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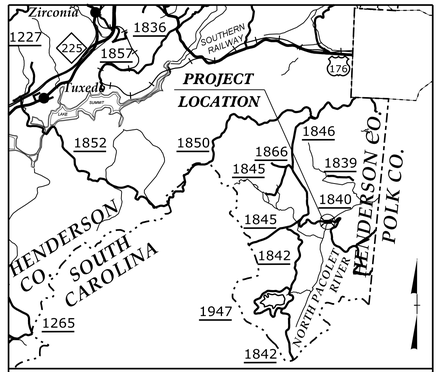
09/08/99

TIP: B-6021

CONTRACT: DN00497

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



VICINITY MAP N.T.S.

100% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

LOCATION: BRIDGE NO. 440180 OVER NORTH PACOLET RIVER ON SR 1840 (MINE MOUNTAIN ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-6021	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.14.R.178	–	PE
17BP.14.R.178	–	ROW, UTL.
48216.3.1	BRZ-1840(001)	CONST.

NAD 83/
NA 2011

END CONSTRUCTION
–DRIVE– STA. 10+96.00

BEGIN BRIDGE
–L– STA. 12+80.88

END BRIDGE
–L– STA. 13+48.13

TO SR 1101

BEGIN CONSTRUCTION
–L– STA. 10+00.00

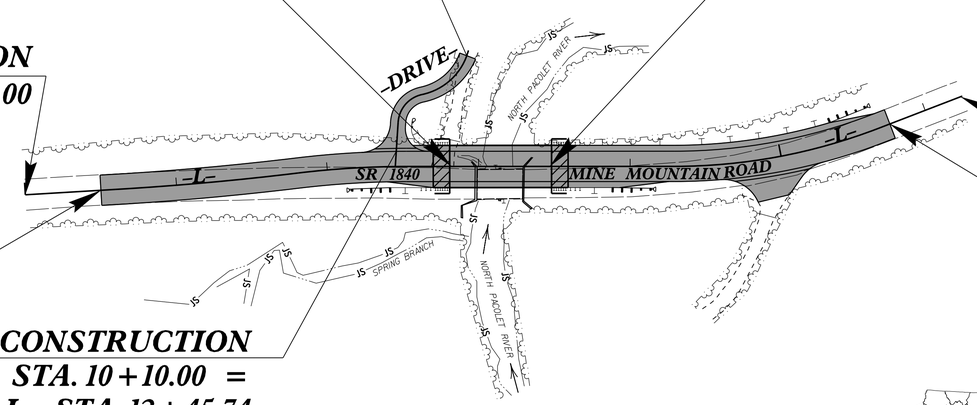
TO SR 1846

END CONSTRUCTION
–L– STA. 16+25.00

END PROJECT
–L– STA. 15+75.00

BEGIN PROJECT
–L– STA. 10+50.00

BEGIN CONSTRUCTION
–DRIVE– STA. 10+10.00 =
–L– STA. 12+45.74



RS&H

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GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2000 = 120

T = 6 %
V = 35 MPH

FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY	=	0.086 MILES
LENGTH STRUCTURE	=	0.013 MILES
TOTAL LENGTH	=	0.099 MILES

Prepared in the Office of:
RS&H
ARCHITECTS–ENGINEERS–PLANNERS, INC.
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 7, 2017

LETTING DATE:
MARCH 12, 2018

JENNIFER FARINO, PE
PROJECT ENGINEER

CHARLES YOUNG, PE
PROJECT DESIGN ENGINEER

BARRY MOSTELLER
NCDOT CONTACT

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL WEATHERSBEE
11/28/2018 2:11:26 PM EST
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030952 ENGINEER JENNIFER D. FARINO
11/28/2018 2:58:34 PM EST
P.E.
SIGNATURE:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

28-NOV-2018 14:01
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-6021	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030952 ENGINEER JENNIFER D. FARRINGTON

11/28/2018 4:38:31 PM ES

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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS
2C-1	TYPE III - STRUCTURE ANCHOR UNIT
2C-2	TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT
2C-3	TRAILING END UNIT ASSEMBLY - AT-1 SYSTEM
2C-4	W-BEAM RAIL SECTION DETAIL
3B-1	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-5	TRANSPORTATION MANAGEMENT PLAN
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-8	CROSS-SECTIONS
S-1 THRU S-17	STRUCTURE PLANS
SN	STRUCTURE STANDARD NOTES SHEET

GENERAL NOTES

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

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 OWNERS ON THIS PROJECT ARE

DUKE ENERGY

Riverstreet Networks (UG Communications)

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT. IN ACCORDANCE WITH SECTION 801 OF THE 2018 NORTH CAROLINA STANDARD SPECIFICATION FOR ROADS AND STRUCTURES.

STANDARD DRAWINGS

EFFECTIVE: 01-17-12
REVISED: 07/30/12

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
846.01	Concrete Curb, Gutter and Curb & Gutter
848.02	Driveway Turnout - Radius Type
862.01	Guardrail Placement
862.02	Guardrail Installation (Special Detail for Sheet 6 of 8)
862.03	Structure Anchor Units (Special Detail for Type III Anchor Units Sheets 1 of 7 and 2 of 7)
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
B-6021	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- 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:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

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
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

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PROJECT REFERENCE NO.	SHEET NO.
B-6021	1C-1
Location and Surveys	

SURVEY CONTROL SHEET 44-0180
-FINAL-

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	546792.0139	995104.7085	1945.54	10+44.32	15.41 RT
2	BL-2	546766.5608	995399.8686	1932.66	13+42.07	23.25 RT
3	BL-3	546809.0496	995632.2436	1941.27	15+78.19	17.32 LT

BM1 ELEVATION = 1946.98
N 546777 E 995122
BL STATION 5+18.00 13 RIGHT
BENCHTIE IN 12" CHERRY OAK

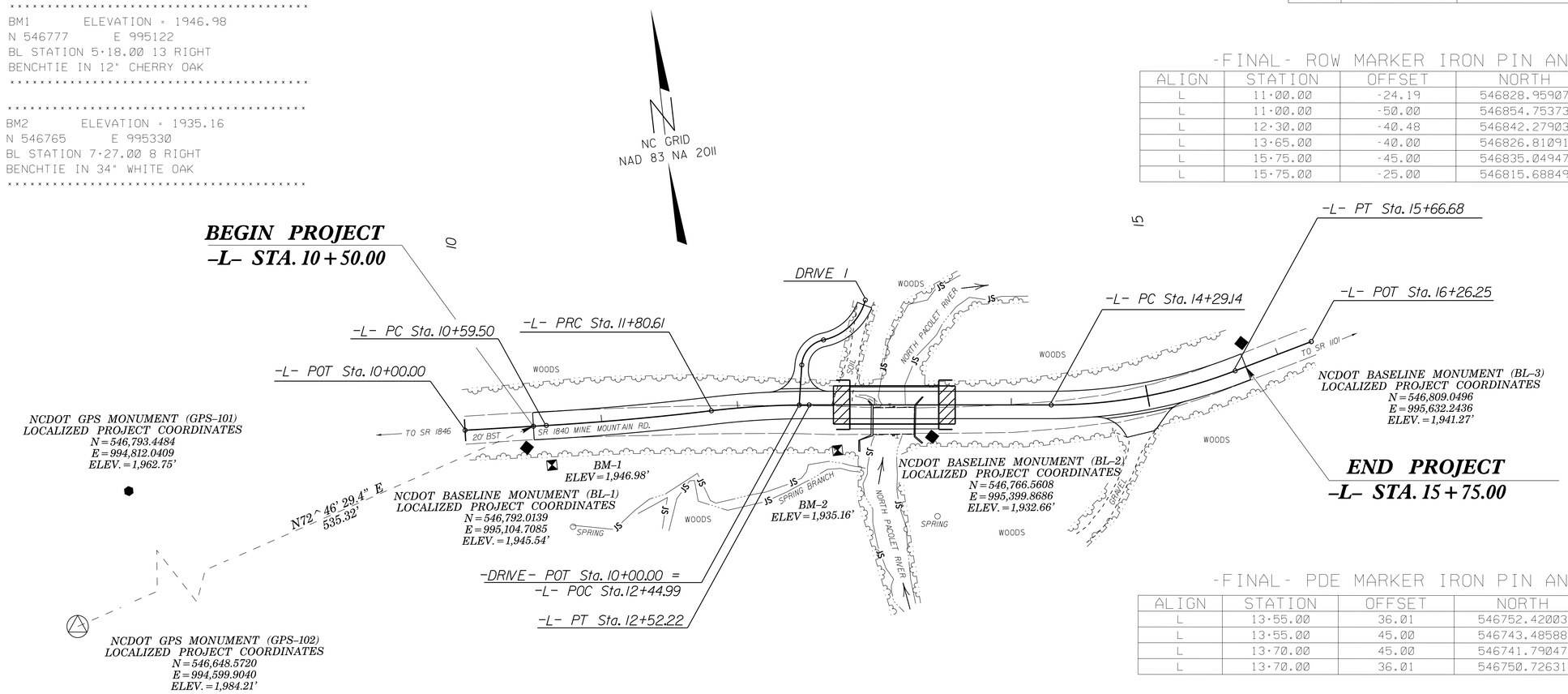
BM2 ELEVATION = 1935.16
N 546765 E 995330
BL STATION 7+27.00 8 RIGHT
BENCHTIE IN 34" WHITE OAK

-L- FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	546809.8190	995061.2915
PC	10+59.50	546806.5791	995120.6983
PRC	11+80.61	546803.6483	995241.7620
PT	12+52.22	546799.8145	995313.2237
PC	14+29.14	546779.8181	995489.0066
PT	15+66.68	546789.4007	995625.4428
POT	16+26.25	546804.3404	995683.1067

-FINAL- ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+00.00	-24.19	546828.95907	995161.99053
L	11+00.00	-50.00	546854.75373	995162.87385
L	12+30.00	-40.48	546842.27903	995294.18794
L	13+65.00	-40.00	546826.81091	995429.80233
L	15+75.00	-45.00	546835.04947	995622.21239
L	15+75.00	-25.00	546815.68849	995627.22761



-FINAL- PDE MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+55.00	36.01	546752.42003	995411.27540
L	13+55.00	45.00	546743.48588	995410.25908
L	13+70.00	45.00	546741.79047	995425.16296
L	13+70.00	36.01	546750.72631	995426.17947

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-102"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 546648.5720(ft) EASTING: 994599.9040(ft)
ELEVATION: 1984.21(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9992245636
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM GPS-102 TO -L- STATION 10+50.00 IS
N 72°46' 29.4 E 535.32'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

GEOID MODEL: G12NC
NOTE: DRAWING NOT TO SCALE

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

THE FILES TO BE FOUND ARE AS FOLLOWS:
440180_LS_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER CONTROL INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

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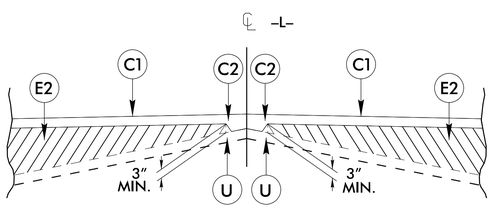
PAVEMENT SCHEDULE

(FINAL PAVEMENT SCHEDULE)

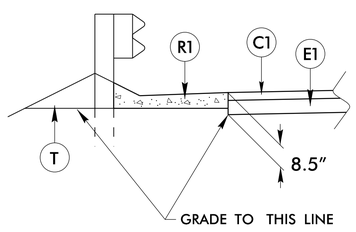
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 ½″ IN DEPTH.
E1	PROP. APPROX. 5½″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. APPROX. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5 ½″ IN DEPTH.
J1	8″ ABC
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE

