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09/08/16

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4945	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
39971.1.1	BRZ-1374(1)	P.E.	
39971.2.1	N/A	RW, UTL	
39971.3.1	N/A	CONST	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**VANCE COUNTY**

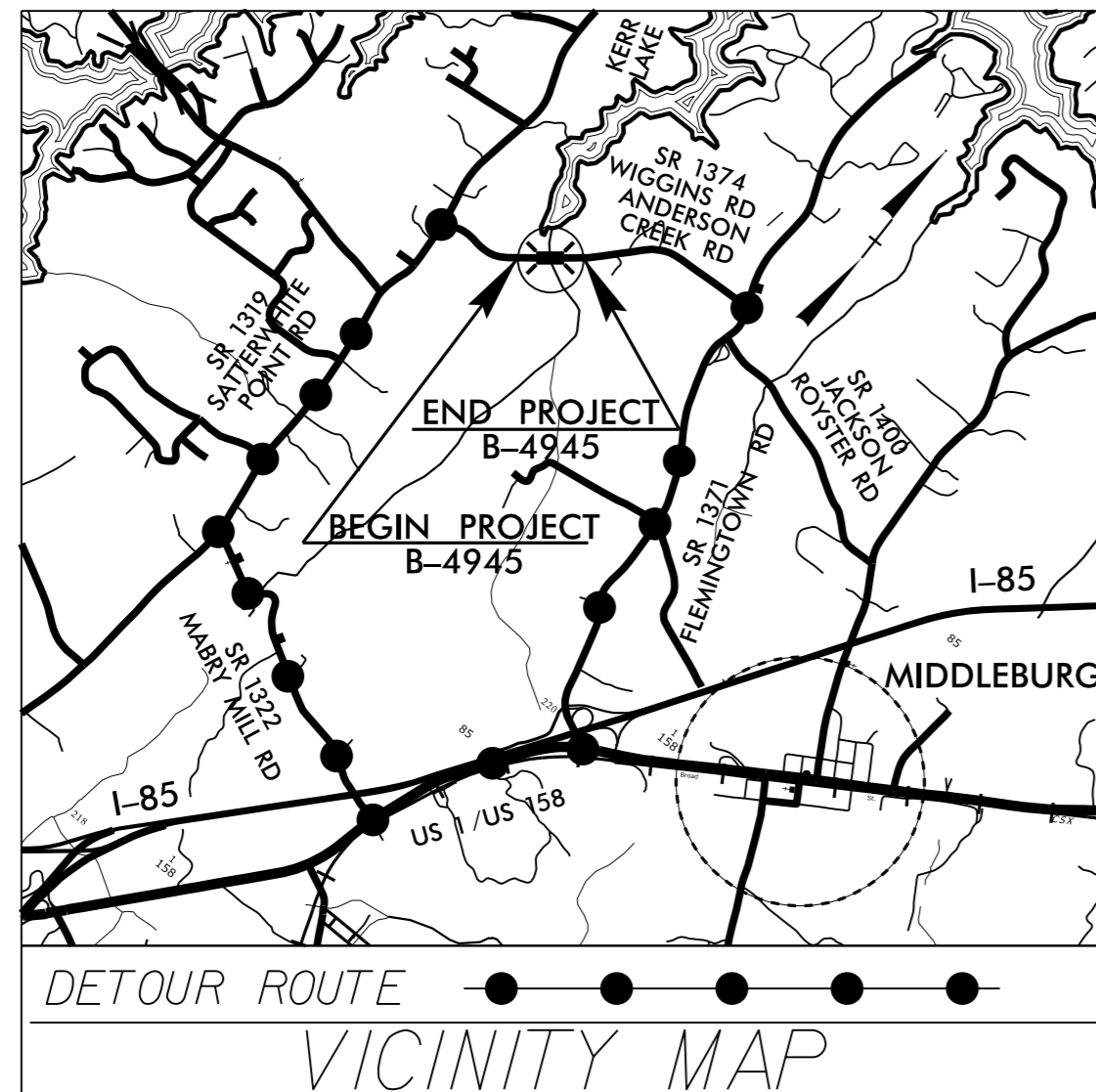
**LOCATION: BRIDGE NO. 36 OVER  
ANDERSON SWAMP CREEK/JOHN H. KERR RESERVOIR  
ON SR 1374 (WIGGINS RD/ANDERSON CREEK RD)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING  
& STRUCTURE**

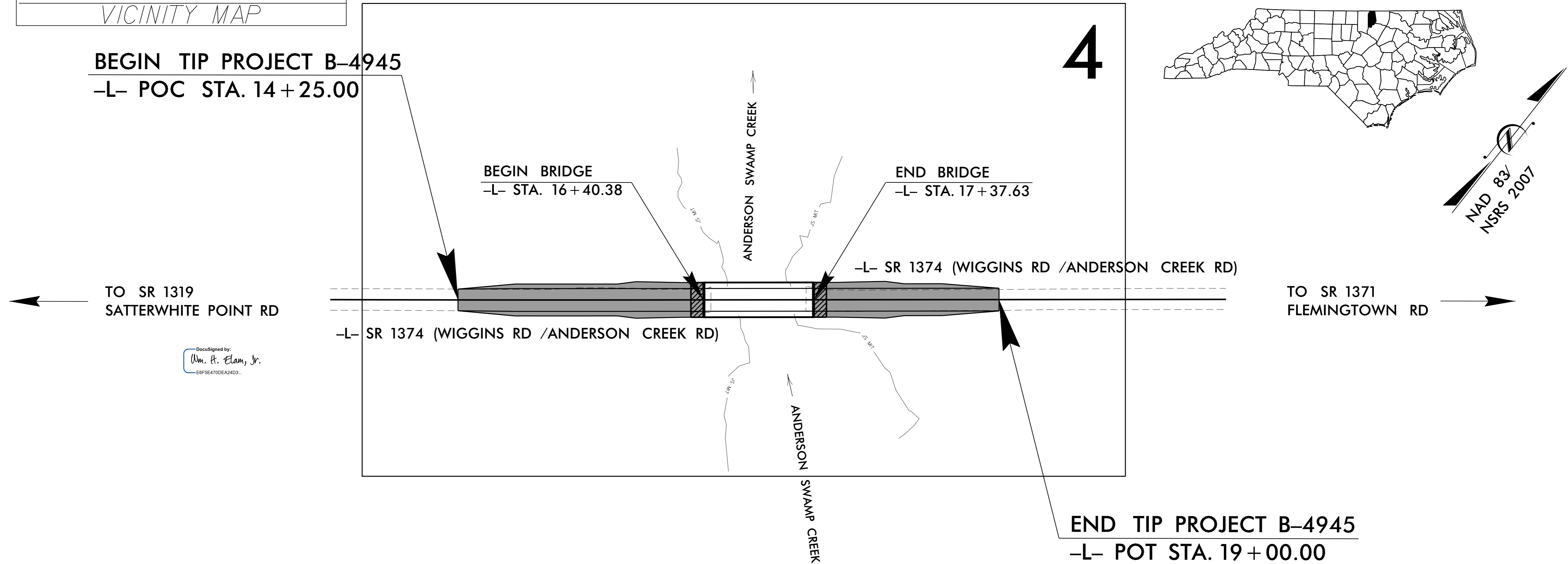
**TIP PROJECT: B-4945**

**CONTRACT: C203920**

See Sheet 1A For Index of Sheets

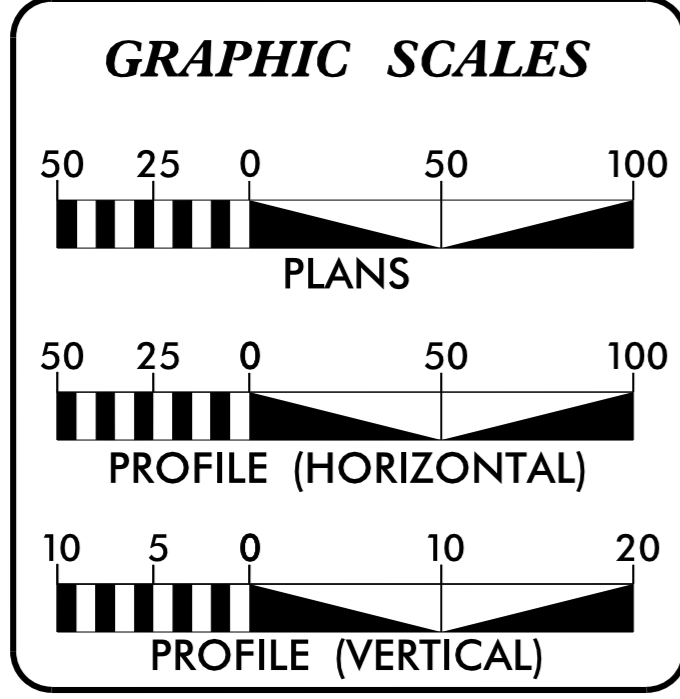


**BEGIN TIP PROJECT B-4945**  
-L- POC STA. 14+25.00



DocuSigned by:  
Wm. H. Elam, Jr.  
E0F5E470E24D3...

