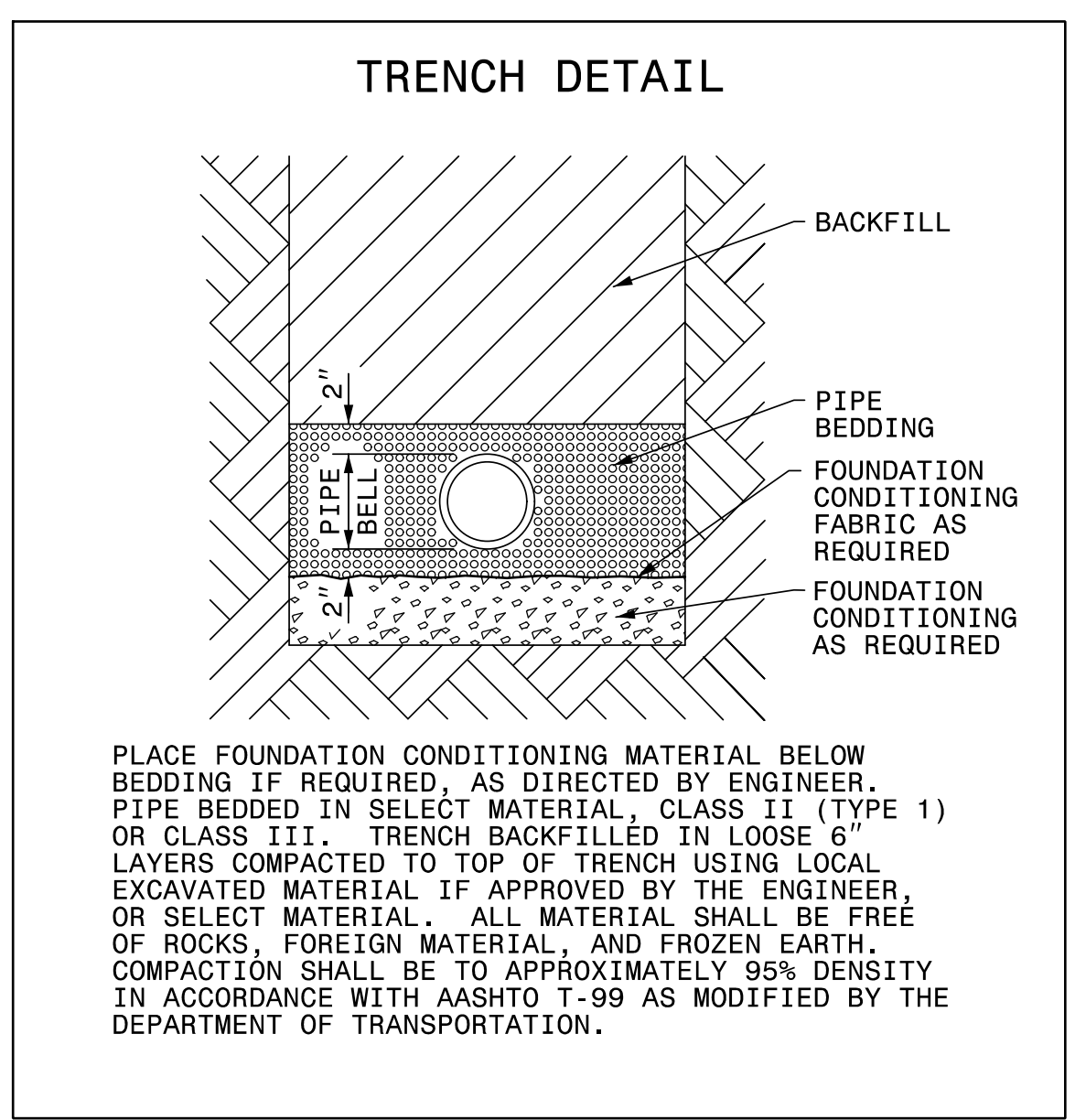
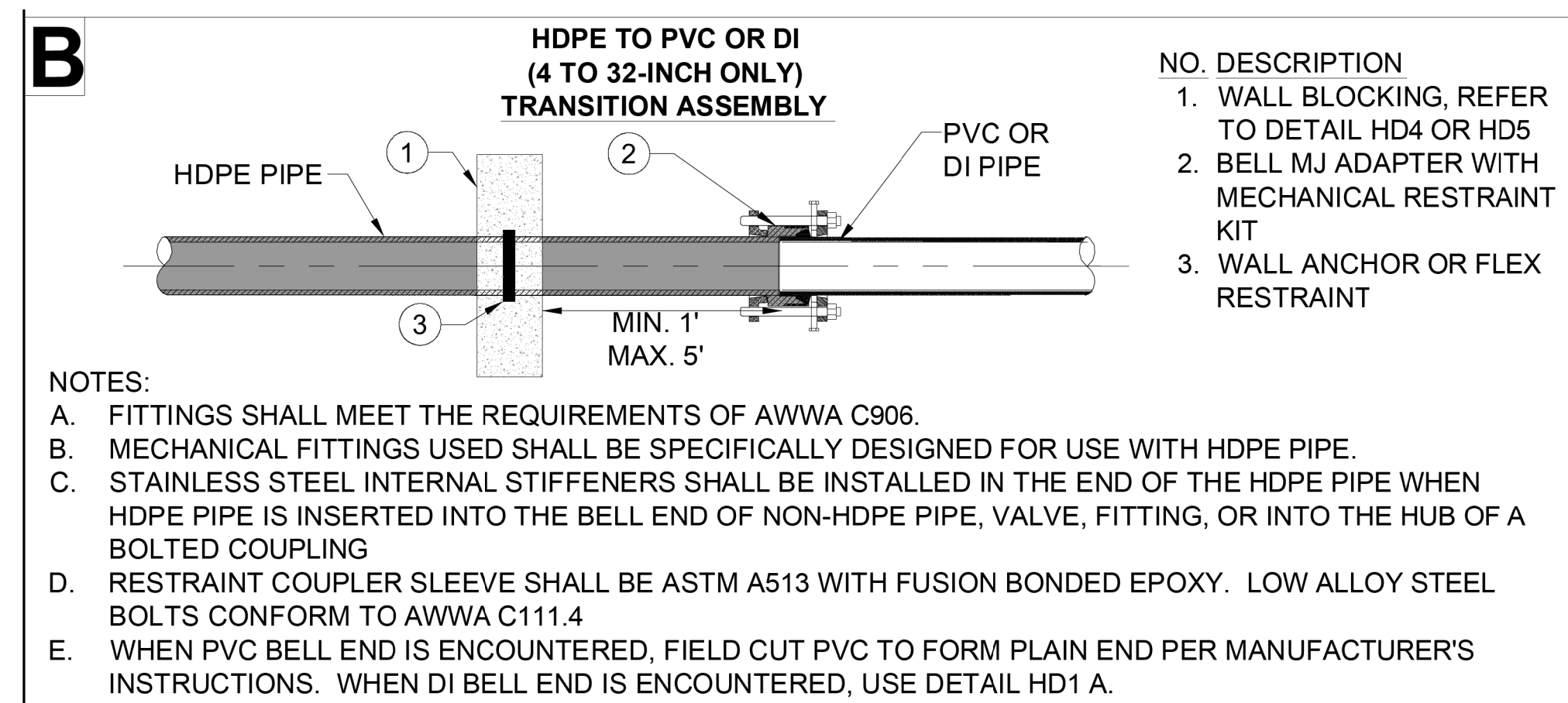
**UTILITY CONSTRUCTION**

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

9. PROVIDE THRUST RESTRAINT ON THE EXISTING WATER LINE WHERE TIE-INS ARE MADE AS NECESSARY.
10. CONTRACTOR SHALL NOT OPERATE ANY VALVES ON THE EXISTING UTILITY SYSTEMS. CONTRACTOR SHALL CONTACT THE UTILITY OWNER TO CONDUCT STRATEGIC OPERATION OF VALVES FOR SERVICE INTERRUPTION IN ORDER TO PERFORM SPECIFIC WORK.
11. ANY BENDS OF PVC WATER PIPE NOT SPECIFICALLY CALLED OUT WITH A 90, 45, 22.5, OR 11.25 DEGREE BEND FITTING, SHALL BE CONSTRUCTED BY A RADIAL BEND OF THE PIPE AS NOTED ON THE PLANS OR IN ACCORDANCE WITH PIPE MANUFACTURER'S SPECIFICATIONS (WHICHEVER IS MORE STRINGENT) - OR A COMBINATION OF BEND FITTINGS AND A RADIAL BEND OF THE PIPE. DEFLECTION OF THE PIPE JOINTS ON PVC PIPE MATERIAL IS NOT AN ACCEPTABLE METHOD OF PIPE BENDING.
12. ALL MATERIALS, EQUIPMENT, LABOR, AND WORKSMANSHIP SHALL BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
13. UTILITY OWNER MUST BE PRESENT FOR ANY TESTING OR CONNECTIONS TO THE EXISTING SYSTEM INCLUDING BUT NOT LIMITED TO ALL TAPS AND TEMPORARY CONSTRUCTION CONNECTIONS. A NOTICE OF 72 HOURS MUST BE PROVIDED.
14. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.



# PROJECT TYPICAL DETAILS



**UTILITY CONSTRUCTION**

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

### RESTRAINED JOINT DESIGN TABLE FOR DUCTILE IRON PIPE

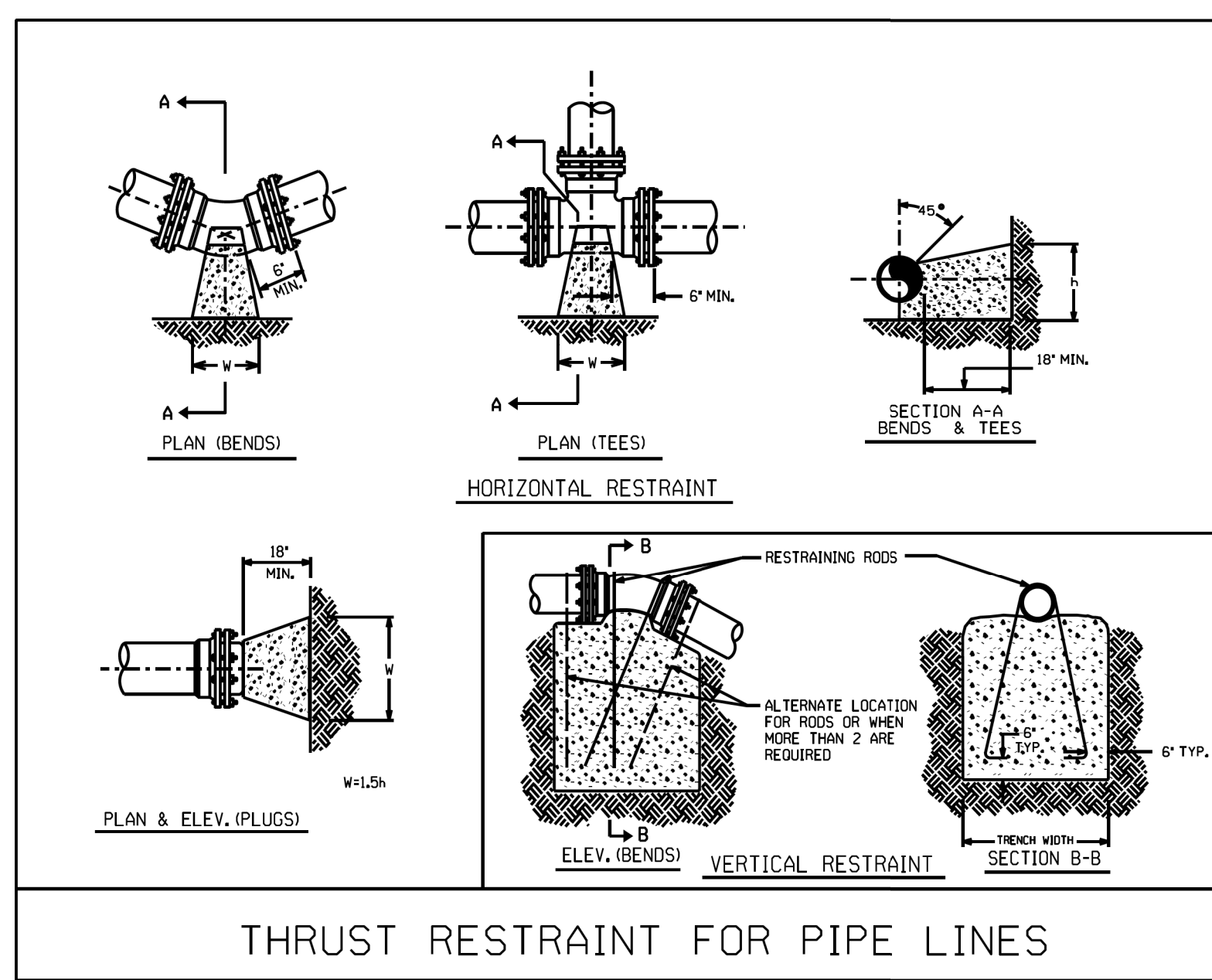
FITTING	REQUIRED RESTRAINED LENGTH (FT) OF BARE D.I. PIPE BY DEPTH OF COVER							
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT
<b>HORIZONTAL BENDS</b>								
6 INCH DIA - 11.25 DEG	3	2	2	2	2	1	1	1
6 INCH DIA - 22.5 DEG	5	4	4	3	3	3	3	2
6 INCH DIA - 45 DEG	11	9	8	7	7	6	5	5
6 INCH DIA - 90 DEG	26	22	19	17	16	14	13	12
8 INCH DIA - 11.25 DEG	3	3	2	2	2	2	2	2
8 INCH DIA - 22.5 DEG	7	6	5	5	4	4	3	3
8 INCH DIA - 45 DEG	14	12	10	9	8	8	7	7
8 INCH DIA - 90 DEG	33	29	25	23	20	19	17	16
12 INCH DIA - 11.25 DEG	5	4	4	3	3	3	2	2
12 INCH DIA - 22.5 DEG	9	8	7	6	6	5	5	5
12 INCH DIA - 45 DEG	20	17	15	13	12	11	10	10
12 INCH DIA - 90 DEG	47	41	36	33	29	27	25	23
16 INCH DIA - 11.25 DEG	6	5	5	4	4	3	3	3
16 INCH DIA - 22.5 DEG	12	11	9	8	8	7	6	6
16 INCH DIA - 45 DEG	25	22	19	17	16	14	13	12
20 INCH DIA - 11.25 DEG	7	6	6	5	5	4	4	4
20 INCH DIA - 22.5 DEG	15	13	11	10	9	9	8	7
20 INCH DIA - 45 DEG	31	27	24	21	19	18	16	15
20 INCH DIA - 90 DEG	74	65	57	52	47	43	40	37
<b>VERTICAL BENDS - DOWN</b>								
6 INCH DIA - 11.25 DEG	4	3	3	3	3	2	2	2
6 INCH DIA - 22.5 DEG	15	13	11	10	9	8	8	7
6 INCH DIA - 45 DEG	31	27	23	21	19	17	16	15
8 INCH DIA - 11.25 DEG	10	8	7	6	6	5	5	5
8 INCH DIA - 22.5 DEG	19	17	15	13	12	11	10	9
8 INCH DIA - 45 DEG	40	35	30	27	25	22	21	19
12 INCH DIA - 11.25 DEG	14	12	10	9	8	8	7	7
12 INCH DIA - 22.5 DEG	28	24	21	19	17	16	14	13
12 INCH DIA - 45 DEG	57	50	44	39	35	32	30	28
16 INCH DIA - 11.25 DEG	18	15	14	12	11	10	9	9
16 INCH DIA - 22.5 DEG	36	31	27	25	22	20	19	17
16 INCH DIA - 45 DEG	74	65	57	51	46	42	39	36
20 INCH DIA - 11.25 DEG	22	19	17	15	14	12	11	11
20 INCH DIA - 22.5 DEG	44	38	34	30	27	25	23	21
20 INCH DIA - 45 DEG	91	79	70	63	57	52	48	44
<b>VERTICAL BENDS - UP</b>								
6 INCH DIA - 11.25 DEG	3	2	2	2	2	1	1	1
6 INCH DIA - 22.5 DEG	5	4	4	3	3	3	3	2
6 INCH DIA - 45 DEG	11	9	8	7	7	6	5	5
8 INCH DIA - 11.25 DEG	3	3	2	2	2	2	2	2
8 INCH DIA - 22.5 DEG	7	6	5	5	4	4	3	3
8 INCH DIA - 45 DEG	14	12	10	9	8	8	7	7
12 INCH DIA - 11.25 DEG	5	4	4	3	3	3	2	2
12 INCH DIA - 22.5 DEG	9	8	7	6	6	5	5	5
12 INCH DIA - 45 DEG	20	17	15	13	12	11	10	10
16 INCH DIA - 11.25 DEG	6	5	5	4	4	3	3	3
16 INCH DIA - 22.5 DEG	12	11	9	8	8	7	6	6
16 INCH DIA - 45 DEG	25	22	19	17	16	14	13	12
20 INCH DIA - 11.25 DEG	7	6	6	5	5	4	4	4
20 INCH DIA - 22.5 DEG	15	13	11	10	9	9	8	7
20 INCH DIA - 45 DEG	31	27	24	21	19	18	16	15
<b>DEAD ENDS / VALVES</b>								
6 INCH DIA	50	45	41	38	35	33	31	29
8 INCH DIA	65	59	54	50	46	43	40	38
10 INCH DIA	80	72	66	61	56	52	49	46
12 INCH DIA	94	85	78	72	66	62	58	54
16 INCH DIA	123	111	102	94	87	81	76	71
20 INCH DIA	151	137	125	115	107	100	93	88
<b>REDUCERS</b>								
3 FT	50	45	41	38	35	33	31	29
12 INCH X 8 INCH	50	45	41	38	35	33	31	29
<b>TEES</b>								
8" RUN X 8" BRANCH : RL = 1 FT	54	58	53	48	44	41	38	35
8" RUN X 8" BRANCH : RL = 5 FT	59	52	47	42	39	35	32	30
12" RUN X 12" BRANCH : RL = 1 FT	93	84	77	70	65	60	56	53
12" RUN X 12" BRANCH : RL = 5 FT	88	79	71	65	59	54	50	47

**ASSUMPTIONS**

LAYING CONDITION = TYPE 4  
 SOIL DESIGNATION = COHESIVE-GRANULAR  
 DESIGN PRESSURE = 200 PSI (TEST PRESSURE)  
 SAFETY FACTOR = 1.5

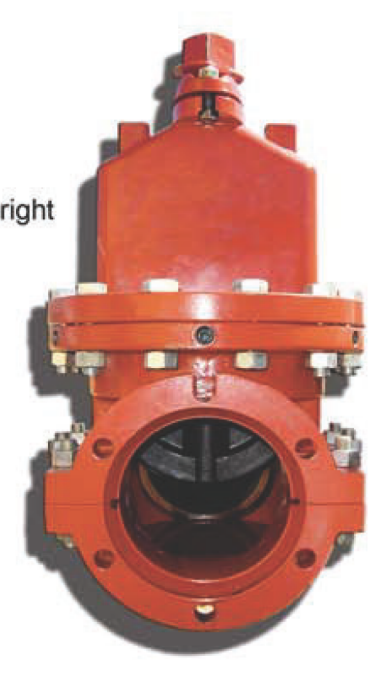
**NOTES**

1. RESTRAINED LENGTH IS MEASURED AS FOLLOWS:  
 A. HORIZONTAL/VERTICAL BENDS: ALONG EACH SIDE OF BEND.  
 B. HORIZONTAL/VERTICAL BENDS - OFFSET: ALONG THE OUTER SIDE OF EACH BEND.  
 ALL PIPE BETWEEN THE TWO BENDS SHALL BE RESTRAINED JOINT.
2. WHEN IT IS NOT POSSIBLE TO INSTALL THE RESTRAINED LENGTHS AS NOTED BY THIS TABLE, CONTRACTOR SHALL INSTALL THE APPROPRIATE CONCRETE THRUST RESTRAINTS AS PER THE DETAILS HEREIN.



### INSERTION VALVE

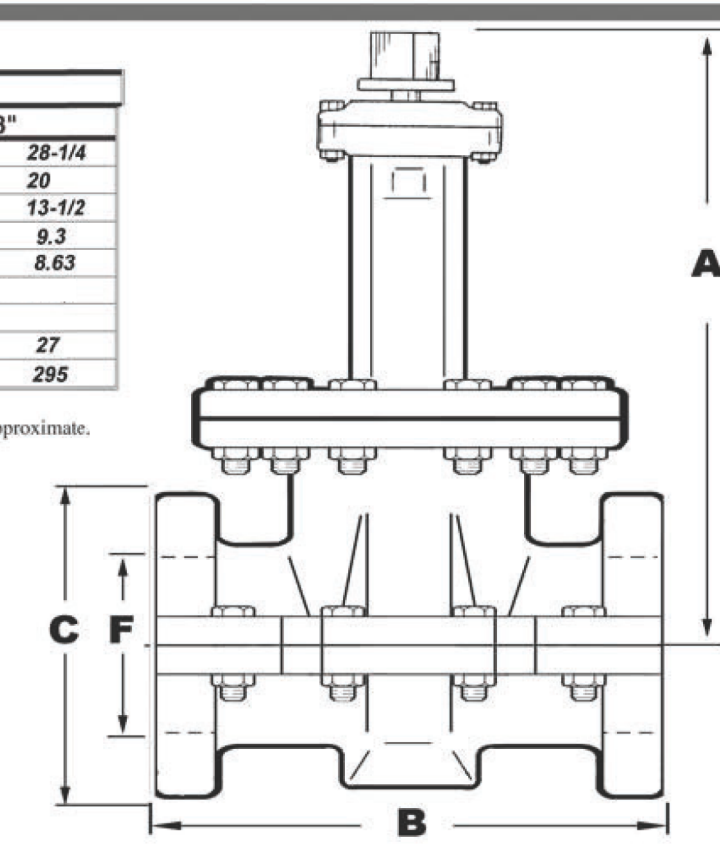
- Sizes – 4", 6", 8", 10", 12" Water & Sewer Applications
- Standard valve body installs on Steel, PVC, C-900, Cast-iron Ductile-iron and class 150 A/C pipe without modifications.
- 2" square wrench nut ( Optional Hand-wheel ) open left or open right Non-rising stem (NRS)
- Meets or exceeds ANSI/AWWA C515 Standards
- Ductile Iron body with nominal 10 mils Epoxy Coated
- Epoxy coating meets or exceeds ANSI/AWWA C550 Standards and ANSI/NSF 61
- Iron wedge, encapsulated with molded rubber
- Triple O-ring seal stuffing box (2 upper & 1 lower O-rings)
- 4"-12" sizes – 250 psig (1723 kPa) maximum working pressure



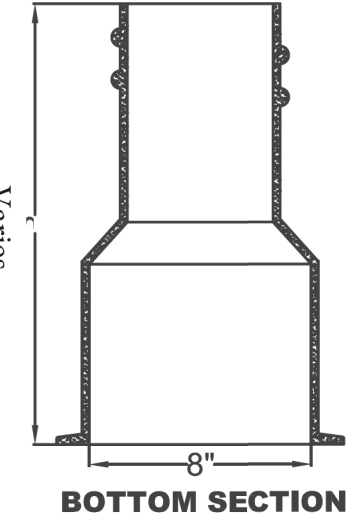
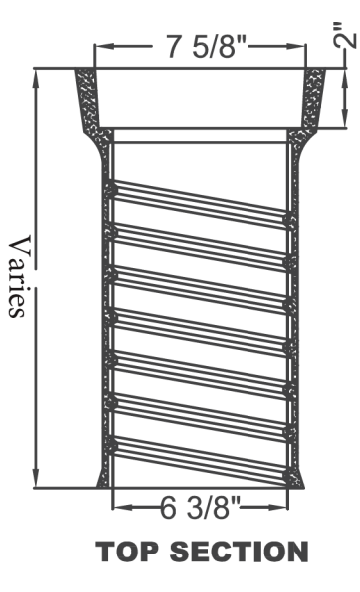
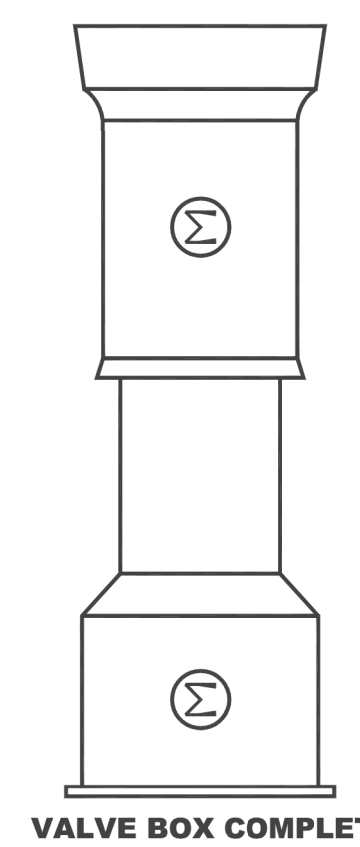
**Dimensions**

Dimension*	Nominal size		
	4"	6"	8"
A	18	23-1/2	28-1/4
B	16	18	20
C	9-1/8	11-1/4	13-1/2
F	Largest std. O.D.	5	7.2
	Smallest std. O.D.	4.5	6.63
Turns to open	15	21	27
Weight*	155	230	295

\*All dimensions are in inches. All weights are in pounds and are approximate.



### SCREW TYPE

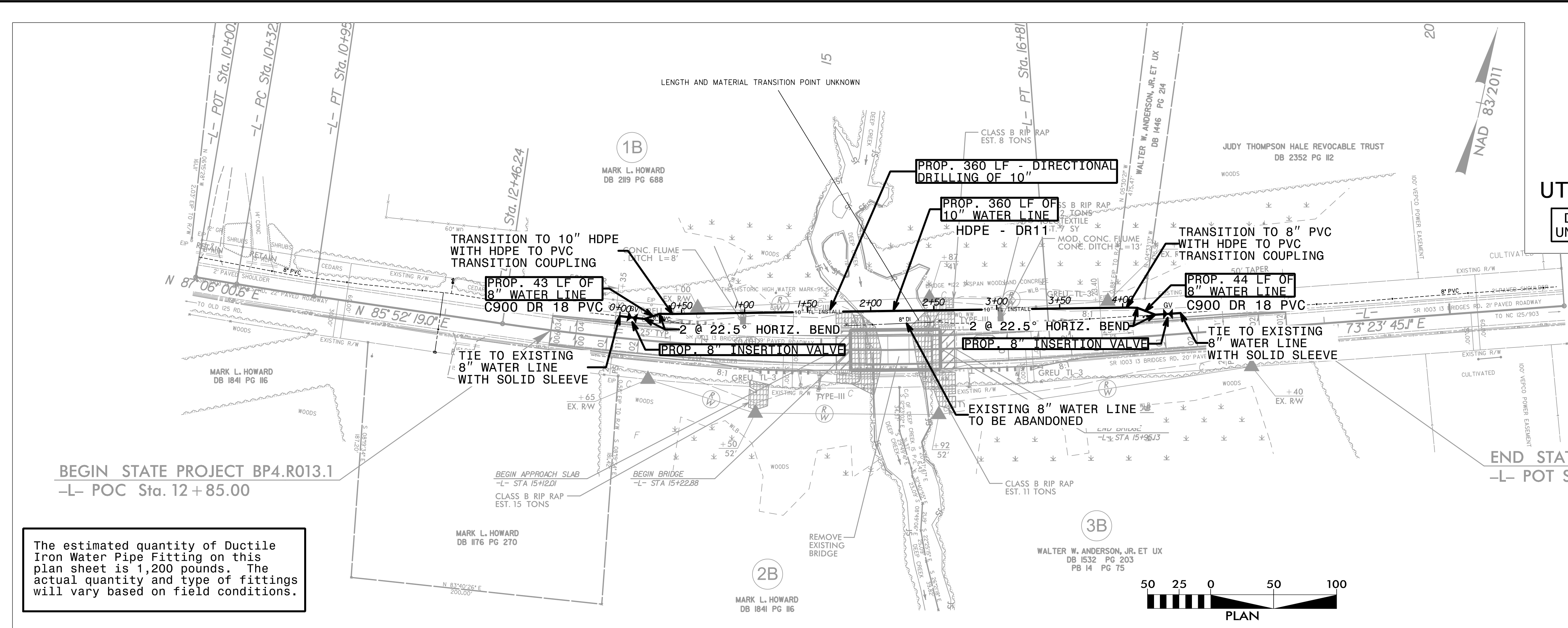




PROJECT REFERENCE NO.	SHEET NO.
BP4.R013.1	UC-4
DESIGNED BY: BCH	
DRAWN BY: KSA	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

### UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

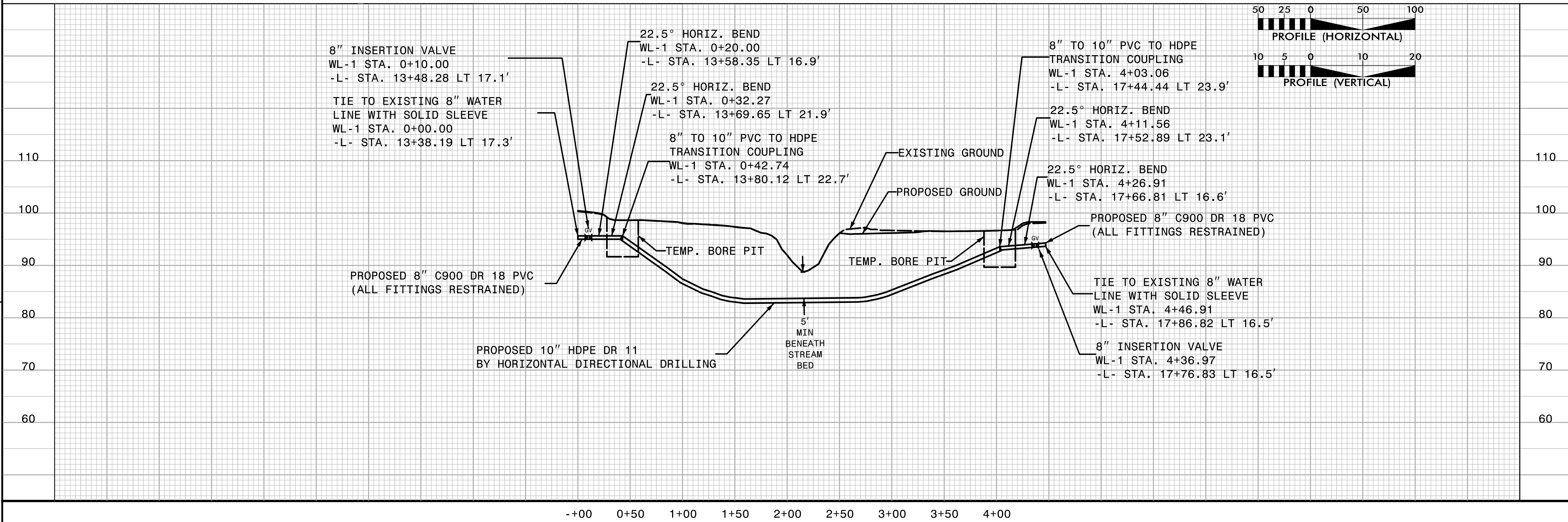


BEGIN STATE PROJECT BP4.R013.1  
 -L- POC Sta. 12 +85.00

END STATE PROJECT BP4.R013.1  
 -L- POT Sta. 18 +70.00

The estimated quantity of Ductile Iron Water Pipe Fitting on this plan sheet is 1,200 pounds. The actual quantity and type of fittings will vary based on field conditions.

