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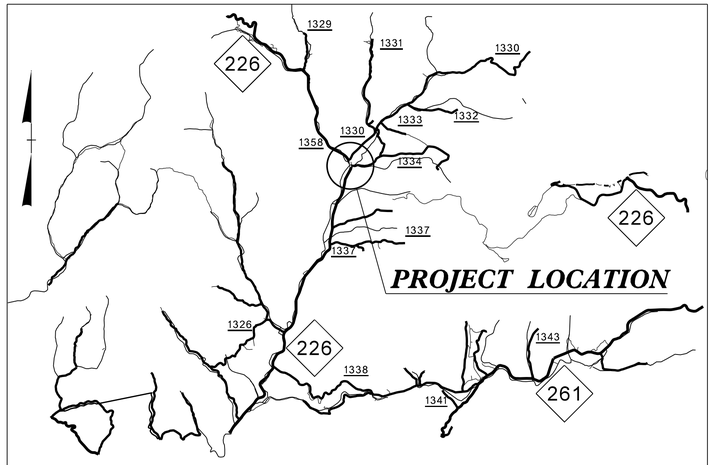
This file or an individual page shall not be considered a certified document.

09/08/09

TIP PROJECT: B-5170

CONTRACT: C204062

See Sheet 1A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MITCHELL COUNTY

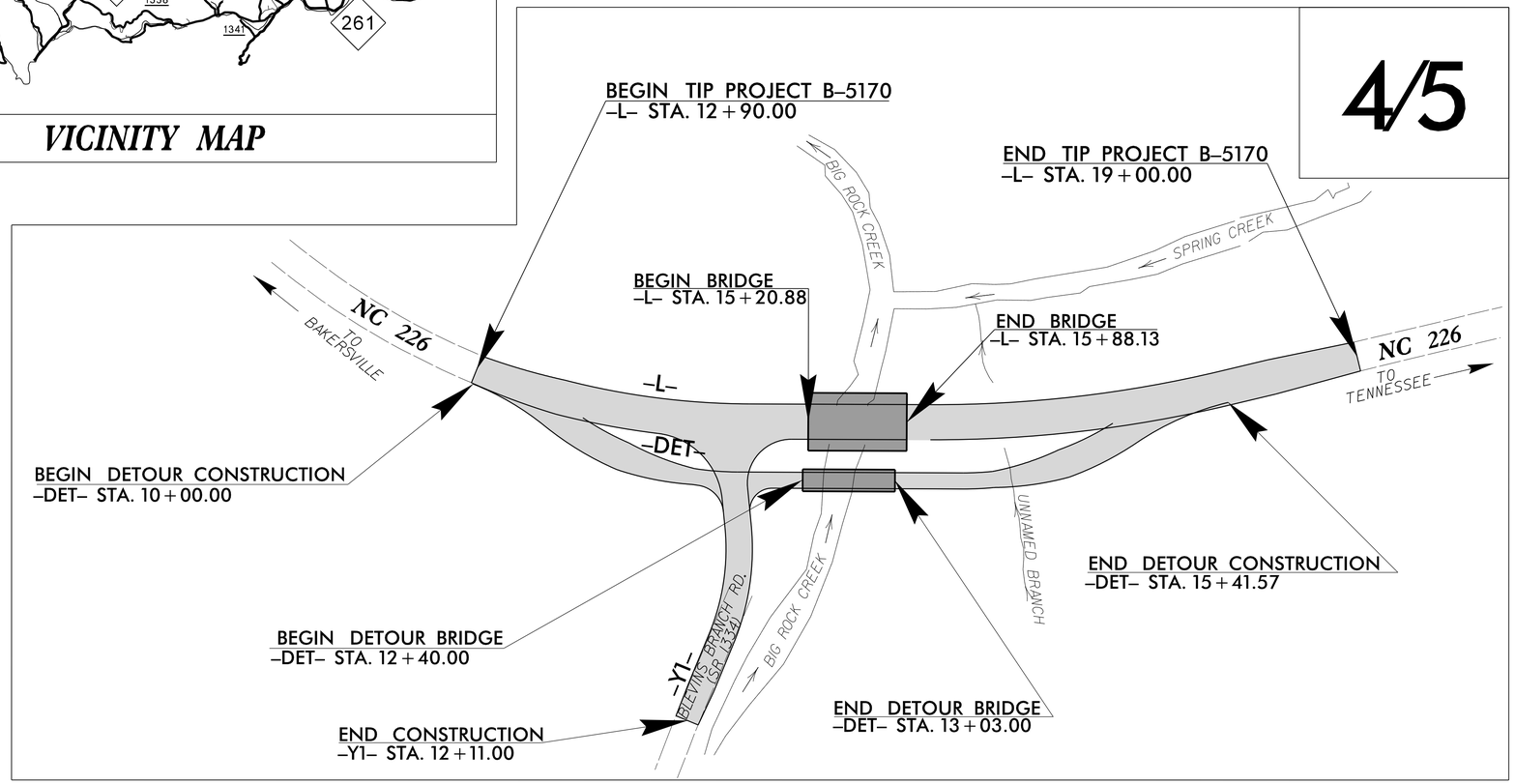
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5170	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42328.1.1	BRSTP-0226(14)	P.E.
42328.2.1		R/W & UTIL.
42328.3.1		CONST.

LOCATION: BRIDGE NO. 29 OVER BIG ROCK CREEK ON NC 226

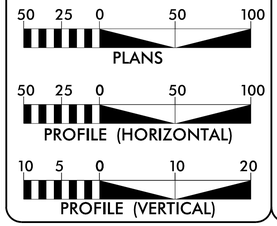
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

4/5



NAD 83/NSRS 2007

GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 1,970
ADT 2038 = 2,123
K = 11 %
D = 55 %
T = 10 % *
V = 40 MPH
* TTST = 3% DUAL = 7%
FUNC CLASS = COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5170	=	0.103 MILE
LENGTH STRUCTURE TIP PROJECT B-5170	=	0.013 MILE
TOTAL LENGTH TIP PROJECT B-5170	=	0.116 MILE

PLANS PREPARED BY:

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

FOR DIVISION OF HIGHWAYS

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 9, 2017

LETTING DATE:
FEBRUARY 20, 2018

CHRISTOPHER K. HAIRE, PE
PROJECT ENGINEER
NGINA D. DRAYTON, EI
PROJECT DESIGN ENGINEER
NCDOT CONTACT:
DAVID STUTTS, PE
PROJECT MANAGER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18533 ENGINEER A. T. NOTTINGHAM

Andrew T. Nottingham 1/17/2018
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019740 ENGINEER CHRISTOPHER KENT HAIRE

DocuSigned by: Christopher K. Haire 1/16/2018
F3A924D02FE948D...
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

12/28/2017
R:\B5170\Roadway\Proj\b5170_rdy_tsh.dgn
ndrayton

PROJECT REFERENCE NO.	SHEET NO.
B-5170	1-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019740 ENGINEER CHRISTOPHER KENT HAIRE

DocuSigned by: Christopher K. Haire 1/16/2018

F3A924D02FE948D...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEETS
2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1 THRU 2C-2	ROADWAY DETAILS
2H-1	DETAIL FOR TEMPORARY CONTAINMENT OF CONTAMINATED SOIL
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 6	PLANS AND PROFILE
TMP-1 THRU TMP-7	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
SIGN-1 THRU SIGN-2	SIGNING PLANS
UO-1 THRU UO-2A	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX SHEET
X-1A	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-11	CROSS-SECTIONS
S-1 THRU S-16	STRUCTURE PLANS

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. 560.02.

SIDE ROADS:

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

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS 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".

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE FRONTIER COMMUNICATIONS, FRENCH BROAD EMC, AND COUNTRY CABLEVISION.
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.

EFF. 01-16-2018
REV.

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
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
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 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

5/14/99

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1/11/2018

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-5170	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
- 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
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- 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:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — 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
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — 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 — HH
- 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.

PROJECT REFERENCE NO.	SHEET NO.
B-5170	1C-1

Location and Surveys

SURVEY CONTROL SHEET B-5170 (FINAL)

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
GPS1	B5170-1	871079.8200	1055966.3800	2729.03	OUTSIDE PROJECT LIMITS	
GPS2	B5170-2	871935.5780	1056083.6075	2745.77	OUTSIDE PROJECT LIMITS	
1	BL1	872636.1226	1056503.9500	2760.63	10+08.45	21.51 RT
2	BL2=BY2	873133.9868	1056594.8759	2766.70	15+14.59	24.07 RT
3	BL3	873555.0929	1056423.8125	2775.84	19+65.94	20.17 RT
4	BL4	873985.2380	1056124.8808	2799.78	OUTSIDE PROJECT LIMITS	

