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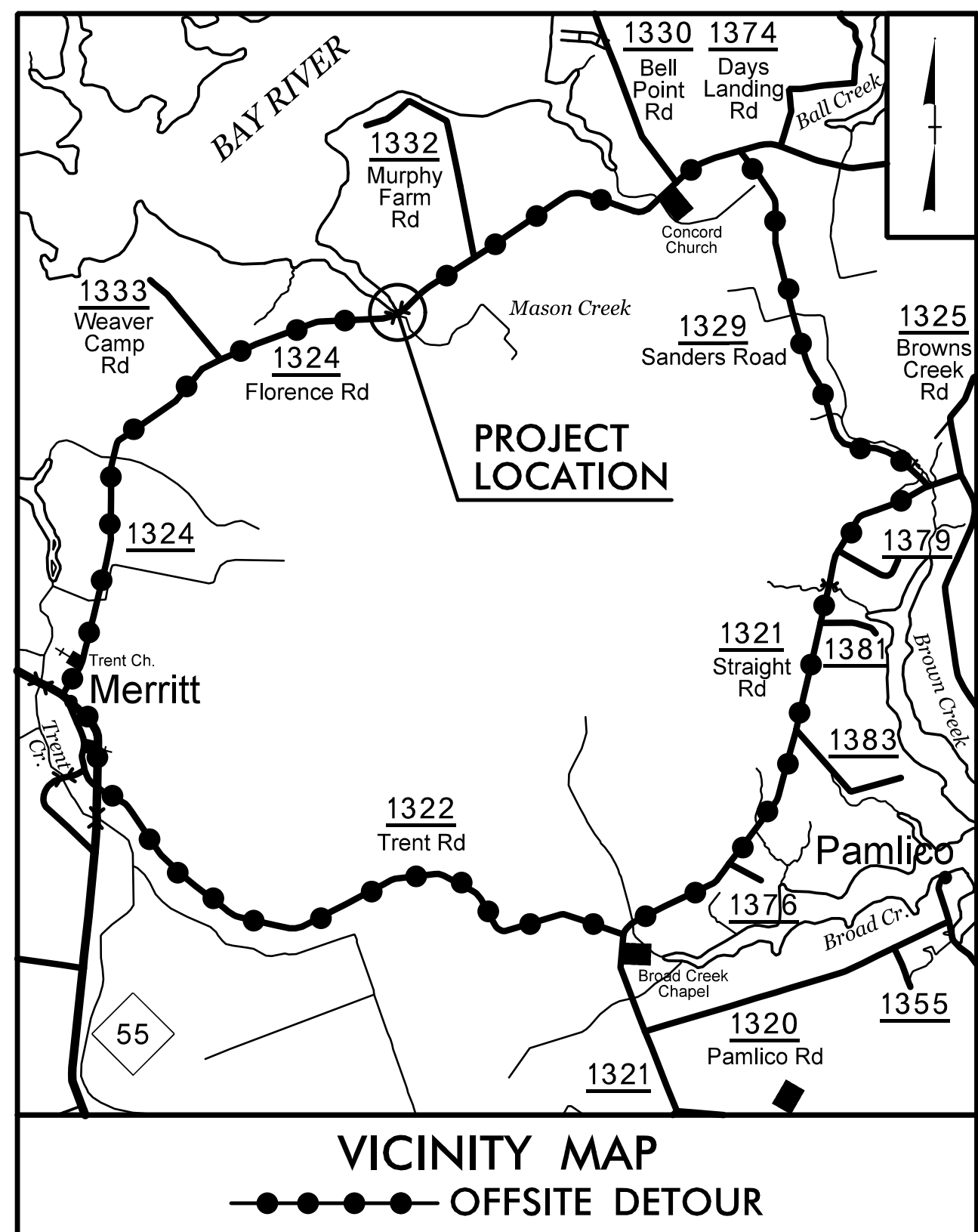
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TIP PROJECT: B-4598

CONTRACT: C203936

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

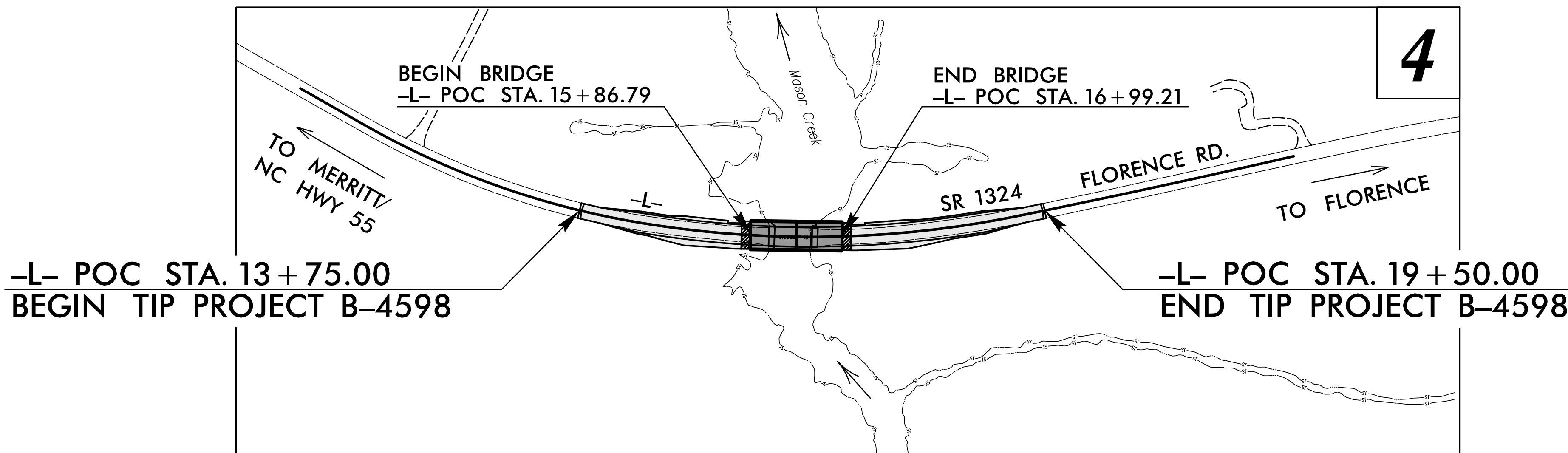
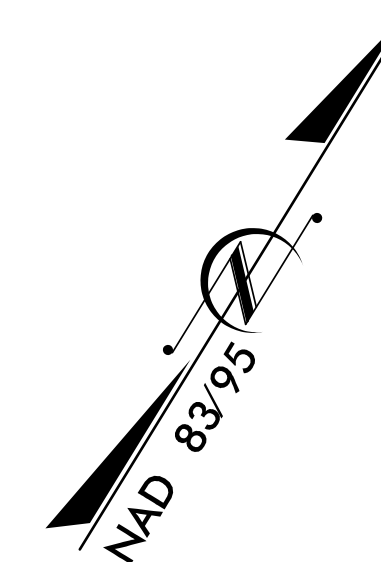
PAMLICO COUNTY

**LOCATION: REPLACE BRIDGE 16 OVER MASON CREEK
ON SR 1324 (FLORENCE RD.)**

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4598	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38426.1.2	BRZ-1324(5)	PE	
38426.2.1		RW, UTL.	
38426.3.1		CONST.	

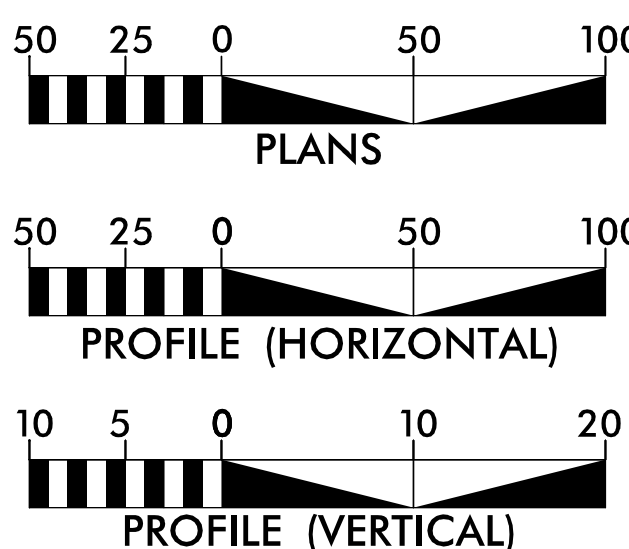
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



DESIGN EXCEPTIONS

- L- Horizontal SSD, Sta. 13+75 to Sta. 19+50
- L- Superelevation, Sta. 13+75 to Sta. 19+50

GRAPHIC SCALES



DESIGN DATA

- ADT 2017 = 1065
- ADT 2037 = 1326
- DHV = 10 %
- D = 55 %
- T = 10 % *
- V = 60 MPH
- * (TTST 1% + DUAL 9%)
- FUNCT CLASS=RURAL LOCAL
- SUB-REGIONAL TIER DESIGN

PROJECT LENGTH

- LENGTH ROADWAY TIP PROJECT B-4598 = 0.088 miles
- LENGTH STRUCTURES TIP PROJECT B-4598 = 0.021 miles
- TOTAL LENGTH TIP PROJECT B-4598 = 0.109 miles

Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

By:
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 16, 2016

LETTING DATE:
JUNE 20, 2017

JIMMY TERRY, P.E.
PROJECT ENGINEER

BURKE EVANS, P.E.
PROJECT DESIGN ENGINEER

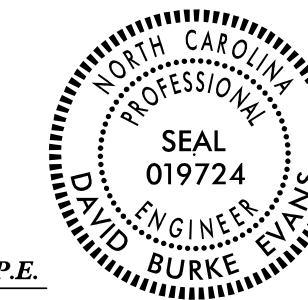
GARY LOVERING, PE
PROJECT ENGINEER
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

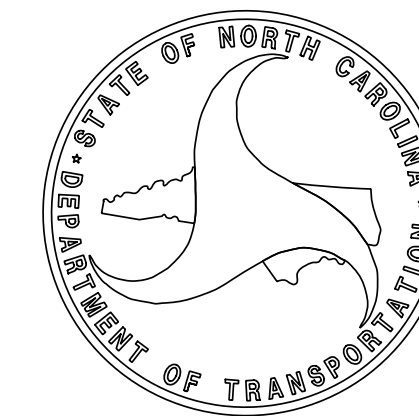


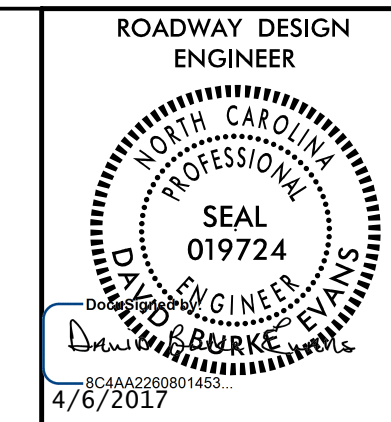
DocuSigned by:
David Petty
SIGNATURE: 3/28/2017 P.E.

