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09/08/09

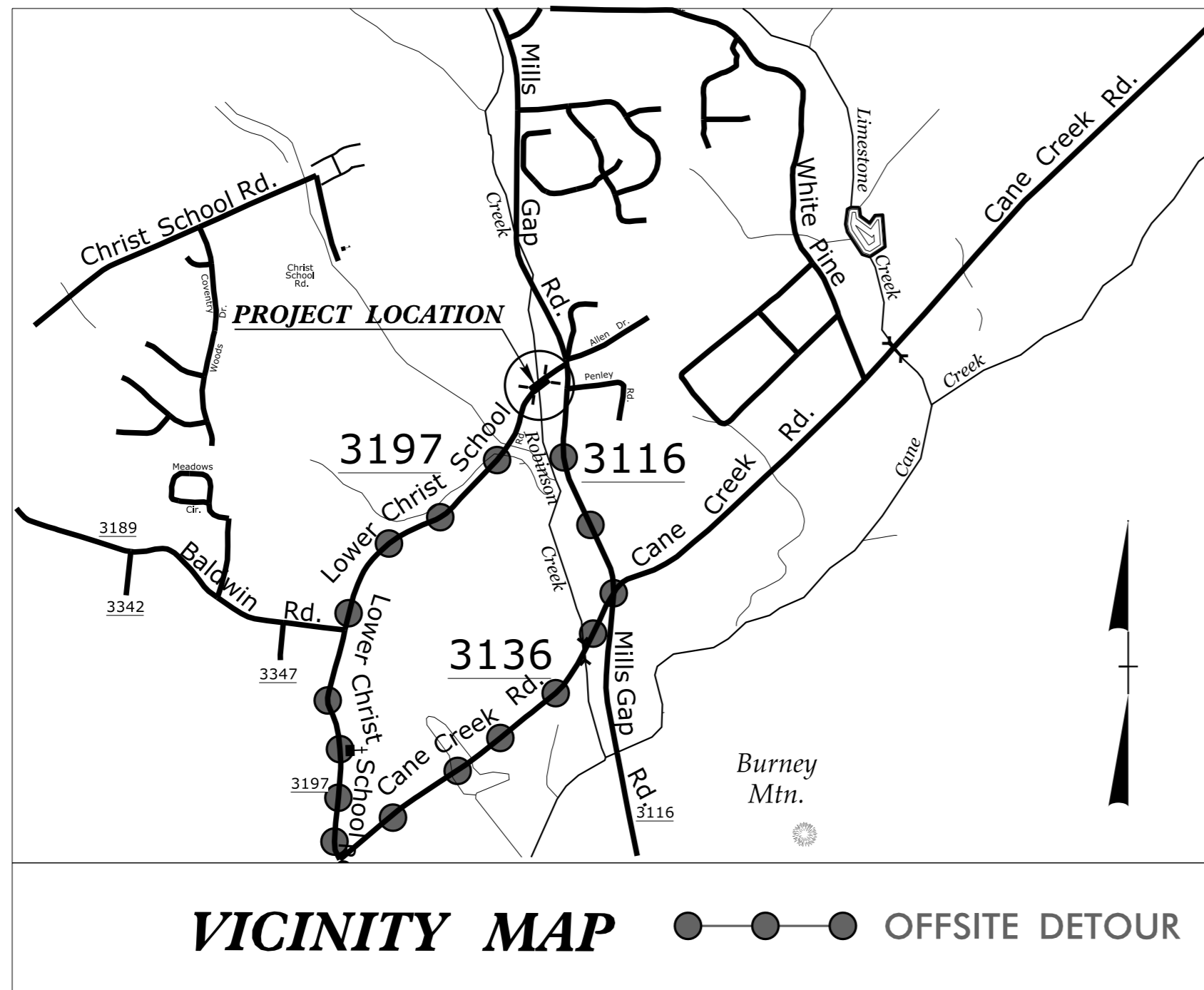
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5244	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42846.1.1	BRZ-3197 (1)	PE	
42846.2.3	BRZ-3197 (1)	RW & UTL.	
42846.3.2		CONST.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

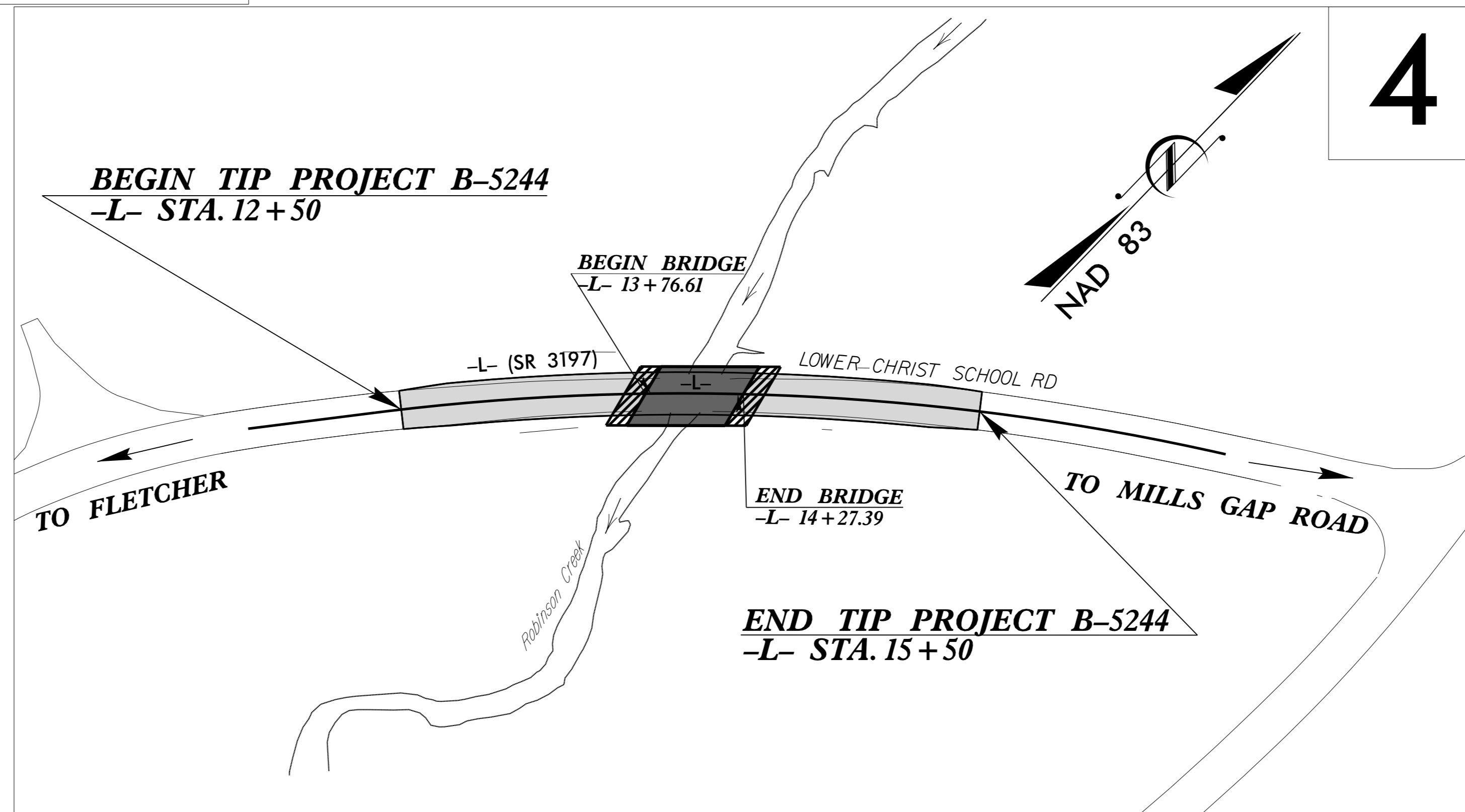
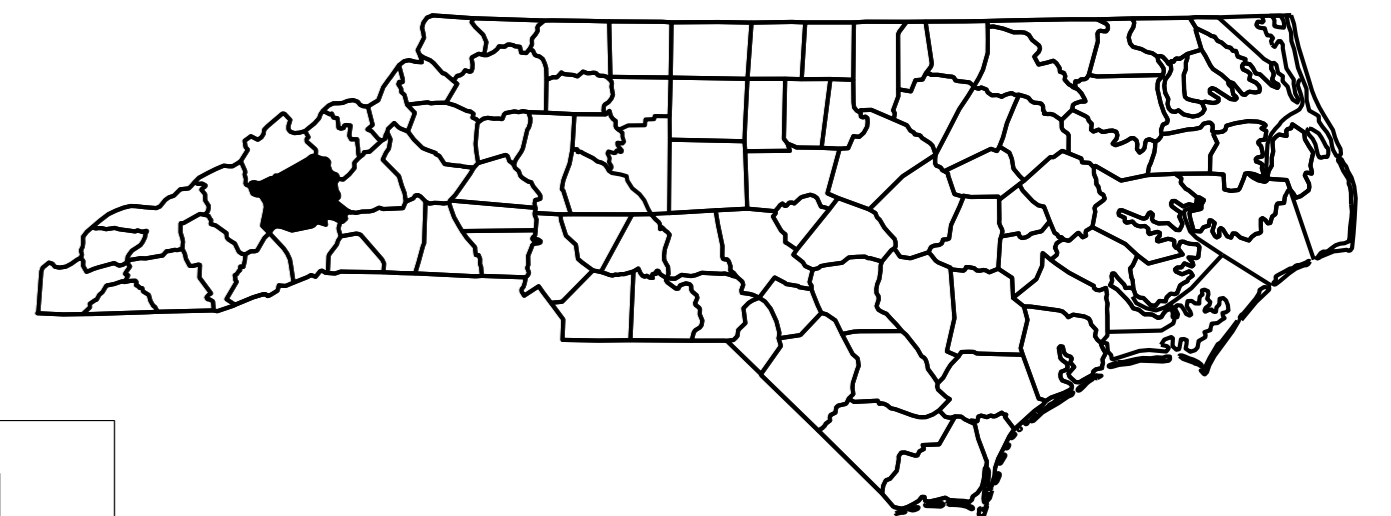
# BUNCOMBE COUNTY

