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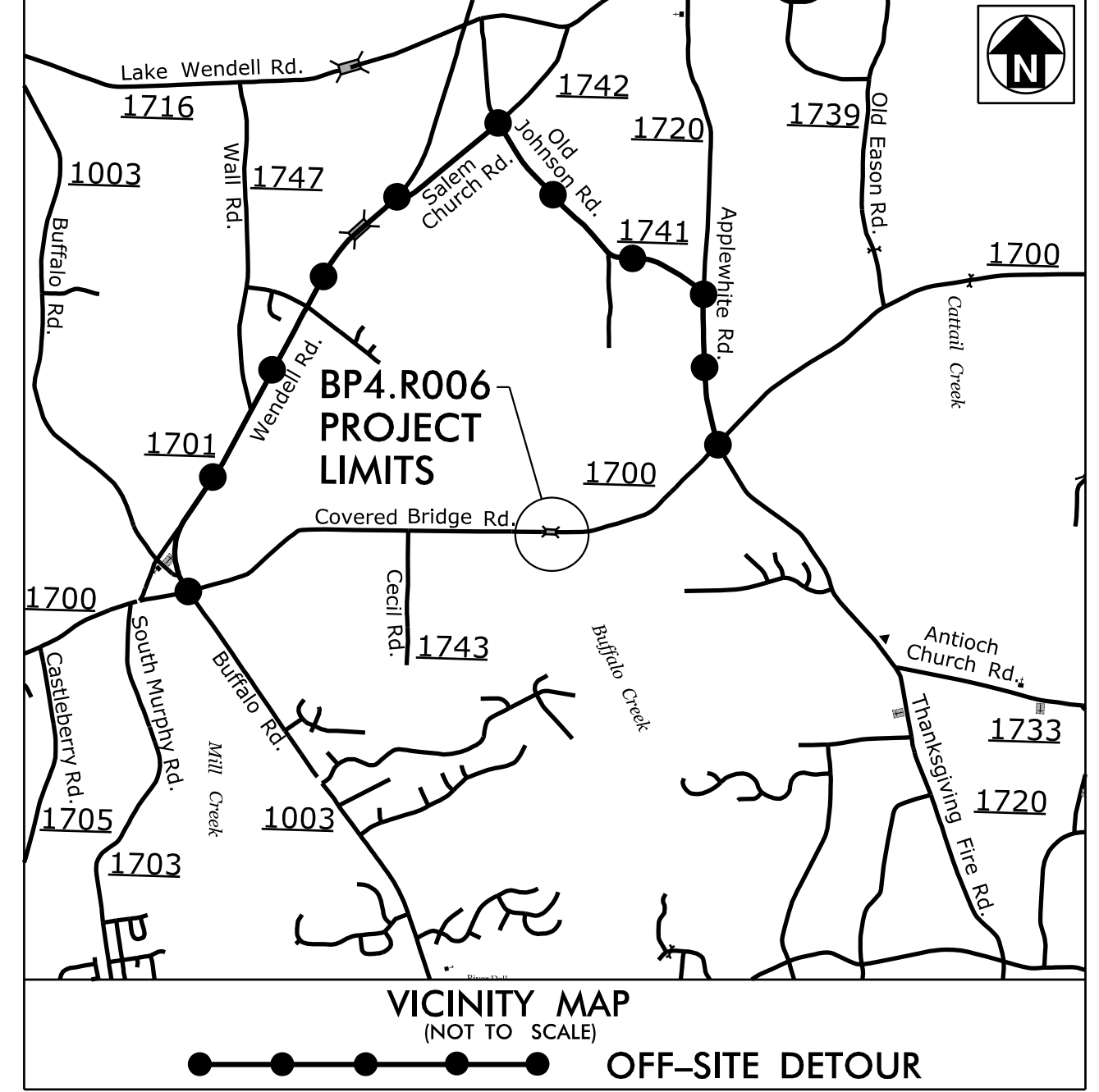
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09.08.2019

PROJECT: BP4.R006

CONTRACT: DD00447

SEE SHEET 1A FOR INDEX OF SHEETS
SEE SHEET 1B FOR CONVENTIONAL SYMBOLS



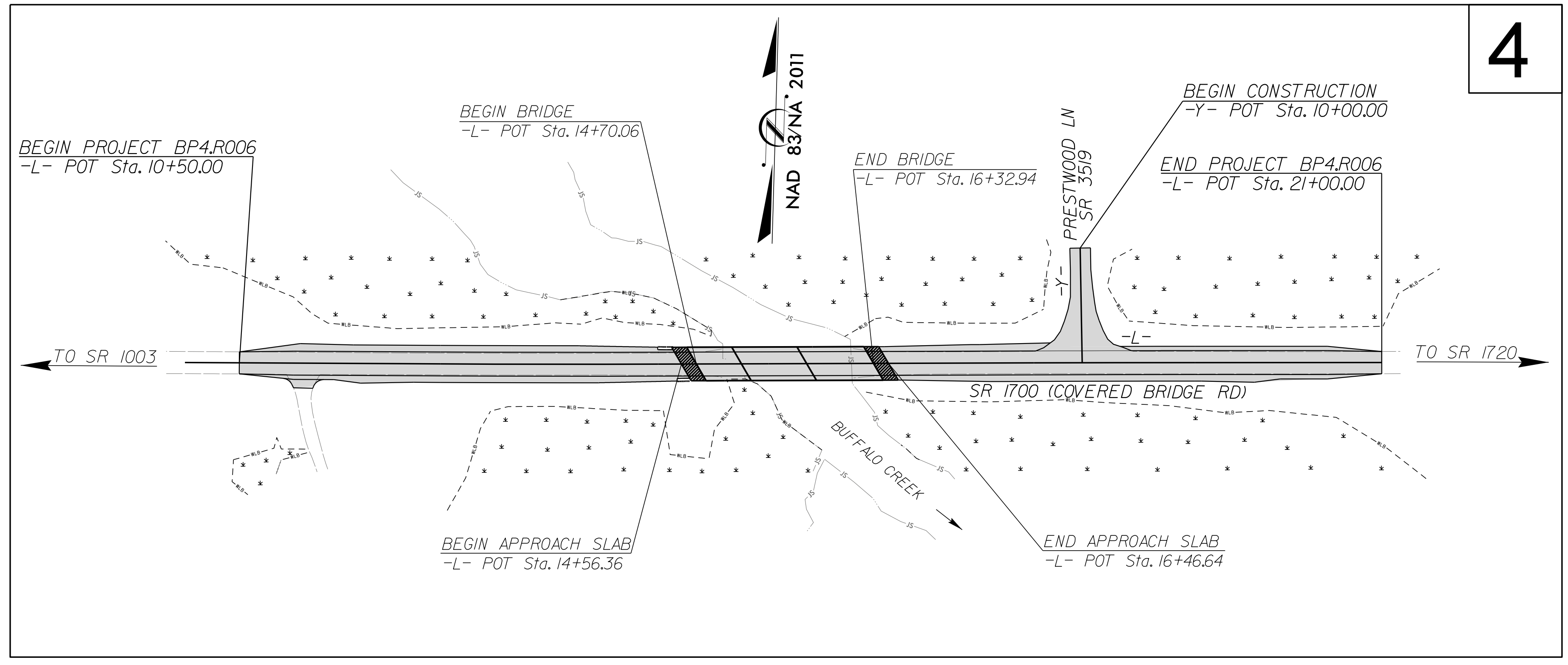
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

LOCATION: BRIDGE NO. 173 OVER BUFFALO CREEK
ON SR 1700 (COVERED BRIDGE ROAD)

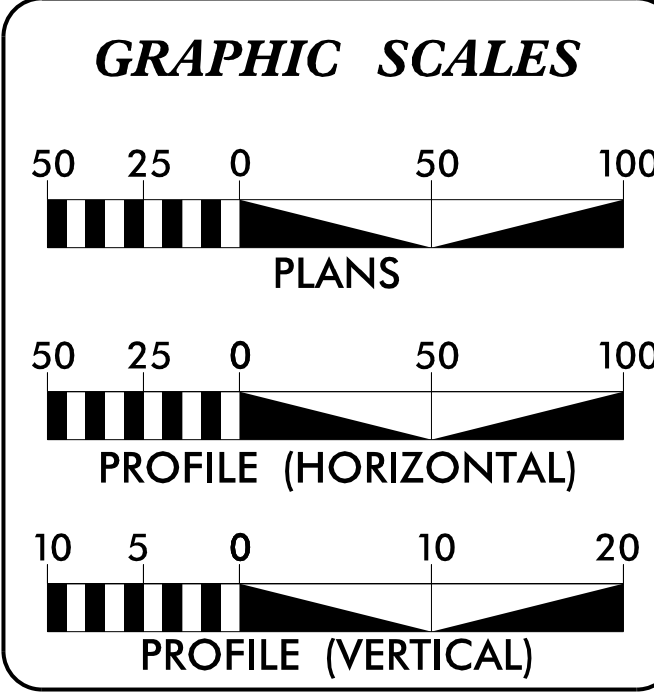
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4.R006	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP4.R006.1		PE	
BP4.R006.2		R/W	
BP4.R006.3		CONST.	



4

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UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT (2023)= 4,615
ADT (2045)= 8,000

V = 60 MPH

FUNC CLASS = MAJOR COLLECTOR

SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT BP4.R006 = 0.168 MILES

LENGTH STRUCTURE PROJECT BP4.R006 = 0.031 MILES

TOTAL LENGTH PROJECT BP4.R006 = 0.199 MILES

Prepared in the Office of WGI for

DIVISION 4
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 1, 2022

LETTING DATE:
FEBRUARY 13, 2024

NCDOT CONTACT:

DAVID SIMPSON, PE
PROJECT ENGINEER

BRANDON BARHAM, PE
HYDRAULIC ENGINEER

RACHEL EVANS, PE
NCDOT CONTACT

ROADWAY DESIGN ENGINEER

SEAL 21102

James Timothy MACTHY, P.E.

HYDRAULICS ENGINEER

SEAL 039102

Brandon Barham, P.E.

PLANS PREPARED BY:

WGI

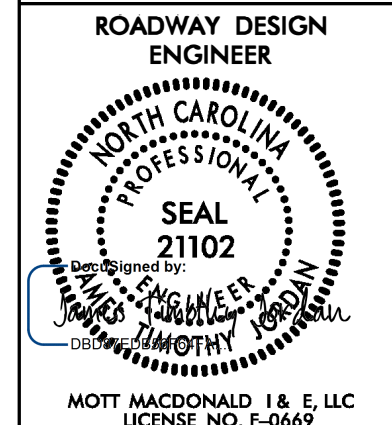

5640 Dillard Drive
Suite 200
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.wginc.com

LICENSE NO. C-4434

vhb

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

4:18:34 PM R:\Roadway\Proj\500173_rdy_fsh.dgn JOR66165

PROJECT REFERENCE	SHEET NO.
BP4.R006 - JOHNSTON 173	1A
	
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Prepared in the Office of:	
	7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com

GENERAL NOTES

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

GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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 III.

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.

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:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY PROGRESS, AT&T NC, CHARTERSPECTRUM AND JOHNSTON COUNTY WATER.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

LIST OF ROADWAY STANDARD DRAWINGS

EFF. 01-16-2024

2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - 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
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type I Approach Fill for Bridge Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	BRIDGE FLOODPLAIN EXCAVATION STABILIZATION DETAIL
3B-1	GUARDRAIL, SHOULDER BERM GUTTER, AND EARTHWORK SUMMARY
3D-1	DRAINAGE SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
RW-01 THRU RW-04	SURVEY CONTROL SHEETS
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
SIGN-1 THRU SIGN-3	SIGNING AND PAVEMENT MARKING PLANS
UC-1 THRU UC-5	UTILITY CONSTRUCTION PLANS
X-1 THRU X-12	CROSS-SECTIONS
S-0 THRU S-22	STRUCTURE PLANS
SN	STANDARD STRUCTURE NOTES

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	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB
Existing Historic Property Boundary	HPB
Known Contamination Area: Soil	☠-s-☠-s-
Potential Contamination Area: Soil	☠-s-☠-s-
Known Contamination Area: Water	☠-w-☠-w-
Potential Contamination Area: Water	☠-w-☠-w-
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	WLB
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	E
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage/Utility Easement	DUE
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Aerial Utility Easement	AUE

ROADS AND RELATED FEATURES:

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

Woods Line	-----
Orchard	○
Vineyard	□

EXISTING STRUCTURES:

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

UTILITIES:

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

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

TV:

TV Pedestal	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	PH
U/G TV Test Hole (SUE - LOS A)*	⊗
U/G TV Cable (SUE - LOS B)*	-----
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:

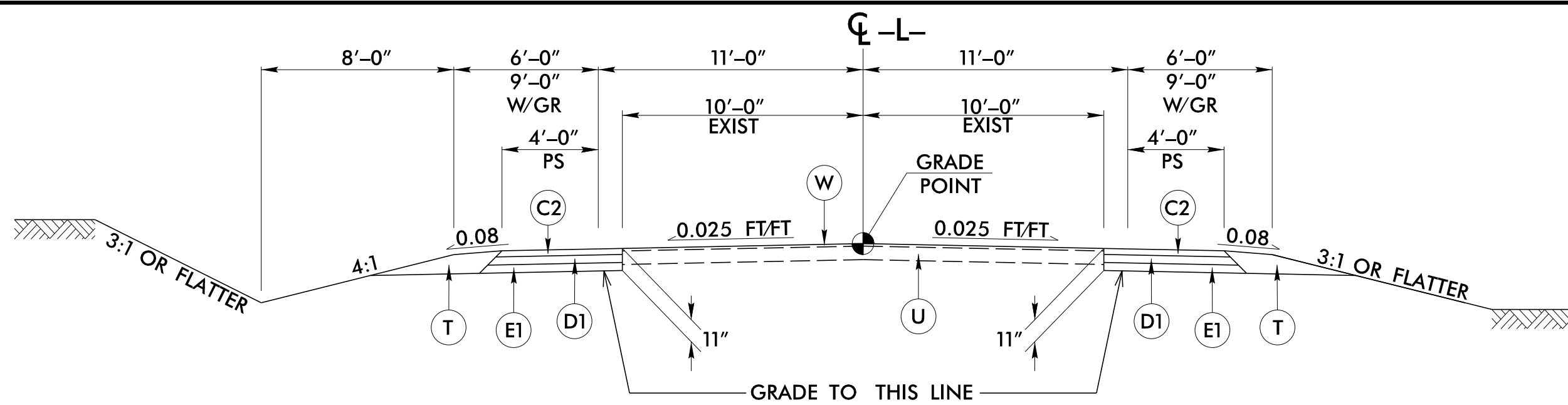
Gas Valve	◇
Gas Meter	⊕
U/G Gas Line Test Hole (SUE - LOS A)*	⊗
U/G Gas Line (SUE - LOS B)*	-----
U/G Gas Line (SUE - LOS C)*	-----
U/G Gas Line (SUE - LOS D)*	-----
Above Ground Gas Line	A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
SS Force Main Line Test Hole (SUE - LOS A)*	⊗
SS Force Main Line (SUE - LOS B)*	-----
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.	UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

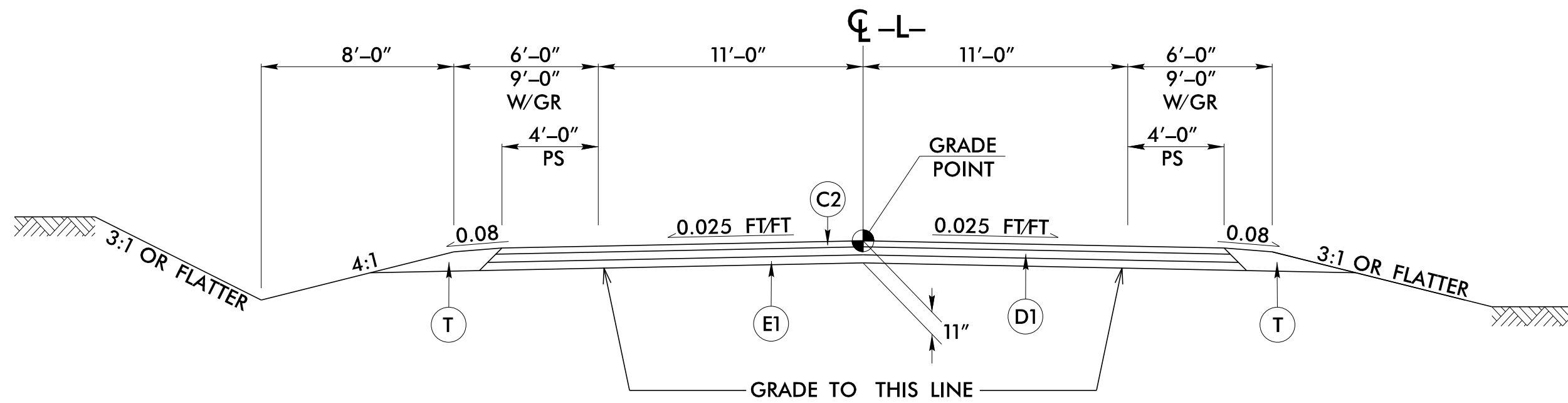


TYPICAL SECTION NO. 1

TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1:
 -L- STA 10+50.00 TO 11+00.00

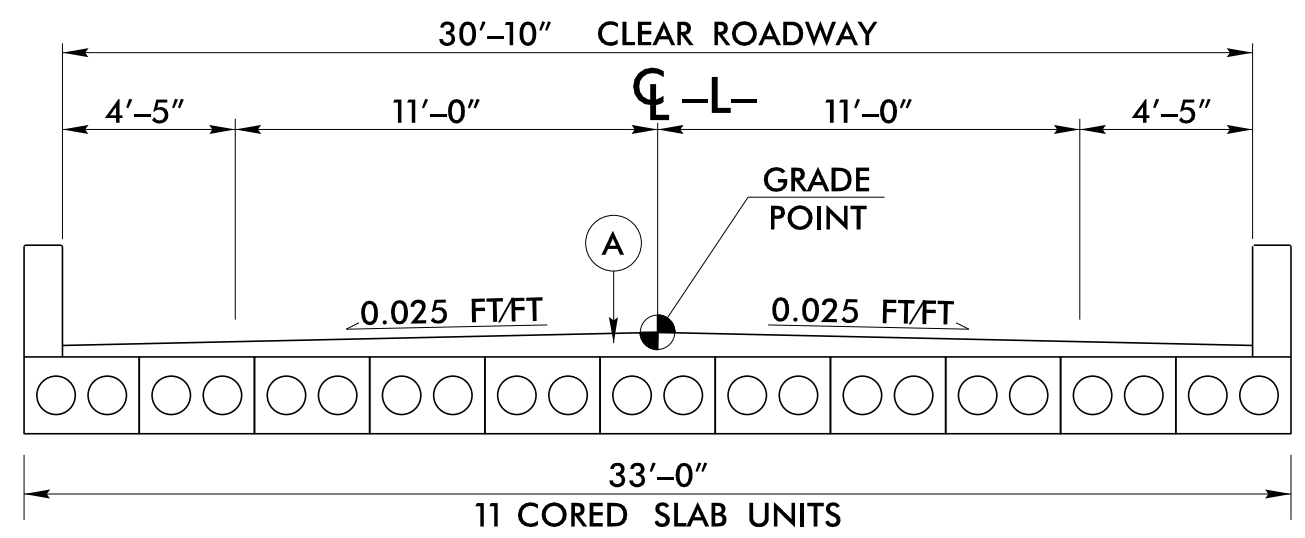
USE TYPICAL SECTION NO. 1:
 -L- STA 11+00.00 TO 13+60.00
 -L- STA 17+80.00 TO 20+50.00

TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING:
 -L- STA 20+50.00 TO 21+00.00



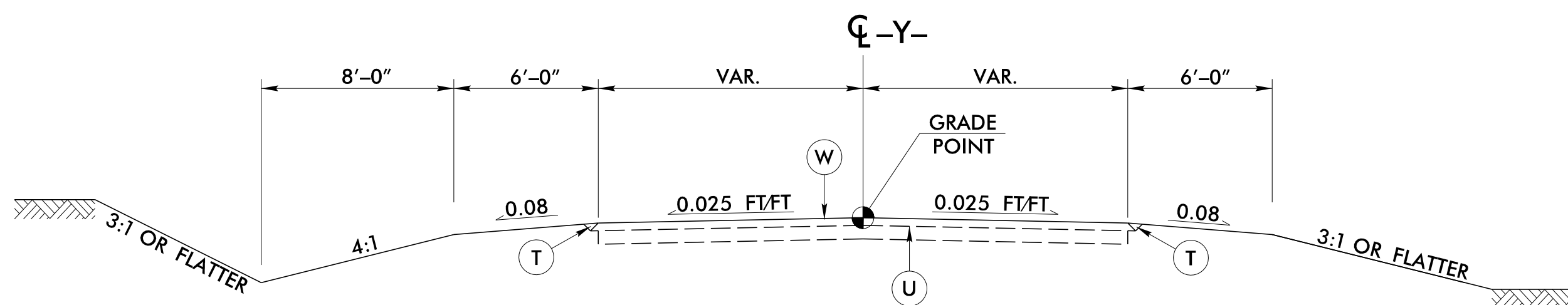
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2:
 -L- STA 13+60.00 TO 14+70.06 (BEGIN BRIDGE)
 -L- STA 16+32.94 (END BRIDGE) TO 17+80.00



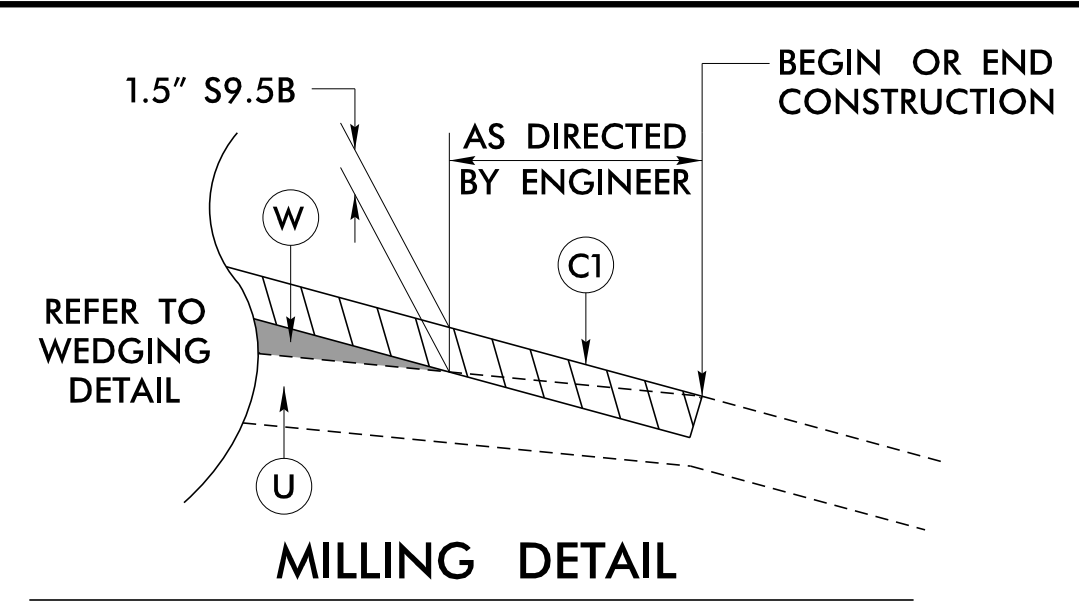
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3:
 -L- STA 14+70.06 (BEGIN BRIDGE) TO 16+32.94 (END BRIDGE)
 NOTE: SEE STRUCTURE PLANS FOR PAVEMENT DEPTHS ON STRUCTURE

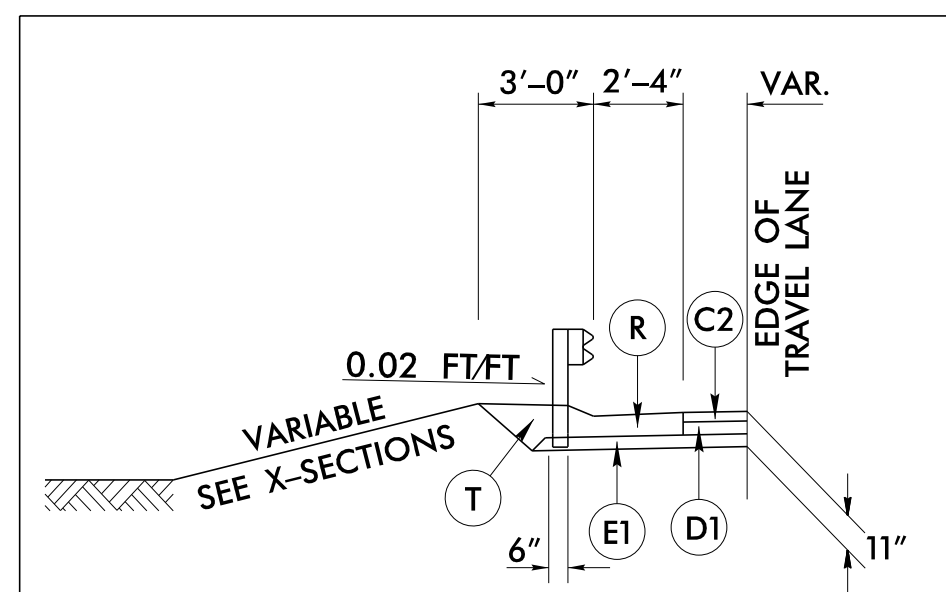


TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4:
 -Y- STA 10+00.00 TO 10+94.44

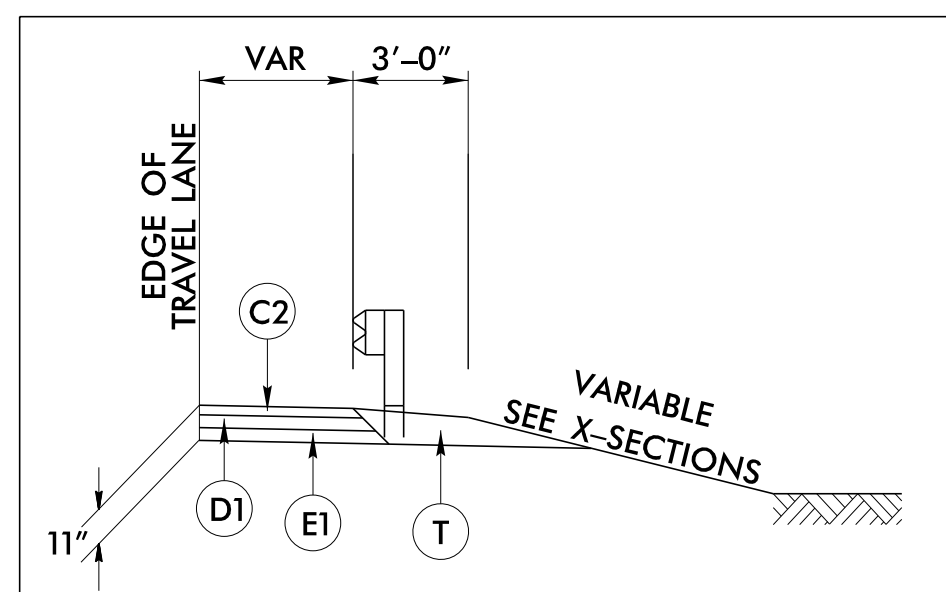


MILLING DETAIL
 DETAIL SHOWING PROFILE VIEW

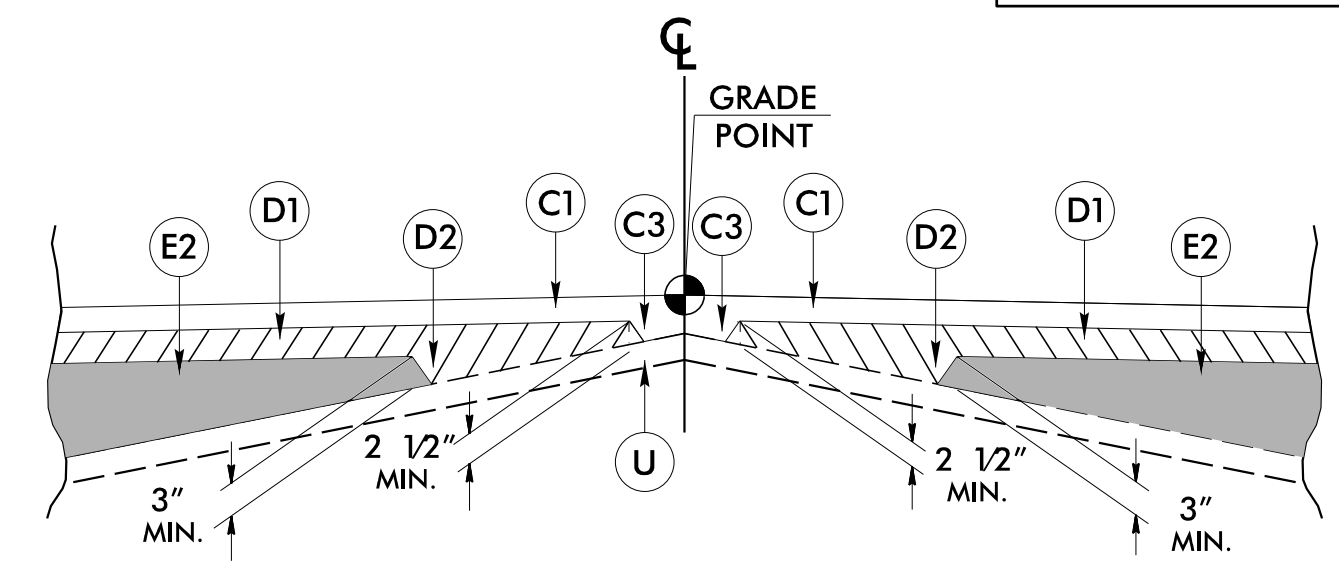


DETAIL FOR SHOULDER BERM GUTTER IN CONJUNCTION WITH GUARDRAIL

-L- STA 14+37.00 TO 14+47.46 LT
 -L- STA 14+54.00 TO 14+65.26 RT



DETAIL FOR FULL DEPTH PAVED SHOULDER IN CONJUNCTION WITH GUARDRAIL



DETAIL SHOWING METHOD OF WEDGING

PROJECT REFERENCE BP4.R006 - JOHNSTON 173	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER MOTT MACDONALD & E, LLC LICENSE NO. F-0669	
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Prepared in the Office of:	MOTT MACDONALD & E, LLC 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com

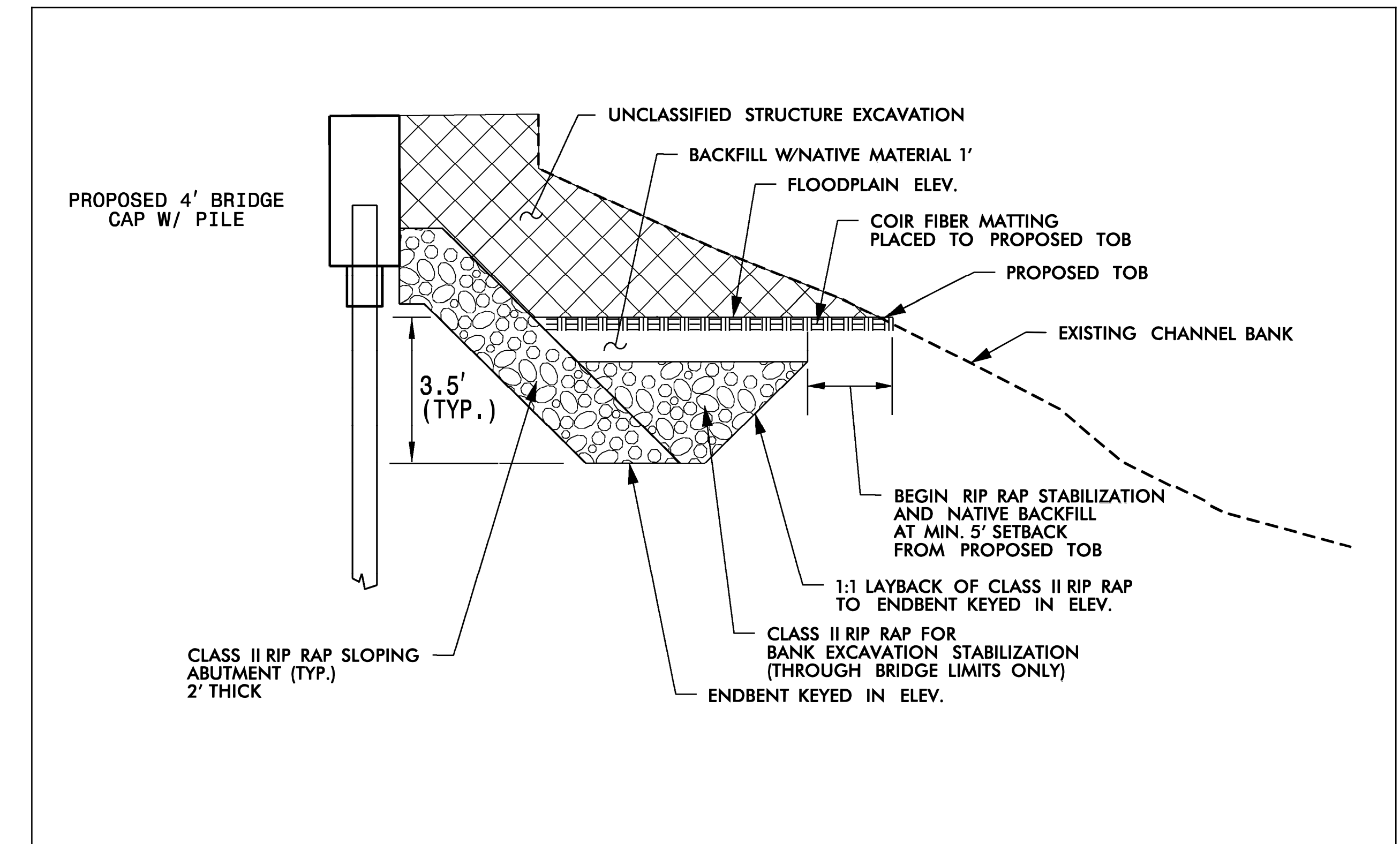
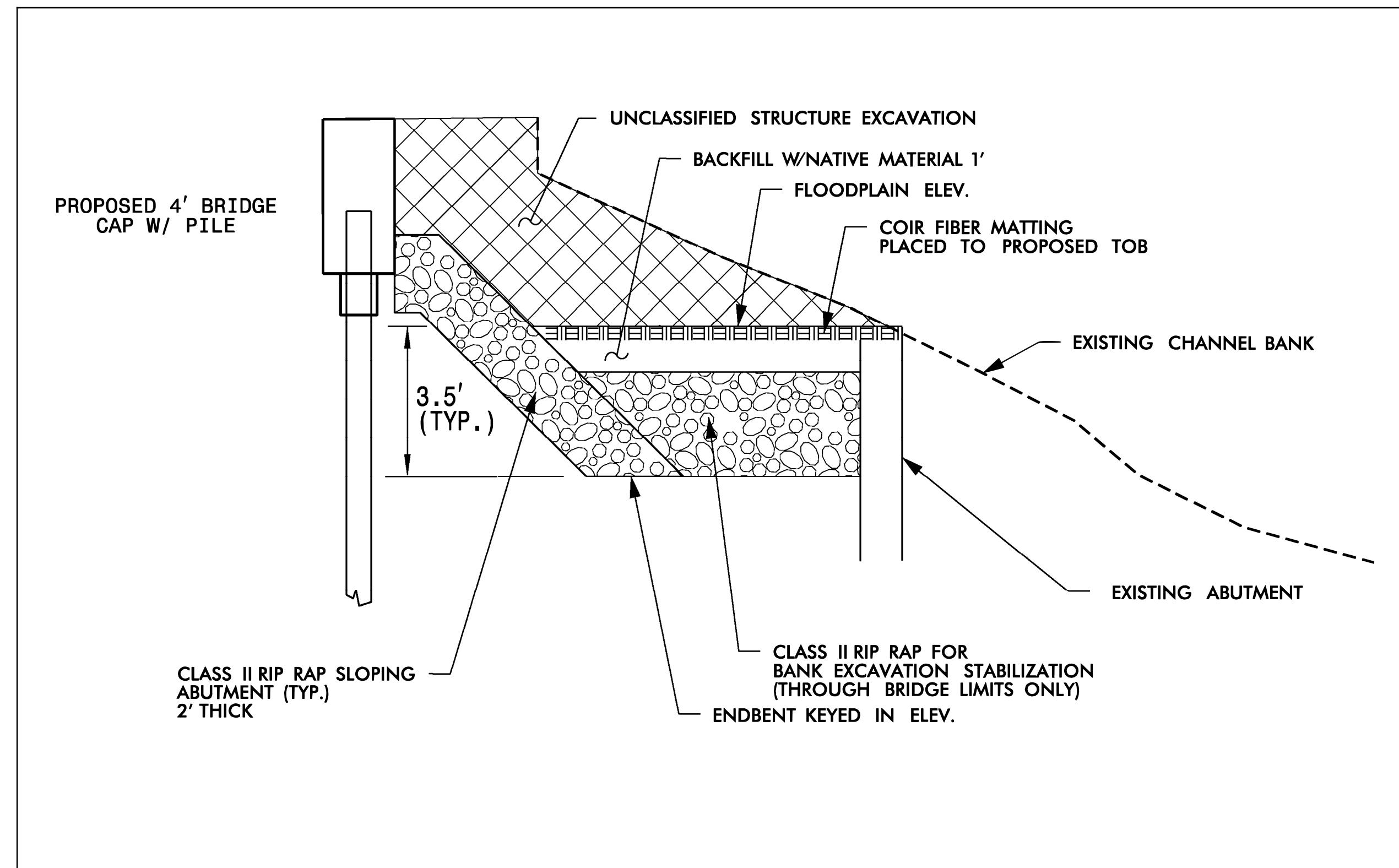
FINAL PAVEMENT SCHEDULE

A	CONCRETE WEARING SURFACE (STRUCTURE PAY ITEM)
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.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" 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	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE DETAIL SHOWING METHOD OF WEDGING).

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

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BRIDGE FLOODPLAIN EXCAVATION STABILIZATION DETAIL




DETAIL NOTES:

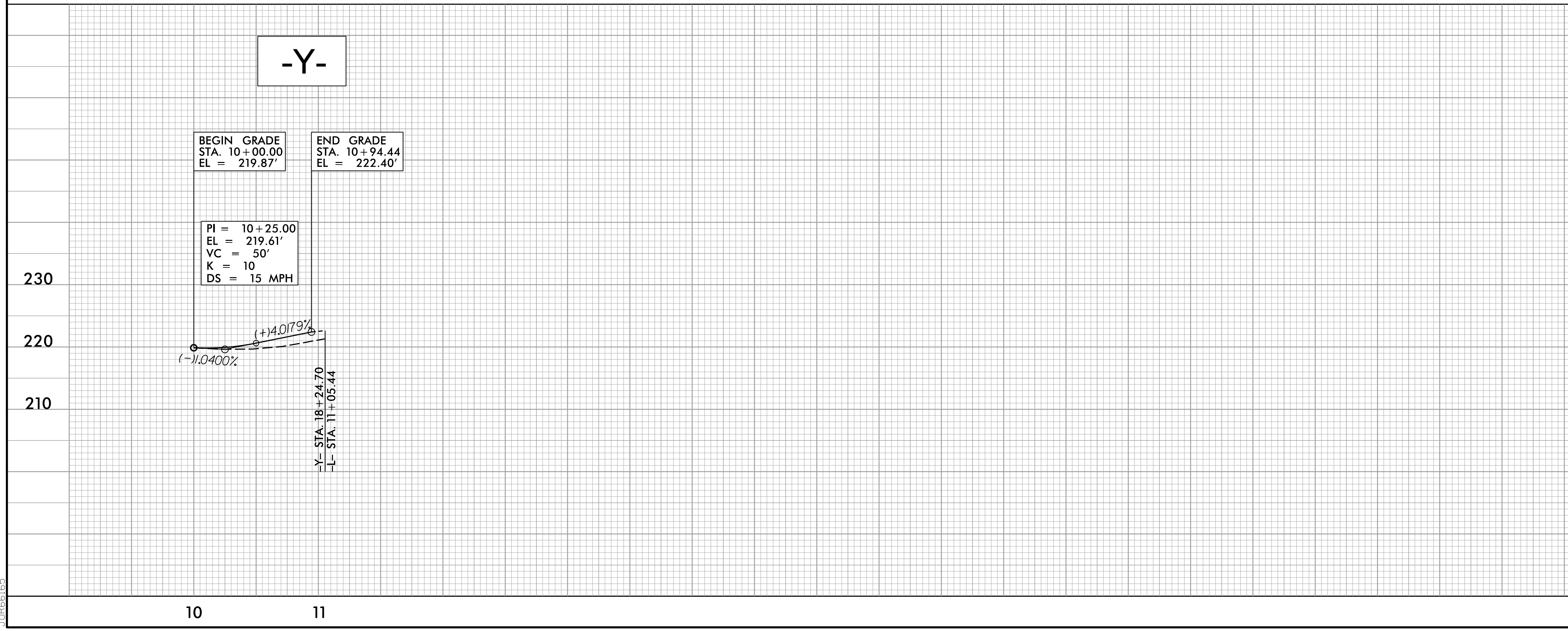
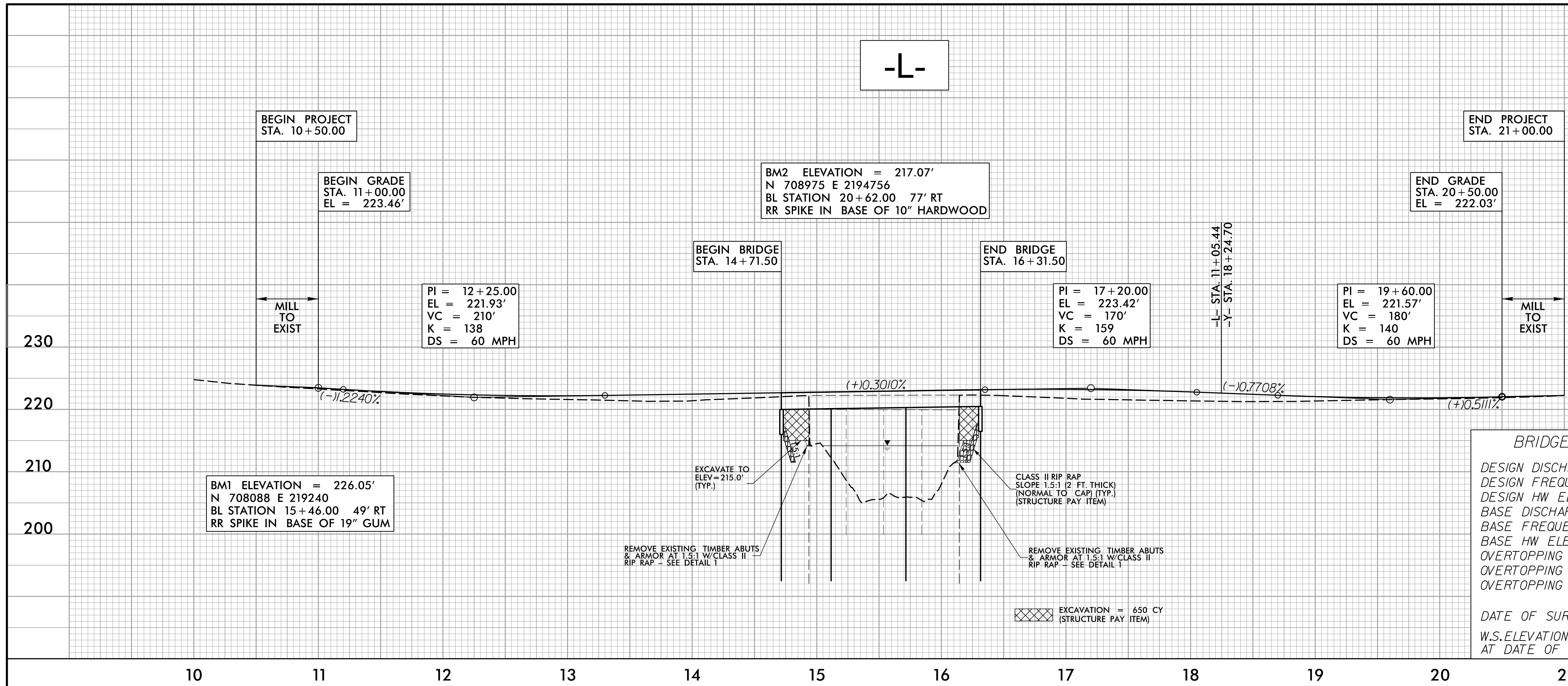
1. FOR USE WHERE EXISTING ABUTMENTS AND BULKHEADS ARE NOT TO BE COMPLETELY REMOVED
2. EXCAVATE TO FLOODPLAIN ELEVATION AS SPECIFIED ON PRELIMINARY GENERAL DRAWINGS
3. FLOODPLAIN STABILIZATION TO BEGIN WITH A 5' MINIMUM SETBACK FROM PROPOSED TOB
4. FOR ALL LOCATIONS OF CLASS II RIPRAP, FILL VOIDS WITH CLASS B RIP RAP
5. COIR FIBER MATTING TO BE INSTALLED OVER LIMITS OF FLOODPLAIN EXCAVATION AND AREAS BACKFILLED WITH NATIVE MATERIAL

DETAIL NOTES:

1. FOR USE WHERE EXISTING ABUTMENTS AND BULKHEADS ARE TO BE COMPLETELY REMOVED
2. EXCAVATE TO FLOODPLAIN ELEVATION AS SPECIFIED ON PRELIMINARY GENERAL DRAWINGS
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PROJECT REFERENCE BP4.R006 - JOHNSTON 173	SHEET NO. 5
ROADWAY DESIGN ENGINEER MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER VHB ENGINEERING LICENSE NO. C-3705
Prepared in the Office of: M MOTT MACDONALD	7621 Purfoy Rd, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas
 VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606	
VERTICAL SCALE 5' 0" 5' 10'	HORIZONTAL SCALE 25' 0" 25' 50'



FOR -L- & -Y- PLAN SEE SHEET 4

1/16/2023 6:46:47 AM
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 JOR66165

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4.R006	RW01	6

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

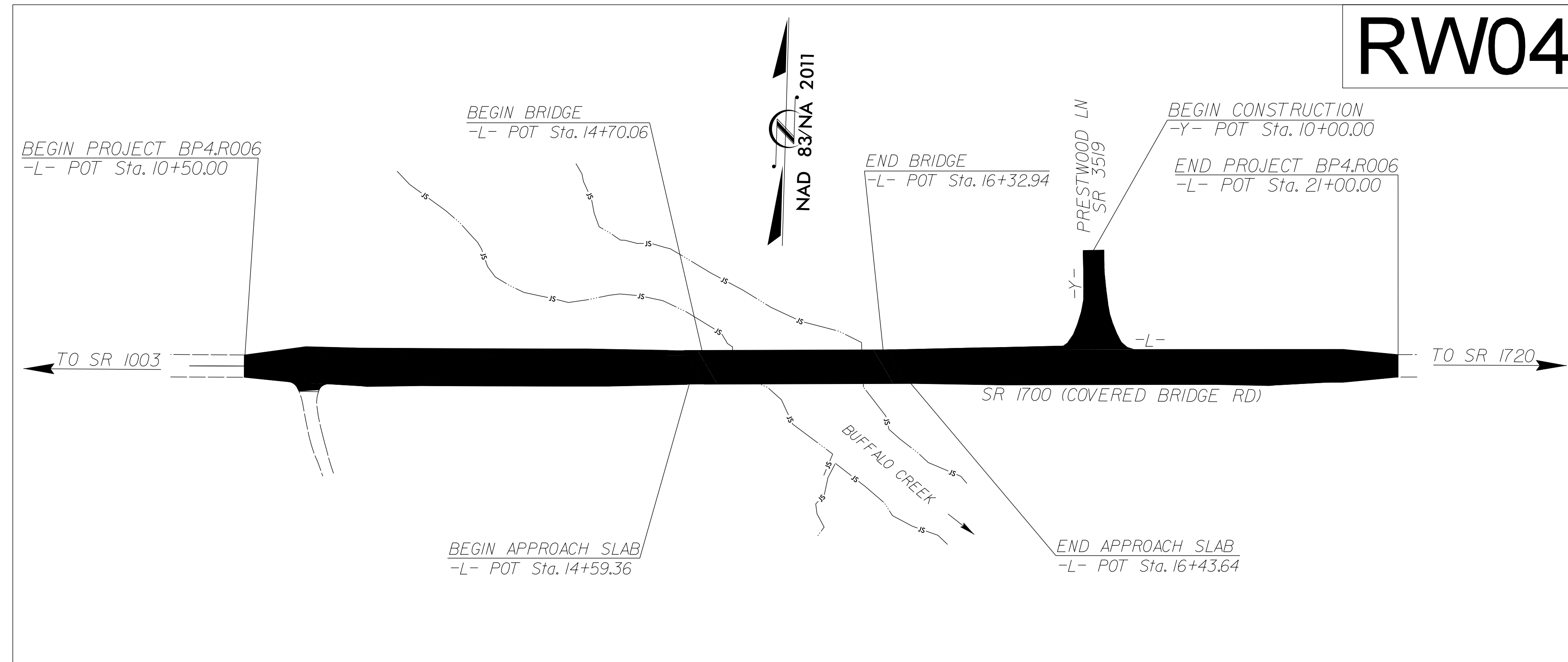
SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

JOHNSTON COUNTY

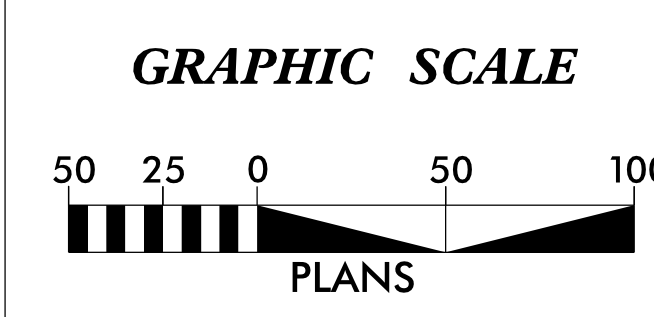
**LOCATION: BRIDGE NO. 173 OVER BUFFALO CREEK
ON SR 1700 (COVERED BRIDGE ROAD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

TIP PROJECT: BP4.R006



RW04



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "500173-2" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 709,023,3072(ft) EASTING: 2,193,711.3002(ft) ELEVATION: 252.652(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989589

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "500173-2" TO -L- STATION 10+00 IS S 89°53'35" E 558.29(ft)

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

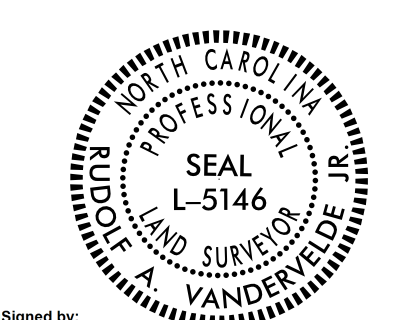
Prepared in the Office of:



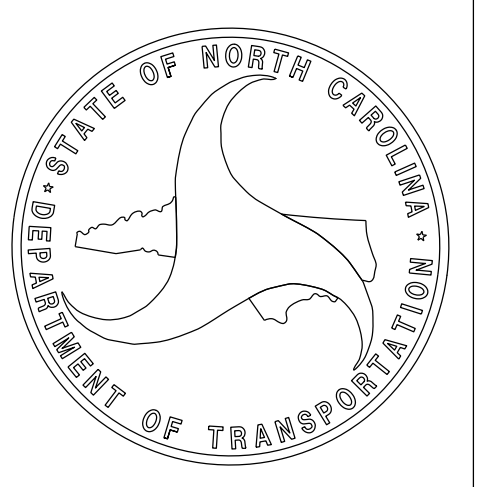
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 1, 2022	LETTING DATE: MAY 9, 2023
---	-------------------------------------

PROFESSIONAL LAND SURVEYOR


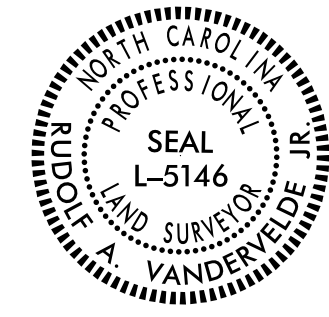


DocuSigned by:
Rudolf A. VanderVelde Jr.
SIGNATURE: _____ Date: 7/29/2022



SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. BP4.R006	SHEET NO. RW02C-1
Location and Surveys	
 Engineers Planners Surveyors	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, RUDOLF A. VANDERVELDE JR., 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:

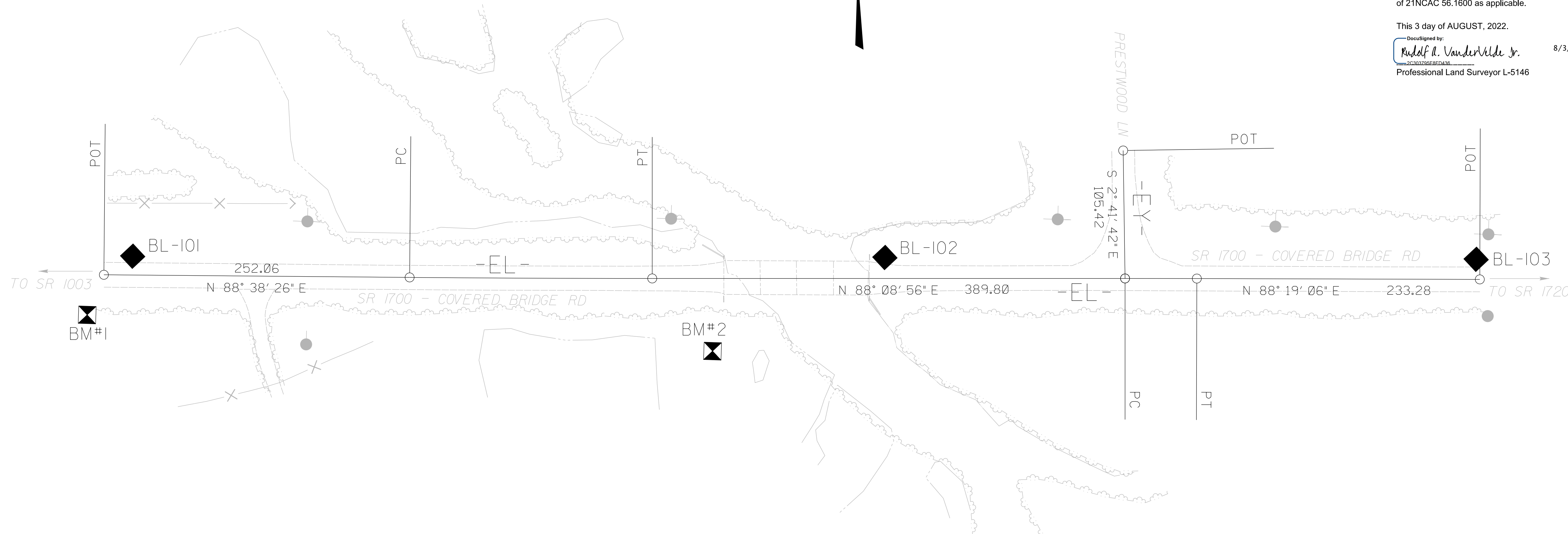
Class of survey: **AA**
 Type of GPS field procedure: RTN
 Dates of survey: 5/28/19 - 7/23/219
 Datum/Epoch: NAD 83/2011
 Published/Fixed-control use: N/A
 Localized around: 500173-2
 Northing: 709,023.3072
 Easting: 2,193,711.3002
 Combined grid factor: 0.99989589 (GROUND TO GRID)
 Geoid model: G12NC
 Units: SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 5/28/2019 to 7/23/2019, 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 3 day of AUGUST, 2022.

DocuSigned by:

 8/3/2022
 Professional Land Surveyor L-5146



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.
3. POINTS 500173-1 & 500173-2 ARE PRIMARY OFFSITE CONTROL

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. BP4.R006	SHEET NO. RW02C-2
Location and Surveys	
 WithersRavenel Engineers Planners Surveyors	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, RUDOLF A. VANDERVELDE JR., 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: 5/28/19 - 7/23/219
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 Localized around: 500173-2
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This 3RD day of AUGUST, 2022.

