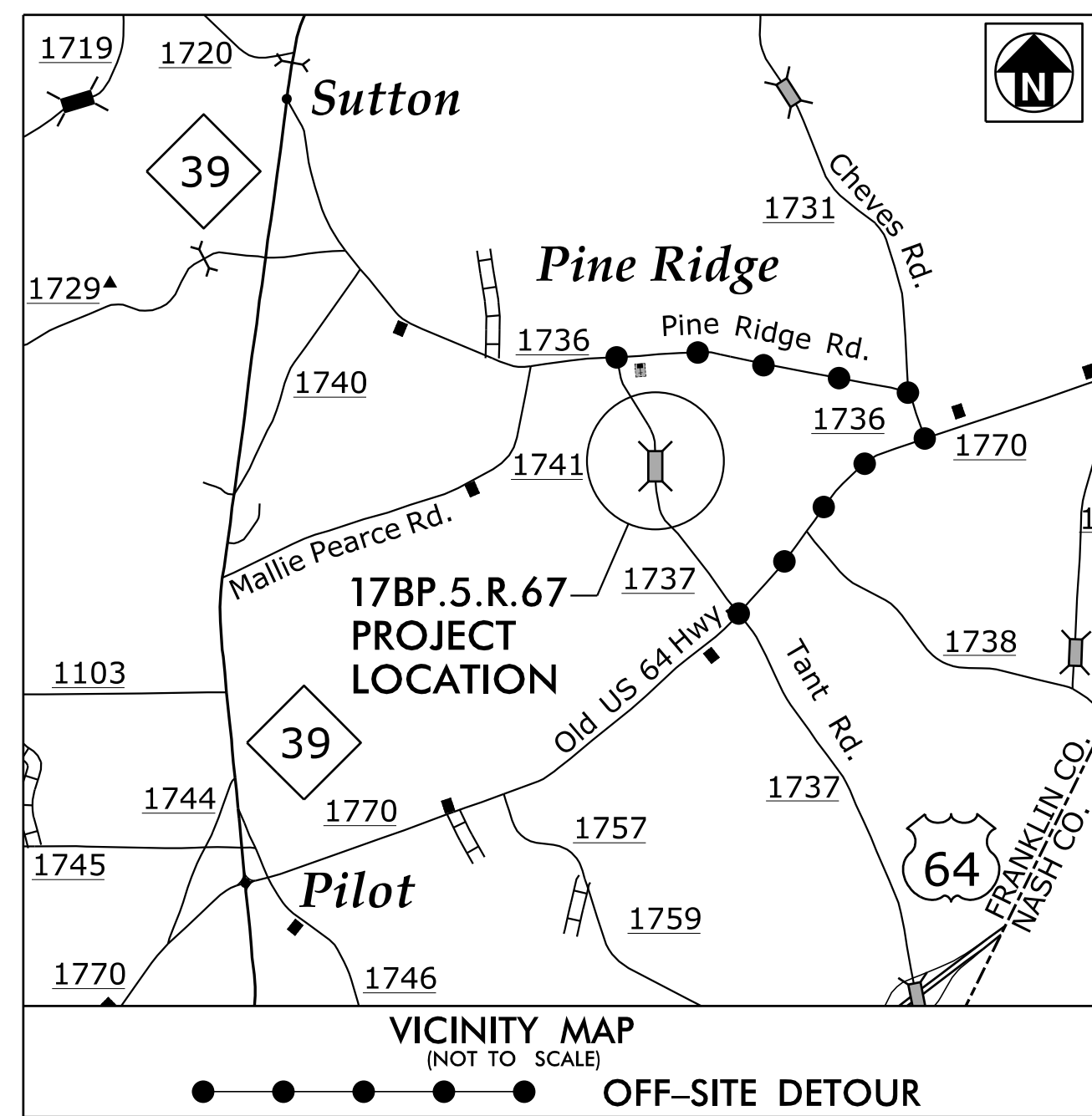


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CONTRACT: DE00297 TIP PROJECT: 17BP.5.R.67

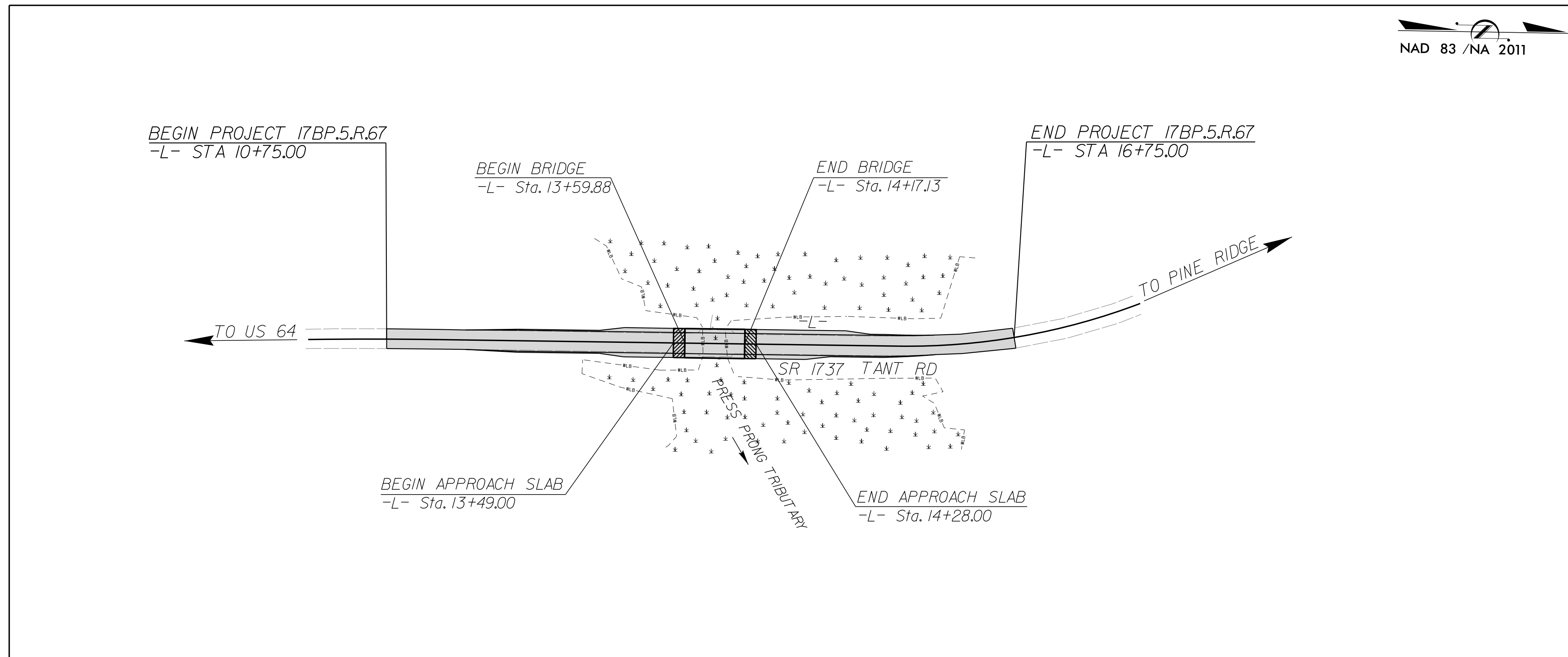


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
FRANKLIN COUNTY

LOCATION: BRIDGE NO. 80 OVER PRESS PRONG TRIBUTARY ON SR 1737 (TANT ROAD)

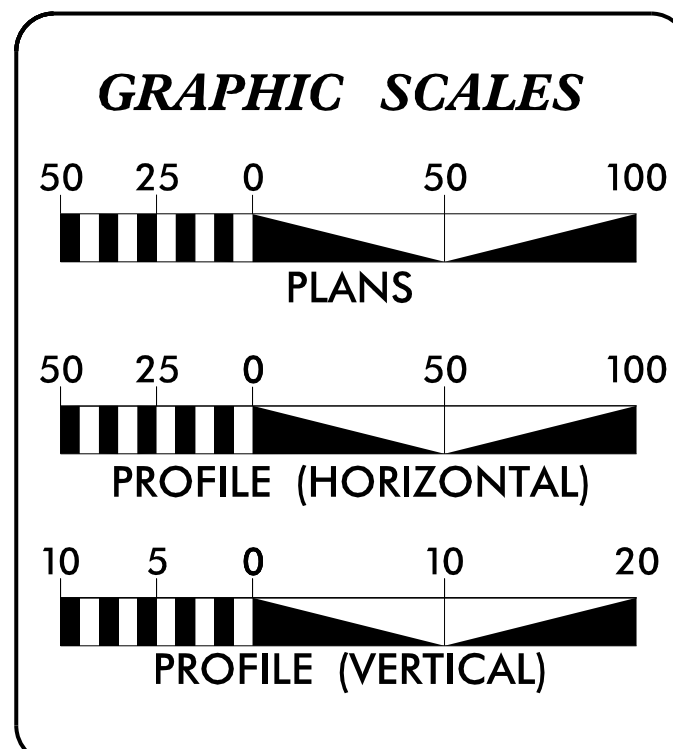
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.67	1	
STATE PROJECT NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.5.R.67		PE	
17BP.5.R.67		ROW /UTIL	
17BP.5.R.67		CONST	



NAD 83 /NA 2011

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



DESIGN DATA

ADT (2020) = 900

ADT (2040) = 1700

V = 45 MPH

CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT = 0.103 MILES

LENGTH STRUCTURE TIP PROJECT = 0.011 MILES

TOTAL LENGTH TIP PROJECT = 0.114 MILES

Prepared in the Office of Matt MacDonald for
DIVISION 5
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 23, 2017

LETTING DATE:
AUGUST 11, 2021

NCDOT CONTACT: LISA GILCHRIST, EI

TIM JORDAN, PE
PROJECT ENGINEER

JAMES R. RICE, PE
HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 21102
TIMOTHY J. JORDAN
8/2021
P.E.

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031986
JAMES R. RICE
8/2021
P.E.

PLANS PREPARED BY:

M M
MOTT
MACDONALD

7621 Purfoy Road, Suite 115
Fuquay-Varina, NC 27526
(919) 552-2253
(919) 552-2254 (Fax)
www.mottmac.com/americas

LICENSE NO. F-0669

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE	SHEET NO.
17BP.5.R.67 - FRANKLIN 80	1A
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
Prepared in the Office of:	

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS EFFECTIVE: 01-16-18

GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, CENTURYLINK, AT&T, AND TWC. ANY RELOCATIONS OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

LIST OF ROADWAY STANDARD DRAWINGS

EFF. 01-16-2018

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-way Marker
806.02	Granite Right-of-way Marker
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.02	Driveway Turnout - Radius Type
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	GUARDRAIL INSTALLATION DETAIL
2C-2	DETAIL FOR STRUCTURE ANCHOR UNITS
3B-1	GUARDRAIL, SHOULDER BERM GUTTER, PAVEMENT REMOVAL, AND EARTHWORK SUMMARY
3D-1	DRAINAGE SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY
X-1 THRU X-2	CROSS-SECTIONS
S-1 THRU S-15	STRUCTURE PLANS
SN	STANDARD STRUCTURE NOTES

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-☠
Potential Contamination Area: Soil	☠-s-☠
Known Contamination Area: Water	☠-w-☠
Potential Contamination Area: Water	☠-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	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

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	☼

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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	---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	⊕
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	⊕
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	○
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	⊕
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 Tower	⊗
U/G TV Cable Hand Hole	○
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:

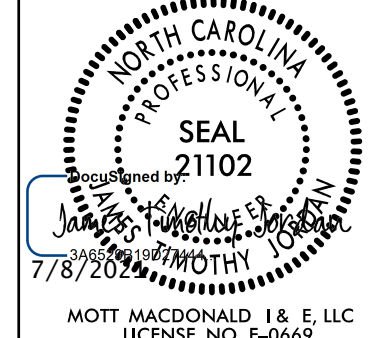
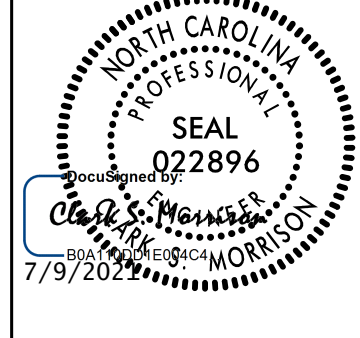

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	---G---
U/G Gas Line LOS C (S.U.E.*)	---G---
U/G Gas Line LOS D (S.U.E.*)	---G---
Above Ground Gas Line	---A/G Gas---

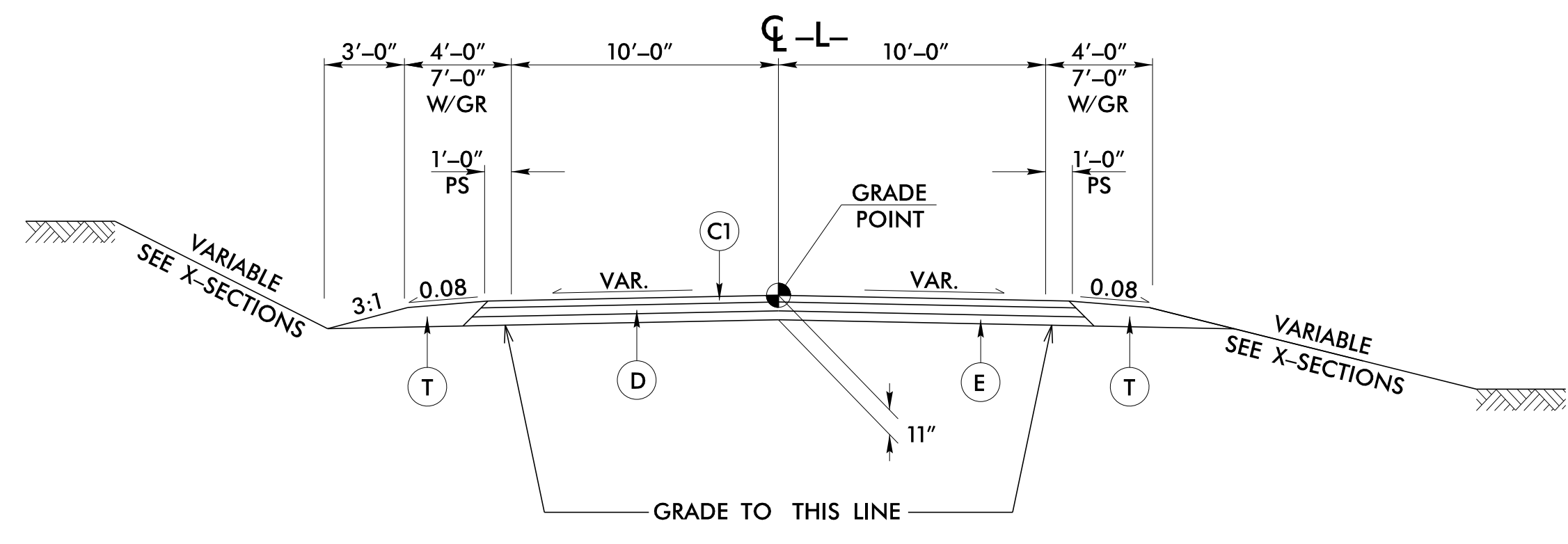
SANITARY SEWER:

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:

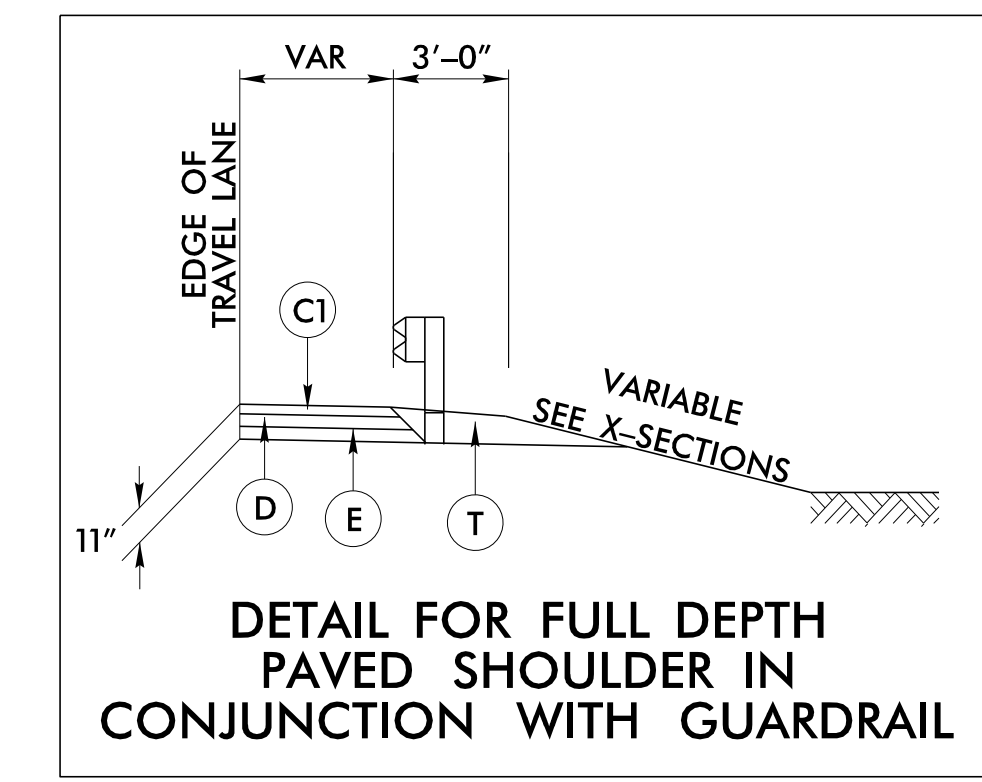
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line LOS B (S.U.E.*)	---TU/L---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕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

PROJECT REFERENCE		SHEET NO.	
17BP.5.R.67 - FRANKLIN 80		2A-1	
ROADWAY DESIGN ENGINEER		PAVEMENT ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			

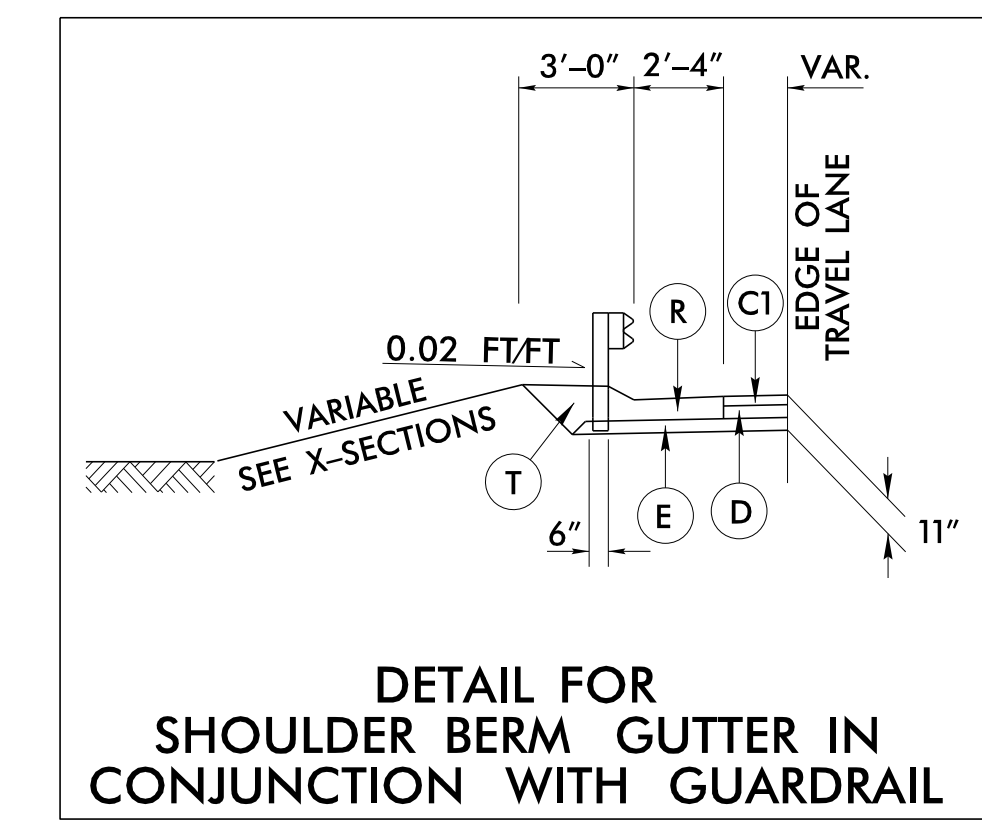


TYPICAL SECTION NO. 1

- TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1:
 -L- STA 11+50.00 TO 12+00.00
- USE TYPICAL SECTION NO. 1:
 -L- STA 12+00.00 TO 13+59.88 (BEGIN BRIDGE)
 -L- STA 14+17.13 (END BRIDGE) TO 15+50.00
- TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING:
 -L- STA 15+50.00 TO 16+00.00

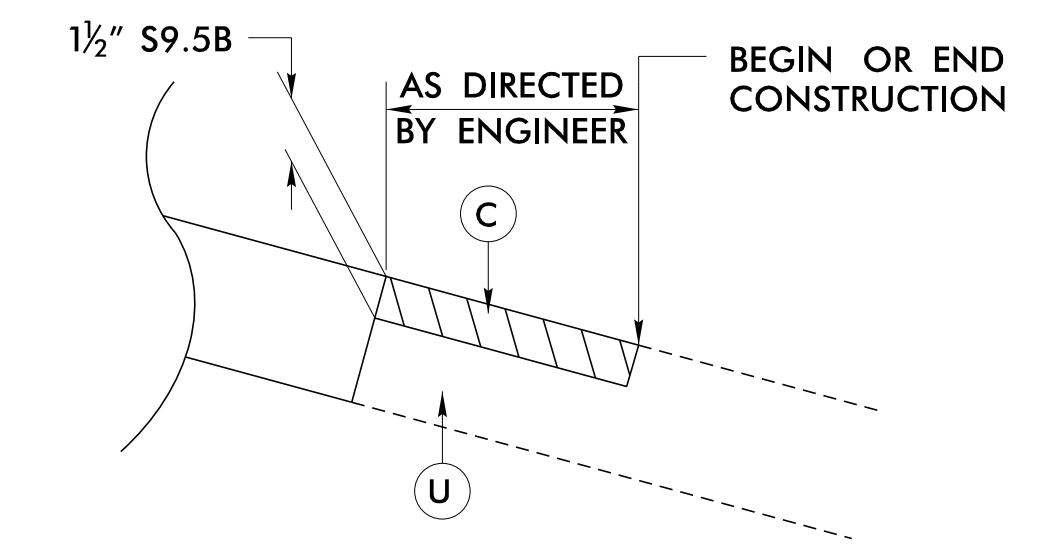


DETAIL FOR FULL DEPTH PAVED SHOULDER IN CONJUNCTION WITH GUARDRAIL



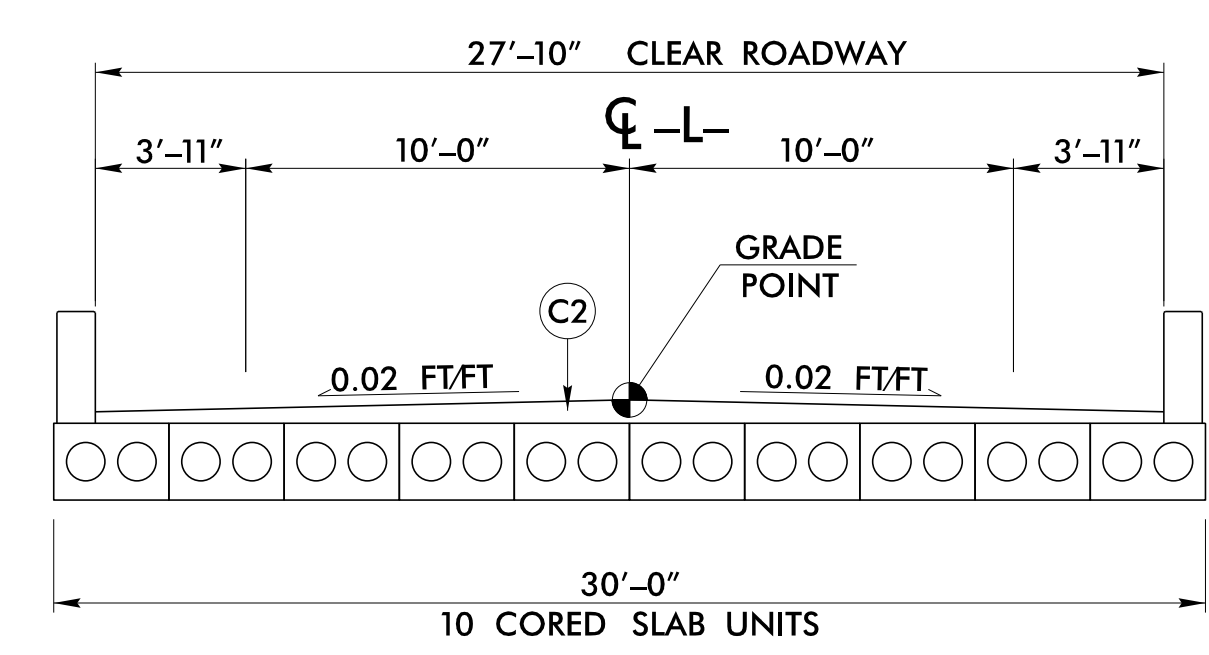
DETAIL FOR SHOULDER BERM GUTTER IN CONJUNCTION WITH GUARDRAIL

- L- STA 14+28.00 TO 14+85.00 LT
 -L- STA 14+28.00 TO 14+35.00 RT



**MILLING DETAIL
DETAIL SHOWING PROFILE VIEW**

- L- STA 10+75.00 TO 11+50.00
 -L- STA 16+00.00 TO 16+75.00



TYPICAL SECTION NO. 2

- USE TYPICAL SECTION NO. 2:
 -L- STA 13+59.88 (BEGIN BRIDGE) TO 14+17.13 (END BRIDGE)

NOTE: SEE STRUCTURE PLANS FOR PAVEMENT DEPTHS ON STRUCTURE

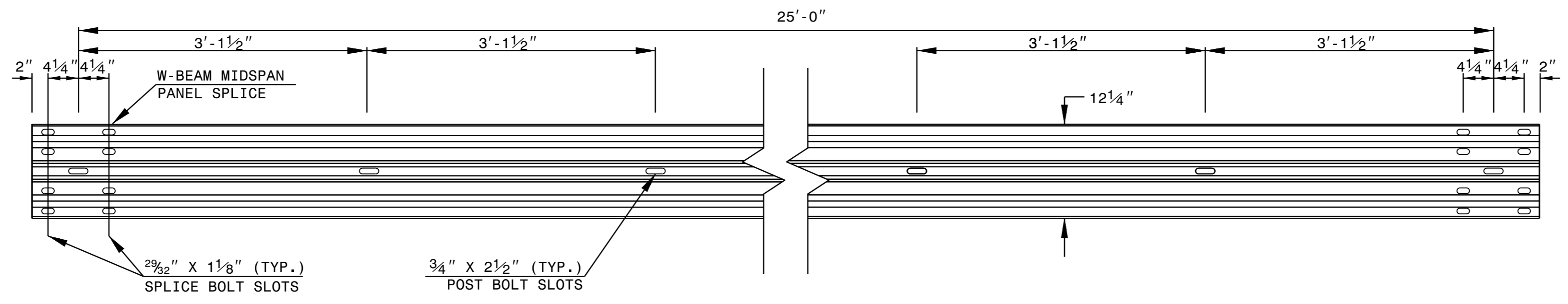
PAVEMENT SCHEDULE	
C	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT GREATER THAN 1 1/2" IN DEPTH.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

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

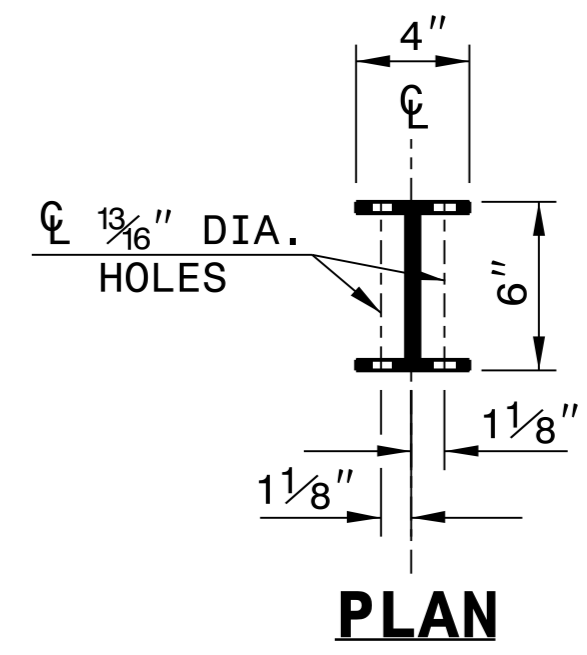
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

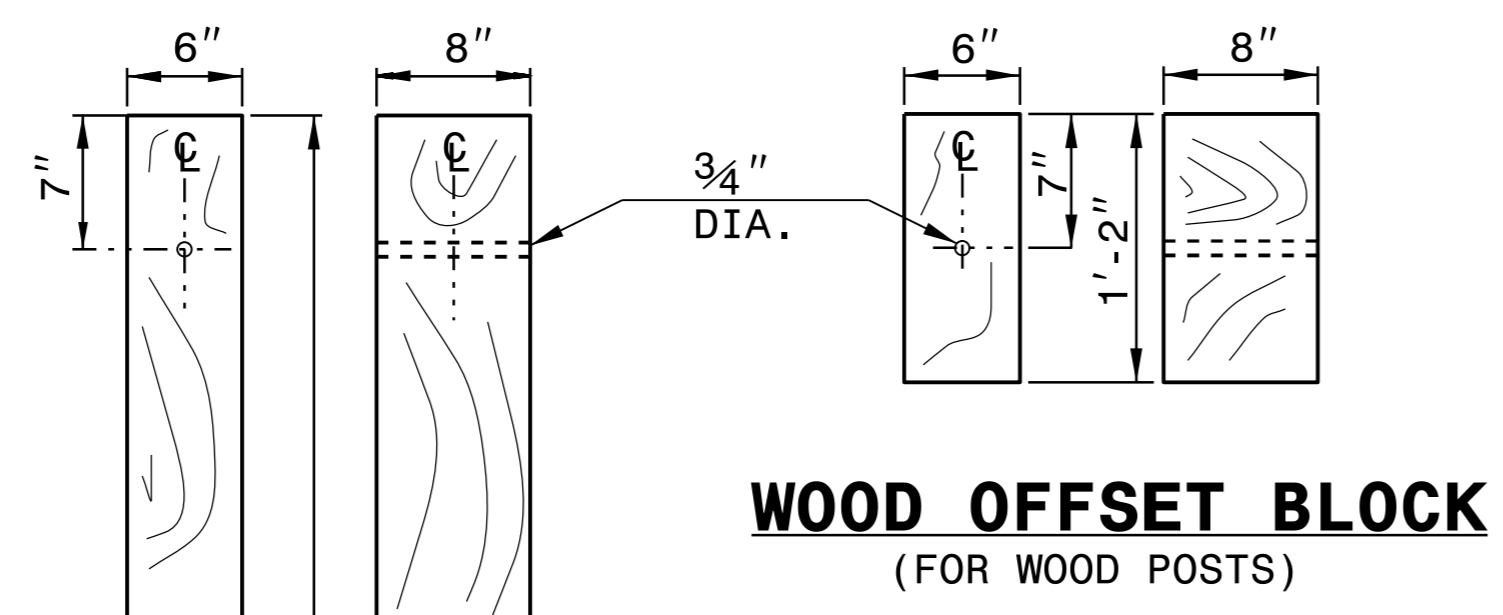
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



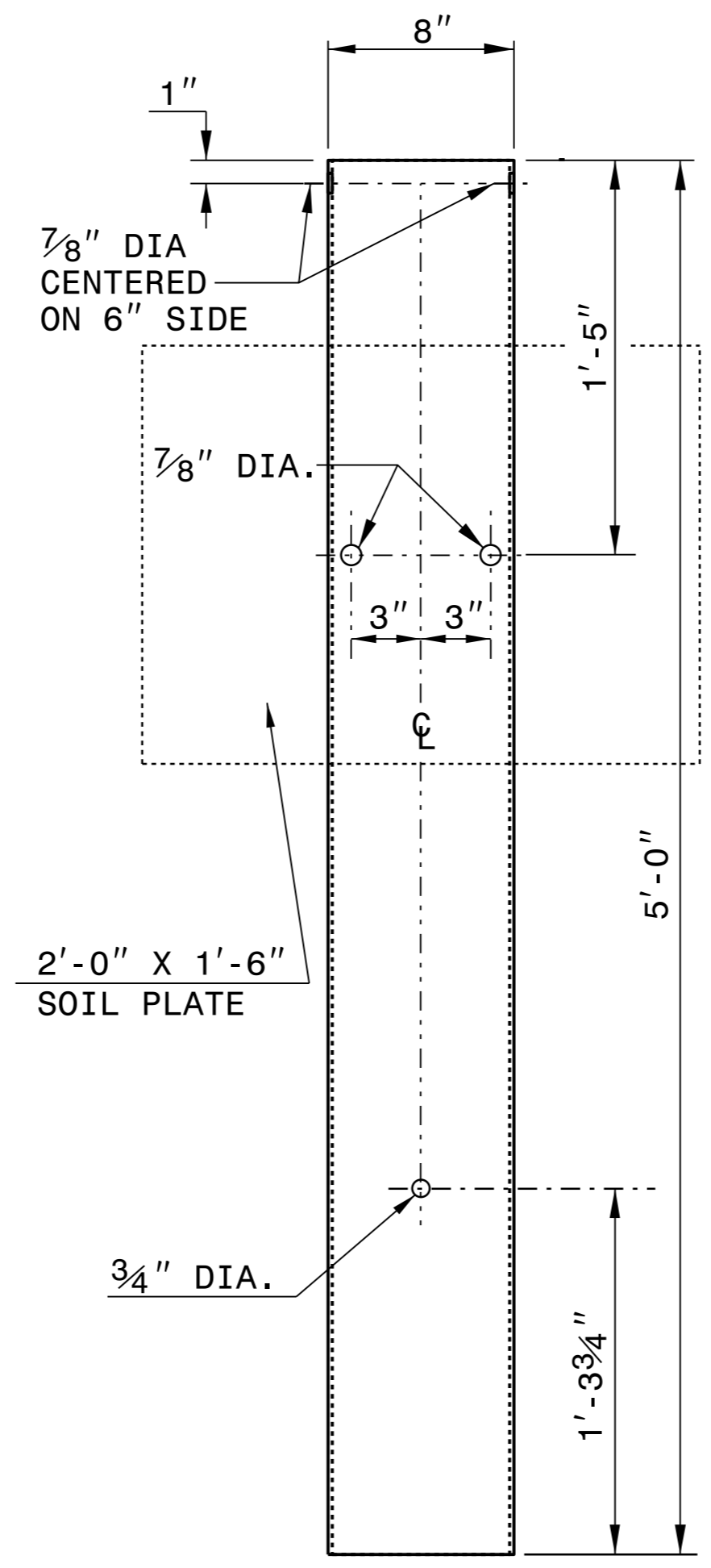
PLAN



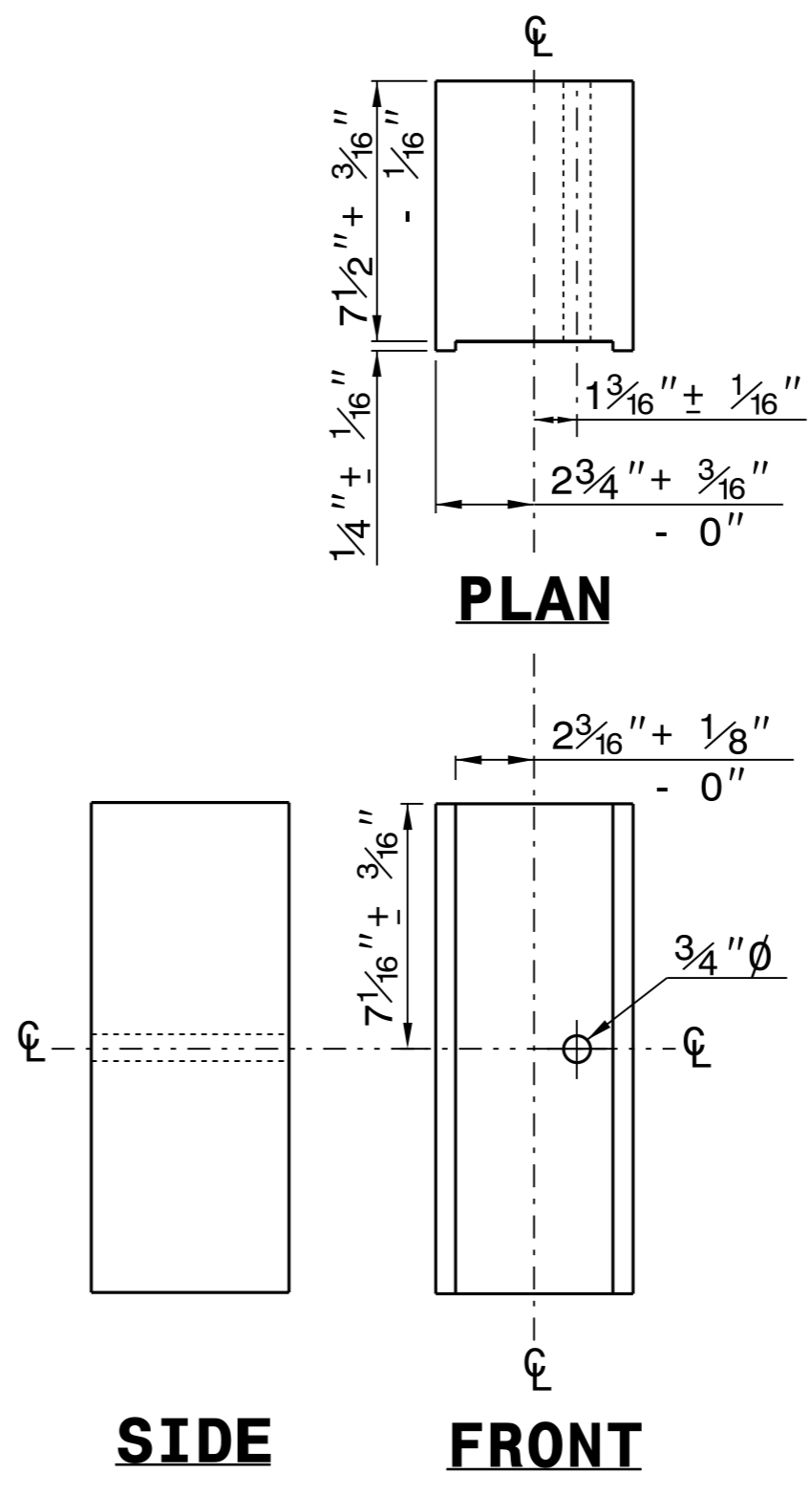
**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

**STANDARD
LINE POST**

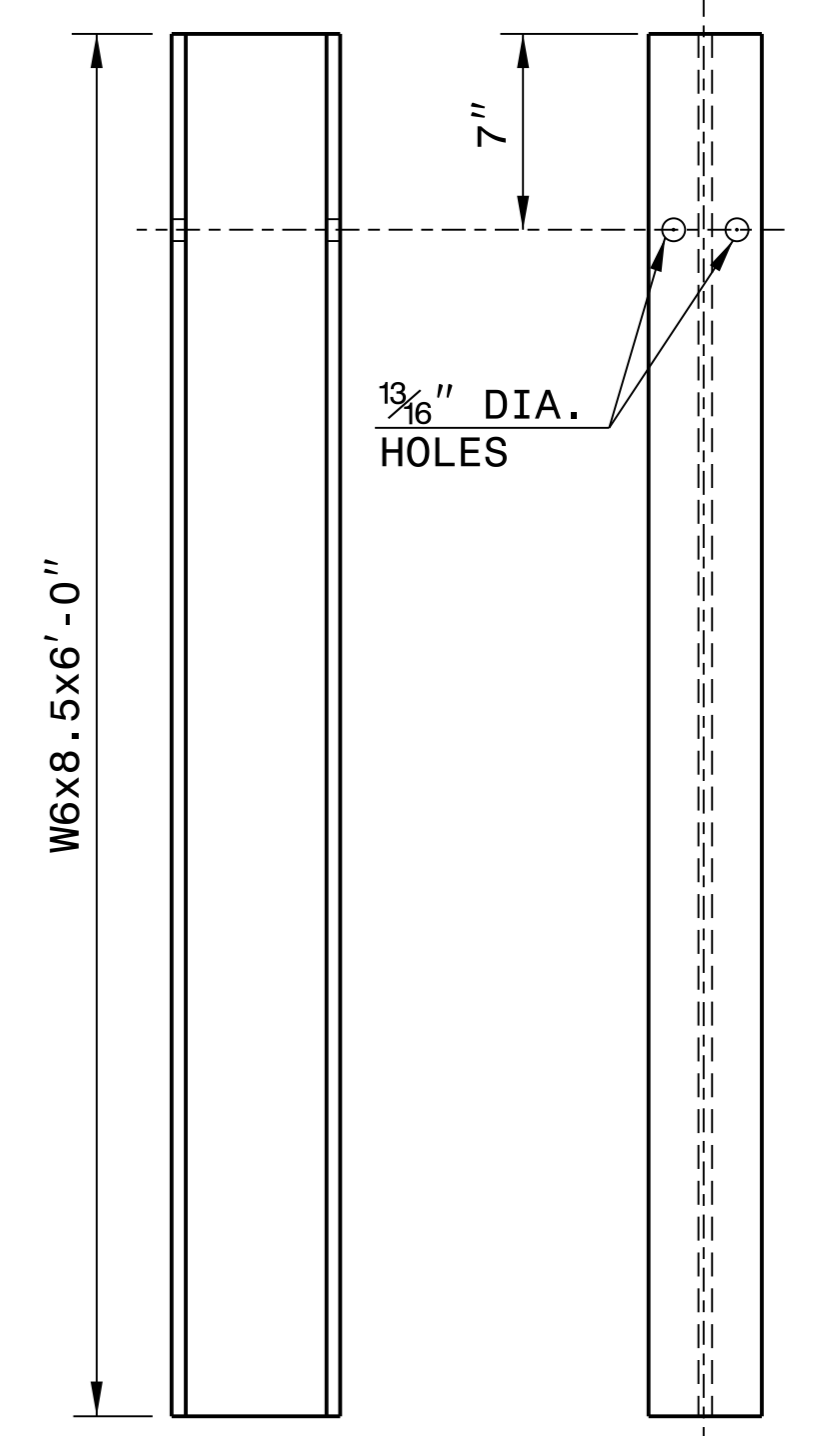
**SHORT WOOD
BREAKAWAY POST**



**STEEL TUBE
TS 6"x8"x0.1875"**



**SIDE
FRONT
ROUTED
OFFSET BLOCK**



**SIDE
FRONT
"W6" STEEL POST**

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



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

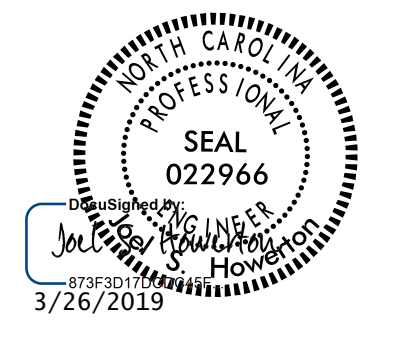
SEE TITLE BLOCK

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

I4-DEC-2017 10:36
 S:\Contracts\Special Details\Standard Drawings\2018 Standard Drawings\Details in Lieu of Standards\Division 8\08662d0301.dgn
 Jhowerton AT: CSU-292595

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE	SHEET 1 OF 7 862D03
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;">ELEVATION</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 11 1/2" 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 style="width: 50%;"> <p style="text-align: center;">PLAN VIEW</p> <p style="text-align: center;">GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE</p> </div> </div>		
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE	SHEET 1 OF 7 862D03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER	SHEET 2 OF 7 862D03
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;">ELEVATION</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 11 1/2" 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 style="width: 50%;"> <p style="text-align: center;">PLAN VIEW</p> <p style="text-align: center;">GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER</p> </div> </div>		
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER	SHEET 2 OF 7 862D03



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
<h2 style="margin: 0;">SEE TITLE BLOCK</h2>	
ORIGINAL BY: J. HOWERTON MODIFIED BY: CHECKED BY: FILE SPEC.:	DATE: 06-22-12 DATE: DATE: DATE:

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350			REMARKS			
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-2	TYPE III	PERMITTED								
																	NO.	G	NG						
-L-	13+03.63	13+59.88	RT	56.25'				13+59.88	4'	7'	25'		1'				1	1							
-L-	13+03.63	13+59.88	LT	56.25'			13+59.88		4'	7'		25'		1'			1	1							
-L-	14+17.13	14+73.38	RT	56.25'			14+17.13		4'	7'		25'		1'			1	1							
-L-	14+17.13	17+15.00	LT	93.75'				14+17.13	4'	7'	25'		1'				1	1							
SUBTOTAL				262.50'																					
LESS ANCHOR DEDUCTIONS																									
				GREU TL-2 4 x 25.00'	=	-100.00'																			
				TYPE III 4 x 18.75'	=	-75.00'																			
TOTAL				87.50'													4	4							ADDITIONAL GUARDRAIL POST = 5 EA.

