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09\_08/2019

**PROJECT : 5B.203914.4, 5B.209314.3 & 5B.203514.4**

**CONTRACT: C204298**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**GRANVILLE, WARREN AND FRANKLIN COUNTIES**

**LOCATION: PIPE CROSSING ON SR 1623 (PHILO WHITE ROAD)**  
**LOCATION: PIPE CROSSING ON SR 1107 (RIDGWAY-WARRENTON ROAD)**  
**LOCATION: PIPE CROSSING ON SR 1600 (EAST RIVER ROAD)**

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

**LOCATION: PIPE CROSSING ON SR 1219 (ELLINGTON ROAD)**

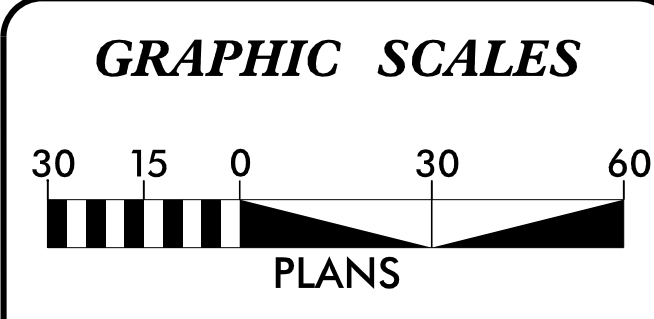
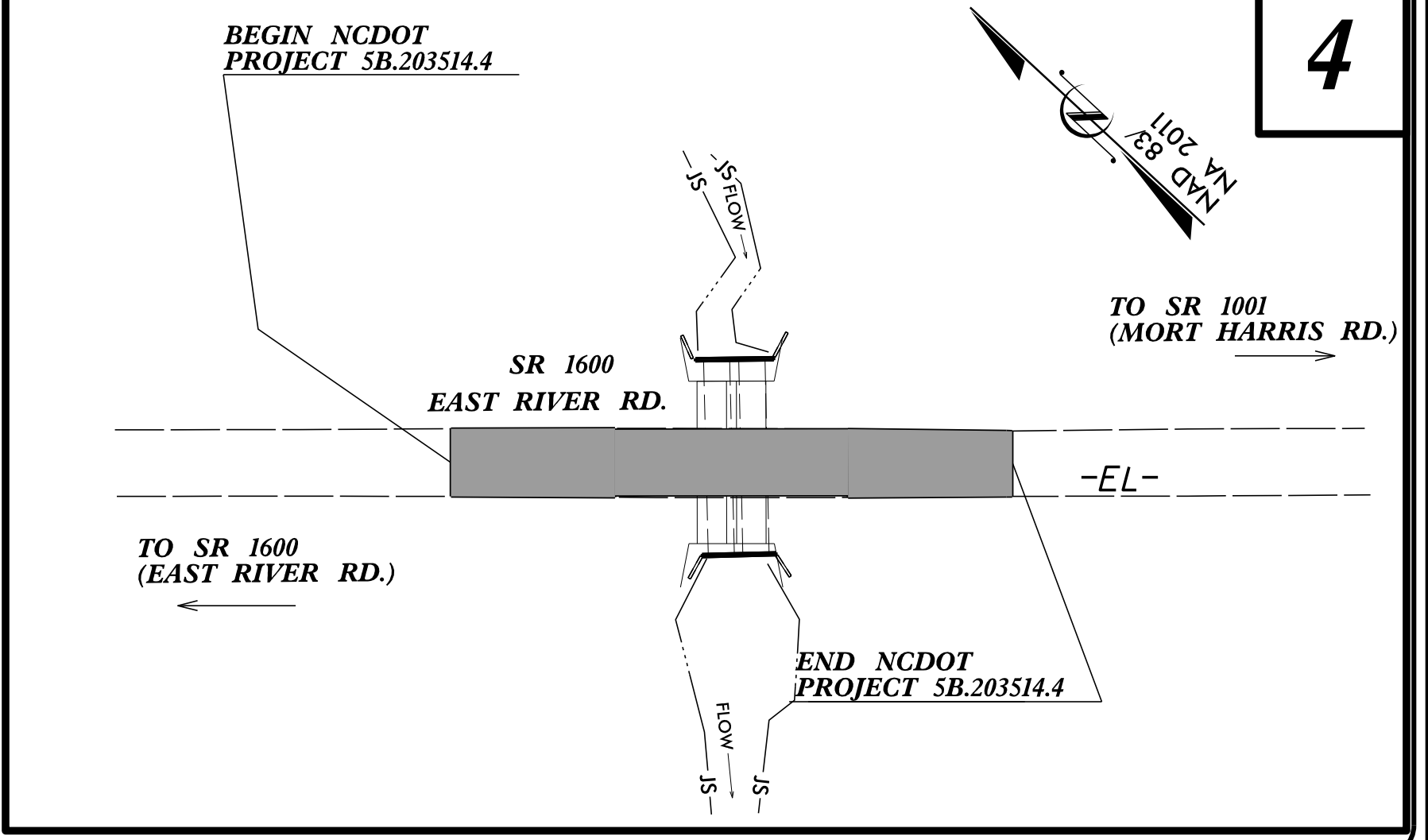
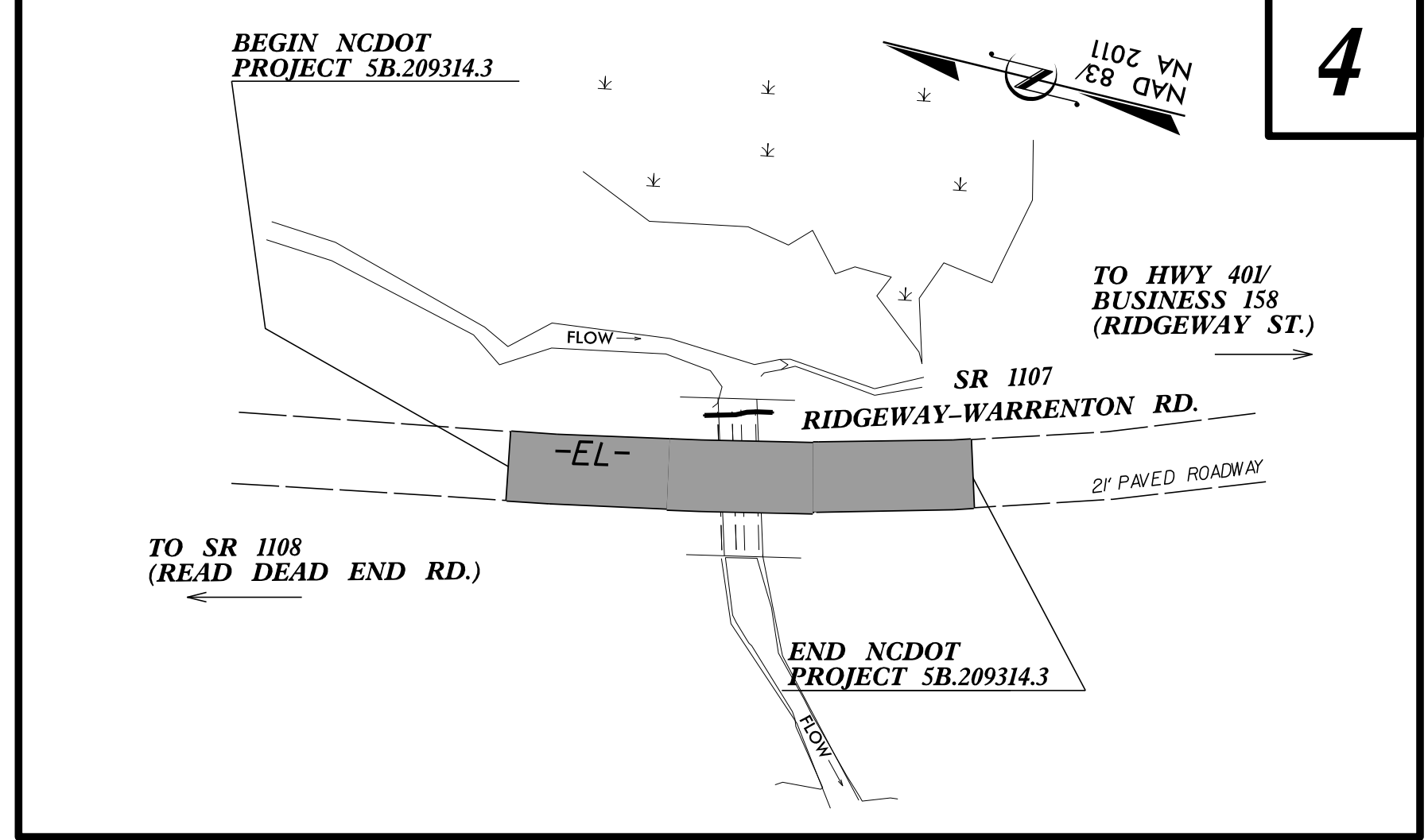
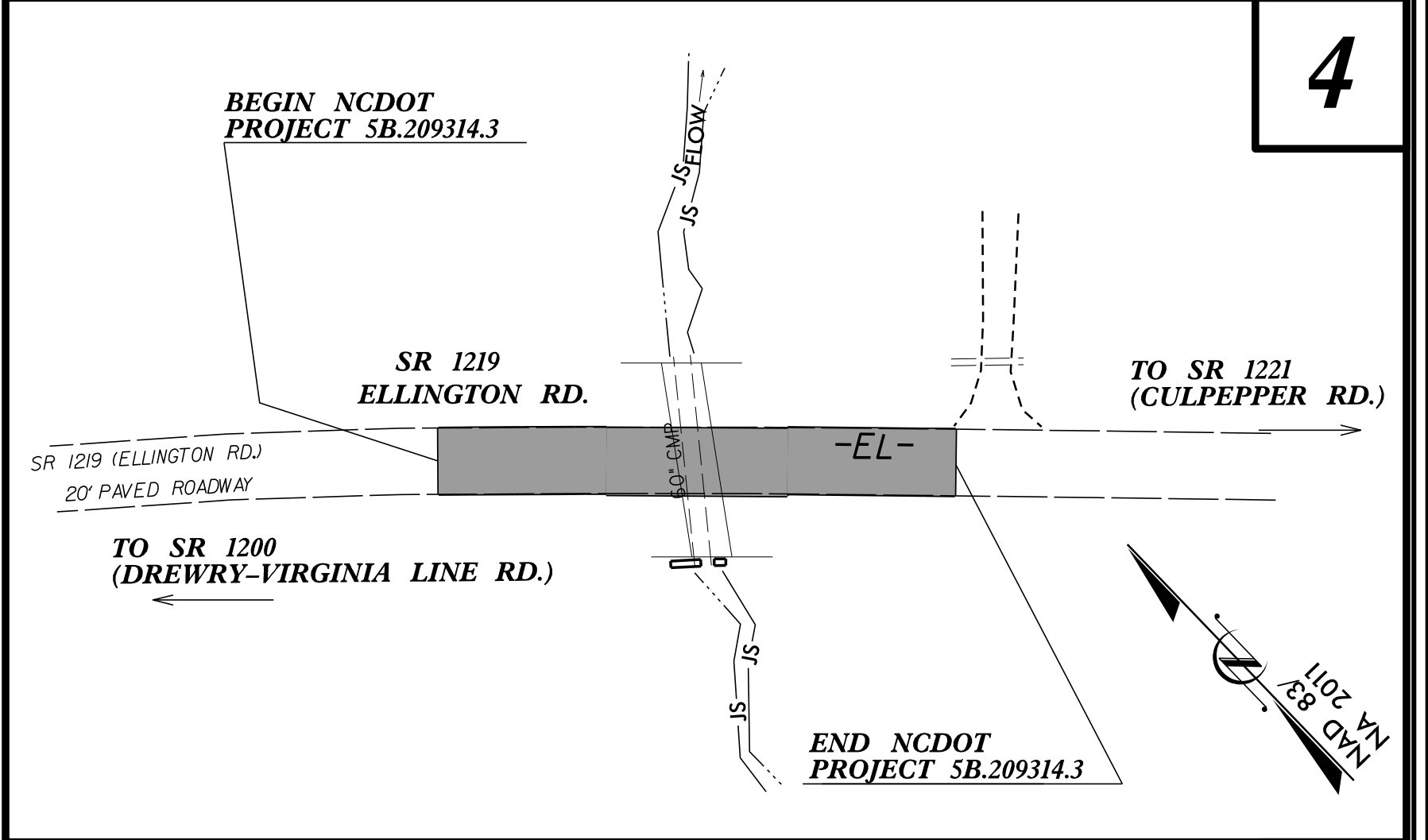
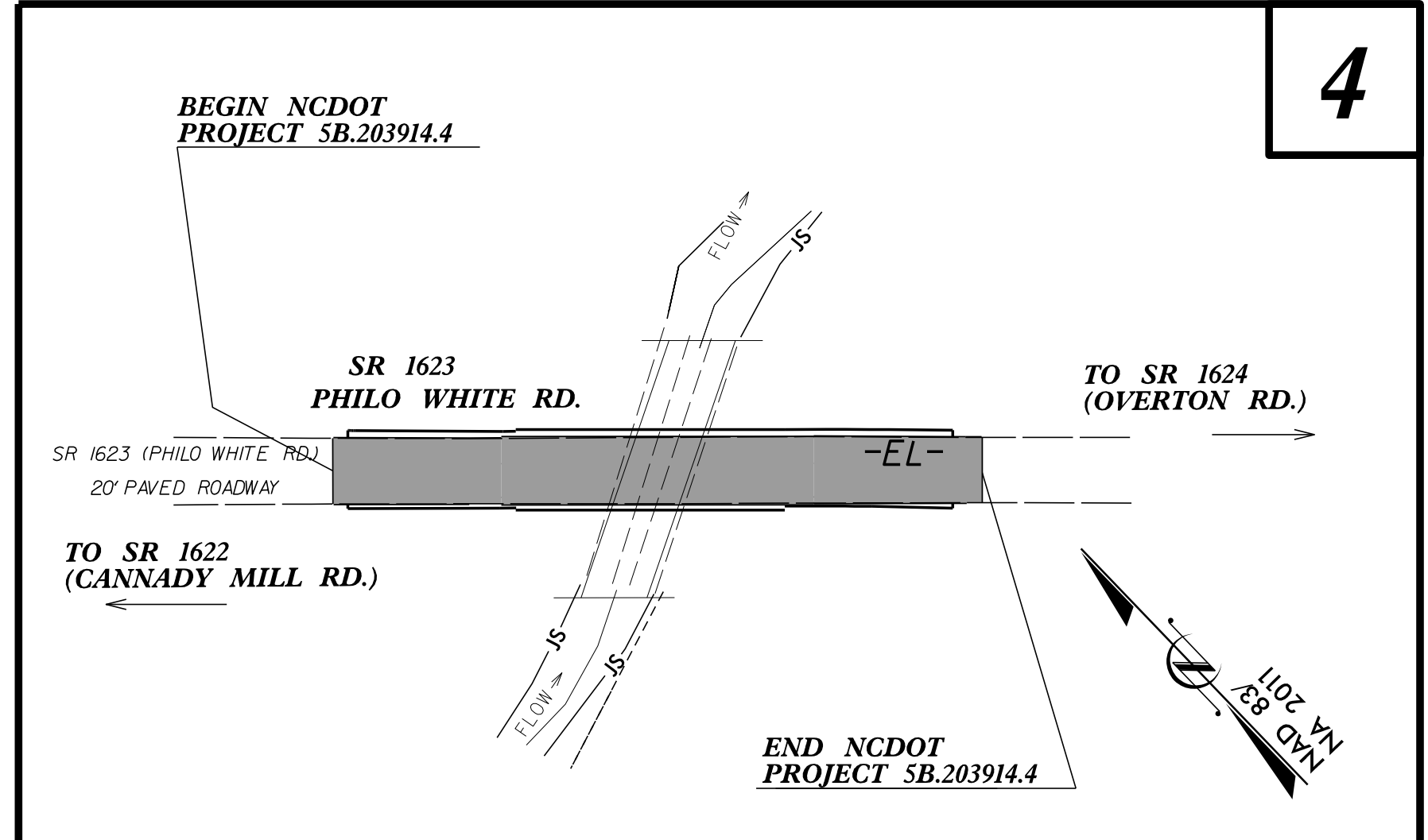
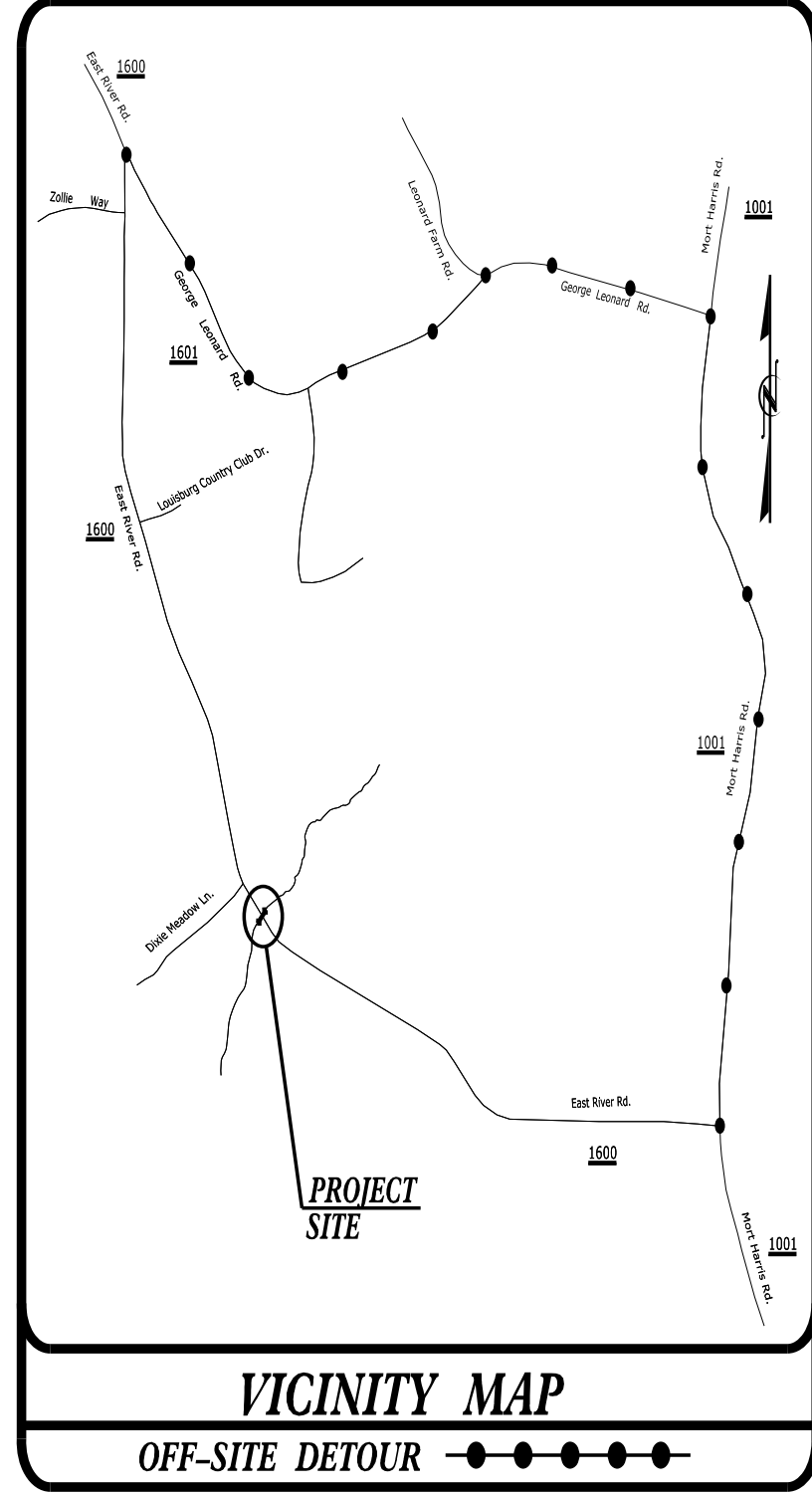
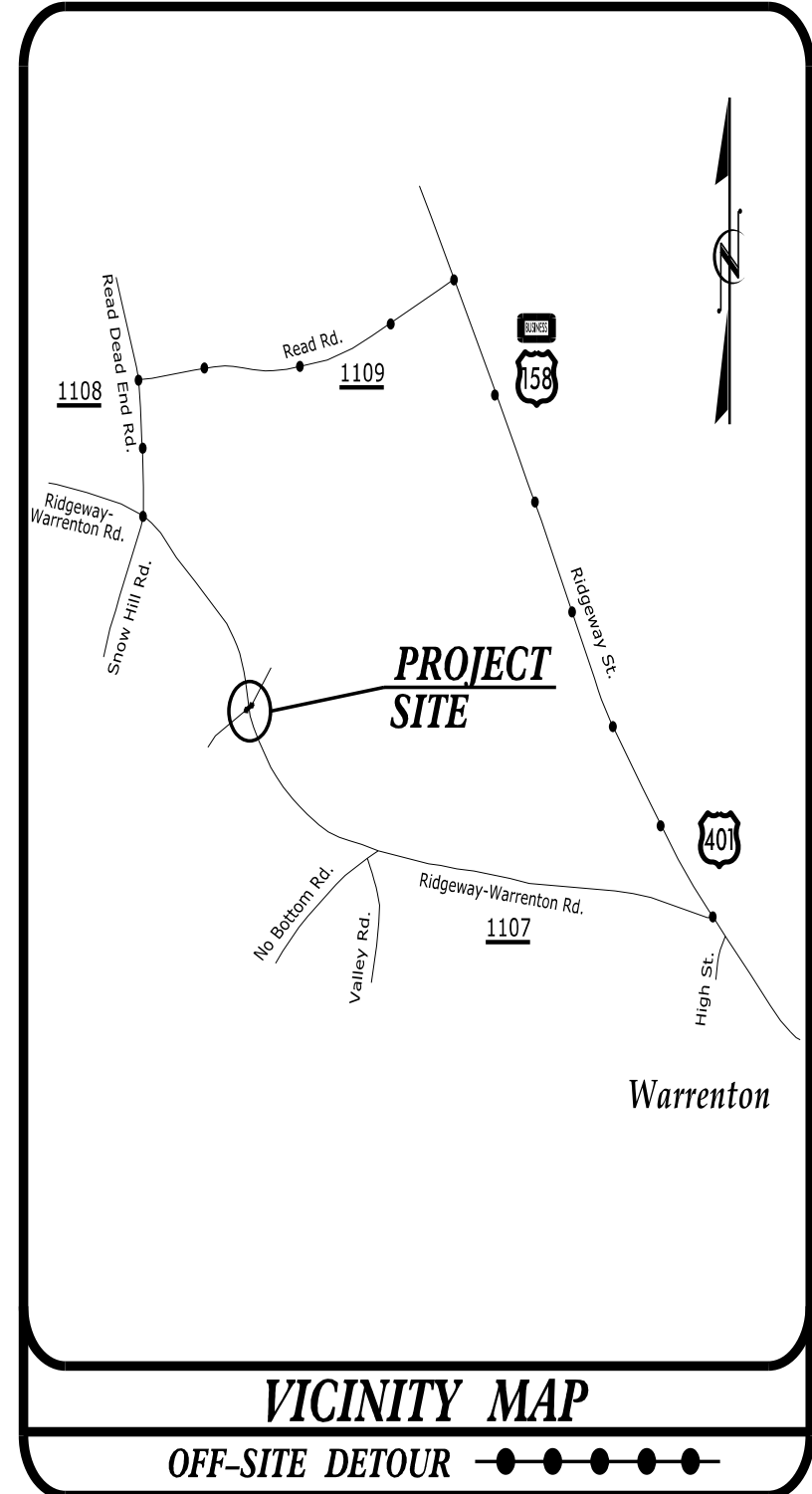
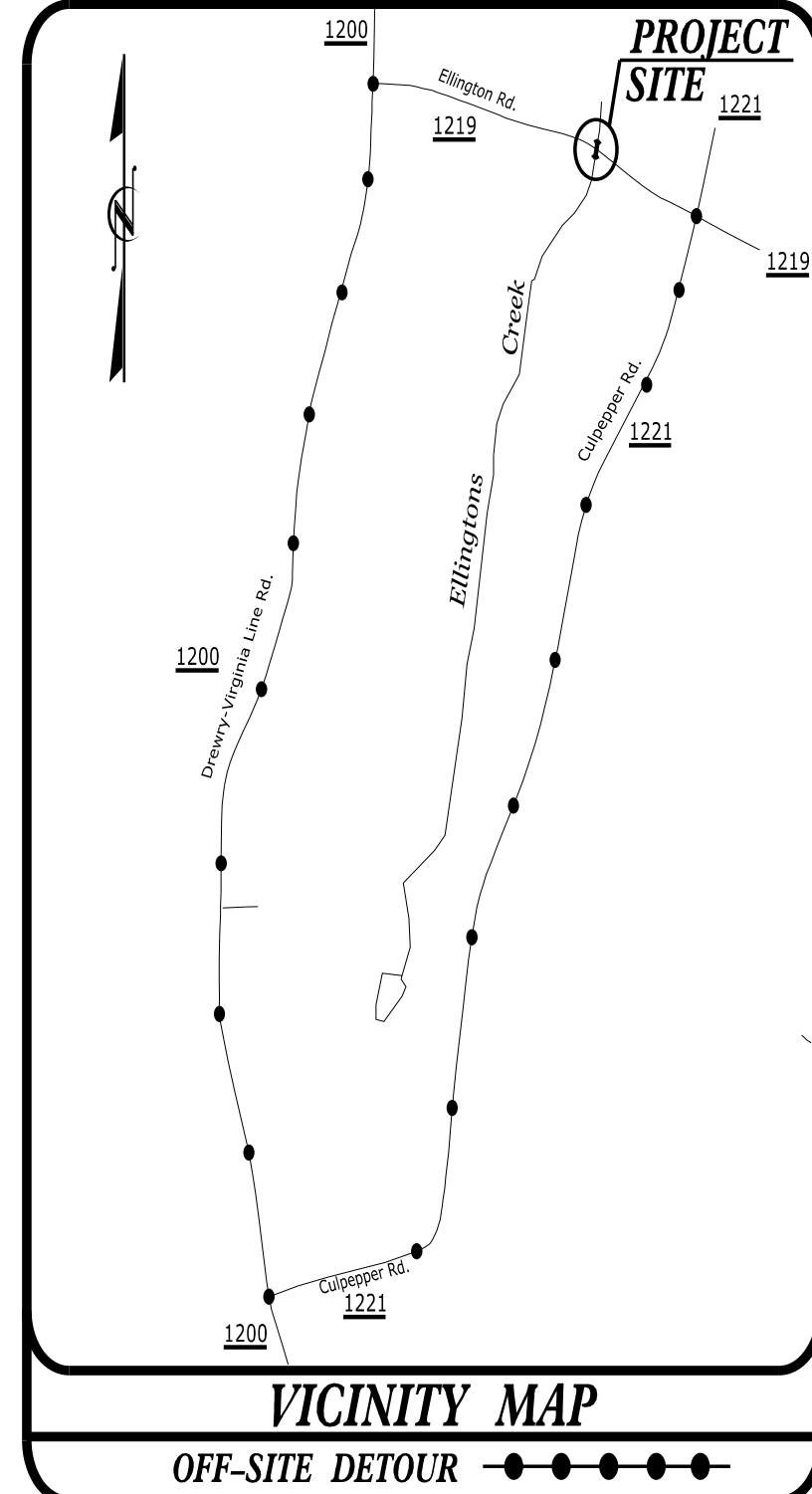
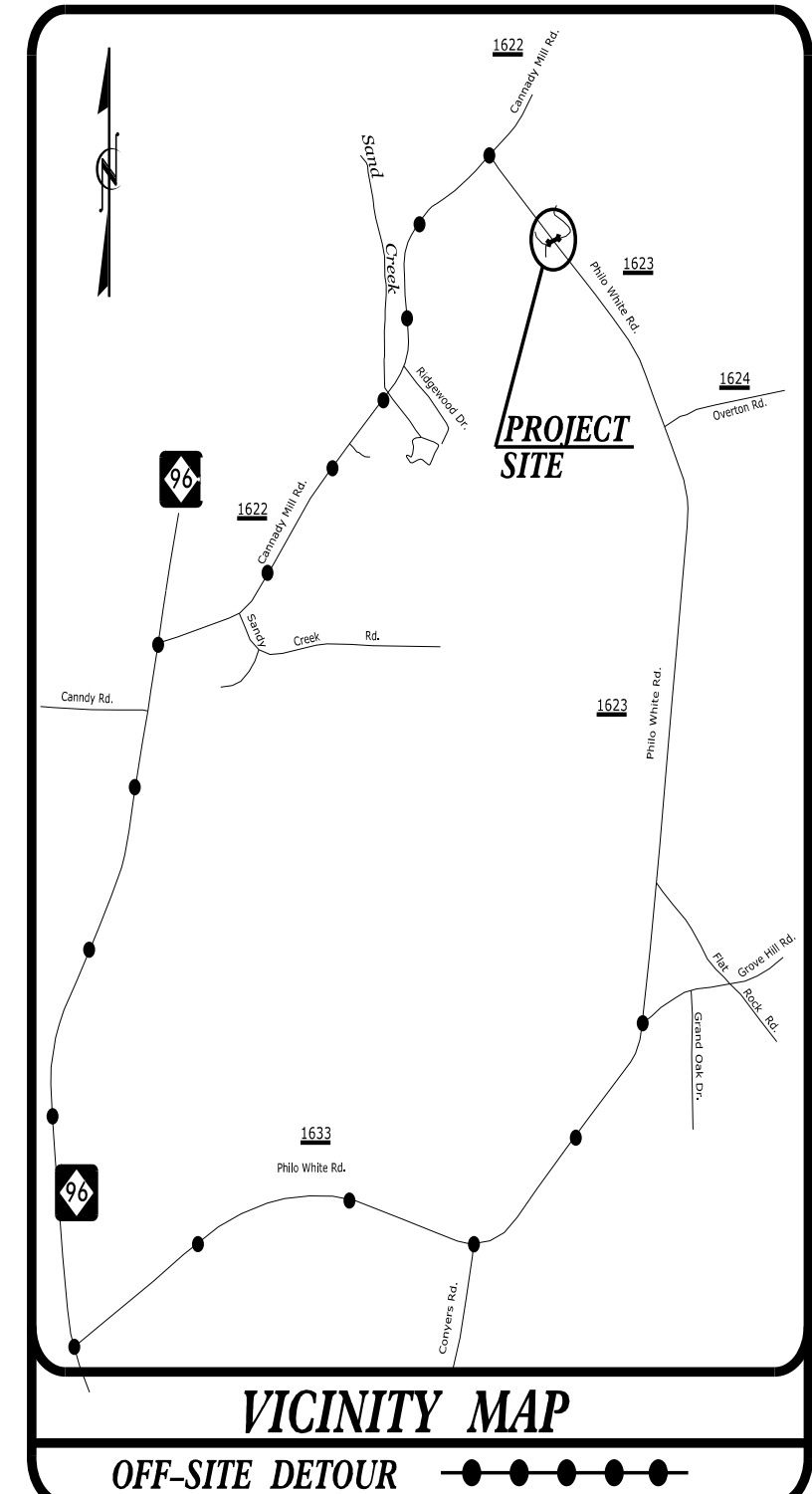
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE AND WATER MAIN**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	5B.203914.4, 5B.209314.3 & 5B.203514.4	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
5B.203914.4		PE, UTIL., RW	
5B.203914.4		CONST.	
5B.209314.3		PE, UTIL., RW	
5B.209314.3		CONST.	
5B.203514.4		PE, UTIL., RW	
5B.203514.4		CONST.	