9/13/2016 9/13/2016



**DESIGN DATA**

ADT 2016 =	753
ADT 2036 =	1014
K =	10 %
D =	55 %
T =	13 % *
V =	40 MPH
* TTST =	4% DUAL 9%
FUNC CLASS =	MINOR COLLECTOR
SUB-REGIONAL TIER	

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-4945 =	0.072 MILE
LENGTH OF STRUCTURE TIP PROJECT B-4945 =	0.018 MILE
TOTAL LENGTH OF TIP PROJECT B-4945 =	0.090 MILE

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

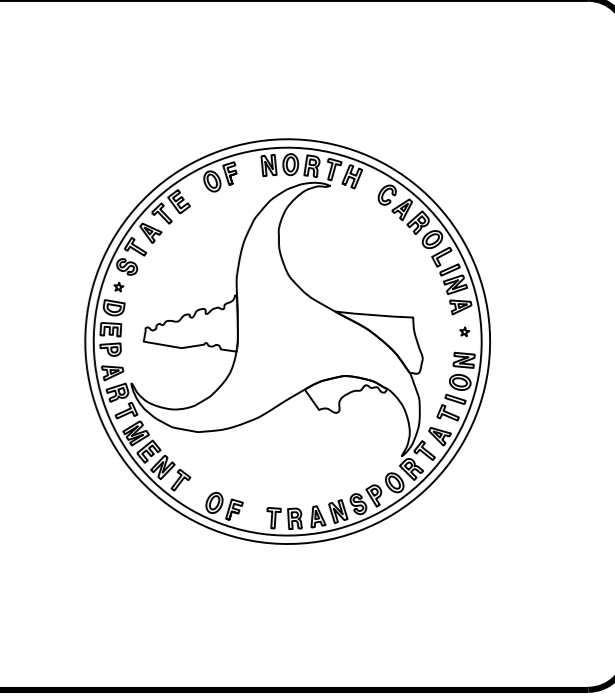
2012 STANDARD SPECIFICATIONS	
<b>RIGHT OF WAY DATE:</b> JUNE 29, 2016	<b>TONY HOUSER, PE</b> PROJECT ENGINEER
<b>LETTING DATE:</b> OCTOBER 18, 2016	<b>BRUCE B. PAYNE, PE</b> PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

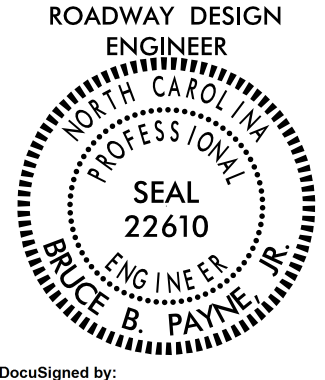
DocuSigned by:  
Wm. H. Elam, Jr.  
9/13/2016

**ROADWAY DESIGN ENGINEER**

DocuSigned by:  
Bruce Payne  
9/13/2016



I3-SEP-2016 10:41  
R:\Roadway\Proj\B4945\_Rdy-t sh.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$

PROJECT REFERENCE NO. <i>B-4945</i>	SHEET NO. <i>1A</i>
ROADWAY DESIGN ENGINEER	
	
DocuSigned by: <i>Bruce Payne</i> 9/13/2016	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

SHEET NUMBER	INDEX OF SHEETS
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	DETAIL SHEET FOR TYPE III ANCHOR UNIT
2G-1	GEO TECHNICAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
4 THRU 5	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
X-0	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-3	CROSS-SECTIONS
S-1 THRU S-15	STRUCTURE PLANS

**GENERAL NOTES:**

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

**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 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

**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.

**RIGHT-OF-WAY MARKERS:**

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

REV. 02-29-2016

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
<b>DIVISION 2 - EARTHWORK</b>	
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
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation
<b>DIVISION 4 - MAJOR STRUCTURES</b>	
422.11	Bridge Approach Fills - Sub Regional Tier
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<b>DIVISION 8 - INCIDENTALS</b>	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
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

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	○ EP
Property Corner	→
Property Monument	□ ECM
Parcel/Sequence Number	Ⓜ (23)
Existing Fence Line	-x-x-x-
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 Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	⚠ ⚠

### 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	→
False Sump	▽

### RAILROADS:

Standard Gauge	-----
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	--- R/W ---
Proposed Right of Way Line with Iron Pin and Cap Marker	--- R/W --- ▲
Proposed Right of Way Line with Concrete or Granite R/W Marker	--- R/W --- ●
Proposed Control of Access Line with Concrete CA Marker	--- C/A ---
Existing Control of Access	--- C/A ---
Proposed Control of Access	--- C/A ---
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	--- E --- ◆

### 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	⊙
Storm Sewer	--- S ---

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊙
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	⊙
Telephone Pedestal	⊞
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	⊙
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	⊞
TV Tower	⊗
U/G TV Cable Hand Hole	●
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	⊞
Utility Unknown U/G Line LOS B (S.U.E.*)	--- ?U/L ---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
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-4945

## VANCE COUNTY

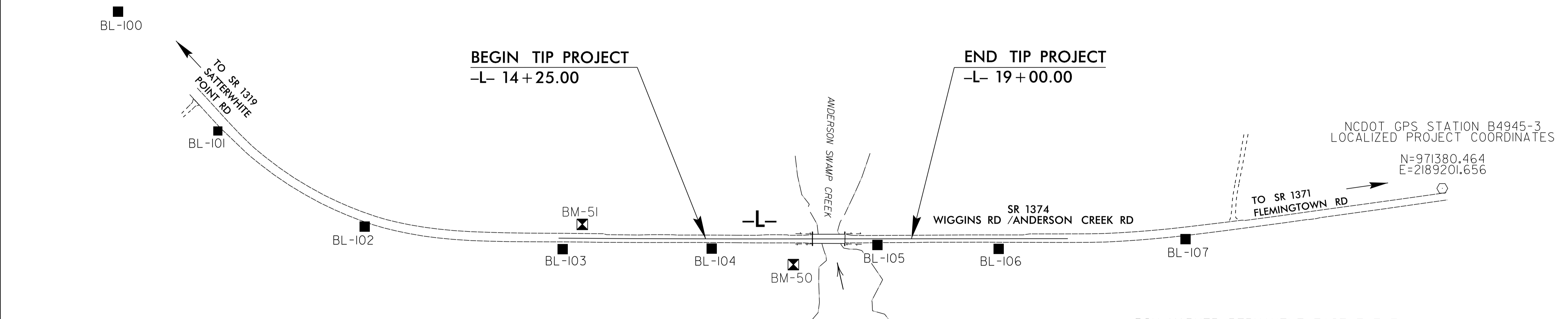
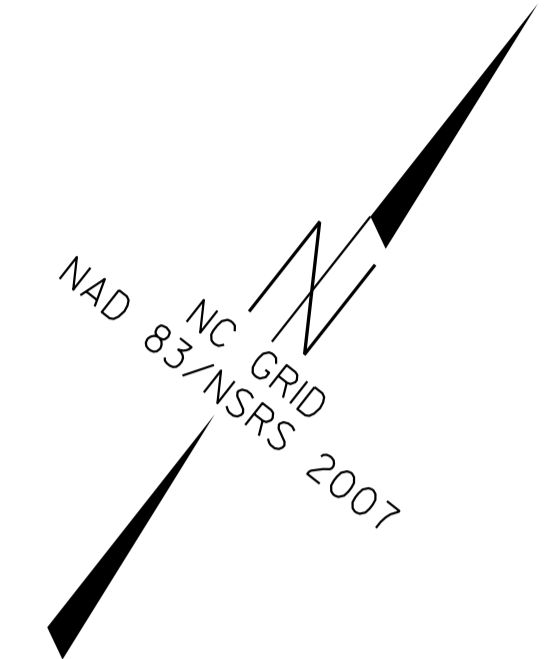
**LOCATION: BRIDGE NO. 36 OVER  
ANDERSON SWAMP CREEK/JOHN H. KERR RESERVOIR  
ON SR 1374 (WIGGINS RD/ANDERSON CREEK RD)**