LOCATION: BRIDGE NO. 363 OVER ROBINSON CREEK  
ON SR 3197

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

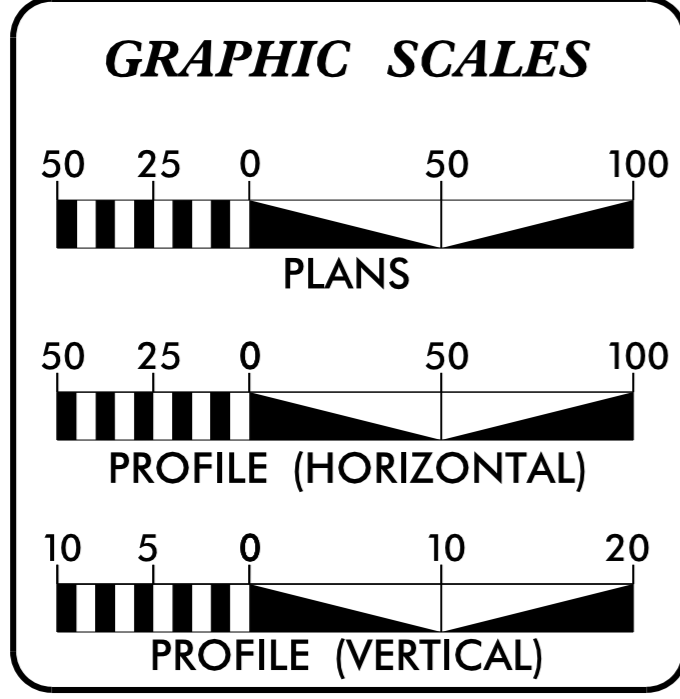


See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols  
See Sheet 1-C For Survey Control Sheet



TIP PROJECT: B-5244

CONTRACT: C203669



**DESIGN DATA**

ADT 2011 =	2200
ADT 2035 =	4000
K =	9 %
D =	70 %
T =	3 % *
V =	40 MPH
* TTST =	1% DUAL=2%
FUNC CLASS =	LOCAL
SUB-REGIONAL TIER	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-5244 =	0.047 MILE
LENGTH OF STRUCTURE TIP PROJECT B-5244 =	0.010 MILE
TOTAL LENGTH TIP PROJECT B-5244 =	0.057 MILE

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

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
FEBRUARY 20, 2015

**LETTING DATE:**  
FEBRUARY 16, 2016

**KEVIN E. MOORE, PE**  
PROJECT ENGINEER

**NATHAN N. ADIMA, PE**  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

1/4/2016

DocuSigned by:  
Matt D. Shelton  
572AF538004E8

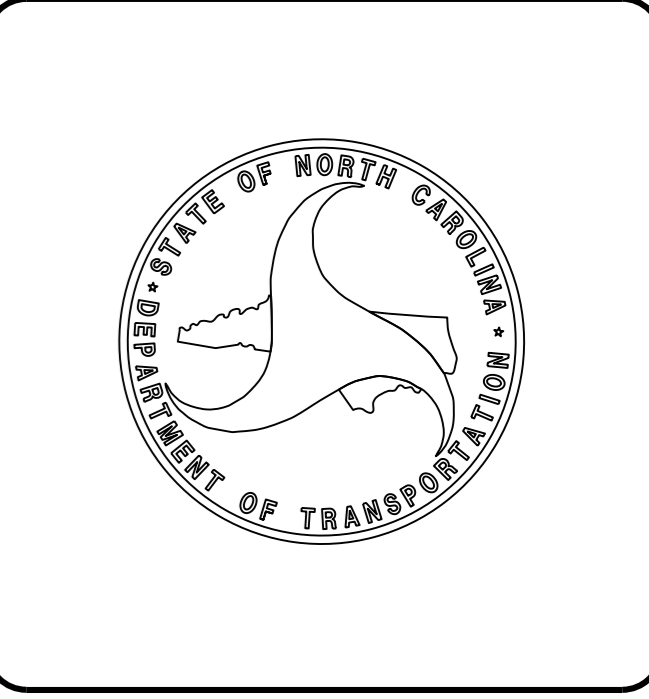
SIGNATURE:

**ROADWAY DESIGN ENGINEER**

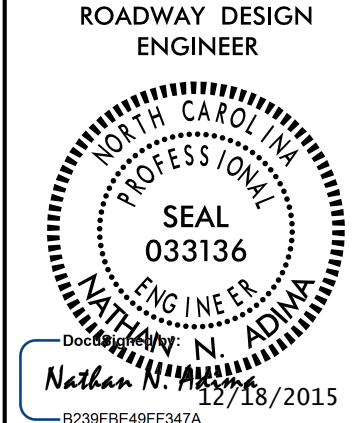
DocuSigned by:  
Nathan N. Adima  
5029FEE49EF347A

12/18/2015

SIGNATURE:



18-NOV-2015 08:08  
R:\Roadway\Proj\B5244\_Rdy-tsh\_L.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$



SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-2	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	SPECIAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 5	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-4	CROSS-SECTIONS
S-1 THRU S-18	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 11.

**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

**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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

**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 AT&T -TELEPHONE  
 DUKE ENERGY- PROGRESS - POWER (DISTRIBUTION)  
 ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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
<b>DIVISION 2 - EARTHWORK</b>	
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
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation
<b>DIVISION 4 - MAJOR STRUCTURES</b>	
422.11	Reinforced 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 6 - ASPHALT BASES AND PAVEMENTS</b>	
654.01	Pavement Repairs
<b>DIVISION 8 - INCIDENTALS</b>	
815.02	Subsurface Drain
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
876.04	Drainage Ditches with Class 'B' Rip Rap

04/16/11

Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

### 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	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	--- WL.B ---
Proposed Wetland Boundary	--- WL.B ---
Existing Endangered Animal Boundary	--- E.A.B ---
Existing Endangered Plant Boundary	--- E.P.B ---
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	○
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	○
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	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite Marker	○
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	--- C ---
Proposed Slope Stakes Fill	--- F ---
Proposed Curb Ramp	○
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	□

### 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	-----

### 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	●
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Booth	□
Telephone Pedestal	⊕
Telephone Cell Tower	⊗
U/G Telephone Cable Hand Hole	□
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

### WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

### TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	□
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

### GAS:

Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

### SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

### MISCELLANEOUS:

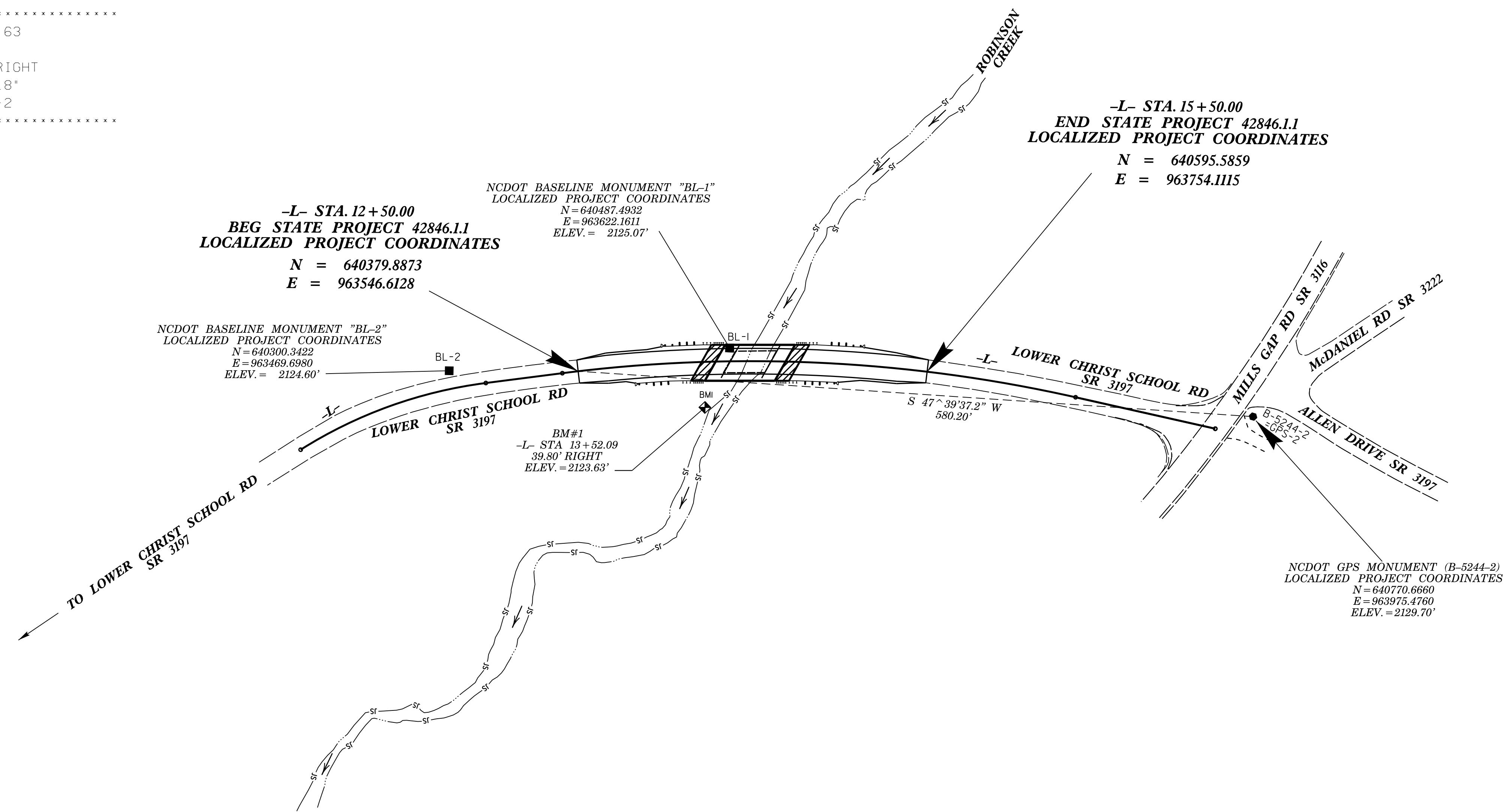
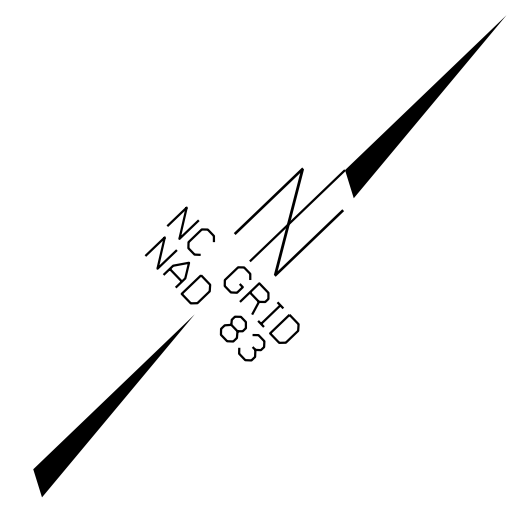
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility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

# SURVEY CONTROL SHEET B-5244

PROJECT REFERENCE NO.	SHEET NO.
B-5244	1C-1
Location and Surveys	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
	2	BL-2	640300.3422	963469.6980	2124.60	11+41.42	15.54 LT
	1	BL-1	640487.4932	963622.1611	2125.07	13+80.45	11.45 LT
	GPS2	B5244-2	640770.6660	963975.4760	2129.70	OUTSIDE PROJECT LIMITS	

.....  
 BM1 ELEVATION = 2123.63  
 N 640432 E 963641  
 L STATION 13+52.09 39.80' RIGHT  
 RR SPIKE SET IN BASE OF A 18"  
 CHERRY TREE ACROSS FROM BL-2  
 .....



**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/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B5422\_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)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B-5244-2 = GPS-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 640770.6660(ft) EASTING: 963975.4760(ft) ELEVATION: 2129.70(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99963296  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-5244-2 = GPS-2" TO -L- STATION 12+50.00 IS S 47°39'37.2" W 580.20'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

REVISIONS

8/17/99

19-NOV-2015 09:05 B5244\_1s\_1c.dgn  
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# SURVEY CONTROL SHEET B-5244 (FINAL)

## (DESIGN ALIGNMENTS)

-L-

L			
TYPE	STATION	NORTH	EAST
PC	10+00.00	640161.5318	963430.4023
PT	11+70.17	640315.7592	963499.0688
PC	12+36.33	640368.9387	963538.4195
PT	16+79.29	640672.3097	963858.1059
POT	18+02.10	640740.0930	963960.5153

## (PERMANENT EASEMENTS)

-L-

L PERMANENT EASEMENT (IRON PIN AND CAP)				
ALIGN	STATION	OFFSET	NORTH	EAST
L	13+00.00	-45.00	640447.7004	963542.7774
L	13+00.00	-29.59	640437.9254	963554.6882
L	13+40.00	30.61	640429.5140	963626.4589
L	13+40.00	42.00	640422.0137	963635.0323
L	13+60.00	-60.00	640504.8295	963572.1787
L	14+15.00	30.79	640483.0167	963676.3796
L	14+15.00	42.00	640475.1506	963684.3654
L	14+50.00	-52.00	640566.7156	963643.3194
L	15+50.00	-45.00	640630.3901	963725.5866
L	15+50.00	-30.30	640619.0241	963734.9020

**NOTES:**

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
TIP B5244\_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 EXISTING HARN MONUMENTATION  
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