**WETHERILL ENGINEERING**  
1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-03777  
Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



**PROJECT LENGTH**

LENGTH ROADWAY PROJECT 5B.203914.4, 5B.209314.3 AND 5B.203514.4	=	0.126 MILES
TOTAL LENGTH PROJECT 5B.203914.4, 5B.209314.3 AND 5B.203514.4	=	0.126 MILES

**NCDOT CONTACT:** REESE BRILEY  
BRIDGE SUPERINTENDENT

Prepared for:  
**DIVISION OF HIGHWAYS**  
**DIVISION FIVE**  
2612 N. Duke Street, Durham NC, 27704

2018 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:** EDWARD G. WETHERILL, PE  
PROJECT ENGINEER

**LETTING DATE:** MARCH 19, 2019

GREG S. PURVIS, PE  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**  
1/21/2019

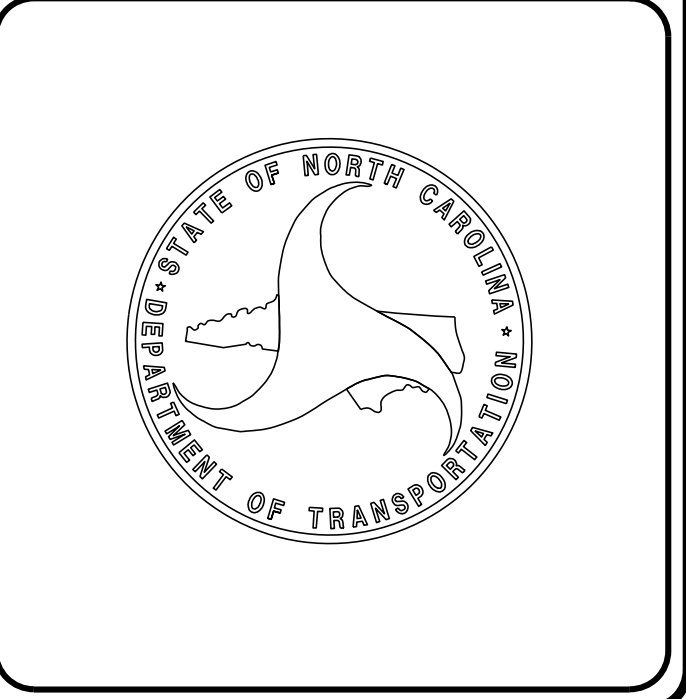
SEAL 15833

EDWARD G. WETHERILL, PE  
SIGNATURE

**ROADWAY DESIGN ENGINEER**  
1/21/2019

SEAL 022999

GREG S. PURVIS, PE  
SIGNATURE



8/17/99

GENERAL NOTES: 2018 SPECIFICATIONS

EFFECTIVE: 01-16-2018  
REVISED:

GRADE LINE:  
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION: ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 & 225 .05 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 PLANS: NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES: UTILITY OWNERS ON THIS PROJECT ARE WARREN COUNTY PUBLIC UTILITIES (5B.209314.3 SR 1219 ELLINGTON RD.)

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

EFF. 01-16-2018  
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

PROJECT REFERENCE NO.	SHEET NO.
5B.203914.4	1-A
5B.209314.3	
5B.203514.4	



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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

ROADWAY DESIGN ENGINEER  
5/11/2019



Seal of the State of North Carolina  
Professional Engineer  
No. 022999  
GARY S. PURVIS

**DOCUMENT NOT CONSIDERED FINAL  
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INDEX OF SHEETS

SHEET NUMBER	SHEET
PROJECTS 5B.203914.4, 5B.209314.3, 5B.203514.4	
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
PROJECT 5B.203914.4 (SR 1623, PHILO WHITE RD.)	
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLANS
PROJECT 5B.209314.3 (SR 1219, ELLINGTON RD.)	
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLANS
PROJECT 5B.209314.3 (SR 1107, RIDGEWAY WARRENTON RD.)	
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLANS
PROJECT 5B.203514.4 (SR 1600, EAST RIVER RD.)	
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	HEADWALL DETAIL SHEET
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLANS
PROJECTS 5B.203914.4, 5B.209314.3, 5B.203514.4	
EC-1 THRU EC-7	EROSION CONTROL PLANS

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04/06/15

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

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

PROJECT REFERENCE NO.	SHEET NO.
5B.2039/4.4	1-B
5B.2093/4.3	
5B.2035/4.4	

### 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	☠-S-☠
Potential Contamination Area: Soil	☠-S-☠
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	☠-W-☠
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 Construction Easement	----- PCE
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	□ PH
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	□ PH
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	□
TV Tower	⊗
U/G TV Cable Hand Hole	□ PH
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

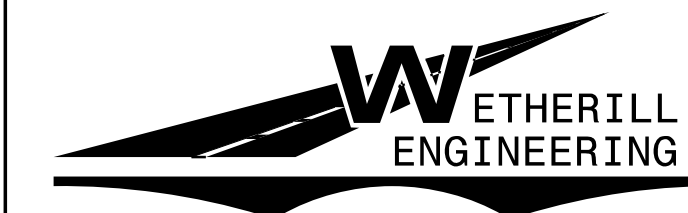
### SANITARY SEWER:

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.*)	----- 7UTL
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.

8/17/19



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Raleigh, N.C. 27606  
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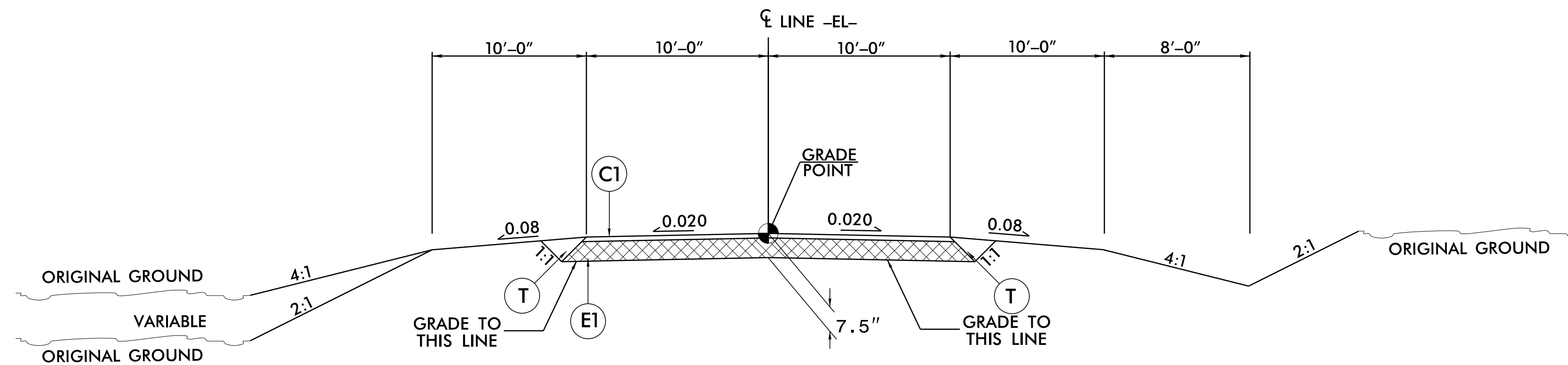
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

**PHILO WHITE ROAD  
(SR 1623)**

PROJECT REFERENCE NO. <b>5B.203914.4</b>	SHEET NO. <b>2A-1</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 1/21/2019	
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)

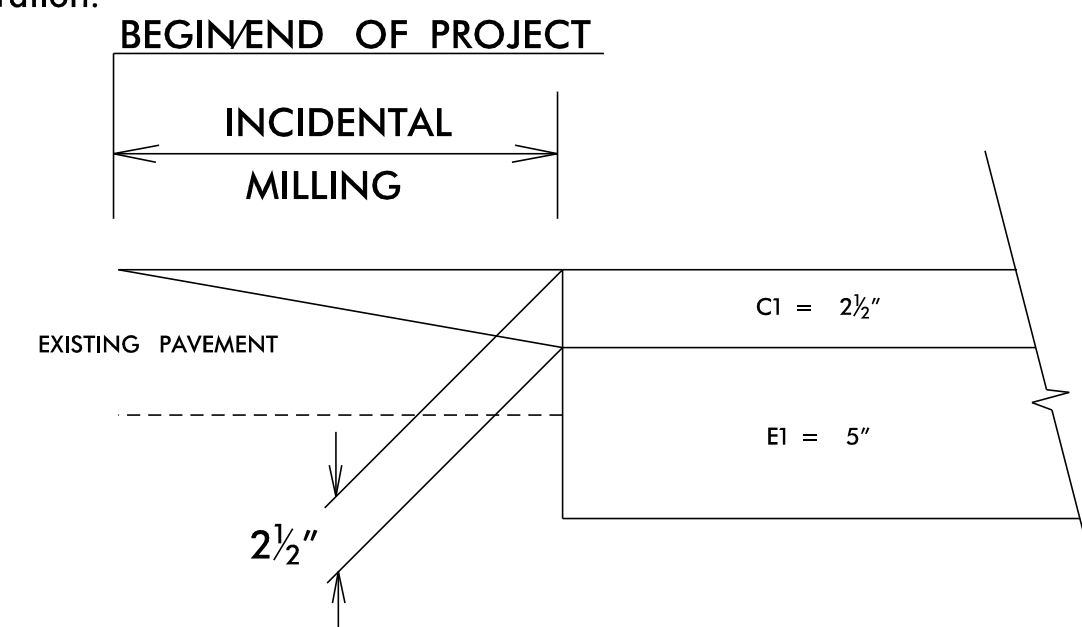
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



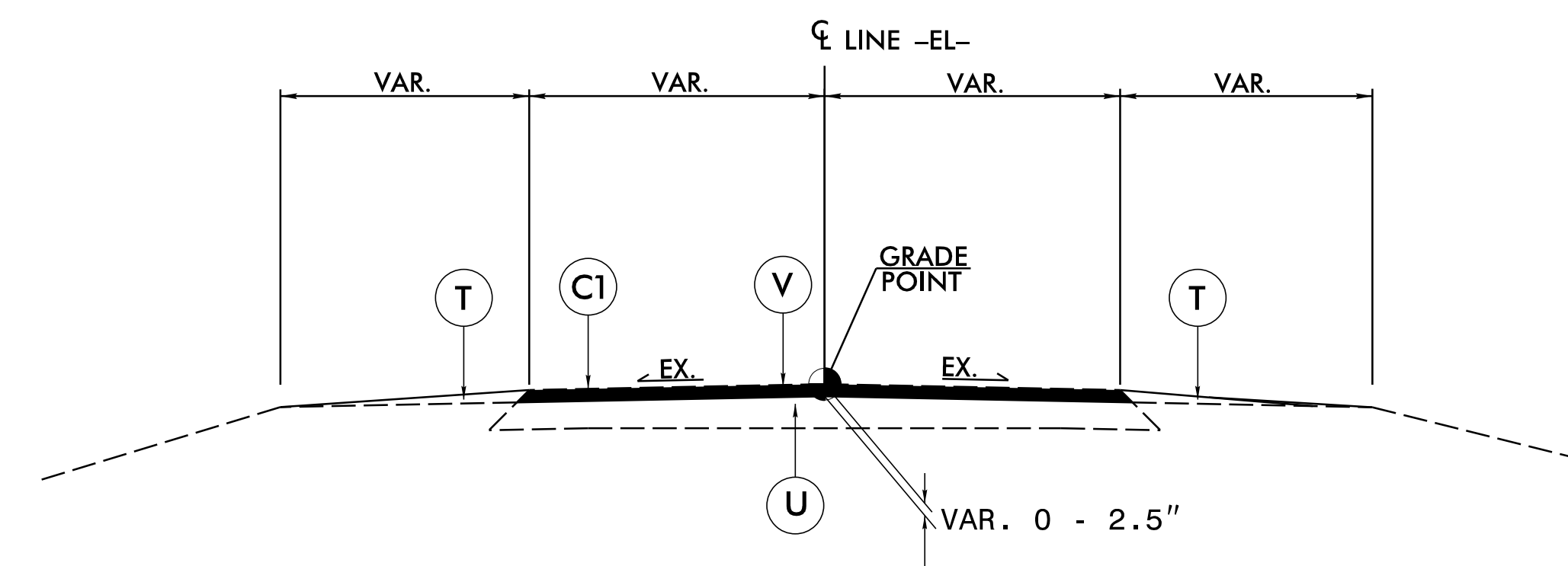
**TYPICAL SECTION WITHIN EXCAVATION**

**NOTES TO CONTRACTOR**

Perform the work in accordance with Section 607 of the January 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.



NOTE: UTILIZE INCIDENTAL MILLING TO MAKE PAVEMENT TIE-INS



**V: MILLING DETAIL**

REVISIONS

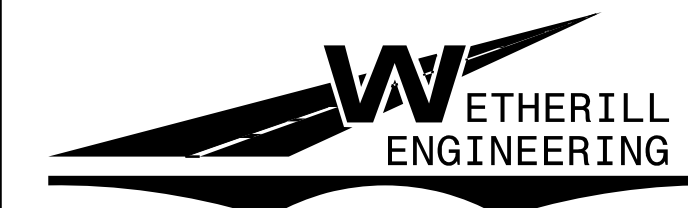
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8/17/99

REVISIONS

1/18/2019 J.Grunville\_RDY\_PSH\_04.dgn  
JESSE KENNEDY

\*\*\*\*\*  
 BM1 ELEVATION = 333.05  
 N 885896 E 2130194  
 BL STATION 5+56.00 51 LEFT  
 BM SET IN 18" PINE  
 \*\*\*\*\*



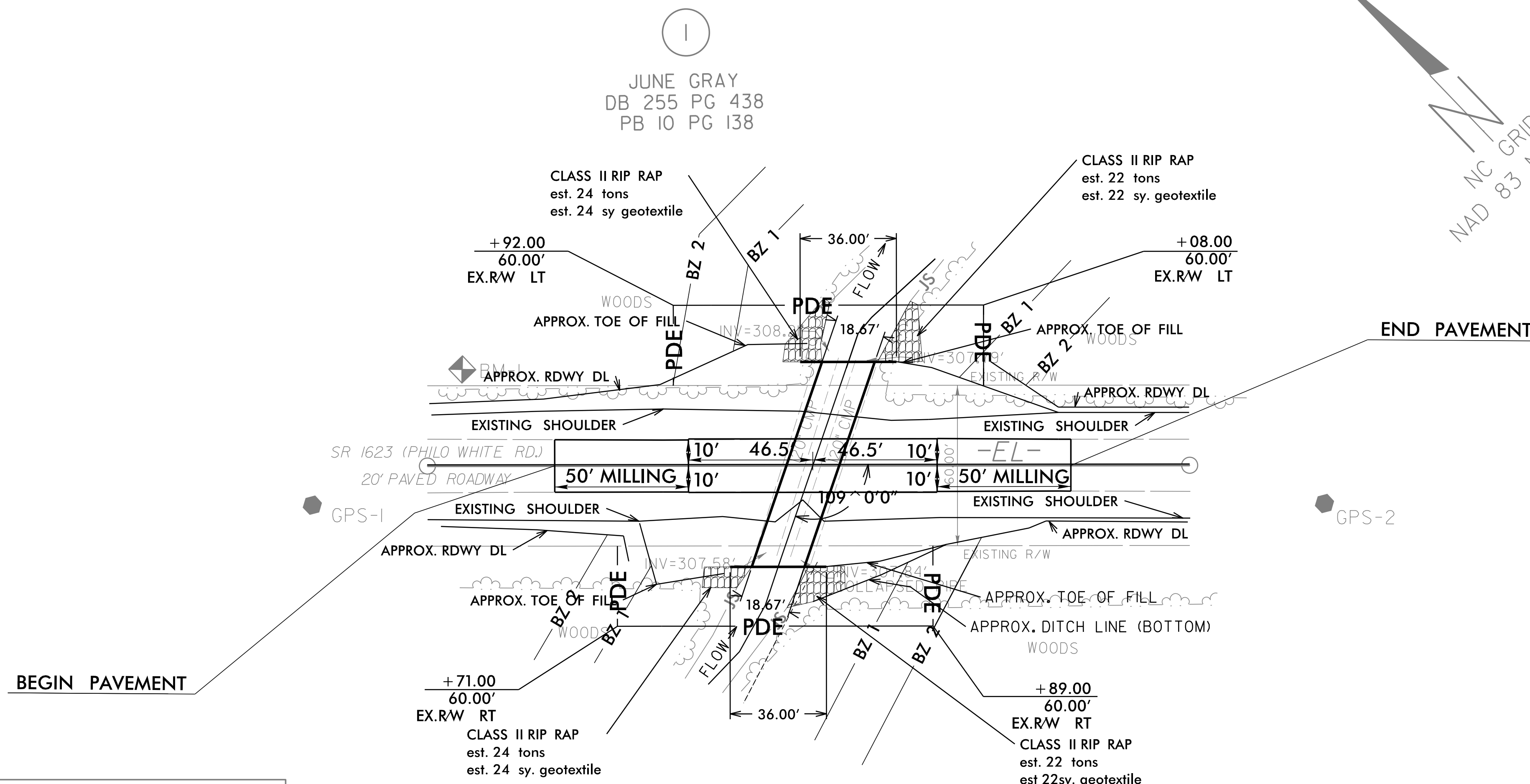
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PROJECT REFERENCE NO. 5B.203914.4	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 1/21/2019	HYDRAULICS ENGINEER 1/21/2019
<small>Designed by Gary S. Purvis</small> <small>Checked by Jerry L. Lindsey</small> <b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

**PHILO WHITE ROAD  
(SR 1623)**

SCALE 1" = 30'



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 885636.41(ft) EASTING: 2130391.45(ft) ELEVATION: 336.88(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999993593