REVISIONS



8" INSERTION VALVE  
 WL-1 STA. 0+10.00  
 -L- STA. 13+48.28 LT 17.1'

TIE TO EXISTING 8" WATER LINE WITH SOLID SLEEVE  
 WL-1 STA. 0+00.00  
 -L- STA. 13+38.19 LT 17.3'

22.5° HORIZ. BEND  
 WL-1 STA. 0+20.00  
 -L- STA. 13+58.35 LT 16.9'

22.5° HORIZ. BEND  
 WL-1 STA. 0+32.27  
 -L- STA. 13+69.65 LT 21.9'

8" TO 10" PVC TO HDPE TRANSITION COUPLING  
 WL-1 STA. 0+42.74  
 -L- STA. 13+80.12 LT 22.7'

EXISTING GROUND

PROPOSED GROUND

8" TO 10" PVC TO HDPE TRANSITION COUPLING  
 WL-1 STA. 4+03.06  
 -L- STA. 17+44.44 LT 23.9'

22.5° HORIZ. BEND  
 WL-1 STA. 4+11.56  
 -L- STA. 17+52.89 LT 23.1'

22.5° HORIZ. BEND  
 WL-1 STA. 4+26.91  
 -L- STA. 17+66.81 LT 16.6'

PROPOSED 8" C900 DR 18 PVC (ALL FITTINGS RESTRAINED)

TIE TO EXISTING 8" WATER LINE WITH SOLID SLEEVE  
 WL-1 STA. 4+46.91  
 -L- STA. 17+86.82 LT 16.5'

8" INSERTION VALVE  
 WL-1 STA. 4+36.97  
 -L- STA. 17+76.83 LT 16.5'

PROPOSED 10" HDPE DR 11 BY HORIZONTAL DIRECTIONAL DRILLING

5' MIN BENEATH STREAM BED

TEMP. BORE PIT

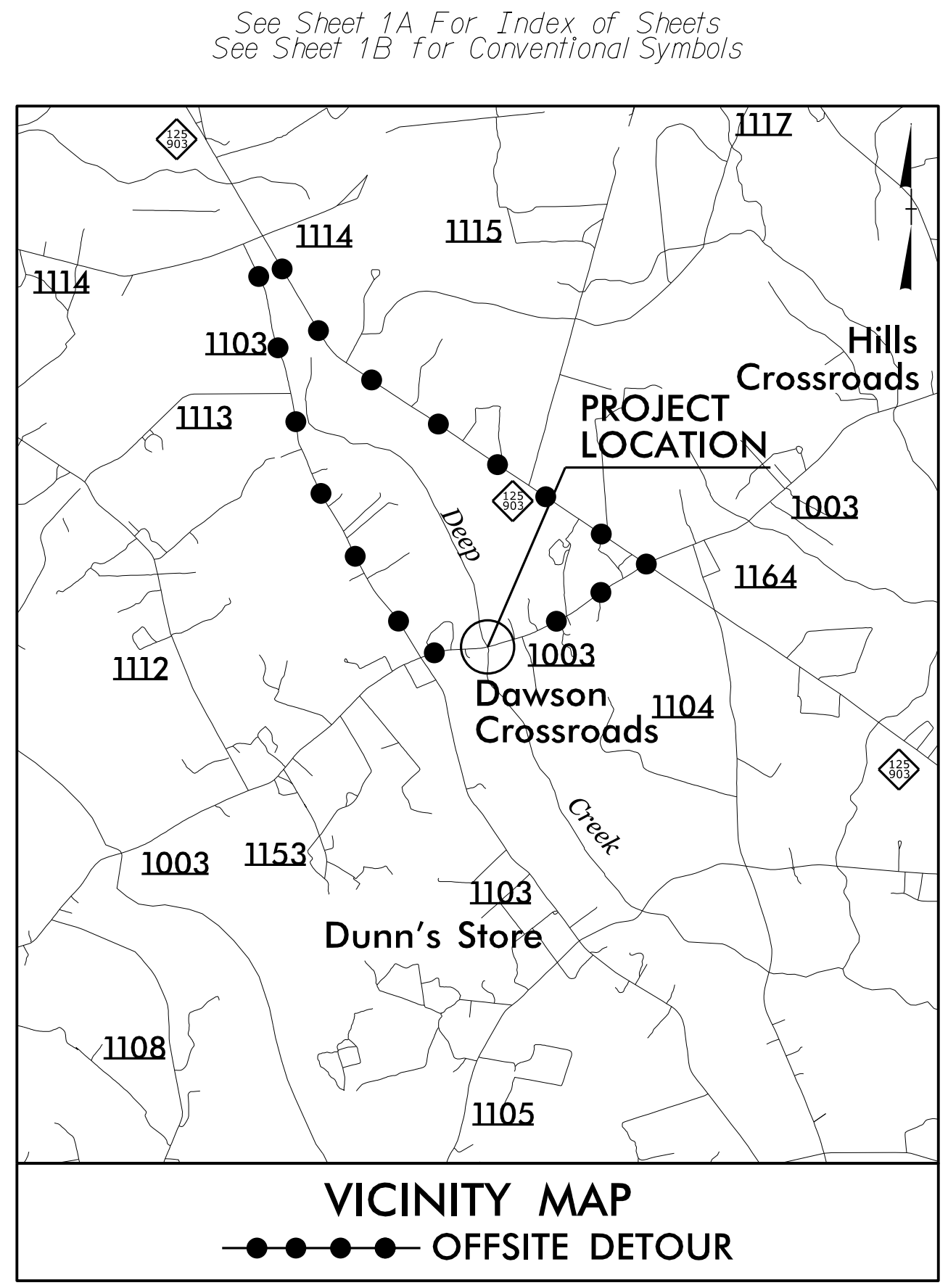
TEMP. BORE PIT



09\_08/2019

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4.R013.1	UO-1	2

**PROJECT: BP4.R013.1**

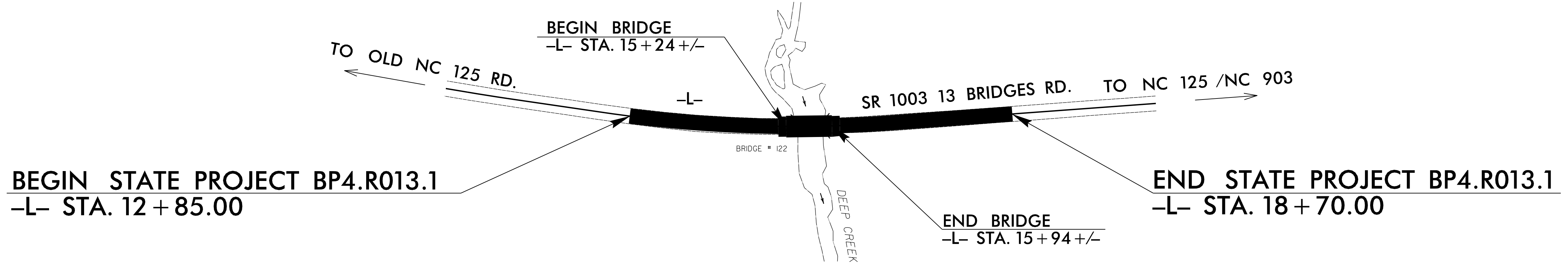
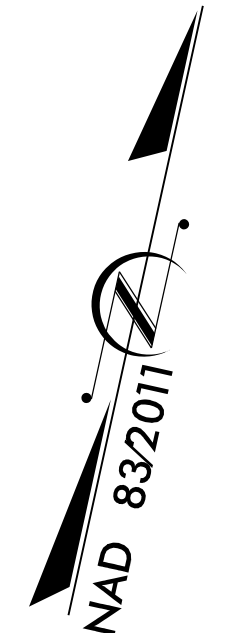


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# UTILITIES BY OTHERS PLANS HALIFAX COUNTY

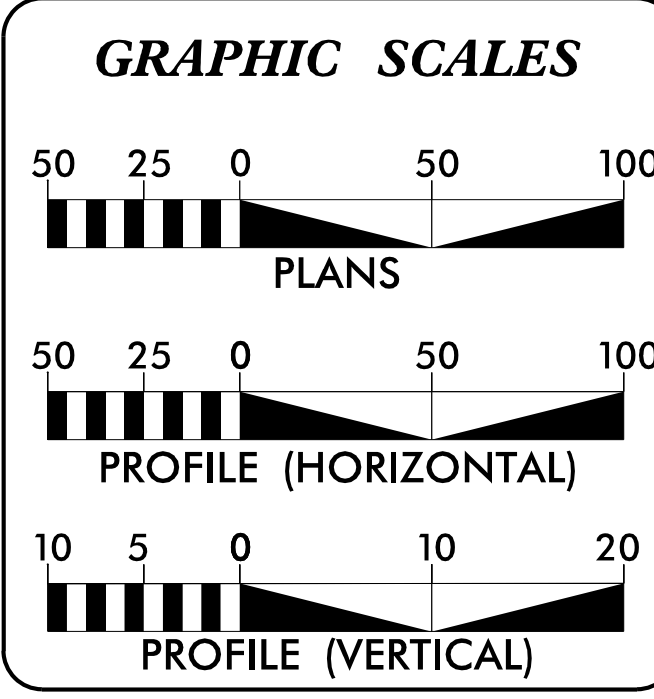
**LOCATION: REPLACE BRIDGE NO. 122 ON SR 1003  
OVER DEEP CREEK**

**TYPE OF WORK: UTILITY BY OTHERS**



INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION  
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT:**



**INDEX OF SHEETS**

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

**UTILITY OWNERS WITH CONFLICTS:**

A. OPTIMUM – TELECOMMUNICATION  
B. BRIGHTSPEED – TELECOMMUNICATION

Prepared For:  
**DIVISION OF HIGHWAYS**  
509 Ward Blvd, Wilson NC, 27895

**DIVISION OF HIGHWAYS**  
**DIVISION 4**  
509 Ward Blvd, Wilson NC, 27895

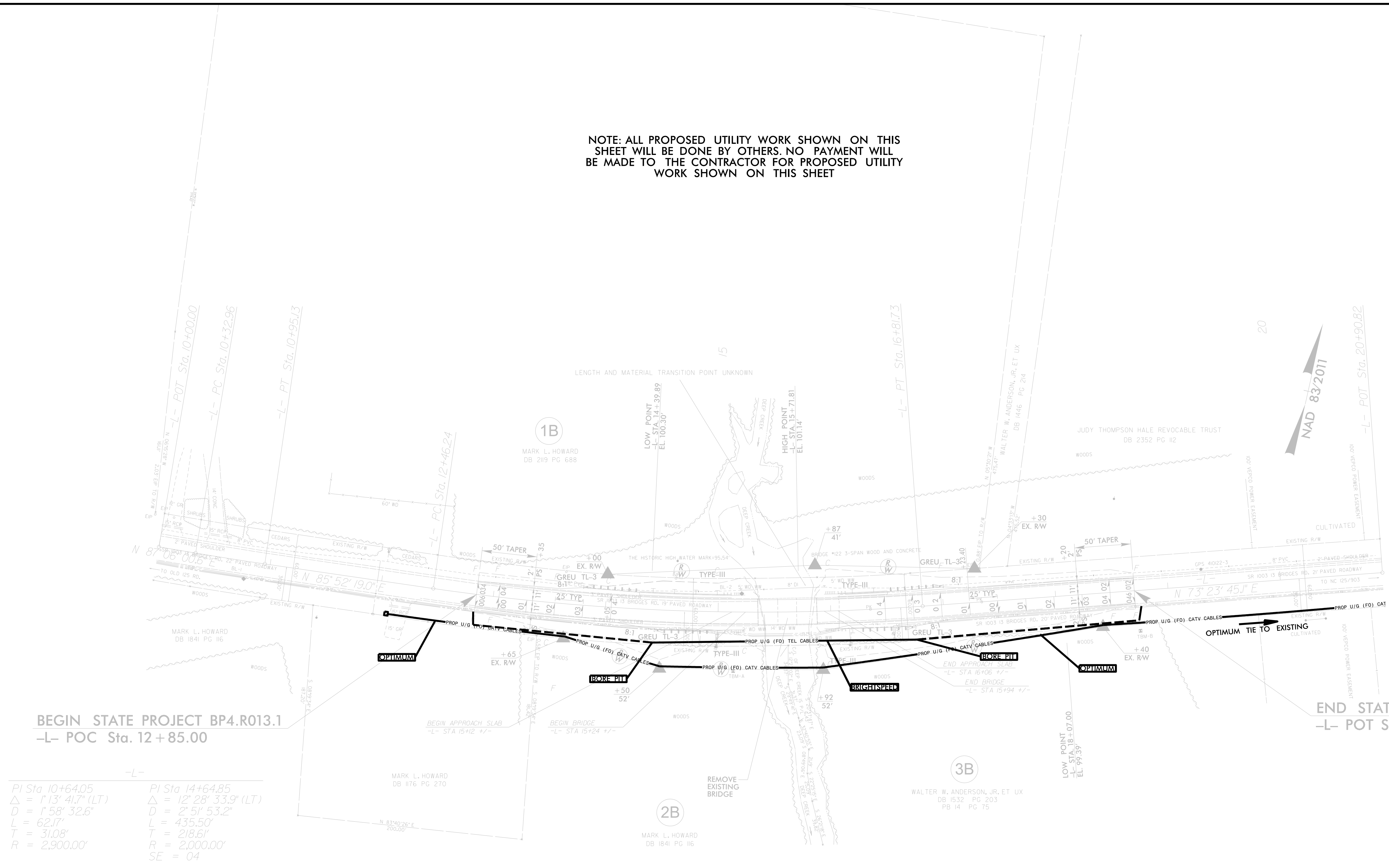
KYLE PLEASANT PROJECT UTILITIES ENGINEER  
FRANK ZDELAR PROJECT UTILITIES ENGINEER

ADDISON GAINEX, PE PROJECT CONTACT #1

27-JAN-2023 13:20 C:\Users\swaddock\Desktop\UBO\BP4.R013\_Halifax\_Thirteen\_Bridges\41022\_LRdy\_fsh.dgn swaddock AT DIV04-312627

PROJECT REFERENCE NO. <i>BP4.R013.1</i>		SHEET NO. <i>U0-2</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>INCOMPLETE PLANS</b>  <small>DO NOT USE FOR R/W ACQUISITION</small> </div>			
<b>DOCUMENT NOT CONSIDERED FINAL</b> <b>UNLESS ALL SIGNATURES COMPLETED</b>			

NOTE: 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



BEGIN STATE PROJECT BP4.R013.1  
-L- POC Sta. 12 + 85.00

END STATE PROJECT BP4.R013.1  
-L- POT Sta. 18 + 70.00

-L-	PI Sta 10+64.05	PI Sta 14+64.85
	$\Delta = 1' 13'' 41.7'' (LT)$	$\Delta = 12' 28'' 33.9'' (LT)$
	$D = 1' 58'' 32.6''$	$D = 2' 51'' 53.2''$
	$L = 62.17'$	$L = 435.50'$
	$T = 31.08'$	$T = 218.61'$
	$R = 2,900.00'$	$R = 2,000.00'$
		$SE = 04$

REVISIONS

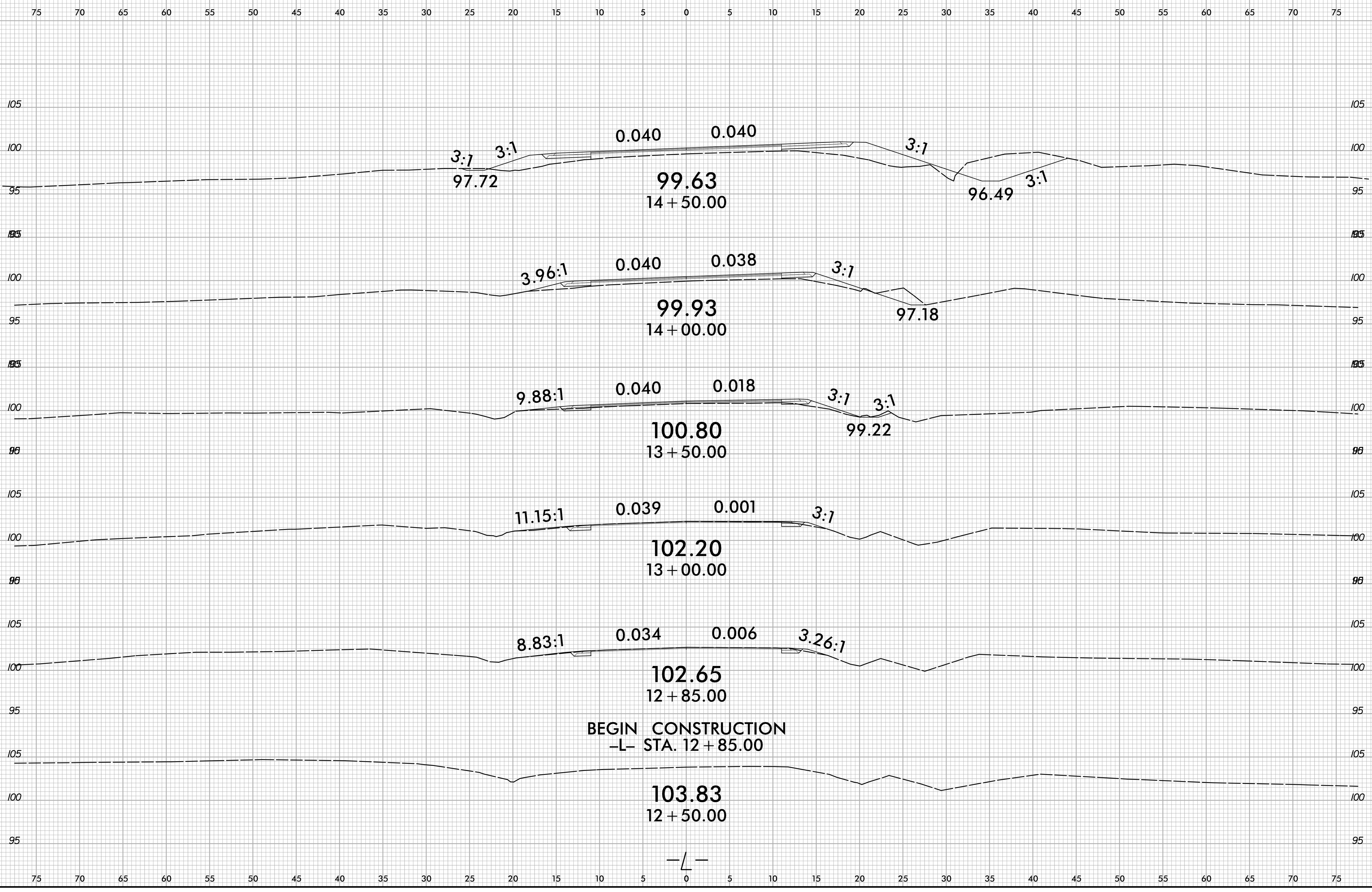
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6/23/16

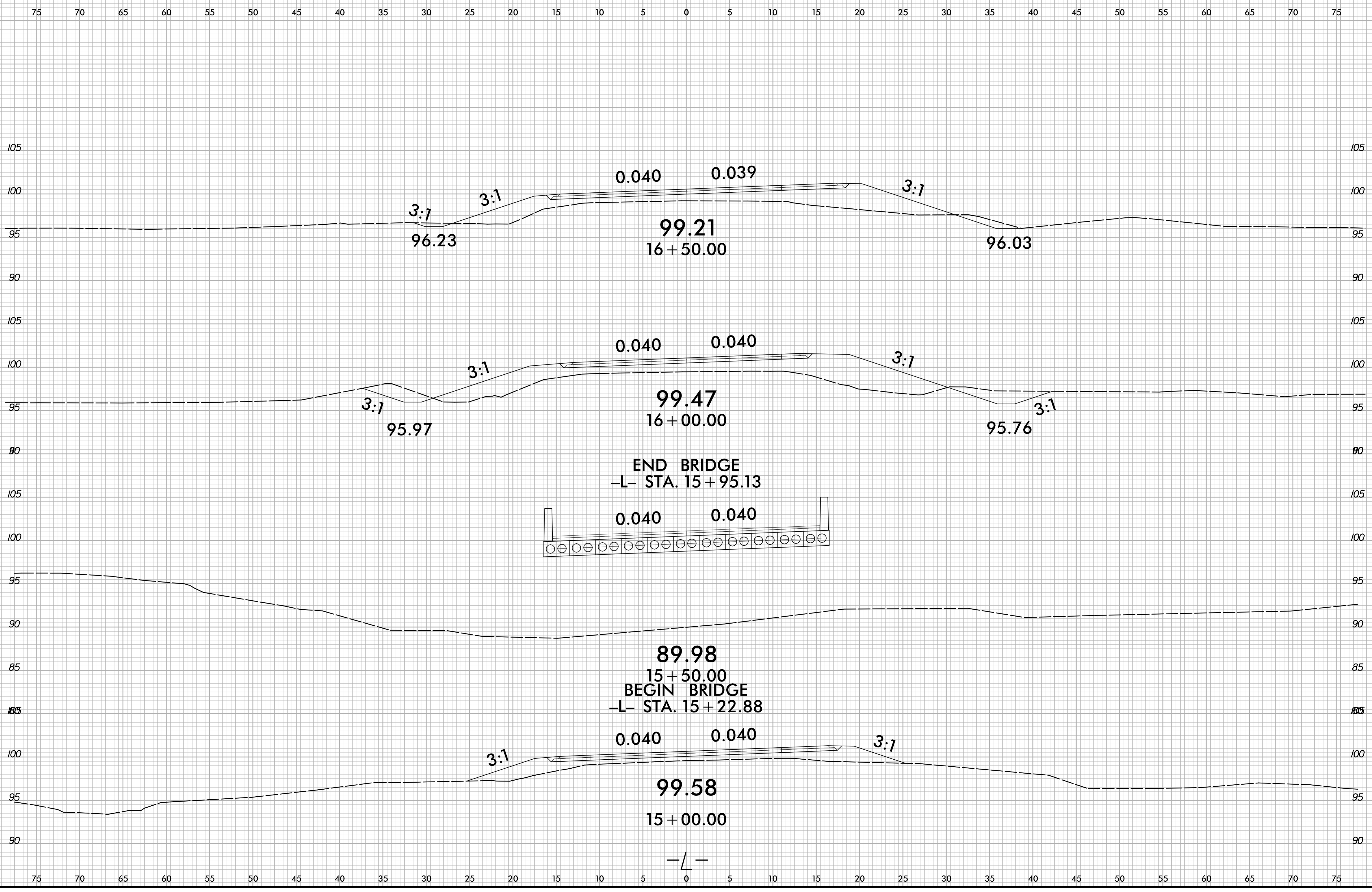
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11/29/2023  
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User:bevens

6/23/16

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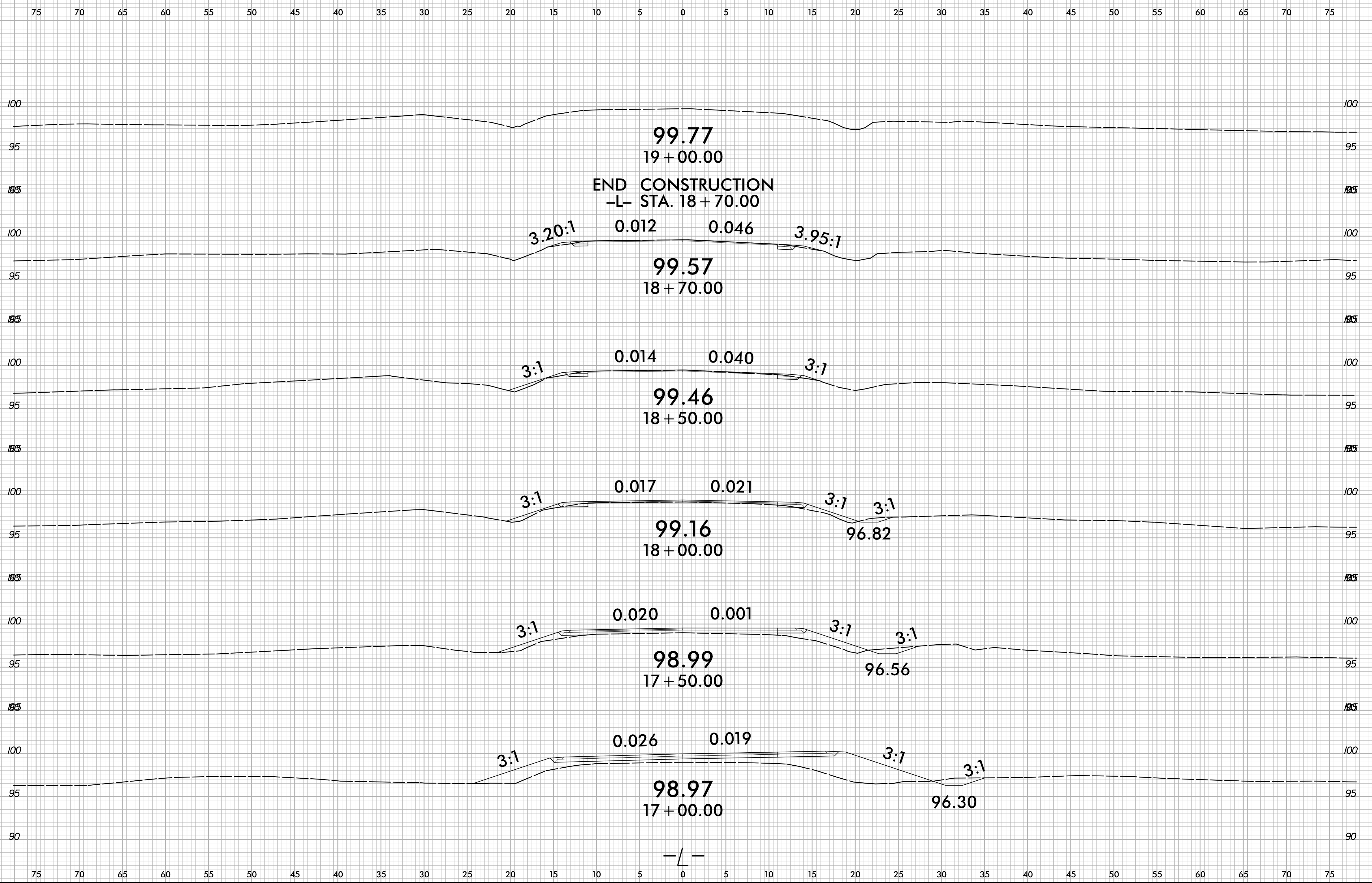


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User:bevens



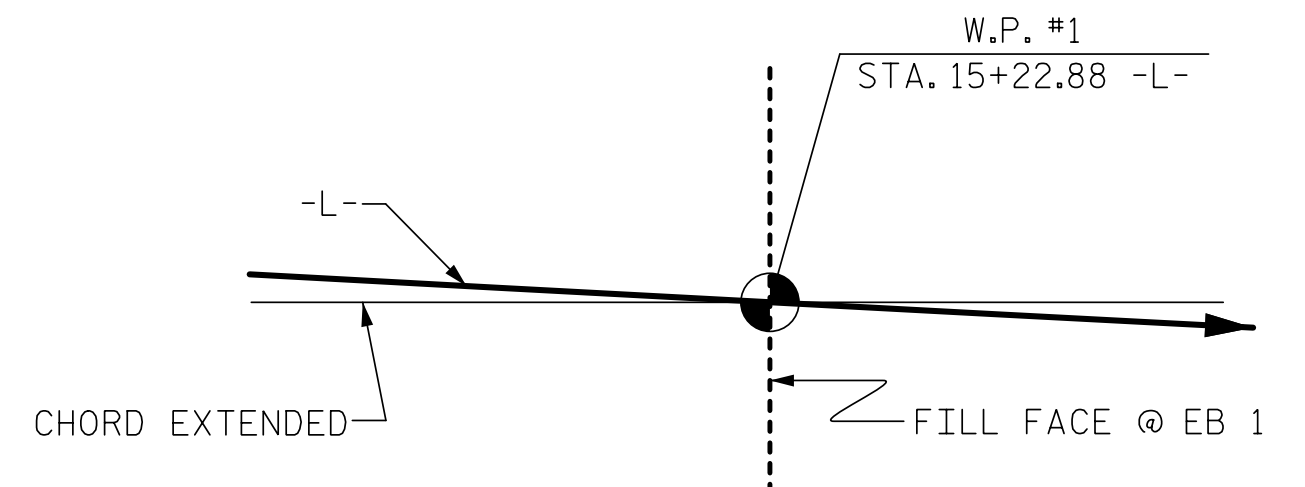
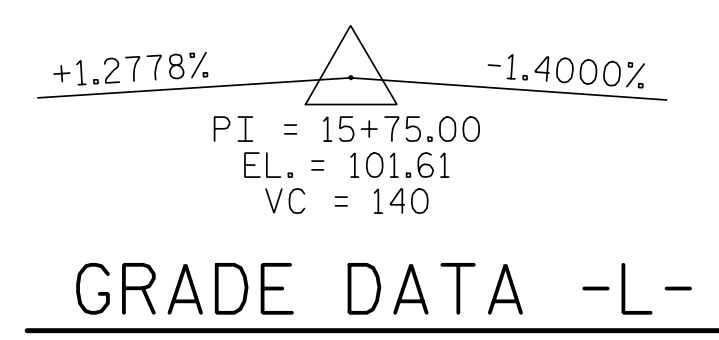
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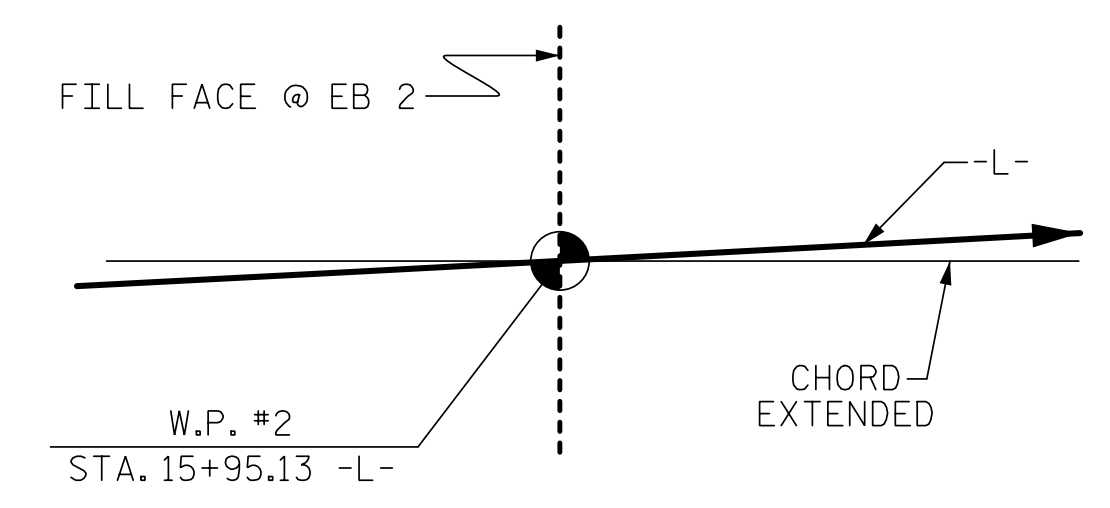