NOTE: FEATHER ASPHALT SURFACE COURSE 0″-3″ FROM
-L- STA. 10+00 TO -L- STA. 10+50 AND
-L- STA. 15+75 TO -L- STA. 16+25

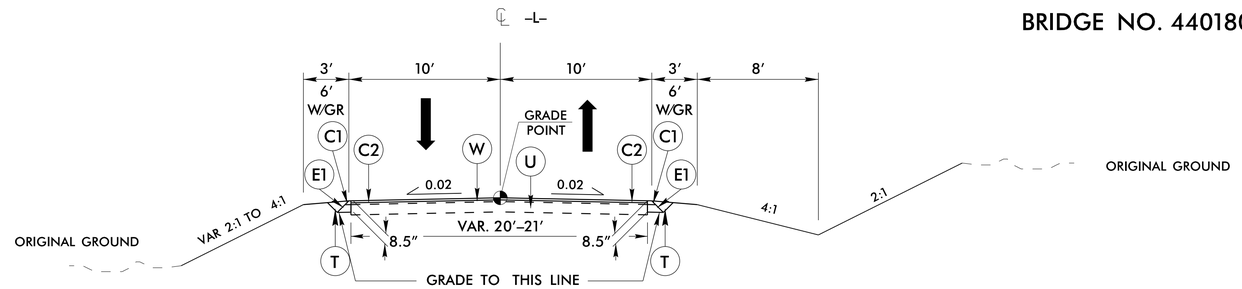


STANDARD WEDGING DETAIL



SHOULDER BERM GUTTER DETAIL

-L- STA. 13+59.00 TO L- STA. 13+93.00 RT



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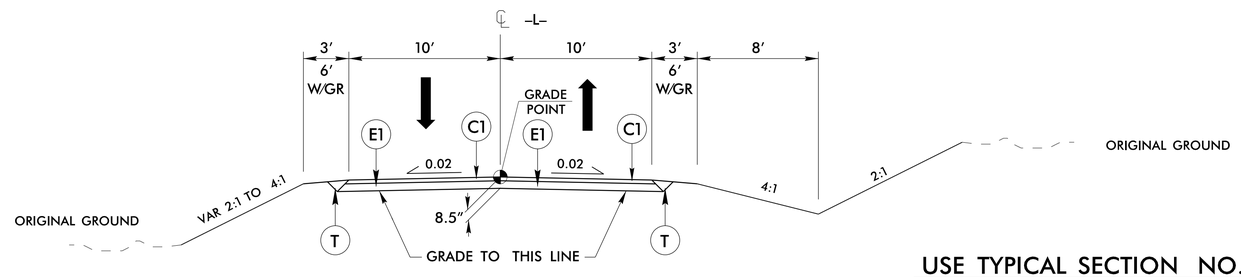

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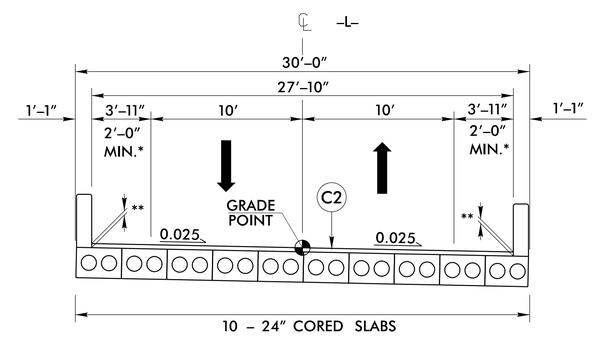
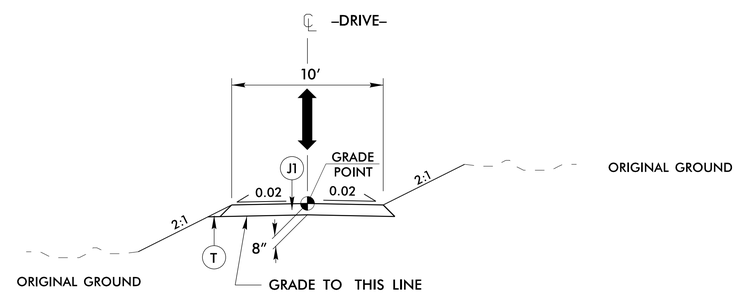


TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4

BRIDGE NO. 440180

PROJECT REFERENCE NO.	SHEET NO.
B-6021	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030952 ENGINEER JENNIFER D. FARINO

11/26/2018 4:38:31 PM EST

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RS&H

USE TYPICAL SECTION NO. 1

-L- STA. 10+50.00 TO -L- STA. 12+50.00
-L- STA. 14+50.00 TO -L- STA. 15+75.00

USE TYPICAL SECTION NO. 2

-L- 12+50.00 TO -L- STA. 12+80.88
-L- 13+48.13 TO -L- STA. 14+50.00

USE TYPICAL SECTION NO. 3

-L- STA. 12+80.88 TO -L- STA. 13+48.13

* MUST MAINTAIN A MINIMUM CLEAR ROADWAY WIDTH OF 24′

** PAVEMENT DEPTH VARIES ACROSS BRIDGE, SEE STRUCTURES PLANS

USE TYPICAL SECTION NO. 4

-DRIVE- STA. 10+10.00 TO -DRIVE- STA. 10+96.00

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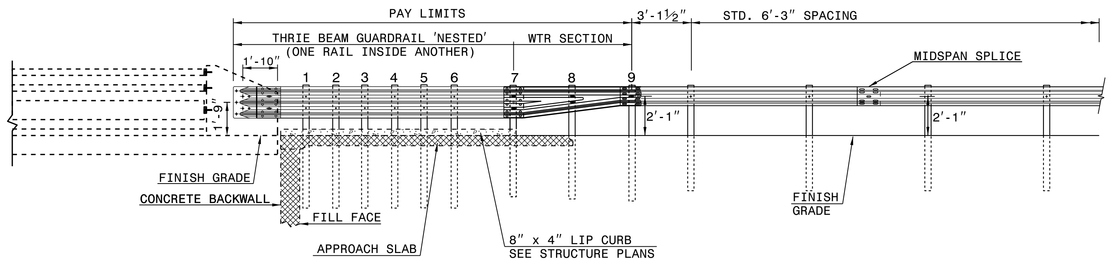
jhowerton AT CSD-292595

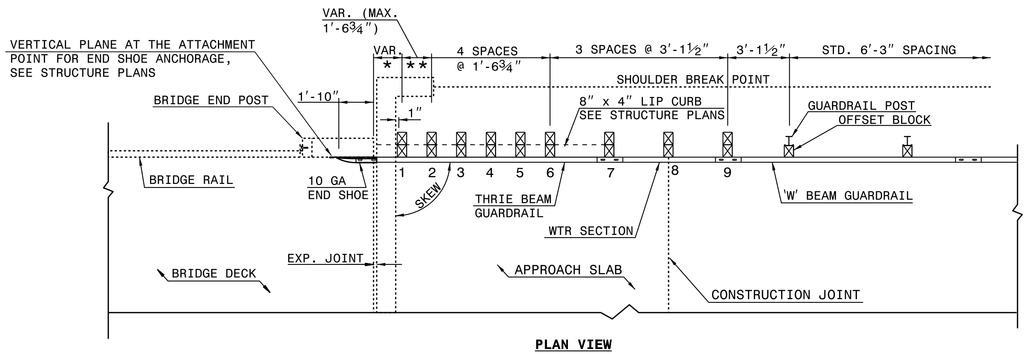
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE



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).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

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

SHEET 1 OF 7
862D03

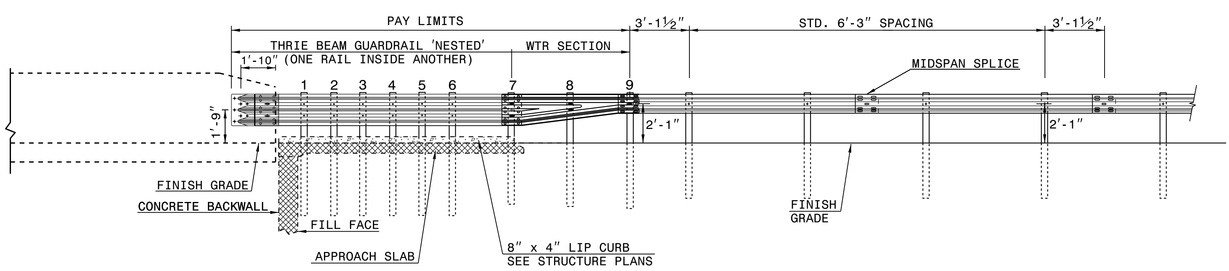
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER



ELEVATION

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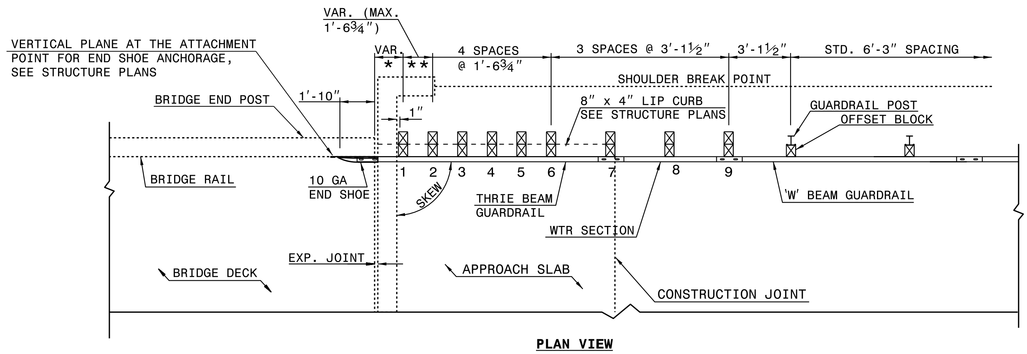
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

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

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NORTH CAROLINA PROFESSIONAL SEAL 029966 ENGINEER
DocuSigned by: Jennifer Harris Howerton
11/27/2018 7:07:39 AM EST

PROJECT REFERENCE NO. B-6021
SHEET NO. 2C-1

DocuSign Envelope ID: 38381AF8-AC02-486E-ADEC-ECBDB274F9E5

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-6021	2C-2

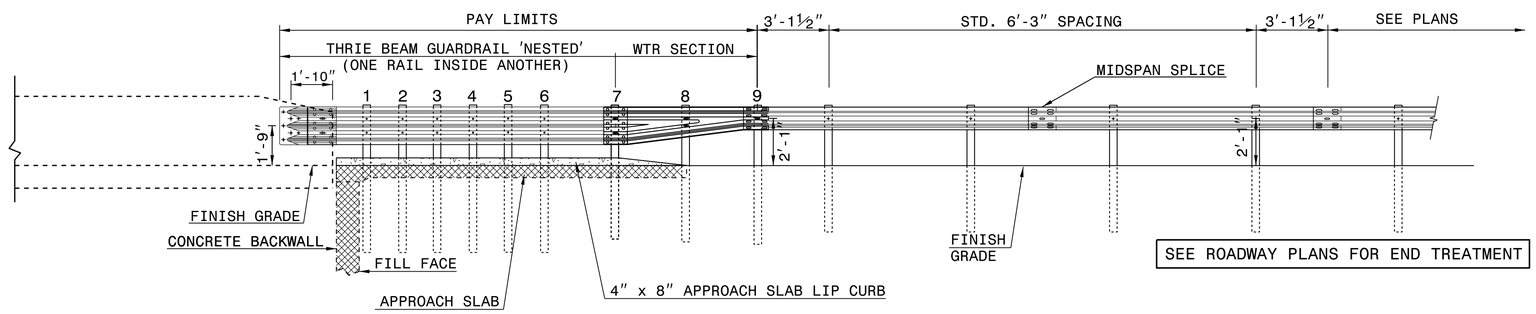
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

TYPE III SC



ELEVATION

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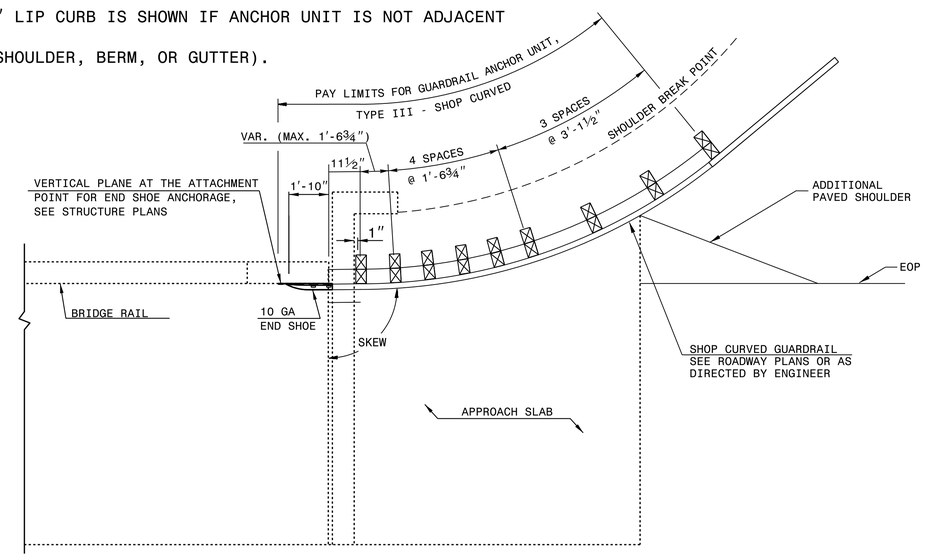
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



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

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NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

11/27/2018 7:07:39 AM EST

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.: \jhowerton\guardrail\31inguardrail\typeiiisc.dgn

01-FEB-2018 09:19
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jhowerton AT CSD-232595