DocuSigned by:

 8/3/2022
 Professional Land Surveyor L-5146

BL	POINT	DESC.	NORTH	EAST	ELEVATION
1		500173-1	709012.2038	2193192.3200	280.53
2		500173-2	709023.3072	2193711.3002	252.65
101		BL-101	709037.8970	2194275.5910	223.11
102		BL-102	709056.8700	2194895.4160	221.34
103		BL-103	709071.1120	2195382.6610	221.14

***** BM2 ELEVATION = 217.07 N 708975 E 2194756 BL STATION 20+62.00 77 RIGHT RR SPIKE IN BASE OF 10" HARDWOOD *****	***** BM1 ELEVATION = 226.05 N 708988 E 2194240 BL STATION 15+46.00 49 RIGHT RR SPIKE IN BASE OF 19" GUM *****
---	--

EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT		709021.859	2194252.430							
LINE				N 88°38'26.0" E	252.06					
PC		709027.839	2194504.417							
CURVE				N 88°23'41.0" E	200.01	00°29'30.0"(LT)	00°14'45.0"	200.01	100.01	23307.36
PT		709033.442	2194704.348							
LINE				N 88°08'56.0" E	389.80					
PC		709046.033	2195093.940							
CURVE				N 88°14'01.2" E	59.18	00°10'10.4"(RT)	00°17'11.3"	59.18	29.59	20000.00
PT		709047.858	2195153.094							
LINE				N 88°19'06.3" E	233.28					
POT		709054.703	2195386.270							

EY	POINT	N	E	BEARING	DIST
POT		709151.340	2195088.983		
LINE				S 02°41'42.0" E	105.42
POT		709046.033	2195093.940		

NOTES:

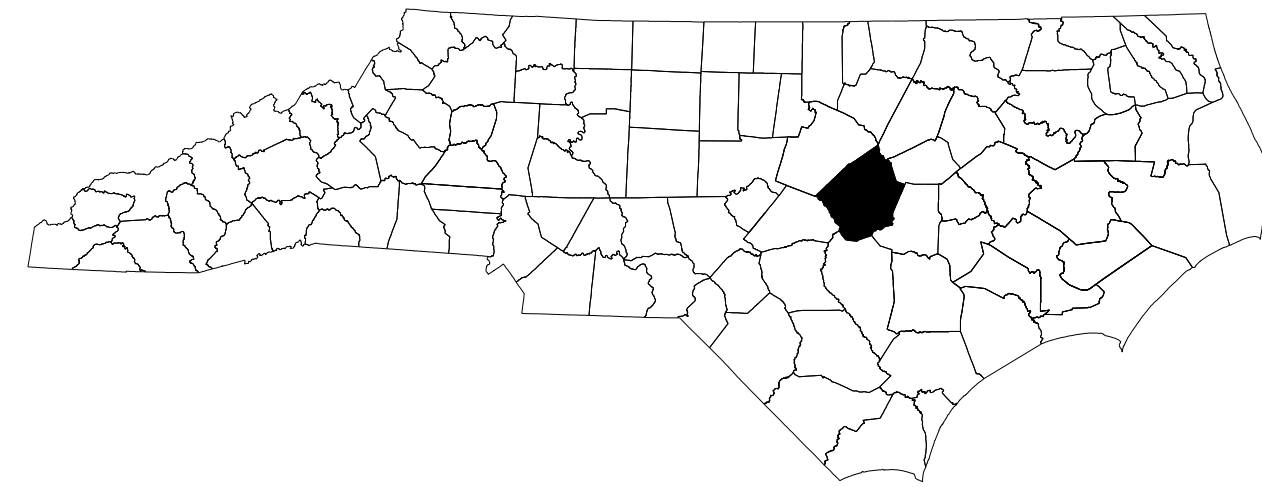
1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
3. POINTS 500173-1 & 500173-2 ARE PRIMARY OFFSITE CONTROL

REVISIONS

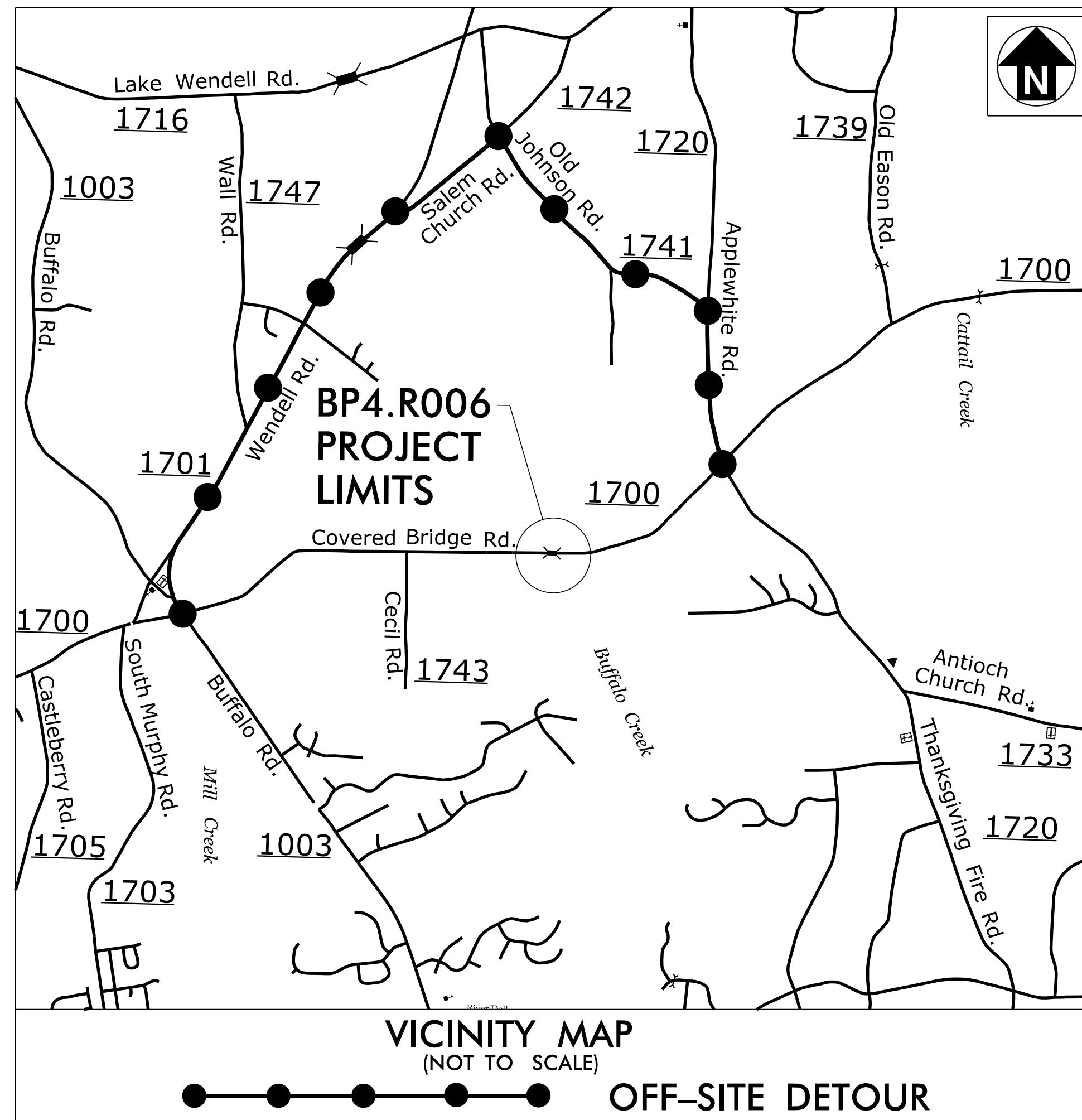
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

JOHNSTON COUNTY



LOCATION: BRIDGE NO. 173 OVER BUFFALO CREEK ON SR 1700 (COVERED BRIDGE ROAD)



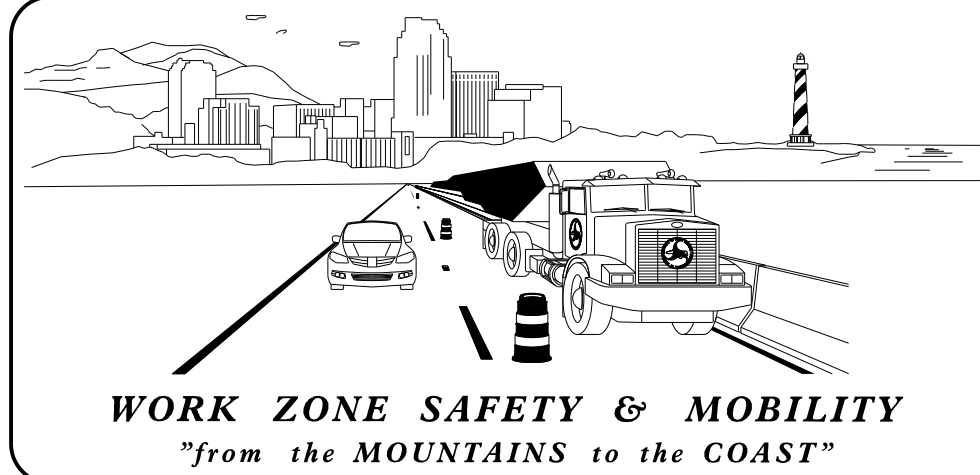
SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN & TEMPORARY TRAFFIC CONTROL PHASING
TMP-2	SPECIAL SIGN DESIGN
TMP-3	TEMPORARY TRAFFIC CONTROL - DETOUR

SHEET NO.
TMP-1

BP4.R006

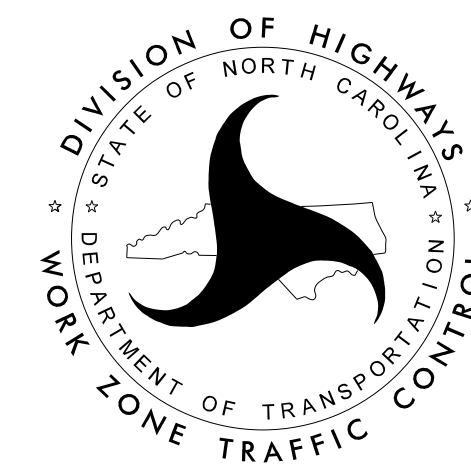
TIP PROJECT:

1/23/2023 8:50:00 AM G:\50100098_SEA-2019-Div-4-Proj\TrafficControl\TCP\BP4.R006_TMP_01.dgn User:ST086227



PLANS PREPARED FOR THE NCDOT BY:
M MOTT MACDONALD 1 & E, LLC
1101 HAYNES STREET, SUITE 101
RALEIGH, NC 27604
M MOTT MACDONALD NC LICENSE NO. F-0669
LORI D. STOUCHKO, PE
SENIOR PROJECT ENGINEER

DIVISION 4
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RACHEL EVANS, PE
NCDOT CONTACT



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

APPROVED: *Lois D. Stouchko*
DATE: _____

SEAL



ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - 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
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGERS
1165.01	TRUCK MOUNTED ATTENUATOR
1180.01	SKINNY DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS

LEGEND

GENERAL

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

- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

- 4" PAINT
- P1 WHITE EDGELINE
- P13 YELLOW DOUBLE CENTER
- 24" PAINT
- P61 WHITE STOPBAR

APPROVED: DATE: _____			ROADWAY STANDARD DRAWINGS & LEGEND
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:
 - BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.
 - BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.
 - BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 350 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J) 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 ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.
- K) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.
 - COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- L) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- M) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 200 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

- N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- O) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

- P) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING
ALL ROADS	PAINT
- Q) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- R) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- S) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

PHASING

STEP 1: USING RSD 1101.03, SHEETS 1 AND 2 OF 9, AND SHEET TMP-3 PLACE TEMPORARY DETOUR SIGNS AND COVER

USING RSD 1101.01, SHEET 3 OF 3, PLACE ADVANCE WARNING SIGNS ON -Y- AND ON -L- AT THE WEST BOUND APPROACH TO THE PROJECT LIMITS (SEE SHEET TMP-3)


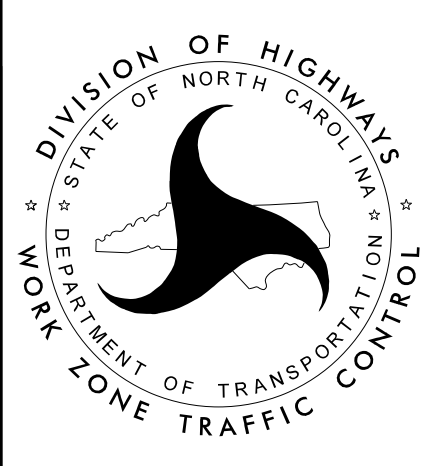
STEP 2: UNCOVER TEMPORARY DETOUR SIGNS AND CLOSE -L- TO TRAFFIC

STEP 3: AWAY FROM TRAFFIC, CONSTRUCT -L- FROM STA 10+50+/- TO STA 18+10+/- INCLUDING PROPOSED STRUCTURE

USING RSD 1101.02, SHEET 1 OF 14 AND FLAGGERS AS NEEDED, CONSTRUCT -L- FROM STA 18+10+/- TO STA 21+00+/-, INCLUDING TIE TO -Y-

PLACE FINAL PAVEMENT MARKINGS ON -L- AND -Y-

STEP 4: REMOVE TEMPORARY TRAFFIC CONTROL DEVICES AND OPEN -L- TO TRAFFIC

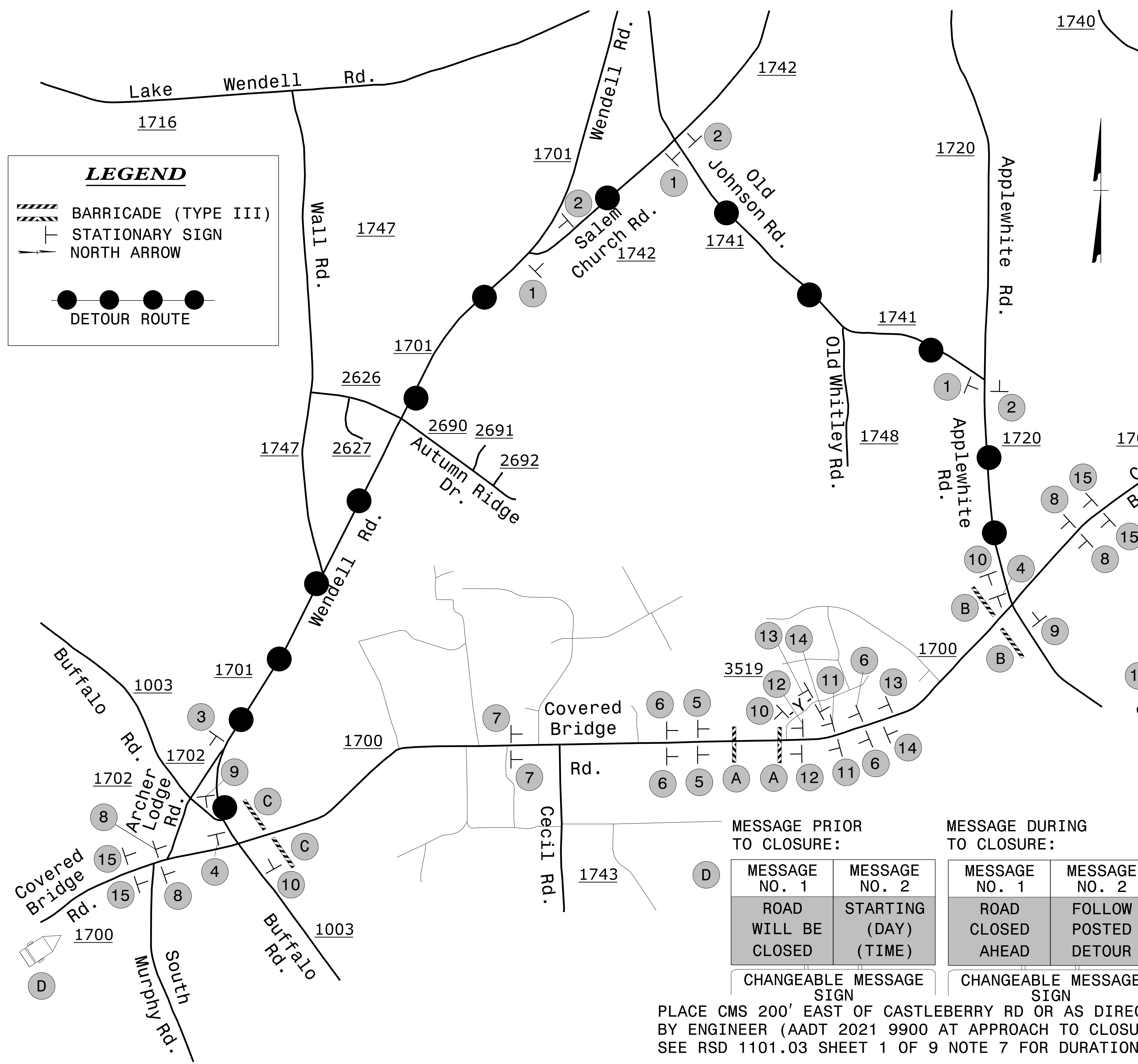
APPROVED: <small>DocuSigned by:</small> <i>Lori D. Stouchko</i> <small>FF586C7586C8A5A</small>			TRANSPORTATION OPERATIONS PLAN & TEMPORARY TRAFFIC CONTROL PHASING
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

PLANS PREPARED FOR THE NCDOT BY:

M MOTT MACDONALD
 MOTT MACDONALD I & E, LLC
 1101 HAYNES STREET, SUITE 101
 RALEIGH, NC 27604
 NC LICENSE NO. F-0669

LEGEND

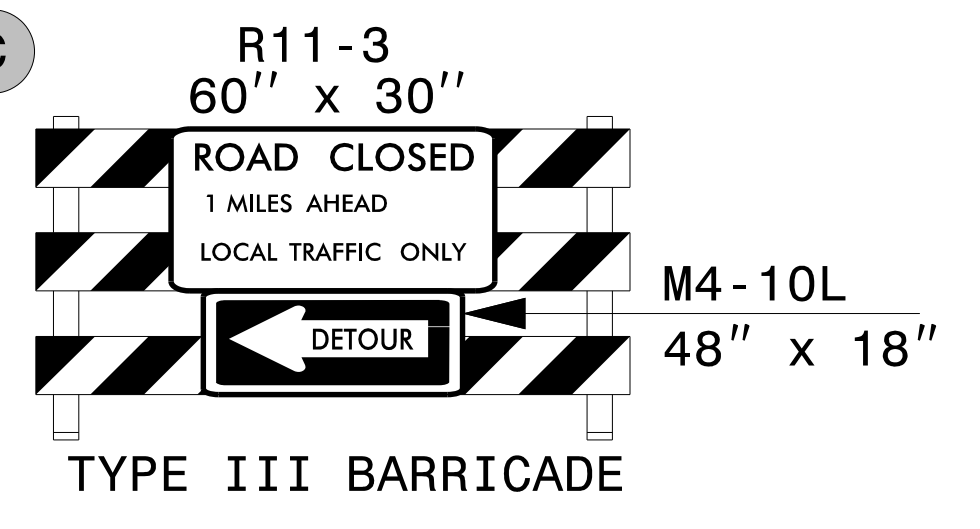
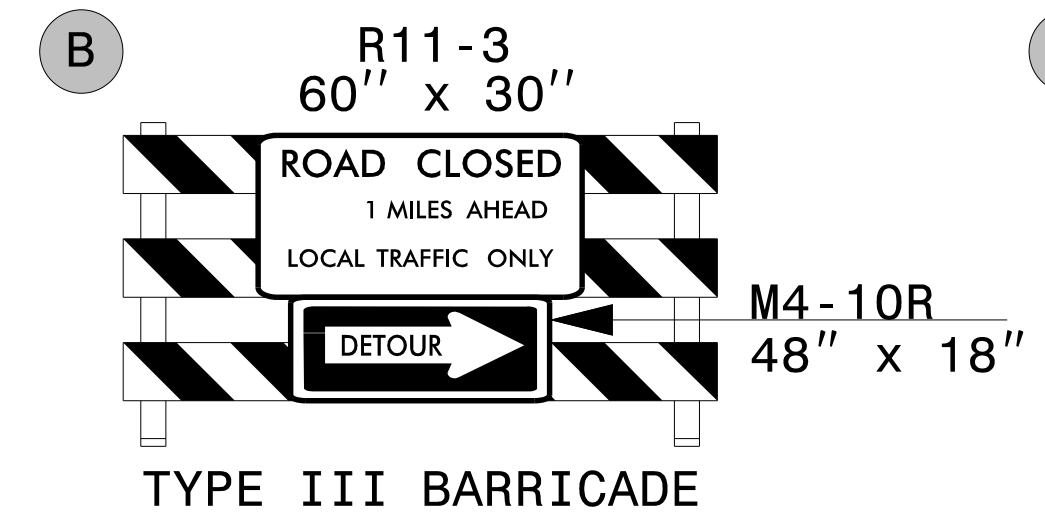
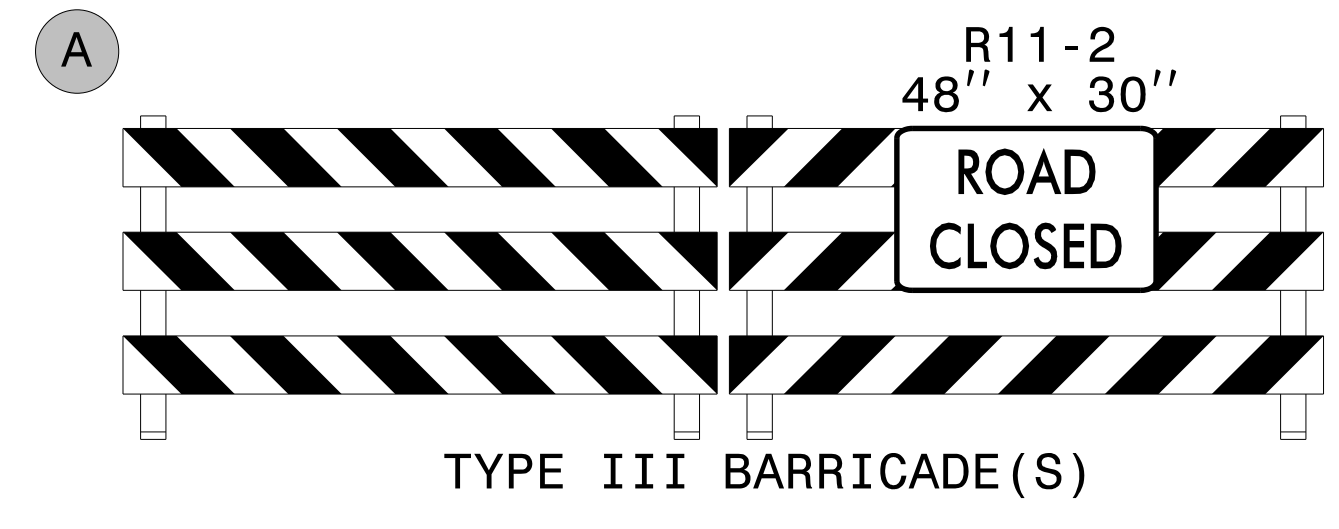
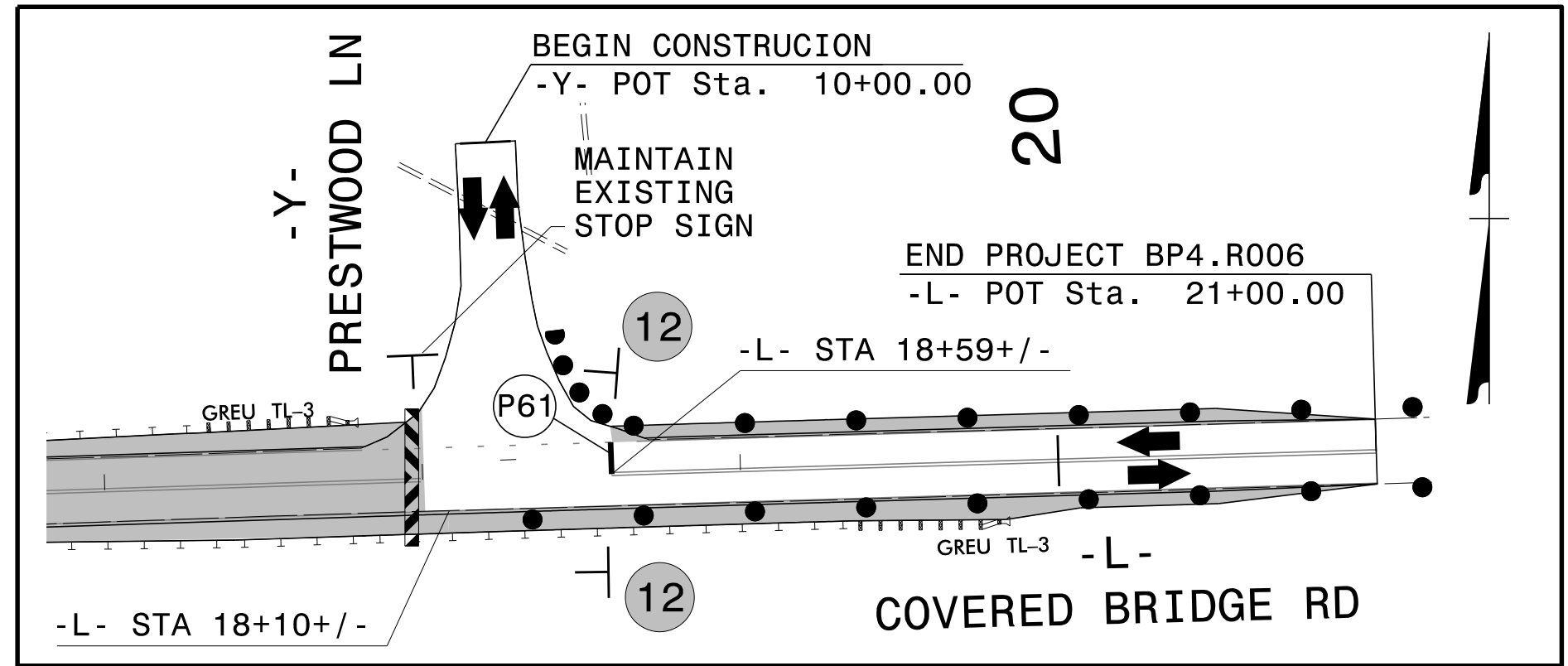
- BARRICADE (TYPE III)
- STATIONARY SIGN
- NORTH ARROW
- DETOUR ROUTE



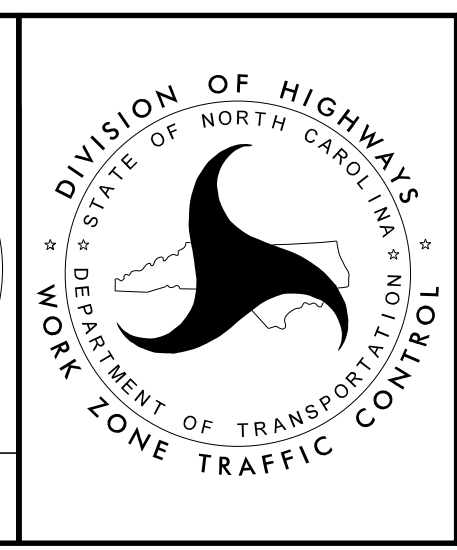
1 COVERED BRIDGE RD 36" X 36"	2 COVERED BRIDGE RD 36" X 36"
DETOUR M4-8 24" X 12"	DETOUR M4-8 24" X 12"
→ M6-1 21" X 15"	← M6-1 21" X 15"
3 COVERED BRIDGE RD 36" X 36"	4 END DETOUR M4-8 A 24" X 18"
DETOUR M4-8 24" X 12"	
↖ M6-2 L 21" X 15"	
5 ROAD CLOSED 500 FT W20-3 48" X 48"	6 ROAD CLOSED 1000 FT W20-3 48" X 48"
7 ROAD CLOSED AHEAD W20-3 48" X 48"	8 DETOUR AHEAD W20-2 48" X 48"
9 ROAD CLOSED AHEAD W20-3 48" X 48"	10 ROAD CLOSED AHEAD W20-3 48" X 48"
	NEXT LEFT SP-4L 42" X 12"
	NEXT RIGHT SP-4R 42" X 12"
11 W3-1A 48" X 48"	12 STOP R1-1 48" X 48"
13 ROAD WORK AHEAD W20-1 48" X 48"	14 END ROAD WORK G20-2 A 48" X 24"
15 ROAD CLOSED AHEAD W20-3 48" X 48"	1.5 MILES W16-3P 24" X 24"

MESSAGE PRIOR TO CLOSURE:		MESSAGE DURING TO CLOSURE:	
MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2
ROAD WILL BE CLOSED	STARTING (DAY) (TIME)	ROAD CLOSED AHEAD	FOLLOW POSTED DETOUR
CHANGEABLE MESSAGE SIGN		CHANGEABLE MESSAGE SIGN	

PLACE CMS 200' EAST OF CASTLEBERRY RD OR AS DIRECTED BY ENGINEER (AADT 2021 9900 AT APPROACH TO CLOSURE) SEE RSD 1101.03 SHEET 1 OF 9 NOTE 7 FOR DURATIONS.)



APPROVED: *Lori D. Stouchko*
 DATE: _____

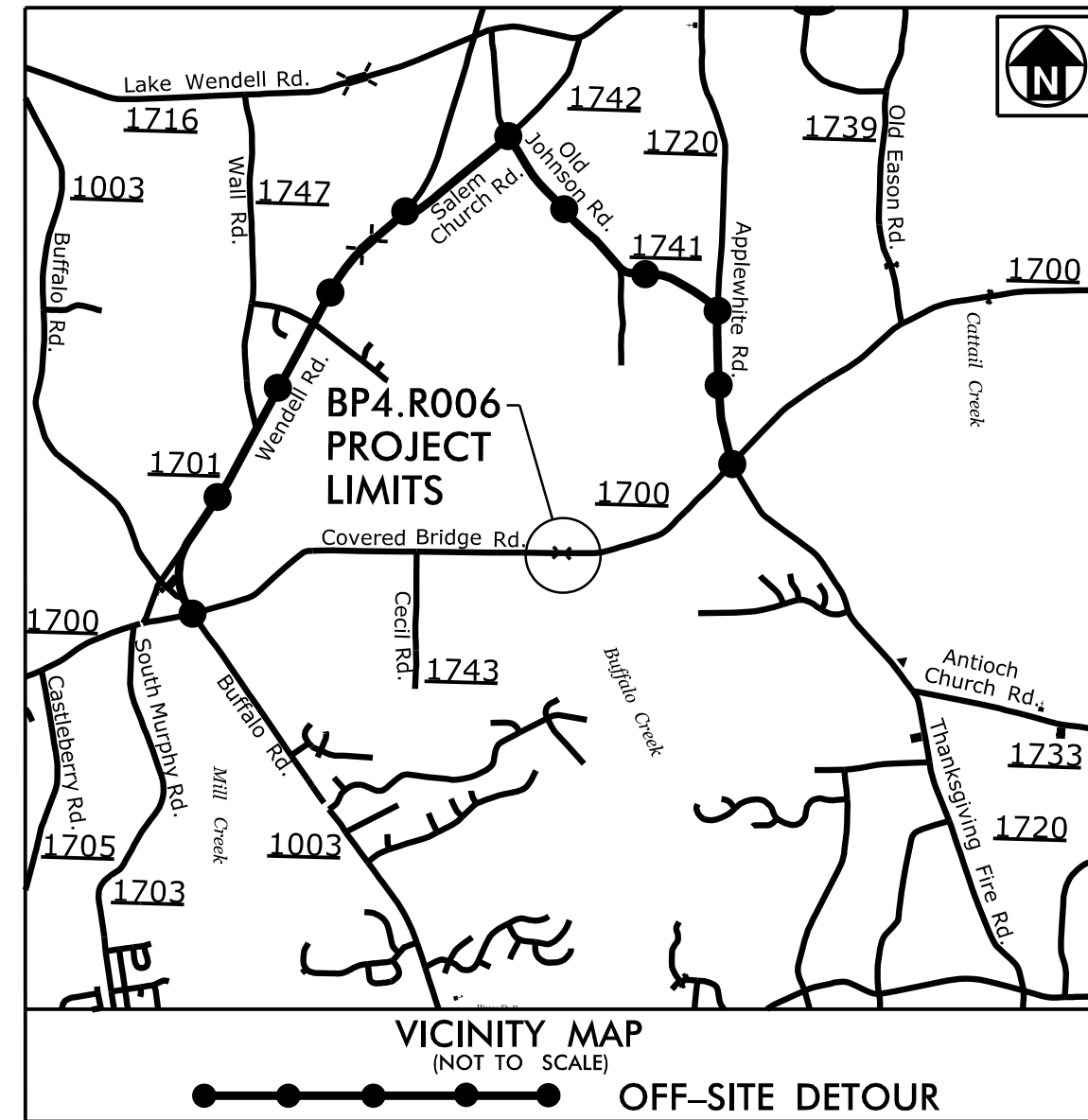


TEMPORARY TRAFFIC CONTROL
 DETOUR

10/10/2023 10:50:00 AM G:\50100098_SEA-2019-DIV-4\Pro\TrafficControl\TCP\BP4.R006.TMP_03.dgn User:ST086227

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4.R006	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

TIP PROJECT: BP4.R006

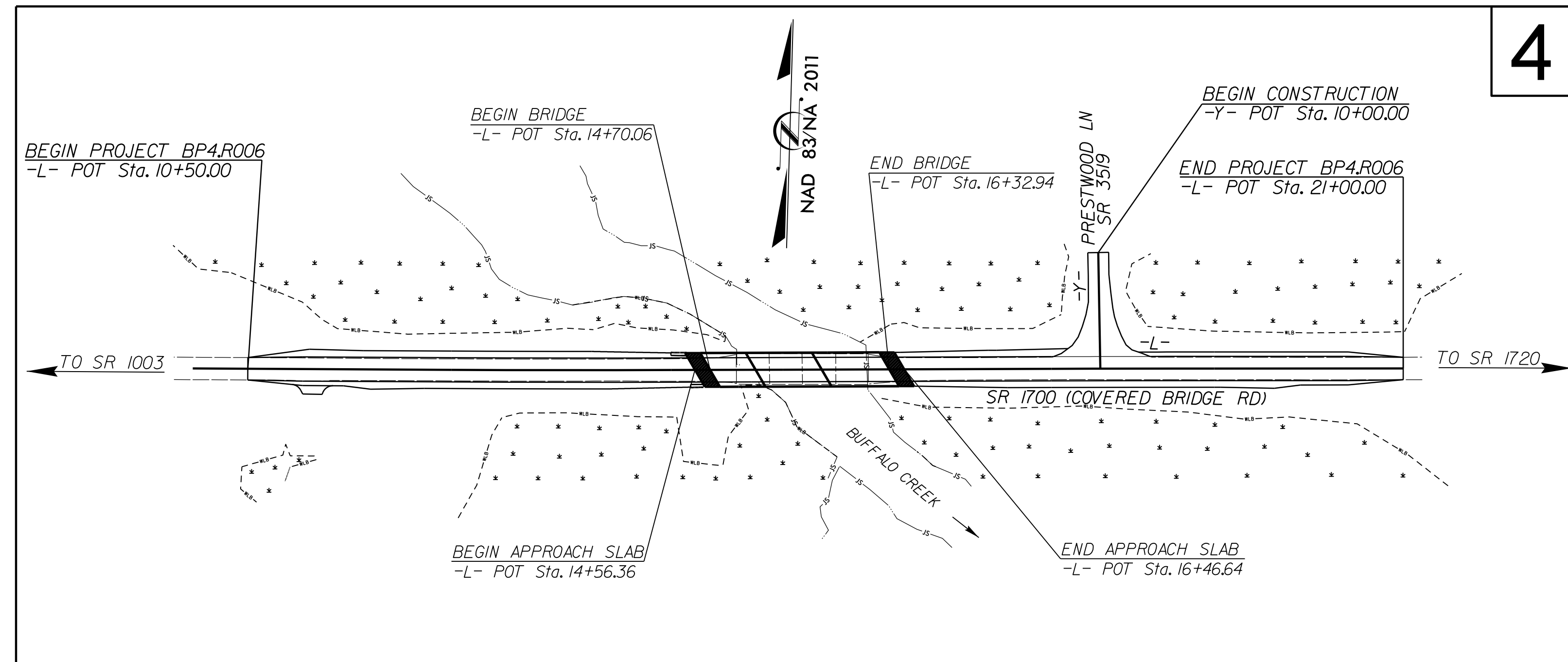


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

JOHNSTON COUNTY

LOCATION: BRIDGE NO. 173 OVER BUFFALO CREEK
ON SR 1700 (COVERED BRIDGE ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

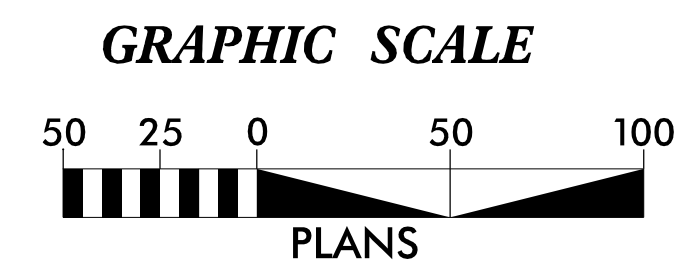


4

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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



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.


VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

Prepared in the Office of:
VHB
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
2024 STANDARD SPECIFICATIONS

Designed by:
Brandon Barham 3368
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.

1/15/2024 10:17:31 AM F:\Projects\BP4.R006\Drawings\EC-1.dgn

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

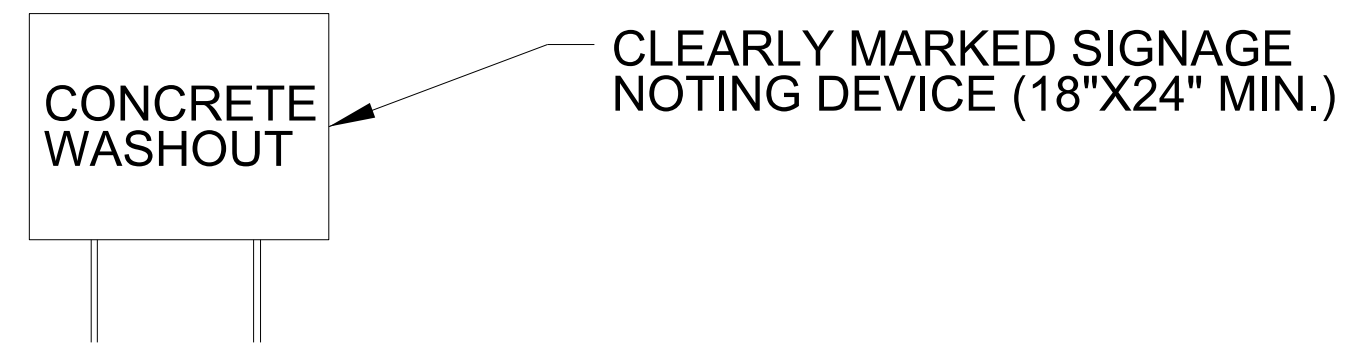
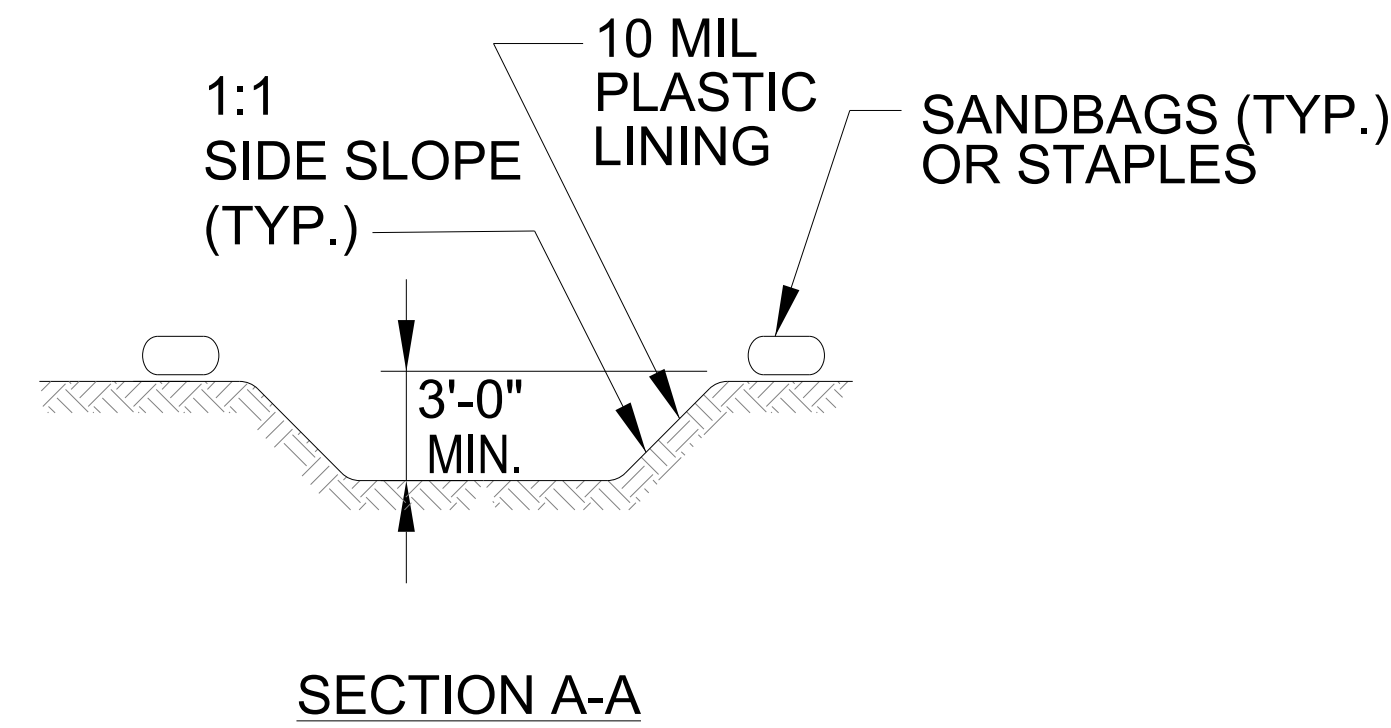
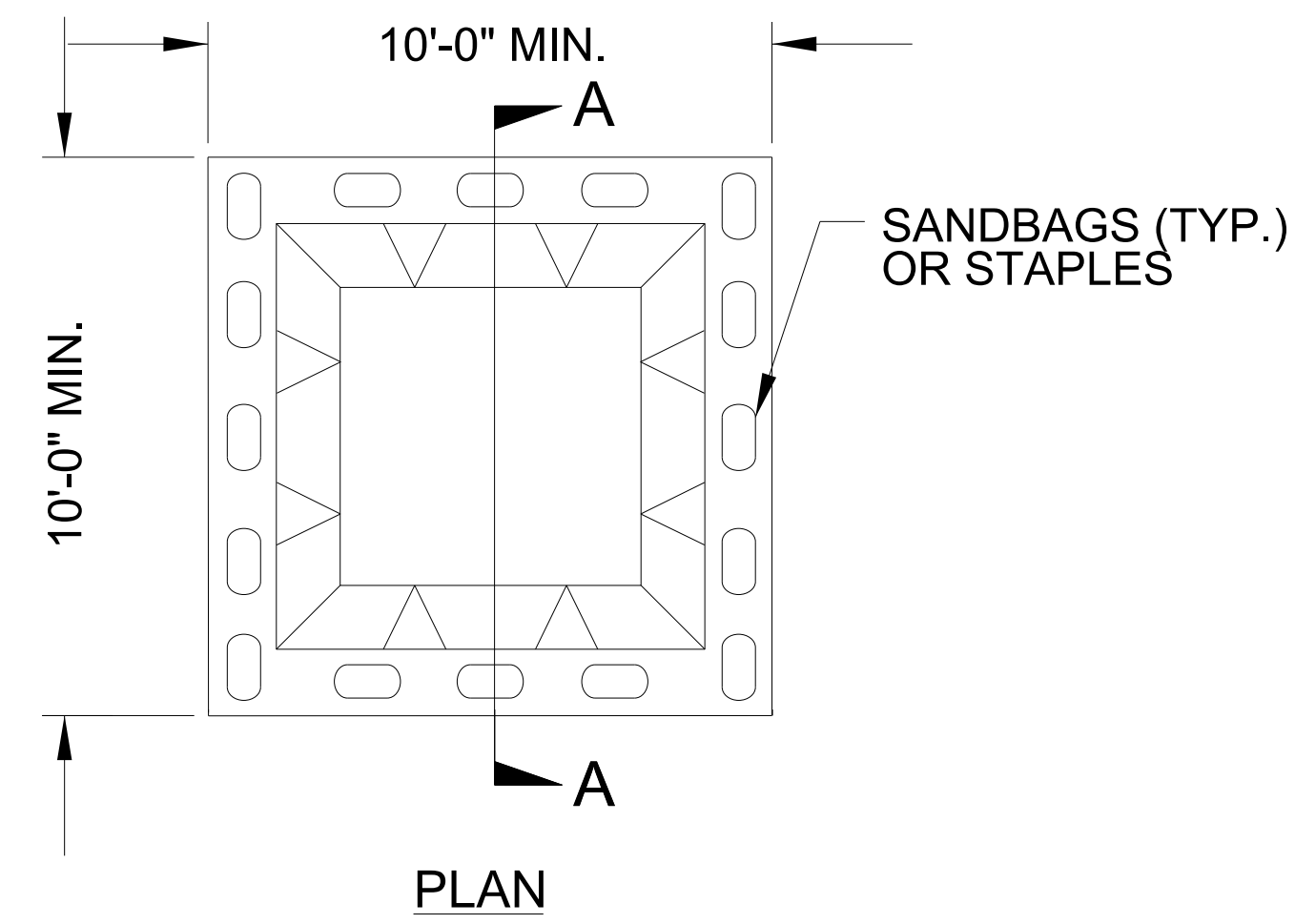
PROJECT REFERENCE NO. BP4.R006	SHEET NO. EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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		1636.02	Silt Fence Excelsior Wattle Break	
1632.02	Type B		1636.03	Excelsior Wattle Barrier	
1632.03	Type C		1636.03	Coir Fiber Wattle Barrier	

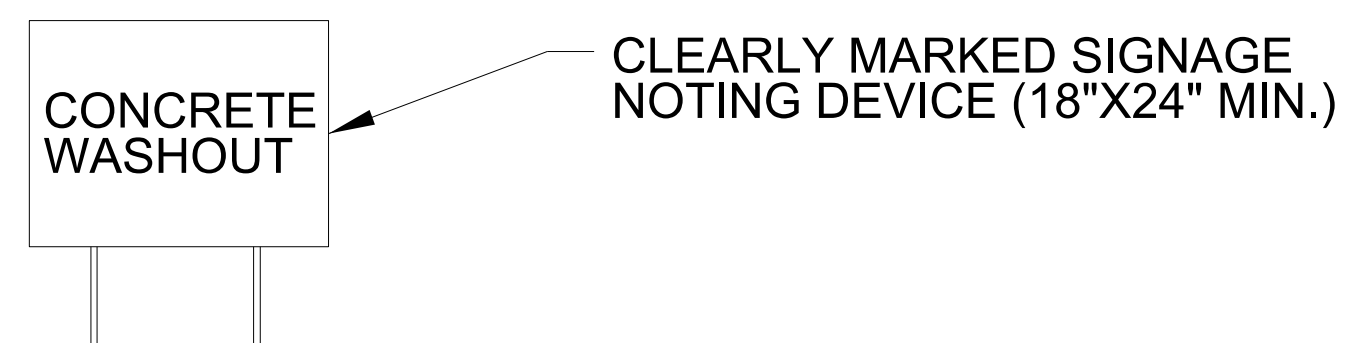
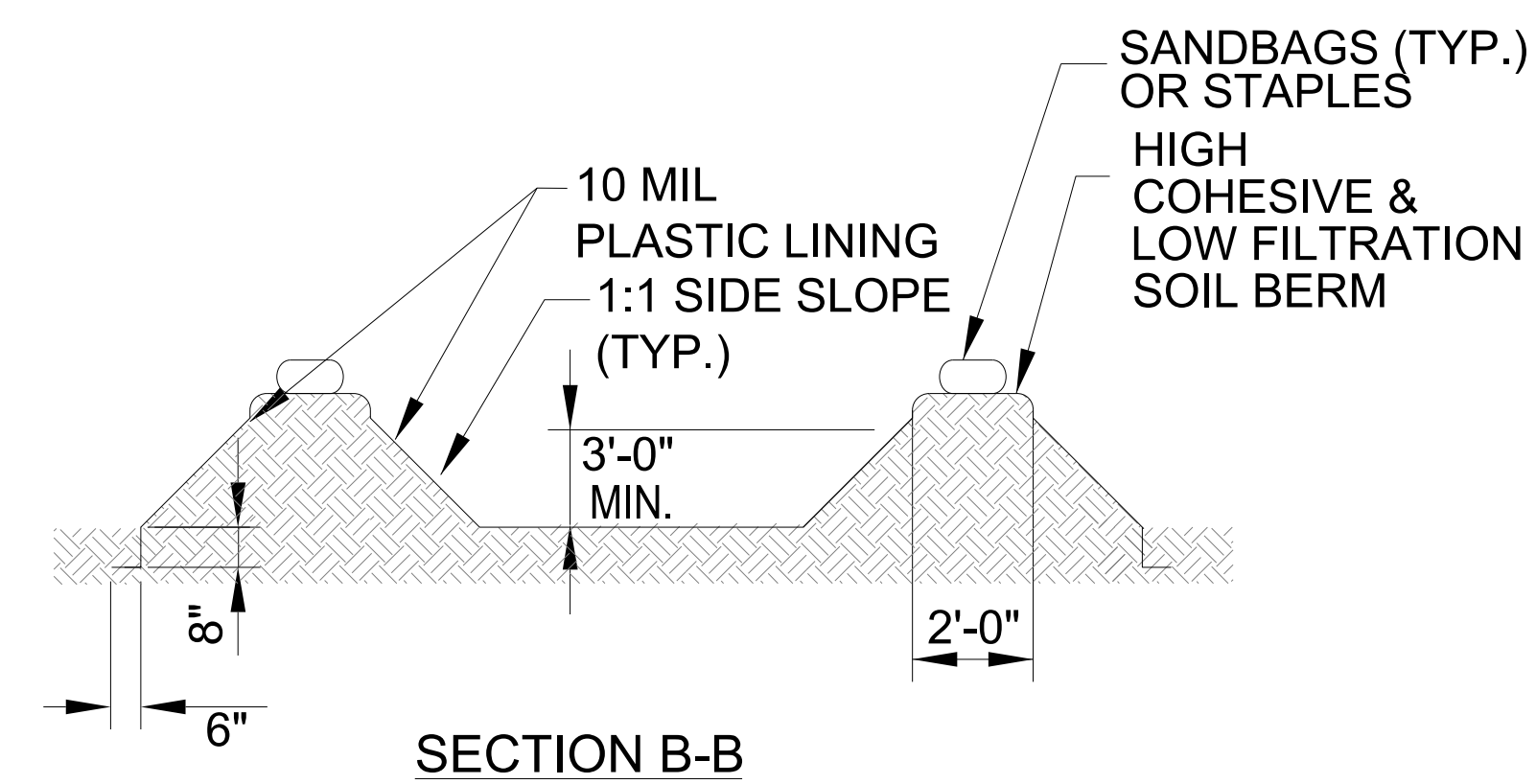
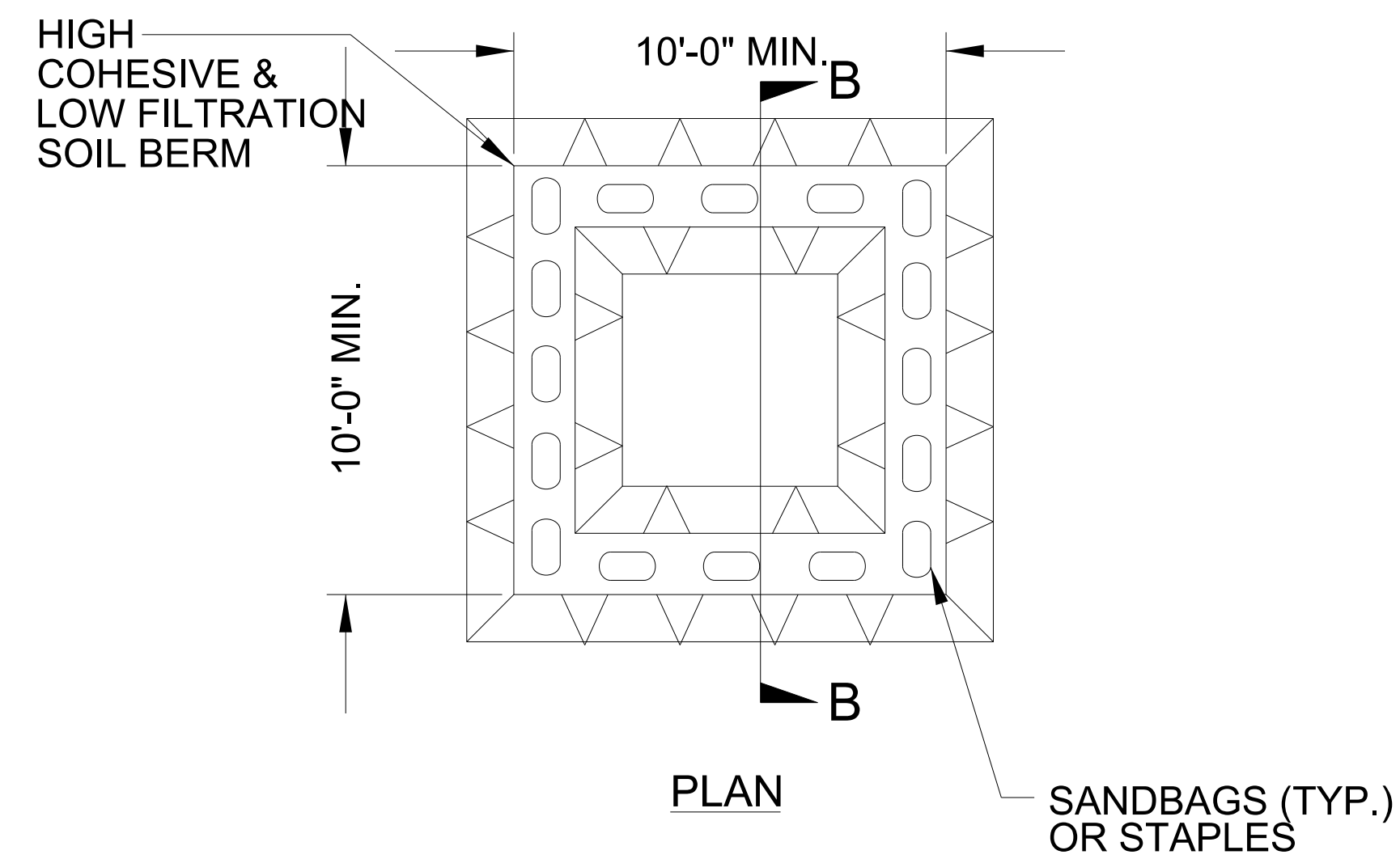
PROJECT REFERENCE NO. <i>BP4.R006</i>	SHEET NO. <i>EC-3</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

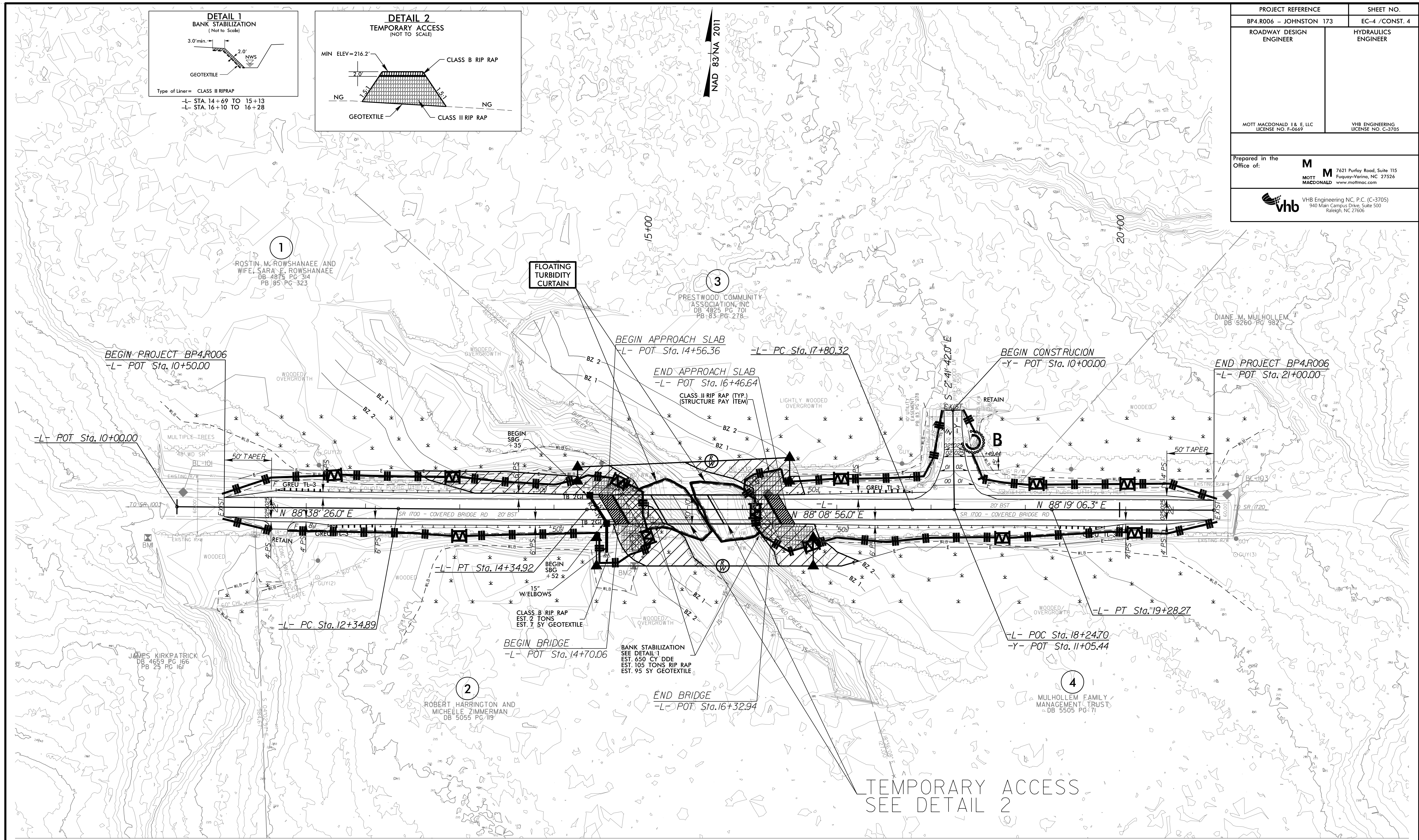
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>BP4.R006</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