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-2" TO -L- STATION IS

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

**PLAN VIEW  
18'-8" x 11'-8" CAASPPA**

JUNE GRAY  
 DB 255 PG 438  
 PB 10 PG 138

**PIPE STRUCTURE AND HEADWALLS ARE STATE SUPPLIED**

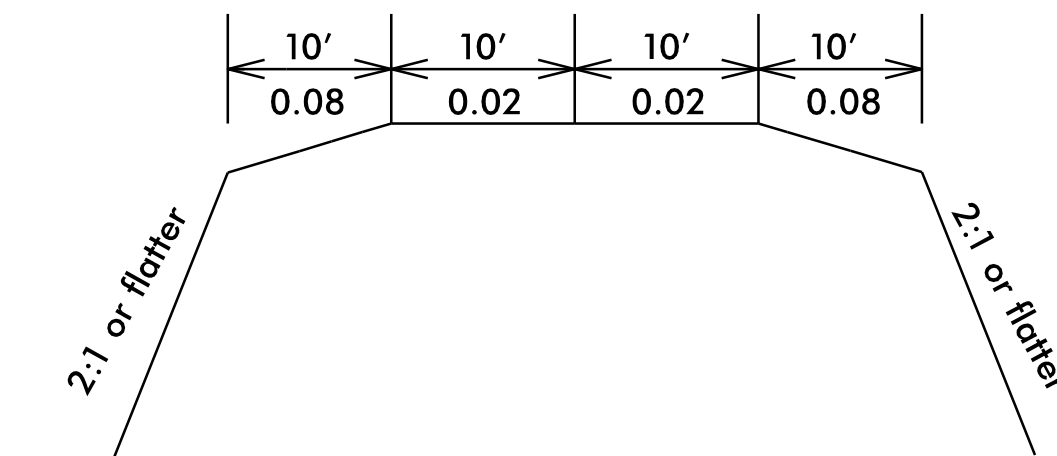
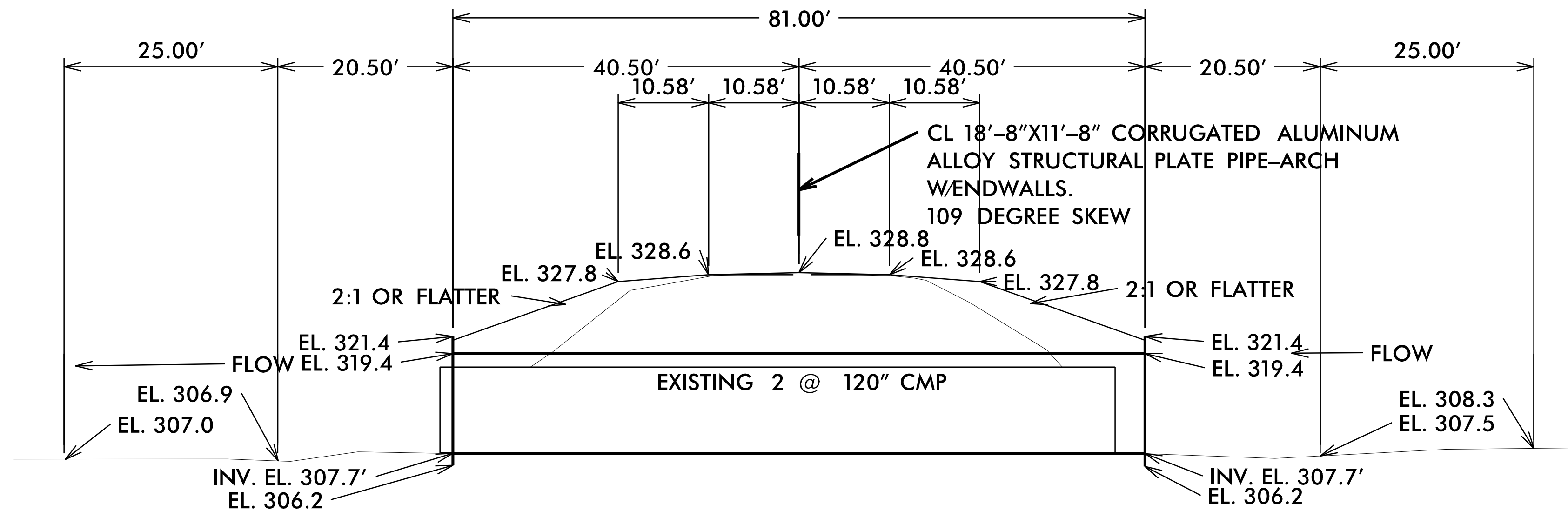


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PROJECT REFERENCE NO. <b>5B.203914.4</b>	SHEET NO. <b>5</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Greg S. Purvis</i>	HYDRAULICS ENGINEER <i>Greg L. Lindley</i>
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

## PHILO WHITE ROAD (SR 1623)

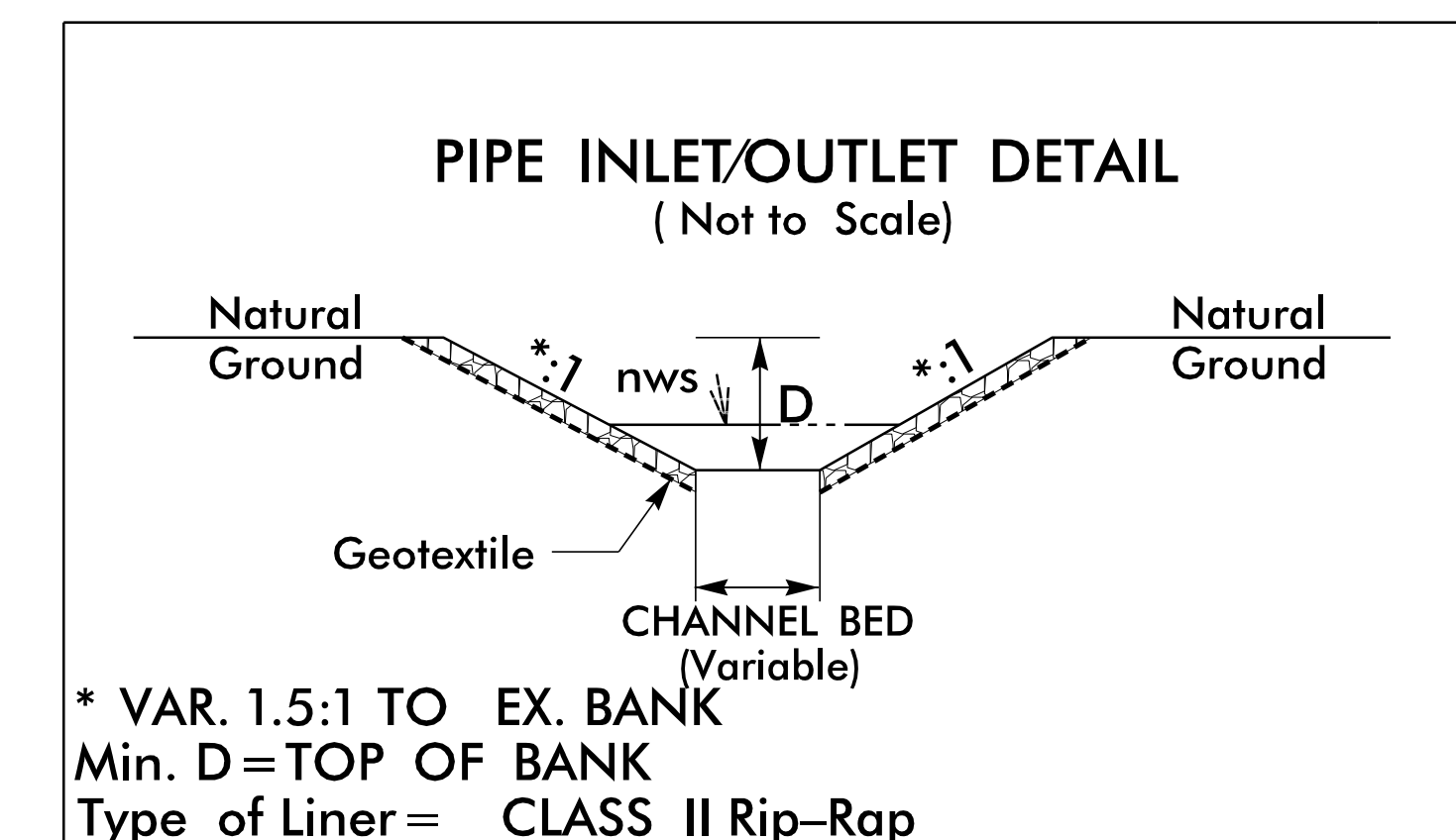


### PROFILE ALONG CENTER OF CULVERT 18'-8" x 11'-8" CAASPPA 109 DEGREE SKEW

**PROPOSED ELEVATIONS:**  
 CENTERLINE ROADWAY OVER PIPE  
 ELEVATION = 328.8  
**INLET:**  
 TOP OF HEADWALL = 321.4  
 TOP OF PIPE = 319.4  
 STREAM BED = 307.7  
 INVERT PIPE = 307.7  
**OUTLET:**  
 TOP OF HEADWALL = +/- 321.4  
 TOP OF PIPE = +/- 319.4  
 STREAM BED = +/- 307.7  
 INVERT PIPE = +/- 307.7

CENTERLINE LENGTH = 81'-0" OF 18'-8" X 11'-8" CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE-ARCH.  
 TWO 36'-0" WIDE BY 14'-10" TALL FULLY WELDED ALUMINUM STRUCTURAL PLATE HEADWALLS W/2 SECTIONS OF 18'-8" X 11'-8" 0.200" THICK ALSP PIPE-ARCH STUBED OUT, WHICH SHALL BE FULLY WELDED TO ALUMINUM STRUCTURAL PLATE HEADWALL.  
 MINIMUM COVER = 2.0' AT HEADWALL;  
 8.4' AT SHOULDER POINT.  
 MAXIMUM COVER OVER PIPE = 9.5'

NOTE: DUE TO THE PRESENCE OF ROCK AT THE SITE, THE PROPOSED PIPE INVERTS ARE NOT BURIED.



REVISIONS

# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
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1262.01	GUARDRAIL END DELINEATION

# PHASING

## PHASE I

- STEP 1: - USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 AND SHEET TMP-2 CLOSE PHILO WHITE ROAD (SR 1623) TO TRAFFIC.
- STEP 2: - INSTALL PROPOSED DRAINAGE AND RECONSTRUCT PROPOSED ROADWAY, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS).
  - PLACE THE FINAL MARKINGS (THERMOPLASTIC) IN THE EXISTING TRAFFIC PATTERN.
- STEP 3: - OPEN PHILO WHITE ROAD (SR 1623) TO THE FINAL TRAFFIC PATTERN AND REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.

<p><b>SIGN NUMBER:</b> name TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 3'-0" HEIGHT: 2'-0" TOTAL AREA: 6.0 Sq.Ft.</p> <p><b>BORDER TYPE:</b> INSET RECESS: 0.38" WIDTH: 0.63" RADIUS: 1.5"</p> <p><b>NO. Z BARS:</b> LENGTH:</p>	<p><b>BACKG COLOR:</b> Fluorescent Orange <b>COPY COLOR:</b> Black</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>MAT'L: 0.080" (2.0 mm) ALUMINUM</p>	SYMBOL	X	Y	WID	HT																																																			<p><b>DESIGN BY:</b> SLK <b>PROJECT ID:</b> 17BP.5.C.PE</p> <p><b>CHECKED BY:</b> JWG <b>DIV:</b> 5</p> <p style="text-align: right;"><b>Apr 16, 2018</b></p> <div style="text-align: center;"> </div> <p style="text-align: center;">Spacing Factor is 1 unless specified otherwise</p>																																				
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FILENAME: Guidesign6\_022617 NORTH CAROLINA D.O.T. SIGN DETAIL

NOTE: TEMPORARY SIGNS TO BE PAID FOR AS "STATIONARY WORK ZONE SIGNS".

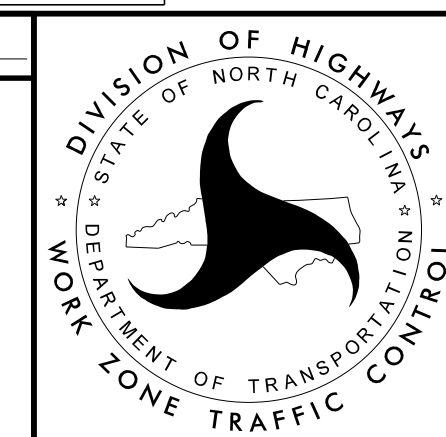
**WETHERILL ENGINEERING**

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

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

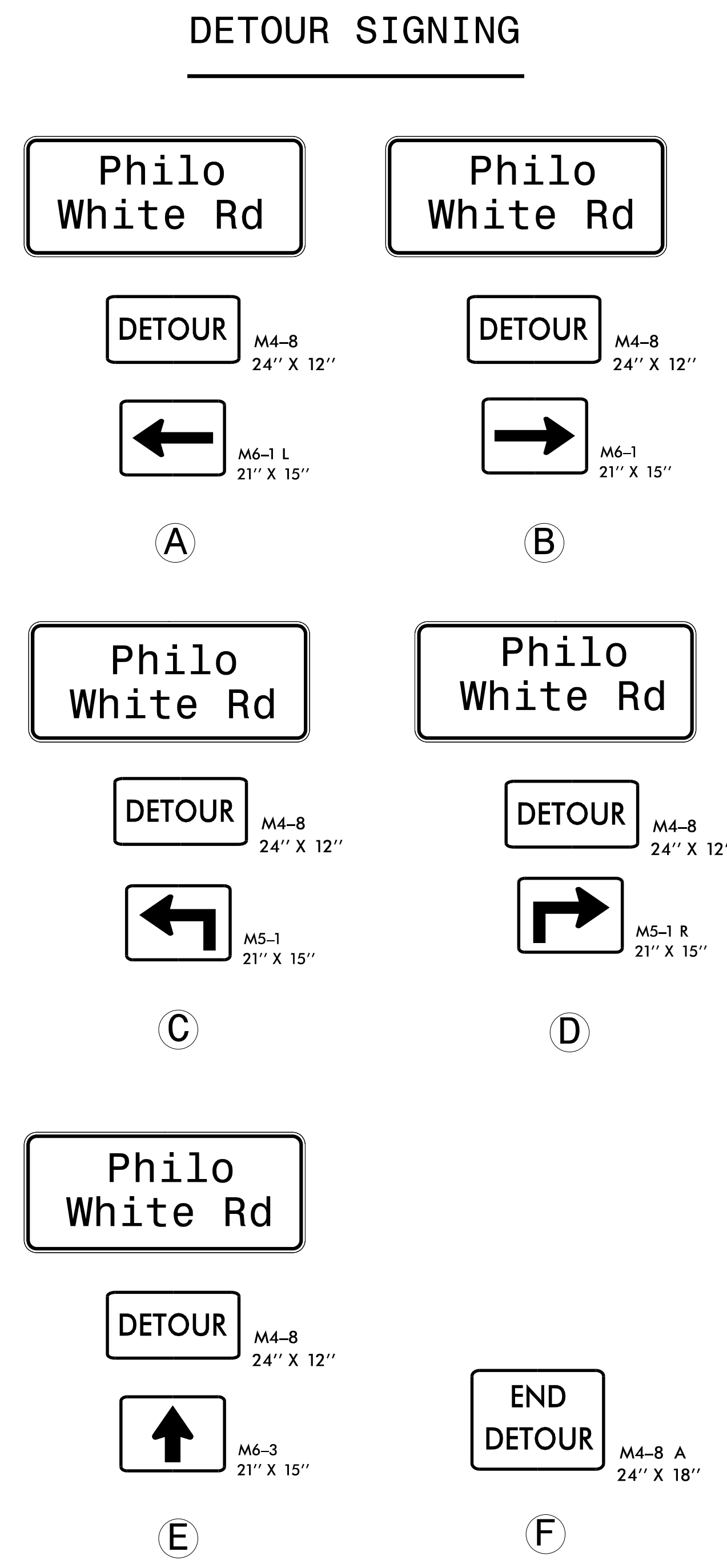
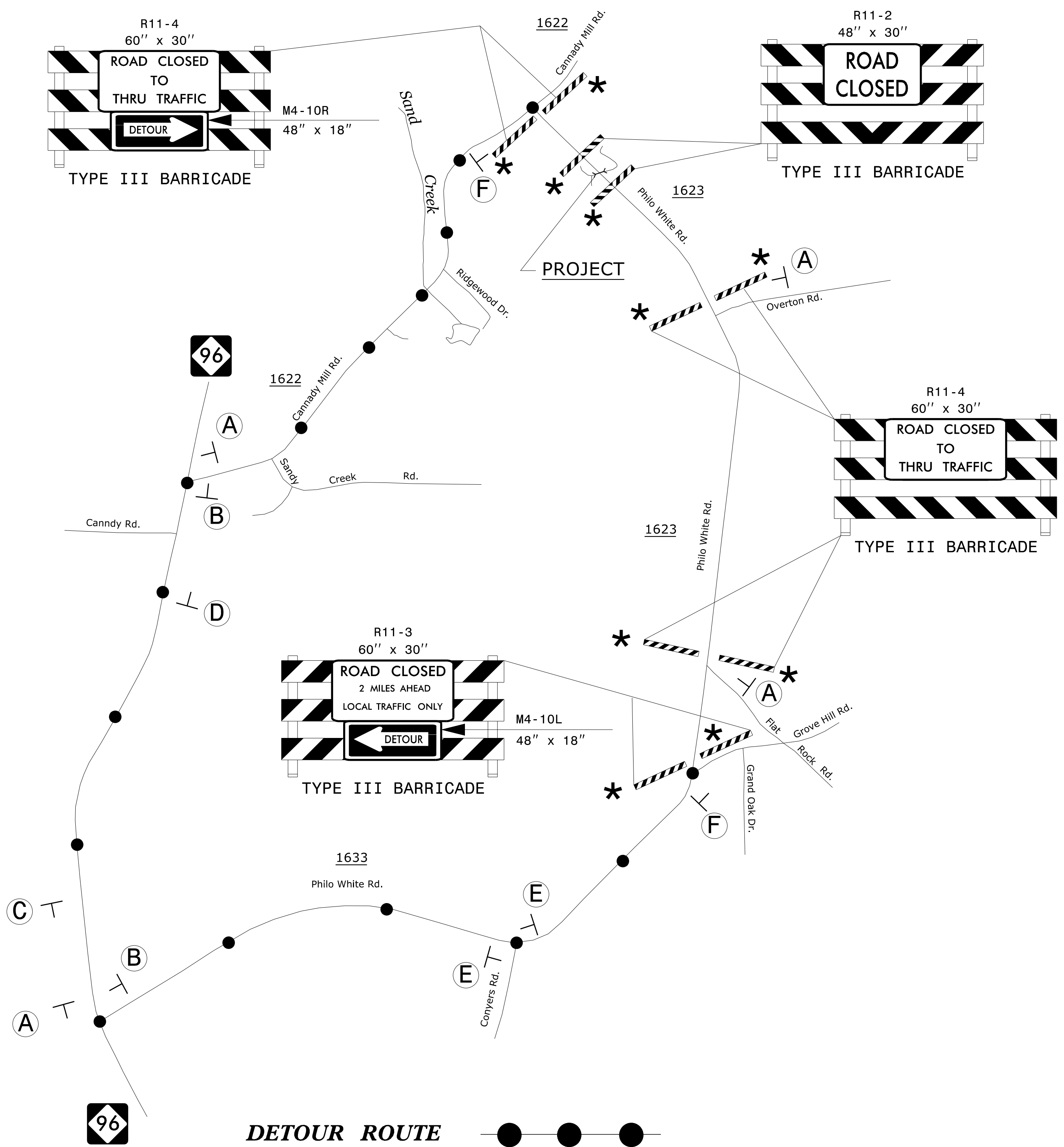
<b>APPROVED:</b> _____	<b>DATE:</b> _____
<p>SEAL</p> <p>12/12/2018</p>	



ROAD STANDARD DRAWINGS,  
PHASING AND SPECIAL  
SIGN DESIGN FOR  
PHILO WHITE ROAD  
(SR 1623)

12/11/2018 P:\2018\1812109.DIV 5 PIPE REPLACEMENT\Granville SR 1623\TrafficControl\TCP\Granville SR 1623\_TC\_TMP\_PSH\_01.dgn User:SKENNEDY





NOTES: SEE TMP-1 FOR "PHILO WHITE ROAD" SPECIAL SIGN DESIGN.  
 ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.  
 \* SEE RSD 1101.03, SHEET 1 OF 9, FOR TYPE III BARRICADE LOCATION WITH ATTACHED SIGNING & ADDITIONAL SIGNING FOR ROAD CLOSURE.

I:\22\2019\_P1\2018\1812109\_DIV 5 PIPE REPLACEMENT\Granville SR 1623\TrafficControl\TCP\Granville SR 1623\_TC\_TMP\_PSH\_02.dgn  
 User: SKENNEDY

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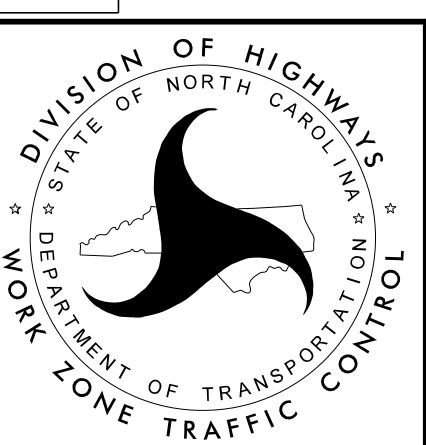
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APPROVED: Gary S. Purvis DATE: 1/23/2019

SEAL

NORTH CAROLINA  
PROFESSIONAL  
ENGINEER  
GREG S. PURVIS



DETOUR  
PHILO WHITE ROAD  
(SR 1623)





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PROJECT REFERENCE NO. <b>5B.209314.3</b>	SHEET NO. <b>4</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 1/21/2019	HYDRAULICS ENGINEER 1/21/2019
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

**ELLINGTON ROAD  
(SR 1219)**

SCALE 1" = 30'

NC GRID  
NAD 83 NA 2011

W. B. ELLINGTON, JR, ET UX  
DB 420 PG 30  
DB 443 PG 338

W. B. ELLINGTON, JR, ET UX  
DB 420 PG 30  
DB 443 PG 338

PLAN VIEW 11'-9"x7'-2" CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE-ARCH  
81 DEGREE SKEW

Point	North	East	Elevation
GPS-1	1001161.8300	2207476.0000	330.0700
GPS-2	1001354.2500	2207104.4800	334.3600

**6" VALVE**  
TIE TO EXISTING 6" PVC WATER MAIN AND INSTALL A NEW 6" ISOLATION GATE VALVE. RESTRAIN NEW GATE VALVE TO NEW RESTRAINED JOINT D.I.P. AND TO EXISTING WATERLINE. USE STAINLESS STEEL "ALL THREAD" RODDING AS REQUIRED. COORDINATE WITH MR. MACON ROBERTSON, WARREN COUNTY PUBLIC UTILITIES AT 252-257-3645.