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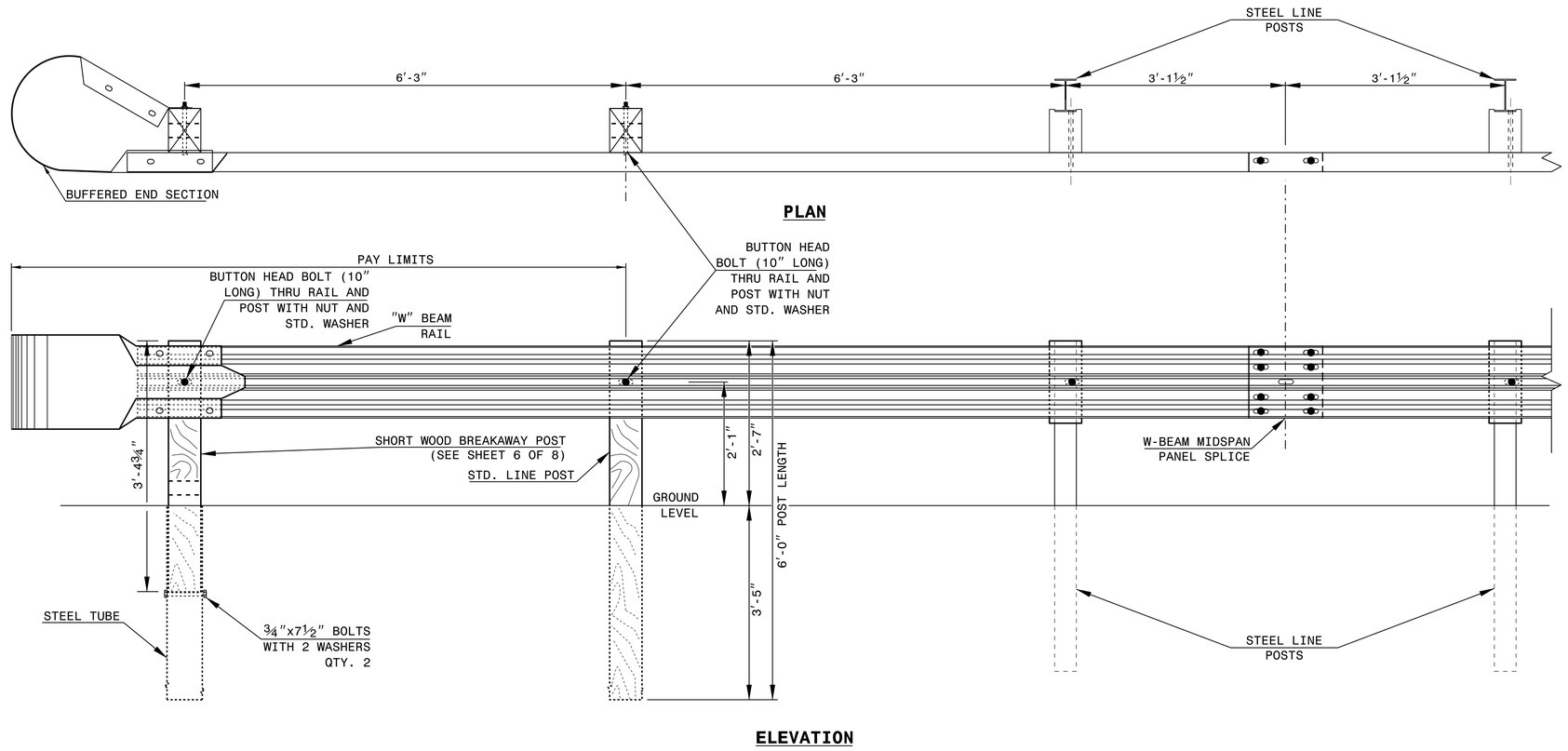
PROJECT REFERENCE NO.	SHEET NO.
B-6021	2C-3

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY

A.T.-1 SYSTEM

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

NORTH CAROLINA PROFESSIONAL SEAL 022968 ENGINEER JOHN S. HOWERTON

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CONTRACTS STANDARDS AND DEVELOPMENT UNIT
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A.T.-1 SYSTEM

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

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PROJECT REFERENCE NO.	SHEET NO.
B-6021	2C-4

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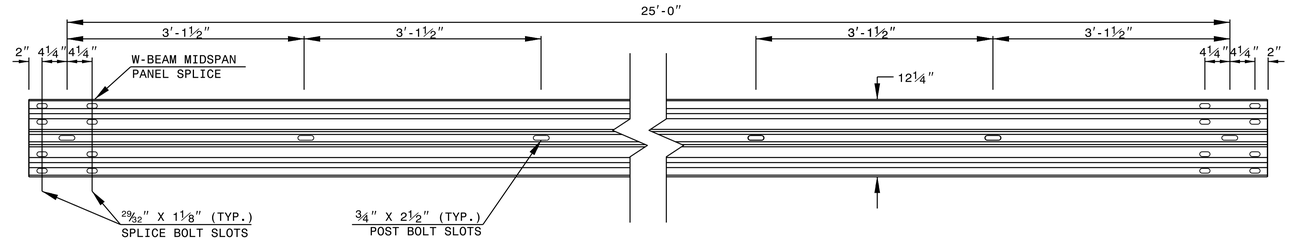
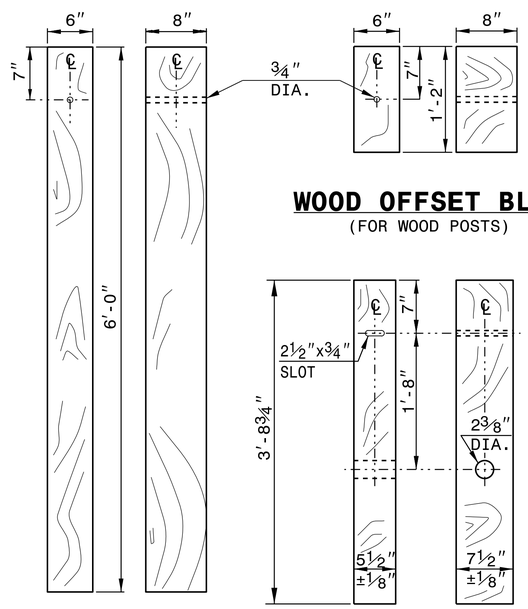
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



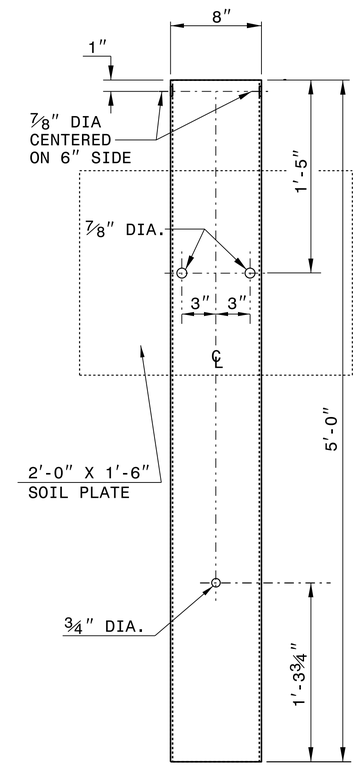
STANDARD W-BEAM GUARDRAIL



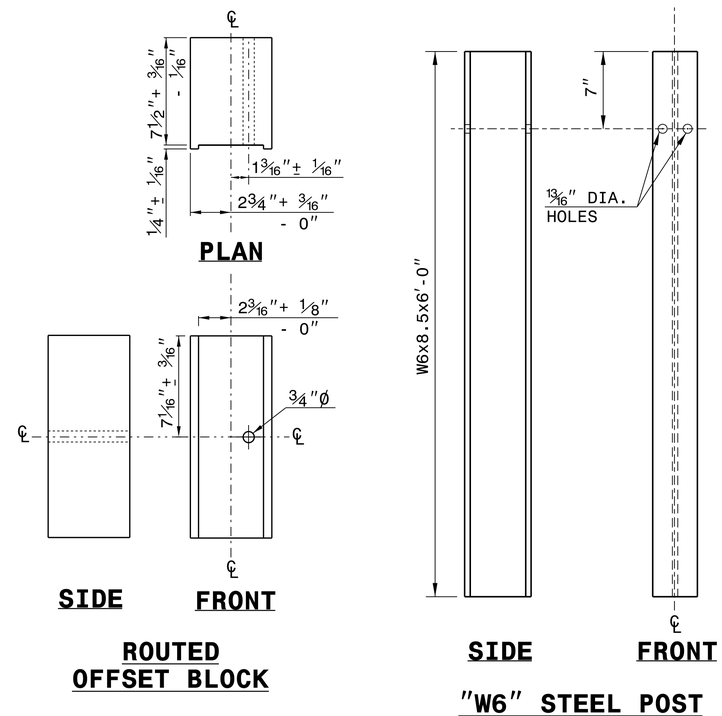
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"



SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

11/27/2018 7:07:39 AM EST

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

SEE TITLE BLOCK

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

12/06/07

COMPUTED BY: CY DATE: 4-18-2017
CHECKED BY: NM DATE: 4-19-2017

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-6021	3B-1

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV. (CY)	EMBANK. +%	BORROW (CY)	WASTE (CY)
–L– 10+50.00	–L– 12+80.88 (BR)	217	96		121
–L– 13+48.13 (BR)	–L– 15+75.00	5	662	657	
SUBTOTALS:		222	758	657	121
–DRIVE– 10+10.00	–DRIVE– 10+96.00	382	25	0	357
SUBTOTALS:		382	25	0	357
PROJECT TOTALS:		604	783	657	478
WASTE IN LIEU OF BORROW				–478	
				179	
EST. 5% TO REPLACE TOP SOIL				9	
GRAND TOTALS:		604		188	
SAY:		610		200	

EST. UNDERCUT = 50 CY (CONTINGENCY)
EST. SELECT GRANULAR MATERIAL = 50 CY (CONTINGENCY)
EST. FABRIC FOR SOIL STABILIZATION = 50 SY (CONTINGENCY)

NOTE:
INVERT ELEVATIONS INDICATED ARE FOR BID PURPOSES ONLY AND SALL NOT BE USED FOR PROJECT CONSTRUCTION STAKE OUT.
SEE "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, SECTION 300-5".

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
–L–	10+76	12+97	RT	146.8
–L–	13+30	15+75	RT	125.1
			TOTAL:	271.9
			SAY:	275

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAIDFOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
–L–	13+59	13+93	34
		TOTAL:	34
		SAY:	35

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

STATION (SIZE / THICKNESS OR GAUGE)	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	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109
–L– 13+64	13RT	0401		1933.30																						
		0401	0402	1930.50	1927.10																24					
–L– 12+50	23LT	0403		1934.50	1931.50																					
–L– 14+86	30RT	0404		1934.38	1932.95																					
TOTAL																					24					

STATION	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
–L– 13+64															
–L– 12+50															
–L– 14+86															
TOTAL															

STATION	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. 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 CATCH BASIN	DROP INLET		FRAMES AND NARROW SLOT FLAT GRATES STD. 840.29	T.B.G.D.I. STD. 840.35	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	15" C.S. ELBOW	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
–L– 13+64								1											1	1								
–L– 12+50				32																							22	DRIVEWAY PIPE
–L– 14+86				32																							32	DRIVEWAY PIPE
TOTAL				64				1											1	1							54	

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

"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 STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE III	ANCHORS TYPE III SC	ANCHORS TL-2	ANCHORS AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	12+12.13	12+80.88	RT.	68.75			12+82.00 (BR)		3.9	6.9	25'		0.5		1		1								GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
–L–	13+48.13	14+16.88	RT.	68.75				13+47.00 (BR)	3.9	6.9		25'		0.5	1		1								GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
–L–	12+43.38	12+80.88	LT.		37.50			12+82.00 (BR)	3.9	6.9						1		1							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
–L–	13+48.13	15+66.88	LT.	218.75			13+47.00 (BR)	15+62.50	3.9	6.9		25'		0.5	1		1								GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
			SUBTOTALS	356.25	37.50																				
			ANCHOR DEDUCTION	131.25	25.00																				
			TOTAL	225.00	12.50																				
			SAY	237.50	12.50																				

ANCHOR DEDUCTION
TYPE III: 3 @ 18.75' = 56.25'
TYPE III SC: 1 @ 18.75' = 18.75'
TYPE TL-2: 3 @ 25' = 75'
AT-1: 1 @ 6.25' = 6.25'
GRAND TOTAL = 156.25'
ADDITIONAL GUARDRAIL POSTS = 5

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE III	ANCHORS TYPE III SC	ANCHORS TL-2	ANCHORS AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	12+48.88	12+98.88	RT.	50.00			12+98.88 (BR)		1.0	2.0	25'		0.5				1								TIE TO EXISTING BRIDGE RAIL
–L–	13+28.92	13+78.92	RT.	50.00				13+28.92 (BR)	1.0	2.0		25'		0.5			1								TIE TO EXISTING BRIDGE RAIL
			SUBTOTAL	100.00																					
			ANCHOR DEDUCTION	50.00																					
			TOTAL	50.00																					
			SAY	62.50																					

ANCHOR DEDUCTION
TYPE TL-2: 2 @ 25' = 50'
GRAND TOTAL = 50'