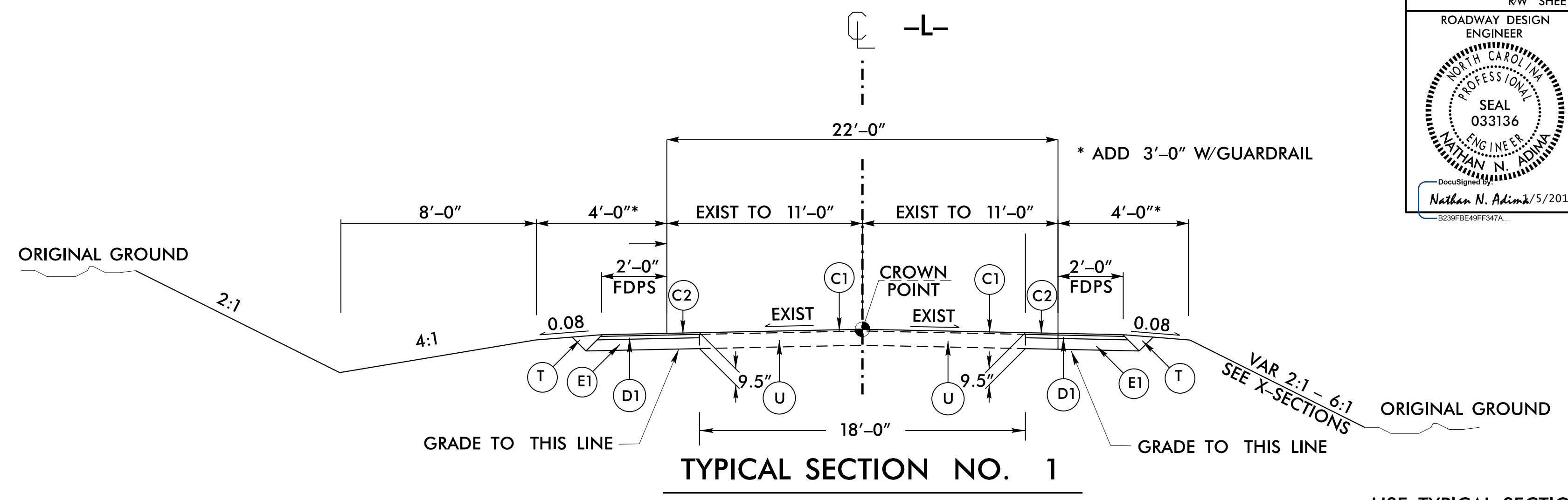
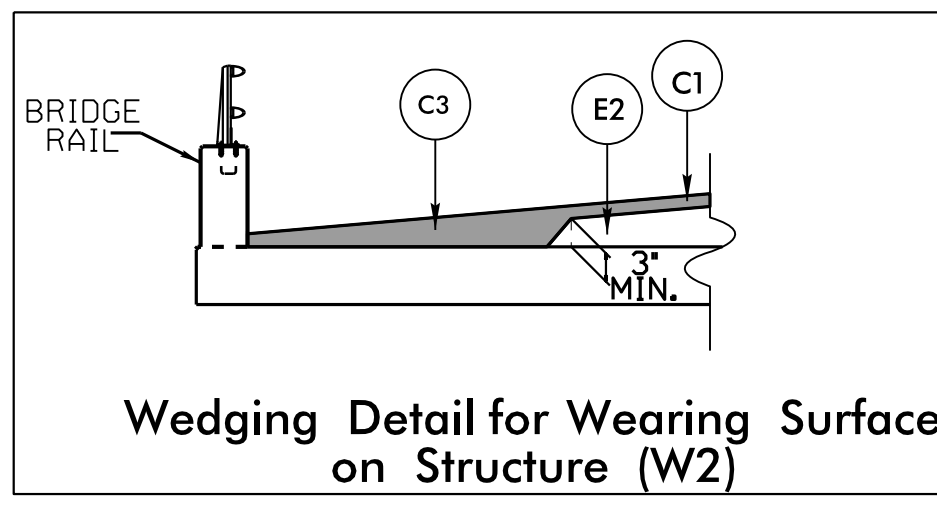
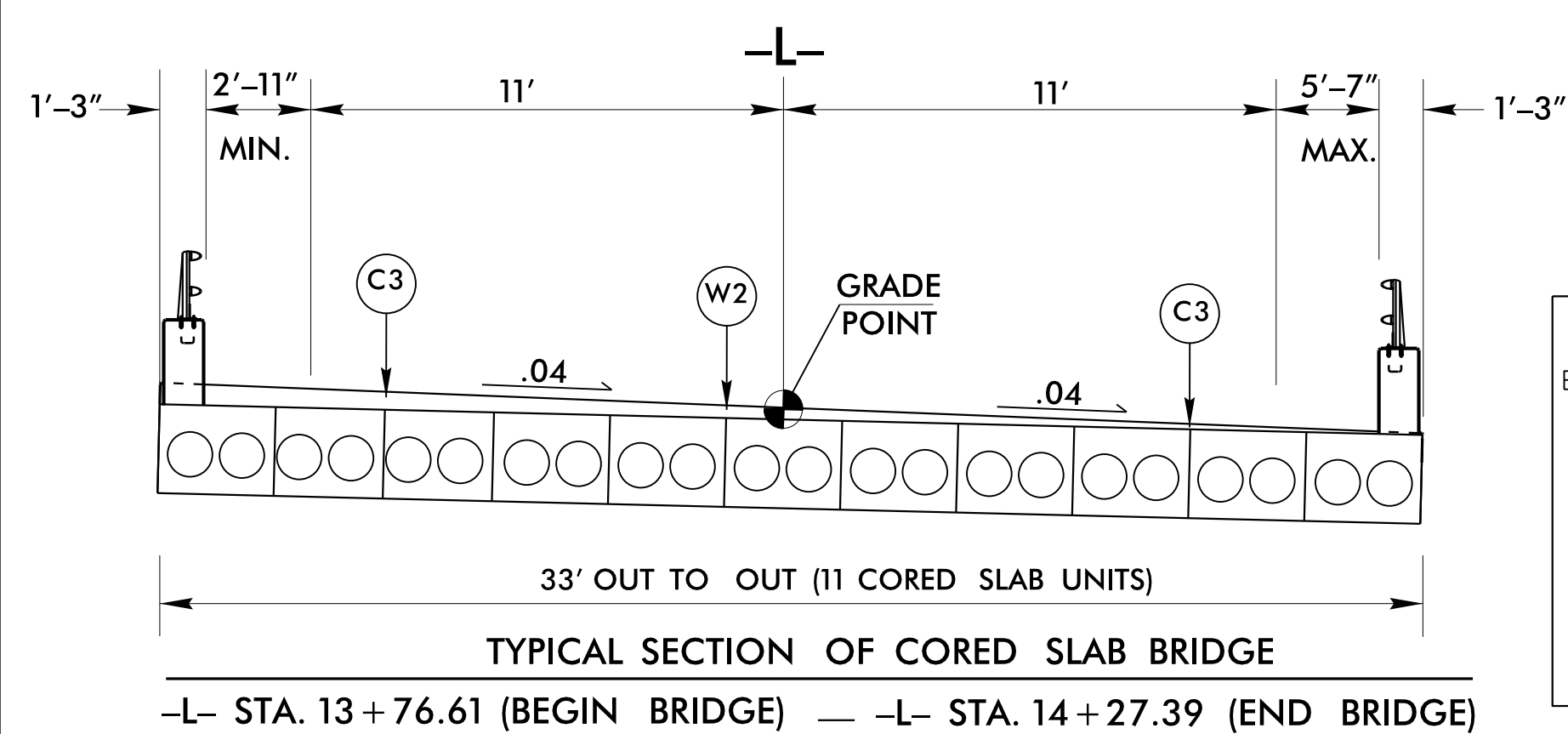
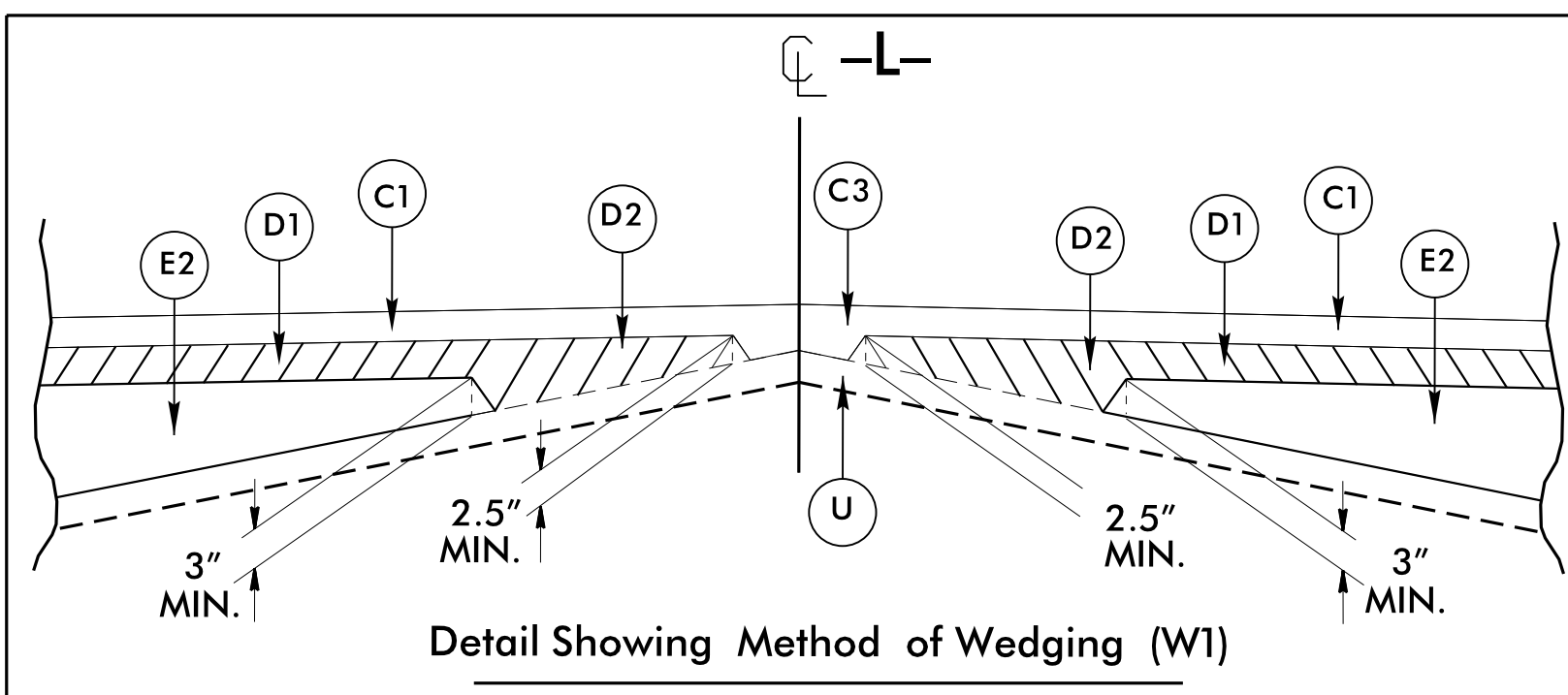
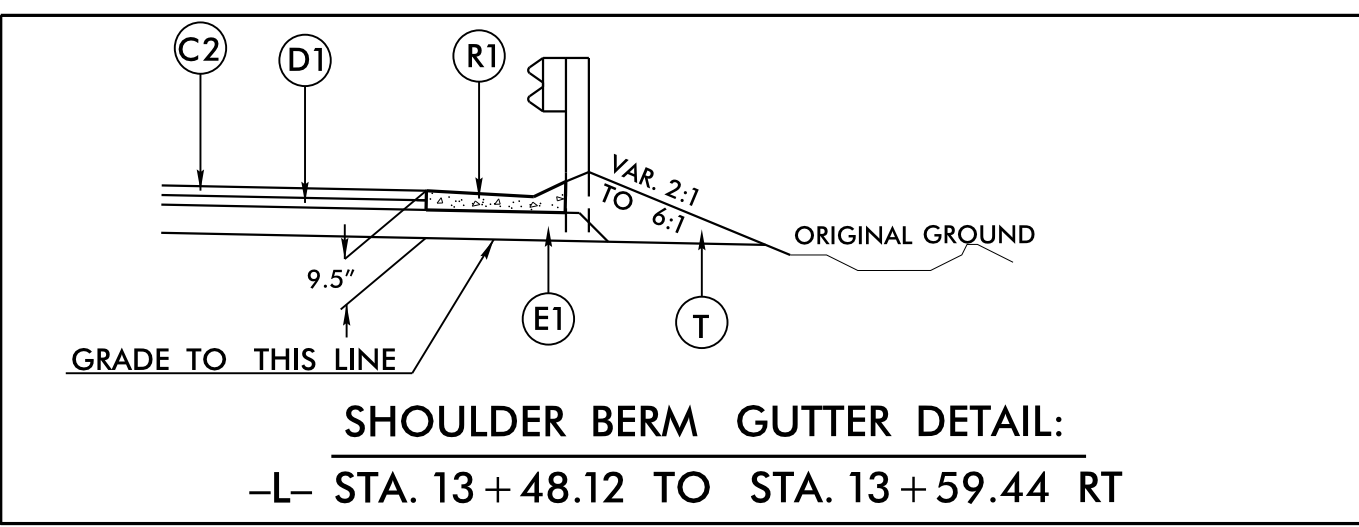
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### DATUM DESCRIPTION