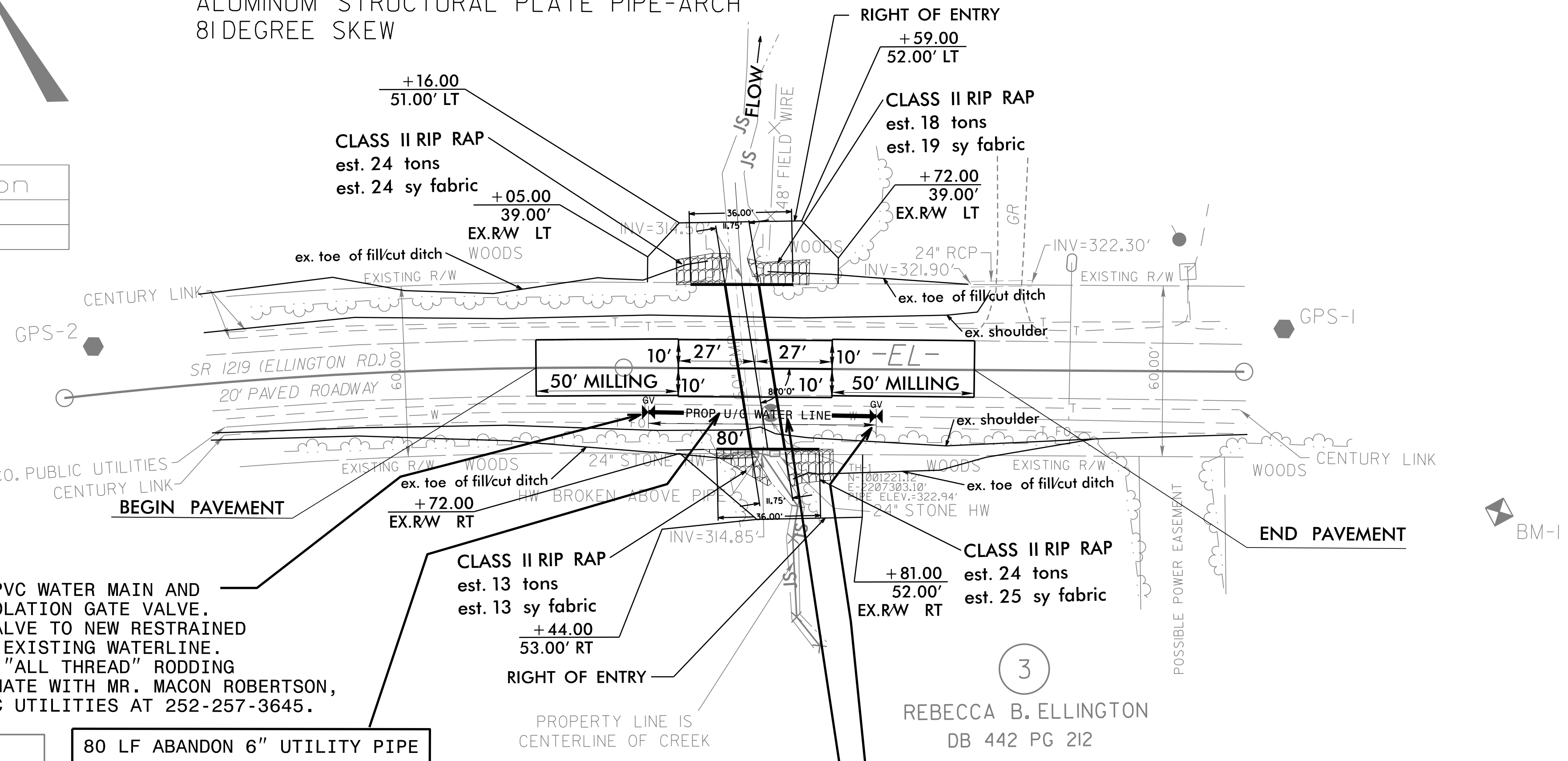
**80 LF ABANDON 6" UTILITY PIPE**

**80 LF 6" WATER LINE**

**DATUM DESCRIPTION**  
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 1001354.254(±) EASTING: 2207104.481(±) ELEVATION: 334.356(±)  
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000989596  
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-2" TO -L- STATION IS  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

\*\*\*\*\*  
BM1 ELEVATION = 340.44  
N 1001069 E 2207512  
BL STATION 9+18.39  
S 21°21'40.4" E DIST 99.25  
BM SET IN 13" PINE  
\*\*\*\*\*

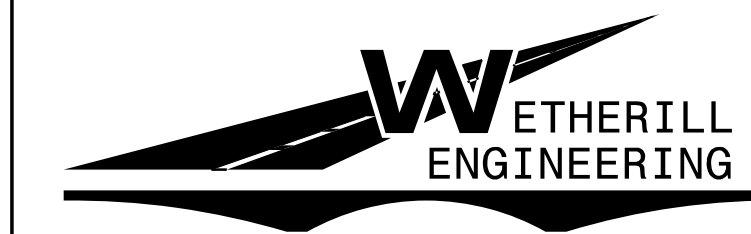
**PIPE STRUCTURE AND HEADWALLS ARE STATE SUPPLIED**



DELINA RUSSELL, ET UX  
DB 981 PG 104

REBECCA B. ELLINGTON  
DB 442 PG 212

8/17/19



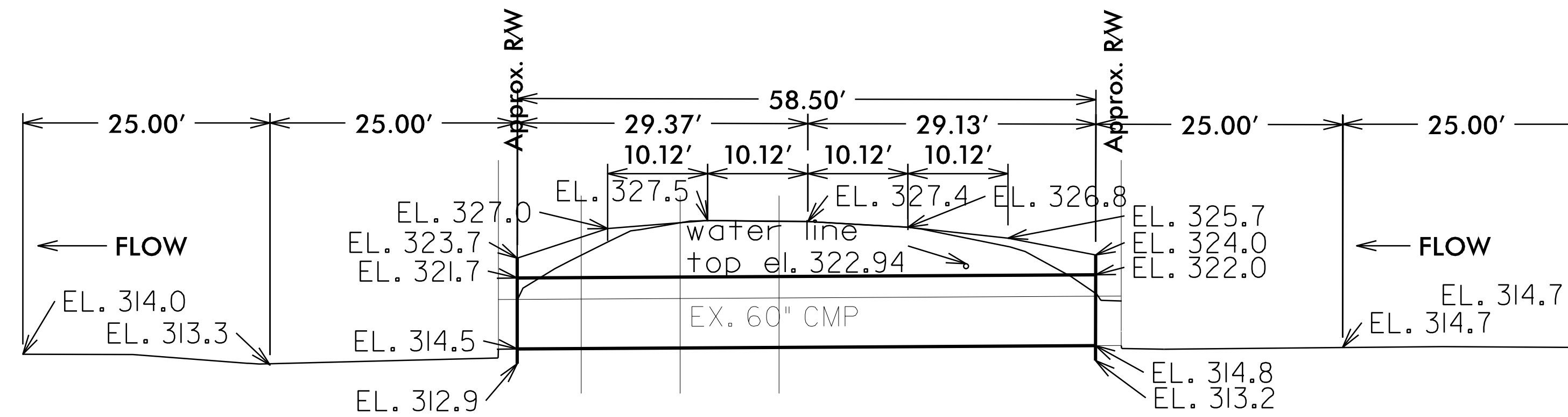
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
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PROJECT REFERENCE NO. <b>5B.209314.3</b>	SHEET NO. <b>5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Greg S. Purvis</i>	HYDRAULICS ENGINEER <i>Greg L. Lindsey</i>
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

## ELLINGTON ROAD (SR 1219)

REVISIONS

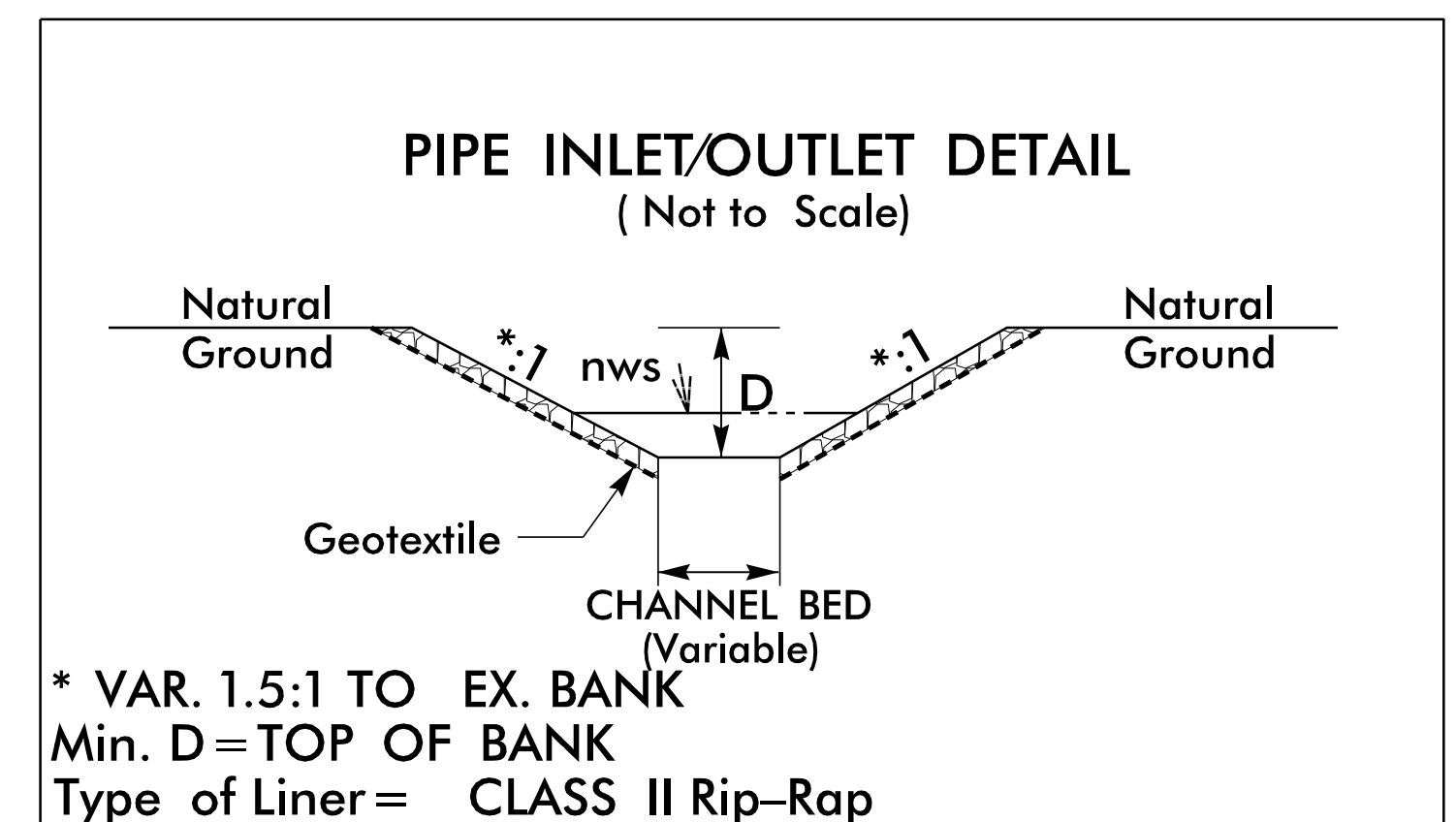


**PROFILE VIEW 11'-9" x 7'-2" CORRUGATED  
ALUMINUM STRUCTURAL PLATE PIPE-ARCH  
81 DEGREE SKEW**

CENTERLINE LENGTH=58'-6" OF 11'9"x7'2"  
CORRUGATED ALLUMINUM STRUCTURAL PLATE  
PIPE-ARCH.  
TWO 36'-0" WIDE BY 10'-10" TALL FULLY  
WELDED STRUCTURAL ALUMINUM STRUCTURAL  
PLATE HEADWALLS W/2 SECTIONS OF  
11'-9"x7'-2" 0.150" THICK ALUMINUM  
STRUCTURAL PLATE PIPE-ARCH STUBBED OUT,  
WHICH SHALL BE FULLY WELDED TO ALUMINUM  
STRUCTURAL PLATE HEADWALL.  
MINIMUM COVER=2.0' AT HEADWALL;  
3.7' AT SHOULDER POINT.  
MAXIMUM COVER OVER PIPE=5.5'

**PROPOSED ELEVATIONS:**  
CENTERLINE ROADWAY OVER PIPE  
ELEVATION=327.4  
**INLET:**  
TOP OF HEADWALL=324.0  
TOP OF PIPE= 322.0  
STREAM BED= 314.4  
INVERT PIPE= 314.8  
**OUTLET:**  
TOP OF HEADWALL= +/- 323.7  
TOP OF PIPE= +/- 321.7  
STREAM BED= +/- 313.6  
INVERT PIPE= +/-314.5

**NOTE: PIPE INVERTS NOT BURIED DUE TO  
PRESENCE OF ROCK AT SITE**



1/31/2019  
R:\Projects\ELLington\_RDY\_PSH\_05.dgn  
USER:PSH

# ROADWAY STANDARD DRAWINGS

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n	D 2000	7																																																						
g	D 2000	7																																																						
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NOTE: TEMPORARY SIGNS TO BE PAID FOR AS "STATIONARY WORK ZONE SIGNS".

**WETHERILL ENGINEERING**

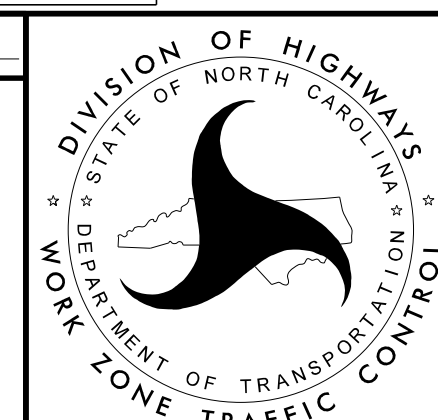
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License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

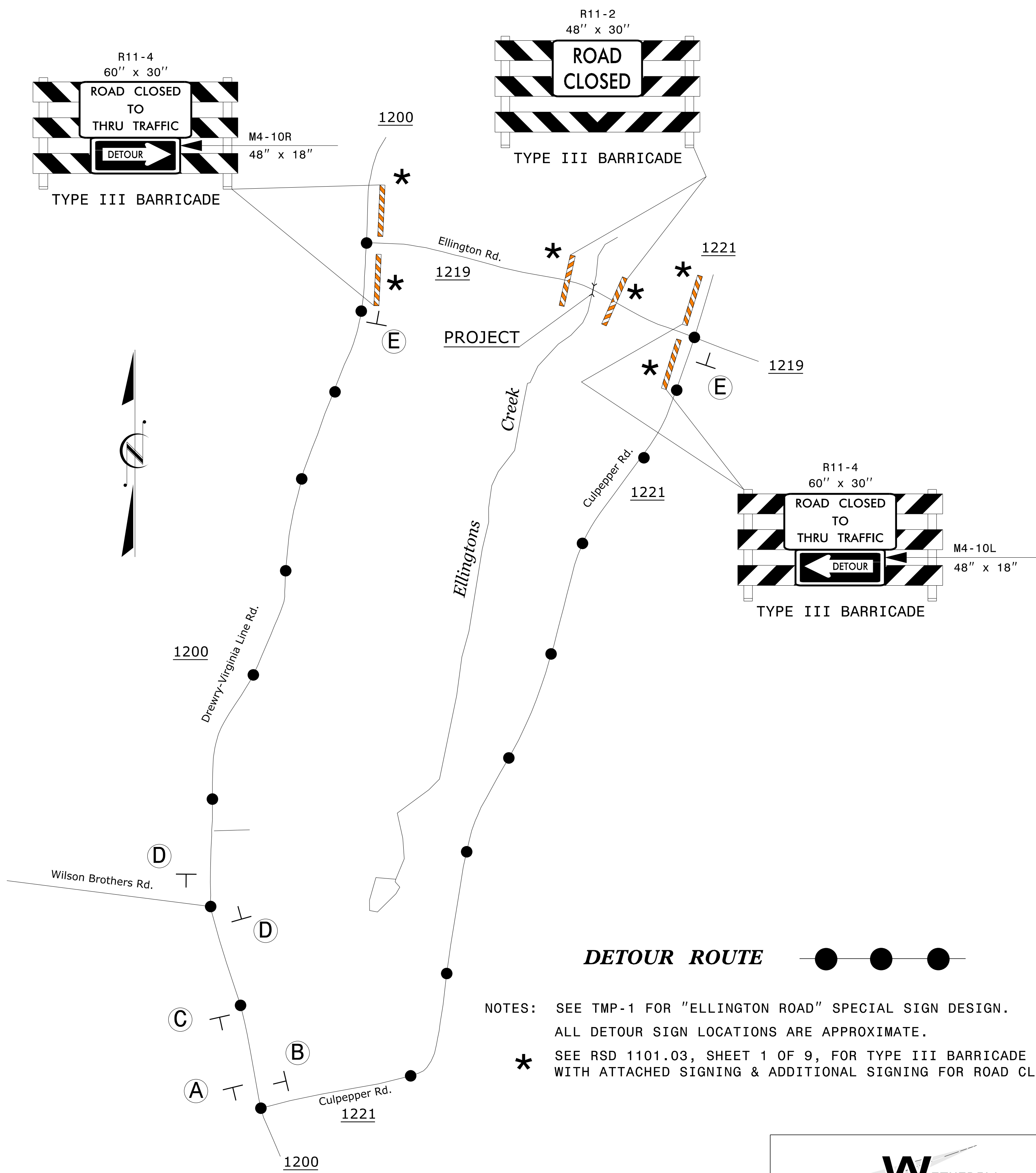
APPROVED: DATE: 12/13/2018

SEAL

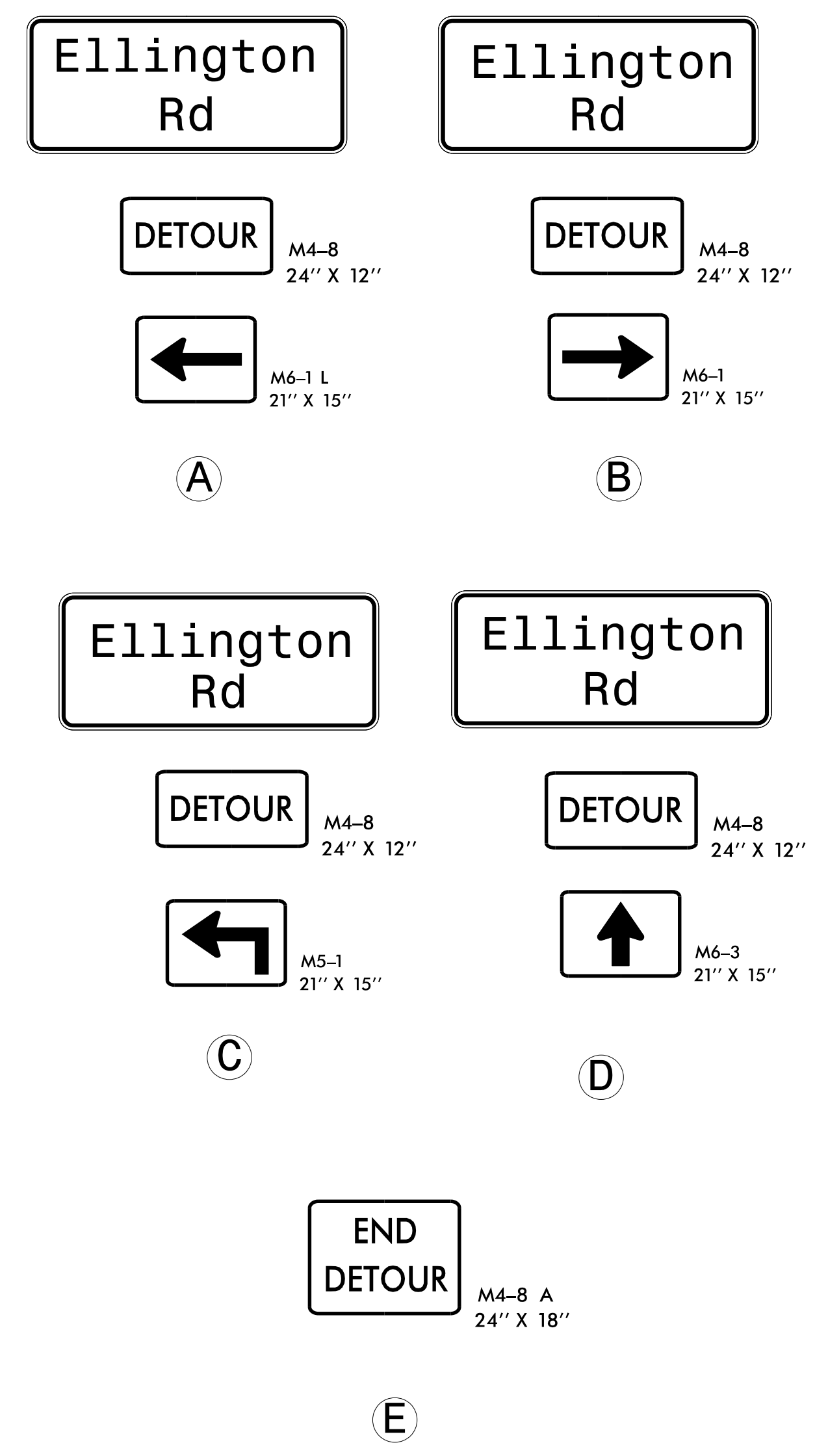


**ROAD STANDARD DRAWINGS,  
PHASING AND SPECIAL  
SIGN DESIGN FOR  
ELLINGTON ROAD  
(SR 1219)**

12/13/2018  
P:\2018\1219\1219.DIV 5 PIPE REPLACEMENT\Warren SR 1219\TC-TMP\_PSH\_01.dgn  
User:SKENNEDY



### DETOUR SIGNING



### DETOUR ROUTE

- NOTES:
- SEE TMP-1 FOR "ELLINGTON ROAD" SPECIAL SIGN DESIGN.
  - ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.
  - \* SEE RSD 1101.03, SHEET 1 OF 9, FOR TYPE III BARRICADE LOCATION WITH ATTACHED SIGNING & ADDITIONAL SIGNING FOR ROAD CLOSURE.

12/13/2018 12:13:20 PM P:\2018\1219\1219.DIV 5 PIPE REPLACEMENT\Warren SR 1219\TrafficControl\TCP\Warren SR 1219\_TC\_TMP\_PSH\_02.dgn User:SKENNEDY

**WETHERILL ENGINEERING**

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Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: *Greg S. Purvis* DATE: 12/13/2018

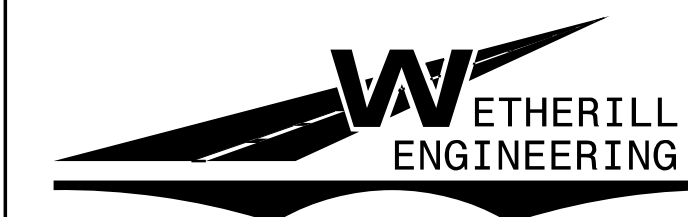
SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER GREG S. PURVIS

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
WORK ZONE TRAFFIC CONTROL

## DETOUR ELLINGTON ROAD (SR 1219)

8/17/19



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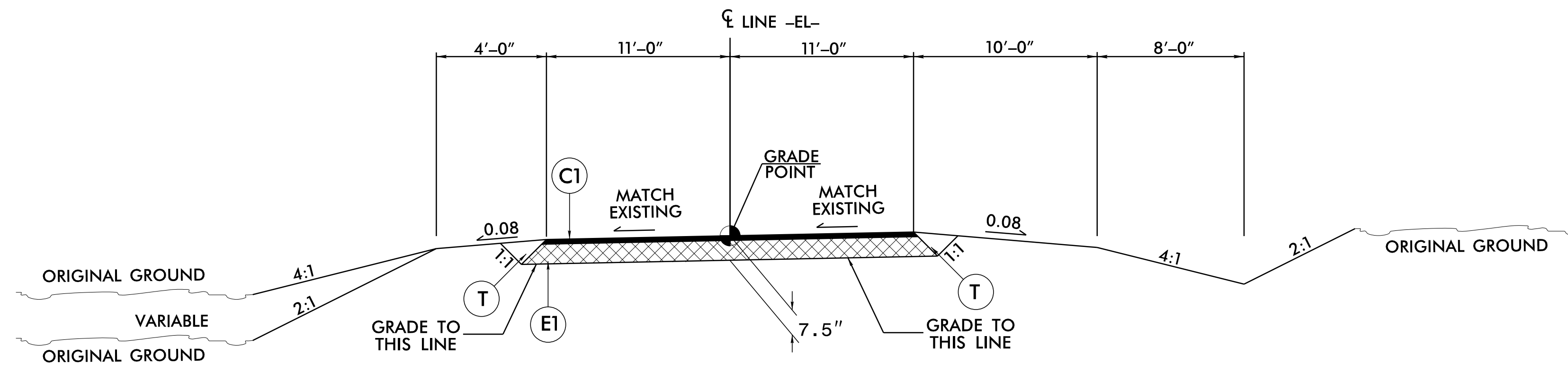
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

**RIDGEWAY - WARREN ROAD  
(SR 1107)**

PROJECT REFERENCE NO. <b>5B.209314.3</b>	SHEET NO. <b>2A-1</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
Designed by: <i>Greg S. Purvis</i> DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)

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

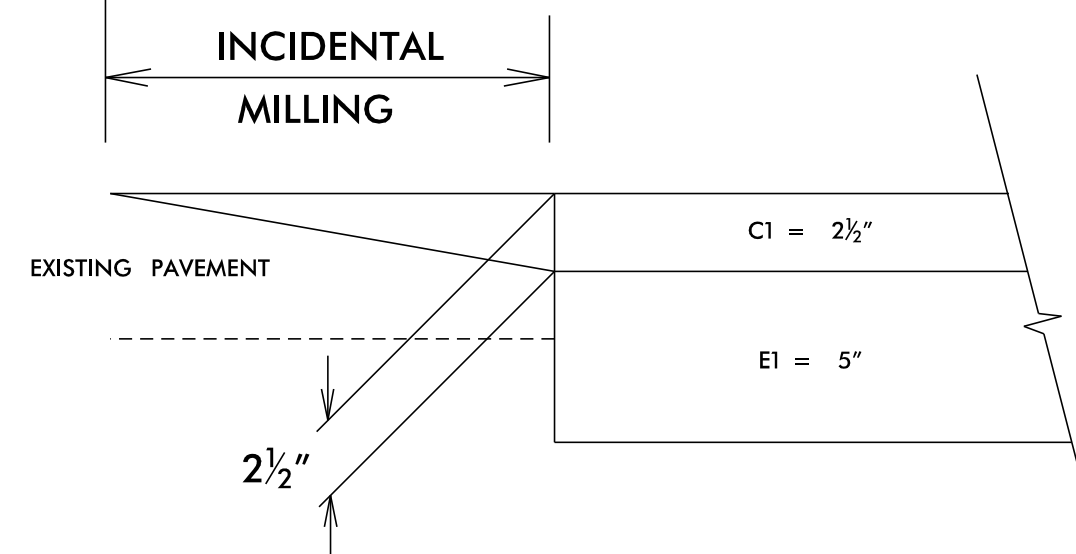


**TYPICAL SECTION WITHIN EXCAVATION**

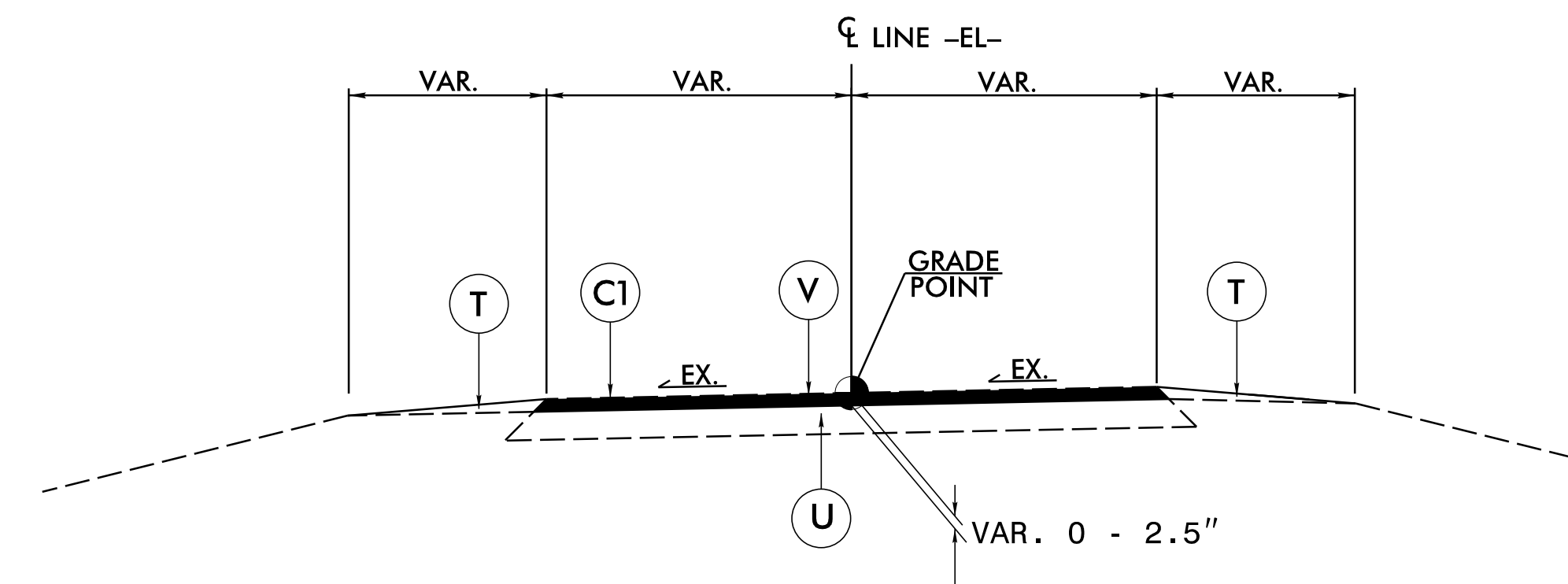
**NOTES TO CONTRACTOR**

Perform the work in accordance with Section 607 of the January 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.