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8/17/99

REVISIONS

BRIDGE NO. 440180

PROJECT REFERENCE NO.	SHEET NO.
B-6021	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030952 ENGINEER JENNIFER D. FARING — 11/26/2018 4:38:31 PM EST

NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILLIAM J. WEATHERSBEE — 11/26/2018 4:42:18 PM EST

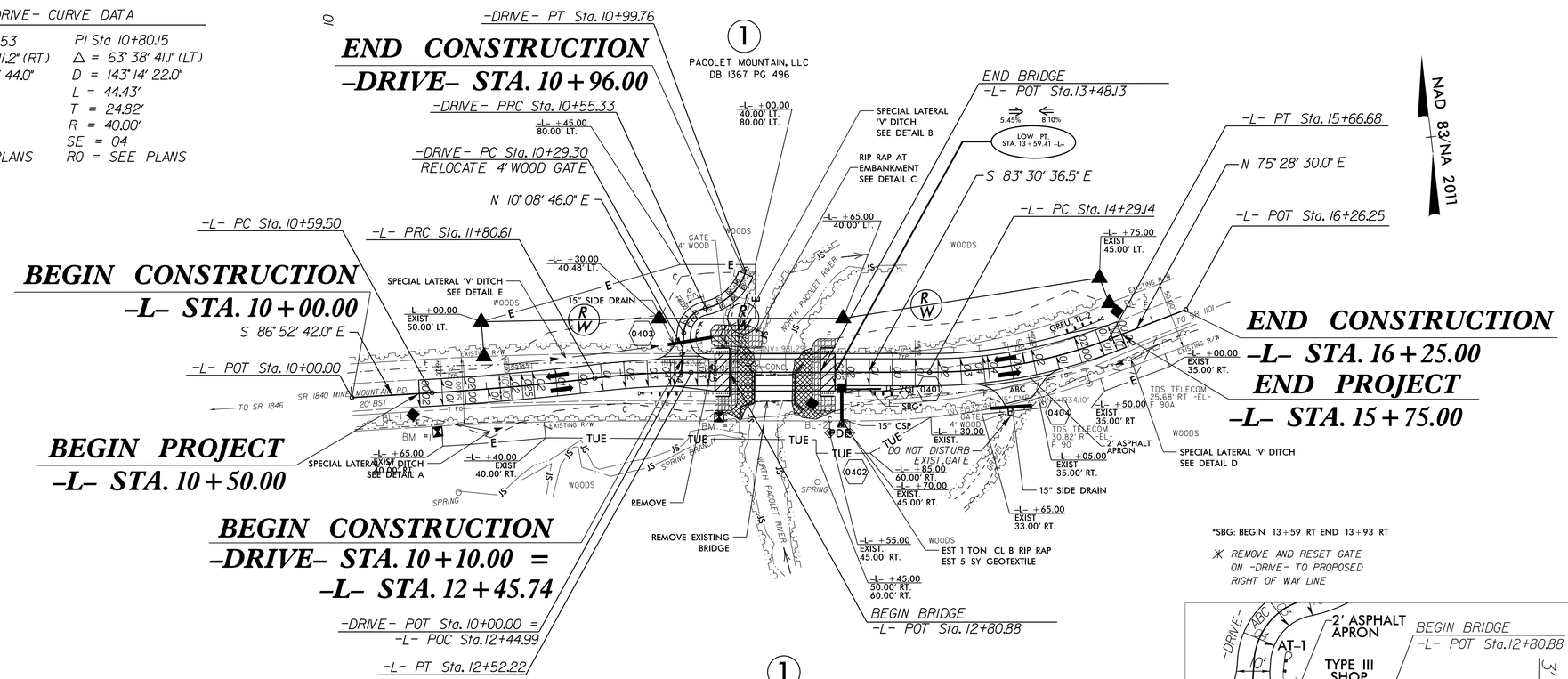
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L- CURVE DATA

PI Sta 11+20.07	PI Sta 12+16.46	PI Sta 14+98.69
△ = 3° 28' 11.2" (LT)	△ = 6° 50' 16.7" (RT)	△ = 21° 00' 53.5" (LT)
D = 2° 51' 53.2"	D = 9° 32' 57.5"	D = 15° 16' 43.9"
L = 121.12'	L = 71.61'	L = 137.54'
T = 60.58'	T = 35.85'	T = 69.55'
R = 2,000.00'	R = 600.00'	R = 375.00'
SE = 04	SE = 04	SE = 04
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS

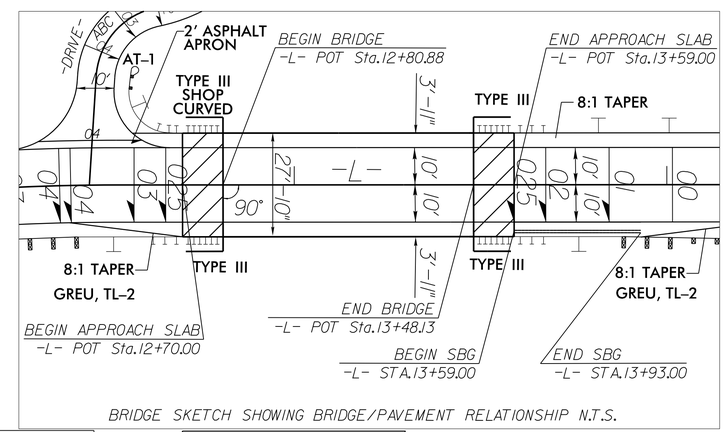
-DRIVE- CURVE DATA

PI Sta 10+44.53	PI Sta 10+80.15
△ = 74° 33' 11.2" (RT)	△ = 63° 38' 41.1" (LT)
D = 286° 28' 44.0"	D = 143° 14' 22.0"
L = 26.02'	L = 44.43'
T = 15.22'	T = 24.82'
R = 20.00'	R = 40.00'
SE = 04	SE = 04
RO = SEE PLANS	RO = SEE PLANS

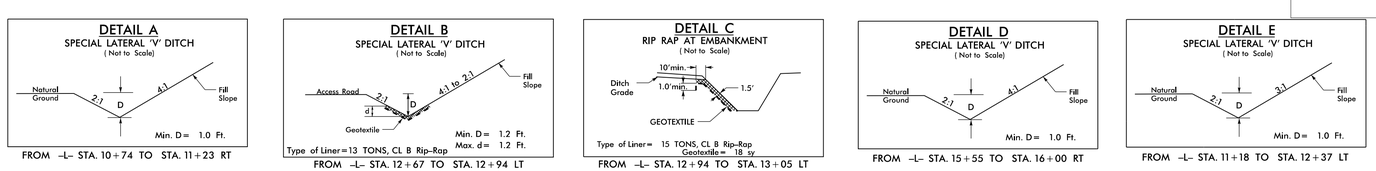


*SBG: BEGIN 13+59 RT END 13+93 RT

✳ REMOVE AND RESET GATE ON -DRIVE- TO PROPOSED RIGHT OF WAY LINE



BRIDGE SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP N.T.S.



PAVEMENT REMOVAL

EXCAVATION FOR BRIDGE (STRUCTURE PAY ITEM)

BRIDGE APPROACH SLAB

FOR -L- PROFILE SEE SHEET 5

FOR -DRIVE- PROFILE SEE SHEET 5

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-17

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PROJECT REFERENCE NO.	SHEET NO.
B-6021	5

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 030952 ENGINEER JENNIFER D. FARING — 11/26/2018 4:38:31 PM EST

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL I. WEATHERSBEE — 11/26/2018 4:42:18 PM EST

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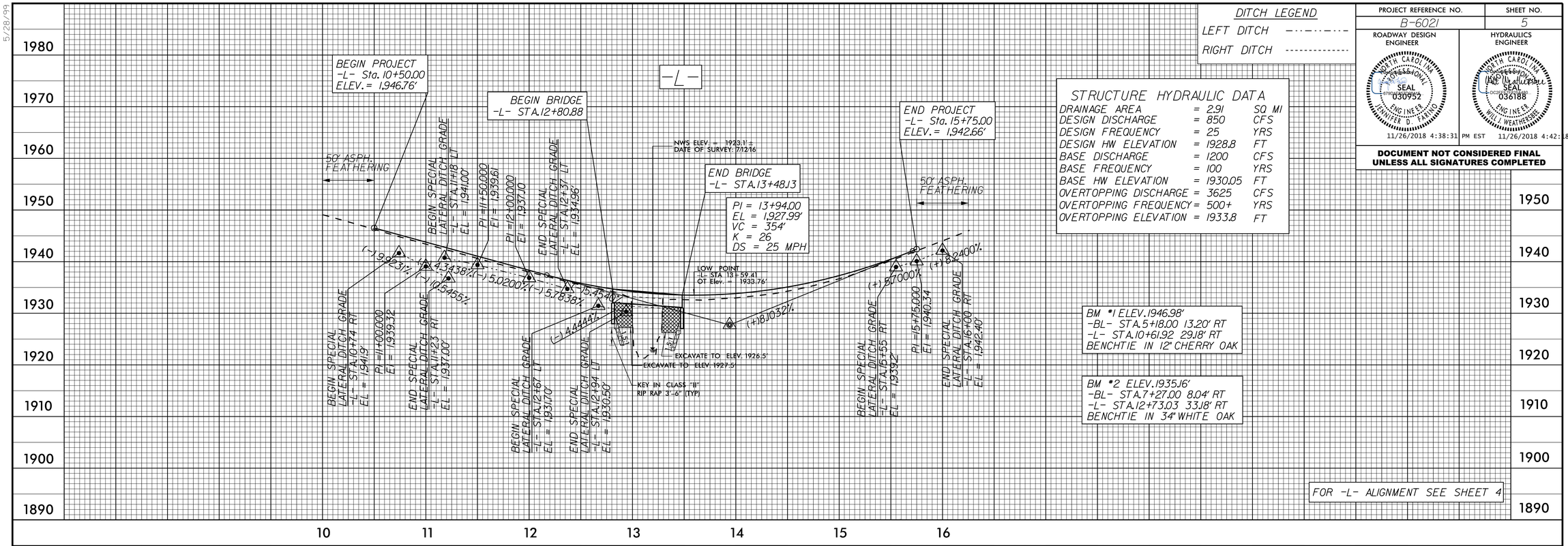
DITCH LEGEND

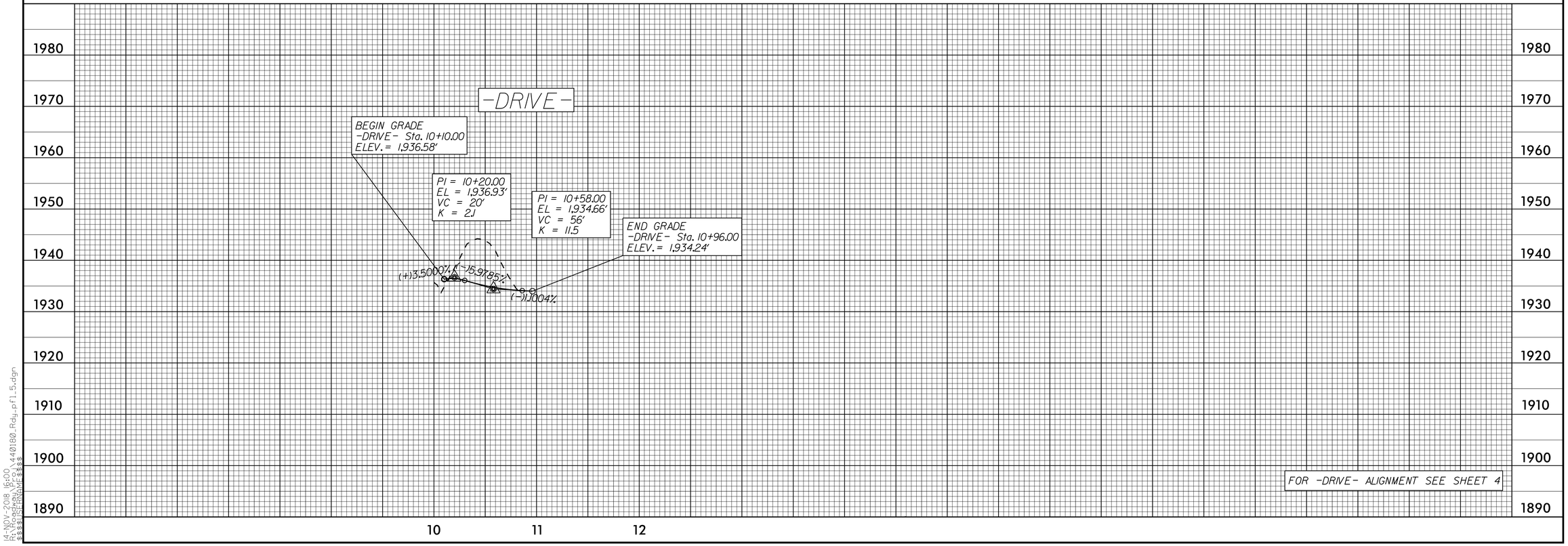
LEFT DITCH —·—·—·—

RIGHT DITCH ----------

STRUCTURE HYDRAULIC DATA

DRAINAGE AREA	= 2.91	SQ MI
DESIGN DISCHARGE	= 850	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1928.8	FT
BASE DISCHARGE	= 1200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1930.05	FT
OVERTOPPING DISCHARGE	= 3625	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 1933.8	FT





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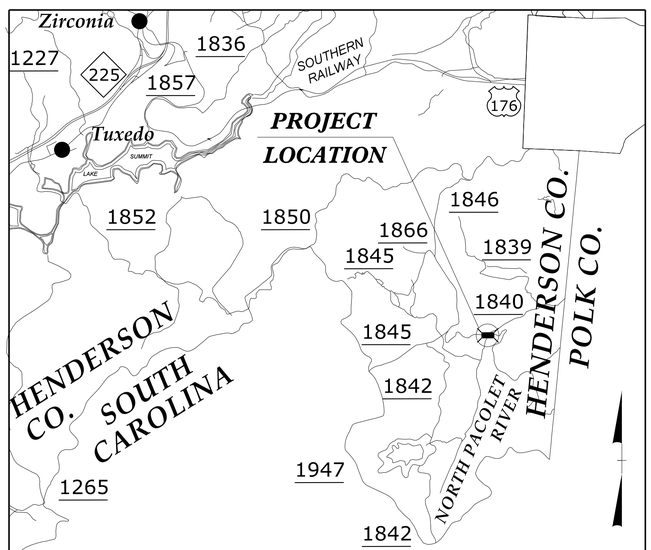
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

HENDERSON COUNTY

LOCATION: BRIDGE NO. 440180 OVER NORTH PACOLET RIVER ON SR 1840 (MINE MOUNTAIN ROAD)



VICINITY MAP N.T.S.