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	11+50.00	13+74.67	CL	463.49
-L-	14+04.51	16+00.00	CL	407.87
TOTAL:				871.35
SAY:				915

SUMMARY OF EARTHWORK IN CUBIC YARDS

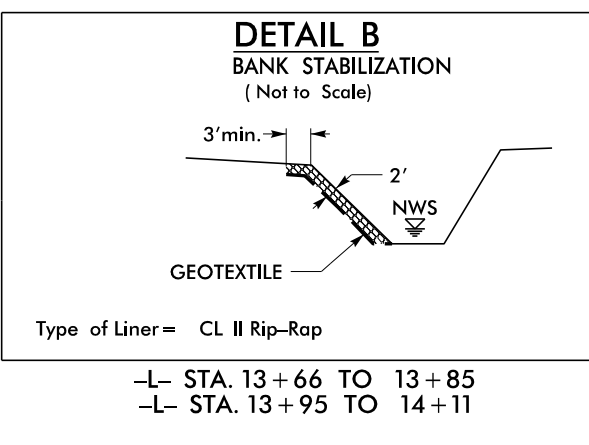
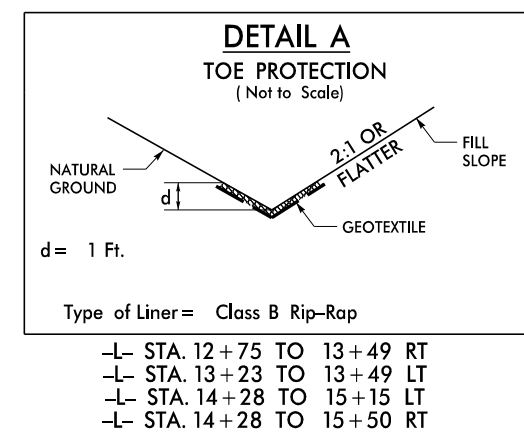
LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-L- 11+50.00 TO 13+59.88	139		44		95
-L- BANK STABILIZATION	35				35
-L- BANK STABILIZATION	30				30
-L- 14+17.13 TO 16+00.00	133		47		86
SUBTOTAL	337		91		246
WASTE IN LIEU OF BORROW					
PROJECT TOTAL	337		91		246
5% TO REPLACE BORROW					
GRAND TOTAL	337				
SAY	360				

EST. 100 CY UNDERCUT (CONTINGENCY)

NOTE: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing and Removal of Existing Asphalt Pavement will be paid for at the contract Lump Sum price for "Grading".

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LENGTH
-L- RT	14+28.00	14+35.00	7.00'
-L- LT	14+28.00	14+85.00	57.00'
TOTAL			64.00'
SAY			70.00'



Type of Liner = Class B Rip-Rap
 -L- STA. 12+75 TO 13+49 RT
 -L- STA. 13+23 TO 13+49 LT
 -L- STA. 14+28 TO 15+15 LT
 -L- STA. 14+28 TO 15+50 RT

Type of Liner = CL II Rip-Rap
 -L- STA. 13+66 TO 13+85
 -L- STA. 13+95 TO 14+11

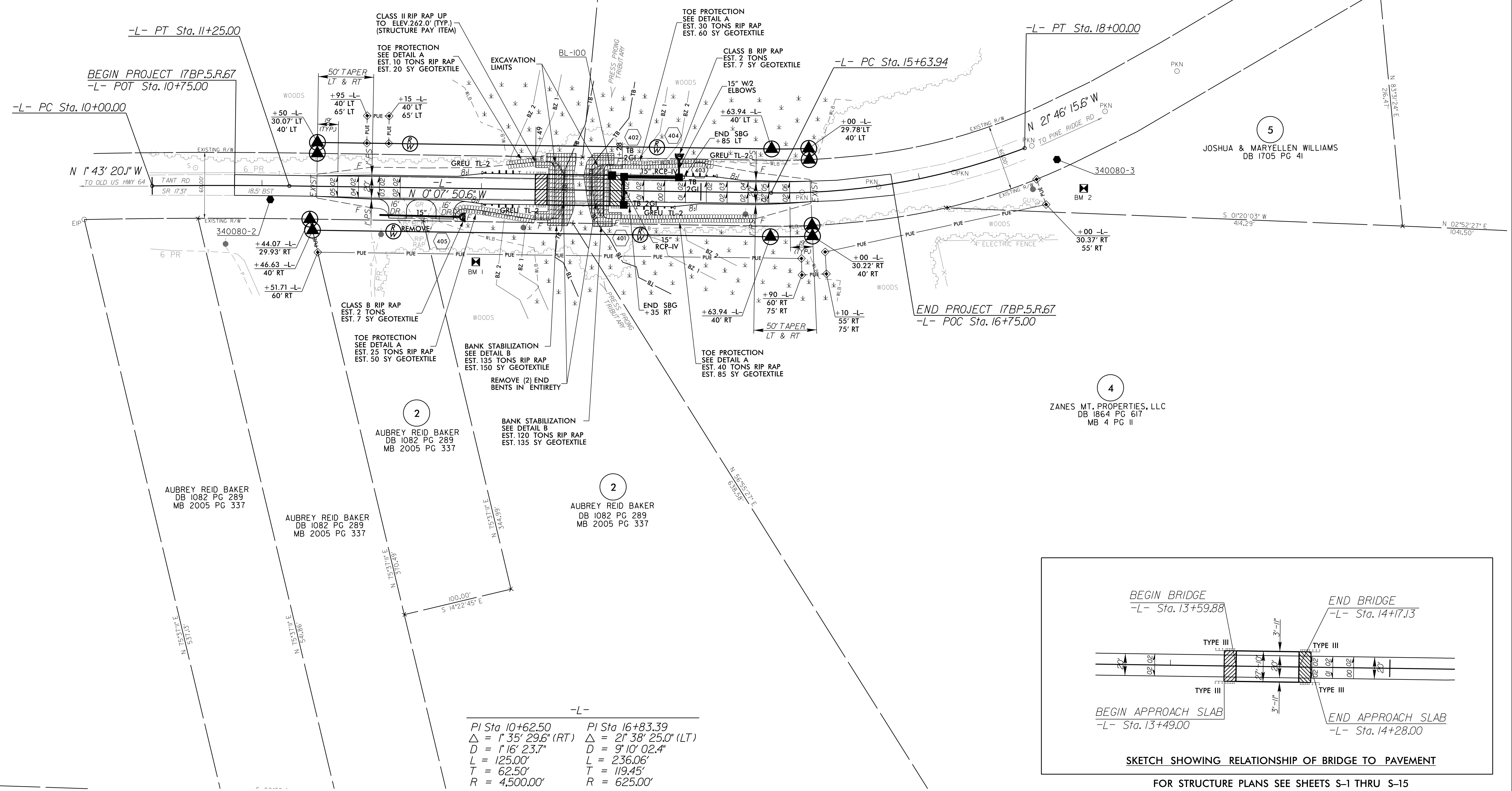
NAD 83/NA 2011

PROJECT REFERENCE		SHEET NO.
17BP.5.R.67 - FRANKLIN 80		4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
Prepared in the Office of:		
SEE SHEET 5 FOR -L- PROFILE		
HORIZONTAL SCALE		

1
JOHN C. RAY
DB 942 PG 128

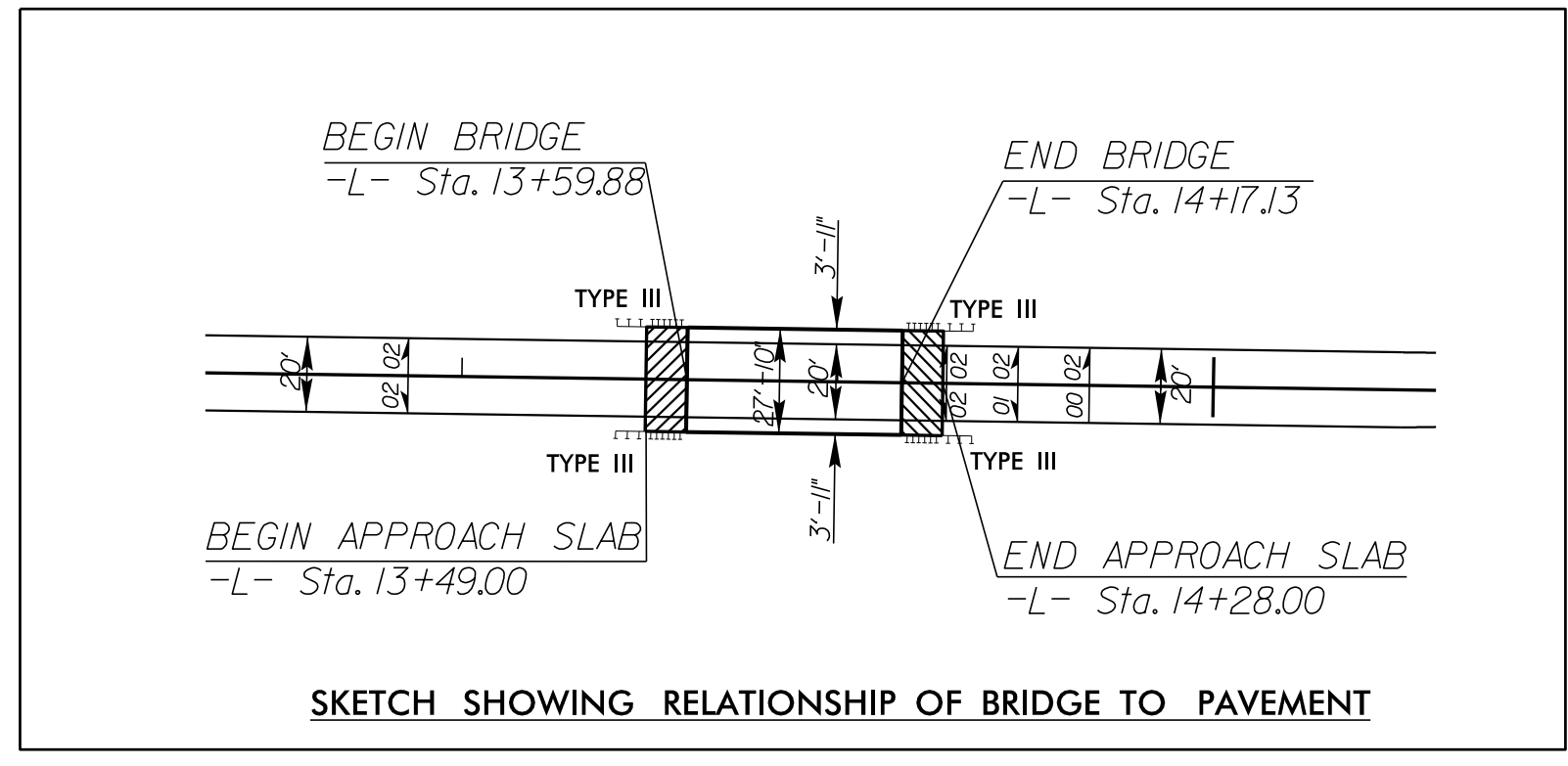
3
RODNEY L. PERRY
DB 1708 PG 731
MB 2008 PG 230

QUANTITY FOR EXCAVATION LIMITS IS INCLUDED IN UNCLASSIFIED STRUCTURE EXCAVATION



-L-

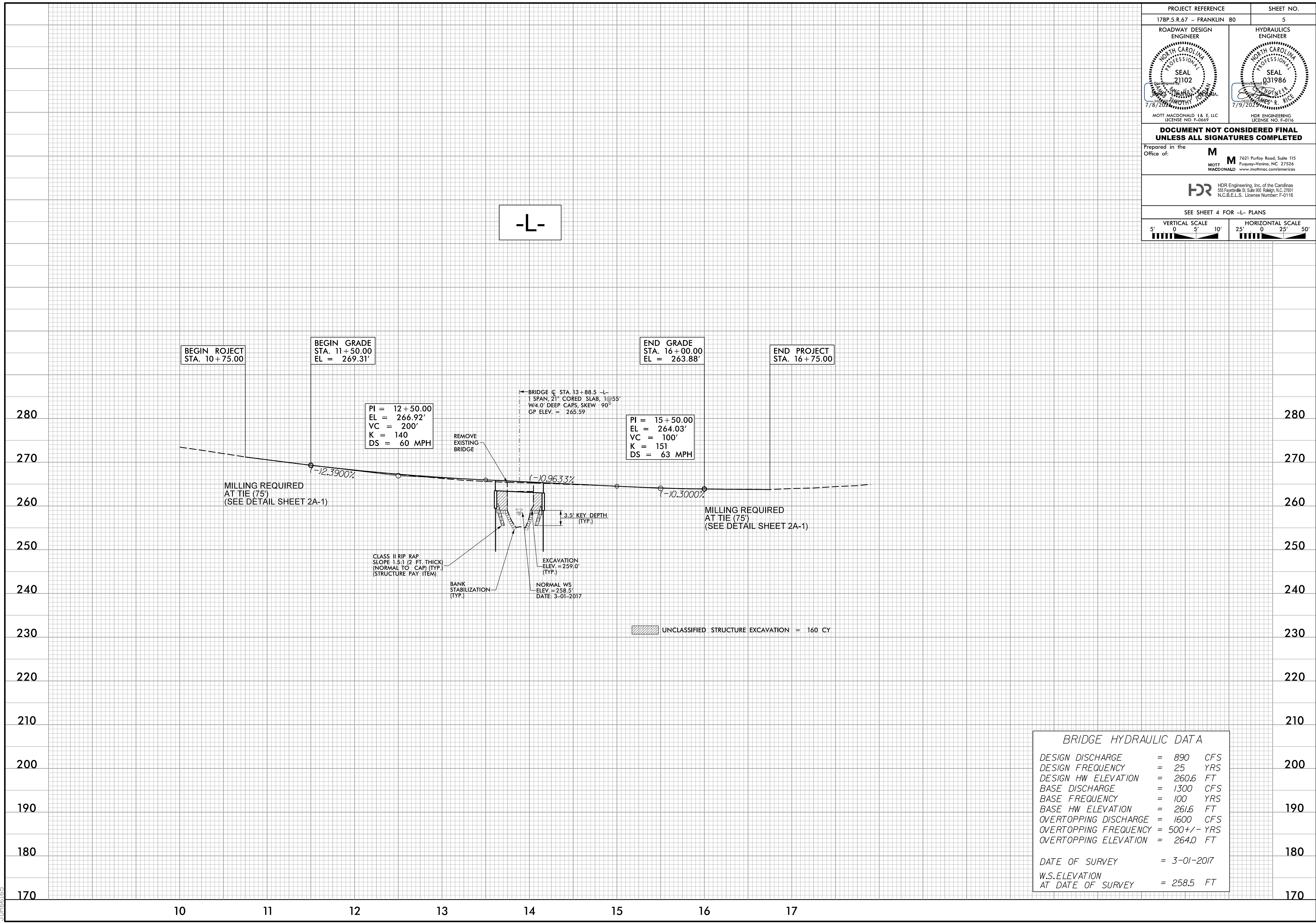
PI Sta 10+62.50	PI Sta 16+83.39
$\Delta = 1^\circ 35' 29.6''$ (RT)	$\Delta = 2^\circ 38' 25.0''$ (LT)
$D = 1^\circ 16' 23.7''$	$D = 9^\circ 10' 02.4''$
$L = 125.00'$	$L = 236.06'$
$T = 62.50'$	$T = 119.45'$
$R = 4,500.00'$	$R = 625.00'$



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PROJECT REFERENCE		SHEET NO.	
17BP.5.R.67 - FRANKLIN 80		5	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669		HDR ENGINEERING LICENSE NO. F-0116	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			
		7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			
SEE SHEET 4 FOR -L- PLANS			
VERTICAL SCALE		HORIZONTAL SCALE	

-L-



BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 890 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 260.6 FT
BASE DISCHARGE	= 1300 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 261.6 FT
OVERTOPPING DISCHARGE	= 1600 CFS
OVERTOPPING FREQUENCY	= 500+/- YRS
OVERTOPPING ELEVATION	= 264.0 FT
DATE OF SURVEY	= 3-01-2017
W.S. ELEVATION AT DATE OF SURVEY	= 258.5 FT

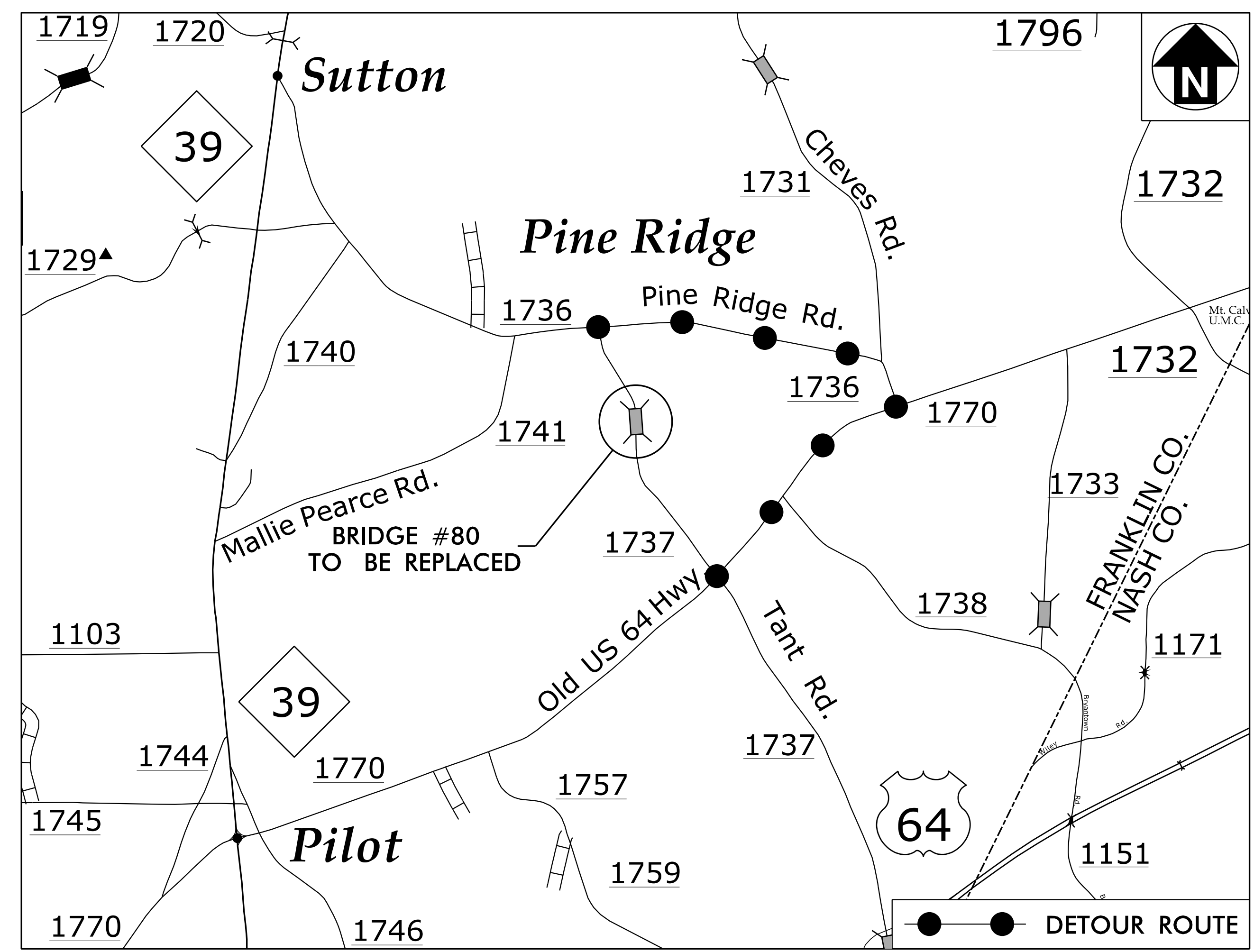
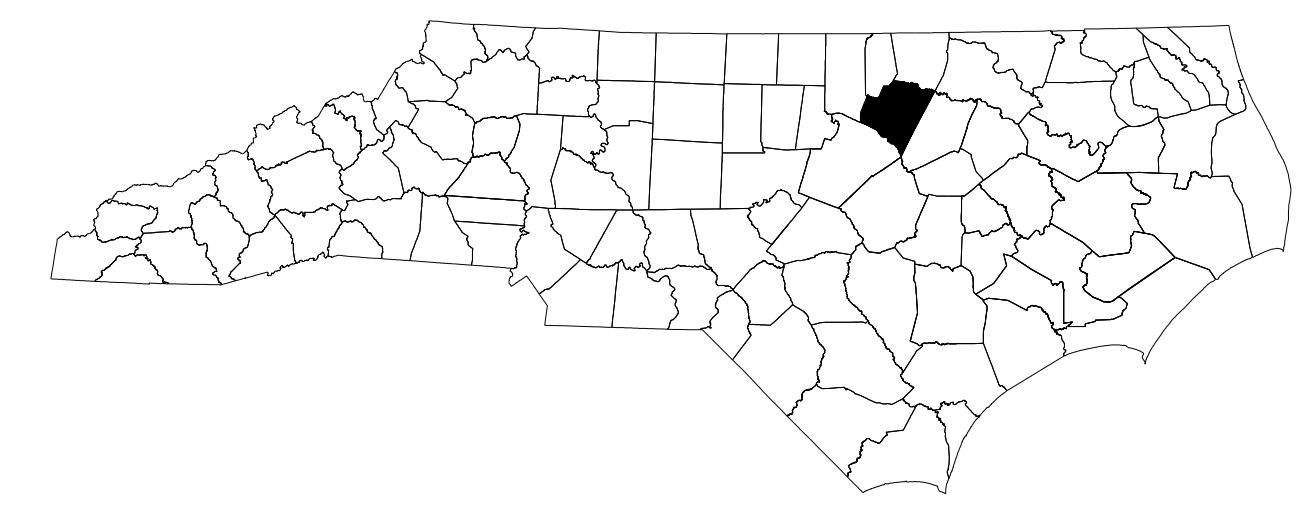
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

FRANKLIN COUNTY

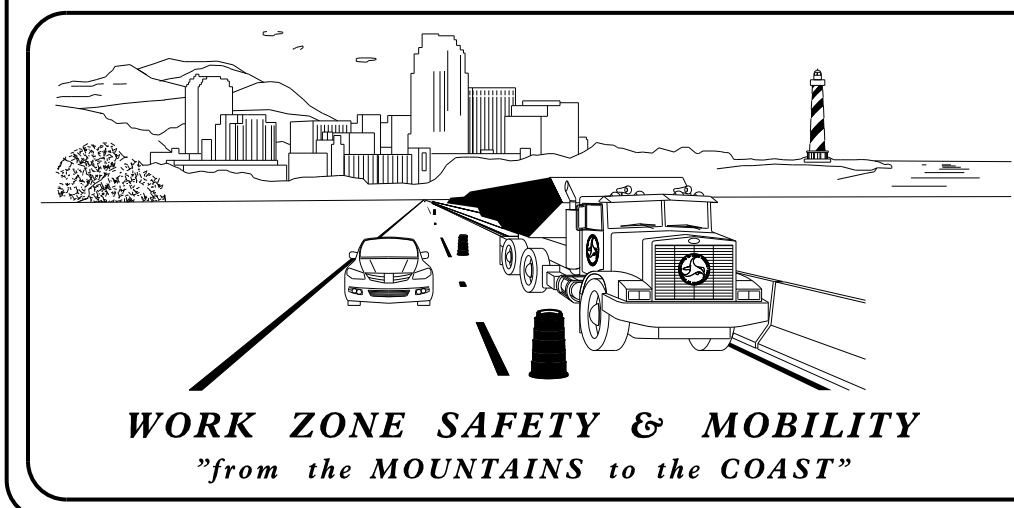
BRIDGE NO. 80 OVER PRESS PRONG TRIBUTARY ON SR 1737 (TANT ROAD)



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-2	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, GENERAL NOTES, PHASING AND FINAL PAVEMENT MARKING SCHEDULE
TMP-3	TEMPORARY TRAFFIC CONTROL PLAN
TMP-4	SPECIAL SIGN DESIGN

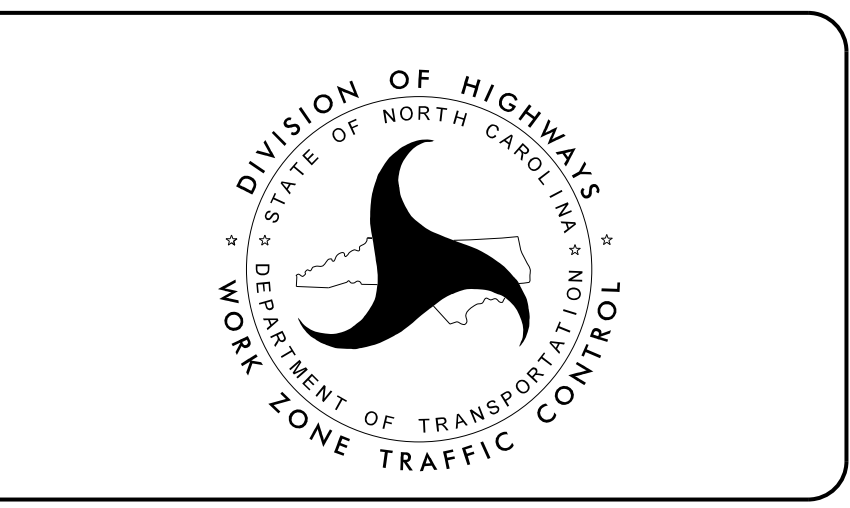
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PREPARED IN THE OFFICE OF MOTT MACDONALD
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

TIM JORDAN, PE TRAFFIC CONTROL PROJECT ENGINEER

BRIAN PHILLIPS TRAFFIC CONTROL DESIGN ENGINEER



M M
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MACDONALD

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Fugate-Vaughn, NC 27526
(919) 552-2253
(919) 552-2254 (Fax)
www.mottmac.com/americas

LICENSE NO. F-0669

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APPROVED: James Timothy Jordan
DATE: 7/8/2021

SEAL

TIP PROJECT: 17BP.5.R.67

TRAFFIC MANAGEMENT PLAN

GENERAL NOTES

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

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

TRAFFIC PATTERN ALTERATIONS

- B) NOTIFY THE ENGINEER AND LOCAL SCHOOLS & EMS THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

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

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

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

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

- G) INSTALL PAVEMENT MARKINGS AND MARKERS ON THE FINAL SURFACE ACCORDING TO THE ROADWAY STANDARD DRAWINGS.

- H) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

MISCELLANEOUS

- I) MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN THE CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

NCDOT ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - HIGHWAY DESIGN BRANCH- N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 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
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

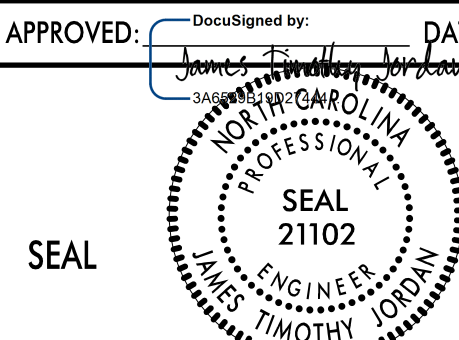
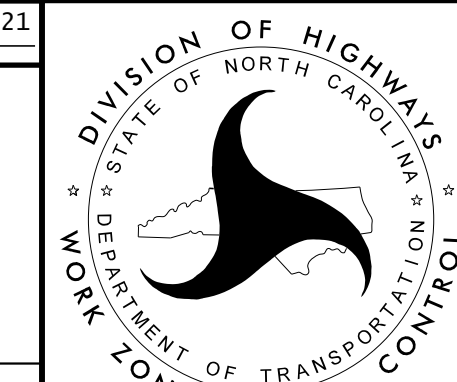
PHASING

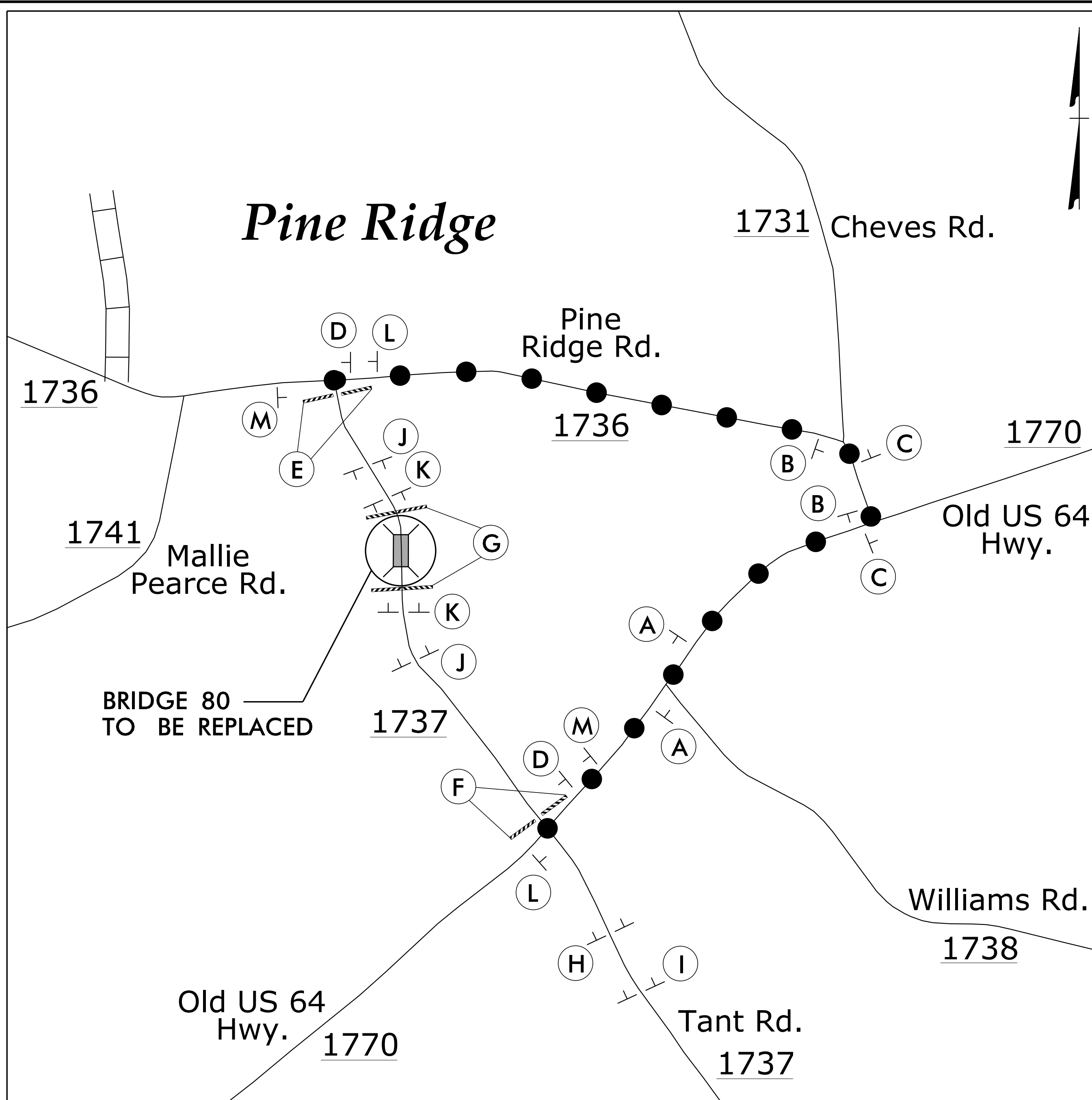
- STEP 1: PLACE MESSAGE SIGNS USING ROADWAY STANDARD DRAWING NUMBERS 1101.04, SHEET 1 OF 1, 1101.11, SHEET 1 OF 4, 1101.03, SHEET 1 OF 9, AND SHEET TMP-3, INSTALL AND COVER DETOUR SIGNING.
- STEP 2: USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, UNCOVER OFF-SITE DETOUR SIGNING AND INSTALL TYPE III BARRICADES TO CLOSE SR 1737 (TANT ROAD) TO THRU TRAFFIC.
- STEP 3: PLACE TRAFFIC ONTO OFF-SITE DETOUR. PERFORM PROPOSED BRIDGE AND ROADWAY CONSTRUCTION. PLACE FINAL PAVEMENT MARKINGS AND MARKERS.
- STEP 4: REMOVE TYPE III BARRICADES FROM SR 1737 (TANT ROAD) AND REOPEN ROADWAY TO TRAFFIC. REMOVE ALL DETOUR SIGNING.

FINAL PAVEMENT MARKING SCHEDULE

DESCRIPTION	QUANTITY
THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	2,400 LF
PERMANENT RAISED PAVEMENT MARKERS (YELLOW & YELLOW)	8 EA

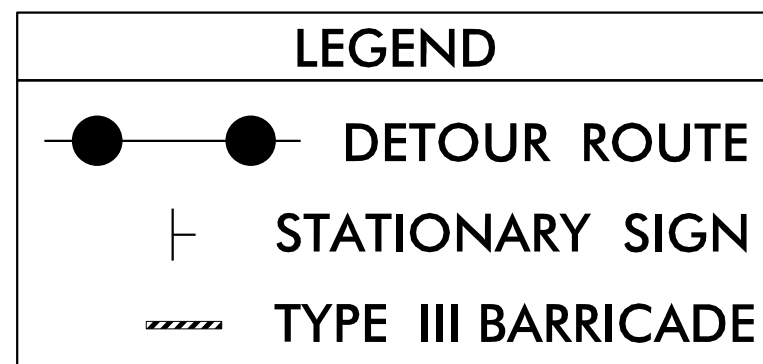
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<p style="text-align: center;">M M MOTT MACDONALD</p> <p style="font-size: small;">7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 (919) 552-2253 (919) 552-2254 (Fax) www.mottmac.com/americas LICENSE NO. F-0669</p>	<p>APPROVED:  DATE: 7/8/2021</p> <p style="text-align: center;">SEAL</p> <p style="text-align: center; font-size: small;">DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	 <p style="text-align: center; font-size: small;">DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p>GENERAL NOTES ROADWAY STANDARD DRAWINGS PHASING PAVEMENT MARKING SCHEDULE</p>
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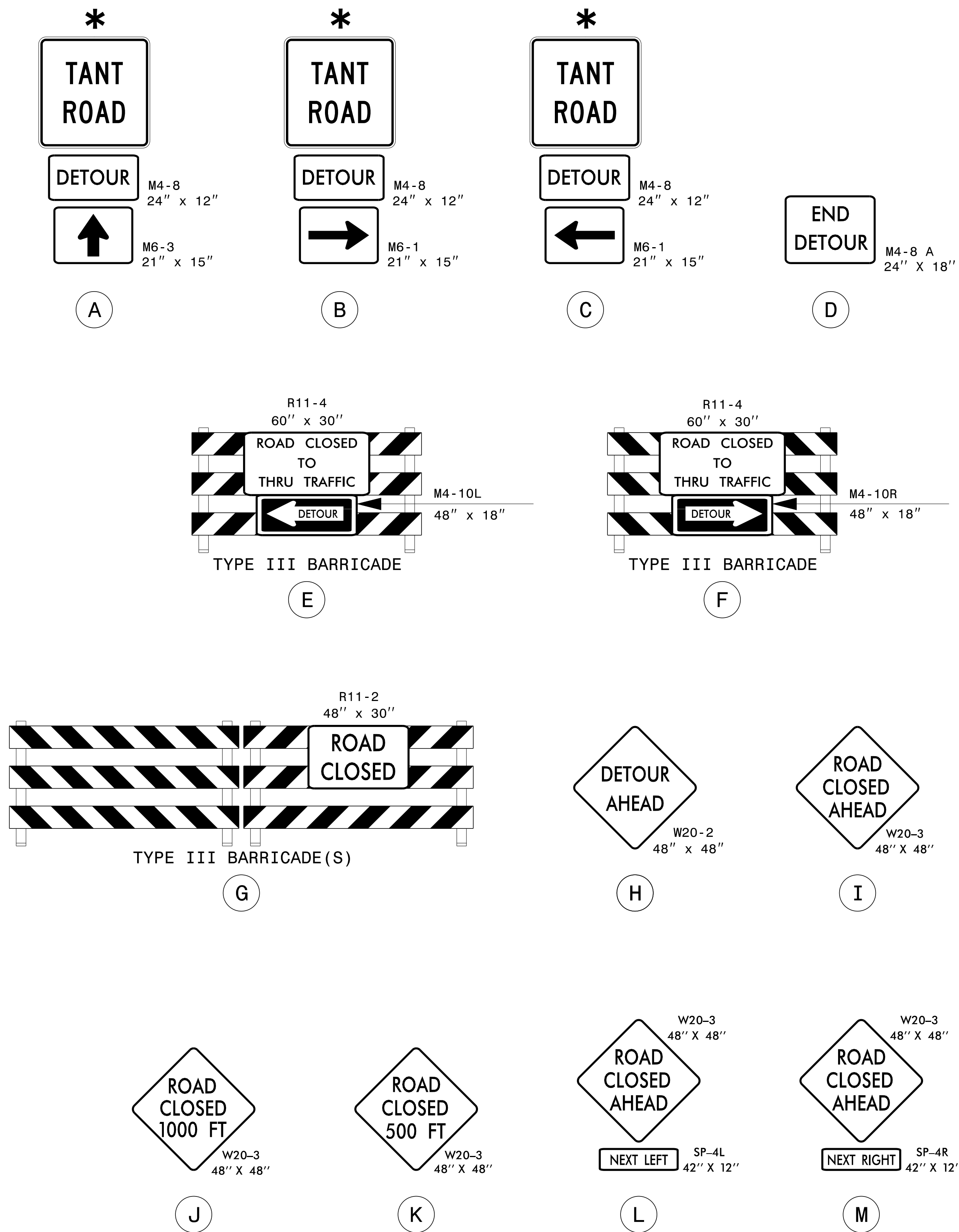


NOTES: REFER TO ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 AND 2 OF 9, FOR ADDITIONAL SIGN SPACING REQUIREMENTS APPROACHING PROJECT SITE CLOSURE POINT.

* SEE SHEET TMP-4 FOR SPECIAL SIGN DESIGNS



TRAFFIC CONTROL TEMPORARY SIGNING AND DEVICES



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<p>M</p> <p>MOTT MACDONALD</p> <p>7621 Purfoy Road, Suite 115 Fayetteville, NC 27526 (919) 552-2253 (Fax) www.mottmac.com/americas LICENSE NO. F-0669</p>	<p>APPROVED: </p> <p>DATE: 7/8/2021</p> <p>SEAL: </p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p>TANT ROAD OFF-SITE DETOUR</p> <p>TRAFFIC CONTROL TEMPORARY SIGNING AND DEVICES</p>
	<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>		

SIGN NUMBER: SD-1 TYPE: D QUANTITY: SEE PLANS SIGN WIDTH: 2'-6" HEIGHT: 2'-6" TOTAL AREA: 6.3 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	DESIGN BY: BLP PROJECT ID: 17BP.5.R.67	CHECKED BY: RWT DIV: 5	DATE: Apr 07, 2017																																																							
	<table border="1"> <thead> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	SYMBOL	X	Y	WID	HT																																																					
SYMBOL	X	Y	WID	HT																																																							
USE NOTES: 1,2 1. Legend and border shall be direct applied black non-reflective sheeting. 2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.		Spacing Factor is 1 unless specified otherwise																																																									

LETTER POSITIONS

Letter locations are panel edge to lower left corner

Letter Locations												Series/Size	Text Length
T	A	N	T									C 2000	15.4
7.3	10.7	15.4	19.6										
R	O	A	D									C 2000	16.6
6.7	11	15.2	19.9										

FILENAME: 340080_TC_TMP_SD1 NORTH CAROLINA D.O.T. SIGN DETAIL

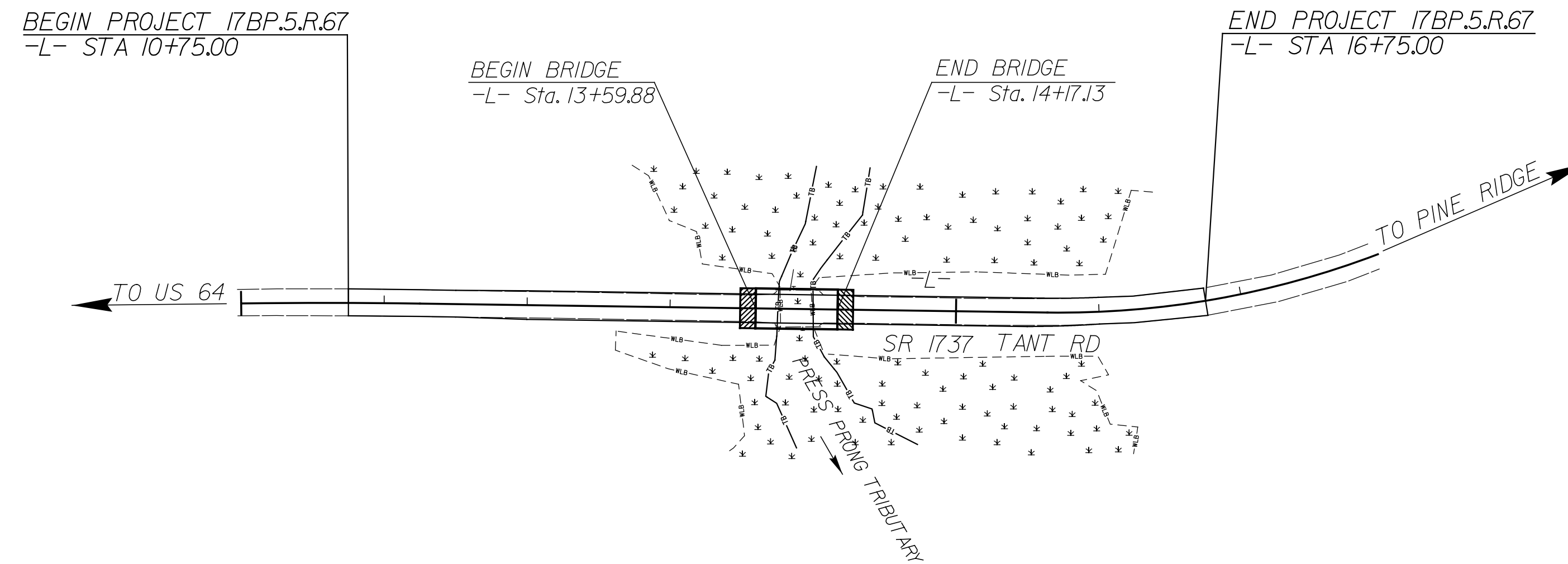
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M M MOTT MACDONALD 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 (919) 552-2253 (919) 552-2254 (Fax) www.mottmac.com/americas LICENSE NO. F-0669	APPROVED: _____ DATE: 7/9/2021 		SIGN DESIGN
	SEAL DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

TIP PROJECT: 17BP.5.R.67

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

**BRIDGE NO. 80 ON SR 1737
 OVER PRESS PRONG TRIBUTARY**



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.67	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

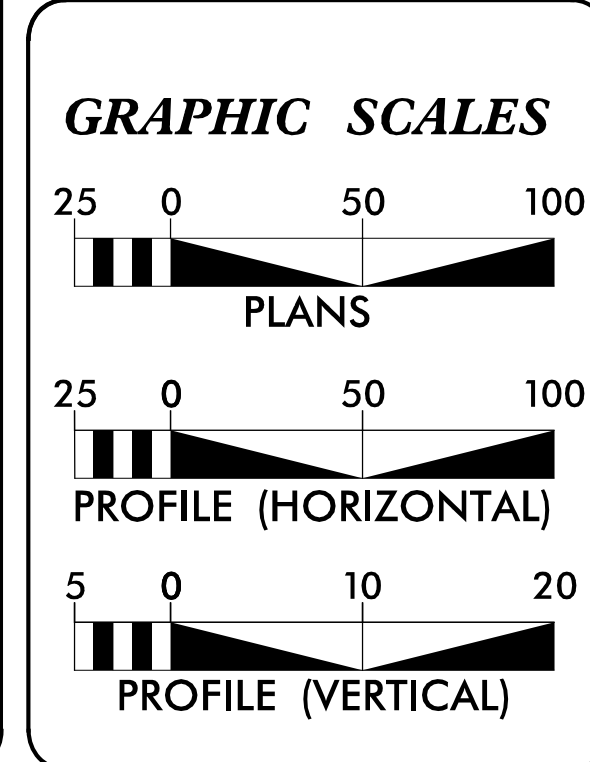
EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.05	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	△△△△△
1622.01	Temporary Berms and Slope Drains	— T —
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▨
1633.02	Temporary Rock Silt Check Type-B	▨
	Wattle / Coir Fiber Wattle	— W —
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	— W —
1634.01	Temporary Rock Sediment Dam Type-A	▨
1634.02	Temporary Rock Sediment Dam Type-B	▨
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊂
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊂
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

HDR

HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

Designed by:

ALEXANDER D. SNIDER, PE 3064

NAME LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
 Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:

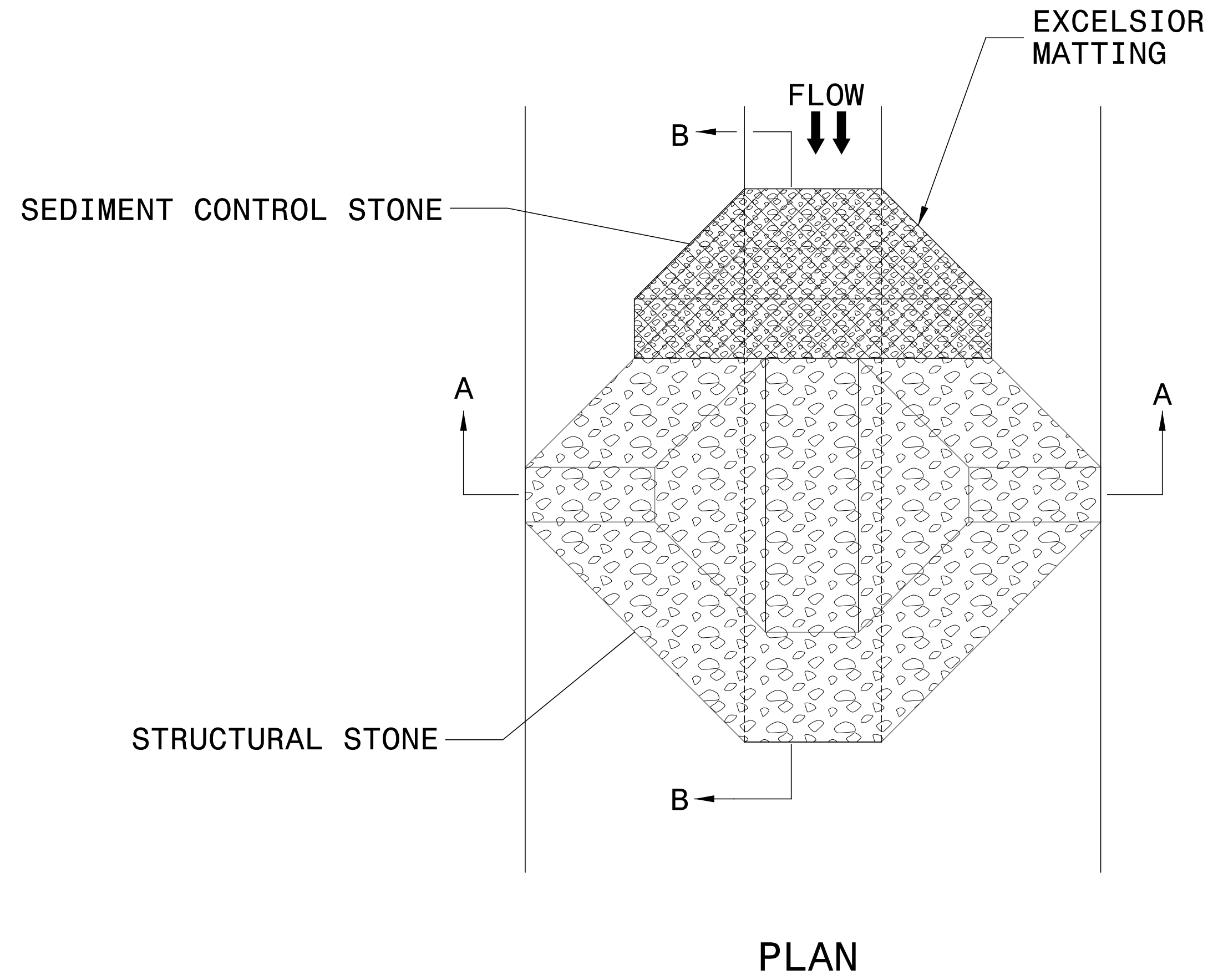
DONALD PEARSON, EI CPESC

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 2018 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	

