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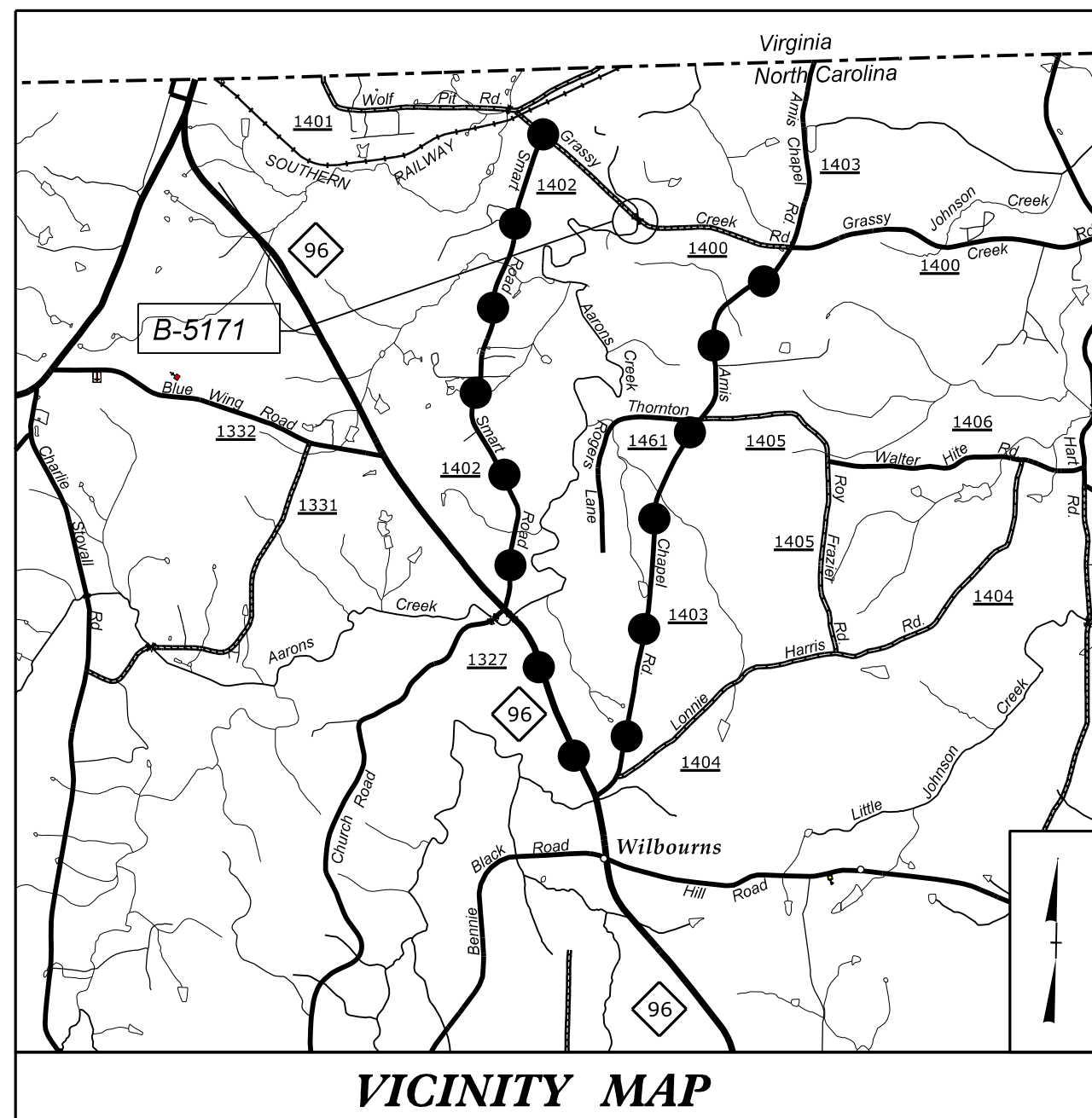
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numbers appear on each page, on the dates appearing  
with their signature on that page.**

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**TIP PROJECT: B-5171**

**CONTRACT: C203727**

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



●●●●●●●● DENOTES OFF-SITE DETOUR

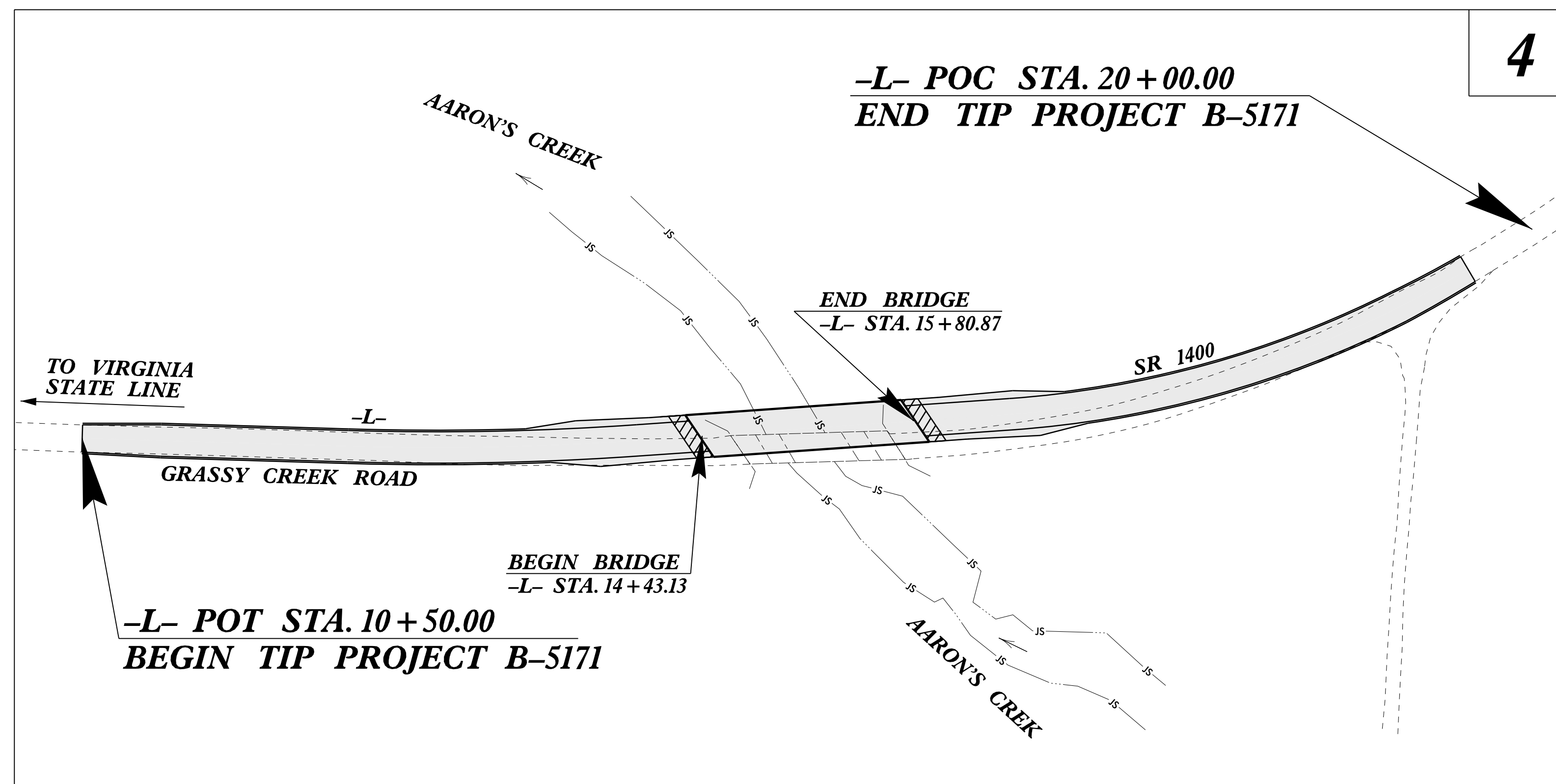
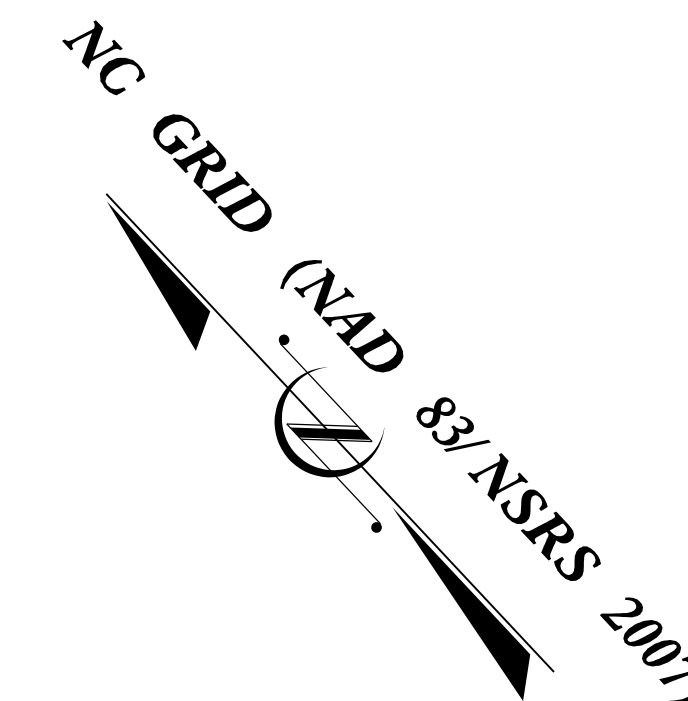
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**GRANVILLE COUNTY**