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGY, GENERAL NOTES, AND LOCAL NOTES)
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL

SHEET NO.
TMP-1

B-6021

TIP PROJECT:

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

PLANS PREPARED BY:

ANNIE C. PILZ, PE
PROJECT ENGINEER

CHARLES YOUNG, PE
DESIGN ENGINEER

NCDOT CONTACTS:

JOSH DEYTON, PE
BRIDGE PROGRAM MANAGER

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

Prepared in the Office of:

RS&H

APPROVED: DocuSigned by: Annie C. Pilz

DATE: 11/27/2018 1:50:40 PM EST

NORTH CAROLINA PROFESSIONAL SEAL 038700 ENGINEER ANNIE C. PILZ

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PROJ. REFERENCE NO.	SHEET NO.
B-6021	TMP-1A

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
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1170.01	POSITIVE PROTECTION
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

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

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

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
- PORTABLE TEMPORARY SIGNAL SYSTEM (PTSS)

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

P2	WHITE STOPBAR (24")
PA	WHITE EDGELINE (4")

RS&H

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

ROADWAY STANDARD DRAWINGS & LEGEND

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MANAGEMENT STRATEGY

TRAFFIC WILL BE CHANGED TO A ONE-LANE, TWO WAY ROAD CONFIGURATION. FLAGGERS AND ADVANCED WORK ZONE WARNING SIGNS WILL BE USED TO SHIFT TRAFFIC. -L- STRUCTURE WORK WILL PROCEED BEHIND TEMPORARY BARRIER.

-L- STRUCTURE AND ROADWAY APPROACHES WILL BE COMPLETED WITH MINE MOUNTAIN RD. TRAFFIC SHIFTED TO COMPLETED AREA.

ACCESS TO ALL RESIDENCES AND BUSINESS WITHIN THE PROJECT LIMITS MUST BE MAINTAINED AT ALL TIMES.

GENERAL NOTES

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

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

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

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

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

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

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

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 100 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

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

K) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

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

TRAFFIC CONTROL DEVICES

N) 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.

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

LOCAL NOTES

1) ACCESS TO ALL RESIDENCES AND BUSINESSES WITHIN THE PROJECT LIMITS MUST BE MAINTAINED AT ALL TIMES.

RS&H

APPROVED: Developed by Annie C. Pilz
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NORTH CAROLINA PROFESSIONAL SEAL 038700 ENGINEER ANNIE C. PILZ

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

MANAGEMENT STRATEGY AND GENERAL NOTES

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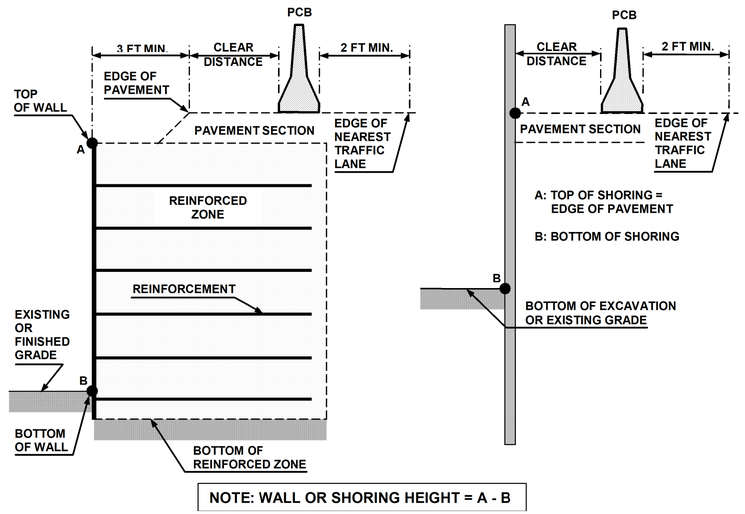

FIGURE A

NOTES

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

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

3- PCB IS REQUIRED IF TEMPORARY SHORING 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 UNIT 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 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- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.

8- 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 AND OR AS APPROVED BY THE ENGINEER.

9- 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 THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.

10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

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

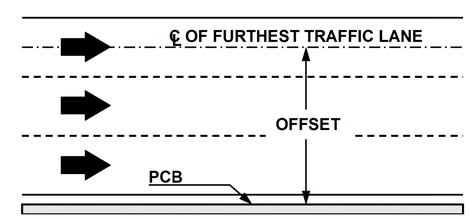

FIGURE B

RS&H

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

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

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PROJ. REFERENCE NO.	SHEET NO.
B-6021	TMP-3

PHASING

NOTES: -RSD REFERS TO ROADWAY STARNDARD DRAWINGS.
-ALL PROPOSED ASPHALT ROADWAY CONSTRUCTION IS UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, UNLESS OTHERWISE NOTED.

PHASE I

STEP 1: USING RSD 1101.01 (SHEET 3 OF 3), INSTALL ALL ADVANCED WORK ZONE WARNING SIGNS.

STEP 2: USING RSD 1101.02 (SHEET 1 OF 14), FLAGGERS AND TEMPORARY GUARDRAIL, SHIFT TRAFFIC INTO A ONE-LANE, TWO-WAY PATTERN AND PLACE ANCHORED PORTABLE CONCRETE BARRIER (SEE SHEET TMP-4).

USING RSD 1101.02 (SHEET 1 OF 14), A PORTABLE TEMPORARY SIGNAL SYSTEM AND BEHIND ANCHORED PORTABLE CONCRETE BARRIER, CONSTRUCT -L- STA 10+80±(LT) TO -L- STA. 15+50±(LT) INCLUDING STRUCTURE (SEE STRUCTUREPLANS) (SEE SHEET TMP-4).

PHASE II

STEP 1: USING RSD 1101.02 (SHEET 1 OF 14) AND FLAGGERS, RESET PORTABLE CONCRETE BARRIER AND SHIFT -L- TRAFFIC ONTO THE PROPOSED ROADWAY AND STRUCTURE IN A ONE-LANE, TWO-WAY PATTERN (SEE SHEET TMP-5).

STEP 2: USING RSD 1101.02 (SHEET 1 OF 14), A PORTABLE TEMPORARY SIGNAL SYSTEM AND BEHIND PORTABLE CONCRETE BARRER, CONSTRUCT -L- STA. 10+50± (RT) TO -L- STA. 15+75± (RT) INCLUDING STRUCTURE (SEE STRUCTURE PLANS) (SEE SHEET TMP-5).

STEP 3: USING RSD 1101.02 (SHEET 1 OF 14), REMOVE ALL TRAFFIC CONTROL DEVICES, PLACE THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS AND OPEN -L- TO THE FINAL TRAFFIC PATTERN.

RS&H

APPROVED: DocuSigned by: Annie C. Pilz 8D9BCCDE0A9E...

DATE: 1/8/2019

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PHASING

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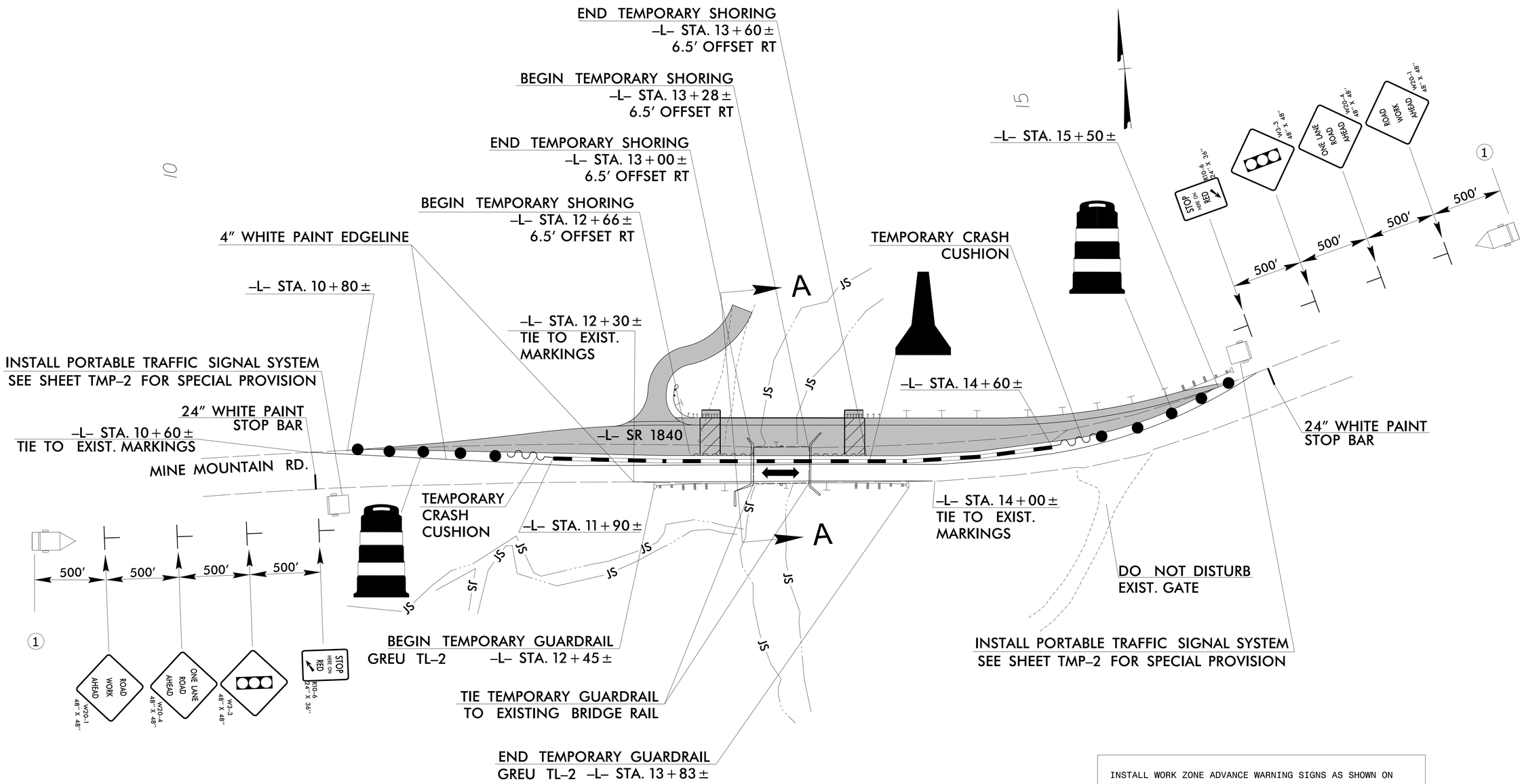
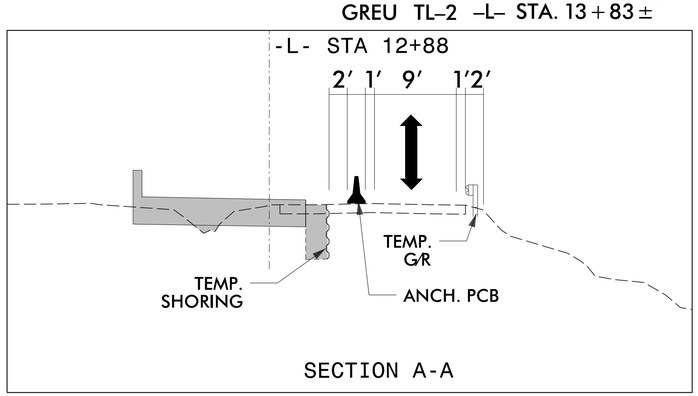


INSTALL WORK ZONE ADVANCE WARNING SIGNS AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.01 AND GENERAL NOTE I

MESSAGE NO. 1	MESSAGE NO. 2
ROAD CLOSED AHEAD	BE PREPARED TO STOP

CHANGEABLE MESSAGE SIGN

1



SECTION A-A

RS&H

APPROVED: Annie C. Pilz (DocuSigned by: Annie C. Pilz 5D7B9C0CDE3D49E...)

