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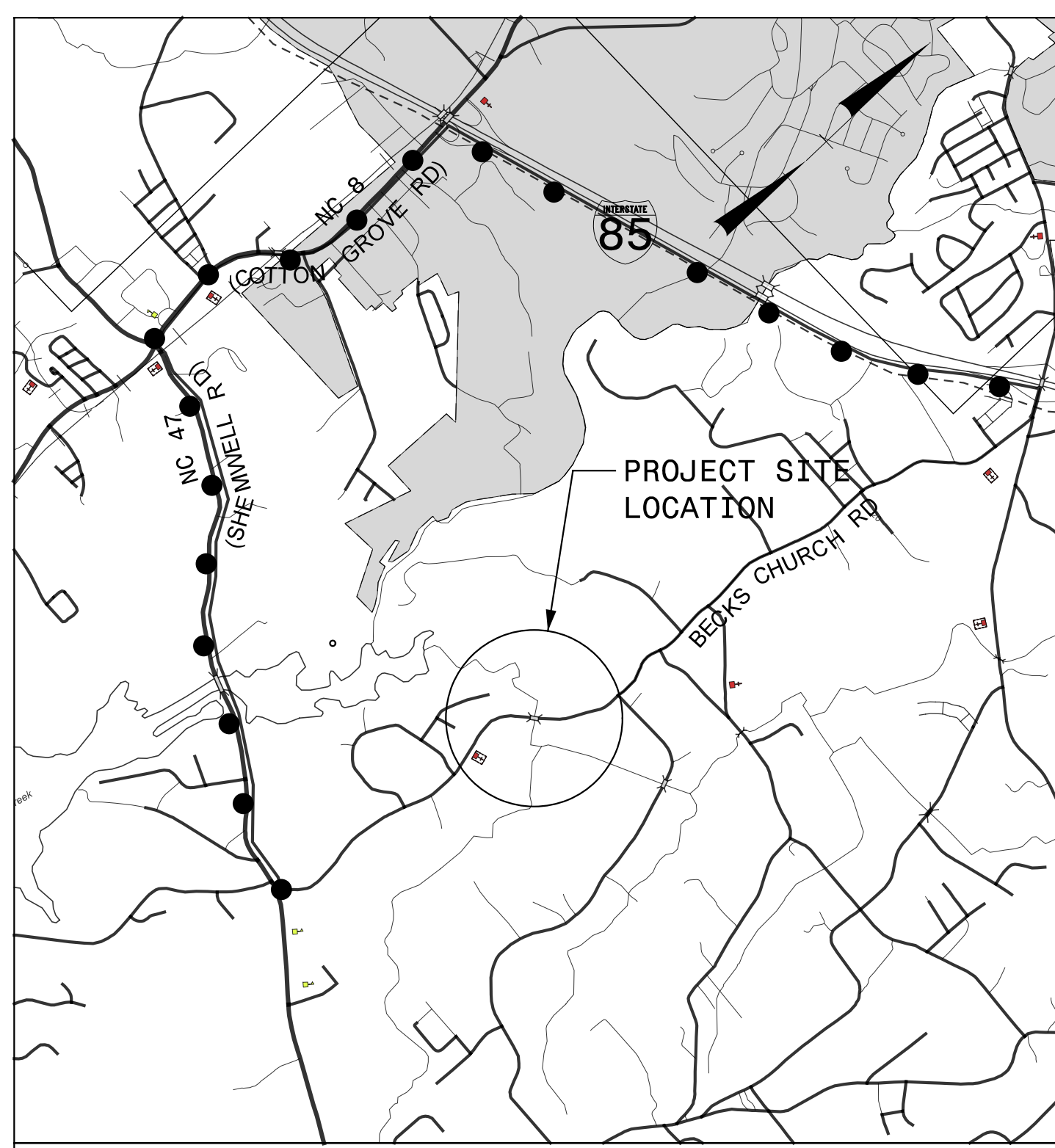
**This file or an individual page  
shall not be considered a certified document.**

09/28/2022

**PROJECT: 17BP.9.R.79**

**CONTRACT: DI00261**

See Sheet 1A For Index of Sheets



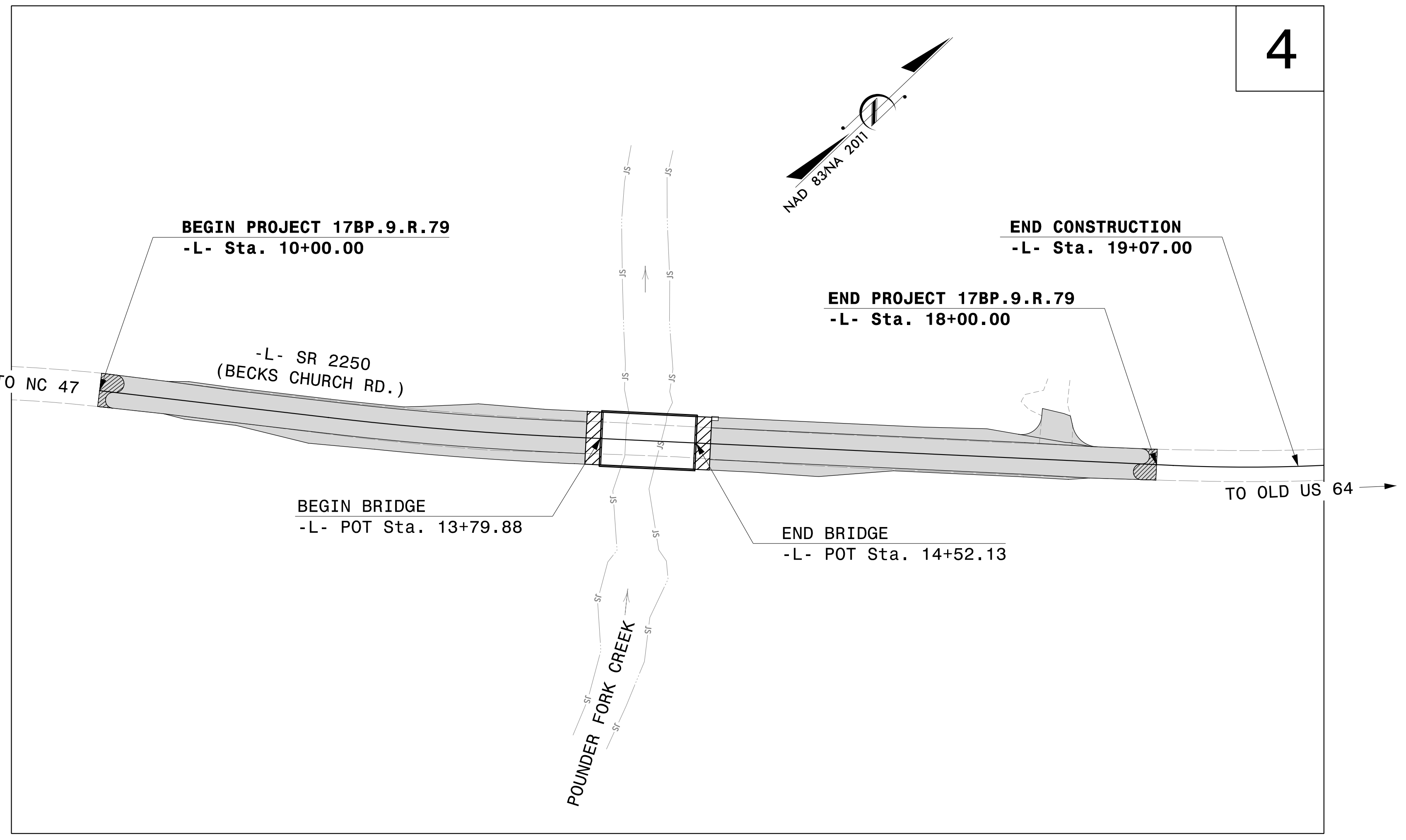
**VICINITY MAP**

●●●● OFF SITE DETOUR ROUTE N.T.S.  
 ■ DAVIDSON CITY LIMITS

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

**LOCATION: BRIDGE 230 OVER POUNDER FORK CREEK  
 ON SR 2250 (BECKS CHURCH RD)**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE**

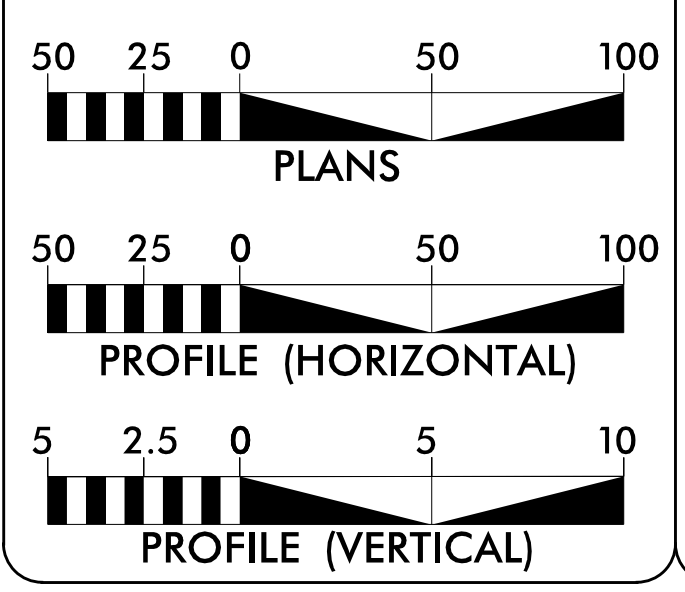
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.R.79	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.9.R.79		P.E.	
17BP.9.R.79		R/W	
17BP.9.R.79		CONST.	
17BP.9.R.79		UTIL.	



4

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2021 = 3,960  
 ADT 2041 = 5,530  
 V = 50 MPH  
 FUNC CLASS = COLLECTOR  
 REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT 17BP.9.R.79 = 0.138 mi  
 LENGTH STRUCTURE PROJECT 17BP.9.R.79 = 0.014 mi  
 TOTAL LENGTH OF PROJECT 17BP.9.R.79 = 0.152 mi

PLANS PREPARED BY:

**wood.**  
 4021 STIRRUP CREEK DRIVE  
 DURHAM, NC 27703  
 NC ENG. F-1253  
 2018 STANDARD SPECIFICATIONS

PLANS PREPARED FOR:

DIVISION OF HIGHWAYS  
 DIVISION 9  
 375 SILAS CREEK PARKWAY  
 WINSTON SALEM, NC 27127

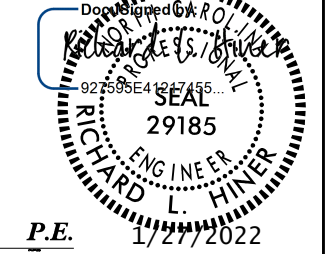
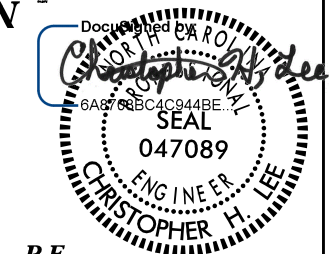
RIGHT OF WAY DATE:  
 JANUARY 30, 2021

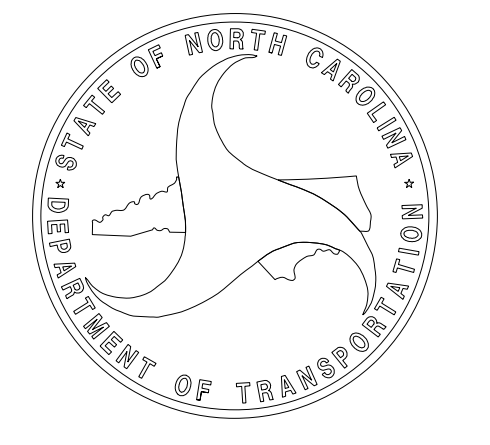
CHRISTOPHER H. LEE, PE  
 PROJECT ENGINEER

LETTING DATE:  
 APRIL 27, 2022

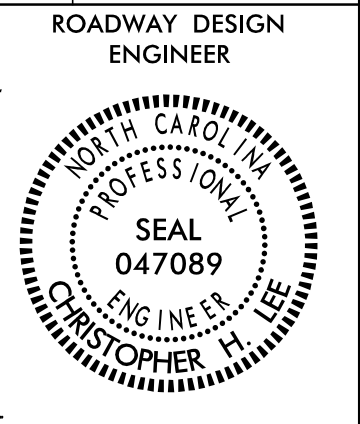
DANIEL R. DAGENHART  
 NCDOT CONTACT  
 DIV 9 BRIDGE PROGRAM MANAGER

**HYDRAULICS ENGINEER**

SIGNATURE:   
 ROADWAY DESIGN ENGINEER  
 SIGNATURE: 



1/26/2022  
 17BP9R79\_rdy\_tsh\_01.dgn  
 brlambase



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

**wood.**  
 4021 STIRRUP CREEK DRIVE  
 DURHAM, NC 27703  
 NC ENG F-1253

INDEX OF SHEETS	
SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
RW-01 thru RW-04	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	SPECIAL DETAILS TYPE III ANCHOR UNIT
3B-1	ROADWAY SUMMARIES / DRAINAGE SUMMARY PAVEMENT REMOVAL SUMMARY, SHOULDER BERM GUTTER SUMMARY, SUMMARY OF EARTHWORK, AND GUARDRAIL SUMMARY
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN AND PROFILE SHEET
TMP-1 thru TMP-3	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLAN
SIGN-1	SIGNING PLAN
EC-1 thru EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UC-1 thru UC-4	UTILITIES CONSTRUCTION PLANS
UO-1 and UO-2	UTILITIES BY OTHERS
X-1A	EARTHWORK VOLUME SUMMARY SHEET
X-1 thru X-6	CROSS-SECTIONS
S-1 thru S-15	STRUCTURE PLANS



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

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	✕
Property 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	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	□

### HYDROLOGY:

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

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ CSX TRANSPORTATION MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

### RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	○ R W
New Right of Way Line with Pin and Cap	○ R W ▲
New Right of Way Line with Concrete or Granite R/W Marker	▲ R W
New Control of Access Line with Concrete C/A Marker	▲ C A
Existing Control of Access	○ C A
New Control of Access	○ C A
Existing Easement Line	--- E ---
New Temporary Construction Easement	E
New Temporary Drainage Easement	TDE
New Permanent Drainage Easement	PDE
New Permanent Drainage / Utility Easement	DUE
New Permanent Utility Easement	PUE
New Temporary Utility Easement	TUE
New 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	--- T ---
Proposed Cable Guiderail	--- T ---
Equality Symbol	⊕
Pavement Removal	⊠

### VEGETATION:

Single Tree	○
Single Shrub	○

Hedge	-----
Woods Line	-----
Orchard	○
Vineyard	□ 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	○ S
Storm Sewer	--- S ---

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ P
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	--- P ---
U/G Power Line LOS C (S.U.E.*)	--- P ---
U/G Power Line LOS D (S.U.E.*)	--- P ---

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Pedestal	□ T
Telephone Cell Tower	⊠ T
U/G Telephone Cable Hand Hole	○ T
U/G Telephone Cable LOS B (S.U.E.*)	--- T ---
U/G Telephone Cable LOS C (S.U.E.*)	--- T ---
U/G Telephone Cable LOS D (S.U.E.*)	--- T ---
U/G Telephone Conduit LOS B (S.U.E.*)	--- TC ---
U/G Telephone Conduit LOS C (S.U.E.*)	--- TC ---
U/G Telephone Conduit LOS D (S.U.E.*)	--- TC ---
U/G Fiber Optics Cable LOS B (S.U.E.*)	--- T FO ---
U/G Fiber Optics Cable LOS C (S.U.E.*)	--- T FO ---
U/G Fiber Optics Cable LOS D (S.U.E.*)	--- T FO ---

### WATER:

Water Manhole	○ W
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	--- W ---
U/G Water Line LOS C (S.U.E.*)	--- W ---
U/G Water Line LOS D (S.U.E.*)	--- W ---
Above Ground Water Line	--- A/G Water ---

### TV:

TV Pedestal	□ TV
TV Tower	⊗
U/G TV Cable Hand Hole	○ TV
U/G TV Cable LOS B (S.U.E.*)	--- TV ---
U/G TV Cable LOS C (S.U.E.*)	--- TV ---
U/G TV Cable LOS D (S.U.E.*)	--- TV ---
U/G Fiber Optic Cable LOS B (S.U.E.*)	--- TV FO ---
U/G Fiber Optic Cable LOS C (S.U.E.*)	--- TV FO ---
U/G Fiber Optic Cable LOS D (S.U.E.*)	--- TV FO ---

### GAS:

Gas Valve	◇
Gas Meter	◇
U/G Gas Line LOS B (S.U.E.*)	--- G ---
U/G Gas Line LOS C (S.U.E.*)	--- G ---
U/G Gas Line LOS D (S.U.E.*)	--- G ---
Above Ground Gas Line	--- A/G Gas ---

### SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	--- SS ---
Above Ground Sanitary Sewer	--- A/G Sanitary Sewer ---
SS Forced Main Line LOS B (S.U.E.*)	--- FSS ---
SS Forced Main Line LOS C (S.U.E.*)	--- FSS ---
SS Forced Main Line LOS D (S.U.E.*)	--- FSS ---

### MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line LOS B (S.U.E.*)	--- 7U/L ---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	--- UST ---
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



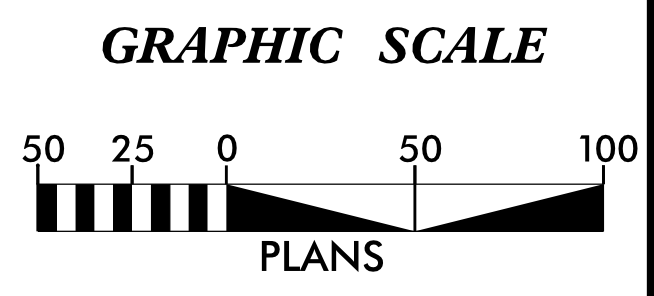
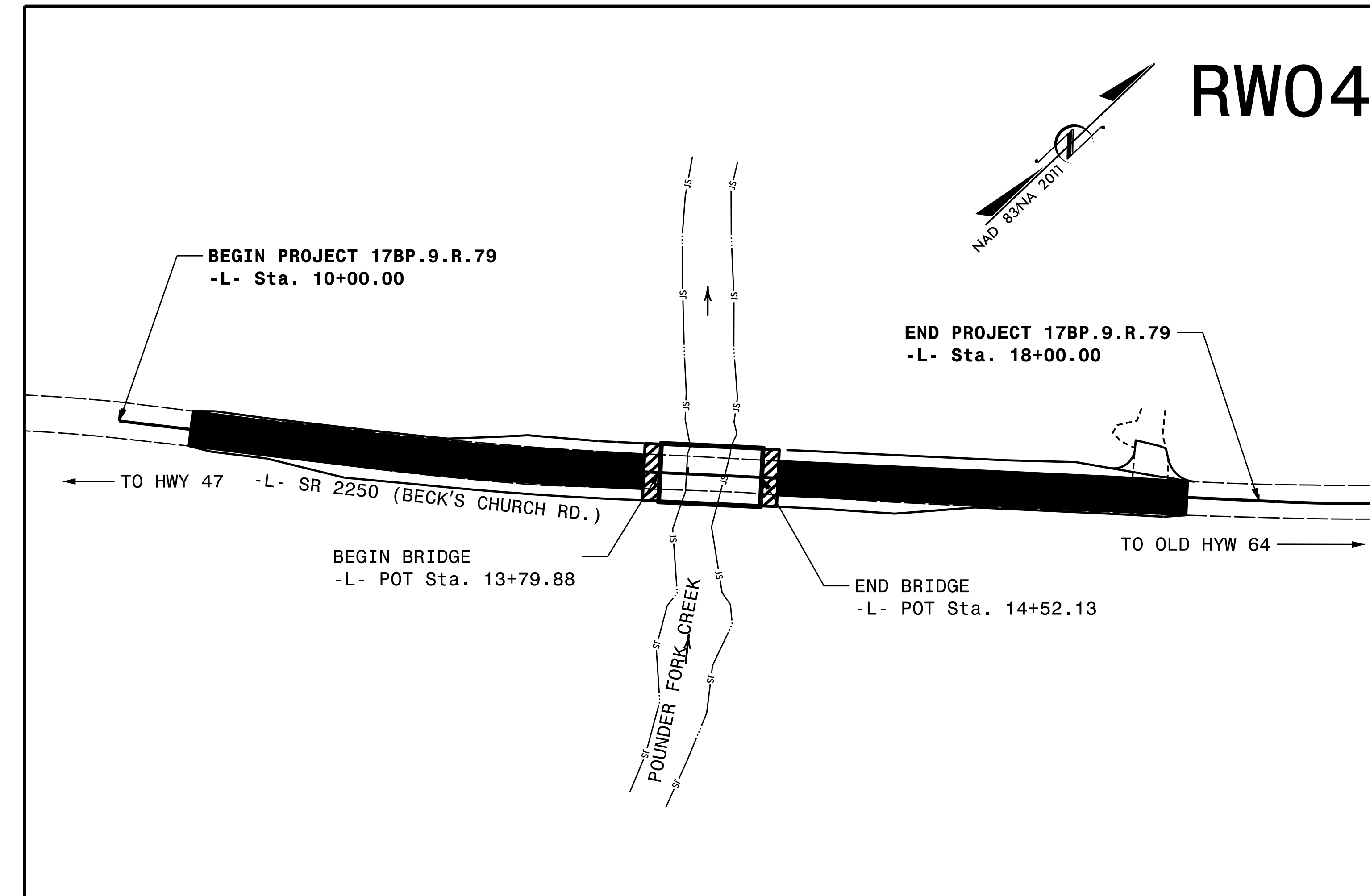
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.R.79	RW01	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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

**DAVIDSON COUNTY**

TIP PROJECT: 28-0230



**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY STEWART ENGINEERING FOR MONUMENT "280230-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 733,808.4987(ft) EASTING: 1,636,739.8790(ft) ELEVATION: 630.75(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999886533  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "280230-2" TO -L- STATION 10+00.00 IS S 46°12'15.03" W 323.48(ft)  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS XXXX XX

Prepared in the Office of:

---

2018 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:** XX/XX/XXXX

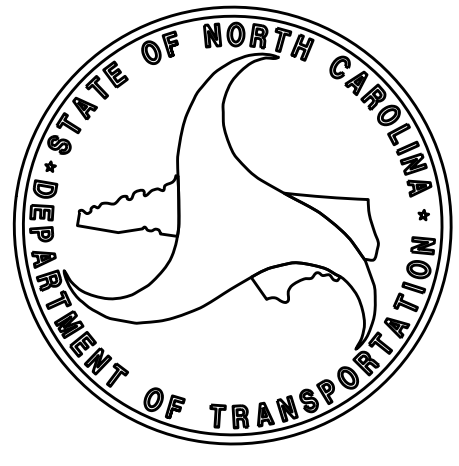
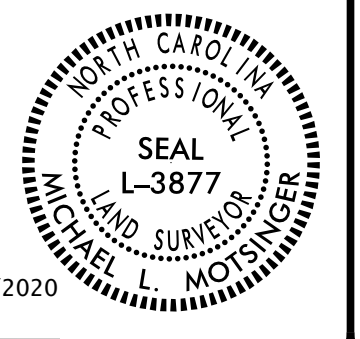
**LETTING DATE:** XX/XX/XXXX

**PROFESSIONAL LAND SURVEYOR**

DocuSigned by:  
 Michael L. Molsinger  
 FDB6FE70E23C40E...

1/15/2020

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



\$\$\$ SYSTEM \$\$\$  
 \$\$\$ DGN \$\$\$  
 \$\$\$ USERNAME \$\$\$

# SURVEY CONTROL SHEET

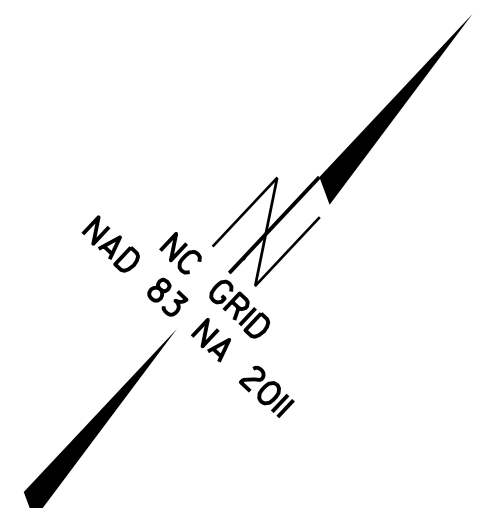
PROJECT REFERENCE NO.	SHEET NO.
28-0230	RW02C-1
Location and Surveys	

## BASELINE AND BENCHMARKS

BL POINT	DESC.	NORTH	EAST	ELEVATION
1	GPS-1	734228.2100	1637217.9290	634.07
2	GPS-2	733808.4987	1636739.8790	630.75
3	BL-3	733478.0718	1636371.1375	653.77

.....  
 BM1 ELEVATION = 636.11  
 N 733680 E 1636686  
 RR SPIKE 240AK  
 .....

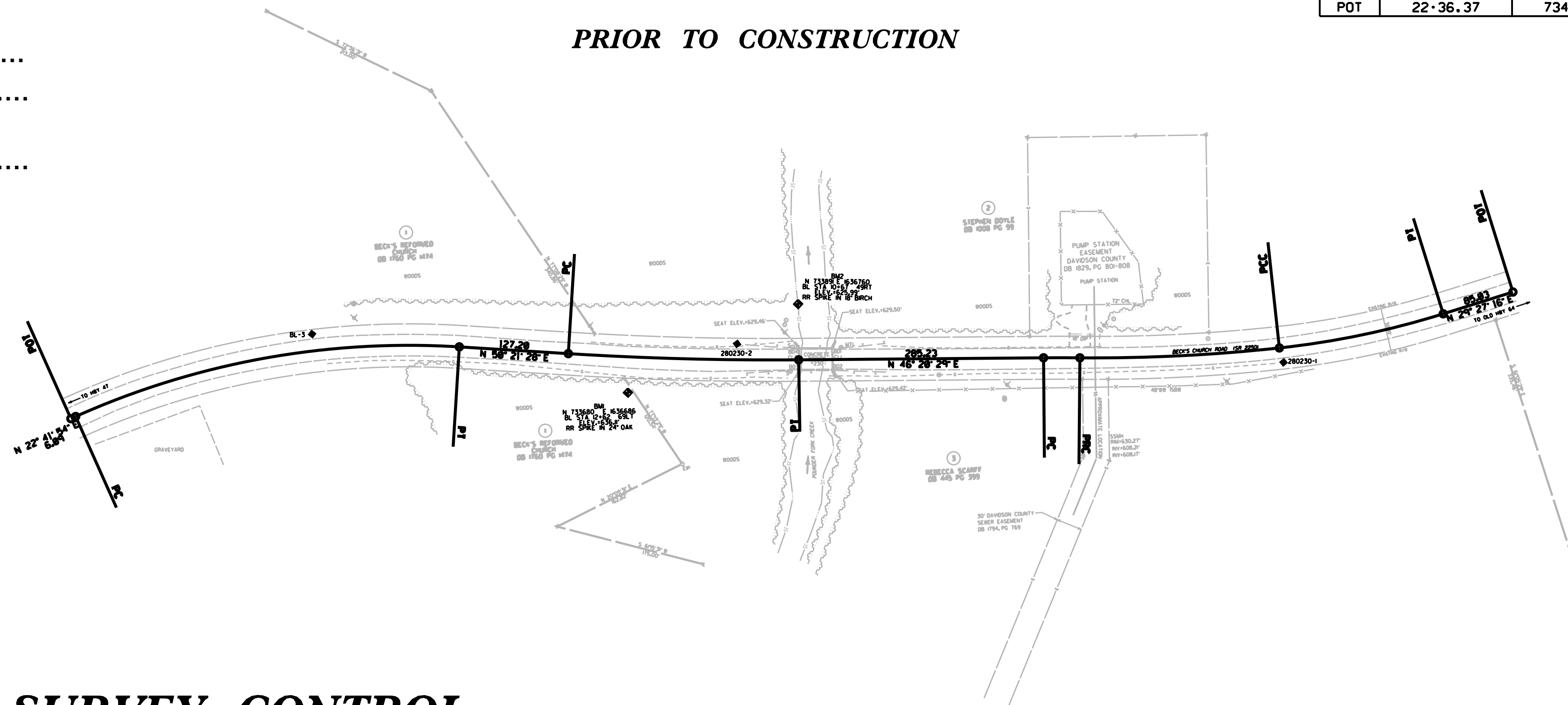
.....  
 BM2 ELEVATION = 625.99  
 N 733891 E 1636760  
 RR SPIKE IN 18' BIRCH  
 .....



## PROPOSED ALIGNMENT

TYPE	STATION	NORTH	EAST
POT	10+00.00	733584.6196	1636506.3860
PC	11+73.84	733695.5285	1636640.2500
PT	13+49.08	733811.9664	1636771.1647
PC	18+12.55	734131.9307	1637106.4733
PT	21+66.24	734410.0147	1637322.9393
POT	22+36.37	734471.0803	1637357.4243

## W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



## SURVEY CONTROL

### W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	733214.045	1636233.707							
LINE			N 22°41'54.0" E	6.09					
PC	733219.665	1636236.057							
CURVE			N 36°31'40.8" E	454.17	27°39'33.6"(RT)	06°01'52.1"	458.61	233.86	950.00
PT	733584.620	1636506.386							
LINE			N 50°21'27.7" E	127.20					
PC	733665.773	1636604.336							
CURVE			N 48°20'58.2" E	268.42	04°00'58.8"(L)	01°29'45.5"	268.48	134.29	3830.00
PT	733844.162	1636804.904							
LINE			N 46°20'28.8" E	285.23					
PC	734041.074	1637011.259							
CURVE			N 46°49'34.6" E	42.32	00°58'11.6"(RT)	02°17'30.6"	42.32	21.16	2500.00
PCC	734070.029	1637042.121							
CURVE			N 43°58'38.7" E	232.61	06°40'03.4"(L)	02°51'53.2"	232.74	116.50	2000.00
PCC	734237.420	1637203.641							
CURVE			N 35°02'56.3" E	194.98	11°11'21.4"(L)	05°43'46.5"	195.29	97.96	1000.00
PT	734397.042	1637315.613							
LINE			N 29°27'15.6" E	85.03					
POT	734471.083	1637357.426							

SEE SHEET RW2C-2  
FOR FURTHER  
ALIGNMENT DETAILS

### NOTES:

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

REVISIONS

6/2/09

I5-JAN-2020 14:25 S:\Units\Div\03\Winston\Bridges Computer\Bridges\LowImpact\28-0230\Right of Way\Staking\tochecked\28-0230\_1s.rw02c-1.dgn mmsinger AT LS-312635



Location and Surveys

INSERT CONSULTANT'S NAME

PROJECT SURVEYOR

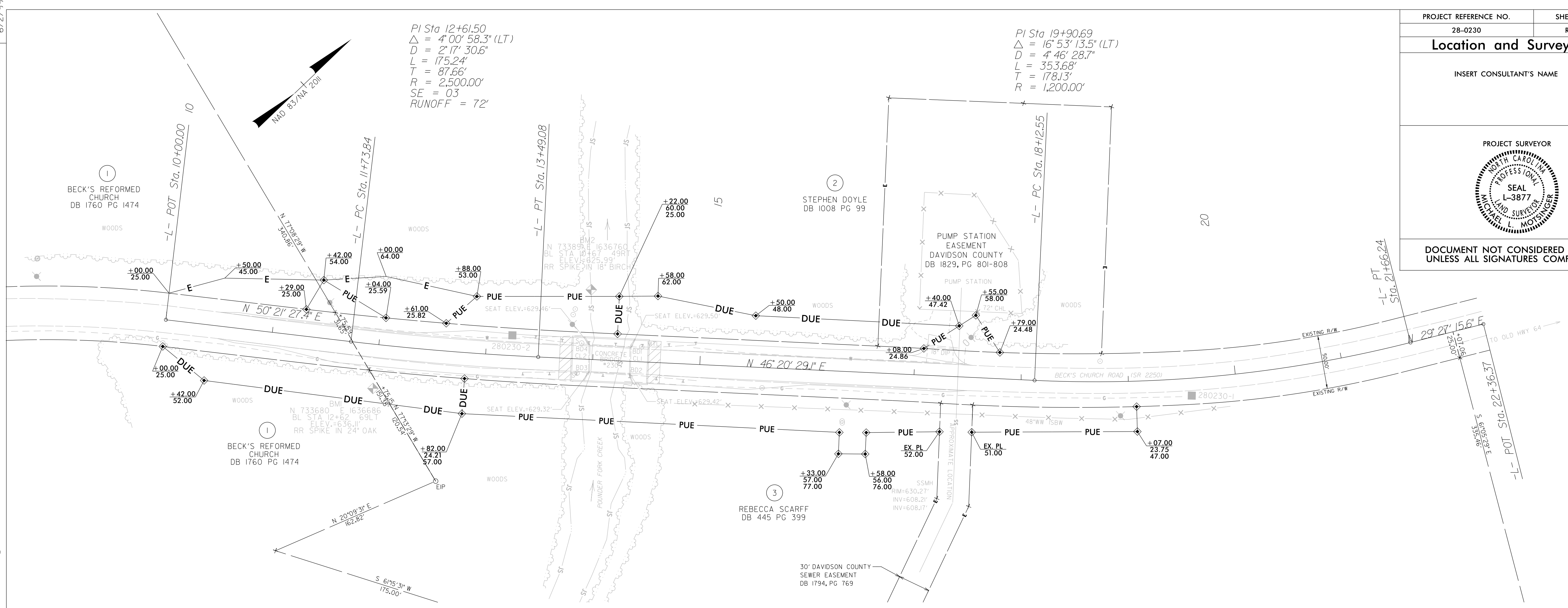


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3:\JAN\_2020\0813\28-0230\0813\28-0230\Imp\Bridges\Division\LowImpact\28-0230-01-15\Revision\280230-Ls-rw04.dgn  
Date: 1/5/20  
Author: mmotsinger

PI Sta 12+61.50  
Δ = 4°00'58.3" (LT)  
D = 2'17"30.6"  
L = 175.24'  
T = 87.66'  
R = 2,500.00'  
SE = 0.3  
RUNOFF = 72'

PI Sta 19+90.69  
Δ = 16°53'13.5" (LT)  
D = 4°46'28.7"  
L = 353.68'  
T = 178.13'  
R = 1,200.00'



REVISIONS

ROW MARKER PERMANENT EASEMENT - E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+00.00	25.00	733565.3686	1636522.3359
L	10+42.00	52.00	733571.3732	1636571.9034
L	11+29.00	-25.00	733686.1719	1636589.7715
L	11+42.00	-54.00	733716.7970	1636581.2803
L	12+04.00	-25.59	733734.4169	1636646.7951
L	12+61.00	-25.82	733771.5908	1636689.2280
L	12+82.00	24.21	733748.3549	1636738.2584
L	12+82.00	57.00	733724.0353	1636760.2492
L	12+88.00	-53.00	733809.5694	1636690.8234
L	14+22.00	-25.00	733880.3941	1636806.6610
L	14+22.00	-60.00	733905.7155	1636782.4984
L	14+58.00	-62.00	733932.0153	1636807.1625
L	15+50.00	-48.00	733985.3999	1636883.3864
L	16+33.00	57.00	733966.7357	1637015.9219
L	16+33.00	77.00	733952.2664	1637029.7291
L	16+58.00	56.00	733984.7182	1637033.3182
L	16+58.00	76.00	733970.2489	1637047.1254
L	17+08.00	-24.86	734077.7357	1637013.6691
L	17+26.25	52.00	734034.7268	1637079.9309
L	17+40.00	-47.42	734116.1486	1637021.2455
L	17+55.00	-58.00	734134.1583	1637024.7935
L	17+56.24	51.00	734056.1571	1637100.9404
L	17+79.00	-24.48	734126.4763	1637065.2975
L	19+07.00	23.75	734183.9120	1637189.8624
L	19+07.00	47.00	734168.4054	1637207.1861

THESE TWO POINTS NOT SET DUE TO LOCATION IN CREEK

I, Michael L. Motsinger, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 14th day of January, 2020.

DocuSigned by:  
**Michael L. Motsinger**  
FDB8FE70E23C40E...  
Professional Land Surveyor

L-3877  
PLS #

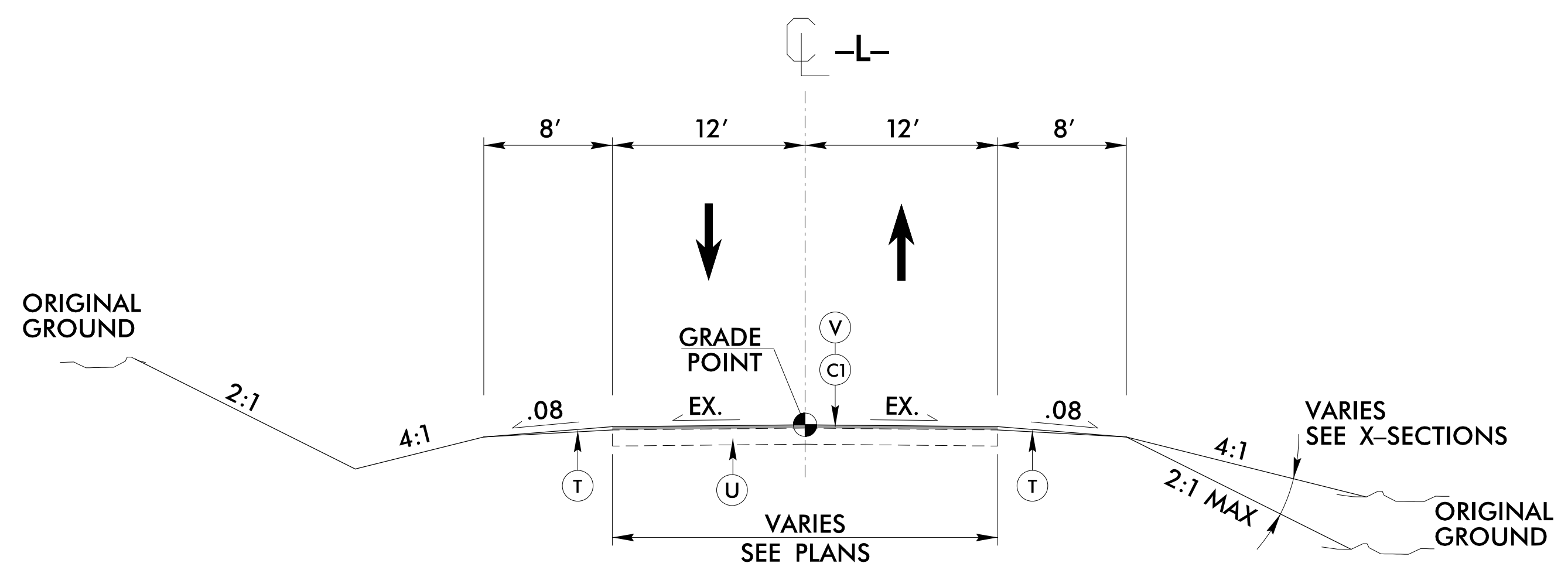


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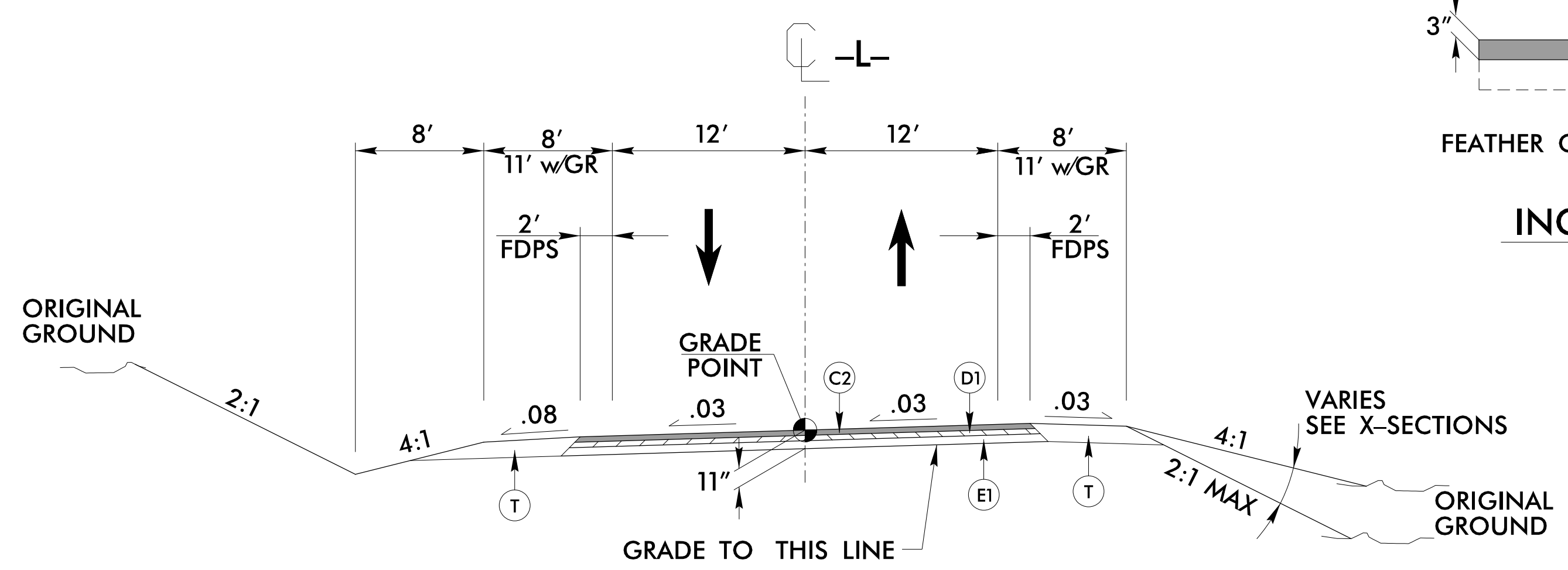
- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
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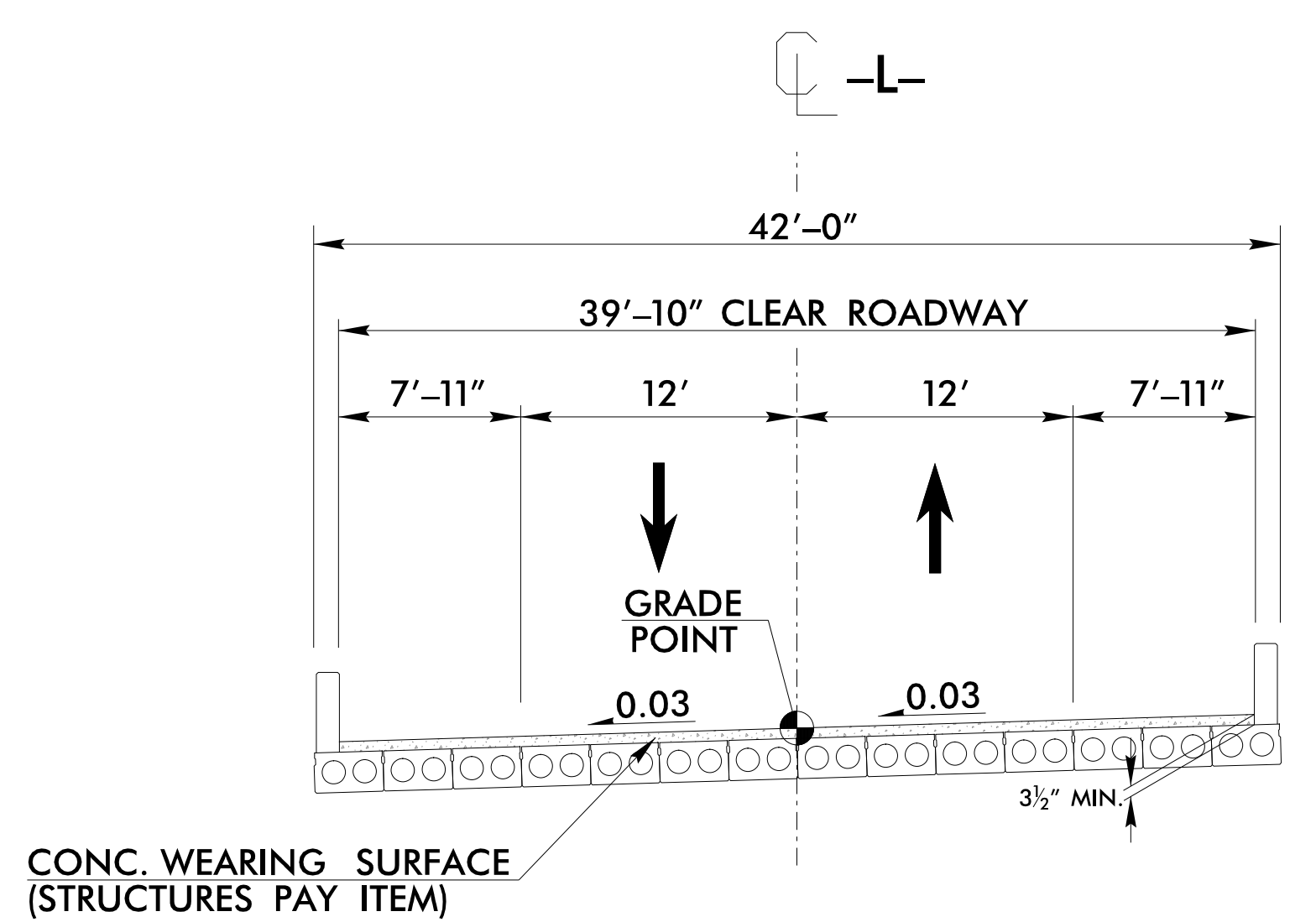
6/2/2019



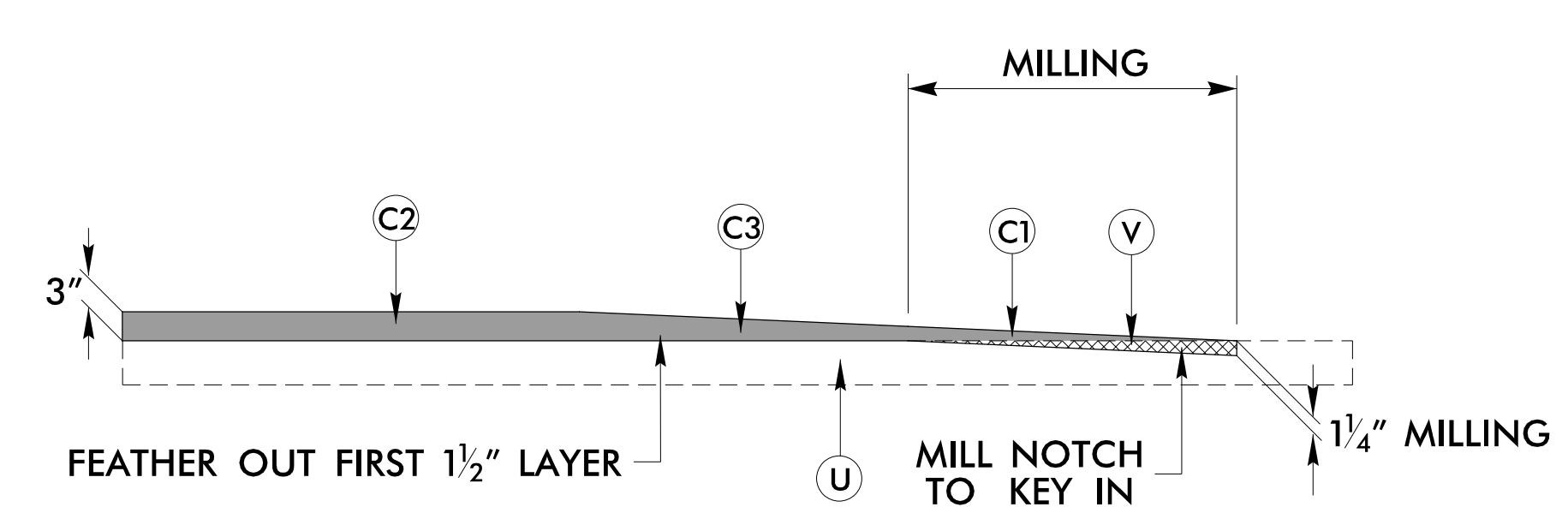
**TYPICAL SECTION NO. 1**  
 -L- Sta. 10+00.00 TO 10+50.00  
 -L- Sta. 17+50.00 TO 18+00.00



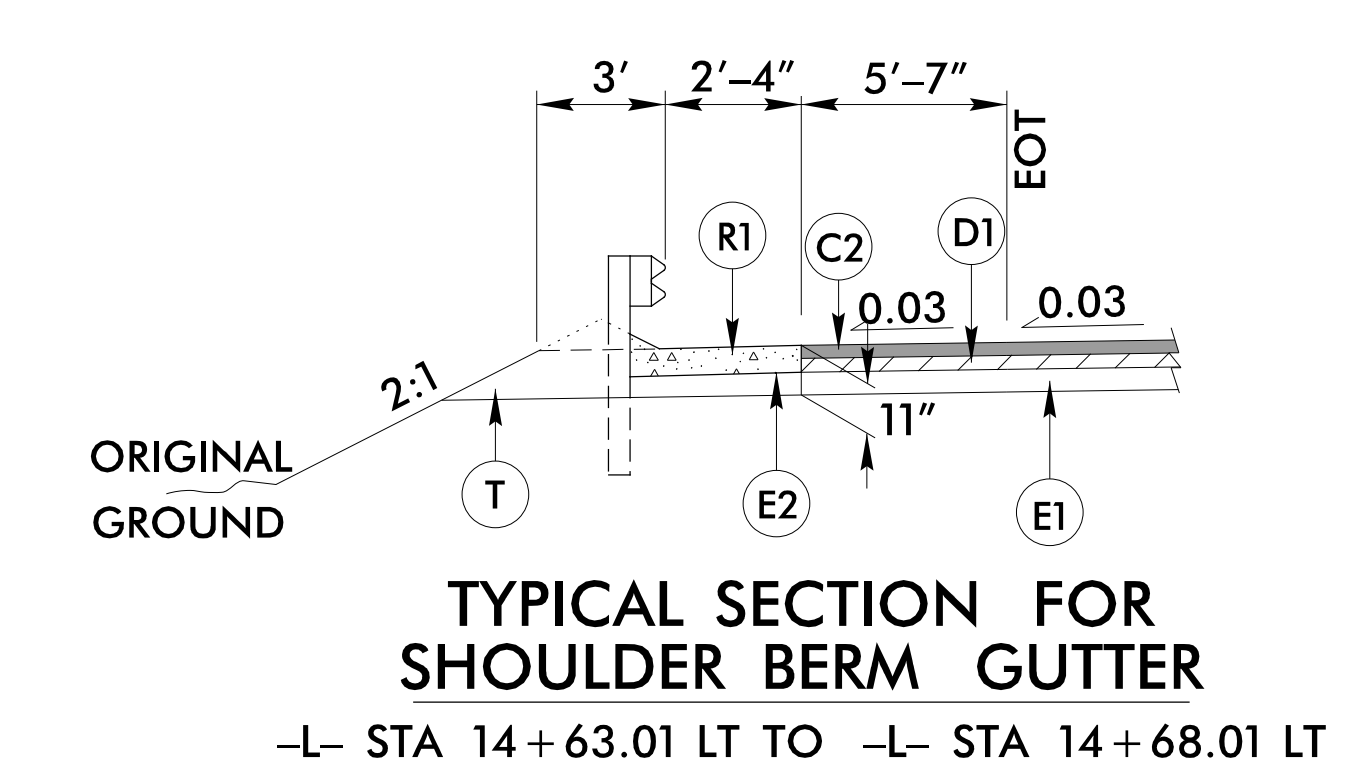
**TYPICAL SECTION NO. 2**  
 -L- Sta. 10+50.00 TO 13+79.88 (BEGIN BRIDGE)  
 -L- Sta. 14+52.13 (END BRIDGE) TO 17+50.00



**BRIDGE TYPICAL SECTION**  
 -L- Sta. 13+79.88 TO 14+52.13



**INCIDENTAL MILLING EXISTING PAVEMENT**  
 AS DIRECTED BY ENGINEER  
 -L- Sta. 10+00.00 TO 10+50.00  
 -L- Sta. 17+50.00 TO 18+00.00



**TYPICAL SECTION FOR SHOULDER BERM GUTTER**  
 -L- STA 14+63.01 LT TO -L- STA 14+68.01 LT

PROJECT REFERENCE NO. 17BP.9.R.79	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER SEAL 047089 CHRISTOPHER H. LEE 1/28/2022	PAVEMENT DESIGN ENGINEER SEAL 025499 A. BLANTON 1/27/2022
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
 4021 STIRRUP CREEK DRIVE DURHAM, NC 27703 NC ENG F-1253	

PAVEMENT SCHEDULE (FINAL)	
C1	PROP. APPROX. 1 1/4" 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 TO EXCEED 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.
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 4" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R1	CONCRETE SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	INCIDENTAL MILLING.

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

1/26/2022  
 17BP.9.R.79  
 2A-1.dgn  
 02/24/2022

I4-DEC-2017 10:36 S:\Contracts\Special Details\Standard Drawings\Division 8\0862d0301.dgn Jhowerton AT: USD-292595

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR <b>STRUCTURE ANCHOR UNITS</b> GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE	SHEET 1 OF 7 <b>862D03</b>
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> </div> <div style="width: 45%;"> <p><b>ELEVATION</b></p> <p>NOTE:                      **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.                      *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.                      -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.                      -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).                      -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.                      -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.</p> </div> </div>		
<b>GUARDRAIL ANCHOR UNIT, TYPE III                  FOR ATTACHMENT TO RAIL ON BRIDGE</b>		

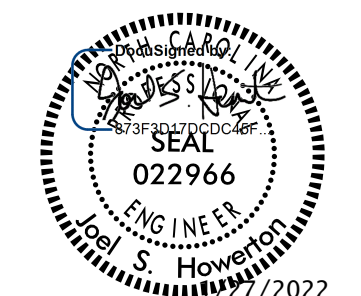
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR <b>STRUCTURE ANCHOR UNITS</b> GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER	SHEET 2 OF 7 <b>862D03</b>
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> </div> <div style="width: 45%;"> <p><b>ELEVATION</b></p> <p>NOTE:                      **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.                      *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.                      -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.                      -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).                      -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.                      -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.</p> </div> </div>		
<b>GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO                  RAIL ON BRIDGE - SUB REGIONAL TIER</b>		

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON	DATE: 06-22-12
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	



12/06/07

COMPUTED BY: reo DATE: 02/26/21  
CHECKED BY: chl DATE: 02/29/21

PROJECT REFERENCE NO. SHEET NO.  
17BP.9.R.79 3B-1

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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

Main table for pipes and endwalls with columns for Station, Location, Structure No., Pipe Type (Drainage, C.S. Pipe, Class III R.C. Pipe), Endwalls, Quantities, Frame/Grates, and Remarks.

