

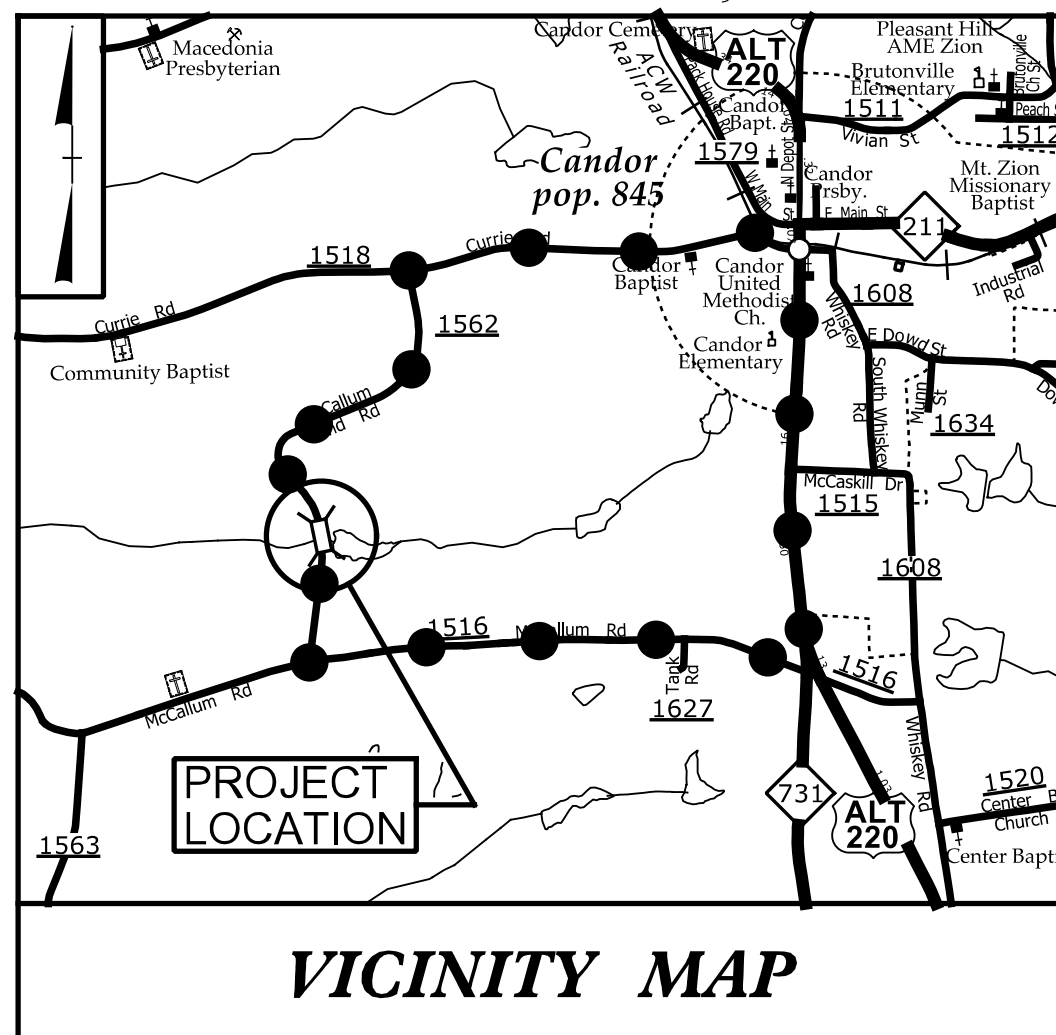
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09/08/1999

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



VICINITY MAP

●●●●● OFF-SITE DETOUR

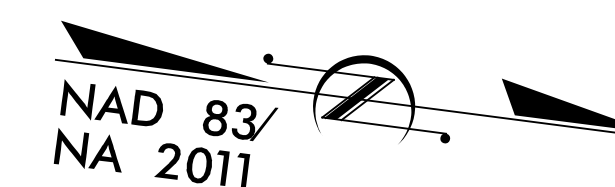
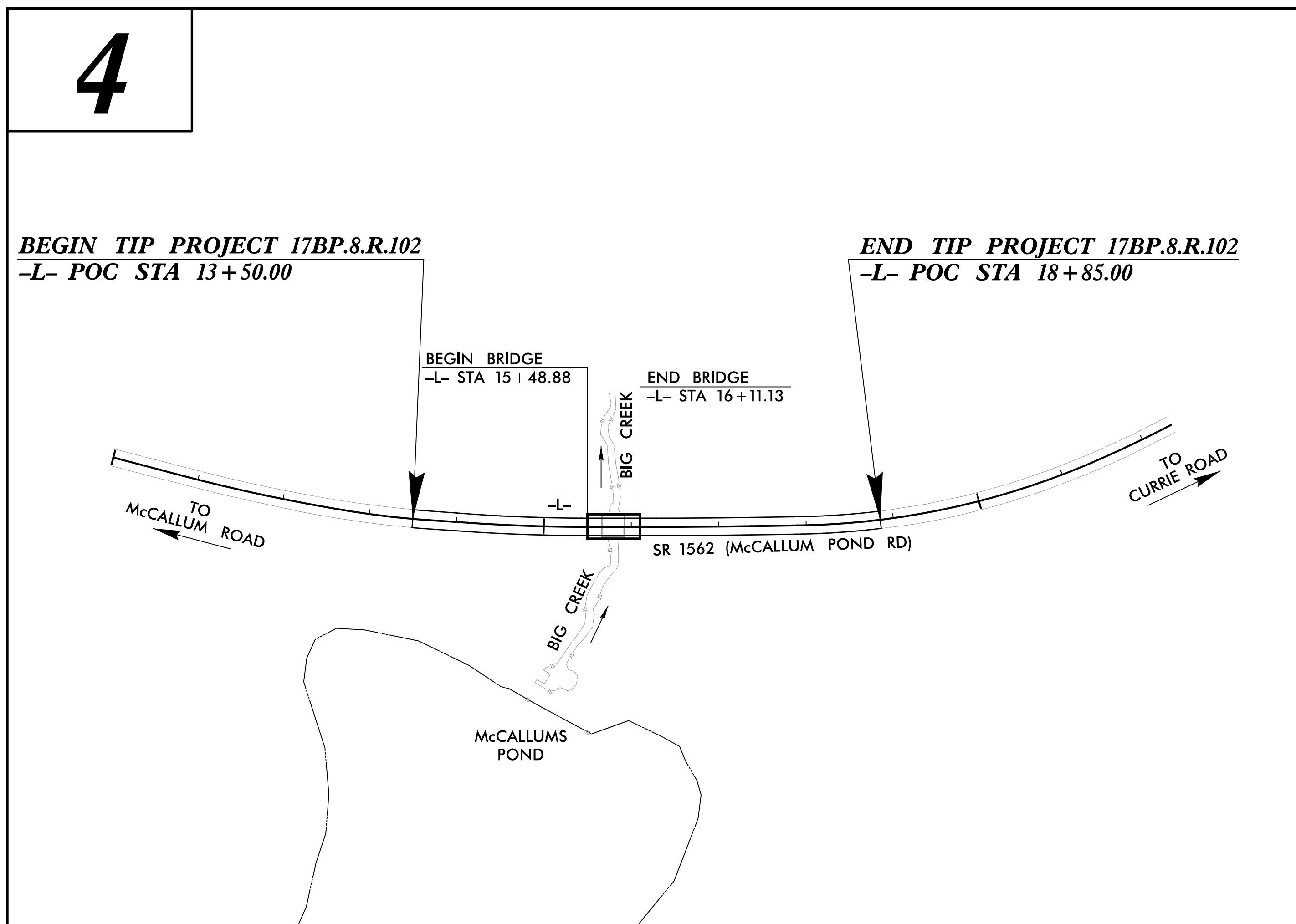
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MONTGOMERY COUNTY

LOCATION: BRIDGE 224 OVER BIG CREEK ON SR 1562
(McCALLUM POND RD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

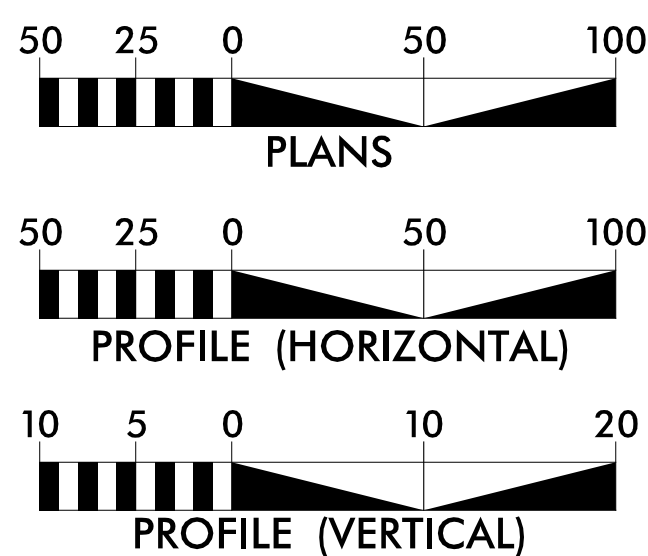
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.102	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.8.R.102		P.E.	



NOTE: DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT (2012) = 200
ADT (2025) = 400
K = %
D = %
T = 6 % *
V = 25 MPH
* TTST = % DUAL %
FUNC CLASS = LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 17BP.8.R.102 = 0.089 MILES
LENGTH STRUCTURE TIP PROJECT 17BP.8.R.102 = 0.012 MILES
TOTAL LENGTH TIP PROJECT 17BP.8.R.102 = 0.101 MILES

Prepared for the
North Carolina Department
of Transportation
In the office of:



ICA Engineering, Inc.
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

JUNE 17, 2016

LETTING DATE:

JANUARY 24, 2017

DENA C. SNEAD, PE
PROJECT ENGINEER

ALEXANDER D. SNIDER, PE
PROJECT DESIGN ENGINEER

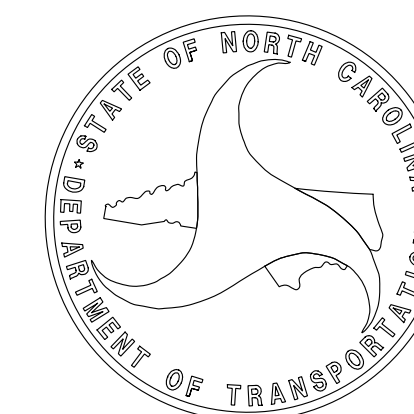
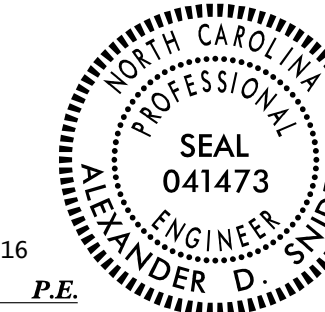
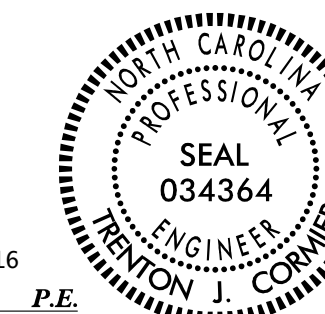
TIM WELCH, PE
NCDOT CONTACT
DIV 8 BRIDGE PROGRAM MANAGER

HYDRAULICS
ENGINEER

TRENTON J. CORMIER
12/14/2016
P.E.

ROADWAY DESIGN
ENGINEER

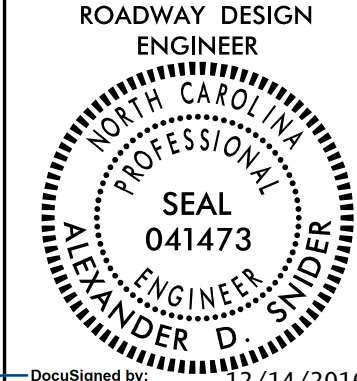
ALEXANDER D. SNIDER
12/14/2016
P.E.



12/13/2016
MONTGOMERY COUNTY
SR 1562-224-24-24
ICA ENGINEERING, INC.

TIP PROJECT: 17BP.8.R.102

CONTRACT: DH00221



**DOCUMENT NOT CONSIDERED FINAL
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SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	ROADWAY DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARY
4 THRU 5	PLAN AND PROFILE SHEETS
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UC-1 THRU UC-5	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1 THRU X-5	CROSS-SECTIONS
S-1 THRU S-14	STRUCTURE PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
 EFFECTIVE: 01-17-2012
 REVISED: 10-31-2014

**GRADE LINE:
 GRADING AND SURFACING:**

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Duke Energy, CenturyLink and Montgomery County

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

RIGHT-OF-WAY MARKERS:

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-17-2012
 REV. 10-30-2012

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 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 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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

Note: Not to Scale *S.U.E. = Subsurface Utility Engineering

BOUNDARIES AND PROPERTY:

State Line	_____
County Line	_____
Township Line	_____
City Line	_____
Reservation Line	_____
Property Line	_____
Existing Iron Pin	○ EIP
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	-X-X-
Potential Contamination Area: Soil	-X-X-
Known Contamination Area: Water	-X-X-
Potential Contamination Area: Water	-X-X-
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	○
Switch	□
RR Abandoned	_____
RR Dismantled	_____

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	_____
Proposed Right of Way Line	○
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite RW Marker	△
Proposed Control of Access Line with Concrete CA Marker	○
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	-E-
Proposed Temporary Construction Easement	-E-
Proposed Temporary Drainage Easement	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent Drainage / Utility Easement	-DUE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Aerial Utility Easement	-AUE-
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	_____
Existing Curb	_____
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	○
Existing Metal Guardrail	_____
Proposed Guardrail	_____
Existing Cable Guiderail	_____
Proposed Cable Guiderail	_____
Equality Symbol	○
Pavement Removal	_____

VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	_____
Woods Line	_____

Orchard	_____
Vineyard	_____

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	_____
Bridge Wing Wall, Head Wall and End Wall	_____
MINOR:	
Head and End Wall	_____
Pipe Culvert	_____
Footbridge	_____
Drainage Box: Catch Basin, DI or JB	□
Paved Ditch Gutter	_____
Storm Sewer Manhole	○
Storm Sewer	_____

UTILITIES:

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.*)	_____
U/G Power Line LOS C (S.U.E.*)	_____
U/G Power Line LOS D (S.U.E.*)	_____

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.*)	_____
U/G Telephone Cable LOS C (S.U.E.*)	_____
U/G Telephone Cable LOS D (S.U.E.*)	_____
U/G Telephone Conduit LOS B (S.U.E.*)	_____
U/G Telephone Conduit LOS C (S.U.E.*)	_____
U/G Telephone Conduit LOS D (S.U.E.*)	_____
U/G Fiber Optics Cable LOS B (S.U.E.*)	_____
U/G Fiber Optics Cable LOS C (S.U.E.*)	_____
U/G Fiber Optics Cable LOS D (S.U.E.*)	_____

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

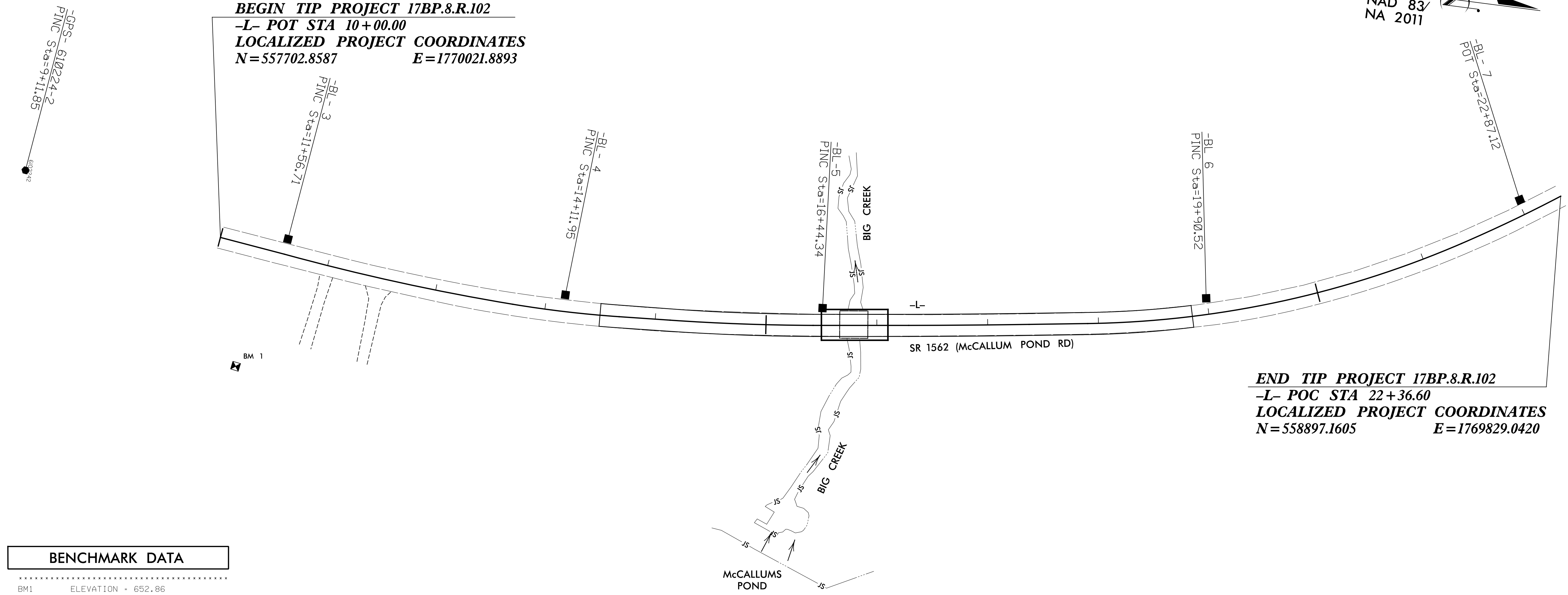
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line LOS B (S.U.E.*)	_____
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	□
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	○
U/G Test Hole LOS A (S.U.E.*)	○
Abandoned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

17BP.8.R.102 SURVEY CONTROL SHEET



BEGIN TIP PROJECT 17BP.8.R.102
-L- POT STA 10+00.00
LOCALIZED PROJECT COORDINATES
N = 557702.8587 E = 1770021.8893

END TIP PROJECT 17BP.8.R.102
-L- POC STA 22+36.60
LOCALIZED PROJECT COORDINATES
N = 558897.1605 E = 1769829.0420



BENCHMARK DATA	
BM1	ELEVATION = 652.86
N 557731	E 1770135
BL STATION 11+40.00 123 RIGHT	
RR SPIKE IN 16" PINE	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "610224-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 557520.597(ft) EASTING: 1769984.481(ft) ELEVATION: 661.13(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999845906

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "610224-2" TO -L- STATION 10+00.00 IS N 11°35'54.97" E 186.06'

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

BASELINE DATA						
BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	GPS 610224-1	557112.0050	1769932.7850	683.51		OUTSIDE PROJECT LIMITS
2	GPS 610224-2	557520.5970	1769984.4810	661.13		OUTSIDE PROJECT LIMITS
3	BL-3	557763.4867	1770015.4862	648.47	10+59.32	14.05 LT
4	BL-4	558018.1160	1770033.1760	634.41	13+16.78	15.05 LT
5	BL-5	558249.7950	1770015.0330	624.46	15+51.10	15.65 LT
6	BL-6	558591.8266	1769961.6092	634.86	18+99.58	14.60 LT
7	BL-7	558861.0220	1769837.0775	647.29	22+02.04	13.76 LT

- NOTES**
- THE CONTROL DATA FOR THIS PROJECT WAS PROVIDED BY NCDOT. CONTROL POINTS PROVIDED ARE AS FOLLOWS:

610224-1	N = 557112.0050	E = 1769932.7850	ELEV. = 683.510
610224-2	N = 557520.5970	E = 1769984.4810	ELEV. = 661.130

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

 - INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY NCDOT.
 - INDICATES CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY NCDOT.

NOTE: DRAWING NOT TO SCALE

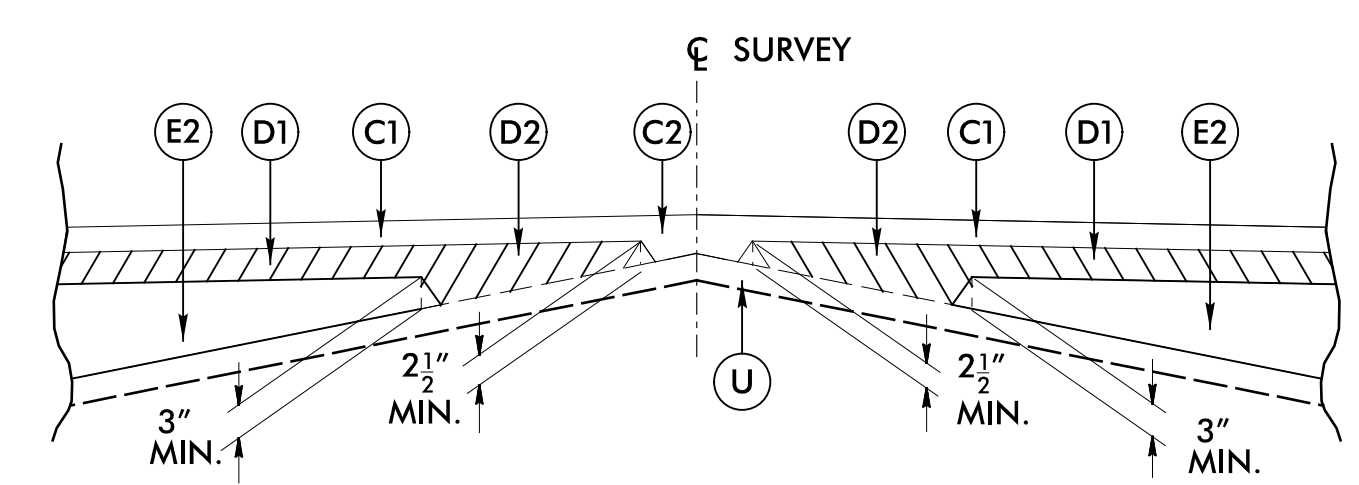
8/17/09
 12/14/2016
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 P:\A\ENGINEERING\17BP.8.R.102

6/2/2016

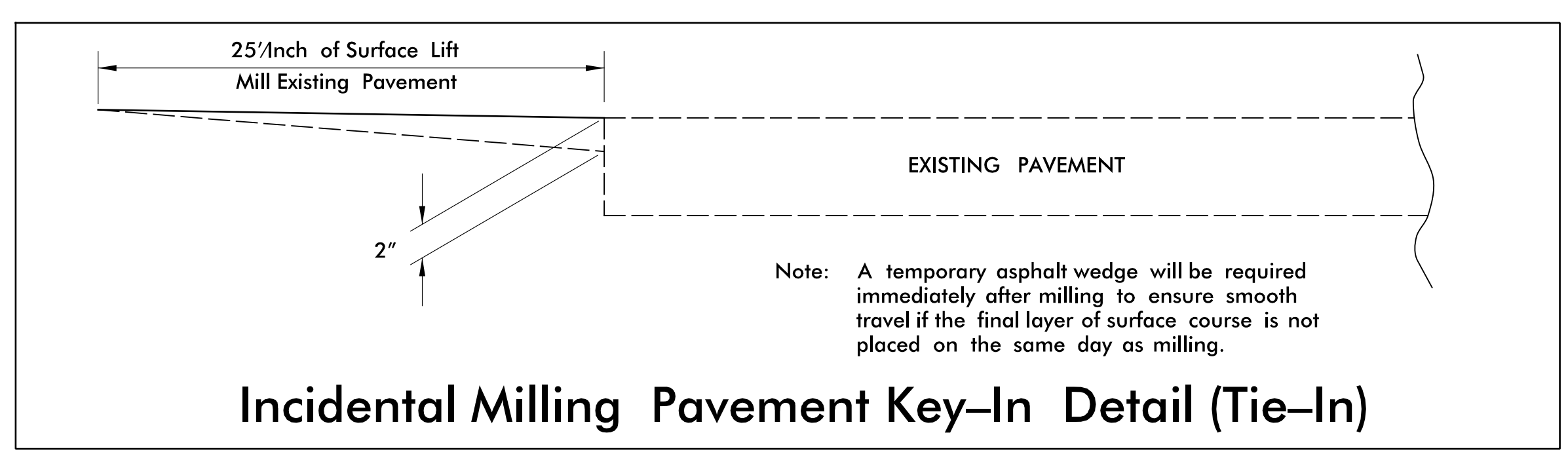
PAVEMENT SCHEDULE

C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING (SEE DETAIL SHOWING METHOD OF WEDGING)

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



Detail Showing Method of Wedging
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1



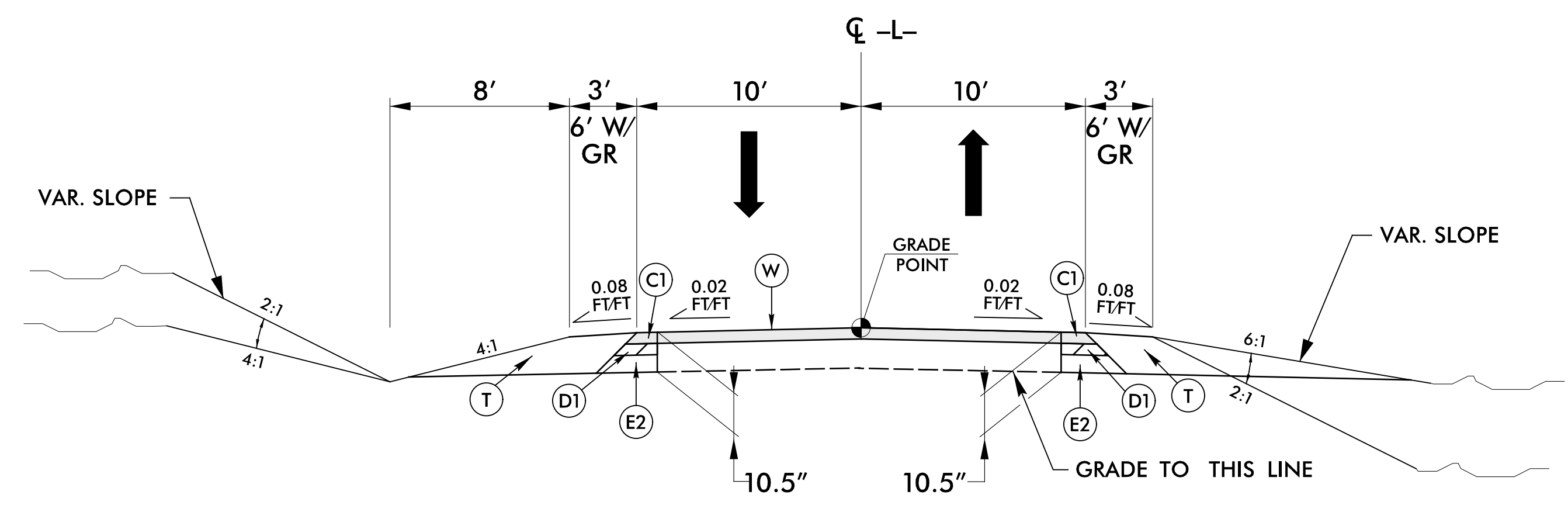
Incidental Milling Pavement Key-In Detail (Tie-In)

ICA Engineering, Inc.
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO. **17BP.8.RJ02**
SHEET NO. **2A-1**

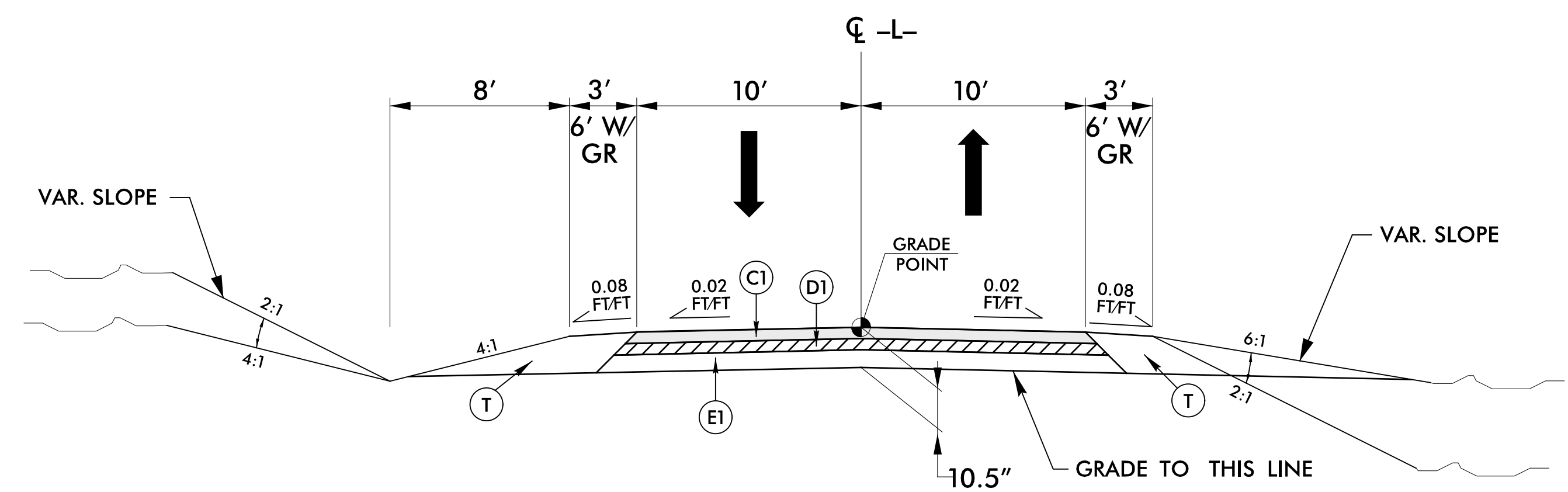
ROADWAY DESIGN
ENGINEER
ALEXANDER D. SMIDER
SEAL
041473
12/14/2016

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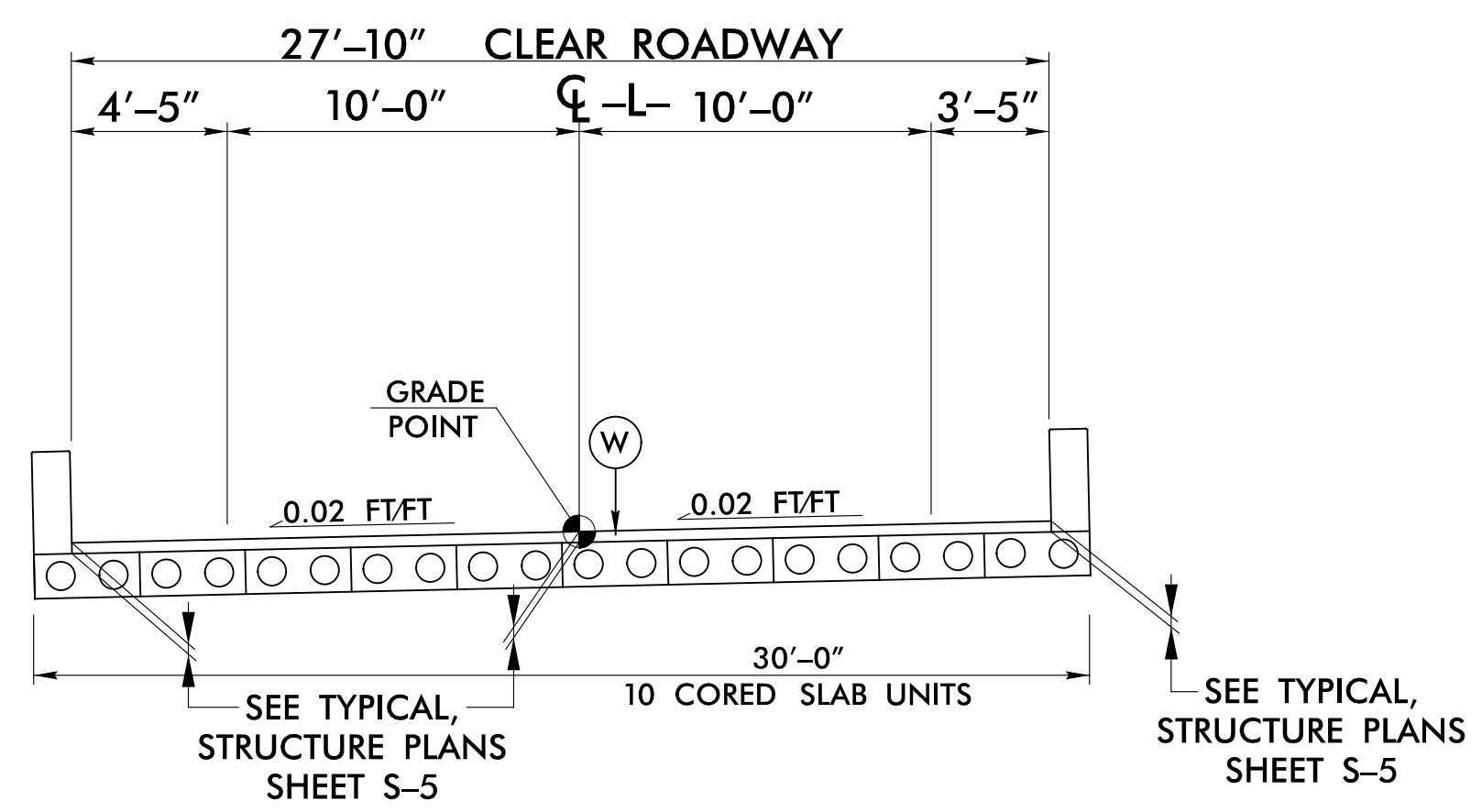
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FROM:
-L- STA 13+50.00 TO -L- STA 14+50.00
-L- STA 17+50.00 TO -L- STA 18+85.00



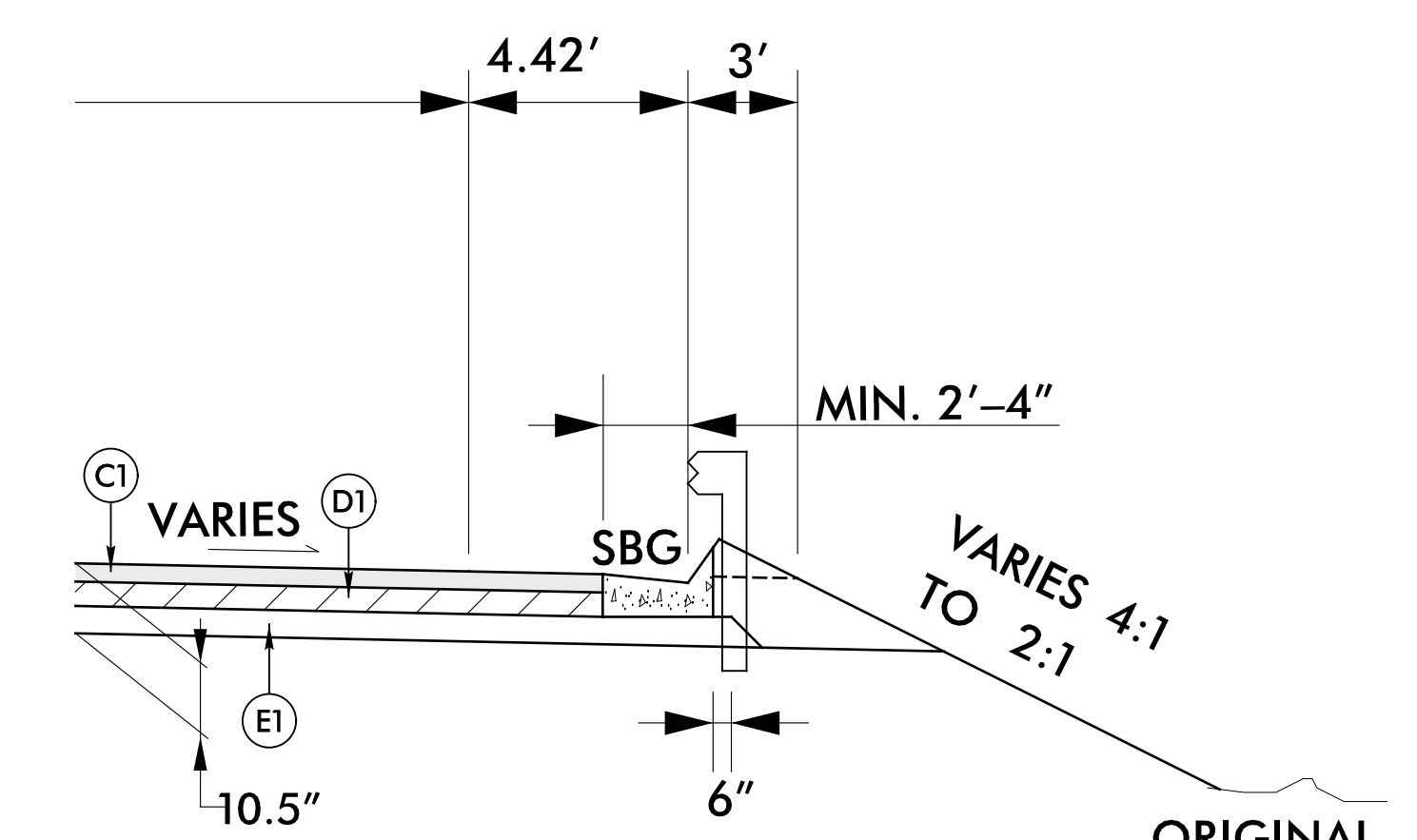
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FROM:
-L- STA 14+50.00 TO -L- STA 15+48.88
-L- STA 16+11.13 TO -L- STA 17+50.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 FROM:
-L- STA 15+48.88 (BEGIN BRIDGE) TO 16+11.13 (END BRIDGE)



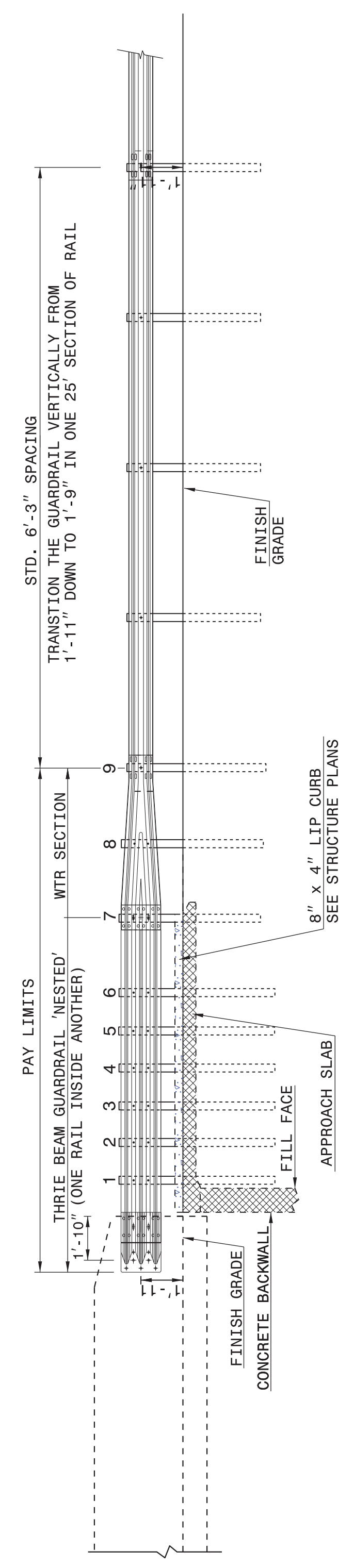
PARTIAL TYPICAL SECTION NO. 1A
USE PARTIAL TYPICAL SECTION NO. 1A
IN CONJUNCTION WITH TYPICAL
SECTION NO. 2 AS FOLLOWS:
-L- STA 16+22.00 TO -L- STA 16+43.00 LT

12/13/2016 10:00 AM B:\PROJECTS\17BP.8.RJ02\17BP.8.RJ02_2A-1.TYP.dgn

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

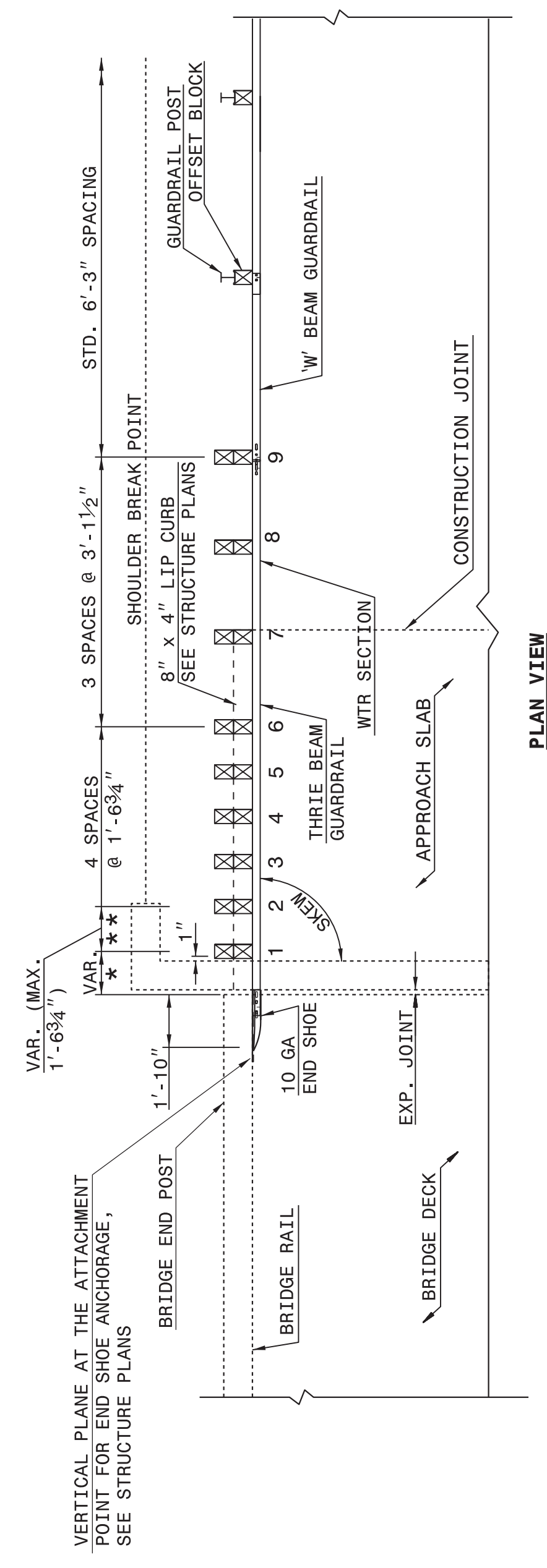
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03



ELEVATION

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 1'1/2". 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 5 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

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

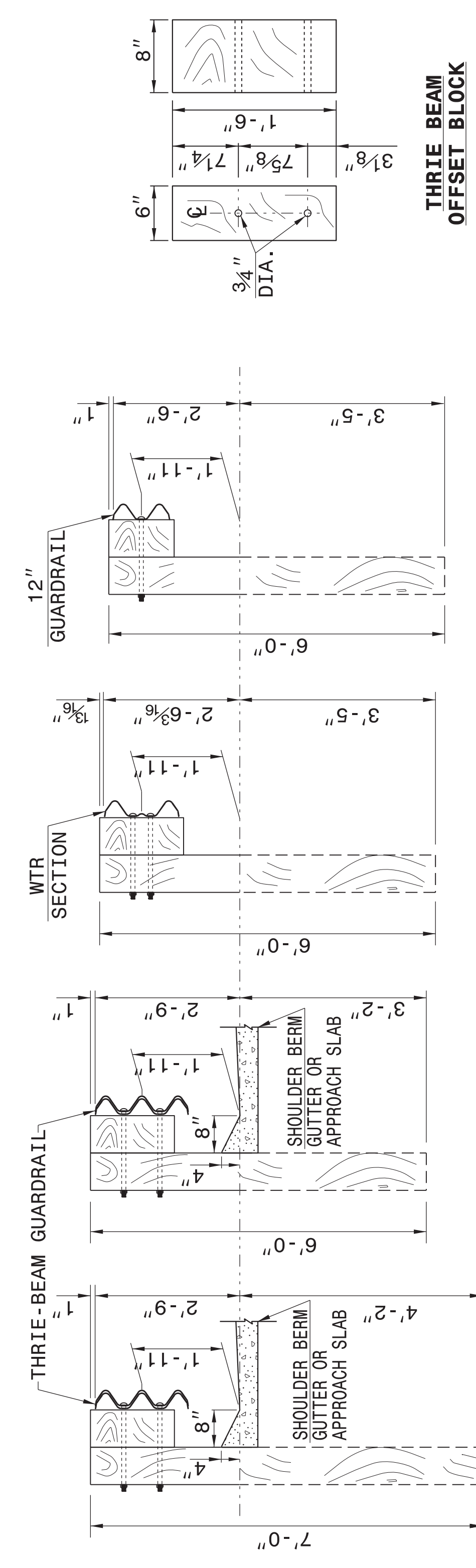
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