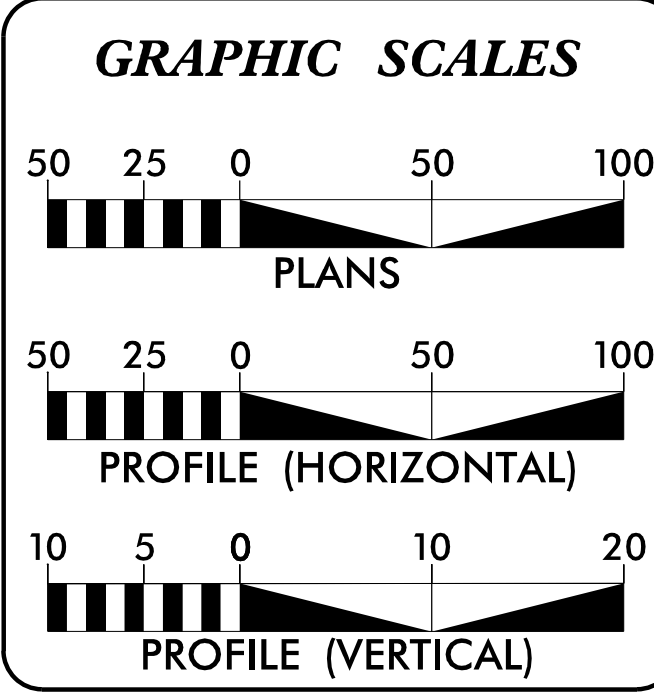
**LOCATION: BRIDGE NO. 125 OVER AARON'S CREEK ON SR 1400  
(GRASSY CREEK ROAD)**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>B-5171</b>	<b>1</b>	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42329.1.1		P.E.	
42329.2.1		RW & UTILITIES	
42329.3.1		CONSTR.	



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



**DESIGN DATA**

ADT 2016	=	175
ADT 2036	=	255
K	=	10 %
D	=	60 %
T	=	5 % *
V	=	50 MPH
* TTST	=	2% DUAL 3%
FUNC CLASS	=	RURAL LOCAL
SUB-REGIONAL TIER	=	

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-5171	=	0.154 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5171	=	0.026 MILES
TOTAL LENGTH TIP PROJECT B-5171	=	0.180 MILES

Prepared in the Office of:

**SUNGATE DESIGN GROUP, P.A.**  
915 JONES FRANKLIN ROAD  
SALESFISH NORTH CAROLINA 27566  
TEL (919) 855-2243 FAX (919) 859-4258  
ENG FIRM LICENSE NO. C-890

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for the North Carolina Department of Transportation

2012 STANDARD SPECIFICATIONS	ARCADIS CONTACT
RIGHT OF WAY DATE:	STEVE SMALLWOOD, P.E. PROJECT ENGINEER
MAY 21, 2015	
LETTING DATE:	NC DOT CONTACT:
MAY 17, 2016	REKHA PATEL, P.E.

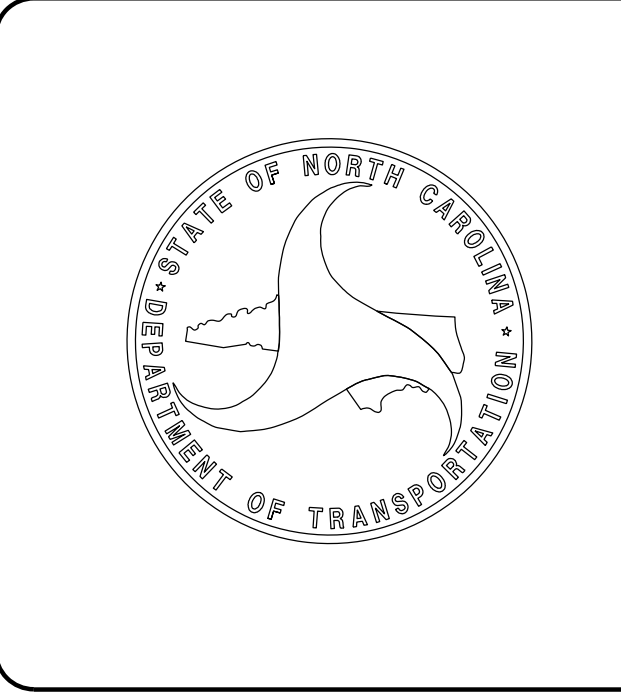
**HYDRAULICS ENGINEER**

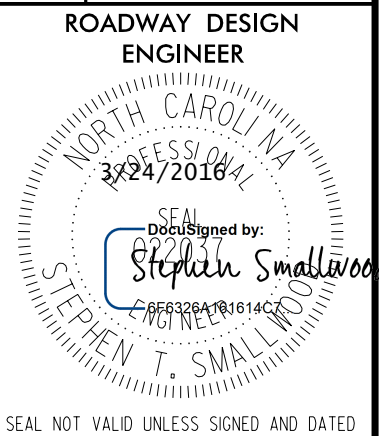
2/16/2016

Seal: Joshua G. Dalton, P.E. (1089ADBC14994C3)

**ROADWAY DESIGN ENGINEER**

Seal: Stephen Smallwood, P.E. (1089ADBC14994C3)





INDEX OF SHEETS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND
2C-1	STRUCTURE ANCHOR DETAIL
3B-1	SUMMARY OF EARTHWORK, SHOULDER BERM GUTTER, AND GUARDRAIL
3D-1	SUMMARY OF DRAINAGE QUANTITIES
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
PM-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-2	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS SECTION SUMMARY SHEET
X-1 THRU X-8	CROSS-SECTIONS
S-1 THRU S- 18	STRUCTURE PLANS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement

DIVISION 3 - PIPE CULVERTS

300.01	Method of Pipe Installation
310.10	Driveway pipe construction

DIVISION 4 - MAJOR STRUCTURES

422.11	Reinforced Bridge Approach Fills-Sub Regional Tier
--------	--

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS

560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
--------	---

DIVISION 8 - INCIDENTALS

806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat grates
840.35	Traffic Bearing Grated Drop Inlet-for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES: 2012 SPECIFICATIONS

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

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 BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE  
CENTURYLINK  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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