**BEGIN/END OF PROJECT**



NOTE: UTILIZE INCIDENTAL MILLING TO MAKE PAVEMENT TIE-INS



**V: MILLING DETAIL**

REVISIONS

1/18/2019  
I:\Projects\RidgeWay-rdy.psh 2A-1.dgn  
USER:SKINNEY

8/17/19

REVISIONS



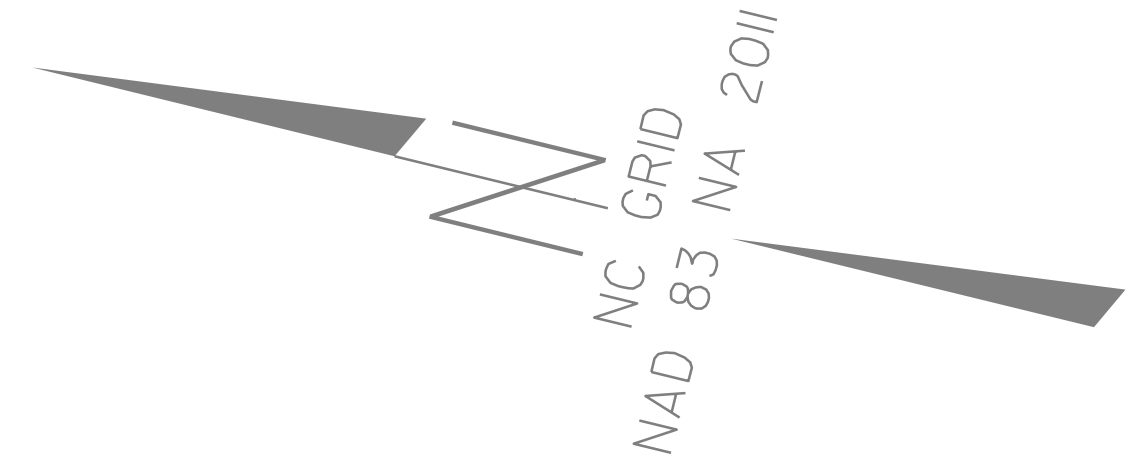
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License No. F-0377  
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Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO. <b>5B.209314.3</b>	SHEET NO. <b>4</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 1/21/2019	HYDRAULICS ENGINEER 1/21/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**RIDGEWAY-WARRENTON ROAD  
(SR 1107)**

SCALE 1" = 30'



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-1" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 970627.3145(ft) EASTING: 2239849.279(ft) ELEVATION: 369.41(ft)

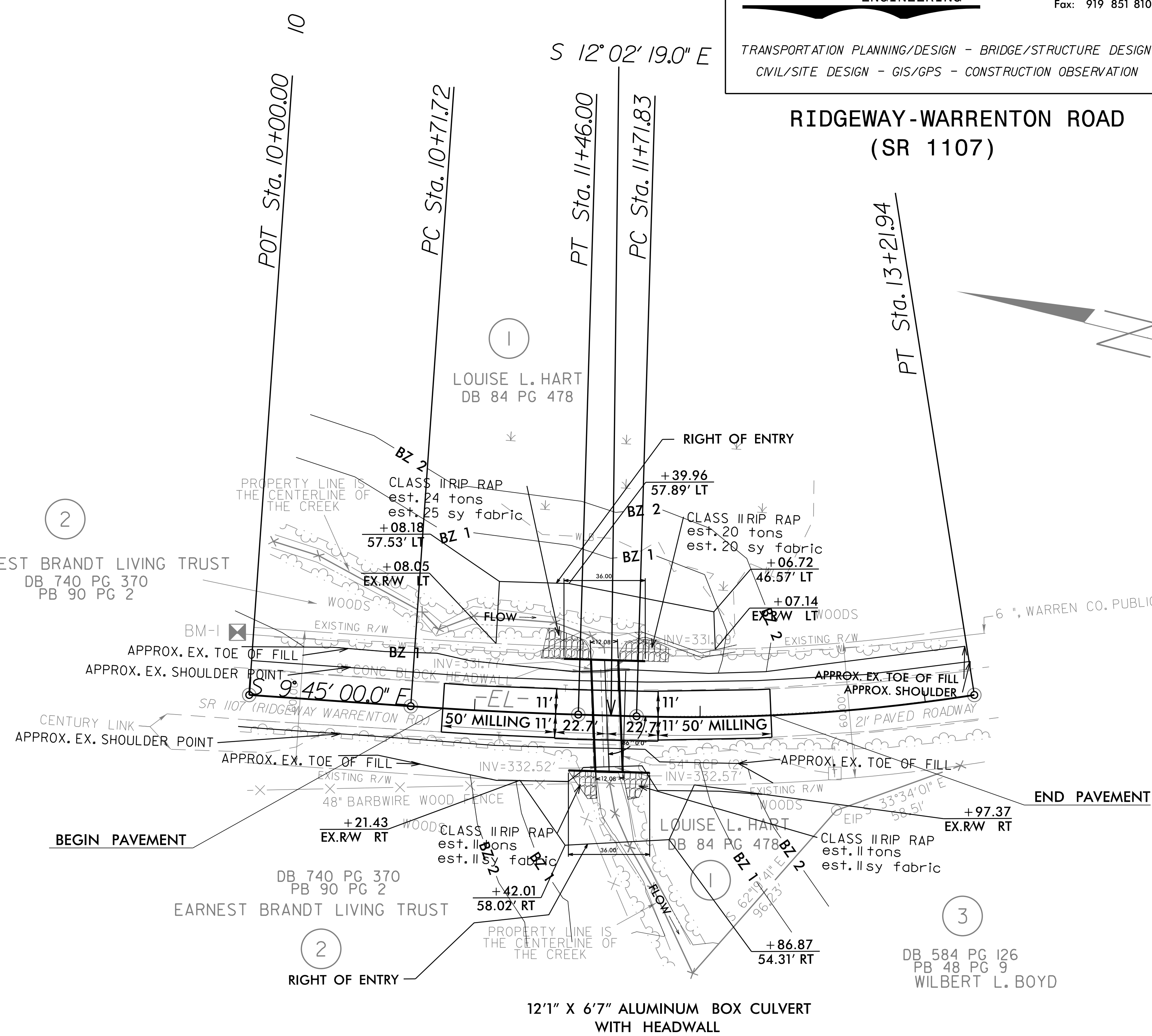
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000066153

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-1" TO -L- STATION IS

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

Point	North	East	Elevation
GPS-1	970627.3100	2239849.2800	369.4100
GPS-2	970231.3900	2240144.1400	355.7900

\*\*\*\*\*  
 BM1 ELEVATION = 342.30  
 N 969939 E 2240232  
 BENCHMARK SET IN 22" SWEET GUM  
 \*\*\*\*\*



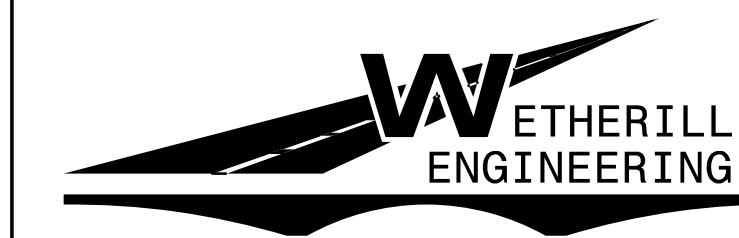
PI Sta 11+08.87	PI Sta 12+47.10
$\Delta = 2^{\circ} 17' 19.0''$ (LT)	$\Delta = 10^{\circ} 38' 37.0''$ (LT)
$D = 3^{\circ} 04' 52.6''$	$D = 7^{\circ} 05' 25.1''$
$L = 74.27'$	$L = 150.12'$
$T = 37.14'$	$T = 75.27'$
$R = 1,859.48'$	$R = 808.09'$

**PIPE STRUCTURE AND HEADWALLS ARE STATE SUPPLIED**

1/18/2019 R:\RidgeWay-RDY\_PSH\_04.dgn  
 IT:FRANKLIN



8/17/19

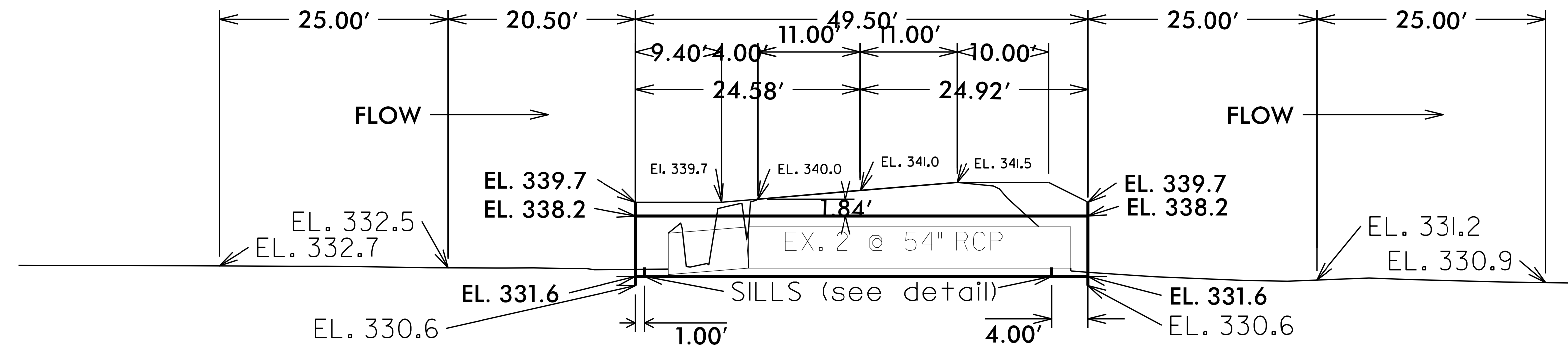
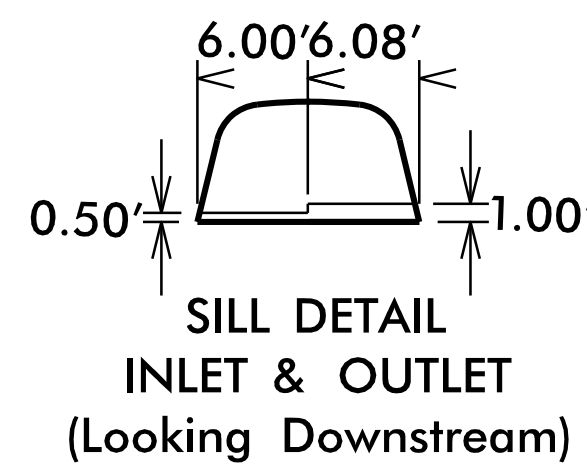


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Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO. <b>5B.209314.3</b>	SHEET NO. <b>5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Gary S. Purvis</i>	HYDRAULICS ENGINEER <i>Jerry L. Lindsey</i>
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

## RIDGWAY-WARRENTON ROAD (SR 1107)



### PROFILE VIEW ACROSS PIPE (86 SKEW) 12'-1" X 6'-7" CORRUGATED ALUMINUM BOX CULVERT WITH HEADWALL

PROPOSED ELEVATIONS:  
CENTERLINE ROADWAY OVER PIPE  
ELEVATION = 341.0

INLET:

TOP OF HEADWALL = 339.7  
TOP OF PIPE = 338.2  
STREAM BED = 332.1  
INVERT PIPE = 331.6

OUTLET:

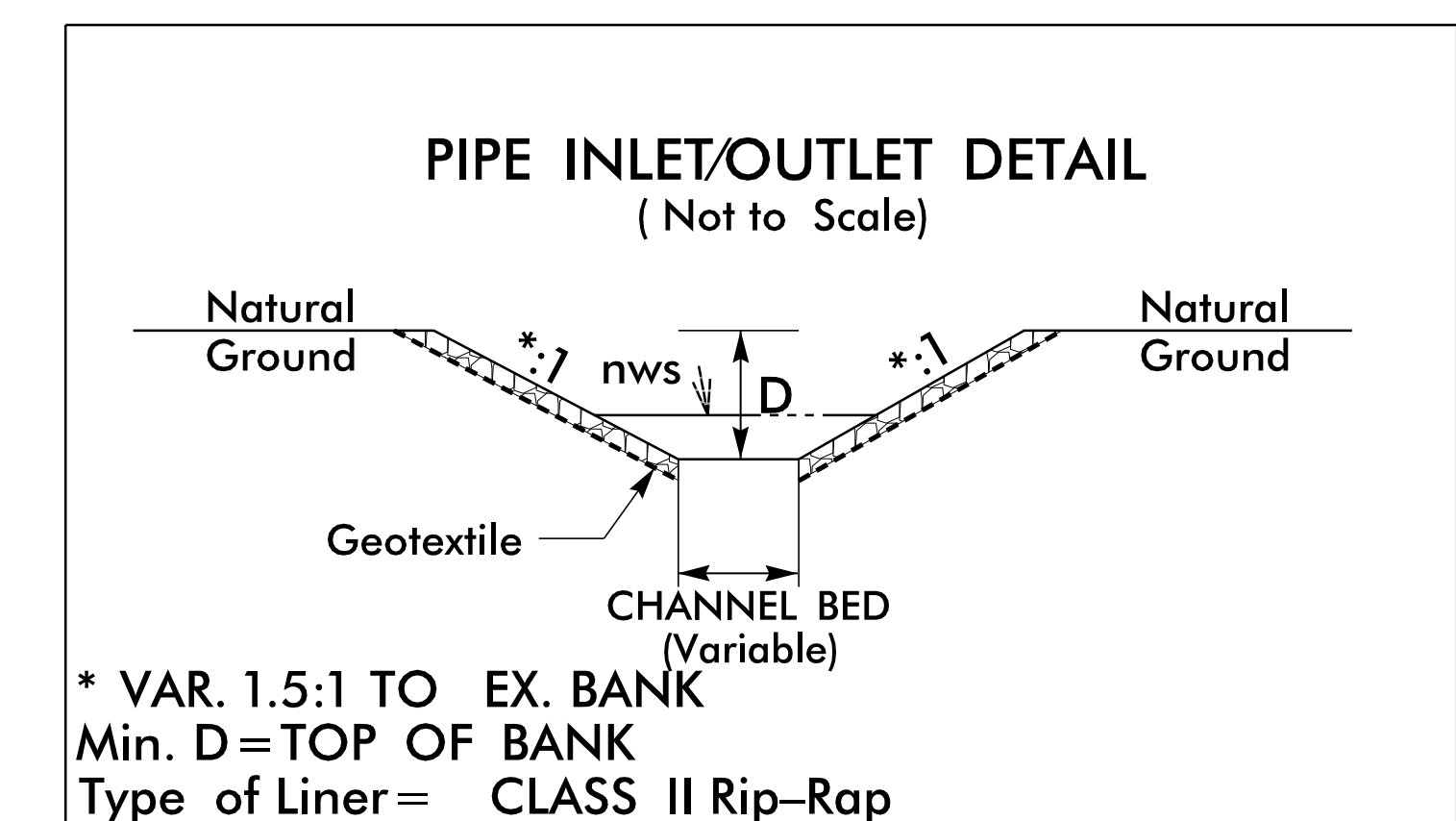
TOP OF HEADWALL = 339.7  
TOP OF PIPE = 338.2  
STREAM BED = 332.1  
INVERT PIPE = 331.6

CENTERLINE LENGTH = 49'-6" OF 12'-1" X 6'-7"  
CORRUGATED ALUMINUM BOX CULVERT

TWO 36'-0" WIDE BY 9'-1" TALL FULLY WELDED  
STRUCTURAL ALUMINUM STRUCTURAL PLATE HEADWALLS  
W/2 SECTIONS OF 12'-1" X 6'-7" 0.150" ALUMINUM  
PLATE STUBBED OUT, WHICH SHALL BE FULLY WELDED  
TO ALUMINUM STRUCTURAL PLATE HEADWALL.

MINIMUM COVER = 1.5' AT HEADWALL;  
1.5' AT SHOULDER POINT; 1.8' AT EP LS SUPER.  
MAXIMUM COVER OVER PIPE = 3.7' AT SP HS SUPER.

Note: BROKEN ROCK IN BED UP AND  
DOWNSTREAM. PROBING INDICATES ROCK  
PRESENCE IN CULVERT AREA. THEREFORE,  
PROPOSED PIPE BURIED 0.5' BELOW  
EXISTING STREAMBED



REVISIONS

1/31/2019  
R:\Projects\Ridgway-RDY\_PSH\_05.dgn  
USER:PSH

# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

# PHASING

## PHASE I

- STEP 1: - USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 AND SHEET TMP-2 CLOSE RIDGEWAY-WARRENTON ROAD (SR 1107) TO TRAFFIC.
- STEP 2: - INSTALL PROPOSED DRAINAGE AND RECONSTRUCT PROPOSED ROADWAY, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS).
  - PLACE THE FINAL MARKINGS (THERMOPLASTIC) IN THE EXISTING TRAFFIC PATTERN.
- STEP 3: - OPEN RIDGEWAY-WARRENTON ROAD (SR 1107) TO THE FINAL TRAFFIC PATTERN AND REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.

<p><b>SIGN NUMBER:</b> name  <b>TYPE:</b> STATIONARY  <b>QUANTITY:</b> SEE PLANS  <b>SIGN WIDTH:</b> 4'-0"  <b>HEIGHT:</b> 2'-6"  <b>TOTAL AREA:</b> 10.0 Sq.Ft.  <b>BORDER TYPE:</b> INSET  <b>RECESS:</b> 0.38"  <b>WIDTH:</b> 0.63"  <b>RADII:</b> 1.5"  <b>NO. Z BARS:</b>  <b>LENGTH:</b></p>	<p><b>BACKG COLOR:</b> Fluorescent Orange  <b>COPY COLOR:</b> Black  <b>SYMBOL</b></p> <table border="1" style="width: 100%; height: 40px;"> <thead> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p><b>MAT'L:</b> 0.080" (2.0 mm) ALUMINUM</p>	SYMBOL	X	Y	WID	HT																										<p><b>DESIGN BY:</b> SLK  <b>PROJECT ID:</b> 17BP.5.C.PE  <b>CHECKED BY:</b> JWG  <b>DIV:</b> 5  <b>DATE:</b> Apr 16, 2018</p> <div style="text-align: center;"> </div> <p><b>BORDER</b>  <b>R=1.5"</b>  <b>TH=0.63"</b>  <b>IN=0.38"</b></p> <p style="text-align: right; font-size: small;">Spacing Factor is 1 unless specified otherwise</p>
SYMBOL	X	Y	WID	HT																												
<p><b>USE NOTES:</b> 1,2</p> <p>1. Legend and border shall be direct applied black non-reflective sheeting.                  2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.</p>																																
<p><b>LETTER POSITIONS</b></p> <p>Letter locations are panel edge to lower left corner</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Letter</th> <th>Series/Size</th> <th>Text Length</th> </tr> </thead> <tbody> <tr> <td>R i d g e w a y -</td> <td>D 2000</td> <td>36.5</td> </tr> <tr> <td>W a r r e n t o n</td> <td>D 2000</td> <td>29.7</td> </tr> <tr> <td>R d</td> <td>D 2000</td> <td>7</td> </tr> </tbody> </table>			Letter	Series/Size	Text Length	R i d g e w a y -	D 2000	36.5	W a r r e n t o n	D 2000	29.7	R d	D 2000	7																		
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R d	D 2000	7																														
<p>FILENAME: Guidesign6_022617 <span style="float: right;">NORTH CAROLINA D.O.T. SIGN DETAIL</span></p>																																

NOTE: TEMPORARY SIGNS TO BE PAID FOR AS "STATIONARY WORK ZONE SIGNS".