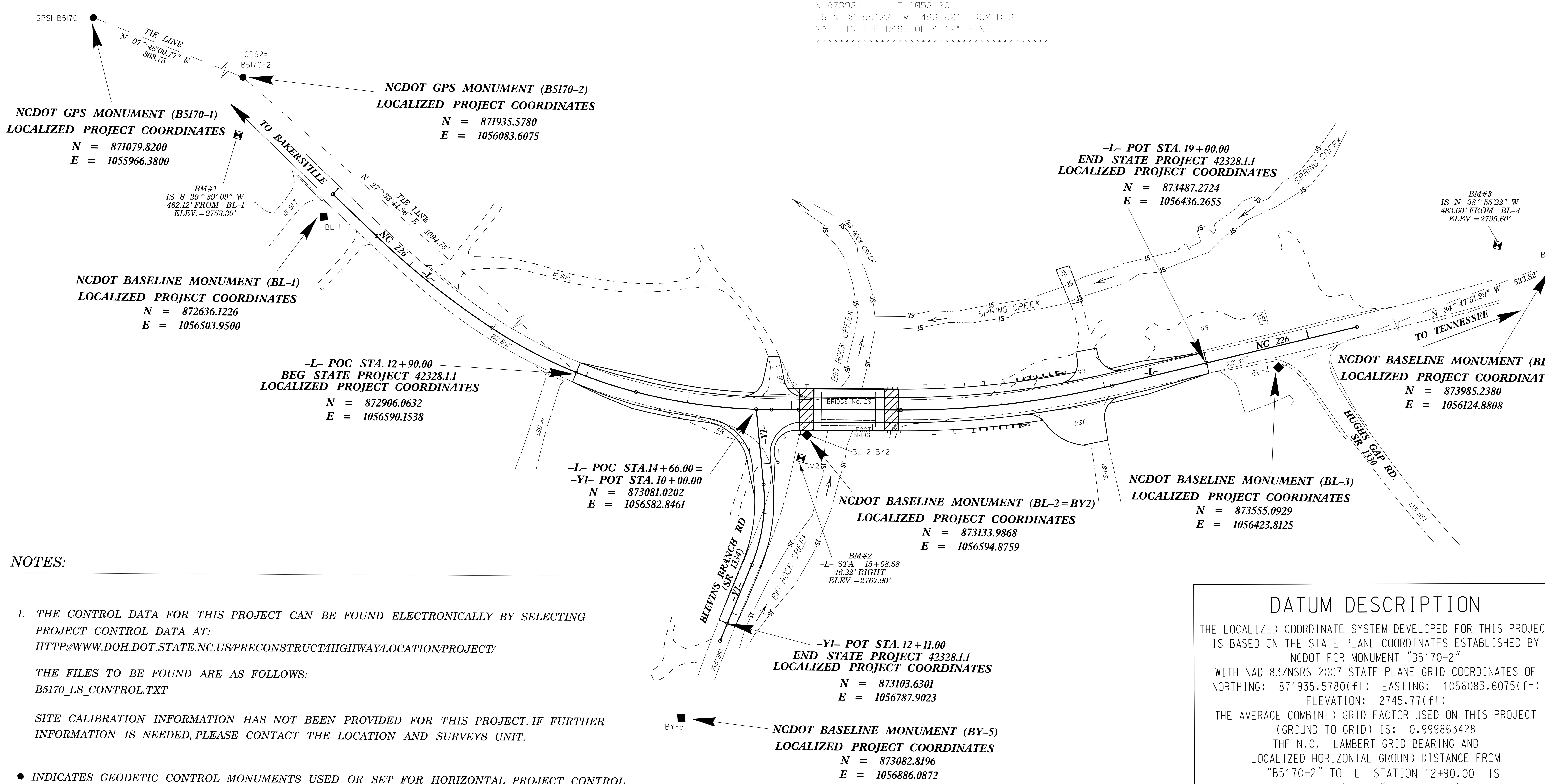
BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
2	BL2=BY2	873133.9868	1056594.8759	2766.70	10+29.02	45.91 LT
5	BY5	873082.8196	1056886.0872	2770.00	OUTSIDE PROJECT LIMITS	

BM1 ELEVATION = 2753.30
N 872235 E 1056275
IS S 29°39'09" W 462.12' FROM BL1
NAIL IN THE BASE OF A 13" MAPLE

BM2 ELEVATION = 2767.90
N 873134 E 1056618
L STATION 15+08.88 46.22' RIGHT
NAIL IN THE BASE OF A 30" RED OAK

BM3 ELEVATION = 2795.60
N 873931 E 1056120
IS N 38°55'22" W 483.60' FROM BL3
NAIL IN THE BASE OF A 12" PINE



NAD 83/NSRS 2007
NC GRID
GPS1=B5170-1
TIE LINE
N 07^48'00.77" E
863.75
GPS2=B5170-2
NCDOT GPS MONUMENT (B5170-1)
LOCALIZED PROJECT COORDINATES
N = 871079.8200
E = 1055966.3800
NCDOT GPS MONUMENT (B5170-2)
LOCALIZED PROJECT COORDINATES
N = 871935.5780
E = 1056083.6075
TO BAKERSVILLE
N 27^33'44.56" E
TIE LINE
1094.73'
NC 226
-L-
BM#1
IS S 29^39'09" W
462.12' FROM BL-1
ELEV.=2753.30'
BL-1
NCDOT BASELINE MONUMENT (BL-1)
LOCALIZED PROJECT COORDINATES
N = 872636.1226
E = 1056503.9500
-L- POC STA. 12+90.00
BEG STATE PROJECT 42328.1.1
LOCALIZED PROJECT COORDINATES
N = 872906.0632
E = 1056590.1538
-L- POT STA. 19+00.00
END STATE PROJECT 42328.1.1
LOCALIZED PROJECT COORDINATES
N = 873487.2724
E = 1056436.2655
SPRING CREEK
BIG ROCK CREEK
BM#3
IS N 38^55'22" W
483.60' FROM BL-3
ELEV.=2795.60'
BL-4
N 34^47'51.29" W
523.82'
TO TENNESSEE
NCDOT BASELINE MONUMENT (BL-4)
LOCALIZED PROJECT COORDINATES
N = 873985.2380
E = 1056124.8808
BRIDGE No. 29
BL-3
HUGHS GAP RD. SR 1330
NCDOT BASELINE MONUMENT (BL-3)
LOCALIZED PROJECT COORDINATES
N = 873555.0929
E = 1056423.8125
BL-2=BY2
BM2
-L- POC STA.14+66.00=
-Y1- POT STA. 10+00.00
N = 873081.0202
E = 1056582.8461
NCDOT BASELINE MONUMENT (BL-2=BY2)
LOCALIZED PROJECT COORDINATES
N = 873133.9868
E = 1056594.8759
BM#2
-L- STA 15+08.88
46.22' RIGHT
ELEV.=2767.90'
BLEVINS BRANCH RD (SR 1334)
-Y1-
BIG ROCK CREEK
-Y1- POT STA. 12+11.00
END STATE PROJECT 42328.1.1
LOCALIZED PROJECT COORDINATES
N = 873103.6301
E = 1056787.9023
BY-5
NCDOT BASELINE MONUMENT (BY-5)
LOCALIZED PROJECT COORDINATES
N = 873082.8196
E = 1056886.0872

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5170_LS_CONTROL.TXT

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

● INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5170-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 871935.5780(ft) EASTING: 1056083.6075(ft) ELEVATION: 2745.77(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999863428
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5170-2" TO -L- STATION 12+90.00 IS N 27°33'44.56" E 1094.73'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

DocuSign Envelope ID: DC466F7D-4E7E-4C87-9B36-D1E39A06A0BF

PROJECT REFERENCE NO.	SHEET NO.
B-5170	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 019740 ENGINEER CHRISTOPHER KENT HAIRE — Christopher K. Haire 1/19/2018

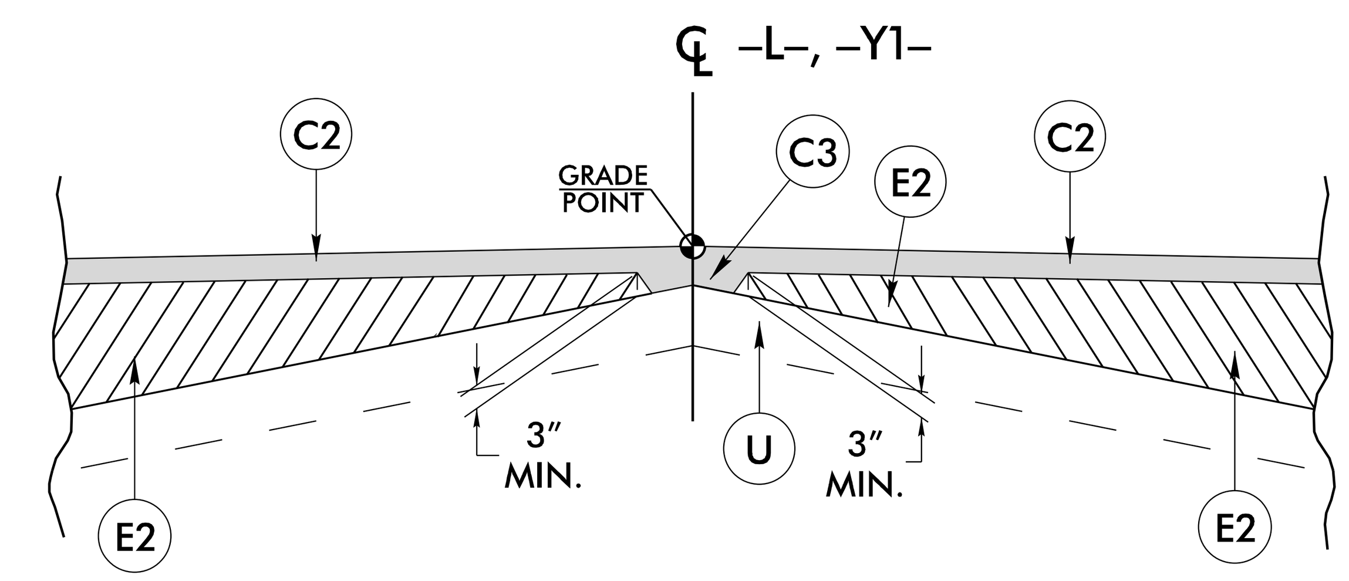
PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON — Clark S. Morrison 1/19/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

