This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

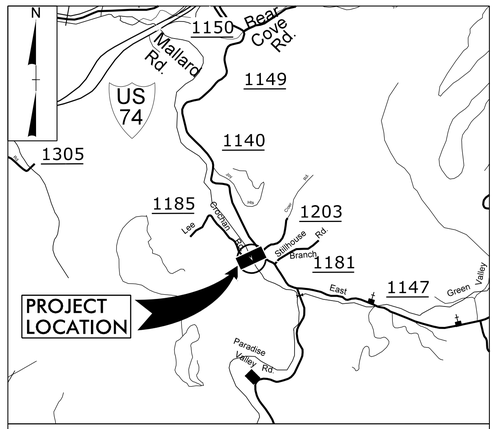
Docusign Envelope ID: BCFCFFB0-9154-89C2-83C7-26773B5A9C04

09/08/09

PROJECT: BP14–R014

CONTRACT: DN01168

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



VICINITY MAP N.T.S.

STAGE 4 PLANS (4RD1)
FINAL PLANS
PLAN SET

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

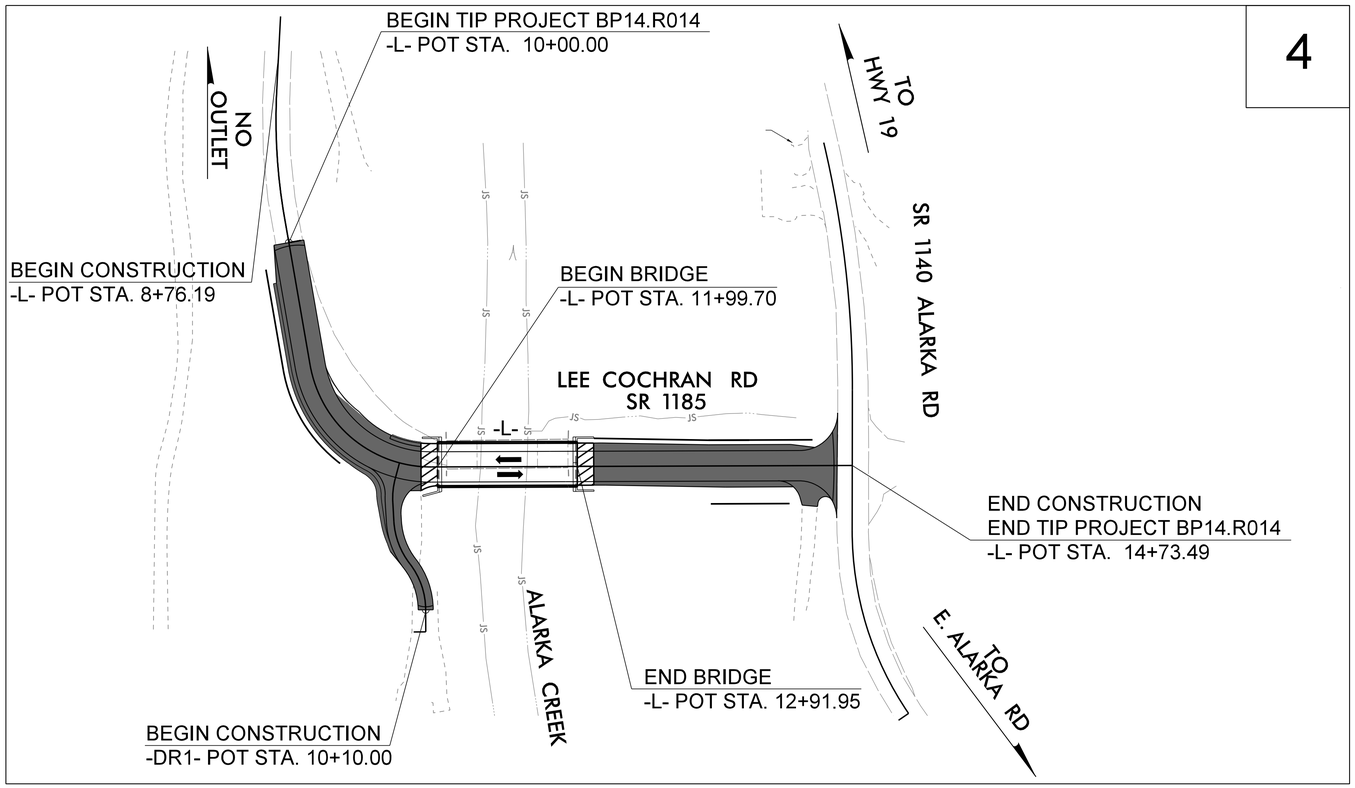
SWAIN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP14–R014	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP14.R014.1		PE
BP14.R014.2		R/W & UTIL
BP14.R014.3		CONSTRUCTION

LOCATION: REPLACE EXISTING BRIDGE NO. 860152 OVER ALARKA CREEK ON SR 1185 (LEE COCHRAN RD)

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



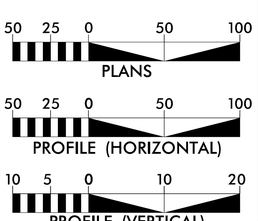
4

NAD 83/2011



CLEARING ON THIS PROJECT WILL BE PERFORMED
TO THE LIMITS ESTABLISHED BY METHOD II.
THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

GRAPHIC SCALES



DESIGN DATA

ADT 2026 = 54
ADT 2046 = 62
V = 25 MPH*

FUNCTIONAL CLASSIFICATION:
LOCAL
SUBREGIONAL TIER

*BRIDGE DESIGN SPEED INVESTIGATION

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BP14.R014	=	0.073 MI
LENGTH STRUCTURE TIP PROJECT BP14.R014	=	0.017 MI
TOTAL LENGTH TIP PROJECT BP14.R014	=	0.090 MI

Prepared In the Office of
WSP USA
431 FAYETTEVILLE STREET
SUITE 1900
RALEIGH, NC 27601
TEL: (919) 836-4040
FAX: (919) 836-4099
LICENSE NO. F-0165

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 27, 2025

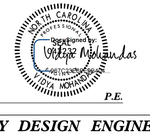
LETTING DATE: NOVEMBER 11 , 2026

VIDYA MOHANDAS, PE
PROJECT ENGINEER

SEAN MELVILLE, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: ZACHARY SHULER, PE
DIVISION 14 BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER



SIGNATURE:

ROADWAY DESIGN ENGINEER



SIGNATURE:



2:28:26 PM
I:\BP\R66_86052_Rdy_tsh.dgn
7/21/2026

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 049225 ENGINEER SEAN R MELVILLE
Signed by: Sean Melville
7/21/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS
1B	CONVENTIONAL SYMBOLS
2A–1 THRU 2A–2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND DETAILS
2B–1 THRU 2B–4	DETAIL SHEETS
2C–1 THRU 2C–5	SPECIAL DETAILS
2G–1 THRU 2G–4	GEOTECHNICAL DETAILS
3B–1	ROADWAY SUMMARIES
3D–1	DRAINAGE SUMMARIES
3G–1	GEOTECHNICAL SUMMARIES
4	PLAN AND PROFILE SHEETS
TMP–01 THRU TMP–06	TRANSPORTATION MANAGEMENT PLANS
EC–1 THRU EC–5	EROSION CONTROL PLANS
X–1 THRU X–13	CROSS–SECTIONS

GENERAL NOTES: 2024 SPECIFICATIONS

EFFECTIVE: 01–16–2024
REVISED:

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

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.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVEWAYS WILL BE 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.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

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 OWNDERS ON THIS PROJECT ARE DUKE ENERGY, FRONTIER COMMUNICATION, AND ZITO MEDIA. ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT–OF–WAY MARKERS:

ALL RIGHT–OF–WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit – N. C. Department of Transportation – Raleigh, N. C., Dated January 16, 2024 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
225.06	Method of Grading Sight Distance at Intersections
275.01	Rock Plating
DIVISION 3 – PIPE CULVERTS	
310.01	Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
DIVISION 4 – MAJOR STRUCTURES	
423.01	Bridge Approach Fills – Type 1 Approach Fill for Bridge Abutment
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 6 – ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 – INCIDENTALS	
806.01	Concrete Right–of–Way Marker
806.02	Granite Right–of–Way Marker
815.02	Subsurface Drain
840.16	Drop Inlet Frame and Grates – For Use With STD. DWG 840.14 and 840.15
840.22	Frames and Wide Slot Sag Grates
840.24	Frames and Narrow Slot Sag Grates
840.29	Frames and Narrow Slot Flat Grates
840.54	Manhole Frame and Cover
846.01	Concrete Curb, Gutter and Curb & Gutter
848.02	Driveway Turnout – Radius Type
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
862.02	Guardrail Installation
862.03	Structure Anchor Units (Use Detail in Lieu of Standard for Sheet 8 of 9)
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

7:37:35 PM
P:\BP14_R014_860152_Rdy_1A.dgn
7/21/2026

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

05/20/24

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP) — EIP
- Computed Property Corner
- Existing Concrete Monument (ECM) — 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
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW CA
- 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

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 — S
- Storm Sewer — S

UTILITIES:

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

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- U/G Power Line Test Hole (SUE - LOS A)*
- U/G Power Line (SUE - LOS B)* — P
- U/G Power Line (SUE - LOS C)* — P
- U/G Power Line (SUE - LOS D)* — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line Test Hole (SUE - LOS A)*
- U/G Water Line (SUE - LOS B)* — W
- U/G Water Line (SUE - LOS C)* — W
- U/G Water Line (SUE - LOS D)* — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Test Hole (SUE - LOS A)*
- U/G TV Cable (SUE - LOS B)* — TV
- U/G TV Cable (SUE - LOS C)* — TV
- U/G TV Cable (SUE - LOS D)* — TV
- U/G Fiber Optic Cable (SUE - LOS B)* — TV FO
- U/G Fiber Optic Cable (SUE - LOS C)* — TV FO
- U/G Fiber Optic Cable (SUE - LOS D)* — TV FO

GAS:

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

SANITARY SEWER:

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

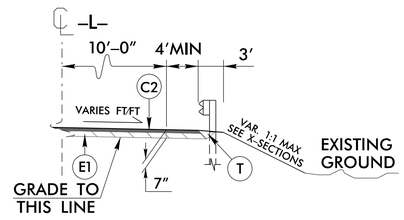
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line (SUE - LOS B)* — 2UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

Docusign Envelope ID: FD334463-83DB-8065-806A-44D72F3A0E9F

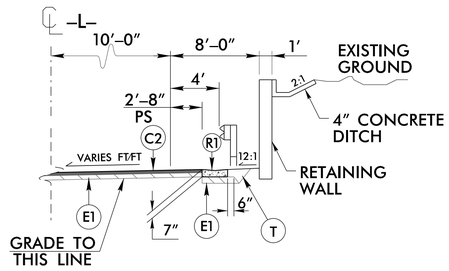
8/17/99

REVISIONS



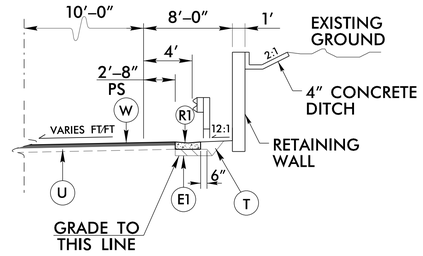
DETAIL A
GUARDRAIL
(USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 2)

–L– STA. 11+26.08 (LT) TO –DR1– 11+62.03 (LT)
–L– STA. 12+91.95 (RT) TO –L– 14+24.45 (RT)
–L– STA. 11+26.17 (LT) TO –L– 11+99.70 (LT)
–L– STA. 12+91.95 (LT) TO –L– 14+33.03 (LT)



DETAIL B
RETAINING WALL
(USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 2)

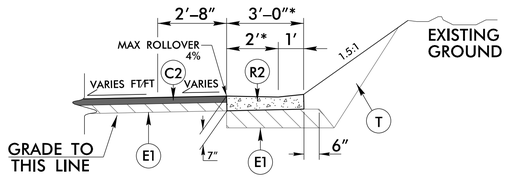
–L– STA. 10+85.00 TO –L– 11+42.70 (RT)



DETAIL C
RETAINING WALL
(USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1)

–L– STA. 10+25.00 TO –L– 10+85.00 (RT)

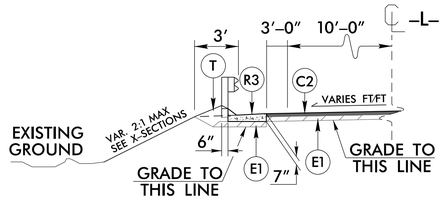
*Varies 15:1 along –L– to structure No. 0408



DETAIL D
NONSTANDARD VALLEY GUTTER
(USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 2)

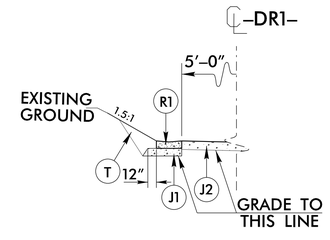
–L– STA. 11+52.70 TO –L– 11+60.81 (RT)

NOTE: 10′ TRANSITION FROM DETAIL C TO D.



DETAIL E
SHOULDER BERM GUTTER
(USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 2)

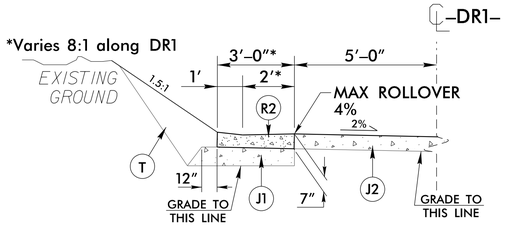
–L– STA. 11+62.03 TO –L– 11+87.47 (LT)



DETAIL F
VALLEY GUTTER
(USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 3)

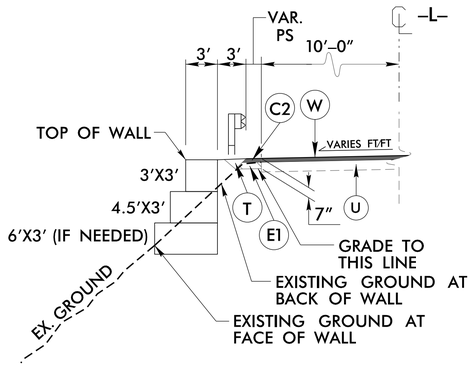
–DR1– STA. 10+60.00 TO –DR1– 10+65.00 (LT)

*Varies 8:1 along DR1



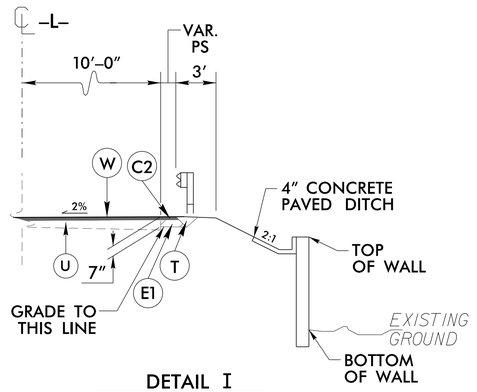
DETAIL G
NONSTANDARD VALLEY GUTTER
(USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 3)

–DR1– STA. 10+65.00 TO –DR1– 11+02.87 (LT)



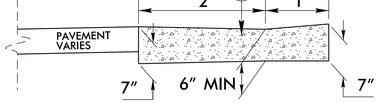
DETAIL H
RETAINING WALL
(USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1)

–L– STA. 13+03.03 TO –L– 14+47.28 (LT)



DETAIL I
RETAINING WALL
(USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1)

–L– STA. 13+80.00 TO –L– 14+32.00 (RT)



NON STANDARD VALLEY GUTTER
(MIRROR FOR LEFT SIDE OF ROAD)

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042025 ENGINEER SEAN R. MELVILLE
7/21/2026

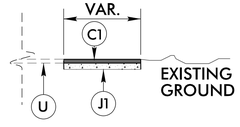
PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042496 ENGINEER JOSEPH T. HOLLAND
7/22/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
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 1½″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 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 5½″ IN DEPTH.
J1	PROP. 6″ AGGREGATE BASE COURSE.
J2	PROP. 8″ AGGREGATE BASE COURSE.
R1	VALLEY GUTTER
R2	NON STANDARD VALLEY GUTTER (SEE DETAIL THIS SHEET)
R3	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	1.5″ MILLING
W	WEDGING (SEE DETAIL THIS SHEET).

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



DETAIL J
TEMPORARY PAVEMENT FOR UNDER TEMPORARY CRASH CUSHION
(SEE SHEET TMP–04)

–L– STA. 11+70.00 TO –L– 11+96.00 (RT)

2:30:12 PM
BP-R14-860152_Rdy_typ.dgn
7/21/2026

Docusign Envelope ID: FD334463-83DB-8065-806A-44D72F3A0E9F

8/17/99

REVISIONS

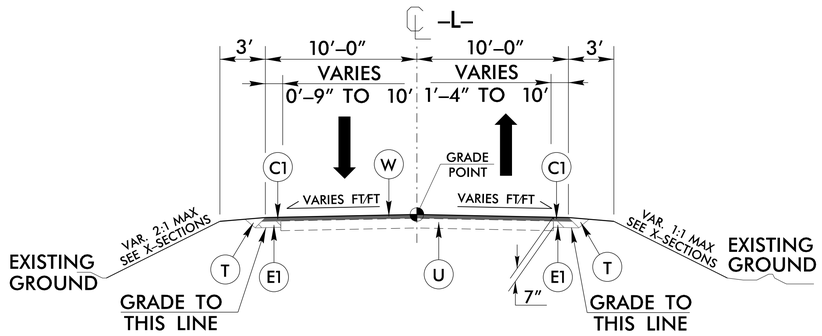
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2A-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042215 ENGINEER SEAN R. MELVILLE
7/21/2026

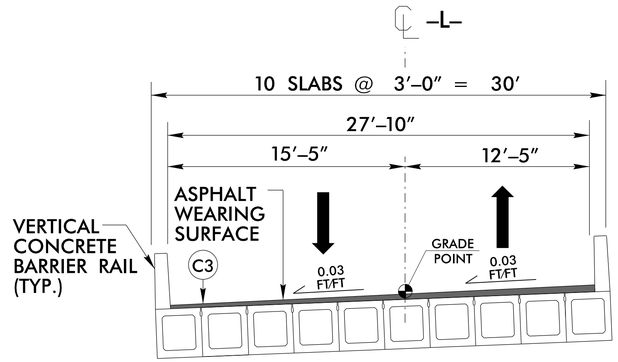
PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024404 ENGINEER JOSEPH T. HOLLAND
7/22/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



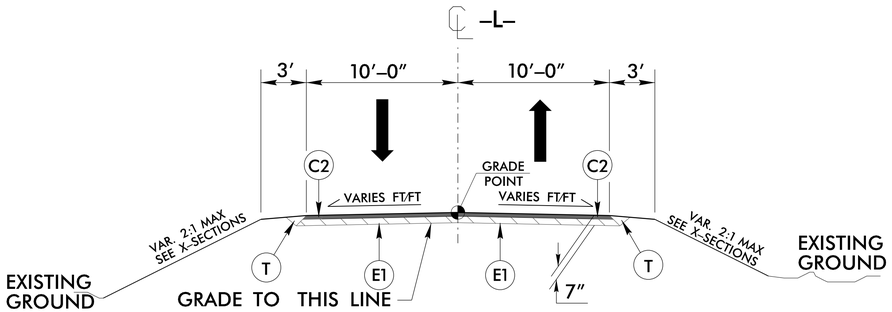
TYPICAL SECTION NO. 1

–L– STA. 10+00.00 TO –L– STA. 10+85.00
–L– STA. 12+91.95 (END BRIDGE) TO –L– STA. 14+63.64



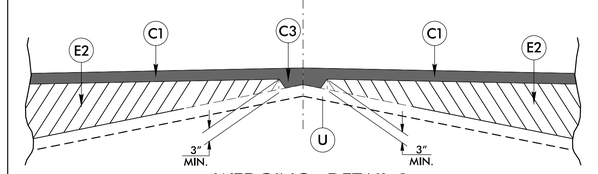
BRIDGE TYPICAL SECTION

–L– STA. 11+99.70 TO –L– STA. 12+91.95
(SEE STRUCTURES PLANS)



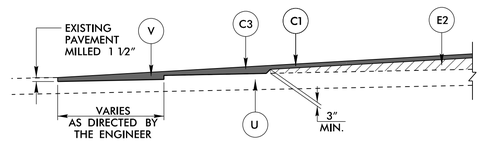
TYPICAL SECTION NO. 2

–L– STA. 10+85.00 TO STA. –L– 11+99.70 (BEGIN BRIDGE)



WEDGING DETAIL 1

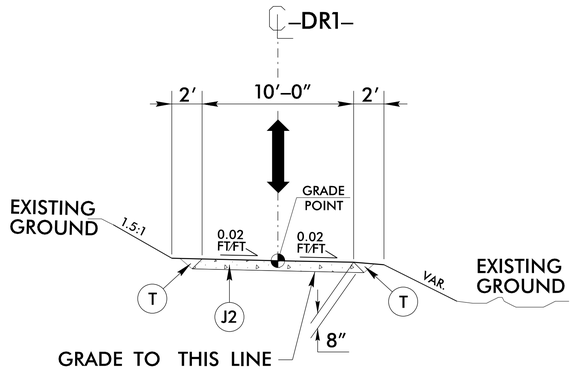
–L– STA. 10+25.00 TO STA. –L– 10+85.00



MILLING DETAIL FOR PROFILE CONNECTIONS

TYING PROPOSED PAVEMENTS TO EXISTING PAVEMENTS

FINAL PAVEMENT SCHEDULE	
C1	1.5″ S9.5B
C2	3″ S9.5B
C3	VAR. DEPTH S9.5B
E1	4″ B25.0C
E2	VAR. DEPTH B25.0C
J1	6″ ABC
J2	8″ ABC
R1	VALLEY GUTTER
R2	NON-STANDARD VALLEY GUTTER
R3	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	1.5″ MILLING
W	WEDGING



TYPICAL SECTION NO. 3

–DR1– STA. 10+14.56 TO STA. –DR1– 11+06.84

5:06:31 PM
C:\pwworking\raleigh\d860152\Rdy_typ.dgn
7/21/2026

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

DETAIL OF HORIZONTAL ALIGNMENT AND RIGHT OF WAY INFORMATION

SCALE 50 25 0 50 100

NAD 83-2011

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049226 SEAN R. MELVILLE

7/21/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

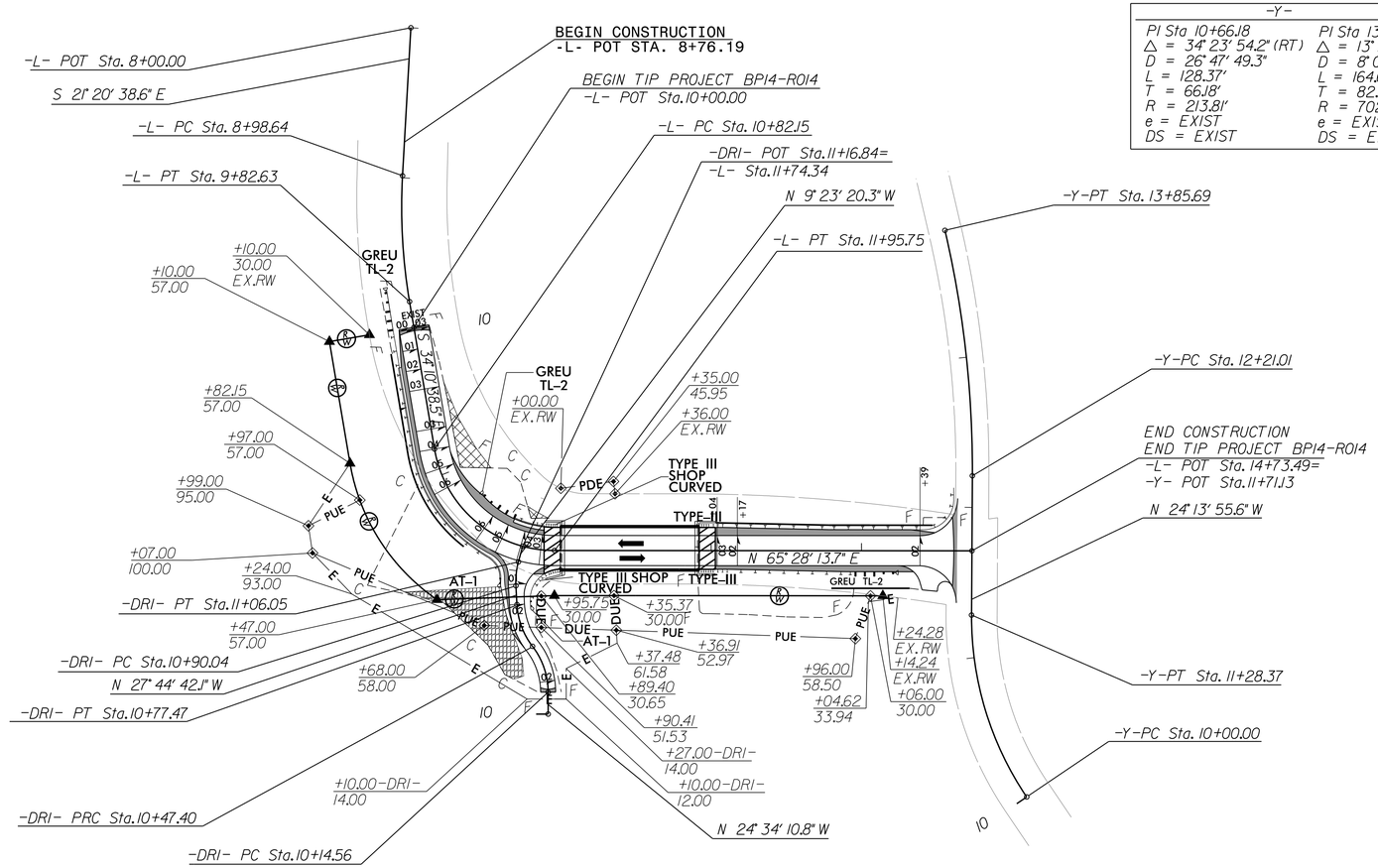
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

-Y-	
PI Sta 10+66.18	PI Sta 13+03.73
△ = 34° 23' 54.2" (RT)	△ = 13° 25' 25.5" (LT)
D = 26° 47' 49.3"	D = 8° 09' 05.0"
L = 128.37'	L = 164.68'
T = 66.18'	T = 82.72'
R = 213.81'	R = 702.90'
e = EXIST	e = EXIST
DS = EXIST	DS = EXIST

-DRI-
PI Sta 10+31.59
△ = 37° 37' 57.4" (LT)
D = 114° 35' 29.6"
L = 32.84'
T = 17.04'
R = 50.00'

-DRI-	
PI Sta 10+62.90	PI Sta 10+98.11
△ = 34° 27' 26.1" (RT)	△ = 18° 21' 21.8" (RT)
D = 114° 35' 29.6"	D = 114° 35' 29.6"
L = 30.07'	L = 16.02'
T = 15.50'	T = 8.08'
R = 50.00'	R = 50.00'

-L-	
PI Sta 9+40.81	PI Sta 11+50.55
△ = 12° 49' 59.9" (LT)	△ = 80° 21' 07.9" (LT)
D = 15° 16' 43.9"	D = 7° 0' 44' 07.9"
L = 83.99'	L = 113.60'
T = 42.17'	T = 68.39'
R = 375.00'	R = 81.00'
e = EXIST	e = 0.06
DS = EXIST	DS = 20 MPH



SEE SHEET 4 FOR ROADWAY PLAN AND PROFILE SHEET.