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

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 3 OF 7
862d03



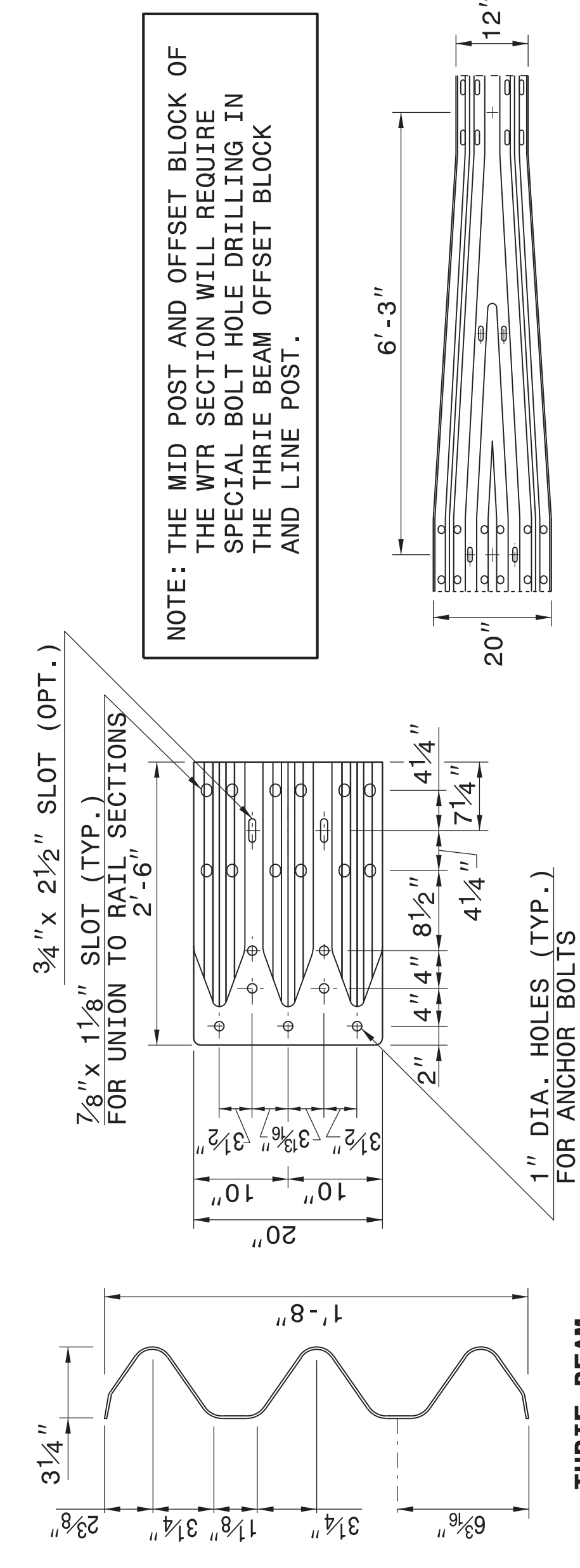
SECTION OF THRIE BEAM POSTS 1 THRU 6

SECTION OF THRIE BEAM POST 7

SECTION OF WTR BEAM POST 8

SECTION OF WTR BEAM POST 9

THRIE BEAM OFFSET BLOCK



THRIE-BEAM SECTION

END SHOE

WTR SECTION ELEVATION VIEW

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

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7
862d03

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

SEE TITLE BLOCK

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

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

SEAL 041473
ALEXANDER D. SWIDER

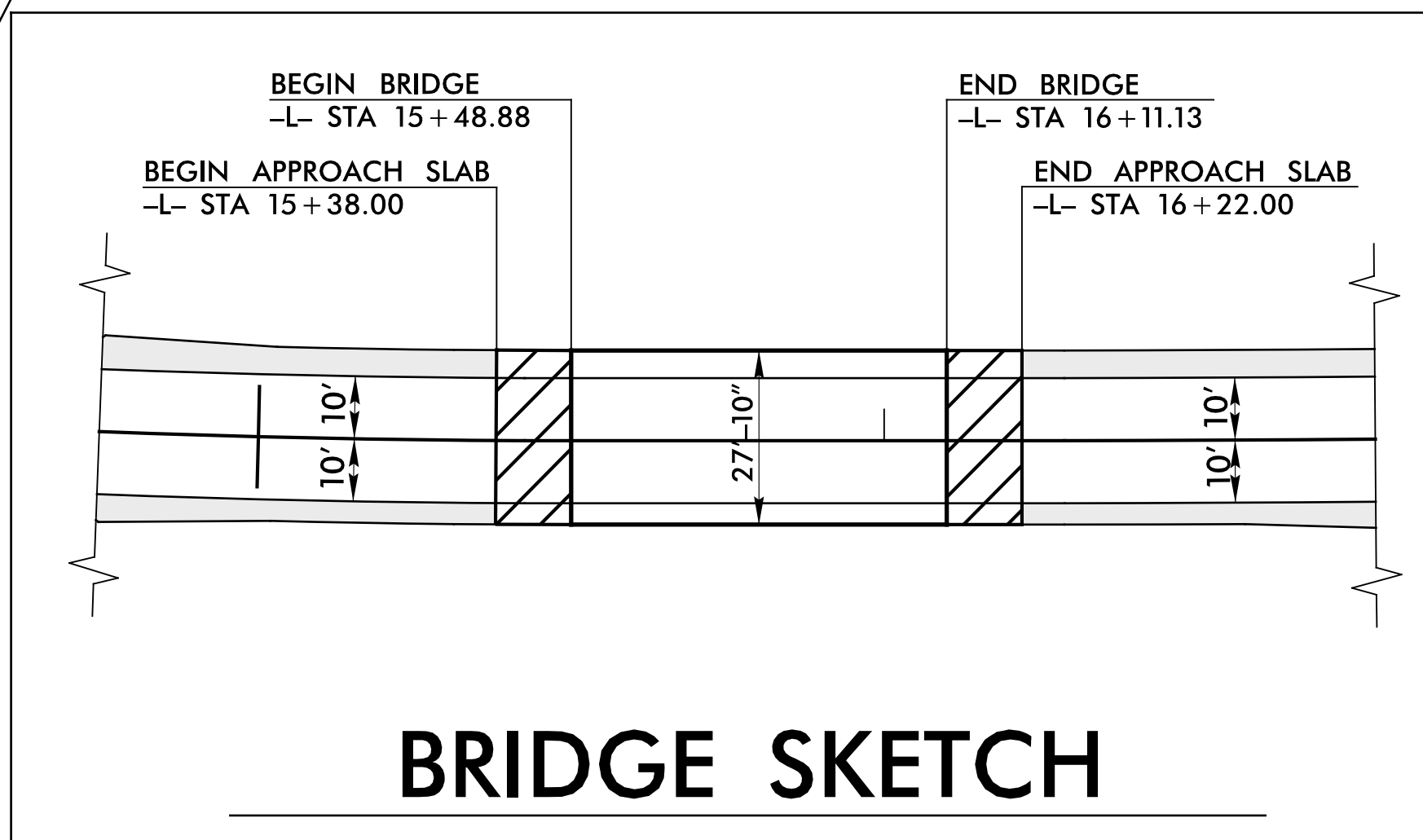
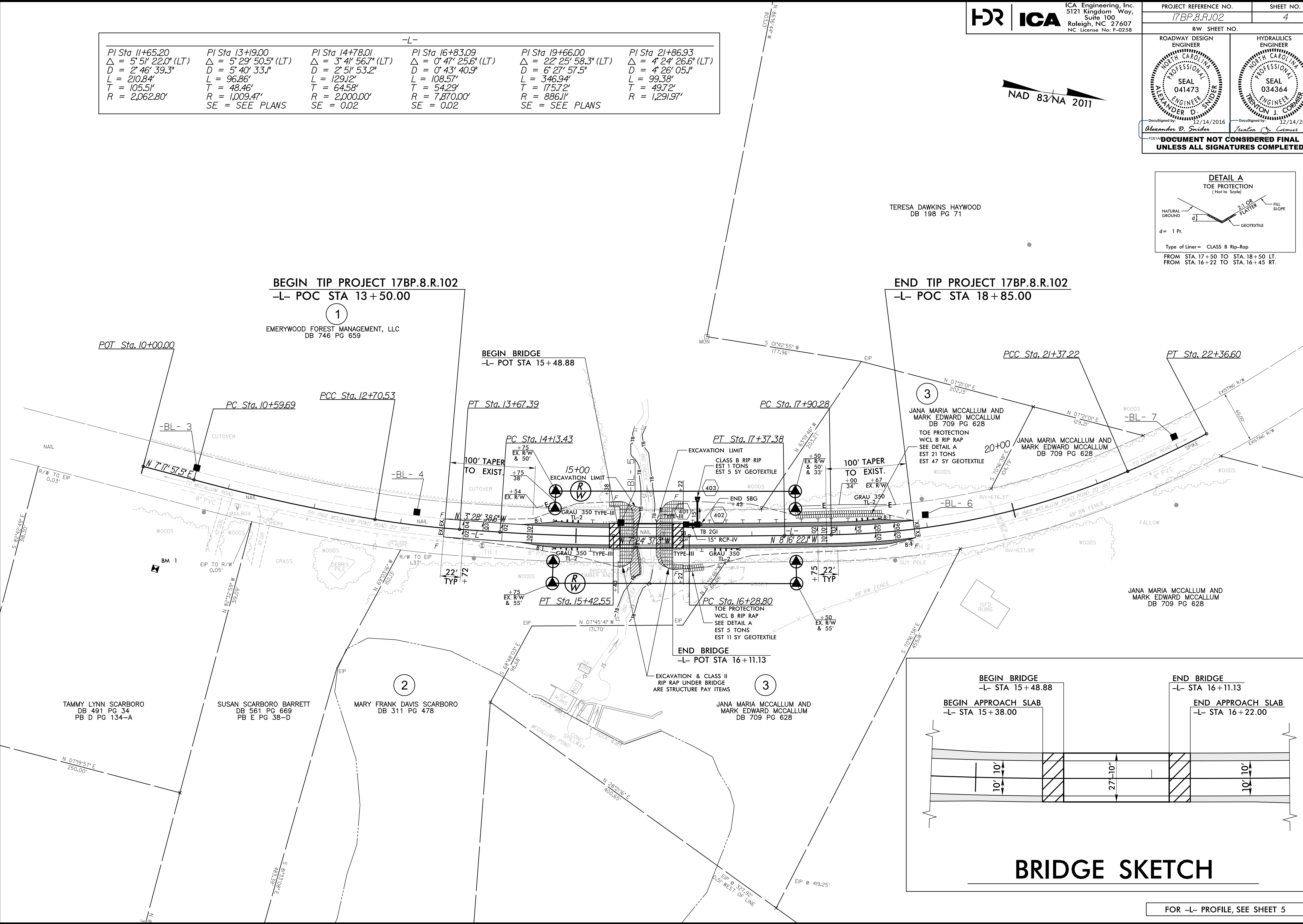
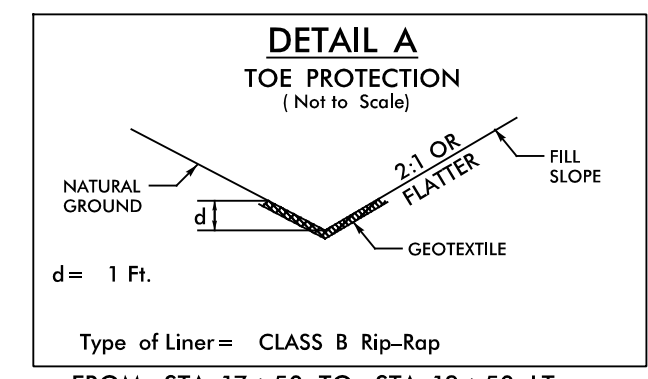
SEAL 034364
DEVON J. CORNER

DocuSigned by:
12/14/2016
Alexander D. Swider

DocuSigned by:
12/14/2016
Devon J. Corner

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

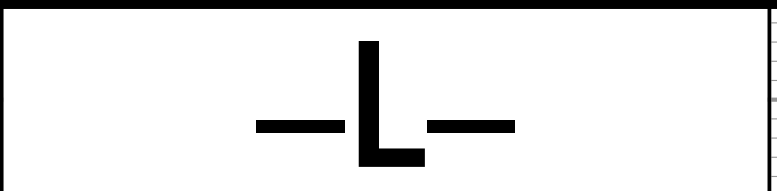
-L-					
PI Sta 11+65.20 Δ = 5° 51' 22.0" (LT) D = 2° 46' 39.3" L = 210.84' T = 105.51' R = 2,062.80'	PI Sta 13+19.00 Δ = 5° 29' 50.5" (LT) D = 5° 40' 33.1" L = 96.86' T = 48.46' R = 1,009.47' SE = SEE PLANS	PI Sta 14+78.01 Δ = 3° 41' 56.7" (LT) D = 2° 51' 53.2" L = 129.12' T = 64.58' R = 2,000.00' SE = 0.02	PI Sta 16+83.09 Δ = 0° 47' 25.6" (LT) D = 0° 43' 40.9" L = 108.57' T = 54.29' R = 7,870.00' SE = 0.02	PI Sta 19+66.00 Δ = 22° 25' 58.3" (LT) D = 6° 27' 57.5" L = 346.94' T = 175.72' R = 886.11' SE = SEE PLANS	PI Sta 21+86.93 Δ = 4° 24' 26.6" (LT) D = 4° 26' 05.1" L = 99.38' T = 49.72' R = 1,291.97'



FOR -L- PROFILE, SEE SHEET 5

8/17/19
12/14/2016
R:\18\2016\17BP.8.R.102\MONT224.RDY_PSH_04.dgn
ICA ENGINEERING, INC.

5/14/19



ICA Engineering, Inc.
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

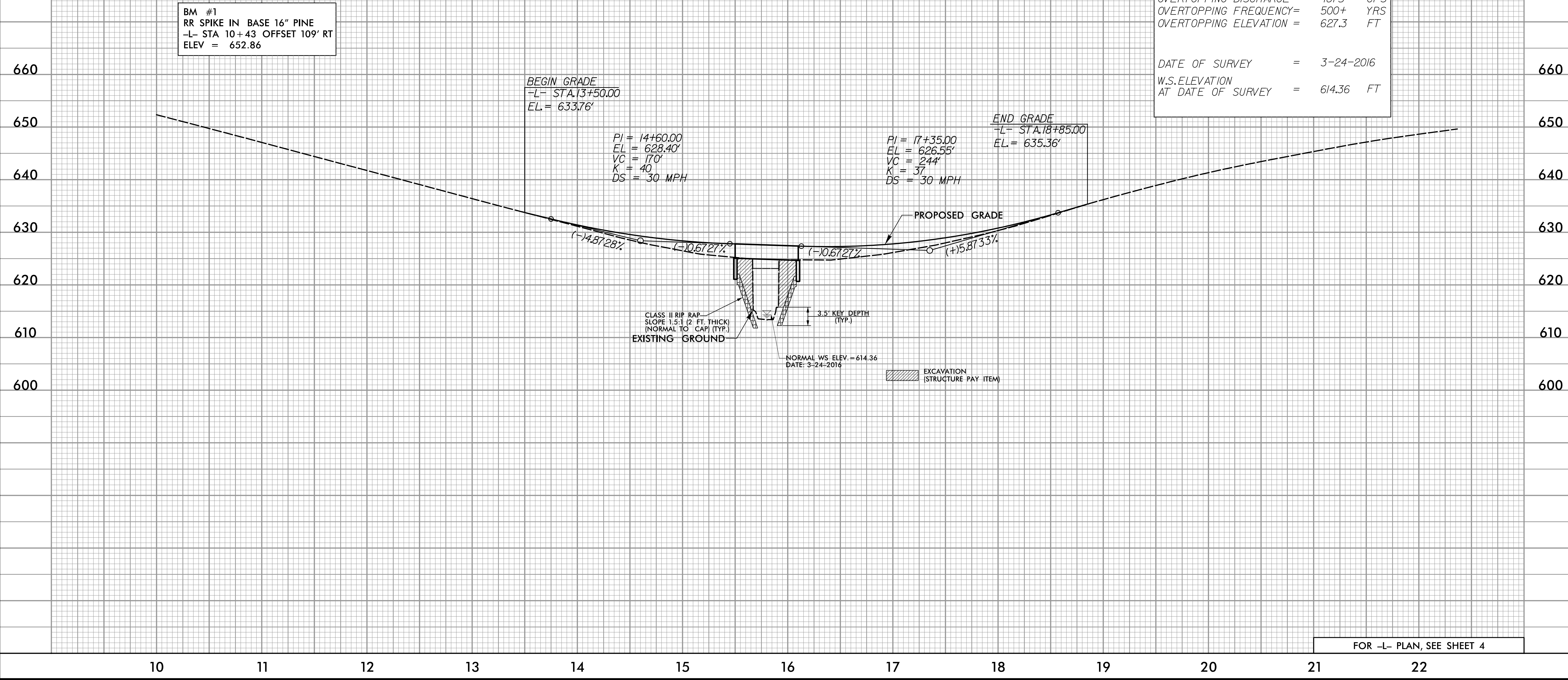
PROJECT REFERENCE NO. 17BP.B.R.102	SHEET NO. 5
ROADWAY DESIGN ENGINEER Alexander D. Snider	HYDRAULICS ENGINEER Devon J. Corbett
DocuSigned by: Alexander D. Snider 12/14/2016	DocuSigned by: Devon J. Corbett 12/14/2016

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

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	750	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	618.2	FT
BASE DISCHARGE	=	1100	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	618.88	FT
OVERTOPPING DISCHARGE	=	4875	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	627.3	FT

DATE OF SURVEY	=	3-24-2016
W.S. ELEVATION AT DATE OF SURVEY	=	614.36 FT

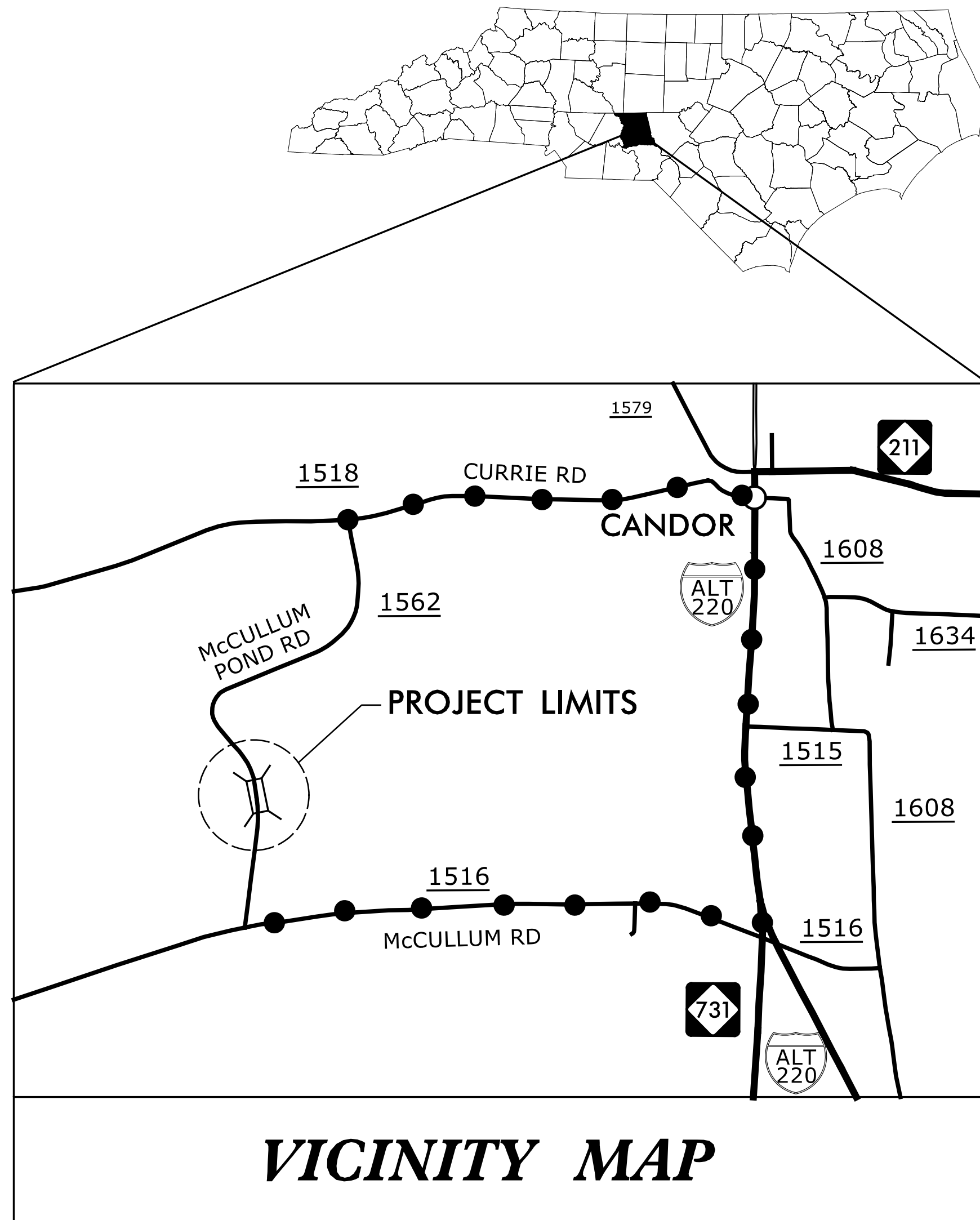


5/14/2016
C:\Users\pca\OneDrive\Projects\MONT224.RDY_PSH_05.dgn
ICA ENGINEERING, INC.

FOR -L- PLAN, SEE SHEET 4

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN
MONTGOMERY COUNTY



**LOCATION: BRIDGE 224 OVER BIG CREEK ON SR 1562
(McCULLUM POND RD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

INDEX OF SHEETS

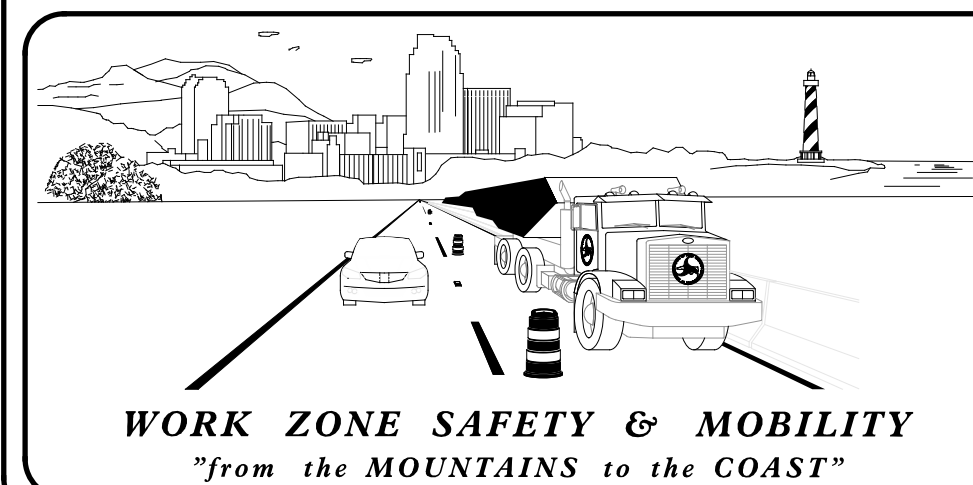
SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: MANAGEMENT STRATEGY, GENERAL NOTES AND PHASING
TMP-2	MCCULLUM POND RD. SIGN DESIGN
TMP-3	DETOUR FOR MCCULLUM POND RD.
TMP-4	ROAD CLOSURE SIGNS AND DETOUR SIGNS

SHEET NO.
TMP-1

17BP.8.R.102

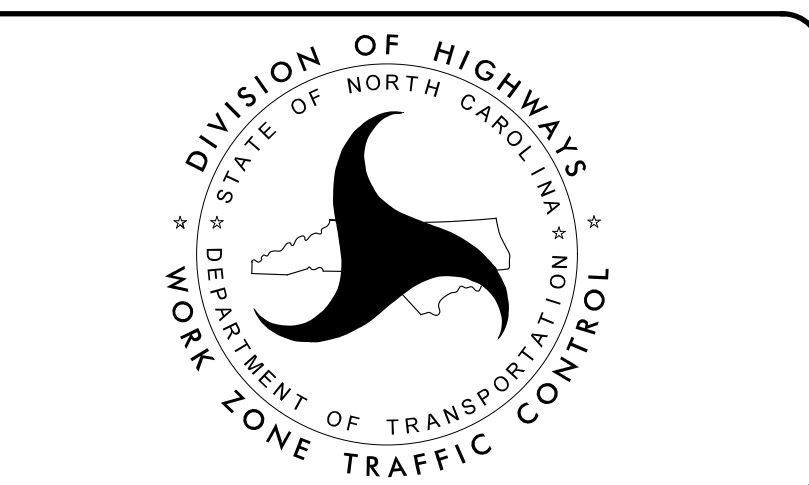
TIP PROJECT:

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



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. — STATE TRAFFIC MANAGEMENT ENGINEER
M. STEELMAN — TRAFFIC CONTROL PROJECT ENGINEER
M. T. RZEPKA, P.E. — TRAFFIC CONTROL PROJECT DESIGN ENGINEER
— TRAFFIC CONTROL DESIGN ENGINEER



ICA Engineering, Inc.
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

APPROVED: *Michael T. Rzepka*
019C3480C26049D...

DATE: 12/14/2016

SEAL

12/12/2016 P:\Lib\Projects\Div08\Mont-224\TrafficControl\TC\mont224_tmp_title.dgn ICA Engineering


ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

LEGEND

GENERAL

 NORTH ARROW


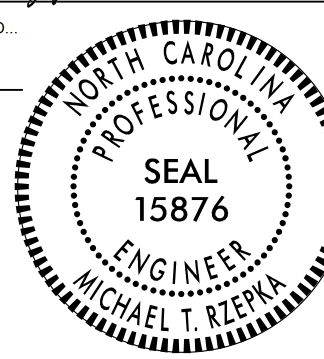
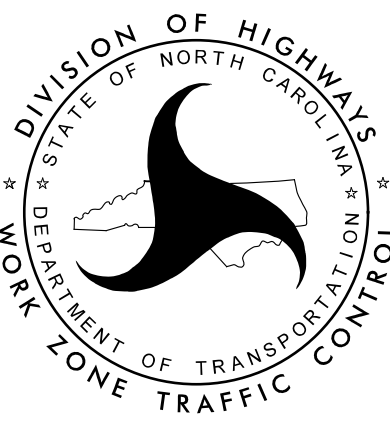
TRAFFIC CONTROL DEVICES

 BARRICADE (TYPE III)

TEMPORARY SIGNING

 STATIONARY SIGN

12/12/2016
 P:\LIBR\Projects\Div08\Mont-224\Traffic\TrafficControl\TCP\mont224_tmp_title.dgn
 ICA Engineering

APPROVED:  <small>DocuSigned by: Michael T. Rzepka 018C3480C28048D...</small> DATE: 12/14/2016 SEAL		 <p style="text-align: center;">ROADWAY STANDARD DRAWINGS & LEGEND</p>
<p style="text-align: center;">DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>		

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 UNDESIRE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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

TRAFFIC PATTERN ALTERATIONS

- A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

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

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

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

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

MANAGEMENT STRATEGY

THIS PROJECT CONSISTS OF REPLACING BRIDGE NO. 224 OVER BIG CREEK ON SR 1562 (MCCULLUM POND RD). DURING CONSTRUCTION, SR 1562 (MCCULLUM RD) WILL BE CLOSED AT THE CONSTRUCTION LIMITS AND TRAFFIC WILL BE PLACED ON AN OFF-SITE DETOUR ALONG CURRIE RD, US 220 ALT AND MCCULLUM RD.

SR 1562 (MCCULLUM POND RD) WILL BE REOPENED TO 2-LANE/2-WAY TRAFFIC UPON COMPLETION OF CONSTRUCTION.

PHASING

STEP 1

USING ROADWAY STANDARD DRAWING 1101.03 (SHEET 1 OF 9), INSTALL ROAD CLOSURE AND DETOUR SIGNS. CLOSE SR 1562 (MCCULLUM POND RD) AND DETOUR TRAFFIC.

STEP 2

REMOVE EXISTING BRIDGE.

STEP 3

CONSTRUCT PROPOSED STRUCTURE AND ROADWAY.

STEP 4

PLACE FINAL PAVEMENT MARKINGS AND MARKERS ON SR 1562 (MCCULLUM POND RD) AND OPEN ROAD TO TRAFFIC.

STEP 5

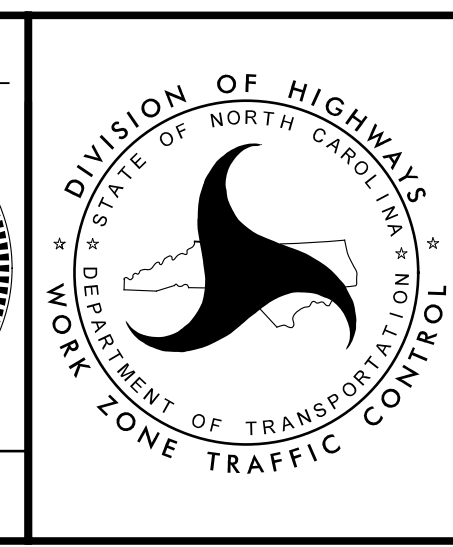
REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

12/12/2016 P:\LIBR\Projects\Div08\Mont-224\Traffic\TrafficControl\TC\mont224_tmp_file_ib.dgn ICA Engineering

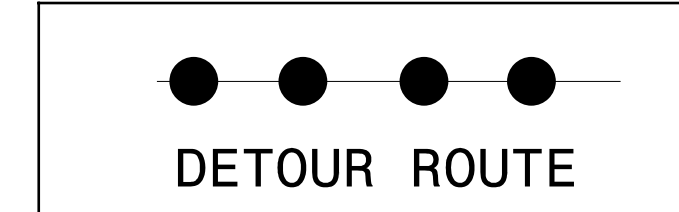
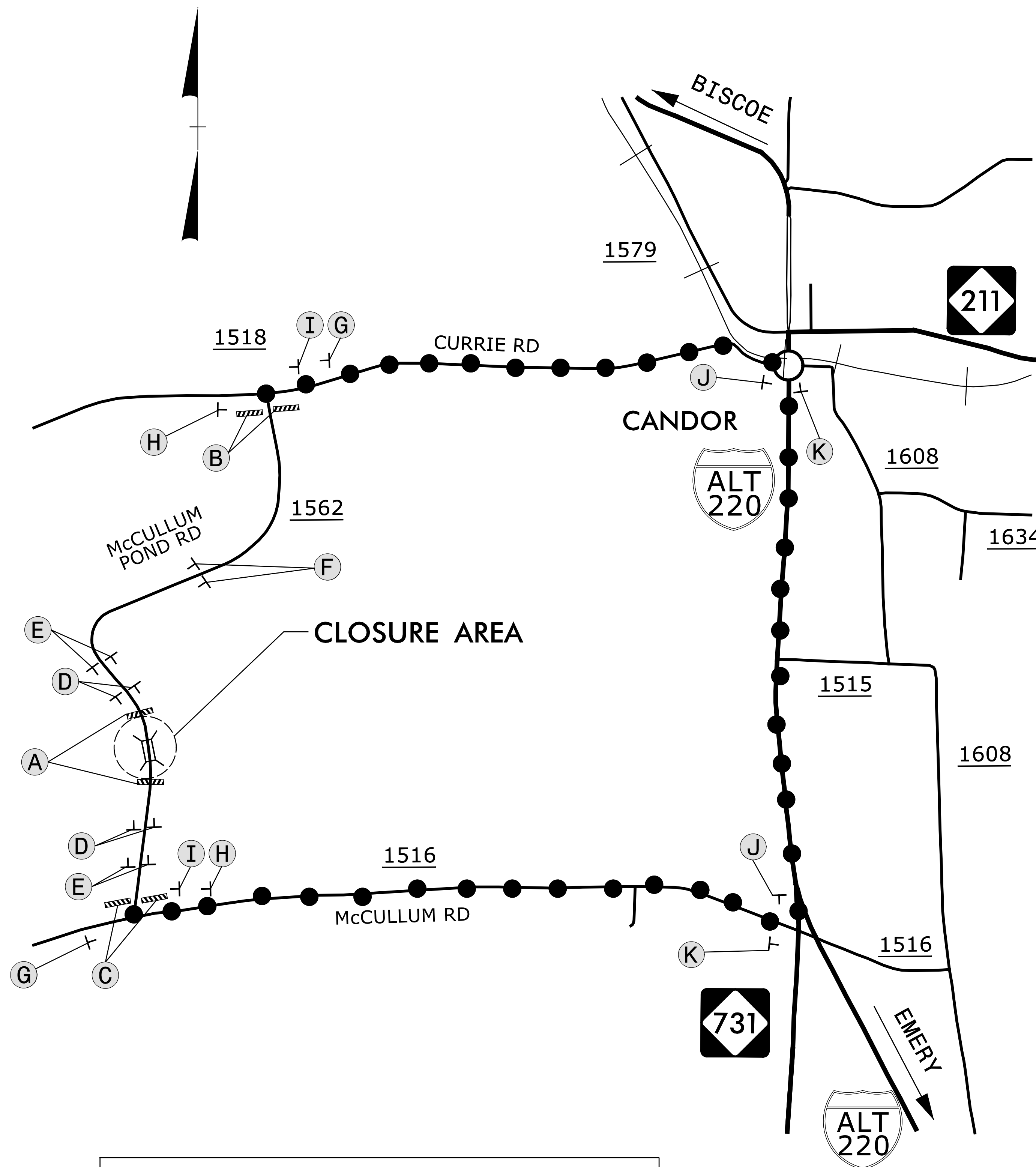
APPROVED: *Michael T. Ryepka*
DATE: 12/14/2016

SEAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TRANSPORTATION OPERATIONS PLAN



NOTES: SEE SHEET TMP-4 FOR ROAD CLOSURE SIGNS AND DETOUR SIGNS

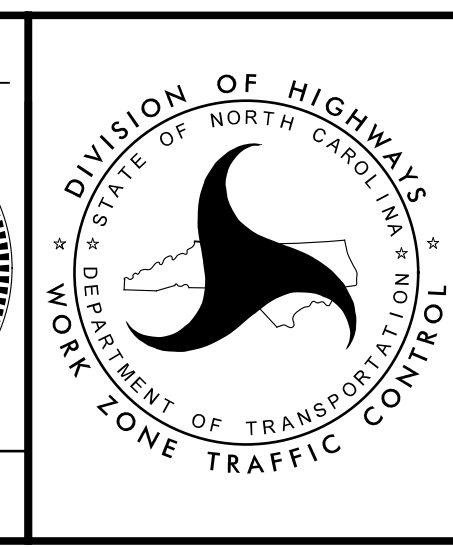
REFER TO RSD 1101.03 (SHEET 1 OF 9) FOR APPLICABLE NOTES

12/12/2016
 P:\LIBR\Projects\Div08\Mont-224\TrafficControl\TCP\mont224_tmp_detour-3.dgn
 ICA Engineering

APPROVED: *Michael T. Rzepka*
DocuSigned by:
Michael T. Rzepka
018C3480C26049D...

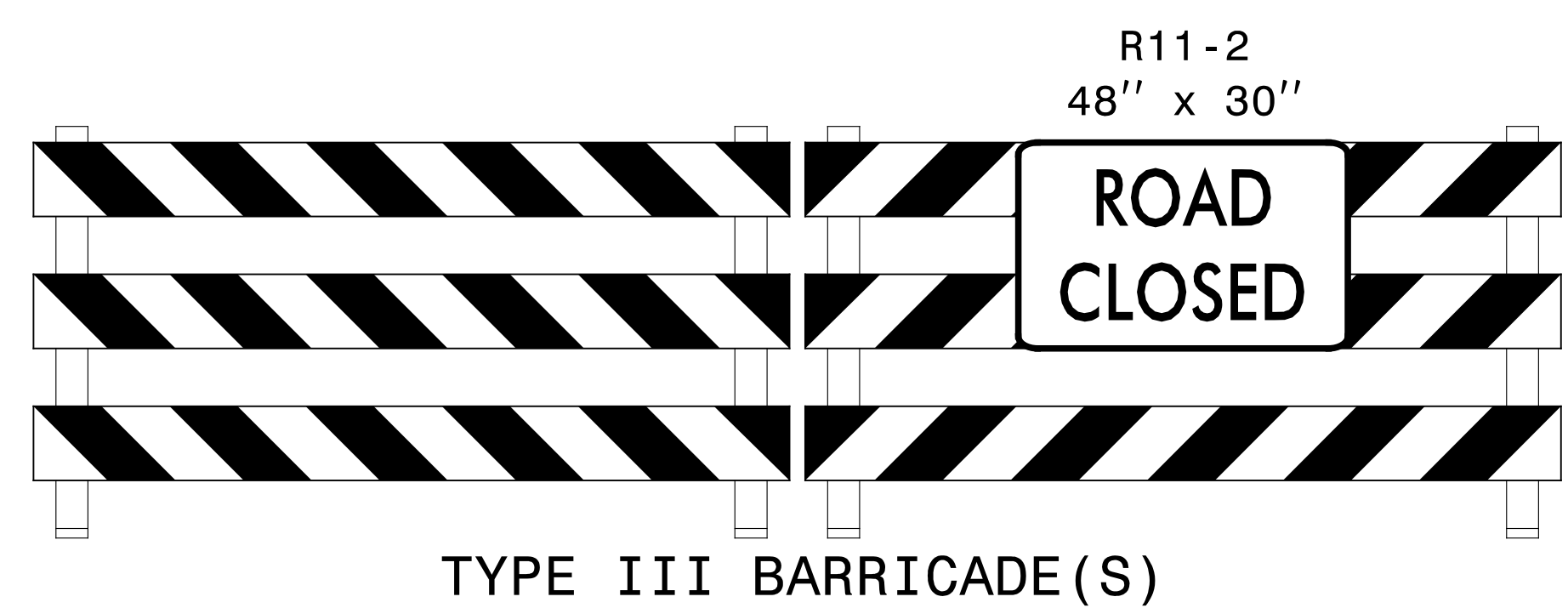
DATE: 12/14/2016

SEAL



**DETOUR FOR
 MCCULLUM POND RD.**

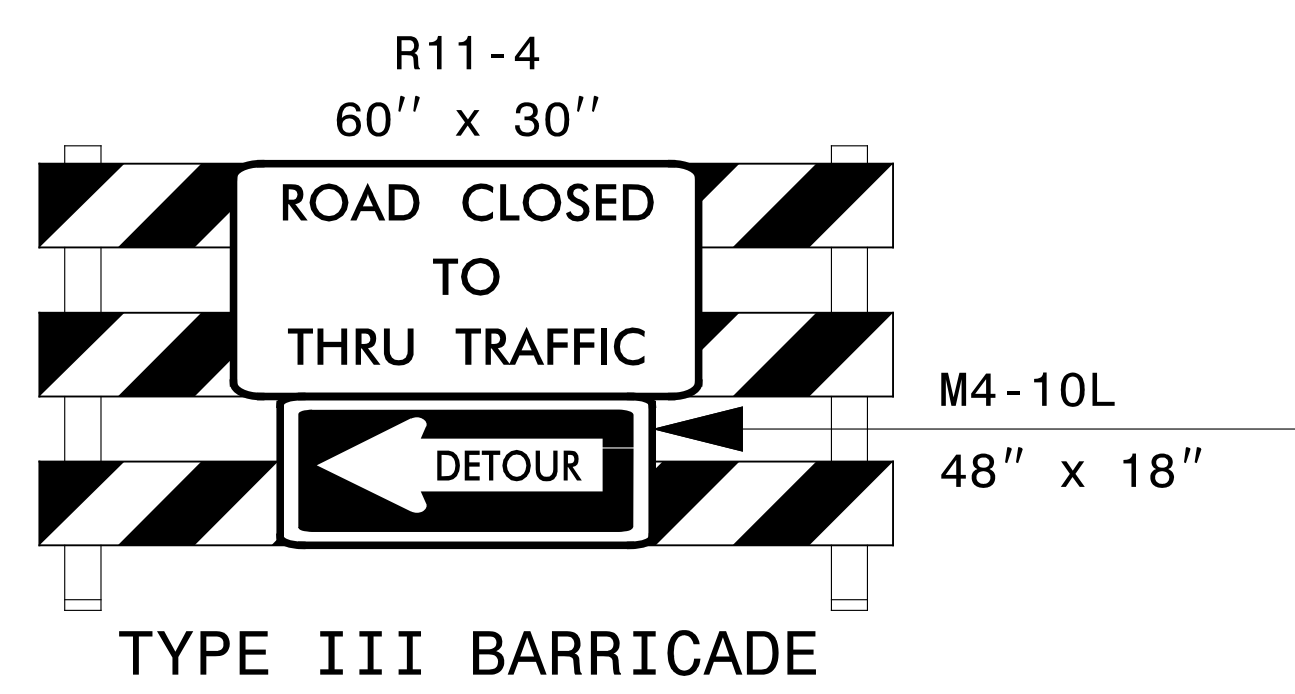
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



TYPE III BARRICADE(S)

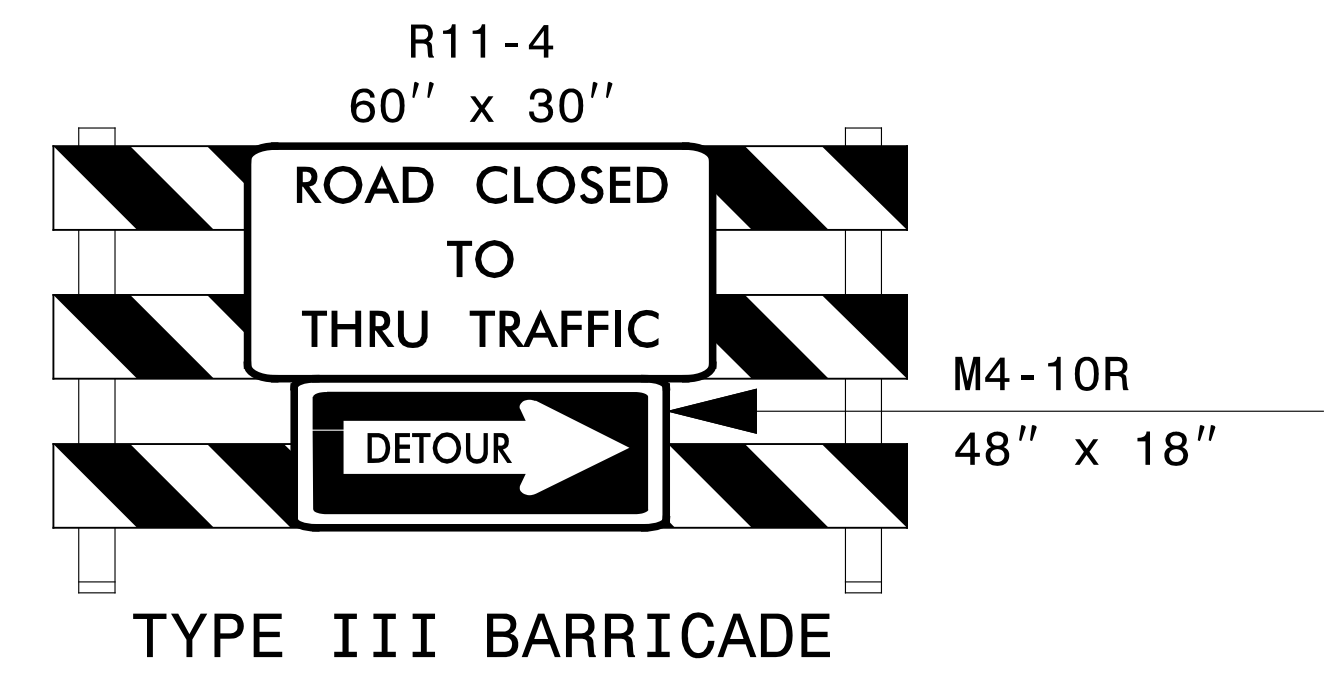
(A)

-L- STA 13+50±
-L- STA 20+50±



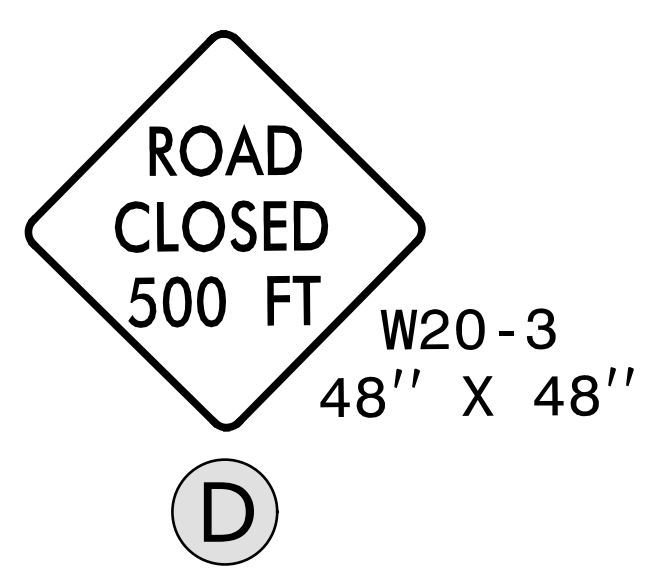
TYPE III BARRICADE

(B)

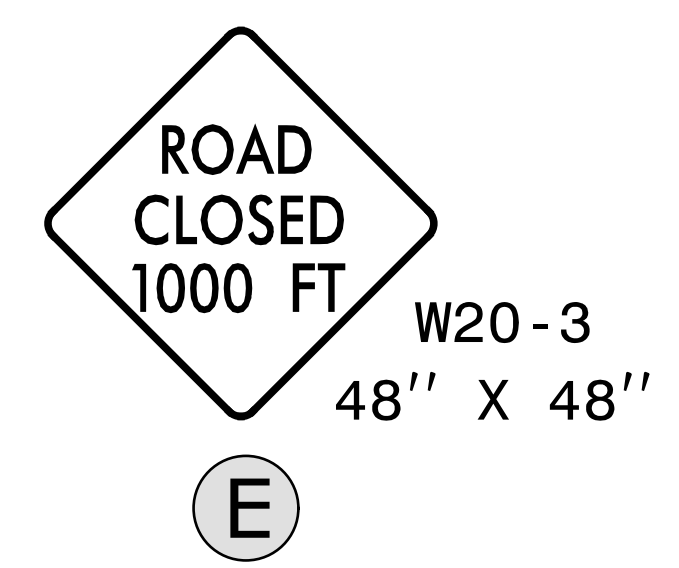


TYPE III BARRICADE

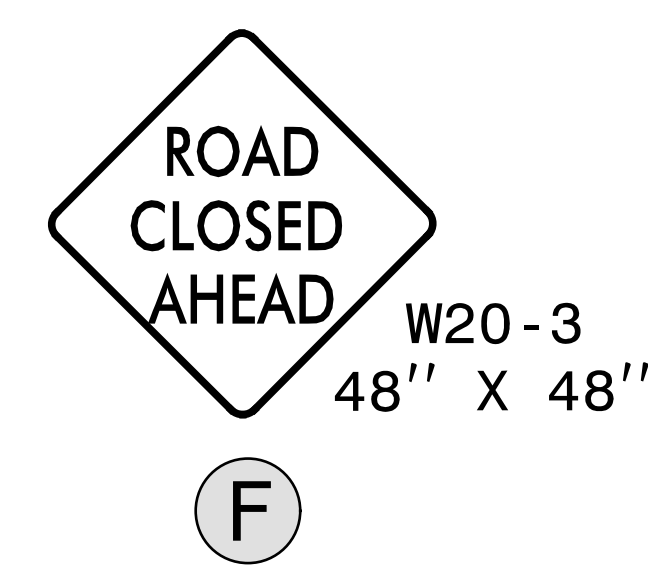
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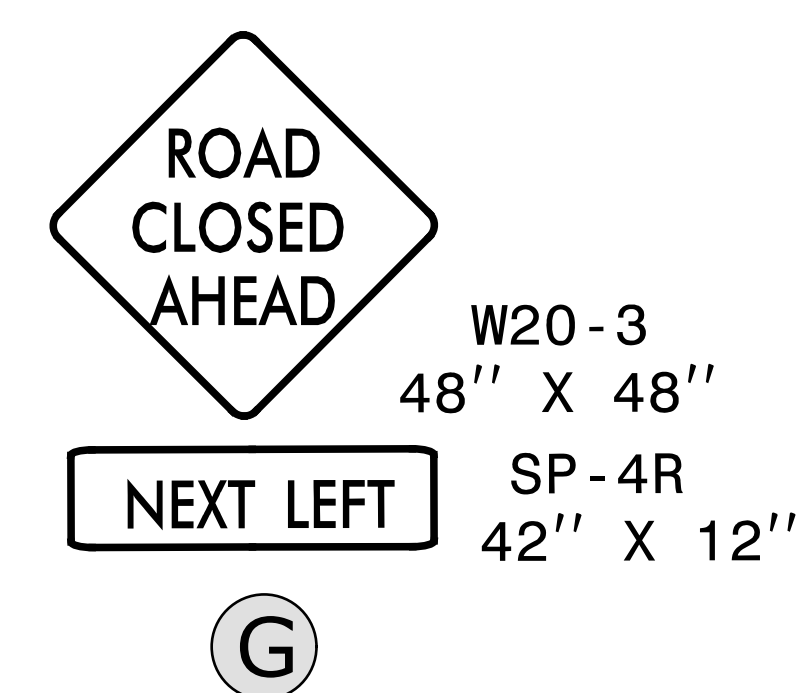
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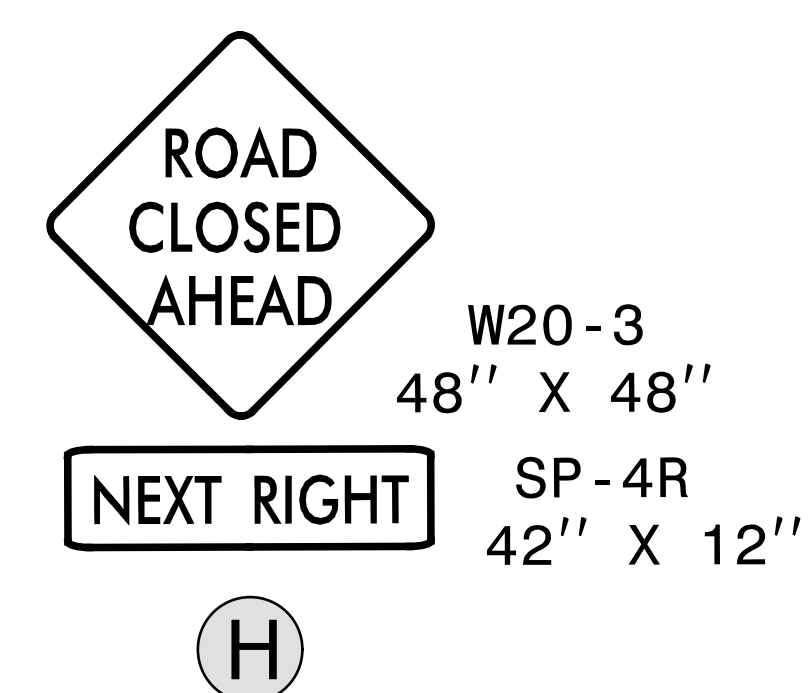
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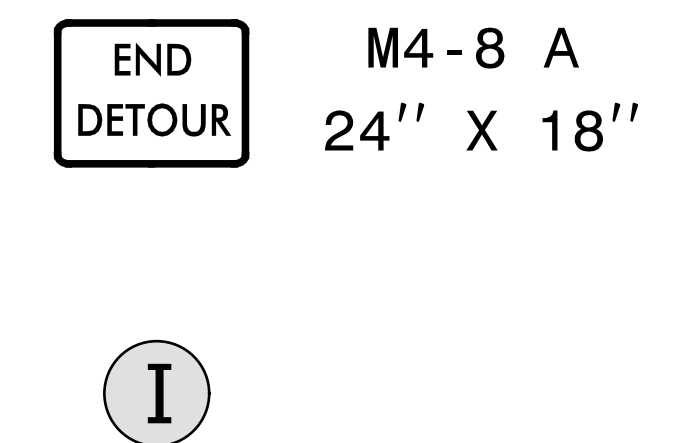
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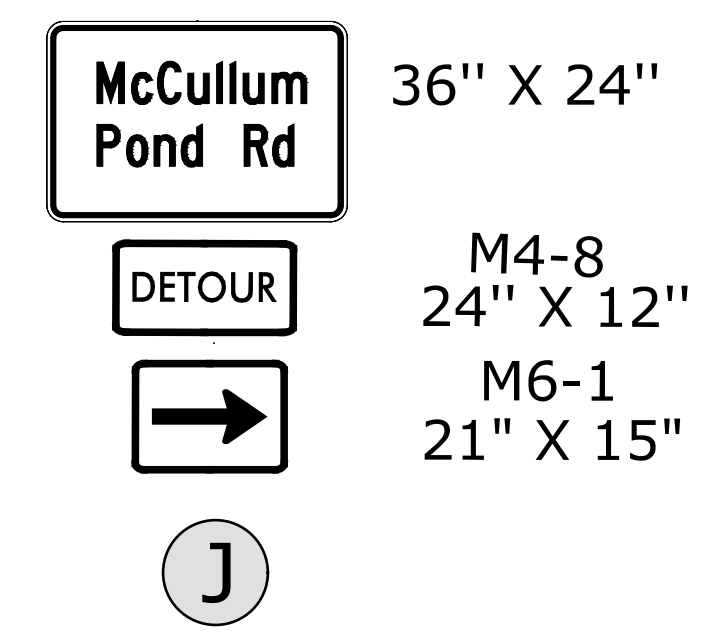
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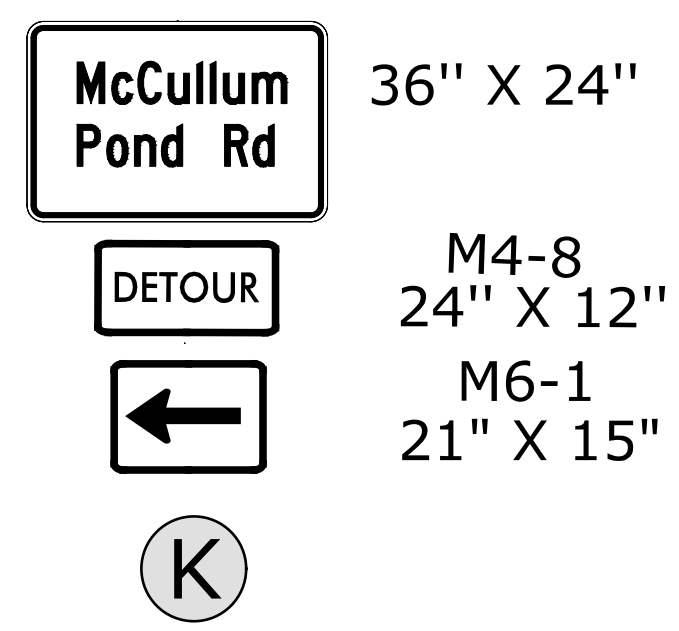
(H)