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User:bevens

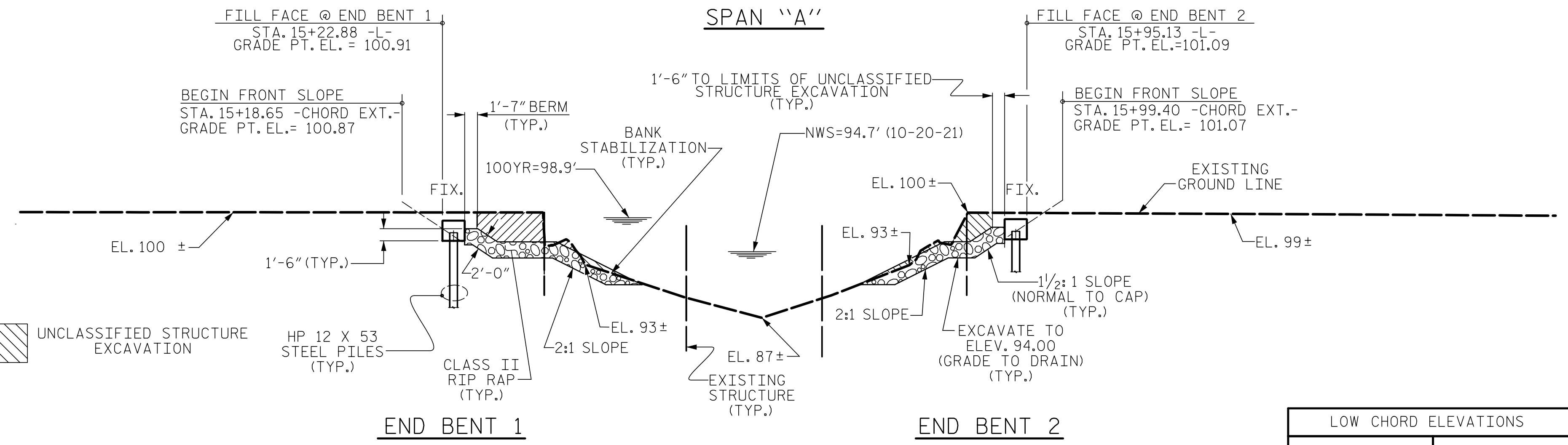
14+50 15+00 15+50 16+00 16+50



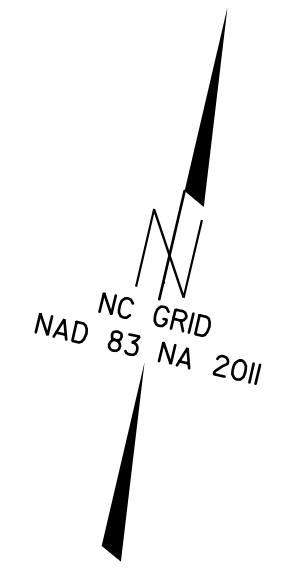
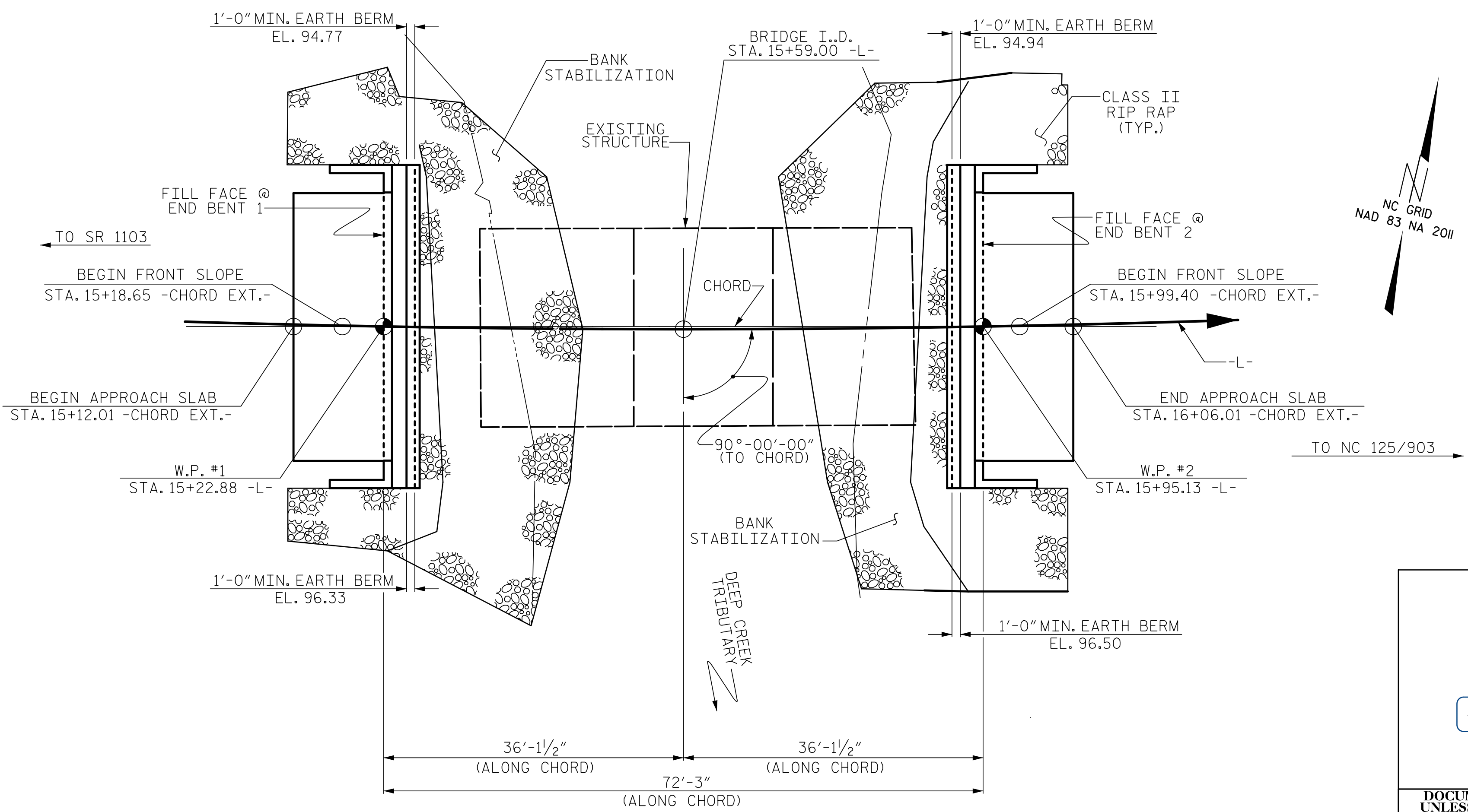
THE CONTRACTOR SHALL USE THE CHORD EXTENDED @ END BENT 1 FOR THE LAYOUT OF THE FOLLOWING.  
 1. LAYOUT OF APPROACH SLAB AT END BENT 1  
 2. COMPUTATIONS OF APPROACH SLAB ELEVATIONS  
 IN ADDITION, THE CONTRACTOR SHALL ASSUME THAT ALL STATIONING OCCURS ALONG THE CHORD EXTENDED.



THE CONTRACTOR SHALL USE THE CHORD EXTENDED @ END BENT 2 FOR THE LAYOUT OF THE FOLLOWING.  
 1. LAYOUT OF APPROACH SLAB AT END BENT 2  
 2. COMPUTATIONS OF APPROACH SLAB ELEVATIONS  
 IN ADDITION, THE CONTRACTOR SHALL ASSUME THAT ALL STATIONING OCCURS ALONG THE CHORD EXTENDED.



LOW CHORD ELEVATIONS	
EB1 97.97	EB2 98.14



**HORIZONTAL CURVE DATA**

PI STA. = 14+64.85 -L-  
 Δ = 12°-28'-33.9" (LT)  
 D = 2°-51'-53.2"  
 L = 435.50  
 T = 218.61  
 R = 2000.00

DRAWN BY : S. B. WILLIAMS      DATE : 1-22  
 CHECKED BY : MGC      DATE : 1-22

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
 STATION: 15+59.00 -L-

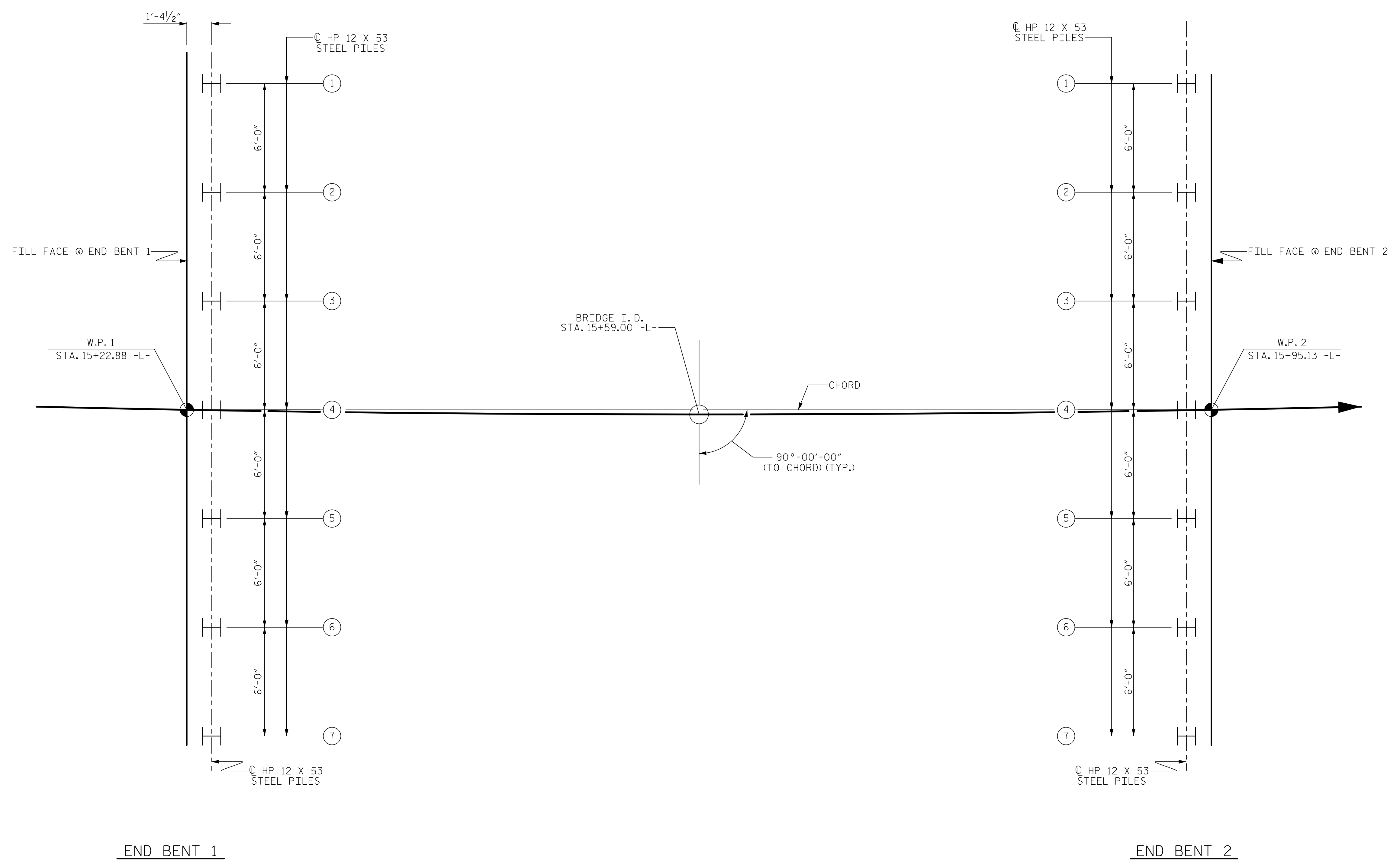
SHEET 1 OF 4      REPLACES BRIDGE NO. 410122

**TGS ENGINEERS**  
 706 HILLSBOROUGH STREET  
 SUITE 200  
 RALEIGH, NC 27603  
 PH (919) 773-8887  
 CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR  
 BRIDGE OVER DEEP CREEK  
 TRIBUTARY ON SR 1003  
 BETWEEN NC 125/903  
 AND SR 1103

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



### FOUNDATION LAYOUT PLAN

FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.  
 OBSERVE A ONE MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT, END BENT AND BRIDGE APPROACH FILL, IF APPLICABLE, BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENT 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
 STATION: 15+59.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR  
 BRIDGE OVER DEEP CREEK  
 TRIBUTARY ON SR 1103  
 BETWEEN SR 1103  
 NC 125/903

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

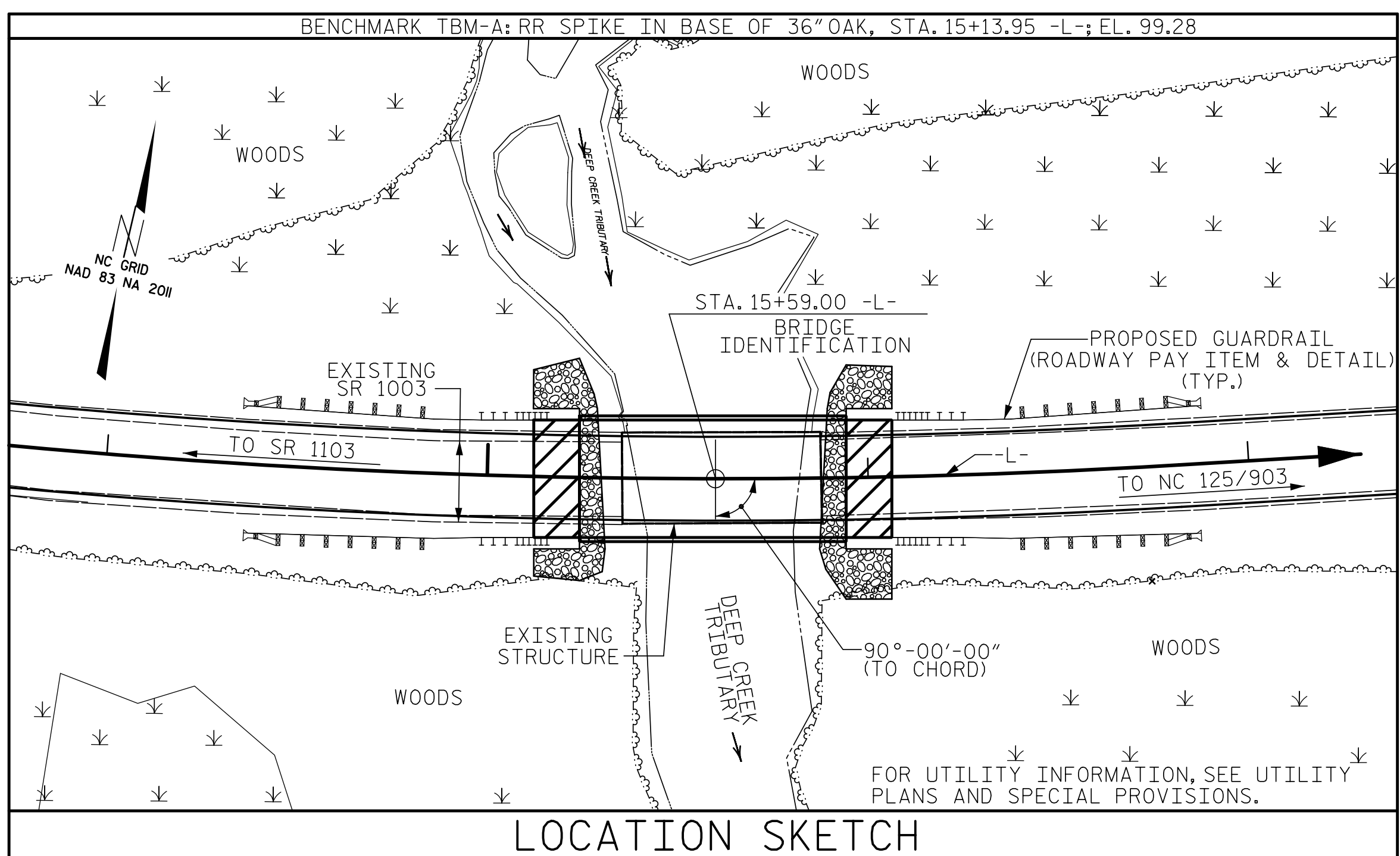
**TGS ENGINEERS**  
 706 HILLSBOROUGH STREET  
 SUITE 200  
 RALEIGH, NC 27603  
 PH (919) 773-8887  
 CORP. LICENSE NO.: C-0275

DRAWN BY : S. B. WILLIAMS DATE : 1/22  
 CHECKED BY : MGC DATE : 2/22





NOTES



ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.  
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE NOTES SHEET.  
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.  
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.  
 THE EXISTING 3 SPAN (1 @ 17'-9", 1 @ 17'-0", 1 @ 17'-9") CONSISTING OF A REINFORCED CONCRETE FLOOR WITH 3/2" ASPHALT WEARING SURFACE ON TIMBER BEAMS WITH 1 STEEL I-BEAM IN SPAN A & C AND A SUBSTRUCTURE CONSISTING OF TIMBER CAPS AND TIMBER PILES AND LOCATED AT THE SITE OF THE PROPOSED BRIDGE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE INTEGRITY OF THE BRIDGE DETERIORATE THIS LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25' (LT.) AND 35' (RT.) OF -L- AT END BENT 1 AND 20' (LT.) AND 30' (RT.) OF -L- AT END BENT 2, 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 SPECIAL PROVISIONS.

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES."  
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.  
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.  
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.  
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.  
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.  
 FOR ASBESTOS ASSESMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

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

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

LOCATION SKETCH

HYDROGRAPHIC DATA

DESIGN DISCHARGE-----	960 CFS
FREQUENCY OF DESIGN FLOOD-----	50 YR.
DESIGN HIGH WATER ELEVATION-----	98.5
DRAINAGE AREA-----	6.56 SQ.MI.
BASE DISCHARGE ( Q100 )-----	1160 CFS
BASE HIGH WATER ELEVATION-----	98.9
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE-----	1650 CFS
FREQUENCY OF OVERTOPPING FLOOD-----	500 YRS.
OVERTOPPING FLOOD ELEVATION-----	99.4

TOTAL BILL OF MATERIAL

ITEM	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS "A" CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 x 53 STEEL PILES	HP12x53 STEEL PILES		PILE REDRIVES	DYNAMIC PILE TESTING	VERTICAL CONCRETE BARRIER RAIL	RIP RAP, CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-0" PRESTRESSED CONCRETE CORED SLABS		
								NO.	LIN. FT.							EA.	EA.	LIN. FT.
SUPERSTRUCTURE																	11	770.00
END BENT 1				14.4		2,106	7	7	420				215	240				
END BENT 2				14.4		2,106	7	7	455				220	245				
TOTALS	LUMP SUM	LUMP SUM	LUMP SUM	28.8	LUMP SUM	4,212	14	14	875	7	1	140.00	435	485	LUMP SUM		11	770.00

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
 STATION: 15+59.00 -L-

SHEET 4 OF 4

	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH <b>GENERAL DRAWING</b> FOR BRIDGE OVER DEEP CREEK TRIBUTARY ON SR 1003 BETWEEN SR 1103 NC 125/903					
	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED TGS ENGINEERS 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275					
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-4
2			4			TOTAL SHEETS 15

DRAWN BY : S. B. WILLIAMS DATE : 1-22  
 CHECKED BY : MGC DATE : 1-22



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

LEVEL	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								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	①	1.006	--	1.75	0.273	1.03	70'	EL	34.5	0.507	1.32	70'	EL	6.9	0.80	0.273	<b>1.01</b>	70'	EL	<b>34.5</b>		
	HL-93(OPr)	N/A		1.341	--	1.35	0.273	1.34	70'	EL	34.5	0.507	1.72	70'	EL	6.9	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	②	1.306	47.02	1.75	0.273	1.34	70'	EL	34.5	0.507	1.65	70'	EL	6.9	0.80	0.273	<b>1.31</b>	70'	EL	<b>34.5</b>		
	HS-20(OPr)	36.000		1.74	62.64	1.35	0.273	1.74	70'	EL	34.5	0.507	2.14	70'	EL	6.9	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500		2.917	39.379	1.4	0.273	3.75	70'	EL	34.5	0.507	4.87	70'	EL	6.9	0.80	0.273	2.92	70'	EL	34.5	
		SNGARBS2	20.000		2.187	43.741	1.4	0.273	2.81	70'	EL	34.5	0.507	3.47	70'	EL	6.9	0.80	0.273	2.19	70'	EL	34.5	
		SNAGRIS2	22.000		2.077	45.69	1.4	0.273	2.67	70'	EL	34.5	0.507	3.23	70'	EL	6.9	0.80	0.273	2.08	70'	EL	34.5	
		SNCOTTS3	27.250		1.452	39.565	1.4	0.273	1.87	70'	EL	34.5	0.507	2.43	70'	EL	6.9	0.80	0.273	1.45	70'	EL	34.5	
		SNAGGRS4	34.925		1.218	42.554	1.4	0.273	1.57	70'	EL	34.5	0.507	2.03	70'	EL	6.9	0.80	0.273	1.22	70'	EL	34.5	
		SNS5A	35.550		1.191	42.346	1.4	0.273	1.53	70'	EL	34.5	0.507	2.06	70'	EL	6.9	0.80	0.273	1.19	70'	EL	34.5	
		SNS6A	39.950		1.095	43.747	1.4	0.273	1.41	70'	EL	34.5	0.507	1.88	70'	EL	6.9	0.80	0.273	1.10	70'	EL	34.5	
	SNS7B	42.000		1.043	43.801	1.4	0.273	1.34	70'	EL	34.5	0.507	1.85	70'	EL	6.9	0.80	0.273	1.04	70'	EL	34.5		
	TTST	TNAGRIT3	33.000		1.336	44.087	1.4	0.273	1.72	70'	EL	34.5	0.507	2.23	70'	EL	6.9	0.80	0.273	1.34	70'	EL	34.5	
		TNT4A	33.075		1.342	44.401	1.4	0.273	1.72	70'	EL	34.5	0.507	2.17	70'	EL	6.9	0.80	0.273	1.34	70'	EL	34.5	
		TNT6A	41.600		1.100	45.746	1.4	0.273	1.41	70'	EL	34.5	0.507	1.98	70'	EL	6.9	0.80	0.273	1.10	70'	EL	34.5	
		TNT7A	42.000		1.106	46.462	1.4	0.273	1.42	70'	EL	34.5	0.507	1.94	70'	EL	6.9	0.80	0.273	1.11	70'	EL	34.5	
		TNT7B	42.000		1.147	48.18	1.4	0.273	1.47	70'	EL	34.5	0.507	1.80	70'	EL	6.9	0.80	0.273	1.15	70'	EL	34.5	
		TNAGRIT4	43.000		1.089	46.838	1.4	0.273	1.40	70'	EL	34.5	0.507	1.74	70'	EL	6.9	0.80	0.273	1.09	70'	EL	34.5	
TNAGT5A		45.000		1.026	46.175	1.4	0.273	1.32	70'	EL	34.5	0.507	1.74	70'	EL	6.9	0.80	0.273	1.03	70'	EL	34.5		
TNAGT5B	45.000		③	1.013	45.579	1.4	0.273	1.3	70'	EL	34.5	0.507	1.66	70'	EL	6.9	0.80	0.273	<b>1.01</b>	70'	EL	<b>34.5</b>		
EMERGENCY VEHICLE (EV)	EV2	28.750		1.816	52.212	1.3	0.273	2.11	70'	EL	34.5	0.507	2.59	70'	EL	6.9	0.80	0.273	1.82	70'	EL	34.5		
	EV3	43.000		④	1.188	51.068	1.3	0.273	1.38	70'	EL	34.5	0.507	1.75	70'	EL	6.9	0.80	0.273	<b>1.19</b>	70'	EL	<b>34.5</b>	

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	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 \*\*

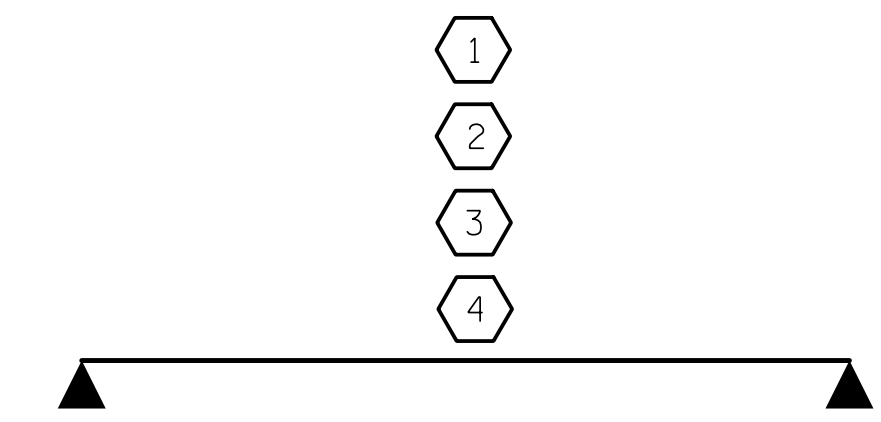
④ EMERGENCY VEHICLE LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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GIRDER LOCATION

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



**LRFR SUMMARY**  
FOR SPAN 'A'

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
STATION: 15+59.00 -L-

ASSEMBLED BY : STM	DATE : 07/23
CHECKED BY : MGC	DATE : 07/23
DRAWN BY : CVC 6/10	REV. BY : BNB/AKP 06/23
CHECKED BY : DNS 6/10	

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

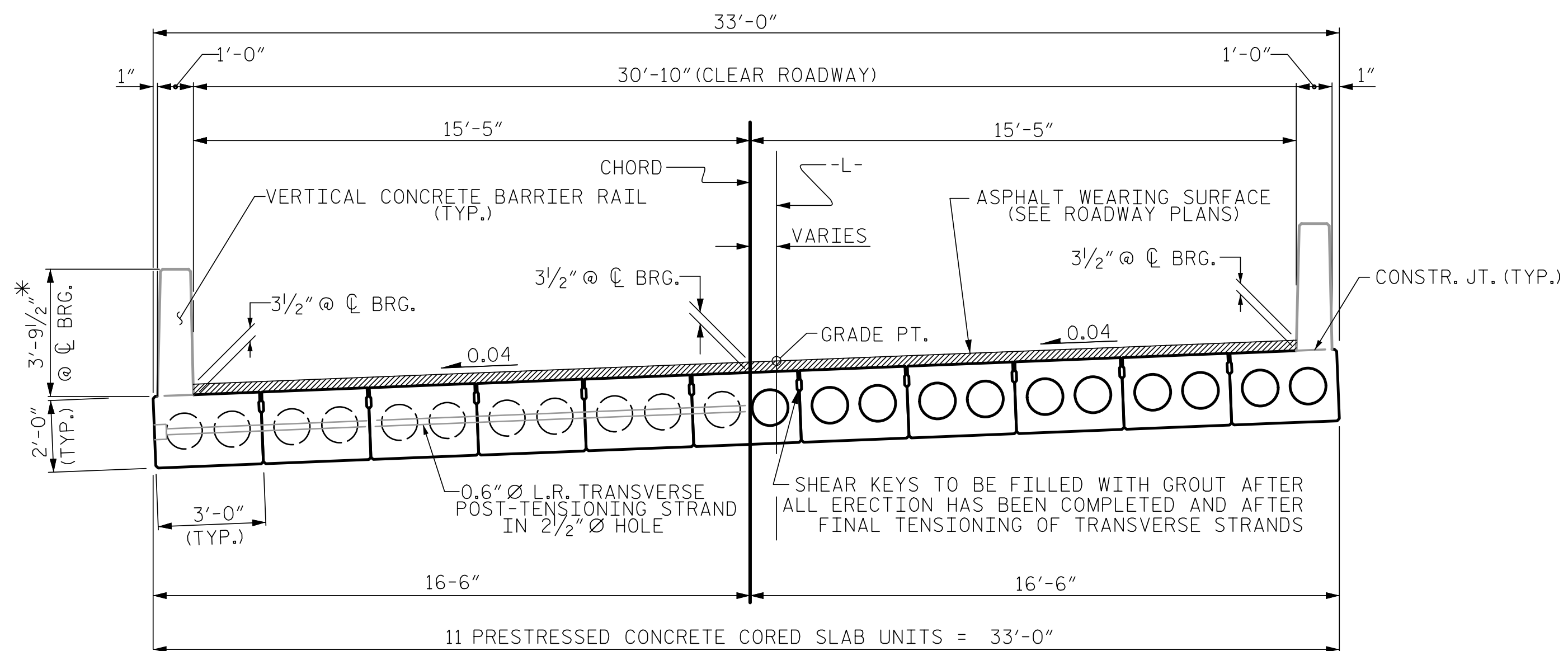
TGS ENGINEERS  
706 HILLSBOROUGH STREET  
SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
LRFR SUMMARY FOR  
70' CORED SLAB UNIT  
90° SKEW  
(NON-INTERSTATE TRAFFIC)

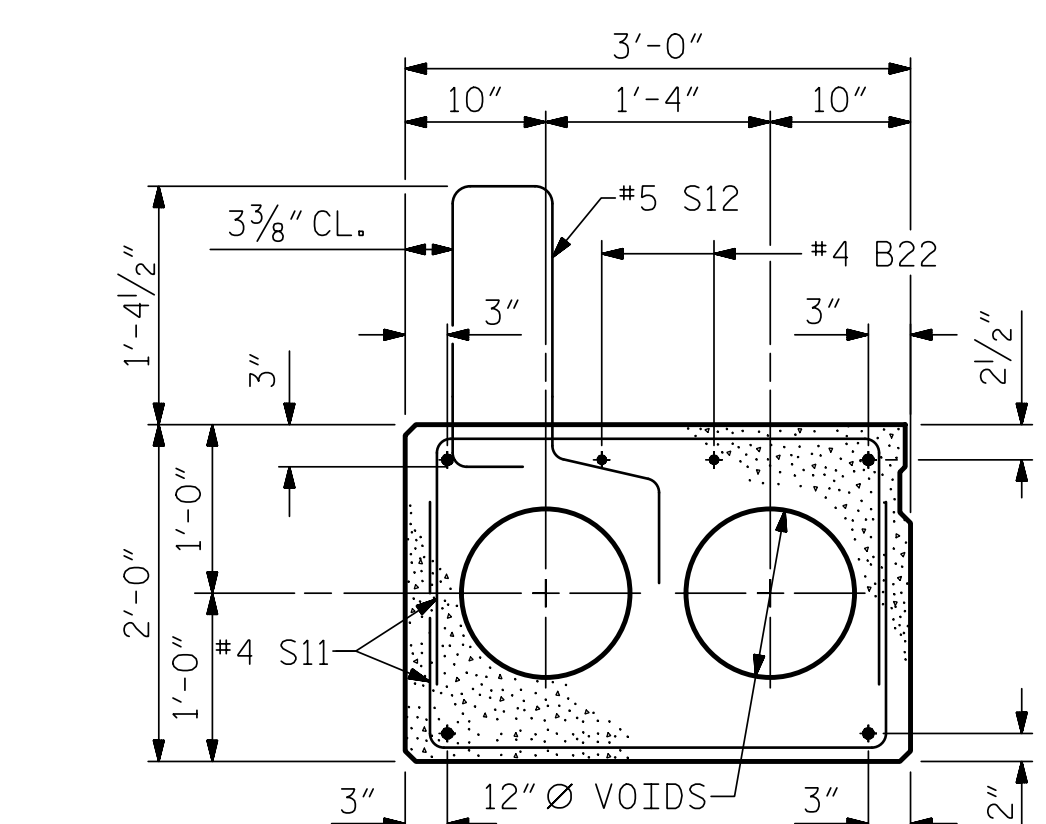
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			15



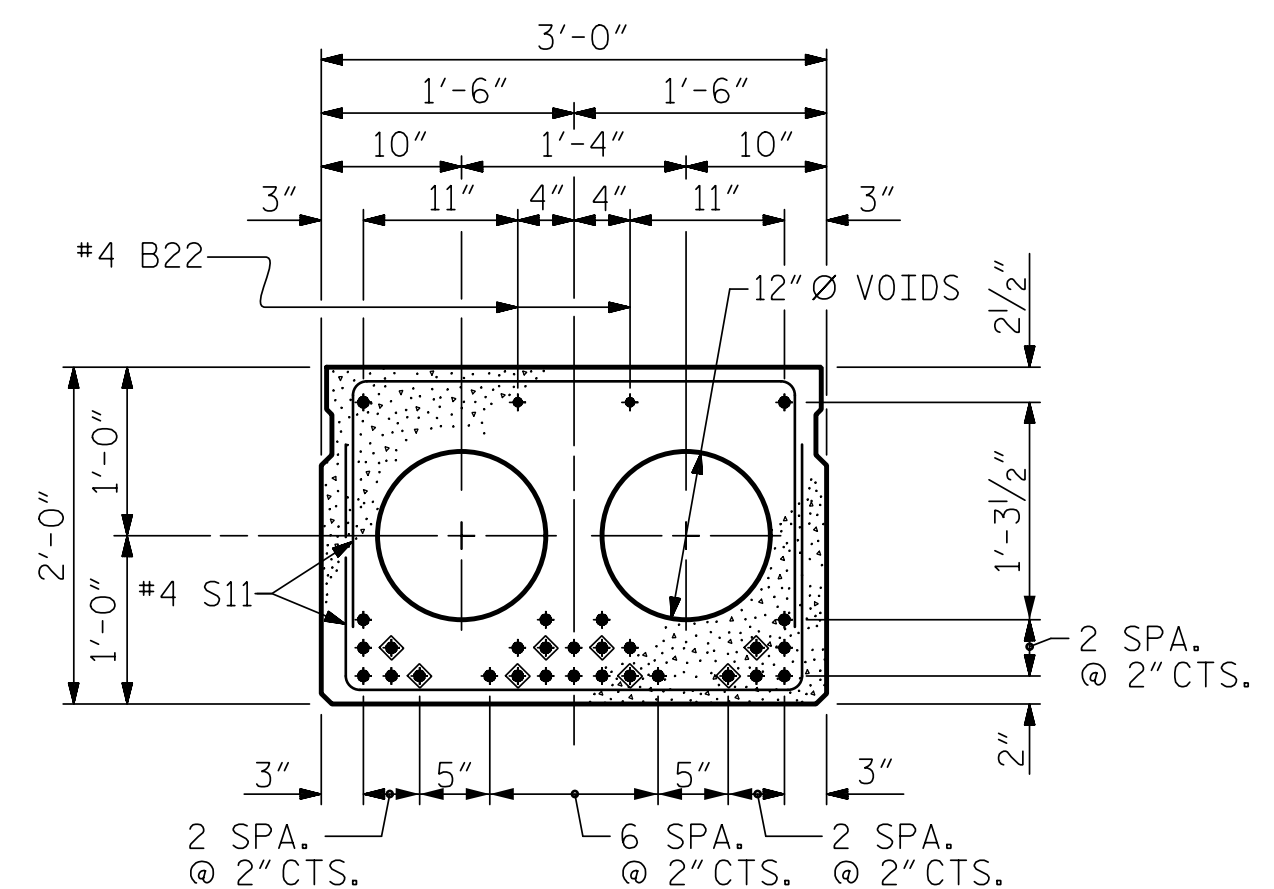


HALF SECTION AT INTERMEDIATE DIAPHRAGMS  
 HALF SECTION THROUGH VOIDS  
**TYPICAL SECTION**

\* -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.



