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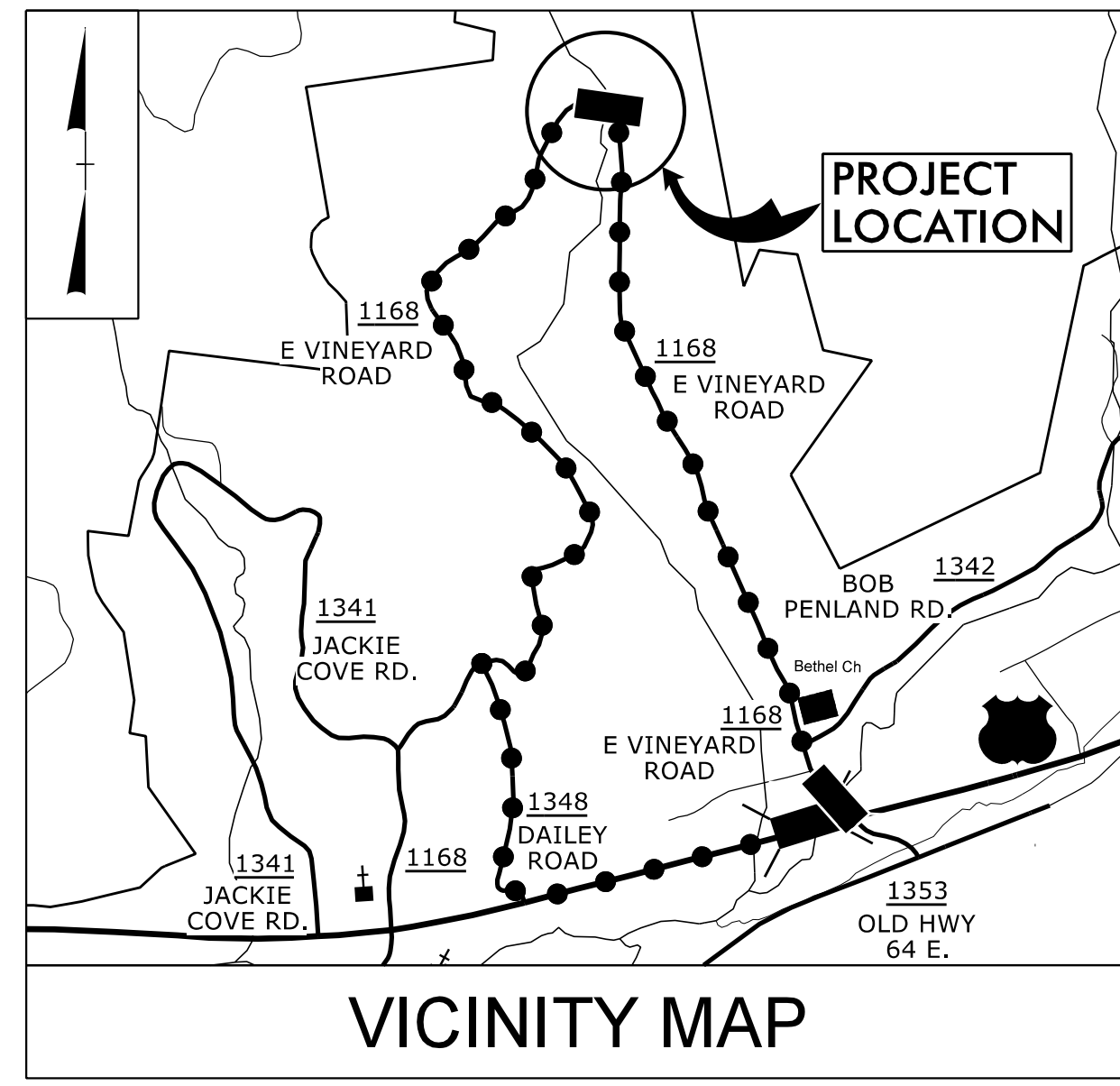
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09.08/2011

CONTRACT: DN00488 WBS PROJECT: 17BP.14.R.169

See Sheet 1A For Index of Sheets
See Sheet 1B For Symbology Sheet



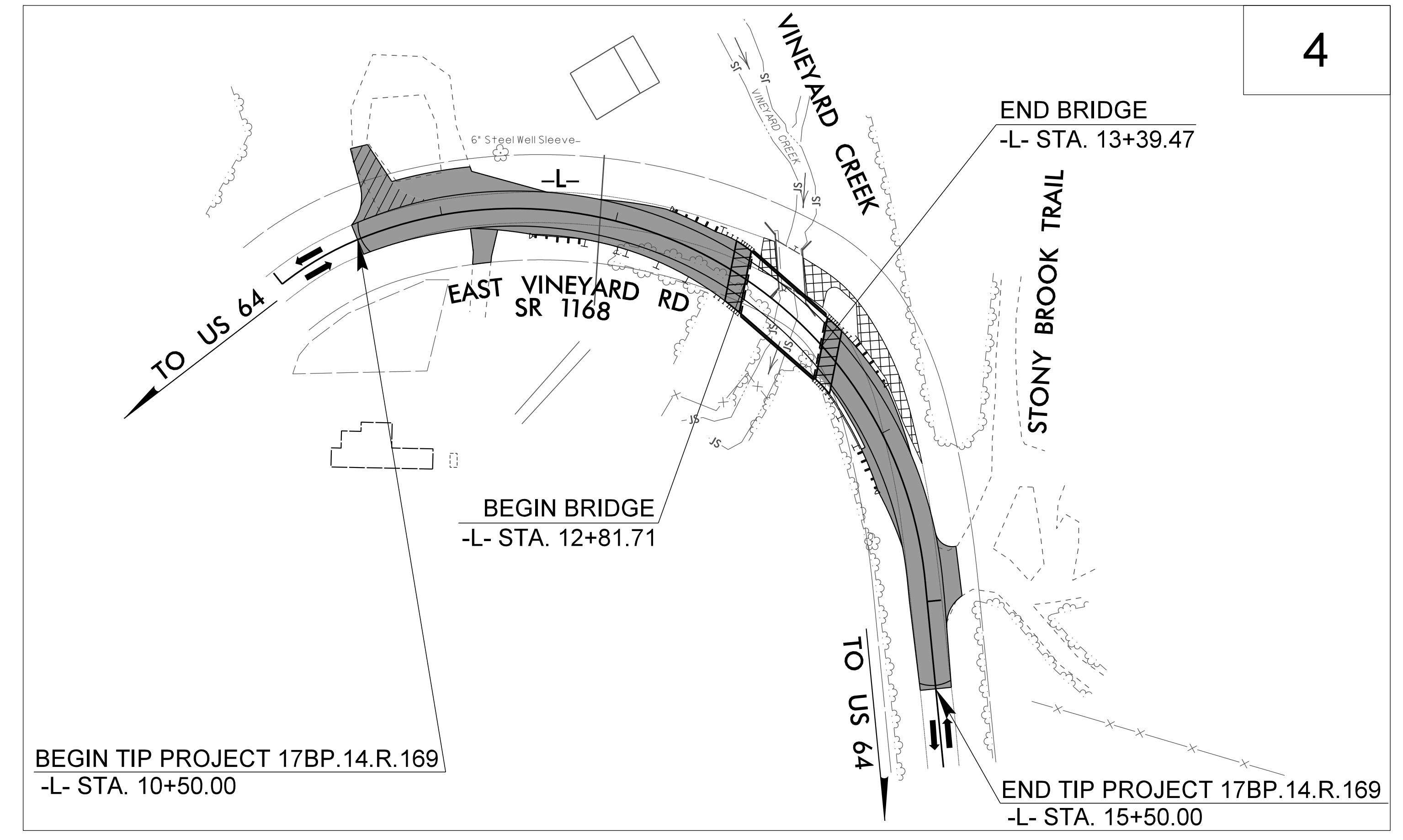
●-●-●-●- DETOUR ROUTE
FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CLAY COUNTY

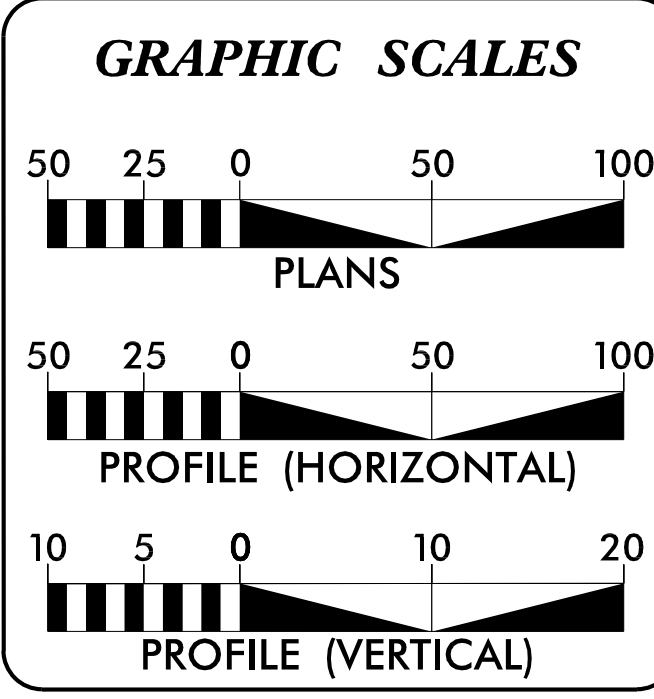
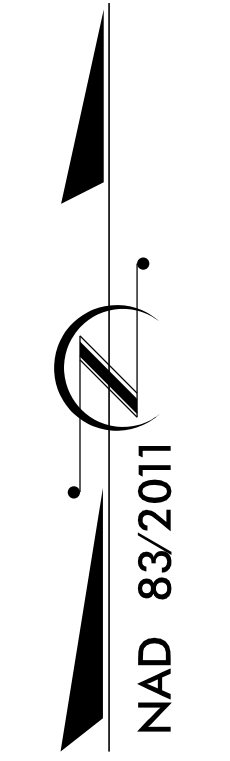
**LOCATION: REPLACEMENT OF BRIDGE NO. 099
OVER VINEYARD CREEK ON
SR 1168 (E. VINEYARD RD)**

**TYPE OF WORK: GRADING, DRAINAGE, WIDENING, PAVING,
STRUCTURE AND PAVEMENT MARKINGS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.169	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.14.PE.169	N/A	PE	
17BP.14.ROW.169	N/A	RIGHT-OF-WAY	
17BP.14.R.169	N/A	CONSTRUCTION	



THIS PROJECT HAS NO CONTROL OF ACCESS.



DESIGN DATA
ADT (2012) = 120
V = 30 MPH*

FUNC CLASS - LOCAL SUBREGIONAL TIER
*BRIDGE DESIGN SPEED INVESTIGATION

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.14.R.169	=	0.084 MI
LENGTH STRUCTURE PROJECT 17BP.14.R.169	=	0.011 MI
TOTAL LENGTH PROJECT 17BP.14.R.169	=	0.095 MI

PREPARED IN THE OFFICE OF:

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: 02-02-2018	RONYELL THIGPEN, PE PROJECT ENGINEER
LETTING DATE: 01-25-2022	HOLLY CHRISTENBURY, PE PROJECT DESIGN ENGINEER
NCDOT CONTACT:	GARRETT HIGDON DIVISION 14 ASSISTANT BRIDGE MANAGER

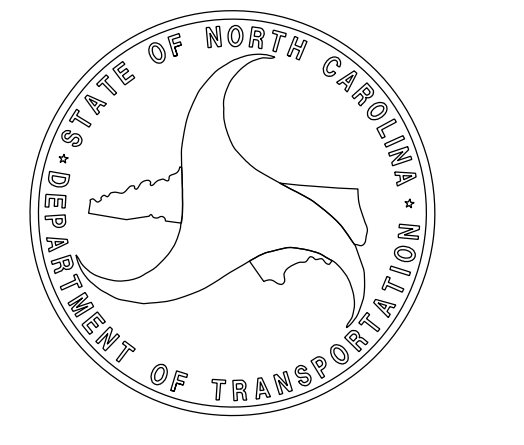
HYDRAULICS ENGINEER 11/23/2021

DocuSigned by:
Vidya Mohandas
SIGNATURE

ROADWAY DESIGN ENGINEER 11/23/2021

DocuSigned by:
Ronyell A. Thigpen
SIGNATURE

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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2C-1	MODIFIED CONCRETE FLUME DETAIL
3B-1	MISCELLANEOUS SUMMARIES (EARTHWORK, GUARDRAIL, PAVEMENT REMOVAL, & SHOULDER BERM GUTTER)
3D-1	DRAINAGE SUMMARY
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
X-1A	CROSS-SECTION SUMMARY
X-1 THRU X-9	CROSS-SECTIONS
S-1 THRU S-17	STRUCTURE PLANS
SN	STANDARD NOTE SHEET

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED 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 II.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

GUARDRAIL:

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

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:
Power: Blueridge Mountain EMC
Telephone: Frontier Communications

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

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement

DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
300.10	Driveway Pipe Construction

DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I

DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	■
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Exist Permanent Easement Pin and Cap	◆
New Permanent Easement Pin and Cap	◇
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite RW Marker	-----
New Control of Access Line with Concrete CA Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○

Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	----- Vineyard

EXISTING STRUCTURES:

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

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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


SANITARY SEWER:

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

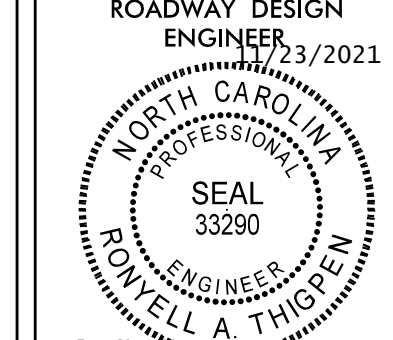
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	⊠
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- 70TL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊠ UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