(I)



(J)



(K)

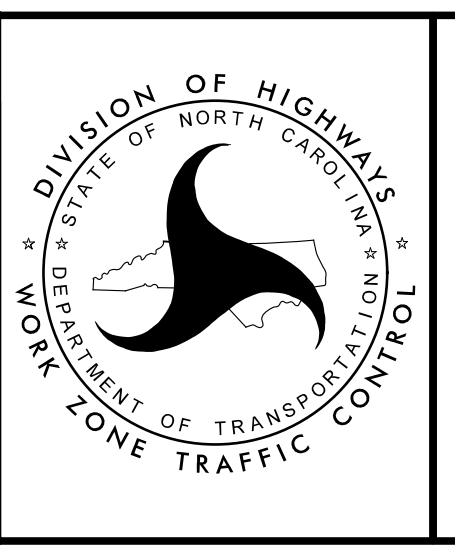
NOTE: SEE SHEET TMP-2 FOR
MCCULLUM POND RD
SIGN DESIGN

12/12/2016
P:\LIBR\Projects\Div08\Mont-224_TrafficControl\TC\mont224_tmp_detour-4.dgn
ICA Engineering

APPROVED: *Michael T. Rzepka*
DATE: 12/14/2016

SEAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



ROAD CLOSURE SIGNS
AND
DETOUR SIGNS

TIP PROJECT: 17BP.8.R.102

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

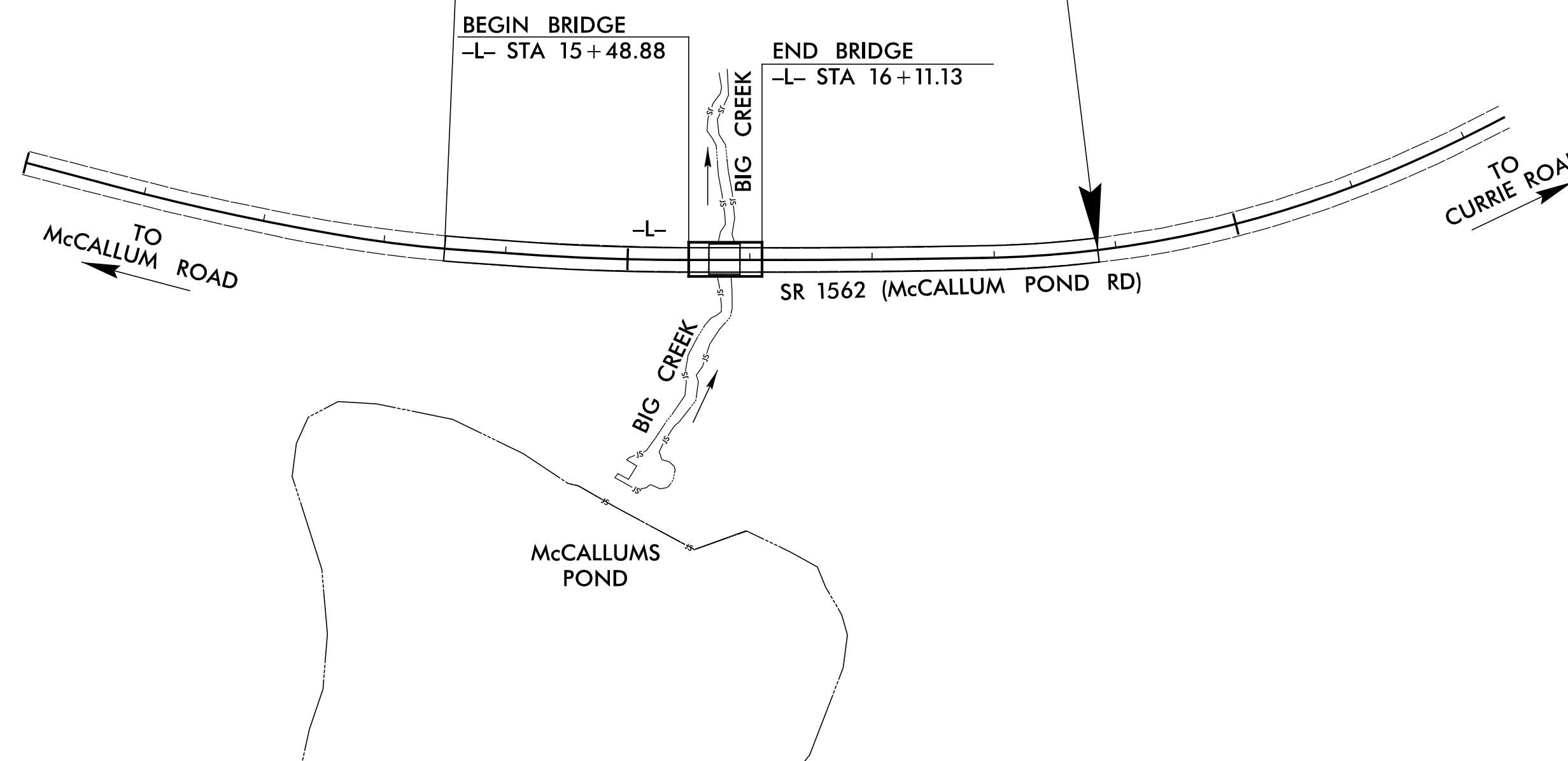


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.102	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

**BRIDGE 224 OVER BIG CREEK ON SR 1562
 (McCALLUM POND RD)**

BEGIN TIP PROJECT 17BP.8.R.102
 -L- POC STA 13+50.00

END TIP PROJECT 17BP.8.R.102
 -L- POC STA 18+85.00



TRENTON J. CORMIER, PE
 ROADSIDE ENVIRONMENTAL ENGINEER
 3377
 LEVEL III CERTIFICATION NUMBER

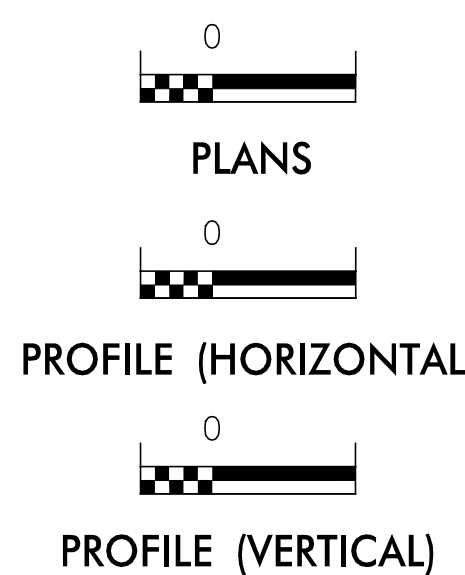
ALEXANDER D. SNIDER, PE
 ROADSIDE ENVIRONMENTAL PROJECT ENGINEER
 3064
 LEVEL III CERTIFICATION NUMBER

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	▲▲▲
1622.01	Temporary Berms and Slope Drains	—
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	—
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	—
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.**

GRAPHIC SCALE



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:



ICA Engineering, Inc.
 5121 Kingdom Way,
 Suite 100
 Raleigh, NC 27607
 NC License No: F-0258

Designed by:

TRENTON J. CORMIER, PE 3377
 NAME LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
 Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

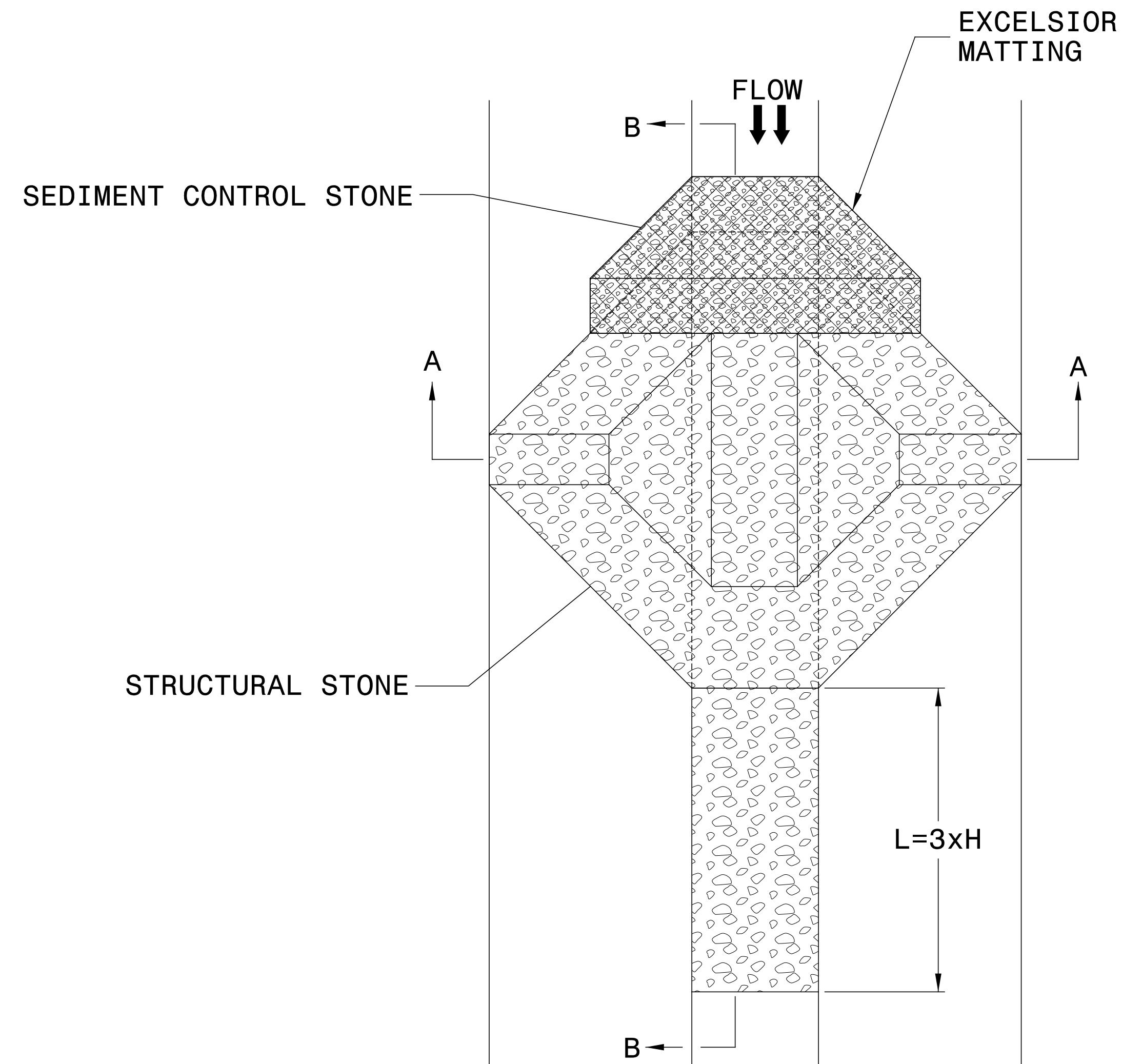
BARRY HARRINGTON, P.E.

Roadway Standard Drawings

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

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

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



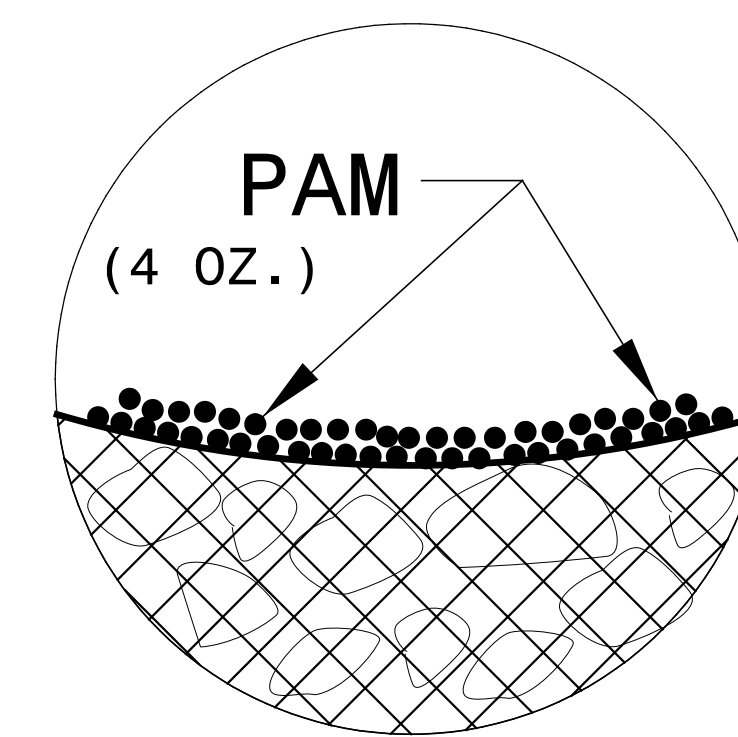
PLAN

NOTES

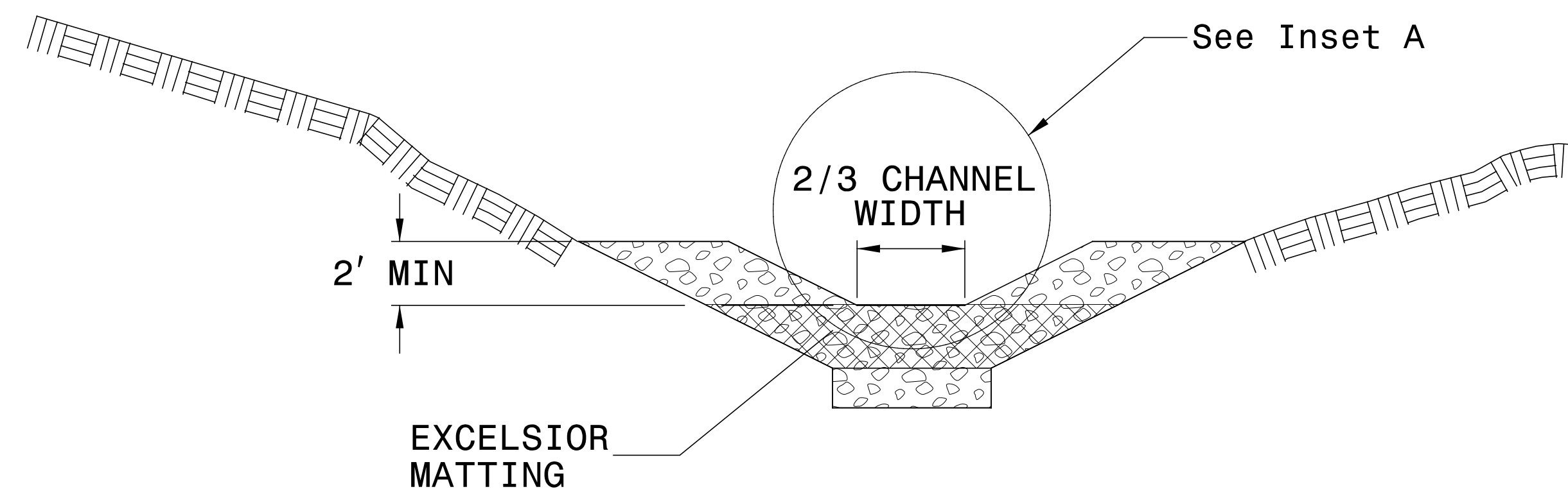
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

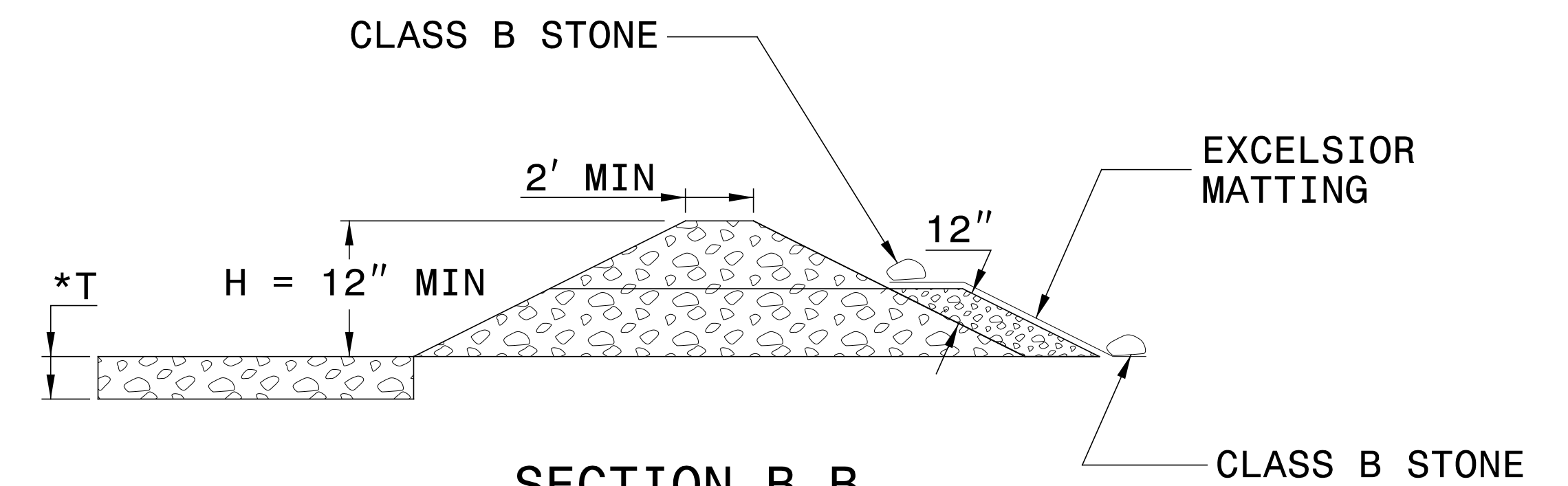
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

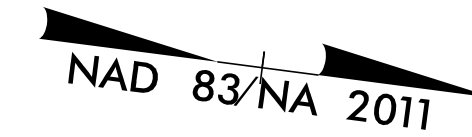
*T = 12" MIN., 18" MAX.

NOT TO SCALE

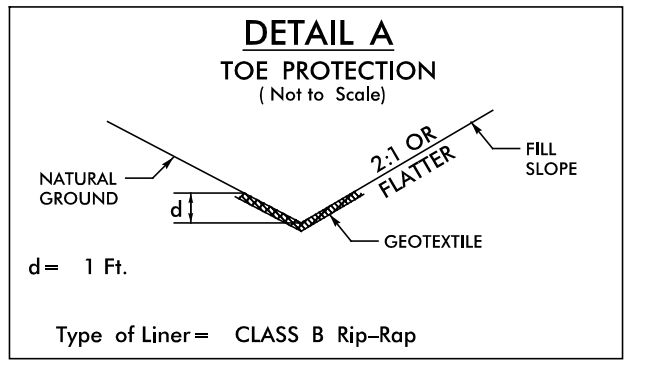
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.



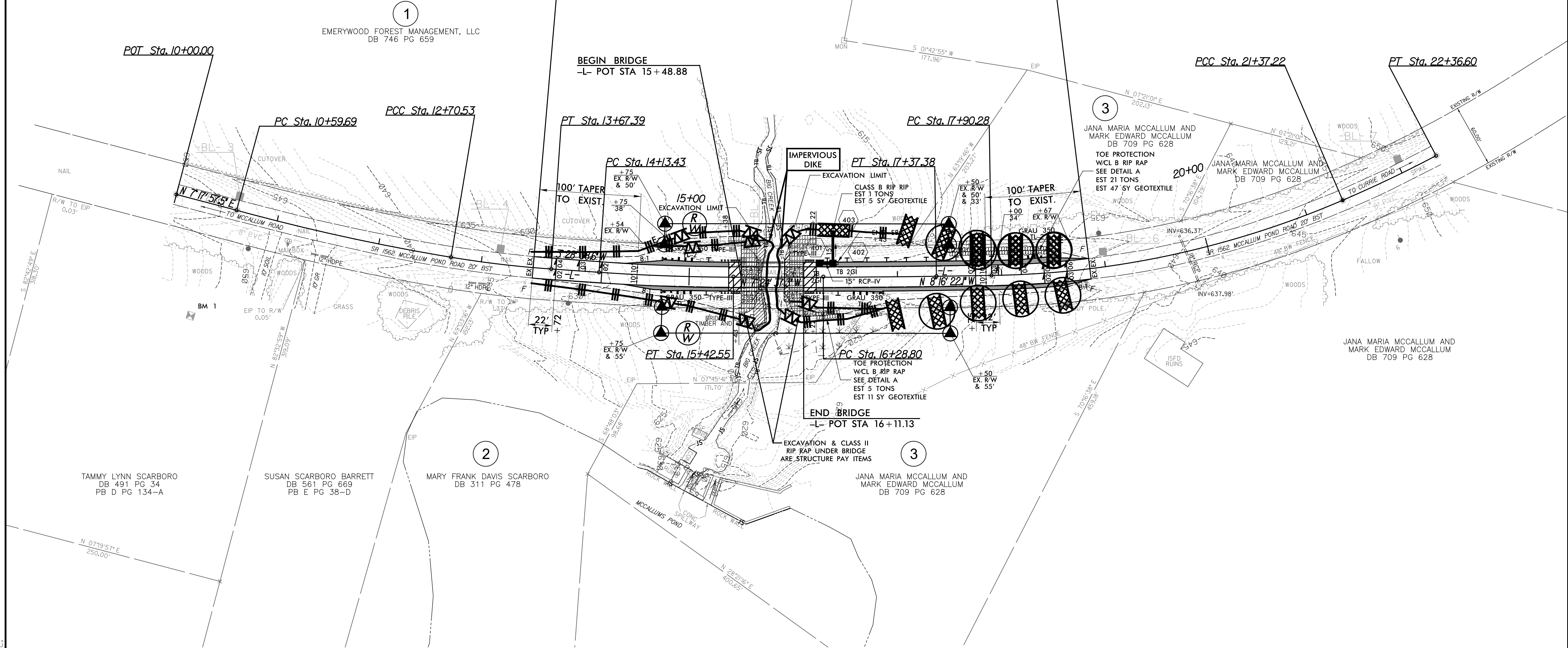
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



FROM STA. 17+50 TO STA. 18+50 LT.
FROM STA. 16+22 TO STA. 16+45 RT.

BEGIN TIP PROJECT 17BP.8.R.102
-L- POC STA 13+50.00

END TIP PROJECT 17BP.8.R.102
-L- POC STA 18+85.00



NOTE:
ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED
WITHIN EXISTING R/W OR EASEMENT.

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

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

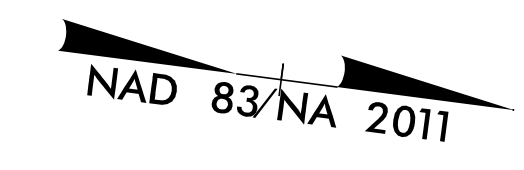
FOR -L- PROFILE, SEE SHEET 5

8/17/99
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ICA ENGINEERING, INC.

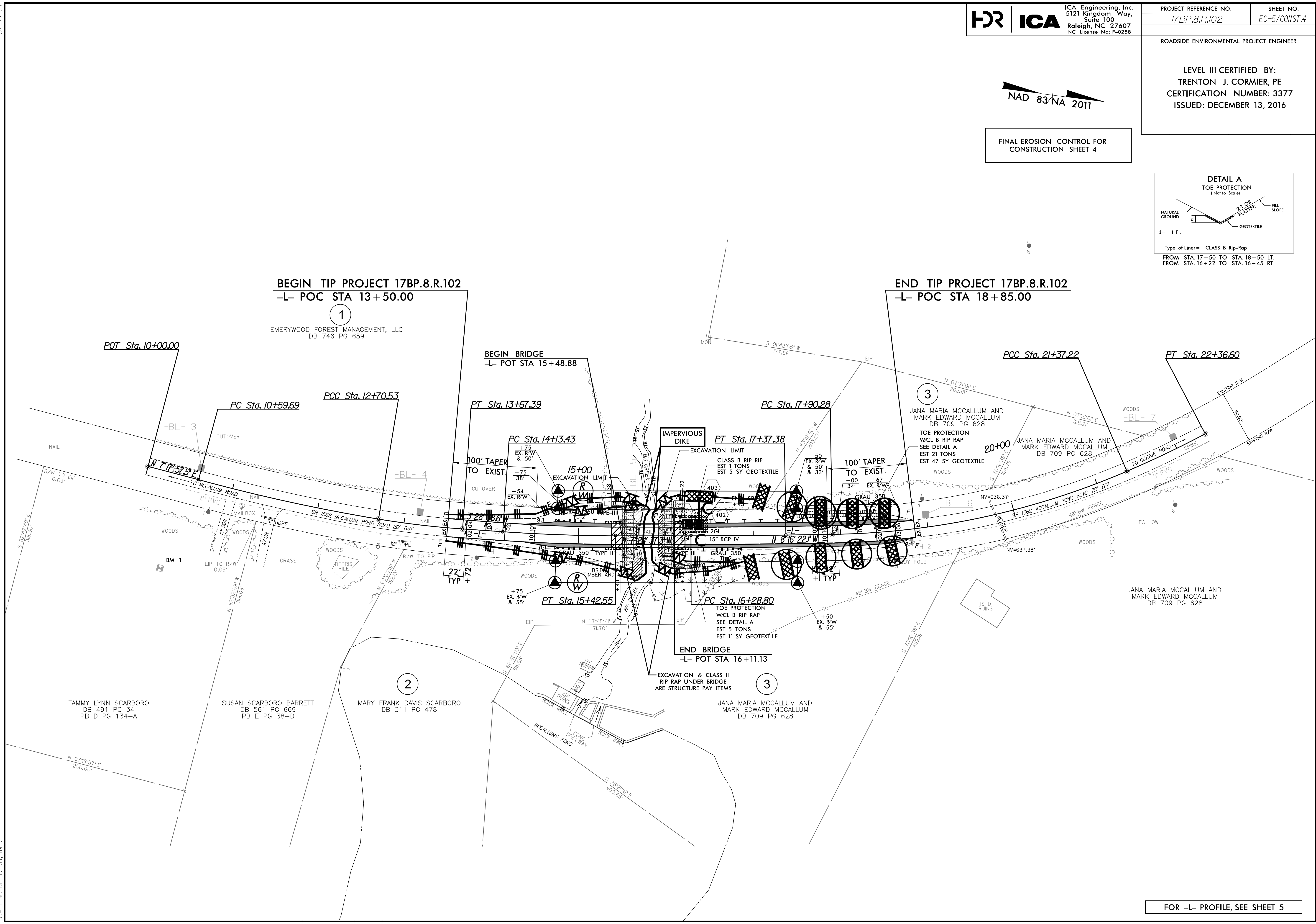
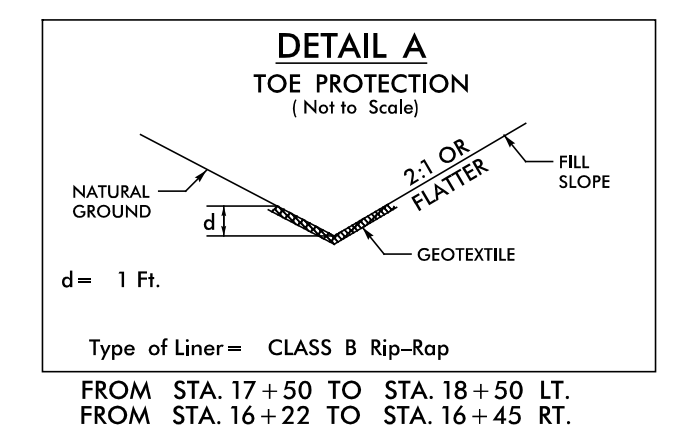
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ICA ENGINEERING, INC.

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
TRENTON J. CORMIER, PE
CERTIFICATION NUMBER: 3377
ISSUED: DECEMBER 13, 2016



FINAL EROSION CONTROL FOR
CONSTRUCTION SHEET 4



FOR -L- PROFILE, SEE SHEET 5

09/08/99

TIP PROJECT: 17BP.8.R.102

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

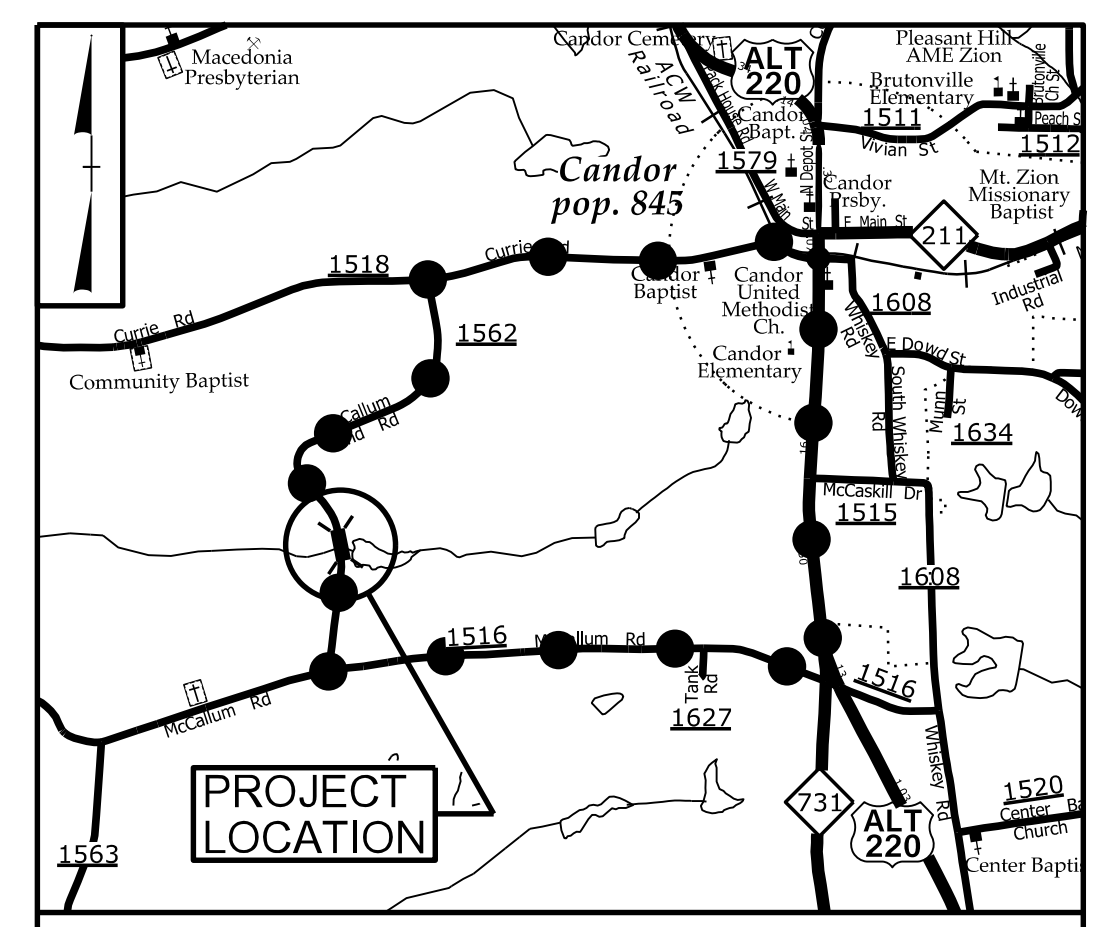
T.I.P. NO.	SHEET NO.
17BP.8.R.102	UC-1

610224

MONTGOMERY COUNTY

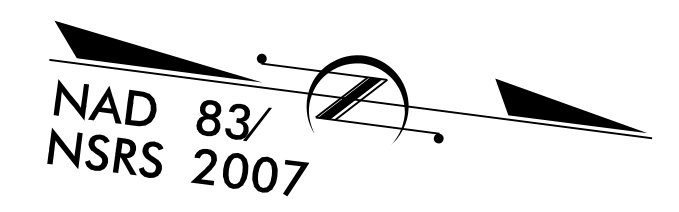
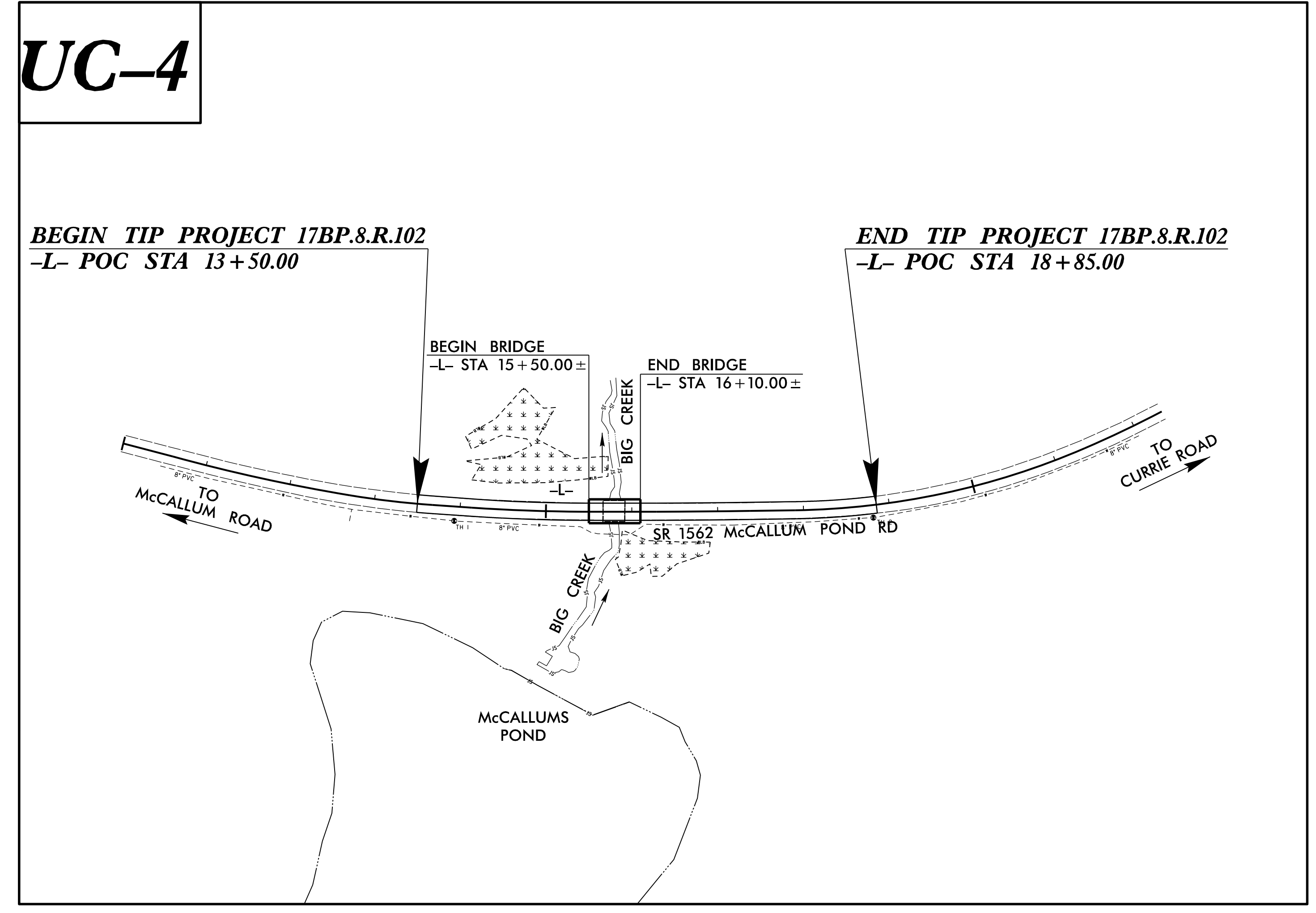
LOCATION: BRIDGE 224 OVER BIG CREEK ON SR 1562
(McCALLUM POND RD)

TYPE OF WORK: WATER LINE RELOCATION

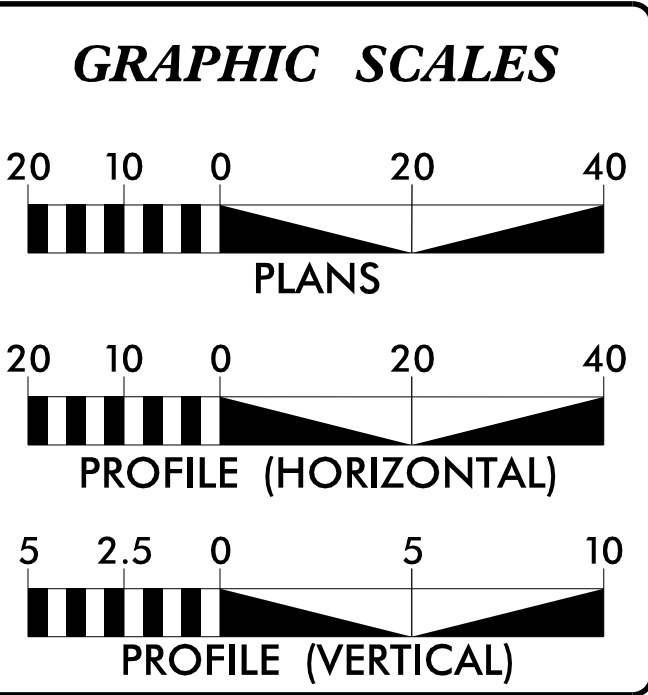


VICINITY MAP

OFF-SITE DETOUR



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	DETAILS
UC-4	UTILITY CONSTRUCTION SHEET
UC-5	PROFILE SHEET

WATER AND SEWER OWNERS ON PROJECT

(A) WATER: MONTGOMERY CO.

PREPARED IN THE OFFICE OF

CH ENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

ERIC M. TWEED, P.E. CONSULTANT CONTACT #1
 BRIAN WILES, P.E. CONSULTANT CONTACT #2

SEAL

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

Steve McKee UTILITIES REGIONAL ENGINEER
 Roger Worthington UTILITIES ENGINEER
 Ed Reams UTILITIES AREA COORDINATOR

DATE: 11/18/2016
FILE: 17BP.8.R.102_UC-1.dwg
USER: ETWEED

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

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

PROPOSED SEWER SYMBOLS

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

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

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

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

EXISTING UTILITIES SYMBOLS

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

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

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5/14/99



3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.	SHEET NO.
17BP.B.R.102	UC-3
DESIGNED BY: EMT	
DRAWN BY: EMT	
CHECKED BY:	
APPROVED BY:	
REVISED:	10/28/2016
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4151	

PROJECT TYPICAL DETAILS

1. PROPOSED WATER LINE FROM WATER LINE STATION 51+61 TO STATION 52+26 AND FROM 54+26 TO 54+65 SHALL BE D.I.R.J. (DUCTILE IRON RESTRAINED JOINT) PIPE.

2. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

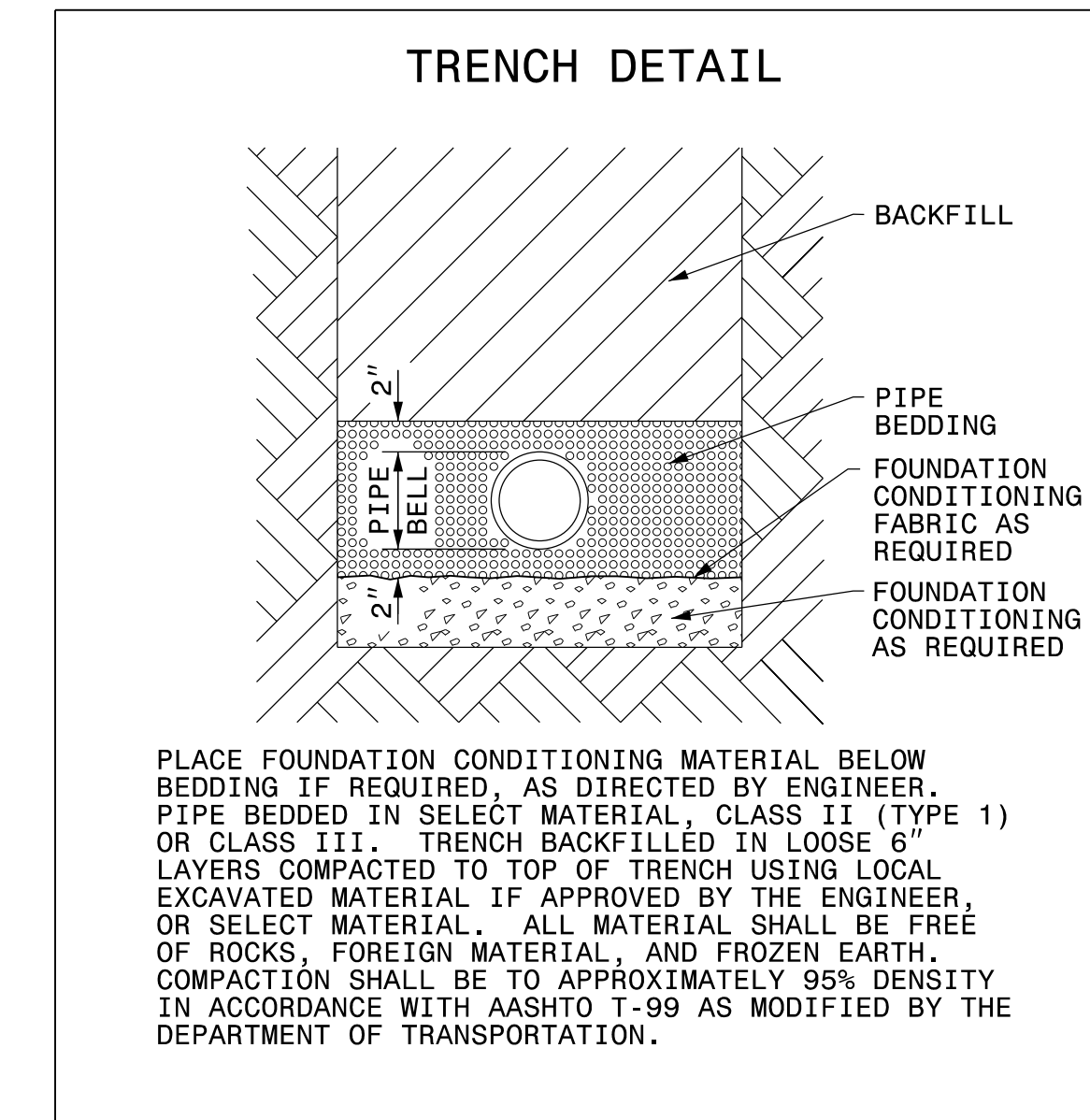
3. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

4. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL. IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION.

5. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

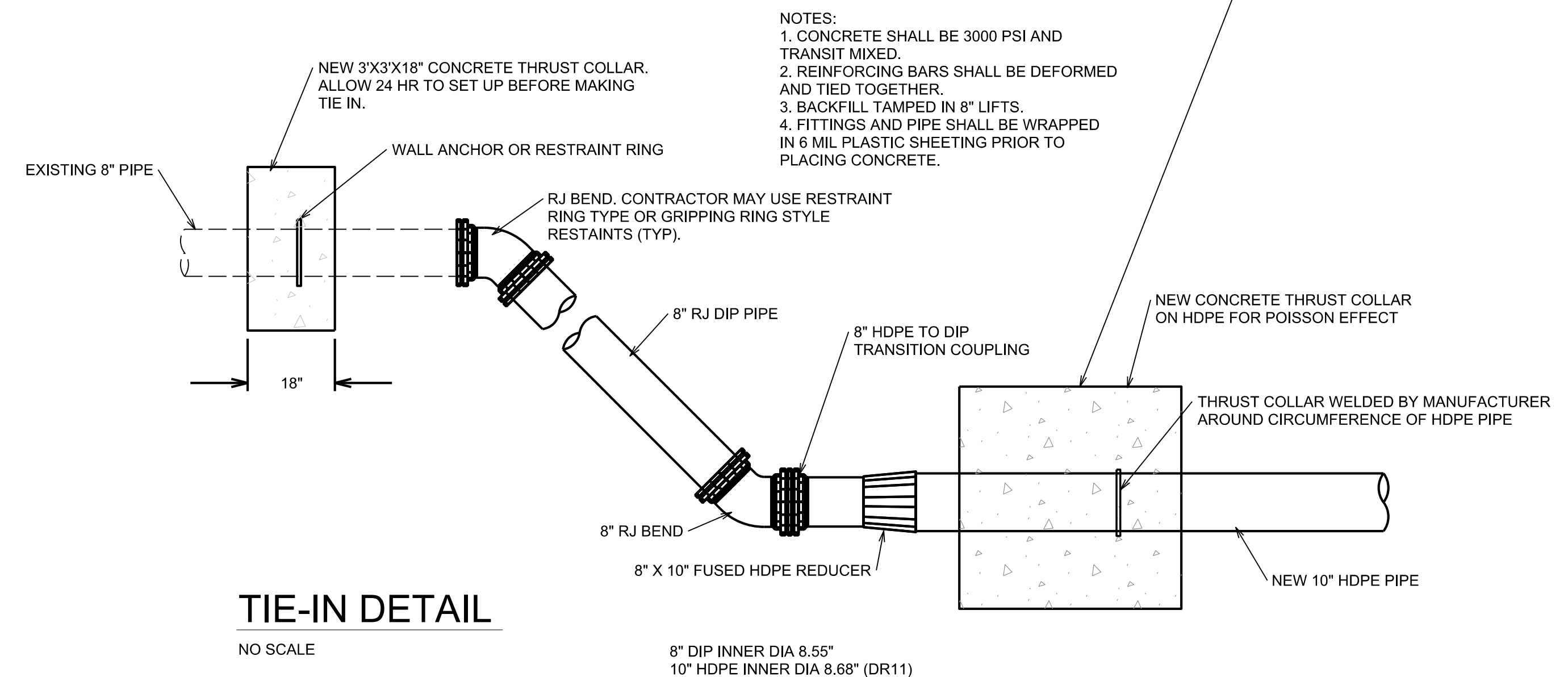
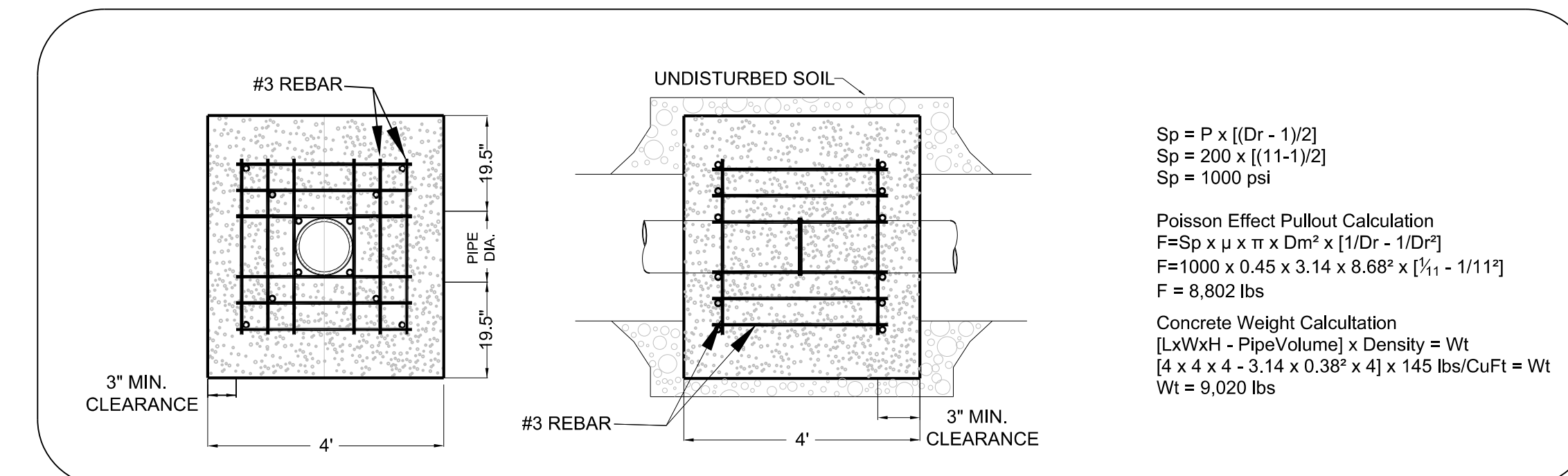
UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTES:

- CONTRACTOR TO TAKE CARE TO ENSURE INTEGRITY OF EXISTING PIPE PRIOR TO CONNECTION OF PROPOSED MODIFICATION.
- CONTRACTOR MUST LOCATE ALL UNDERGROUND UTILITIES BEFORE COMMENCING WORK. IF ANY DISCREPANCIES FOUND ON PLANS CONTRACTOR MUST NOTIFY COUNTY AND ENGINEER.
- THE CONTRACTOR SHALL COORDINATE ISOLATION OF THE EXISTING WATER MAIN FOR TIE-INS WITH MONTGOMERY COUNTY. CALL RONNIE CRUMP (910) 220-1778.
- FLUSH PROPOSED MAIN AT 2.5 FPS VELOCITY AND PRESSURE TEST NEW MAIN AT MINIMUM 200 PSI FOR 2 HOURS PER NCDOT SPECIFICATIONS.
- CONTRACTOR SHALL NOTIFY AND PROVIDE PROPER DOCUMENTATION TO THE UTILITY ENGINEER OF RECORD AND OWNER OF SATISFACTORY PRESSURE TEST AND BACTERALOGICAL SAMPLING. UPON MONTGOMERY COUNTY RECEIVING FINAL APPROVAL FROM THE PWSS, THE CONTRACTOR MAY PLACE THE NEW LINE IN SERVICE BY COORDINATING AND EXECUTING THE TIE-INS. MAKE TIE-INS BY ABANDONING EXISTING MAIN AND CONNECTING RESTRAINED JOINT BEND WITH CONCRETE THRUST BLOCK PER DETAIL. CONCRETE SHALL BE POURED A MINIMUM 24 HOURS BEFORE MAKING CONNECTION.
- CONTRACTOR SHALL INSTALL, PRESSURE TEST, AND DISINFECT AS MUCH NEW LINE AS PHISICALLY POSSIBLE BEFORE EXECUTING TIE-INS. PRIOR APPROVAL FROM THE ENGINEER & MONTGOMERY COUNTY IS REQUIRED IF MORE THAN 5 FEET OF PIPE. PIPE AND FITTINGS REQUIRE VISUAL LEAK TESTING AND DISINFECTION BY SWABBING.
- TRANSITION FITTING TO BE RATED AT 350 PSI. CONTRACTOR TO PROVIDE DIP TO PVC TRANSITION FITTING SPEC SHEET TO MONTGOMERY COUNTY FOR APPROVAL PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL RESTRAIN FITTINGS AND PIPE.
- COVER OVER PIPE AT STREAM CROSSING SHALL BE 5' MIN BELOW STREAM BOTTOM TO TOP OF PIPE.
- AN NCDOT OR MONTGOMERY COUNTY REPRESENTATIVE SHALL BE PRESENT FOR ALL TESTS.
- CONTRACTOR SHALL COORDINATE WATER LINE INSTALLATION AND CONNECTION WITH MONTGOMERY COUNTY. EXISTING WATER LINE SHALL REMAIN IN SERVICE UNTIL BORE, TESTING AND DISINFECTION OF NEW WATER LINE IS COMPLETE.
- IF TEMPORARY SHUT DOWN IS REQUIRED, THE CONTRACTOR SHALL COORDINATE THIS SHUT DOWN WITH MONTGOMERY COUNTY IN A MANNER THAT IS MOST CONVENIENT FOR CUSTOMERS AND THE COUNTY.
- INSTALL NCDOT STANDARD VALVE BOX AND MARKER ON ALL VALVES.



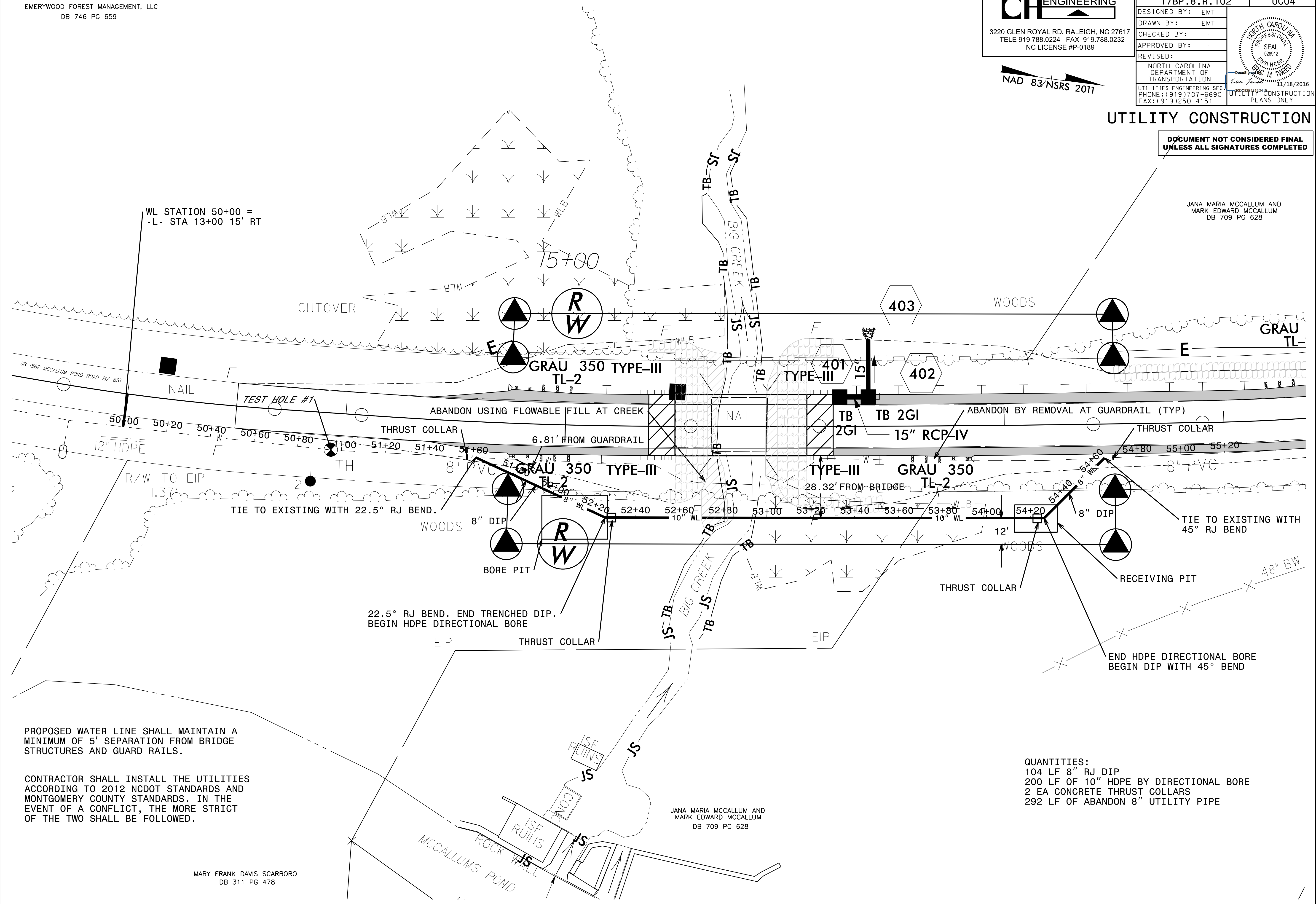
5/14/99



UTILITY CONSTRUCTION

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

JANA MARIA MCCALLUM AND
MARK EDWARD MCCALLUM
DB 709 PG 628



PROPOSED WATER LINE SHALL MAINTAIN A MINIMUM OF 5' SEPARATION FROM BRIDGE STRUCTURES AND GUARD RAILS.

CONTRACTOR SHALL INSTALL THE UTILITIES ACCORDING TO 2012 NCDOT STANDARDS AND MONTGOMERY COUNTY STANDARDS. IN THE EVENT OF A CONFLICT, THE MORE STRICT OF THE TWO SHALL BE FOLLOWED.

QUANTITIES:
104 LF 8" RJ DIP
200 LF OF 10" HDPE BY DIRECTIONAL BORE
2 EA CONCRETE THRUST COLLARS
292 LF OF ABANDON 8" UTILITY PIPE

MARY FRANK DAVIS SCARBORO
DB 311 PG 478

JANA MARIA MCCALLUM AND
MARK EDWARD MCCALLUM
DB 709 PG 628

8/17/09

5/14/19



3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.

17BP.8.R.102

SHEET NO.

UC-5

DESIGNED BY: EMT

DRAWN BY: EMT

CHECKED BY:

APPROVED BY:

REVISED:

NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

UTILITIES ENGINEERING SEC.

PHONE: (919) 707-6690

FAX: (919) 250-4151



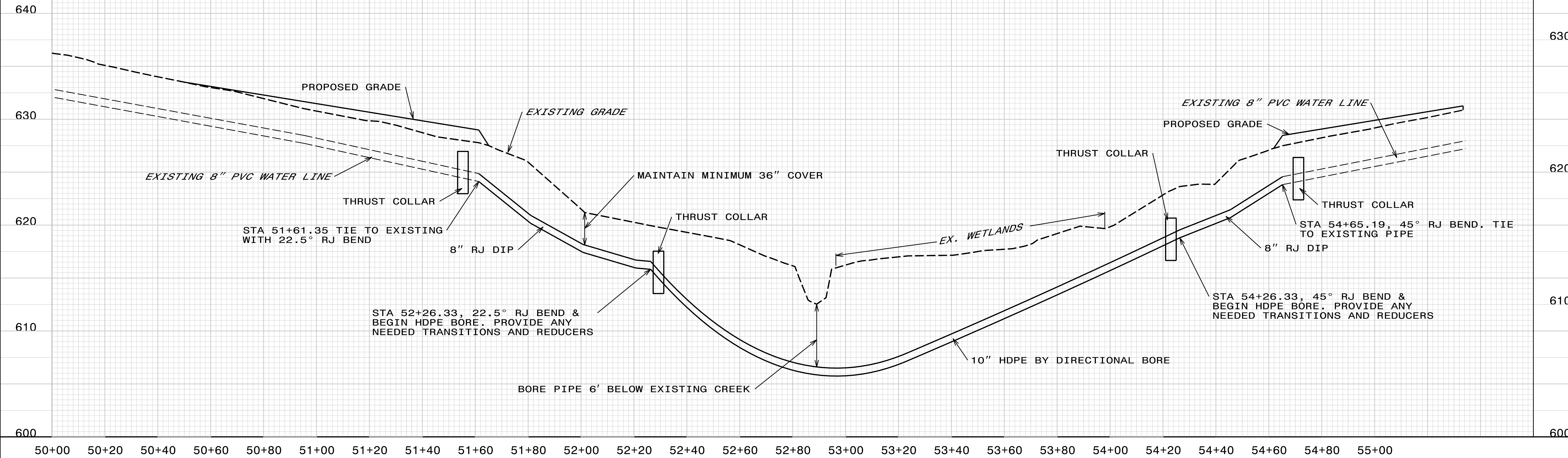
11/18/2016

UTILITY CONSTRUCTION
PLANS ONLY

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED

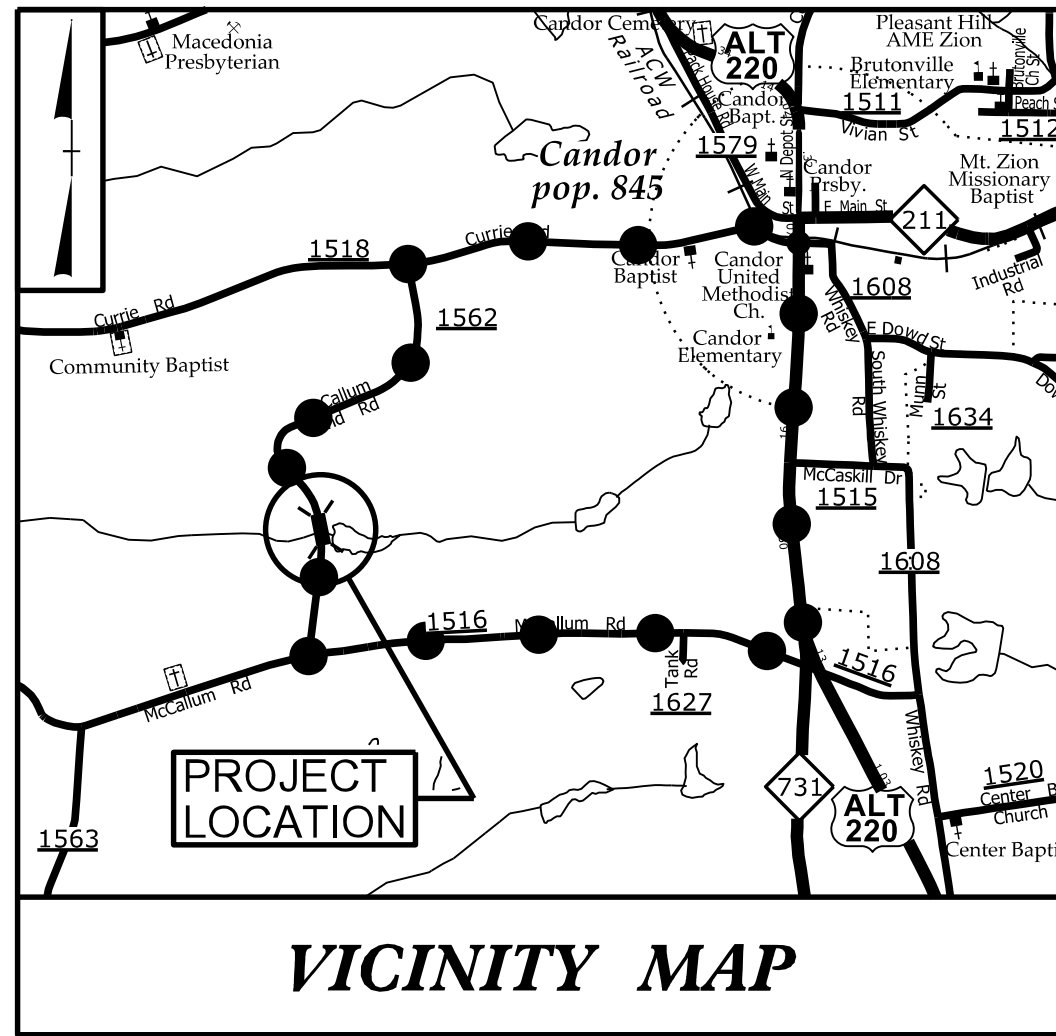
WATER LINE PROFILE



5/14/19

09/08/99

TIP PROJECT: 17BP.8.R.102



OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
MONTGOMERY COUNTY**

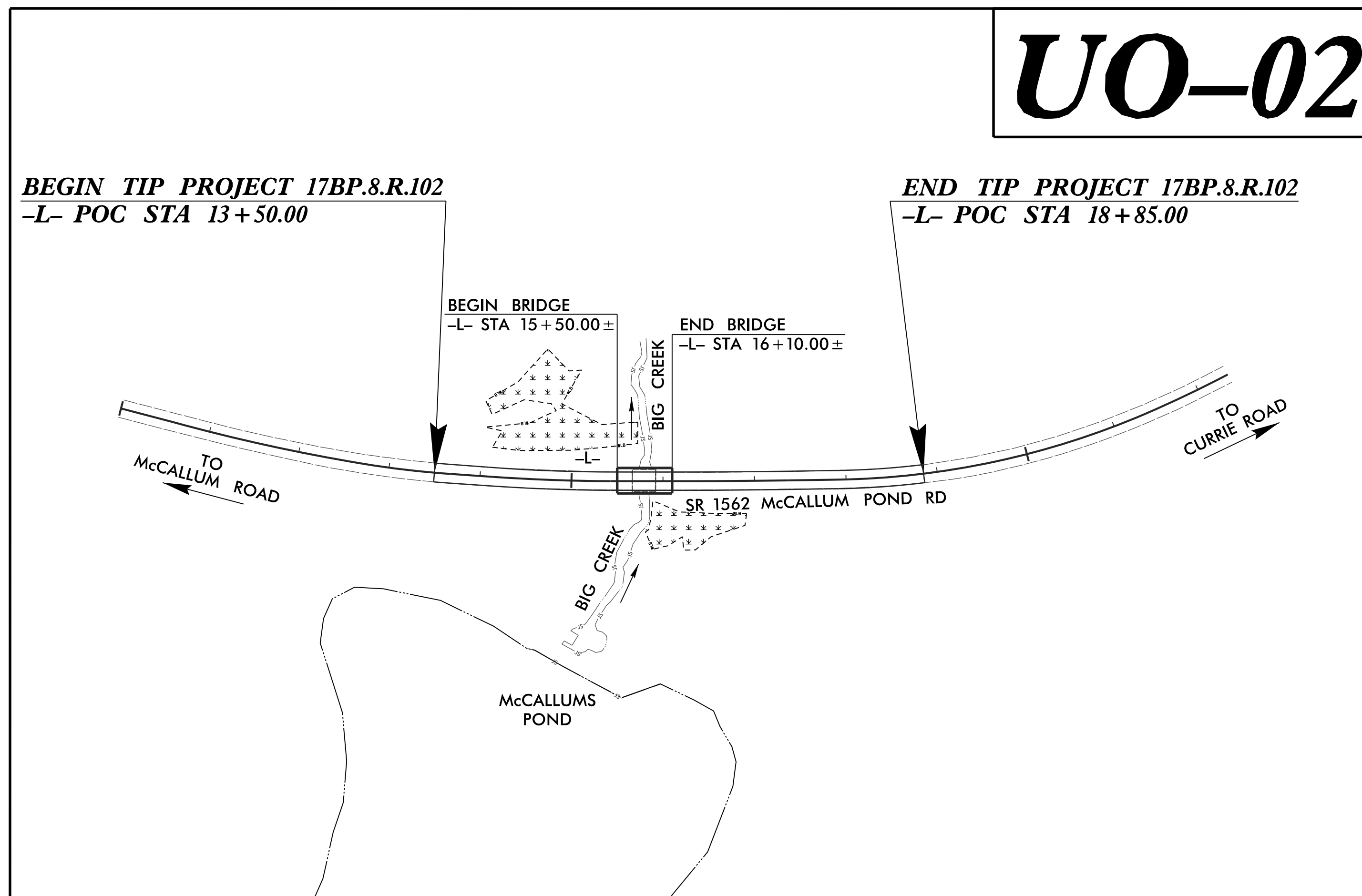
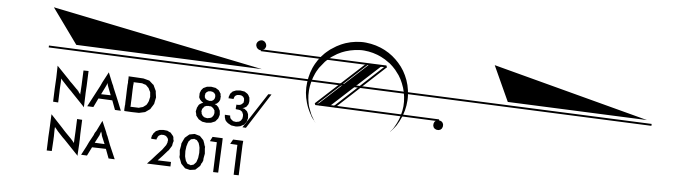
LOCATION: BRIDGE 224 OVER BIG CREEK ON SR 1562
(McCALLUM ROND RD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

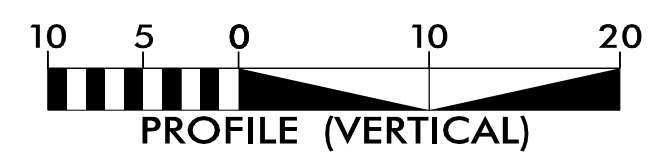
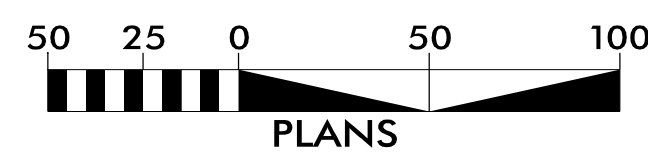
T.I.P. NO.	SHEET NO.
17BP.8.R.102	UO-01

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

UO-02



GRAPHIC SCALES



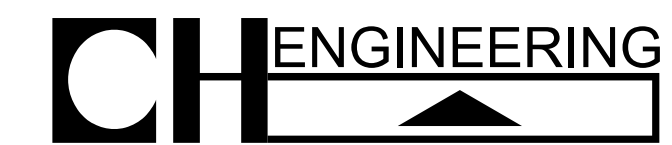
INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-01	TITLE SHEET
UO-02	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

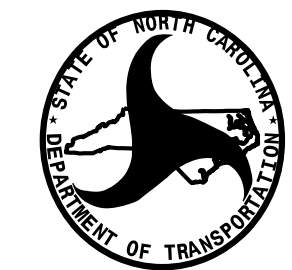
- (A) DUKE ENERGY PROGRESS - POWER
- (B) CENTURYLINK - TELEPHONE
- (C) MONTGOMERY COUNTY- WATER

PLANS PREPARED BY:



3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

UTILITIES PROJECT ENGINEER
Mary Jo Lee, P.E.



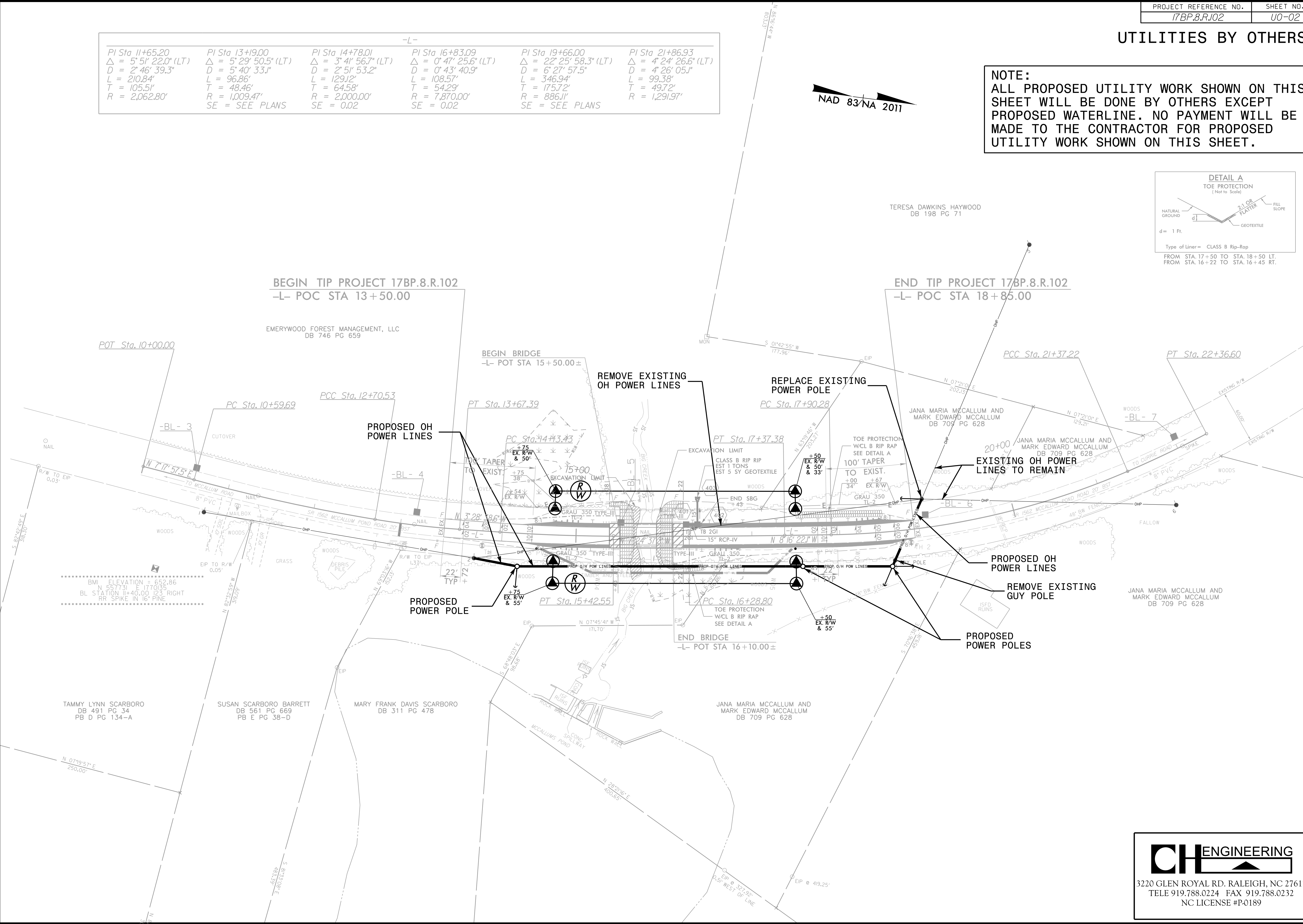
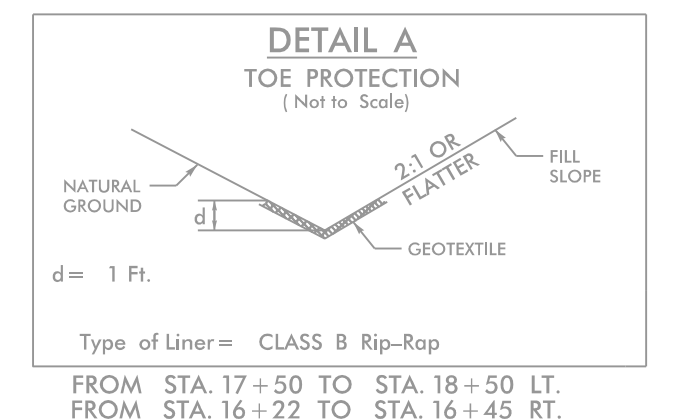
DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

UTILITIES REGIONAL ENGINEER
UTILITIES ENGINEER
JAMIE YOW DIV. UTILITIES COORDINATOR
UTILITIES COORDINATOR

UTILITIES BY OTHERS

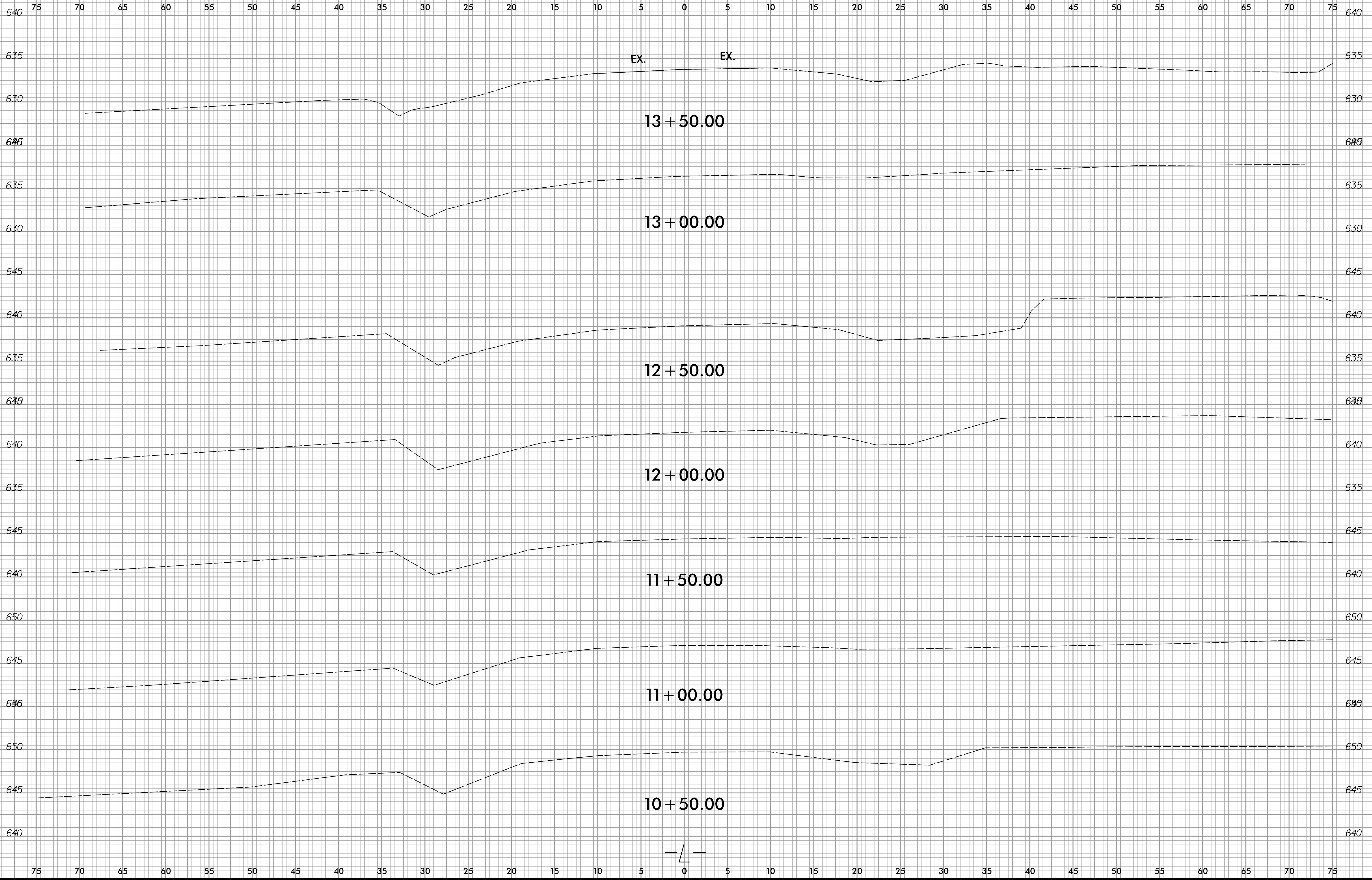
-L-					
PI Sta 11+65.20	PI Sta 13+19.00	PI Sta 14+78.01	PI Sta 16+83.09	PI Sta 19+66.00	PI Sta 21+86.93
$\Delta = 5^{\circ} 51' 22.0''$ (LT)	$\Delta = 5^{\circ} 29' 50.5''$ (LT)	$\Delta = 3^{\circ} 41' 56.7''$ (LT)	$\Delta = 0^{\circ} 47' 25.6''$ (LT)	$\Delta = 22^{\circ} 25' 58.3''$ (LT)	$\Delta = 4^{\circ} 24' 26.6''$ (LT)
D = 2' 46' 39.3"	D = 5' 40' 33.1"	D = 2' 51' 53.2"	D = 0' 43' 40.9"	D = 6' 27' 57.5"	D = 4' 26' 05.1"
L = 210.84'	L = 96.86'	L = 129.12'	L = 108.57'	L = 346.94'	L = 99.38'
T = 105.51'	T = 48.46'	T = 64.58'	T = 54.29'	T = 175.72'	T = 49.72'
R = 2,062.80'	R = 1,009.47'	R = 2,000.00'	R = 7,870.00'	R = 886.11'	R = 1,291.97'
	SE = SEE PLANS	SE = 0.02	SE = 0.02	SE = SEE PLANS	R = 1,291.97'

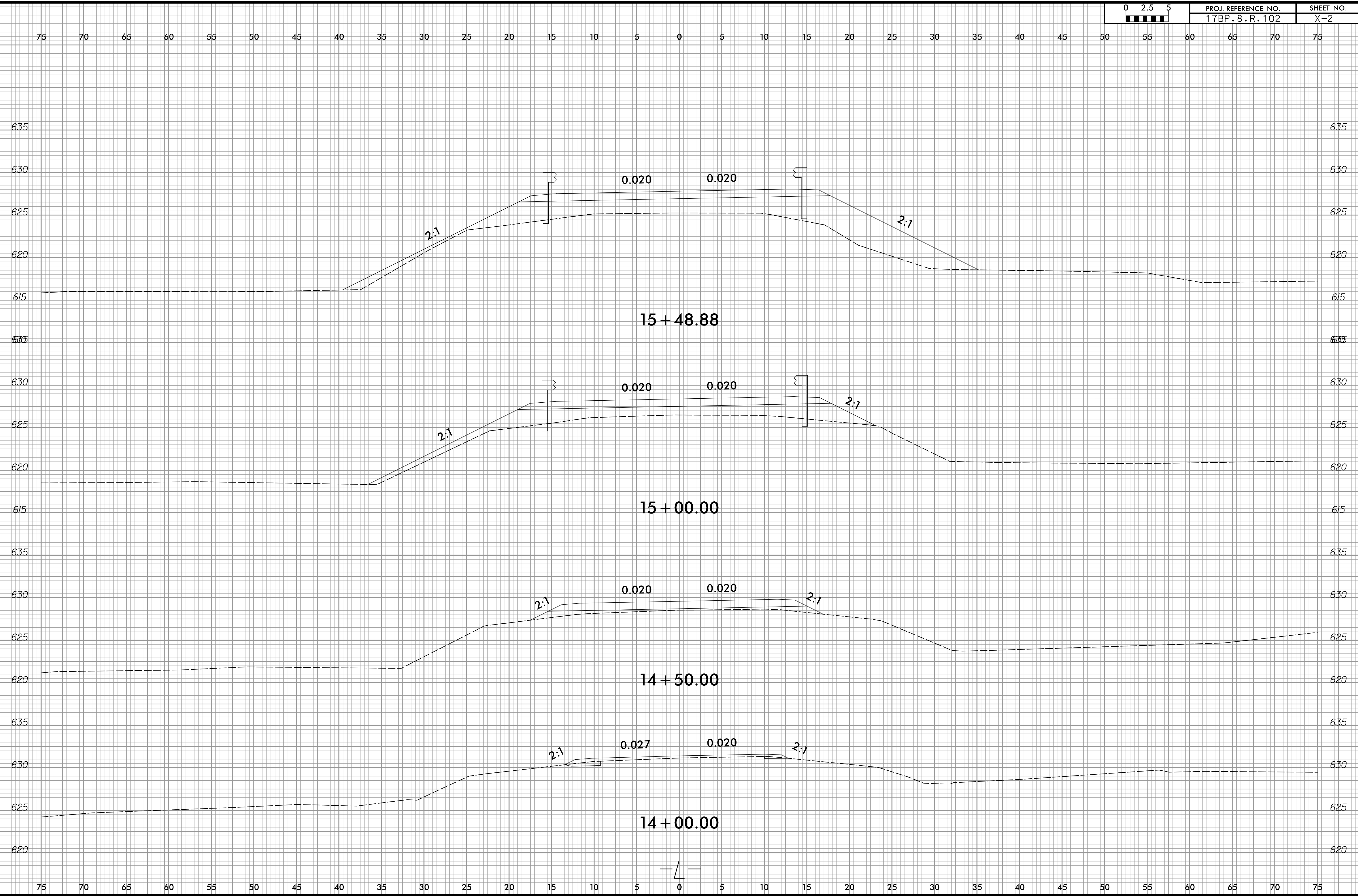
NOTE:
 ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS EXCEPT PROPOSED WATERLINE. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

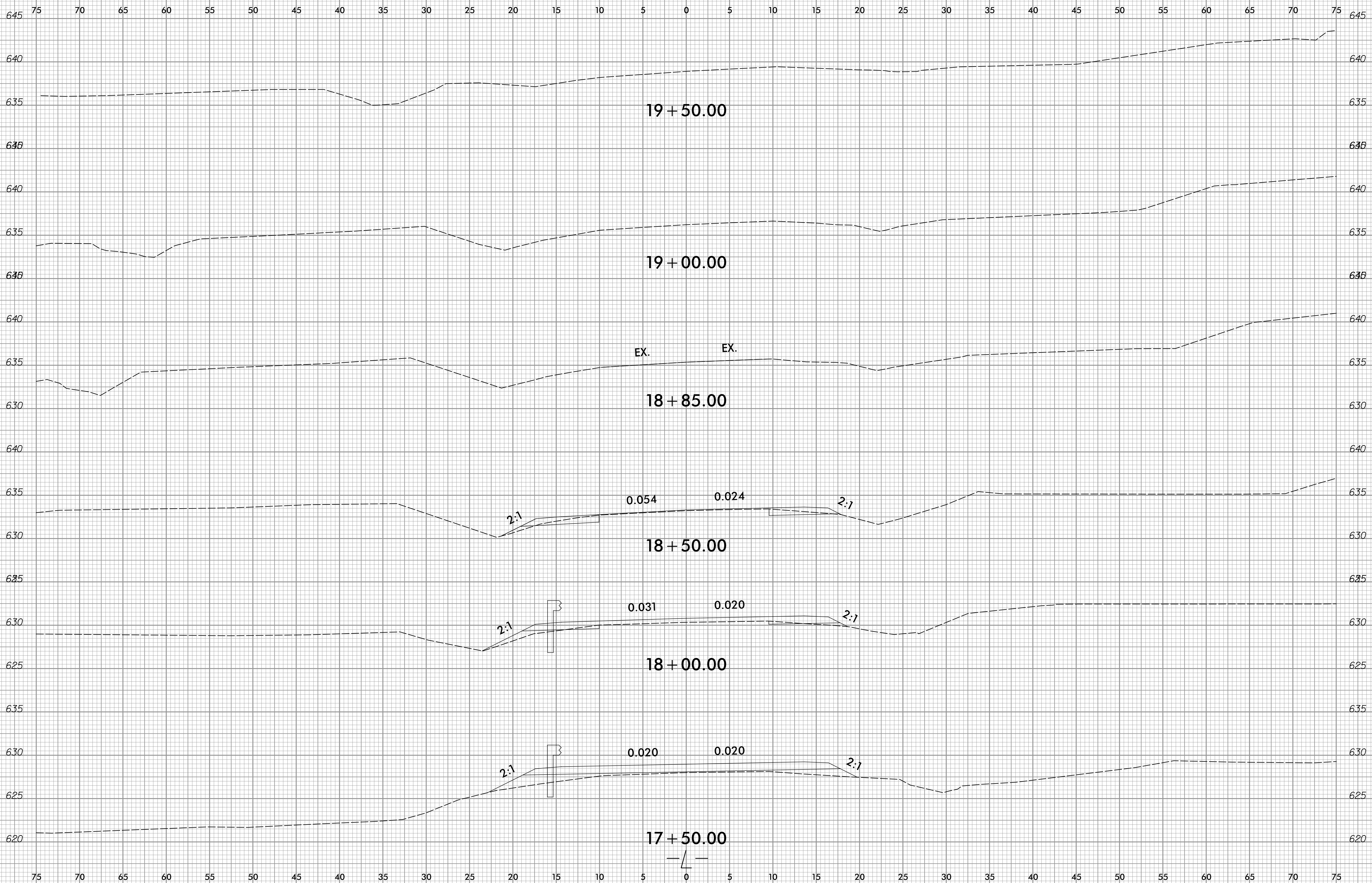


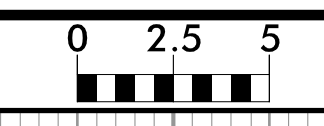
8/17/99
 10/19/2016
 N:\SERVICES\Engineering\UBO\ProJ\MDNT224-ut-rdy4-ou2-psh.dgn

3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

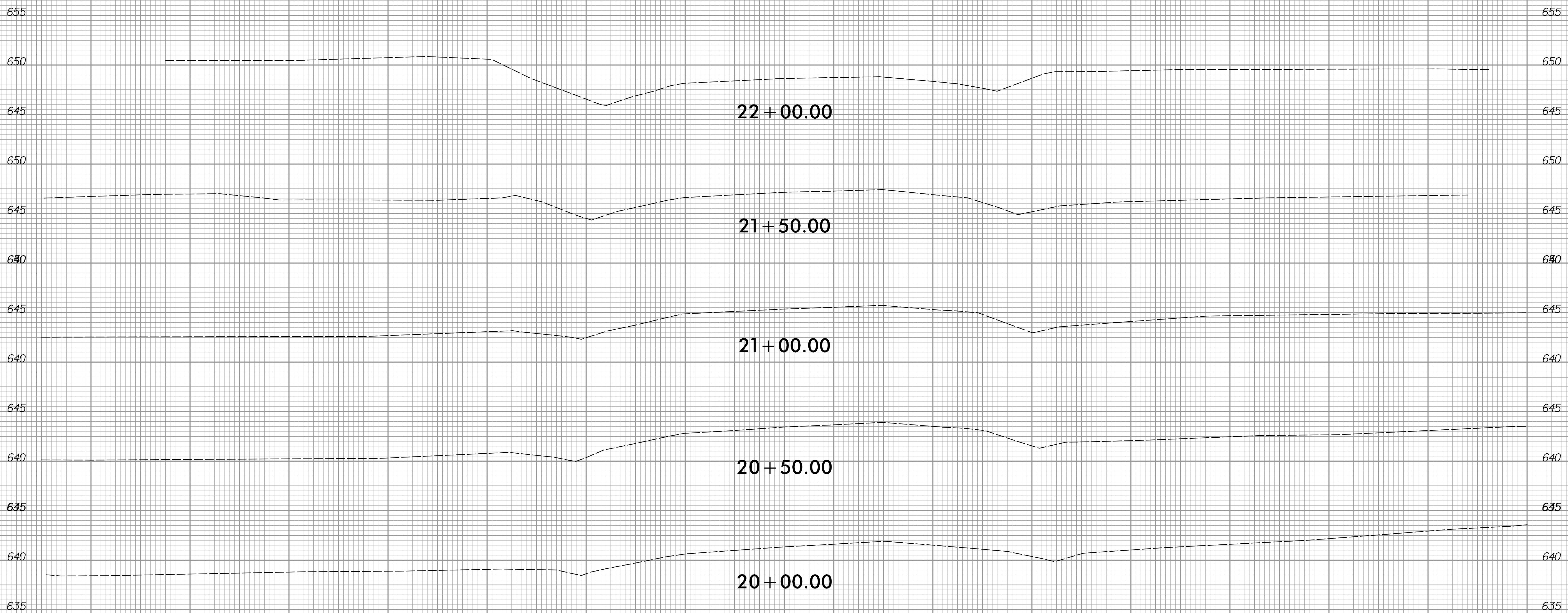








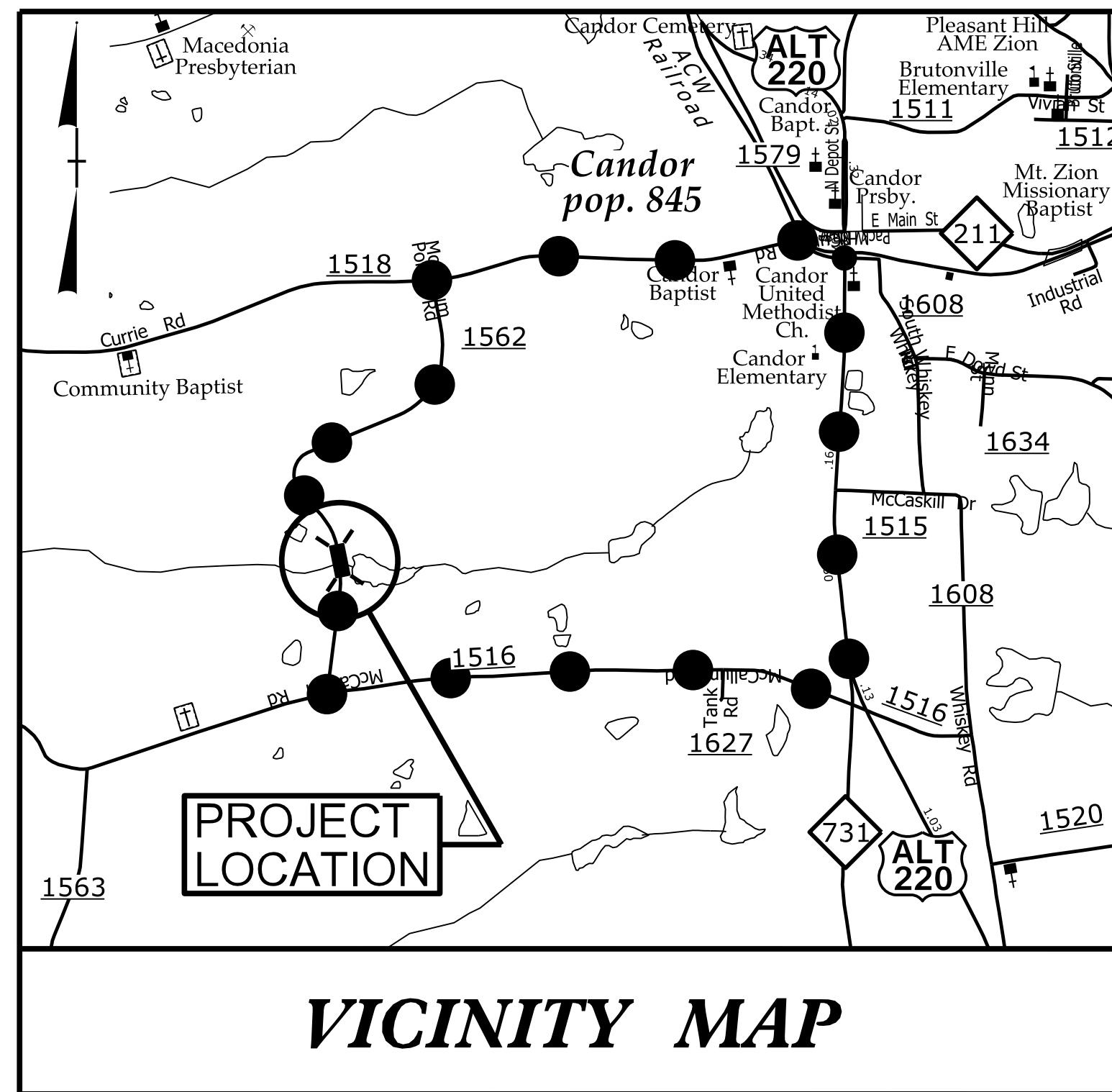
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



— / —

TIP PROJECT: 17BP.8.R.102

CONTRACT:



VICINITY MAP

●●●●● OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MONTGOMERY COUNTY

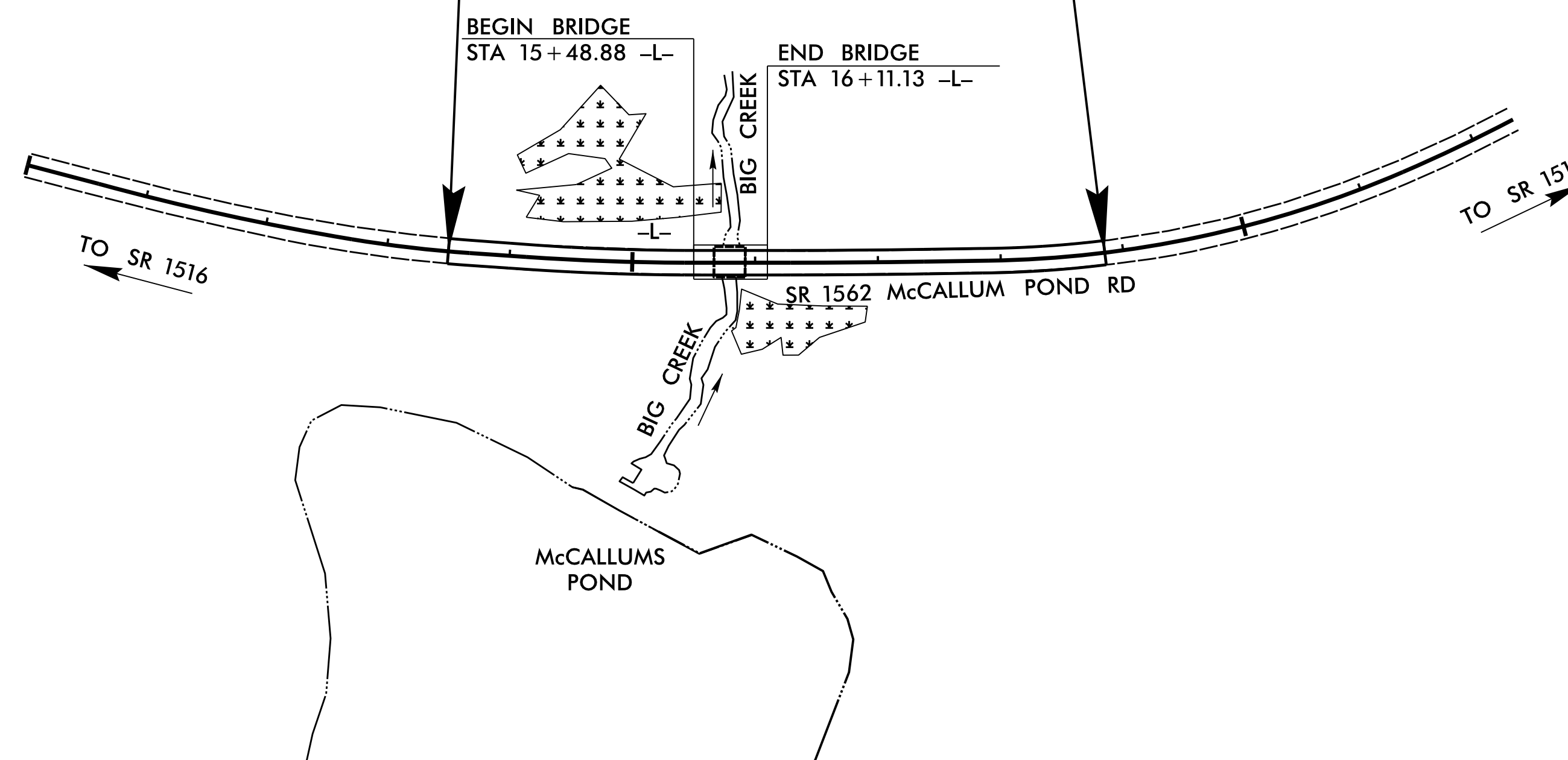
**LOCATION: BRIDGE 224 OVER BIG CREEK ON SR 1562
(McCALLUM POND ROAD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

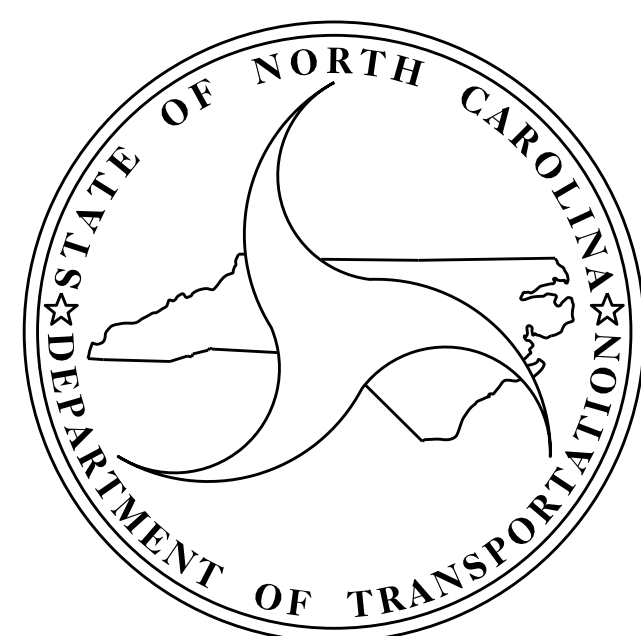
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.102		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.8.R.102	-	P.E.	
-	-	CONST.	

