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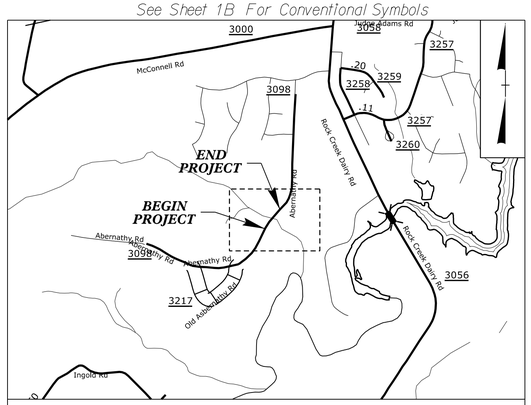
09/08/99

PROJECT: BP7–C002

CONTRACT: DG00679

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



VICNITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP7–C002	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP7.C002.1		P.E.
BP7.C002.2		ROW/UTIL
BP7.C002.3		CONST

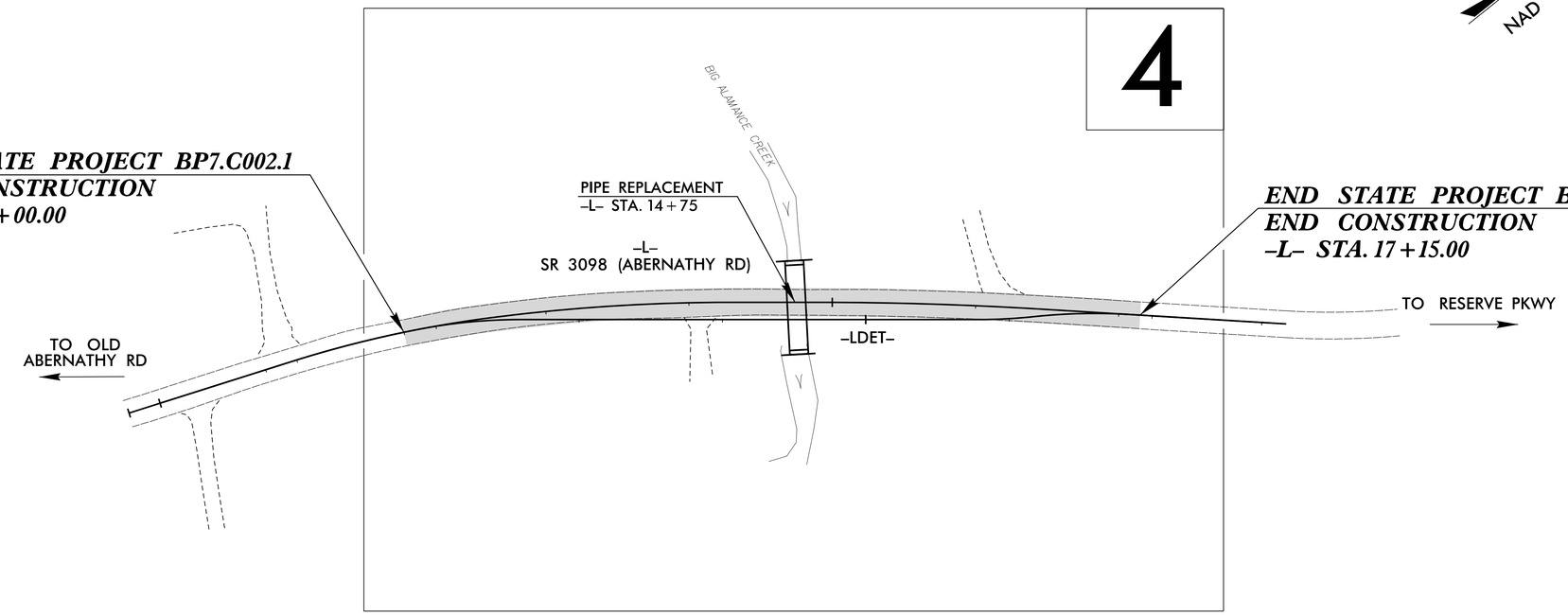
LOCATION: CULVERT 40–2179 OVER UT TO BIG ALAMANCE CREEK ON SR 3098 (ABERNATHY RD)

TYPE OF WORK: PAVING, GRADING, GUARDRAIL, DRAINAGE, PAVEMENT MARKINGS AND CULVERT

100% PLANS

NAD 83 NA 2011

4



BEGIN STATE PROJECT BP7.C002.1
BEGIN CONSTRUCTION
–L– STA. 12+00.00

END STATE PROJECT BP7.C002.1
END CONSTRUCTION
–L– STA. 17+15.00

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2026 = <400
ADT 2046 = <400
T = N/A
V = 40 MPH
* TTST = N/A DUAL N/A
FUNC CLASS = LOCAL
SUB–REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY STATE PROJECT BP7–C002	= 0.098 mi.
LENGTH OF STRUCTURES STATE PROJECT BP7–C002	= 0.000 mi.
LENGTH OF STATE PROJECT BP7–C002	= 0.098 mi.

Prepared in the Office of:
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 18, 2024

LETTING DATE:
FEBRUARY 5, 2026

EDWARD GLENN EDENS, PE
PROJECT ENGINEER

MATT MURRAY
PROJECT DESIGN ENGINEER

DANIEL DAGENHART
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042644 ENGINEER CRAIG J LEE P.E.

Signed by: Craig Lee 1/12/2026
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 018470 ENGINEER EDWARD GLENN EDENS JR P.E.

Signed by: Edward Glenn Edens, Jr. 1/13/2026
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

1/9/2026
G:\RA\10704-03\20 CADD\BP7.C002.R\Roadway\Proj\BP7.C002.l_rdy_tsh.dgn
jdavenport

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
BP7-C002	1A

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-2	DETOUR PLAN AND PROFILE DETAILS
2C-1 THRU 2C-3	SPECIAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1 THRU 3D-2	DRAINAGE SUMMARIES
4 THRU 5	PLAN AND PROFILE SHEET
RW02C-1 THRU RW02C-3	SURVEY CONTROL SHEETS
TMP-1 THRU TMP-9	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-3	PAVEMENT MARKING PLANS
EC-1 THRU EC-6	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UO-1 THRU UO-2B-1	UTILITY BY OTHERS PLANS
X-1	CROSS SECTION INDEX
X-1A	EARTHWORK VOLUME SHEET
X-2 THRU X-8	CROSS-SECTIONS

EFF. 08-11-2025

REV.

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
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
862.02	Guardrail Installation
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

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.

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".

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE CENTURY LINK

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 018470 EDWARD GLENN EDENS, JR.

Edward Glenn Edens, Jr.

1/12/2026

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
BP7.C002	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)* — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
BP7.C002	2A-1

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 018470 EDWARD GLENN EDENS, JR. — Signed by: Edward Glenn Edens, Jr. 7BED1D6CA0B3445... — 1/12/2026

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 056425 JAMES B. YATES — DocuSigned by: James Yates 1E16507EA7A04AE... — 1/12/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

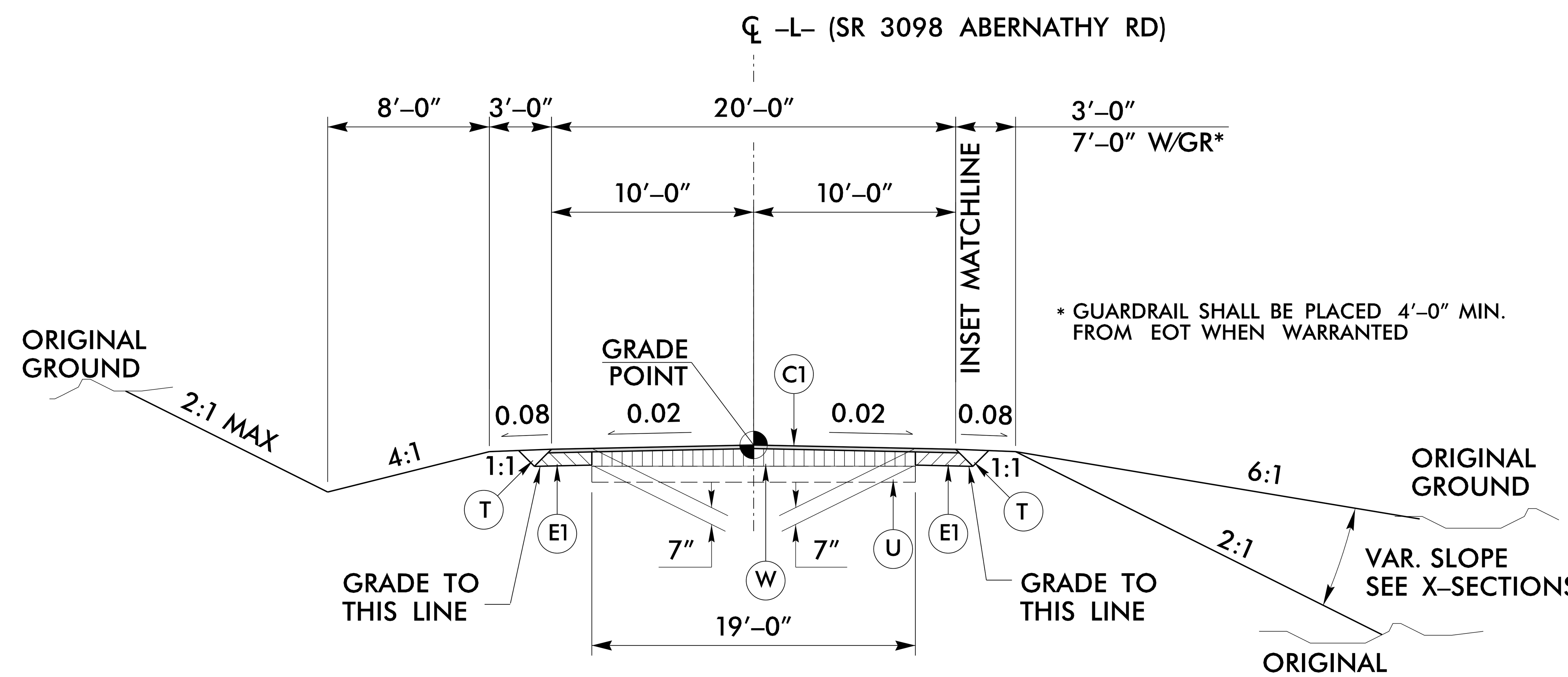
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN DATED 9/1/2023)

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165.0 LBS. PER SQ. YD.
C2	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 TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5 ½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 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	6" AGGREATE BASE COURSE
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL ON THIS SHEET)

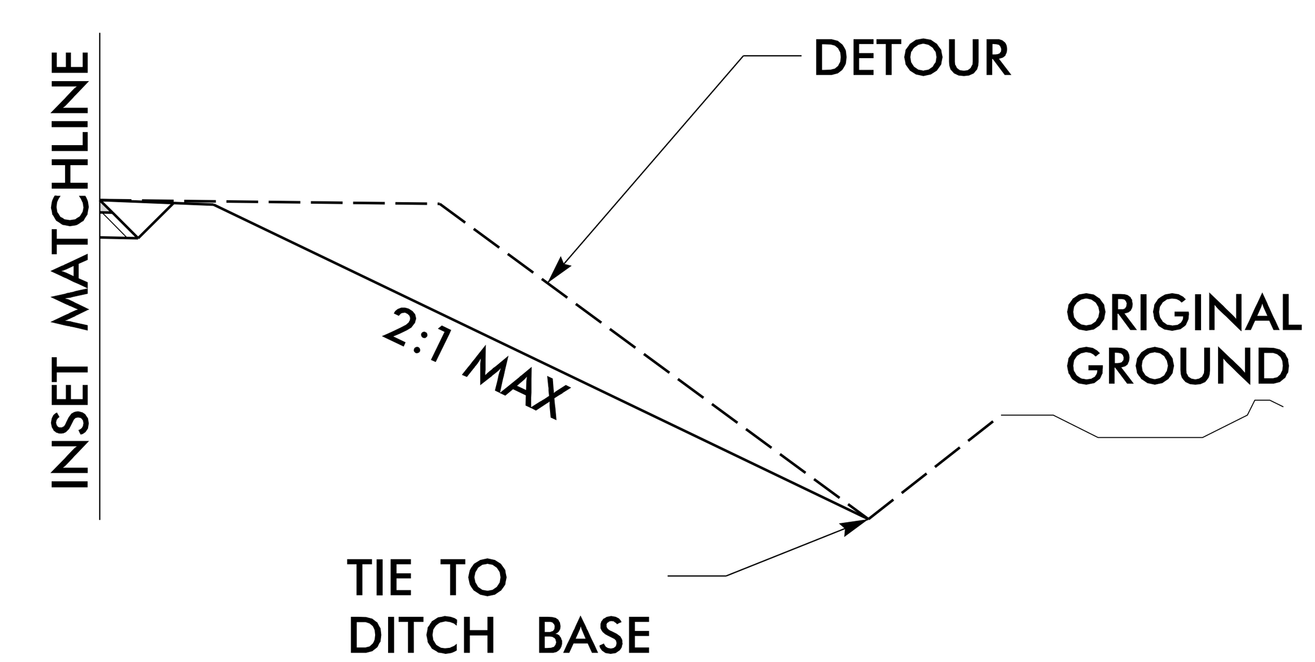
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