ROADWAY DESIGN ENGINEER



DocuSigned by:
David Burke Evans
SIGNATURE: 3/28/2017 P.E.





INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2C-1	DETAIL OF STRUCTURE ANCHOR UNITS: GUARDRAIL ANCHOR UNIT, TYPE III
2C-2	MODIFIED SHOULDER BERM GUTTER
2G-1	GEOTEXTILE FOR EMBANKMENT STABILIZATION DETAILS
3B-1	SUMMARY OF EARTHWORK, PAVEMENT REMOVAL SUMMARY, SUMMARY OF SHOULDER BERM GUTTER, AND GUARDRAIL SUMMARY
3D-1	SUMMARY OF DRAINAGE
3G-1	SUMMARY OF SUBSURFACE DRAINAGE AND SUMMARY OF AGGREGATE SUBGRADE /STABILIZATION
4	PLAN /PROFILE SHEET
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PMP-1	PAVEMENT MARKING PLANS
EC-1 thru EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1	SIGNING PLANS
UC-1 thru UC-4	UTILITY CONSTRUCTION PLANS
UO-1 thru UO-2	UTILITIES BY OTHERS PLANS
X-0	CROSS SECTION EARTHWORK VOLUME SUMMARY
X-1 thru X-2	CROSS SECTIONS
S-1 thru S-18	STRUCTURE PLANS

GENERAL NOTES

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

GRADING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED OR FUTURE 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

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.

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
WATER - PAMLICO COUNTY WATER
COMMUNICATION - CENTURY LINK
POWER - TIDELAND EMC
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 OTHERS.

STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 01-17-2012
REV. 02-29-2016

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 Super-elevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
DIVISION 8 - INCIDENTALS	
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
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
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

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale *S.U.E. = *Subsurface Utility Engineering*

04/06/15

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	-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 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	_____
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	_____
Proposed Right of Way Line with Iron Pin and Cap Marker	_____
Proposed Right of Way Line with Concrete or Granite RW Marker	_____
Proposed Control of Access Line with Concrete C/A Marker	_____
Existing Control of Access	_____
Proposed Control of Access	_____
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	_____

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	_____
Bridge Wing Wall, Head Wall and End Wall	_____
MINOR:	
Head and End Wall	_____
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	⊕
Power Line Tower	□
Power Transformer	⊠
U/G Power Cable Hand Hole	_____
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	_____
U/G Power Line LOS C (S.U.E.*)	_____
U/G Power Line LOS D (S.U.E.*)	_____

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.*)	_____
U/G Telephone Cable LOS C (S.U.E.*)	_____
U/G Telephone Cable LOS D (S.U.E.*)	_____
U/G Telephone Conduit LOS B (S.U.E.*)	_____
U/G Telephone Conduit LOS C (S.U.E.*)	_____
U/G Telephone Conduit LOS D (S.U.E.*)	_____
U/G Fiber Optics Cable LOS B (S.U.E.*)	_____
U/G Fiber Optics Cable LOS C (S.U.E.*)	_____
U/G Fiber Optics Cable LOS D (S.U.E.*)	_____

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	_____
U/G Water Line LOS C (S.U.E.*)	_____
U/G Water Line LOS D (S.U.E.*)	_____
Above Ground Water Line	_____

TV:

TV Pedestal	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	_____
U/G TV Cable LOS B (S.U.E.*)	_____
U/G TV Cable LOS C (S.U.E.*)	_____
U/G TV Cable LOS D (S.U.E.*)	_____
U/G Fiber Optic Cable LOS B (S.U.E.*)	_____
U/G Fiber Optic Cable LOS C (S.U.E.*)	_____
U/G Fiber Optic Cable LOS D (S.U.E.*)	_____

GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	_____
U/G Gas Line LOS C (S.U.E.*)	_____
U/G Gas Line LOS D (S.U.E.*)	_____
Above Ground Gas Line	_____

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	_____
Above Ground Sanitary Sewer	_____
SS Forced Main Line LOS B (S.U.E.*)	_____
SS Forced Main Line LOS C (S.U.E.*)	_____
SS Forced Main Line LOS D (S.U.E.*)	_____

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/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.

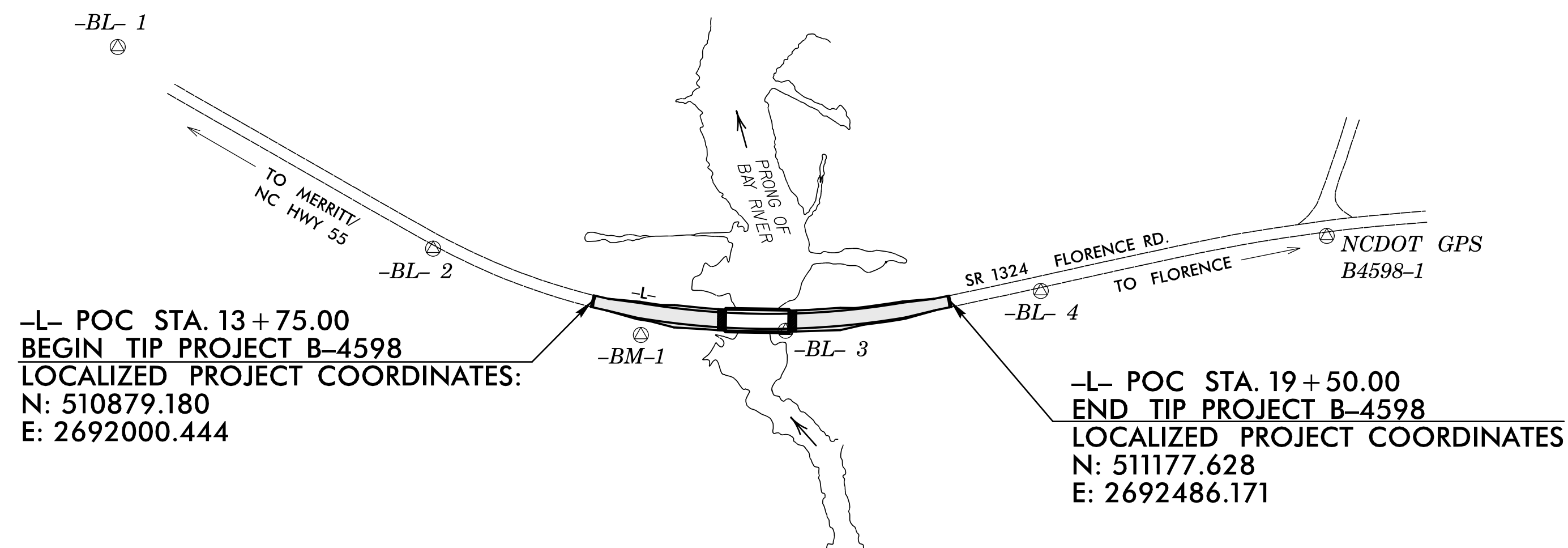
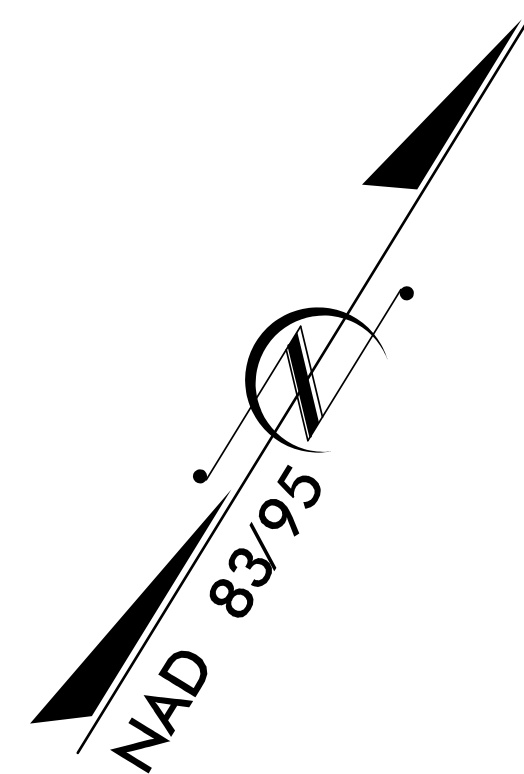
SURVEY CONTROL SHEET B-4598

BASELINES

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		BL-1	510827.5970	2691145.1150	3.08	OUTSIDE PROJECT LIMITS	
2		BL-2	510817.3170	2691740.9710	2.76	11+09.63	13.73 RT
3		BL-3	510999.9990	2692287.5200	3.30	16+85.05	15.16 RT
4		BL-4	511266.7730	2692600.5720	2.77	20+94.26	14.12 RT
GPS1		B4598-1	511580.0040	2692942.5800	3.19	OUTSIDE PROJECT LIMITS	

