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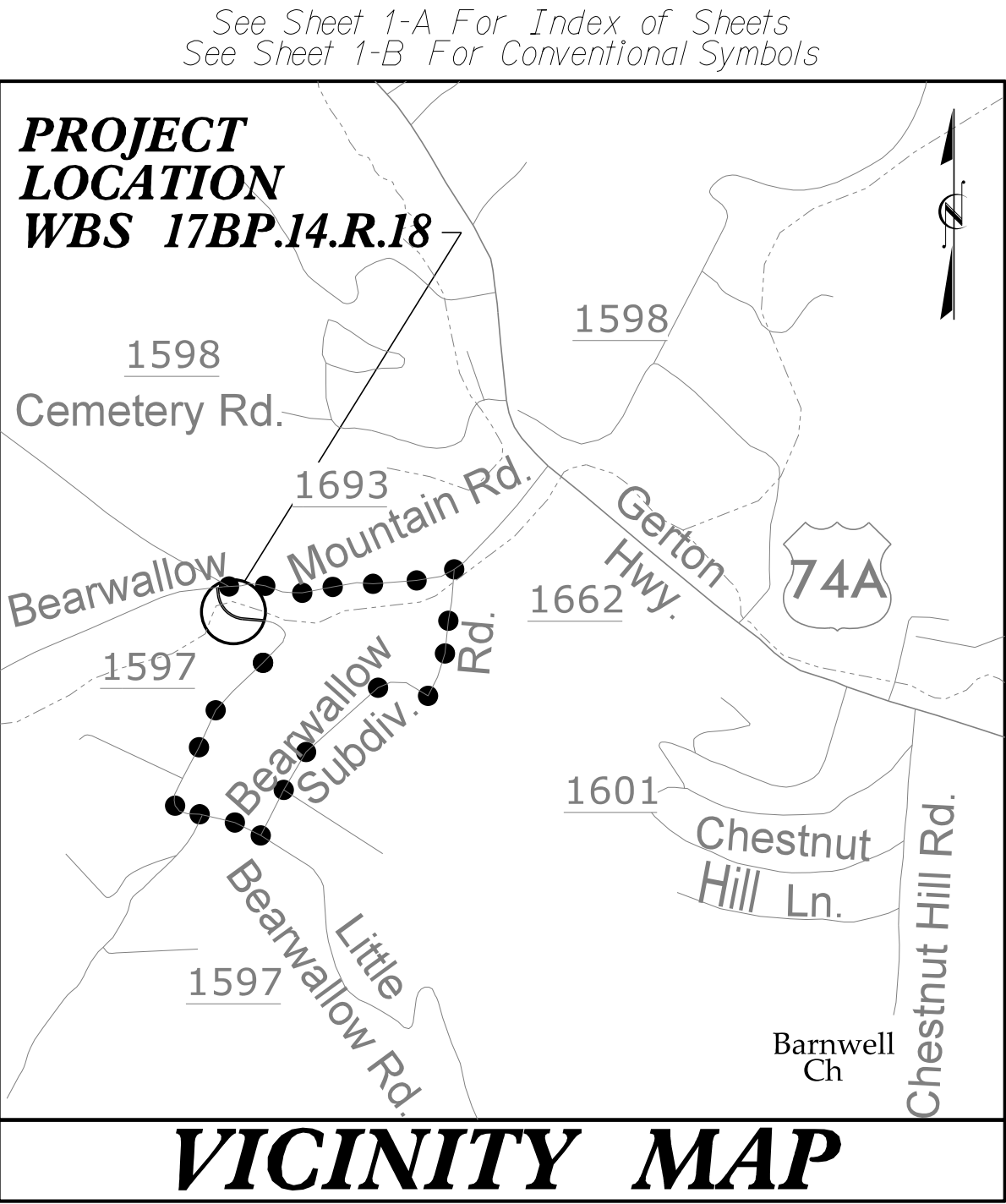
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4/20/2012

PROJECT: WBS 17BP.14.R.18

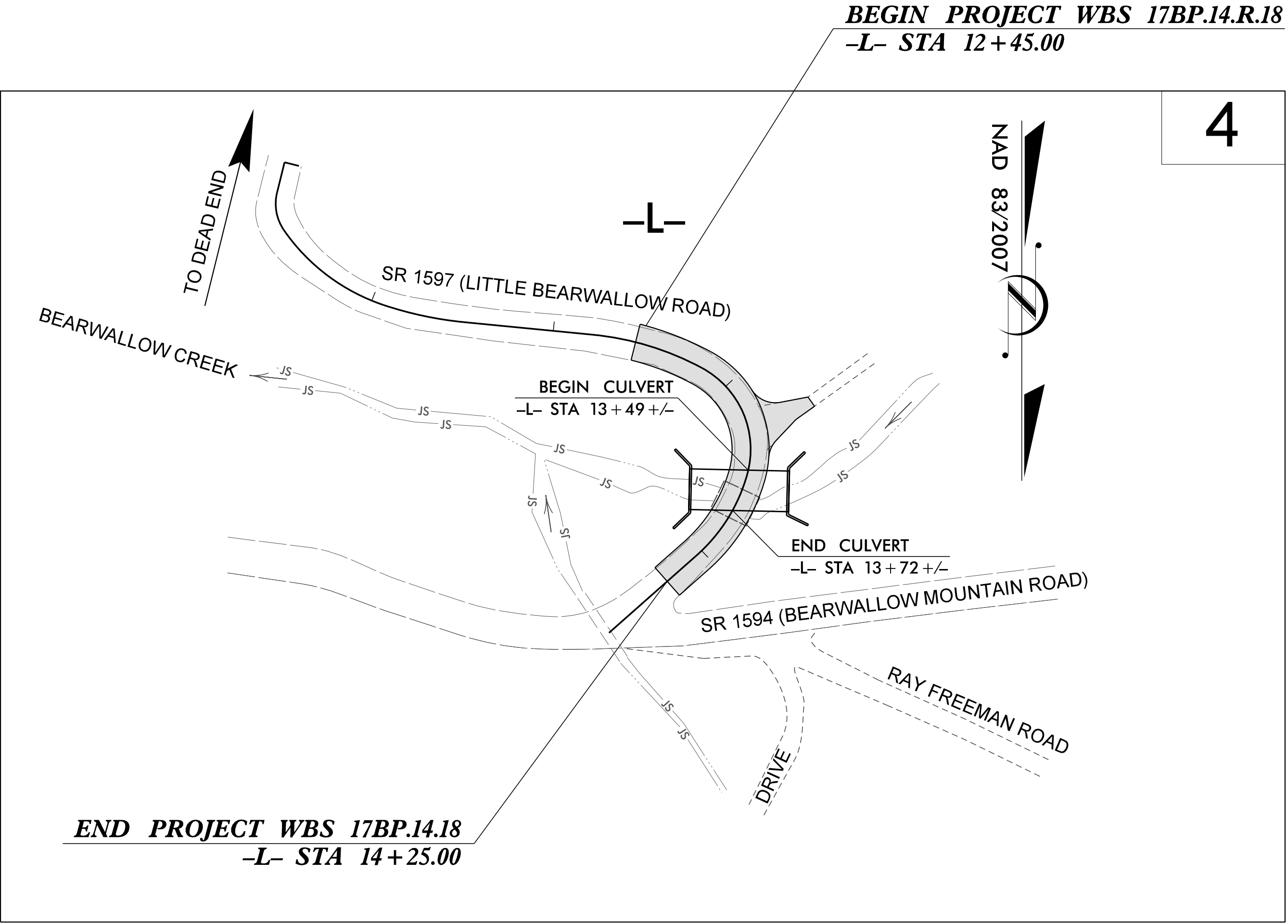
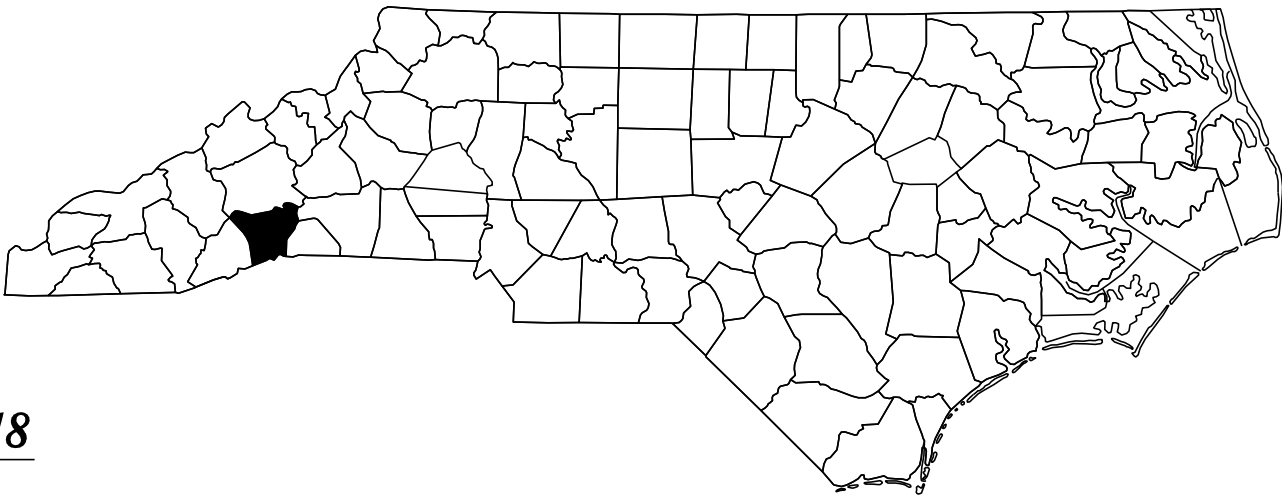
CONTRACT: DN00458



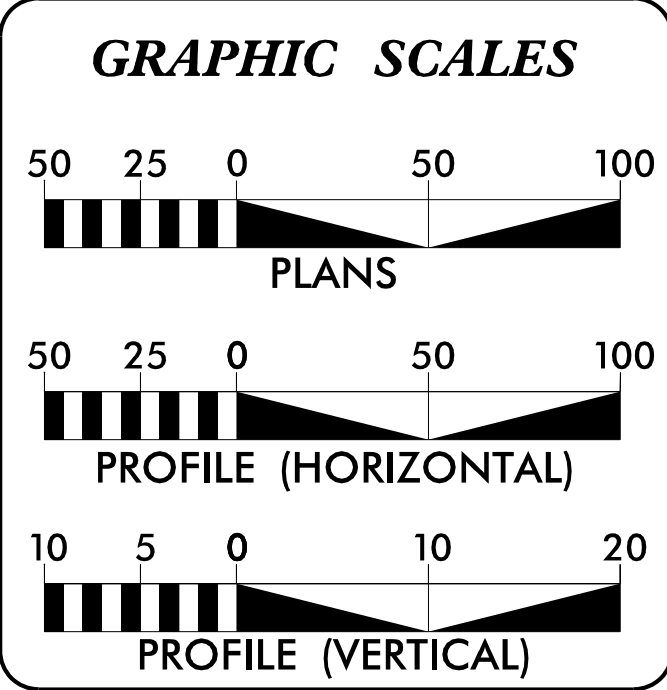
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**HENDERSON COUNTY**

**LOCATION: BRIDGE NO. 261 ON SR 1597 (LITTLE BEARWALLOW ROAD)  
OVER BEARWALLOW CREEK  
.02 MILES SOUTH OF JUNCTION OF SR 1594  
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE**



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.



DESIGN DATA	
ADT 2008 =	50
ADT 2025 =	100
DHV =	N/A %
D =	N/A %
T =	N/A % *
V =	20 MPH
* (TTST 0% + DUAL 0%)	
FUNC CLASS =	RURAL
	LOCAL
SUB-REGIONAL TIER	

PROJECT LENGTH	
LENGTH ROADWAY PROJECT WBS 17BP.14.R.18 =	0.030 MILES
LENGTH STRUCTURE PROJECT WBS 17BP.14.R.18 =	0.004 MILES
TOTAL LENGTH PROJECT WBS 17BP.14.R.18 =	0.034 MILES
NCDOT Contact: JOSHUA B. DEYTON, P.E.	

Prepared in the Office of DRMP, INC. 5950 FAIRVIEW ROAD, SUITE 320 CHARLOTTE, NORTH CAROLINA 28210 (704) 332-2289 NC LICENSE NO. C-2213	
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: MARCH 14, 2014	JAMES E. BECK, P.E. PROJECT ENGINEER
LETTING DATE:	MICHAEL D. HAGE, P.E. PROJECT DESIGN ENGINEER

	<b>HYDRAULICS ENGINEER</b> <i>Joshua G. Dalton, P.E.</i>
	<b>ROADWAY DESIGN ENGINEER</b> <i>James E. Beck, P.E.</i>

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	
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8/17/99  
1/23/24 PM  
W:\Projects\11-0481.003.Bridge.No261.NC DOT 17BP\_14\_R18.Roadway\Proj\44-0261.Rdy\_SHT\_1-A.dgn  
1/23/24 PM

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS

EFFECTIVE: 01-17-2012  
REVISED: 07-30-2012

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 II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 AND/OR STD. NO. 225.05 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 AND/OR STD. NO. 560.02

SIDE ROADS:

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

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

SHOULDER DRAINS:

SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.02 AND DETAILS IN PLANS AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.02 USING 3' RADIUS OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

PROGRESS ENERGY – P.O. BOX 1551, RALEIGH, NC 27602-1551

AT&T – 24 O'HENRY AVENUE, ASHEVILLE, NC 28801

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN IN ACCORDANCE WITH SECTION 801 OF THE 2012 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

PROJECT REFERENCE NO.	SHEET NO.
17BP_14_R_18	1-A

ROADWAY DESIGN  
ENGINEER

SEAL  
026815  
ENGINEER  
JAMES E. BECK

LIST OF ROADWAY STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N. C. Department of Transportation – Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	Method of Clearing – Method II
225.02	Guide for Grading Subgrade – Secondary and Local
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 8 – INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames – Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Beg. March 2013 Letting use detail in lieu of Standard)

INDEX OF SHEETS

Sheet Number	Sheet
1	Title Sheet
1-A	Index of Sheets, General Notes and list of Standards
1-B	Conventional Symbols
1-C	Survey Control Sheets
2	Typical Sections, Pavement Schedule and Miscellaneous Details
2-A Thru 2-C	Not covered by Roadway Standards
3-A	Structural Plans and Details
3-B	Summary of Drainage, Summary of Guardrail, Summary of Pavement Removal, and ROW Area Data
4	Summary of Earthwork
TCP-01 Thru TCP-04	Plan and Profile Sheet
PMP-1	Traffic Control Plans
EC-1 Thru EC-06	Pavement Marking Plans
RF-1	Erosion Control Plans
X-0	Reforestation Detail Sheet
X-1 Thru X-5	Cross-Section Summary Sheet
	Cross-Sections

*Note: Not to Scale*

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4RJ8	1-B

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	⊙ EIP
Property Corner	-----✕
Property Monument	⊠ ECM
Parcel/Sequence Number	Ⓜ 123
Existing Fence Line	-----✕-----✕-----✕-----
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-----
Known Soil Contamination: Area or Site	-----☠-----☠-----
Potential Soil Contamination: Area or Site	-----?-----?