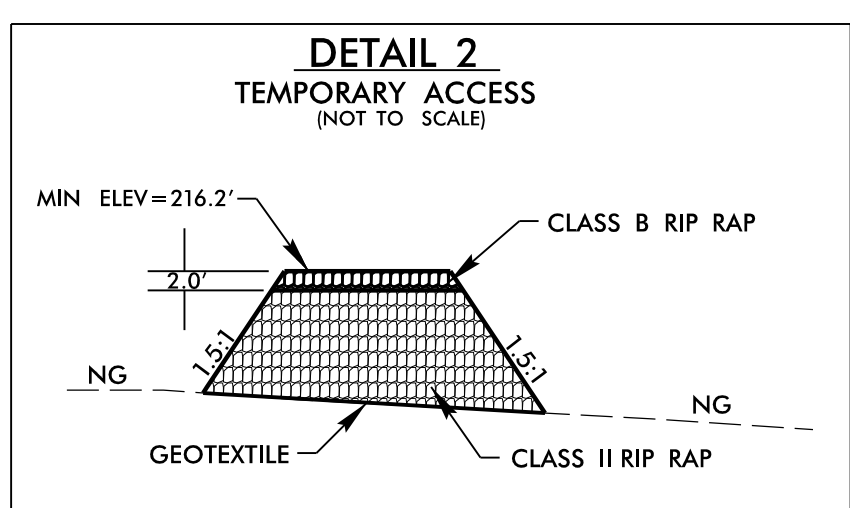
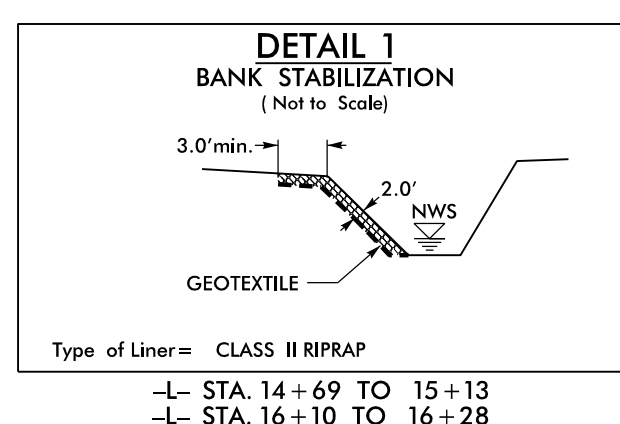
PROJECT REFERENCE	SHEET NO.
BP4.R006 - JOHNSTON 173	EC-4 /CONST. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669	VHB ENGINEERING LICENSE NO. C-3705
Prepared in the Office of:	M MOTT MACDONALD 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com
	VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606



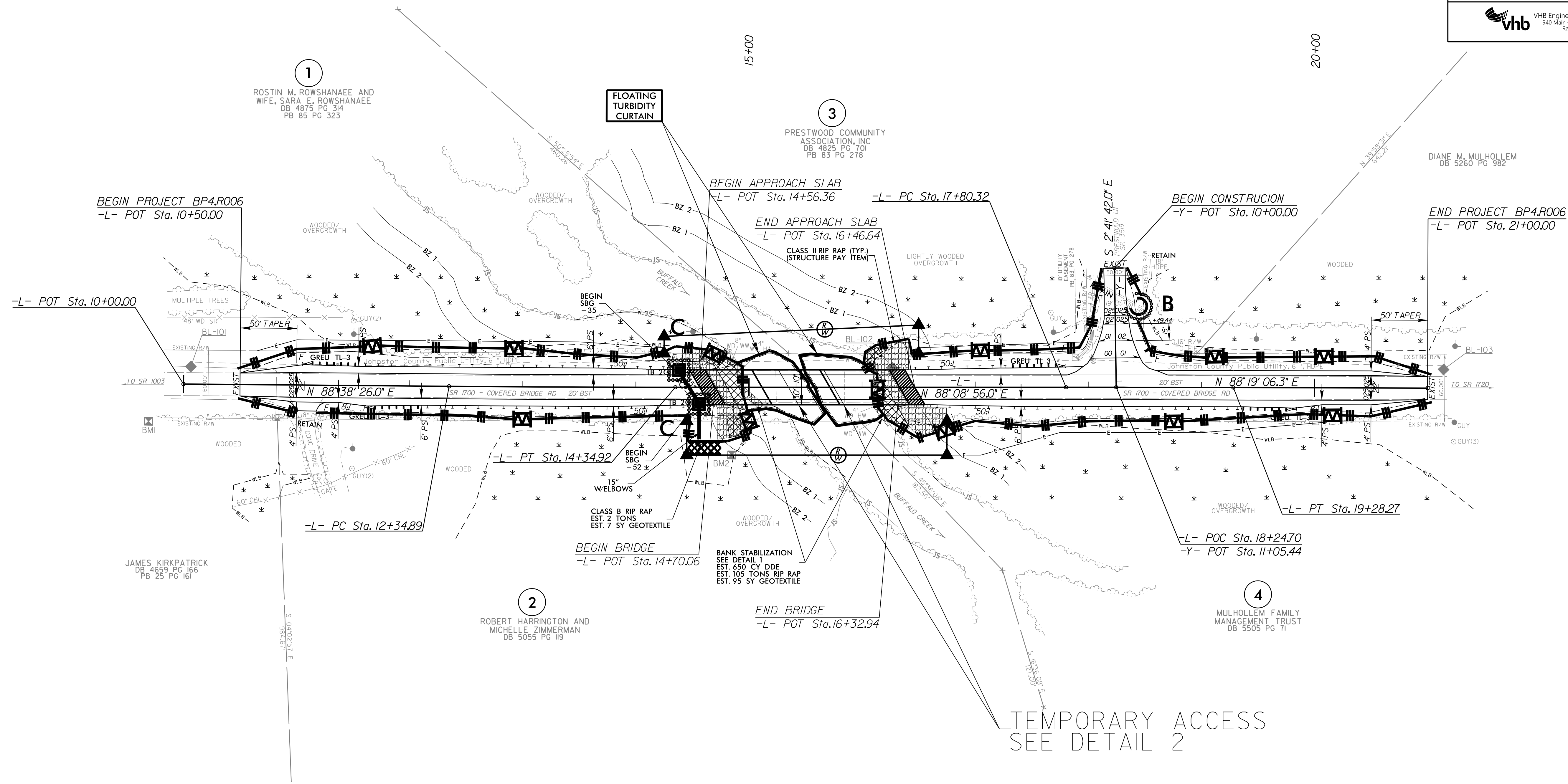
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...DATE: 1/12/2024

-L-
PI Sta 13+34.90 PI Sta 18+54.29
Δ = 0° 29' 30.0" (LT) Δ = 0° 10' 10.4" (RT)
D = 0° 14' 44.9" D = 0° 06' 52.5"
L = 200.03' L = 147.95'
T = 100.02' T = 73.98'
R = 23,310.00' R = 50,000.00'
SE = NC (025) SE = NC (025)

PROJECT REFERENCE	SHEET NO.
BP4.R006 - JOHNSTON 173	EC-5 /CONST. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	VHB ENGINEERING LICENSE NO. C-3705
Prepared in the Office of:	M MOTT MACDONALD 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com
vhb	VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606



NAD 83/NA 2011



NOTE:
UTILIZE FABRIC INSERT PROTECTION DEVICES IN LIEU OF ROCK INLET SEDIMENT TRAPS, TYPE C, TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

-L-
 PI Sta 13+34.90 PI Sta 18+54.29
 $\Delta = 0^\circ 29' 30.0''$ (LT) $\Delta = 0^\circ 10' 10.4''$ (RT)
 $D = 0' 14' 44.9''$ $D = 0' 06' 52.5''$
 $L = 200.03'$ $L = 147.95'$
 $T = 100.02'$ $T = 73.98'$
 $R = 23,310.00'$ $R = 50,000.00'$
 $SE = NC (025)$ $SE = NC (025)$

NOTE:
TYPE-III ANCHOR UNITS ON ALL FOUR BRIDGE CORNERS

BRIDGE APPROACH SLAB

FOR -L- & -Y- PROFILE SEE SHEET 5

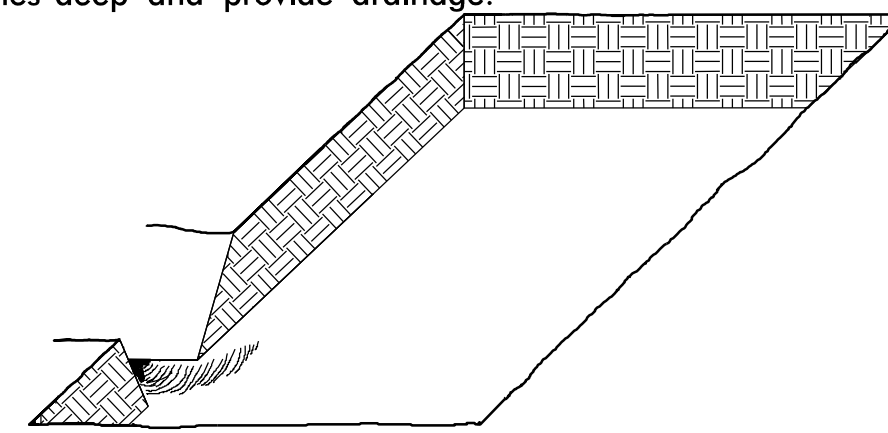
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PLANTING DETAILS

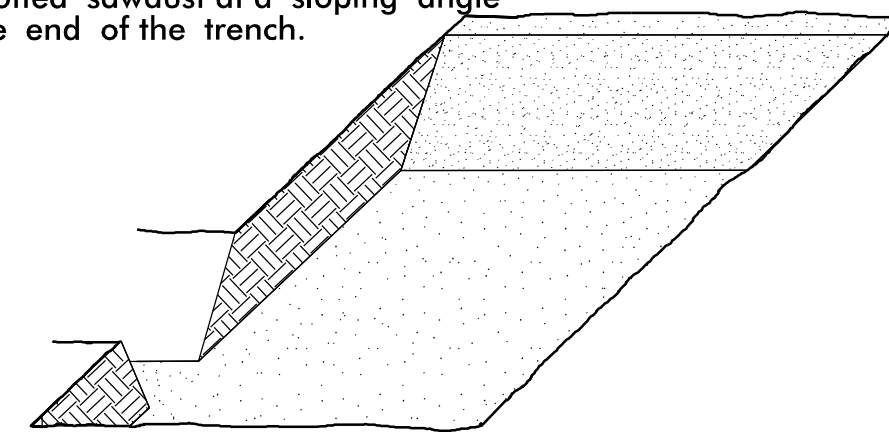
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

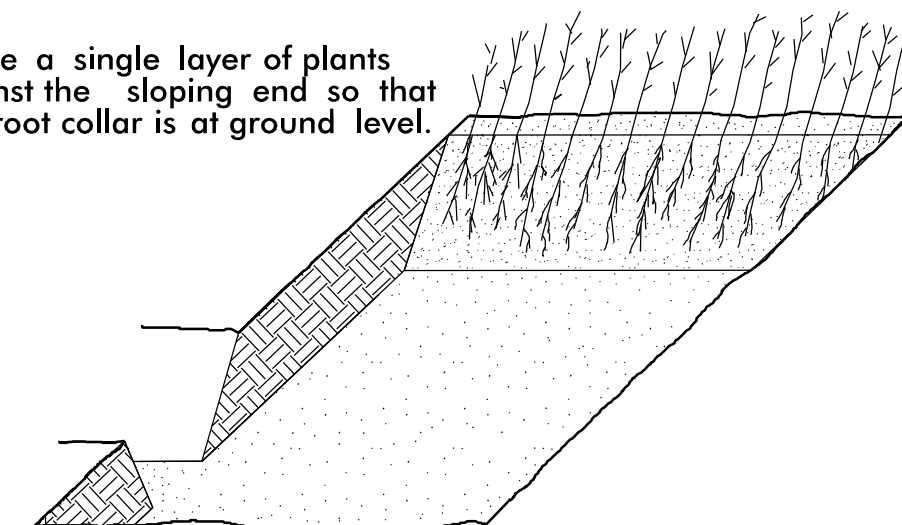
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



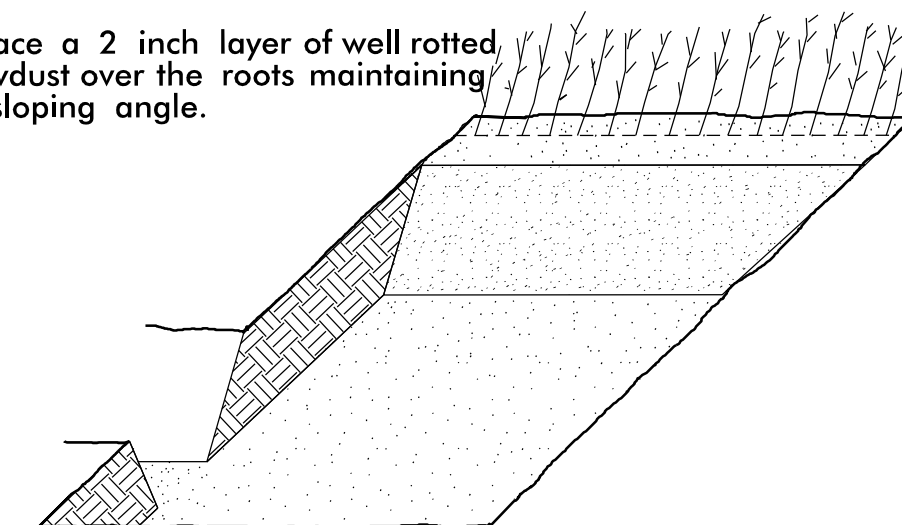
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

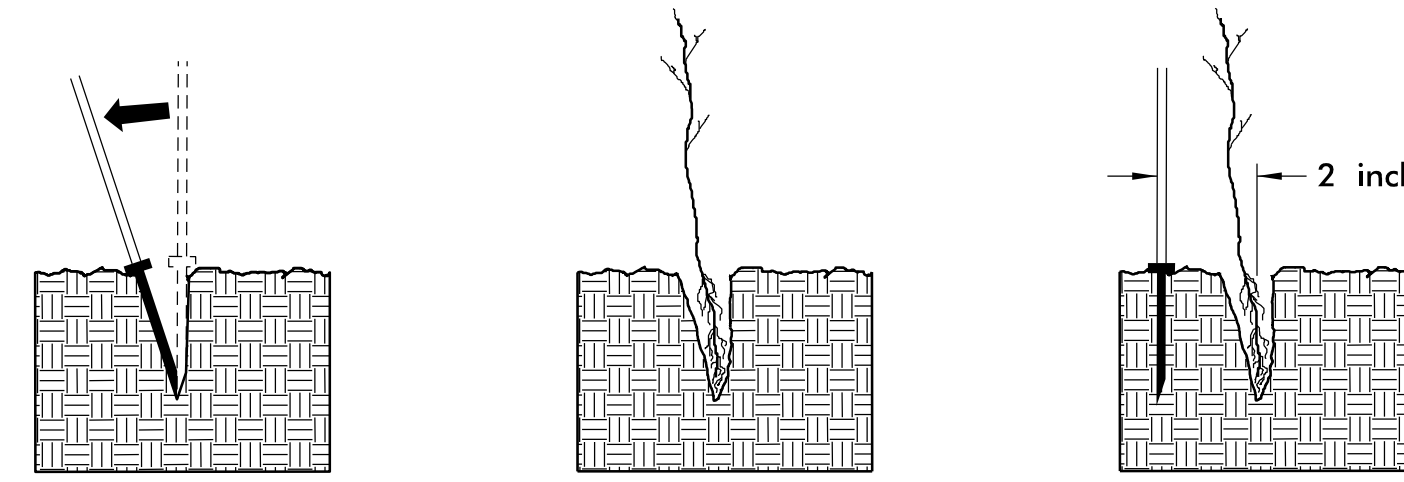


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

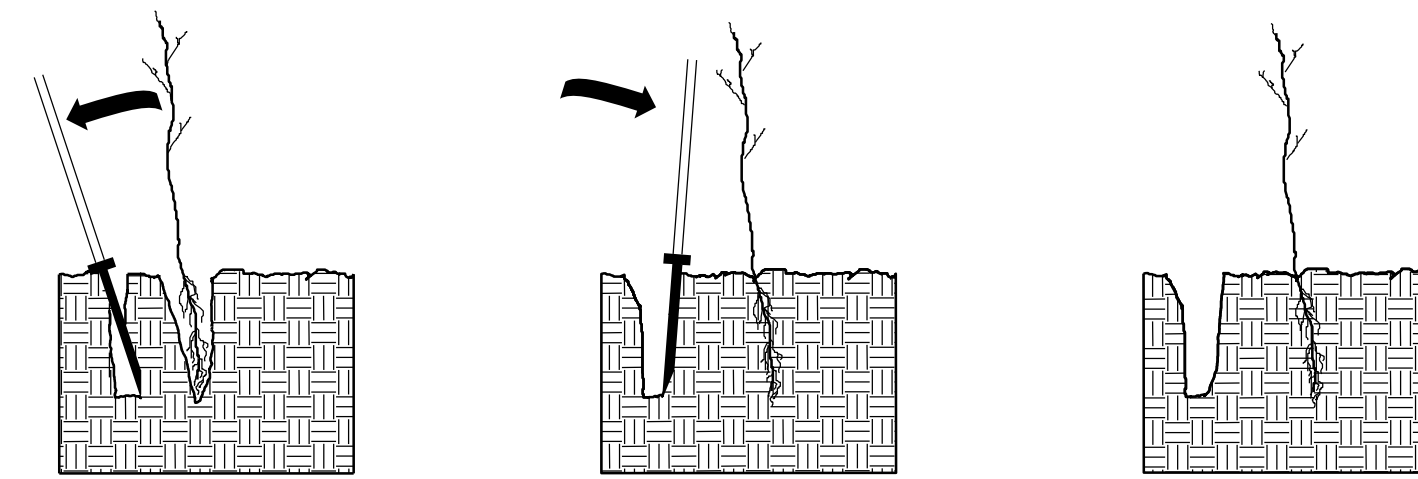


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

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.



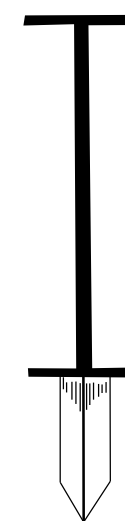
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

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:

40% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
30% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
30% BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

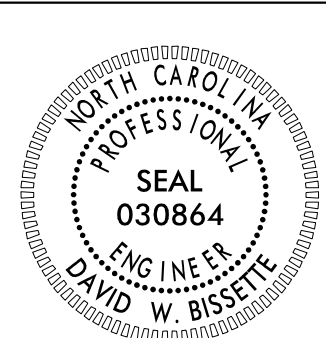
REFORESTATION DETAIL SHEET

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

T.I.P.: BP4.R006

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**SIGNING AND PAVEMENT MARKING PLAN
JOHNSTON COUNTY**

TIP NO. BP4.R006	SHEET NO. SIGN-1
<small>DocuSigned by:</small> APPROVED: <i>David W. Bisette</i> <small>01F5041EA708401...</small>	
DATE: _____	
	
SEAL DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	SIGNING AND PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
SIGN-2	EXISTING SIGN DETAIL
SIGN-3	PAVEMENT MARKING DETAIL

ROADWAY STANDARD DRAWING

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

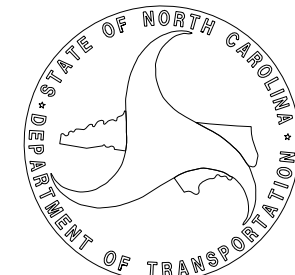
STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

SUMMARY OF QUANTITIES

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.		
4155000000	907	4	EA.
DISPOSAL OF SIGN SYSTEM, U-CHANNEL			

NCDOT CONTACT:

RACHEL EVANS, PE DIVISION 4 - PROJECT ENGINEER



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 |
|-------------------|---------------|-------------------|
| COVERED BRIDGE RD | THERMOPLASTIC | RAISED REFLECTIVE |
- D) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
 - E) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
 - F) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.
 - H) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING THERMOPLASTIC PAVEMENT MARKING MATERIAL.
 - I) ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
 - J) SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

PAVEMENT MARKING SCHEDULE

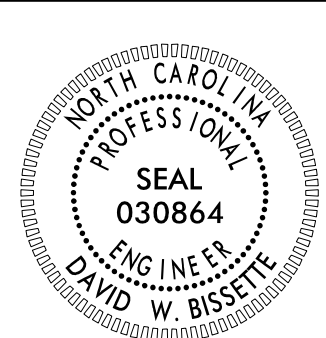
SYMBOL	DESCRIPTION
T1	WHITE EDGELINE (4", 90 MILS) THERMOPLASTIC
T5	2 FT. - 6 FT. / SP WHITE MINISKIP (4", 90 MILS) THERMOPLASTIC
T11	YELLOW SINGLE CENTER (4", 90 MILS) THERMOPLASTIC
T12	10 FT. YELLOW SKIP (4", 90 MILS) THERMOPLASTIC
T13	YELLOW DOUBLE CENTER (4", 90 MILS) THERMOPLASTIC
MA	YELLOW/YELLOW PERMANENT RASIED MARKER

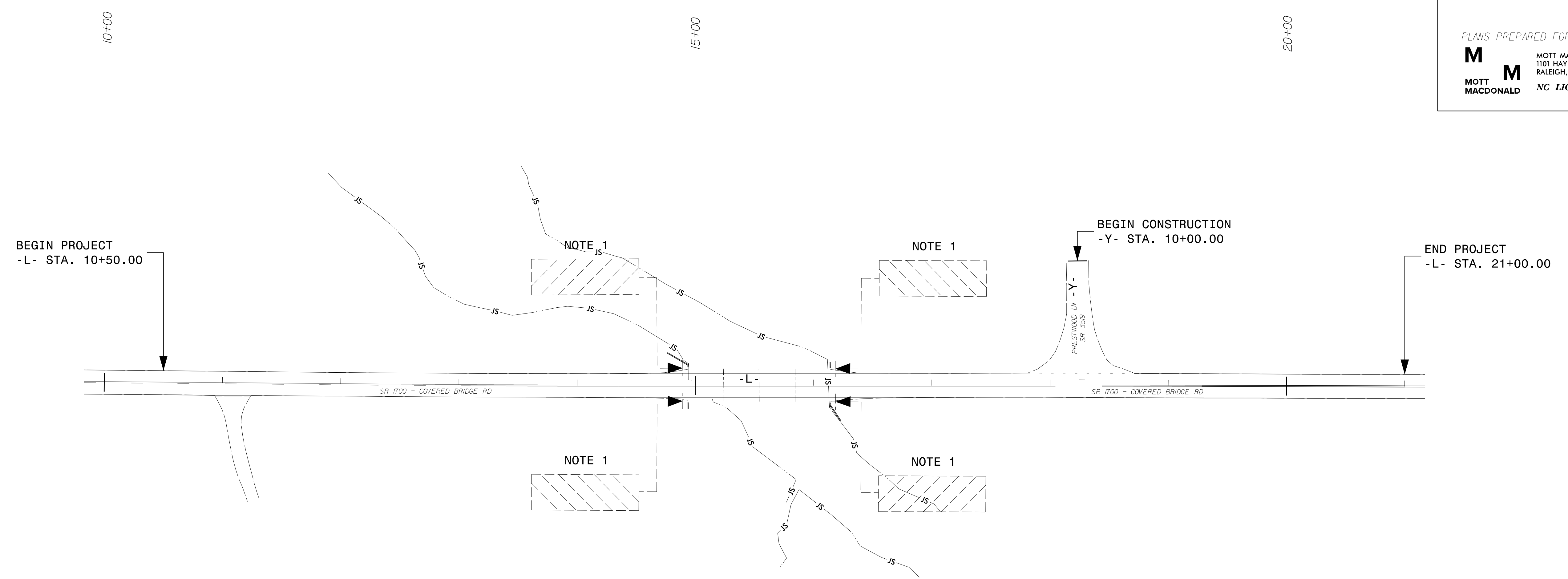
PLAN PREPARED BY: MOTT MACDONALD

DAVID W BISSETTE, PE PRINCIPAL PROJECT MANAGER
SAM COLEMAN, PE PROJECT ENGINEER

PLANS PREPARED FOR THE NCDOT BY:

M
M
MOTT MACDONALD I & E, LLC
1101 HAYNES STREET, SUITE 101
RALEIGH, NC 27604
NC LICENSE NO. F-0669

TIP NO.	SHEET NO.
BP4 . R006	SIGN-2
APPROVED: <i>David W. Bisette</i> <small>01F5041EA708401...</small>	
DATE: _____	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PLANS PREPARED FOR THE NCDOT BY: M M MOTT MACDONALD 1 & E, LLC 1101 HAYNES STREET, SUITE 101 RALEIGH, NC 27604 NC LICENSE NO. F-0669	



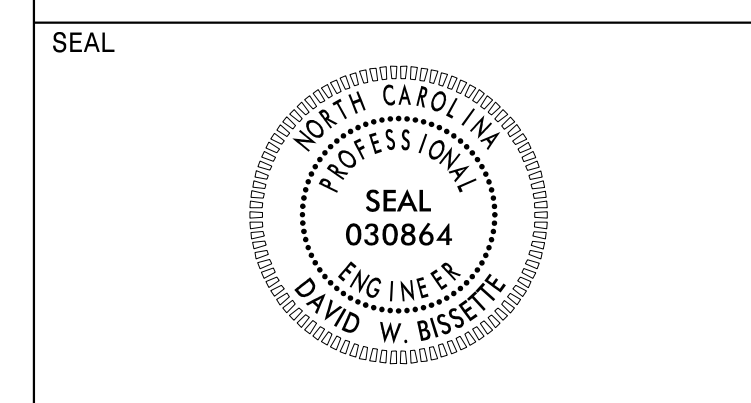
PROJECT NOTES

- 1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING SIGN DETAIL

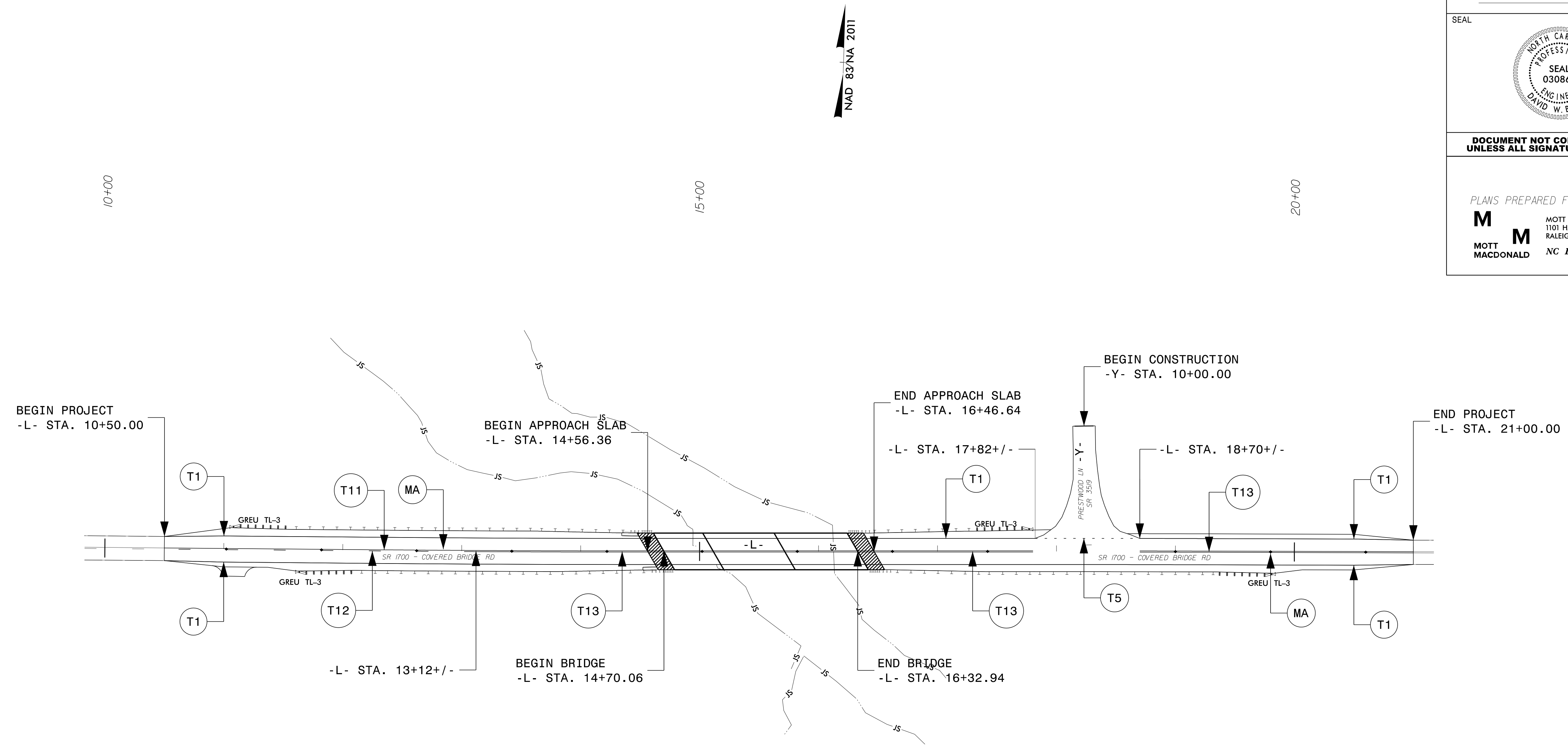
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APPROVED: *David W. Bisette*
01F5041EA708401...
 DATE: _____



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 UNLESS ALL SIGNATURES COMPLETED**

PLANS PREPARED FOR THE NCDOT BY:
M MOTT MACDONALD 1 & E, LLC
 1101 HAYNES STREET, SUITE 101
 RALEIGH, NC 27604
M MOTT MACDONALD NC LICENSE NO. F-0669



PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION		
T1	WHITE EDGELINE	(4", 90 MILS)	THERMOPLASTIC
T5	2 FT. - 6 FT. / SP WHITE MINISKIP	(4", 90 MILS)	THERMOPLASTIC
T11	YELLOW SINGLE CENTER	(4", 90 MILS)	THERMOPLASTIC
T12	10 FT. YELLOW SKIP	(4", 90 MILS)	THERMOPLASTIC
T13	YELLOW DOUBLE CENTER	(4", 90 MILS)	THERMOPLASTIC
MA	YELLOW/YELLOW		PERMANENT RASIED MARKER

PAVEMENT MARKING DETAIL

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29/28/99

TIP PROJECT: BP4.R006

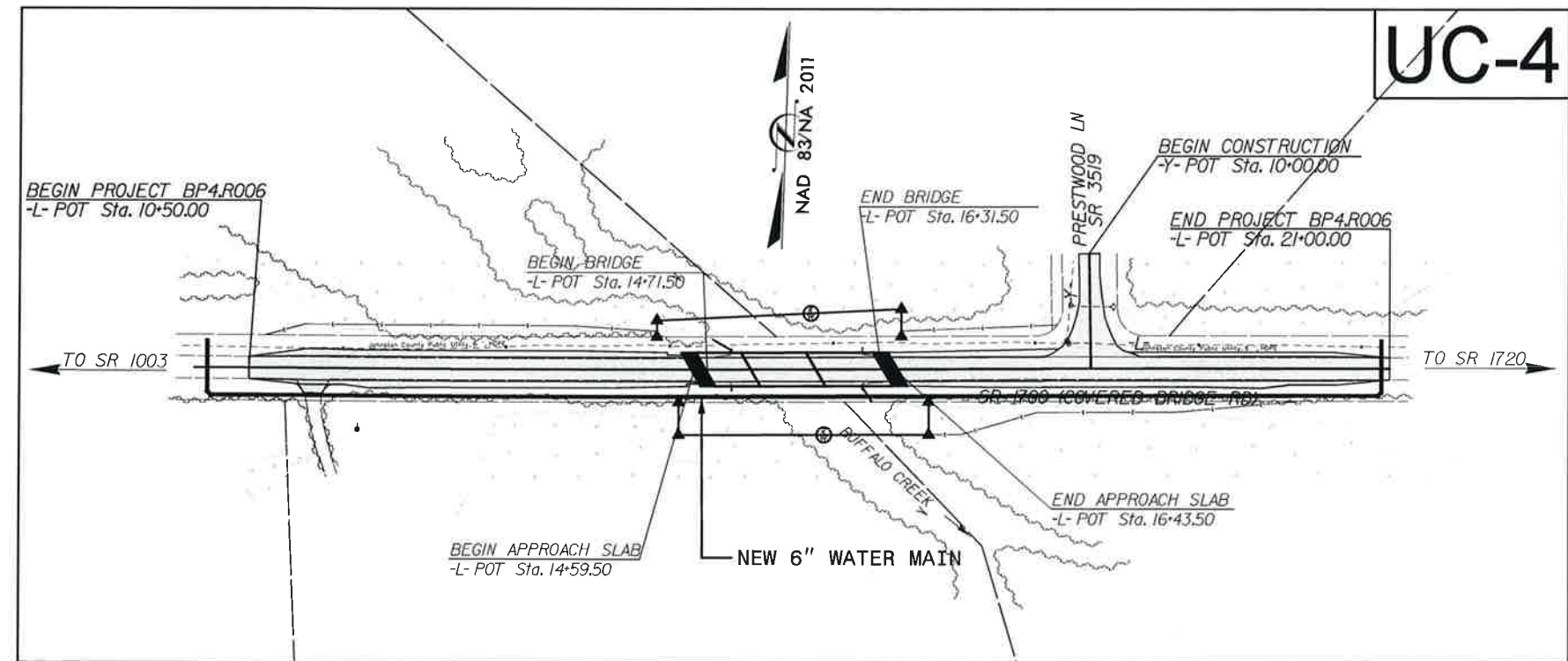
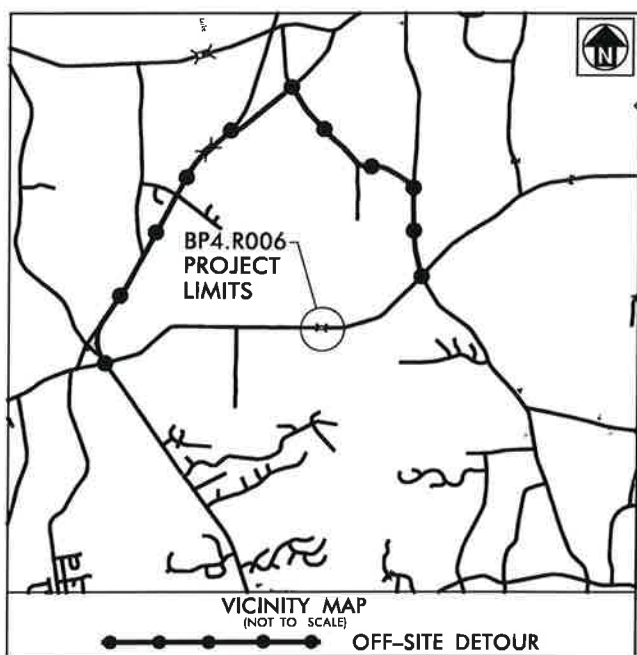
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
BP4.R006	UC-1

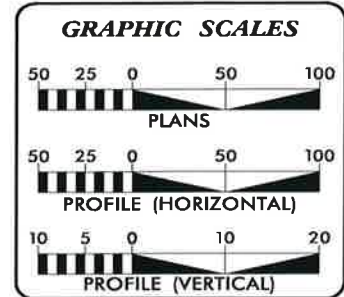
JOHNSTON COUNTY

LOCATION: BRIDGE NO. 173 OVER BUFFALO CREEK
ON SR 1700 (COVERED BRIDGE ROAD)

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-3B	DETAILS
UC-4	UTILITY CONSTRUCTION SHEETS
UC-5	UTILITY PROFILE SHEETS

WATER OWNERS ON PROJECT

(A) WATER - JOHNSTON COUNTY

PREPARED IN THE OFFICE OF

Wooten

120 North Boylan Avenue Raleigh, NC 27603-1423
919 828 0531 Fax 919 834 3559
License Number: F-0115

DAVE MALINAUSKAS, P.E. PROJECT ENGINEER

CONSULTANT CONTACT #2

CONSULTANT CONTACT #3

SEAL

2/3/23

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

RACHEL EVANS DIVISION 4 PROJECT ENGINEER

KYLE PLEASANT DIVISION 4 UTILITY ENGINEER

UTILITIES AREA COORDINATOR

UTILITIES COORDINATOR

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$SERIAL\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

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	

NOTE

PAY ITEM

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	AATUR	Sanitary Sewer Cleanout	
End of Information	E.O.I.		

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

5/14/99
REV: 2/1/2012

5/14/99

UTILITY CONSTRUCTION



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 2018 AND JOHNSTON COUNTY STANDARD SPECIFICATIONS AND DETAILS.
2. THE EXISTING UTILITIES ARE OWNED BY AND OPERATED BY JOHNSTON COUNTY.
3. ALL WATER LINES ARE 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 ARE 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 OWNERS OWN 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. UTILITY SERVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. SERVICE INTERRUPTIONS SHALL ONLY BE ALLOWED WITH ADVANCED (72 HOUR) WRITTEN NOTICE FOR BOTH JOHNSTON COUNTY AND TOWN OF CLAYTON, FOR PURPOSES OF TIE-INS OR SERVICE SWITCH-OVERS. 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. PROPOSED WATER LINES SHALL BE DUCTILE IRON (RESTRAINED JOINT WHERE SHOWN).
2. PROPOSED WATER LINE FROM -L- LINE STATION 10+12 TO -L- LINE STATION 10+57 AND -L- LINE STATION 20+07 TO -L- LINE STATION 20+93 SHALL BE D.I.R.J. (DUCTILE IRON RESTRAINED JOINT) PIPE.
3. 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.
4. TRACER WIRE, WARNING TAPES, AND UTILITY MARKERS SHALL BE INSTALLED WITH ALL PLASTIC PIPE UTILITIES. WIRE, TAPE AND PIPE SHALL BE COLOR CODED ACCORDING TO UTILITY (BLUE FOR WATER, GREEN FOR SEWER).
5. EXISTING CONDITIONS SURVEY AND PROPOSED HIGHWAY PLANS PROVIDED TO THE WOOTEN COMPANY BY NCDOT.
6. THRUST COLLARS ON EXISTING UTILITIES ARE TO BE INSTALLED AND CURED PRIOR TO CONNECTION OF NEW UTILITIES TO EXISTING UTILITIES.
7. CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE TEMPORARY SHUTDOWNS WITH JOHNSTON COUNTY. CONTRACTOR IS RESPONSIBLE FOR HAVING ADEQUATE STAFF AND MATERIALS TO COMPLETE THE CUT-IN CONNECTION DURING THE SPECIFIED SHUTDOWN.

 120 North Boykin Avenue Raleigh, NC 27603-1423 919 833 0531 Fax 919 834 3559 License Number: P-2019	PREPARED IN THE OFFICE OF: Wooten	PROJECT REFERENCE NO. BP4.R006	SHEET NO. UC-3
	DESIGNED BY: DGM DRAWN BY: TK CHECKED BY: DGM APPROVED BY: DGM REVISED:		
VERTICAL SCALE: 1" = 10' HORIZONTAL SCALE: 1" = 25'		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
WATER LINE CONSTRUCTION SHOWN ON THIS SHEET		UTILITY CONSTRUCTION	

JOHNSTON COUNTY SEQUENCING NOTES:

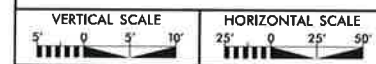
1. LAY NEW LINE TO TIE-IN POINTS AND POUR THRUST COLLARS ON EXISTING LINES.
2. INSTALL JUMPER AT ONE END OF TIE-IN POINT TO FILL/TEST/FLUSH LINE.
3. PRESSURE TEST AND CHLORINE NEW LINE.
4. SUBMIT PASSING BAC-T SAMPLE AND ENGINEER'S CERTIFICATION.
5. MAKE 6" TIE-INS.
6. ABANDON OLD LINE.

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN FEET AND INCHES. DIMENSIONS SHALL BE TO CENTER UNLESS OTHERWISE NOTED.

5/14/99

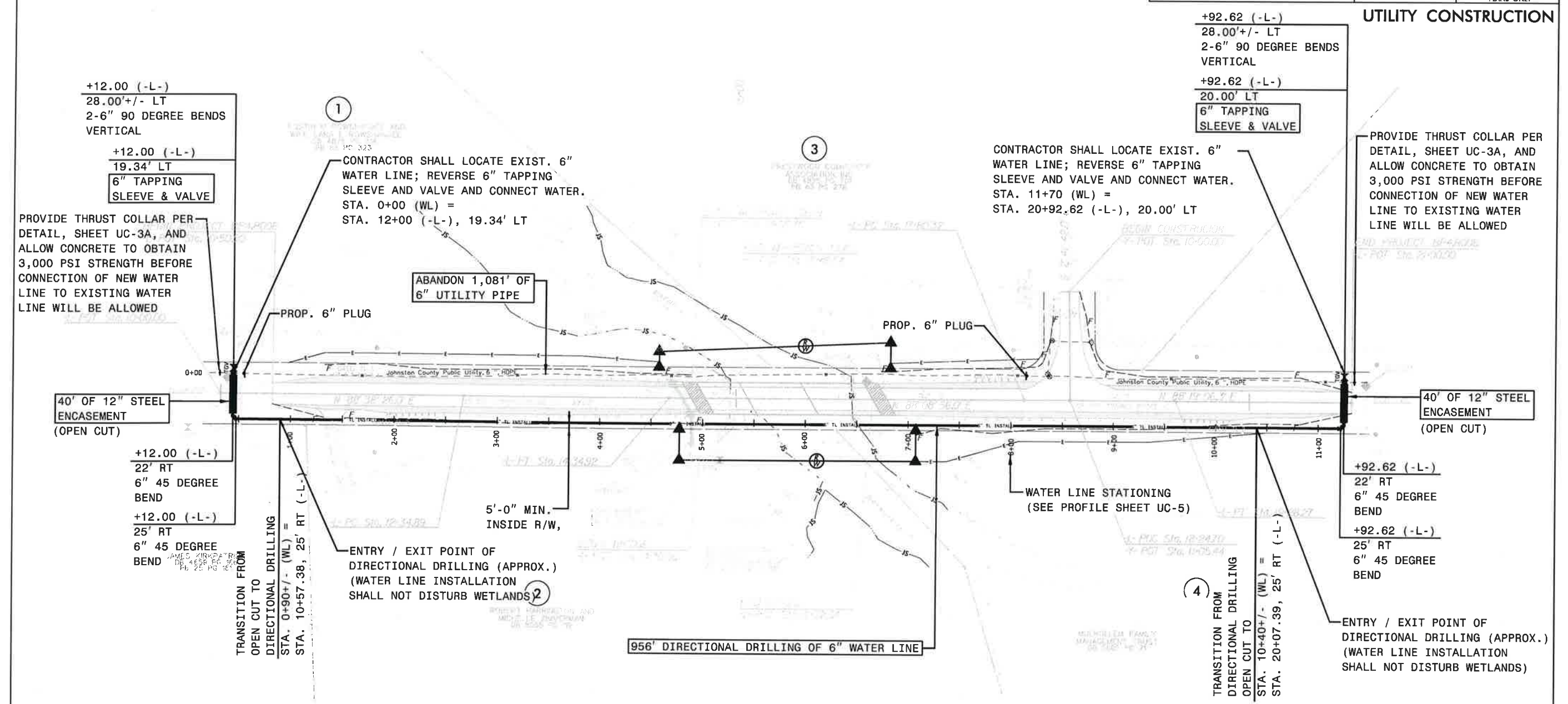


PROJECT REFERENCE NO. BP4.R006	SHEET NO. UC-4
DESIGNED BY: DGM	
DRAWN BY: TK	
CHECKED BY: DGM	
APPROVED BY: DGM	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
Document Not Considered Final Unless All Signatures Completed UTILITY CONSTRUCTION PLANS ONLY	



WATER LINE CONSTRUCTION SHOWN ON THIS SHEET

UTILITY CONSTRUCTION



+12.00 (-L-)
28.00' +/- LT
2-6" 90 DEGREE BENDS
VERTICAL

+12.00 (-L-)
19.34' LT
6" TAPPING
SLEEVE & VALVE

PROVIDE THRUST COLLAR PER
DETAIL, SHEET UC-3A, AND
ALLOW CONCRETE TO OBTAIN
3,000 PSI STRENGTH BEFORE
CONNECTION OF NEW WATER
LINE TO EXISTING WATER
LINE WILL BE ALLOWED

1
CONTRACTOR SHALL LOCATE EXIST. 6"
WATER LINE; REVERSE 6" TAPPING
SLEEVE AND VALVE AND CONNECT WATER.
STA. 0+00 (WL) =
STA. 12+00 (-L-), 19.34' LT

ABANDON 1,081' OF
6" UTILITY PIPE

PROP. 6" PLUG

PROP. 6" PLUG

CONTRACTOR SHALL LOCATE EXIST. 6"
WATER LINE; REVERSE 6" TAPPING
SLEEVE AND VALVE AND CONNECT WATER.
STA. 11+70 (WL) =
STA. 20+92.62 (-L-), 20.00' LT

PROVIDE THRUST COLLAR PER
DETAIL, SHEET UC-3A, AND
ALLOW CONCRETE TO OBTAIN
3,000 PSI STRENGTH BEFORE
CONNECTION OF NEW WATER
LINE TO EXISTING WATER
LINE WILL BE ALLOWED

40' OF 12" STEEL
ENCASEMENT
(OPEN CUT)

+12.00 (-L-)
22' RT
6" 45 DEGREE
BEND
+12.00 (-L-)
25' RT
6" 45 DEGREE
BEND

TRANSITION FROM
OPEN CUT TO
DIRECTIONAL DRILLING
STA. 0+90+/- (WL) =
STA. 10+57.38, 25' RT (-L-)

ENTRY / EXIT POINT OF
DIRECTIONAL DRILLING (APPROX.)
(WATER LINE INSTALLATION
SHALL NOT DISTURB WETLANDS)

5'-0" MIN.
INSIDE R/W,

956' DIRECTIONAL DRILLING OF 6" WATER LINE

WATER LINE STATIONING
(SEE PROFILE SHEET UC-5)

4
TRANSITION FROM
DIRECTIONAL DRILLING
OPEN CUT TO
STA. 10+40+/- (WL) =
STA. 20+07.39, 25' RT (-L-)

+92.62 (-L-)
22' RT
6" 45 DEGREE
BEND
+92.62 (-L-)
25' RT
6" 45 DEGREE
BEND

ENTRY / EXIT POINT OF
DIRECTIONAL DRILLING (APPROX.)
(WATER LINE INSTALLATION
SHALL NOT DISTURB WETLANDS)

40' OF 12" STEEL
ENCASEMENT
(OPEN CUT)

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON
WATER PIPE FITTINGS ON THIS PLAN SHEET
IS 690 POUNDS. THE ACTUAL QUANTITY AND
TYPE OF FITTINGS WILL VARY BASED ON
FIELD CONDITIONS.

BRIDGE APPROACH SLAB

NOTE:
TYPE III ANCHOR UNITS ON
ALL FOUR BRIDGE CORNERS

5/14/99

5/14/99

PREPARED IN THE OFFICE OF:

Wooten

120 North Boylan Avenue Raleigh, NC 27603-1423
919 828 0531 Fax 919 834 3358
License Number: 3-0313

PROJECT REFERENCE NO.

U-6223

SHEET NO.

UC-5

DESIGNED BY: CMG

DRAWN BY: TK

CHECKED BY: DGM

APPROVED BY: CMG

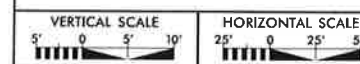
REVISED:

NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION



UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

Document Not Considered Final
Unless All Signatures Completed
UTILITY CONSTRUCTION
PLANS ONLY

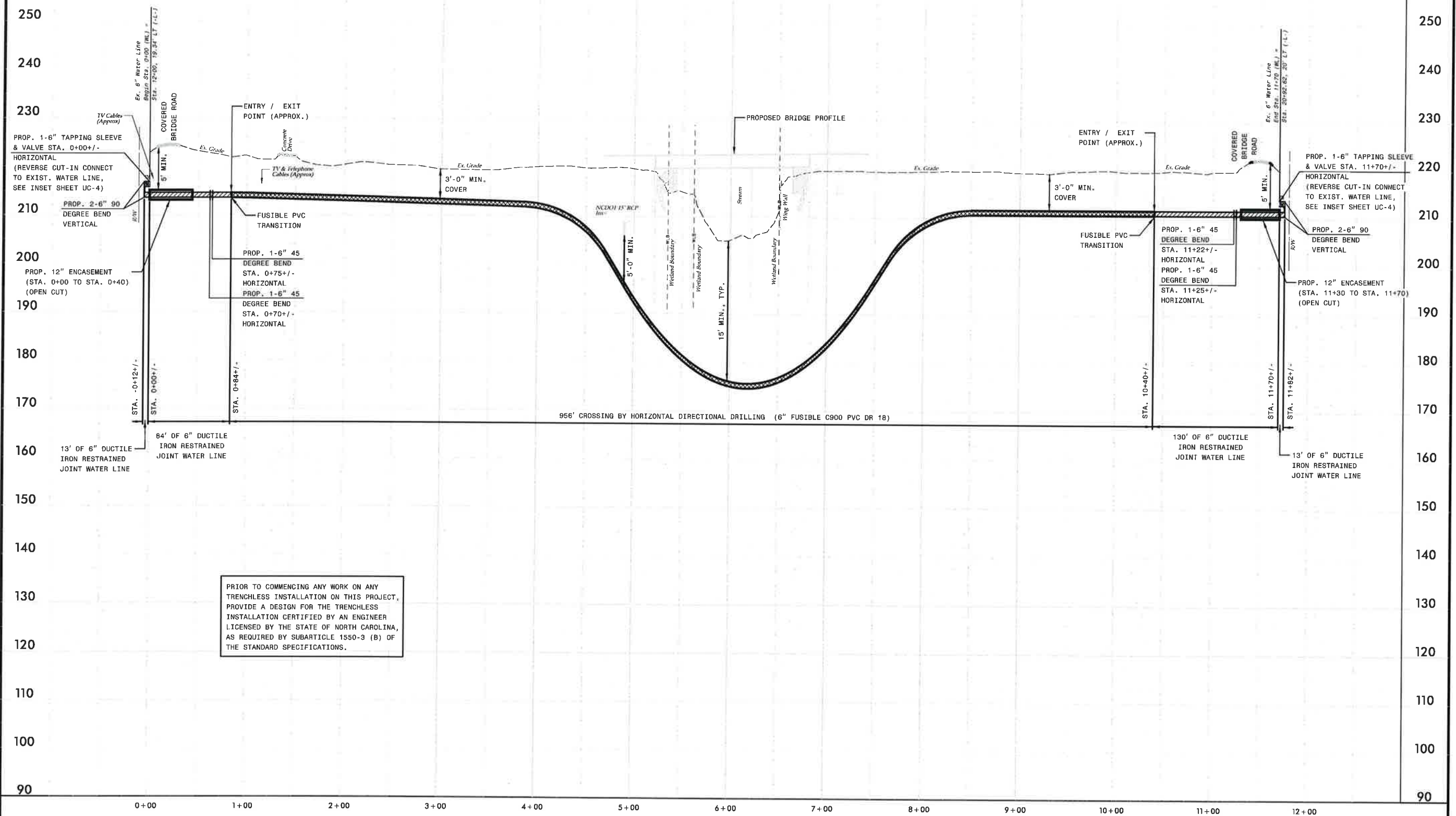


WATER LINE CONSTRUCTION
SHOWN ON THIS SHEET

UTILITY CONSTRUCTION

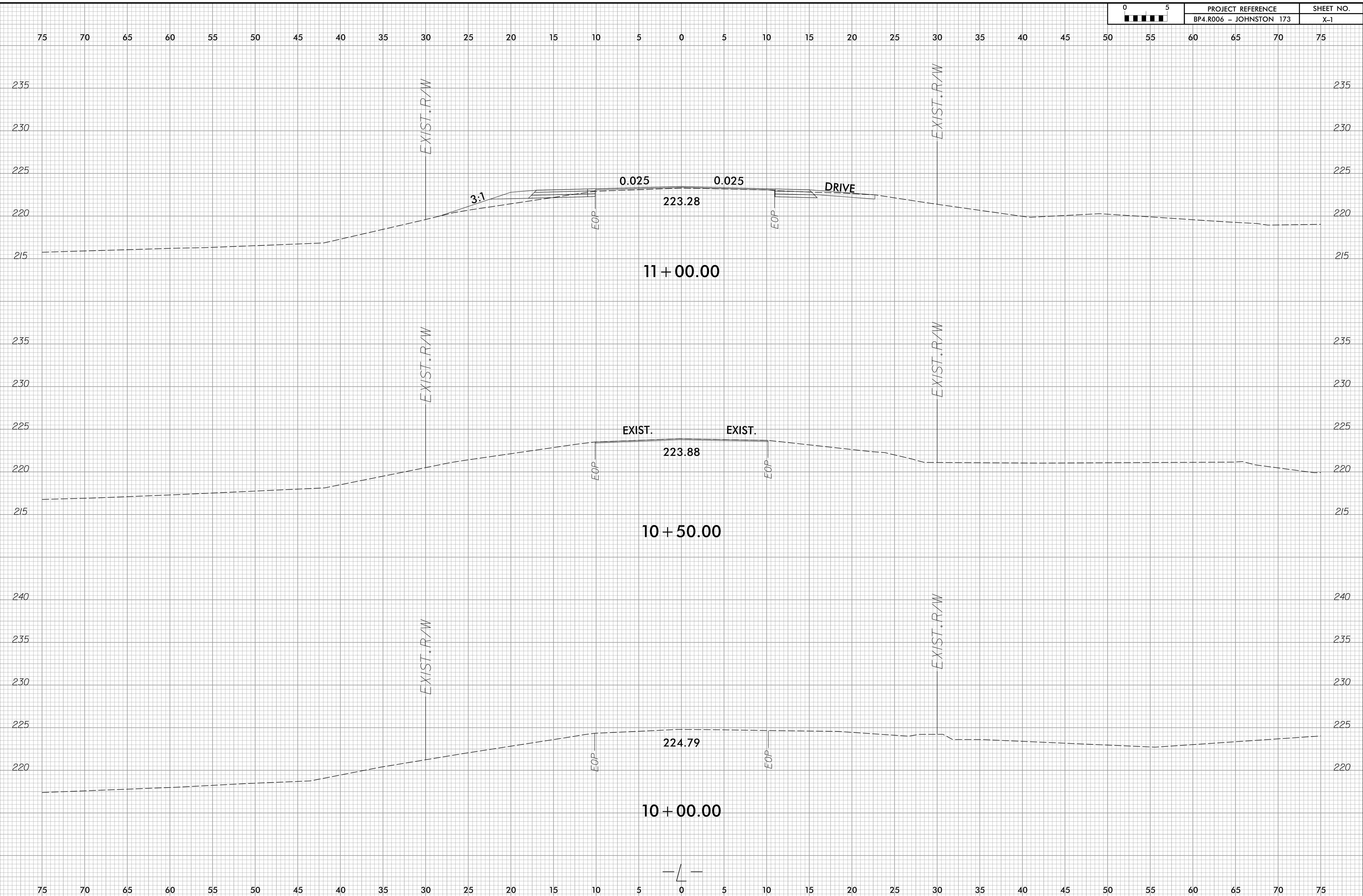
PROFILE SHOWN IS BASED ON STATIONING ALONG
PROPOSED WATER LINE ALIGNMENT ALONG
ROADWAY ALIGNMENT -L-
(SEE SHEET UC-4)

6" Water Line

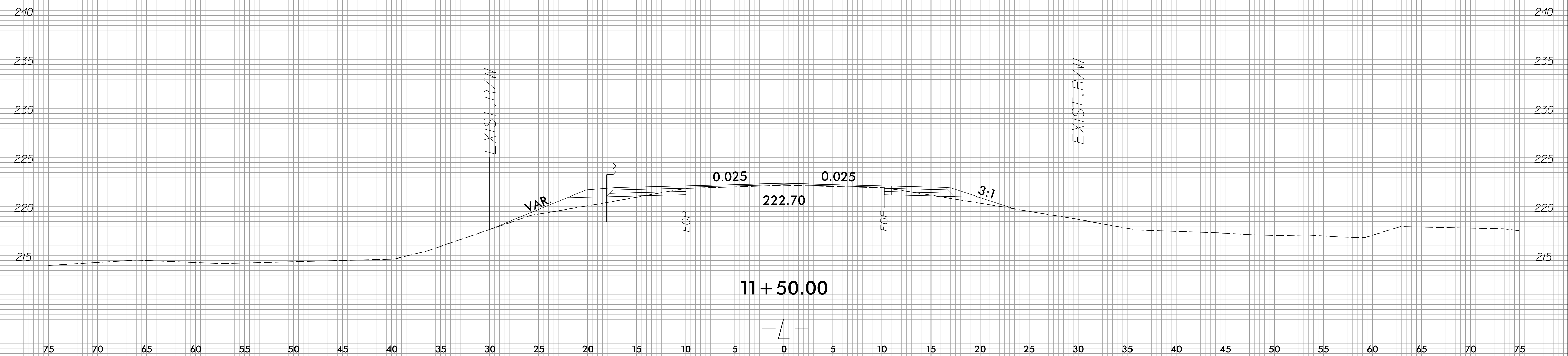
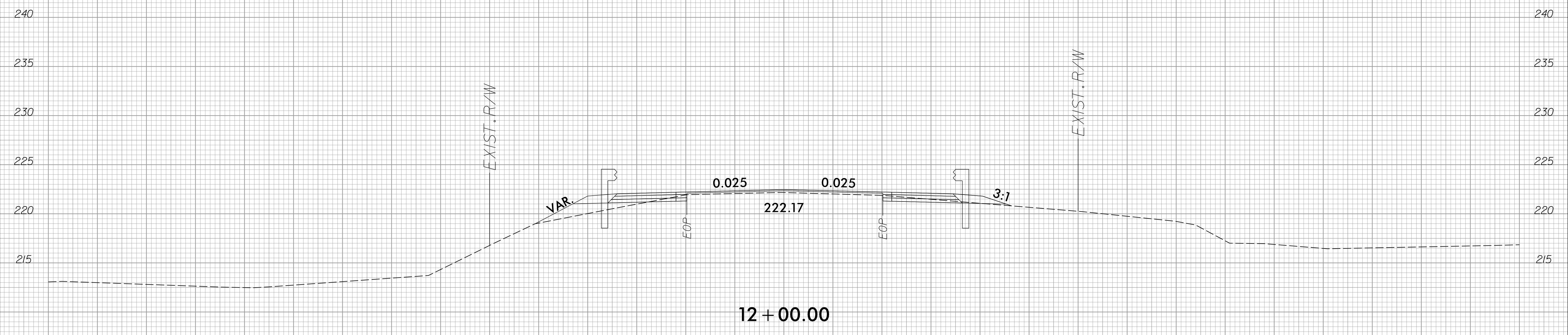


PRIOR TO COMMENCING ANY WORK ON ANY
TRENCHLESS INSTALLATION ON THIS PROJECT,
PROVIDE A DESIGN FOR THE TRENCHLESS
INSTALLATION CERTIFIED BY AN ENGINEER
LICENSED BY THE STATE OF NORTH CAROLINA,
AS REQUIRED BY SUBARTICLE 1550-3 (B) OF
THE STANDARD SPECIFICATIONS.