# 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	○ RW
Proposed Right of Way Line with Iron Pin and Cap Marker	○ RW ▲
Proposed Right of Way Line with Concrete or Granite RW Marker	▲ RW
Proposed Control of Access Line with Concrete C/A Marker	○ C/A
Existing Control of Access	○ C/A
Proposed Control of Access	○ C/A
Existing Easement Line	-E-
Proposed Temporary Construction Easement	-E-
Proposed Temporary Drainage Easement	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent Drainage / Utility Easement	-DUE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Aerial Utility Easement	-AUE-
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	○ CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	▨

### VEGETATION:

Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

Orchard	☼ ☼ ☼ ☼
Vineyard	□ Vineyard

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	▬ CONC
Bridge Wing Wall, Head Wall and End Wall	▬ CONC WW ▬
MINOR:	
Head and End Wall	▬ CONC HW ▬
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	-S-

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ P
Power Line Tower	□
Power Transformer	▨
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	----- P -----
U/G Power Line LOS C (S.U.E.*)	----- P -----
U/G Power Line LOS D (S.U.E.*)	----- P -----

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Pedestal	□ T
Telephone Cell Tower	▬ T
U/G Telephone Cable Hand Hole	○ TH
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	○ TH
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.

6/2/09

PROJECT REFERENCE NO.	SHEET NO.
B-5171	1C-1
Location and Surveys	

# SURVEY CONTROL SHEET B-5171 GRANVILLE COUNTY

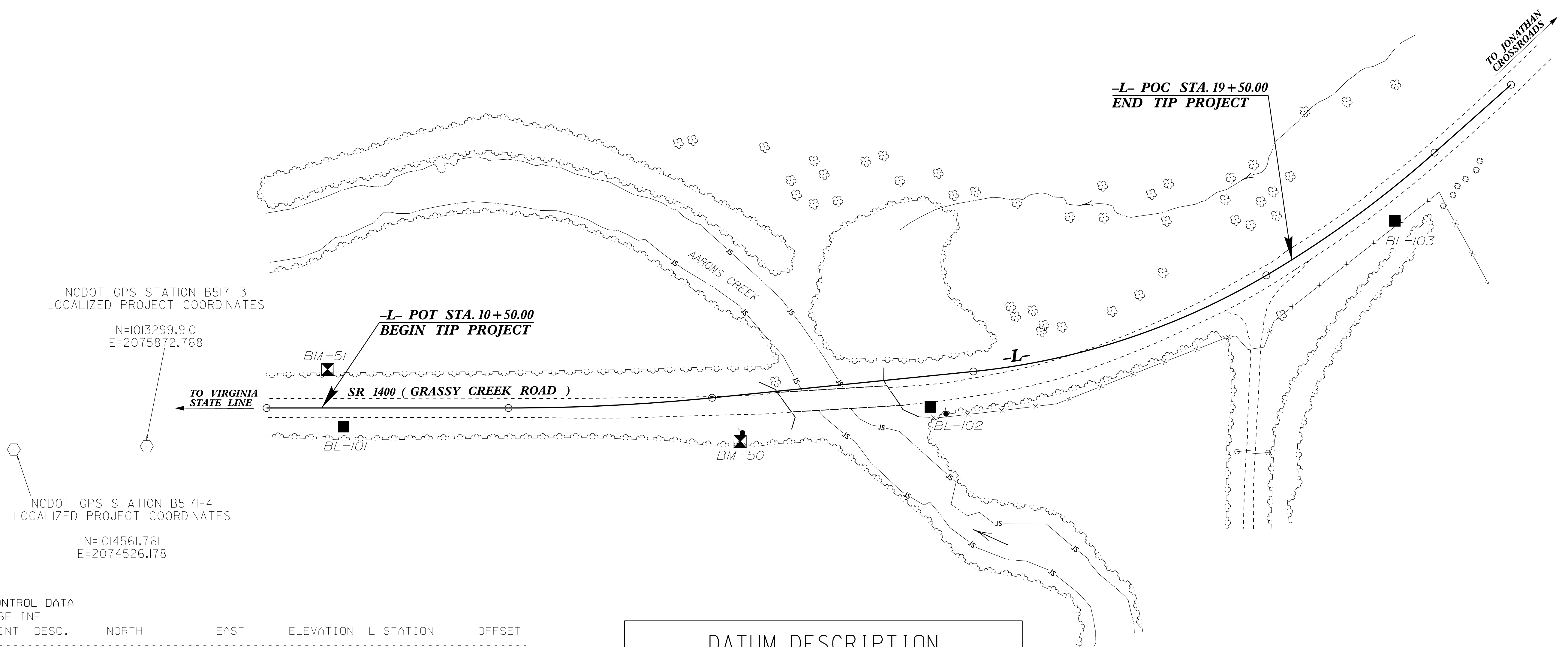
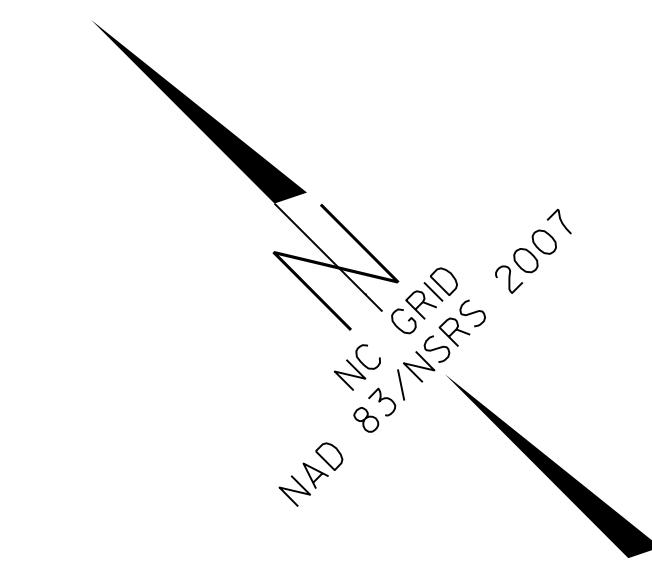
LOCATION: BRIDGE NO. 125 OVER AARON'S CREEK ON  
SR 1400 (GRASSY CREEK - VIRGINIA ROAD)

NCDOT GPS STATION B5171-2  
LOCALIZED PROJECT COORDINATES

N=1011832.853  
E=2079760.657

NCDOT GPS STATION B5171-1  
LOCALIZED PROJECT COORDINATES

N=1012347.038  
E=2078396.505



NCDOT GPS STATION B5171-3  
LOCALIZED PROJECT COORDINATES

N=1013299.910  
E=2075872.768

NCDOT GPS STATION B5171-4  
LOCALIZED PROJECT COORDINATES

N=1014561.761  
E=2074526.178

**CONTROL DATA**

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101	BL-101	1012855.1800	2076285.2455	402.28	10+69.89	16.74 RT
102	BL-102	1012492.5282	2076673.8505	398.19	15+99.62	28.01 RT
103	BL-103	1012314.6338	2077090.5525	420.94	20+45.52	24.56 RT
104	BL-104	1012320.9012	2077765.6999	447.67	OUTSIDE PROJECT LIMITS	

**BENCHMARK DATA**

```

*****
BM50      ELEVATION = 394.64'
N 1012592      E 2076530
L STATION 14+25 42' RIGHT
R/R SPIKE SET 14" POPLAR
*****
BM51      ELEVATION = 400.18'
N 1012902      E 2076312
L STATION 10+55 35' LEFT
R/R SPIKE SET 16" POPLAR
*****

```

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5171-3"  
 WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF  
 NORTHING: 1013299.910(ft) EASTING: 2075872.768(ft)  
 ELEVATION: 416.064(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00010707  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5171-3" TO -L- STATION 10+50.00 IS  
 S 44°24'18" E 586.26'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