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	-----

RIGHT OF WAY:

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

Proposed Permanent Easement with Iron Pin and Cap Marker	◆
--	---

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----C-----
Proposed Slope Stakes Fill	-----F-----
Proposed Curb Ramp	Ⓜ
Existing Metal Guardrail	-----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	Ⓜ
Bridge Wing Wall, Head Wall and End Wall	Ⓜ
MINOR:	
Head and End Wall	Ⓜ
Pipe Culvert	Ⓜ
Footbridge	Ⓜ
Drainage Box: Catch Basin, DI or JB	Ⓜ
Paved Ditch Gutter	Ⓜ
Storm Sewer Manhole	Ⓜ
Storm Sewer	Ⓜ

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	Ⓜ
Power Line Tower	Ⓜ
Power Transformer	Ⓜ
U/G Power Cable Hand Hole	Ⓜ
H-Frame Pole	●
Recorded U/G Power Line	-----P-----
Designated U/G Power Line (S.U.E.*)	-----P-----

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	Ⓜ
Telephone Booth	Ⓜ
Telephone Pedestal	Ⓜ
Telephone Cell Tower	Ⓜ
U/G Telephone Cable Hand Hole	Ⓜ
Recorded U/G Telephone Cable	-----T-----
Designated U/G Telephone Cable (S.U.E.*)	-----T-----
Recorded U/G Telephone Conduit	-----TC-----
Designated U/G Telephone Conduit (S.U.E.*)	-----TC-----
Recorded U/G Fiber Optics Cable	-----T FO-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----T FO-----

WATER:

Water Manhole	Ⓜ
Water Meter	Ⓜ
Water Valve	Ⓜ
Water Hydrant	Ⓜ
Recorded U/G Water Line	-----W-----
Designated U/G Water Line (S.U.E.*)	-----W-----
Above Ground Water Line	-----A/G Water-----

TV:

TV Satellite Dish	Ⓜ
TV Pedestal	Ⓜ
TV Tower	Ⓜ
U/G TV Cable Hand Hole	Ⓜ
Recorded U/G TV Cable	-----TV-----
Designated U/G TV Cable (S.U.E.*)	-----TV-----
Recorded U/G Fiber Optic Cable	-----TV FO-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----TV FO-----

GAS:

Gas Valve	◇
Gas Meter	Ⓜ
Recorded U/G Gas Line	-----G-----
Designated U/G Gas Line (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-----
Recorded SS Forced Main Line	-----FSS-----
Designated SS Forced Main Line (S.U.E.*)	-----FSS-----

MISCELLANEOUS:

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

6/2/99

2:29:02 PM  
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11/06/2006

SURVEY CONTROL SHEET 44-0261  
FINAL

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.18	1-C
Location and Surveys	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		BL-1	645398.9070	1002149.5530	2783.04	OUTSIDE PROJECT LIMITS	
2		BL-2	645511.9390	1002162.9890	2778.29	10+64.57	10.24 RT
3		BL-3	645553.4230	1001934.7990	2762.24	12+90.52	11.70 LT
101		GPS-101	645716.5628	1001934.0265	2769.95	14+28.46	52.68 LT

\*\*\*\*\*  
BM1        ELEVATION = 2759.67  
N 645617        E 1001900  
L STATION 13+47.00 22 LEFT  
RR SPIKE IN 12" MAPLE  
\*\*\*\*\*

FINAL -L-			
TYPE	STATION	NORTH	EAST
POT	10+00.00	645447.8775	1002173.4657
PC	10+16.79	645464.1751	1002177.5002
PCC	10+38.28	645484.6850	1002173.7250
PCC	11+06.90	645525.1497	1002119.7688
PT	11+51.29	645534.3912	1002076.4402
PC	12+21.45	645541.2133	1002006.6160
PCC	12+83.65	645559.2113	1001947.5055
PCC	13+51.11	645616.6636	1001922.9459
PT	14+03.88	645660.8135	1001950.5034
POT	14+67.04	645702.6413	1001997.8200

NCDOT BASELINE STATION "BL2"  
LOCALIZED PROJECT COORDINATES  
N= 645511.9390  
E= 1002162.9890  
ELEV.= 2778.29

END PROJECT WBS 17BP.14.R.18  
-L- STA 14+25.00

GPS-101 COORDINATES  
N= 645716.5628  
E= 1001934.0265  
ELEV.= 2769.95

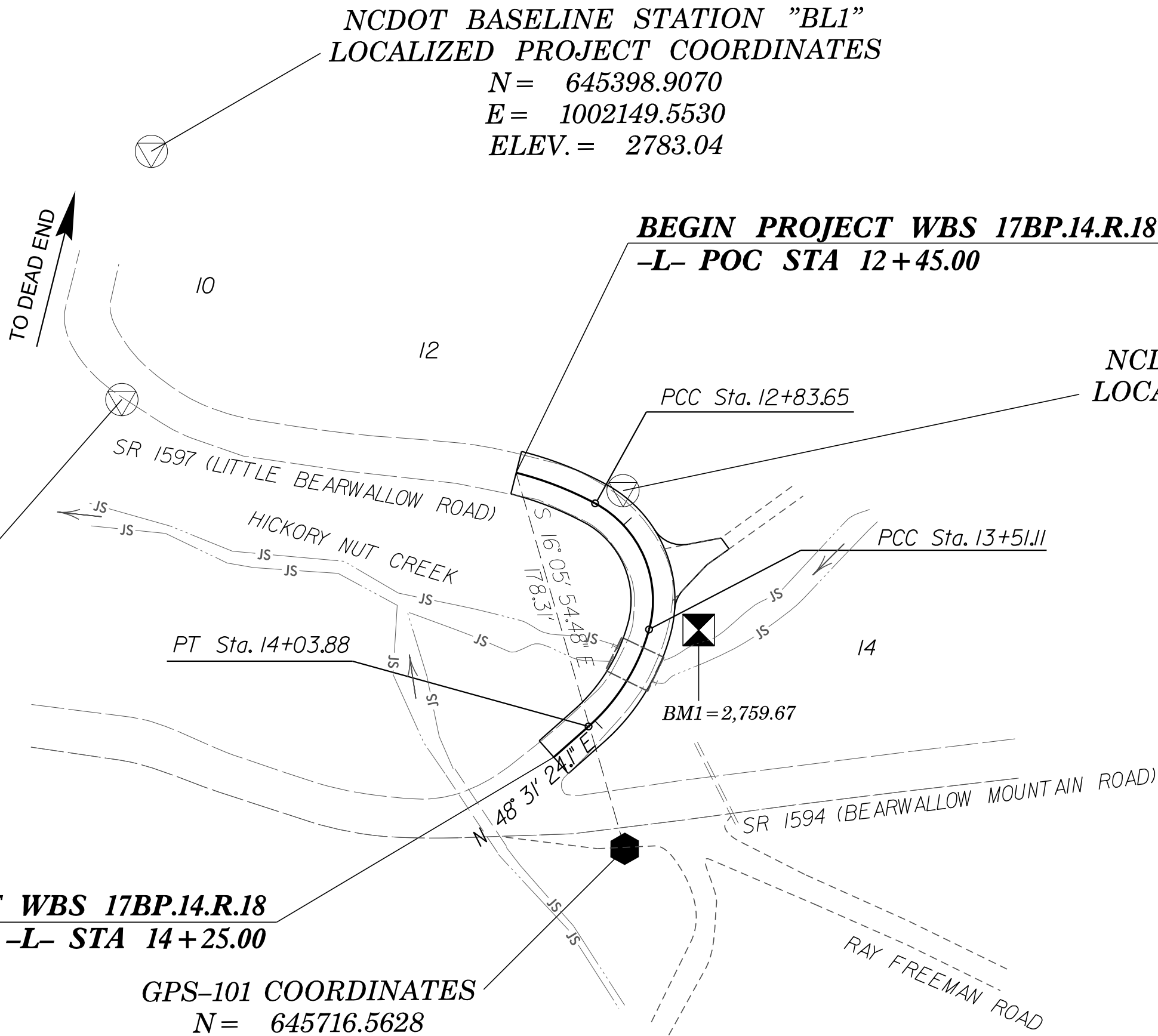
FINAL -PERMANENT DRAINAGE EASEMENT- MARKER

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+47.24	-22.50	645524.0795	1001975.4509
L	12+95.00	-37.00	645537.8630	1001913.7959
L	13+46.00	-72.48	645623.7400	1001850.3667
L	13+76.00	-52.83	645666.7046	1001887.4595
L	14+30.00	22.50	645661.2528	1001984.9721
L	14+25.00	55.00	645633.5913	1002002.7512
L	12+53.00	50.75	645595.9183	1001990.6555
L	12+27.25	22.50	645564.1812	1002003.8678

NCDOT BASELINE STATION "BL1"  
LOCALIZED PROJECT COORDINATES  
N= 645398.9070  
E= 1002149.5530  
ELEV.= 2783.04

BEGIN PROJECT WBS 17BP.14.R.18  
-L- POC STA 12+45.00

NCDOT BASELINE STATION "BL3"  
LOCALIZED PROJECT COORDINATES  
N= 645553.4230  
E= 1001934.7990  
ELEV.= 2762.24



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "GPS-101" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 645716.5628 (ft) EASTING: 1001934.0265 (ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997518434 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-101" TO -L- STATION 12+45.00 IS S 16° 05' 54.48" E 178.31' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

STRUCTURE: 44-0261  
COUNTY: HENDERSON

GEOIDAL MODEL - G09NC  
NOTE: DRAWING NOT TO SCALE

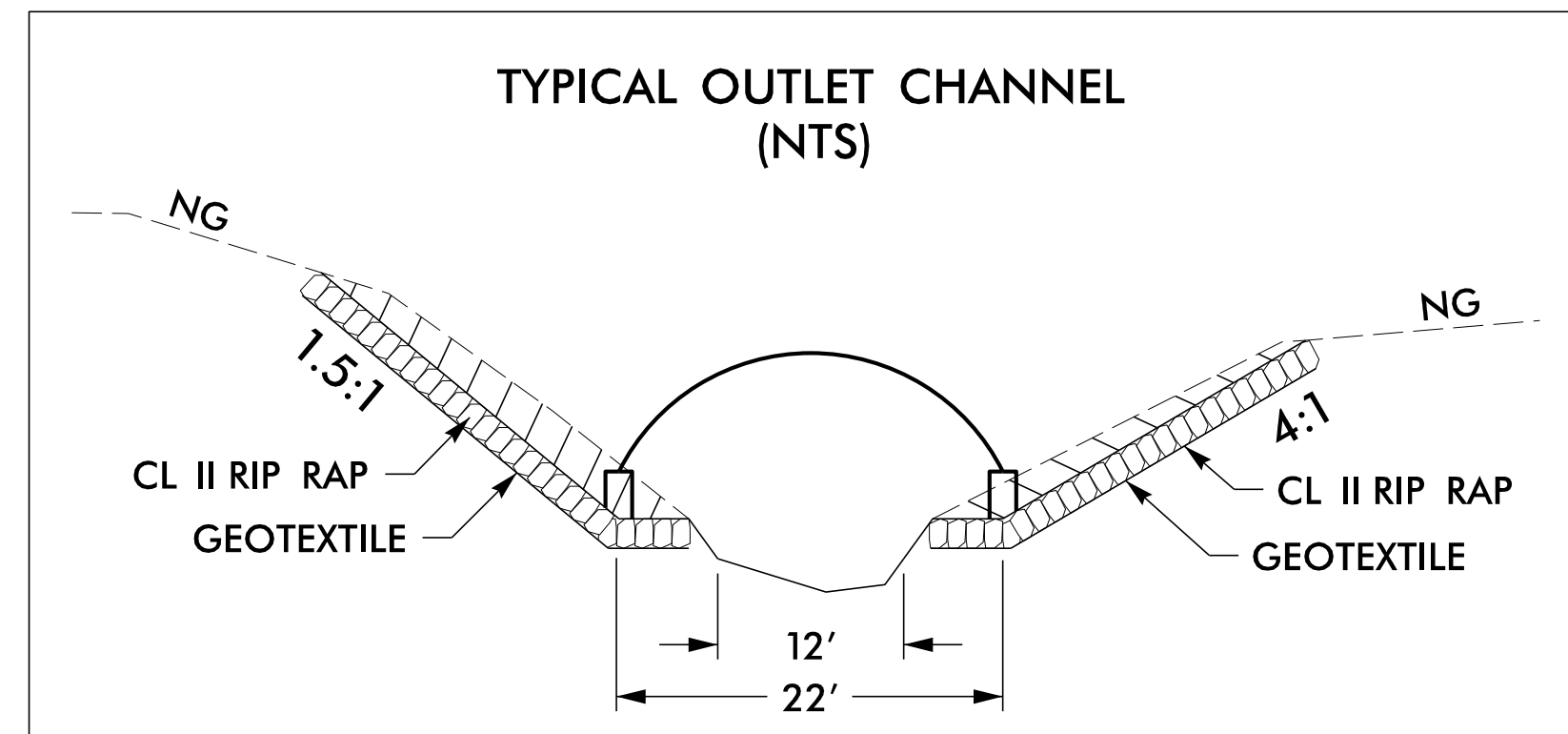
NOTES:

1. 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/)

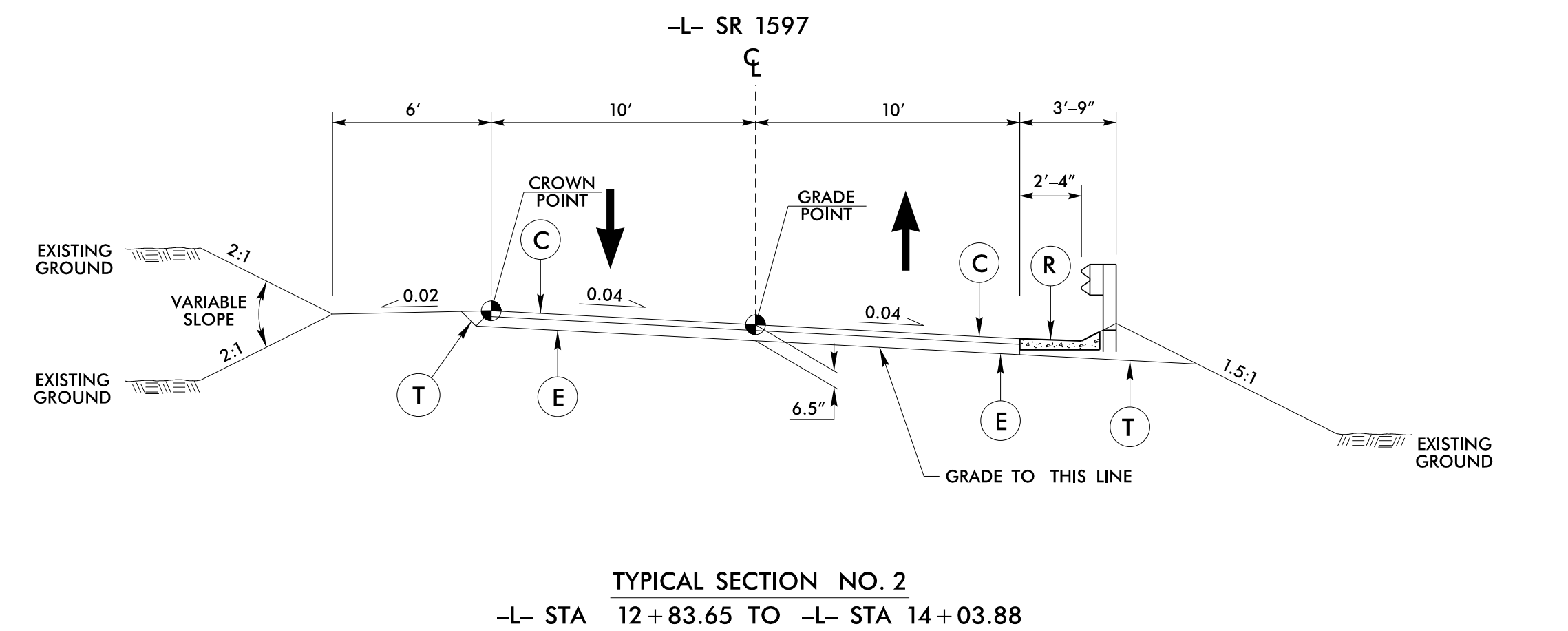
THE FILES TO BE FOUND ARE AS FOLLOWS:  
440261\_LS\_CONTROL.TXT

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.