BENCHMARKS

.....
 BM1 ELEVATION + 2.33
 N 510874 E 2692095
 L STATION 14+60.00 38 RIGHT
 R/R SPIKE SET IN POWER POLE +57965



-L- POC STA. 13+75.00
 BEGIN TIP PROJECT B-4598
 LOCALIZED PROJECT COORDINATES:
 N: 510879.180
 E: 2692000.444

-L- POC STA. 19+50.00
 END TIP PROJECT B-4598
 LOCALIZED PROJECT COORDINATES:
 N: 511177.628
 E: 2692486.171

FINAL ROW & EASEMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+48.22	40.00	510867.0669	2692084.2377
L	14+48.22	-40.00	510941.2445	2692054.2762
L	14+48.22	-29.38	510931.3996	2692058.2527
L	14+48.22	30.62	510875.7660	2692080.7240
L	19+14.38	-40.00	511182.5268	2692432.8701
L	19+14.38	40.00	511124.0424	2692487.4556
L	19+14.38	-30.00	511175.2162	2692439.6933
L	19+14.38	30.00	511131.3529	2692480.6324

FINAL DESIGN ALIGNMENTS

TYPE	STATION	NORTH	EAST
POT	10+00.00	510827.2539	2691630.6694
PC	10+87.84	510830.0898	2691718.4663
PCC	14+48.22	510904.1557	2692069.2569
PCC	19+14.38	511153.2846	2692460.1628
PT	22+62.28	511394.1385	2692711.1949

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:
 B-4598_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 NCDOT FOR MONUMENT "B4598-1"
 WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 511580.0040(ft) EASTING: 2692942.580(ft)
 ELEVATION: 3.19(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988041
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4598-1" TO -L- STATION 13+75.00 IS
 S 53° 21' 20.4" W 1174.21'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