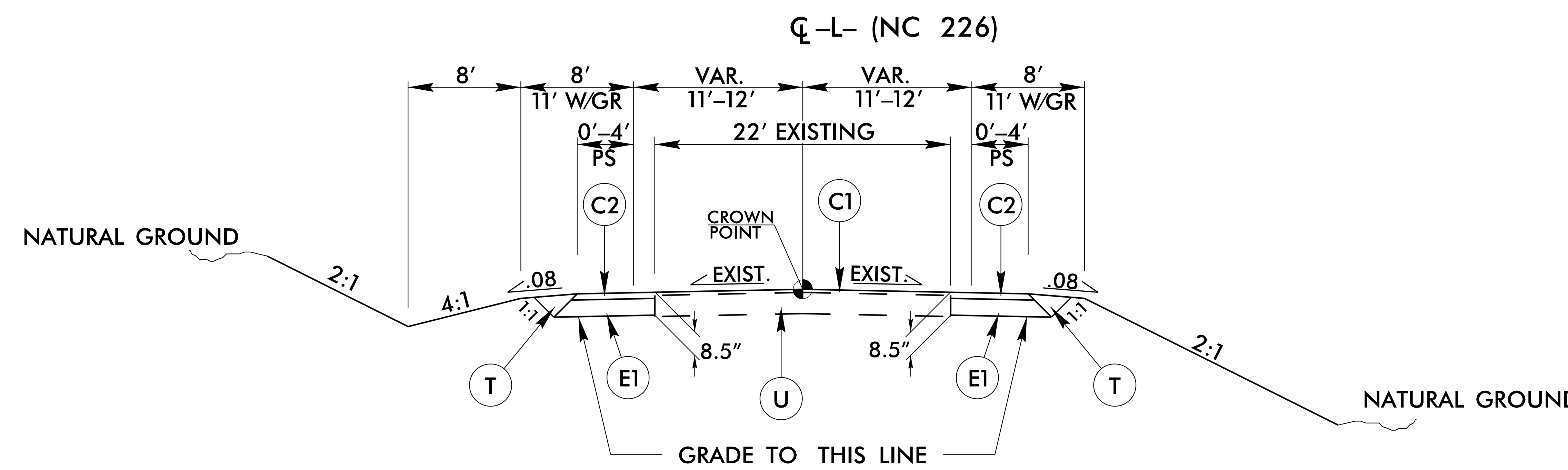
PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1½" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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.
J	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF 0.35 GALLONS PER SQ. YARD
R1	MODIFIED SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT TO BE RETAINED
W1	VAR. DEPTH ASPHALT WEDGING (SEE DETAIL)

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

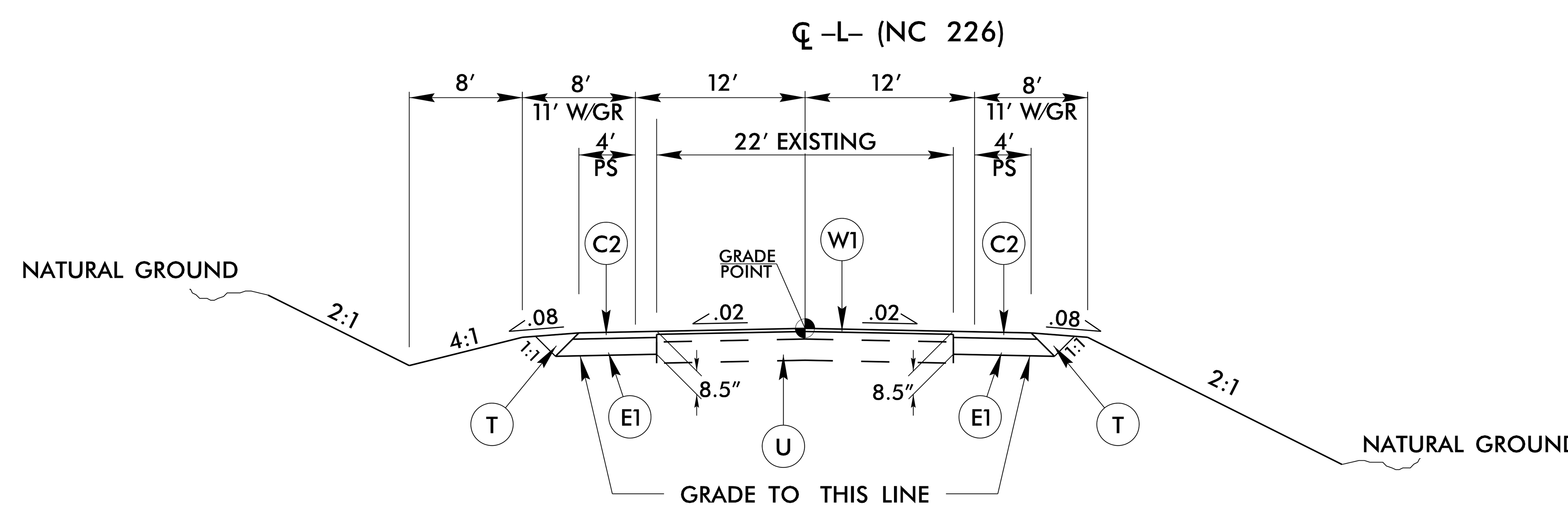


DETAIL SHOWING METHOD OF WEDGING (W1)



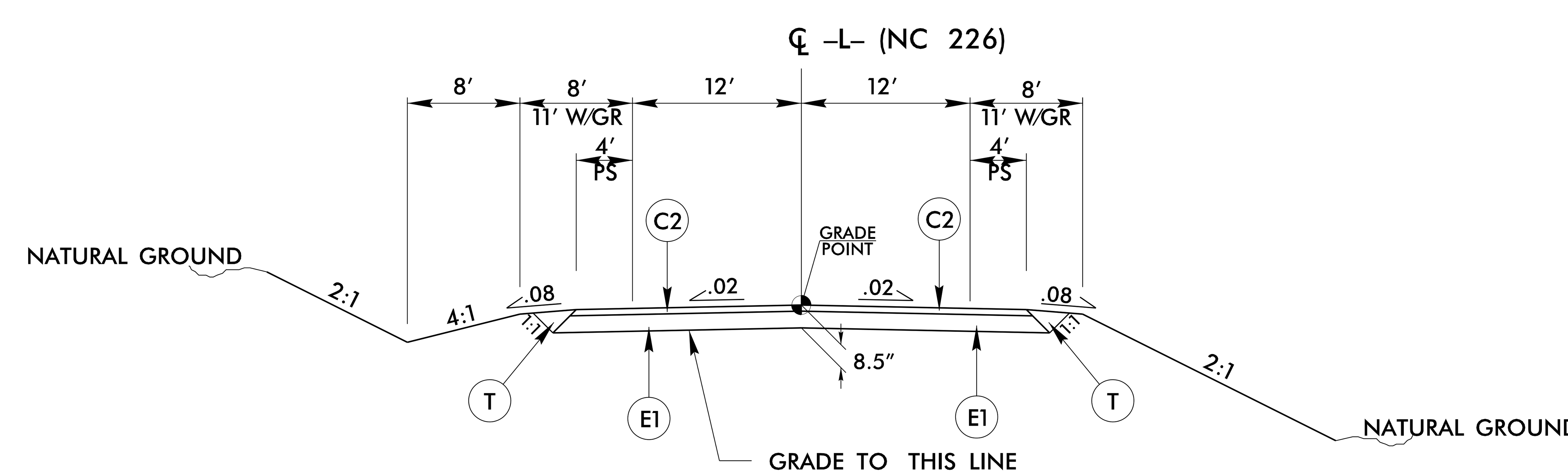
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 12+90.00 TO -L- STA. 13+50.00
-L- STA. 18+40.00 TO -L- STA. 19+00.00



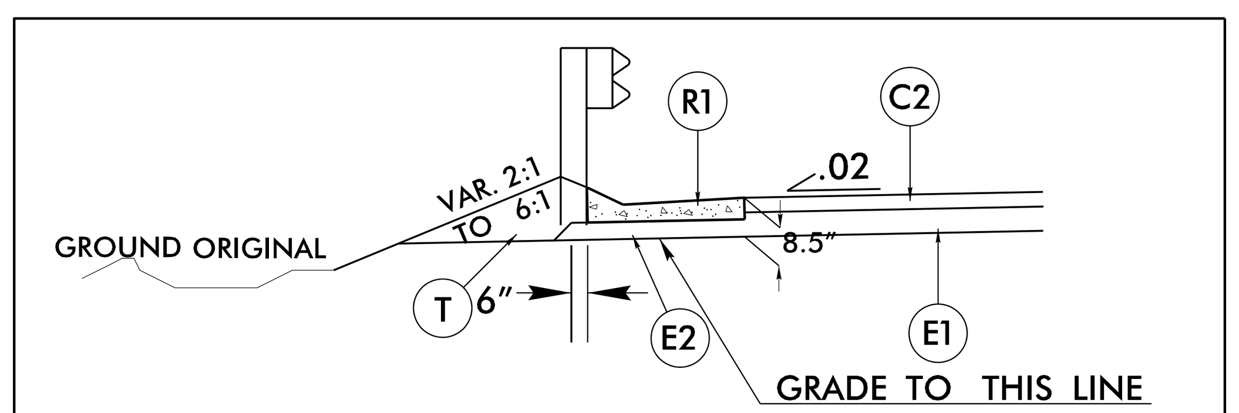
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA. 13+50.00 TO -L- STA. 14+70.00
-L- STA. 16+60.00 TO -L- STA. 18+40.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
-L- STA. 14+70.00 TO -L- STA. 15+20.88 (BEGIN BRIDGE)
-L- STA. 15+88.13 (END BRIDGE) TO -L- STA. 16+60.00



SHOULDER BERM GUTTER DETAIL:
-L- STA. 15+00.00 TO STA. 15+07.00 LT
-L- STA. 16+02.00 TO STA. 17+17.00 LT

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1/11/2018

PROJECT REFERENCE NO.	SHEET NO.
B-5170	2A-2

R/W SHEET NO.