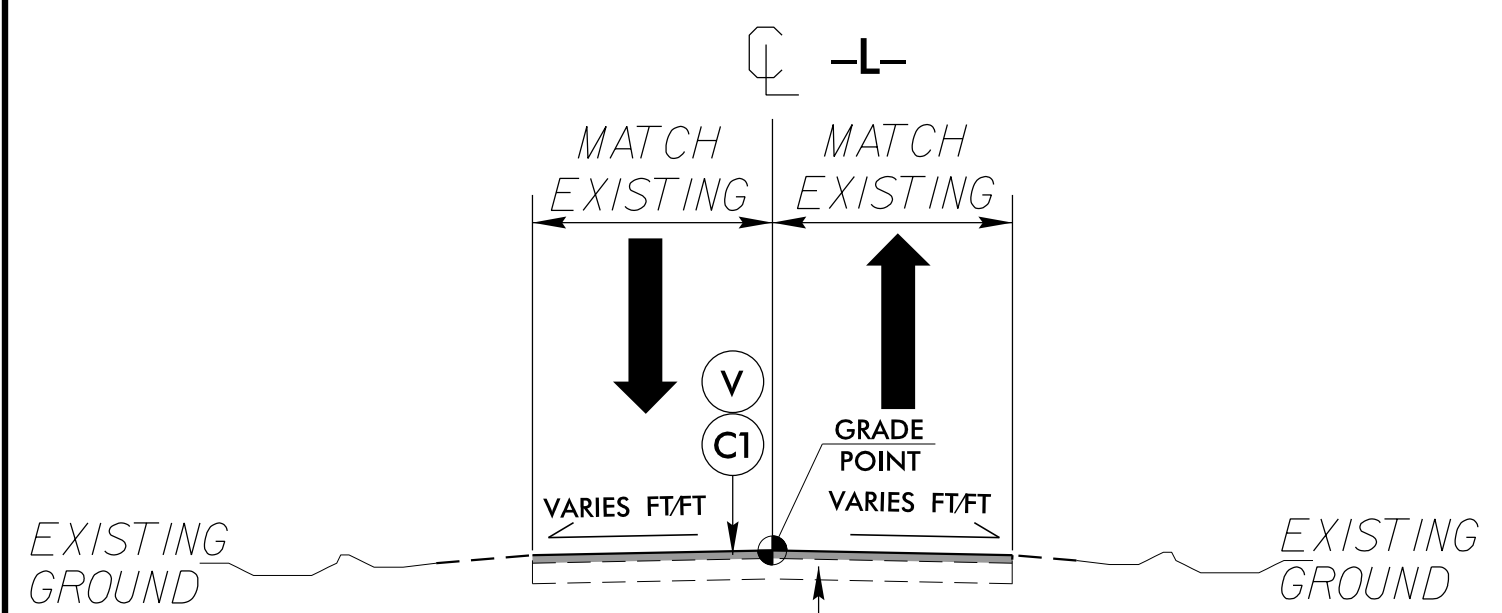
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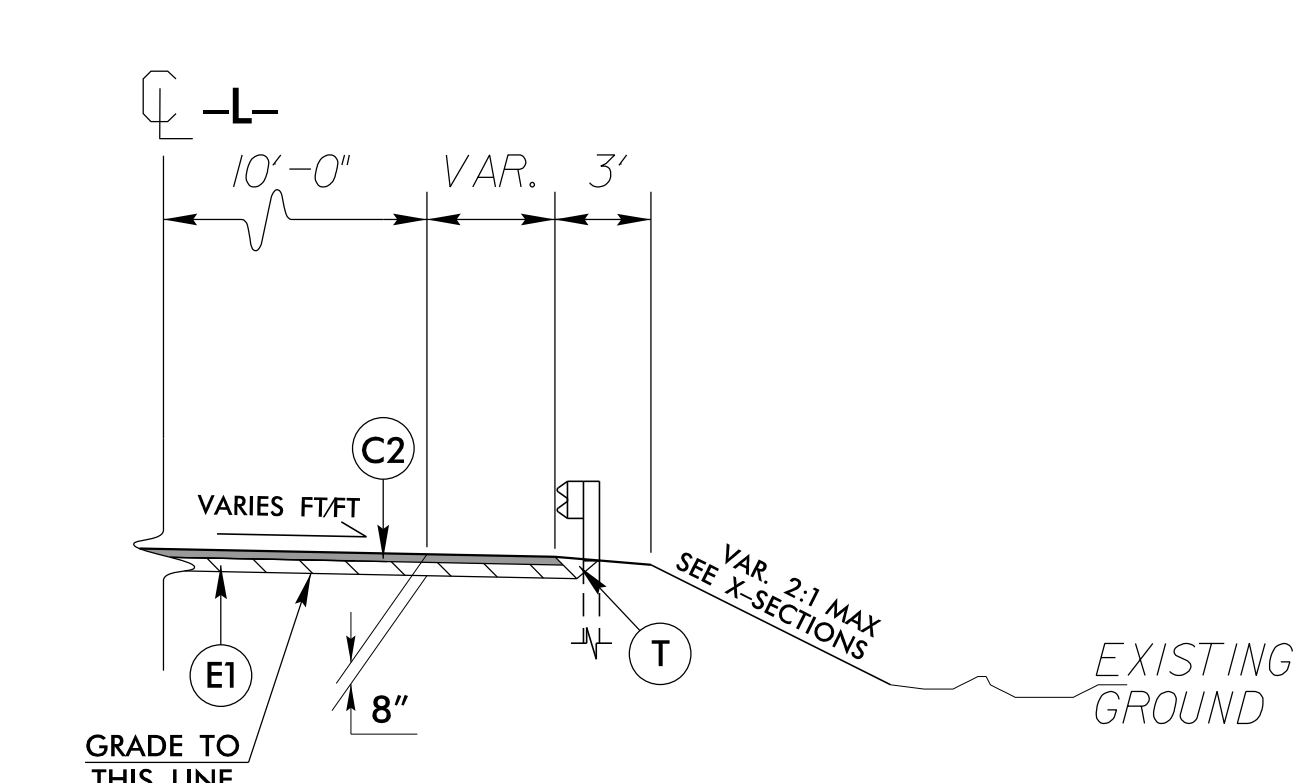
434 Fayetteville Street Suite 1500
Raleigh, NC 27601 - 919.836.4040
www.wspgroup.com
LICENSE NO. F-0165

PROJECT REFERENCE NO. 17BPJ4RJ69	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 2/23/2021	
	
Russell A. Thigpen	

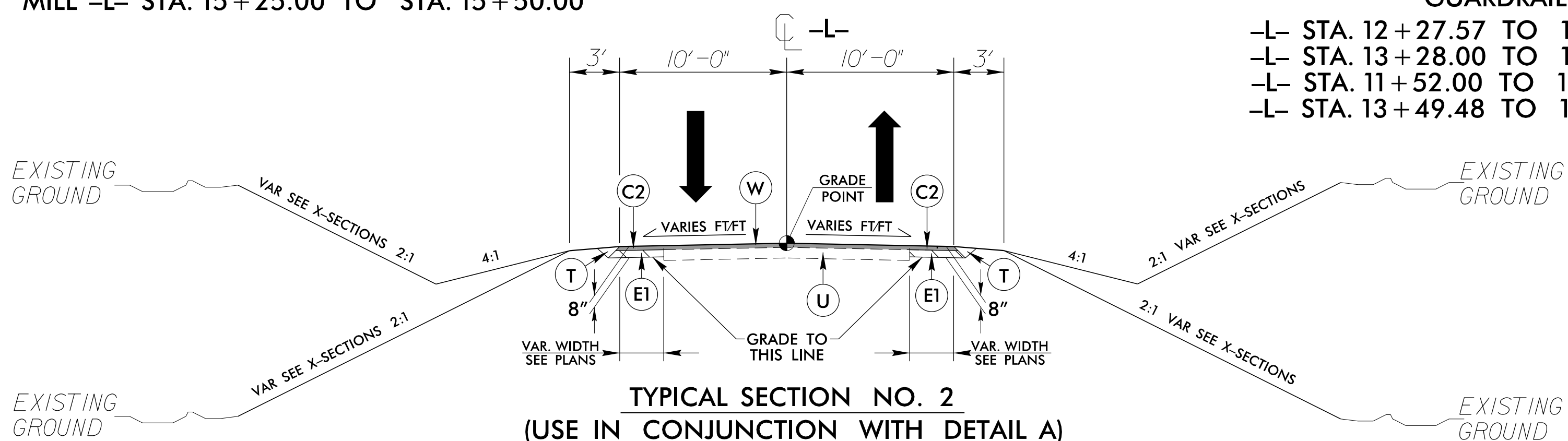
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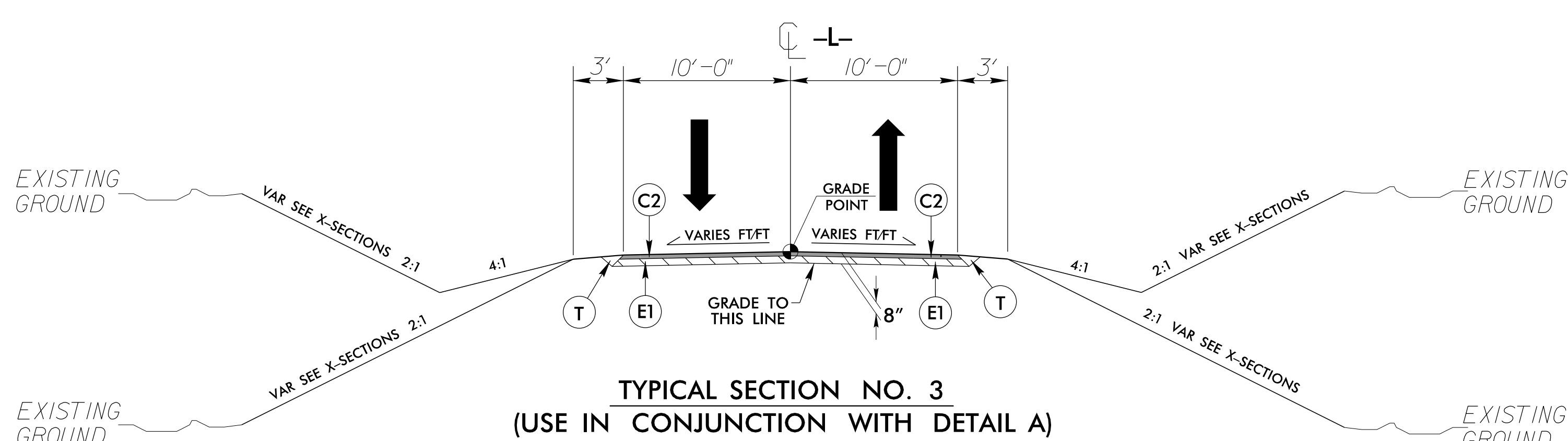
TYPICAL SECTION NO. 1
MILL -L- STA. 10+50.00 TO STA. 10+75.00
MILL -L- STA. 15+25.00 TO STA. 15+50.00



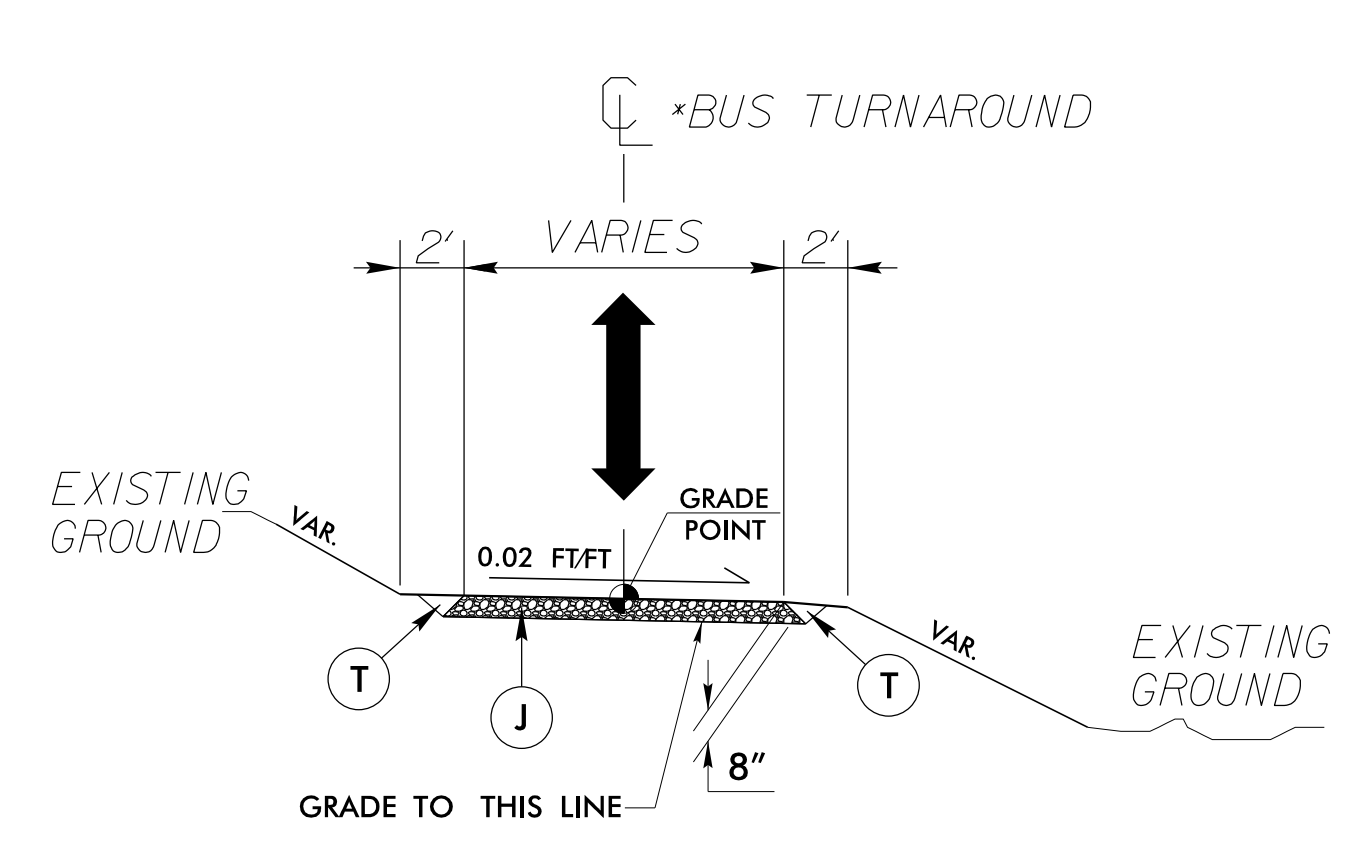
DETAIL A GUARDRAIL
-L- STA. 12+27.57 TO 12+77.82 (LT)
-L- STA. 13+28.00 TO 13+78.69 (LT)
-L- STA. 11+52.00 TO 12+92.28 (RT)
-L- STA. 13+49.48 TO 14+27.97 (RT)



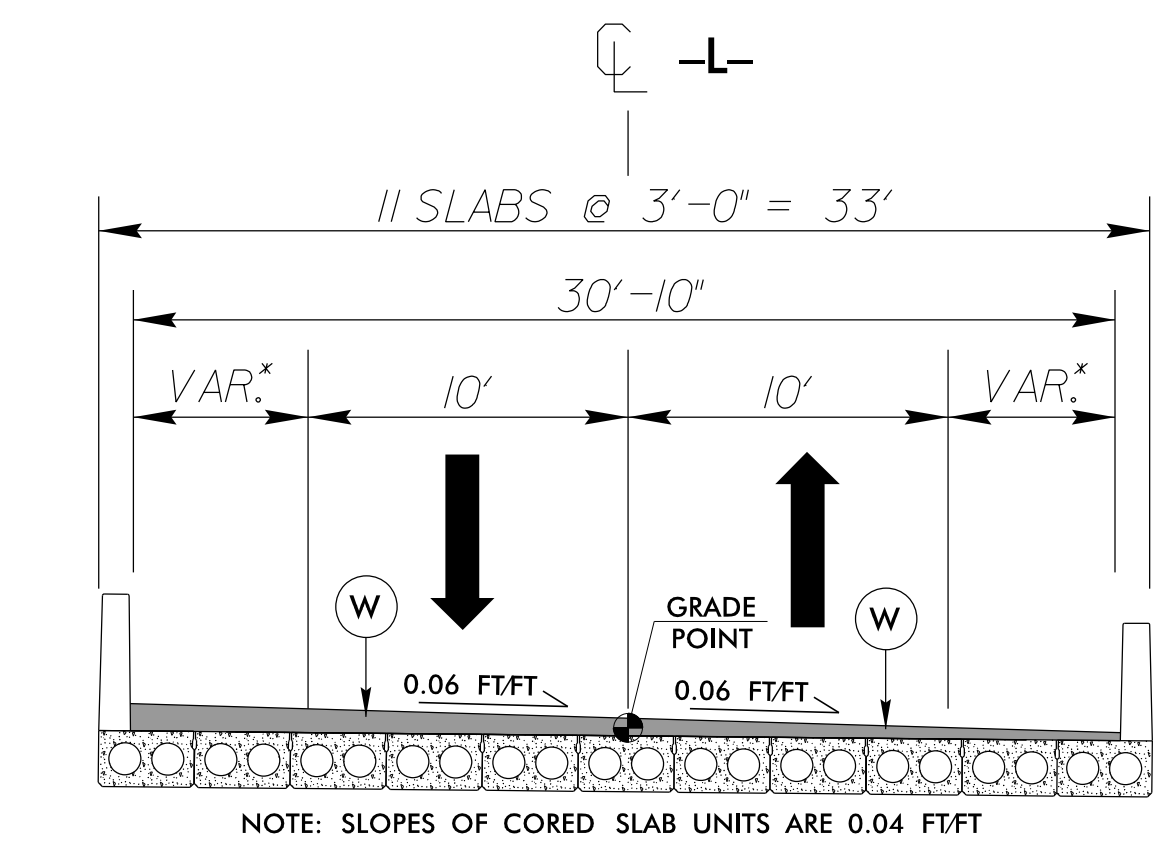
TYPICAL SECTION NO. 2
(USE IN CONJUNCTION WITH DETAIL A)
-L- STA. 10+75.00 TO STA. 11+50.00
-L- STA. 14+00.00 TO STA. 15+25.00