-L- STA. 12+00 TO -L- STA. 12+85
-L- STA. 16+40 TO -L- STA. 17+15

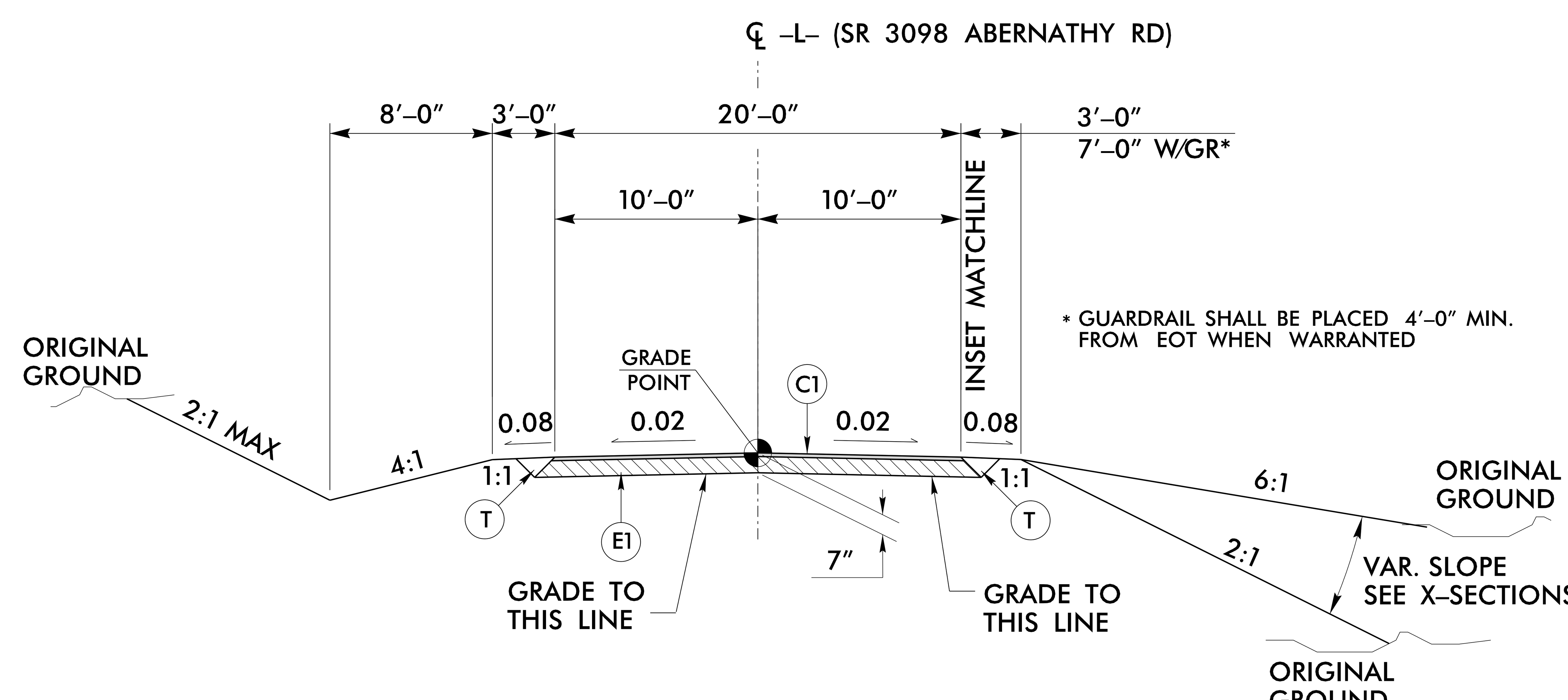
Detail Showing Ditch Construction



INSET DETAIL

TO BE USED IN CONJUNCTION WITH TYPICAL SECTIONS No. 1&2 AS FOLLOWS

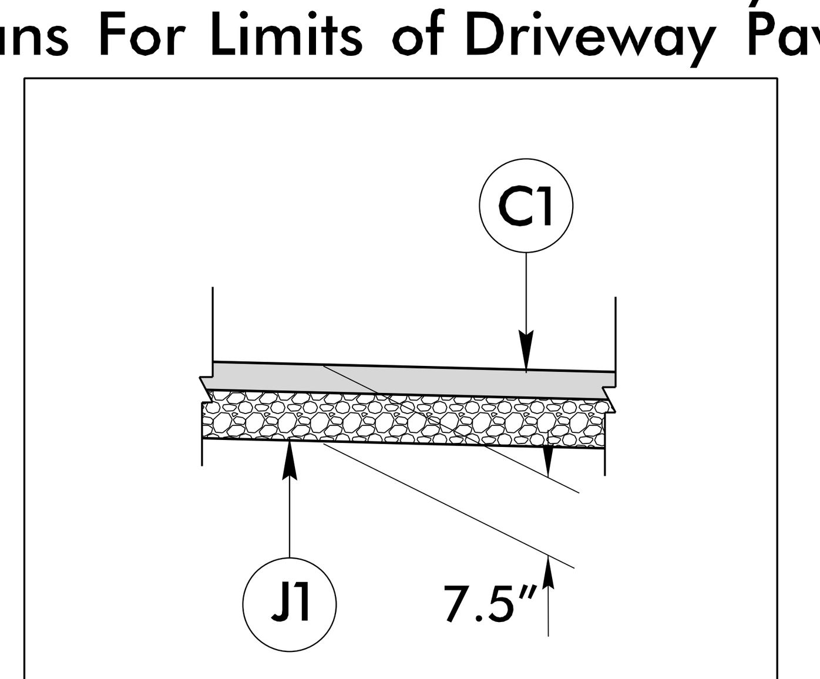
-L- STA. 12+60.00 TO -L- STA. 14+60.00 (RT)



TYPICAL SECTION NO. 2

-L- STA. 12+85 TO -L- STA. 16+40

Detail For Pavement Repair
Detail For Paved Driveway
See Plans For Limits of Driveway Pavement



PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN DATED 9/1/2023)

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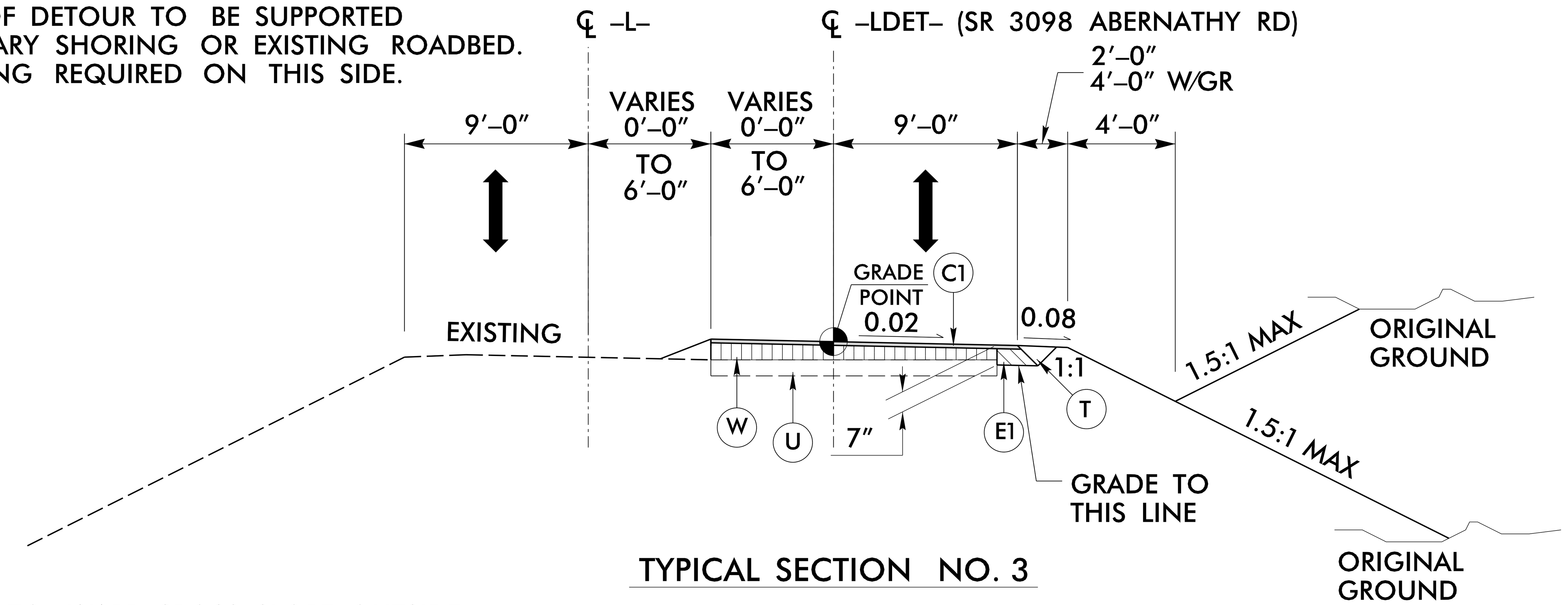
E1	PROP. APPROX. 5 ½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	6" AGGREGATE BASE COURSE
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL ON THIS SHEET)

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

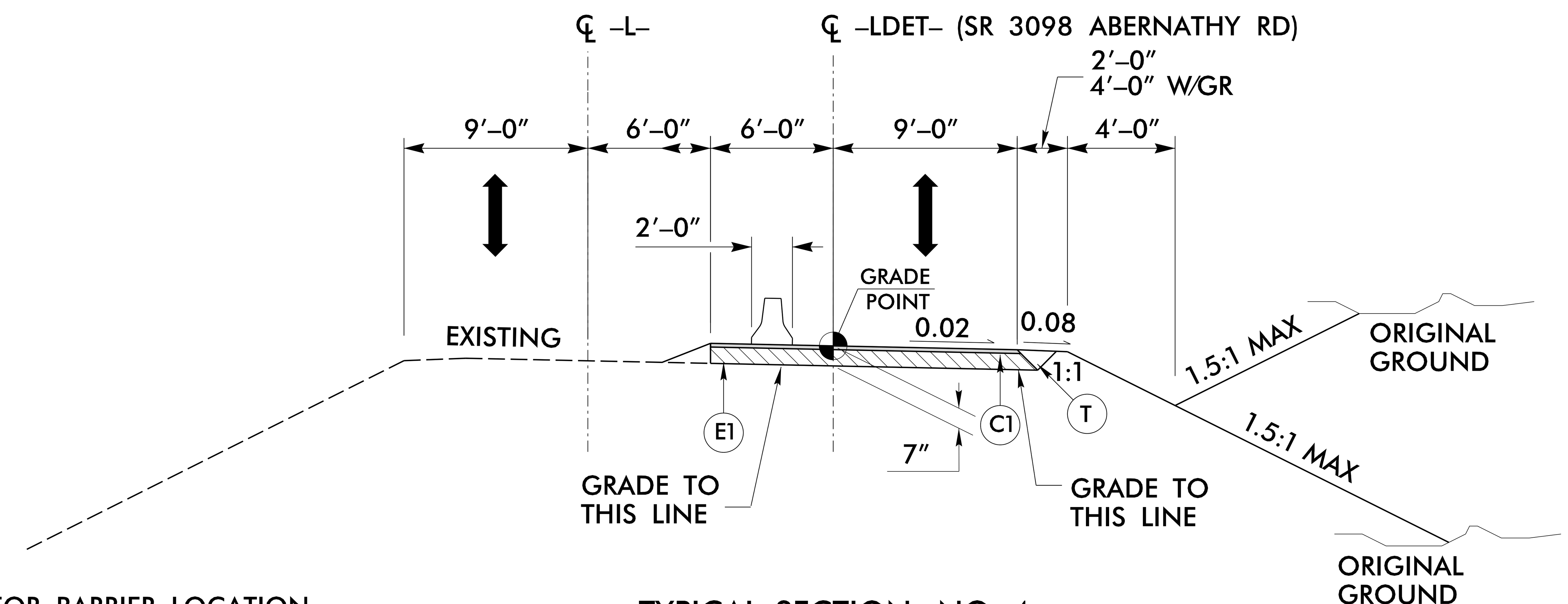
**NOTE
LEFT SIDE OF DETOUR TO BE SUPPORTED BY TEMPORARY SHORING OR EXISTING ROADBED. NO GRADING REQUIRED ON THIS SIDE.