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



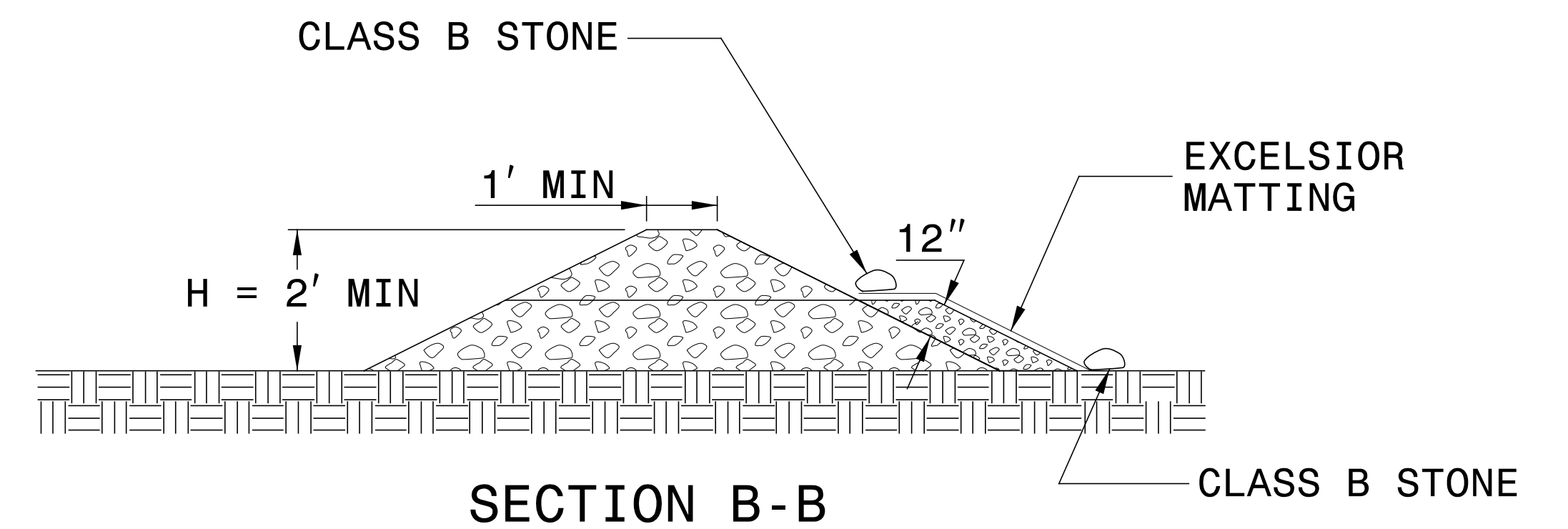
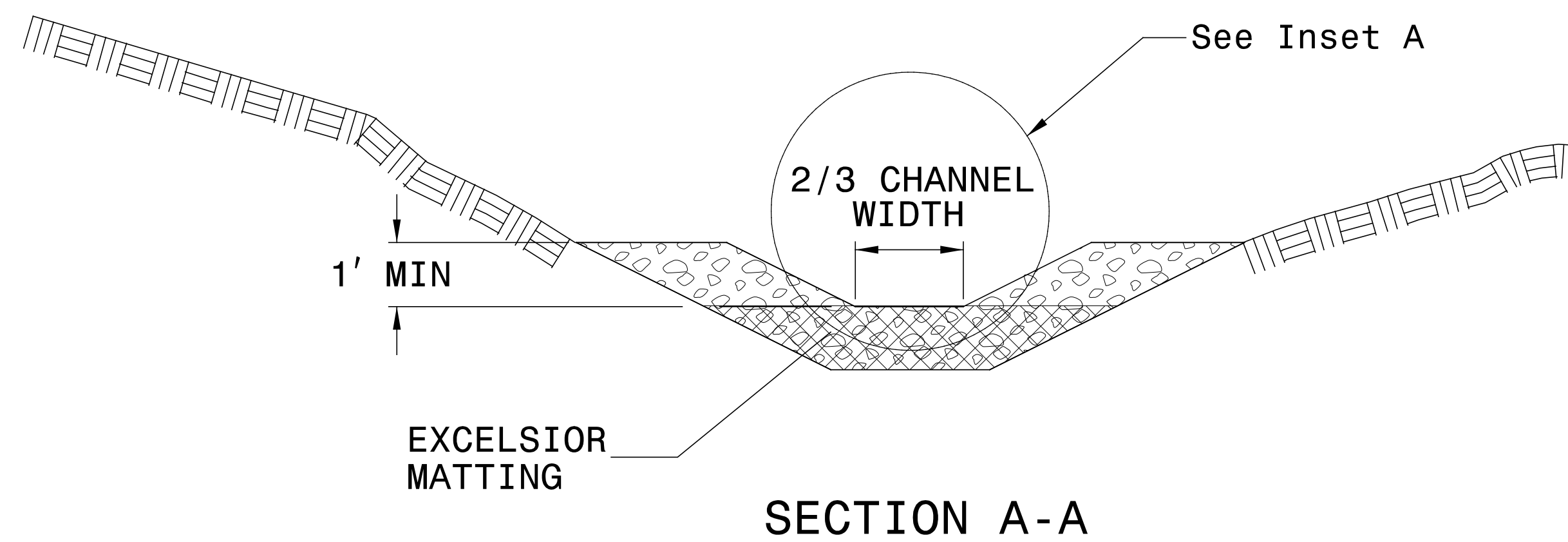
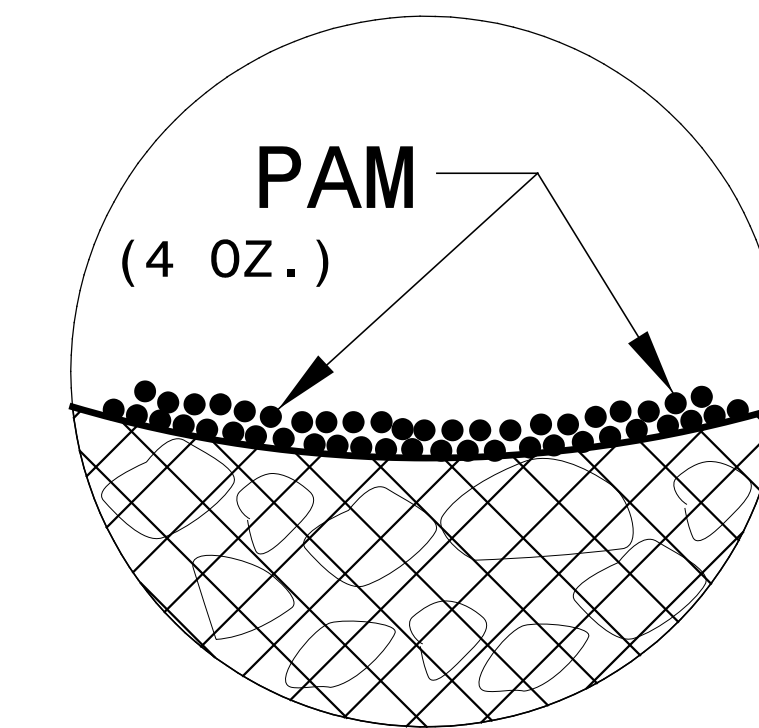
NOTES:

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.



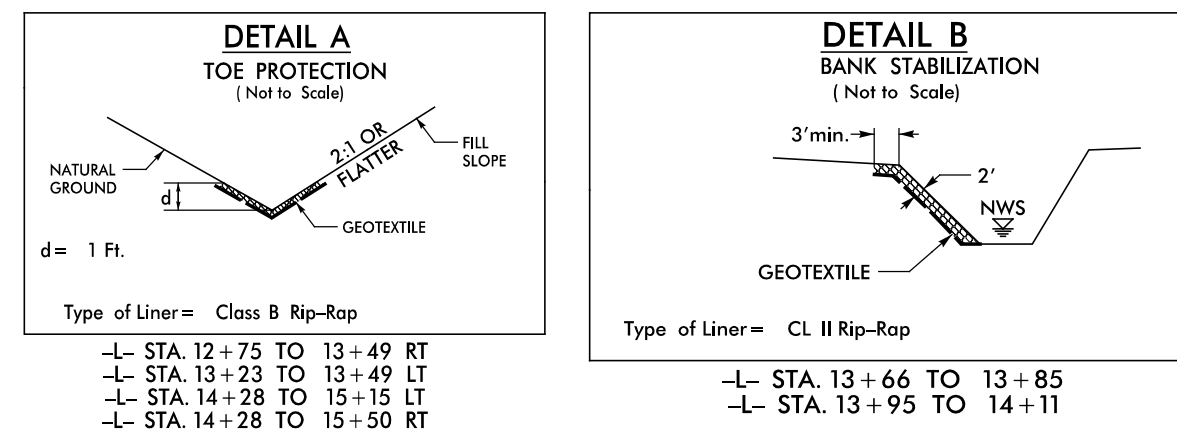
NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

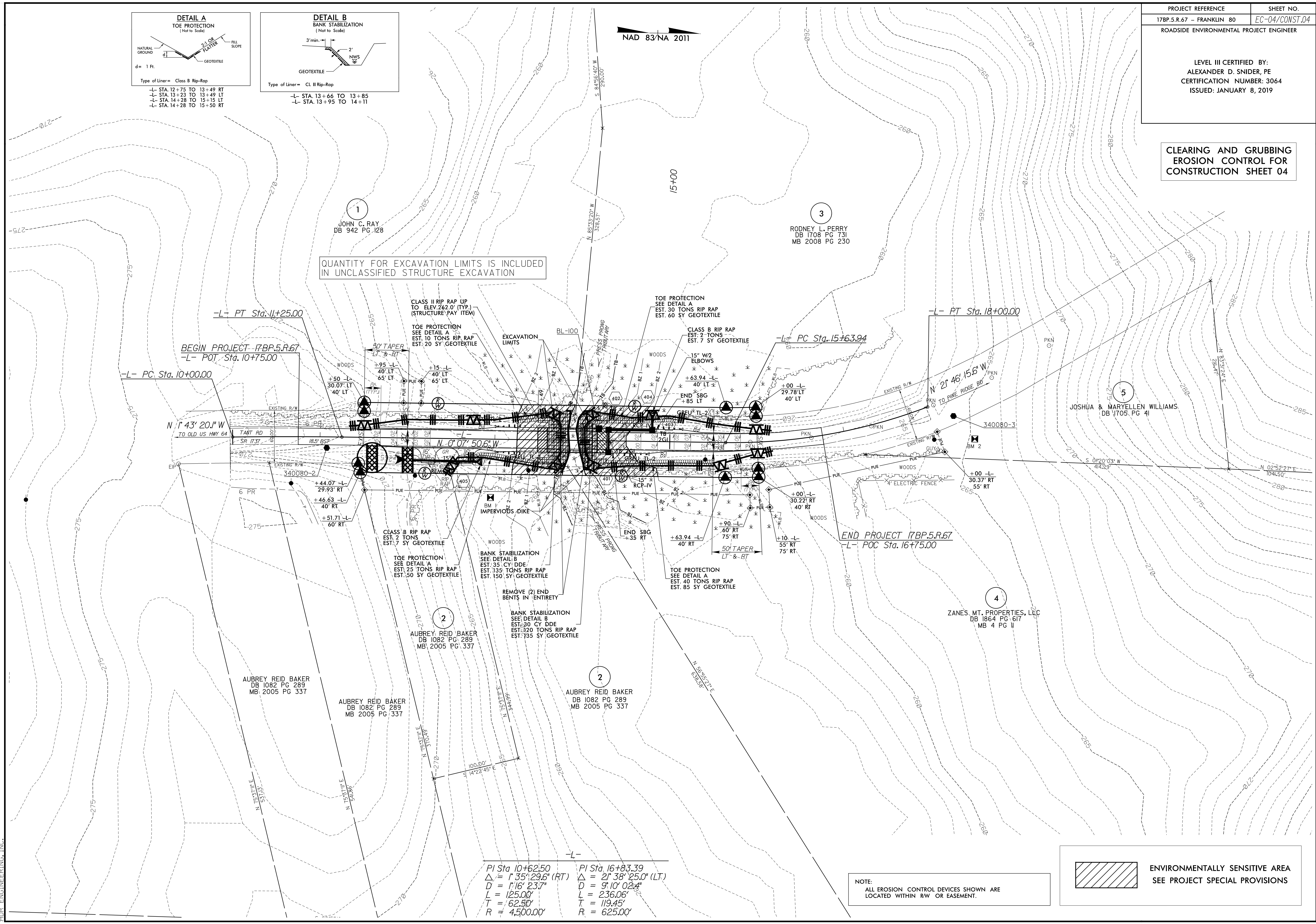
SOIL STABILIZATION TIMEFRAMES

<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.

**CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04**



NAD 83/NA 2011



QUANTITY FOR EXCAVATION LIMITS IS INCLUDED IN UNCLASSIFIED STRUCTURE EXCAVATION

PI Sta 10+62.50 Δ = 1° 35' 29.6" (RT) D = 1' 16" 23.7" L = 125.00' T = 62.50' R = 4,500.00'	PI Sta 16+83.39 Δ = 2° 38' 25.0" (LT) D = 9' 10" 02.4" L = 236.06' T = 119.45' R = 625.00'
------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------

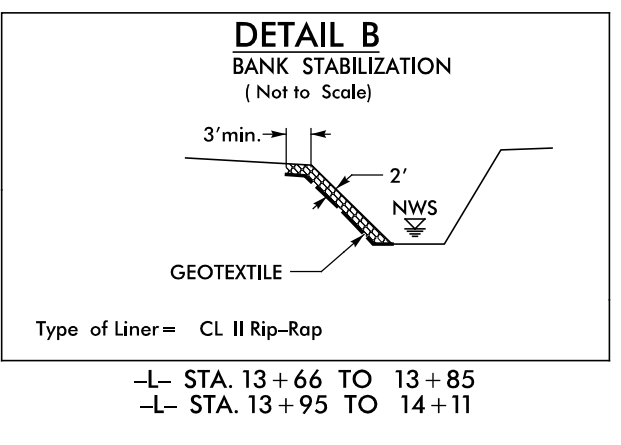
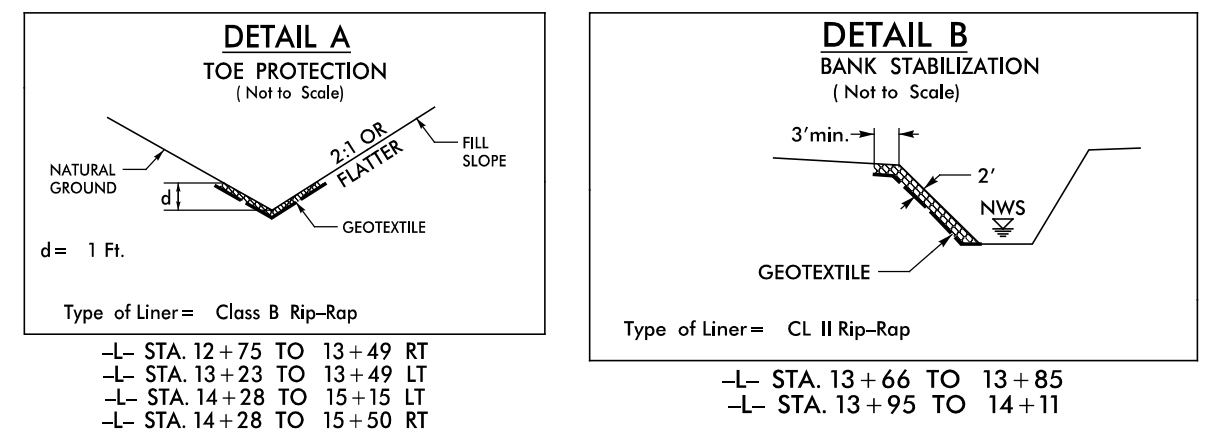
NOTE:
ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN RW OR EASEMENT.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

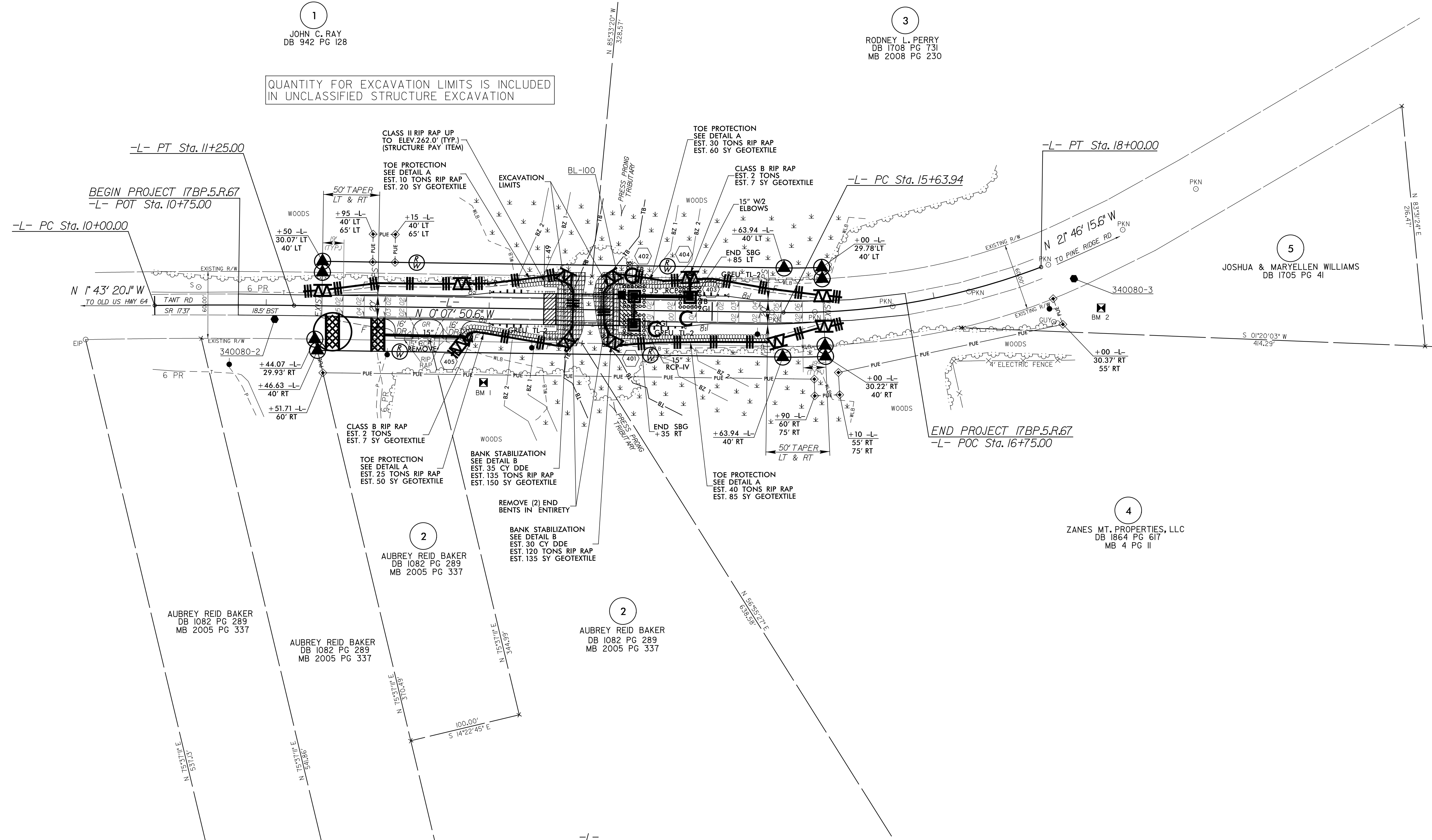
PROJECT REFERENCE	SHEET NO.
17BP.5.R.67 - FRANKLIN 80	EC-05/CONST.04
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

LEVEL III CERTIFIED BY:
ALEXANDER D. SNIDER, PE
CERTIFICATION NUMBER: 3064
ISSUED: JANUARY 8, 2019

FINAL EROSION CONTROL
FOR CONSTRUCTION
SHEET 04



NAD 83/NA 2011



QUANTITY FOR EXCAVATION LIMITS IS INCLUDED
IN UNCLASSIFIED STRUCTURE EXCAVATION

-L-

PI Sta 10+62.50 Δ = 1' 35' 29.6" (RT) D = 1' 16' 23.7" L = 125.00' T = 62.50' R = 4,500.00'	PI Sta 16+83.39 Δ = 21' 38' 25.0" (LT) D = 9' 10' 02.4" L = 236.06' T = 119.45' R = 625.00'
------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------

NOTE:
ALL EROSION CONTROL DEVICES SHOWN ARE
LOCATED WITHIN RW OR EASEMENT.

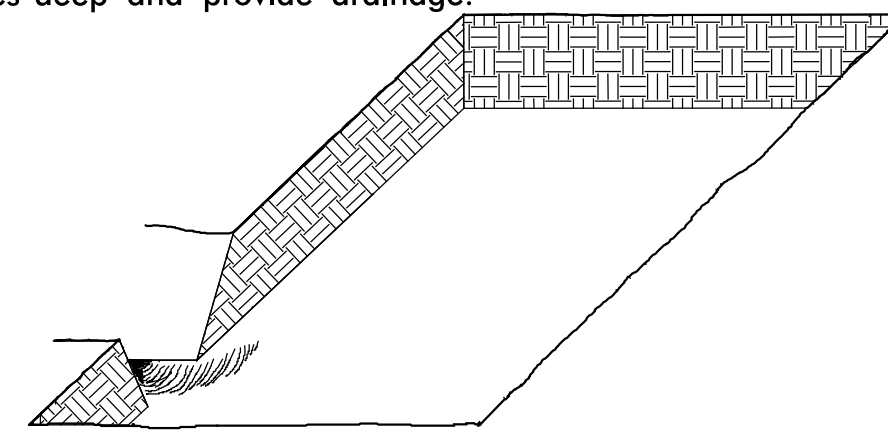
6/30/2021 5:14:44 PM
J:\Hydro\DDC\Franklin_0800\Hydro\erotics\340080_hyd_erosion_fm.ead.dgn
HDR ENGINEERING, INC.

PLANTING DETAILS

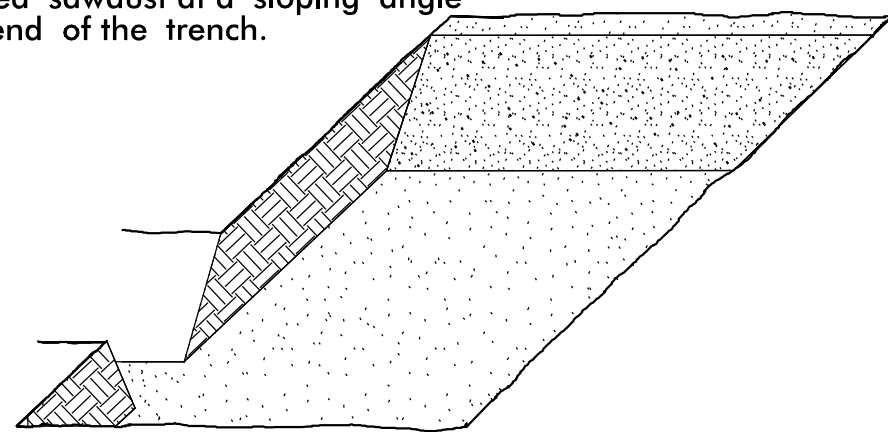
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

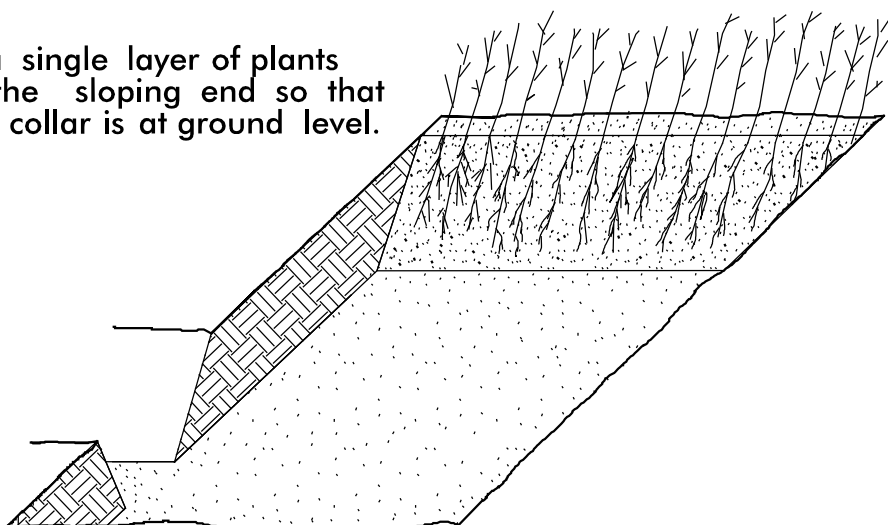
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



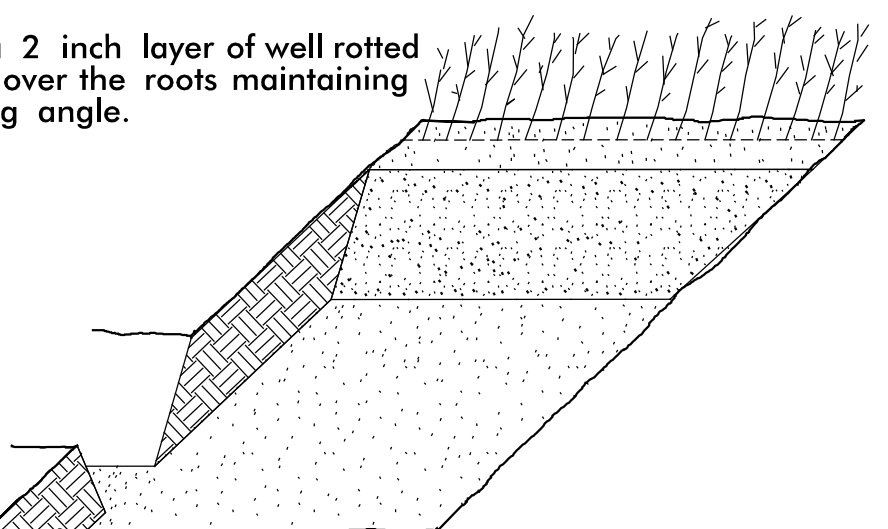
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

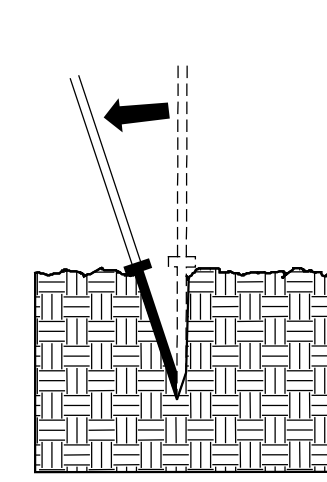


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

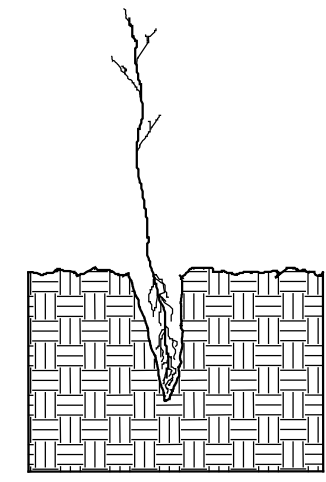


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

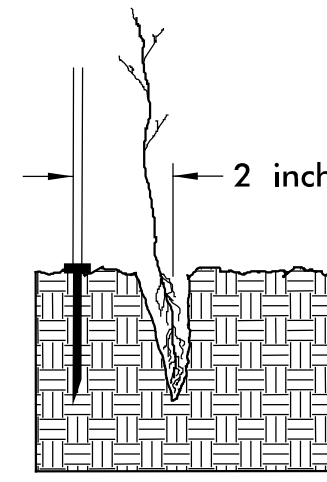
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



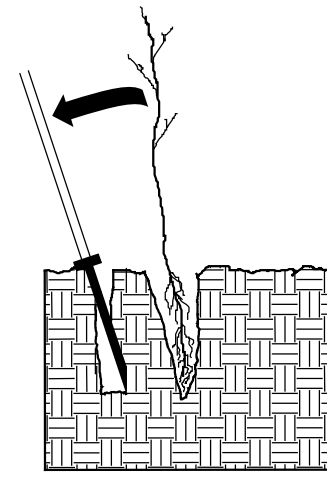
1. Insert planting bar as shown and pull handle toward planter.



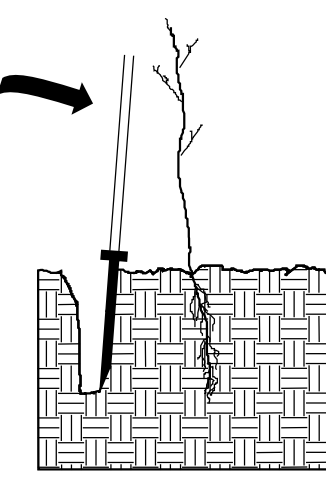
2. Remove planting bar and place seedling at correct depth.



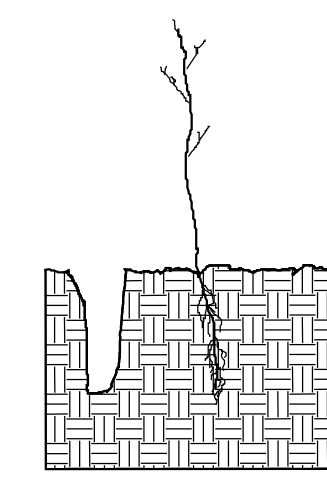
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



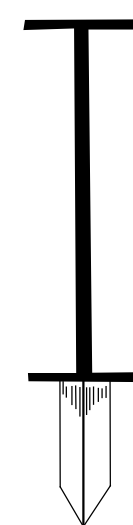
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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



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



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

REFORESTATION

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

REFORESTATION

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

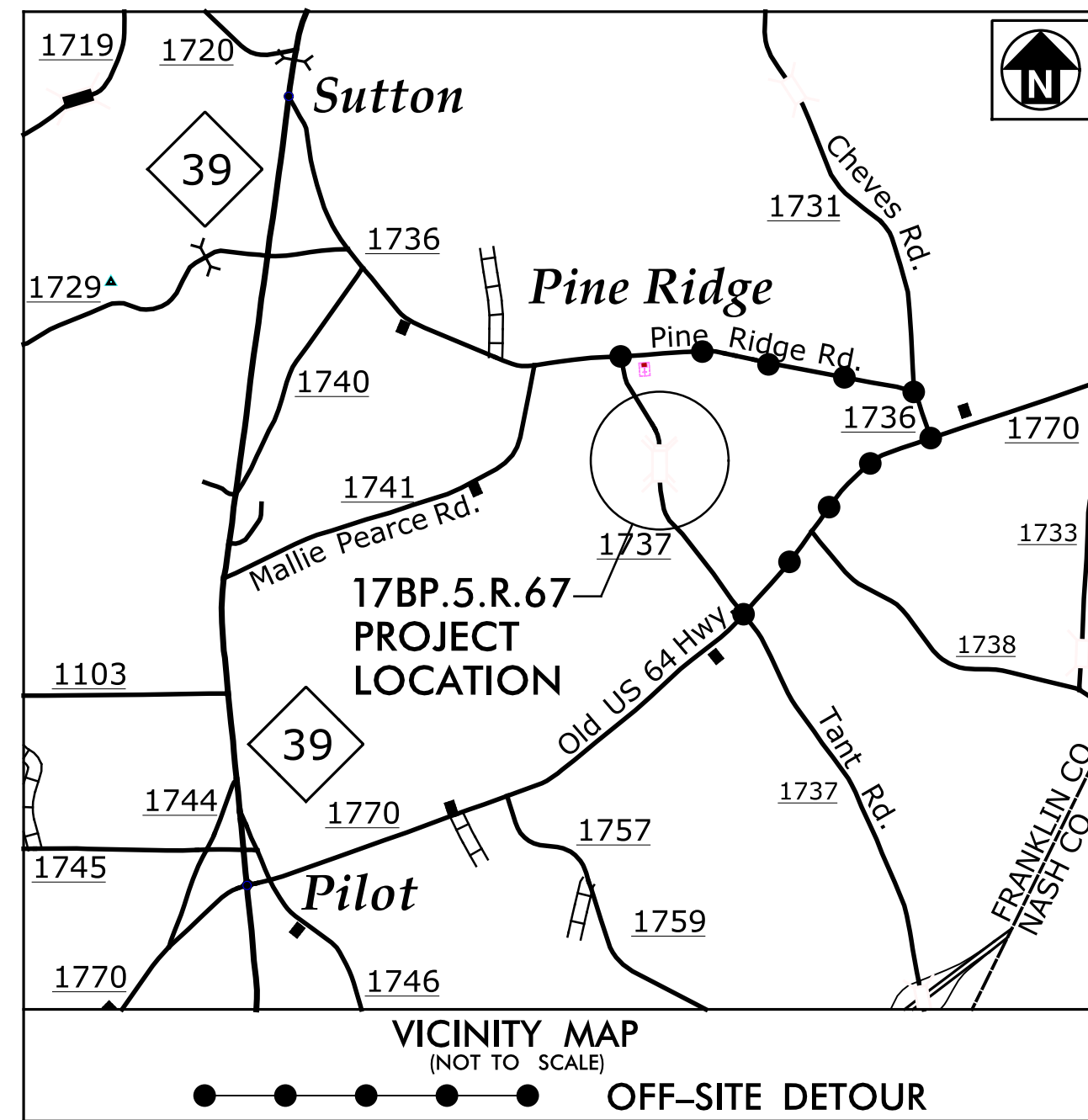
33%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
33%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
34%	BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

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

5/23/2019 2:42:29 PM
 I:\Projects\Hatch_Mott_MacDonald\3160\17BP.5.R.67_Franklin_80\340080.100perc_Plans\340080_rdy_UbO_tsh.dgn
 jharris

CONTRACT: DE00297 TIP PROJECT: 17BP.5.R.67



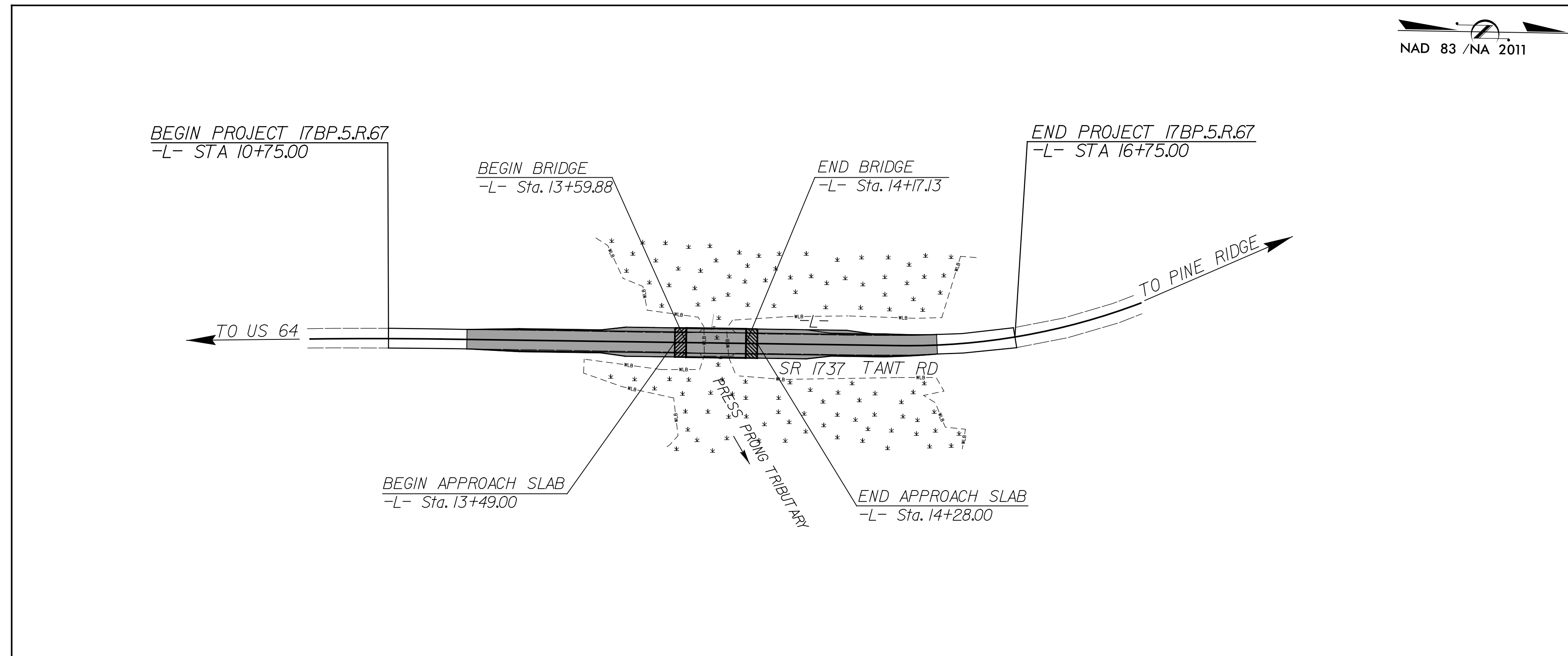
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
FRANKLIN COUNTY**

**LOCATION: BRIDGE NO. 80 OVER PRESS PRONG TRIBUTARY
ON SR 1737 (TANT ROAD)**

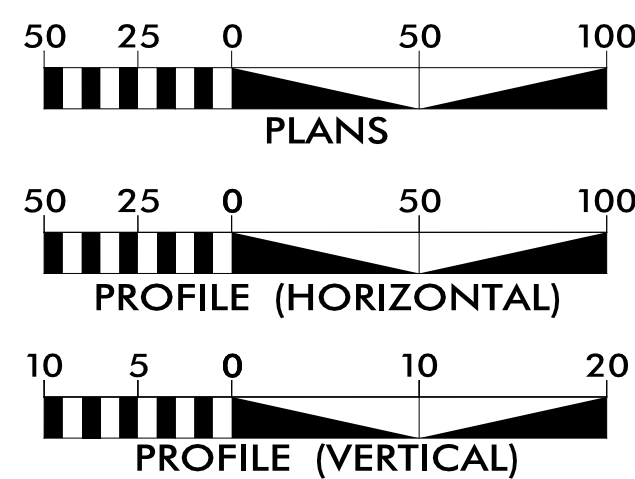
TYPE OF WORK: UTILITY BY OTHERS RELOCATION

T.I.P. NO.	SHEET NO.
17BP.5.R.67	UO-1



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

GRAPHIC SCALES



INDEX OF SHEETS

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

UTILITY OWNERS WITH CONFLICTS

- (A) POWER - DUKE ENERGY PROGRESS
- (B) COMMUNICATIONS - CENTURYLINK

PREPARED BY:



THE WOOTEN COMPANY

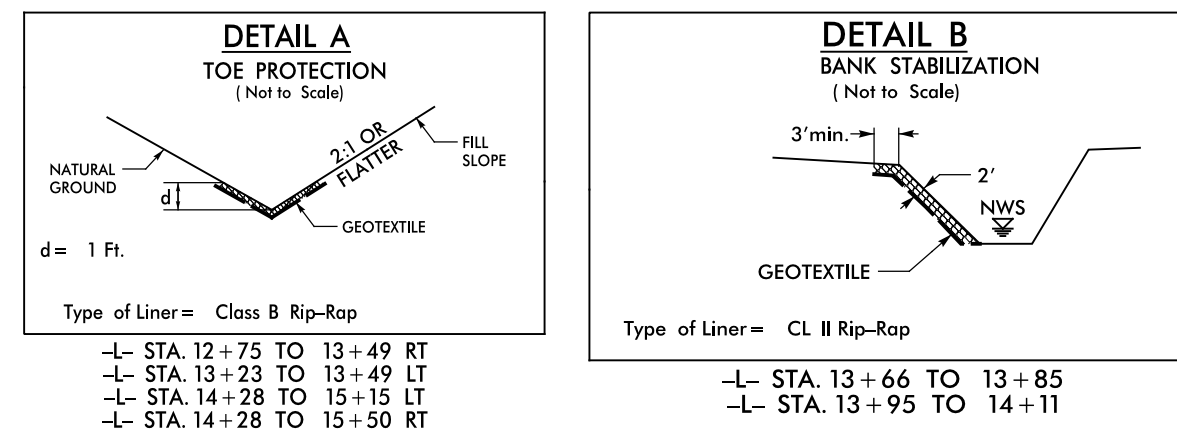
120 North Boylan Avenue Raleigh, NC 27603-1423
919.828.0531 Fax: 919.834.3589
License Number: F-0115

NCDOT PROJECT ENGINEER:
LISA GILCHRIST, E.I.
NCDOT DIVISION BRIDGE PROGRAM MANAGER

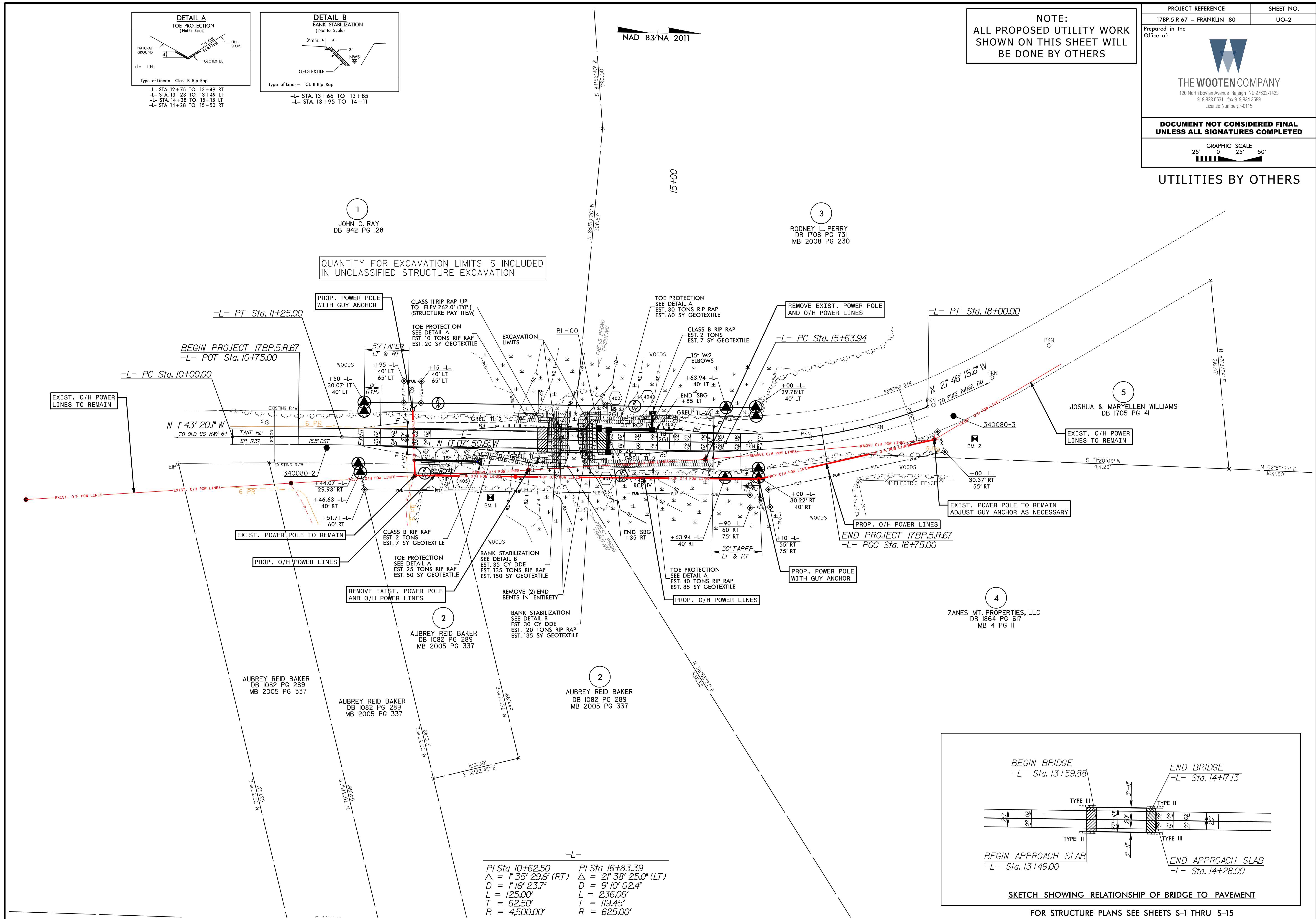
PREPARED FOR:
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION BRIDGE PROGRAM

