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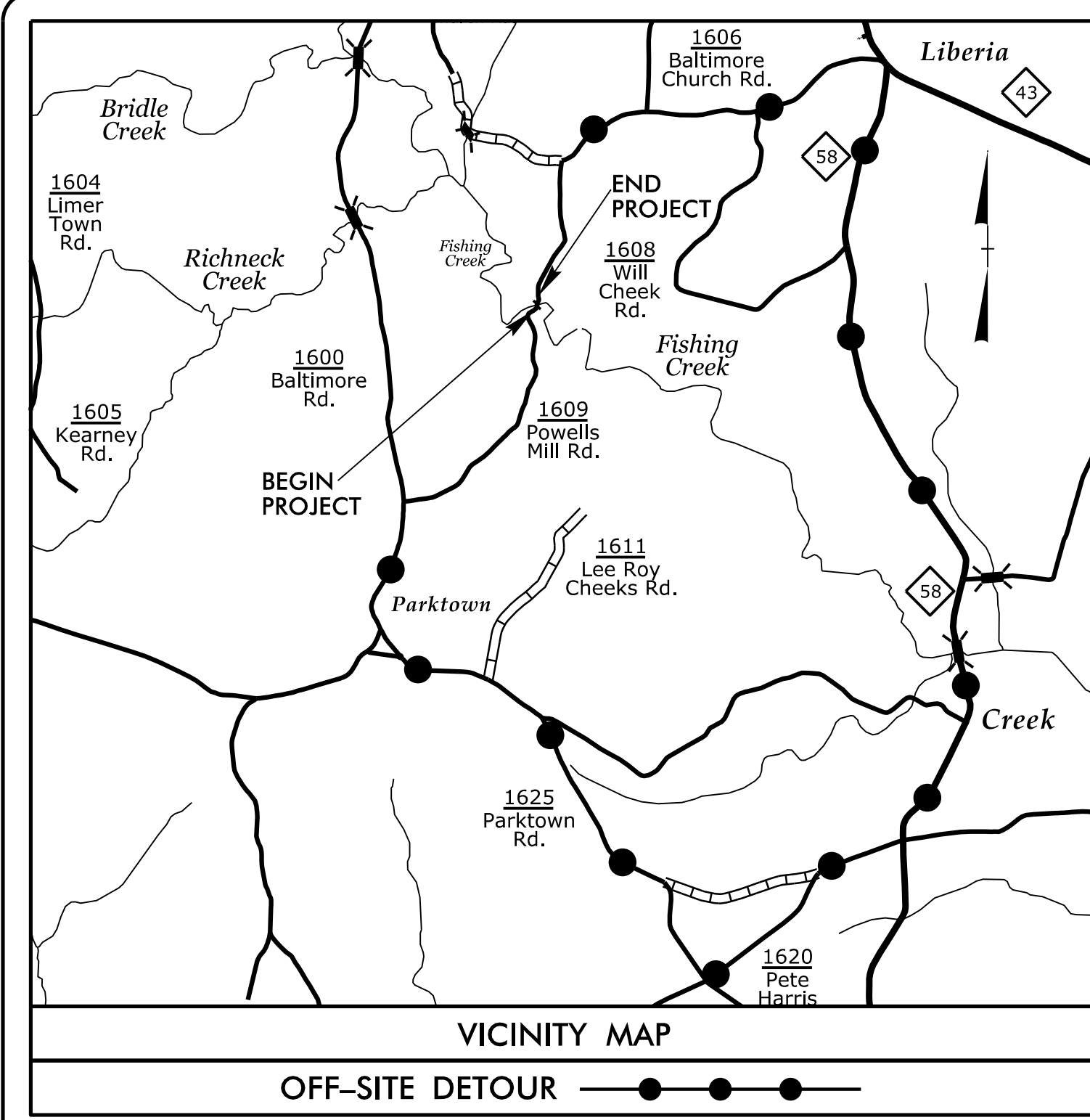
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09_08/19

TIP PROJECT: 17BP.5.R.88

CONTRACT: DE00343



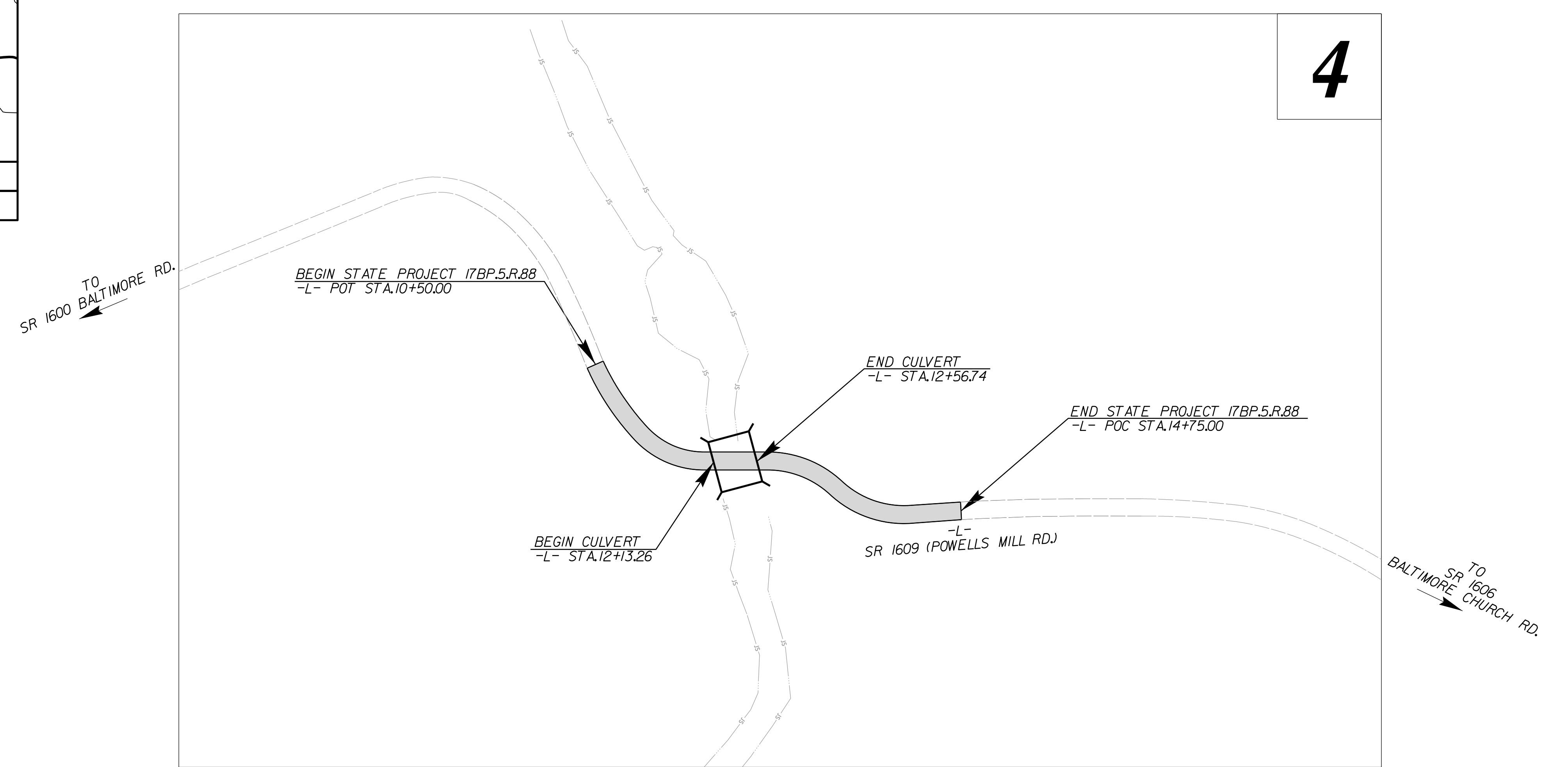
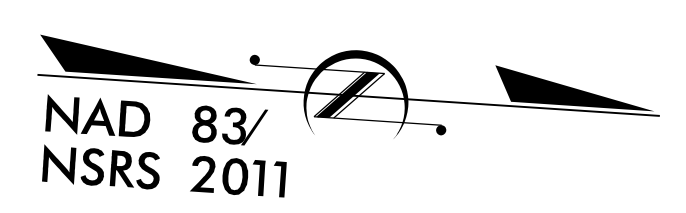
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WARREN COUNTY

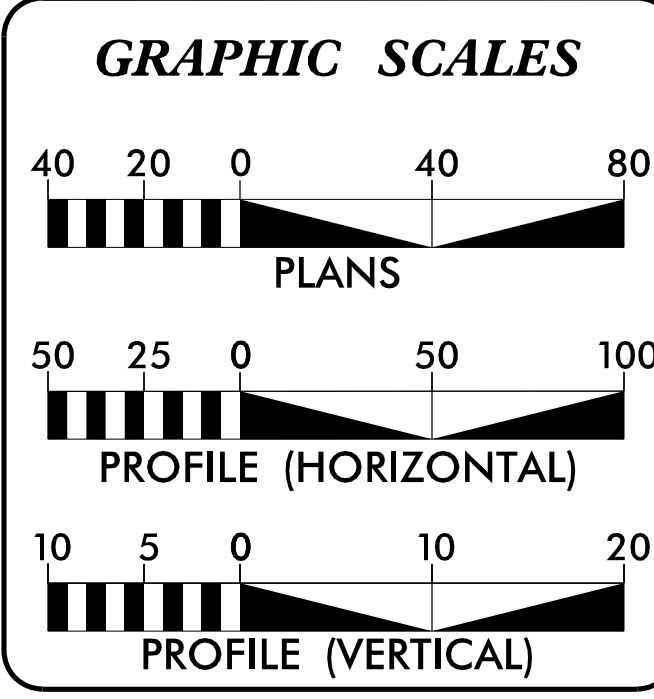
**LOCATION: BRIDGE NO. 135 OVER FISHING CREEK
ON SR 1609 (POWELLS MILL RD.)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.88	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.5.R.88	N/A	PE	
17BP.5.R.88	N/A	ROW	
17BP.5.R.88	N/A	UTILITIES	
17BP.5.R.88	N/A	CONSTRUCTION	



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT = 80 VPD
V = 20 MPH
CLASS = RURAL LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 17BP.5.R.88 = 0.072 mi.
LENGTH STRUCTURES STATE PROJECT 17BP.5.R.88 = 0.008 mi.
TOTAL LENGTH STATE PROJECT 17BP.5.R.88 = 0.080 mi.

Prepared in the Offices of:

STEWART
223 S. WEST ST., STE 1100
RALEIGH, NC 27603
T 919.380.8750
Firm License #1-C-1051
www.stewartinc.com
PROJECT # 1816012.00

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

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 15, 2018

RIGHT OF WAY COMPLETE:
JUNE 7, 2021

LETTING DATE:
JUNE 22, 2022

ANDY YOUNG, PE
PROJECT ENGINEER

JOSHUA ROEMER
PROJECT DESIGN ENGINEER

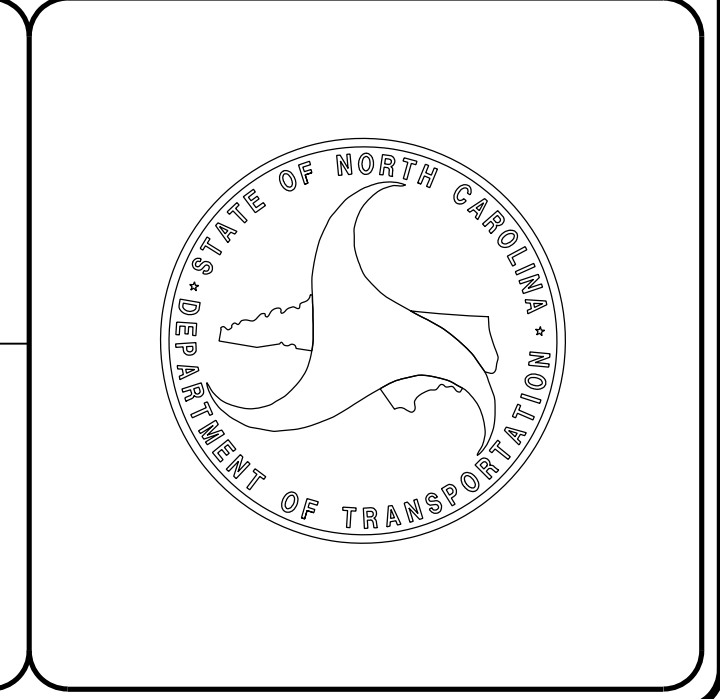
LISA GILCHRIST, EI
NCDOT CONTACT

HYDRAULICS ENGINEER

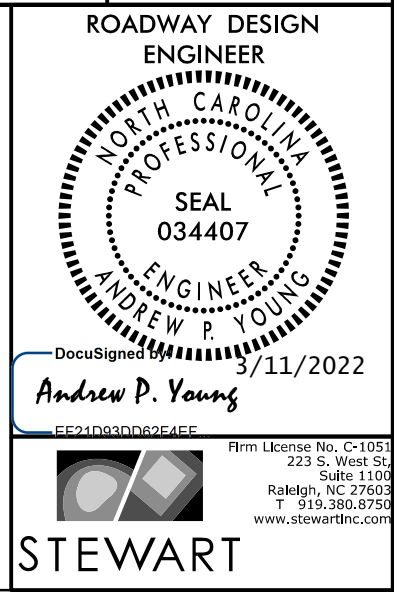
DocuSigned by:
Frank Fleming
5/25/2022
P.E.

ROADWAY DESIGN ENGINEER

DocuSigned by:
Andrew P. Young
5/25/2022
P.E.



5/25/2022
U:\Projects\17BP.5.R.88\RDY_TSH.dgn
USER:ayoung



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

INDEX OF SHEETS

SHEET NUMBER	SHEET	EFF. 01-16-2018 REV.
1	TITLE SHEET	2018 ROADWAY ENGLISH STANDARD DRAWINGS
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS	The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:
1B	CONVENTIONAL SYMBOLS	
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS	STD.NO. TITLE DIVISION 2 - EARTHWORK
2C-1	GUARDRAIL INSTALLATION DETAIL	200.03 Method of Clearing - Method III 225.02 Guide for Grading Subgrade - Secondary and Local 225.04 Method of Obtaining Super-elevation - Two Lane Pavement
3B-1	ROADWAY SUMMARIES	
3D-1	DRAINAGE SUMMARY	DIVISION 3 - PIPE CULVERTS 300.01 Method of Pipe Installation
4	PLAN SHEET	DIVISION 5 - SUBGRADE, BASES AND SHOULDERS 560.01 Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
5	PROFILE SHEET	
RW01	RIGHT OF WAY TITLE SHEET	DIVISION 8 - INCIDENTALS
RW02C-1	SURVEY CONTROL SHEET	806.01 Concrete Right-of-Way Marker 806.02 Granite Right-of-Way Marker 862.01 Guardrail Placement 862.02 Guardrail Installation (Special Detail for Sheet 6 of 8) 876.01 Rip Rap in Channels 876.02 Guide for Rip Rap at Pipe Outlets 876.04 Drainage Ditches with Class B Rip Rap
RW02D-1	PROPOSED ALIGNMENT CONTROL SHEET	
RW03E-1	RIGHT OF WAY CONTROL SHEET	
RW04	RIGHT OF WAY SHEET	
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS	
PMP-1	PAVEMENT MARKING PLANS	
EC-1 THRU EC-5	EROSION CONTROL PLANS	
RF-1	REFORESTATION PLAN	
UO-1 THRU UO-2	UTILITIES BY OTHERS	
X-1A	CROSS SECTION SUMMARY SHEET	
X-1 THRU X-3	CROSS SECTIONS	
C-1 THRU C-5	CULVERT PLANS	

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

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.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE
Duke Energy - Power
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

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

Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin (EIP)	○
Computed Property Corner	×
Existing Concrete Monument (ECM)	□
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB
Existing Historic Property Boundary	HPB
Known Contamination Area: Soil	☠-s-☠-s-
Potential Contamination Area: Soil	☠-s-☠-s-
Known Contamination Area: Water	☠-w-☠-w-
Potential Contamination Area: Water	☠-w-☠-w-
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Secondary Horiz and Vert Control Point	◆
Vertical Benchmark	⊕
Existing Right of Way Monument	△
Proposed Right of Way Monument (Rebar and Cap)	▲
Proposed Right of Way Monument (Concrete)	▲
Existing Permanent Easement Monument	◇
Proposed Permanent Easement Monument (Rebar and Cap)	◆
Existing C/A Monument	△
Proposed C/A Monument (Rebar and Cap)	▲
Proposed C/A Monument (Concrete)	▲
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Existing Control of Access Line	-----
Proposed Control of Access Line	-----
Proposed ROW and CA Line	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	E
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage/Utility Easement	DUE
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Aerial Utility Easement	AUE

ROADS AND RELATED FEATURES:

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

Woods Line	-----
Orchard	○
Vineyard	□

EXISTING STRUCTURES:

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

UTILITIES:

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

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

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○
Telephone Pedestal	□
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	PH
U/G Telephone Test Hole (SUE - LOS A)*	⊕
U/G Telephone Cable (SUE - LOS B)*	T
U/G Telephone Cable (SUE - LOS C)*	T
U/G Telephone Cable (SUE - LOS D)*	T
U/G Telephone Conduit (SUE - LOS B)*	TC
U/G Telephone Conduit (SUE - LOS C)*	TC
U/G Telephone Conduit (SUE - LOS D)*	TC
U/G Fiber Optics Cable (SUE - LOS B)*	T FO
U/G Fiber Optics Cable (SUE - LOS C)*	T FO
U/G Fiber Optics Cable (SUE - LOS D)*	T FO

WATER:

Water Manhole	○
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line Test Hole (SUE - LOS A)*	⊕
U/G Water Line (SUE - LOS B)*	P
U/G Water Line (SUE - LOS C)*	P
U/G Water Line (SUE - LOS D)*	P
Above Ground Water Line	A/G Water

TV:

TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	PH
U/G TV Test Hole (SUE - LOS A)*	⊕
U/G TV Cable (SUE - LOS B)*	TV
U/G TV Cable (SUE - LOS C)*	TV
U/G TV Cable (SUE - LOS D)*	TV
U/G Fiber Optic Cable (SUE - LOS B)*	TV FO
U/G Fiber Optic Cable (SUE - LOS C)*	TV FO
U/G Fiber Optic Cable (SUE - LOS D)*	TV FO

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

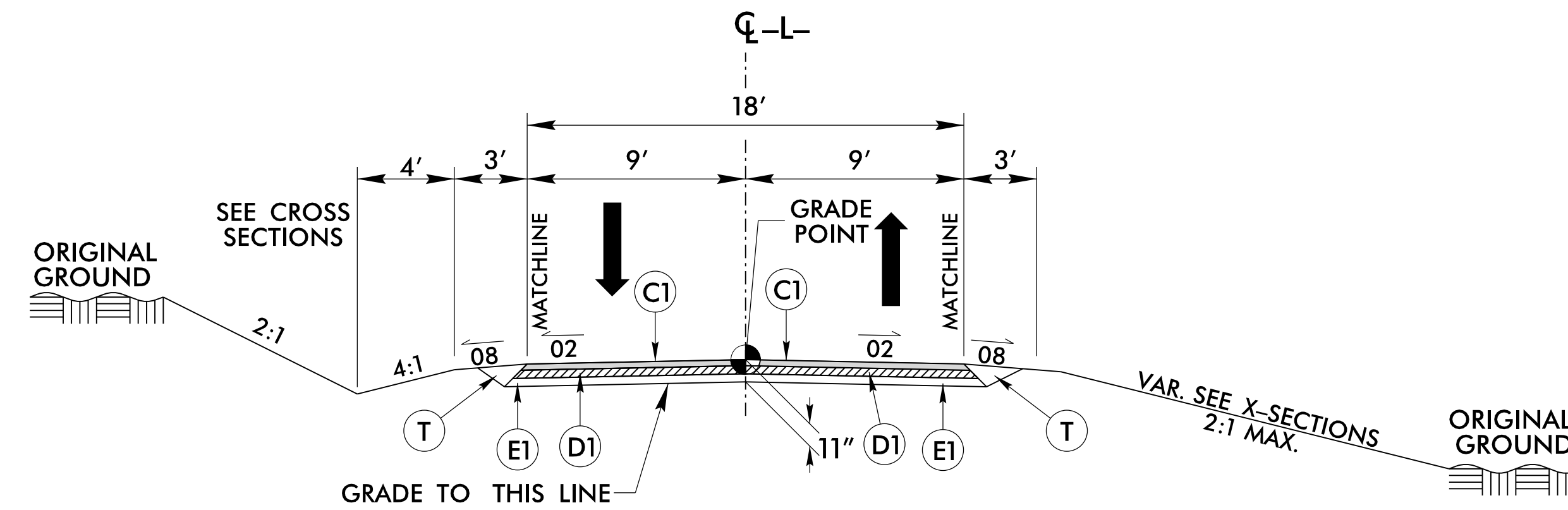
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line (SUE - LOS B)*	UTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
Abandoned According to Utility Records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

5/14/99

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

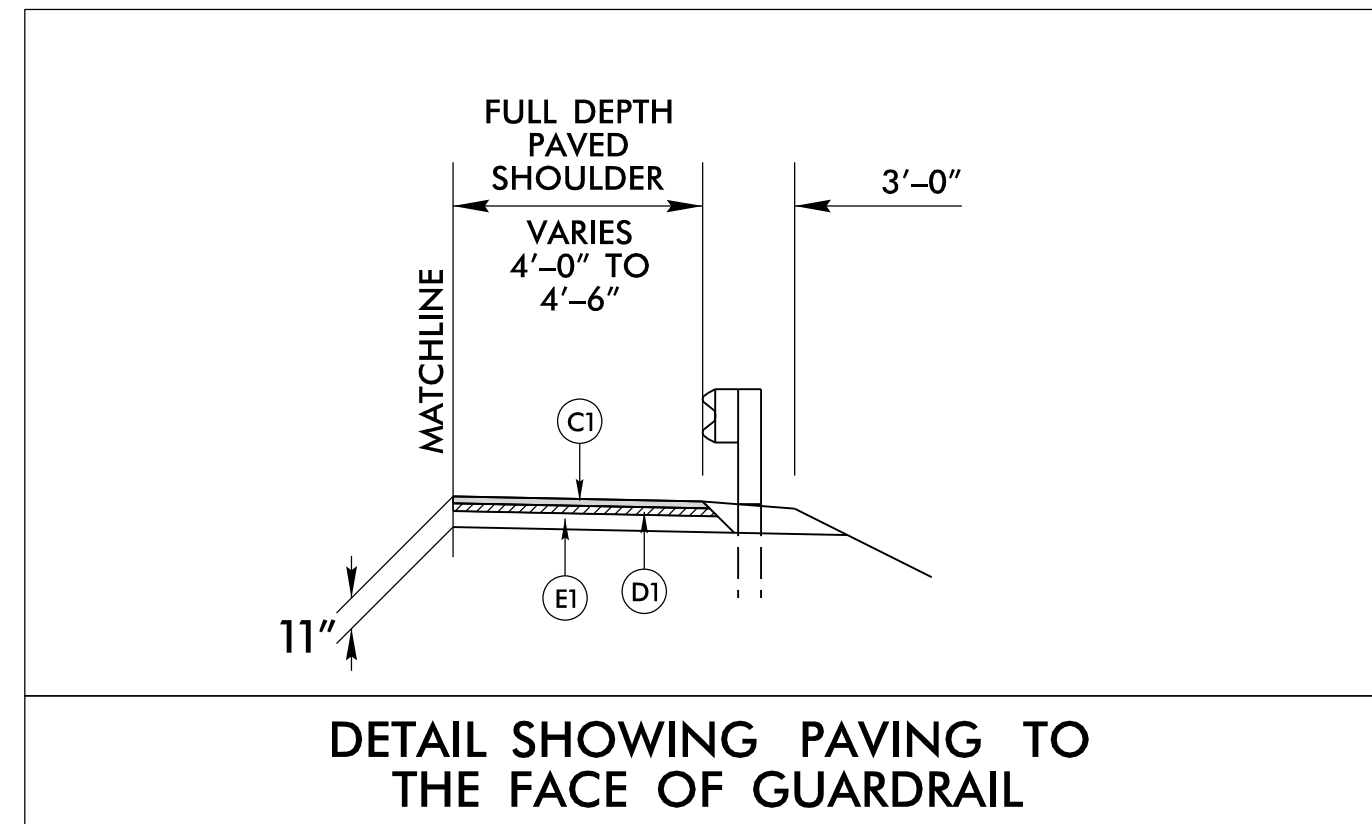
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL

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

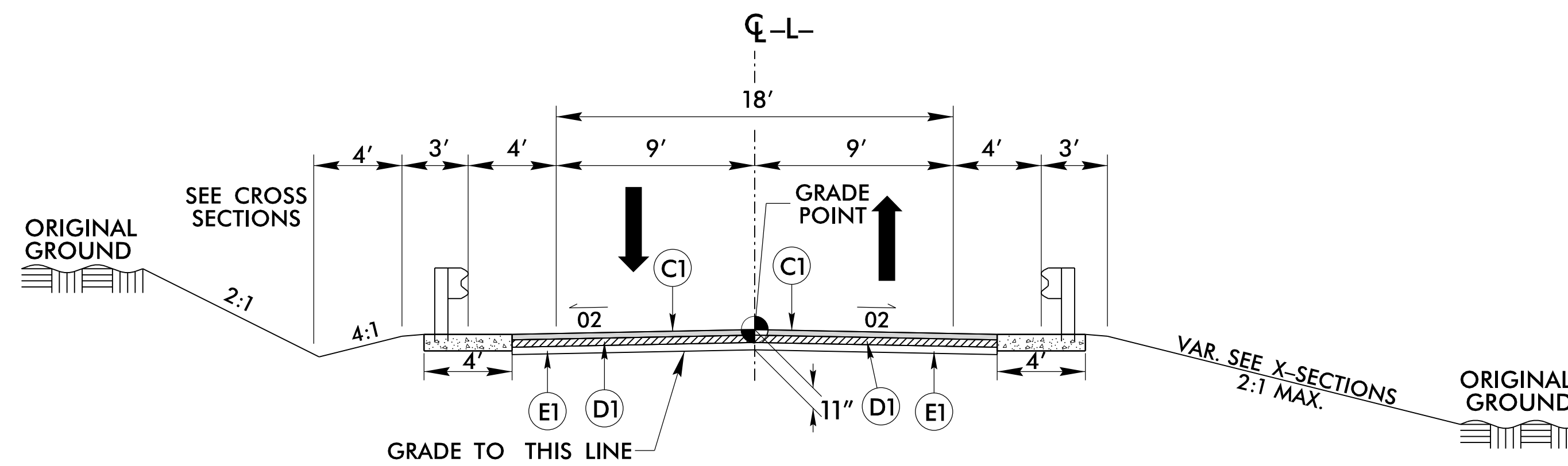


TYPICAL SECTION NO. 1

-L- STA. 10+50.00 TO -L- STA. 12+09.78
-L- STA. 12+53.26 TO -L- STA. 14+75.00



DETAIL SHOWING PAVING TO THE FACE OF GUARDRAIL



TYPICAL SECTION NO. 2

-L- STA. 12+09.78 TO -L- STA. 12+53.26

NOTE:
SEE STRUCTURE PLANS FOR CONCRETE FOOTER WITH GUARDRAIL ATTACHMENT.

PROJECT REFERENCE NO. <i>17BP.5.R.88</i>	SHEET NO. <i>2A-1</i>
ROADWAY DESIGN ENGINEER ANDREW P. YOUNG SEAL 034407 DocuSigned by: Andrew P. Young 3/11/2022	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON SEAL 22896 DocuSigned by: Clark S. Morrison 3/11/2022
STEWART	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

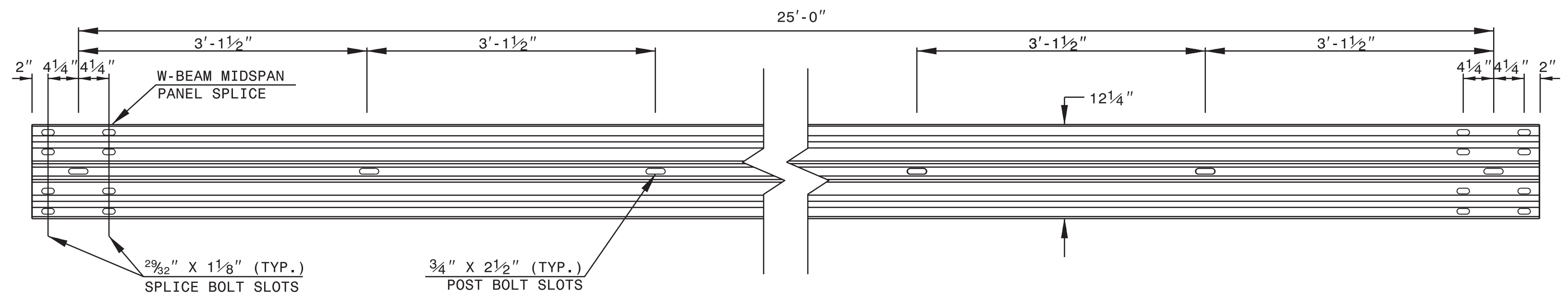
REVISIONS

3/11/2022 9:20:35.RDY_TYP.dgn
USER:andrew

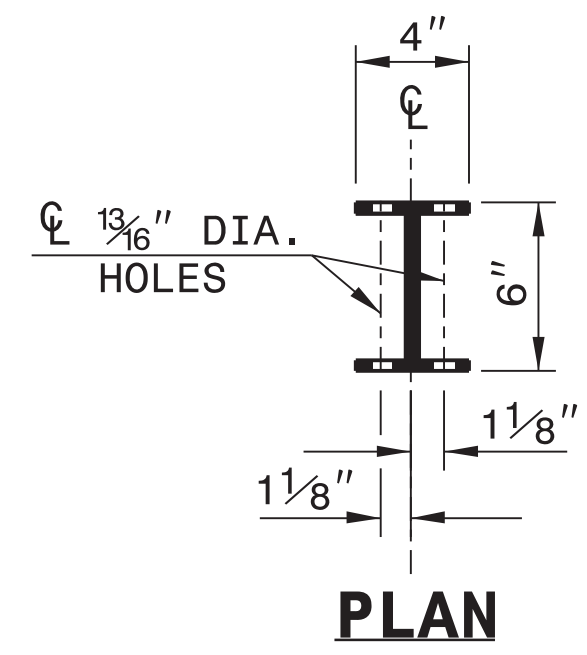
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