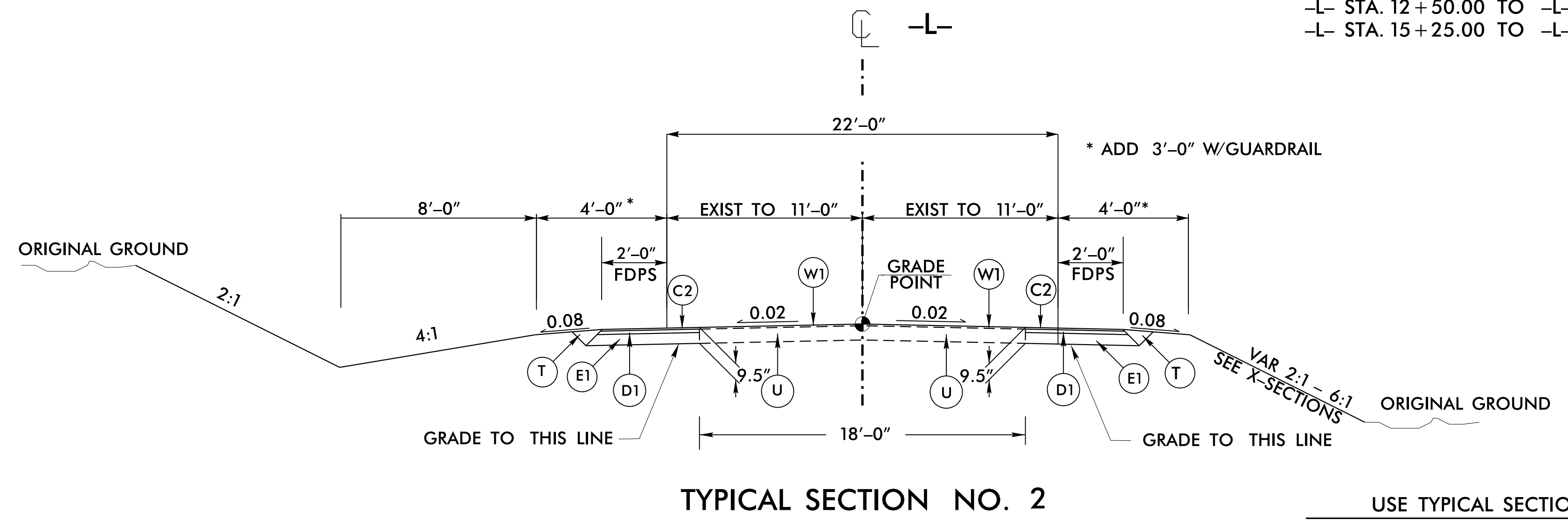
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S 47°39'37.2" W 580.20'  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	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 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 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 5 1/2" IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING
W1	VAR. DEPTH ASPHALT WEDGING (SEE DETAIL)
W2	VAR. DEPTH ASPHALT WEDGING FOR WEARING SURFACE (SEE DETAIL)

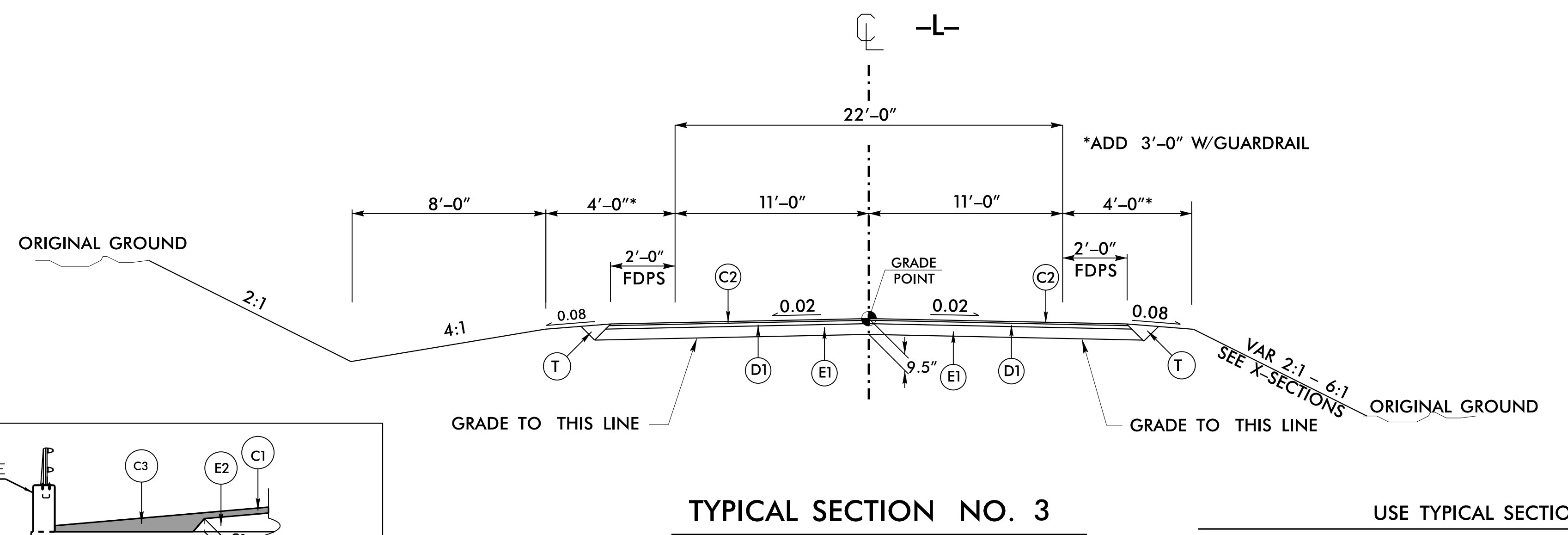
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



USE TYPICAL SECTION NO. 1  
-L- STA. 12+50.00 TO -L- STA. 12+75.00  
-L- STA. 15+25.00 TO -L- STA. 15+50.00



USE TYPICAL SECTION NO. 2  
-L- STA. 14+77.39 TO -L- STA. 15+25.00



USE TYPICAL SECTION NO. 3  
-L- STA. 12+75.00 TO STA. 13+76.61 (BEGIN BRIDGE)  
-L- STA. 14+27.39 (END BRIDGE) TO -L- STA. 14+77.39