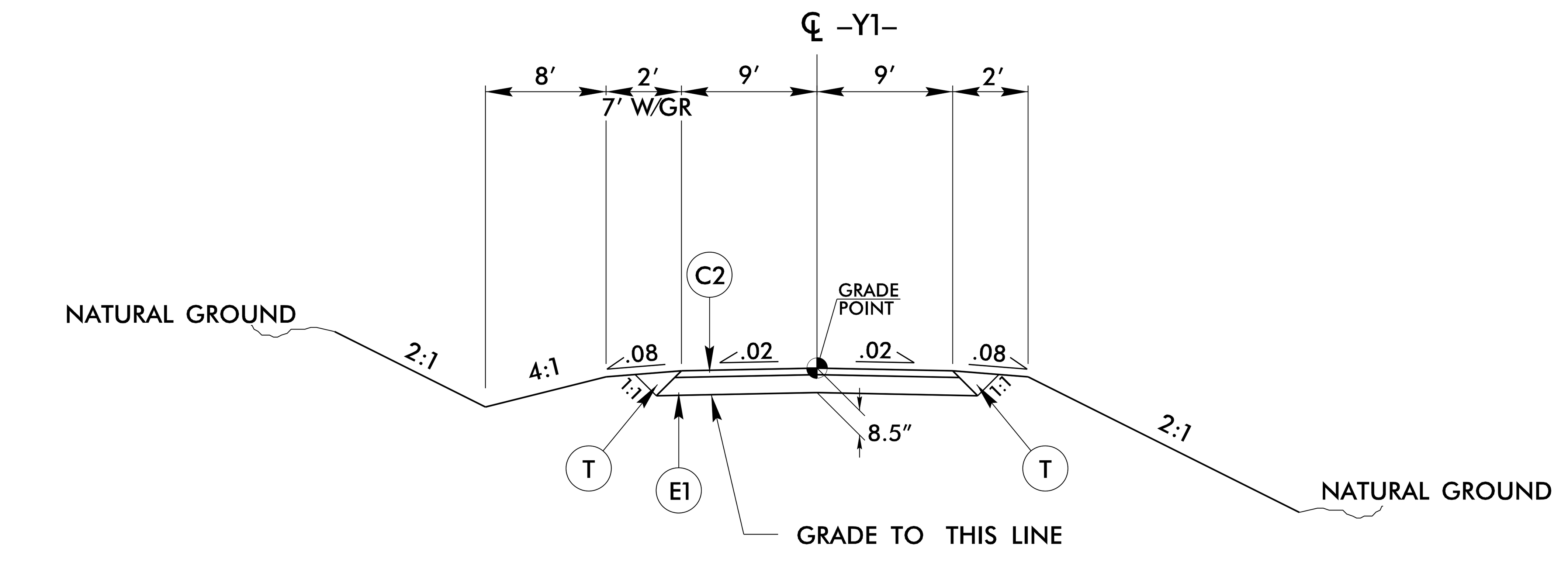
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019740 CHRISTOPHER KENT HAIRE — DocuSigned by: Christopher K. Haire 1/19/2018

PAVEMENT DESIGN ENGINEER — 1/19/2018 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK S. MORRISON — DocuSigned by: Clark S. Morrison

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

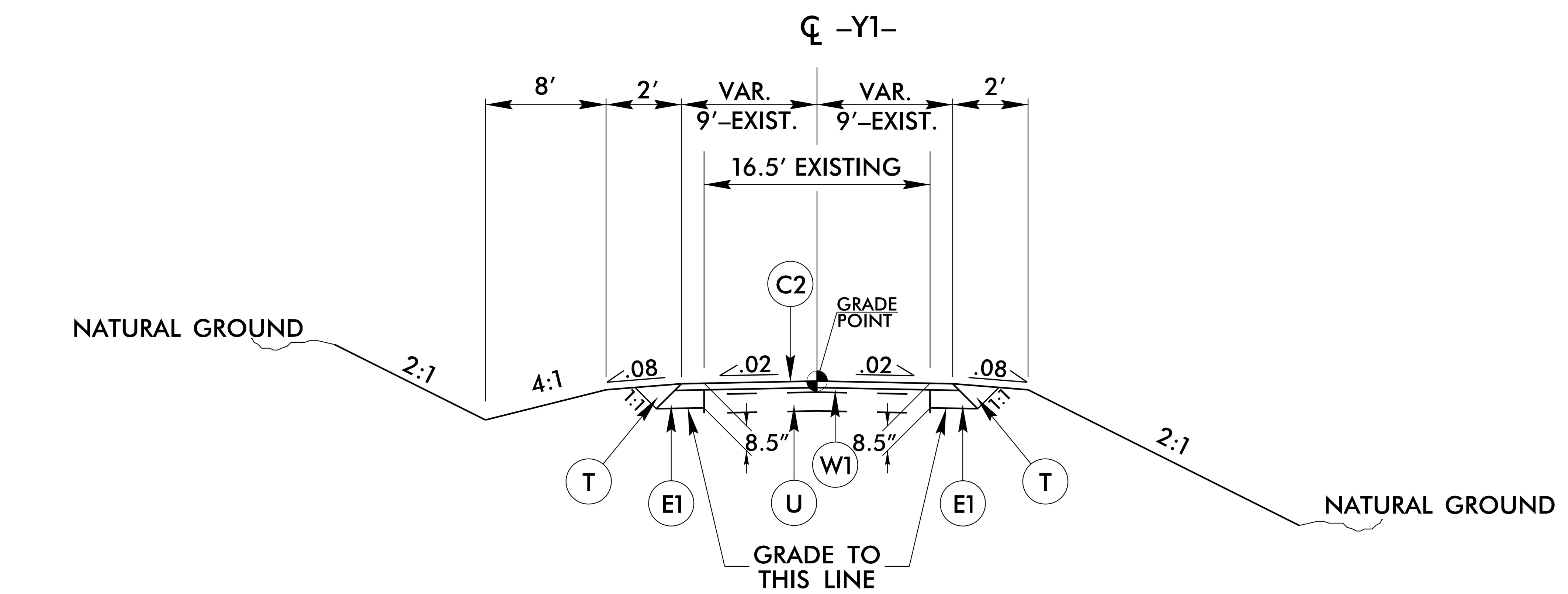
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	2″ S9.5B
C2	3″ S9.5B
E1	5.5″ B25.0B
J	8″ Aggregate Base Course
P	Prime Coat
T	Earth Material
U	Existing Pavement
W1	Wedging Detail

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

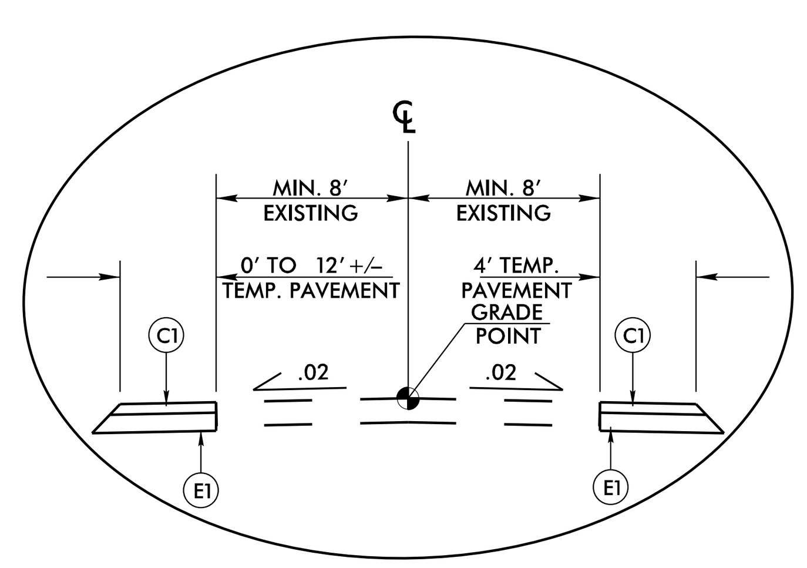


TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
-Y1- STA. 10+12.10 TO -Y1- STA. 11+00.00

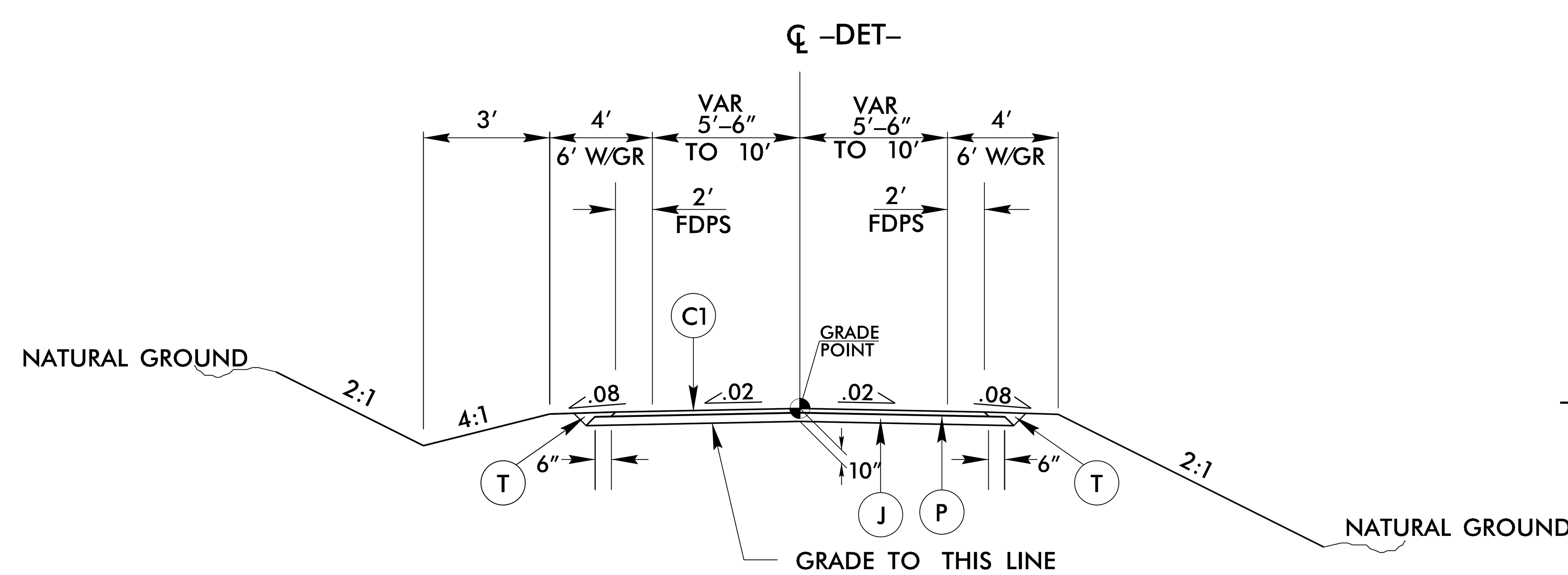


TYPICAL SECTION NO. 5



TEMPORARY PAVEMENT DETAIL
-Y1- 11-33+/- LT TO -L- 15+28+/- (END OF EXISITING BRIDGE)
-Y1- 10+21+/- RT TO 10+32+/- RT
SEE TRAFFIC MANAGEMENT PLANS