08/15/2025 PARCELS 2 & 4 - CHANGED PARCEL NO.2 OWNER NAME AND REMOVED CLAIM TO PARCEL NO.4 TEMPORARY CONSTRUCTION EASEMENT AND RIGHT OF WAY.

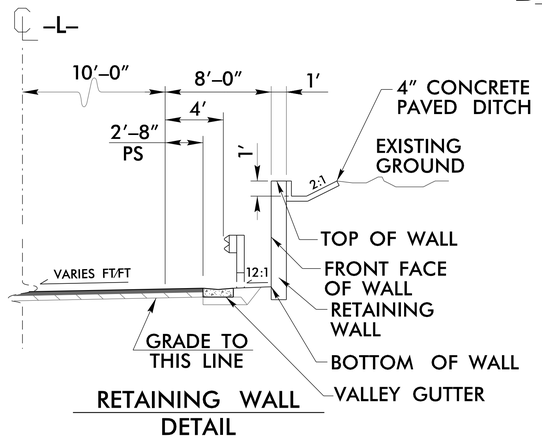
5/14/99

3:50:01 PM
BP14-R014_rdy_psh_sheet2B-1.dgn
7/21/2026

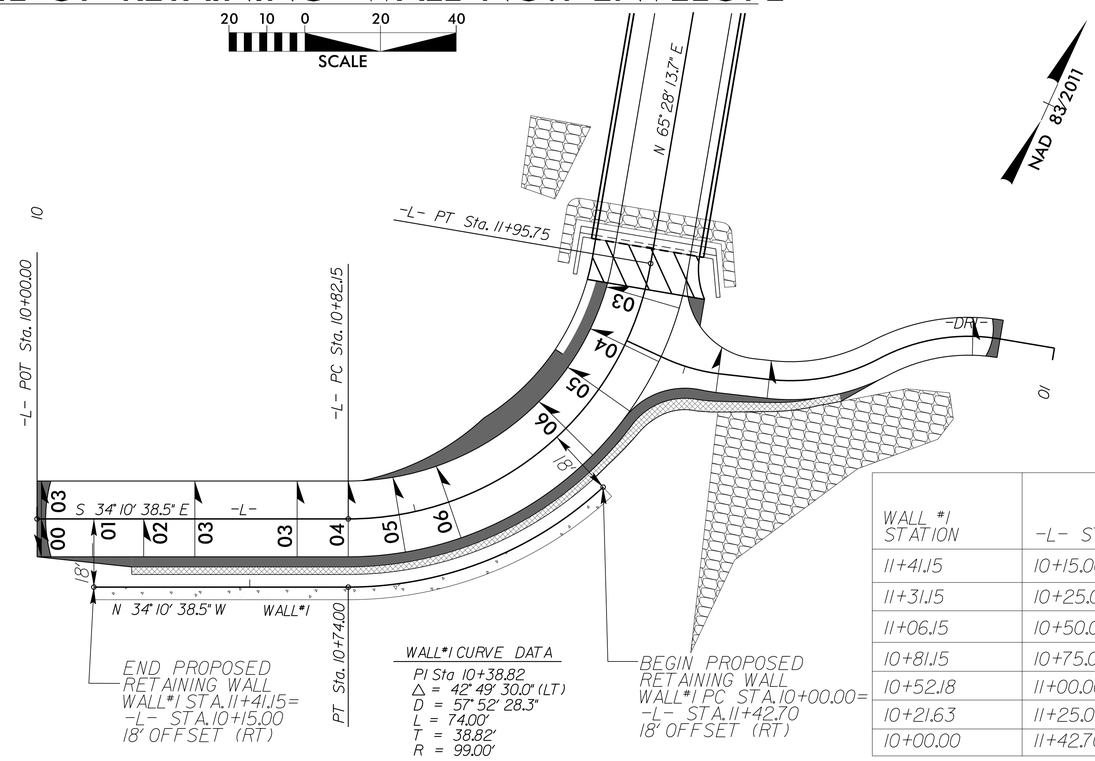
Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

8/17/99

DETAIL OF RETAINING WALL NO.1 ENVELOPE



RETAINING WALL DETAIL



WALL #1 STATION	–L– STATION	TOP OF WALL	BOTTOM OF WALL ELEVATION (FT)	WALL HEIGHT (FT)
11+41.15	10+15.00	1,961.88	1,961.41	0.47
11+31.15	10+25.00	1,967.88	1,961.244	6.64
11+06.15	10+50.00	1,970.78	1,960.211	10.57
10+81.15	10+75.00	1,977.96	1,959.077	18.88
10+52.18	11+00.00	1,982.19	1,958.143	24.04
10+21.63	11+25.00	1966.92	1,957.234	9.68
10+00.00	11+42.70	1,956.73	1,956.73	0.0

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2B-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 049222 ENGINEER JEAN R. MELVILLE
Signed
7/21/2026

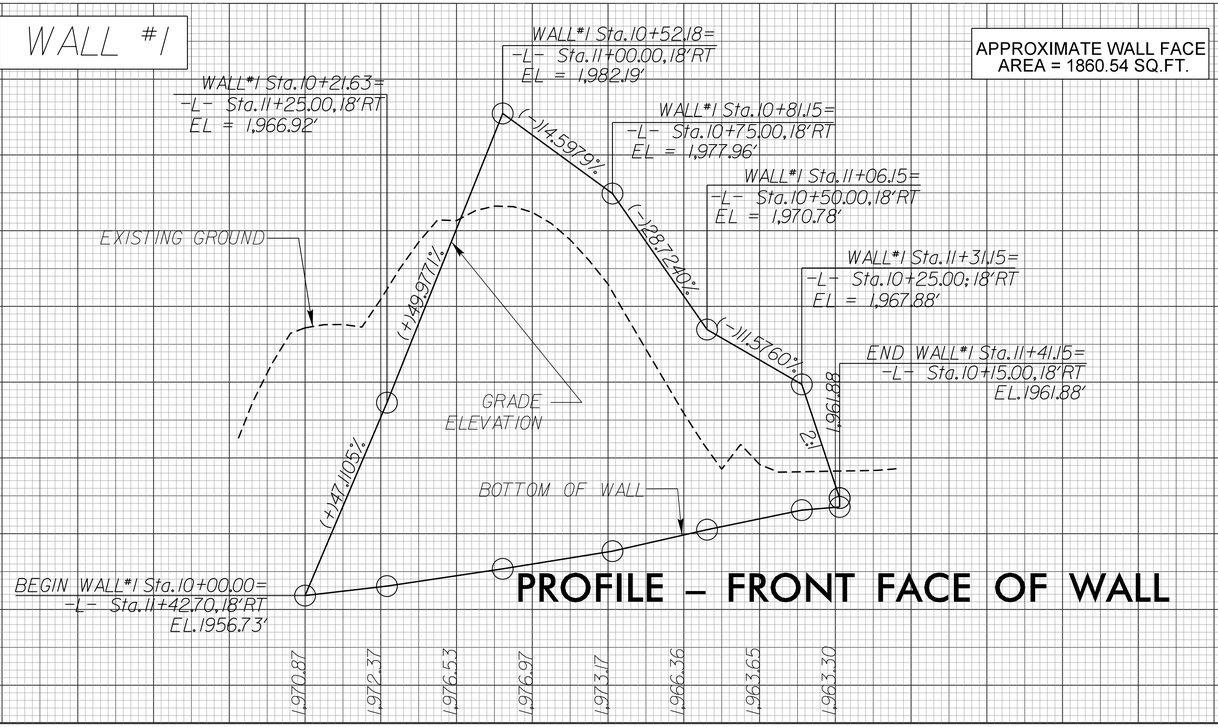
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

WALL #1

APPROXIMATE WALL FACE AREA = 1860.54 SQ.FT.



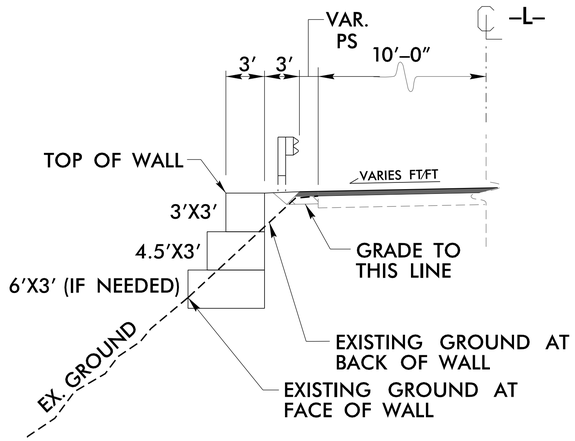
PROFILE – FRONT FACE OF WALL

I:\168_BM_DESIGN\860152.Rdy_28-2.dgn
7/20/2026

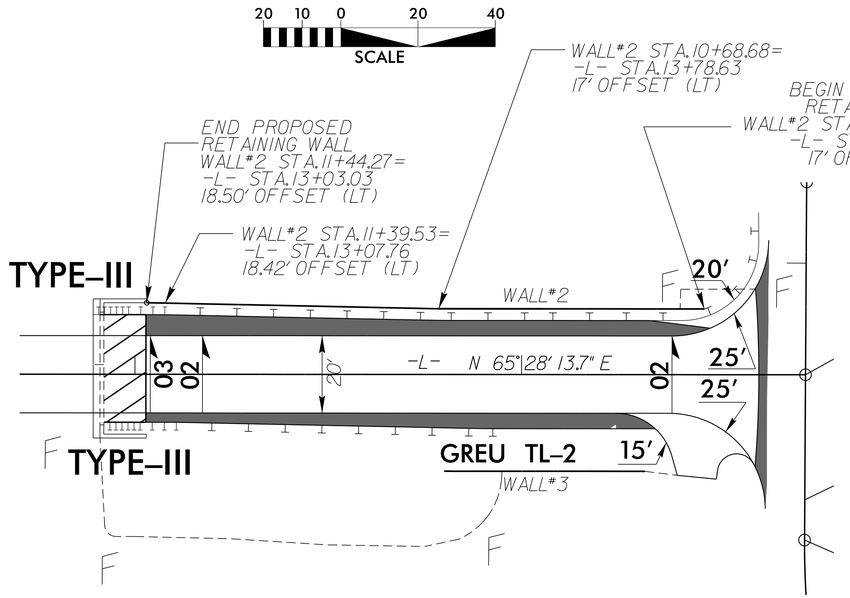
Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

8/17/99

DETAIL OF RETAINING WALL NO.2 ENVELOPE



RETAINING WALL
DETAIL
NTS



WALL STATION –WALL#2–	TOP OF WALL ELEVATION (FT)	EXISTING GROUND AT FACE OF WALL ELEVATION (FT)	WALL HEIGHT (FT)
10+00.00	1,966.21	1,962.59	3.62
10+17.28	1,965.51	1,957.01	8.50
10+47.28	1,963.28	1,958.47	4.81
10+71.94	1,961.00	1,956.83	4.17
10+96.93	1,958.72	1,954.51	4.21
11+21.93	1,956.89	1,952.13	4.76
11+44.27	1,955.47	1,950.41	5.06

NOTE: EMBEDMENT DEPTH NOT INCLUDED IN WALL HEIGHT OR WALL FACE AREA

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2B-3
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 048129 ENGINEER SEAN R MELVIN
7/21/2026

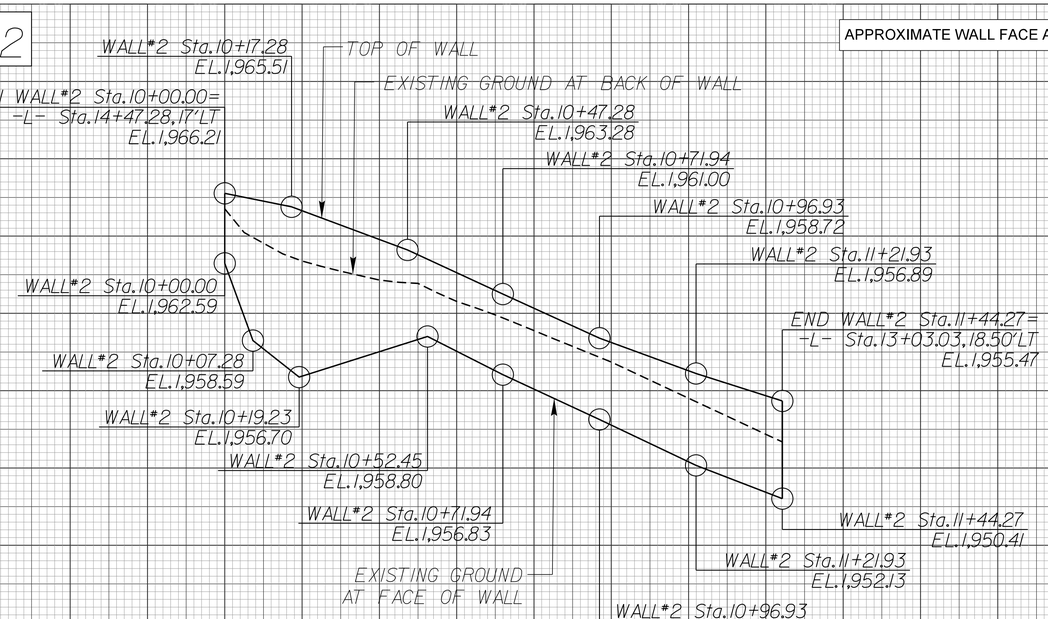
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

WALL #2

APPROXIMATE WALL FACE AREA = 753 SQ. FT.



PROFILE – FRONT FACE OF WALL

EXIST. GROUND ELEVATIONS: 1,965.41 | 1,962.71 | 1,961.72 | 1,960.62 | 1,959.11 | 1,957.48 | 1,955.61 | 1,953.74

12 10 11

I:\SECD_PM\Projects\6060152_Rdy_2B-3.dgn
7/21/2026 12:35:20 PM

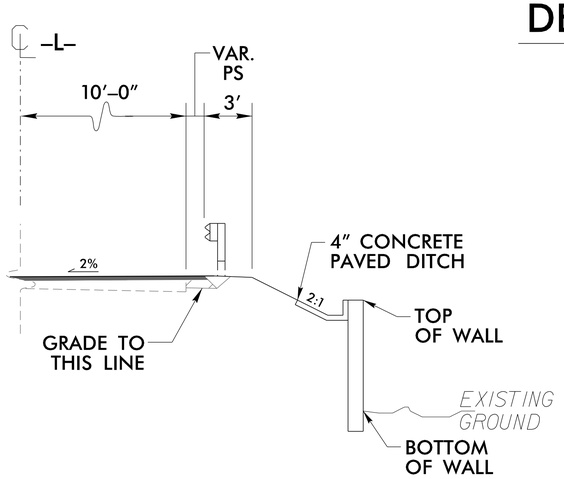
Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

8/17/99

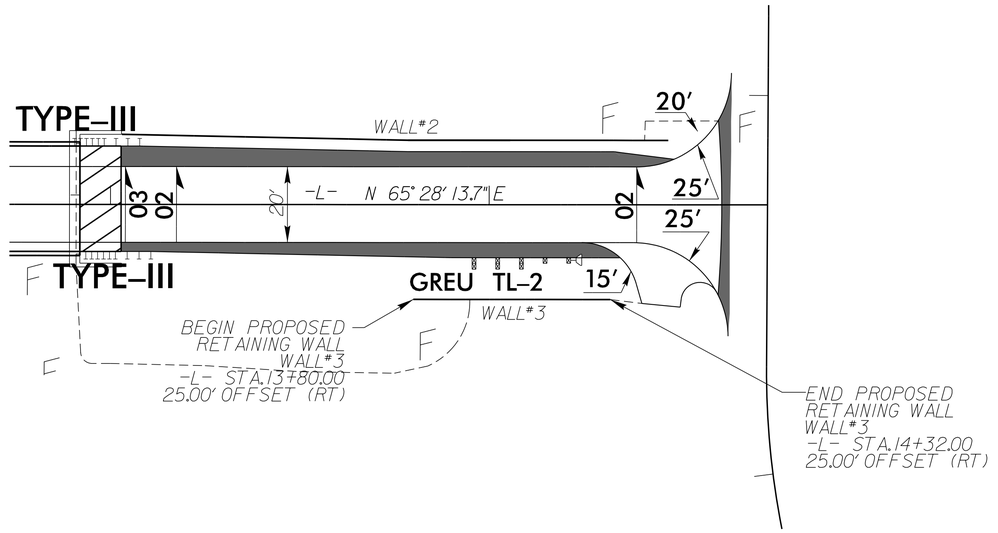
DETAIL OF RETAINING WALL NO.3 ENVELOPE

SCALE 20 10 0 20 40

NAD 83/2011



RETAINING WALL DETAIL
NTS



–L– STATION 25′ OFFSET RT	TOP OF WALL ELEVATION (FT)	BOTTOM OF WALL ELEVATION (FT)	DESIGN WALL HEIGHT (FT)
13+80.00	1,960.55	1,950.68	9.87
14+00.00	1,962.16	1,953.23	8.93
14+25.00	1,964.16	1,958.70	5.46
14+35.35	1,964.99	1,963.99	1.00

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2B-4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 049882 ENGINEER JEAN R. MELVILLE
7/21/2026

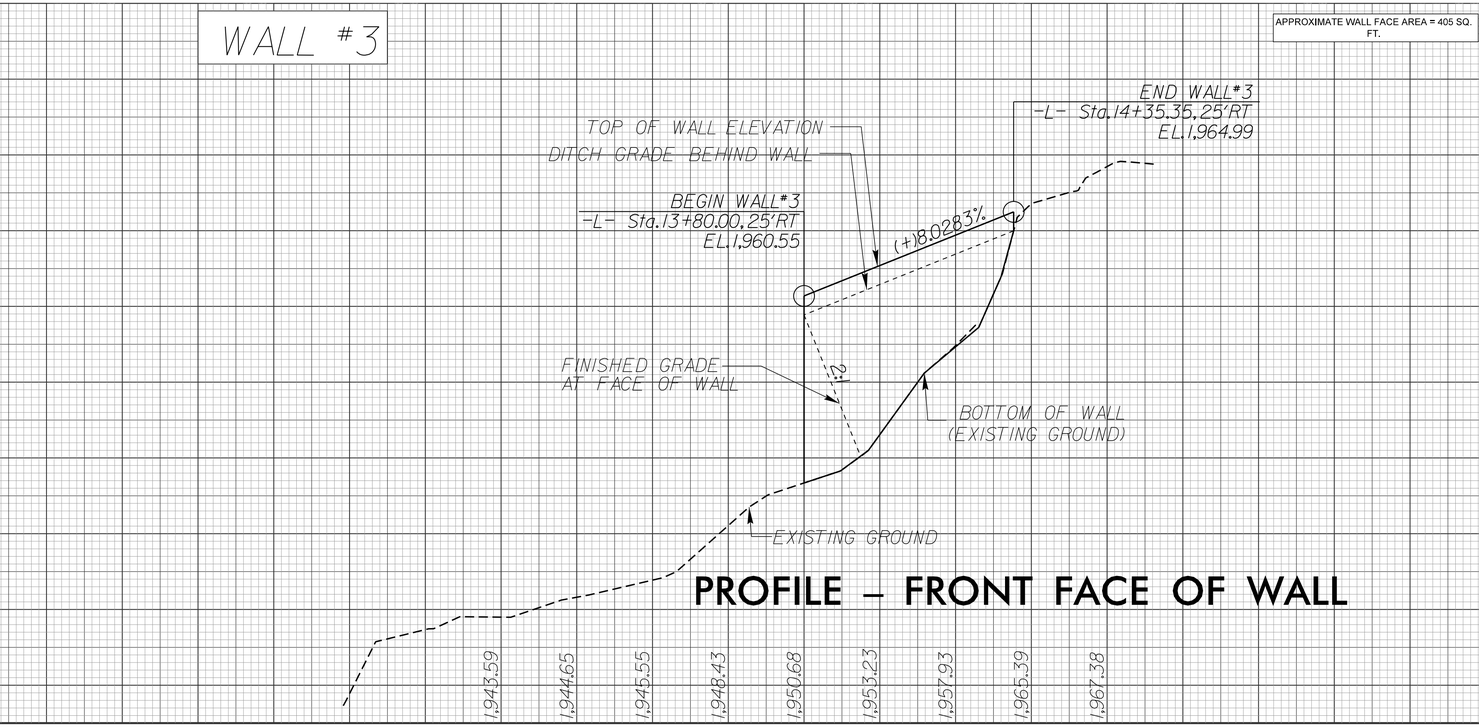
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

WALL #3

APPROXIMATE WALL FACE AREA = 405 SQ. FT.



PROFILE – FRONT FACE OF WALL

2:33:04 PM
C:\Projects\6368152.Rdu_28-4.dgn
7/21/2026

5/26/20

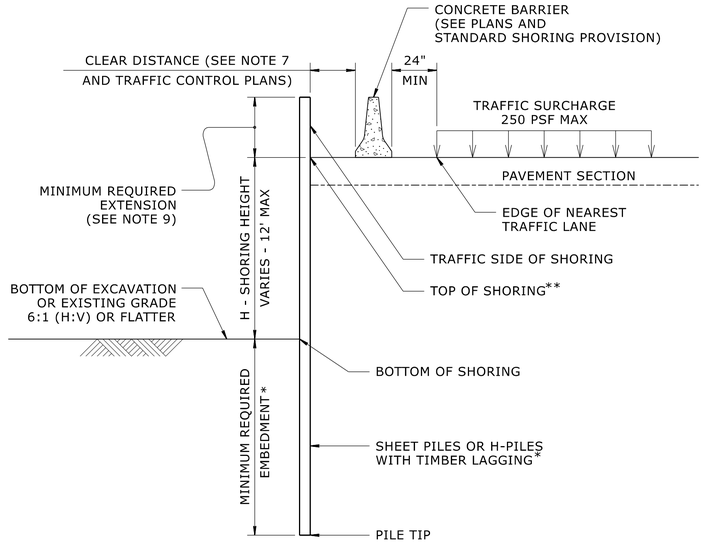
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

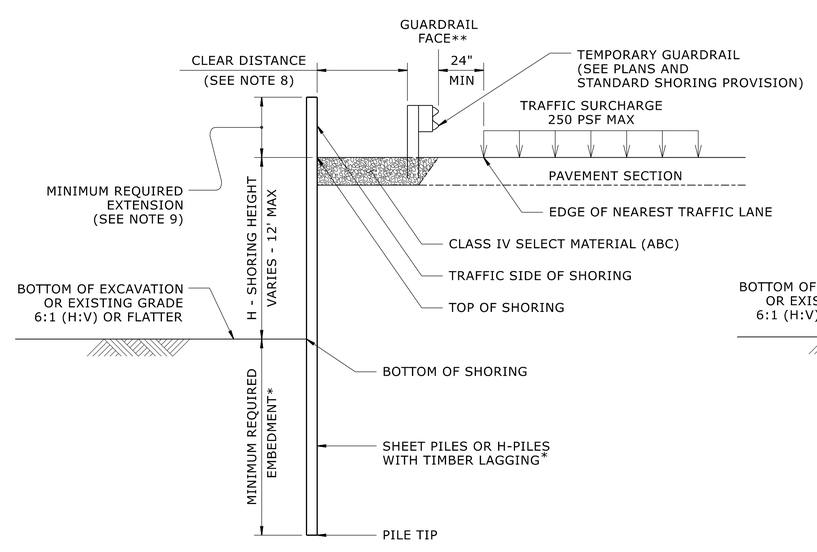
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 PSF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



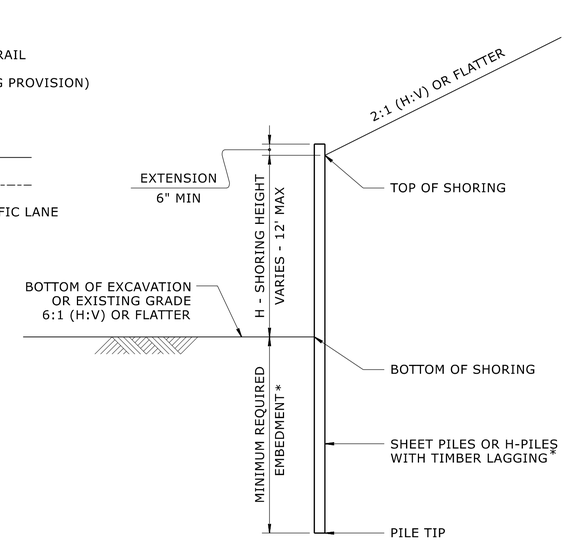
CONCRETE BARRIER

**TOP OF SHORING =
EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE =
EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)
*SEE TABLE ABOVE.