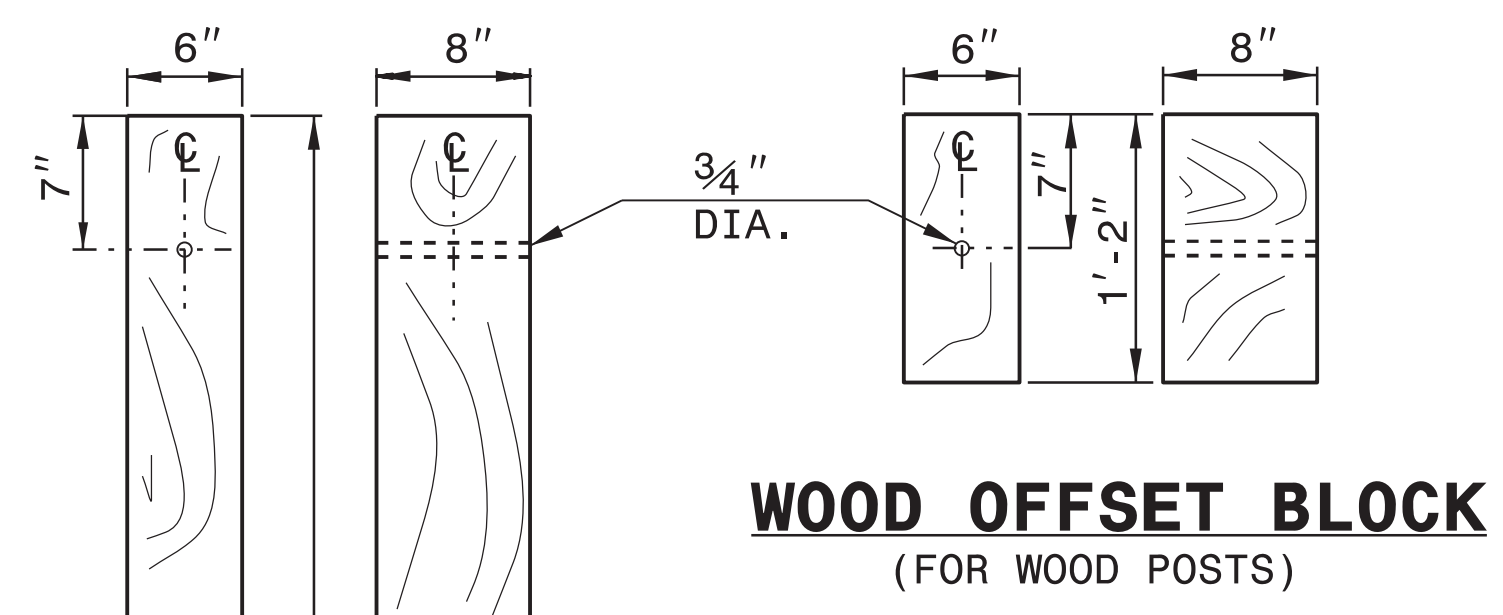
SHEET 6 OF 8
862D02



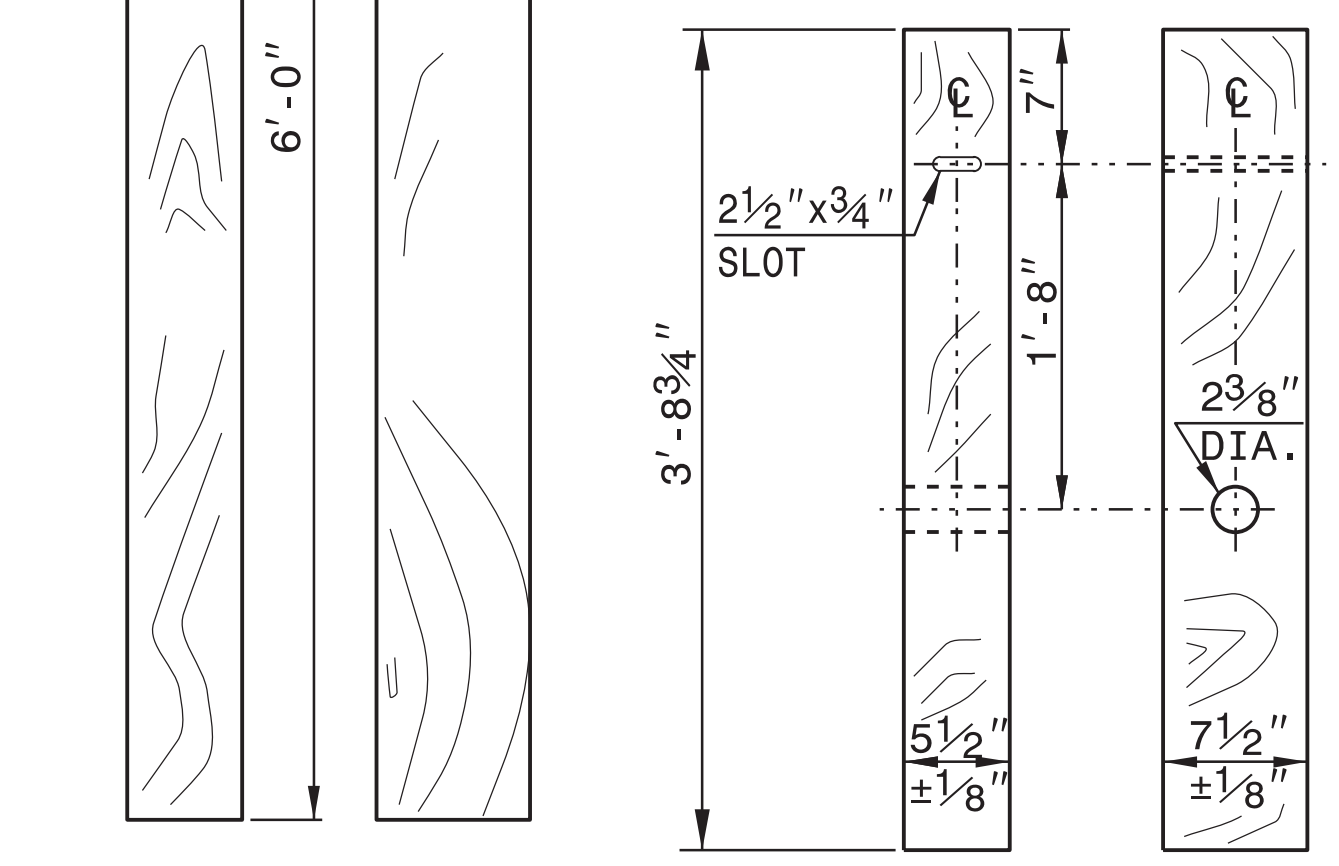
STANDARD W-BEAM GUARDRAIL



PLAN

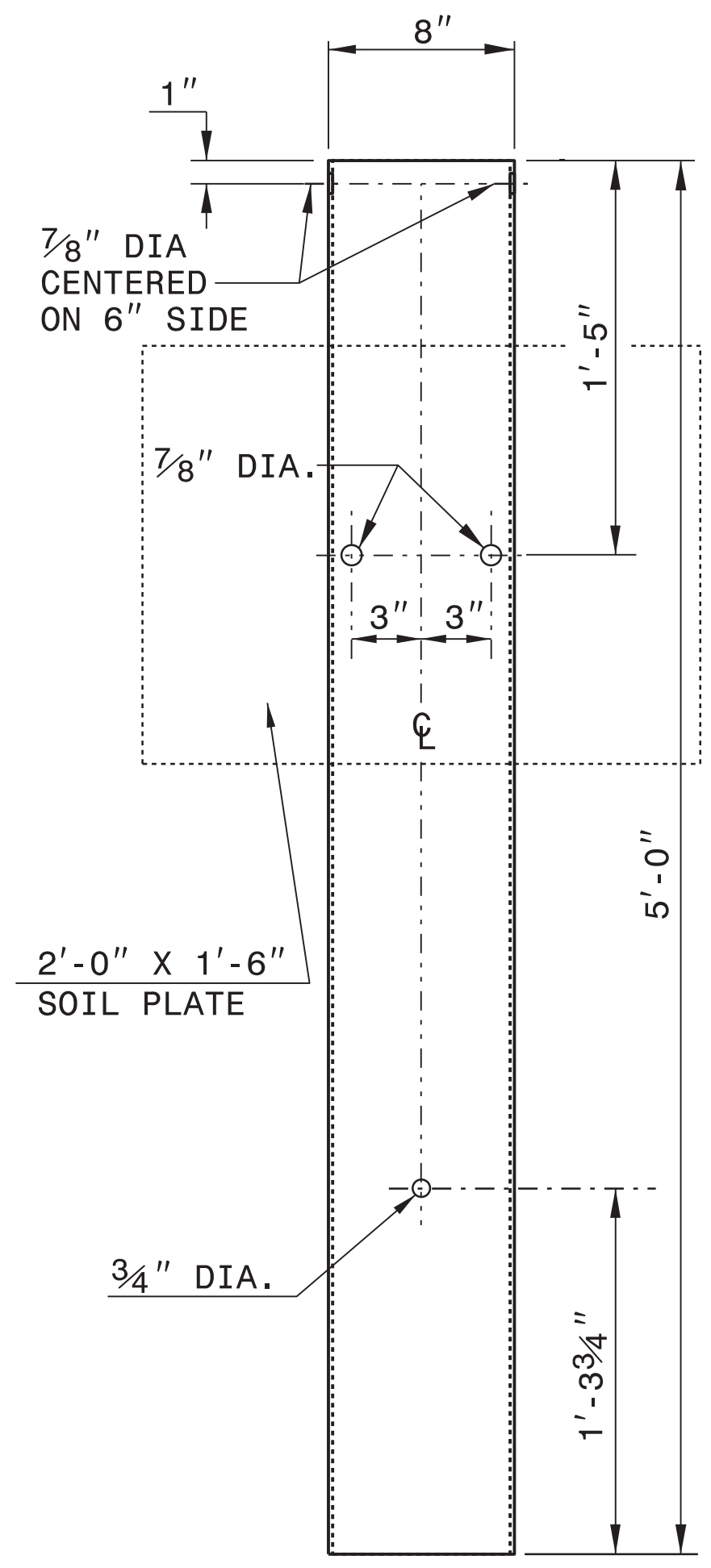


**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

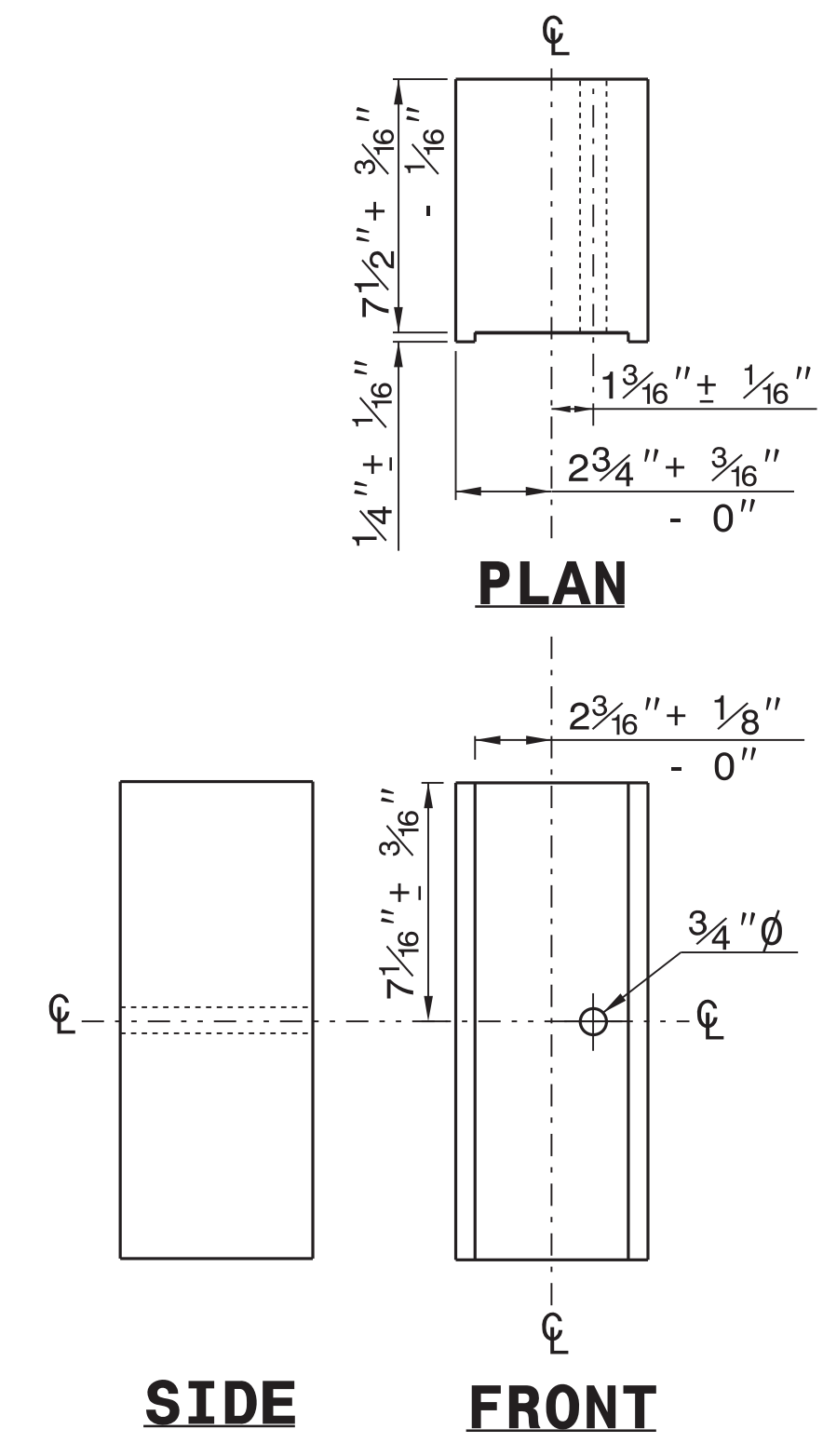


**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



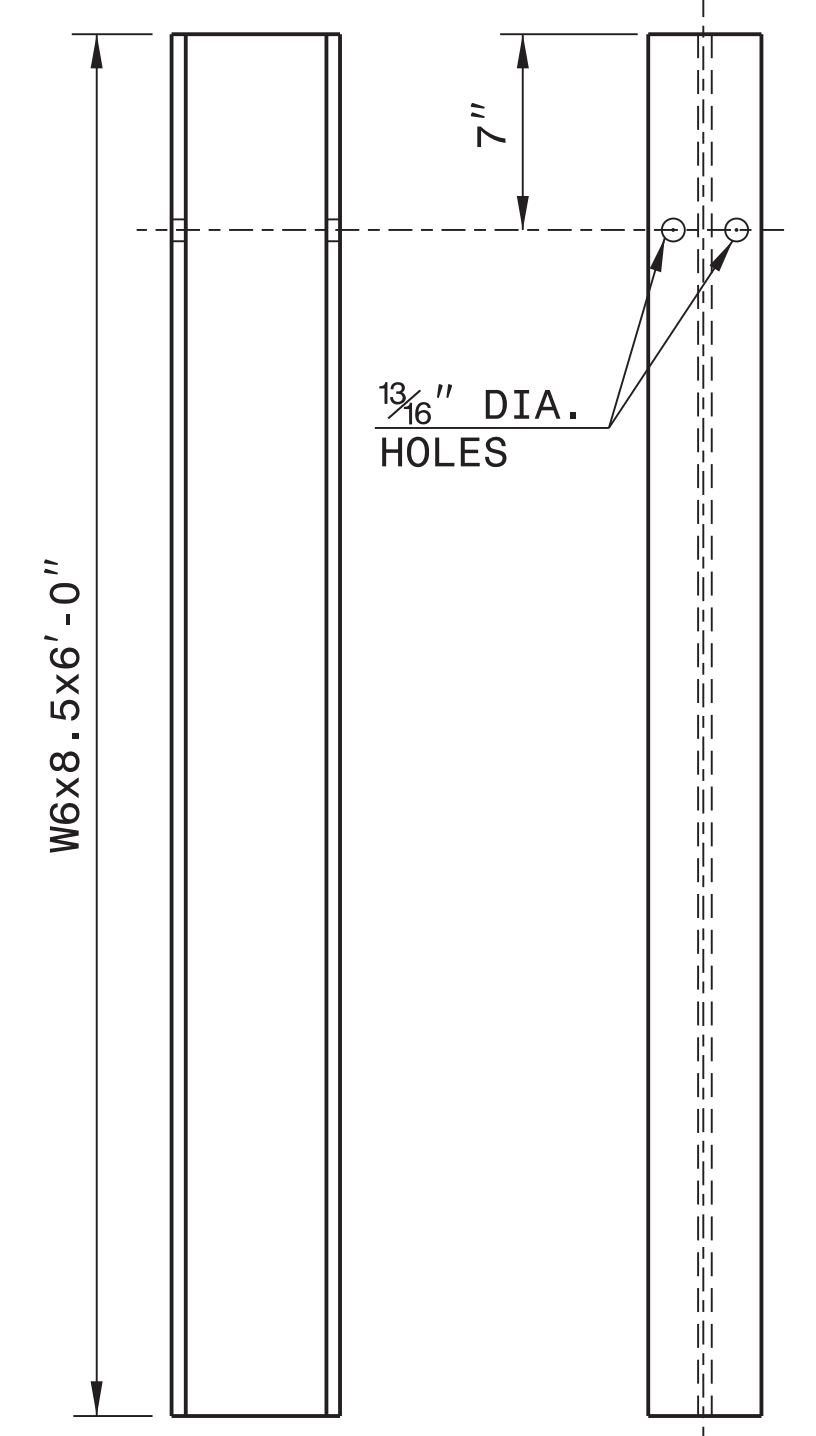
**STEEL TUBE
TS 6"x8"x0.1875"**



SIDE

FRONT

**ROUTED
OFFSET BLOCK**



SIDE

FRONT

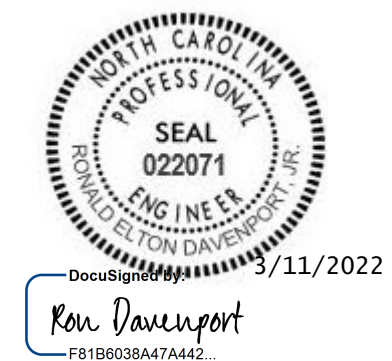
"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



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

SEE TITLE BLOCK

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

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- Sta. 10+50.00	-L- Sta. 14+75.00	826	539	0	287
	SCOUR HOLE - RT	0	120	120	0
SUBTOTAL:		826	659	120	287
ADDITIONAL UNDERCUT		0	240	240	200
WASTE IN LIEU OF BORROW				-287	-287
PROJECT TOTAL:		826	899	73	200
EST. 5% REPLACE TOPSOIL ON BORROW PIT				4	
GRAND TOTALS:		826	899	77	200
SAY:		870		80	

EST. DDE = 10 CUBIC YARDS

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

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	10+50.00	12+25.75	CL	364.88			
-L-	12+40.39	14+75.00	CL	482.20			
TOTAL:				847.08			
SAY:				850			

REVISIONS

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

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS						
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU TL-2	M-350	XIII	CAT-1	TYPE III	BIC	G	NG											
-L-	11+03.24	13+28.24	LT	175'	75'		12+53.27	11+98.98	4'	7'	25'	25'	0.5'	0.5'																					
-L-	11+06.32	14+31.32	RT	187.5	150'		12+17.45	12+70.75	4'	7'	25'	25'	0.5'	0.5'																					
SUBTOTAL:				362.5'	225'																														
LESS ANCHOR DEDUCTIONS:																																			
GREU, TL-2 (4@25')				100'																															
TOTAL:				262.5'	225'																														
SAY:				287.5'	250'																														
ADDITIONAL GUARDRAIL POSTS= 5 EA																																			

11/15/2021 9:20:35 AM RDY_SUM3B1.dgn

8/17/99

COMPUTED BY: RBR DATE: 1/11/2019
CHECKED BY: VHB DATE: 1/11/2019

PROJECT REFERENCE NO. 17BP.5.R.88 SHEET NO. 30-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

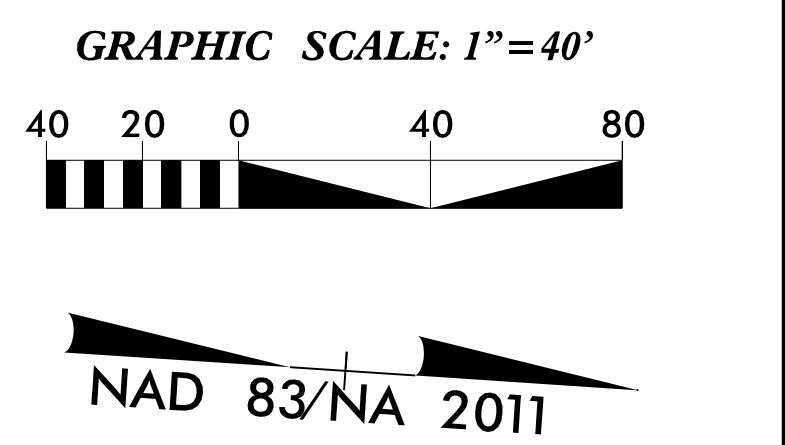
Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

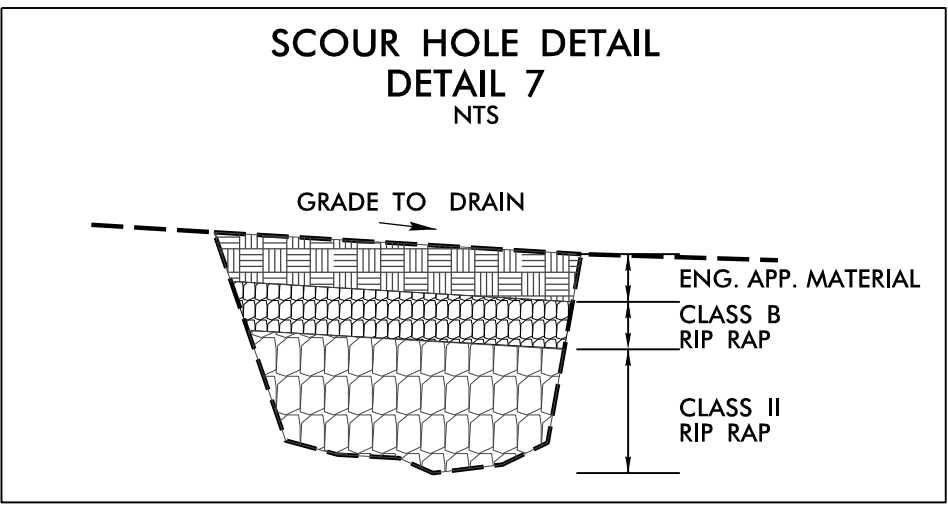
Table with columns for Station, Location, Structure No., Top/Invert Elevation, Slope Critical, Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC), C.S. Pipe, R.C. Pipe Class III, R.C. Pipe Class IV, Endwalls, Quantities for Drainage Structures, Frame, Grates, and Hood Standard, Concrete Transitional Section, Drainage Pipe Elbows No. & Size, Conc. & Brick Pipe Plug, Conc. Collars, Pipe Removal Lin. Ft., and Remarks. Includes abbreviations for C.B., N.D.I., D.I., G.D.I., J.B., M.H., T.B.D.I., and T.B.J.B.

REVISIONS

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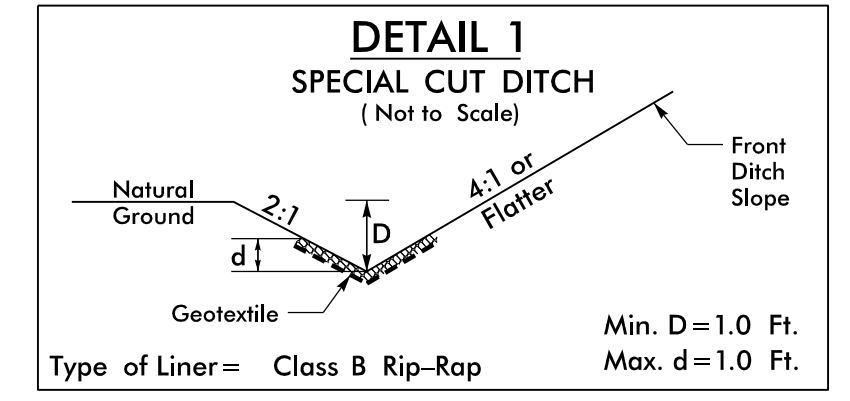
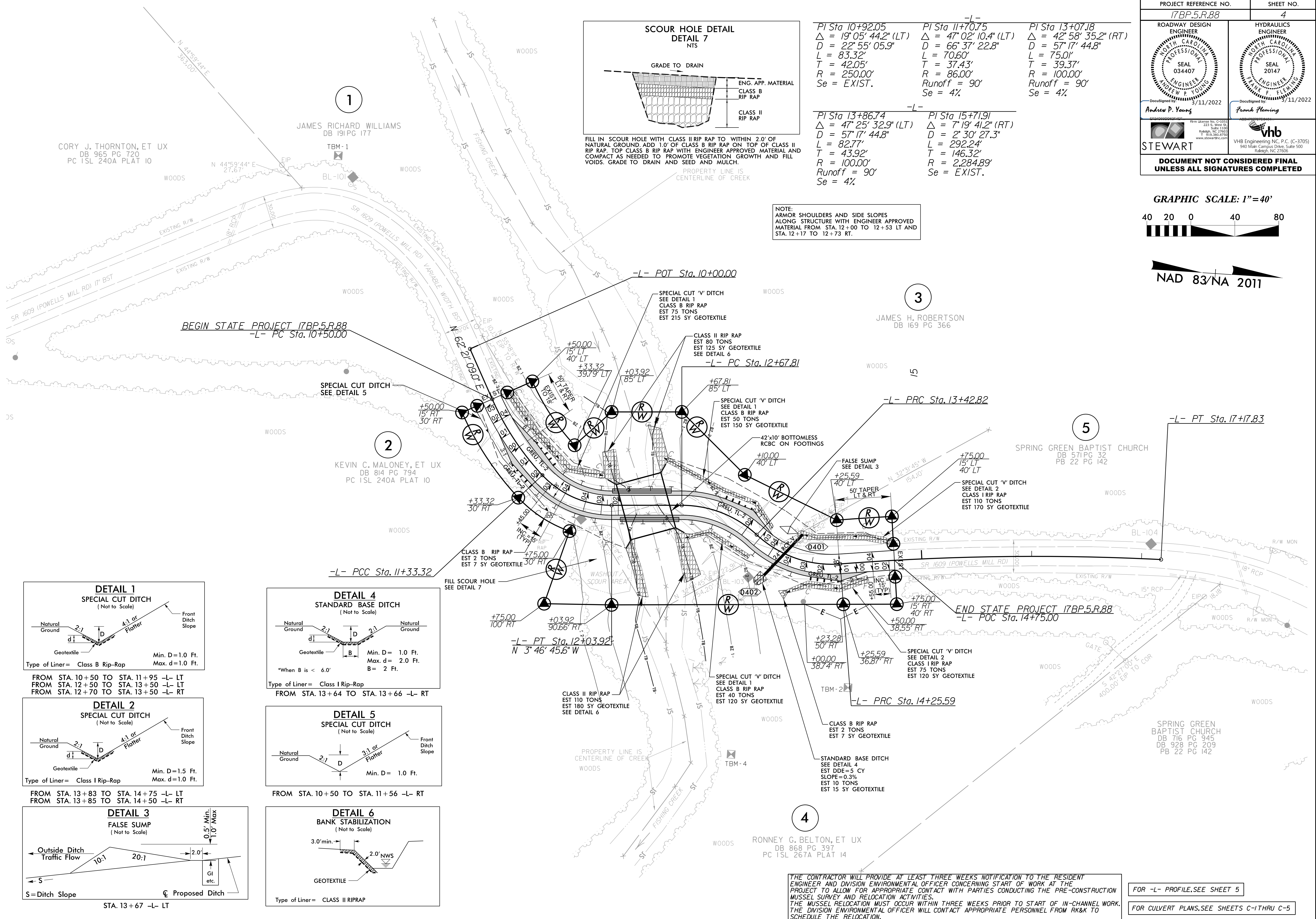
-L-		
PI Sta 10+92.05 Δ = 19° 05' 44.2" (LT) D = 22° 55' 05.9" L = 83.32' T = 42.05' R = 250.00' Se = EXIST.	PI Sta 11+70.75 Δ = 47° 02' 10.4" (LT) D = 66° 37' 22.8" L = 70.60' T = 37.43' R = 86.00' Runoff = 90' Se = 4%	PI Sta 13+07.18 Δ = 42° 58' 35.2" (RT) D = 57° 17' 44.8" L = 75.01' T = 39.37' R = 100.00' Runoff = 90' Se = 4%
-L-		
PI Sta 13+86.74 Δ = 47° 25' 32.9" (LT) D = 57° 17' 44.8" L = 82.77' T = 43.92' R = 100.00' Runoff = 90' Se = 4%	PI Sta 15+71.91 Δ = 7° 19' 41.2" (RT) D = 2° 30' 27.3" L = 292.24' T = 146.32' R = 2,284.89' Se = EXIST.	



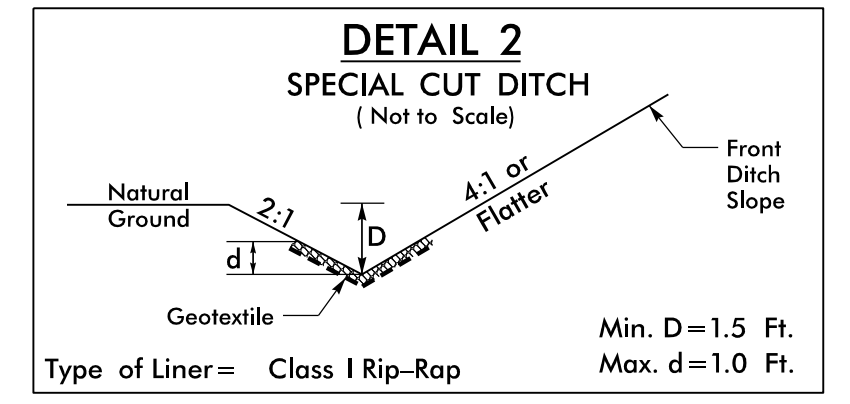
FILL IN SCOUR HOLE WITH CLASS II RIP RAP TO WITHIN 2.0' OF NATURAL GROUND. ADD 1.0' OF CLASS B RIP RAP ON TOP OF CLASS II RIP RAP. TOP CLASS B RIP RAP WITH ENGINEER APPROVED MATERIAL AND COMPACT AS NEEDED TO PROMOTE VEGETATION GROWTH AND FILL VOIDS. GRADE TO DRAIN AND SEED AND MULCH.

NOTE:
ARMOR SHOULDERS AND SIDE SLOPES ALONG STRUCTURE WITH ENGINEER APPROVED MATERIAL FROM STA. 12+00 TO 12+53 LT AND STA. 12+17 TO 12+73 RT.

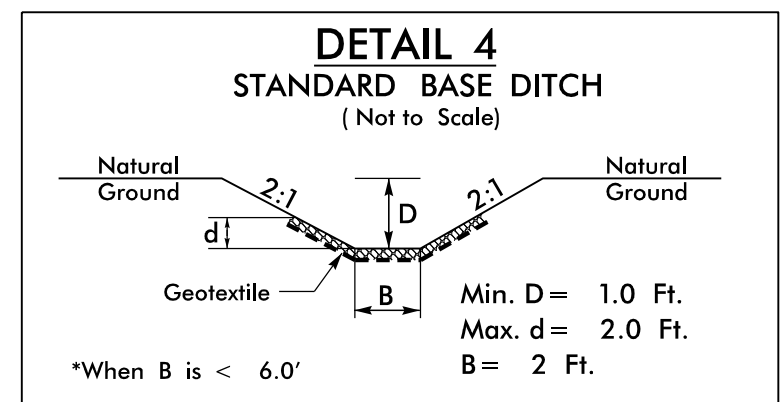
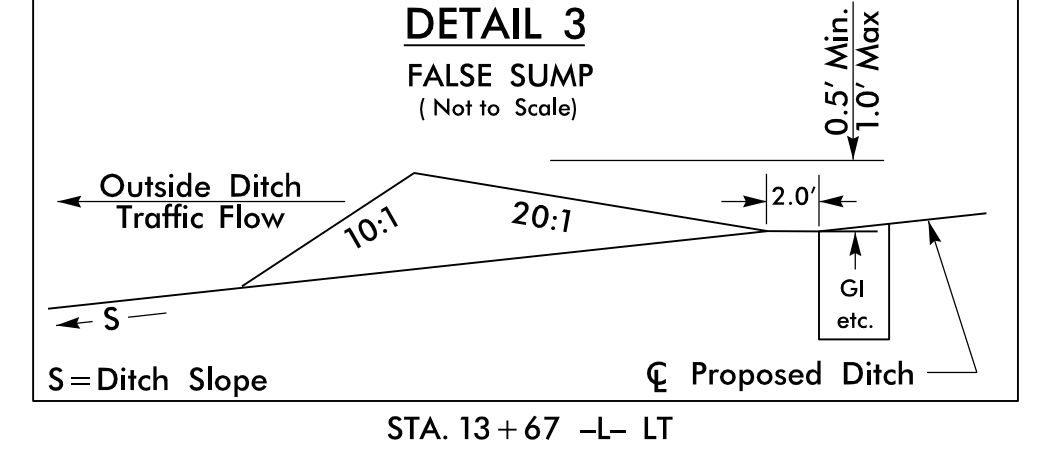
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 5/14/99



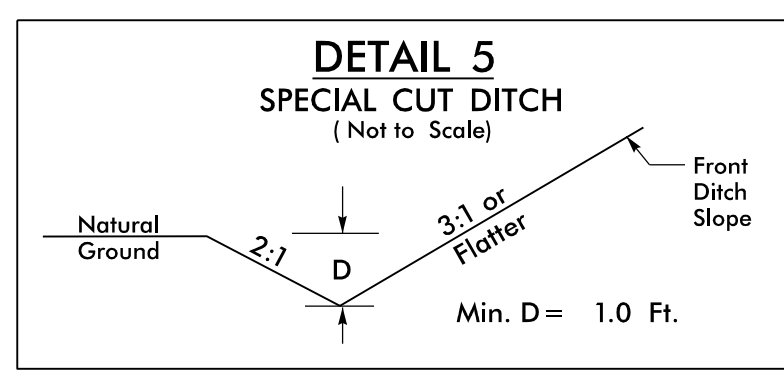
FROM STA. 10+50 TO STA. 11+95 -L- LT
FROM STA. 12+50 TO STA. 13+50 -L- LT
FROM STA. 12+70 TO STA. 13+50 -L- RT



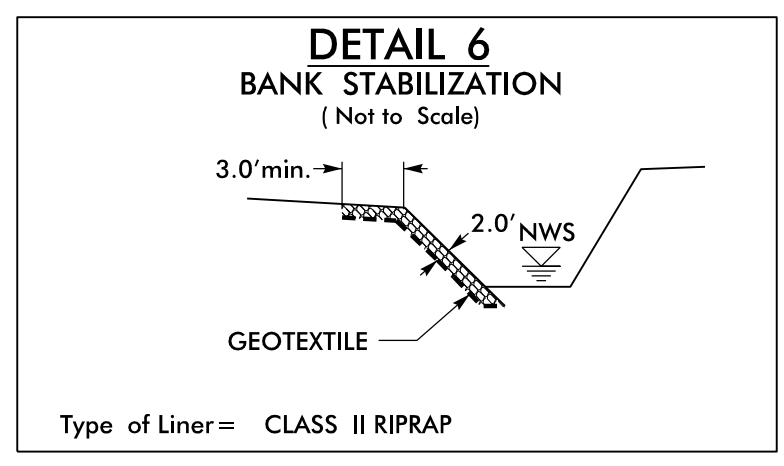
FROM STA. 13+83 TO STA. 14+75 -L- LT
FROM STA. 13+85 TO STA. 14+50 -L- RT



FROM STA. 13+64 TO STA. 13+66 -L- RT



FROM STA. 10+50 TO STA. 11+56 -L- RT



THE CONTRACTOR WILL PROVIDE AT LEAST THREE WEEKS NOTIFICATION TO THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER CONCERNING START OF WORK AT THE PROJECT TO ALLOW FOR APPROPRIATE CONTACT WITH PARTIES CONDUCTING THE PRE-CONSTRUCTION MUSSEL SURVEY AND RELOCATION ACTIVITIES. THE MUSSEL RELOCATION MUST OCCUR WITHIN THREE WEEKS PRIOR TO START OF IN-CHANNEL WORK. THE DIVISION ENVIRONMENTAL OFFICER WILL CONTACT APPROPRIATE PERSONNEL FROM RK&K TO SCHEDULE THE RELOCATION.