TYPICAL SECTION NO. 3
(USE IN CONJUNCTION WITH DETAIL A)
-L- STA. 11+50.00 TO STA. 12+81.71 (BEGIN BRIDGE)
-L- STA. 13+39.47 (END BRIDGE) TO STA. 14+00.00



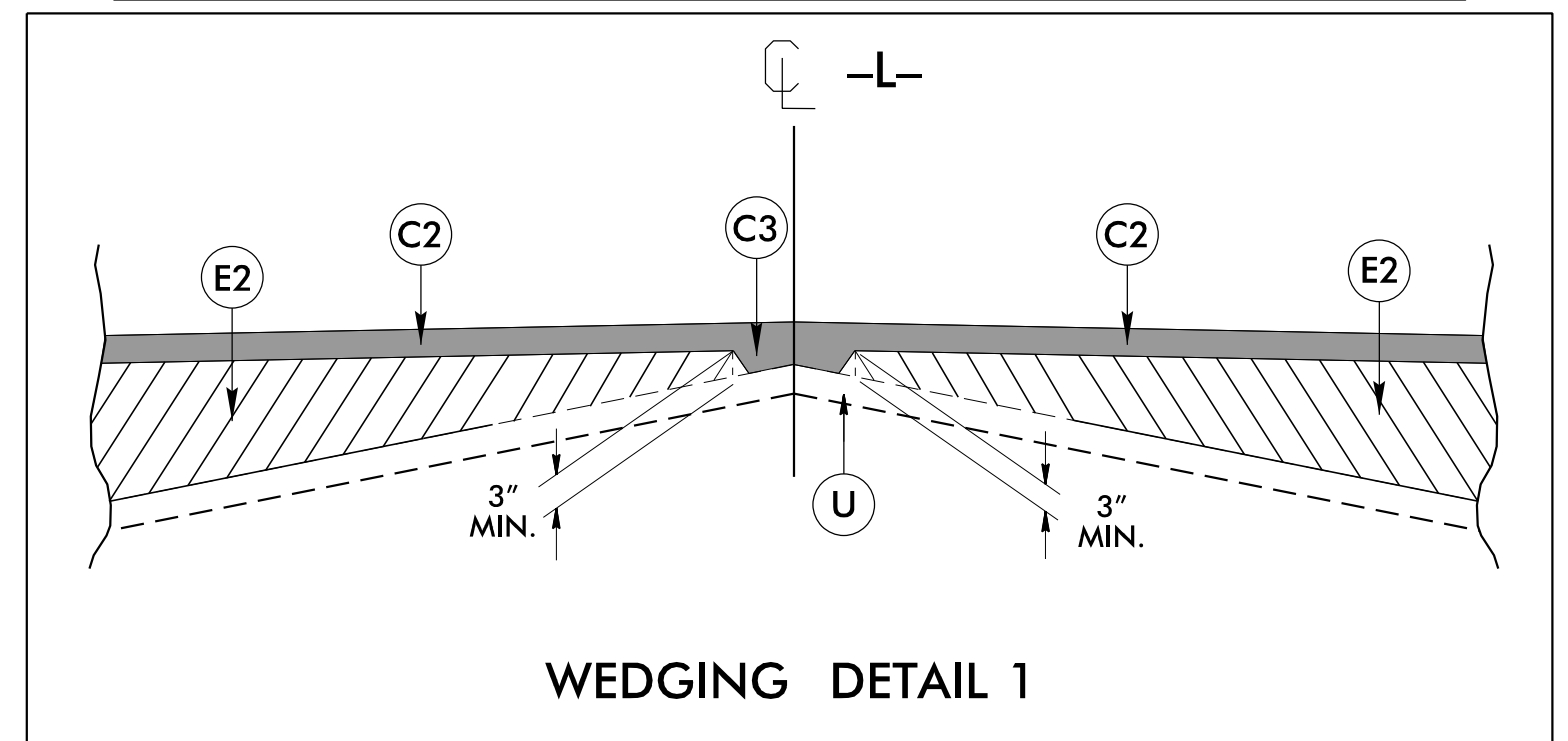
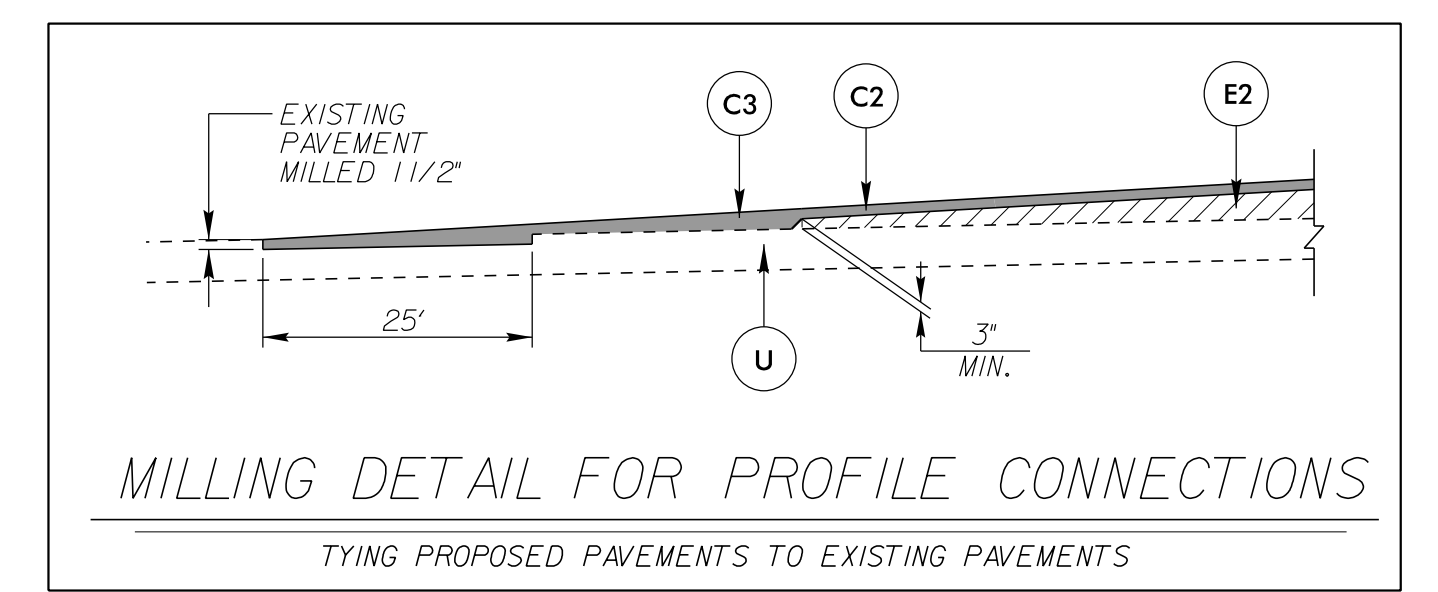
TYPICAL SECTION NO. 4



BRIDGE TYPICAL SECTION
-L- STA. 12+81.71 TO STA. 13+39.47

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	1 1/2" MILLING ASPHALT PAVEMENT
W	WEDGING (SEE DETAIL 1 THIS SHEET).

NOTES:
1. ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.



3/4/08 PM
17BPJ4RJ69_2/23/2021
3/2/2021

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

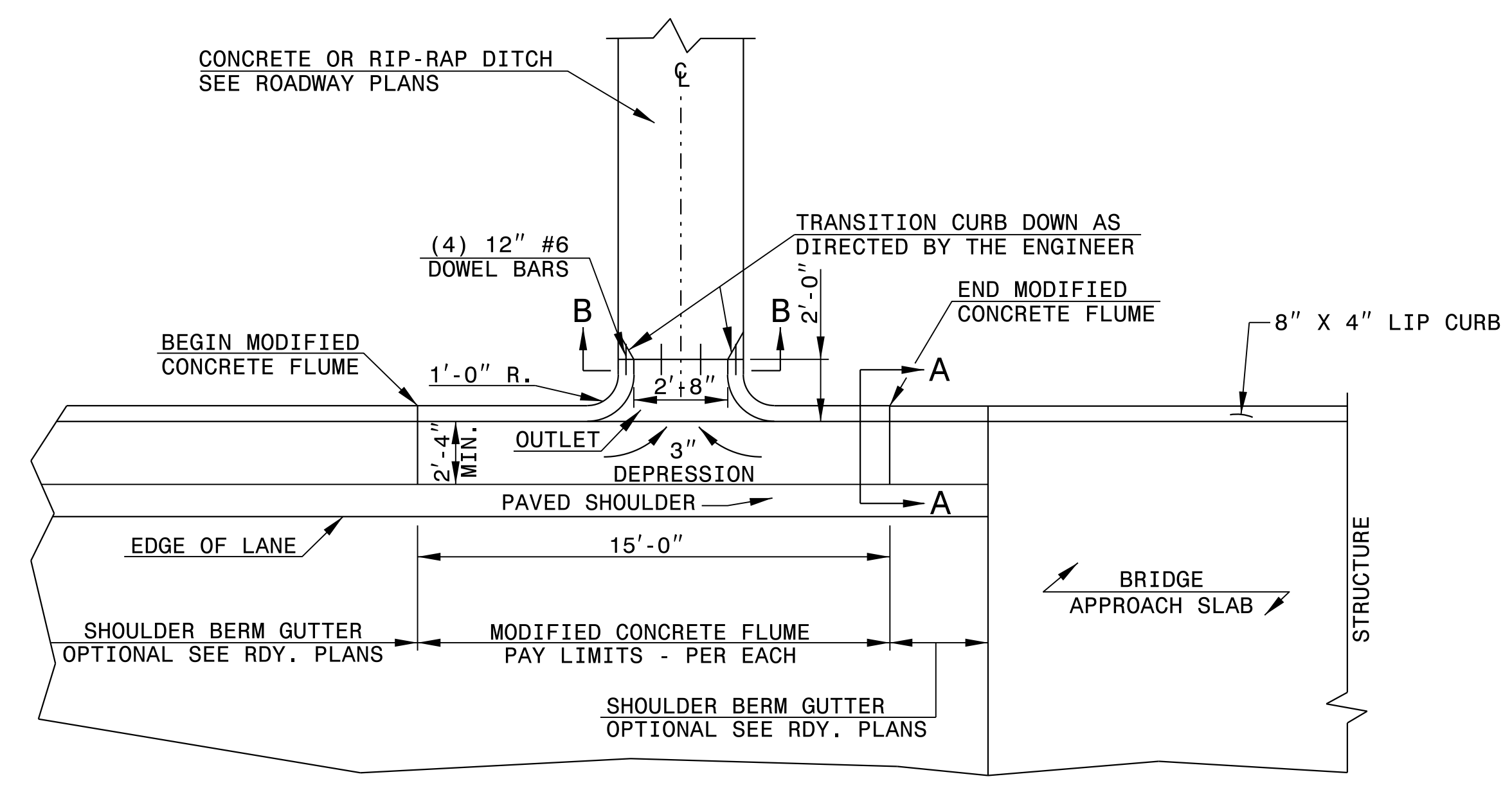
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR MODIFIED CONCRETE FLUME WITH CONCRETE OR RIP-RAP DITCH

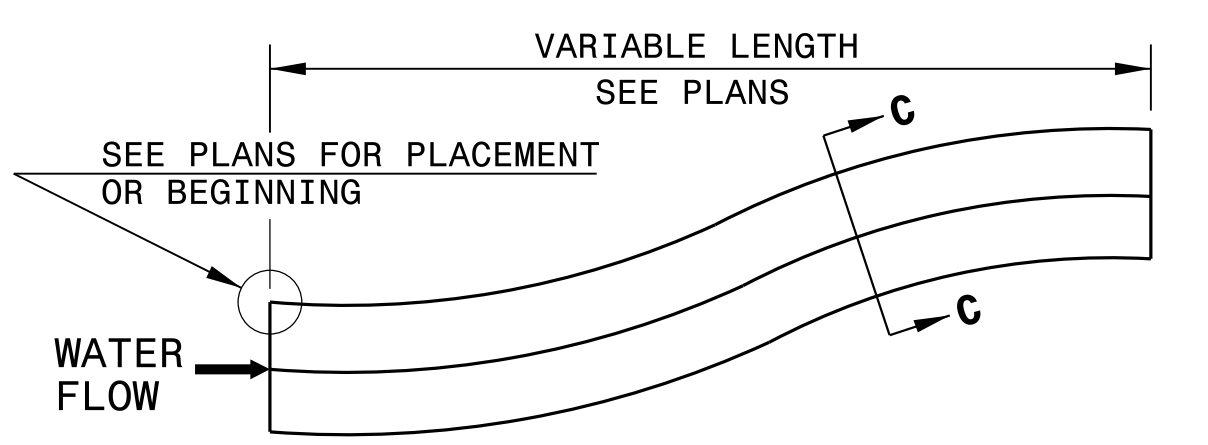
ENGLISH DETAIL DRAWING FOR MODIFIED CONCRETE FLUME WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1 MODFLMDTCH