BP14.R014

GEO | 2G-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 048207 ENGINEER STEPHEN C CROCKETT

DocuSigned by: Stephen Crockett CSCA5FED48E0452...

5/13/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

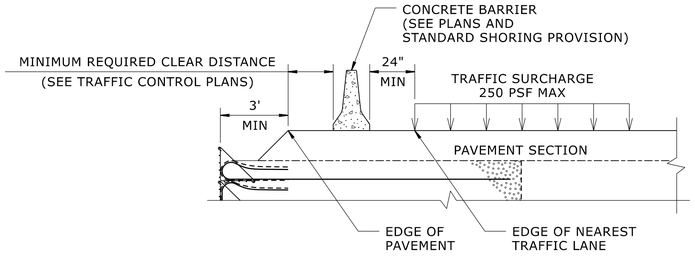
STANDARD DETAIL NO. 1801.01

GEOTECHNICAL STANDARD DETAIL FOR

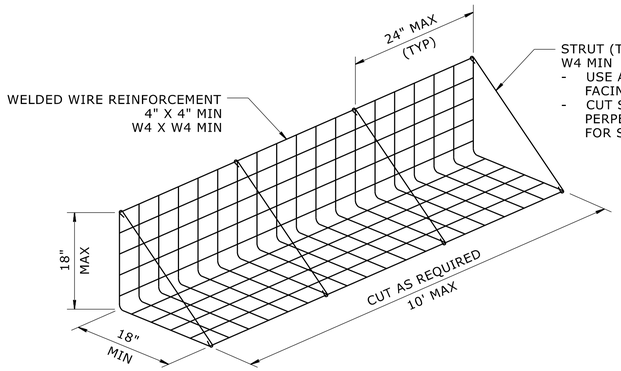
TEMPORARY SHORING

DATE: 02-18-2025

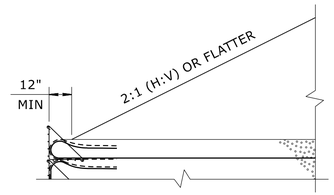
5/26/20



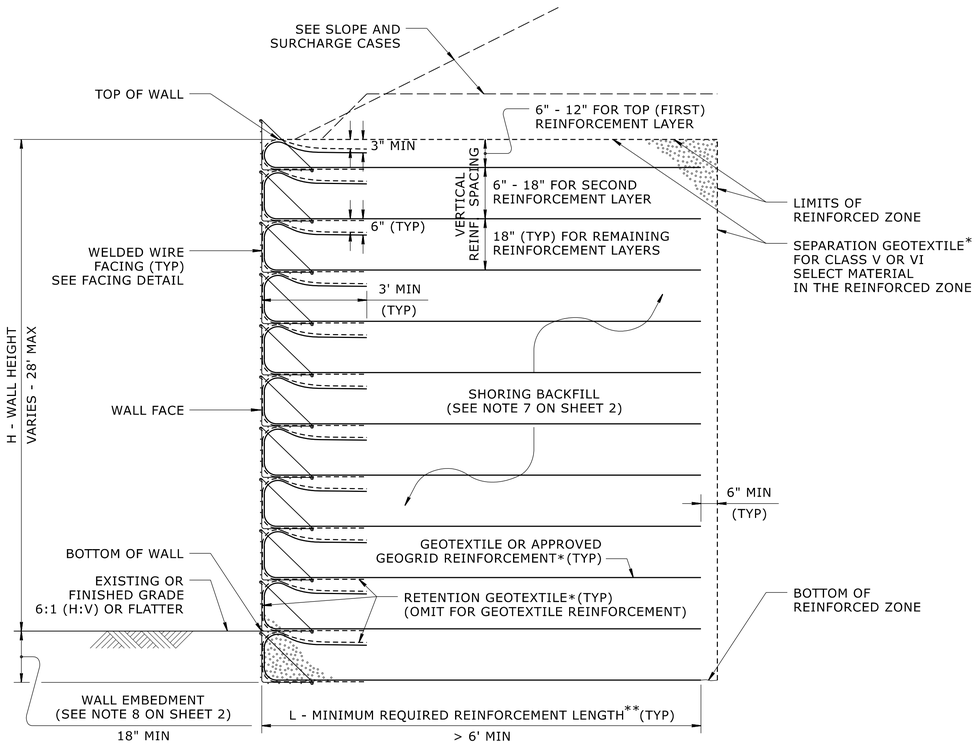
SURCHARGE CASE



FACING DETAIL

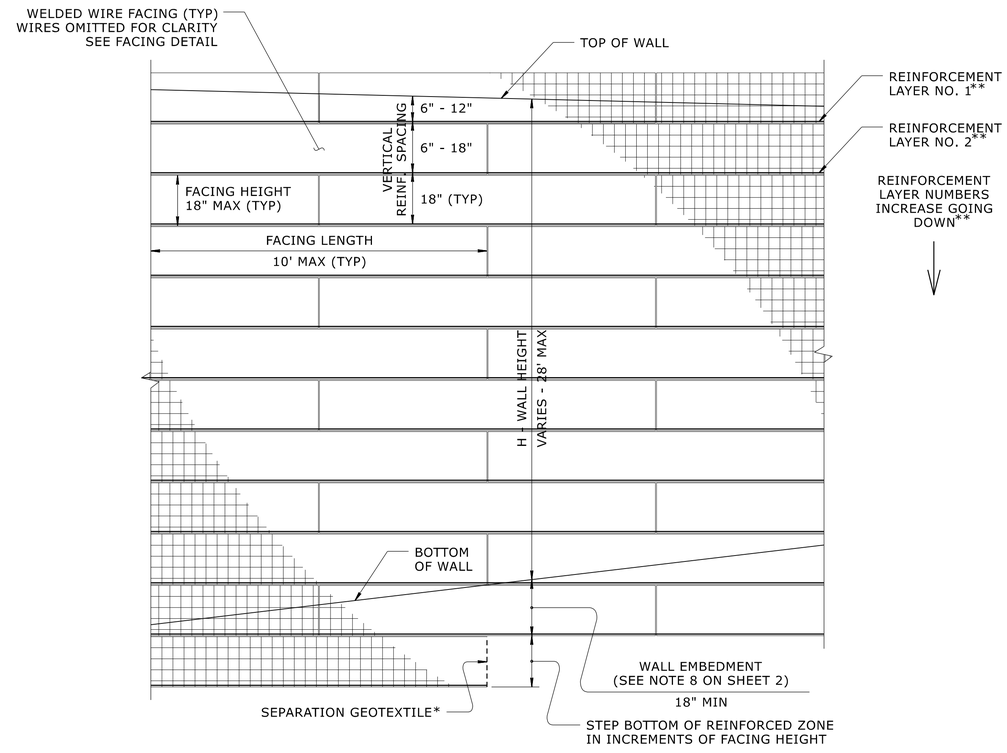


SLOPE CASE



STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES,
SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL - PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

BP14.R014

GEO | 2G-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEER

SEAL 048207 ENGINEER STEPHEN C CROCKETT NORTH CAROLINA PROFESSIONAL

DocuSigned by: Stephen Crockett CSCA5FED48E043...

5/13/2026

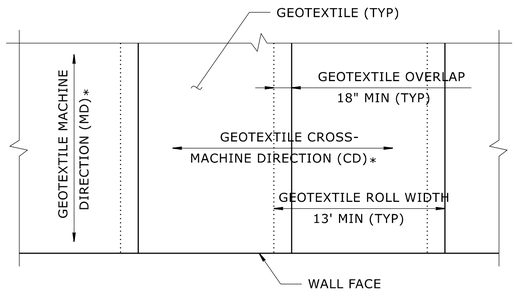
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STANDARD DETAIL NO. 1801.02

GEOTECHNICAL STANDARD DETAIL FOR TEMPORARY WALL (SHEET 1 OF 3)

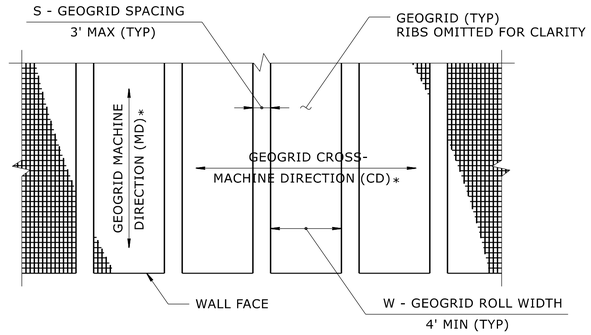
DATE: 02-18-2025

5/26/20



GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

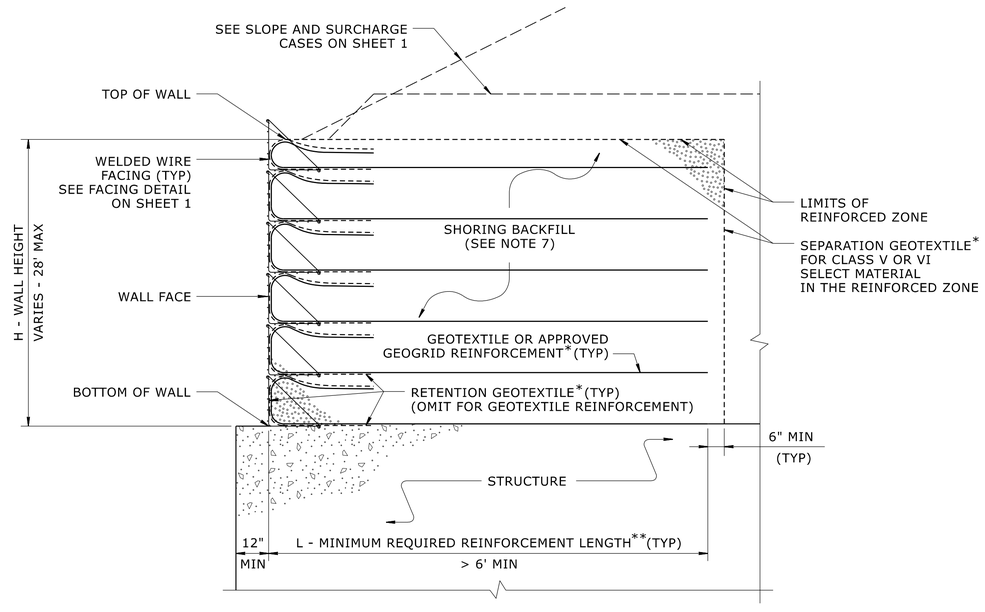


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT - $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
*SEE NOTE 12.



TEMPORARY WALL ON STRUCTURE DETAIL

*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
4. DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Products.aspx
    DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
    - W (REINFORCEMENT ROLL WIDTH) > (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
    - REINFORCEMENT STRENGTH IN CD > MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

BP14.R014
GEO | 2G-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 048207 ENGINEER STEPHEN C CROCKETT

DocuSigned by: Stephen Crockett C5CA5FED48E043...
5/13/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STANDARD DETAIL NO. 1801.02

GEOTECHNICAL STANDARD DETAIL FOR

TEMPORARY WALL (SHEET 2 OF 3)

DATE: 02-18-2025

5/26/20

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II, TYPE 1, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H > 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
	> 7 FOR H < 20' > 10 FOR H > 20'	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)

(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

REINFORCEMENT LAYER NUMBER *	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT SHORT-TERM DESIGN STRENGTH (LB/FT)

(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

BP14.R014

GEO | 2G-4

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 048207 ENGINEER STEPHEN C CROCKETT

DocuSigned by: Stephen Crockett CSCA5FED48E043...
5/13/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STANDARD DETAIL NO. 1801.02

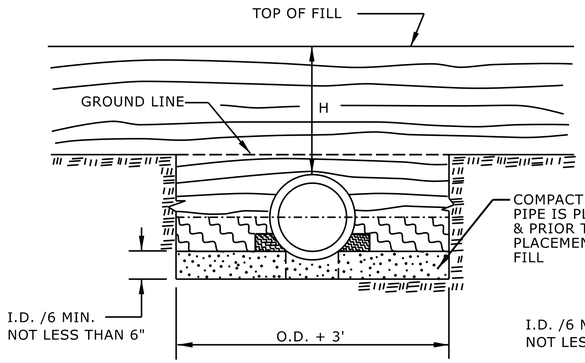
GEOTECHNICAL STANDARD DETAIL FOR

TEMPORARY WALL (SHEET 3 OF 3)

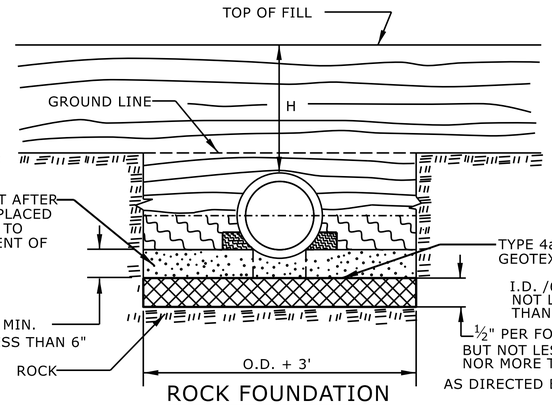
DATE: 02-18-2025

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

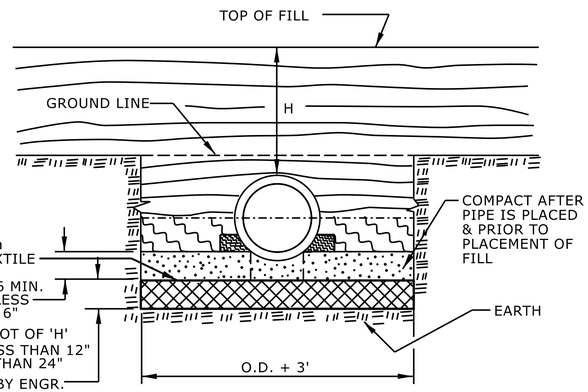
PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2C-1



NORMAL EARTH FOUNDATION

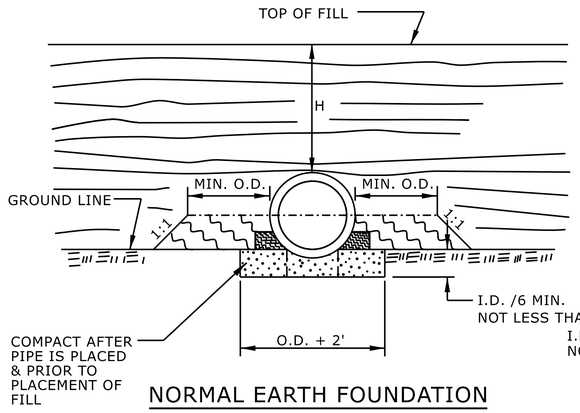


ROCK FOUNDATION

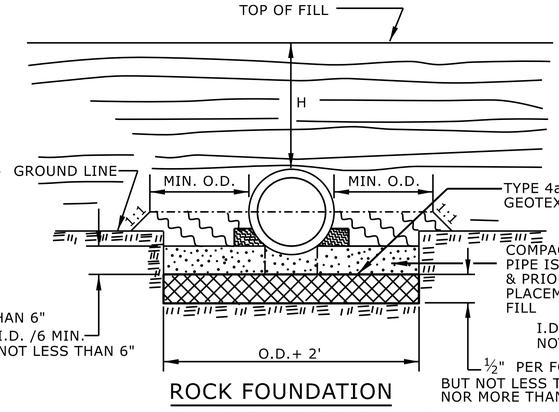


UNSUITABLE MATERIAL FOUNDATION

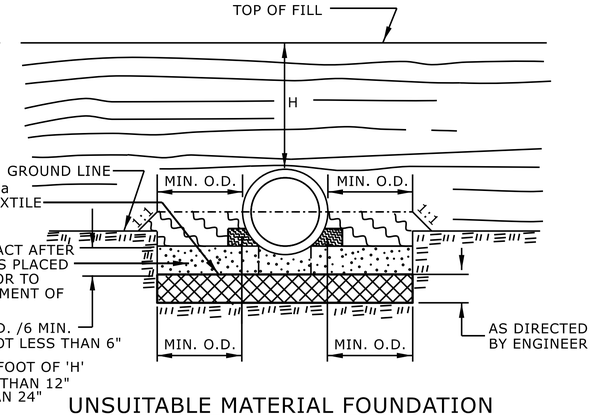
PIPE IN TRENCH



NORMAL EARTH FOUNDATION



ROCK FOUNDATION



UNSUITABLE MATERIAL FOUNDATION

PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE



SHEET 2 OF 2

300.01

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS AND DEVELOPMENT UNIT

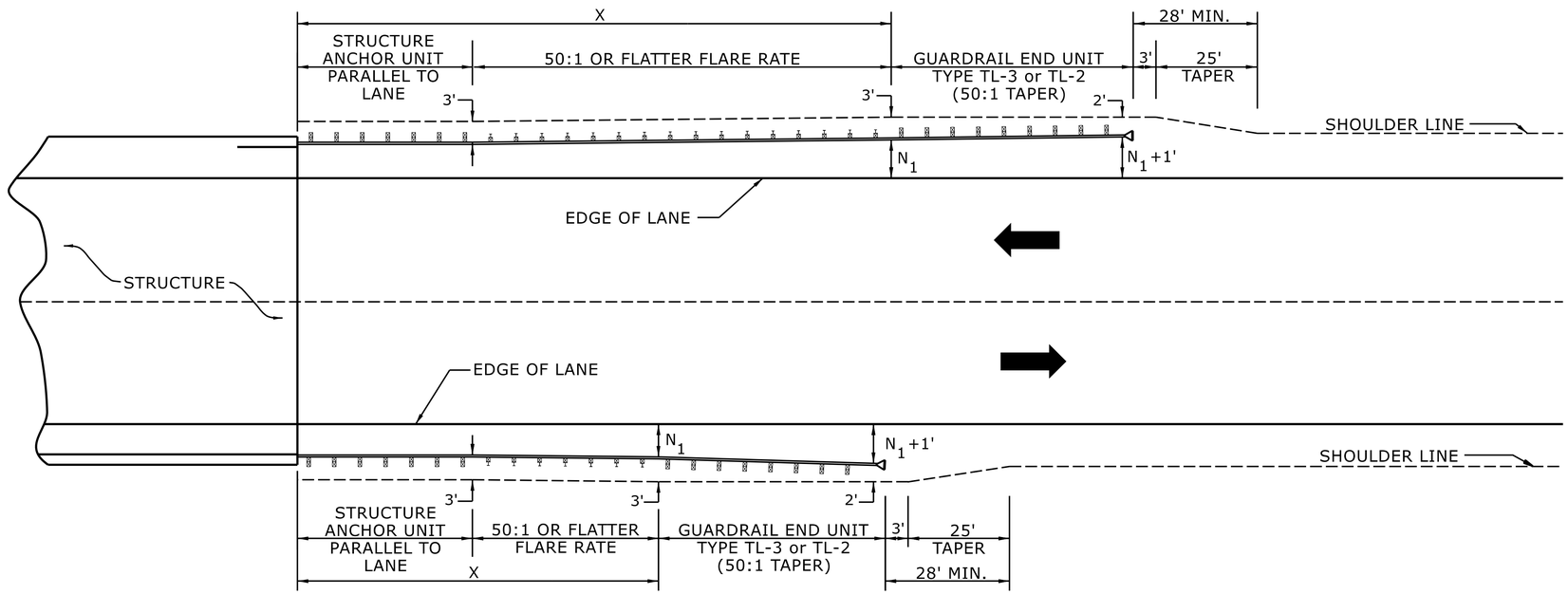
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2C-2



USE FLARE RATE AS THE CONTROL IF THE "N_1" DISTANCE IS NOT OBTAINED.
("N_1" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS ≥ 45MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45MPH USE GREU TYPE TL-2

GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15

862D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE M. HACKLER
Docusigned by: 5B8A2330341B4C5...
7/21/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

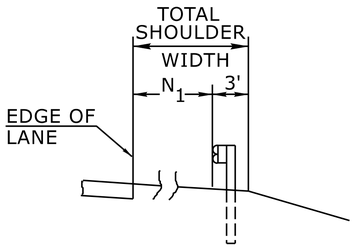
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

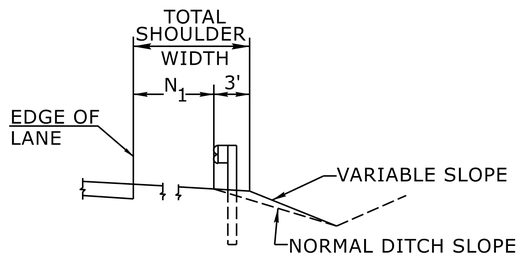
ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2C-3

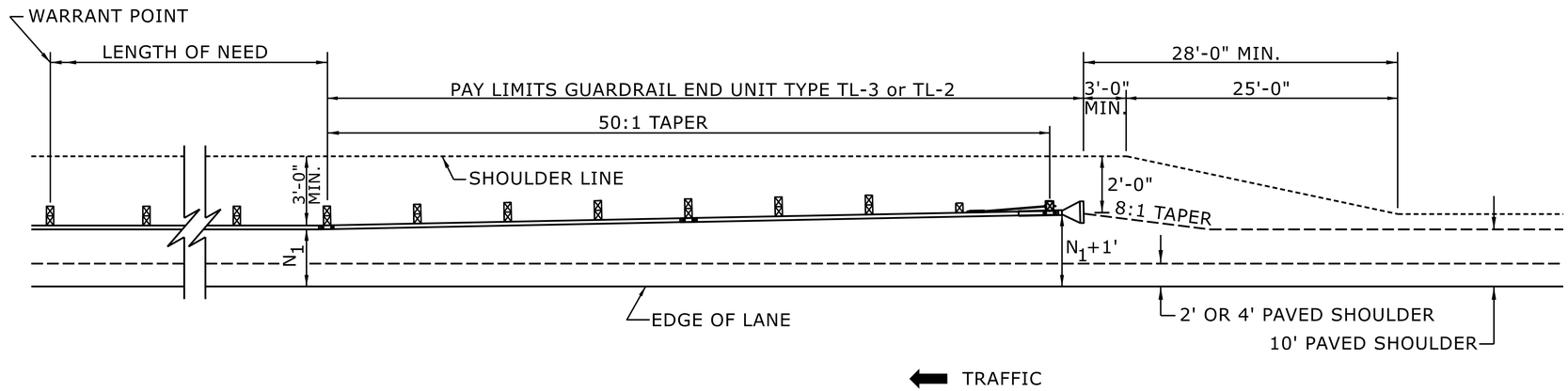


FILL SECTION



CUT SECTION

"N_1"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15

862D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032144 NICOLE M. HACKLER
Docusigned by: 7/21/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

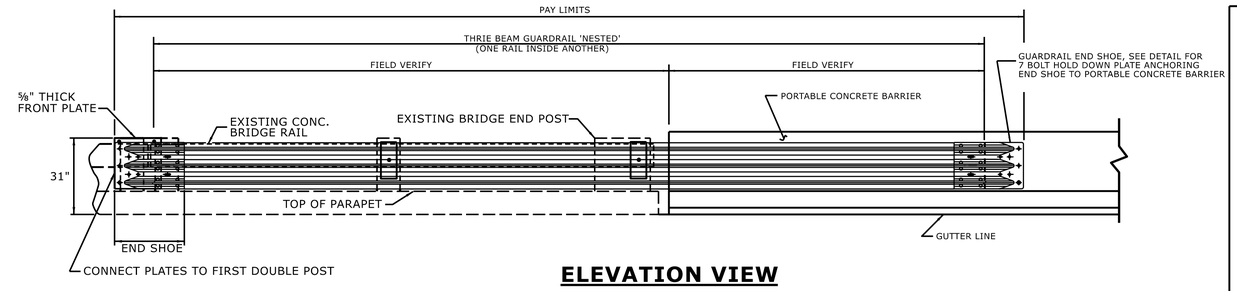
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

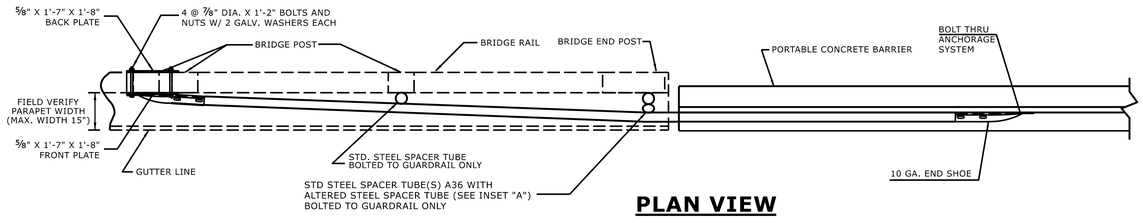
ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

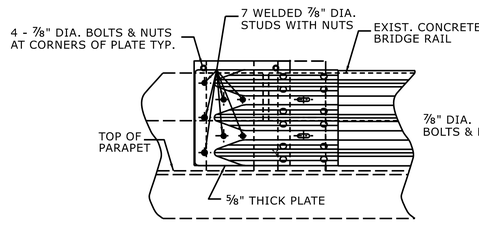
PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2C-4



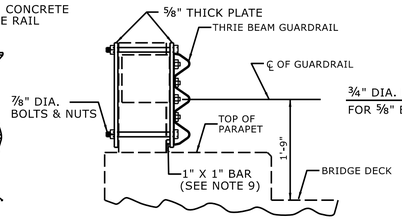
ELEVATION VIEW



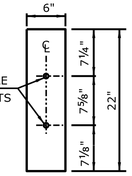
PLAN VIEW



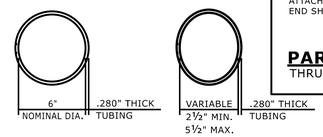
ELEVATION VIEW



SECTION VIEW



FRONT VIEW



PLAN VIEW

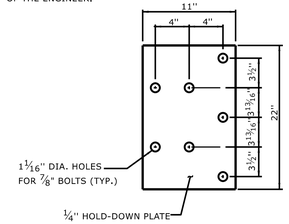
PLAN VIEW INSET "A"

NOTES FOR 7 BOLT HOLD DOWN PLATE

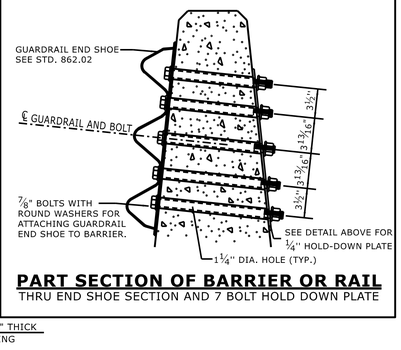
THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A ¼" HOLD DOWN PLATE AND 7 - ⅞" DIA. BOLTS WITH NUTS AND WASHERS.