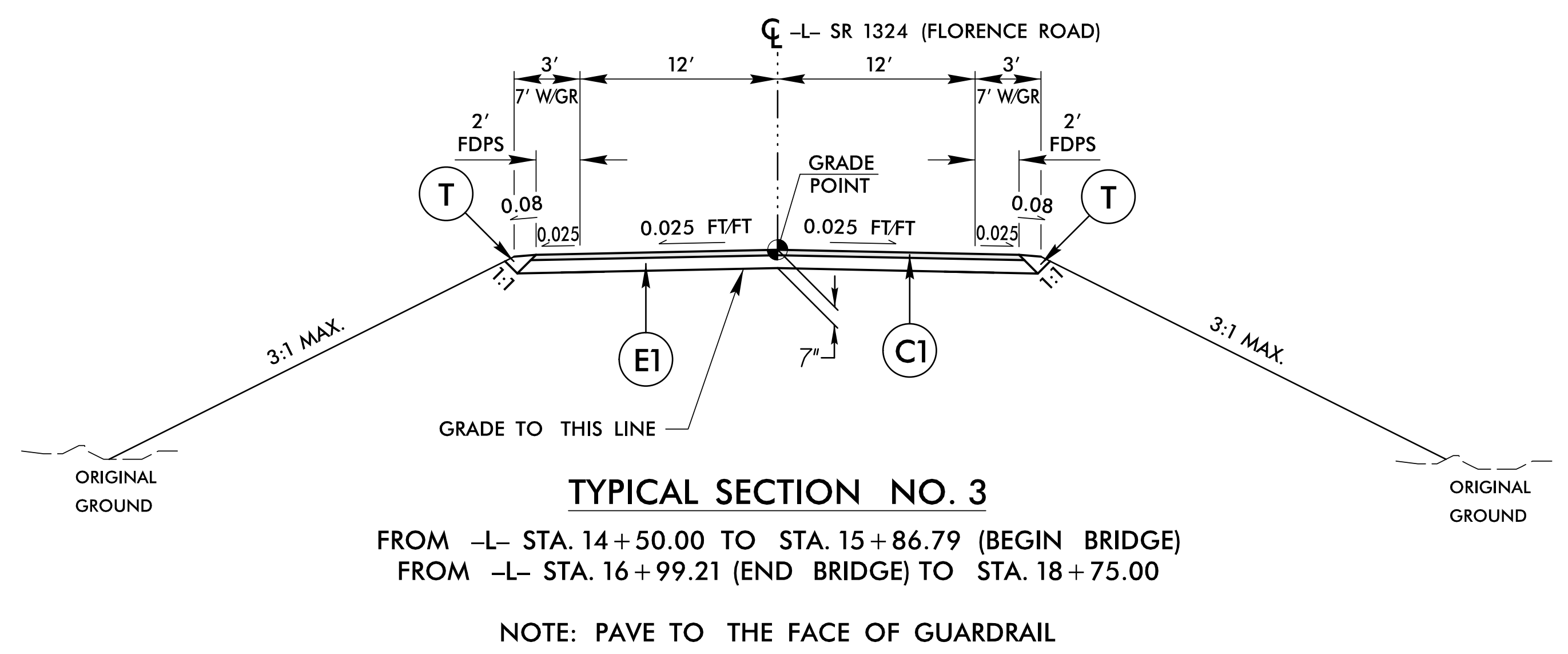
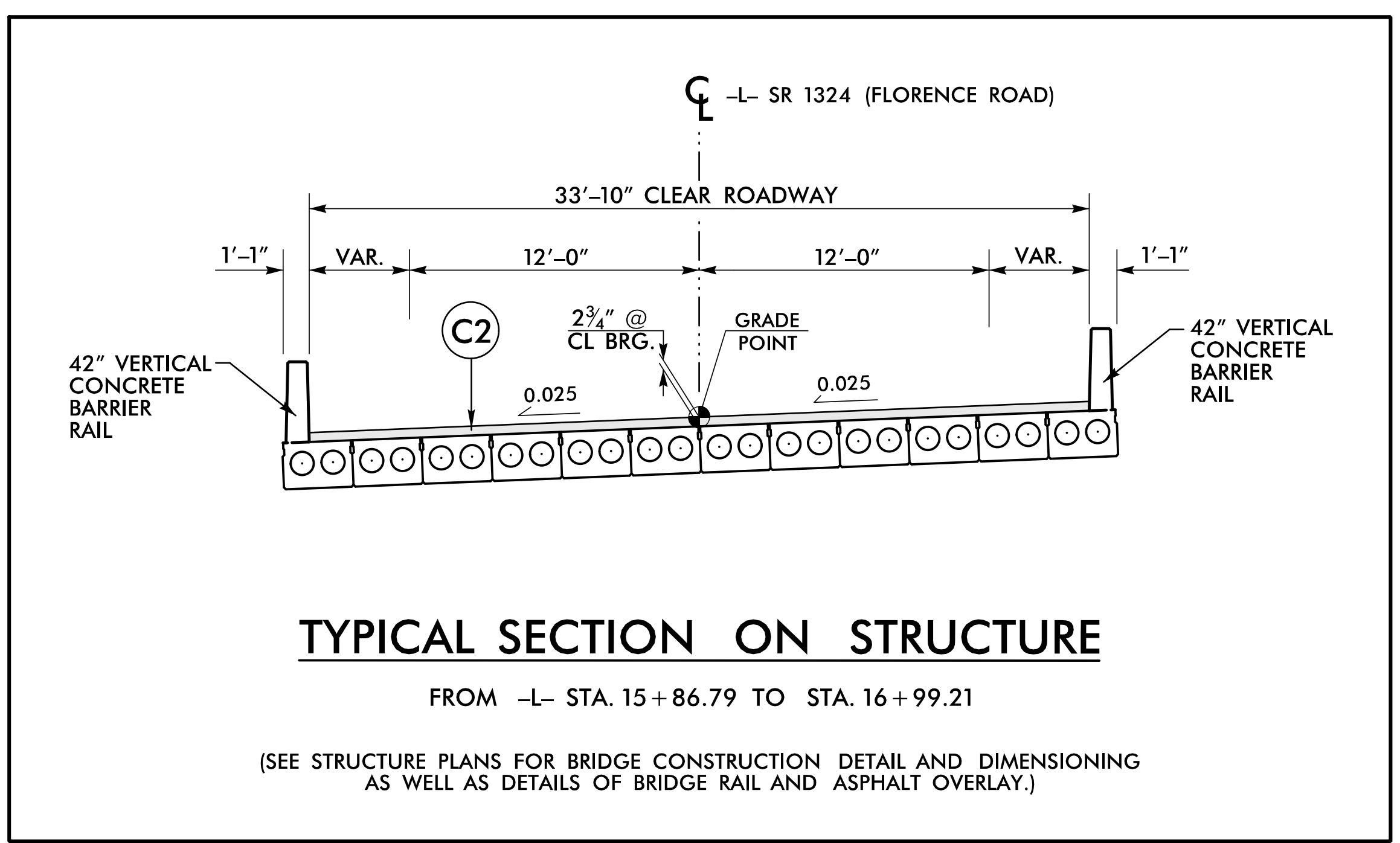
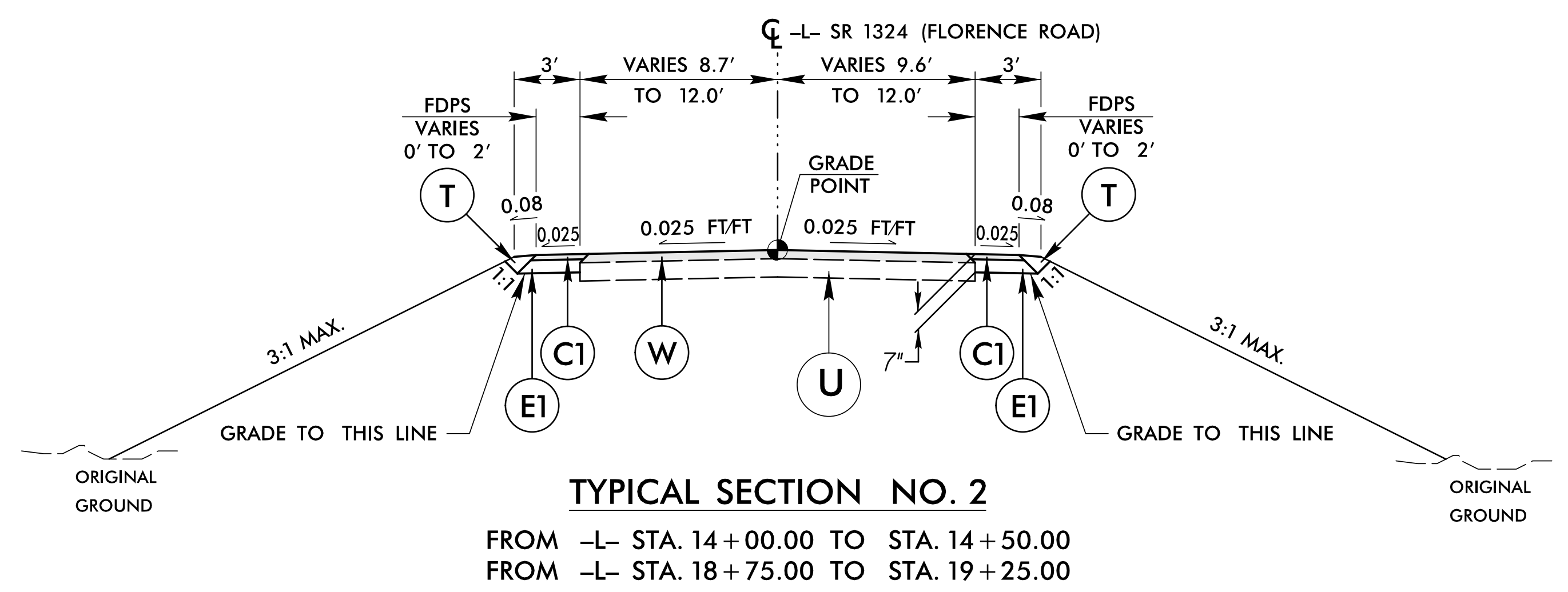
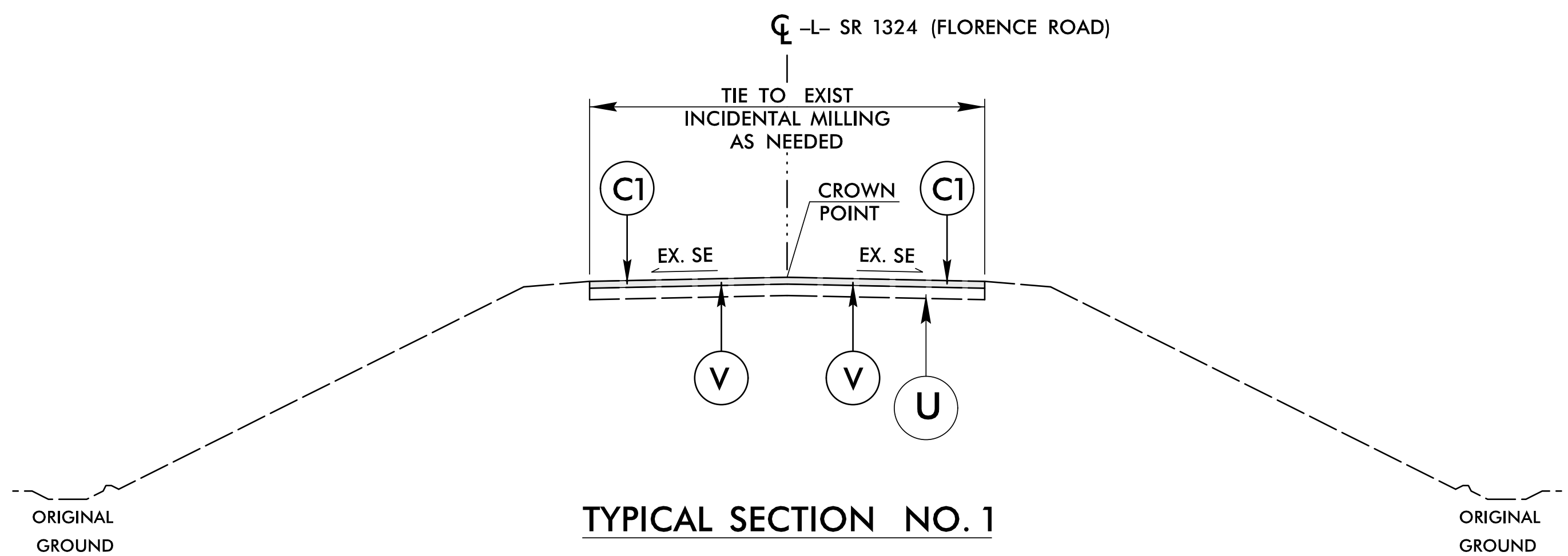
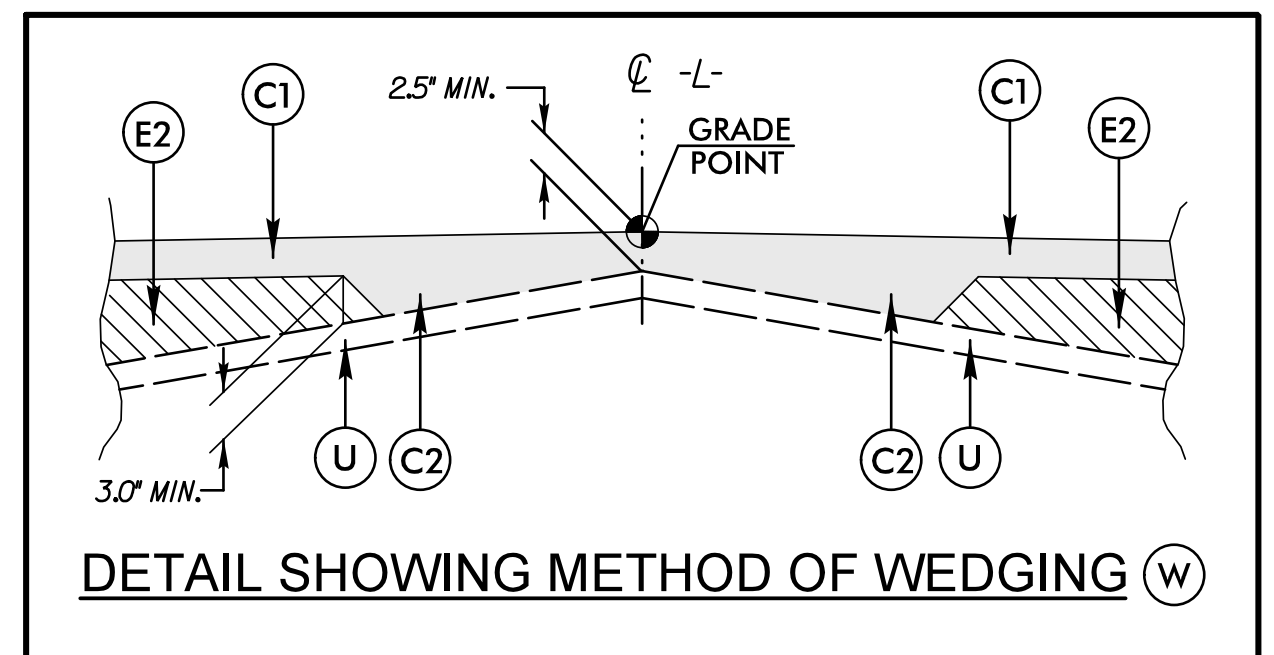
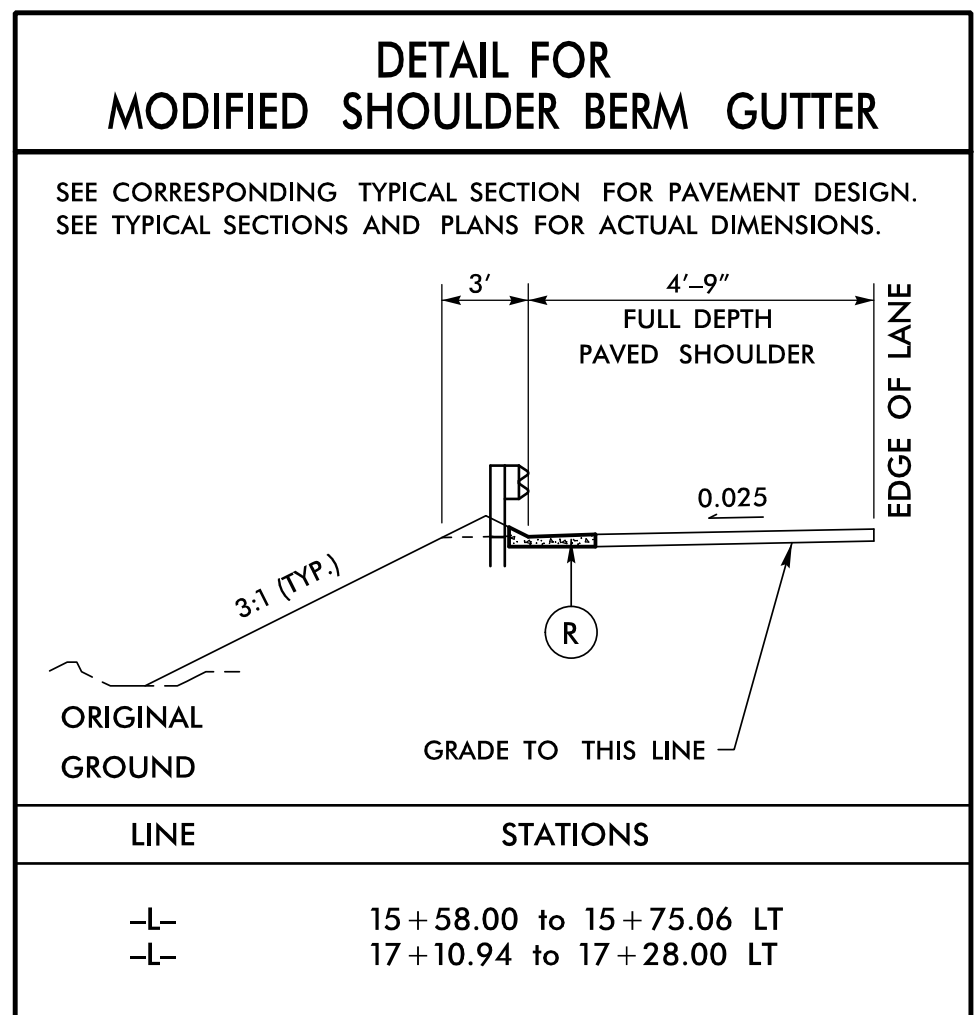
NOTE: DRAWING NOT TO SCALE