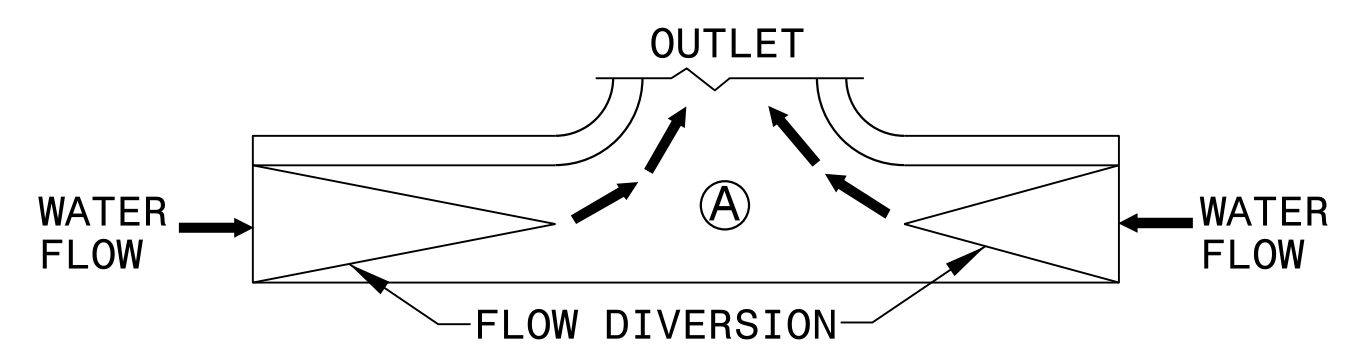
SHEET 1 OF 1 MODFLMDTCH



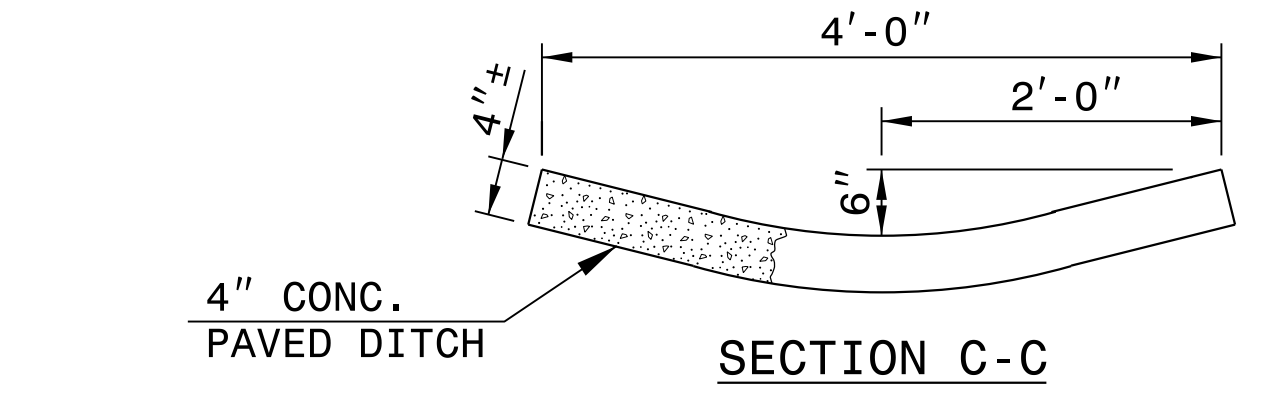
PLAN VIEW



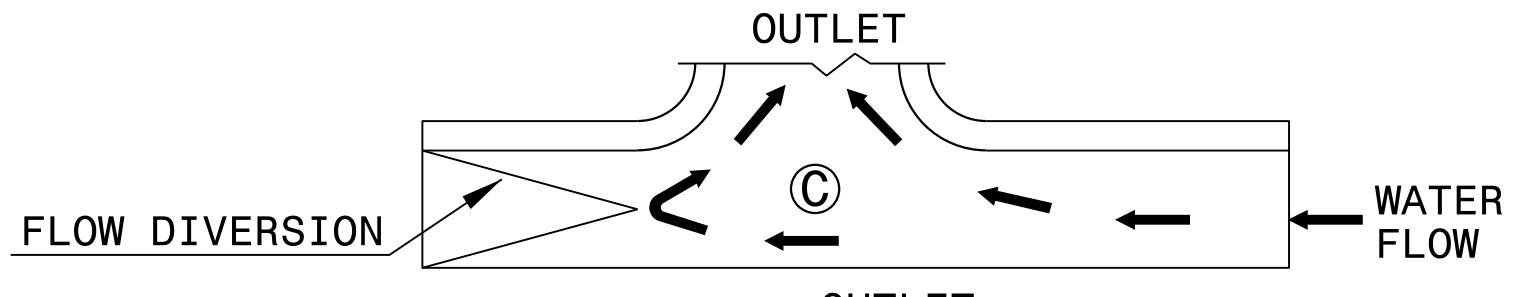
DOWNGRADE OR SAG



SAG

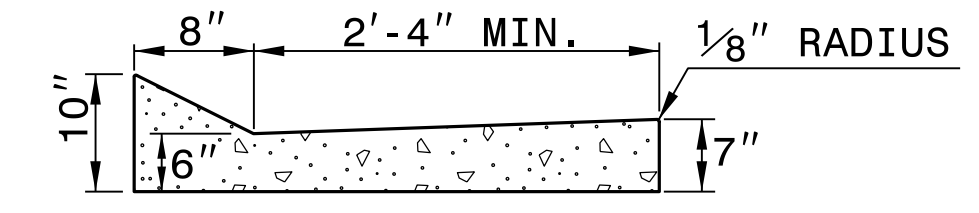


SECTION C-C

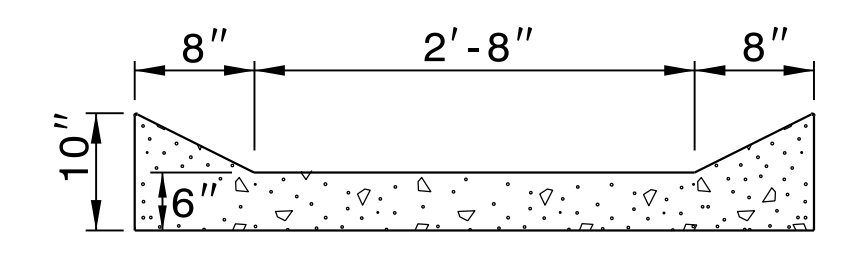


DOWN GRADE

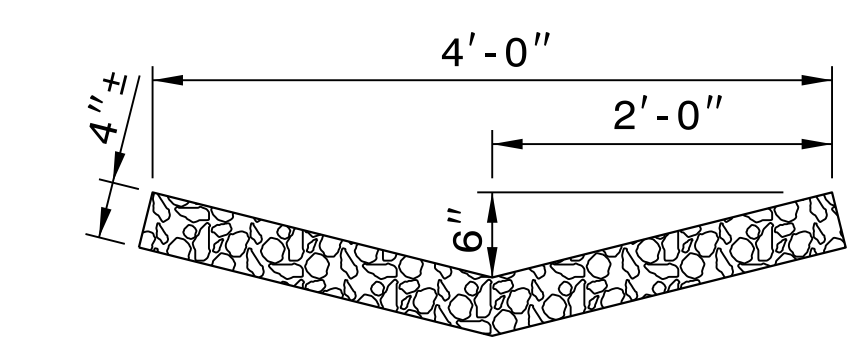
FLOW DIVERSION EXAMPLES



SECTION A-A



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

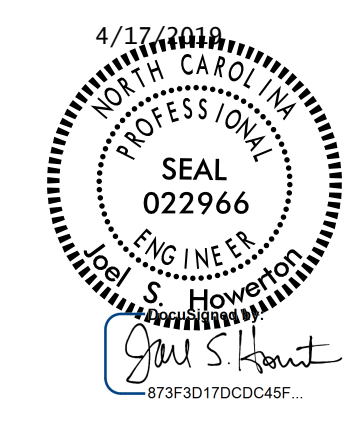
- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: J.S. Howerton DATE: October 2017
CHECKED BY: DATE:
FILE SPEC.: w:\details\stand\modifiedflume.dgn



18-QCT-2017 1417
S:\Contracts\Contract\Stand\Stand\modifflume.dgn
J.Howerton - A1 CS0-2/2/95

12/06/07

COMPUTED BY: HEC	DATE: 9-29-2017
CHECKED BY: RT	DATE: 11-12-2018

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. 17BPJ4R169	SHEET NO. 3B-1
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SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV. CY	EMBANK. +5% CY	BORROW CY	WASTE CY
10+50.00 -L-	12+81.71 -L-	20	969	949	
13+39.47 -L-	15+50.00 -L-	181	17		164
SUBTOTALS:		201	986	949	-164
EARTH TO REPLACE BORROW				-164	-164
PROJECT TOTALS:		201	986	785	0
EST. 5% TO REPLACE TOP SOIL BORROW				39	
GRAND TOTALS:		201	986	825	0
SAY:		210		830	

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
L	13+62.00	14+03.00	39.0
TOTAL:			39
SAY:			40

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

CONTINGENCY ITEMS

ITEM	QUANTITY	UNIT
INCIDENTAL STONE BASE	50	TONS

PAVEMENT REMOVAL SUMMARY

LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	11+50.00	12+00.00	CL	98.46
-L-	12+64.01	12+96.11	LT	48.84
-L-	12+99.81	14+52.01	LT	217.15
TOTAL:				364.45 SY
SAY:				370

PAVEMENT BREAKING SUMMARY

LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	12+00.00	12+64.01	LT	127.59
TOTAL:				127.59 SY
SAY:				130

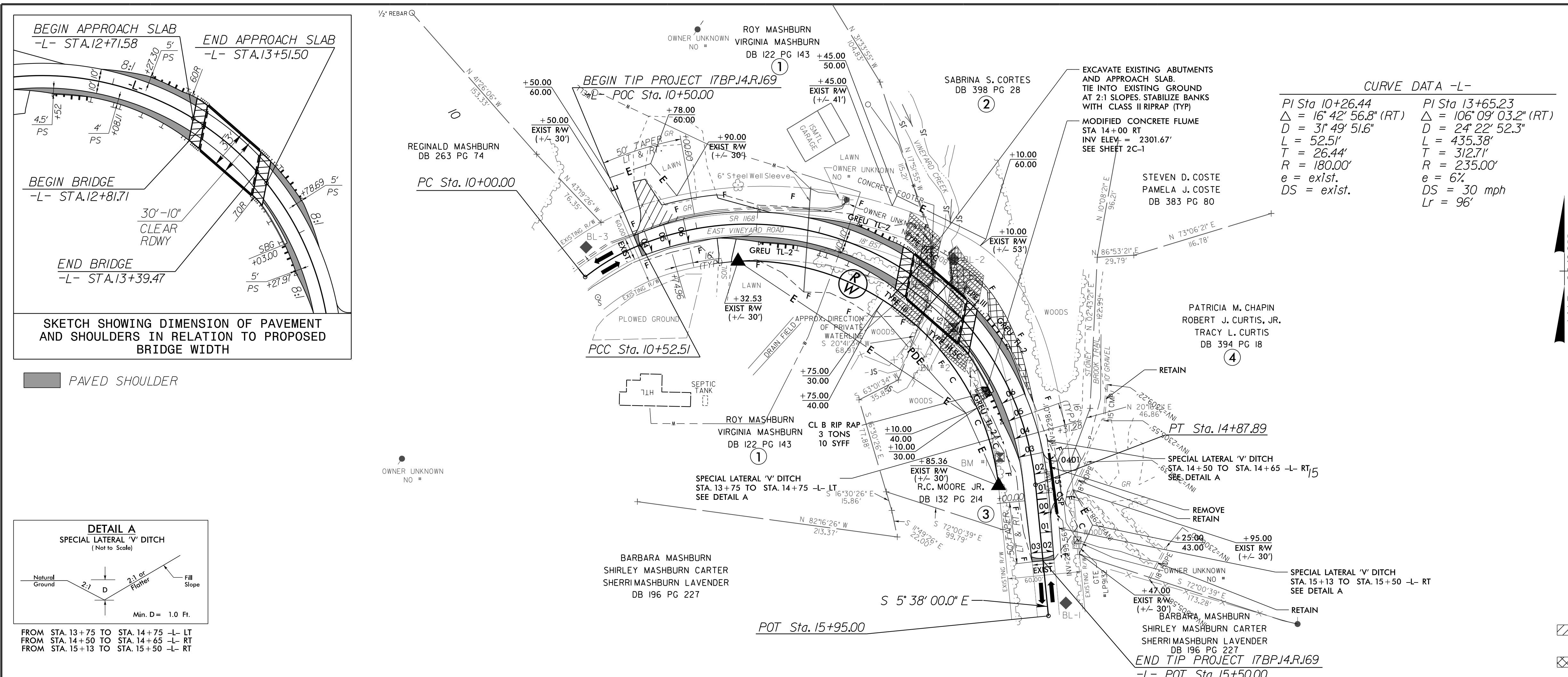
"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	TYPE III	GREU TL-2	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG							
L	12+27.57	12+77.82	LT	25.00	25.00						25'-0"		0'-6"		1	1																	TEST LEVEL 2 (TL-2) GUARDRAIL ANCHOR UNIT TYPE 350
L	11+52.00	12+92.28	RT	131.25			12+25.00 FILL		4'-0"	7'-0"	25'-0"		0'-6"		1	1																TEST LEVEL 2 (TL-2) GUARDRAIL ANCHOR UNIT TYPE 350	
L	13+28.00	13+78.69	LT	50.00			BRIDGE				25'-0"		0'-6"		1	1																TEST LEVEL 2 (TL-2) GUARDRAIL ANCHOR UNIT TYPE 350	
L	13+49.48	14+27.97	RT	56.25	18.75						25'-0"		25'-0"		1	1																TEST LEVEL 2 (TL-2) GUARDRAIL ANCHOR UNIT TYPE 350	
SUBTOTAL				262.5	43.75																												
LESS DEDUCTIONS																																	
GREU TL-2 (4 x 25) =				100																													
TYPE III (4 x 18.75) =				37.5	37.5																												
SUBTOTAL				137.5	37.5																												
TOTALS				125'	6.25'																												
SAY				125'	12.5'																												ADDITIONAL GUARDRAIL POSTS = 5

3:49:42 PM
17BPJ4R169_210099_RdJ-3A.dgn
5/27/2018

PROJECT REFERENCE NO. 17BP14.R.169	SHEET NO. 4
ROADWAY DESIGN ENGINEER 11/23/2021 Rouppell A. Thigpen	HYDRAULICS ENGINEER 11/23/2021 Vidya Mallick
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
434 Fayetteville Street Suite 1500 Raleigh, NC 27601 - 919.836.4040 www.wspgroup.com LICENSE NO. F-0165	

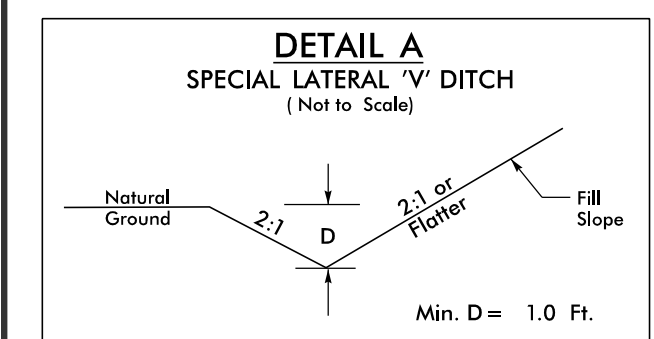


CURVE DATA -L-

PI Sta 10+26.44	PI Sta 13+65.23
$\Delta = 16^{\circ}42'56.8''$ (RT)	$\Delta = 106^{\circ}09'03.2''$ (RT)
$D = 31^{\circ}49'51.6''$	$D = 24^{\circ}22'52.3''$
$L = 52.51'$	$L = 435.38'$
$T = 26.44'$	$T = 312.71'$
$R = 180.00'$	$R = 235.00'$
$e = \text{exist.}$	$e = 6\%$
$DS = \text{exist.}$	$DS = 30 \text{ mph}$
	$Lr = 96'$

SKETCH SHOWING DIMENSION OF PAVEMENT AND SHOULDERS IN RELATION TO PROPOSED BRIDGE WIDTH

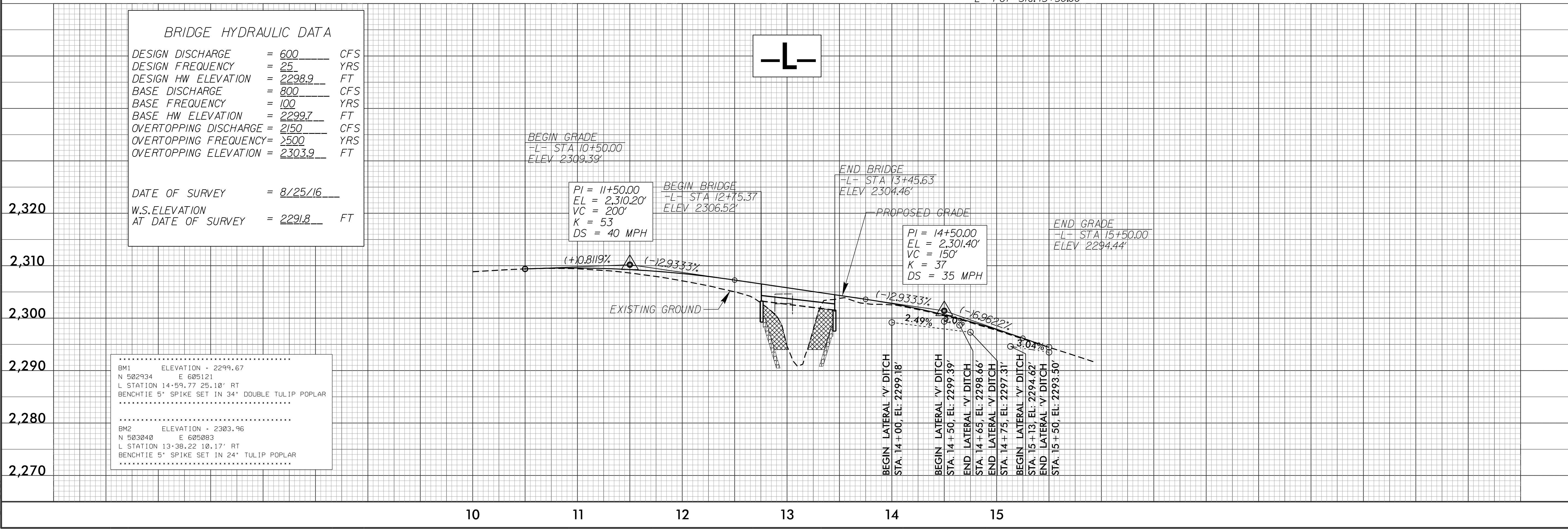
PAVED SHOULDER



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 600	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2298.9	FT
BASE DISCHARGE	= 800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2299.7	FT
OVERTOPPING DISCHARGE	= 2150	CFS
OVERTOPPING FREQUENCY	= 2500	YRS
OVERTOPPING ELEVATION	= 2303.9	FT