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

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL. THE 1¾" DIA. HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



7 BOLT HOLD DOWN PLATE

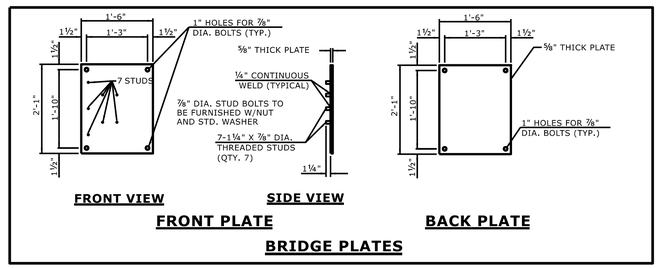


PART SECTION OF BARRIER OR RAIL
THRU END SHOE SECTION AND 7 BOLT HOLD DOWN PLATE

STEEL SPACER TUBE

GENERAL NOTES:

1. USE NUTS, BOLTS, AND WASHERS CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-307 AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
2. TAP NUTS FOR THE ⅞" DIA. STUDS AND BOLTS AFTER GALVANIZING SEE A.S.T.M. A-563.
3. USE PLATES AND TUBES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
4. ADDITIONAL FIELD HOLES MAY BE DRILLED IN STEEL RAIL AS DIRECTED BY THE ENGINEER.
5. INSTALL FACE OF GUARDRAIL AS NEAR AS POSSIBLE TO PLUMB WITH THE PARAPET FACE AT BRIDGE END POST SPACER TUBE LOCATION BY USING STANDARD OR ALTERED SPACER TUBES OR A COMBINATION THEREOF OR AS DIRECTED BY THE ENGINEER. FOR VERY SMALL PARAPET WIDTHS, GUARDRAIL MAY BE INSTALLED AGAINST BRIDGE RAIL WITHOUT SPACER TUBES.
6. DO NOT DRILL BRIDGE RAIL IN ORDER TO INSTALL GUARDRAIL ANCHOR UNIT.
7. USE THIS DETAIL ONLY FOR BRIGES WITH POST AND BEAM TYPE RAIL.
8. ATTACH 1" X 1" BAR AND THREADED STUDS TO PLATE WITH ¼" WELDS ALL AROUND.
9. 1" X 1" BAR MAY NOT BE NEEDED ON BRIDGE RAILS WHERE FACE OF RAIL DOES NOT PROJECT BEYOND FACE OF POST.
10. PROVIDE SHOP DRAWINGS OF THE PLATES TO THE ENGINEER FOR APPROVAL BEFORE FABRICATING THE PLATES.
11. LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
12. SEE ROADWAY STANDARD DRAWING 862.03 SHEET 3 FOR ADDITIONAL INFORMATION ON THE TYPE III ANCHOR UNIT



BRIDGE PLATES

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

ROADWAY DETAIL DRAWING FOR

STRUCTURE ANCHOR UNITS

TEMPORARY ANCHOR UNIT TYPE THRIE-BEAM



SHEET 8 OF 9

862D03

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	2C-5

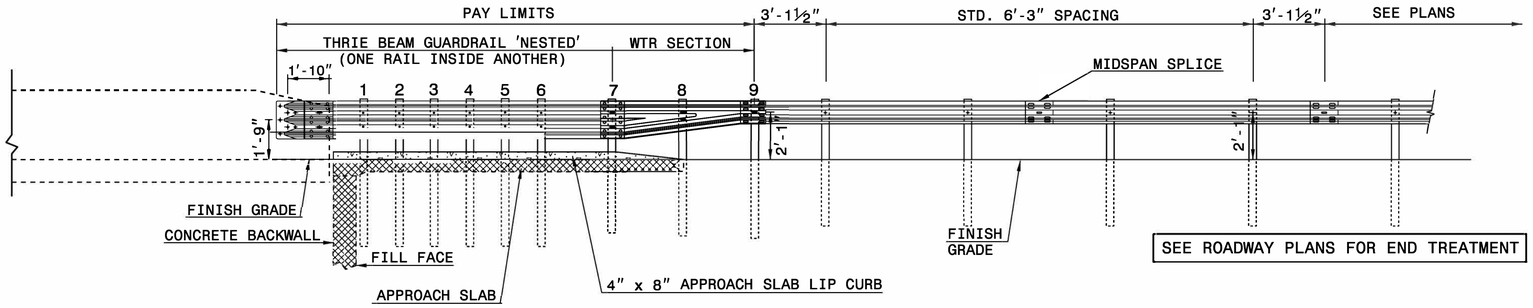
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

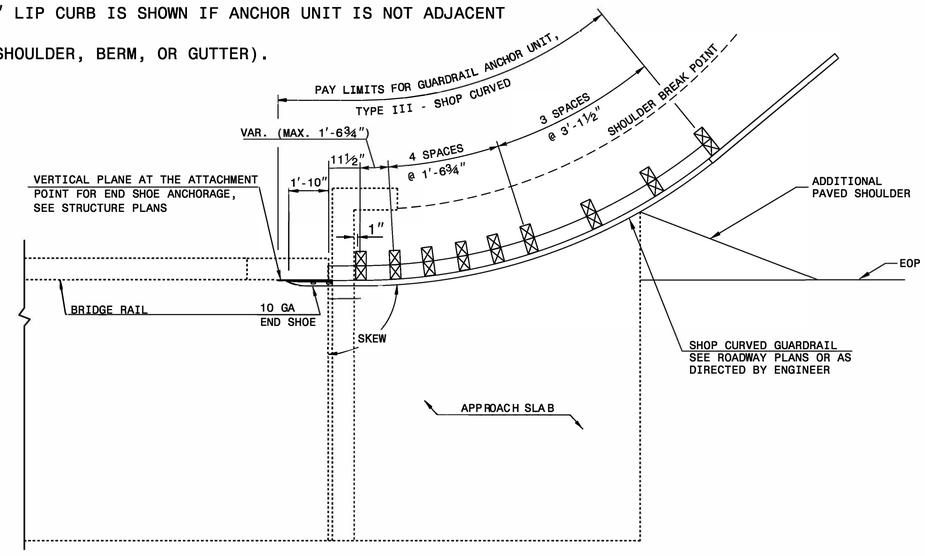
SHEET 1 OF 1

TYPE III SC



ELEVATION

NOTE:
 **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
  *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
  -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
  -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
  -USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
  -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
  -SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED FOR ATTACHMENT TO RAIL ON BRIDGE

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

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

TYPE III SC

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144 NICHOLAS M. HARRELL
7/21/2026

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E.Ward DATE: 4-4-02
MODIFIED BY: T.S.Spell DATE: 2-01-18
CHECKED BY: _____ DATE: _____
FILE SPEC.: \ihowerton\guardrail\31inguardrail\typeiiisc.dgn

01-FEB-2018 09:49
S:\Contracts\Special Details\jhowerton\Guardrail\31 inch Guardrail\type_iii_sc.dgn
jhowerton AT CSD-292595

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

12/06/07

COMPUTED BY: SRM DATE: 5-26-26
CHECKED BY: ME DATE: 5-26-26

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	3B-1

PLANS PREPARED BY:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

SUMMARY OF EARTHWORK (IN CUBIC YARDS)

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
L 10+00.00	L 11+99.70	1193	36		1157
L 12+91.95	L 14+63.64	5	814	809	
SUBTOTAL 1 :		1198	850	809	1157
DR1 10+14.56	DR1 11+06.84	334	25		309
SUBTOTAL 2 :		334	25		309
PROJECT TOTALS:		1532	875	809	1466
WASTE IN LIEU OF BORROW				-809	-809
5% TO REPLACE BORROW				0	
ADDITIONAL UNDERCUT		50			
LOSS DUE TO CLEARING AND GRUBBING		-325			-325
GRAND TOTALS:		1207	875	0	382
SAY:		1210	880	0	385

CONTINGENCY UNDERCUT EXCAVATION = 150 CY
CONTINGENCY SHALLOW UNDERCUT = 100 CY
CONTINGENCY SELECT GRANULAR MATERIAL = 300 CY
CONTINGENCY GEOTEXTILE FOR SOIL STABILIZATION = 300 SY
CONTINGENCY GEOTEXTILE FOR SUBGRADE STABILIZATION = 300 SY
CONTINGENCY CLASS IV SUBGRADE STABILIZATION = 200 TN

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

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

EXISTING ASPHALT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
L	10+40	11+79	LT	231.31
L	12+59	12+78	LT	27.62
		TOTAL:		258.93
		SAY:		260

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
L	11+62.03 (LT)	11+87.47	21.76
		TOTAL:	21.76
		SAY:	22

"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	SC TYPE III	TYPE III	GREU TL-2	GREU TL-3	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
L	-L- 9+90.15	-L- 11+69.00	LT	62.5	150																		1							
L	-L- 11+34.80	-L- 11+99.70	RT		56.25		-L- 11+99.70 (BRIDGE)		4'-0"	7'-0"		0'-0"		0'-0"	1		1												
L	-L- 11+84.94	-L- 11+99.70	LT		50			-L- 11+99.70 (BRIDGE)	4'-0"	7'-0"	0'-0"		0'-0"		1								1						
L	-L- 12+91.95	-L- 14+21.00	RT	131.25				-L- 12+91.95 (BRIDGE)	4'-0"	7'-0"		79'-2"		1'-7"		1	1												
L	-L- 12+91.95	-L- 14+31.06	LT	143.75			-L- 12+91.95 (BRIDGE)		4'-0"	7'-0"	70'-10"		1'-5"			1	1												
			SUBTOTAL	337.5	256.25																								
			LESS DEDUCTIONS																										
			GREU TL-2 (3 x 25)=	50	25																								
			AT-1 (2 x 6.25')=		12.5																								
			TYPE III (4 x 18.75)=	37.5	37.5																								
			SUBTOTAL	87.5	75		ADDITIONAL GUARDRAIL POSTS = 5																							
			TOTALS	250	181.25																								
			SAY	250	187.5										2	2	3						2						

1:37:43 PM
BP14_R014_rdy_sheet_3B-1.dgn
5/27/2026

Docusign Envelope ID: 049EDC57-E2F5-81D9-8308-42AA9C28B1CF

7LMV2J3

COMPUTED BY: GL DATE: 5/12/2026

CHECKED BY: VMD DATE: 5/12/2026

PROJECT NO.	SHEET NO.
BP14.R014	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	% MINIMUM REQUIRED SLOPE	C. S. PIPE SIZE 12	15	18	24	30	36	42	48
								THICKNESS OR GAUGE .064	.064	.064	.064	.079	.079	.109	.109
L 10+06	15 RT	0401		1960.5											
		0401	0402		1957.0	1956.5									
L 10+06	17 LT	0402		1960.6											
		0402	0403		1956.4	1952.2									
L 11+10	16 LT	0403		1955.9											
		0403	0413		1952.2	1949.3									
L 11+73	15 LT	0404		1954.5											
		0404	0413		1950.0	1949.3									
DR1 10+40	12 LT	0406		1957.7											
		0406	0407		1954.5	1953.5									
DR1 11+02	14 LT	0408		1955.0											
		0408	0404		1951.5	1950.0									
DR1 11+06	40 LT	0410		1956.5											
		0410	0408		1952.5	1952.0									
L 11+73	32 LT	0413		1952.9											
		0413	0405		1949.3	1945.0	0.5		28						
L 10+17	19 RT	0415		1962.0											
		0415	0401		1957.6	1957.4									
DR1 11+15	0 CL														

Docusign Envelope ID: 5AB7F9B5-F866-87C0-82DF-D0B2F1A11224

COMPUTED BY: S. Crockett DATE: 5/13/26
CHECKED BY: J. Hamm DATE: 5/13/26

(9-17-24)

PROJECT NO.	SHEET NO.
BP14.R014	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU1	12	100	200	300		
			TOTAL CY/TONS/SY:		100	200**	300**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-DR1-	1.5:1	10+30	1.5:1	10+901	LT	4	1/2/B	205
							TOTAL SY:	205

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

Docusign Envelope ID: C145B2D7-FB81-8A3C-82DF-C86CF685F891

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040925 JEAN E. MELVILLE
Signed
7/21/2026

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043232 IDYA MCMANUS
Docusigned by: Idya Mcmanus
7/21/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

NAD 83/2011

8/17/99

08/15/2025 PARCELS 2 & 4 - CHANGED PARCEL W/2 OWNER NAME AND REMOVED CLAIM TO PARCEL NO.4/TEMPORARY CONSTRUCTION EASEMENT AND RIGHT OF WAY.

BM-2 ELEV. = 1973.03
-BL- 5+38.00 15 RIGHT
BENCH TIE SPIKE IN 12" POPLAR

BEGIN CONSTRUCTION
-L- POT STA. 8+76.19

BEGIN TIP PROJECT BP14-R014
-L- POT STA. 10+00.00

BEGIN APPROACH SLAB
-L- POC STA. 11+88.81

BEGIN BRIDGE
-L- POT STA. 11+99.70

END APPROACH SLAB
-L- POT STA. 13+02.82

END BRIDGE
-L- POT STA. 12+91.95

1 GRADY T. JONES LIFE ESTATE
DB 344 PG 370
DB 150 PG 151

ALAN ROCKY SAMPSON
LISA SMITH BUCHANAN
DB 401PG 340

DENNIS L. & REBECCA L. TAYLOR
DB 318 PG 699

DENNIS SMITH
DB 215 PG 356

JAMES & CAROLYN CLOER
DB 138 PG 38

2 TINA BERNICE JONES SITTON & KENNETH SITTON, JR.
DB 150 PG 147

3 ROY ELMER & LAUREN WILLIAMSON
DB 194 PG 585

BEGIN VALLEY GUTTER
-L- STA. 10+25.00

CONCRETE DITCH BEHIND RETAINING WALL #1
SEE DETAIL D

RETAINING WALL #1

RETAINING WALL #2

RETAINING WALL #3

END VALLEY GUTTER
BEGIN NON-STANDARD VALLEY GUTTER
-L- STA. 11+57.37

END NON-STANDARD VALLEY GUTTER
-DR1- STA. 10+60.00

INVERT GUTTER BY STA. 11+47
FORM APRON AROUND 2GI*
SEE TYPICAL SECTION DETAIL C

PROP ROCK PLATING

BEGIN CONSTRUCTION
-DR1- POT STA. 10+14.56

TIE TO EXIST. GUARDRAIL
-L- STA. 14+61.32
41.92' LT

DO NOT DISTURB WELL

DO NOT DISTURB WATERLINE

RIP RAP AT EMBANKMENT
12+15 -L- LT
SEE DETAIL C

RIP RAP AT EMBANKMENT
10+60 -DR1- RT
SEE DETAIL C
RIP RAP AT EMBANKMENT
10+40 -DR1- RT
SEE DETAIL C

SEE ANCHOR DETAIL FOR PAVED SHOULDER AND SBG

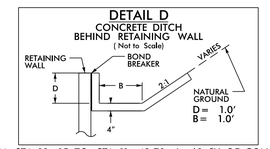
SPECIAL CUT BASE DITCH
10+20 TO 10+40 -DR1- RT
LINE w/RIPRAP
SEE DETAIL B

END CONSTRUCTION
END TIP PROJECT BP14-R014
-L- POT STA. 14+73.49

BM-1 ELEVATION = 1967.62
BY 8+05.00 154 RIGHT
BE REBAR 2.5' FROM EOP ON CLOER RD.

*NOTES:
- INLET 0404 IS LOCATED IN AN ARTIFICIAL LOW POINT CREATED IN THE SBG
- VALLEY GUTTER SHALL BE INVERTED TO RETAIN WATER FROM -L- STA. 11+47 AROUND TO -DR1- STA. 10+65; TAPERS AND TRANSITIONS SHALL BE AS NOTED ON THE TYPICAL SECTION DETAIL C

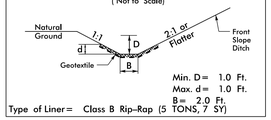
DETAIL D
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)



D = 1.0'
B = 1.0'

FROM STA. 10+15 TO STA. 11+42.70 -L- 60 SY OF CONCRETE
FROM STA. 13+80 TO STA. 14+32 -L- 24 SY OF CONCRETE

DETAIL B
SPECIAL CUT BASE DITCH
(Not to Scale)

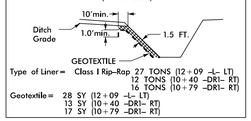


Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.

Type of Liner = Class B Rip-Rap (5 TONS, 7 SY)

FROM STA. 10+20 TO STA. 10+40 -DR1- LT

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)



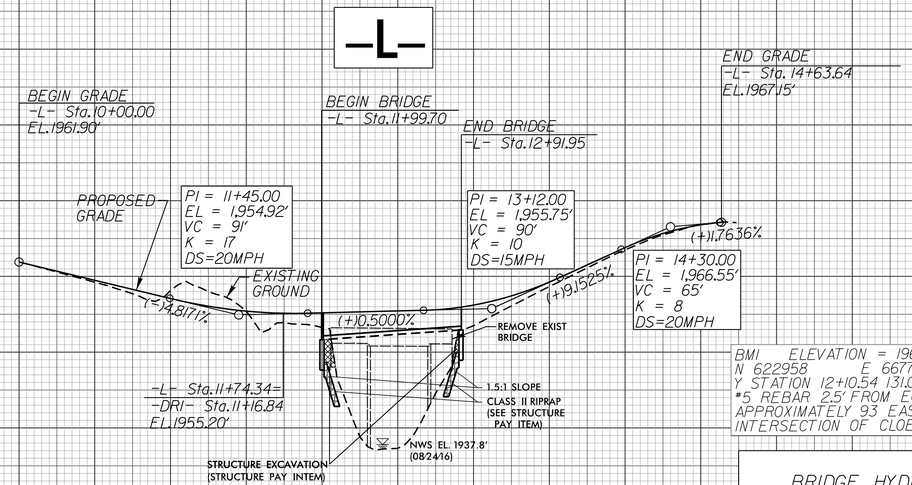
GEOTEXTILE
Type of Liner = Class I Rip-Rap 27 TONS (12+09 -L- LT)
12 TONS (10+40 -DR1- RT)
16 TONS (10+79 -DR1- RT)
Geotextile = 28 SY (12+09 -L- LT)
13 SY (10+40 -DR1- RT)
17 SY (10+79 -DR1- RT)

STA. 12+09 -L- LT
STA. 10+40 -DR1- RT
STA. 10+79 -DR1- RT

SEE SHEET 2B-1 FOR RIGHT OF WAY AND EASEMENTS STATION OFFSET.
SEE SHEET 2B-2, 2B-3 & 2B-4 FOR DETAILS OF RETAINING WALL ENVELOPES NO. 1, 2 & 3

NOTE: REFERENCE SHEET 2B-1 FOR HORIZONTAL ALIGNMENT ALL RADII ARE 20' UNLESS NOTED.

-L-

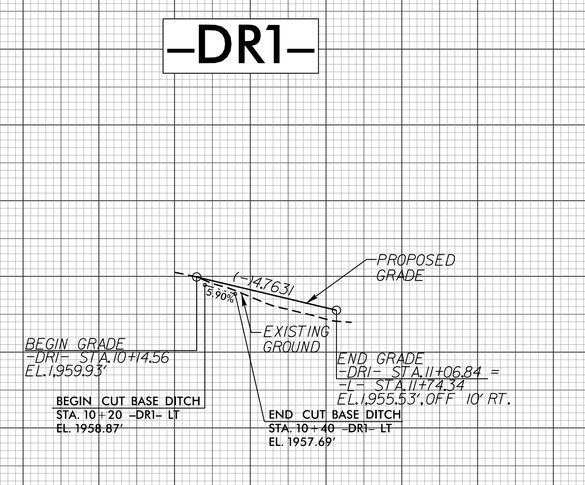


BMI ELEVATION = 1967.62
N 622958 E 667749
Y STATION 12+10.54 131.07 RIGHT
#5 REBAR 2.5' FROM EOP ON CLOER RD., APPROXIMATELY 93 EAST OF 15" CMP AT INTERSECTION OF CLOER RD & ALARKA RD.

