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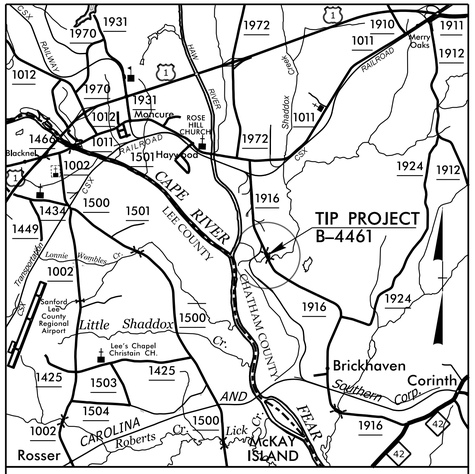
This file or an individual page shall not be considered a certified document.

09/08/99

TIP PROJECT: B-4461

CONTRACT: C203748

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 For Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CHATHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4461	1	

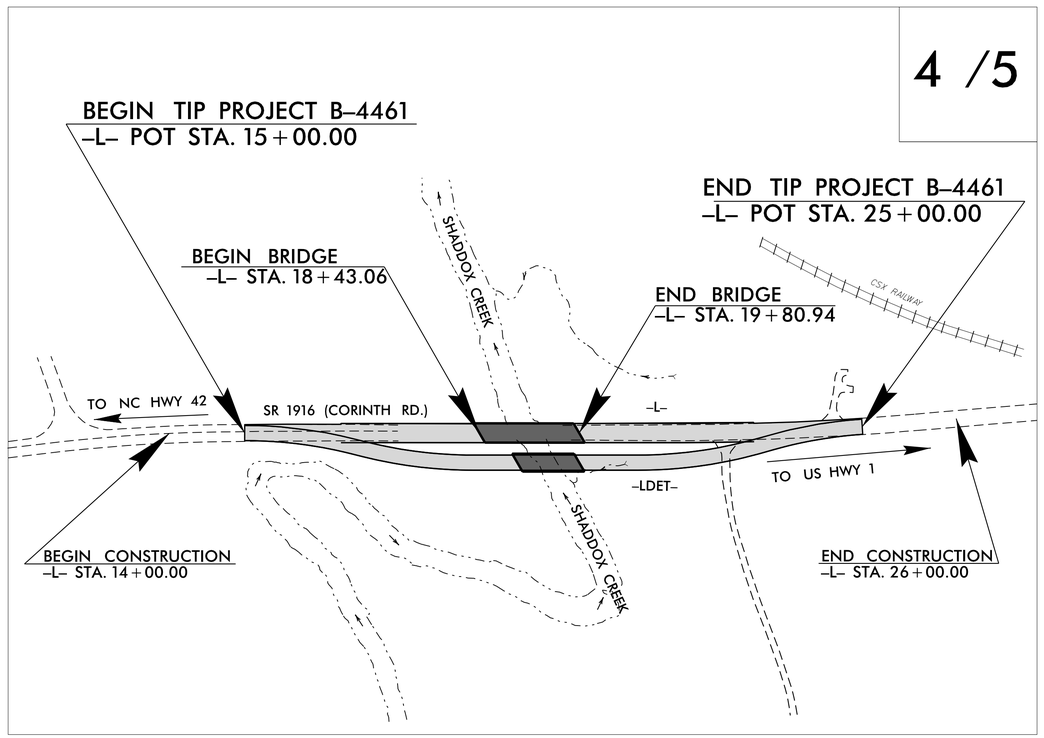
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33712.1.1	BRSTP-1916(6)	PE
33712.2.FD1	BRSTP-1916(6)	R/W, UTL
33712.3.2		CONST

LOCATION: BRIDGE NO. 10 OVER SHADDOX CREEK ON SR 1916 (CORINTH RD.)

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

NAD83/CORS96

4 /5



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 2016 = 3,100
ADT 2030 = 4,000
K = 12 %
D = 65 %
T = 20 % *
V = 55 MPH
V_{DET} = 45 MPH
* TTST = 13% DUAL = 7%
FUNC CLASS = COLLECTOR
Sub-Regional Tier

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4461 = 0.163 MI
LENGTH STRUCTURE TIP PROJECT B-4461 = 0.026 MI
TOTAL LENGTH OF TIP PROJECT B-4461 = 0.189 MI

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 16, 2014

LETTING DATE: JUNE 21, 2016

JAMES A. SPEER, PE
PROJECT ENGINEER

NYA K. BOAYUE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
4/13/2016
DocuSigned by: Steven M. Bondon, P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN W. BONDON P.E.

ROADWAY DESIGN ENGINEER
4/13/2016
DocuSigned by: NYA K. BOAYUE
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 020111 ENGINEER NYA K. BOAYUE P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4461	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 020111 ENGINEER NYA K. BOAYUE

3/2016

INDEX OF SHEETS

SHEET NUMBER	SHEETS
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, AND WEDGING DETAIL
2C-1	DETAIL OF MODIFIED SHOULDER BERM GUTTER
2C-2	DETAIL OF STRUCTURE ANCHOR UNITS
3B-1	SUMMARY OF PIPES 48" AND UNDER,GUARDRAIL SUMMARY, AND TEMPORARY GUARDRAIL SUMMARY
3B-2	SUMMARY OF EARTHWORK AND PAVEMENT REMOVAL SUMMARY
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN SHEET
5	DETOUR PLAN SHEET
6	PROFILE SHEET
TMP-1 THRU TMP-6	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLAN
EC-1 THRU EC-6	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
SIGN-1 THRU SIGN-2	SIGNING PLANS
UC-1 THRU UC-6	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-8	CROSS-SECTIONS
S-1 THRU S-23	STRUCTURE PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED 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 III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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 (POWER), PSNC (GAS), AT&T OF NC (TELEPHONE), WINDSTREAM (TELEPHONE), CENTURYLINK (TELEPHONE), AND CHATHAM COUNTY (WATER).

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

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

2012 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, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
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	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTAL	
806.01	Concrete Right of Way Marker
806.02	Granite Right of Way Marker
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

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$$$$USERNAME$$$$

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-4461	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.

SURVEY CONTROL SHEET B-4461

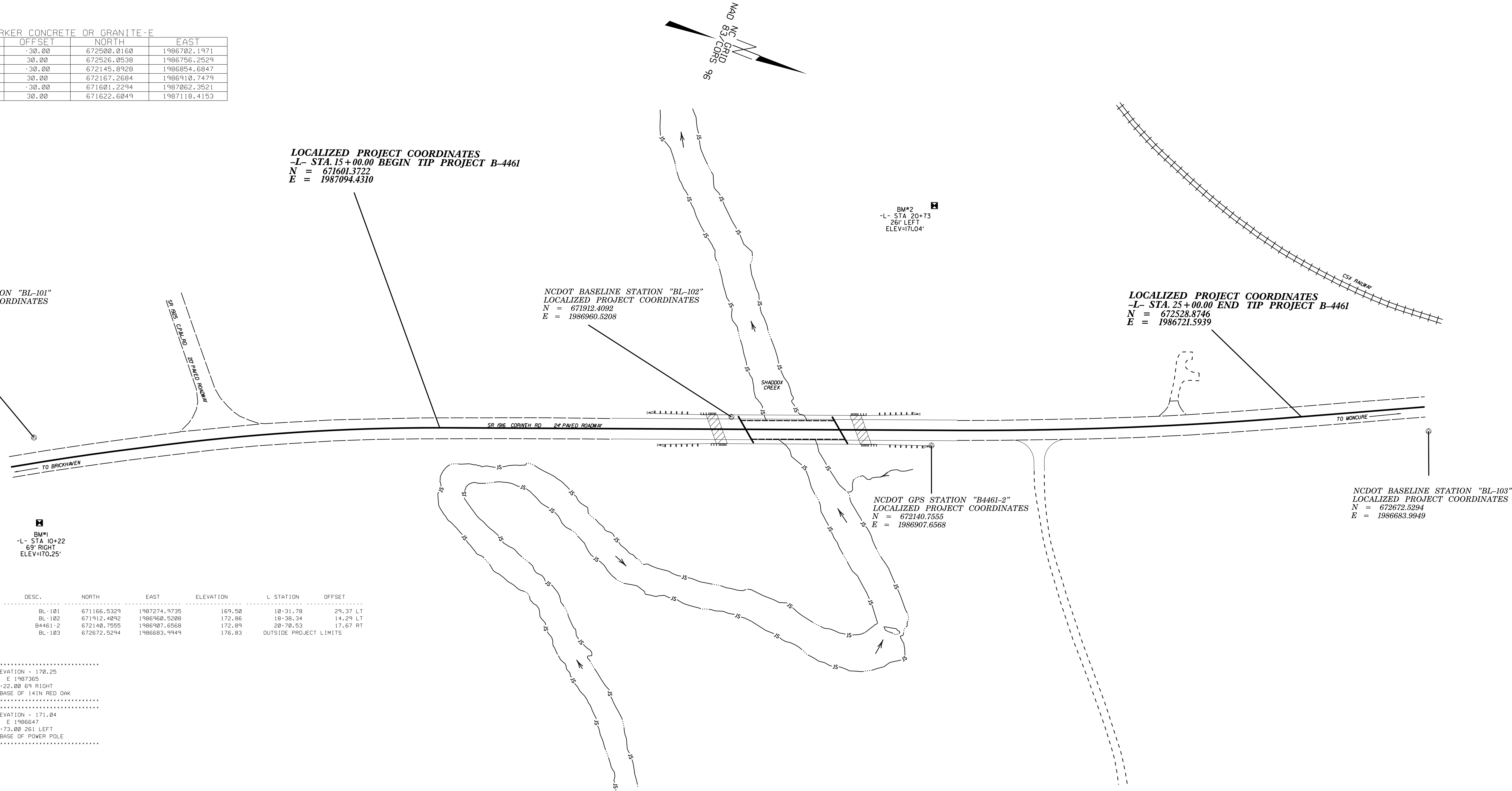
FINAL

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	671154.0374	1987316.4360
PC	10+27.92	671178.0891	1987302.2550
PT	11+32.71	671269.3093	1987250.6954
PC	11+75.41	671306.8567	1987230.3697
PT	15+11.30	671611.9172	1987090.3837
PC	20+94.20	672156.5806	1986882.7163
PT	24+82.42	672513.0330	1986729.2258
POT	26+43.31	672657.9857	1986659.3922