DATE OF SURVEY	= 8/25/16	
W.S.ELEVATION AT DATE OF SURVEY	= 2291.8	FT



.....	BM1	ELEVATION	2299.67
.....	N 502934	E 605121	
.....	L STATION	14+59.77 25.10' RT	
.....	BENCHMARK	5" SPIKE SET IN 34" DOUBLE TULIP POPLAR	
.....
.....	BM2	ELEVATION	2303.96
.....	N 503040	E 605083	
.....	L STATION	13+38.22 10.17' RT	
.....	BENCHMARK	5" SPIKE SET IN 24" TULIP POPLAR	

3:54:02 PM 11/23/2021 17BP14.R.169_210099_r.dwg_psh04.dgn

6/2/09

SURVEY CONTROL SHEET 21-0099

-FINAL-

PROJECT REFERENCE NO.	SHEET NO.
21-0099	1C-1
Location and Surveys	
PREPARED IN THE OFFICE OF:	
NCDOT, DIVISION 14 LOCATION AND SURVEYS UNIT 122 BONNIE LAND SYLVIA, NC 28779	

BL POINT	DESC.	NORTH	EAST	ELEVATION
BL1	BL1	502815.9812	605174.7033	2291.56
BL2	BL2	503095.8039	605083.1236	2304.19
BL3	BL3	503105.2148	604784.4452	2308.57

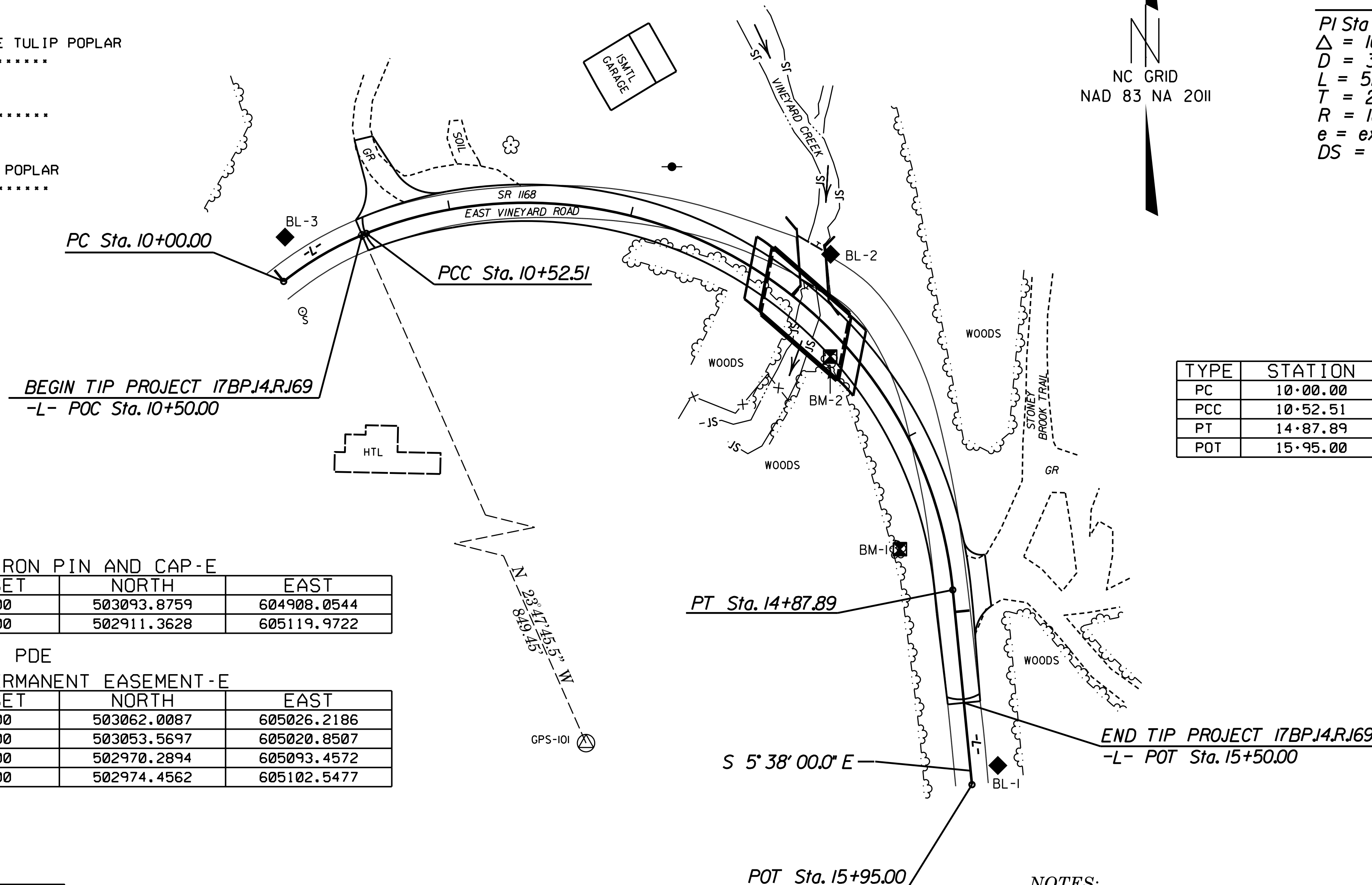
.....
 BM1 ELEVATION = 2299.67
 N 502934 E 605121
 BENCHTIE 5" SPIKE SET IN 34" DOUBLE TULIP POPLAR

.....
 BM2 ELEVATION = 2303.96
 N 503040 E 605083
 BENCHTIE 5" SPIKE SET IN 24" TULIP POPLAR

CURVE DATA -L-

PI Sta 10+26.44	PI Sta 13+65.23
$\Delta = 16^\circ 42' 56.8" (RT)$	$\Delta = 106^\circ 09' 03.2" (RT)$
$D = 31^\circ 49' 51.6"$	$D = 24^\circ 22' 52.3"$
$L = 52.5'$	$L = 435.38'$
$T = 26.44'$	$T = 312.71'$
$R = 180.00'$	$R = 235.00'$
$e = \text{exist.}$	$e = 6\%$
$DS = \text{exist.}$	$DS = 30 \text{ mph}$
	$Lr = 96'$

NC GRID
 NAD 83 NA 2011



TYPE	STATION	NORTH	EAST
PC	10+00.00	503080.9793	604783.7277
PCC	10+52.51	503107.2556	604828.9801
PT	14+87.89	502912.1055	605150.0566
POT	15+95.00	502805.5168	605160.5703

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+32.53	30.00	503093.8759	604908.0544
L	14+85.36	30.00	502911.3628	605119.9722

PDE
 ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+75.00	30.00	503062.0087	605026.2186
L	12+75.00	40.00	503053.5697	605020.8507
L	14+10.00	40.00	502970.2894	605093.4572
L	14+10.00	30.00	502974.4562	605102.5477

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-101" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 502329.0740(±) EASTING: 605169.3873(±) ELEVATION: 2260.62(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999477863

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-101" TO -L- STATION 10+50.00 IS

N 23°47'45.5" W 849.45'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

GEOID MODEL - G12NC
 NOTE: DRAWING NOT TO SCALE

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 21-0099_LS_CONTROL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- ⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

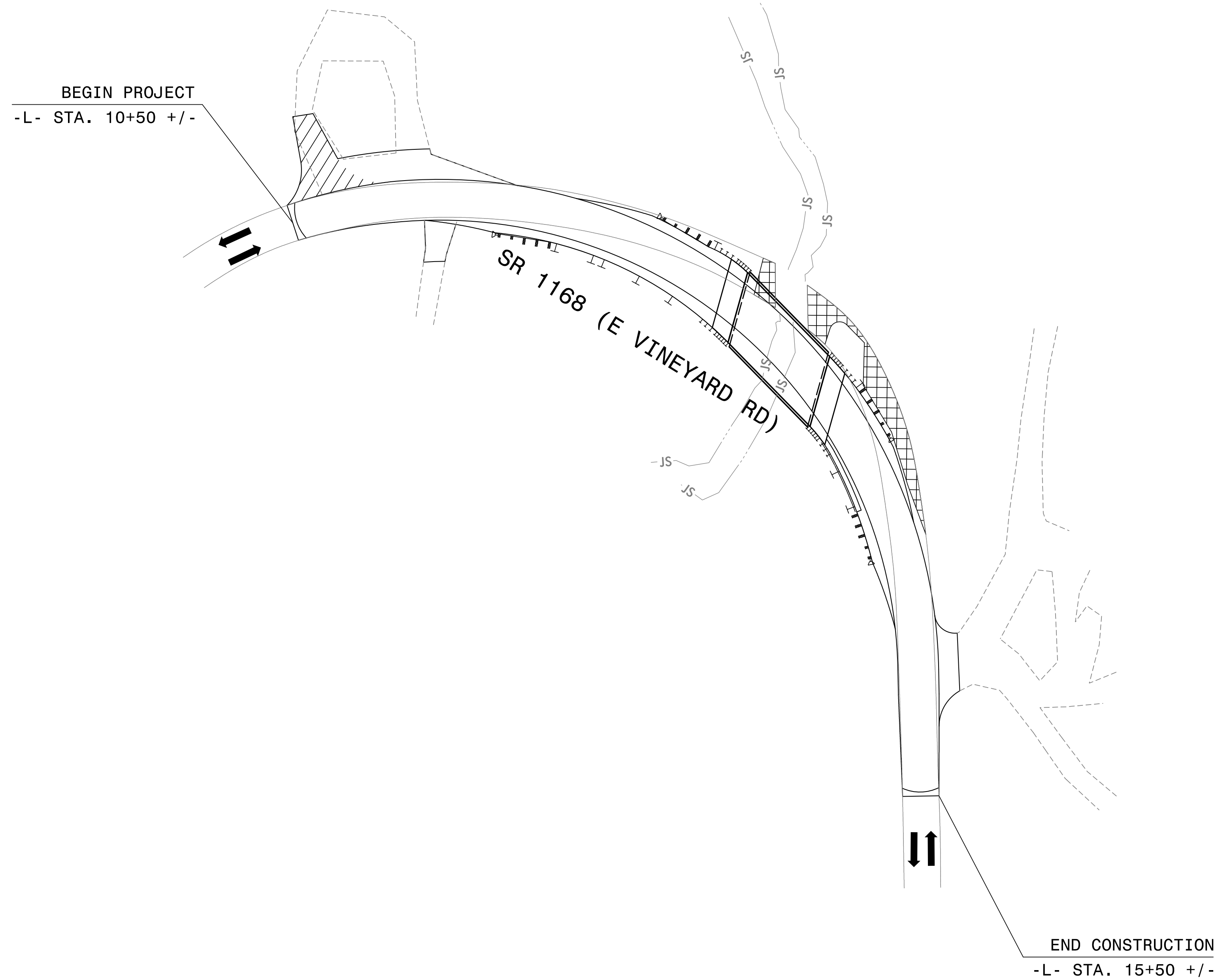
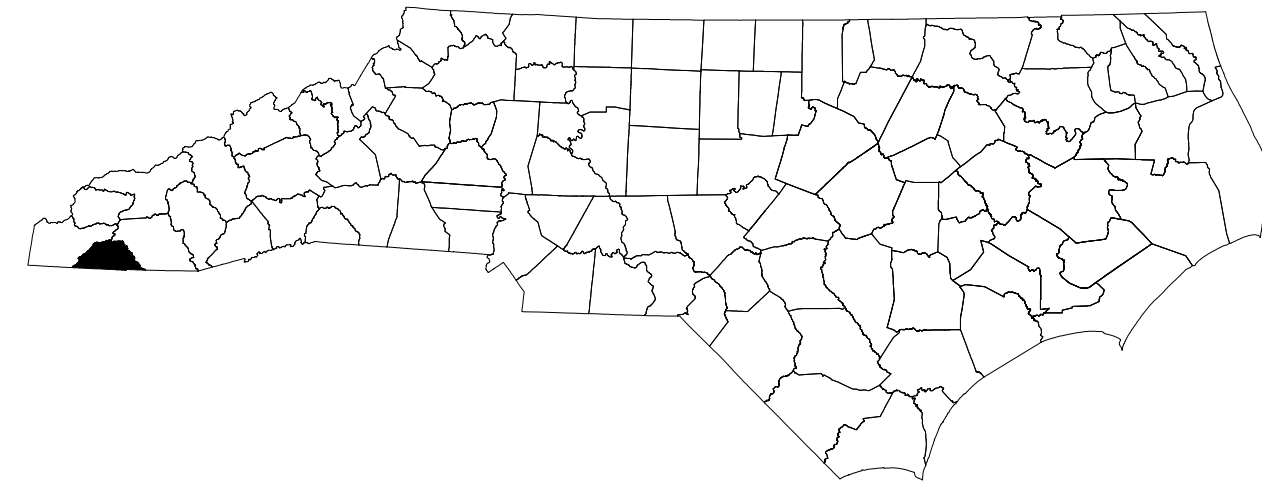
REVISIONS

DATE TIME DRAWN BY CHECKED BY DATE TIME DRAWN BY CHECKED BY

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CLAY COUNTY



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-2	ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-3	GENERAL NOTES AND WRITTEN PHASING
TMP-4	OFFSITE DETOUR ROUTE SIGNING

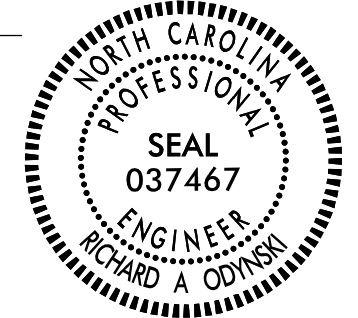
SHEET NO.
TMP-1

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



APPROVED: Richard A. Odynski

DATE: 11/23/2021



PROJECT: 17BP.14.R.169

ROADWAY STANDARD DRAWINGS

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

<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.



WORK AREA

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- 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

APPROVED: DATE: 11/23/2021	SEAL 		TRANSPORTATION MANAGEMENT PLAN ROADWAY STANDARD DRAWINGS & LEGEND
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

GENERAL NOTES

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

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (WB-11) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

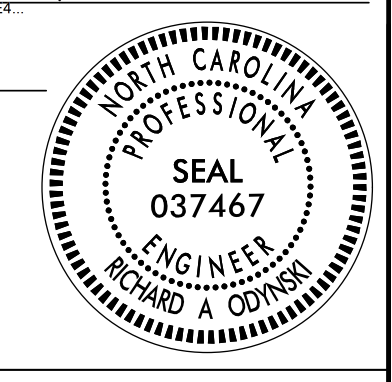

SIGNING

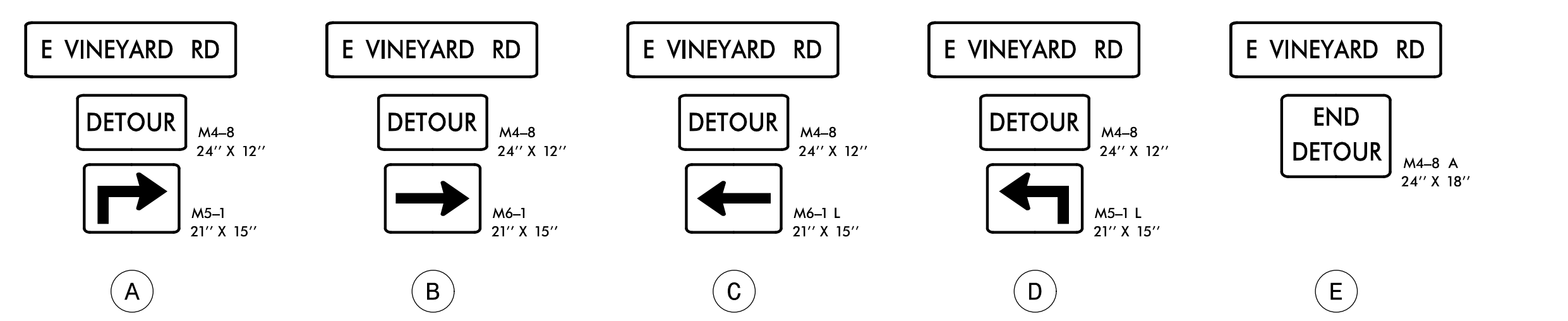
- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

PHASING NOTES

- STEP 1: INSTALL WORK ZONE ADVANCE WARNING SIGNS ON ALL ROADS ACCORDING TO ROADWAY STANDARD DRAWING NO. 1101.01 WHERE WORK WILL BE OCCURRING NO MORE THAN THREE DAYS PRIOR TO BEGINNING CONSTRUCTION.
- STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 OF 9, AND SHEET TMP-4, INSTALL ROAD CLOSURE AND DETOUR SIGNS FOR E VINEYARD RD. COVER SIGNS UNTIL DETOUR IS READY FOR OPERATION.
- STEP 3: WHEN DETOUR IS READY UNCOVER SIGNS AND CLOSE E VINEYARD RD. CONSTRUCT STRUCTURE AND ROADWAY IMPROVEMENTS ALONG E VINEYARD RD.
- STEP 4: REMOVE ROAD CLOSURE DEVICES AND SIGNS ONCE CONSTRUCTION IS COMPLETE.