**NOTES:**

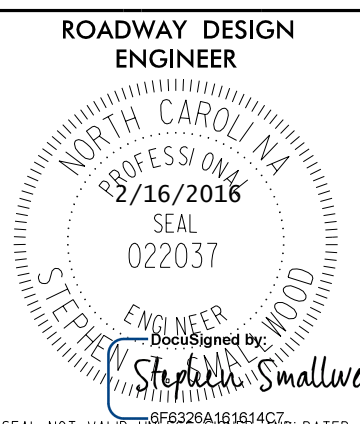
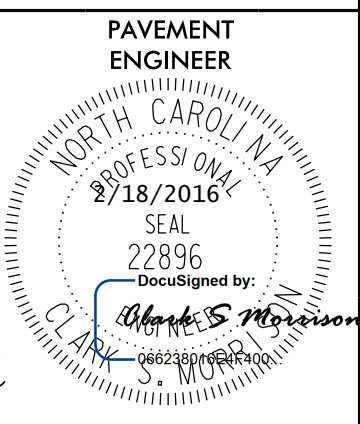
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING NCDOT PROJECT CONTROL DATA AT:  
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](https://connect.ncdot.gov/resources/location)  
THE FILES TO BE FOUND ARE AS FOLLOWS:  
B5171\_ls\_control.txt
- SITE CALIBRATION INFORMATION HAS 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.

NOTE: DRAWING NOT TO SCALE

I:\2010\Projects\B5171\1c-1.dgn

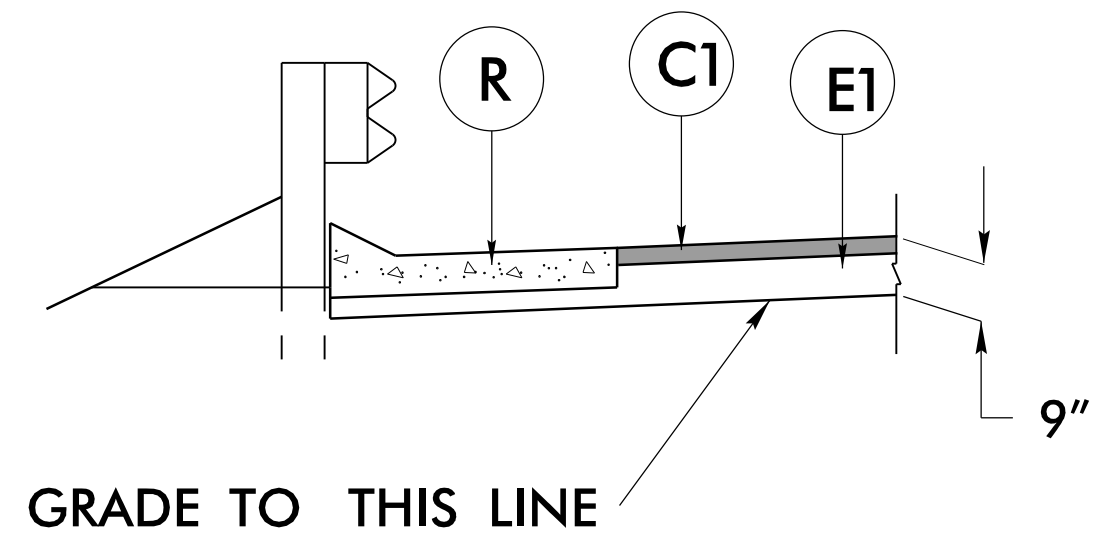
5/14/99

**Stantec**  
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 Tel. (919) 851-6866  
 Fax (919) 851-7024  
 www.stantec.com  
 License No. F-0672

PROJECT REFERENCE NO. B-5171	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 	PAVEMENT ENGINEER 
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

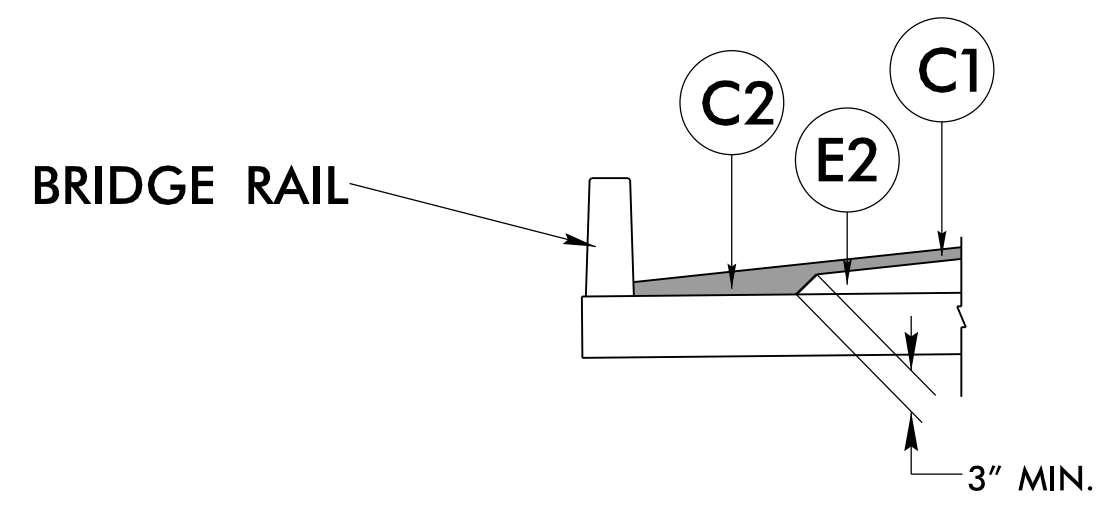
FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1½".
E1	PROP. APPROX. 7½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN TOP LAYER AND AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN BOTTOM LAYER.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½".
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.

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

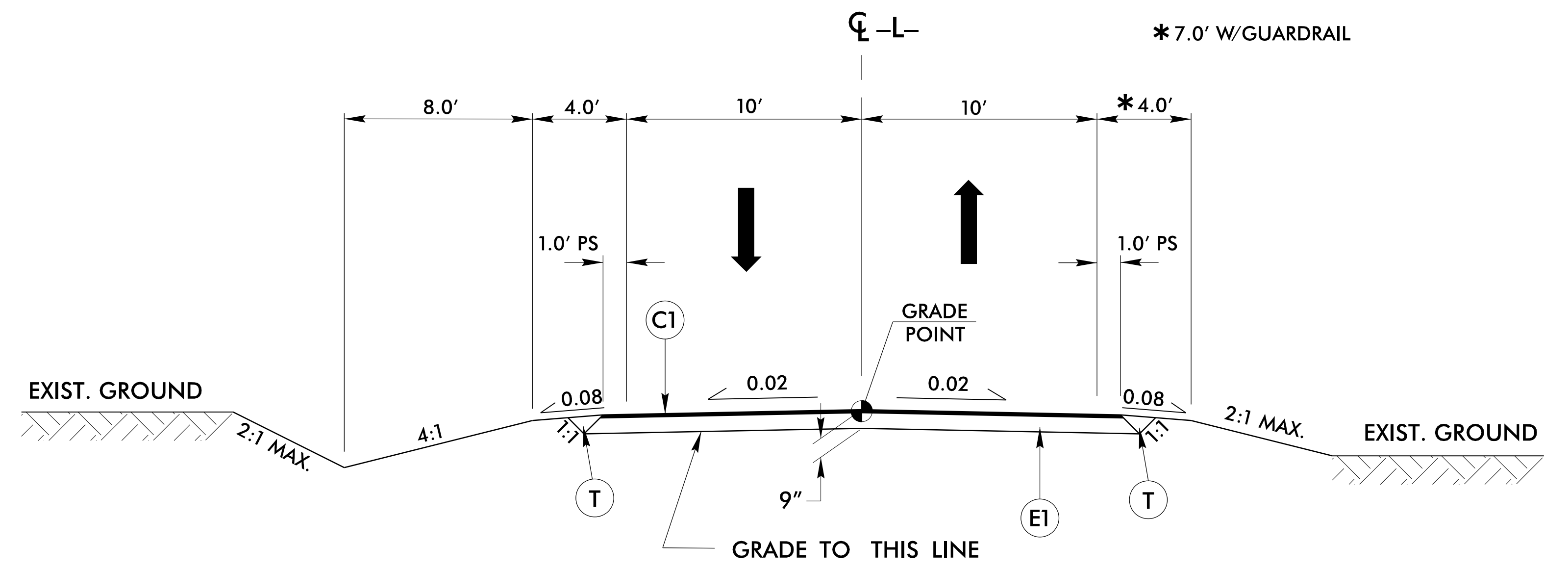


**DETAIL SHOWING SHOULDER BERM GUTTER (SBG) ON TOP OF SUBGRADE**

-L- STA. 14+19.00 TO -L- STA. 14+24.40 (END APPROACH SLAB)(LT)