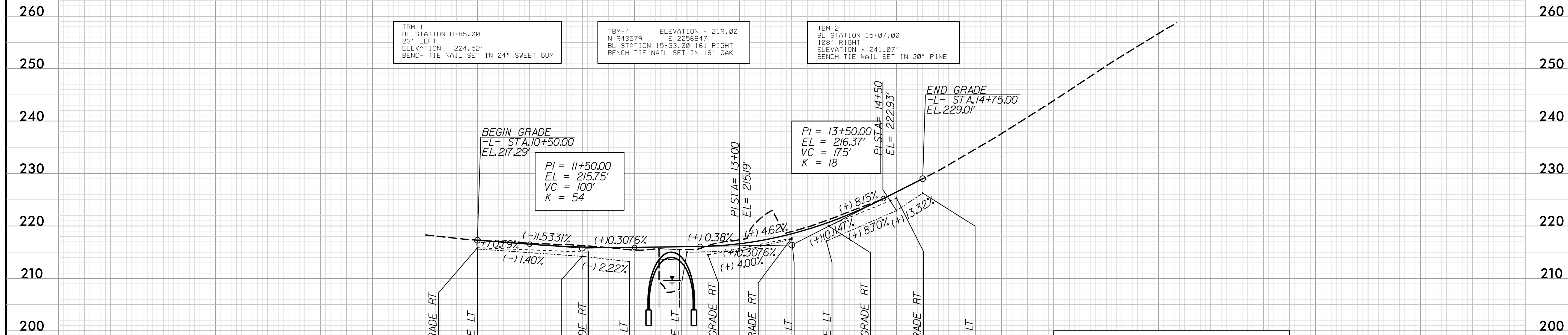
FOR -L- PROFILE, SEE SHEET 5
FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-5

5/28/99

PROJECT REFERENCE NO. 17BP.5.R.88	SHEET NO. 5
ROADWAY DESIGN ENGINEER ANDREW P. YOUNG SEAL 034407 DocuSigned by: Andrew P. Young 3/11/2022	HYDRAULICS ENGINEER FRANK FLEMING SEAL 20147 DocuSigned by: Frank Fleming 3/11/2022
STEWART	vhb VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27605

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

-L-



DITCH LEGEND	
RIGHT DITCH	-----
LEFT DITCH	-----

CULVERT HYDRAULIC DATA	
DESIGN DISCHARGE	= 2600 CFS
DESIGN FREQUENCY	= 2 YR
DESIGN HW ELEVATION	= 220.6 FT
BASE DISCHARGE	= 11147 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 229.3 FT
OVERTOPPING DISCHARGE	= 824 CFS
OVERTOPPING FREQUENCY	= 2 YR
OVERTOPPING ELEVATION	= 216.1 FT

FOR -L- PLAN VIEW SEE SHEET 4

FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-5

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09/06/19

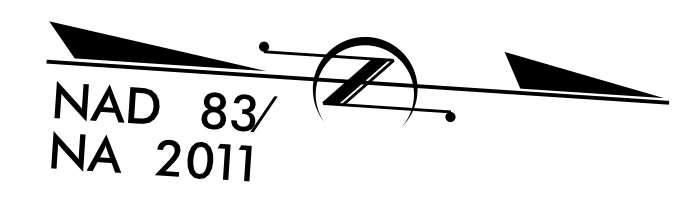
TIP PROJECT: 92-0135

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	92-0135	RW01	

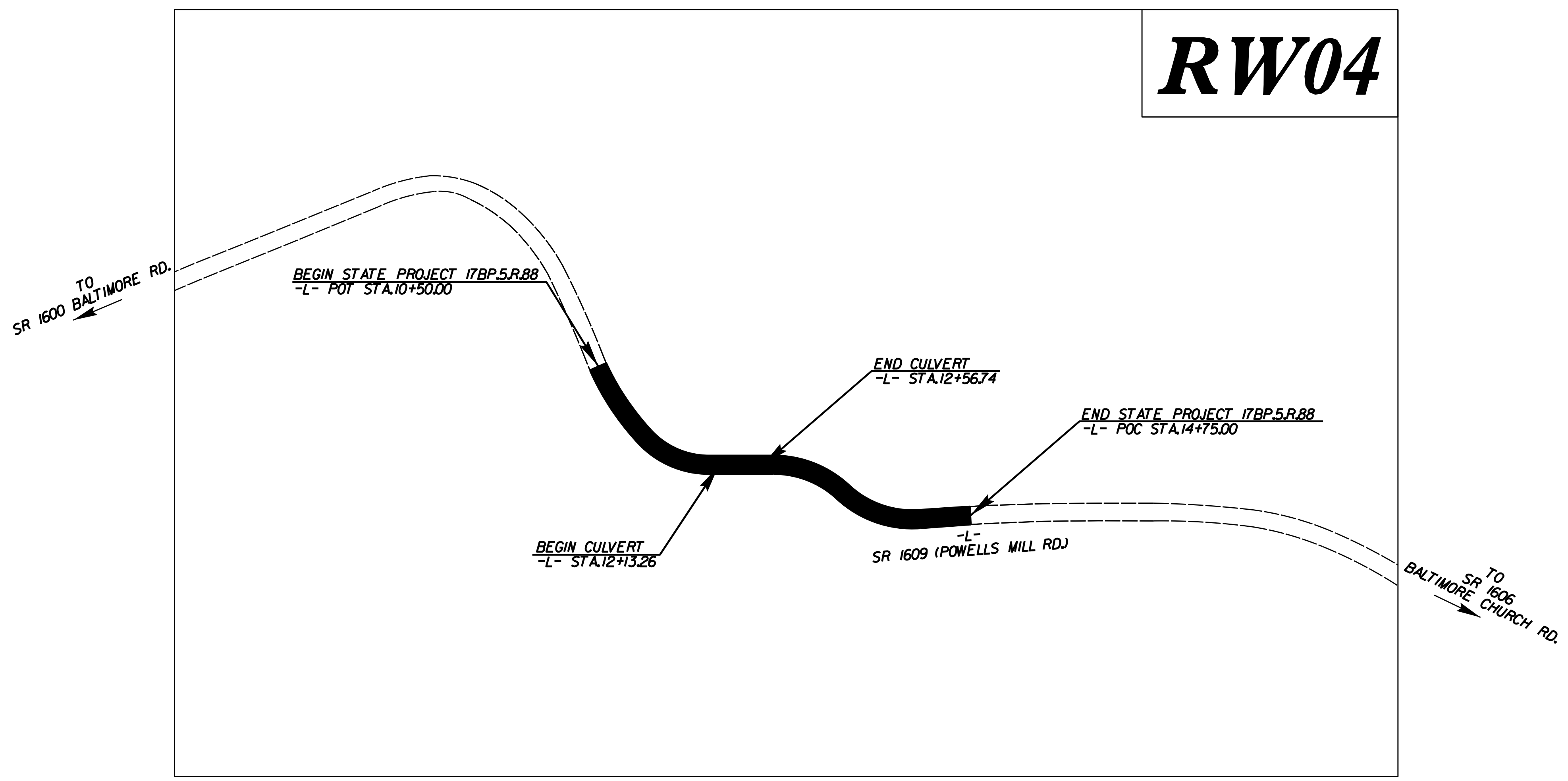
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

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

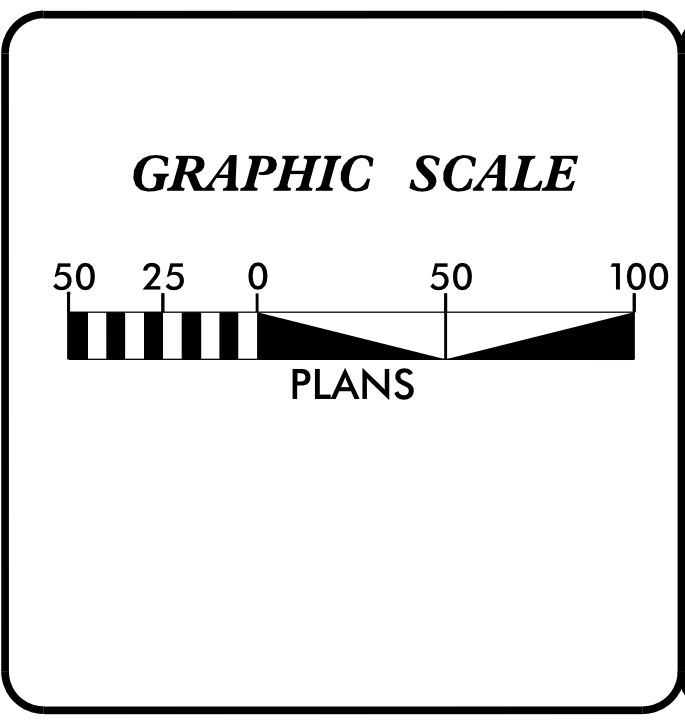
WARREN COUNTY



RW04



\$\$\$\$\$ SYSTEM \$\$\$\$\$\$
\$\$\$\$\$ DDN \$\$\$\$\$\$
\$\$\$\$\$ USERNAME \$\$\$\$\$\$



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "920135 GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 944,435.382(ft) EASTING: 2,256,842.367(ft) ELEVATION: 287.561(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000045283

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "920135 GPS-2" TO -L- STATION 10+50.00 IS S 15-31'05.3" W 1,136.214(ft)

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

Prepared in the Office of:

1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 License No. F-0377
 Bus: 919 851 8077
 Fax: 919 851 8107

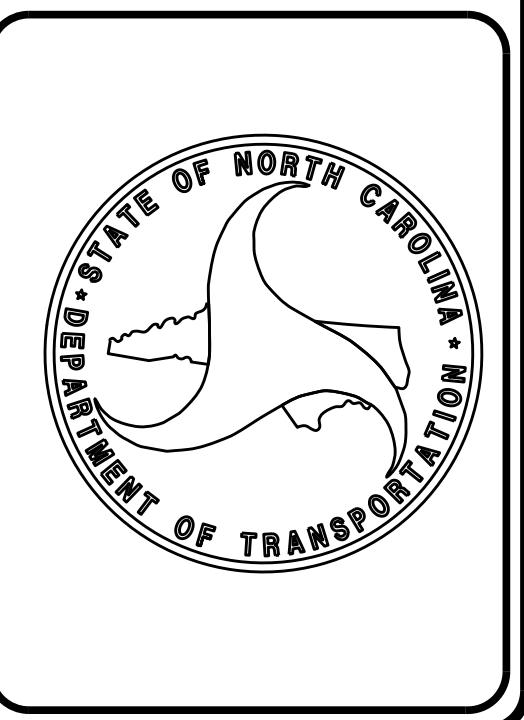
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - SURVEYING - CONSTRUCTION OBSERVATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: _____ LETTING DATE: _____


PROFESSIONAL LAND SURVEYOR

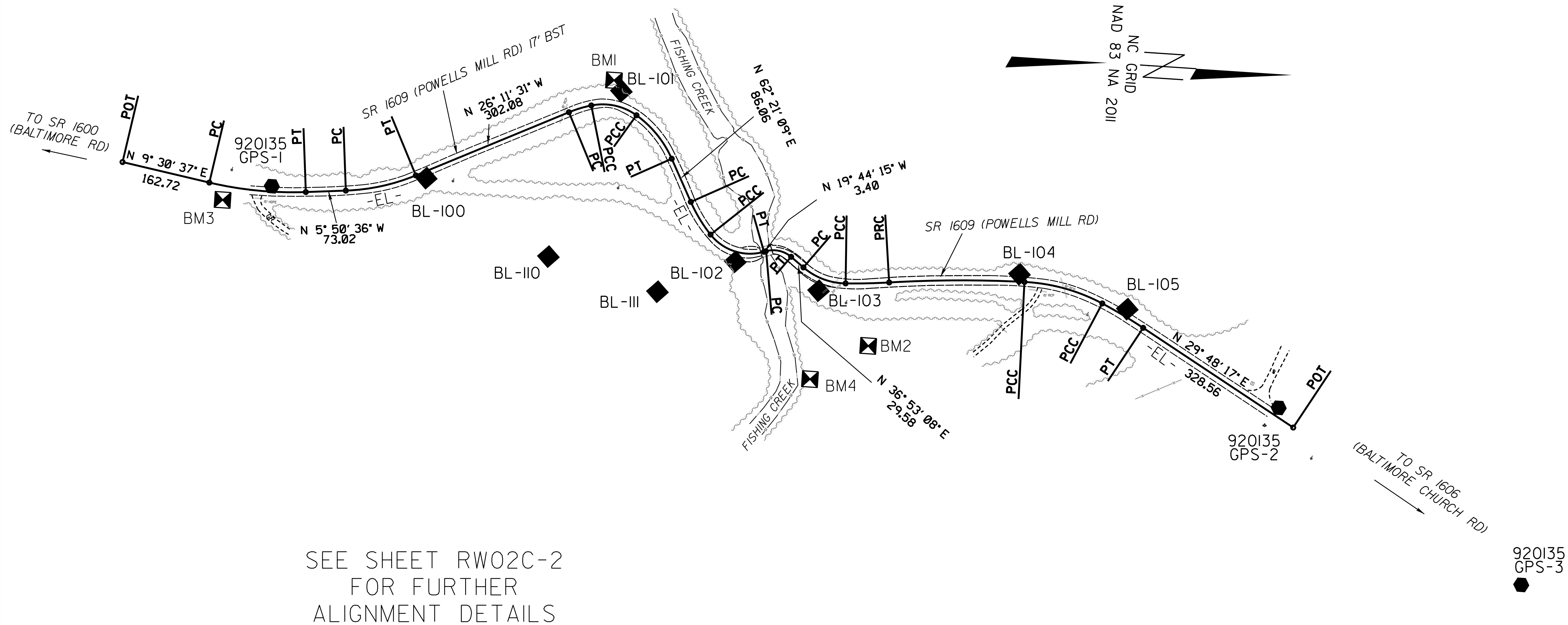
Signature: *Anthony K. Alford* Date: 12/11/2018



SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. 92-0135	SHEET NO. RW02C-1
Location and Surveys	
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F43277 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - SURVEYING - CONSTRUCTION OBSERVATION	



SEE SHEET RW02C-2 FOR FURTHER ALIGNMENT DETAILS

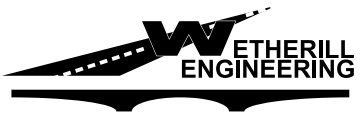
NOTES:

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

SCHEMATIC CONSTRUCTION

6/2/09

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
92-0135	RW02D-1
Location and Surveys	
	
<small>1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-3377 Bus: 919 851 8077 Fax: 919 851 8107</small>	
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - SURVEYING - CONSTRUCTION OBSERVATION</small>	

REVISIONS

L			
TYPE	STATION	NORTH	EAST
POT	10+00.00	943317.3859	2256494.0893
PC	10+50.00	943340.5874	2256538.3803
PCC	11+33.32	943390.7246	2256604.4448
PT	12+03.92	943455.3264	2256627.6250
PC	12+67.81	943519.0762	2256623.4138
PRC	13+42.82	943588.8666	2256645.6987
PRC	14+25.59	943666.3781	2256667.1715
PT	17+17.83	943957.4898	2256643.9301
POT	17+17.83	943957.4898	2256643.9301

NOTES:


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

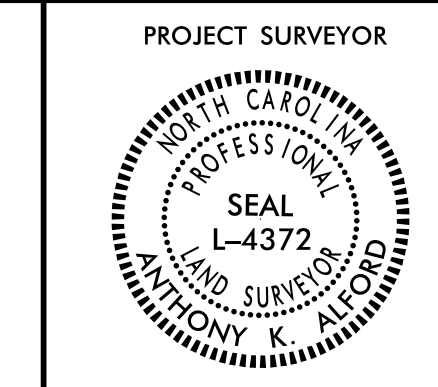
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6/2/19

REVISIONS

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO. 92-0135	SHEET NO. RW03E-1
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - SURVEYING - CONSTRUCTION OBSERVATION	

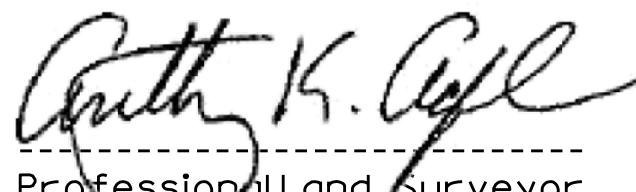


I, ANTHONY K. ALFORD, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location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

I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

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

Witness my original signature, registration number and seal this 3rd day of December, 2018.


 Professional Land Surveyor

L-4372
 PLS #

Seal

ROW MARKER IRON PIN AND CAP - E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+50.00	30.00	943314.0128	2256552.3012
L	10+50.00	15.00	943327.3001	2256545.3408
L	10+50.00	-40.00	943376.0202	2256519.8191
L	10+50.00	-15.00	943353.8747	2256531.4198
L	11+33.32	30.00	943370.1664	2256626.2935
L	11+33.32	-39.79	943417.9915	2256575.4662
L	11+75.00	100.00	943399.9870	2256721.0571
L	11+75.00	30.00	943418.6803	2256653.5993
L	12+03.92	90.66	943461.3019	2256718.0830
L	12+03.92	-85.00	943449.7237	2256542.8098
L	12+67.81	-85.00	943513.4735	2256538.5987
L	13+10.00	-40.00	943574.4539	2256591.9717
L	14+25.59	-40.00	943660.6531	2256627.5833
L	14+25.59	36.87	943671.6550	2256703.6614
L	14+75.00	15.00	943717.1761	2256675.5177
L	14+75.00	-40.00	943710.4831	2256620.9264
L	14+75.00	-15.00	943713.5254	2256645.7406
L	14+75.00	40.00	943720.2184	2256700.3319


NOTES:

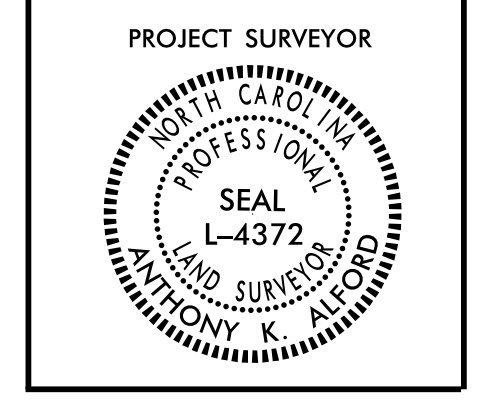
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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

6/2/19

6/2/19

PROJECT REFERENCE NO. 92-0135	SHEET NO. RW04
Location and Surveys	
	
1223 Jones Franklin Rd. Raleigh, N.C. 27605 License No. F-3377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - SURVEYING - CONSTRUCTION OBSERVATION	



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

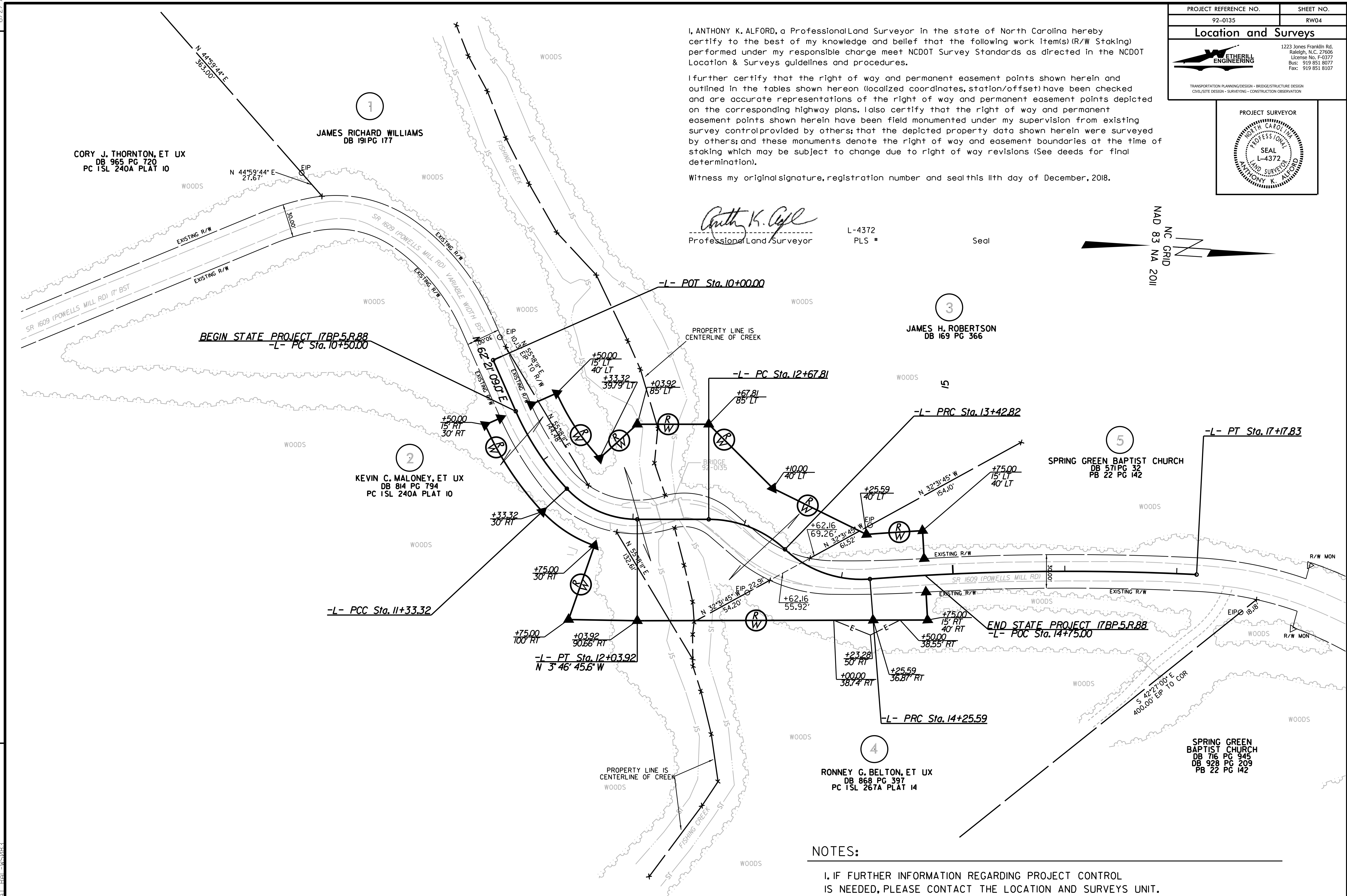
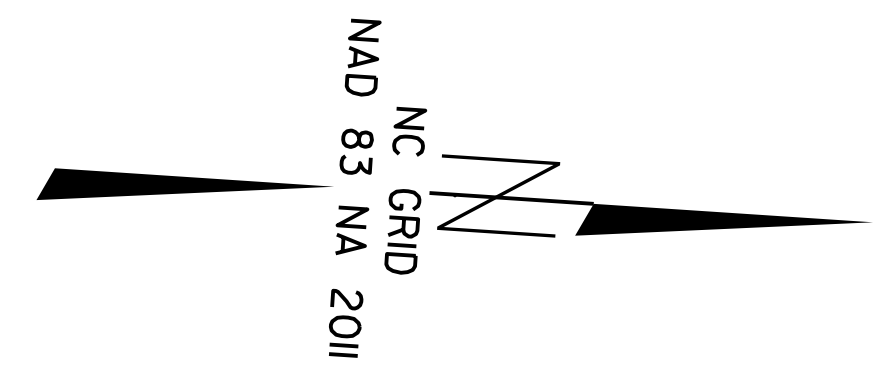
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Witness my original signature, registration number and seal this 11th day of December, 2018.

Anthony K. Alford
Professional Land Surveyor

L-4372
PLS #

Seal



REVISIONS

I:\DEC-2018\1204_Location and Surveys\92-0135 RW\19124_30\Drawings\920135_1s_rw04.dgn
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PLOT BY: AKA

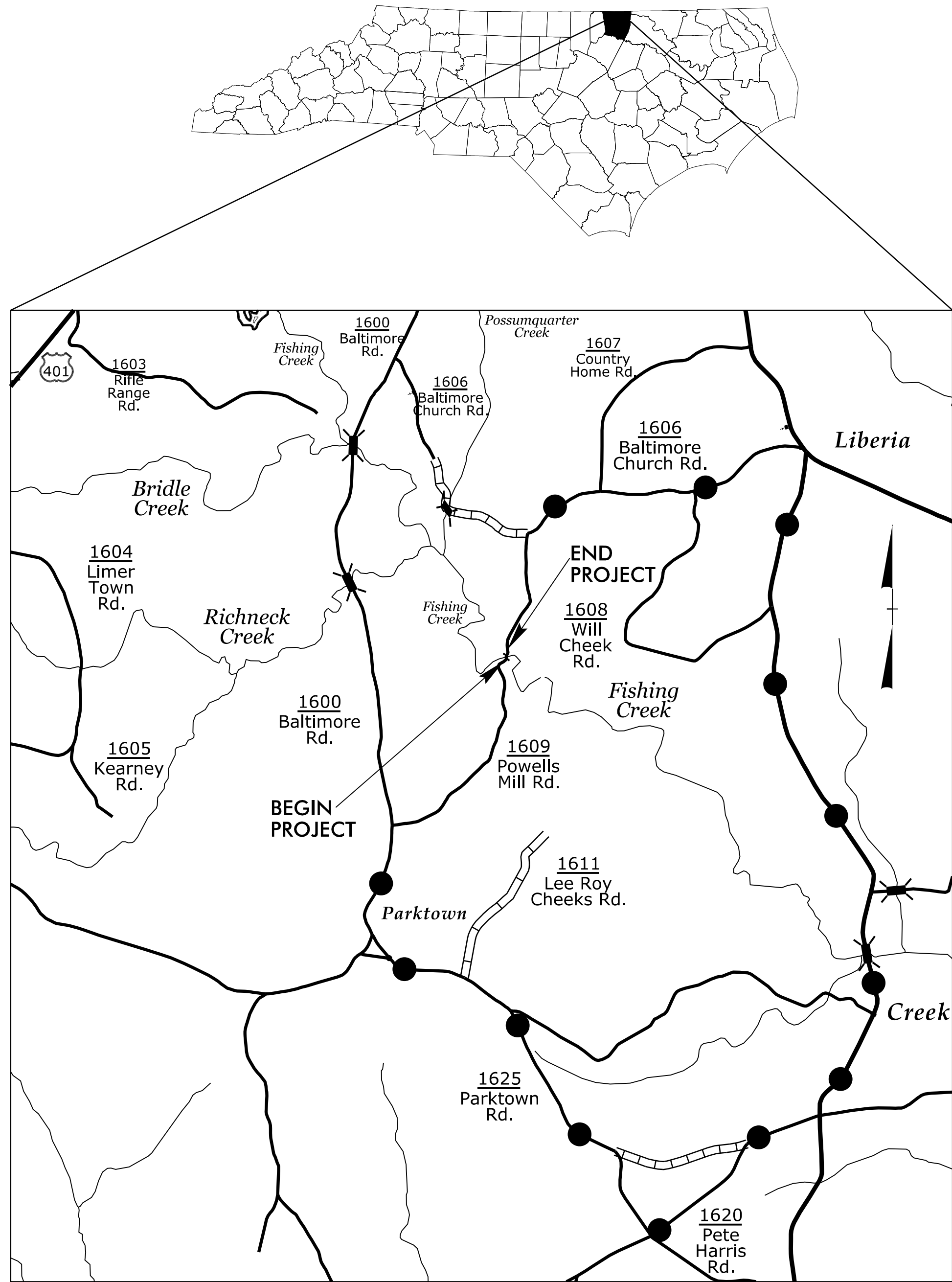
NOTES:

- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WARREN COUNTY



OFF-SITE DETOUR —●—●—●—

INDEX OF SHEETS

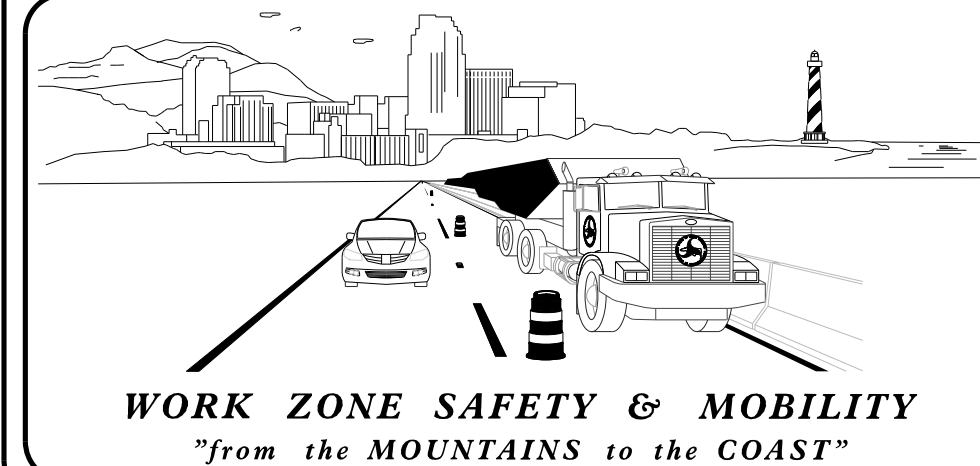
SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, LOCAL NOTES, AND PHASING)
TMP-2	SPECIAL SIGN DESIGN
TMP-3	OFF-SITE DETOUR

SHEET NO.
TMP-1

17BP.5.R.88

TIP PROJECT:

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



PLANS PREPARED BY:

STEWART
223 S. WEST ST., STE 1100
RALEIGH, NC 27603
Y 919.380.8750
Firm License #: C-1051
www.stewartinc.com

ANDY YOUNG, PE
PROJECT ENGINEER

JOSHUA ROEMER
PROJECT DESIGN ENGINEER



APPROVED: Andrew P. Young
DATE: 3/11/2022

SEAL

3/11/2022
TCN\920135_TC-TMP_01.dgn
USER:ayoung

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUM
1145.01	BARRICADES

LEGEND

GENERAL

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

WORK AREA

REMOVAL

SIGNALS

- EXISTING
- PROPOSED
- T
- E
- M
- P

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

Firm License No. C-1051
223 S. West St.
Suite 1100
Raleigh, NC 27603
T 919.380.8750
www.stewartinc.com

APPROVED:
DATE: 3/11/2022

SEAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD
DRAWINGS & LEGEND

MANAGEMENT STRATEGIES

DURING CONSTRUCTION OF PROPOSED STRUCTURE BRIDGE No. 135 OVER FISHING CREEK, SR 1609 (POWELLS MILL RD.) WILL BE CLOSED TO THROUGH TRAFFIC. THROUGH TRAFFIC ON SR 1609 (POWELLS MILL RD.) WILL BE MAINTAINED USING AN OFF-SITE DETOUR.

THE OFF-SITE DETOUR WILL INCLUDE SR 1600, SR 1625, SR 1620, NC 58, AND SR 1606 (SEE SHEET TMP-3).

SR 1609 (POWELLS MILL RD.) IS CURRENTLY CLOSED TO TRAFFIC. CONTRACTOR SHALL ENSURE ALL DETOUR SIGNS ARE PLACED ACCORDING TO THESE PLANS.

GENERAL NOTES

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

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

SIGNING

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

LOCAL NOTES

1. NOTIFY THE ENGINEER AT LEAST 30 DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.
2. NOTIFY THE WARREN COUNTY SCHOOLS TRANSPORTATION DIRECTOR OF THE BRIDGE REMOVAL 30 DAYS PRIOR TO ROAD CLOSURE.
3. NOTIFY THE WARREN COUNTY EMERGENCY MANAGEMENT SERVICES DIRECTOR OF BRIDGE REMOVAL 30 DAYS PRIOR TO ROAD CLOSURE.

PHASING

STEP 1:

USING RSD 1101.03, SHEET 1 OF 9, SHEETS TMP-2 AND TMP-3, INSTALL ROAD CLOSURE AND DETOUR SIGNS, PLACE TYPE III BARRICADES TO CLOSE SR 1609 (POWELLS MILL RD.) TO THROUGH TRAFFIC, AND DETOUR TRAFFIC OFF-SITE.

STEP 2:

REMOVE THE EXISTING STRUCTURE.

STEP 3:

CONSTRUCT THE PROPOSED CULVERT AND ROADWAY.

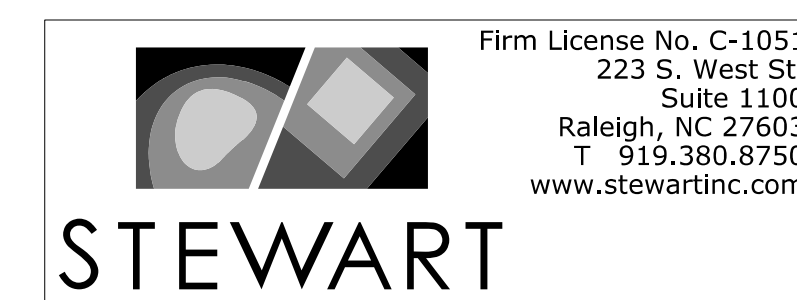
STEP 4:

PLACE FINAL PAVEMENT MARKINGS ACCORDING TO THE PAVEMENT MARKING PLANS.