DATE: 1/11/2019

NORTH CAROLINA PROFESSIONAL SEAL 038700 ENGINEER ANNIE C. PILZ

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
PHASE I DETAIL

1/11/2019
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User:pilza

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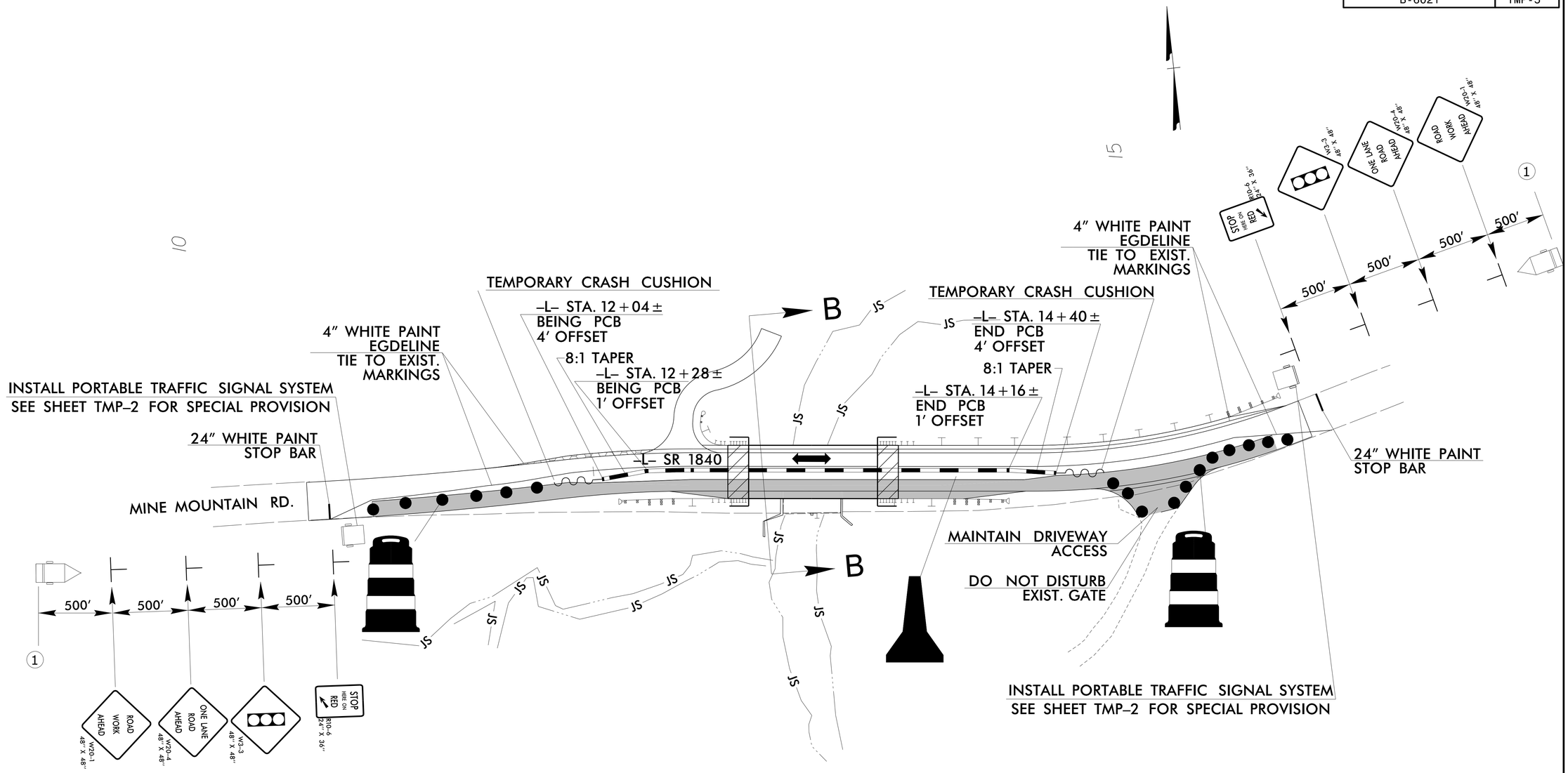
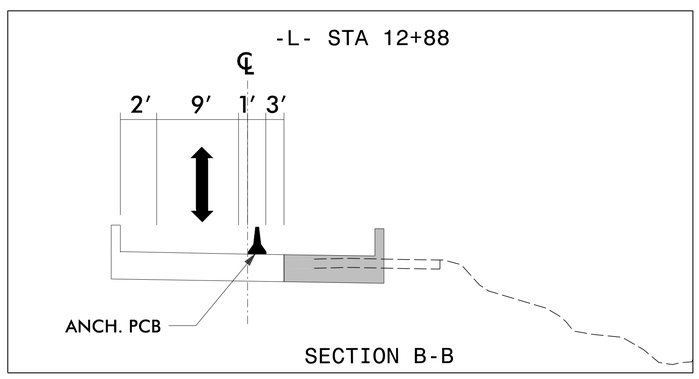
PROJ. REFERENCE NO.	SHEET NO.
B-6021	TMP-5





MESSAGE NO. 1	MESSAGE NO. 2
ROAD CLOSED AHEAD	BE PREPARED TO STOP

CHANGEABLE MESSAGE SIGN

1

INSTALL WORK ZONE ADVANCE WARNING SIGNS AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.01 AND GENERAL NOTE I

RS&H

APPROVED: Annie C. Pilz

DATE: 1/8/2019

NORTH CAROLINA PROFESSIONAL SEAL 038700 ENGINEER ANNIE C. PILZ

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

TEMPORARY TRAFFIC CONTROL PHASE II DETAIL

1/4/2019
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TIP: B-6021

CONTRACT: DN00497

TIP NO.	SHEET NO.
B-6021	PMP-1

APPROVED: Annie C. Pilz (DocuSigned by: 5F8B0D0DE0D4C...)

DATE: 11/27/2018 1:50:40 PM EST

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 038700 ENGINEER ANNIE C. PILZ

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

HENDERSON COUNTY

LOCATION: BRIDGE NO. 430180 OVER NORTH PACOLET RIVER ON SR 1840 (MINE MOUNTAIN ROAD)

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE SHEET & PAVEMENT MARKING SCHEDULE
PMP-2	PAVEMENT MARKING DETAIL

ROADWAY STANDARD DRAWING

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

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

PAVEMENT MARKING SCHEDULE

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

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 1840	PAINT	N/A

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

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

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

E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING PAVEMENT MARKING MATERIAL.

G) ALL EXISTING SIGNS ON WOOD & U POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.

PLAN SUBMITTED TO: NCDOT DIVISION 14

JOSH DEYTON, PE — DIVISION 14 BRIDGE PROGRAM MANAGER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Prepared in the Office of:
RS&H
ARCHITECTS-ENGINEERS-PLANNERS, INC.

ANNIE C. PILZ, PE — PROJECT ENGINEER

CHARLES YOUNG, PE — DESIGN ENGINEER

RS&H

11/27/18
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TIP NO.	SHEET NO.
B-6021	PMP-2

APPROVED: Annie C. Pitz
DATE: 11/27/2018 1:50:40 PM EST

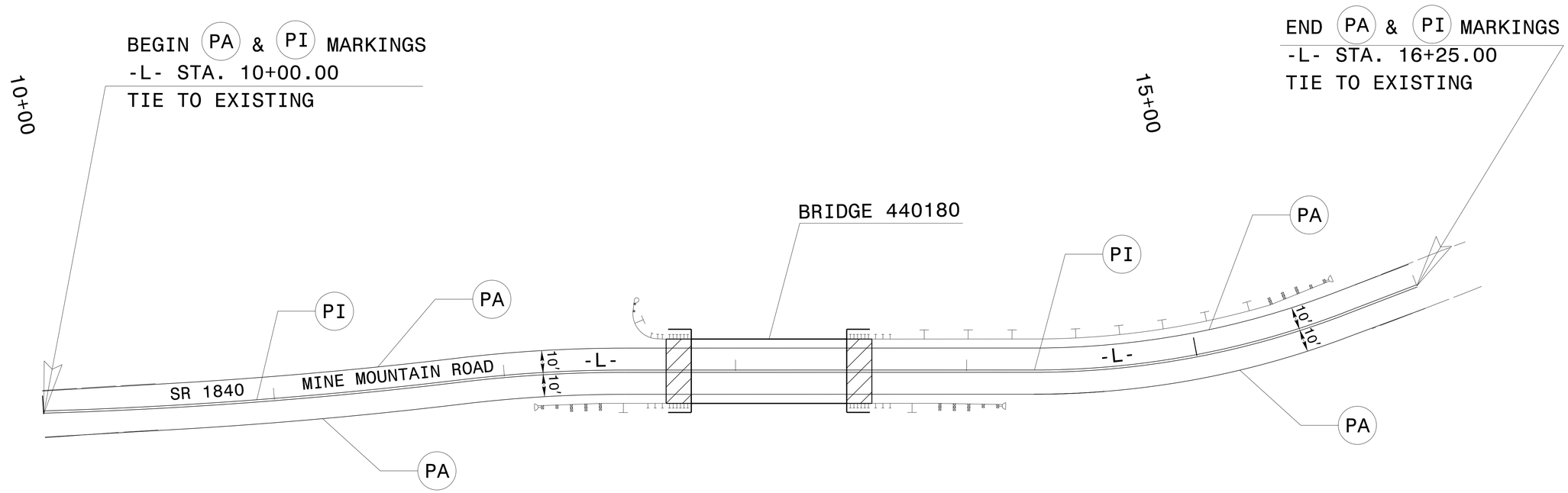
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 038700 ENGINEER ANNIE C. PITZ

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SYMBOL AND PAVEMENT MARKING LEGEND

PA	WHITE EDGE LINE (4″)
PI	YELLOW DOUBLE CENTER (4″)



RS&H

PAVEMENT MARKING DETAIL

11/27/2018
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User:KawahaKM

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TIP PROJECT: B-6021

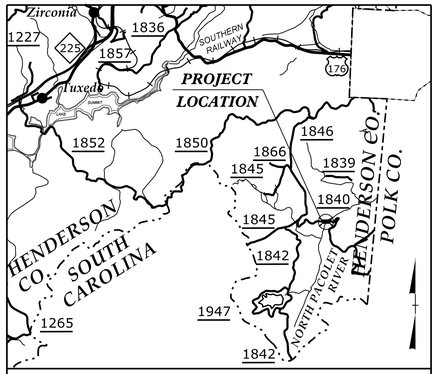
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

HENDERSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-6021	EC-1	6

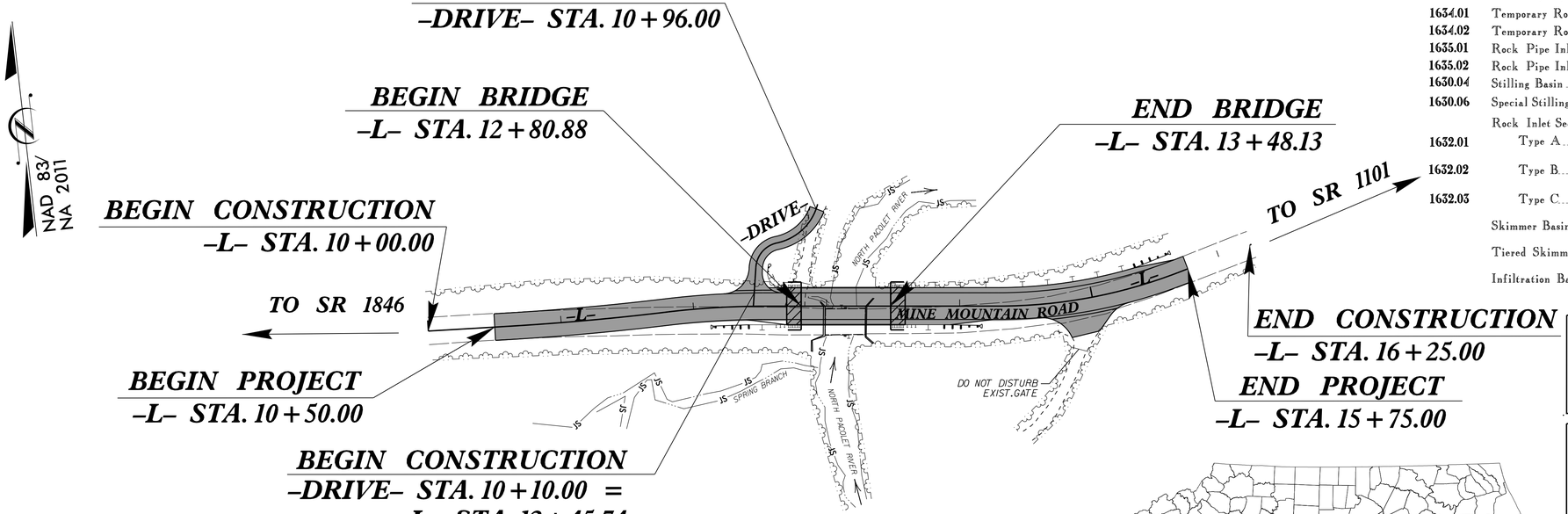
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION



VICINITY MAP N.T.S.