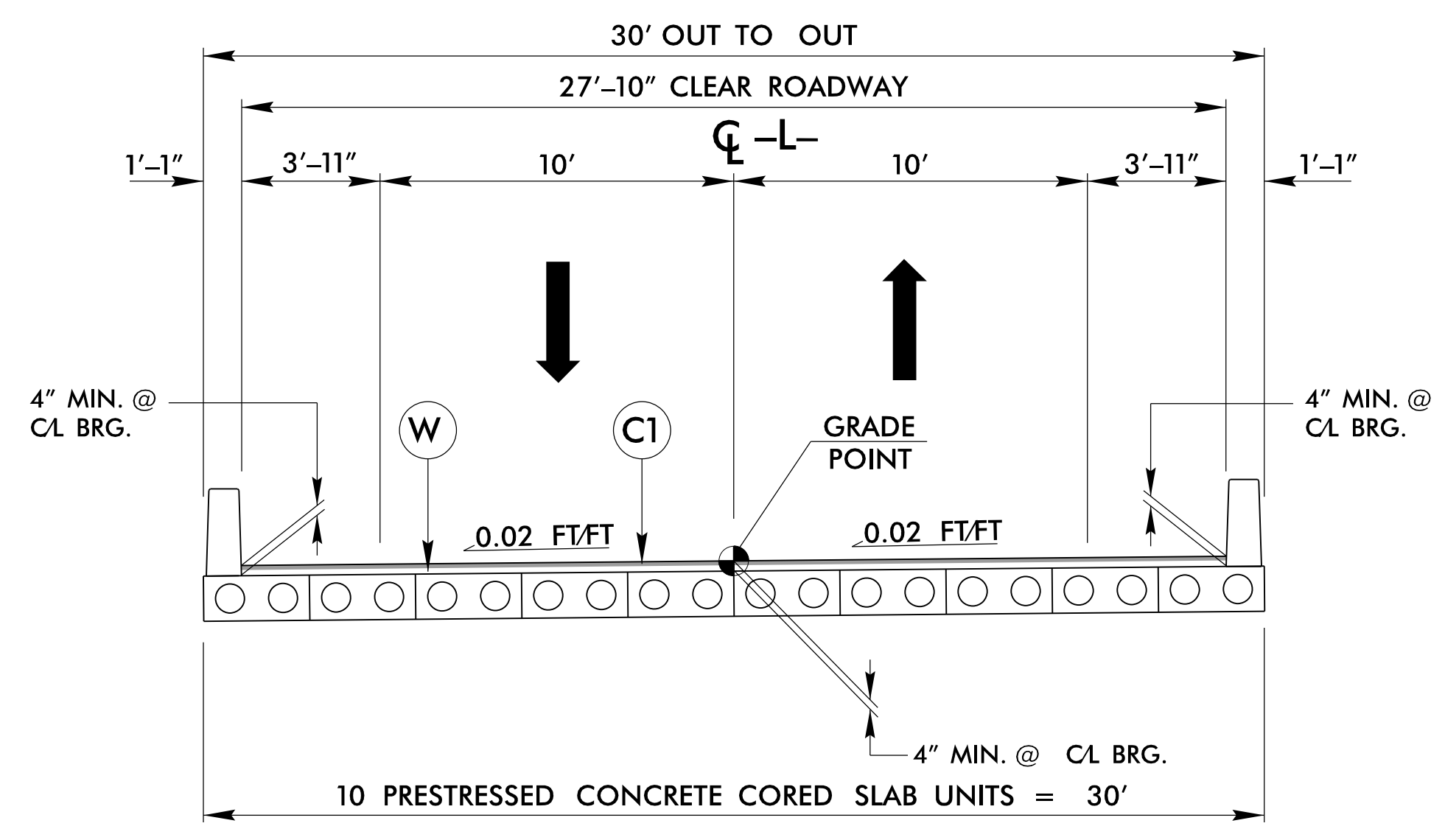
**WEDGING DETAIL FOR WEARING SURFACE ON STRUCTURE (W)**



**TYPICAL SECTION NO. 1**

**USE TYPICAL SECTION NO. 1**

-L- STA. 10+50.00 TO -L- STA. 14+43.13 (BEGIN BRIDGE)  
 -L- STA. 15+80.87 (END BRIDGE) TO -L- STA. 19+50.00



**TYPICAL SECTION ON STRUCTURE**

(SEE STRUCTURE PLANS)

-L- STA. 14+43.13 TO -L- STA. 15+80.87

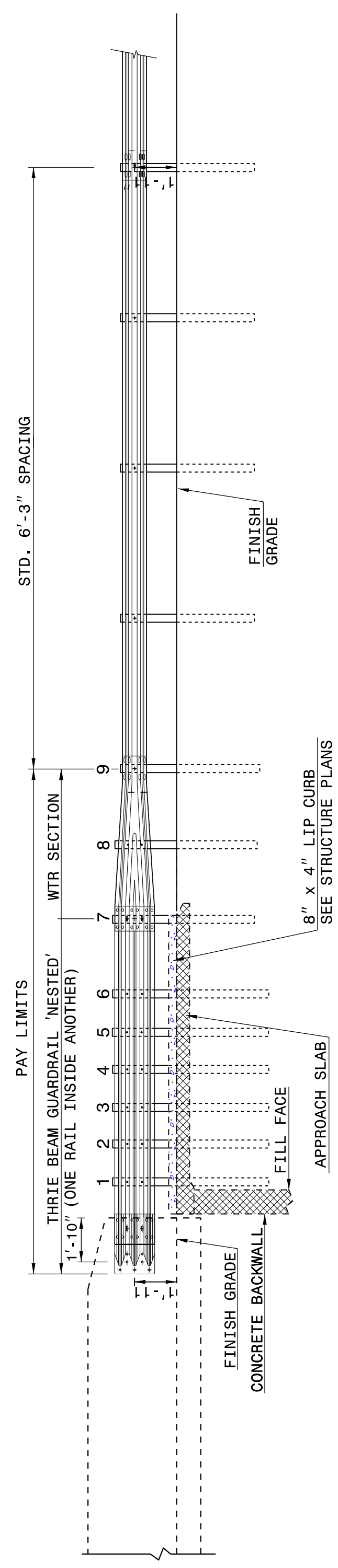
2/16/2016 Proj: B5171\_rdy.tup.dgn  
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STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