TYPICAL SECTION NO. 3

-LDET- STA. 11+87.00 TO -LDET- STA. 12+63.00
-LDET- STA. 16+14.00 TO -LDET- STA. 16+84.00

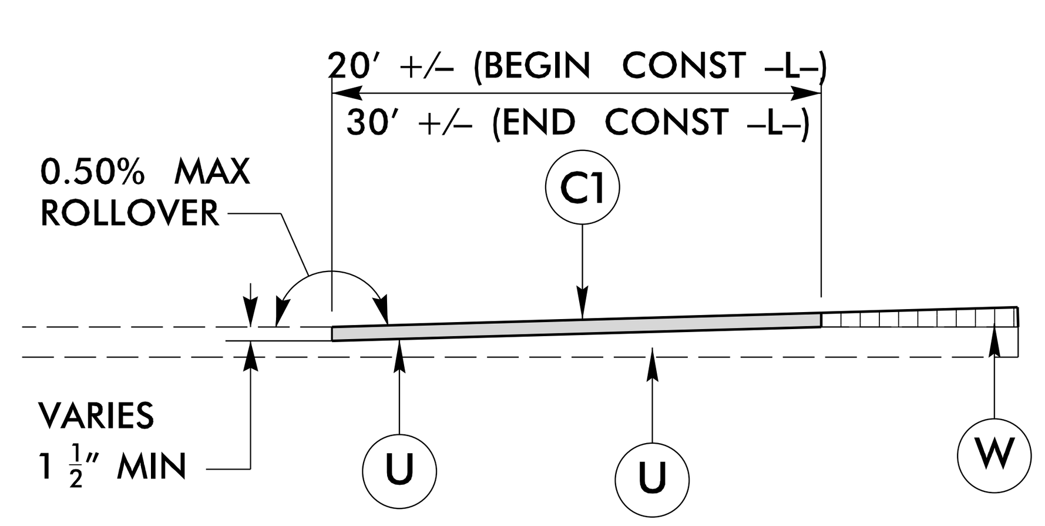
NOTE:
CONTRACTOR TO WARP CROSS SLOPE OUTSIDE OF DETOUR LANE TO PROVIDE SUITABLE TIE TO EXISTING PAVEMENT SURFACE AS REQUIRED, WHERE SUITABLE TIE IN CANNOT BE ACHIEVED USE INCIDENTAL MILLING



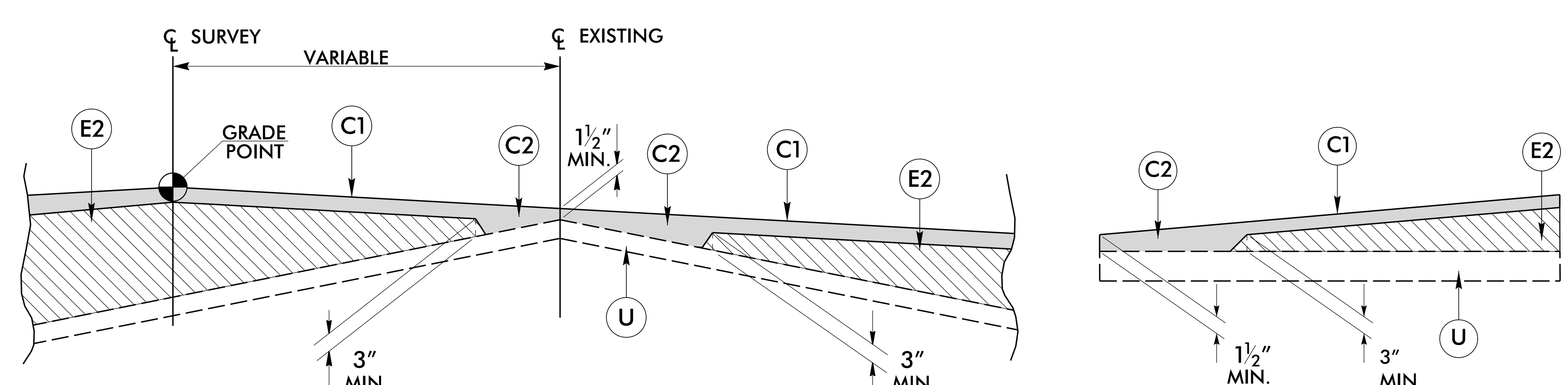
NOTE:
SEE PLANS FOR BARRIER LOCATION

TYPICAL SECTION NO. 4

-LDET- STA. 12+63.00 TO -LDET- STA. 16+14.00



MILLING DETAIL



Wedging Detail

PROJECT REFERENCE NO.	SHEET NO.
BP7.C002	2A-2

ROADWAY DESIGN ENGINEER — SEAL 018470, EDWARD GLENN EDENS, JR. — 1/12/2026

PAVEMENT DESIGN ENGINEER — SEAL 056425, JAMES B. YATES — 1/12/2026

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moffatt & nichol — 4700 FALLS OF NEUSE ROAD, SUITE 300, RALEIGH, NORTH CAROLINA 27609, (919) 781-4626 VOICE (919) 781-4869 FAX, NC License No.: F-0105

1/9/2026 CADD\BP7.C002.1\Roadway\Proj\BP7.C002.1_rdy_typ.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP7-C002	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 048470 — Edward Glenn Edens, Jr.	SEAL 042644 — Craig J. Lee
1/13/2026	1/12/2026

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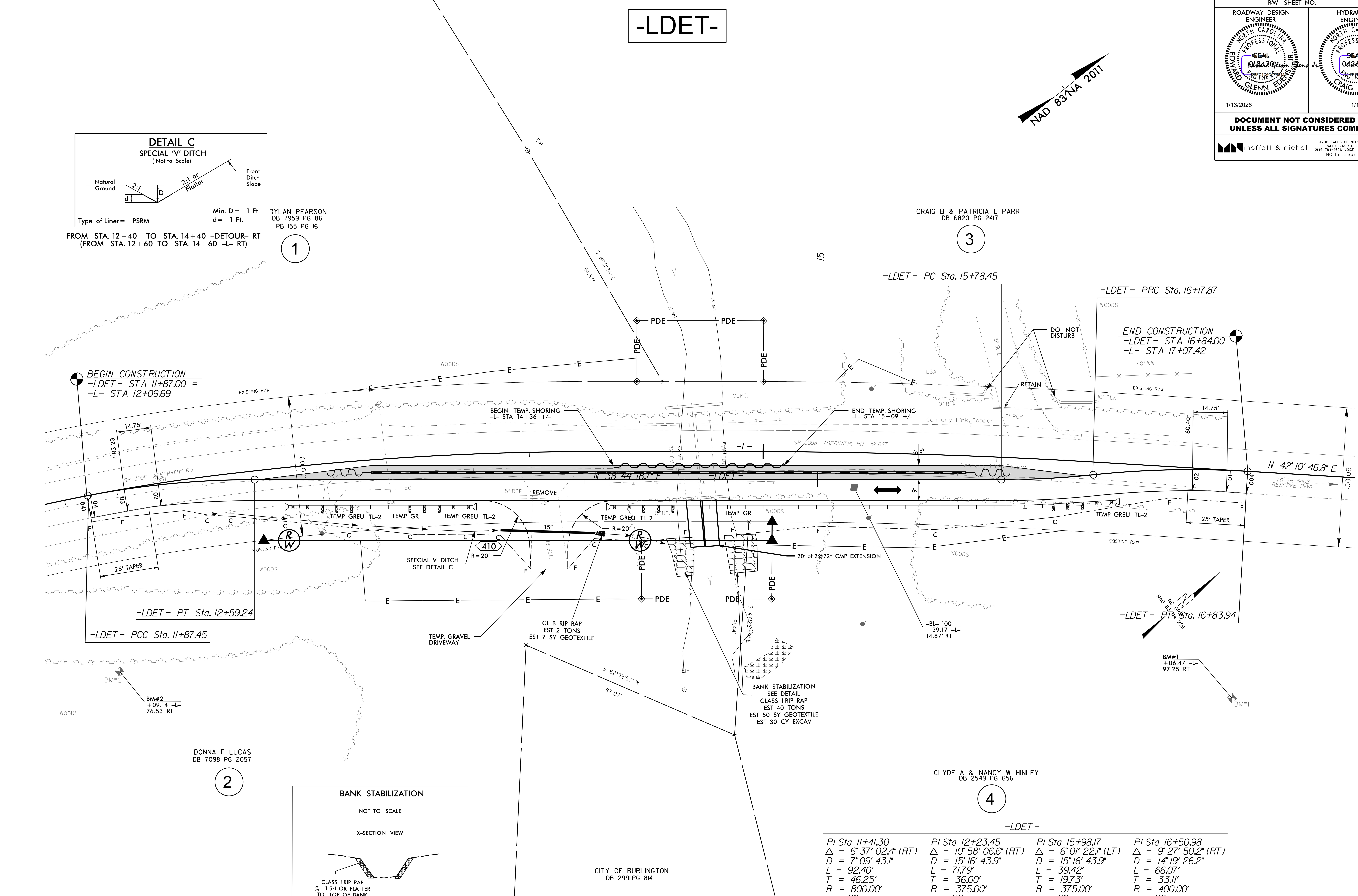
-LDET-



NAD 83/NA 2011
DETAIL C
SPECIAL 'V' DITCH
(Not to Scale)
Natural Ground
2:1
D
d
2:1 or Flatter
Front Ditch Slope
Min. D = 1 Ft.
d = 1 Ft.
Type of Liner = PSRM
FROM STA. 12+40 TO STA. 14+40 -DETOUR- RT
(FROM STA. 12+60 TO STA. 14+60 -L- RT)
DYLAN PEARSON
DB 7959 PG 86
PB 155 PG 16
1
CRAIG B & PATRICIA L PARR
DB 6820 PG 2417
3
-LDET- PC Sta. 15+78.45
-LDET- PRC Sta. 16+17.87
BEGIN CONSTRUCTION
-LDET- STA 11+87.00 =
-L- STA 12+09.69
END CONSTRUCTION
-LDET- STA 16+84.00
-L- STA 17+07.42
PDE
E
WOODS
EXISTING R/W
DO NOT DISTURB
RETAIN
BEGIN TEMP. SHORING
-L- STA 14+36 +/-
END TEMP. SHORING
-L- STA 15+09 +/-
14.75'
N 38°44'18.7" E
-LDET-
-L-
N 42°10'46.8" E
SR 3098 ABERNATHY RD
TO SR 5402 RESERVE PKWY
Century Link, Copper
REMOVE
15" RCP
TEMP GREU TL-2
TEMP GR
R=20'
410
SPECIAL V DITCH
SEE DETAIL C
20' of 2@72" CMP EXTENSION
25' TAPER
-LDET- PT Sta. 12+59.24
-LDET- PCC Sta. 11+87.45
TEMP. GRAVEL DRIVEWAY
CL B RIP RAP
EST 2 TONS
EST 7 SY GEOTEXTILE
BANK STABILIZATION
SEE DETAIL
CLASS I RIP RAP
EST 40 TONS
EST 50 SY GEOTEXTILE
EST 30 CY EXCAV
-BL- 100
+39.17 -L-
14.87' RT
-LDET- PT Sta. 16+83.94
BM#1
+06.47 -L-
97.25 RT
BM#2
+09.14 -L-
76.53 RT
S 62°02'57" W
97.07'
DONNA F LUCAS
DB 7098 PG 2057
2
CLYDE A & NANCY W HINLEY
DB 2549 PG 656
4
CITY OF BURLINGTON
DB 2991 PG 814
BANK STABILIZATION
NOT TO SCALE
X-SECTION VIEW
CLASS I RIP RAP
@ 1.5:1 OR FLATTER
TO TOP OF BANK

-LDET-

PI Sta 11+41.30	PI Sta 12+23.45	PI Sta 15+98.17	PI Sta 16+50.98
Δ = 6° 37' 02.4" (RT)	Δ = 10° 58' 06.6" (RT)	Δ = 6° 01' 22.1" (LT)	Δ = 9° 27' 50.2" (RT)
D = 7° 09' 43.1"	D = 15° 16' 43.9"	D = 15° 16' 43.9"	D = 14° 19' 26.2"
L = 92.40'	L = 71.79'	L = 39.42'	L = 66.07'
T = 46.25'	T = 36.00'	T = 19.73'	T = 33.11'
R = 800.00'	R = 375.00'	R = 375.00'	R = 400.00'
e = NC	e = NC	e = NC	e = NC

FOR -LDET- PROFILE, SEE SHEET 2B-2
FOR -L- PLAN, SEE SHEET NO. 4

1/12/2026
Q:\RA10704-03\20 CADD\BP7.C002.1\Roadway\Proj\BP7.C002.1_rdy_DETOUR_2B-1.dgn
davenport

PROJECT REFERENCE NO.	SHEET NO.
BP7-C002	2B-2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 016470 EDWARD GLENN EDENS, JR.

Signed by: Edward Glenn Edens, Jr.

1/13/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042644 CRAIG J LEE

Signed by: [illegible]