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





5/28/99

12:35:30 PM  
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Page

COMPUTED BY:	DATE:
CHECKED BY:	DATE:

PROJECT REFERENCE NO.	SHEET NO.
17BP_14_R18	3-B

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK  
IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. + 15%	BORROW	WASTE
-L- 12+50.00	-L- 14+25.00	178	771	593	
SUBTOTALS:		178	771	593	
SUBTOTALS:					
SUMMARIES SUBTOTAL:					
PROJECT TOTALS:		178	771	593	
EST. 5% FOR REPLACING TOP SOIL ON				30	
BORROW PITS					
GRAND TOTALS:		178	771	622	
SAY:		180	780	630	

NOTE:

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.

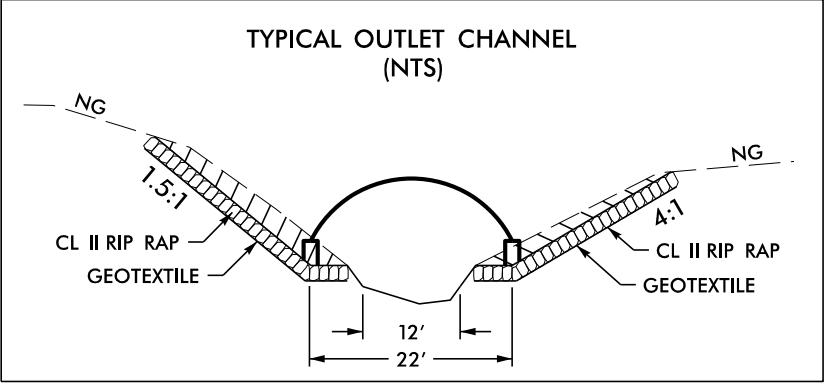
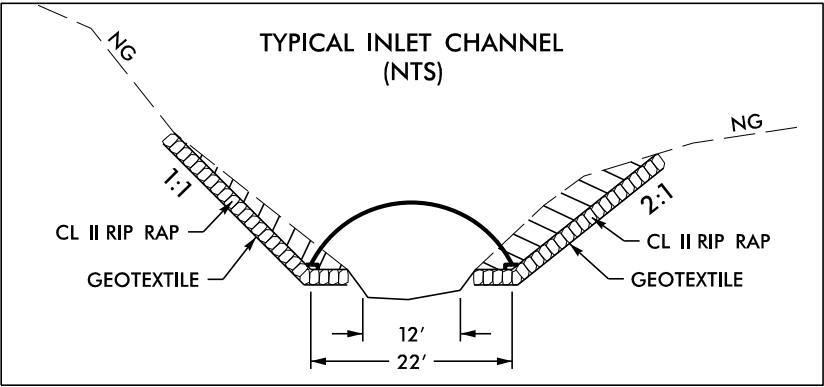
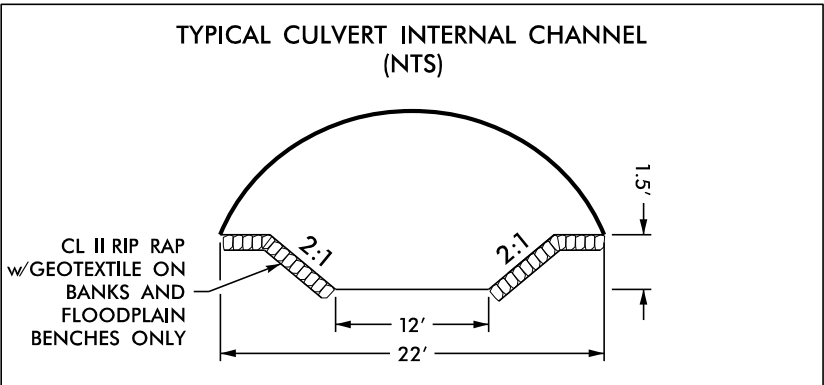
Approximate quantities only. Unclassified Excavation, Borrow Excavation, Clearing & Grubbing, and Removal & Breakup of existing pavement will be paid at the lump sum price for "Grading".

Excavation for proposed culvert will be paid at the lump sum price for "Culvert Excavation".

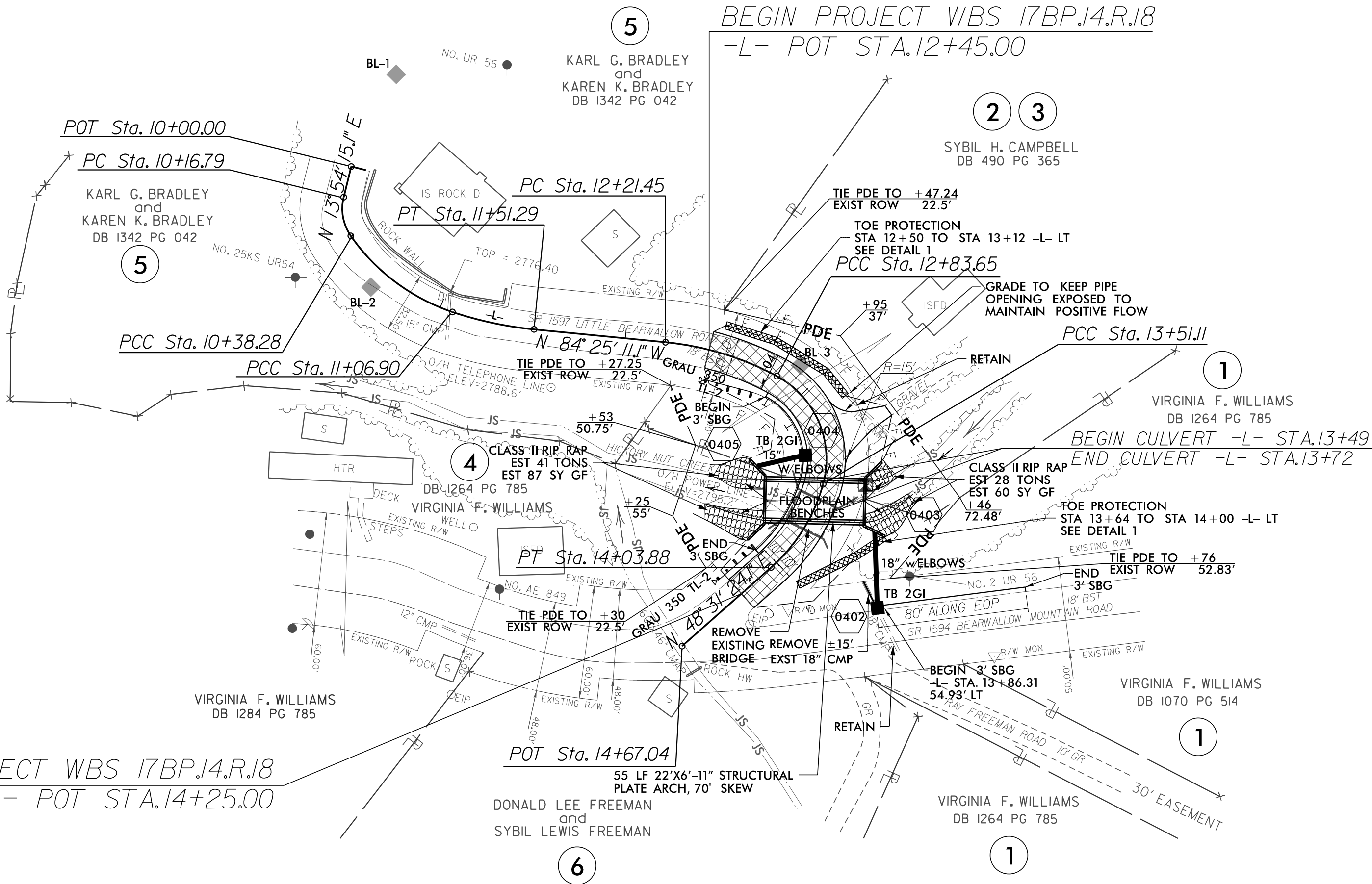
EST. GRANULAR MATERIAL = 50 CY (CONTINGENCY)  
EST. GEOTEXTILE FOR SOIL STABILIZATION = 50 SY (CONTINGENCY)  
EST. UNDERCUT EXCAVATION = 50 CY (CONTINGENCY)  
EST. INCIDENTAL STONE BASE = 50 TONS (CONTINGENCY)

8/17/99

-L- CURVE DATA		
PI Sta 10+28.23 Δ = 48° 40' 04.5" (LT) D = 226° 24' 59.8" L = 21.49' T = 11.44' R = 25.31'	PI Sta 10+73.82 Δ = 36° 44' 10.1" (LT) D = 53° 32' 28.0" L = 68.61' T = 35.53' R = 107.01'	PI Sta 11+29.19 Δ = 12° 55' 11.7" (LT) D = 29° 06' 02.6" L = 44.40' T = 22.29' R = 196.89'
PI Sta 12+52.96 Δ = 22° 42' 30.7" (RT) D = 36° 30' 40.1" L = 62.20' T = 31.51' R = 156.93'	PI Sta 13+23.60 Δ = 77° 07' 52.1" (RT) D = 114° 20' 01.8" L = 67.46' T = 39.96' R = 50.11'	PI Sta 13+78.26 Δ = 33° 06' 12.5" (RT) D = 62° 43' 30.0" L = 52.78' T = 27.15' R = 91.34'



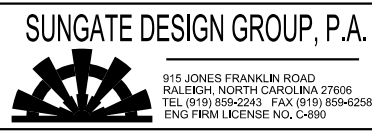
END PROJECT WBS 17BP.14.R.18  
-L- POT STA.14+25.00



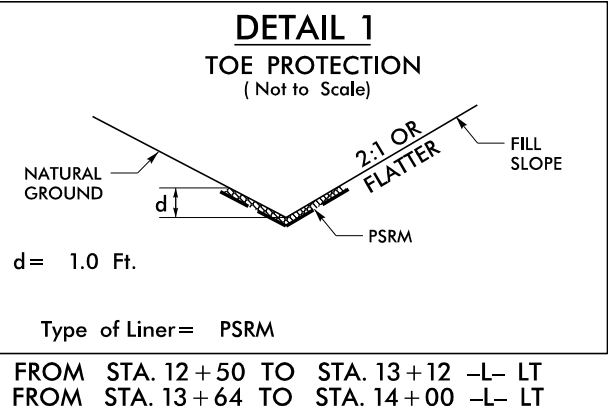
NAD 83 NSRS 2007



5950 FAIRVIEW ROAD, SUITE 320  
CHARLOTTE, NORTH CAROLINA 28210  
(704) 332-2289  
NC LICENSE NO. C-2213



915 JONES FRANKLIN ROAD  
FARMINGTON, NORTH CAROLINA 27834  
TEL: (813) 855-1111 FAX: (813) 855-1111  
P.O. BOX 10000 FARMINGTON, NC 27834



Type of Liner = PSRM  
FROM STA. 12+50 TO STA. 13+12 -L- LT  
FROM STA. 13+64 TO STA. 14+00 -L- LT

### BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 490	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2757.8	FT
BASE DISCHARGE	= 800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2760.68	FT
OVERTOPPING DISCHARGE	= 1200	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 2762.9	FT
DATE OF SURVEY	= 1/4/12	
W.S.ELEVATION		
AT DATE OF SURVEY	= 2750.6	FT

2,790

2,780

2,770

2,760

2,750

2,740

2,730

2,720

9

10

11

12

13

14

15

PROJECT: WBS 17BP.14.R.18

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED  
TRAFFIC CONTROL

HENDERSON COUNTY

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1180.01	SKINNY DRUM








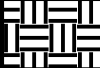
INDEX OF SHEETS

SHEET NO.	TITLE
TCP-01	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND INDEX OF SHEETS
TCP-02	PROJECT NOTES/WRITTEN PHASING
TCP-03	DETAIL SHEET
TCP-04	OFFSITE DETOUR SHEET





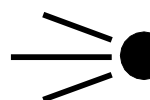






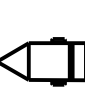
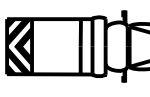


STATE PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.18	TCP-01

LEGEND





GENERAL


	DIRECTION OF TRAFFIC FLOW
	NORTH ARROW
	PROPOSED PVMT.
	EXIST. PVMT.
	WORK AREA
	ONGOING CONSTRUCTION
	REMOVAL OF EXISTING PAVEMENT
	GRADING ONLY

TRAFFIC CONTROL DEVICES

	TYPE I BARRICADE
	TYPE II BARRICADE
	TYPE III BARRICADE
	CONE
	DRUM
	FLASHING ARROW PANEL (TYPE C)
	TYPE 'B' WARNING LIGHT
	STATIONARY SIGN
	PORTABLE SIGN
	STATIONARY OR PORTABLE SIGN
	WARNING FLAGS
	CRASH CUSHION
	CHANGEABLE MESSAGE SIGN
	TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
	POLICE
	FLAGGER

PAVEMENT MARKINGS

	CRYSTAL/CRYSTAL PAVEMENT MARKER
	YELLOW/YELLOW PAVEMENT MARKER
	CRYSTAL/RED PAVEMENT MARKER
	PAVEMENT MARKING SYMBOLS

APPROVED: DATE:	PLAN PREPARED BY: PROGRESSIVE DESIGN GROUP, INC.
SEAL 	TIM AREY, P.E. TRAFFIC CONTROL ENGINEER DONALD SPENCE, P.E. TRAFFIC CONTROL PROJECT ENGINEER TRAFFIC CONTROL PROJECT DESIGN ENGINEER L.D. ASHLEY TRAFFIC CONTROL DESIGN ENGINEER / TECHNICIAN

## GENERAL NOTES

## PROJECT NOTES & PHASING

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.18	TCP-02
R/W SHEET NO.	