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	24+82.42	-30.00	672500.0160	1986702.1971
L	24+82.42	30.00	672526.0538	1986756.2529
L	20+94.20	-30.00	672145.8928	1986854.6847
L	20+94.20	30.00	672167.2684	1986910.7479
L	15+11.30	-30.00	671601.2294	1987062.3521
L	15+11.30	30.00	671622.6049	1987118.4153



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101	BL-101	671166.5329	1987274.9735	169.50	10+31.78	29.37 LT
102	BL-102	671912.4092	1986960.5208	172.86	18+38.34	14.29 LT
2	B4461-2	672140.7555	1986907.6568	172.89	20+70.53	17.67 RT
103	BL-103	672672.5294	1986683.9949	176.83	OUTSIDE PROJECT LIMITS	

BM1 ELEVATION = 170.25
N 671208 E 1987365
L STATION 10+22.00 69 RIGHT
RR-SPIKE IN BASE OF 14IN RED OAK

BM2 ELEVATION = 171.04
N 672043 E 1986647
L STATION 20+73.00 261 LEFT
RR-SPIKE IN BASE OF POWER POLE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4461-2"
WITH NAD 83/CORS 96 STATE PLANE GRID COORDINATES OF NORTHING: 672140.7555(ft) EASTING: 1986907.6568(ft)
ELEVATION: 172.893(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999879260
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4461-2" TO -L- STATION 15+00.00 IS
S 19° 05' 58.6" E 570.806'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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/

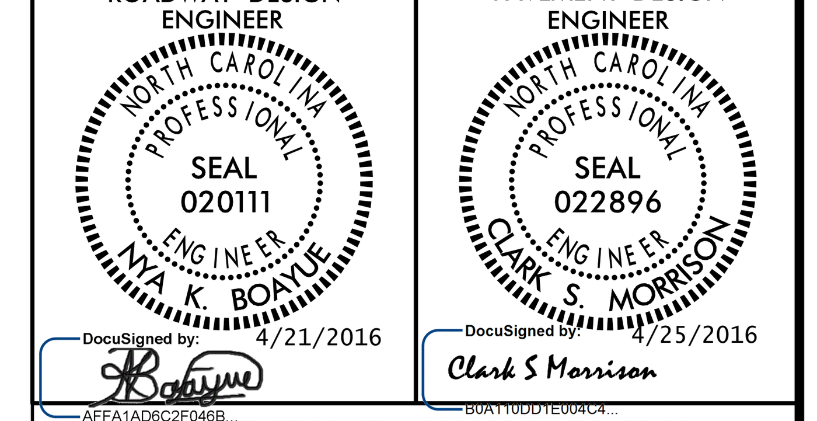
   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B4461_LS_CONTROL.TXT

   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)

PROJECT REFERENCE NO.	SHEET NO.
B-4461	2A-1

ROADWAY DESIGN ENGINEER — PAVEMENT DESIGN ENGINEER

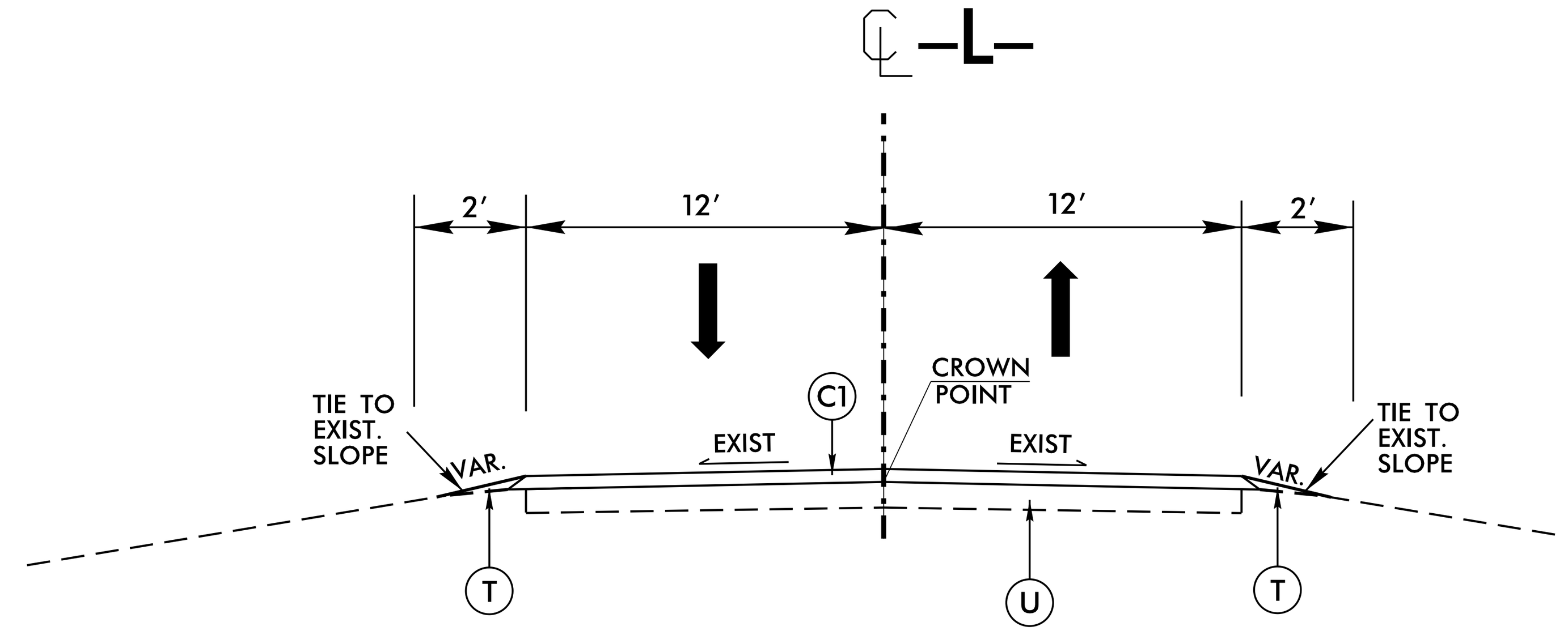


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

C1	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.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN 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. 10" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R	MODIFIED SHOULDER BERM GUTTER. (SEE DETAIL 2C-1)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

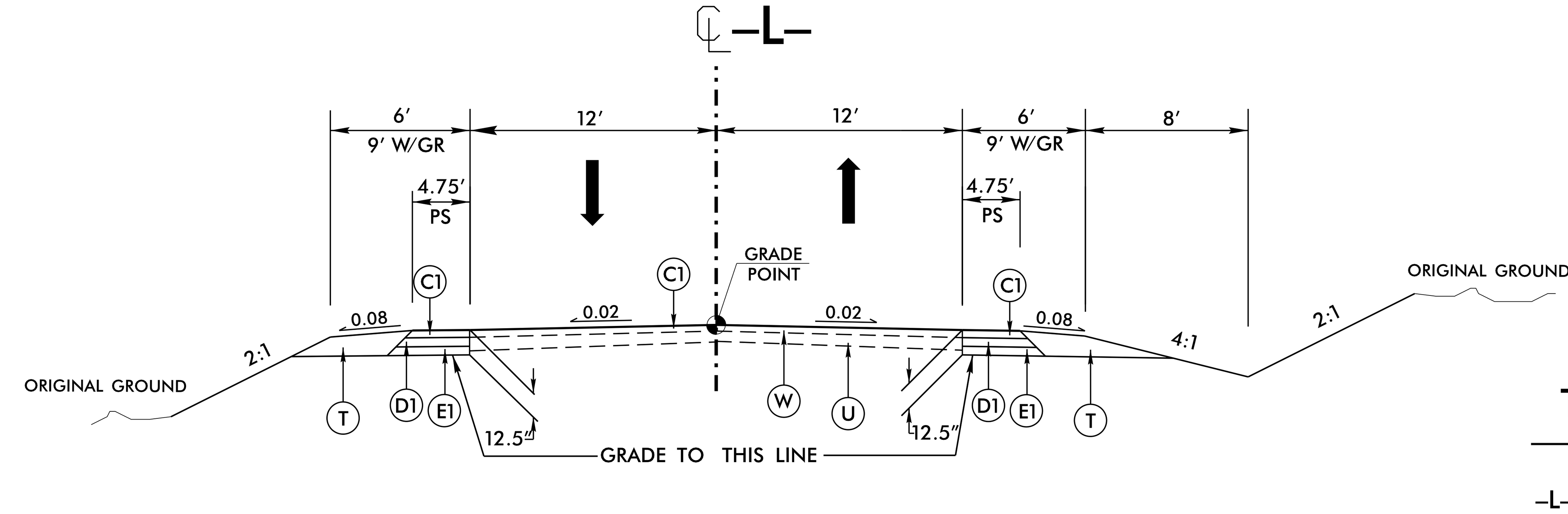
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