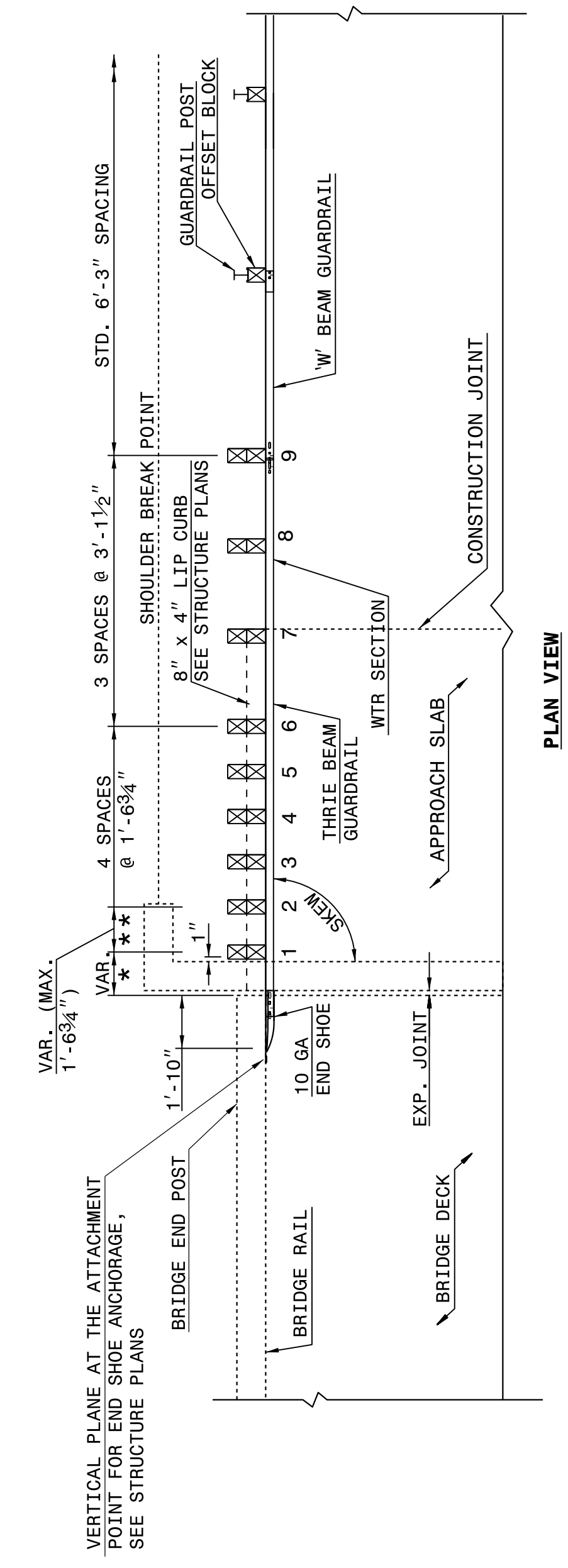
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862d03**



**ELEVATION**

NOTE:  
 \*\*POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.  
 \*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2". IF CONCRETE BACKWALL IS NOT PRESENT.  
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.  
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).  
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.  
 -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



**PLAN VIEW**

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

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

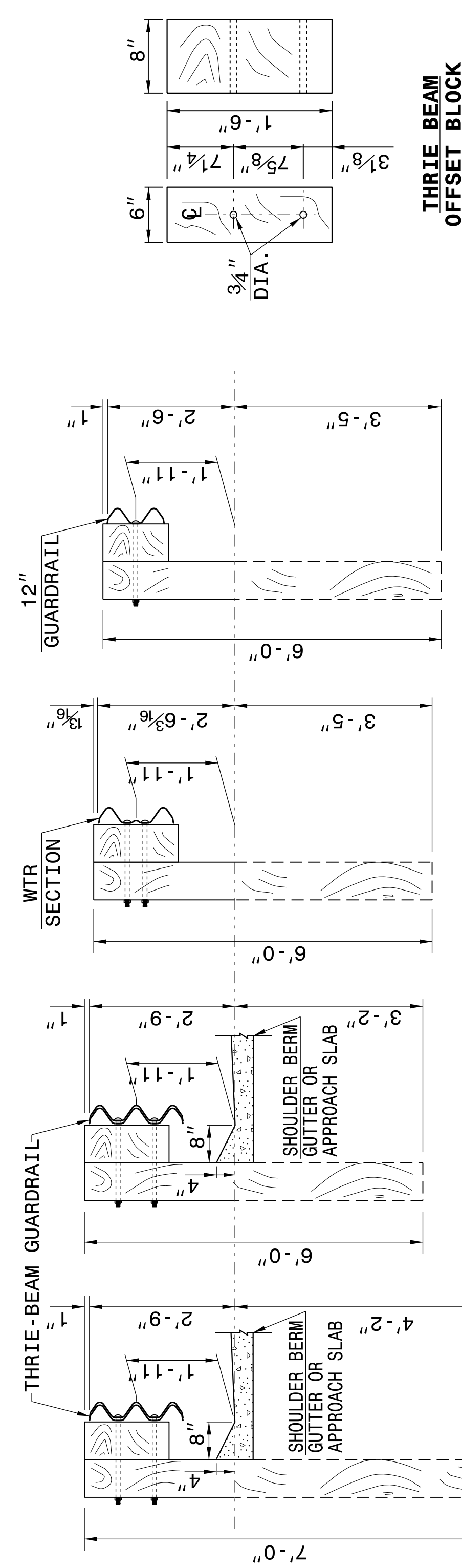
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862d03**