# PHASING

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

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

## LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) 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.
- 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 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 (W8-11) 100 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) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- K) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 ft IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

## TRAFFIC CONTROL DEVICES



- L) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- M) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

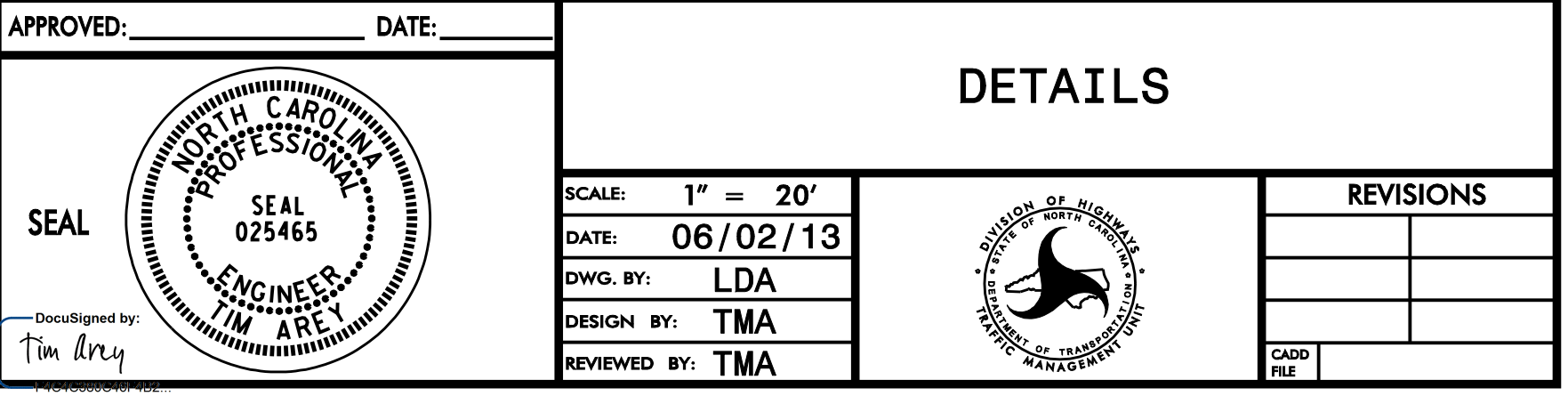
STEP 1: INSTALL WORK ZONE ADVANCE WARNING SIGNS AS SHOWN ON ROADWAY  
STANDARD DRAWING NO. 1101.01

STEP 2: INSTALL OFFSITE DETOUR SIGNS AND DEVICES AS SHOWN ON SHEETS  
TCP-03 AND TCP-04 AND CLOSE LITTLE BEARWALLOW RD TO THRU  
TRAFFIC.

STEP 3: CONSTRUCT THE PROPOSED CULVERT AND ROADWAY APPROACHES FOR LITTLE BEARWALLOW ROAD AS SHOWN ON SHEET TCP-03. REMOVE ALL TRAFFIC CONTROL DEVICES AND PLACE BEARWALLOW ROAD TRAFFIC IN THE FINAL PATTERN.



APPROVED: _____	DATE: _____	<h2 style="margin: 0;">PROJECT NOTES &amp; PHASING</h2>																							
<div style="text-align: center;">  <p><b>SEAL</b></p> <p>— Documented by: <i>Tim Arey</i> —</p> </div>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">SCALE:</td> <td></td> </tr> <tr> <td style="padding: 2px;">DATE:</td> <td style="text-align: center; padding: 2px;">06/02/13</td> </tr> <tr> <td style="padding: 2px;">DWG. BY:</td> <td style="text-align: center; padding: 2px;">LDA</td> </tr> <tr> <td style="padding: 2px;">DESIGN BY:</td> <td style="text-align: center; padding: 2px;">TMA</td> </tr> <tr> <td style="padding: 2px;">REVIEWED BY:</td> <td style="text-align: center; padding: 2px;">TMA</td> </tr> </table>	SCALE:		DATE:	06/02/13	DWG. BY:	LDA	DESIGN BY:	TMA	REVIEWED BY:	TMA	<div style="text-align: center; padding: 10px;">  </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="2" style="padding: 5px;">REVISIONS</th> </tr> <tr><td style="height: 20px;"></td><td></td></tr> <tr><td style="height: 20px;"></td><td></td></tr> <tr><td style="height: 20px;"></td><td></td></tr> <tr><td style="height: 20px;"></td><td></td></tr> </table> <div style="margin-top: 10px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; padding: 2px;">CADD FILE</td> <td></td> </tr> </table> </div>	REVISIONS										CADD FILE	
SCALE:																									
DATE:	06/02/13																								
DWG. BY:	LDA																								
DESIGN BY:	TMA																								
REVIEWED BY:	TMA																								
REVISIONS																									
CADD FILE																									





5/14/99

PROJECT: WBS 17BP.14.R.18

CONTRACT: DN00458

10/12/2015  
H:\Roadway\Proj\44-0261\_Rdy\_dsn\_PMF.dgn  
Page

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

HENDERSON COUNTY

LOCATION: BRIDGE NO. 261 ON SR 1597 (LITTLE BEARWALLOW ROAD)  
OVER BEARWALLOW CREEK  
.02 MILES SOUTH OF JUNCTION OF SR 1594  
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

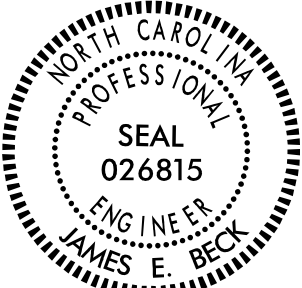
PROJECT REFERENCE NO.  
17BP.14.R.18

SHEET NO.  
PMP-1

APPROVED:

DATE:

ROADWAY DESIGN  
ENGINEER

  
James E. Beck



NAD 83/2007

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

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 UNDESIRABLE 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.
- PAVEMENT MARKINGS AND MARKERS
- A) STATE FORCES WILL INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.
- B) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

PAVEMENT MARKING SCHEDULE

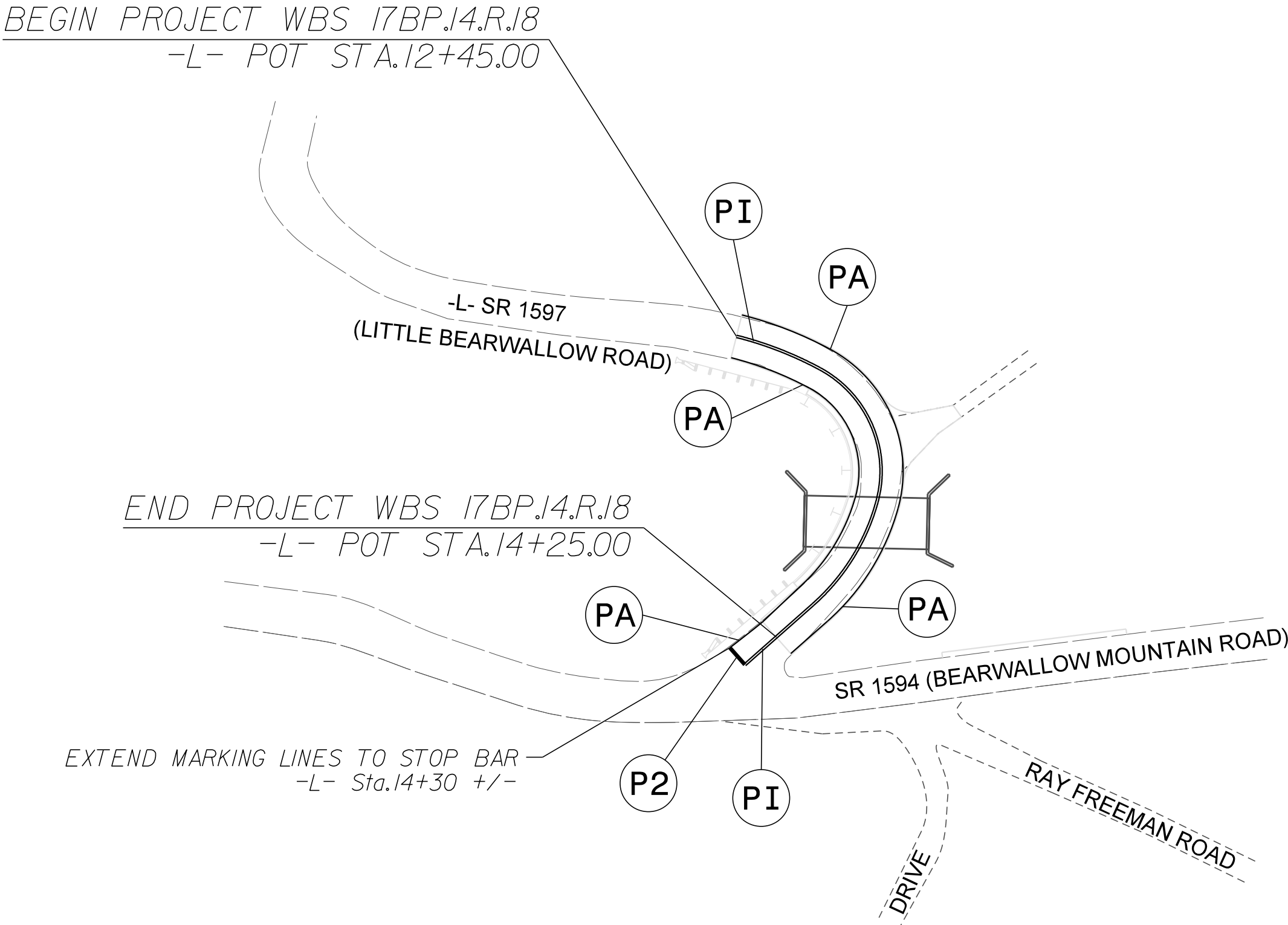
FINAL PAVEMENT MARKINGS

PAVEMENT MARKING LINES

PA	WHITE EDGELINE (4")	PAINT
PI	YELLOW DOUBLE CENTER LINE (4")	PAINT
P2	STOP BAR	PAINT

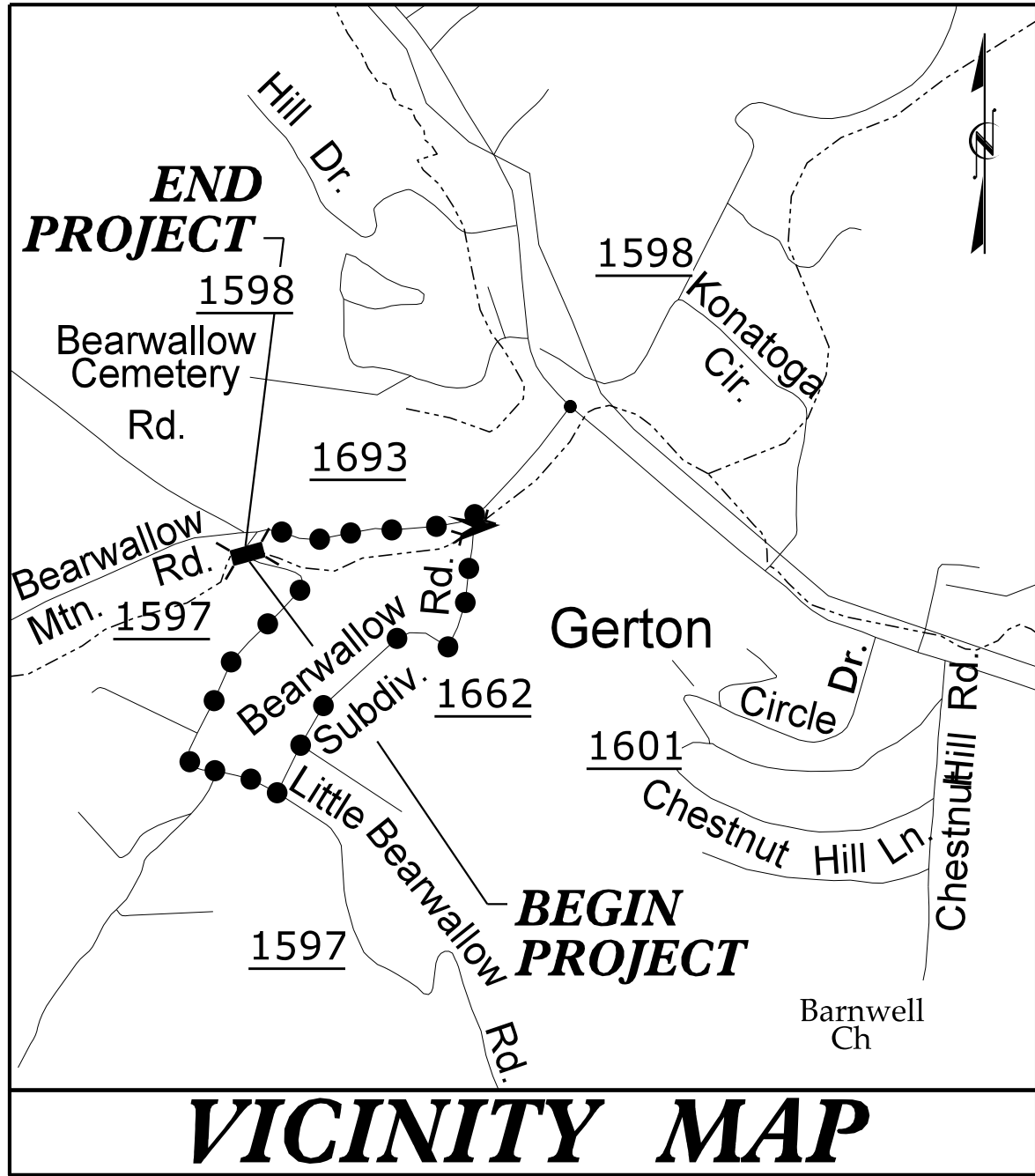
SYMBOL & MARKING  
LEGEND

PA	PAINT	-	WHITE EDGELINE (4")
PI	PAINT	-	YELLOW DOUBLE CENTER LINE (4")
P2	PAINT	-	STOP BAR (24")