STEP 5:

OPEN SR 1609 (POWELLS MILL RD.) TO TRAFFIC AND REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

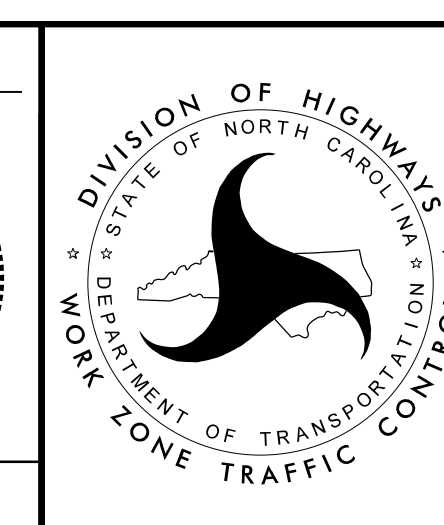
3/9/2022
\\TCP\920135_TC_TMP_01B.dgn
USER:mburns



APPROVED: *Andrew P. Young*
DATE: 3/11/2022

SEAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



<p>SIGN NUMBER: SP-1 TYPE: STATIONARY QUANTITY: SEE PLANS</p> <p>SIGN WIDTH: 2'-6" HEIGHT: 1'-6" TOTAL AREA: 3.8 Sq.Ft.</p> <p>BORDER TYPE: INSET RECESS: 0.38" WIDTH: 0.63" RADII: 1.5"</p> <p>NO. Z BARS: LENGTH:</p>	<p>BACKG COLOR: Fluorescent Orange COPY COLOR: Black</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>MAT'L: 0.080" (2.0 mm) ALUMINUM</p>	SYMBOL	X	Y	WID	HT																																														<p>DESIGN BY: Jody Cole PROJECT ID: 17BP.5.R.77</p> <p>CHECKED BY: Andy Young, PE LOCATION: Warren County</p> <p style="text-align: right;">Aug 21, 2018 DIV: 5</p>
SYMBOL	X	Y	WID	HT																																																
<p>USE NOTES: 1,2</p> <p>1. Legend and border shall be direct applied black non-reflective sheeting. 2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.</p>																																																				

BORDER R=1.5"
TH=0.63"
IN=0.38"

Panel Style: Traffic Control.ssi
M.U.T.C.D.: 2009 Edition

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

	P	O	W	E	L	L	S														Series/Size Text Length
	3.7	7	10.3	14.5	17.7	20.7	23.5														D 2000 22.5
	2.8	6.9	8.5	11.6	14	18	21.4														D 2000 24.4

FILENAME: 920135_TC_TMP_02NORTH CAROLINA D.O.T. SIGN DETAIL

3/9/2022
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USER:mburns

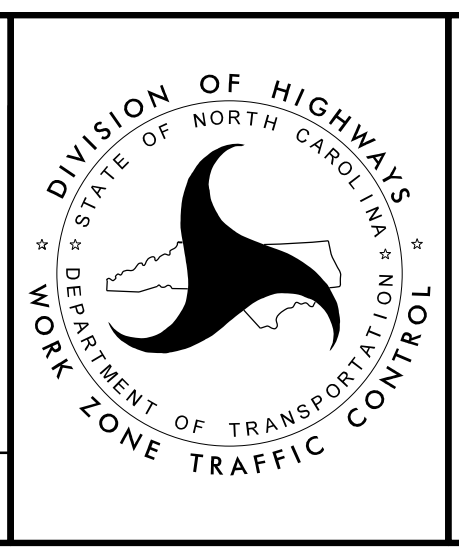
Firm License No. C-1051
223 S. West St.
Suite 1100
Raleigh, NC 27603
T 919.380.8750
www.stewartinc.com

APPROVED:
DocuSigned by: Andrew P. Young
EF21083D0D2F4EF...

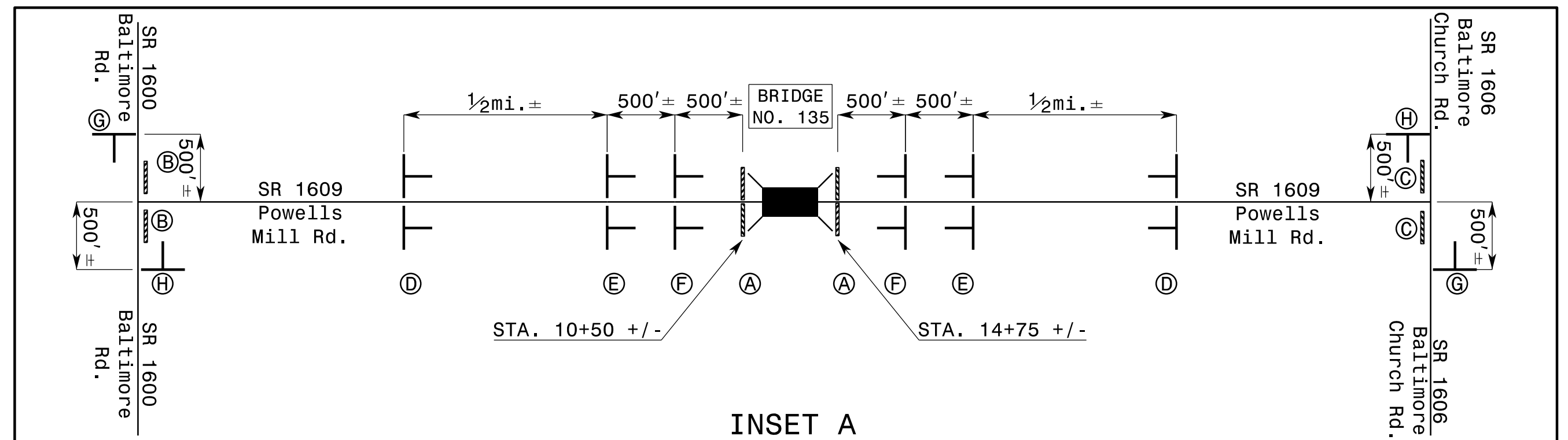
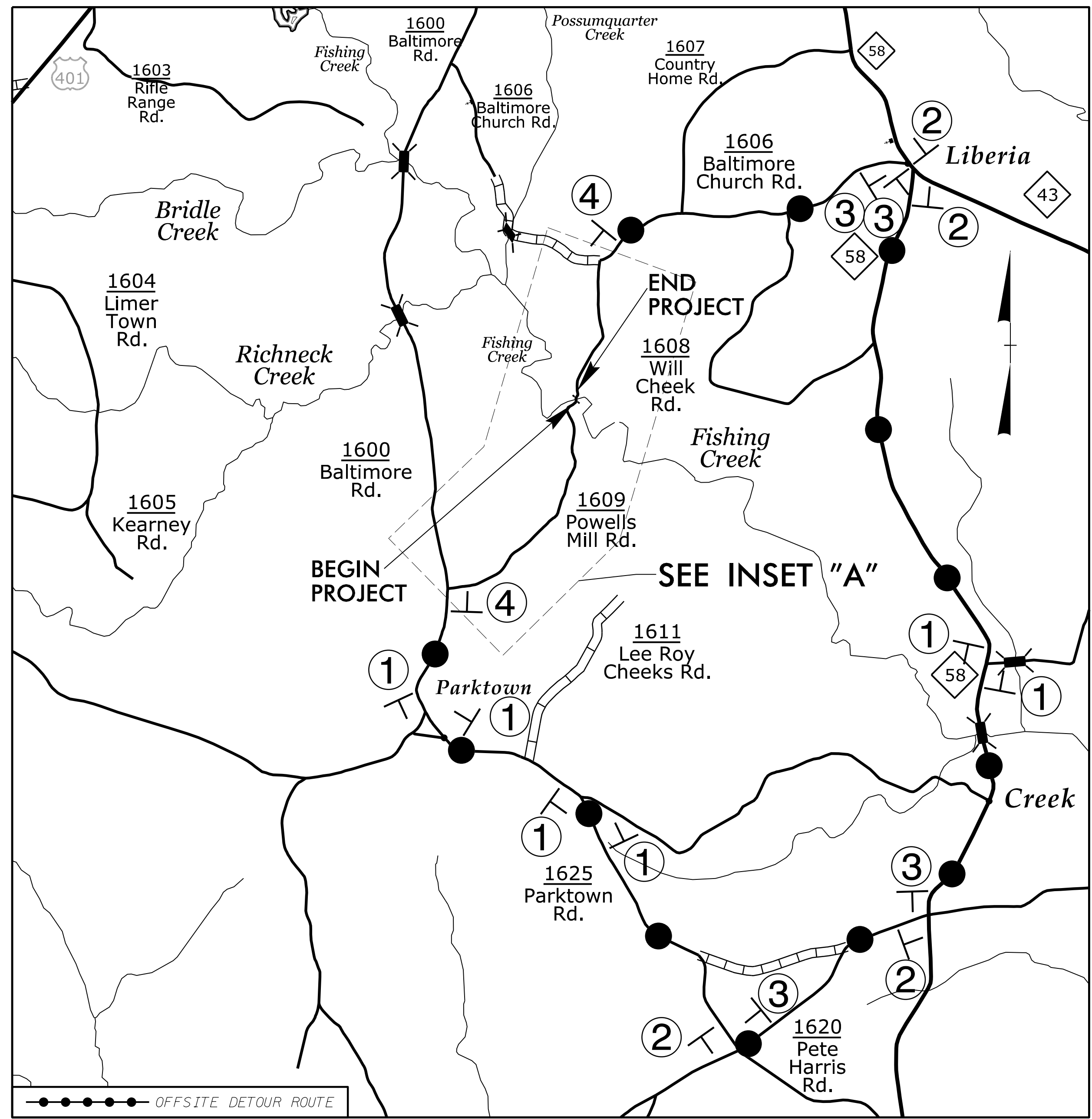
DATE: 3/11/2022

SEAL

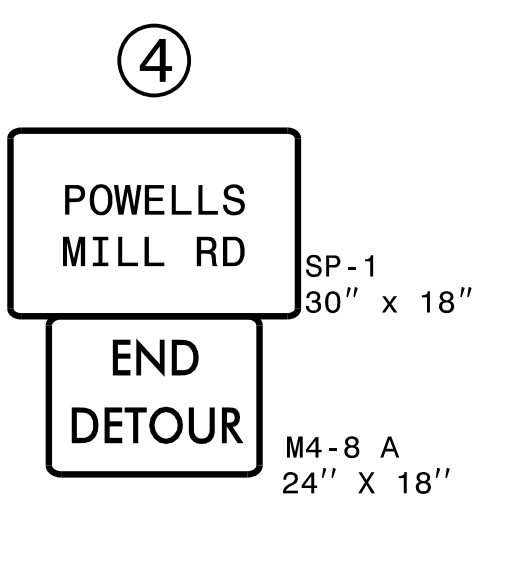
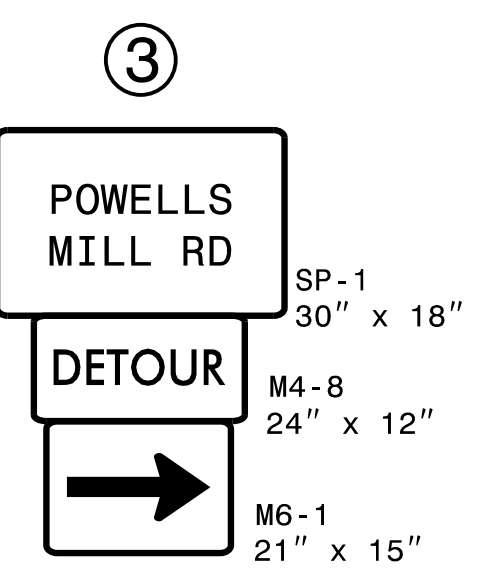
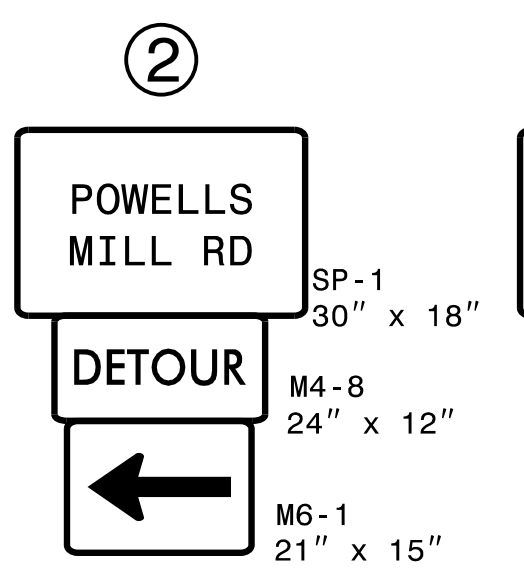
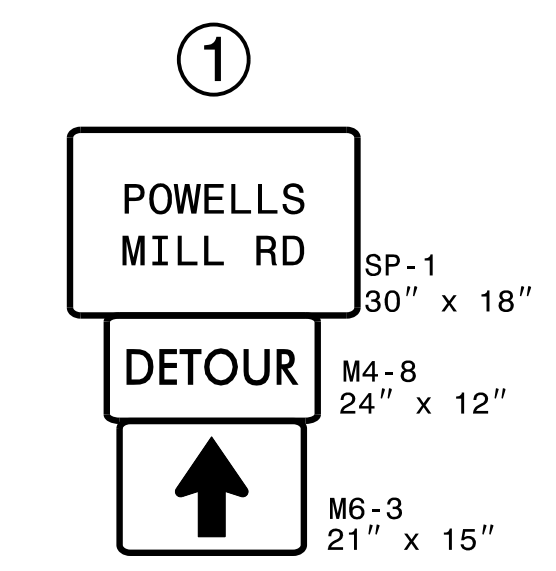
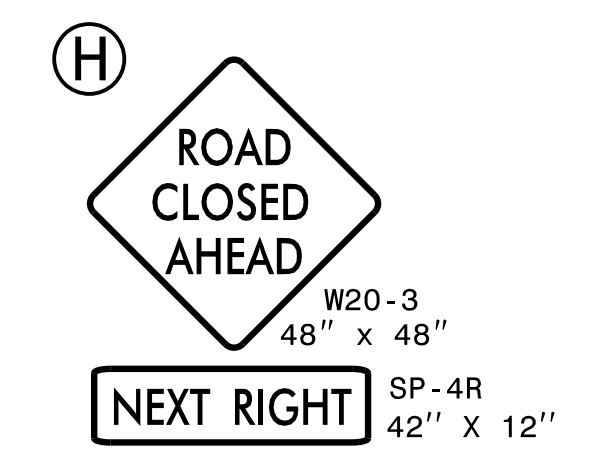
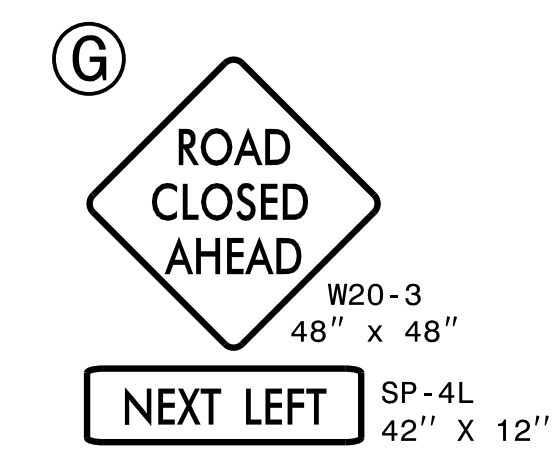
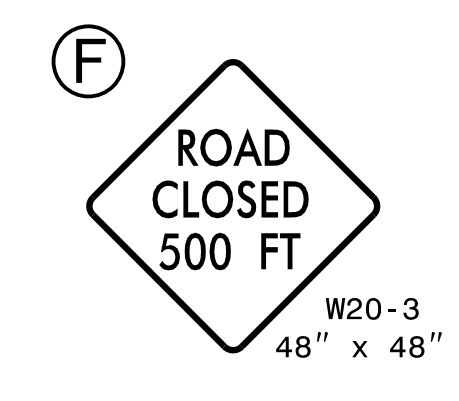
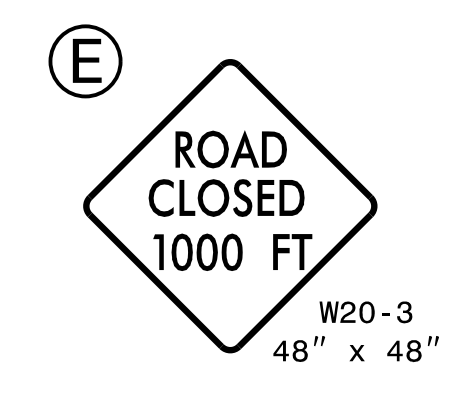
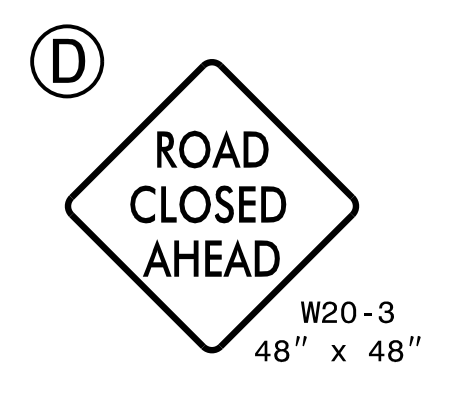
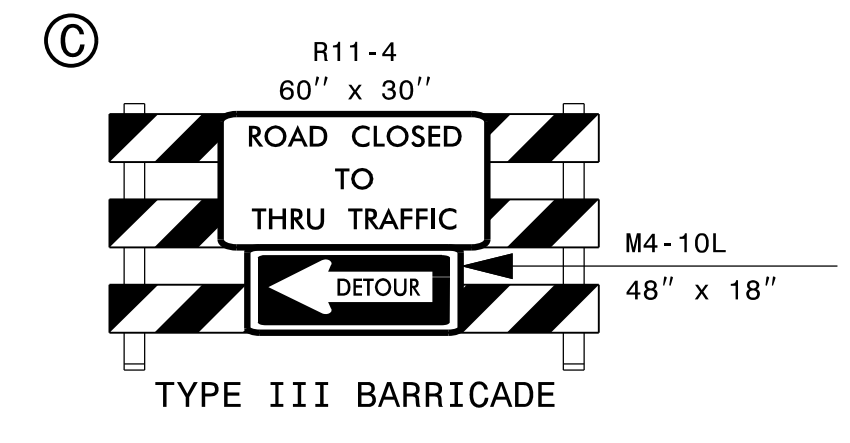
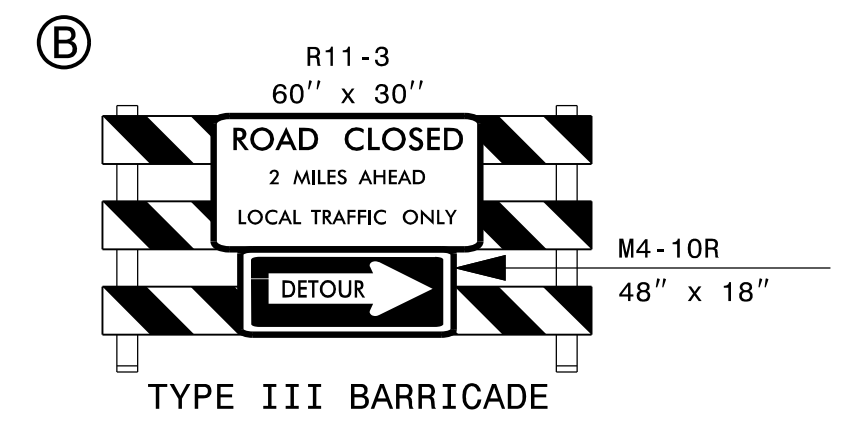
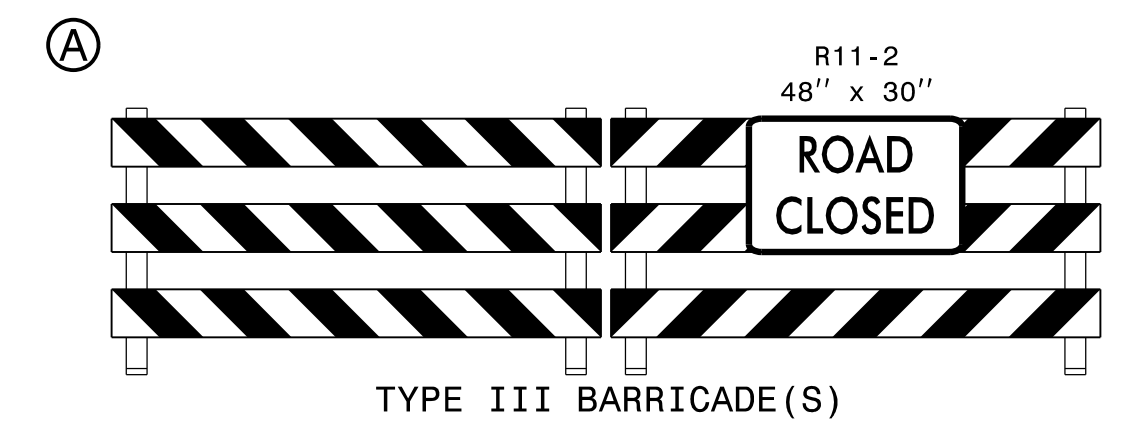
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UNLESS ALL SIGNATURES COMPLETED**



SPECIAL SIGN DESIGN



REFER TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9 FOR APPLICABLE NOTES.



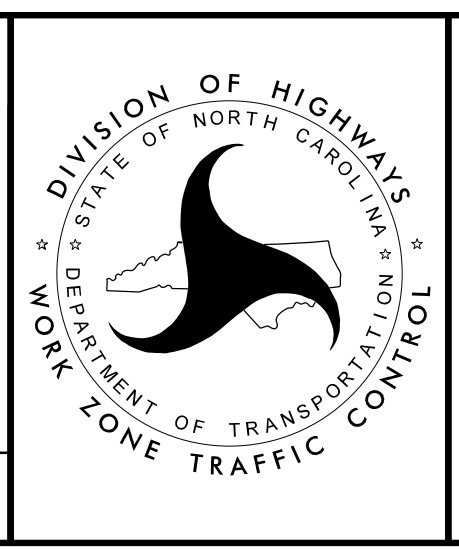
STEWART

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223 S. West St.
Suite 1100
Raleigh, NC 27603
T 919.380.8750
www.stewartinc.com

APPROVED: *Andrew P. Young*
DATE: 3/11/2022

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

OFF-SITE
DETOUR

3/9/2022
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USER:mburns

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN
WARREN COUNTY**

LOCATION: BRIDGE NO.135 OVER FISHING CREEK ON SR 1609 (POWELLS MILL RD.)

ROADWAY STANDARD DRAWING

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

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

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PA	PAINT WHITE EDGELINE (4") X2
PI	PAINT YELLOW DOUBLE CENTER (4") X2

GENERAL NOTES

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

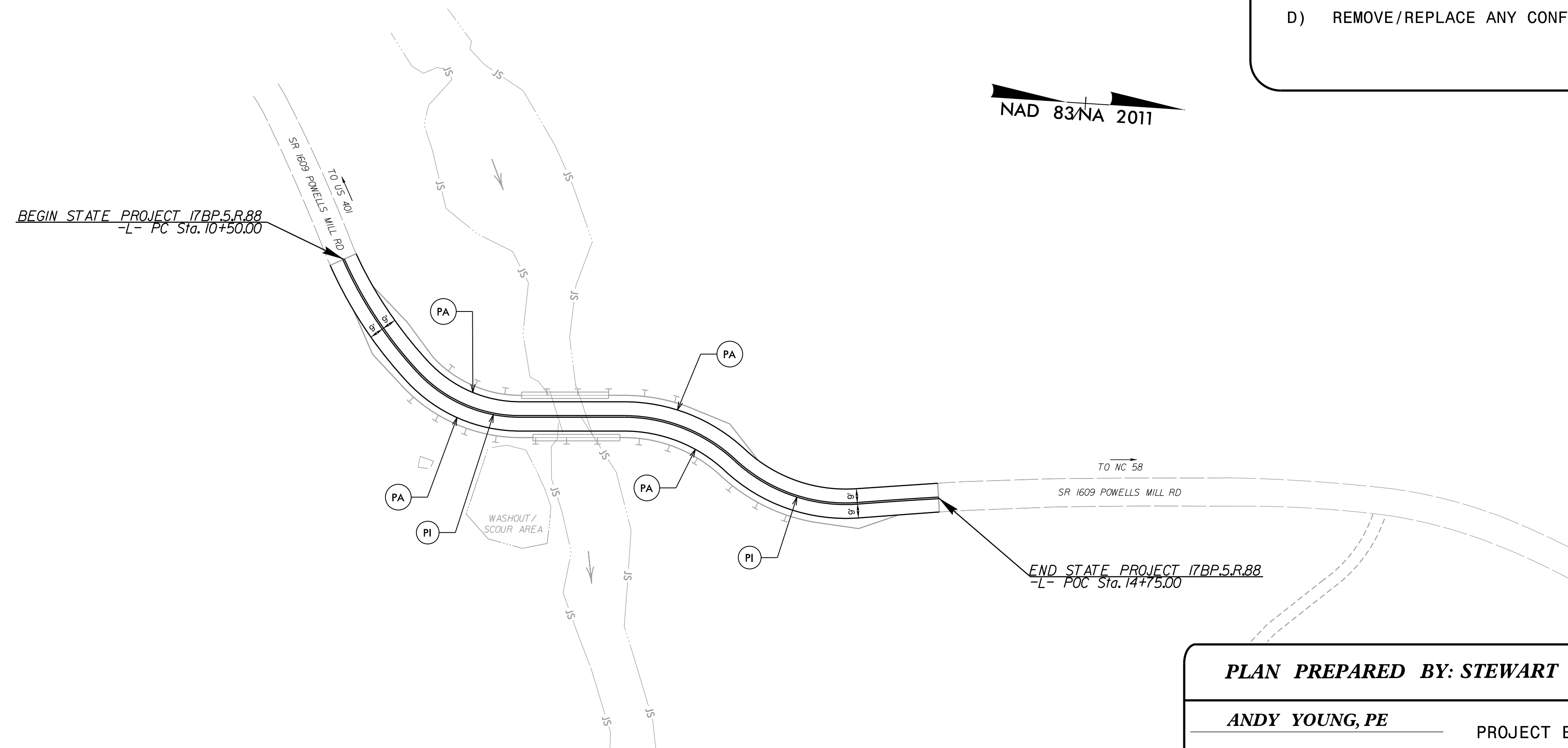
A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
POWELLS MILL RD	PAINT	NONE

B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

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

D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS.



PLAN PREPARED BY: STEWART

ANDY YOUNG, PE PROJECT ENGINEER

JOSHUA ROEMER PROJECT DESIGN ENGINEER



TIP PROJECT: 17BP.5.R.88

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

WARREN COUNTY

LOCATION: BRIDGE NO.135 OVER FISHING CREEK
ON SR 1609 (POWELLS MILL RD.)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND CULVERT

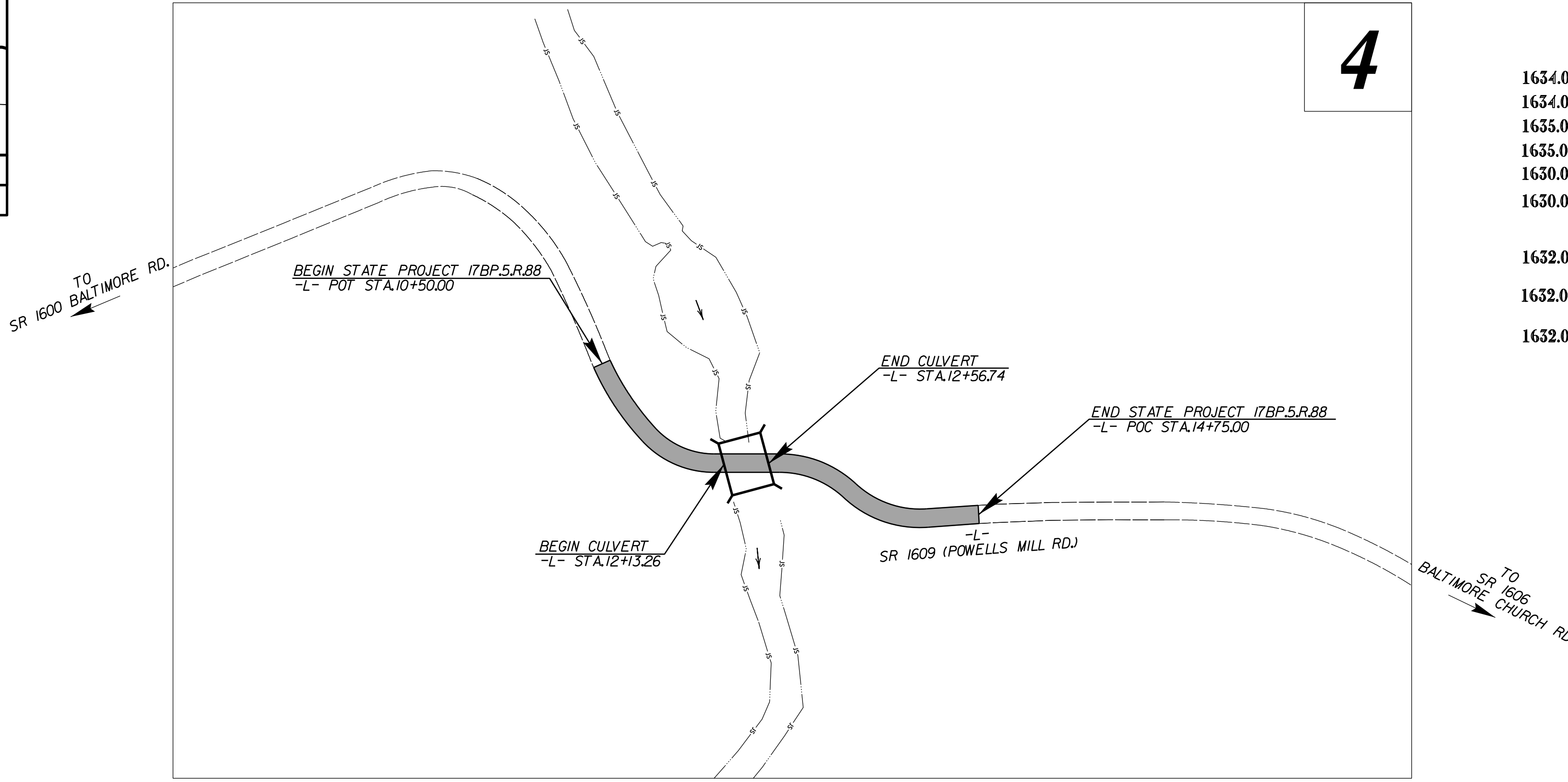
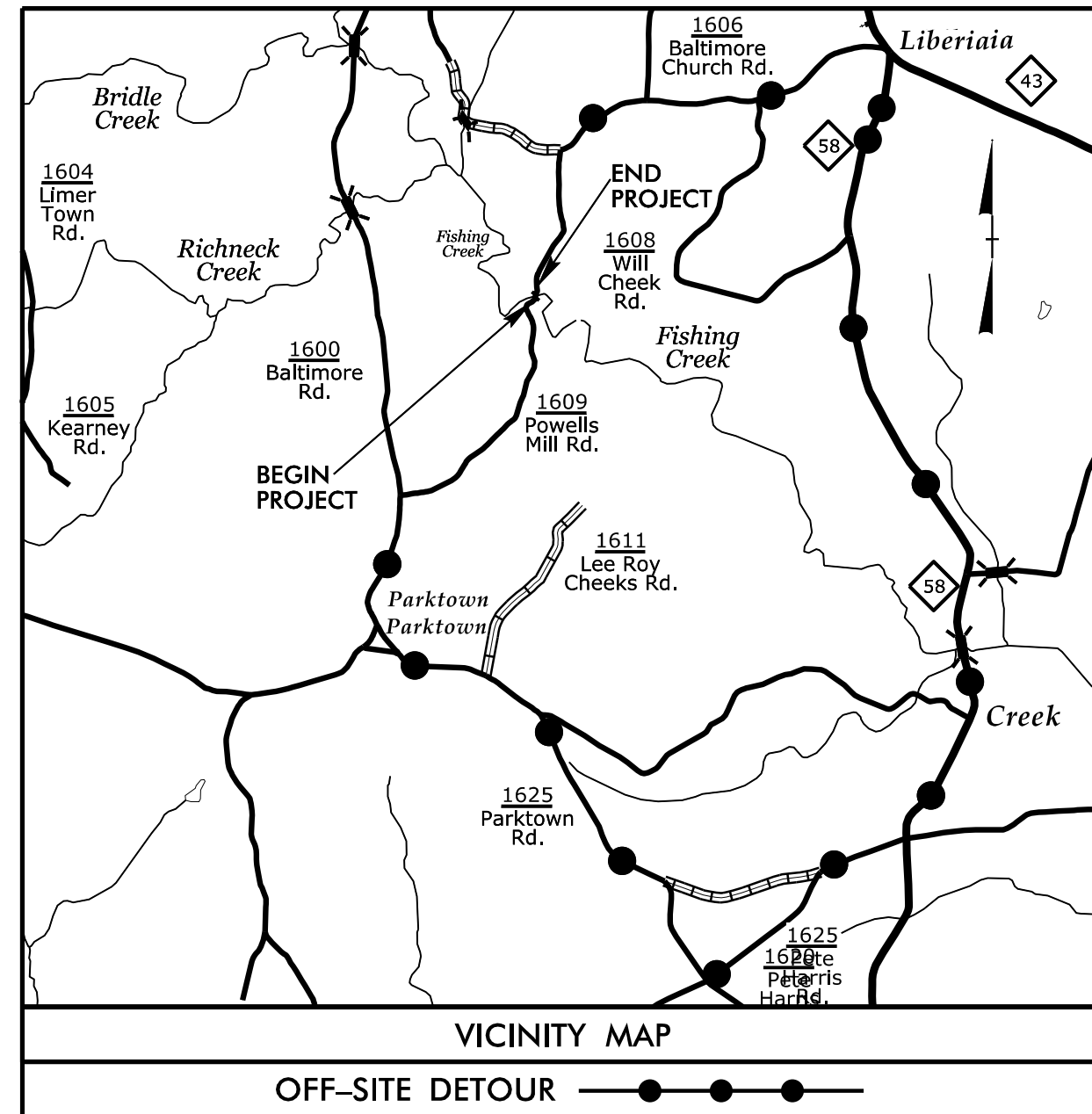


Table with columns: STATE, STATE PROJECT REFERENCE NO., SHEET NO., TOTAL SHEETS. Values: N.C., 17BP.5.R.88, EC-1, 1.

EROSION AND SEDIMENT CONTROL MEASURES

Table listing erosion and sediment control measures with Standard numbers, Descriptions, and Symbols. Includes items like Temporary Silt Ditch, Sediment Control Fence, and various types of Rock Inlet Sediment Traps.