BEGIN TIP PROJECT 17BP.8.R.102
STA 13+50.00 -L-

END TIP PROJECT 17BP.8.R.102
STA 18+85.00 -L-



STRUCTURES



DESIGN DATA

ADT (2012) = 200
ADT (2025) = 400
K = %
D = %
T = 6 % **
* V = 60 MPH
** (TTST %, DUAL %)
FUNC CLASS = LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 17BP.8.R.102 = 0.090 MILES
LENGTH STRUCTURE TIP PROJECT 17BP.8.R.102 = 0.011 MILES
TOTAL LENGTH TIP PROJECT 17BP.8.R.102 = 0.101 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE : DECEMBER 20, 2016

K. W. ALFORD, P.E.
PROJECT DESIGN ENGINEER

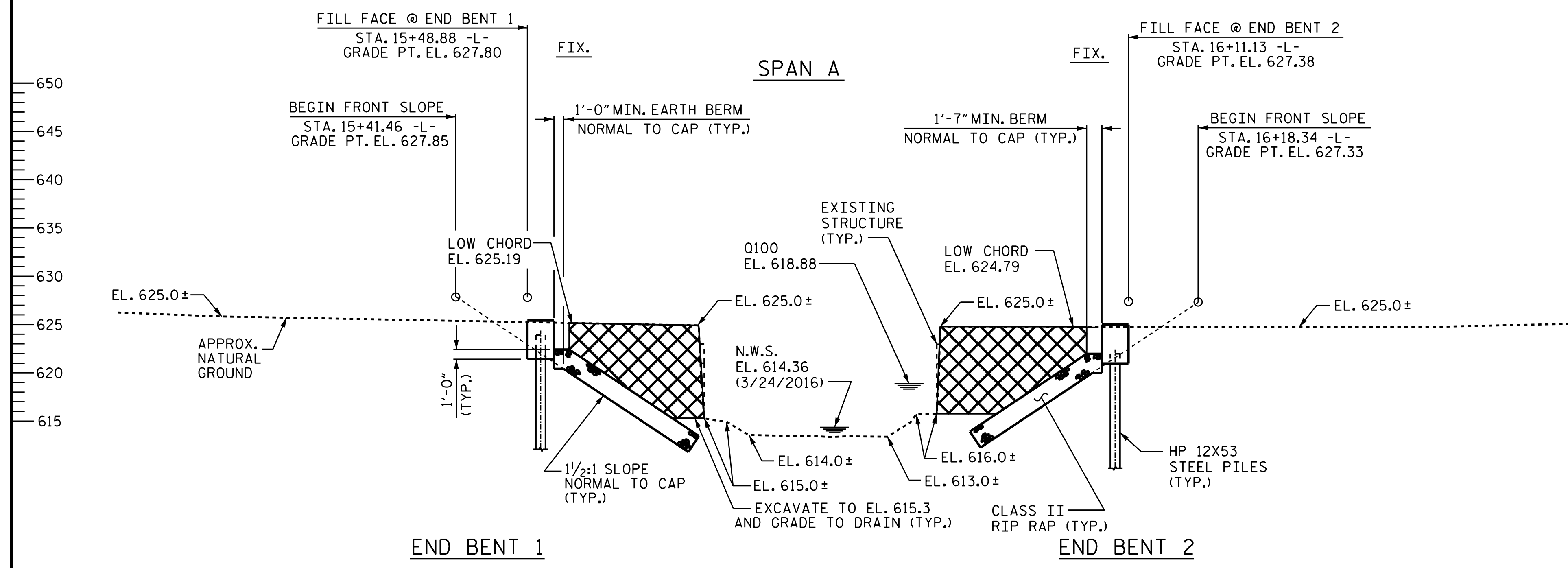
15+00 (-)4.8728% (-)0.6727% 15+50 16+00 16+50 (-)0.6727% (+)5.8733%

PI = STA. 14+60.00 -L-
EL. = 628.40'
VC = 170'

PI = STA. 17+35.00 -L-
EL. = 626.55'
VC = 244'

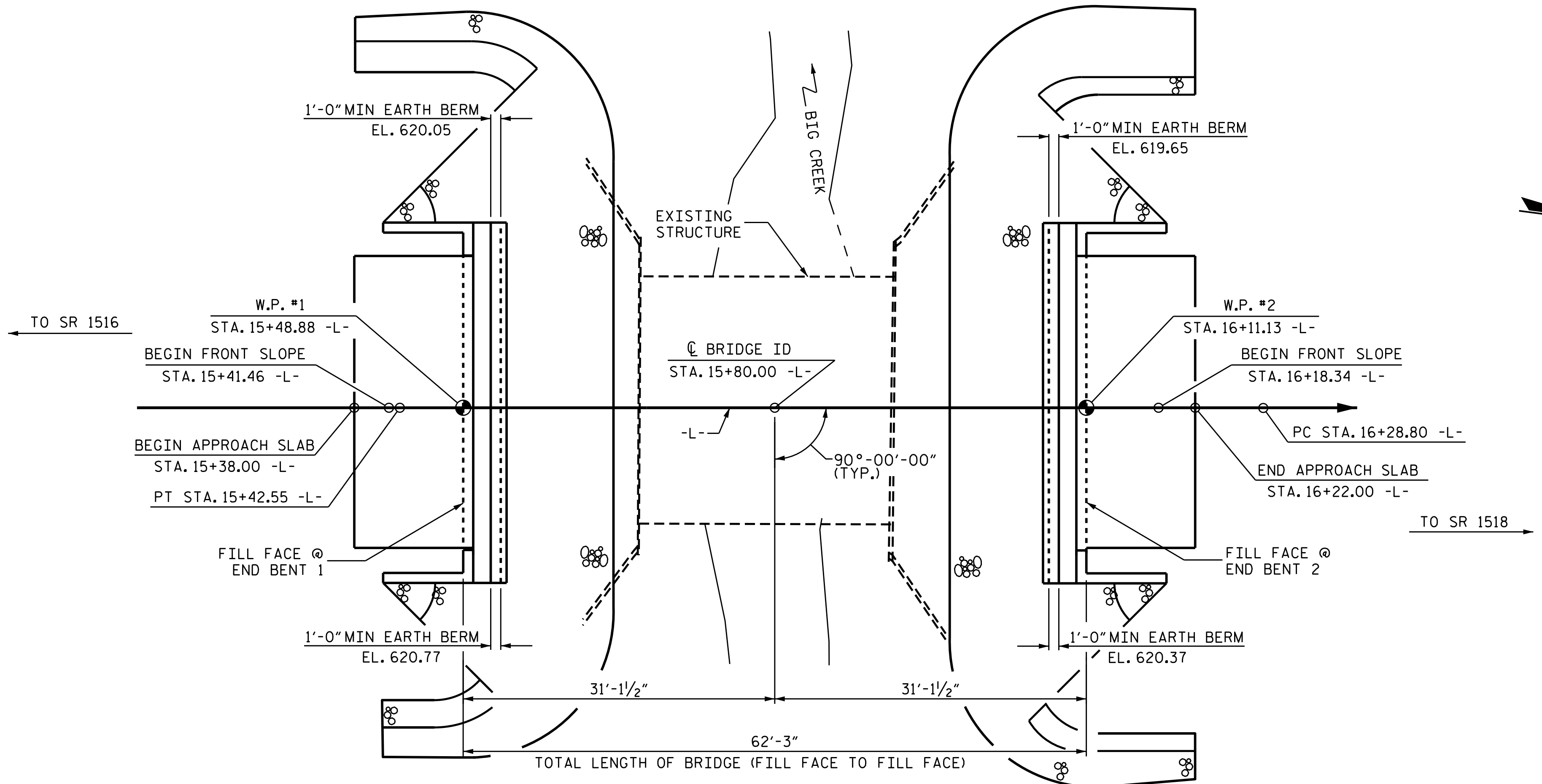
GRADE DATA

GRADE DATA



HORIZONTAL CURVE DATA

PI STA. 14+78.01 -L-
Δ = 3° 41' 56.7" (L.T.)
D = 2° 51' 53.2"
L = 129.12'
T = 64.58
R = 2,000.00'
SE = 0.02



PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
STATION: 15+80.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 224

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER
BIG CREEK ON SR 1562
BETWEEN SR 1516 AND
SR 1518

DRAWN BY : D.A. DAVENPORT DATE : 5/18/16
CHECKED BY : R.P. PATEL DATE : 7/26/16
DESIGN ENGINEER OF RECORD: R.P. PATEL DATE : 9/13/16

PLAN
(PILES NOT SHOWN FOR CLARITY)

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			14

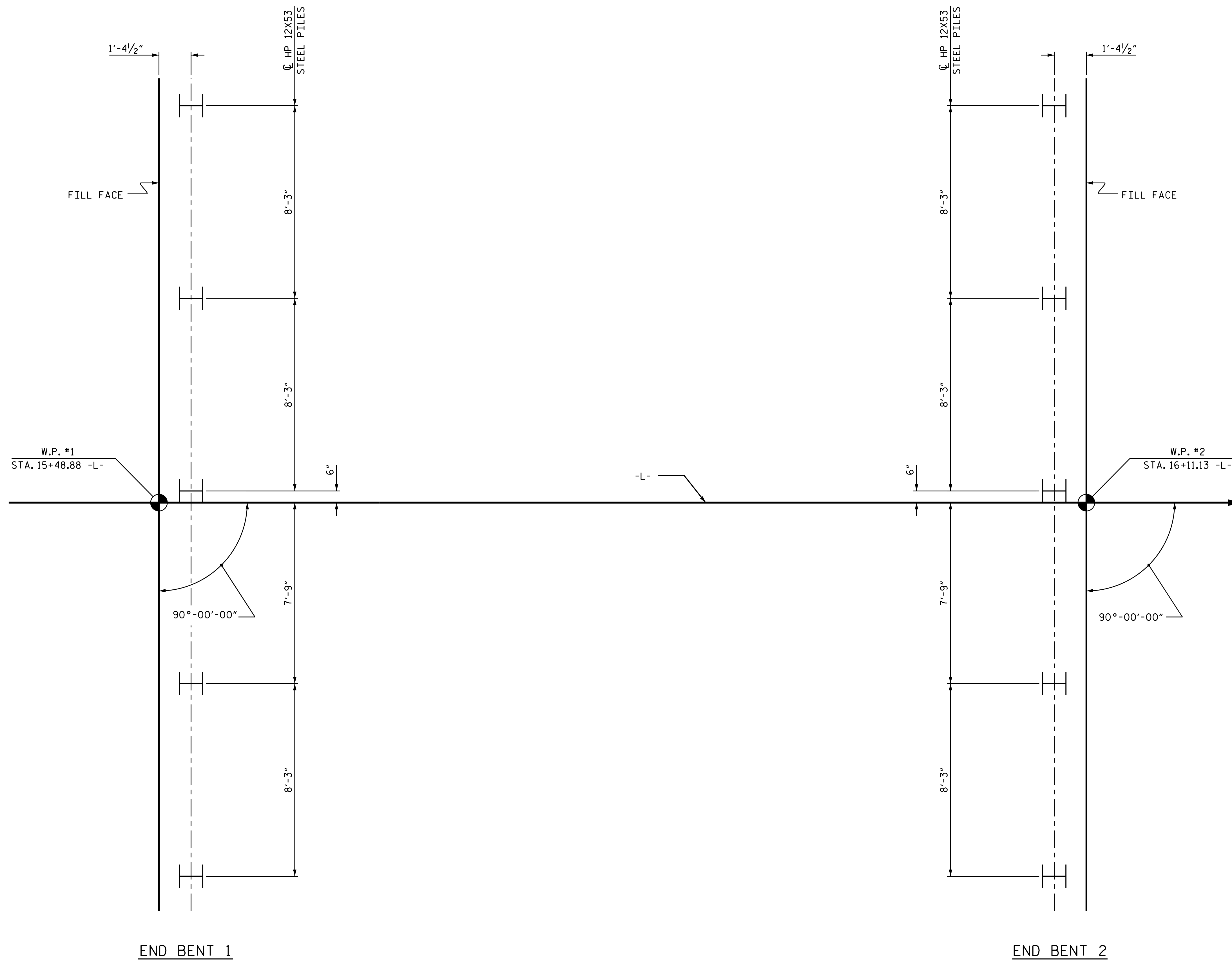
NOTES

FOR PILES, SEE GEOTECHNICAL SPECIAL PROVISIONS AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.

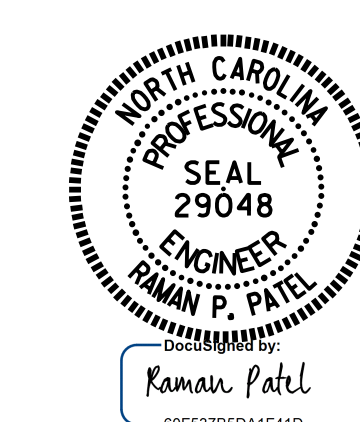
DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY RANGING FROM 27,000 TO 40,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NOS. 1 AND 2. THIS ESTIMATED ENERGY DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH THE PILES PROVISION.



PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
 STATION: 15+80.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL DRAWING
 FOR BRIDGE OVER
 BIG CREEK ON SR 1562
 BETWEEN SR 1516 AND
 SR 1518**

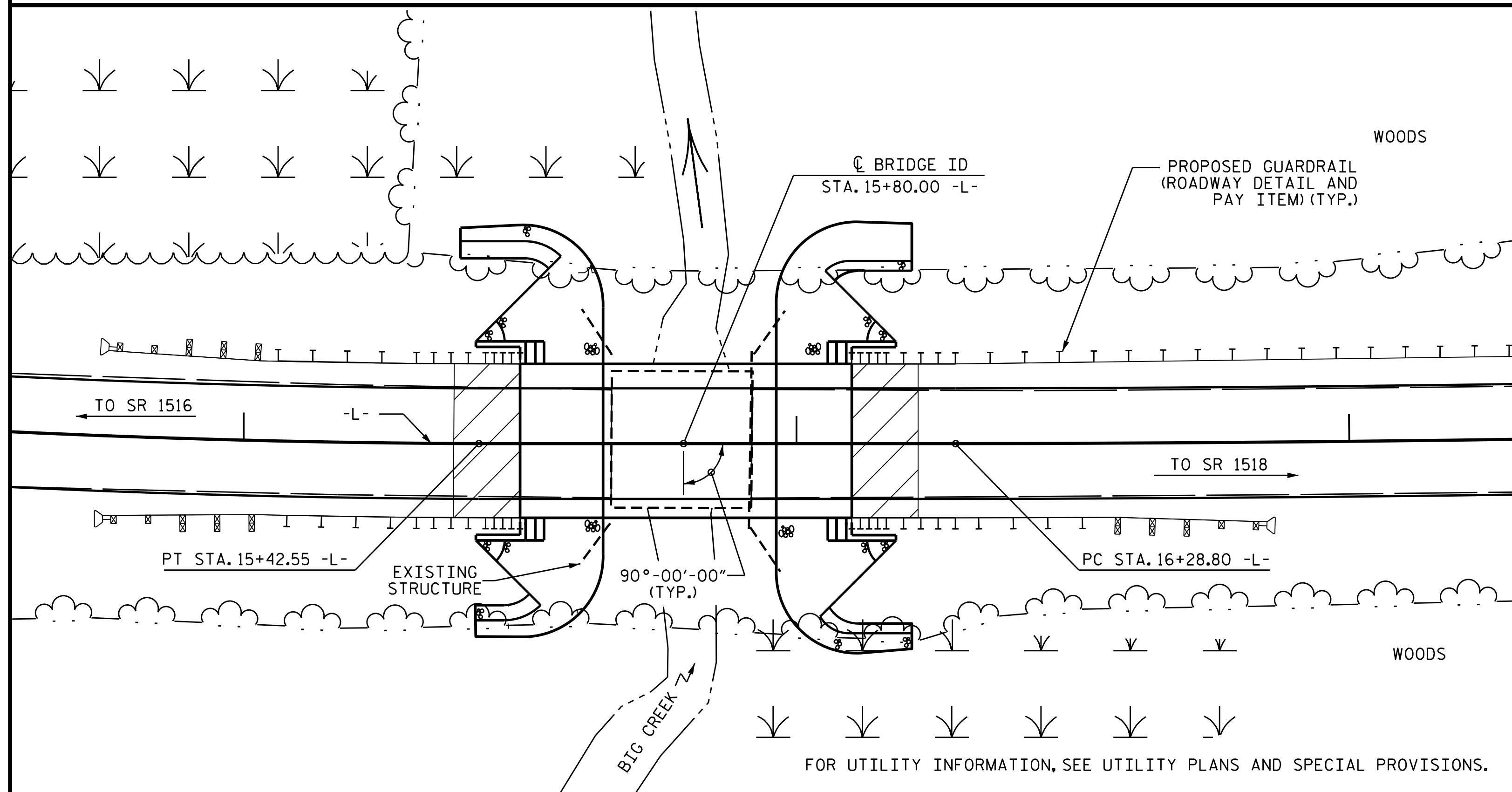
FOUNDATION LAYOUT
 DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.

DRAWN BY : D.A. DAVENPORT DATE : 5/16/16
 CHECKED BY : R.P. PATEL DATE : 7/26/16
 DESIGN ENGINEER OF RECORD: R.P. PATEL DATE : 9/13/16

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-2
2			4			14

B.M. #1: RAILROAD SPIKE IN BASE OF 16" Ø PINE, OFFSET 109.00' RT., STA. 10+43.00 -L-, EL. 652.86



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK & FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 15+80.00 -L-".
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT. LEFT & 50 FT. RIGHT OF CENTERLINE ROADWAY AT END BENT 1 AND 30 FT. LEFT & 35 FT. RIGHT OF CENTERLINE ROADWAY AT END BENT 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 25'-5", WITH A TIMBER DECK WITH AN 2" ASPHALT WEARING SURFACE ON STEEL I-BEAMS AND A CLEAR ROADWAY WIDTH OF 24'-6" ON TIMBER CAPS AND PILES, FOUR WHICH ARE ENCASED IN CONCRETE AND TIMBER BULKHEADS, LOCATED AT THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC-18 EVALUATING SCOUR AT BRIDGES".
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
 FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE..... 750 C.F.S.
 FREQUENCY OF DESIGN DISCHARGE..... 25 YRS
 DESIGN HIGH WATER ELEVATION..... 618.20
 DRAINAGE AREA..... 1.67 SQ. MI.
 BASE DISCHARGE(Q100)..... 1,100 C.F.S.
 BASE HIGH WATER ELEVATION..... 618.88

OVERTOPPING DATA

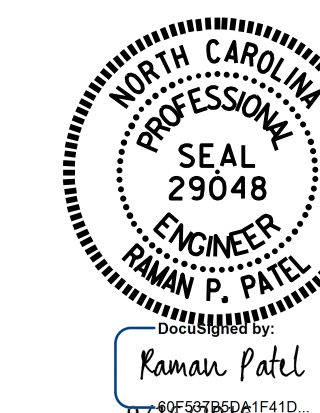
OVERTOPPING DISCHARGE..... 4,875 C.F.S.
 FREQUENCY OF OVERTOPPING..... 500+ YRS.
 OVERTOPPING ELEVATION..... 627.30

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12X53 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORRED SLABS		ASBESTOS ASSESSMENT
						NO.	LIN.FT.						NO.	LIN.FT.	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.			EACH	LIN.FT.	TONS	SQ. YDS.	LUMP SUM			LUMP SUM
SUPERSTRUCTURE									120.00				10	600.00	
END BENT NO. 1			20.2		2,449	5	90	5		185	205				
END BENT NO. 2			20.2		2,449	5	90	5		165	185				
TOTAL	LUMP SUM	LUMP SUM	40.4	LUMP SUM	4,898	10	180	10	120.00	350	390	LUMP SUM	10	600.00	LUMP SUM

PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
 STATION: 15+80.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL DRAWING
 FOR BRIDGE OVER
 BIG CREEK ON SR 1562
 BETWEEN SR 1516 AND
 SR 1518**

DRAWN BY : D.A. DAVENPORT DATE : 5/17/16
 CHECKED BY : R.P. PATEL DATE : 7/26/16
 DESIGN ENGINEER OF RECORD: R.P. PATEL DATE : 9/13/16

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			14

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR CORED SLABS

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	1.33	--	1.75	0.275	1.33	60'	EL	29.5	0.52	1.33	60'	EL	5.9	0.80	0.275	1.37	60'	EL	29.5		
	HL-93(0pr)	N/A	--	1.725	--	1.35	0.275	1.73	60'	EL	29.5	0.52	1.72	60'	EL	5.9	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.601	57.643	1.75	0.275	1.69	60'	EL	29.5	0.52	1.6	60'	EL	5.9	0.80	0.275	1.74	60'	EL	29.5		
	HS-20(0pr)	36.000	--	2.076	74.723	1.35	0.275	2.19	60'	EL	29.5	0.52	2.08	60'	EL	5.9	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.745	50.557	1.4	0.275	4.55	60'	EL	29.5	0.52	4.63	60'	EL	5.9	0.80	0.275	3.74	60'	EL	29.5	
		SNGARBS2	20.000	--	2.867	57.338	1.4	0.275	3.48	60'	EL	29.5	0.52	3.33	60'	EL	5.9	0.80	0.275	2.87	60'	EL	29.5	
		SNAGRIS2	22.000	--	2.748	60.46	1.4	0.275	3.34	60'	EL	29.5	0.52	3.11	60'	EL	5.9	0.80	0.275	2.75	60'	EL	29.5	
		SNCOTTS3	27.250	--	1.866	50.841	1.4	0.275	2.27	60'	EL	29.5	0.52	2.31	60'	EL	5.9	0.80	0.275	1.87	60'	EL	29.5	
		SNAGGRS4	34.925	--	1.588	55.465	1.4	0.275	1.93	60'	EL	29.5	0.52	1.95	60'	EL	5.9	0.80	0.275	1.59	60'	EL	29.5	
		SNS5A	35.550	--	1.551	55.139	1.4	0.275	1.89	60'	EL	29.5	0.52	1.99	60'	EL	5.9	0.80	0.275	1.55	60'	EL	29.5	
		SNS6A	39.950	--	1.435	57.347	1.4	0.275	1.74	60'	EL	29.5	0.52	1.83	60'	EL	5.9	0.80	0.275	1.44	60'	EL	29.5	
	SNS7B	42.000	--	1.367	57.434	1.4	0.275	1.66	60'	EL	29.5	0.52	1.81	60'	EL	5.9	0.80	0.275	1.37	60'	EL	29.5		
	TTST	TNAGRIT3	33.000	--	1.754	57.887	1.4	0.275	2.13	60'	EL	29.5	0.52	2.17	60'	EL	5.9	0.80	0.275	1.75	60'	EL	29.5	
		TNT4A	33.075	--	1.765	58.389	1.4	0.275	2.15	60'	EL	29.5	0.52	2.1	60'	EL	5.9	0.80	0.275	1.77	60'	EL	29.5	
		TNT6A	41.600	--	1.456	60.551	1.4	0.275	1.77	60'	EL	29.5	0.52	1.96	60'	EL	5.9	0.80	0.275	1.46	60'	EL	29.5	
		TNT7A	42.000	--	1.469	61.714	1.4	0.275	1.79	60'	EL	29.5	0.52	1.88	60'	EL	5.9	0.80	0.275	1.47	60'	EL	29.5	
		TNT7B	42.000	--	1.535	64.463	1.4	0.275	1.87	60'	EL	29.5	0.52	1.76	60'	EL	5.9	0.80	0.275	1.53	60'	EL	29.5	
		TNAGRIT4	43.000	--	1.45	62.329	1.4	0.275	1.76	60'	EL	29.5	0.52	1.7	60'	EL	5.9	0.80	0.275	1.45	60'	EL	29.5	
TNAGT5A		45.000	--	1.361	61.247	1.4	0.275	1.65	60'	EL	29.5	0.52	1.71	60'	EL	5.9	0.80	0.275	1.36	60'	EL	29.5		
TNAGT5B	45.000	3	1.34	60.282	1.4	0.275	1.63	60'	EL	29.5	0.52	1.61	60'	EL	5.9	0.80	0.275	1.34	60'	EL	29.5			

LOAD FACTORS:

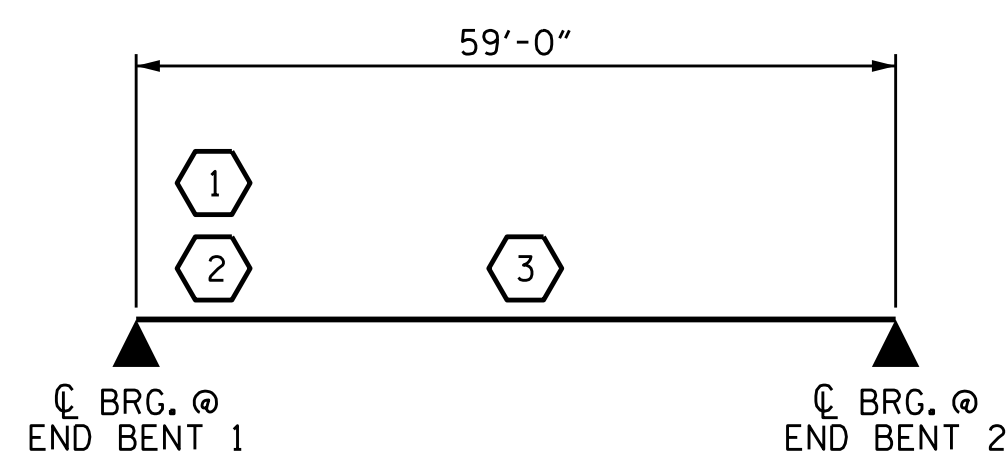
DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

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

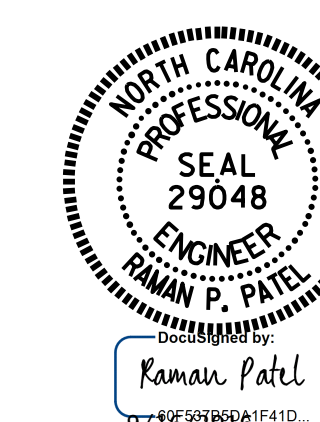
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY
(SPAN A)

PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
STATION: 15+80.00 -L

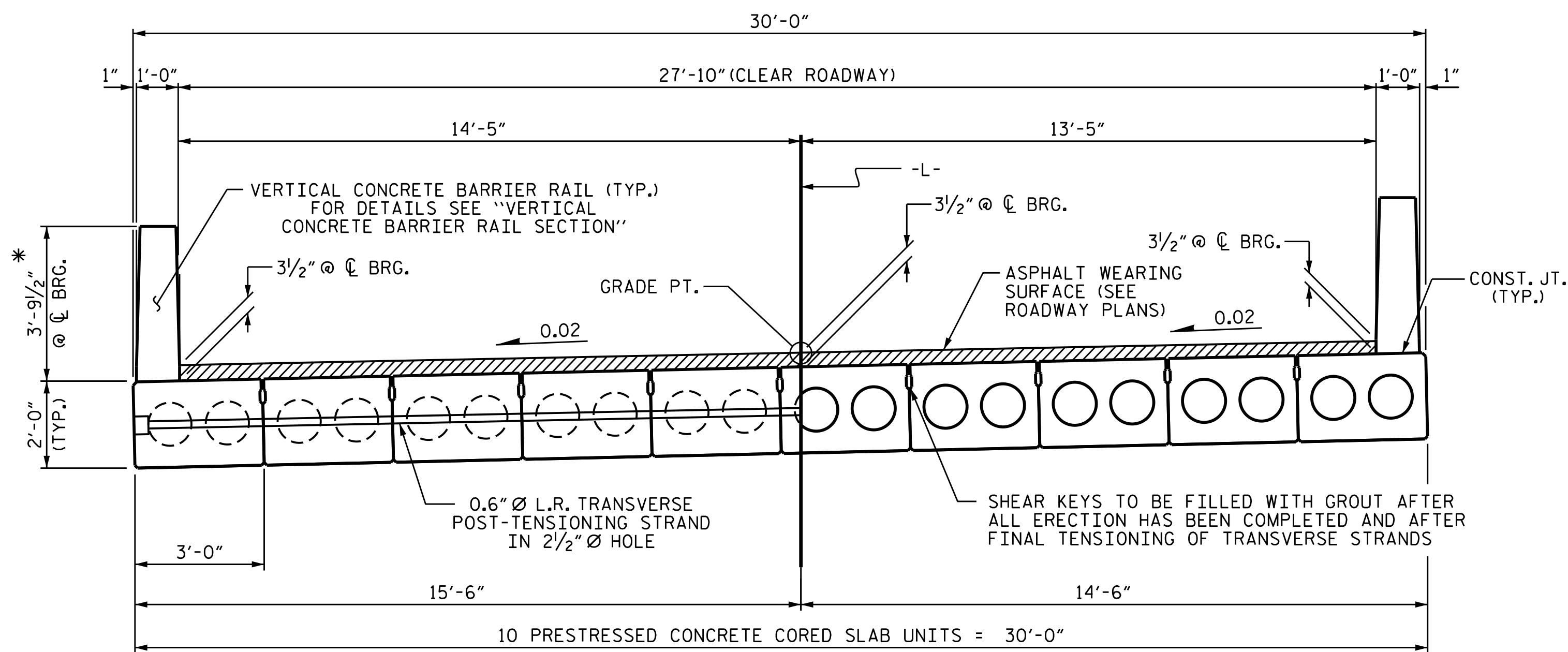


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
60' CORED SLAB UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

ASSEMBLED BY : D.A. DAVENPORT	DATE : 5/16/16
CHECKED BY : R.P. PATEL	DATE : 7/26/16
DRAWN BY : CVC	6/10
CHECKED BY : DNS	6/10

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

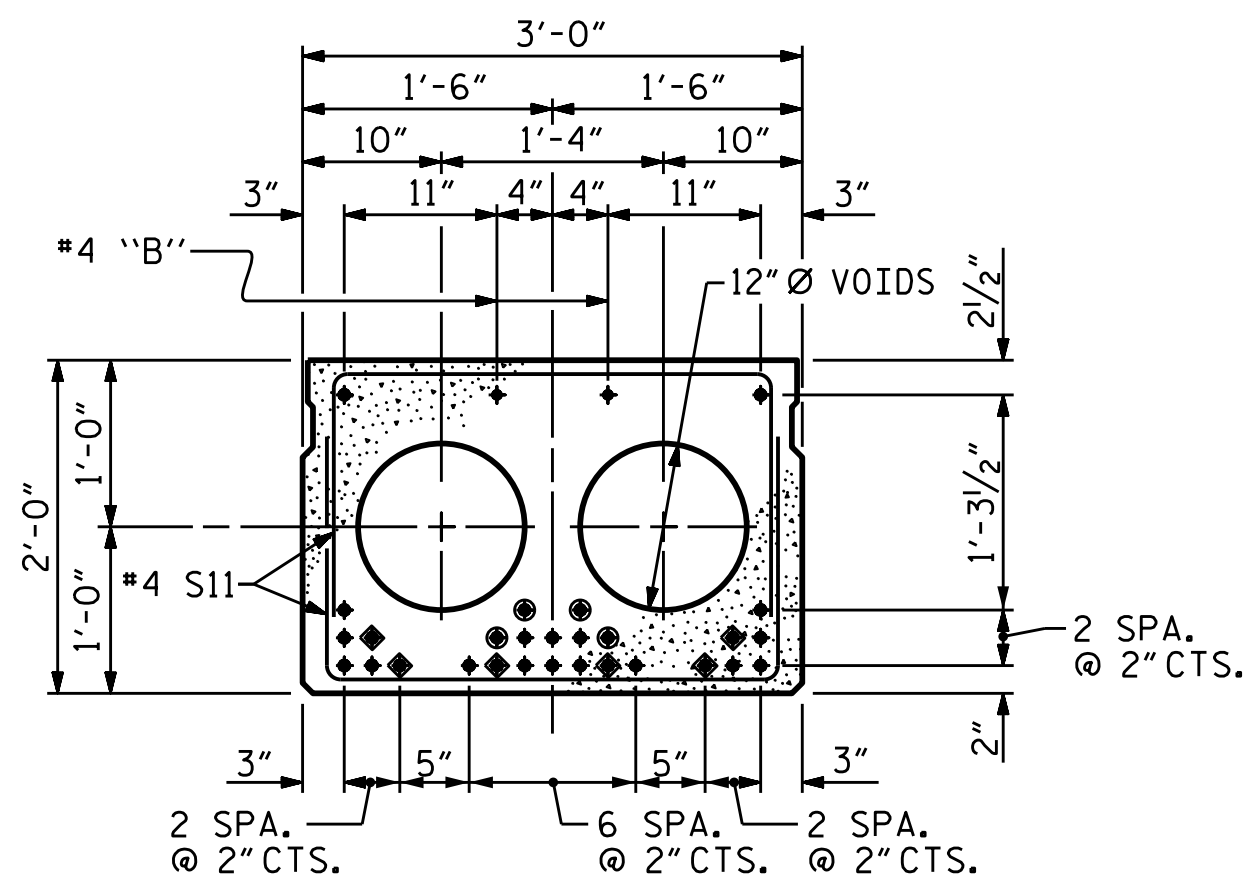
REVISIONS						SHEET NO. S-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 14
2			4			



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.

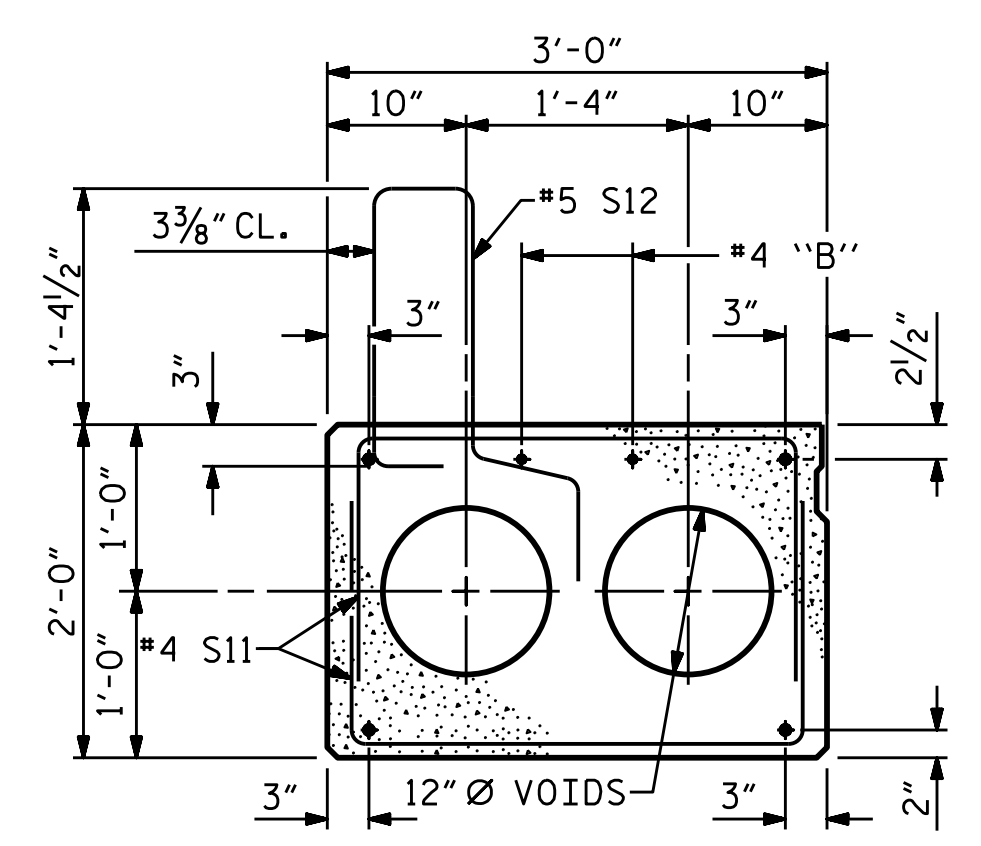


INTERIOR SLAB SECTION (60' UNIT)
(24 STRANDS REQUIRED)

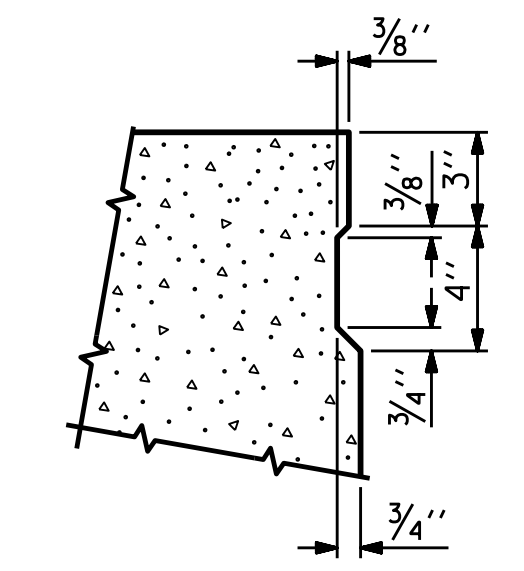
0.6" Ø LOW RELAXATION STRAND LAYOUT

- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

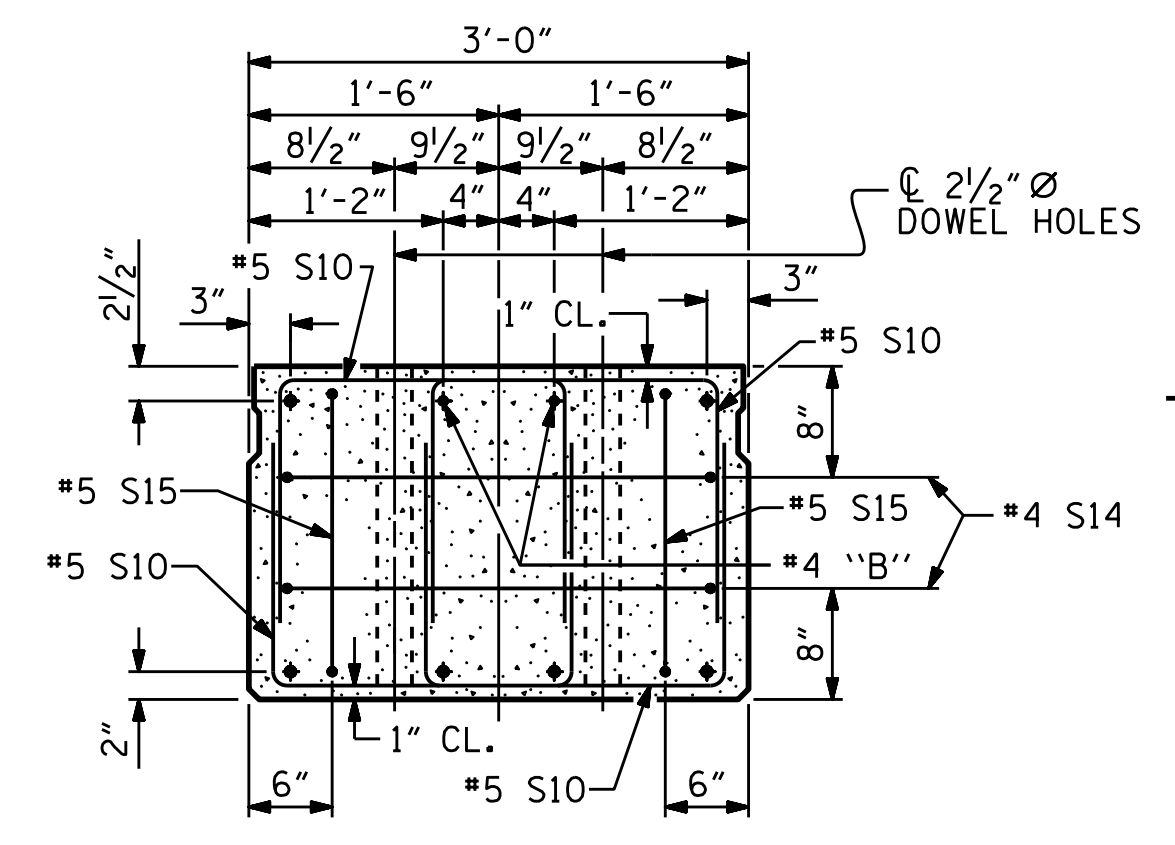


EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



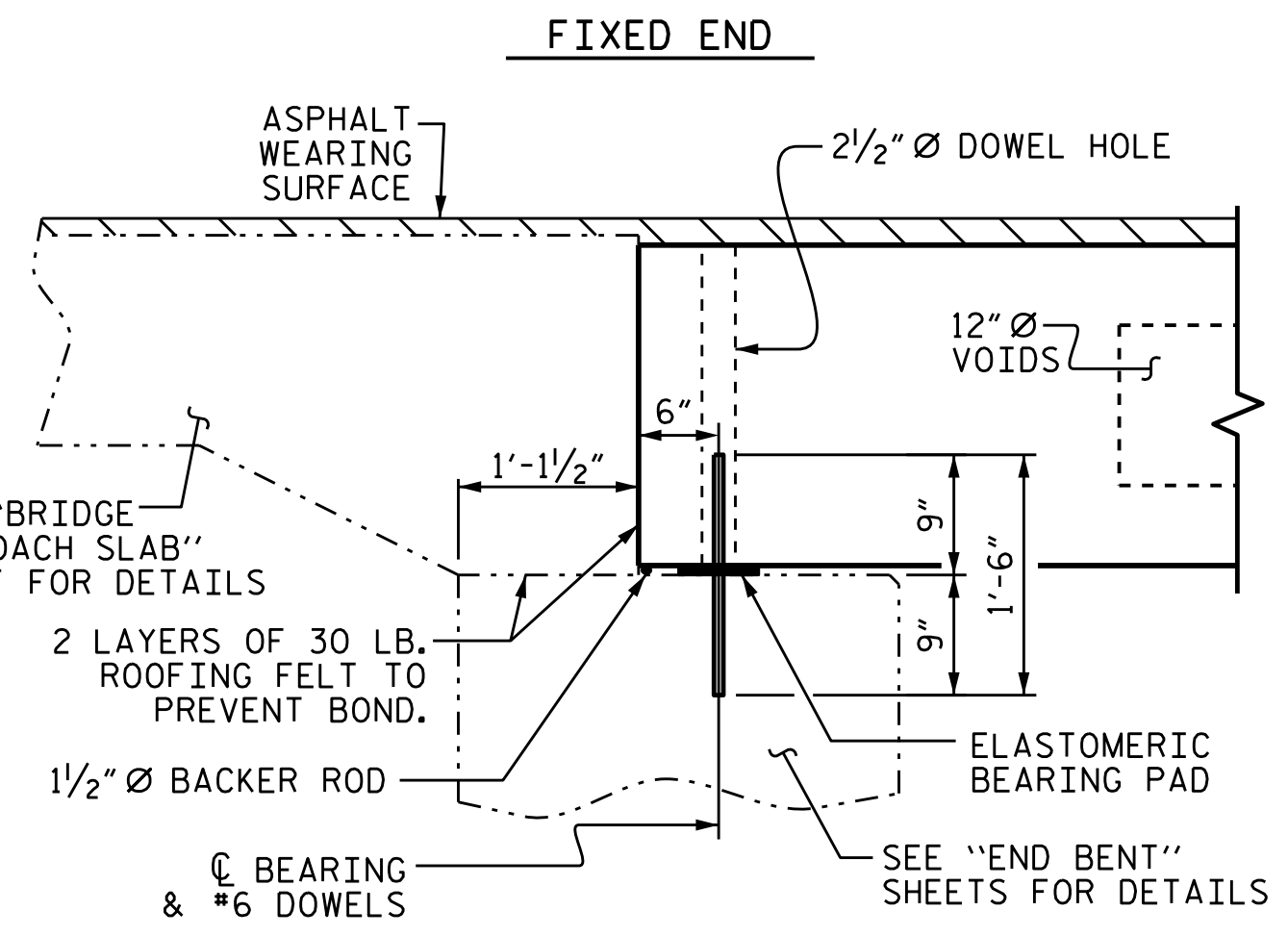
SHEAR KEY DETAIL

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



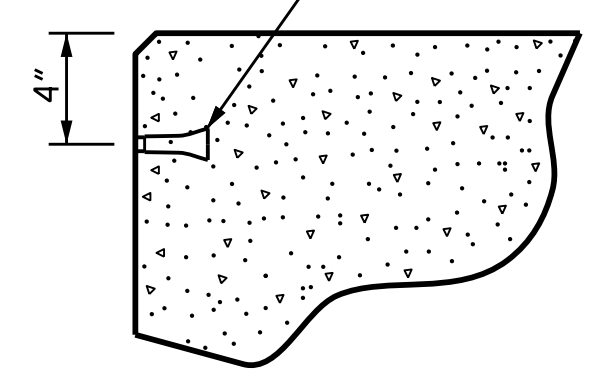
END ELEVATION

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

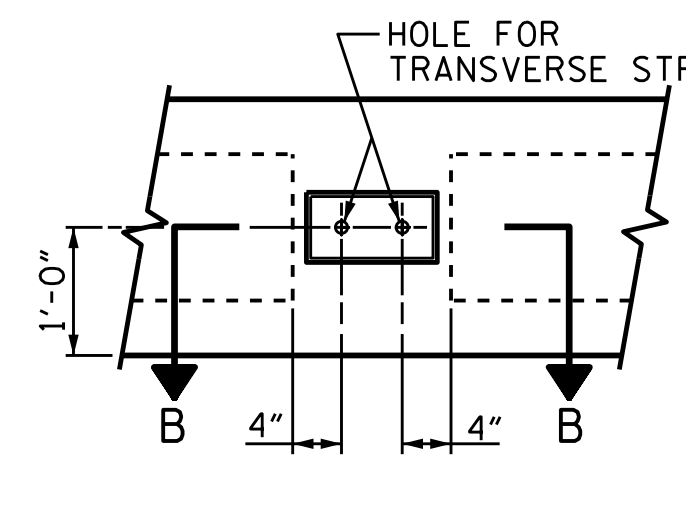


SECTION AT END BENT

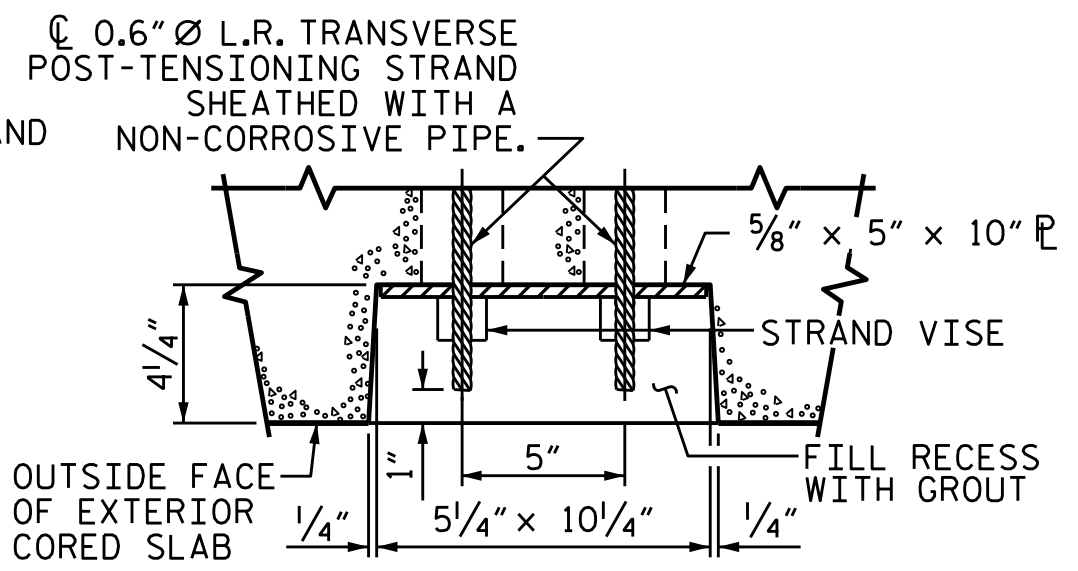
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL



ELEVATION VIEW



SECTION B-B

GRAUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS

ASSEMBLED BY : D.A. DAVENPORT	DATE : 5/16/16
CHECKED BY : R.P. PATEL	DATE : 7/26/16
DRAWN BY : MAA	6/10
CHECKED BY : MKT	7/10
REV.	8/14
MAA/TMG	

PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
STATION: 15+80.00 -L-

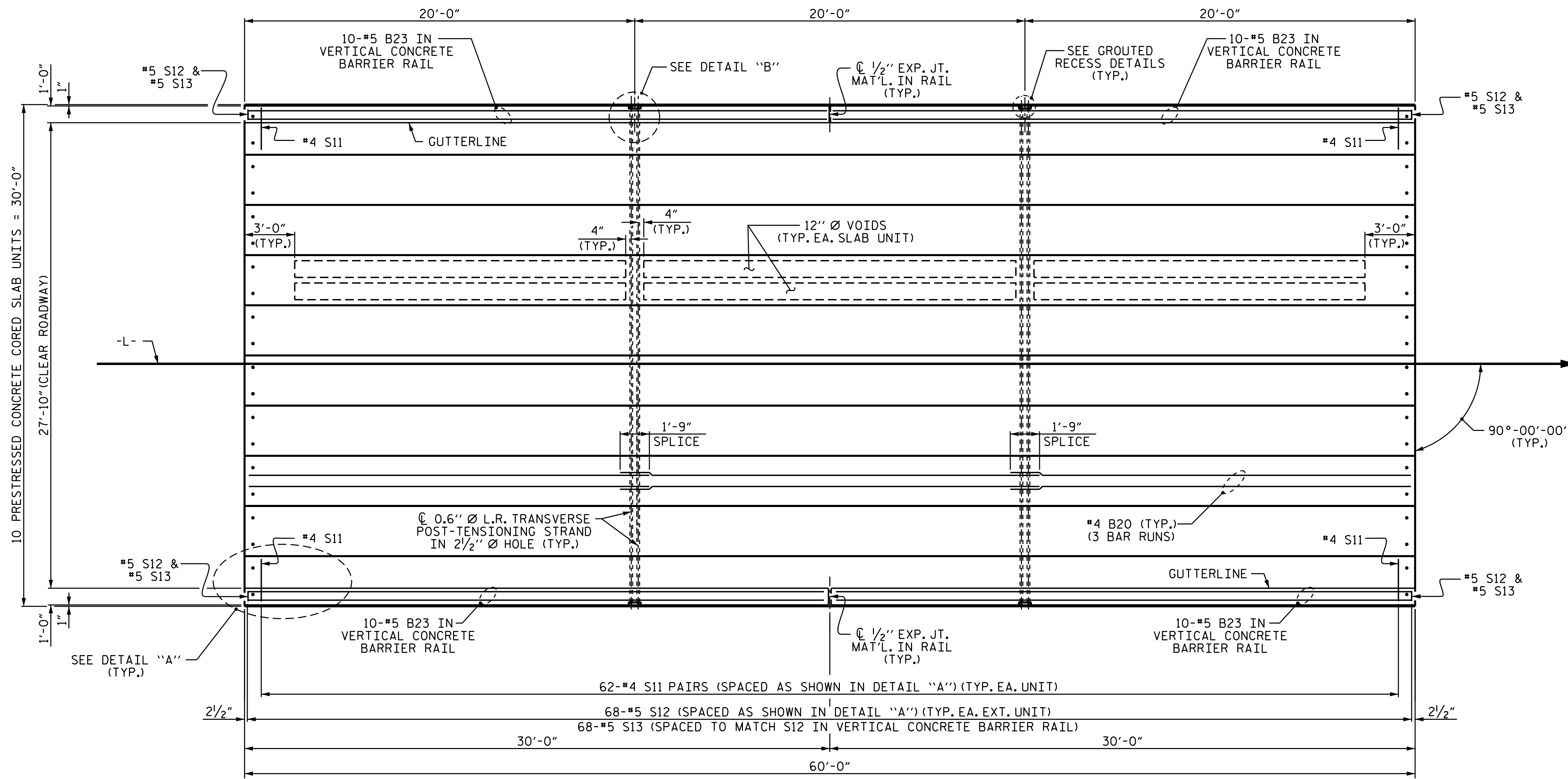
SHEET 1 OF 3



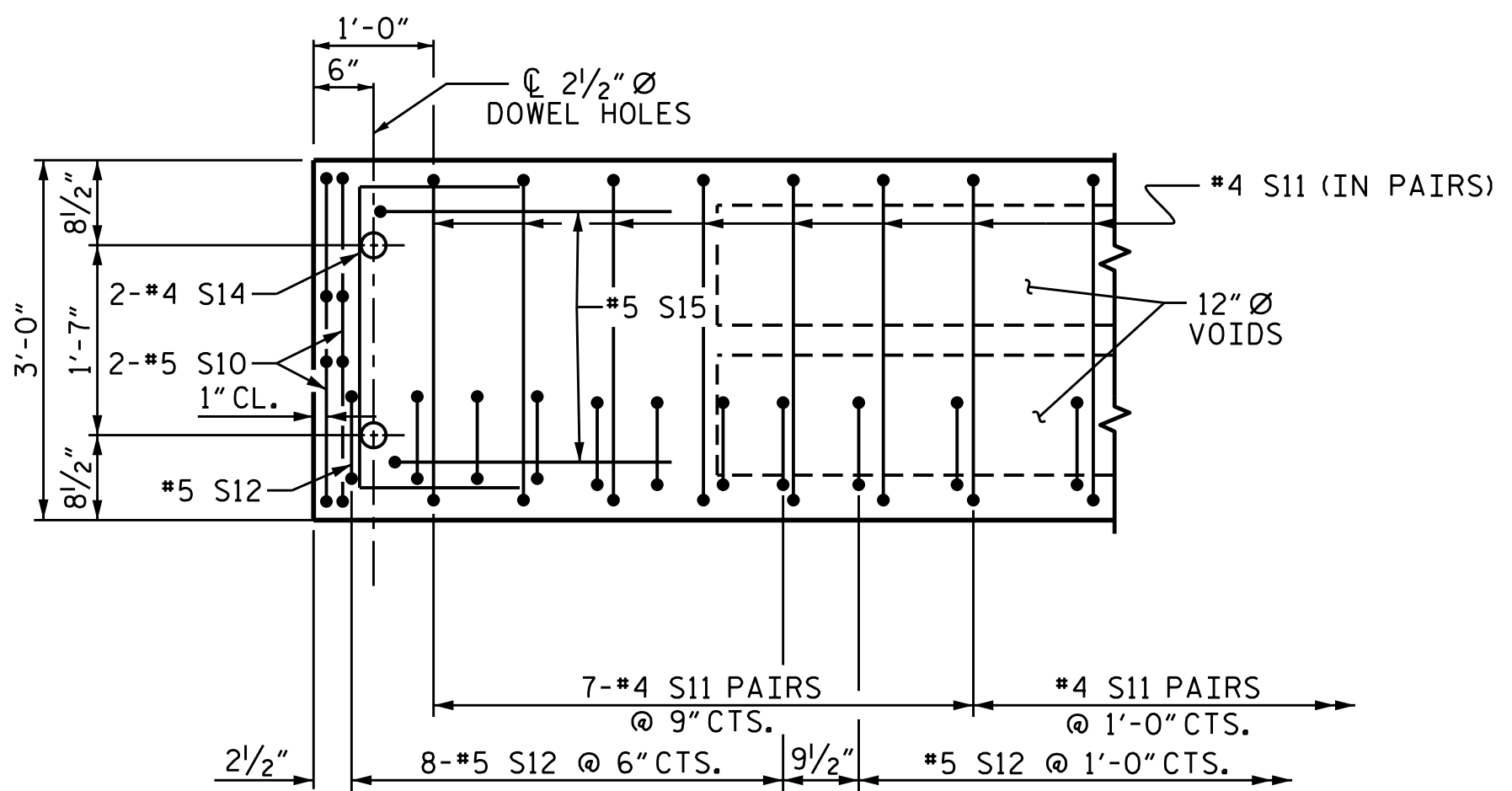
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

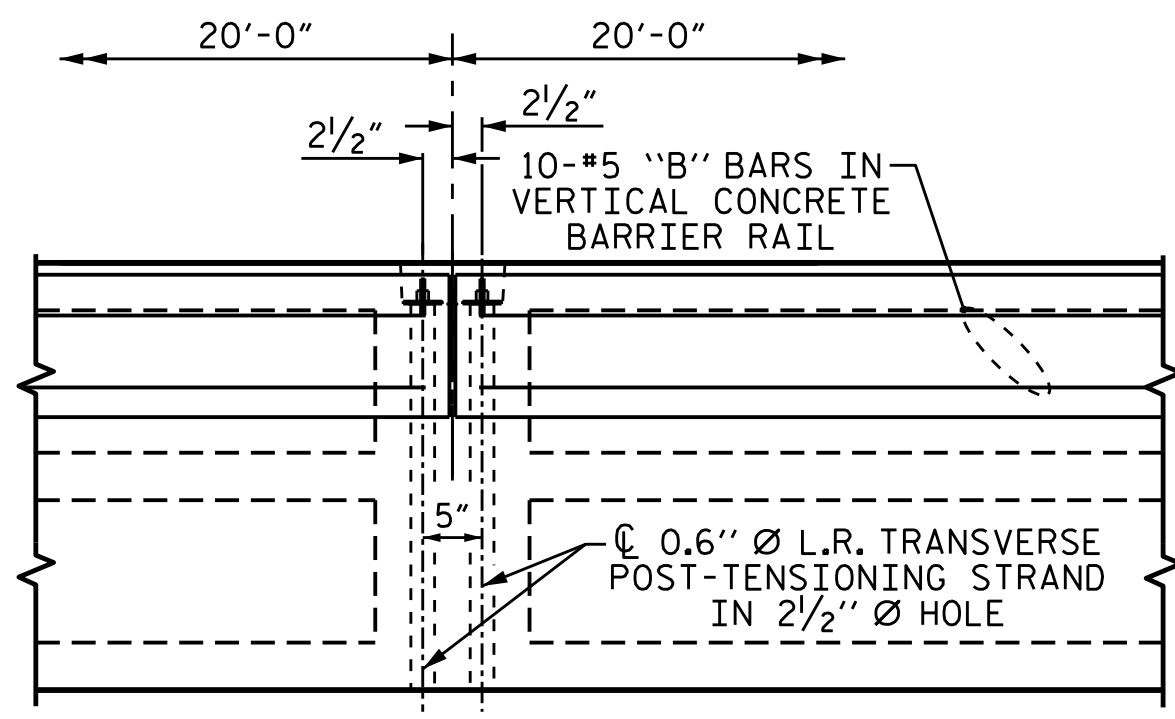


PLAN OF UNIT
(SPAN A)



DETAIL "A"

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

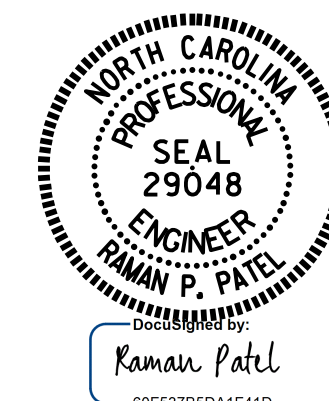


DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2.5" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

ASSEMBLED BY :	D.A. DAVENPORT	DATE :	5/16/16
CHECKED BY :	R.P. PATEL	DATE :	7/26/16
DRAWN BY :	MAA	6/10	REV. 12/5/11
CHECKED BY :	MKT	7/10	REV. 8/14
			MAA/AAC
			MAA/TMG

16-SEP-2016 11:05
V:\Division08\610224\Structures\Plans\17BP.8.R.102.SMU.PS.dgn
rppatel



PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
STATION: 15+80.00 -L-

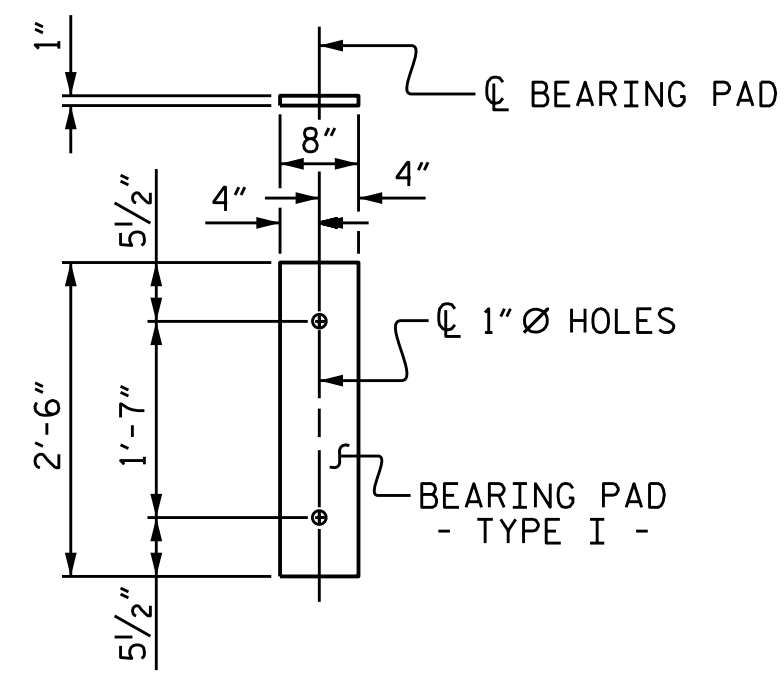
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PLAN OF 60' UNIT
27'-10" CLEAR ROADWAY
90° SKEW

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			14

STD. NO. 24PCS_30_90S_60L



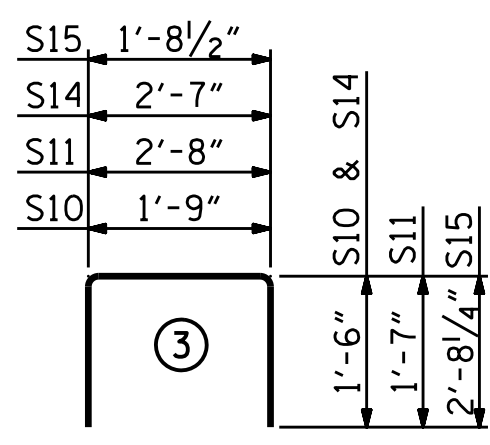
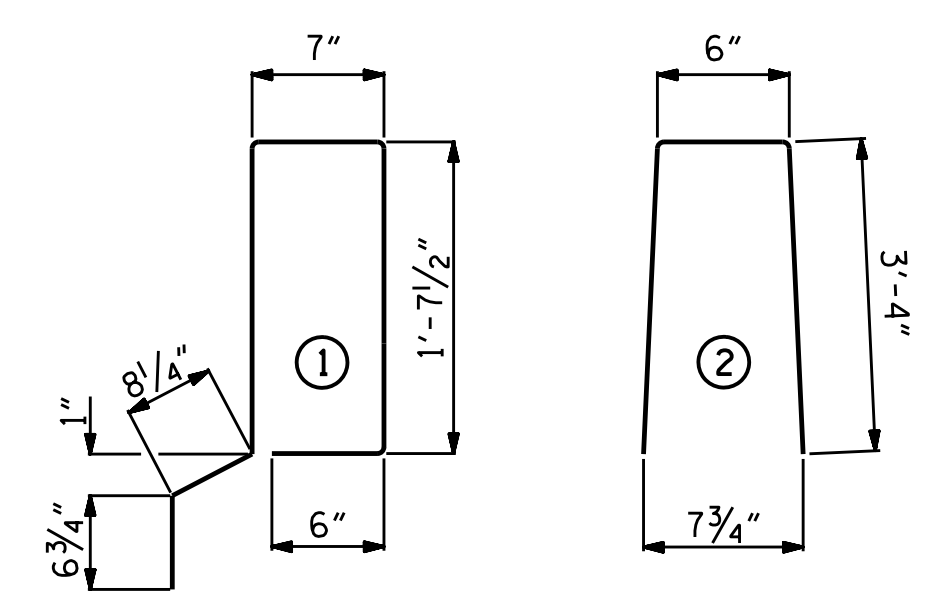
FIXED END
(TYPE I -20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
60' UNIT			
EXTERIOR C.S.	2	60'-0"	120'-0"
INTERIOR C.S.	8	60'-0"	480'-0"
TOTAL	10	-	600'-0"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

DEAD LOAD DEFLECTION AND CAMBER

3'-0" x 2'-0"	
60' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 7/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	1 3/8" ↑

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

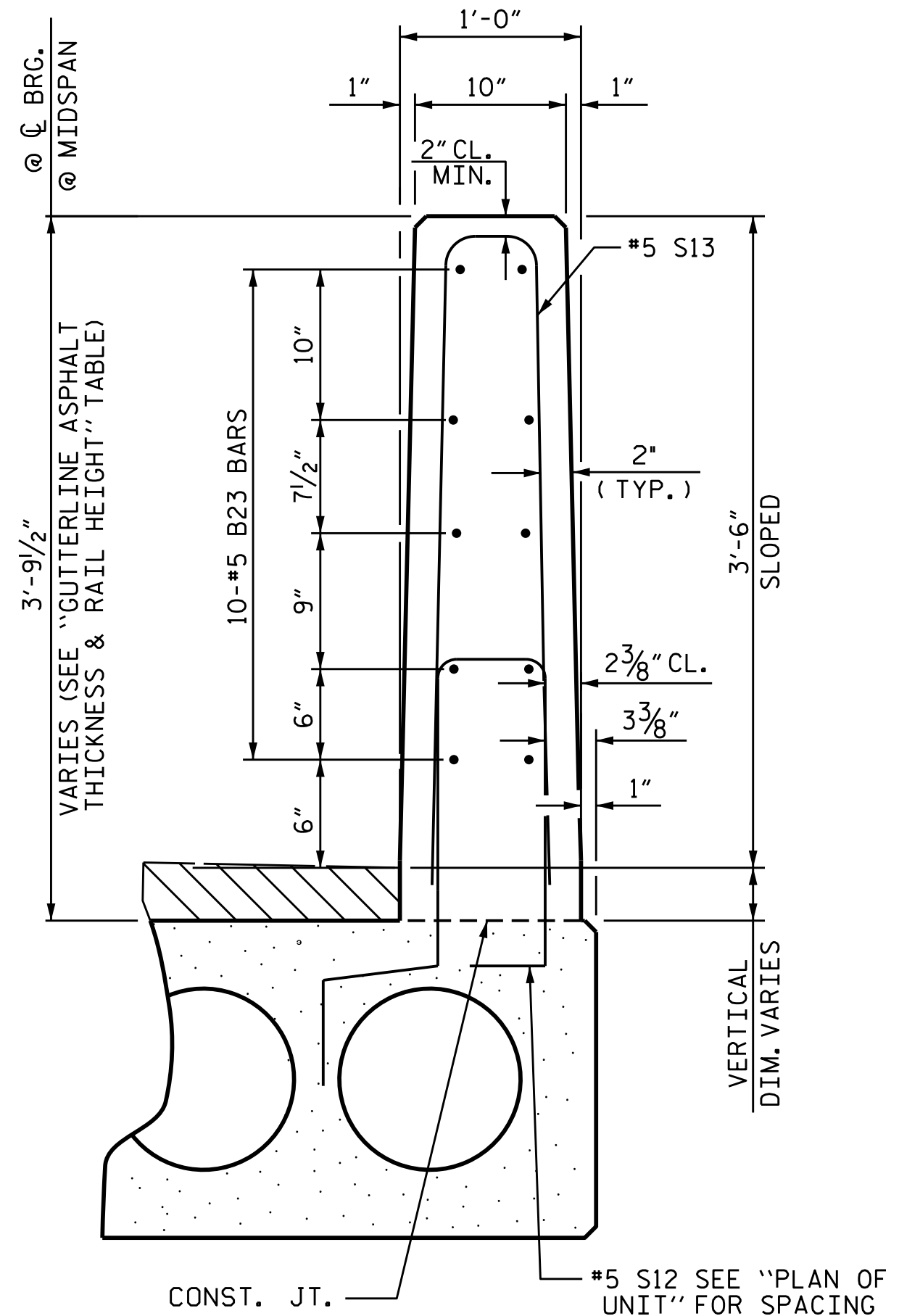
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
60' UNIT						
*B23	40	40	#5	STR	29'-7"	1234
*S13	136	136	#5	2	7'-2"	1017
*EPOXY COATED REINFORCING STEEL					LBS.	2251
CLASS AA CONCRETE					CU.YDS.	15.5
TOTAL VERTICAL CONCRETE BARRIER RAIL					LN.FT.	120.00

BILL OF MATERIAL FOR ONE 60' CORED SLAB UNIT

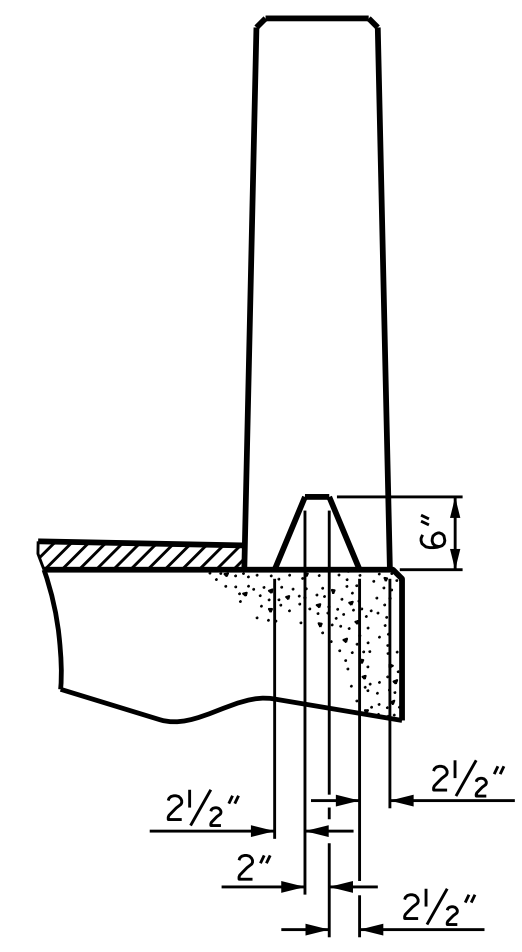
		EXTERIOR UNIT		INTERIOR UNIT			
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B20	6	#4	STR	21'-2"	85	21'-2"	85
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	124	#4	3	5'-10"	483	5'-10"	483
*S12	68	#5	1	5'-7"	396	5'-7"	396
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL					LBS.	653	653
*EPOXY COATED REINFORCING STEEL					LBS.	396	396
6000 P.S.I. CONCRETE					CU. YDS.	10.2	10.2
0.6" Ø L.R. STRANDS					No.	24	24

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
60' UNITS	2 7/8"	3'-8 1/8"

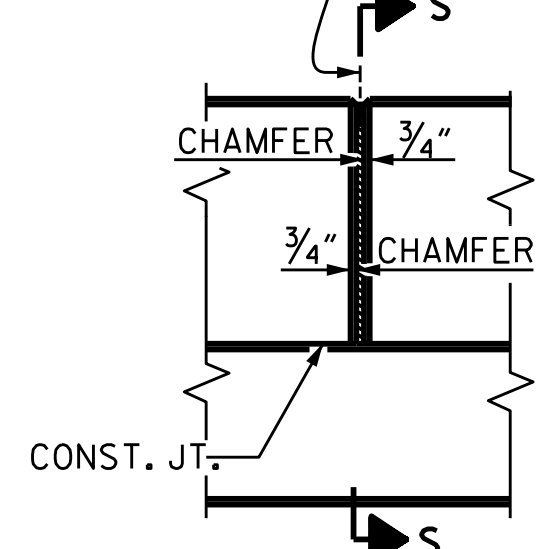


SECTION THRU RAIL

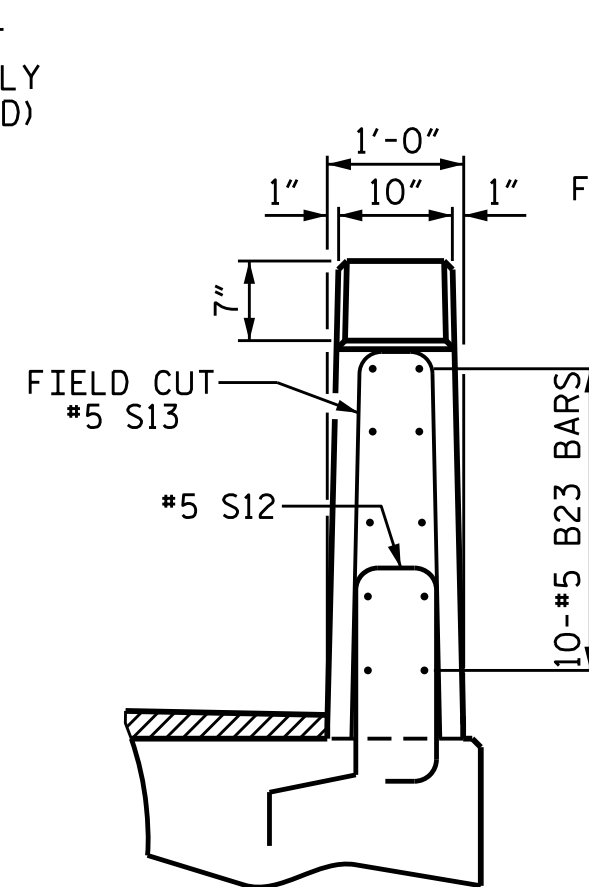


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

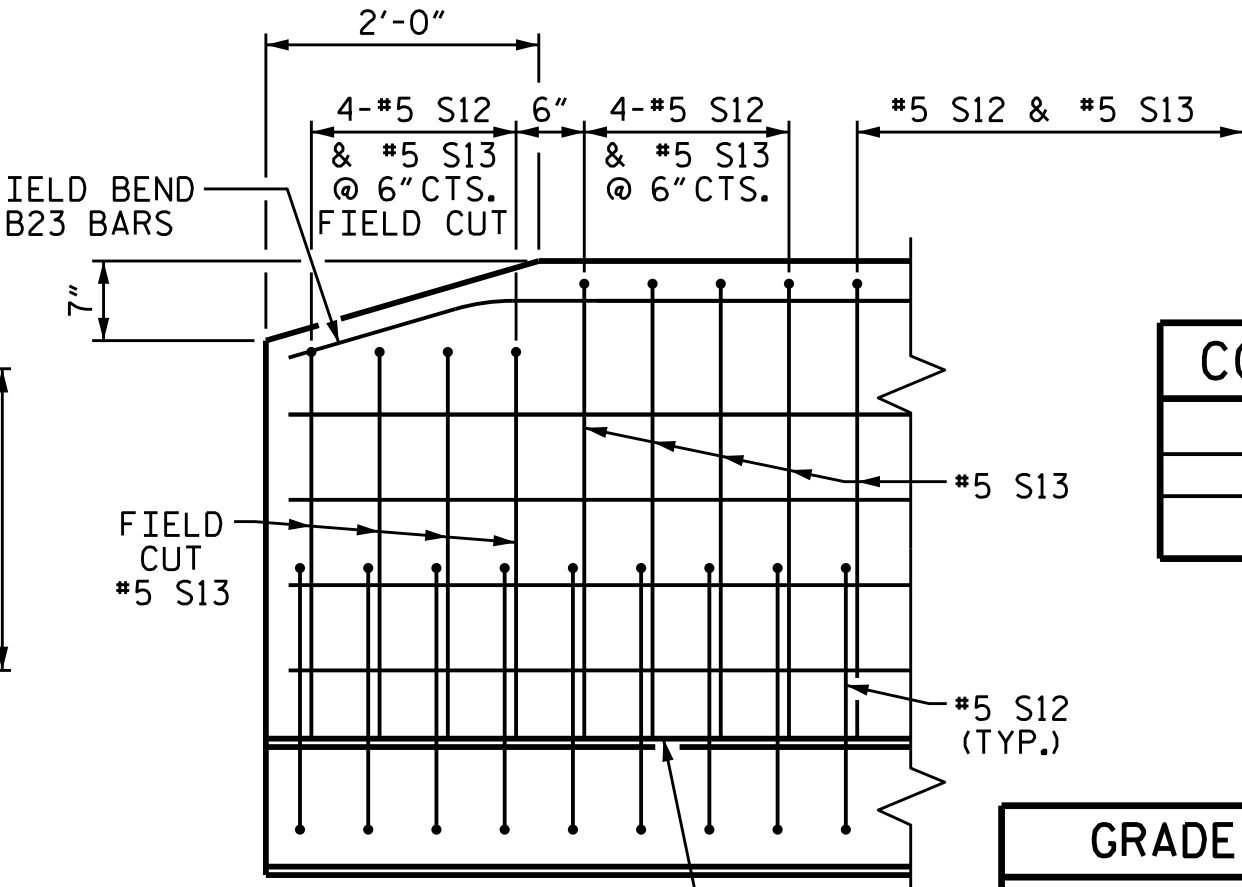
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

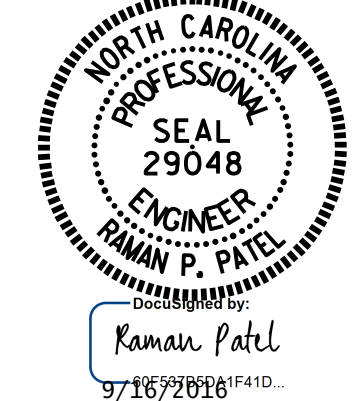
END OF RAIL DETAILS

CONCRETE RELEASE STRENGTH

UNIT	PSI
60' UNITS	4800

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



NOTES

- ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.
- RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.
- THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.
- THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.
- WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM, IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.
- THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.
- ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.
- PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.
- APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.
- GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.
- FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.
- MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.
- THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.
- THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.
- THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.
- THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
STATION: 15+80.00 -L-

SHEET 3 OF 3

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

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

TOTAL SHEETS 14

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : D.A. DAVENPORT DATE : 5/16/16
CHECKED BY : R.P. PATEL DATE : 7/26/16
DRAWN BY : MAA 6/10
CHECKED BY : MKT 7/10
REV. 11/14 MAA/TMG

NOTES

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

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

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

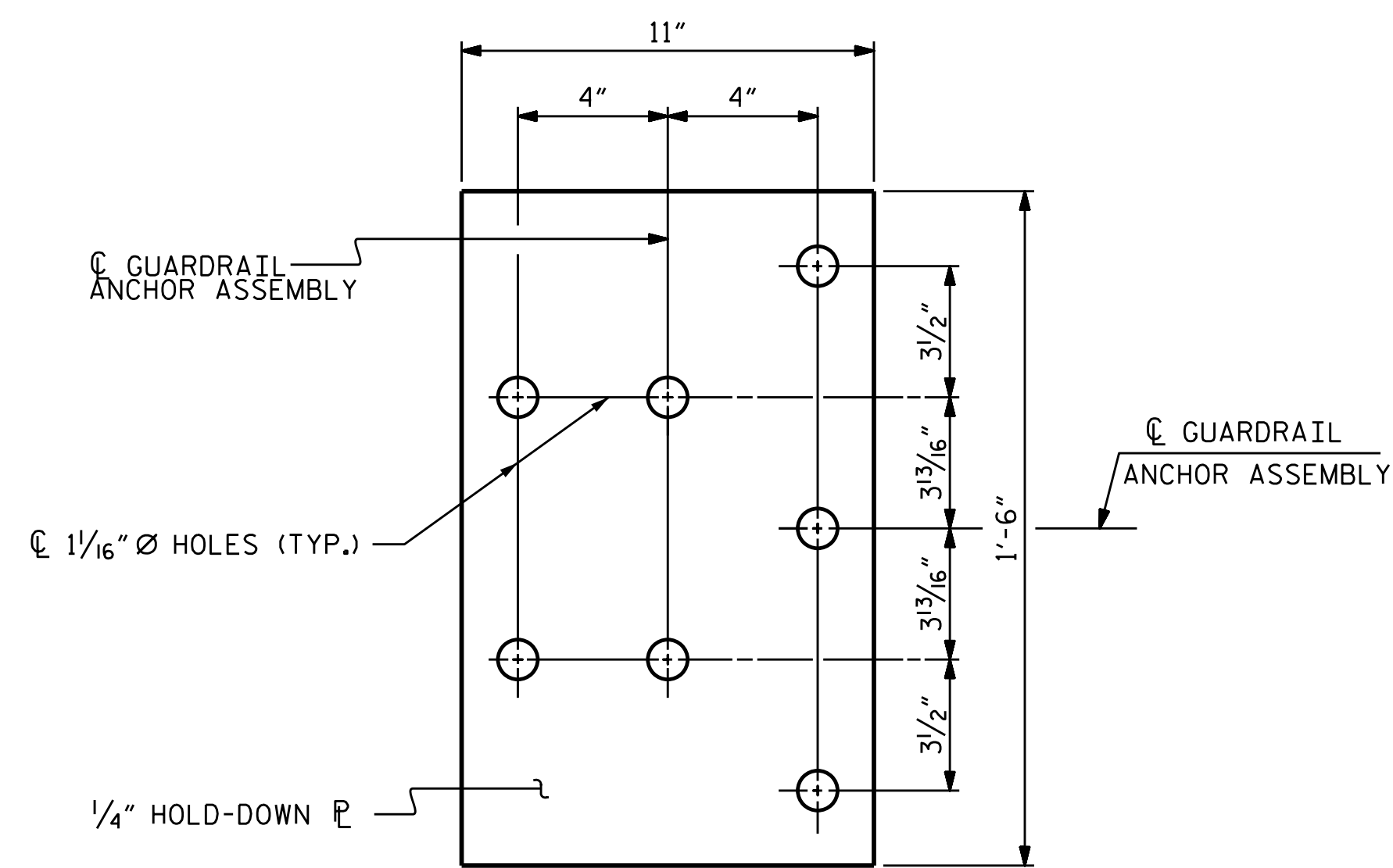
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

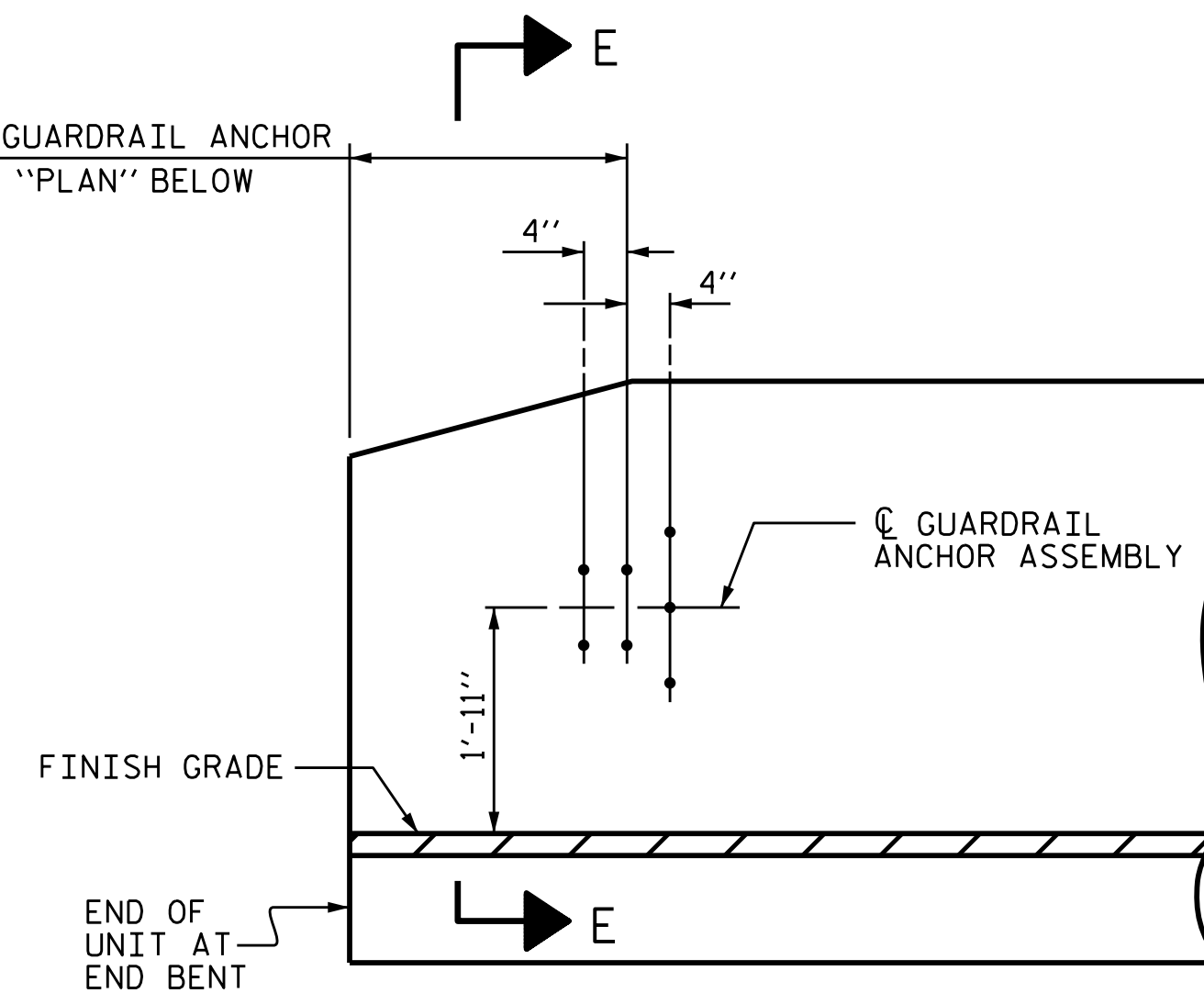
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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

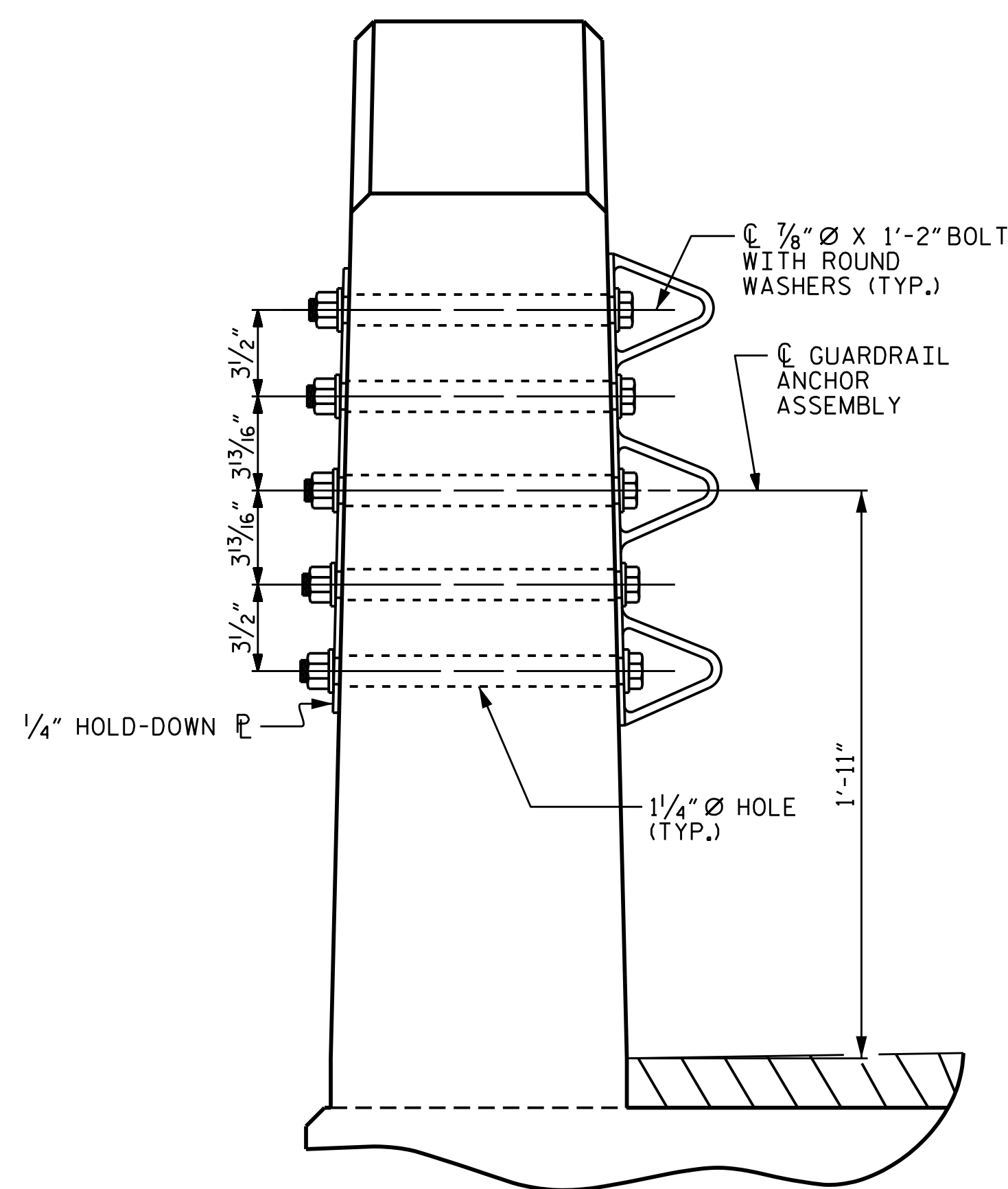


PLAN

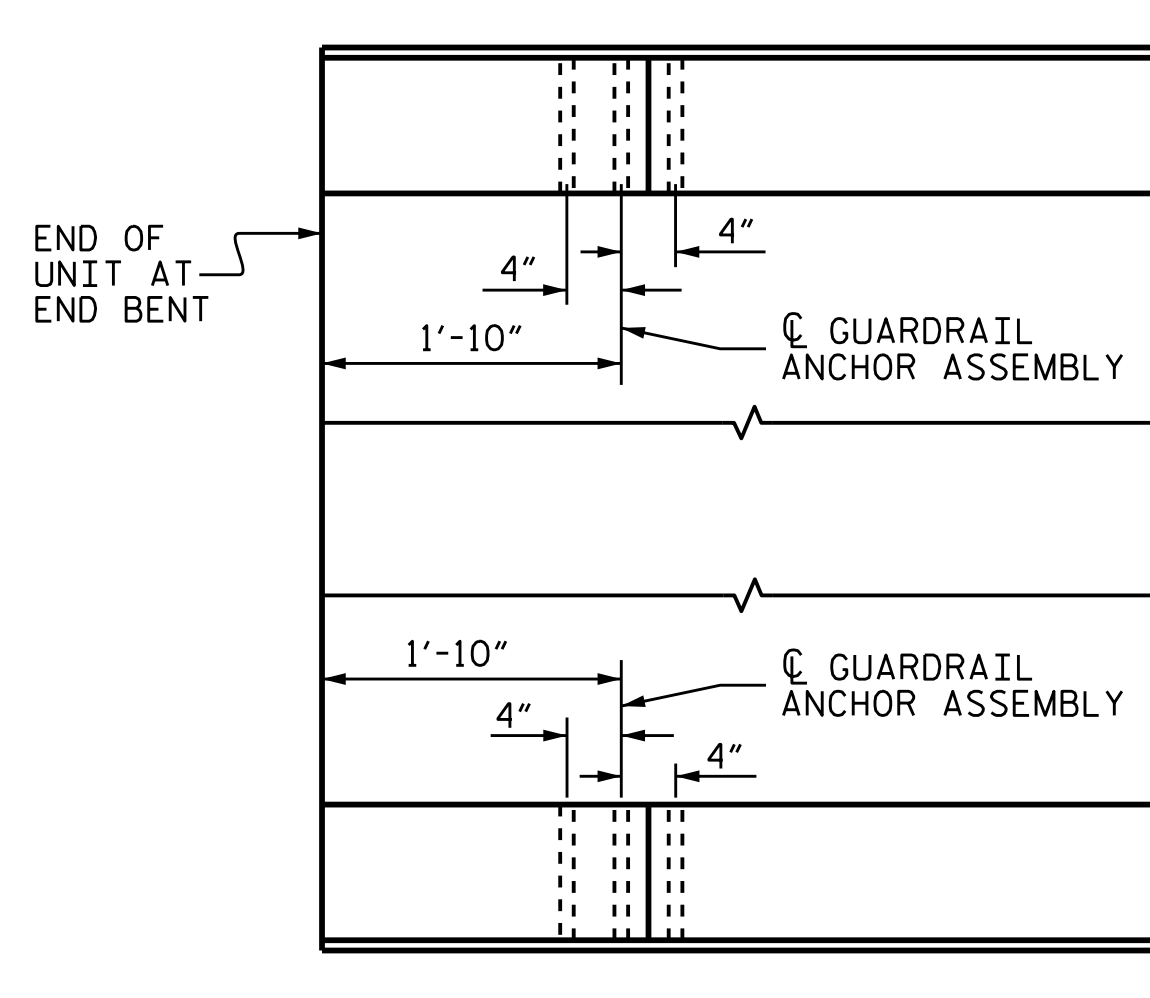
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