WOVEN WIRE FENCE SUMMARY

Table for Woven Wire Fence Summary with columns: Survey Line, Station, Location, Fabric (LF), 4" Posts (EA), 5" Posts (EA). Includes totals and says.

SHOULDER BERM GUTTER SUMMARY

Table for Shoulder Berm Gutter Summary with columns: Survey Line, Station, Length. Includes totals and says.

SUMMARY OF EARTHWORK

Table for Summary of Earthwork with columns: Station, Station, Uncl. Excav., Embank. +%, Borrow, Waste. Includes subtotals, totals, and grand totals.

PAVEMENT STRUCTURE VOLUME = 576 CY  
PER GEOTECH LETTER AUG. 12, 2019:  
- EST. SHALLOW UNDERCUT = 100 CY  
- CLASS IV SUBGRADE STABILIZATION = 200 TONS  
- UNDERCUT PER GEOTECH = 450 CY

Earthwork quantities are calculated by WOOD. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PAVEMENT REMOVAL SUMMARY

Table for Pavement Removal Summary with columns: Survey Line, Station, Location, YD. Includes totals and says.

GUARDRAIL SUMMARY

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

Main table for Guardrail Summary with columns: Survey Line, Beg. Sta., End Sta., Location, Length (Straight, Shop Curved, Double Faced), Warrant Point (Approach End, Trailing End), "N" Dist., Total Shoulder Width, Flare Length (Approach End, Trailing End), W (Approach End, Trailing End), Anchors (XI Mod, XI, GREU-350, M-350, III, CAT-1, VI Mod, BIC, AT-1), Impact Attenuator Type 350 (EA, G, NG), Single Faced Guardrail, Remove Existing Guardrail, Remove and Stockpile Existing Guardrail, Remarks.

1/26/2022 10:23:34 AM -dy\_psh\_03B-1.dgn  
brion, please



12/06/07

COMPUTED BY: J. PILIPCHUK DATE: 8/2019  
 CHECKED BY: B. PEASE DATE: 7/2021

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. SHEET NO.  
 17BP.9.R.79 36-1

**SUMMARY OF SUBSURFACE DRAINAGE**

LINE	STATION	STATION	LOCATION LT/RT/CL	DRAIN TYPE* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

\*UD = UNDERDRAIN  
 \*BD = BLIND DRAIN  
 \*SD = SUBSURFACE DRAIN

**SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION**

LINE	STATION	STATION	AGGREGATE TYPE* ASU(1/2)/AST	AGGREGATE THICKNESS INCHES [8" FOR ASU(2)]	SHALLOW UNDERCUT CY	CLASS IV SUBGRADE STABILIZATION TONS	GEOTEXTILE FOR SOIL STABILIZATION SY	SELECT GRANULAR MATERIAL TONS	CLASS IV AGGREGATE STABILIZATION TONS
CONTINGENCY			ASU	12	100	200	700	400	
					TOTAL CY/TONSSY:	100	200**	400	0

\*ASU(1/2) = AGGREGATE SUBGRADE (TYPE 1 OR 2)  
 \*AST = AGGREGATE STABILIZATION  
 \*\*TOTAL TONS OF "CLASS IV SUBGRADE STABILIZATION" AND TOTAL SQUARE YARDS OF "GEOTEXTILE FOR SOIL STABILIZATION" ARE ONLY THE ESTIMATED QUANTITIES FOR ASU(1/2)/AST AND MAY ONLY REPRESENT A PORTION OF THE SUBGRADE STABILIZATION AND GEOTEXTILE QUANTITIES SHOWN IN THE ITEM SHEETS OF THE PROPOSAL.

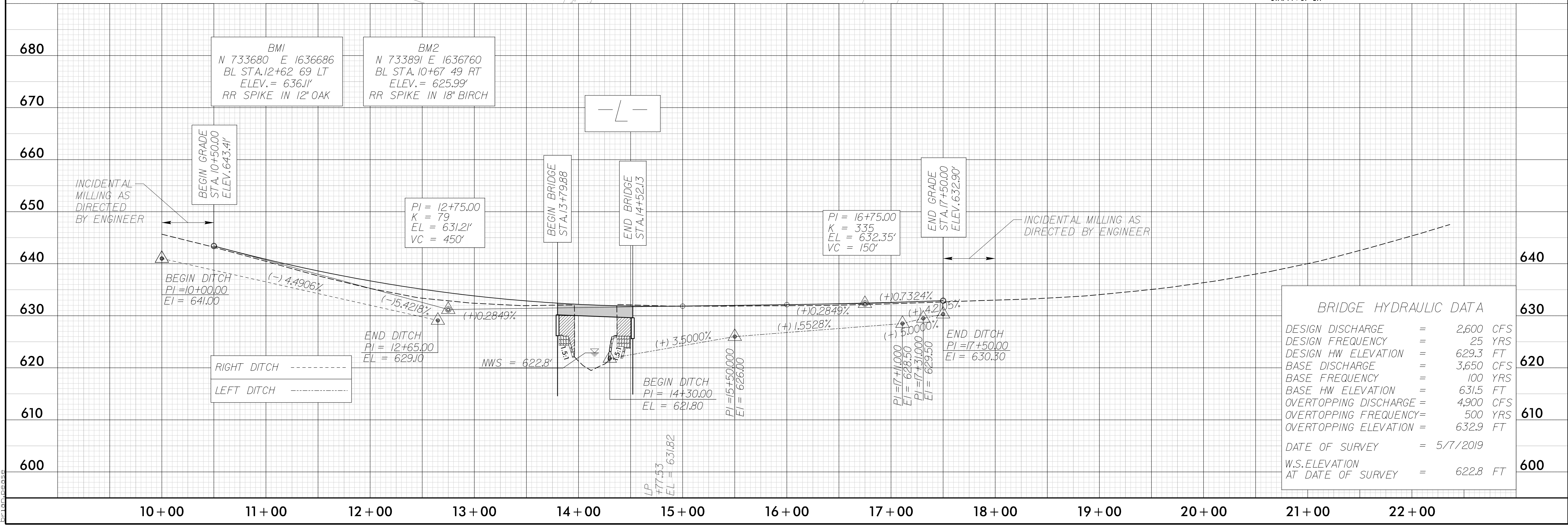
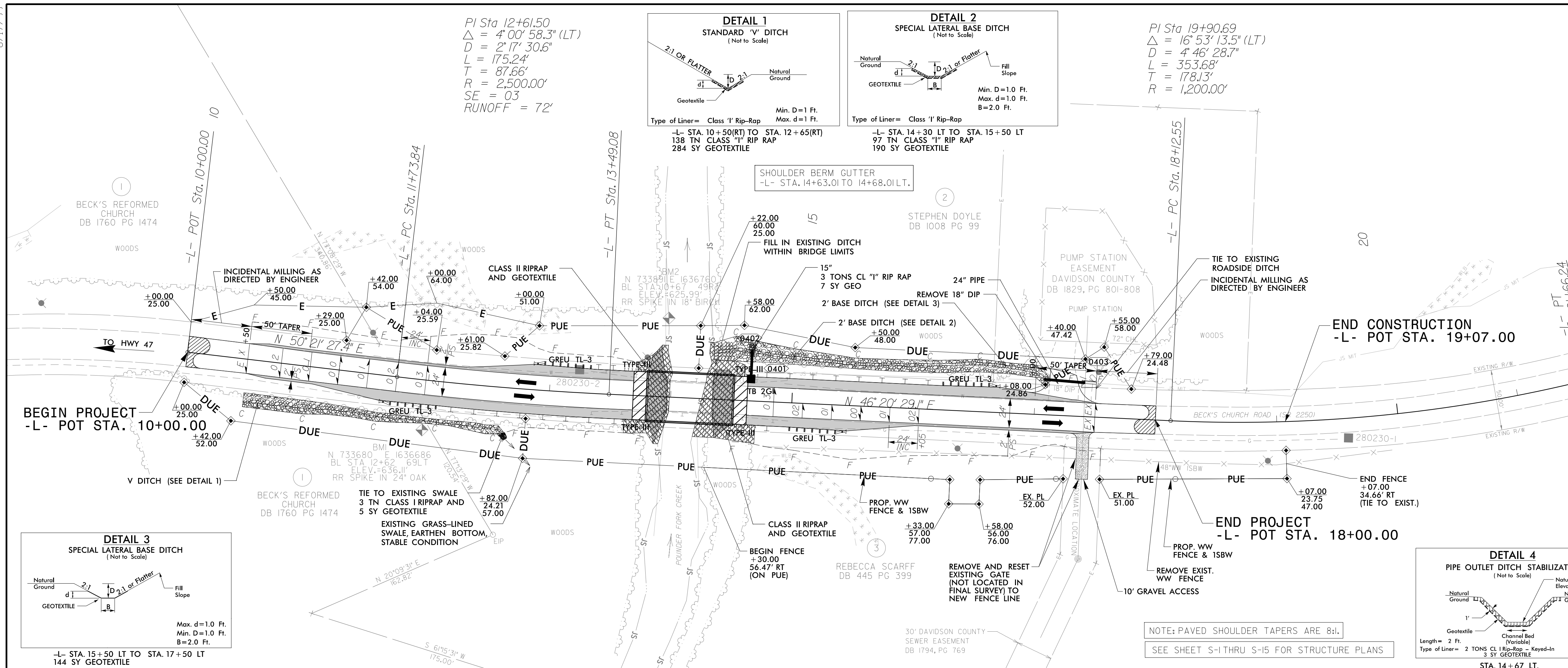
17BP.9.R.79  
 12/06/2021  
 B. PEASE

8.17.19

PROJECT REFERENCE NO. 17BP.9.R.79	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

**wood.**  
4021 STIRRUP CREEK DRIVE  
DURHAM, NC 27703  
NC ENG F-1253



17BP.9.R.79.dwg



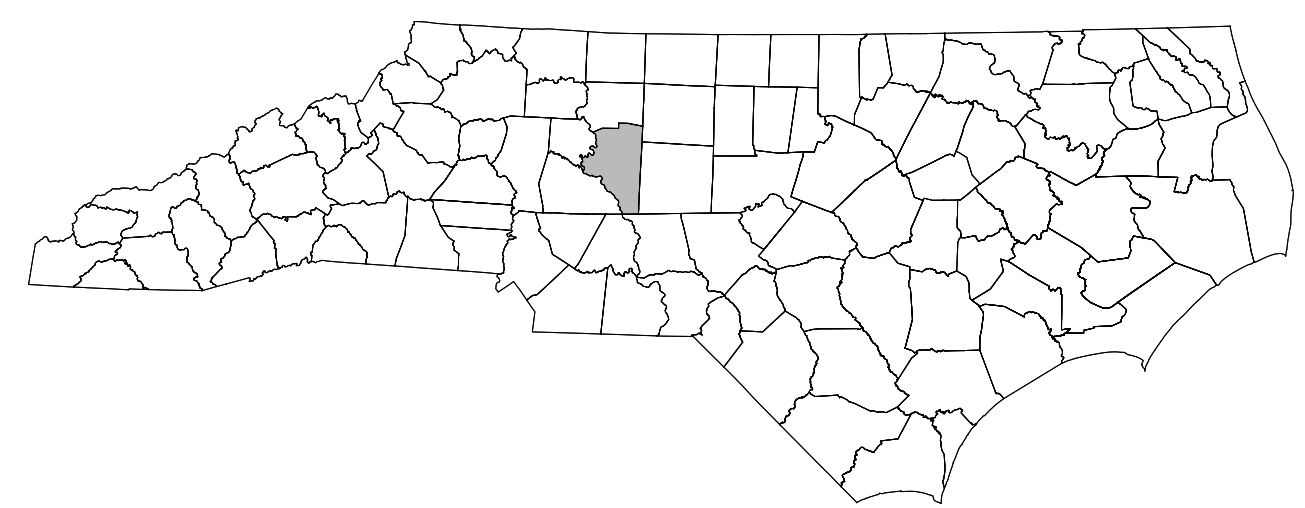
**CONTRACT: D100261 TIP PROJECT: 17BP.9.R.79**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

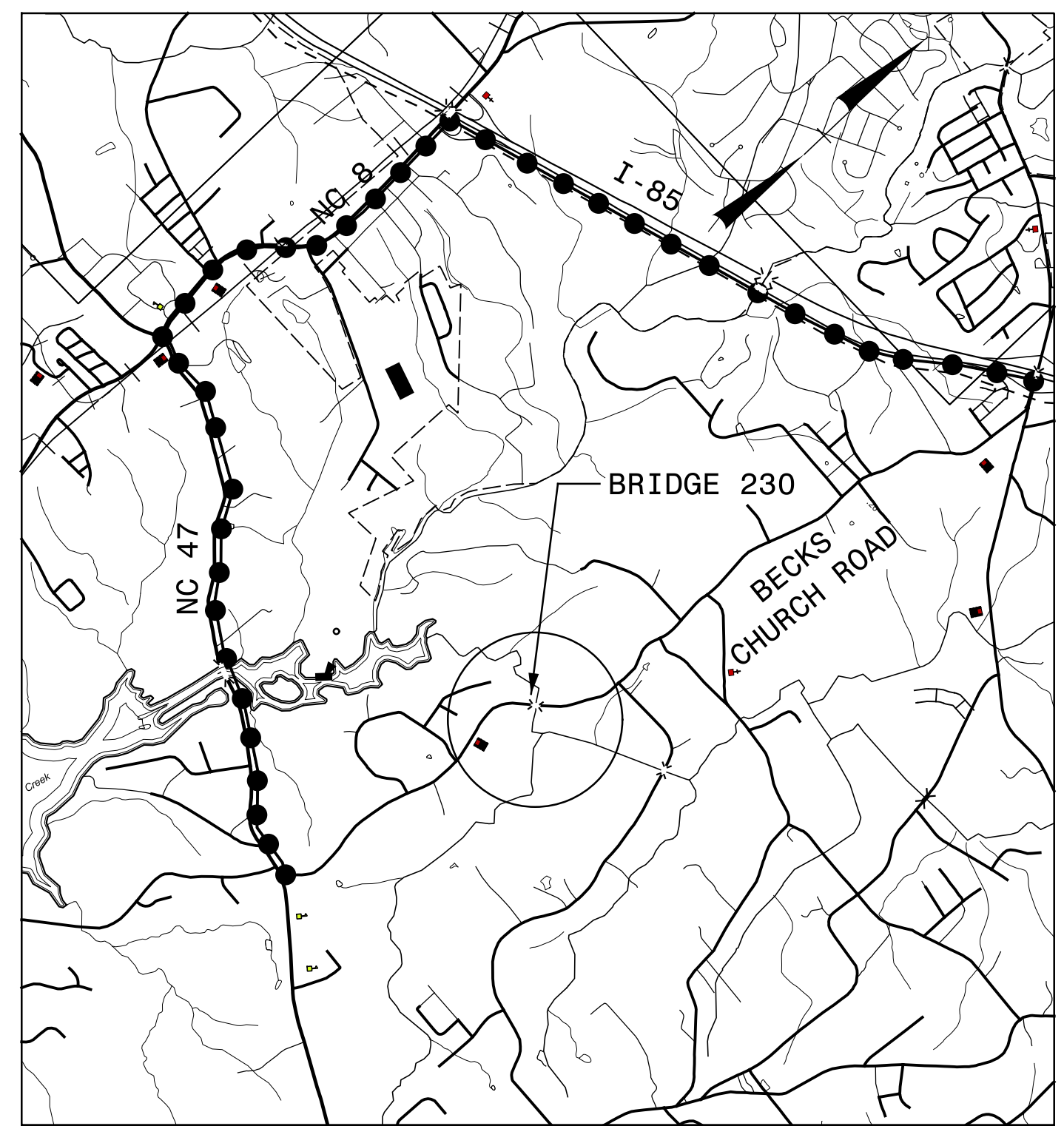
**TRANSPORTATION MANAGEMENT PLAN**

**DAVIDSON COUNTY**

DIVISION 9

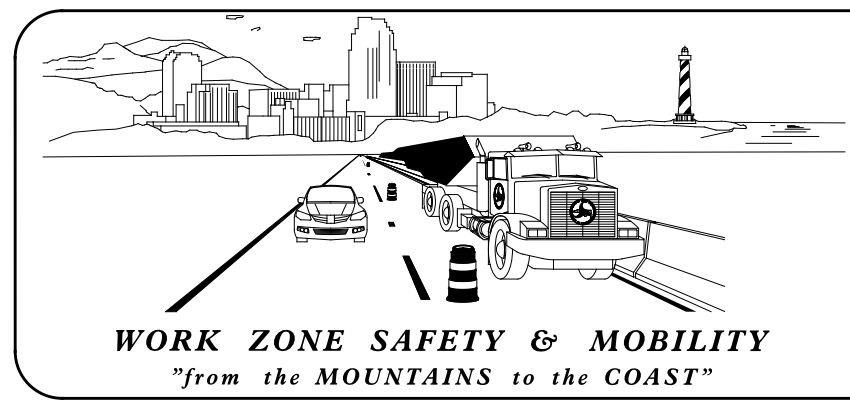


**LOCATION: BRIDGE 230 OVER POUNDER FORK CREEK  
ON SR 2250 (BECKS CHURCH ROAD)**



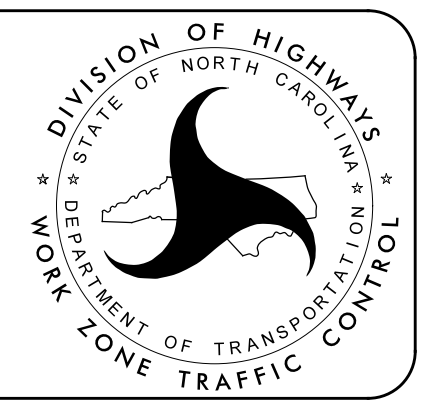
**VICINITY MAP**

●●●● OFF SITE DETOUR ROUTE



**NCDOT CONTACTS:**

**D. R. DAGENHART**  
DIVISION 9 BRIDGE PROJECT MANAGER



TIP NO. 17BP.9.R.79	SHEET NO. TMP-1
APPROVED: _____	
DATE: _____	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS, ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-2	GENERAL NOTES, TRAFFIC MANAGEMENT STRATEGY, AND PHASING
TMP-2A	SPECIAL SIGN DESIGN - BECKS CHURCH RD
TMP-3	BECKS CHURCH RD ROAD CLOSURE AND DETOUR ROUTE

**ROADWAY STANDARD DRAWINGS**

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

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

**LEGEND**

- TYPE III BARRICADE
- WORK ZONE SIGN-STATIONARY

**PLAN PREPARED BY: MICHAEL BAKER INTERNATIONAL**

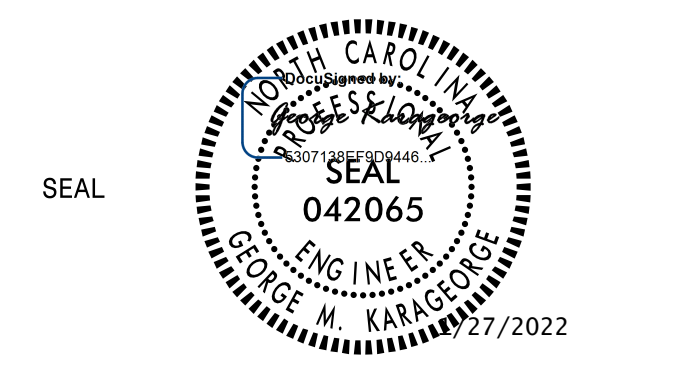
**GEORGE M. KARAGEORGE, PE**  
TRAFFIC ENGINEER-NC OPERATIONS

**K. READ GENTRY**  
TRAFFIC ENGINEER

**Michael Baker**  
**INTERNATIONAL**  
8000 Regency Parkway, Suite 600,  
Cary, NC 27518  
Phone: (919) 463-5488  
MBAKERINTL.COM  
PROFESSIONAL CORPORATION  
LICENSE NO. F-1084



PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.79	TMP-2



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

**Michael Baker  
INTERNATIONAL**

## 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.

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE PLAN, STANDARD DETAILS, AND ROADWAY STANDARD DRAWINGS 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.

REFER TO THE NCDOT 2018 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR ADDITIONAL REQUIREMENTS.

### TRAFFIC PATTERN ALTERATIONS

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

### SIGNING

B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRANSPORTATION MANAGEMENT PLANS.

AND

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLANS.

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

AND

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

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

### TRAFFIC CONTROL DEVICES

E) ENSURE ALL NECESSARY TRAFFIC CONTROL DEVICES, SIGNS, BARRICADES, MARKINGS, ETC ARE IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

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

G) DURING THE ROAD CLOSURE, ONCE THE EXISTING STRUCTURE IS REMOVED, PROVIDE PROTECTION TO PREVENT ERRANT VEHICLES FROM ENCROACHING INTO THE WORK AREA. ANY SUCH PROVISIONS WILL BE CONSIDERED INCIDENTAL TO OTHER ITEMS IN THE CONTRACT AND WILL NOT BE PAID FOR SEPARATELY. METHODS UTILIZED SHALL BE ACCEPTABLE TO THE ENGINEER.

### MISCELLANEOUS

H) ALL DIMENSIONS AND STATIONS IN THE TRANSPORTATION MANAGEMENT PLAN ARE APPROXIMATE. REFER TO ROADWAY AND STRUCTURE DESIGN PLANS FOR EXACT DIMENSIONS AND STATIONS.

## TRAFFIC MANAGEMENT STRATEGY

PROPOSED BRIDGE AND ROADWAY CONSTRUCTION WILL BE PERFORMED UNDER A ROAD CLOSURE, WITH TRAFFIC OPERATING ON AN OFF-SITE DETOUR (6.5 MILES).

ROADS USED FOR OFFSITE DETOUR INCLUDE NC 47, NC 8, I-85, AND OLD US 64.

## PHASING

### PHASE I:

#### STEP 1:

INSTALL CMS BOARDS ACCORDING TO SHEET TMP-3 6 DAYS BEFORE ROAD CLOSURE.

#### STEP 2:

USING ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9, AND TMP-3, INSTALL ROAD CLOSURE AND DETOUR SIGNS, PLACE TRAFFIC ON OFFSITE DETOUR ROUTE, AND CLOSE SR 2250 (BECKS CHURCH RD).

#### STEP 3:

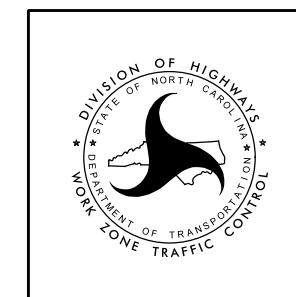
WITH SR 2250 CLOSED TO TRAFFIC PERFORM THE FOLLOWING:

- REMOVE EXISTING BRIDGE.
- CONSTRUCT PROPOSED BRIDGE.
- CONSTRUCT PROPOSED ROADWAY THROUGH THE FINAL SURFACE COURSE.
- PLACE FINAL PAVEMENT MARKINGS AND TIE IN WITH EXISTING MARKINGS.

### PHASE II:

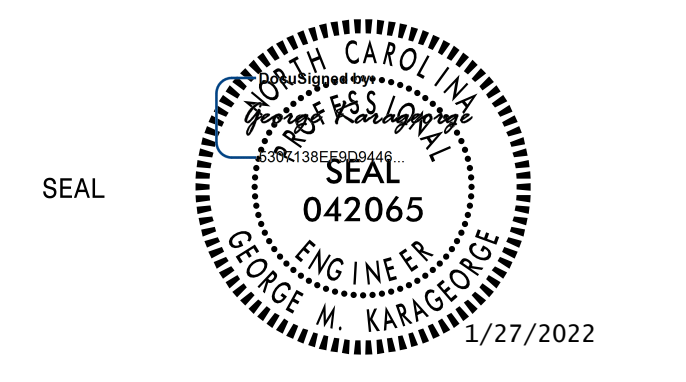
REMOVE ROAD CLOSURE DEVICES AND DETOUR SIGNS AND OPEN SR 2250 (BECKS CHURCH RD) TO TRAFFIC.

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GENERAL NOTES, TRAFFIC  
MANAGEMENT STRATEGY, AND  
PHASING

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.79	TMP-2A



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**Michael Baker**  
INTERNATIONAL

SIGN NUMBER: SP-1 TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 4'-0" HEIGHT: 2'-0" TOTAL AREA: 8.0 Sq.Ft. BORDER TYPE: INSET RECESS: 0.47" WIDTH: 0.63" RADII: 1.5" NO. Z BARS: LENGTH:	BACKG COLOR: Fluorescent Orange COPY COLOR: Black <table border="1" style="width: 100%; text-align: center;"> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> MAT'L: 0.080" (2.0 mm) ALUMINUM	SYMBOL	X	Y	WID	HT																																				DESIGN BY: KRG PROJECT ID: 17BP.9.R.79	CHECKED BY: GMK LOCATION: DAVIDSON COUNTY DATE: Aug 12, 2019 DIV: 9
SYMBOL	X	Y	WID	HT																																							

**MOUNT ON 2 U-POSTS**

Spacing Factor is 1 unless specified otherwise

**USE NOTES: 1,2**

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

**LETTER POSITIONS**

**Letter locations are panel edge to lower left corner**

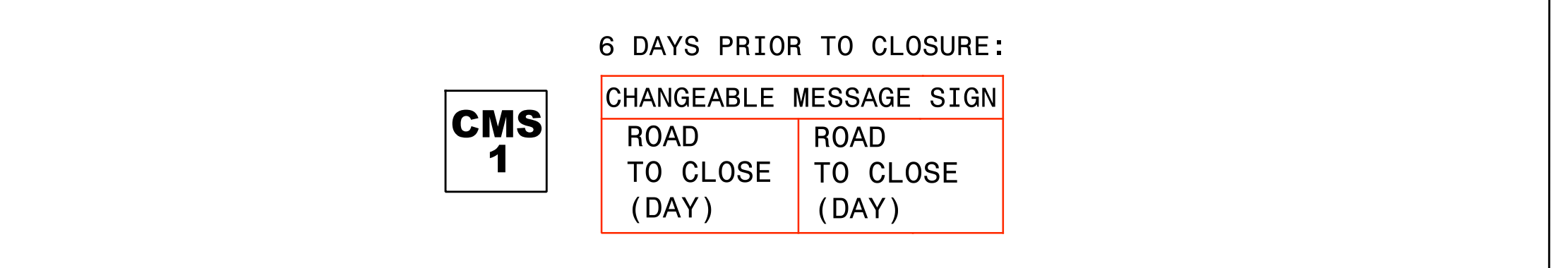
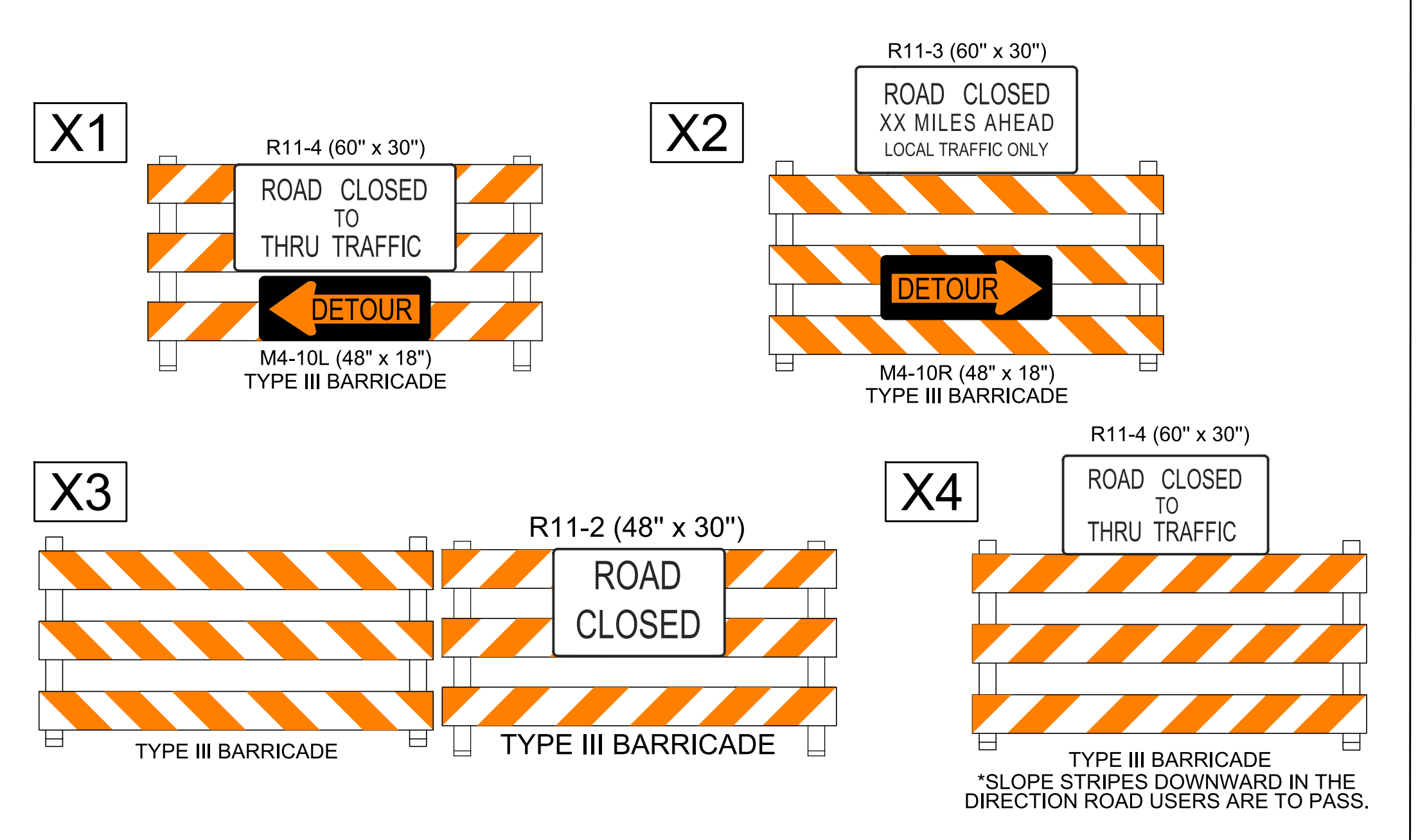
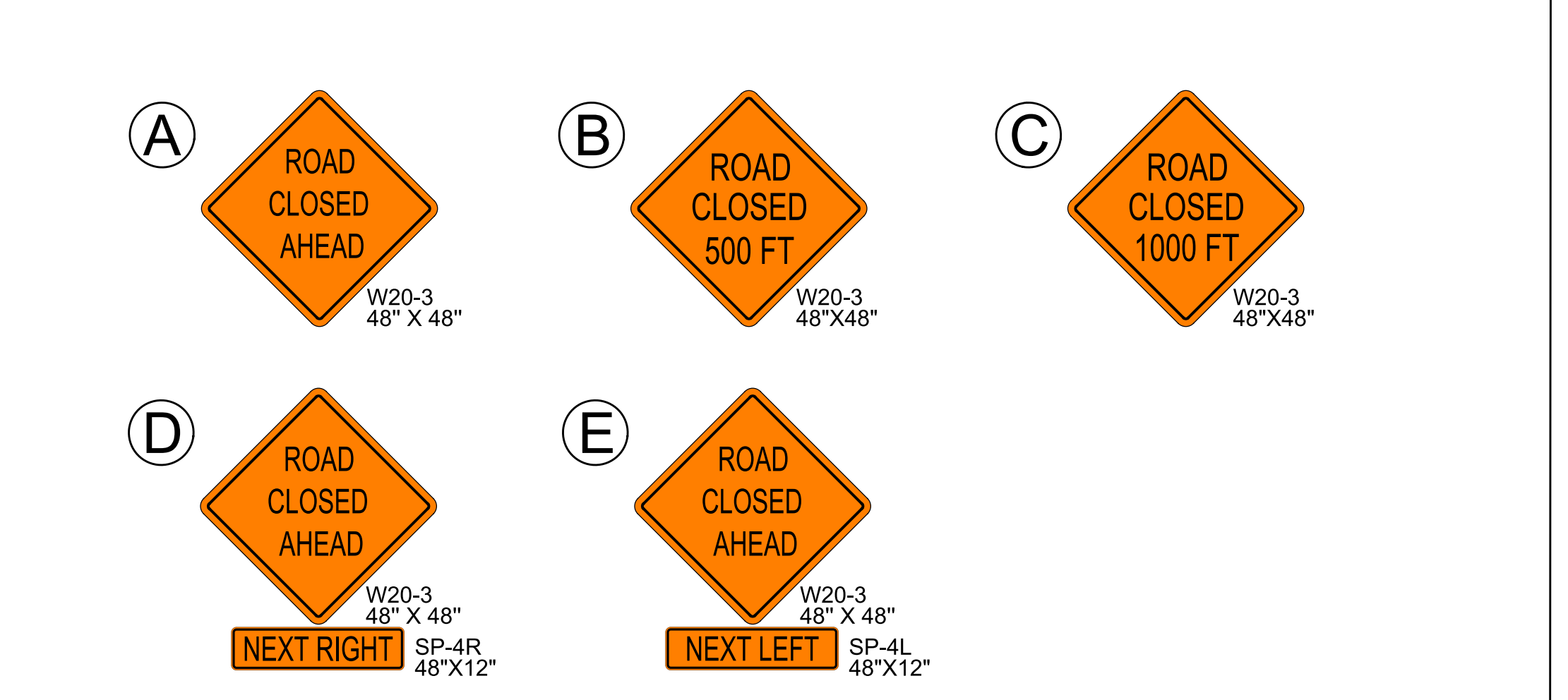
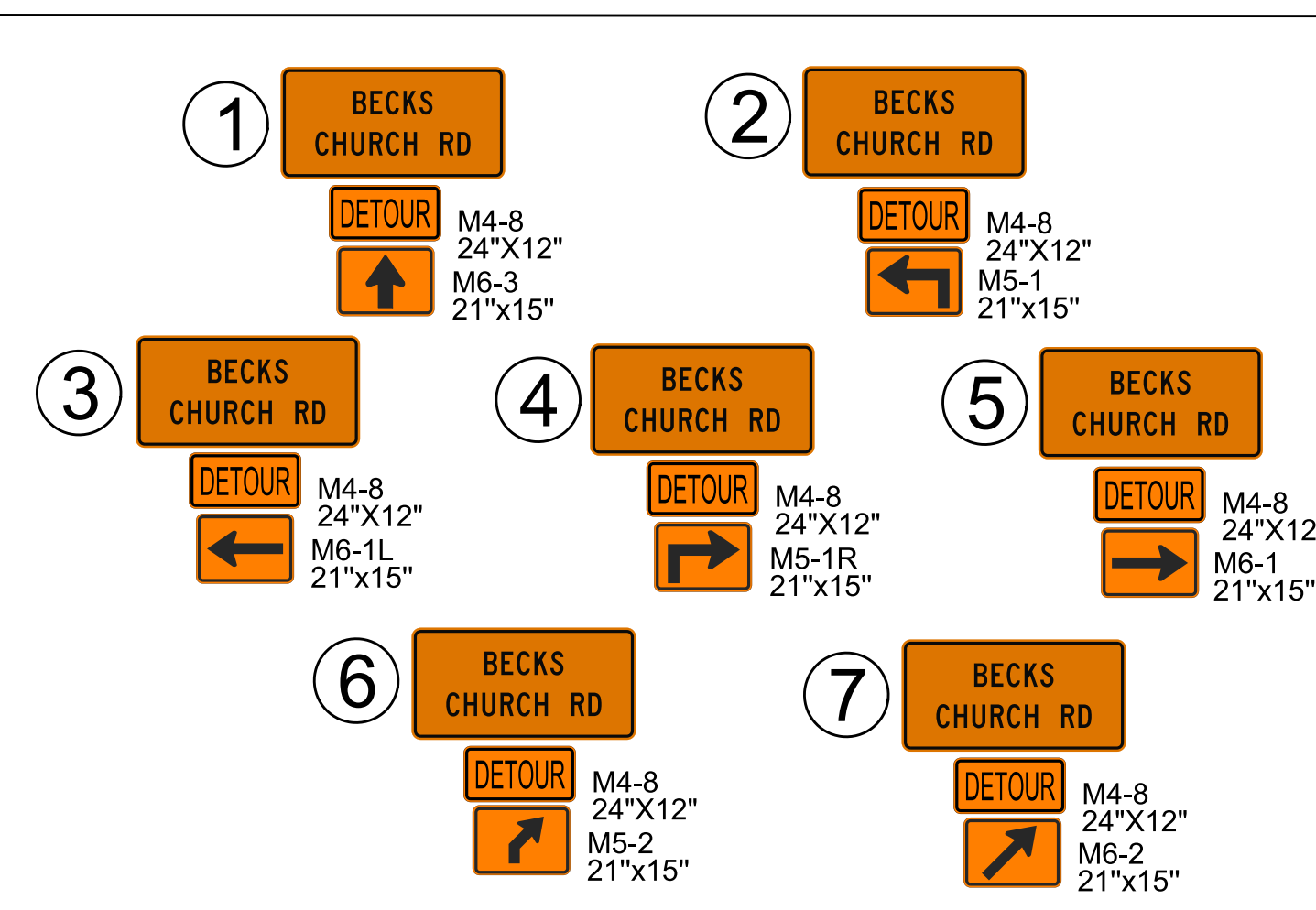
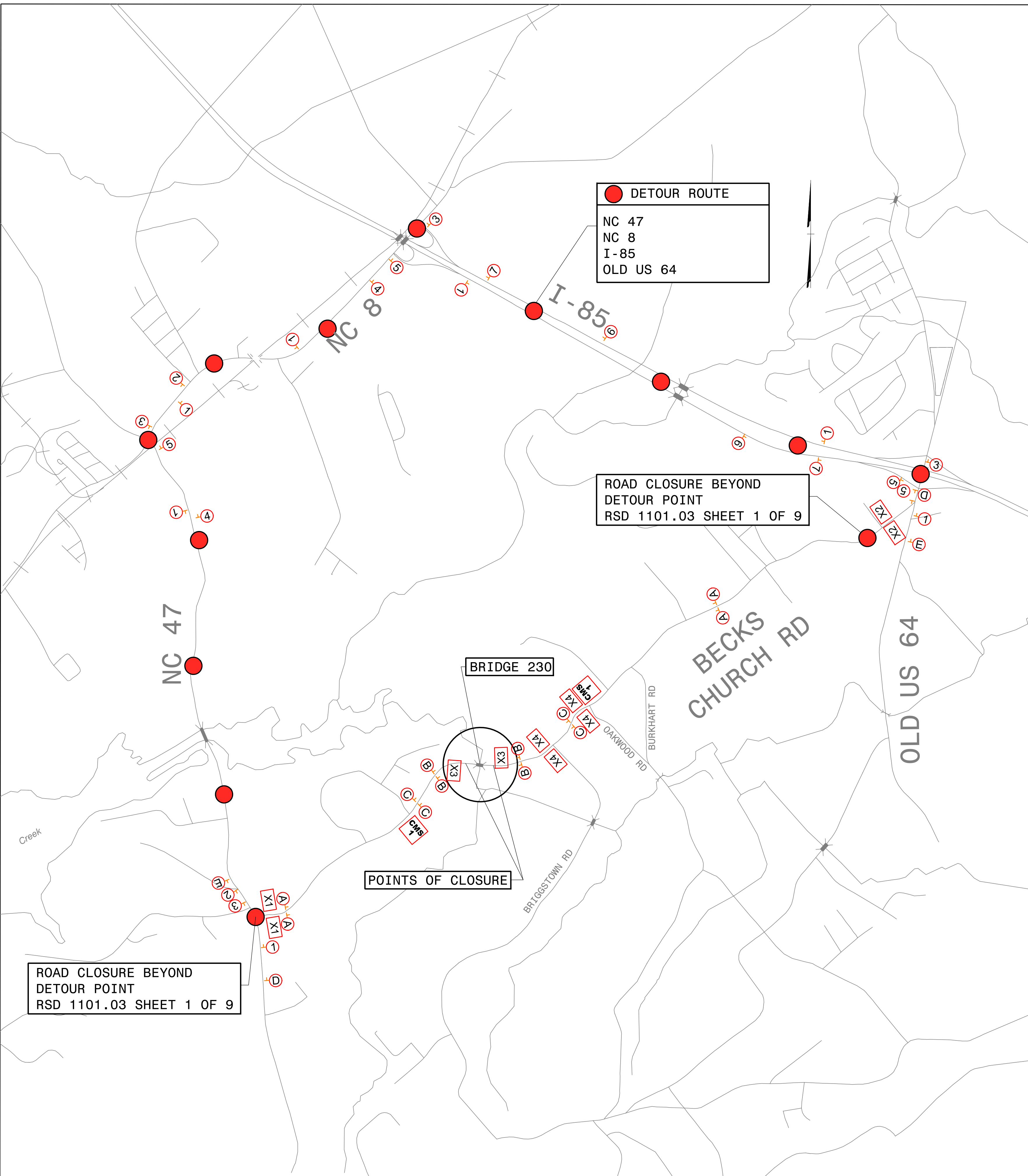
															Series/Size
															Text Length
B	E	C	K	S											C 2000
15.5	19.2	22.5	26.3	29.7											17
C	H	U	R	C	H		R	D							C 2000
7.4	11.2	15.1	19	22.6	26.4	29.2	34.2	37.8							33.2

FILENAME: Guidsign\_English\_8-2-13 NORTH CAROLINA D.O.T. SIGN DETAIL

10/18/2021 R:\Traffic\Transportation Management\SHEETS\17BP.9.R.79 TMP 02A SPECIAL SIGN DESIGN.dgn Recd.Gentry



PROJECT REFERENCE NO. 17BP.9.R.79	SHEET NO. TMP-3
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	



**BECKS CHURCH RD  
 ROAD CLOSURE AND  
 DETOUR ROUTE**

10/18/2021  
 R:\Traffic\Transportation Management\SHEETS\17BP.9.R.79 TMP 03 DETOURROUTE.dgn  
 Read.Gentry



**T.I.P.: 17BP.9.R.79**

**CONTRACT: D100261**



10/18/2021  
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Read.Gentry

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN  
DAVIDSON COUNTY**

DIVISION 9

**LOCATION: BRIDGE 230 OVER POUNDER FORK  
CREEK ON SR 2250(BECKS CHURCH RD)**

PROJECT REFERENCE NO. 17BP.9.R.79	SHEET NO. PMP - 1
	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
	

**ROADWAY STANDARD DRAWINGS**

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1261.02	GUARDRAIL END DELINEATION

**PAVEMENT MARKING SCHEDULE**

CODE	DESCRIPTION
T1	THERMOPLASTIC WHITE EDGELINE (4", 90 MIL)
T13	THERMOPLASTIC YELLOW DOUBLE CENTER (4", 90 MIL)

**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:

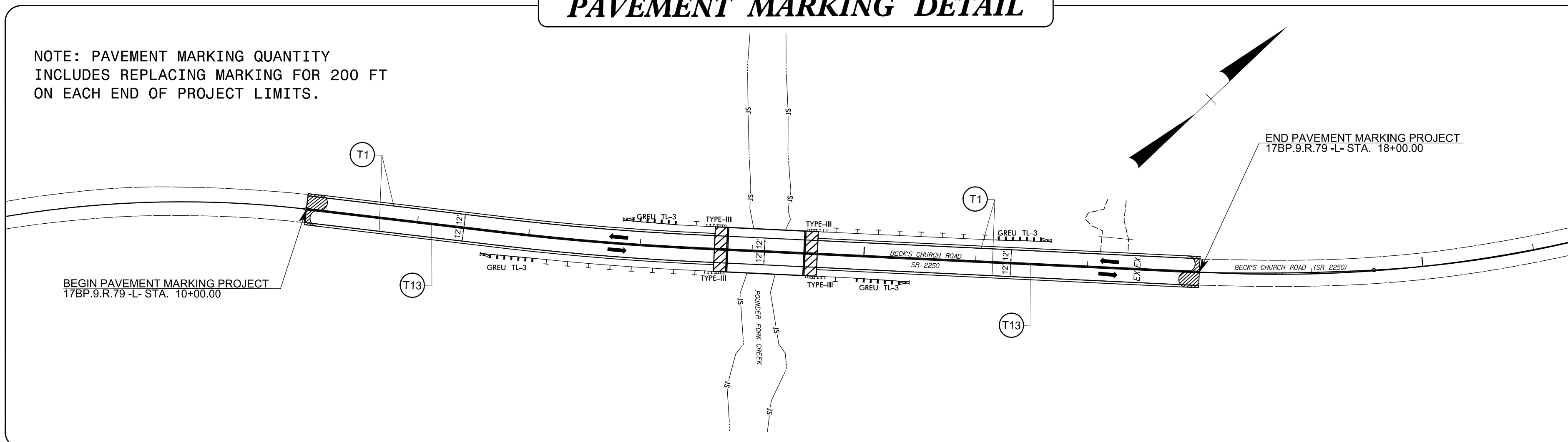
ROAD NAME	MARKING	MARKER
BECKS CHURCH RD	THERMOPLASTIC	NONE

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

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

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

**PAVEMENT MARKING DETAIL**

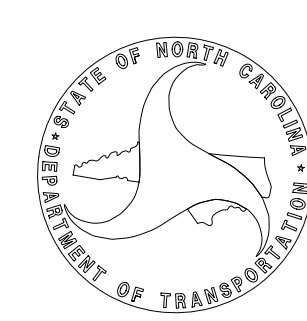


**INDEX**

SHEET NO.	DESCRIPTION
PMP - 1	TITLE SHEET

**NCDOT DIVISION 9 CONTACT:**

**DANIEL R. DAGENHART**



**PLAN PREPARED BY: MICHAEL BAKER INTERNATIONAL**

**GEORGE M. KARAGEORGE, PE**  
TRAFFIC ENGINEER-NC OPERATIONS

**K. READ GENTRY**  
TRAFFIC ENGINEER

**Michael Baker**

**INTERNATIONAL**

8000 Regency Parkway, Suite 600,  
Cary, NC 27518  
Phone: (919) 463-5488  
MBAKERINTL.COM  
PROFESSIONAL CORPORATION  
LICENSE NO. F-1084

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.79	SIGN-1
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
<b>Michael Baker</b> INTERNATIONAL	

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION**

**SIGNING PLAN  
DAVIDSON COUNTY**

DIVISION 9

**LOCATION: BRIDGE 230 OVER POUNDER FORK CREEK  
ON SR 2250 (BECK'S CHURCH ROAD)**

**T.I.P.: 17BP.9.R.79**

**CONTRACT: D100261**

**SUMMARY OF QUANTITIES**

ITEM NO.	DESC. NO.	SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
415500000-N		907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	4	EA

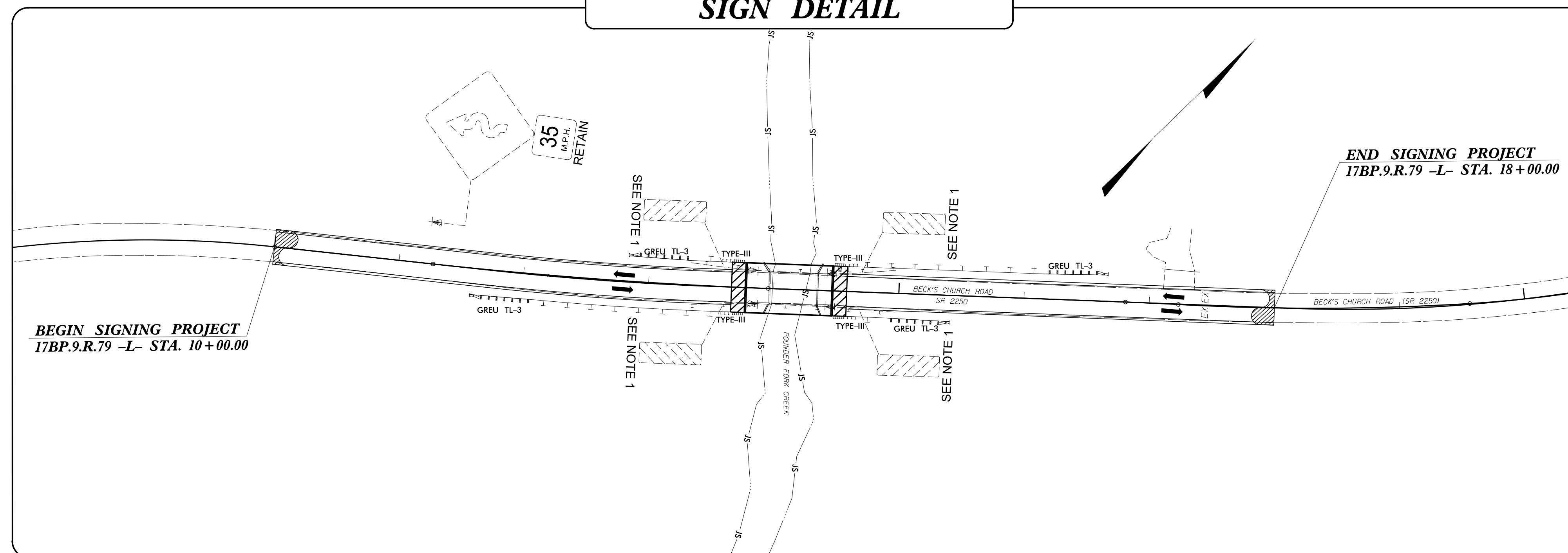
**GENERAL NOTES**

- SIGNING PLANS DO NOT INCLUDE TEMPORARY CONSTRUCTION SIGNING. SEE TRAFFIC CONTROL PLANS
- ALL EXISTING SIGNS ON "U" CHANNEL/WOOD POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

**PROJECT NOTES**

- 1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

**SIGN DETAIL**

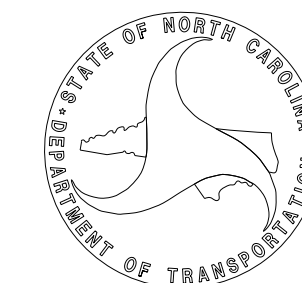


**INDEX**

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET

**NCDOT DIVISION 9 CONTACT:**

**DANIEL R. DAGENHART**



**PLAN PREPARED BY: MICHAEL BAKER INTERNATIONAL**

**GEORGE M. KARAGEORGE, PE**  
TRAFFIC ENGINEER-NC OPERATIONS

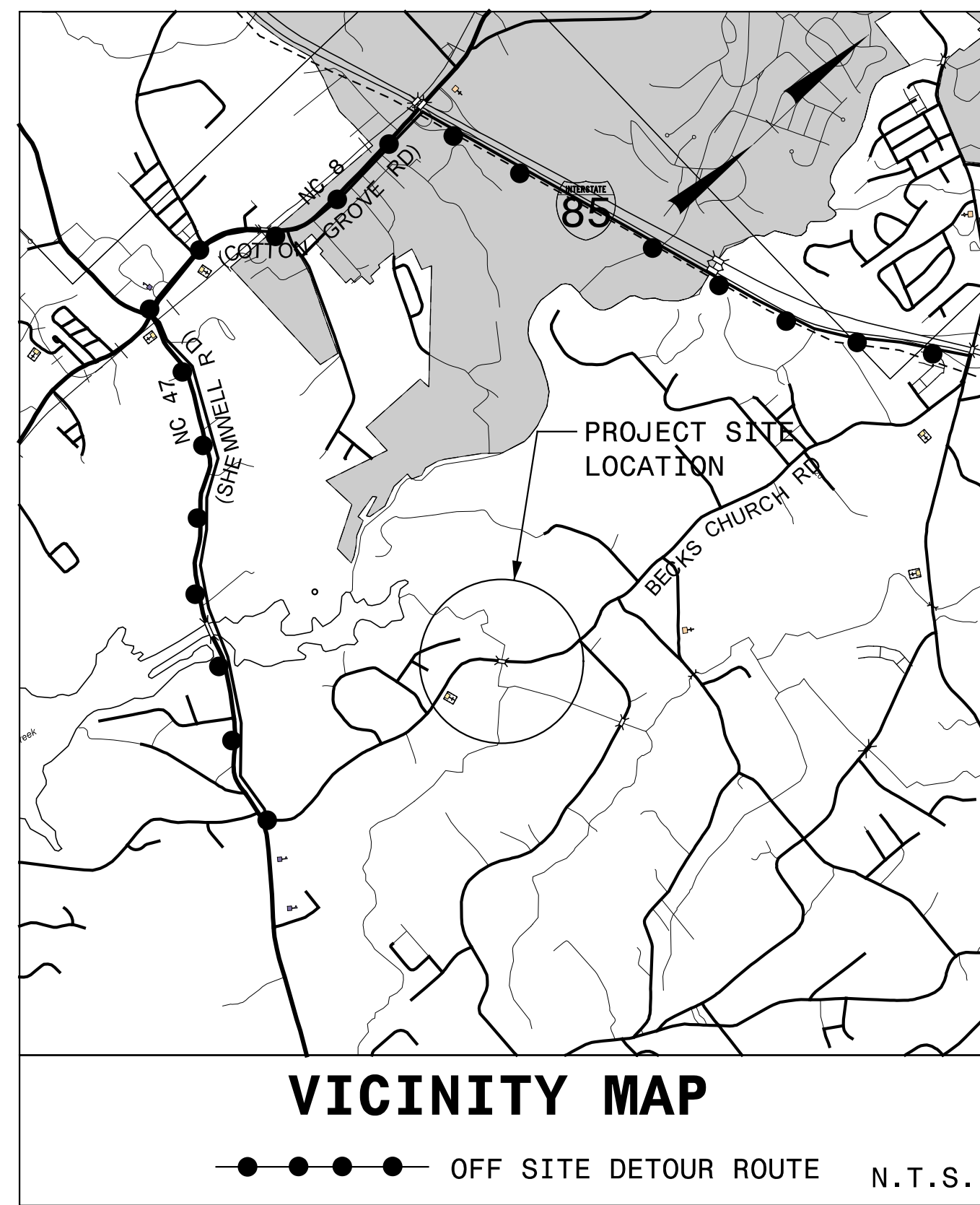
**K. READ GENTRY**  
TRAFFIC ENGINEER

**Michael Baker**

**INTERNATIONAL**  
8000 Regency Parkway, Suite 600,  
Cary, NC 27518  
Phone: (919) 463-5488  
MBAKERINTL.COM  
PROFESSIONAL CORPORATION  
LICENSE NO. F-1084



**TIP PROJECT: 17BP.9.R.79**



**VICINITY MAP**

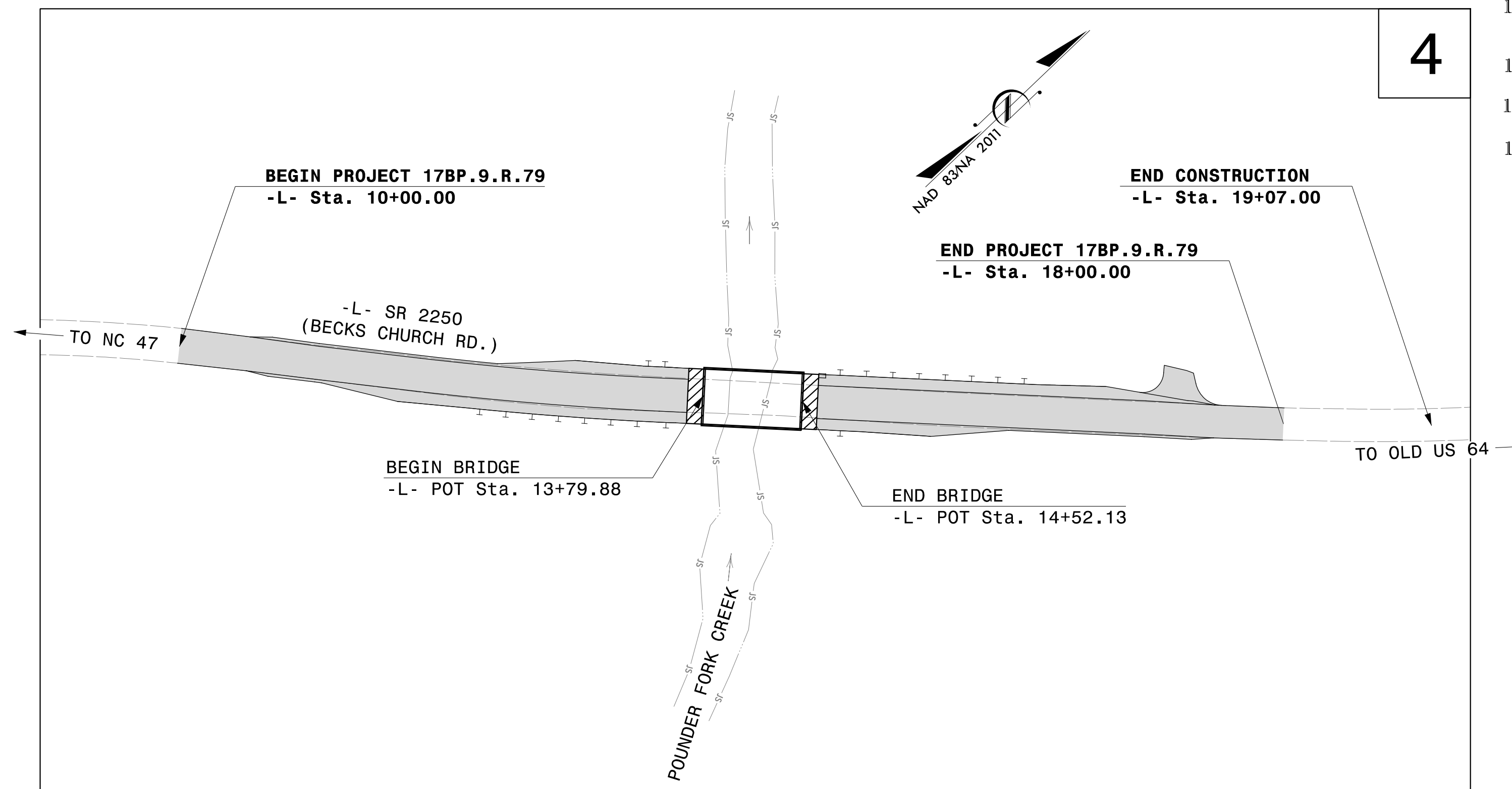
●●●● OFF SITE DETOUR ROUTE N.T.S.  
 ■ DAVIDSON CITY LIMITS

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

**DAVIDSON COUNTY**

**LOCATION: BRIDGE 230 OVER POUNDER FORK CREEK  
 ON SR 2250 (BECKS CHURCH RD)**

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



**4**

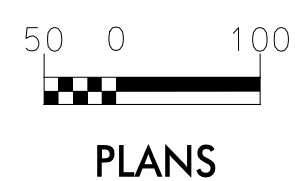
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.R.79	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.9.R.79		P.E.	