8/22/99

PROJECT REFERENCE NO. B-4598	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER
TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN: SEPTEMBER 6, 2012	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS PER SQUARE YARD IN EACH OF TWO LAYERS.
C2	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS PER SQUARE YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 1.5" IN DEPTH OR LESS THAN 1.0" IN DEPTH.
E1	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS PER SQUARE YARD.
E2	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS PER SQUARE YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 5.5" IN DEPTH OR LESS THAN 3.0" IN DEPTH.
R	MODIFIED SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

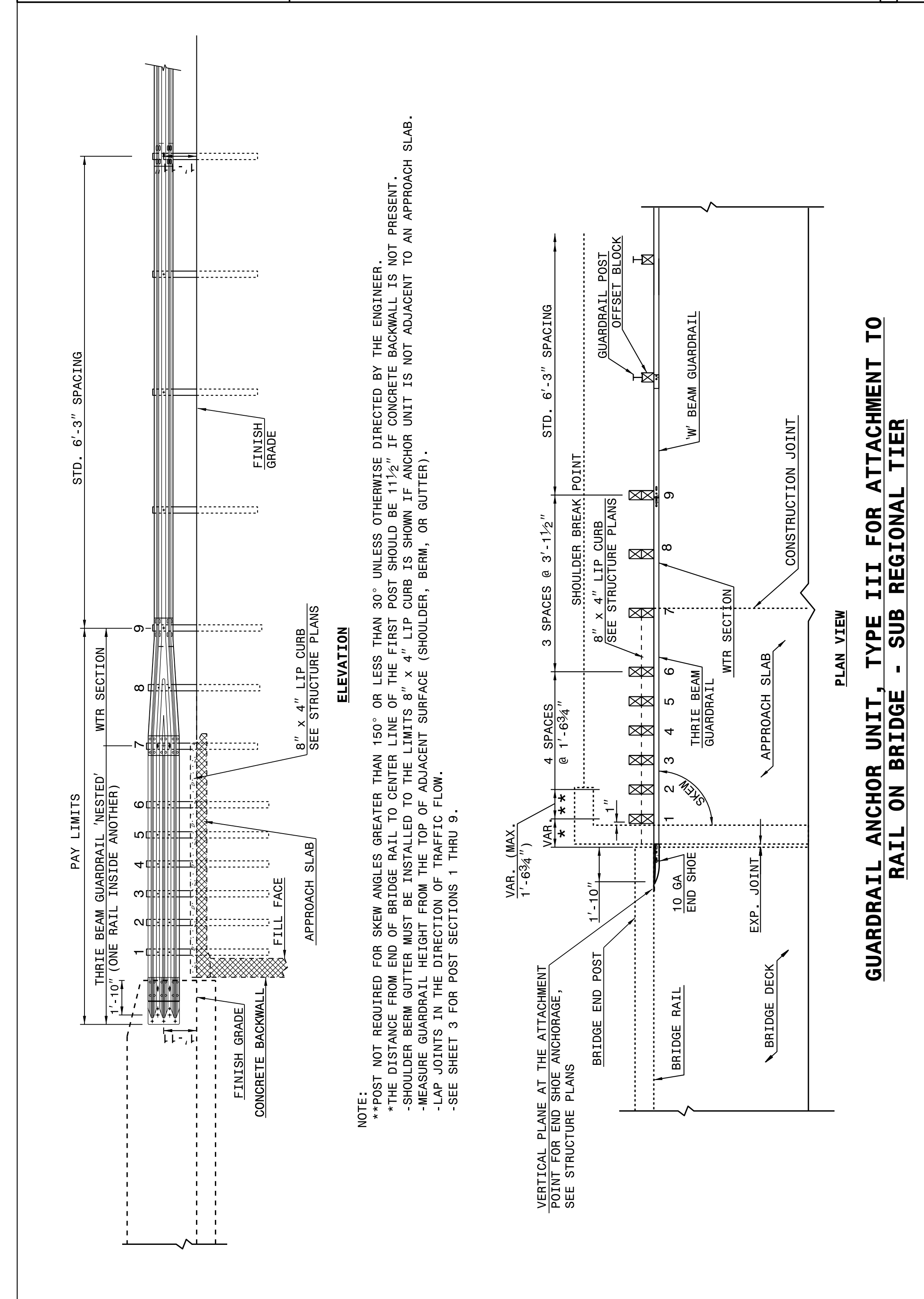
PAVEMENT EDGE SLOPES AND TRENCH SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



4/4/2017 11:45:58 AM \\Roadway\Proj\B-4598_Rdwy_tjpl.dgn

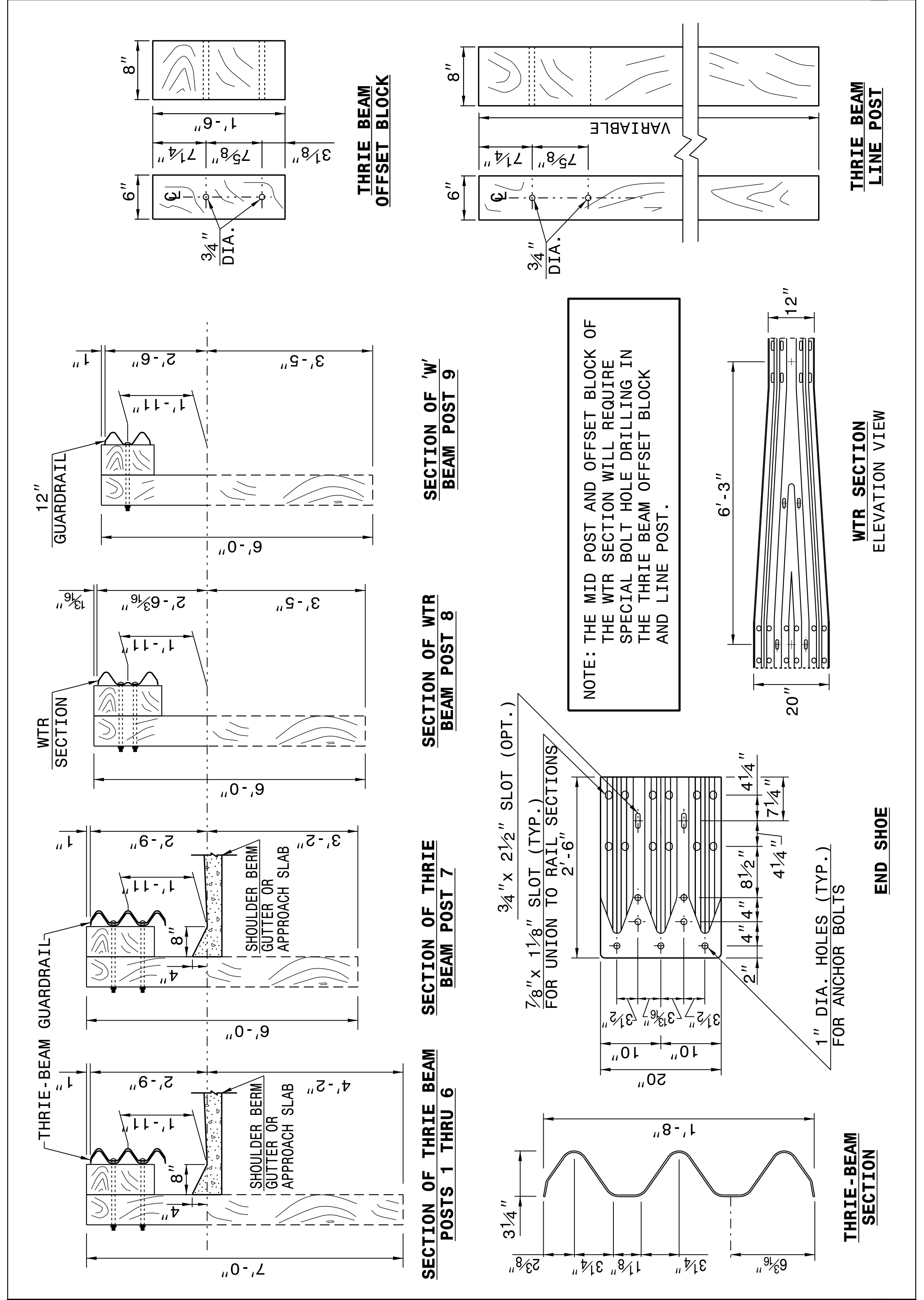
08-MAR-2017 07:45
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Howerton A1 CS0-232595

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER
SHEET 2 OF 7 862d03



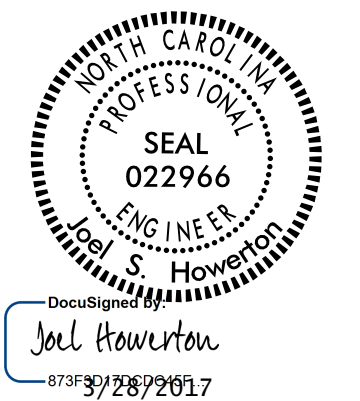
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER
SHEET 2 OF 7 862d03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT, TYPE III
SHEET 3 OF 7 862d03



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT, TYPE III
SHEET 3 OF 7 862d03

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.:

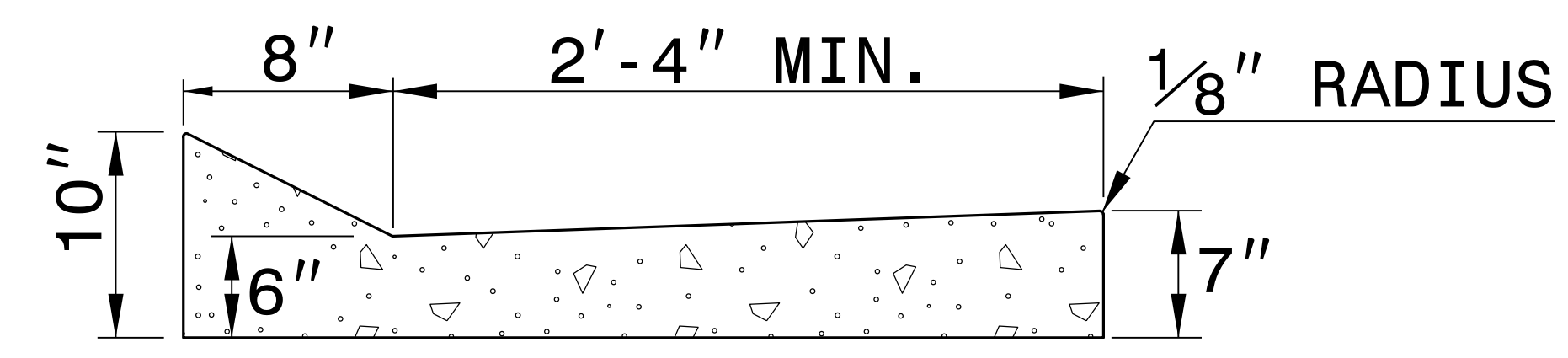


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

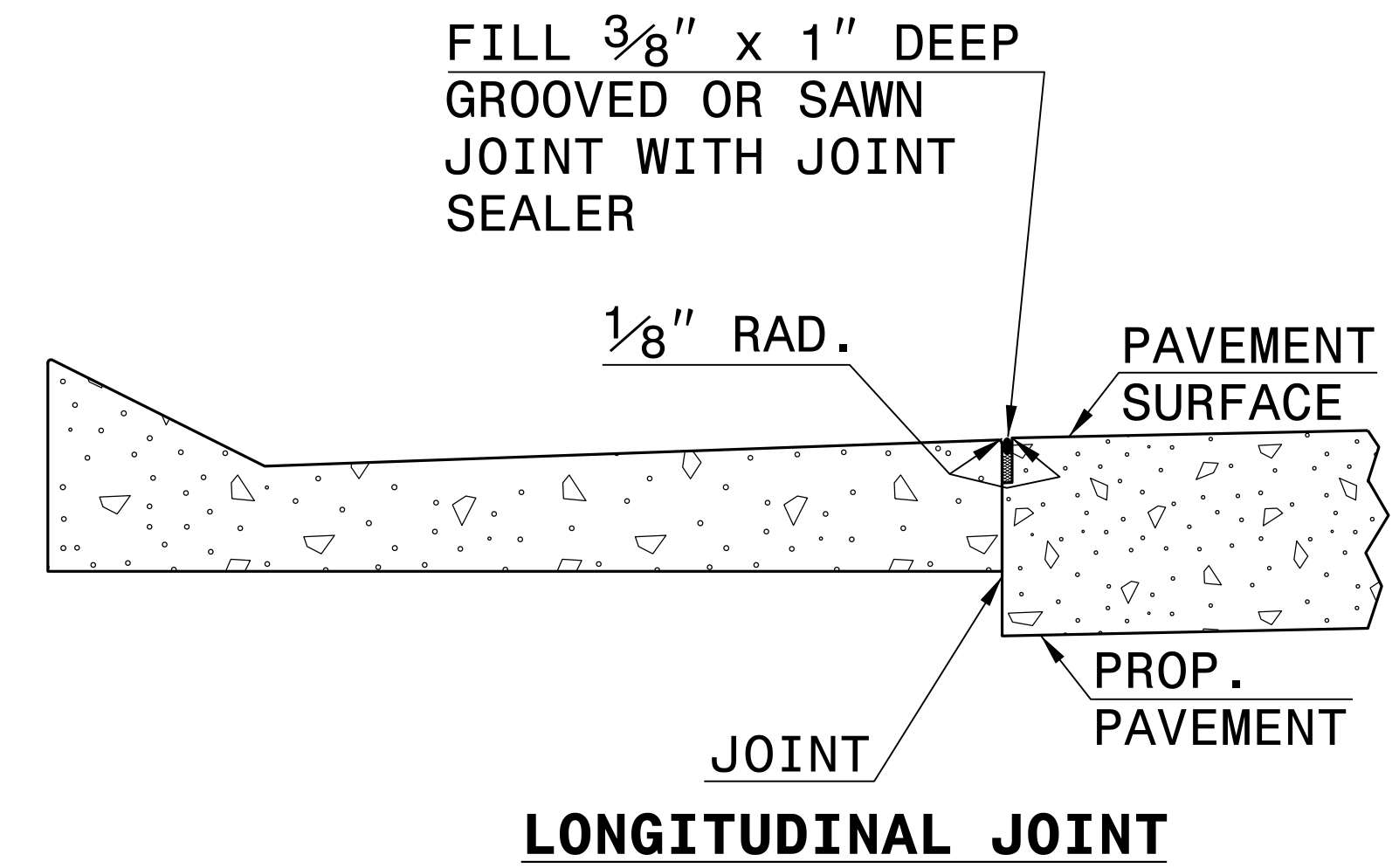
ENGLISH DETAIL DRAWING FOR
MODIFIED SHOULDER BERM GUTTER

SHEET OF
846D01

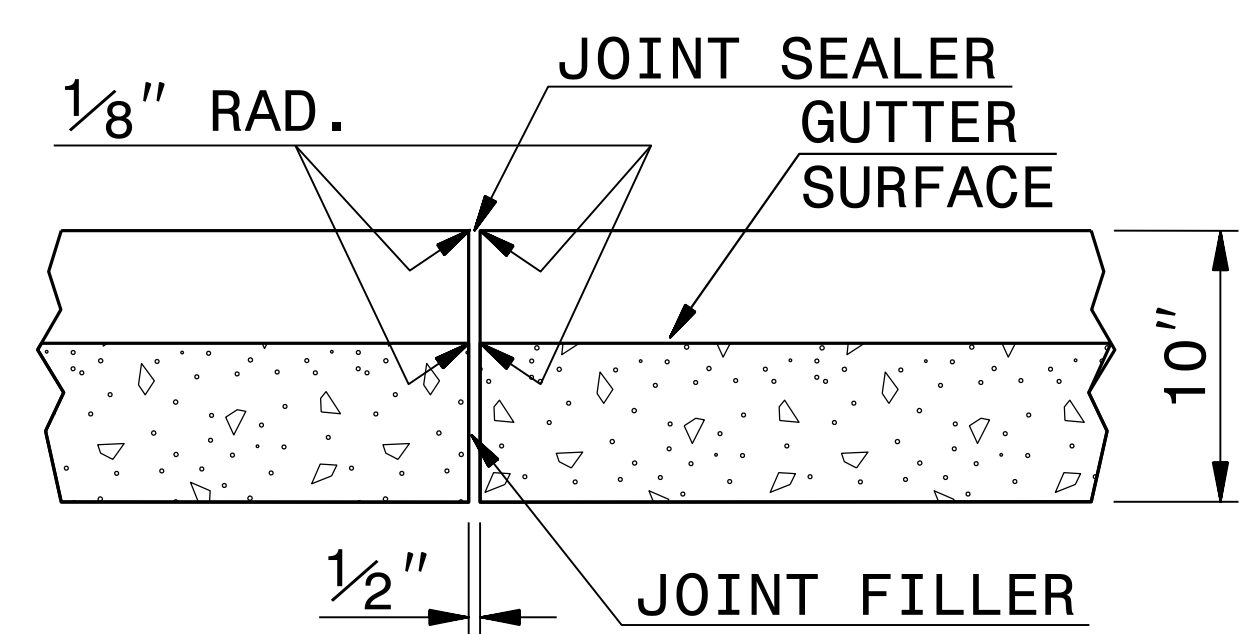


MODIFIED SHOULDER BERM GUTTER

- 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 1 1/2" DEEP.
 - FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
 - SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



LONGITUDINAL JOINT



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

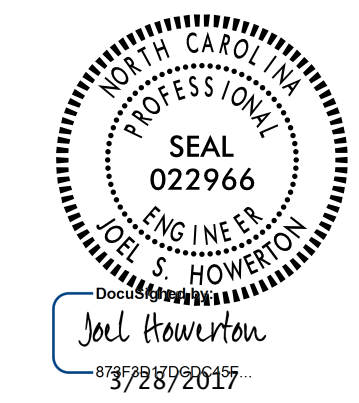
SECTION VIEW OF JOINTS

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

ENGLISH DETAIL DRAWING FOR
MODIFIED SHOULDER BERM GUTTER

SHEET OF
846D01

08-MAR-2017 07:49
S:\Contracts\Contractors\Sigsbee\Details\Howerton\846D01 Modified SBC.dgn
Howerton A1 CS0-2/2/95