**EXTERIOR SLAB SECTION**  
 (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

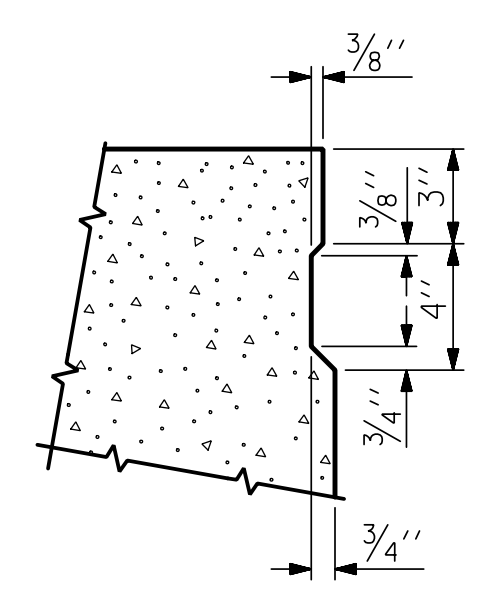


**INTERIOR SLAB SECTION (70' UNIT)**  
 (28 STRANDS REQUIRED)

**0.6" Ø LOW RELAXATION STRAND LAYOUT**

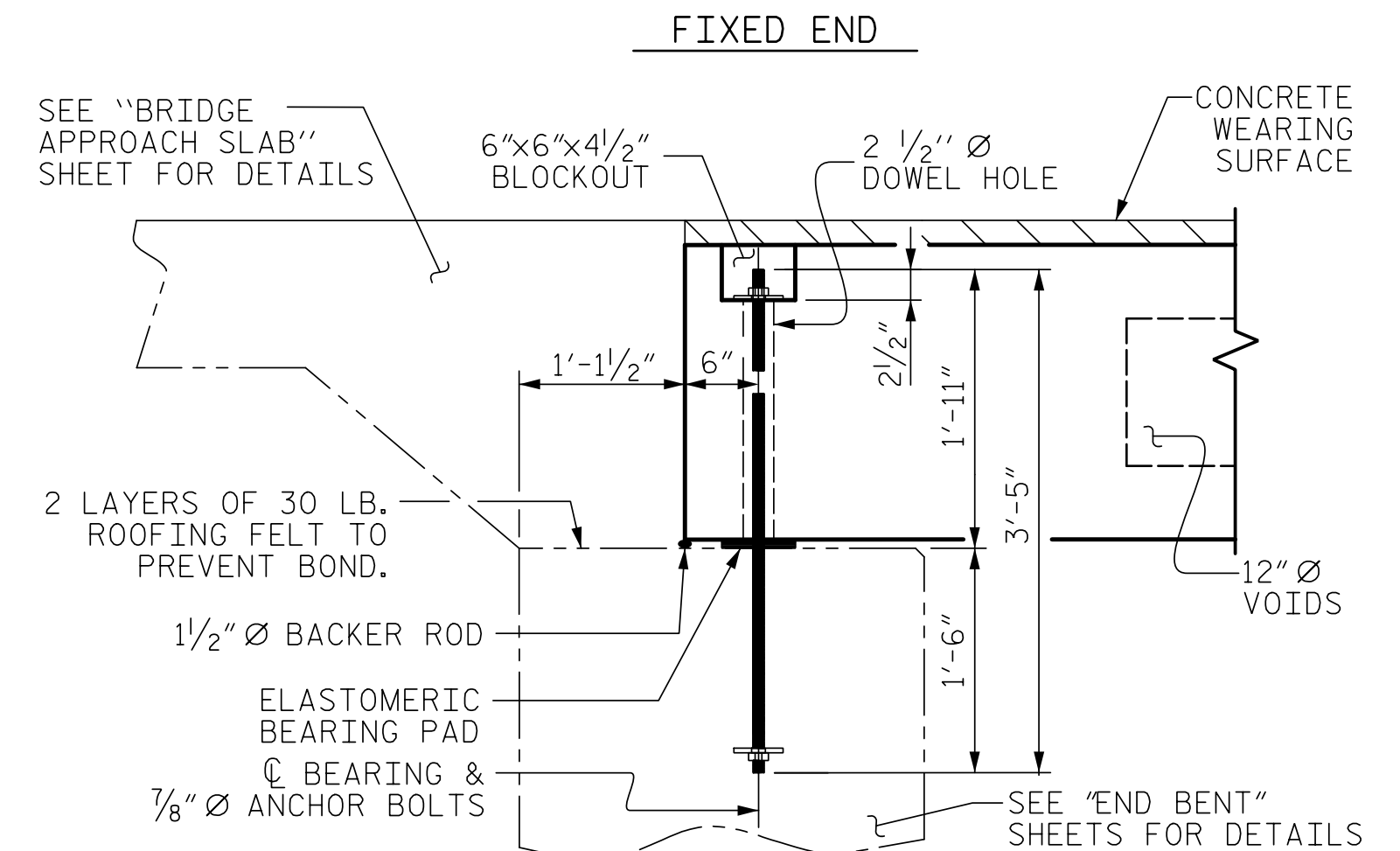
◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

**DEBONDING LEGEND**



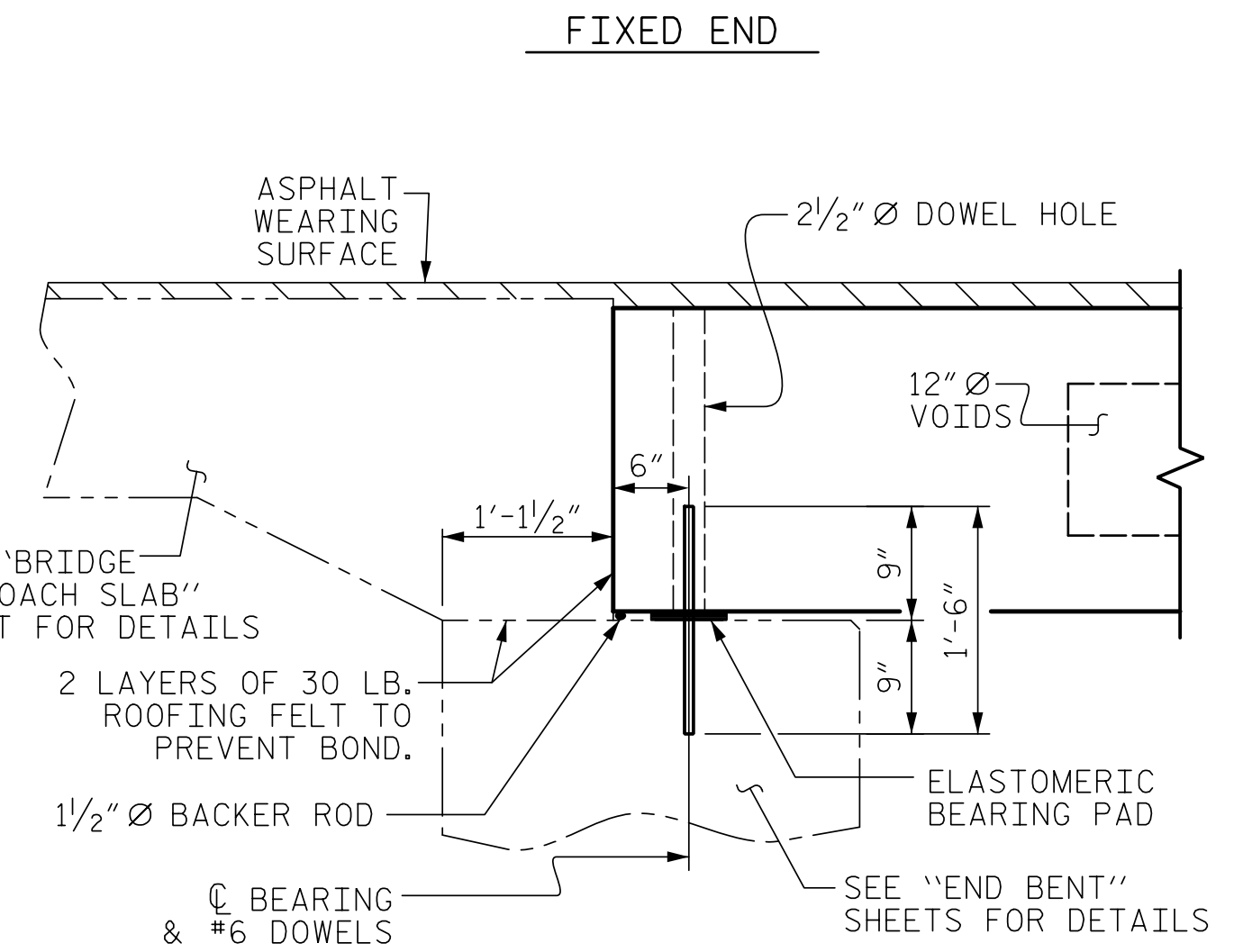
**SHEAR KEY DETAIL**

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



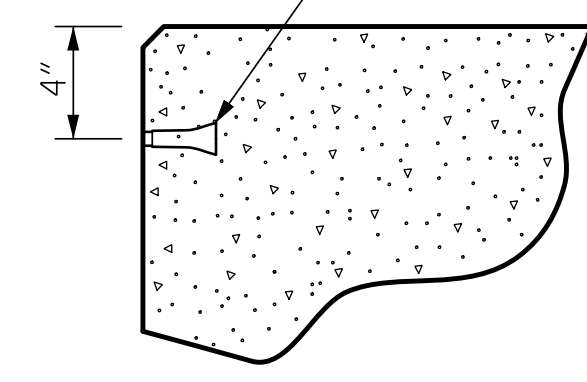
**SECTION AT END BENT FOR EXTERIOR CORED SLAB UNITS**

FOR "BLOCKOUT DETAIL FOR ANCHOR BOLTS", SEE SHEET 2 OF 3.

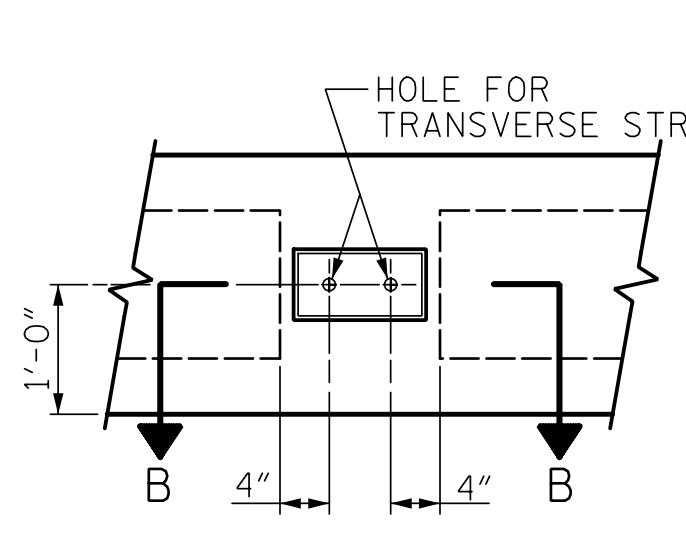


**SECTION AT END BENT**

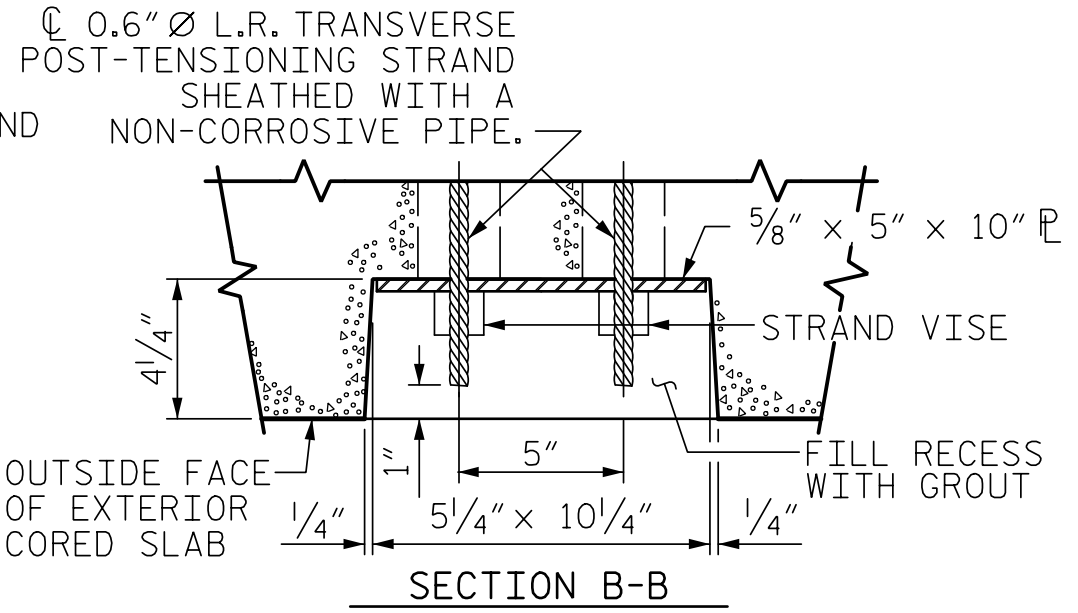
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



**THREADED INSERT DETAIL**

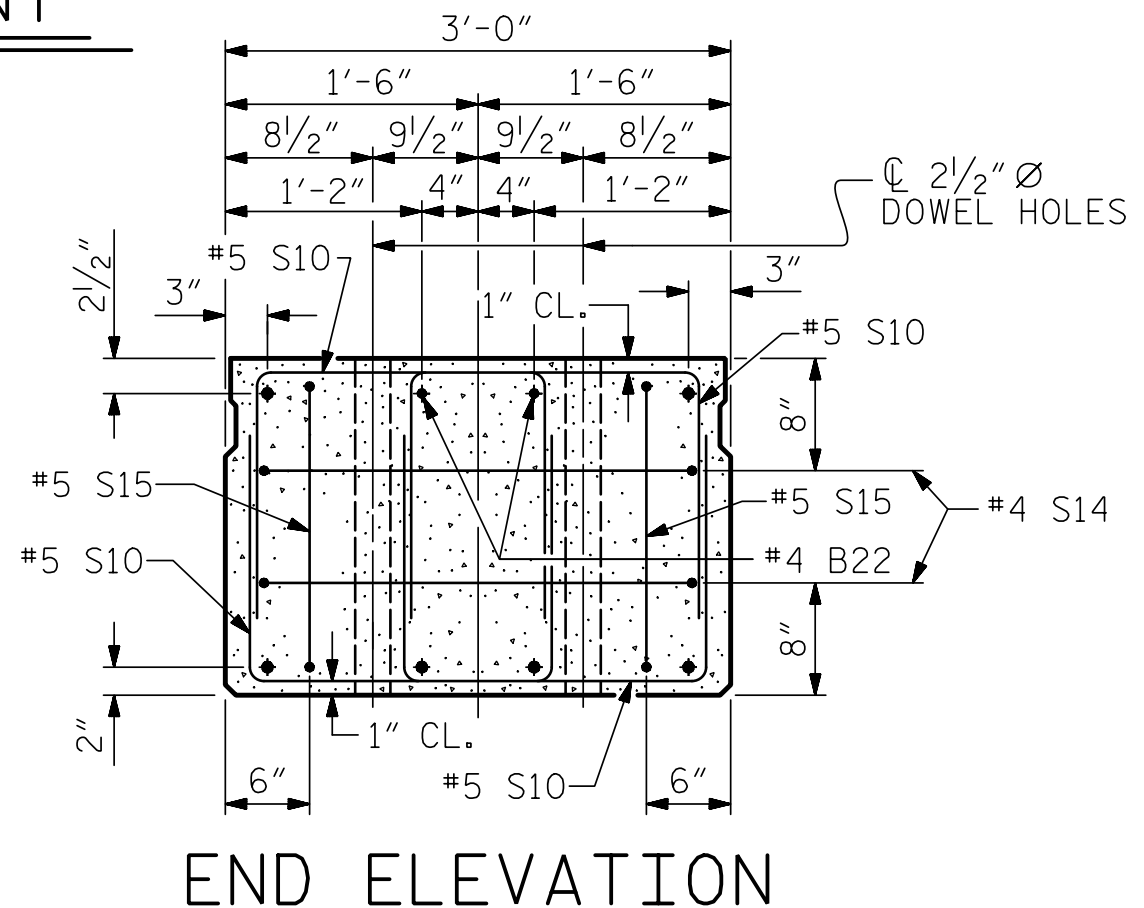


**ELEVATION VIEW**



**SECTION B-B**

**GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS**



**END ELEVATION**

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)  
 INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
 STATION: 15+59.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 3'-0" X 2'-0"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT

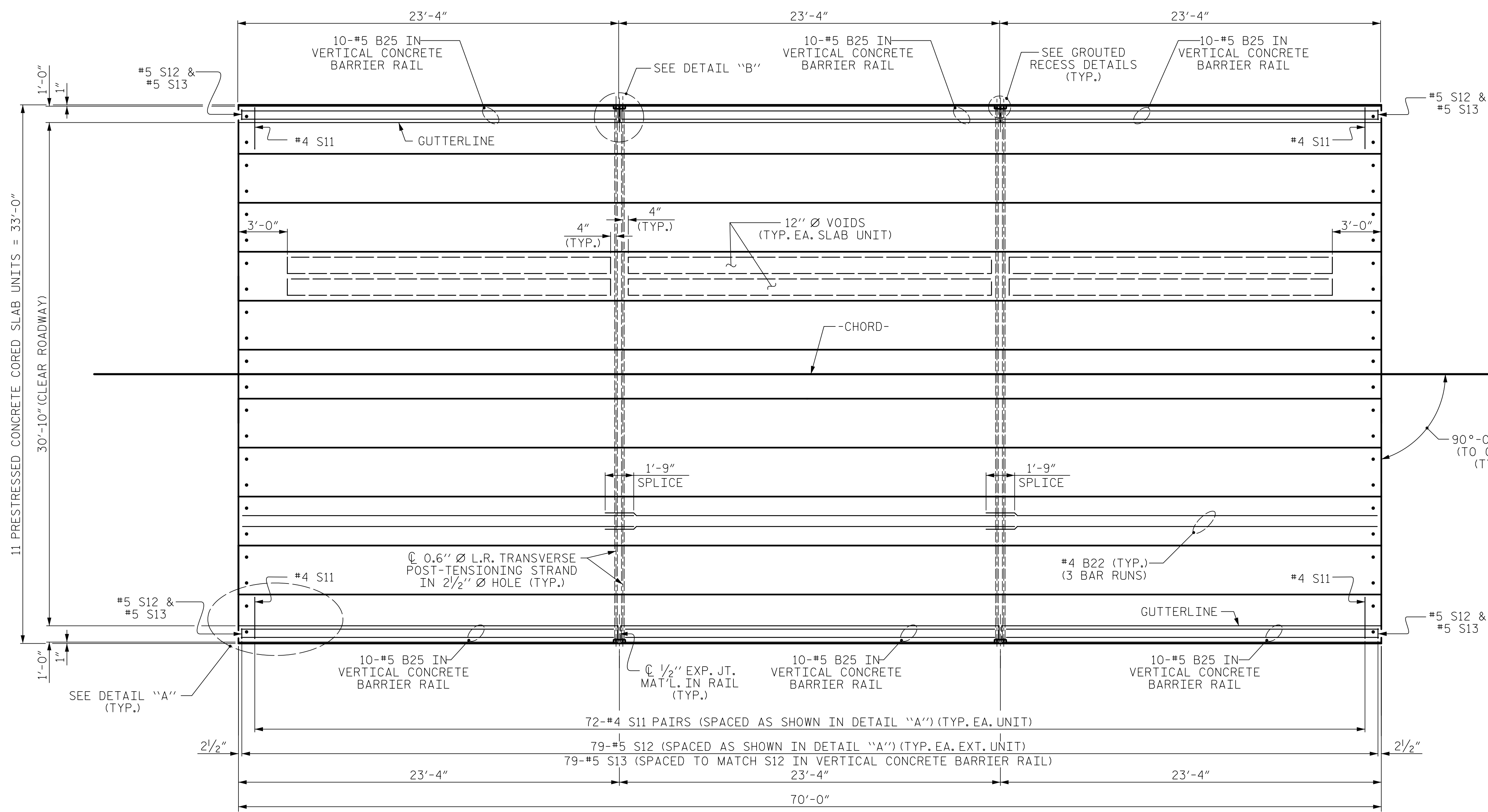
12/19/2023 | 7:20 AM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

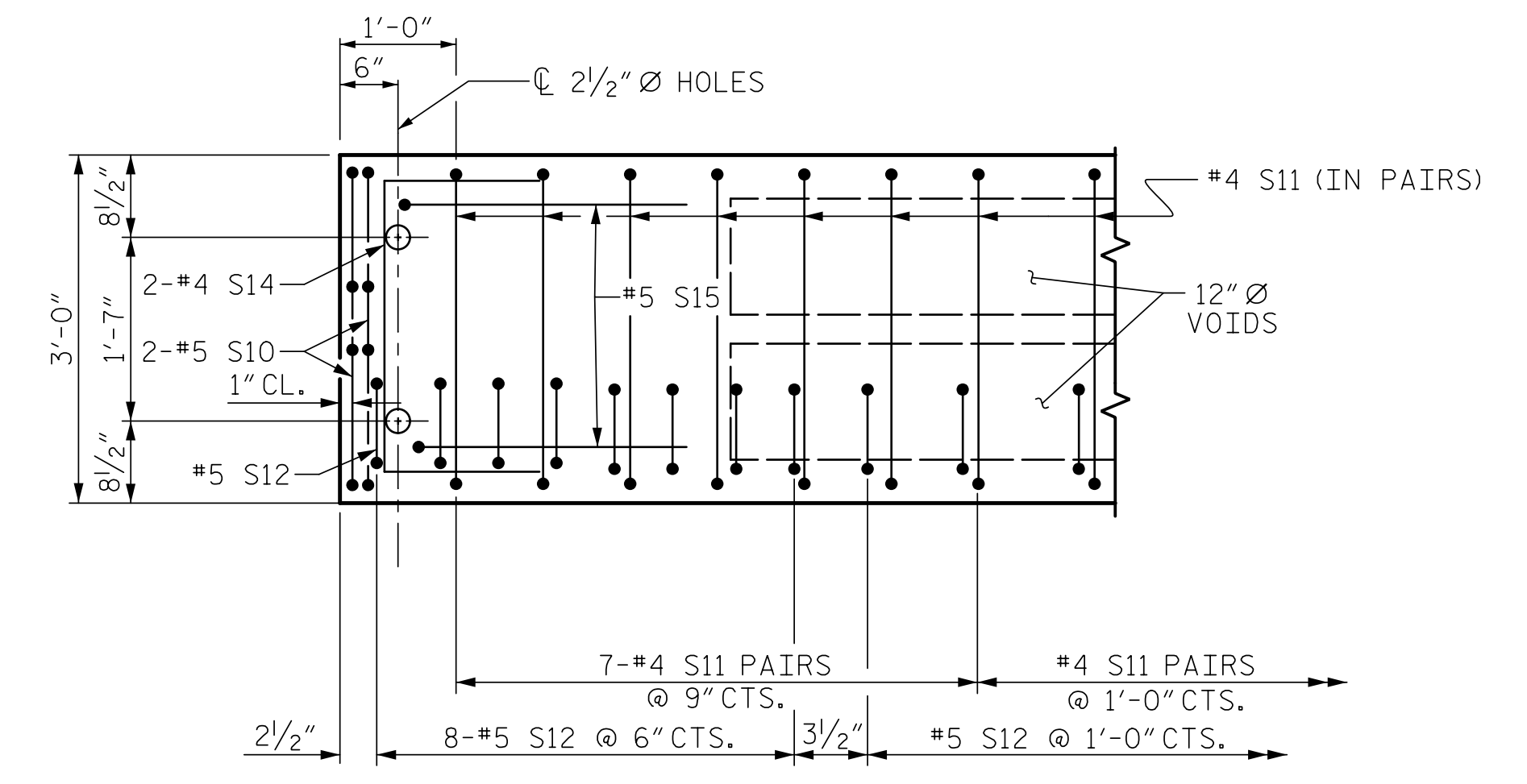
TGS ENGINEERS  
 706 HILLSBOROUGH STREET SUITE 200  
 RALEIGH, NC 27603  
 PH (919) 773-8887  
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			15

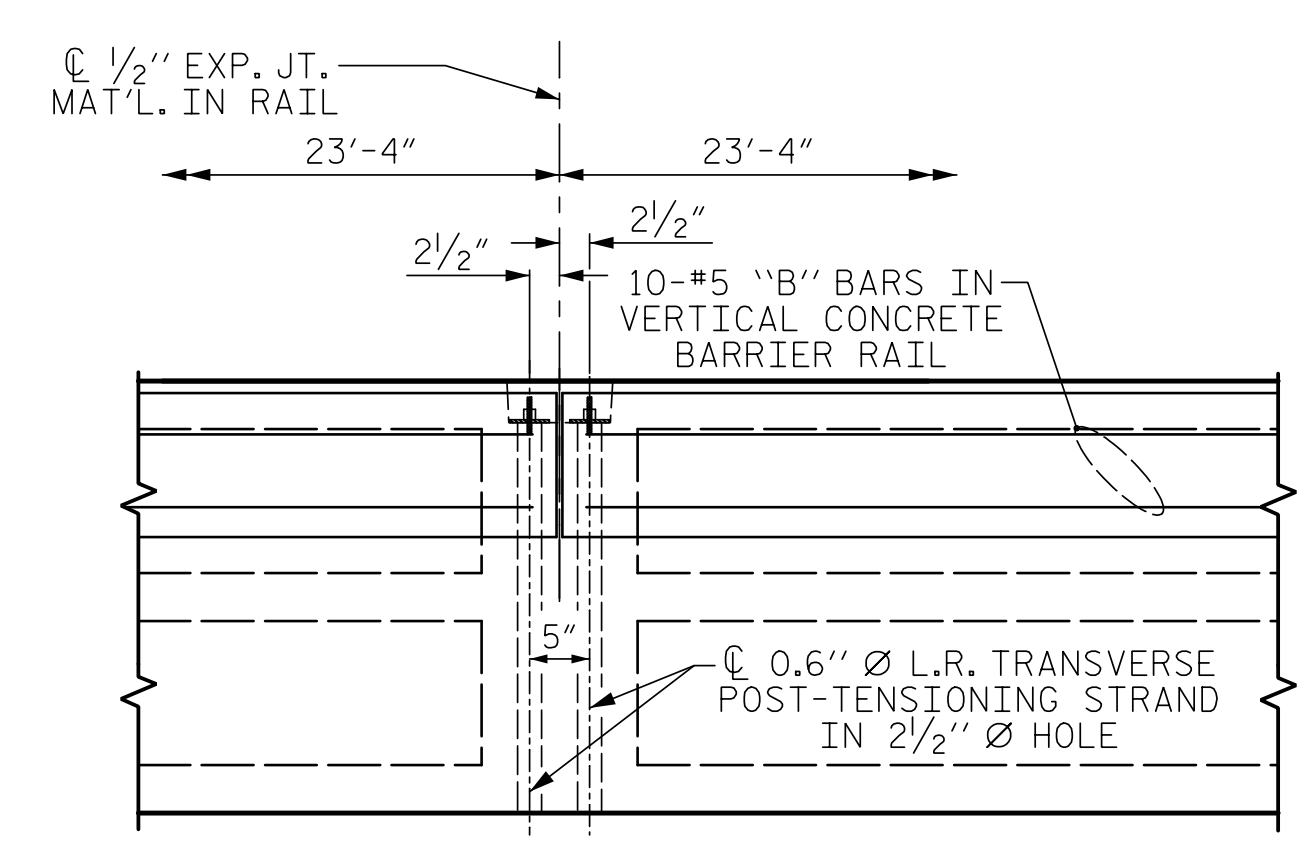
ASSEMBLED BY : S. B. WILLIAMS	DATE : 1-22
CHECKED BY : MGC	DATE : 1-22
DRAWN BY : MAA	6/10
CHECKED BY : MKT	7/10
REV. 9/14	MAA/TMG



**PLAN OF UNIT**



**DETAIL "A"**



**DETAIL "B"**

**NOTES**

EXTERIOR SLAB UNITS SHALL BE ANCHORED WITH 7/8" Ø ANCHOR BOLTS.

THE 2 1/2" ANCHOR BOLT HOLES SHALL BE FILLED WITH NON-SHRINK GROUT. SEE GROUT FOR STRUCTURES SPECIAL PROVISION.

ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN.

ANCHOR BOLT BLOCKOUTS SHALL BE FILLED WITH NON-SHRINK GROUT AFTER TIGHTENING OF THE ANCHOR BOLTS AND PRIOR TO PLACEMENT OF ASPHALT WEARING SURFACE.