1/12/2026

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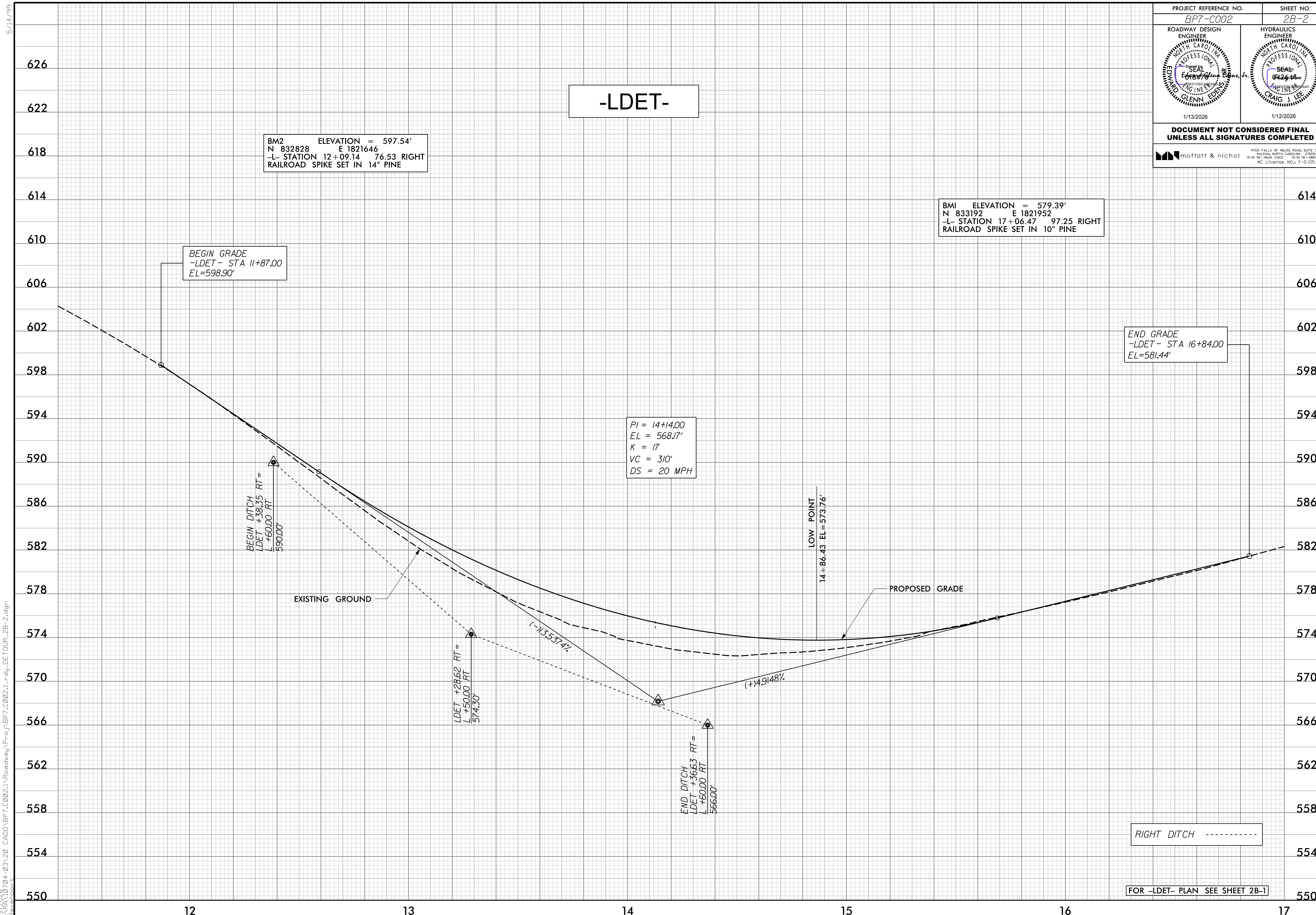
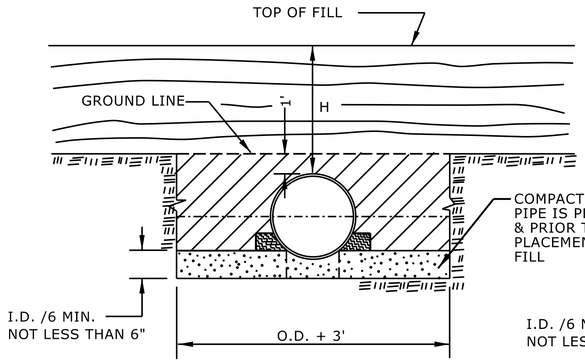
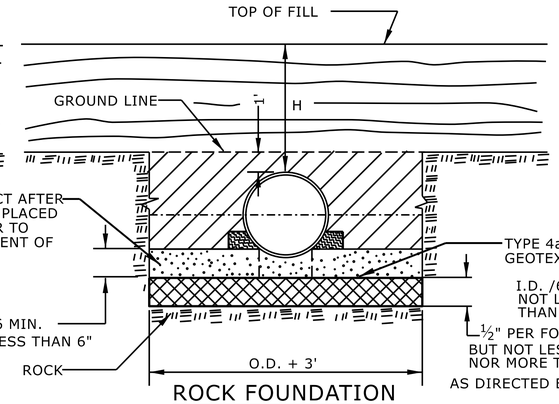
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105



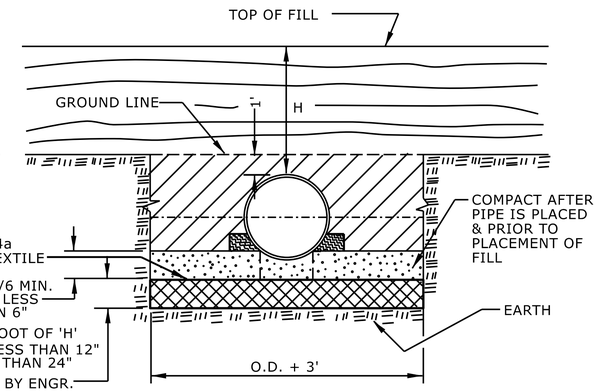
PROJECT REFERENCE NO.	SHEET NO.
BP7.C002	2C-1



NORMAL EARTH FOUNDATION

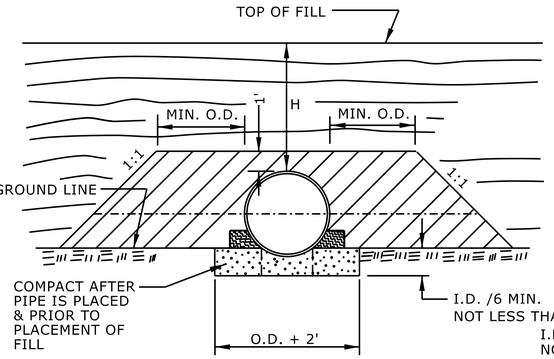


ROCK FOUNDATION

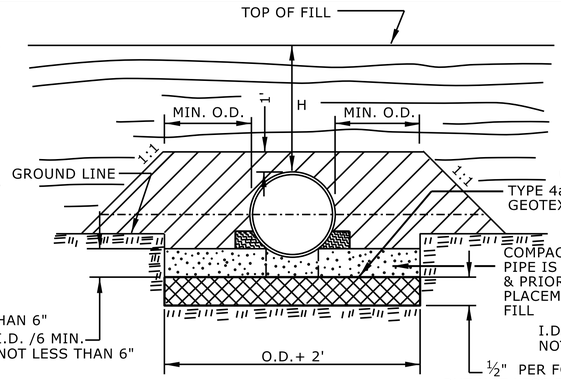


UNSUITABLE MATERIAL FOUNDATION

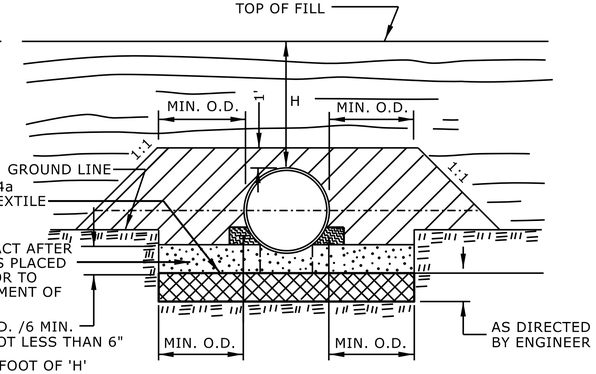
PIPE IN TRENCH



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, TYPE 1 ABOVE AND 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

FLEXIBLE PIPE

SHEET 1 OF 2

300.01

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER
Digitally signed by: Nicole Hackler
1/9/2026

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UNLESS ALL SIGNATURES COMPLETED

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

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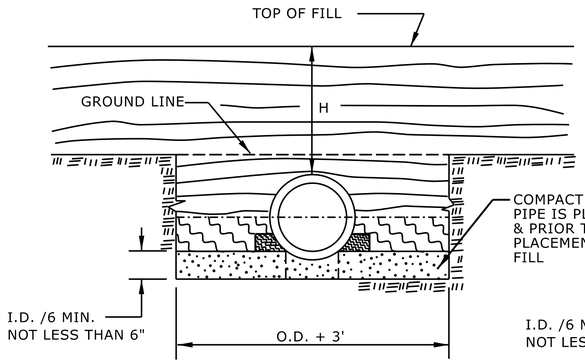
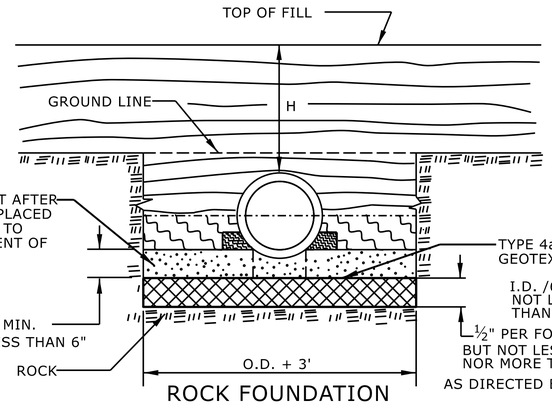
ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

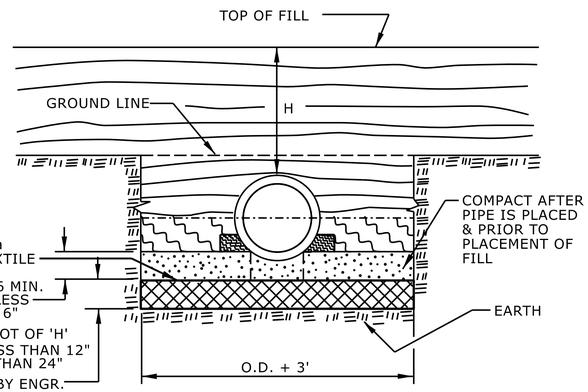
PROJECT REFERENCE NO.	SHEET NO.
BP7.C002	2C-2



NORMAL EARTH FOUNDATION

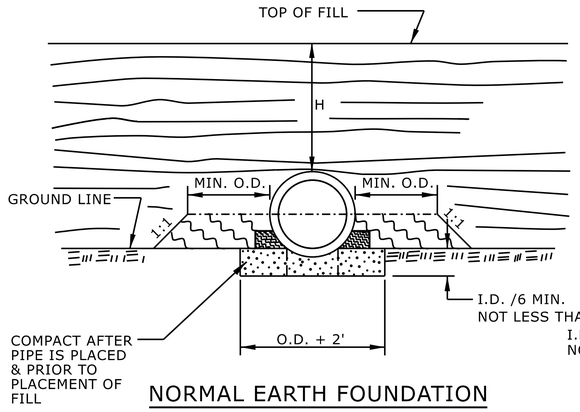


ROCK FOUNDATION



UNSUITABLE MATERIAL FOUNDATION

PIPE IN TRENCH



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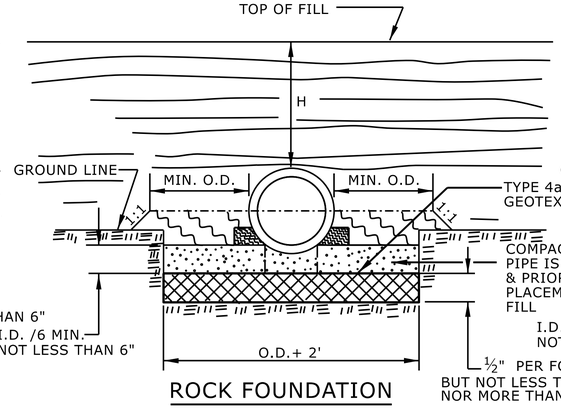
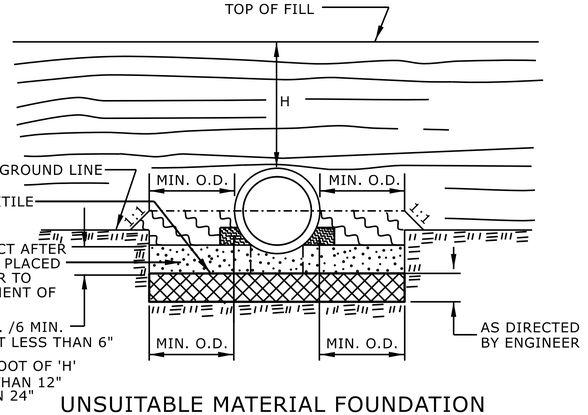


ROCK FOUNDATION



UNSUITABLE MATERIAL FOUNDATION

PIPE ABOVE GROUND

GENERAL NOTES:

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

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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

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Digitally signed by: Nicole M. Hackler

1/9/2026

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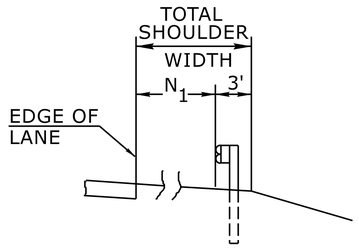
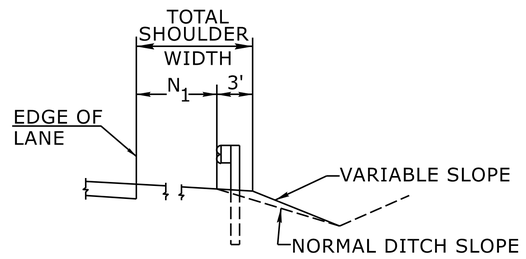
PROJECT REFERENCE NO.	SHEET NO.
BP7.C002	2C-3

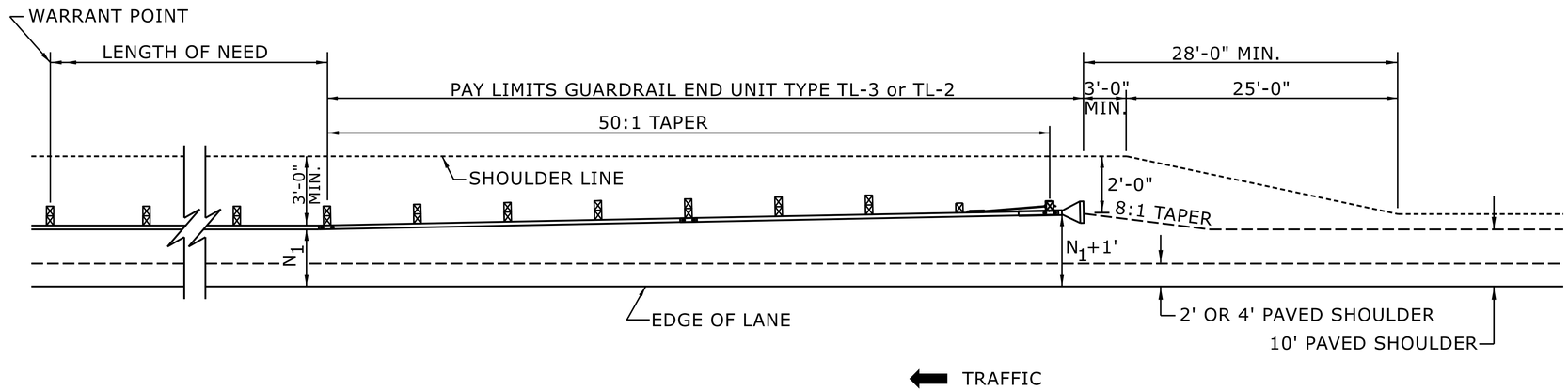


FILL SECTION



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 033148 NICOLE M. HACKER
Signed by: Nicole Hacker
1/9/2026