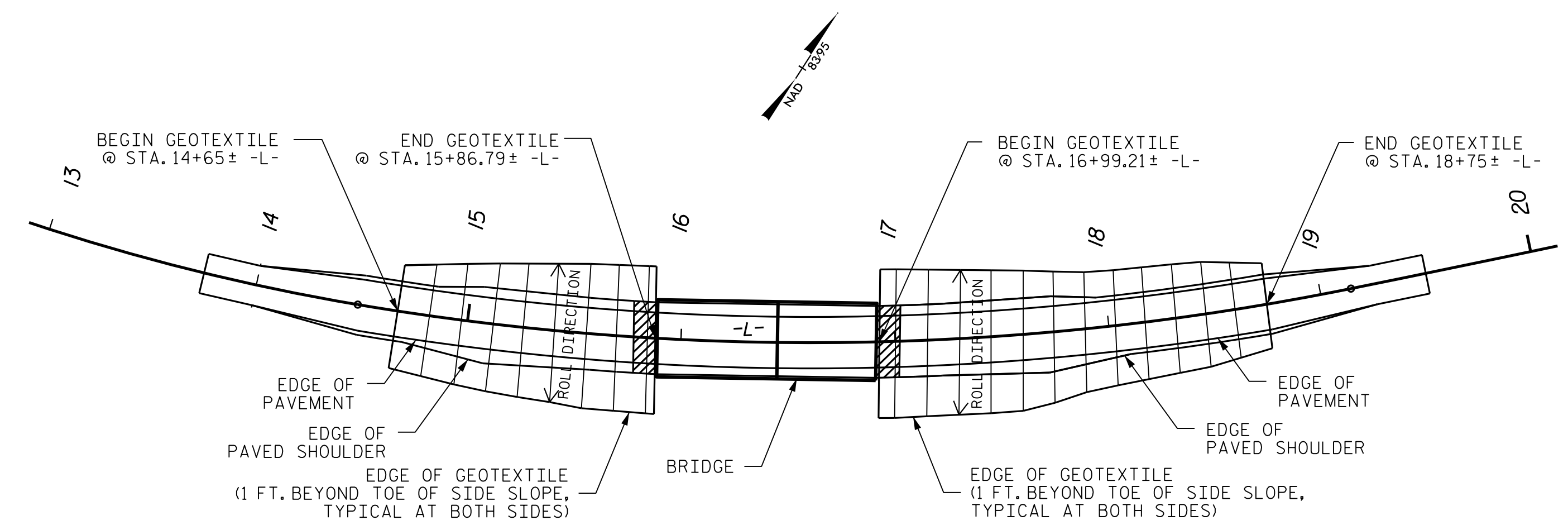


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

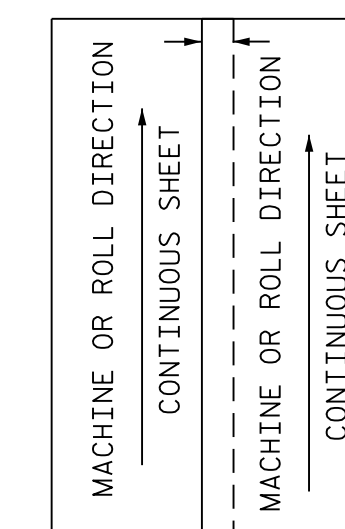
ORIGINAL BY: kkempf DATE: 11/13/08
 MODIFIED BY: DATE: _____
 CHECKED BY: DATE: _____
 FILE SPEC.: special_details/kkempf/english/117x79_tbd1.dgn



PLAN FOR GEOTEXTILE FOR EMBANKMENT STABILIZATION

(NOT TO SCALE)

18 INCHES MIN. OVERLAP
OR SEE MANUFACTURER
GUIDELINES IF SEWN.



GEOTEXTILE OVERLAP DETAIL

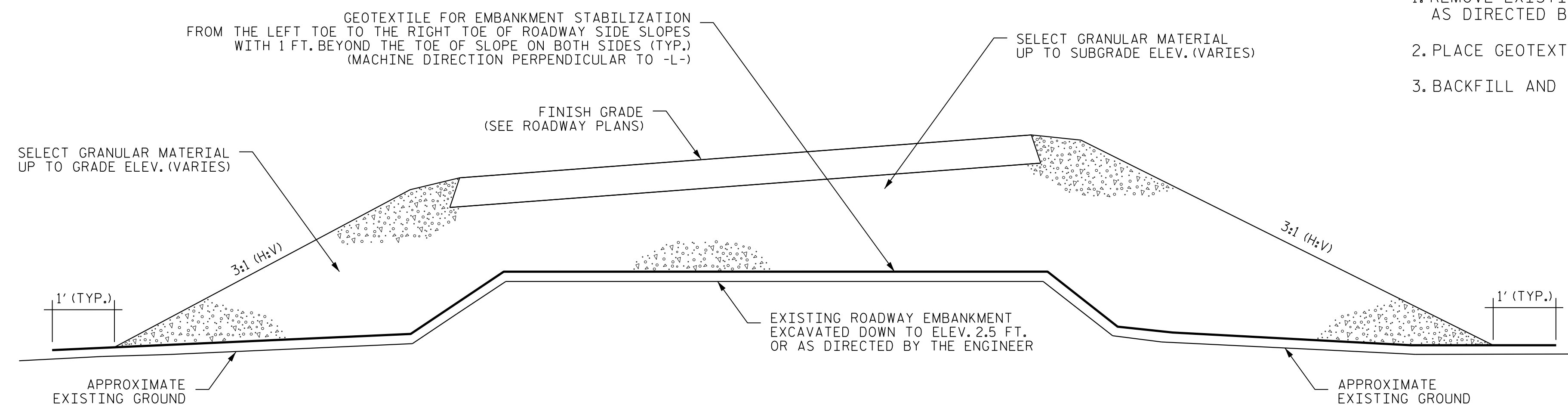
(NOT TO SCALE)

NOTES:

- FOR GEOTEXTILE, SEE GEOTEXTILE FOR EMBANKMENT STABILIZATION SPECIAL PROVISION.
- DO NOT GRUB, ONLY CLEAR THE AREA WITHIN THE LIMITS OF THE GEOTEXTILE FOR EMBANKMENT STABILIZATION.
- PLACE GEOTEXTILE WITHOUT ANY WRINKLES OR CREASES.
- NO SEAMS OR JOINTS ARE ALLOWED IN THE GEOTEXTILE MACHINE/ROLL DIRECTION.
- THE TERM ROLL DIRECTION AND MACHINE DIRECTION ARE USED INTERCHANGABLY.
- THE MINIMUM OVERLAP BETWEEN ADJACENT GEOTEXTILE OF THE SAME MACHINE/ROLL DIRECTION IS 18" UNLESS SEWING IS USED TO ACHIEVE THE REQUIRED SEAM STRENGTH.
- GEOTEXTILE FOR EMBANKMENT STABILIZATION WITH MACHINE/ROLL DIRECTION PERPENDICULAR TO -L- MUST HAVE A CONTINUOUS LENGTH ACROSS THE LEFT TOE TO THE RIGHT TOE OF THE ROADWAY SIDE SLOPES.
- EXTEND THE LENGTH OF GEOTEXTILE 1 FT. BEYOND THE TOE OF ROADWAY SIDE SLOPES.
- FOR SELECT GRANULAR MATERIAL, SEE SECTION 265 OF THE STANDARD SPECIFICATIONS.

CONSTRUCTION SEQUENCE:

- REMOVE EXISTING PAVEMENT & EXCAVATE EXISTING ROADWAY EMBANKMENT TO ELEV. 2.5 FT. OR AS DIRECTED BY THE ENGINEER.
- PLACE GEOTEXTILE FOR EMBANKMENT STABILIZATION.
- BACKFILL AND CONSTRUCT THE NEW ROADWAY EMBANKMENT WITH SELECT GRANULAR MATERIAL.



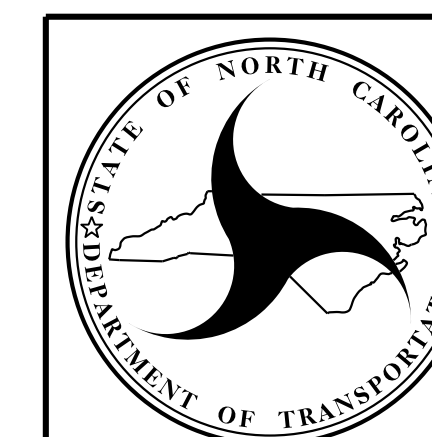
**TYPICAL CROSS SECTION
WITH GEOTEXTILE FOR EMBANKMENT STABILIZATION**

(NOT TO SCALE)

ESTIMATED QUANTITIES

GEOTEXTILE FOR EMBANKMENT STABILIZATION	2,060 SY
SELECT GRANULAR MATERIAL	1,425 CY

PREPARED BY: THEIN T. ZAN	DATE: 03/2017
REVIEWED BY: JAMES R. BATTS	DATE: 03/2017



**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

**GEOTECHNICAL
ENGINEERING UNIT**

**GEOTEXTILE FOR
EMBANKMENT STABILIZATION
DETAILS**

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	T. T. Z	3-31-17	3		
2			4		

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-L- 14+00.00 TO 15+86.79 (BEGIN BRIDGE)	1	227	689	689	228
-L- 16+99.21 (END BRIDGE) TO 19+25.00	2	203	803	803	205
SUBTOTAL	3	430	1492	1492	433
ADDITIONAL UNDERCUT		370	481	481	370
SELECT GRANULAR MATERIAL IN LIEU OF BORROW			-1973	-1973	
PROJECT TOTAL	3	800	0	0	803
GRAND TOTAL	3	800			803
SAY	10	800			

PAVEMENT REMOVAL SUMMARY
 IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	14+50	16+09 (EX. BRIDGE)	CL	332
-L-	16+69 (EX. BRIDGE)	18+75	CL	425
TOTAL:				757
SAY:				775

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

NOTE: 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.