REVISIONS

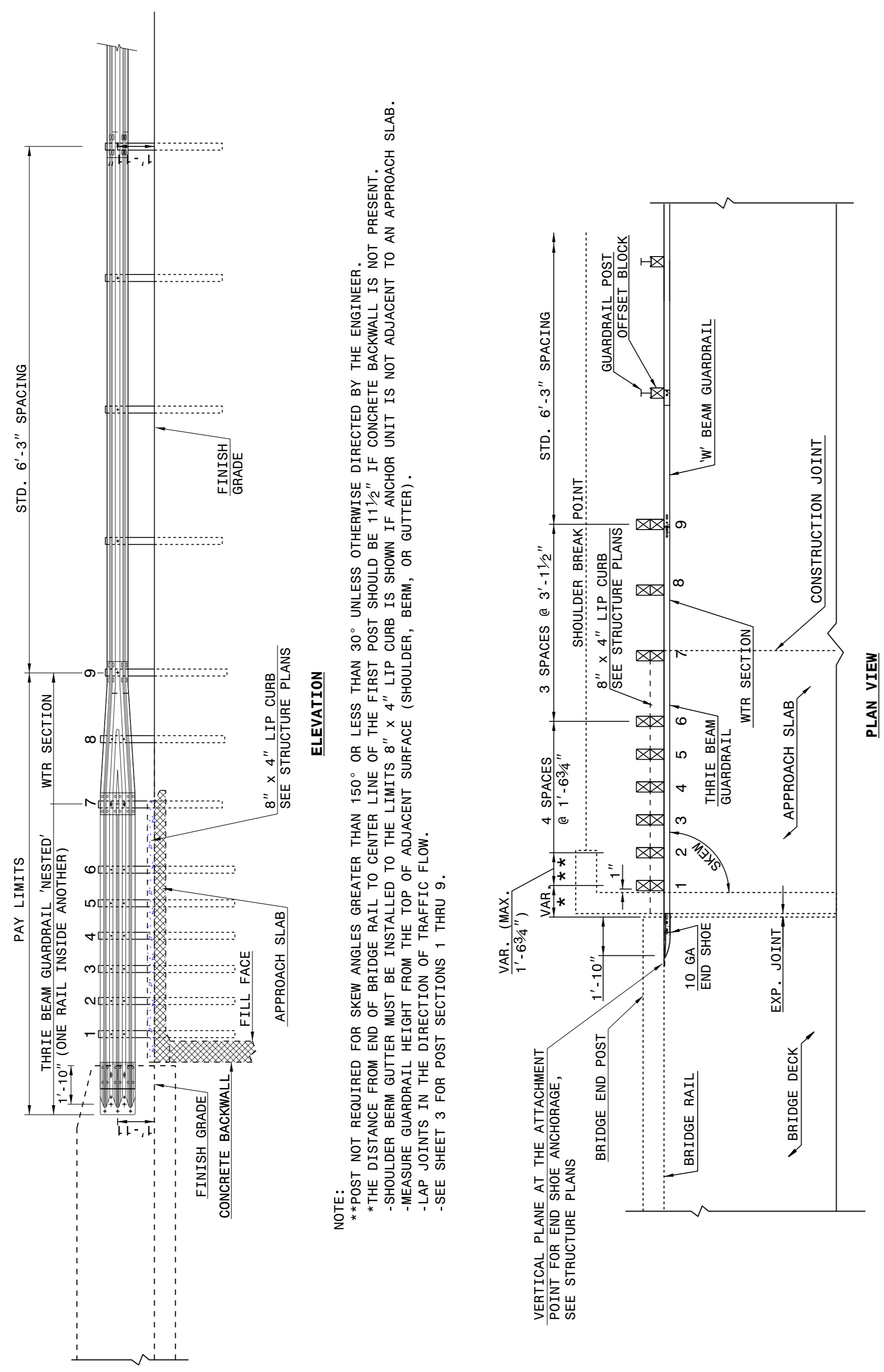
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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

SHEET 2 OF 7 **862d03**



**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 11 1/2". 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.

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.

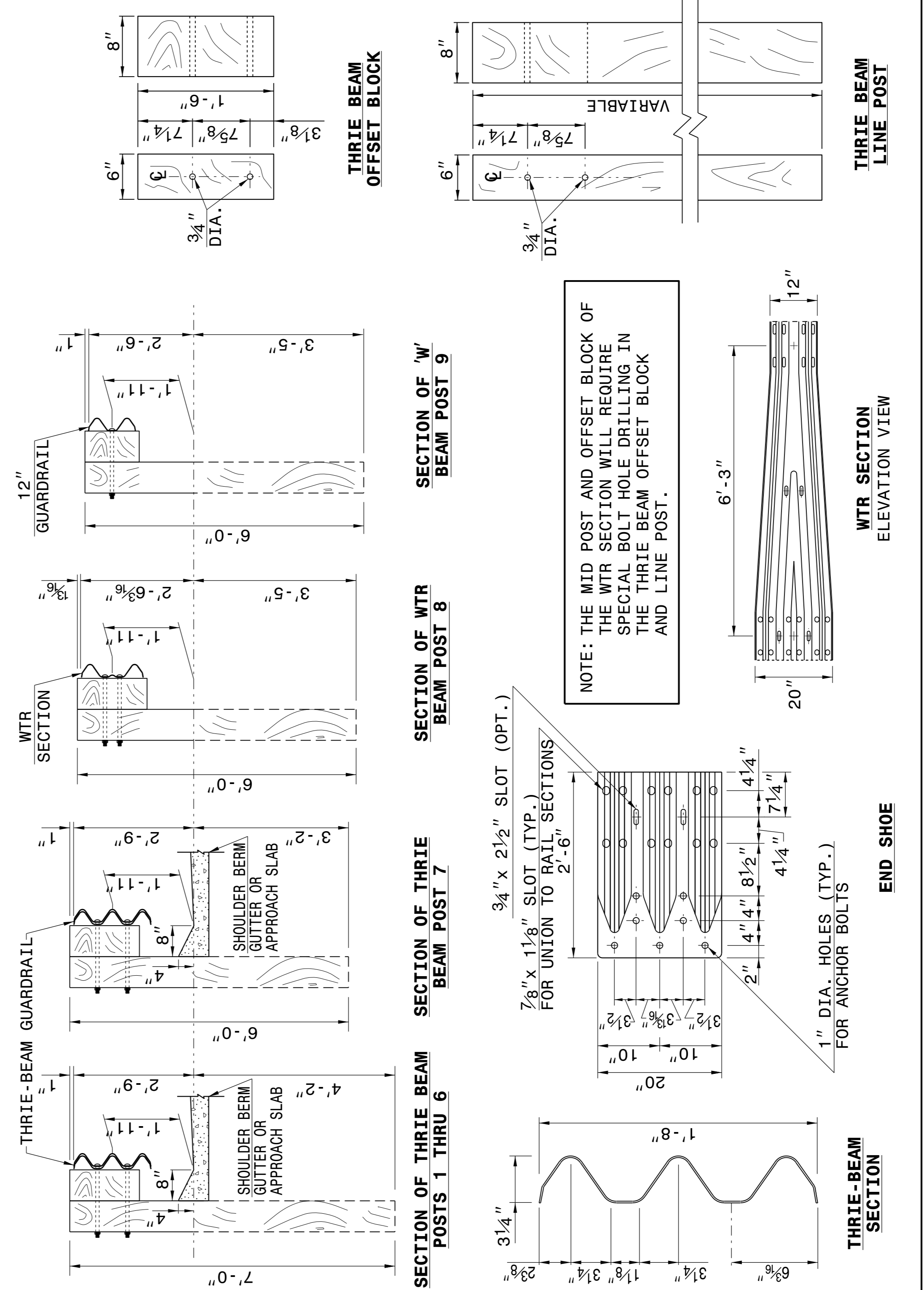
ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNITS, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7 **862d03**

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

ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNITS, TYPE III

SHEET 3 OF 7 **862d03**

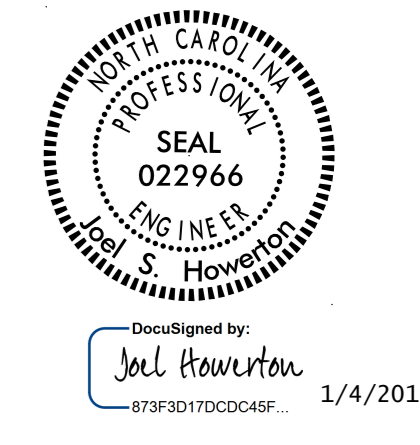


**NOTE:** THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.

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

ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNITS, TYPE III

SHEET 3 OF 7 **862d03**



DocuSigned by:  
Joel Howerton  
873F3D17DDC045F 1/4/2016

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







COMPUTED BY: PQ Lockamy DATE: 3/26/14  
 CHECKED BY: S.C.Clark DATE: 3/26/14

PROJECT NO. B-5244	SHEET NO. 3G-1
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STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