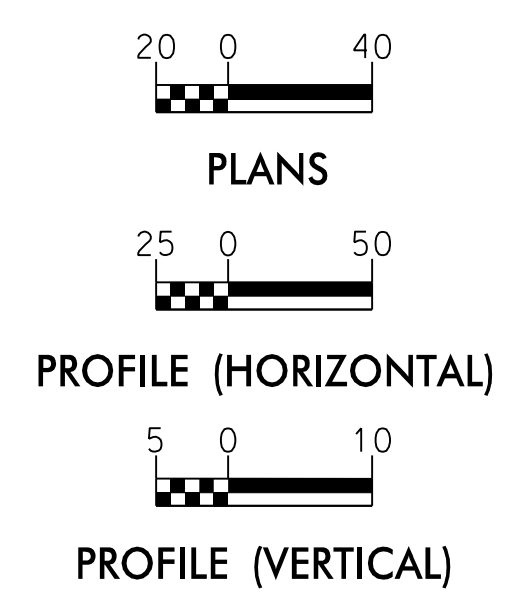
THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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

CLEARING ON THIS PROJECT SHALL BE TO LIMITS ESTABLISHED USING METHOD III. THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES.

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 ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

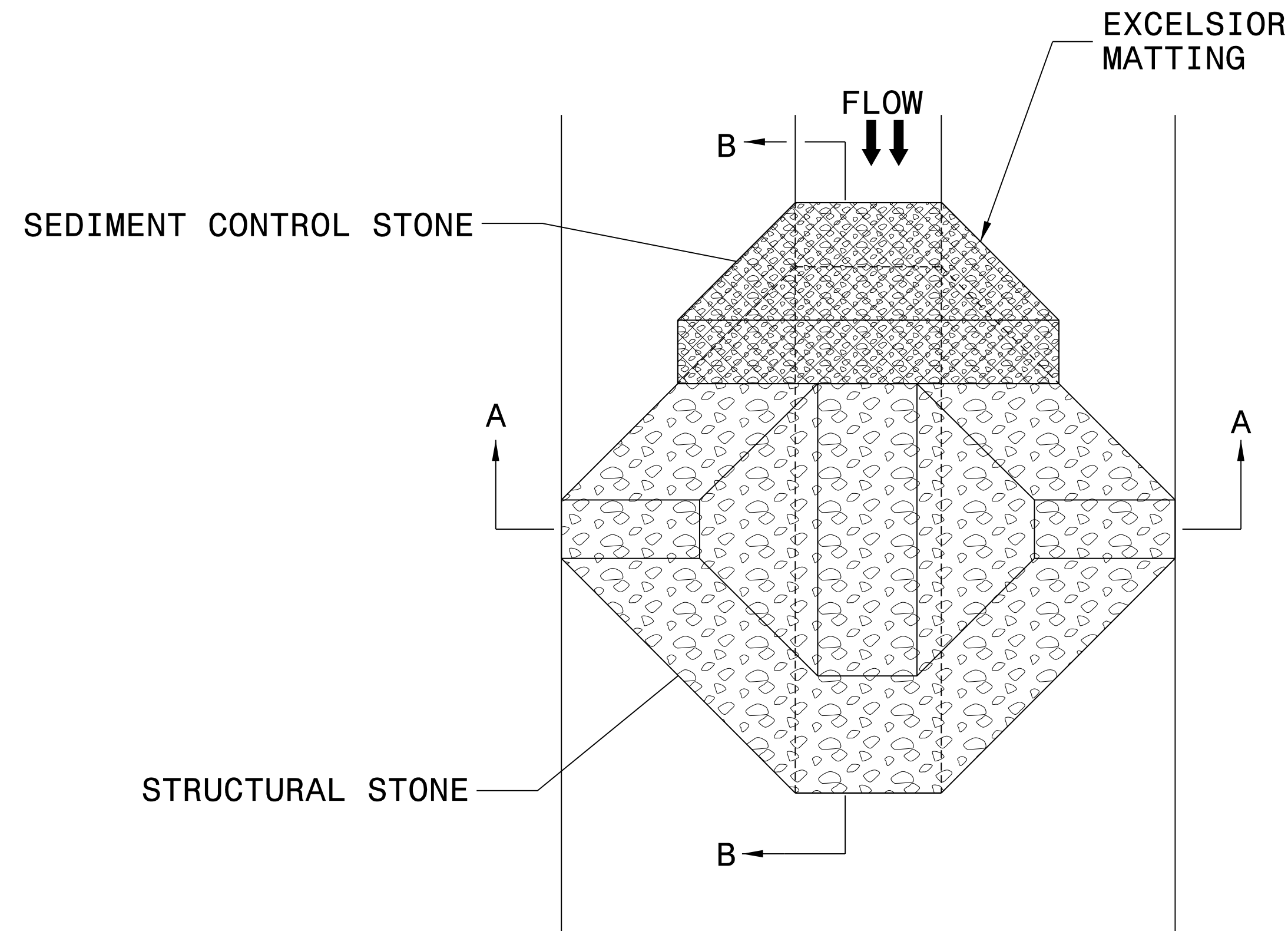
Prepared in the Office of:
vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
Designed by:
REID ROBOL, PE, CFM 3409
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611
2018 STANDARD SPECIFICATIONS
Reviewed by:
DONALD PEARSON, EI, CPESC

Table listing Roadway Standard Drawings with descriptions and standard numbers. Includes items like Railroad Erosion Control Detail, Temporary Silt Fence, and Rock Inlet Sediment Trap.

PROJECT REFERENCE NO. 17BP.5.R.88	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

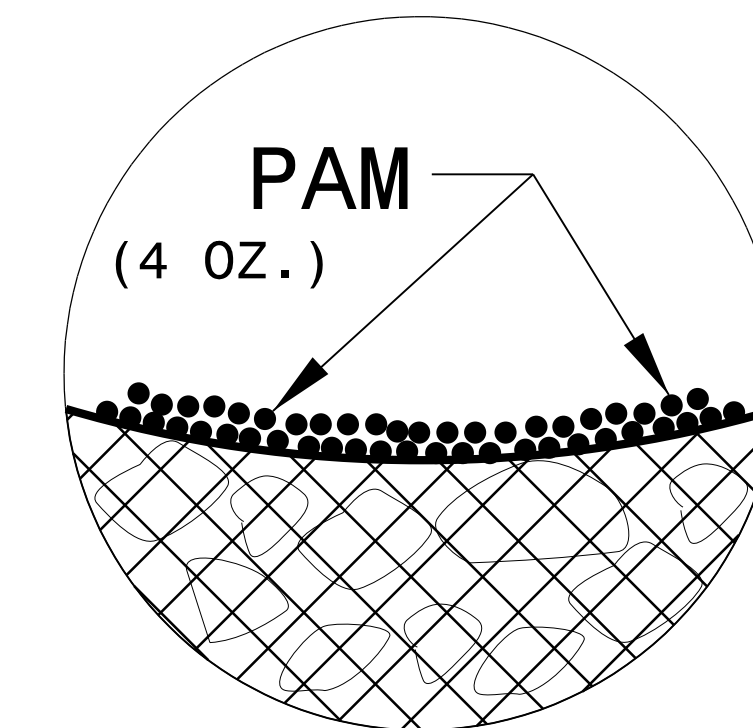
NOTES:

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

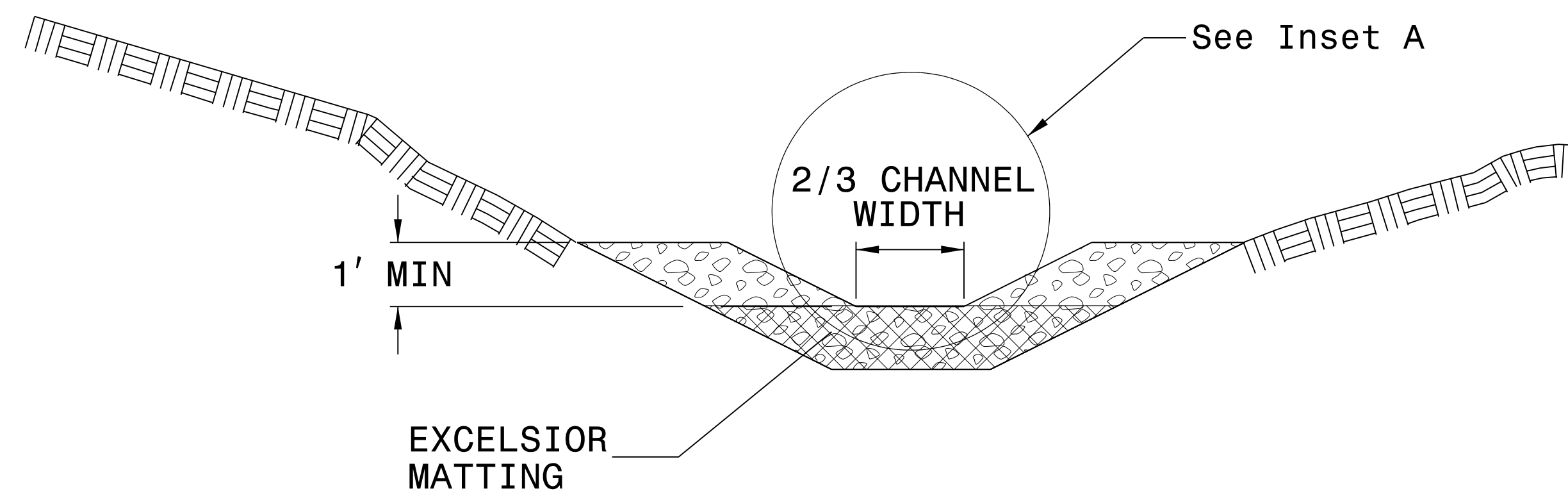
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

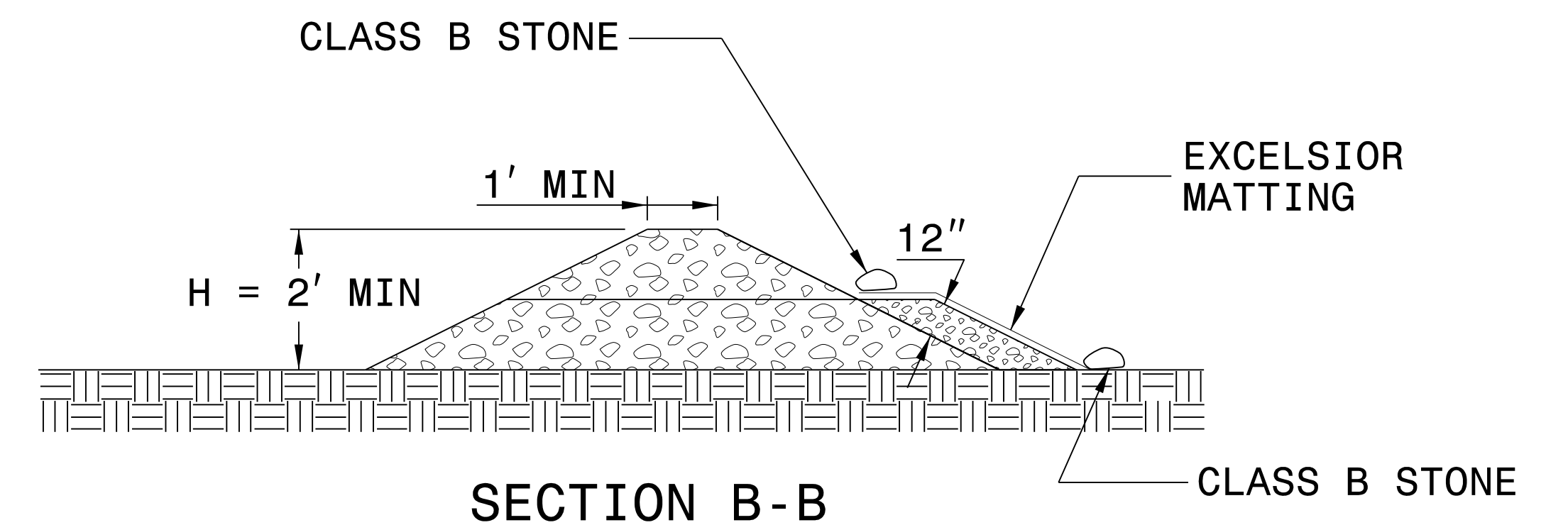
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>17BP.5.R.88</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

5/14/99

-Design Standards in Sensitive Watersheds [15A NCAC 04B.0124 (b) **e)] are incorporated into NCDOT projects that occur within or upstream of water bodies that contain federally protected aquatic species. Within the Environmentally Sensitive Areas, the following shall apply:

-The contractor may perform cleaning operations but not grubbing operation until immediately prior to beginning grading operations. Erosion control devices shall be installed immediately following the clearing operation.

-Once grading operations begin, work shall progress in a continuous manner until complete.

-Seeding mulching shall be performed on the areas disturbed by construction immediately following final grade establishment.

-Seeding mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measure along the slope or greater than two acres in area, whichever is less.

-Special sediment control fence NCDOT Standard No. 1606.01 or a combination of special sediment control fence and standard silt fence will be installed between the top of the stream bank and bridge embankment. Once the disturbed areas of the project draining to these areas have been stabilized, the special sediment control fence and/or standard silt fence and all built up sediment adjacent to these devices will be removed to natural ground and stabilized with appropriate seed mix. Native grass mix will be used on the floodplain.

-All appropriate sedimentation and erosion control measures, throughout the project limits, will be cleaned out as appropriate to ensure proper function of the measures.

-In the event that visible sediment loss from the project is observed at the bridge site, a review of turbidity levels will be made upstream and downstream 400 meters (0.25 miles) to determine if sedimentation effects are occurring beyond the Action Area as defined in the Biological Opinion. If visual observation of turbidity levels downstream appear to be elevated beyond upstream observations, the project inspector will contact the Division Environmental Officer. If determined that project-related sedimentation is occurring beyond 400 meters, the amount or extent of incidental take specified in the Incidental Take Statement (see page 24 of Biological Conference Opinion, USFWS July 16, 2019) has been exceeded and the USFWS must be contacted immediately.

-Embankment construction and grading shall be managed in such a manner as to prevent surface runoff/erosion from discharging untreated into the riparian buffer. Instead all interim surfaces will be graded to drain to temporary erosion control devices. Temporary berms, ditches, etc. will be incorporated, as necessary, to treat temporary runoff before discharging into the riparian buffer (as specified in the NCDOT BMP Manual).

1
JAMES RICHARD WILLIAMS
DB 191 PG 177

2
KEVIN C. MALONEY, ET UX
DB 814 PG 794
PC ISL 240A PLAT 10

3
JAMES H. ROBERTSON
DB 169 PG 366

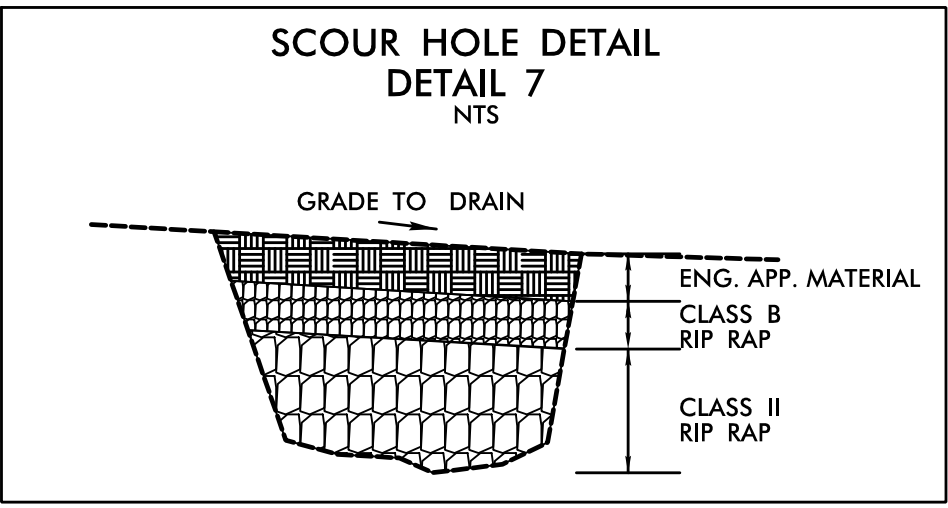
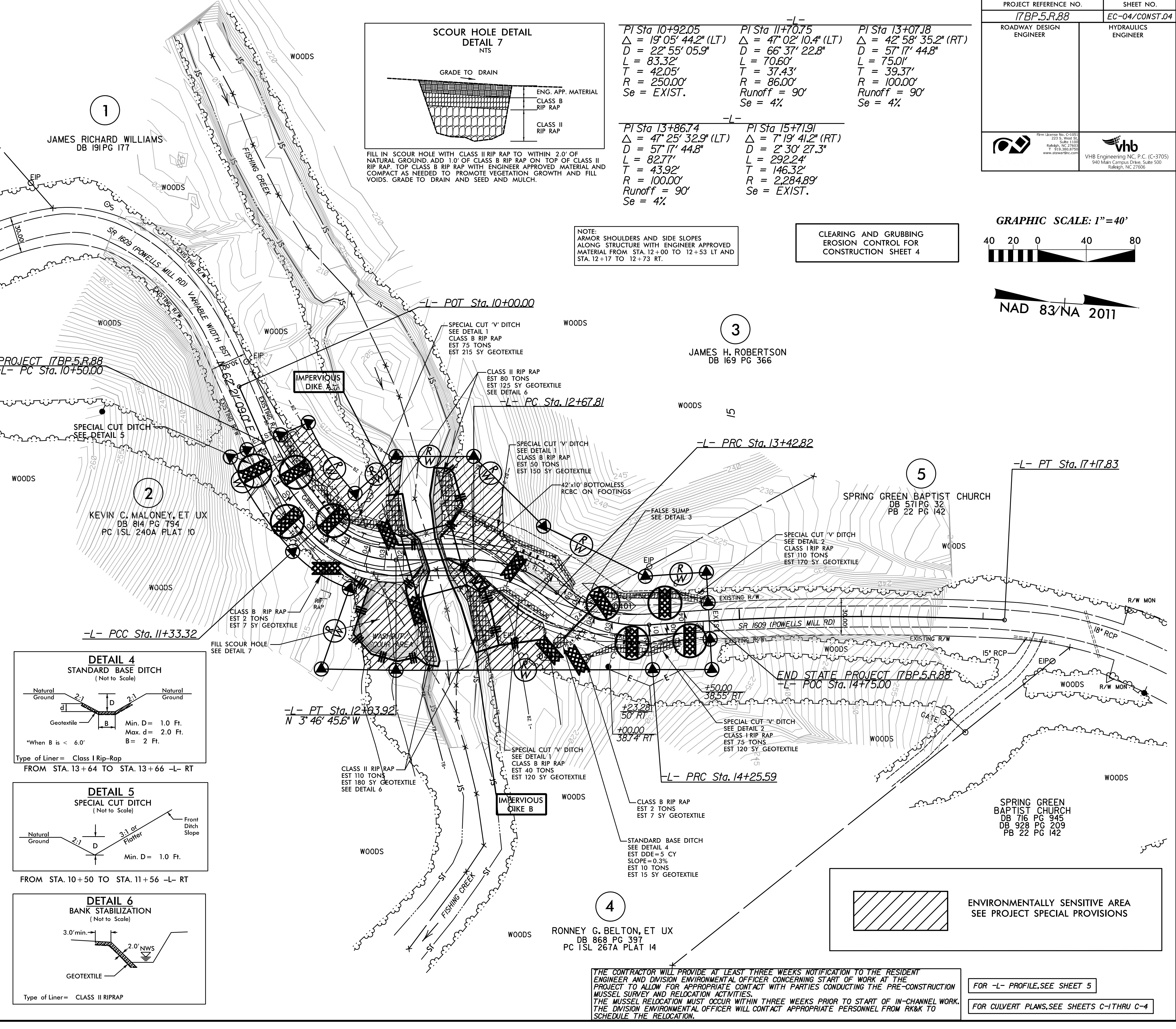
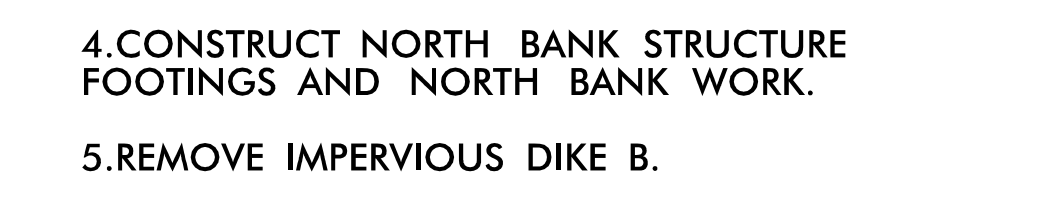
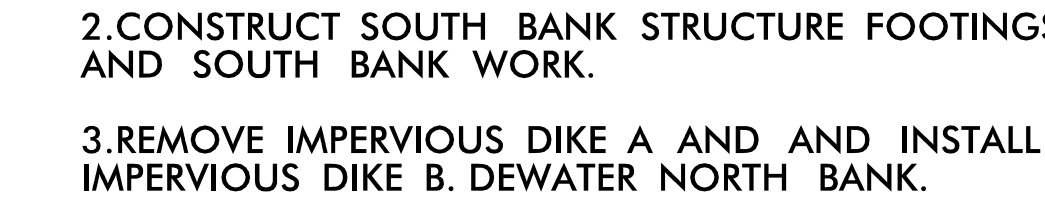
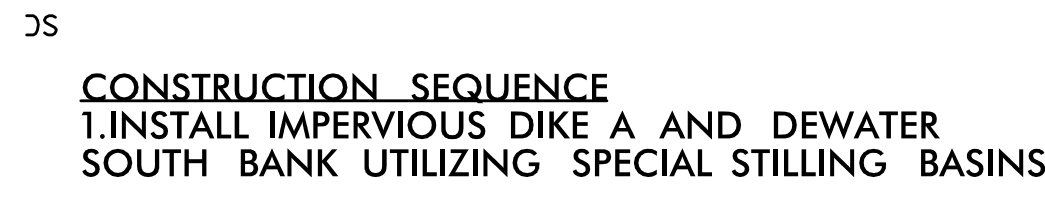
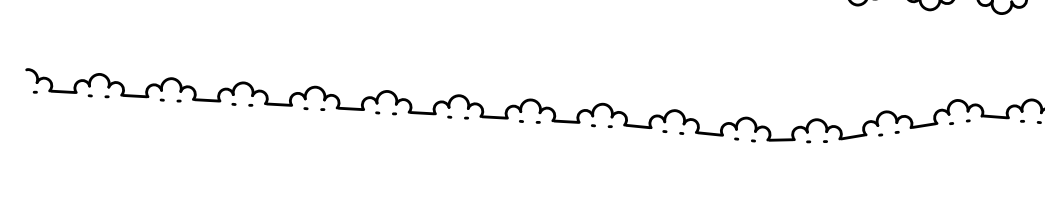
4
RONNEY G. BELTON, ET UX
DB 868 PG 397
PC ISL 267A PLAT 14

5
SPRING GREEN BAPTIST CHURCH
DB 571 PG 32
PB 22 PG 142

6
SPRING GREEN BAPTIST CHURCH
DB 716 PG 945
DB 928 PG 209
PB 22 PG 142

CONSTRUCTION SEQUENCE

1. INSTALL IMPERVIOUS DIKE A AND DEWATER SOUTH BANK UTILIZING SPECIAL STILLING BASINS.
2. CONSTRUCT SOUTH BANK STRUCTURE FOOTINGS AND SOUTH BANK WORK.
3. REMOVE IMPERVIOUS DIKE A AND AND INSTALL IMPERVIOUS DIKE B. DEWATER NORTH BANK.
4. CONSTRUCT NORTH BANK STRUCTURE FOOTINGS AND NORTH BANK WORK.
5. REMOVE IMPERVIOUS DIKE B.
6. COMPLETE STRUCTURE AND ROADWAY.



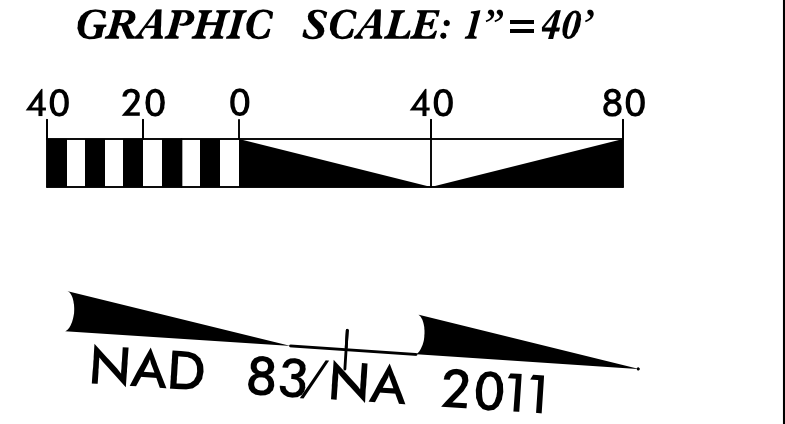
FILL IN SCOUR HOLE WITH CLASS II RIP RAP TO WITHIN 2.0' OF NATURAL GROUND. ADD 1.0' OF CLASS B RIP RAP ON TOP OF CLASS II RIP RAP. TOP CLASS B RIP RAP WITH ENGINEER APPROVED MATERIAL AND COMPACT AS NEEDED TO PROMOTE VEGETATION GROWTH AND FILL VOIDS. GRADE TO DRAIN AND SEED AND MULCH.

PI Sta 10+92.05	PI Sta 11+70.75	PI Sta 13+07.18
$\Delta = 19' 05" 44.2" (LT)$	$\Delta = 47' 02" 10.4" (LT)$	$\Delta = 42' 58" 35.2" (RT)$
$D = 22' 55" 05.9"$	$D = 66' 37" 22.8"$	$D = 57' 17" 44.8"$
$L = 83.32'$	$L = 70.60'$	$L = 75.01'$
$T = 42.05'$	$T = 37.43'$	$T = 39.37'$
$R = 250.00'$	$R = 86.00'$	$R = 100.00'$
$Se = EXIST.$	$Runoff = 90'$	$Runoff = 90'$
	$Se = 4\%$	$Se = 4\%$

PI Sta 13+86.74	PI Sta 15+71.91
$\Delta = 47' 25" 32.9" (LT)$	$\Delta = 7' 19" 41.2" (RT)$
$D = 57' 17" 44.8"$	$D = 2' 30" 27.3"$
$L = 82.77'$	$L = 292.24'$
$T = 43.92'$	$T = 146.32'$
$R = 100.00'$	$R = 2,284.89'$
$Runoff = 90'$	$Runoff = 90'$
$Se = 4\%$	$Se = EXIST.$

NOTE:
ARMOR SHOULDERS AND SIDE SLOPES ALONG STRUCTURE WITH ENGINEER APPROVED MATERIAL FROM STA. 12+00 TO 12+53 LT AND STA. 12+17 TO 12+73 RT.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4



REVISIONS

5/14/99

FOR -L- PROFILE, SEE SHEET 5

FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-4

THE CONTRACTOR WILL PROVIDE AT LEAST THREE WEEKS NOTIFICATION TO THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER CONCERNING START OF WORK AT THE PROJECT TO ALLOW FOR APPROPRIATE CONTACT WITH PARTIES CONDUCTING THE PRE-CONSTRUCTION MUSSEL SURVEY AND RELOCATION ACTIVITIES. THE MUSSEL RELOCATION MUST OCCUR WITHIN THREE WEEKS PRIOR TO START OF IN-CHANNEL WORK. THE DIVISION ENVIRONMENTAL OFFICER WILL CONTACT APPROPRIATE PERSONNEL FROM RK&K TO SCHEDULE THE RELOCATION.

5/14/99

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-Seeding mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measure along the slope or greater than two acres in area, whichever is less.

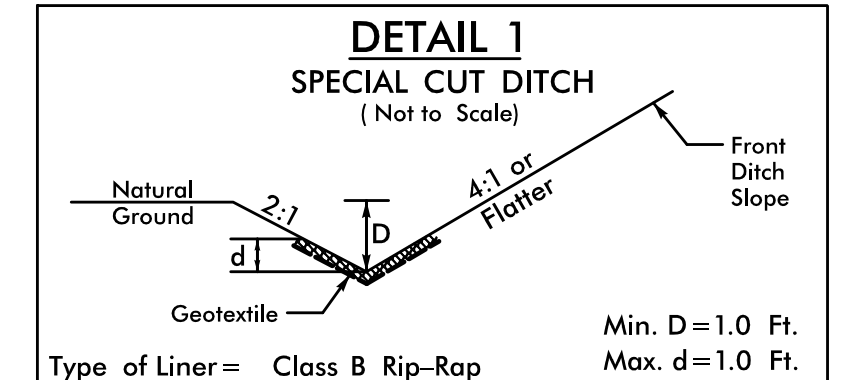
-Special sediment control fence NCDOT Standard No. 1606.01 or a combination of special sediment control fence and standard silt fence will be installed between the top of the stream bank and bridge embankment. Once the disturbed areas of the project draining to these areas have been stabilized, the special sediment control fence and/or standard silt fence and all built up sediment adjacent to these devices will be removed to natural ground and stabilized with appropriate seed mix. Native grass mix will be used on the floodplain.

-All appropriate sedimentation and erosion control measures, throughout the project limits, will be cleaned out as appropriate to ensure proper function of the measures.

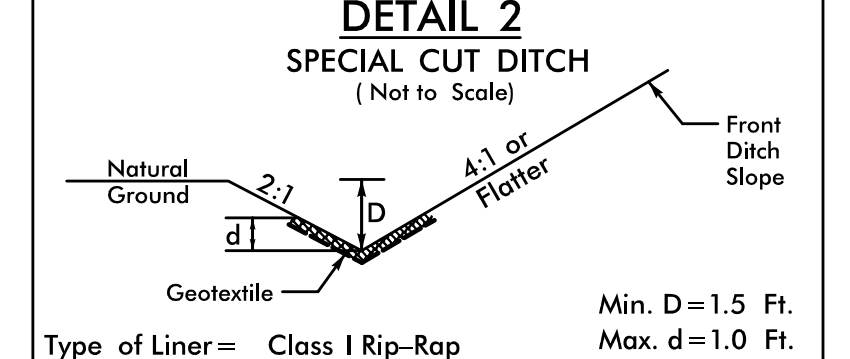
-In the event that visible sediment loss from the project is observed at the bridge site, a review of turbidity levels will be made upstream and downstream 400 meters (0.25 miles) to determine if sedimentation effects are occurring beyond the Action Area as defined in the Biological Opinion. If visual observation of turbidity levels downstream appear to be elevated beyond upstream observations, the project inspector will contact the Division Environmental Officer. If determined that project-related sedimentation is occurring beyond 400 meters, the amount or extent of incidental take specified in the Incidental Take Statement (see page 24 of Biological Conference Opinion, USFWS July 16, 2019) has been exceeded and the USFWS must be contacted immediately.

-Embankment construction and grading shall be managed in such a manner as to prevent surface runoff from discharging untreated into the riparian buffer. Instead all interim surfaces will be graded to drain to temporary erosion control devices. Temporary berms, ditches, etc. will be incorporated, as necessary, to treat temporary runoff before discharging into the riparian buffer (as specified in the NCDOT BMP Manual).

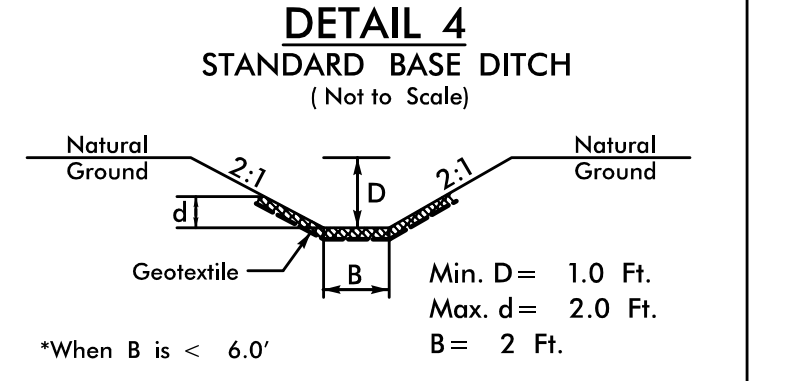
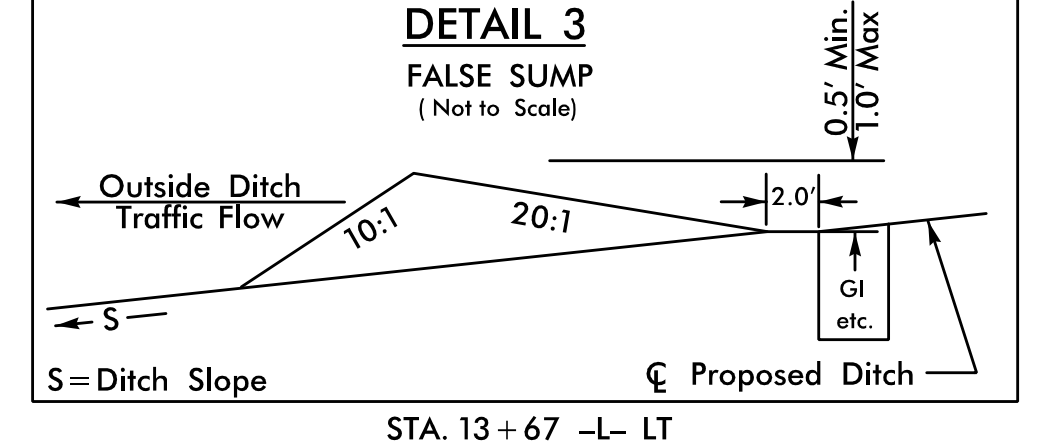
- CONSTRUCTION SEQUENCE**
1. INSTALL IMPERVIOUS DIKE A AND DEWATER SOUTH BANK UTILIZING SPECIAL STILLING BASINS.
 2. CONSTRUCT SOUTH BANK STRUCTURE FOOTINGS AND SOUTH BANK WORK.
 3. REMOVE IMPERVIOUS DIKE A AND AND INSTALL IMPERVIOUS DIKE B. DEWATER NORTH BANK.
 4. CONSTRUCT NORTH BANK STRUCTURE FOOTINGS AND NORTH BANK WORK.
 5. REMOVE IMPERVIOUS DIKE B.
 6. COMPLETE STRUCTURE AND ROADWAY.