NCDOT GPS STATION B4945-1  
LOCALIZED PROJECT COORDINATES

N=970556.458  
E=2185588.245

NCDOT GPS STATION B4945-2  
LOCALIZED PROJECT COORDINATES

N=969432.334  
E=2185836.450



**CONTROL DATA**

BASELINE						
POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
100	BL-100	969645.846	2186269.488	402.58		OUTSIDE PROJECT LIMITS
101	BL-101	969563.881	2186657.303	379.60		OUTSIDE PROJECT LIMITS
102	BL-102	969603.844	2187101.965	357.72		OUTSIDE PROJECT LIMITS
103	BL-103	969871.175	2187534.548	333.59	10+10.62	27.93 RT
104	BL-104	970107.182	2187832.244	315.32	13+90.38	24.86 RT
105	BL-105	970376.175	2188158.526	306.63	18+13.08	15.43 RT
106	BL-106	970559.865	2188408.087	325.56	21+22.78	25.74 RT
107	BL-107	970873.987	2188766.779	336.31		OUTSIDE PROJECT LIMITS
3	B4945-3	971380.464	2189201.656	349.19		OUTSIDE PROJECT LIMITS

**BENCHMARK DATA**

\*\*\*\*\*  
 50 ELEVATION = 308.11'  
 N 970204 E 2188021  
 L STATION 15+99.00 65' RIGHT  
 RR SPIKE IN 20" OAK  
 \*\*\*\*\*  
 51 ELEVATION = 332.63'  
 N 969952 E 2187535  
 L STATION 10+60.00 36' LEFT  
 RR SPIKE IN 12" OAK  
 \*\*\*\*\*

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4945-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 969432.334(ft) EASTING: 2185836.450(ft) ELEVATION: 405.838(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00006549

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4945-2" TO -L- STATION 13+75.00 IS N 70°48'49" E 2084.11'

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

**GEOID G09NC**  
**NOTE: DRAWING NOT TO SCALE**

ROW MARKER PERMANENT EASEMENT -E

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+50.00	-54.00	970391.6285	2188066.0024
L	17+50.00	-30.01	970372.7891	2188080.8607
L	17+70.00	-54.00	970404.0137	2188081.7061
L	17+70.00	-30.01	970385.1741	2188096.5646

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	969886.7290	2187509.0274
PC	10+51.15	969918.0921	2187549.4369
PT	15+83.21	970245.9432	2187968.4827
POT	22+98.81	970689.0835	2188530.3591

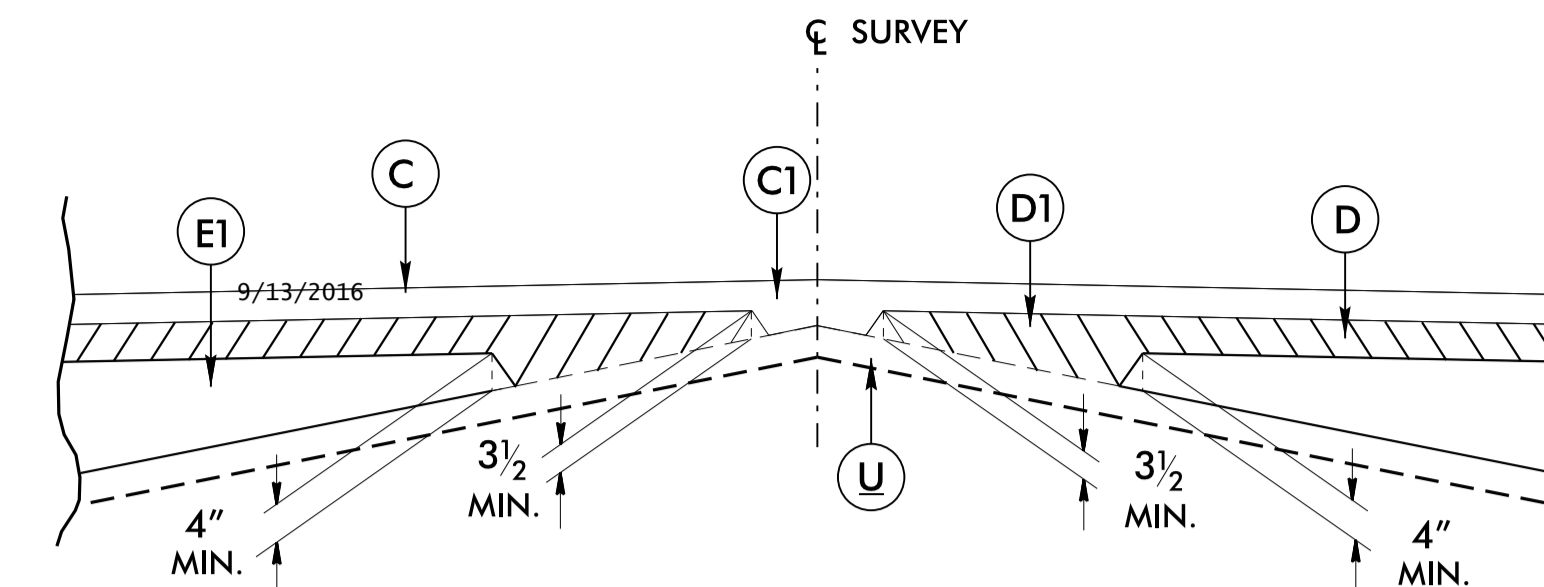
**NOTES:**

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

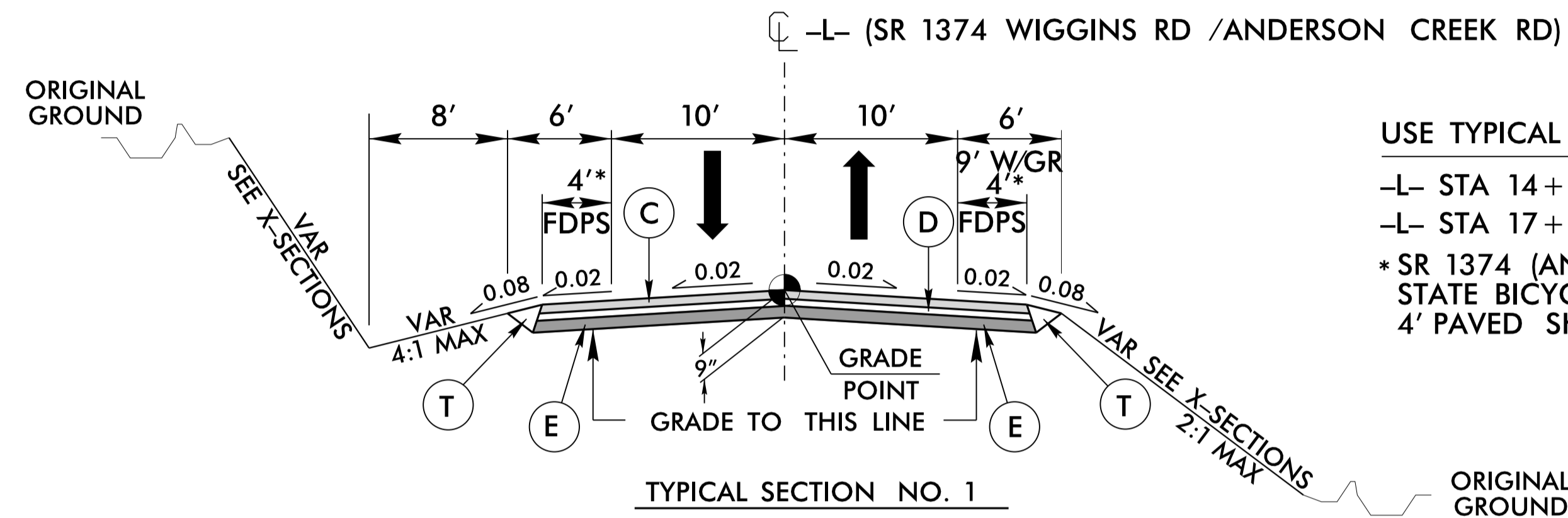
○ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