TYPICAL SECTION NO. 1

TYPICAL SECTION NO. 1

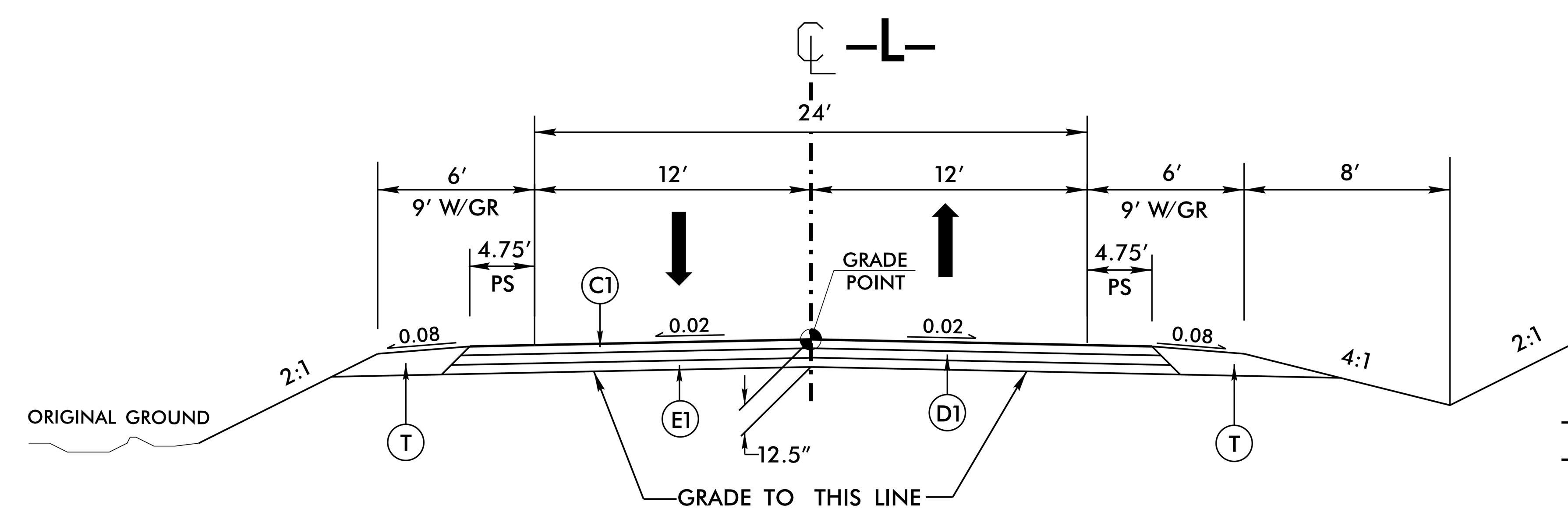
-L- STA. 14+00.00 TO -L- STA. 17+00.00
-L- STA. 21+00.00 TO -L- STA. 26+00.00



TYPICAL SECTION NO. 2

TYPICAL SECTION NO. 2

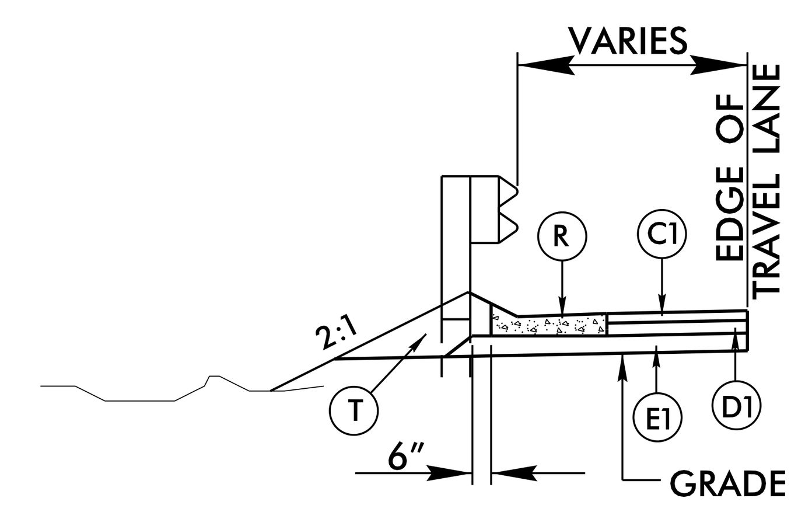
-L- STA. 17+00.00 TO -L- STA. 17+50.00
-L- STA. 20+50.00 TO -L- STA. 21+00.00



TYPICAL SECTION NO. 3

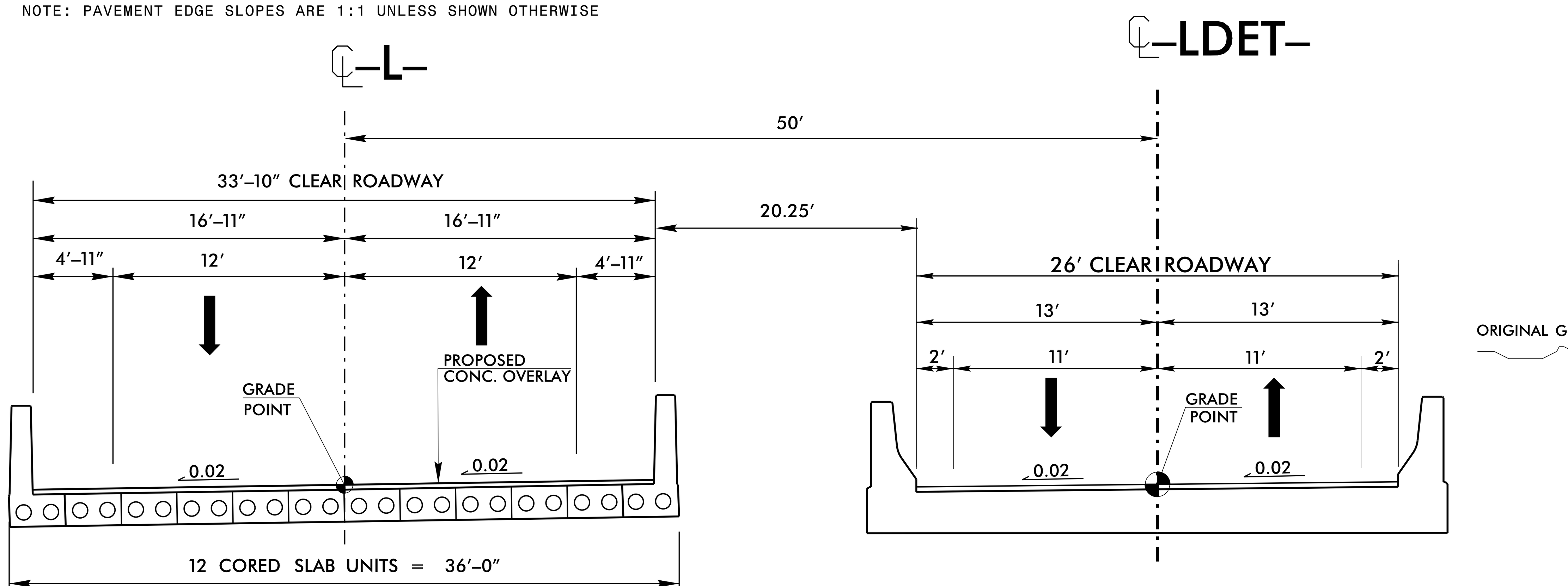
TYPICAL SECTION NO. 3

-L- STA. 17+50.00 TO -L- STA. 18+43.06 (BEGIN BRIDGE)
-L- STA. 19+80.94 (END BRIDGE) TO -L- STA. 20+50.00



TYPICAL SECTION NO. 3A

IN CONJUNCTION WITH T.S. NO. 3
-L- STA. 18+04.00 TO 18+23.80 LT.
-L- STA. 19+83.50 TO 19+98.00 LT.