APPROVED: <u>Richard A. Odynski</u> DATE: 11/23/2021 SEAL			TRANSPORTATION MANAGEMENT PLAN GENERAL NOTES AND WRITTEN PHASING
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



SIGN NUMBER: _____
 TYPE: _____
 QUANTITY: SEE PLANS

BACKG COLOR: Fluorescent Orange
 COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.063" (1.6MM) ALUMINUM
 0.080" (2.0MM) ALUMINUM
 0.125" (3.2MM) ALUMINUM

DESIGN BY: RAO CHECKED BY: JRG DATE: OCT. 12, 2017
 PROJECT ID: 17BP.14.R.169 DIV: 14

BORDER
 R=1.5"
 TH=0.63"
 IN=0.47"

USE NOTES
 1. Legend and border shall be direct applied Type VII, VIII, or IX reflective sheeting.
 2. Background shall be Type VII, VIII, or IX reflective sheeting.

LETTER POSITIONS

Letter spacings are to start of next letter

Letter	E	V	I	N	E	Y	A	R	D	R	D				
Spacing	4.3	2	4	3.1	1.4	3	2.5	2.7	3.2	3	2.2	4	3	2.2	4.3
Series/Size Text Length	C 2000											36.4			



NOTES:
 1. COORDINATE WITH THE ENGINEER TO FIELD LOCATE SIGNS AS NEEDED.
 2. SEE NCDOT RSD 1101.03, SHEETS 1 AND 2, FOR ADDITIONAL ROAD CLOSURE ADVANCE WARNING SIGNS.

APPROVED: *Richard A. Odynski*
 DATE: 11/23/2021

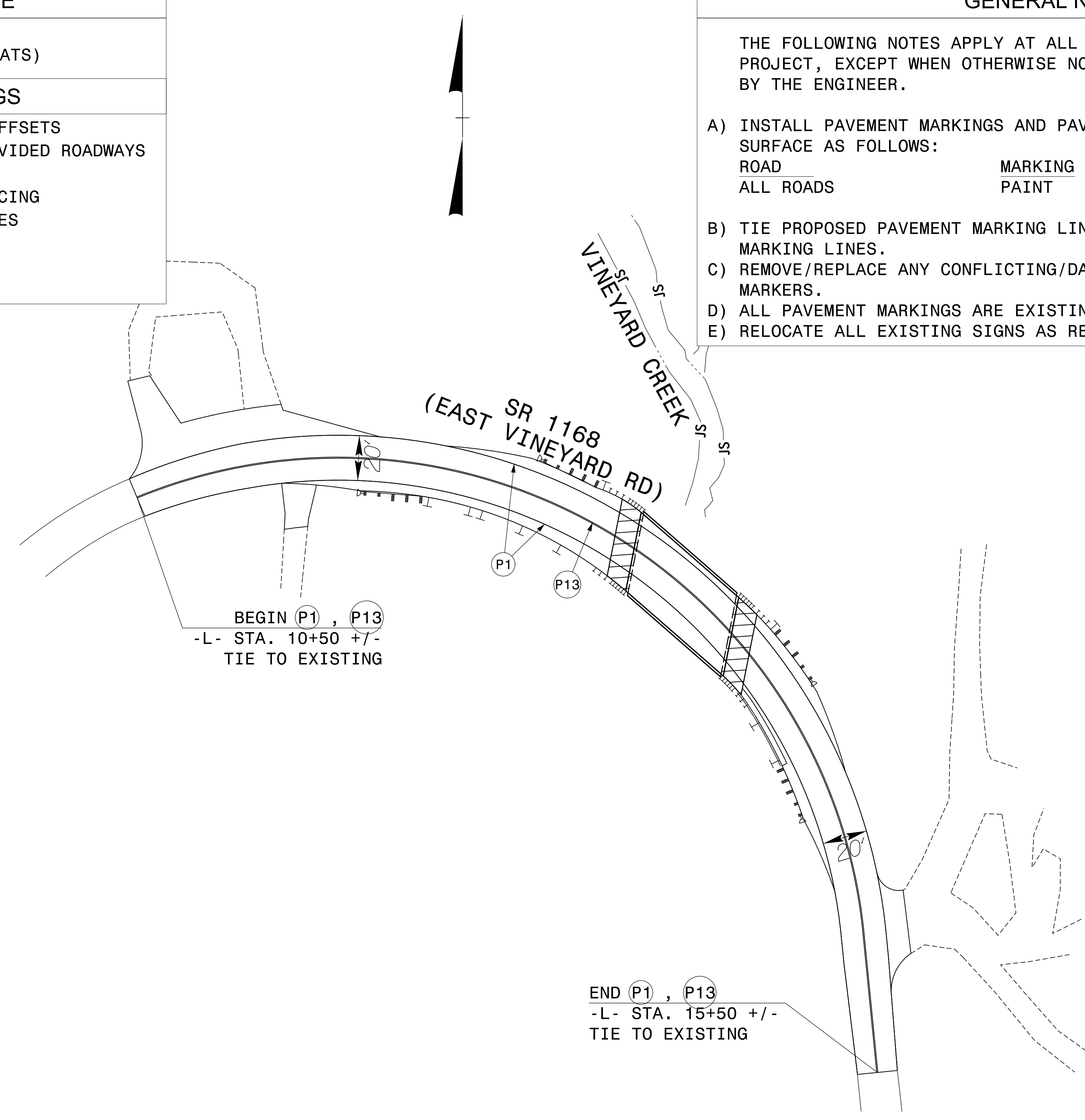
SEAL

TRANSPORTATION MANAGEMENT PLAN
 OFFSITE DETOUR
 ROUTE SIGNING

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

PAVEMENT MARKING SCHEDULE	
P1	PAINT WHITE EDGELINE (4", 2 COATS)
P13	PAINT YELLOW DOUBLE CENTER LINE (4", 2 COATS)
ROADWAY STANDARD DRAWINGS	
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - DIVIDED AND UNDIVIDED ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS
1264.02	PLACEMENT OF OBJECT MARKERS

GENERAL NOTES		
THE FOLLOWING NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE 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	MARKING
	ALL ROADS	PAINT
		MARKER
		NONE
B)	TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.	
C)	REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.	
D)	ALL PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.	
E)	RELOCATE ALL EXISTING SIGNS AS REQUIRED BY THE ENGINEER.	



BEGIN P1, P13
 -L- STA. 10+50 +/-
 TIE TO EXISTING

END P1, P13
 -L- STA. 15+50 +/-
 TIE TO EXISTING

PAVEMENT MARKING QUANTITIES		
P1	PAY ITEM LENGTH = 1000 LF	TOTAL QUANTITY = 2000 LF
P13	PAY ITEM LENGTH = 500 LF	TOTAL QUANTITY = 2000 LF

APPROVED: Richard A. Odynski
 DATE: 11/23/2021

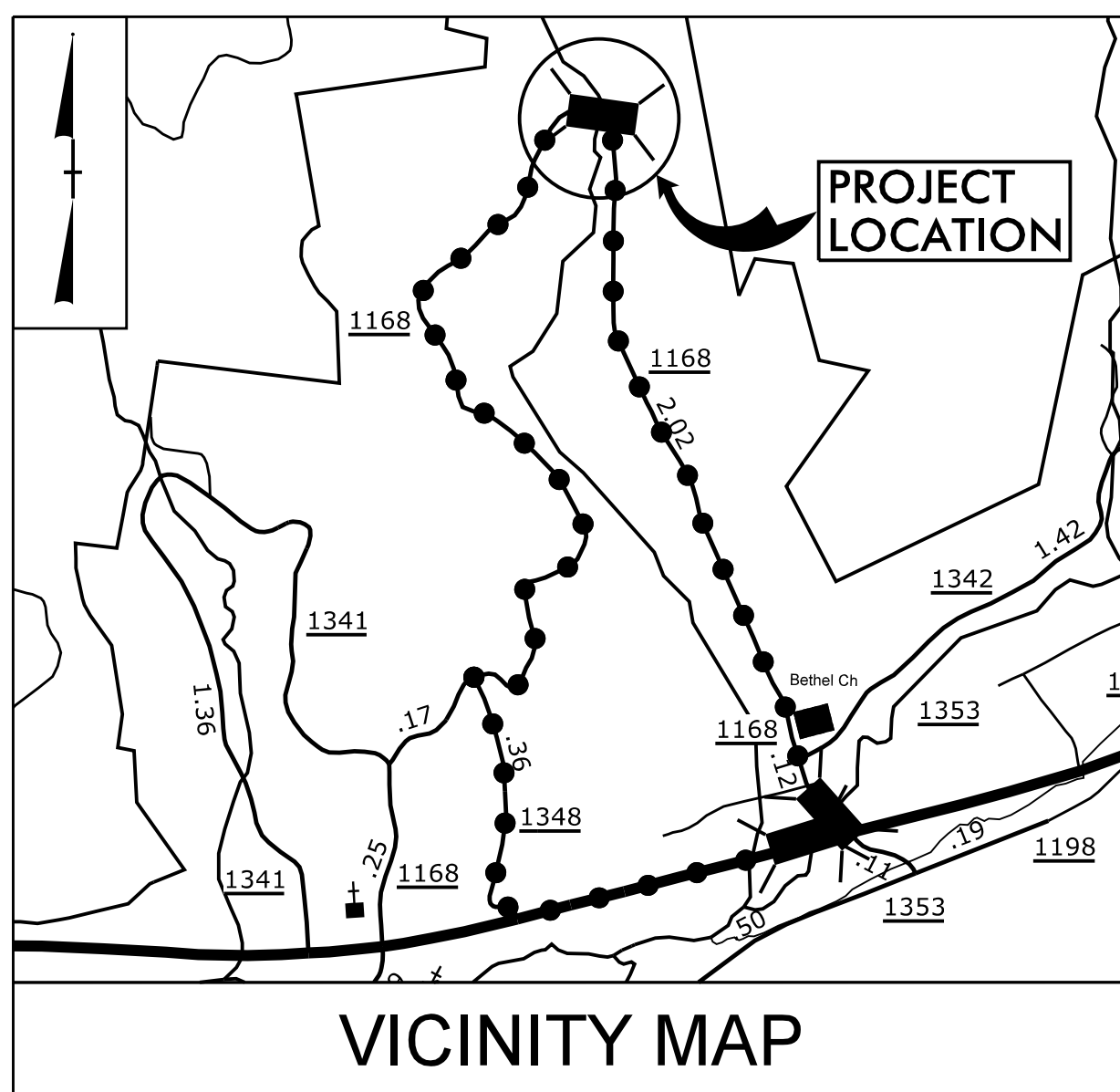
SEAL

**DOCUMENT NOT CONSIDERED FINAL
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PAVEMENT MARKING PLAN

CONTRACT: DN00488 WBS: 17BP.14.R.169

See Sheet 1-A For Index of Sheets (Not Included)
See Sheet 1-B For Symbology Sheet



●-●-●-● DETOUR ROUTE

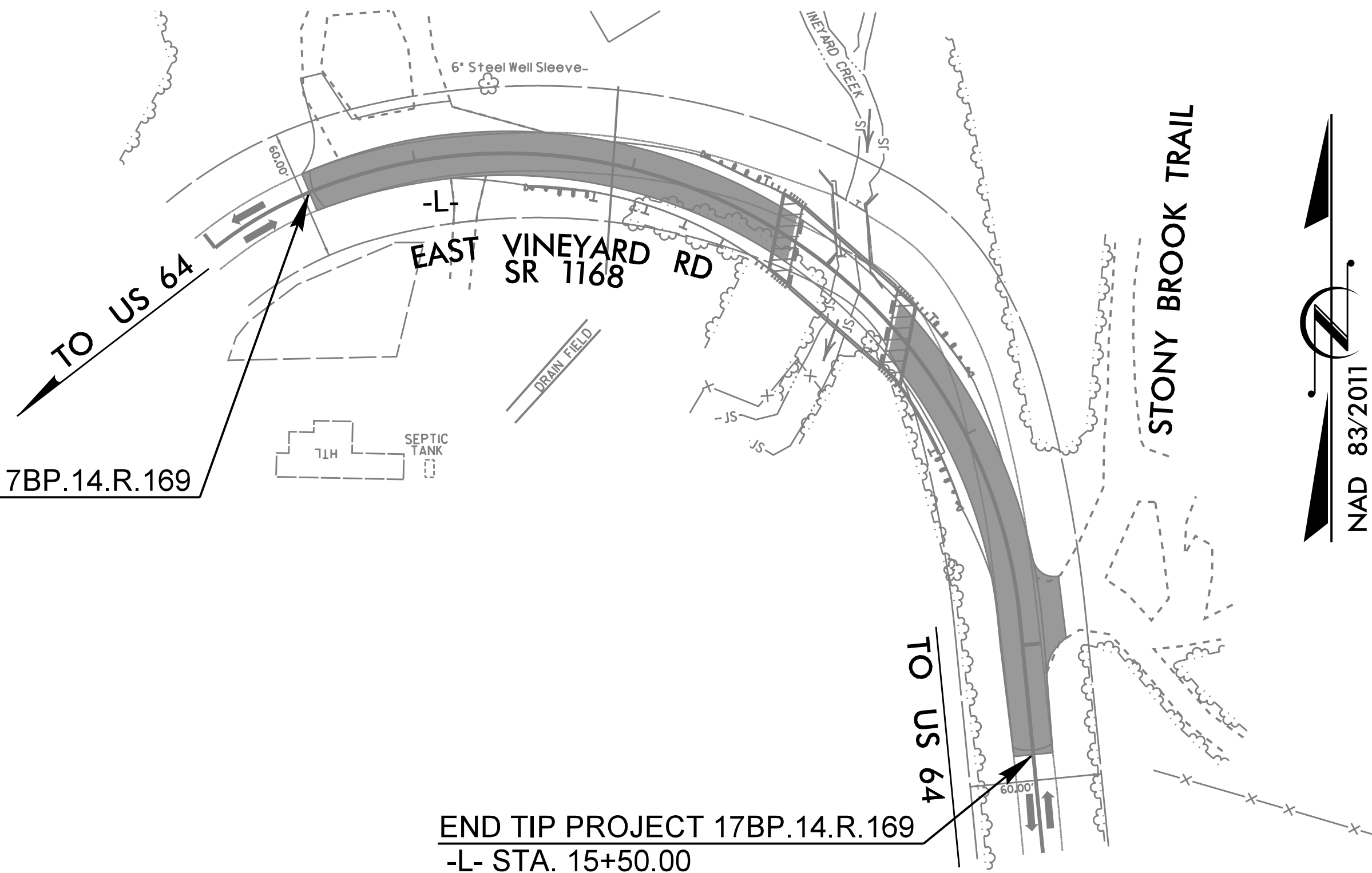
STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL CLAY COUNTY