**EROSION AND SEDIMENT CONTROL MEASURES**

Std. #	Description	Symbol
1650.03	Temporary Silt Ditch	TSO
1650.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	TSF
1606.01	Special Sediment Control Fence	SSCF
1622.01	Temporary Berms and Slope Drains	TBSD
1650.02	Silt Basin Type B	SB
1633.01	Temporary Rock Silt Check Type-A	TRSCA
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	TRSCA-PAM
1633.02	Temporary Rock Silt Check Type-B	TRSCB
	Wattle / Coir Fiber Wattle	W/CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	W/CFW-PAM
1634.01	Temporary Rock Sediment Dam Type-A	TRSDA
1634.02	Temporary Rock Sediment Dam Type-B	TRSDB
1655.01	Rock Pipe Inlet Sediment Trap Type-A	RPISTRA
1655.02	Rock Pipe Inlet Sediment Trap Type-B	RPISTRB
1630.04	Stilling Basin	SB
1650.06	Special Stilling Basin	SSB
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SKB
	Tiered Skimmer Basin	TSKB
	Infiltration Basin	IB

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

**GRAPHIC SCALE**



PLANS

ROADSIDE ENVIRONMENTAL UNIT  
 DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

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

Prepared in the Office of:

**wood.**  
 4021 STIRRUP CREEK DRIVE  
 DURHAM, NC 27703  
 NC ENG F-1253

**2018 STANDARD SPECIFICATIONS**

Designed by:

**RICHARD L. HINER, P.E.**

**3103**

NAME

LEVEL III CERTIFICATION NO.

**Roadway Standard Drawings**

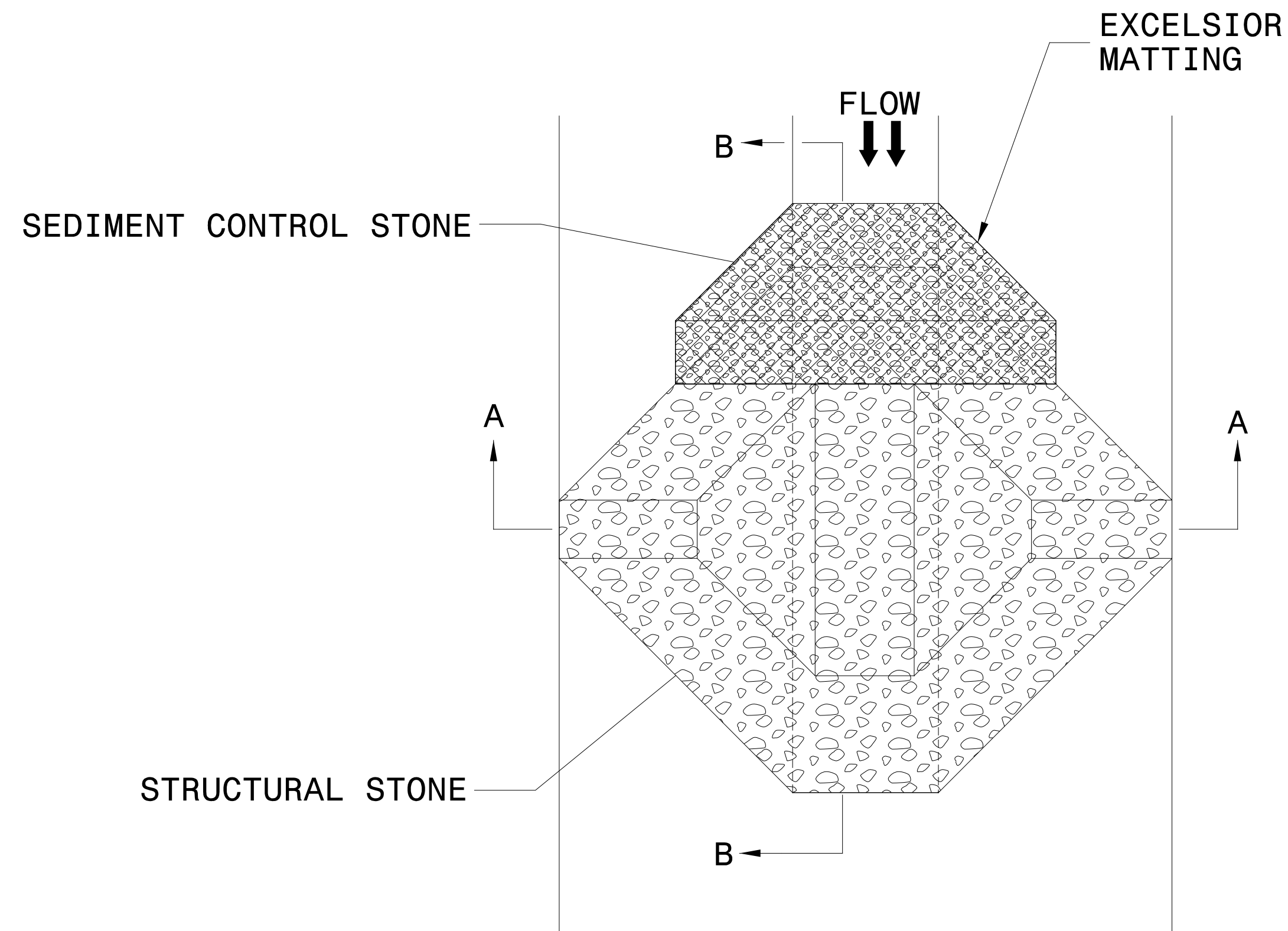
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

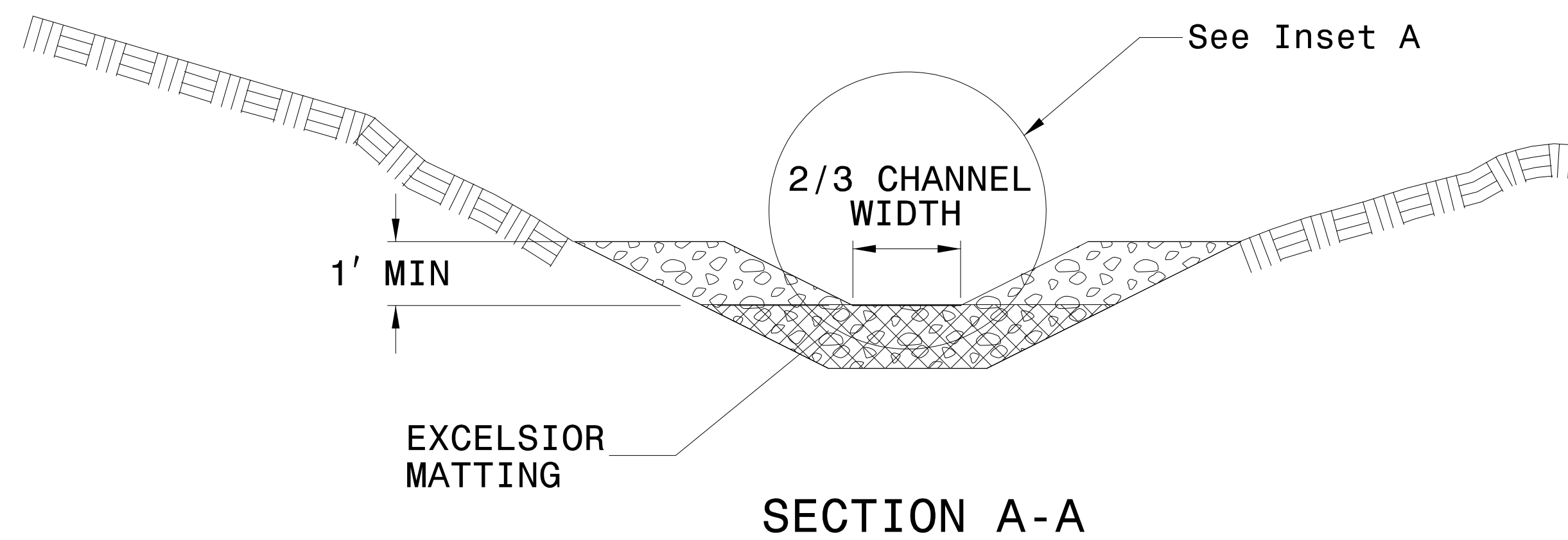


PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.79	2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



SECTION A-A

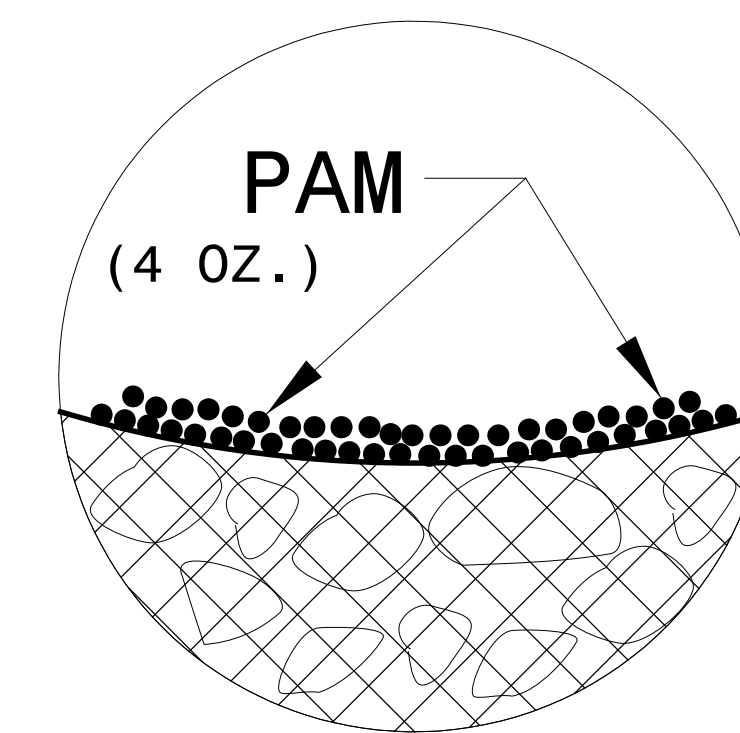
NOTES:

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

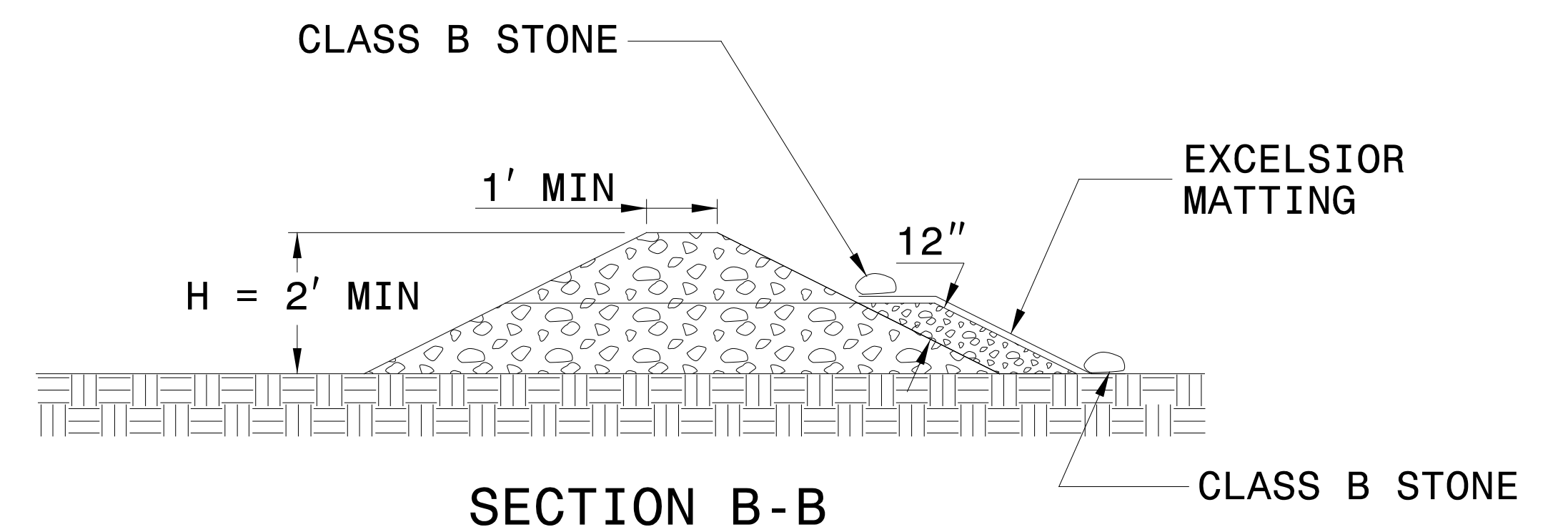
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

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



INSET A

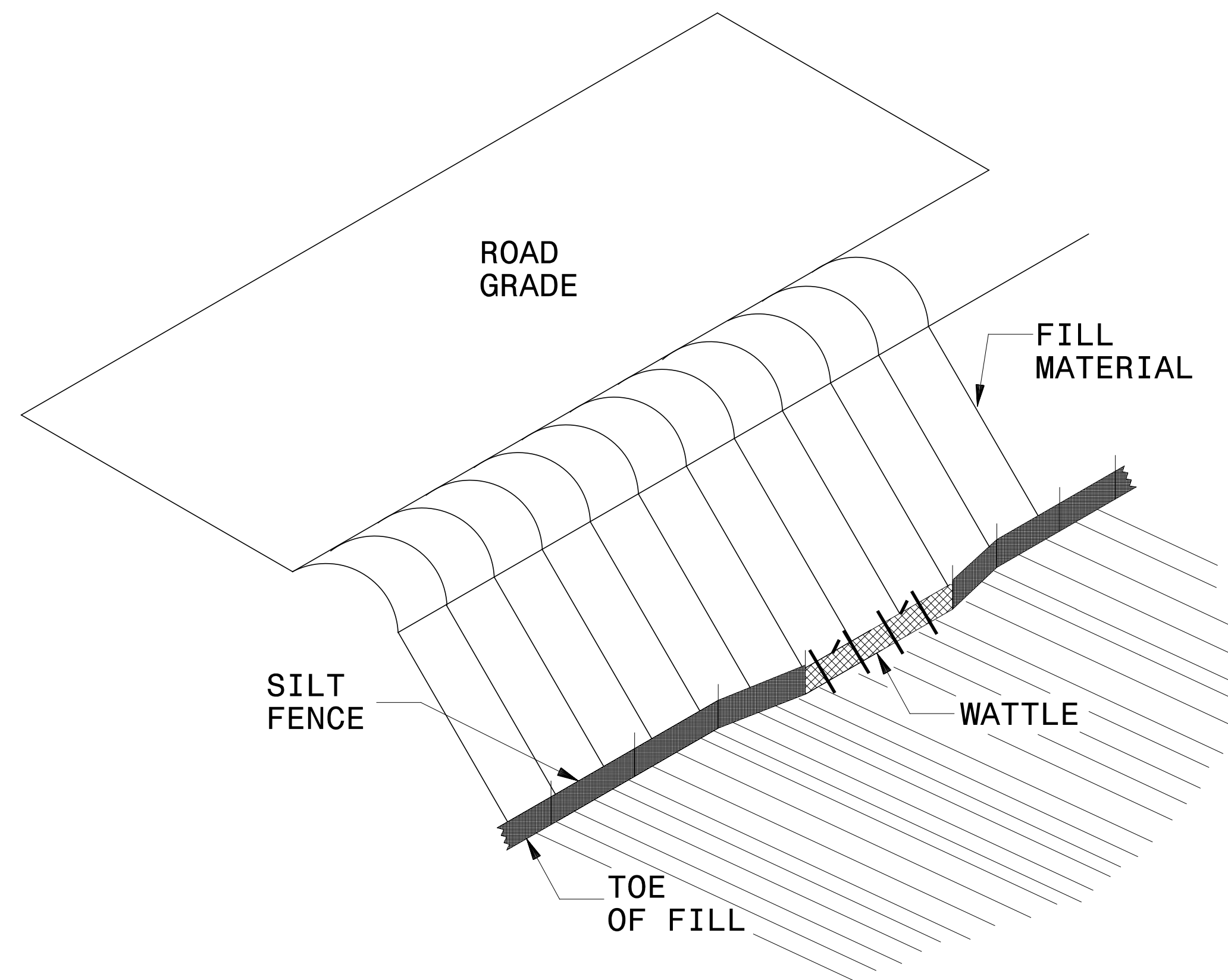


SECTION B-B

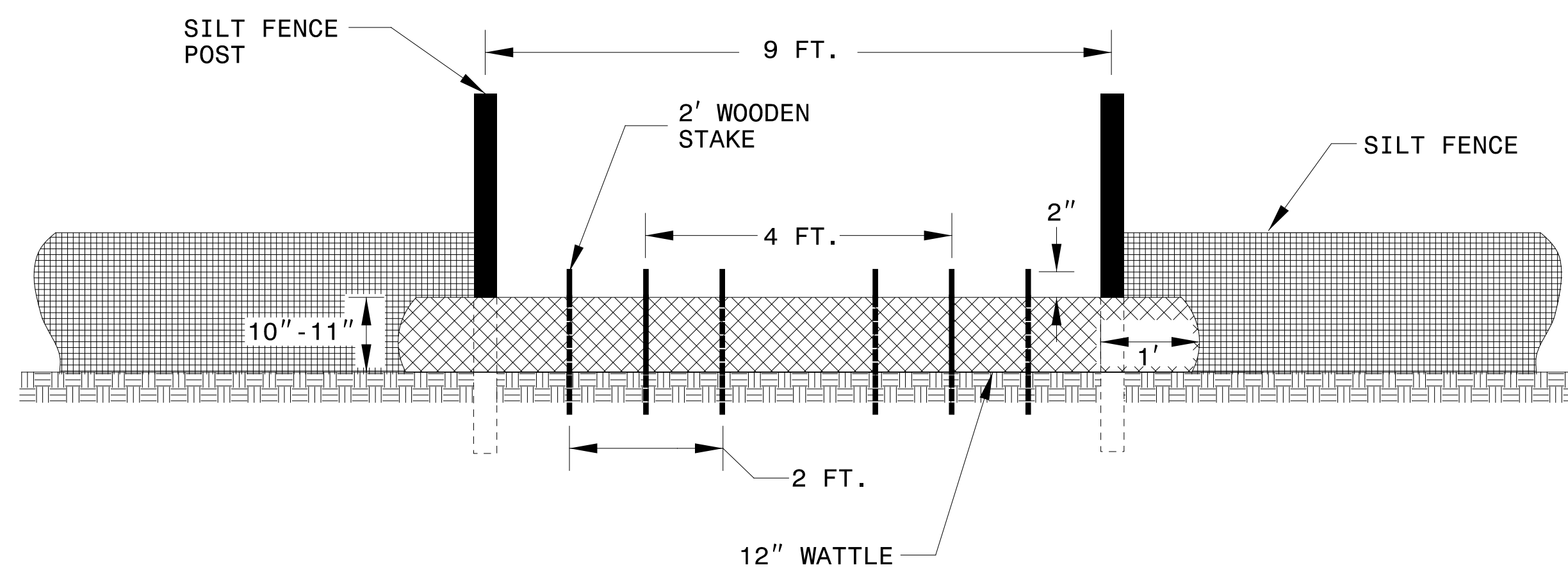
NOT TO SCALE

# SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO. 17BP.9.R.79	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**ISOMETRIC VIEW**

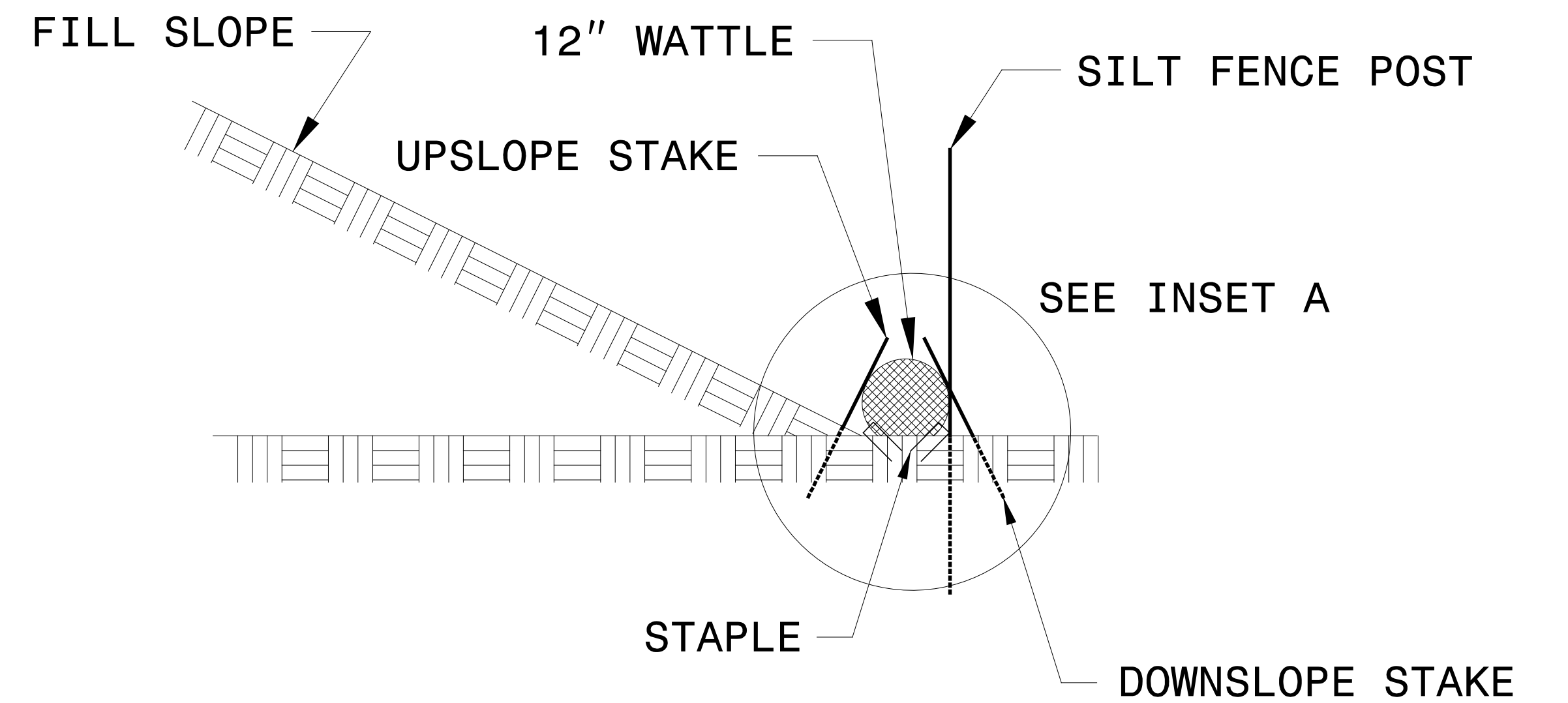
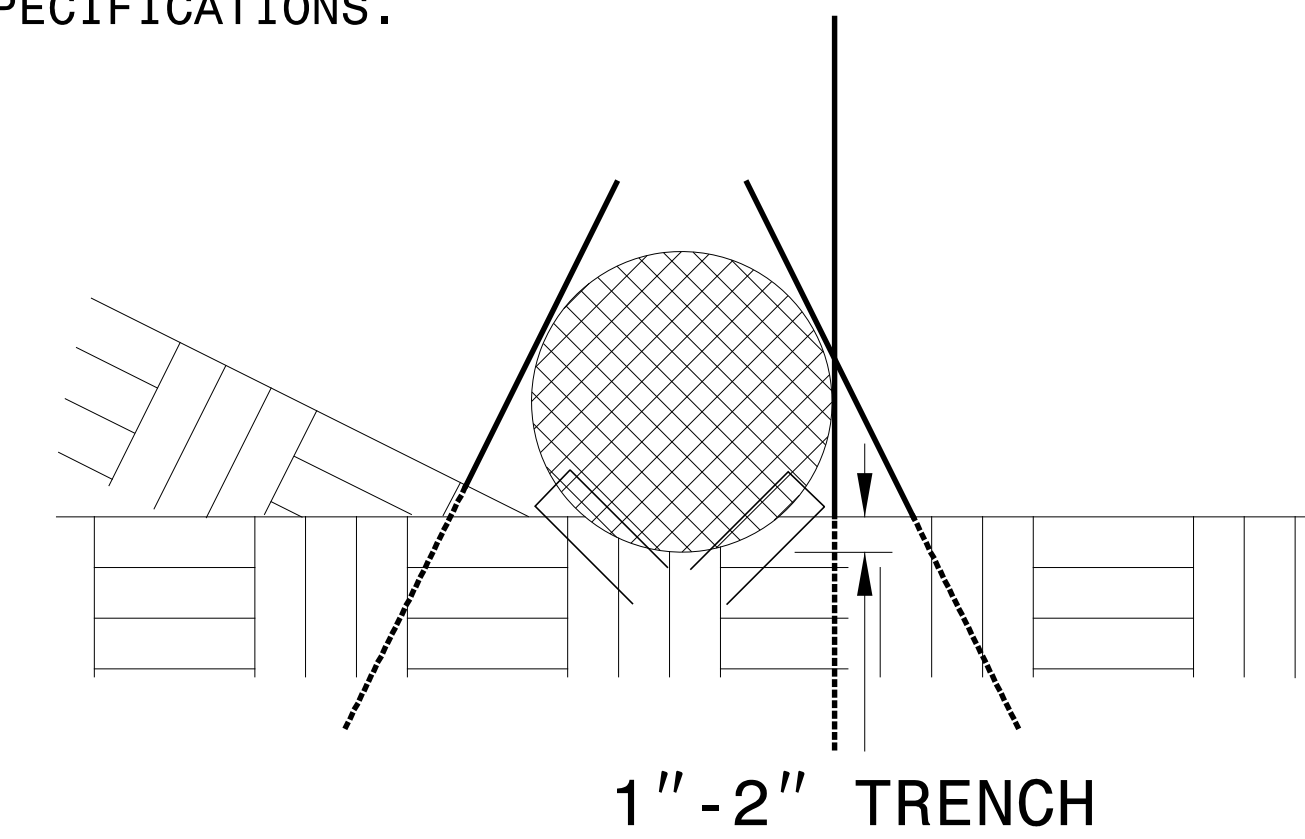


**VIEW FROM SLOPE**

**NOTES:**

- USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

**INSET A**



**SIDE VIEW**

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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PROJECT REFERENCE NO. <i>17BP.9.R.79</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# ***SOIL STABILIZATION TIMEFRAMES***

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



PROJECT REFERENCE NO. 17BP.R.9.79	SHEET NO. EC-4/CONST-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

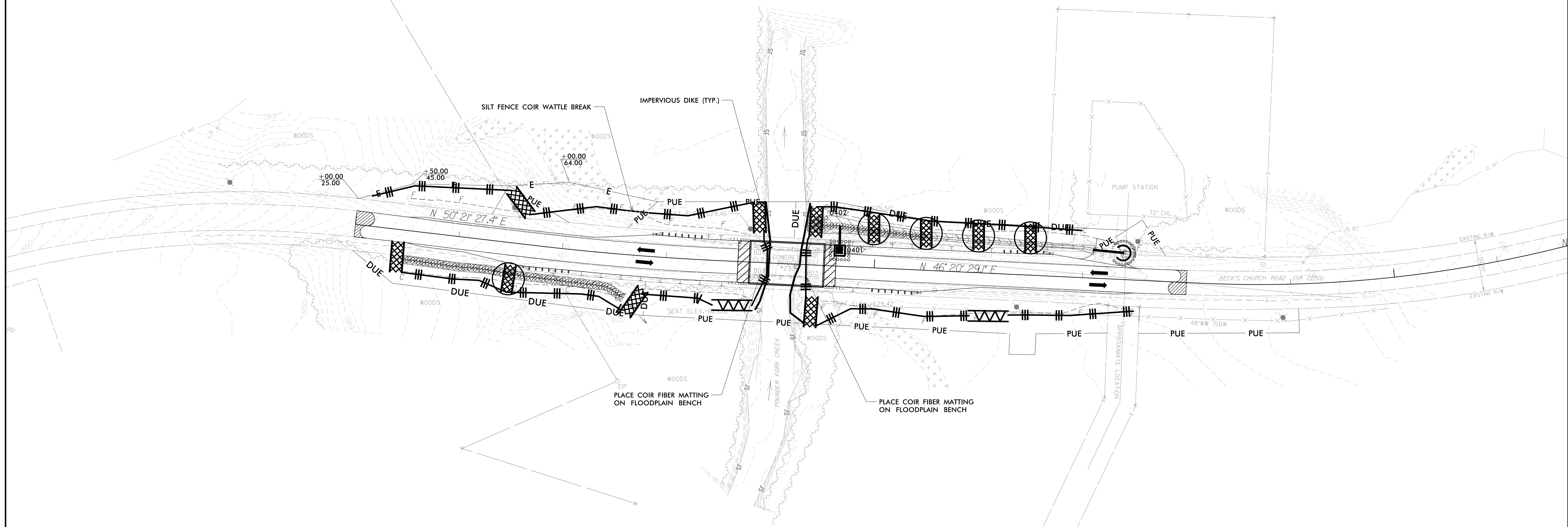
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**wood.**  
4021 STIRRUP CREEK DRIVE  
DURHAM, NC 27703  
NC ENG F-1253

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 4

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

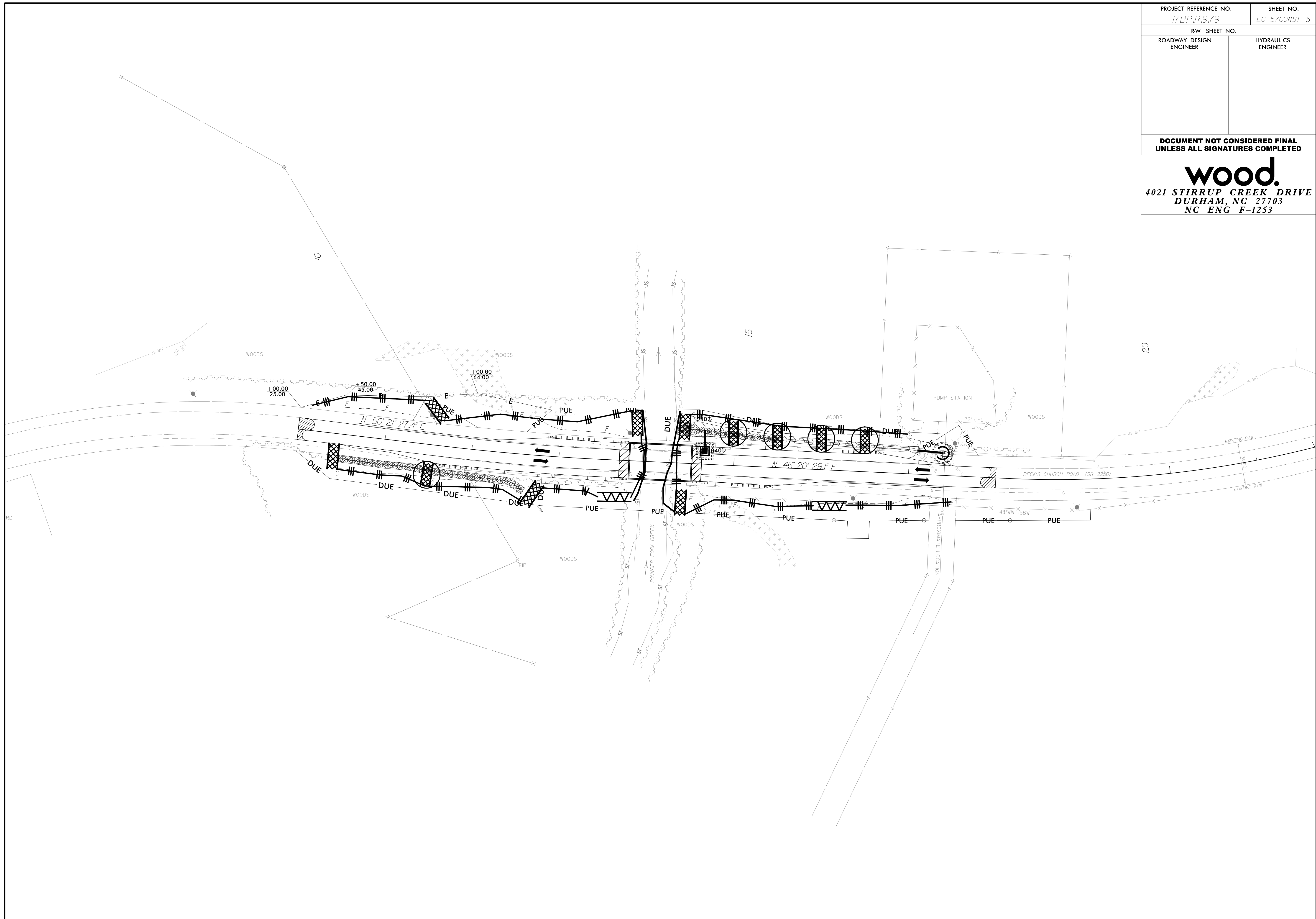
NOTE:  
SHOULDER SLOPES SHALL BE MATTED WITH TEMPORARY  
EROSION CONTROL MATTING ONCE BROUGHT TO GRADE.



PROJECT REFERENCE NO.	SHEET NO.
17BP.R.9.79	EC-5/CONST-5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**wood.**  
4021 STIRRUP CREEK DRIVE  
DURHAM, NC 27703  
NC ENG F-1253

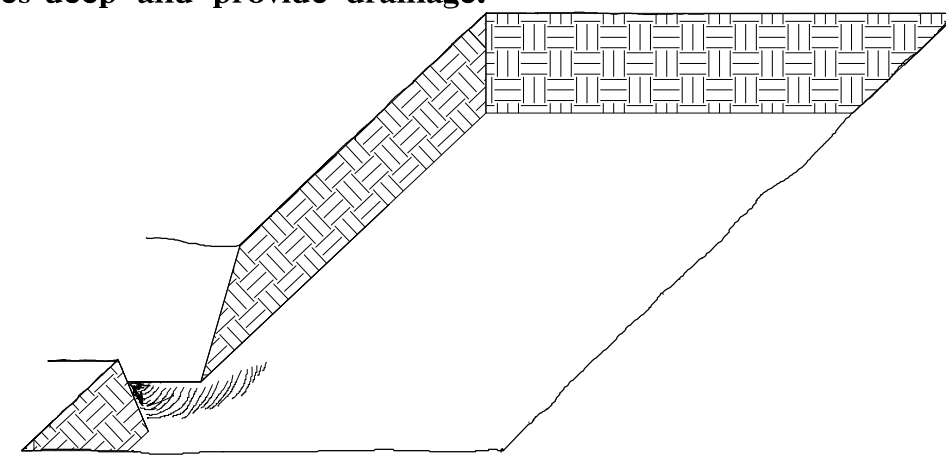


## PLANTING DETAILS

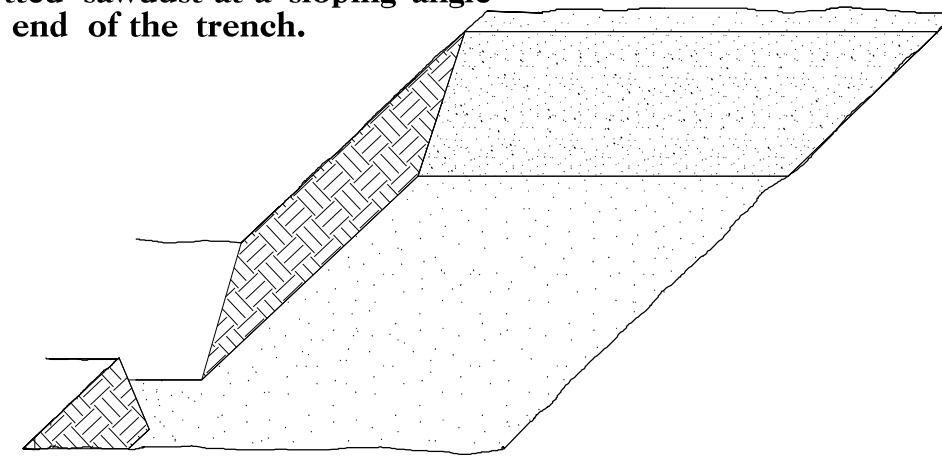
### SEEDLING / LINER BAREROOT PLANTING DETAIL

#### HEALING IN

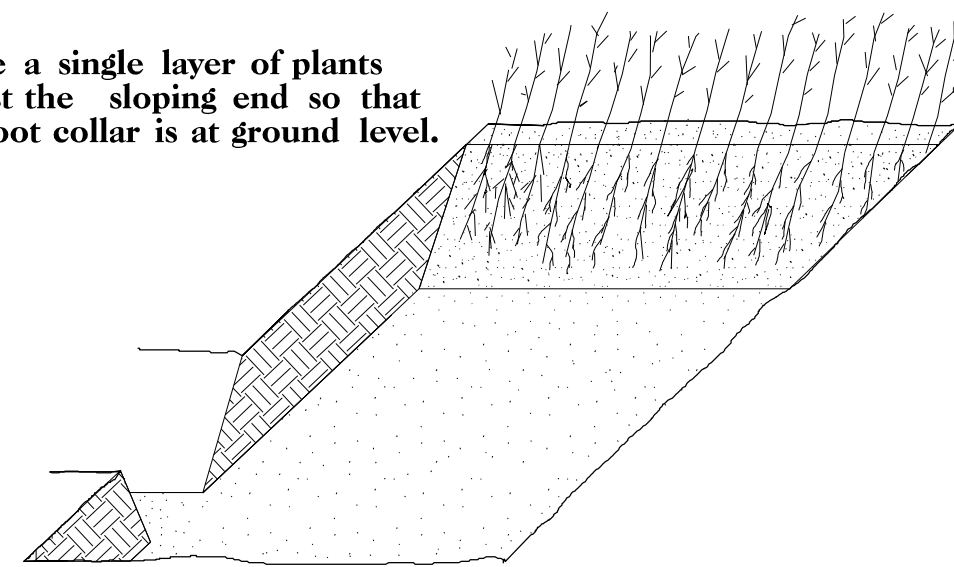
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



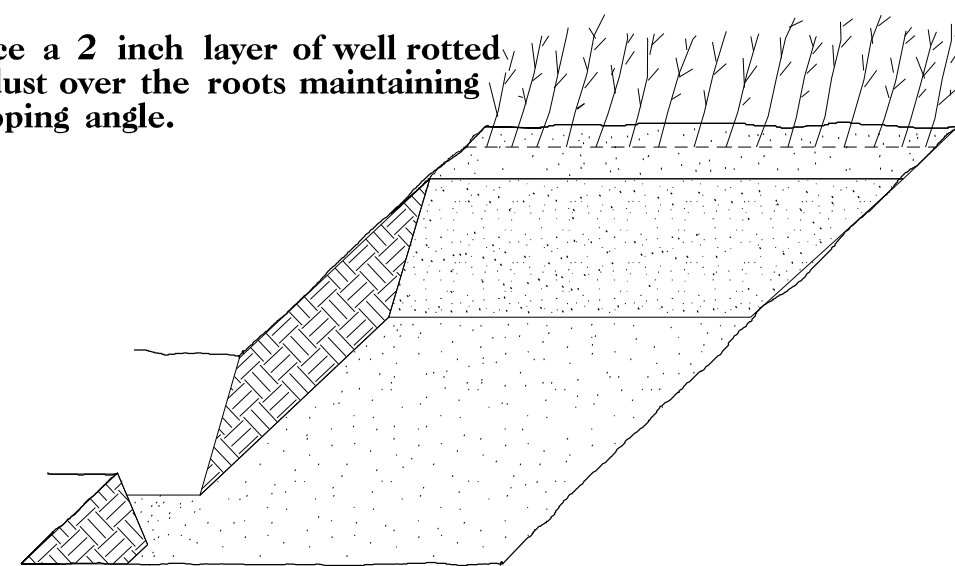
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

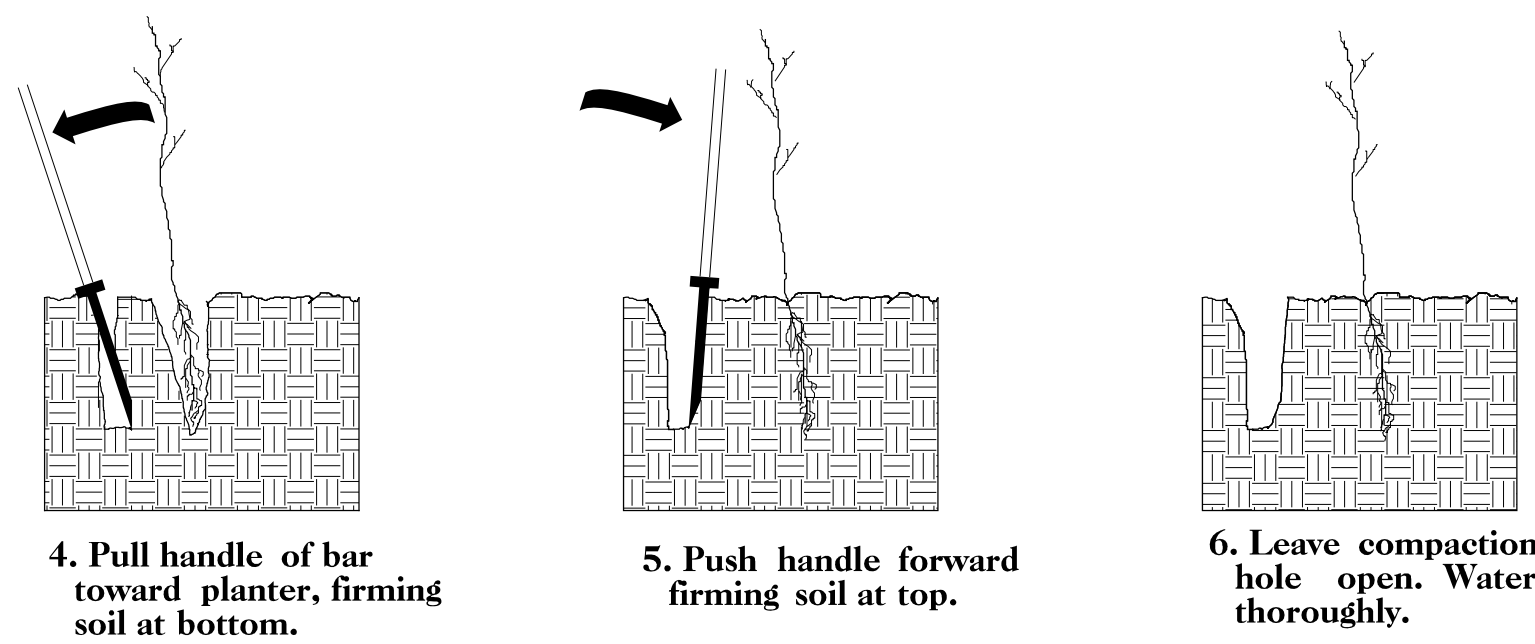
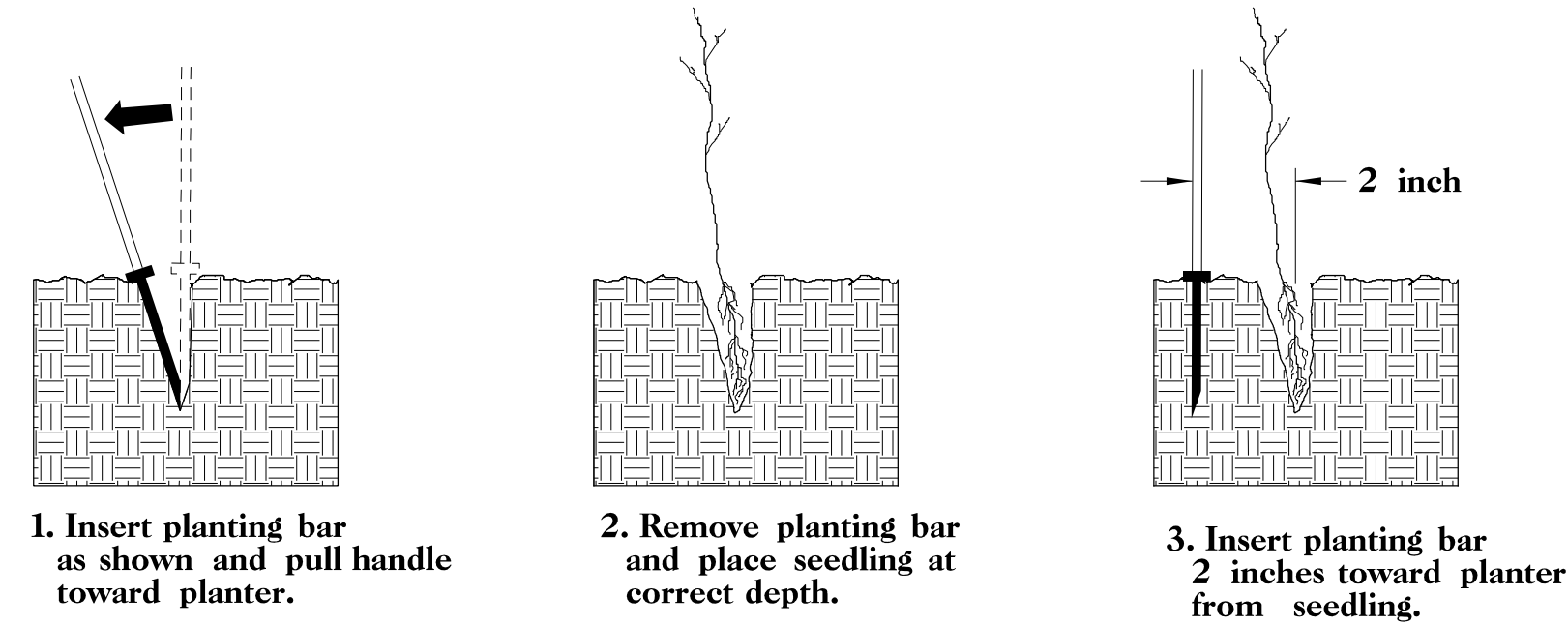


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.