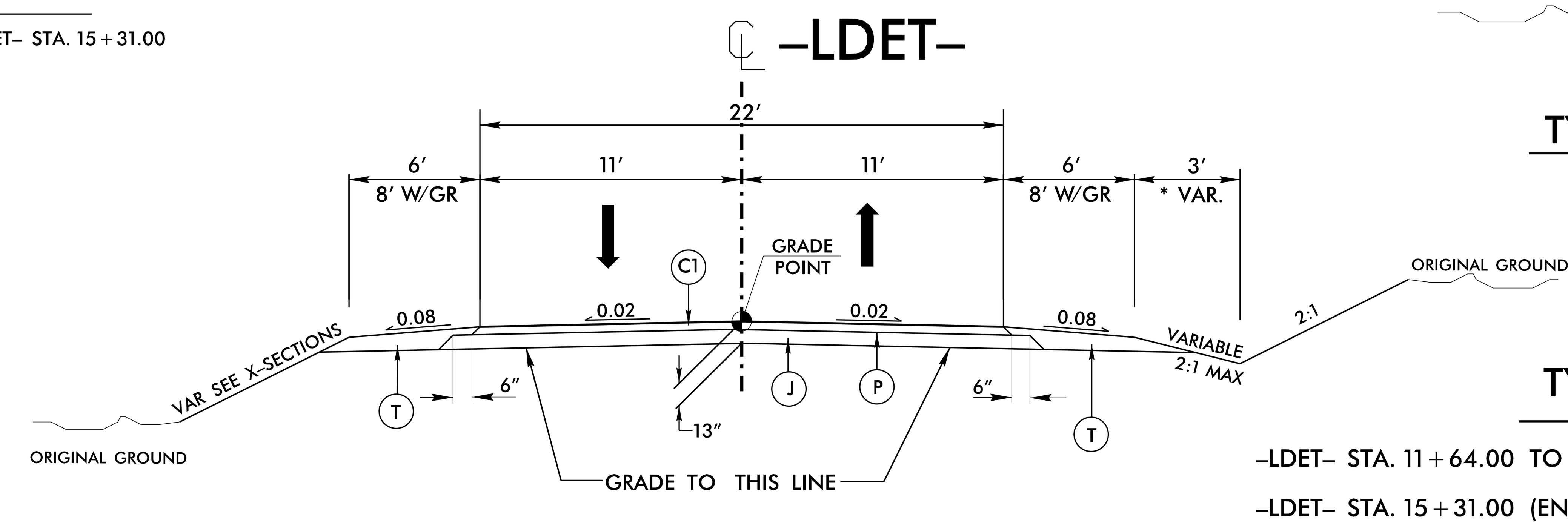


TYPICAL SECTION ON STRUCTURE

BEGIN BRIDGE -L- STA. 18+43.06 TO END BRIDGE -L- STA. 19+80.94

TYPICAL SECTION ON TEMP STRUCTURE

BEGIN TEMP BRIDGE -LDET- STA. 14+51.00 TO END TEMP BRIDGE -LDET- STA. 15+31.00

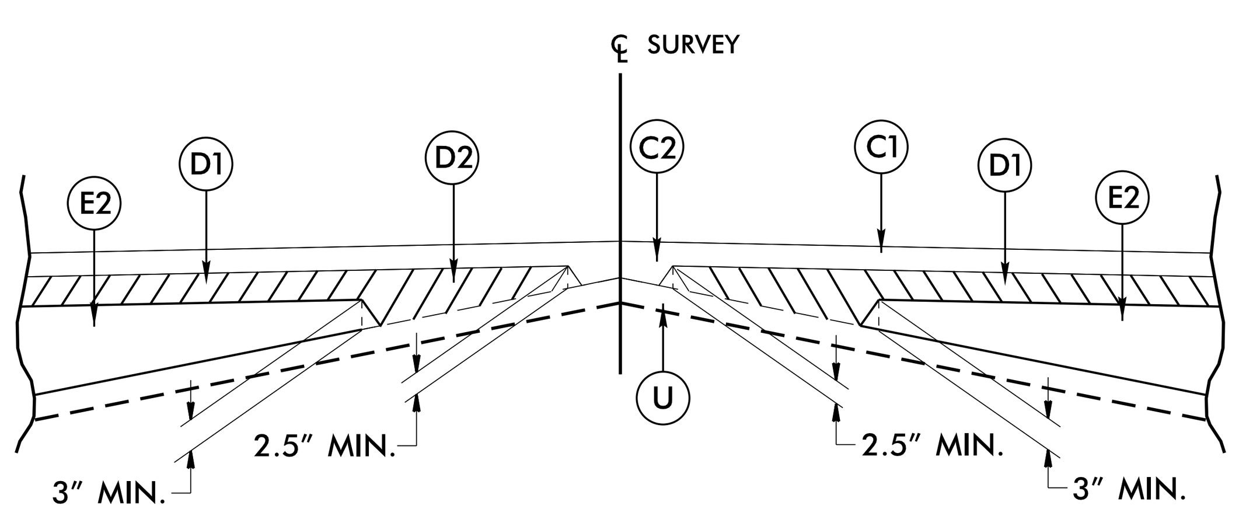


TYPICAL SECTION NO. 4

TYPICAL SECTION NO. 4

-LDET- STA. 11+64.00 TO -LDET- STA. 14+51.00 (BEGIN TEMP BRIDGE)
-LDET- STA. 15+31.00 (END TEMP BRIDGE) TO -LDET- STA. 18+52.00

NOTE : SEE SHEET 5 FOR DITCH DETAILS



DETAIL SHOWING METHOD OF WEDGING

PROJECT REFERENCE NO.	SHEET NO.
B-4461	2C-1

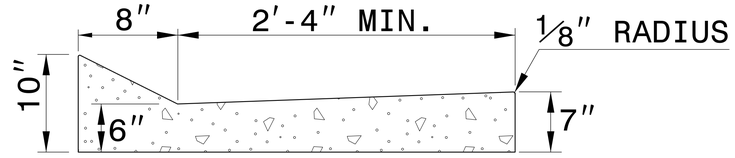
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

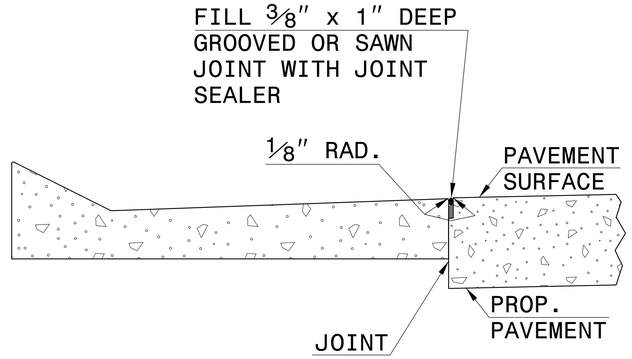
MODIFIED SHOULDER BERM GUTTER

SHEET OF

846D01

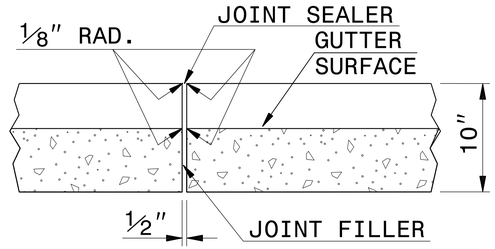


MODIFIED SHOULDER BERM GUTTER



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
NORTH CAROLINA
DEPT. OF TRANSPORTATION
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

DocuSigned by: Joel Howerton, PE 4/13/2016

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

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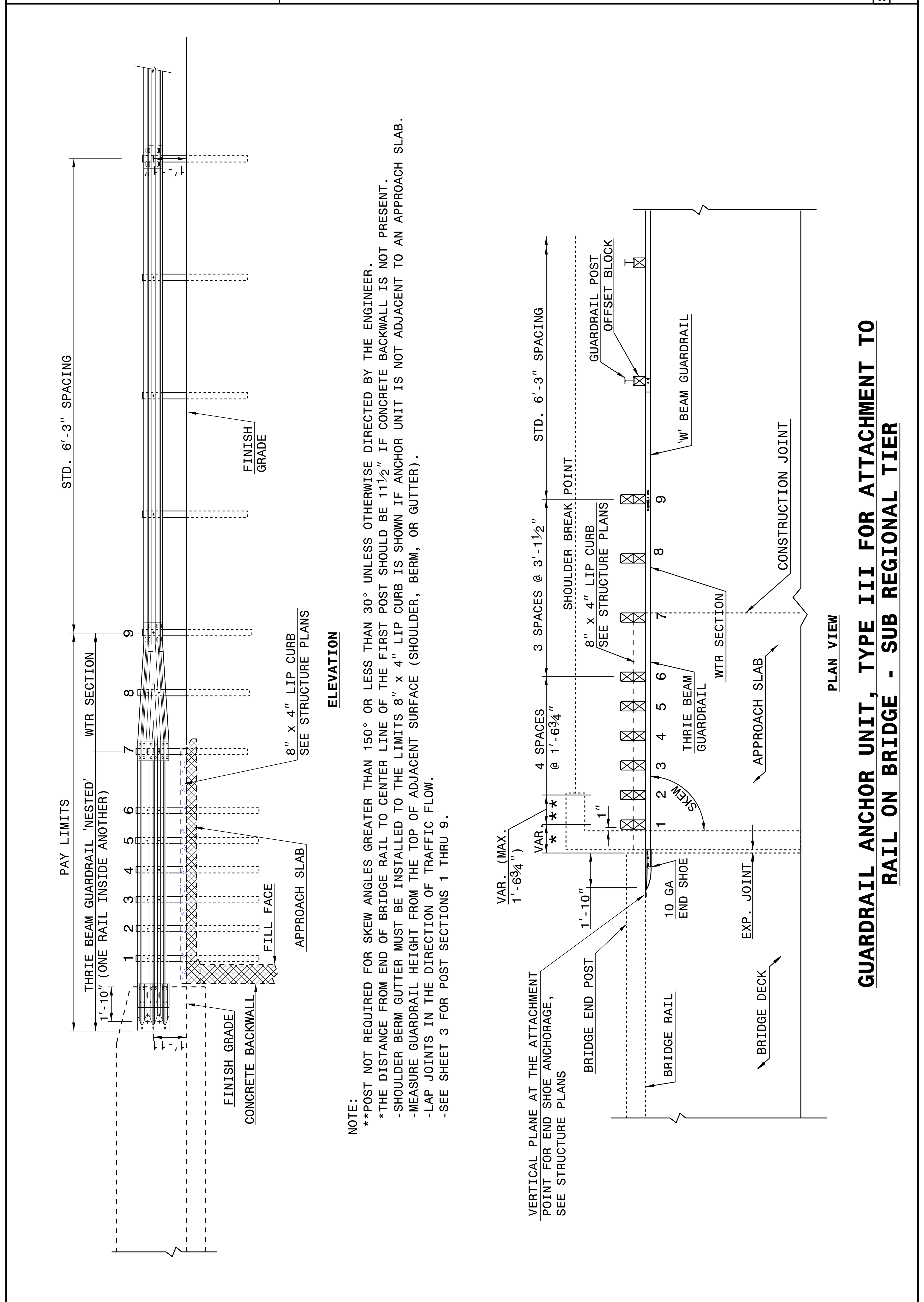


STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

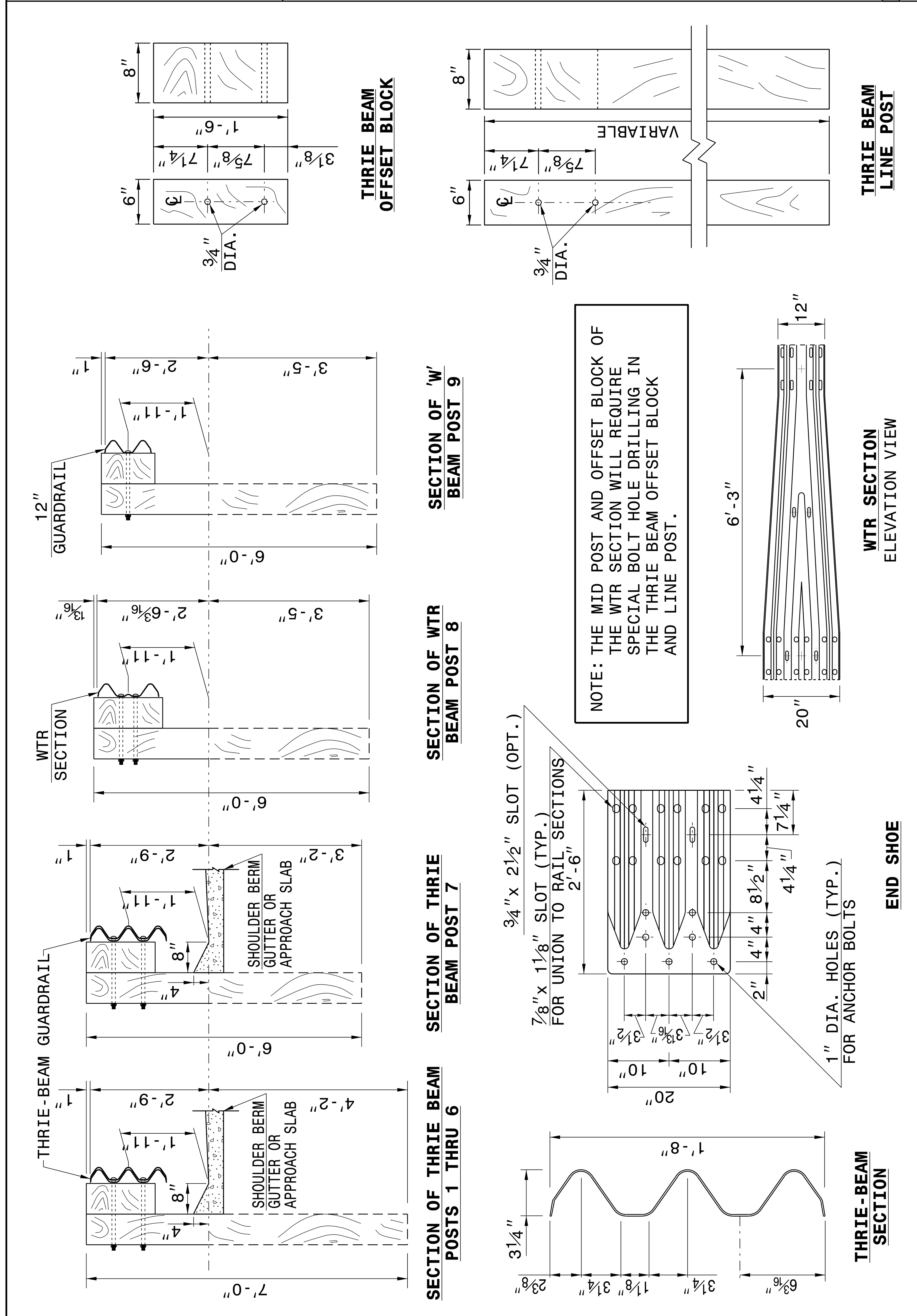
ENGLISH DETAIL DRAWING FOR

STRUCTURE ANCHOR UNITS

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

SHEET 2 OF 7

862d03



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

ENGLISH DETAIL DRAWING FOR

STRUCTURE ANCHOR UNITS

GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7

862d03

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S. Howerton
Joel Howerton, PE 4/13/2016

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

SEE TITLE BLOCK

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

COMPUTED BY: MJJ	DATE: 2-16-2016
CHECKED BY: SKR	DATE: 3-7-2016

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4461	3B-1

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"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 12"	15"	18"	24"	30"	36"	42"	48"	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 * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	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	T.B.D.I. STD. 840.35 OR 840.46	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	REMARKS
-L- 18+04.00	LT	0401		173.2																																			1							1	1	TB 2GI
-L- 18+04.00	LT	0401	0400		169.0	169.0			16			X																																				
-L- 19+98.00	LT	0402		173.9																																			1							1	1	TB 2GI
-L- 19+98.00	LT	0402	0403		169.3	167.5			16			X																																				
-LDET- 17+30.00	RT	0408							24																																							DETOUR PIPE TO BE RETAINED
TOTAL									56																														2							2	2	

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

TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
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	SHOP CURVED	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 GRAU 350 TL-3	ANCHORS TYPE III	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	17+71.48	18+52.73	RT	81.25'			BRIDGE		4.75'	9'	62.50'		1.25'		1	1							
-L-	17+52.14	18+33.39	LT	81.25'				BRIDGE	4.75'	9'		62.50'		1.25'	1	1							
-L-	19+90.61	20+71.86	RT	81.25'				BRIDGE	4.75'	9'		62.50'		1.25'	1	1							
-L-	19+71.22	20+52.47	LT	81.25'			BRIDGE		4.75'	9'	62.50'		1.25'		1	1							
		SUBTOTAL		325.00'											4	4							
		LESS DEDUCTIONS:																					
		GRAU 350 TL-3 4@50'		-200.00'																			
		TYPE III 4@18.75'		-75.00'																			
		TOTAL		50.00'											4	4							
		SAY		50.00'			ADDITIONAL GUARDRAIL POSTS = 5 EA								4	4							

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	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 GRAU 350 TL-3	ANCHORS TYPE III	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-LDET-	13+71.49	14+52.74	RT	81.25'			BRIDGE		2'	8'	62.50'		1.25'		1	1							
-LDET-	13+66.01	14+47.26	LT	81.25'				BRIDGE	2'	8'		62.50'		1.25'	1	1							
-LDET-	15+32.74	16+13.99	RT	81.25'				BRIDGE	2'	8'		62.50'		1.25'	1	1							
-LDET-	15+27.26	16+08.51	LT	81.25'			BRIDGE		2'	8'	62.50'		1.25'		1	1							
		SUBTOTAL		325.00'											4	4							
		LESS DEDUCTIONS:																					
		GRAU 350 TL-3 4@50'		-200.00'																			
		TYPE III 4@18.75'		-75.00'																			
		TOTAL		50.00'											4	4							
		SAY		50.00'											4	4							