USE TYPICAL SECTION NO. 5
-Y1- STA. 11+00.00 TO -Y1- STA. 11+86.00
NOTE:
(1) TRANSITION FROM T.S. NO. 5 TO EXISTING -Y1- STA. 11+86.00 TO -Y1- STA. 12+11.00



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
-DET- STA. 10+52.68 TO -DET- STA. 12+40.00 (BEGIN DETOUR BRIDGE)
-DET- STA. 13+03.00 (END DETOUR BRIDGE) TO -DET- STA. 14+86.33

5/14/99
12/28/2017
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PROJECT REFERENCE NO.	SHEET NO.
B-5170	2C-1

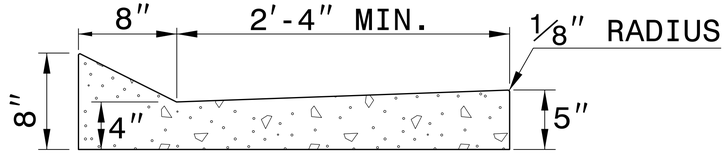
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

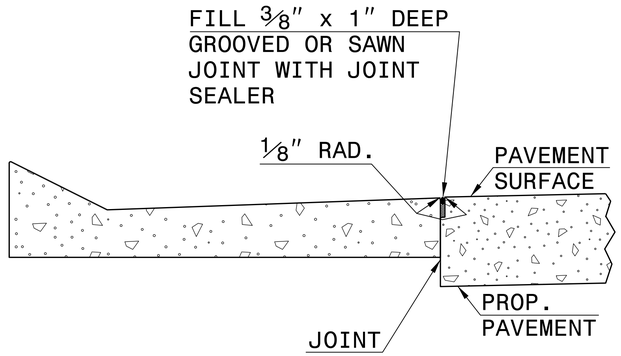
MODIFIED SHOULDER BERM GUTTER

SHEET OF

846D01

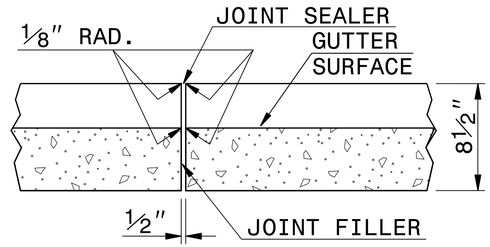


MODIFIED SHOULDER BERM GUTTER



LONGITUDINAL JOINT

GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10′ INTERVALS, EXCEPT THAT A 15′ SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10′ INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½″ DEEP.
- FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90′ INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

SECTION VIEW OF JOINTS

STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

MODIFIED SHOULDER BERM GUTTER

SHEET OF

846D01

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
873F3D17DCDC45F...
1/19/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: kkempf DATE: 11/13/08
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: special details/kkempf/english/117x79 tbdi.dgn

07-SEP-2017 12:13
S:\Contracts\Contracts\Special Details\jhowerton\846d01 Modified SBG.dgn
jhowerton AT CSD-2425965

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5170	2C-2

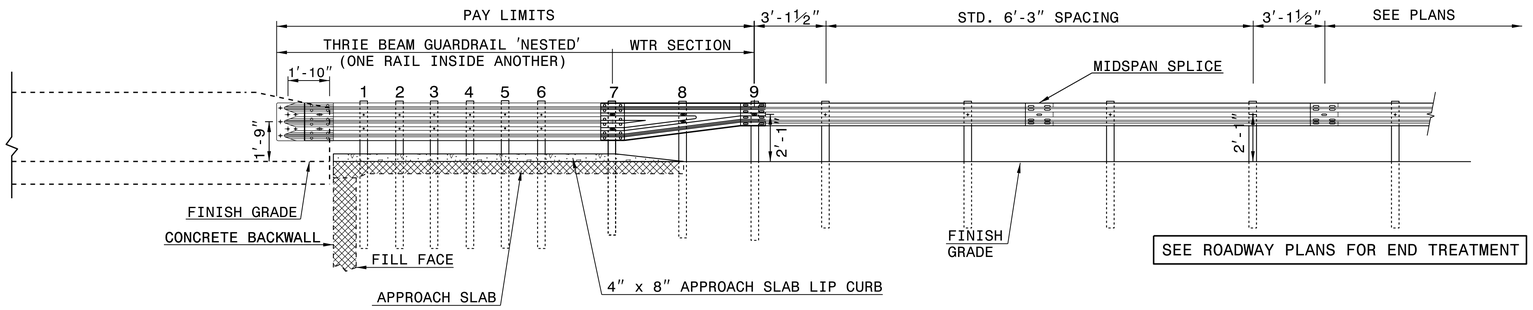
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

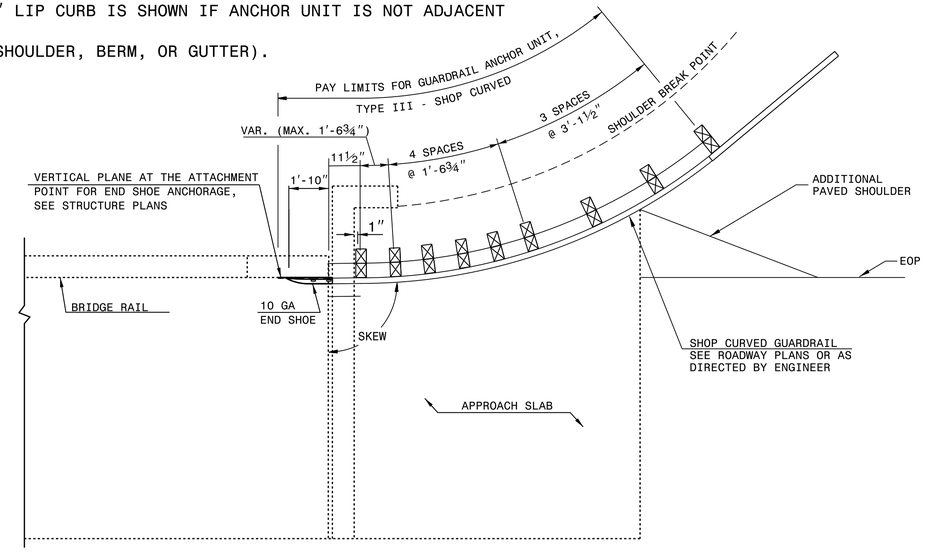
SHEET 1 OF 1

TYPE III SC



ELEVATION

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



PLAN VIEW

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

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

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

TYPE III SC

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
Joel S. Howerton
873F3D172CDC45F...
1/19/2018

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: 5-29-09
CHECKED BY: DATE:
FILE SPEC.: ward:\usr\details\stand\862stds\typeiiisc.dgn

19-JAN-2018 09:27
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jhowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
B-5170	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DocuSigned by: Scott A. Hidden F760CAEB96EC4D3... 12/8/2017 SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

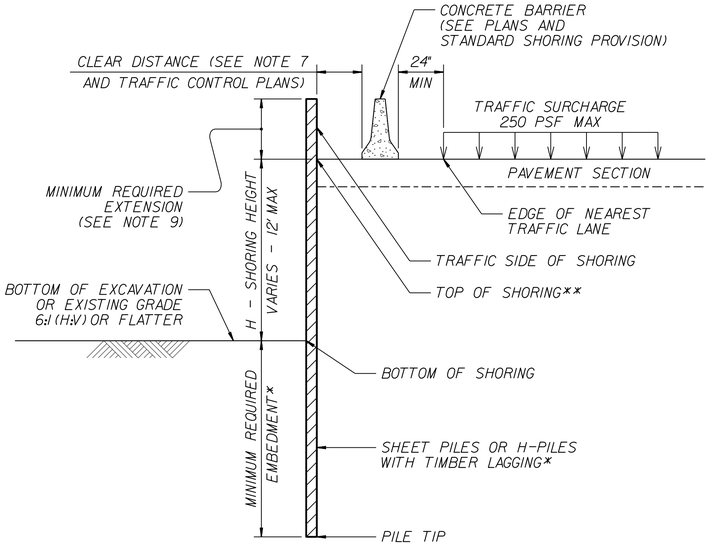
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS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

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

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

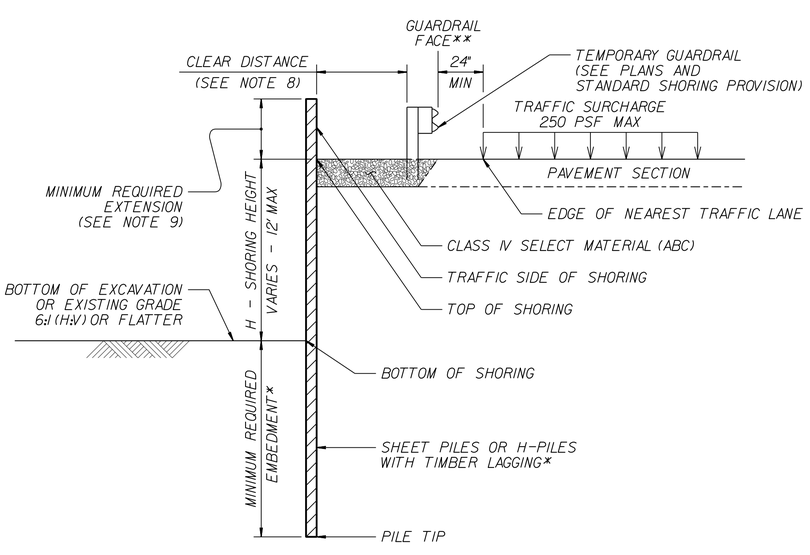
NOTES:

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



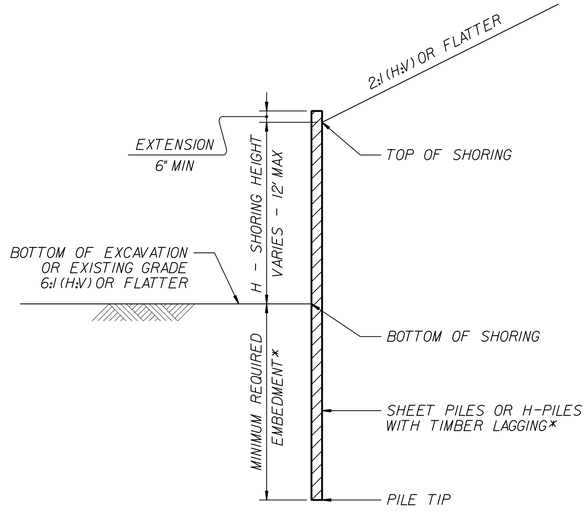
CONCRETE BARRIER

**TOP OF SHORING = EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE = EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)

*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

*SEE TABLE ABOVE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET
B-5170	2H-1

GEOENVIRONMENTAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31499 ENGINEER CYRUS F. PARKER

DocuSigned by: Cyrus Parker 1/5/2018
C06492AF5E824DF...

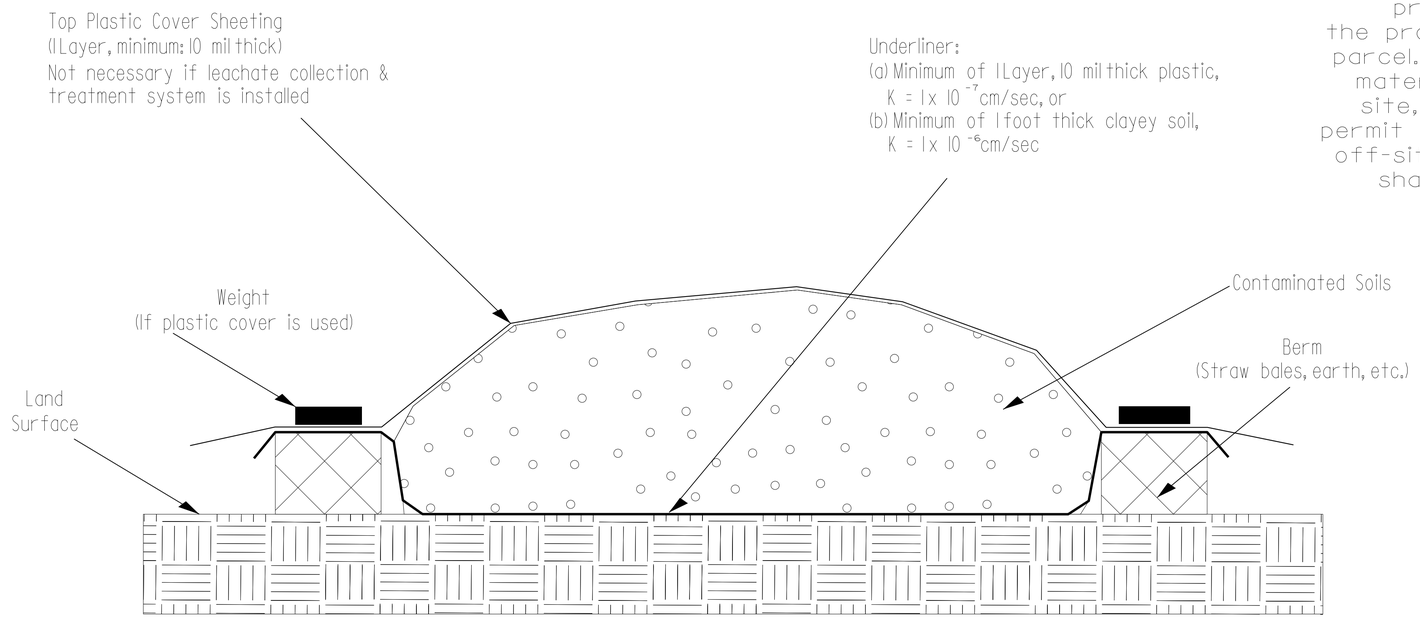
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

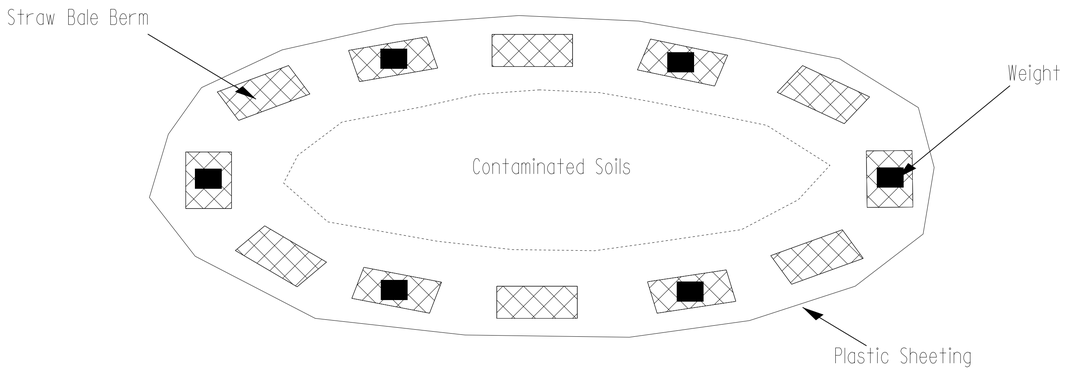
Detail for Temporary Containment of Contaminated Soil

Cross-Section View



NOTE:
The Contractor shall stockpile all contaminated soil excavated from a property in a location within the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDEQ UST Section for off-site temporary storage. Stockpile shall be removed within 45 days.

Map View



PREPARED BY:	DATE:
REVIEWED BY:	DATE:

GEOTECHNICAL ENGINEERING UNIT

☐ *EASTERN REGIONAL OFFICE*
☐ *WESTERN REGIONAL OFFICE*
☒ *CONTRACT OFFICE*

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STOCKPILE CONTAINMENT DETAIL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

12/06/07

COMPUTED BY: NDD	DATE: 12-21-17
CHECKED BY: CKH	DATE: 12-21-17

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-5170	3B-1

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L-					
-L- 13+00.00	-L- 15+00.00	43	150	107	0
-L- 16+00.00	-L- 19+00.00	147	231	84	0
SUBTOTALS:		190	380	190	0
-DETOUR-					
-DET- 13+00.00	-DET- 15+00.00	40	285	245	0
-DET- 15+88.13	-DET- 19+00.00	4	342	338	0
SUBTOTALS:		44	626	582	0
-Y1-					
-Y1- 10+75.00	-Y1- 12+00.00	8	5		3
SUBTOTALS:		8	5		3
TOTALS:		242	1,011	772	3
-DETOUR- REMOVAL					
-DET- 13+25.00	-DET- 14+00.00	156			156
-DET- 15+75.00	-DET- 17+25.00	354	5		349
SUBTOTALS:		510	5		505
LOSS DUE TO CLEARING AND GRUBBING		-10		10	
PROJECT TOTALS:		742	1,015	782	508
EST. 5% TO REPLACE TOP SOIL BORRPOW PIT				39	
GRAND TOTALS:		742	1,015	782	508
SAY:		750		903	

SELECT GRANULAR MATERIAL CLASS III = 100 CY CONTINGENCY
UNDERCUT EXCAVATION = 100 CY CONTINGENCY
EST. SHALLOW UNDERCUT = 50 CY CONTINGENCY
CLASS IV SUBGRADE STABILIZATION = 80 TONS CONTINGENCY
ESTIMATED DRAINAGE DITCH EXCAVATION = 40 CY

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

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

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	AREA
-DET-	10+00.00	11+65.00	CL	284.72
-DET-	11+65.00	12+40.00	CL	125.00
-DET-	13+03.00	13+70.00	CL	111.67
-DET-	13+70.00	15+41.57	CL	298.46
-L-	14+70.00	15+28.00	CL	129.18
-L-	15+88.13	16+60.00	CL	159.71
-Y1-	10+24.37	11+41.47	RT	146.29
TEMPORARY				
	-Y1- 10+00.00	-L- 15+28.13	LT	66.67
	-Y1- 10+21.00	-Y1- 10+32.00	RT	40.00
			TOTAL:	1,361.69
			SAY:	1,370

MODIFIED SHOULDER BERM GUTTER SUMMARY

IN LINEAR FEET

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH
-L-	15+00.00	15+07.00	LT	7.0
-L-	16+02.00	17+17.00	LT	115
			TOTAL:	122.0
			SAY:	135