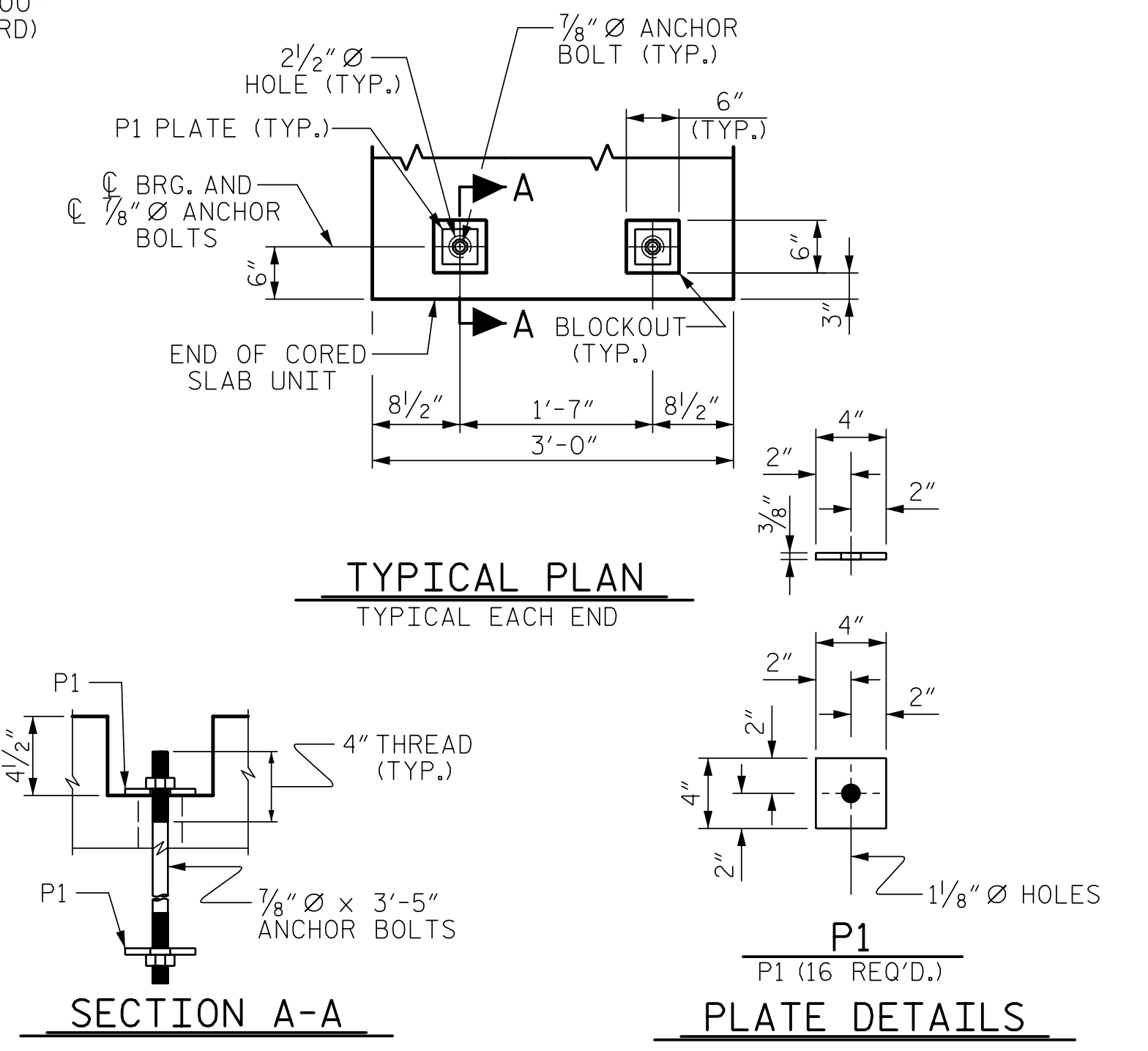
THE VERTICAL FACES OF THE ANCHOR BOLT BLOCKOUTS SHALL BE FINISHED WITH A ROUGHENED SURFACE.

HOLD DOWN PLATES, ANCHOR BOLTS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PAYMENT FOR HOLD DOWN PLATES, ANCHOR BOLTS AND NUTS SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. PLATES SHALL MEET THE REQUIREMENTS OF AASHTO M293. BOLTS, NUTS AND PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND PLATES. SHOP INSPECTION IS REQUIRED.

THE #5 S10 & #5 S15 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO ANCHOR BOLT BLOCKOUT.



**BLOCKOUT DETAIL FOR ANCHOR BOLTS**  
FOR EXTERIOR CORED SLAB UNITS

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
 STATION: 15+59.00 -L-

SHEET 2 OF 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**TGS ENGINEERS**  
 706 HILLSBOROUGH STREET SUITE 200  
 RALEIGH, NC 27603  
 PH (919) 773-8887  
 CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**PLAN OF 70' UNIT  
 30'-10" CLEAR ROADWAY  
 90° SKEW**

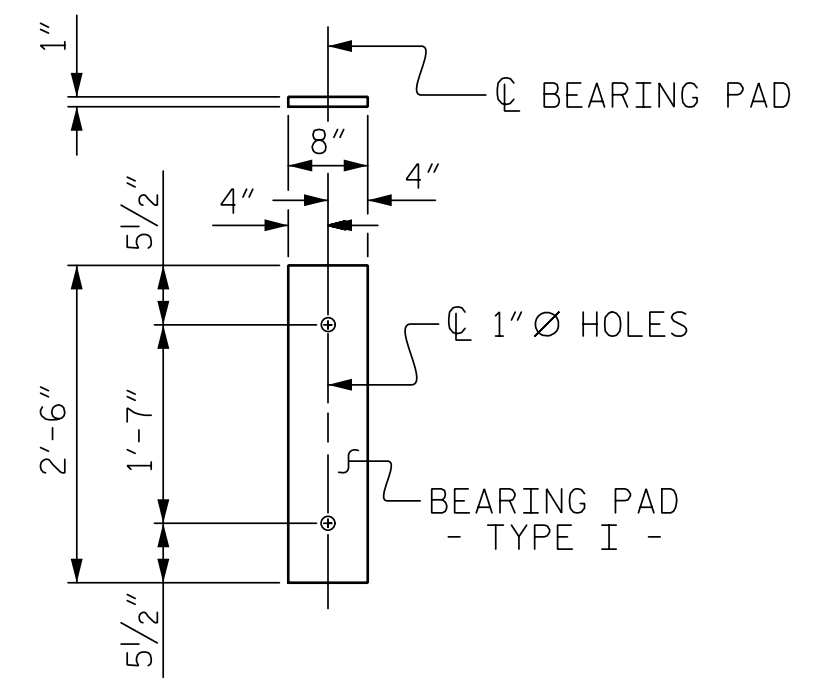
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			15

ASSEMBLED BY : S. B. WILLIAMS DATE : 1-22  
 CHECKED BY : MGC DATE : 1-22  
 DRAWN BY : MAA 6/10 REV. 12/5/11 MAA/AAC  
 CHECKED BY : MKT 7/10 REV. 8/14 MAA/TMG

(TYPICAL EACH END OF UNIT)  
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.

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



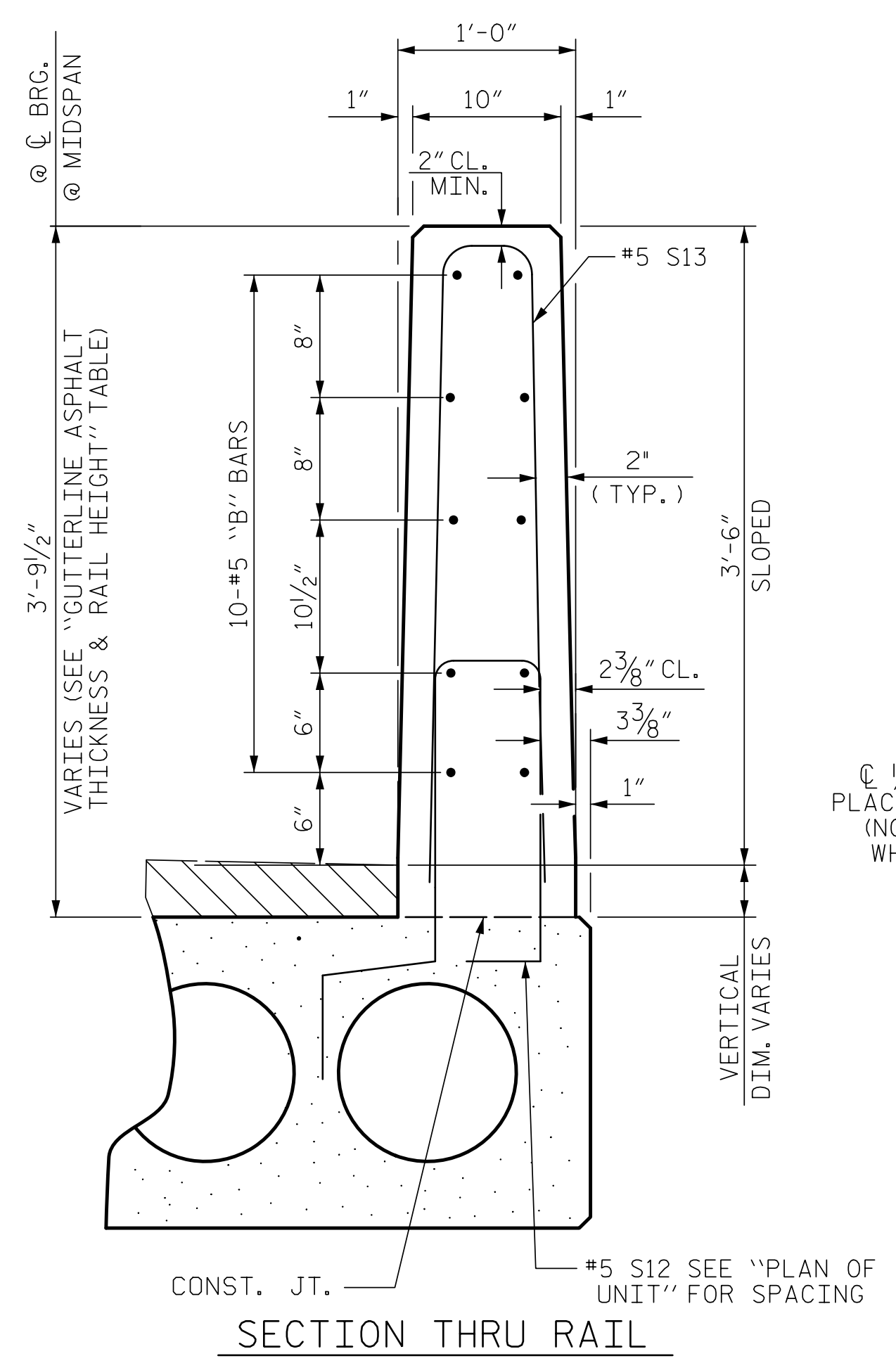


FIXED END  
(TYPE I - 22 REQ'D)

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

DEAD LOAD DEFLECTION AND CAMBER	
70' CORED SLAB UNIT	3'-0" x 2'-0"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	2 1/4" ↑
FINAL CAMBER	3/4" ↓
	1 1/2" ↑

\*\* INCLUDES FUTURE WEARING SURFACE



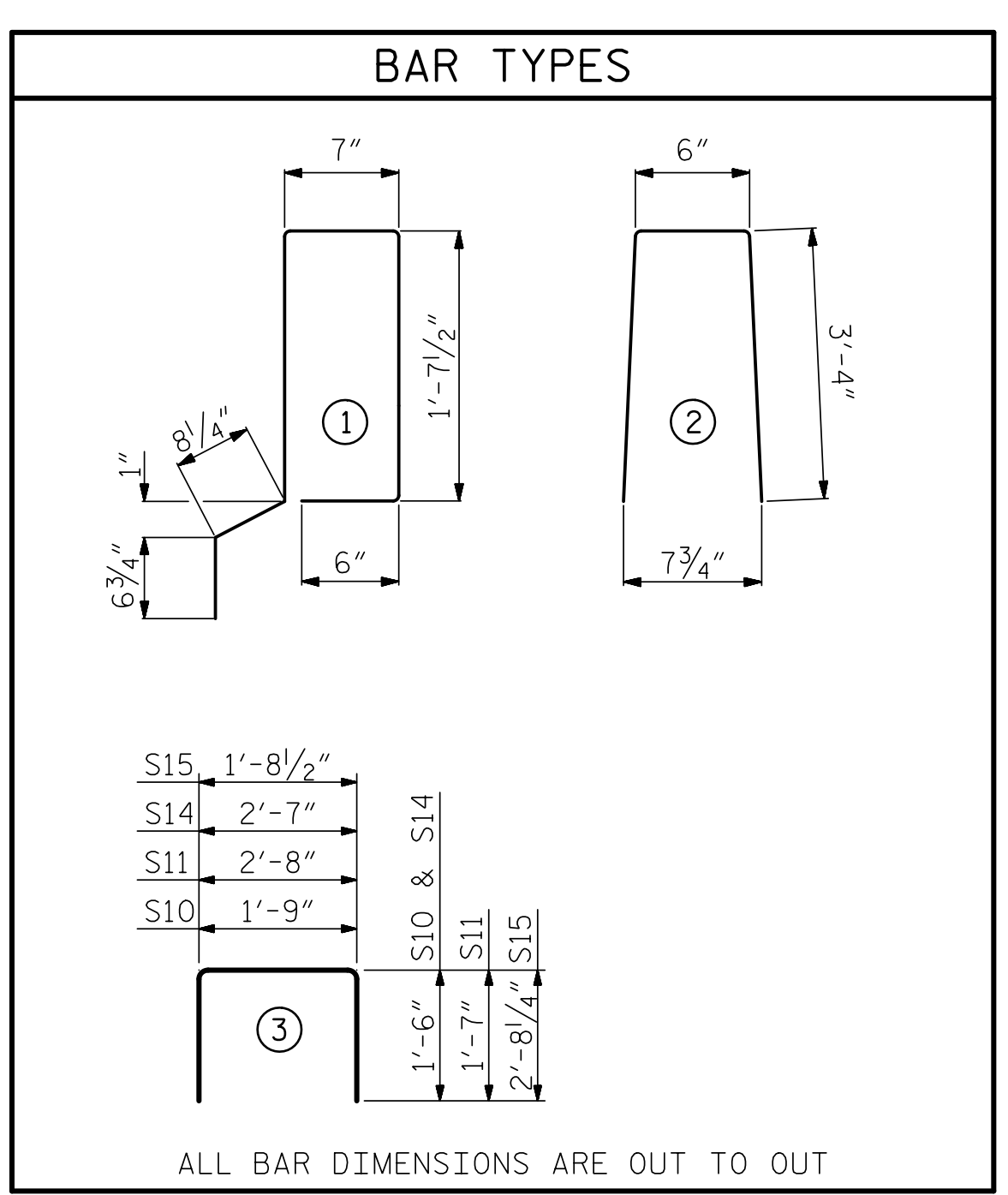
SECTION THRU RAIL

CORED SLABS REQUIRED			
70' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	9	70'-0"	630'-0"
TOTAL	11		770'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B25	60	60	#5	STR	22'-11"	1434
*S13	158	158	#5	2	7'-2"	1181
* EPOXY COATED REINFORCING STEEL					LBS.	2615
CLASS AA CONCRETE					CU. YDS.	18.1
TOTAL VERTICAL CONCRETE BARRIER RAIL					LN. FT.	140.00

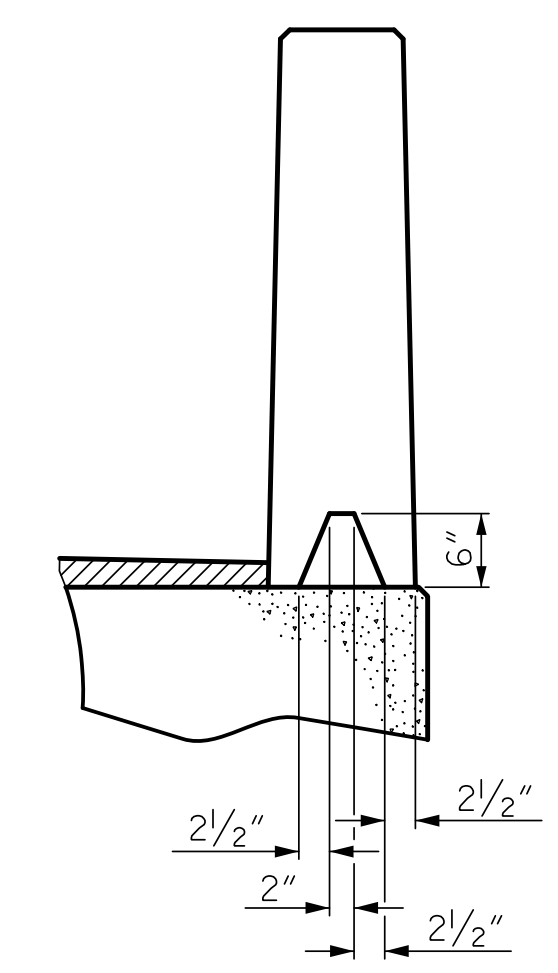
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
70' UNITS	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
	2"	3'-8"



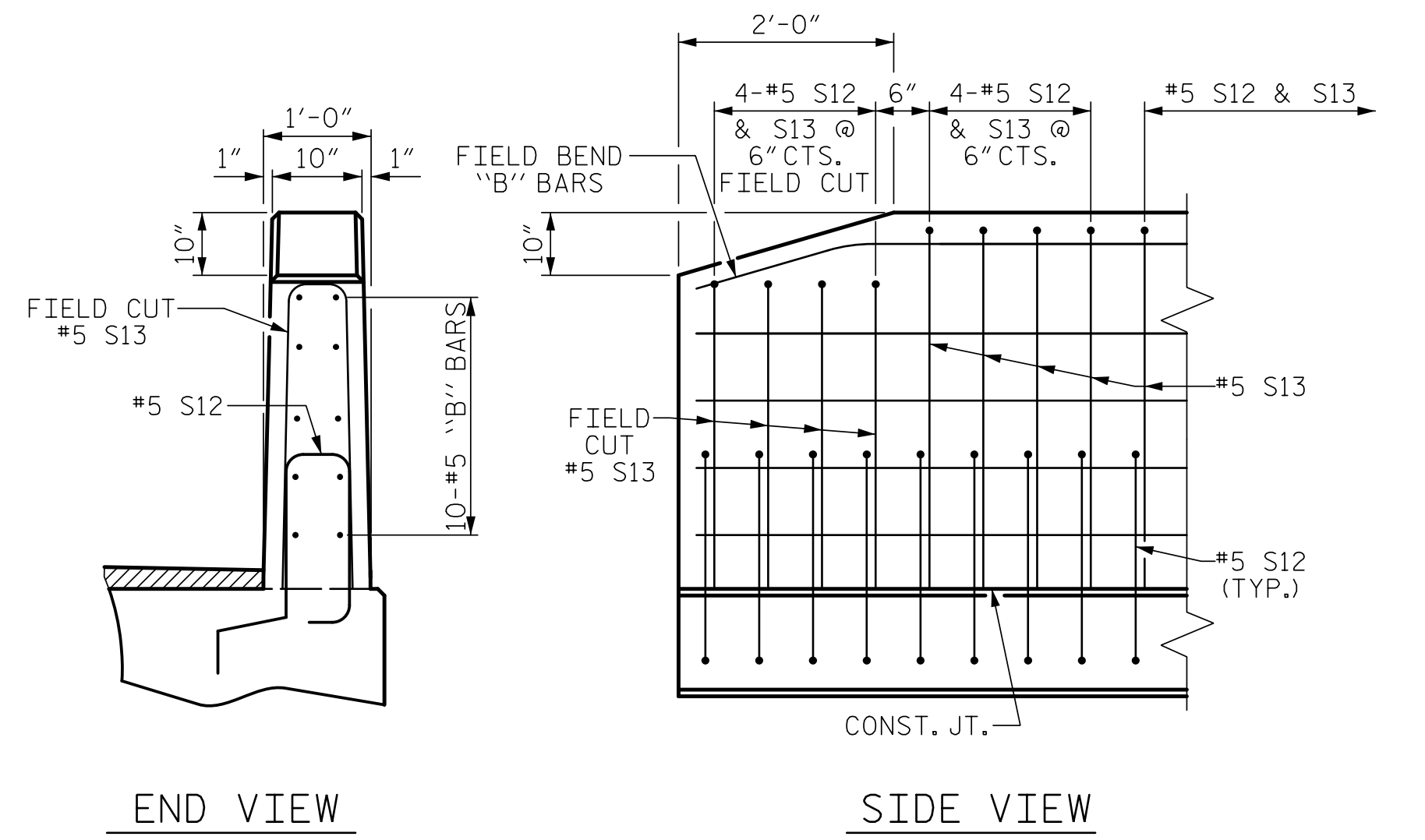
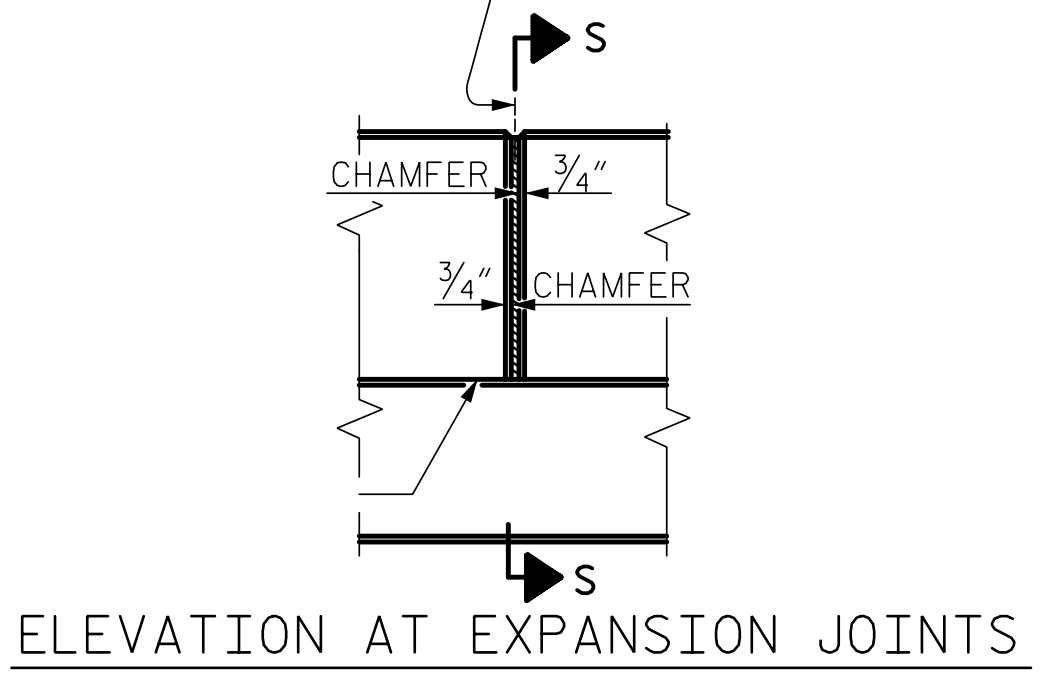
BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	144	#4	3	5'-10"	561	5'-10"	561
*S12	79	#5	1	5'-7"	460		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL				LBS.	744		744
* EPOXY COATED REINFORCING STEEL				LBS.	460		
7000 P.S.I. CONCRETE				CU. YDS.	11.8		11.8
0.6" Ø L.R. STRANDS				No.	28		28

GRADE 270 STRANDS	
AREA ( SQUARE INCHES )	0.6" Ø L.R.
ULTIMATE STRENGTH ( LBS. PER STRAND )	58,600
APPLIED PRESTRESS ( LBS. PER STRAND )	43,950

CONCRETE RELEASE STRENGTH	
UNIT	PSI
70' UNITS	5500



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



END OF RAIL DETAILS

**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 CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB 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.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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 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.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

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.

PROJECT NO. BP4.R013.1  
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STATION: 15+59.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
3'-0" X 2'-0"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT

12/19/2023 | 7:20 AM EST

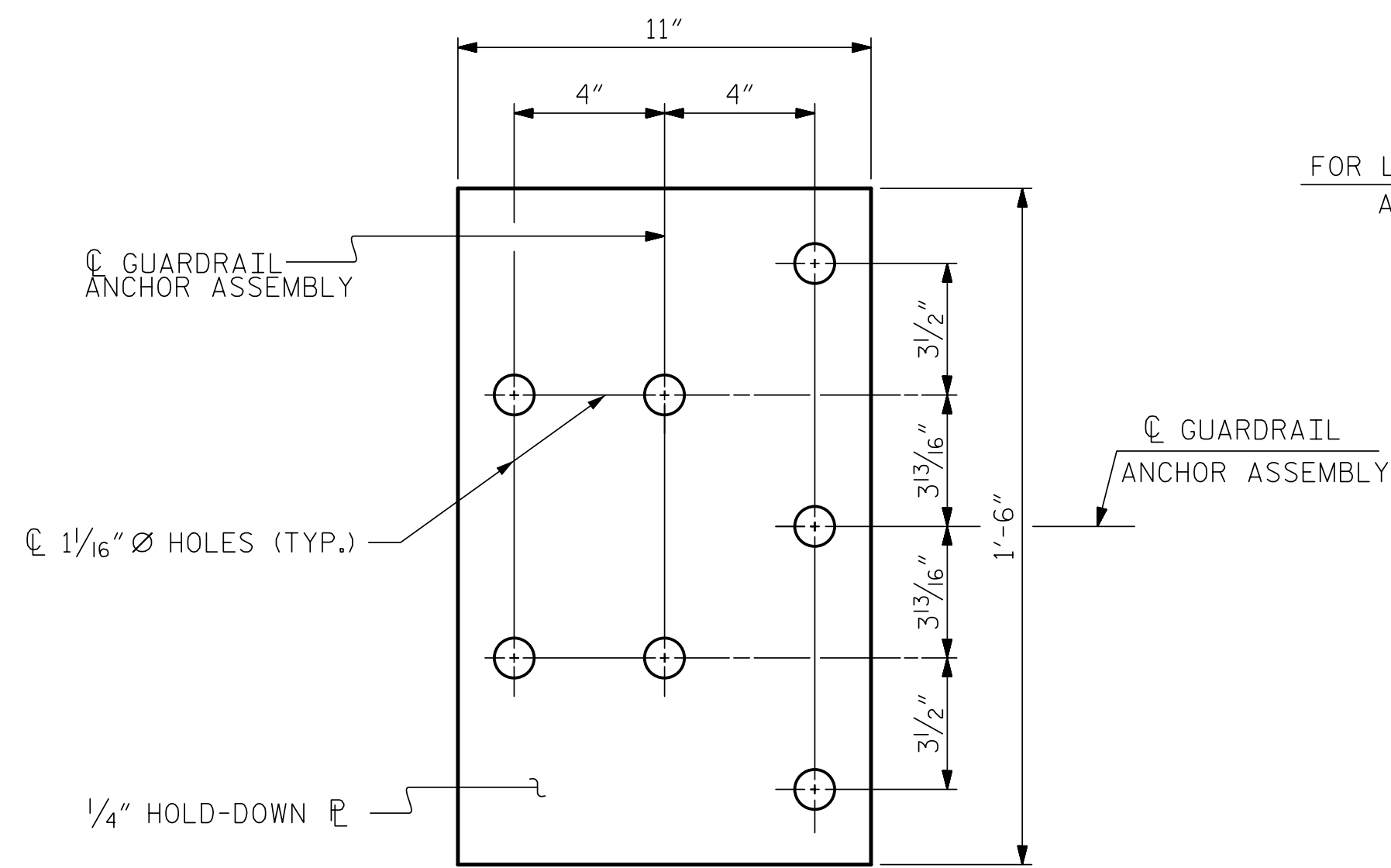
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TGS ENGINEERS  
706 HILLSBOROUGH STREET  
SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
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2			4			15

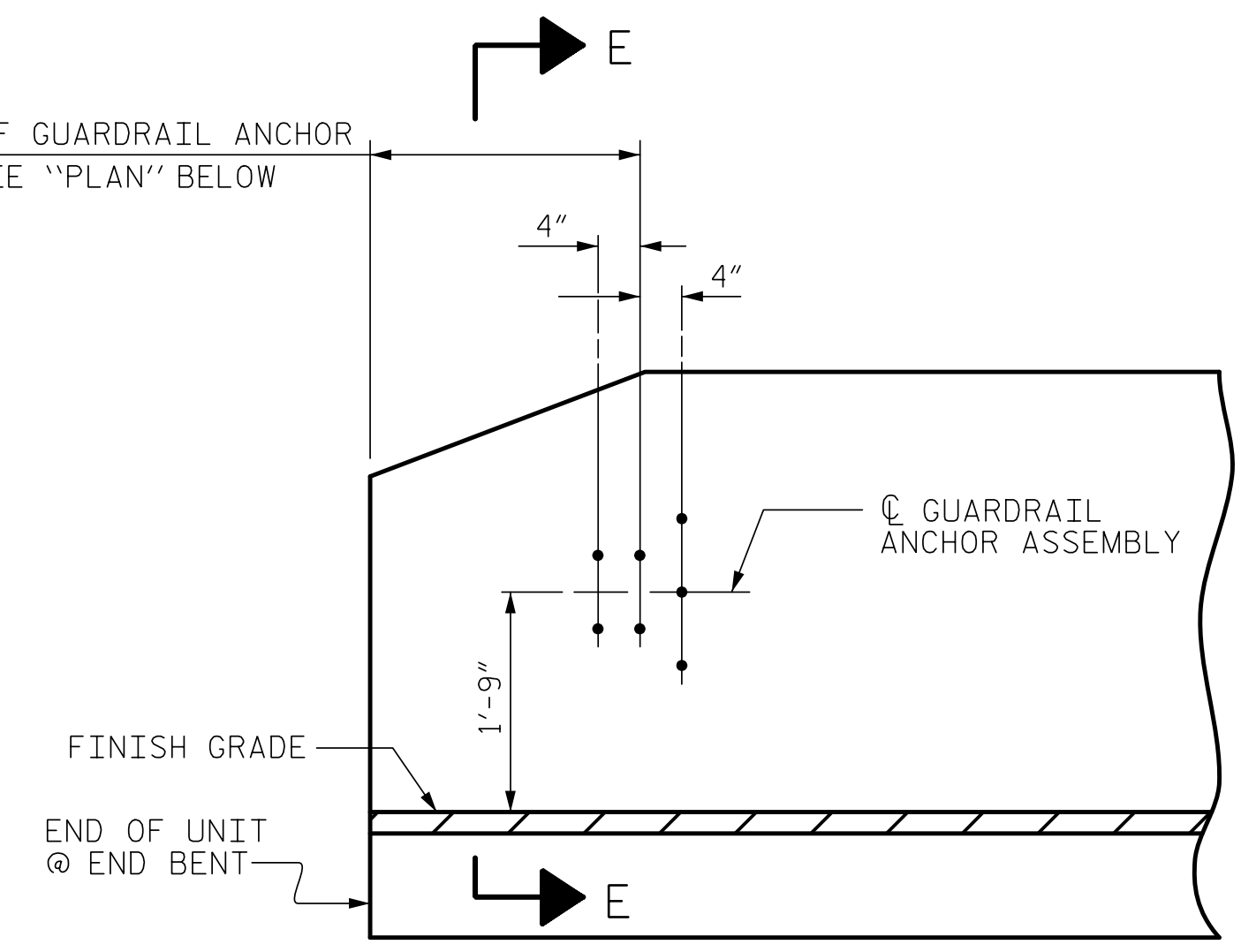
ASSEMBLED BY : S. B. WILLIAMS	DATE : 1-22
CHECKED BY : MGC	DATE : 1-22
DRAWN BY : MAA 6/10	REV. 5/18
CHECKED BY : MKT 7/10	MAA/THC