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

#### DOUBLE PLANTING METHOD USING THE K3C PLANTING BAR



#### 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.



**K3C PLANTING BAR**  
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



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

## REFORESTATION

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

#### REFORESTATION

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

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in 3R
25% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in 3R
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in 3R
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in 3R

## REFORESTATION DETAIL SHEET

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



28-SEP-2021 16:02 S:\Server\_Files\PROJECTS\2018\A20181108.00\_WoodPLC\_17BP-9-R-79\Design\Utilities\Engineering\UC\Proj\17BP-9-R-79\_Ut\_1sh\_UC1\_psh.dgn

TIP PROJECT: 17BP.9.R.79

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

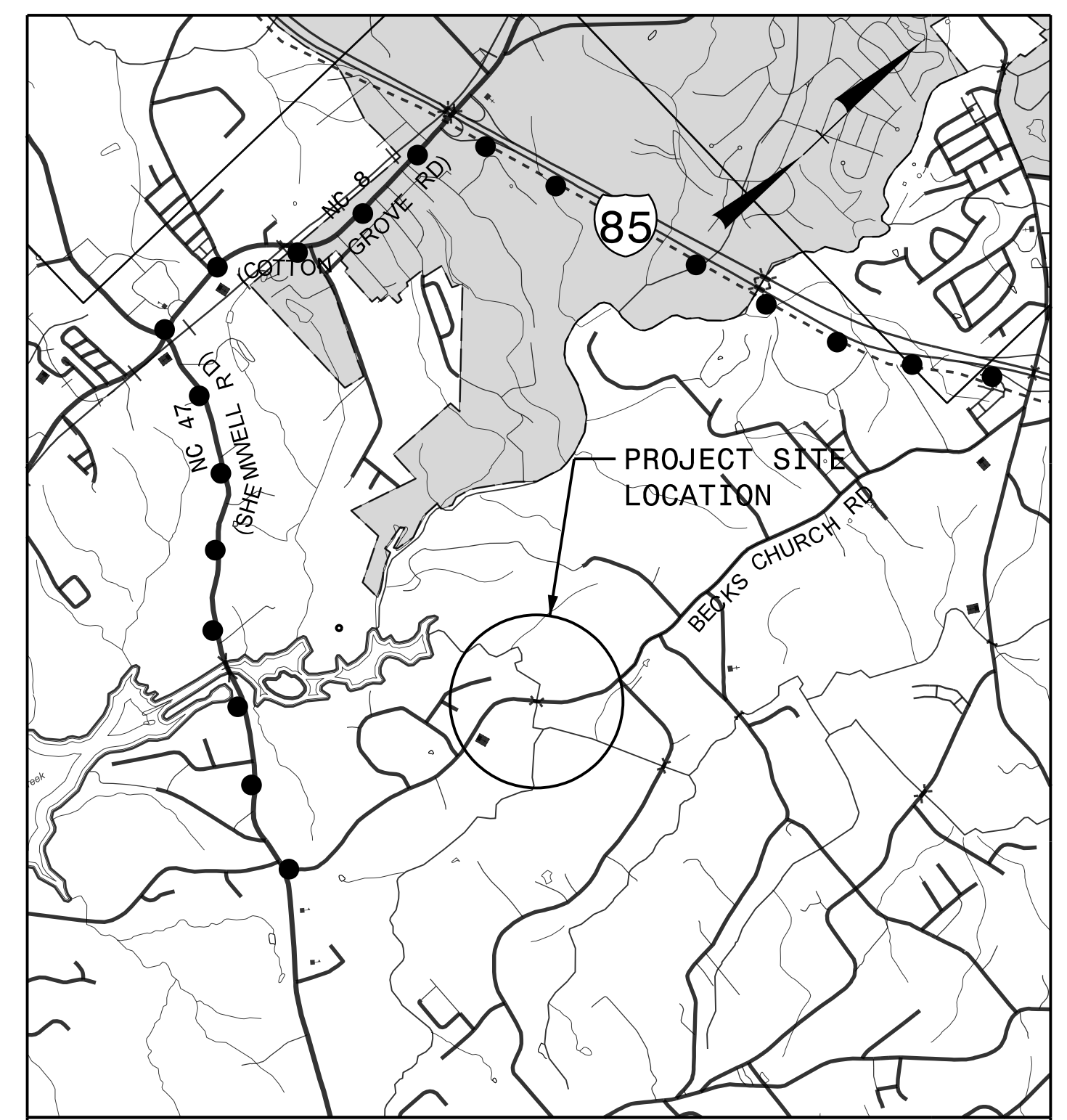
T.I.P. NO.	SHEET NO.
17BP.9.R.79	UC-1

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION PLANS  
DAVIDSON COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO. 230 ON SR 2250  
(BECKS CHURCH RD) OVER POUNDER FORK CREEK

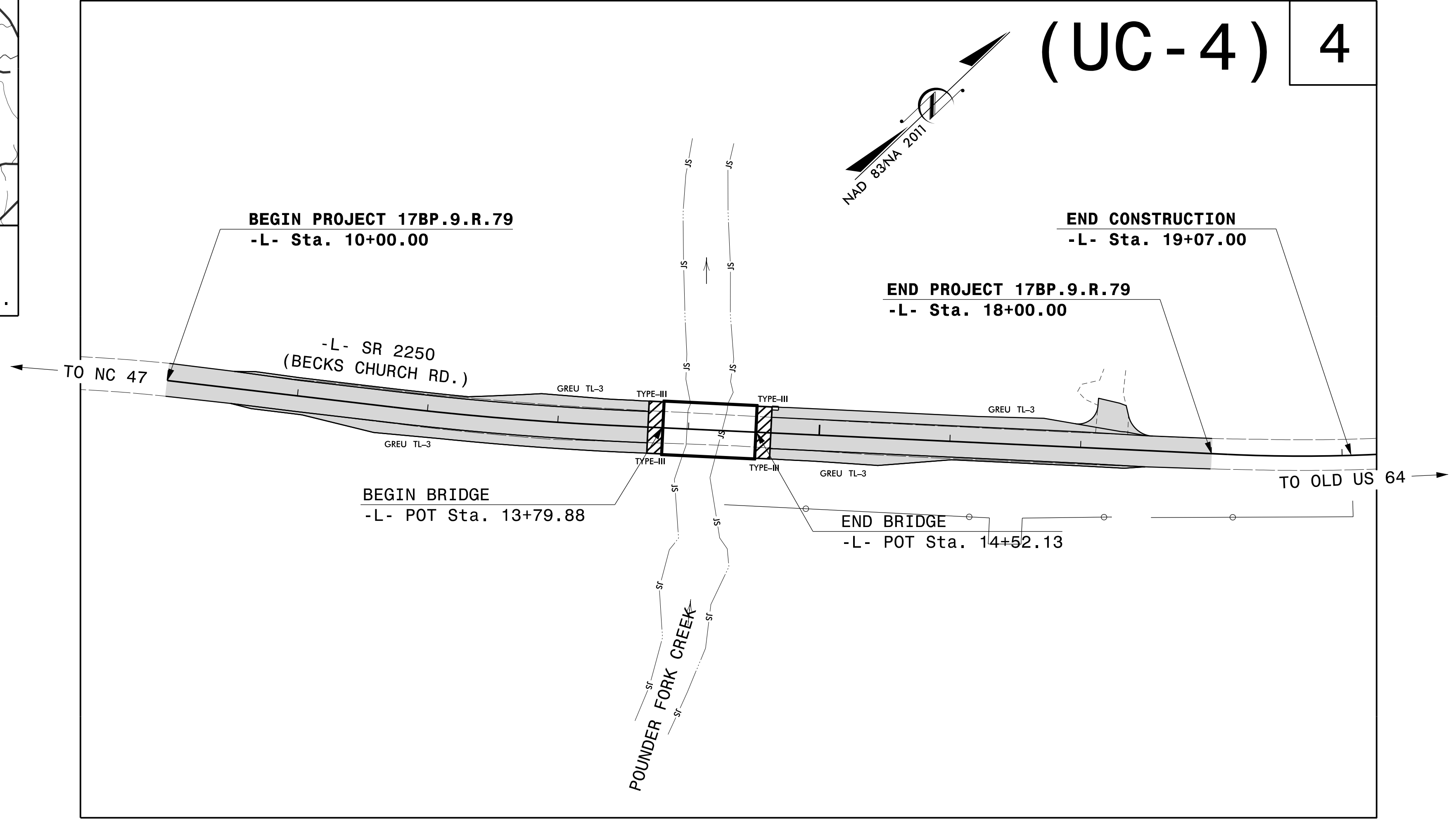
TYPE OF WORK: WATER LINE RELOCATION



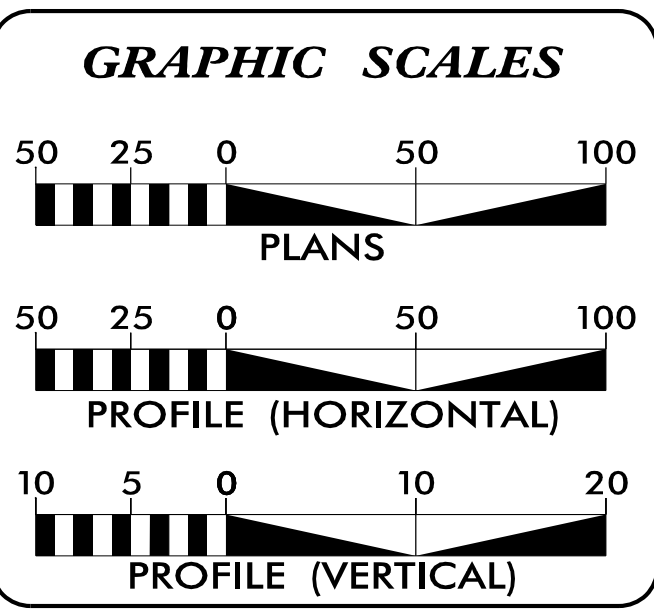
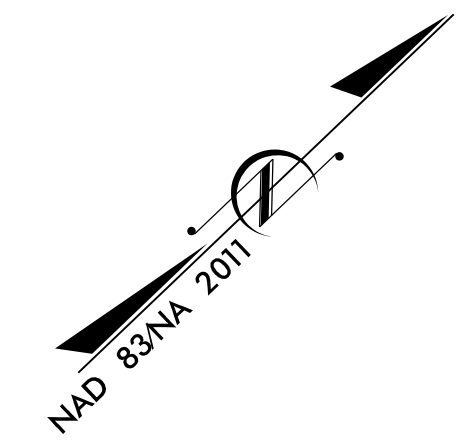
VICINITY MAP

●●●● OFF SITE DETOUR ROUTE N.T.S.

▭ DAVIDSON CITY LIMITS



(UC-4) 4



**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A	DETAILS
UC-4	UTILITY CONSTRUCTION PLAN AND PROFILE SHEET

**WATER AND SEWER OWNERS ON PROJECT**

(A) WATER - DAVIDSON WATER

PREPARED IN THE OFFICE OF:

401 Harrison Oaks Blvd., Suite 220 Cary, NC 27513  
Ph. (919) 653-0001

Ronald B. Wilkins, PE UTILITIES PROJECT MANAGER  
Jordan K. Chapman UTILITIES PROJECT ENGINEER  
James N. Arnold UTILITIES PROJECT DESIGNER

SEAL

**DIVISION OF HIGHWAYS  
DIVISION 9**

375 SILAS CREEK PARKWAY  
WINSTON SALEM, NC 27127  
PHONE (336) 747-7800  
FAX (336) 761-2004

Daniel R. Dagenhart DIV. BRIDGE PROGRAM MANAGER  
R. David Trantham DIV. UTILITY ENGINEER  
Fred D. Haith DIV. PLANNING ENGINEER  
T. Lynn Basinger DIV. UTILITY COORDINATOR

# 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 .....	REM FH
Water Meter .....	
Relocate Water Meter .....	
Remove Water Meter .....	REM WM
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) .....

08-SEP-2016 10:52 AM C:\Users\jg\Documents\Design\Utilities\Engineering\UC\Proj\17BP-9-R-79\_Ut.-sym\_UC2\_psh.dgn  
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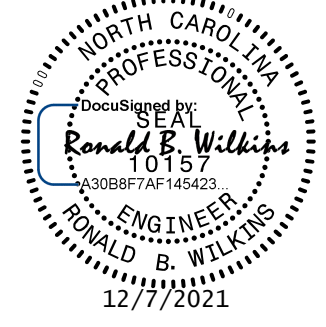


# UTILITY CONSTRUCTION



License No. C-2639  
401 Harrison Oaks Blvd., Suite 220 Cary, NC 27513

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
<b>17BP.9.R.79</b>	<b>UC-3</b>
DESIGNED BY: JKC	
DRAWN BY: JKC	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

## 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.
  
2. THE EXISTING UTILITIES BELONG TO DAVIDSON WATER. THE CONTACT PERSON IS  
  
 ROBERT WALTERS  
 (336) 731-5526
  
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
  
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
  
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
  
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
  
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
  
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.
  
10. PRIOR TO MAKING TIE-INS, TO FACILITATE FILLING, FLUSHING, TESTING AND STERILIZATION INSTALL 2" TAPPING SADDLE AND VALVE TO EXISTING MAIN. HARDPIPE FROM TAPPING VALVE TO EXPOSED END OF PROPOSED WATER MAIN WITH 2" PVC PIPING (SCHEDULE 40 W/GLUED JOINTS ACCEPTABLE) AND CONNECT TO RESTRAINED END CAP TAPPED FOR 2" VALVE. PROVIDE SIMILAR BLOWOFF WITH ISOLATION VALVE AT OPPOSITE END OF PROPOSED MAIN PIPING.

## LIST OF STANDARD DRAWINGS

1515.01 WATER METER

## UTILITY CONSTRUCTION

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NOT TO SCALE

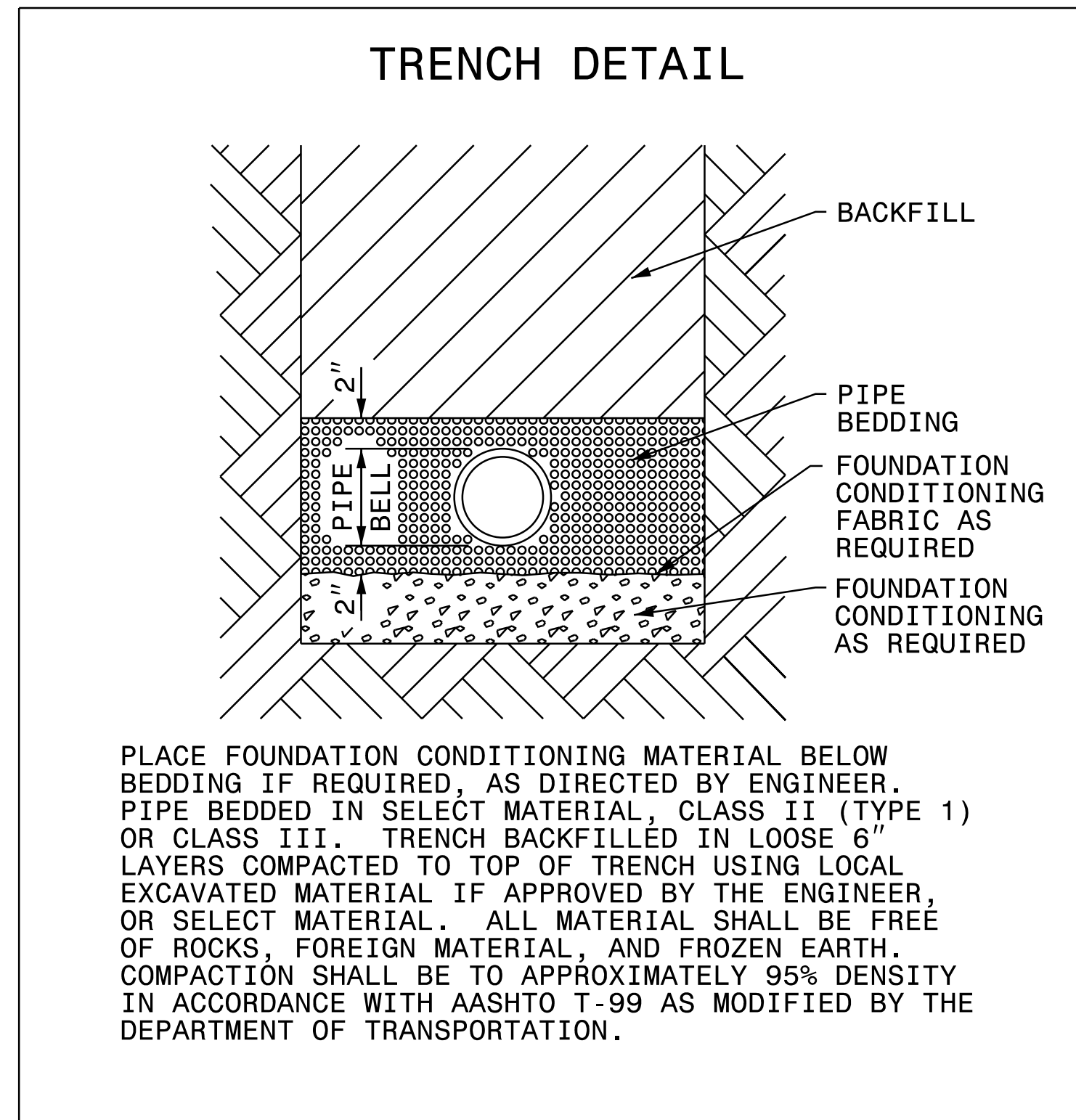


**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

PROJECT REFERENCE NO. <b>17BP.9.R.79</b>	SHEET NO. <b>UC-3A</b>
DESIGNED BY: <b>JKC</b>	
DRAWN BY: <b>JKC</b>	
CHECKED BY: <b>RBW</b>	
APPROVED BY: <b>RBW</b>	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

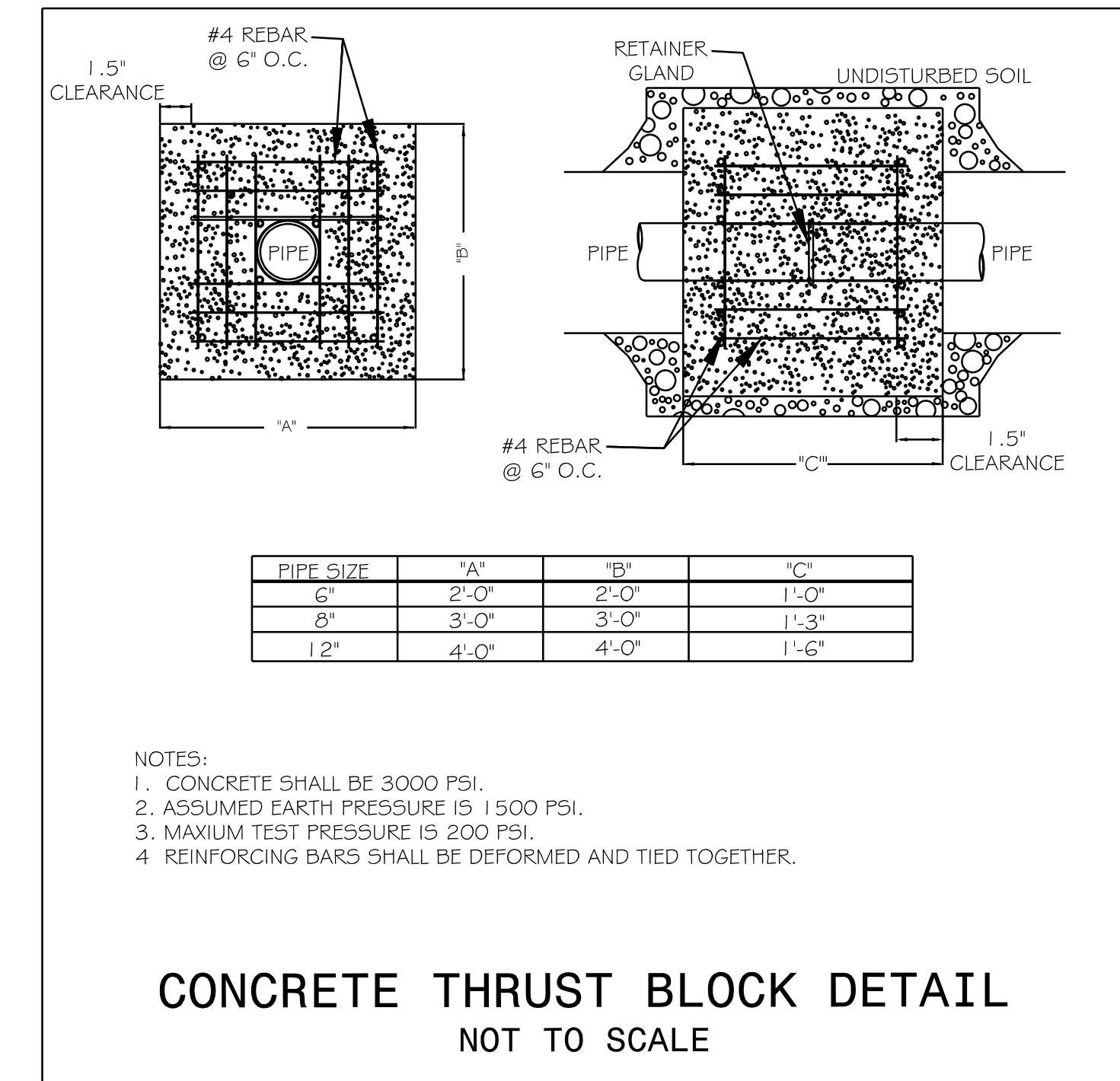
# PROJECT TYPICAL DETAILS

## UTILITY CONSTRUCTION

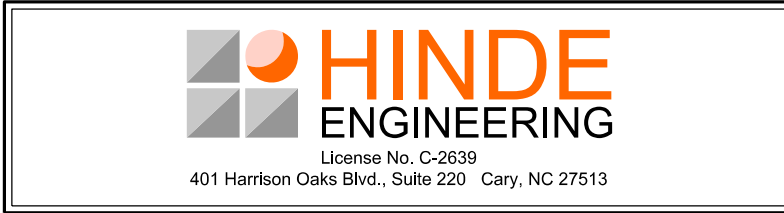


**MAXIMUM TRENCH WIDTH AT TOP OF PIPE**

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		



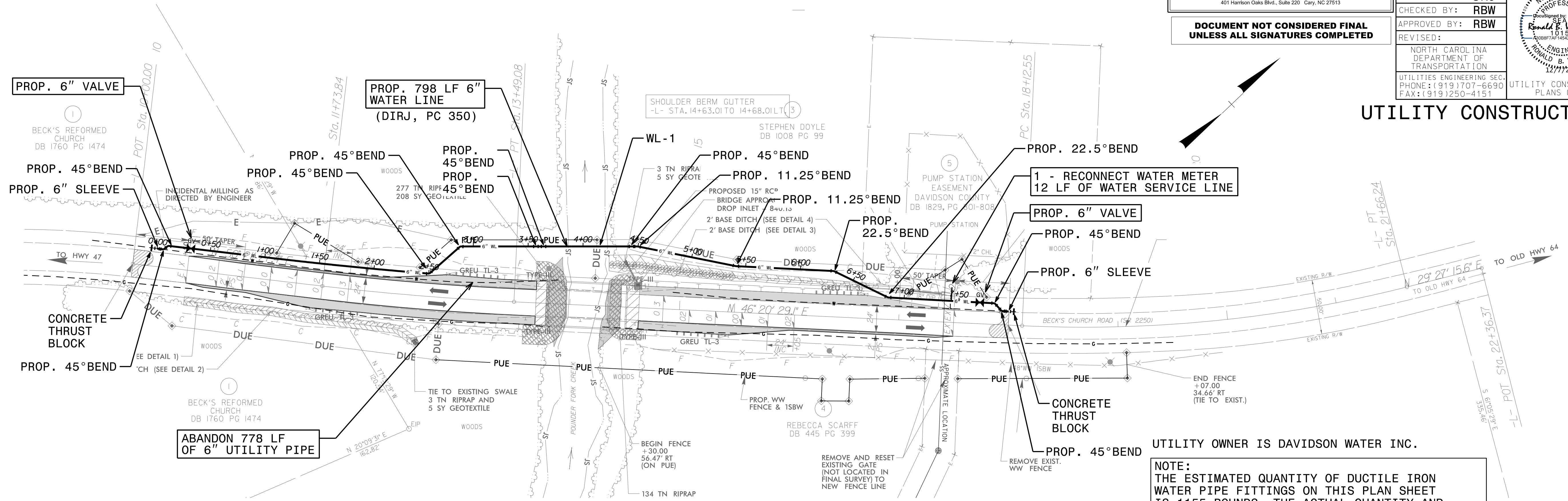
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PROJECT REFERENCE NO.	17BP.9.R.79	SHEET NO.	UC-4
DESIGNED BY:	JKC		
DRAWN BY:	JKC		
CHECKED BY:	RBW		
APPROVED BY:	RBW		
REVISER:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151			

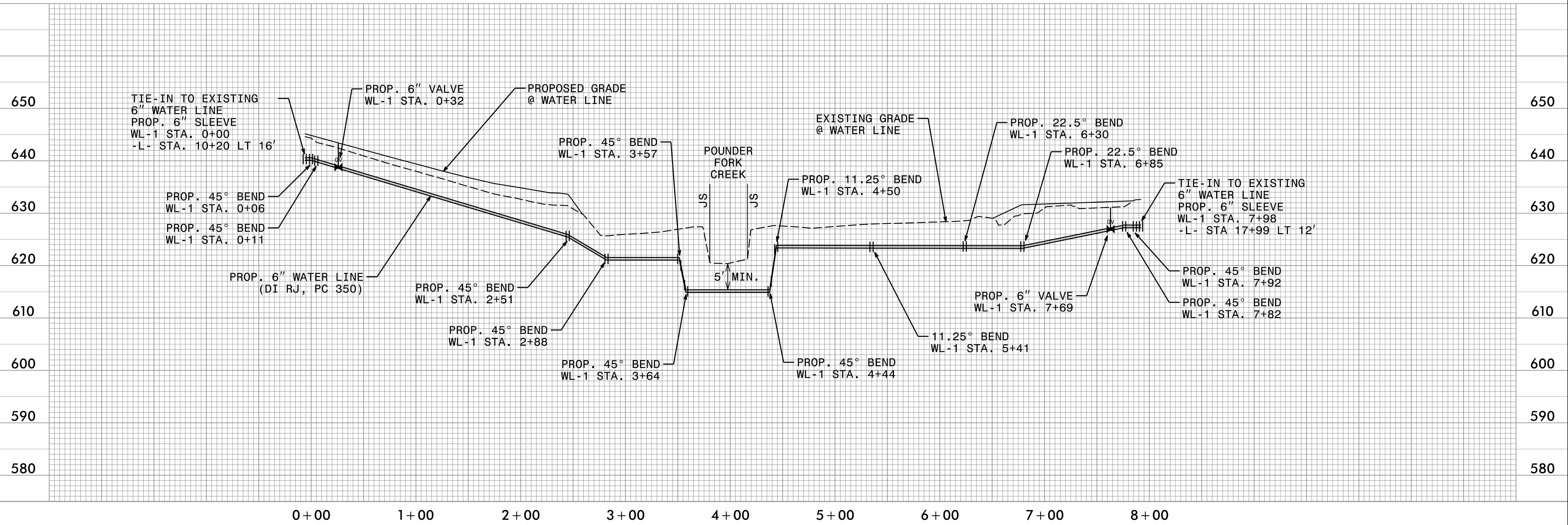
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

### UTILITY CONSTRUCTION



UTILITY OWNER IS DAVIDSON WATER INC.

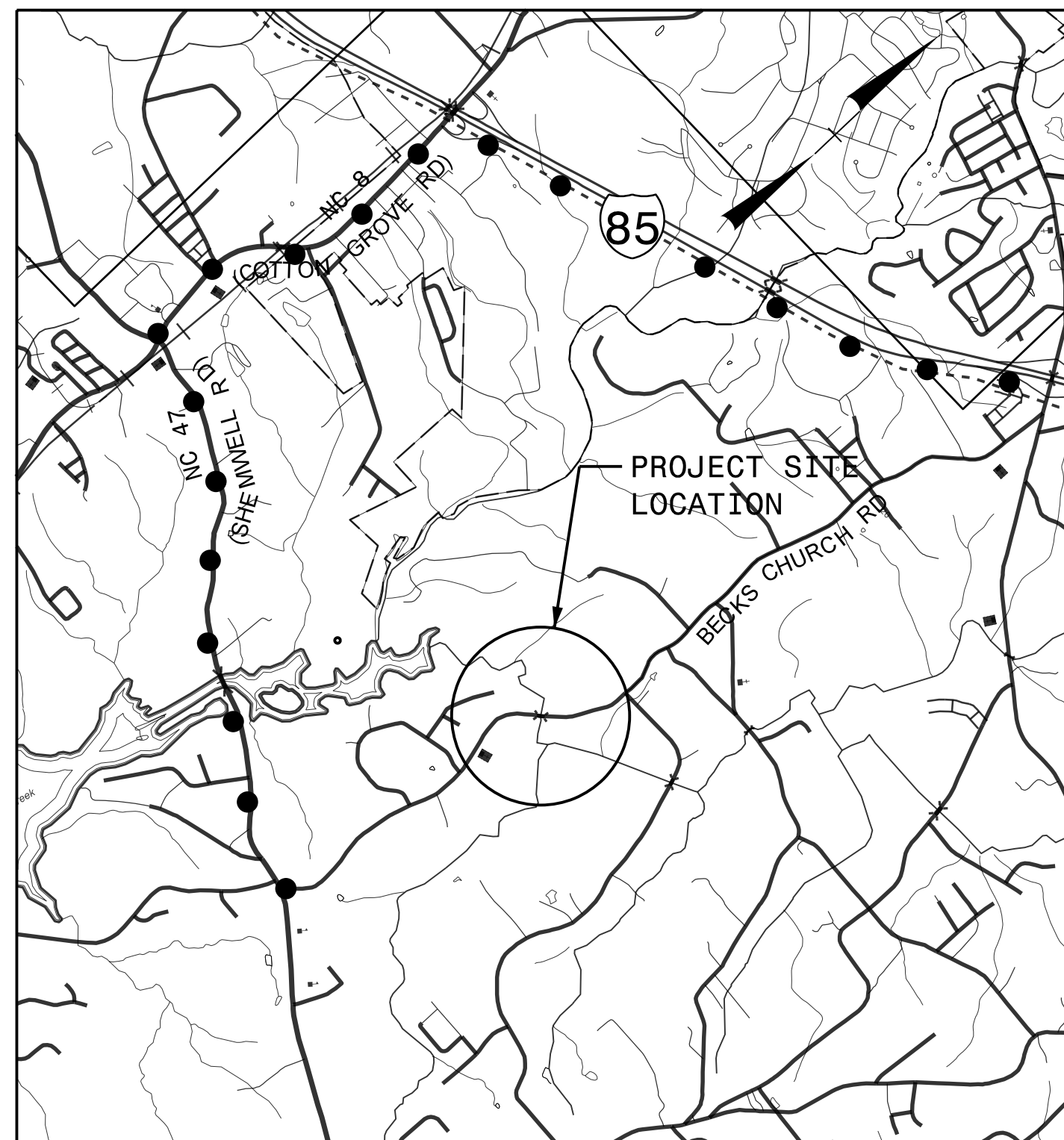
NOTE:  
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1155 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



28 SEP 2016 02:16:02 PROJECTS\2018\A20181108.00.WoodPLC.L17BP-9-R-79\Design\Utilities\Engineering\UC\Proj\17BP-9-R-79\_Ut\_rdy\04\_UC04\_psh.dgn  
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**TIP PROJECT: 17BP.9.R.79**



**VICINITY MAP**

●●● OFF SITE DETOUR ROUTE N.T.S.

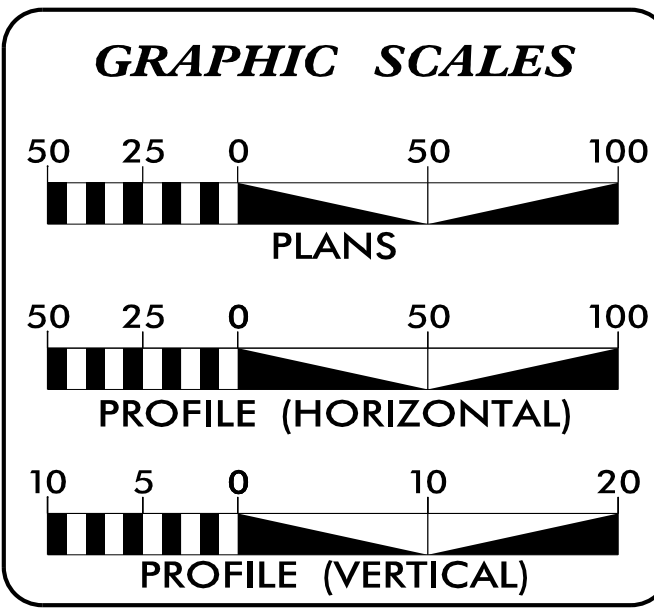
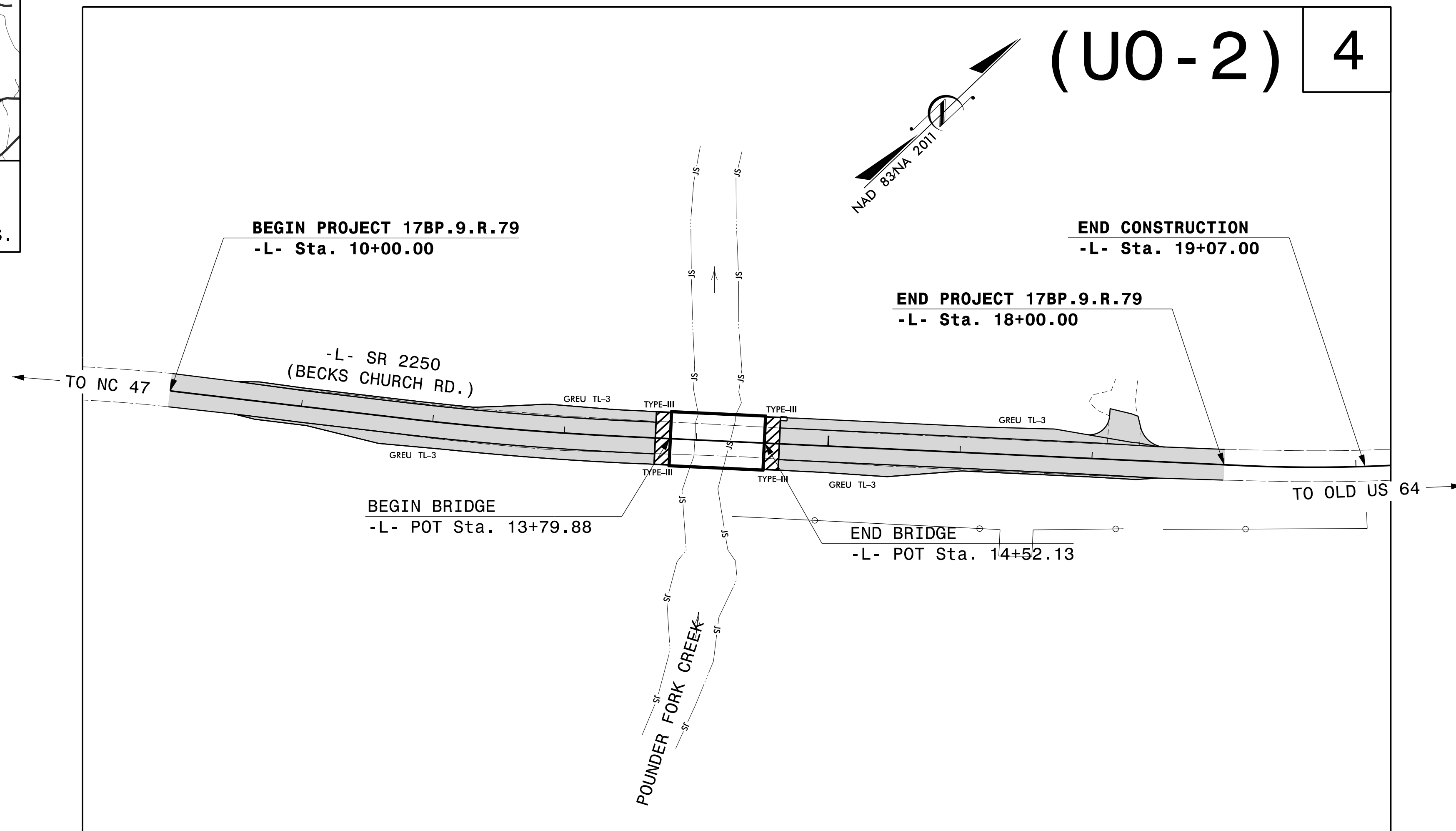
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS  
DAVIDSON COUNTY**

**LOCATION: REPLACEMENT OF BRIDGE NO. 230 ON SR 2250  
(BECKS CHURCH RD) OVER POUNDER FORK CREEK**  
**TYPE OF WORK: POWER DISTRIBUTION, TELECOM  
& GAS DISTRIBUTION RELOCATONS**

T.I.P. NO.	SHEET NO.
17BP.9.R.79	UO-1

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



**INDEX OF SHEETS**

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

**UTILITY OWNERS WITH CONFLICTS**

(A) POWER DISTRIBUTION - ENERGY UNITED  
(B) TELECOM - WINDSTREAM  
(C) TELECOM - SPECTRUM  
(D) GAS DISTRIBUTION - CITY OF LEXINGTON

PREPARED IN THE OFFICE OF:

**HINDE ENGINEERING**  
License No. C-2639  
401 Harrison Oaks Blvd., Suite 220 Cary, NC 27513  
Ph. (919) 653-0001

Michael E. Davis UTILITY COORDINATION PROJECT MANAGER  
Kendrick L. Brevard PROJECT UTILITY COORDINATOR  
Jordan K. Chapman PROJECT UTILITY DESIGNER

**DIVISION OF HIGHWAYS  
DIVISION 9**  
375 SILAS CREEK PARKWAY  
WINSTON SALEM, NC 27127  
PHONE (336) 747-7800  
FAX (336) 761-2004

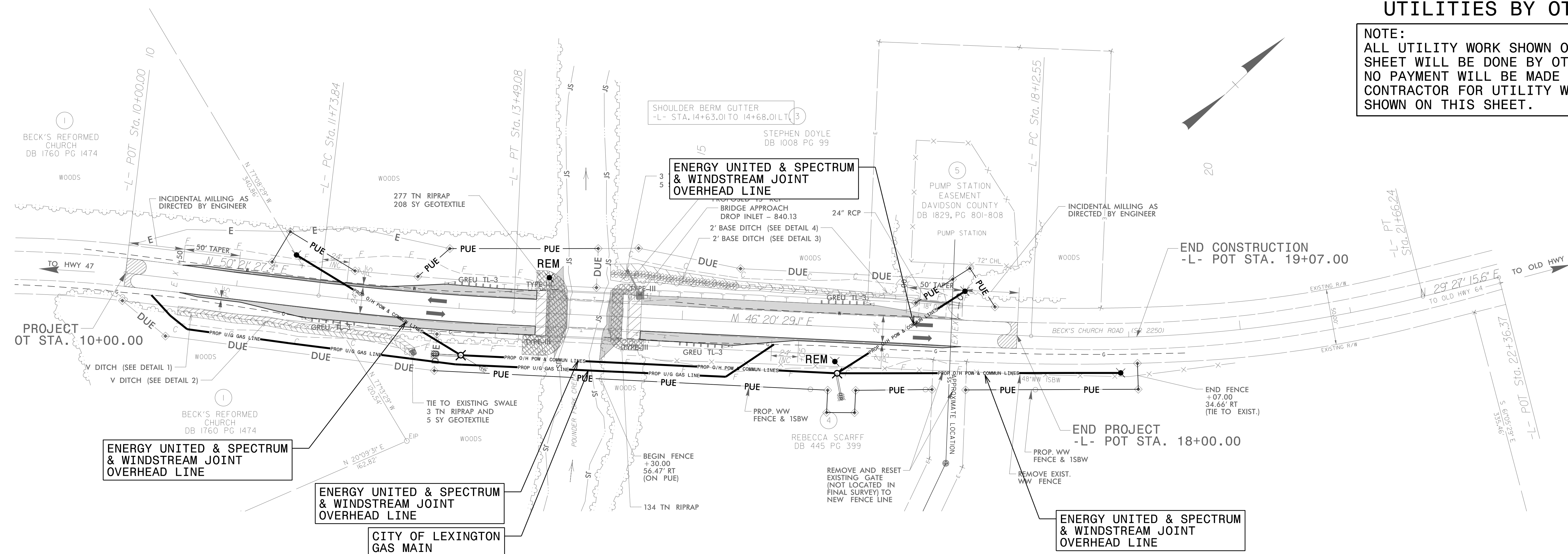
Daniel R. Dagenhart DIV BRIDGE PROGRAM MANAGER  
R. David Trantham DIV UTILITY ENGINEER  
Fred D. Haith DIV PLANNING ENGINEER  
T. Lynn Basinger DIV UTILITY COORDINATOR

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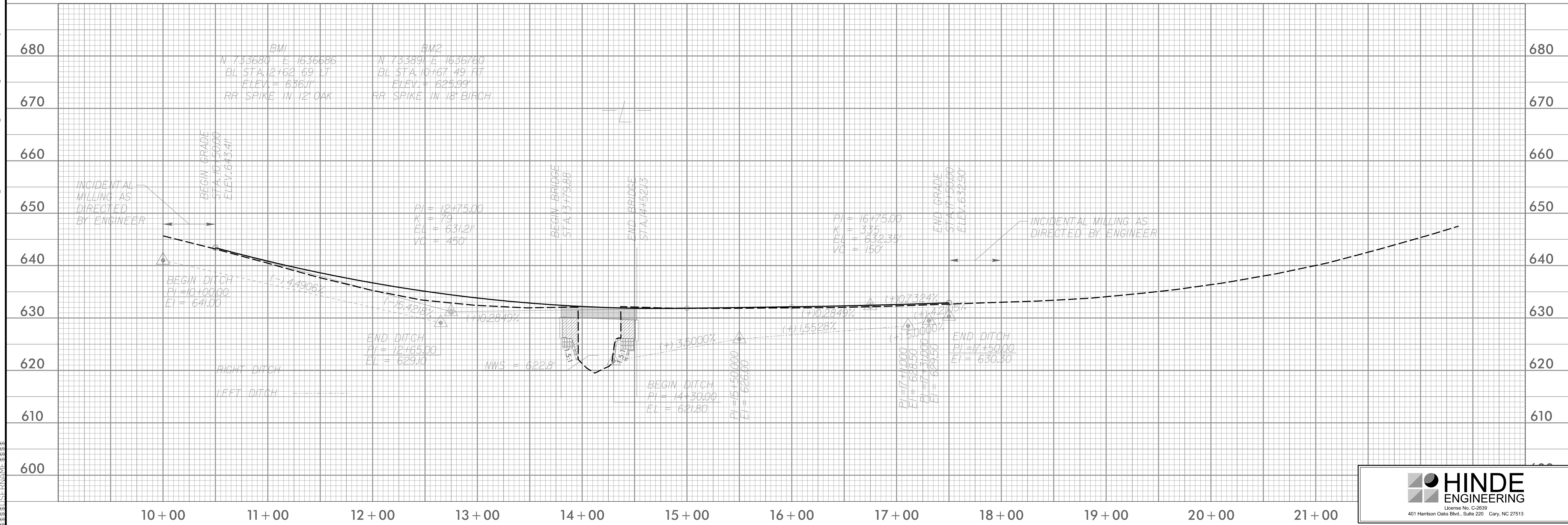


### UTILITIES BY OTHERS

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



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UBO PLANS ARE FOR INFORMATION ONLY AND ARE NOT TO BE USED FOR CONSTRUCTION. ALL PROPOSED RELOCATION INFORMATION SHOWN ON THE UBO PLANS WAS PROVIDED BY 3RD PARTIES. HINDE ENGINEERING, INC. ASSUMES NO RESPONSIBILITY OR LIABILITY FOR THE ACCURACY OR VALIDITY OF 3RD PARTY INFORMATION PROVIDED.

## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

### CROSS-SECTION SUMMARY

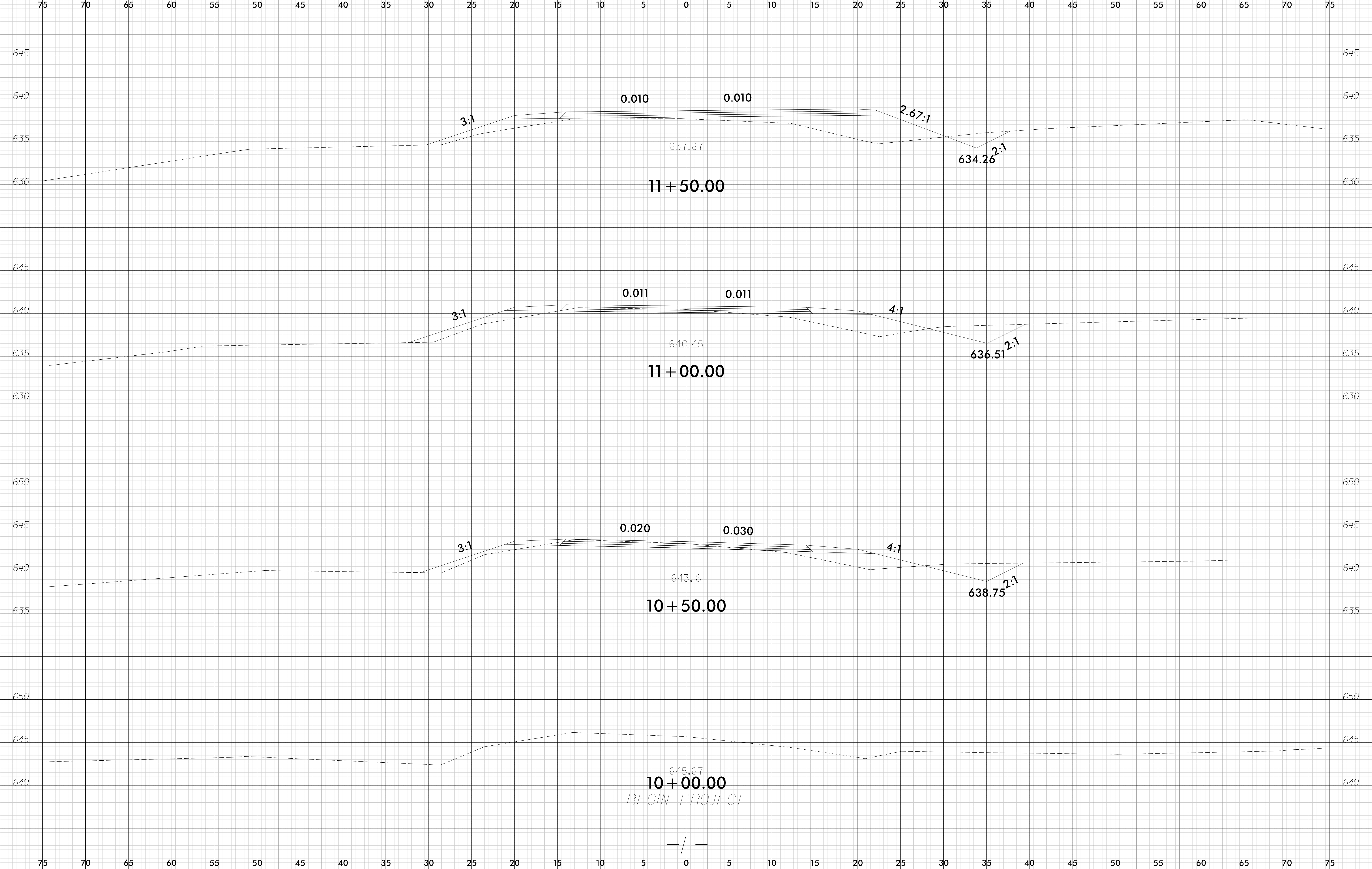
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

Station	Uncl. Exc.	Embt																								
L	(cu. yd.)	(cu. yd.)																								
10+00.00	0	0	Approximate quantities only. Clearing and Grubbing, Unclassified Excavation, Borrow Excavation, Fine Grading, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."																							
10+50.00	0	0																								
11+00.00	23	91																								
11+50.00	17	134																								
12+00.00	7	193																								
12+50.00	10	240																								
13+00.00	8	229																								
13+50.00	0	186																								
13+69.01	7	46																								
13+79.88	0	0																								
<b>Station</b>																										
<b>L</b>																										
14+50.00	0	0																								
14+52.13	5	2																								
<b>Station</b>																										
<b>L</b>																										
14+52.13	0	0																								
14+63.01	24	29																								
15+00.00	62	146																								
15+50.00	43	193																								
16+00.00	24	170																								
16+50.00	20	144																								
17+00.00	21	113																								
17+50.00	13	68																								
18+00.00	0	0																								

6/23/16



PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.79	X-1



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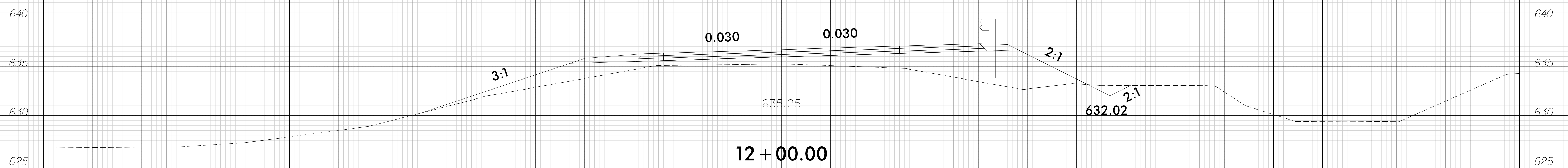
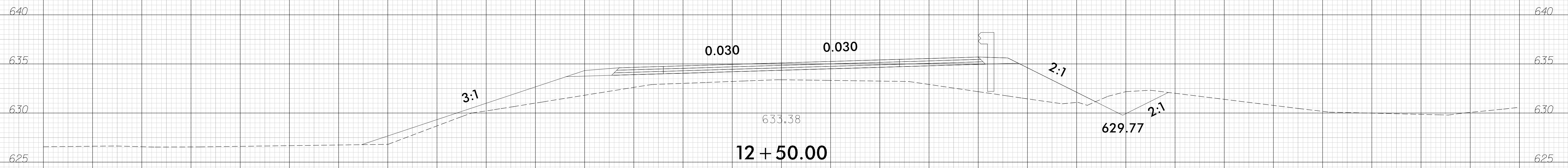
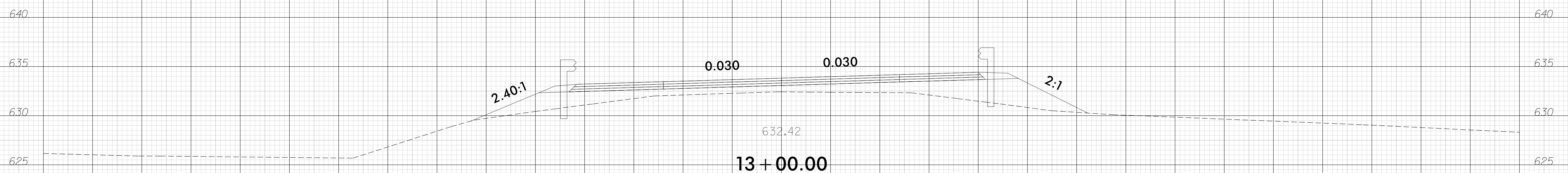


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
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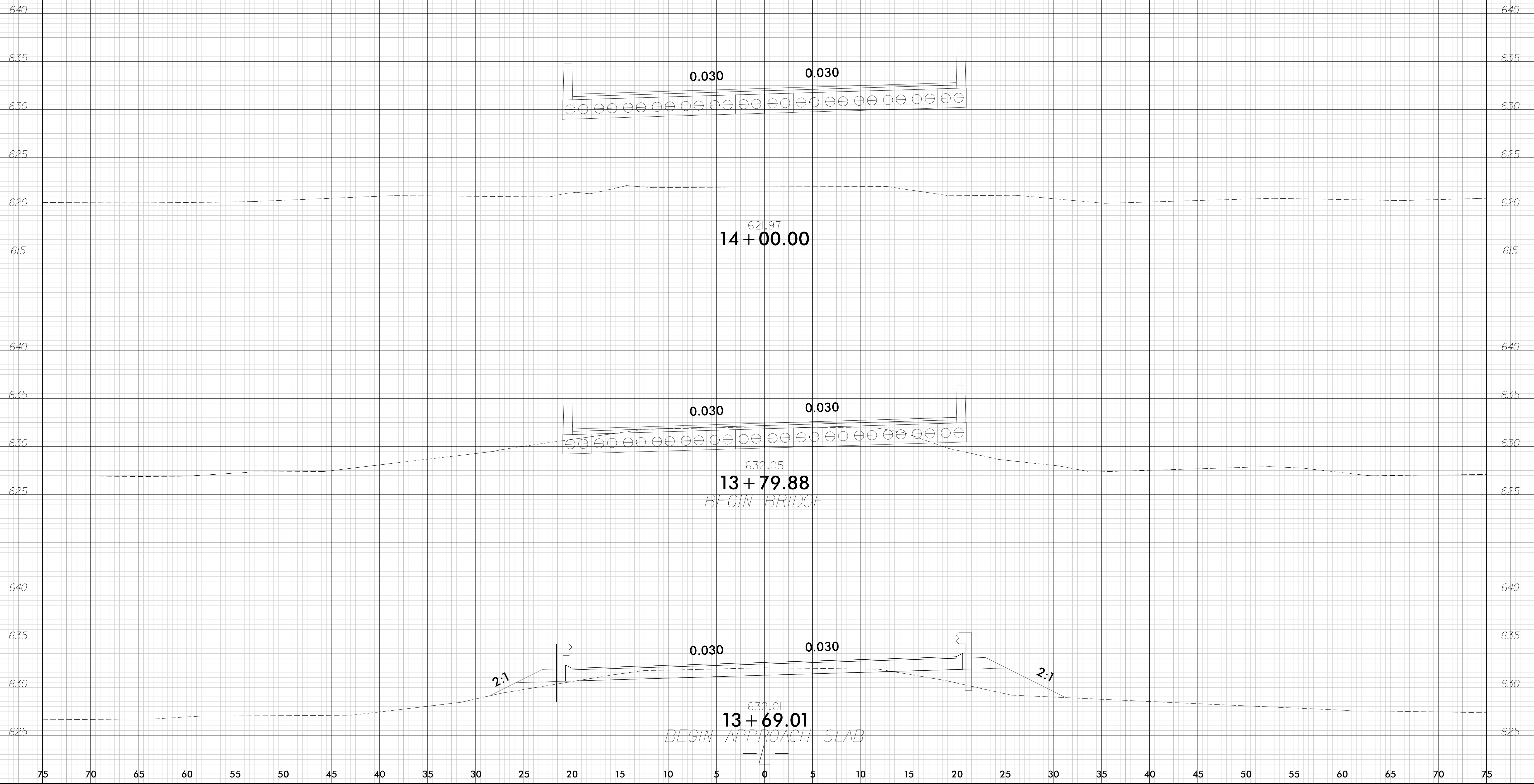
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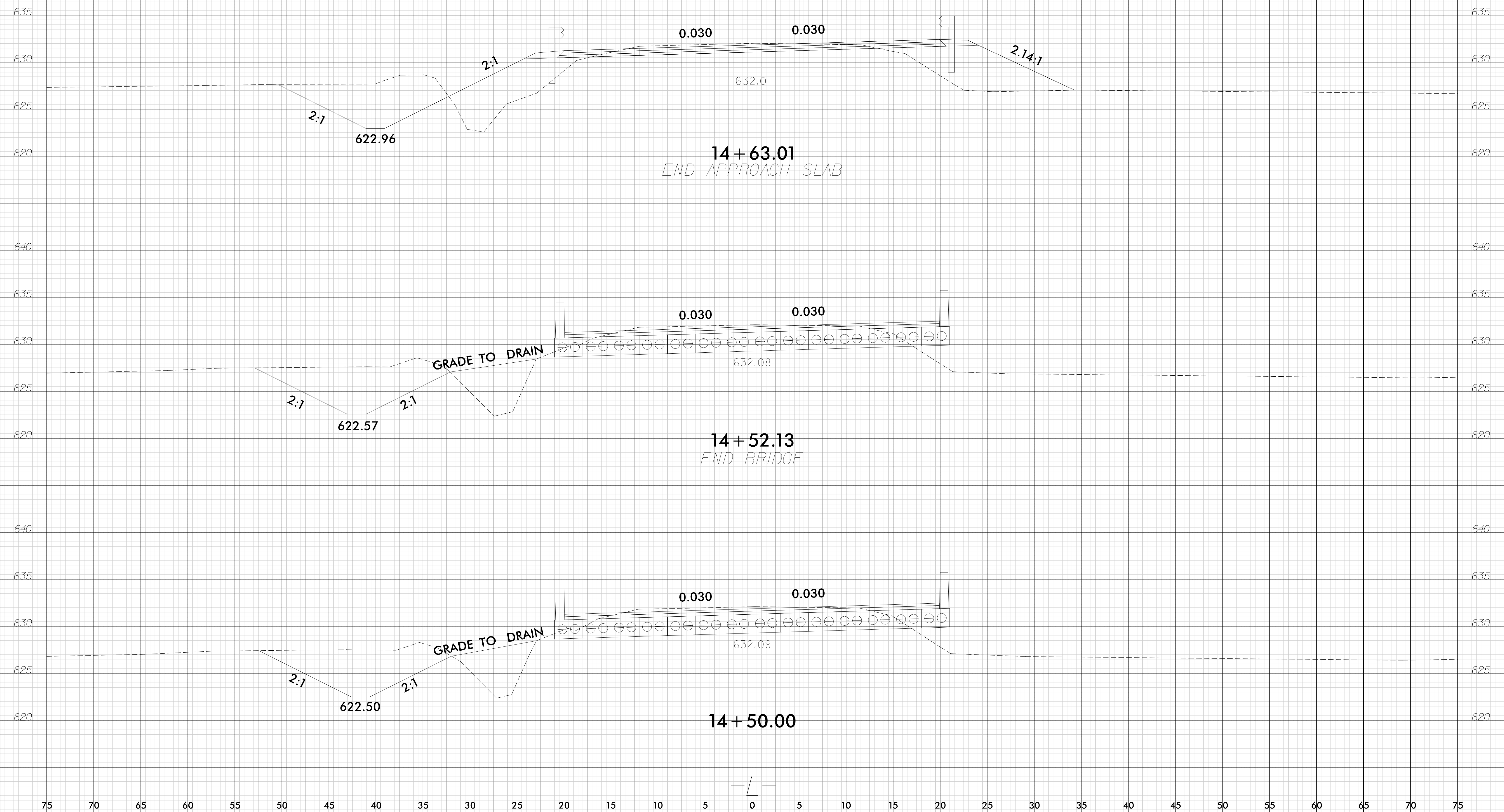
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17BP.9.R.79	X-3