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

UTILITIES BY OTHERS



NAD 83/NA 2011



QUANTITY FOR EXCAVATION LIMITS IS INCLUDED IN UNCLASSIFIED STRUCTURE EXCAVATION

1
JOHN C. RAY
DB 942 PG 128

3
RODNEY L. PERRY
DB 1708 PG 731
MB 2008 PG 230

5
JOSHUA & MARYELLEN WILLIAMS
DB 1705 PG 41

4
ZANES MT. PROPERTIES, LLC
DB 1864 PG 617
MB 4 PG II

2
AUBREY REID BAKER
DB 1082 PG 289
MB 2005 PG 337

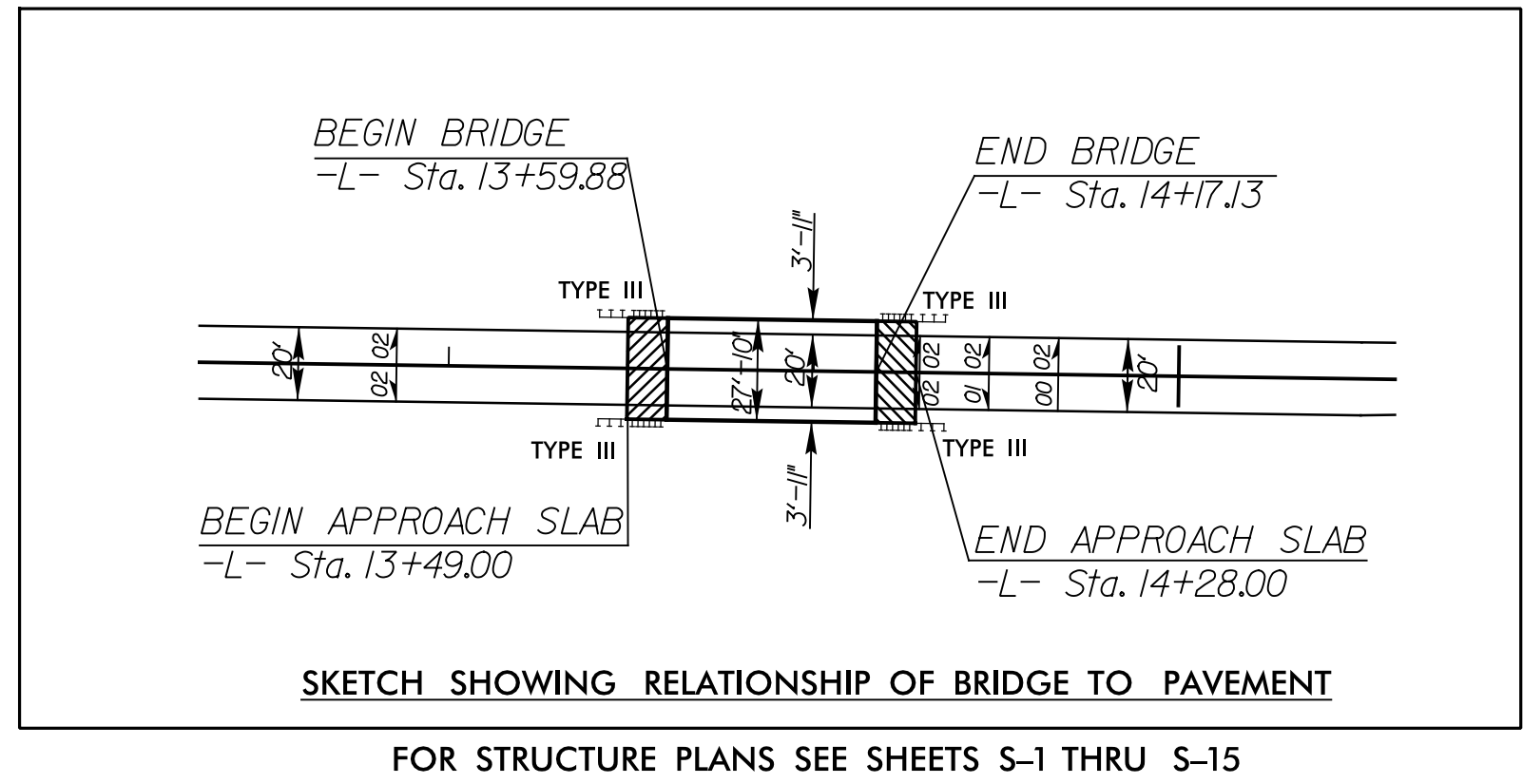
2
AUBREY REID BAKER
DB 1082 PG 289
MB 2005 PG 337

AUBREY REID BAKER
DB 1082 PG 289
MB 2005 PG 337

AUBREY REID BAKER
DB 1082 PG 289
MB 2005 PG 337

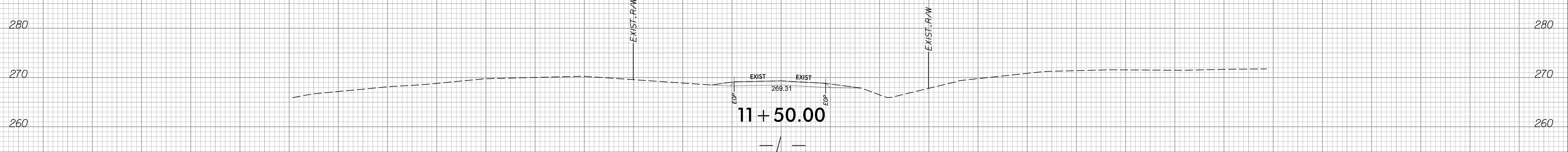
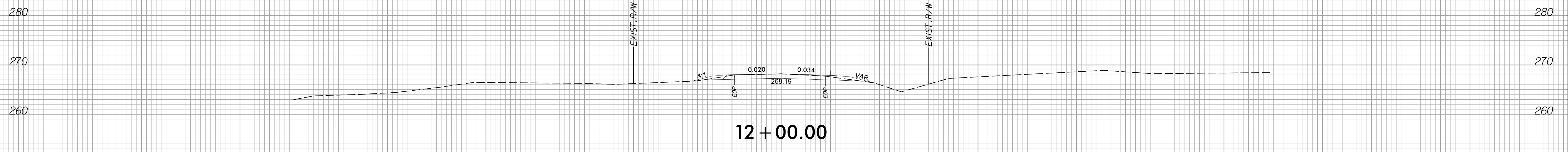
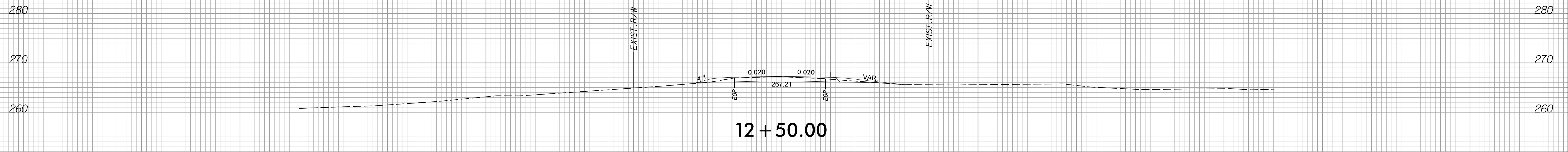
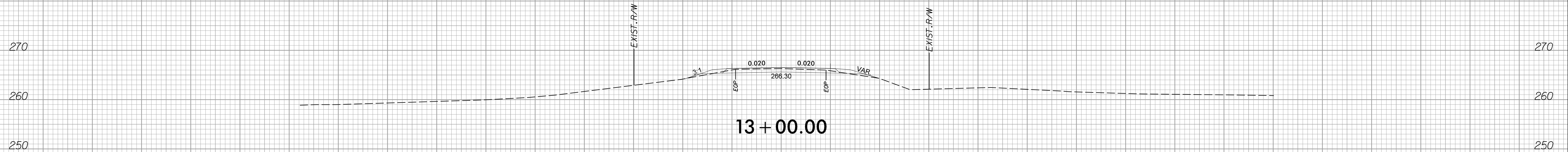
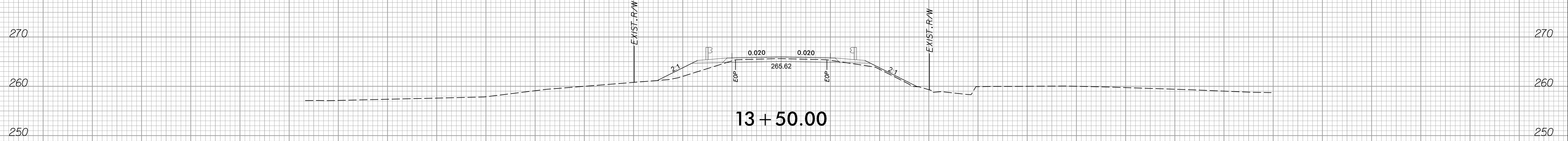
-L-

PI Sta 10+62.50	PI Sta 16+83.39
$\Delta = 1^{\circ} 35' 29.6''$ (RT)	$\Delta = 2^{\circ} 38' 25.0''$ (LT)
$D = 1^{\circ} 16' 23.7''$	$D = 9^{\circ} 10' 02.4''$
$L = 125.00'$	$L = 236.06'$
$T = 62.50'$	$T = 119.45'$
$R = 4,500.00'$	$R = 625.00'$



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

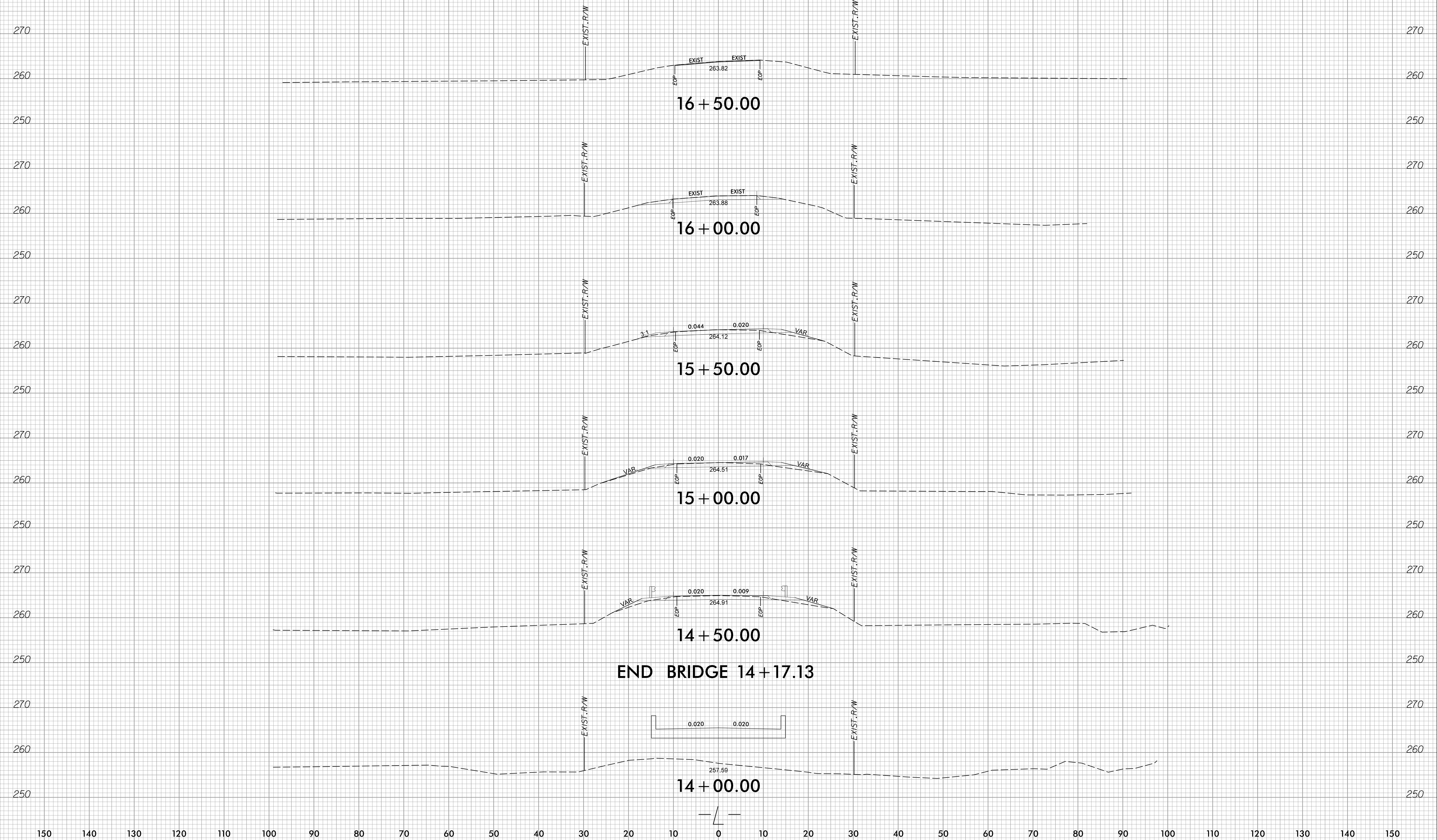
BEGIN BRIDGE 13+59.88



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

7/16/2021 4:37:38 PM
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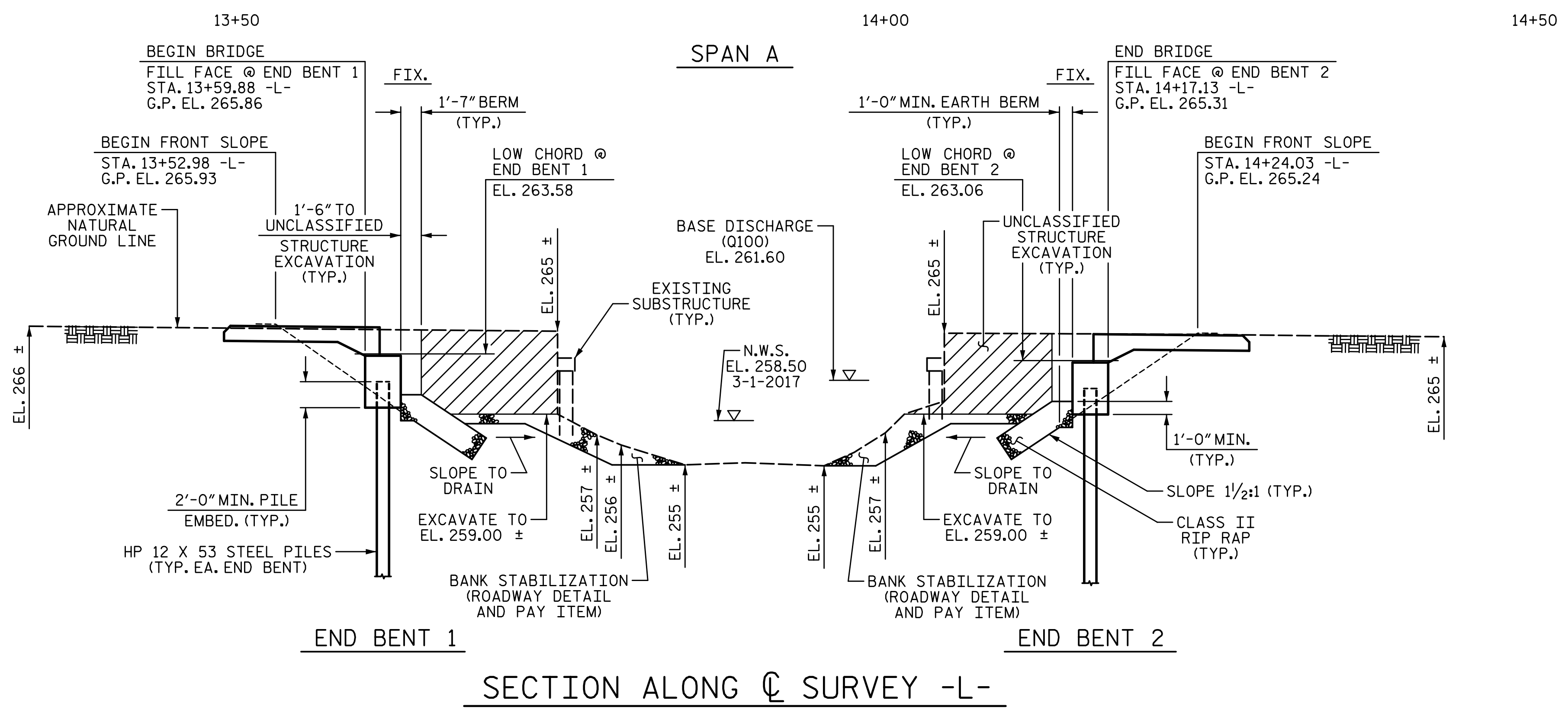


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6/24/2021 6:12:48 AM G:\Projects\2016\Division 5 (Mott Macdonald)\17BP5R67 Franklin #80 (90 21CS VCBR)\Structures\Drawings\Final\401.17BP5R67_SML.GD.dgn

PROJ:17BP.5.R.67



GRADE DATA -L-

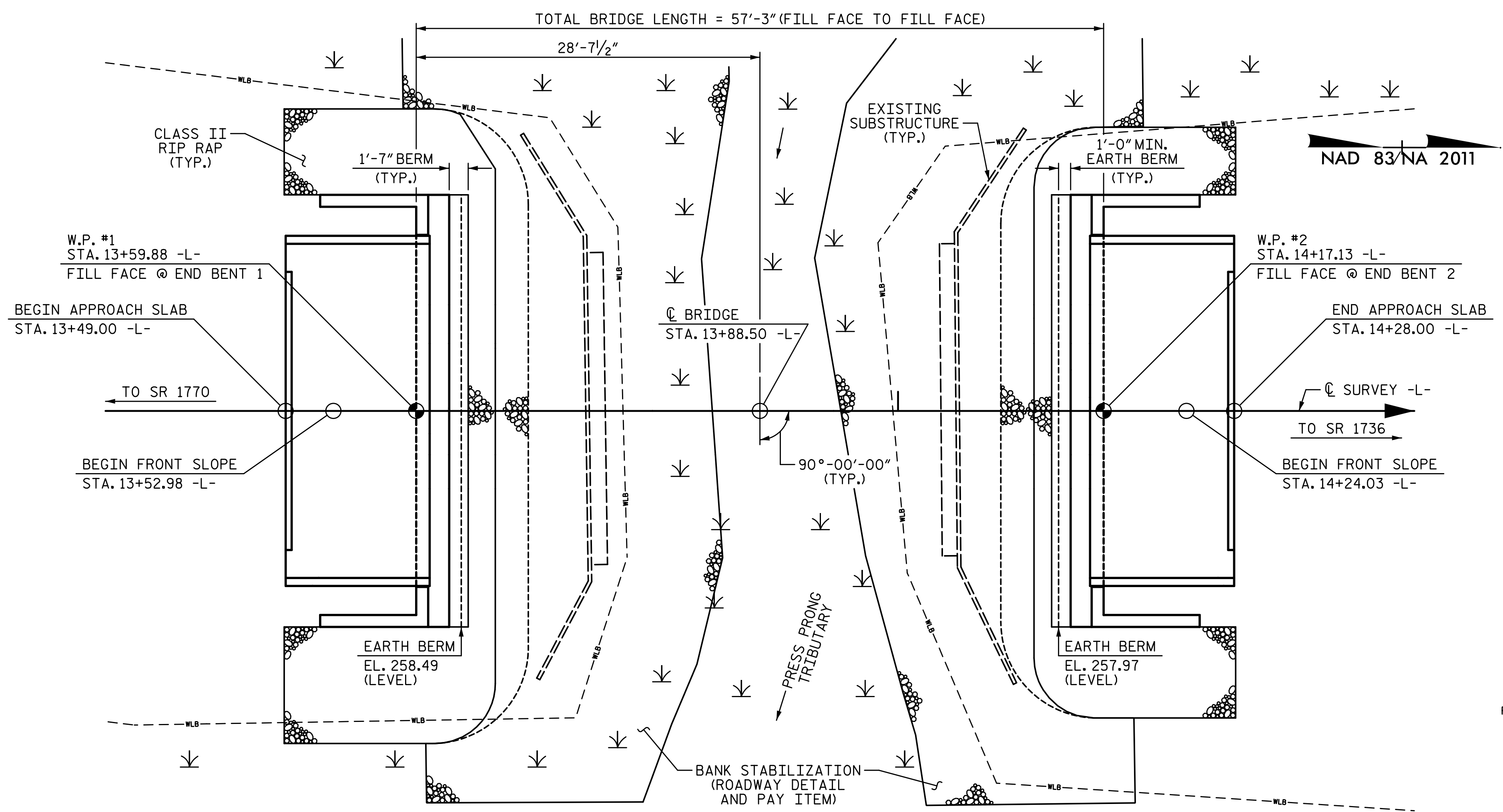
Grade 1	(-)-2.3900%	Grade 2	(-)-0.9633%
PVI STA. 12+50.00 EL. = 266.92 VC = 200'			
Grade 3	(-)-0.9633%	Grade 4	(-)-0.3000%
PVI STA. 15+50.00 EL. = 264.03 VC = 100'			

HYDRAULIC DATA:

DESIGN DISCHARGE	= 890 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YEAR
DESIGN HIGH WATER ELEVATION	= 260.6
DRAINAGE AREA	= 2.3 SQ. MI.
BASE DISCHARGE (Q 100)	= 1300 CFS
BASE HIGH WATER ELEVATION	= 261.6

OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE	= 1600 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500± YEAR
OVERTOPPING FLOOD ELEVATION	= 264.0 **
** OVERTOPPING OCCURS AT ROADWAY STA. 16+00.00 -L- ON ROADWAY SUPER HIGH (RIGHT) SIDE	



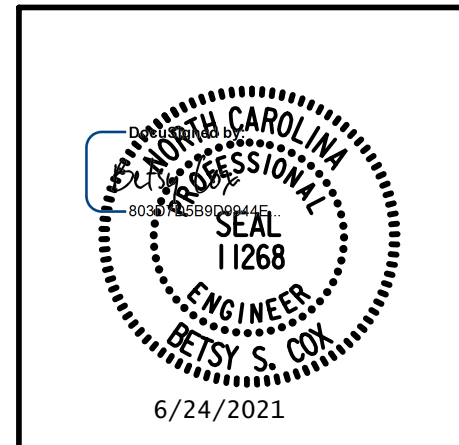
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.5.R.67
 FRANKLIN COUNTY
 STATION: 13+88.50 -L-
 SHEET 1 OF 2 REPLACES BRIDGE #80

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1737
 (TANT RD)
 OVER PRESS PRONG TRIBUTARY
 BETWEEN SR 1770 AND SR 1736
 27'-10" CLEAR ROADWAY - 90° SKEW

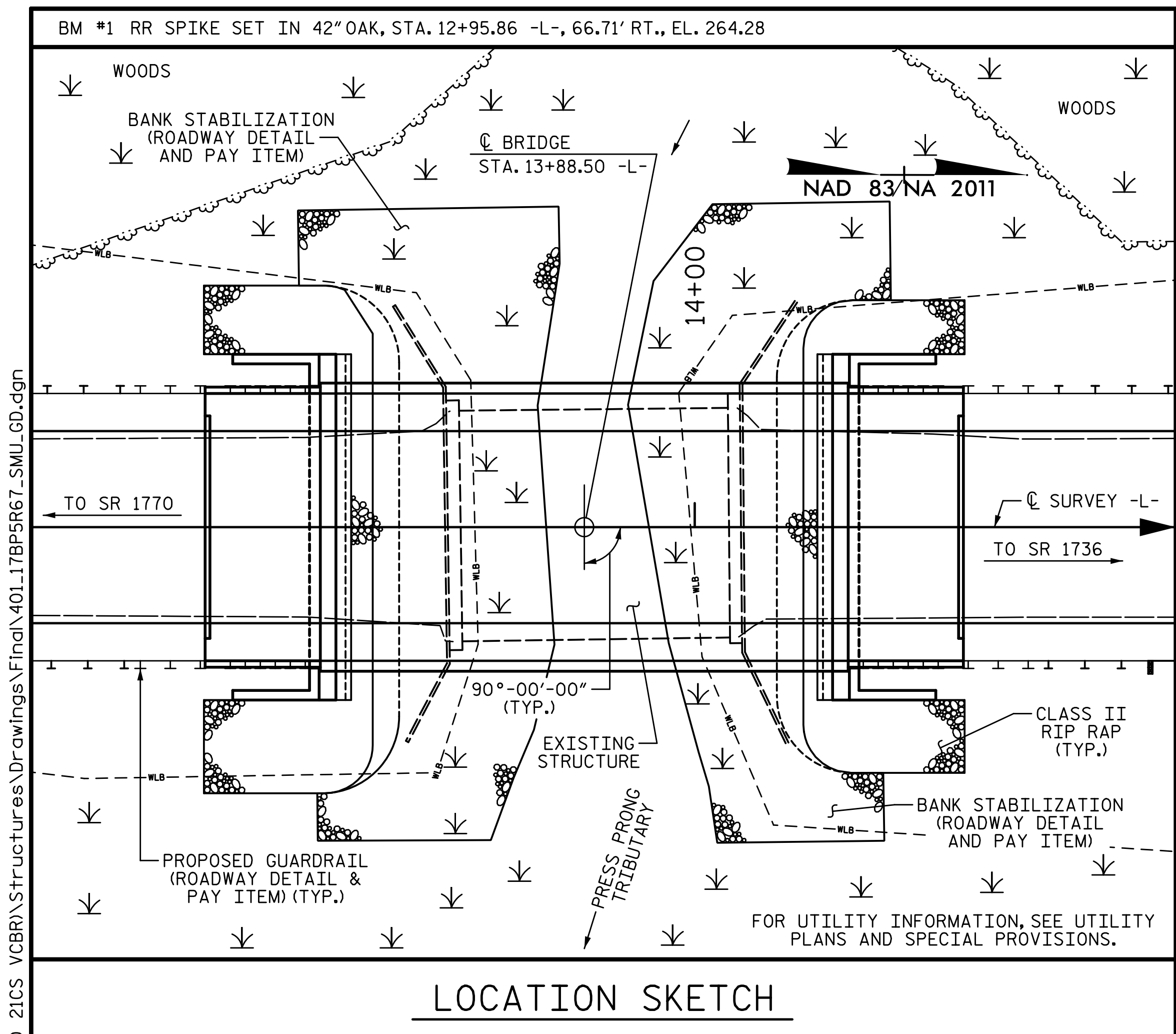
PLANS PREPARED BY:
SE & A
 IMPSON ENGINEERS ASSOCIATES
 5640 Dillard Drive
 Suite 200
 Cary, NC 27518
 (919) 852-0468
 (919) 852-0598 (Fax)
 www.slmpsonengr.com
 LICENSURE NO. C-2521



DRAWN BY: S.D. COOPER DATE: 6-21
 CHECKED BY: B.S. COX DATE: 6-21
 DESIGN ENGINEER OF RECORD: B.S. COX DATE: 6-21

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTES:

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. LEFT AND 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 CONSISTS OF 1 SPAN @ 30'-9". THE SUPERSTRUCTURE CONSISTS OF PRESTRESSED CONCRETE CHANNELS AND HAS A CLEAR ROADWAY WIDTH OF 24'-2". THE END BENTS CONSIST OF REINFORCED CONCRETE CAPS ON TIMBER PILES. THE EXISTING STRUCTURE, WHICH IS LOCATED AT THE SITE OF THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- REMOVE EXISTING END BENTS IN ENTIRETY.
- THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.
- AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		ASBESTOS ASSESSMENT	
							NO.	LF						EA	LF		NO.
SUPERSTRUCTURE	LS	LS	CY	LS	LB	EA											
END BENT 1		LS	20.0		2,449	5	5	145	2	110.25	85	95	LS	10	550.00		
END BENT 2		LS	20.0		2,449	5	5	190			75	85					
TOTAL	LS	LS	40.0	LS	4,898	10	10	335	2	110.25	160	180	LS	10	550.00	LS	

FOUNDATION NOTES:

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.
- DRIVE PILES AT END BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.
- STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT 1 RIGHT. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.
- DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

PROJECT NO. 17BP.5.R.67
FRANKLIN COUNTY
 STATION: 13+88.50 -L-

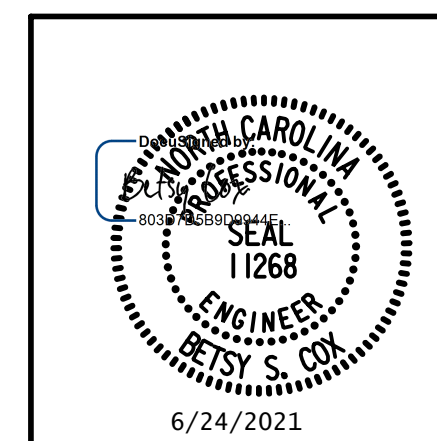
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1737
 (TANT RD)
 OVER PRESS PRONG TRIBUTARY
 BETWEEN SR 1770 AND SR 1736
 27'-10" CLEAR ROADWAY - 90° SKEW

PLANS PREPARED BY:

SIMPSON ENGINEERS & ASSOCIATES
 5640 Dillard Drive
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 Cary, NC 27518
 (919) 852-0468
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LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.055	--	1.75	0.275	1.23	55'	EL	27	0.523	1.23	55'	EL	5.4	0.80	0.275	1.05	55'	EL	27		
	HL-93(Opr)	N/A	--	1.591	--	1.35	0.275	1.59	55'	EL	27	0.523	1.59	55'	EL	5.4	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.322	47.585	1.75	0.275	1.54	55'	EL	27	0.523	1.47	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27		
	HS-20(Opr)	36.000	--	1.9	68.396	1.35	0.275	1.99	55'	EL	27	0.523	1.9	55'	EL	5.4	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.776	37.476	1.4	0.275	4.04	55'	EL	27	0.523	4.17	55'	EL	5.4	0.80	0.275	2.78	55'	EL	27	
		SNGARBS2	20.000	--	2.155	43.095	1.4	0.275	3.14	55'	EL	27	0.523	3.02	55'	EL	5.4	0.80	0.275	2.15	55'	EL	27	
		SNAGRIS2	22.000	--	2.079	45.734	1.4	0.275	3.03	55'	EL	27	0.523	2.83	55'	EL	5.4	0.80	0.275	2.08	55'	EL	27	
		SNCOTTS3	27.250	--	1.384	37.708	1.4	0.275	2.01	55'	EL	27	0.523	2.09	55'	EL	5.4	0.80	0.275	1.38	55'	EL	27	
		SNAGGRS4	34.925	--	1.189	41.527	1.4	0.275	1.73	55'	EL	27	0.523	1.77	55'	EL	5.4	0.80	0.275	1.19	55'	EL	27	
		SNS5A	35.550	--	1.16	41.255	1.4	0.275	1.69	55'	EL	27	0.523	1.82	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		SNS6A	39.950	--	1.079	43.102	1.4	0.275	1.57	55'	EL	27	0.523	1.68	55'	EL	5.4	0.80	0.275	1.08	55'	EL	27	
	SNS7B	42.000	--	1.028	43.175	1.4	0.275	1.5	55'	EL	27	0.523	1.67	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27		
	TTST	TNAGRIT3	33.000	--	1.32	43.556	1.4	0.275	1.92	55'	EL	27	0.523	1.98	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27	
		TNT4A	33.075	--	1.33	43.979	1.4	0.275	1.94	55'	EL	27	0.523	1.91	55'	EL	5.4	0.80	0.275	1.33	55'	EL	27	
		TNT6A	41.600	--	1.101	45.811	1.4	0.275	1.6	55'	EL	27	0.523	1.83	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
		TNT7A	42.000	--	1.114	46.804	1.4	0.275	1.62	55'	EL	27	0.523	1.71	55'	EL	5.4	0.80	0.275	1.11	55'	EL	27	
		TNT7B	42.000	--	1.163	48.848	1.4	0.275	1.69	55'	EL	27	0.523	1.62	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		TNAGRIT4	43.000	--	1.101	47.33	1.4	0.275	1.6	55'	EL	27	0.523	1.56	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
TNAGT5A		45.000	--	1.031	46.405	1.4	0.275	1.5	55'	EL	27	0.523	1.58	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27		
TNAGT5B	45.000	3	1.013	45.582	1.4	0.275	1.47	55'	EL	27	0.523	1.48	55'	EL	5.4	0.80	0.275	1.01	55'	EL	27			

LOAD FACTORS:

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

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
 ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.
 DISTANCE FROM LEFT END OF SPAN IS MEASURED FROM C BEARING.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

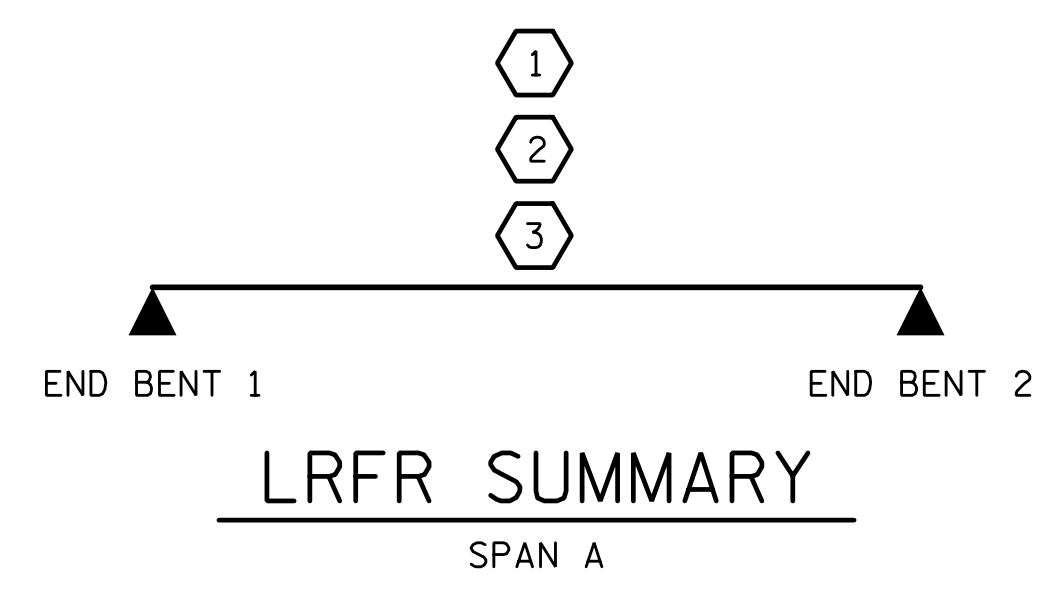
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

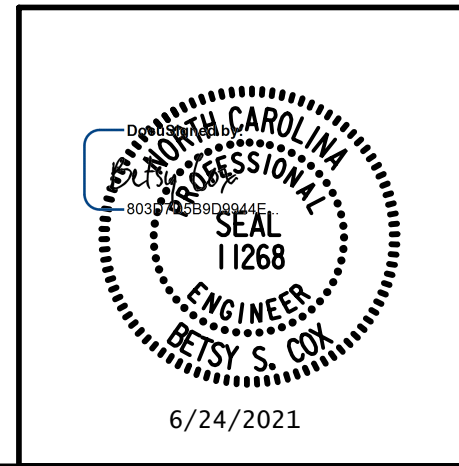


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FRANKLIN COUNTY
 STATION: 13+88.50 -L-

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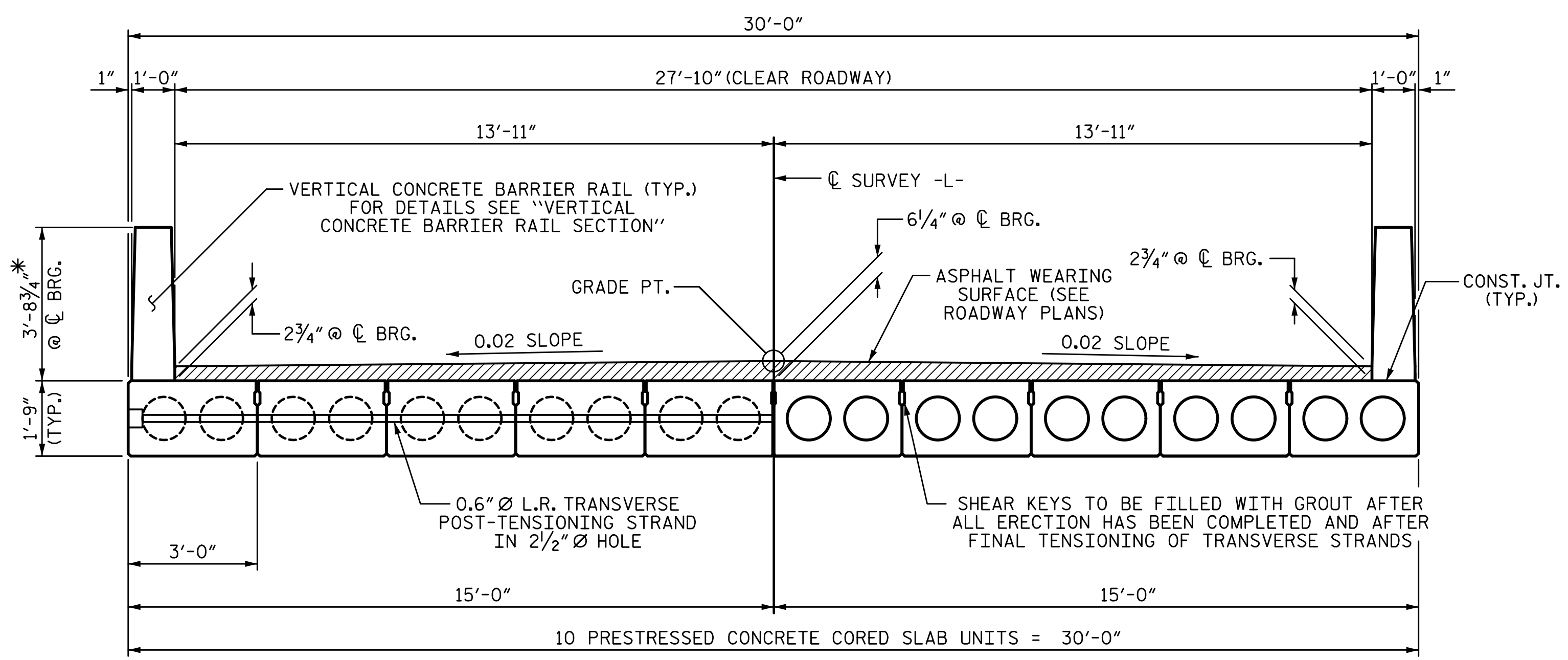
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

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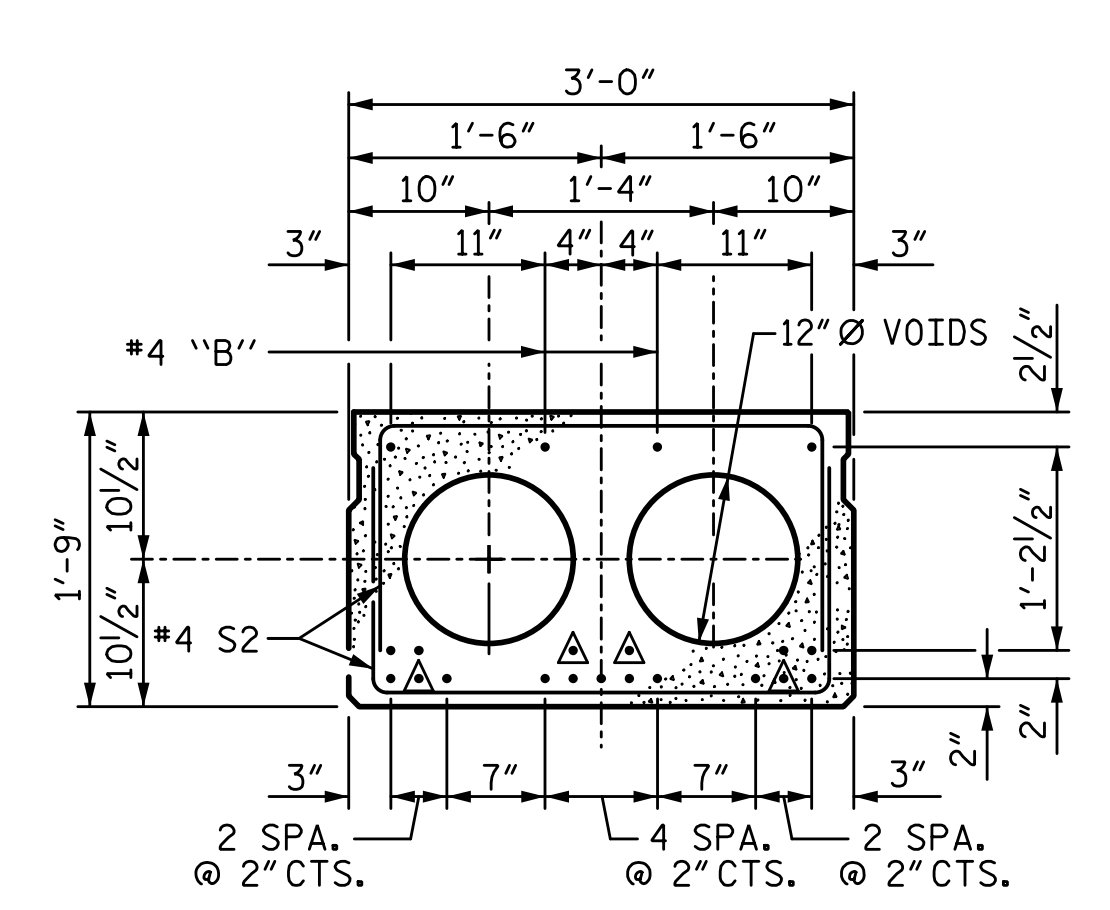
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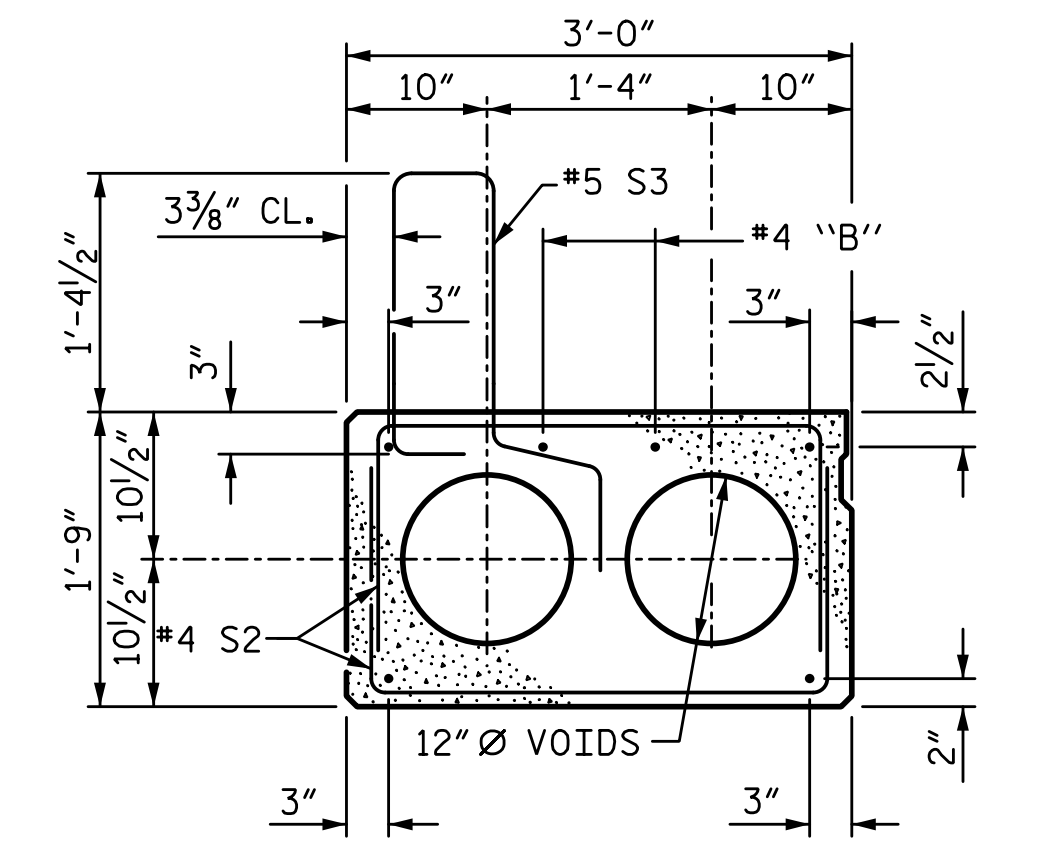
HALF SECTION AT INTERMEDIATE DIAPHRAGMS
 HALF SECTION THROUGH VOIDS
TYPICAL SECTION

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



INTERIOR SLAB SECTION (55'-0" UNIT)
 (19 STRANDS REQUIRED)