5/14/99



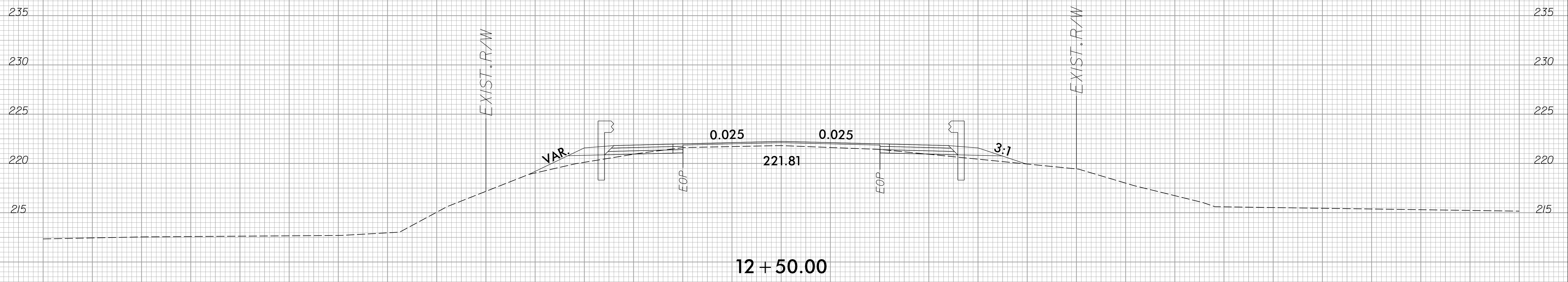
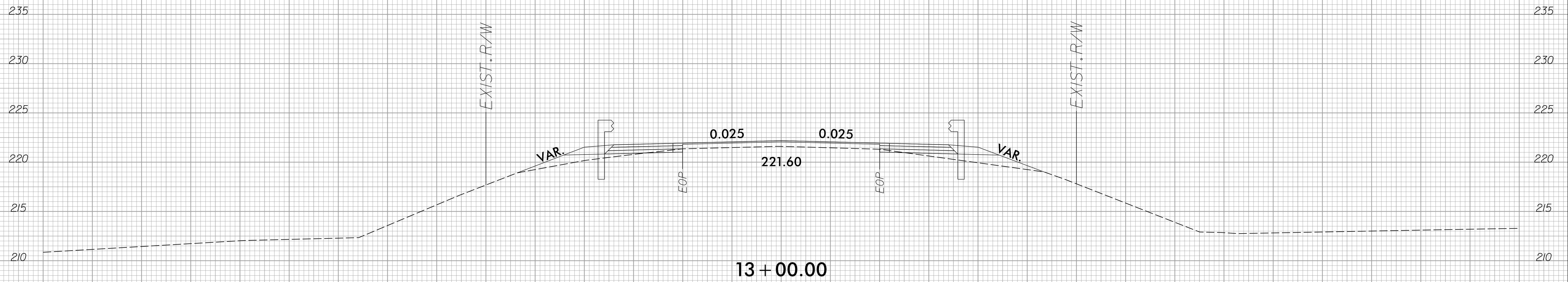
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 JJB/BJB

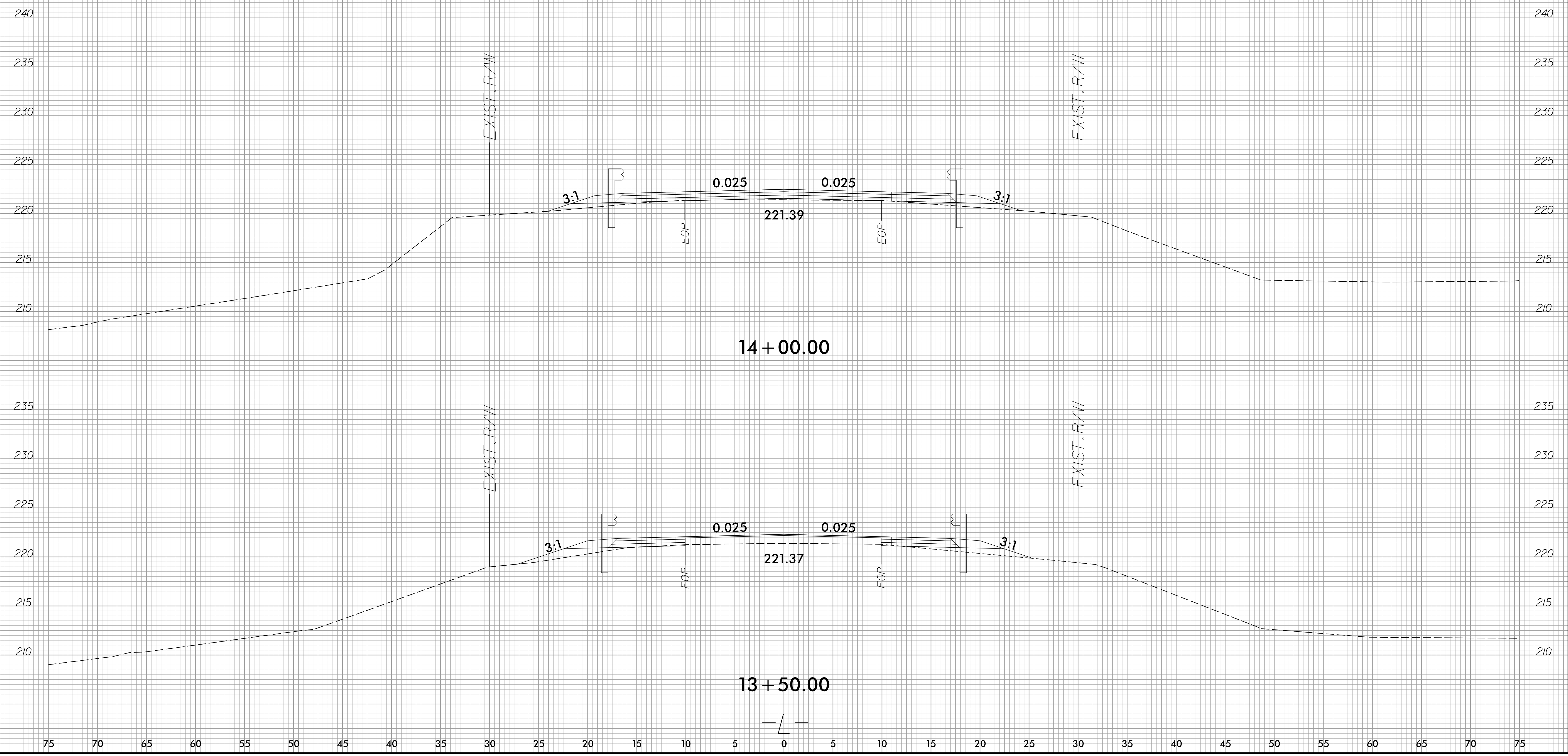
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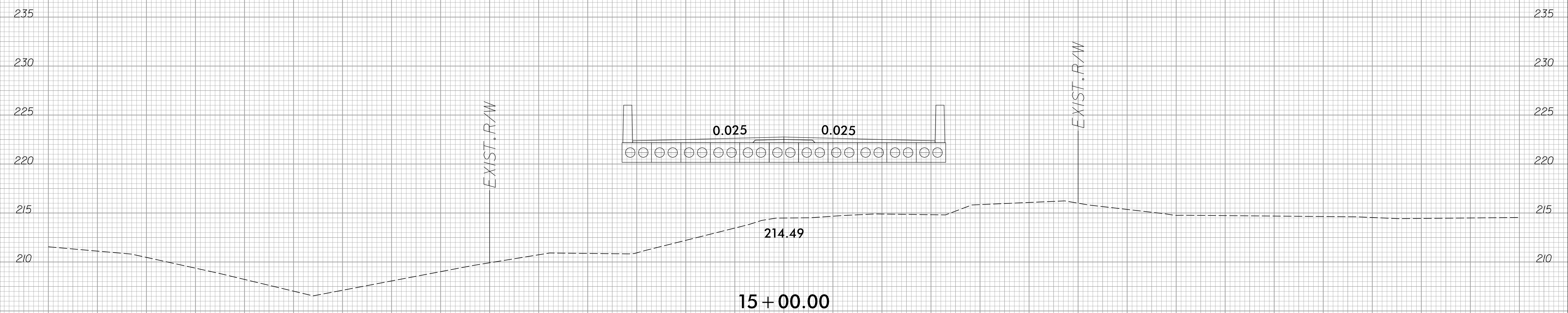
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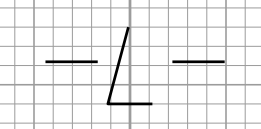
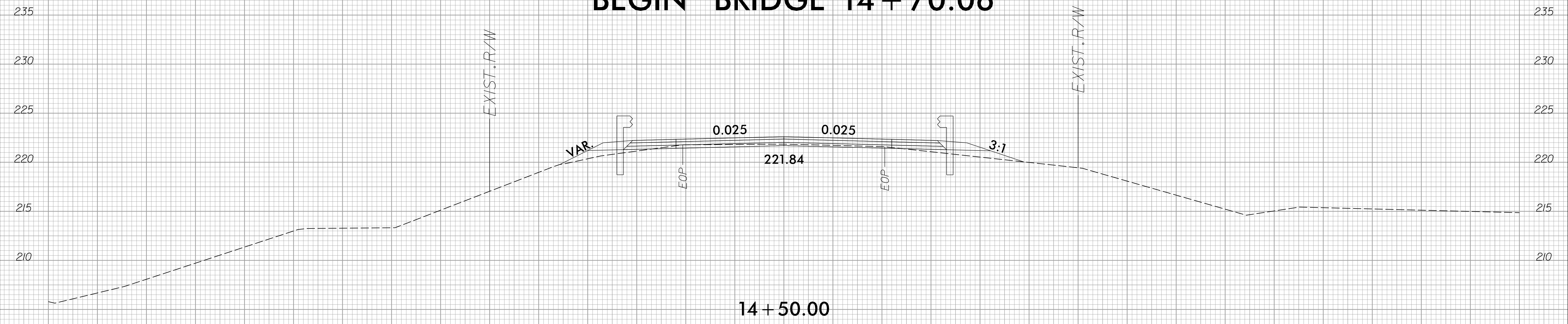


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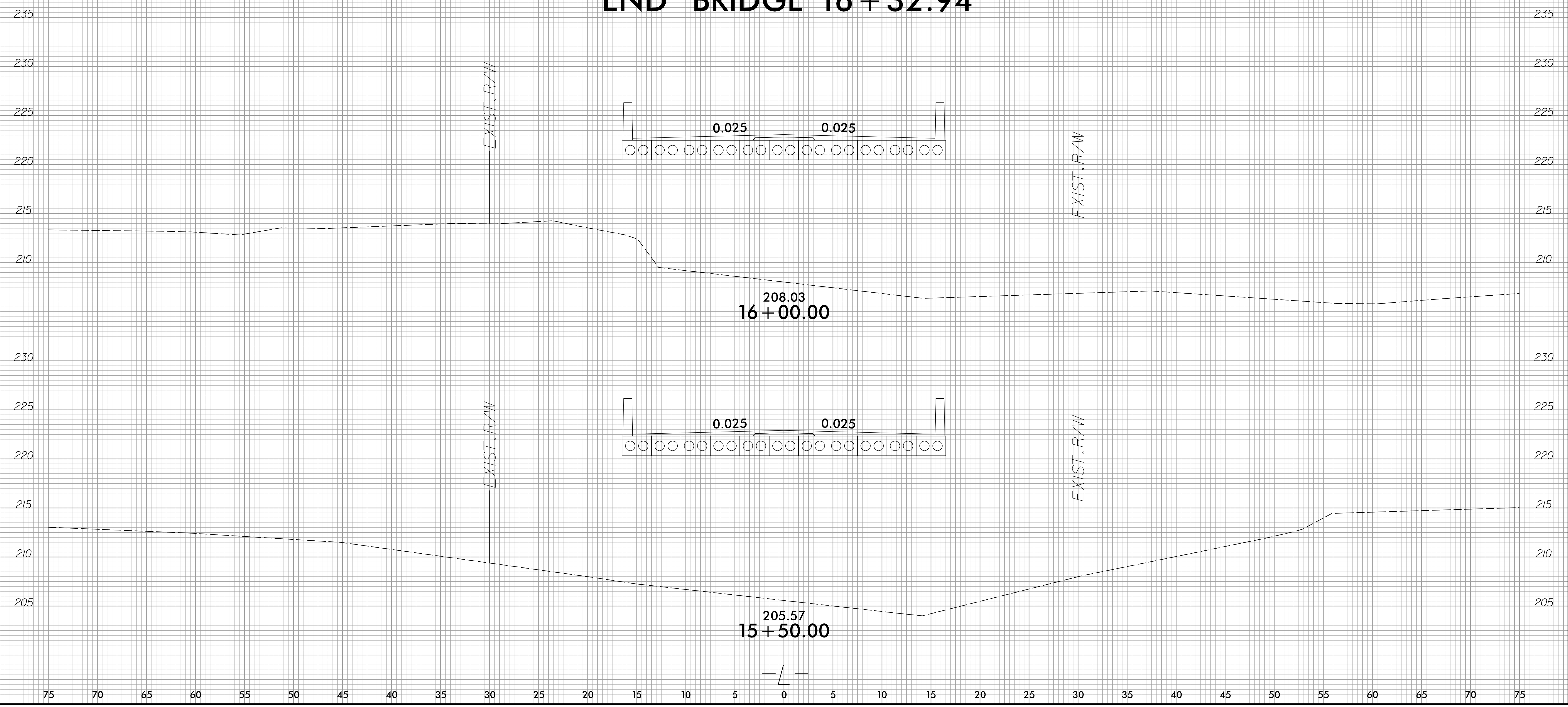
BEGIN BRIDGE 14 + 70.06



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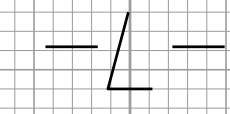
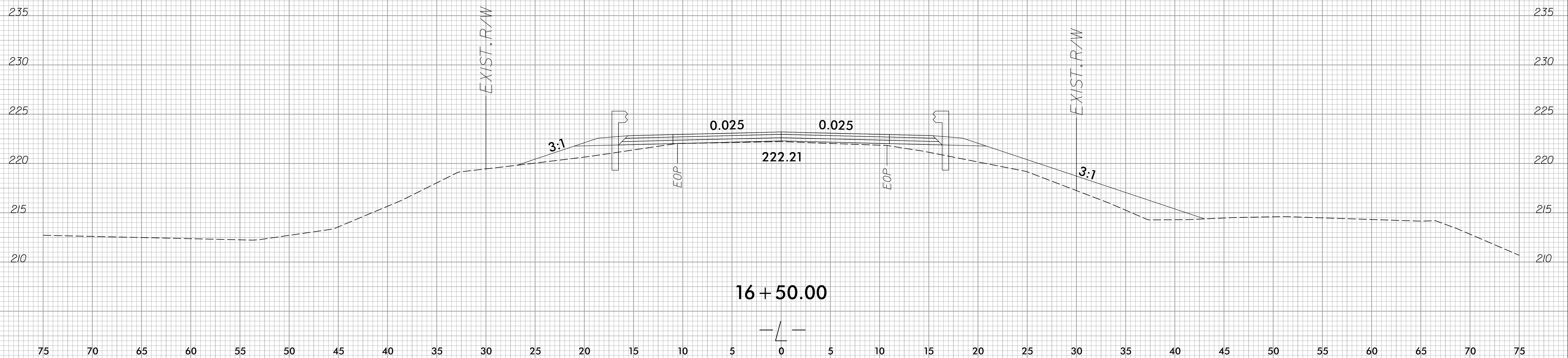
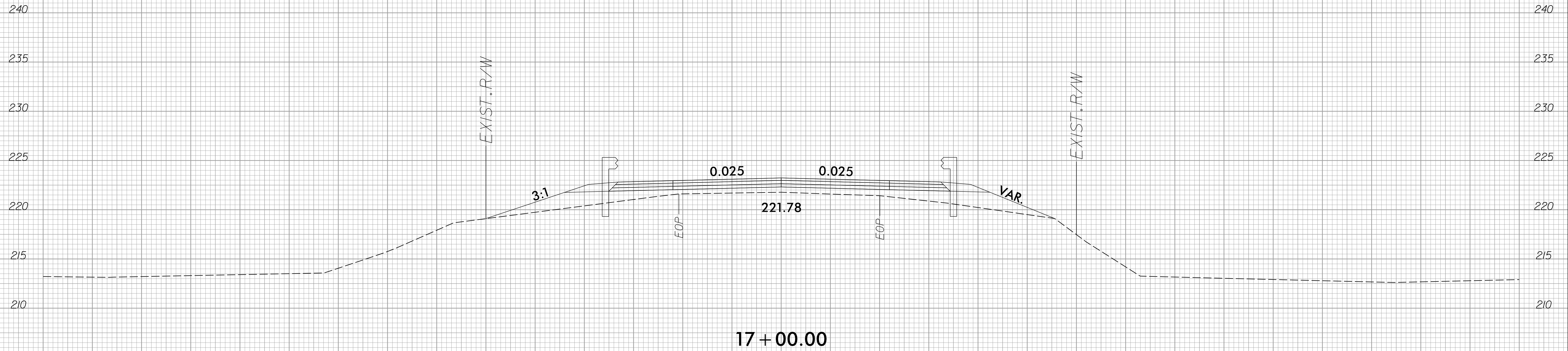
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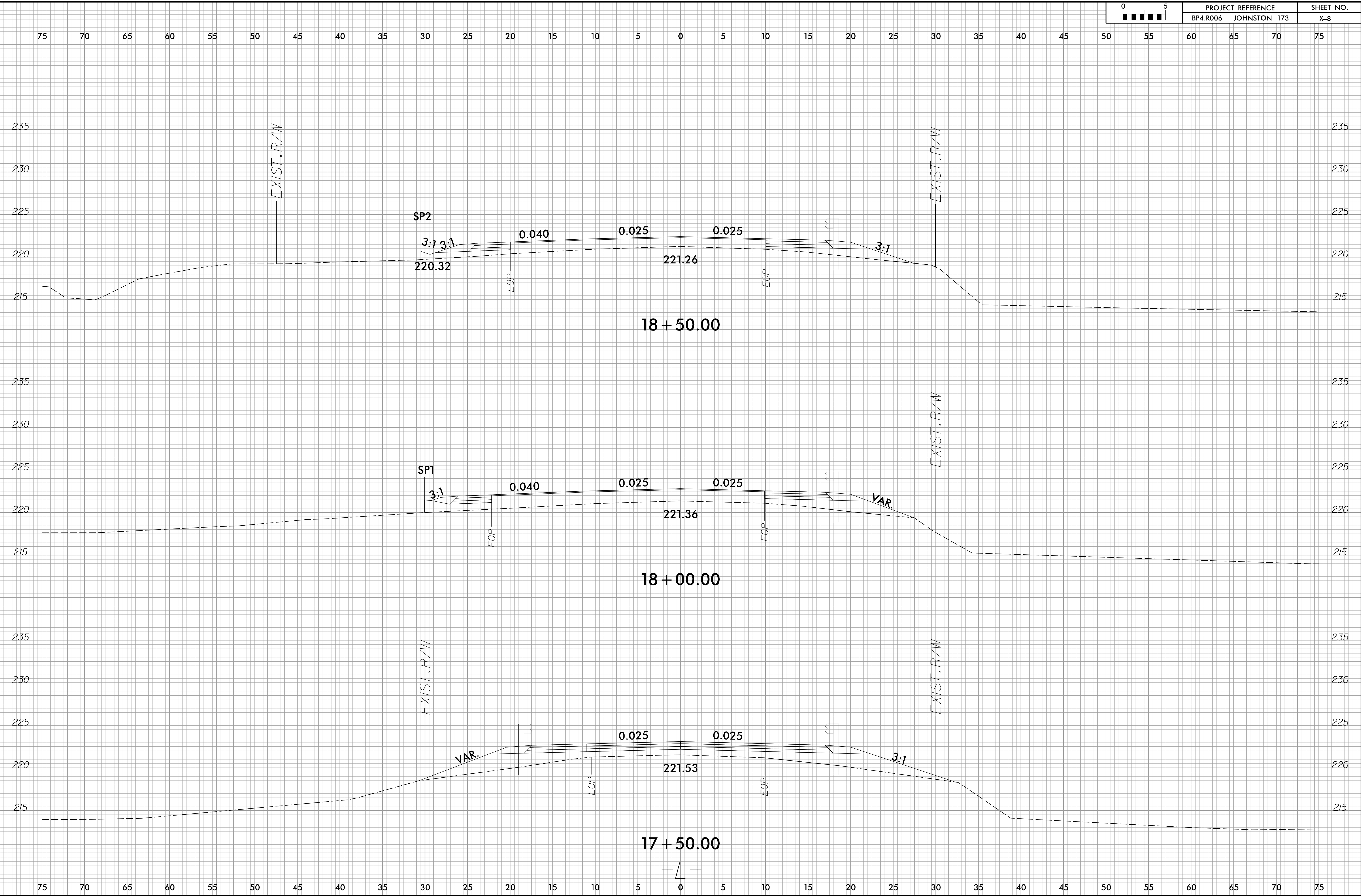
END BRIDGE 16 + 32.94

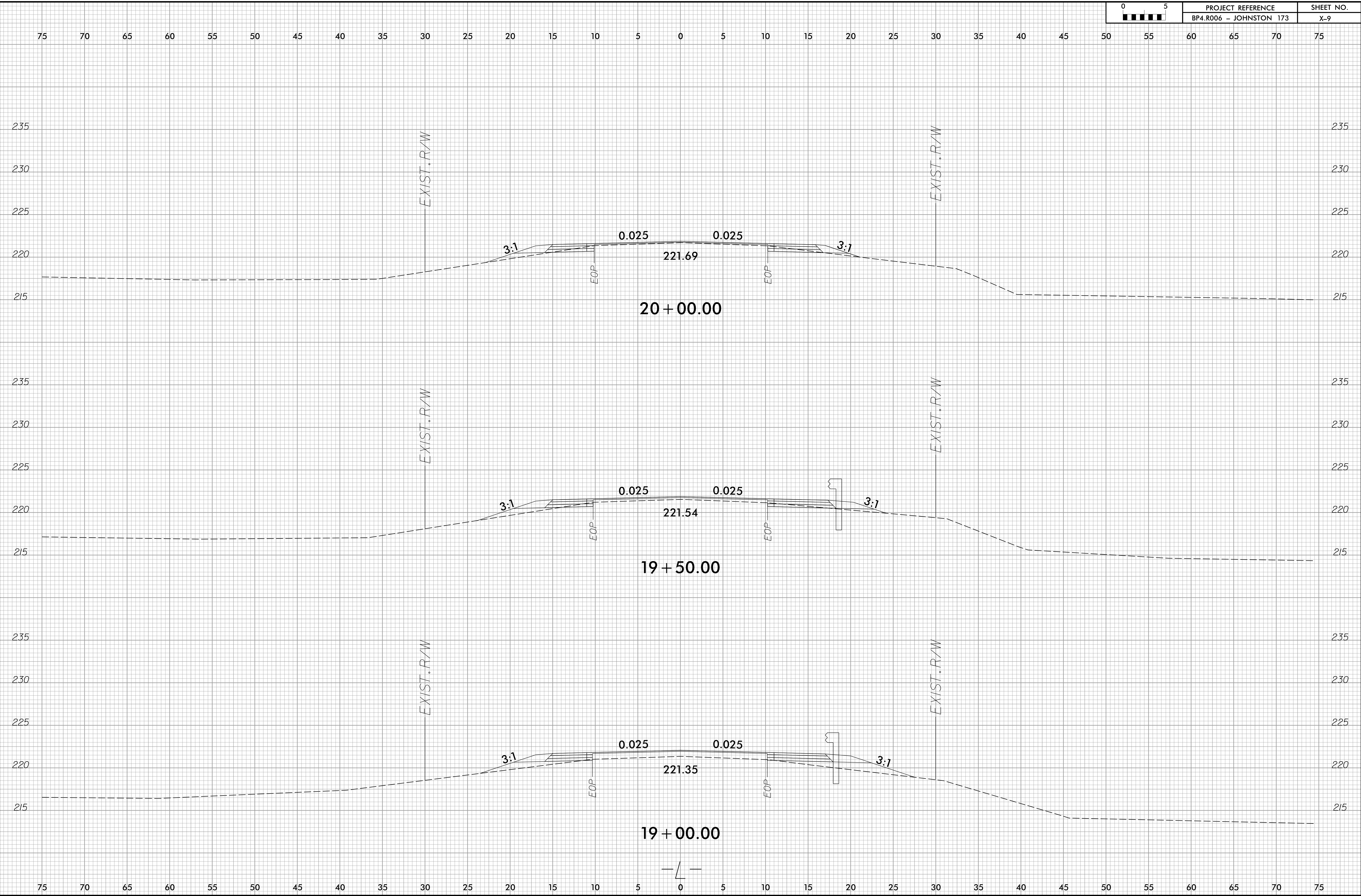


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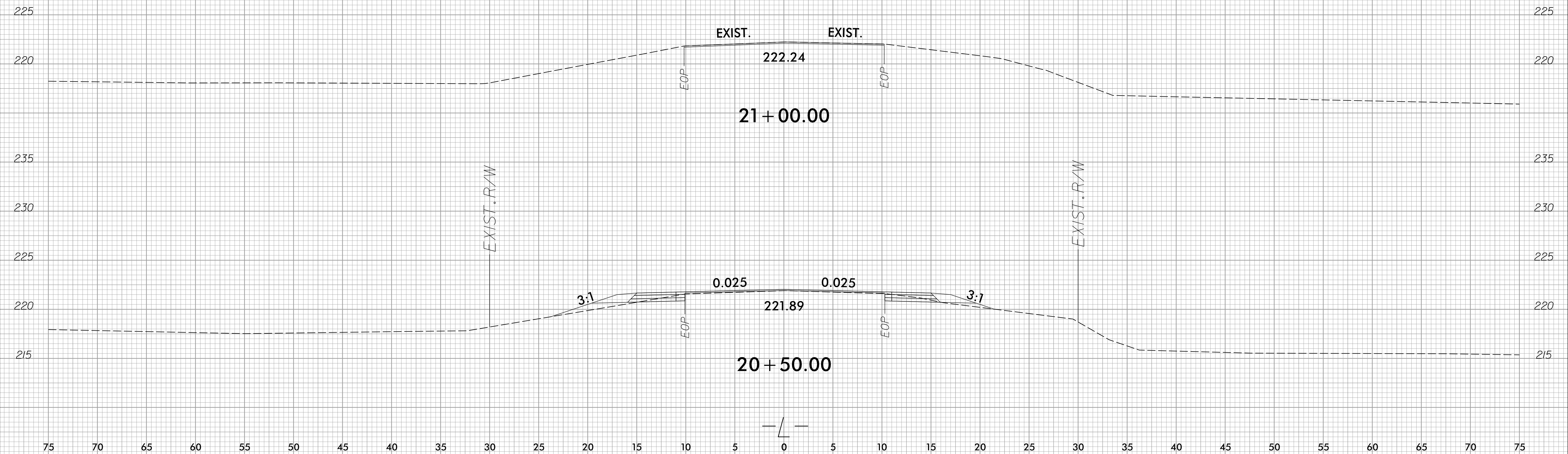
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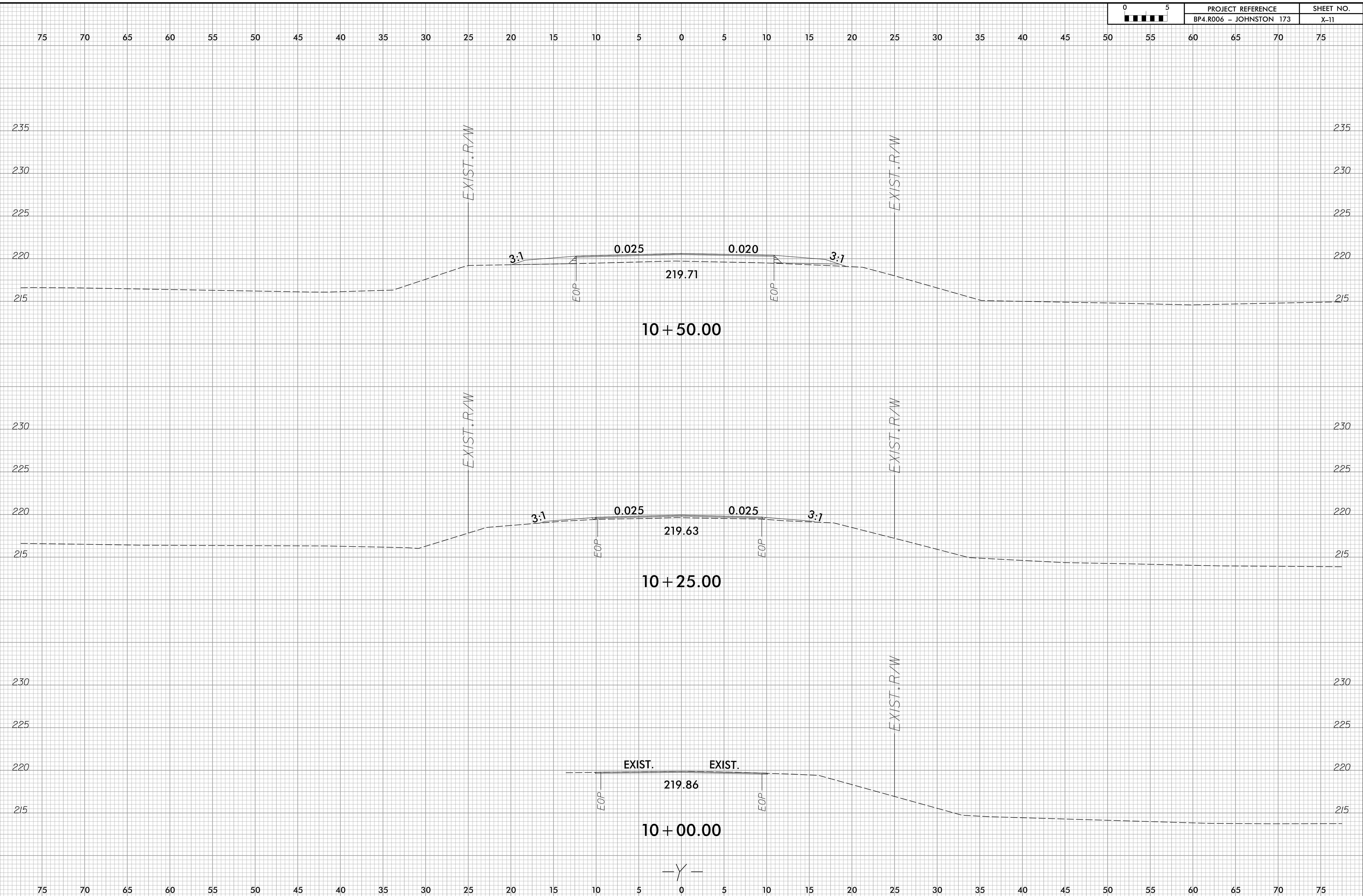


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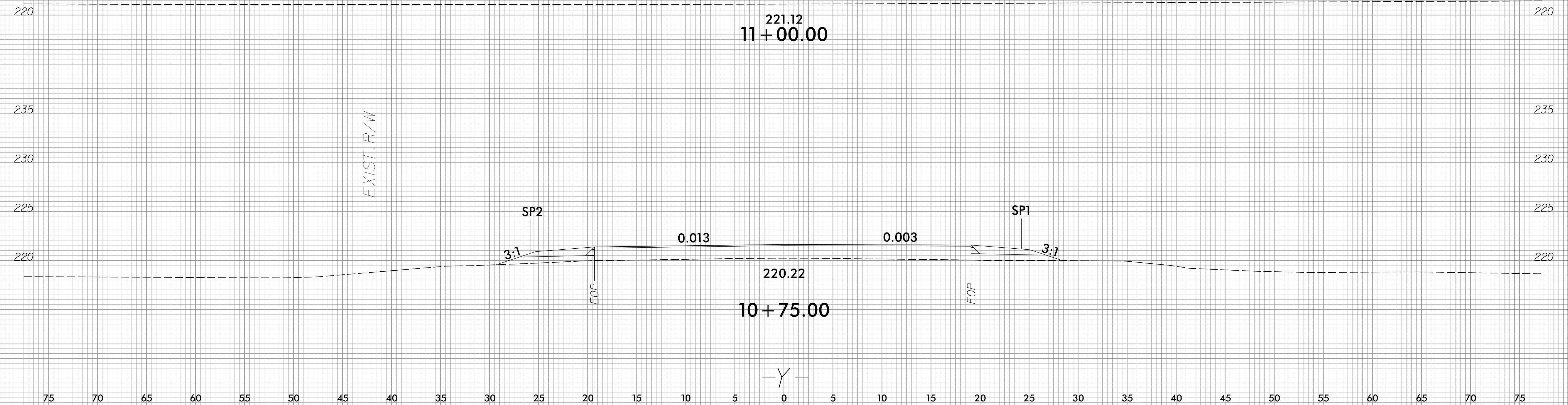


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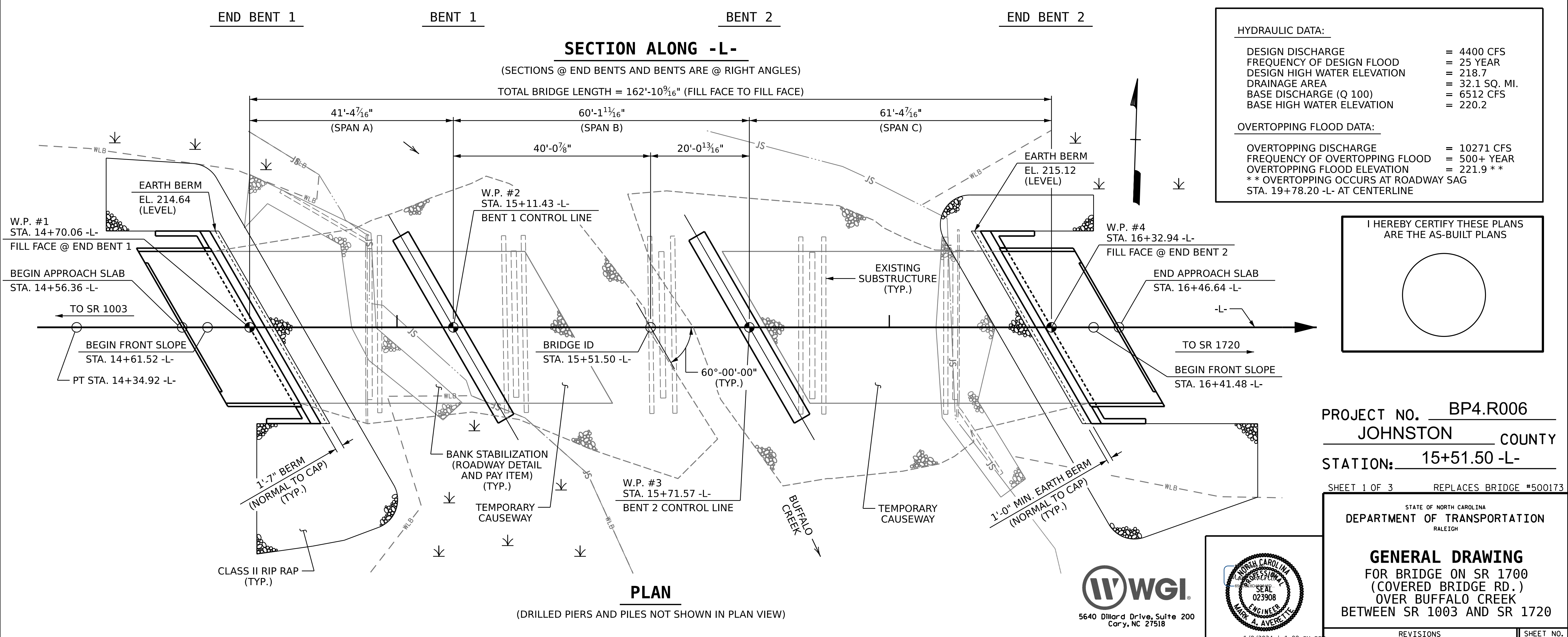
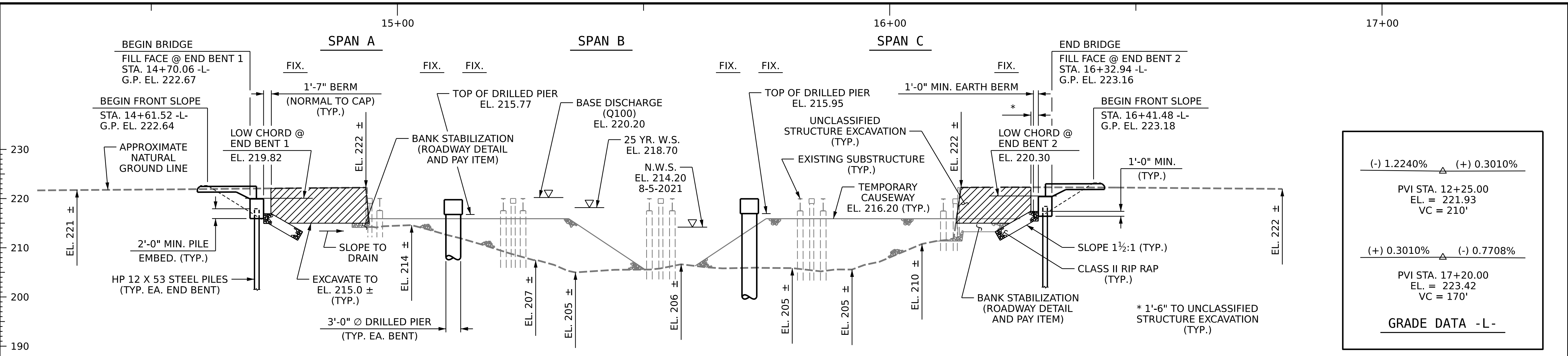
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HYDRAULIC DATA:

DESIGN DISCHARGE	= 4400 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YEAR
DESIGN HIGH WATER ELEVATION	= 218.7
DRAINAGE AREA	= 32.1 SQ. MI.
BASE DISCHARGE (Q 100)	= 6512 CFS
BASE HIGH WATER ELEVATION	= 220.2

OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE	= 10271 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YEAR
OVERTOPPING FLOOD ELEVATION	= 221.9 **
** OVERTOPPING OCCURS AT ROADWAY SAG STA. 19+78.20 -L- AT CENTERLINE	

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. BP4.R006
 JOHNSTON COUNTY
 STATION: 15+51.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE #500173

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1700
 (COVERED BRIDGE RD.)
 OVER BUFFALO CREEK
 BETWEEN SR 1003 AND SR 1720

DRAWN BY : T. BANKOVICH DATE : 11-22
 CHECKED BY : D.A. SEALEY DATE : 11-22
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE : 11-22

WVGI
 5640 Dillard Drive, Suite 200
 Cary, NC 27518
 LICENSURE NO. C-4434

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SEAL
 023908
 ENGINEER
 MARK A. AVERETTE
 1/9/2024 | 1:09 PM PS

REVISIONS				SHEET NO.			
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1	
1			3			TOTAL SHEETS	
2			4			22	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) ## (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Lenth per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Exc Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1, Piles 1-7	60	218.00	50 LT, 40 RT			100							
End Bent 2, Piles 1-7	75	218.00	35 LT, 25 RT			125							

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

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

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) ## (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-5	59			0.60			
End Bent 2, Piles 1-6	74			0.60			

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

SUMMARY OF DRILLED PIER INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pier(s) ## (e.g., "Bent 1, Piers 1-3")	Factored Resistance per Pier TONS	Minimum Pier Tip (Tip No Higher Than) Elevation FT	Required Tip Resistance per Pier TSF	Scour Critical Elevation FT	Minimum Drilled Pier Penetration Into Rock per Pier Lin FT	Drilled Pier Length per Pier Lin FT	Drilled Pier Length Not In Soil per Pier Lin FT	Drilled Pier Length In Soil per Pier Lin FT	Permanent Steel Casing Required? YES or MAYBE	Permanent Steel Casing Tip Elevation (Elev Not To Extend Casing Below) FT	Permanent Steel Casing Length* per Pier Lin FT
Bent 1, Piers 1-3	360	167 LT&CL, 183 RT	35	196			8.0	32.0	YES	183 LT&CL, 196 RT	25.0
Bent 2, Piers 1-3	425	171 LT&CL, 182 RT	115	196			13.0	18.0	YES	187 LT&CL, 197 RT	16.0

*Permanent Steel Casing Length equals the difference between the ground line or top of drilled pier elevation, whichever is higher, and the permanent casing tip elevation.

NOTES:

- The Pile and Drilled Pier Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Pu Zhang, #030788) on 11-03-2022.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
- The Engineer will determine the need for PDA Testing, Permanent Steel Casing, SPTs, CSL Testing, SID Inspections when these items may be required.

SUMMARY OF PDA/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
End Bent 1	MAYBE	50	1		
End Bent 2	MAYBE	35			

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

SUMMARY OF DRILLED PIER TESTING

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pier(s) ## (e.g., "Bent 1, Piers 1-3")	Standard Penetration Test (SPT) Required? YES or MAYBE	Crosshole Sonic Logging (CSL) Required?*	Total CSL Tube Length (For All Tubes) per Pier Lin FT	Shaft Inspection Device (SID) Required? YES or MAYBE	Pile Integrity Test (PIT) Required? MAYBE
Bent 1, Piers 1-3	MAYBE	MAYBE	185	MAYBE	
Bent 2, Piers 1-3	MAYBE	MAYBE	175	MAYBE	
TOTAL QTY:		2	1080	1	

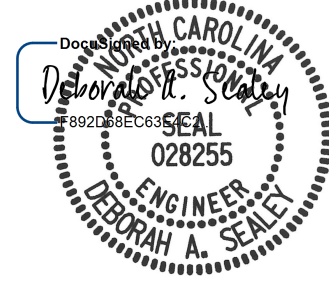
*CSL Tubes are required if CSL Testing is or may be required. The number of CSL Tubes per drilled pier is equal to one tube per foot of design pier diameter with at least 4 tubes per pier. The length of each CSL Tube is equal to the drilled pier length plus 1.5 ft.

PROJECT NO. BP4.R006

JOHNSTON COUNTY

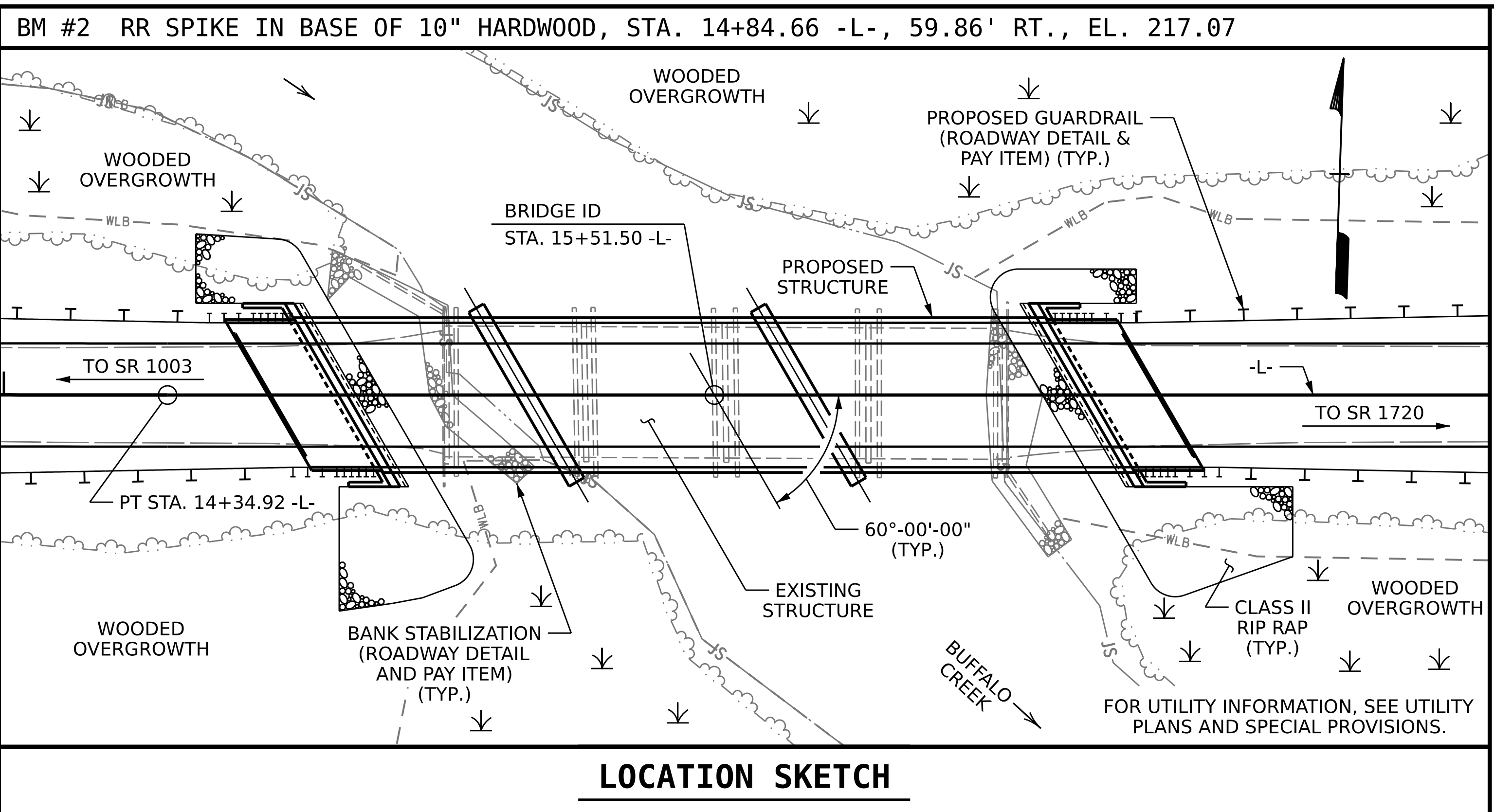
STATION: 15+51.50 -L-

SHEET 2 OF 3

 STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH PILE, DRILLED PIER, AND SPREAD FOOTING FOUNDATION TABLES	REVISIONS			SHEET NO. S-2
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TOTAL SHEETS
22

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LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE MATERIAL IN THE VICINITY OF THE EXISTING BRIDGE SHALL BE EXCAVATED AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

THE EXISTING STRUCTURE CONSISTS OF 4 SPANS, 1 @ 30'-4", 2 @ 30'-0" AND 1 @ 30'-4". THE SUPERSTRUCTURE HAS A CLEAR ROADWAY WIDTH OF 28'-1" WITH STEEL PLANK DECK ON STEEL I-BEAMS. THE END BENTS AND INTERIOR BENTS CONSIST OF TIMBER CAPS ON TIMBER PILES WITH STEEL CRUTCH BENTS. THE EXISTING STRUCTURE, WHICH IS LOCATED AT THE SITE OF THE PROPOSED STRUCTURE, SHALL BE REMOVED.

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 15+51.50 -L."

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

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 15+51.50 -L.

TOTAL BILL OF MATERIAL											
	CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMP ACCESS @ STA.15+51.50 -L-	REMOVAL OF EXISTING STRUCTURE @ STA.15+51.50 -L-	ASBESTOS ASSESMENT	3'-0" DIA. DRILLED PIER IN SOIL	3'-0" DIA. DRILLED PIER NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIERS	SID INSPECTIONS	SPT TESTING	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE
	LS	LS	LS	LF	LF	LF	EA	EA	EA	LS	SF
SUPERSTRUCTURE											5,022
END BENT 1											
BENT 1				96.0	24.0	75.0					
BENT 2				54.0	39.0	54.0					
END BENT 2											
TOTAL	LS	LS	LS	150.0	63.0	123.0	1	1	2	LS	5,022

TOTAL BILL OF MATERIAL															
	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES		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	
	SF	CY	LS	LB	LB	EA	NO.	LF	EA	LF	TON	SY	LS	NO	LF
SUPERSTRUCTURE	5,251		LS							320.00			LS	33	1760.00
END BENT 1		25.7		3,147		7	7	315			155	175			
BENT 1		26.1		11,809	2,189										
BENT 2		26.1		11,536	2,073										
END BENT 2		25.7		3,147		7	7	210			195	220			
TOTAL	5,251	103.6	LS	29,639	4,262	14	14	525	1	320.00	350	395	LS	33	1760.00

FOUNDATION NOTES:

FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

INSTALL PERMANENT STEEL CASINGS AT BENT 1 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 203.5 FT.

INSTALL PERMANENT STEEL CASINGS AT BENT 2 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 197.5 FT.

DO NOT DEWATER DRILLED PIER EXCAVATIONS AT BENT 1 AND 2. CLEAN THE BOTTOM OF EXCAVATIONS WITH A SUBMERSIBLE PUMP OR AND AIRLIFT. WET PLACEMENT OF CONCRETE IS REQUIRED.