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	4100 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	1947.7 FT
BASE DISCHARGE	=	5670 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1949.7 FT
OVERTOPPING DISCHARGE	=	10000 CFS
OVERTOPPING FREQUENCY	=	>500 YRS
OVERTOPPING ELEVATION	=	1955.63 FT

-DR1-



LEFT DITCH -·-·-·-·-

2:34:09 PM
C:\Projects\6660152_rdy_psh_sheet14.dgn
7/21/2026

09/08/99

TIP PROJECT: BP14.R014

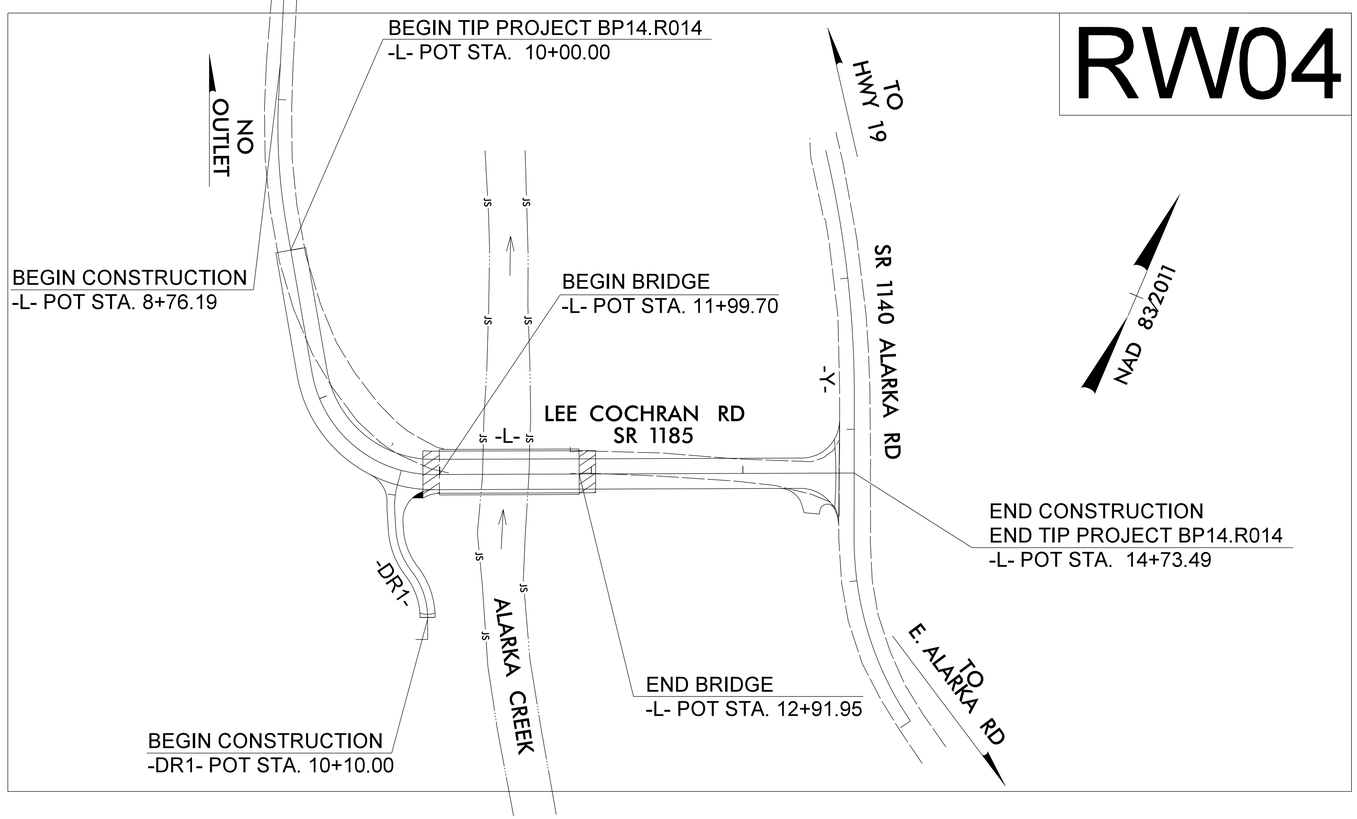
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP14.R014	RW01	05

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

SWAIN COUNTY

RW04



GRAPHIC SCALE

50 25 0 50 100

PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-101" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 623,299.033(ft) EASTING: 667,357.859(ft) ELEVATION: 1,973.38(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99978539
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-101" TO -L- STATION 10+00.00 IS S 13°58'25.5" W 463.32(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	*LETTING DATE:*
JUNE 27, 2025	SEPTEMBER 22, 2026

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

Signed by: Brian Barwatt
ADMINISTRATIVE
SIGNATURE: *Date:* 07/23/2026

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

23-JUL-2026 09:36
C:\Sylva\Bridge - Microstation V8i\bp14_r014\BP14_R014_LS_RW01.dgn
babarwatt AT LS-346122L

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



BL

POINT	DESC.	NORTH	EAST	ELEVATION
1	BL-1	623044.5300	667135.5980	1962.26
2	BL-2	622761.2910	667332.7610	1954.89
3	BL-3	622839.3830	667641.4790	1967.02

BY

POINT	DESC.	NORTH	EAST	ELEVATION
4	BY-4	622667.9250	667836.7440	1970.29
201	BL-3	622839.3830	667641.4790	1967.02
101	GPS-101	623299.0330	667357.8590	1973.38

```
**************************************
BM1       ELEVATION = 1967.62
N 622958      E 667749
*5 REBAR 2.5' FROM EOP ON CLOER RD..
APPROXIMATELY 93 EAST OF 15" CMP AT
INTERSECTION OF CLOER RD & ALARKA RD.
**************************************
**************************************
BM2       ELEVATION = 1973.03
N 623005      E 667145
BENCH TIE SPIKE IN 12" POPLAR
**************************************
```

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	623190.257	666994.477							
LINE			S 64°18'26.9" E	73.03					
PC	623158.596	667060.285							
CURVE			S 46°52'01.9" E	95.91	34°52'49.9"(RT)	35°48'35.5"	97.40	50.26	160.00
PT	623093.025	667130.275							
LINE			S 29°25'37.0" E	20.59					
PC	623075.087	667140.394							
CURVE			S 25°23'07.8" E	42.29	08°04'58.4"(RT)	19°05'54.9"	42.32	21.20	300.00
PT	623036.883	667158.523							
LINE			S 21°20'38.6" E	106.21					
PC	622937.963	667197.178							
CURVE			S 27°45'38.5" E	83.82	12°49'59.9"(LT)	15°16'43.9"	83.99	42.17	375.00
PT	622863.792	667236.219							
LINE			S 34°10'38.5" E	17.37					
PC	622849.421	667245.977							
CURVE			S 52°52'46.9" E	137.53	37°24'17.0"(LT)	26°43'03.4"	140.00	72.60	214.45
PCC	622766.424	667355.637							
CURVE			N 86°56'39.1" E	53.63	42°56'50.9"(LT)	78°12'45.2"	54.91	28.82	73.26
PT	622769.284	667409.195							
LINE			N 65°28'13.7" E	65.81					
PC	622796.604	667469.062							
CURVE			N 69°54'28.5" E	176.79	08°52'29.6"(RT)	05°00'53.6"	176.97	88.66	1142.51
PT	622857.338	667635.096							
LINE			N 74°20'43.3" E	14.14					
POT	622861.152	667648.709							

EY

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	622720.327	667770.359							
LINE			N 58°37'49.8" W	27.75					
PC	622734.774	667746.662							
CURVE			N 41°25'52.7" W	126.45	34°23'54.2"(RT)	26°47'49.3"	128.37	66.18	213.81
PT	622829.578	667662.989							
LINE			N 24°13'55.6" W	92.65					
PC	622914.063	667624.964							
CURVE			N 30°56'38.3" W	164.30	13°25'25.5"(LT)	08°09'05.0"	164.68	82.72	702.90
PT	623054.981	667540.478							
LINE			N 37°39'21.0" W	37.92					
POT	623085.004	667517.311							

NOTES:

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

PROJECT REFERENCE NO.	SHEET NO.
BP14.R014	RW02C-1

Location and Surveys

LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: VRS
Dates of survey: May 24-July 1, 2016
Datum/Epoch: NAD 83/NA 2011
Published/Fixed-control use: N/A
Localized around: GPS-101
Northing: 623299.033
Easting: 667357.859
Combined grid factor: 0.99978539
Geoid model: 12B
Units: U.S. Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed May 21- July 1 2016, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 23rd day of July, 2026.

Signed by:
Brian Barwatt
A9355FE84A8A4CE...

Professional Land Surveyor L-4727

REVISIONS

6/2/99

22-JUL-2026 15:12
C:\Sylva\Bridge - Microstation V8i\bp14-r014\860152_LS_RW02C-1.dgn
barwatt AT LS-346122L

6/2/99

REVISIONS

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP14.R014	RW02D-1

Location and Surveys

LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

This 23rd day of July, 2026.

Signed by:
Brian Barwatt
A9350FE8A8A44CE

Professional Land Surveyor L-4727

L

TYPE	STATION	NORTH	EAST
POT	7+92.43	623036.8834	667158.5226
PC	8+98.64	622937.9625	667197.1779
PT	9+82.63	622863.7917	667236.2187
PC	10+82.15	622781.4549	667292.1272
PT	11+95.75	622753.2676	667392.7668
POT	14+73.49	622868.5737	667645.4377

Y

TYPE	STATION	NORTH	EAST
PC	10+00.00	622734.7743	667746.6622
PT	11+28.37	622829.5781	667662.9893
PC	12+21.01	622914.0625	667624.9636
PT	13+85.69	623054.9812	667540.4785

DR1

TYPE	STATION	NORTH	EAST
POT	10+00.00	622652.5294	667434.1835
PC	10+14.56	622665.7678	667428.1309
PRC	10+47.40	622689.2078	667405.9757
PT	10+77.47	622710.1609	667385.0418
PC	10+90.04	622721.2852	667379.1903
PT	11+06.05	622736.4052	667374.1116
POT	11+16.84	622747.0422	667372.3527

NOTES:

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

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

22-JUL-2026 16:03
C:\Users\bobr-wat\Documents\Microstation V8i\bp14_r014\BP14_R014_LS_RW02D-1.dgn
bobr-wat
AT LS-346122

6/2/99

REVISIONS

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP14.R014	RW03E-1

Location and Surveys

LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed on 07/23/2026 and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 23rd day of July, 2026.

Signed by:
Brian Barwatt
A9355FE8A48A4CF...
Professional Land Surveyor L-4727

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+00.00	57.00	622817.4008	667198.8205
L	10+00.00	30.00	622832.5682	667221.1577
L	10+82.15	57.00	622749.4348	667244.9709
L	11+47.00	57.00	622691.0342	667335.2860
L	11+95.75	30.00	622725.9752	667405.2217
L	14+14.24	30.00	622816.6831	667603.9905

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST	
L	10+97.00	57.00	622729.9247	667261.0127	
L	10+99.00	95.00	622700.1537	667237.0859	
L	11+07.00	100.00	622684.8099	667247.0889	
L	11+68.00	58.00	622688.4654	667371.0145	
L	11+89.40	30.65	622722.0648	667397.3949	
L	11+90.41	51.53	622703.0268	667406.0990	
L	12+00.00	-41.38	622792.6773	667379.4550	
L	12+35.00	-45.95	622811.3660	667409.3987	-POINT NOT SET (IN WATER)
L	12+35.37	30.00	622742.4259	667441.2703	-POINT NOT SET (IN WATER)
L	12+36.00	-37.75	622804.3213	667413.7127	-POINT NOT SET (IN WATER)
L	12+36.91	52.97	622722.1620	667452.2039	-POINT NOT SET (IN WATER)
L	13+96.00	58.50	622783.1841	667599.2317	
L	14+06.00	30.00	622813.2635	667596.4970	

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED ON JULY 23, 2026.

23-JUL-2026 14:59
C:\Users\bbarwatt\Documents\Microstation V8i\bp14.r014\BP14.R014_LS_RW03E-1.dgn
bbarwatt AP LS-346122

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP14.R014	RW04

Location and Surveys

LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed on 07/23/2026 and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 23rd day of July, 2026.

Signed by: Brian Barwatt
ASSISTANT MANAGER
Professional Land Surveyor L-4727

REVISIONS

6/2/99

NC GRID NAD 83 NA 2011

KARLA J. COLE
DB 344 PG 367

RACHEL M. JONES
KARLA J. COLE
DB 410 PG 662

HOUSE TRAILER ABANDONED

BEGIN TIP PROJECT BP14-R014
-L- POT Sta.10+00.00

-L- POT Sta. 8+00.00

S 21° 20' 38.6" E

-L- PC Sta. 8+98.64

-L- PT Sta. 9+82.63

-L- PC Sta. 10+82.15

-DRI- POT Sta.11+16.84=
-L- Sta.11+74.34

N 9° 23' 20.3" W

-L- PT Sta. 11+95.75

-Y-PT Sta. 13+85.69

-Y-PC Sta. 12+21.01

END TIP PROJECT BP14-R014
-L- POT Sta. 14+73.49=
-Y- POT Sta.11+71.13

N 24° 13' 55.6" W

-DRI- PT Sta.11+06.05

-DRI- PC Sta.10+90.04

N 27° 44' 42.1" W

-DRI- PT Sta.10+77.47

-DRI- PRC Sta.10+47.40

-DRI- PC Sta.10+14.56

N 24° 34' 10.8" W

-Y-PC Sta. 10+00.00

-Y-PT Sta. 11+28.37

① GRADY T. JONES LIFE ESTATE
DB 344 PG 370
DB 150 PG 151

② TINA BERNICE JONES SITTON & KENNETH SITTON, JR.
DB 150 PG 147

③ ROY ELMER & ADA LAUREN WILLIAMSON
DB 194 PG 585

DENNIS SMITH
DB 215 PG 356

ALAN ROCKY SAMPSON
LISA SMITH BUCHANAN
DB 401 PG 340

DENNIS L. & REBECCA L. TAYLOR
DB 318 PG 699

JAMES & CAROLYN CLOER
DB 138 PG 38

-DRI-
PI Sta 10+31.59
△ = 37° 37' 57.4" (LT)
D = 114° 35' 29.6"
L = 32.84'
T = 17.04'
R = 50.00'

-DRI-	
PI Sta 10+62.90	PI Sta 10+98.11
△ = 34° 27' 26.1" (RT)	△ = 18° 21' 21.8" (RT)
D = 114° 35' 29.6"	D = 114° 35' 29.6"
L = 30.07'	L = 16.02'
T = 15.50'	T = 8.08'
R = 50.00'	R = 50.00'

-L-	
PI Sta 9+40.81	PI Sta 11+50.55
△ = 12° 49' 59.9" (LT)	△ = 80° 21' 07.9" (LT)
D = 15° 16' 43.9"	D = 70° 44' 07.9"
L = 83.99'	L = 113.60'
T = 42.17'	T = 68.39'
R = 375.00'	R = 81.00'
e = EXIST	e = 0.06
DS = EXIST	DS = 20 MPH

-Y-	
PI Sta 10+66.18	PI Sta 13+03.73
△ = 34° 23' 54.2" (RT)	△ = 13° 25' 25.5" (LT)
D = 26° 47' 49.3"	D = 8° 09' 05.0"
L = 128.37'	L = 164.68'
T = 66.18'	T = 82.72'
R = 213.81'	R = 702.90'
e = EXIST	e = EXIST
DS = EXIST	DS = EXIST

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED ON JULY 23, 2026.

23-JUL-2026 11:47
23_SUL_RW04.dgn - Microstation V8i\bp14.r014\BP14.R014_LS_RW04.dgn
bobby.watt
LS-346122

Docusign Envelope ID: 4ACEFEEE-F6A2-8767-82DC-0024A1B4CE99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

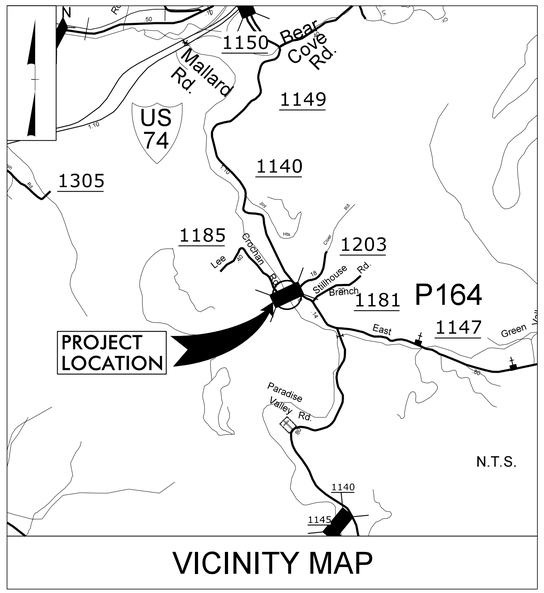
TRANSPORTATION MANAGEMENT PLAN

SWAIN COUNTY



LOCATION: REPLACE EXISTING BRIDGE NO. 152 OVER ALARKA CREEK ON SR 1185 (LEE COCHRAN RD)

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



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-01	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-01A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-01B	TRANSPORTATION OPERATIONS PLAN: MANAGEMENT STRATEGIES AND GENERAL NOTES
TMP-02	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-02A	TEMPORARY SHORING NOTES
TMP-03	TEMPORARY TRAFFIC CONTROL PHASING
TMP-04	TEMPORARY TRAFFIC CONTROL PHASE I STEPS 1 THRU 4 DETAIL
TMP-05	TEMPORARY TRAFFIC CONTROL PHASE I STEPS 5 THRU 7 DETAIL
TMP-06	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL

SHEET NO.
TMP-01

TIP PROJECT: BP14-R014



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLANS PREPARED BY:

DAVID W BISSETTE, PE

NCDOT CONTACTS:

ZACHARY CLARK, PE
PROJECT ENGINEER

SHEENA GREEN
PROJECT DESIGN ENGINEER

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared In the Office of

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROVED: Signed by: David W Bissette 3E61B80D49A5400...

DATE: 7/22/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

7/17/2026
J:\183360C - 2015 W Divisions Planning & Design On-Call\183360C Group 3 Bridges\17BP.R166.860152\Traffic\TrafficControl\TCP\200.005_14BP.R014_TC_TMP_01.dgn
User:USDI89925

Docusign Envelope ID: 4ACEFEEE-F6A2-8767-82DC-0024A1B4CE99

PROJ. REFERENCE NO.	SHEET NO.
BP14-R014	TMP-01A

PLANS PREPARED FOR THE NCDOT BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
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	FLAGGERS
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY - DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- TEMPORARY PAVEMENT
- USER DEFINED (IF NEEDED)

SIGNALS

EXISTING | PROPOSED | TEMPORARY | PORTABLE

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

4" PAINT
P1 WHITE EDGELINE
P5 2 FT - 6 FT/SP WHITE MINISKIP
P13 YELLOW DOUBLE CENTER

24" PAINT
P61 WHITE STOPBAR

APPROVED: Signed by: David W Bissette 3E618B0D49A5400...

DATE: 7/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS & LEGEND

7/17/2026
U:\R83360C - 2015 W Divisions Planning & Design On-Call\R83360C Group 3 Bridges\7BP.R166.860152\Traffic\TrafficControl\TCP\200_010_14BP_R014_TC_TMP_01A.dgn
User:USDB89925

Docusign Envelope ID: 4ACEFEEE-F6A2-8767-82DC-0024A1B4CE99

PROJ. REFERENCE NO.	SHEET NO.
BP14-R014	TMP-01B

PLANS PREPARED FOR THE NCDOT BY:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

MANAGEMENT STRATEGIES

TRAFFIC MANAGEMENT STRATEGIES
- LANE SHIFTS OR CLOSURES
- SHOULDER CLOSURES
- ONE-LANE, TWO WAY OPERATION (SIGNALIZED)

GENERAL NOTES / LOCAL NOTES

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

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) 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 WITHIN 5 FT OF AN OPEN TRAVEL LANE ON AN UNDIVIDED FACILITY, 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 TRANSPORTATION MANAGEMENT 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.

F) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON ANY ROAD.

PAVEMENT EDGE DROP OFF REQUIREMENTS

G) 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.

H) 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) 500 FEET IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

I) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

J) 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.

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

TRAFFIC BARRIER

L) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

M) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 MPH OR LESS	15 FT
45 - 50 MPH	20 FT
55 MPH	25 FT
60 MPH or HIGHER	30 FT

N) USE NON-GATING CRASH CUSHIONS AS REQUIRED IN THE TMP

TRAFFIC CONTROL DEVICES

O) 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.

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

Q) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	NONE

S) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

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

U) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

V) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 1000 FEET AND 500 FEET RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

APPROVED: Signed by: David W Bissette 3E61B80D49A5400...
DATE: 7/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION OPERATIONS PLAN

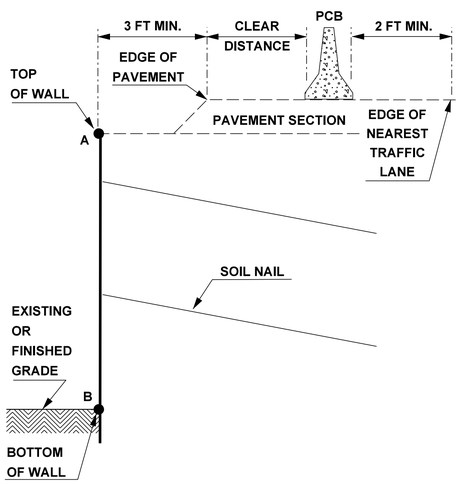
7/17/2026
J:\18836OC - 205 W Divisions Planning & Design On-Call\18836OC Group 3 Bridges\7BP.R166.860152\Traffic\TrafficControl\TCP\200_015_I4BP.R014_TC_TMP_01B.dgn
User:USDBI89925

Docusign Envelope ID: 4ACEFEEE-F6A2-8767-82DC-0024A1B4CE99

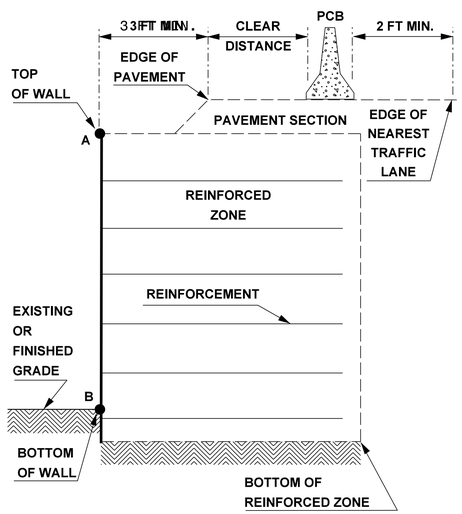
PROJ. REFERENCE NO.	SHEET NO.
BP14-R014	TMP-02

PLANS PREPARED FOR THE NCDOT BY:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

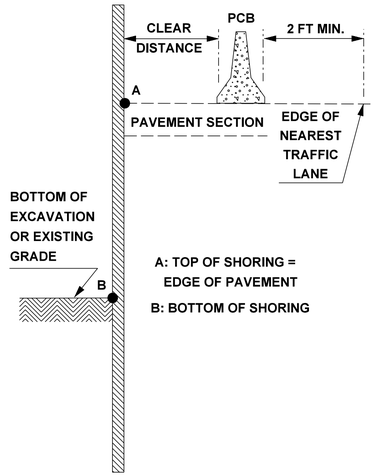
TEMPORARY SOIL NAIL WALL



TEMPORARY MSE WALL



TEMPORARY SHORING



NOTE: WALL OR SHORING HEIGHT = A-B

FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" STANDARD PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING/WALL IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING/WALLS EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS OR APPROVED BY THE ENGINEER.

8- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THIS MINIMUM REQUIRED DISTANCE IS NOT AVAILABLE, CONTACT THE ENGINEER.

9- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

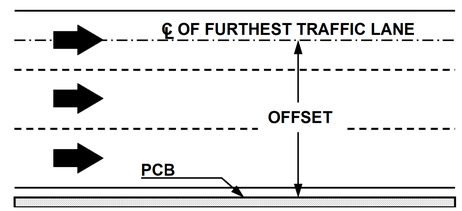


FIGURE B

APPROVED: Signed by: David W Bissette 3E61BB0D49A5400...

DATE: 7/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

7/17/2026
J:\B83600 - 2015 W Divisions Planning & Design On-Call\B8360C Group 3 Bridges\17BP.R166.860152\Traffic\TrafficControl\TCP\200_020_I4BP.R014_TC_TMP_02.dgn
User:USDB89925

Docusign Envelope ID: 4ACEFEEE-F6A2-8767-82DC-0024A1B4CE99

PROJ. REFERENCE NO.	SHEET NO.
BP14-R014	TMP-02A

PLANS PREPARED FOR THE NCDOT BY:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

TEMPORARY SHORING NOTES

Shoring Location No. 1

1. FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

2. BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

3. DESIGN TEMPORARY SHORING FROM -L- STATION 11+89, 3.5′ LT TO STATION 12+08, 3.5′ LT FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

   ABOVE ELEVATION 1938 FT:
   UNIT WEIGHT (γ) = 120 LB/CF
   FRICTION ANGLE (ϕ) = 30 DEGREES
   COHESION (c) = 0 LB/SF

   BELOW ELEVATION 1938 FT:
   UNIT WEIGHT (γ) = 140 LB/CF
   FRICTION ANGLE (ϕ) = 38 DEGREES
   COHESION (c) = 0 LB/SF

4. DRIVEN PILING FOR TEMPORARY SHORING FROM -L- STATION 11+89, 3.5′ LT TO STATION 12+08, 3.5′ LT MAY NOT PENETRATE BELOW ELEVATION 1938 FT DUE TO WEATHERED OR HARD ROCK.

5. AT THE CONTRACTOR′S OPTION, USE STANDARD SHORING FOR TEMPORARY SHORING FROM -L- STATION 11+89, 3.5′ LT TO STATION 12+08, 3.5′ LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

6. IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM -L- STATION 11+89, 3.5′ LT TO STATION 12+08, 3.5′ LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

Shoring Location No. 2

1. FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

2. BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

3. DESIGN TEMPORARY SHORING FROM -L- STATION 12+82, 3.5′ LT TO STATION 13+01, 3.5′ LT FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

   ABOVE ELEVATION 1937 FT:
   UNIT WEIGHT (γ) = 120 LB/CF
   FRICTION ANGLE (ϕ) = 30 DEGREES
   COHESION (c) = 0 LB/SF
   GROUNDWATER ELEVATION = 1945 FT

   BELOW ELEVATION 1937 FT:
   UNIT WEIGHT (γ) = 140 LB/CF
   FRICTION ANGLE (ϕ) = 38 DEGREES
   COHESION (c) = 0 LB/SF

4. DRIVEN PILING FOR TEMPORARY SHORING FROM -L- STATION 12+82, 3.5′ LT TO STATION 13+01, 3.5′ LT MAY NOT PENETRATE BELOW ELEVATION 1937 FT DUE TO WEATHERED OR HARD ROCK.