04/08/2016  
 23-AUG-2016 10:01 B4945-1s-1C-1.dgn  
 1:58:50  
 1:58:50

PROJECT REFERENCE NO. B-4945	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER BRUCE B. PANTRE	HYDRAULICS ENGINEER CLARK S. MORRISON
<small>DocuSigned by: Bruce B. Pantre 9/2/2016</small>	
<small>DocuSigned by: Clark S. Morrison 9/13/2016</small>	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



Detail Showing Method of Wedging



USE TYPICAL SECTION NO. 1

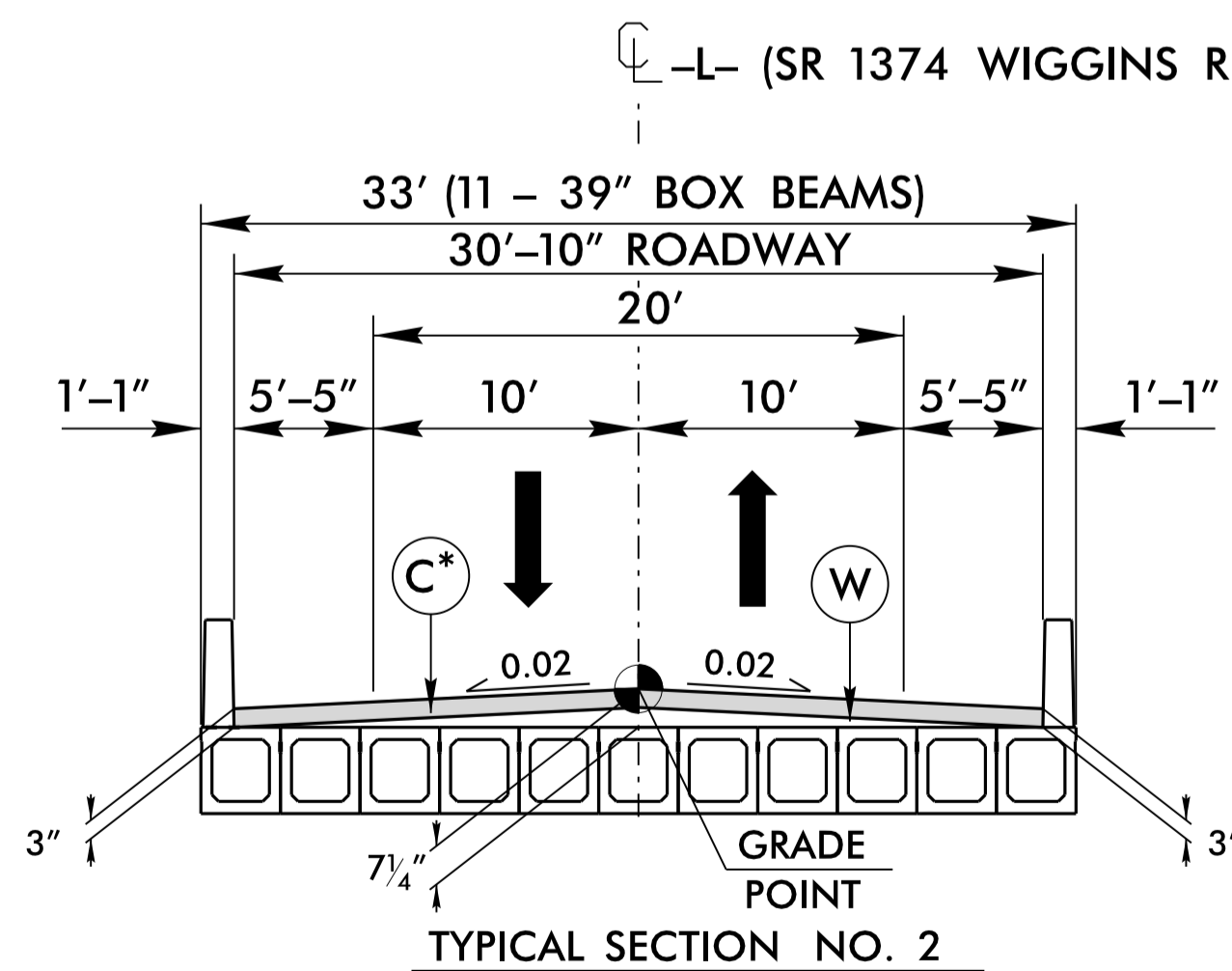
-L- STA 14+25.00 TO 16+40.38 (BEGIN BRIDGE)

-L- STA 17+37.63 (END BRIDGE) TO 19+00.00

\* SR 1374 (ANDERSON CREEK RD / WIGGINS RD) IS PART OF STATE BICYCLE ROUTE 4 (NORTH LINE TRACE)  
4' PAVED SHOULDER USED FOR BIKE ROUTE

PAVEMENT SCHEDULE	
(REVISED FINAL PAVEMENT DESIGN JANUARY 6, 2016)	
C	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D	PROP. APPROX. 3 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D1	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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	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 GREATER THAN 5 1/2" IN DEPTH OR LESS THAN 4" IN DEPTH.
R	SHOULDER BERM GUTTER
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.

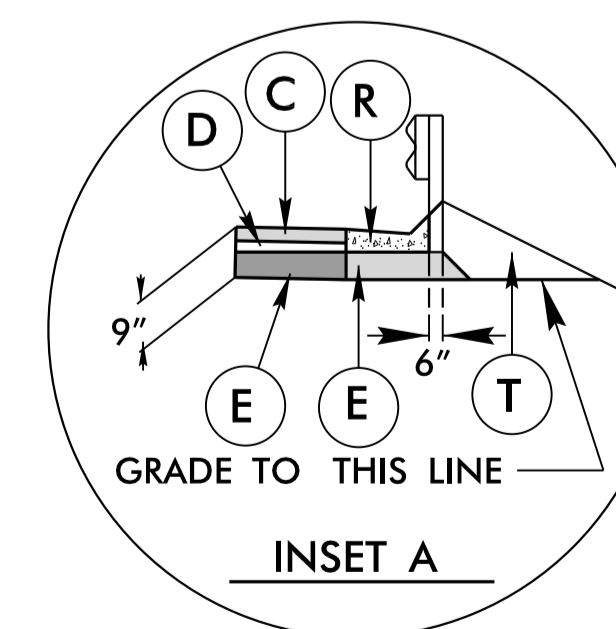


USE TYPICAL SECTION NO. 2

-L- STA 16+40.38 (BEGIN BRIDGE) TO

-L- STA 17+37.63 (END BRIDGE)

\* TO BE PLACED IN 2 LAYERS (1 1/2" EACH) ACROSS THE BRIDGE.



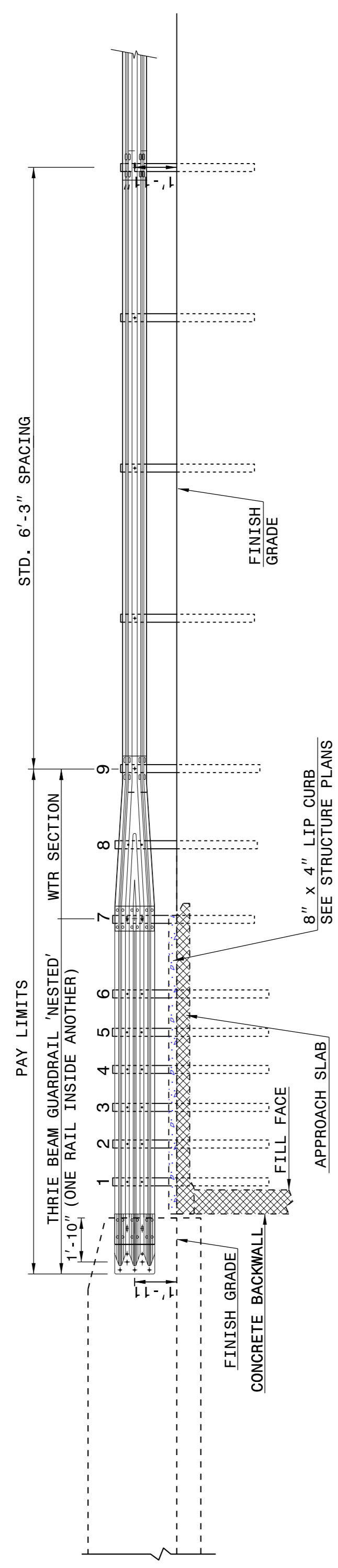
USE INSET A WITH TYPICAL NO. 1

-L- STA. 17+48.51 (END APPROACH SLAB) TO -L- STA. 17+70.00 (LT)  
-L- STA. 17+48.51 (END APPROACH SLAB) TO -L- STA. 17+70.00 (RT)