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 CHECKED BY : D.A. SEALEY DATE : 11-22
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE : 11-22

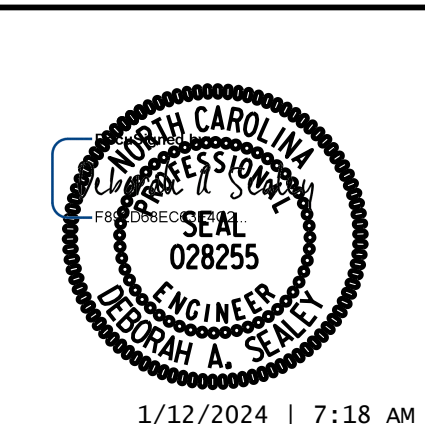
PROJECT NO. BP4.R006
JOHNSTON COUNTY
 STATION: 15+51.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1700
 (COVERED BRIDGE RD.)
 OVER BUFFALO CREEK
 BETWEEN SR 1003 AND SR 1720

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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	1.133	--	1.75	0.249	1.48	60'	EL	29.423	0.649	1.13	60'	EL	5.885	0.80	0.249	1.52	60'	EL	29.423		
	HL-93(0pr)	N/A	--	1.468	--	1.35	0.249	1.91	60'	EL	29.423	0.649	1.47	60'	EL	5.885	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.364	49.098	1.75	0.249	1.87	60'	EL	29.423	0.649	1.36	60'	EL	5.885	0.80	0.249	1.92	60'	EL	29.423		
	HS-20(0pr)	36.000	--	1.768	63.645	1.35	0.249	2.42	60'	EL	29.423	0.649	1.77	60'	EL	5.885	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.938	53.159	1.4	0.249	5.03	60'	EL	29.423	0.649	3.94	60'	EL	5.885	0.80	0.249	4.13	60'	EL	29.423	
		SNGARBS2	20.000	--	2.837	56.744	1.4	0.249	3.85	60'	EL	29.423	0.649	2.84	60'	EL	5.885	0.80	0.249	3.17	60'	EL	29.423	
		SNAGRIS2	22.000	--	2.648	58.256	1.4	0.249	3.69	60'	EL	29.423	0.649	2.65	60'	EL	5.885	0.80	0.249	3.03	60'	EL	29.423	
		SNCOTTS3	27.250	--	1.97	53.671	1.4	0.249	2.5	60'	EL	29.423	0.649	1.97	60'	EL	5.885	0.80	0.249	2.06	60'	EL	29.423	
		SNAGGRS4	34.925	--	1.661	58.001	1.4	0.249	2.13	60'	EL	29.423	0.649	1.66	60'	EL	5.885	0.80	0.249	1.75	60'	EL	29.423	
		SNS5A	35.550	--	1.696	60.293	1.4	0.249	2.08	60'	EL	29.423	0.649	1.7	60'	EL	5.885	0.80	0.249	1.71	60'	EL	29.423	
		SNS6A	39.950	--	1.558	62.257	1.4	0.249	1.93	60'	EL	29.423	0.649	1.56	60'	EL	5.885	0.80	0.249	1.58	60'	EL	29.423	
	TTST	TNAGRIT3	33.000	--	1.846	60.907	1.4	0.249	2.36	60'	EL	29.423	0.649	1.85	60'	EL	5.885	0.80	0.249	1.94	60'	EL	29.423	
		TNT4A	33.075	--	1.787	59.108	1.4	0.249	2.37	60'	EL	29.423	0.649	1.79	60'	EL	5.885	0.80	0.249	1.95	60'	EL	29.423	
		TNT6A	41.600	--	1.607	66.863	1.4	0.249	1.96	60'	EL	29.423	0.649	1.67	60'	EL	5.885	0.80	0.249	1.61	60'	EL	29.423	
		TNT7A	42.000	--	1.598	67.1	1.4	0.249	1.97	60'	EL	29.423	0.649	1.6	60'	EL	5.885	0.80	0.249	1.62	60'	EL	29.423	
		TNT7B	42.000	--	1.499	62.942	1.4	0.249	2.06	60'	EL	29.423	0.649	1.5	60'	EL	5.885	0.80	0.249	1.69	60'	EL	29.423	
		TNAGRIT4	43.000	--	1.447	62.223	1.4	0.249	1.95	60'	EL	29.423	0.649	1.45	60'	EL	5.885	0.80	0.249	1.60	60'	EL	29.423	
		TNAGT5A	45.000	--	1.455	65.474	1.4	0.249	1.83	60'	EL	29.423	0.649	1.45	60'	EL	5.885	0.80	0.249	1.50	60'	EL	29.423	
TNAGT5B	45.000	3	1.374	61.845	1.4	0.249	1.8	60'	EL	29.423	0.649	1.37	60'	EL	5.885	0.80	0.249	1.48	60'	EL	29.423			

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

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

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

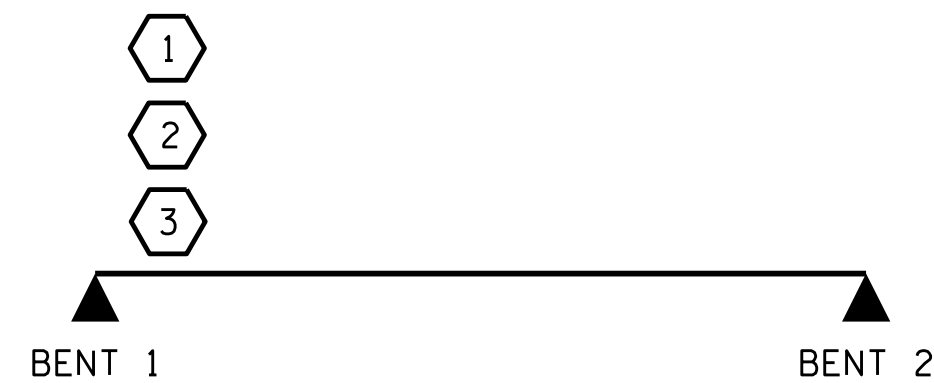
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

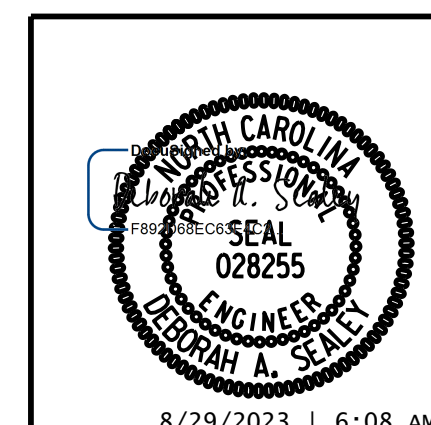
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

SPAN B SHOWN, SPAN C SIMILAR

PROJECT NO. BP4.R006
JOHNSTON COUNTY
 STATION: 15+51.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**LRFR SUMMARY FOR
 60' CORED SLAB UNIT
 60° SKEW**

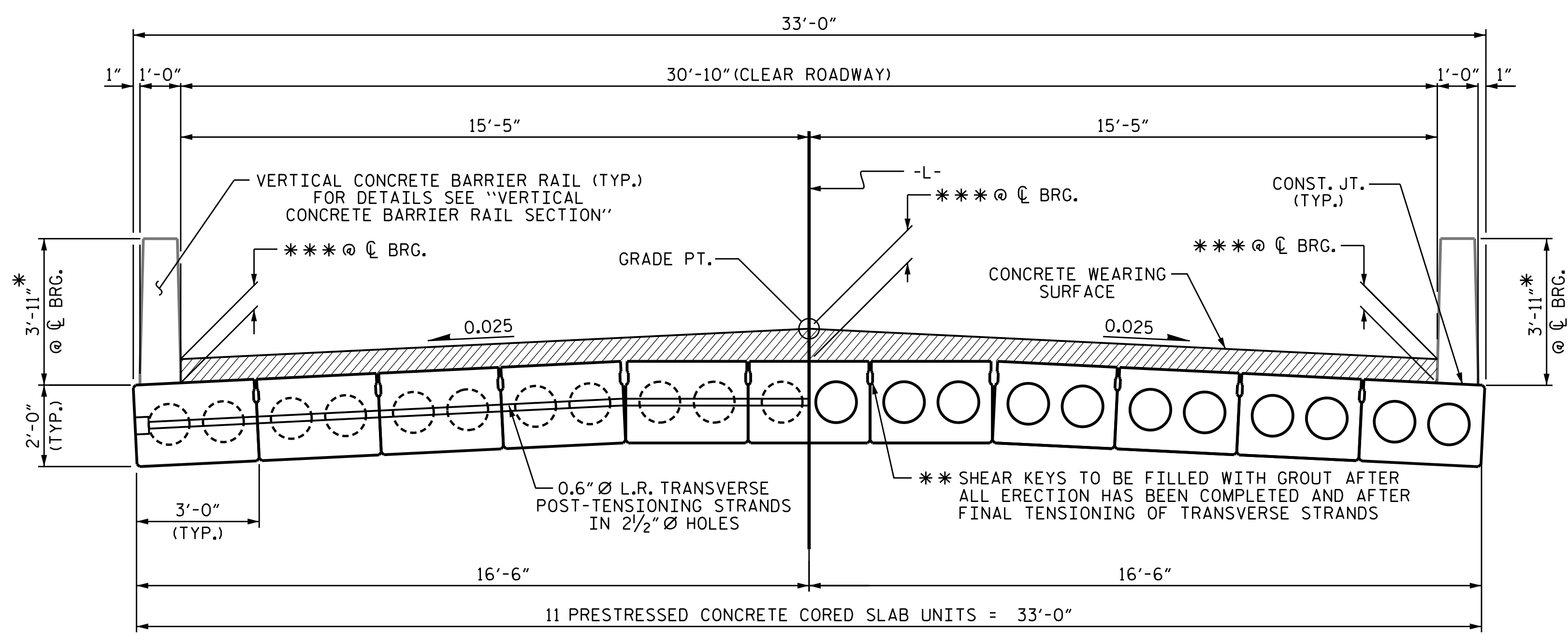
(NON-INTERSTATE TRAFFIC)

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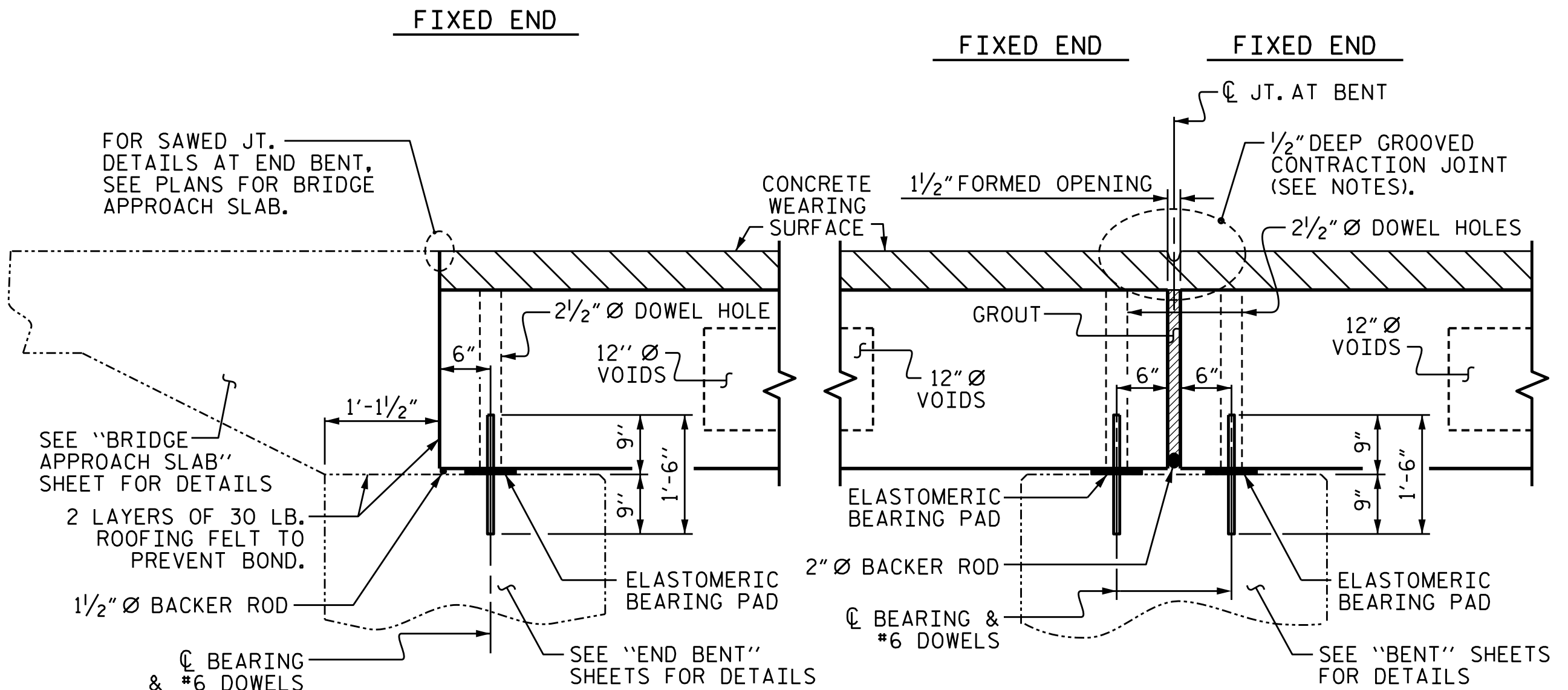
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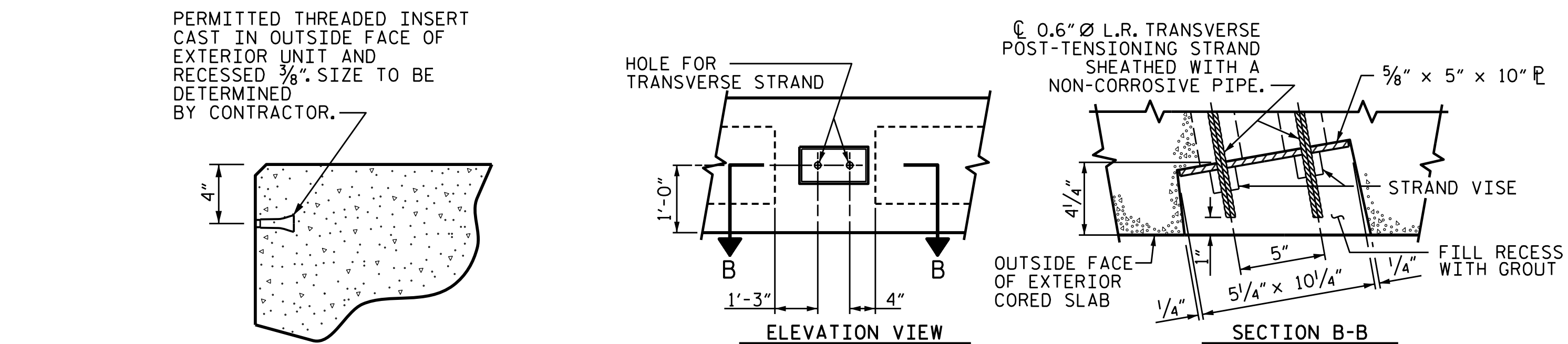


HALF SECTION AT INTERMEDIATE DIAPHRAGMS TYPICAL SECTION HALF SECTION THROUGH VOIDS

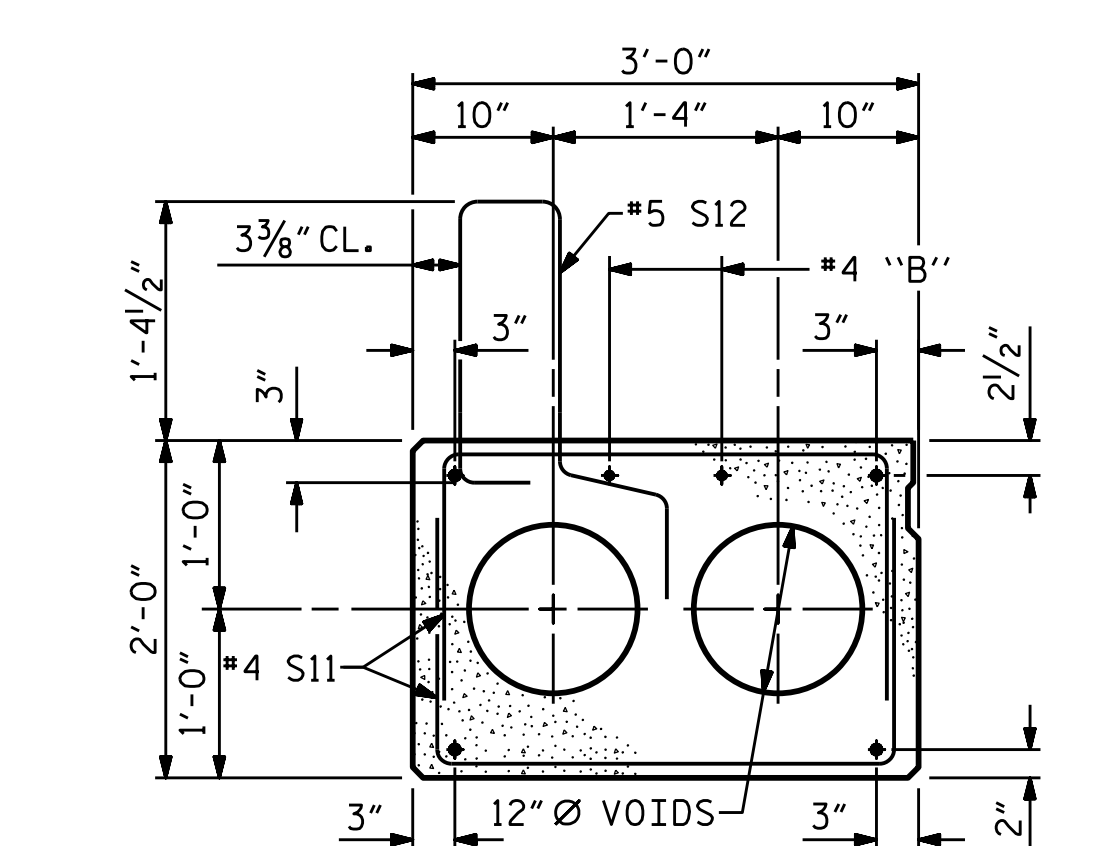
- * - THE MAXIMUM BARRIER RAIL HEIGHT AND CONCRETE THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND CONCRETE THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR BARRIER RAIL HEIGHT DETAILS AND CONCRETE THICKNESS AT MIDSPAN, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.
- ** - GROUT THE SHEAR KEYS BETWEEN THE LEVEL AND SLOPED CORED SLAB UNITS (I.E SHEAR KEYS AT THE BREAK POINTS IN THE CAP) PRIOR TO TENSIONING THE TRANSVERSE STRANDS.
- *** - SEE CHART FOR CONCRETE THICKNESS AT C BEARING



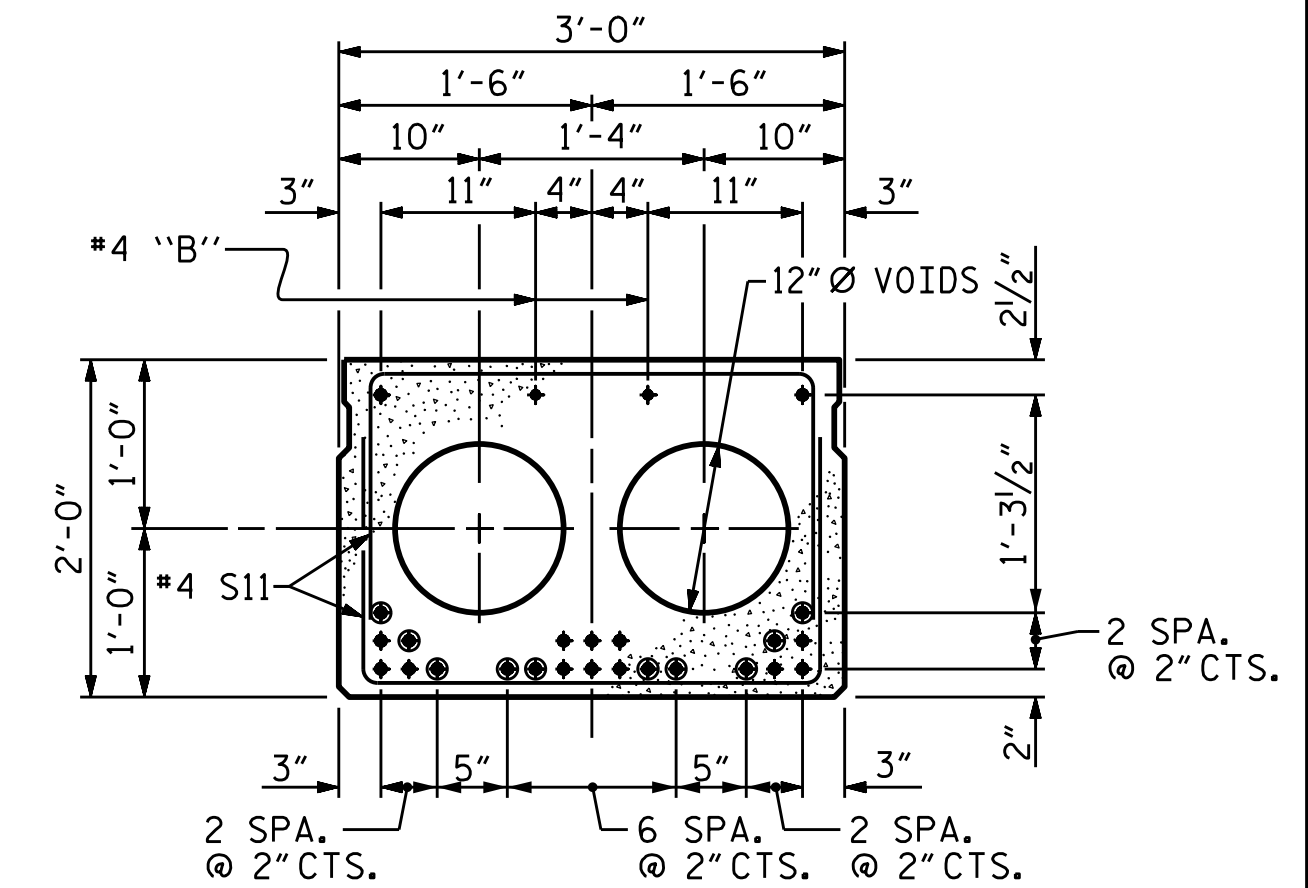
SECTION AT END BENT SECTION AT BENT



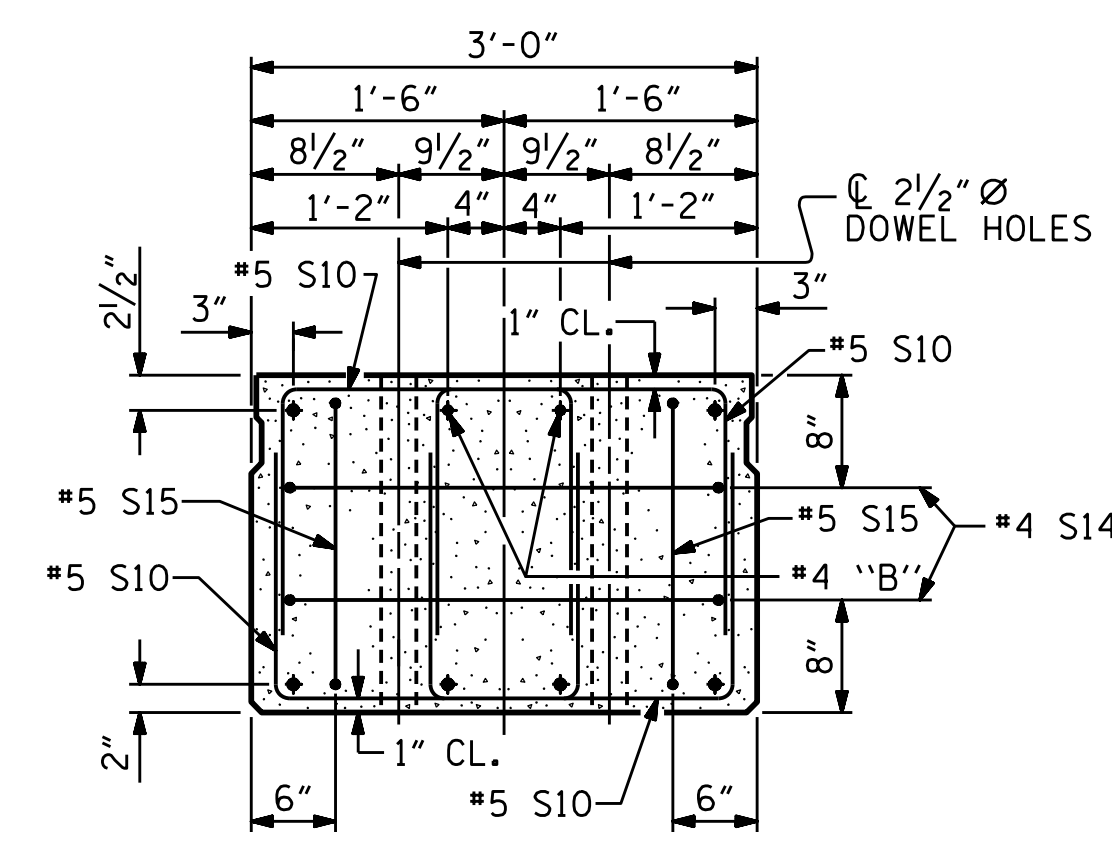
THREADED INSERT DETAIL ELEVATION VIEW SECTION B-B GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



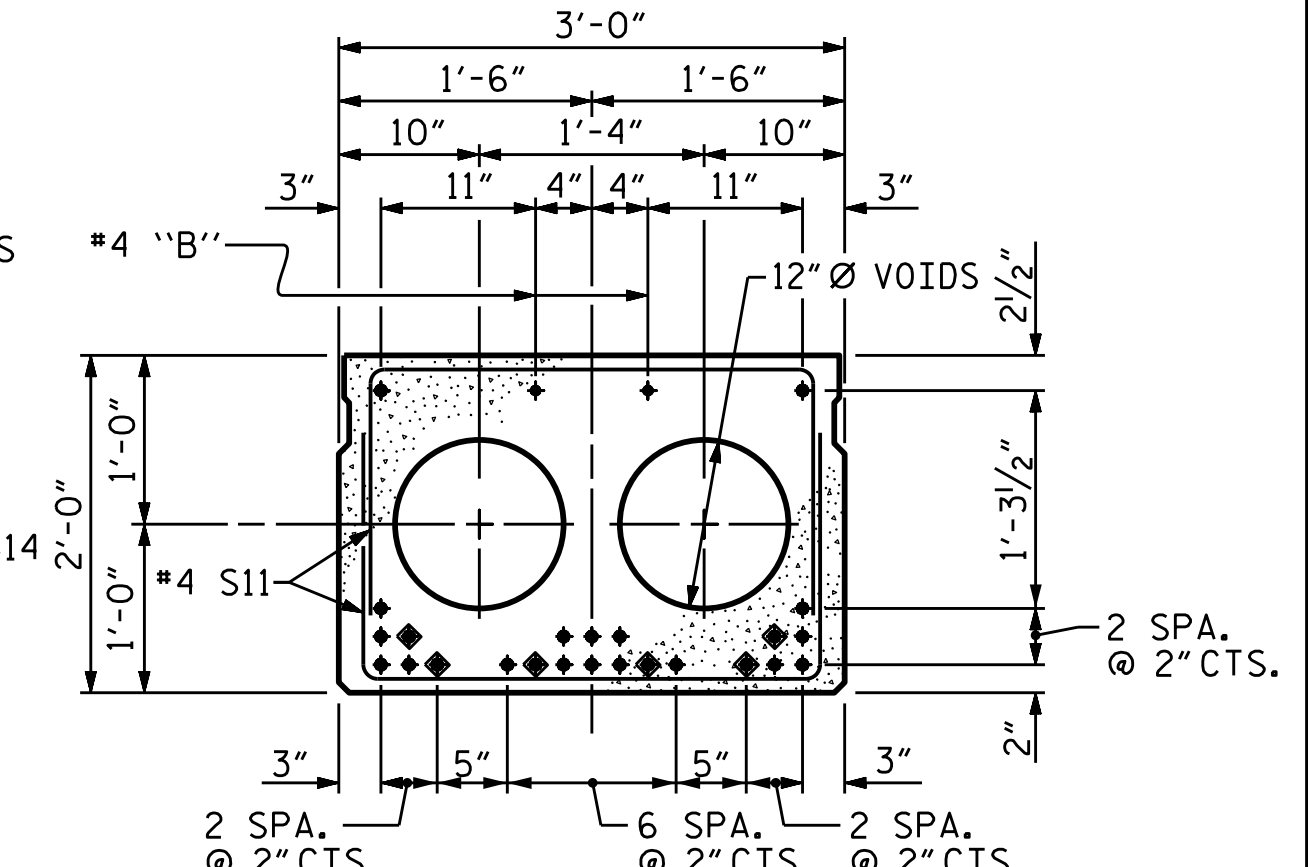
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (40' UNIT)
(14 STRANDS REQUIRED)



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.



INTERIOR SLAB SECTION (60' UNIT)
(24 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.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

CONCRETE THICKNESS AT C BEARING			
	LEFT GUTTER	GRADE POINT	RIGHT GUTTER
END BENT 1	5"	6 5/16"	5"
BENT 1 (SPAN A)	5"	6 5/16"	5"
BENT 1 (SPAN B)	5"	6 3/8"	5"
BENT 2 (SPAN B)	5"	6 5/16"	5"
BENT 2 (SPAN C)	5"	6 3/8"	5"
END BENT 2	5"	6 5/16"	5"

PROJECT NO. BP4.R006
JOHNSTON COUNTY
 STATION: 15+51.50 -L-
 SHEET 1 OF 5

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

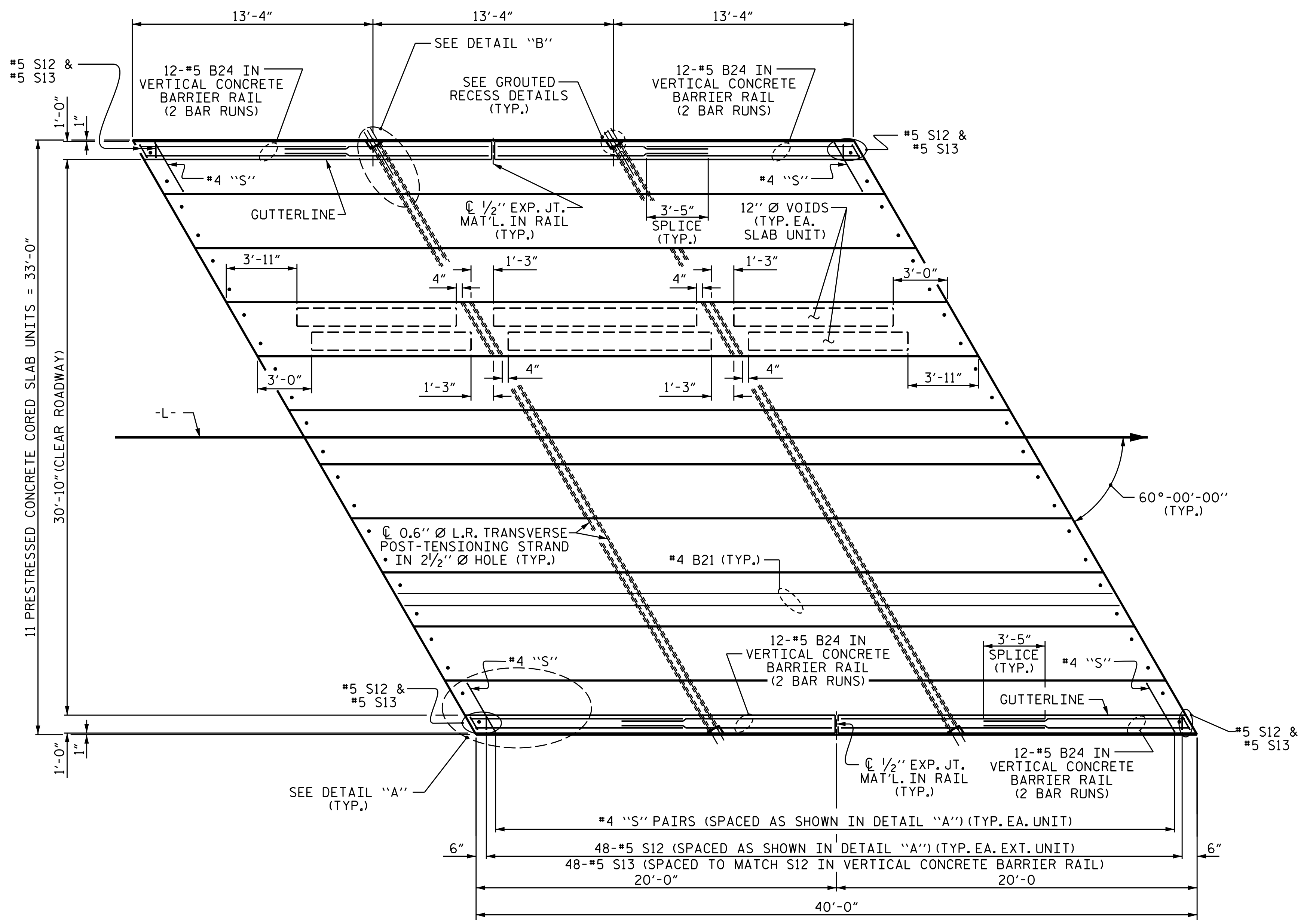


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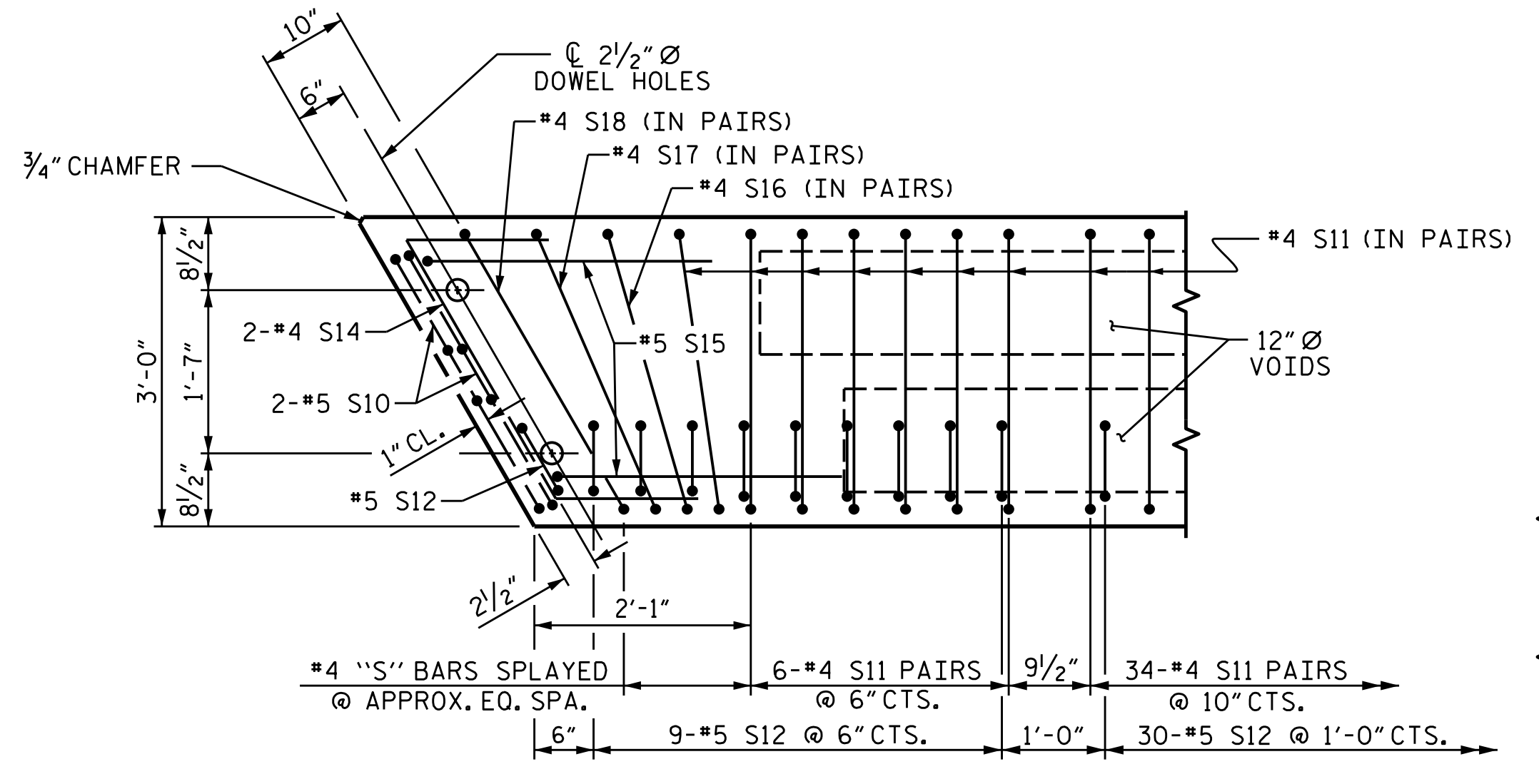
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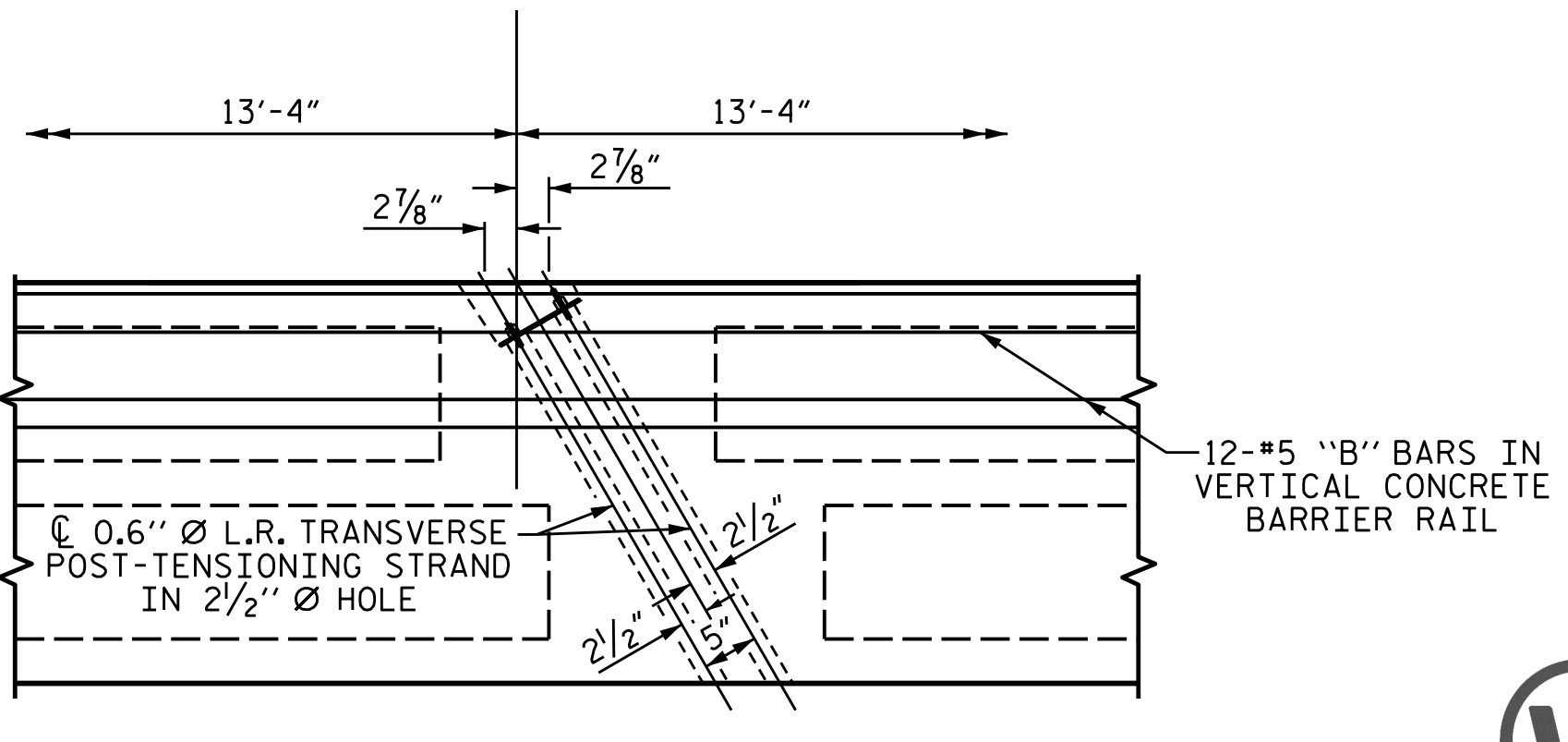


PLAN OF SPAN A



DETAIL "A"

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

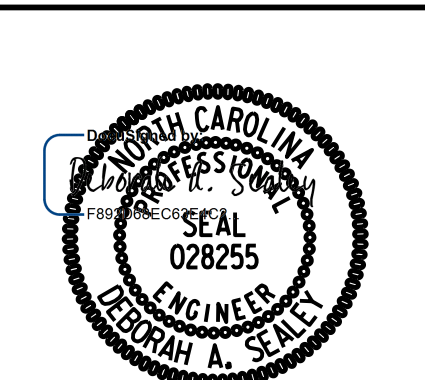


DETAIL "B"

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

PROJECT NO. BP4.R006
JOHNSTON COUNTY
STATION: 15+51.50 -L-
SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN A
(40'-0" UNIT)
30'-10" CLEAR ROADWAY
60° SKEW



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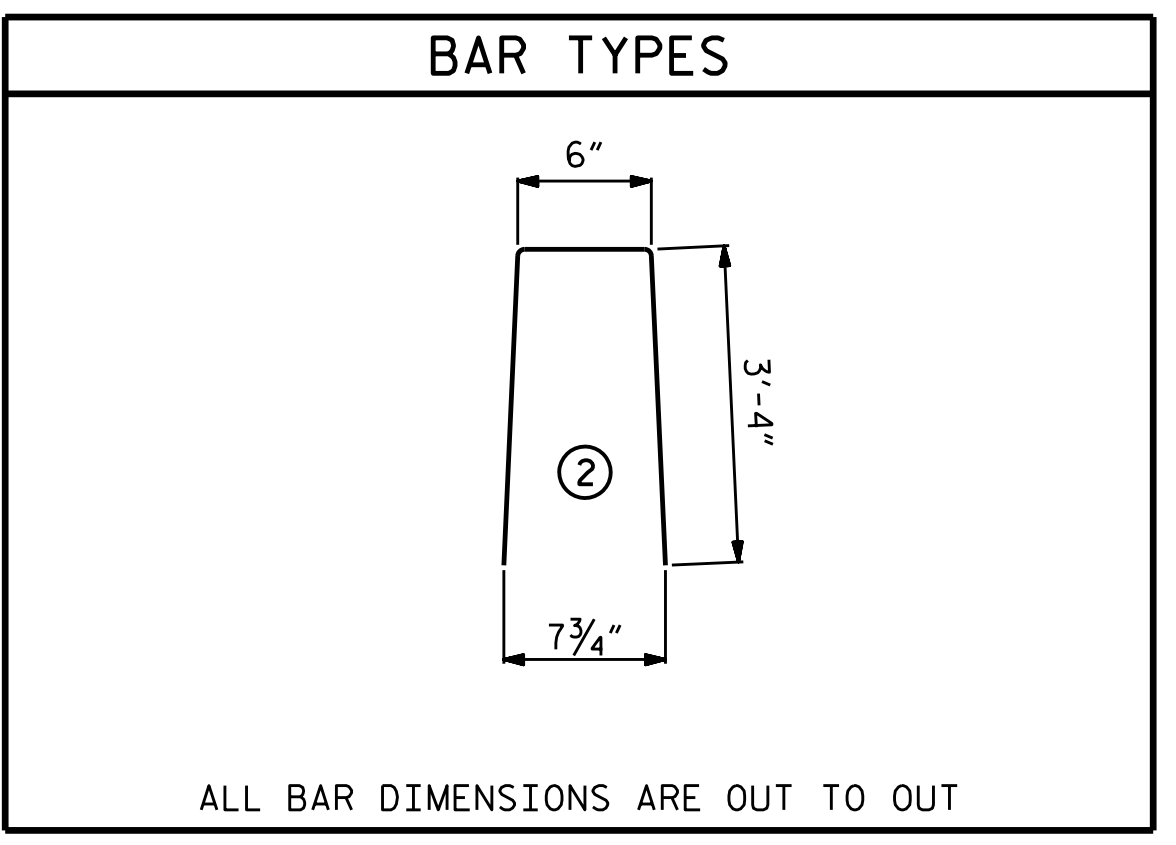
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BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
40' UNIT						
*B24	96	96	#5	STR	11'-11"	1193
*S13	100	100	#5	2	7'-2"	747
* EPOXY COATED REINFORCING STEEL						LBS. 1940
CLASS AA CONCRETE						CU.YDS. 10.3
TOTAL VERTICAL CONCRETE BARRIER RAIL						LN. FT. 80.00

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
60' UNIT						
*B23	96	192	#5	STR	16'-11"	3388
*S13	140	280	#5	2	7'-2"	2093
* EPOXY COATED REINFORCING STEEL						LBS. 5481
CLASS AA CONCRETE						CU.YDS. 15.5
TOTAL VERTICAL CONCRETE BARRIER RAIL						LN. FT. 240.00



ALL BAR DIMENSIONS ARE OUT TO OUT

	CONCRETE OVERLAY THICKNESS @ MIDSPAN		RAIL HEIGHT @ MIDSPAN	
	LEFT	RIGHT	LEFT	RIGHT
SPAN A	4 1/16"	4 1/16"	3'-10 7/16"	3'-10 7/16"
SPAN B	3 5/8"	3 5/8"	3'-9 5/8"	3'-9 5/8"
SPAN C	3 5/8"	3 5/8"	3'-9 5/8"	3'-9 5/8"

NOTE: BASED ON PREDICTED FINAL CAMBER & THEORETICAL GRADE LINE ELEVATIONS.

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 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. 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.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN THE TOP OF WEARING SURFACE AT INTERIOR BENTS WITH CONTINUOUS CONCRETE WEARING SURFACE IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 3" AT BENT NO. 2.

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

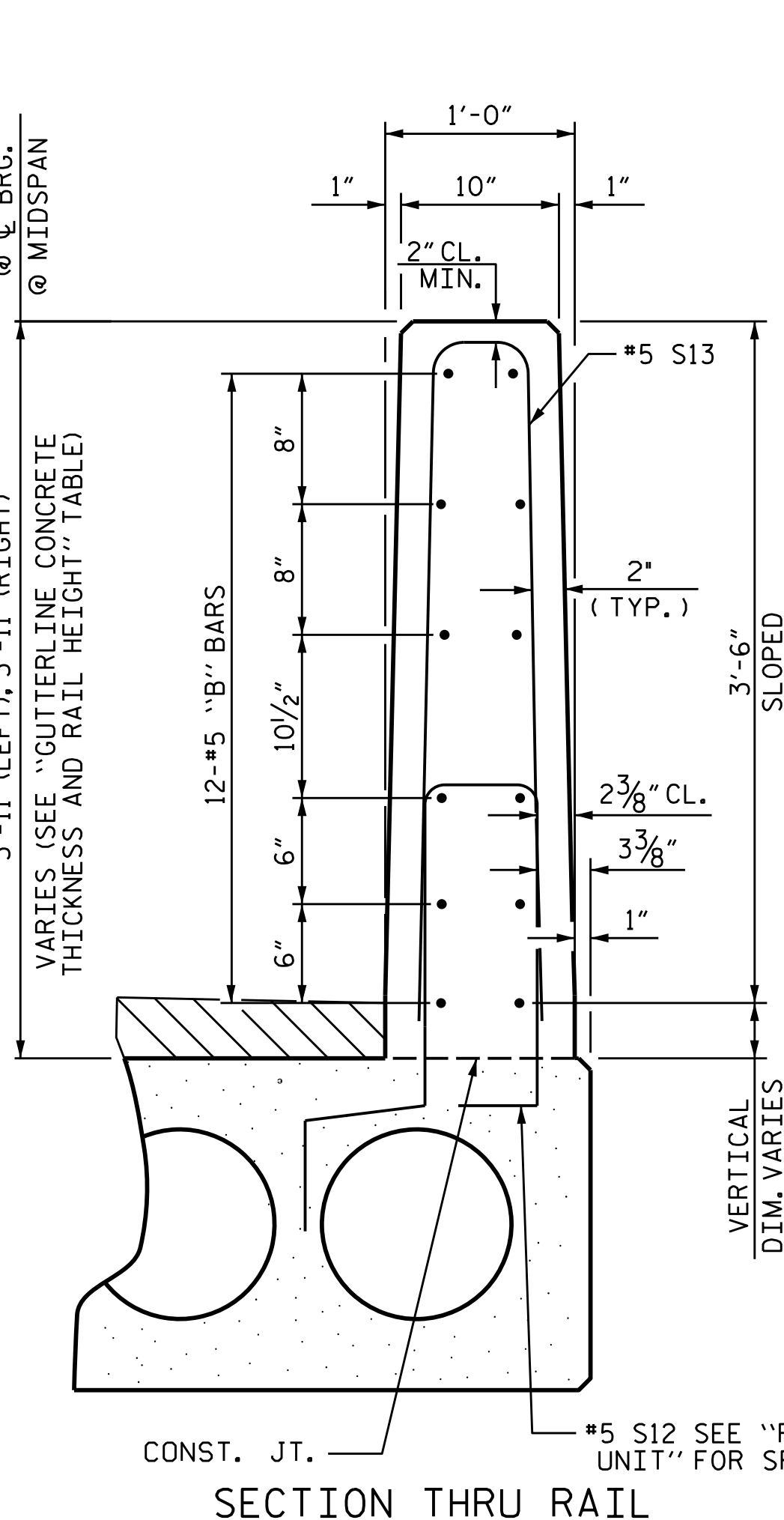
THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

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.

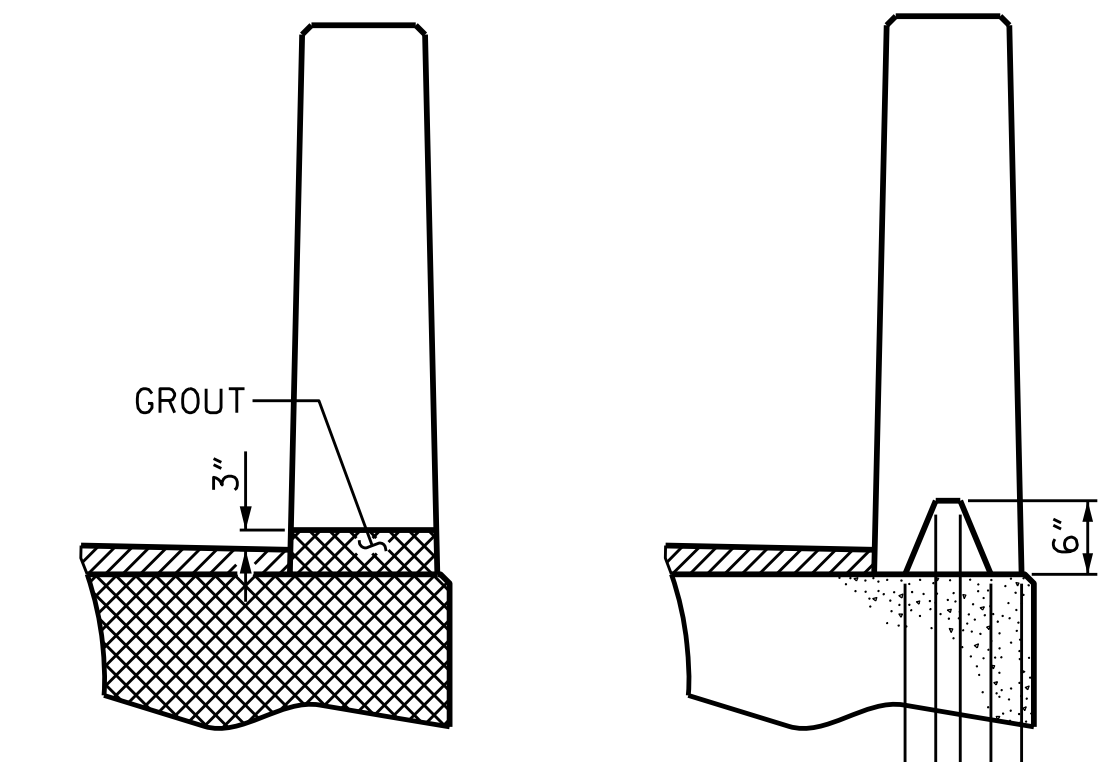
THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

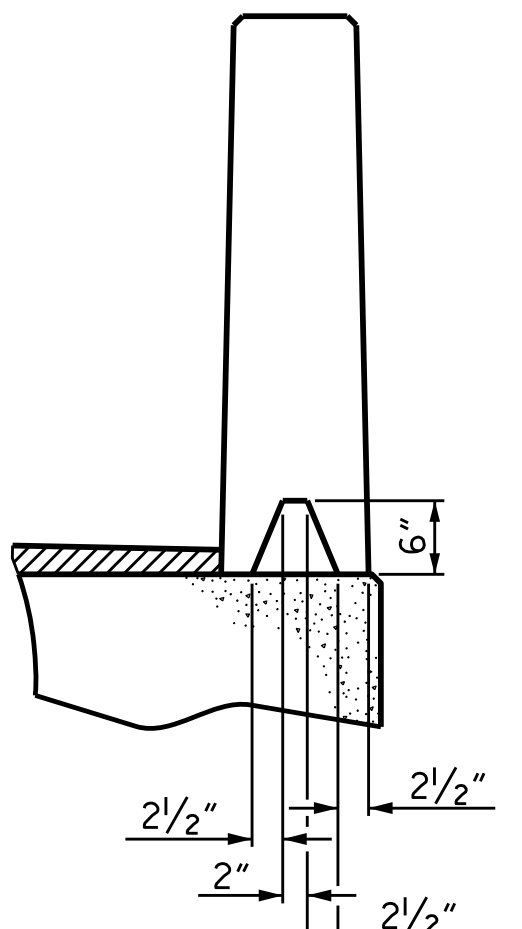


SECTION THRU RAIL



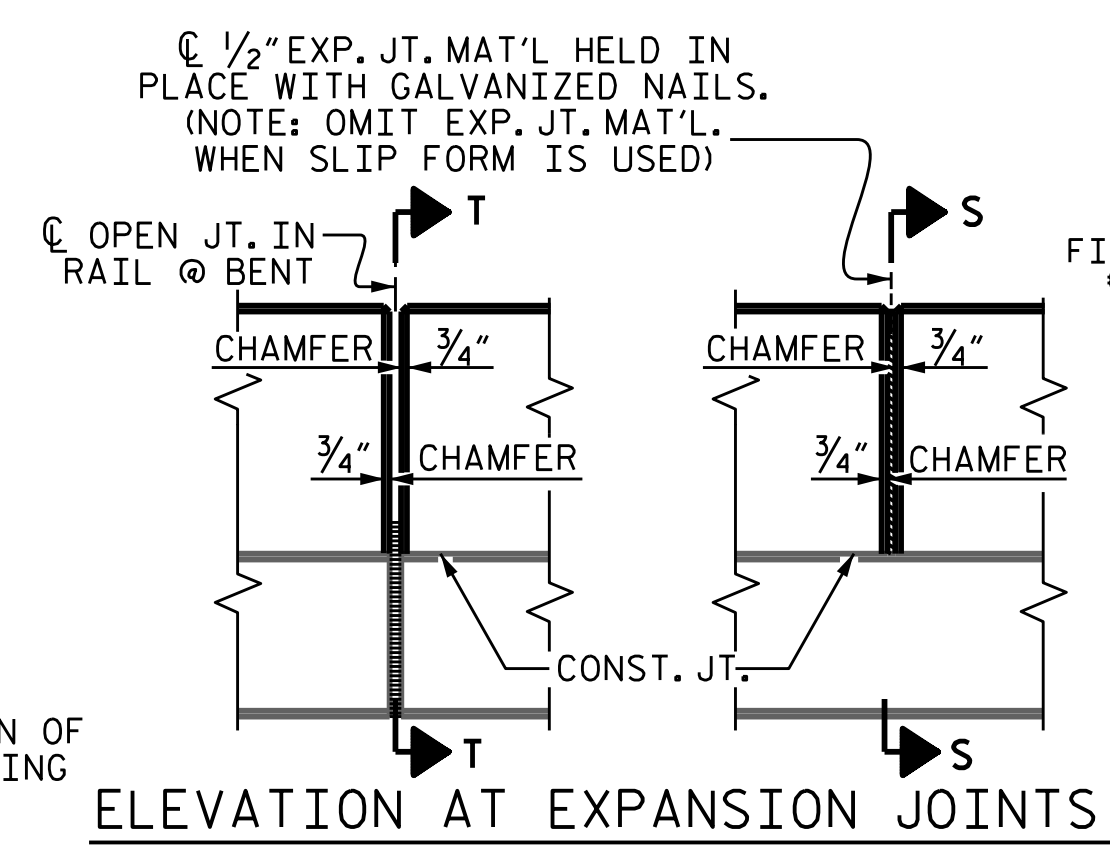
SECTION T-T

AT OPEN JOINT AT BENT (THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)

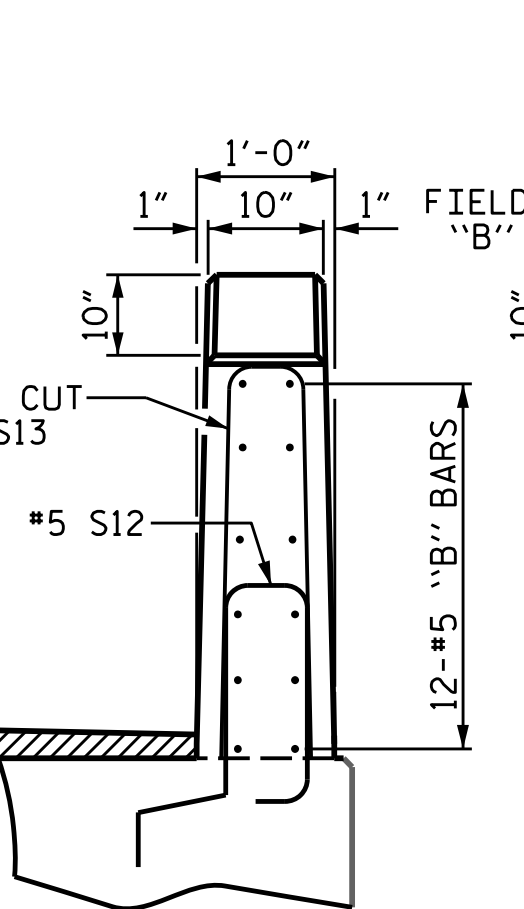


SECTION S-S

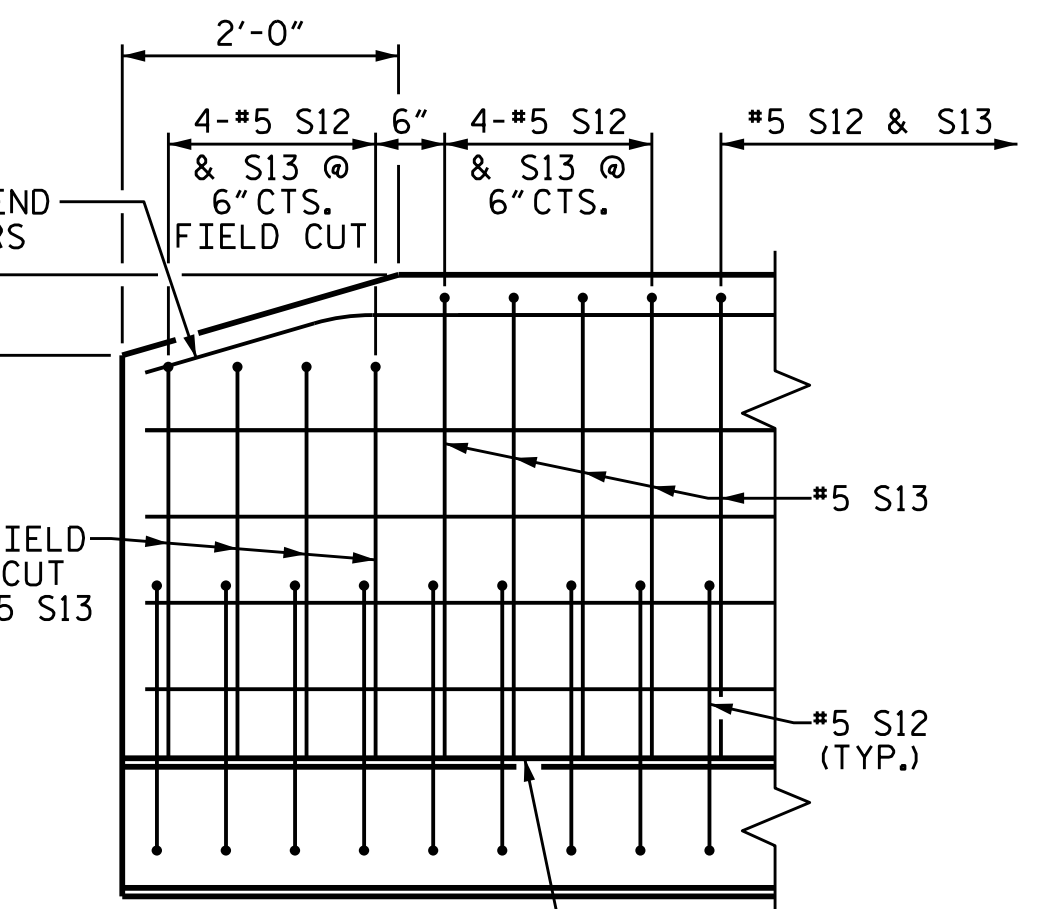
AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

VERTICAL CONCRETE BARRIER RAIL DETAILS

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JOHNSTON COUNTY
 STATION: 15+51.50 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT
 60° SKEW

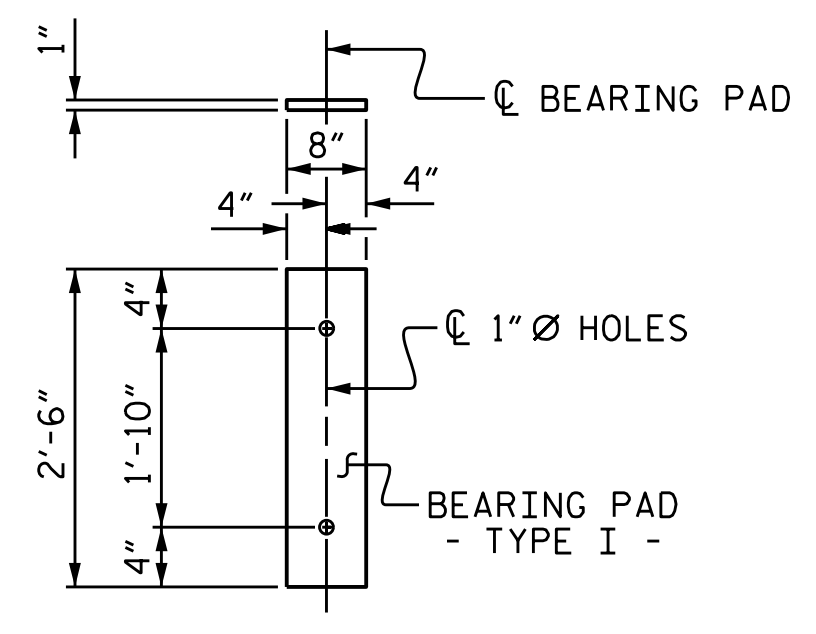


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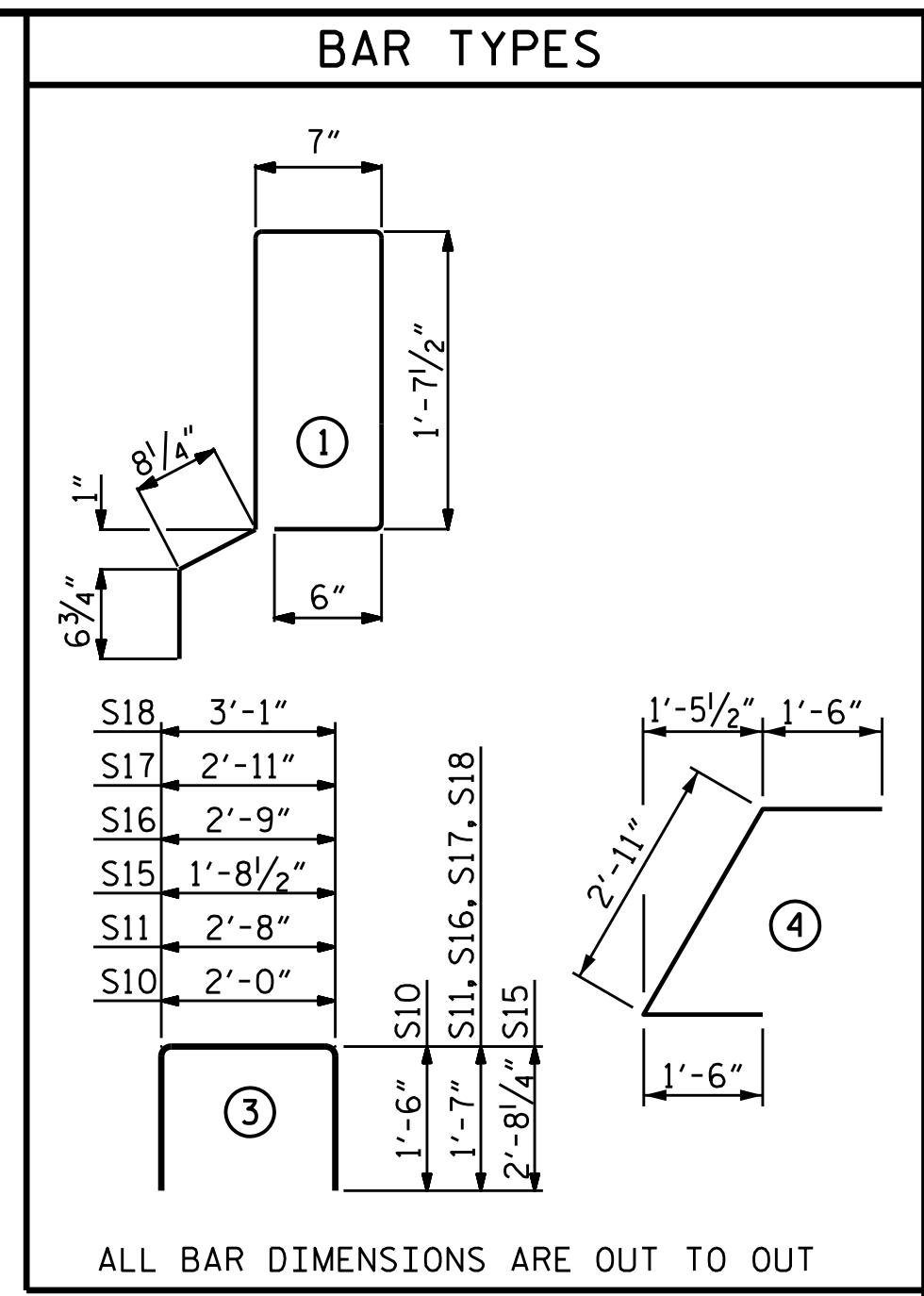
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2			4			TOTAL SHEETS 22	