5. AT THE CONTRACTOR*S OPTION, USE STANDARD SHORING FOR TEMPORARY SHORING FROM -L- STATION 12+82, 3.5′ LT TO STATION 13+01, 3.5′ LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

6. IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM -L- STATION 12+82, 3.5′ LT TO STATION 13+01, 3.5′ LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

Shoring Location No. 3

1. FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

2. BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

3. DESIGN TEMPORARY SHORING FROM -L- STATION 11+90, 1.5′ LT TO STATION 12+00, 1.5′ LT FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

   ABOVE ELEVATION 1938 FT:
   UNIT WEIGHT (γ) = 120 LB/CF
   FRICTION ANGLE (ϕ) = 30 DEGREES
   COHESION (c) = 0 LB/SF

   BELOW ELEVATION 1938 FT:
   UNIT WEIGHT (γ) = 140 LB/CF
   FRICTION ANGLE (ϕ) = 38 DEGREES
   COHESION (c) = 0 LB/SF

4. DRIVEN PILING FOR TEMPORARY SHORING FROM -L- STATION 11+90, 1.5′ LT TO STATION 12+00, 1.5′ LT MAY NOT PENETRATE BELOW ELEVATION 1938 FT DUE TO WEATHERED OR HARD ROCK.

5. AT THE CONTRACTOR′S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM -L- STATION 11+90, 1.5′ LT TO STATION 12+00, 1.5′ LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

6. WHEN BACKFILL FOR BRIDGE APPROACH FILLS OVERLAPS WITH THE REINFORCED ONE OF TEMPORARY WALLS, USE SHORING BACKFILL OR BACKFILL MATERIAL REQUIRED FOR BRIDGE APPROACH FILLS, WHICHEVER IS BETTER, IN THE REINFORCED ZONE OF TEMPORARY WALLS.

Shoring Location No. 4

1. FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

2. BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

3. DESIGN TEMPORARY SHORING FROM -L- STATION 12+92, 1.5′ LT TO STATION 13+02, 1.5′ LT FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

   ABOVE ELEVATION 1937 FT:
   UNIT WEIGHT (γ) = 120 LB/CF
   FRICTION ANGLE (ϕ) = 30 DEGREES
   COHESION (c) = 0 LB/SF
   GROUNDWATER ELEVATION = 1945 FT

   BELOW ELEVATION 1937 FT:
   UNIT WEIGHT (γ) = 140 LB/CF
   FRICTION ANGLE (ϕ) = 38 DEGREES
   COHESION (c) = 0 LB/SF

4. DRIVEN PILING FOR TEMPORARY SHORING FROM -L- STATION 12+92, 1.5′ LT TO STATION 13+02, 1.5′ LT MAY NOT PENETRATE BELOW ELEVATION 1937 FT DUE TO WEATHERED OR HARD ROCK.

5. AT THE CONTRACTOR′S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM -L- STATION 12+92, 1.5′ LT TO STATION 13+02, 1.5′ LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

6. WHEN BACKFILL FOR BRIDGE APPROACH FILLS OVERLAPS WITH THE REINFORCED ZONE OF TEMPORARY WALLS, USE SHORING BACKFILL OR BACKFILL MATERIAL REQUIRED FOR BRIDGE APPROACH FILLS, WHICHEVER IS BETTER, IN THE REINFORCED ZONE OF TEMPORARY WALLS.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM FALCON ENGINEERING. THE DOCUMENT WAS SUBMITTED TO WSP ON MAY 13, 2026 AND SEALED BY A PROFESSIONAL ENGINEER, STEPHEN CROCKETT, PE, LICENSE # 48207

APPROVED: Signed by: David W Bissette 3E618B0D49A5400...
DATE: 7/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TEMPORARY SHORING NOTES

7/17/2026
J:\I88360C - 2015 W Divisions Planning & Design On-Call\I88360C Group 3 Bridges\TBP_R166_86052\Traffic\TrafficControl\TCP\200_020_I4BP_R014_TC_TMP_02A.dgn
User:USDBI9925

Docusign Envelope ID: 4ACEFEEE-F6A2-8767-82DC-0024A1B4CE99

PROJ. REFERENCE NO.	SHEET NO.
BP14-R014	TMP-03

PLANS PREPARED FOR THE NCDOT BY:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

PHASING

ALL ASPHALT PAVING WILL BE UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE UNLESS STATED OTHERWISE IN THE PHASING

PHASE I

STEP 1. USING ROADWAY STANDARD DRAWING 1101.01, SHEET 3 OF 3, INSTALL THE WORK ZONE ADVANCE WARNING SIGNS

STEP 2. USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 19 COMPLETE THE FOLLOWING:
- INSTALL PROPOSED RIP RAP AT THE OUTLET OF STR 0405
- INSTALL TEMPORARY 15″ PIPE FROM PROPOSED RIP RAP TO STR 0401
- INSTALL 15″ RCP-III FROM STR 0402 TO STR 0401
- STUB OUT AND COVER THE END OF 15″ RCP-III FROM STR 0401 TOWARDS STR 0415
- CONSTRUCT JUNCTION BOX WITH MANHOLE STR 0402
- CONSTRUCT JUNCTION BOX WITH MANHOLE STR 0401
- ROUGH GRADE PROPOSED DRIVEWAY -DR- FROM STA 10+14+/- TO STA 11+07+/- USE INCIDENTAL STONE TO TIE -DR- INTO THE EXISTING ALIGNMENT

STEP 3. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED COMPLETE THE FOLLOWING:
- INSTALL TEMPORARY PAVEMENT MARKINGS FROM -L- STA 8+75+/- TO STA 14+14+/-
- INSTALL TEMPORARY SIGNALS AND SIGNS (SEE TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM SPECIAL PROVISION FOR ADDITIONAL INFORMATION AND SIGNING)
- PLACE TRAFFIC IN A ONE-LANE, TWO-WAY PATTERN AND ACTIVATE TEMPORARY SIGNALS

STEP 4. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED COMPLETE THE FOLLOWING:
- INSTALL ANCHORED PORTABEL CONCRETE BARRIER -L- STA 11+85+/- TO STA 13+06+/-
- INSTALL A NON-GATING CRASH CUSHION ON EACH END OF THE PORTABLE CONCRETE BARRIER
- SAW CUT THE EXISITING BRIDGE BEHIND THE PORTABLE CONCRETE BARRER AND REMOVE THE RIGHT SIDE OF THE BRIDGE. SEE STRUCTURE PLANS.
- INSTALL PROPOSED TEMPORARY SHORING LOCATION NO. 1 AND NO. 2

STEP 5. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED BEGIN CONSTRUCTION OF THE FOLLOWING:
- PROPOSED ROADWAY SECTION RIGHT OF -L- STA 10+00+/- TO STA 11+88+/-
- PROPOSED ROADWAY SECTION RIGHT OF -L- STA 13+02+/- TO STA 14+63+/-
- PROPOSED DRIVEWAY -DR- FROM STA 10+14+/- TO STA 11+07+/-
- INSTALL PROPOSED TEMPORARY SHORING LOCATION NO. 3 AND NO. 4
- PROPOSED STAGE I BRIDGE AND APPROACH SLABS RIGHT OF -L- FROM STA 11+88+/- TO STA 13+02+/-

STEP 6. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED COMPLETE THE FOLLOWING:
- INSTALL 15″ RCP-III FROM STUB OUT FROM STR 0401 TO STR 0415
- INSTALL 15″ RCP-III FROM STR 0407 TO STR 0406
- INSTALL 15″ RCP-III FROM STR 0409 TO STR 0408
- INSTALL 15″ RCP-III FROM STR 0408 TO STR 0410
- CONSTRUCT RETAINING WALL NO. 1 RIGHT OF -L- FROM STA 10+15+/- TO STA 11+43+/-
- CONSTRUCT RETAINING WALL NO. 3 RIGHT OF -L- FROM STA 13+80+/- TO STA 14+32+/-

STEP 7. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED COMPLETE THE FOLLOWING:
- PROPOSED ROADWAY SECTION RIGHT OF -L- STA 10+00+/- TO STA 11+88+/-
- PROPOSED ROADWAY SECTION RIGHT OF -L- STA 13+02+/- TO STA 14+63+/-
- PROPOSED DRIVEWAY -DR- FROM STA 10+14+/- TO STA 11+07+/-
- PROPOSED STAGE I BRIDGE AND APPROACH SLABS RIGIGHT OF -L- FROM STA 11+88+/- TO STA 13+02+/-

PHASE II

STEP 1. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED COMPLETE THE FOLLOWING IN ONE WORK PERIOD:
- INSTALL TEMPORARY PAVEMENT MARKINGS FROM -L- STA 8+75+/- TO STA 14+14+/-. REMOVE ANY CONFLICTING MARKINGS.
- INSTALL TEMPORARY GUARDRAIL FROM -L- STA 11+35+/- TO STA 13+56+/-. USE TL-2 END UNITS.
- SWITCH TRAFFIC TO THE RIGHT SIDE OF -L-.
- REMOVE ANCHORED PORTABEL CONCRETE BARRIER -L- STA 11+85+/- TO STA 13+06+/-
- REMOVE NON-GATING CRASH CUSHIONS.

STEP 2. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED BEGIN CONSTRUCTION OF THE FOLLOWING:
- PROPOSED ROADWAY SECTION LEFT OF -L- STA 10+00+/- TO STA 11+88+/-
- PROPOSED ROADWAY SECTION LEFT OF -L- STA 13+02+/- TO STA 14+63+/-
- PROPOSED STAGE II BRIDGE AND APPROACH SLABS LEFT OF -L- FROM STA 11+88+/- TO STA 13+02+/-

STEP 3. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED COMPLETE THE FOLLOWING:
- INSTALL 15″ CSP WITH ELBOWS FROM STR 0405 TO STR 0413
- INSTALL 15″ RCP-III FROM STR 0413 TO STR 0404
- INSTALL 15″ RCP-III FROM STR 0404 TO STR 0403
- INSTALL 15″ RCP-III FROM STR 0403 TO STR 0402
- CONSTRUCT JUNCTION BOX WITH MANHOLE STR 0413
- CONSTRUCT TRAFFIC BEARING 2 GRATE INLET STR 0404
- CONSTRUCT JUNCTION BOX WITH MANHOLE STR 0403
- CONSTRUCT RETAINING WALL NO. 3 LEFT OF -L- FROM STA 13+03+/- TO STA 14+47+/-

STEP 4. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED COMPLETE CONSTRUCTION OF THE FOLLOWING:
- PROPOSED ROADWAY SECTION LEFT OF -L- STA 10+00+/- TO STA 11+88+/-
- PROPOSED ROADWAY SECTION LEFT OF -L- STA 13+02+/- TO STA 14+63+/-
- PROPOSED STAGE I BRIDGE AND APPROACH SLABS LEFT OF -L- FROM STA 11+88+/- TO STA 13+02+/-

PHASE III

STEP 1. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED COMPLETE THE FOLLOWING IN ONE WORK PERIOD:
- REMOVE TEMPORARY GUARDRAIL AND GUARDRAIL END UNITS FROM -L- STA 11+35+/- TO STA 13+56+/-.
- PROPOSED ROADWAY SECTION CENTER OF -L- STA 11+38+/- TO STA 11+88+/-
- PROPOSED ROADWAY SECTION LEFT OF -L- STA 13+02+/- TO STA 13+56+/-
- PROPOSED STAGE I BRIDGE AND APPROACH SLABS LEFT OF -L- FROM STA 11+88+/- TO STA 13+02+/-

STEP 2. USING ROADWAY STANDARD DRAWING 1101.02, SHEETS 1 AND 17 OF 19 AS NEEDED COMPLETE THE FOLLOWING IN ONE WORK PERIOD:
- PLACE TEMPORAY PAVEMENT MARKINGS IN THE FINAL LOCATIONS FROM -L- STA 10+00+/- TO -L- STA. 14+64+/-
- REMOVE THE PORTABLE TEMPORARY SIGNALS AND SIGNS

STEP 3. USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 19 PLACE THE FINAL LAYER OF SURFACE COURSE FROM -L- STA 10+00+/- TO -L- STA. 14+64+/-

STEP 4. USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 19 PLACE THE FINAL PAVEMENT MARKINGSFROM -L- STA 10+00+/- TO -L- STA. 14+64+/-

STEP 5. USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 19 REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES

APPROVED: Signed by: David W Bissette 3E61BB0049A5400...

DATE: 7/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

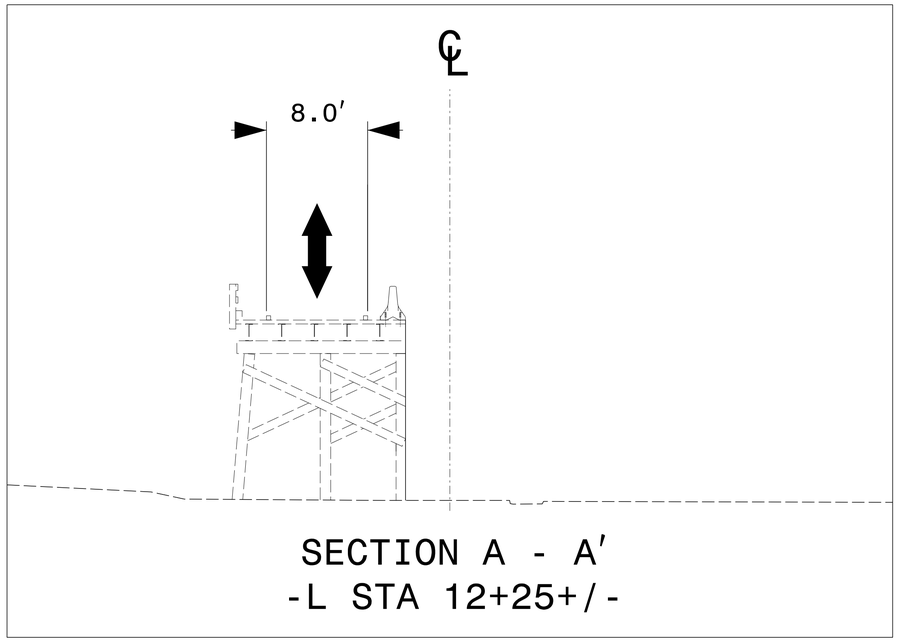
TEMPORARY TRAFFIC CONTROL PHASING

7/17/2026
J:\18360C - 2015 W Divisions Planning & Design On-Call\18836OC Group 3 Bridges\TBP.R\66.860152\Traffic\TrafficControl\TCP\200_030_I4BP.R014_TC_TMP_03.dgn
User:USDB9925

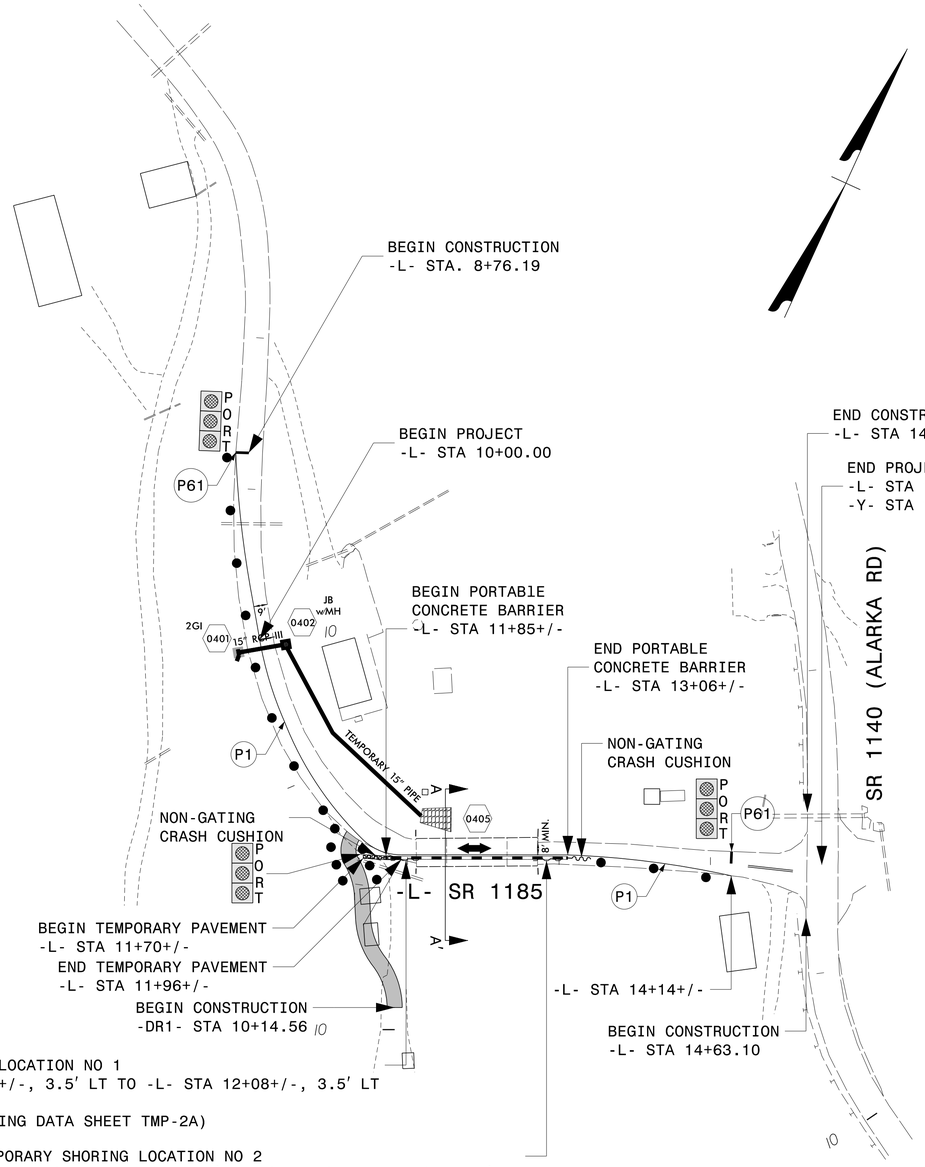
Docusign Envelope ID: 4ACEFEEE-F6A2-8767-82DC-0024A1B4CE99

PROJ. REFERENCE NO.	SHEET NO.
BP14-R014	TMP-04

PLANS PREPARED FOR THE NCDOT BY:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165



SECTION A - A′
-L STA 12+25+/-



TEMPORARY SHORING LOCATION NO 1
FROM -L- STA 11+89+/-, 3.5′ LT TO -L- STA 12+08+/-, 3.5′ LT
QUANTITY = 69 SF
(SE TEMPORARY SHORING DATA SHEET TMP-2A)

TEMPORARY SHORING LOCATION NO 2
FROM -L- STA 12+82+/-, 3.5′ LT TO -L- STA 13+01+/-, 3.5′ LT
QUANTITY = 57 SF
(SE TEMPORARY SHORING DATA SHEET TMP-2A)

APPROVED: Signed by: David W Biscette 3E61BB0049A5400...
DATE: 7/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISCETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

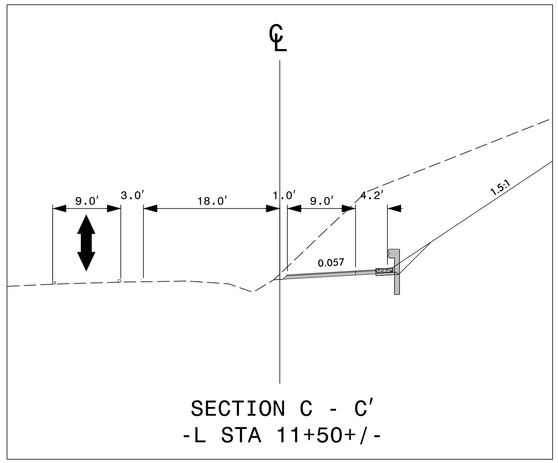
PHASE I
STEPS 1 - 4

7/17/2026
J:\88360C - 2015 W Divisions Planning & Design On-Call\88360C Group 3 Bridges\17BP.R166.860152\Traffic\TrafficControl\TCP\200_035_I4BP.R014_TC_TMP_04.dgn
User:USDB89925

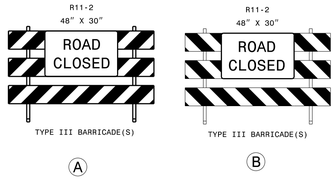
Docusign Envelope ID: 4ACEFEEE-F6A2-8767-82DC-0024A1B4CE99

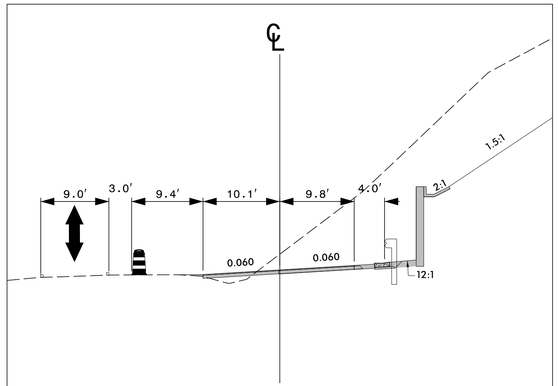
PROJ. REFERENCE NO.	SHEET NO.
BP14-R014	TMP-05

PLANS PREPARED FOR THE NCDOT BY:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

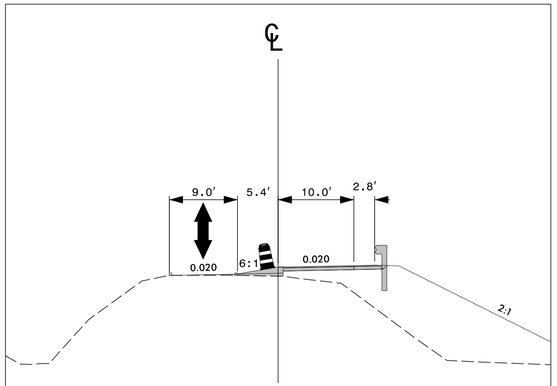


SECTION C - C′
-L STA 11+50+/-

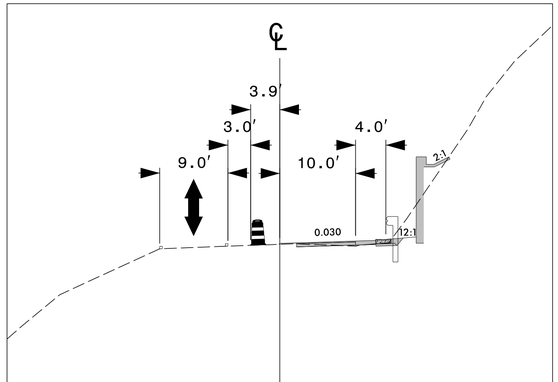




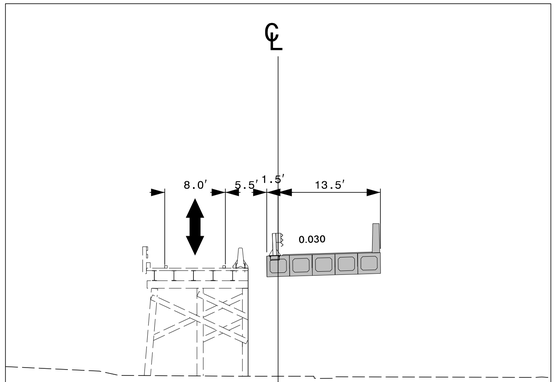
SECTION B - B′
-L STA 11+25+/-



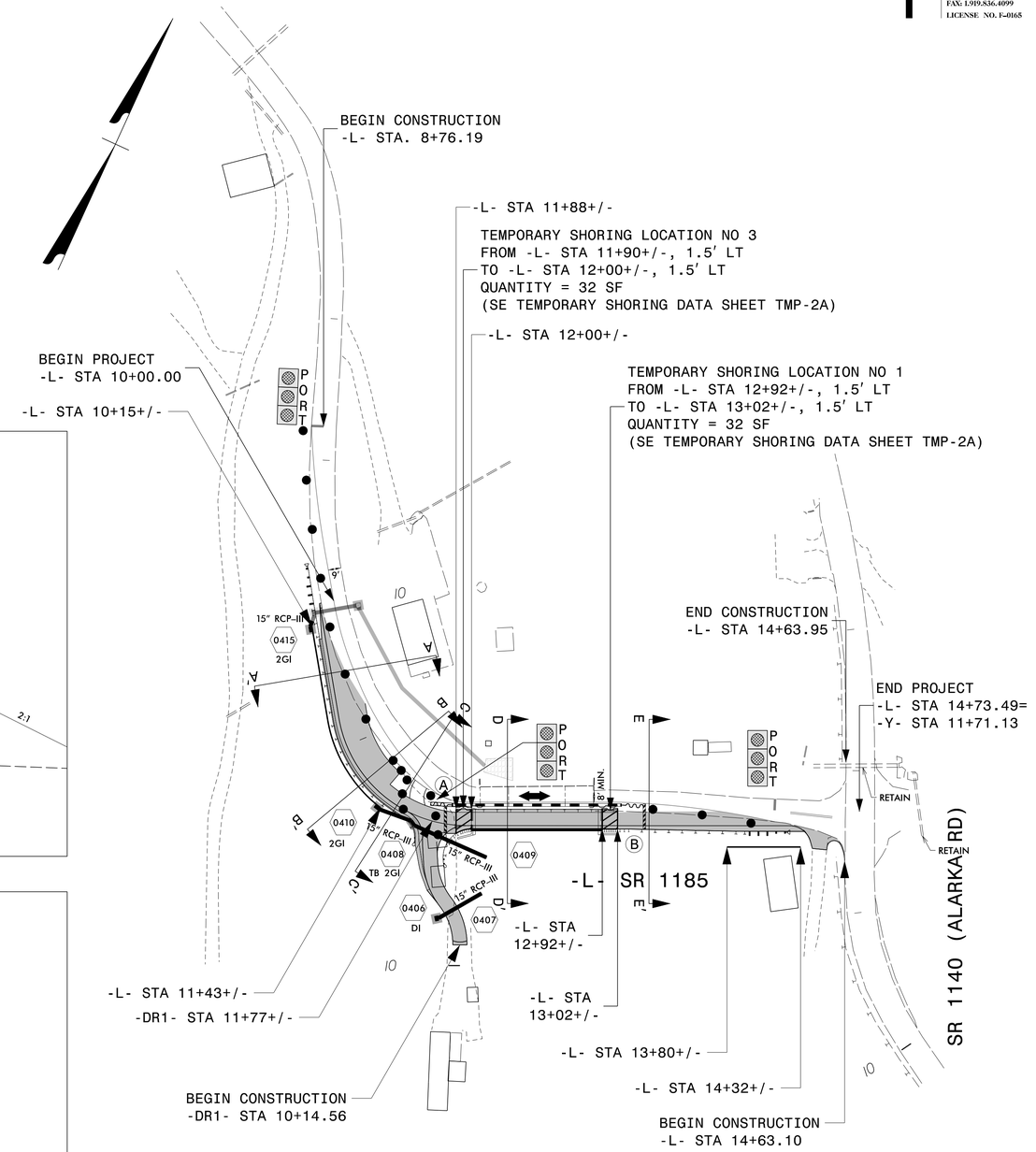
SECTION E - E′
-L STA 13+25+/-



SECTION A - A′
-L STA 10+50+/-



SECTION D - D′
-L STA 12+25+/-



APPROVED: Signed by: David W Bissette 3E61BB0C49A5400...