PROJECT: WBS 17BP.14.R.18

CONTRACT: DN00458



OFFSITE DETOUR

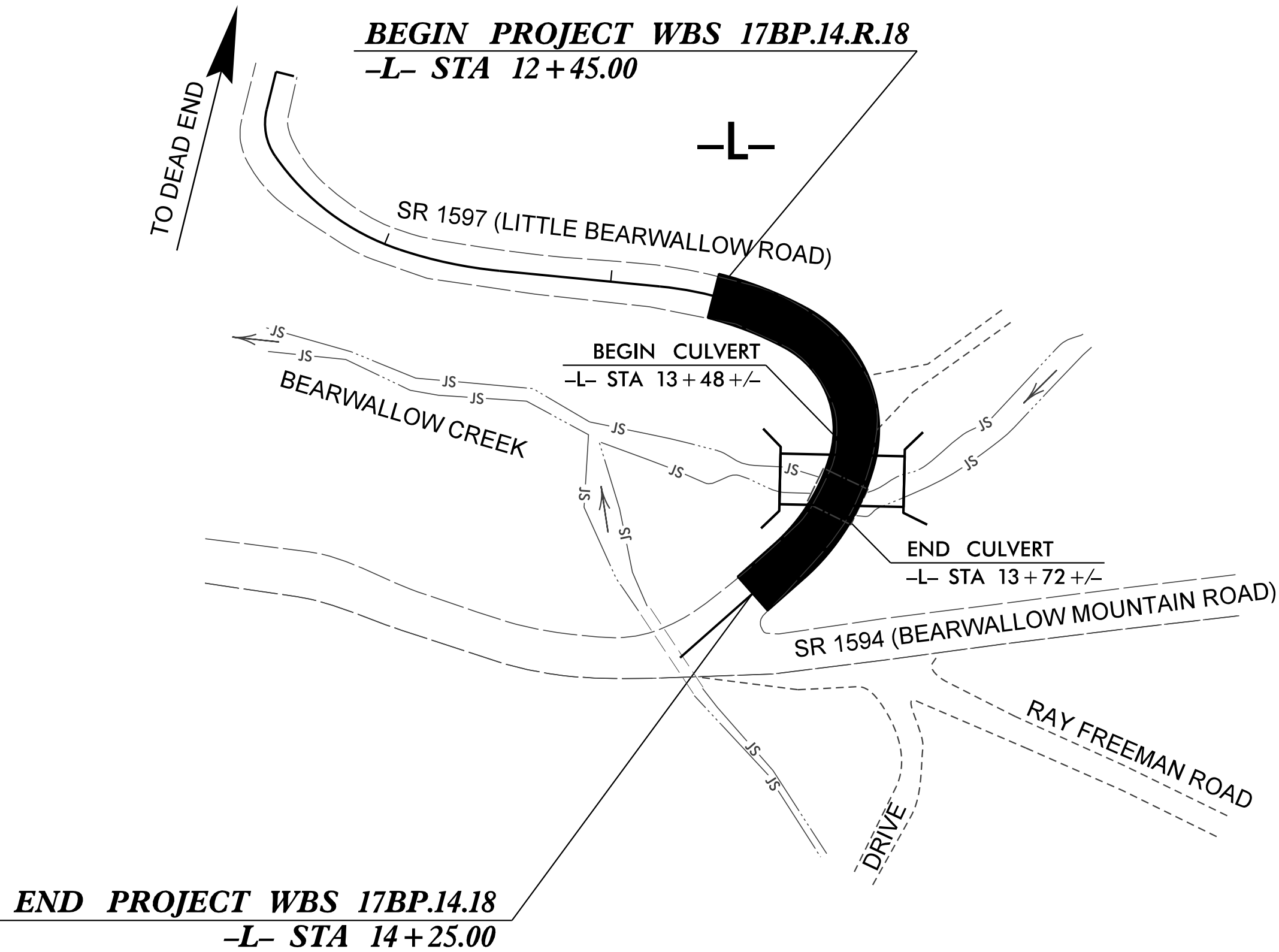


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL  
**HENDERSON COUNTY**

LOCATION: BRIDGE NO. 261 ON SR 1597 (LITTLE BEARWALLOW ROAD)  
OVER BEARWALLOW CREEK

.02 MILES SOUTH OF JUNCTION OF SR 1594

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



BRAD T. SMITH, EI  
LEVEL III NAME  
  
3520  
LEVEL III CERTIFICATION NO.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.18	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.14.R.18		P.E., ROW, UTIL	

EROSION AND SEDIMENT CONTROL MEASURES

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

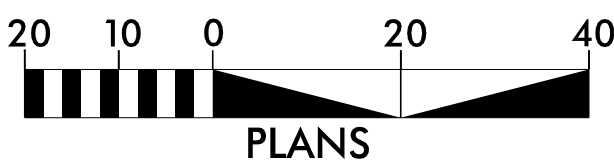
THIS PROJECT CONTAINS  
EROSION CONTROL PLANS  
FOR CLEARING AND  
GRUBBING PHASE OF  
CONSTRUCTION.

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.

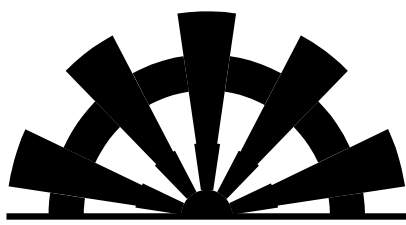
GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY  
WITH THE REGULATIONS SET FORTH BY THE  
NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011  
ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND  
NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:

SUNGATE DESIGN GROUP, P.A.



915 JONES FRANKLIN ROAD  
RALEIGH, NORTH CAROLINA 27606  
TEL (919) 859-2243 FAX (919) 859-6258  
ENG FIRM LICENSE NO. C-890

2012 STANDARD SPECIFICATIONS

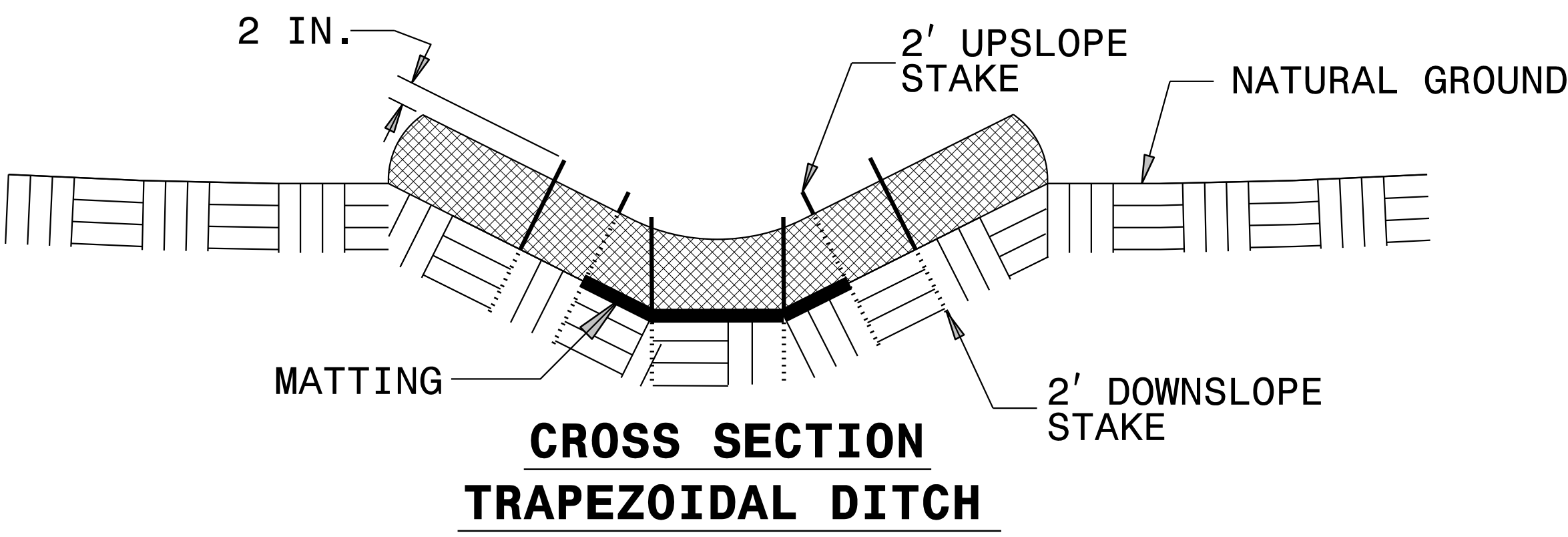
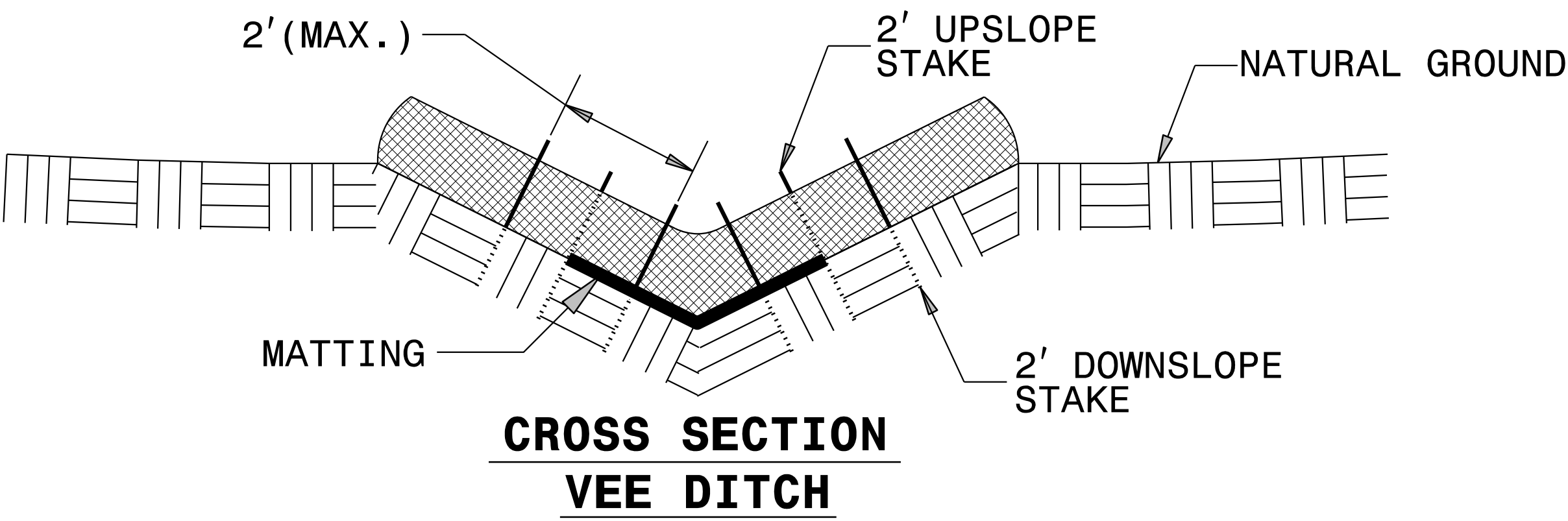
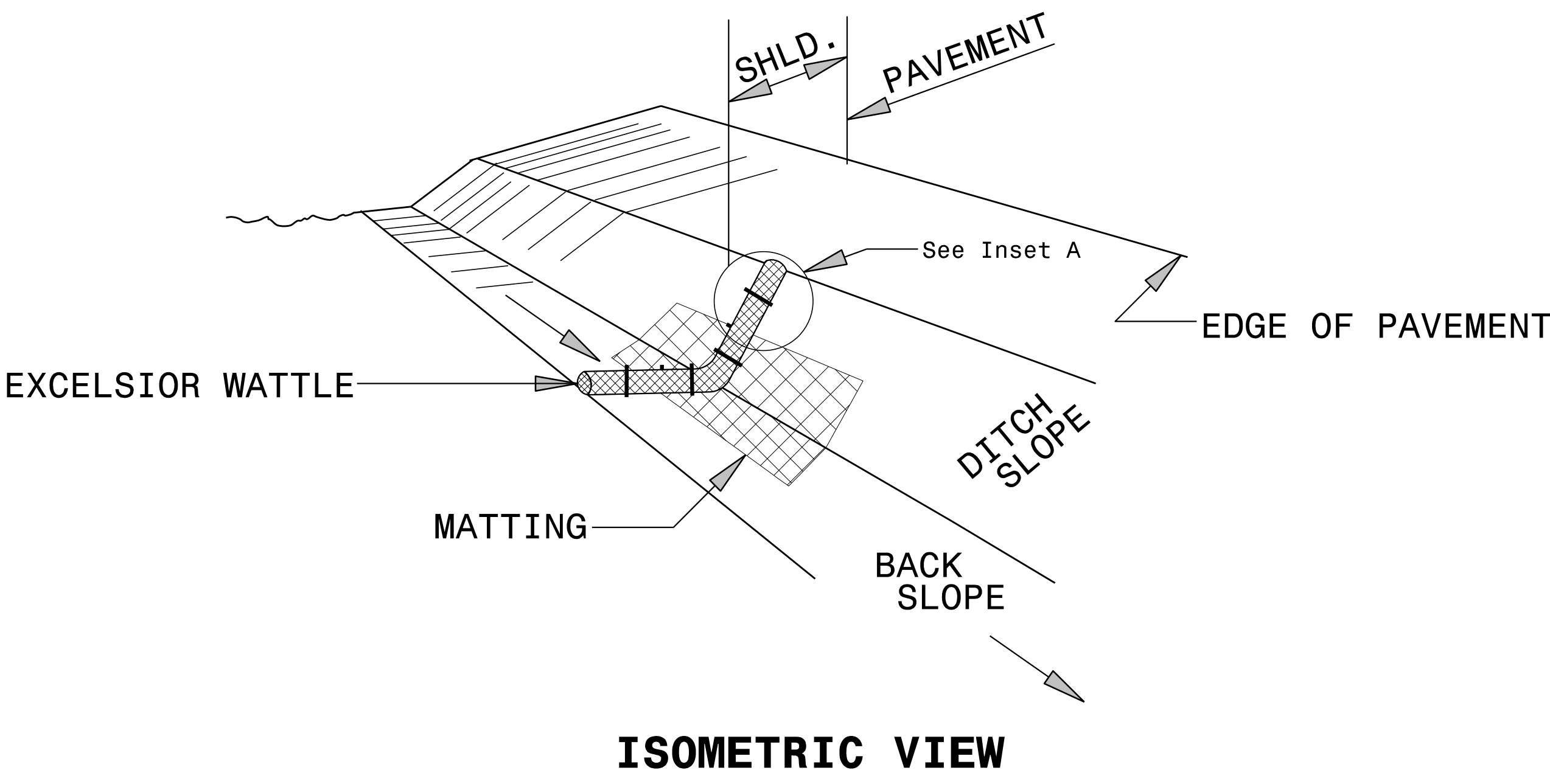
Roadway Standard Drawings

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

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

PROJECT REFERENCE NO.		SHEET NO.
17BPJ4.RJ8		EC-2
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