12/06/07

COMPUTED BY: MJJ DATE: 2-16-2016
CHECKED BY: SKR DATE: 3-7-2016

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4461	3B-2

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. + %	BORROW	WASTE
(CONSTRUCT –LDET–)					
–LDET– STA. 11+00.00	–LDET– STA. 14+51.00	245	672	427	
BRIDGE					
–LDET– STA. 15+31.00	–LDET– STA. 19+00.00	245	469	224	
SUBTOTAL 1:		490	1141	651	
(CONSTRUCT –L–)					
–L– STA. 17+00.00	–L– STA. 18+43.06	70	79	9	
BRIDGE					
–L– STA. 19+80.94	–L– STA. 21+00.00	30	119	89	
SUBTOTAL 2:		100	198	98	
(REMOVE –LDET–)					
–LDET– STA. 12+50.00	–LDET– STA. 14+51.00	545			545
BRIDGE					
–LDET– STA. 15+31.00	–LDET– STA. 17+00.00	342			342
SUBTOTAL 3:		887			887
PROJECT SUBTOTAL		1477	1339	749	887
MATERIAL FOR SHOULDER CONSTRUCTION			300	300	
PROJECT TOTAL		1477	1639	1049	887
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT				52	
GRAND TOTAL		1477	1639	1101	887
SAY		1500		1150	

EST. UNDERCUT EXCAVATION = 100 CY
EST. SHALLOW UNDERCUT = 50 CY
EST. SELECT GRANULAR MATERIAL = 50 CY

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

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

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SQ. YD
–L–	17+50.00	18+61.00	CL	262.56
–L–	19+71.00	20+50.00	CL	212.83
–LDET–	11+64.00	14+51.00	CL	701.56
–LDET–	15+31.00	18+52.00	CL	784.67
			TOTAL:	1961.61
				———
			SAY:	1970

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COMPUTED BY: DLT DATE: 3/7/2016
CHECKED BY: CAY DATE: 3/7/2016

PROJECT NO.	SHEET NO.
B-4461	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	100		
			TOTAL CY/TONS/SY:		50	100	100**	0	0

***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.**

PROJECT REFERENCE NO.	SHEET NO.
B-4461	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 020111 ENGINEER NYA K. BOAYUE — 3/13/2016

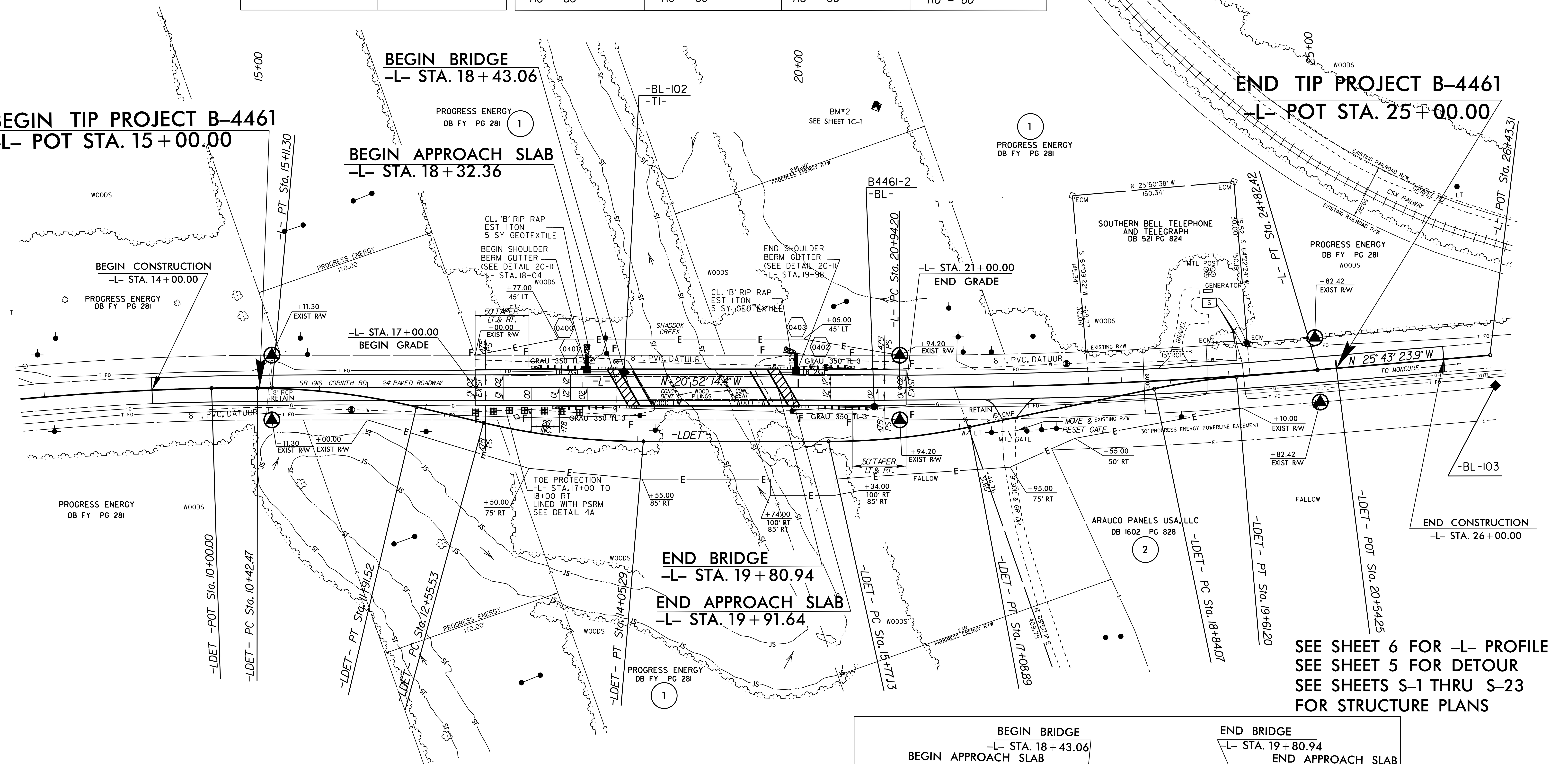
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR — 3/13/2016 — Steven M. Bondor, PE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

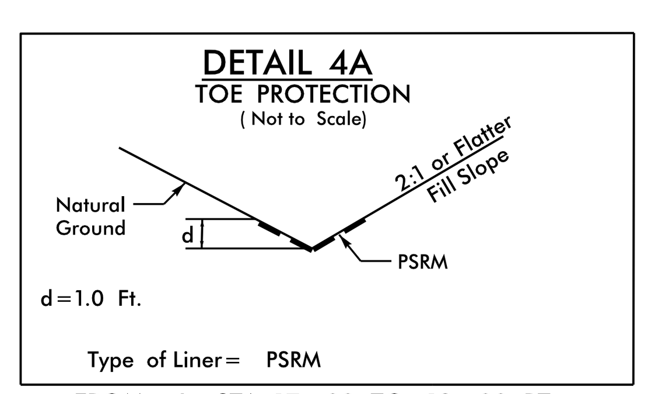
NAD 83/CORS96

-L-	
PI Sta 13+43.59	PI Sta 22+88.43
Δ = 7° 33′ 27.0″ (RT)	Δ = 4° 51′ 09.5″ (LT)
D = 2° 15′ 00.0″	D = 1° 15′ 00.0″
L = 335.89′	L = 388.21′
T = 168.19′	T = 194.22′
R = 2,546.48′	R = 4,583.66′
SE = SEE PLANS	SE = SEE PLANS

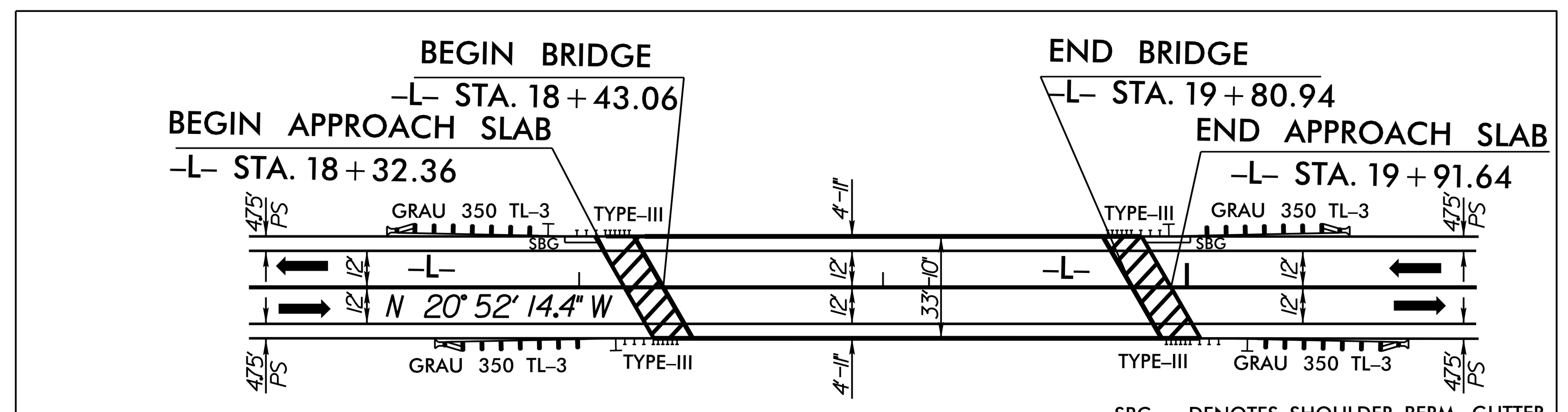
-LDET-			
PI Sta 11+17.33	PI Sta 13+30.75	PI Sta 16+43.24	PI Sta 19+22.68
Δ = 13° 14′ 27.4″ (RT)	Δ = 13° 18′ 09.2″ (LT)	Δ = 11° 42′ 14.8″ (LT)	Δ = 6° 51′ 05.3″ (RT)
D = 8° 52′ 59.0″	D = 8° 52′ 59.0″	D = 8° 52′ 59.0″	D = 8° 52′ 59.0″
L = 149.06′	L = 149.75′	L = 131.76′	L = 77.13′
T = 74.86′	T = 75.21′	T = 66.11′	T = 38.61′
R = 645.00′	R = 645.00′	R = 645.00′	R = 645.00′
SE = 0.04	SE = 0.04	SE = 0.04	SE = 0.04
RO = 80′	RO = 80′	RO = 80′	RO = 80′



SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 5 FOR DETOUR
SEE SHEETS S-1 THRU S-23
FOR STRUCTURE PLANS



FROM -L- STA. 17+00 TO 18+00 RT



SKETCH SHOWING BRIDGE / ROADWAY RELATIONSHIP

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4461	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 020111 ENGINEER NYA K. BOAYUE — DocuSigned by: 4/13/2016 — AFFA1AD6C2F046B...