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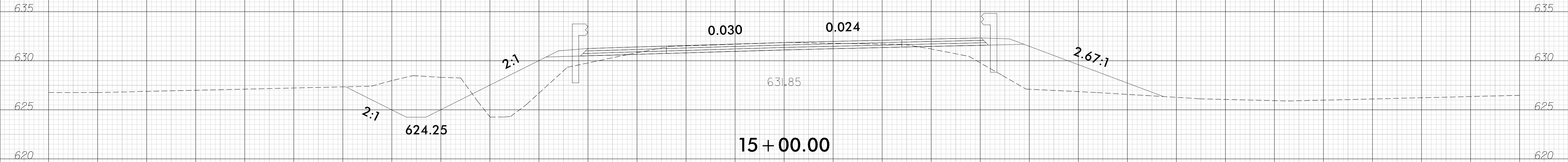
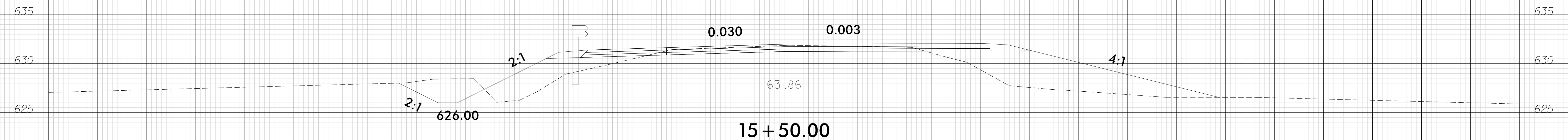
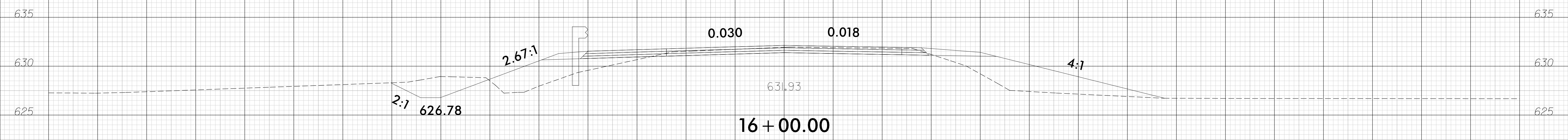
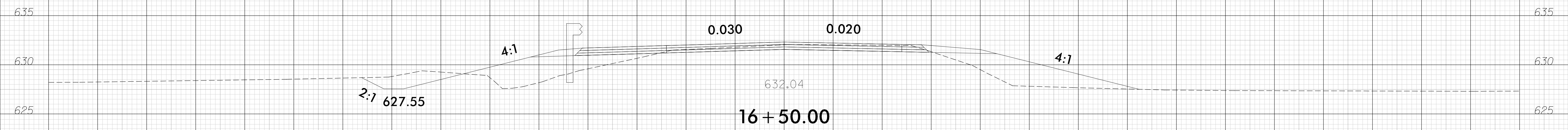


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PROJ. REFERENCE NO.	SHEET NO.
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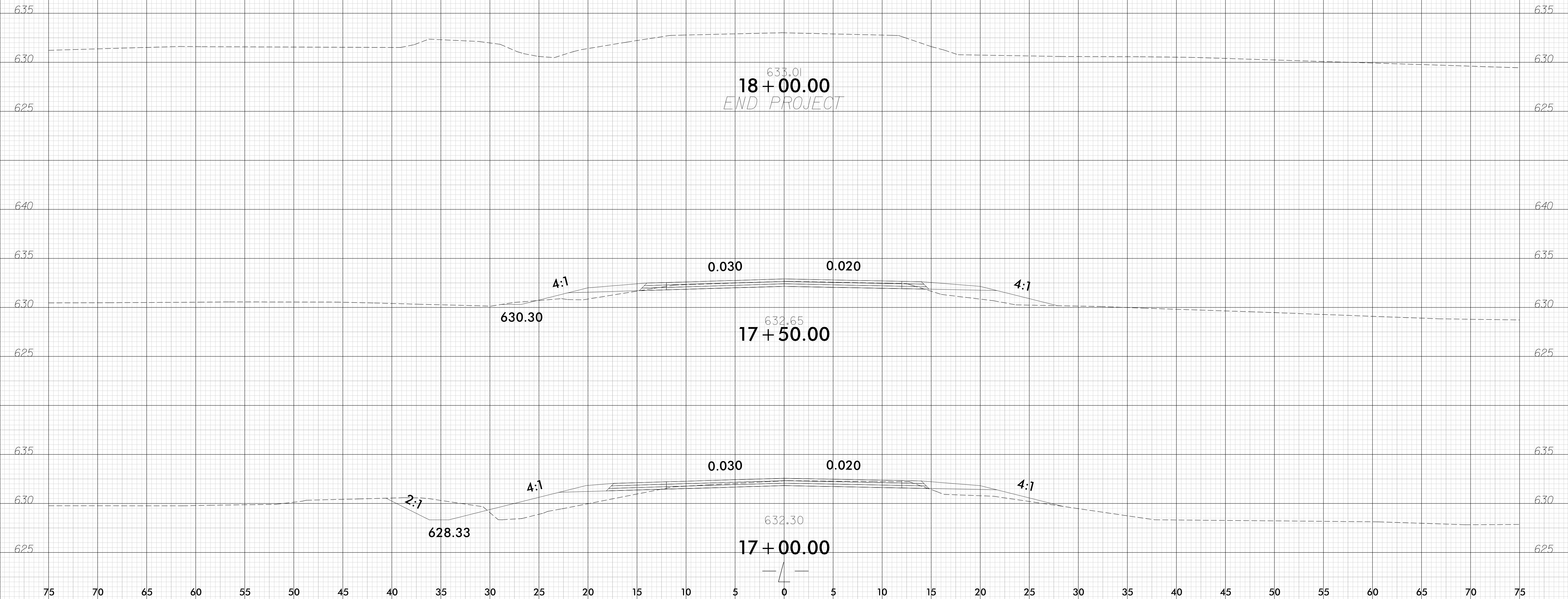
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PROJ. REFERENCE NO.	SHEET NO.
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 \$\$\$SERNAME\$\$\$

09/08/19

**PROJECT: 17BP.9.R.79**

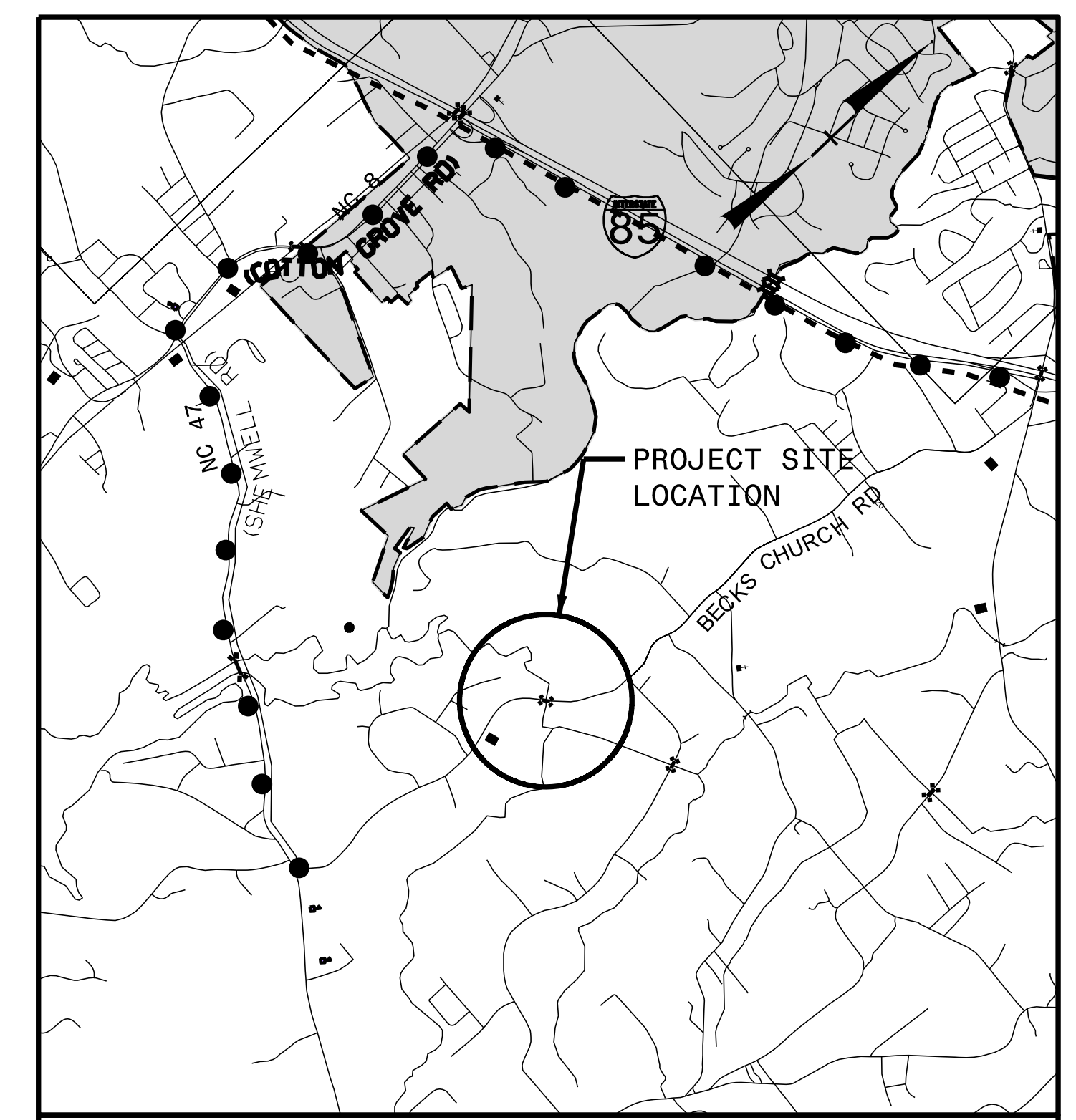
**CONTRACT: DI00261**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

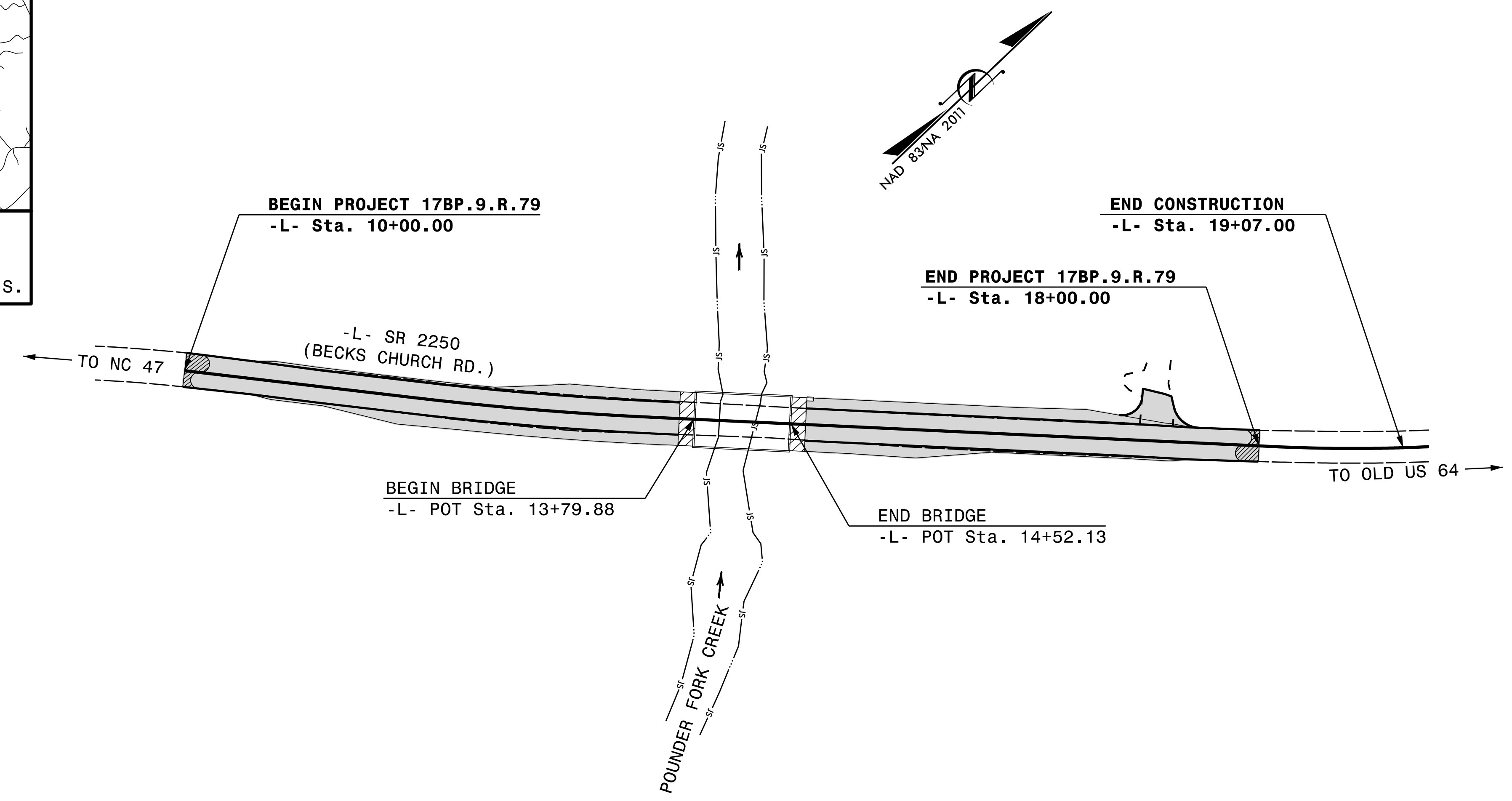
**DAVIDSON COUNTY**

**LOCATION: BRIDGE 230 OVER POUNDER FORK CREEK  
ON SR 2250 (BECKS CHURCH RD)**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.R.79	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.9.R.79		P.E.	
17BP.9.R.79		RW	
17BP.9.R.79		CONST.	
17BP.9.R.79		UTIL.	



**VICINITY MAP**  
 ●●●● OFF SITE DETOUR ROUTE N.T.S.  
 ■ DAVIDSON CITY LIMITS



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**DESIGN DATA**

ADT 2021 =	3,480
ADT 2041 =	6,380
K =	96 %
D =	84 %
T =	7 % *
V =	50 MPH
* TTST =	DUAL
FUNC CLASS =	COLLECTOR

REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT 17BP.9.R.79	=	0.138 mi
LENGTH STRUCTURE PROJECT 17BP.9.R.79	=	0.014 mi
TOTAL LENGTH OF PROJECT 17BP.9.R.79	=	0.152 mi

PLANS PREPARED FOR:

**STRUCTURE MANAGEMENT UNIT**  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

---

2018 STANDARD SPECIFICATIONS

**LETTING DATE:**  
APRIL 27, 2022

---

**EMILY E. MURRAY, PE**  
PROJECT ENGINEER

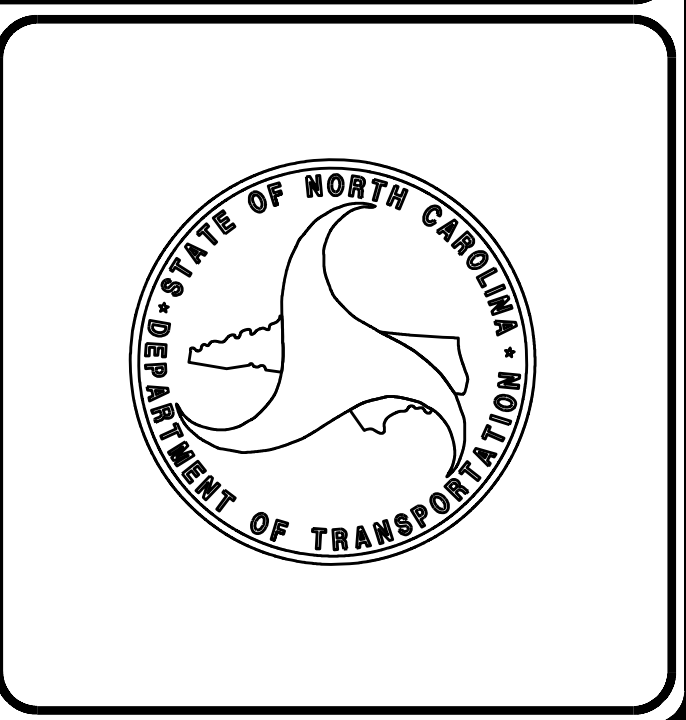
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**DANIEL R. DAGENHART**  
NCDOT CONTACT  
DIV 9 BRIDGE PROGRAM MANAGER

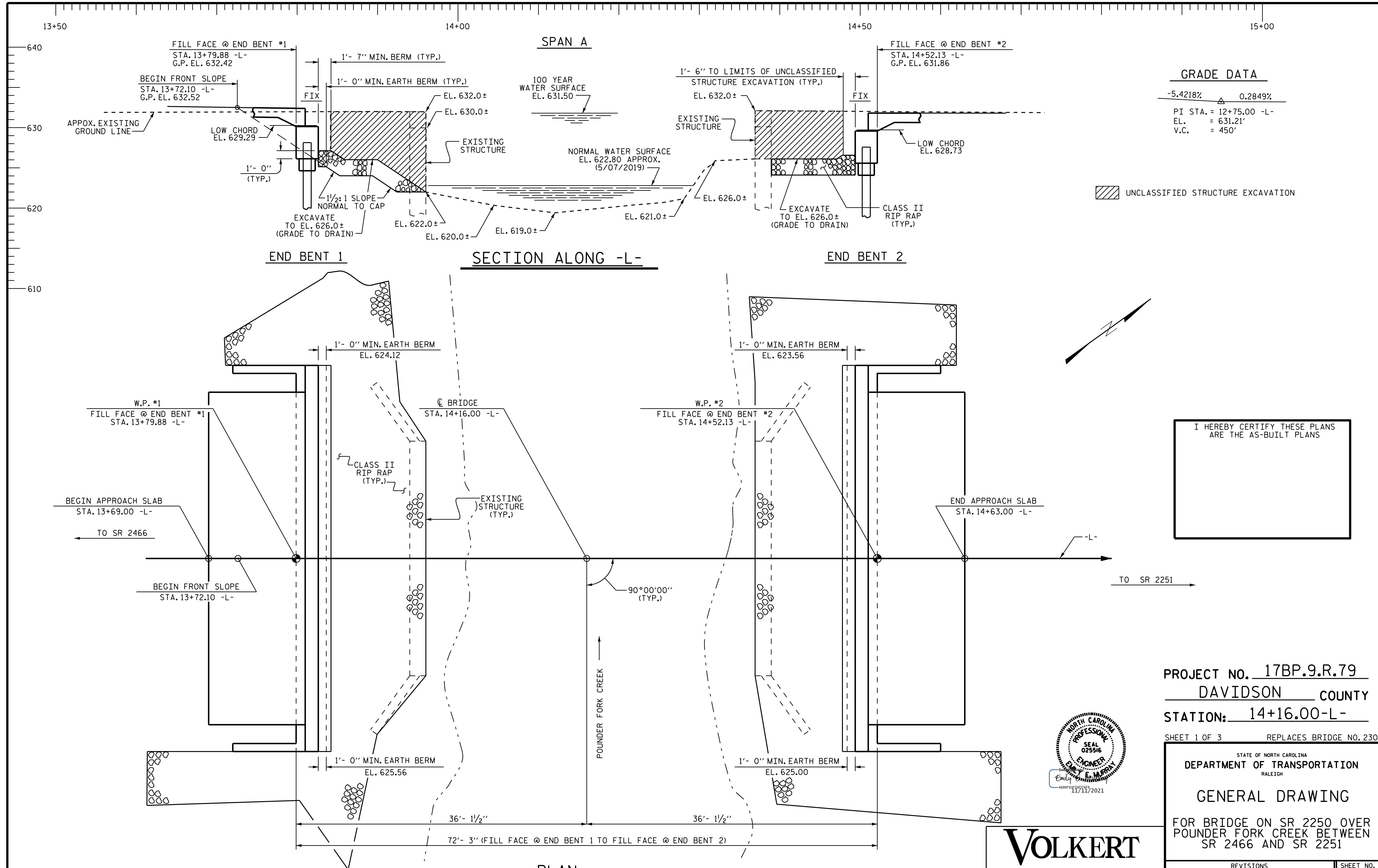
PLANS PREPARED IN THE OFFICE OF:

**VOLKERT**

5430 Wade Park Blvd., Suite 410  
Raleigh, NC 27607  
Tel. 919-854-0344 Fax. 919-854-0355  
NC License No. F-0765







**GRADE DATA**

-5.4218%	0.2849%
PI STA. = 12+75.00 -L-	
EL. = 631.21'	
V.C. = 450'	

UNCLASSIFIED STRUCTURE EXCAVATION

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

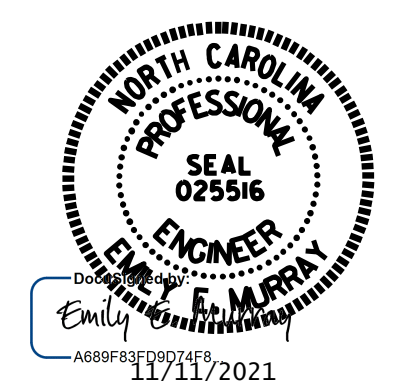
PROJECT NO. 17BP.9.R.79  
DAVIDSON COUNTY  
 STATION: 14+16.00-L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 230

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 2250 OVER  
 POUNDER FORK CREEK BETWEEN  
 SR 2466 AND SR 2251



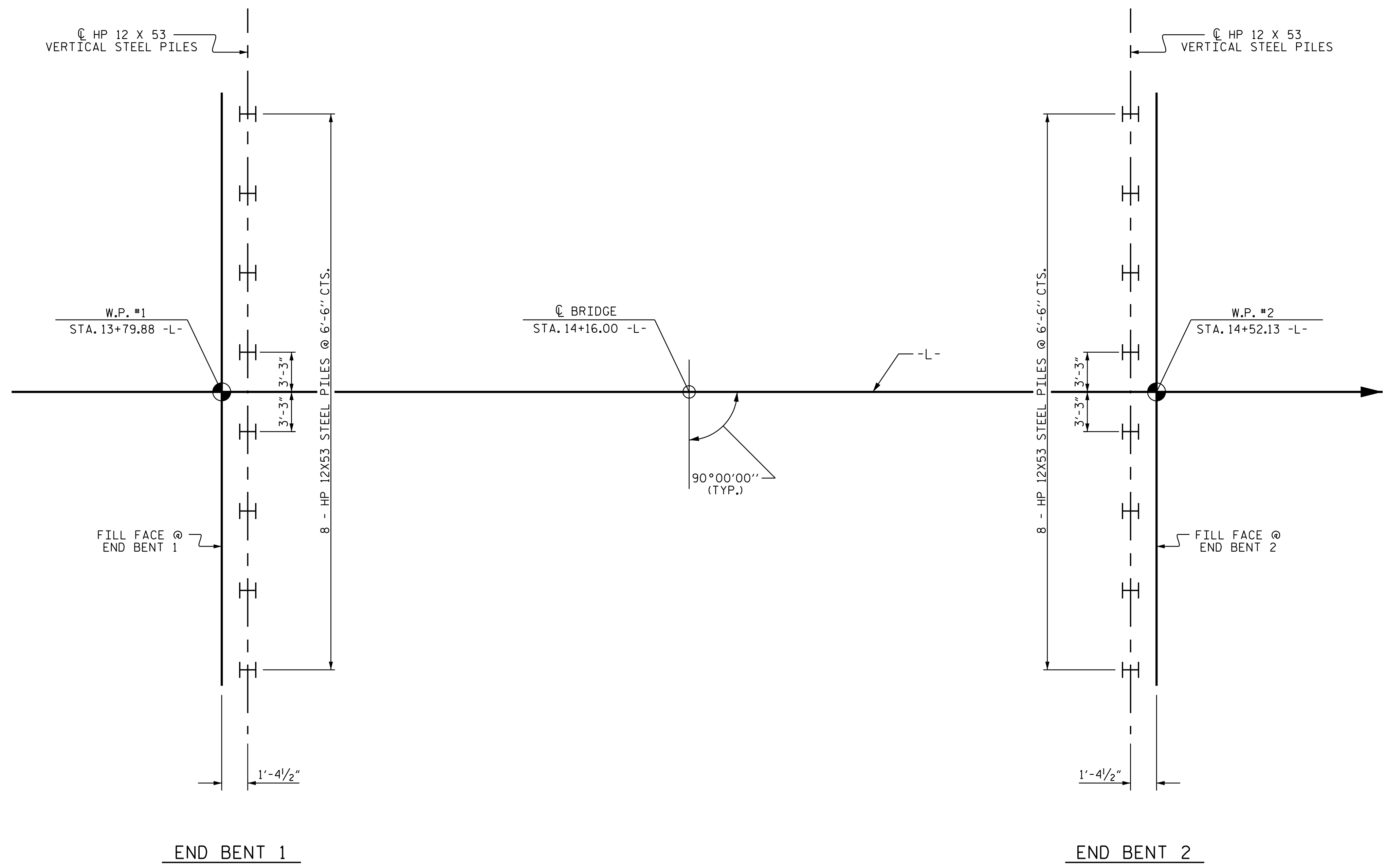
**VOLKERT**  
 5430 Wade Park Blvd, Suite 410  
 Raleigh, NC 27607  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DRAWN BY : D. A. GLADDEN DATE : 5/19  
 CHECKED BY : E. MURRAY DATE : 1/20  
 DESIGN ENGINEER OF RECORD: E. MURRAY DATE : 1/20

**PLAN**  
 PILES ARE NOT SHOWN FOR CLARITY.

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

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



### FOUNDATION LAYOUT

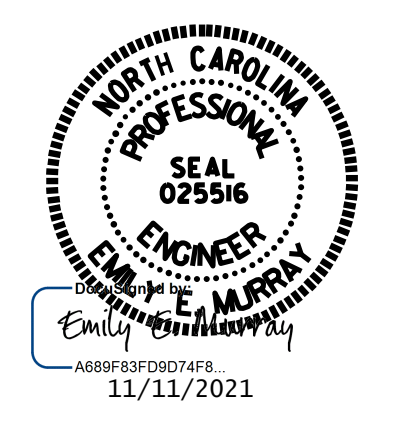
DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINES.

### NOTES

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
- DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
- DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

DRAWN BY : R. G. BEAUCHAMP DATE : 6/19  
 CHECKED BY : E. MURRAY DATE : 1/20  
 DESIGN ENGINEER OF RECORD: E. MURRAY DATE : 1/20

**VOLKERT**  
 5430 Wade Park Blvd, Suite 410  
 Raleigh, NC 27607  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765



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 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

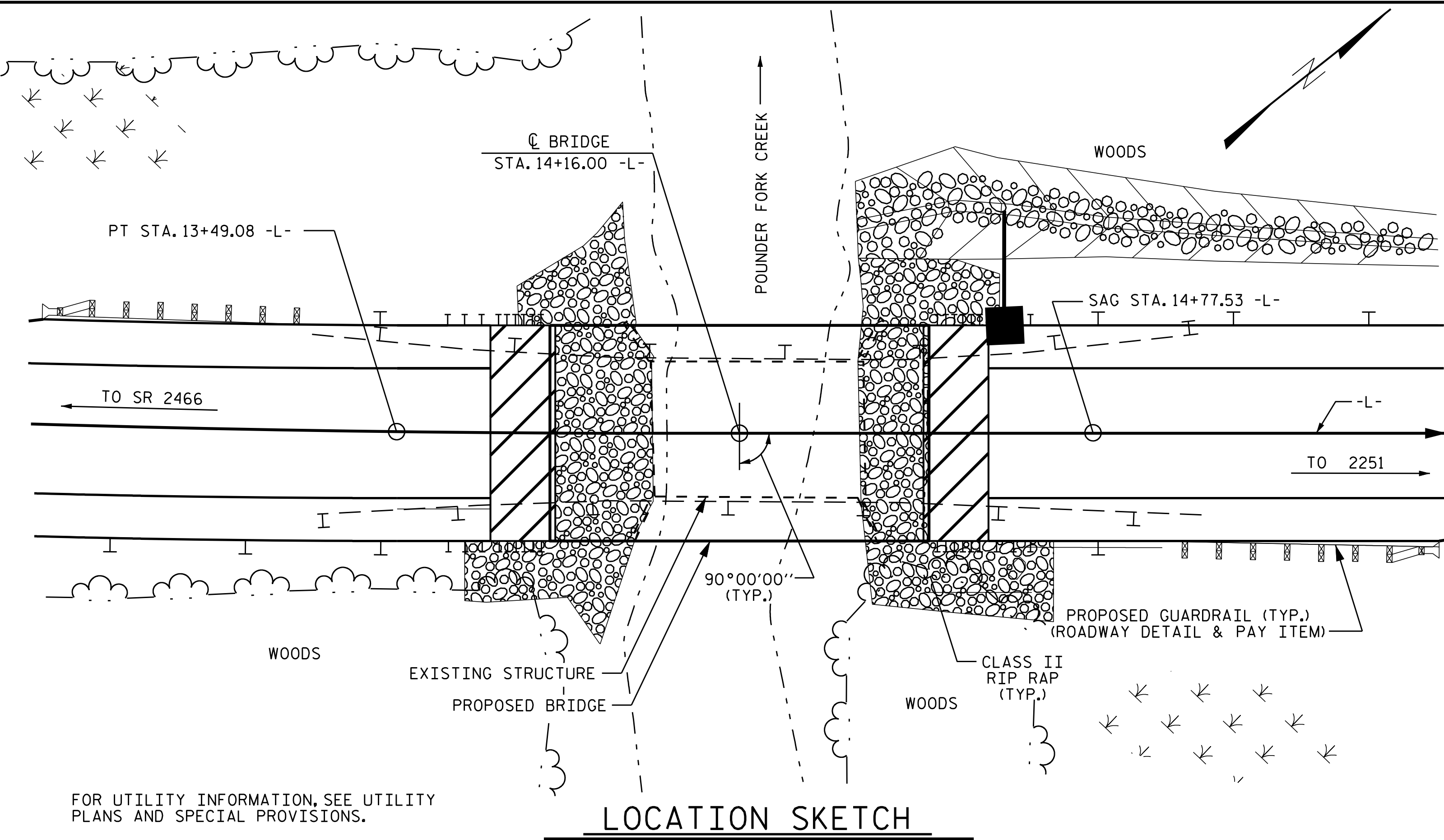
PROJECT NO. 17BP.9.R.79  
DAVIDSON COUNTY  
 STATION: 14+16.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-2
<b>GENERAL DRAWING</b>						TOTAL SHEETS 15
FOR BRIDGE ON SR 2250 OVER POUNDER FORK CREEK BETWEEN SR 2466 AND SR 2251						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



BM #1: RAILROAD SPIKE 12" OAK, 69' LT. OF STA. 12+62.00 -L-, ELEV. = 636.11, DATUM: NAVD 88



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

**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 SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.  
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.  
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.  
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AT END BENT 1 SHALL BE EXCAVATED FOR A DISTANCE OF 45 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA AT END BENT 2 SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. LEFT AND 35 FT. RIGHT OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF A SINGLE 42 FT. SPAN STEEL PLANK DECK ON I-BEAMS SUPPORTED ON CONCRETE ABUTMENTS AND A CLEAR ROADWAY WIDTH 25'-2" LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING ABUTMENT AT END BENT 1 SHALL BE REMOVED TO ELEVATION 622.0 AND THE EXISTING ABUTMENT AT END BENT 2 SHALL BE REMOVED TO ELEVATION 626.0. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE AT STA. 14+16.00, SEE SPECIAL PROVISIONS.

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

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.

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

FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

**HYDRAULIC DATA**

DESIGN DISCHARGE	= 2600 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YEARS
DESIGN HIGH WATER ELEVATION	= 629.3 FT.
DRAINAGE AREA	= 13.6 SQ. MI.
BASE DISCHARGE (Q100)	= 3650 C.F.S.
BASE HIGH WATER ELEVATION	= 631.5 FT.

**OVERTOPPING FLOOD DATA**

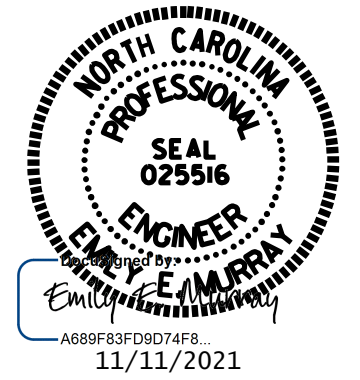
OVERTOPPING DISCHARGE	= 4900 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YEARS
OVERTOPPING FLOOD ELEVATION	= 632.9 FT.
OVERTOPPING FLOOD STATION	= 15+50.00 -L-

**TOTAL BILL OF MATERIAL**

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES	STEEL PILE POINTS	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		
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YD.	LUMP SUM	LBS.	EA.	NO.	LN. FT.	EA.	LN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LN. FT.
SUPERSTRUCTURE				2788	3425												14	980
END BENT NO. 1								3135	8	8	120	8		170	189			
END BENT NO. 2								3135	8	8	160	8		165	184			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	2788	3425	50.8	LUMP SUM	6270	16	16	280	16	140.25	335	373	LUMP SUM	14	980

PROJECT NO. 17BP.9.R.79  
DAVIDSON COUNTY  
 STATION: 14+16.00 -L-

SHEET 3 OF 3



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 NC License No. F-0765

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

DRAWN BY : D. A. GLADDEN DATE : 5/19  
 CHECKED BY : E. MURRAY DATE : 1/20  
 DESIGN ENGINEER OF RECORD: E. MURRAY DATE : 1/20

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON SR 2250 OVER  
 POUNDER FORK CREEK BETWEEN  
 SR 2466 AND SR 2251



## 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(In)	N/A	<b>1</b>	<b>1.14</b>	--	1.75	0.273	<b>1.14</b>	70'	EL	<b>34.5</b>	0.507	1.44	70'	EL	6.5	0.80	0.273	1.72	70'	EL	34.5		
	HL-93(OPr)	N/A	--	1.48	--	1.35	0.273	1.48	70'	EL	34.5	0.507	1.92	70'	EL	6.5	N/A	--	--	--	--	--		
	HS-20(In)	36.000	<b>2</b>	<b>1.48</b>	53.28	1.75	0.273	<b>1.48</b>	70'	EL	<b>34.5</b>	0.507	1.84	70'	EL	6.5	0.80	0.273	2.23	70'	EL	34.5		
	HS-20(OPr)	36.000	--	1.92	69.12	1.35	0.273	1.92	70'	EL	34.5	0.507	2.43	70'	EL	6.5	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.98	53.73	1.4	0.273	4.46	70'	EL	34.5	0.507	6.27	70'	EL	6.5	0.80	0.273	3.98	70'	EL	34.5	
		SNGARBS2	20.000	--	2.98	59.60	1.4	0.273	3.35	70'	EL	34.5	0.507	4.41	70'	EL	6.5	0.80	0.273	2.98	70'	EL	34.5	
		SNAGRIS2	22.000	--	2.83	62.26	1.4	0.273	3.18	70'	EL	34.5	0.507	4.09	70'	EL	6.5	0.80	0.273	2.83	70'	EL	34.5	
		SNCOTTS3	27.250	--	1.98	53.96	1.4	0.273	2.22	70'	EL	34.5	0.507	3.05	70'	EL	6.5	0.80	0.273	1.98	70'	EL	34.5	
		SNAGGRS4	34.925	--	1.66	57.98	1.4	0.273	1.86	70'	EL	34.5	0.507	2.51	70'	EL	6.5	0.80	0.273	1.66	70'	EL	34.5	
		SNS5A	35.550	--	1.62	57.59	1.4	0.273	1.82	70'	EL	34.5	0.507	2.53	70'	EL	6.5	0.80	0.273	1.62	70'	EL	34.5	
		SNS6A	39.950	--	1.49	59.53	1.4	0.273	1.68	70'	EL	34.5	0.507	2.31	70'	EL	6.5	0.80	0.273	1.49	70'	EL	34.5	
	SNS7B	42.000	--	1.42	59.64	1.4	0.273	1.60	70'	EL	34.5	0.507	2.27	70'	EL	6.5	0.80	0.273	1.42	70'	EL	34.5		
	TTST	TNAGRIT3	33.000	--	1.82	60.06	1.4	0.273	2.04	70'	EL	34.5	0.507	2.78	70'	EL	6.5	0.80	0.273	1.82	70'	EL	34.5	
		TNT4A	33.075	--	1.83	60.53	1.4	0.273	2.05	70'	EL	34.5	0.507	2.70	70'	EL	6.5	0.80	0.273	1.83	70'	EL	34.5	
		TNT6A	41.600	--	1.50	62.40	1.4	0.273	1.68	70'	EL	34.5	0.507	2.43	70'	EL	6.5	0.80	0.273	1.50	70'	EL	34.5	
		TNT7A	42.000	--	1.51	63.42	1.4	0.273	1.69	70'	EL	34.5	0.507	2.37	70'	EL	6.5	0.80	0.273	1.51	70'	EL	34.5	
		TNT7B	42.000	--	1.56	65.52	1.4	0.273	1.76	70'	EL	34.5	0.507	2.20	70'	EL	6.5	0.80	0.273	1.56	70'	EL	34.5	
		TNAGRIT4	43.000	--	1.49	64.07	1.4	0.273	1.67	70'	EL	34.5	0.507	2.13	70'	EL	6.5	0.80	0.273	1.49	70'	EL	34.5	
TNAGT5A		45.000	--	1.40	63.00	1.4	0.273	1.57	70'	EL	34.5	0.507	2.13	70'	EL	6.5	0.80	0.273	1.40	70'	EL	34.5		
TNAGT5B	45.000	<b>3</b>	<b>1.38</b>	62.10	1.4	0.273	1.55	70'	EL	34.5	0.507	2.02	70'	EL	6.5	0.80	0.273	<b>1.38</b>	70'	EL	<b>34.5</b>			

**LOAD FACTORS:**

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

**NOTES:**

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.  
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

**COMMENTS:**

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

**# CONTROLLING LOAD RATING**

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

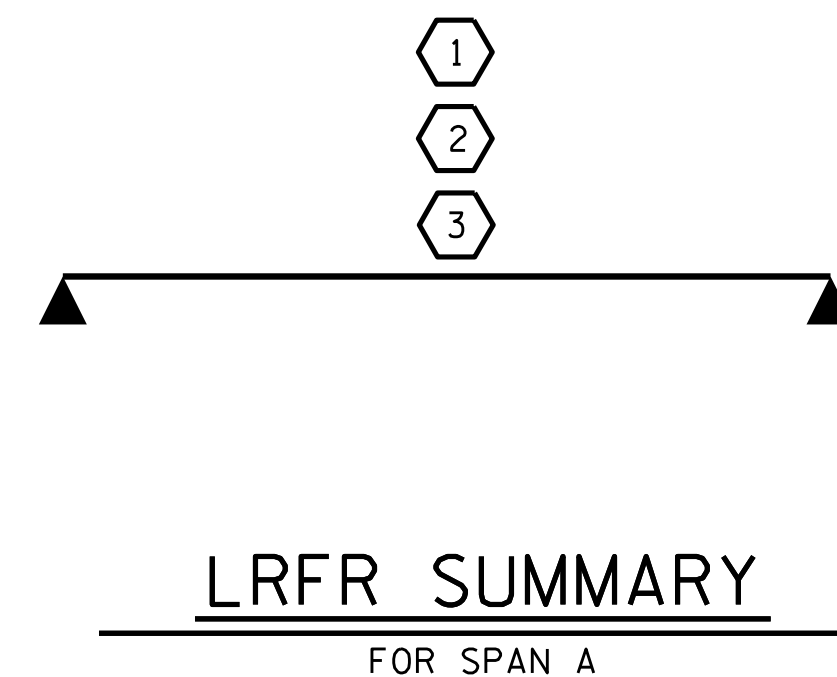
3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

---

**GIRDER LOCATION**

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



PROJECT NO. 17BP.9.R.79  
DAVIDSON COUNTY  
STATION: 14+16.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

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

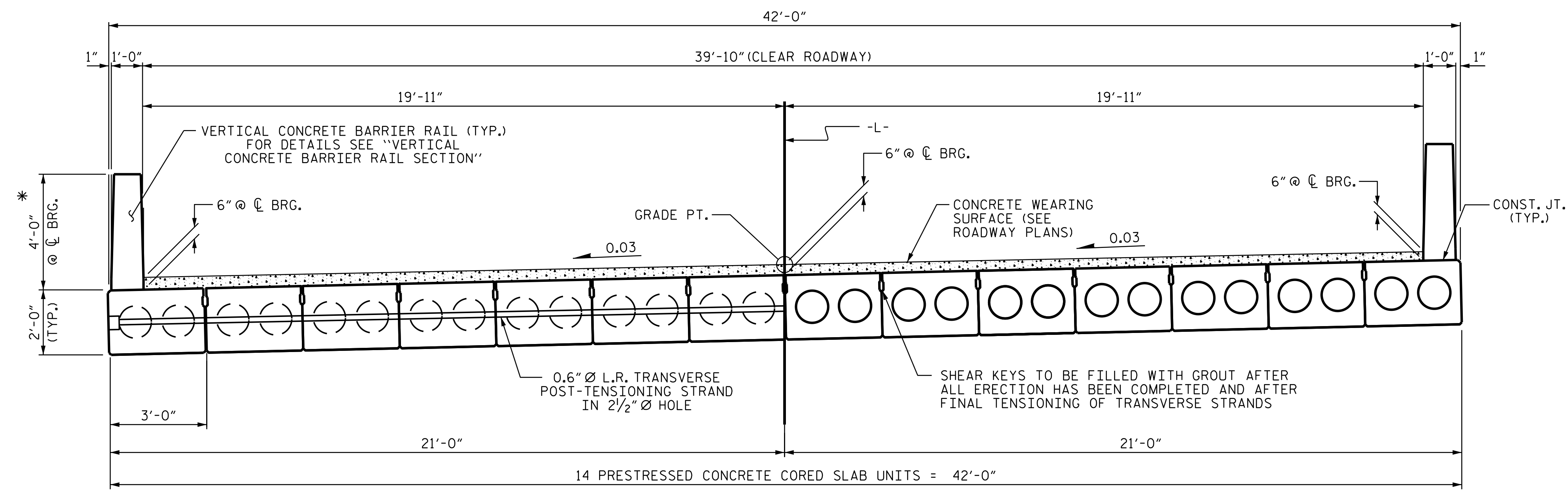
ASSEMBLED BY : P.N.HOLDER DATE : 01/20  
CHECKED BY : R.G.BEAUCHAMP DATE : 01/20  
DESIGN ENGINEER OF RECORD : E. E. MURRAY DATE : 01/20

**VOLKERT**

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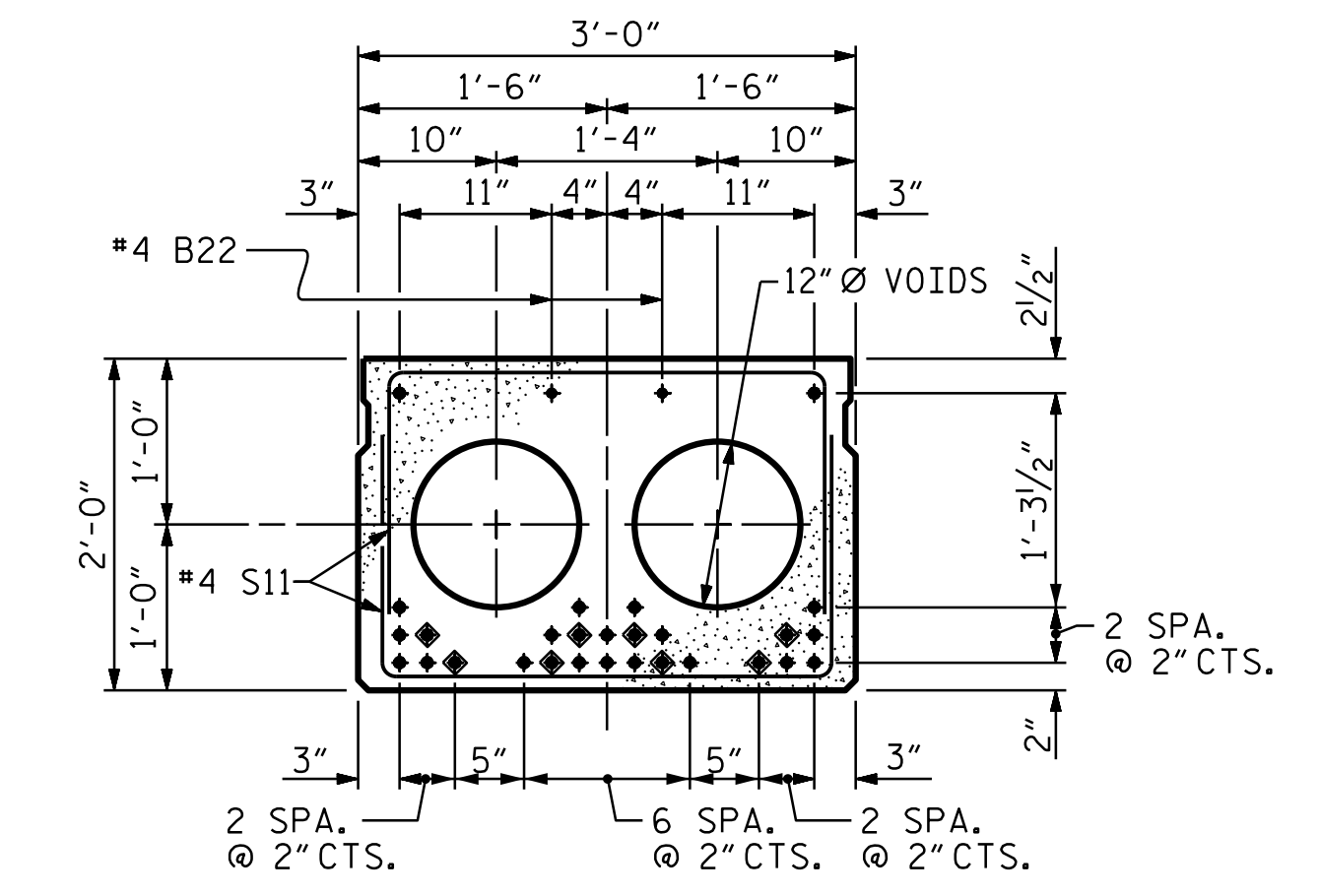
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			15



HALF SECTION AT INTERMEDIATE DIAPHRAGMS  
 HALF SECTION THROUGH VOIDS

**TYPICAL SECTION**

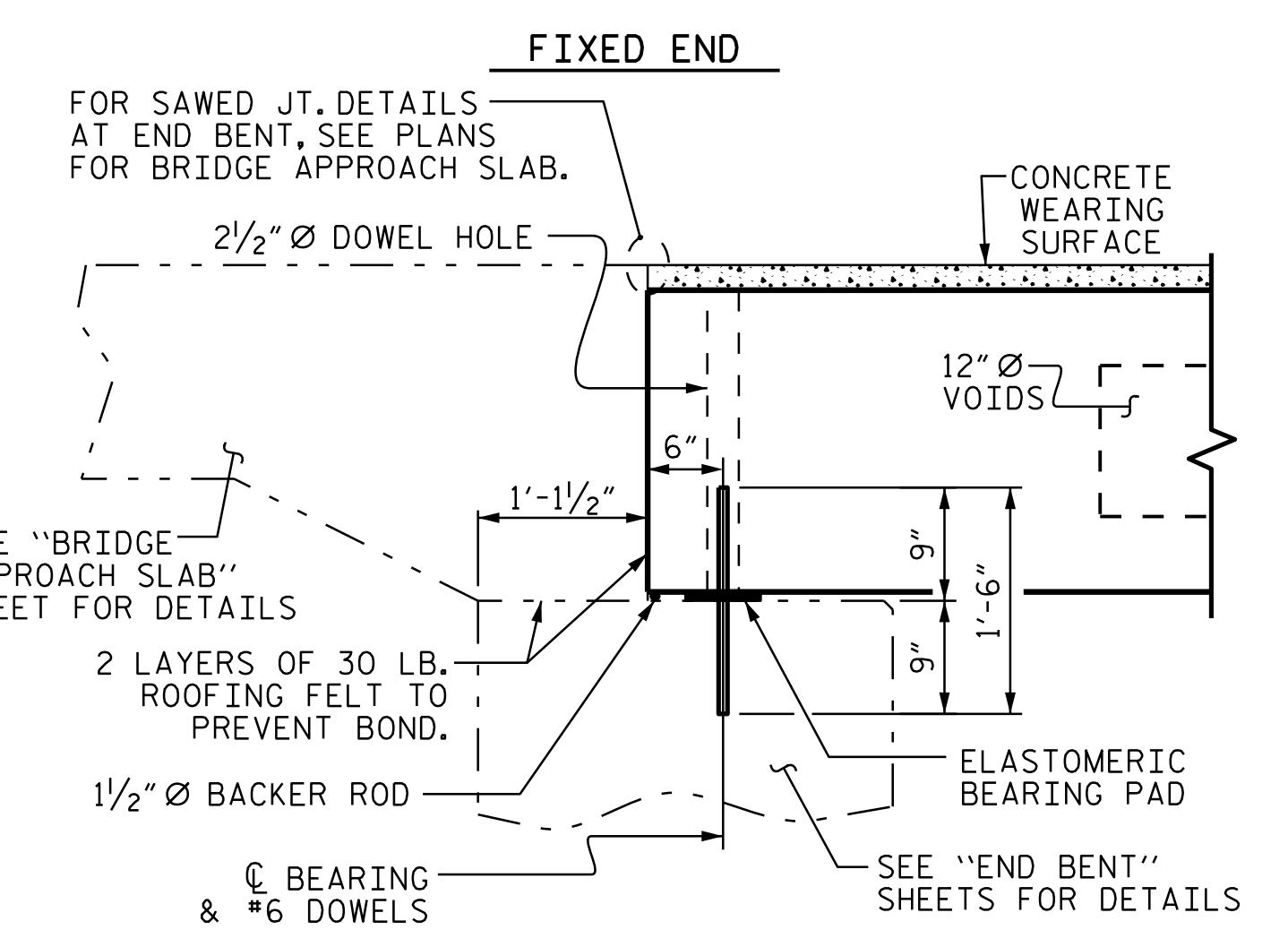
\* - THE MAXIMUM BARRIER RAIL HEIGHT AND CONCRETE THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND CONCRETE THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND CONCRETE THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION"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



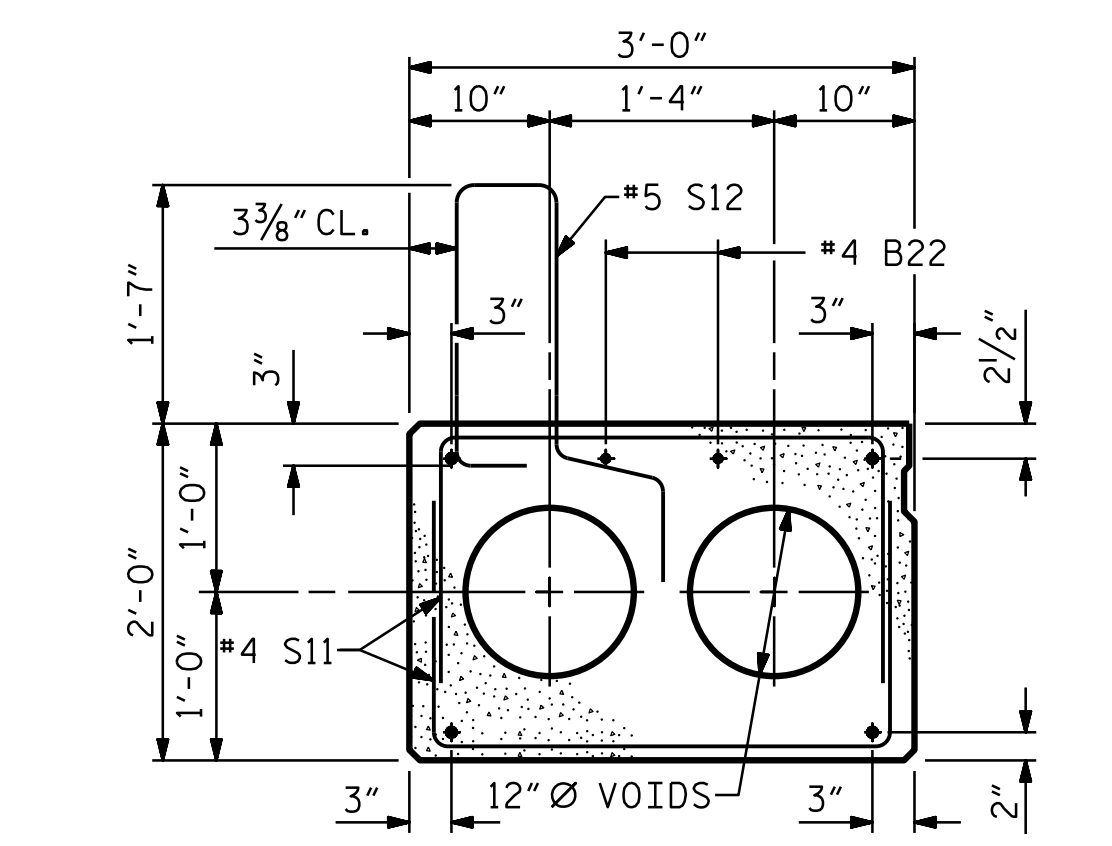
**INTERIOR SLAB SECTION (70' UNIT)**  
 (28 STRANDS REQUIRED)  
**0.6" Ø LOW RELAXATION STRAND LAYOUT**