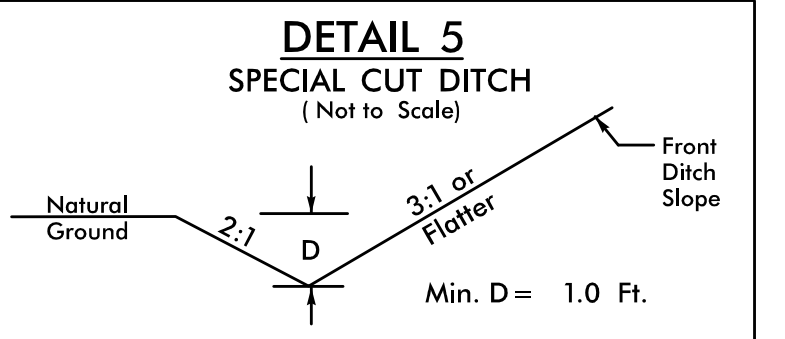
FROM STA. 10+50 TO STA. 11+95 -L- LT
FROM STA. 12+50 TO STA. 13+50 -L- LT
FROM STA. 12+70 TO STA. 13+50 -L- RT



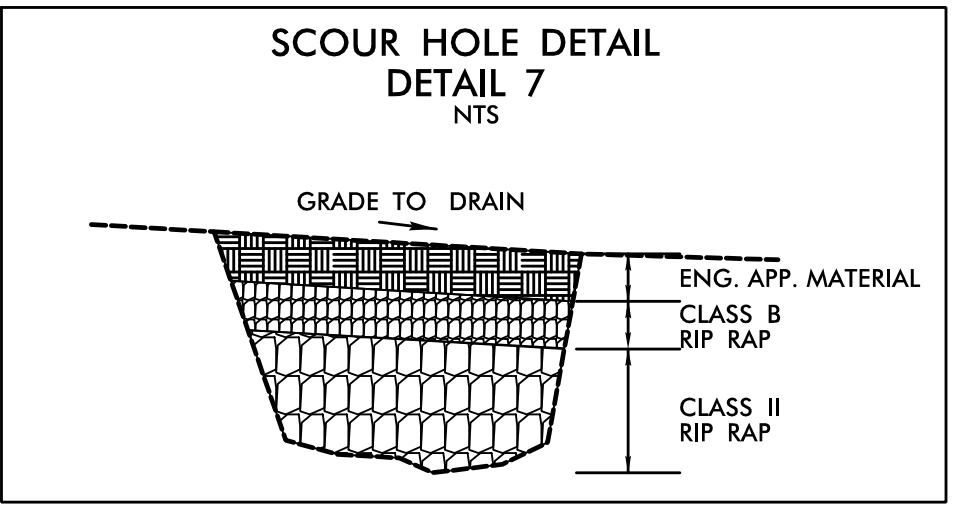
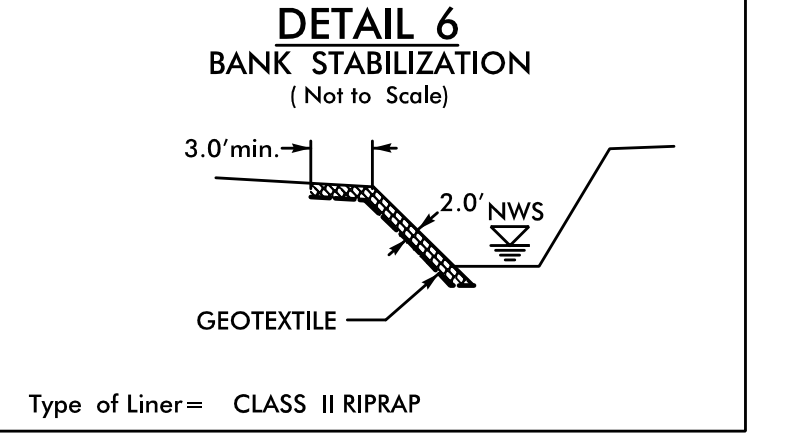
FROM STA. 13+83 TO STA. 14+75 -L- LT
FROM STA. 13+85 TO STA. 14+50 -L- RT



FROM STA. 13+64 TO STA. 13+66 -L- RT



FROM STA. 10+50 TO STA. 11+56 -L- RT

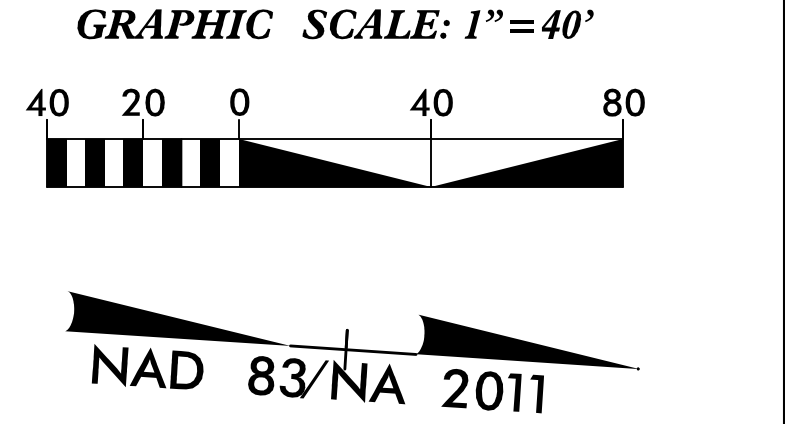


FILL IN SCOUR HOLE WITH CLASS II RIP RAP TO WITHIN 2.0' OF NATURAL GROUND. ADD 1.0' OF CLASS B RIP RAP ON TOP OF CLASS II RIP RAP. TOP CLASS B RIP RAP WITH ENGINEER APPROVED MATERIAL AND COMPACT AS NEEDED TO PROMOTE VEGETATION GROWTH AND FILL VOIDS. GRADE TO DRAIN AND SEED AND MULCH.

PI Sta 10+92.05	PI Sta 11+70.75	PI Sta 13+07.18
$\Delta = 19' 05' 44.2''$ (LT)	$\Delta = 47' 02' 10.4''$ (LT)	$\Delta = 42' 58' 35.2''$ (RT)
$D = 22' 55' 05.9''$	$D = 66' 37' 22.8''$	$D = 57' 17' 44.8''$
$L = 83.32'$	$L = 70.60'$	$L = 75.01'$
$T = 42.05'$	$T = 37.43'$	$T = 39.37'$
$R = 250.00'$	$R = 86.00'$	$R = 100.00'$
$Se = EXIST.$	$Runoff = 90'$	$Runoff = 90'$
	$Se = 4\%$	$Se = 4\%$

PI Sta 13+86.74	PI Sta 15+71.91
$\Delta = 47' 25' 32.9''$ (LT)	$\Delta = 7' 19' 41.2''$ (RT)
$D = 57' 17' 44.8''$	$D = 2' 30' 27.3''$
$L = 82.77'$	$L = 292.24'$
$T = 43.92'$	$T = 146.32'$
$R = 100.00'$	$R = 2,284.89'$
$Runoff = 90'$	$Se = EXIST.$
$Se = 4\%$	

NOTE:
ARMOR SHOULDERS AND SIDE SLOPES ALONG STRUCTURE WITH ENGINEER APPROVED MATERIAL FROM STA. 12+00 TO 12+53 LT AND STA. 12+17 TO 12+73 RT.



PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.88	EC-05/CONST.04
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<small>Firm License No. C-2703 233 S. West St. Raleigh, NC 27603 T: 919.386.9799 www.vhbinc.com</small>	<small>VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27609</small>

REVISIONS

R:\2339 PM Environmental\Design\PSH\920135_REU_PSH04_Final.dgn

THE CONTRACTOR WILL PROVIDE AT LEAST THREE WEEKS NOTIFICATION TO THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER CONCERNING START OF WORK AT THE PROJECT TO ALLOW FOR APPROPRIATE CONTACT WITH PARTIES CONDUCTING THE PRE-CONSTRUCTION MUSSEL SURVEY AND RELOCATION ACTIVITIES. THE MUSSEL RELOCATION MUST OCCUR WITHIN THREE WEEKS PRIOR TO START OF IN-CHANNEL WORK. THE DIVISION ENVIRONMENTAL OFFICER WILL CONTACT APPROPRIATE PERSONNEL FROM RK&K TO SCHEDULE THE RELOCATION.

FOR -L- PROFILE, SEE SHEET 5
FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-4

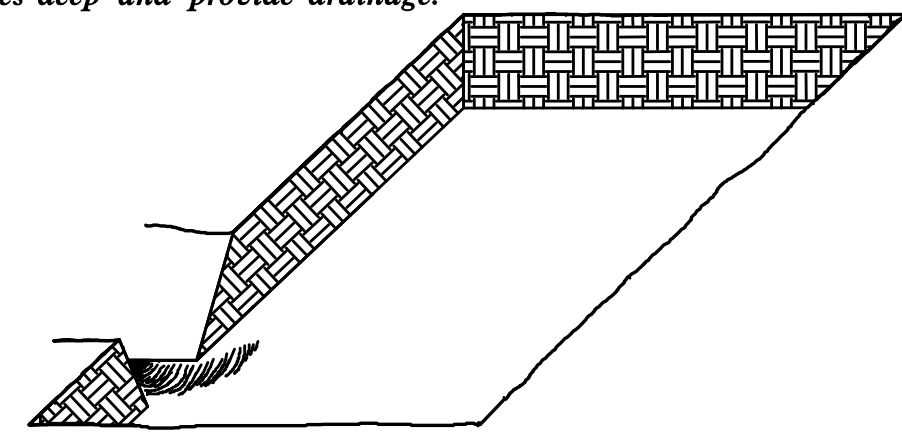
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.88	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

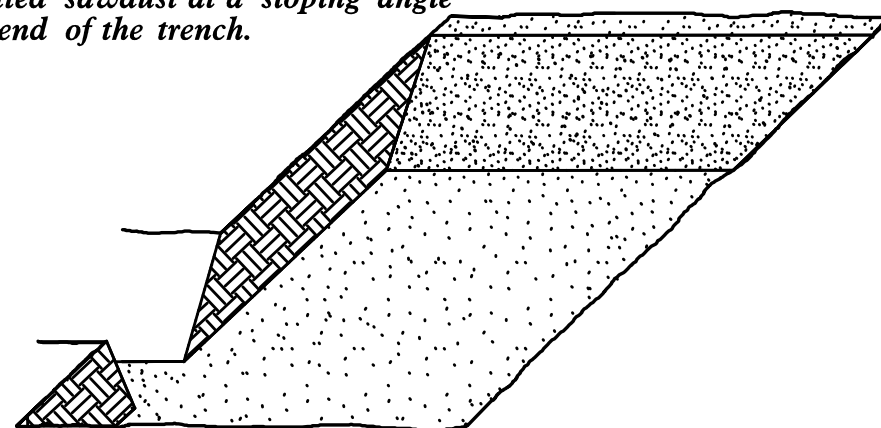
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

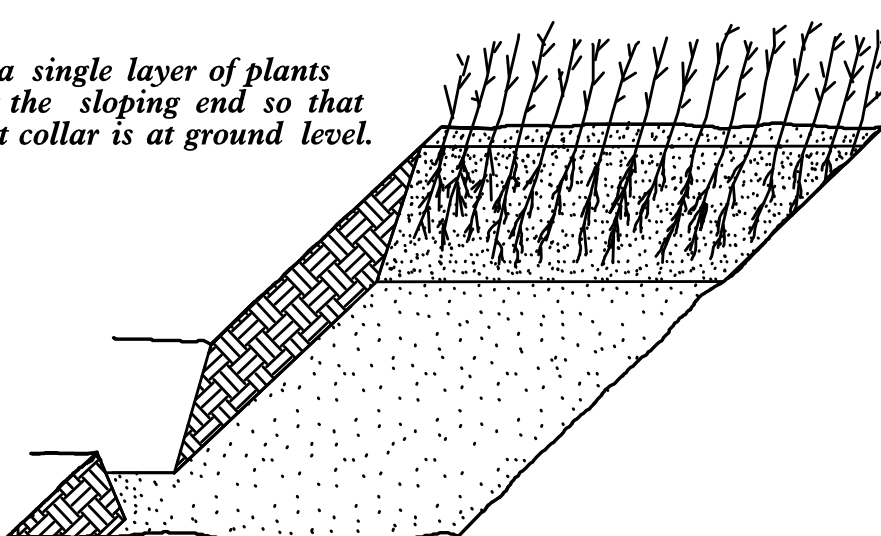
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



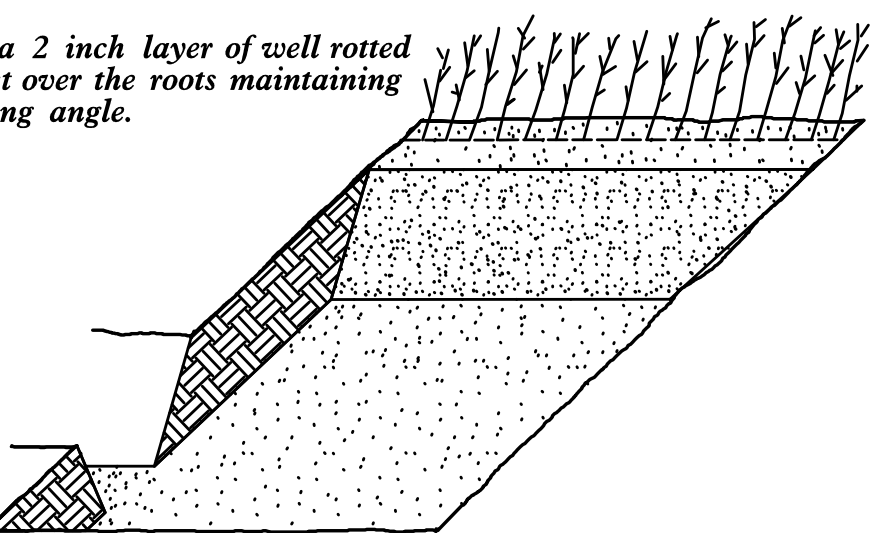
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

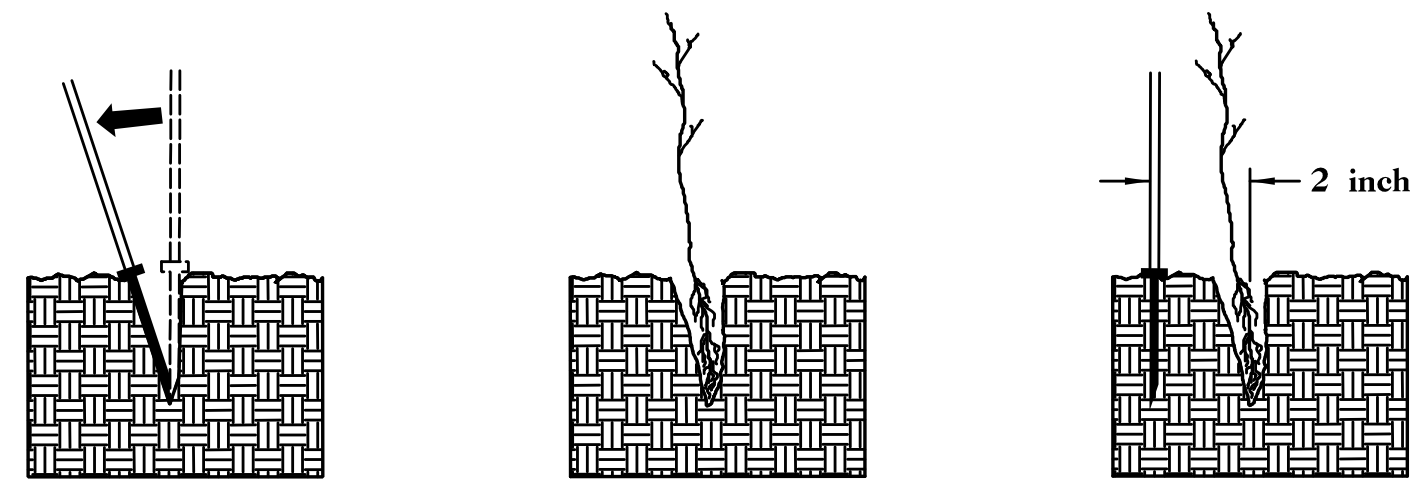


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

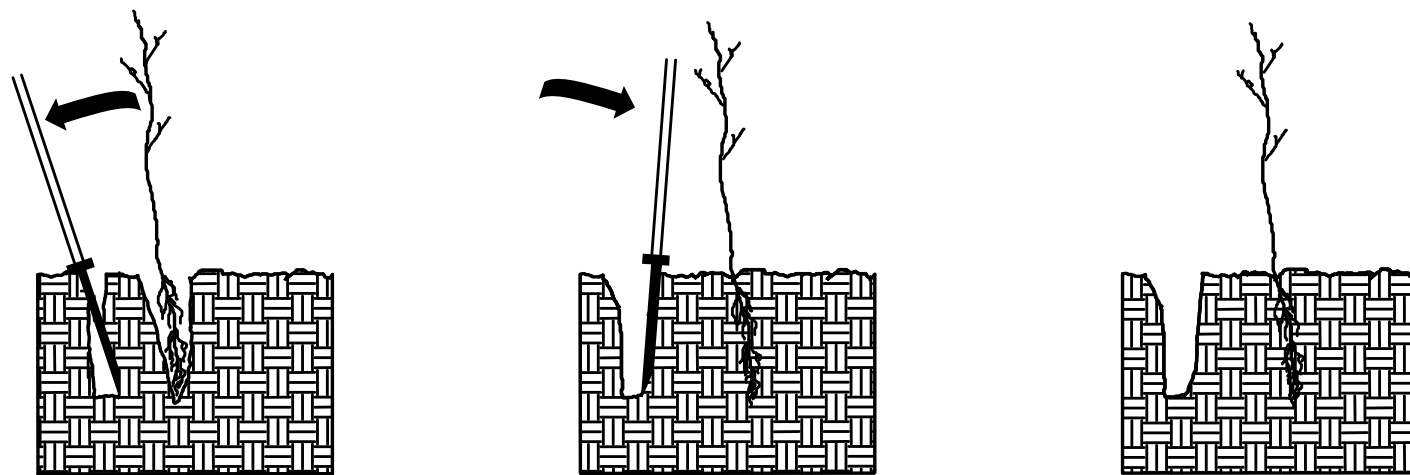


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



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



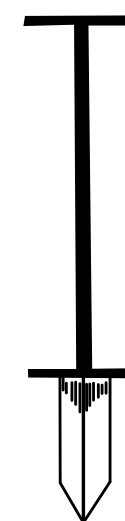
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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



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



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

REFORESTATION

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

REFORESTATION

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

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

REFORESTATION DETAIL SHEET

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

09.08/99

TIP PROJECT: 17BP.5.R.88

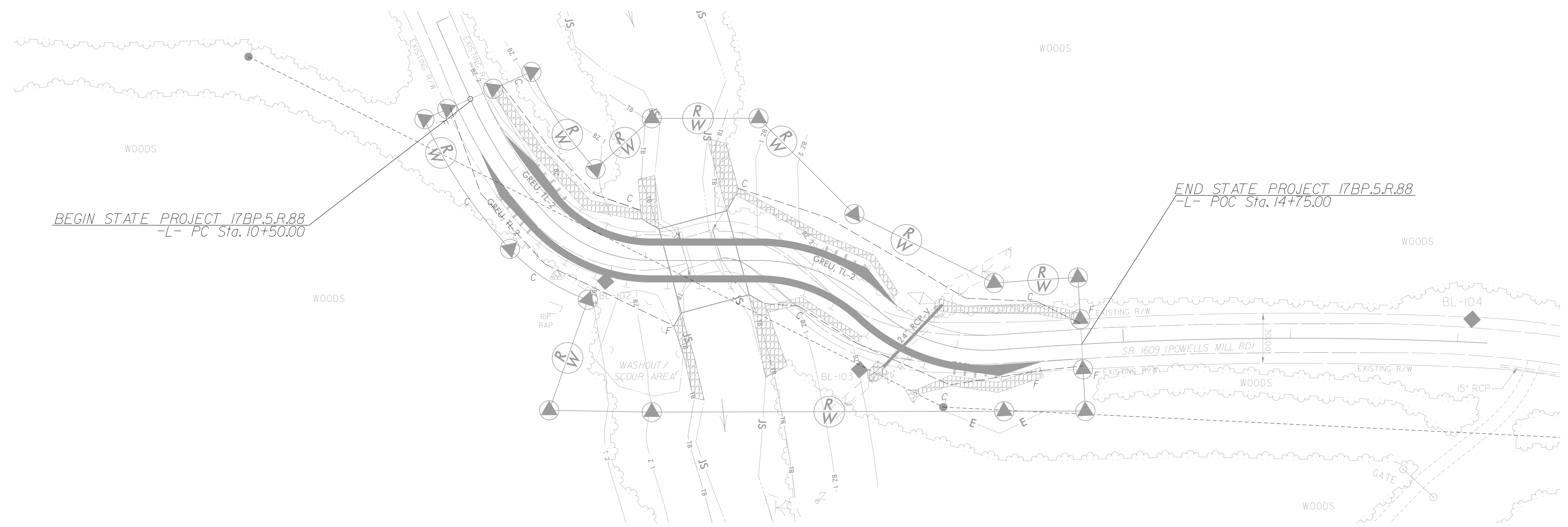
T.I.P. NO.	SHEET NO.
17BP.5.R.88	UO-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

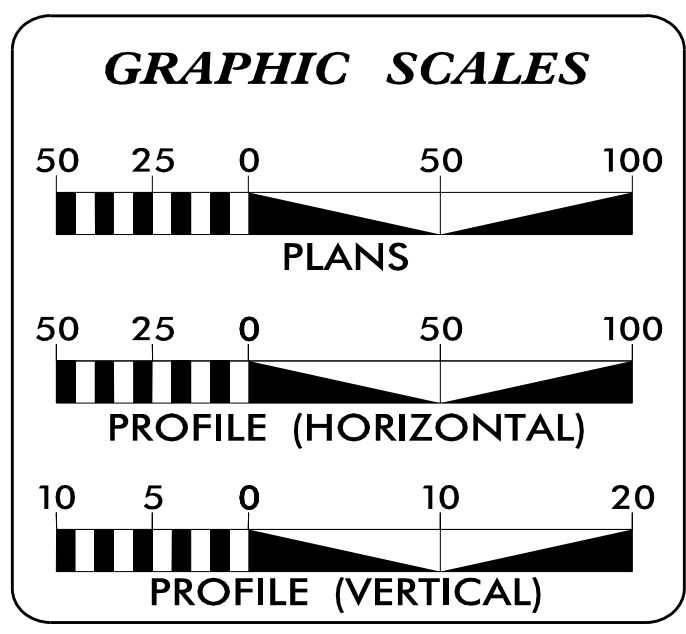
**UTILITIES BY OTHERS PLANS
WARREN COUNTY**

**LOCATION: BRIDGE NO. 135 OVER FISHING CREEK
ON SR 1609 (POWELLS MILL RD)**

TYPE OF WORK: POWER RELOCATION



12/28/2018
\\UB00\Proj\920135_UTL_TSH.dgn
USR:rephelps



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY BY OTHERS PLAN SHEET

UTILITY OWNERS ON PROJECT

(A) HALIFAX ELECTRIC - POWER

CONTACT: MIKE BUTTS
MBUTTS@HALIFAXEMC.COM
1-252-445-1198

PREPARED IN THE OFFICE OF:

STEWART

221 S. WEST ST., STE. 1100
RALEIGH, NC 27603
1-919-380-0729

Firm License #: C-1051
www.stewartinc.com
PROJECT #: 1711001

DAVID RUGGLES, PE PROJECT ENGINEER
ELIZABETH PHELPS, EI PROJECT DESIGN ENGINEER

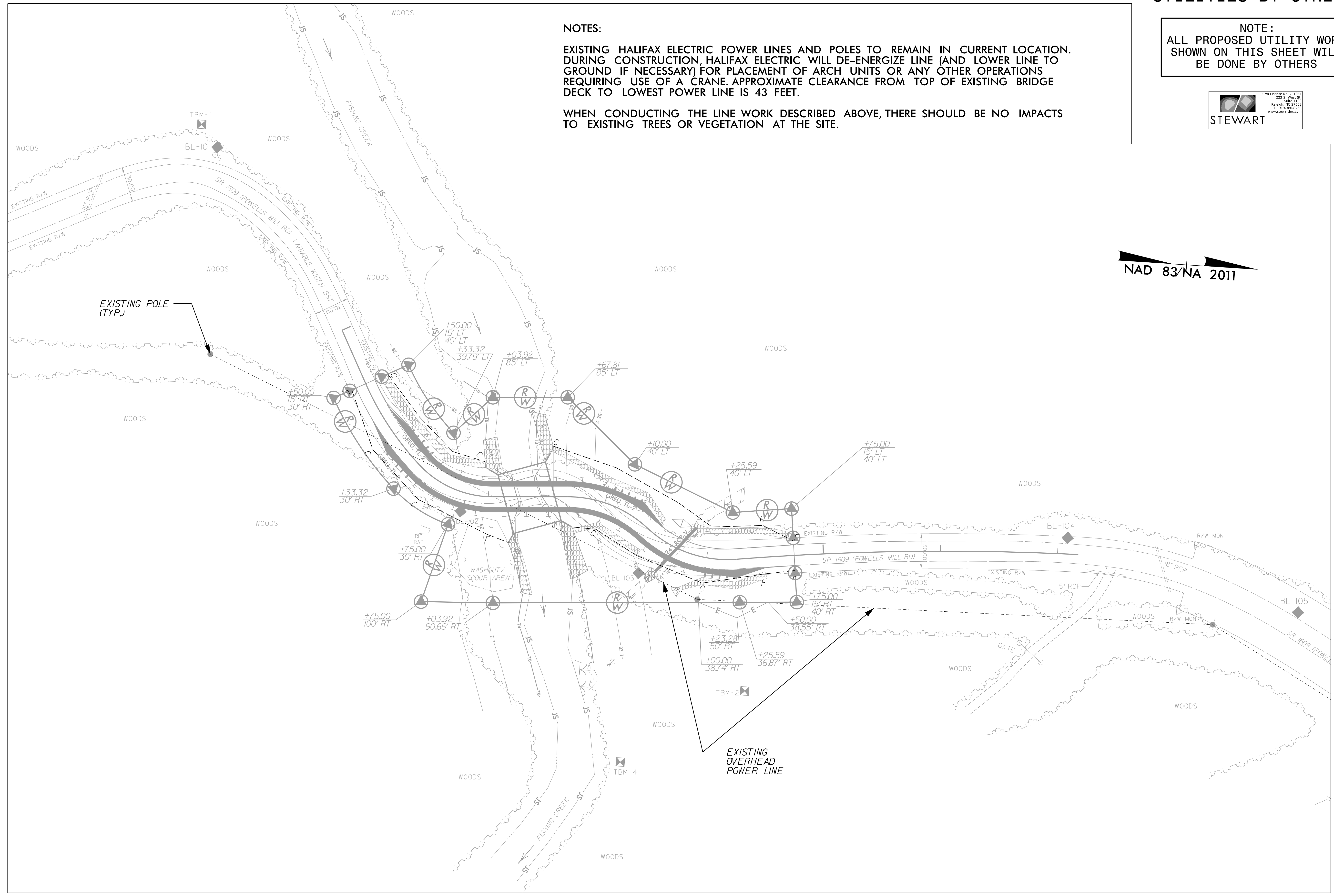
UTILITIES BY OTHERS

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



NOTES:
EXISTING HALIFAX ELECTRIC POWER LINES AND POLES TO REMAIN IN CURRENT LOCATION. DURING CONSTRUCTION, HALIFAX ELECTRIC WILL DE-ENERGIZE LINE (AND LOWER LINE TO GROUND IF NECESSARY) FOR PLACEMENT OF ARCH UNITS OR ANY OTHER OPERATIONS REQUIRING USE OF A CRANE. APPROXIMATE CLEARANCE FROM TOP OF EXISTING BRIDGE DECK TO LOWEST POWER LINE IS 43 FEET.

WHEN CONDUCTING THE LINE WORK DESCRIBED ABOVE, THERE SHOULD BE NO IMPACTS TO EXISTING TREES OR VEGETATION AT THE SITE.



**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS**

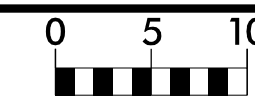
CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

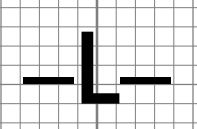
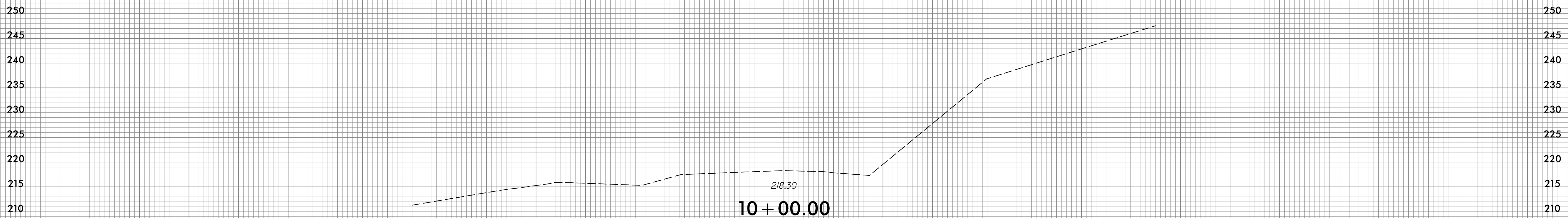
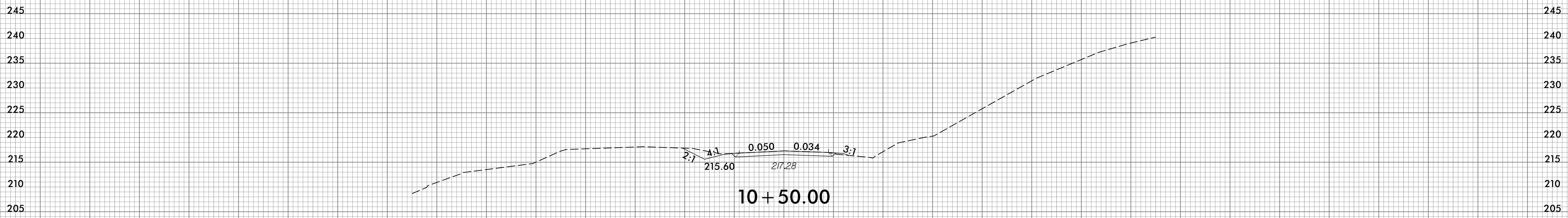
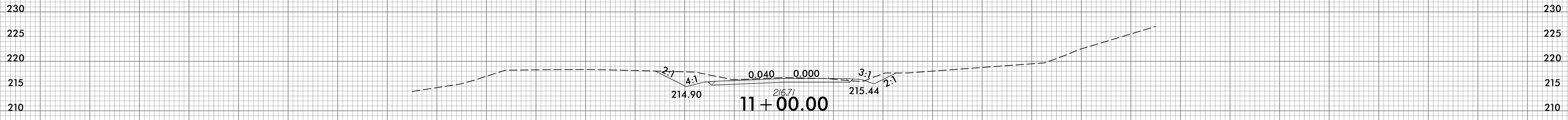
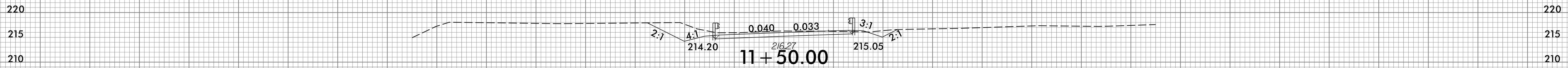
Station	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+50.00	0	0
11+00.00	66	2
11+50.00	95	1
12+00.00	61	41
12+14.00	4	21
12+50.00	6	131
13+00.00	99	148
13+50.00	218	0
14+00.00	172	1
14+50.00	72	5
14+75.00	18	2

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the lump sum price for "Grading".