# WATTLE DETAIL



## NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

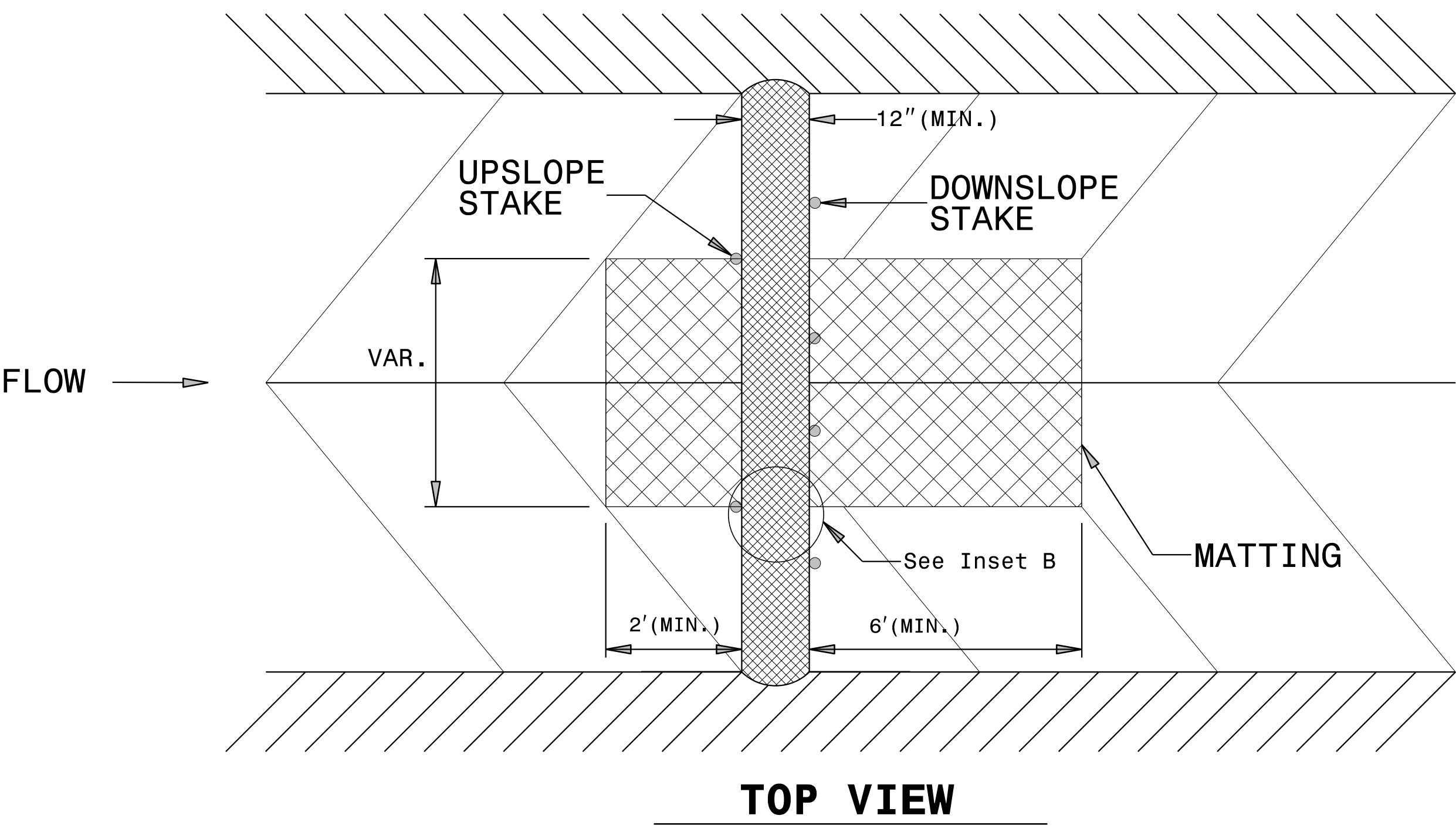
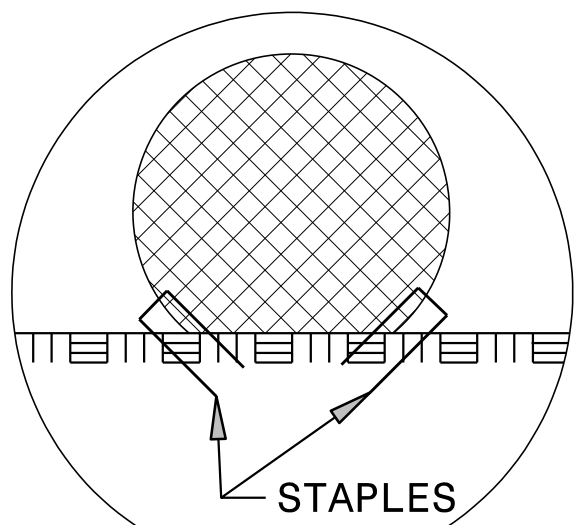
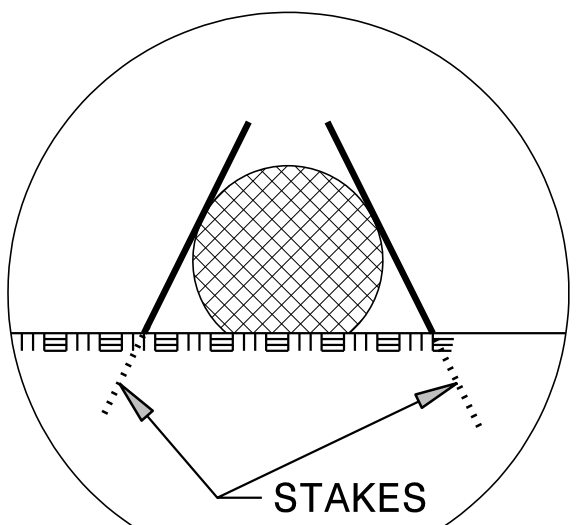
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BP14R18	EC-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
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.

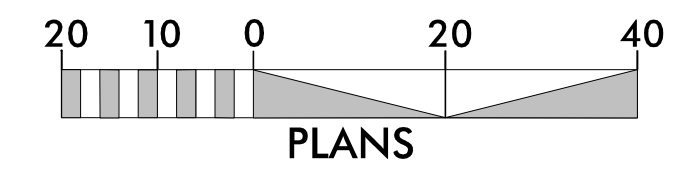
NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

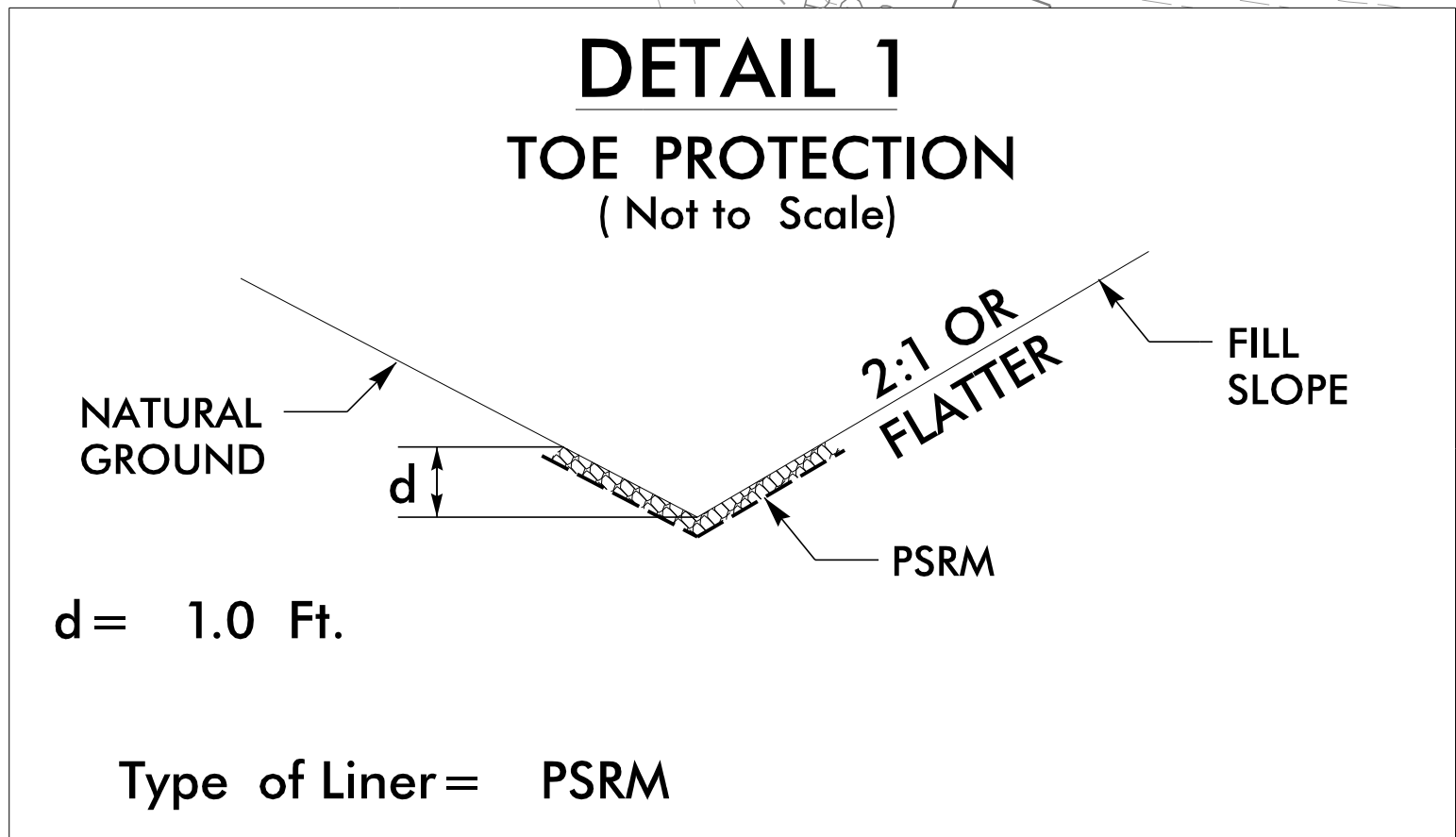
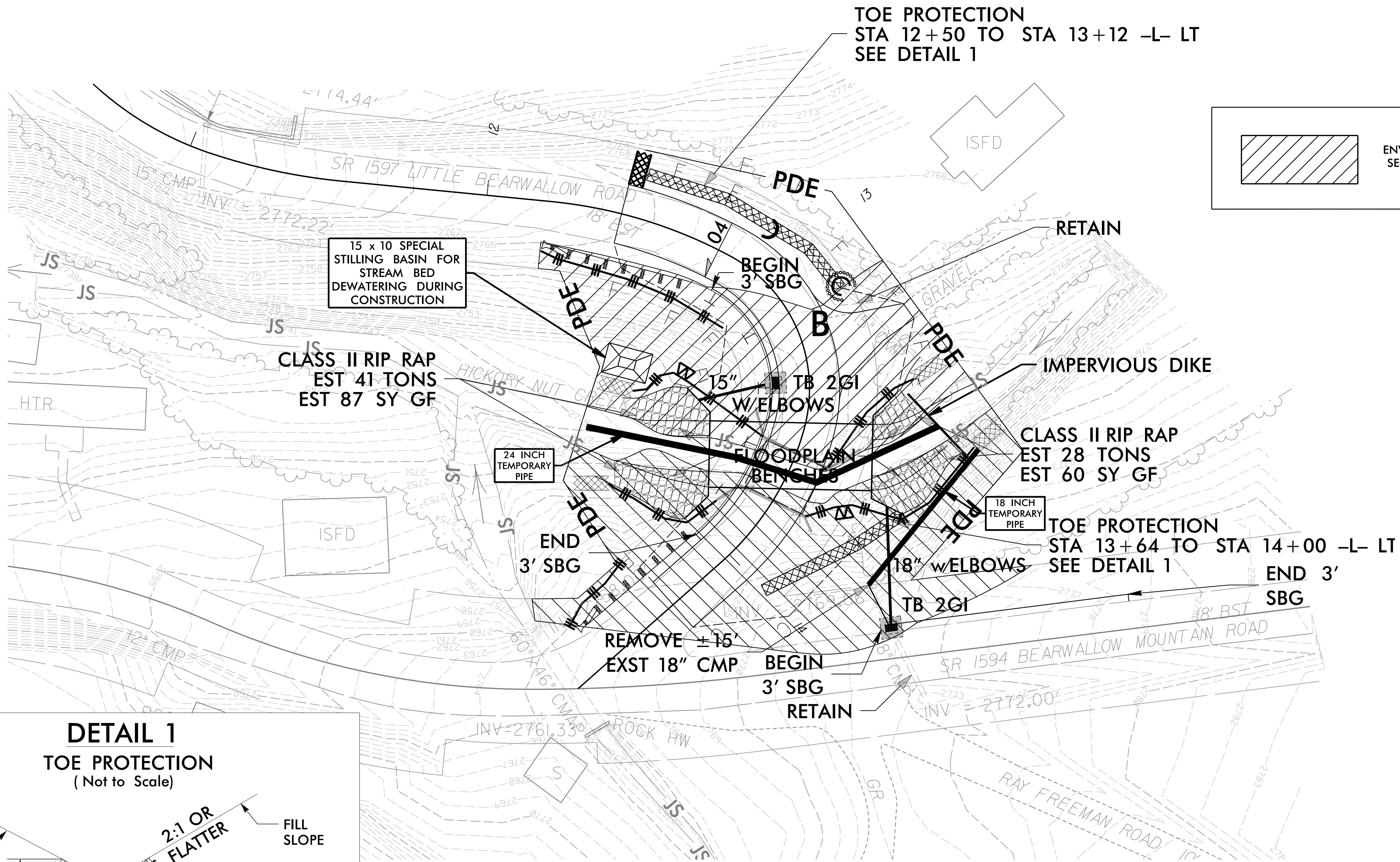
# EROSION CONTROL PLAN

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 04

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.RJ8	EC-04/CONST.04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



 ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS



FROM STA. 12+50 TO STA. 13+12 -L- LT  
FROM STA. 13+64 TO STA. 14+00 -L- LT

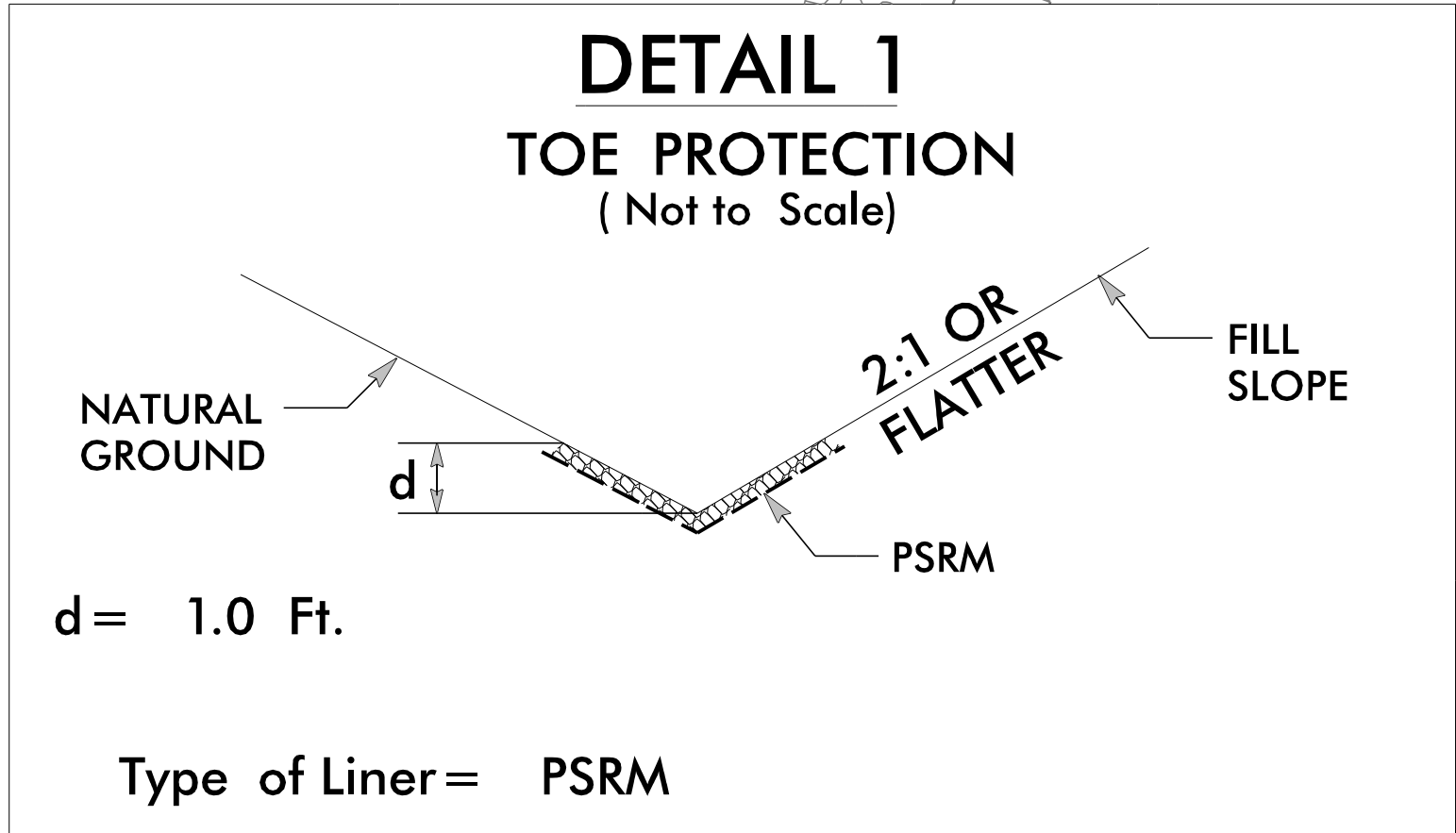
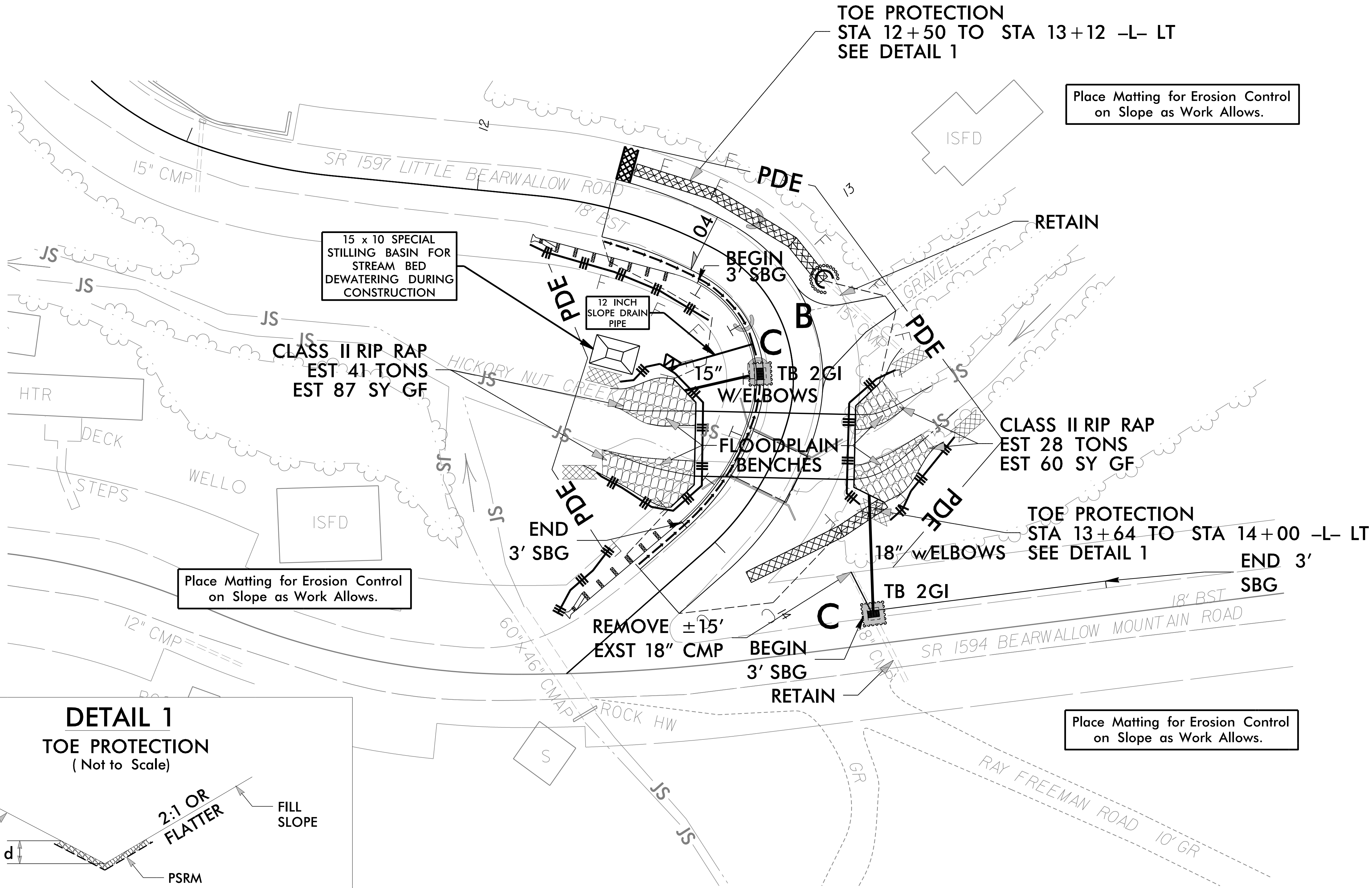
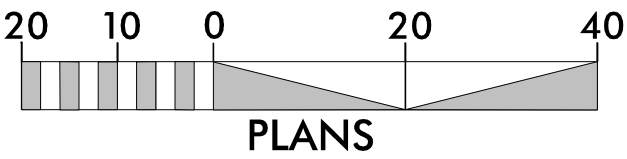
NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

# EROSION CONTROL PLAN

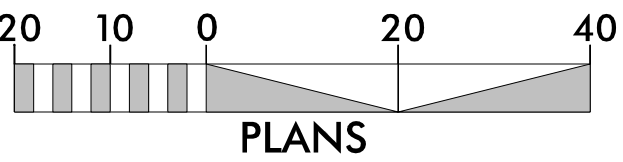
FINAL GRADE  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 04

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.RJ8	EC-05/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

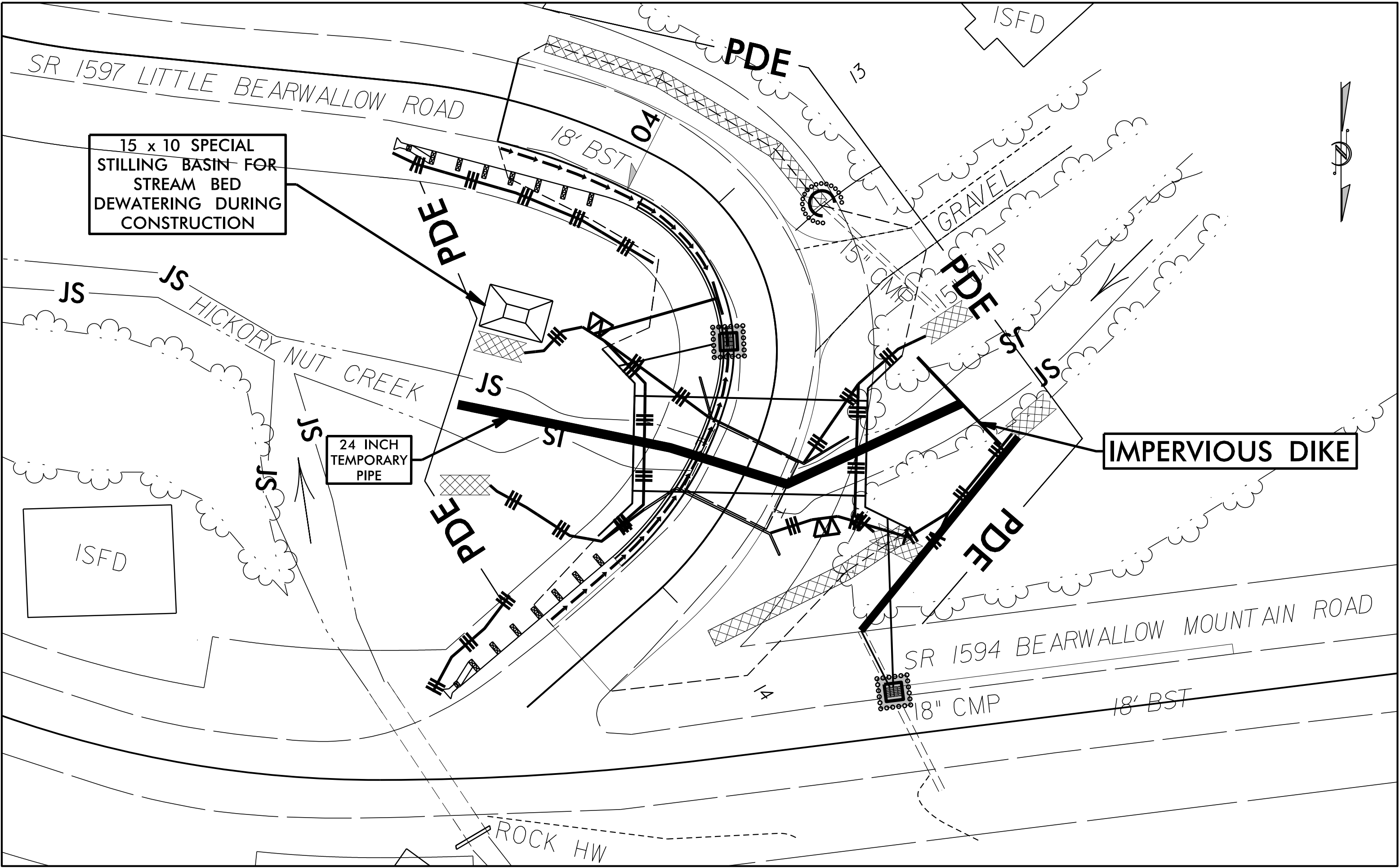


FROM STA. 12+50 TO STA. 13+12 -L- LT  
FROM STA. 13+64 TO STA. 14+00 -L- LT

PROJECT REFERENCE NO.		SHEET NO.
17BPJ4.RJ8		EC-06
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER



# CULVERT INSTALLATION PHASING



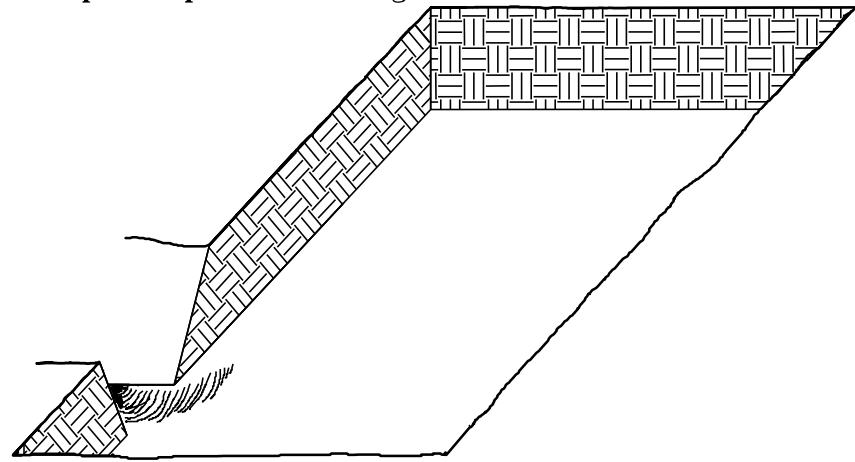
- CONSTRUCTION SEQUENCE:
- 1) INSTALL SPECIAL STILLING BASIN
  - 2) INSTALL TEMPORARY PIPE AND IMPERVIOUS DIKE
  - 3) DEWATER CONSTRUCTION AREA AND TREAT EFFLUENT WATER USING A SPECIAL STILLING BASIN
  - 4) REMOVE EXISTING BRIDGE
  - 5) INSTALL 22'-0"X6'11" STRUCTURAL PLATE ARCH
  - 6) REMOVE SPECIAL STILLING BASIN, TEMPORARY PIPE AND IMPERVIOUS DIKE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.18	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.14.R.18		P.E., ROW, UTIL	

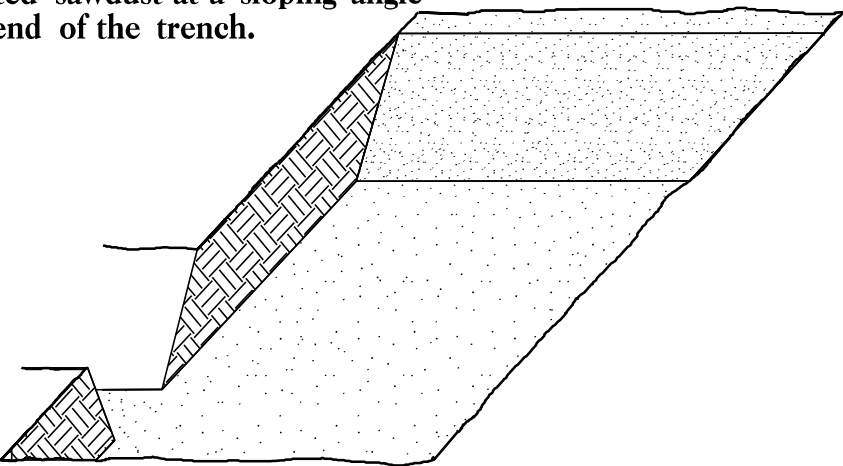
PLANTING DETAILS  
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