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

**DEBONDING LEGEND**

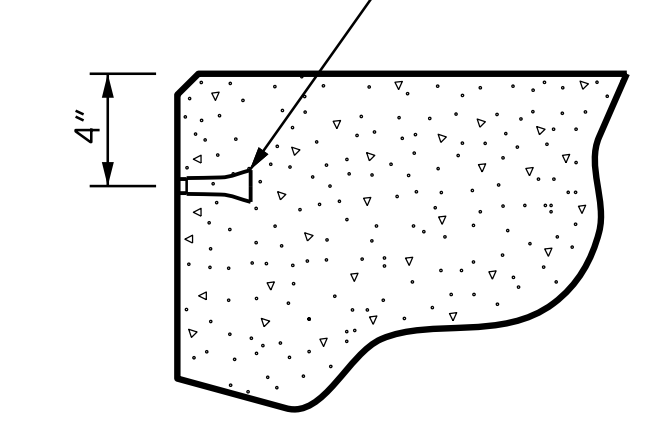


**SECTION AT END BENT**

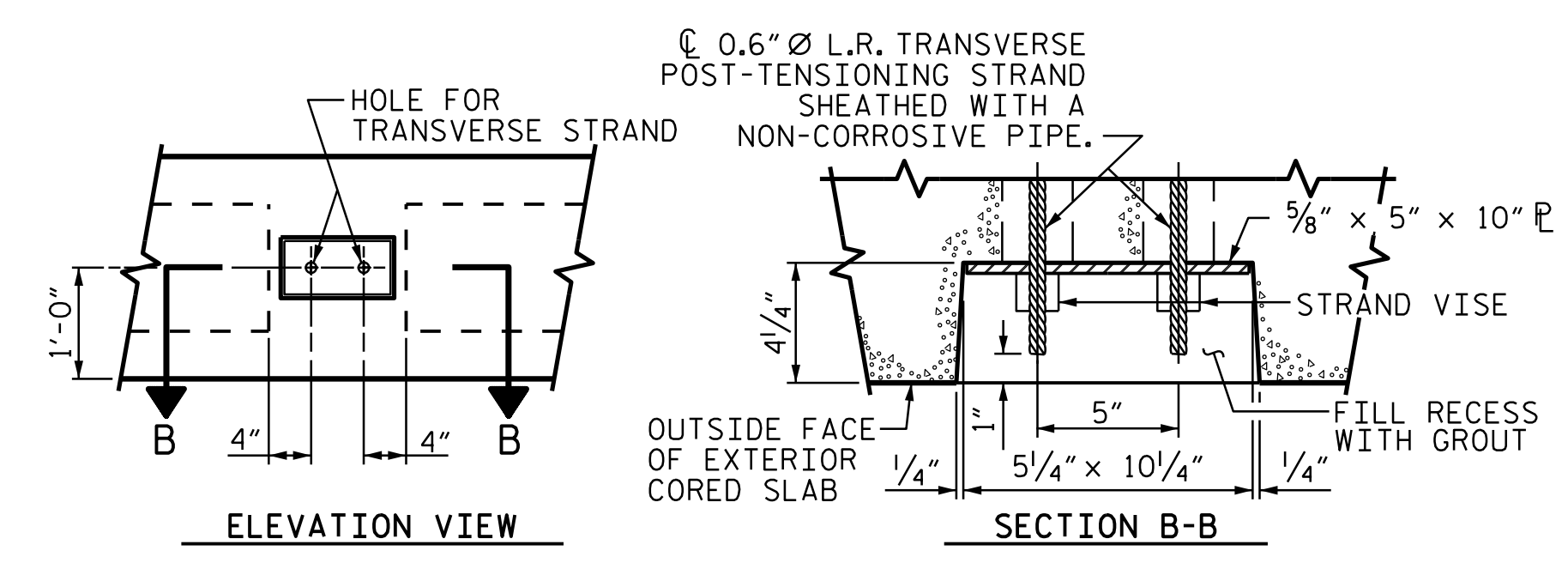


**EXTERIOR SLAB SECTION**  
 (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

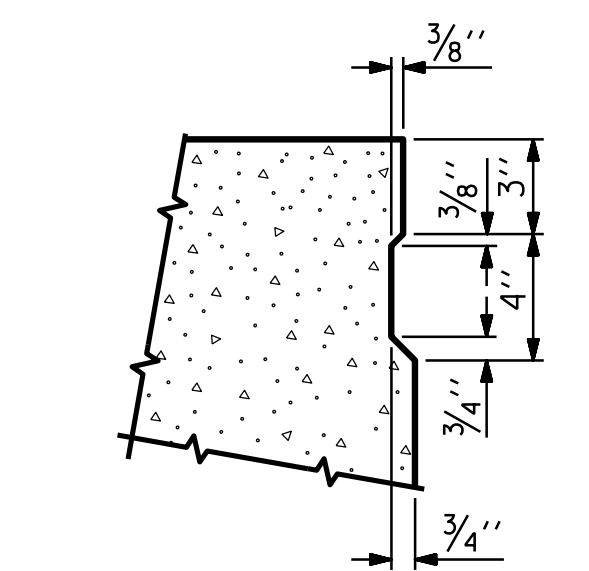
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



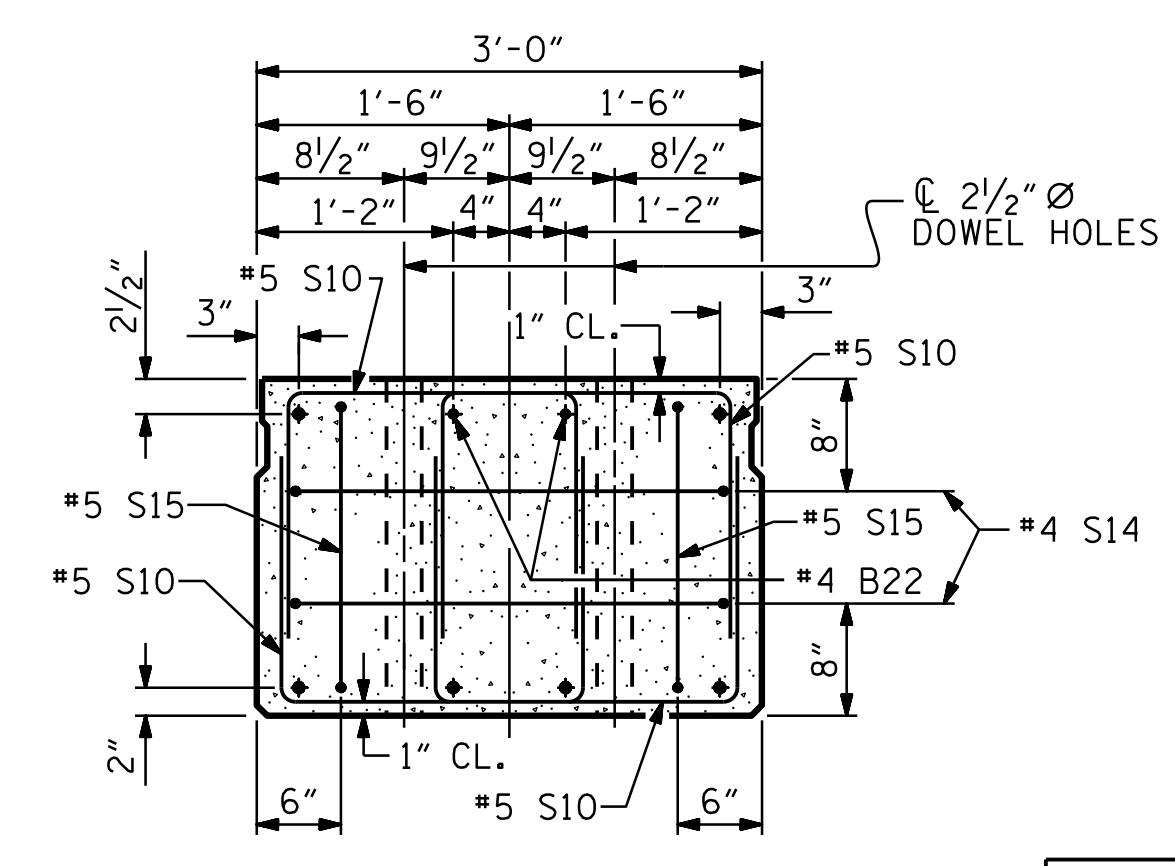
**THREADED INSERT DETAIL**



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



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



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

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 DAVIDSON COUNTY  
 STATION: 14+16.00 -L-

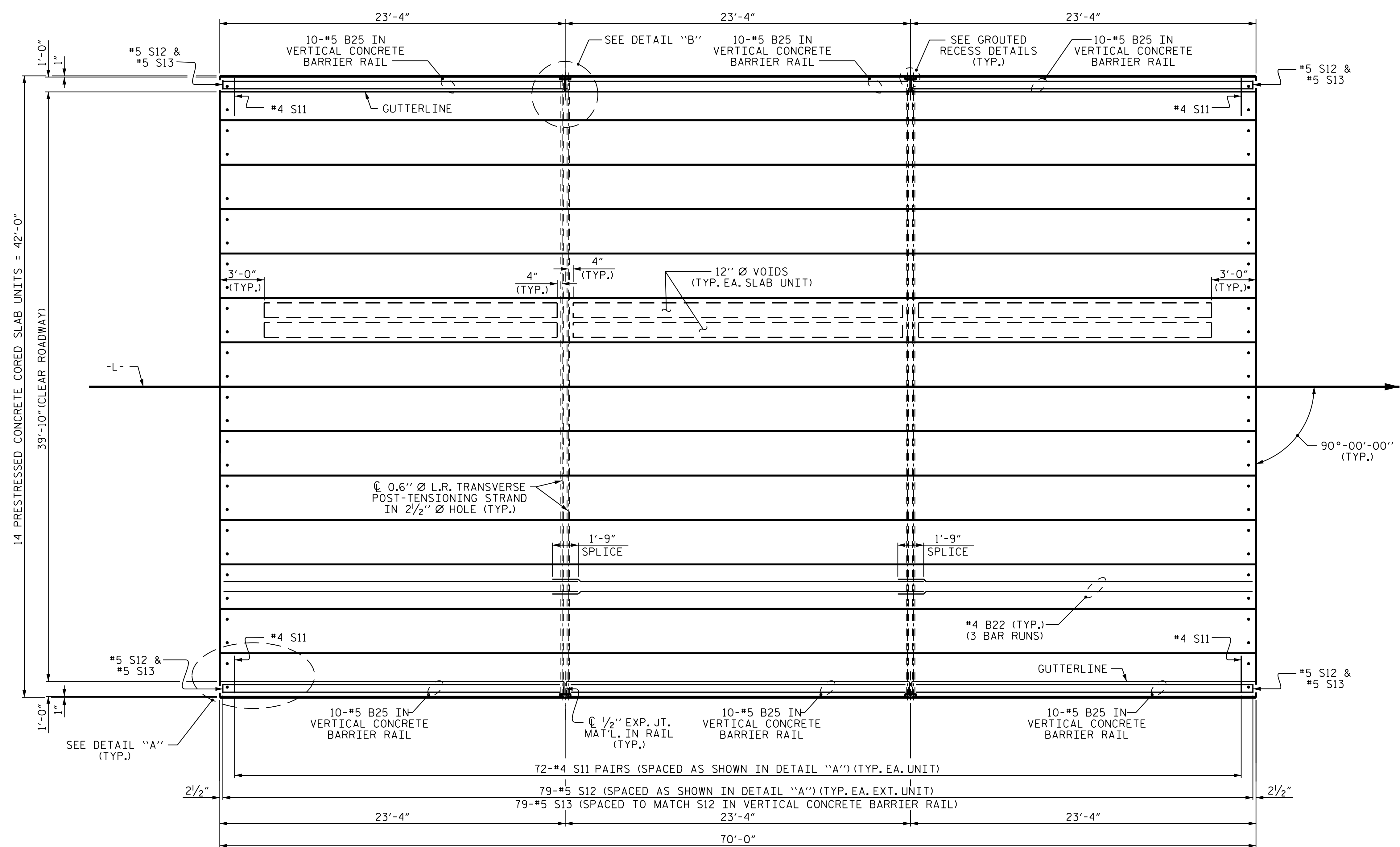
SHEET 1 OF 4

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

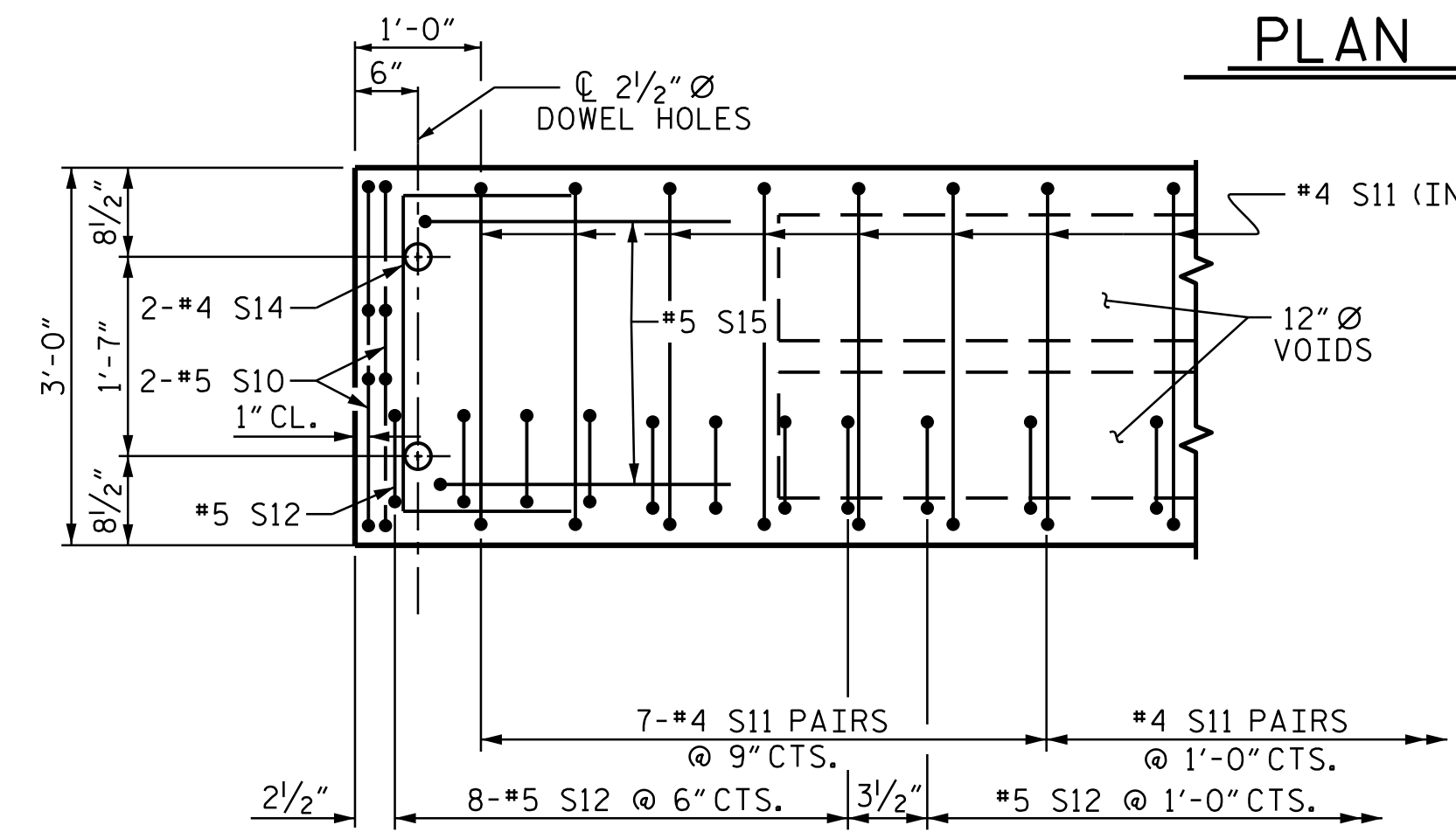
ASSEMBLED BY :	D. A. GLADDEN	DATE :	6/19
CHECKED BY :	E. MURRAY	DATE :	1/20
DESIGN ENGINEER OF RECORD :	E. MURRAY	DATE :	1/20

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



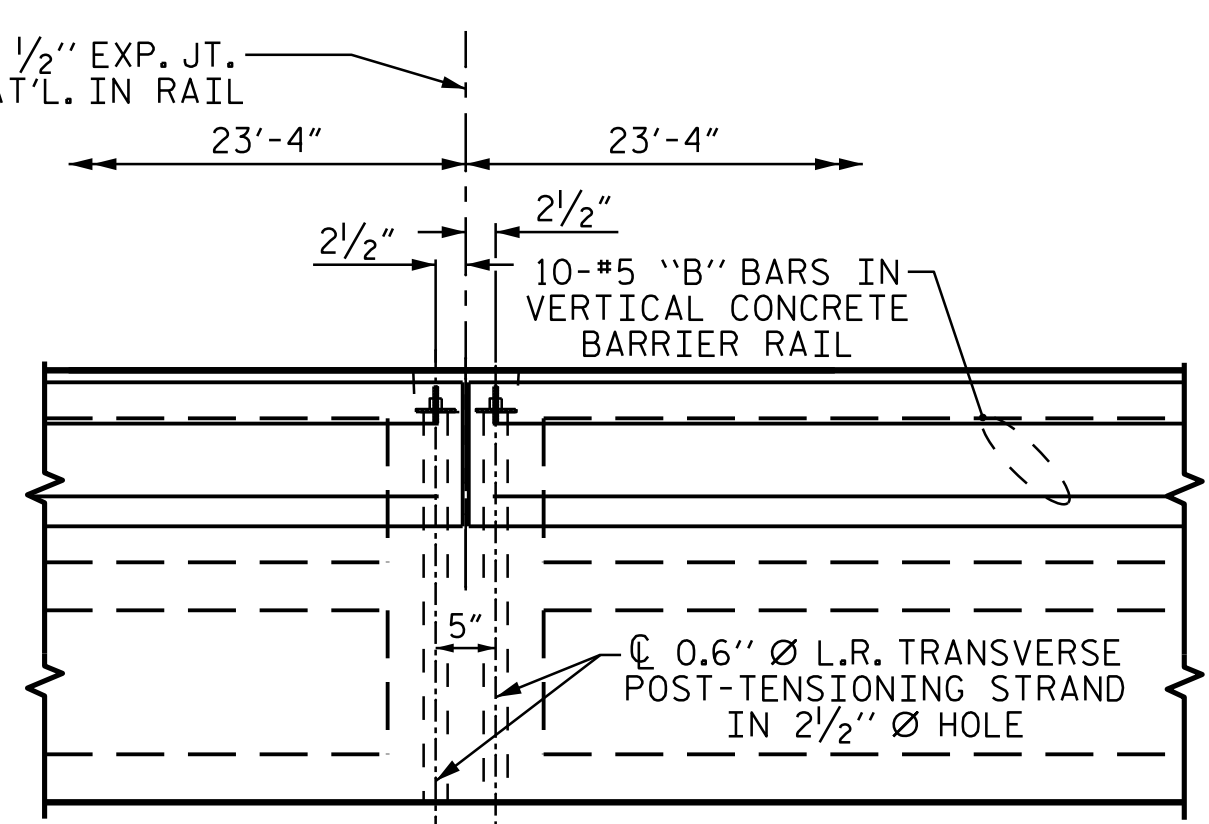


**PLAN OF UNIT**



**DETAIL "A"**

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



**DETAIL "B"**

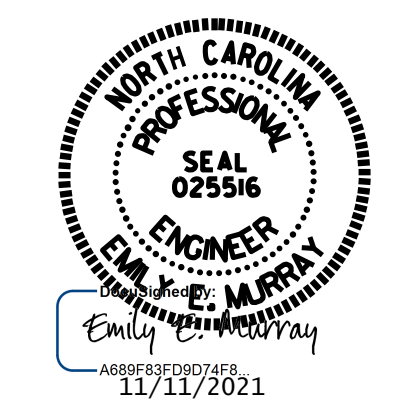
#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. 17BP.9.R.79  
DAVIDSON COUNTY  
STATION: 14+16.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF 70' UNIT  
39'-10" CLEAR ROADWAY  
90° SKEW



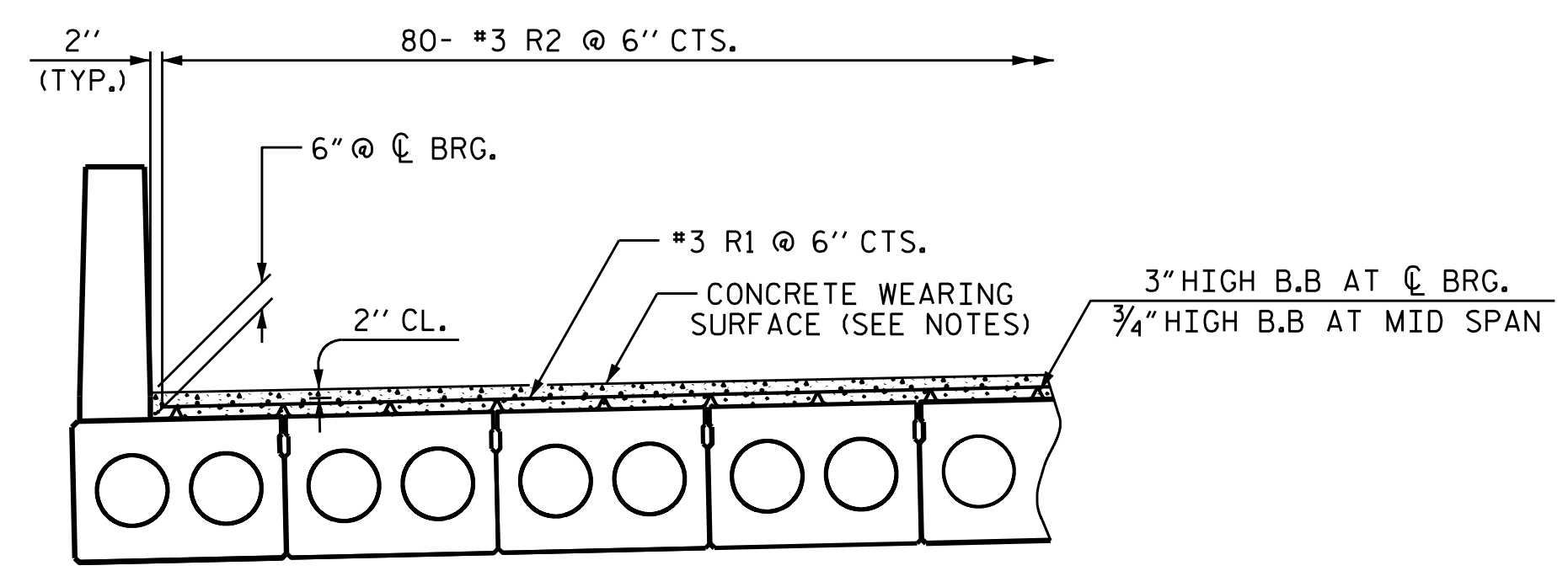
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			15

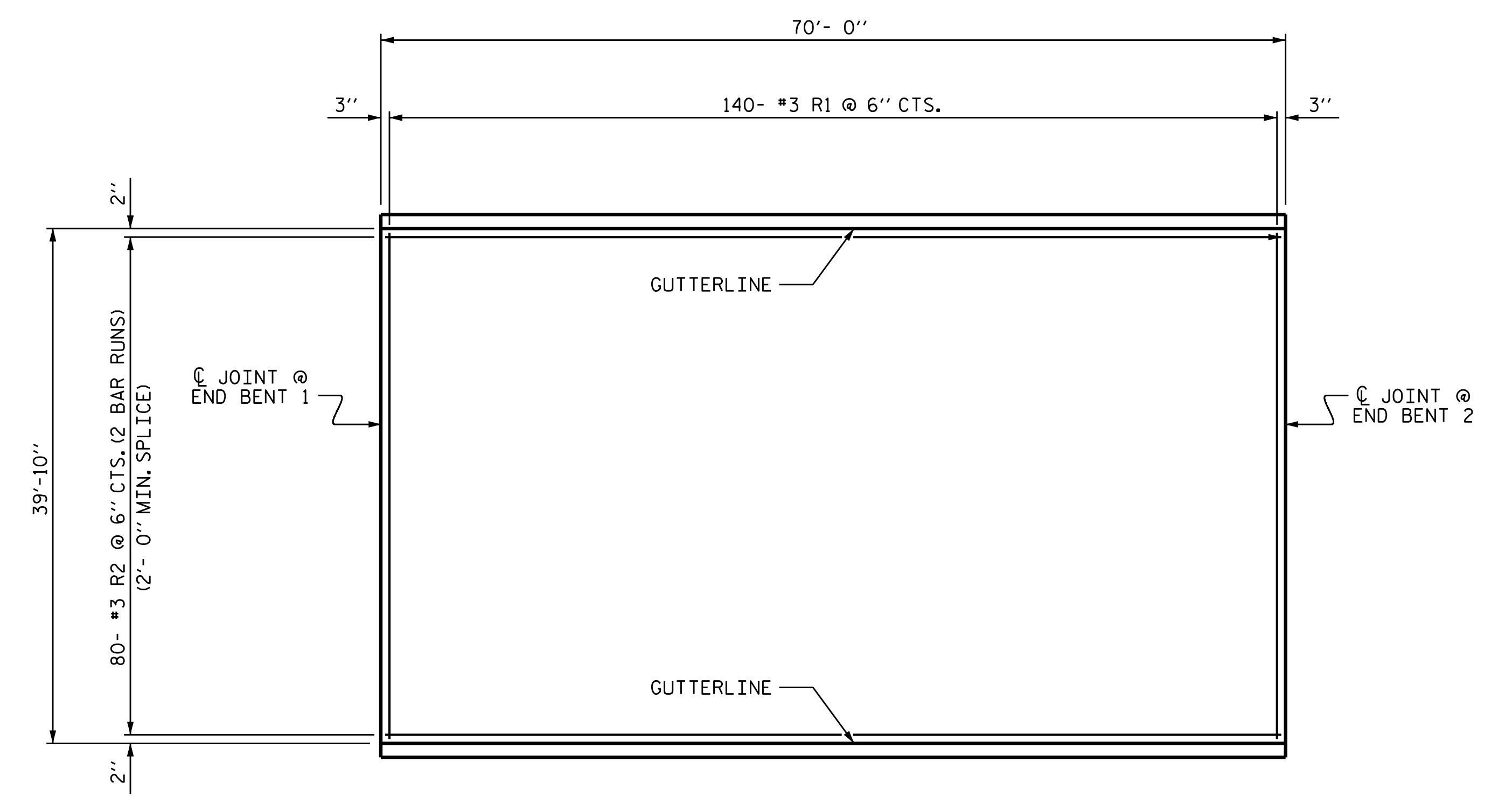
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : D. A. GLADDEN DATE : 6/19  
CHECKED BY : E. MURRAY DATE : 1/20  
DESIGN ENGINEER OF RECORD : E. MURRAY DATE : 1/20

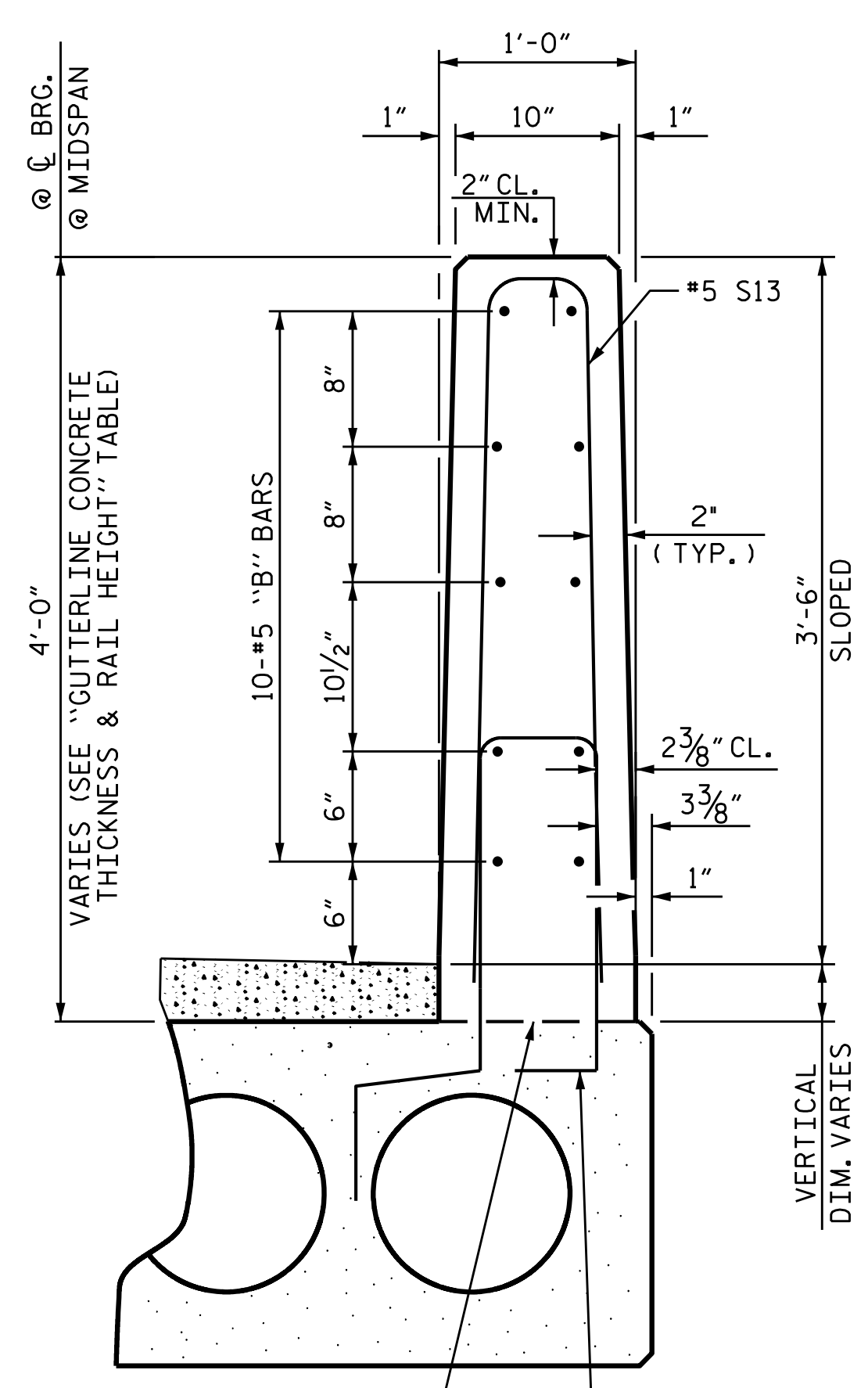




**REINFORCING STEEL FOR CONCRETE WEARING SURFACE**

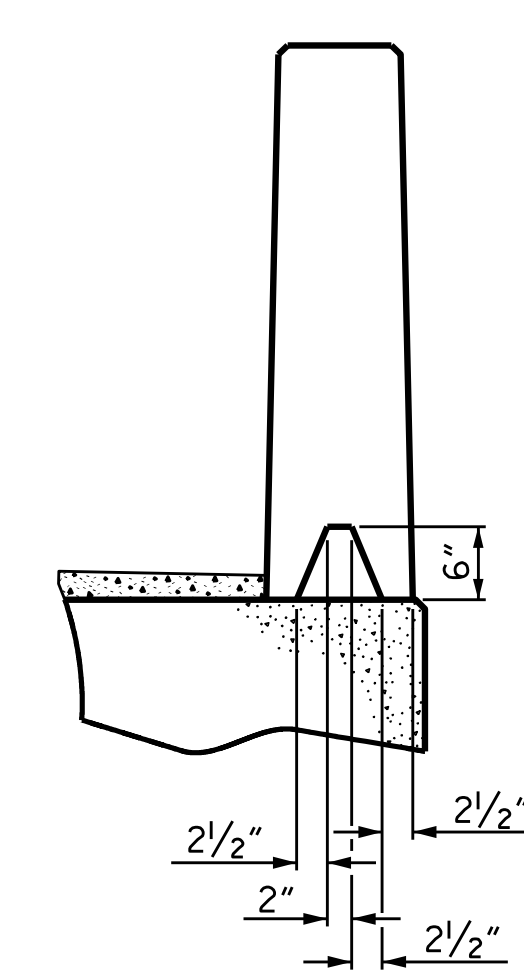


**PLAN OF CONCRETE WEARING SURFACE REINFORCING STEEL**



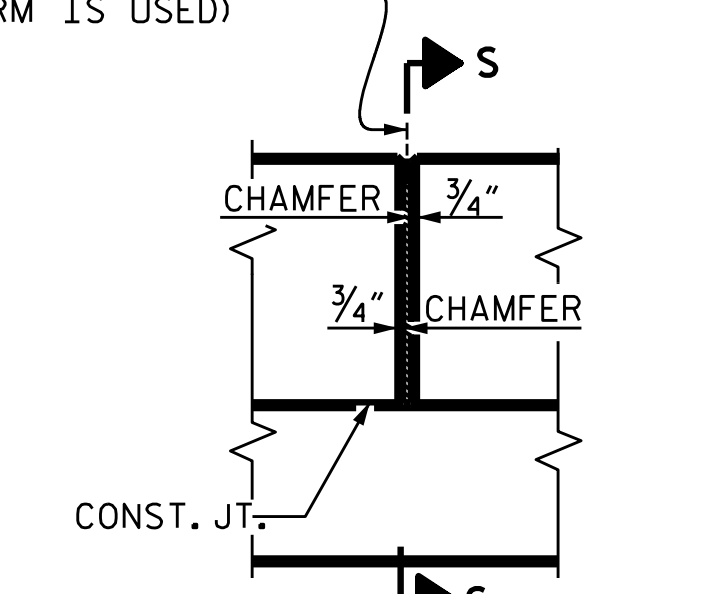
**SECTION THRU RAIL**

**VERTICAL CONCRETE BARRIER RAIL DETAILS**

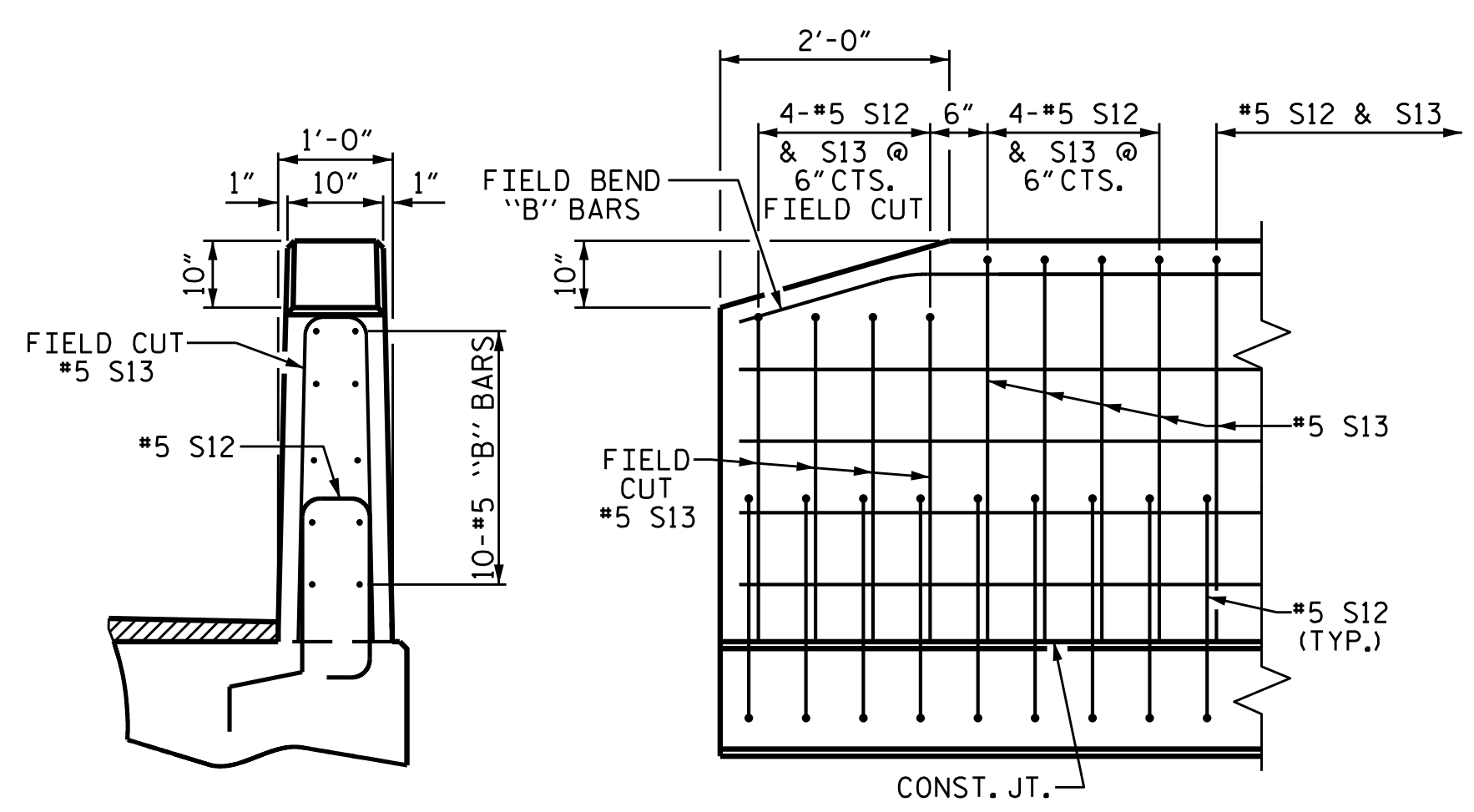


**SECTION S-S**  
AT DAM IN OPEN JOINT  
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

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



**ELEVATION AT EXPANSION JOINTS**



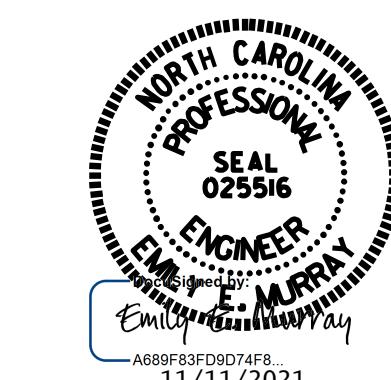
**END VIEW**      **SIDE VIEW**

**END OF RAIL DETAILS**

PROJECT NO. 17BP.9.R.79  
DAVIDSON COUNTY  
STATION: 14+16.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
70' UNIT CORED  
SLAB DETAILS  
39'-10" CLEAR ROADWAY  
90° SKEW

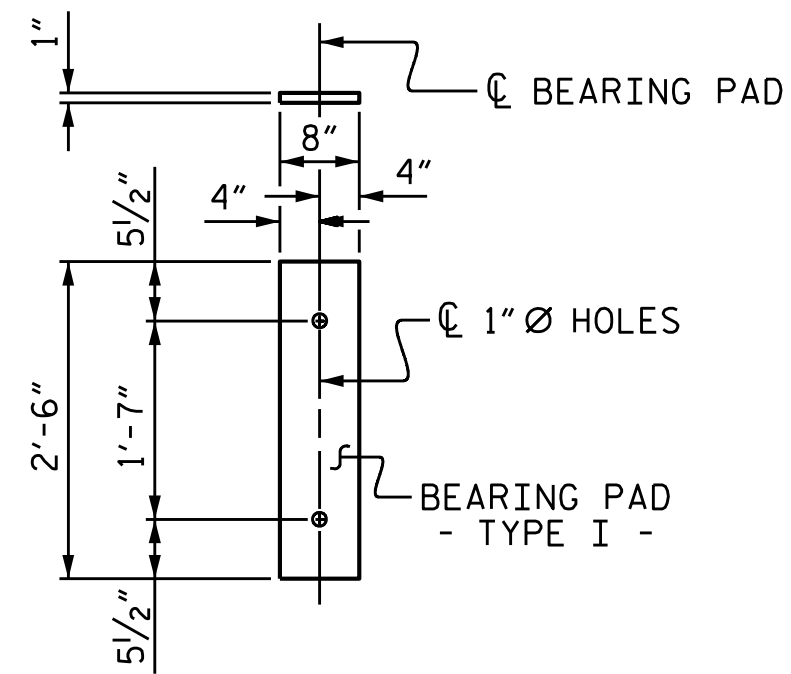


**VOLKERT**  
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			15

ASSEMBLED BY : D. A. GLADDEN DATE : 6/19  
CHECKED BY : E. MURRAY DATE : 1/20  
DESIGN ENGINEER OF RECORD : E. MURRAY DATE : 1/20



**FIXED END**  
(TYPE I - 28 REQ'D)

**ELASTOMERIC BEARING DETAILS**

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CORED SLABS REQUIRED			
70' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	12	70'-0"	840'-0"
TOTAL	14		980'-0"

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

\*\* INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	144	#4	3	5'-10"	561	5'-10"	561
*S12	79	#5	1	6'-0"	494		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL				LBS.	744		744
* EPOXY COATED REINFORCING STEEL				LBS.	494		
7000 P.S.I. CONCRETE				CU. YDS.	11.8		11.8
0.6" Ø L.R. STRANDS				No.	28		28

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
* R1	140	#3	STR	39'-6"	2079
* R2	160	#3	STR	35'-10"	2156
* EPOXY COATED REINFORCING STEEL				LBS.	4235
CONCRETE WEARING SURFACE				SO. FT.	2788

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B25	60	60	#5	STR	22'-11"	1434
*S13	158	158	#5	2	7'-2"	1181
* EPOXY COATED REINFORCING STEEL				LBS.	2615	
CLASS AA CONCRETE				CU. YDS.	19.0	
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.	140.25	

GUTTERLINE CONCRETE THICKNESS & RAIL HEIGHT		
	CONCRETE OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
70' UNITS	3 1/2"	3'-9 1/2"

ASSEMBLED BY : D. A. GLADDEN DATE : 6/19  
 CHECKED BY : E. MURRAY DATE : 1/20  
 DESIGN ENGINEER OF RECORD : E. MURRAY DATE : 1/20

**NOTES**

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

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

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

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

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

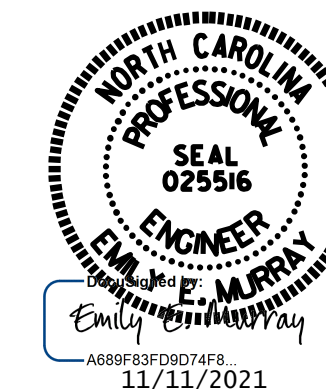
WHEN A CONCRETE WEARING SURFACE IS DETAILED ON THE CORED SLAB BRIDGE TYPICAL SECTION, THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A 3/8" RAKED FINISH.

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.

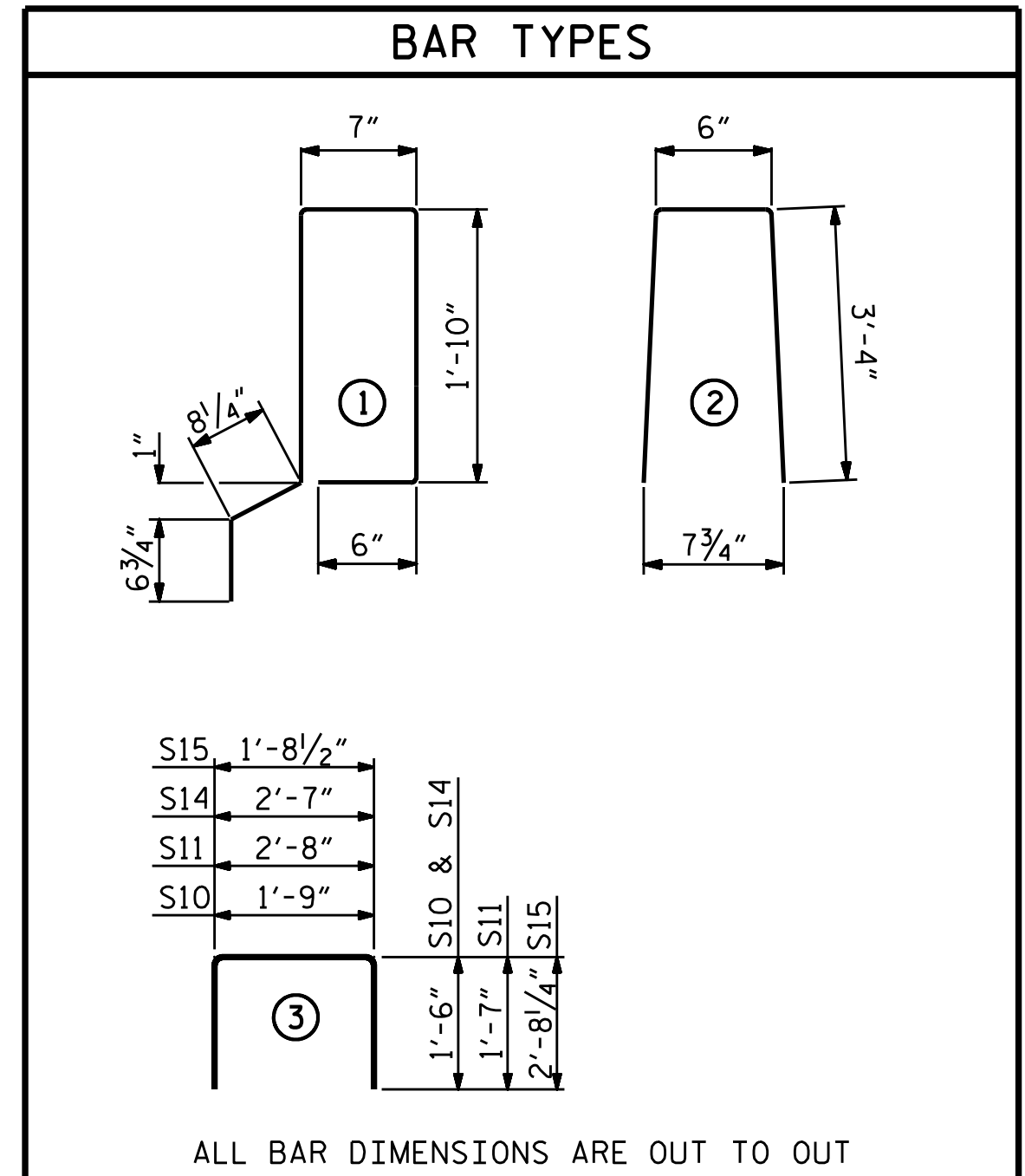
GROOVING BRIDGE DECK		
DECK	2578	SO. FT.
APPROACH SLAB	847	SO. FT.
TOTAL	3425	SO. FT.

CONCRETE RELEASE STRENGTH	
UNIT	PSI
70' UNITS	5500

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ALL BAR DIMENSIONS ARE OUT TO OUT

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 STATION: 14+16.00 -L-

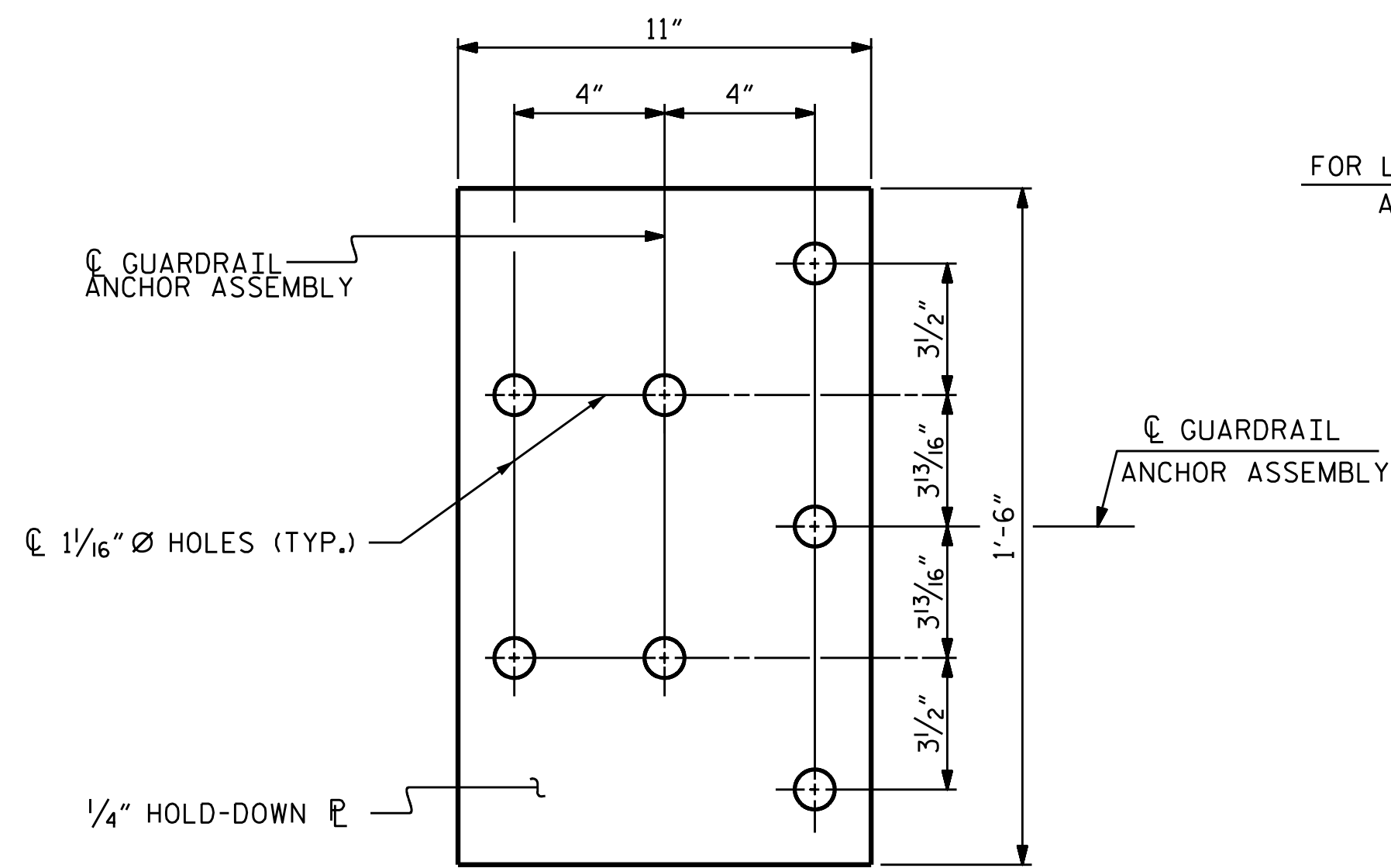
SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

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

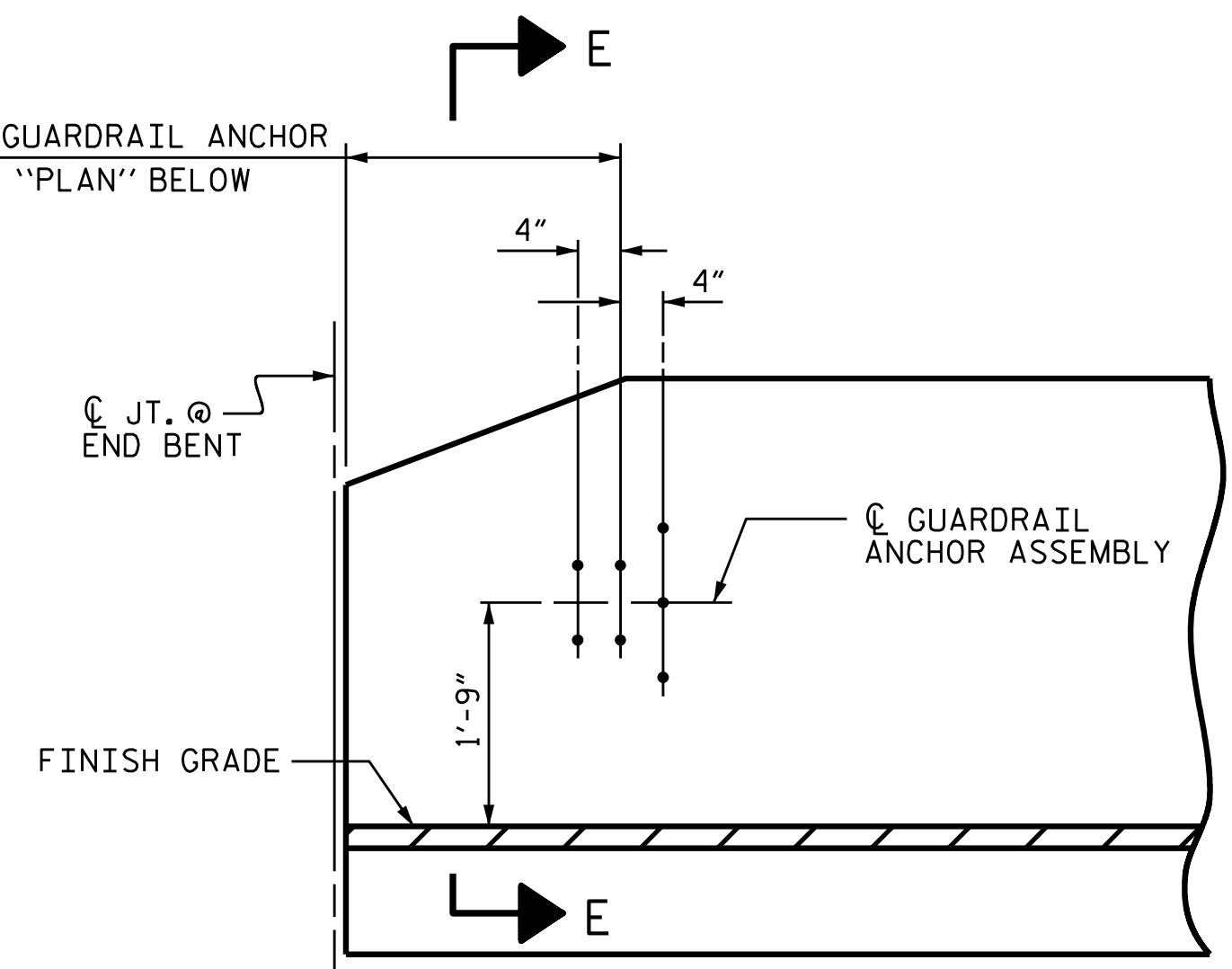
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1			3			TOTAL SHEETS
2			4			15