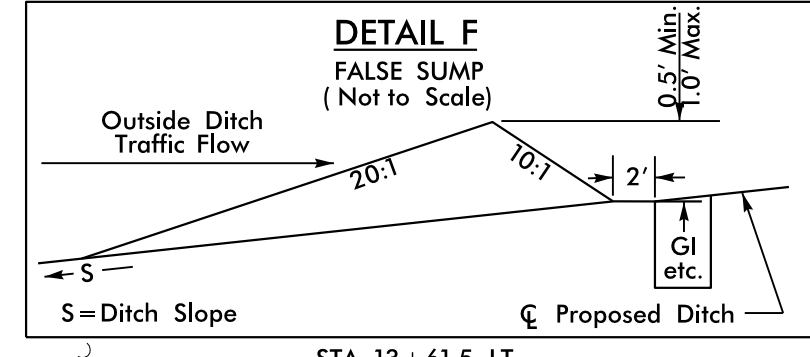
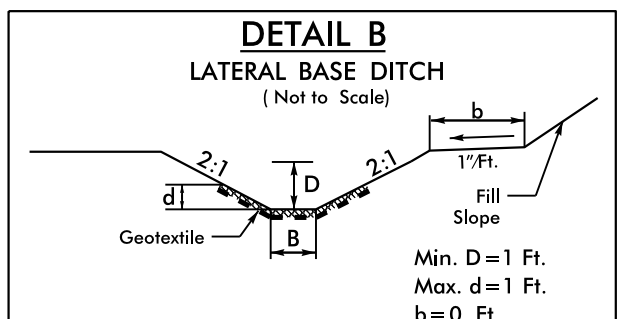
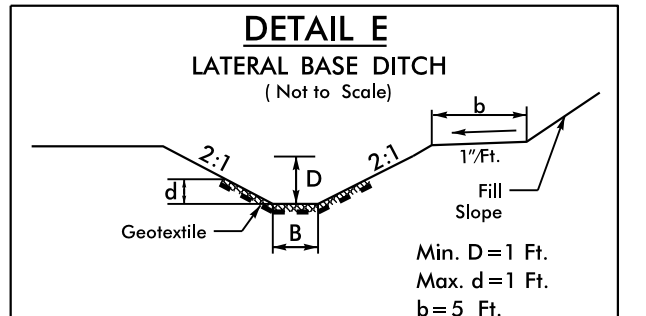
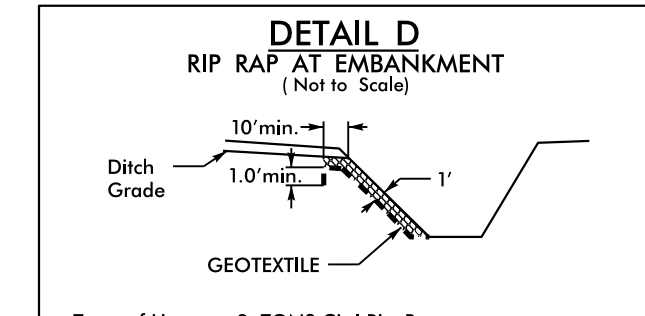
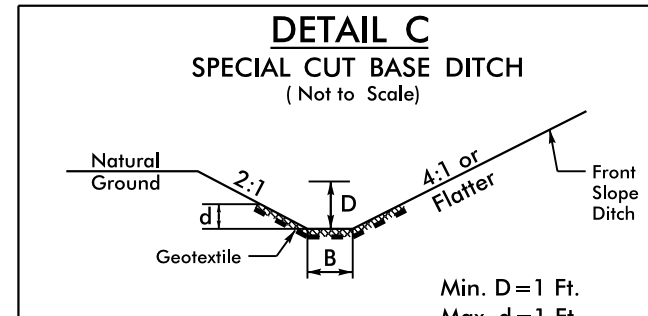
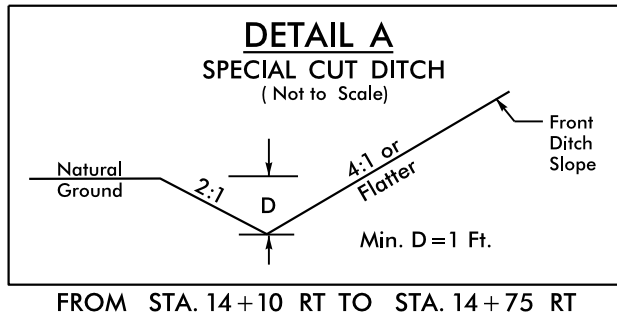
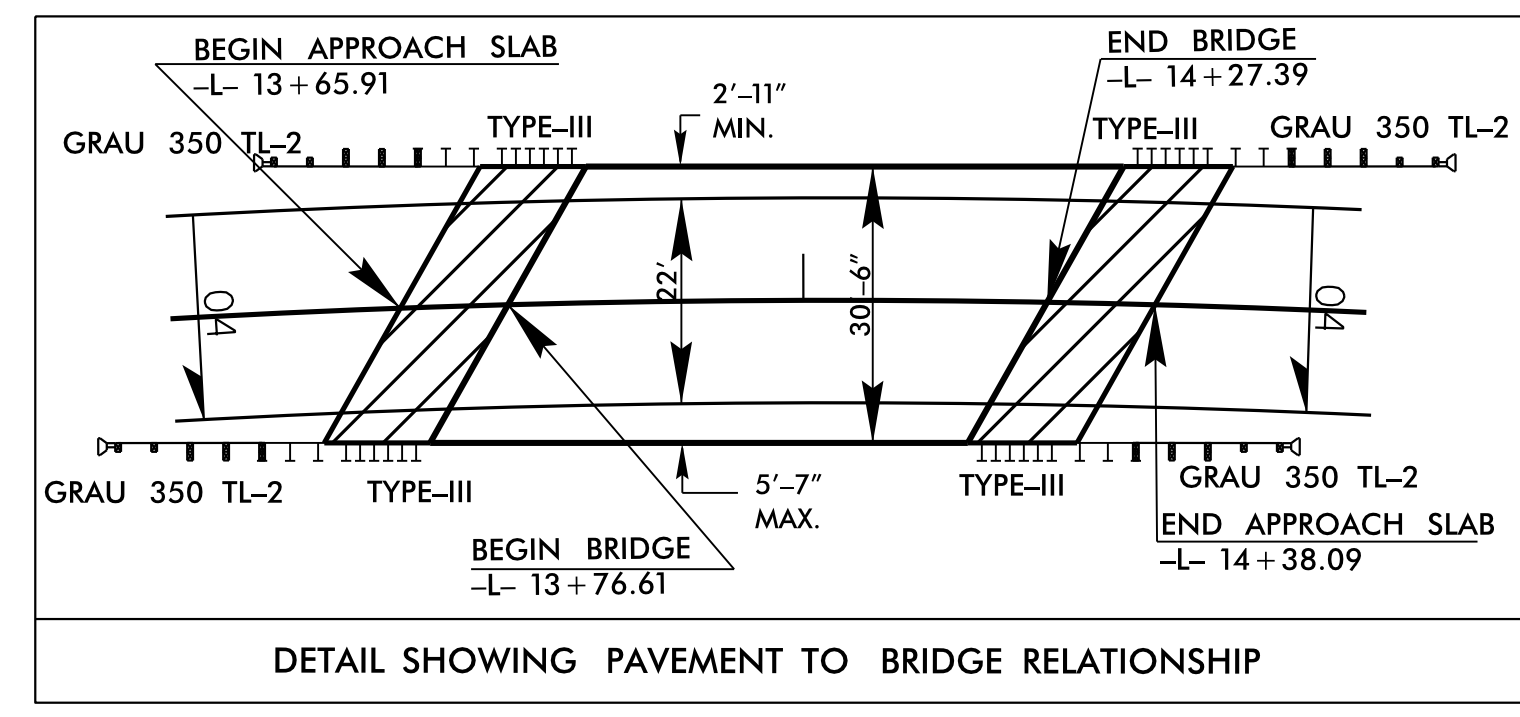
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	100
				<b>TOTAL LF:</b>	100