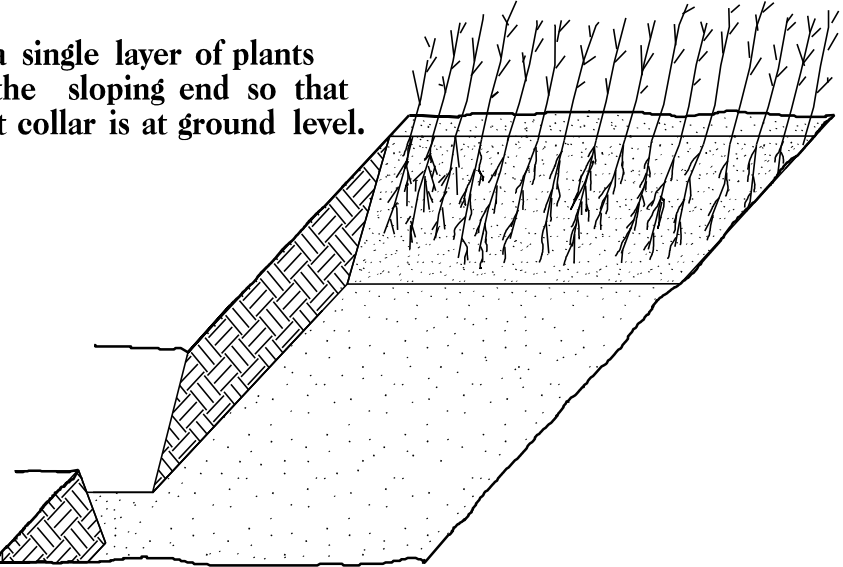
1. Locate a healing-in site in a shady, well protected area.  
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



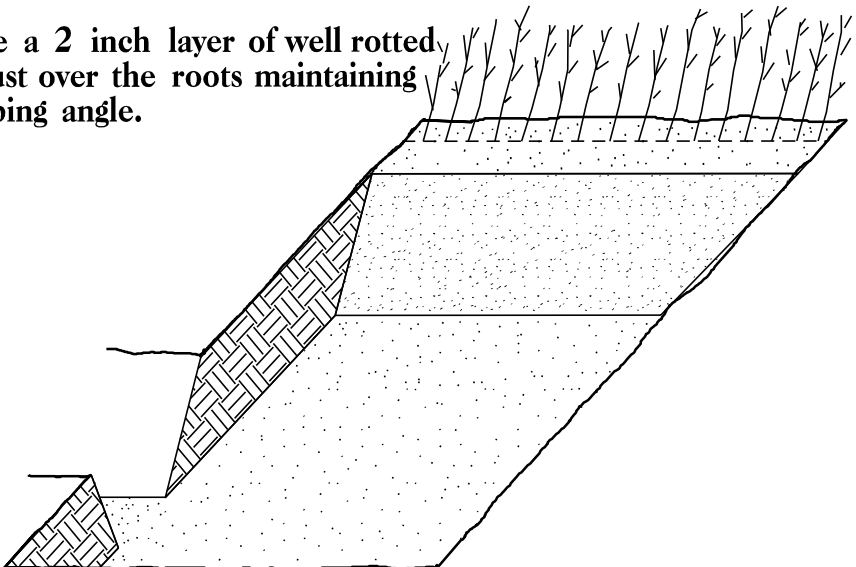
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

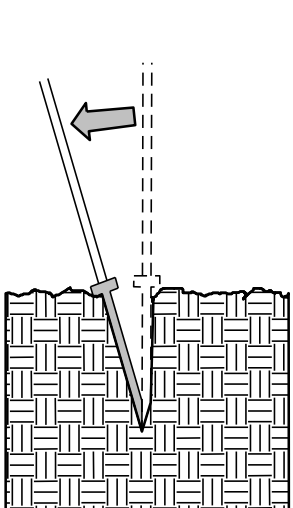


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

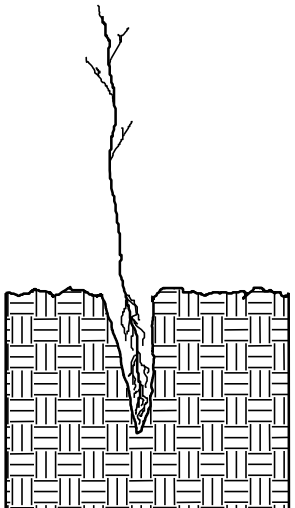


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

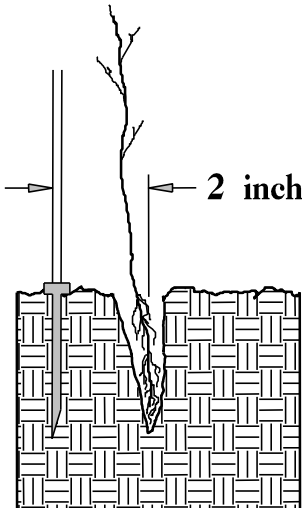
DIBBLE PLANTING METHOD  
USING THE KBC PLANTING BAR



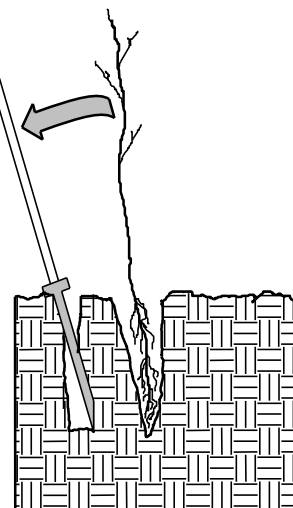
1. Insert planting bar as shown and pull handle toward planter.



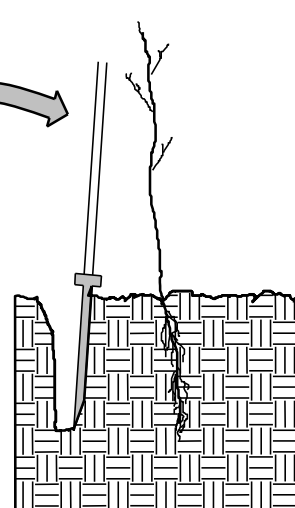
2. Remove planting bar and place seedling at correct depth.



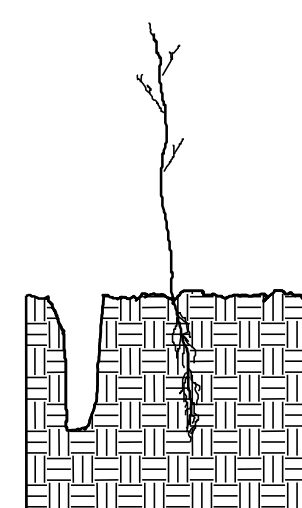
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



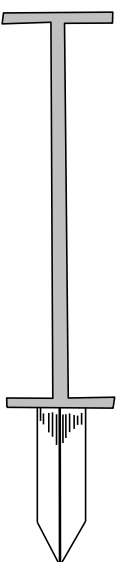
6. Leave compaction hole open. Water thoroughly.

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	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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.18	X-0

CROSS SECTION IN SUMMARY

LOCATION	UNCLASSIFIED EXCAVATION	EMBANKMENT
12+50	0	0
12+75	3	19
13+00	0	45
13+25	0	110
13+50	77	171
13+75	77	247
14+00	8	166
14+25	13	13

EMBANKMENT COLUMN DOES NOT INCLUDE  
BACKFILL FOR UNDERCUT.

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
<div><div></div><div></div><div></div><div></div><div></div></div>	17BP.14.R.18	X-1

75

70

65

60

55

50

45

40

35

30

25

20

15

10

5

0

5

10

15

20

25

30

35

40

45

50

55

60

65

70

75

-L- STATION 12+45.00 BEGIN PROJECT 17BP.14.R.18

2795

2790

2785

2780

2775

2770

2765

2760

2755

2750

2745

2740

2795

2790

2785

2780

2775

2770

2765

2760

2755

2750

2745

2740

2766.67

12+25.00

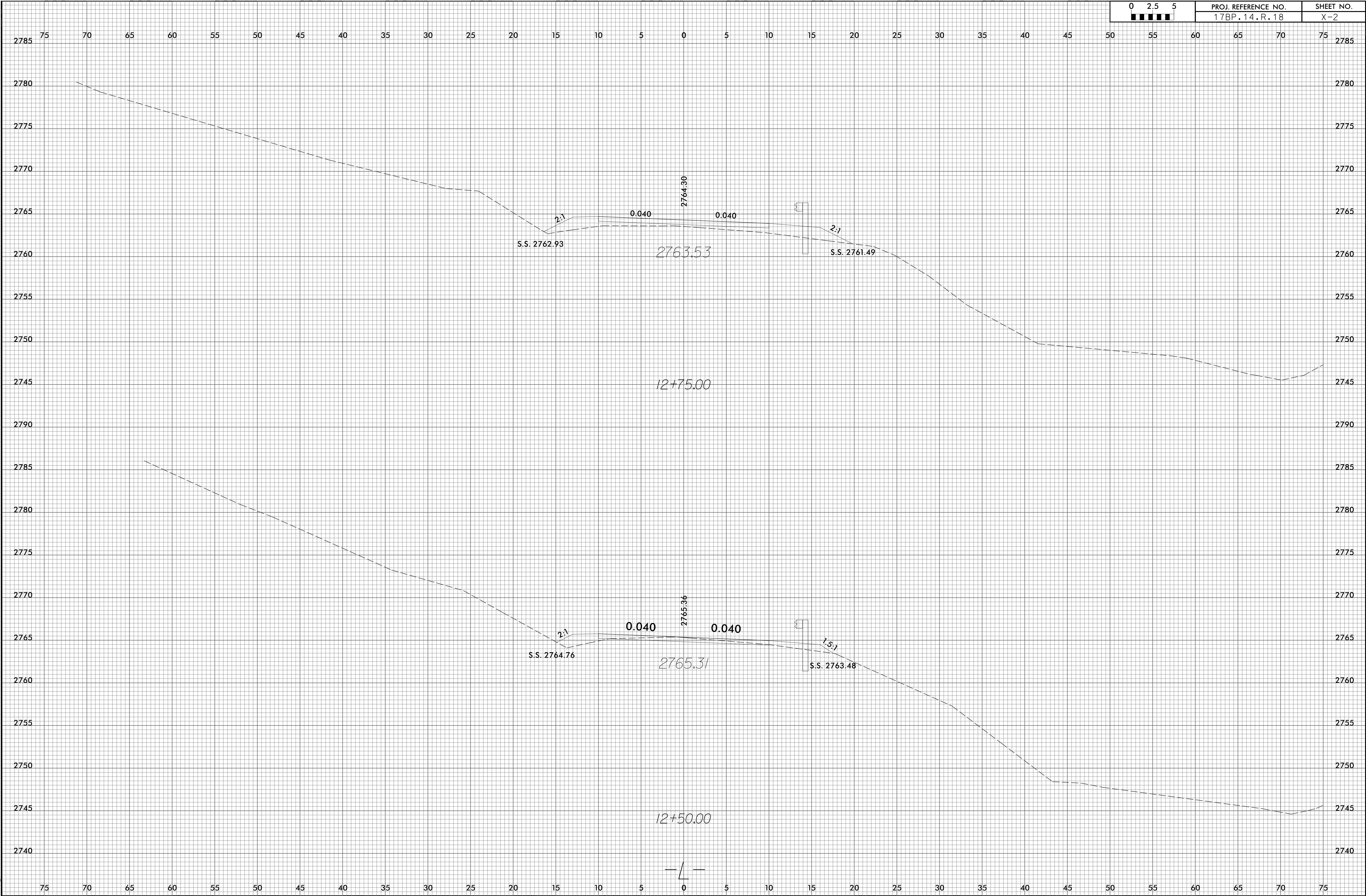
-L-

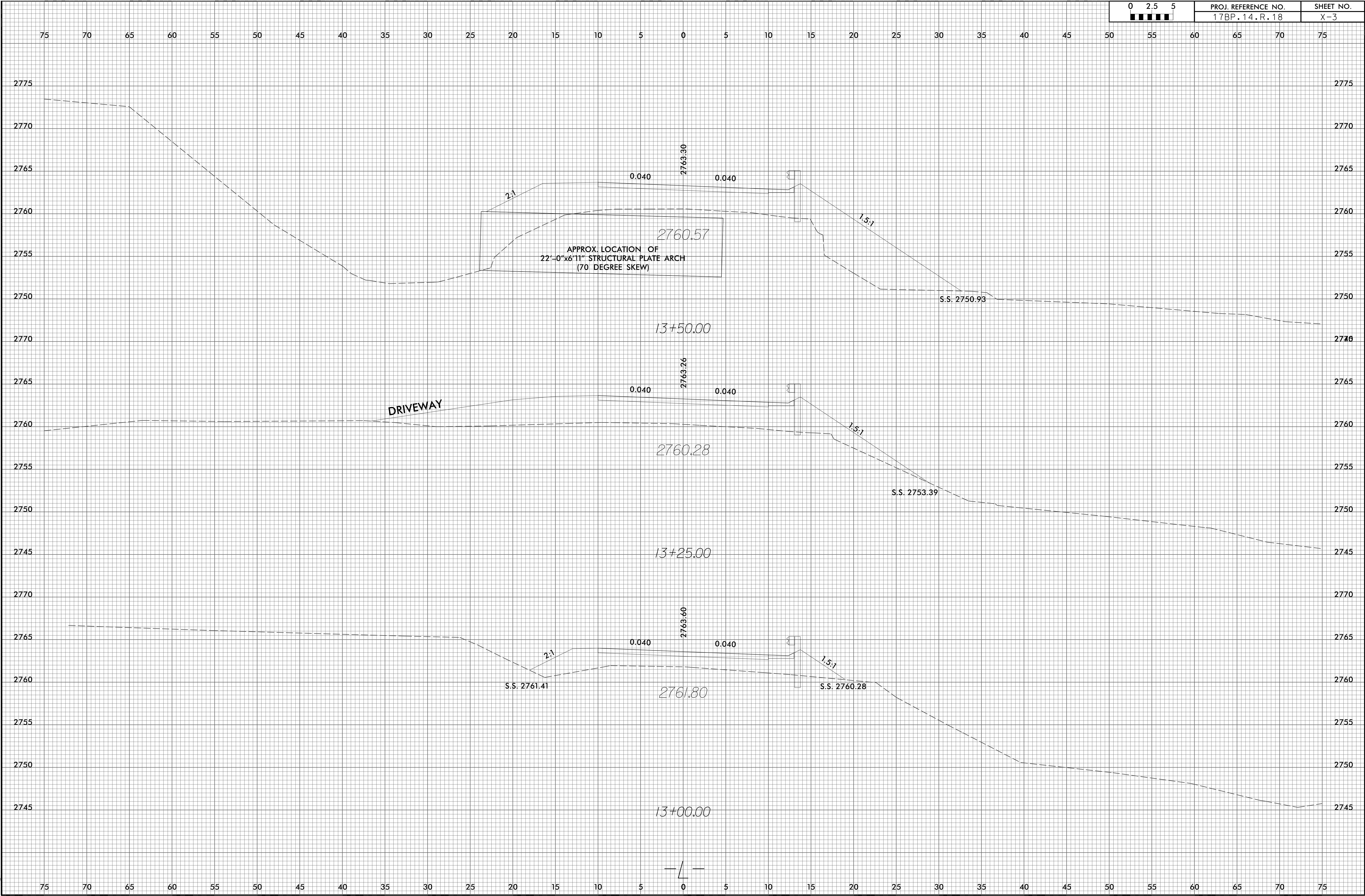
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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.14.R.18	X-4