REVISIONS

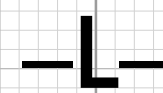
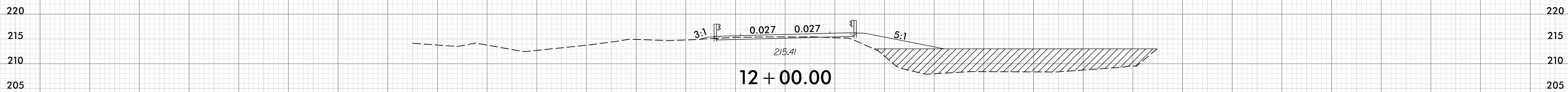
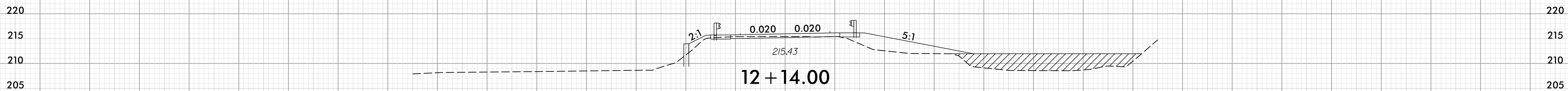
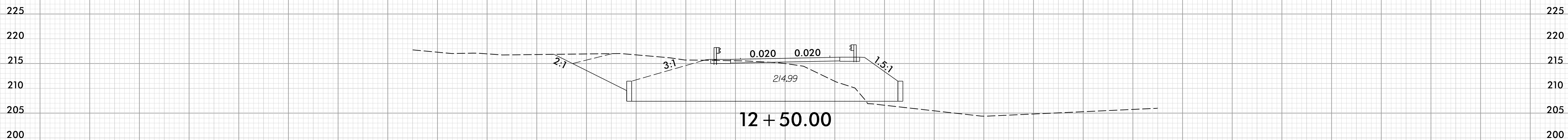
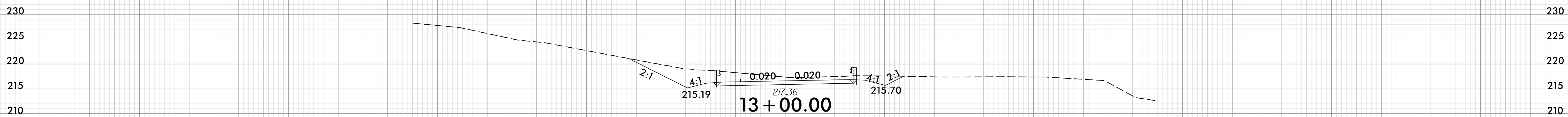
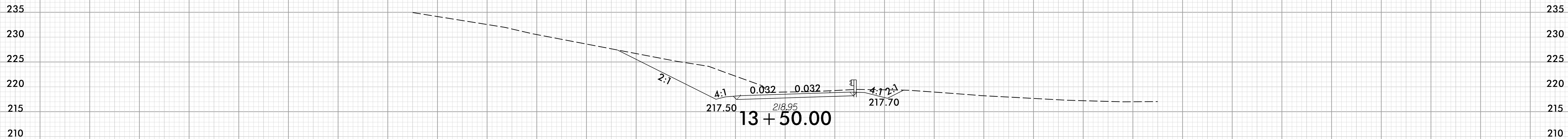


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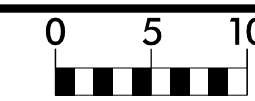
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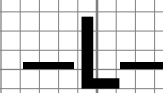
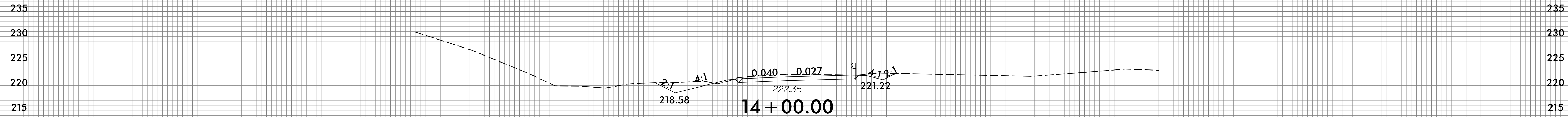
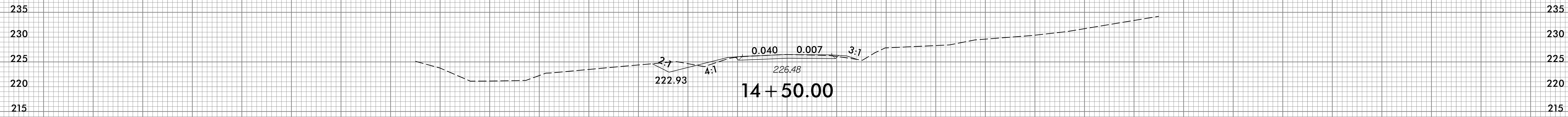
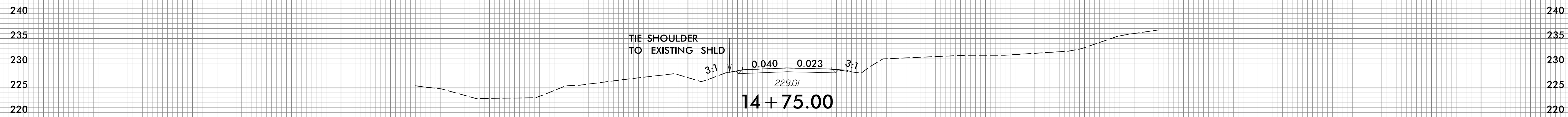
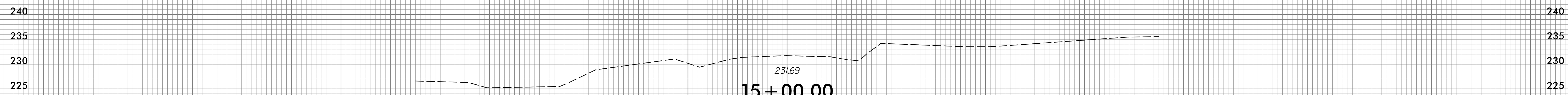
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PROJ. REFERENCE NO.
17BP.5.R.88

SHEET NO.
X-3

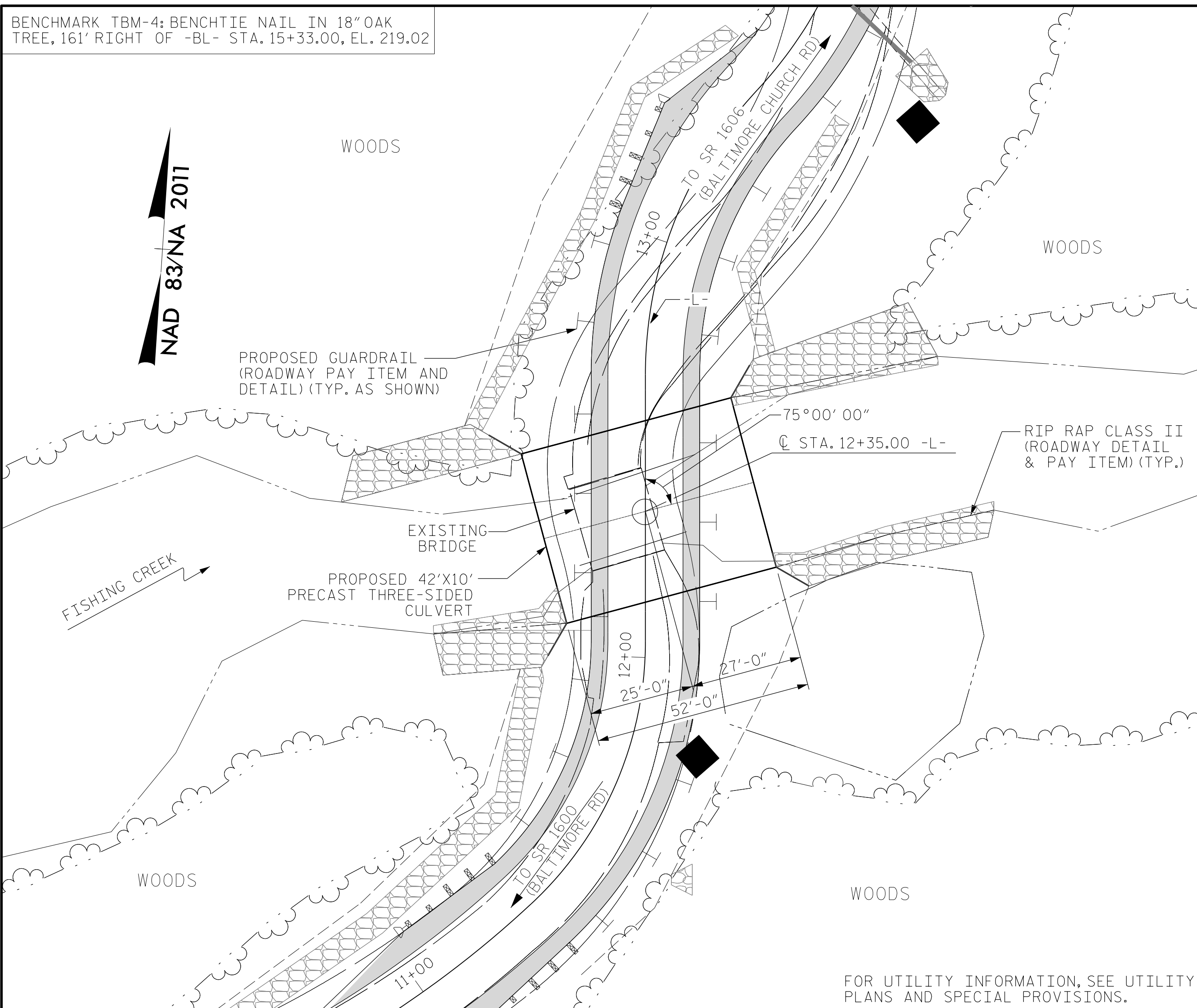
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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

3/18/2019
J:\EPCOR\williams

BENCHMARK TBM-4: BENCHTIE NAIL IN 18" OAK TREE, 161' RIGHT OF -BL- STA. 15+33.00, EL. 219.02



LOCATION SKETCH

NOTES:

1. ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
2. DESIGN FILL IS 1.0 FEET.
3. 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 SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
4. THE SURVEYOR SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
5. THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 20'-8" WITH A TIMBER DECK ON STEEL I-BEAMS AND A CLEAR ROADWAY OF 17'-2" ON TIMBER CAPS ON RUBBLE MASONRY ABUTMENTS AND LOCATED AT THE POSTED SITE SHALL BE REMOVED.
6. REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE EXISTING BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
7. THE BOTTOM OF FOOTING ELEVATIONS MAY BE LOWERED IN ORDER TO SATISFY BEARING CAPACITY AND MINIMUM EMBEDMENT REQUIREMENTS.
8. FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS.
9. THE PRECAST CULVERT SECTIONS AND WINGS SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES SHALL BE LOCATED A MINIMUM HEIGHT OF 6 INCHES ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FEET.
10. 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 12+35.00 -L-."
11. FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTES SHEET.
12. FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
13. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
14. FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
15. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
16. FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
17. FOR CONCRETE SLAB BELOW GUARDRAIL, SEE SPECIAL PROVISIONS.
18. FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.
19. NO EQUIPMENT OR COMPONENTS WILL BE PLACED/STAGED IN FISHING CREEK.
20. THE BRIDGE WILL BE REMOVED FROM THE TOP DOWN, FIRST REMOVING THE ASPHALT WITH CONTAINMENT MEASURES IN PLACE TO PREVENT COMPONENTS OF THE BRIDGE DECK FROM DROPPING INTO THE STREAM. THE METHOD OF CONTAINMENT WILL BE PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THIS WILL BE FOLLOWED BY REMOVAL OF THE RAIL, DECKING, GIRDERS, ETC. THE CONTRACTOR WILL THEN COMPLETELY ISOLATE THE MASONRY ABUTMENTS USING AN IMPERVIOUS DIKE IN THE STREAM TO ALLOW FOR COMPLETE REMOVAL OF THE ABUTMENTS. THE CONTRACTOR WILL INSTALL ADDITIONAL IMPERVIOUS DIKES IN THE STREAM AS NECESSARY TO ALLOW FOR CONSTRUCTION IN THE DRY OF THE STRUCTURE FOOTINGS AND FOR INSTALLATION OF THE CLASS II RIP RAP BANK STABILIZATION. ALL CONSTRUCTION EQUIPMENT AND PORTIONS OF THE CULVERT STRUCTURE NECESSARY TO COMPLETE THE PROJECT WILL REMAIN BEHIND THE IMPERVIOUS DIKE WHILE WITHIN THE BANKS OF FISHING CREEK. DECK DRAINS WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO THE STREAM.

FOUNDATION NOTES:

1. CARRY IN FOOTINGS FOR THE 3 SIDED CULVERT AT STATION 12+35.00 -L- AT LEAST 12" INTO ROCK WITH A MINIMUM THICKNESS AS SHOWN IN THE PLANS.

ROADWAY DATA

GRADE POINT ELEV. @ STATION 12+35.00 -L- = 216.01
 TOP OF FOOTING ELEV. @ STATION 12+35.00 -L- = 204.00
 ROADWAY SLOPES 2:1

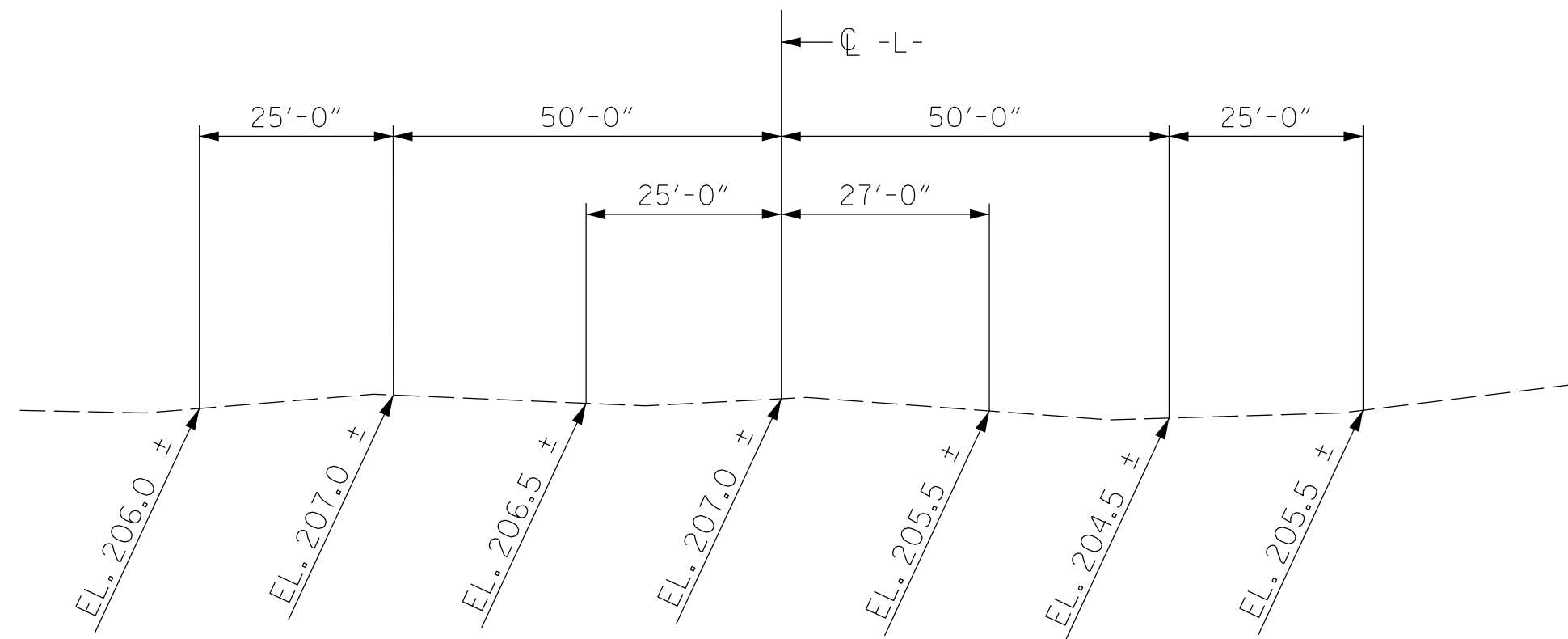
HYDRAULIC DATA

DESIGN DISCHARGE 2600 CFS
 FREQUENCY OF DESIGN FLOOD 2 YR.
 DESIGN HIGHWATER ELEV. 220.6 FT.
 DRAINAGE AREA 75.8 SQ. MI.
 BASE DISCHARGE (Q100) 11147 CFS
 BASE HIGHWATER ELEV. 229.3 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE 824 CFS
 FREQUENCY OF OVERTOPPING FLOOD <2 YR.
 OVERTOPPING FLOOD ELEV. 216.1 FT. *

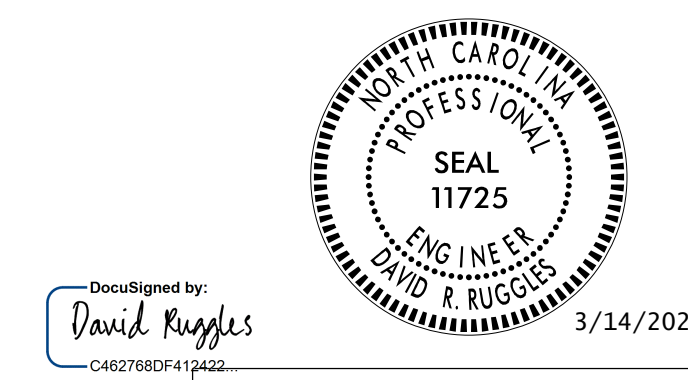
* OVERTOPS AT STA. 12+00 -L-



PROFILE ALONG C OF CULVERT

TOTAL STRUCTURE QUANTITIES	
REMOVAL OF EXISTING STRUCTURE @ STA. 12+35.00 -L-	LUMP SUM
ASBESTOS ASSESSMENT	LUMP SUM
CLASS A CONCRETE *	61 CU. YDS.
REINFORCING STEEL *	7487 LBS.
42'X10' PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 12+35.00 -L-	LUMP SUM

* INCLUDES CULVERT FOOTINGS AND GUARDRAIL FOOTINGS



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 Firm License No. C-1051
 223 S. West St.
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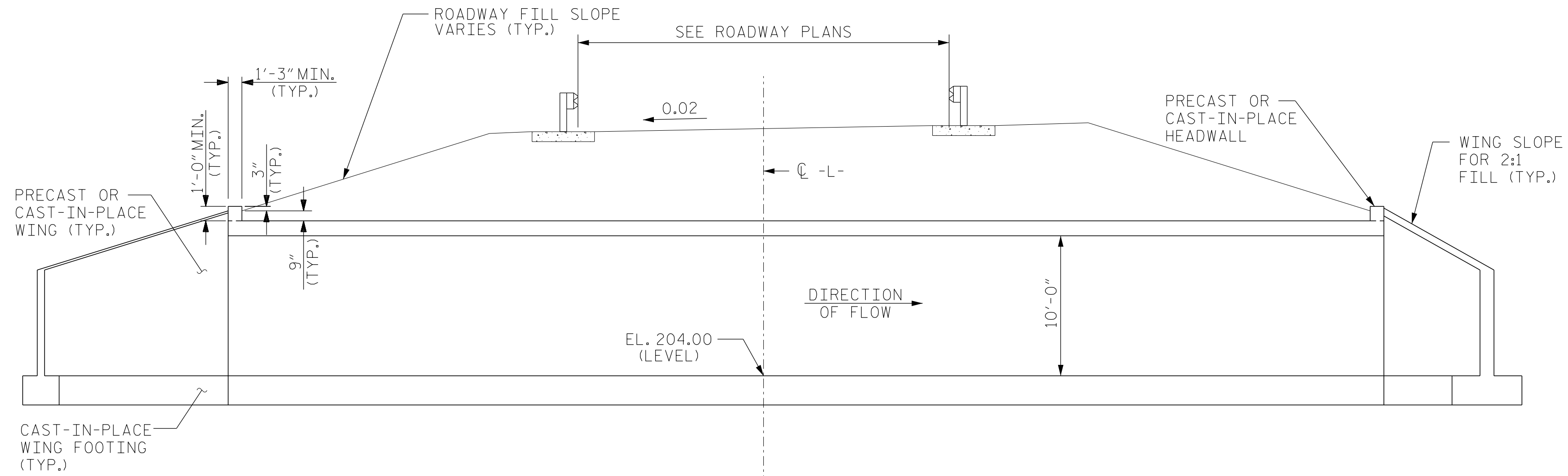
PROJECT NO. 17BP.5.R.88
WARREN COUNTY
 STATION: 12+35.00 -L-

SHEET 1 OF 4

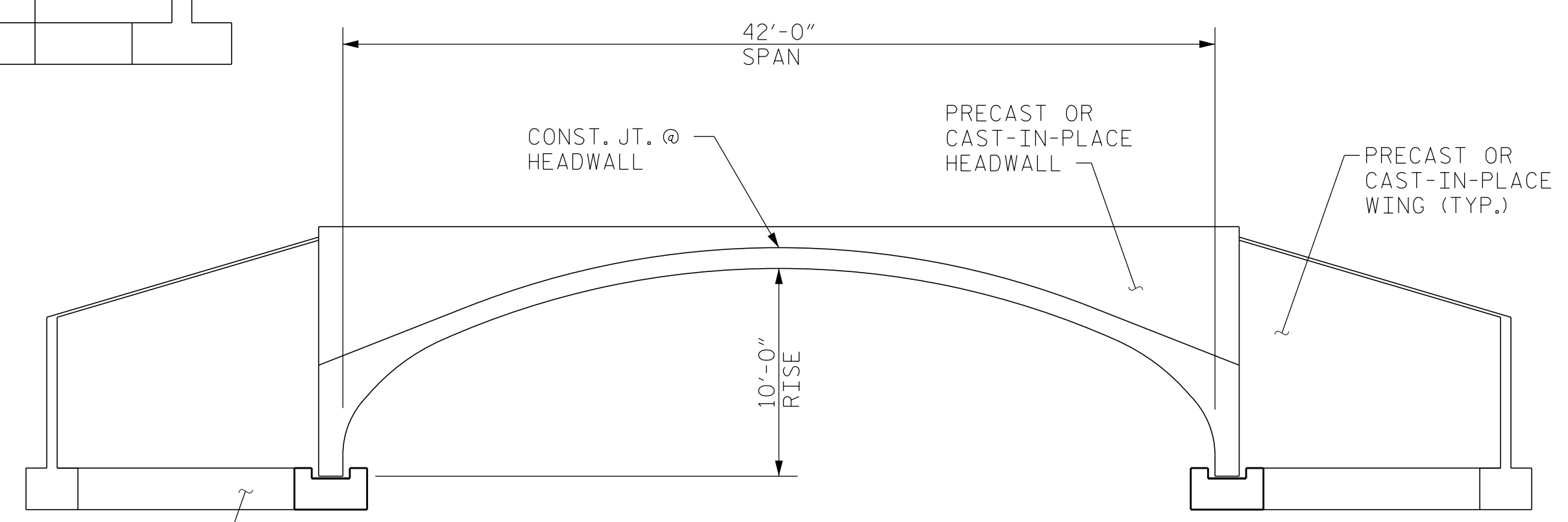
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			5

17BP.5.R.88
 1/31/2022
 \\400-001-Warren-135-SMU-L501-C-1.dgn
 USER:ephelps

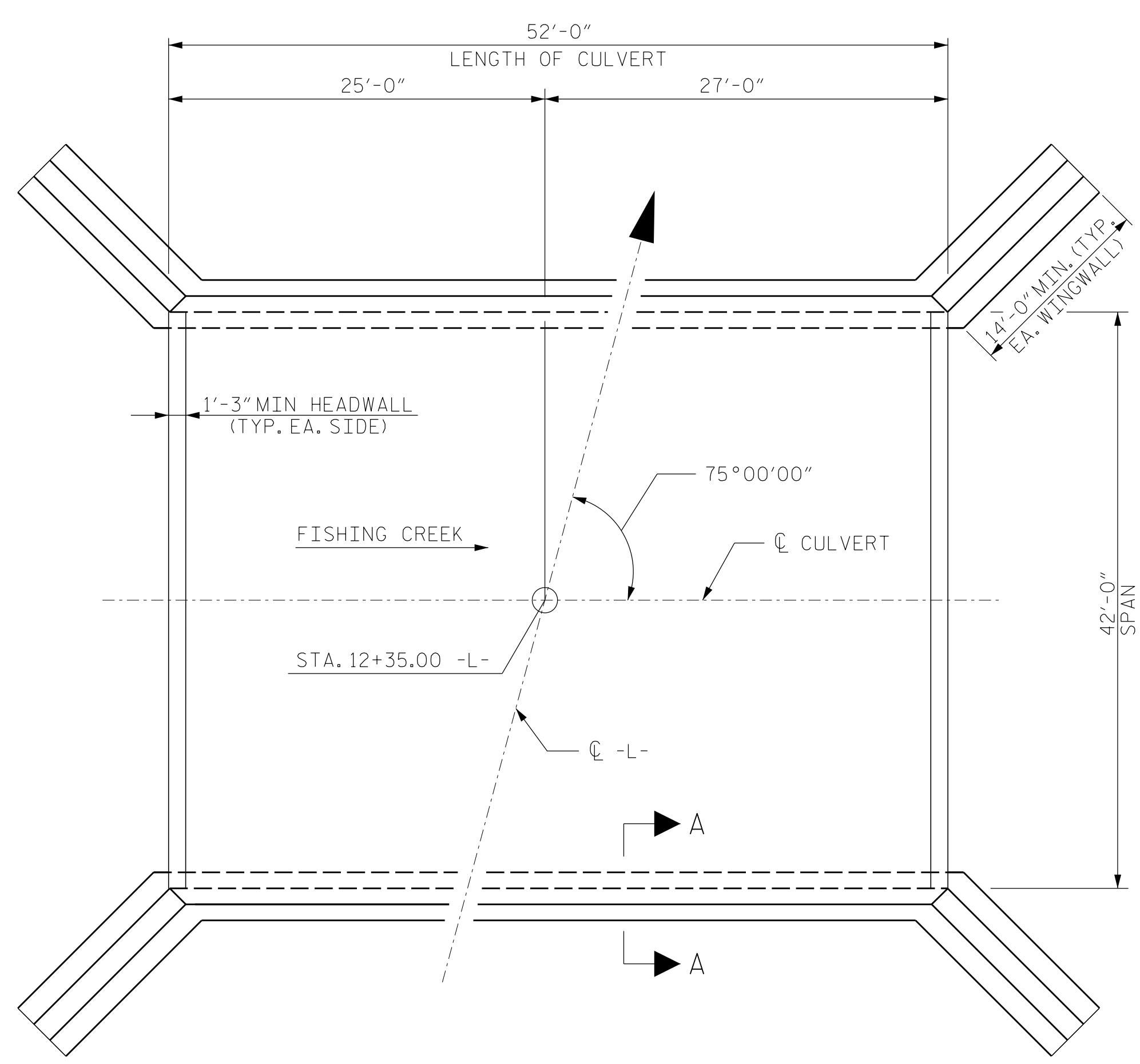
DRAWN BY: E. PHELPS DATE: 4/18
 CHECKED BY: D. RUGGLES DATE: 4/18
 DESIGN ENGINEER OF RECORD: D. RUGGLES DATE: 4/18



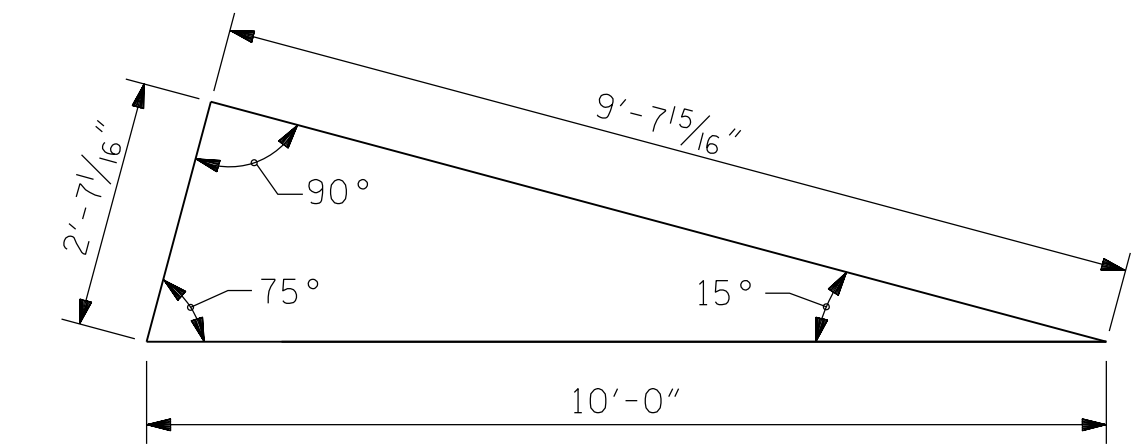
CULVERT SECTION NORMAL TO ROADWAY (ALONG SKEW)



END ELEVATION
(LOOKING DOWNSTREAM)



PLAN OF PRECAST THREE-SIDED CULVERT
FOR SECTION A-A, SEE SHEET C-3.



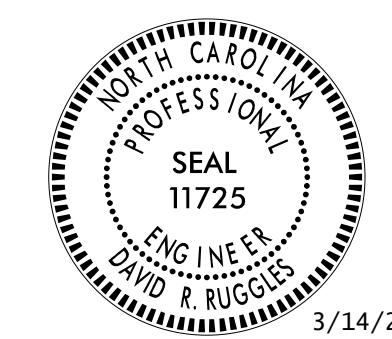
SKEW TRIANGLE

PROJECT NO. 17BP.5.R.88

WARREN COUNTY

STATION: 12+35.00 -L-

SHEET 2 OF 4



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3/14/2022
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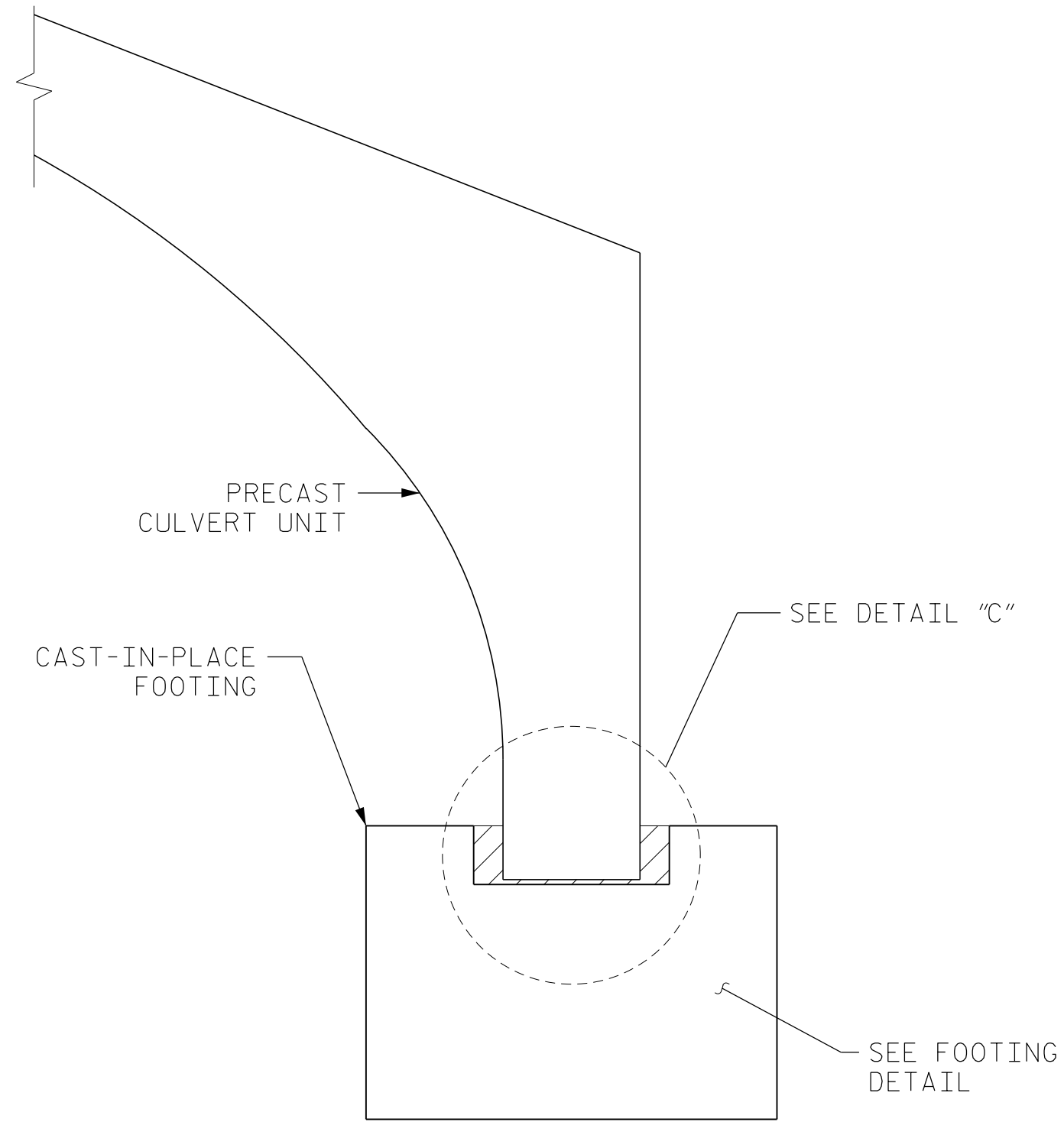


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PRECAST
REINFORCED CONCRETE
THREE-SIDED CULVERT
75° SKEW

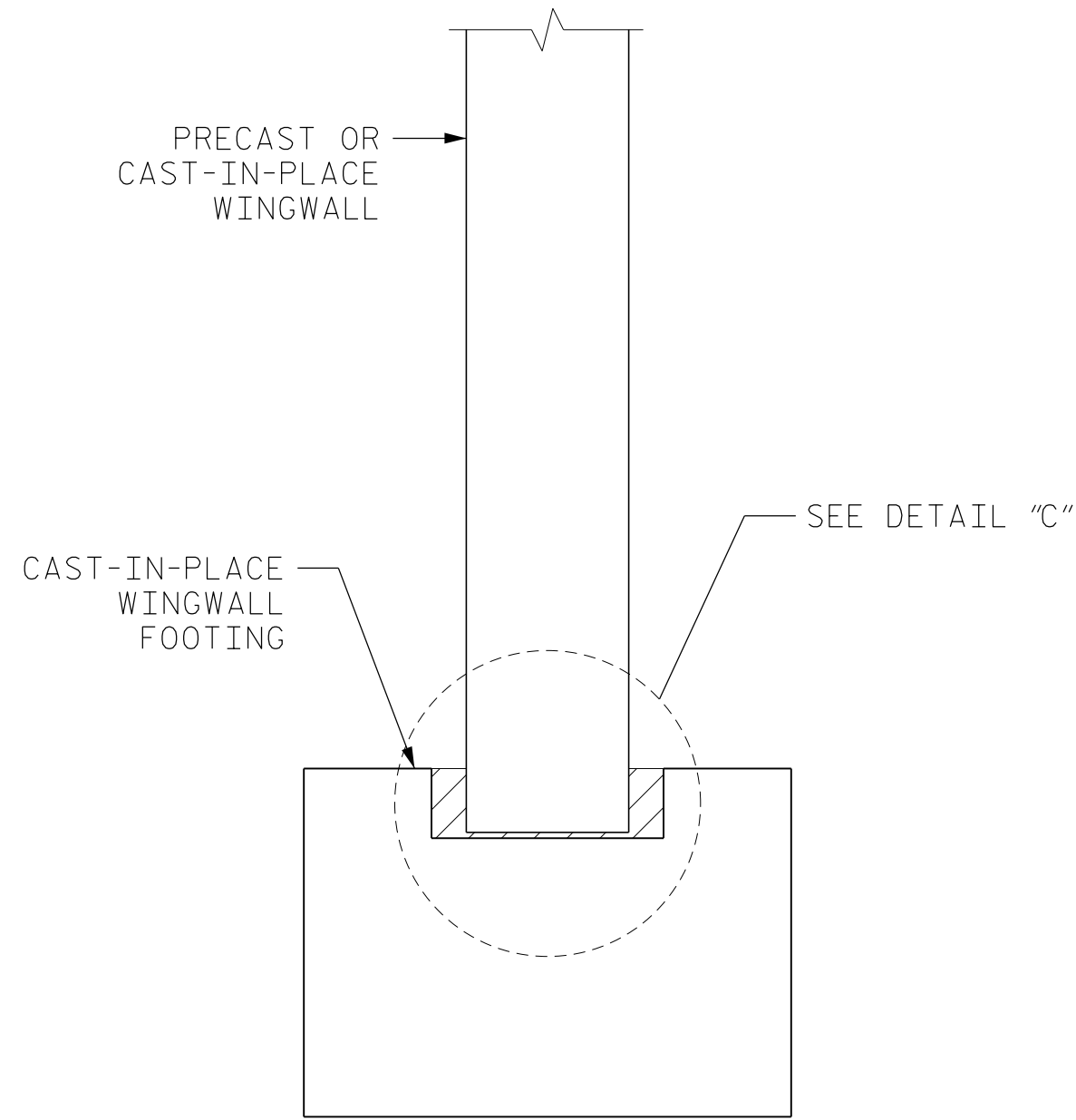
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			5