**VERTICAL CONCRETE BARRIER RAIL DETAILS**

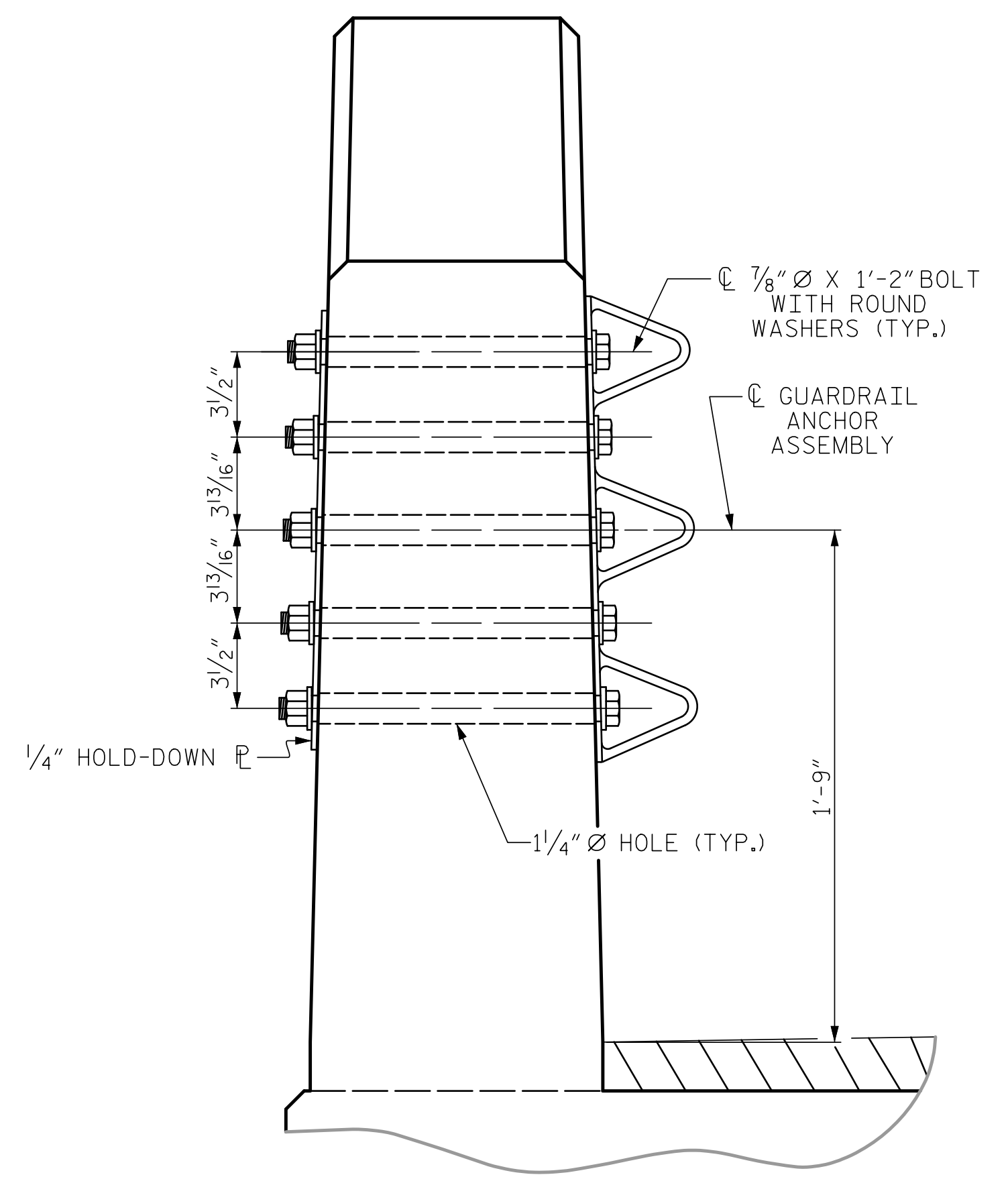


PLAN

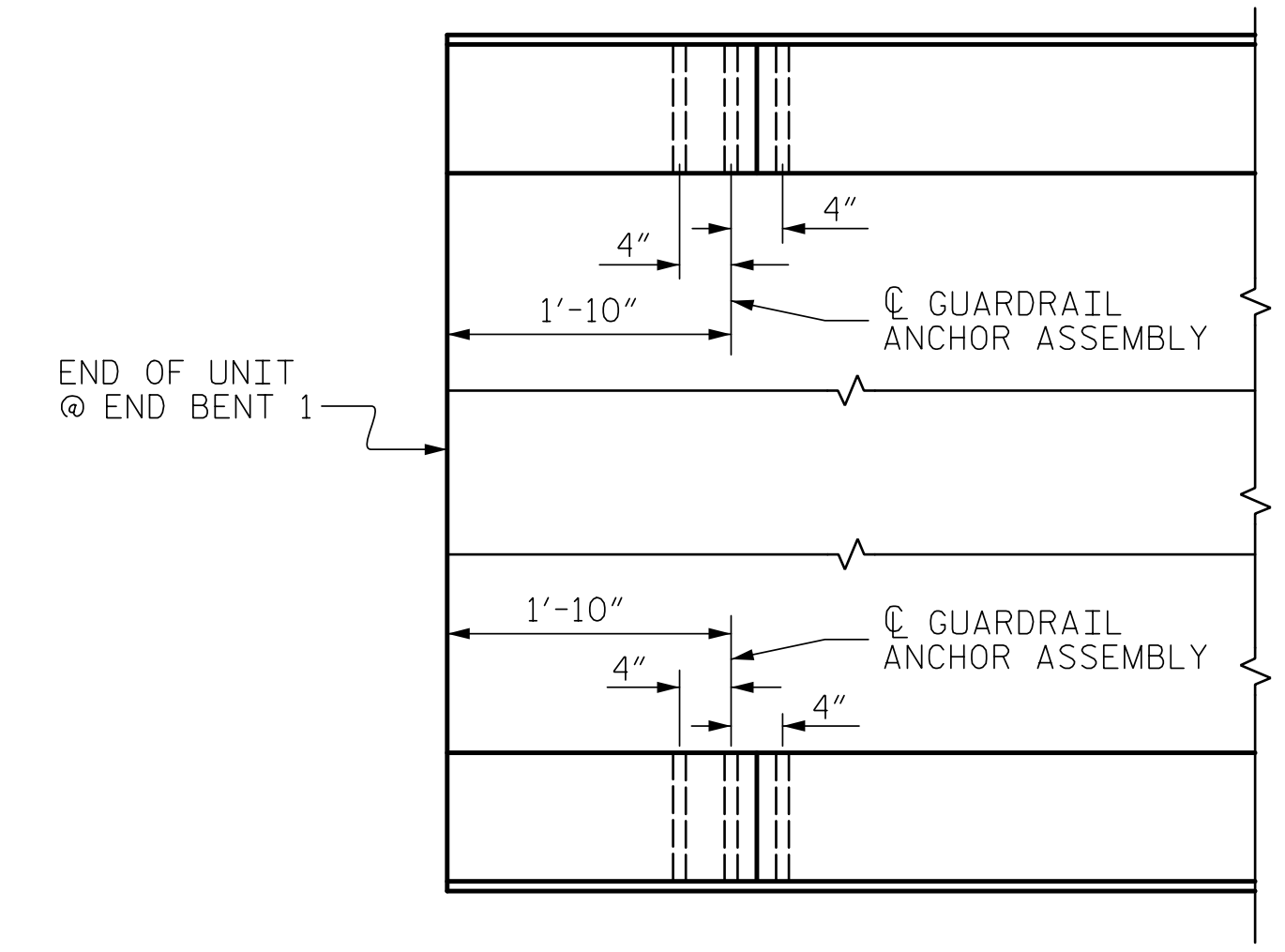
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



ELEVATION



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



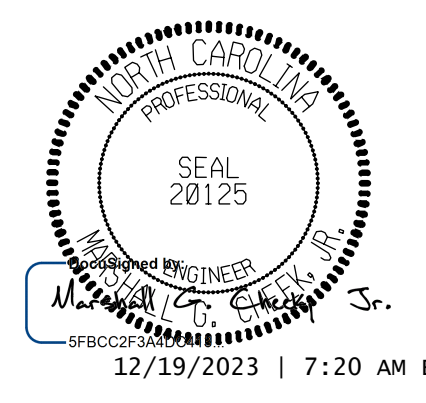
SKETCH SHOWING POINTS OF ATTACHMENT

\* 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 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. BP4.R013.1  
HALIFAX COUNTY  
 STATION: 15+59.00 -L-



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

ASSEMBLED BY : S. B. WILLIAMS	DATE : 1-22
CHECKED BY : MGC	DATE : 1-22
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

11/28/2023  
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TCS ENGINEERS  
 706 HILLSBOROUGH STREET  
 SUITE 200  
 RALEIGH, NC 27603  
 PH (919) 773-8887  
 CORP. LICENSE NO.: C-0275

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2			4			15



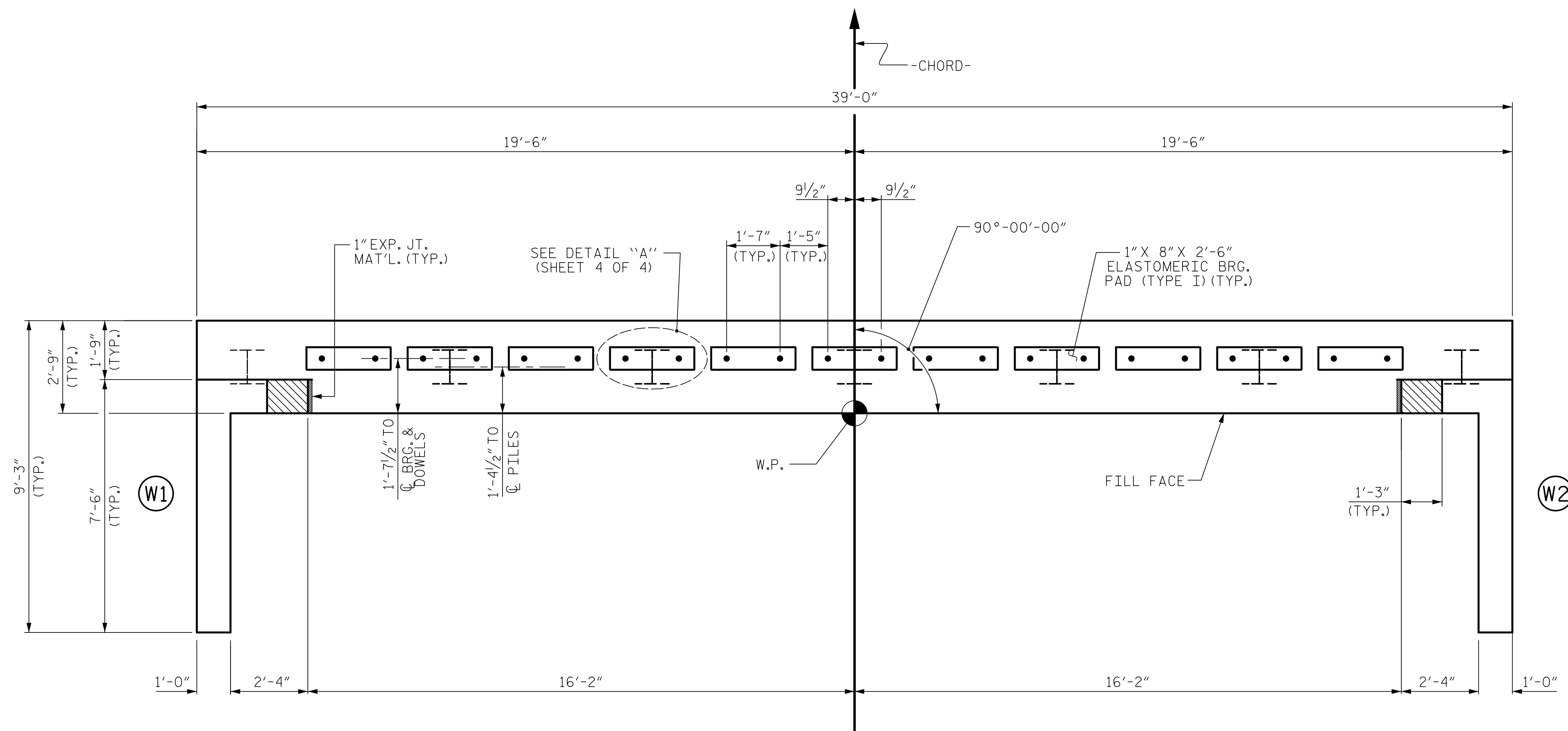
**NOTES**

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.

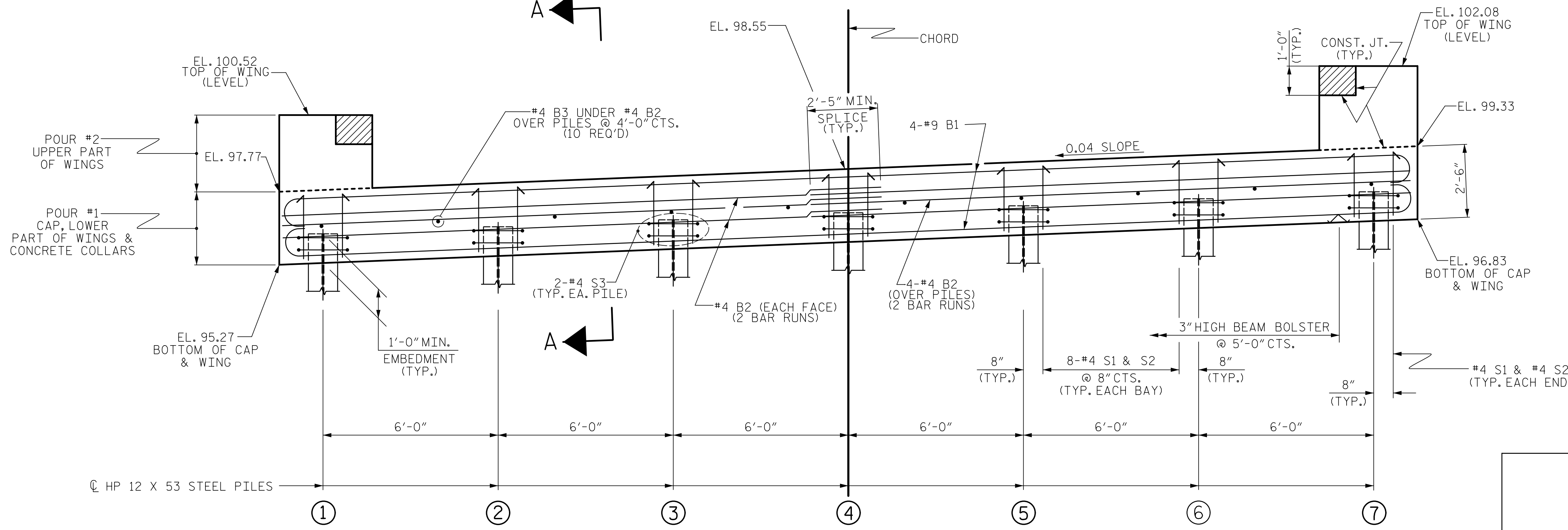
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



**PLAN**

TOP OF PILE ELEVATIONS	
①	96.35
②	96.59
③	96.83
④	97.07
⑤	97.31
⑥	97.55
⑦	97.79



**ELEVATION**

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
 STATION: 15+59.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
 PROFESSIONAL ENGINEER  
 SEAL 20125  
 M. G. C. CARR, P.E.  
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 1

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

ASSEMBLED BY : S. B. WILLIAMS DATE : 1-22  
 CHECKED BY : MGC DATE : 1-22

DRAWN BY : DGE 01/10  
 CHECKED BY : MKT 01/10

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.

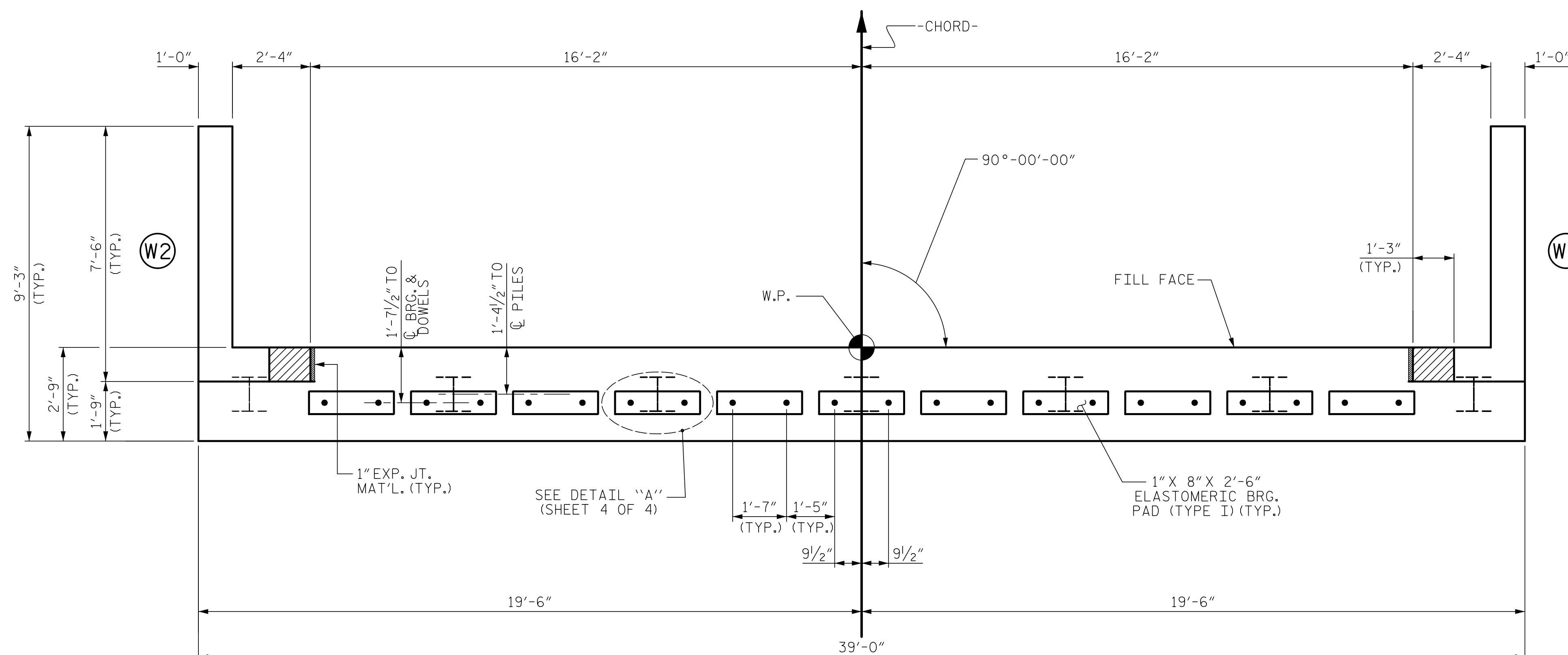
NOTES

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.

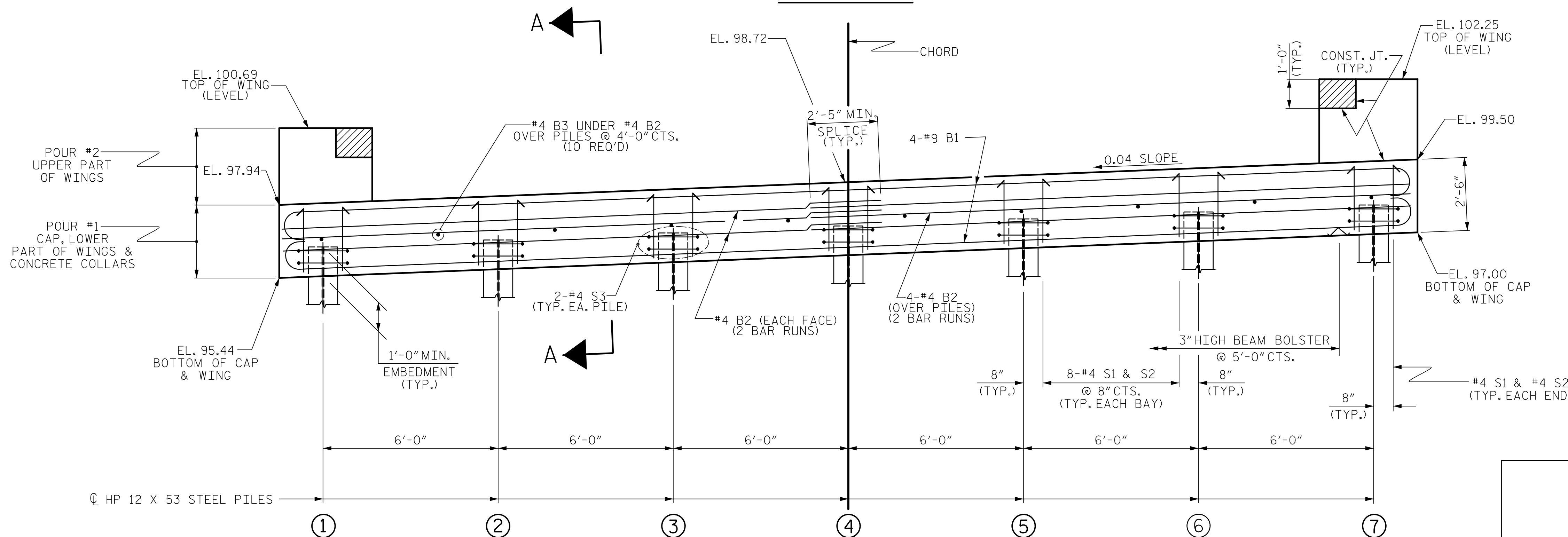
FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

TOP OF PILE ELEVATIONS

①	96.52
②	96.76
③	97.00
④	97.24
⑤	97.49
⑥	97.73
⑦	97.97



ELEVATION

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
 STATION: 15+59.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PROFESSIONAL ENGINEER  
 SEAL 20125  
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SUBSTRUCTURE END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-11
TOTAL SHEETS					15

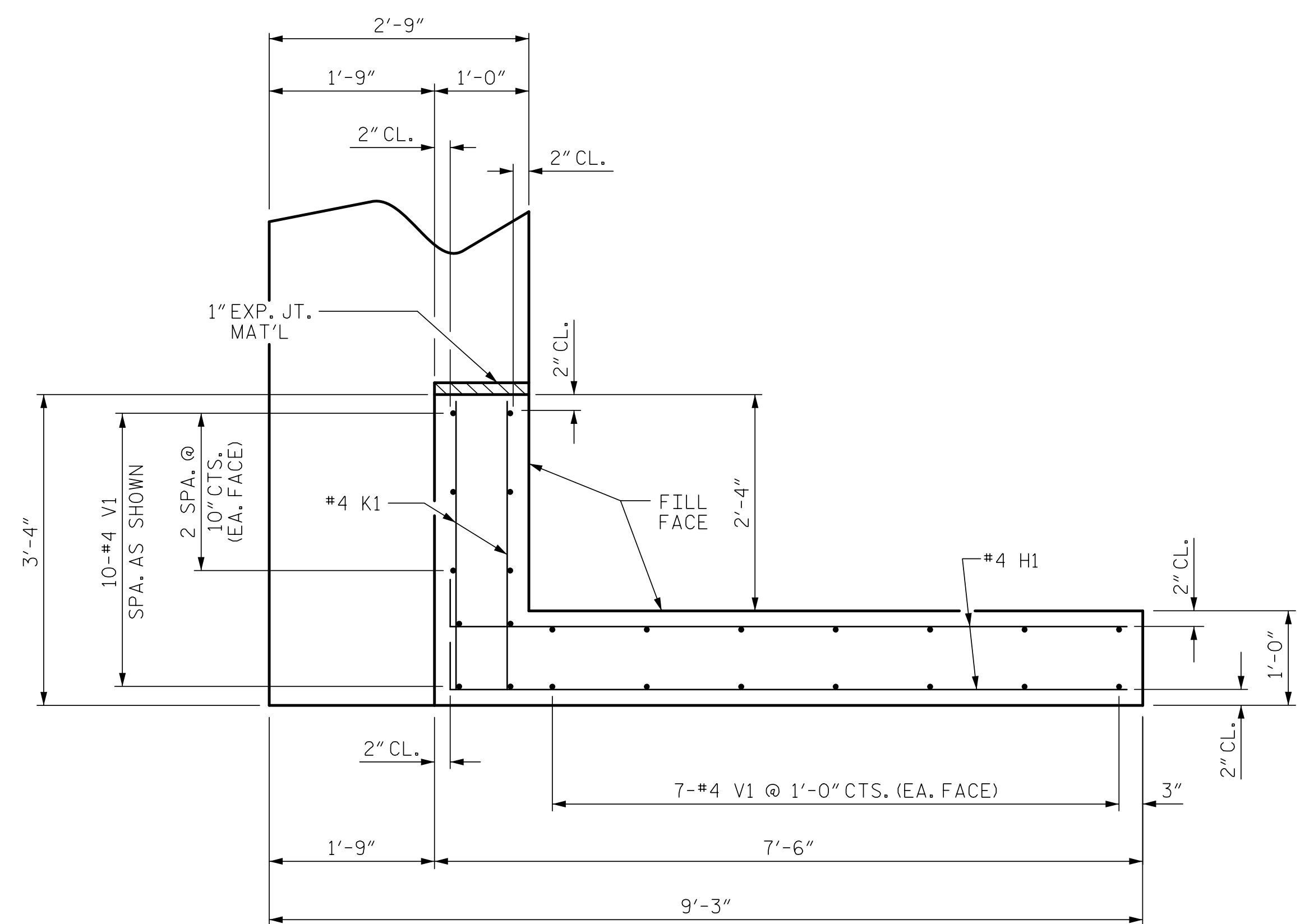
ASSEMBLED BY : S. B. WILLIAMS DATE : 1-22  
 CHECKED BY : MGC DATE : 1-22

DRAWN BY : DGE 01/10  
 CHECKED BY : MKT 01/10

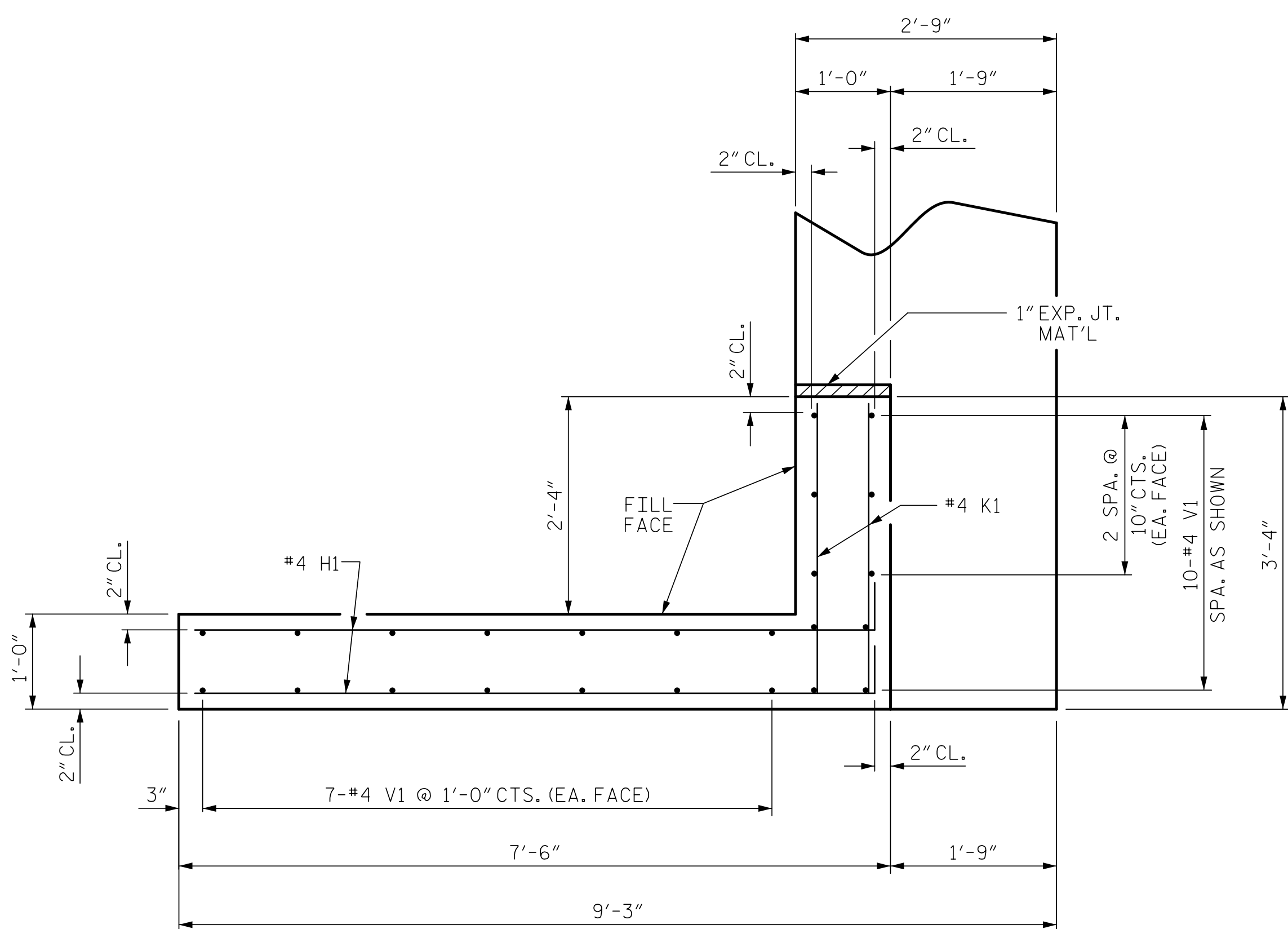
REV. 4/15 MAA/TMG

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.