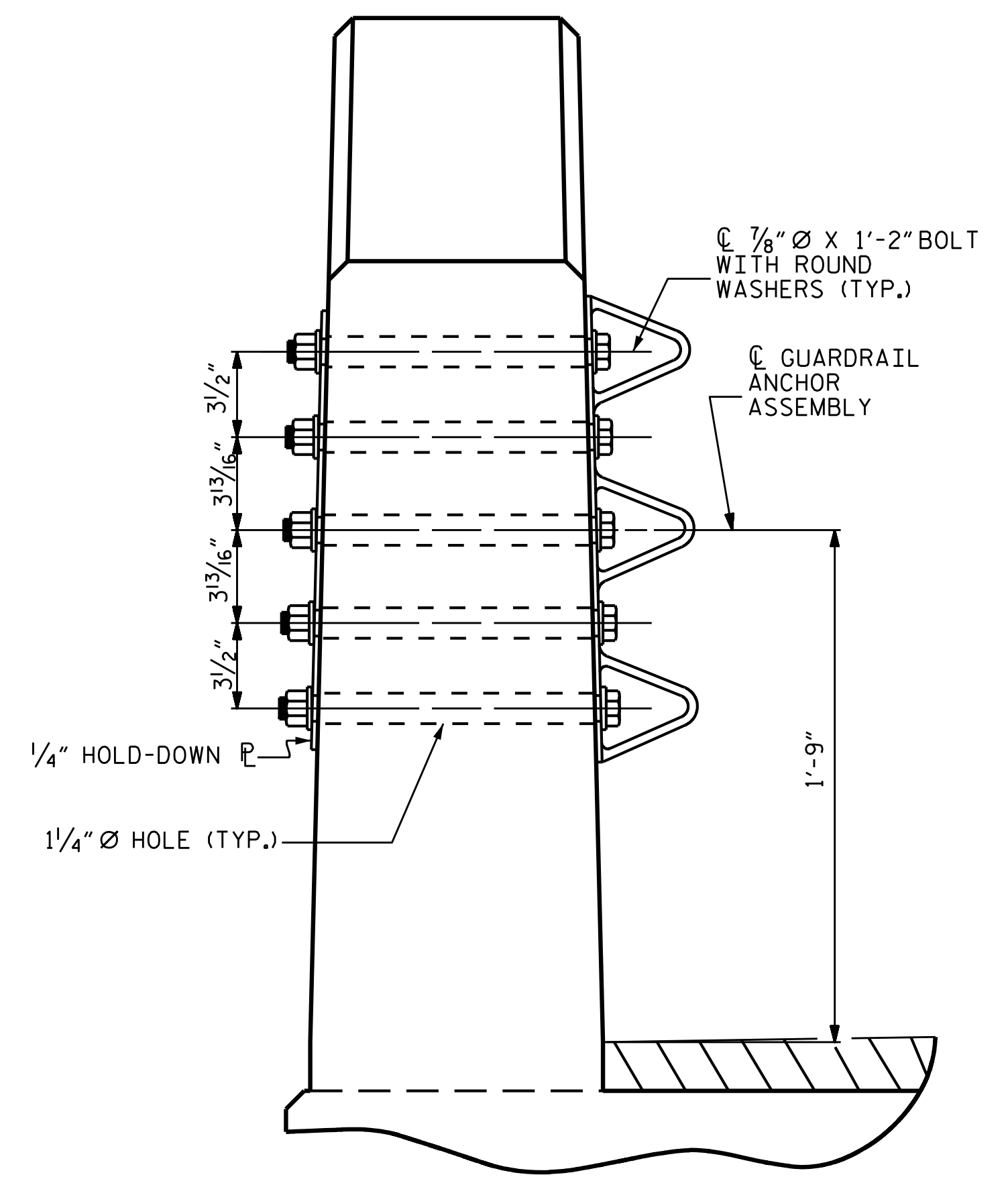


PLAN

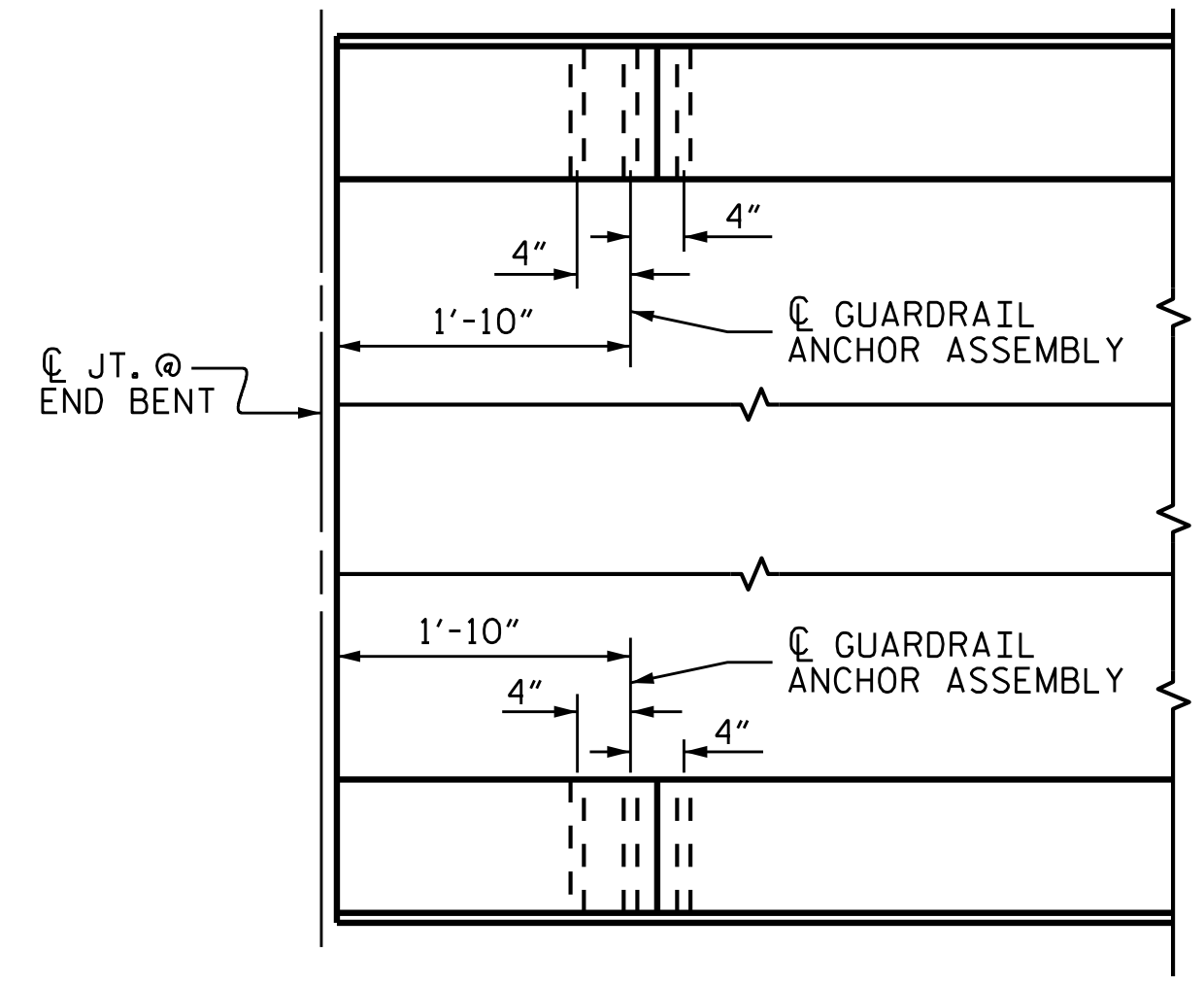
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



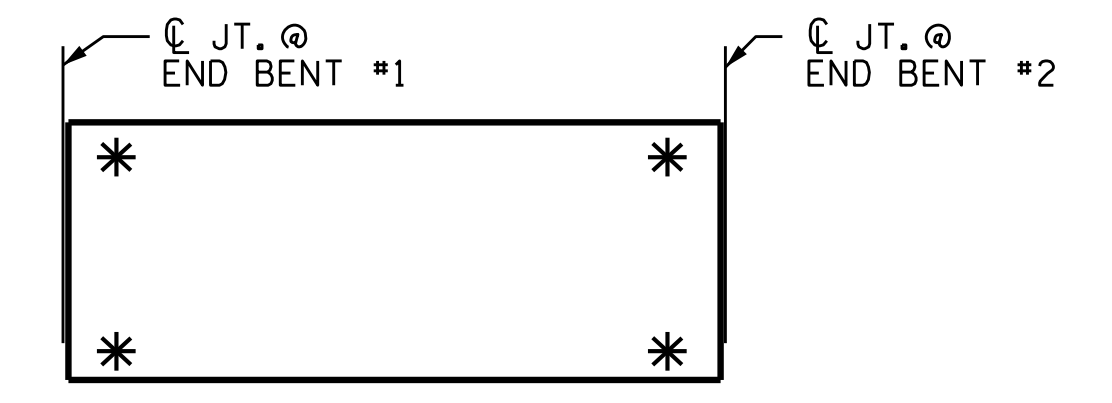
ELEVATION



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



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



SKETCH SHOWING POINTS OF ATTACHMENT  
\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

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

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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

PROJECT NO. 17BP.9.R.79  
DAVIDSON COUNTY  
STATION: 14+16.00 -L-



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

ASSEMBLED BY : D. A. GLADDEN	DATE : 9/19
CHECKED BY : E. E. MURRAY	DATE : 2/20
DRAWN BY : MAA 5/10	REV. 1/15 MAA/TMC
CHECKED BY : GM 5/10	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

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1			3			TOTAL SHEETS
2			4			15



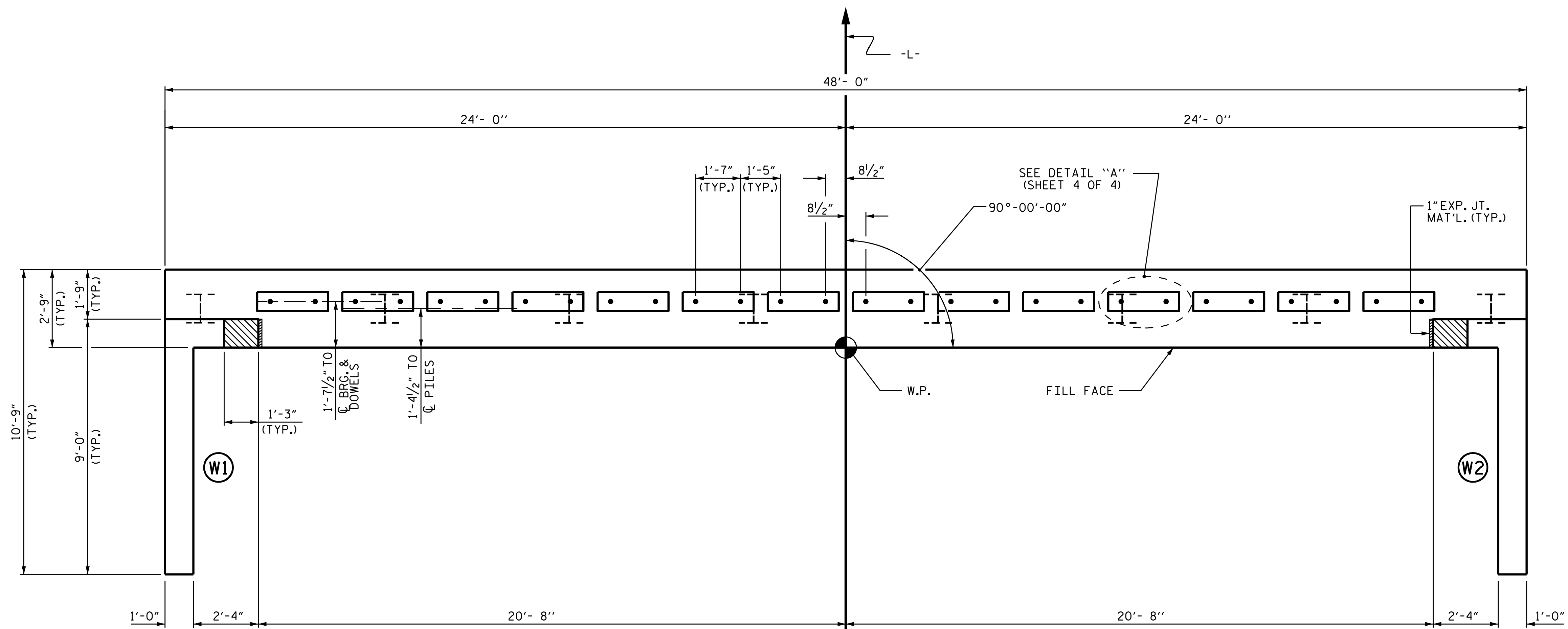
**NOTES**

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

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

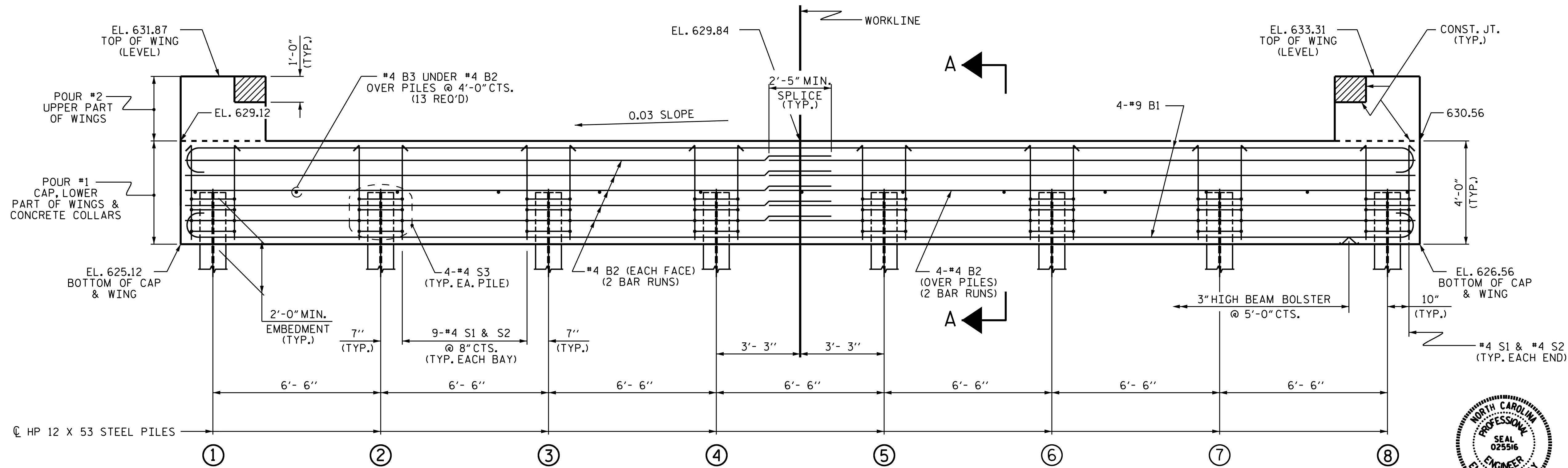
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



**PLAN**

TOP OF PILE ELEVATIONS	
①	627.16
②	627.35
③	627.55
④	627.74
⑤	627.94
⑥	628.13
⑦	628.33
⑧	628.52



**ELEVATION**

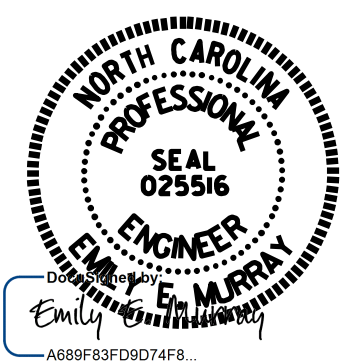
WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 4 OF 4.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. 17BP.9.R.79  
 DAVIDSON COUNTY  
 STATION: 14+16.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT No. 1



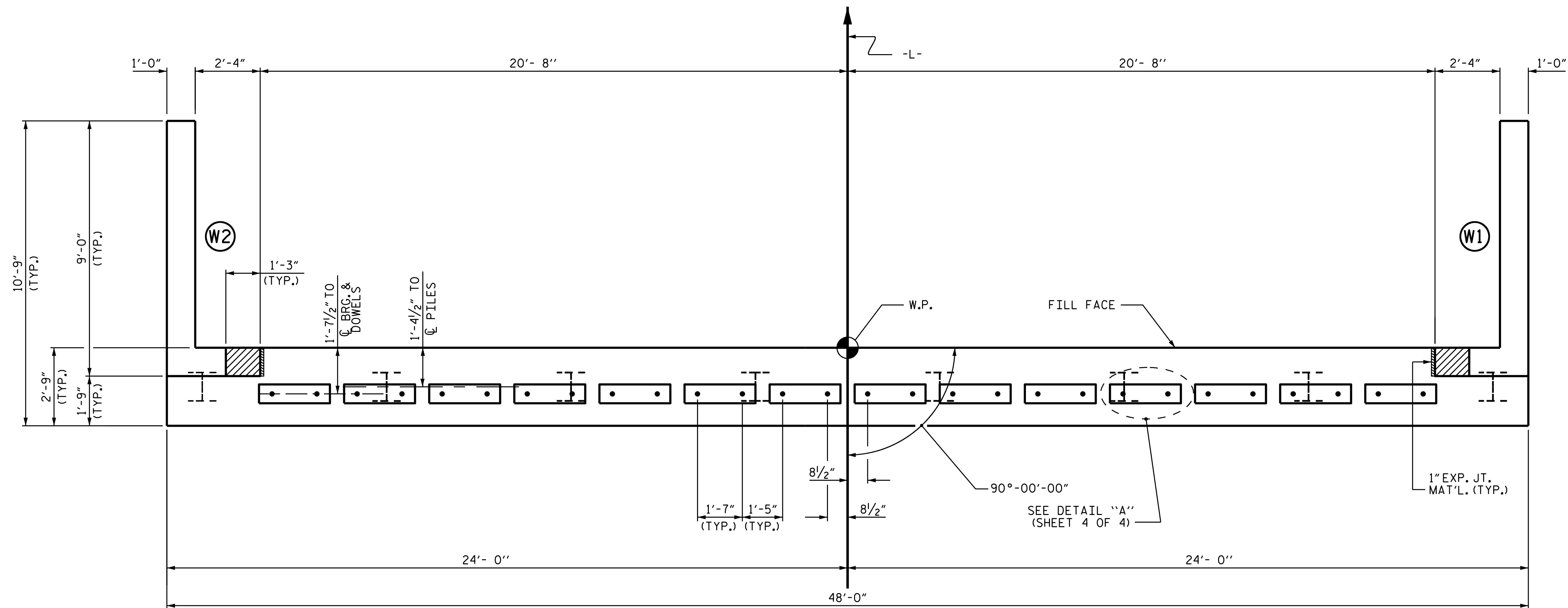
ASSEMBLED BY : D. A. GLADDEN DATE : 12/19  
 CHECKED BY : E. MURRAY DATE : 1/20  
 DESIGN ENGINEER OF RECORD : E. MURRAY DATE : 1/20

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
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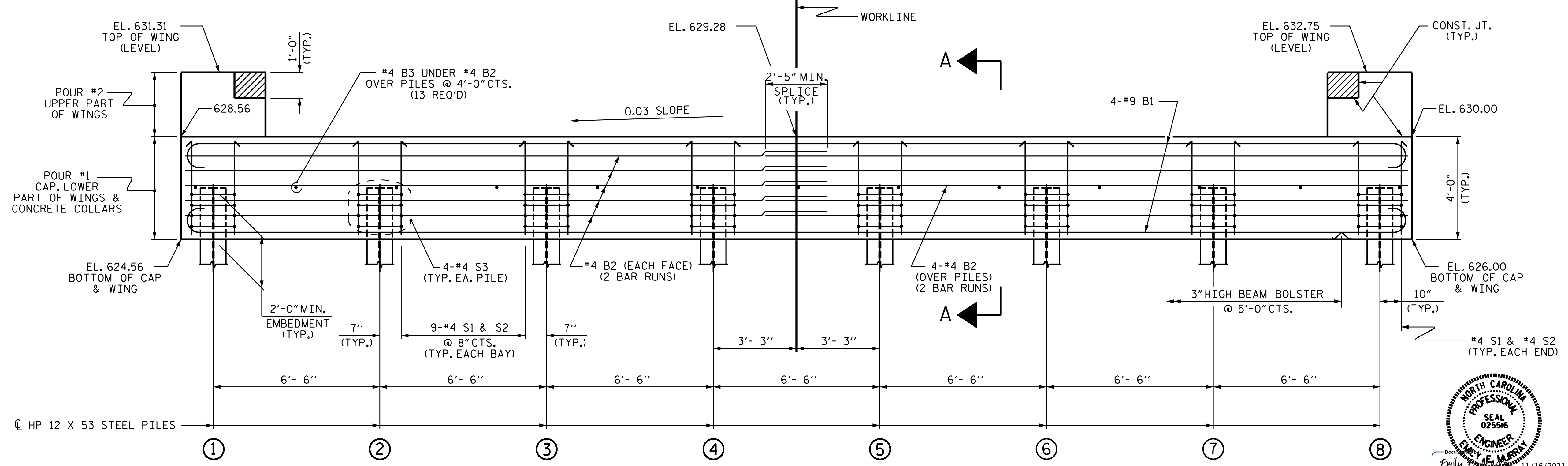
**NOTES**

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



**PLAN**

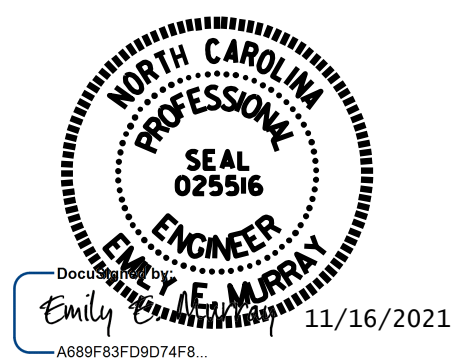
TOP OF PILE ELEVATIONS	
①	626.60
②	626.79
③	626.99
④	627.18
⑤	627.38
⑥	627.57
⑦	627.77
⑧	627.96



**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. 17BP.9.R.79  
 DAVIDSON COUNTY  
 STATION: 14+16.00 -L-  
 SHEET 2 OF 4



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

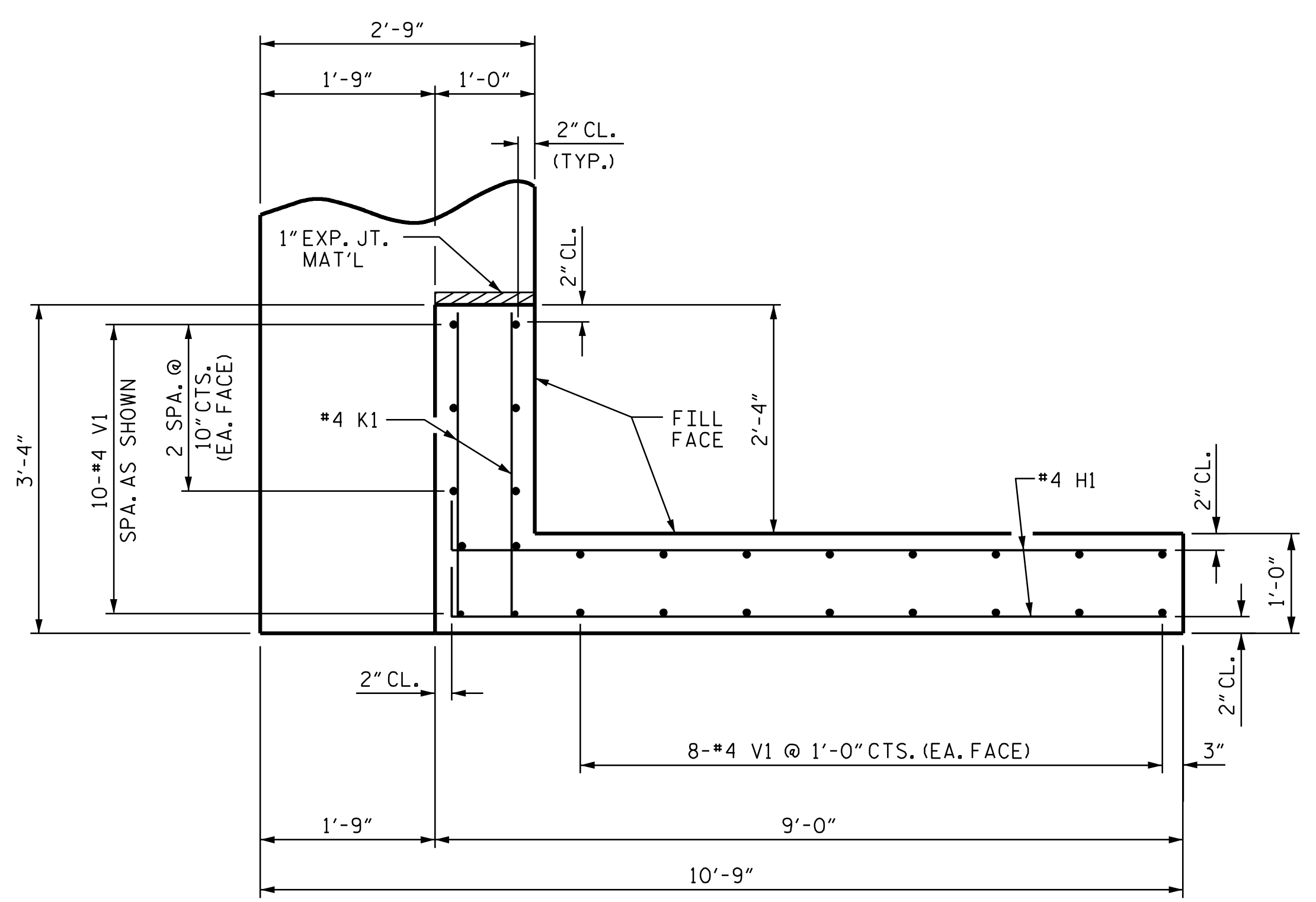
SUBSTRUCTURE  
 END BENT No. 2

ASSEMBLED BY : D. A. GLADDEN DATE : 12/19  
 CHECKED BY : E. MURRAY DATE : 1/20  
 DESIGN ENGINEER OF RECORD : E. MURRAY DATE : 1/20

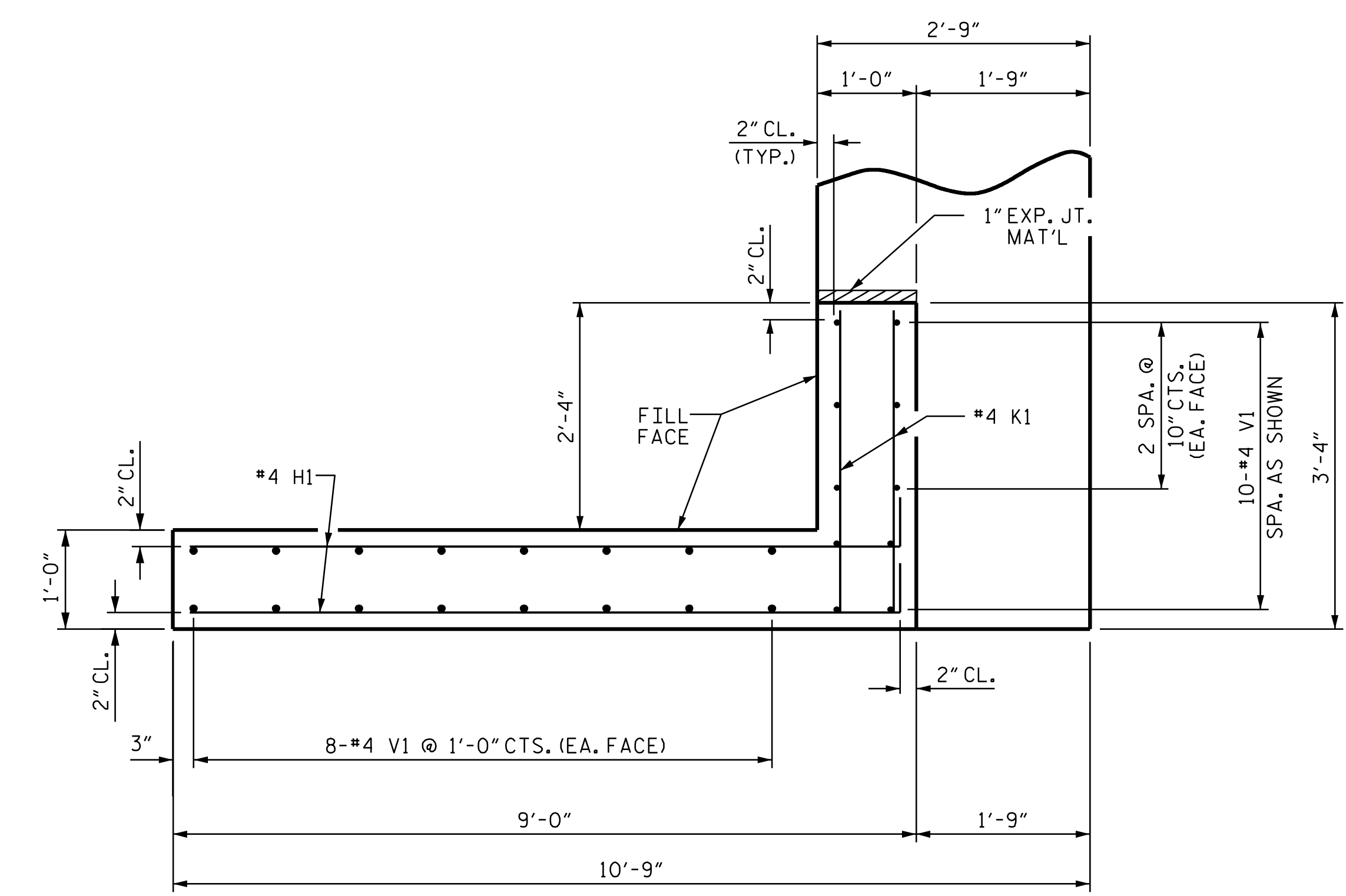
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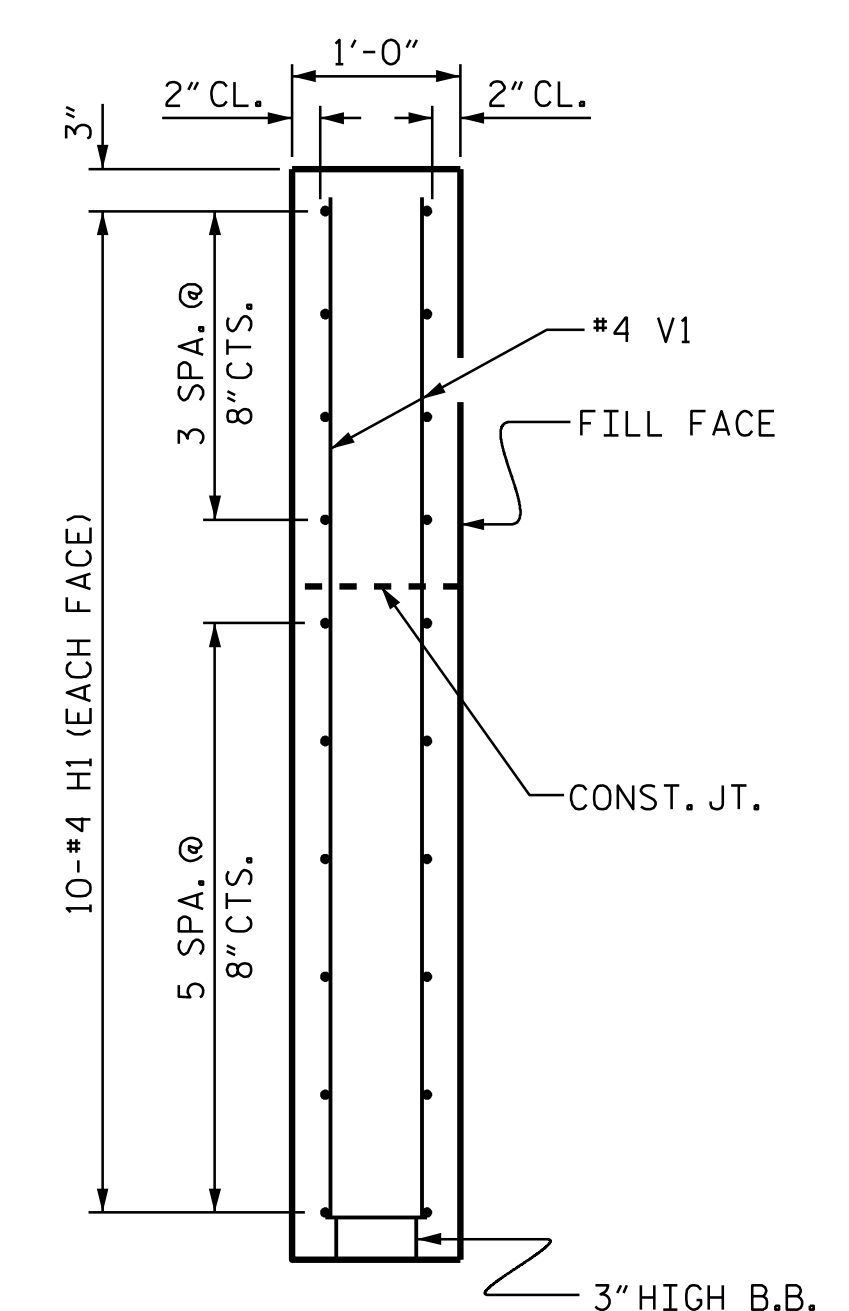
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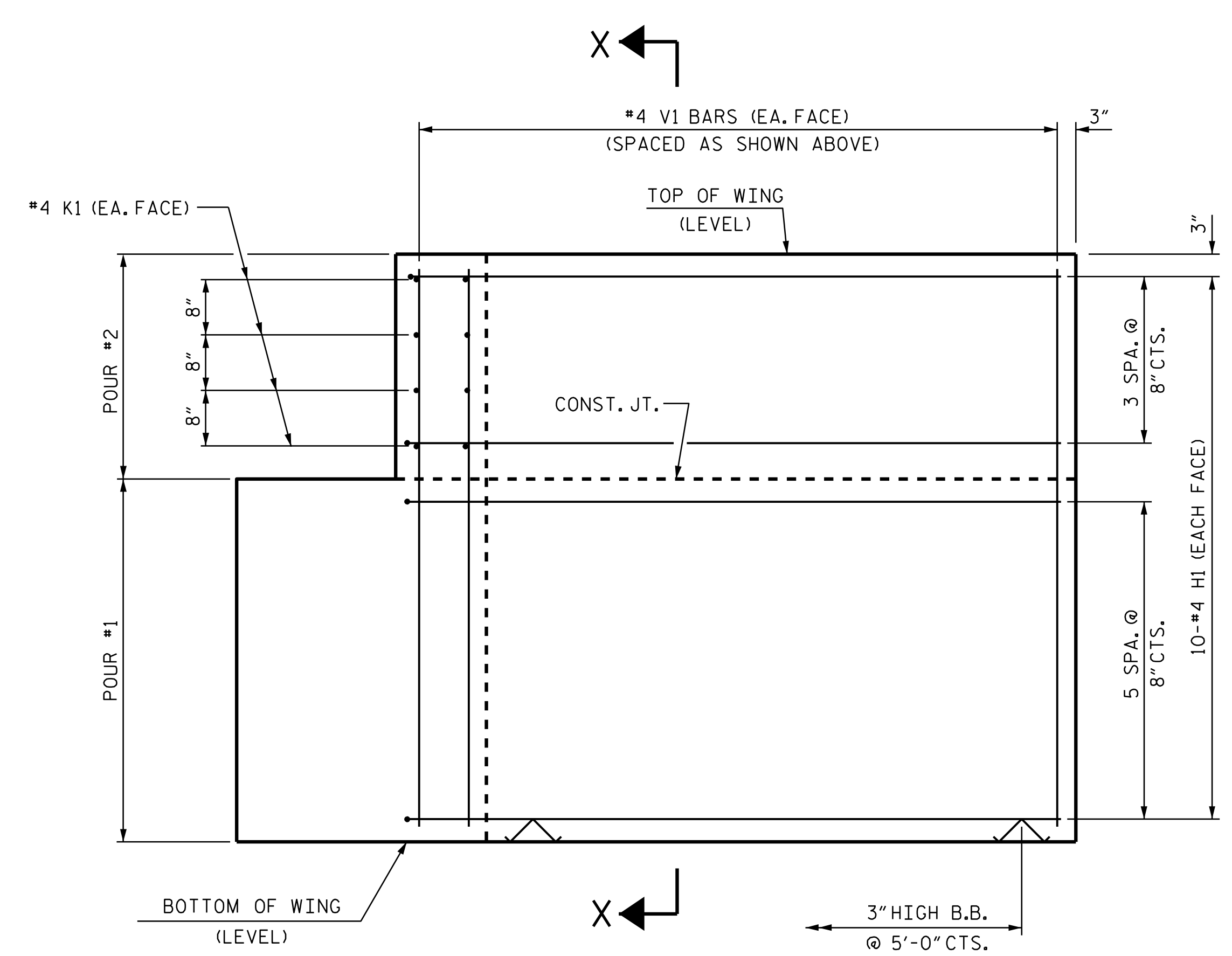
PLAN OF WING (W1)



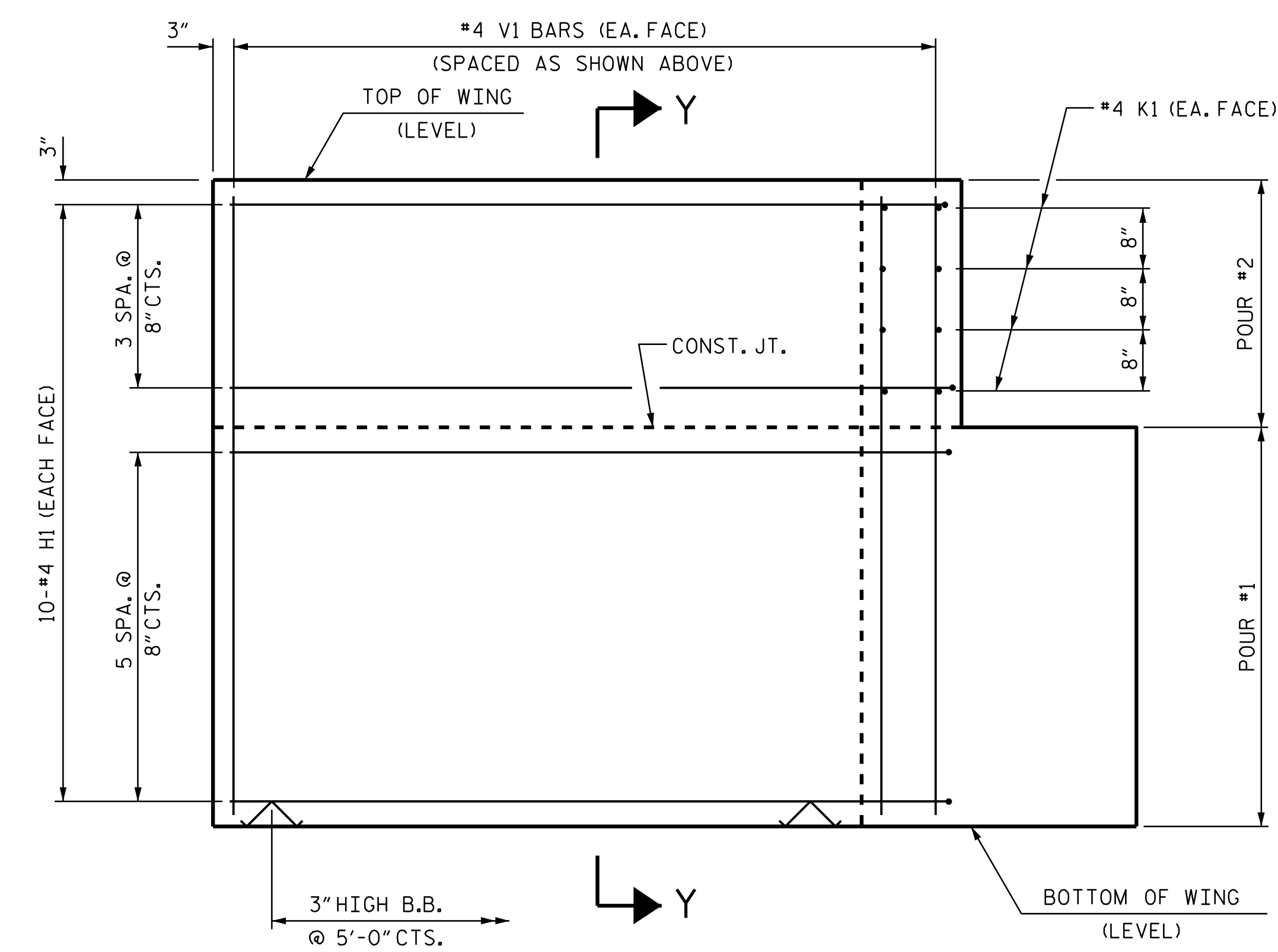
PLAN OF WING (W2)



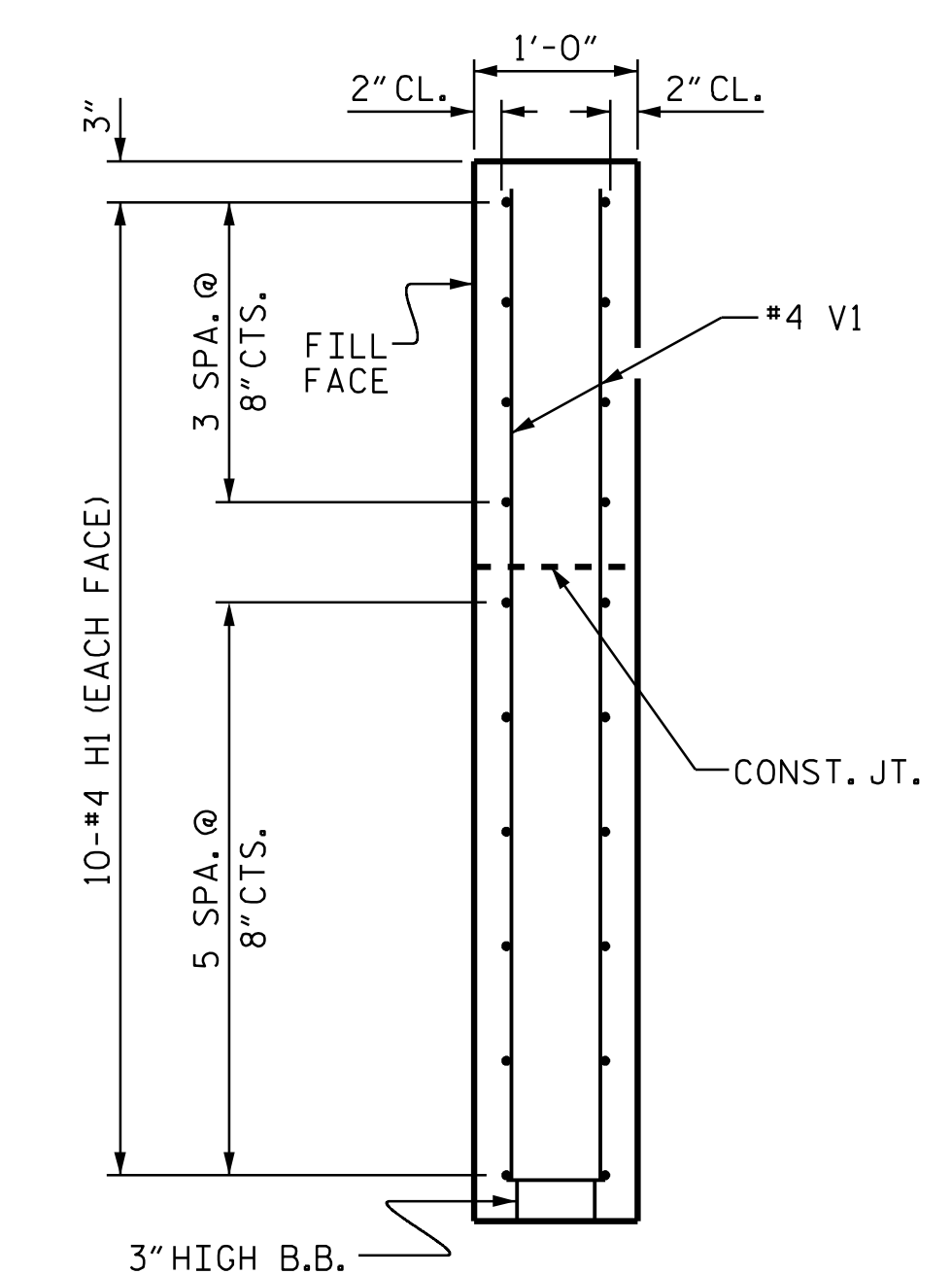
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

PROJECT NO. 17BP.9.R.79  
 DAVIDSON COUNTY  
 STATION: 14+16.00 -L-

SHEET 3 OF 4



11/11/2021



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT  
 WING DETAILS

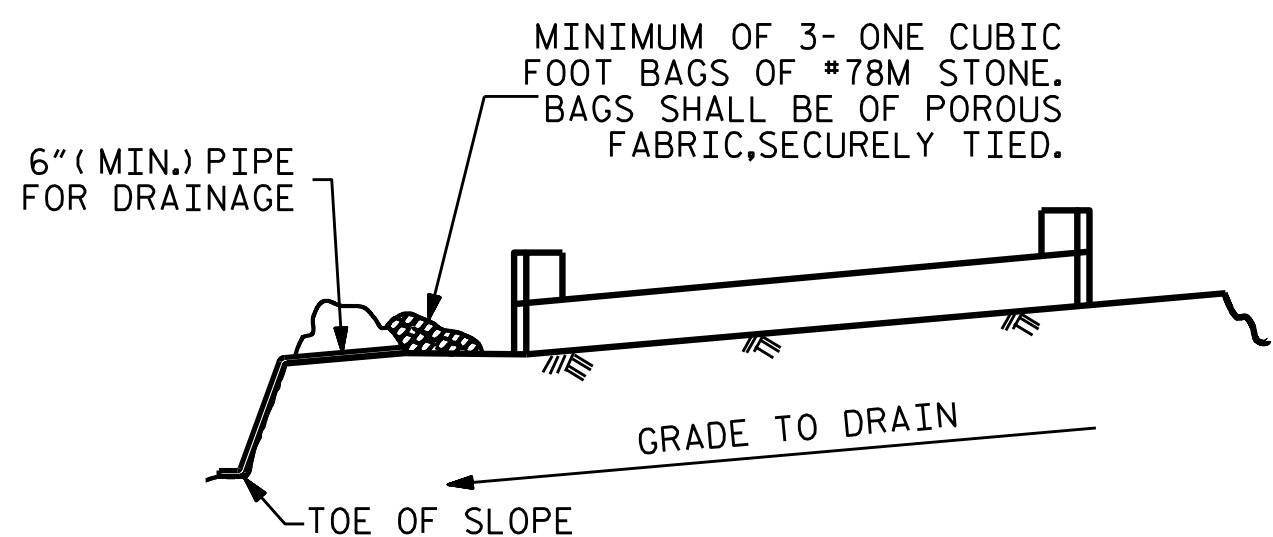
ASSEMBLED BY: D. A. GLADDEN DATE: 12/19  
 CHECKED BY: E. MURRAY DATE: 1/20  
 DESIGN ENGINEER OF RECORD: E. MURRAY DATE: 1/20

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REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 15
2			4			

WING DETAILS



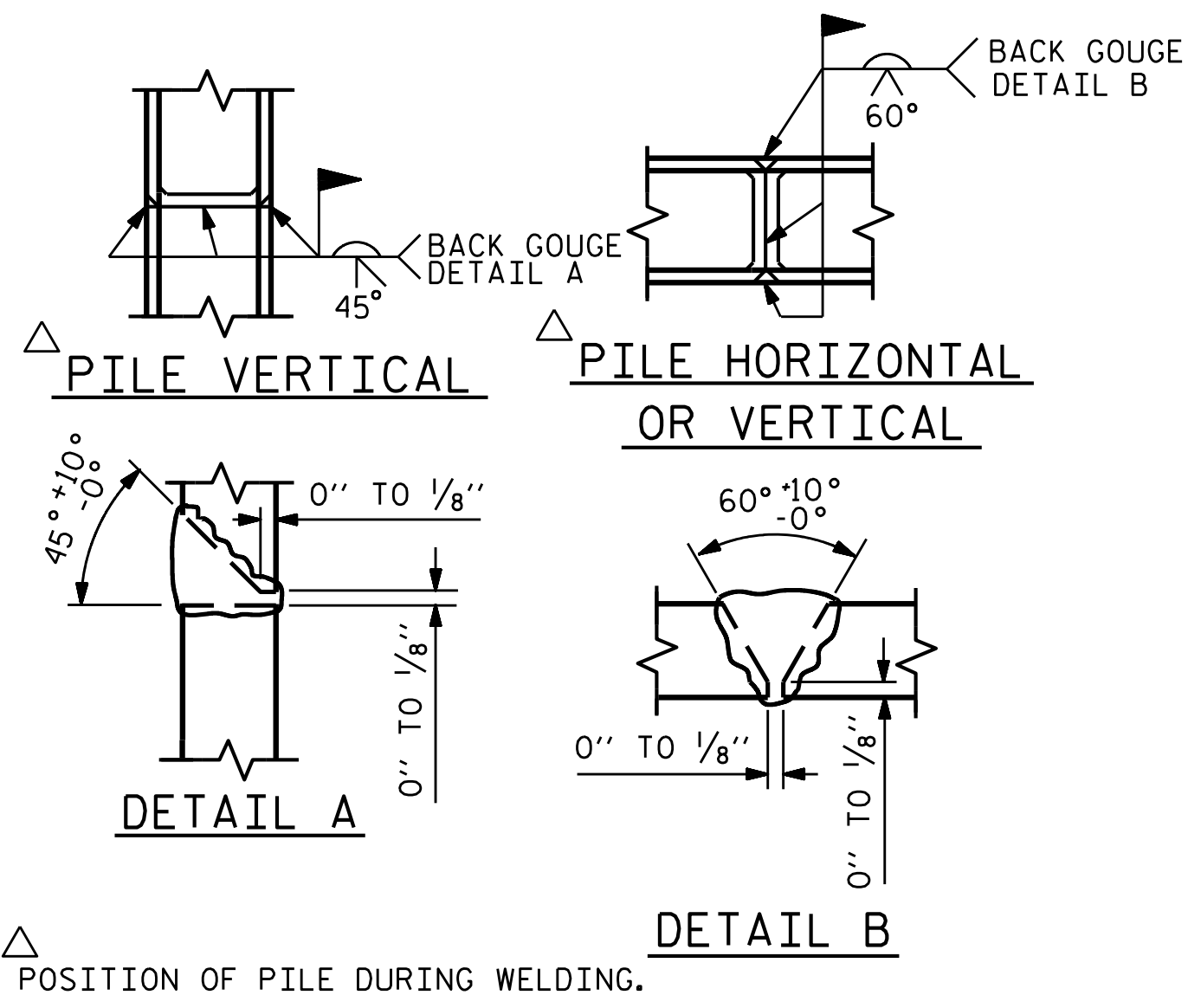


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

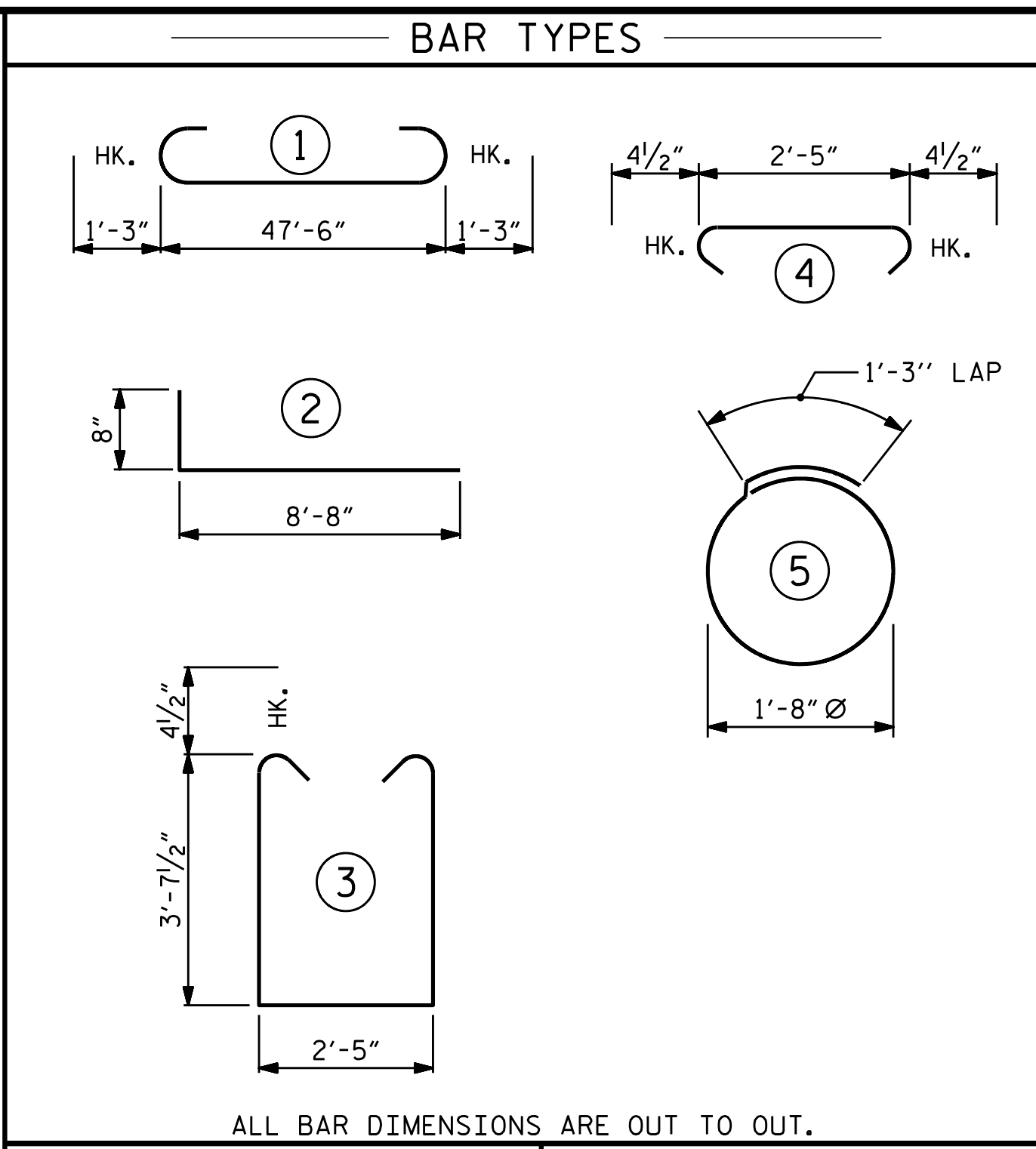
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

**TEMPORARY DRAINAGE AT END BENT**



**PILE SPLICE DETAILS**

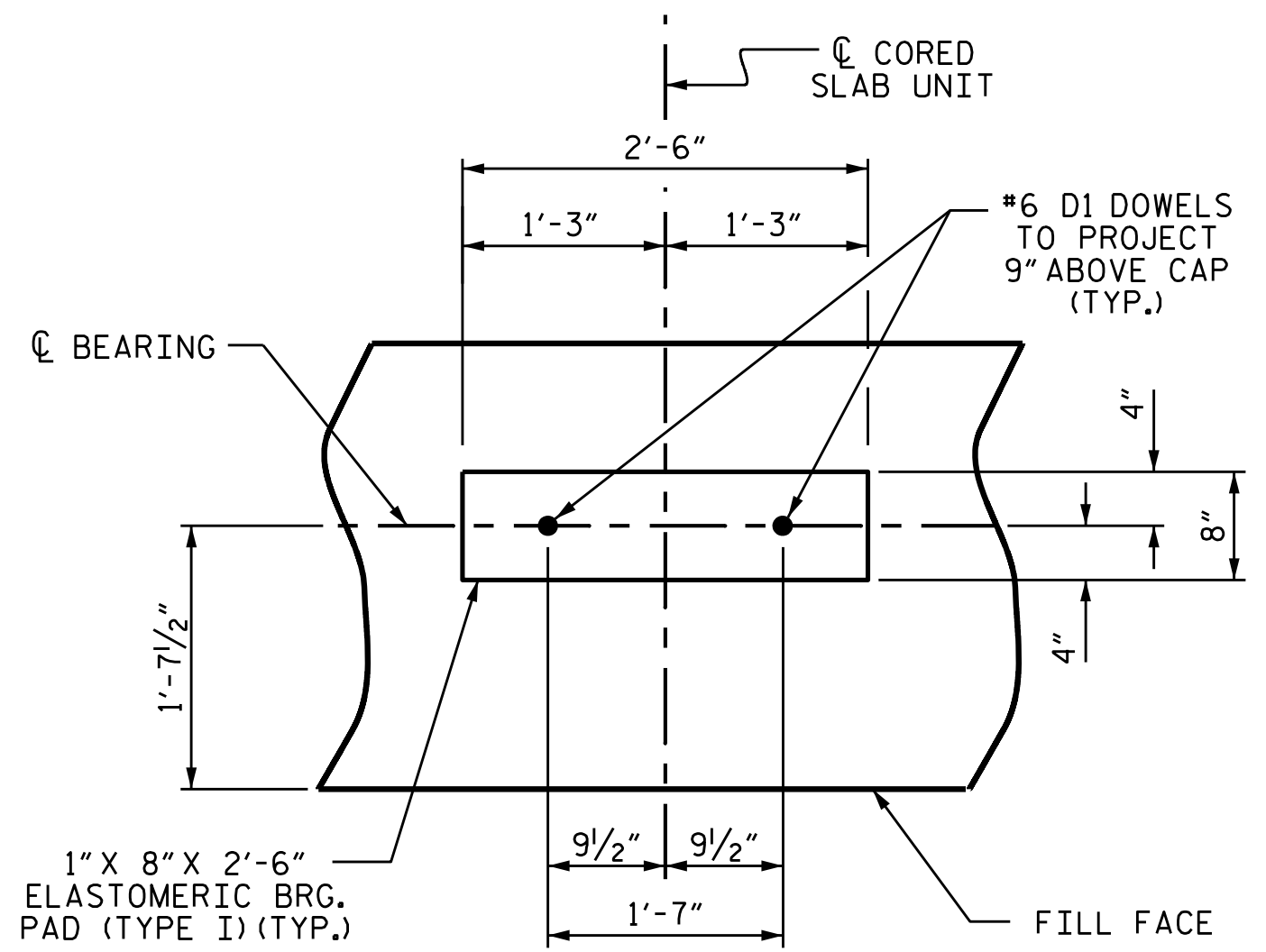


ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 8 LIN. FT.= 120	HP 12 X 53 STEEL PILES NO: 8 LIN. FT.= 160
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 8	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 8
STEEL PILE POINTS NO: 8	STEEL PILE POINTS NO: 8

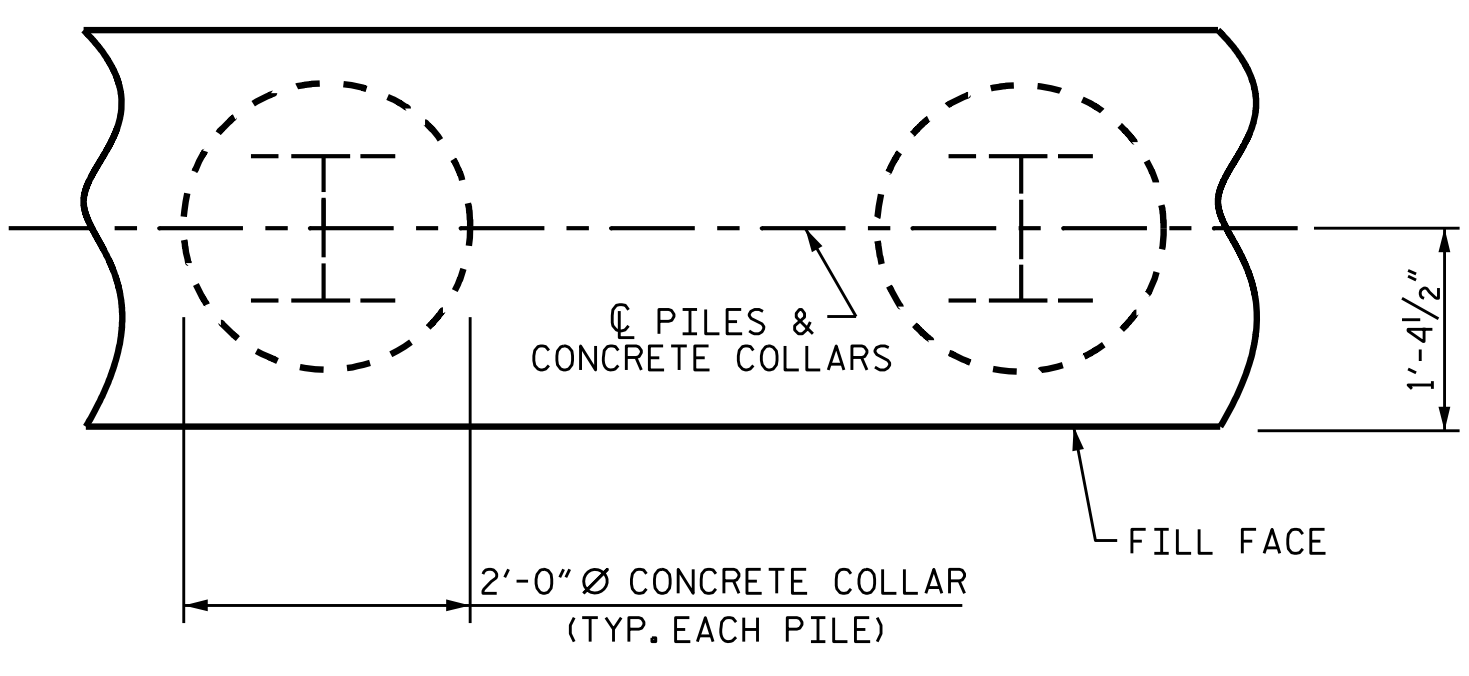
**BILL OF MATERIAL FOR ONE END BENT**

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	50'-0"	1360
B2	28	#4	STR	25'-1"	469
B3	13	#4	STR	2'-5"	21
D1	28	#6	STR	1'-6"	63
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	65	#4	3	10'-5"	452
S2	65	#4	4	3'-2"	137
S3	32	#4	5	6'-6"	139
V1	52	#4	STR	6'-2"	214
REINFORCING STEEL (FOR ONE END BENT)					3135 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					23.1 C.Y.
POUR #2 UPPER PART OF WINGS					2.3 C.Y.
TOTAL CLASS A CONCRETE					25.4 C.Y.