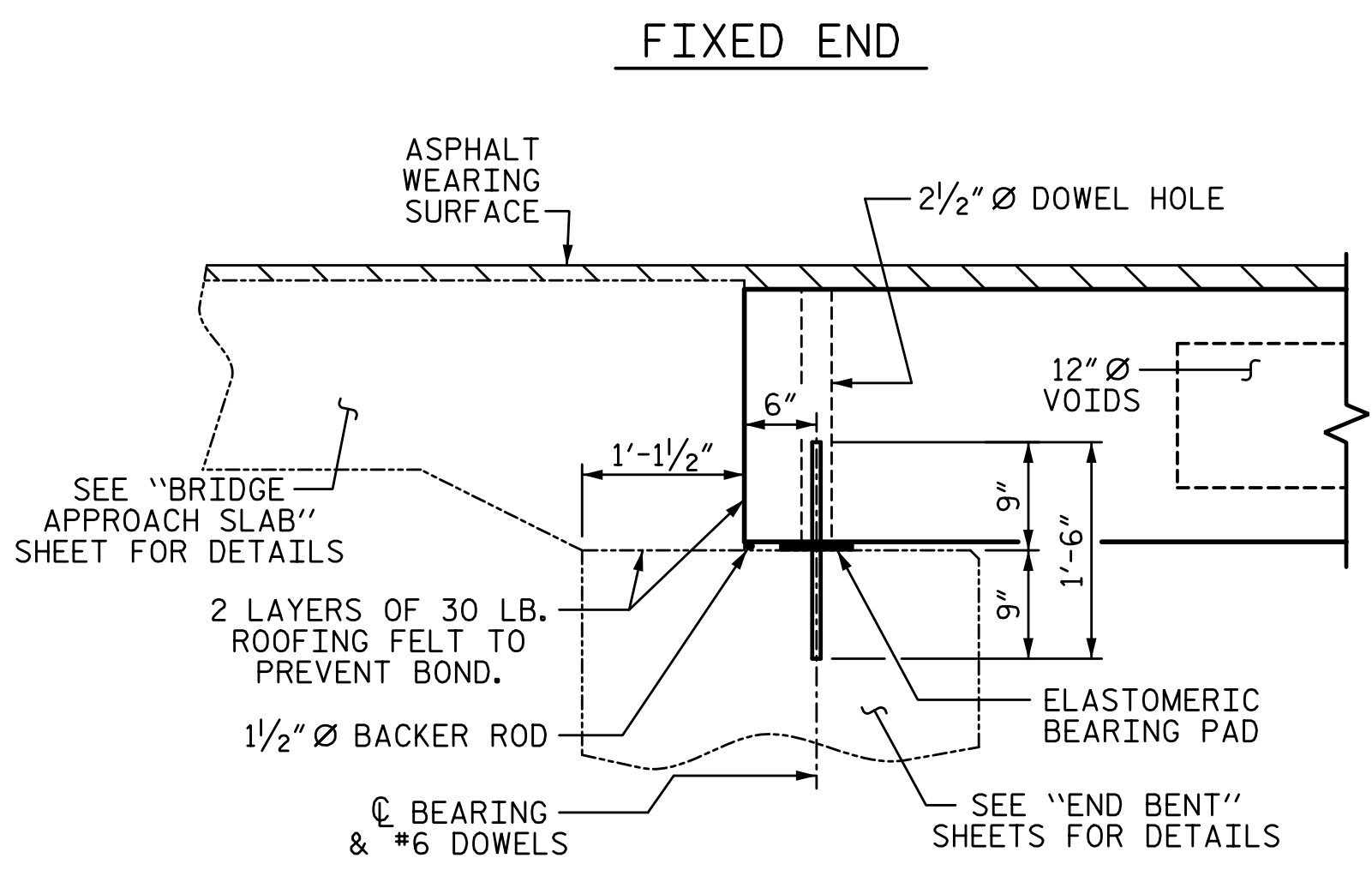
0.6" Ø LOW RELAXATION STRAND LAYOUT



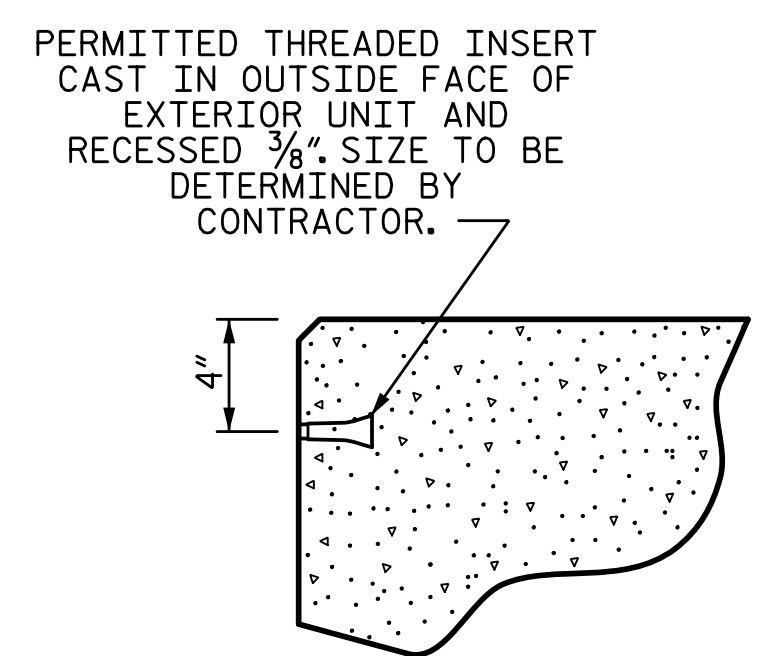
EXTERIOR SLAB SECTION
 (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

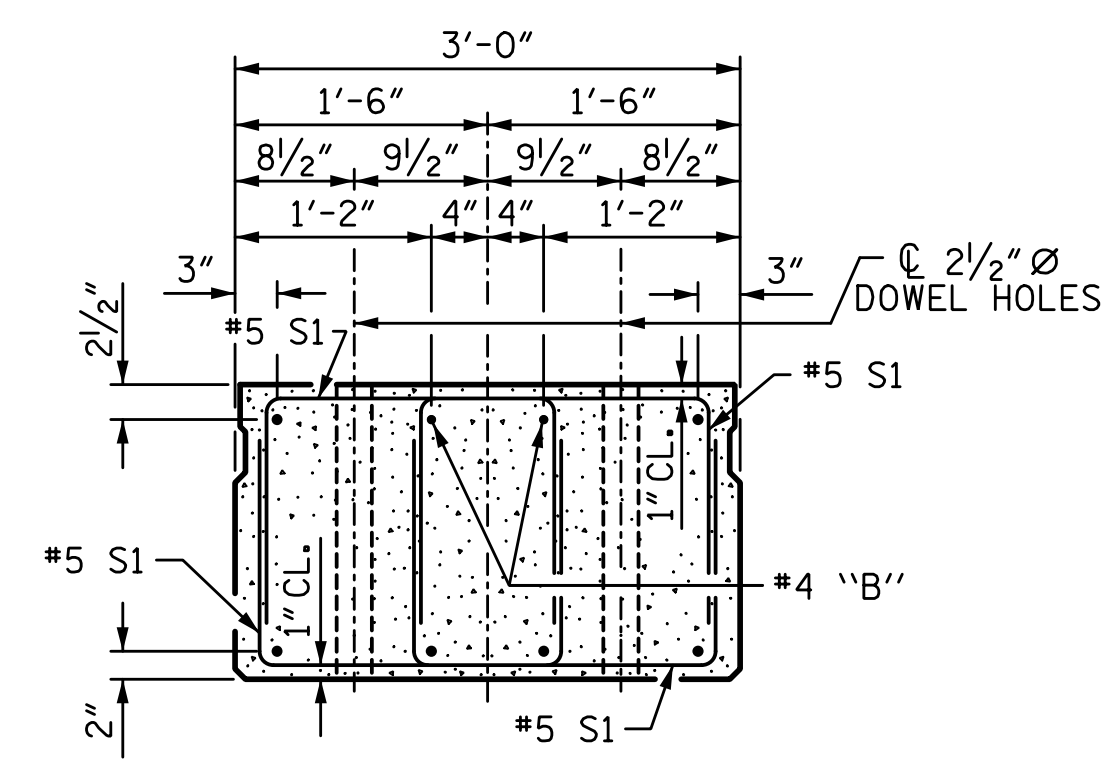
DEBONDING LEGEND



SECTION AT END BENT

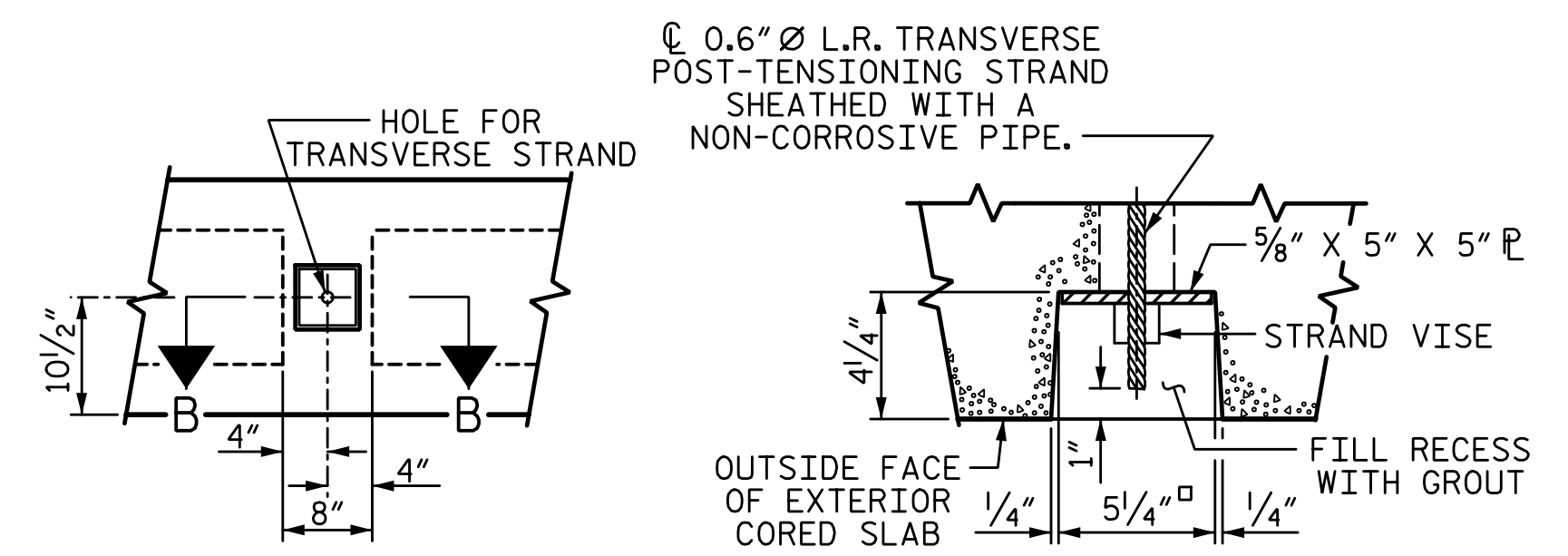


THREADED INSERT DETAIL

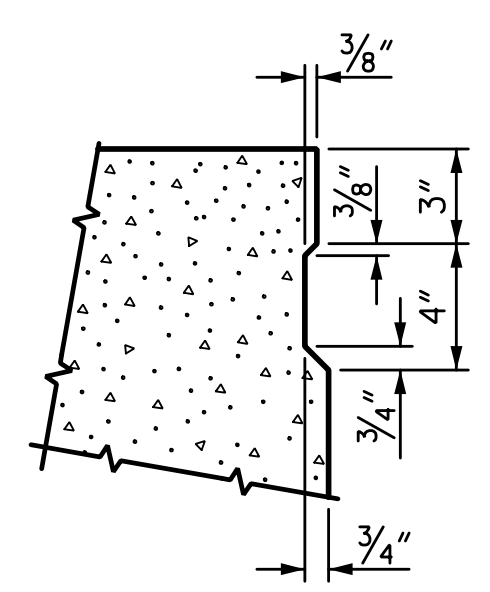


END ELEVATION

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.



ELEVATION VIEW
SECTION B-B
GROUTED RECESS AT END OF POST-TENSIONED STRAND FOR CORED SLABS



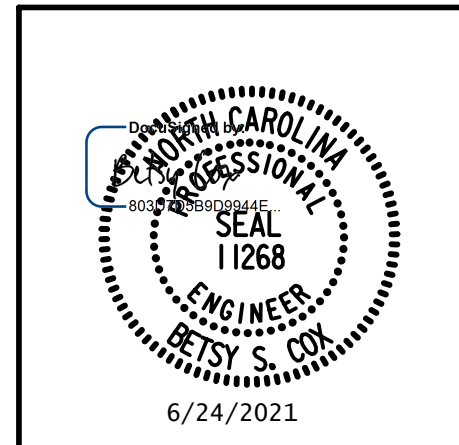
SHEAR KEY DETAIL
 NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PROJECT NO. 17BP.5.R.67
FRANKLIN COUNTY
 STATION: 13+88.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

PLANS PREPARED BY:
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 IMPSON ENGINEERS & ASSOCIATES
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 Cary, NC 27518
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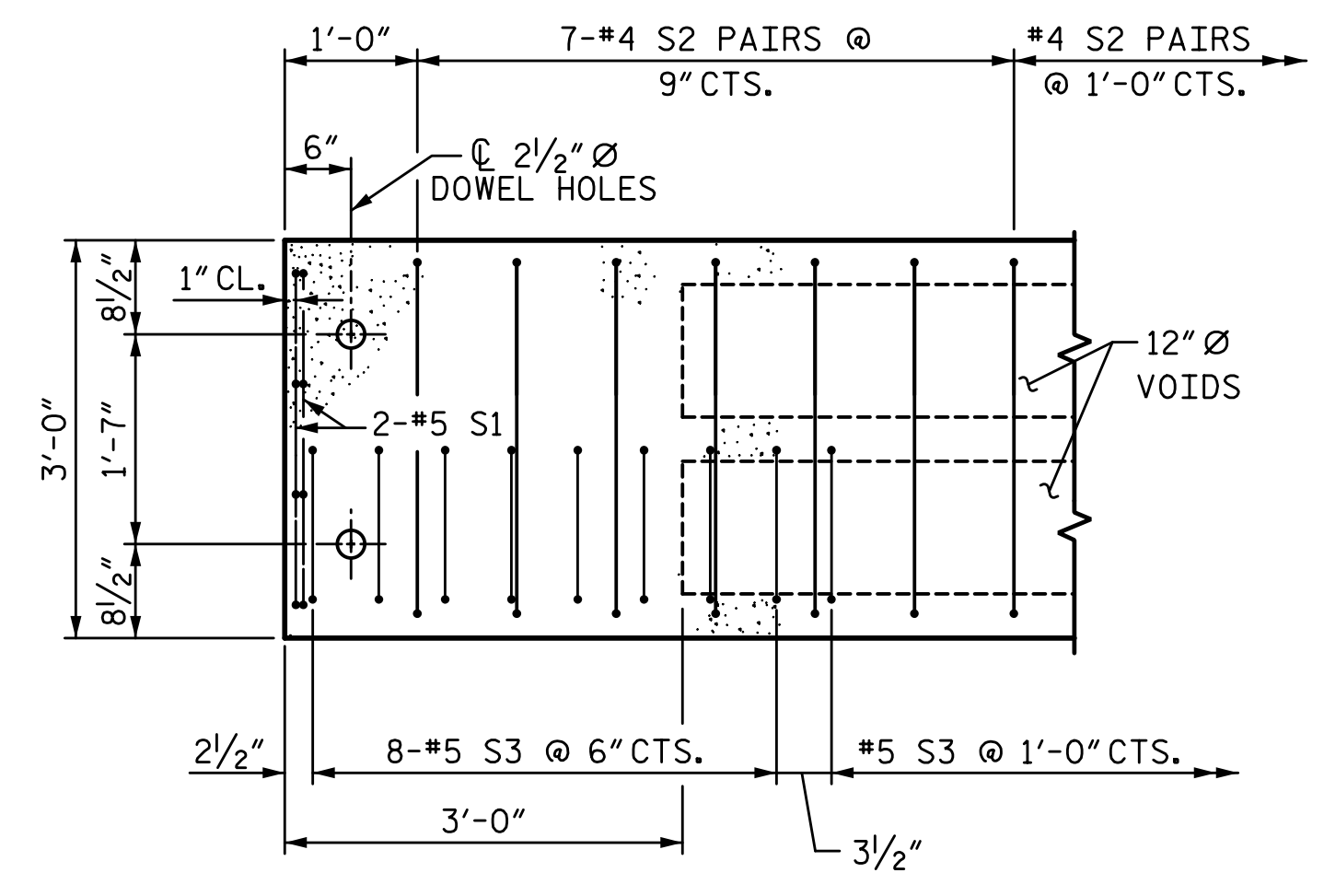
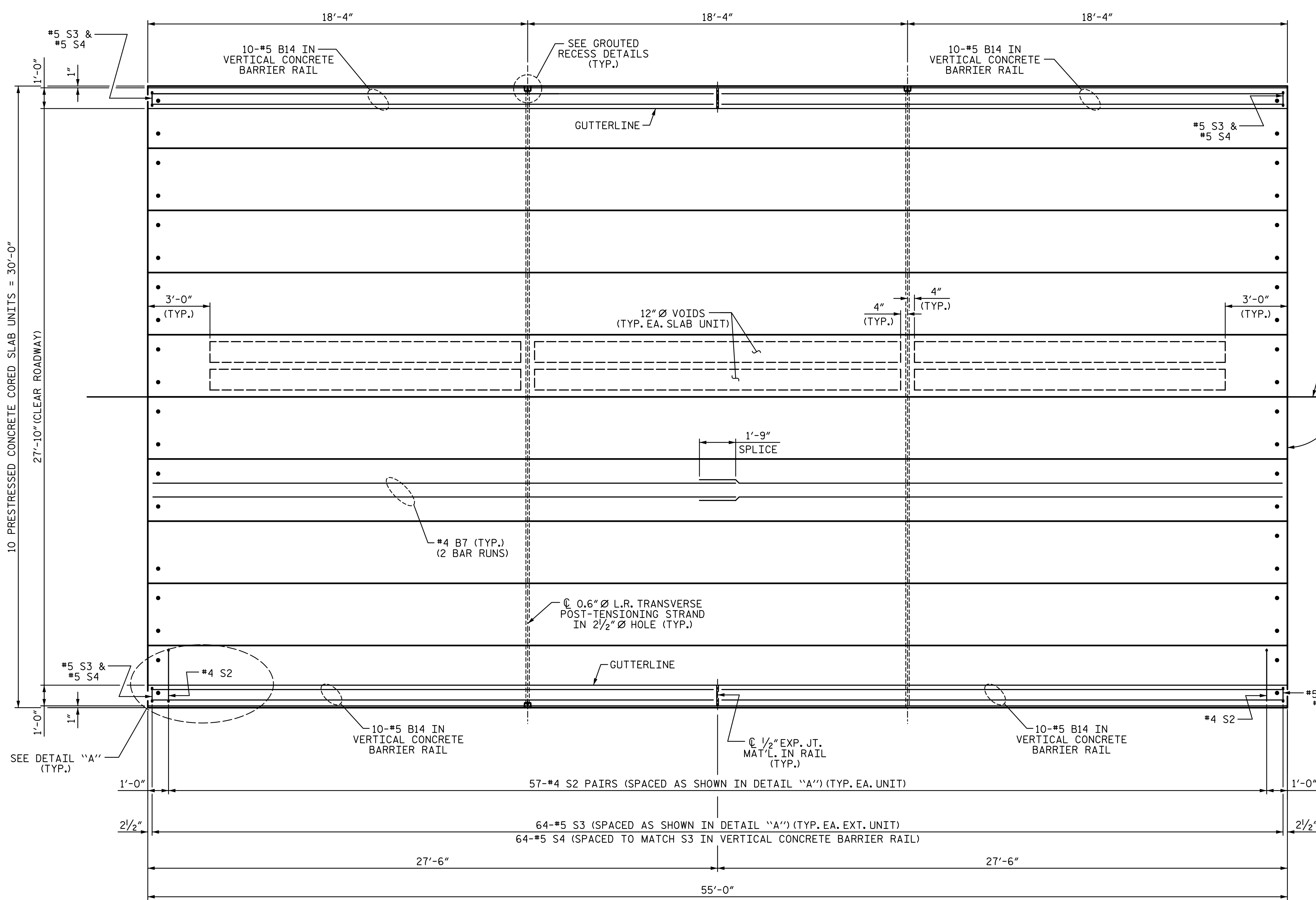


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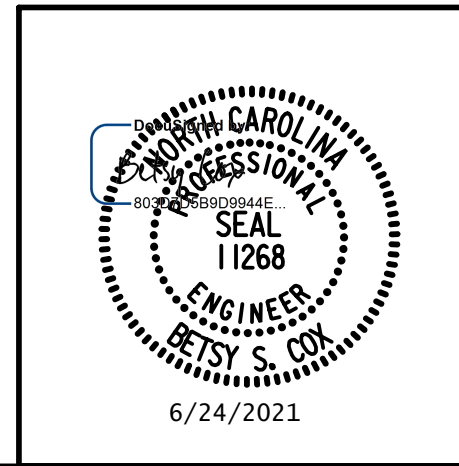
DETAIL "A"
(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF SPAN A

PROJECT NO. 17BP.5.R.67
FRANKLIN COUNTY
STATION: 13+88.50 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN A
(55'-0" UNIT)
27'-10" CLEAR ROADWAY
90° SKEW



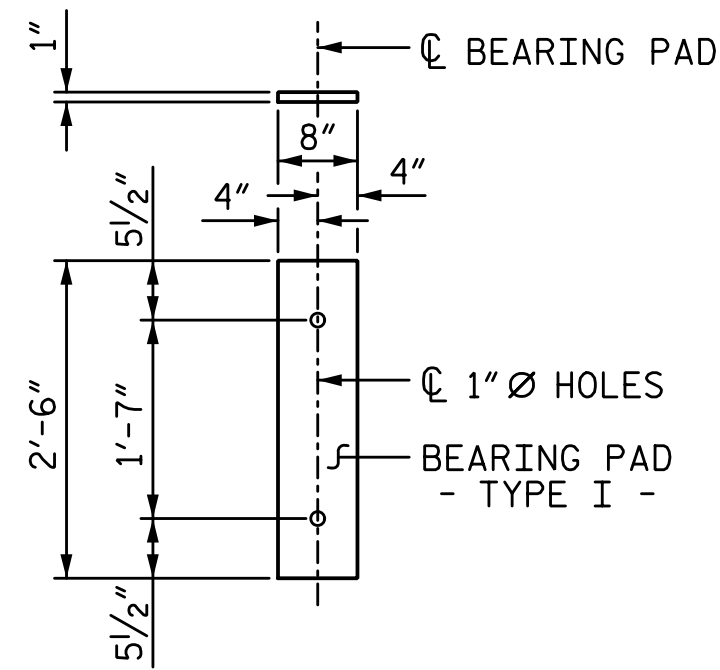
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FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

CORED SLABS REQUIRED			
55' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	8	55'-0"	440'-0"
TOTAL	10		550'-0"

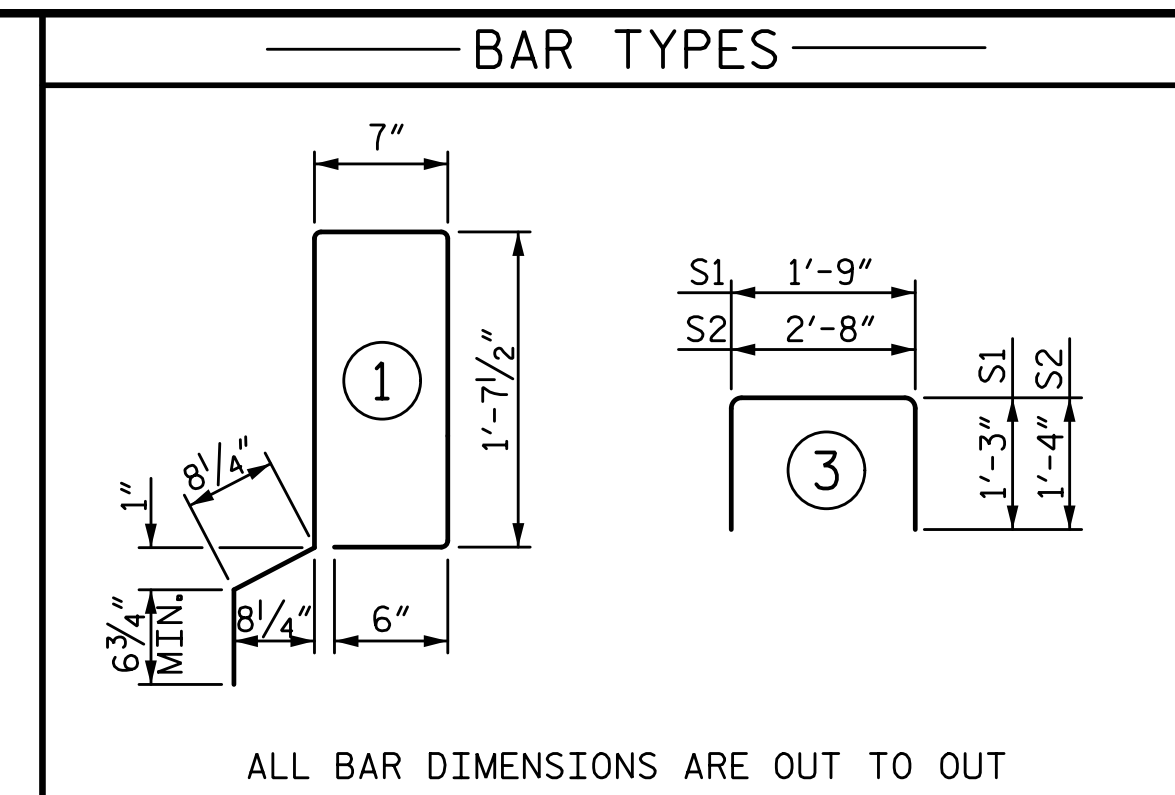
DEAD LOAD DEFLECTION AND CAMBER	
55' CORED SLAB UNIT	3'-0" x 1'-9" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/8" ↓
FINAL CAMBER	1/8" ↑

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT							
		EXTERIOR UNIT			INTERIOR UNIT		
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-3"	75	28'-3"	75
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	114	#4	3	5'-4"	406	5'-4"	406
* S3	64	#5	1	5'-7"	373		
REINFORCING STEEL				LB	516		516
* EPOXY COATED REINFORCING STEEL				LB	373		
6500 P.S.I. CONCRETE				CY	7.8		7.8
0.6" Ø L.R. STRANDS				No.	19		19

CONCRETE RELEASE STRENGTH	
UNIT	PSI
55' UNITS	4900

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



ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. 17BP.5.R.67
FRANKLIN COUNTY
STATION: 13+88.50 -L-

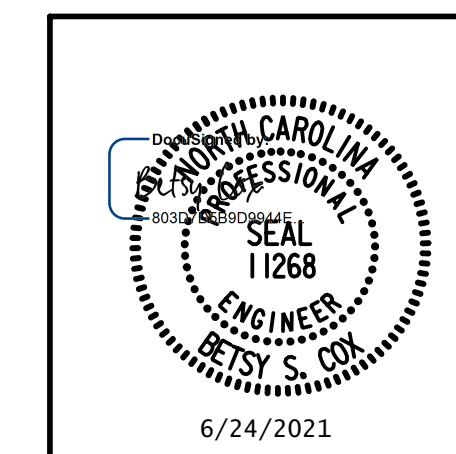
SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

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PLANS PREPARED BY:

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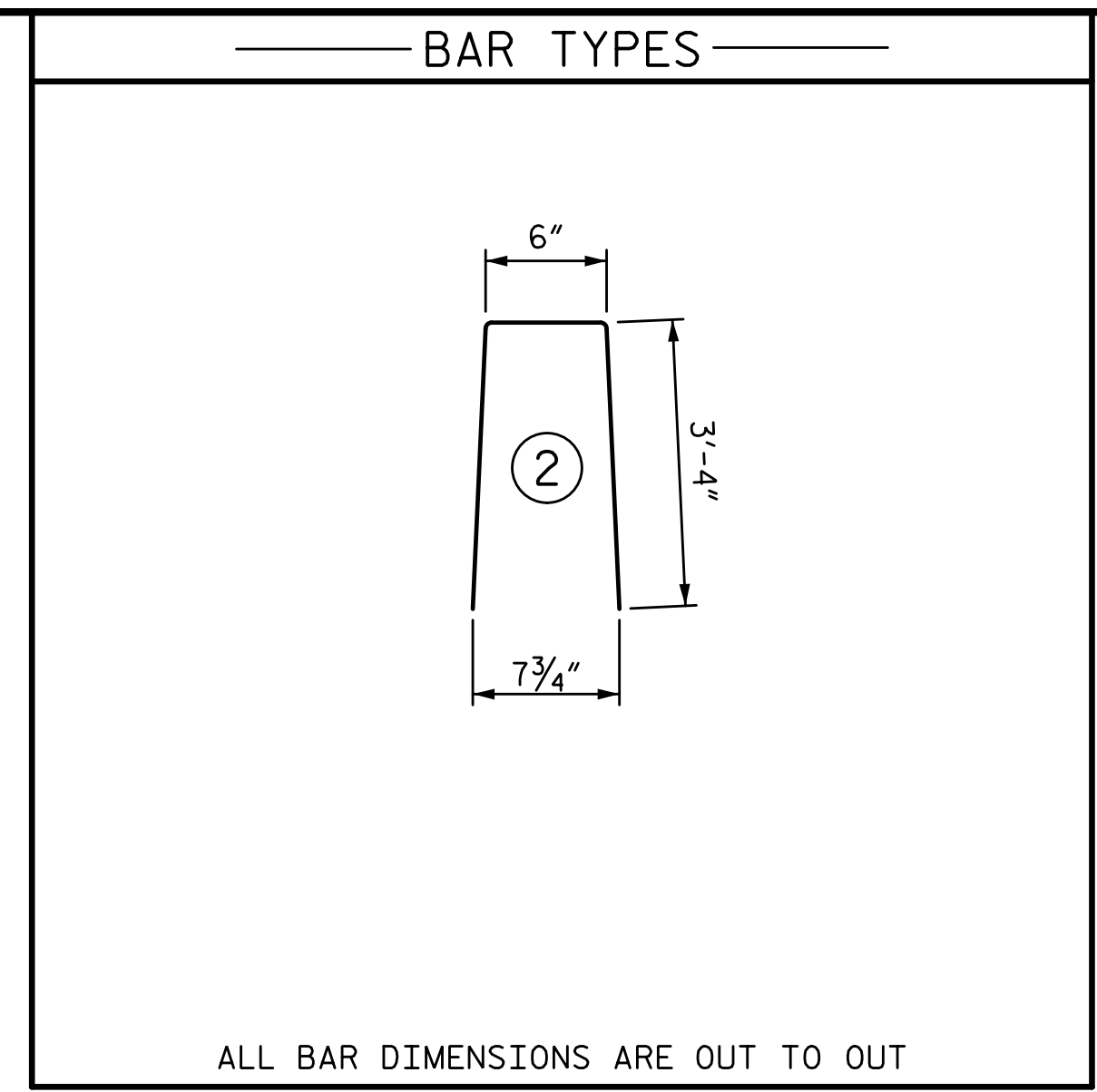
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BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL							
BAR	BARS PER PAIR OF EXTERIOR UNITS 55' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B14	40	40	#5	STR	27'-1"	1130	
*S4	128	128	#5	2	7'-2"	957	
* EPOXY COATED REINFORCING STEEL						LB	2087
CLASS AA CONCRETE						CY	14.1
TOTAL VERTICAL CONCRETE BARRIER RAIL						LF	110.25

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
55' UNITS	1 5/8"	3'-7 5/8"



NOTES:

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

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

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

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

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

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

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL 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.

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.

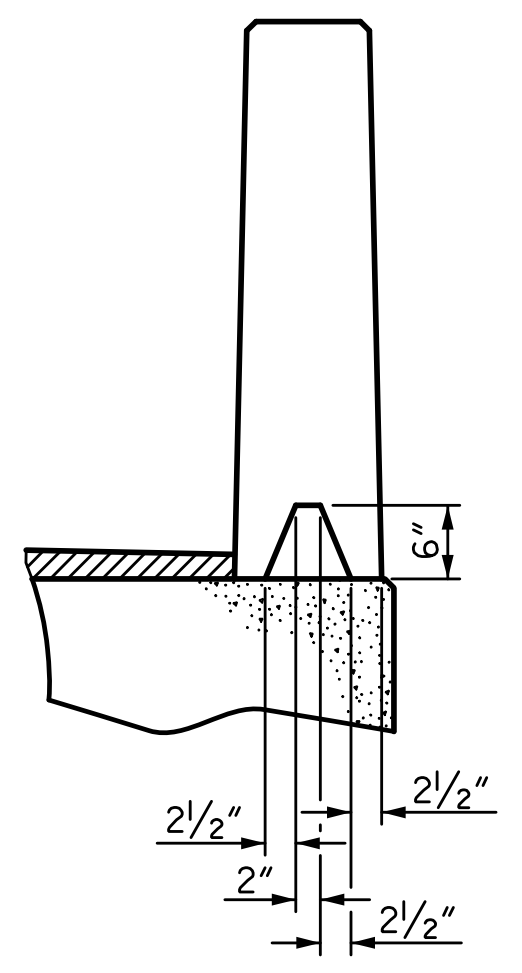
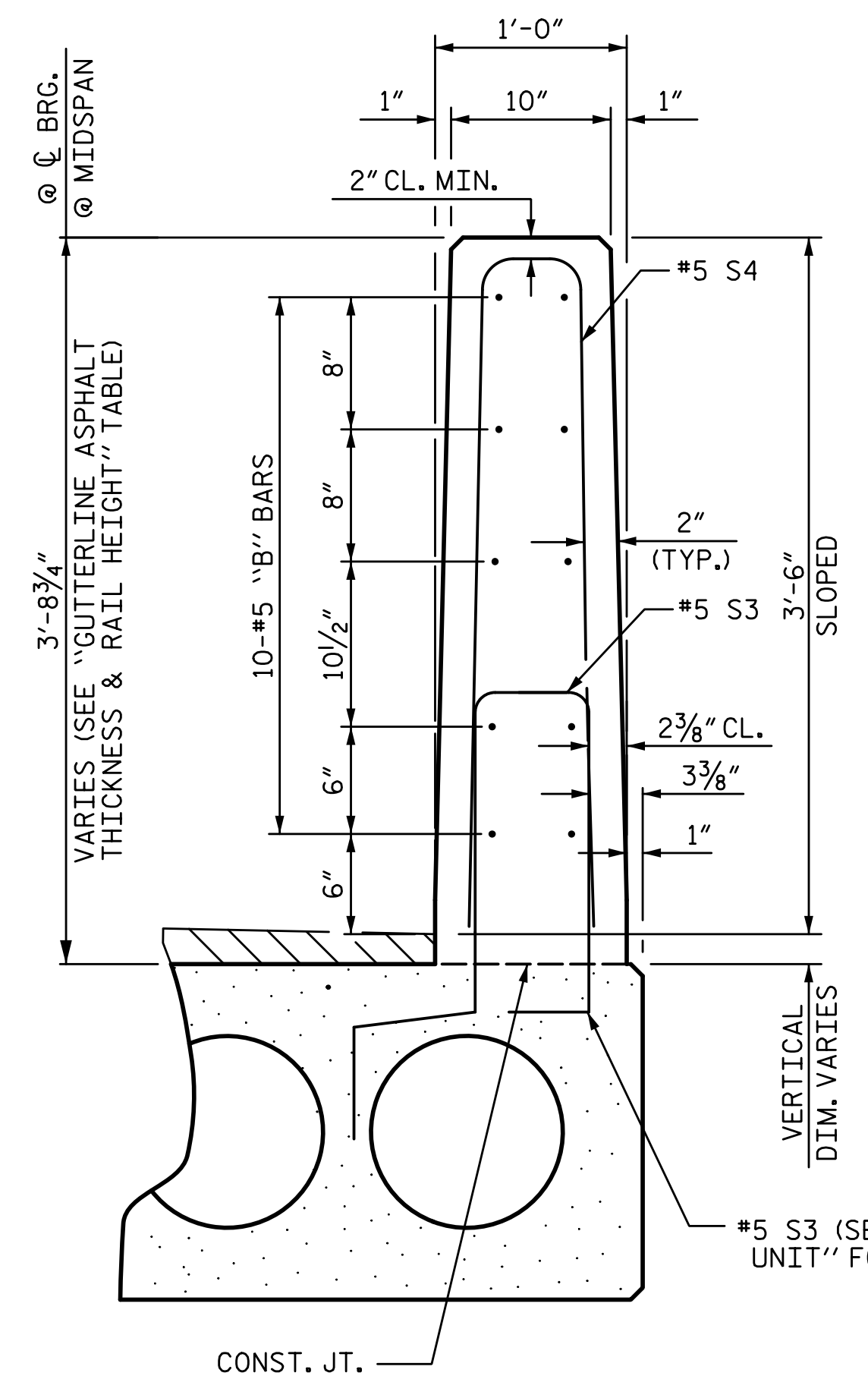
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

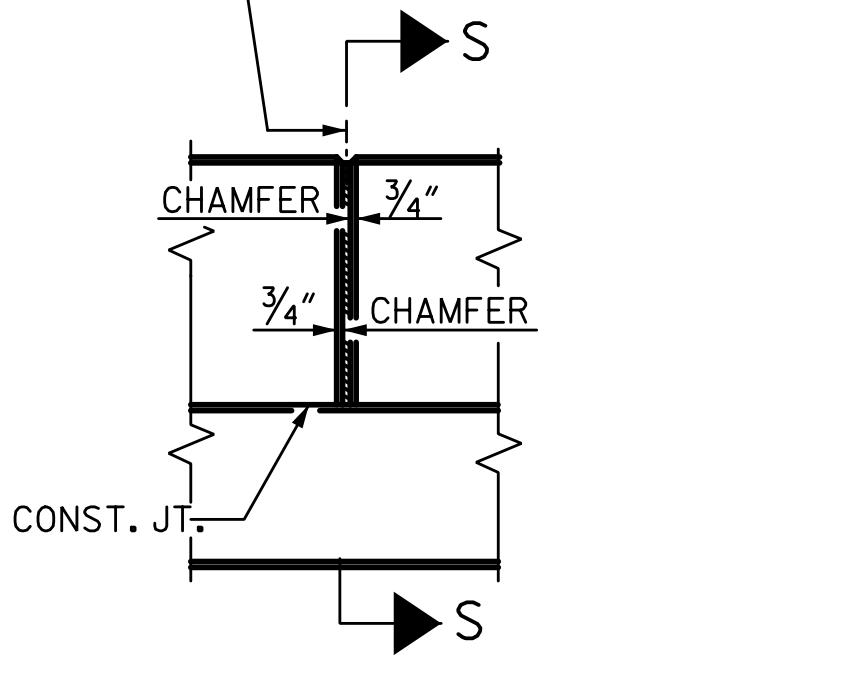
THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

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

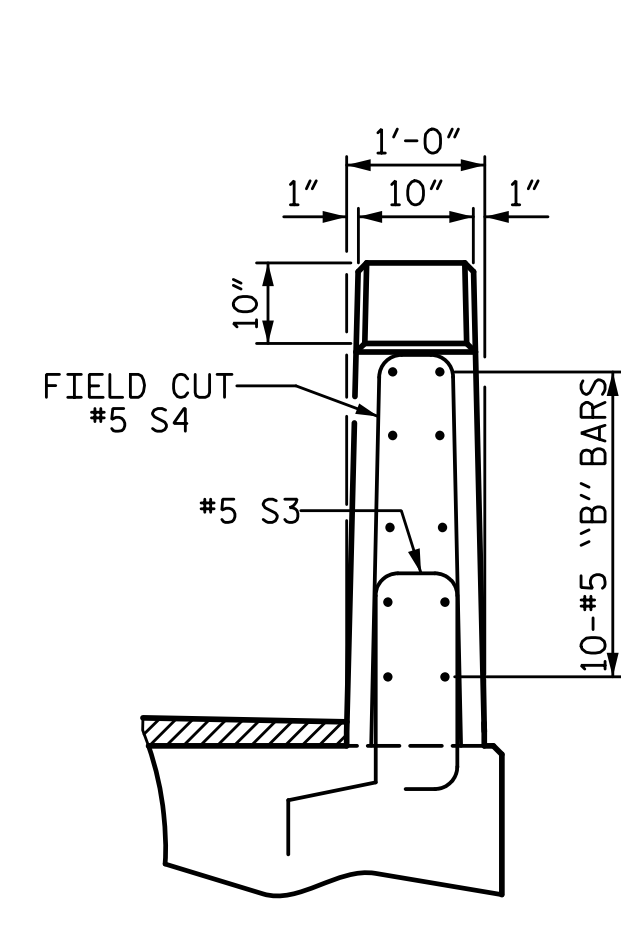


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

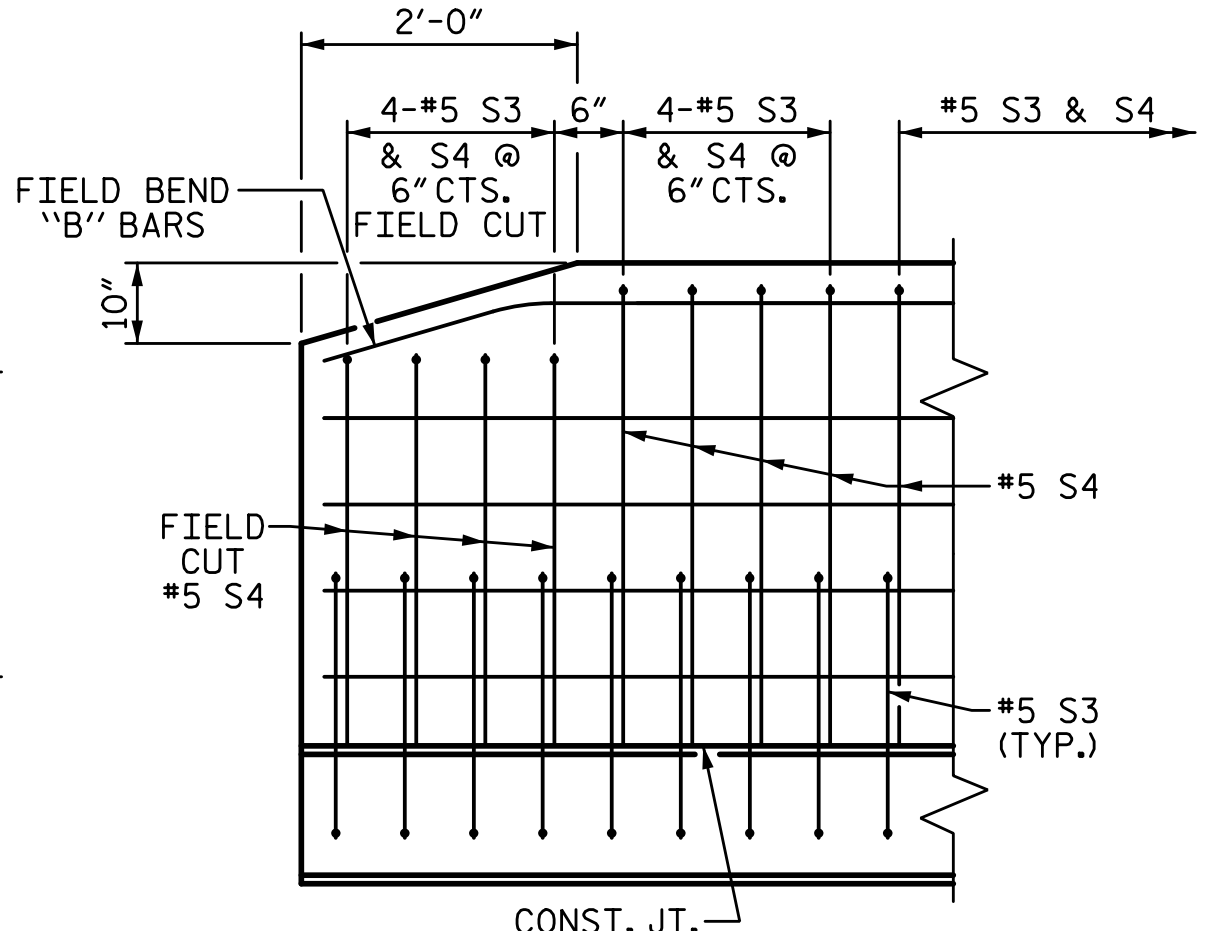
@ 1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW

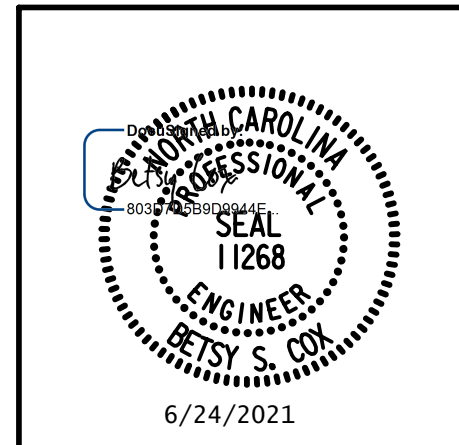


SIDE VIEW

VERTICAL CONCRETE BARRIER RAIL SECTION

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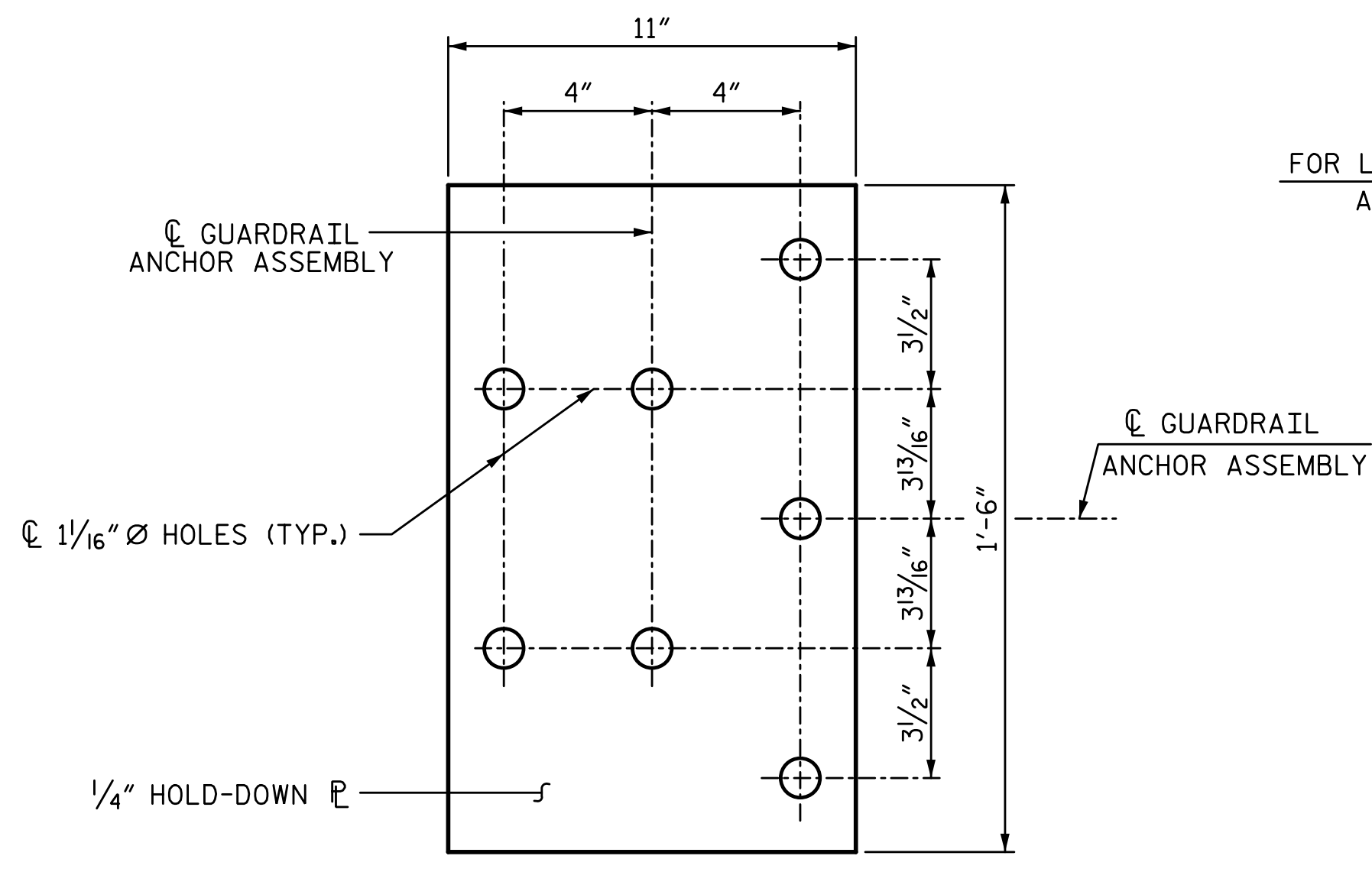
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 SHEET 4 OF 4