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

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MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

COMPUTED BY: M.MURRAY	DATE: 11/29/2023
CHECKED BY: G. MODLIN	DATE: 11/29/2023

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BP7-C002	3B-1

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

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGNER. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
-LDET-						
11+87	16+84	59		1,064	1,005	
SUBTOTALS:		59		1,064	1,005	
-L-						
12+00	17+15	292		432	140	
SUBTOTALS:		292		432	140	
TOTAL:		351		1,496	1,145	
MATERIAL FOR SHOULDER CONSTRUCTION						
ADDITIONAL UNDERCUT						
WASTE IN LIEU OF BORROW						
PROJECT TOTALS:		351		1,496	1,145	
EST 5% TO REPLACE TOP SOIL ON BORROW PIT					57	
GRAND TOTALS:		351		1,496	1,202	
SAY:		400			1,300	

SUMMARY OF REMOVAL EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	12+47	16+79	RT	377.85
-L-	12+00	12+85	LT/RT	29.16
-L-	16+40	17+15	LT/RT	26.75
-LDET-	12+63	16+14	LT	726.14
			TOTAL:	1159.90
			SAY:	1160

"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	FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END		GREU TL-2	GREU TL-3	B-77	AT-1	TYPE III	TEMPORARY CRASH CUSHION			EA	G	NG				
-L-	14+21.42	15+70.90	LT	150.00'				14+86.22	4'	7'						2												77.00'		HEADWALL
-L-	12+94.53	13+70.35	RT	75.00'			13+00		4'	7'						2												75.50'		FILL SLOPE WARRANT
-L-	14+27.61	15+40.39	RT	112.50'			14+64.31		4'	7'						2														HEADWALL
TOTAL				337.50'												6												152.50'		
LESS ANCHOR DEDUCTIONS																												187.50'		TEMPORARY GUARDRAIL
GREU TL-2			6 @ 25.00'	-150.00'																										
SUB TOTAL				187.50'																										
SAY				187.50'												6												340.00'		
ADDITIONAL GUARDRAIL POSTS			5																											

TEMPORARY 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	FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END		GREU TL-2	GREU TL-3	CAT-1	AT-1	TYPE III	TEMPORARY CRASH CUSHION			EA	G	NG				
-LDET-	12+75.61	13+50.61	RT	75.00'			12+95		2'	4'						2														FILL SLOPE WARRANT
-LDET-	14+13.06	16+24.58	RT	212.50'			14+40.93		2'	4'						2														HEADWALL
TOTAL				287.50'												4														
LESS ANCHOR DEDUCTIONS																														
GREU TL-2			4 @ 25.00'	-100.00'																										
SUB TOTAL				187.50'																										
SAY				187.50'												4														
ADDITIONAL GUARDRAIL POSTS			5																											

COMPUTED BY:	JCJ	DATE	9/4/2025
CHECKED BY:	CJL	DATE	9/4/2025

PROJECT NO.	SHEET NO.
BP7.C002	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)

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
14+07 -L-	RT	410							40										
14+08 -L-	LT	411							28										
SHEET TOTALS									68	0									

STATION	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
14+07 -L-																								
14+08 -L-																								
SHEET TOTALS										0	0		0					0	0		0			

STATION	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME W/ TWO GRATES STD. 840.16	J.B. STD. 840.31 OR 840.32	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	TB J.B. STD. 840.34 OR STD. 840.46	G.D.I. FRAME (N.S. FLAT) W/2 GRATES STD. 840.29	T.B.D.I. STD. 840.35	ADJUST CB	CONVERT 2 GI TO JB w/ MH COVER	SIDE DRAIN PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
14+07 -L-																																			20	
14+08 -L-																																				
SHEET TOTALS								0	0		0	0													0				0	0					20	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: J.C. Jennings DATE: 12/10/2025

CHECKED BY: C.J. Lee DATE: 12/10/2025

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
BP7.C002	3D-2

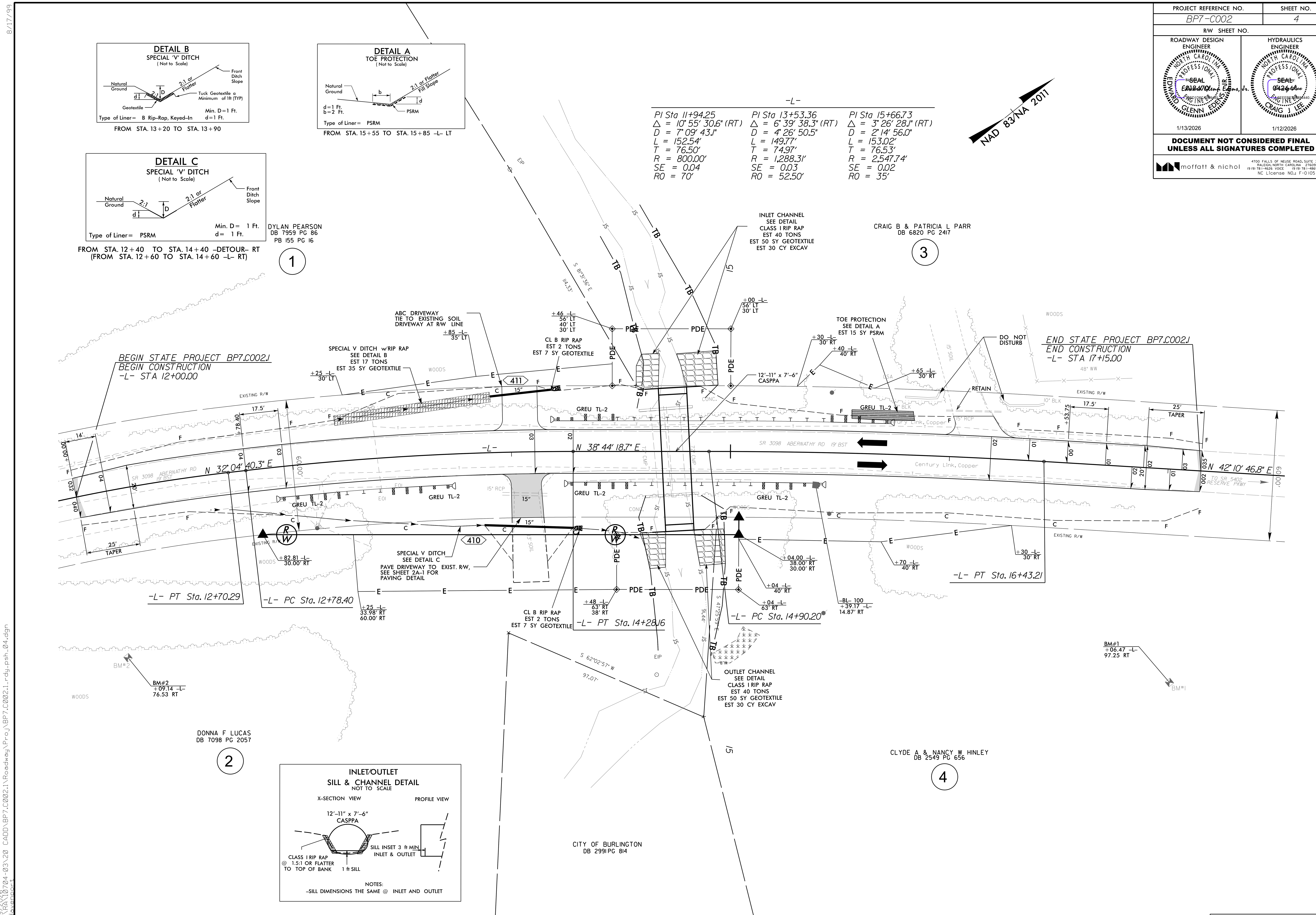
Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

STATION	LOCATION (LT. RT. OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	Welded Steel Pipe (UNLESS NOTED OTHERWISE) SIZE	Welded Steel Pipe (UNLESS NOTED OTHERWISE) THICKNESS OR GAUGE	C.S. PIPE SIZE	C.S. PIPE THICKNESS OR GAUGE	STRUCTURAL PLATE PIPE SIZE	STRUCTURAL PLATE PIPE THICKNESS OR GAUGE	REINFORCED ENDWALLS ENDWALLS STD 280.21 WITH C.C. - C.Y.	REINFORCED ENDWALLS WITH C.S. - C.Y.	MASONRY DRAINAGE STRUCTURES CUBIC YARDS	C.B. STD. 840.01 OR 840.02	FRAMES, GRATES & HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CONCRETE TRANSITIONAL SECTION CATCH BASIN	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & Size	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72		PIPE REMOVAL LIN. FT.	REMARKS
								54"	.109	54"	12	60"	12																	
								60"	.138		10		10																	
								66"	.168	60"	12	66"	12																	
								72"	.138		10		10																	
								78"	.168	66"	12	72"	12																	
								84"	.138		10		10																	
									.168	72"	.139	78"																		
											.168																			
14+53 -LDET-	CL	Inlet	Outlet		561.2	561.1					20																			Temporary extension
14+54 -LDET-	CL	Inlet	Outlet		561.3	561.2					20																			Temporary extension
SHEET TOTALS											40				0															

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX



PROJECT REFERENCE NO.	SHEET NO.
BP7-C002	5

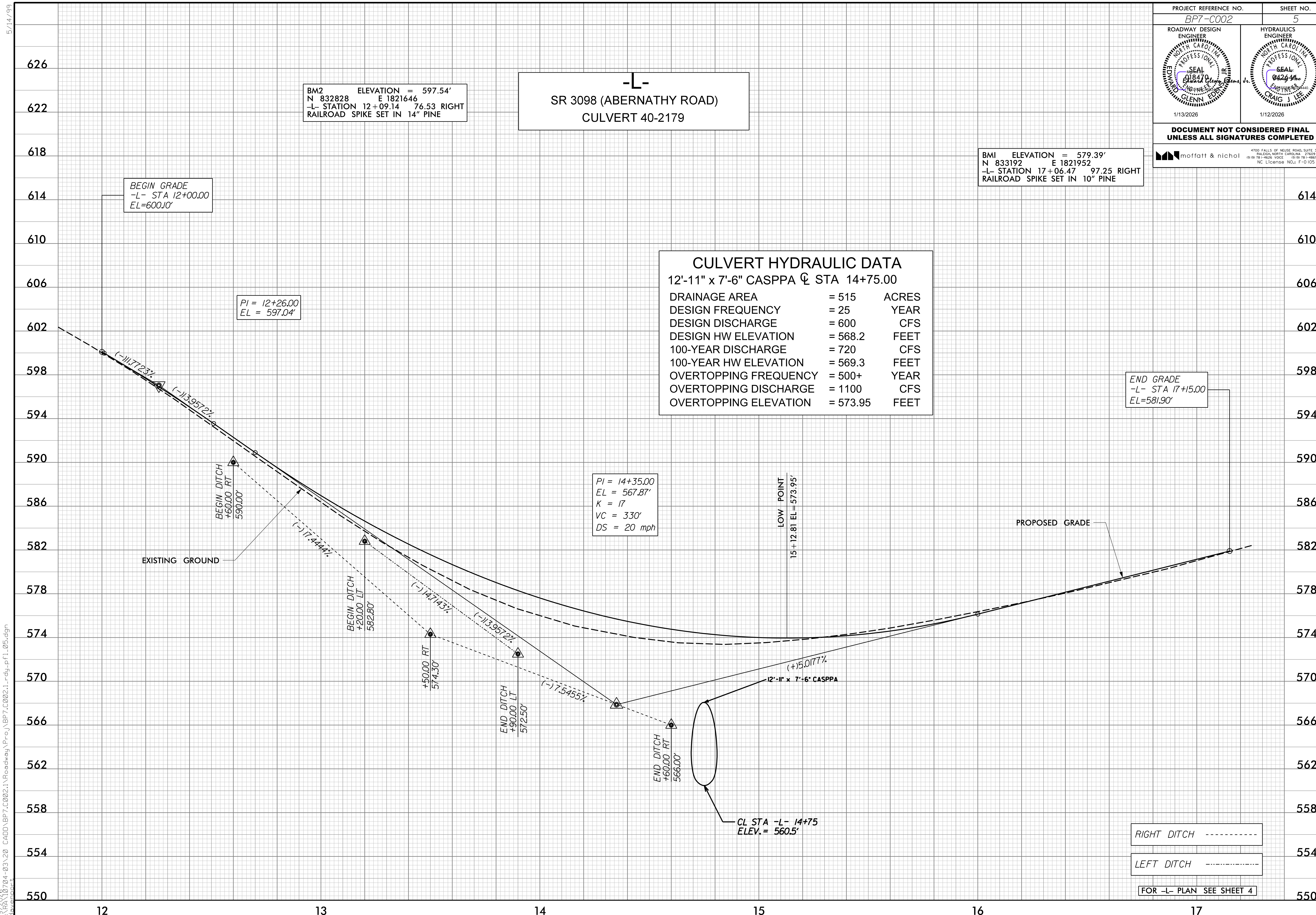
ROADWAY DESIGN ENGINEER — SEAL 018470, North Carolina Professional Engineer, Edward Glenn Edens, Jr. — Signed by: Edward Glenn Edens, Jr. — 1/13/2026

HYDRAULICS ENGINEER — SEAL 042644, North Carolina Professional Engineer, Craig J Lee — Signed by: Craig Lee — 1/12/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