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

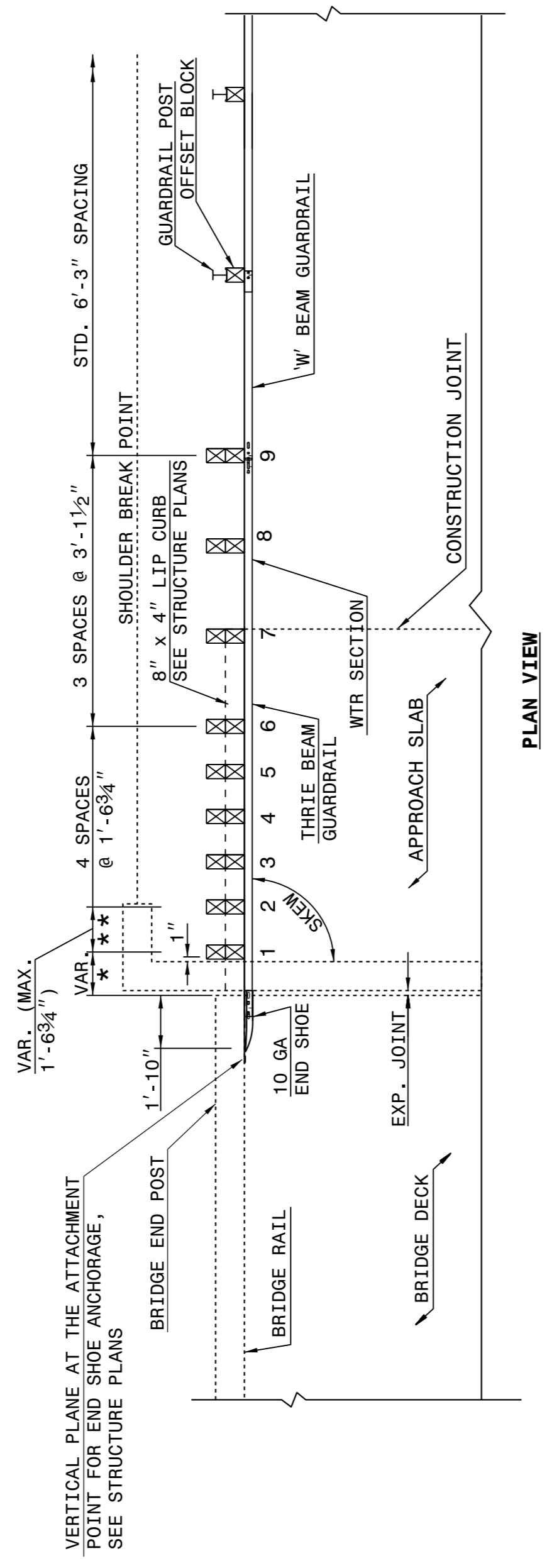
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862d03**



**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 - SUB REGIONAL TIER**

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

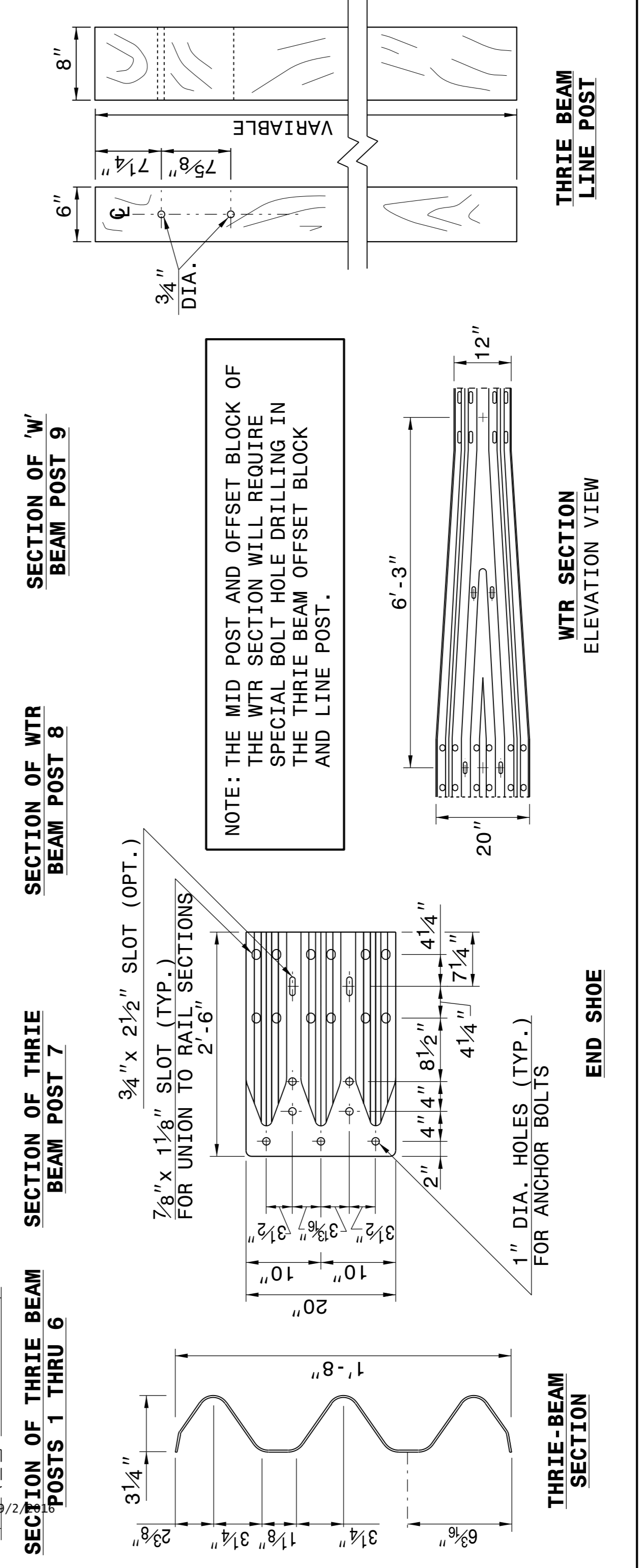
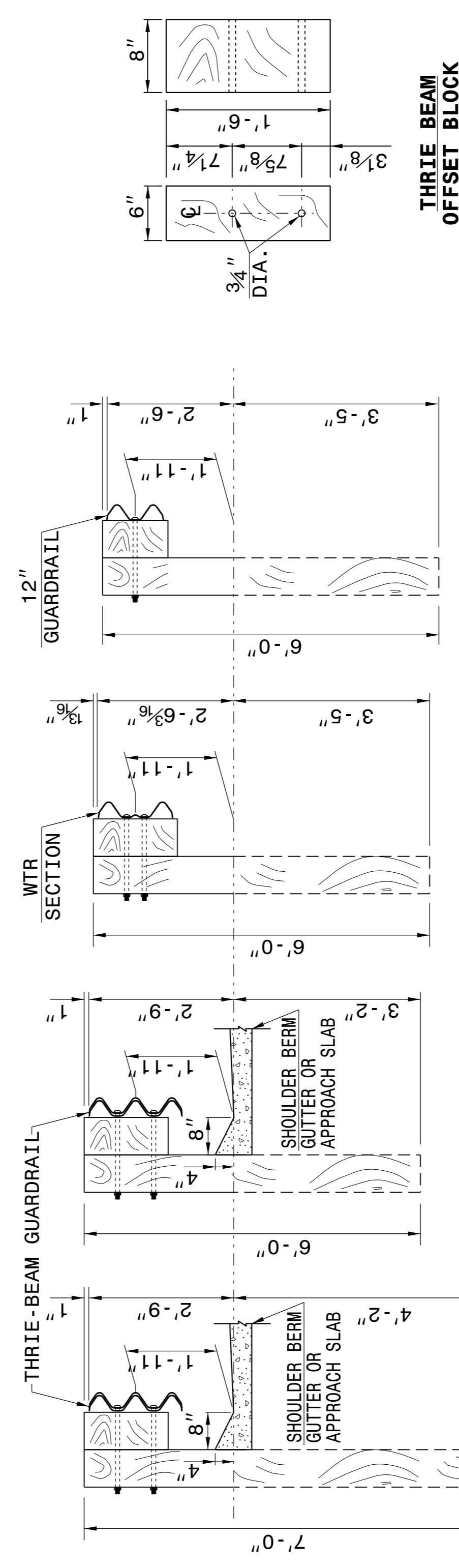
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER

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**



NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.