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

ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 3 OF 7  
**862d03**



**THRIE BEAM  
OFFSET BLOCK**

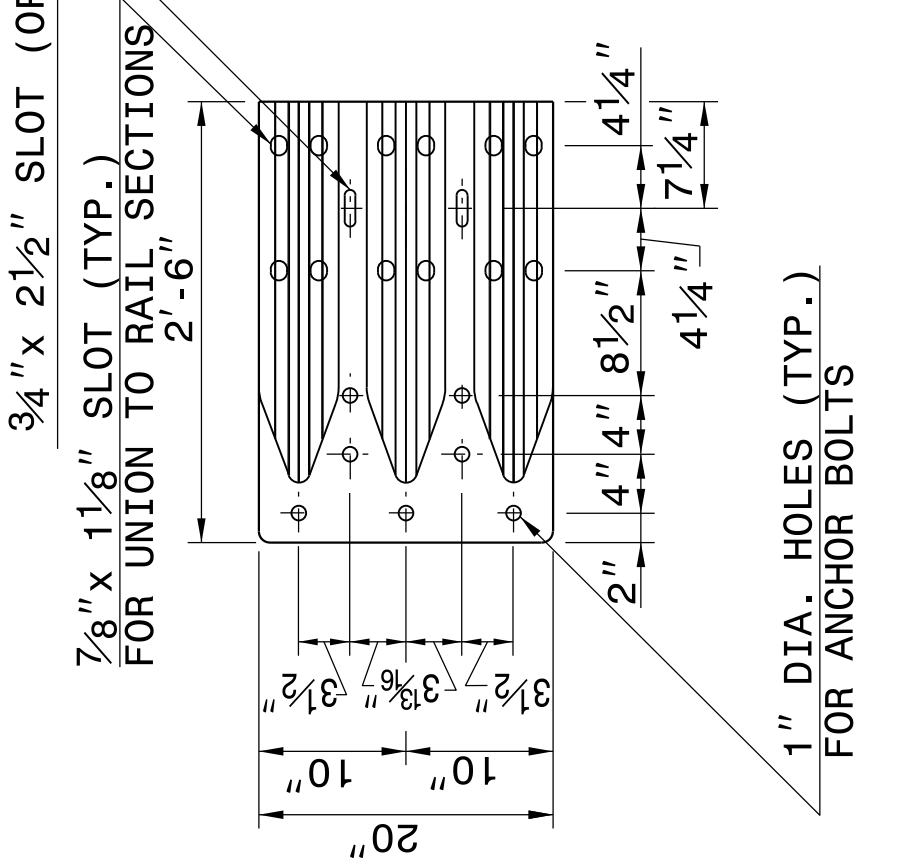
**SECTION OF 'W'  
BEAM POST 9**

**SECTION OF WTR  
BEAM POST 8**

**SECTION OF THRIE  
BEAM POST 7**

**SECTION OF THRIE BEAM  
POSTS 1 THRU 6**

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



**THRIE-BEAM  
SECTION**

**END SHOE**

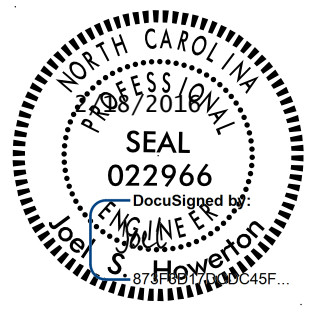
**WTR SECTION  
ELEVATION VIEW**

**THRIE BEAM  
LINE POST**

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

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

SHEET 3 OF 7  
**862d03**



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

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

**SEE TITLE BLOCK**

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

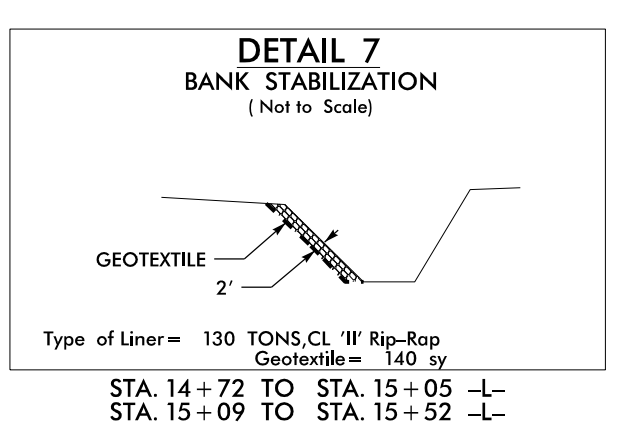
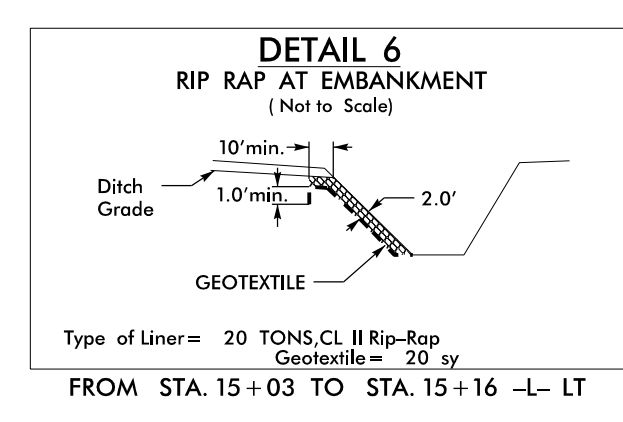
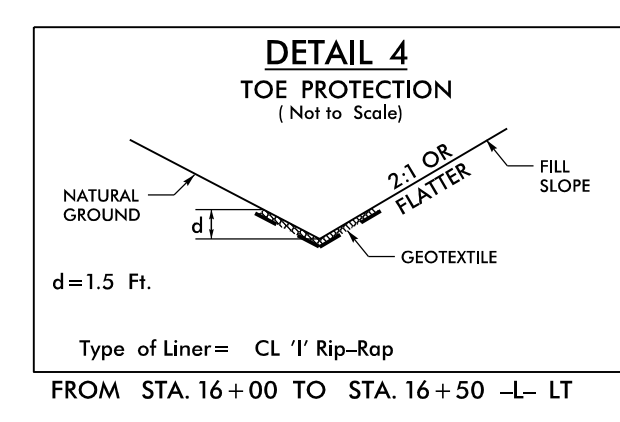
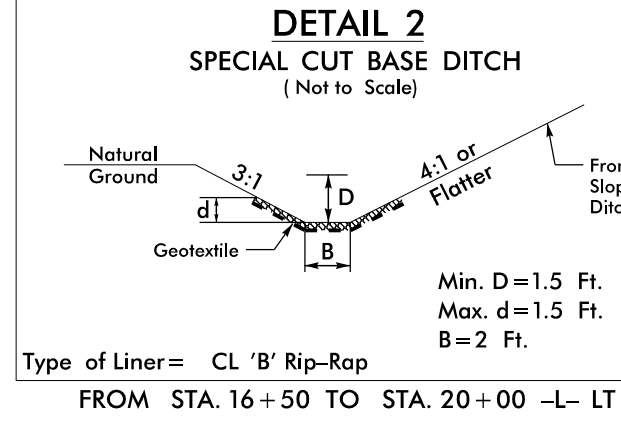
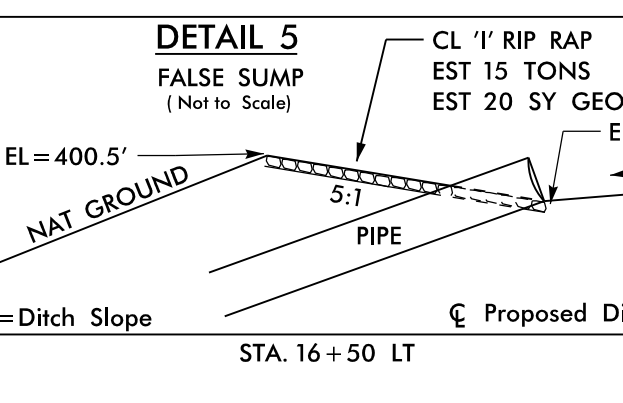
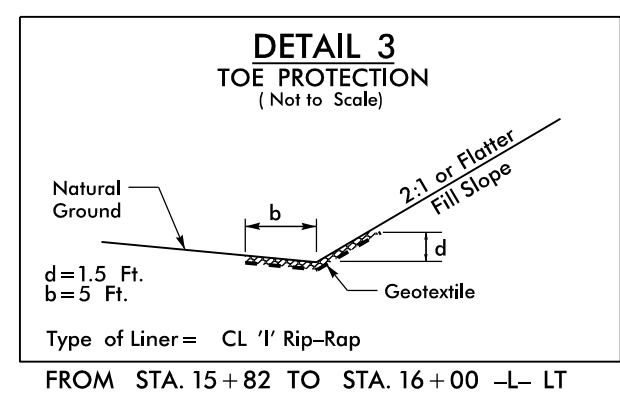
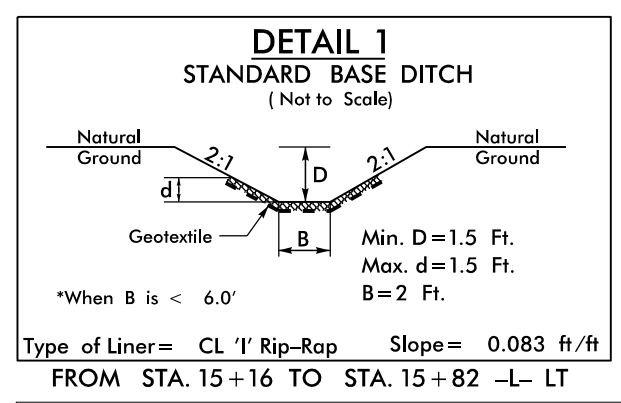