STATE OF NORTH CAROLINA
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 RALEIGH
 SUPERSTRUCTURE
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

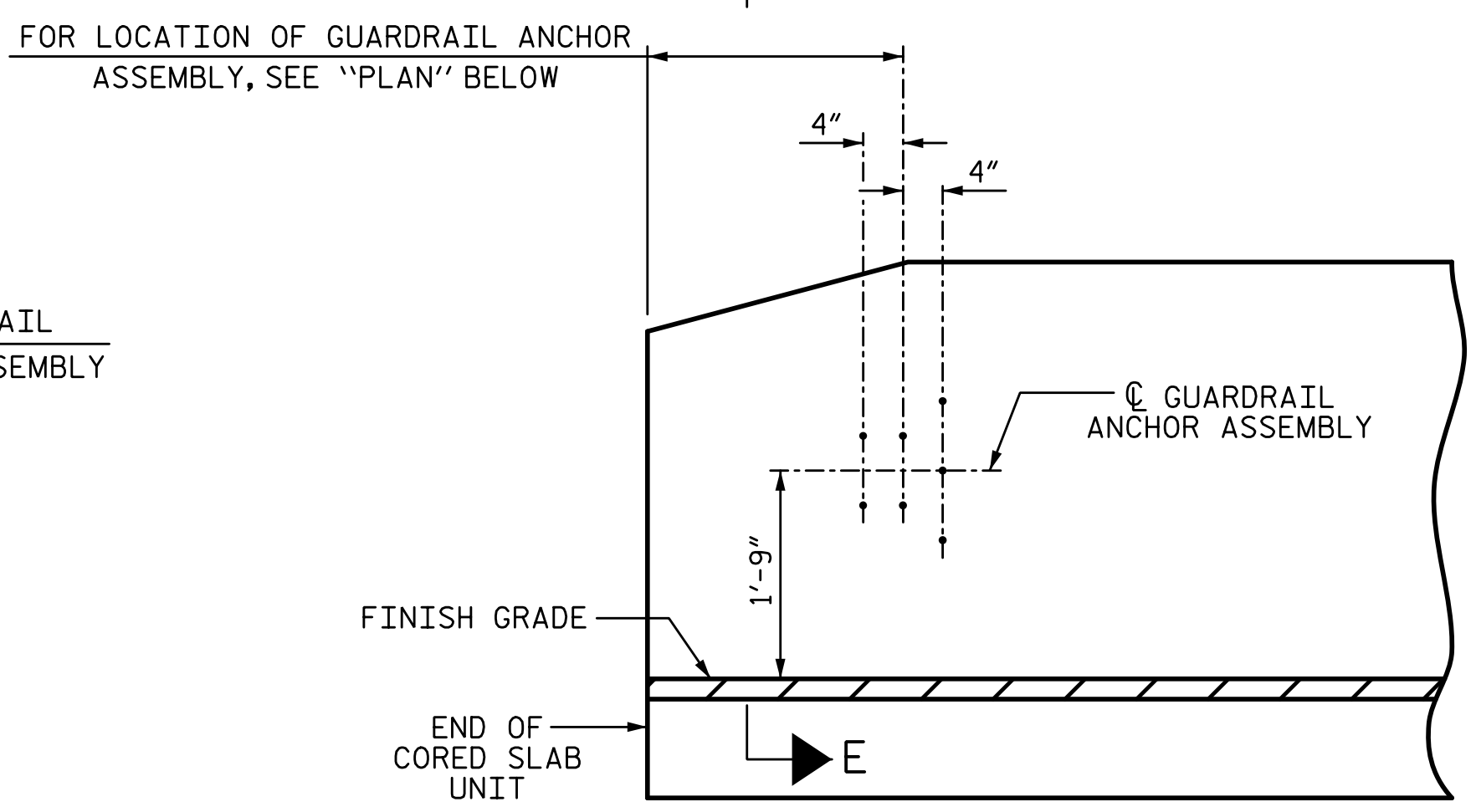
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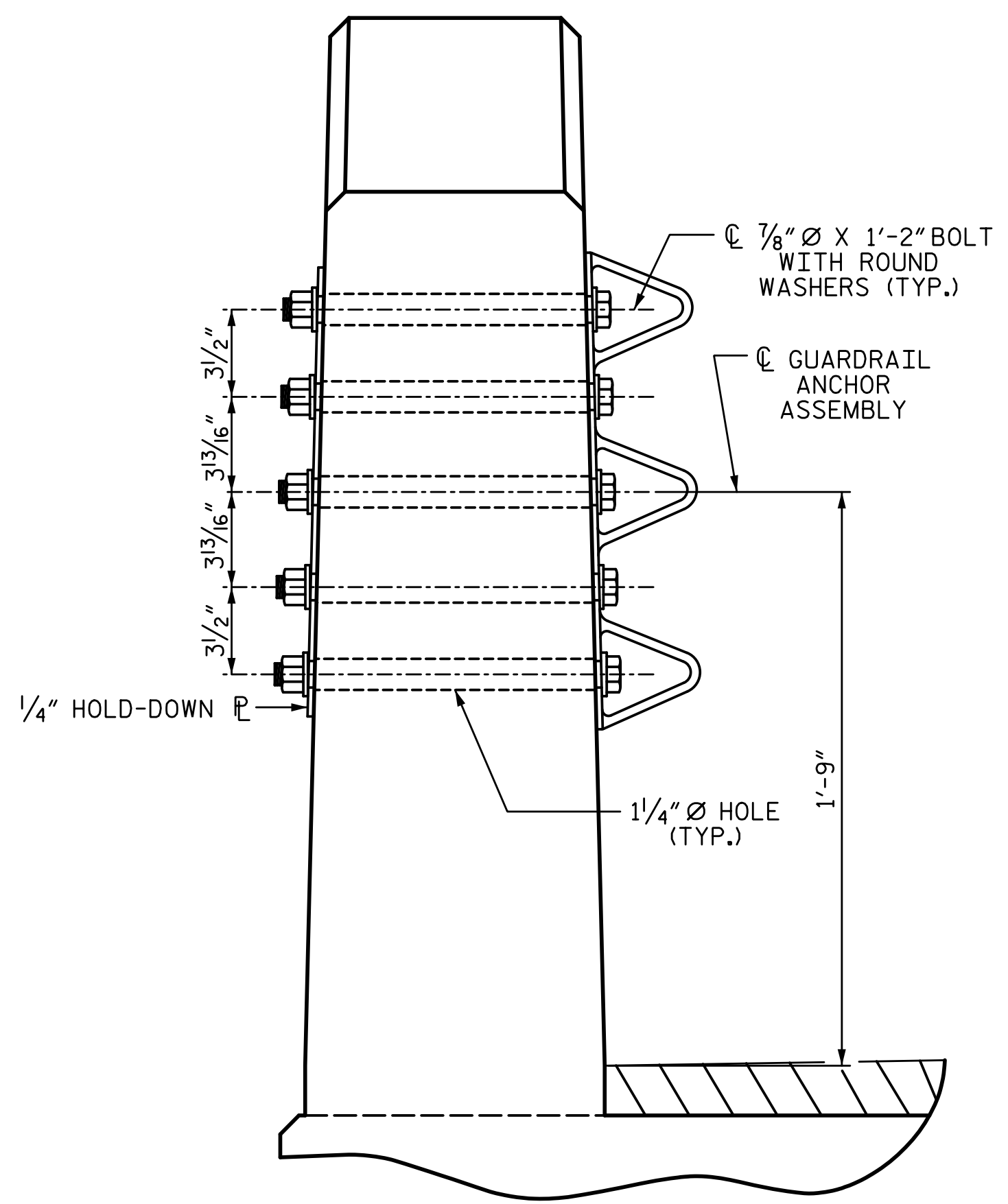
PLAN



ELEVATION

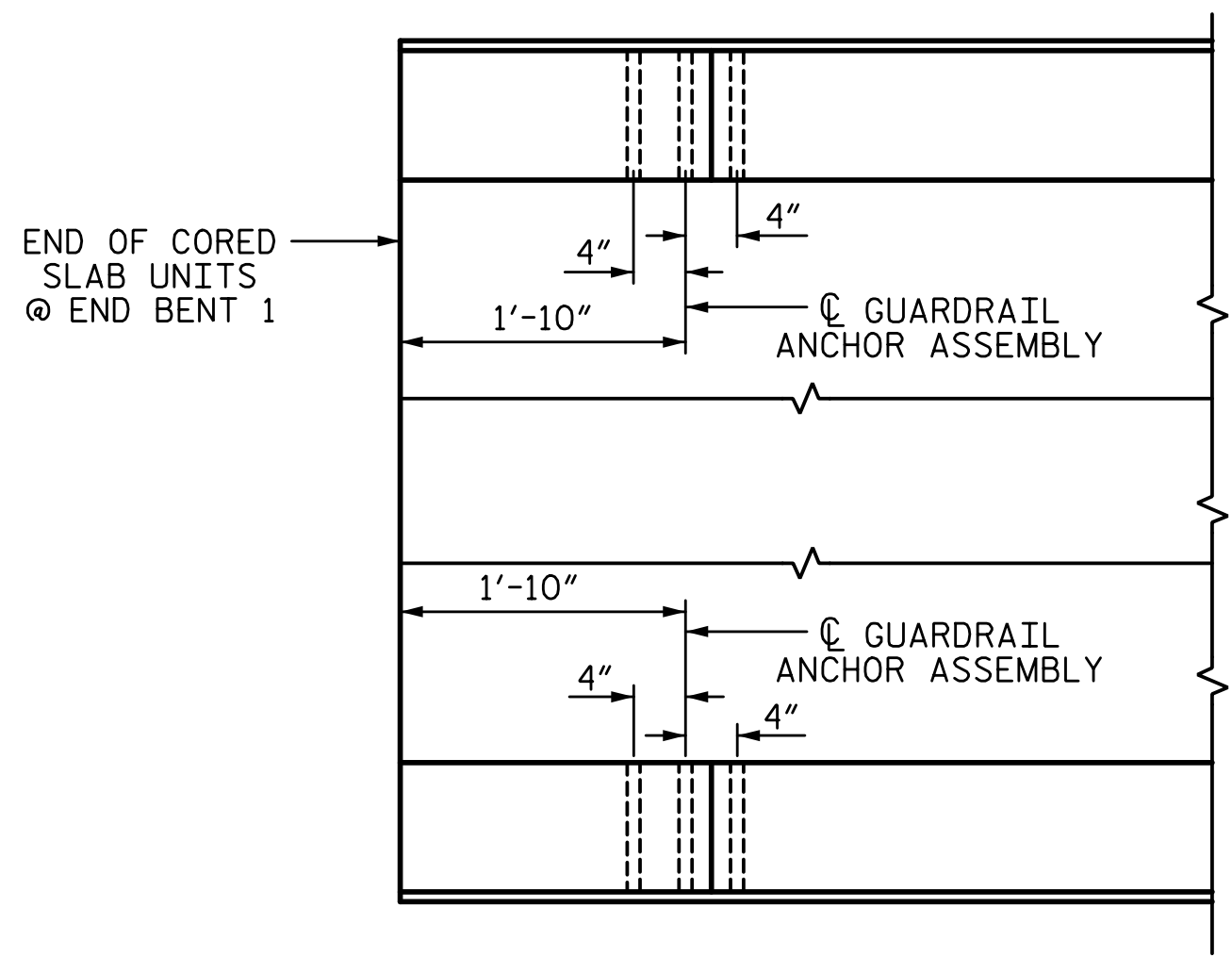
NOTES:

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" 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 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.
- THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.
- THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.
- THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



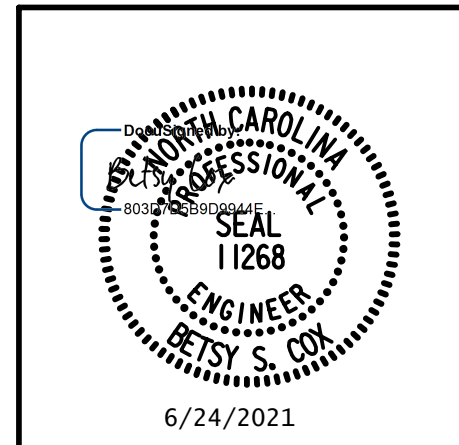
SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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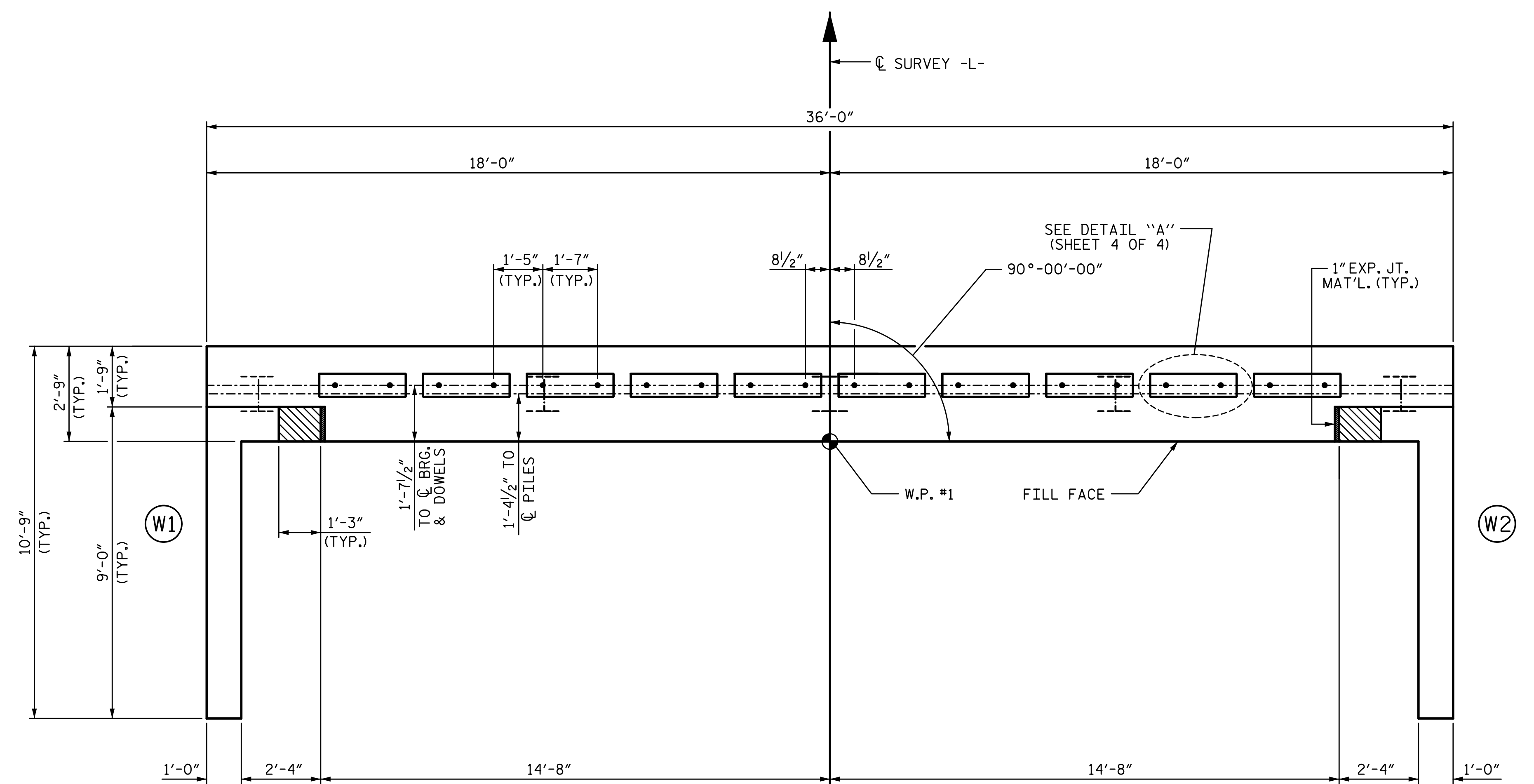


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
**GUARDRAIL ANCHORAGE
 DETAILS FOR
 VERTICAL CONCRETE
 BARRIER RAIL**

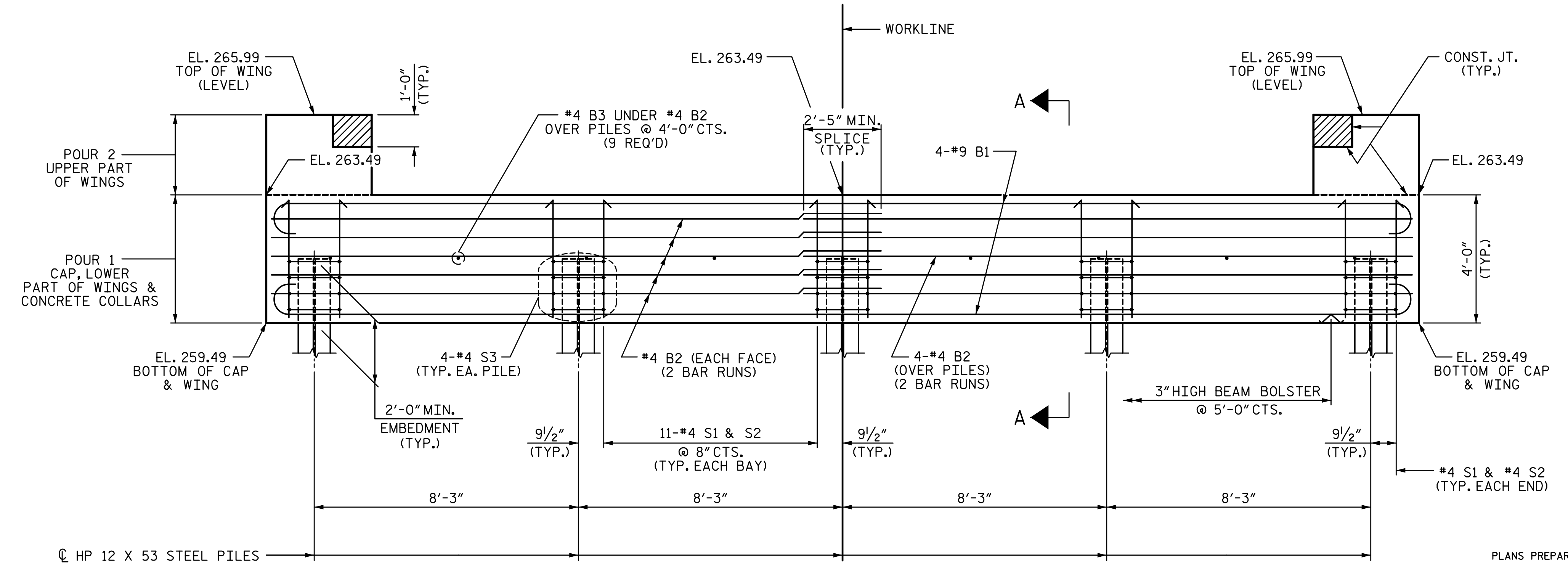
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PLAN



ELEVATION

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

NOTES:

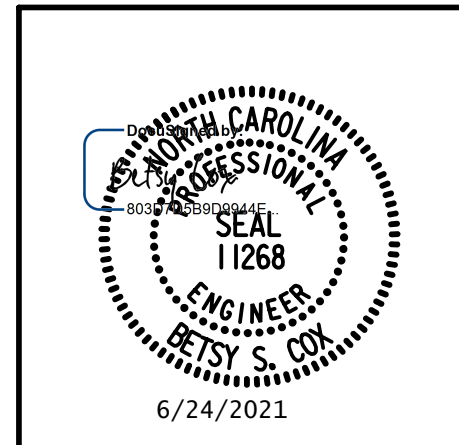
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
- FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
- FOR WING DETAILS, SEE SHEET 3 OF 4.

PROJECT NO. 17BP.5.R.67
FRANKLIN COUNTY
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SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT 1



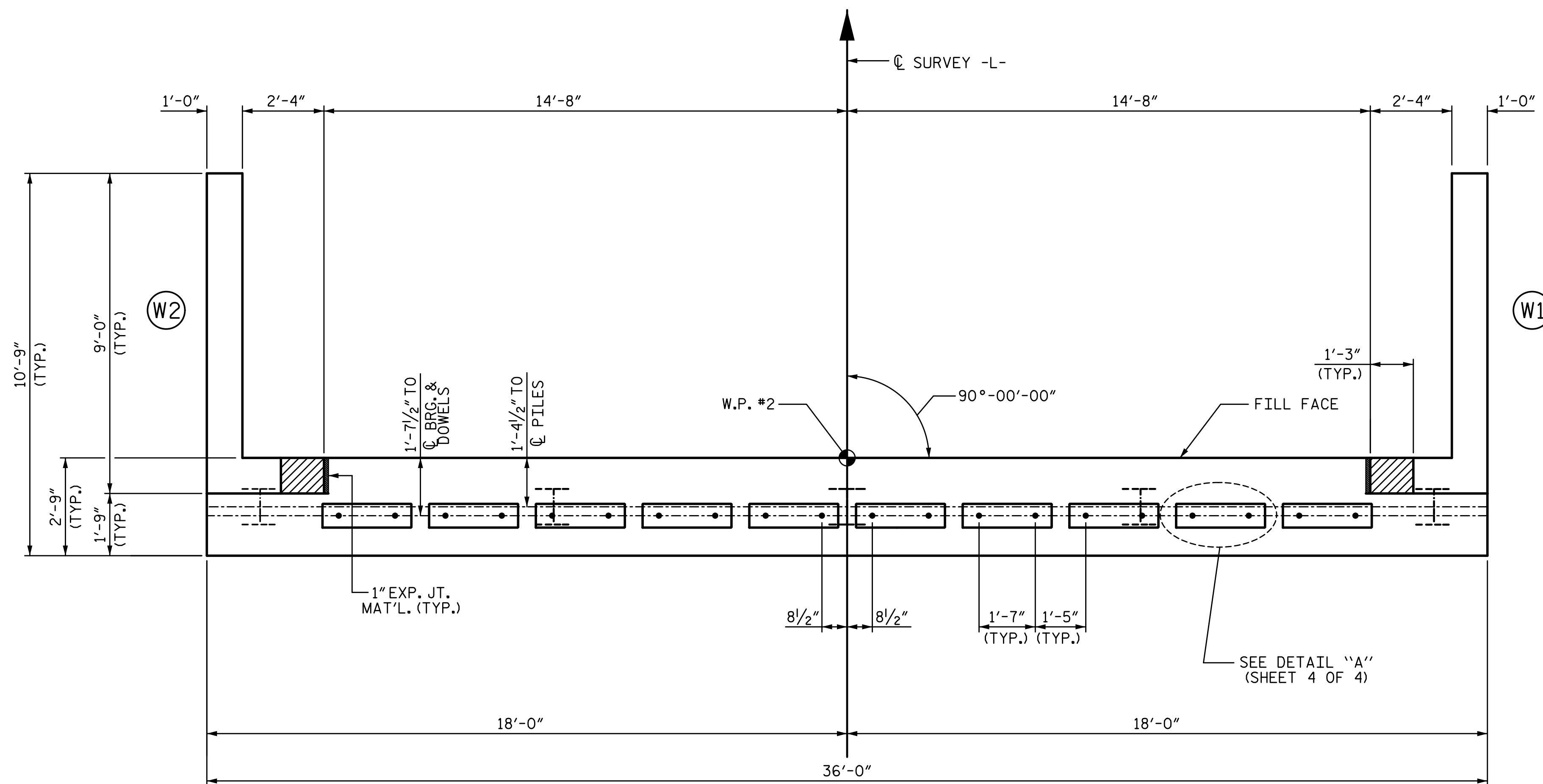
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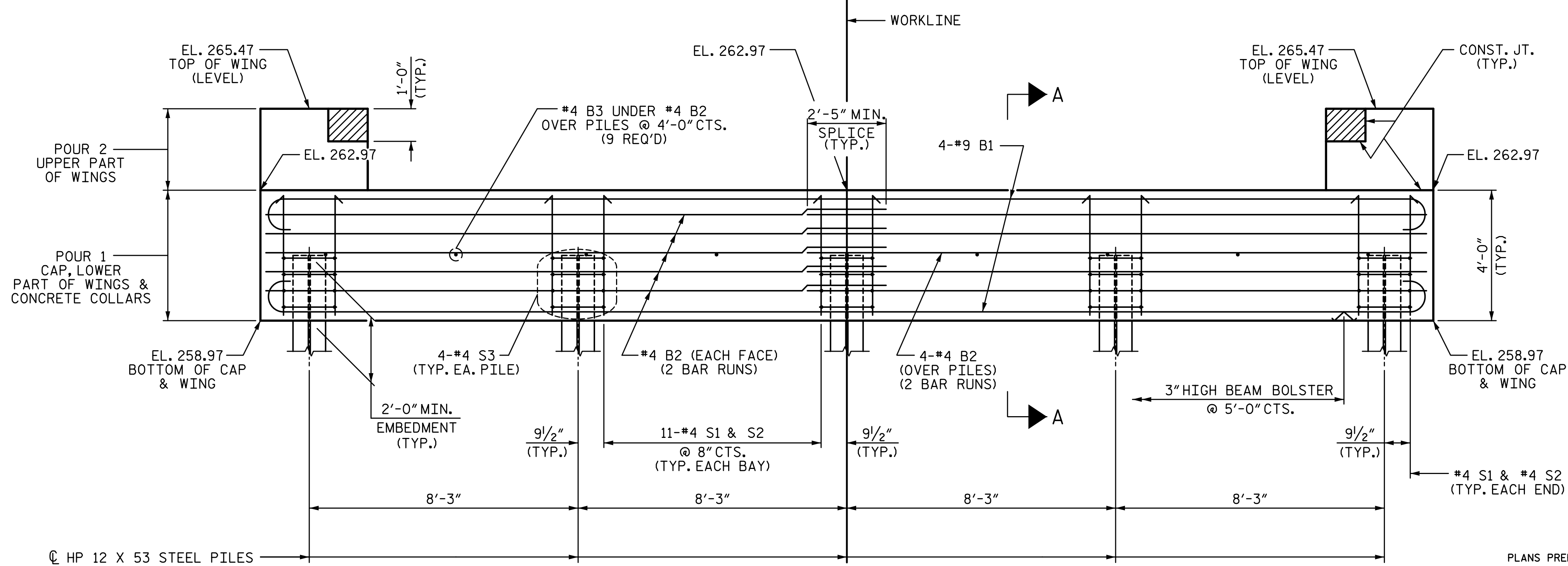
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PLAN



ELEVATION

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

NOTES:

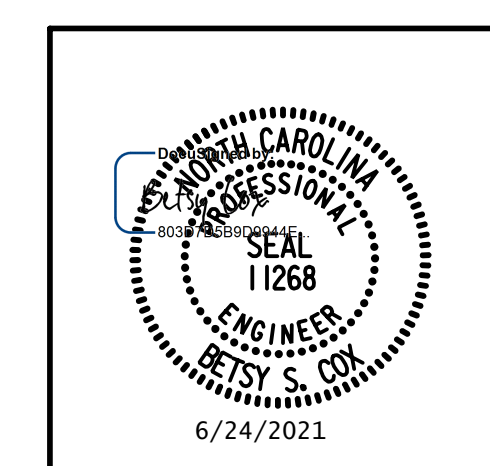
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
- FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
- FOR WING DETAILS, SEE SHEET 3 OF 4.

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SHEET 2 OF 4

STATE OF NORTH CAROLINA
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END BENT 2



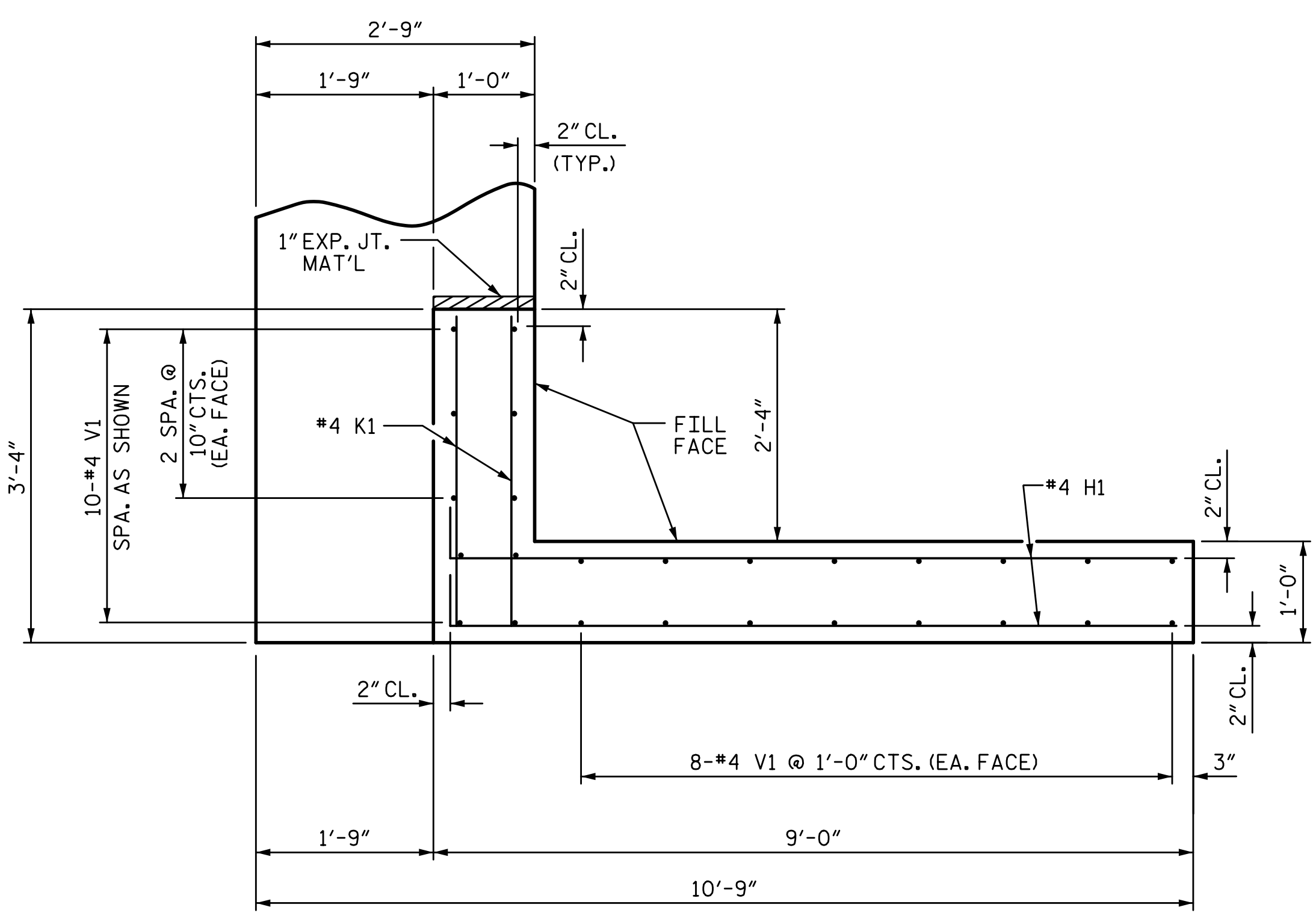
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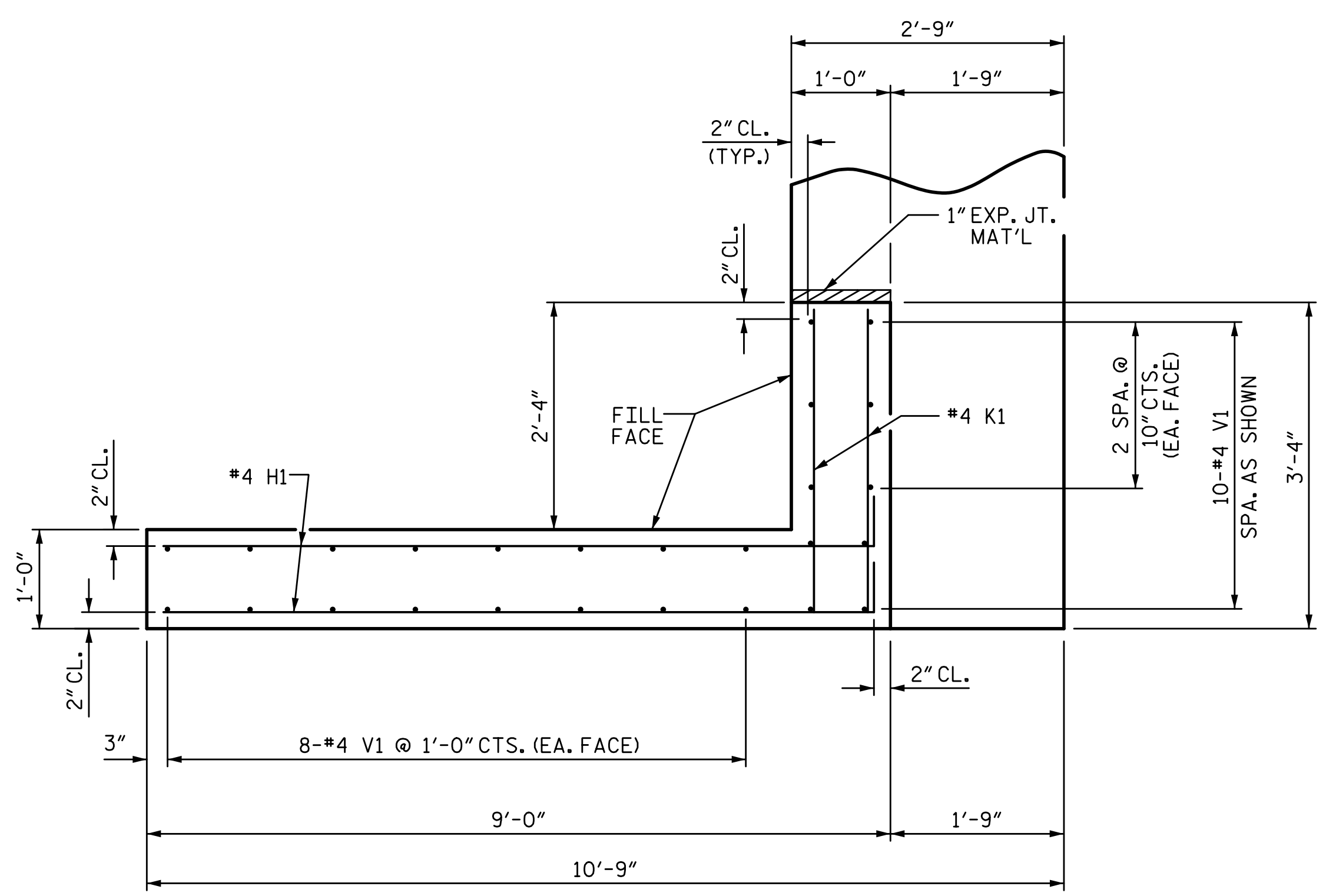
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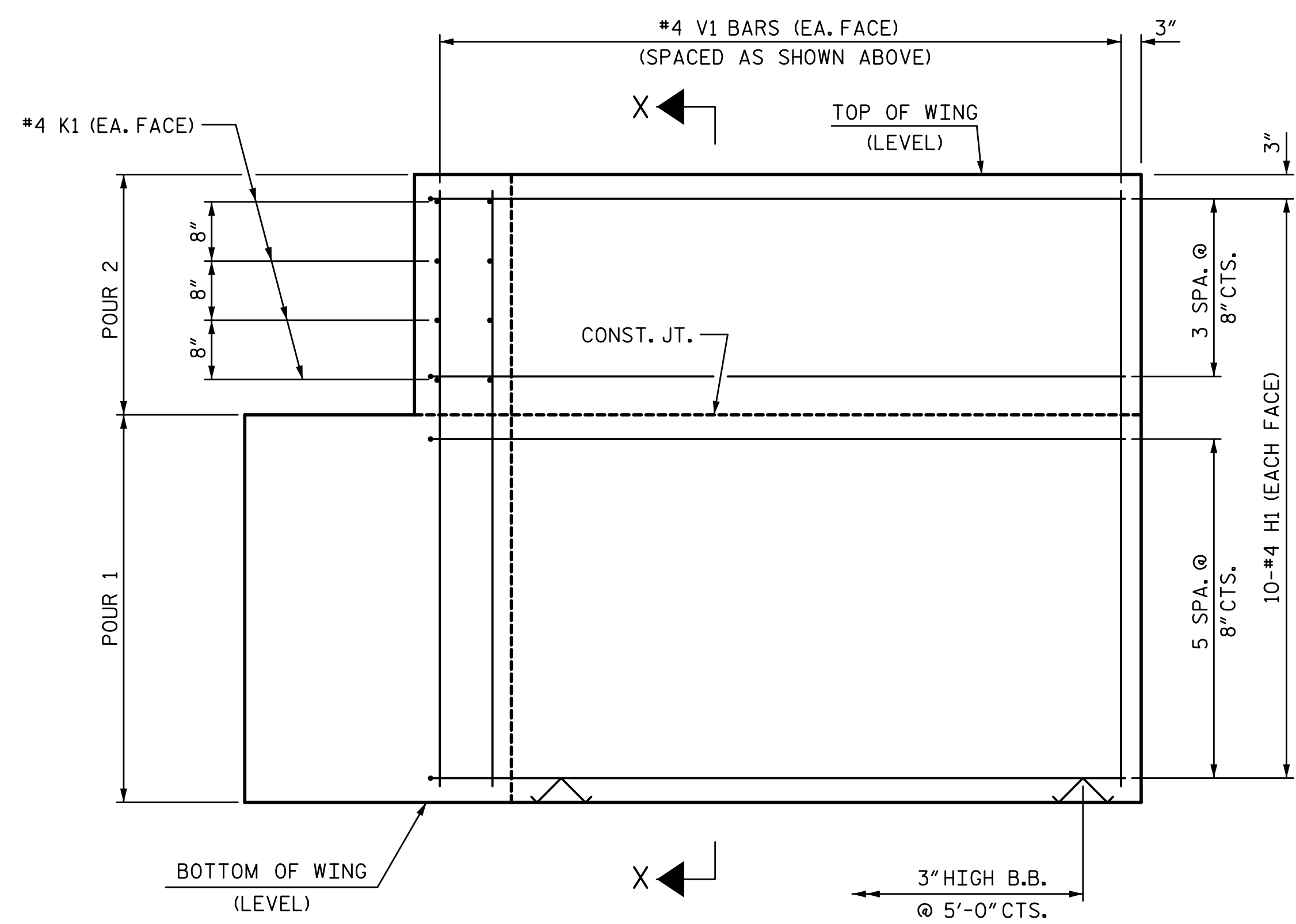
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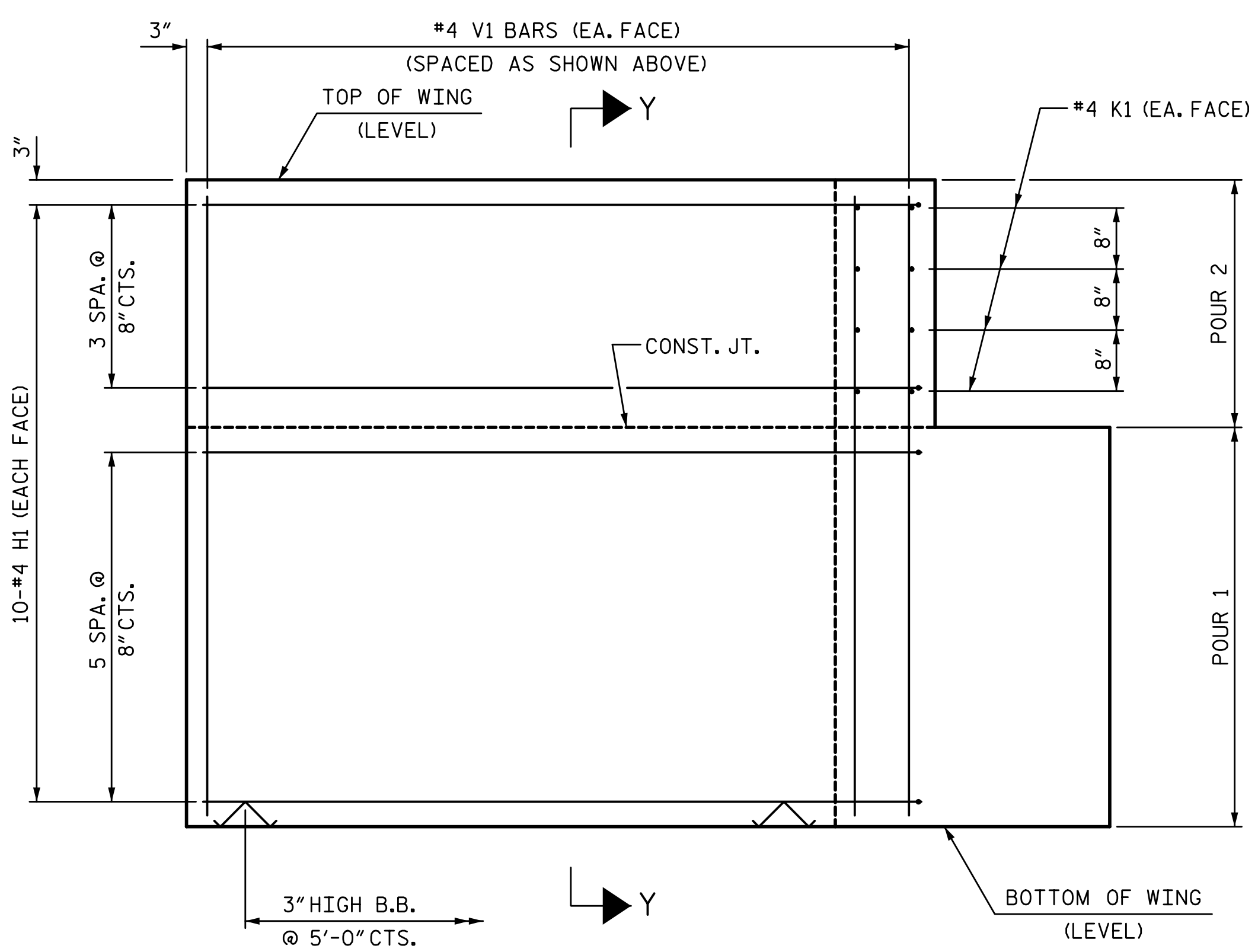
PLAN OF WING (W1)



PLAN OF WING (W2)

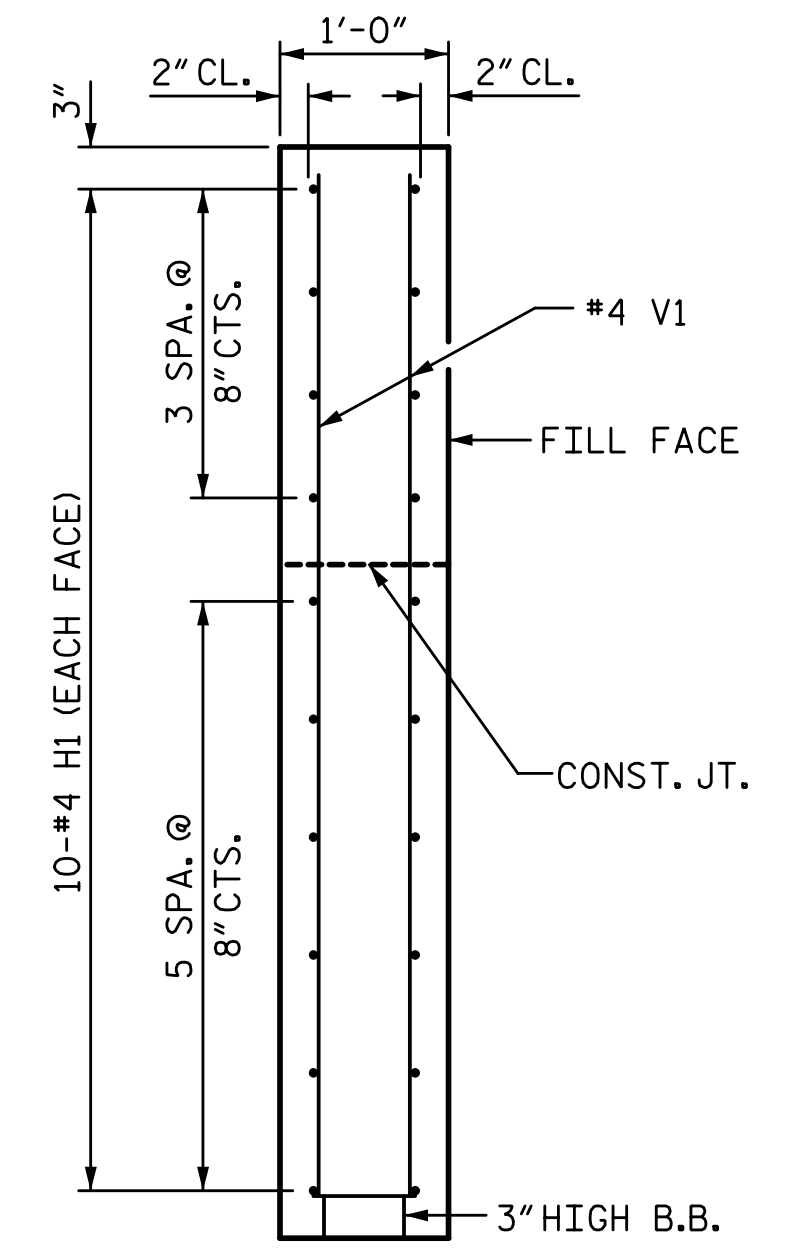


ELEVATION OF WING (W1)