-L-
SR 3098 (ABERNATHY ROAD)
CULVERT 40-2179



FOR -L- PLAN SEE SHEET 4

CULVERT HYDRAULIC DATA
12'-11" x 7'-6" CASPPA ℄ STA 14+75.00

DRAINAGE AREA	= 515	ACRES
DESIGN FREQUENCY	= 25	YEAR
DESIGN DISCHARGE	= 600	CFS
DESIGN HW ELEVATION	= 568.2	FEET
100-YEAR DISCHARGE	= 720	CFS
100-YEAR HW ELEVATION	= 569.3	FEET
OVERTOPPING FREQUENCY	= 500+	YEAR
OVERTOPPING DISCHARGE	= 1100	CFS
OVERTOPPING ELEVATION	= 573.95	FEET

5/14/99

1/9/2026
Q:\RA\10704-03\20 CADD\BP7.C002.1\Roadway\Proj\BP7.C002.1_rdy_pfl_05.dgn

6/2/99

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP7-C002	RW02C-1

Location and Surveys

GEL SOLUTIONS

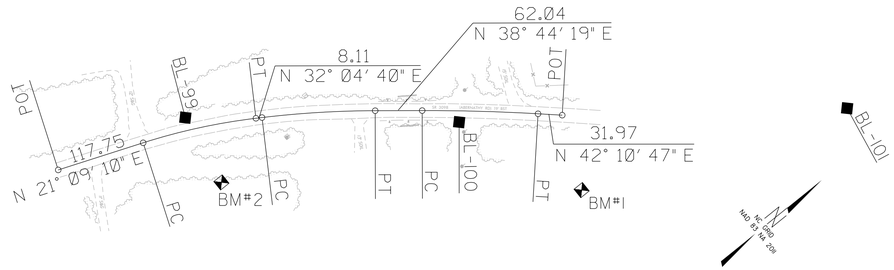
111-C CREEKRIDGE ROAD
GREENSBORO, NC 27406

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3996 LAND SURVEYOR PARKS H ICENHOUR JR

GEL ENGINEERING OF NC, INC NO. C-1938 CERTIFICATE OF AUTHORIZATION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



I, Parks H Icenhour Jr, PLS, certify that the Project Control was Verified under my supervision from an actual survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: [Static, OPUS, RTN]
Dates of survey: Unknown
Datum/Epoch:NAD83/NA2011
Published/Fixed-control use: NA
Localized around: BL-101
Northing:833532.4150
Easting:1822088.1050
Combined grid factor:0.999942352
Geoid model:12BNC
Units: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 from 5-09-2022 to 5-10-2022 , 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 20th day of MAY, 2022.

Parks H. Icenhour Jr.
Date: 2022.05.20 11:49:48 -04'00'

Professional Land Surveyor L-3996

SEE SHEET RW2C-3
FOR FURTHER
ALIGNMENT DETAILS

NOTES:

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

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

20-MAY-2022 07:53
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Andy Smith AT ANDYSMITH-GEG

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP7-C002	RW02C-2

Location and Surveys

GEL SOLUTIONS
111-C CREEKRIDGE ROAD
GREENSBORO, NC 27406

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3996 LAND SURVEYOR PARKS H. ICENHOUR JR

NORTH CAROLINA GEL ENGINEERING OF NC, INC. NO. C-1938 CERTIFICATE OF AUTHORIZATION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BL

POINT	DESC.	NORTH	EAST	ELEVATION
99	BL-99	832844.5260	1821549.4290	602.61
100	BL-100	833122.2290	1821780.8860	573.15
101	BL-101	833532.4150	1822088.1050	610.67
102	BL-102	834436.8811	1822111.5816	638.26

* *

BM1 ELEVATION = 579.39
N 833192 E 1821952
RAILROAD SPIKE IN 10" PINE

* *

* *

BM2 ELEVATION = 597.54
N 832828 E 1821646
RAILROAD SPIKE IN 14" PINE

* *

I, Parks H Icenhour Jr, PLS, certify that the Project Control was Verified under my supervision from an actual survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: [Static, OPUS, RTN]
Dates of survey: Unknown
Datum/Epoch:NAD83/NA2011
Published/Fixed-control use: NA
Localized around: BL-101
Northing:833532.4150
Easting:1822088.1050
Combined grid factor:0.999942352
Geoid model:12BNC
Units: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 from 5-09-2022 to 5-10-2022 , 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 20th day of MAY, 2022.

Parks H. Icenhour Jr

Professional Land Surveyor L-3996

Date: 2022.05.20 11:55:08 -04'00'

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.

20-MAY-2022 10:50
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Andy Smith AT ANDYSMITH-GEG

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP7-C002	RW02C-3

Location and Surveys

GEL SOLUTIONS
111-C CREEKRIDGE ROAD
GREENSBORO, NC 27406

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3996 LAND SURVEYOR PARKS H. ICENHOUR JR

NORTH CAROLINA GEL ENGINEERING OF NC, INC. NO. C-1938 CERTIFICATE OF AUTHORIZATION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
EL									
POT	832670.607	1821497.883							
LINE			N 21°09'09.7" E	117.75					
PC	832780.420	1821540.372							
CURVE			N 26°36'55.0" E	152.31	10°55'30.6"(RT)	07°09'43.1"	152.54	76.50	800.00
PT	832916.593	1821608.608							
LINE			N 32°04'40.3" E	8.11					
PC	832923.462	1821612.913							
CURVE			N 35°24'29.5" E	149.68	06°39'38.3"(RT)	04°26'50.5"	149.77	74.97	1288.31
PT	833045.459	1821699.639							
LINE			N 38°44'18.7" E	62.04					
PC	833093.848	1821738.459							
CURVE			N 40°27'32.7" E	152.99	03°26'28.1"(RT)	02°14'56.0"	153.02	76.53	2547.74
PT	833210.255	1821837.737							
LINE			N 42°10'46.8" E	31.97					
POT	833233.946	1821859.202							

I, Parks H Icenhour Jr, PLS, certify that the Project Control was Verified under my supervision from an actual survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: [Static, OPUS, RTN]
Dates of survey: Unknown
Datum/Epoch:NAD83/NA2011
Published/Fixed-control use: NA
Localized around: BL-101
Northing:833532.4150
Easting:1822088.1050
Combined grid factor:0.999942352
Geoid model:12BNC
Units: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 from 5-09-2022 to 5-10-2022 , 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 20th day of MAY, 2022.

Date: 2022.05.20 11:51:12 -04'00'

Professional Land Surveyor L-3996

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.

20-MAY-2022 10:52
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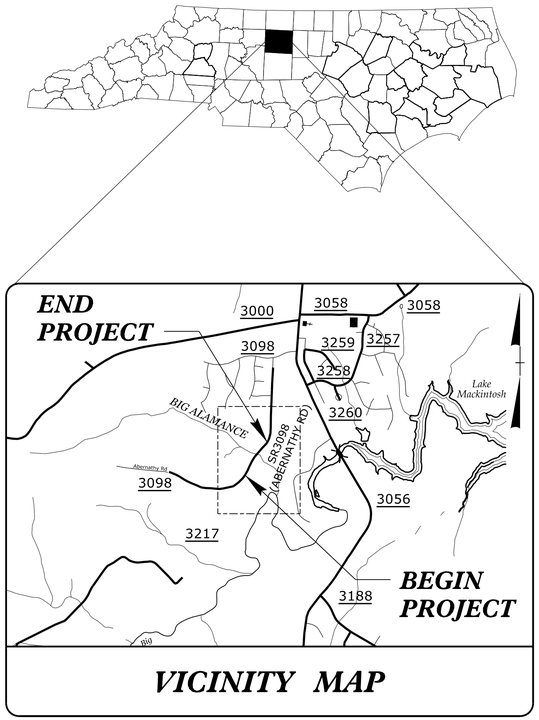
Andy Smith AT ANDYSMITH-GEG

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GUILFORD COUNTY

LOCATION: CULVERT NO. 40–2179 ON SR 3098 (ABERNATHY RD) OVER UT TO BIG ALAMANCE CREEK



VICINITY MAP

INDEX OF SHEETS

SHEET NO.
TMP–1

BP7–C002

TIP PROJECT:

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

PLANS PREPARED BY:

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

NCDOT CONTACTS:

KEN THORNEWELL, PE
PROJECT ENGINEER

JUSTIN BEAVER, PE
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

APPROVED: Docusigned by: Trent E. Huffman 85004677017D469...

DATE: 12/9/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT F. HUFFMAN

12/9/2025
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ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 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
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1145.01	BARRICADES
1160.01	TEMPORARY CRASH CUSHION
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

PROJ. REFERENCE NO.	SHEET NO.
BP7-C002	TMP-1A

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- PAVEMENT WEDGING
- REMOVAL

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- SKINNY DRUM
- CONE
- PORTABLE CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- PORTABLE SIGNAL

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN

TEMPORARY PAVEMENT MARKING

P61 YELLOW DOUBLE CENTER (PAINT 24")

TRAFFIC MANAGEMENT STRATEGY

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:
- LANE SHIFTS OR CLOSURES
- ONE-LANE, TWO WAY OPERATION (SIGNALIZED)
- ON-SITE DETOURS

WORK ZONE SAFETY & MOBILITY STRATEGIES:
- SPEED LIMIT REDUCTION
- AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADS)

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

APPROVED: DocuSigned by: Trent E. Huffman 8500465770170449...

DATE: 12/9/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND TRAFFIC MANAGEMENT STRATEGY

12/9/2025
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PROJ. REFERENCE NO.	SHEET NO.
BP7-C002	TMP-1B

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.

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ABERNATHY RD (-L-)	MONDAY THRU FRIDAY 7:00 A.M. - 9:00 A.M. 4:00 P.M. - 6:00 P.M.

B) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
ABERNATHY RD (-L-)	MONDAY THRU SUNDAY	TRAFFIC SHIFT 15 MINUTES

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) 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.

D) 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.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

H) 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.

I) 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 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

K) 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.

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

M) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

N) 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.

O) 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 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

P) 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.

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

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
SR 3908 ABERNATHY RD (-L-)	PAINT	NONE

T) 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.

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

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

MISCELLANEOUS

W) 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) 500 FT AND 100 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

APPROVED: DocuSigned by: Trent E. Huffman 8500487701704 49...

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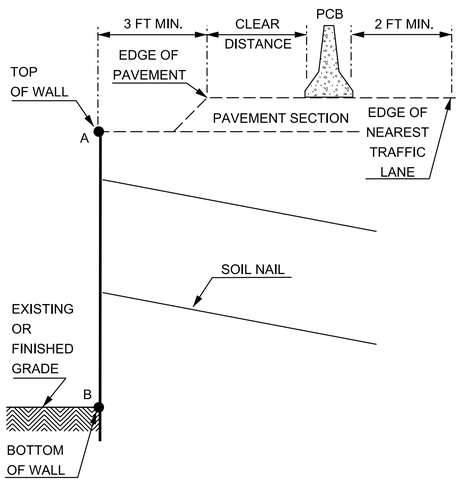
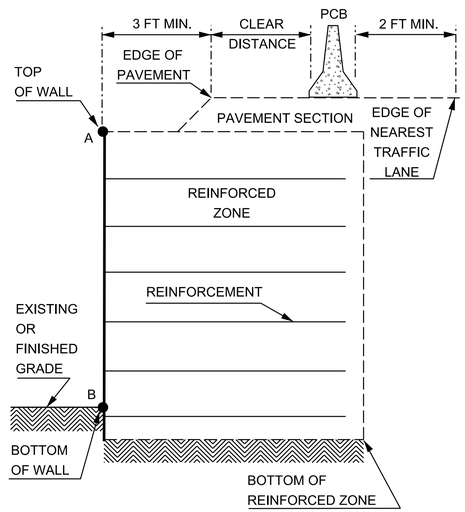
GENERAL NOTES AND LOCAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
BP7-C002	TMP-2

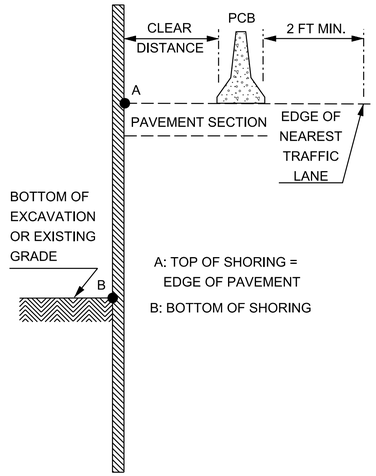
TEMPORARY SOIL NAIL WALL



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

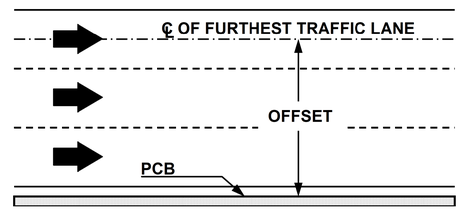


FIGURE B

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moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
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PORTABLE CONCRETE BARRIER
AT
TEMPORARY SHORING LOCATIONS

12/9/2025
C:\RA\10704-03\20 CADD\BP7.C002.1\Traffic\TrafficControl\TCP\BP7.C002.1_tc_tmp_02.dgn
gmodlin

PROJ. REFERENCE NO.	SHEET NO.
BP7-C002	TMP-2A

SHORING NOTES

Shoring Location No. 1

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

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

DESIGN TEMPORARY SHORING FROM STATION 14+36 +/- -L-, 6 FT. RT. TO STATION 15+09 +/- -L-, 6 FT. RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

ABOVE ELEVATION 561.4 FT:
- UNIT WEIGHT, γ= 110 PCF
- FRICTION ANGLE, φf= 28 DEGREES
- COHESION, c = 0 PSF

FROM ELEVATION 561.4 FT TO 556.1 FT:
- UNIT WEIGHT, γ= 125 PCF
- FRICTION ANGLE, φf= 32 DEGREES
- COHESION, c = 0 PSF

BELOW ELEVATION 556.1 FT:
- ROCK MASS SHEAR STRENGTH = 8,000 PSF
- GROUNDWATER ELEVATION = 570 FT

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 14+36, 6 FT. RT. TO STATION 15+09, 6 FT. RT. (STAGE 1). FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

IT MAY BE PREFERRED TO USE A TEMPORARY MSE WALL FOR TEMPORARY SHORING FROM STATION 14+36, 6 FT. RT. TO STATION 15+09, 6 FT. RT. (STAGE 2).