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ELASTOMERIC BEARING DETAILS
 (TYPE I - 66 REQ'D)
 ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



DEAD LOAD DEFLECTION AND CAMBER	
40' CORED SLAB UNIT	3'-0" x 2'-0" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	9/16" ↑

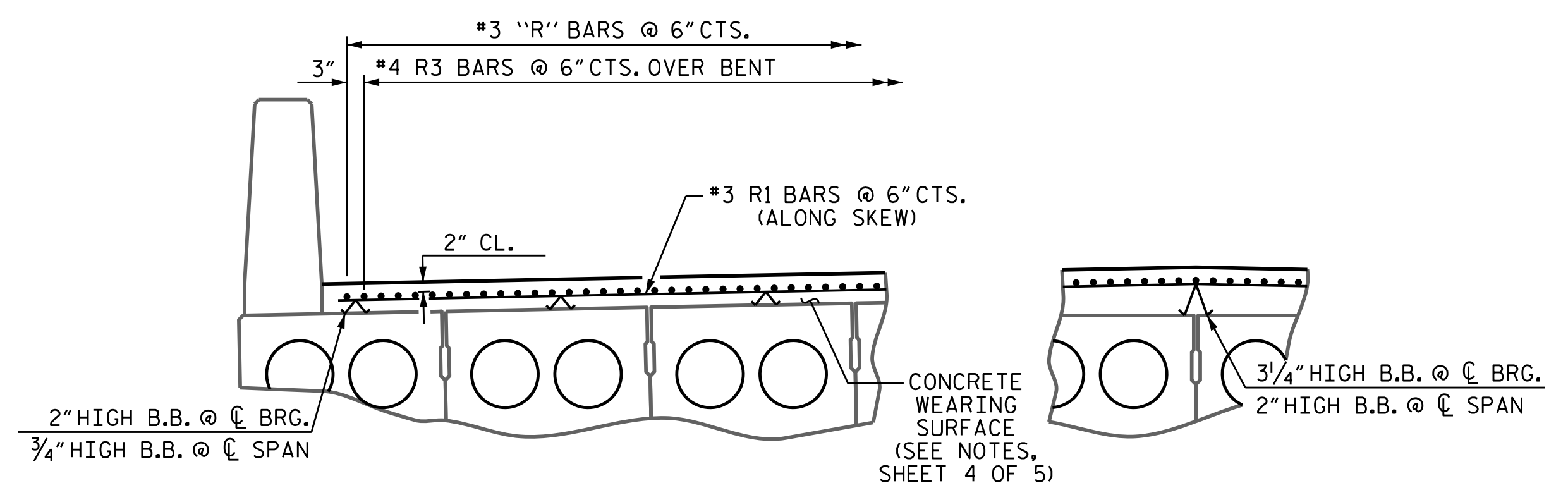
** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER	
60' CORED SLAB UNIT	3'-0" x 2'-0" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	1 3/8" ↑

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR ONE 40' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B21	2	#4	STR	39'-6"	53	39'-6"	53
S10	8	#5	3	5'-0"	42	5'-0"	42
S11	96	#4	3	5'-10"	374	5'-10"	374
*S12	50	#5	1	5'-7"	291		
S14	4	#4	4	5'-11"	16	5'-11"	16
S15	4	#5	3	7'-1"	30	7'-1"	30
S16	4	#4	3	5'-11"	16	5'-11"	16
S17	4	#4	3	6'-1"	16	6'-1"	16
S18	4	#4	3	6'-3"	17	6'-3"	17
REINFORCING STEEL				LBS.	564		564
* EPOXY COATED REINFORCING STEEL				LBS.	291		
5000 P.S.I. CONCRETE				CU. YDS.	6.9		6.9
0.6" Ø L.R. STRANDS				No.	14		14

BILL OF MATERIAL FOR ONE 60' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B20	6	#4	STR	21'-2"	85	21'-2"	85
S10	8	#5	3	5'-0"	42	5'-0"	42
S11	146	#4	3	5'-10"	569	5'-10"	569
*S12	70	#5	1	5'-7"	408		
S14	4	#4	4	5'-11"	16	5'-11"	16
S15	4	#5	3	7'-1"	30	7'-1"	30
S16	4	#4	3	5'-11"	16	5'-11"	16
S17	4	#4	3	6'-1"	16	6'-1"	16
S18	4	#4	3	6'-3"	17	6'-3"	17
REINFORCING STEEL				LBS.	791		791
* EPOXY COATED REINFORCING STEEL				LBS.	408		
6000 P.S.I. CONCRETE				CU. YDS.	10.4		10.4
0.6" Ø L.R. STRANDS				No.	24		24

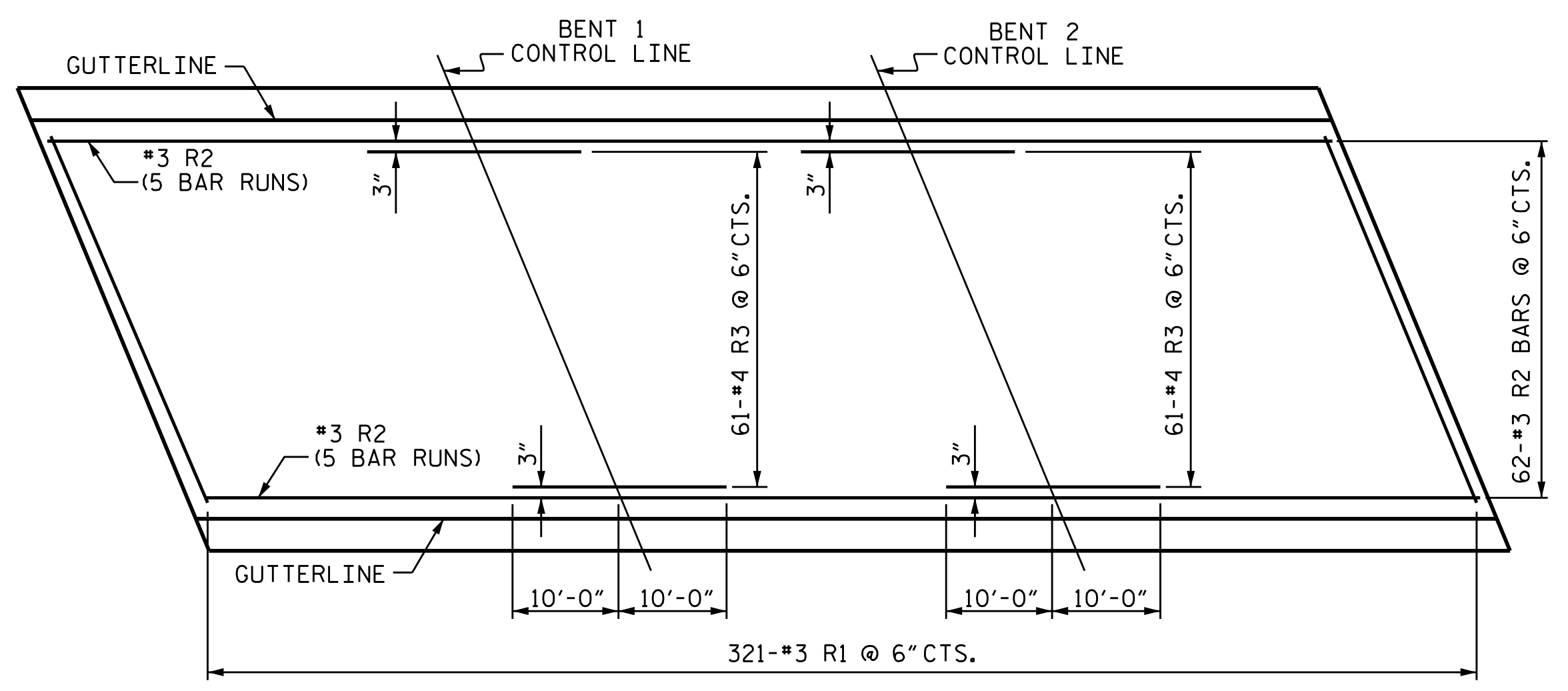


REINFORCING FOR CONCRETE WEARING SURFACE

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
40' UNIT			
EXTERIOR C.S.	2	40'-0"	80'-0"
INTERIOR C.S.	9	40'-0"	360'-0"
TOTAL	11		440'-0"

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
60' UNIT			
EXTERIOR C.S.	4	60'-0"	240'-0"
INTERIOR C.S.	18	60'-0"	1080'-0"
TOTAL	22		1320'-0"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
40' UNITS	4000
60' UNITS	4800



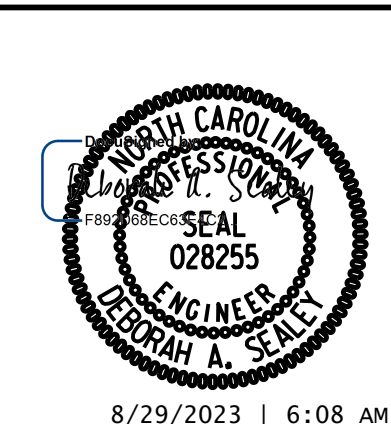
PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*R1	321	#3	STR	35'-3"	4,254
*R2	310	#3	STR	33'-0"	3,846
*R3	122	#4	STR	20'-0"	1,630
* EPOXY COATED REINFORCING STEEL				LBS.	9,730
CONCRETE WEARING SURFACE				SO. FT.	5,022

GROOVING BRIDGE FLOORS	
APPROACH SLABS	807 SO.FT.
BRIDGE DECK	4,444 SO.FT.
TOTAL	5,251 SO.FT.

SPLICE LENGTH CHART	
BAR SIZE	EPOXY COATED
#3	1'-3"

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 STATION: 15+51.50 -L-
 SHEET 5 OF 5



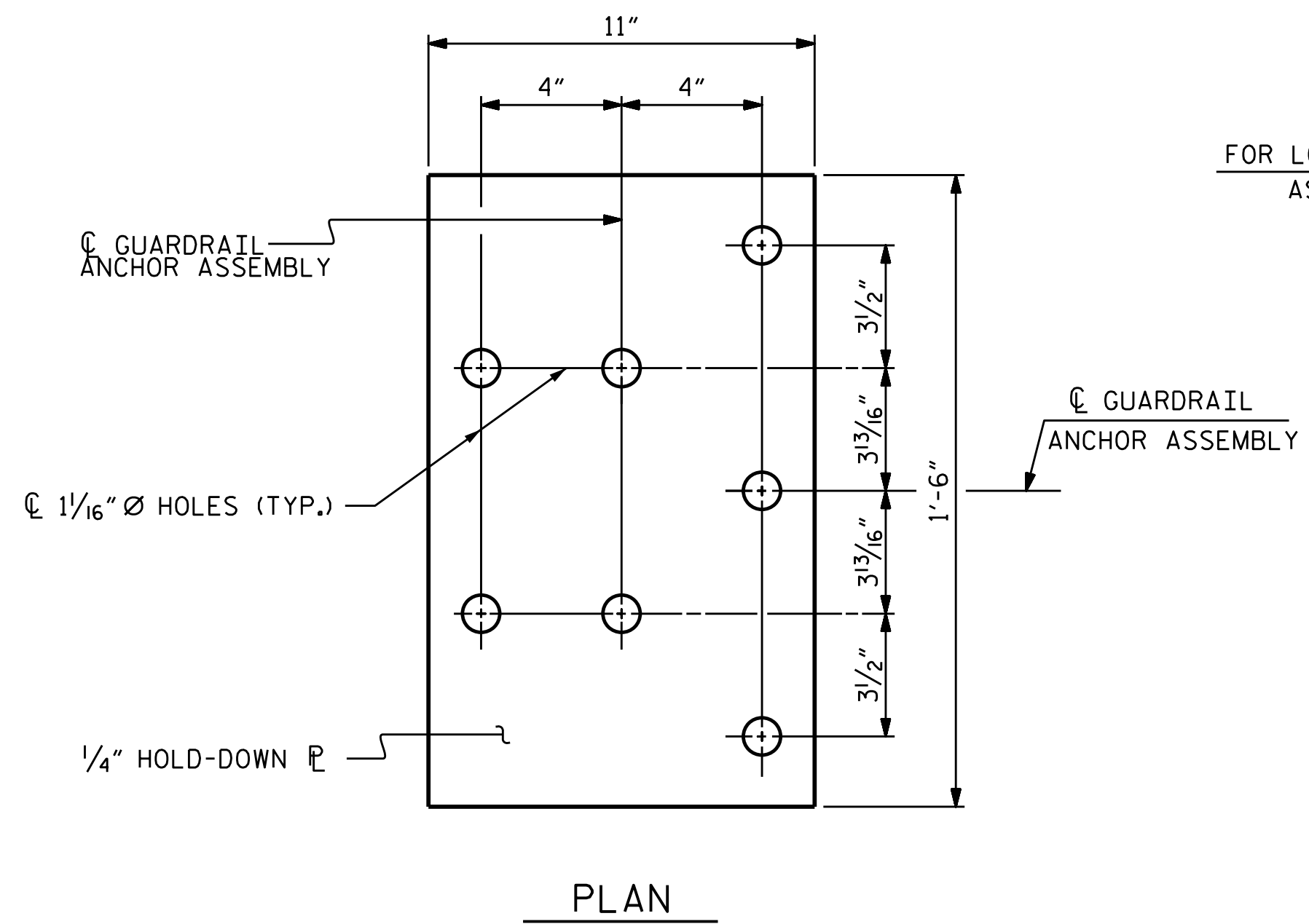
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

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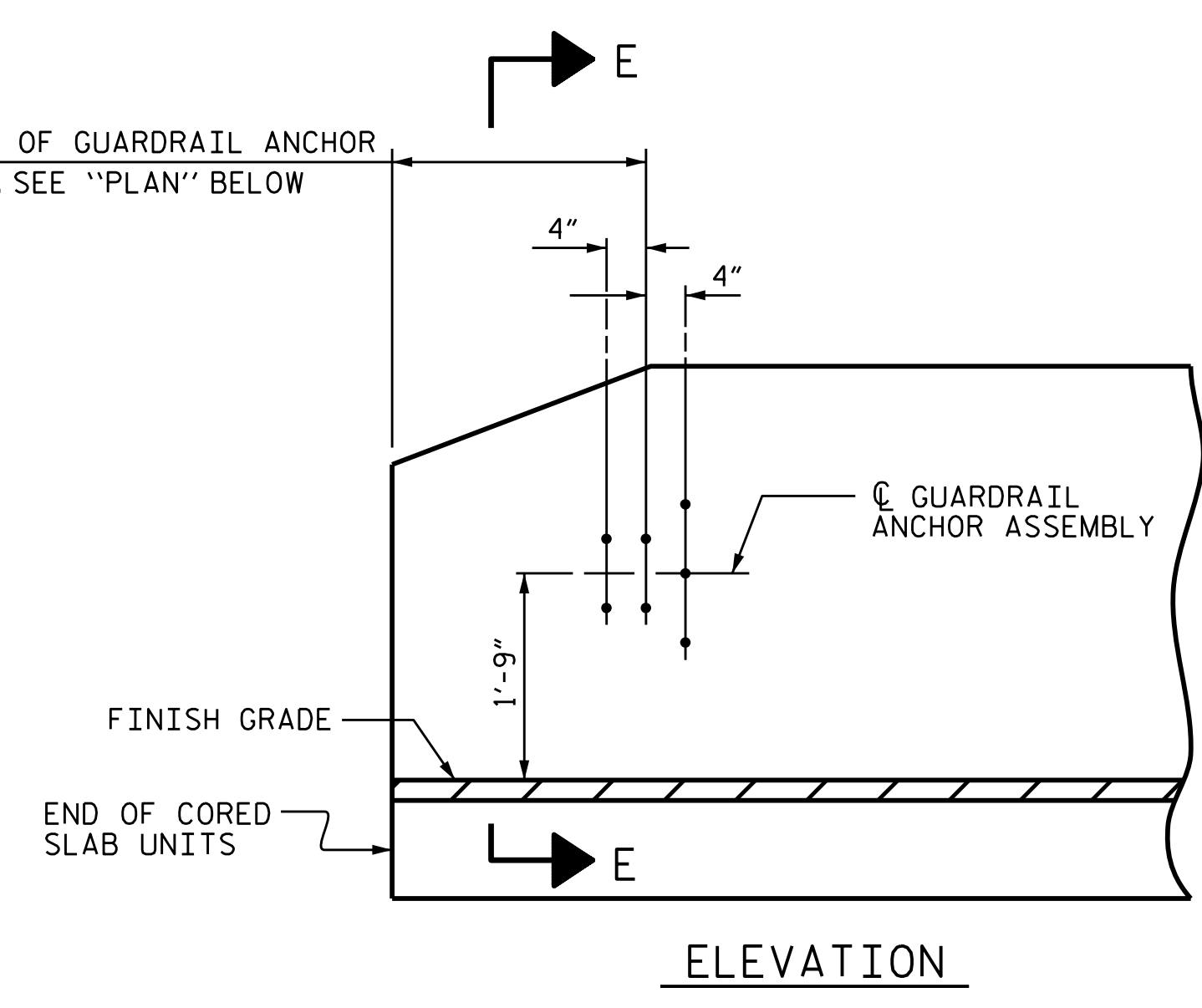
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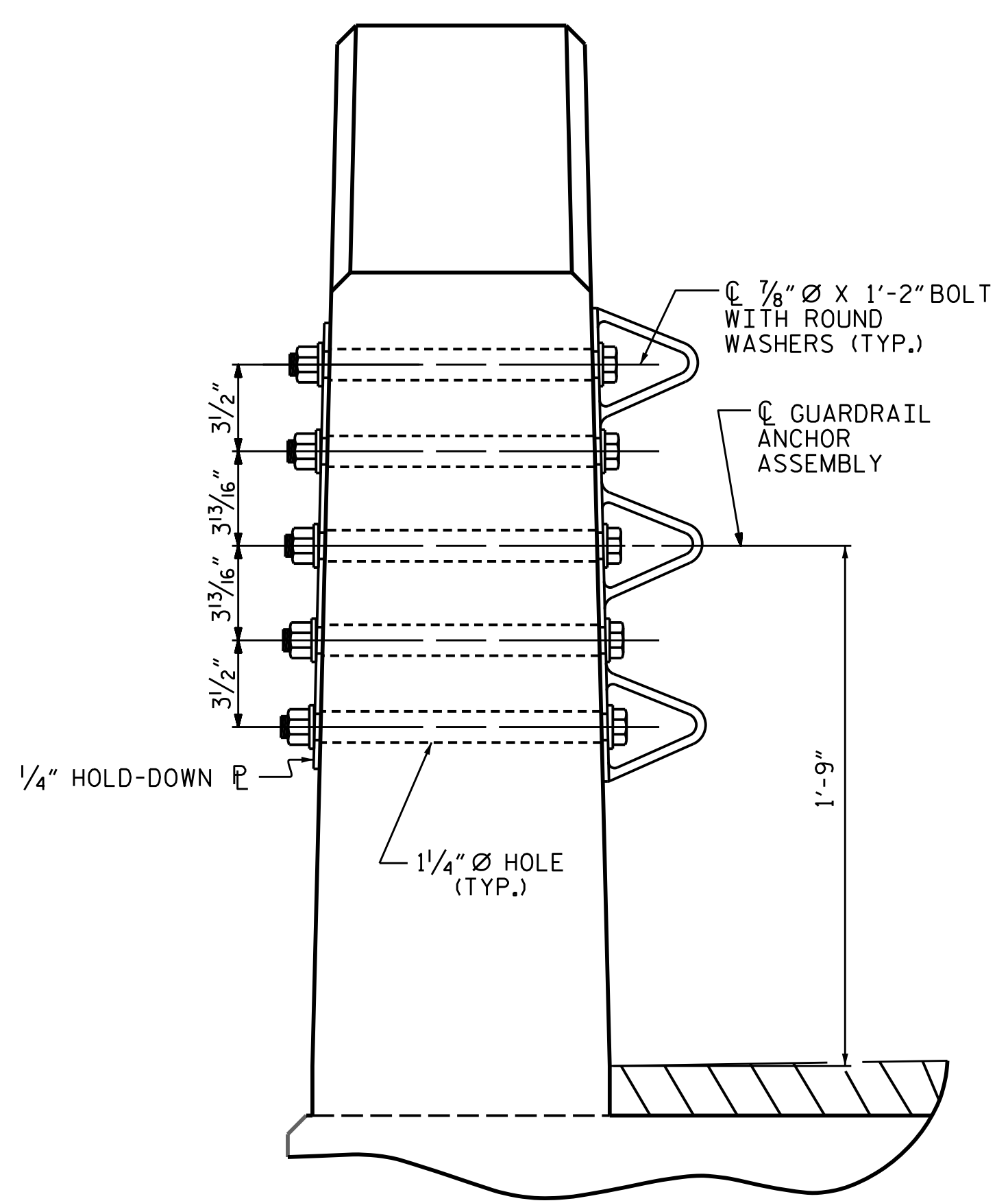


FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

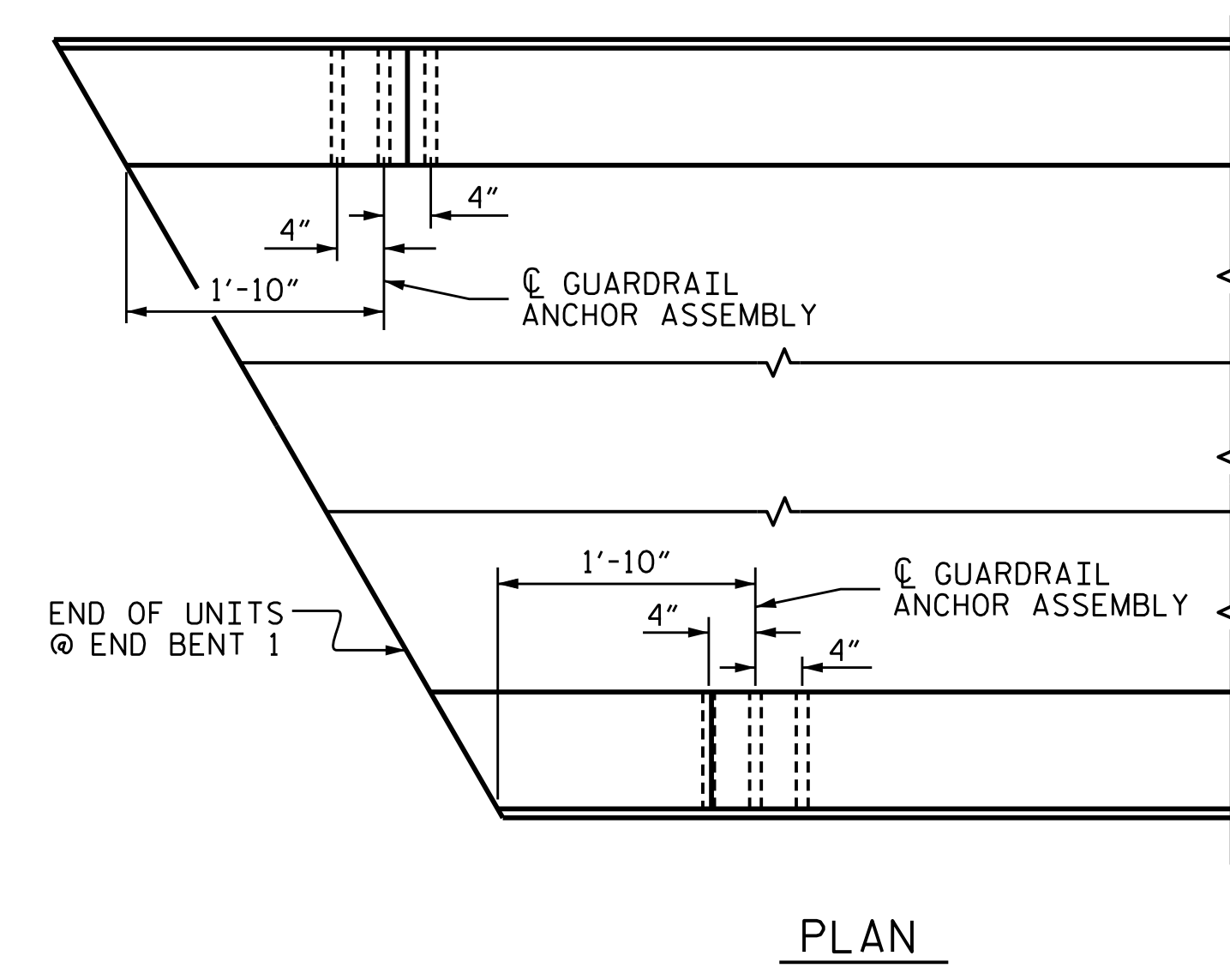


PLAN

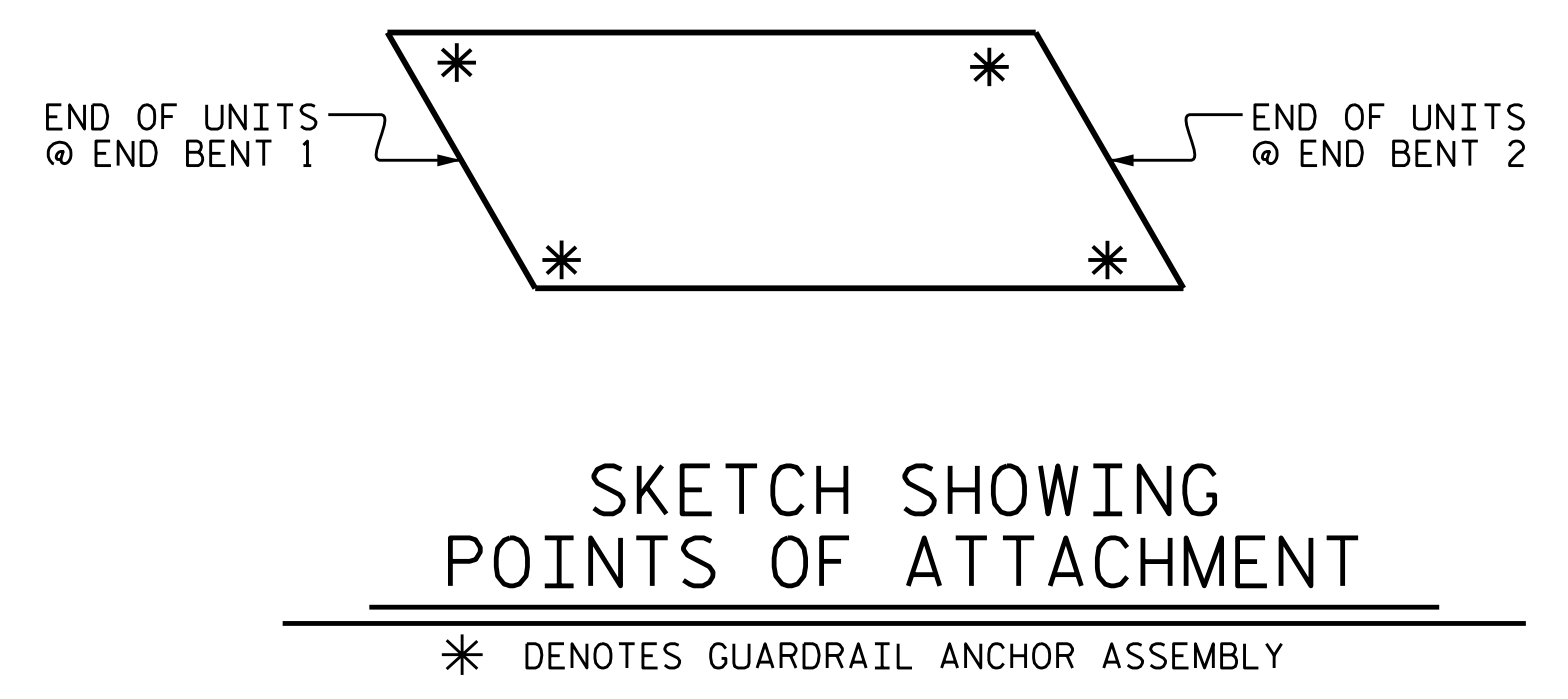
ELEVATION



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS

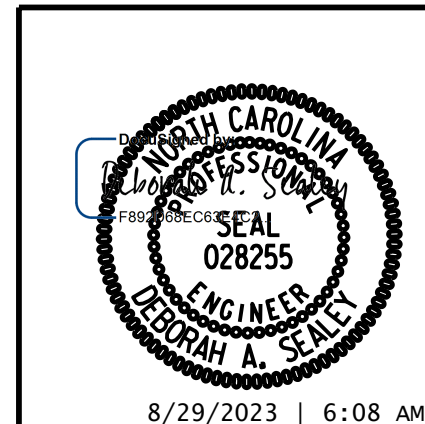


LOCATION OF ANCHORS FOR GUARDRAIL
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY



PROJECT NO. BP4.R006
JOHNSTON COUNTY
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STATE OF NORTH CAROLINA
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**GUARDRAIL ANCHORAGE
 DETAILS
 FOR VERTICAL CONCRETE
 BARRIER RAIL**

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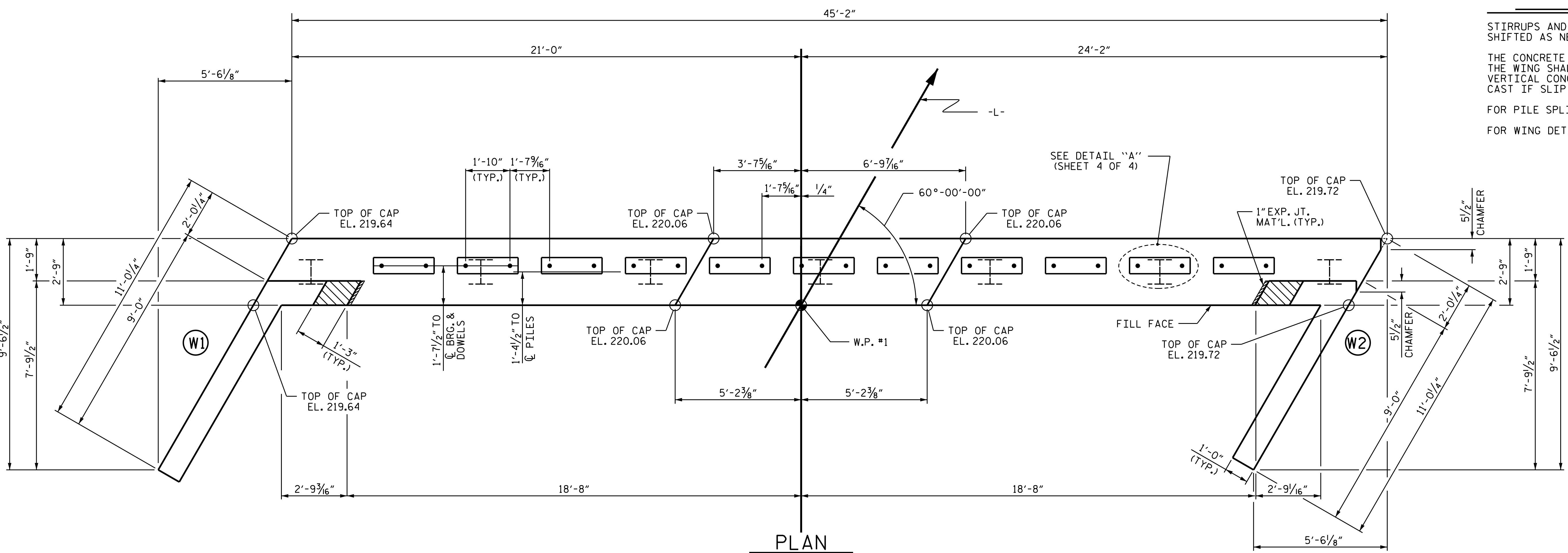
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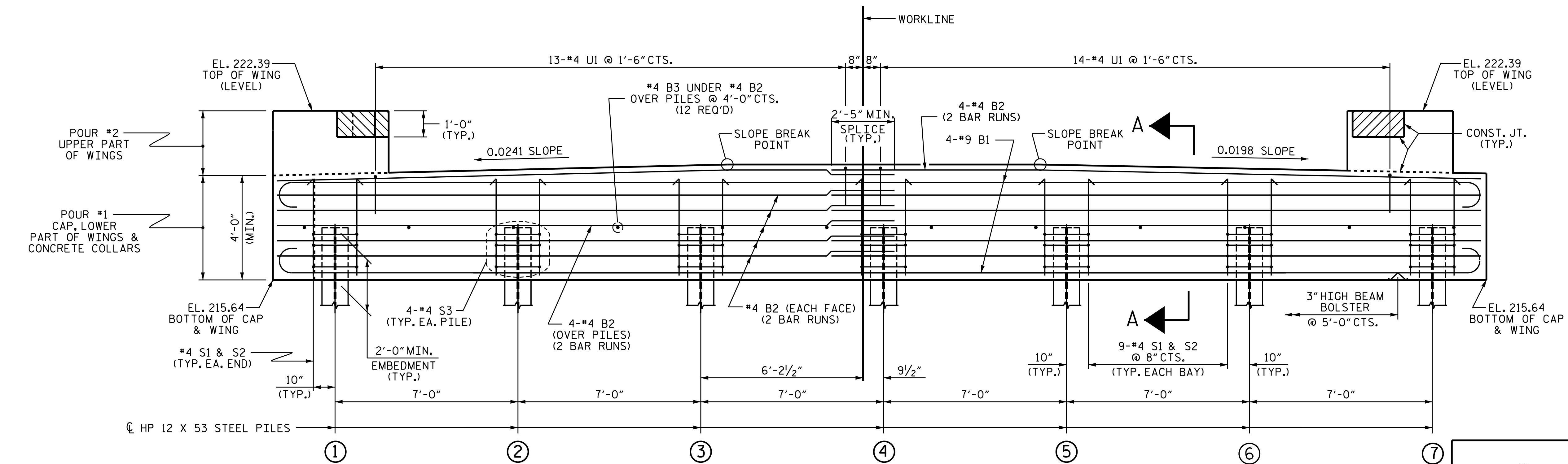
NOTES

STIRRUPS AND UI BARS 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.

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PLAN



ELEVATION

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.

PROJECT NO. BP4.R006
JOHNSTON COUNTY
 STATION: 15+51.50 -L-
 SHEET 1 OF 4

STATE OF NORTH CAROLINA
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END BENT 1



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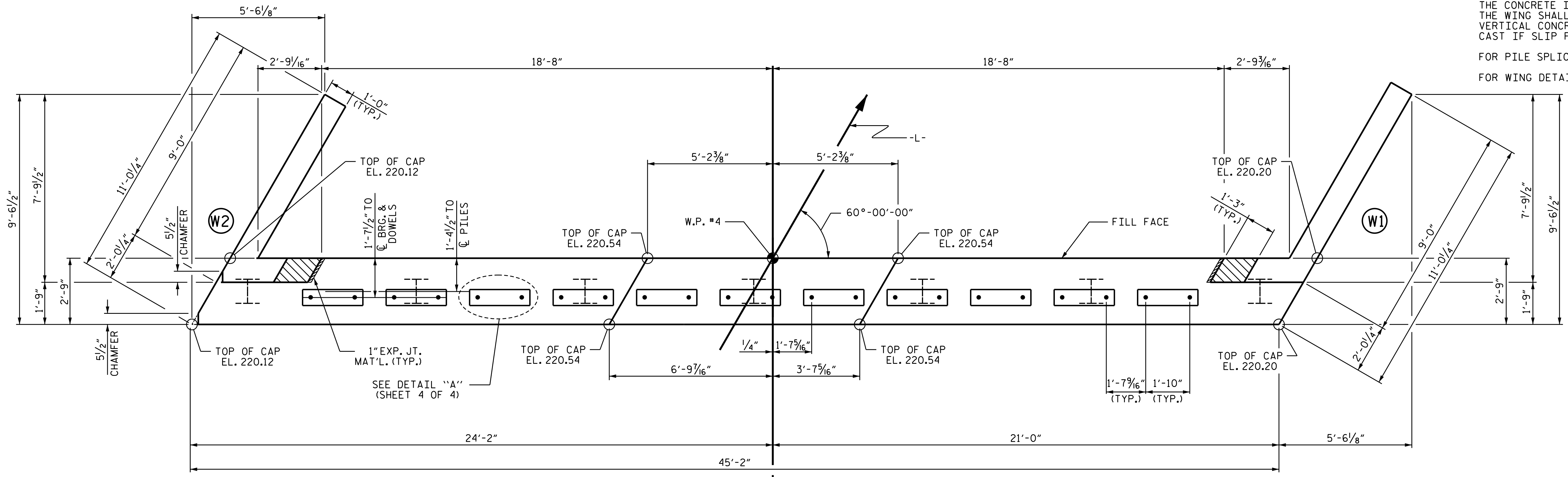
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SHEET NO. **5-12**
TOTAL SHEETS **22**

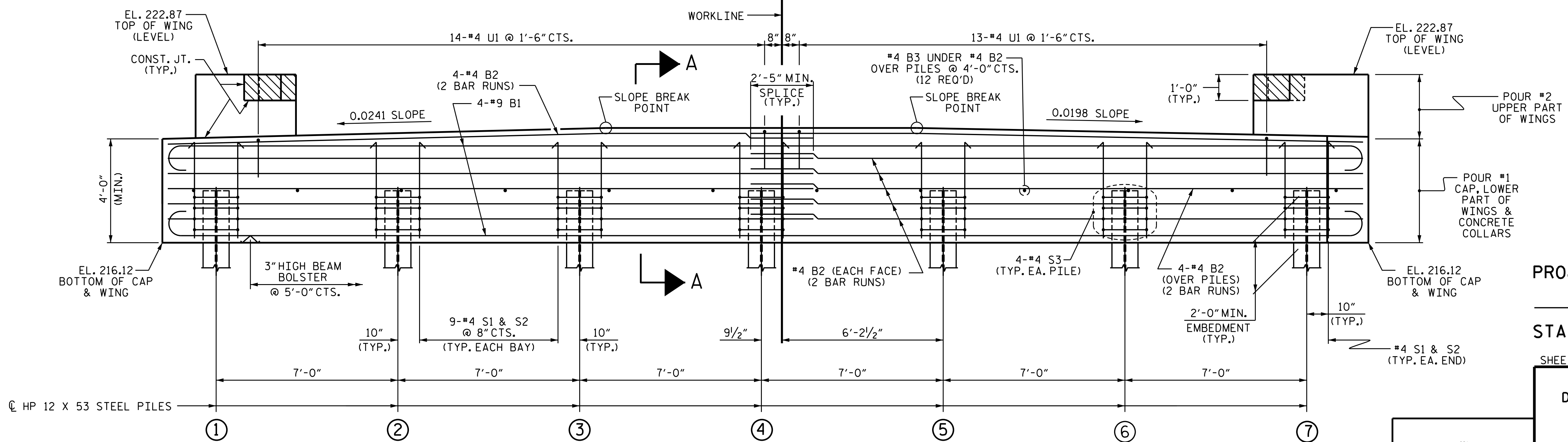
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NOTES

STIRRUPS AND UI BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
 FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

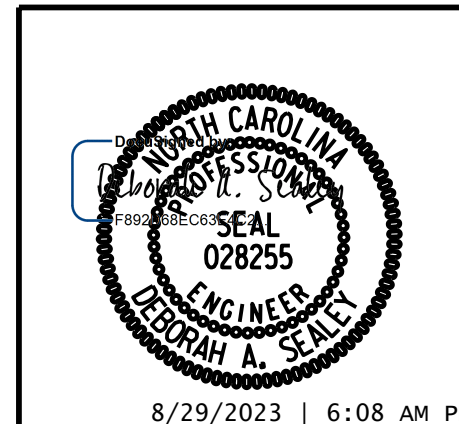


ELEVATION

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.

PROJECT NO. BP4.R006
JOHNSTON COUNTY
 STATION: 15+51.50 -L-
 SHEET 2 OF 4

STATE OF NORTH CAROLINA
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END BENT 2



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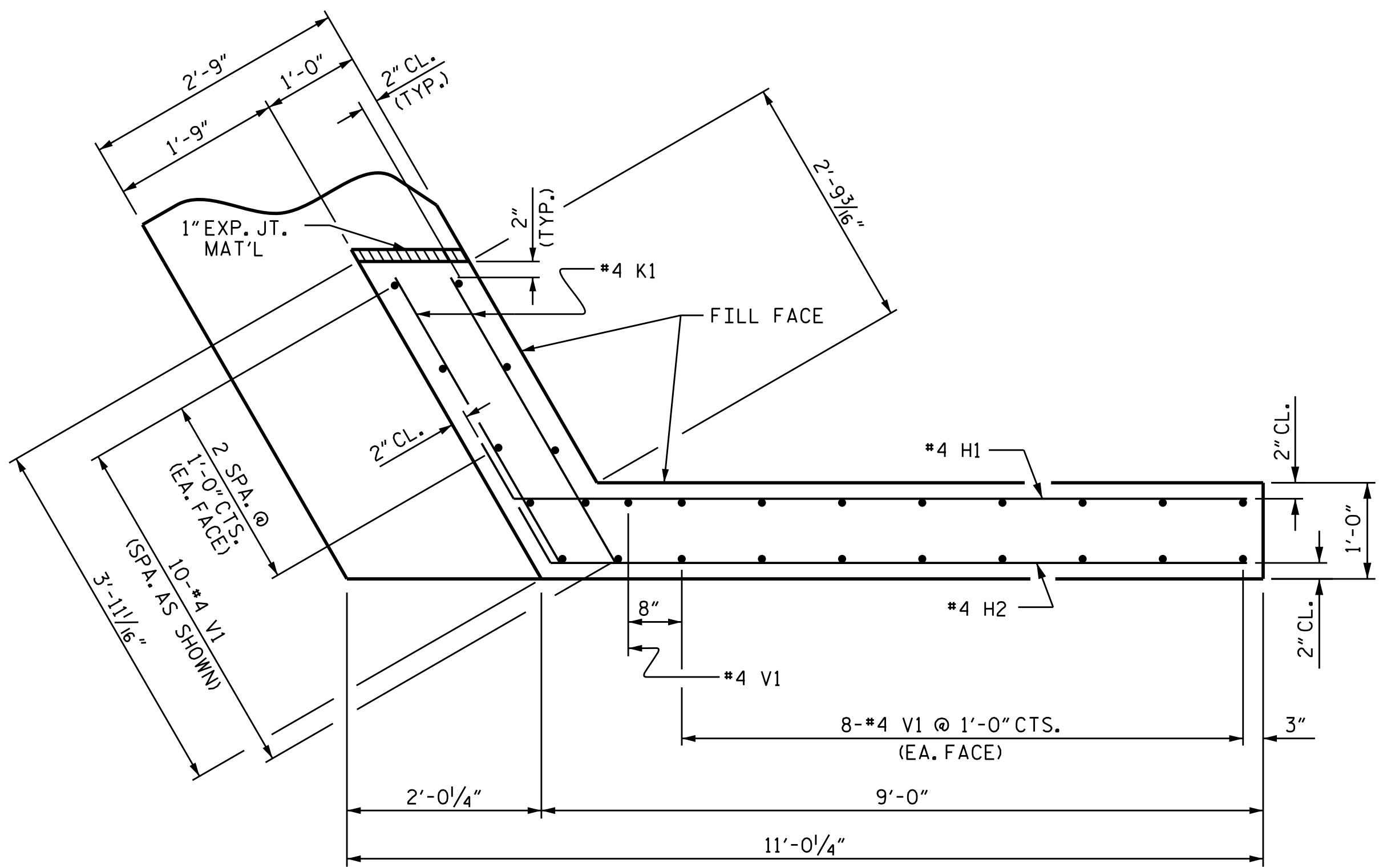
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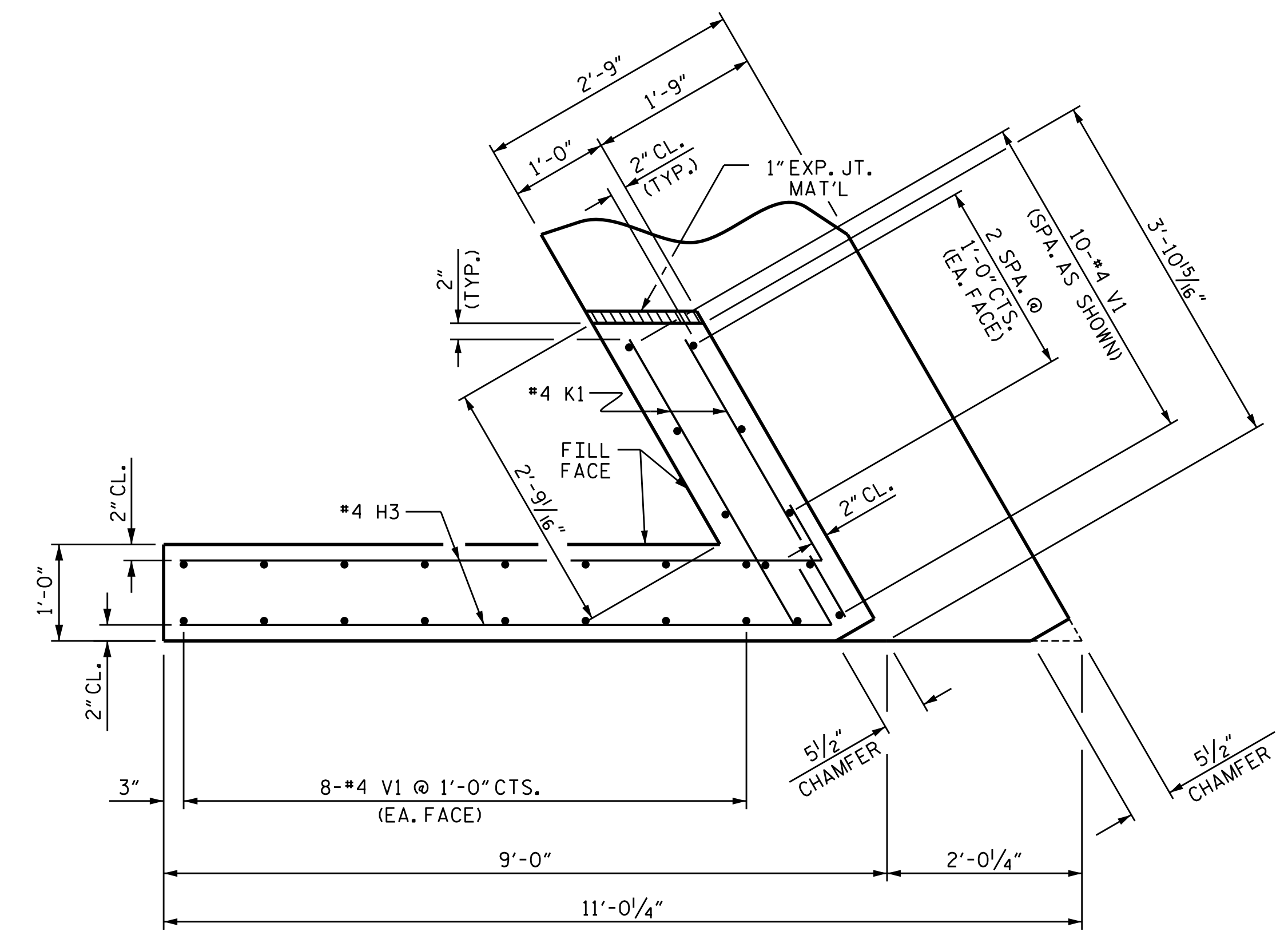
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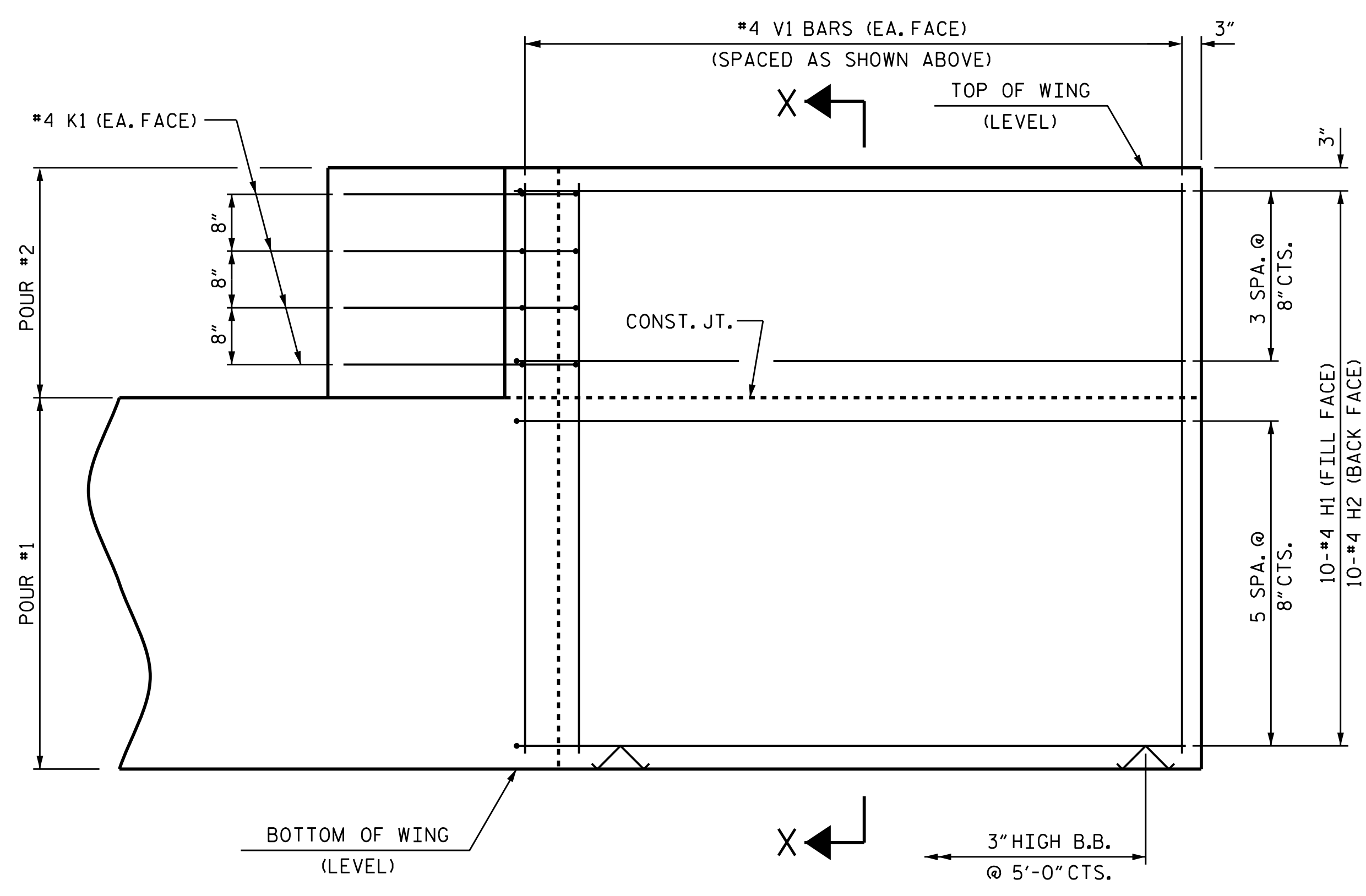
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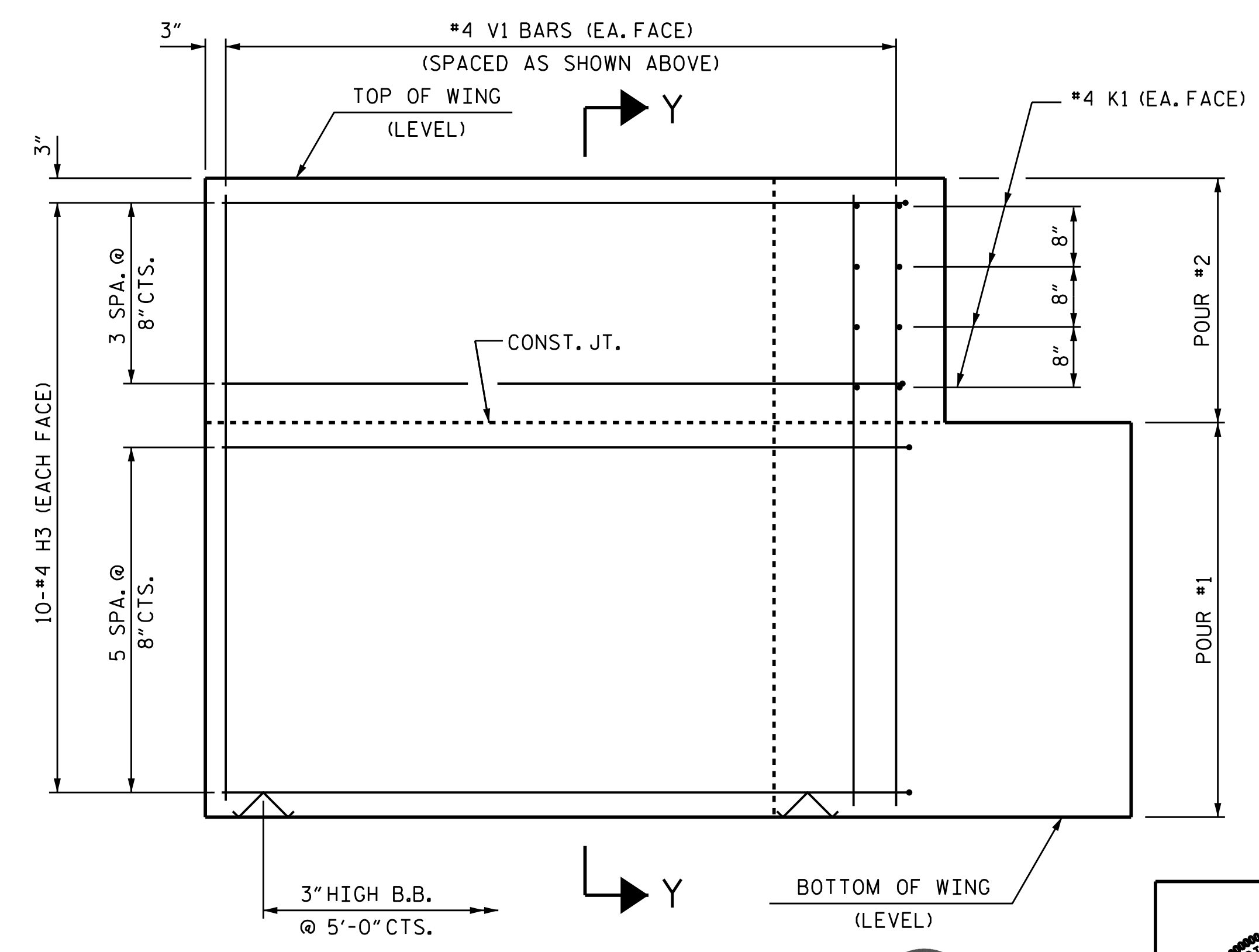
PLAN OF WING (W1)