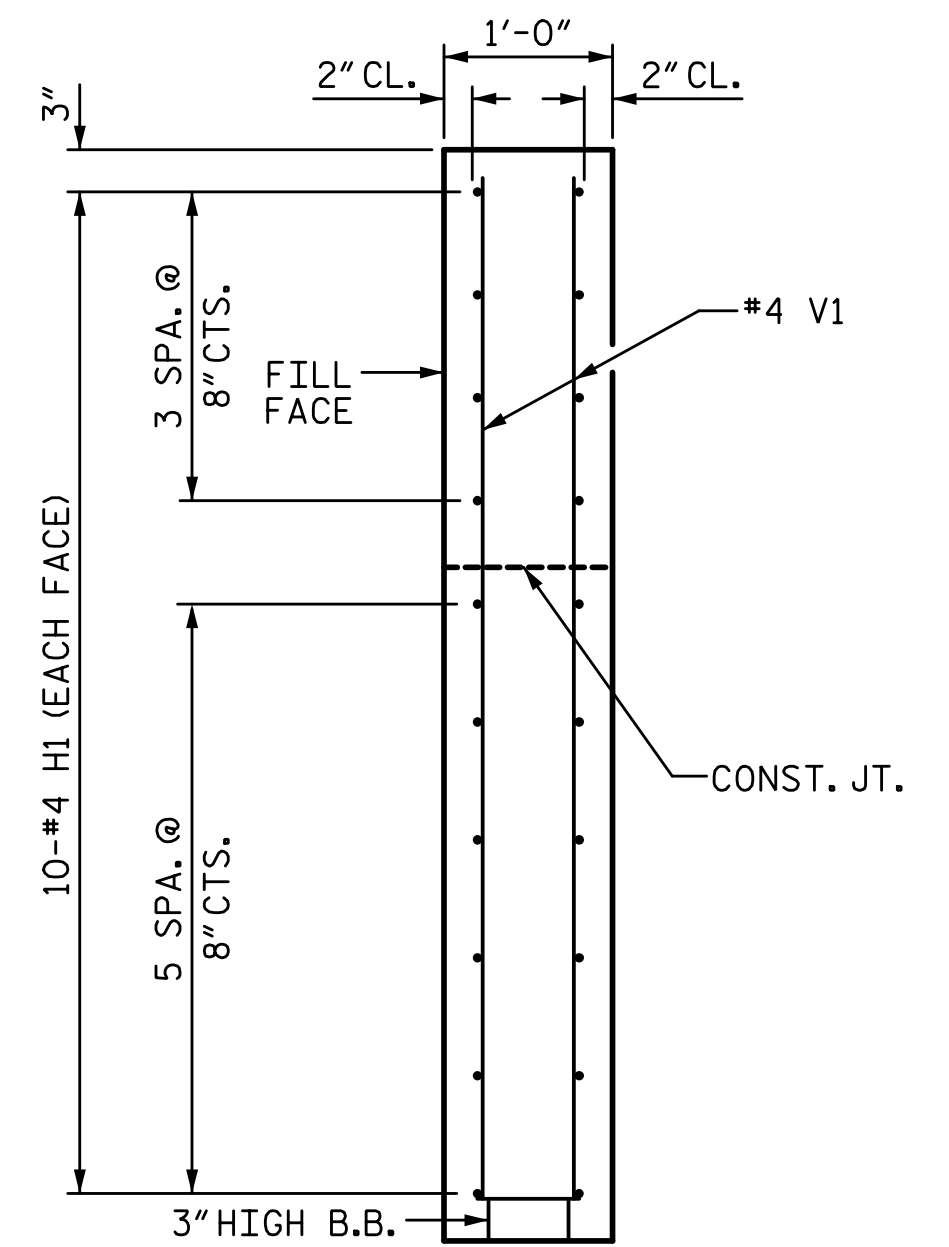


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X



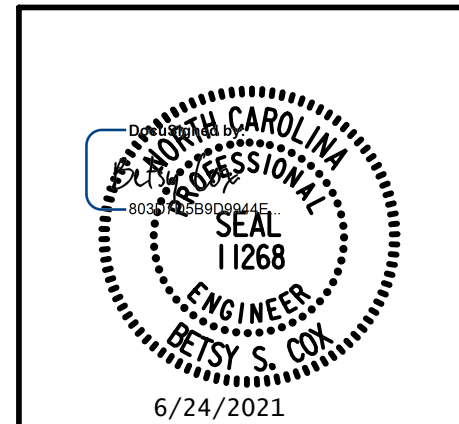
SECTION Y-Y

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END BENT
WING DETAILS



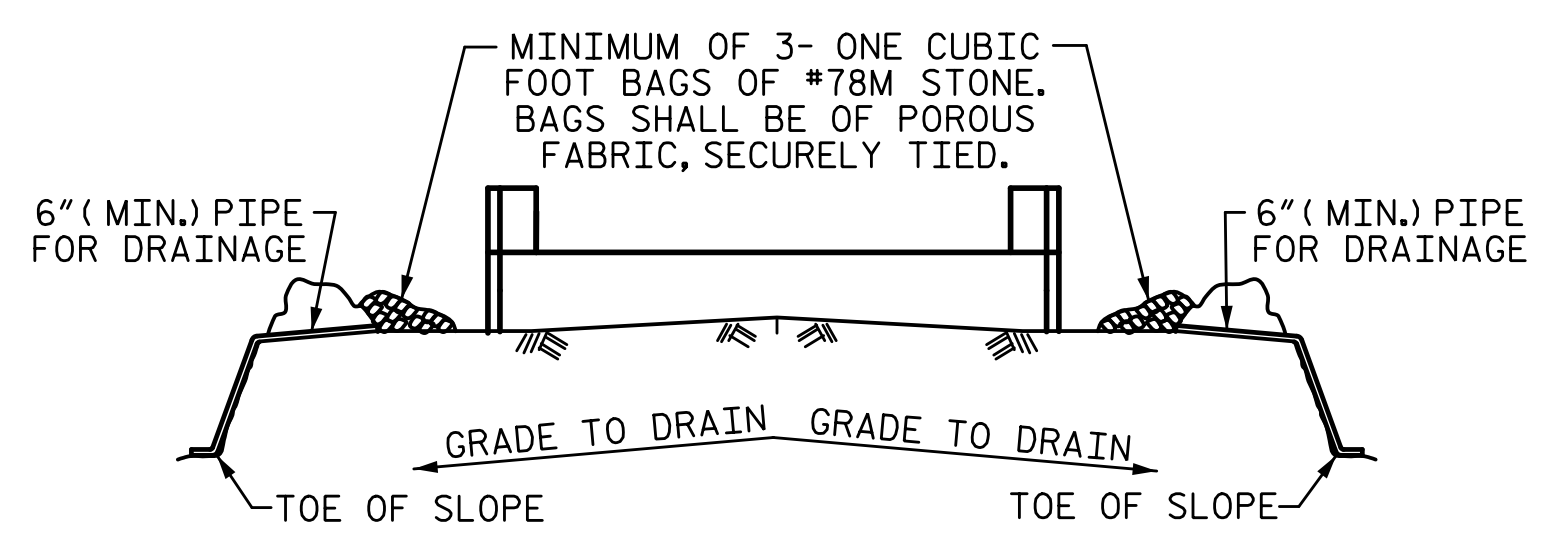
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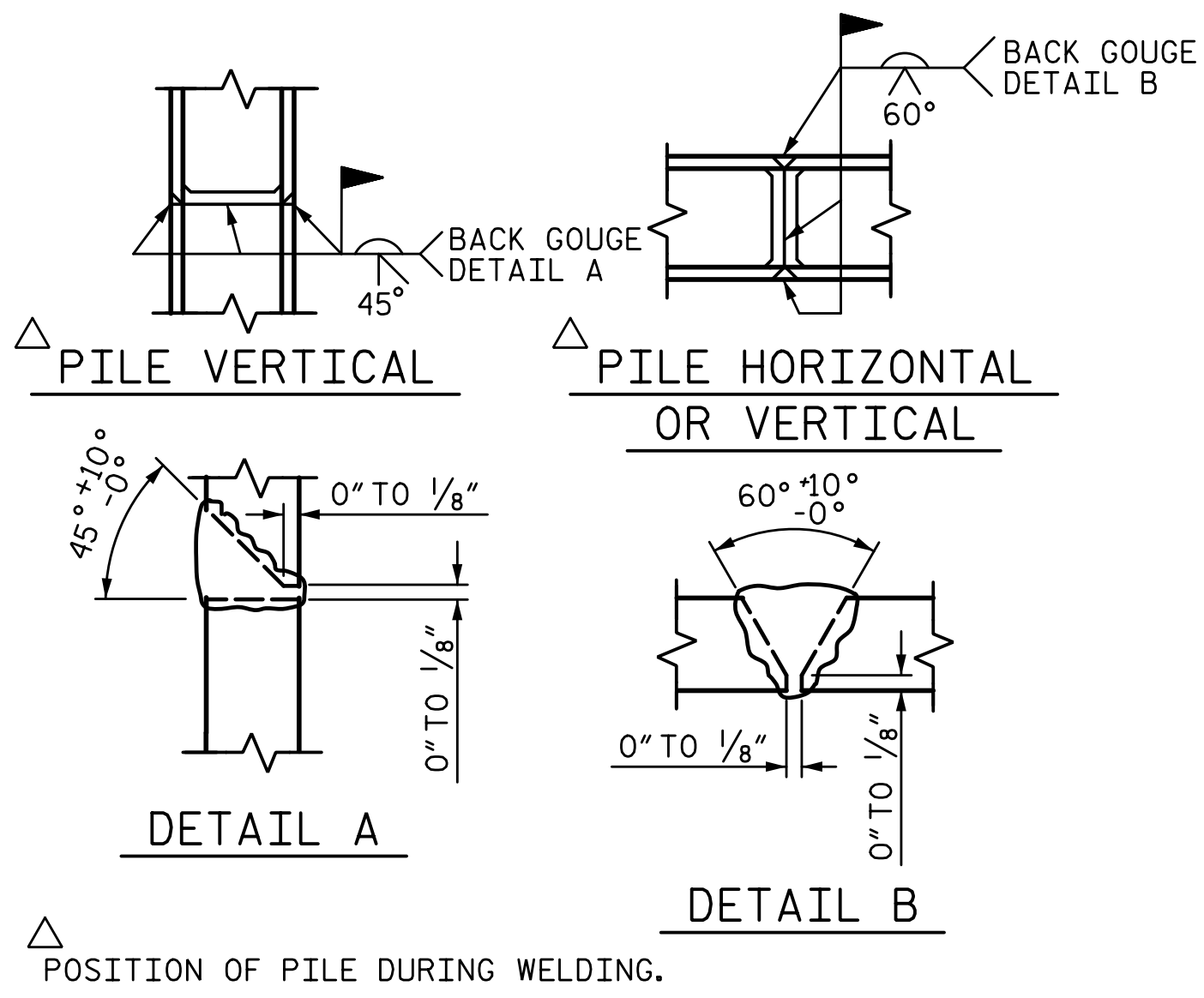


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

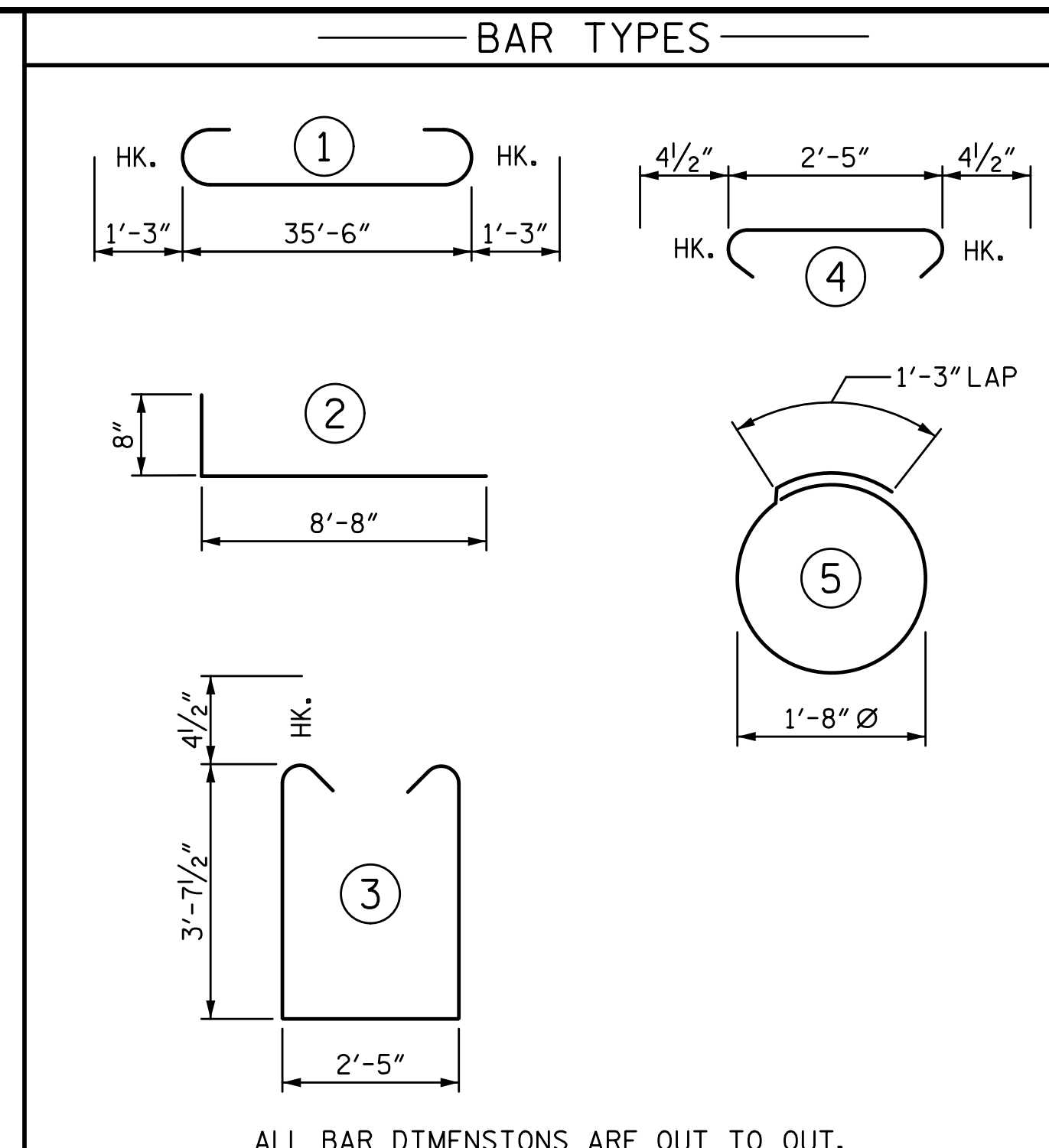
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



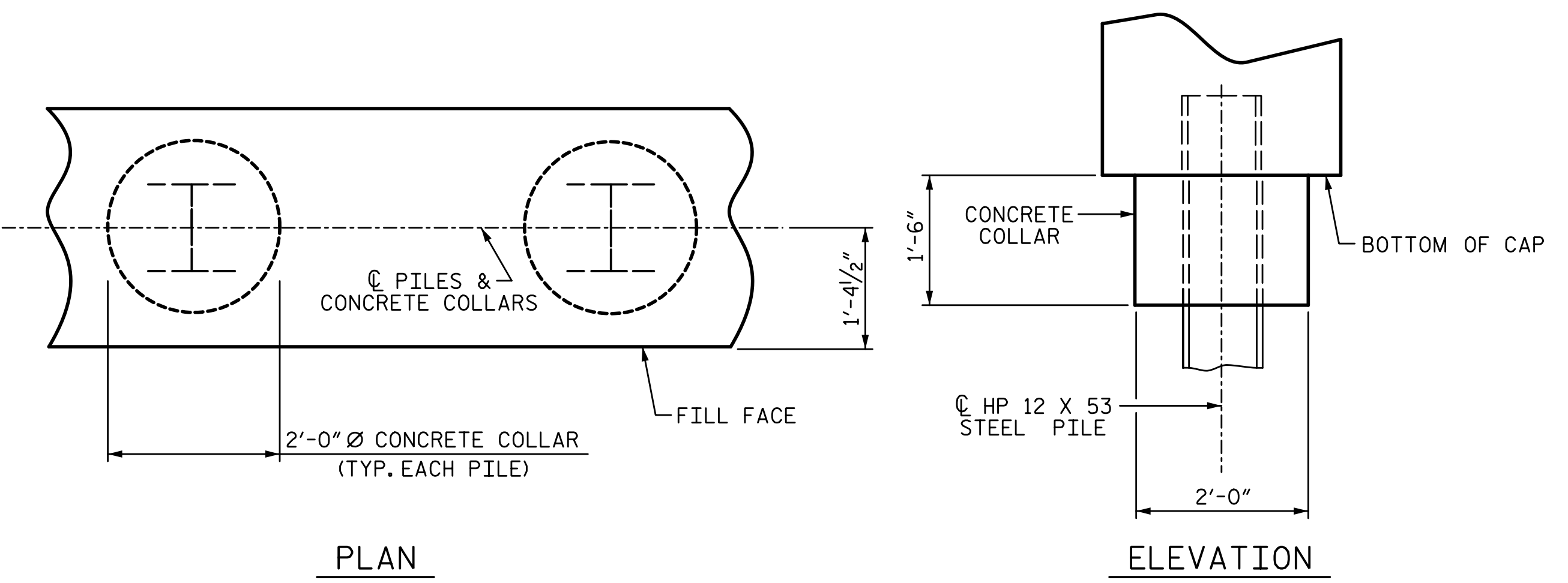
PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

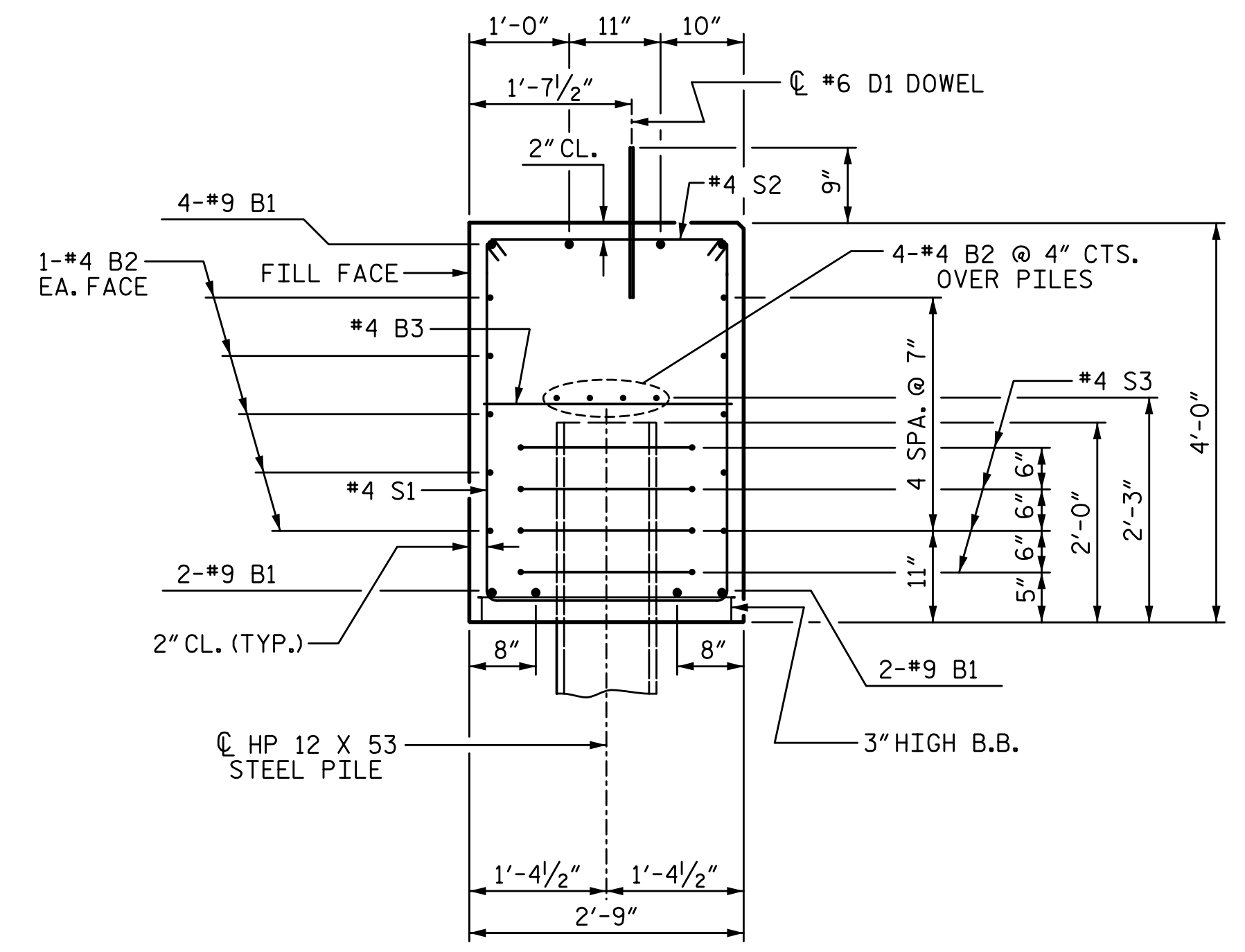
END BENT 1		END BENT 2	
HP 12 X 53 STEEL PILES	NO: 5	HP 12 X 53 STEEL PILES	NO: 5
LF = 145		LF = 190	
STEEL PILE POINTS (RIGHT)	NO: 2	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	NO: 5
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	NO: 5		

BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	28	#4	STR	19'-1"	357
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	46	#4	3	10'-5"	320
S2	46	#4	4	3'-2"	97
S3	20	#4	5	6'-6"	87
V1	52	#4	STR	6'-2"	214
REINFORCING STEEL (FOR ONE END BENT)					2449 LB
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR 1	CAP, LOWER PART OF WINGS & COLLARS				17.9 CY
POUR 2	UPPER PART OF WINGS				2.1 CY
TOTAL CLASS A CONCRETE					20.0 CY

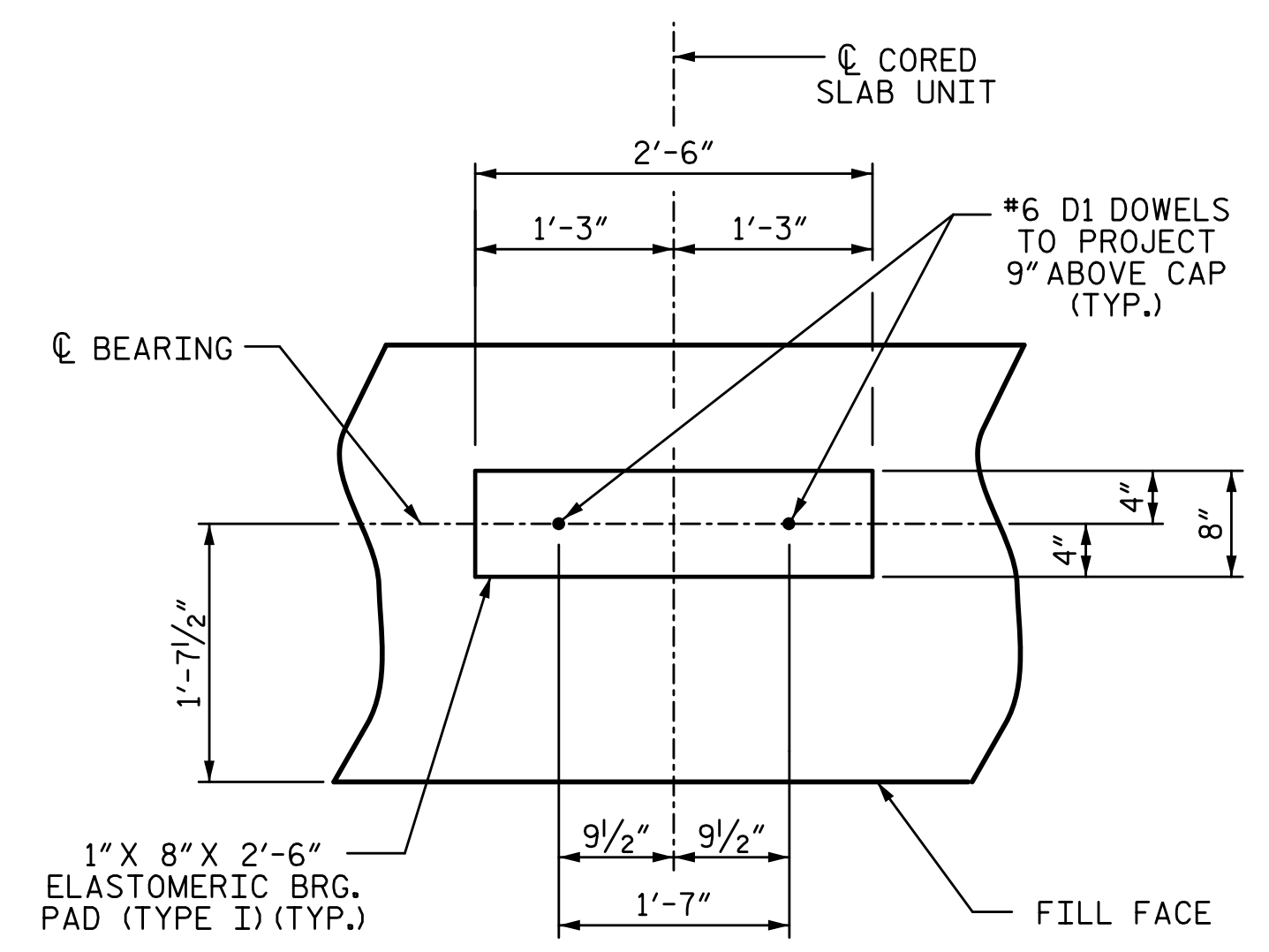


CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



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



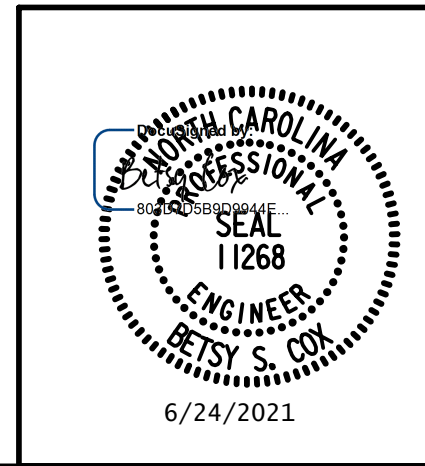
(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)

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SHEET 4 OF 4

STATE OF NORTH CAROLINA
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**END BENT 1 & 2
 DETAILS**



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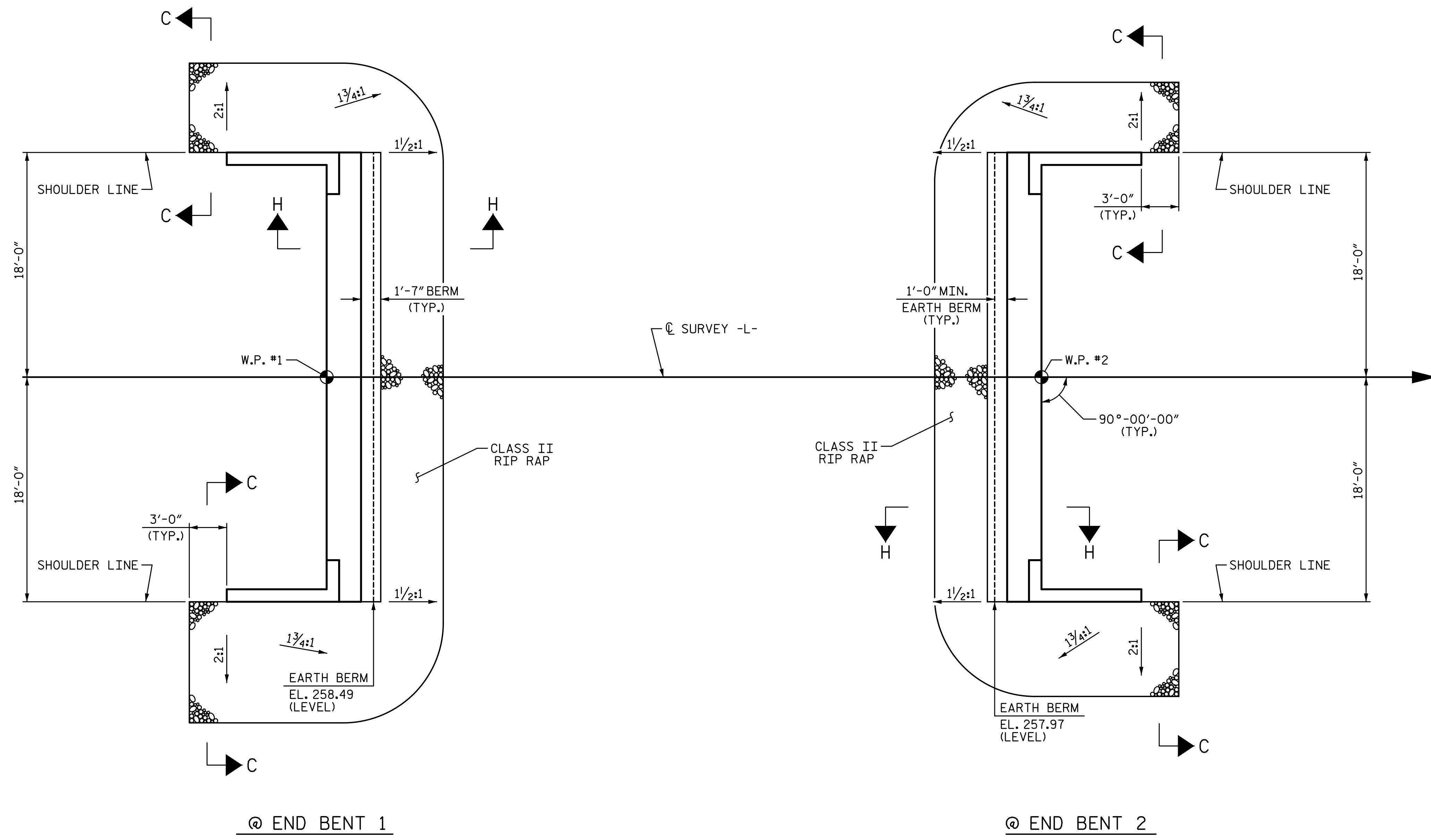
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CHECKED BY:	B.S. COX	DATE:	6-21
DESIGN ENGINEER OF RECORD:	B.S. COX	DATE:	6-21

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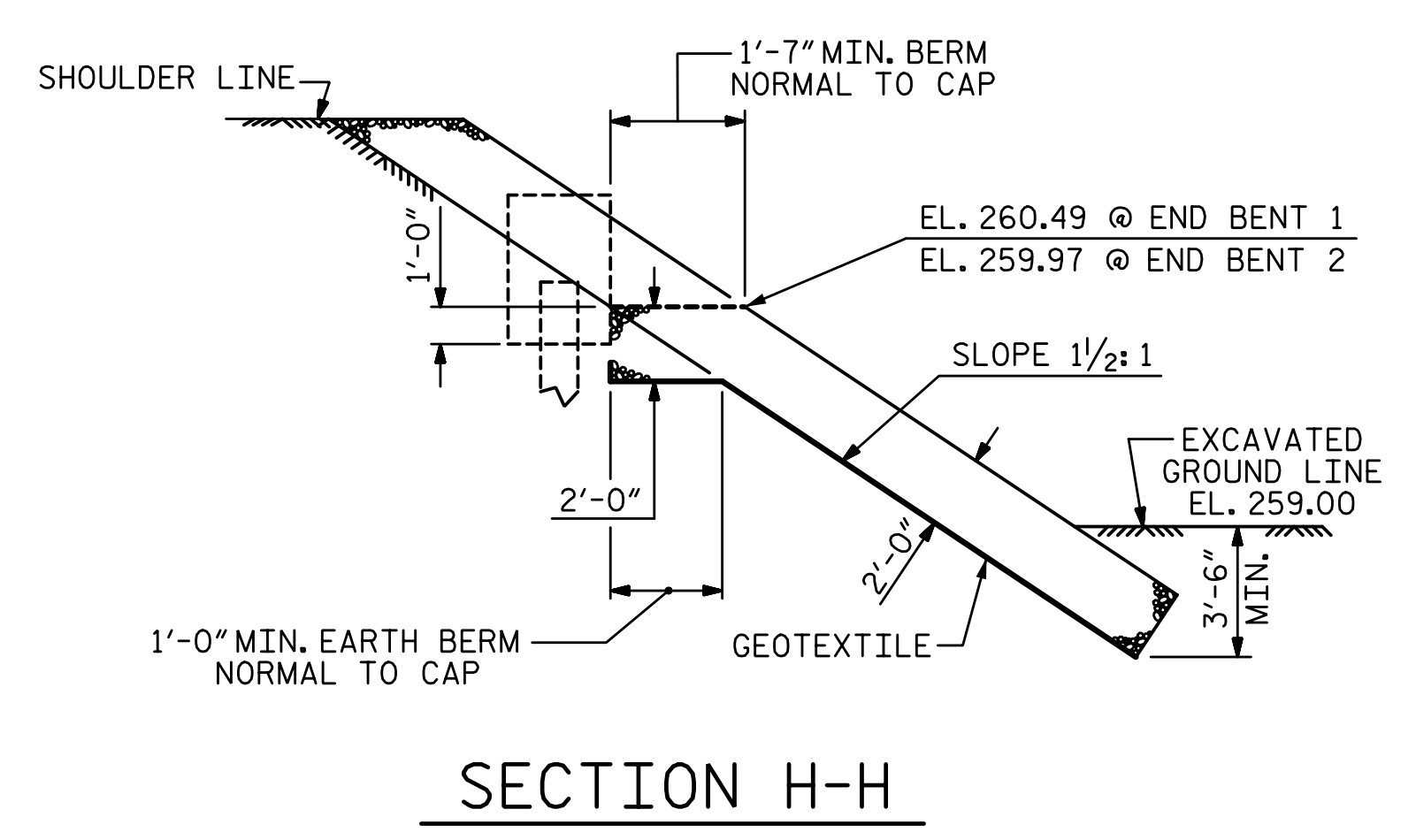
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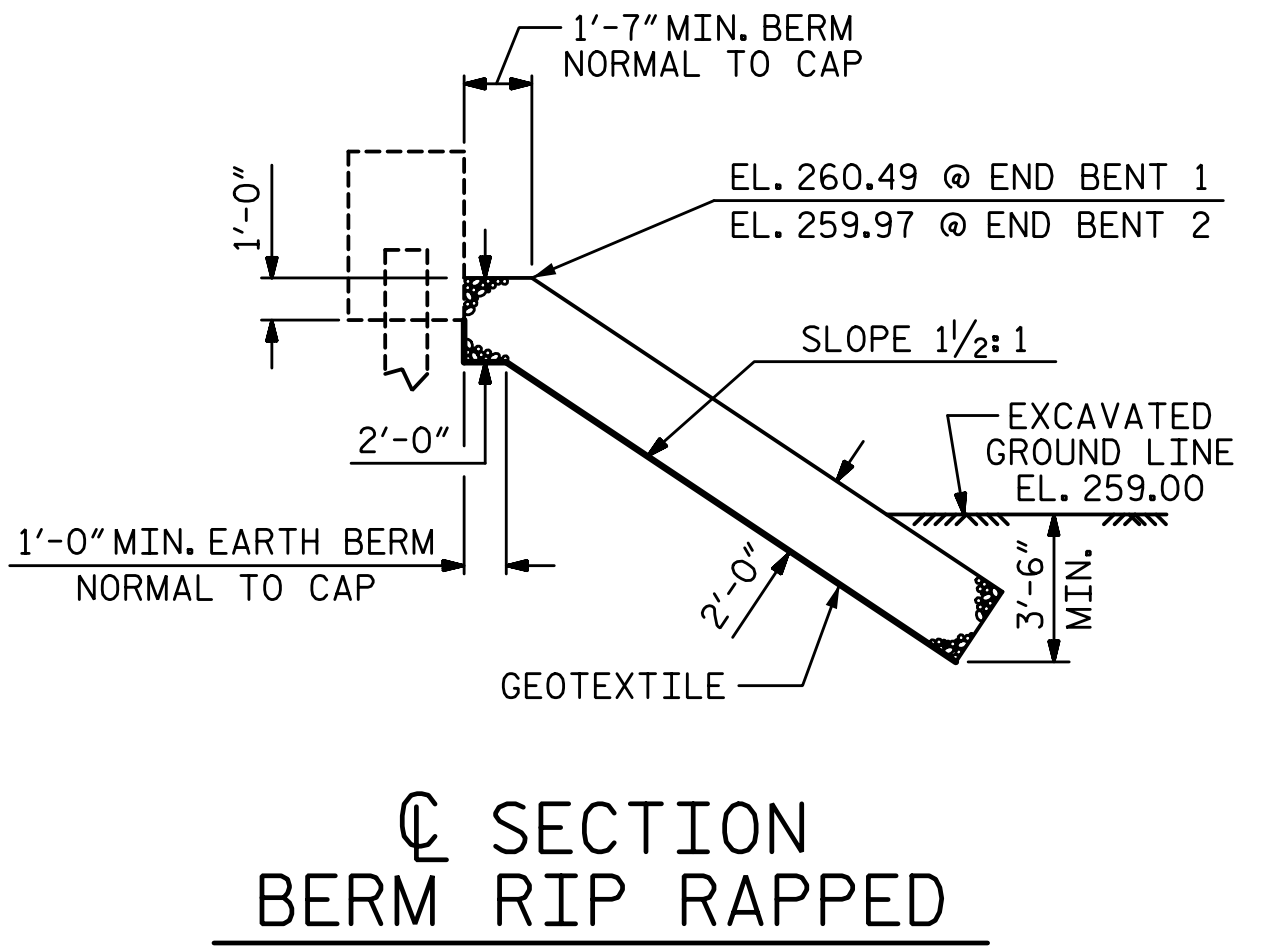


PLAN OF RIP RAP

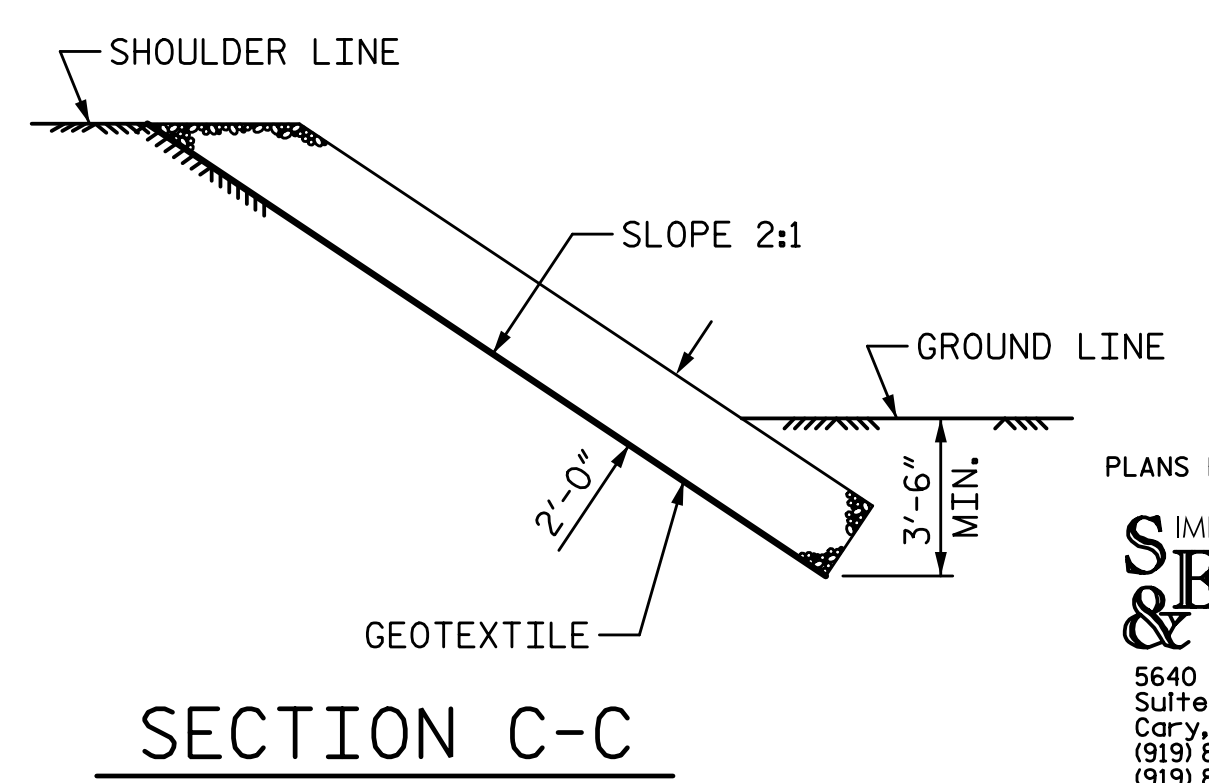
ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+88.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	85	95
END BENT 2	75	85



SECTION H-H



SECTION BERM RIP RAPPED

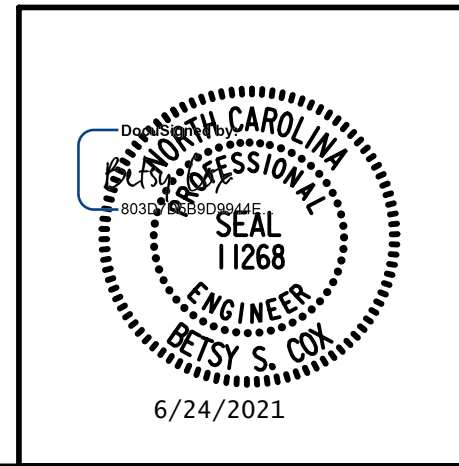


SECTION C-C

PROJECT NO. 17BP.5.R.67
FRANKLIN COUNTY
 STATION: 13+88.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RIP RAP DETAILS



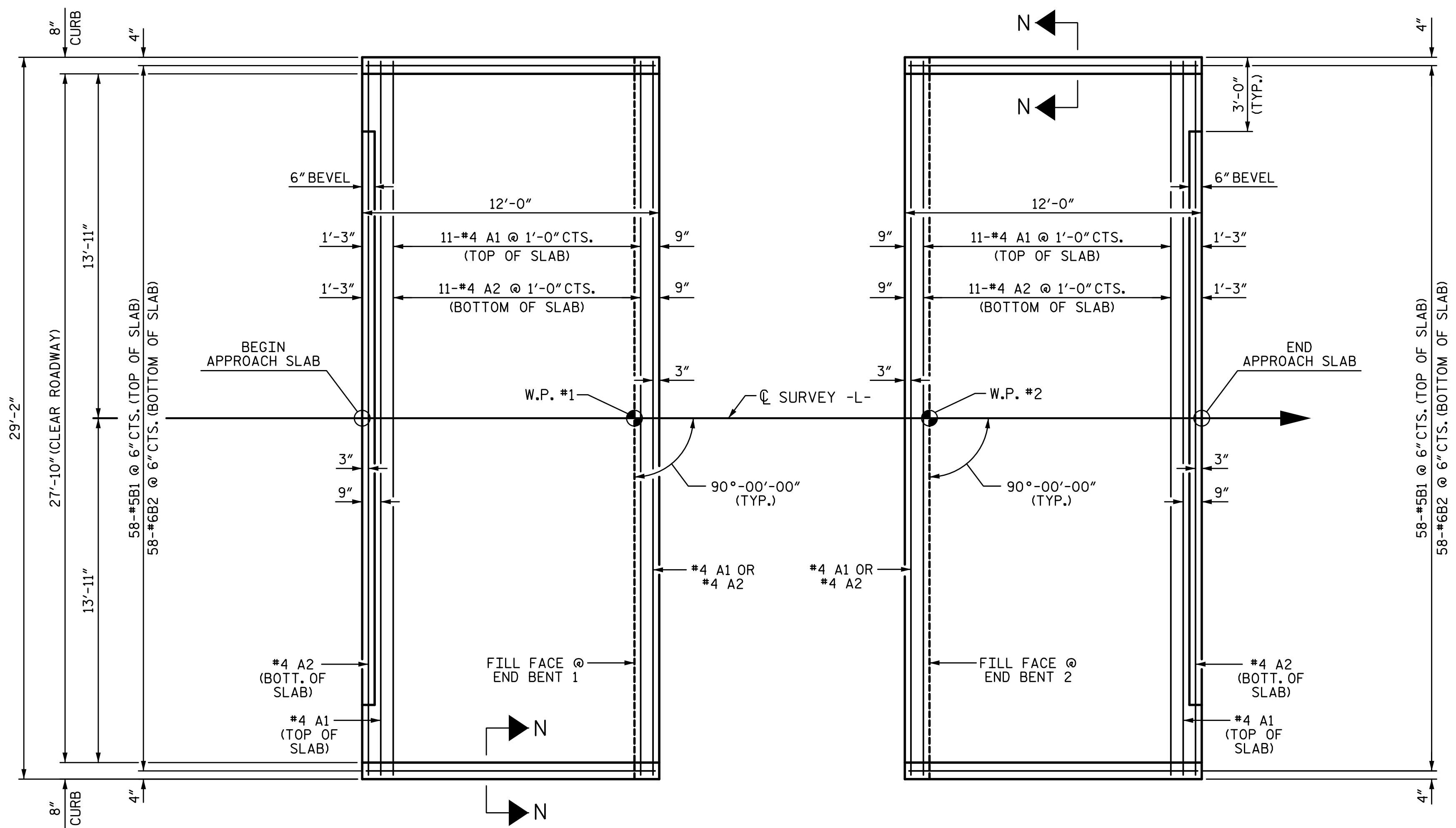
PLANS PREPARED BY:
SE & A
 IMPSON ENGINEERS & ASSOCIATES
 5640 Dillard Drive
 Suite 200
 Cary, NC 27518
 (919) 852-0468
 (919) 852-0598 (Fax)
 www.simpsonengr.com
 LICENSURE NO. C-2521

DRAWN BY: S.D. COOPER DATE: 6-21
 CHECKED BY: B.S. COX DATE: 6-21
 DESIGN ENGINEER OF RECORD: B.S. COX DATE: 6-21

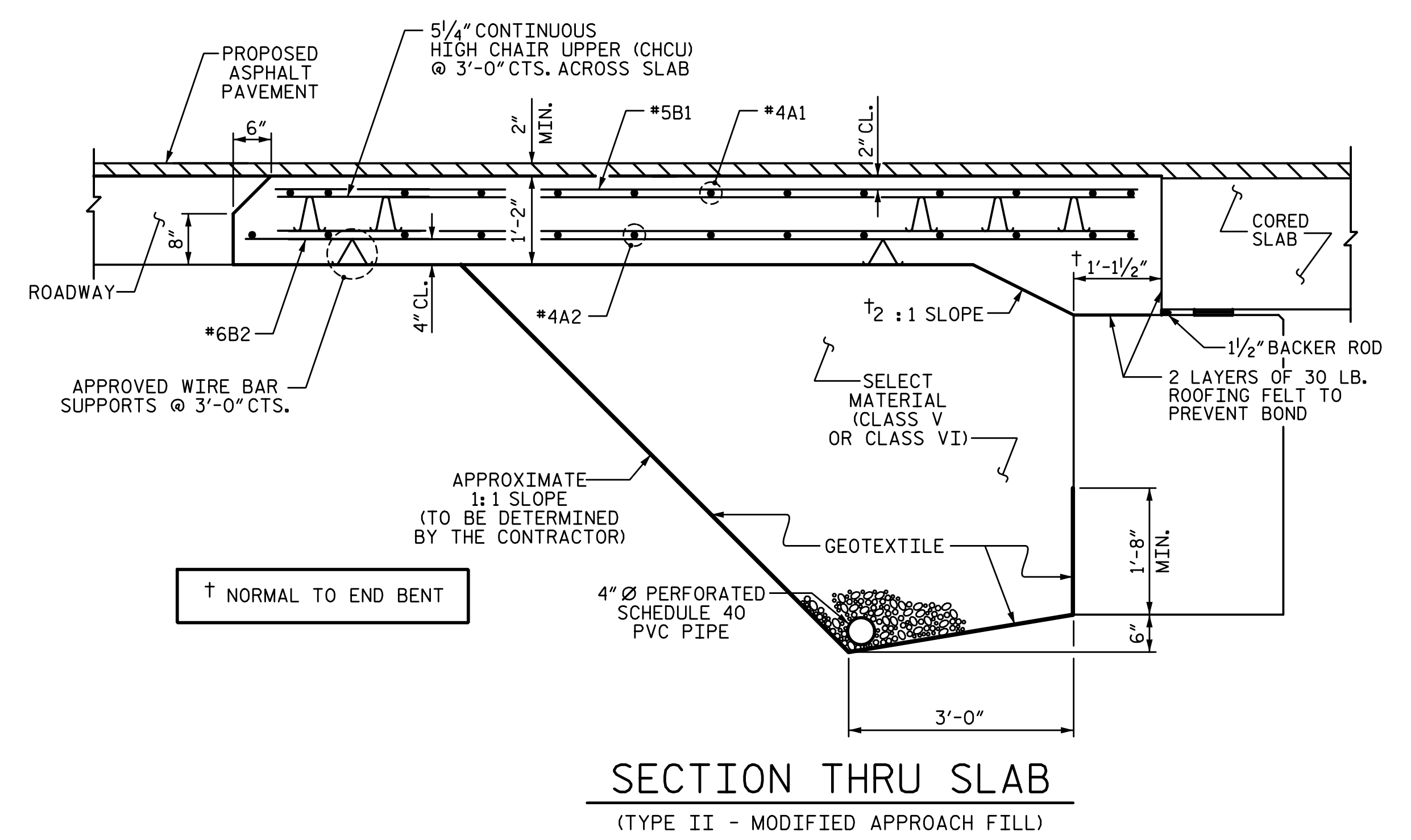
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			15

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



SECTION THRU SLAB
 (TYPE II - MODIFIED APPROACH FILL)

NOTES:

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

GEOTEXTILE SHALL BE TYPE I 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.