5/14/19

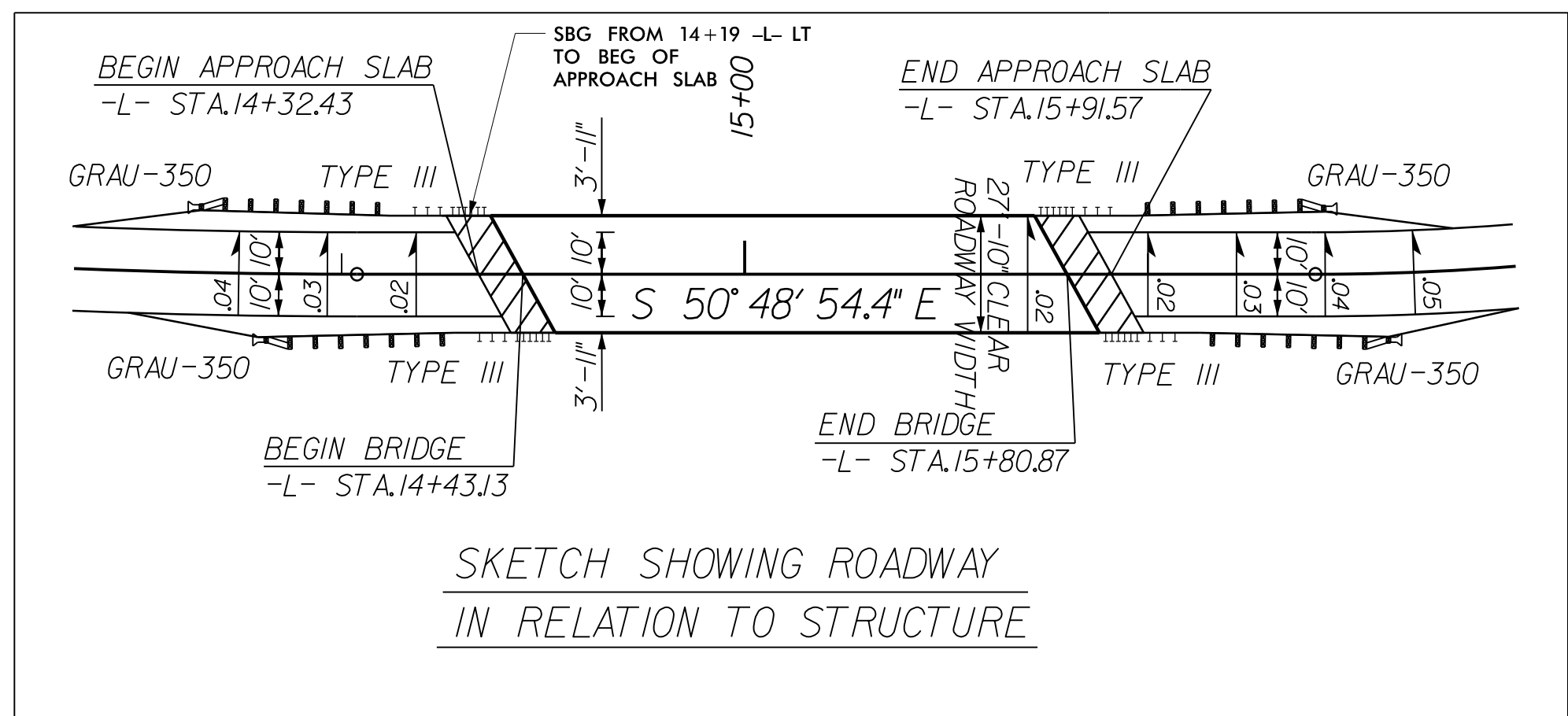
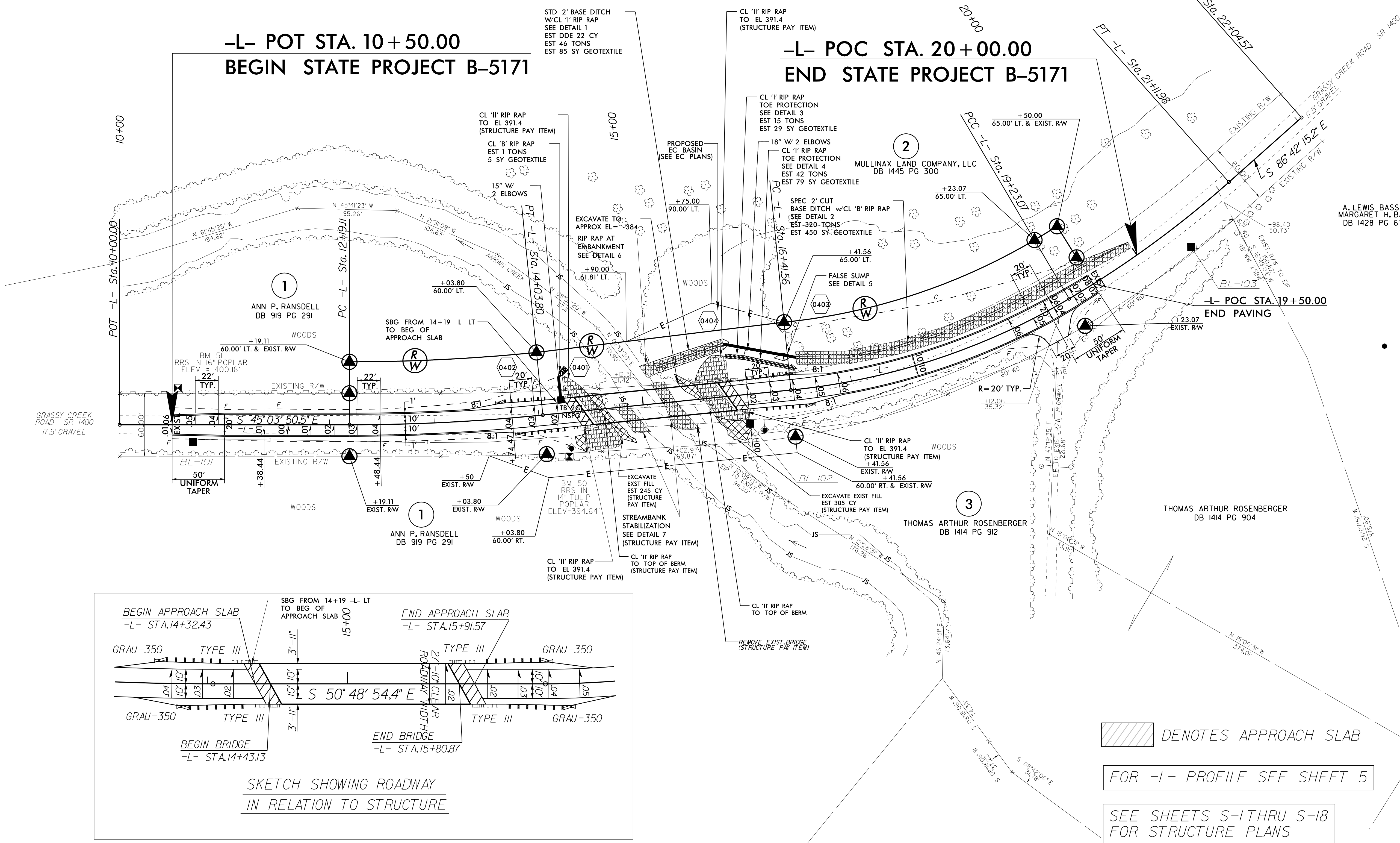
-L- CURVE DATA	-L- CURVE DATA	-L- CURVE DATA
PI Sta 13+11.53	PI Sta 17+84.56	PI Sta 20+17.82
$\Delta = 5^{\circ} 45' 03.9" (LT)$	$\Delta = 24^{\circ} 48' 52.0" (LT)$	$\Delta = 11^{\circ} 04' 28.7" (LT)$
$D = 3^{\circ} 06' 50.0"$	$D = 8^{\circ} 48' 53.0"$	$D = 5^{\circ} 51' 45.0"$
$L = 184.69'$	$L = 281.51'$	$L = 188.91'$
$T = 92.42'$	$T = 143.00'$	$T = 94.75'$
$R = 1,840.00'$	$R = 650.00'$	$R = 977.33'$
$DS = 65 MPH$	$DS = 45 MPH$	$DS = 50 MPH$
$SE = .04$	$SE = .04$	



**Stantec**  
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 815 JONES FRANKLIN ROAD  
 RALEIGH, NORTH CAROLINA 27608  
 TEL: (919) 859-2243 FAX: (919) 859-6258  
 ENG FIRM LICENSE NO. C-890

PROJECT REFERENCE NO. B-5171	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Professional Seal STEPHEN SMALLWOOD 2022037 2/16/2016	Professional Seal JOSHUA G. DALTON 26971 2/16/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



▨ DENOTES APPROACH SLAB  
 FOR -L- PROFILE SEE SHEET 5  
 SEE SHEETS S-1 THRU S-18 FOR STRUCTURE PLANS

U:\16\2016\pco\B5171\rdy\_psh4.dgn