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1/31/2022
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USER:ephelps

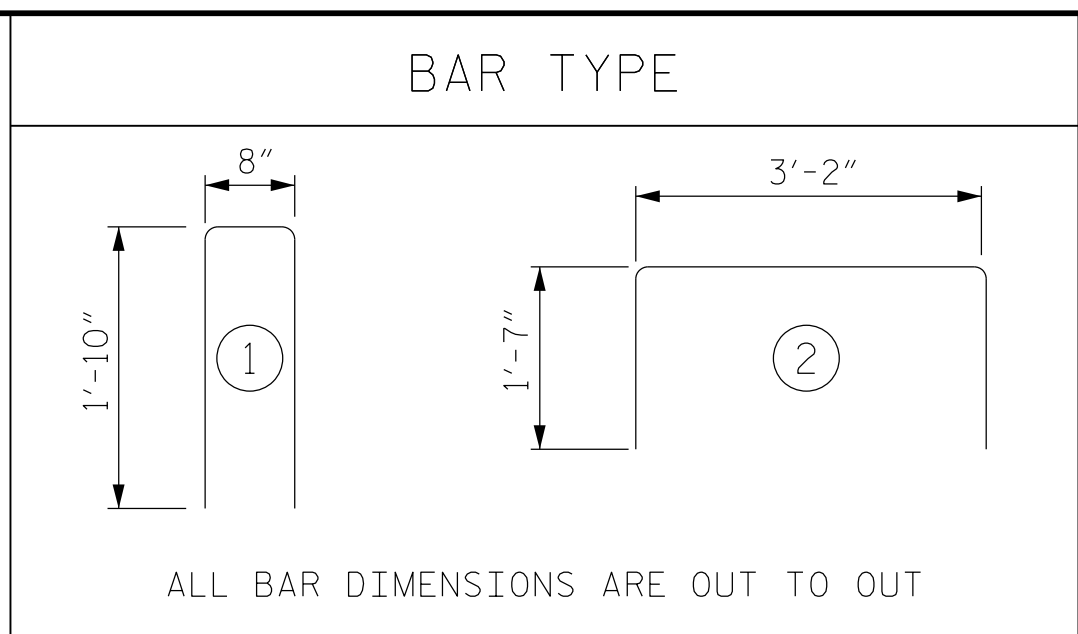


SECTION A-A

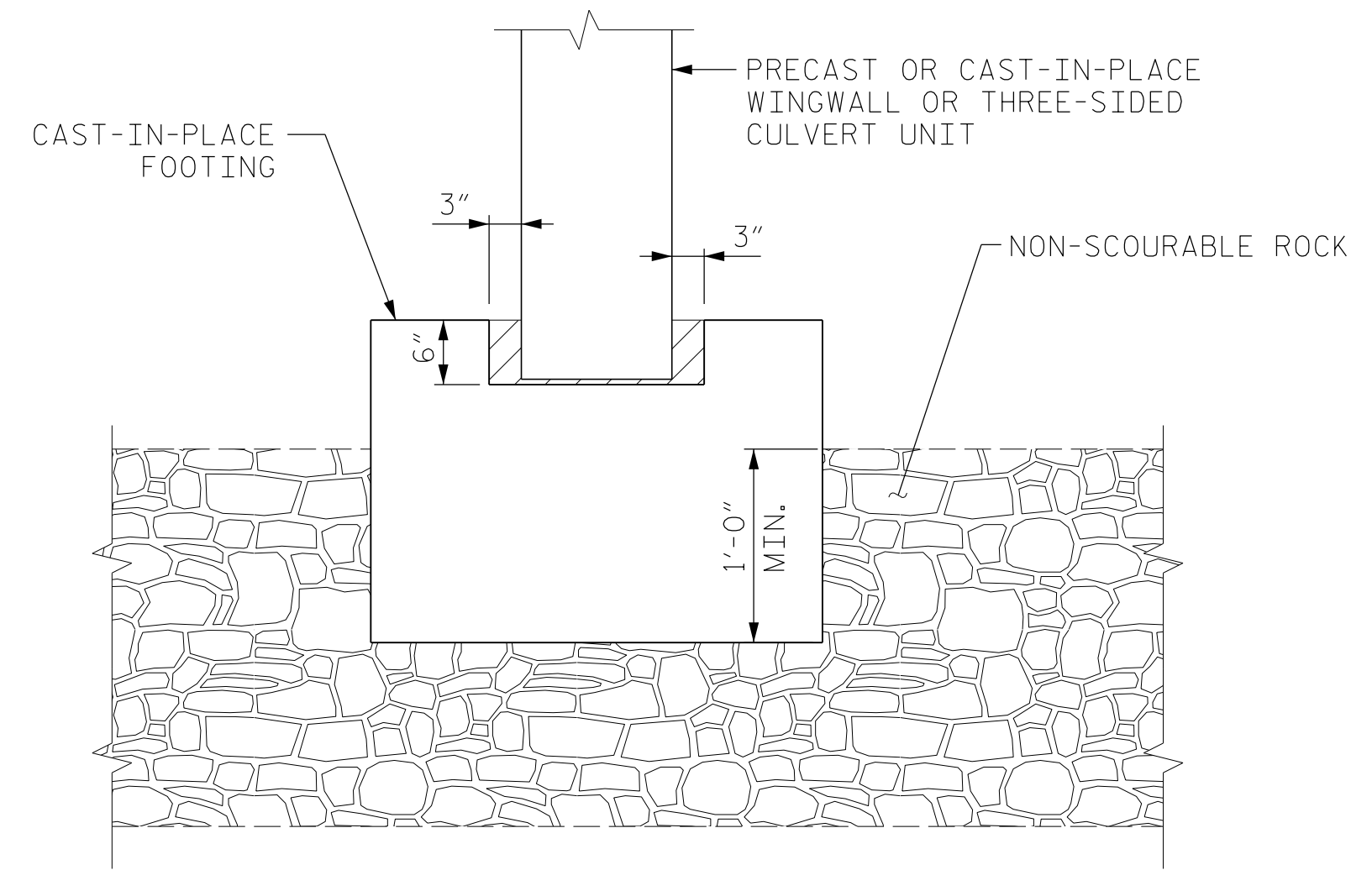


SECTION THRU WINGWALL

CONTRACTOR SUBMITTAL OF WORKING DRAWINGS FOR PRECAST CULVERT SHALL INCLUDE WINGWALLS.

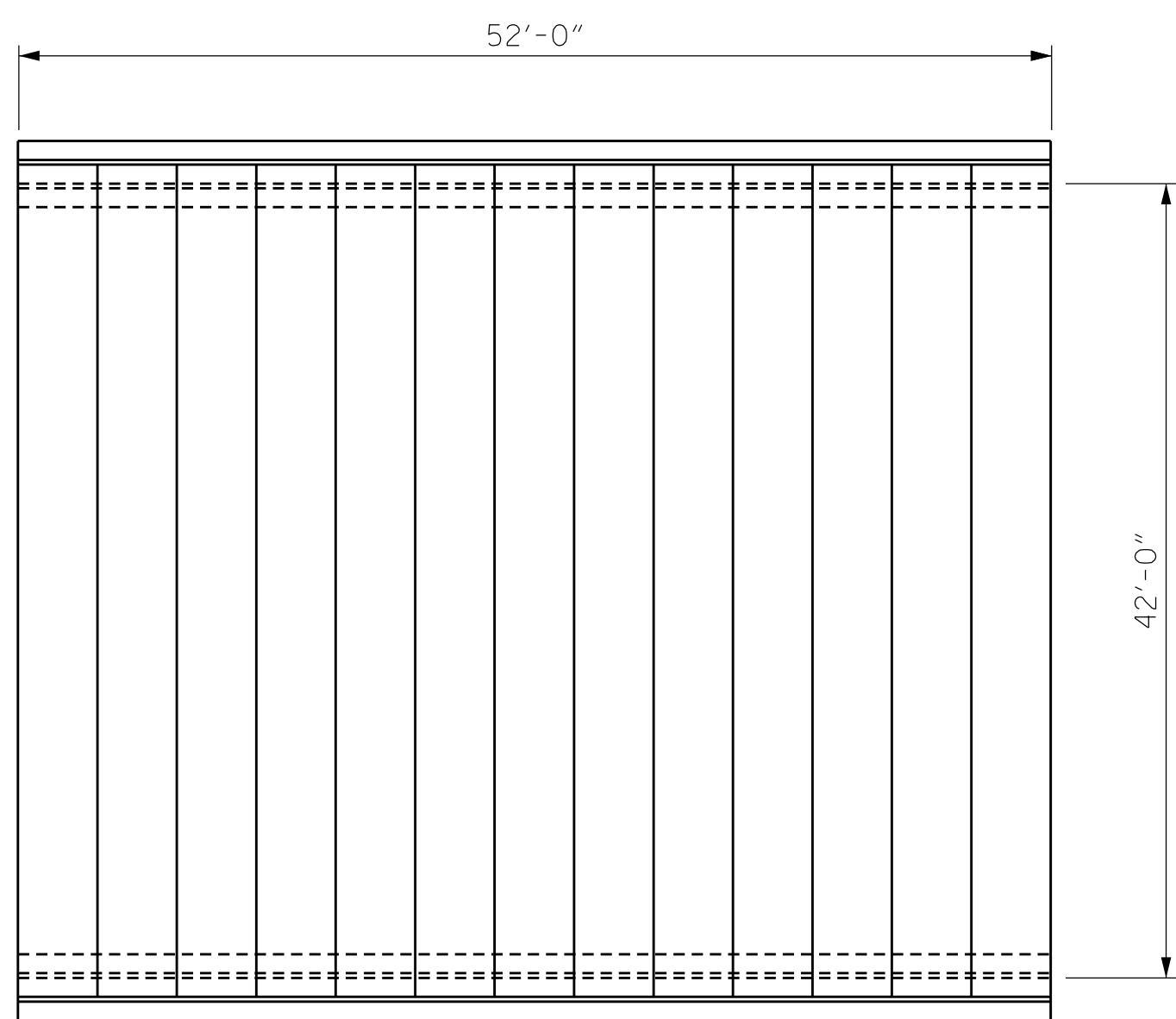


BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	320	#4	1	4'-4"	926
B1	320	#5	2	6'-4"	2114
C1	48	#6	STR	19'-8"	1418
C2	32	#6	STR	15'-6"	745
REINFORCING STEEL				LBS.	5203
CLASS A CONCRETE				CU.YDS.	47.4

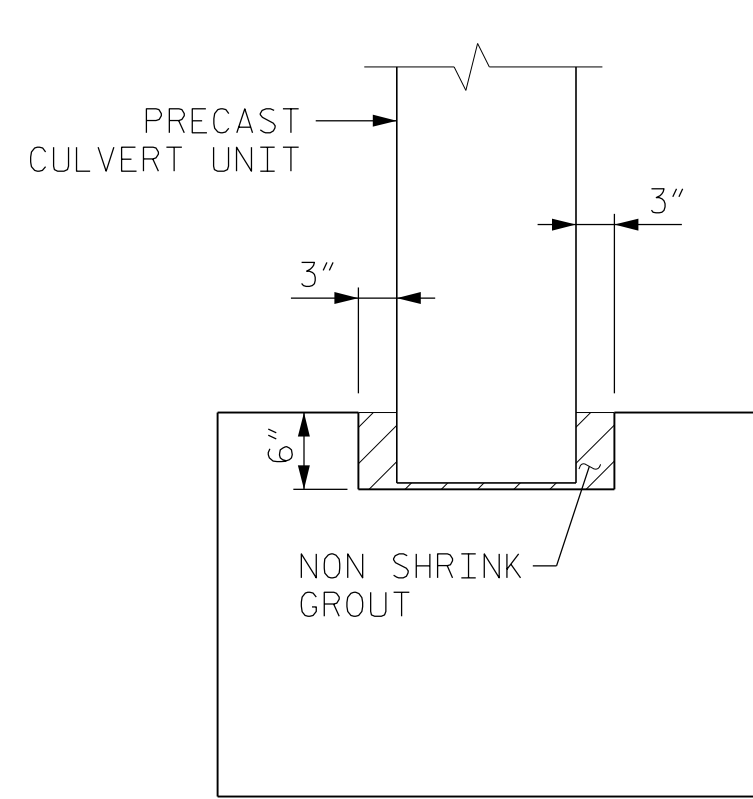


KEYED FOOTING DETAIL

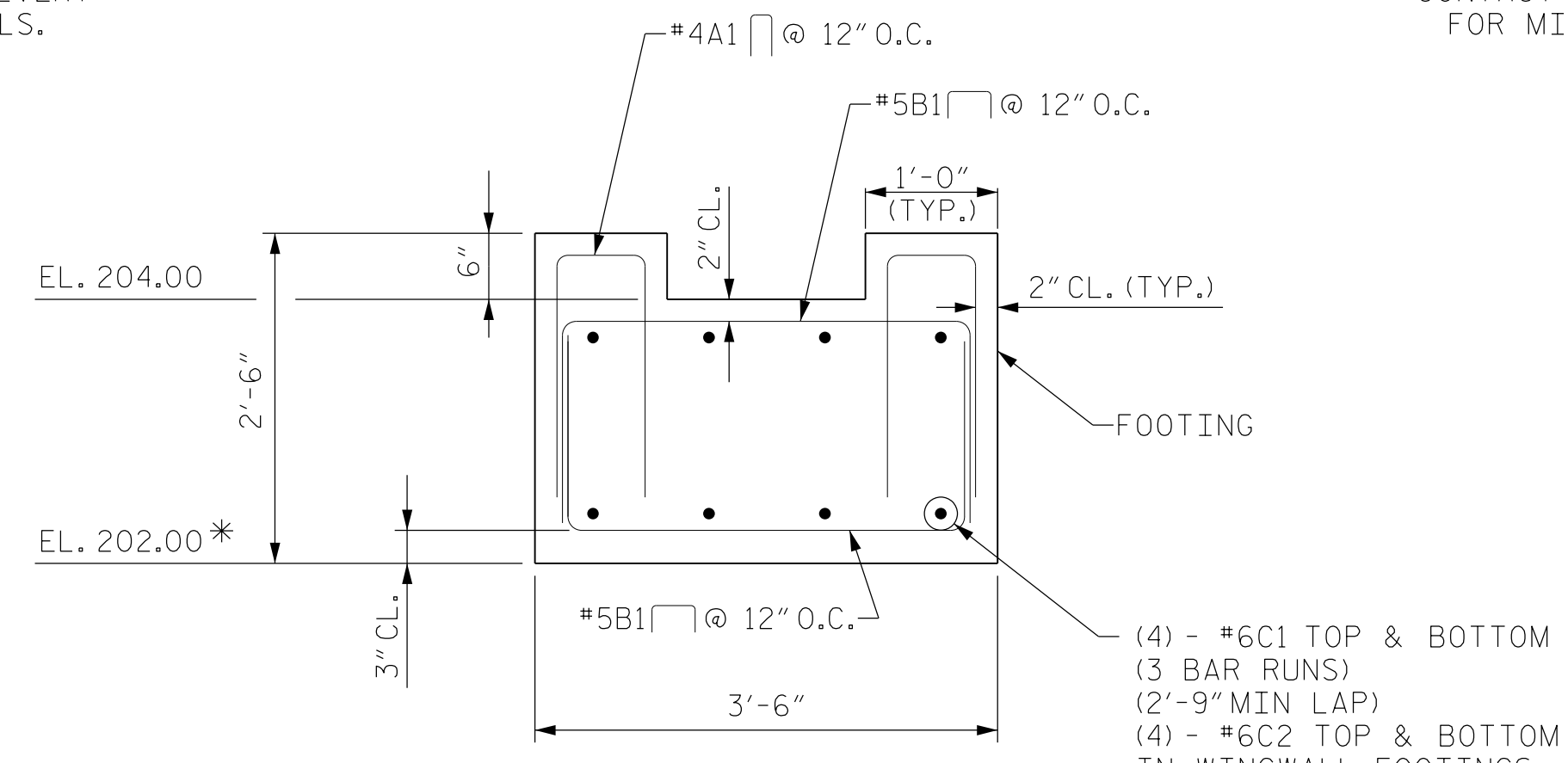
SIDES OF ALL FOOTINGS SHALL BE IN CONTACT WITH NON-SCOURABLE ROCK FOR MINIMUM DIMENSION SHOWN



PLAN OF CONCRETE ARCH



DETAIL "C"

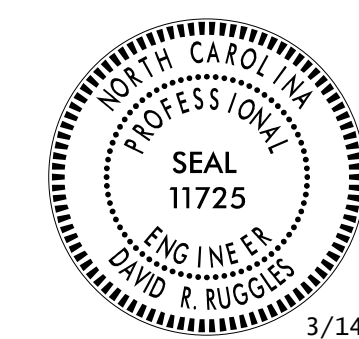


FOOTING DETAIL

* ADJUST BOTTOM OF FOOTING ELEVATION AS REQUIRED TO PROVIDE 1'-0" MINIMUM KEY INTO ROCK. EXTEND REINFORCEMENT AS REQUIRED.

PROJECT NO. 17BP.5.R.88
 WARREN COUNTY
 STATION: 12+35.00 -L-

SHEET 3 OF 4



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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT 75° SKEW

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

DRAWN BY: E. PHELPS DATE: 4/18
 CHECKED BY: D. RUGGLES DATE: 4/18
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NOTES

EACH POST SHALL BE PROVIDED WITH A 1/2" X 1'-3" THREADED STEEL ROD WITH GALVANIZED NUTS AND WASHERS.

INSTALL RODS ON POSTS BEFORE CONCRETE IS CAST. POSTS SHALL BE PLACED IN FINAL POSITION BEFORE CONCRETE IS CAST.

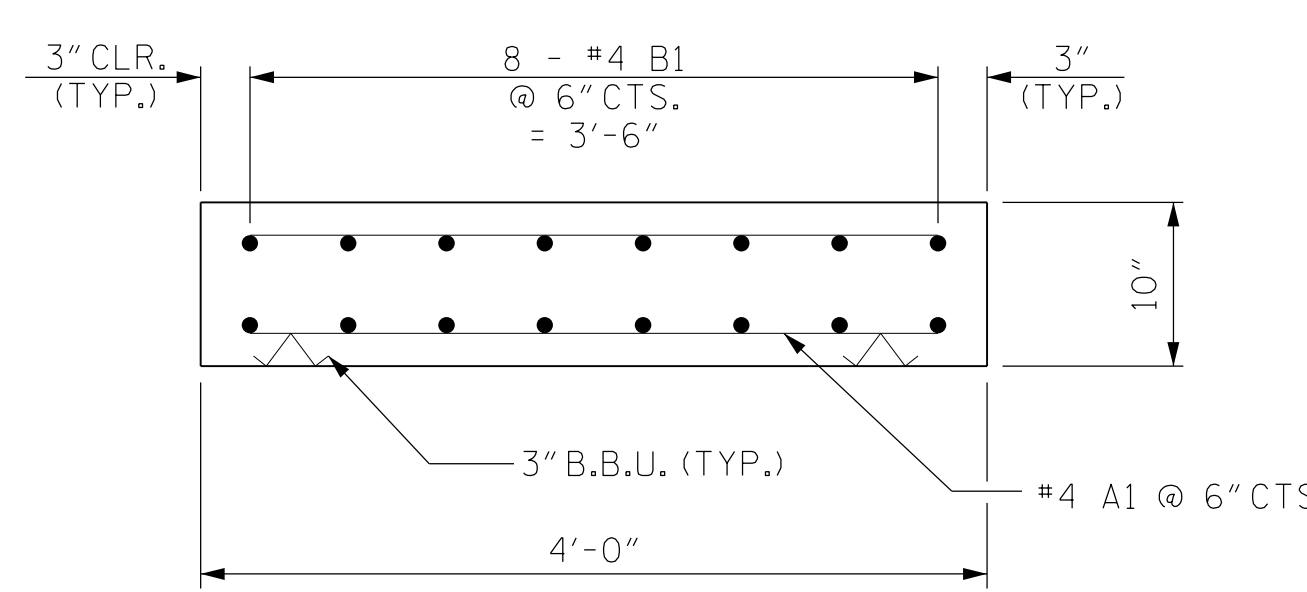
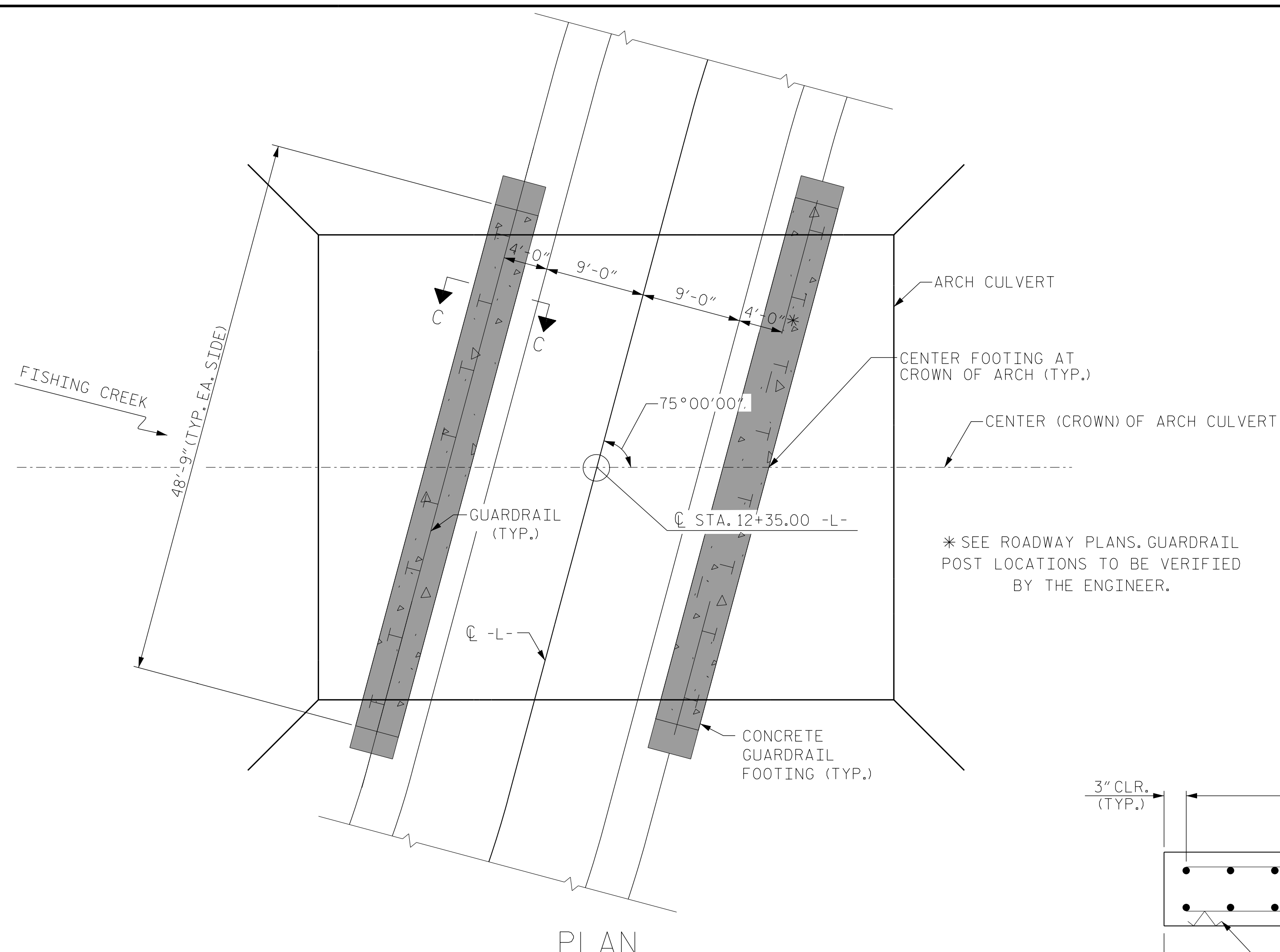
PAYMENT FOR GUARDRAIL, POSTS, AND THREADED STEEL ROD WITH GALVANIZED NUTS AND WASHERS IS INCLUDED IN ROADWAY PAY ITEMS.

SLAB REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL POSTS. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO A MINIMUM.

TOP OF GUARDRAIL FOOTING IS APPROXIMATELY 0.75 FT BELOW FINISHED GROUND. INSTALL 2 LAYERS OF 30 LB. ROOFING FELT BETWEEN CROWN OF CONCRETE ARCH AND GUARDRAIL FOOTING.

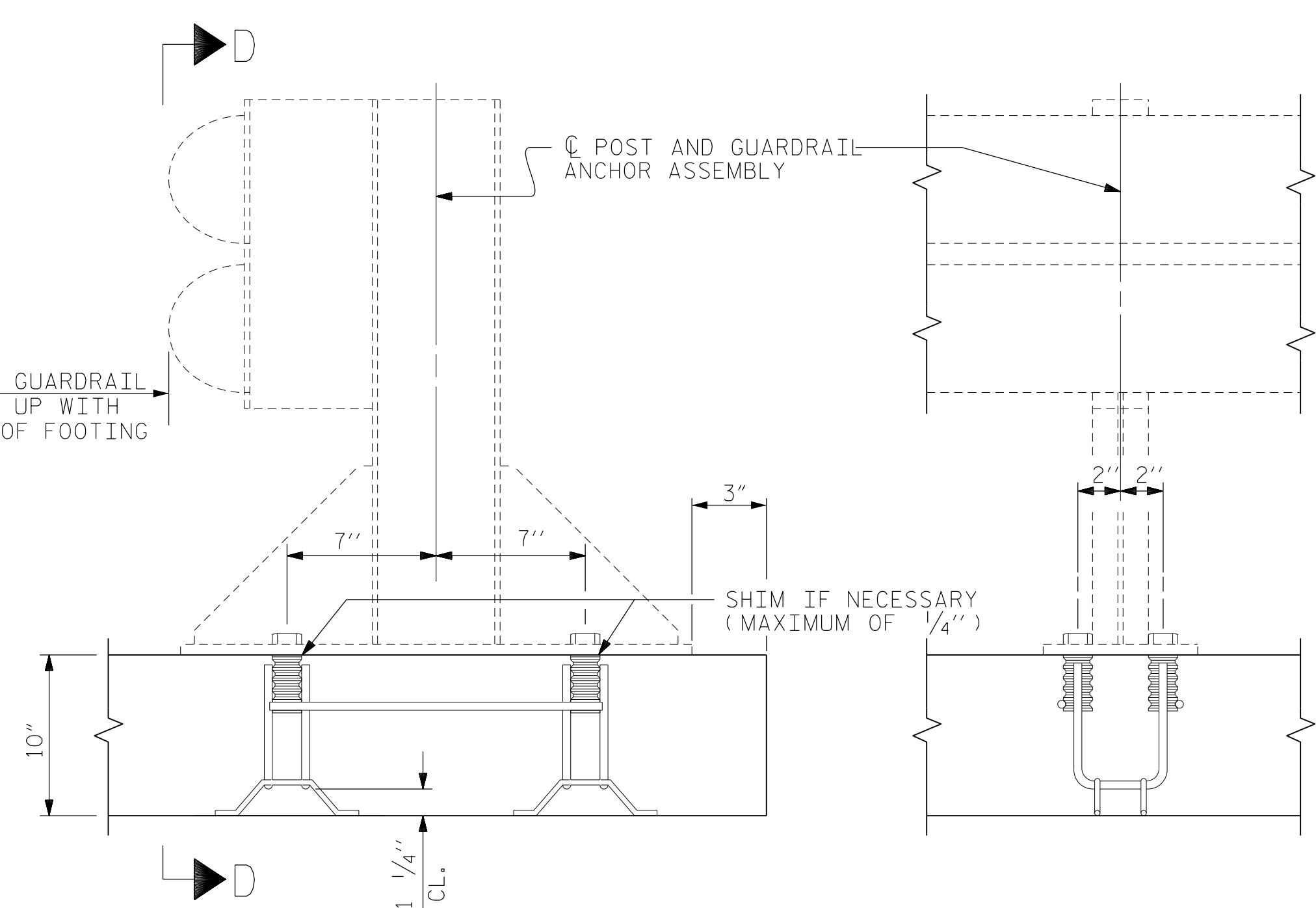
BILL OF MATERIAL FOR ONE FOOTING (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	220	#4	STR	3'-6"	514
B1	32	#4	STR	22'-9"	486
REINFORCING STEEL				LBS.	1000
CLASS A CONCRETE				CU.YDS.	6.0



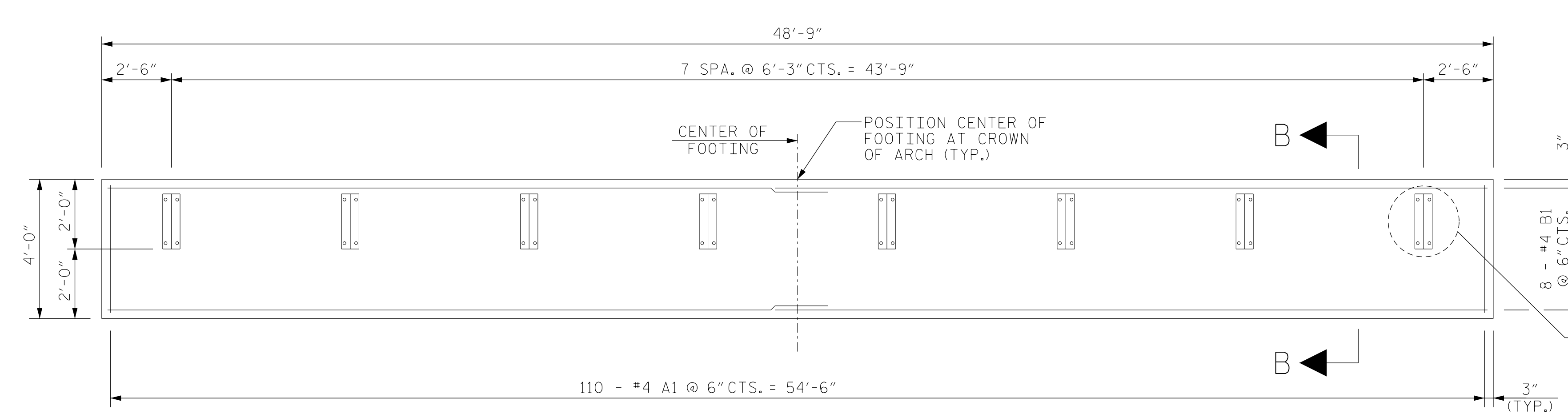
SECTION B-B

NOTE: LAYOUT REINFORCING STEEL SHOULD BE CONDUCTED TO AVOID CONFLICT WITH ANCHOR BOLT LAYOUT FOR GUARDRAIL ATTACHMENT.



SECTION C-C

SECTION D-D



FOOTING PLAN

NOTE: MINIMUM LAP FOR B1 BARS IS 2'-0"

PROJECT NO. 17BP.5.R.88
 WARREN COUNTY
 STATION: 12+35.00 -L-
 SHEET 4 OF 4



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1			3			TOTAL SHEETS 5
2			4			

DRAWN BY: E. PHELPS	DATE: 4/18
CHECKED BY: D. RUGGLES	DATE: 4/18
DESIGN ENGINEER OF RECORD: D. RUGGLES	DATE: 4/18

17BP.5.R.88
 3/14/2022
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 USER:dfault

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 3/16" 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.

PROJECT NO. 17BP.5.R.88
WARREN COUNTY
STATION: 12+35.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH
STANDARD NOTES
REVISONS
SHEET NO. C-5

ENGLISH
JANUARY, 1990

DRAWN BY: E. PHELPS DATE: 4/18
CHECKED BY: D. RUGGLES DATE: 4/18
DESIGN ENGINEER OF RECORD: D. RUGGLES DATE: 4/18

- REV. 6-16-95 EEM (G) RGW REV. 5-7-03 RWW (G) JTE REV. 10-1-11 MAA (G) GM
REV. 8-16-99 RWW (G) LES REV. 5-1-06 TLA (G) GM REV. 12-17 MAA (G) THC

STD. NO. SN

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