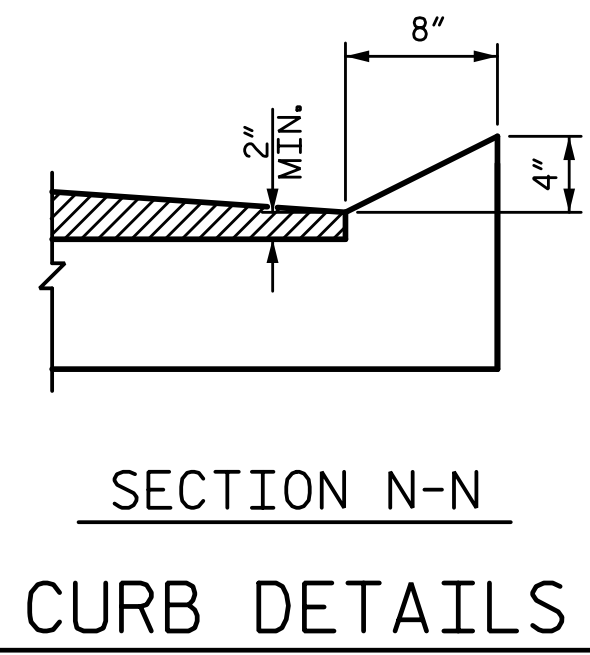
FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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 SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL						
APPROACH SLAB AT EB 1						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	13	#4	STR	28'-10"	250	
A2	13	#4	STR	28'-10"	250	
* B1	58	#5	STR	11'-2"	676	
B2	58	#6	STR	11'-8"	1016	
REINFORCING STEEL					LB	1266
* EPOXY COATED REINFORCING STEEL					LB	926
CLASS AA CONCRETE					CY	16.7
APPROACH SLAB AT EB 2						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	13	#4	STR	28'-10"	250	
A2	13	#4	STR	28'-10"	250	
* B1	58	#5	STR	11'-2"	676	
B2	58	#6	STR	11'-8"	1016	
REINFORCING STEEL					LB	1266
* EPOXY COATED REINFORCING STEEL					LB	926
CLASS AA CONCRETE					CY	16.7

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

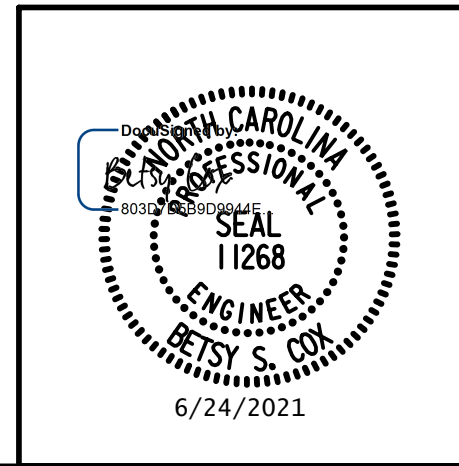


SECTION N-N
CURB DETAILS

PROJECT NO. 17BP.5.R.67
FRANKLIN COUNTY
 STATION: 13+88.50 -L-
 SHEET 1 OF 2

DRAWN BY: S.D. COOPER DATE: 6-21
 CHECKED BY: B.S. COX DATE: 6-21
 DESIGN ENGINEER OF RECORD: B.S. COX DATE: 6-21

PLANS PREPARED BY:
SE & A
 IMPSON ENGINEERS ASSOCIATES
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 Suite 200
 Cary, NC 27518
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 (919) 852-0538 (Fax)
 www.slmpsonengr.com
 LICENSURE NO. C-2521



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

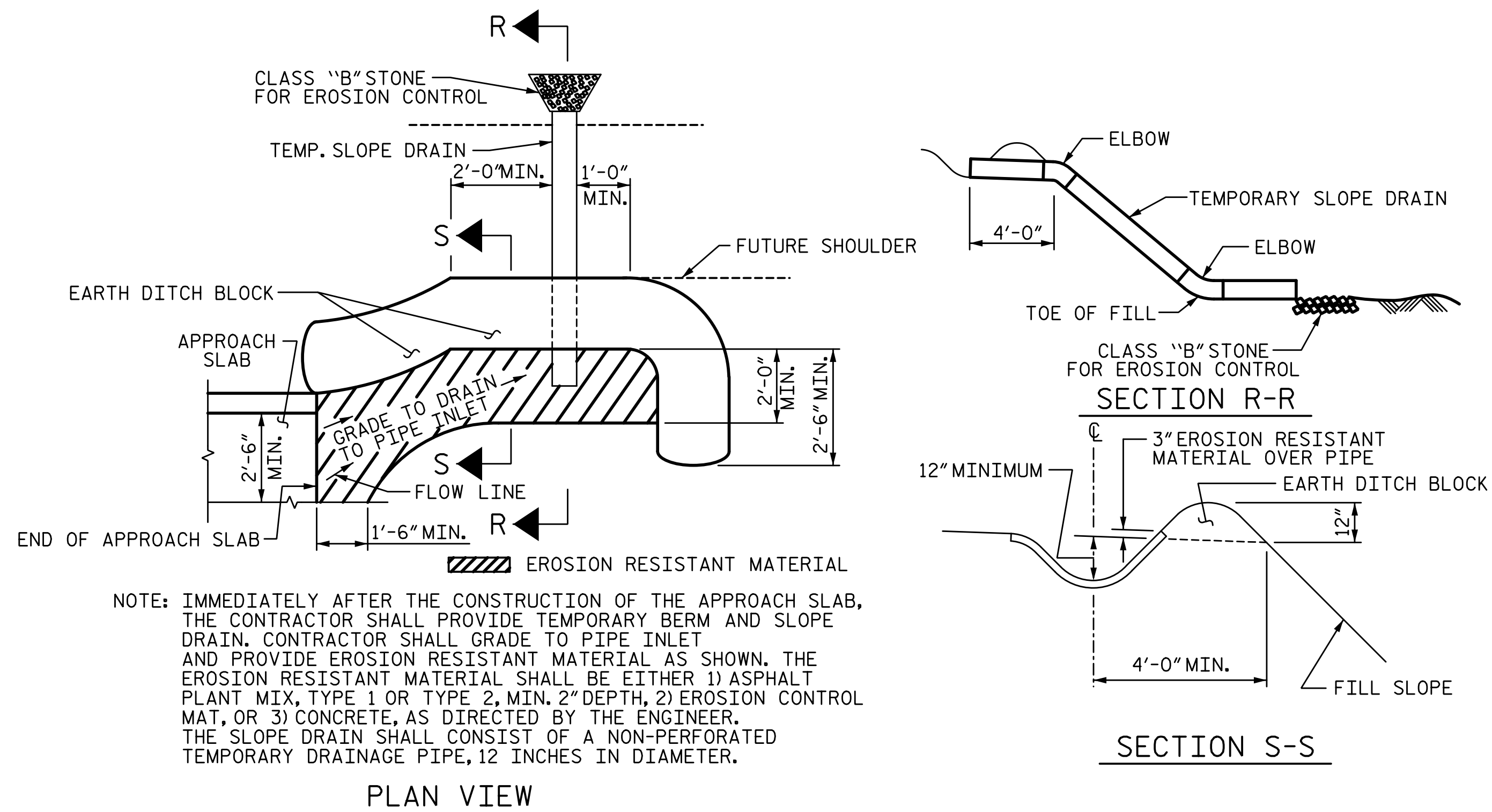
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT
 (SUB-REGIONAL TIER - 90° SKEW)

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

SHEET NO. S-14
 TOTAL SHEETS 15

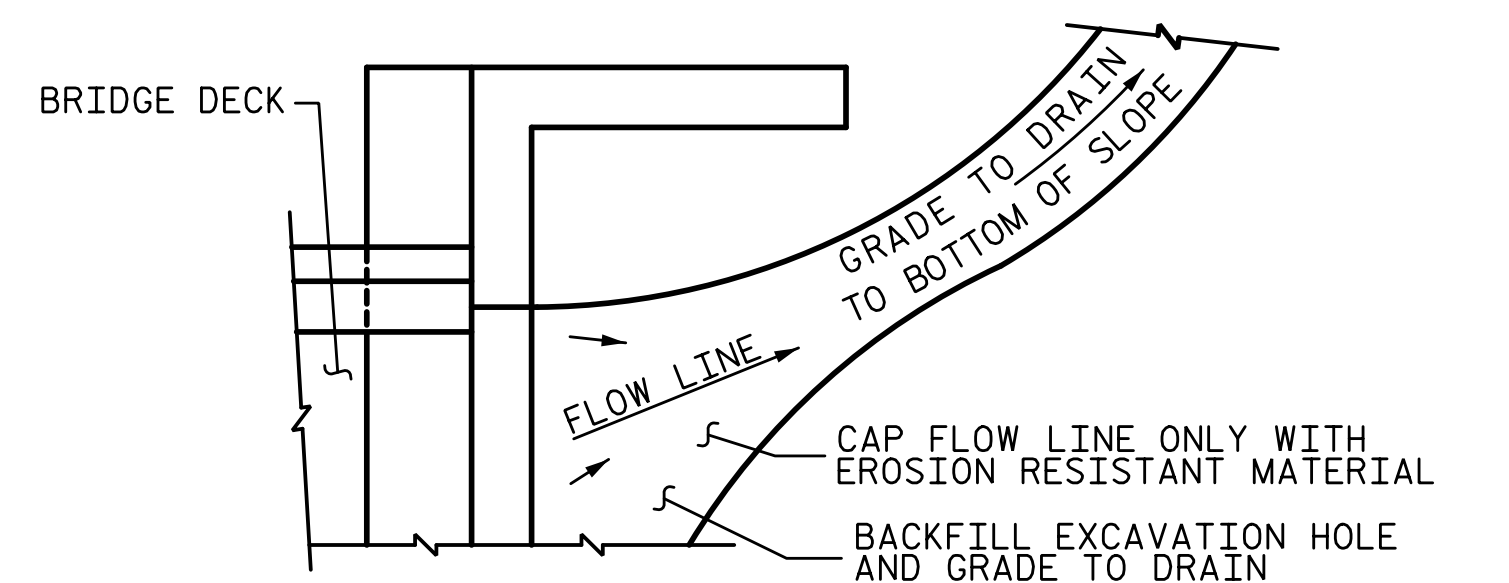
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TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

PROJECT NO. 17BP.5.R.67
FRANKLIN COUNTY
 STATION: 13+88.50 -L-

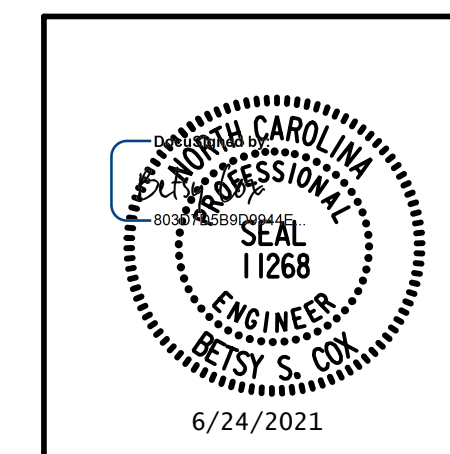
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB DETAILS

PLANS PREPARED BY:

SIMPSON
ENGINEERS
& ASSOCIATES
SEA
 5640 Dillard Drive
 Suite 200
 Cary, NC 27518
 (919) 852-0468
 (919) 852-0598 (Fax)
 www.simpsonengr.com



LICENSURE NO. C-2521

REVISIONS

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

SHEET NO.
 S-15
 TOTAL SHEETS
 15

DRAWN BY: <u>S.D. COOPER</u>	DATE: <u>6-21</u>
CHECKED BY: <u>B.S. COX</u>	DATE: <u>6-21</u>
DESIGN ENGINEER OF RECORD: <u>B.S. COX</u>	DATE: <u>6-21</u>

**DOCUMENT NOT CONSIDERED FINAL
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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
	GRADE 60	-- 24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER		
	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT: ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

REFERENCE: SF-340080

PROJECT: 17BP.5.R.67

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-340080	1	8

**STRUCTURE
SUBSURFACE INVESTIGATION**

COUNTY FRANKLIN
PROJECT DESCRIPTION BRIDGE NO. 80 ON SR 1737
(TANT RD.) OVER PRESS PRONG TRIBUTARY 1

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	BORING LOCATION PLAN
4	PROFILE
5-6	CROSS SECTIONS
7-8	BORE LOGS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

TRIGON

GOODNIGHT, D.J.

INVESTIGATED BY DJG

DRAWN BY HILL, M.J.

CHECKED BY HUNSBERGER, W.S.

SUBMITTED BY FALCON ENG.

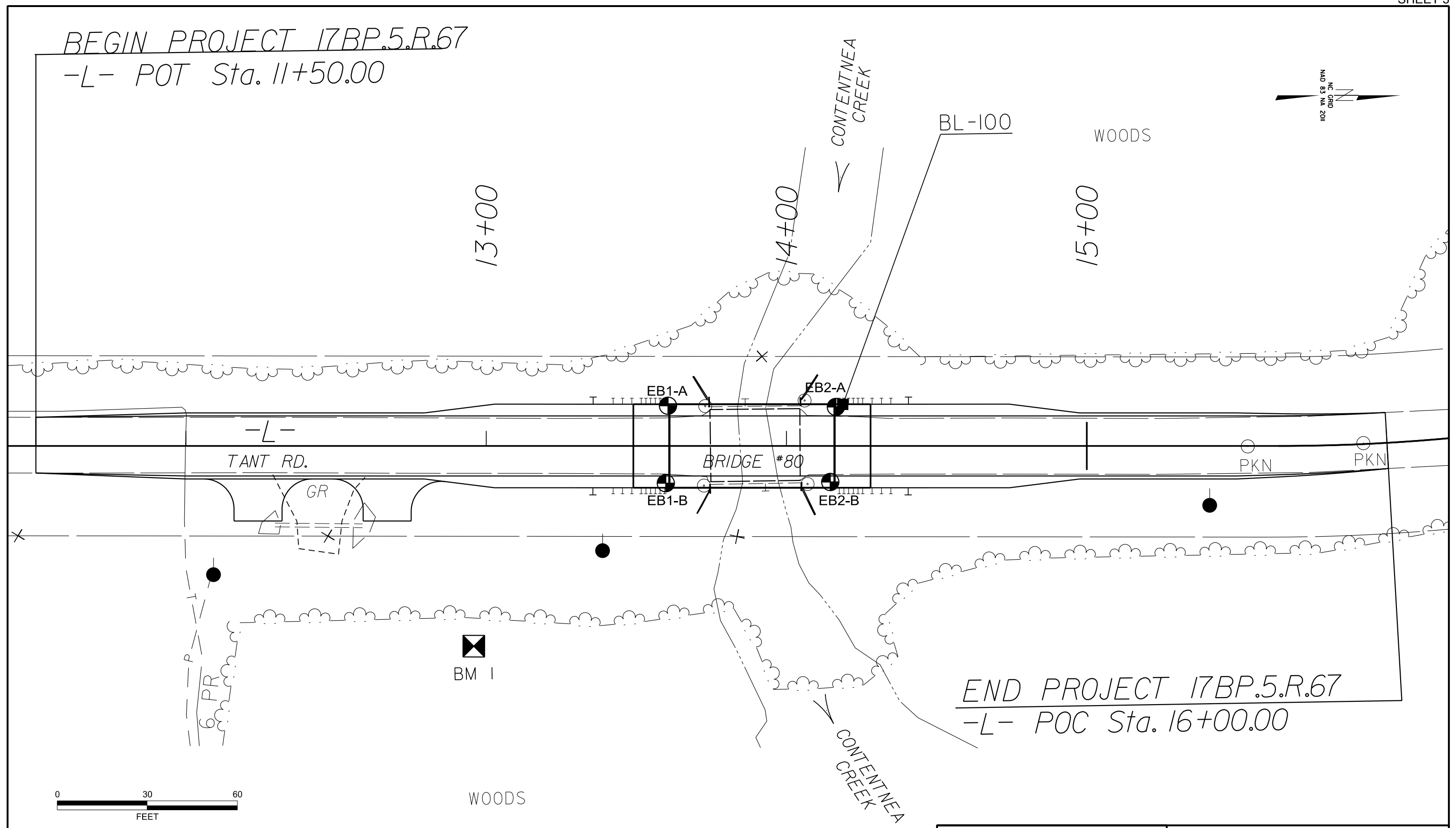
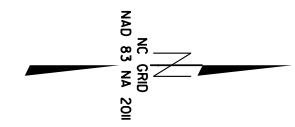
DATE AUGUST 2017



Jeremy R. Hamm 8/23/17

SIGNATURE DATE

BEGIN PROJECT 17BP.5.R.67
 -L- POT Sta. 11+50.00



END PROJECT 17BP.5.R.67
 -L- POC Sta. 16+00.00

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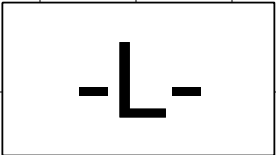
- PLANS ADOPTED FROM ELECTRONIC FILES RECEIVED FROM MOTT MACDONALD DATED MARCH 2017.
- BRIDGE SKEW: 90°



FALCON ENGINEERING, INC.
 1210 TRINITY ROAD, SUITE 110
 RALEIGH, NC 27607
 PHONE: 919.871.0800
 FAX: 919.871.0803

BORING LOCATION PLAN

BRIDGE NO. 80 ON SR 1737 (TANT RD.)
 OVER PRESS PRONG TRIBUTARY 1
 FRANKLIN COUNTY, NORTH CAROLINA
 WBS NO.: 17BP.5.R.67 | TIP NO.: SF-340080
 FALCON PROJECT NO.: G16029.02



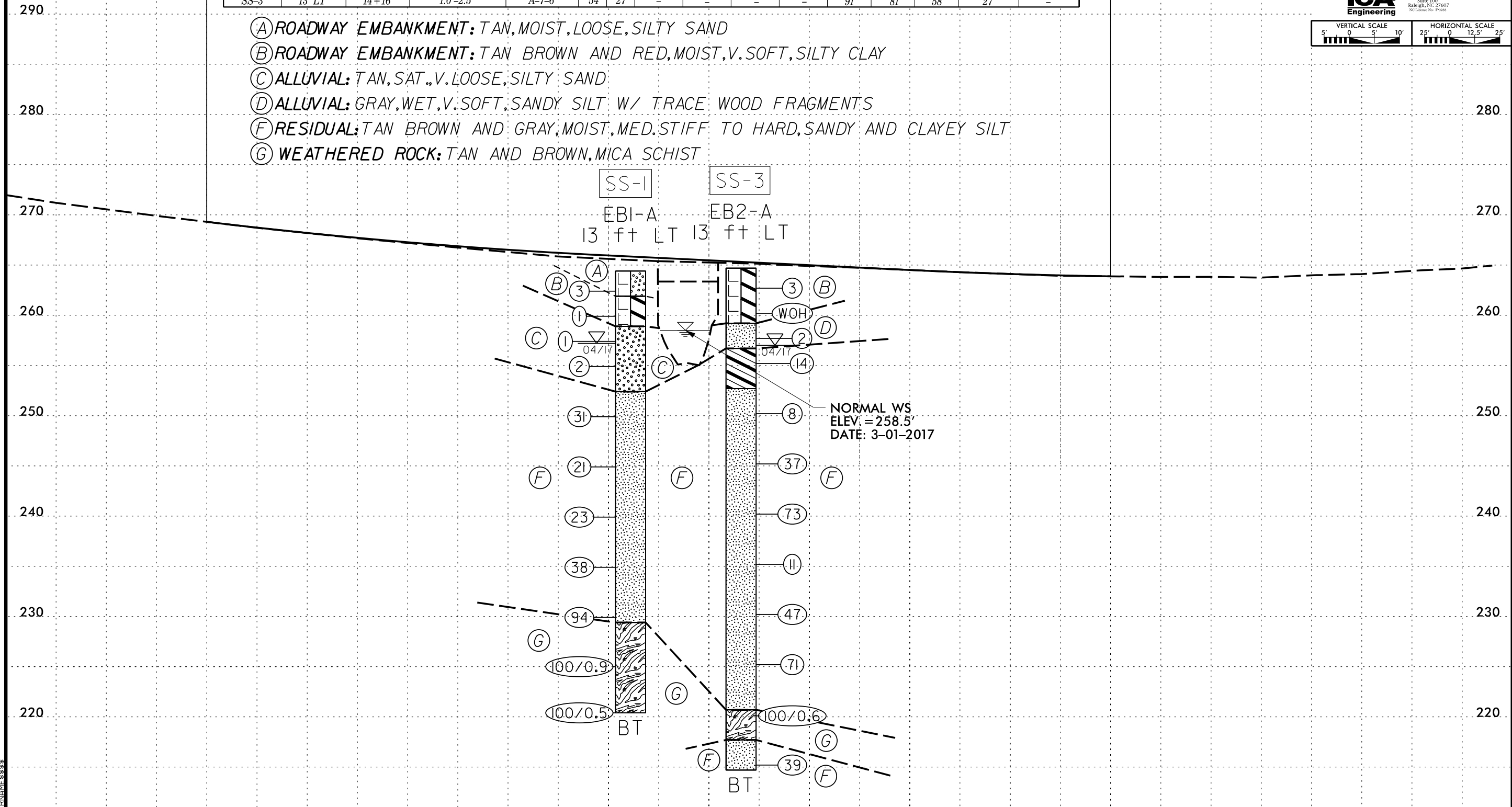
PROJECT REFERENCE SF-340080	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
HATCH MOTT MACDONALD I & E, LLC LICENSE NO. F-26697	ICA ENGINEERING LICENSE NO. F-02528
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: M	
M P.O. Box 700 Ferguson, Va., NC 27526 MOTT MACDONALD www.mottmac.com	
ICA Engineering	
5121 Kingdom Way, Suite 100 Raleigh, NC 27607 NC License No. F0408	
VERTICAL SCALE 5' 0 5' 10'	HORIZONTAL SCALE 25' 0 12.5' 25'

BEGIN GRADE
STA. 11+50.00
EL = 269.31'

END GRADE
STA. 16+00.00
EL = 263.88'

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-1	13' LT	13+61	3.5'-5.0'	A-7-6	50	22	-	-	-	-	98	92	67	33	-
SS-3	13' LT	14+16	1.0'-2.5'	A-7-6	54	27	-	-	-	-	91	81	58	27	-

- (A) ROADWAY EMBANKMENT: TAN, MOIST, LOOSE, SILTY SAND
- (B) ROADWAY EMBANKMENT: TAN BROWN AND RED, MOIST, V. SOFT, SILTY CLAY
- (C) ALLUVIAL: TAN, SAT., V. LOOSE, SILTY SAND
- (D) ALLUVIAL: GRAY, WET, V. SOFT, SANDY SILT W/ TRACE WOOD FRAGMENTS
- (F) RESIDUAL: TAN BROWN AND GRAY, MOIST, MED. STIFF TO HARD, SANDY AND CLAYEY SILT
- (G) WEATHERED ROCK: TAN AND BROWN, MICA SCHIST



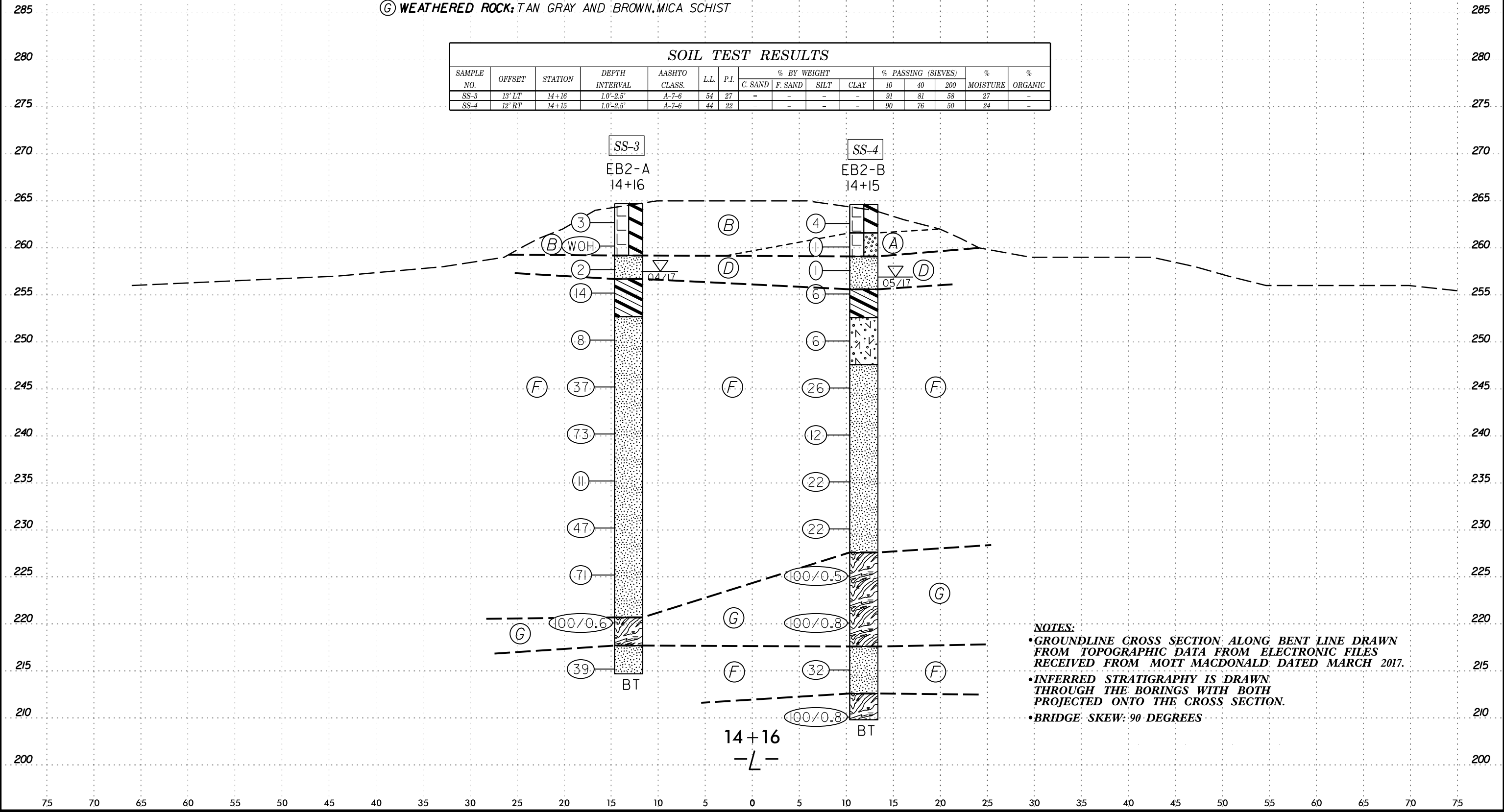
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8/23/99
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 18-AUG-2017 14:53
 cadmachine

EB2

- (A) ROADWAY EMBANKMENT: TAN AND BROWN, MOIST, V. LOOSE, SILTY SAND W/ TRACE GRAVEL
- (B) ROADWAY EMBANKMENT: RED-BROWN AND RED, MOIST, V. SOFT TO SOFT, SILTY CLAY W/ TRACE GRAVEL
- (D) ALLUVIAL: GRAY AND TAN, WET, V. SOFT, SANDY SILT W/ TRACE WOOD FRAGMENTS
- (F) RESIDUAL: TAN BROWN AND GRAY, MOIST, MED. STIFF TO HARD, SANDY SILT AND CLAY
- (G) WEATHERED ROCK: TAN GRAY AND BROWN, MICA SCHIST

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-3	13' LT	14+16	1.0'-2.5'	A-7-6	54	27	-	-	-	-	91	81	58	27	-
SS-4	12' RT	14+15	1.0'-2.5'	A-7-6	44	22	-	-	-	-	90	76	50	24	-



NOTES:

- GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA FROM ELECTRONIC FILES RECEIVED FROM MOTT MACDONALD, DATED MARCH 2017.
- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
- BRIDGE SKEW: 90 DEGREES

14+16
-L-

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.5.R.67		TIP SF-340080		COUNTY FRANKLIN		GEOLOGIST Goodnight, D.	
SITE DESCRIPTION BR. NO. 80 ON SR 1737 (TANT RD.) OVER CONTENTNEA CREEK						GROUND WTR (ft)	
BORING NO. EB1-A		STATION 13+61		OFFSET 13 ft LT		ALIGNMENT -L-	
COLLAR ELEV. 264.4 ft		TOTAL DEPTH 44.0 ft		NORTHING 785,772		EASTING 2,225,412	
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 77% 02/22/2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic			
DRILLER N/A		START DATE 04/16/17		COMP. DATE 04/16/17		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
265															264.4	0.0
	263.4	1.0		2	2	1								M	ROADWAY EMBANKMENT TAN, SILTY SAND (A-2-4)	2.5
260	260.9	3.5	WOH	WOH	1							SS-1	33%	M	RED-TAN, F. SANDY CLAY (A-7-6) WITH TRACE MICA AND WOOD FRAGMENTS	5.5
	258.4	6.0	WOH	WOH	1							Sat.		Sat.	ALLUVIAL TAN, SILTY CSE. TO F. SAND (A-2-4) WITH TRACE PEBBLES	12.0
255	255.9	8.5	WOH	1	1							Sat.		Sat.	RESIDUAL TAN-BROWN, SANDY SILT (A-4) WITH FINE MICA	17.0
	250.9	13.5	6	10	21							M		M		21.0
245	245.9	18.5	5	11	10							M		M		23.0
240	240.9	23.5	8	11	12							M		M		25.0
235	235.9	28.5	17	20	18							M		M		27.0
230	230.9	33.5	9	27	67							M		M		31.5
	225.9	38.5	26	74/0.4								M		M		34.6
	220.9	43.5	100/0.5									M		M		44.0

WBS 17BP.5.R.67		TIP SF-340080		COUNTY FRANKLIN		GEOLOGIST Goodnight, D.	
SITE DESCRIPTION BR. NO. 80 ON SR 1737 (TANT RD.) OVER CONTENTNEA CREEK						GROUND WTR (ft)	
BORING NO. EB1-B		STATION 13+60		OFFSET 12 ft RT		ALIGNMENT -L-	
COLLAR ELEV. 264.9 ft		TOTAL DEPTH 34.6 ft		NORTHING 785,772		EASTING 2,225,438	
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 77% 02/22/2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic			
DRILLER N/A		START DATE 05/01/17		COMP. DATE 05/01/17		SURFACE WATER DEPTH N/A	

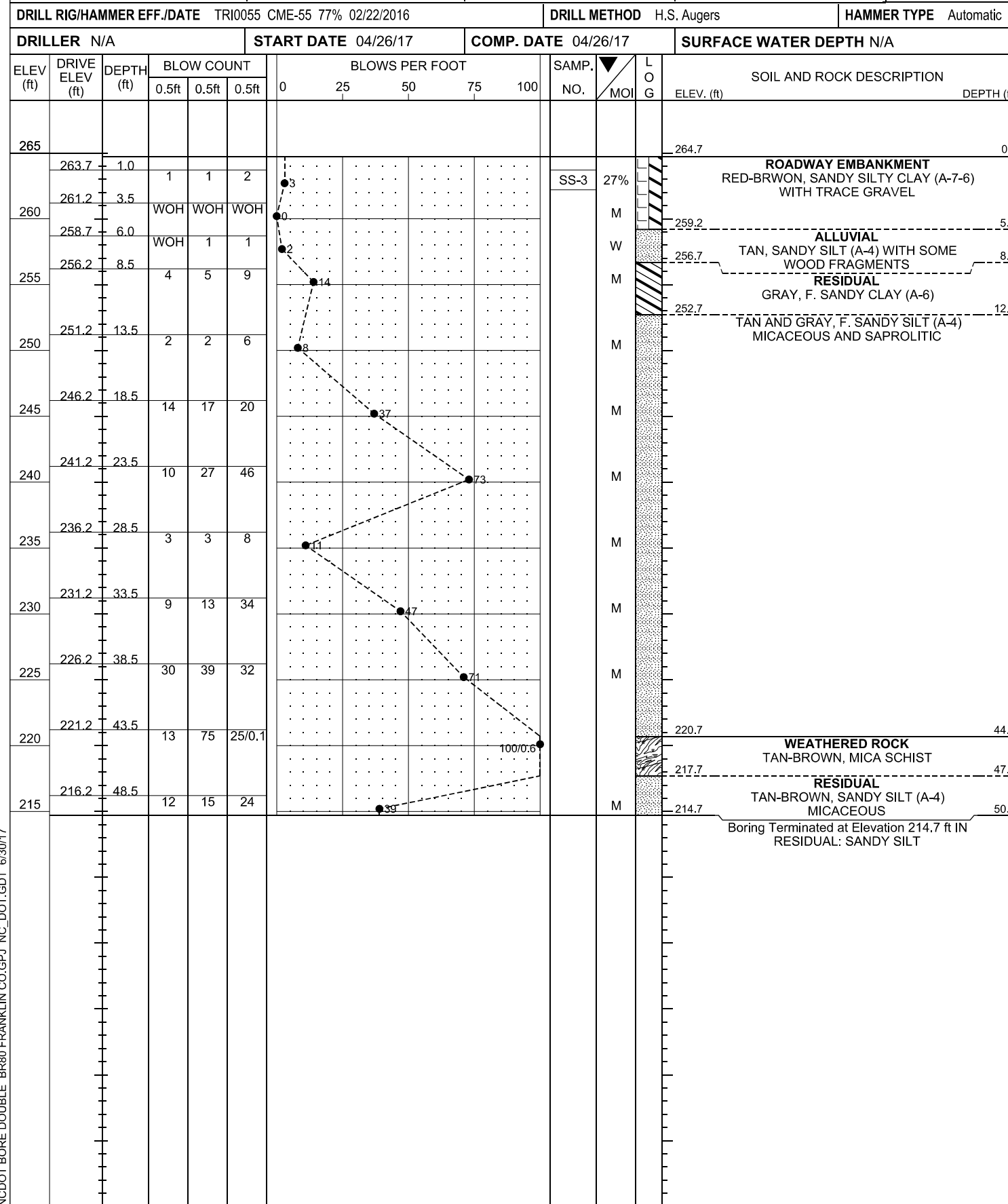
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
265															264.9	0.0
	263.9	1.0	1	2	1									M	ROADWAY EMBANKMENT TAN-RED, SANDY SILTY CLAY (A-7-5) WITH TRACE GRAVEL	2.5
260	261.4	3.5	WOH	1	1							SS-2	36%	M	ALLUVIAL TAN, SANDY CLAY (A-7) WITH TRACE GRAVEL	5.5
	258.9	6.0	WOH	WOH	WOH							W		W	ALLUVIAL GRAY, F. SANDY CLAYEY SILT (A-5) WITH TRACE WOOD FRAGMENTS	8.0
255	256.4	8.5	WOH	WOH	1							W		W	WEATHERED ROCK GRAY-BROWN, MICA SCHIST	13.0
	251.4	13.5	40	60/0.3								M		M	RESIDUAL GRAY-BROWN, SANDY SILT (A-4) MICACEOUS	17.0
245	246.4	18.5	21	30	48							M		M	WEATHERED ROCK TAN AND GRAY, MICA SCHIST	22.0
240	241.4	23.5	32	40	60/0.4							M		M	RESIDUAL TAN-BROWN, SILTY CLAYEY SAND (A-2-6) SAPROLITIC	27.0
235	236.4	28.5	6	10	10							M		M	WEATHERED ROCK TAN-BROWN, MICA SCHIST	31.5
	231.4	33.5	13	65	35/0.1							M		M	Boring Terminated at Elevation 230.3 ft IN WR: MICA SCHIST	34.6

NCDOT BORE DOUBLE BR80 FRANKLIN CO.GPJ NC_DOT.GDT 6/30/17

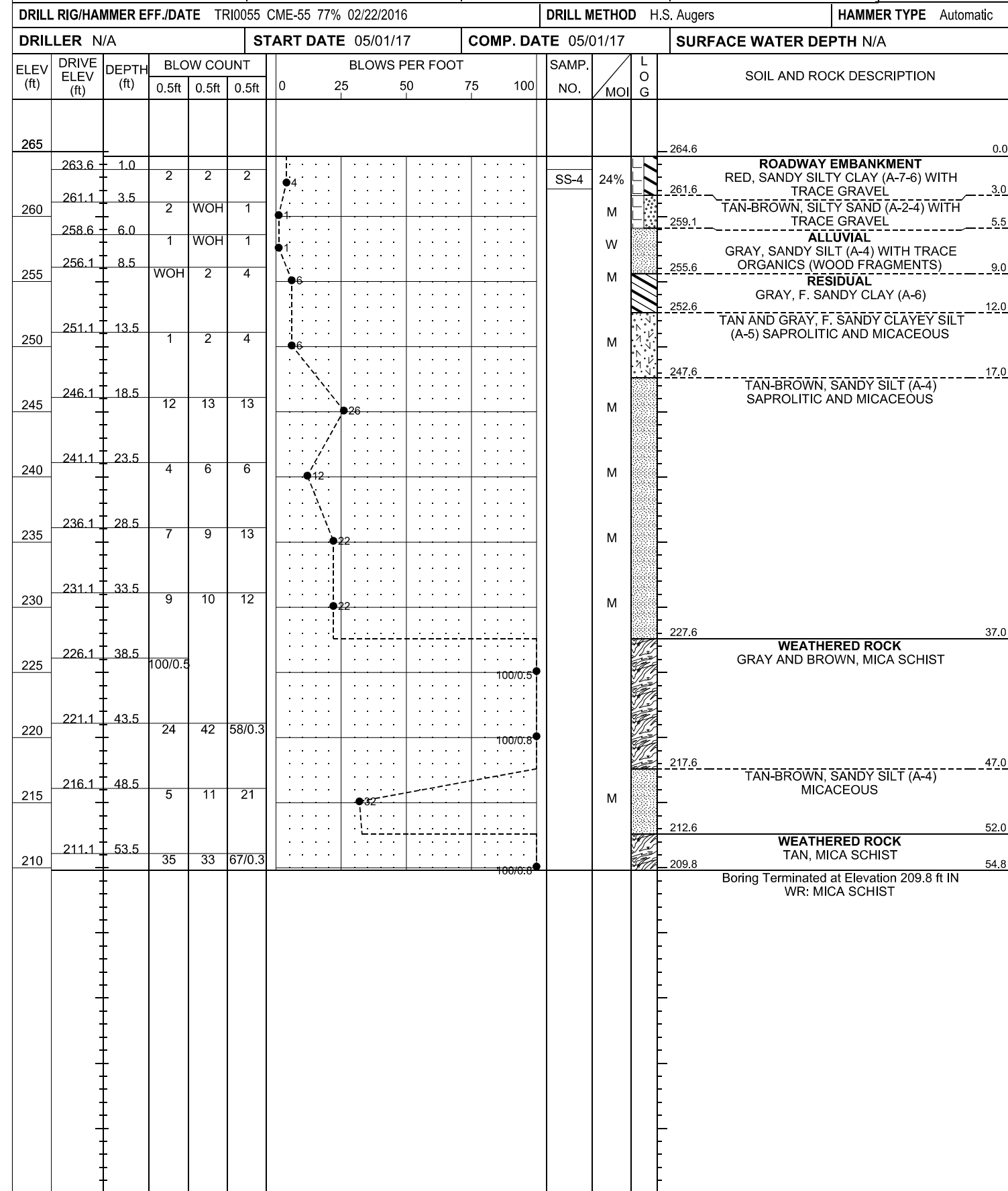
GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.5.R.67	TIP SF-340080	COUNTY FRANKLIN	GEOLOGIST Goodnight, D.
SITE DESCRIPTION BR. NO. 80 ON SR 1737 (TANT RD.) OVER CONTENTNEA CREEK			GROUND WTR (ft)
BORING NO. EB2-A	STATION 14+16	OFFSET 13 ft LT	ALIGNMENT -L-
COLLAR ELEV. 264.7 ft	TOTAL DEPTH 50.0 ft	NORTHING 785,828	EASTING 2,225,412
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 77% 02/22/2016			DRILL METHOD H.S. Augers
DRILLER N/A			HAMMER TYPE Automatic
START DATE 04/26/17		COMP. DATE 04/26/17	
SURFACE WATER DEPTH N/A			



WBS 17BP.5.R.67	TIP SF-340080	COUNTY FRANKLIN	GEOLOGIST Goodnight, D.
SITE DESCRIPTION BR. NO. 80 ON SR 1737 (TANT RD.) OVER CONTENTNEA CREEK			GROUND WTR (ft)
BORING NO. EB2-B	STATION 14+15	OFFSET 12 ft RT	ALIGNMENT -L-
COLLAR ELEV. 264.6 ft	TOTAL DEPTH 54.8 ft	NORTHING 785,826	EASTING 2,225,437
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 77% 02/22/2016			DRILL METHOD H.S. Augers
DRILLER N/A			HAMMER TYPE Automatic
START DATE 05/01/17		COMP. DATE 05/01/17	
SURFACE WATER DEPTH N/A			



NCDOT BORE DOUBLE BR80 FRANKLIN CO.GPJ NC_DOT.GDT 6/30/17