LOCATION: BRIDGE NO. 440180 OVER NORTH PACOLET RIVER ON SR 1840 (MINE MOUNTAIN ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

EROSION AND SEDIMENT CONTROL MEASURES

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

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

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

RS&H

GRAPHIC SCALE

25 0 50
PLANS

25 0 50
PROFILE (HORIZONTAL)

5 0 10
PROFILE (VERTICAL)

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:

RS&H

1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
(704) 752-0610

Designed by:

WILL WEATHERSBEE, PE 3161
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT
693 Mountain Road
Hendersonville, NC 28791

2018 STANDARD SPECIFICATIONS

Reviewed by:

REID WHITEHEAD, PE, CPESC

Roadway Standard Drawings

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

1605.01 Temporary Silt Fence
1606.01 Special Sediment Control Fence
1607.01 Gravel Construction Entrance
1622.01 Temporary Berms and Slope Drains
1631.01 Matting Installation
1632.03 Rock Inlet Sediment Trap Type C
1633.01 Temporary Rock Silt Check Type A
1633.02 Temporary Rock Silt Check Type B

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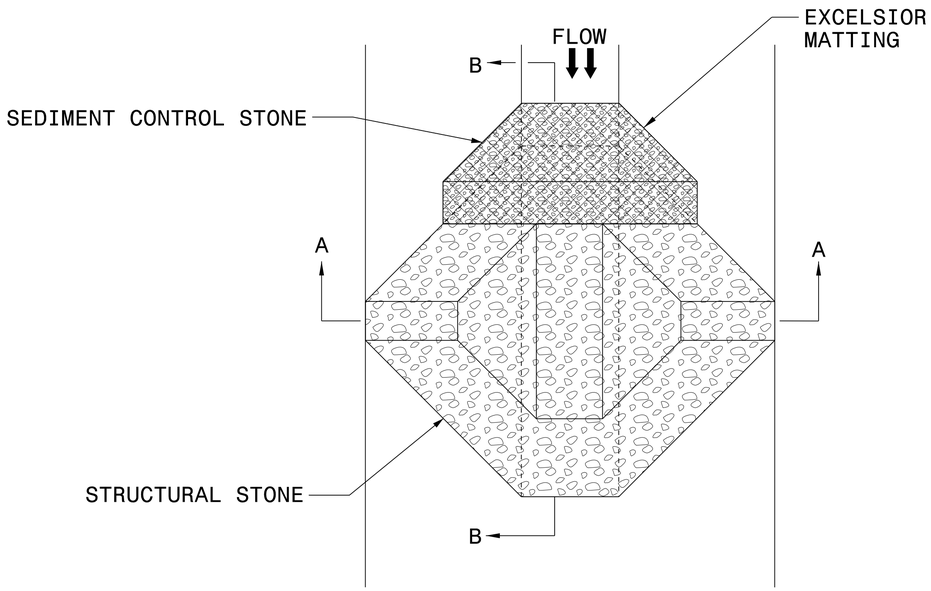
PROJECT REFERENCE NO.	SHEET NO.
B-6021	EC-2
R/W SHEET NO.	

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



PLAN

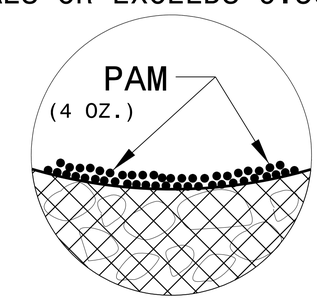
NOTES:

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

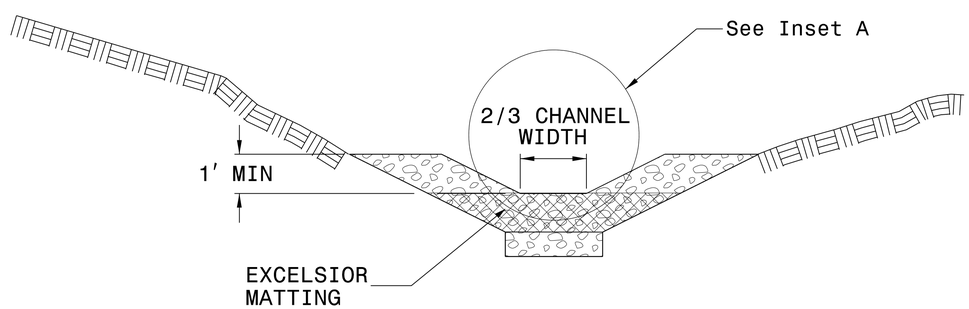
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

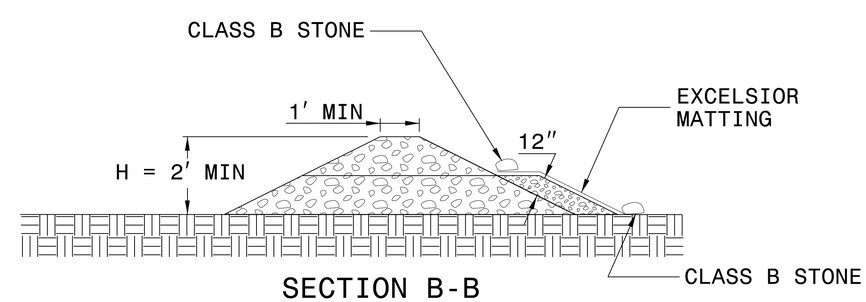
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

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PROJECT REFERENCE NO.	SHEET NO.
B-6021	EC-3
R/W SHEET NO.	

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
EC-4	-L-	11+18	12+37	LT	115
EC-4	-L-	12+67	12+94	LT	75
EC-4	-L-	10+74	11+23	RT	90
EC-4	-L-	15+55	16+00	RT	55
				TOTAL	335
				SAY	350

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

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PROJECT REFERENCE NO.	SHEET NO.
B-6021	EC-3A
R/W SHEET NO.	

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 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

16-NOV-2018 11:19
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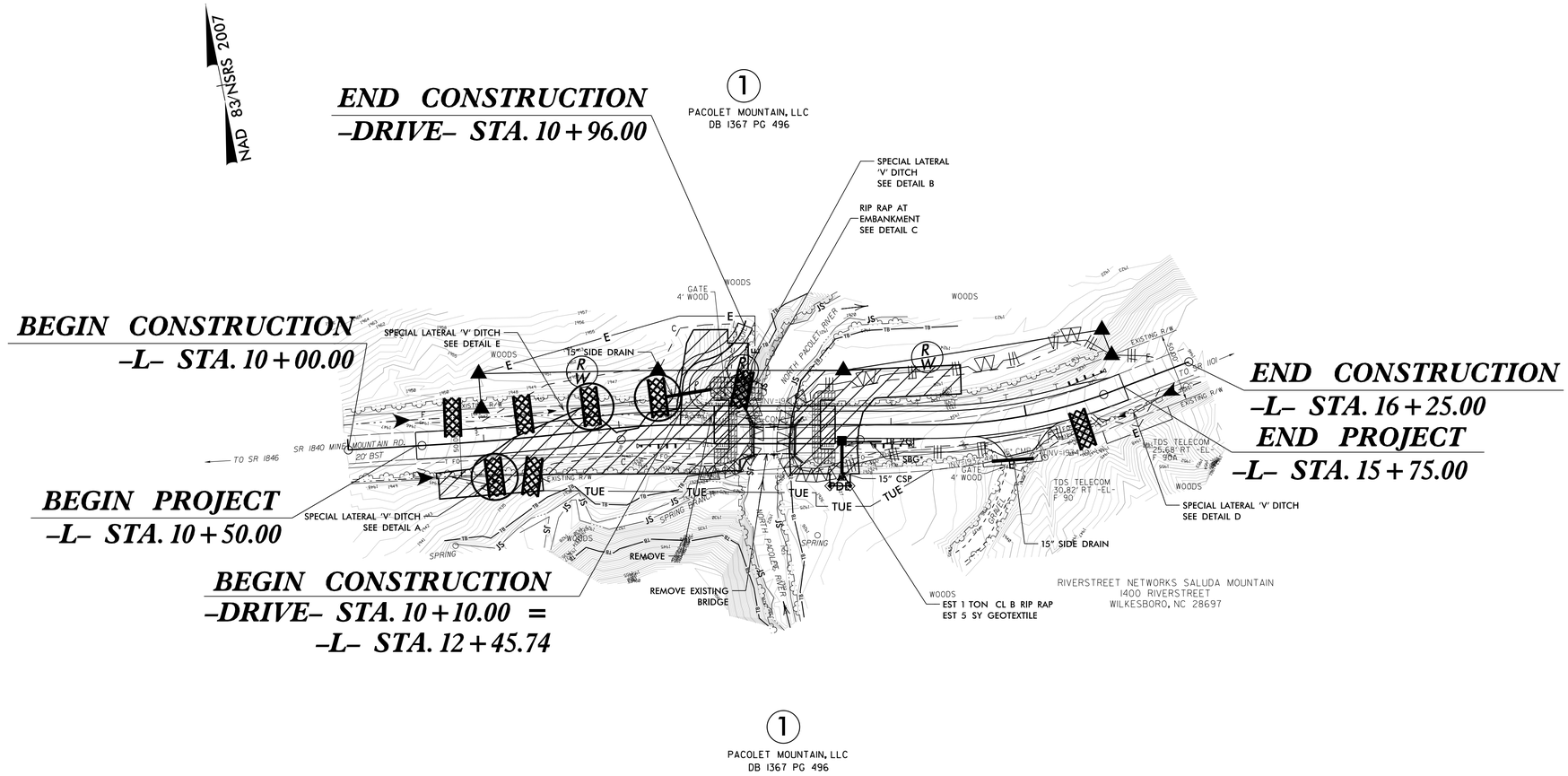
R/W SHEET NO.	



NOTE: EXCELSIOR OR OTHER MESH TYPE NETTING IS NOT ALLOWED IN OR ON STREAM BANKS.