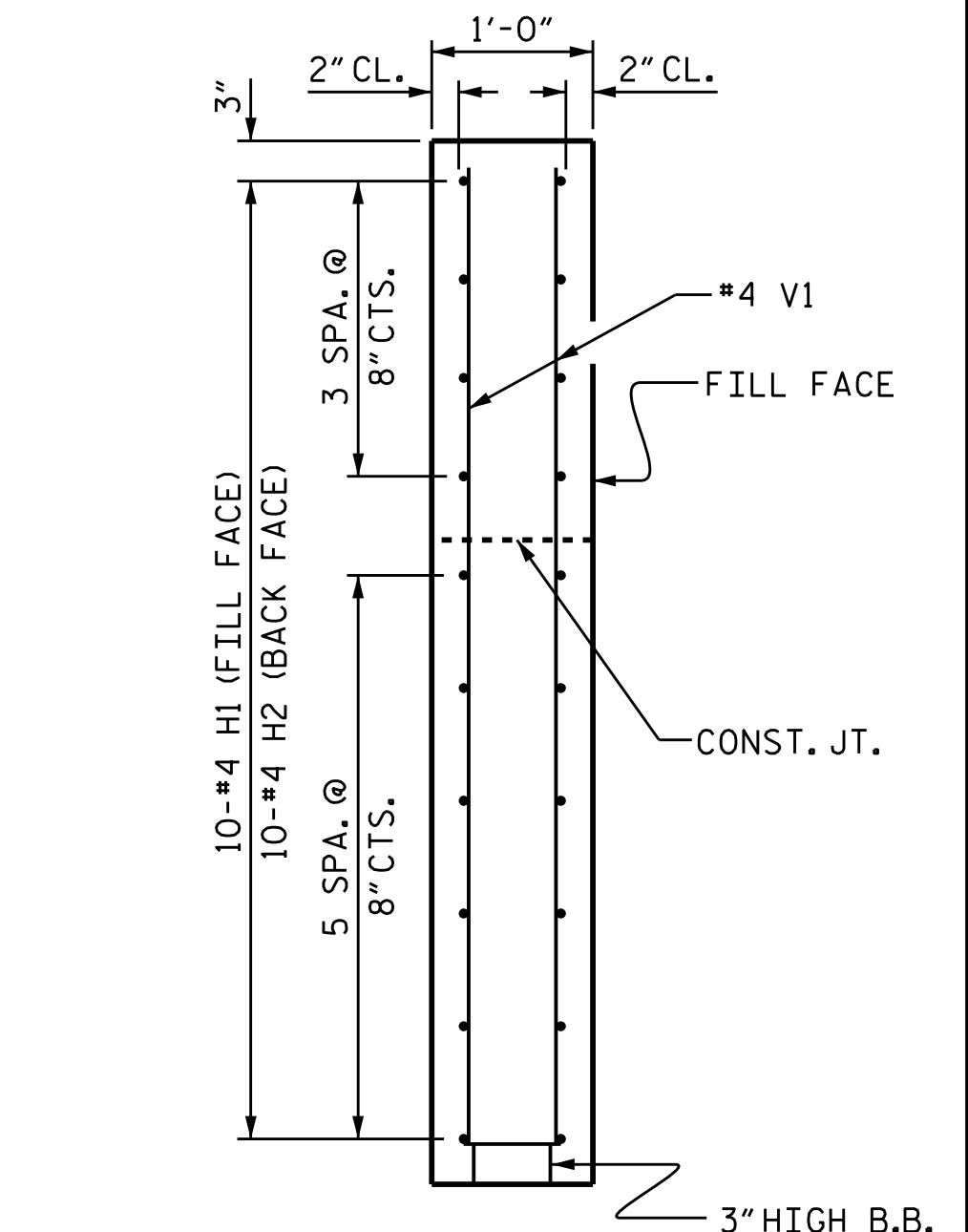
PLAN OF WING (W2)



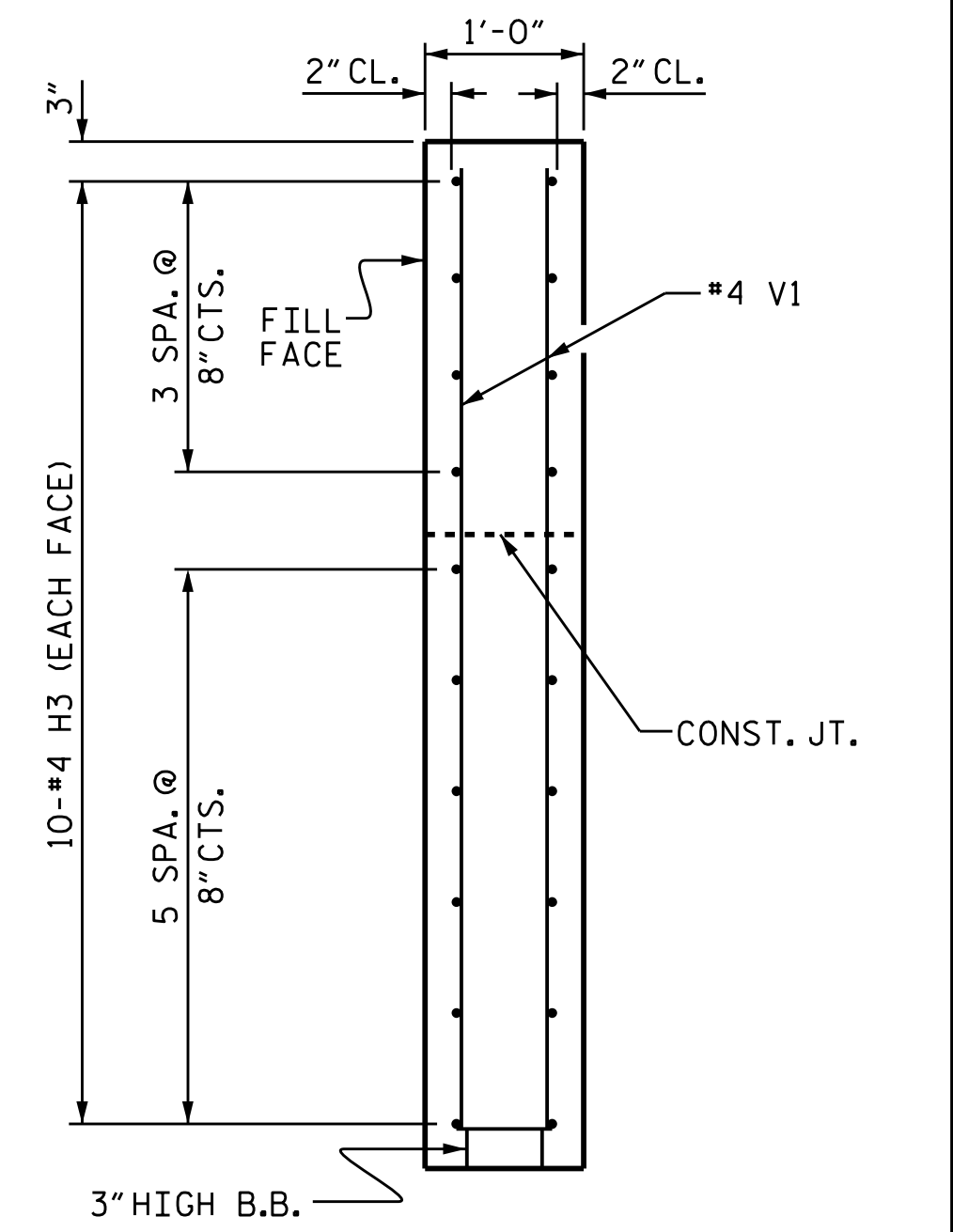
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



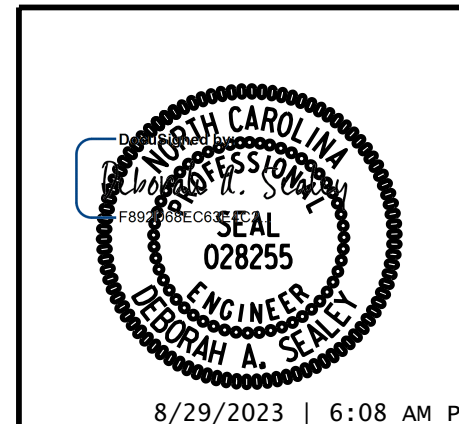
SECTION Y-Y

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 JOHNSTON COUNTY
 STATION: 15+51.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
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END BENT WING DETAILS



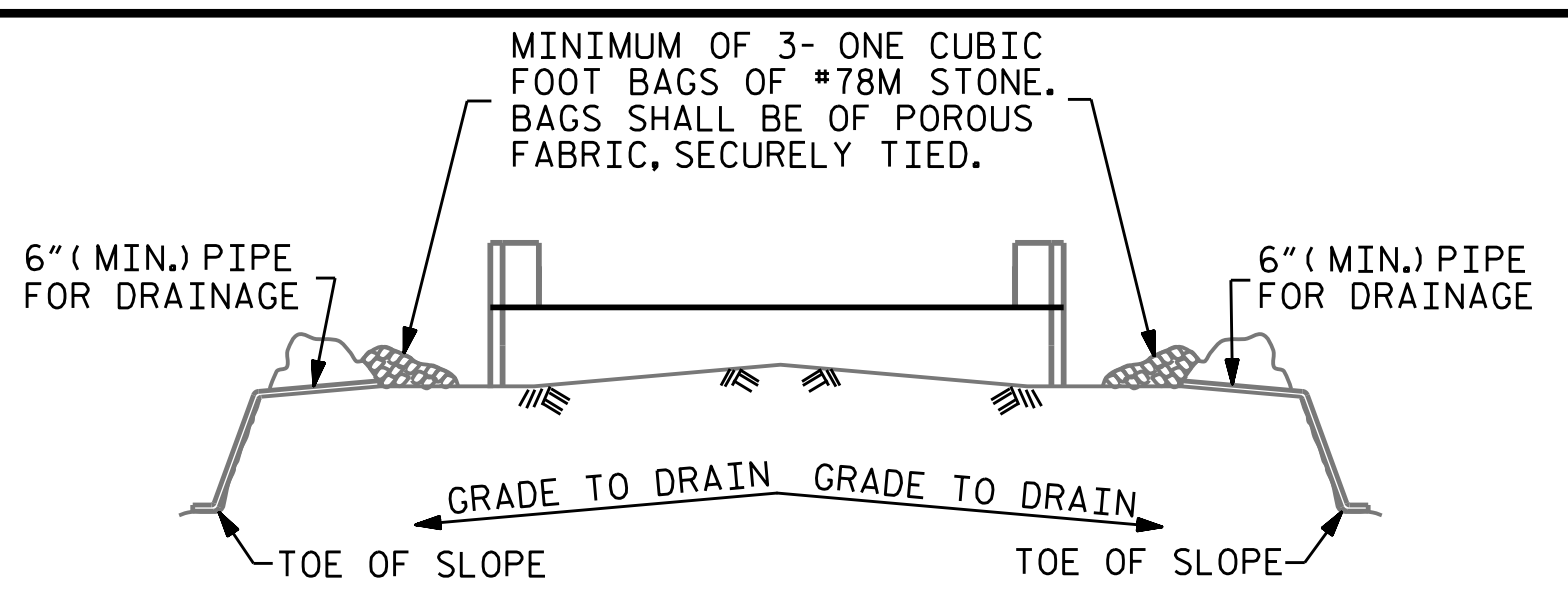
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WING DETAILS

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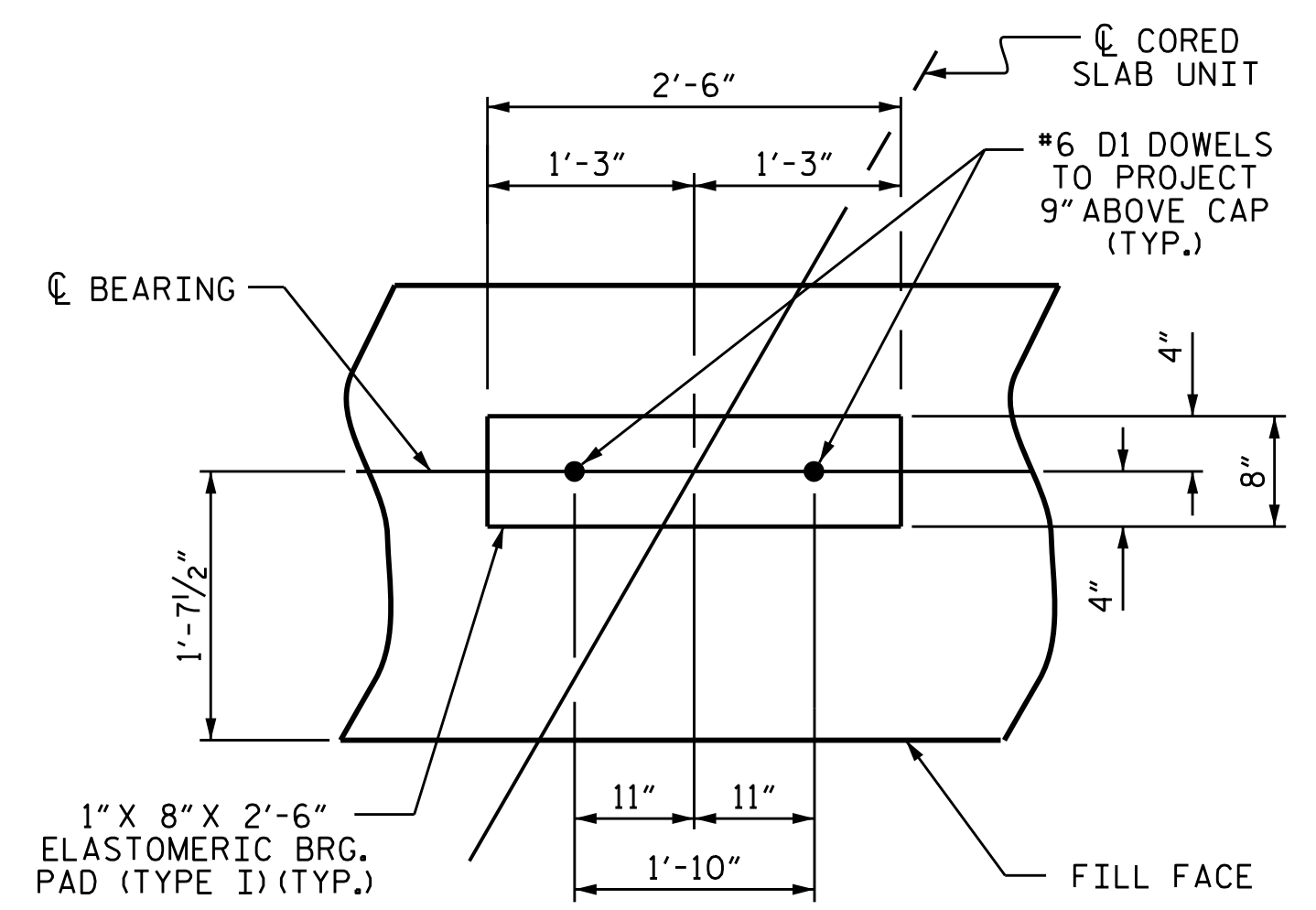


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

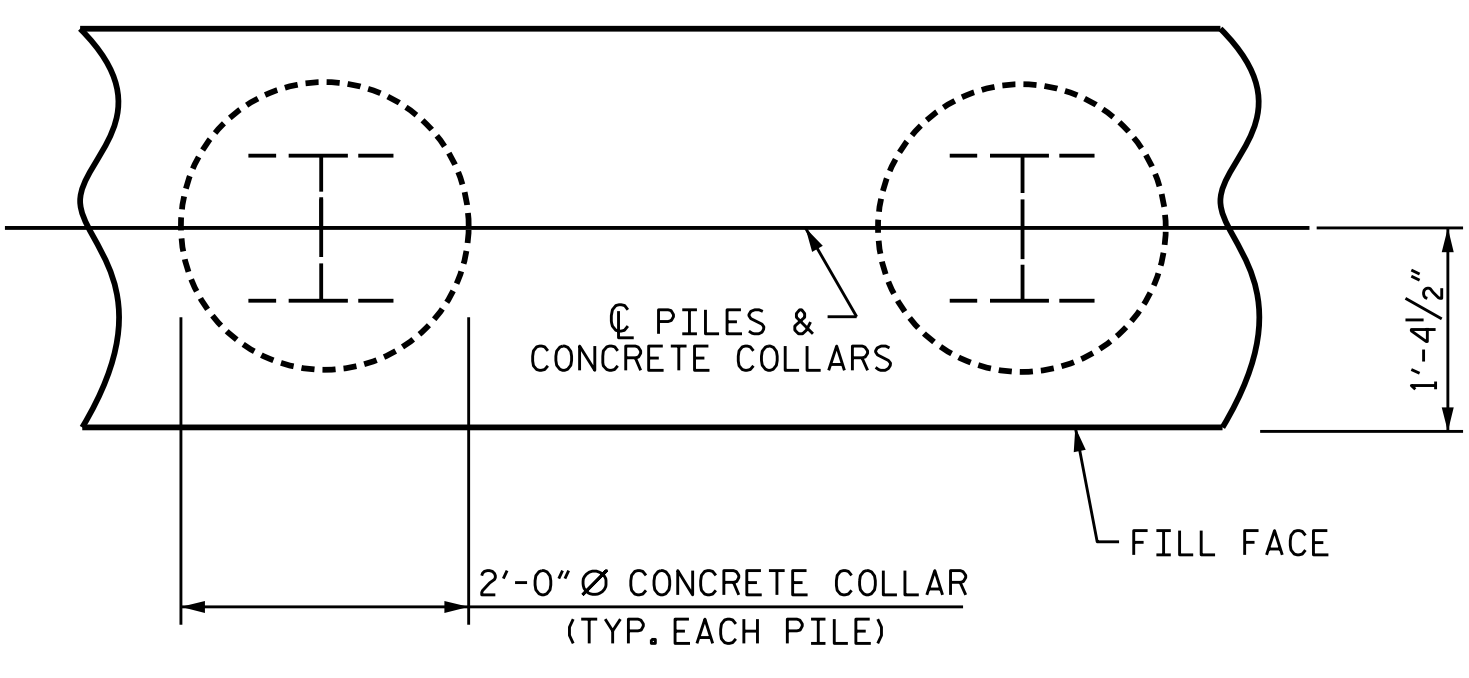
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

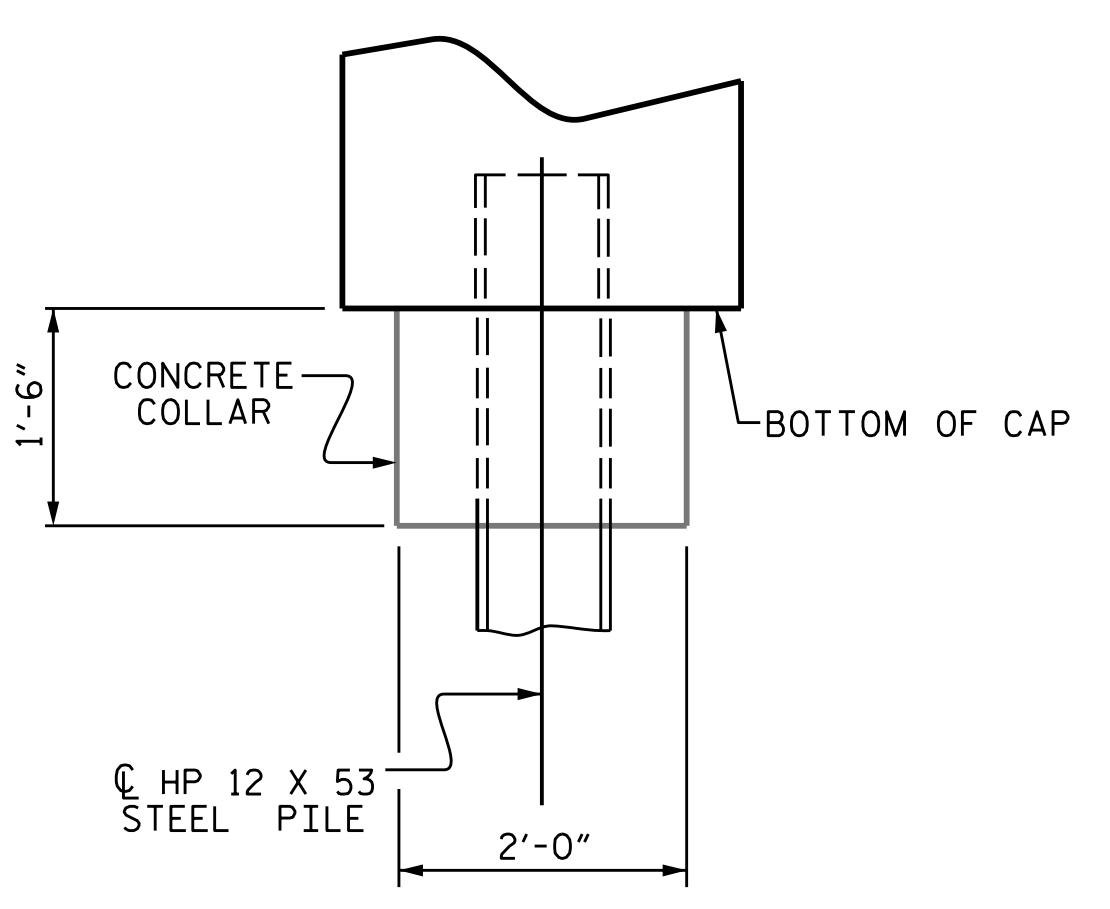
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



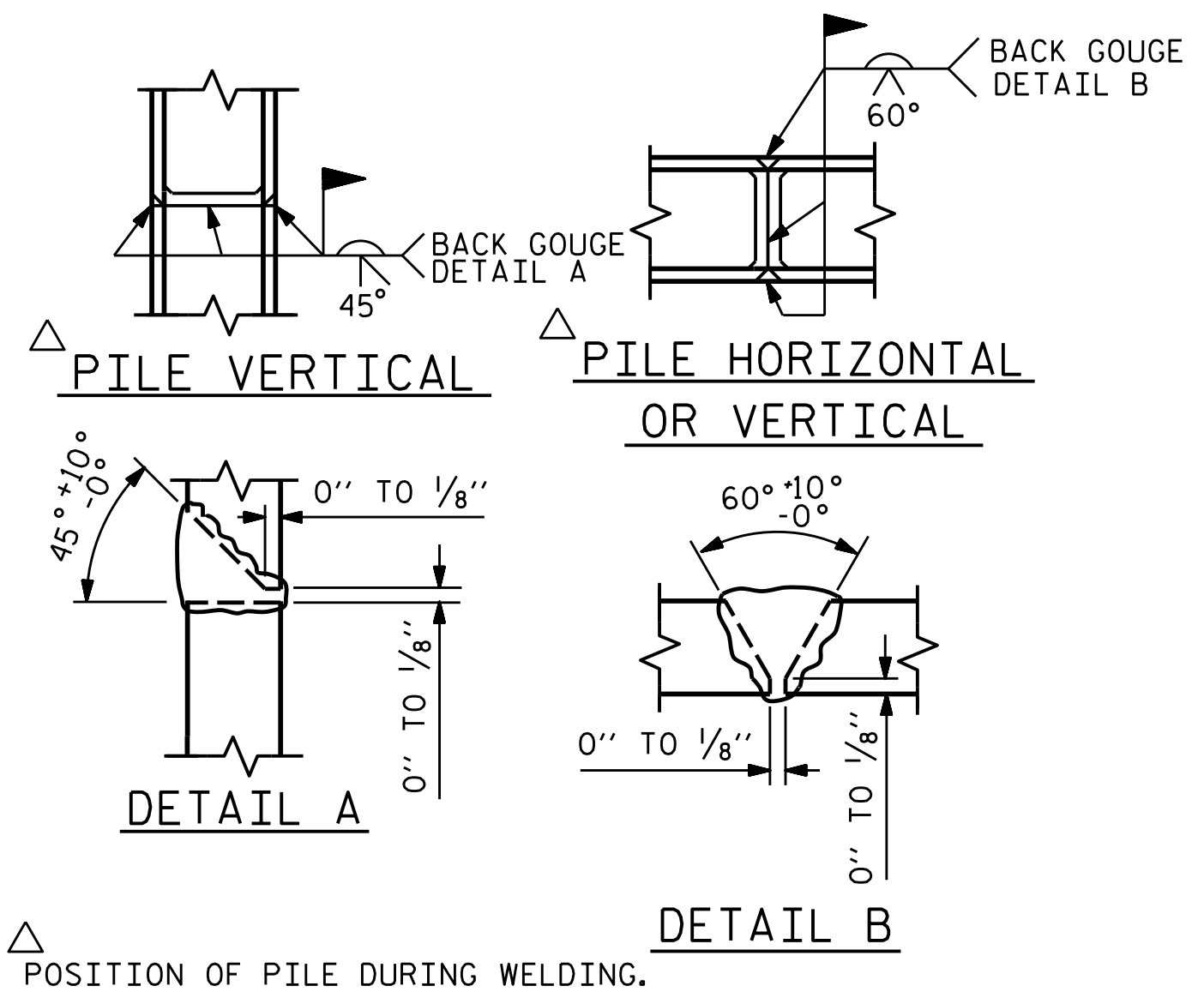
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

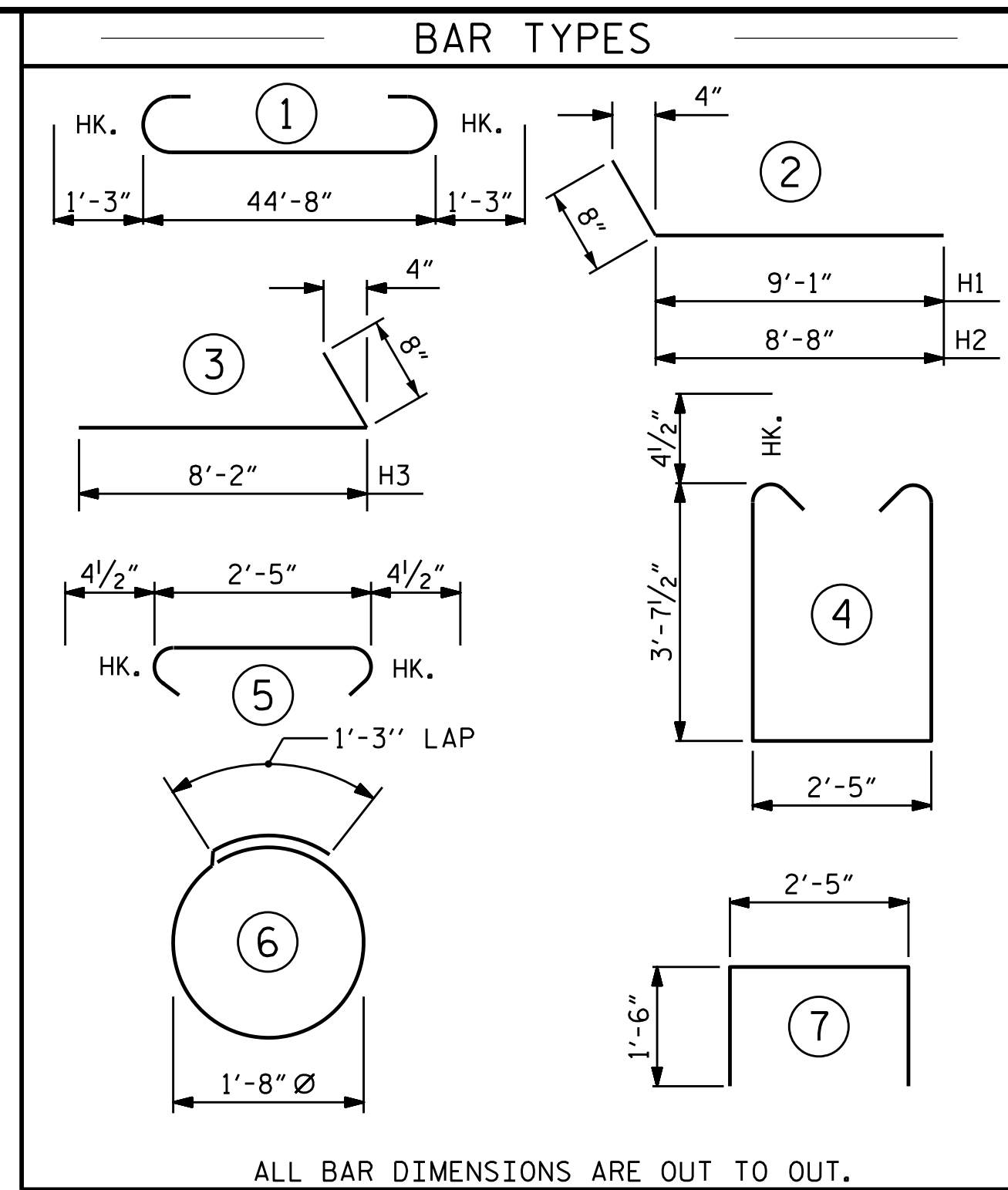
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



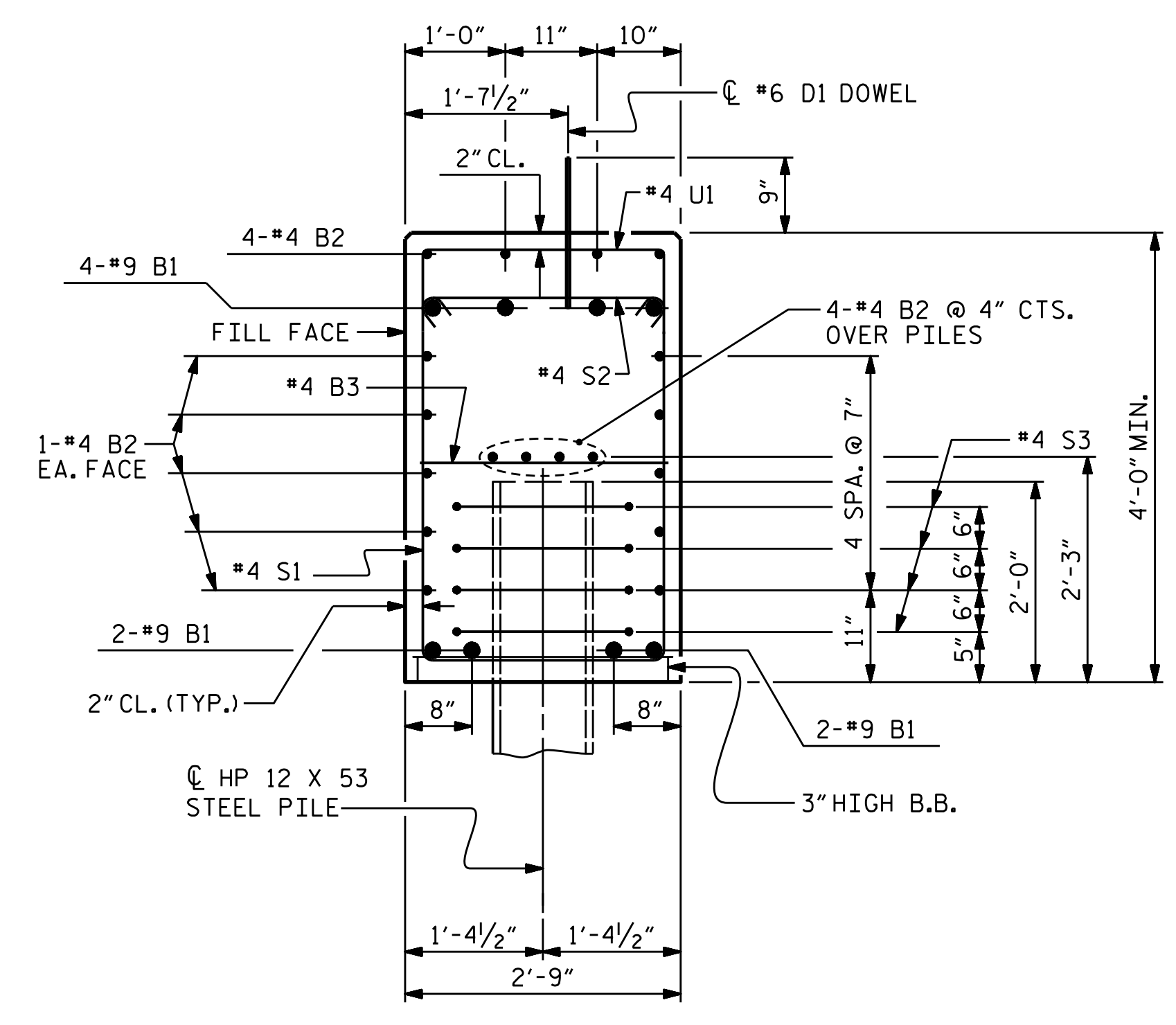
ELEVATION



PILE SPLICE DETAILS



BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	47'-2"	1283
B2	36	#4	STR	23'-8"	569
B3	12	#4	STR	2'-5"	19
D1	22	#6	STR	1'-6"	50
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
H3	20	#4	3	8'-10"	118
K1	16	#4	STR	3'-3"	35
S1	56	#4	4	10'-5"	390
S2	56	#4	5	3'-2"	118
S3	28	#4	6	6'-6"	122
U1	27	#4	7	5'-5"	98
V1	53	#4	STR	6'-2"	218
REINFORCING STEEL (FOR ONE END BENT)				3147 LBS.	
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				23.3 C.Y.	
POUR #2 UPPER PART OF WINGS				2.4 C.Y.	
TOTAL CLASS A CONCRETE				25.7 C.Y.	



SECTION A-A

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

PROJECT NO. BP4.R006
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 STATION: 15+51.50 -L-

SHEET 4 OF 4

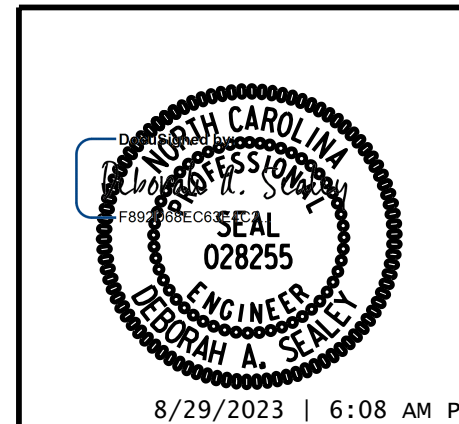
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 DEPARTMENT OF TRANSPORTATION
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END BENT 1 & 2 DETAILS

REVISIONS

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1			3		
2			4		

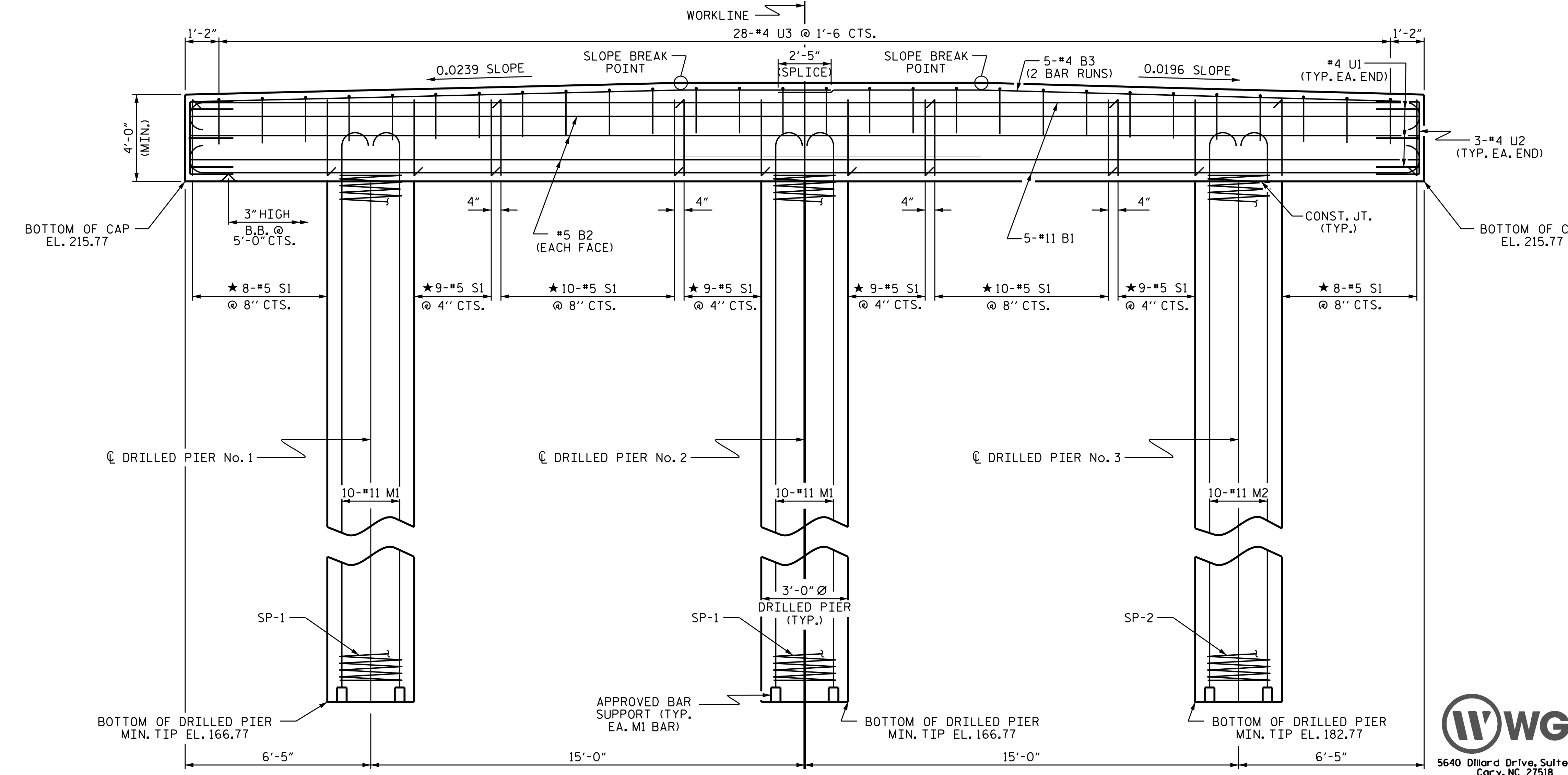
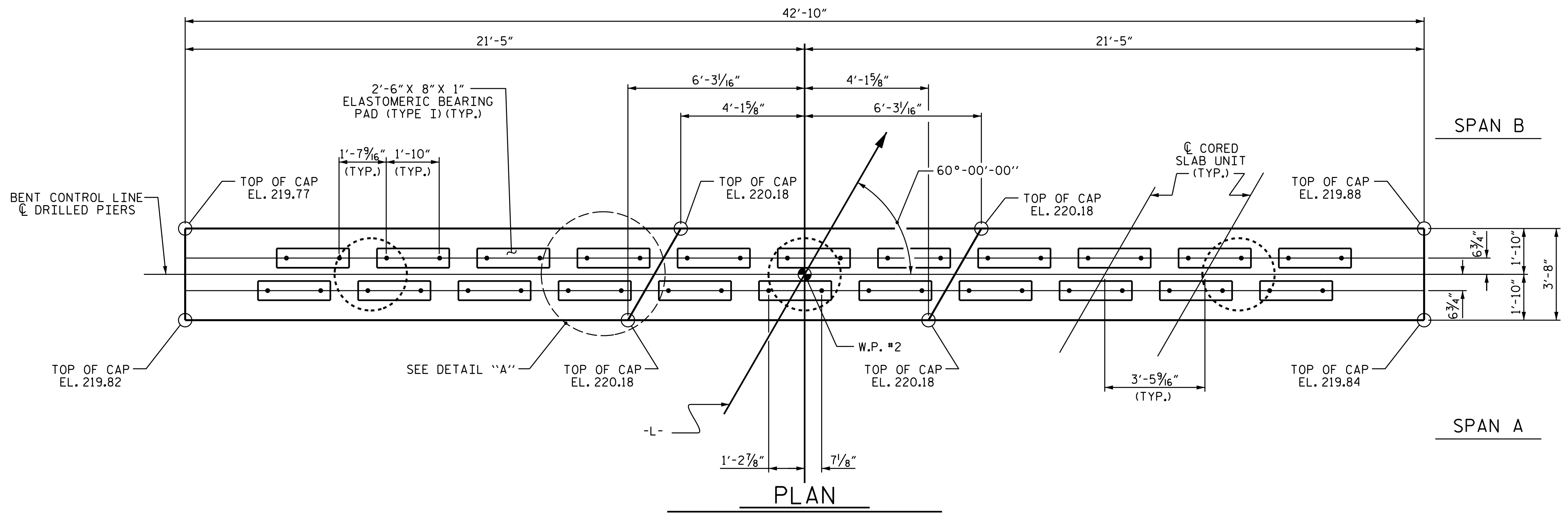
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NOTES

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

HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

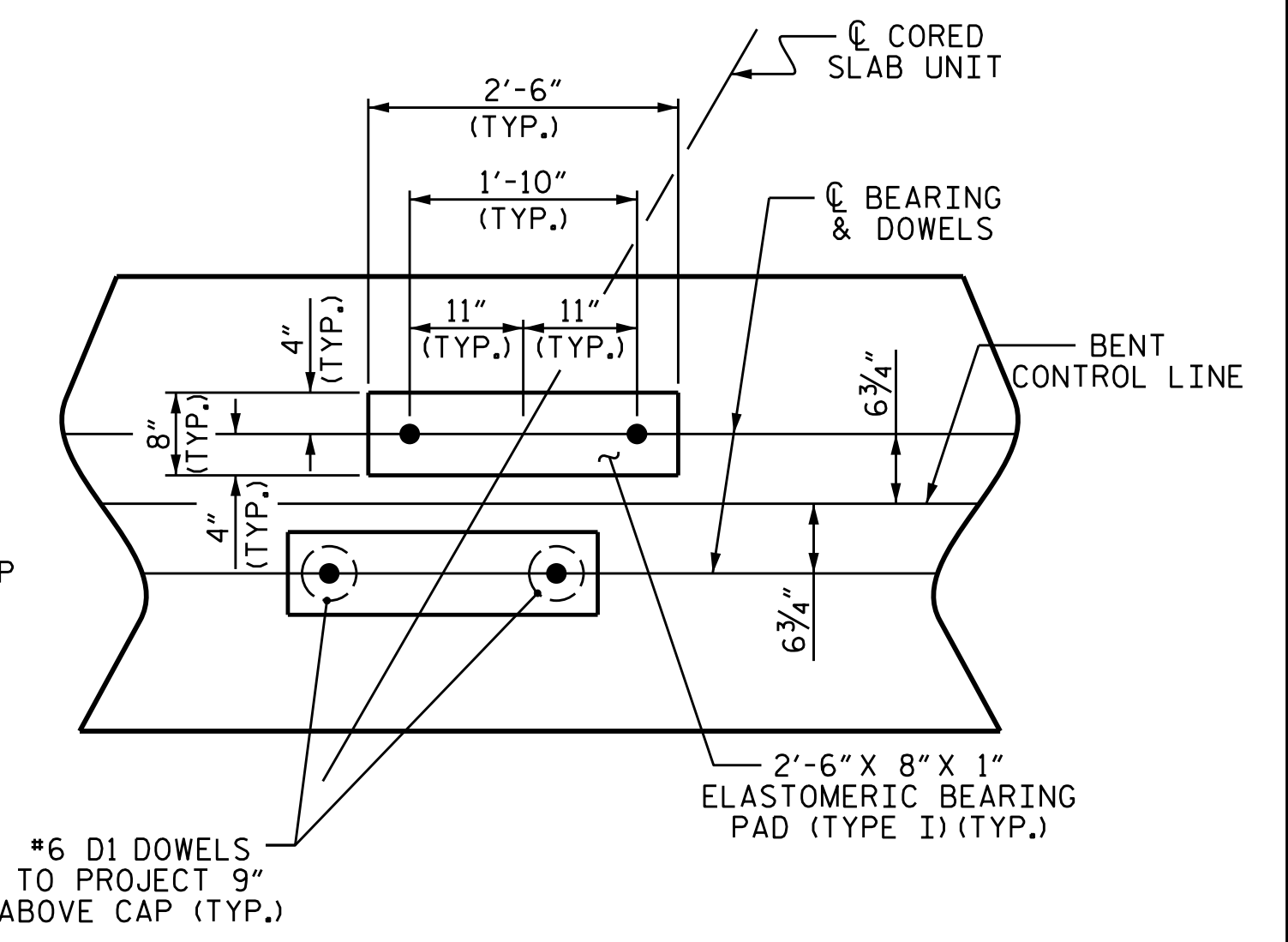
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

★ INVERT ALTERNATE STIRRUPS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIERS WILL NOT BE PERMITTED.



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JOHNSTON COUNTY
 STATION: 15+51.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
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BENT 1



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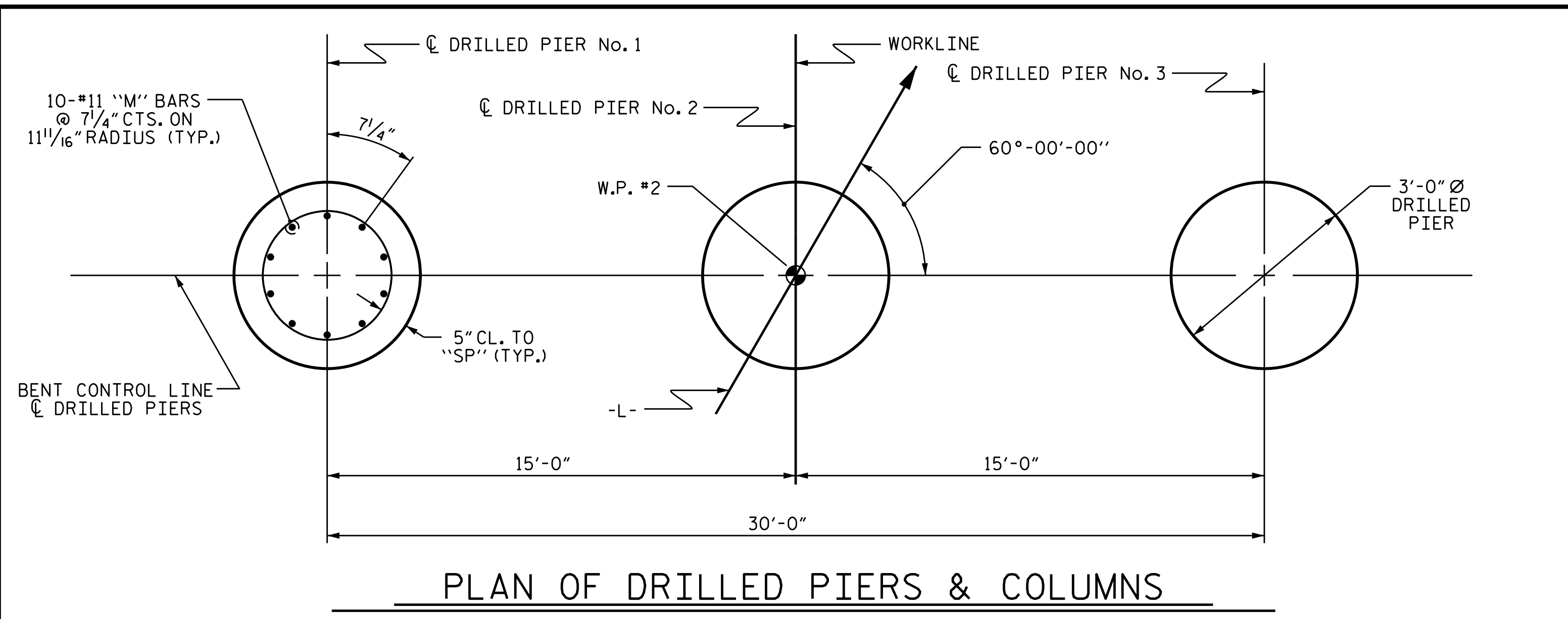
DRAWN BY : S.D. COOPER DATE : 11-22
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 DESIGN ENGINEER OF RECORD : D.A. SEALEY DATE : 11-22

DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.

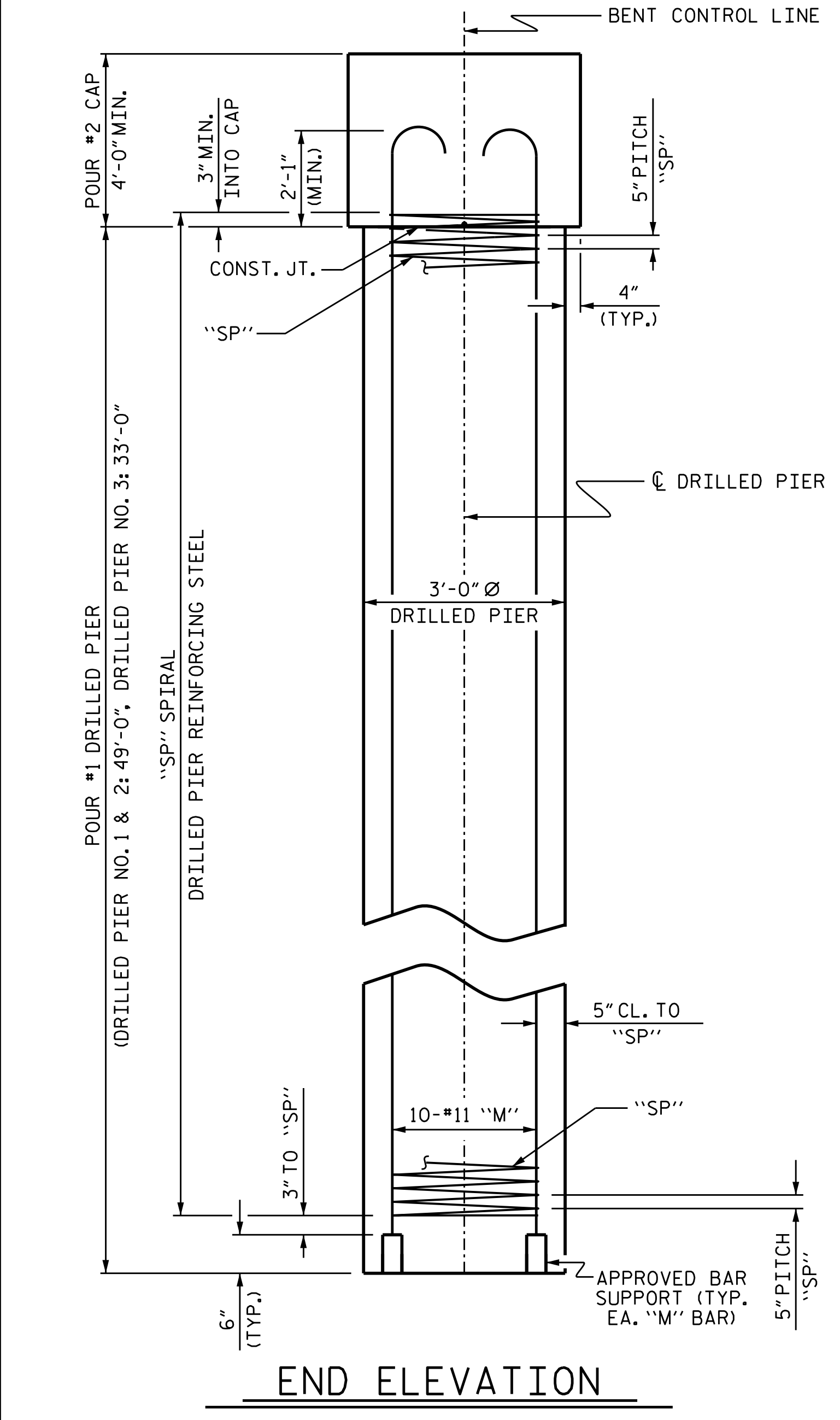
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2			4			22

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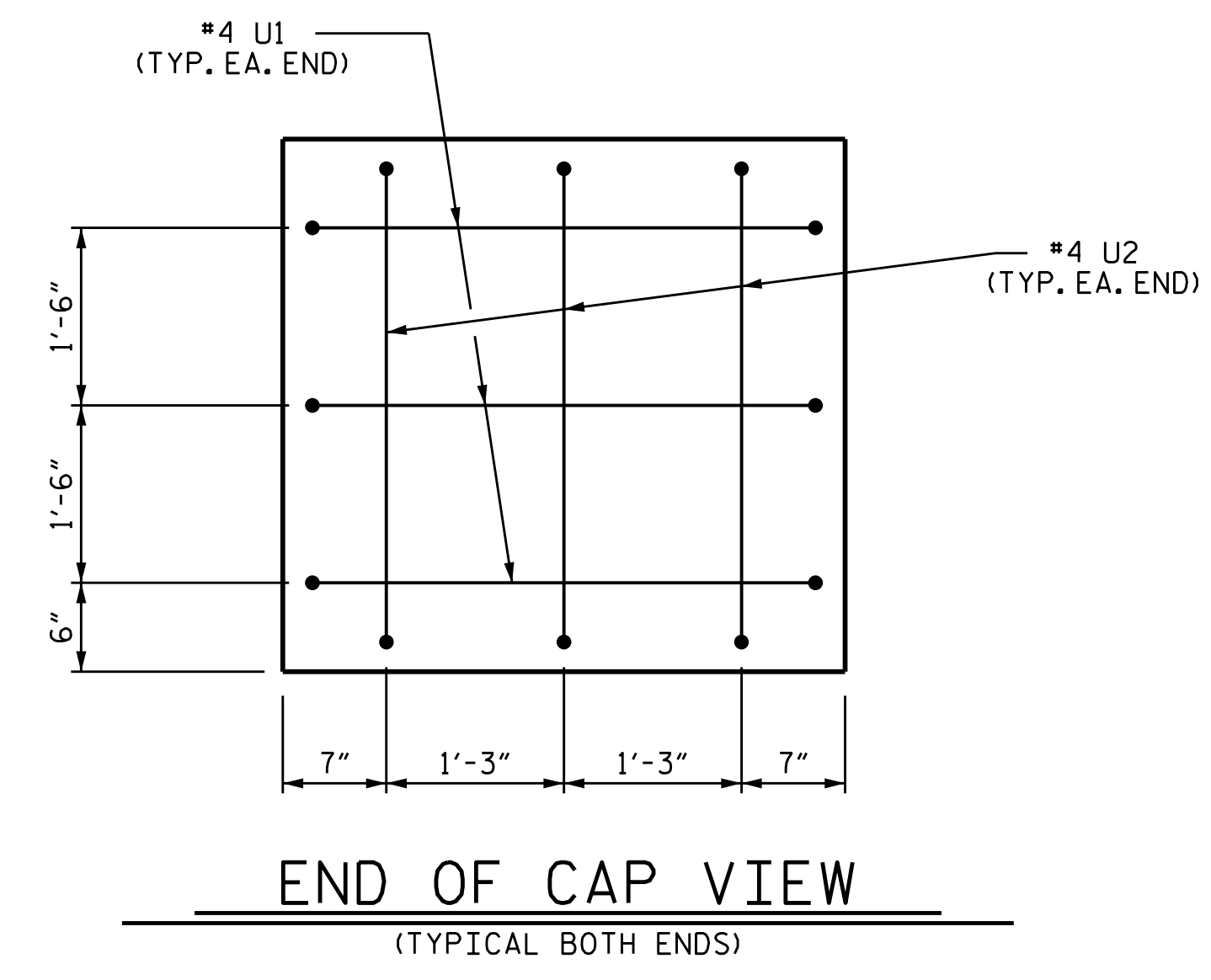
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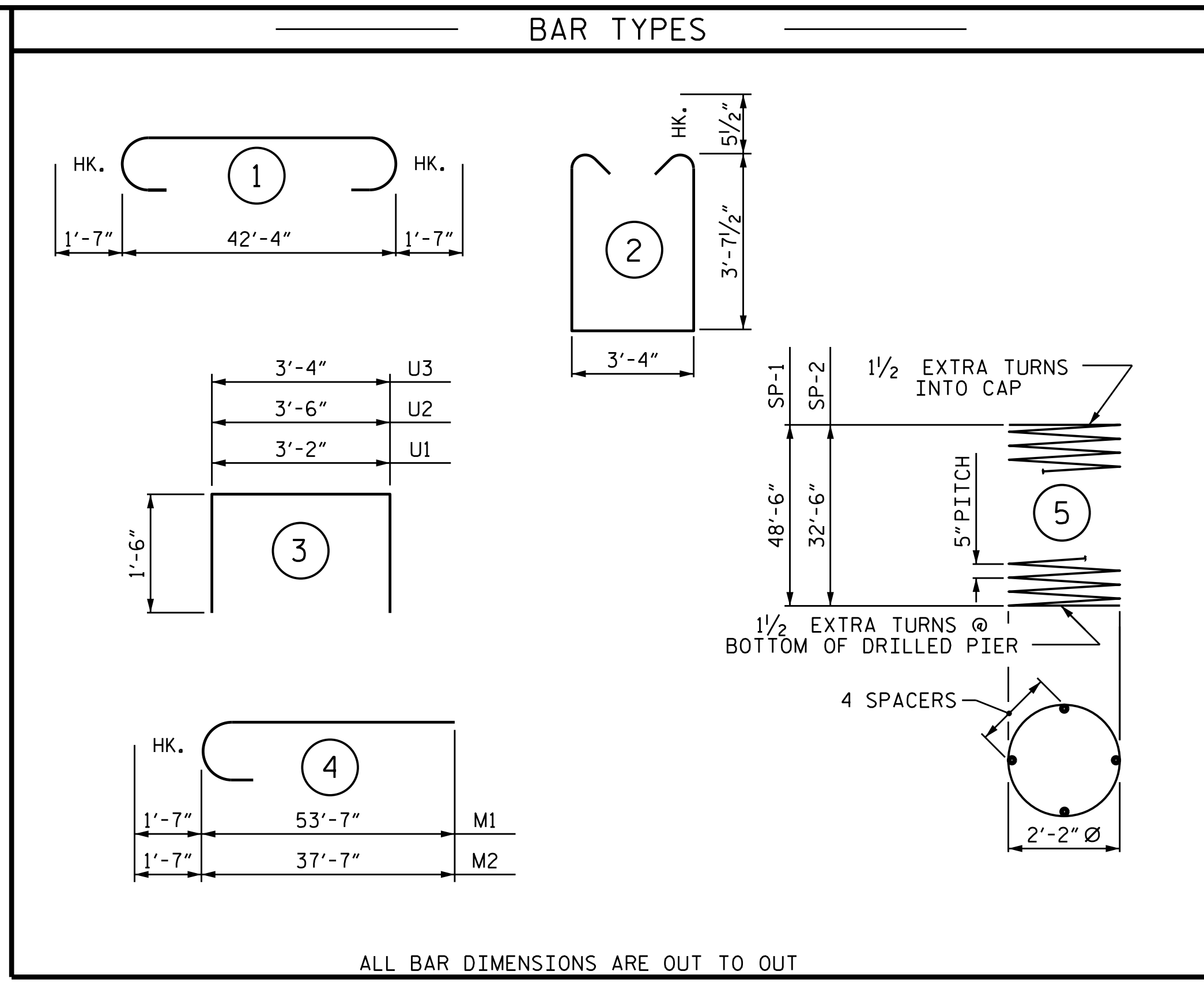
PLAN OF DRILLED PIERS & COLUMNS



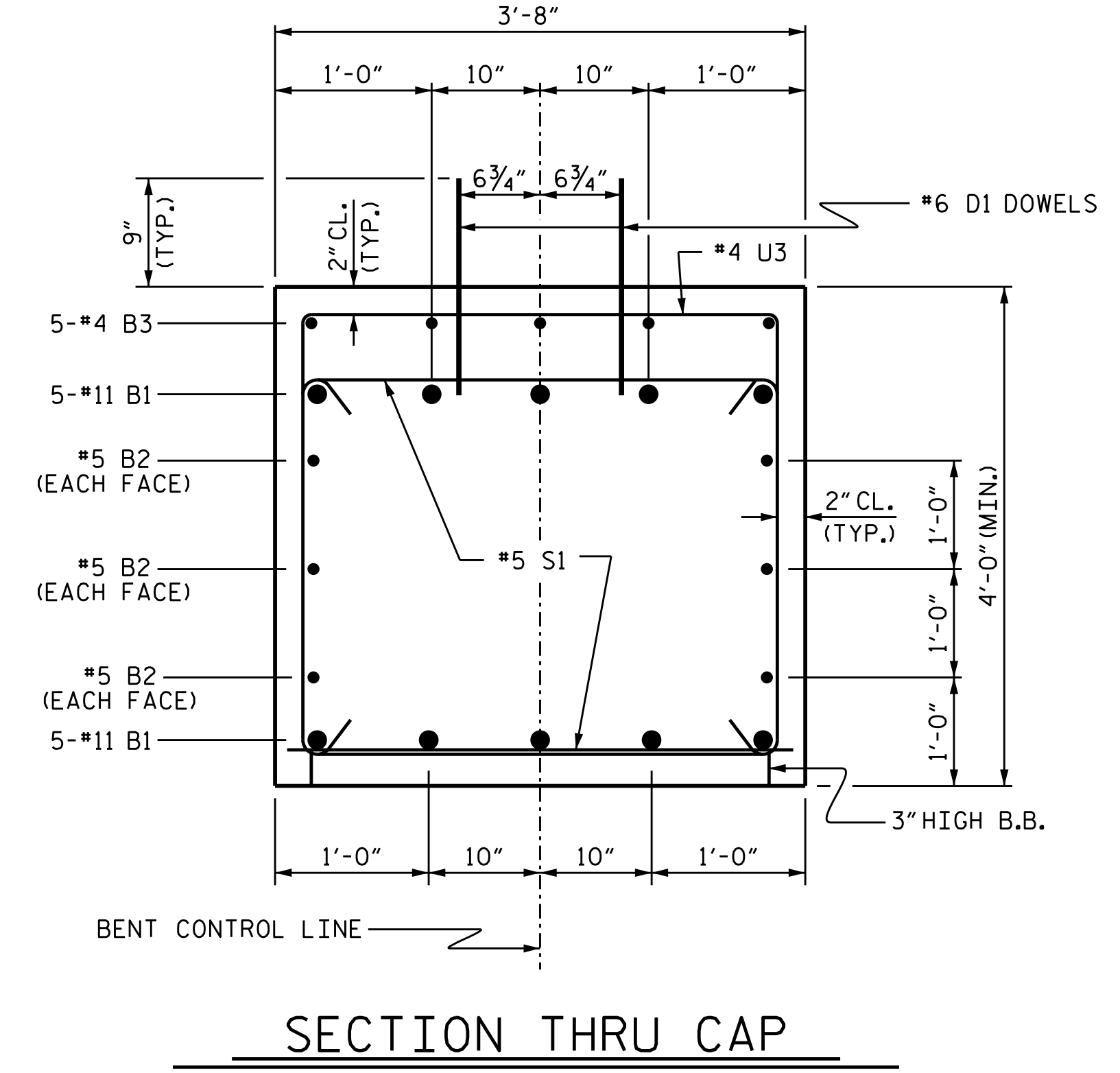
END ELEVATION



END OF CAP VIEW
(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT



SECTION THRU CAP

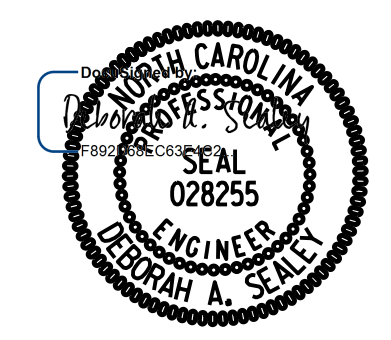
BILL OF MATERIAL					
FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	45'-6"	2417
B2	6	#5	STR	42'-6"	266
B3	10	#4	STR	22'-6"	150
D1	44	#6	STR	1'-6"	99
M1	20	#11	4	55'-2"	5862
M2	10	#11	4	39'-2"	2081
S1	72	#5	2	11'-6"	864
U1	6	#4	3	6'-2"	25
U2	6	#4	3	6'-6"	26
U3	28	#4	3	6'-4"	118
REINFORCING STEEL (FOR ONE BENT)					11,809 LBS.
SP-1	2	*	5	784'-10"	1637
SP-2	1	*	5	529'-3"	552
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					2189 LBS.
* THE "SP" SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #2 (CAP)					26.1 C.Y.
TOTAL CLASS A CONCRETE					26.1 C.Y.
DRILLED PIERS: (FOR ONE BENT)					
DRILLED PIER CONCRETE					34.3 C.Y.
POUR #1 (DRILLED PIERS)					34.3 C.Y.