**LOCATION: BRIDGE NO. 210099 ON SR 1168 (E. VINEYARD RD)
OVER VINEYARD CREEK**

**TYPE OF WORK: GRADING, DRAINAGE, WIDENING, PAVING
CORED SLAB BRIDGE AND PAVEMENT MARKINGS**



BEGIN TIP PROJECT 17BP.14.R.169
-L- STA. 10+50.00

END TIP PROJECT 17BP.14.R.169
-L- STA. 15+50.00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.169	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

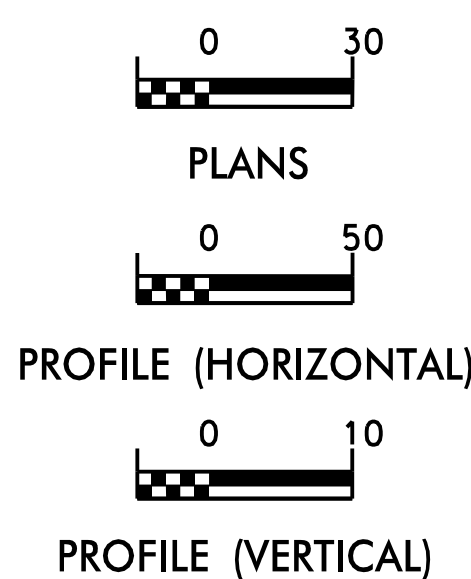
Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	---
1630.05	Temporary Diversion	--->
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	△△△
1622.01	Temporary Berms and Slope Drains	- - -
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	
1632.02	Type B	
1632.03	Type C	
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE DECEMBER 20, 2018 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:



WSP USA
454 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1919.836.4040
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LICENSE NO. E-0165

Designed by:

VIDYA MOHANDAS, PE 3404
NAME LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

693 Mountain Road
Hendersonville, NC 28791

2018 STANDARD SPECIFICATIONS

Reviewed by:

REID WHITEHEAD, PE, CPESC

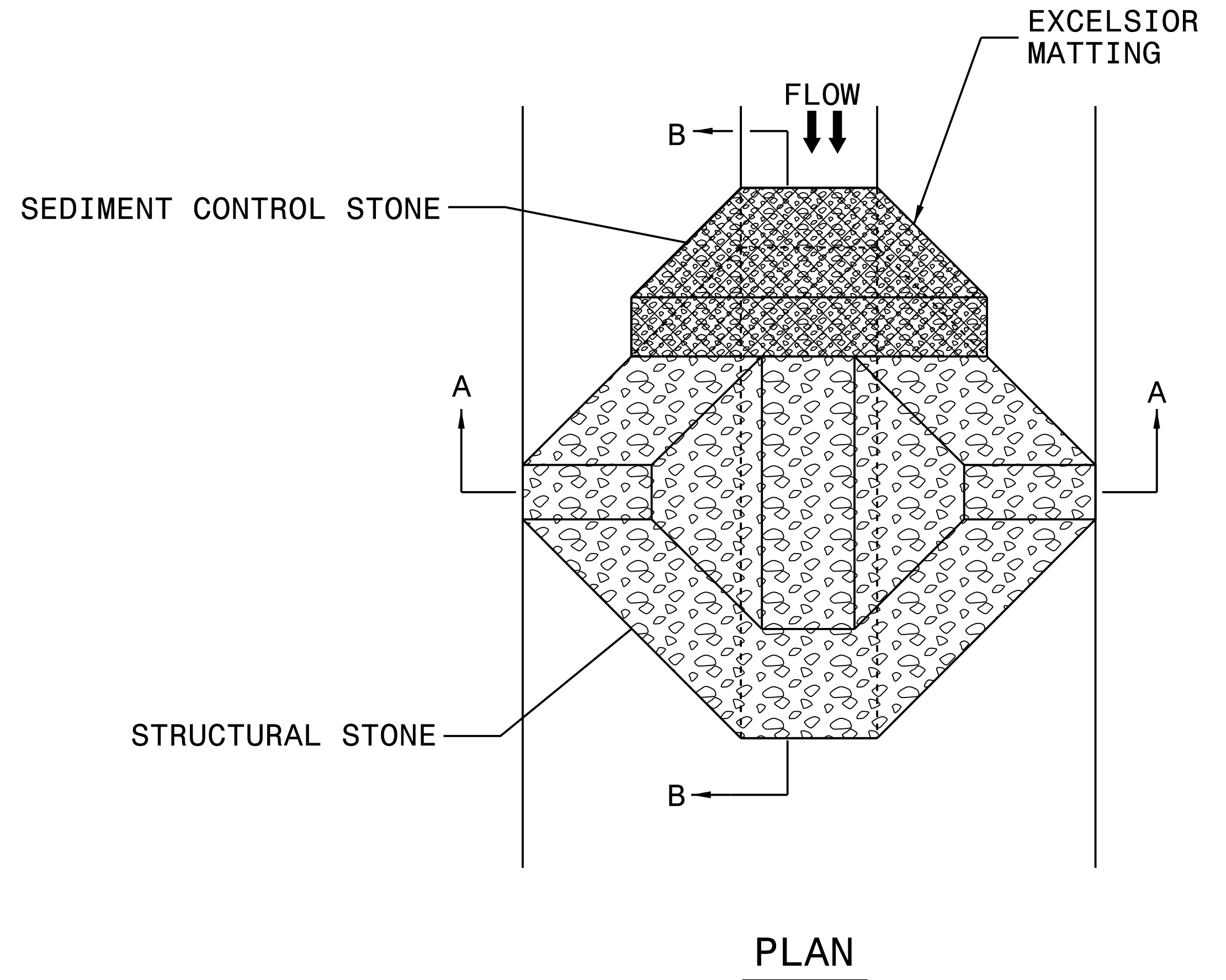
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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

PROJECT REFERENCE NO. 17BPJ4RJ69	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



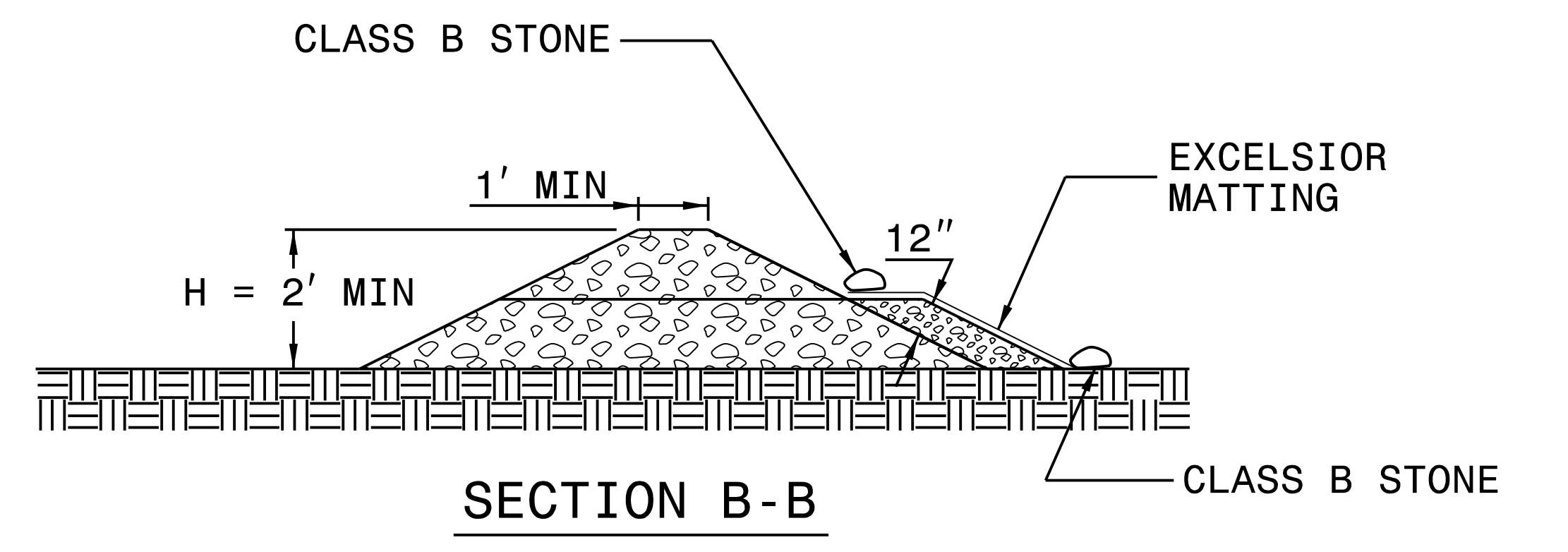
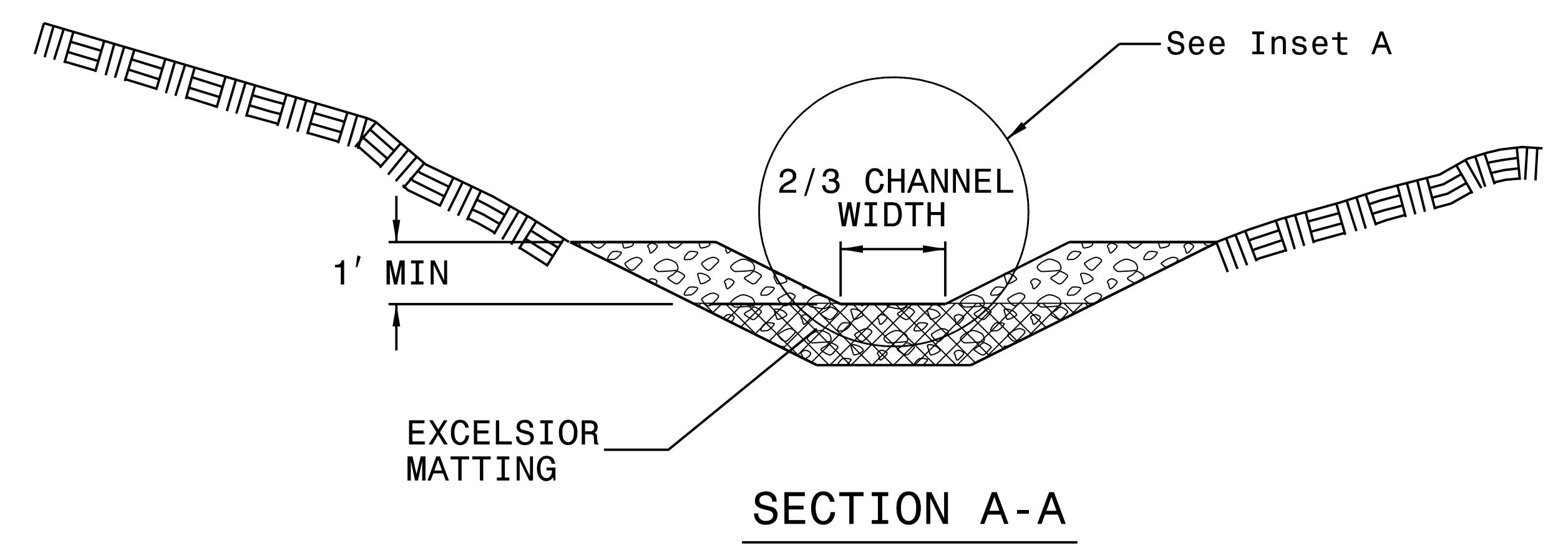
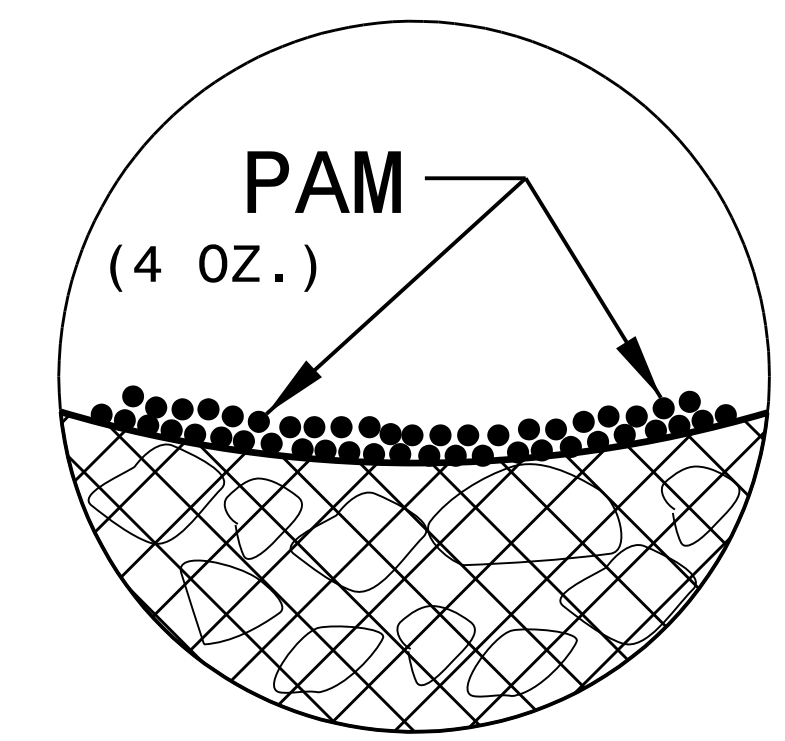
NOTES:

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

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

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

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



NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

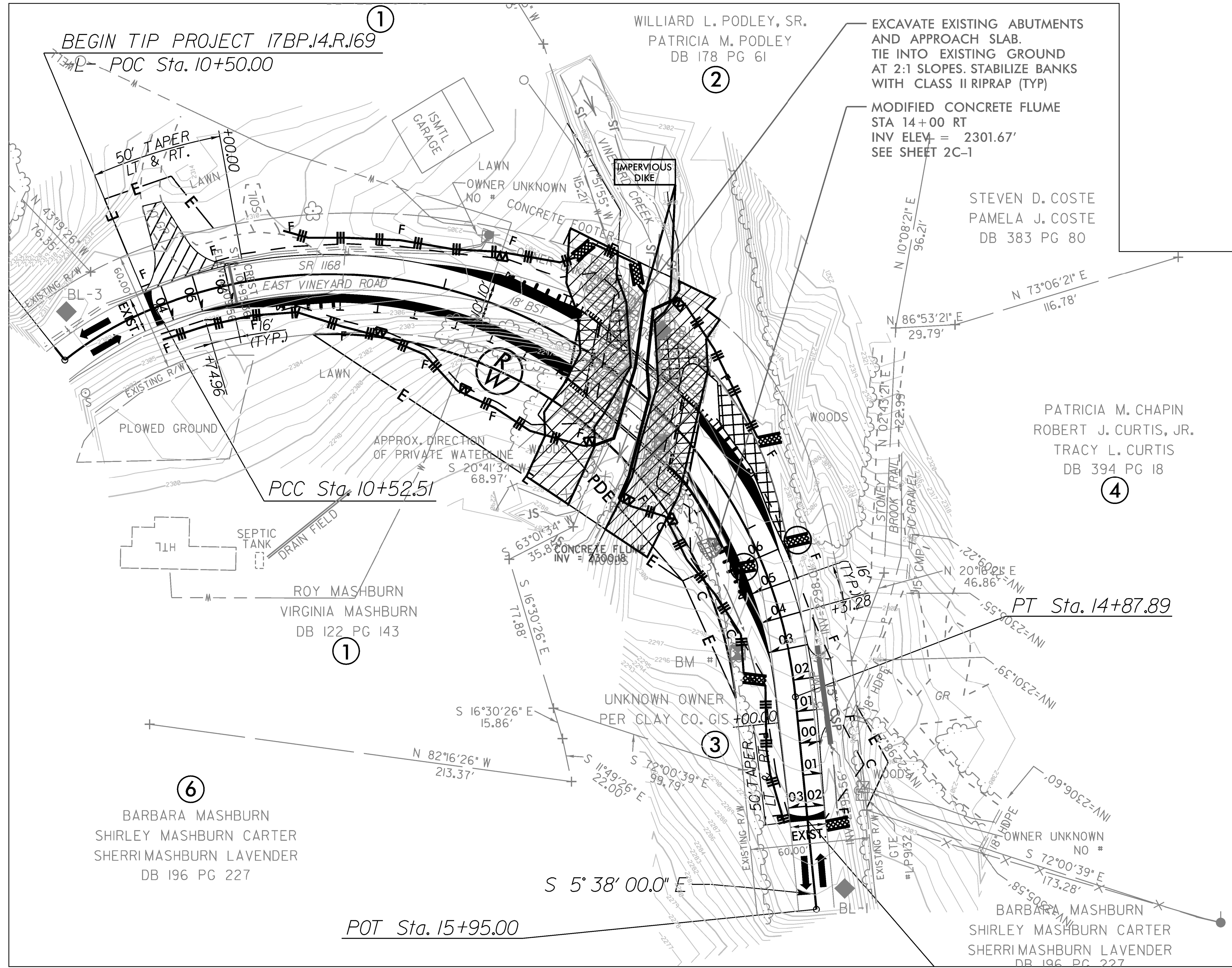
PROJECT REFERENCE NO.	SHEET NO.
<i>17BPJ4.RJ69</i>	<i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

EROSION CONTROL PLAN

PROJECT REFERENCE NO. 17BPJ4RJ69	SHEET NO. EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

BRIDGE REMOVAL AND BRIDGE CONSTRUCTION SHALL BE PER REQUIREMENTS IN THE NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL

DEWATER AREA BEHIND IMPERVIOUS DIKES INTO SPECIAL STILLING BASIN(S).