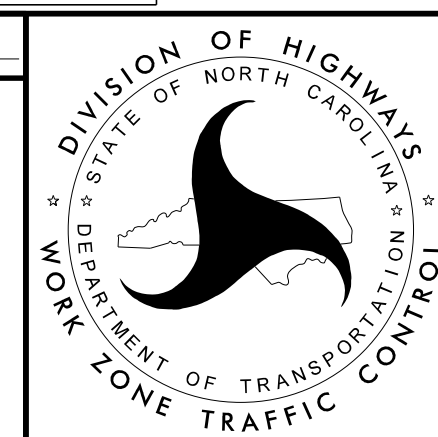
**WETHERILL ENGINEERING**

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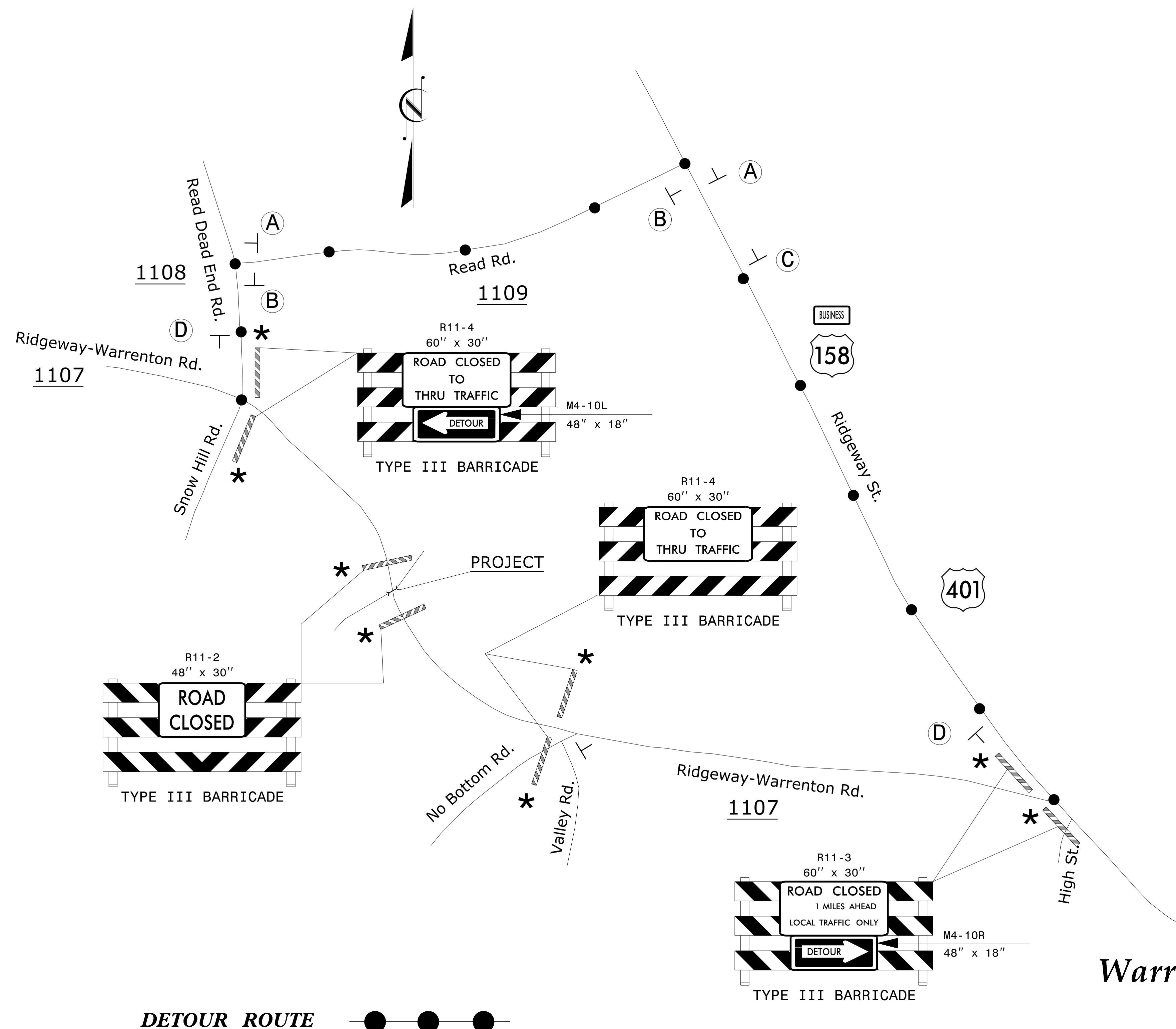
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

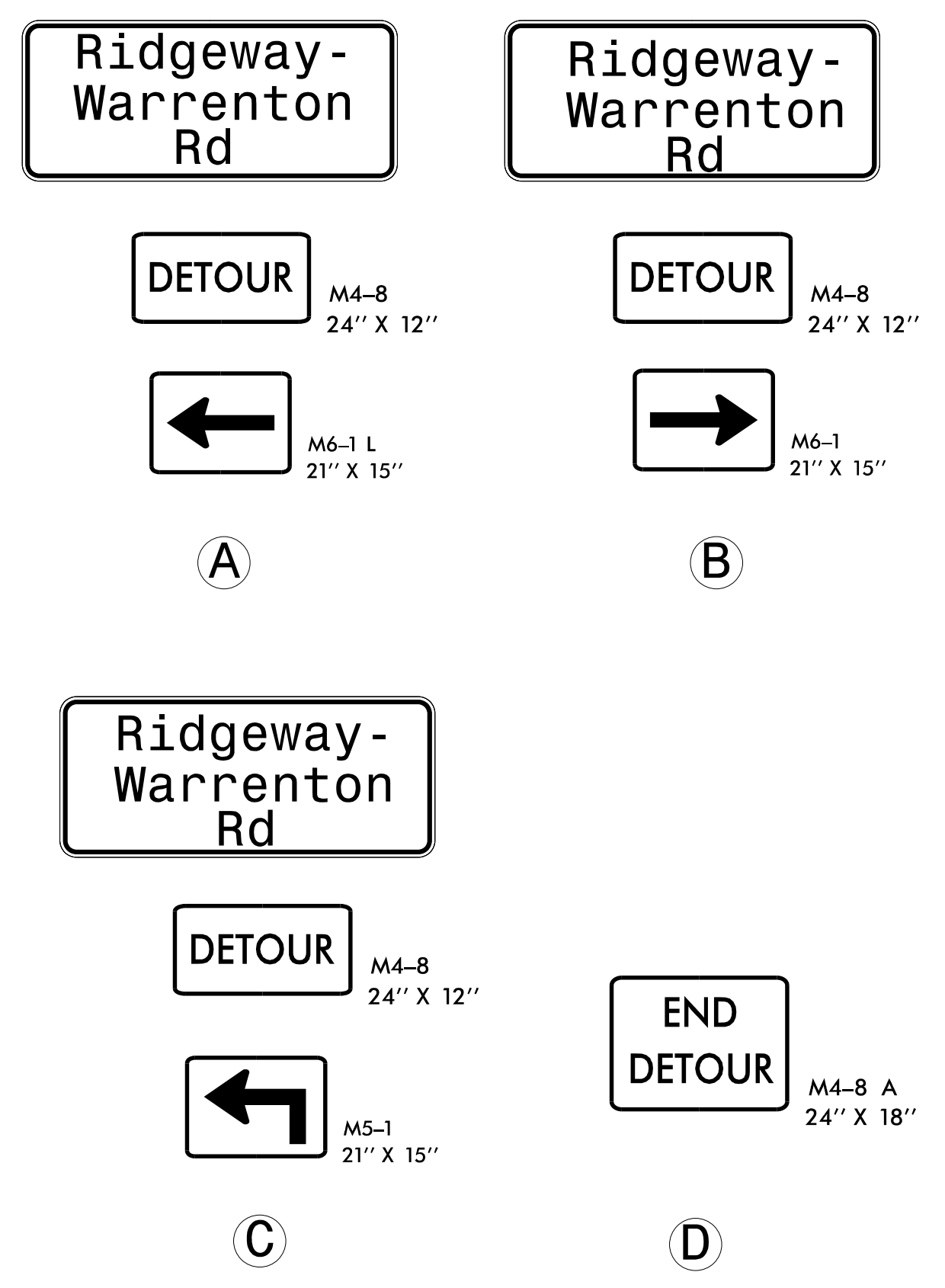
<b>APPROVED:</b> _____	<b>DATE:</b> _____
12/12/2018	



ROAD STANDARD DRAWINGS,  
 PHASING AND SPECIAL  
 SIGN DESIGN FOR  
 RIDGEWAY-WARRENTON ROAD  
 (SR 1107)



**DETOUR SIGNING**



**DETOUR ROUTE** ●—●—●

- NOTES: SEE TMP-1 FOR "RIDGWAY-WARRENTON ROAD" SPECIAL SIGN DESIGN.  
 ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.  
 \* SEE RSD 1101.03, SHEET 1 OF 9, FOR TYPE III BARRICADE LOCATION WITH ATTACHED SIGNING & ADDITIONAL SIGNING FOR ROAD CLOSURE.

12/13/2018 P:\2018\1812109.DIV 5 PIPE REPLACEMENT\Warren SR 1107\TC\_TMP\_PSH\_02.dgn User:SKENNEDY

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

**WETHERILL ENGINEERING**  
 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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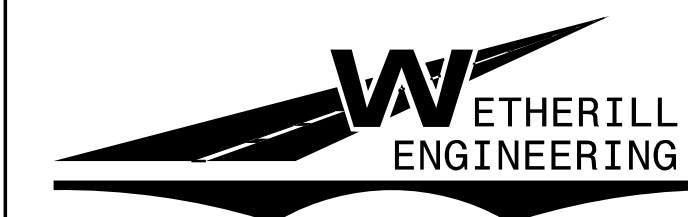
APPROVED: *Greg S. Purvis* DATE: 12/13/2018

SEAL  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 GREG S. PURVIS

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

**DETOUR  
RIDGWAY-WARRENTON  
ROAD (SR 1107)**

8/17/99



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Bus: 919 851 8077  
Fax: 919 851 8107

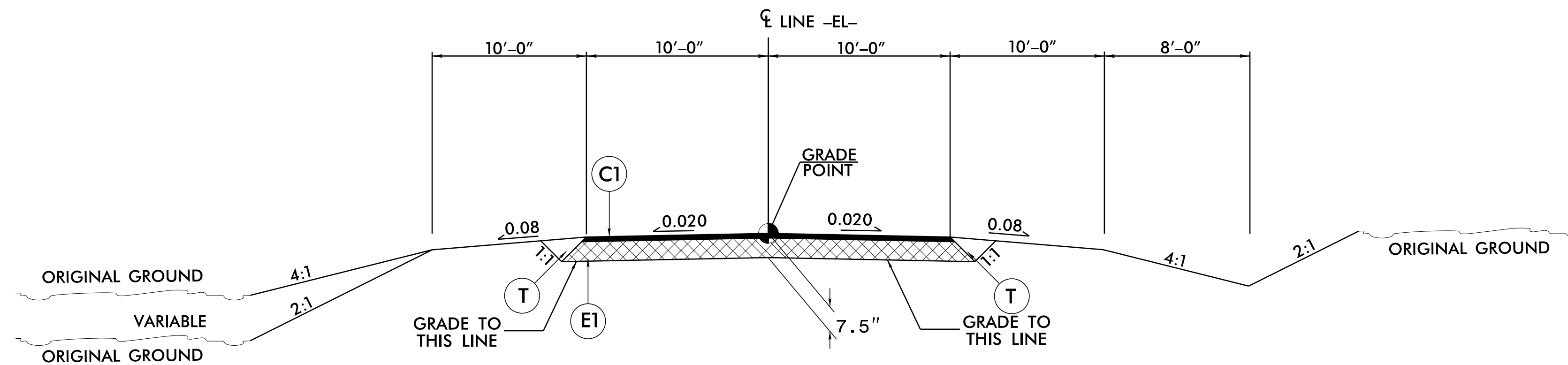
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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO. <b>5B.2035/4.4</b>	SHEET NO. <b>2A-1</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 1/21/2019	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

### EAST RIVER ROAD (SR 1600)

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)

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

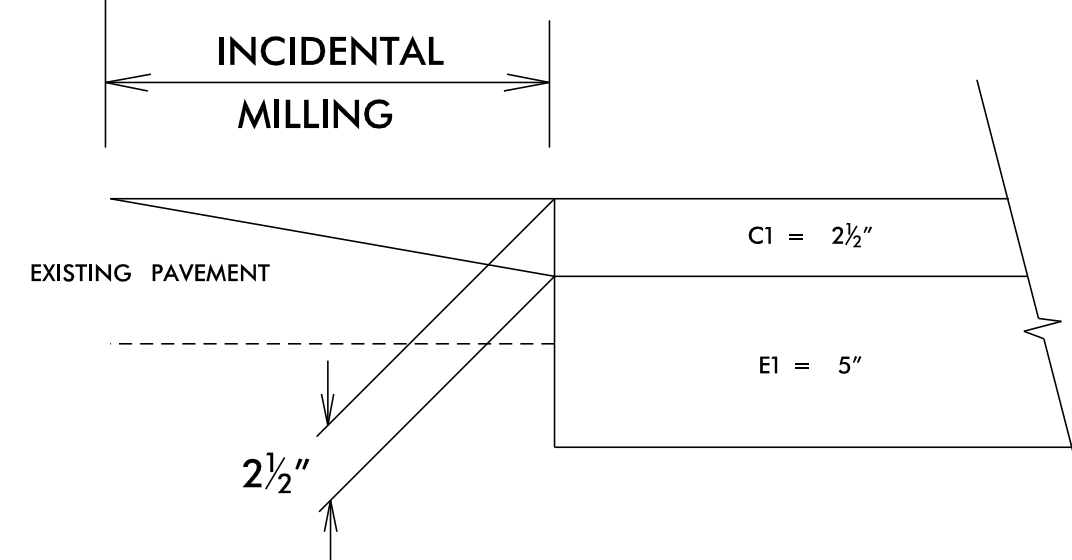


**TYPICAL SECTION WITHIN EXCAVATION**

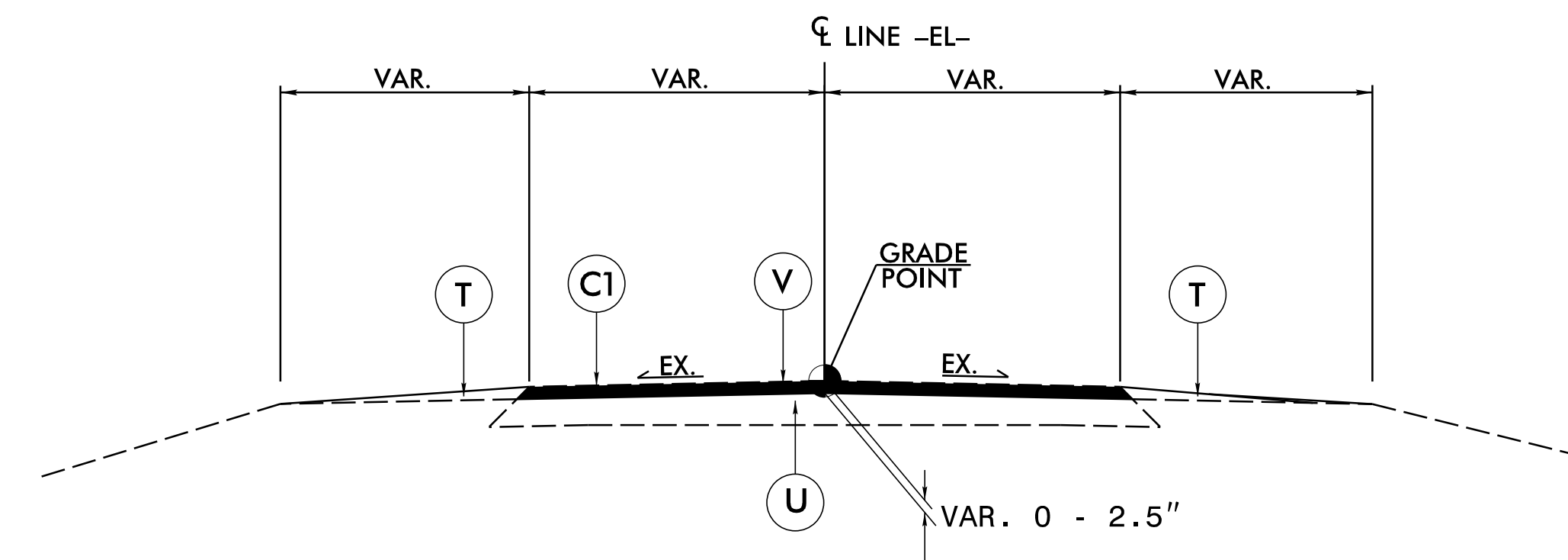
**NOTES TO CONTRACTOR**

Perform the work in accordance with Section 607 of the January 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.

**BEGIN/END OF PROJECT**



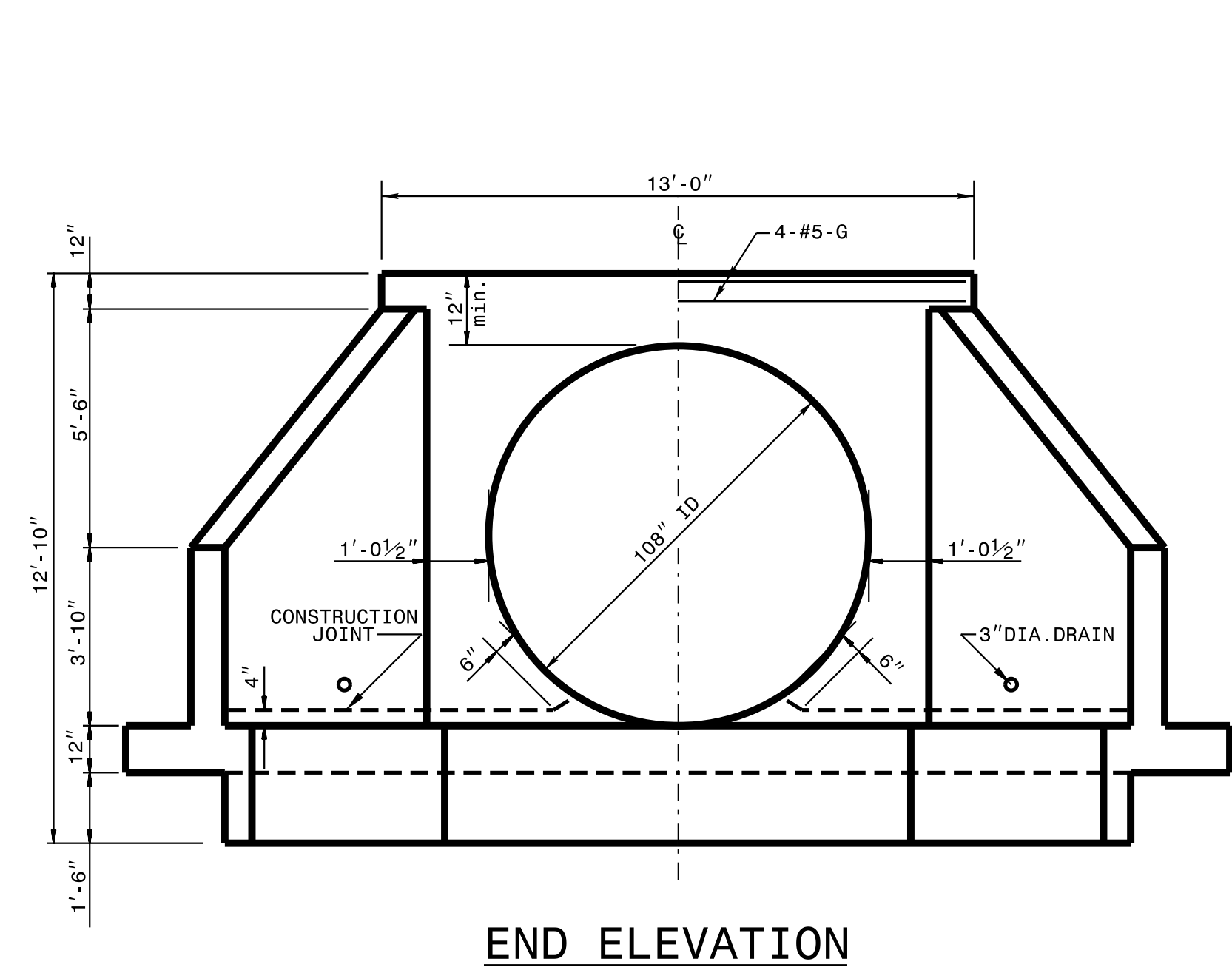
NOTE: UTILIZE INCIDENTAL MILLING TO MAKE PAVEMENT TIE-INS



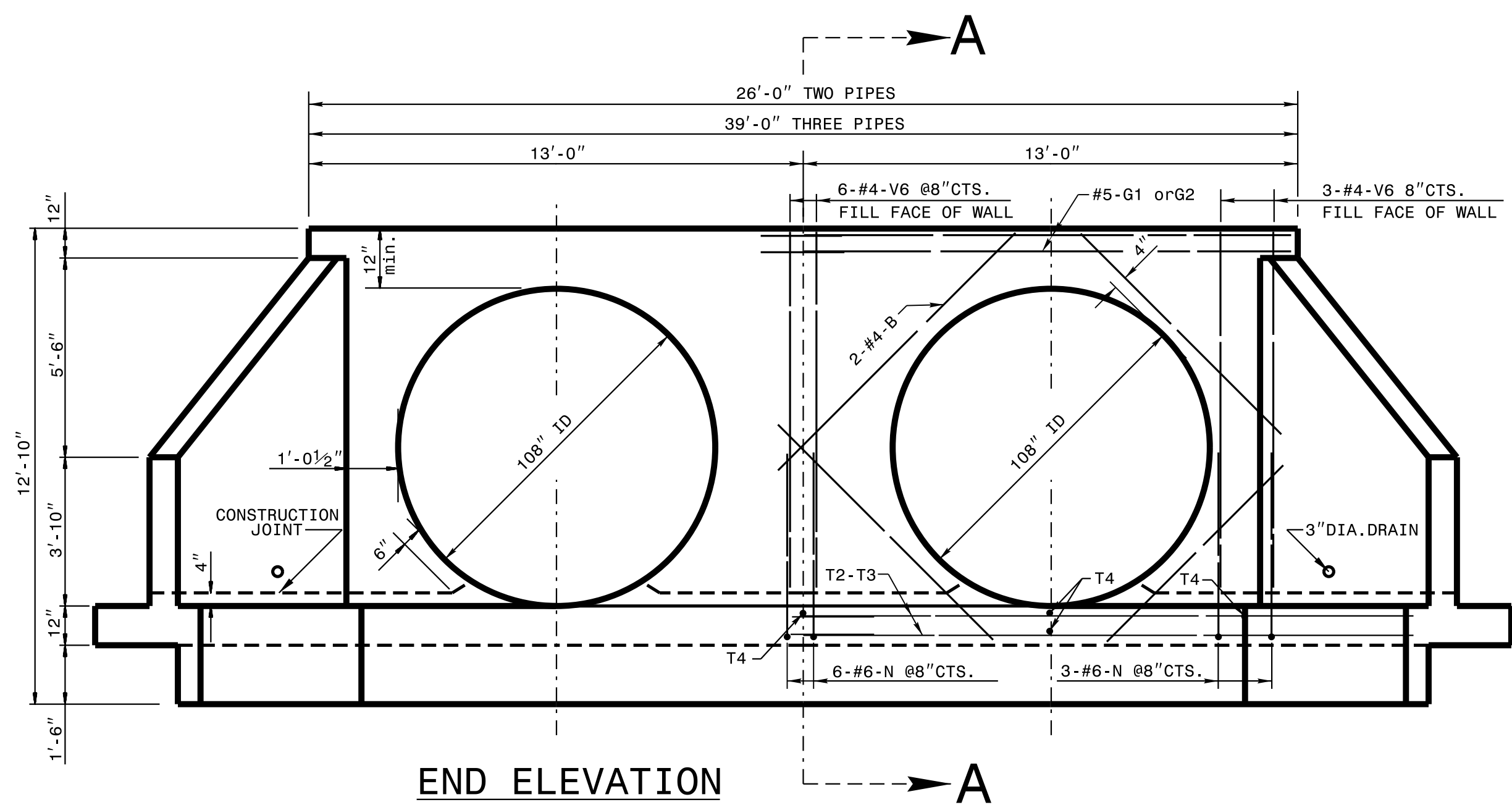
**V: MILLING DETAIL**

REVISIONS

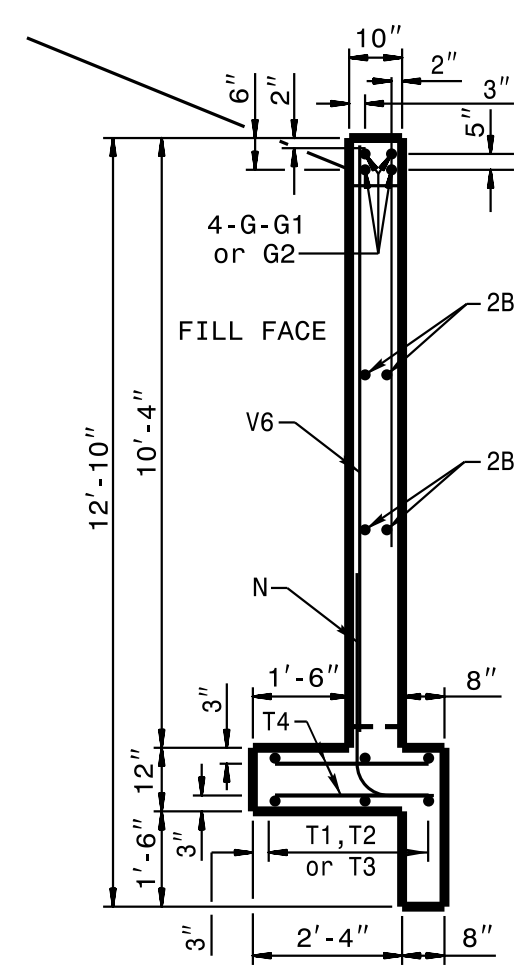
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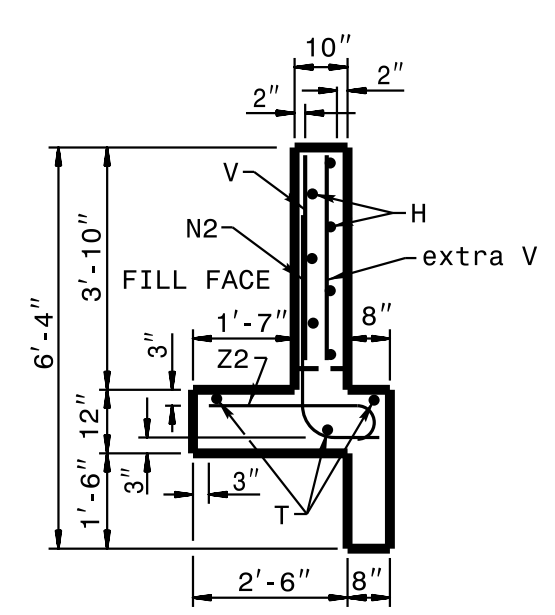
END ELEVATION