PROJECT NO. BP4.R006
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 STATION: 15+51.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENT 1



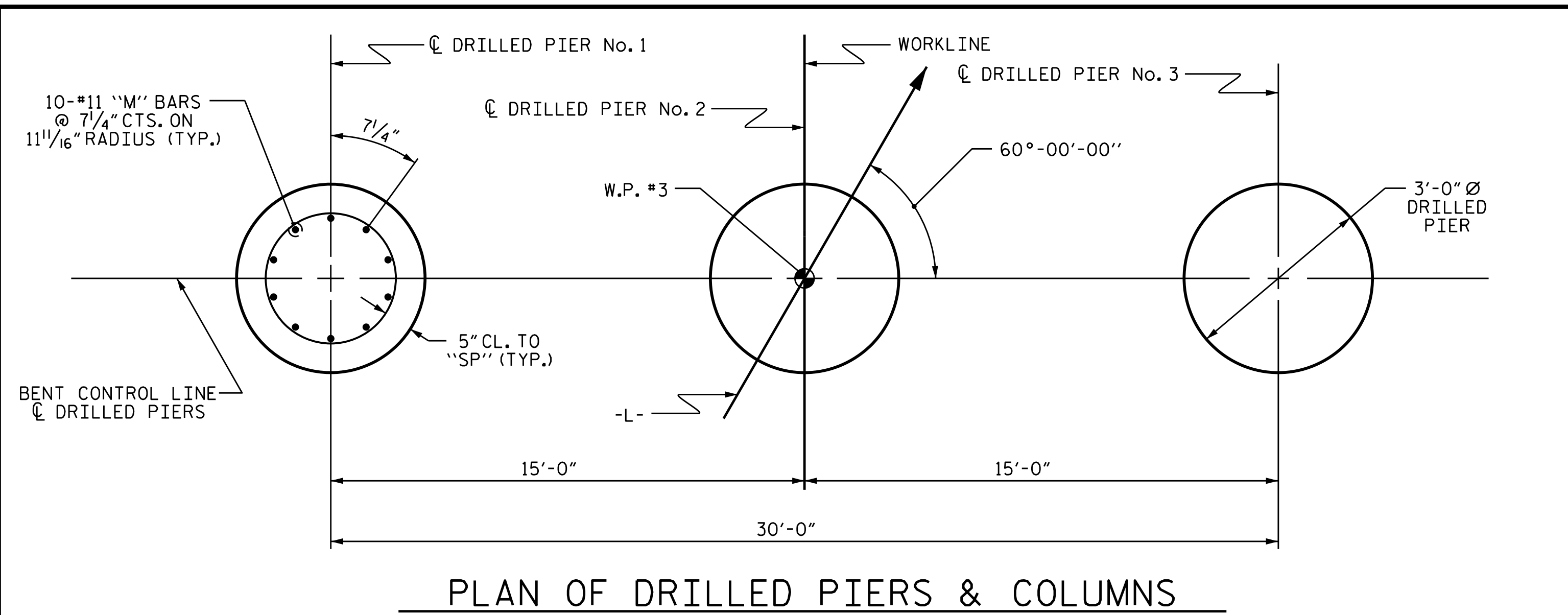
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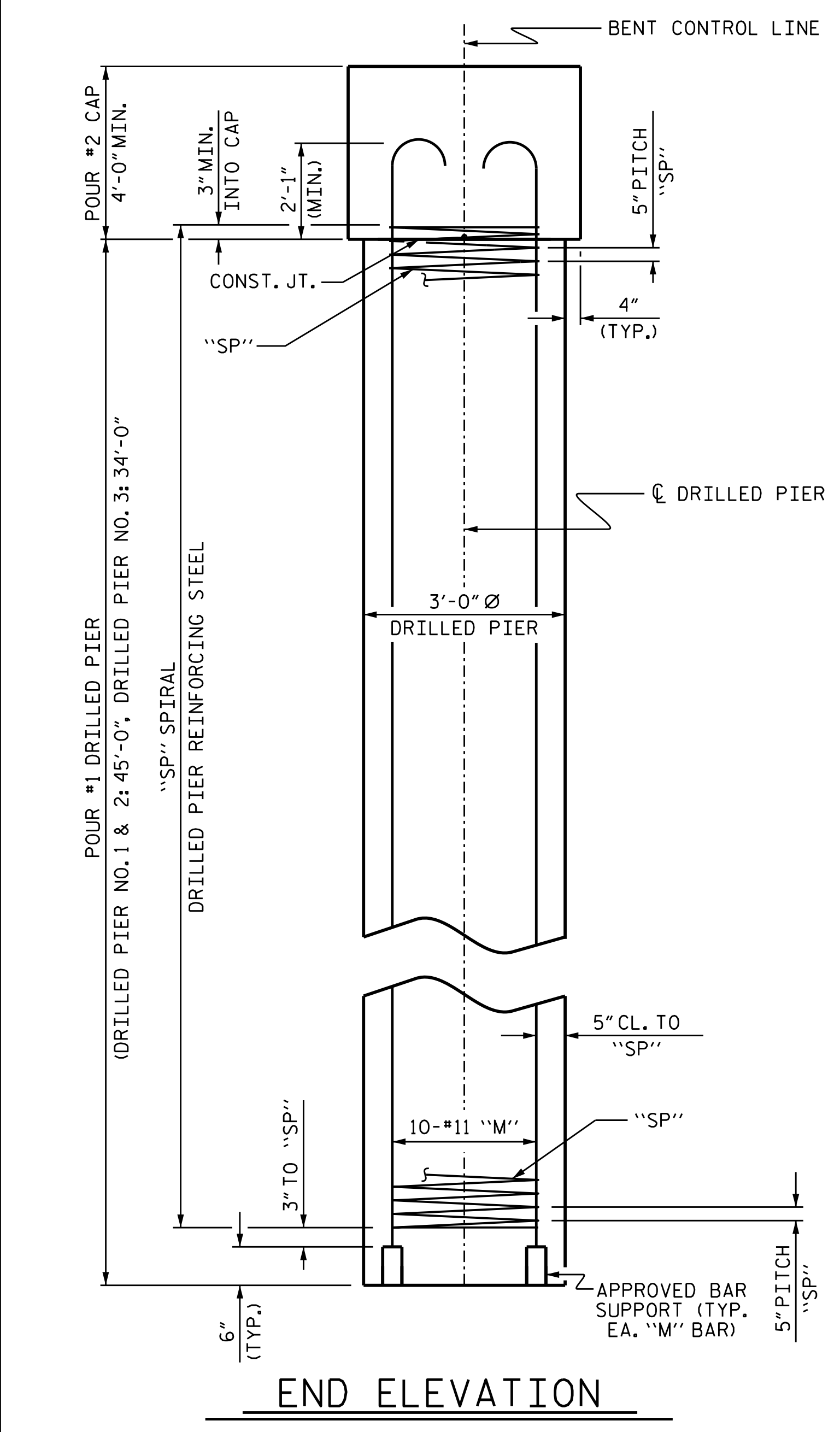
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NO.	BY:	DATE:	NO.	BY:	DATE:
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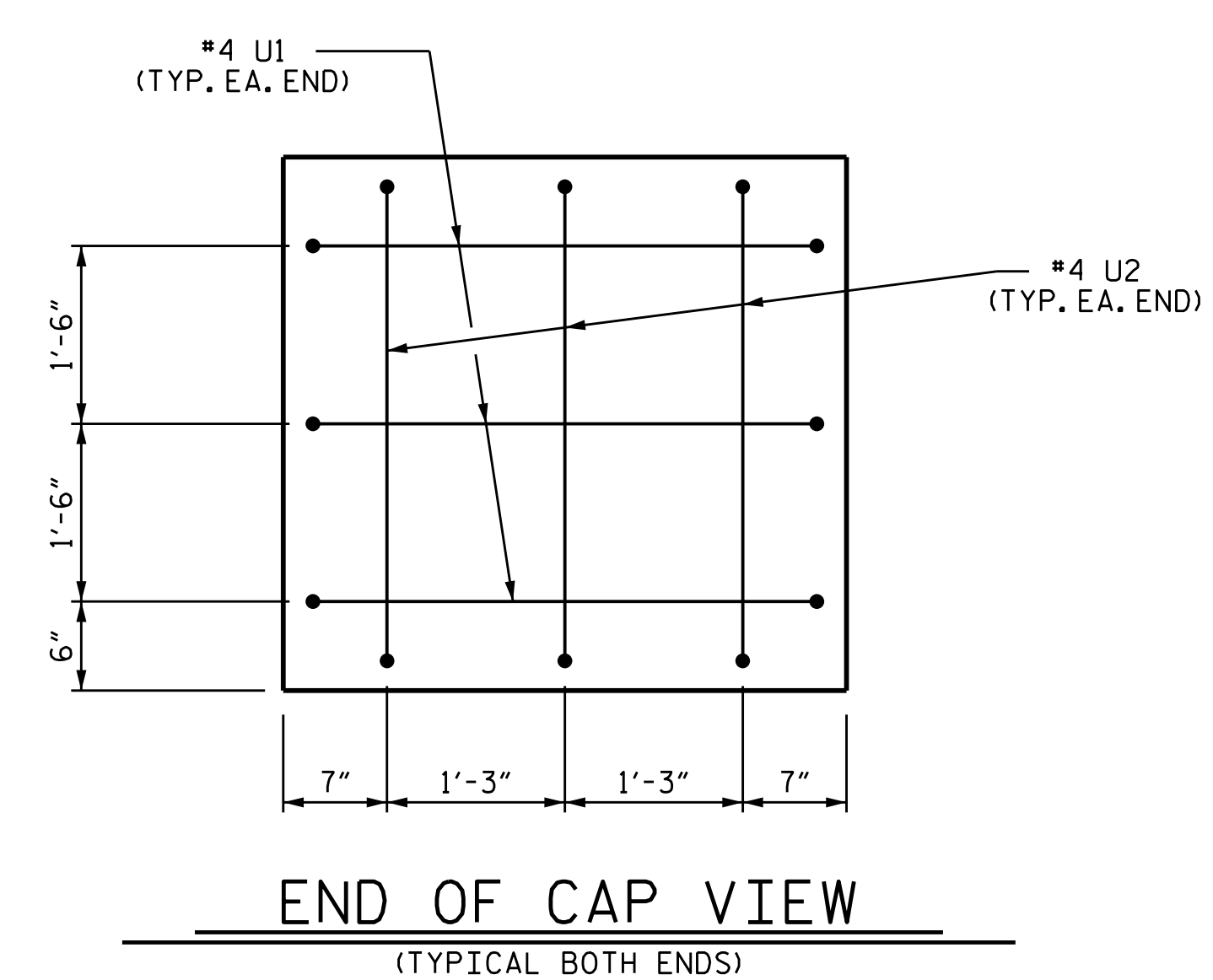
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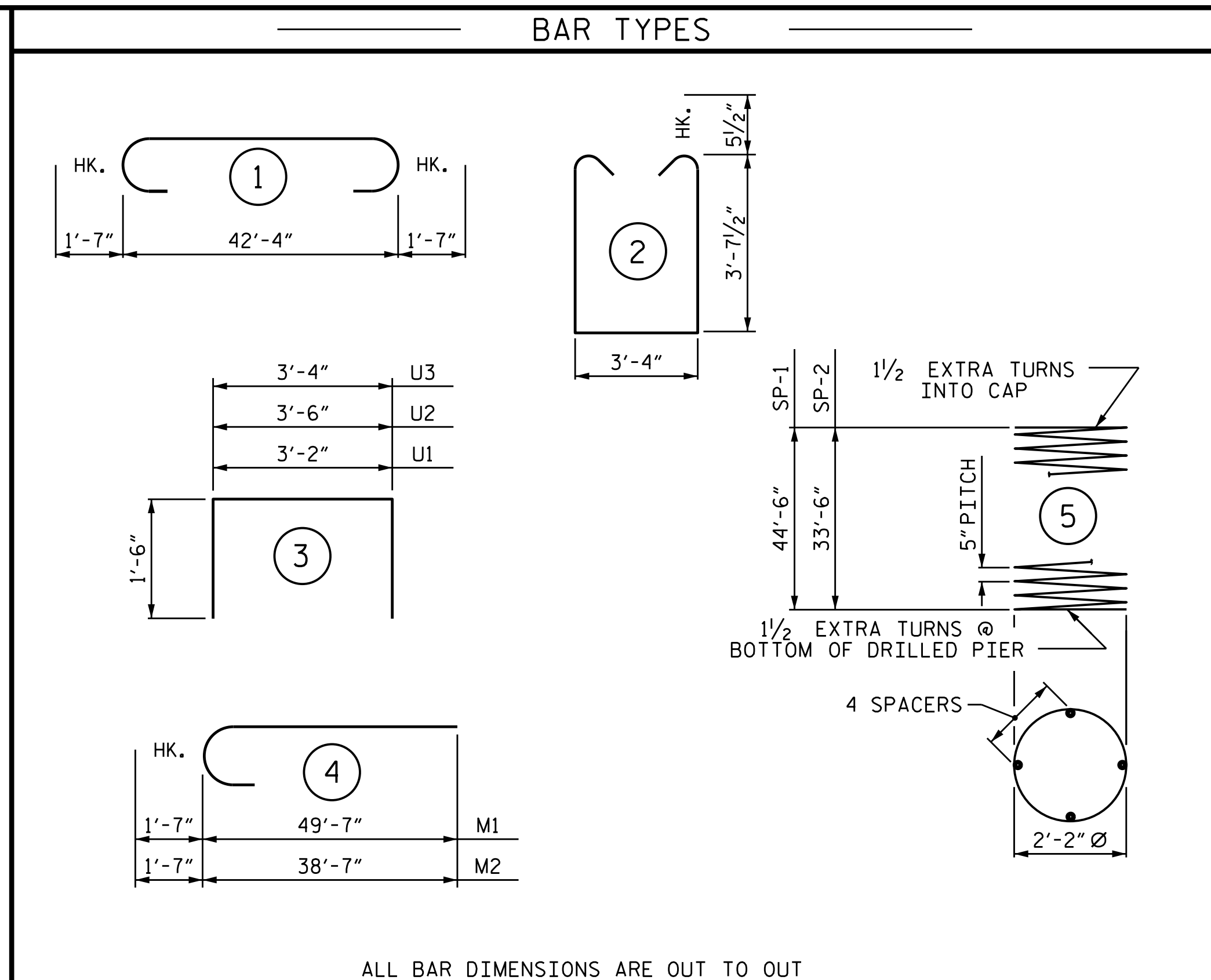
PLAN OF DRILLED PIERS & COLUMNS



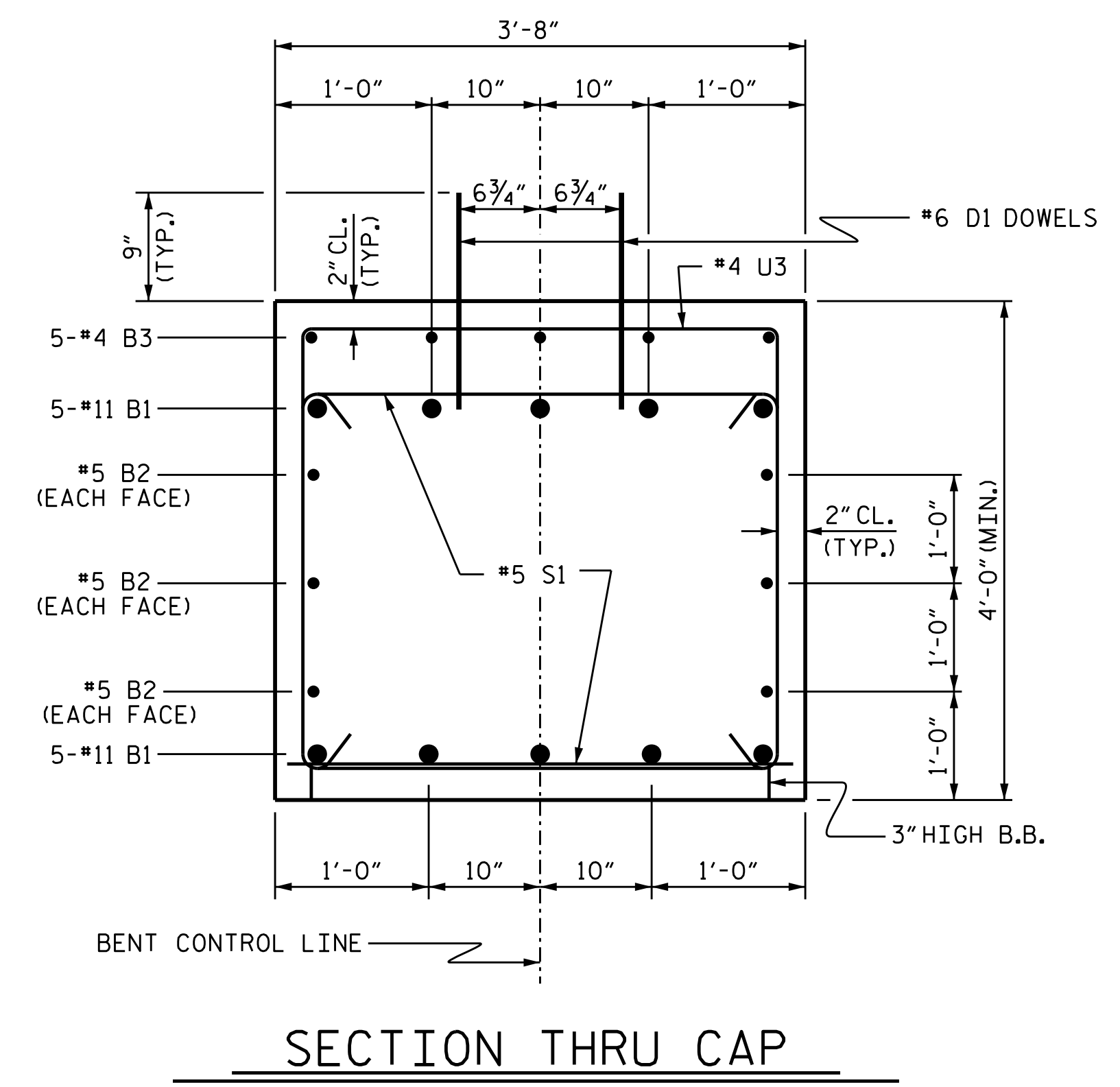
END ELEVATION



END OF CAP VIEW
(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT



SECTION THRU CAP

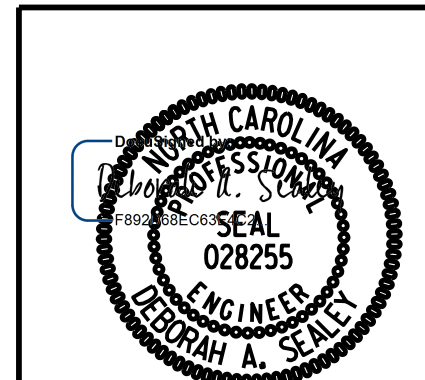
BILL OF MATERIAL FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	45'-6"	2417
B2	6	#5	STR	42'-6"	266
B3	10	#4	STR	22'-6"	150
D1	44	#6	STR	1'-6"	99
M1	20	#11	4	51'-2"	5437
M2	10	#11	4	40'-2"	2134
S1	72	#5	2	11'-6"	864
U1	6	#4	3	6'-2"	25
U2	6	#4	3	6'-6"	26
U3	28	#4	3	6'-4"	118
REINFORCING STEEL (FOR ONE BENT)					11,536 LBS.
SP-1	2	*	5	720'-11"	1504
SP-2	1	*	5	545'-2"	569
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					2073 LBS.
* THE "SP" SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #2 (CAP)					26.1 C.Y.
TOTAL CLASS A CONCRETE					26.1 C.Y.
DRILLED PIERS: (FOR ONE BENT)					
DRILLED PIER CONCRETE					32.5 C.Y.
POUR #1 (DRILLED PIERS)					32.5 C.Y.

PROJECT NO. BP4.R006
JOHNSTON COUNTY
 STATION: 15+51.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
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BENT 2

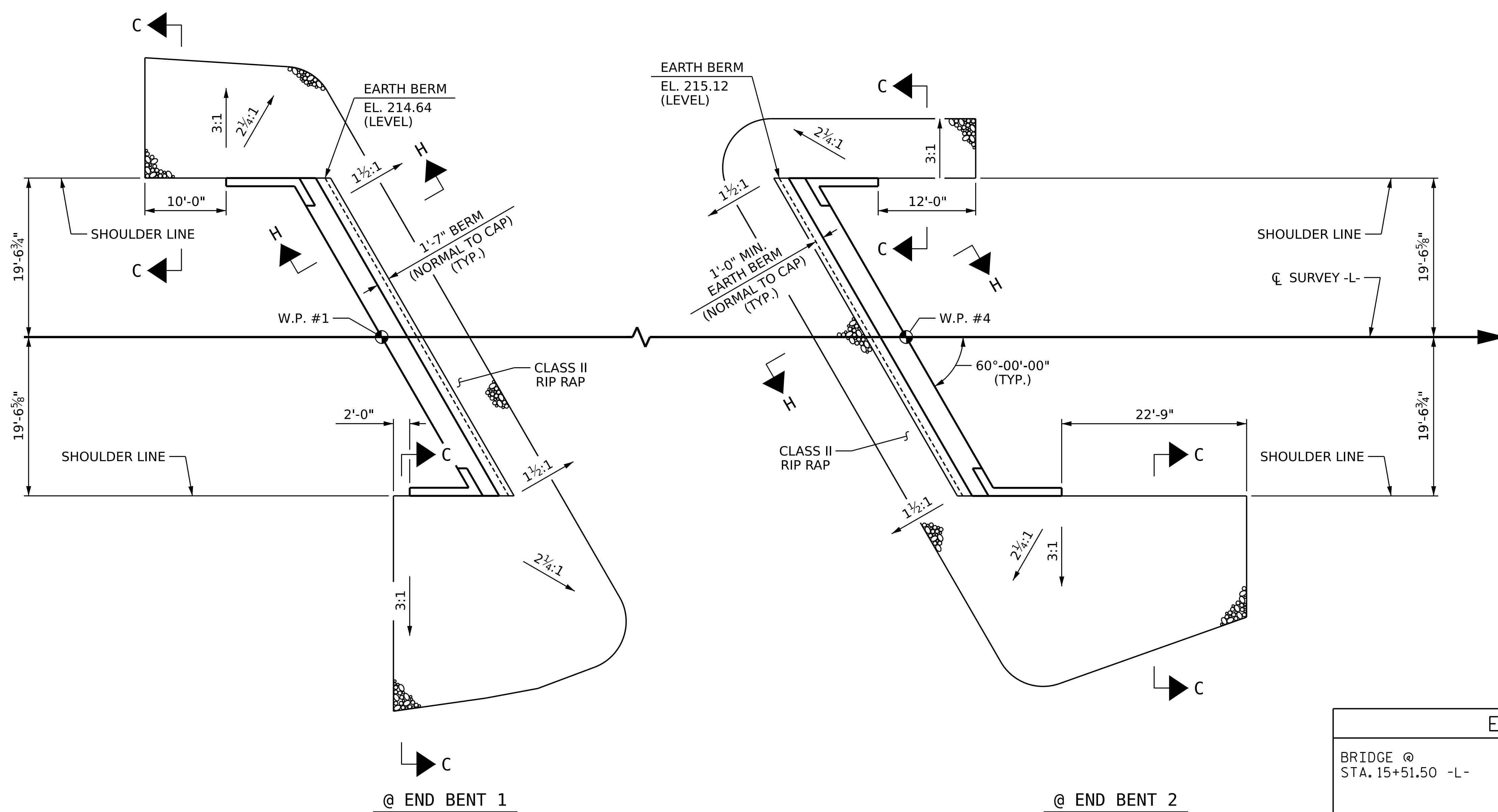


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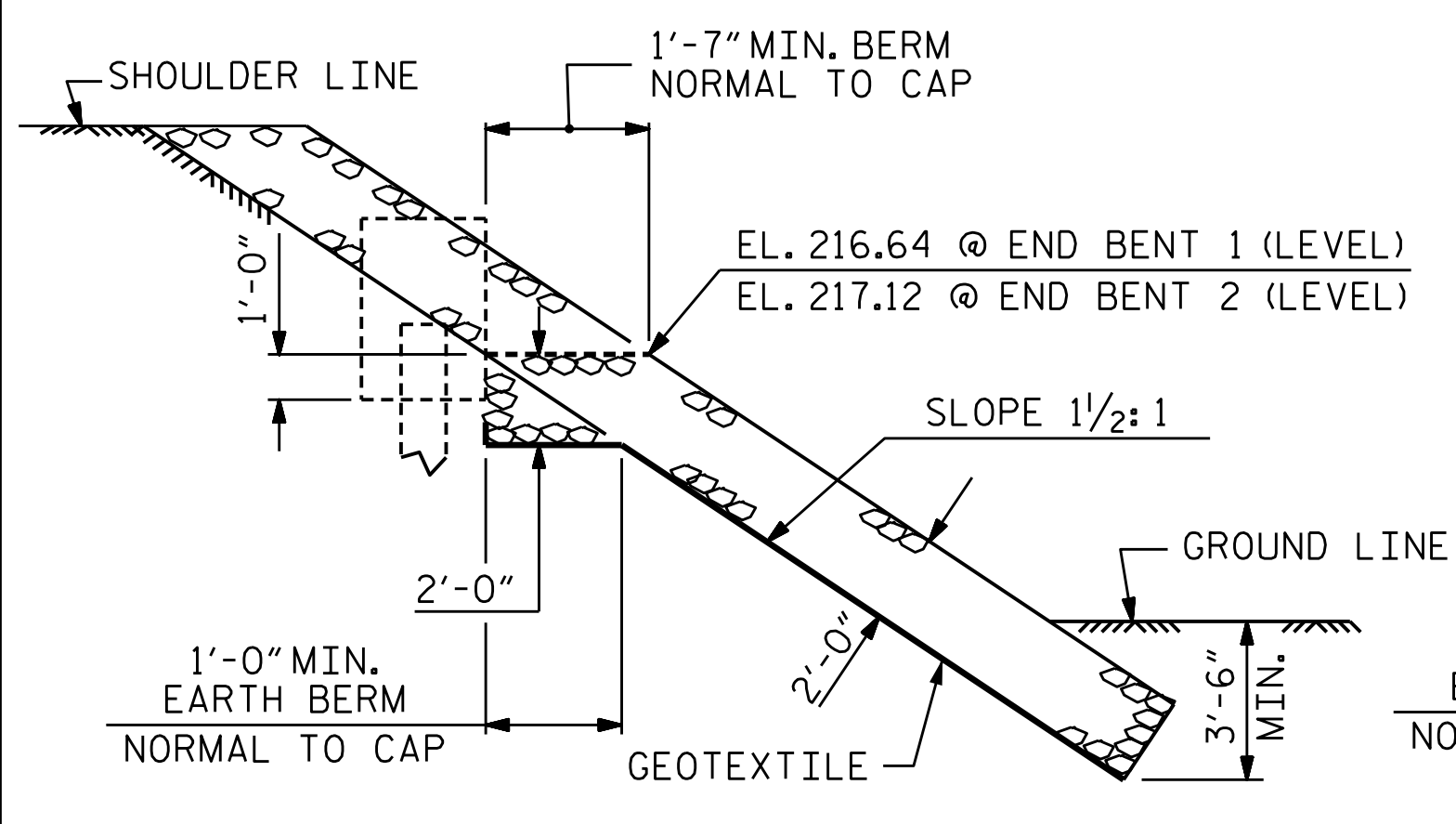


@ END BENT 1

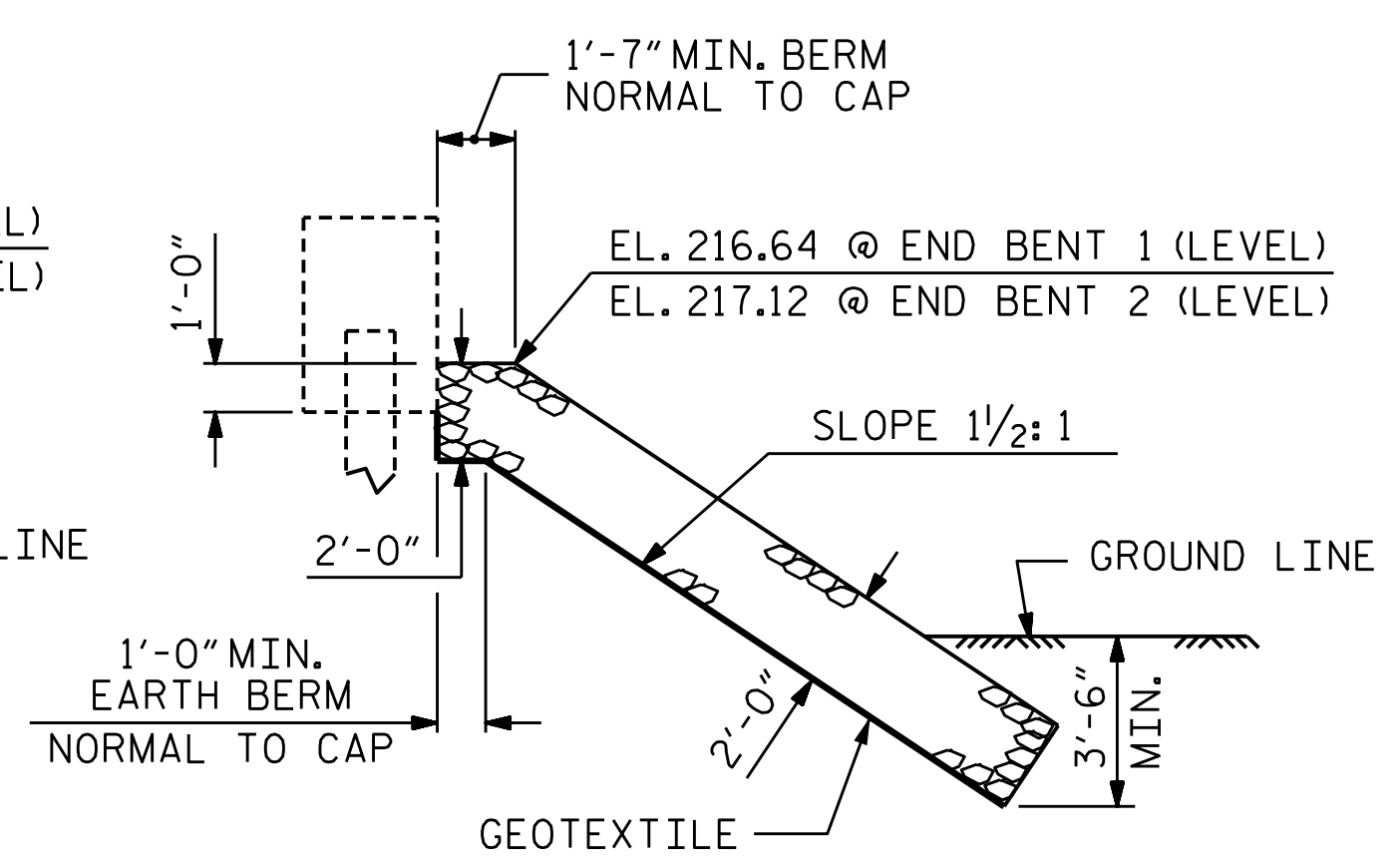
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PLAN OF RIP RAP

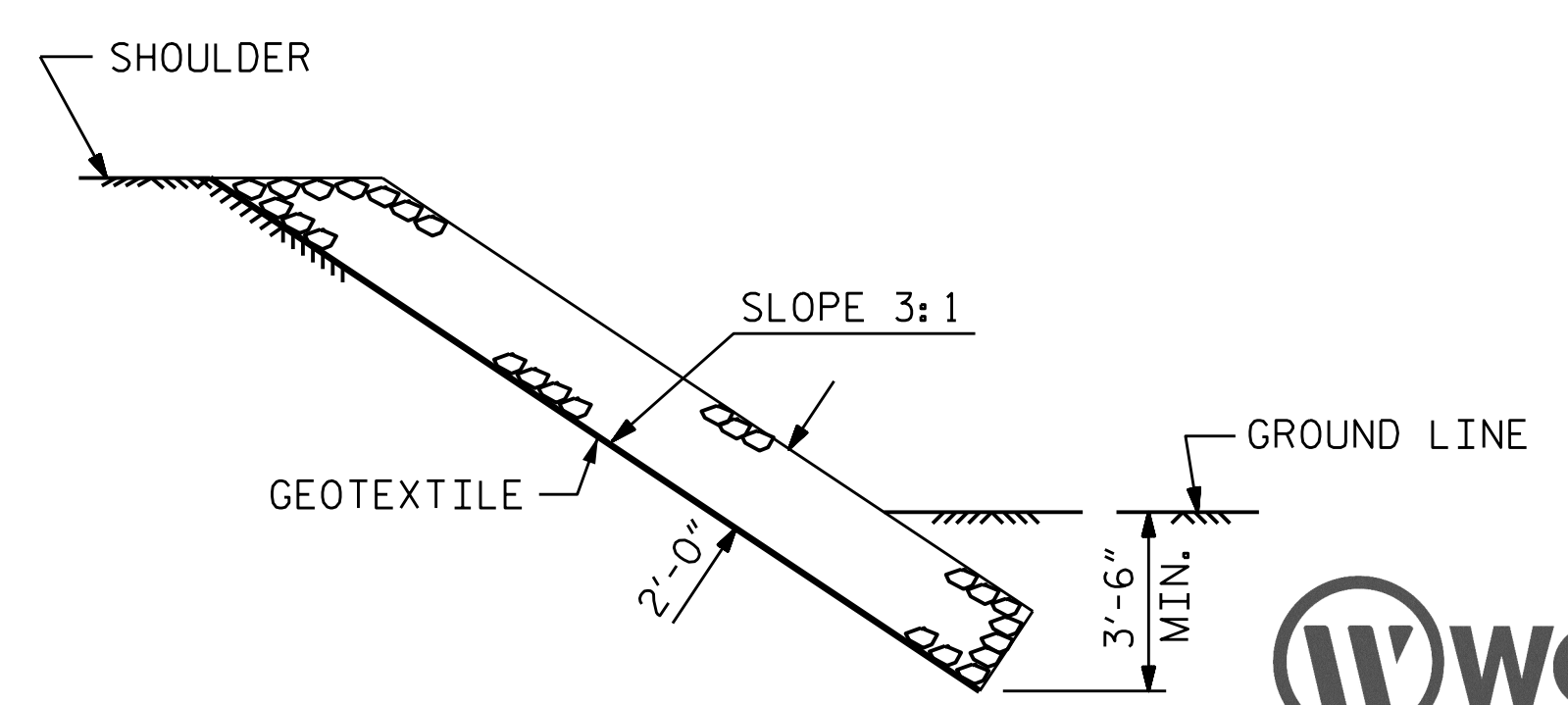
ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+51.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	155	175
END BENT 2	195	220



SECTION H-H



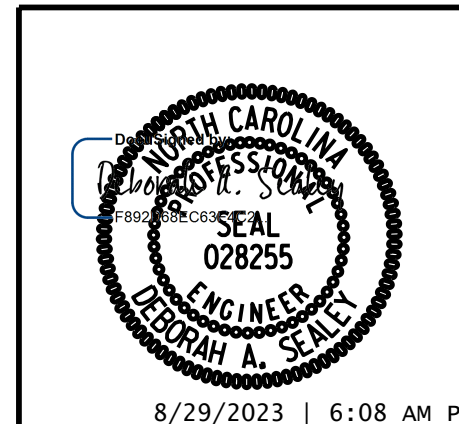
SECTION C-C



SECTION C-C

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 STATION: 15+51.50 -L-

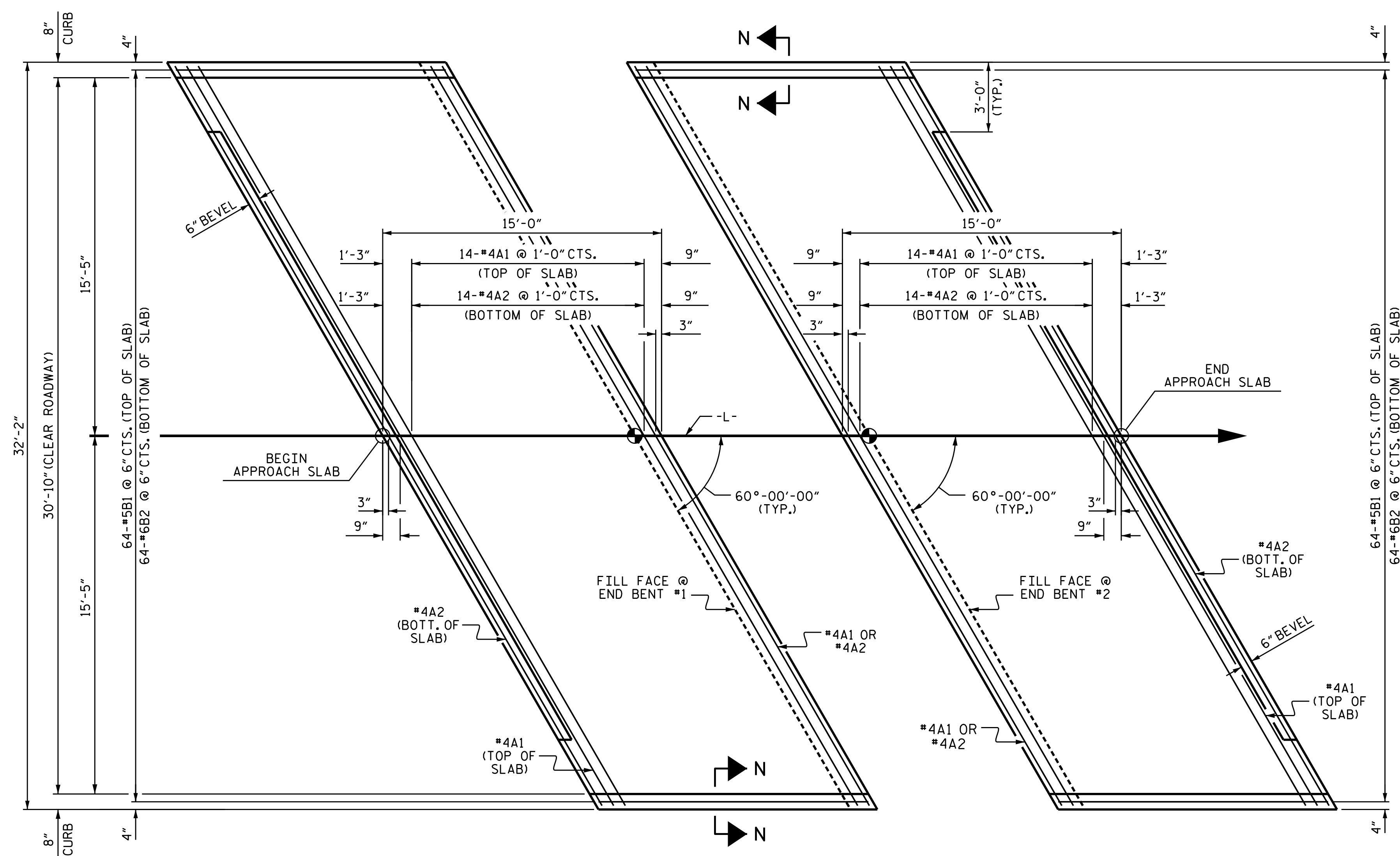
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RIP RAP DETAILS

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

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 SLABS SHALL BE POURED AFTER CONCRETE WEARING SURFACE IS POURED.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

BILL OF MATERIAL

APPROACH SLAB AT EB #1

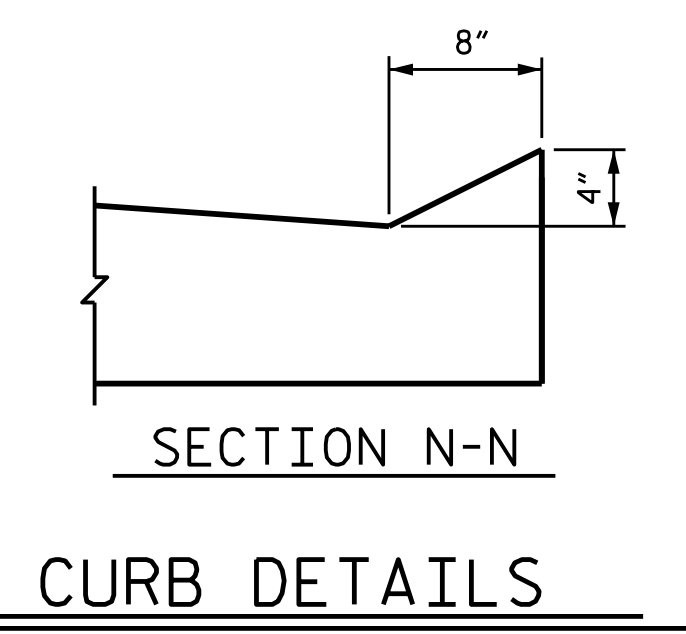
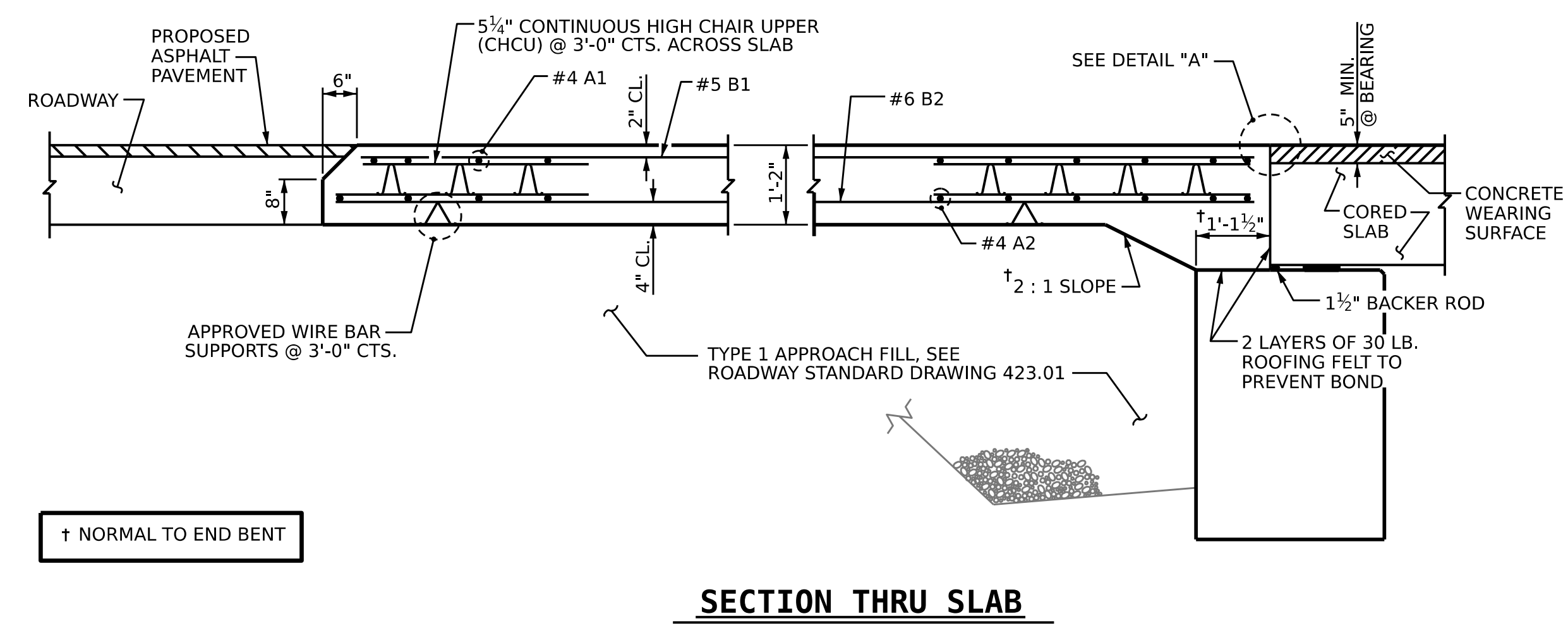
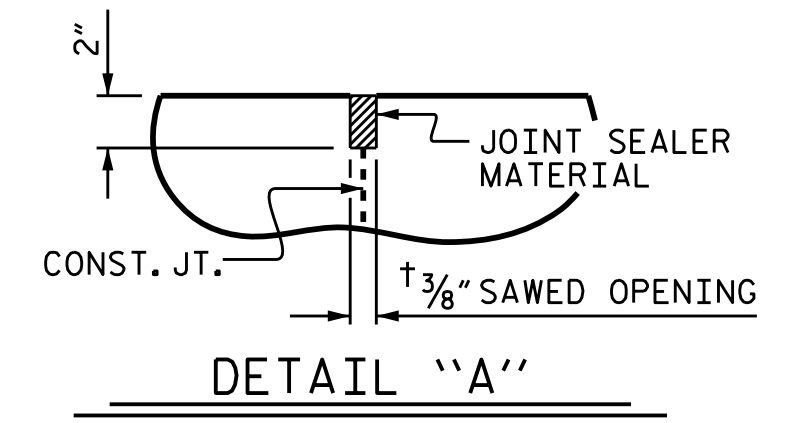
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	16	#4	STR	36'-8"	392	
A2	16	#4	STR	36'-8"	392	
*B1	64	#5	STR	14'-1"	940	
B2	64	#6	STR	14'-7"	1402	
REINFORCING STEEL					LBS.	1794
* EPOXY COATED REINFORCING STEEL					LBS.	1332
CLASS AA CONCRETE					C. Y.	24.0

APPROACH SLAB AT EB #2

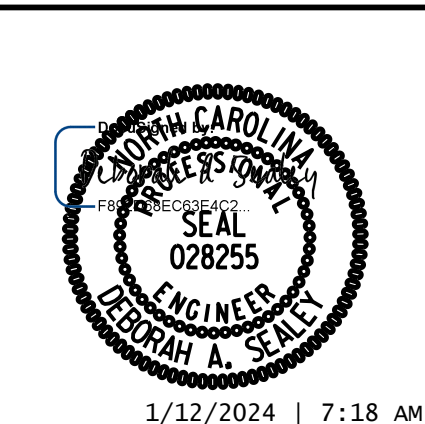
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	16	#4	STR	36'-8"	392	
A2	16	#4	STR	36'-8"	392	
*B1	64	#5	STR	14'-1"	940	
B2	64	#6	STR	14'-7"	1402	
REINFORCING STEEL					LBS.	1794
* EPOXY COATED REINFORCING STEEL					LBS.	1332
CLASS AA CONCRETE					C. Y.	24.0

SPLICE CHART

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



PROJECT NO. BP4.R006
JOHNSTON COUNTY
 STATION: 15+51.50 -L-
 SHEET 1 OF 2



STATE OF NORTH CAROLINA
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BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT
 (SUB-REGION TIER) - 60° SKEW

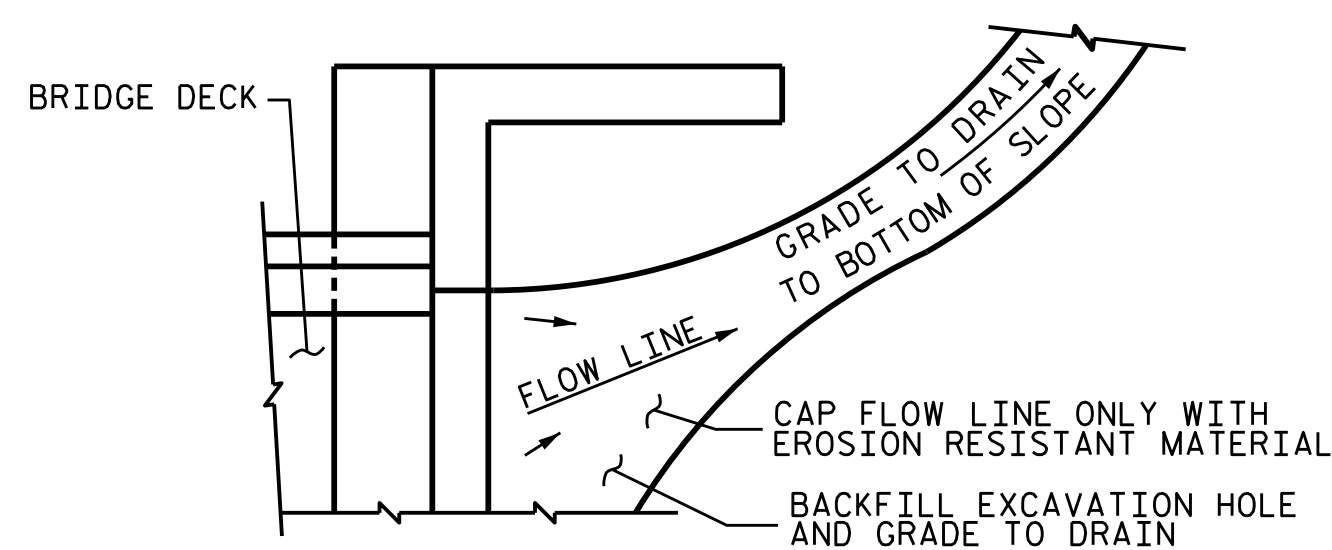
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NO.	BY:	DATE:	NO.	BY:	DATE:
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TOTAL SHEETS: 22

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 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 11-22

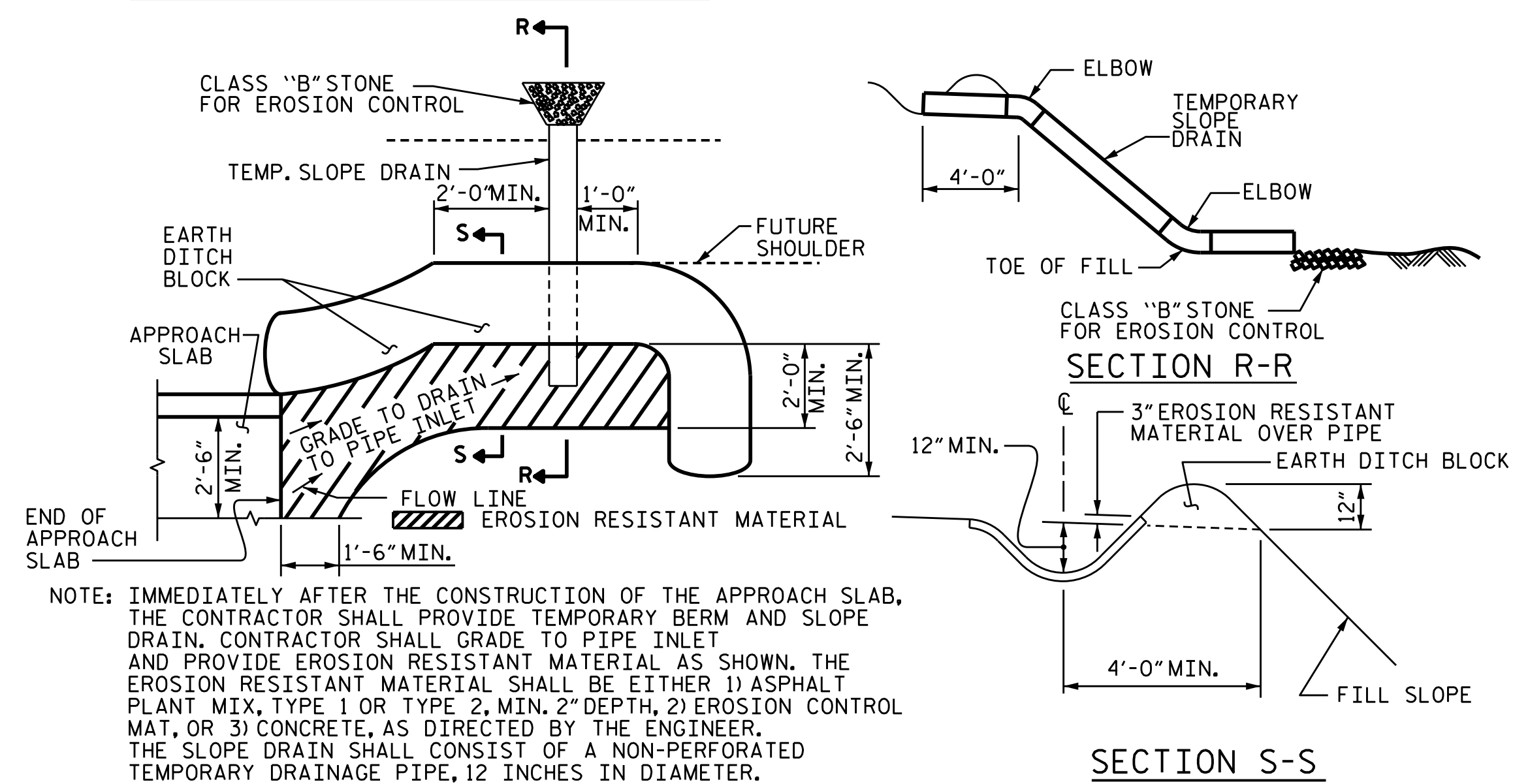
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NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO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

TEMPORARY DRAINAGE DETAIL



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

PLAN VIEW
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. BP4.R006
JOHNSTON COUNTY
STATION: 15+51.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BRIDGE APPROACH SLAB
FOR PRESTRESSED
CONCRETE CORED
SLAB UNIT**

(SUB-REGION TIER) - 60° SKEW

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1			3			5-22
2			4			TOTAL SHEETS 22



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DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE : 11-22

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