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR — DocuSigned by: 4/13/2016 Steven M. Bondor, PE — 4CFC8CDF392644C...

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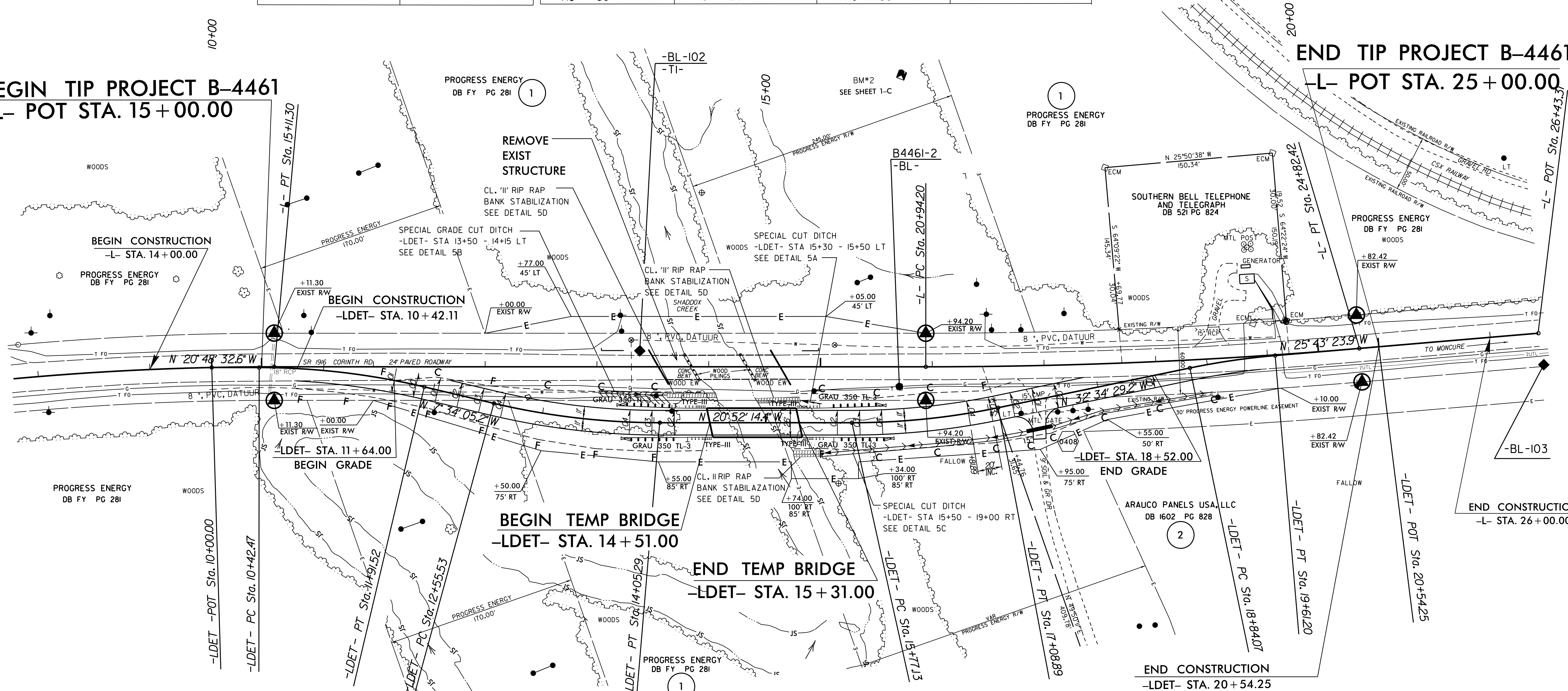
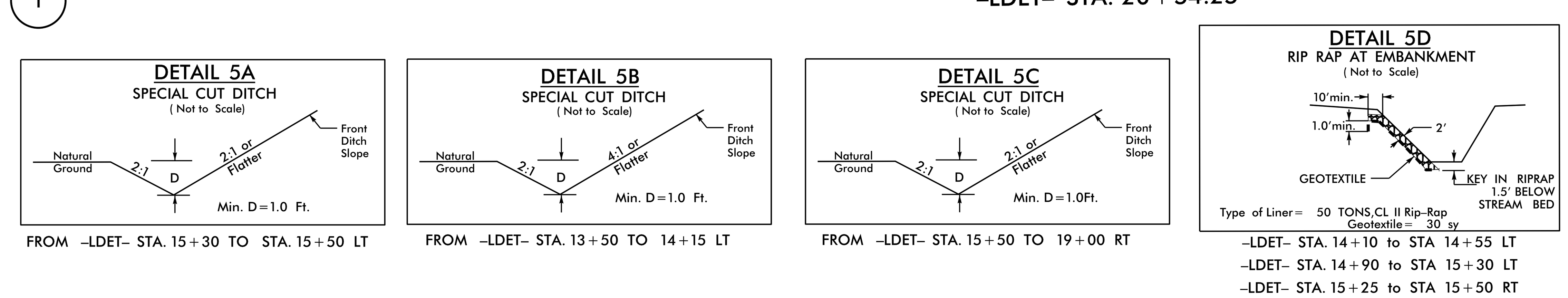
NAD 83/CORS96

-L-		-LDET- V=45 mph			
PI Sta 13+43.59	PI Sta 22+88.43	PI Sta 11+17.33	PI Sta 13+30.75	PI Sta 16+43.24	PI Sta 19+22.68
Δ = 7° 33' 27.0" (RT)	Δ = 4° 51' 09.5" (LT)	Δ = 13° 14' 27.4" (RT)	Δ = 13° 18' 09.2" (LT)	Δ = 11° 42' 14.8" (LT)	Δ = 6° 51' 05.3" (RT)
D = 2° 15' 00.0"	D = 1° 15' 00.0"	D = 8° 52' 59.0"	D = 8° 52' 59.0"	D = 8° 52' 59.0"	D = 8° 52' 59.0"
L = 335.89'	L = 388.21'	L = 149.06'	L = 149.75'	L = 131.76'	L = 77.13'
T = 168.19'	T = 194.22'	T = 74.86'	T = 75.21'	T = 66.11'	T = 38.61'
R = 2,546.48'	R = 4,583.66'	R = 645.00'	R = 645.00'	R = 645.00'	R = 645.00'
		SE = 0.04	SE = 0.04	SE = 0.04	SE = 0.04
		RO = 80'	RO = 80'	RO = 80'	RO = 80'



BEGIN TIP PROJECT B-4461
-L- POT STA. 15+00.00
END TIP PROJECT B-4461
-L- POT STA. 25+00.00
BEGIN CONSTRUCTION
-L- STA. 14+00.00
BEGIN CONSTRUCTION
-LDET- STA. 10+42.11
-LDET- STA. 11+64.00
BEGIN GRADE
REMOVE EXIST STRUCTURE
CL. 'II' RIP RAP BANK STABILIZATION SEE DETAIL 5D
SPECIAL GRADE CUT DITCH -LDET- STA 13+50 - 14+15 LT SEE DETAIL 5B
SPECIAL CUT DITCH -LDET- STA 15+30 - 15+50 LT SEE DETAIL 5A
SPECIAL CUT DITCH -LDET- STA 15+50 - 19+00 RT SEE DETAIL 5C
CL. II RIP RAP BANK STABILAZATION SEE DETAIL 5D
BEGIN TEMP BRIDGE
-LDET- STA. 14+51.00
END TEMP BRIDGE
-LDET- STA. 15+31.00
-LDET- STA. 18+52.00
END GRADE
END CONSTRUCTION
-LDET- STA. 20+54.25
END CONSTRUCTION
-L- STA. 26+00.00
PROGRESS ENERGY DB FY PG 281
SOUTHERN BELL TELEPHONE AND TELEGRAPH DB 521 PG 824
ARAUCO PANELS USA, LLC DB 1602 PG 828
BM#2 SEE SHEET 1-C
-BL-102
-TI-
B4461-2
-BL-
-BL-103
SHADDOX CREEK
N 20° 48' 32.6" W
N 25° 43' 23.9" W
N 20° 52' 14.4" W
SR 1916 CORINTH RD 24' PAVED ROADWAY
TO MONCURE
CSX RAILWAY
EXISTING RAILROAD R/W
-LDET- POT Sta. 10+00.00
-LDET- PC Sta. 10+42.47
-LDET- PT Sta. 11+91.52
-LDET- PC Sta. 12+55.53
-LDET- PT Sta. 14+05.29
-LDET- PC Sta. 15+77.13
-LDET- PT Sta. 17+08.89
-LDET- PC Sta. 18+84.07
-LDET- PT Sta. 19+61.20
-LDET- POT Sta. 20+54.25
-L- PT Sta. 15+11.30
-L- PC Sta. 20+94.20
-L- PT Sta. 24+82.42
-L- POT Sta. 26+43.37
WOODS
FALLOW