"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	TEMP STRAIGHT	TEMP SHOP CURVED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	GREU TL-2	TYPE III	TYPE III SHOP CURVED	AT-1	EA	G	NG				
-L-	15+00.00	15+20.88	LT	25.00	37.50				15+29.80	8.0	11.0								1	1							
-L-	14+90.00	15+20.88	RT	25.00	50.00			15+29.80		8.0	11.0								1	1							
-L-	15+88.13	17+62.00	LT	175.00				15+88.13		8.0	11.0	25		0.5			1	1									
-L-	15+88.13	17+25.00	RT	137.50					15+88.13	8.0	11.0		25		0.5		1	1									
SUBTOTAL				362.50	87.50																						
	ANCHOR DEDUCTIONS																										
	TYPE III		2 @ 18.75	-37.50																							
	TYPE III SHOP CURVED		2 @ 18.75		-37.50																						
	AT-1		2 @ 6.25	-12.50																							
	GREU TL-2		2 @ 25.00	-50.00																							
SUBTOTAL				-100.00	-37.50																						
TOTAL				262.50	50.00												2	2	2	2							
SAY				262.50	50.00												2	2	2	2							
ADDITIONAL GUARDRAIL POSTS -L-			5																								

TEMP. GUARDRAIL

SURVEY LINE	BEG. STA.	END STA.	LOCATION	STRAIGHT	SHOP CURVED	TEMP STRAIGHT	TEMP SHOP CURVED	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	GREU TL-3	GREU TL-2	TYPE III	TYPE III SHOP CURVED	AT-1	EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-DET	11+65.00	12+40.82	LT			75.00				2.0	5.0		25		0.5		1	1									
-DET-	12+10.00	12+38.18	RT			25.00	25.00			2.0	5.0							1		1							
-DET-	12+90.82	13+70.00	LT			87.50				2.0	5.0	25		0.5			1	1									
-DET-	12+88.18	13+66.00	RT			87.50				2.0	5.0		25		0.5		1	1									
SUBTOTAL						275.00											3	4		1							
	TEMP. ANCHOR DEDUCTIONS																										
	TEMP. TYPE III		4 @ 18.75			-75.00																					
	TEMP. AT-1		1 @ 6.25			-6.25																					
	TEMP. GREU TL-2		3 @ 25.00			-75.00																					
SUBTOTAL						-156.25																					
TOTAL						118.75	25.00										3	4		1							
SAY (TEMP. DETOUR)						125.00	25.00										3	4		1							

R:\B5170\Roadway\PDF_Distribution\Current_Plans\b5170_rdy_sum.dgn
1/3/2018

COMPUTED BY: MQCN DATE: 8/16/16

CHECKED BY: ATN DATE: 10/17/16

PROJECT NO. B-5170 SHEET NO. 3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24		DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 12 .064	15 .064	18 .064	24 .064		R. C. PIPE CLASS III 12	15	18	24	30	36	42	48		R. C. PIPE CLASS IV 12	15	18	24	30	36		15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 18+25	32 RT	0401		2771.0																																																																													OEP
		0401	0402		2769.5	2768.3																												48																																																
L 18+18	13 LT	0402		2771.3																																							1																				1					1										
		0402	0403		2768.3	2764.8																												116																																																
L 17+00	18 LT	0403		2767.6																																							1																				1					1										
		0403	0404		2764.8	2764.4				24				X	X																																																																		
L 16+15	17 LT	0405		2766.4																																							1																				1					1										
		0405	0406		2762.4	2761.0			20					X	X																																																																		
L 15+04	17 LT	0407		2764.9																																							1																				1					1										
		0407	0408		2762.1	2761.5			16					X	X																																																																		
L 16+57	32 RT	0409		2760.7																																						4.500																																												OEP W/HW
		0409	0410		2760.7	2758.1	0.3																					76																																																									
L 14+00	32 RT	0411		2761.0																																																																																OEP
		0411	0412		2761.0	2760.0																				64																																																												
L 13+99	3 RT																																																																																	43	
L 16+52	1 RT																																																																																	55	
L 18+14	35 LT																																																																																0.045	60	
DET 11+12	14 LT	0415		2767.0																																							1	2.0																								1											
		0414	0415		2761.0	2760.0				44																																																																			44	
		0417	0418		2763.5	2761.4					36																																																																			36	
DET 13+83	14 LT	0418		2768.0																																							1	1.6																								1											
SHEET TOTALS									36	68	36														64				76					164									4.500			6	3.6																				4				2	4								0.045	238	
PROJECT TOTALS									36	68	36														64				76					164									4.500			6	3.6																				4				2	4								0.045	238	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

CHA-NDRAYT-LTW7

COMPUTED BY: NDD DATE: 12/07/17
CHECKED BY: CKH DATE: 11/07/17

(2-16-16)

PROJECT NO.	SHEET NO.
B-5170	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		50		100		80
			TOTAL CY/TONS/SY:		50	0	100**	0	80

*ASU = Aggregate Subgrade
*AST = Aggregate Stabilization
**Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

SUMMARY OF SUBSURFACE DRAINAGE

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

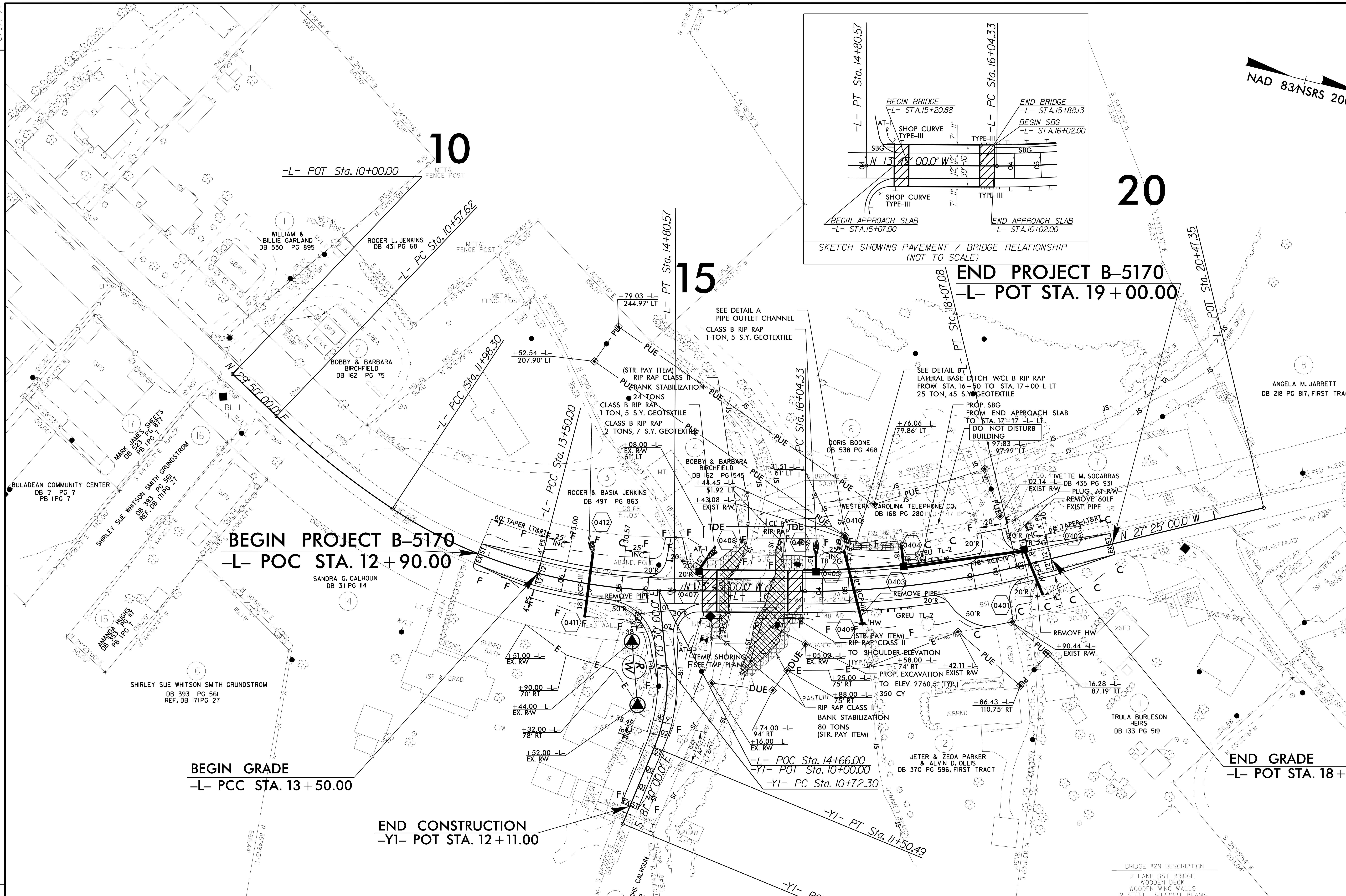
*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

PROJECT REFERENCE NO.	SHEET NO.
B-5170	4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 019740 ENGINEER CHRISTOPHER KENT HAIRE — Christopher K. Haire 1/16/2018

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 18533 ENGINEER A.T. NOTTINGHAM — Andrew T. Nottingham 1/17/2018

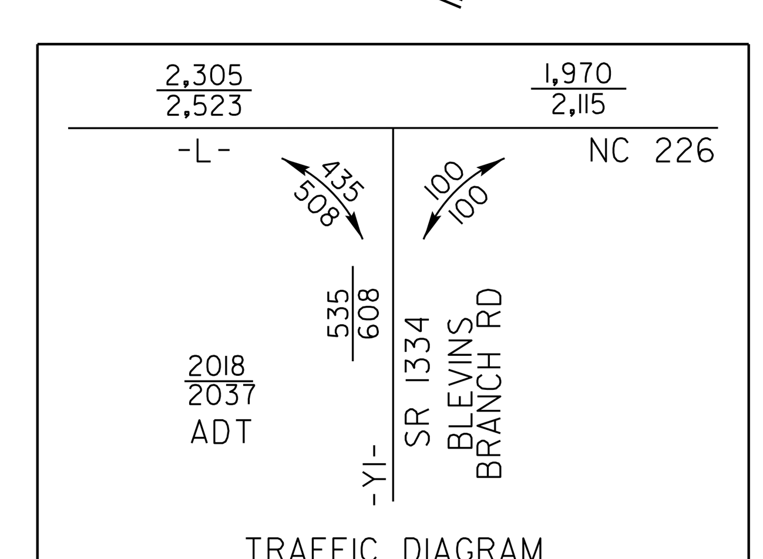
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