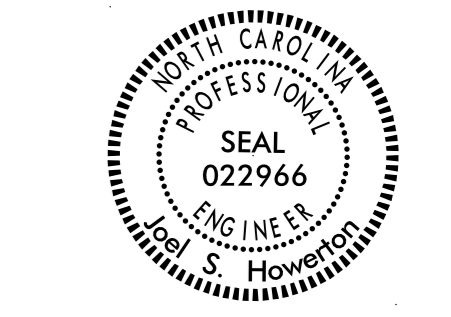
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7  
**862d03**

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

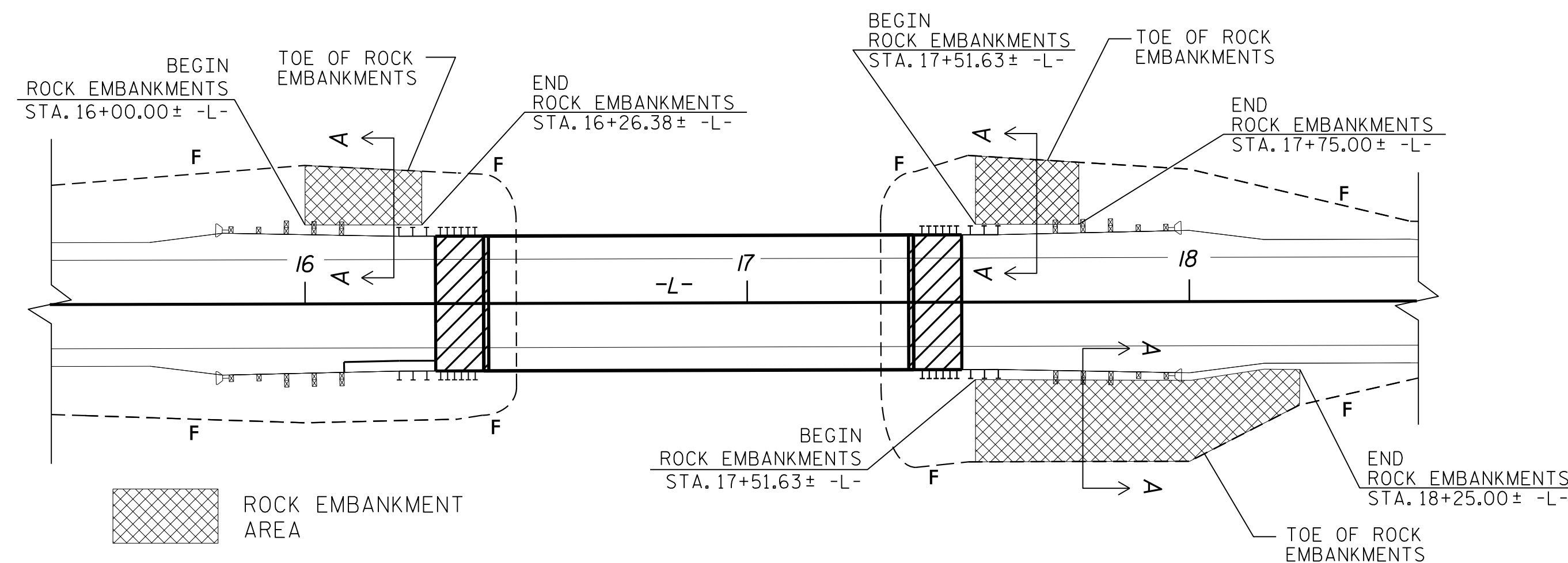
CONTRACT STANDARDS  
AND DEVELOPMENT UNIT  
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