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

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TEMPORARY SHORING NOTES

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gmodlin

PROJ. REFERENCE NO.	SHEET NO.
BP7-C002	TMP-3

TRAFFIC CONTROL PHASING

PHASE I

STEP 1

USING RSD 1101.01 (3 OF 3) INSTALL WORK ZONE ADVANCE
WARNING SIGNS ON -L- (ABERNATHY RD).

STEP 2

USING RSD 1101.02 (17 OF 19) SHIFT TRAFFIC TO LEFT SIDE OF -L-
IN TWO WAY ONE LANE PATTERN. INSTALL PORTABLE CONCRETE BARRIER,
IMPACT ATTENUATORS AND TEMPORARY GUARDRAIL AS SHOWN ON TMP-4 AND TMP-5.

STEP 3

CONSTRUCT TEMPORARY PIPE EXTENSIONS.

CONSTRUCT -LDET- FROM -LDET- STA 11+87 +/- TO -LDET- STA 16+84 +/-.
PROVIDE A SMOOTH SURFACE BETWEEN EXISTING AND NEW PAVEMENT.

PHASE II

STEP 1

USING RSD 1101.02 (17 OF 19) SHIFT TRAFFIC TO NEWLY CONSTRUCTED -LDET-
IN TWO WAY ONE LANE PATTERN. INSTALL PORTABLE CONCRETE BARRIER,
IMPACT ATTENUATORS AND TEMPORARY GUARDRAIL AS SHWON ON TMP-6 AND TMP-7.

STEP 2

CONSTRUCT -L- FROM -L- STA 12+00 +/- TO -L- STA 17+15 +/- INCLUDING
NEW CULVERT AND PAVEMENT UP TO THE FINAL LAYER. AS SHOWN ON TMP-6 AND TMP-7

PHASE III

STEP 1

USING RSD 1101.02 (17 OF 19) SHIFT TRAFFIC TO LEFT SIDE ON NEW PAVEMENT OF -L-
IN TWO WAY ONE LANE PATTERN. INSTALL PORTABLE CONCRETE BARRIER,
IMPACT ATTENUATORS AND TEMPORARY GUARDRAIL AS SHWON ON TMP-8 AND TMP-9.

STEP 2

CONSTRUCT FINAL CULVERT EXTENSION.

STEP 3

REMOVE DETOUR AND CONSTRUCT -L- FROM STA 12+00 +/- TO STA 17+15 +/-
UP TO THE FINAL LAYER. AS SHOWN ON TMP-8 AND TMP-9.

STEP 4

USING RSD 1101.02 (1 OF 19) PLACE FINAL PAVEMENT LAYER AND FINAL PAVEMENT MARKINGS.
AS SHWON ON THE PAVEMENT MARKING PLANS.

STEP 5

REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES AND PLACE TRAFFIC INTO
FINAL TRAFFIC PATTERN.

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

APPROVED: Docusigned by: Trent E. Huffman 850046770170449...

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TRAFFIC CONTROL PHASING

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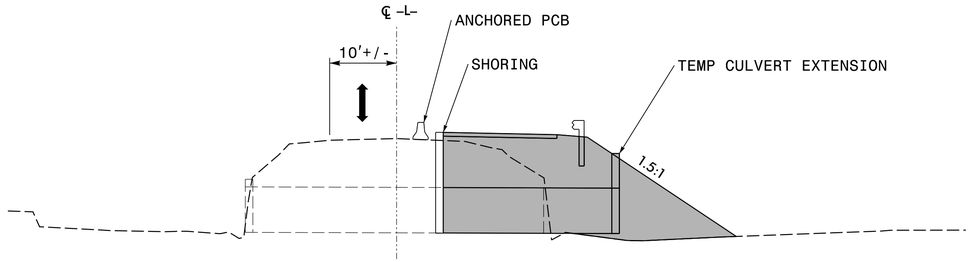
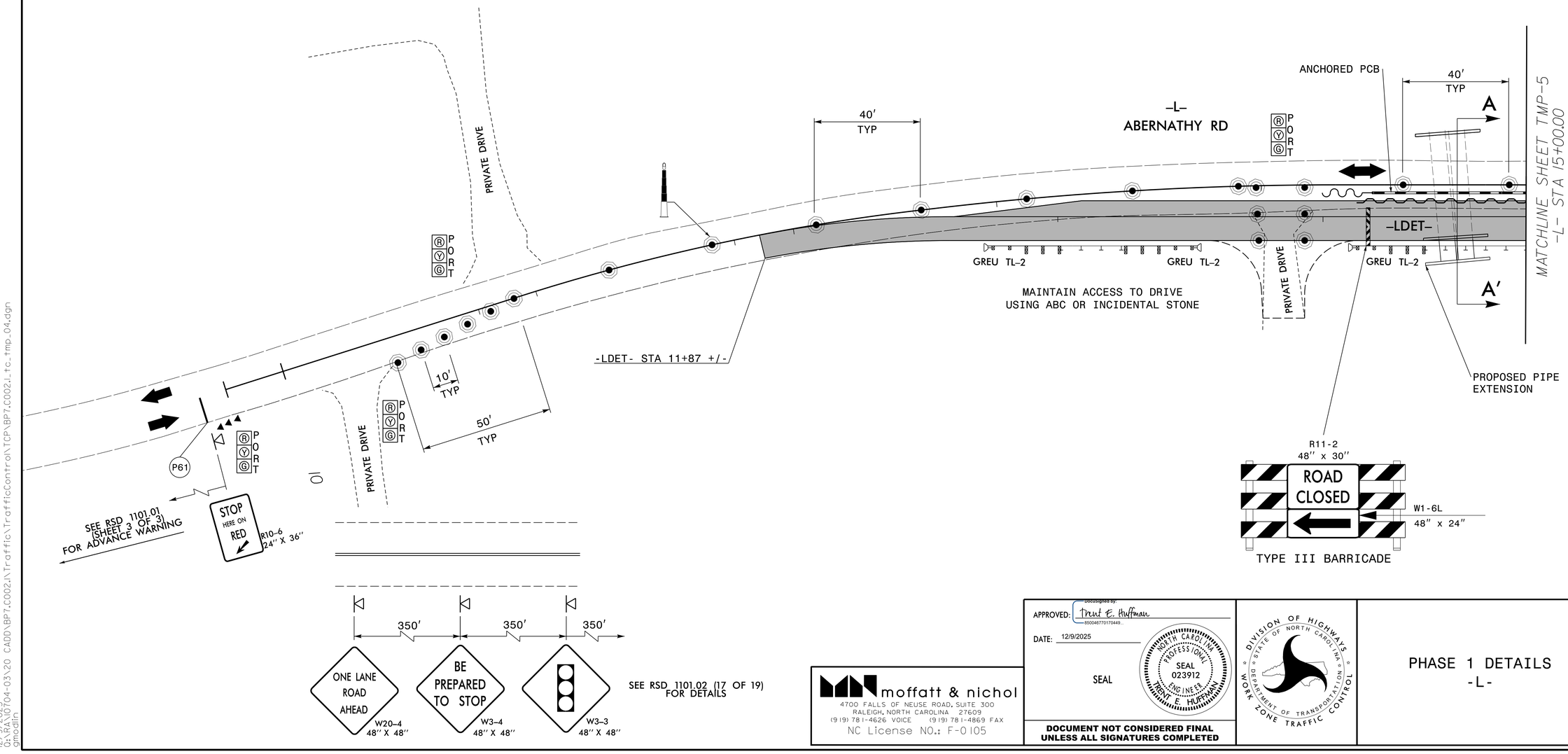
PROJ. REFERENCE NO.	SHEET NO.
BP7-C002	TMP-4



SECTION A–A′

NAD 83 NAD 2011



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4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
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PHASE 1 DETAILS
-L-

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PROJ. REFERENCE NO.	SHEET NO.
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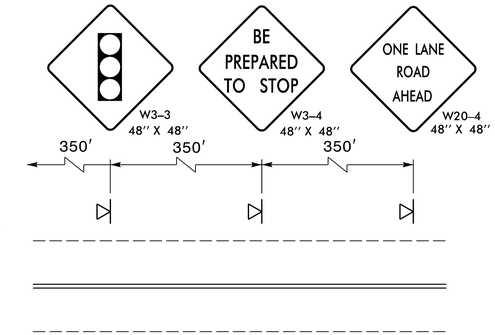
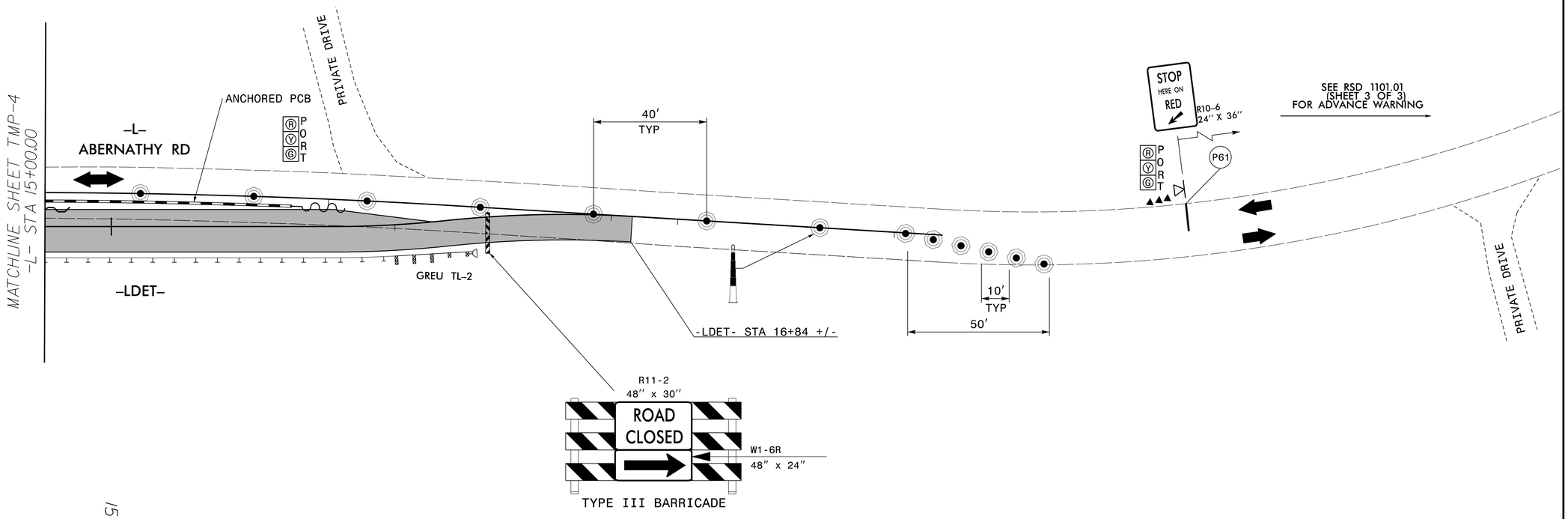


SEE RSD 1101.02 (17 OF 19)
FOR DETAILS



TYPE III BARRICADE

15

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4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
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PHASE 1 DETAILS
-L-

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PROJ. REFERENCE NO.	SHEET NO.
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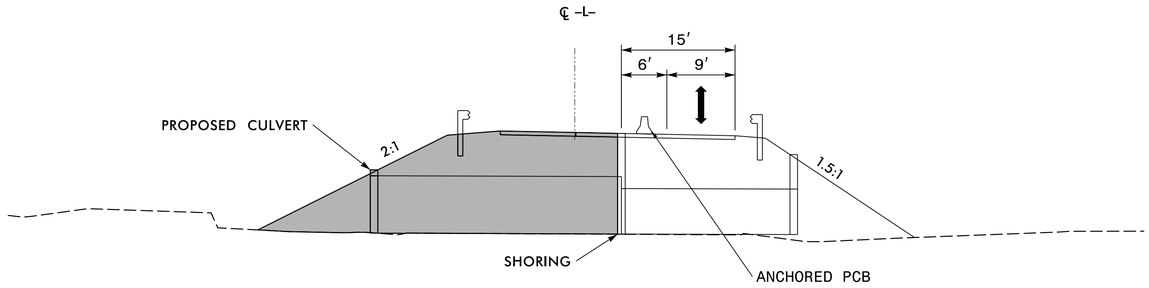