**DETAIL "A"**

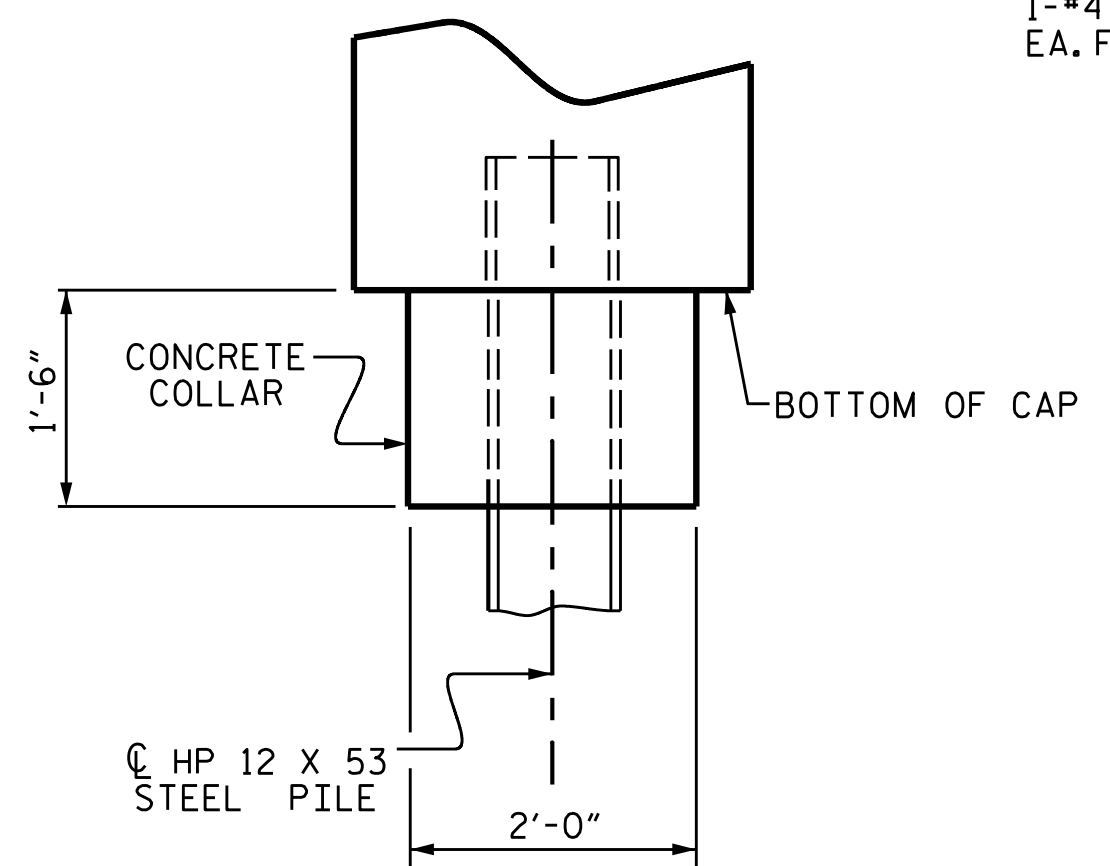
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



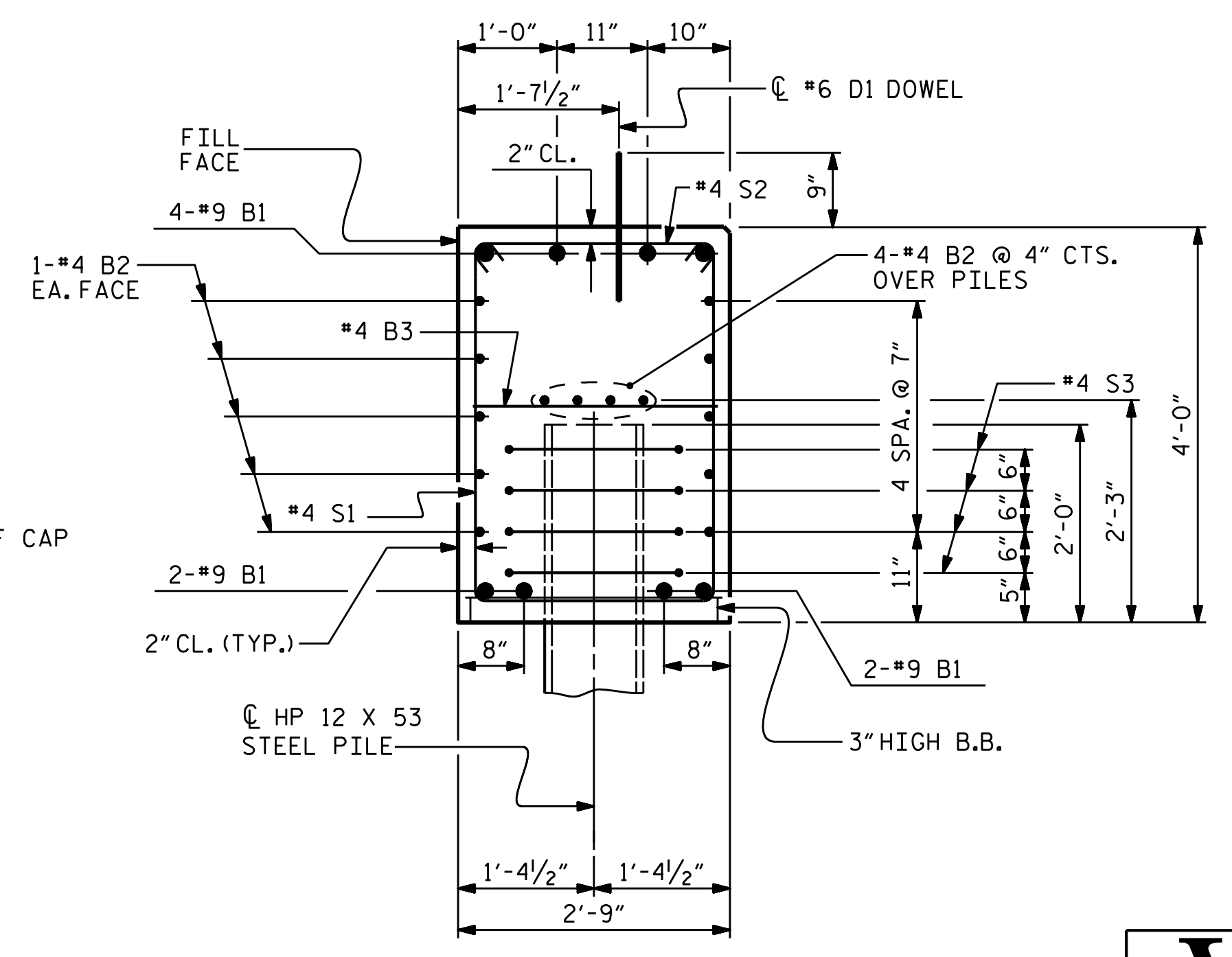
**PLAN**

**CORROSION PROTECTION FOR STEEL PILES DETAIL**

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

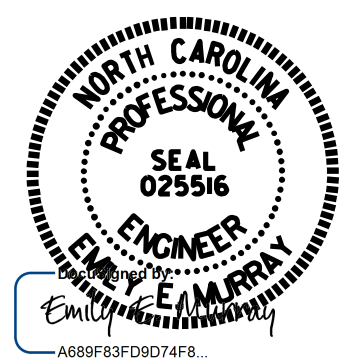


**ELEVATION**



**SECTION A-A**

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



11/11/2021



PROJECT NO. 17BP.9.R.79  
 DAVIDSON COUNTY  
 STATION: 14+16.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT No. 1 & 2  
 DETAILS

ASSEMBLED BY : D. A. GLADDEN DATE : 12/19  
 CHECKED BY : E. MURRAY DATE : 1/20  
 DESIGN ENGINEER OF RECORD : E. MURRAY DATE : 1/20

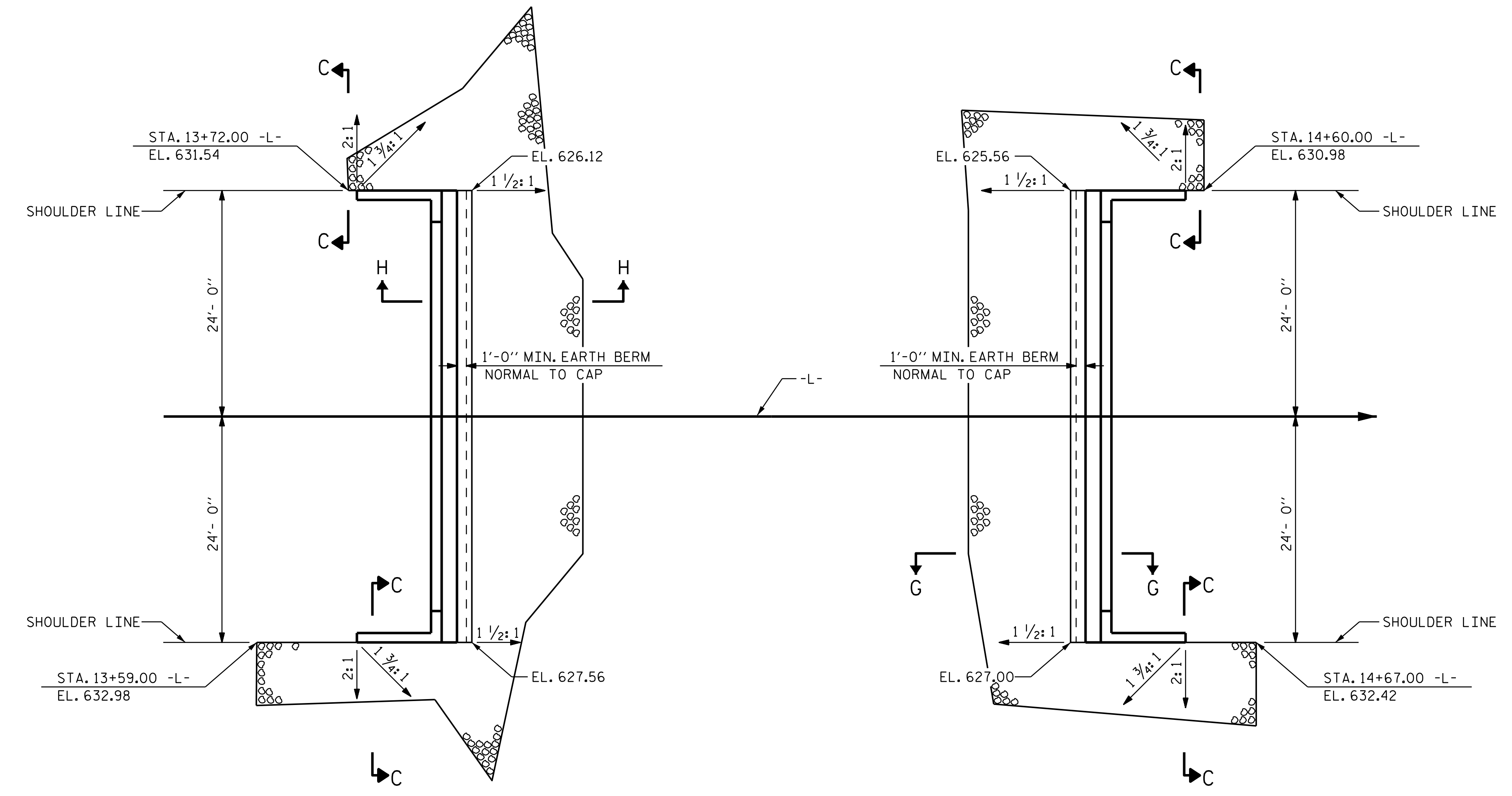
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5430 Wade Park Blvd, Suite 410  
 Raleigh, NC 27607  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

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

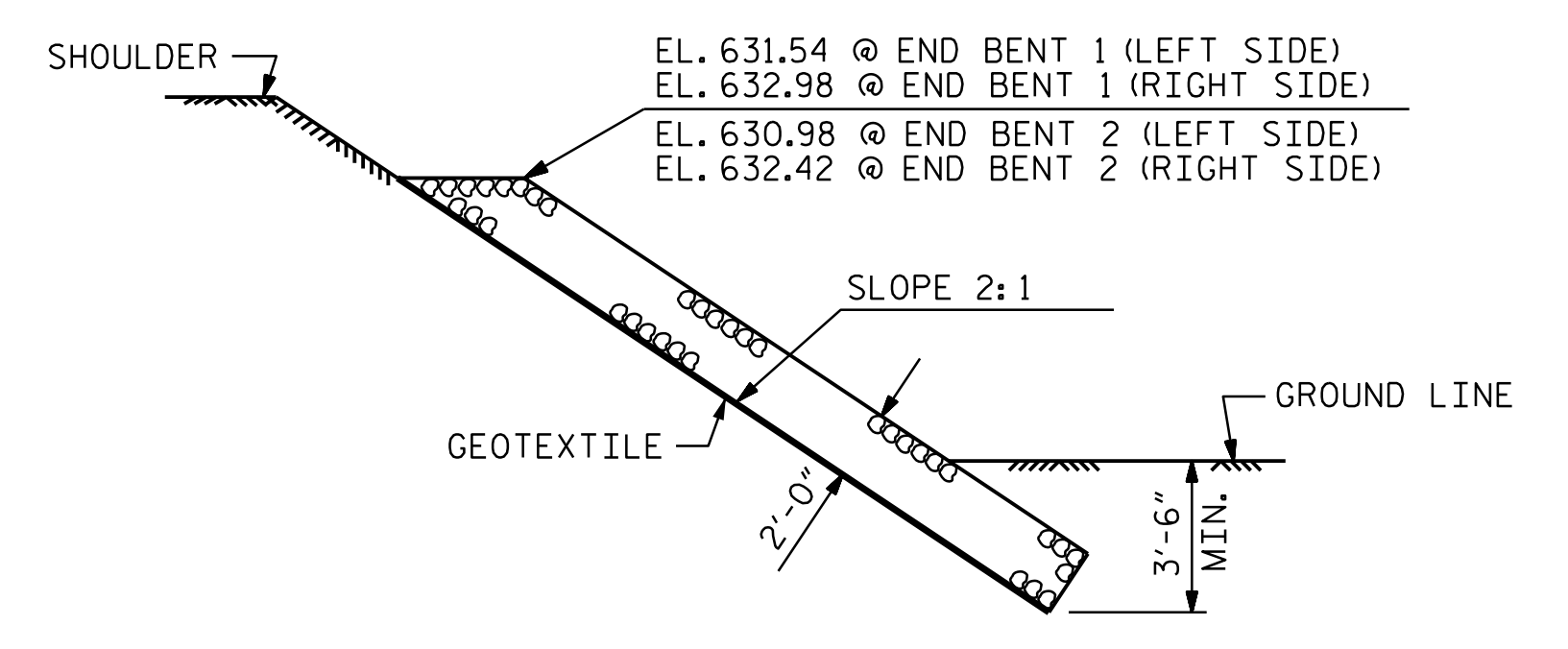
NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+16.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	170	189
END BENT 2	165	184

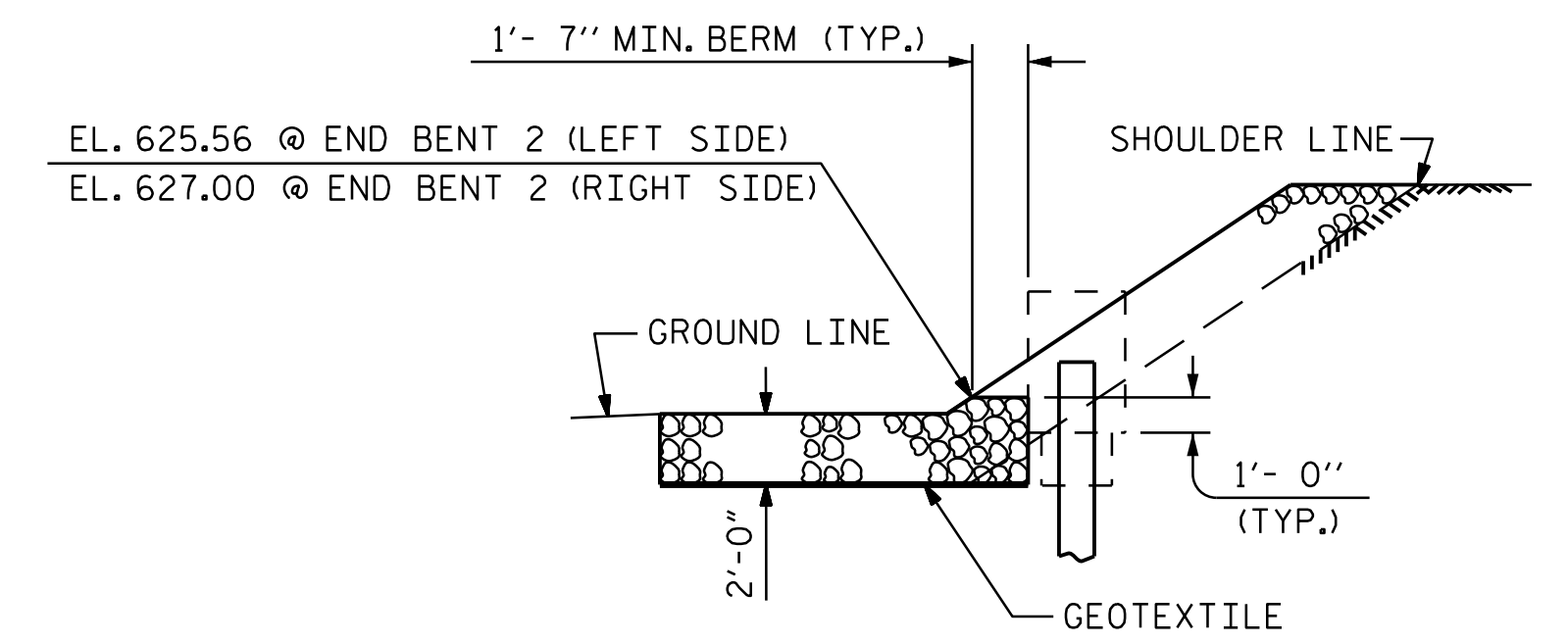


**RIP RAP AT END BENT 1**

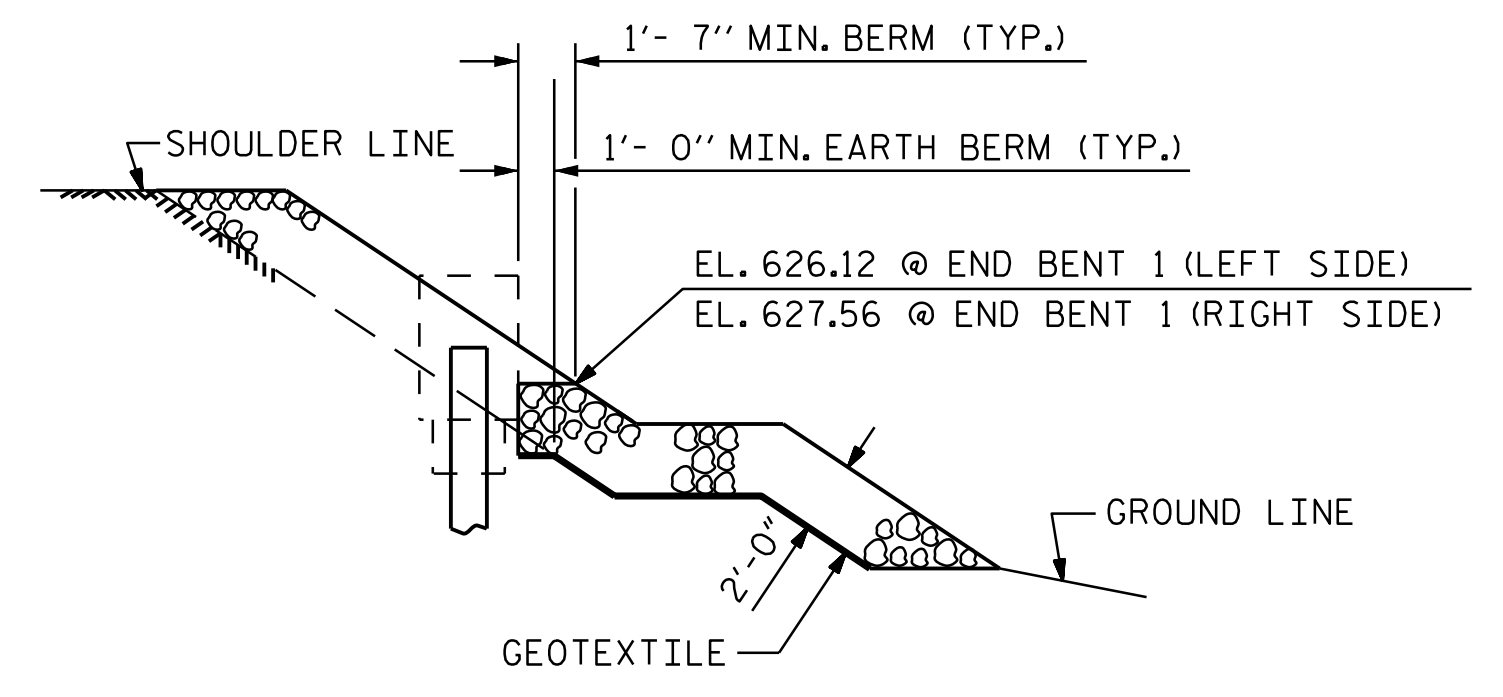
**RIP RAP AT END BENT 2**



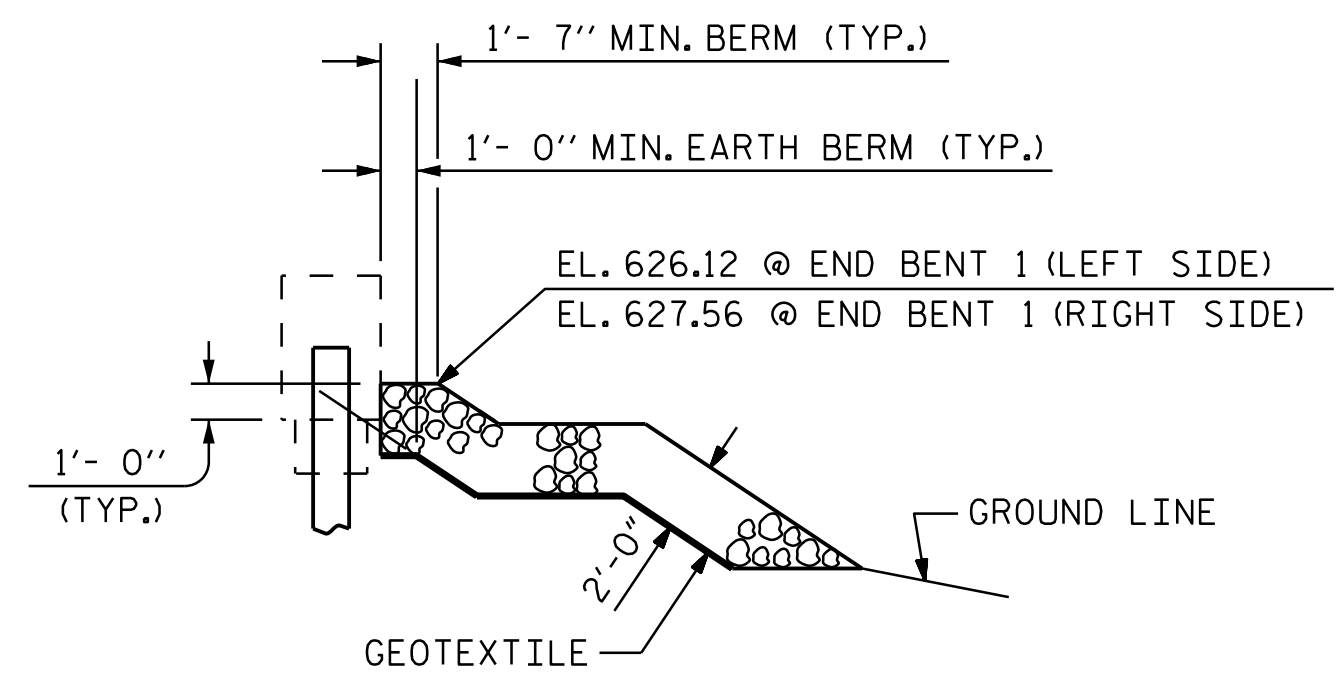
**SECTION C-C**



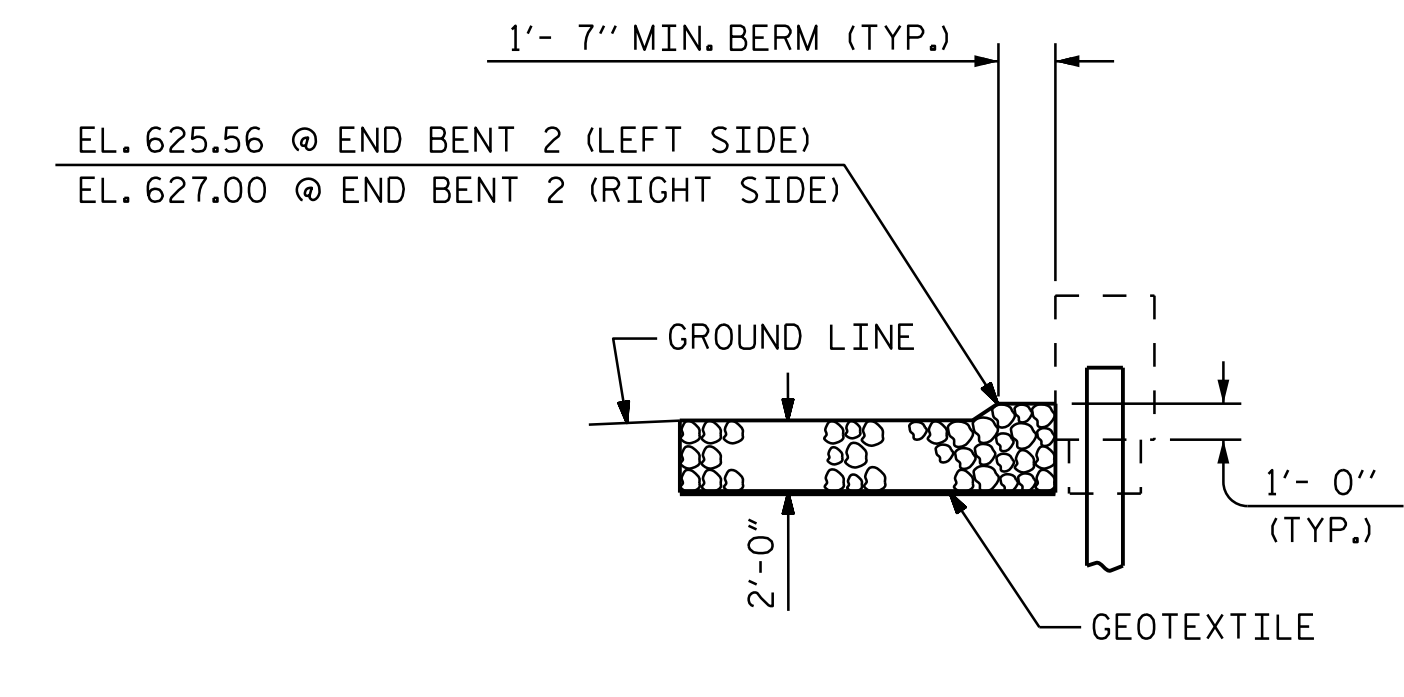
**SECTION G-G**



**SECTION H-H**

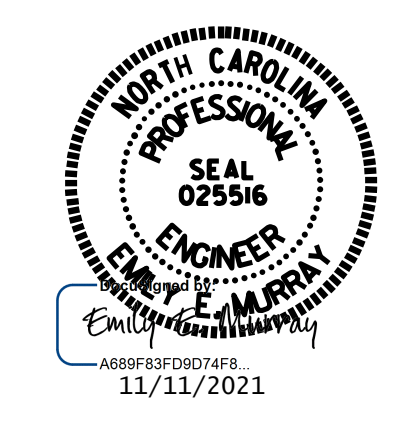


**SECTION C-C AT END BENT 1**



**SECTION C-C AT END BENT 2**

PROJECT NO. 17BP.9.R.79  
DAVIDSON COUNTY  
STATION: 14+16.00 -L-



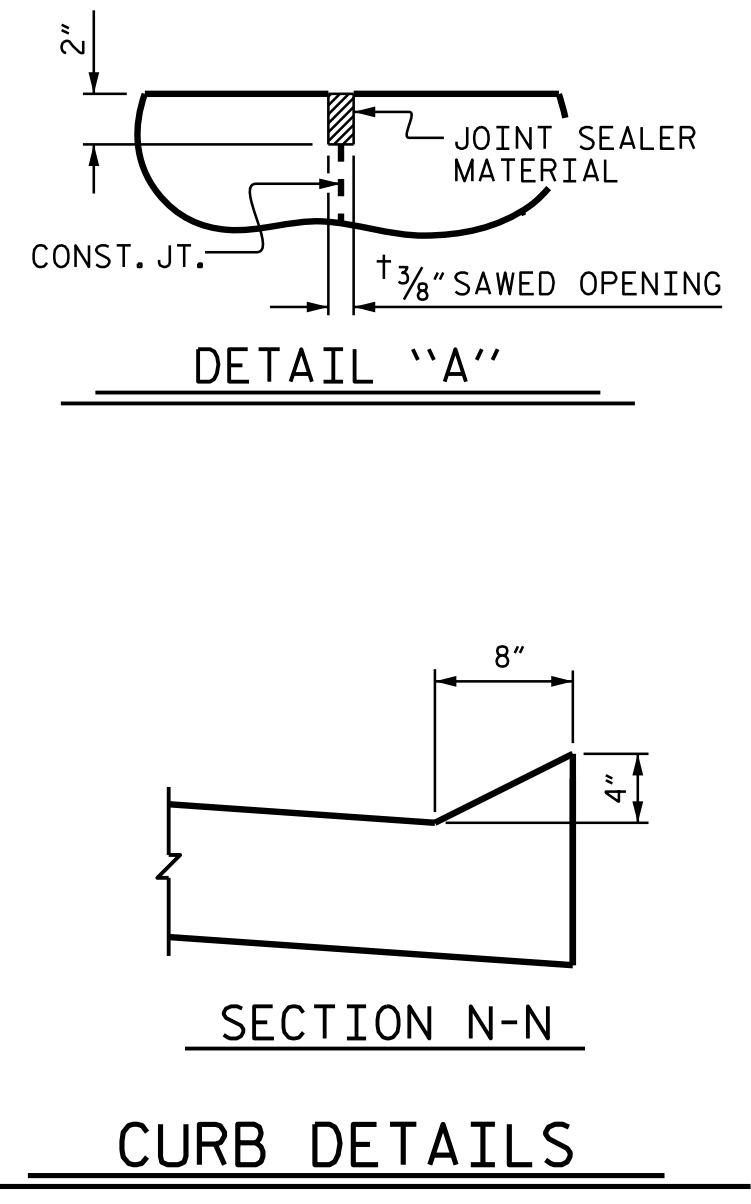
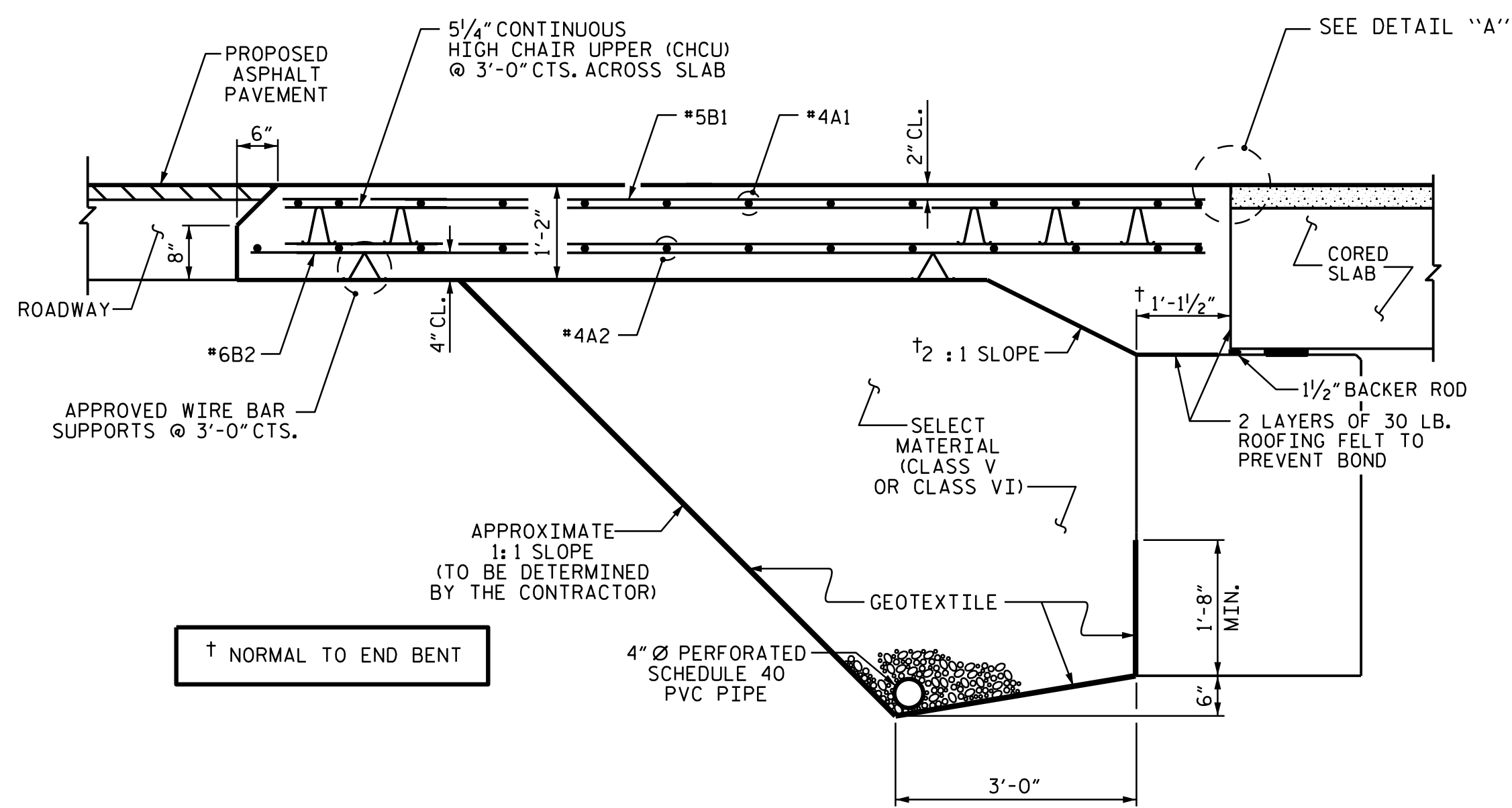
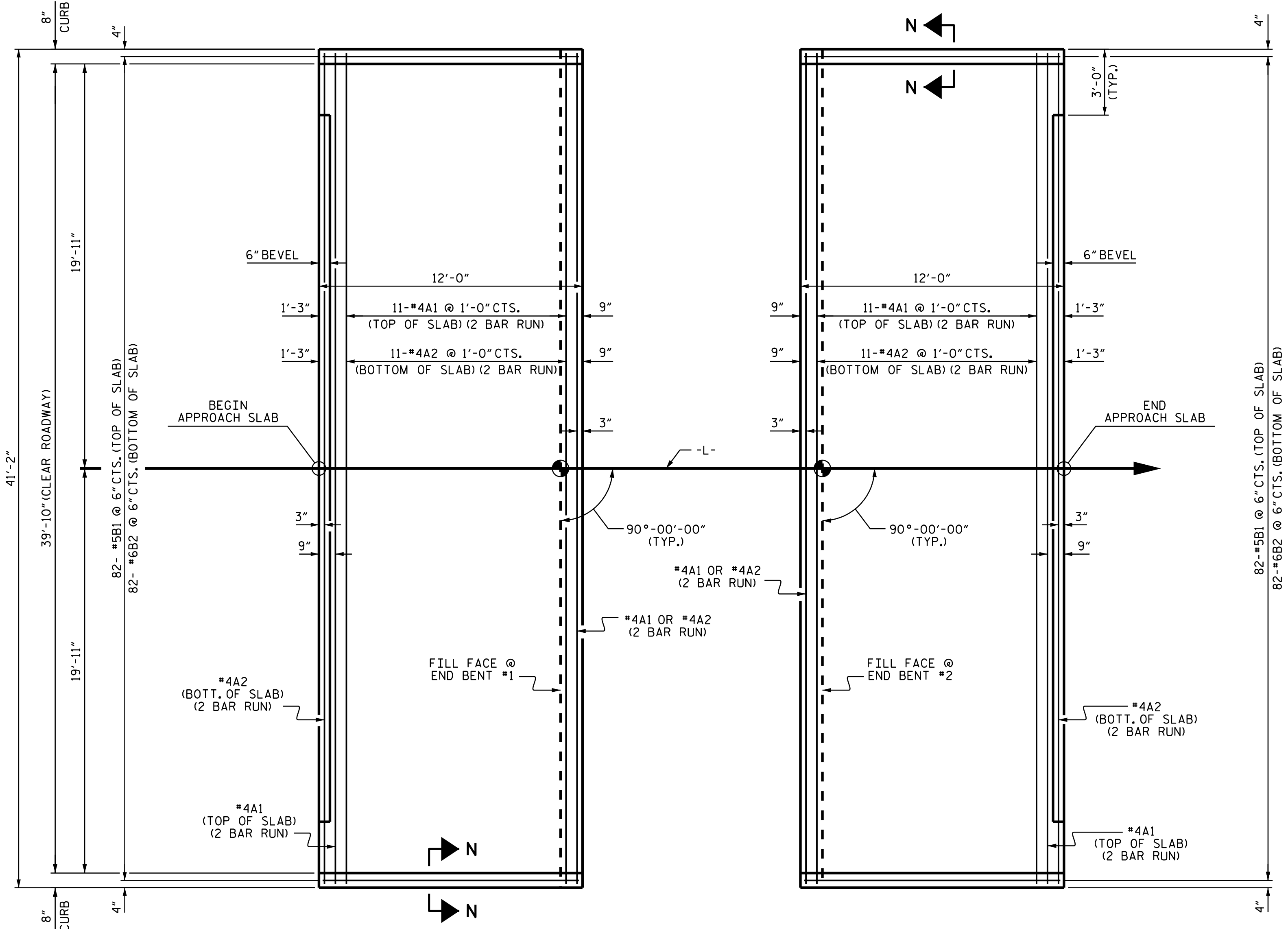
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
RIP RAP DETAILS

ASSEMBLED BY : D. A. GLADDEN DATE : 1/20  
CHECKED BY : E. E. MURRAY DATE : 1/20  
DESIGN ENGINEER OF RECORD : E. E. MURRAY DATE : 1/20

**VOLKERT**  
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REVISIONS						SHEET NO. S-14
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2			4			





**NOTES**

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

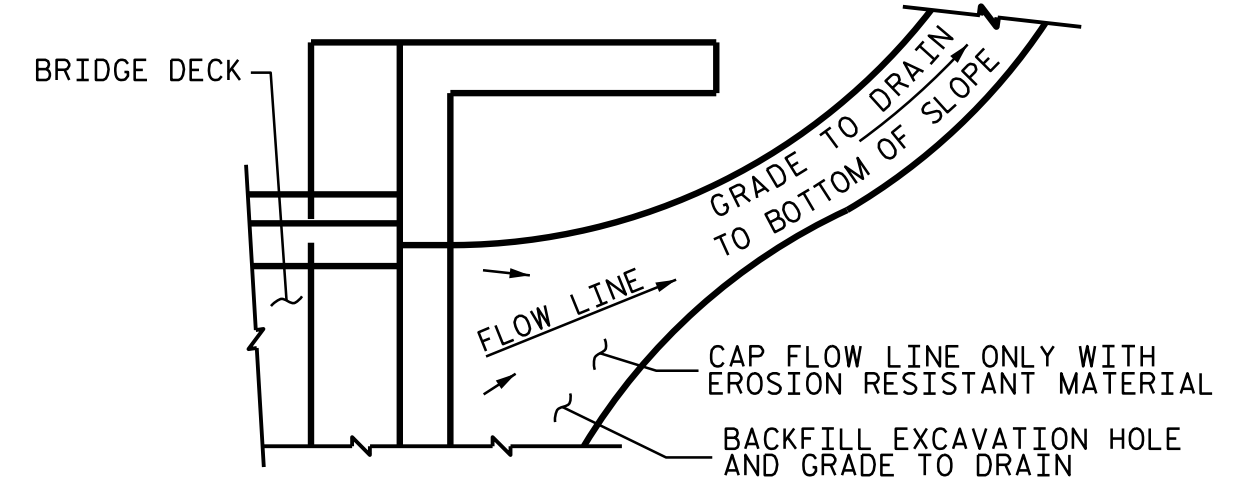
SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

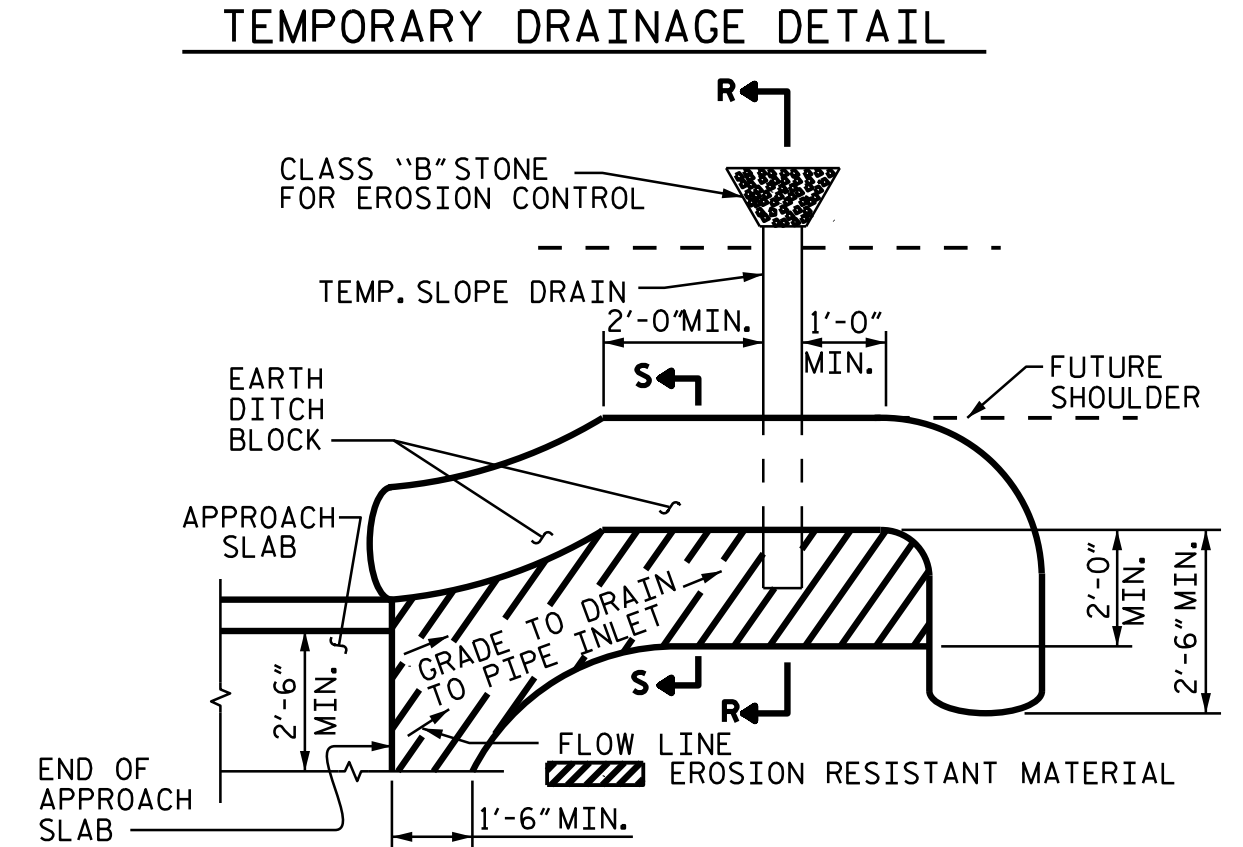
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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.



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.



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.

**BILL OF MATERIAL**

**APPROACH SLAB AT EB #1**

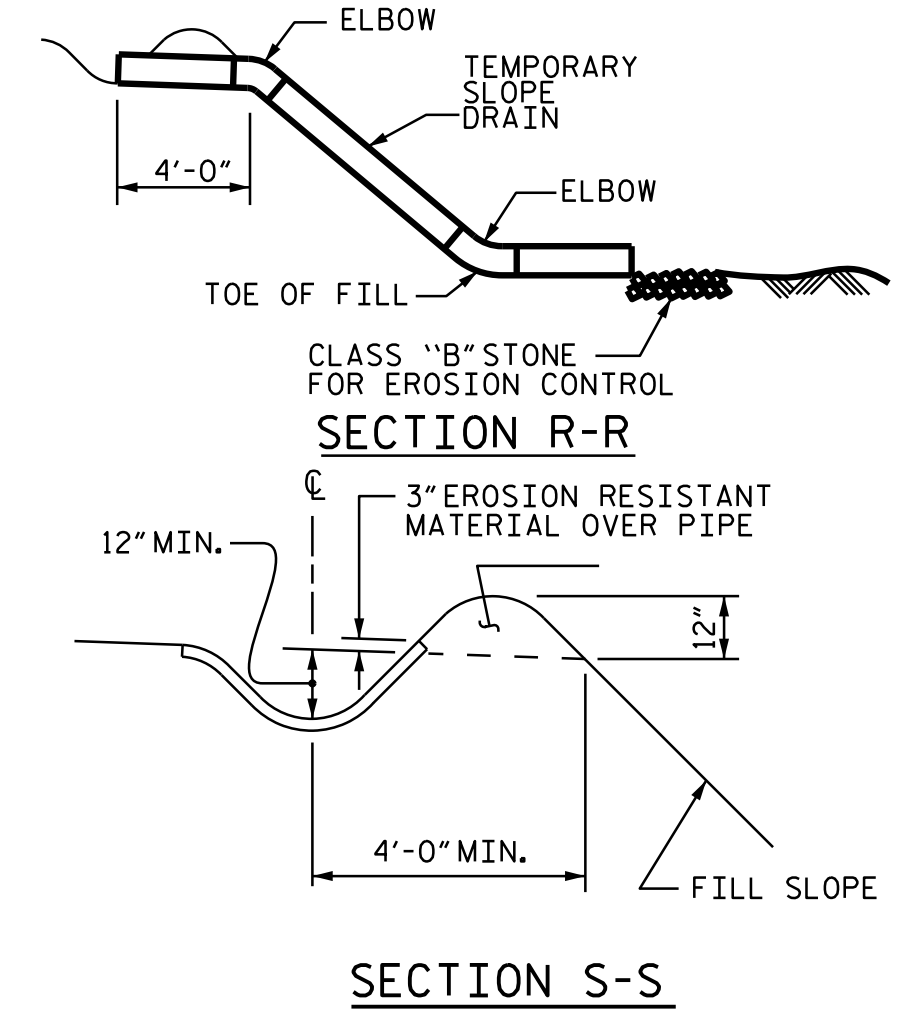
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	21'-5"	372
A2	26	#4	STR	21'-3"	369
* B1	82	#5	STR	11'-2"	955
B2	82	#6	STR	11'-8"	1437
REINFORCING STEEL					LBS. 1806
* EPOXY COATED REINFORCING STEEL					LBS. 1327
CLASS AA CONCRETE					C. Y. 24.6

**APPROACH SLAB AT EB #2**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	21'-5"	372
A2	26	#4	STR	21'-3"	369
* B1	82	#5	STR	11'-2"	955
B2	82	#6	STR	11'-8"	1437
REINFORCING STEEL					LBS. 1806
* EPOXY COATED REINFORCING STEEL					LBS. 1327
CLASS AA CONCRETE					C. Y. 24.6

**SPLICE LENGTHS**

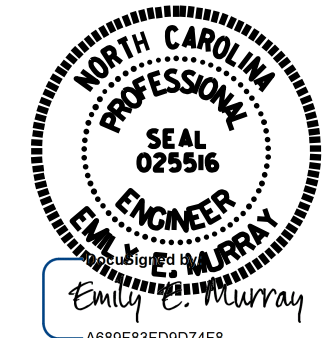
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"



PROJECT NO. 17BP.9.R.79  
 DAVIDSON COUNTY  
 STATION: 14+16.00 -L-

ASSEMBLED BY: D. A. GLADDEN DATE: 12/19  
 CHECKED BY: E. MURRAY DATE: 1/20  
 DESIGN ENGINEER OF RECORD: E. MURRAY DATE: 1/20

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 90° SKEW

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