DATE: 7/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASE I
STEPS 5 THRU 7

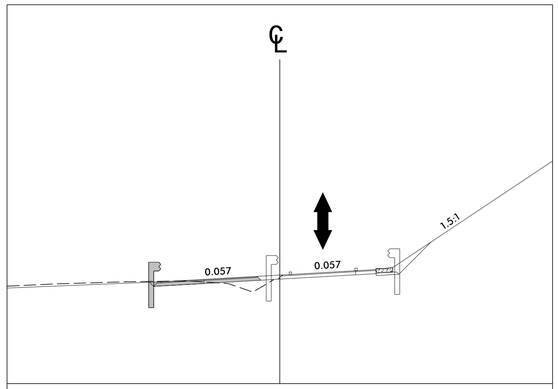
7/17/2026
J:\88360C - 2015 W Divisions Planning & Design On-Call\88360C Group 3 Bridges\TBP.R166.860152\Traffic\TrafficControl\TCP\200_040_I4BP.R014_TC_TMP_05.dgn
User:USDB89925

Docusign Envelope ID: 4ACEFEEE-F6A2-8767-82DC-0024A1B4CE99

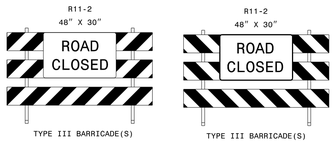
PROJ. REFERENCE NO.	SHEET NO.
BP14-R014	TMP-06

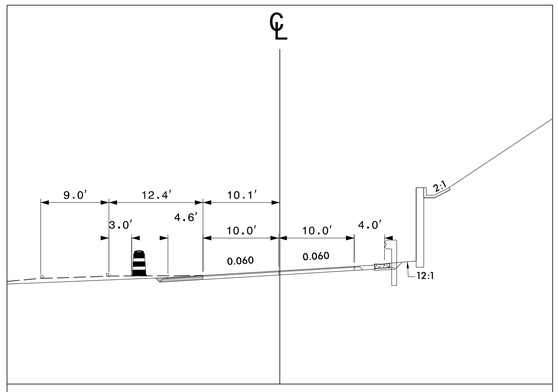
PLANS PREPARED FOR THE NCDOT BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

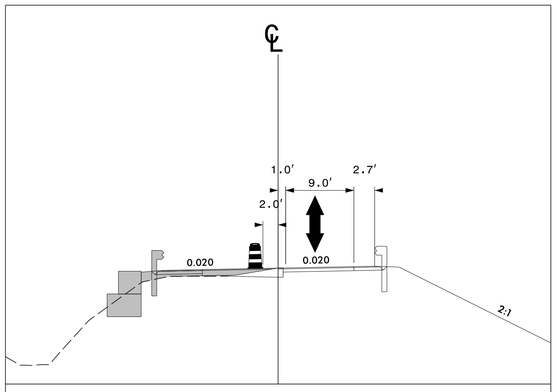


SECTION C - C′
-L STA 11+50+/-

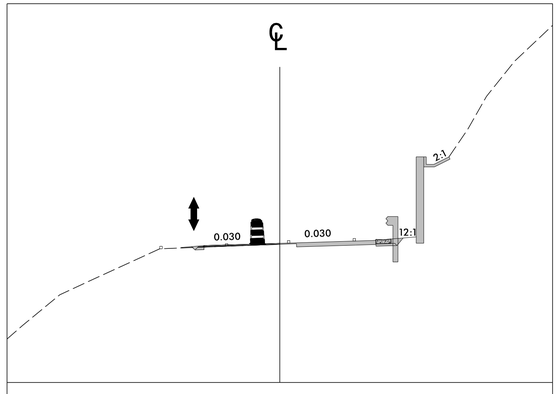




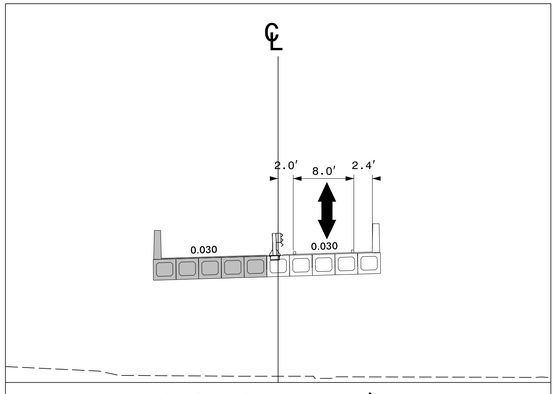
SECTION B - B′
-L STA 11+25+/-



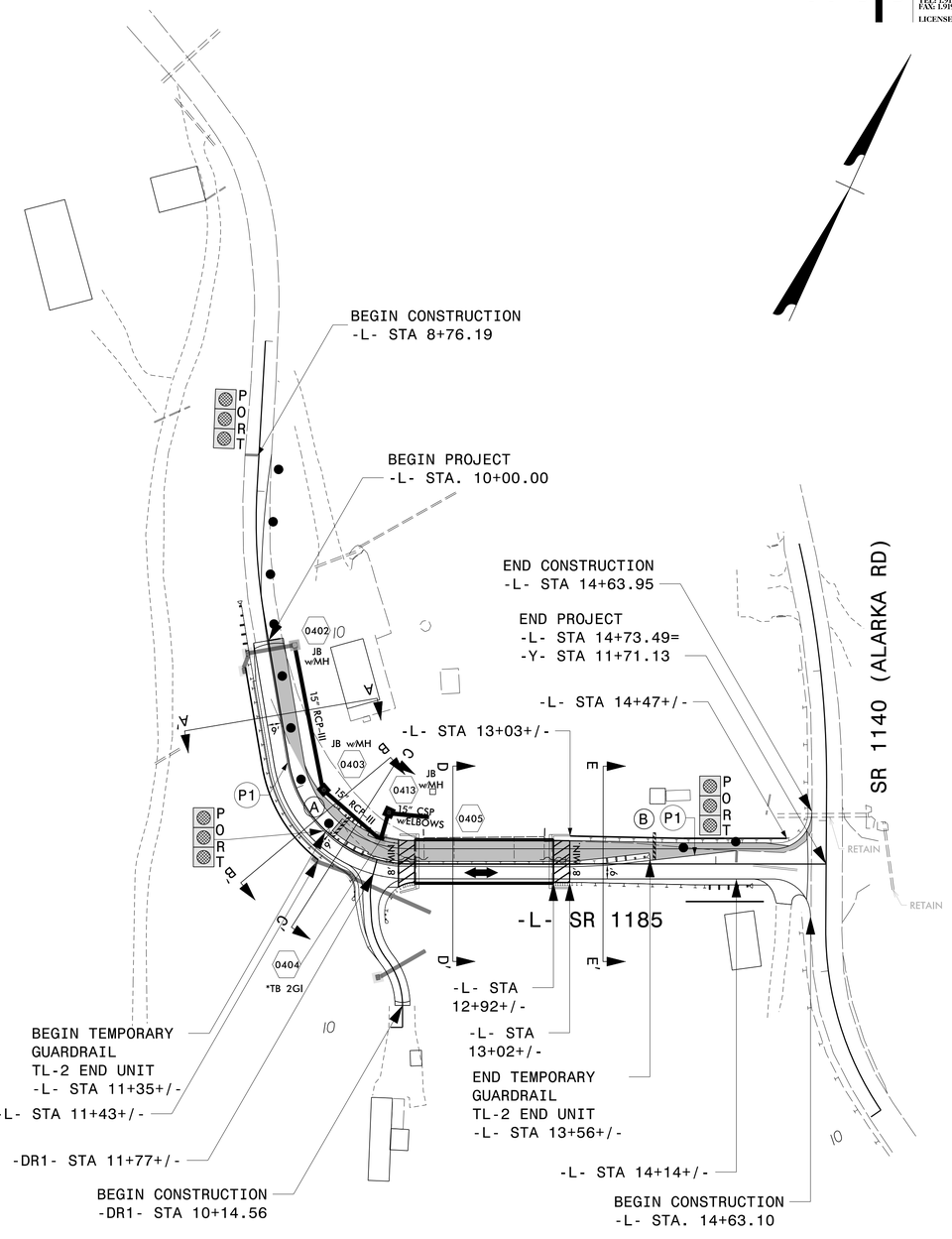
SECTION E - E′
-L STA 13+25+/-



SECTION A - A′
-L STA 10+50+/-



SECTION D - D′
-L STA 12+25+/-



APPROVED: Signed by: David W Bissette 3E61BB0D49A5400...

DATE: 7/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASE II

7/17/2026
J:\I883600 - 2015 W Divisions Planning & Design On-Call\I88360C Group 3 Bridges\17BP.R166.B601521\Traffic\TrafficControl\TCP\200_040_I4BP.R014_TC_TMP_06.dgn
User:USDB8925

Docusign Envelope ID: 891A2C1E-241F-8604-8208-462B1DB10733

PROJECT: BP14-R014

CONTRACT:

TIP NO.	SHEET NO.
BP14-R014	PMP-1

APPROVED: _____

DATE: _____

SEAL



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

SWAIN COUNTY

LOCATION: REPLACE EXISTING BRIDGE NO. 152 OVER ALARKA CREEK ON SR 1185 (LEE COCHRAN RD)



INDEX

SHEET NO.	DESCRIPTION
PMP-1	TITLE SHEET, INDEX, GENERAL NOTES & ROADWAY STANDARD DRAWINGS
PMP-2	PAVEMENT MARKING PLAN SHEET

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 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
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

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

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

ROAD NAME	MARKING	MARKER
SR 1185 (LEE COCHRAN RD)	PAINT	NONE
BRIDGE	PAINT	NONE

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

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

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

E) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

WSP USA Inc.
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
NC LIC. NO. F-0165

PLAN PREPARED BY:

ERIC W BOWMAN, PE — SR. TRANSPORTATION DESIGNER

SAYMA AFREEN — TRANSPORATION DESIGNER

11:58:00 AM
BP14-R014_pmp_tsh.dgn
7/20/2026

Docusign Envelope ID: 891A2C1E-241F-8604-8208-462B1DB10733

TIP NO.	SHEET NO.
BP14-R014	PMP-2

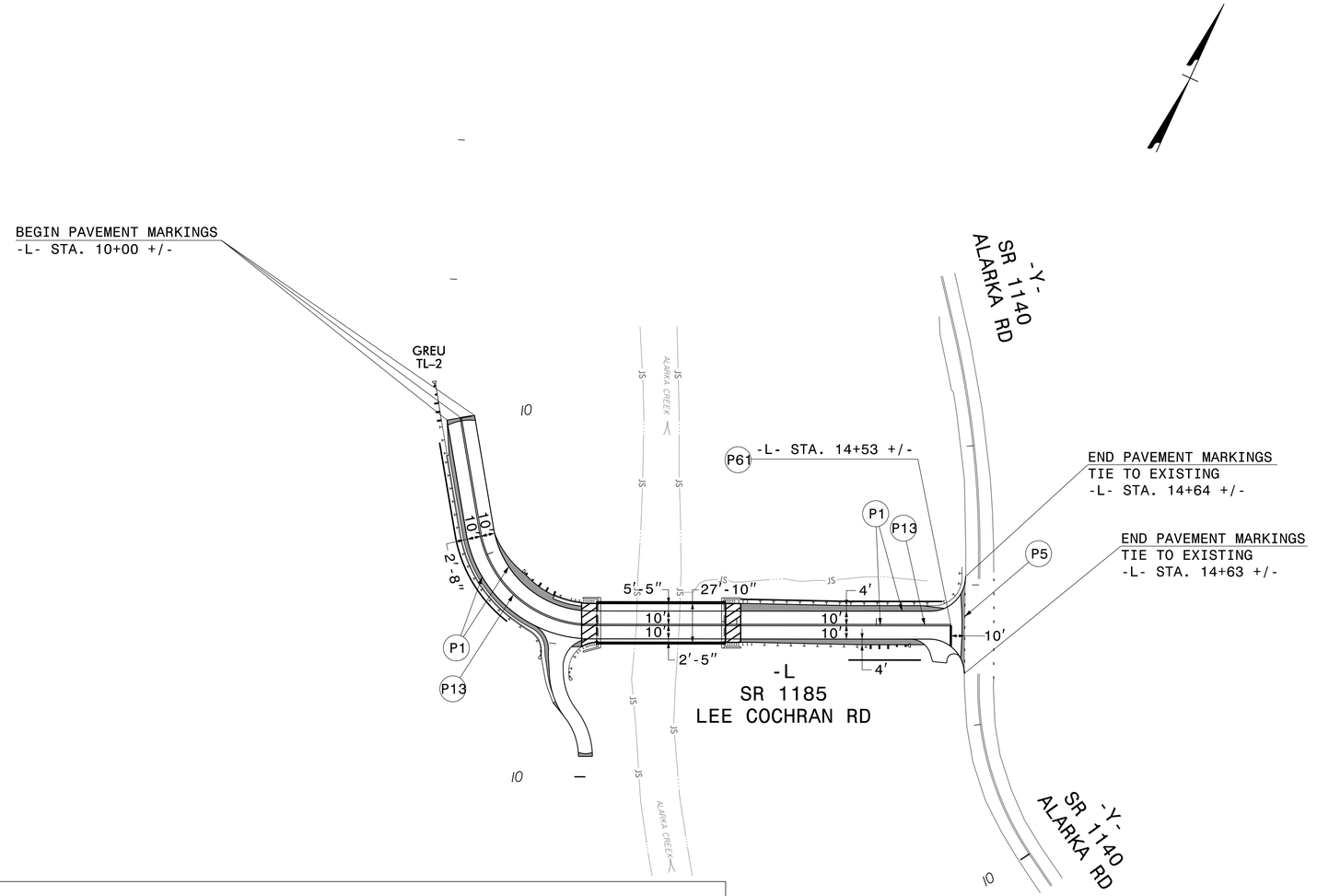
APPROVED: _____

DATE: _____

SEAL



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



T.I.P. BP14–R014

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PAINT (4")		PAINT (24")
P1	WHITE EDGELINE	P61	WHITE STOPBAR
P5	2 FT – 6 FT /SP WHITE MINISKIP		
P13	YELLOW DOUBLE CENTER		

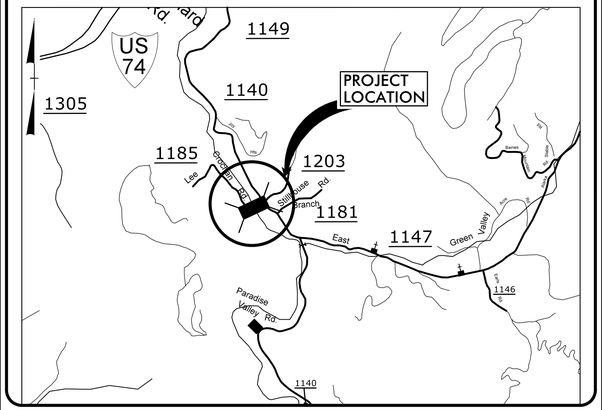
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT MARKING PLAN SHEET

12:05:17 PM
BP14_R014_pmp_psh.dgn
7/20/2026

Docusign Envelope ID: 86EC85E4-12D9-82C1-82F1-A079A0B77055

TIP PROJECT: BP14–R014



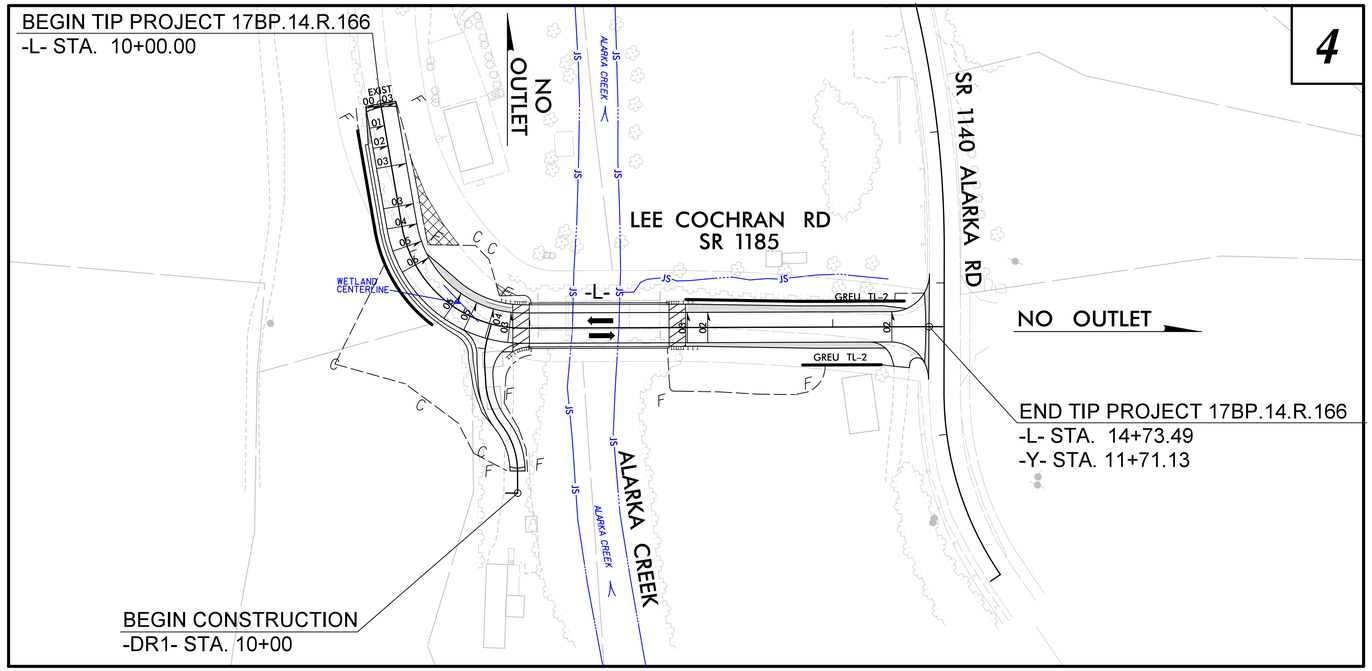
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP14-R014	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP14–R014	N/A	PE
BP14–R014	N/A	RIGHT–OF–WAY

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

LOCATION: *REPLACE EXISTING NO. 152 OVER ALARKA CREEK ON LEE COCHRAN RD (SR 1185)*

TYPE OF WORK: *GRADING, DRAINAGE, WIDENING, BOX BEAM BRIDGE AND PAVEMENT MARKINGS*



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

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.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

GRAPHIC SCALE

50 25 0 50 100

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES.

wsp

Prepared In the Office of:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601

Designed by:

Jon Becker — *NAME*
3871 — *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

$$$$$$$SYSTIME$$$$$$$
$$$$$$$DESIGNSPEED$$$$$$$

Docusign Envelope ID: 86EC85E4-12D9-82C1-82F1-A079A0B77055

DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

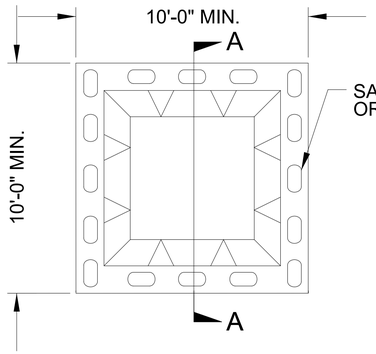
Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
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	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	EW EW EW
1636.03	Coir Fiber Wattle Barrier	CFW CFW CFW

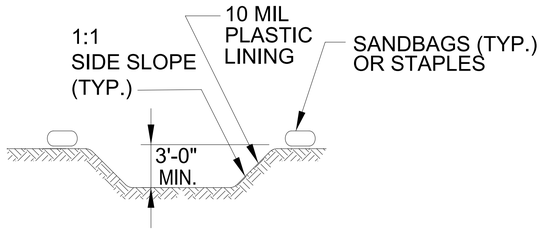
Docusign Envelope ID: 86EC85E4-12D9-82C1-82F1-A079A0B77055

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A



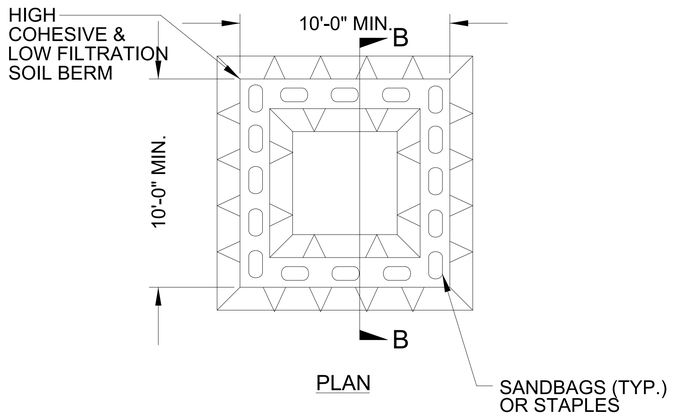
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

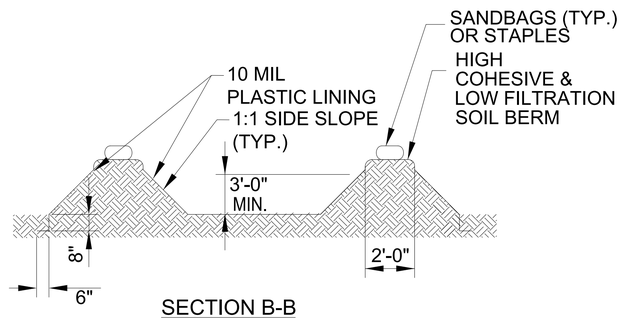
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



PLAN



SECTION B-B



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

Docusign Envelope ID: 86EC85E4-12D9-82C1-82F1-A079A0B77055

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL (DITCHES): COIR

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	DR1	10+20	10+40	LT	45 *DITCH*
				SUB TOTAL	45
				SAY	50
				TOTAL	1050
	ADDITIONAL MATTING TO BE INSTALLED				6,950
				SAY	8,000

MATTING FOR EROSION CONTROL (SLOPES): EXCELSIOR

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	11+00	12+00	LT	375
4	L TO DR1	11+00	10+00	RT/LT	185
4	L	12+80	14+34	RT	393
			SUB	TOTAL	953
				SAY	1000

Docusign Envelope ID: 86EC85E4-12D9-82C1-82F1-A079A0B77055

PROJECT REFERENCE NO.	SHEET NO.
BP6.R013	EC-3B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

Docusign Envelope ID: 247533BC-4552-83FB-8134-F1A4B74B2D2C

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NAD 83/2011

-Y-

PI Sta 10+66.18	PI Sta 13+03.73
△ = 34° 23' 54.2" (RT)	△ = 13° 25' 25.5" (LT)
D = 26° 47' 49.3"	D = 8° 09' 05.0"
L = 128.37'	L = 164.68'
T = 66.18'	T = 82.72'
R = 213.81'	R = 702.90'
e = EXIST	e = EXIST
DS = EXIST	DS = EXIST

-L-

PI Sta 11+50.55	
△ = 80° 21' 07.9" (LT)	
D = 70° 44' 07.9"	
L = 113.60'	
T = 68.39'	
R = 81.00'	
e = 0.06	
DS = 20 MPH	

-DR1-

PI Sta 10+31.59	
△ = 37° 37' 57.4" (LT)	
D = 114° 35' 29.6"	
L = 32.84'	
T = 17.04'	
R = 50.00'	

-DR1-

PI Sta 10+62.90	PI Sta 10+98.11
△ = 34° 27' 26.1" (RT)	△ = 18° 21' 21.8" (RT)
D = 114° 35' 29.6"	D = 114° 35' 29.6"
L = 30.07'	L = 16.02'
T = 15.50'	T = 8.08'
R = 50.00'	R = 50.00'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "860152 GPS-101" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 623299.033(ft) EASTING: 667357.859(ft) ELEVATION: 1973.379(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997853902
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "860152 GPS-101" TO -L- STATION 10+00.00 IS

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

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).