ELEVATION



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

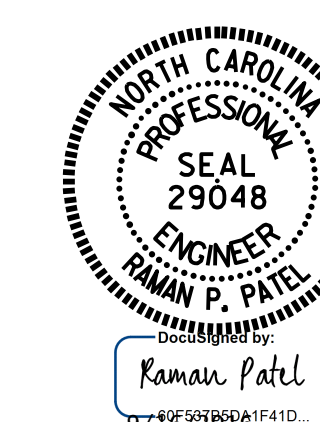
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
 STATION: 15+80.00 -L-



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

ASSEMBLED BY : D.A. DAVENPORT	DATE : 5/16/16
CHECKED BY : R.P. PATEL	DATE : 7/26/16
DRAWN BY : MAA	5/10
CHECKED BY : GM	5/10
REV. 12/5/11	MAA/GM
REV. 6/13	MAA/GM
REV. 1/15	MAA/TMG

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO. S-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 14
2			4			

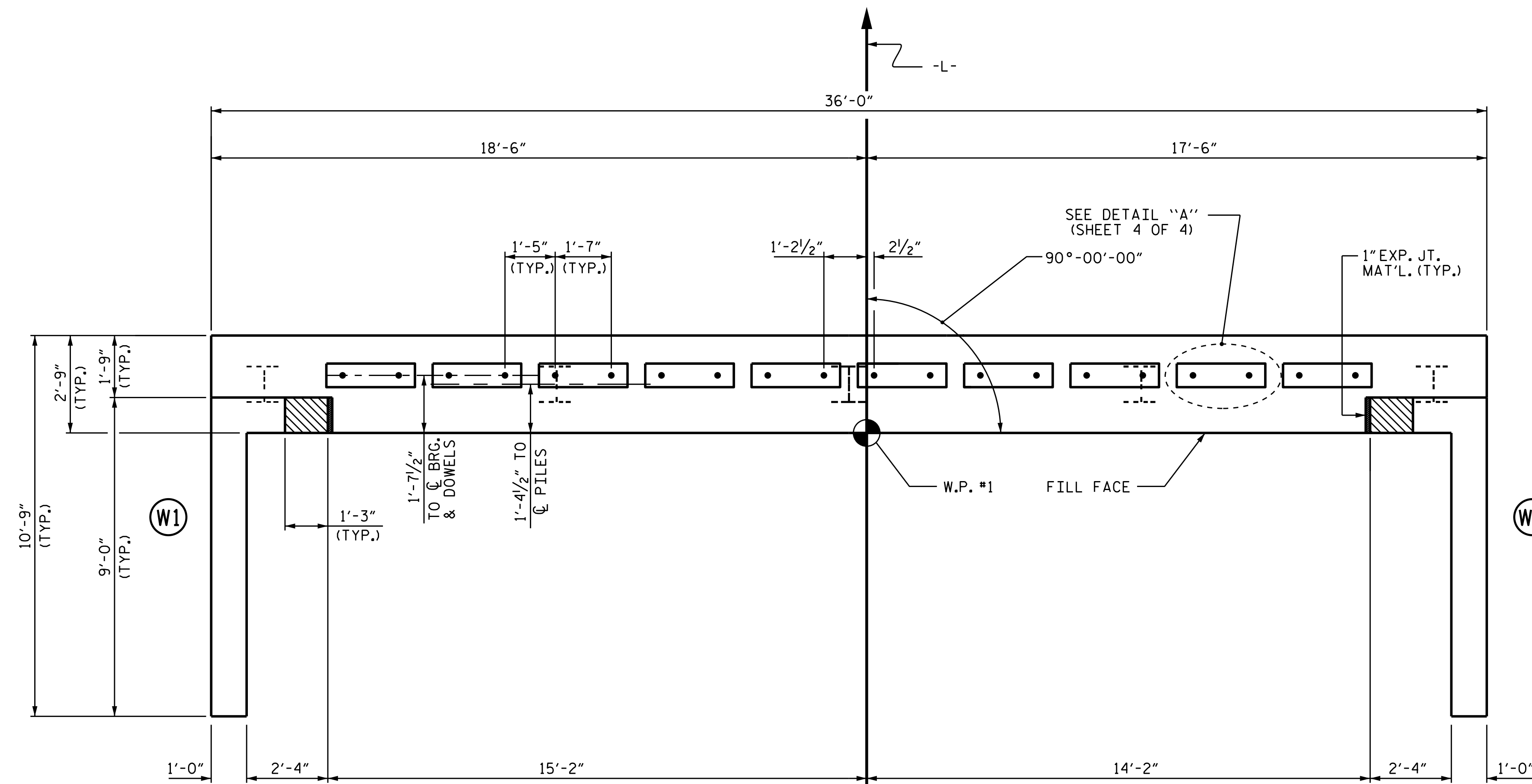
NOTES

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

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

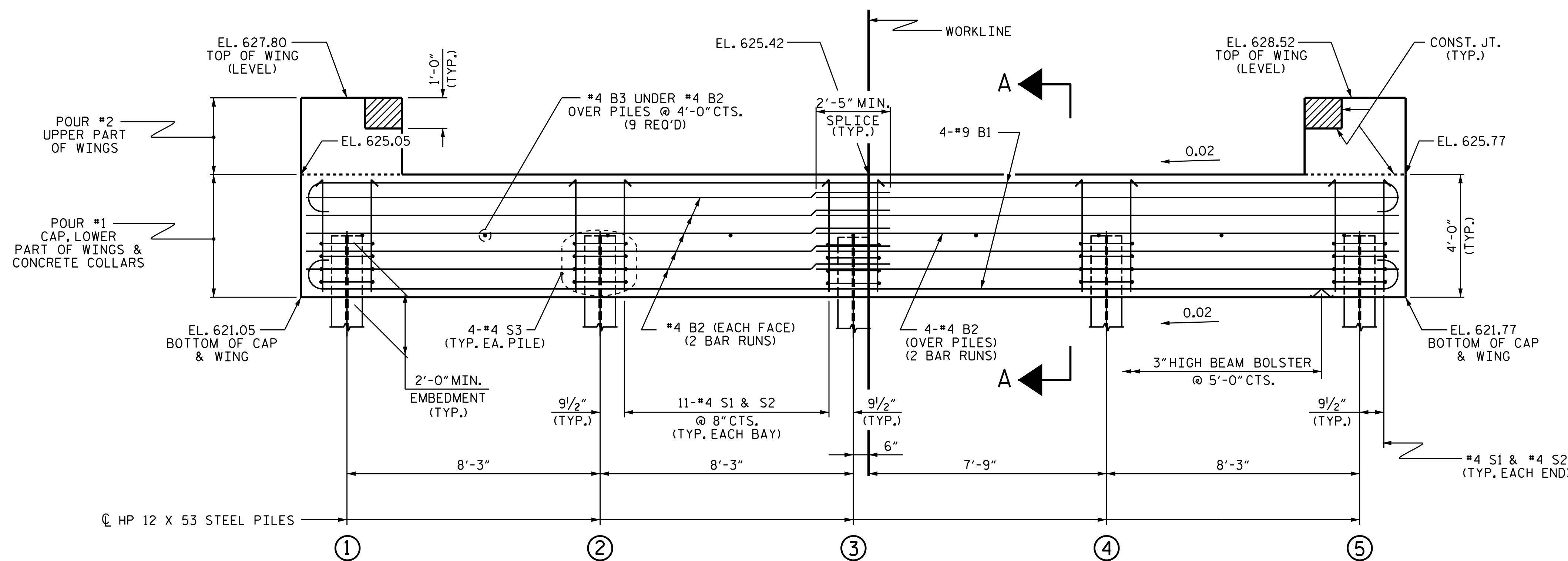
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

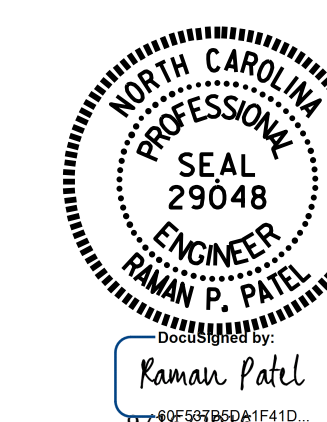
TOP OF PILE ELEVATIONS	
①	623.09
②	623.26
③	623.42
④	623.59
⑤	623.75



ELEVATION

PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
 STATION: 15+80.00 -L-

SHEET 1 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1

ASSEMBLED BY : D.A. DAVENPORT	DATE : 5/16/16
CHECKED BY : R.P. PATEL	DATE : 9/13/16
DRAWN BY : WJH	12/11
CHECKED BY : AAC	12/11
REV. 4/15	MAA/TMG

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

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			14

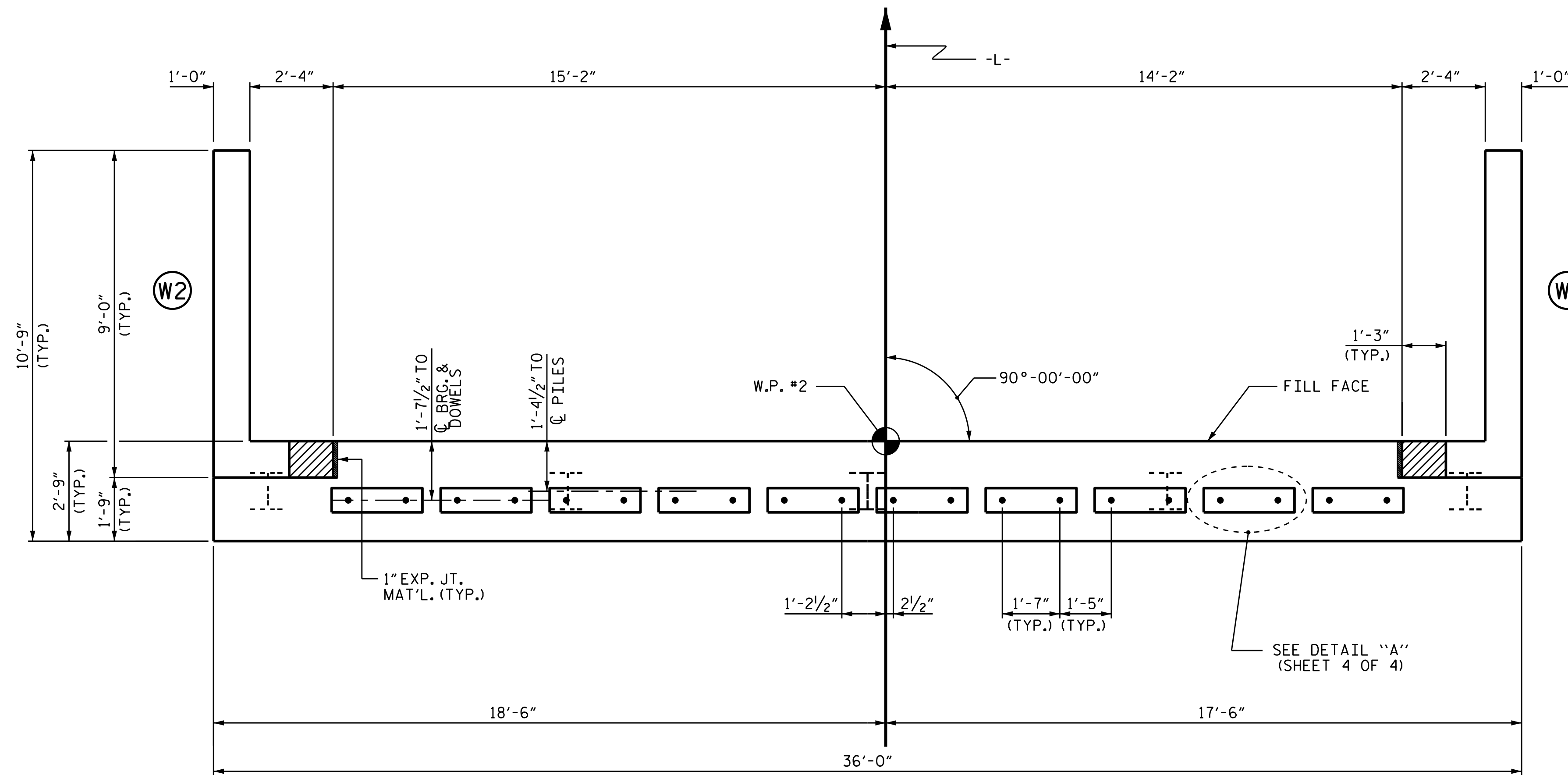
NOTES

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

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

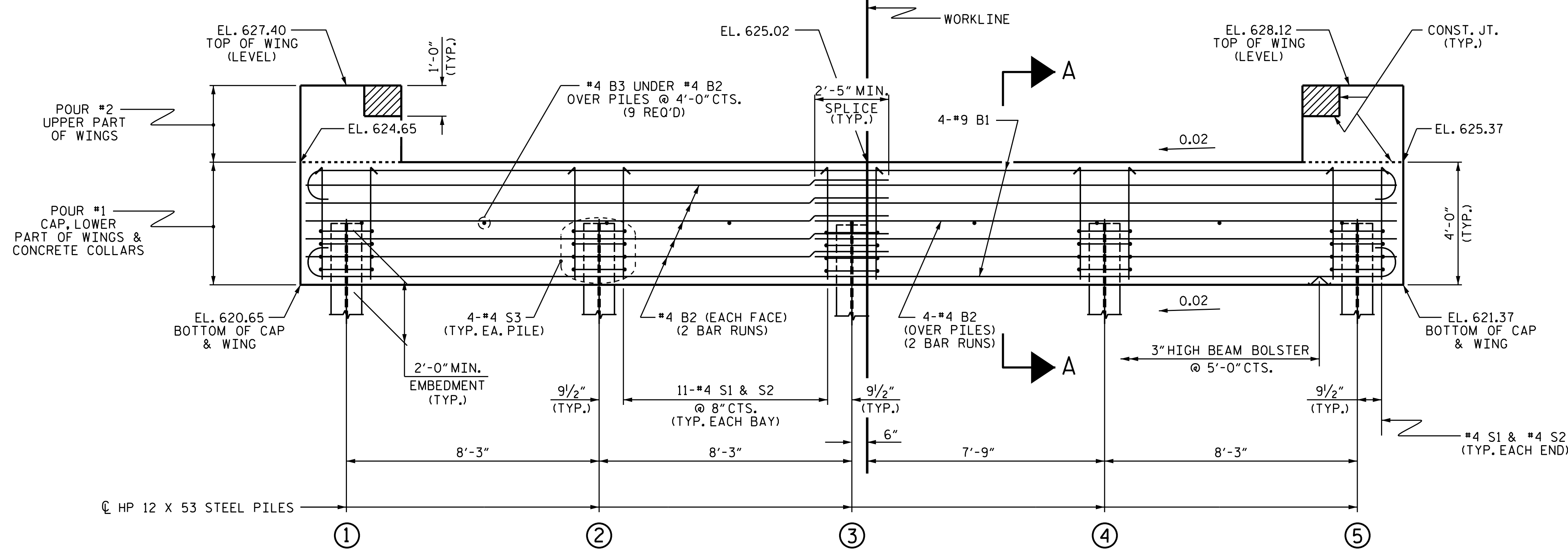
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

TOP OF PILE ELEVATIONS	
①	622.69
②	622.86
③	623.02
④	623.19
⑤	623.35

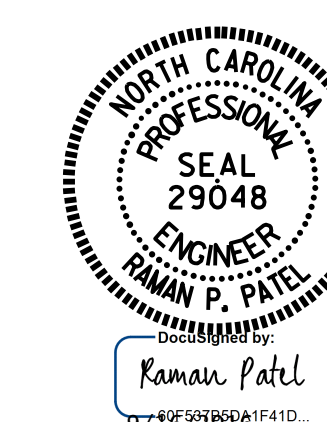


ELEVATION

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

PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
 STATION: 15+80.00 -L-

SHEET 2 OF 4



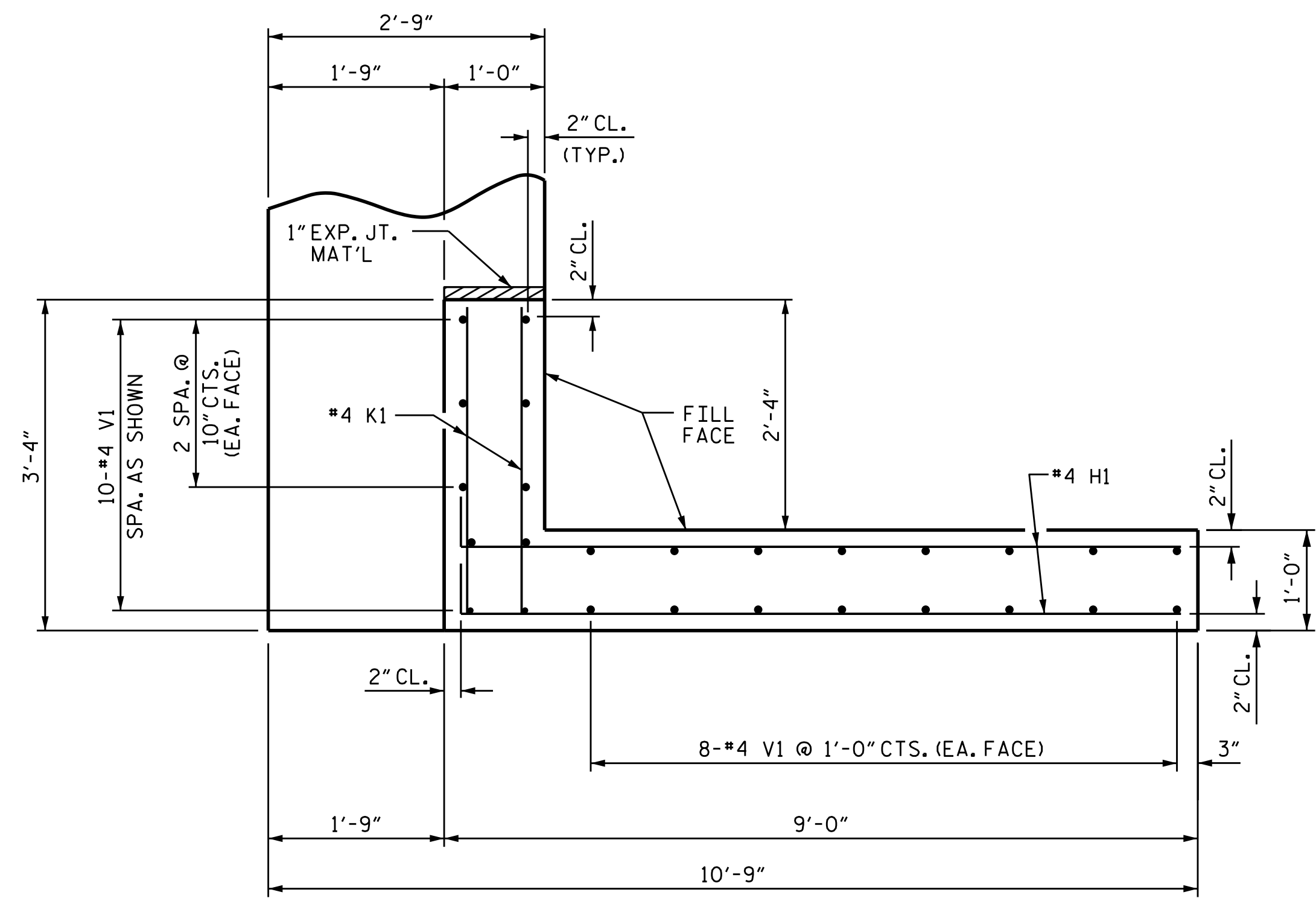
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 2

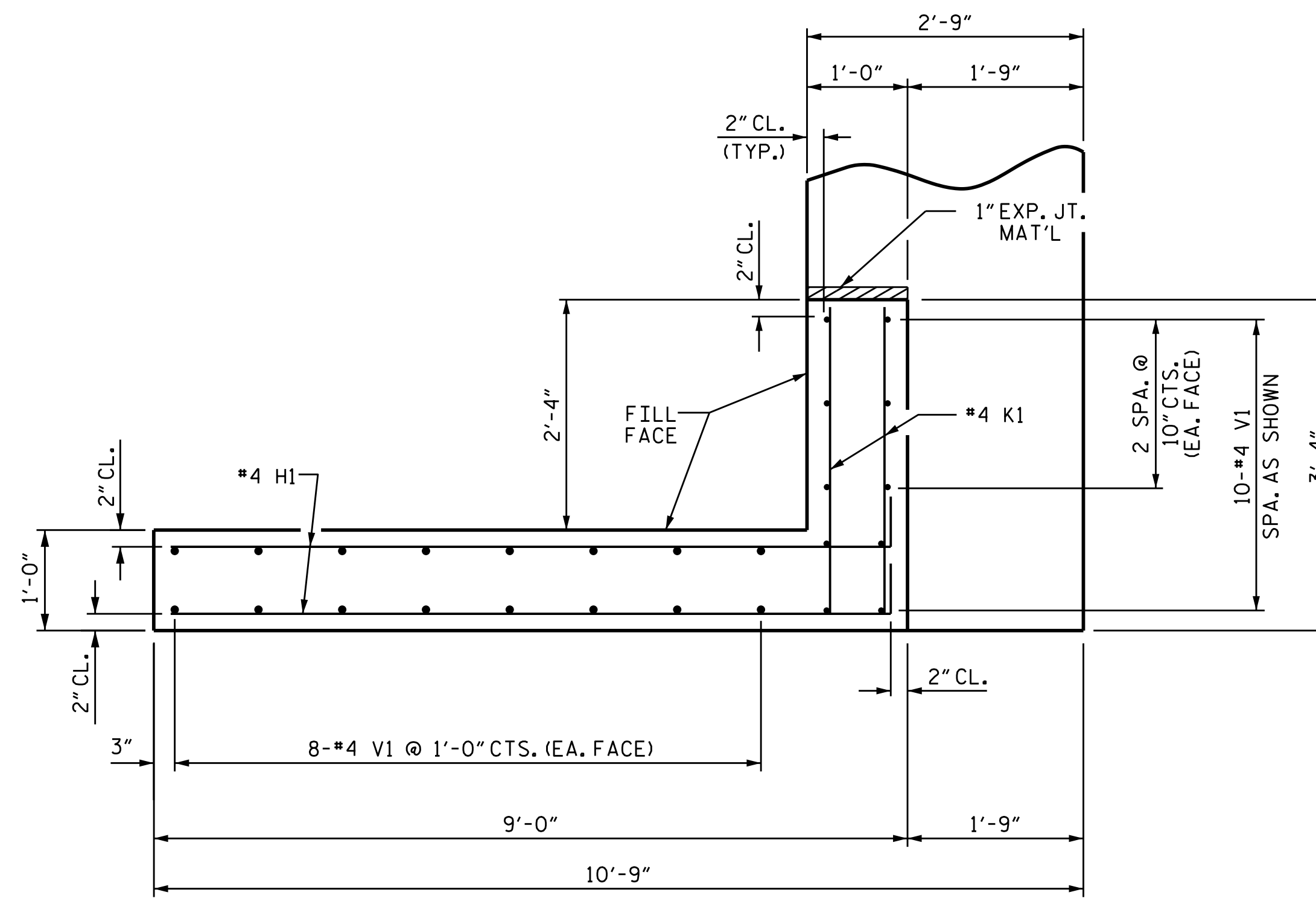
ASSEMBLED BY : D.A. DAVENPORT	DATE : 5/16/16
CHECKED BY : R.P. PATEL	DATE : 9/13/16
DRAWN BY : WJH	12/11
CHECKED BY : AAC	12/11
REV. 4/15	MAA/TMG

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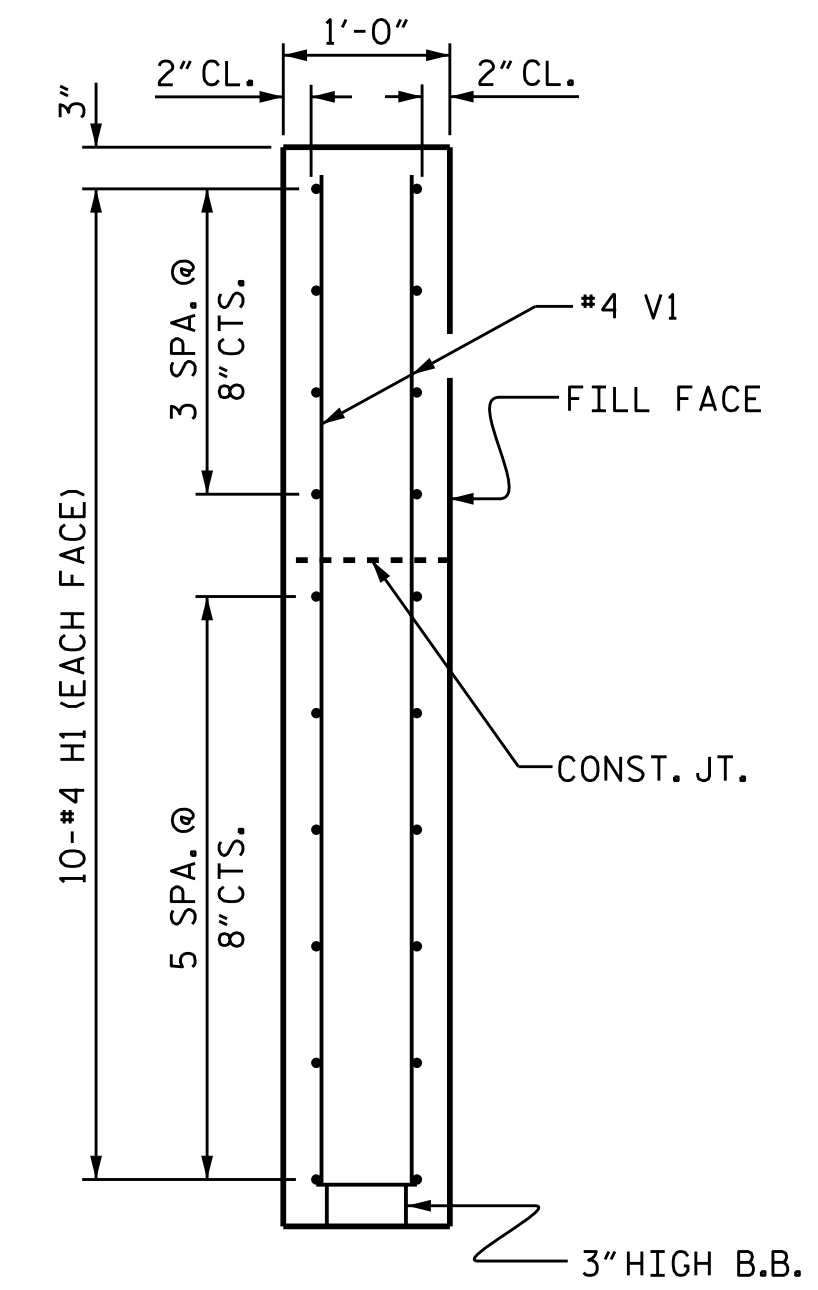
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 14
2			4			



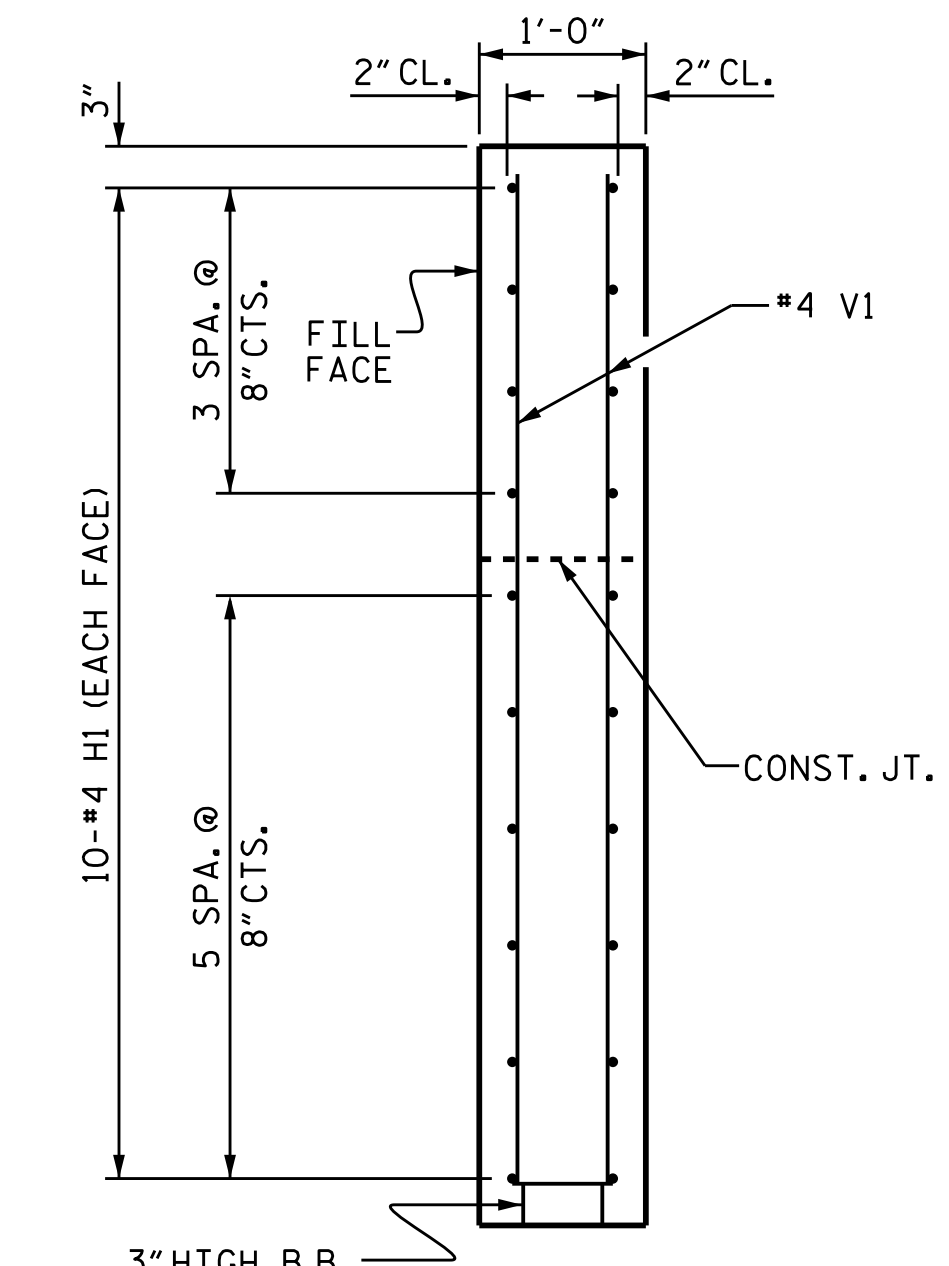
PLAN OF WING (W1)



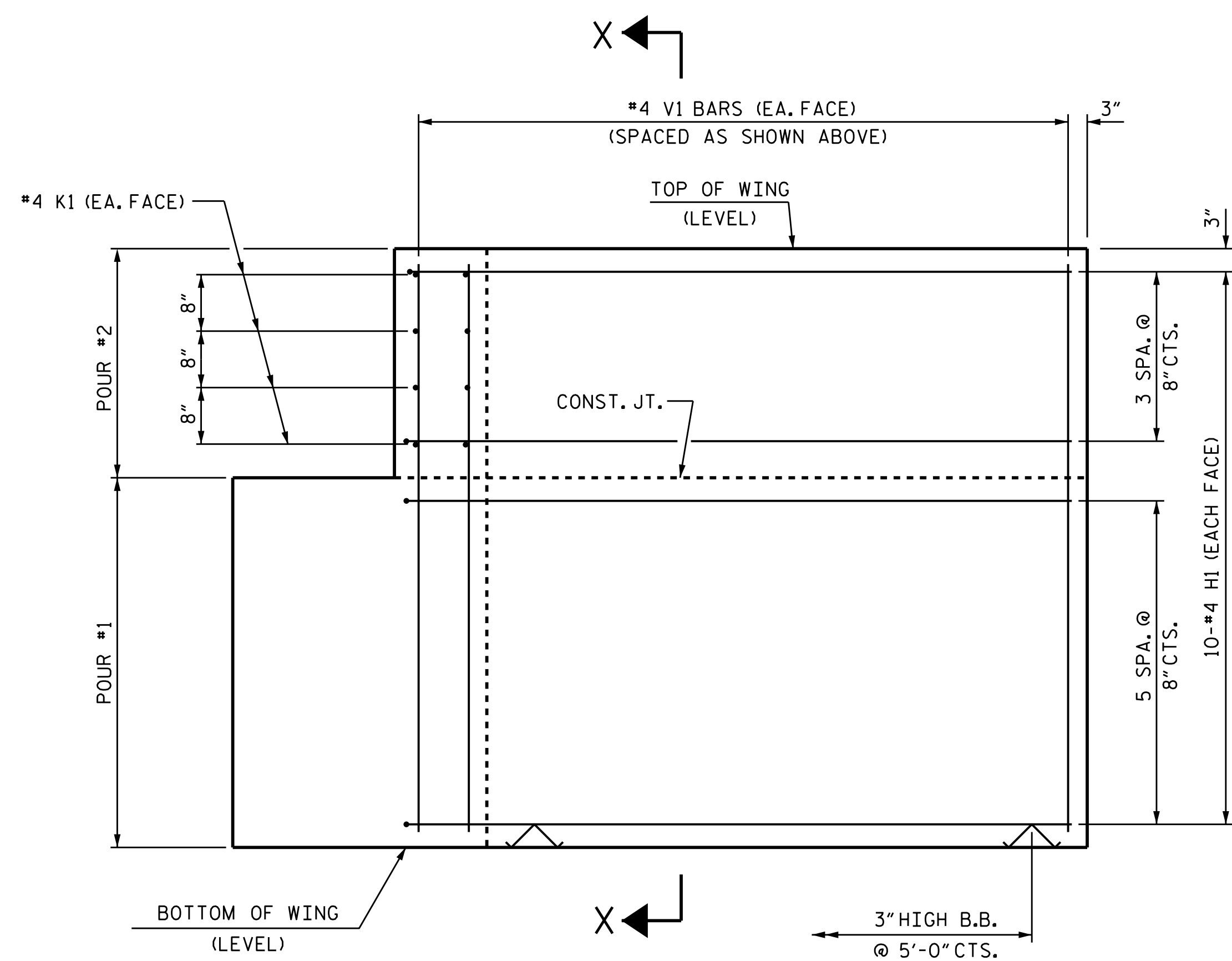
PLAN OF WING (W2)



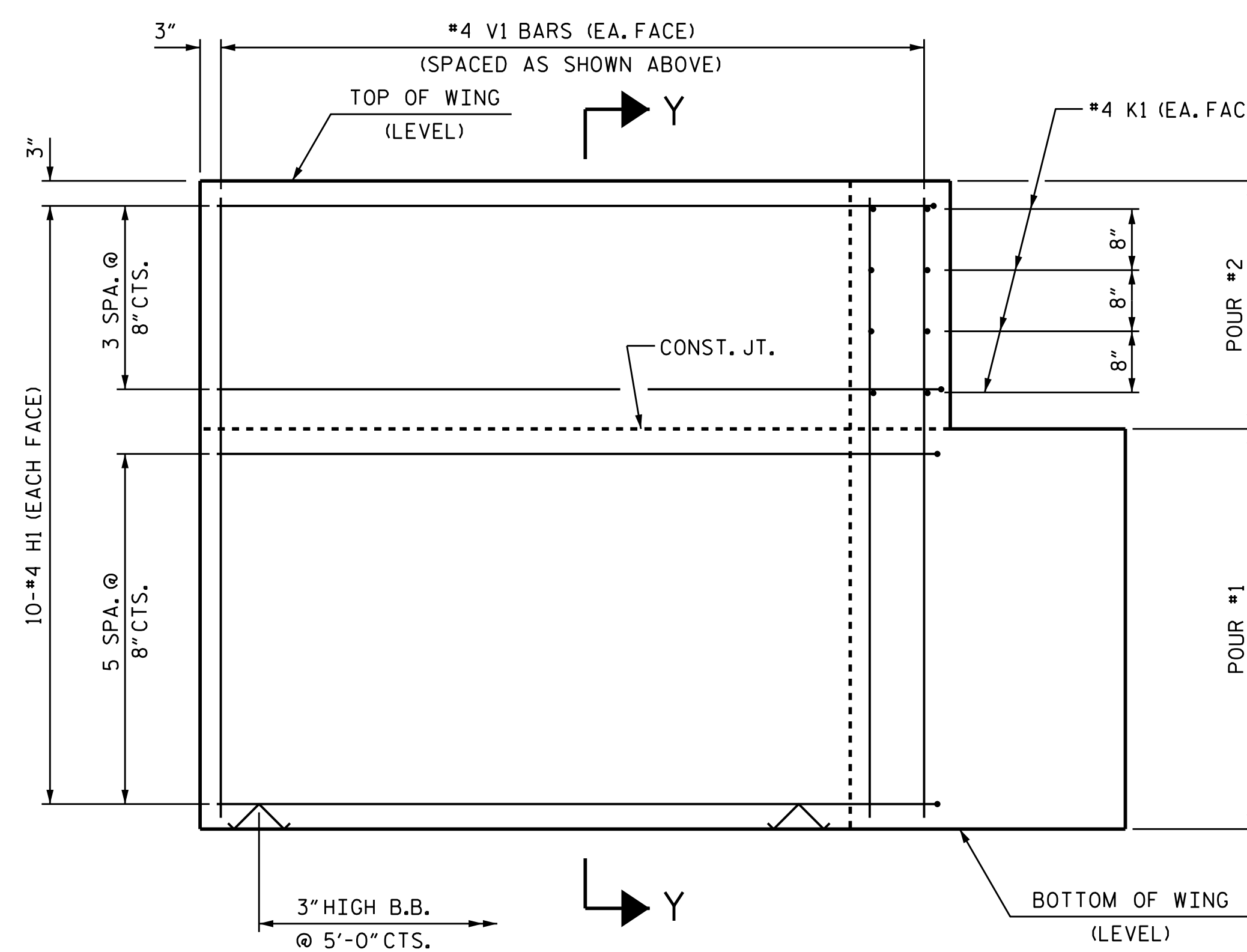
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)

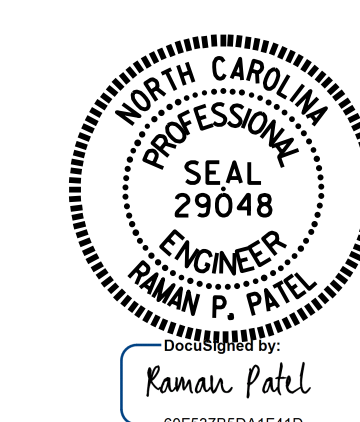


ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. 17BP.8.R.102
 MONTGOMERY COUNTY
 STATION: 15+80.00 -L-

SHEET 3 OF 4



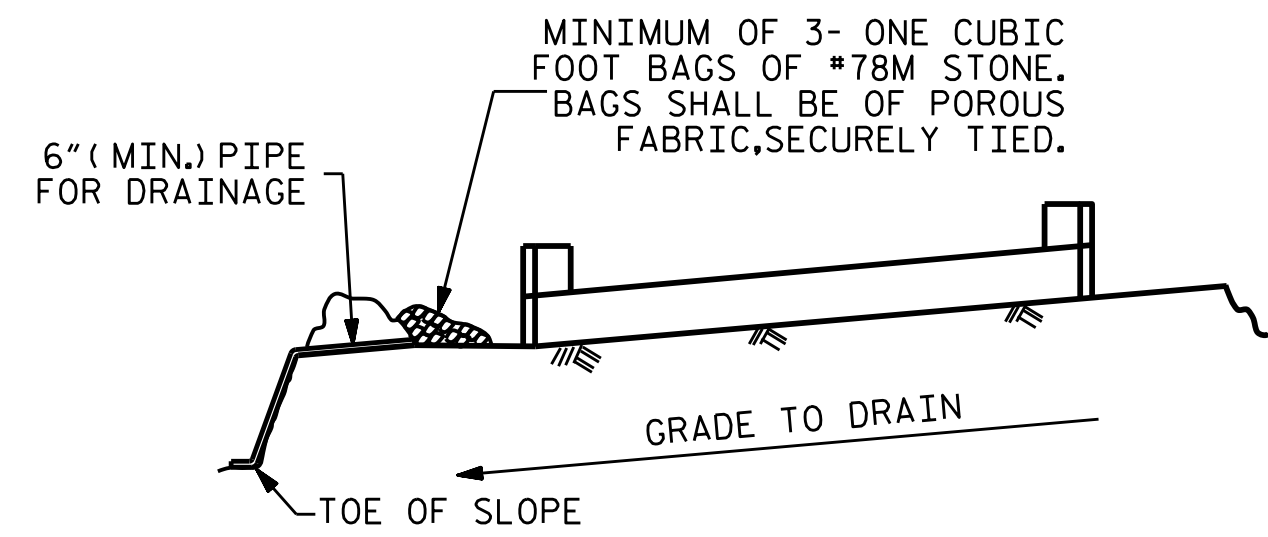
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT
 WING DETAILS

ASSEMBLED BY : D.A. DAVENPORT DATE : 5/16/16
 CHECKED BY : R.P. PATEL DATE : 9/13/16
 DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11 REV. 4/15 MAA/TMG

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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	
2			4			14	

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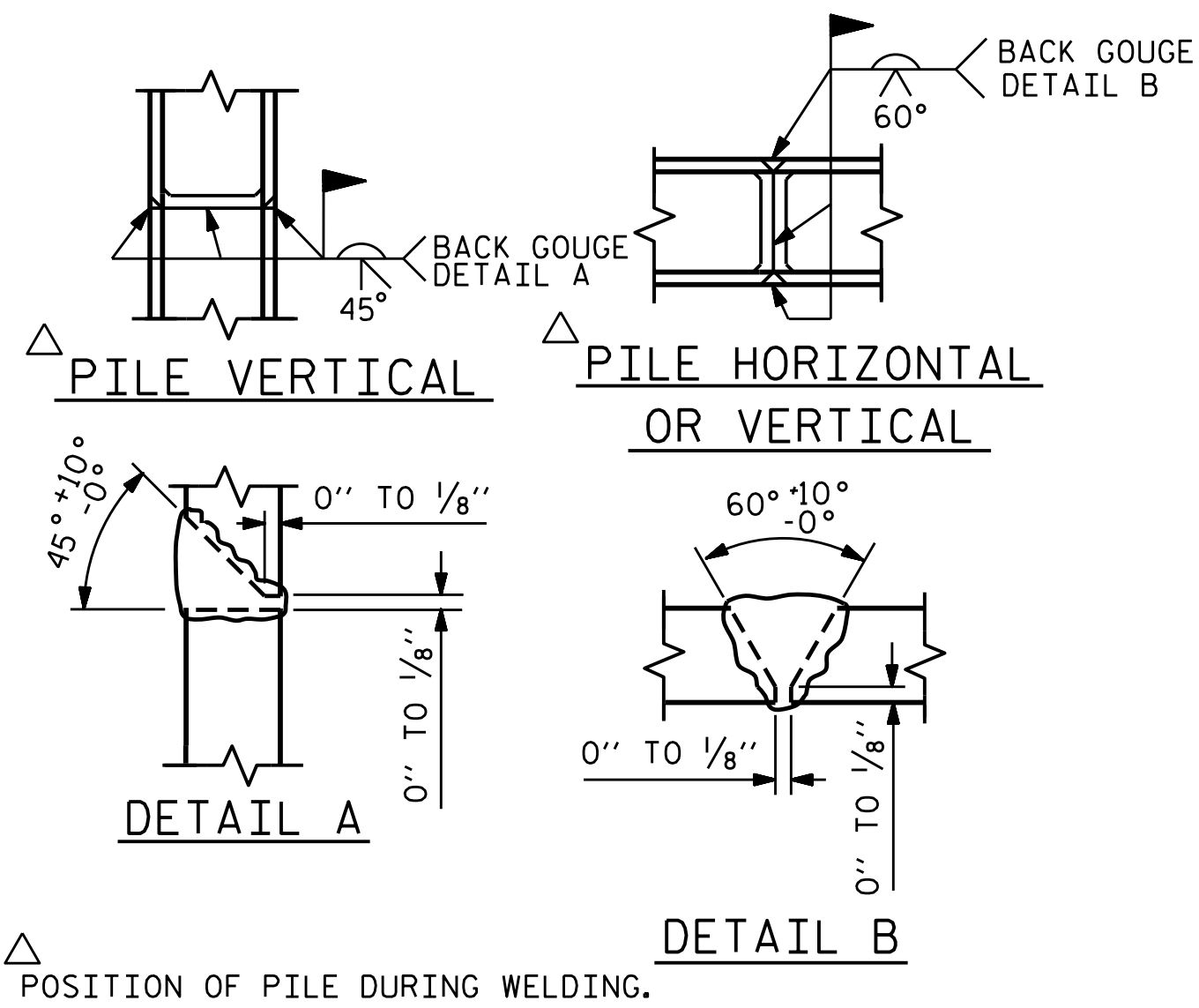