SECTION A–A′

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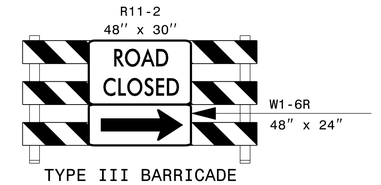
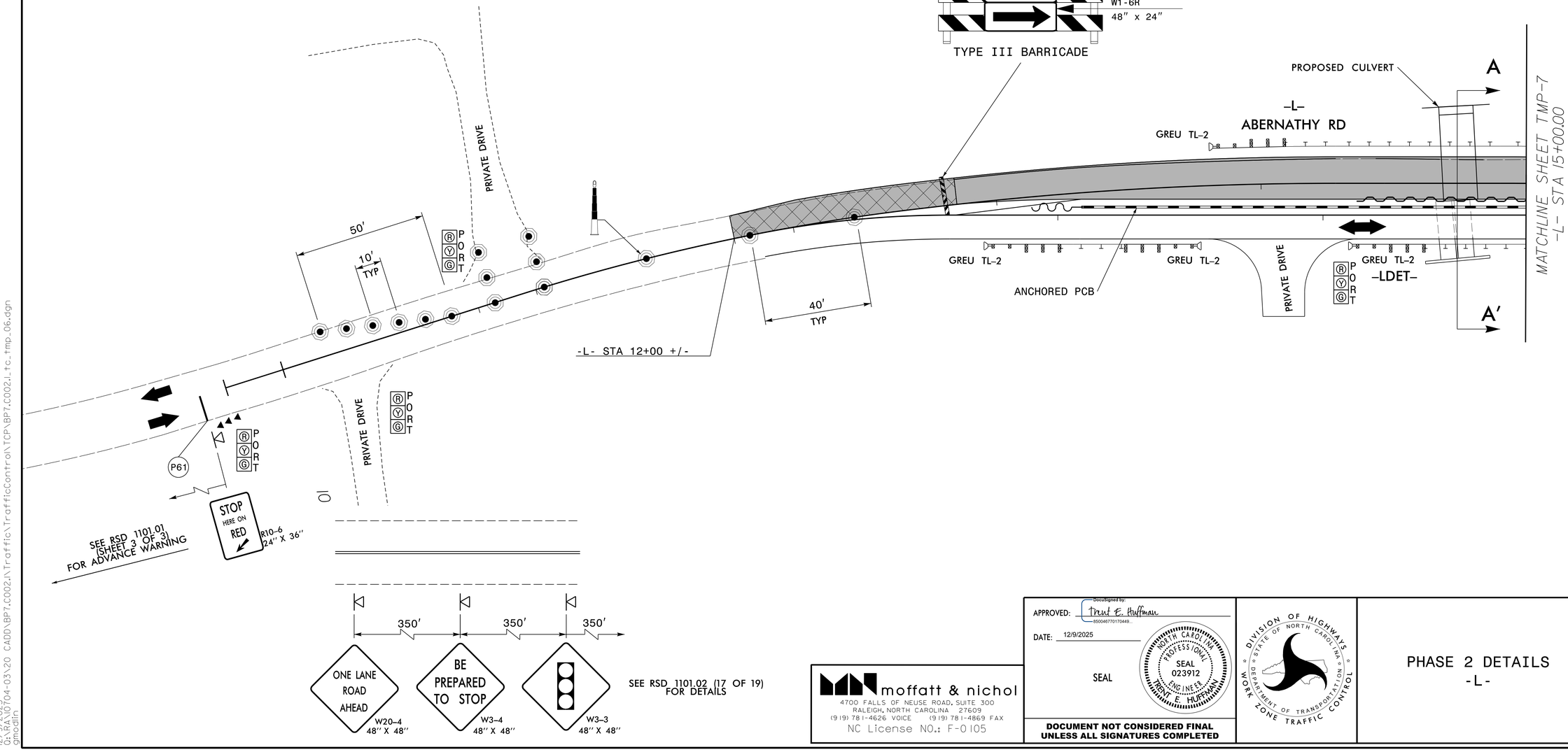


TYPE III BARRICADE



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PHASE 2 DETAILS
-L-

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PROJ. REFERENCE NO.	SHEET NO.
BP7-C002	TMP-7

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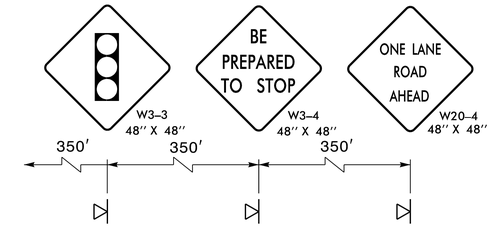
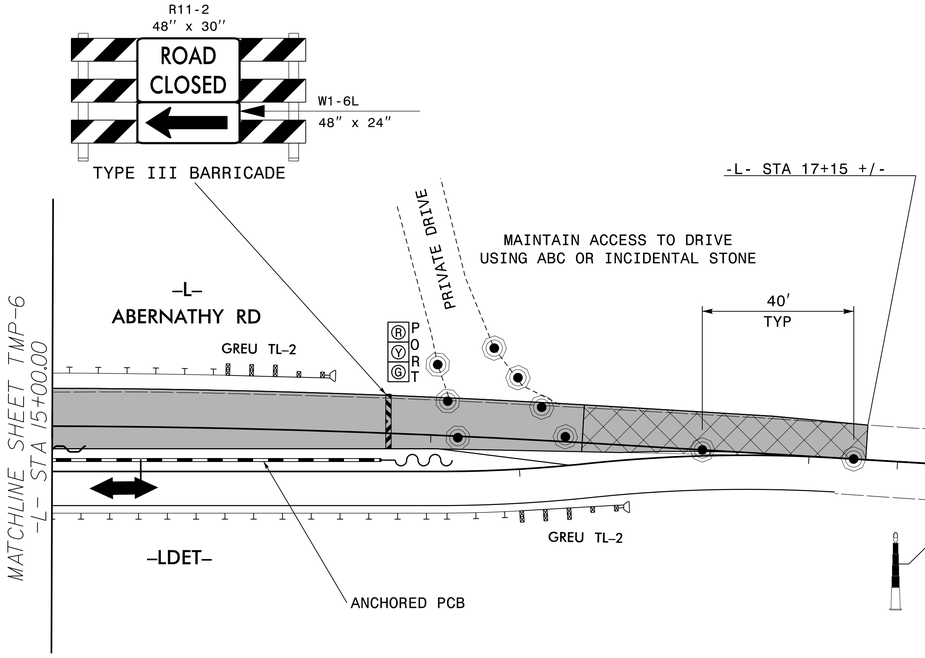
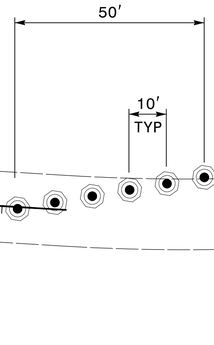
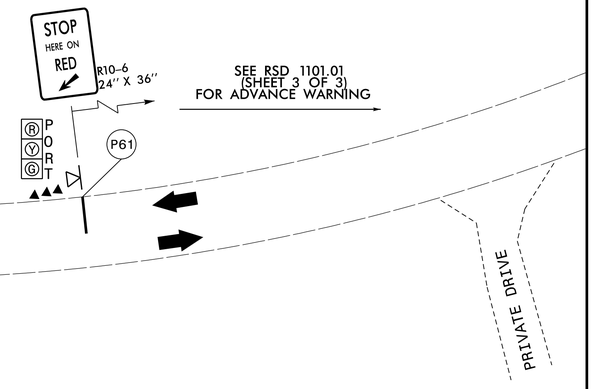


SEE RSD 1101.02 (17 OF 19)
FOR DETAILS







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4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
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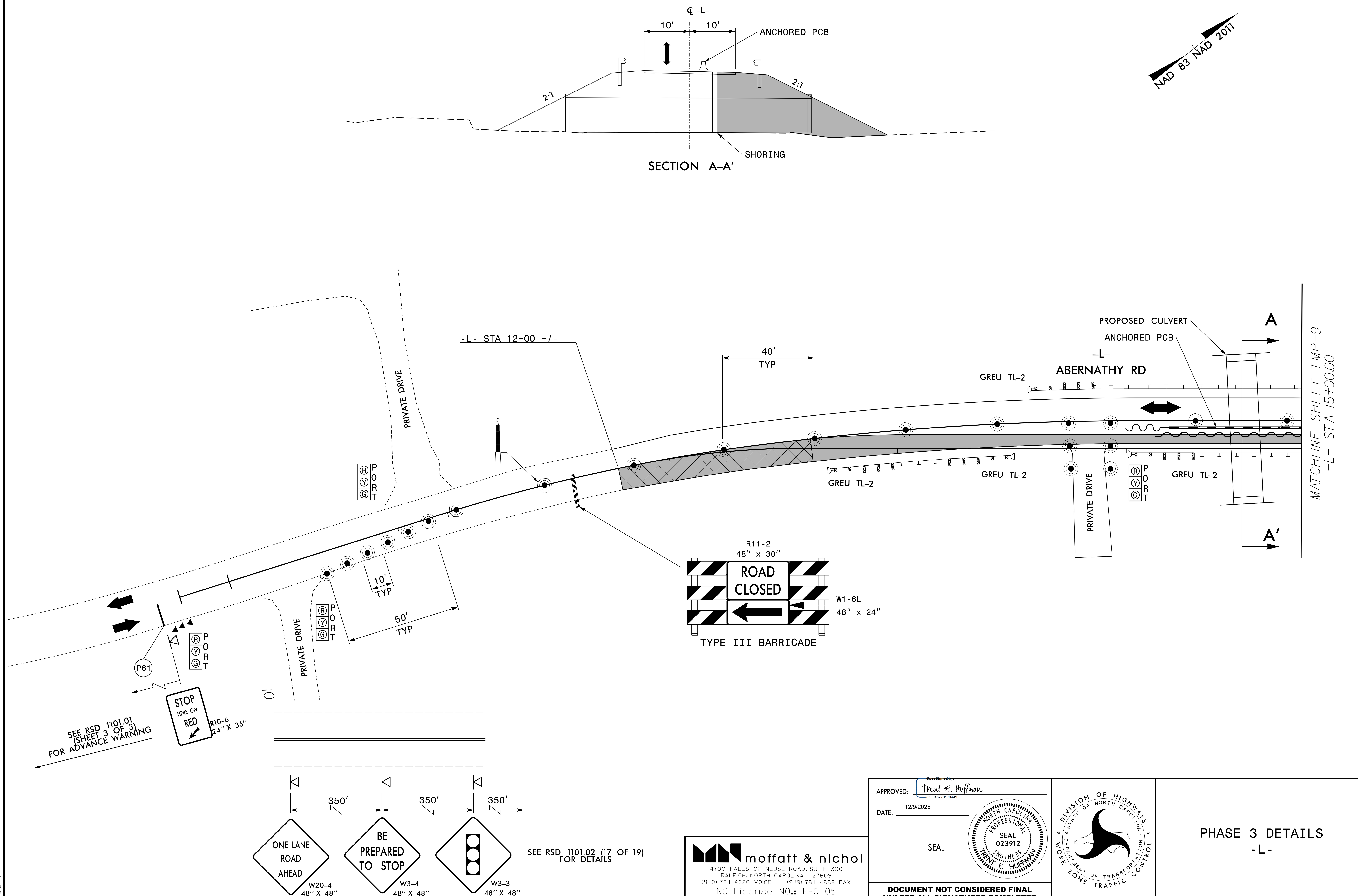
PHASE 2 DETAILS
-L-

PROJ. REFERENCE NO.	SHEET NO.
BP7-C002	TMP-8



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4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
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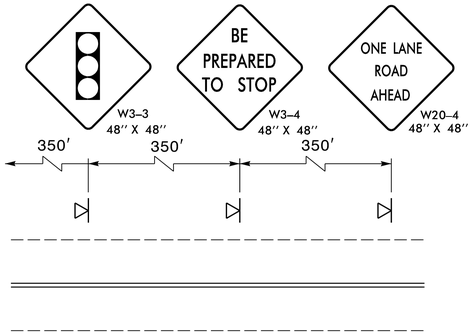
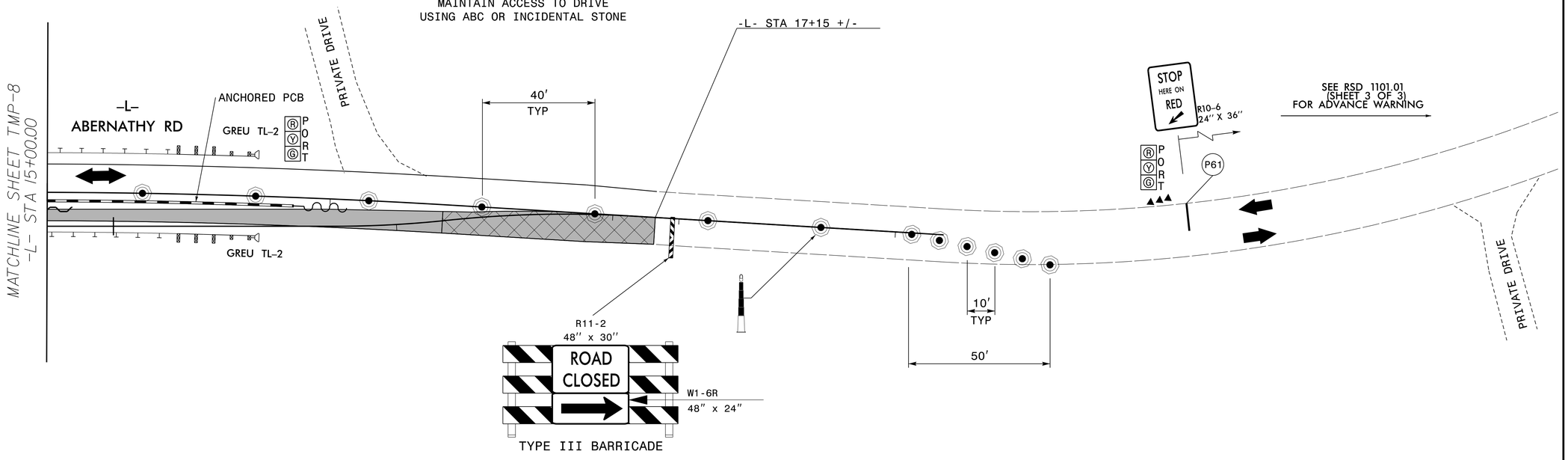
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

PHASE 3 DETAILS
-L-

PROJ. REFERENCE NO.	SHEET NO.
BP7-C002	TMP-9

NAD 83 NAD 2011





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PHASE 3 DETAILS
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12/9/2025
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