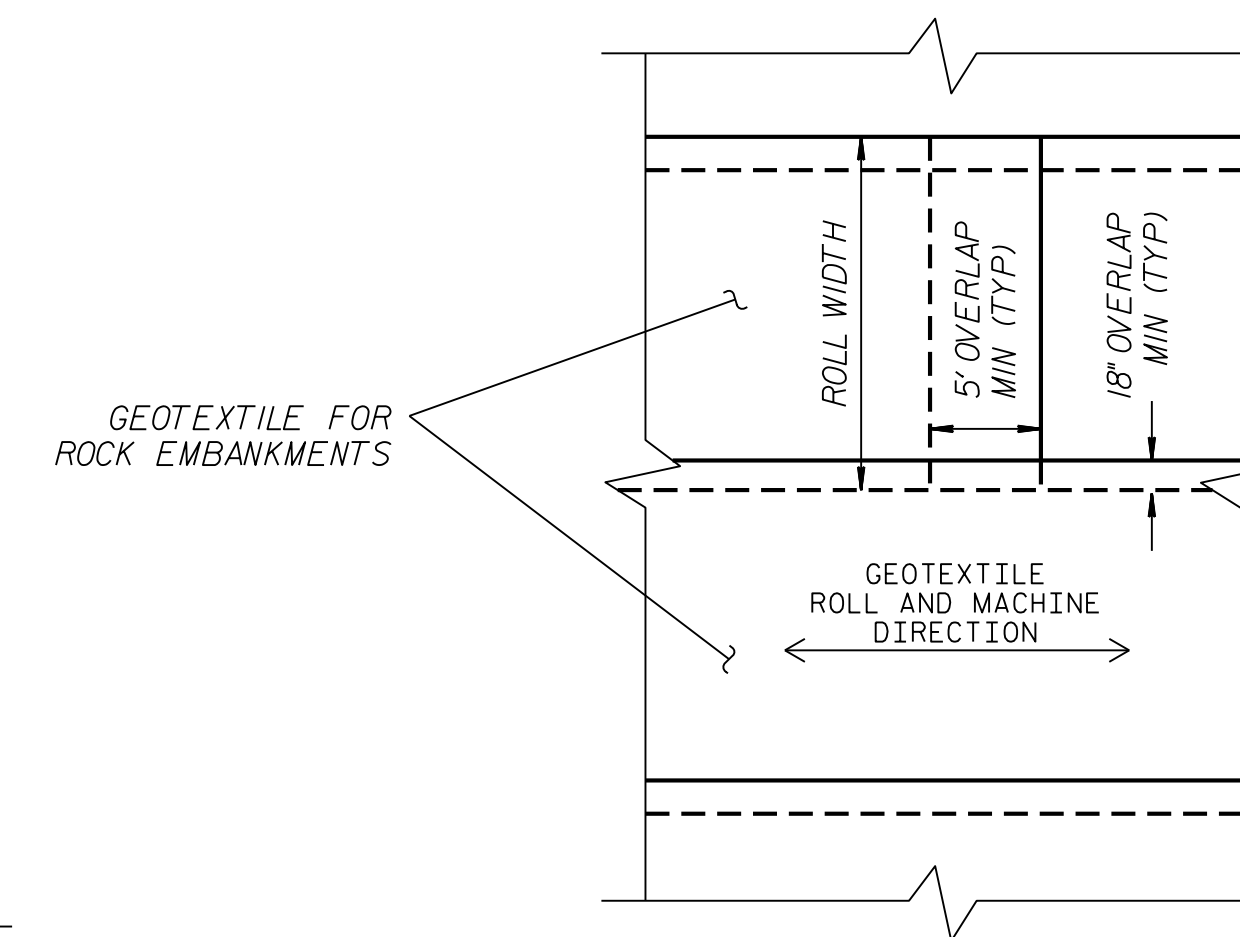


DocuSigned by:  
Joel S. Howerton 9/2/2016  
873F3D17DCDC48F

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

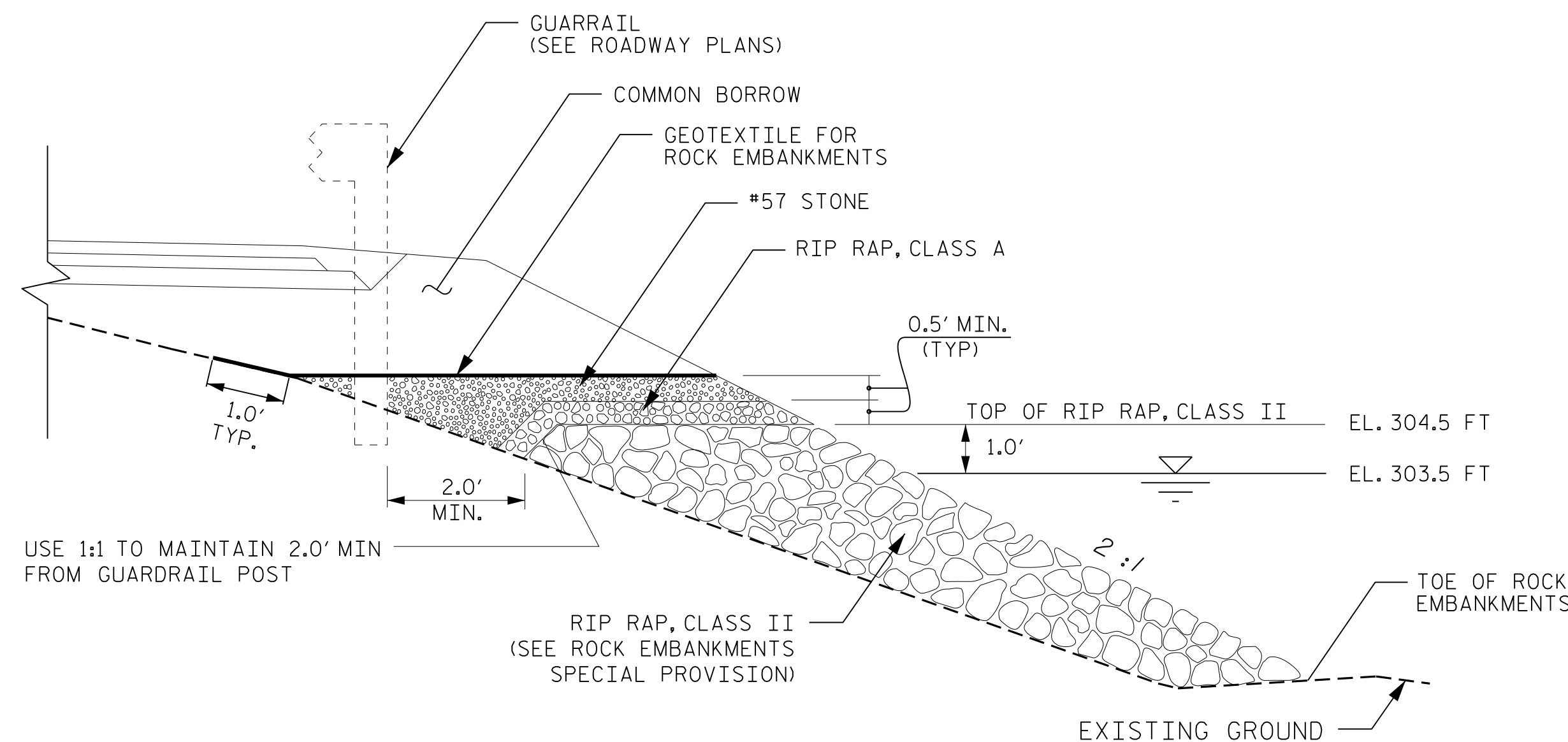


**PLAN VIEW FOR LIMITS OF ROCK EMBANKMENTS**  
N.T.S.



**GEOTEXTILE FOR ROCK EMBANKMENTS OVERLAP DETAIL**  
(PLAN VIEW)

ESTIMATED CONTINGENCY QUANTITIES	
RIP RAP, CLASS II	160 TONS
RIP RAP, CLASS A	45 TONS
#57 STONE	55 TONS
GEOTEXTILE FOR ROCK EMBANKMENTS	150 SY



**ROCK EMBANKMENTS – TYPICAL SECTION A-A**  
N.T.S.

**NOTES**

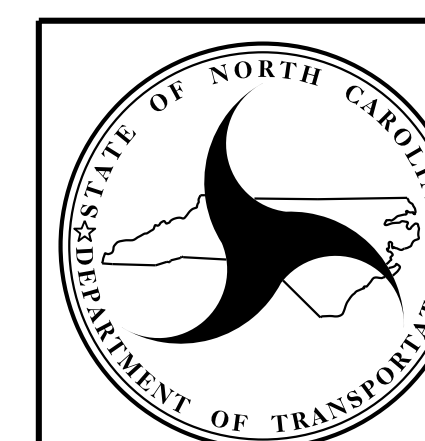
ROCK EMBANKMENT IS NOT REQUIRED IF THE WATER LEVEL IN THE KERR LAKE RESERVOIR DOES NOT WARRANT A ROCK EMBANKMENT. THE ENGINEER WILL DETERMINE THE NEED FOR ROCK EMBANKMENT.

THE TOE PROTECTION SHALL BE USED WHEN ROCK EMBANKMENT IS NOT REQUIRED. SEE ROADWAY PLANS FOR TOE PROTECTION DETAILS.

FOR ROCK EMBANKMENTS, SEE ROCK EMBANKMENT SPECIAL PROVISION (SPECIAL).

INSTALL RIP RAP, CLASS II TO ELEVATION 304.5 FT, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. USE 1:1 SLOPE TO MAINTAIN THE MINIMUM 2.0 FT FROM GUARDRAIL POST.

THE ESTIMATED QUANTITIES OF RIPRAP, CLASS A INCLUDE ADDITIONAL TONNAGE FOR FILLING OF GAPS BETWEEN RIP RAP, CLASS II.



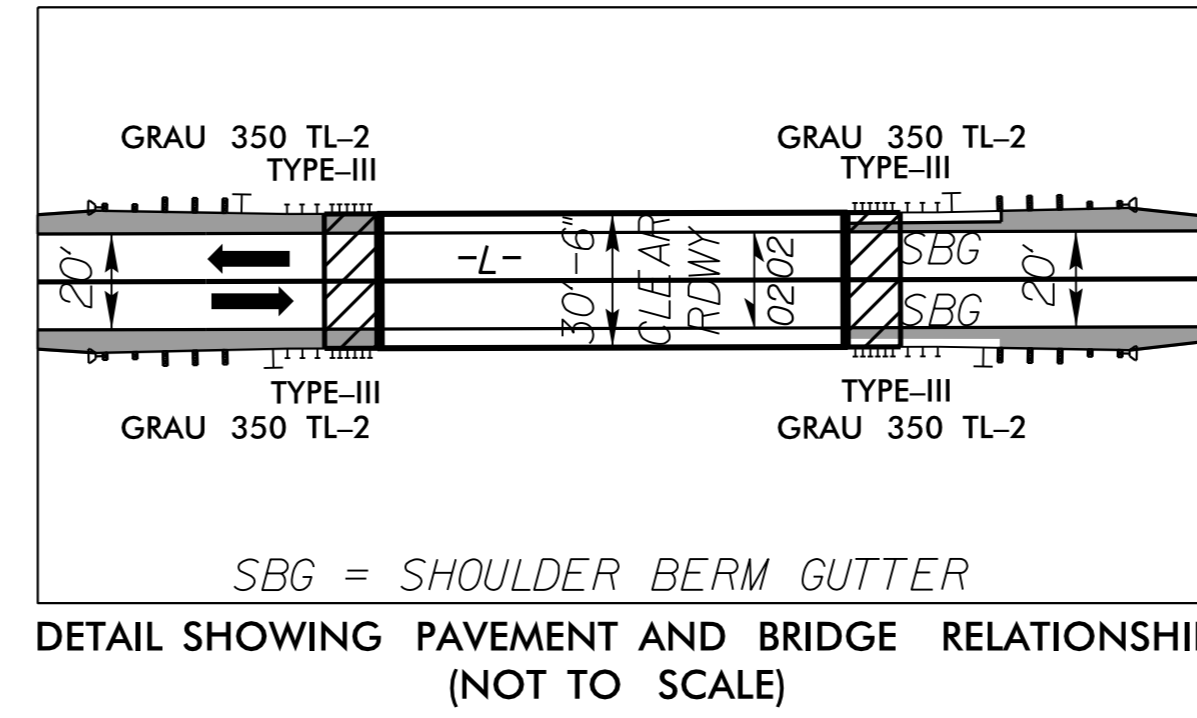
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		