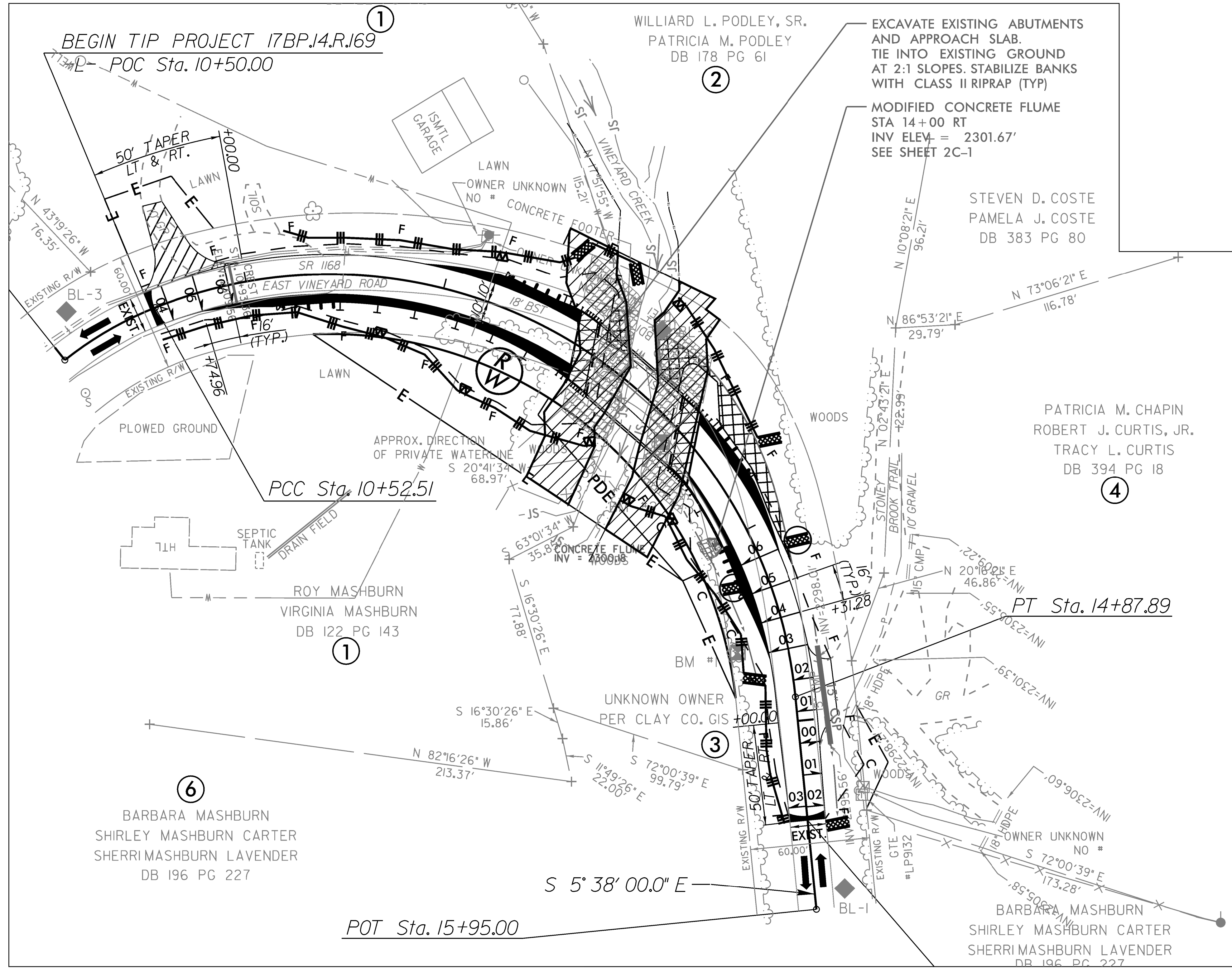
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CONTRACTOR SHALL INSTALL AN ONSITE CONCRETE WASHOUT STRUCTURE PER THE NCDOT DETAIL AND SPECIAL PROVISIONS. ACTUAL LOCATION OF THE STRUCTURE SHALL BE DETERMINED IN THE FIELD. CONCRETE WASHOUT STRUCTURE SHALL BE MAINTAINED BY THE CONTRACTOR. ALL CONCRETE TRUCKS SHALL USE THE CONCRETE WASHOUT STRUCTURE. NO WASHOUT OF CONCRETE TRUCKS SHALL BE ALLOWED EXCEPT IN THE CONCRETE WASHOUT STRUCTURE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

EROSION CONTROL PLAN

PROJECT REFERENCE NO. 17BP14RJ69	SHEET NO. EC-5/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



EXCAVATE EXISTING ABUTMENTS AND APPROACH SLAB. TIE INTO EXISTING GROUND AT 2:1 SLOPES. STABILIZE BANKS WITH CLASS II RIPRAP (TYP)

MODIFIED CONCRETE FLUME STA 14+00 RT INV ELEV = 2301.67' SEE SHEET 2C-1

STEVEN D. COSTE
PAMELA J. COSTE
DB 383 PG 80

PATRICIA M. CHAPIN
ROBERT J. CURTIS, JR.
TRACY L. CURTIS
DB 394 PG 18

ROY MASHBURN
VIRGINIA MASHBURN
DB 122 PG 143

BARBARA MASHBURN
SHIRLEY MASHBURN CARTER
SHERRIMASHBURN LAVENDER
DB 196 PG 227

BARBARA MASHBURN
SHIRLEY MASHBURN CARTER
SHERRIMASHBURN LAVENDER
DB 196 PG 227

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
STA 14+00 TO 14+75 -L- RT
STA 14+50 TO 14+65 -L- LT
STA 15+13 TO 15+50 -L- LT

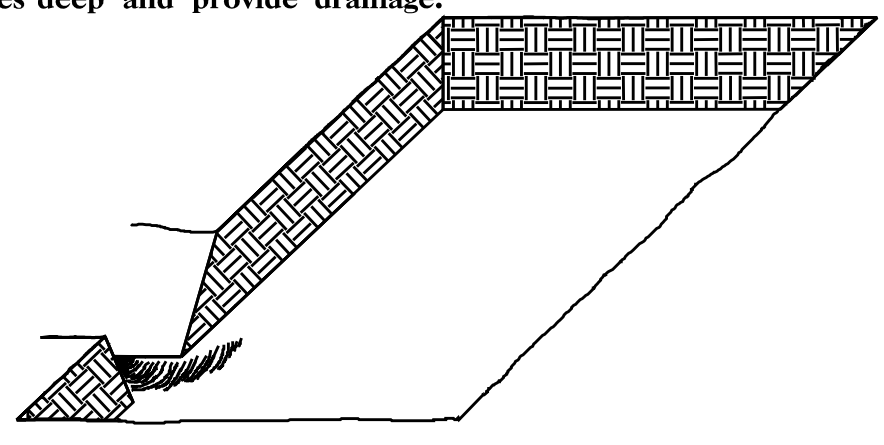
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.R.169	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

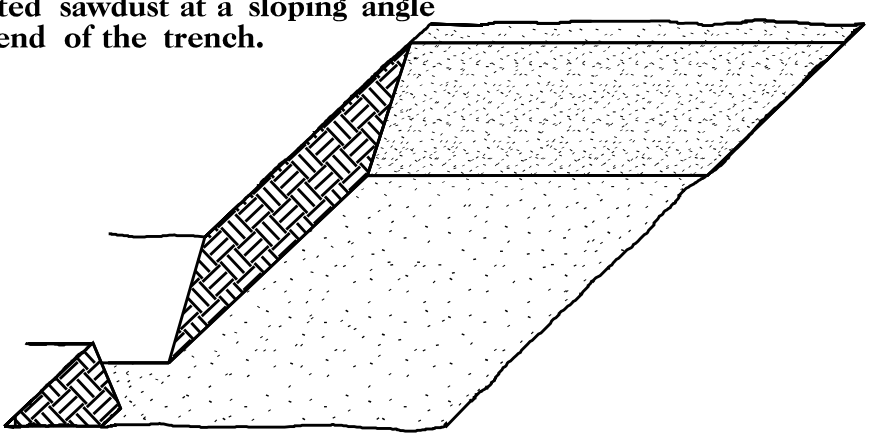
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

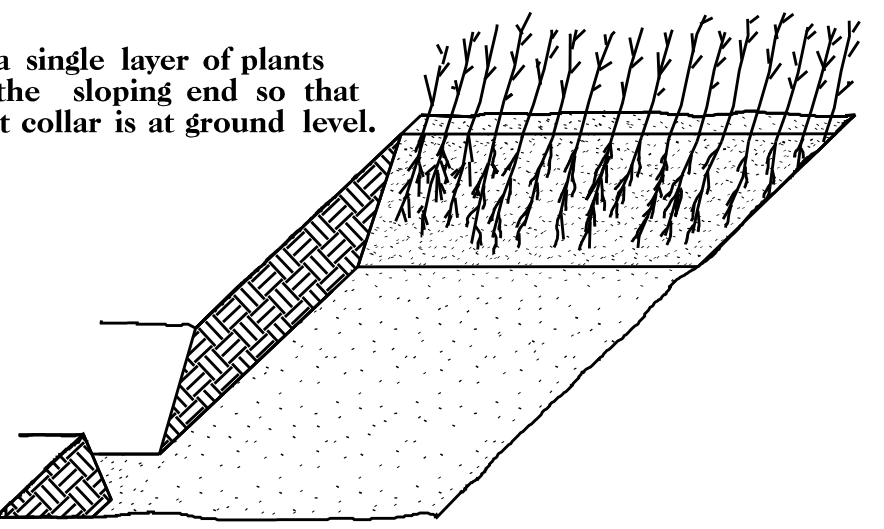
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



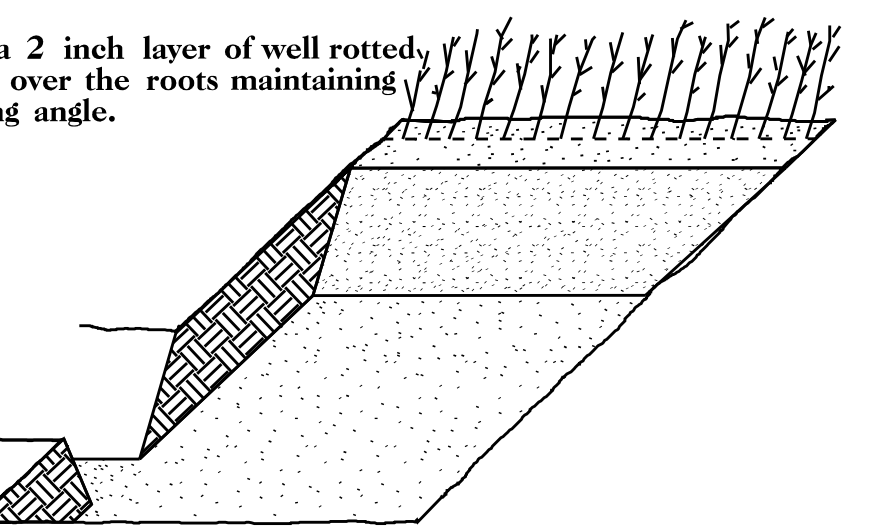
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

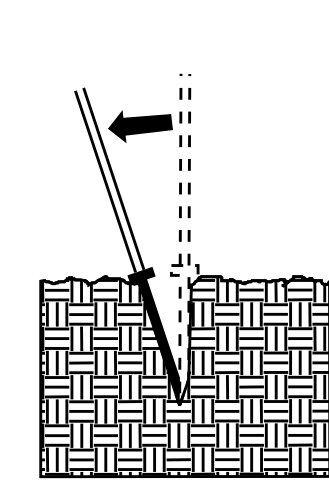


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

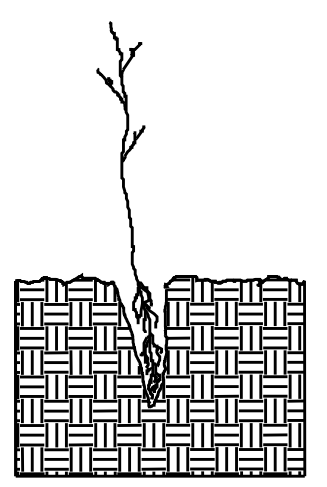


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

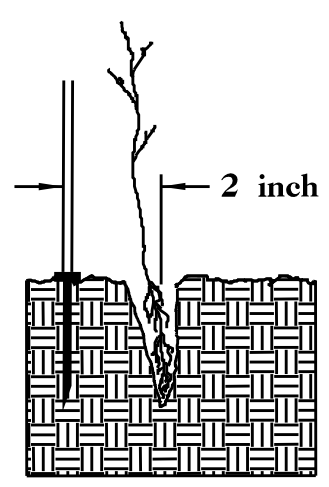
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



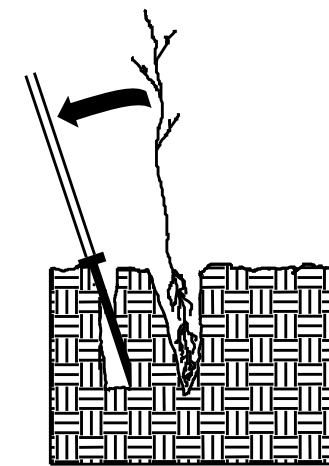
1. Insert planting bar as shown and pull handle toward planter.



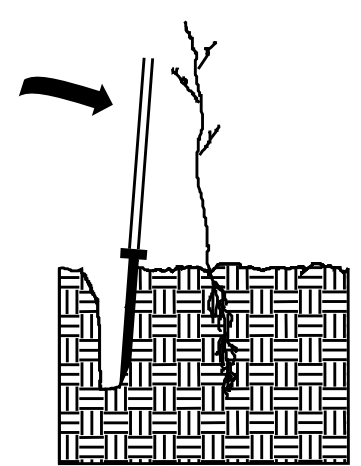
2. Remove planting bar and place seedling at correct depth.



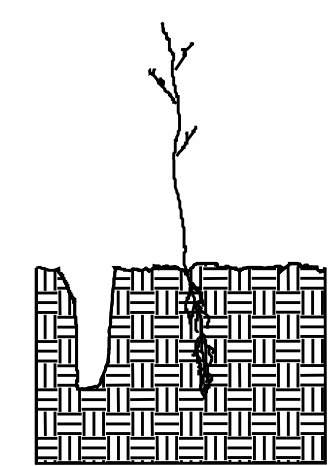
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



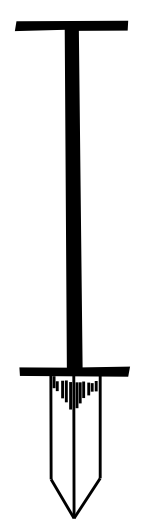
6. Leave compaction hole open. Water thoroughly.

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:

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

REFORESTATION DETAIL SHEET

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