ESTIMATED SHALLOW UNDERCUT = 100 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER) *
 ESTIMATED SELECT GRANULAR MATERIAL = 1525 CY *

* PER THE "REVISED GEOTECHNICAL REPORT - DESIGN AND CONSTRUCTION RECOMMENDATIONS" LETTER DATED MARCH 31, 2017

SUMMARY OF MODIFIED SHOULDER BERM GUTTER
 IN LINEAR FEET

STATION TO STATION	LOCATION	LF
-L- STA. 15+58.00 to 15+75.06	LT	17.06
-L- STA. 17+10.94 to 17+28.00	LT	17.06
TOTAL		34.12
SAY		35

GUARDRAIL SUMMARY

"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

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			REMOVE EXISTING GUARDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE III	GRAU 350 (TL-3)	EA	G	NG					
-L-	15+03.78	15+86.05	LT	81.25'				15+86.05	VAR.	VAR.	50'	50'	1'	1'			1	1						
-L-	15+07.51	15+87.55	RT	81.25'			15+87.55		VAR.	VAR.	50'		1'				1							
-L-	16+99.95	17+79.01	LT	81.25'			16+99.95		VAR.	VAR.	50'		1'				1							
-L-	16+98.45	17+78.50	RT	81.25'				16+98.45	VAR.	VAR.		50'		1'			1							
				SUBTOTAL (LF)	325'								TOTAL ANCHORS (EA)				4	4						
				LESS ANCHORS (LF)	275'								ANCHOR UNIT LENGTH (LF)				18.75'	50'						
				TOTAL (LF)	50'								DEDUCTION PER TYPE (LF)				75'	200'						
				SAY (LF)	50'								TOTAL DEDUCTION (LF)				275'							

ADDITIONAL GUARDRAIL POSTS: SAY 5 EA

275'

TOSDAVIDLAPTOP

COMPUTED BY: ZJR DATE: 7/14/15
CHECKED BY: DBP DATE: 2/24/17

PROJECT NO. SHEET NO.
B-4598 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)

Table with columns for Line & Station, Offset, Structure Number, Invert Elevation, Minimum Required Slope, Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC), R. C. Pipe Class IV, Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, and Abbreviations. Includes a grid for recording pipe details and a summary table at the bottom.

SHEET TOTALS: 24, 148, 4, 2, 2, 2
PROJECT TOTALS: 24, 148, 4, 2, 2, 2

COMPUTED BY: DBE DATE: 7-23-2015
 CHECKED BY: JLT DATE: 7-28-2015

(4-21-15)

PROJECT NO.
B-4598

SHEET NO.
3G-1

**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
				TOTAL LF:	100

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

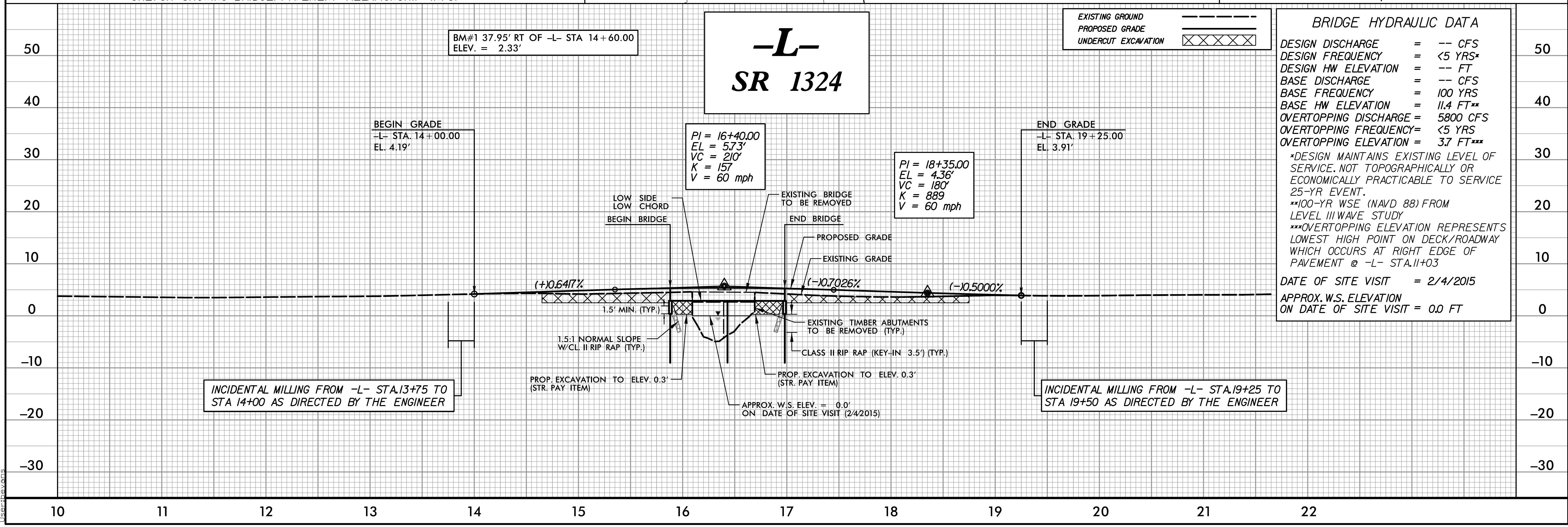
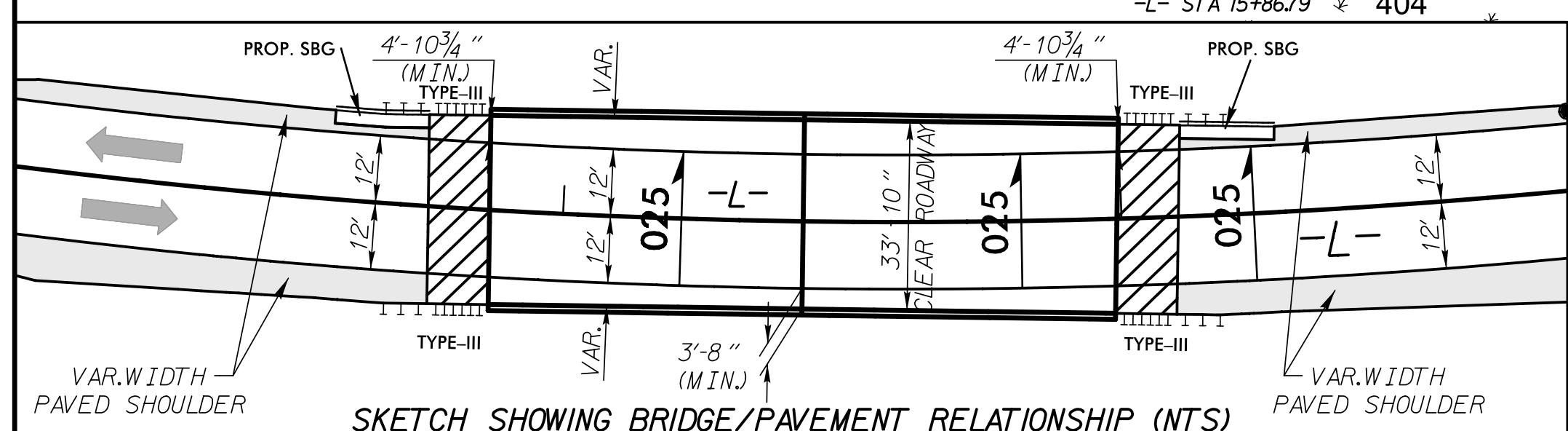
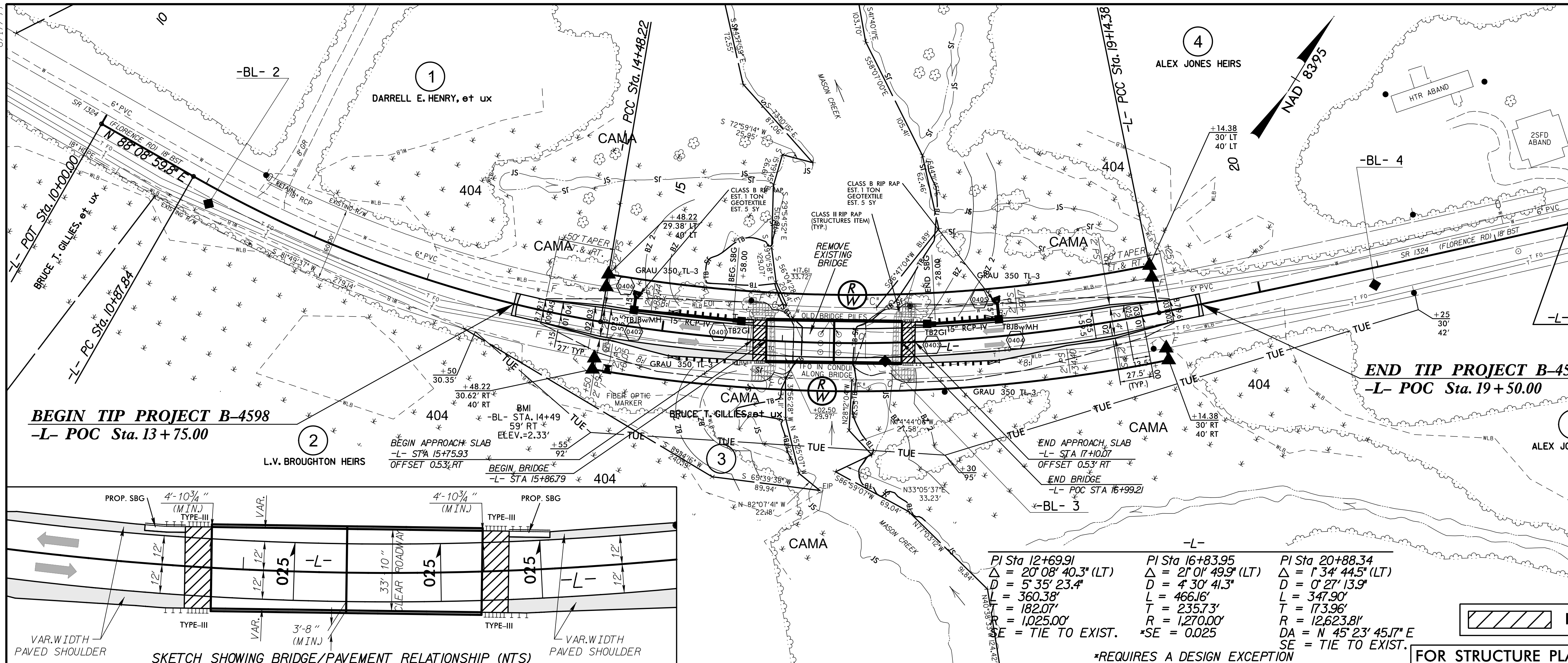
SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

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	200	300		
TOTAL CY/TONS/SY:					100	200	300*	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. B-4598		SHEET NO. 4	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



3/28/2017 B-4598 (Roadway) Proj\B-4598_Rdy_psh04.dgn