PROJECT REFERENCE NO. B-4945	SHEET NO. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER BRUCE B. PAYNE SEAL 22610 NORTH CAROLINA PROFESSIONAL ENGINEER	HYDRAULICS ENGINEER WILLIAM H. ELAM SEAL 019721 NORTH CAROLINA PROFESSIONAL ENGINEER
DocuSigned by: Bruce Payne 9/13/2016	DocuSigned by: William H. Elam 9/13/2016
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

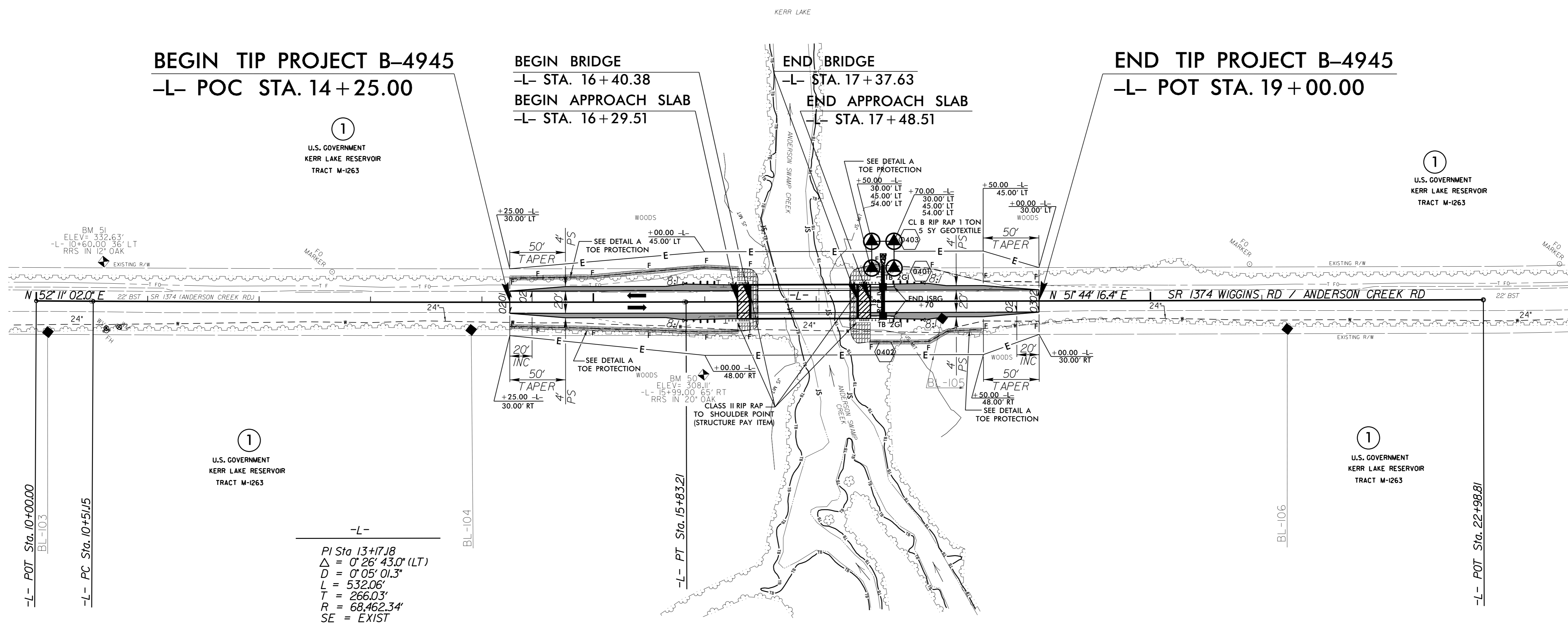


**BEGIN TIP PROJECT B-4945**  
-L- POC STA. 14+25.00

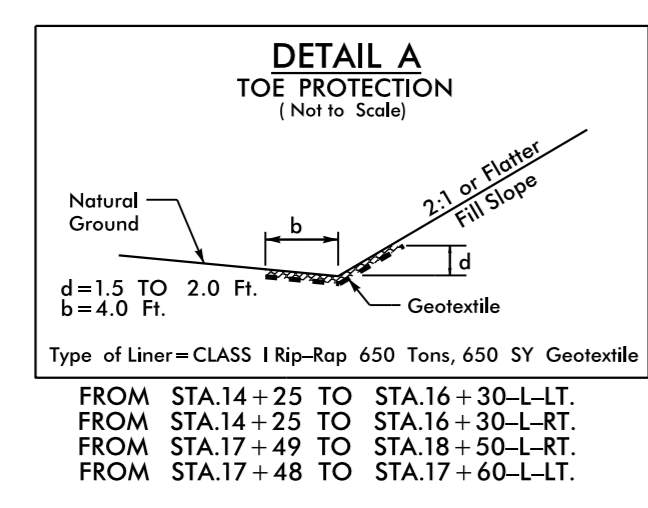
**BEGIN BRIDGE**  
-L- STA. 16+40.38  
**BEGIN APPROACH SLAB**  
-L- STA. 16+29.51

**END BRIDGE**  
-L- STA. 17+37.63  
**END APPROACH SLAB**  
-L- STA. 17+48.51

**END TIP PROJECT B-4945**  
-L- POT STA. 19+00.00



-L-  
PI Sta 13+17.18  
 $\Delta = 0^\circ 26' 43.0''$  (LT)  
 $D = 0^\circ 05' 01.3''$   
 $L = 532.06'$   
 $T = 266.03'$   
 $R = 68,462.34'$   
SE = EXIST



NOTE: IF THE WATER LEVEL IS ELEVATED DURING CONSTRUCTION, THEN THE USE OF A ROCK EMBANKMENT WILL BE NECESSARY TO 1' ABOVE THE WATER LEVEL. SEE DETAIL SHEET 2G-1 FOR DETAIL. IF THE ROCK EMBANKMENT IS NOT NECESSARY, THEN THE TOE PROTECTION MUST BE USED.

PAVED SHOULDER

NOTES:  
SEE SHEET 5 FOR -L- PROFILE  
SEE SHEET S-1 - S-15 FOR STRUCTURE PLANS

5/14/99  
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**-L- SR 1374 WIGGINS RD /ANDERSON CREEK RD**

BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 1700 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 301.9 FT
BASE DISCHARGE	= 2502 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 303.14 FT
OVERTOPPING DISCHARGE	= 5500 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 307.43 FT
	= _____ FT
DATE OF SURVEY	= 7-21-15
W.S. ELEVATION AT DATE OF SURVEY	= 298.8 FT

BEGIN GRADE -L- STA 14+25.00  
EL = 314.85'

BM \*50  
-L- STA 15+99.00 65' RT  
ELEV = 308.11'  
RR SPIKE IN 20' OAK

BEGIN BRIDGE -L- STA 16+40.38

END BRIDGE -L- STA 17+37.63

END GRADE -L- STA 19+00.00  
EL = 312.20'

PI = 15+29.00  
EL = 308.12'  
K = 27  
VC = 169'  
V = 25

PI = 18+25.00  
EL = 307.23'  
K = 17  
VC = 120'  
V = 20

ABUTMENT EXCAVATION (STRUCTURE PAY ITEM)  
STRUCTURE PAY ITEM

PER BSR: 9/30/2015  
1 SPAN @ 95', 39" BOX BEAM

NOTES:  
SEE SHEET 4 FOR PLAN VIEW  
SEE SHEETS S-1 THRU S-15 FOR STRUCTURE PLANS

5/14/99  
02 SEP 2016 09:00:49:45:Rdy\_pfl.pst05.dgn