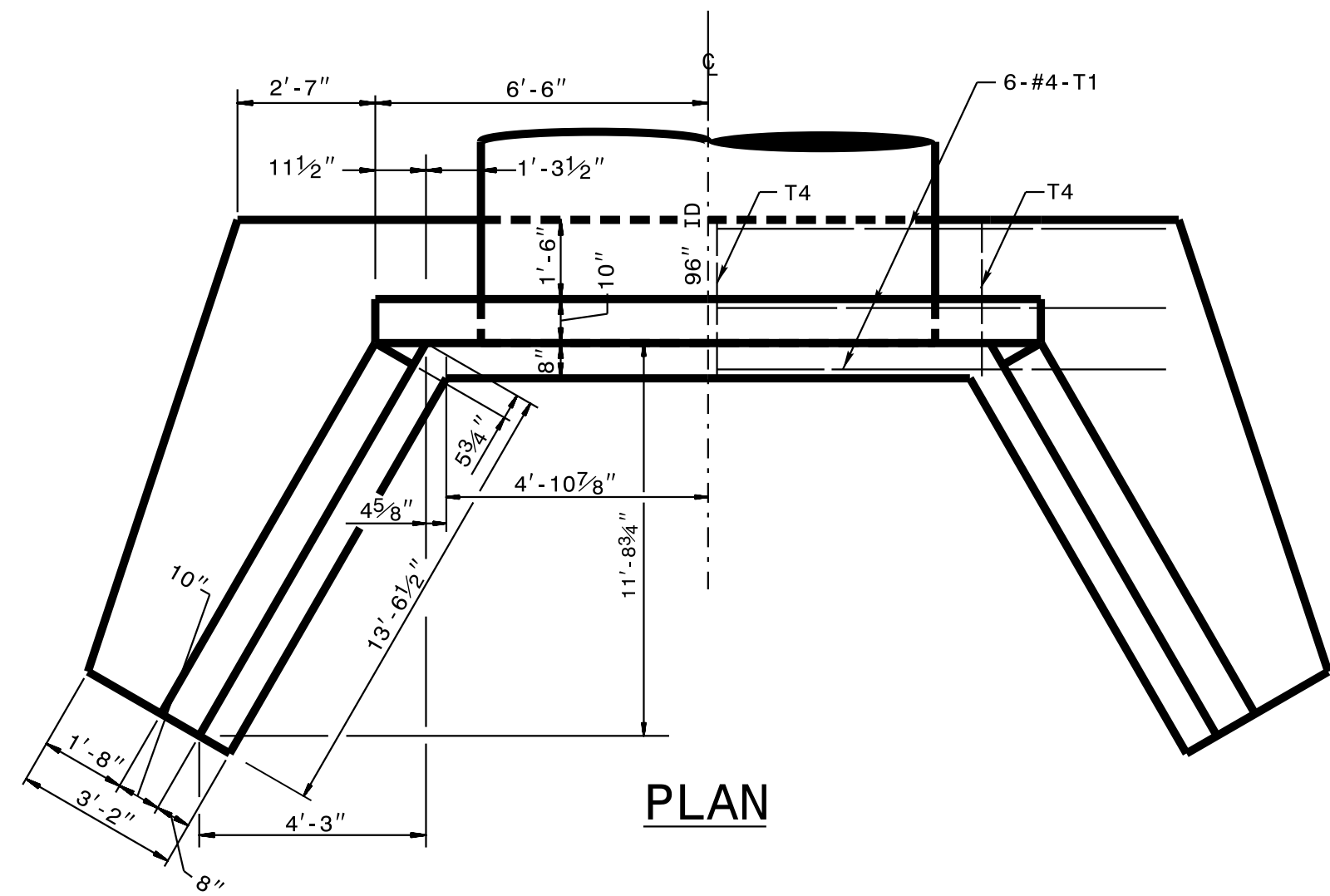
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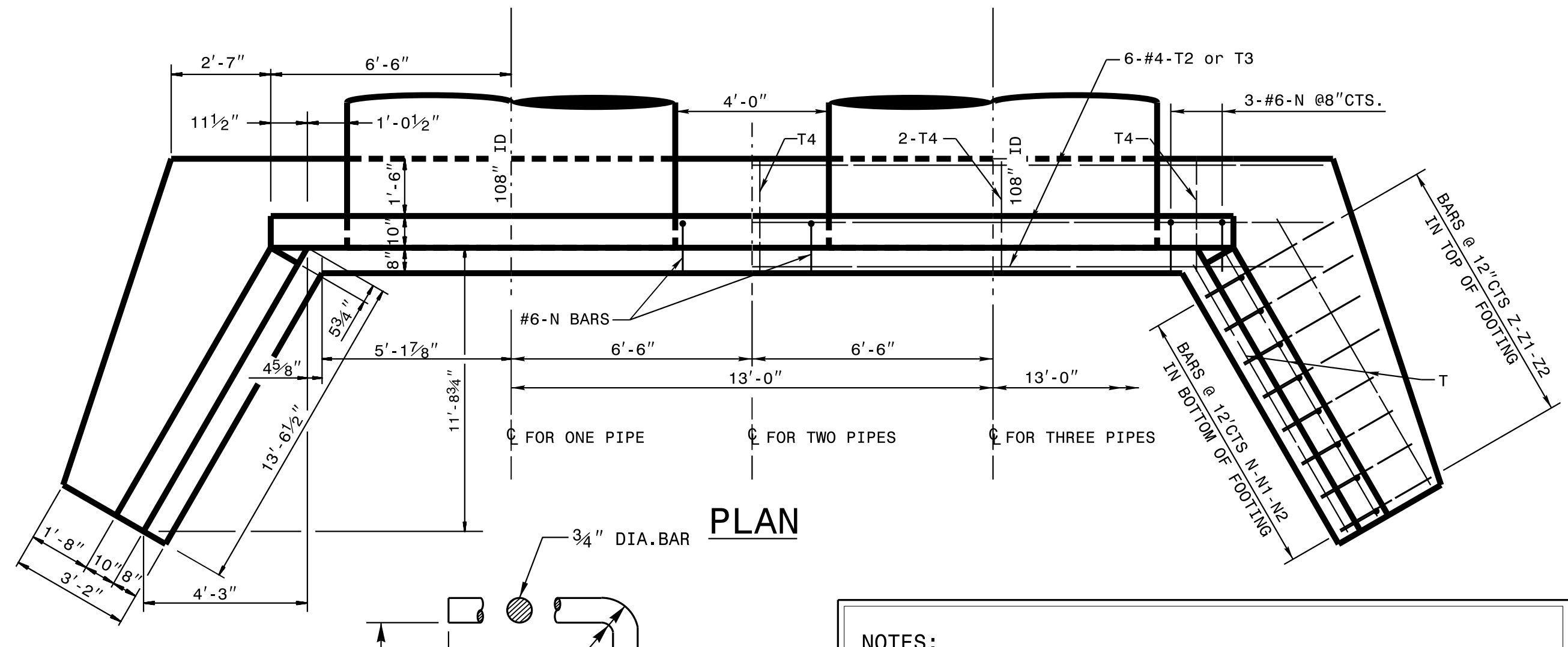
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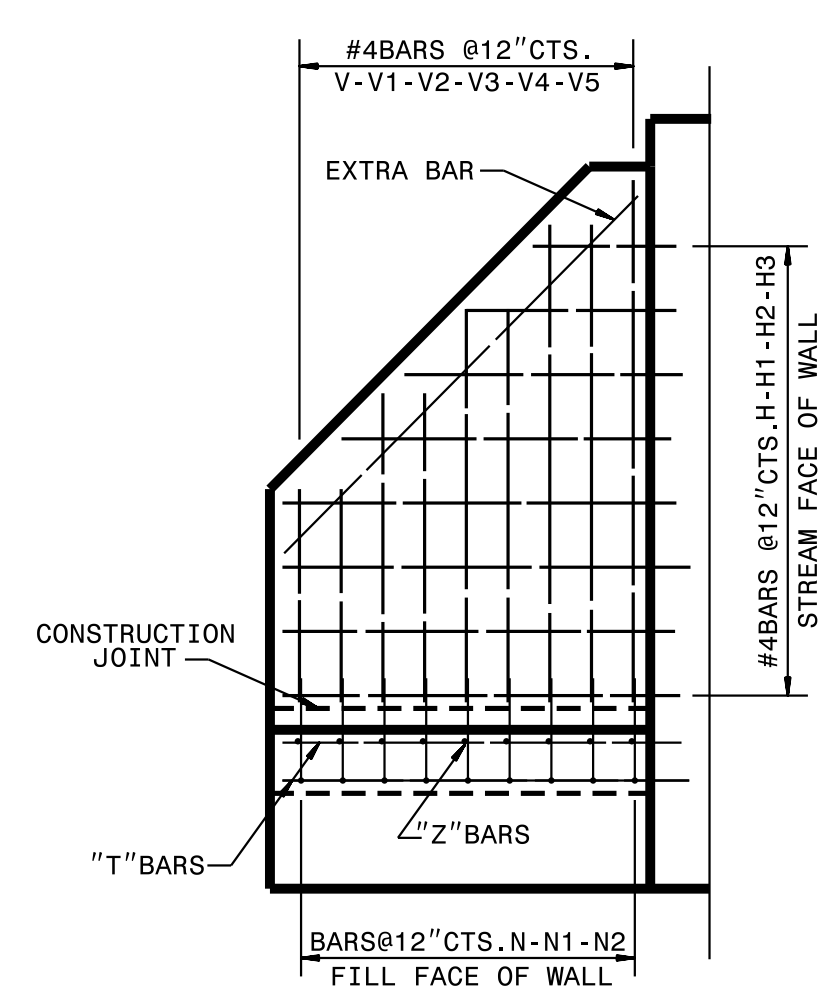
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PLAN

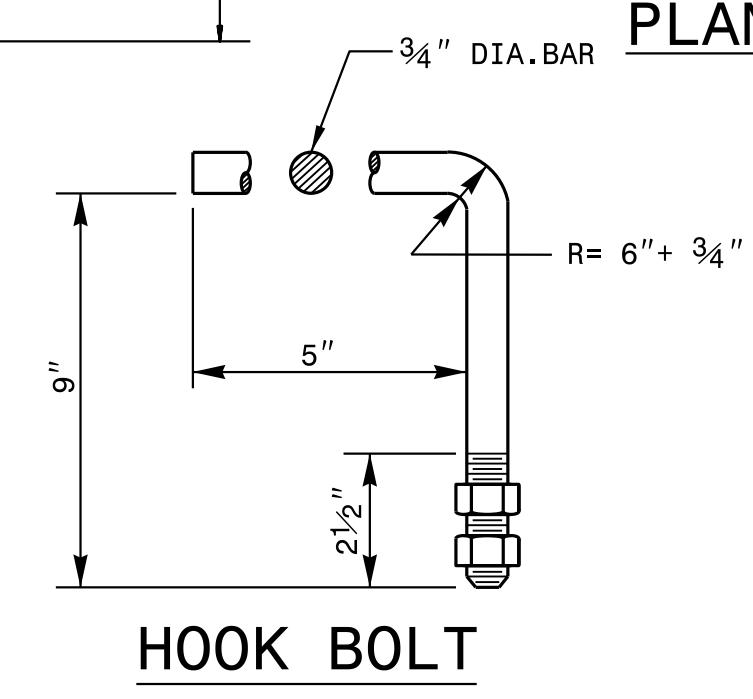


PLAN

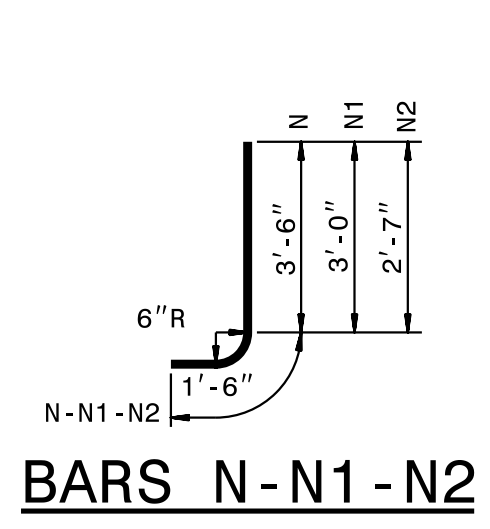


ELEVATION OF WING

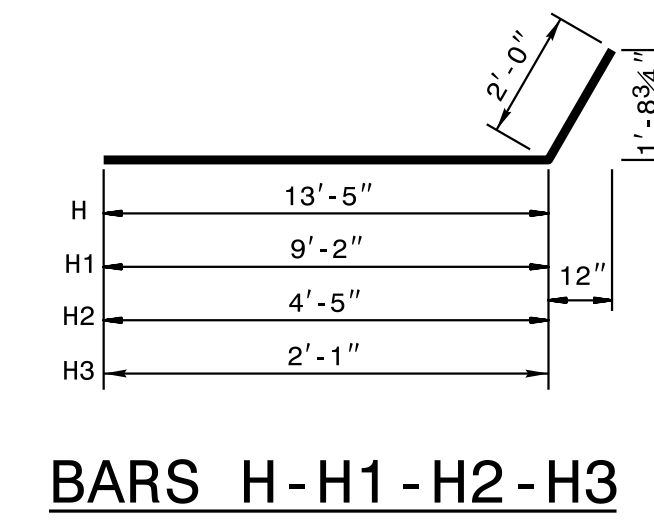
NOTE: CONSTRUCT HOOK BOLTS (ANCHORS) AT 24" CTS. ALONG THE CIRCUMFERENCE OF THE 108" CSPA. EMBED THE HOOK BOLTS 6" IN DEPTH. THE GALVANIZED 3/4" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.



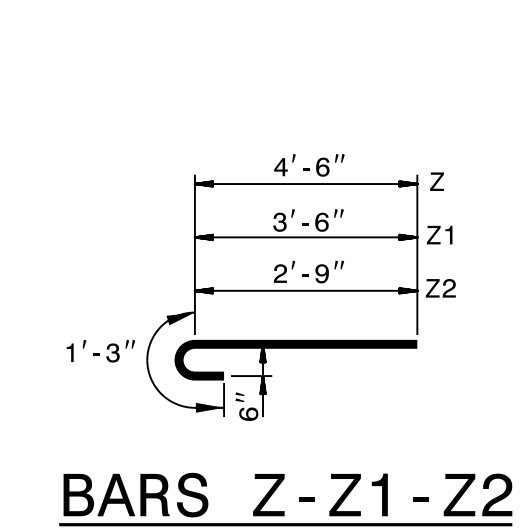
HOOK BOLT



BARS N-N1-N2



BARS H-H1-H2-H3



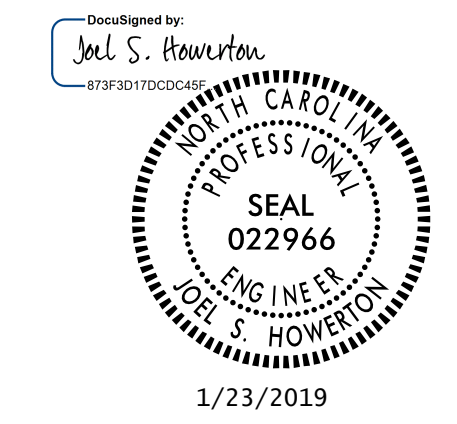
BARS Z-Z1-Z2

NOTES:  
 ALL CONCRETE TO BE CLASS "A".  
 ALL REINFORCING STEEL SHALL BE ASTM A615-GRADE 60.  
 ALL REINFORCING STEEL SHALL BE DEFORMED BARS. WHERE SPLICING OF REINFORCEMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.  
 THE FOOTING, CURTAIN WALL AND 4 IN. OF WALL ARE TO BE POURED IN ONE OPERATION ALLOWING NO TIME FOR INITIAL SET TO TAKE PLACE BETWEEN THEM. THE REMAINING WALL SHALL THEN BE POURED IN ONE OPERATION.  
 ALL EXPOSED CORNERS ARE TO BE CHAMFERED 1 IN.  
 3 IN. DIAMETER DRAINS SHALL BE PLACED IN WALL AS SHOWN AND BE 6 IN. ABOVE NORMAL FLOW LINE.  
 ALL MATERIAL AND WORKMANSHIP AS PER N.C. DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.  
 THE EXTRA BARS ARE PROVIDED FOR HOLDING REINFORCING STEEL IN CORRECT POSITION IN WING.

BILL OF MATERIALS FOR ONE ENDWALL							
BAR	SIZE	LENGTH	QTY	WEIGHT	1 PIPE	2 PIPES	3 PIPES
B	4	6'-6"	8	35	16	69	104
G	5	12'-8"	4	53	--	--	--
G1	5	13'-6"	--	--	8	113	--
G2	5	20'-0"	--	--	--	--	8
H	4	15'-5"	12	84	12	84	12
H1	4	11'-2"	4	23	4	23	4
H2	4	6'-5"	6	9	6	9	6
H3	4	4'-1"	2	14	2	14	2
N	6	5'-0"	14	105	20	150	26
N1	5	4'-6"	8	38	8	38	8
N2	4	4'-1"	10	27	10	27	10
T	4	13'-6"	6	34	6	34	6
T1	4	17'-10"	6	71	--	--	--
T2	4	16'-11"	--	--	12	136	--
T3	4	16'-0"	--	--	--	--	18
T4	4	2'-9"	4	7	7	13	10
V	4	3'-5"	6	14	6	14	6
V1	4	4'-4"	8	23	8	23	8
V2	4	5'-7"	8	30	8	30	8
V3	4	6'-10"	6	27	6	27	6
V4	4	7'-7"	4	20	4	20	4
V5	4	8'-5"	4	22	4	22	4
V6	4	9'-8"	6	36	12	72	18
Z	6	5'-0"	6	45	6	45	6
Z1	5	4'-6"	4	19	4	19	4
Z2	4	3'-9"	8	20	8	20	8
REINF. STEEL (lbs.)				756	1002	1233	
CLASS "A" CONG (cu.yds.)				16.4	22.5	28.6	

\* NO DEDUCTIONS HAVE BEEN MADE FOR PIPES

24-Jul-2008 15:24 S:\Contractors\Special Details\kempf\english\108in\_endwall\_90sk.dgn kempf AT CSD-292596



1/23/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

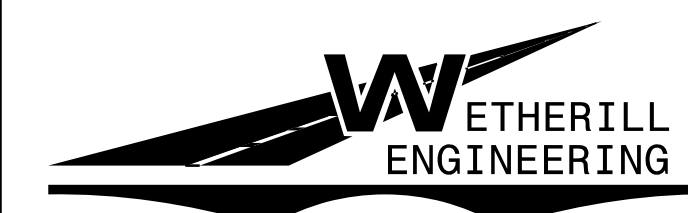
**REINFORCED CONCRETE ENDWALL FOR 108IN. DIAMETER PIPE - 90° SKEW**

ORIGINAL BY:	DATE:
MODIFIED BY: kakempf	DATE: 07-17-18
CHECKED BY:	DATE:
FILE SPEC.:	kkempf/eng1ish/108inEndwall190sk.dgn

8/17/09

REVISIONS

1/28/2018  
 WETHERILL ENGINEERING  
 1223 JONES FRANKLIN RD.  
 RALEIGH, NC 27606



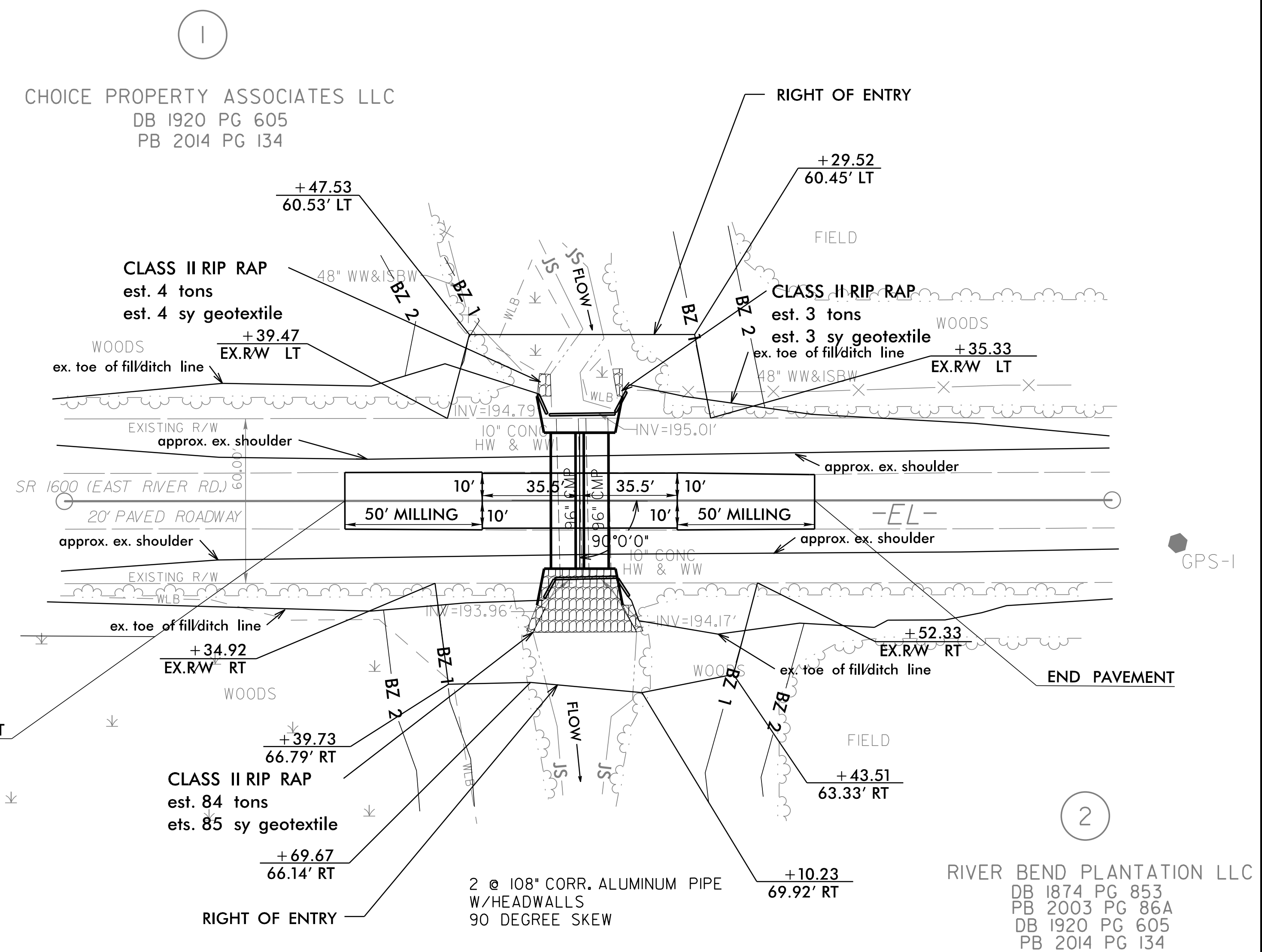
1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO. 5B.203514.4	SHEET NO. 4
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	SEAL 022999 1/28/2019
	SEAL 15833 1/28/2019

### EAST RIVER ROAD (SR 1600)

SCALE 1" = 30'



CHOICE PROPERTY ASSOCIATES LLC  
 DB 1920 PG 605  
 PB 2014 PG 134

RIVER BEND PLANTATION LLC  
 DB 1874 PG 853  
 PB 2003 PG 86A  
 DB 1920 PG 605  
 PB 2014 PG 134

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 837301.890(ft) EASTING: 2221843.070(ft) ELEVATION: 210.15(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999641932 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-2" TO -L- STATION IS ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Point	North	East	Elevation
GPS-1	836934.3900	222185.6800	212.4900
GPS-2	837301.8900	2221843.0700	210.1500

\*\*\*\*\*  
 BM1 ELEVATION = 214.23  
 N 837366 E 2221890  
 BL STATION 5+00.00  
 N 36°05'22.9" E DIST 78.89  
 BM SET IN 18" HARDWOOD  
 \*\*\*\*\*