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

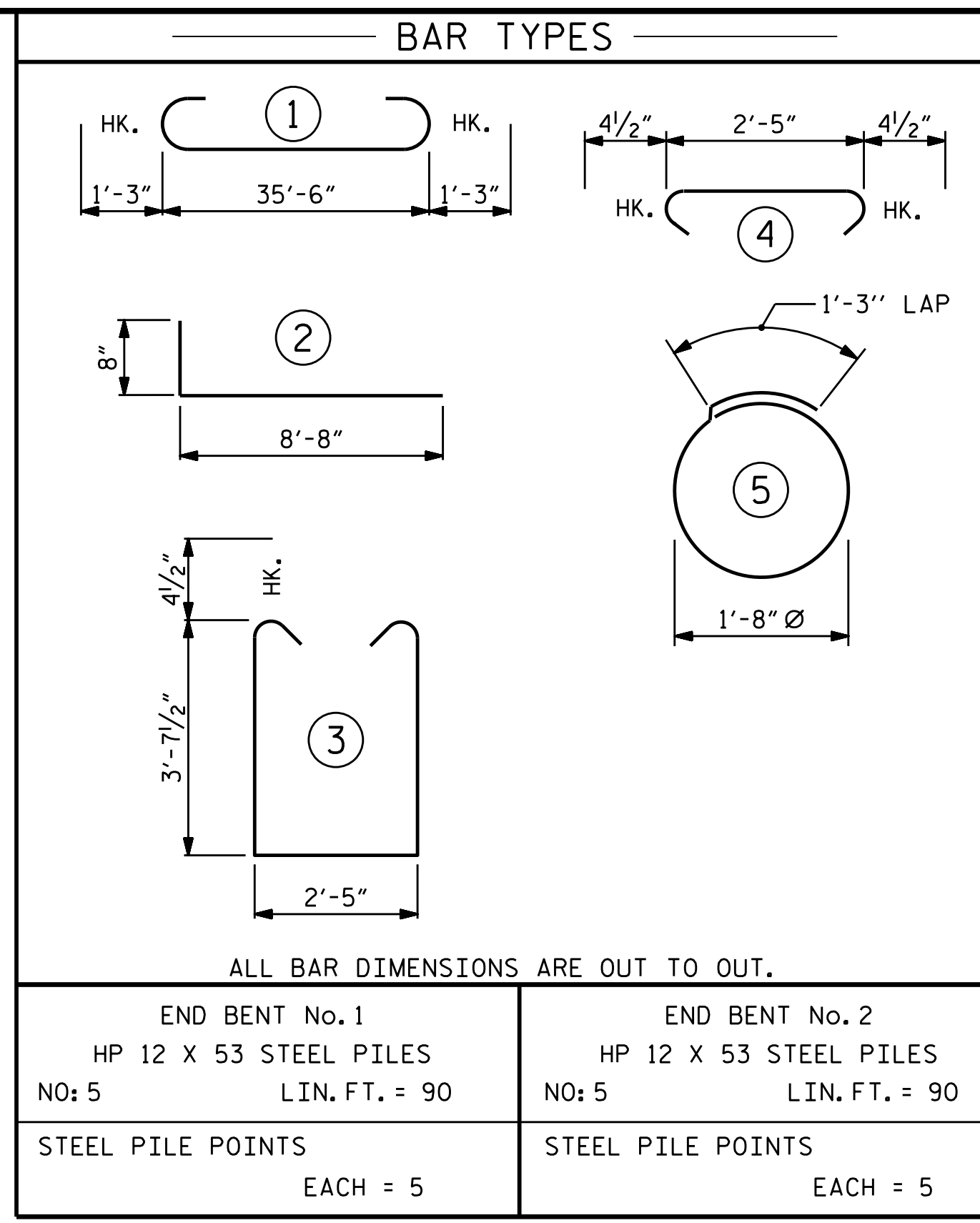
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

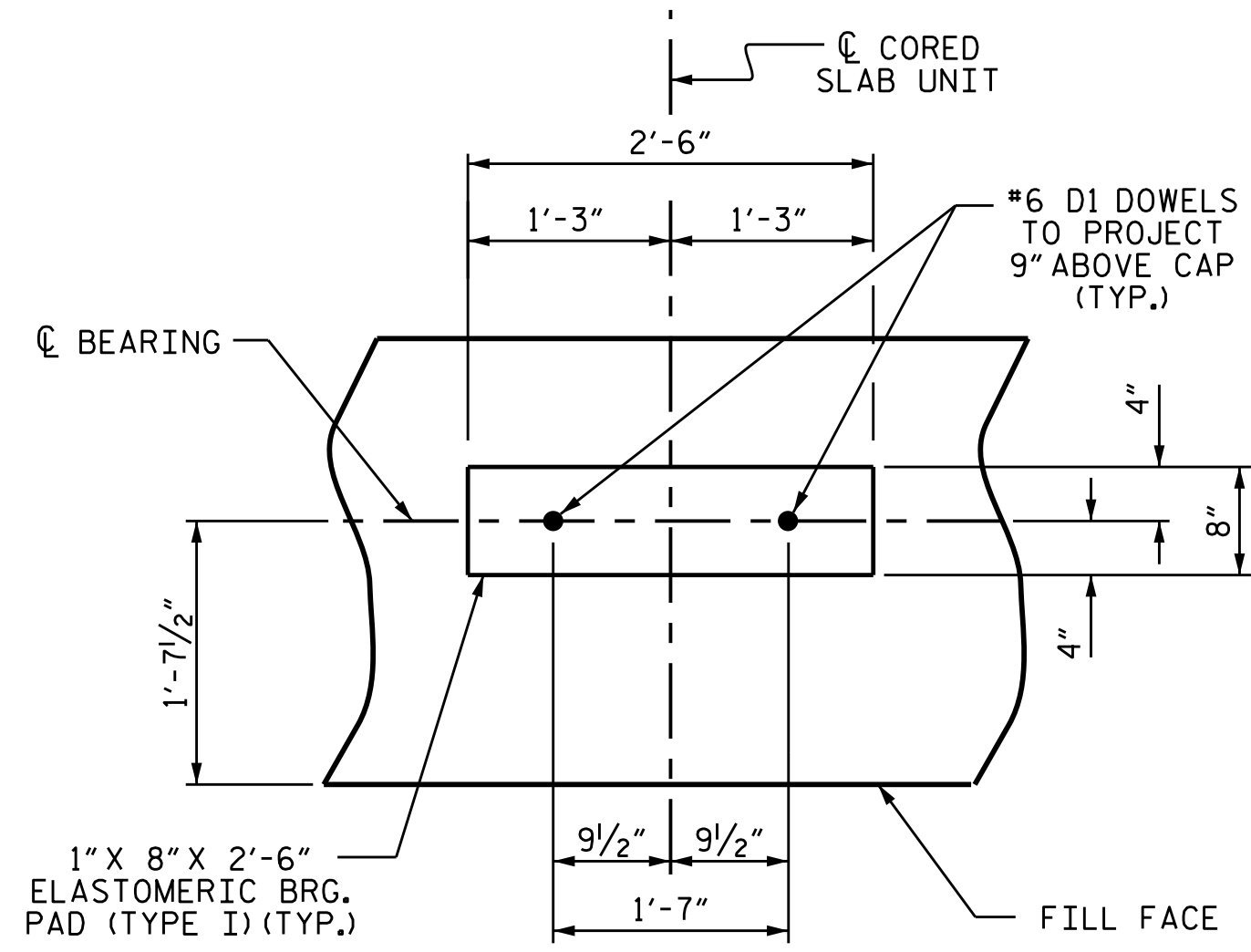
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

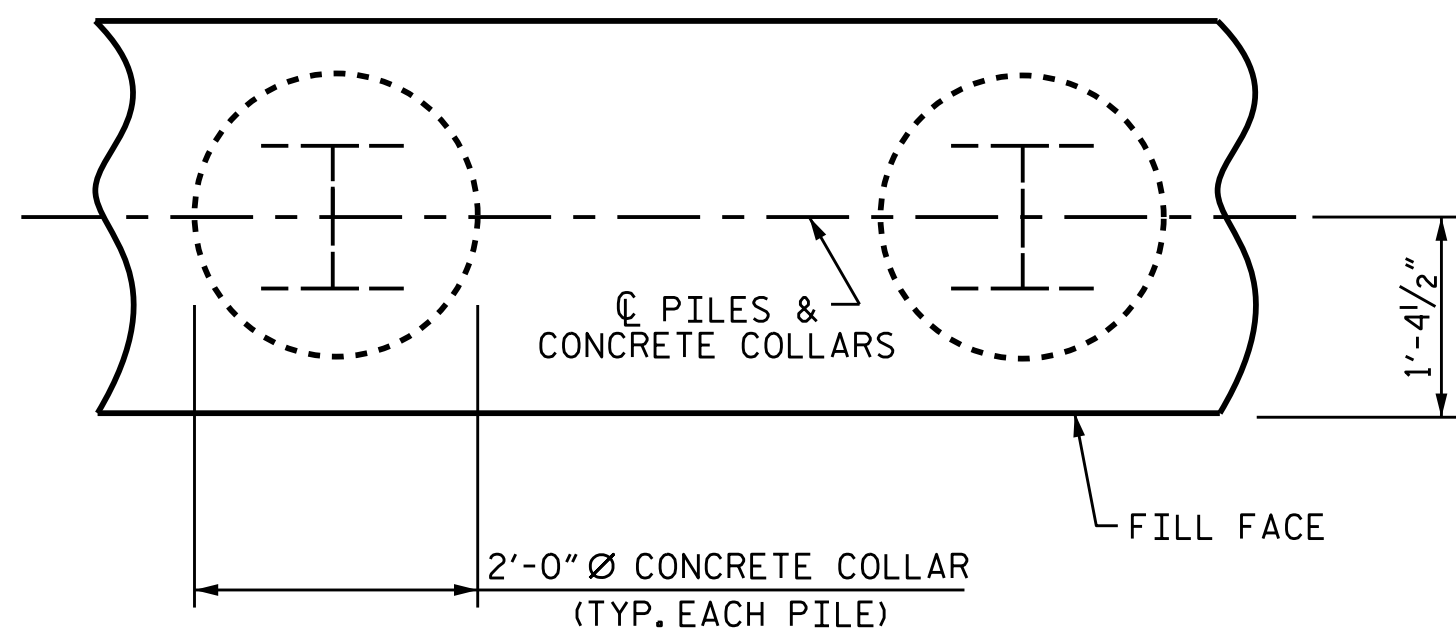


BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	28	#4	STR	19'-1"	357
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	46	#4	3	10'-5"	320
S2	46	#4	4	3'-2"	97
S3	20	#4	5	6'-6"	87
V1	52	#4	STR	6'-2"	214
REINFORCING STEEL (FOR ONE END BENT)				2449 LBS.	
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				17.9 C.Y.	
POUR #2 UPPER PART OF WINGS				2.3 C.Y.	
TOTAL CLASS A CONCRETE				20.2 C.Y.	



DETAIL "A"

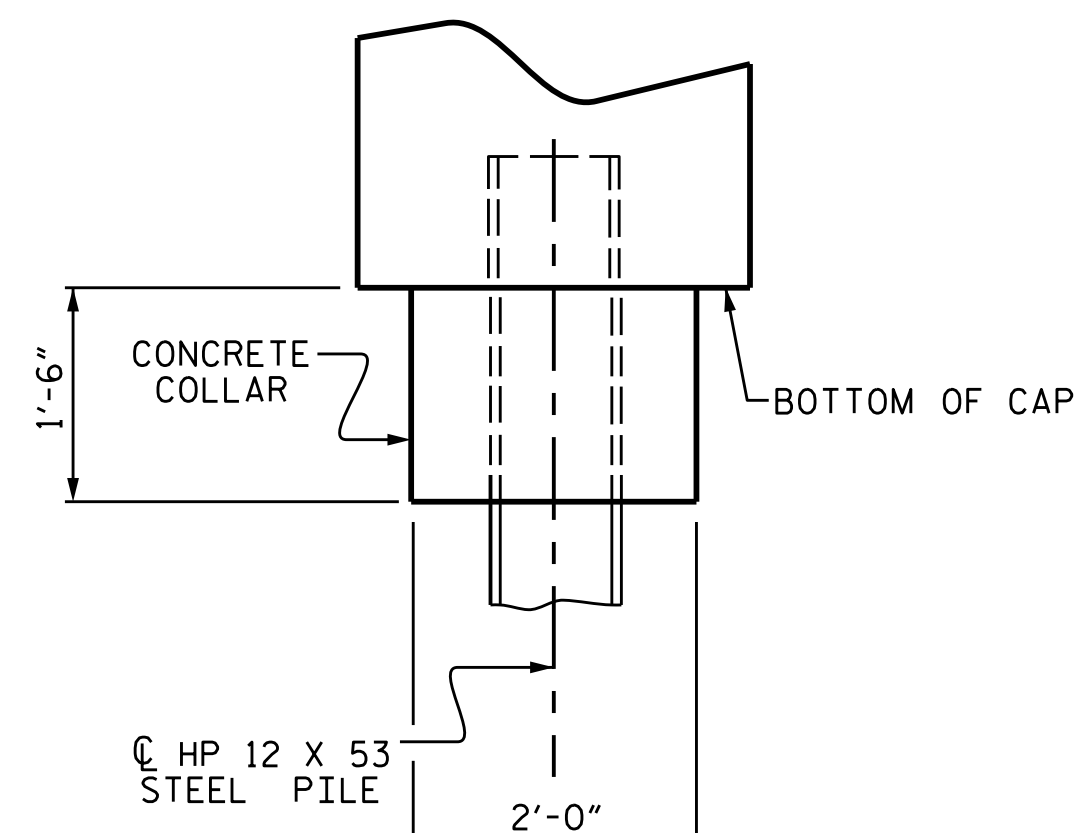
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



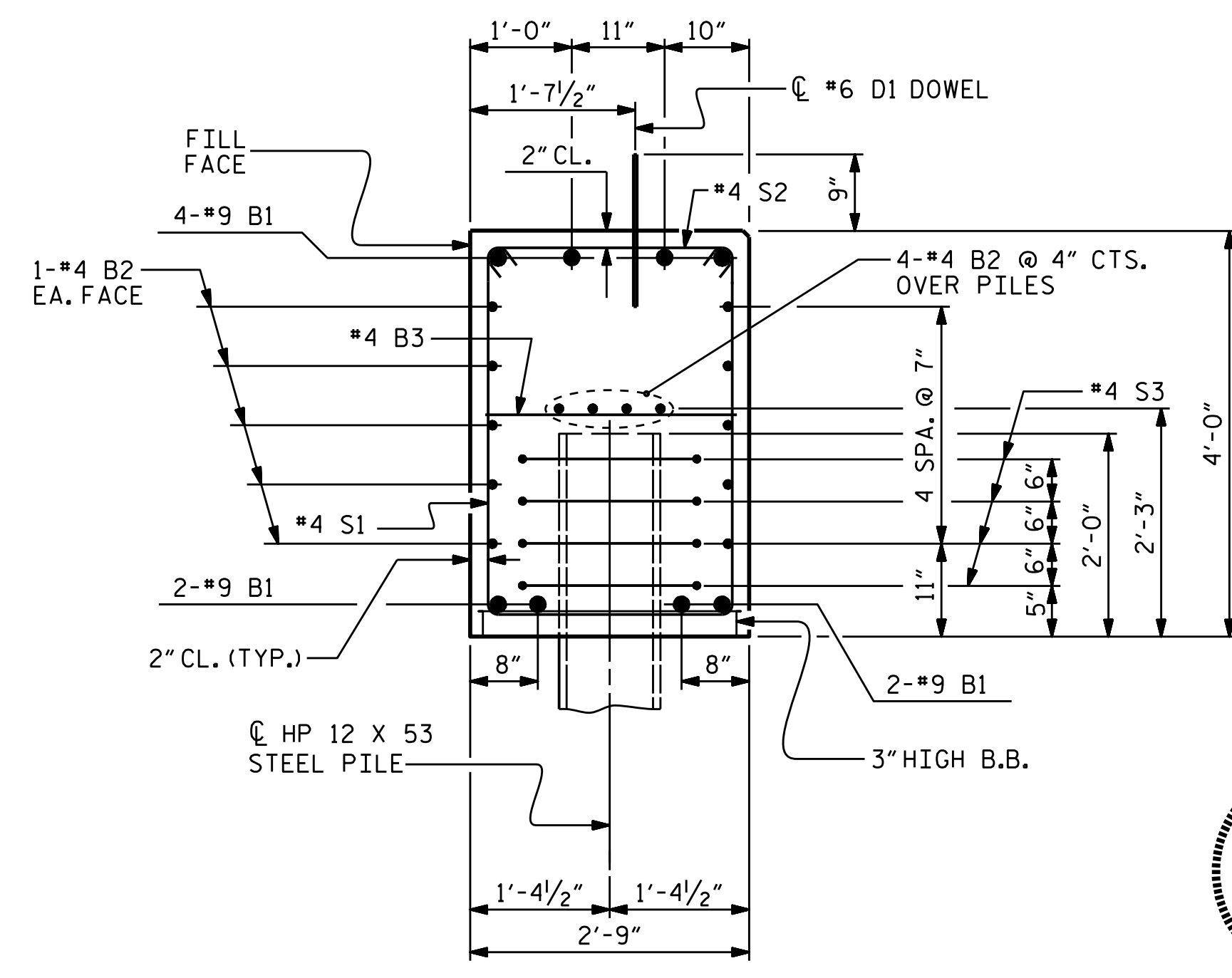
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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

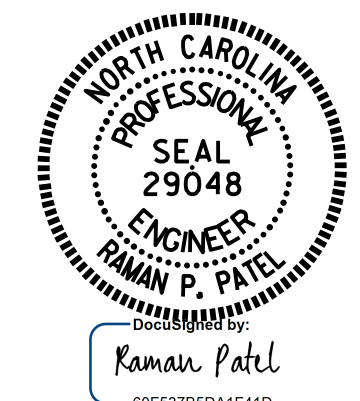


ELEVATION



SECTION A-A

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



PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
STATION: 15+80.00 -L-

SHEET 4 OF 4

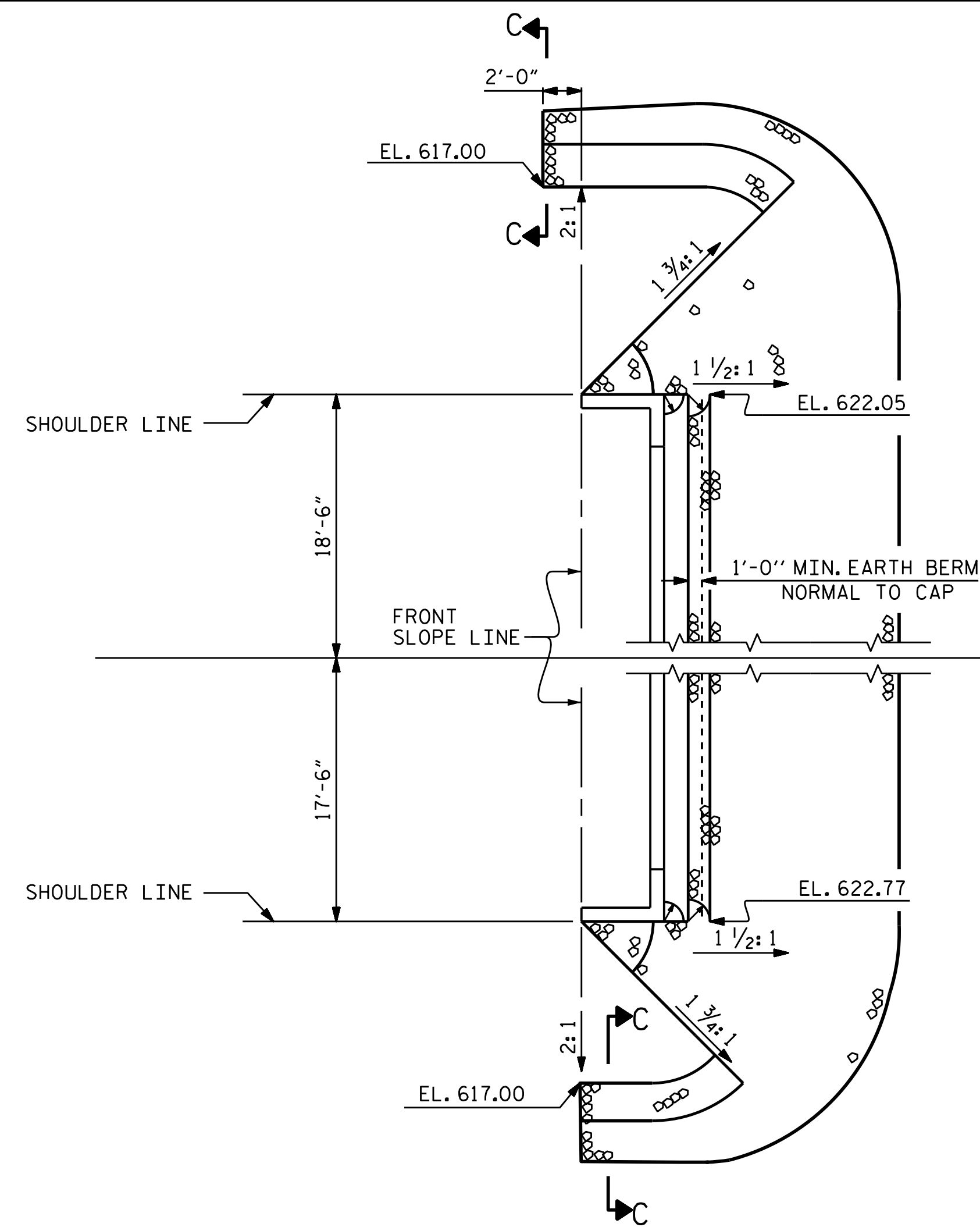
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1 & 2
DETAILS

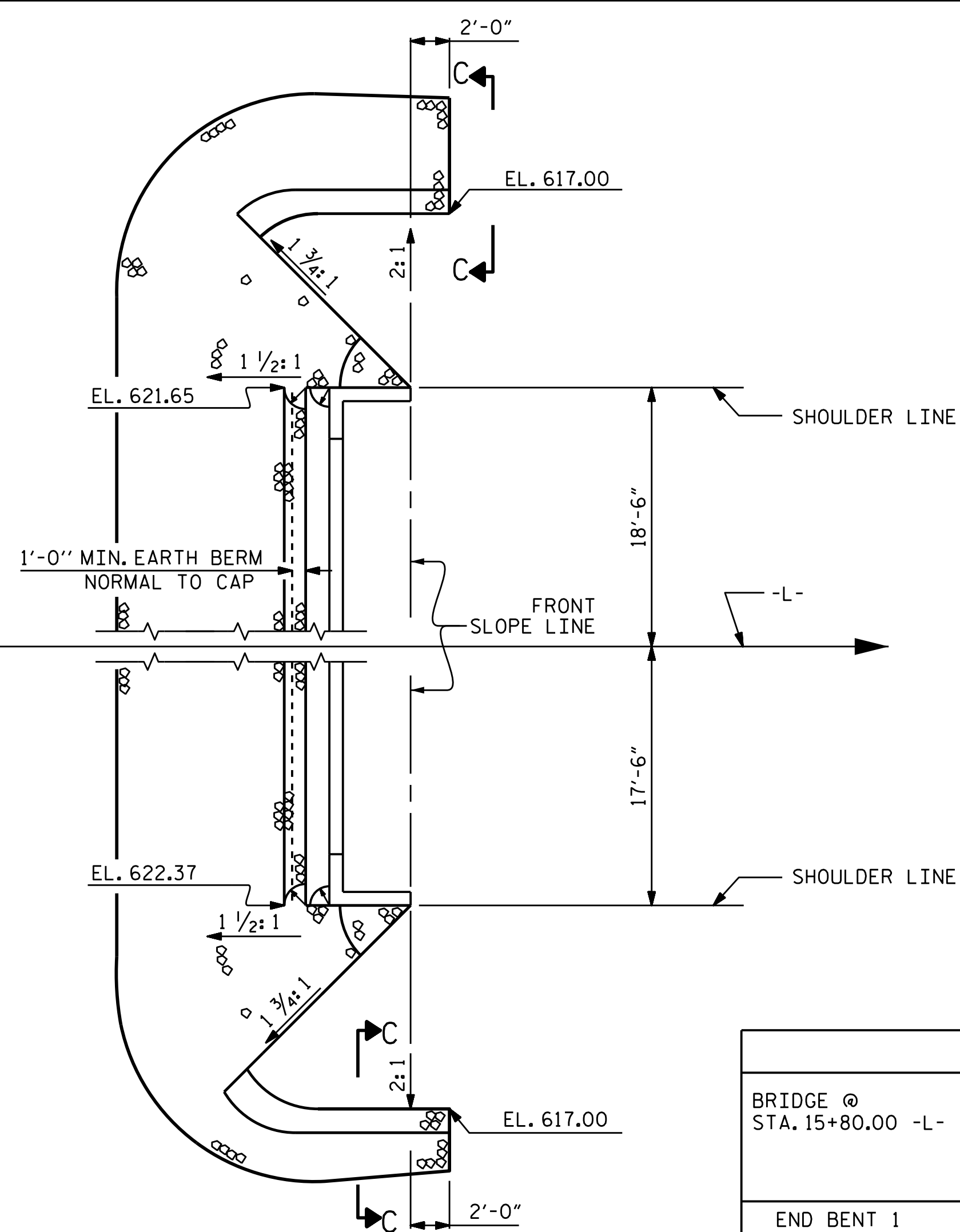
REVISIONS					SHEET NO. S-12
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 14
2			4		

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ASSEMBLED BY : D.A. DAVENPORT	DATE : 5/16/16
CHECKED BY : R.P. PATEL	DATE : 9/13/16
DRAWN BY : WJH	12/11
CHECKED BY : AAC	12/11



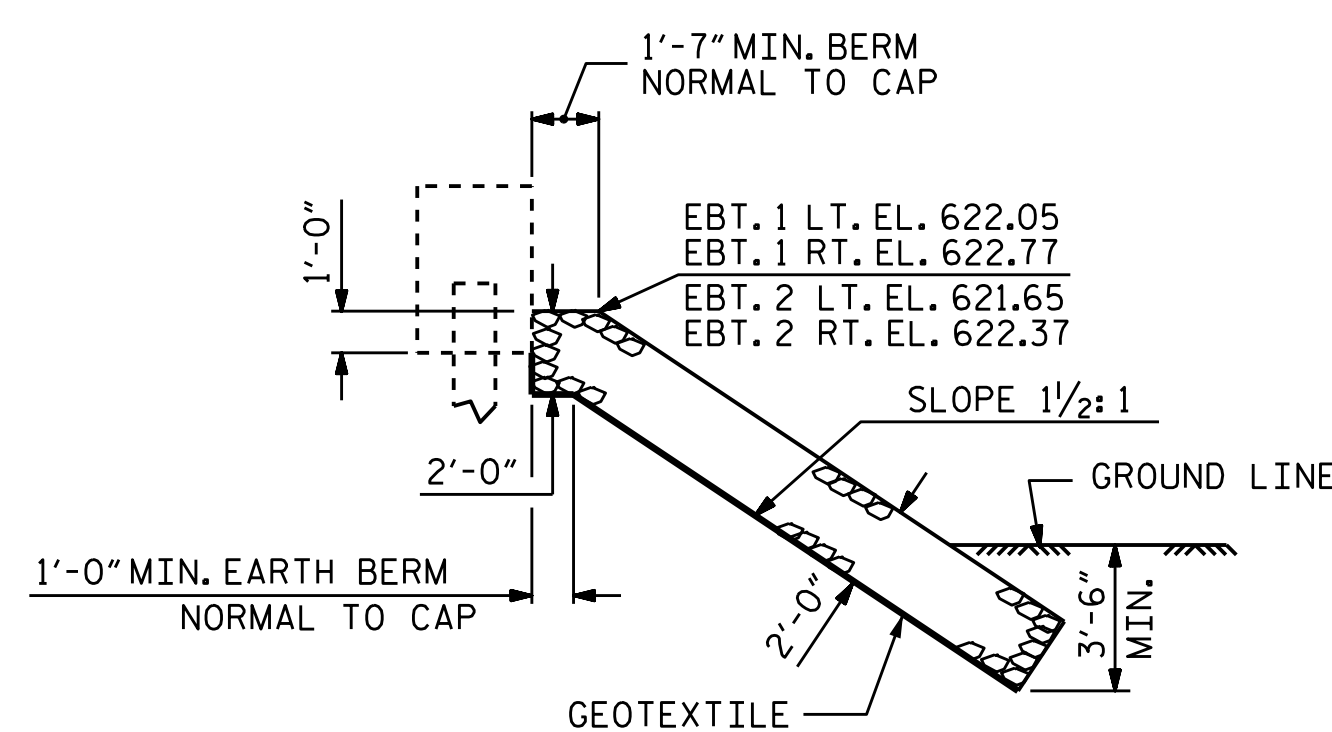
END BENT 1



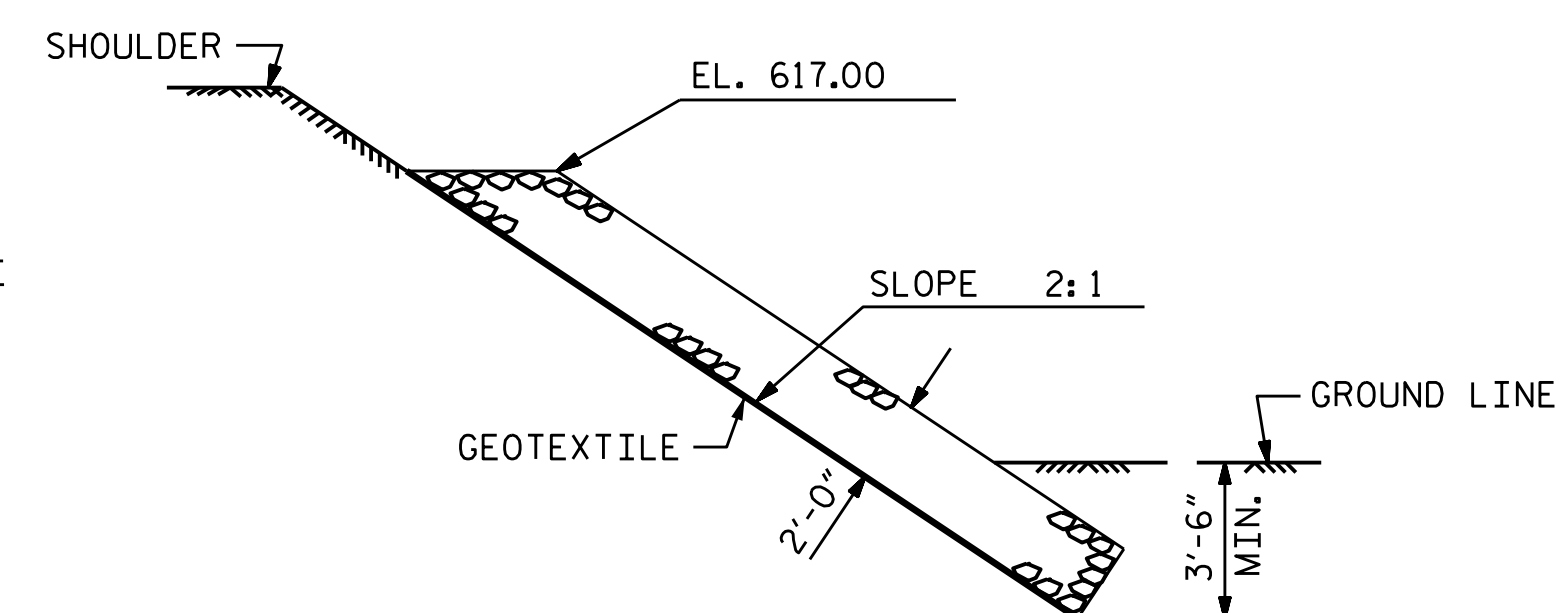
END BENT 2

NOTES
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+80.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	185	205
END BENT 2	165	185

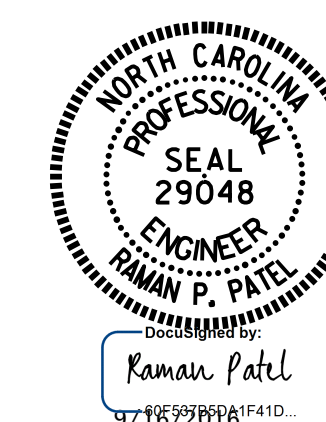


C SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. 17BP.8.R.102
MONTGOMERY COUNTY
STATION: 15+80.00 -L-

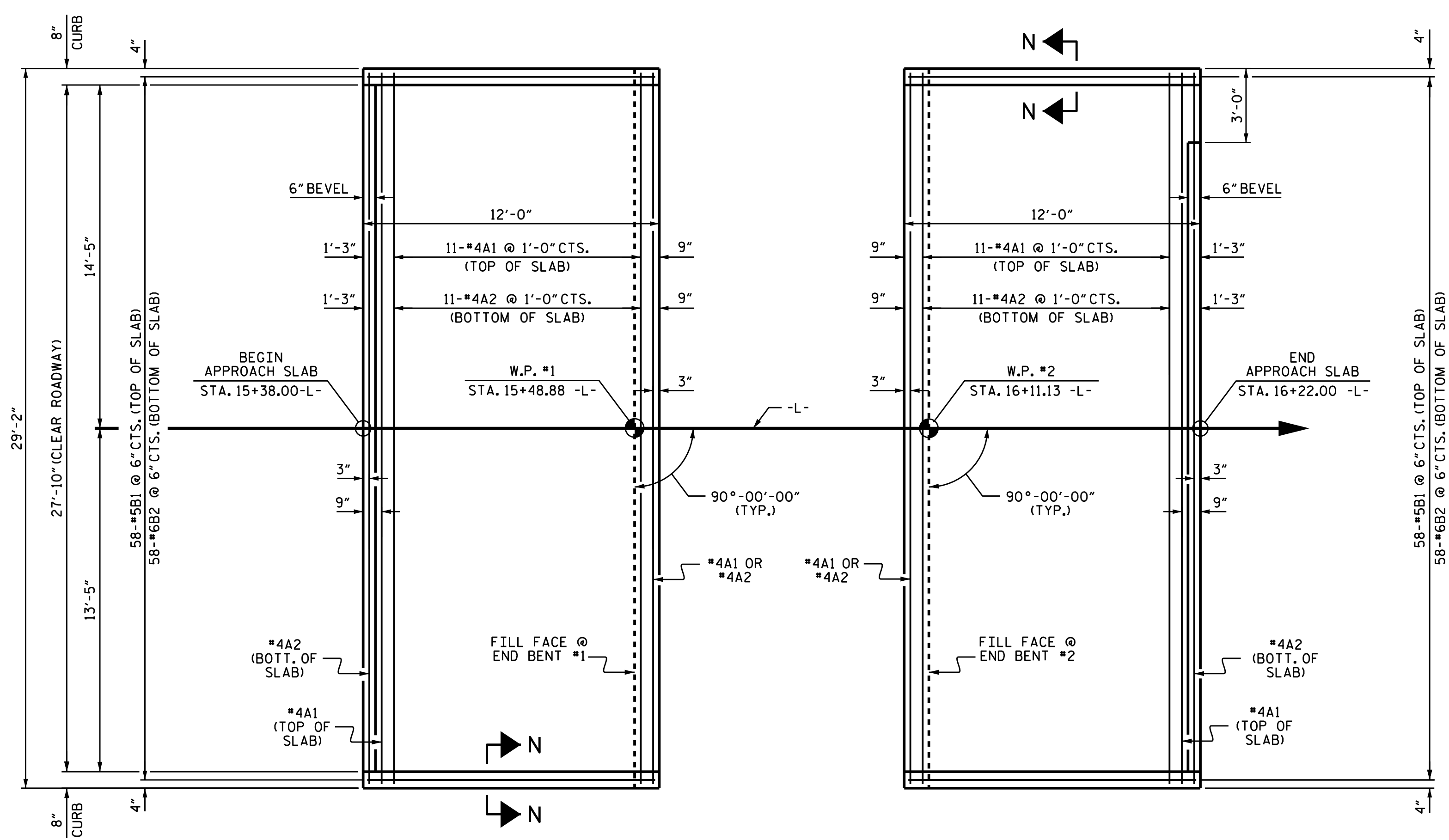


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
RIP RAP DETAILS

ASSEMBLED BY : D.A. DAVENPORT	DATE : 5/16/16
CHECKED BY : R.P. PATEL	DATE : 7/26/16
DRAWN BY : REK 1/84	REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM

DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

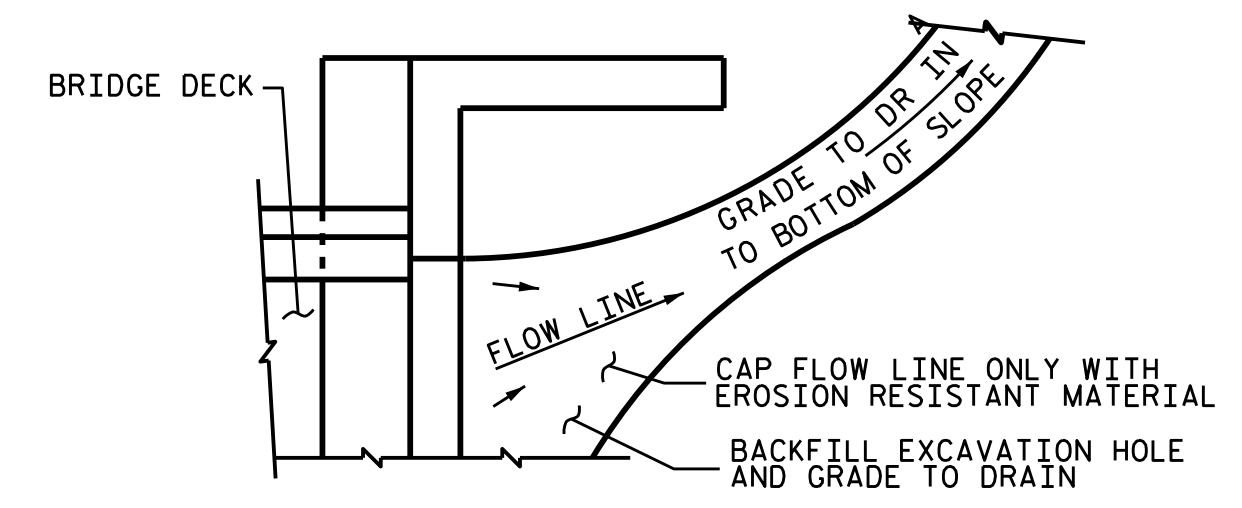
REVISIONS						SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 14
2			4			



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

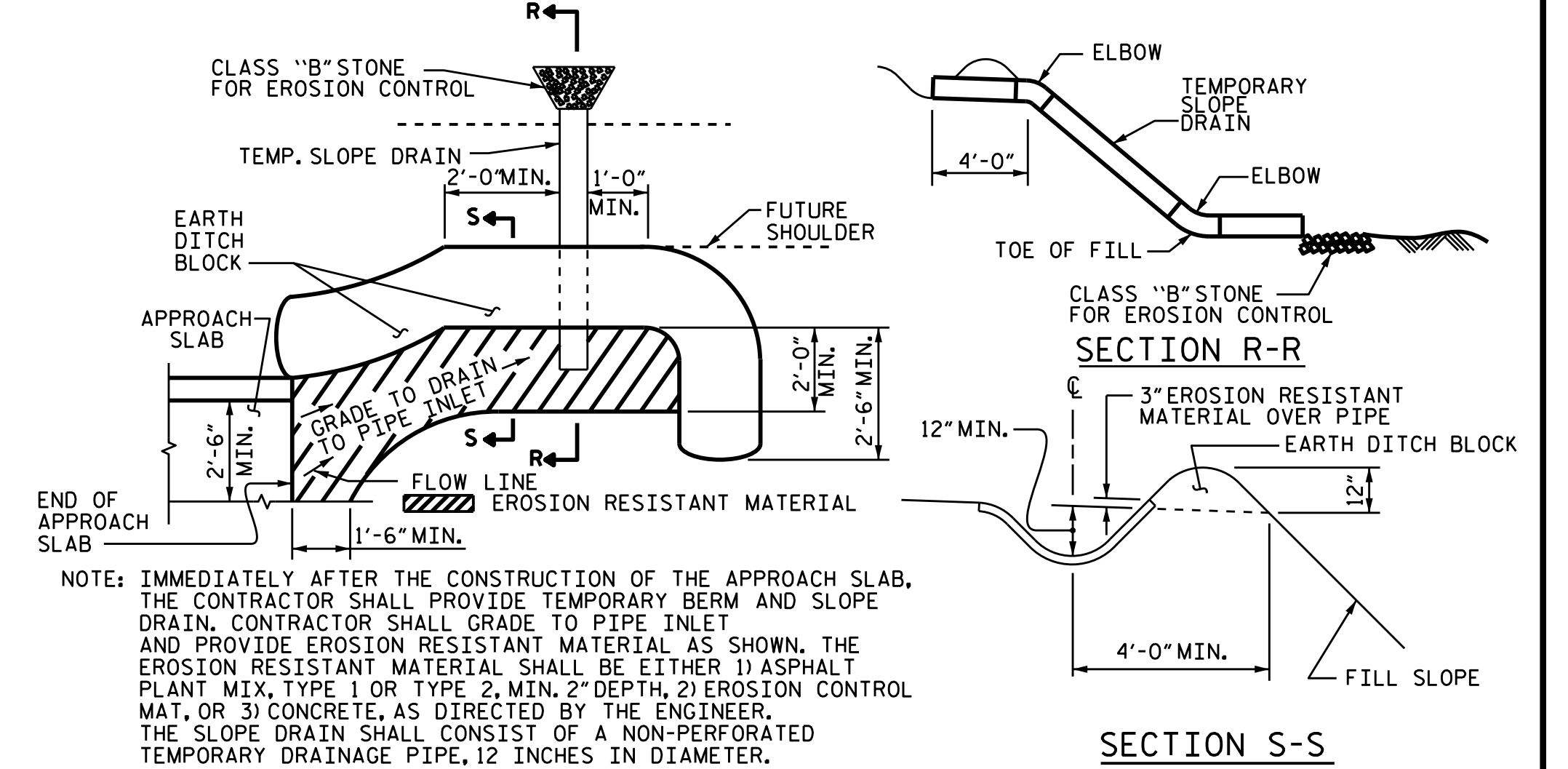
NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4"Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.
 GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
 #78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
 #78M STONE 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.



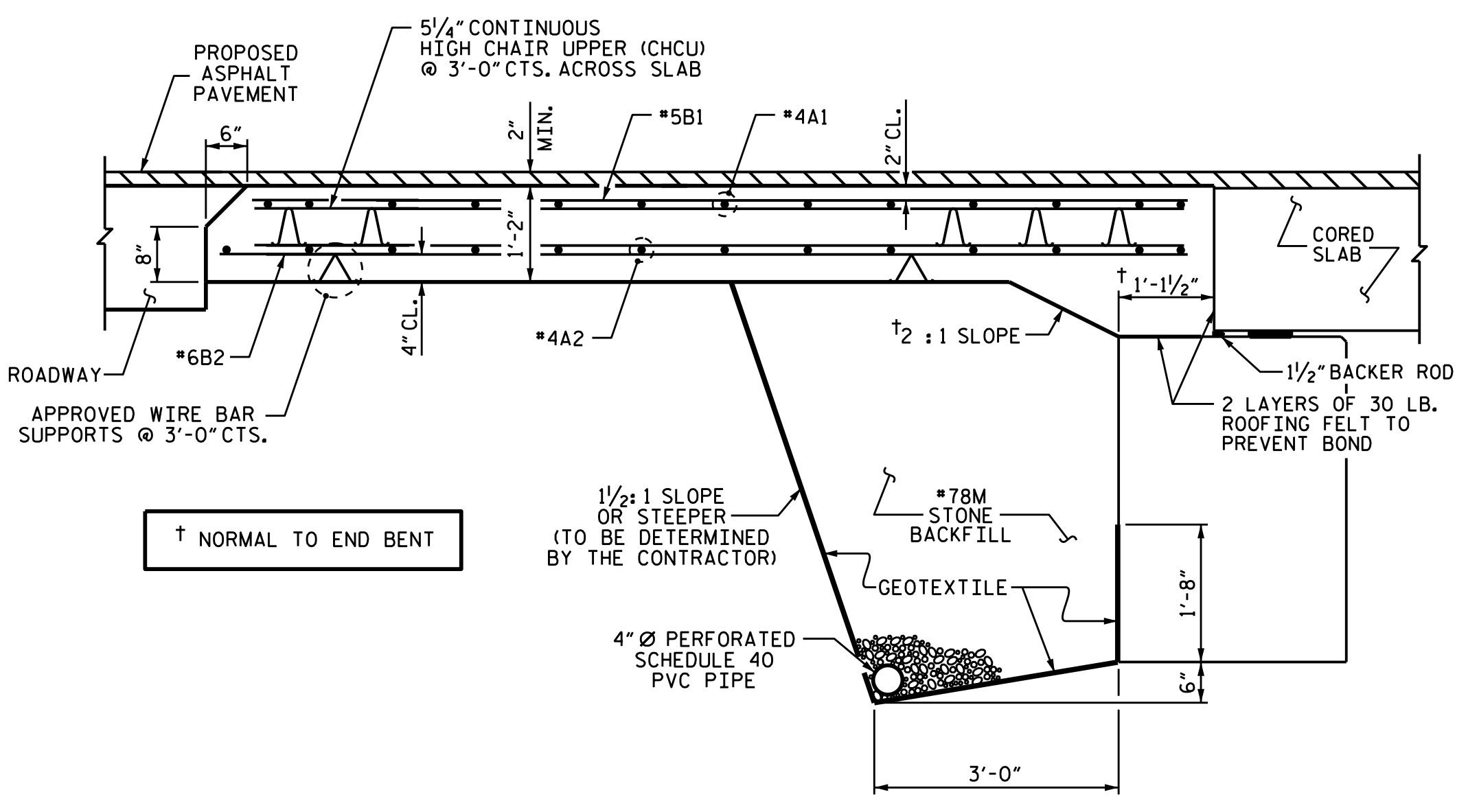
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

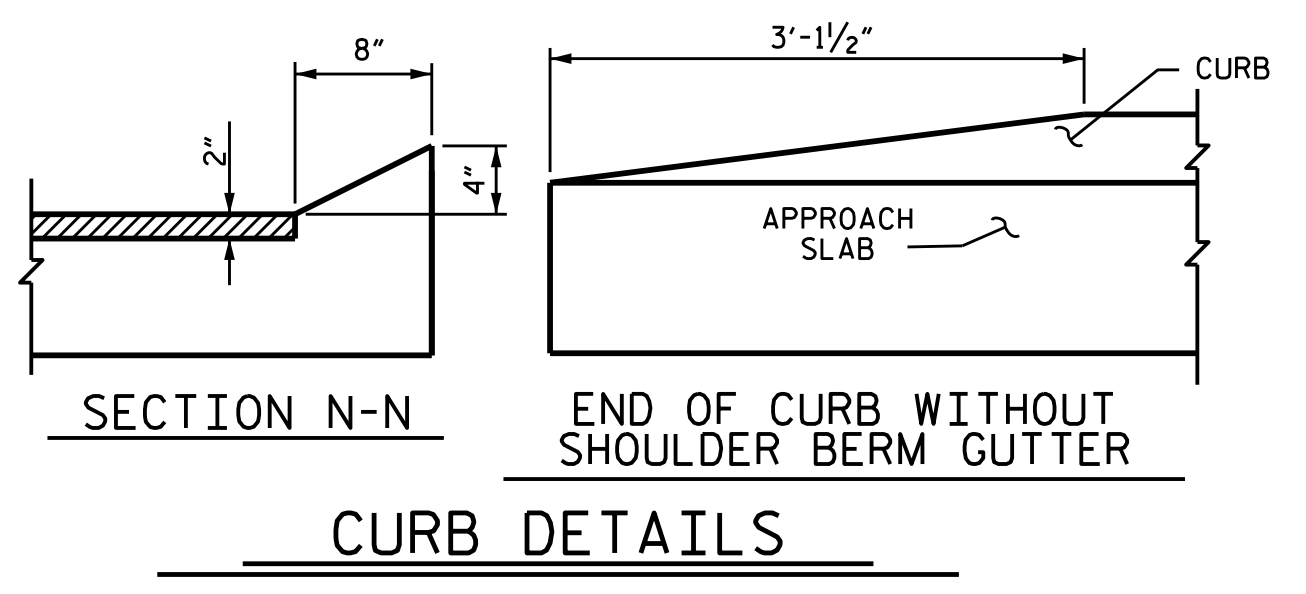


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

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

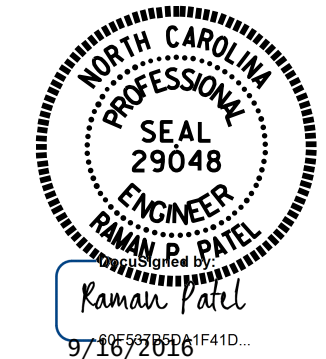


SECTION THRU SLAB



CURB DETAILS

SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



PROJECT NO. 17BP.8.R.102
 MONTGOMERY COUNTY
 STATION: 15+80.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)
 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			14

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ASSEMBLED BY : D.A. DAVENPORT DATE : 5/16/16
 CHECKED BY : R.P. PATEL DATE : 7/26/16
 DRAWN BY : SHS/MAA 5-09
 CHECKED BY : BCH 5-09
 REV. 9-15 MAA/TMG

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		
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 2012 "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. FINS 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.

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