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.

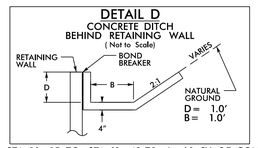
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

UTILITY OWNERS

DUKE ENERGY
957 SPARTANBURG HWY.
HENDERSONVILLE, NC 28792

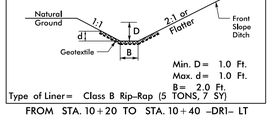
FRONTIER COMMUNICATIONS
1058 WEST CLUB BLVD
SUITE 518
DURHAM, NC 27701

DETAIL D
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)



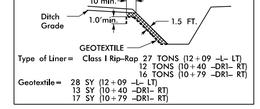
FROM STA. 10+15 TO STA. 11+42.70 -L- 60 SY OF CONCRETE
FROM STA. 13+80 TO STA. 14+32 -L- 24 SY OF CONCRETE

DETAIL B
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.
Type of Liner= Class B Rip-Rap (5 TONS, 7 SY)
FROM STA. 10+20 TO STA. 10+40 -DR1- LT

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= Class I Rip-Rap 27 TONS (12+09 -L- LT)
12 TONS (10+40 -DR1- RT)
16 TONS (10+79 -DR1- RT)
Geotextile= 28 SY (12+09 -L- LT)
13 SY (10+40 -DR1- RT)
17 SY (10+79 -DR1- RT)
STA. 12+09 -L- LT
STA. 10+40 -DR1- RT
STA. 10+79 -DR1- RT

DLEIN 2026-01-15
K:\DIVISION\CONTROL\CADD\17BP.R166.860152.ec_psh_sheet4.dgn
WSP

Docusign Envelope ID: 247533BC-4552-83FB-8134-F1A4B74B2D2C

PROJECT REFERENCE NO.	SHEET NO.
BP14-R014	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

NAD 83/2011

-Y-	
PI Sta 10+66.18	PI Sta 13+03.73
△ = 34° 23' 54.2" (RT)	△ = 13° 25' 25.5" (LT)
D = 26° 47' 49.3"	D = 8° 09' 05.0"
L = 128.37'	L = 164.68'
T = 66.18'	T = 82.72'
R = 213.81'	R = 702.90'
e = EXIST	e = EXIST
DS = EXIST	DS = EXIST

-L-	-DR1-
PI Sta 11+50.55	PI Sta 10+31.59
△ = 80° 21' 07.9" (LT)	△ = 37° 37' 57.4" (LT)
D = 70° 44' 07.9"	D = 114° 35' 29.6"
L = 113.60'	L = 32.84'
T = 68.39'	T = 17.04'
R = 81.00'	R = 50.00'
e = 0.06	
DS = 20 MPH	
-DR1-	
PI Sta 10+62.90	PI Sta 10+98.11
△ = 34° 27' 26.1" (RT)	△ = 18° 21' 21.8" (RT)
D = 114° 35' 29.6"	D = 114° 35' 29.6"
L = 30.07'	L = 16.02'
T = 15.50'	T = 8.08'
R = 50.00'	R = 50.00'

DATUM DESCRIPTION

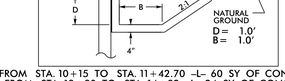
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "860152 GPS-101" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 623299.033(ft) EASTING: 667357.859(ft) ELEVATION: 1973.379(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997853902 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "860152 GPS-101" TO -L- STATION 10+00.00 IS

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

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
STA 10+20 RT -L- TO STA 10+40 LT -DR1-

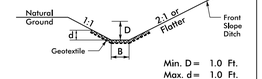
INSTALL MATTING FOR EROSION CONTROL ON SLOPE AS WORK ALLOWS.
STA 11+00 TO STA 12+00 -L- RT
STA 12+70 TO 14+62 -L- LT
STA 12+80 TO 14+34 -L- RT
STA 11+00 RT -L- TO STA 10+00 LT -DR1-

DETAIL D
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)



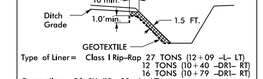
FROM STA. 10+15 TO STA. 11+42.70 -L- 60 SY OF CONCRETE
FROM STA. 13+80 TO STA. 14+32 -L- 24 SY OF CONCRETE

DETAIL B
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.
Type of Liner= Class B Rip-Rap (5 TONS, 7 SY)
FROM STA. 10+20 TO STA. 10+40 -DR1- LT

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= Class I Rip-Rap 27 TONS (12+09 -L- LT)
12 TONS (10+40 -DR1- RT)
16 TONS (10+79 -DR1- RT)
Geotextile= 28 SY (12+09 -L- LT)
13 SY (10+40 -DR1- RT)
17 SY (10+79 -DR1- RT)
STA. 12+09 -L- LT
STA. 10+40 -DR1- RT
STA. 10+79 -DR1- RT

BEGIN CONSTRUCTION
-L- STA. 9+21.00
BEGIN TIP PROJECT BP14-R014
-L- STA. 10+00.00
BEGIN APPROACH SLAB
-L- STA. 11+88.81
BEGIN BRIDGE
-L- STA. 11+99.70
END APPROACH SLAB
-L- STA. 13+02.82
END BRIDGE
-L- STA. 12+91.95
END CONSTRUCTION
-L- Sta. 14+63.95
BEGIN CONSTRUCTION
-DR1- STA. 10+10.00
END VALLEY GUTTER
-DR1- STA. 10+60.00
BEGIN VALLEY GUTTER
-L- STA. 10+25.00
TYING TO EXIST. GUARDRAIL
-L- STA. 14+61.32
BEGIN CONSTRUCTION
TIE TO EXISTING
-L- Sta. 14+63.10

DO NOT DISTURB WELL
DO NOT DISTURB WATERLINE
SEE ANCHOR DETAIL FOR PAVED SHOULDER AND SBG
SPECIAL CUT BASE DITCH
10+20 TO 10+40 -DR1- RT
SEE DETAIL B
RIP RAP AT EMBANKMENT
10+60 -DR1- RT
SEE DETAIL C
RIP RAP AT EMBANKMENT
10+40 -DR1- RT
SEE DETAIL C
RIP RAP AT EMBANKMENT
12+15 -L- LT
SEE DETAIL C
CONCRETE DITCH BEHIND RETAINING WALL #1
SEE DETAIL D

RETAINING WALL #2
RETAINING WALL #3
TYPE III SHOP CURVED
TYPE III SHOP CURVED
TYPE III
REMOVE
RELOCATE
RETAIN
CLOER RD. NO OUTLET

GRADY T. JONES LIFE ESTATE
DB 344 PG 370
DB 150 PG 151

KARLA J. COLE
DB 344 PG 367

RACHEL M. JONES
KARLA J. COLE
DB 410 PG 662

ALAN ROCKY SAMPSON
LISA SMITH BUCHANAN
DB 401 PG 340

DENNIS SMITH
DB 215 PG 356

DENNIS L. & REBECCA L. TAYLOR
DB 318 PG 699

JAMES & CAROLYN CLOER
DB 138 PG 38

TINA BERNICE JONES SITTON & KENNETH SITTON, JR.
DB 150 PG 147

GRADY T. JONES LIFE ESTATE
DB 150 PG 151
DB 150 PG 154
DB 150 PG 157

ROY ELMER & LAUREN WILLIAMSON
DB 194 PG 585

BM-2 ELEV. = 1973.03
-BL- 5+38.00 15 RIGHT
RANCH TIE SPIKE IN 12" POPLAR

PAVED SHLD.

UTILITY OWNERS

DUKE ENERGY
957 SPARTANBURG HWY.
HENDERSONVILLE, NC 28792

FRONTIER COMMUNICATIONS
1058 WEST CLUB BLVD
SUITE 518
DURHAM, NC 27701

5/14/99
01-JUN-2026 11:56
C:\PROJECTION CONTROL\CADD\17BP.R166.860152_ec_psh_sheet4.dgn
WSP

Docusign Envelope ID: 86EC85E4-12D9-82C1-82F1-A079A0B77055

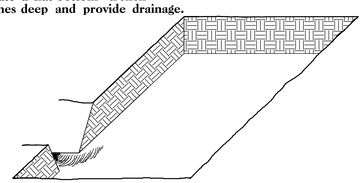
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP14.R014	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

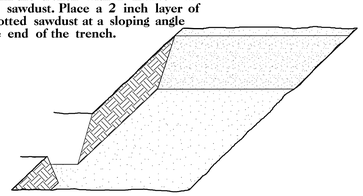
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

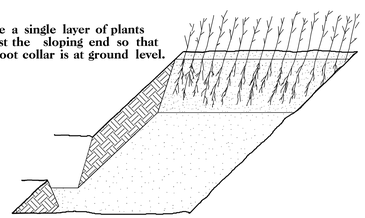
1. Locate a healing–in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



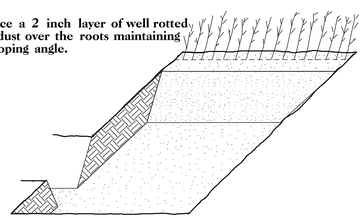
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

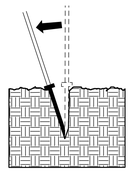


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

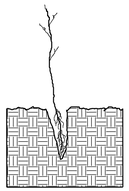


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

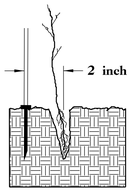
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



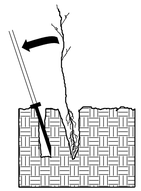
1. Insert planting bar as shown and pull handle toward planter.



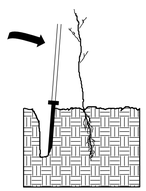
2. Remove planting bar and place seedling at correct depth.



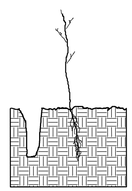
3. Insert planting bar 2 inches toward planter from seedling.



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

Docusign Envelope ID: 661246F3-999B-80EC-8328-7838D6DC7D01

PROJECT: BP14-R014

CONTRACT:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
SWAIN COUNTY

LOCATION: REPLACE EXISTING BRIDGE No. 152 OVER ALARKA CREEK ON SR 1185 (LEE COCHRAN RD)



TIP NO.	SHEET NO.
BP14-R014	SIGN-1

APPROVED: _____

DATE: _____

SEAL



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET, GENERAL NOTES & ROADWAY STANDARD DRAWINGS
SIGN-2	SIGNING PLAN SHEET

GENERAL NOTES

. SIGNS FURNISHED BY STATE
. CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.
. ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
. IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
. WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
. ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
. WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
. THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
. SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	30	LF
4102000000	904	SIGN ERECTION, TYPE E	2	EA
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	4	EA

WSP USA Inc.
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
NC LIC. NO. F-0165

PLAN PREPARED BY:

ERIC W BOWMAN, PE — SR. TRANSPORTATION DESIGNER
SAYMA AFREEN — TRANSPORATION DESIGNER

12:24:59 PM
BP-R166_sgn_tsh.dgn
1/20/2026

Docusign Envelope ID: 661246F3-999B-80EC-8328-7838D6DC7D01

TIP NO.	SHEET NO.
BP14-R014	SIGN-2

APPROVED: _____

DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047447 ERIC W. BOWMAN Signed by: Eric W Bowman DADA3D5C8D2D4F1...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

(401) QUANTITY REQ'D _1_



30" X 30"
R1-1

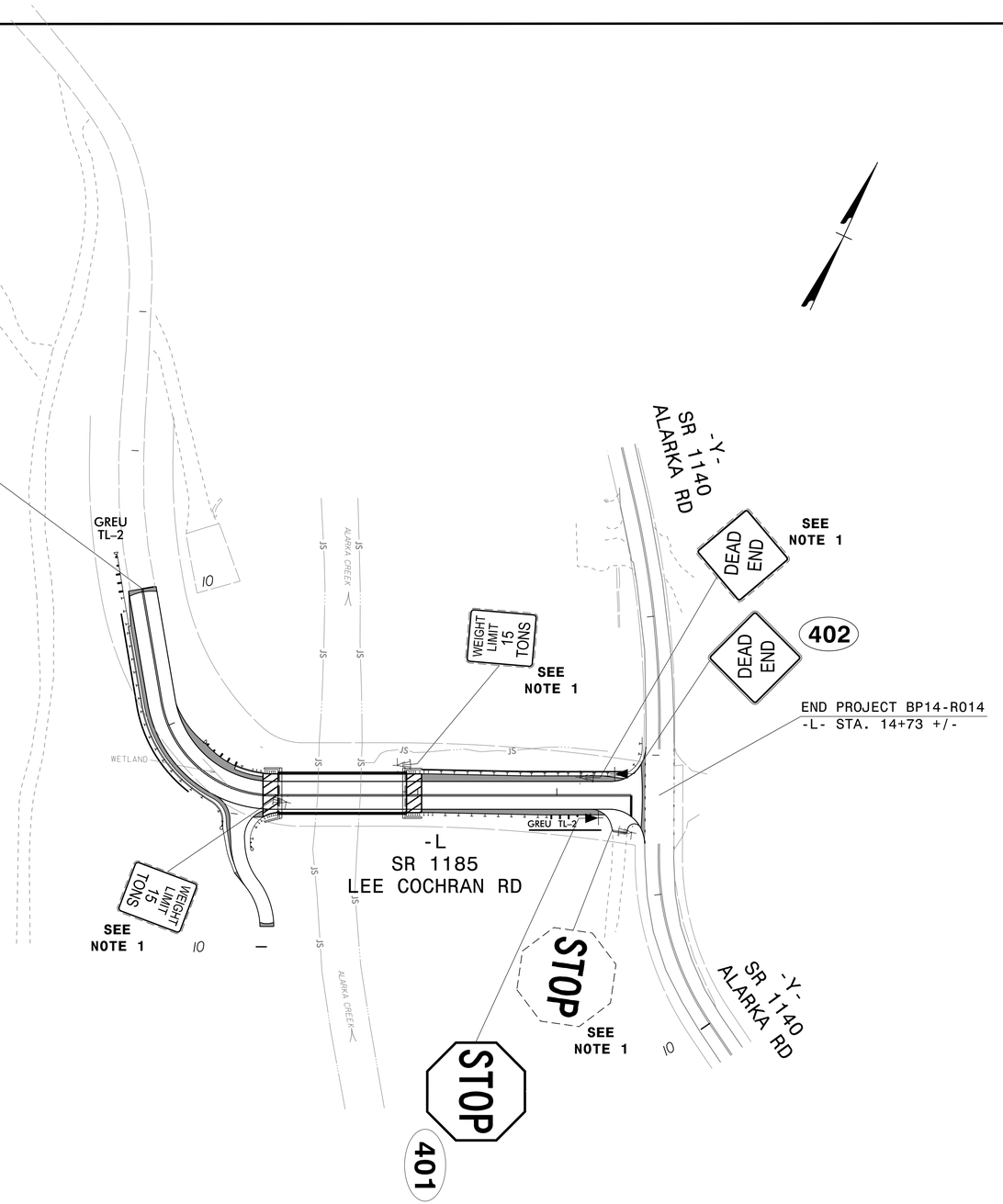
ONE "U" POST PER SIGN

(402) QUANTITY REQ'D _1_



36" X 36"
W14-1

ONE "U" POST PER SIGN



PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM (U-CHANNEL)

SIGNING PLAN SHEET

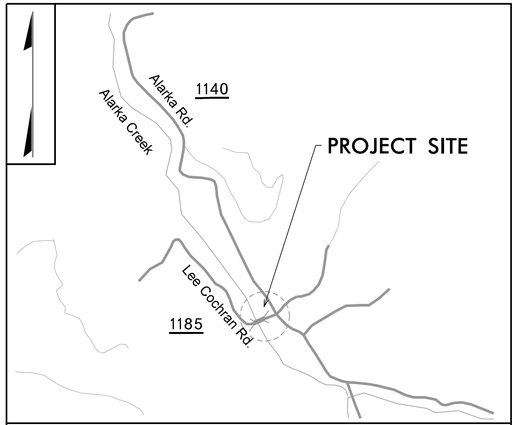
2:0047 PM
I:\BP\R166_sgn_psh.dgn
7/20/2026

Docusign Envelope ID: 5AB7F9B5-F866-87C0-82DF-D0B2F1A11224

REV. ROADWAY DESIGN 12/18/18
REV. DUKE DESIGN 4/11/19
REV. ROW ADDED 4/24/19
ADDED FRONTIER & ZITO MEDIA PLANS 4/12/19
5/19/17

PROJECT: BP14–R014

CONTRACT:



VICINITY MAP (NTS)

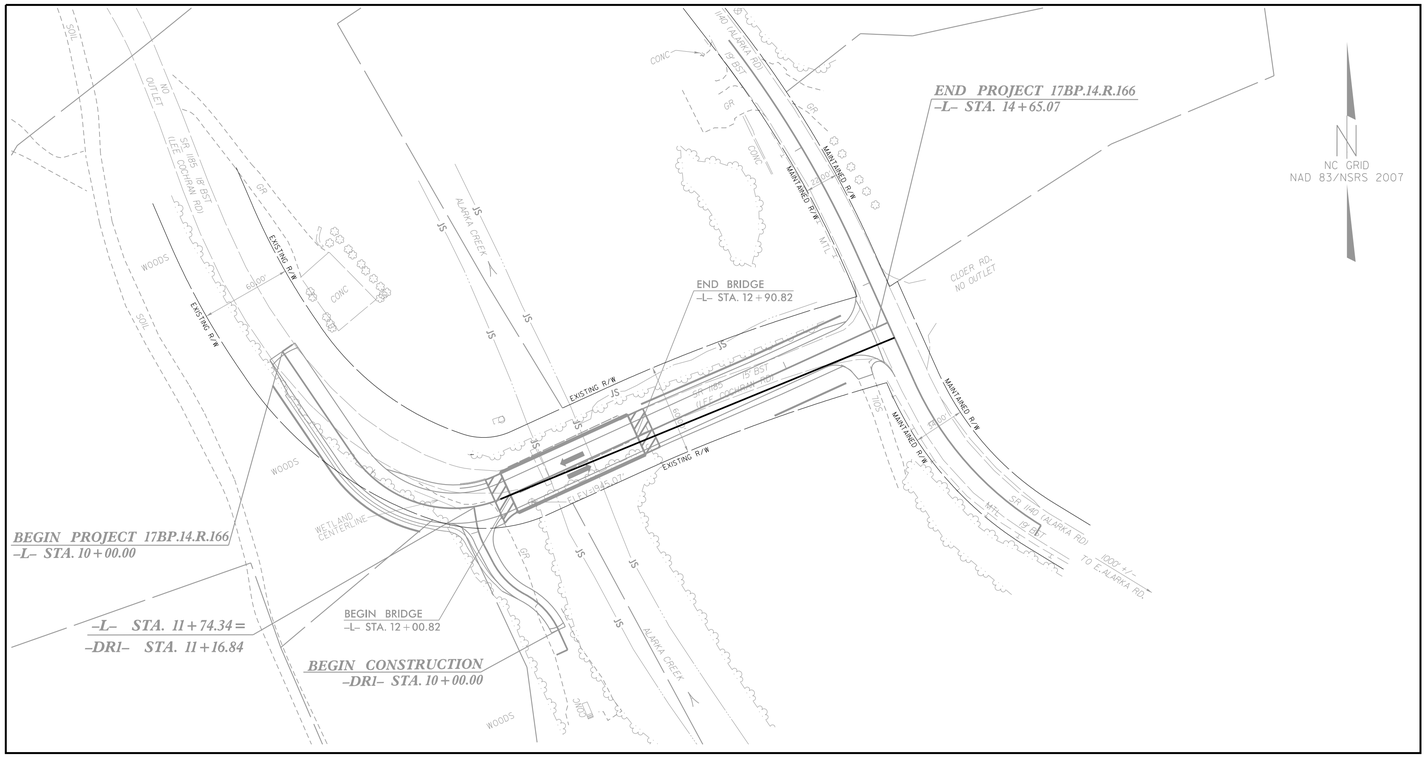
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
BP14–R014	UO–1

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

UTILITIES BY OTHERS PLANS
SWAIN COUNTY

LOCATION: STRUCTURE 860152 OVER ALARKA CREEK ON SR 1185 (LEE COCHRAN ROAD)
TYPE OF WORK: AERIAL AND UNDERGROUND POWER, TELEPHONE & CATV



GRAPHIC SCALE

30 15 0 30 60
PLANS

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UO–1	*TITLE SHEET*
UO–2	*UBO PLAN SHEET*

UTILITY OWNERS ON PROJECT

(A) POWER – DUKE ENERGY
(B) TELEPHONE – FRONTIER COMMUNICATIONS
(C) CATV – ZITO MEDIA

PREPARED IN THE OFFICE OF:

V&M
Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828.253.2796

Nick Asaro — *PROJECT UTILITY MANAGER*
James Montgomery — *PROJECT UTILITY COORDINATOR*

DIVISION OF HIGHWAYS
DIVISION 14
253 WEBSTER ROAD
SYLVA, NC 28779

Bob Golding — *DIVISION UTILITY ENGINEER*

TRANSPORTATION\36630-IN\SWAIN 52\UTILITIES\SWAIN52UO-1.DGN

Docusign Envelope ID: 5AB7F9B5-F866-87C0-82DF-D0B2F1A11224

REV. ROADWAY DESIGN 5/19/17
REV. DUKE DESIGN 2/18/18
REV. DUKE DESIGN 4/11/19
ADDED FRONTIER & ZITO MEDIA PLANS 4/12/19
REV. ROW ADDED 4/24/19

PROJECT: BP14-R014

CONTRACT:

V&M PROJECT #3(630-II
TRANSPORTATION\3630-II\SWAIN 152\UTILITIES\SWAIN52U0-2.DGN

STRUCTURE 860152
SWAIN COUNTY

PROJECT REFERENCE NO.	SHEET NO.
BP14-R14	U0-2

UTILITIES BY OTHERS

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

BEGIN PROJECT BP14.R014
-L- PT Sta.10+00.00

BEGIN CONSTRUCTION
-L- STA.9+90.15

1
GRADY T. JONES
LIFE ESTATE
DB 344 PG 370
DB 150 PG 151

PROP. RETAINING WALL 1
STA.10+15.00 TO 11+42.70

PROP. VALLEY GUTTER

BEGIN CONTRUCTION
-RT- POT Sta.10+00.00

NC GRID
NAD 83 NA 2011

SR 1185 18' BST (LEE COCHRAN RD)

NO OUTLET

SOIL

WOODS

GR

RIP RAP

EXISTING R/W

60.00'

PLANTER

ALARKA CREEK

BURIED

JB w/MH

UG PROPANE TANK

ISFD

DK

DND WELL

DENNIS SMITH
DB 215 PG 356

PROP. RETAINING WALL 2
STA.13+02.82 TO 14+30.00

6 PR

IB w/MH

DUKE 149

REMOVE

PDE

PUE

DUKE NO#

*SEE NOTE

DUE

PRIVATE WATERLINE
MARKED BY PROPERTY OWNER
DRAWN BY PHOTOS TAKEN
3/10/16

-DRI- 10+00

GRADY T. JONES
LIFE ESTATE
DB 150 PG 151
DB 150 PG 154
DB 150 PG 157
2

ROY ELMER &
ADA LAUREN WILLIAMSON
DB 194 PG 585
3

PROP. RETAINING WALL 3
STA.13+92.00 TO 14+30.00

13.3 MILES +/-
TO NWP 19

SR 1140 (ALARKA RD)

BLK WALL

CONC

ALAN ROCKY SAMPSON
LISA SMITH BUCHANAN
DB 401 PG 340

MAILBOX

MAINTAINED R/W

DENNIS L. & REBECCA L. TAYLOR
DB 318 PG 699

CANOPY

GUY

FRONTIER #126

GUY RIP RAP

CLOER RD. NO OUTLET

END PROJECT BP14.R014
-L- PT Sta.14+73.49=
-Y- Sta.11+71.13

RETAIN

JAMES & CAROLYN CLOER
DB 138 PG 38

DUKE #80
FRONTIER #50

DUKE #61

DUKE #30

(3) GUY ANCHORS

30 SCALE 22x34
60 SCALE 11x17

Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775
Copyright © 2006 Vaughn & Melton, Inc. All Rights Reserved