PIPE STRUCTURE IS STATE SUPPLIED  
 HEADWALLS ARE NOT STATE SUPPLIED

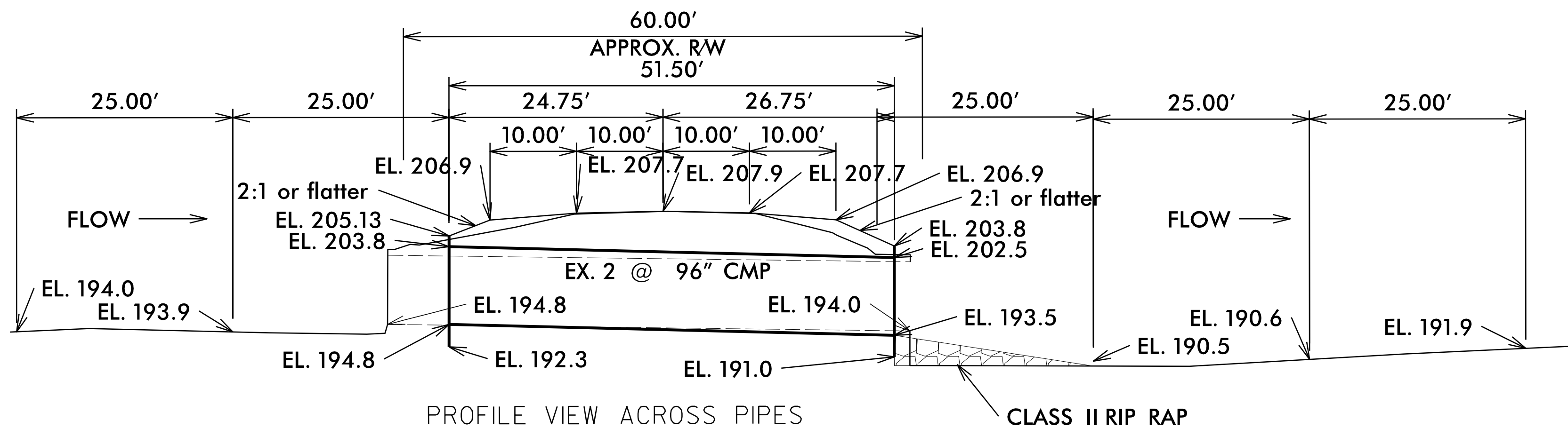


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Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO. 5B.2035/4.4	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER GARY S. PURVIS PROFESSIONAL SEAL 022999 2/4/2019	HYDRAULICS ENGINEER GARY L. LINDSEY PROFESSIONAL SEAL 15833 2/4/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

### EAST RIVER ROAD (SR 1600)



PROFILE VIEW ACROSS PIPES  
2 @ 108" CORR. ALUMINUM PIPE  
W/HEADWALLS 90 DEGREE SKEW  
W/0.5' SILL LEFT BARREL LOOKING  
DOWNSTREAM

CLASS II RIP RAP

PROPOSED ELEVATIONS:  
CENTERLINE ROADWAY OVER PIPE  
ELEVATION = 207.9'

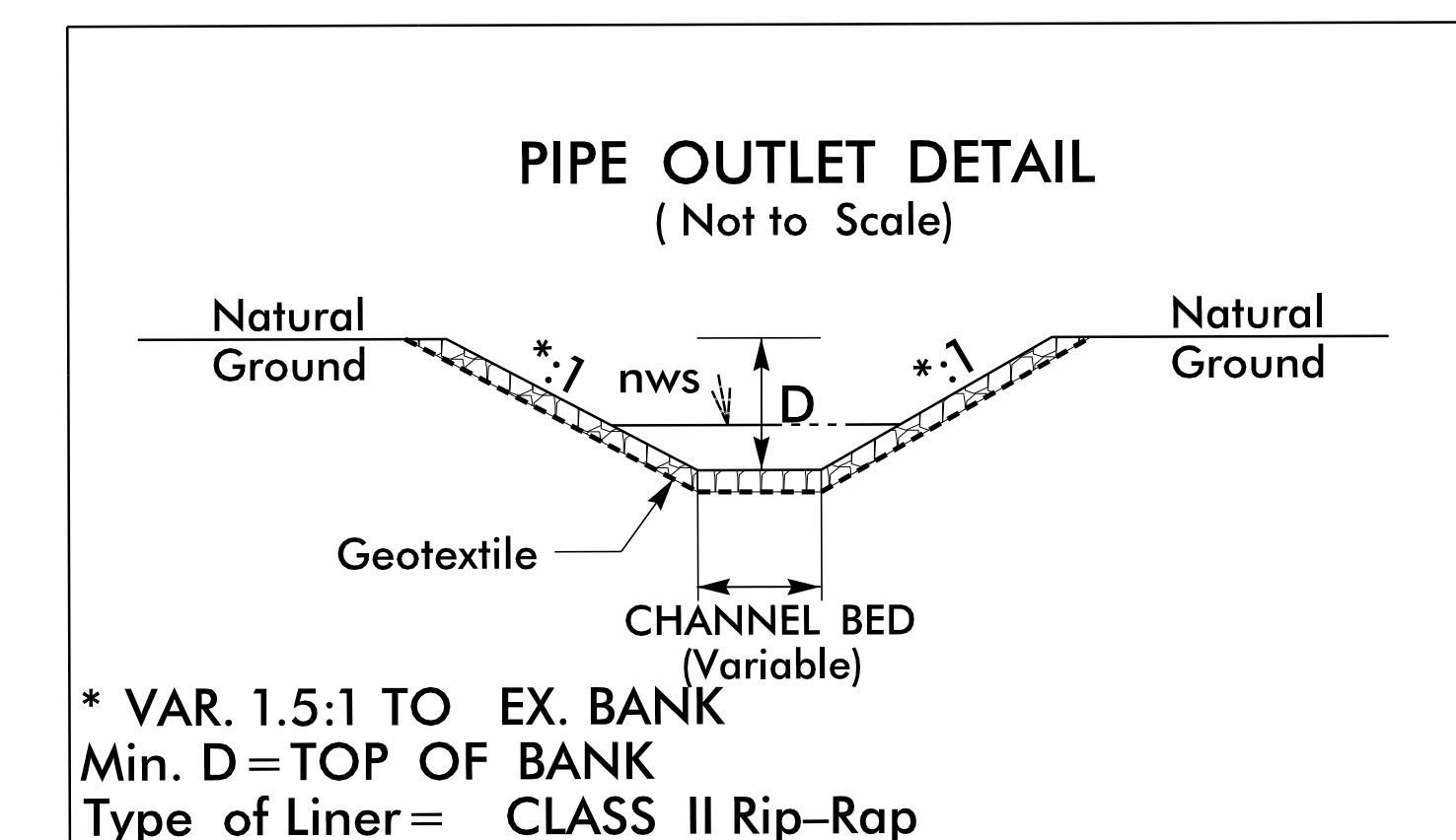
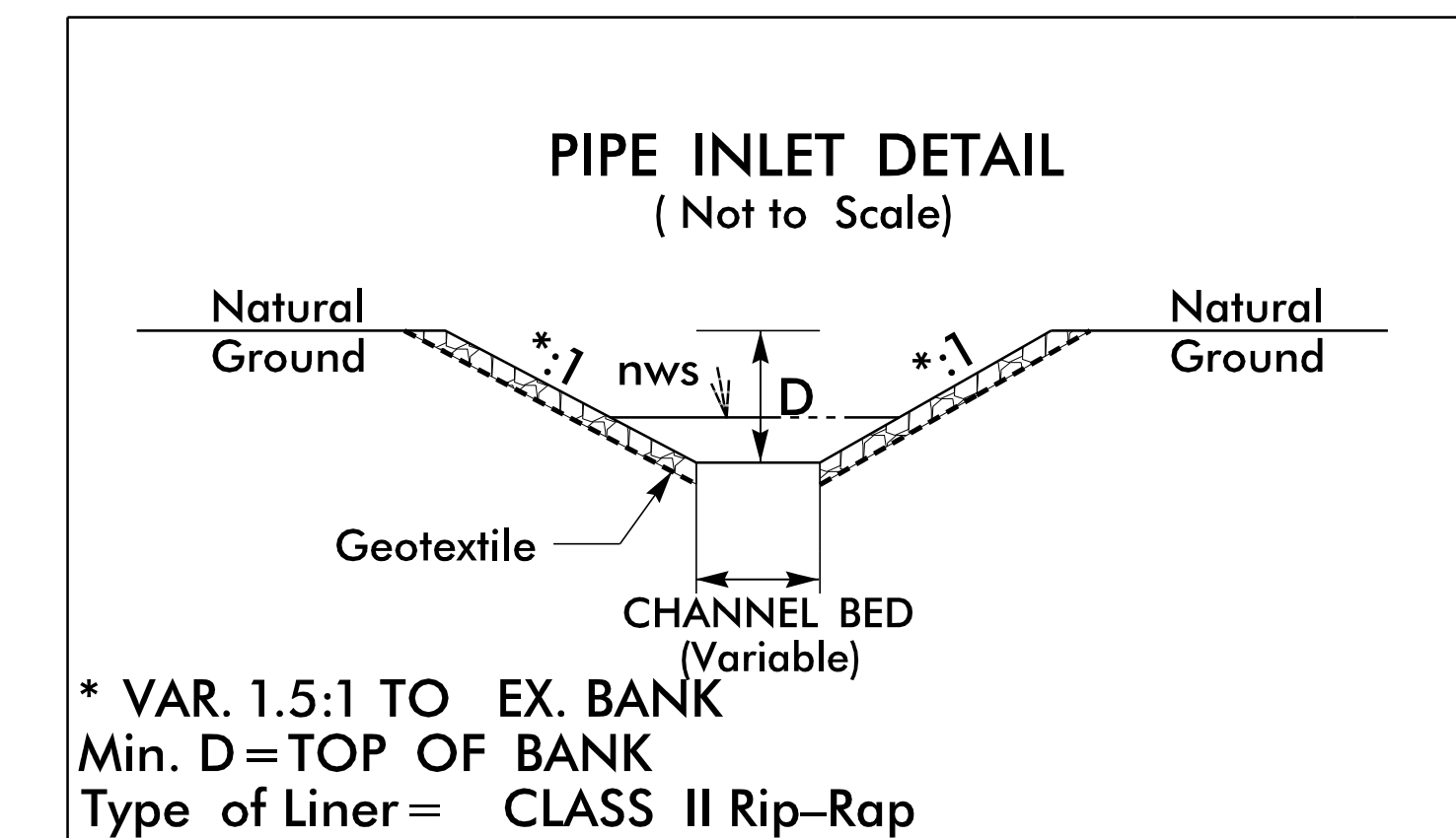
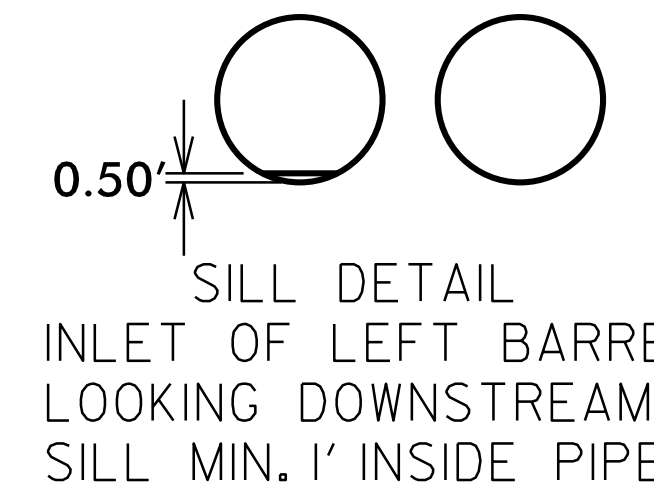
CENTERLINE LENGTH = 49'-6" OF 2 @ 108"  
CAP W/HEADWALLS  
(SEE CONCRETE HEADWALL DETAIL  
SHEET 2C-1)

INLET:  
TOP OF HEADWALL = 205.1'  
TOP OF PIPE = 203.8'  
STREAM BED = 193.9'  
INVERT PIPE = 194.8'

MINIMUM COVER = 2.0' AT HEADWALL;  
3.2' AT SHOULDER POINT;  
MAXIMUM COVER OVER PIPE = 3.6' AT CENTER LINE.

OUTLET:  
TOP OF HEADWALL = 203.8'  
TOP OF PIPE = 202.5'  
STREAM BED = 188.8'  
INVERT PIPE = 193.5'

Note: Pipe inverts shown are based on existing pipe inverts due to presence of rock at site. Every effort shall be made during installation to bury new pipe 1' and still provide sufficient bedding beneath pipe. Rock will be encountered.



REVISIONS

## ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

## PHASING

### PHASE I

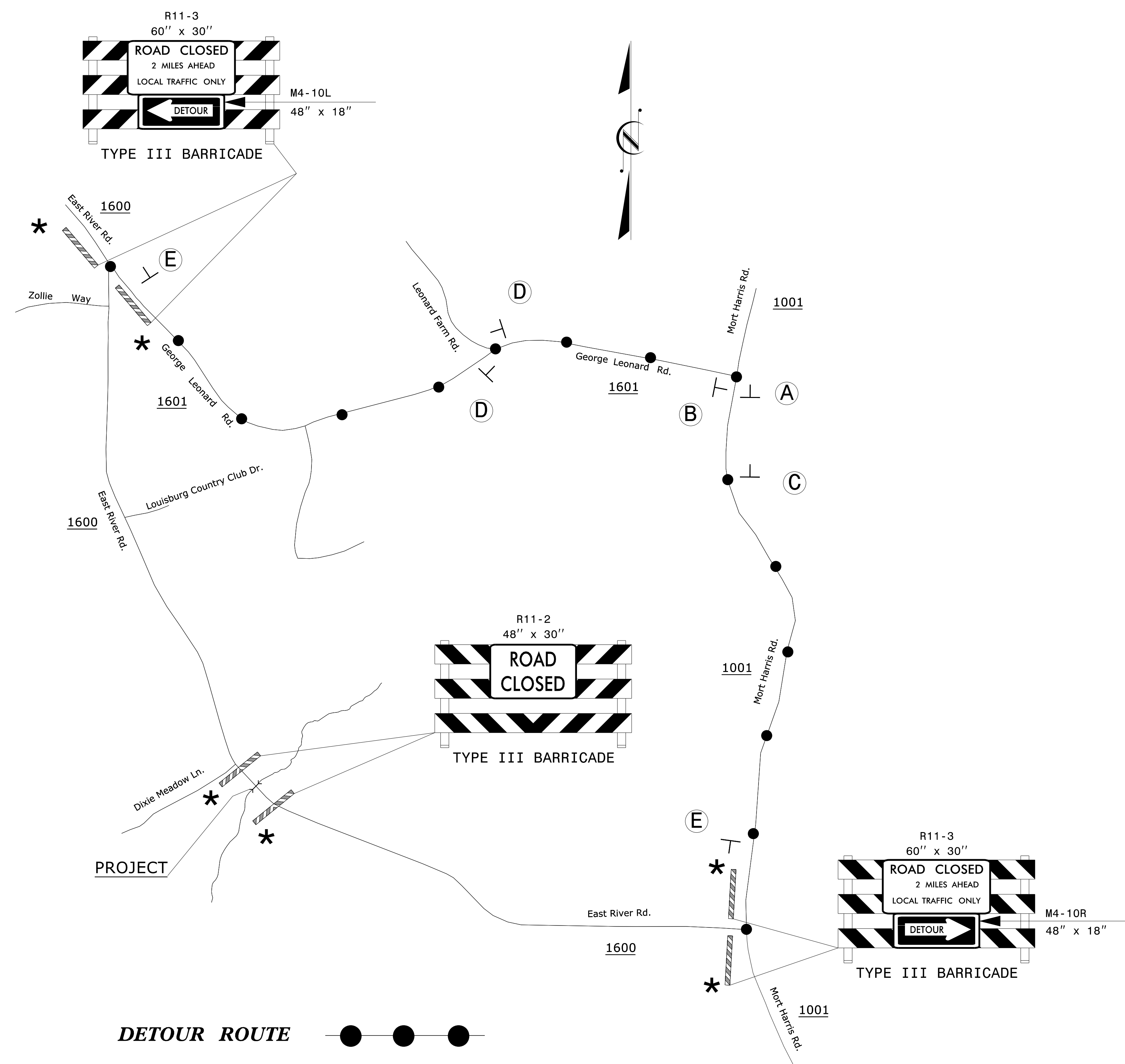
- STEP 1: - USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 AND SHEET TMP-2 CLOSE EAST RIVER ROAD (SR 1600) TO TRAFFIC.
- STEP 2: - INSTALL PROPOSED DRAINAGE AND RECONSTRUCT PROPOSED ROADWAY, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS).
  - PLACE THE FINAL MARKINGS (THERMOPLASTIC) IN THE EXISTING TRAFFIC PATTERN.
- STEP 3: - OPEN EAST RIVER ROAD (SR 1600) TO THE FINAL TRAFFIC PATTERN AND REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.

<p>SIGN NUMBER: name      BACKG COLOR: Fluorescent Orange                  TYPE: STATIONARY      COPY COLOR: Black</p> <p>QUANTITY: SEE PLANS</p> <p>SIGN WIDTH: 3'-0"                  HEIGHT: 2'-0"                  TOTAL AREA: 6.0 Sq.Ft.</p> <p>BORDER TYPE: INSET                  RECESS: 0.38"                  WIDTH: 0.63"                  RADII: 1.5"</p> <p>NO. Z BARS:                  LENGTH:</p> <p style="text-align: center;">MAT'L: 0.080" (2.0 mm) ALUMINUM</p> <p style="text-align: center;">USE NOTES: 1,2</p> <p>1. Legend and border shall be direct applied black non-reflective sheeting.                  2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.</p>	<p>DESIGN BY: SLK      CHECKED BY: JWG      Apr 16, 2018                  PROJECT ID: 17BP.5.C.PE      DIV: 5</p>	<p style="text-align: center;">Spacing Factor is 1 unless specified otherwise</p>																																																																														
<p><b>LETTER POSITIONS</b></p> <p style="text-align: center;">Letter locations are panel edge to lower left corner</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="12"></th> <th style="text-align: right;">Series/Size</th> </tr> <tr> <th colspan="12"></th> <th style="text-align: right;">Text Length</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">E</td><td style="text-align: center;">a</td><td style="text-align: center;">s</td><td style="text-align: center;">t</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td style="text-align: right;">D 2000</td> </tr> <tr> <td style="text-align: center;">12.2</td><td style="text-align: center;">15.8</td><td style="text-align: center;">19.3</td><td style="text-align: center;">21.8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td style="text-align: right;">11.7</td> </tr> <tr> <td style="text-align: center;">R</td><td style="text-align: center;">i</td><td style="text-align: center;">v</td><td style="text-align: center;">e</td><td style="text-align: center;">r</td><td style="text-align: center;">R</td><td style="text-align: center;">d</td><td></td><td></td><td></td><td></td><td></td> <td style="text-align: right;">D 2000</td> </tr> <tr> <td style="text-align: center;">4.5</td><td style="text-align: center;">8.7</td><td style="text-align: center;">10.1</td><td style="text-align: center;">14</td><td style="text-align: center;">17.7</td><td style="text-align: center;">19.6</td><td style="text-align: center;">24.6</td><td style="text-align: center;">28.5</td><td></td><td></td><td></td><td></td> <td style="text-align: right;">27</td> </tr> </tbody> </table> <p>FILENAME: Guidesign6_022617 <span style="float: right;">NORTH CAROLINA D.O.T. SIGN DETAIL</span></p>															Series/Size													Text Length	E	a	s	t									D 2000	12.2	15.8	19.3	21.8									11.7	R	i	v	e	r	R	d						D 2000	4.5	8.7	10.1	14	17.7	19.6	24.6	28.5					27
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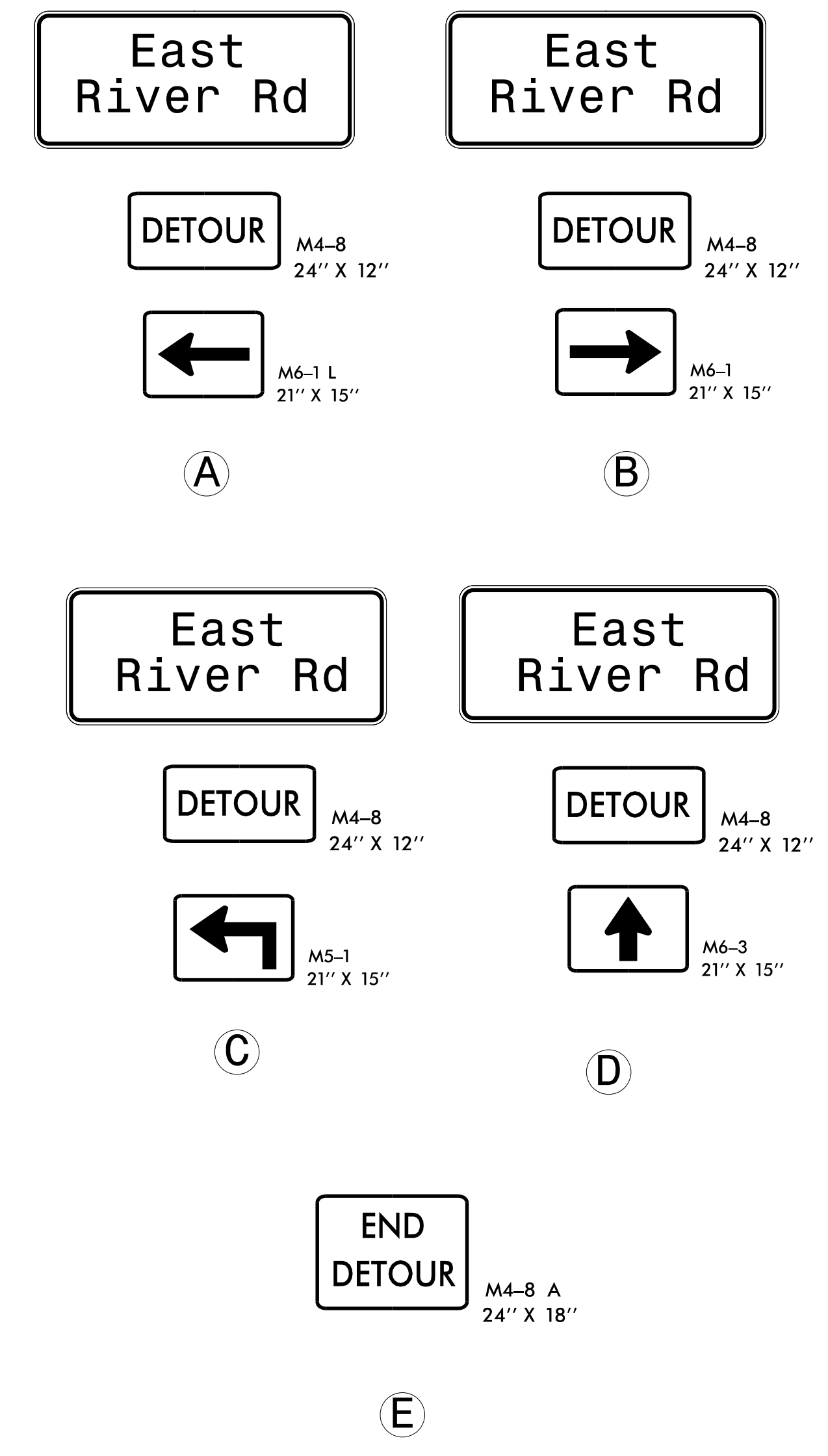
NOTE: TEMPORARY SIGNS TO BE PAID FOR AS "STATIONARY WORK ZONE SIGNS".

<p><b>WETHERILL ENGINEERING</b></p> <p>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN                  CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</p>	<p>1223 Jones Franklin Rd.                  Raleigh, N.C. 27606                  License No. F-0377                  Bus: 919 851 8077                  Fax: 919 851 8107</p>	<p><b>DOCUMENT NOT CONSIDERED FINAL                  UNLESS ALL SIGNATURES COMPLETED</b></p> <p>APPROVED: _____ DATE: _____</p> <p style="text-align: center;">SEAL</p> <p style="text-align: center;">12/12/2018</p>		<p><b>ROAD STANDARD DRAWINGS,                  PHASING AND SPECIAL                  SIGN DESIGN FOR                  EAST RIVER ROAD                  (SR 1600)</b></p>
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### DETOUR SIGNING



**DETOUR ROUTE** ●—●—●

- NOTES: SEE TMP-1 FOR "EAST RIVER ROAD" SPECIAL SIGN DESIGN.  
 ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.  
 \* SEE RSD 1101.03, SHEET 1 OF 9, FOR TYPE III BARRICADE LOCATION WITH ATTACHED SIGNING & ADDITIONAL SIGNING FOR ROAD CLOSURE.

12/13/2018 P:\2018\18121409.DIV 5 PIPE REPLACEMENT\Franklin SR 1600\TrafficControl\TCP\Franklin SR 1600.TC.TMP\_PSH-02.dgn User:SKENNEDY

 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	APPROVED: DATE: 12/13/2018		<b>DETOUR EAST RIVER ROAD (SR 1600)</b>
	SEAL 	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		