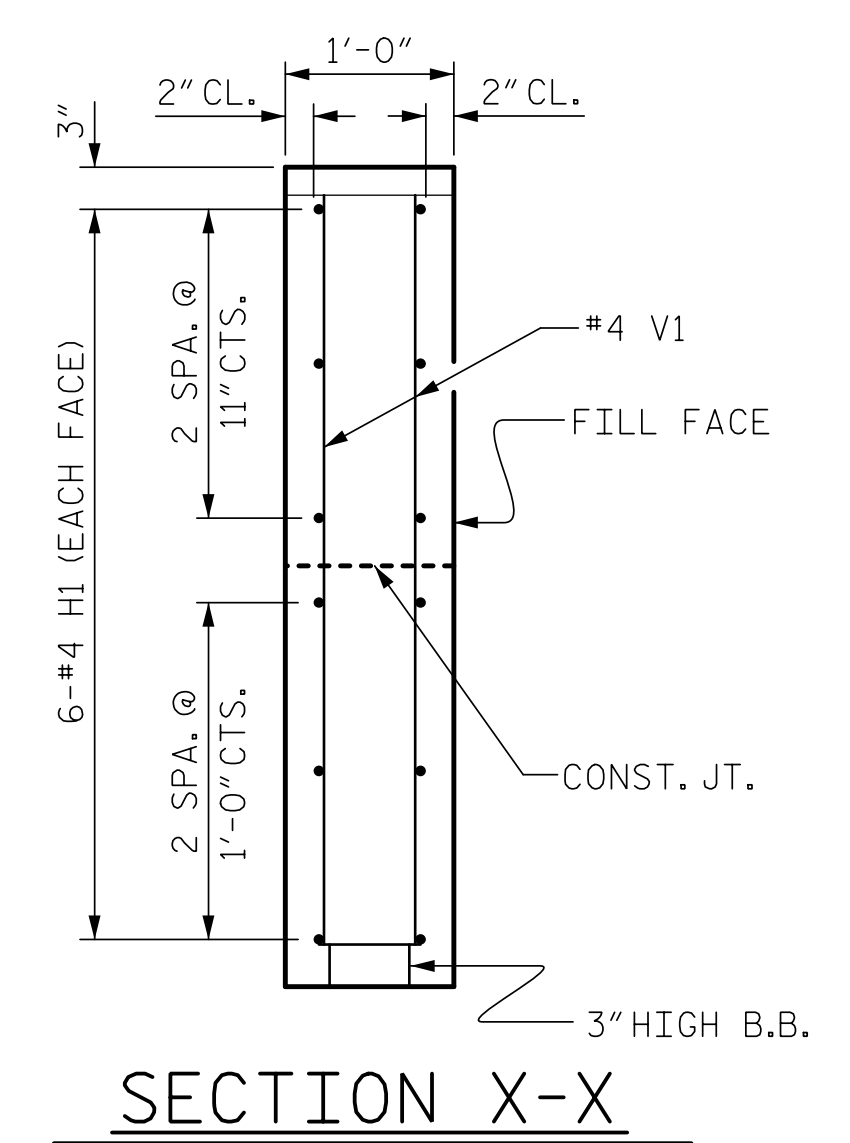




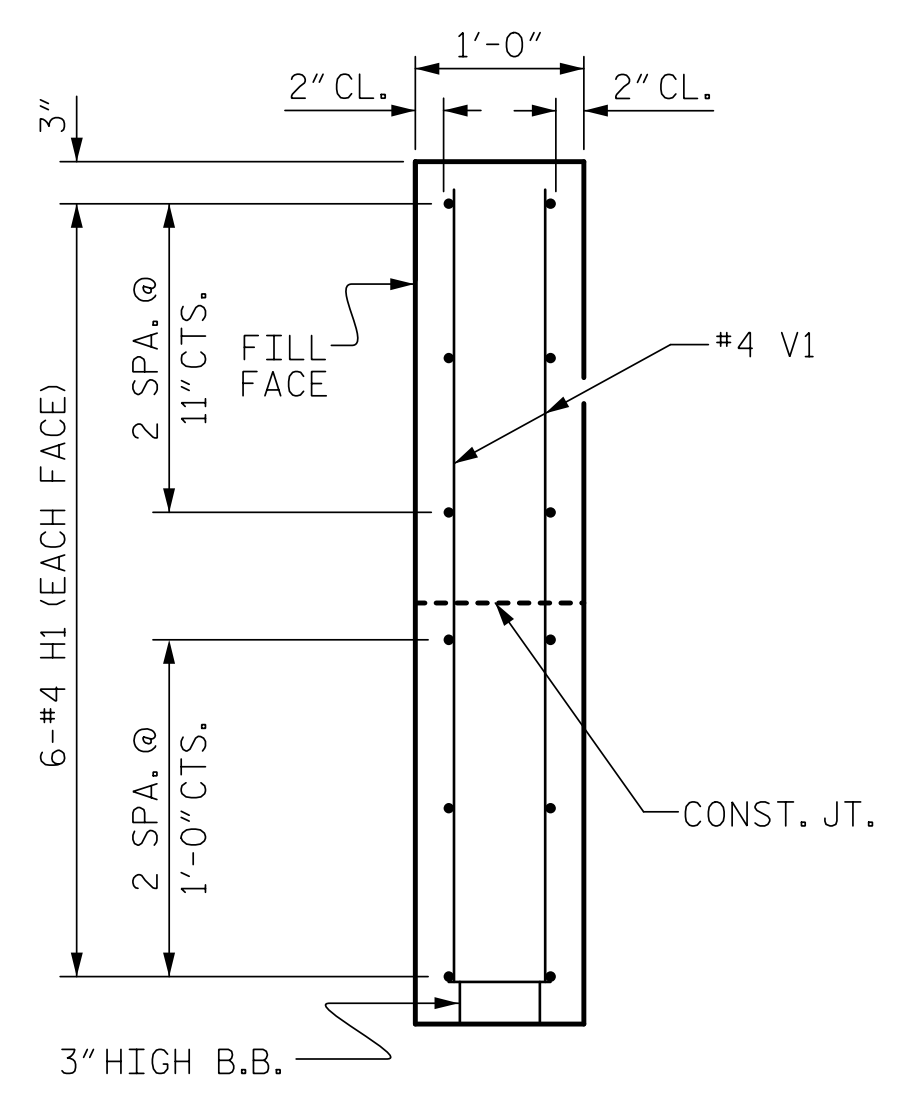
PLAN OF WING (W1)



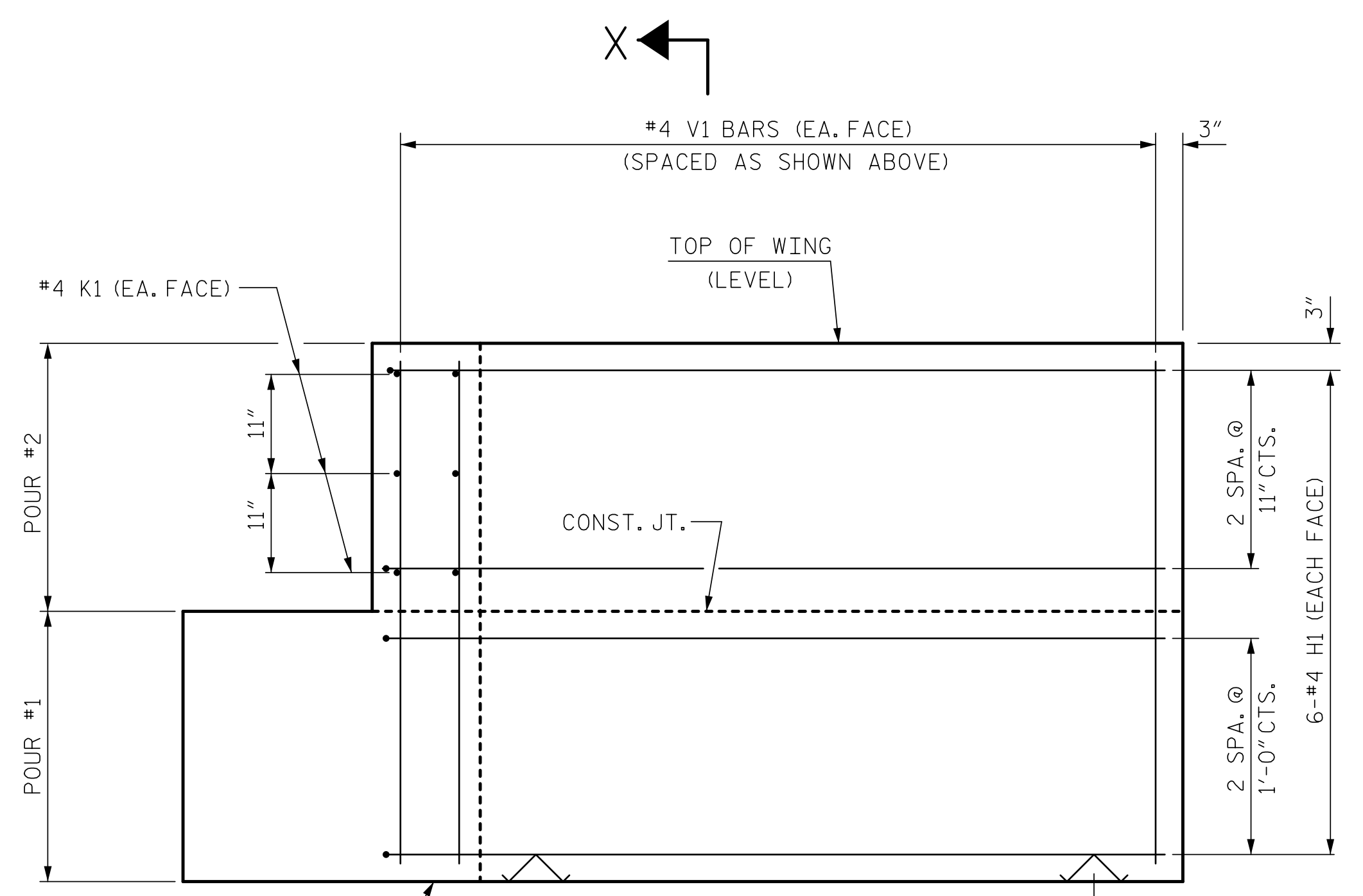
PLAN OF WING (W2)



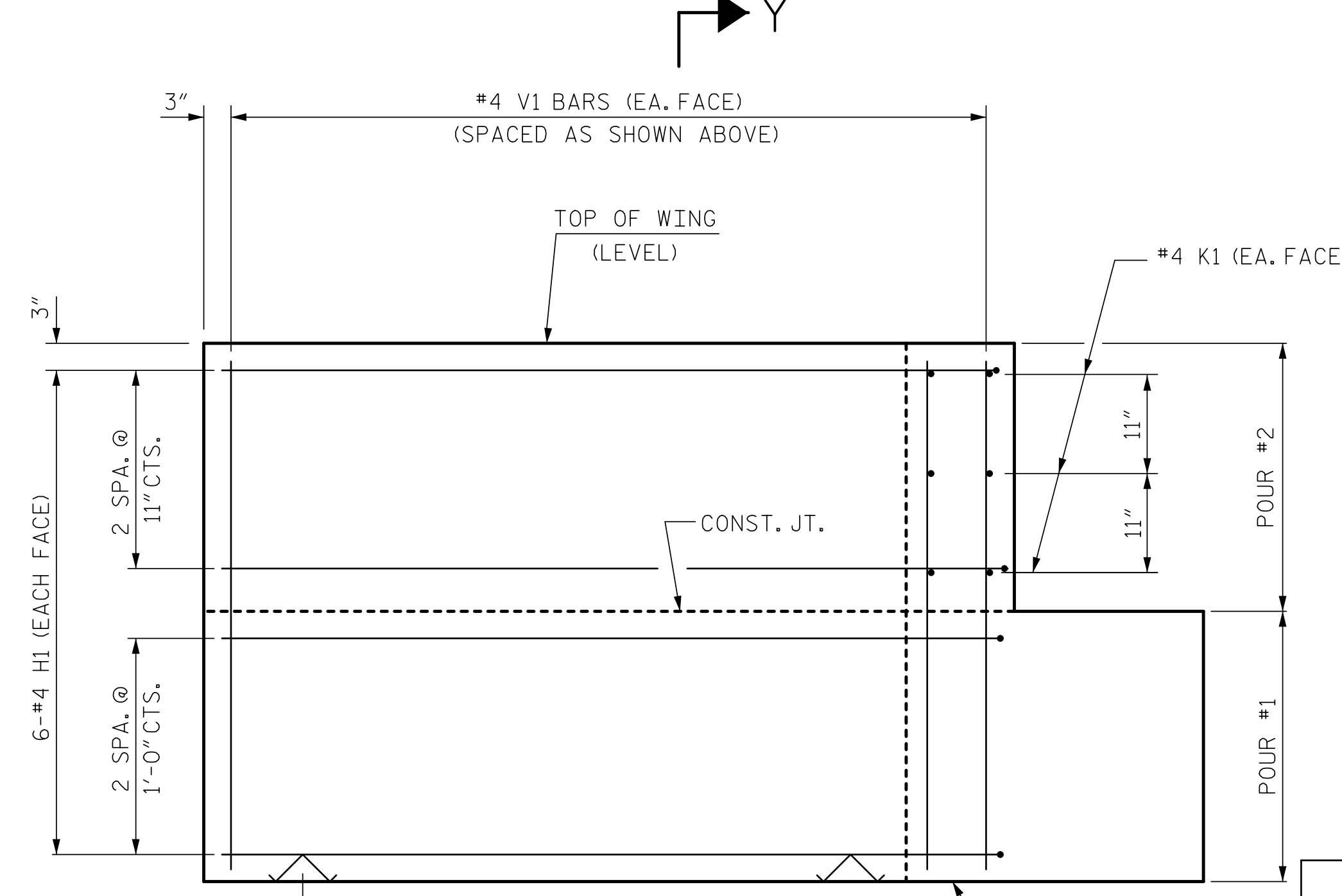
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

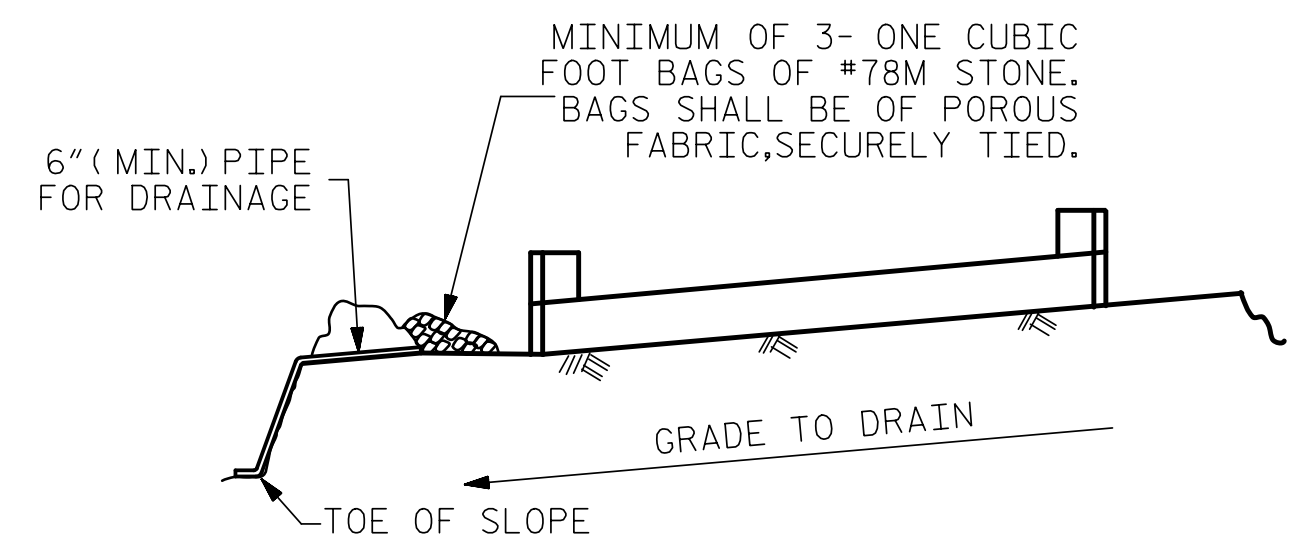
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HALIFAX COUNTY  
 STATION: 15+59.00 -L-

SHEET 3 OF 4

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

ASSEMBLED BY : S. B. WILLIAMS	DATE : 1-22
CHECKED BY : MGC	DATE : 1-22
DRAWN BY : DGE 02/10	REV. 4/15
CHECKED BY : MKT 02/10	MAA/TMG

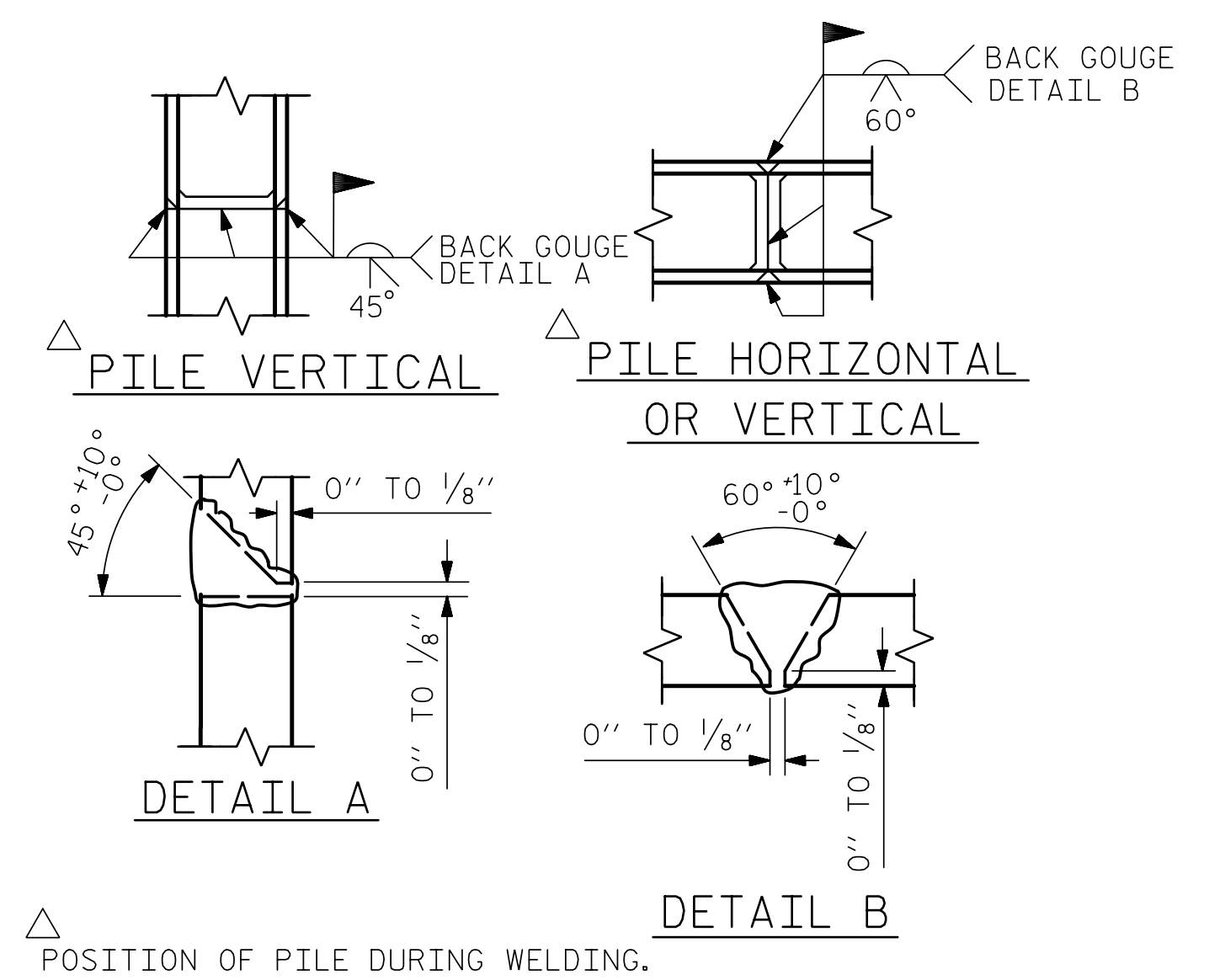


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

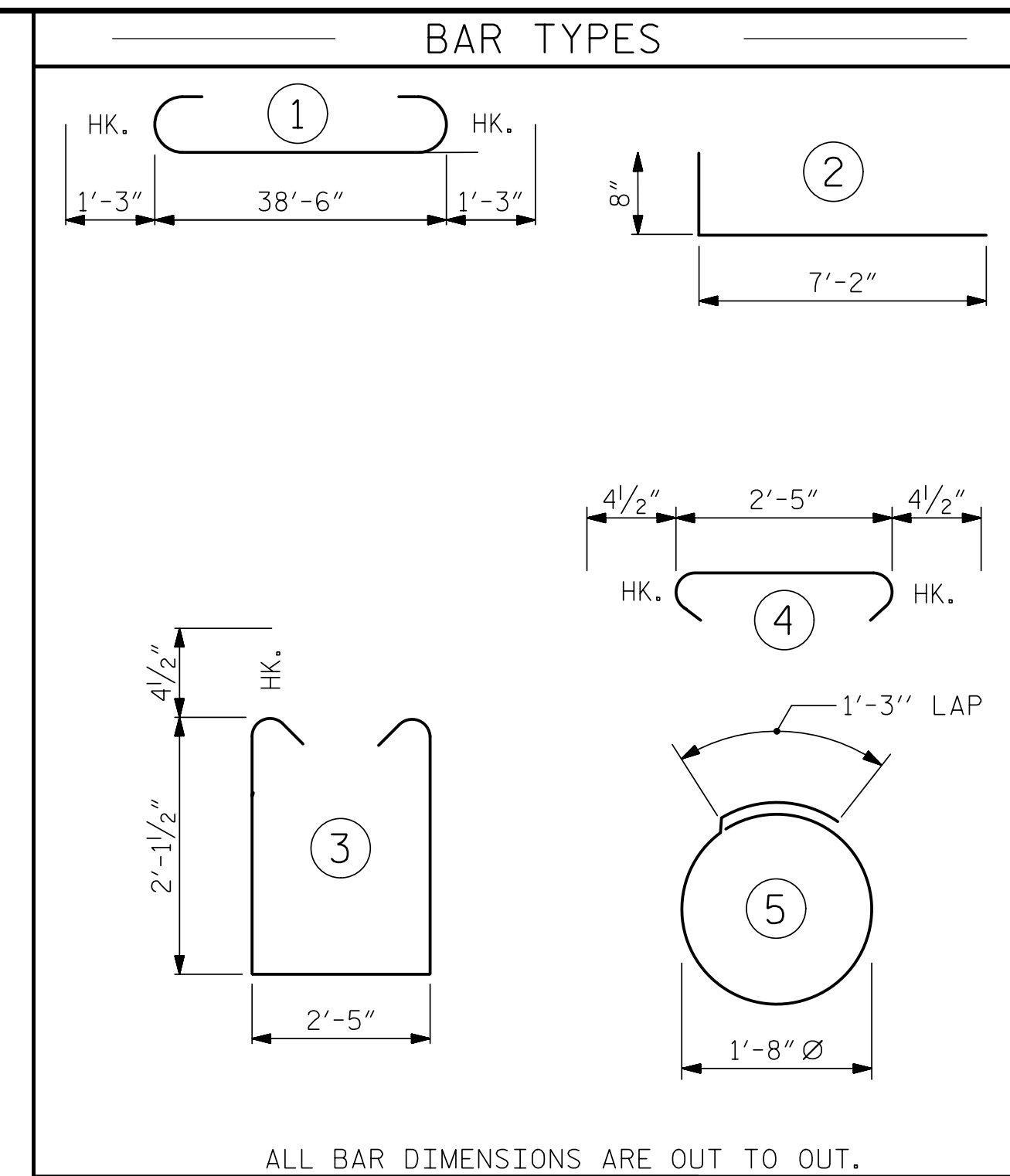
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

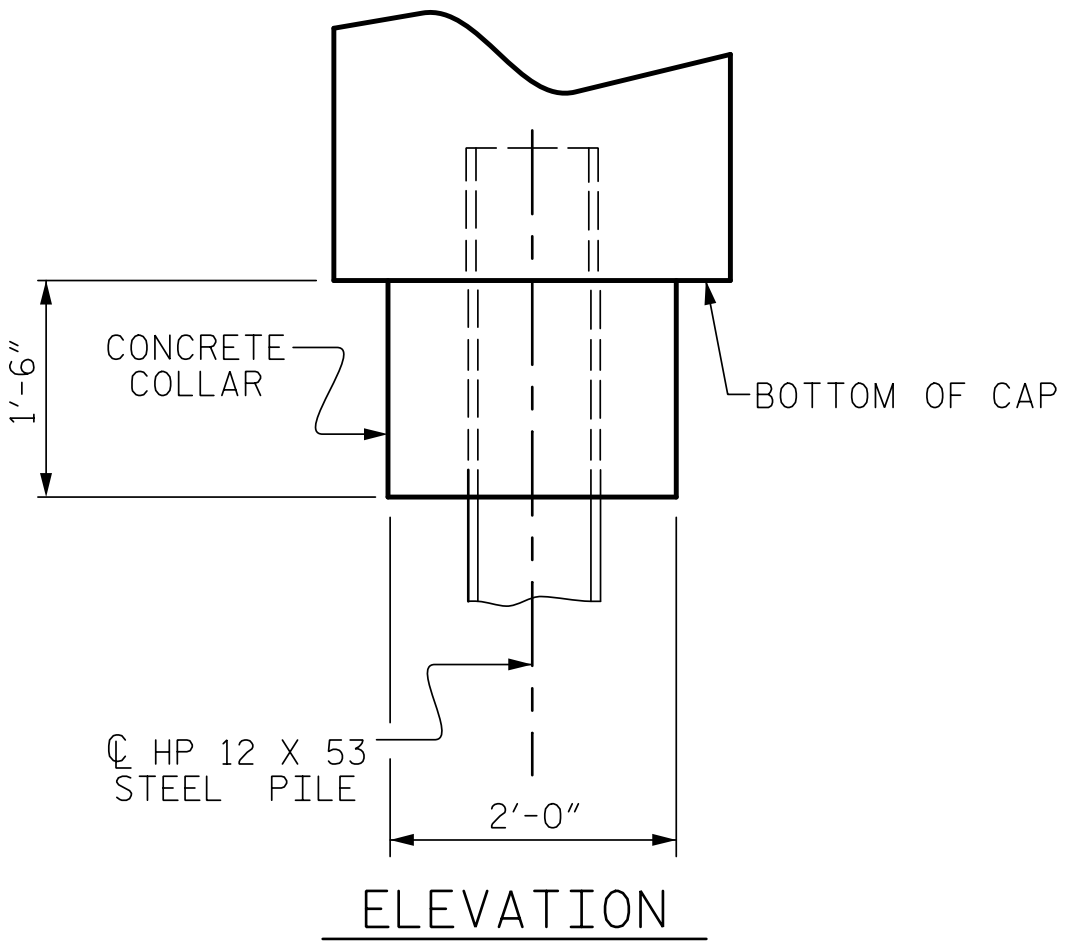
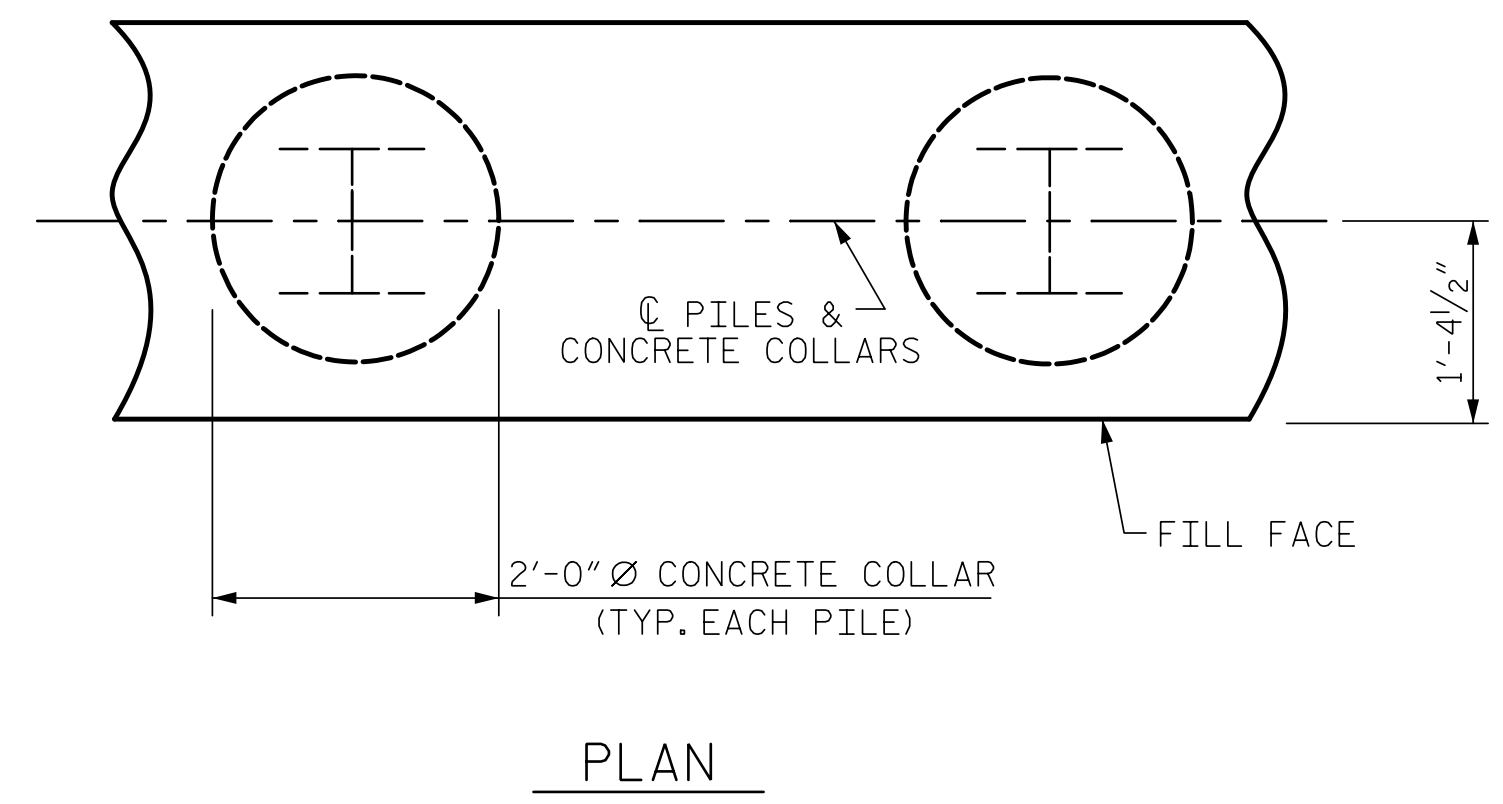
**TEMPORARY DRAINAGE AT END BENT**



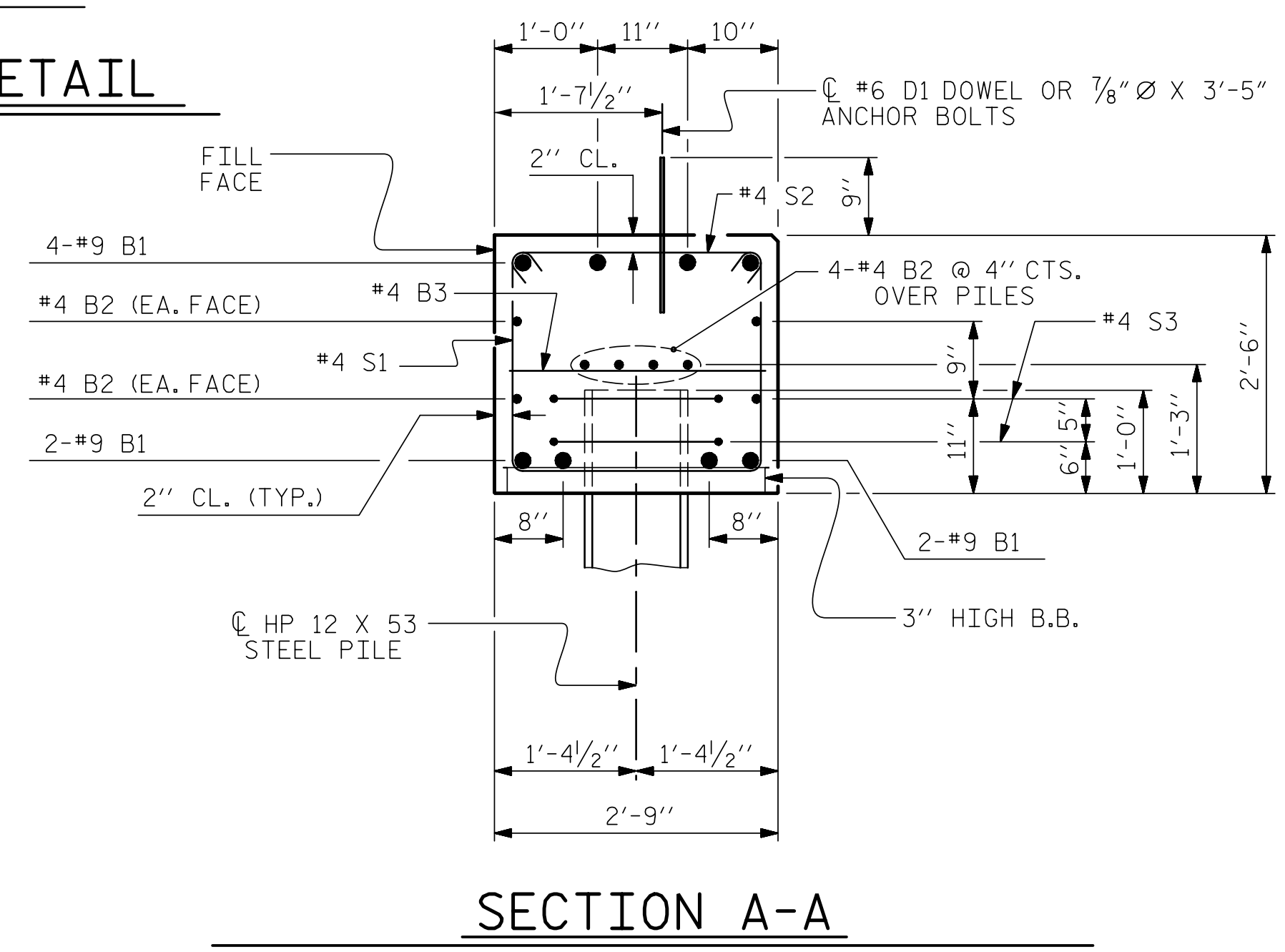
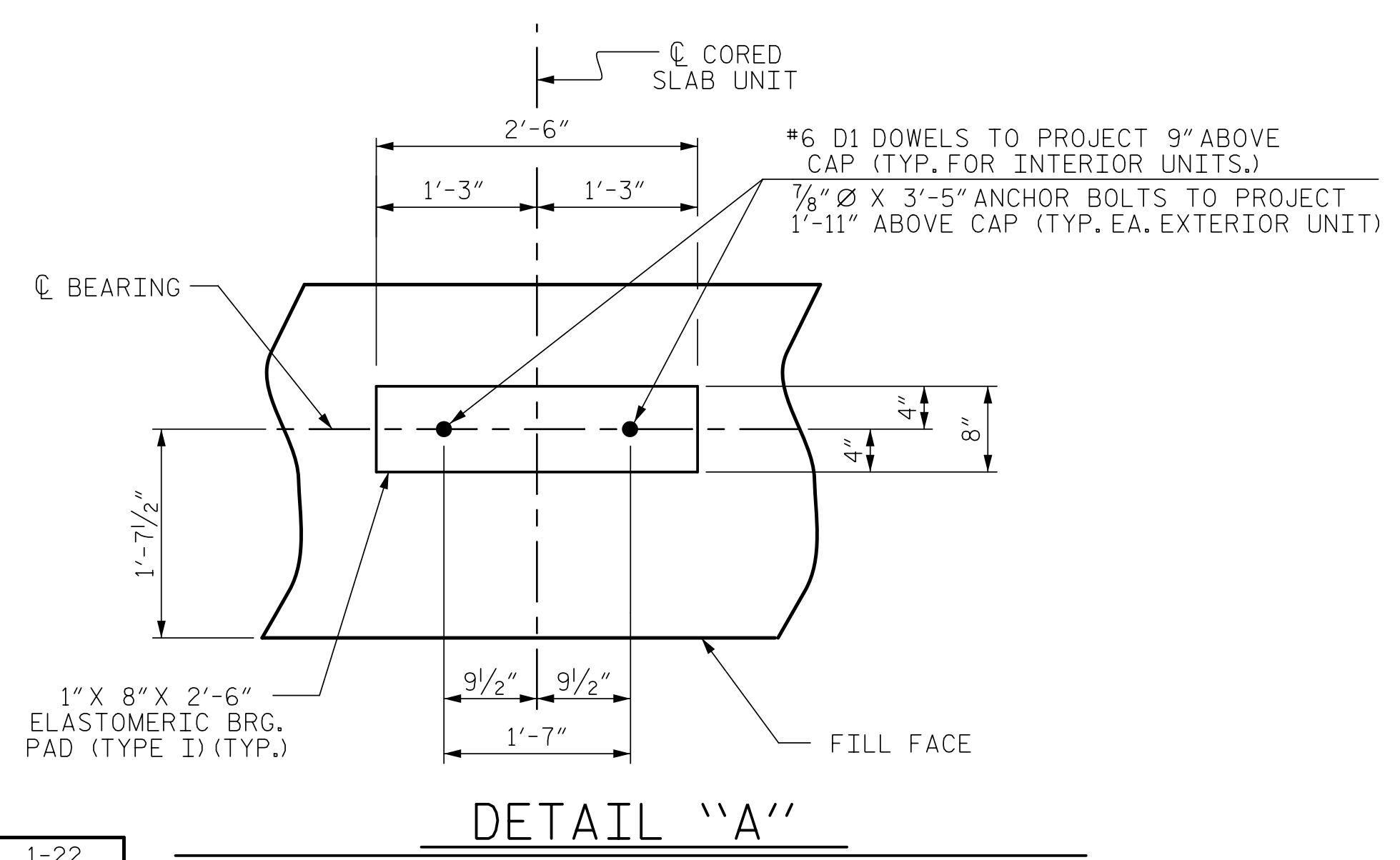
**PILE SPLICE DETAILS**



BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		41'-0"	1115
B2	16	#4	STR	20'-7"	220
B3	10	#4	STR	2'-5"	16
D1	18	#6	STR	1'-6"	41
H1	24	#4		7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	50	#4		7'-5"	248
S2	50	#4		3'-2"	106
S3	14	#4		6'-6"	61
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT)					2106 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				12.4 C.Y.	
POUR #2 UPPER PART OF WINGS				2.0 C.Y.	
TOTAL CLASS A CONCRETE					14.4 C.Y.