DETAIL 5A
SPECIAL CUT DITCH
(Not to Scale)
Min. D=1.0 Ft.
FROM -LDET- STA. 15+30 TO STA. 15+50 LT
DETAIL 5B
SPECIAL CUT DITCH
(Not to Scale)
Min. D=1.0 Ft.
FROM -LDET- STA. 13+50 TO 14+15 LT
DETAIL 5C
SPECIAL CUT DITCH
(Not to Scale)
Min. D=1.0Ft.
FROM -LDET- STA. 15+50 TO 19+00 RT
DETAIL 5D
RIP RAP AT EMBANKMENT
(Not to Scale)
GEOTEXTILE
KEY IN RIPRAP 1.5' BELOW STREAM BED
Type of Liner= 50 TONS,CL II Rip-Rap
Geotextile = 30 sy
-LDET- STA. 14+10 to STA 14+55 LT
-LDET- STA. 14+90 to STA 15+30 LT
-LDET- STA. 15+25 to STA 15+50 RT

SEE SHEET 6 FOR -LDET- PROFILE

REVISIONS

8/17/99

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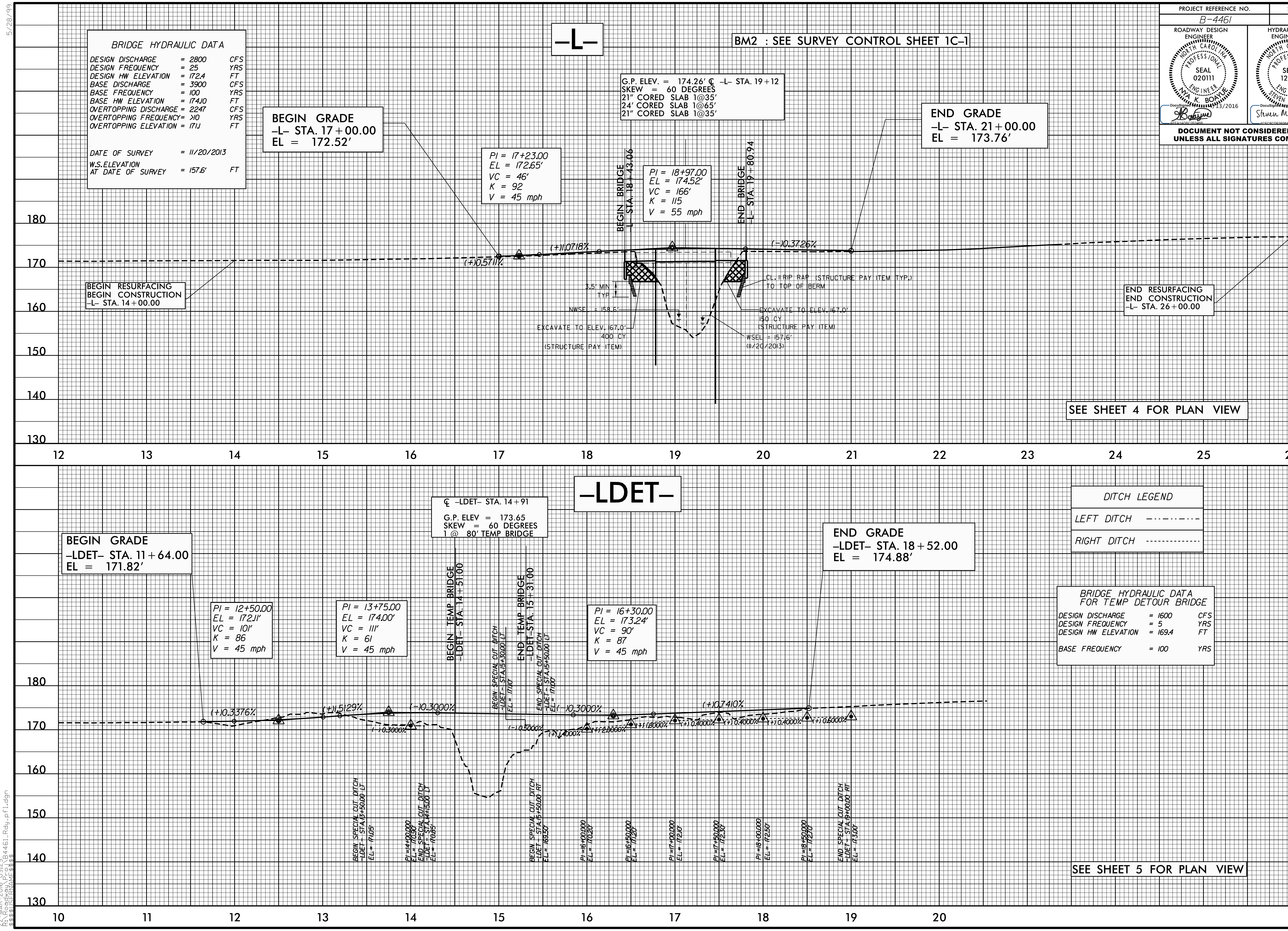
PROJECT REFERENCE NO.	SHEET NO.
B-4461	6

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 020111 NIA K. BOAYUE — 3/23/2016

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12786 STEVEN M. BONDOR — 3/23/2016 — Steven M. Bondor, PE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-L-
BM2 : SEE SURVEY CONTROL SHEET 1C-1
BEGIN GRADE -L- STA. 17+00.00 EL = 172.52'
END GRADE -L- STA. 21+00.00 EL = 173.76'
G.P. ELEV. = 174.26' ℄ -L- STA. 19+12
SKEW = 60 DEGREES
21" CORED SLAB 1@35'
24' CORED SLAB 1@65'
21" CORED SLAB 1@35'
PI = 17+23.00 EL = 172.65' VC = 46' K = 92 V = 45 mph
PI = 18+97.00 EL = 174.52' VC = 166' K = 115 V = 55 mph
BEGIN BRIDGE -L- STA. 18+43.06
END BRIDGE -L- STA. 19+80.94
(+)1.0718%
(+)0.5711%
(-)0.3726%
BEGIN RESURFACING BEGIN CONSTRUCTION -L- STA. 14+00.00
END RESURFACING END CONSTRUCTION -L- STA. 26+00.00
3.5' MIN TYP
NWSEL = 158.6'
EXCAVATE TO ELEV. 167.0' 400 CY (STRUCTURE PAY ITEM)
CL. II RIP RAP (STRUCTURE PAY ITEM TYP.) TO TOP OF BERM
EXCAVATE TO ELEV. 167.0' 150 CY (STRUCTURE PAY ITEM)
WSEL = 157.6' (11/20/2013)
SEE SHEET 4 FOR PLAN VIEW
-LDET-
℄ -LDET- STA. 14+91
G.P. ELEV = 173.65
SKEW = 60 DEGREES
1 @ 80' TEMP BRIDGE
BEGIN GRADE -LDET- STA. 11+64.00 EL = 171.82'
END GRADE -LDET- STA. 18+52.00 EL = 174.88'
PI = 12+50.00 EL = 172.11' VC = 101' K = 86 V = 45 mph
PI = 13+75.00 EL = 174.00' VC = 111' K = 61 V = 45 mph
PI = 16+30.00 EL = 173.24' VC = 90' K = 87 V = 45 mph
BEGIN TEMP BRIDGE -LDET- STA. 14+51.00
END TEMP BRIDGE -LDET- STA. 15+31.00
(+)0.3376%
(+)1.5129%
(-)0.3000%
(-)0.3000%
(+)0.7410%
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
SEE SHEET 5 FOR PLAN VIEW

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2800	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 172.4	FT
BASE DISCHARGE	= 3900	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 174.10	FT
OVERTOPPING DISCHARGE	= 2247	CFS
OVERTOPPING FREQUENCY	= >10	YRS
OVERTOPPING ELEVATION	= 171.1	FT
DATE OF SURVEY	= 11/20/2013	
W.S. ELEVATION AT DATE OF SURVEY	= 157.6'	FT

BRIDGE HYDRAULIC DATA FOR TEMP DETOUR BRIDGE

DESIGN DISCHARGE	= 1600	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 169.4	FT
BASE FREQUENCY	= 100	YRS

5/28/99

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