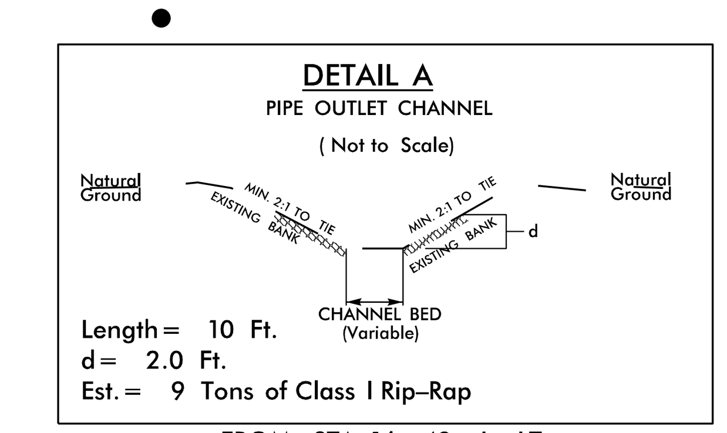


-L-			
PI Sta 11+28.15	PI Sta 12+74.85	PI Sta 14+15.62	PI Sta 17+06.18
Δ = 10° 20' 00.0" (LT)	Δ = 19° 00' 00.0" (LT)	Δ = 14° 15' 00.0" (LT)	Δ = 13° 40' 00.0" (LT)
D = 7° 20' 44.2"	D = 12° 31' 28.1"	D = 10° 54' 48.5"	D = 6° 44' 26.4"
L = 140.67'	L = 151.70'	L = 130.57'	L = 202.75'
T = 70.53'	T = 76.55'	T = 65.62'	T = 101.86'
R = 780.00'	R = 457.47'	R = 525.00'	R = 850.00'
	SE = EXIST.	SE = SEE PLANS	SE = SEE PLANS

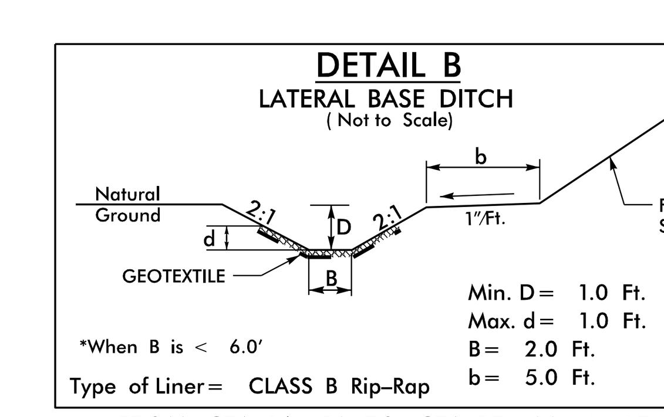
-Y1-

PI Sta 11+12.19
Δ = 28° 00' 00.0" (RT)
D = 35° 48' 35.5"
L = 78.19'
T = 39.89'
R = 160.00'
SE = SEE PLANS





FROM STA. 16+42 -L- LT



FROM STA. 16+50 TO STA. 17+00 -L- LT

NOTES:
(1) SEE SHEET 5 FOR -DET- DESIGN
(2) SEE SHEET 6 FOR PROFILES
(3) SEE SHEETS S-1 TO S-16 FOR STRUCTURE PLANS

APPROACH SLAB

REVISIONS

8/17/99

1/16/2018 R:\B5170\Roadway\Proj\b5170_rdy_psh_4.dgn

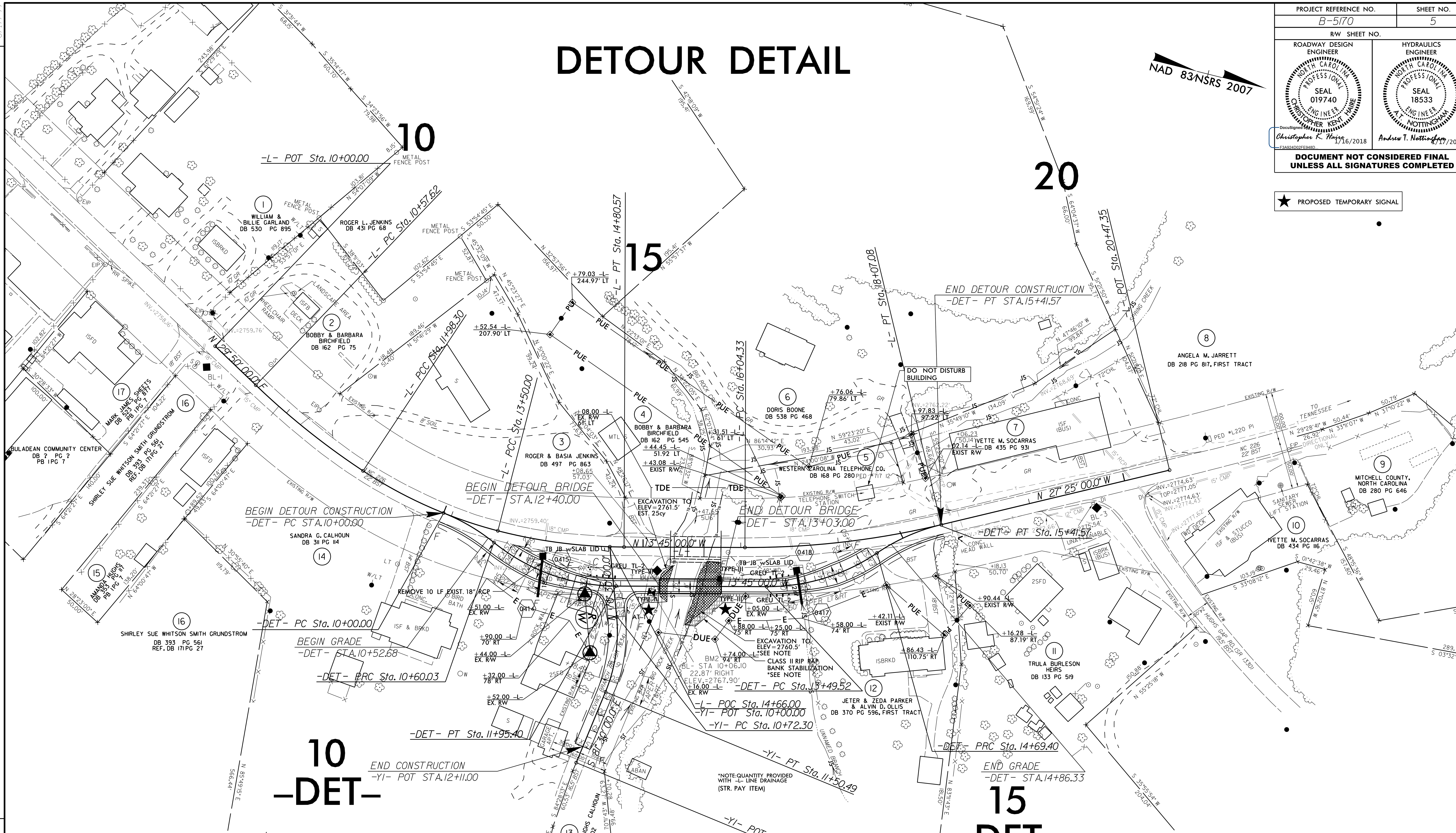
PROJECT REFERENCE NO.	SHEET NO.
B-5170	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 019740 ENGINEER CHRISTOPHER KENT HAIRE	NORTH CAROLINA PROFESSIONAL SEAL 18533 ENGINEER A.T. NOTTINGHAM
DocuSigned by: Christopher K. Haire 1/16/2018 F3A924D02FE948D...	Andrew T. Nottingham 1/17/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETOUR DETAIL

★ PROPOSED TEMPORARY SIGNAL



-L-			
PI Sta 11+28.15	PI Sta 12+74.85	PI Sta 14+15.62	PI Sta 17+06.18
Δ = 10° 20' 00.0" (LT)	Δ = 19° 00' 00.0" (LT)	Δ = 14° 15' 00.0" (LT)	Δ = 13° 40' 00.0" (LT)
D = 7° 20' 44.2"	D = 12° 31' 28.1"	D = 10° 54' 48.5"	D = 6° 44' 26.4"
L = 140.67'	L = 151.70'	L = 130.57'	L = 202.75'
T = 70.53'	T = 76.55'	T = 65.62'	T = 101.86'
R = 780.00'	R = 457.47'	R = 525.00'	R = 850.00'
	SE = EXIST.	SE = SEE PLANS	SE = SEE PLANS

-YI-	-DET-			
PI Sta 11+12.19	PI Sta 10+30.24	PI Sta 11+30.42	PI Sta 14+11.32	PI Sta 15+05.88
Δ = 28° 00' 00.0" (RT)	Δ = 17° 11' 48.0" (RT)	Δ = 38° 46' 48.0" (LT)	Δ = 34° 20' 33.9" (LT)	Δ = 20° 40' 33.9" (RT)
D = 35° 48' 35.5"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 78.19'	L = 60.03'	L = 135.37'	L = 119.88'	L = 72.17'
T = 39.89'	T = 30.24'	T = 70.39'	T = 61.80'	T = 36.48'
R = 160.00'	R = 200.00'	R = 200.00'	R = 200.00'	R = 200.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS
	V = 25 MPH	V = 25 MPH	V = 25 MPH	V = 25 MPH

NOTES:
(1) SEE SHEET 4 FOR -L- DESIGN
(2) SEE SHEET 6 FOR PROFILES
(2) SEE SHEETS S-1 TO S-16 FOR STRUCTURE PLANS

REVISIONS

1/16/2018 R:\b5170\Roadway\Proj\b5170_rdy_psh_det.dgn