**CORROSION PROTECTION FOR STEEL PILES DETAIL**  
(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")  
FOR 3/8" Ø X 3'-5" ANCHOR BOLT, NUT AND PLATE P1, SEE BLOCKOUT DETAIL FOR ANCHOR BOLTS IN SUPERSTRUCTURE PLANS.

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
STATION: 15+59.00 -L-  
SHEET 4 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
END BENT 1 & 2  
DETAILS

12/19/2023 | 7:20 AM EST

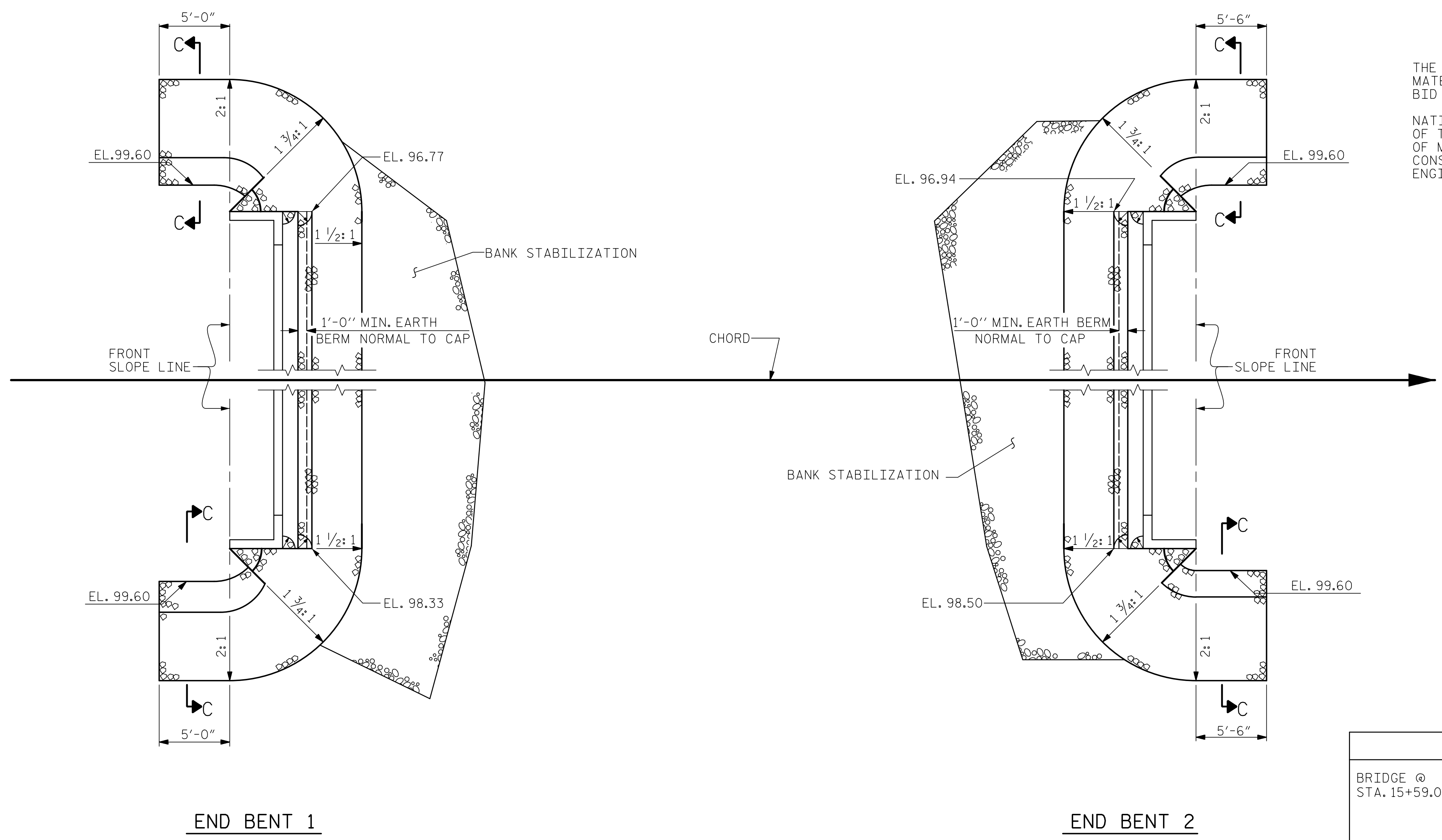
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SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

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2			4			15

ASSEMBLED BY: S. B. WILLIAMS	DATE: 1-22
CHECKED BY: MGC	DATE: 1-22
DRAWN BY: DGE	12/09
CHECKED BY: MKT	01/10
REV. 4/17	MAA/THC





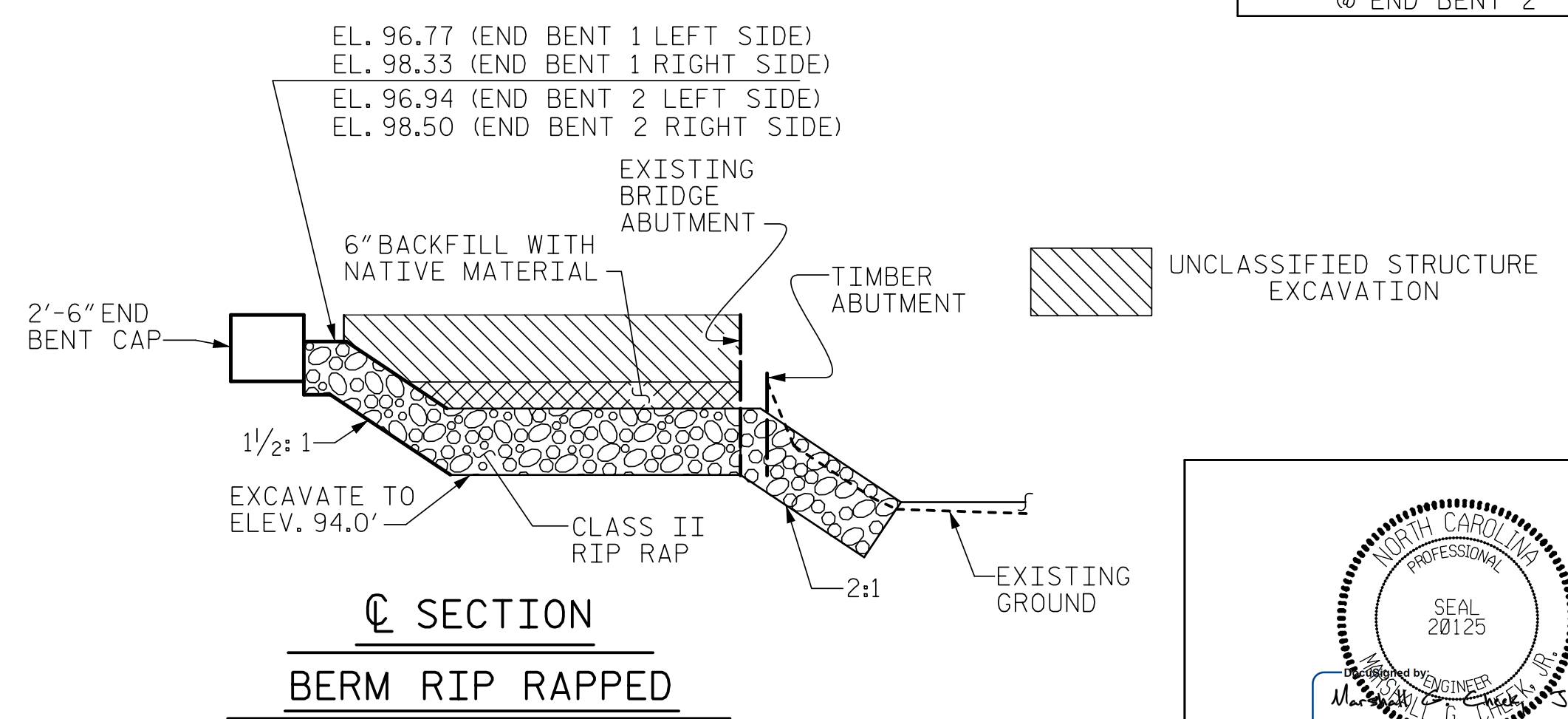
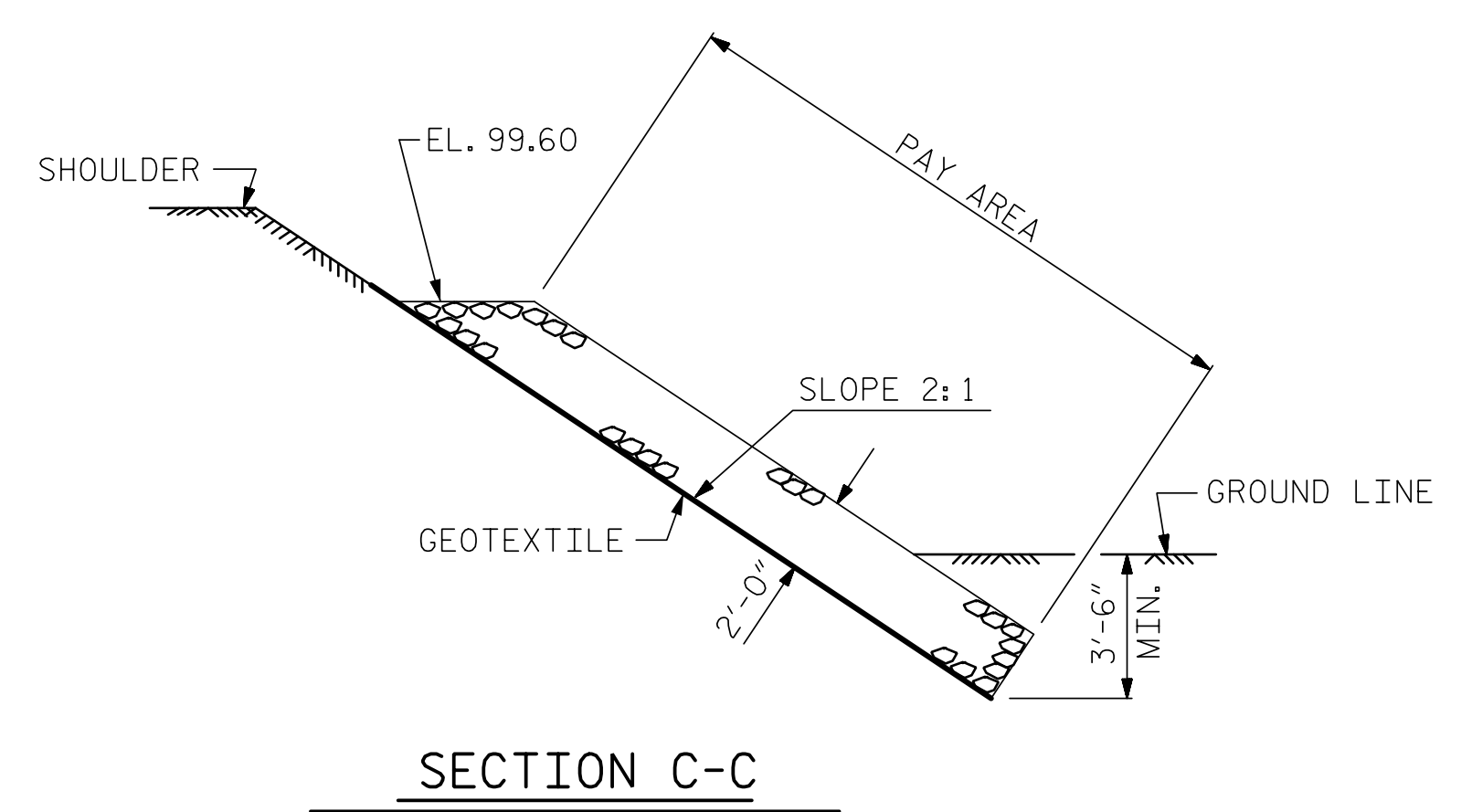
**NOTES :**

THE ENTIRE COST OF THE WORK REQUIRED TO PLACE THE NATIVE MATERIAL AS SHOWN SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR UNCLASSIFIED STRUCTURE EXCAVATION.

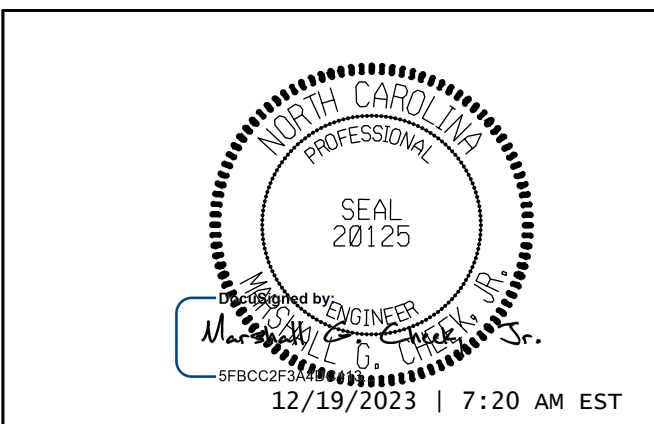
NATIVE MATERIAL SHALL BE STOCKPILED TO USE AS BACKFILL ON TOP OF THE BANK STABILIZATION AS SHOWN. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE PROJECT SITE DURING CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+59.00 -L	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	85	95
BANK STABILIZATION @ END BENT 1	130	145
END BENT 2	90	100
BANK STABILIZATION @ END BENT 2	130	145

**PLAN OF RIP RAP**



PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
 STATION: 15+59.00 -L-



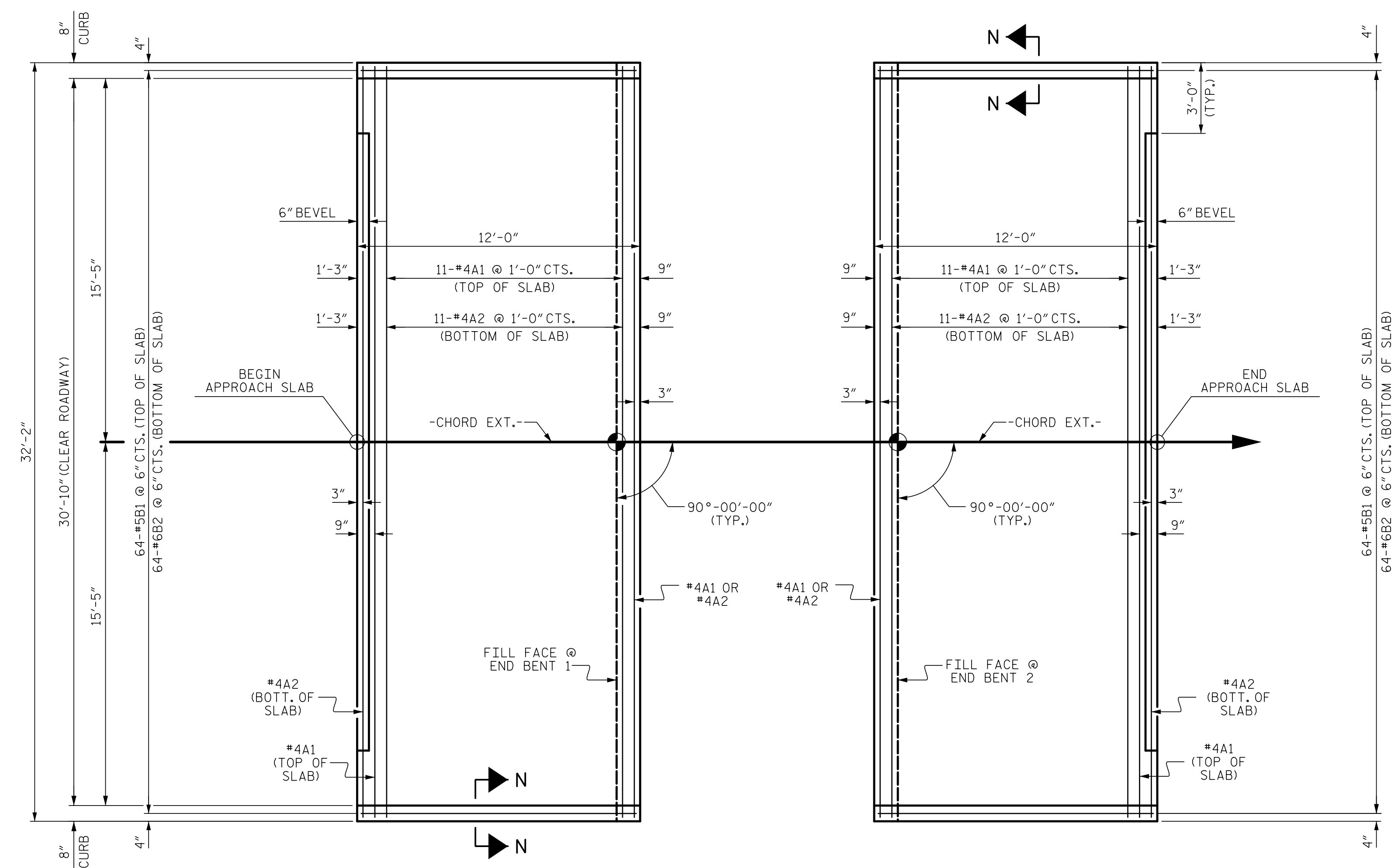
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 RIP RAP DETAILS

ASSEMBLED BY : S. B. WILLIAMS	DATE : 1-22
CHECKED BY : MGC	DATE : 1-22
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

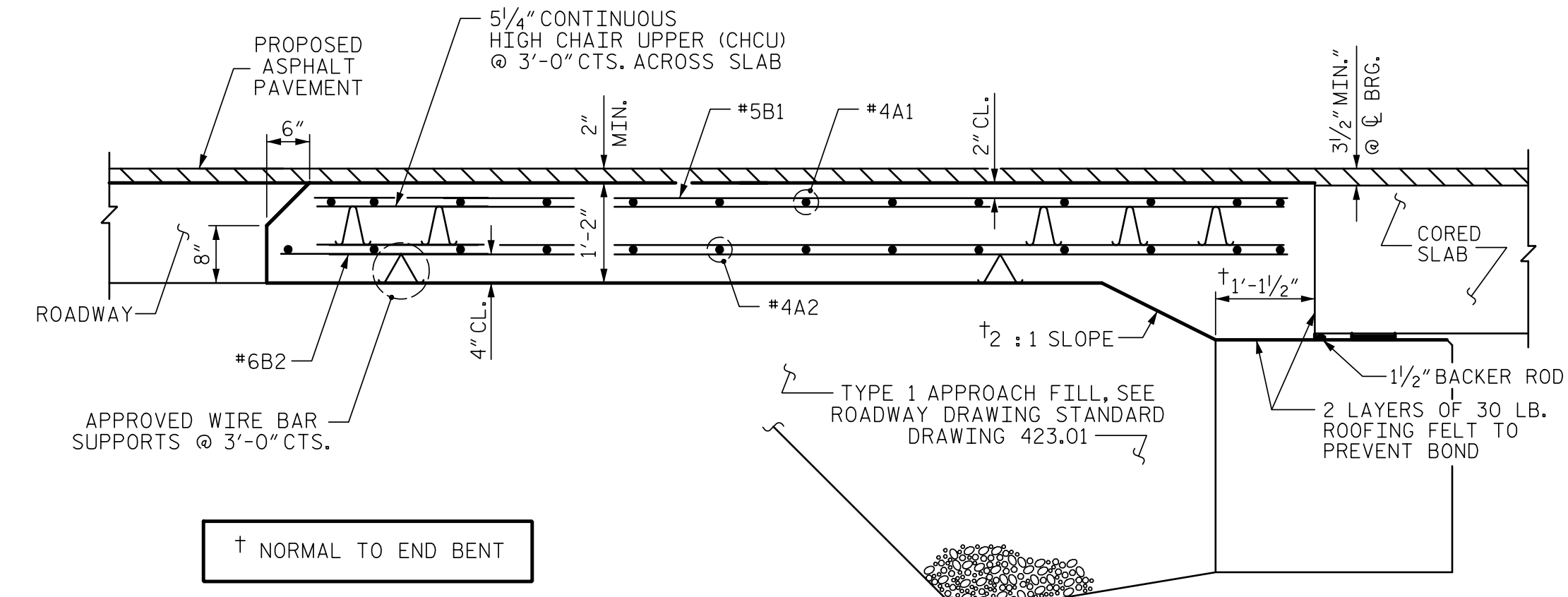
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS  
 706 HILLSBOROUGH STREET  
 SUITE 200  
 RALEIGH, NC 27603  
 PH (919) 773-8887  
 CORP. LICENSE NO.: C-0275

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



DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



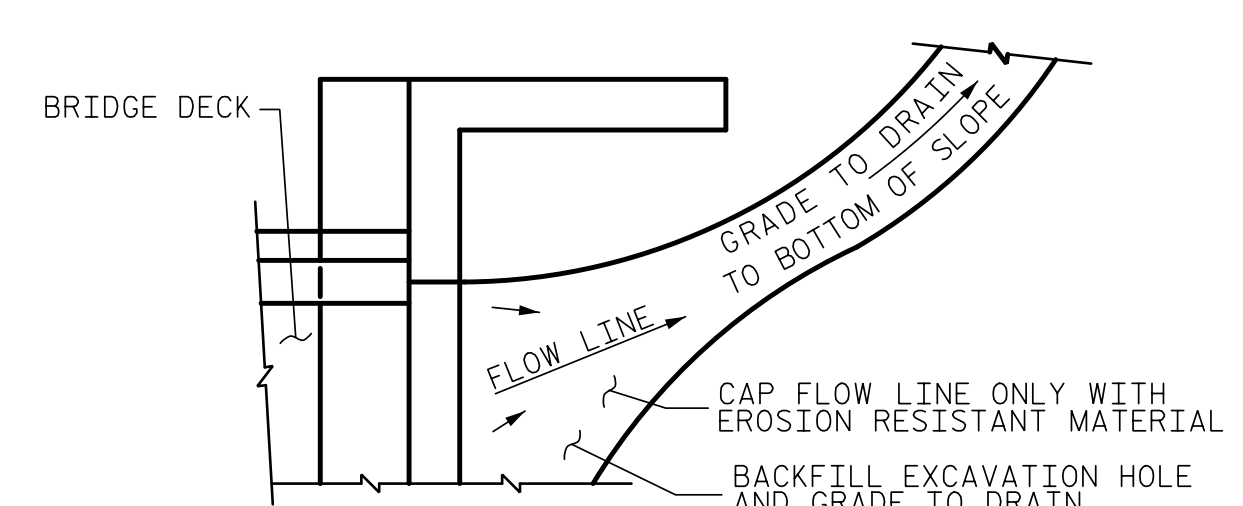
**SECTION THRU SLAB**

ASSEMBLED BY : S. B. WILLIAMS DATE : 1-22  
 CHECKED BY : MGC DATE : 1-22

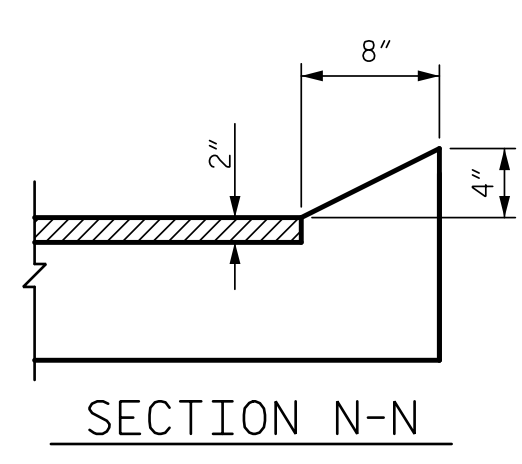
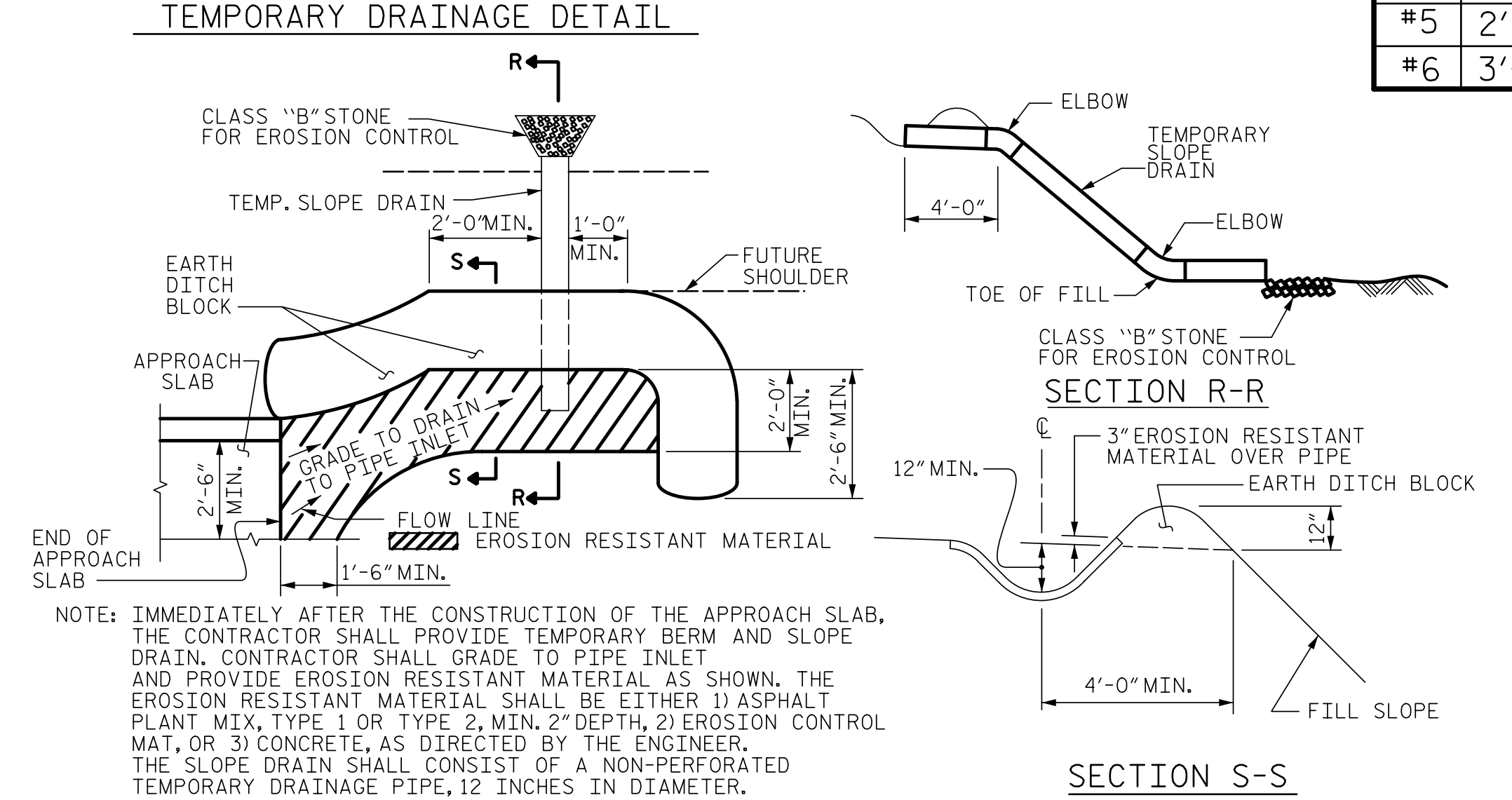
DRAWN BY : SHS/MAA 5-09 REV. 12-17 MAA/THC  
 CHECKED BY : BCH 5-09 REV. 08-19 BNB/THC  
 REV. 07-23 BNB/SNM

**NOTES**

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.  
 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.



**CURB DETAILS**

**BILL OF MATERIAL**

APPROACH SLAB AT EB 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	31'-10"	276	
A2	13	#4	STR	31'-10"	276	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1397
* EPOXY COATED REINFORCING STEEL					LBS.	1021
CLASS AA CONCRETE					C. Y.	19.5

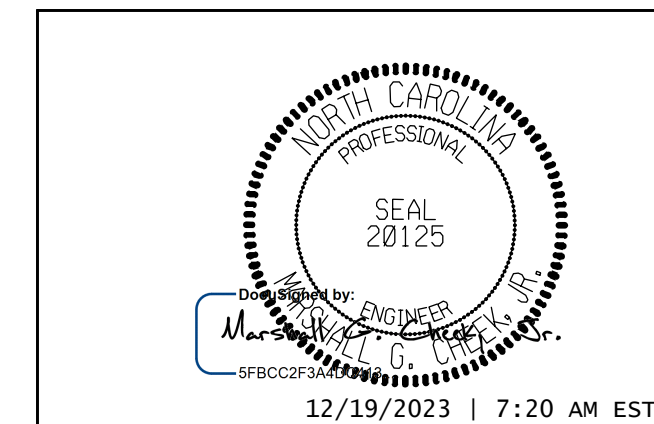
  

APPROACH SLAB AT EB 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	31'-10"	276	
A2	13	#4	STR	31'-10"	276	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1397
* EPOXY COATED REINFORCING STEEL					LBS.	1021
CLASS AA CONCRETE					C. Y.	19.5

**SPLICE LENGTHS**

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

PROJECT NO. BP4.R013.1  
HALIFAX COUNTY  
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 (SUB-REGIONAL TIER)  
 90° SKEW

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