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

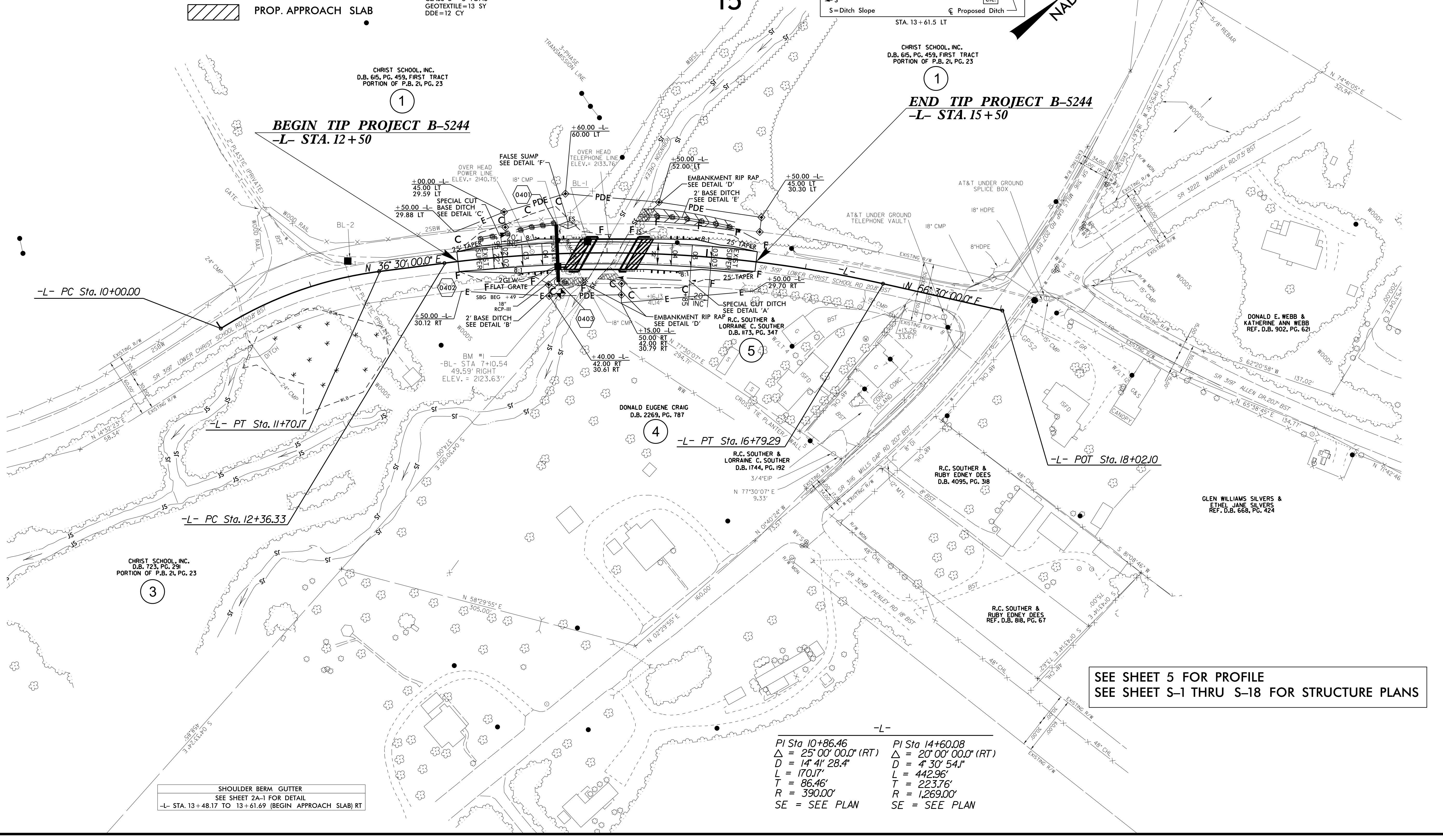
SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

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		100	190	150		
<b>TOTAL CY/TONS/SY:</b>					100	190	150 *	0	0

\*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.



PROP. APPROACH SLAB



-L-  
 PI Sta 10+86.46      PI Sta 14+60.08  
 $\Delta = 25^{\circ} 00' 00.0''$  (RT)       $\Delta = 20^{\circ} 00' 00.0''$  (RT)  
 D = 14' 41" 28.4"      D = 4' 30" 54.1"  
 L = 170.17'      L = 442.96'  
 T = 86.46'      T = 223.76'  
 R = 390.00'      R = 1,269.00'  
 SE = SEE PLAN      SE = SEE PLAN

SEE SHEET 5 FOR PROFILE  
 SEE SHEET S-1 THRU S-18 FOR STRUCTURE PLANS

SHOULDER BERM GUTTER  
 SEE SHEET 2A-1 FOR DETAIL  
 -L- STA. 13+48.17 TO 13+61.69 (BEGIN APPROACH SLAB) RT

REVISIONS

B/17/99

08 JAN 2016 09:05  
 B:\PROJECTS\B-5244-rdy.psh4.dgn  
 3:44:50 PM NATHAN ADAMS

# -L- (SR 3197)

**STRUCTURE HYDRAULIC DATA**

DESIGN DISCHARGE	=	1250	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	2124.4	FT
BASE DISCHARGE	=	1830	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	2125.61	FT
OVERTOPPING DISCHARGE	=	1299	CFS
OVERTOPPING FREQUENCY	=	50	YRS
OVERTOPPING ELEVATION	=	2124.9	FT

*Note: W.S.E.L. Taken @ River Station 0.883  
 Note: Road is overtopped approximately 234 ft from centerline of bridge  
 (at approximately L STA. 11+68 Lt.).*

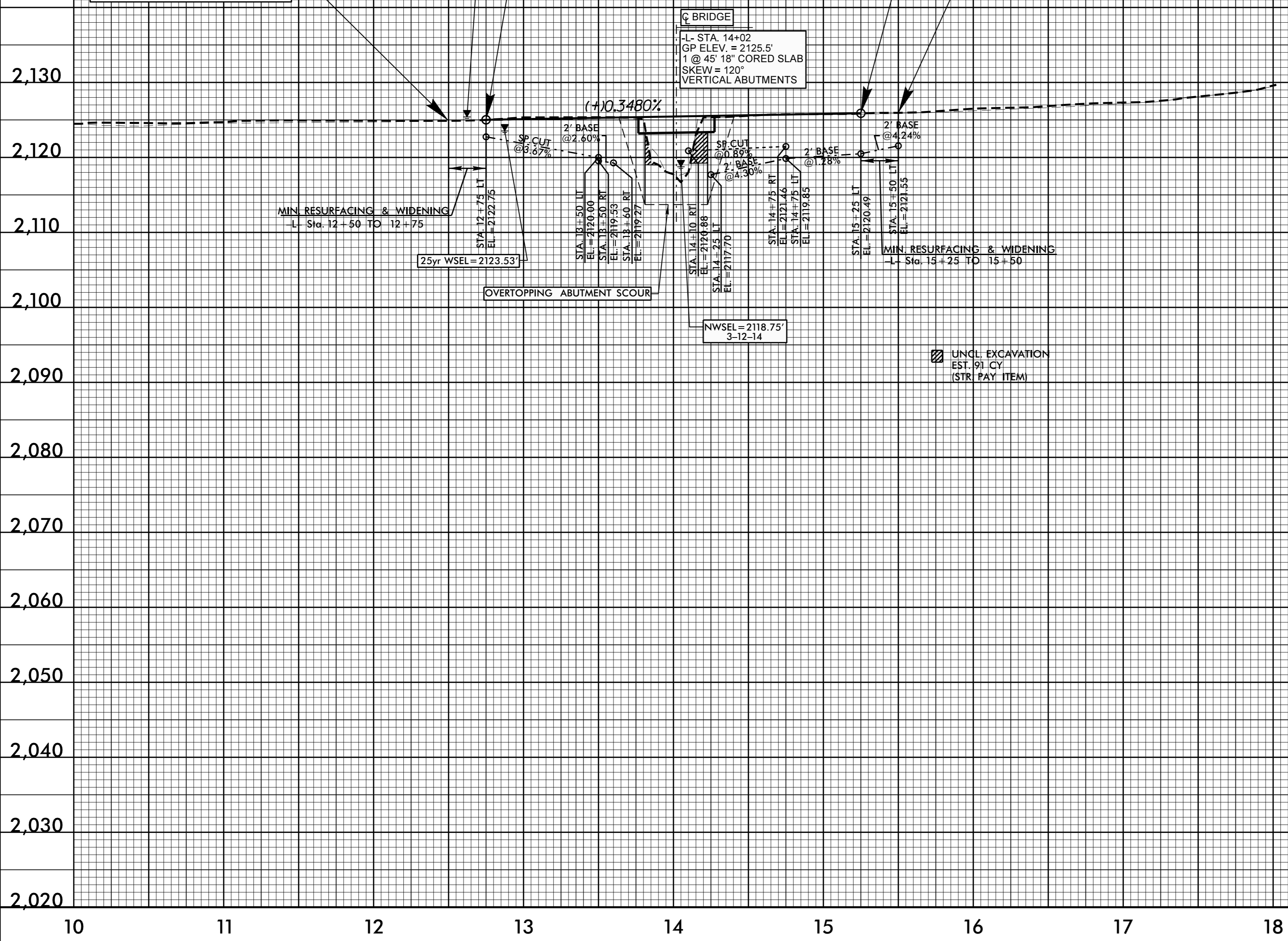
BM #1  
 -L- Sta 13+52.09 39.80 RT  
 Elevation 2123.83'  
 RR Spike Set in Base of 18"  
 Cherry tree across from BL-2

**BEGIN TIP PROJECT**  
 -L- STA 12+50

**BEGIN GRADE**  
 -L- STA 12+75  
 EL. 2125.02

**END GRADE**  
 -L- STA 15+25  
 EL. 2125.89

**END TIP PROJECT**  
 -L- STA 15+50



SEE SHEET 4 FOR -L- PLAN

05-NOV-2015 14:58 @5244\_rdy.pfl\_psh5.dgn  
 11/18/2015 10:58 AM 888