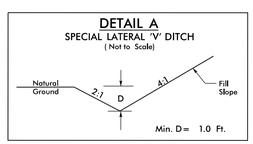
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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

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

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



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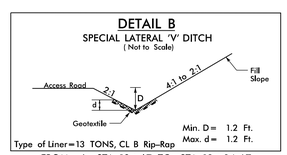

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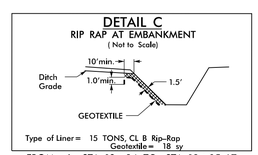

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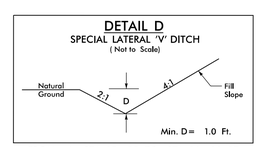

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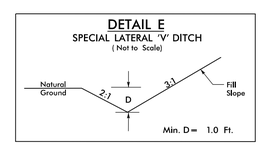

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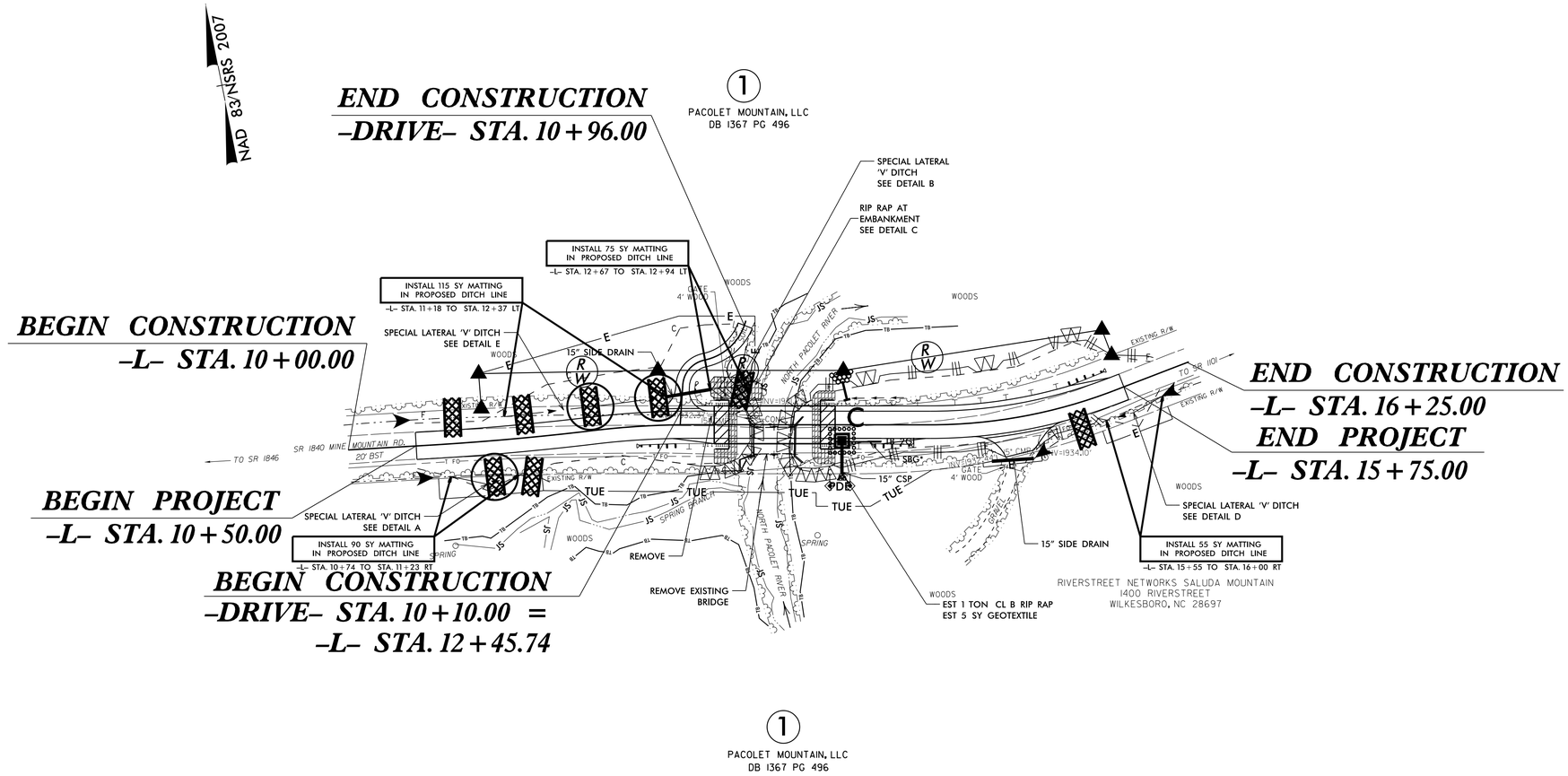
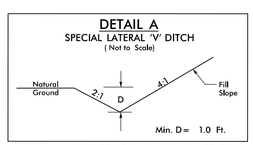
B-6021	EC-5/CONST.4
R/W SHEET NO.	





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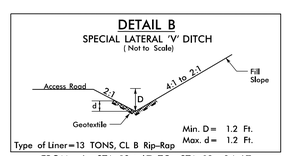

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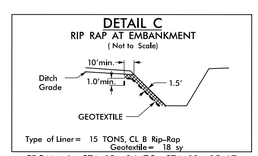

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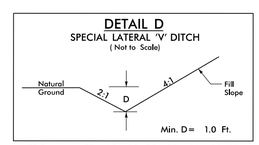

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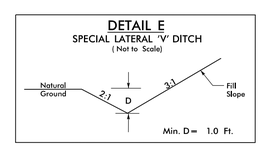

FROM -L- STA. 11+18 TO STA. 12+37 LT

NOTE: EXCELSIOR OR OTHER MESH TYPE NETTING IS NOT ALLOWED IN OR ON STREAM BANKS.

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

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

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

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09/08/99

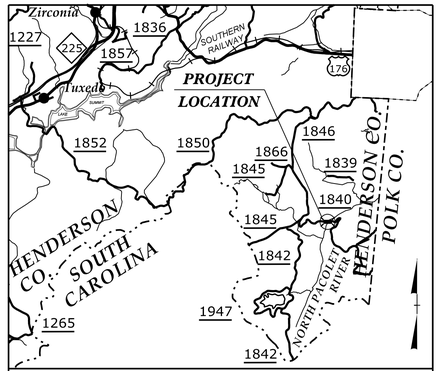
TIP: B-6021

CONTRACT: DN00497

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-6021	UO-1

UTILITIES BY OTHERS PLANS
HENDERSON COUNTY

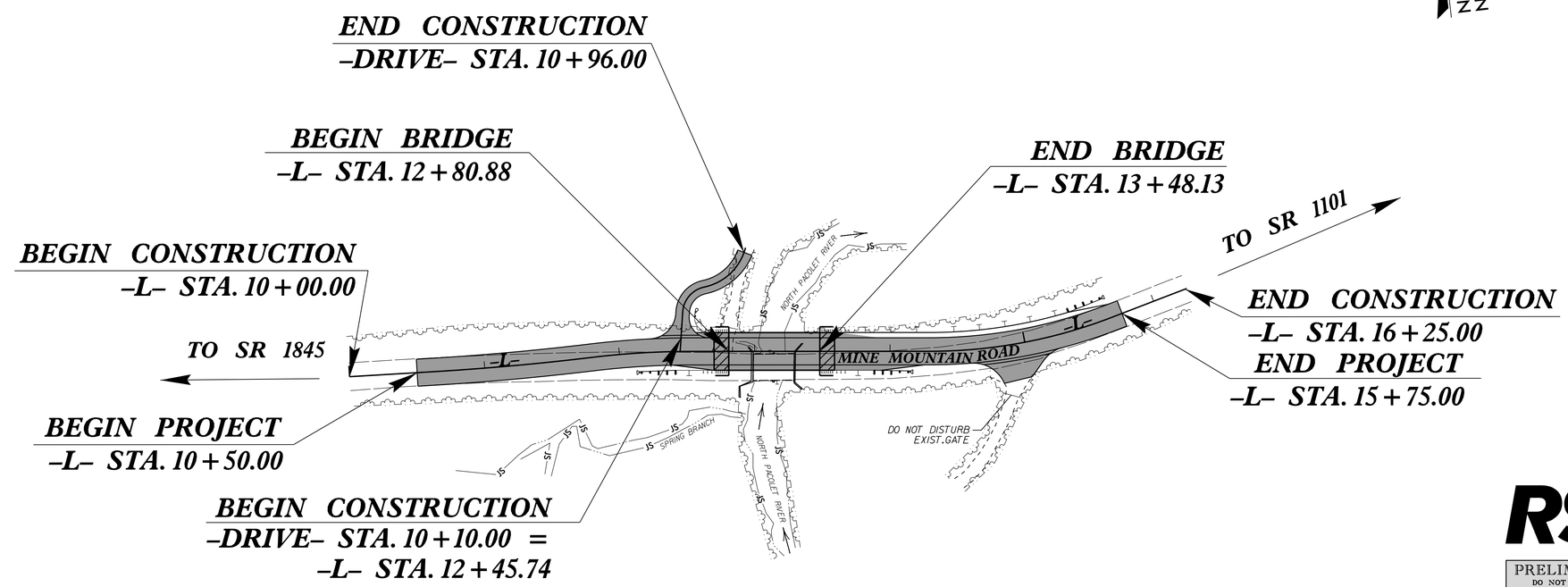


VICINITY MAP N.T.S.

LOCATION: BRIDGE NO. 440180 OVER NORTH PACOLET RIVER ON SR 1840 (MINE MOUNTAIN ROAD)

TYPE OF WORK: UNDERGROUND COMMUNICATIONS

NAD 83/NA 2011



RS&H

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

(1) COMMUNICATIONS – RIVERSTREET NETWORKS

PLANS PREPARED BY:

RS&H
8601 SIX FORKS ROAD, SUITE 260
RALEIGH, NC 27615
919-926-4108

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PREPARED FOR THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
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Robert Golding — DIVISION 14 UTILITIES COORDINATOR
Charles Young, PE — UTILITIES PROJECT DESIGNER

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8/17/99

REVISIONS

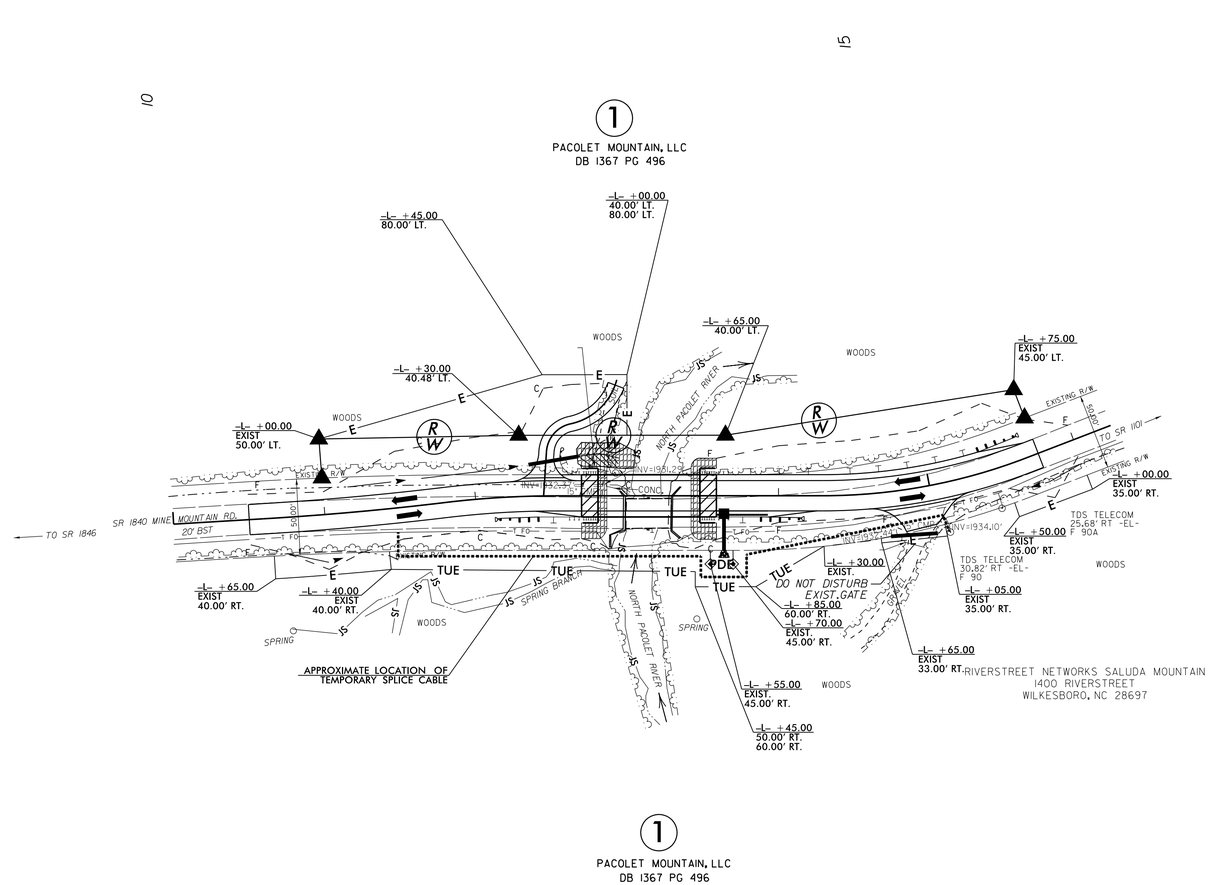
BRIDGE NO. 440180

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

PROJECT REFERENCE NO.	SHEET NO.
B-6021	U0-2

UTILITIES BY OTHERS

NAD 83/NA 2011



NOTES:

–IN THE EVENT OF CONFLICT OR DAMAGE PLEASE CONTACT ZACK CHURCH WITH RIVERSTREET NETWORKS AT 336–928–0167 (zackchurch@wilkestmc.net)

–SPLICE POINT ON THE WEST SIDE OF THE PROJECT WILL BE PLACED IN A NEW PEDESTAL.

–TEMPORARY CABLE TO BE PLACED UNDER GRAVEL DRIVE AND BEHIND SILT FENCE

–RIVERSTREET NETWORKS MAY ELECT TO NOT TEMPORARILY SPLICE DURING CONSTRUCTION DUE TO THIER FIBER OPTIC OVER BUILD INITIATIVE IN THE VICINITY OF THIS PROJECT. HOWEVER, RIVERSTREET NETWORKS ASSUMES ALL RISK AND COSTS ASSOCIATED WITH REPLACEMENT OF THE COPPER LINE SHOULD IT BE DAMAGED DURING CONSTRUCTION.

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