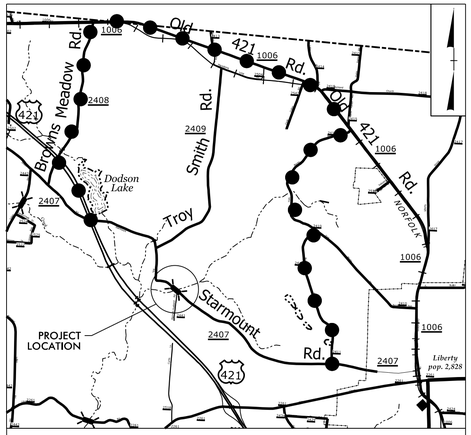
09/08/99

TIP PROJECT: B–5763

CONTRACT: DH00234

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



VICINITY MAP

OFF–SITE DETOUR ROUTE =

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

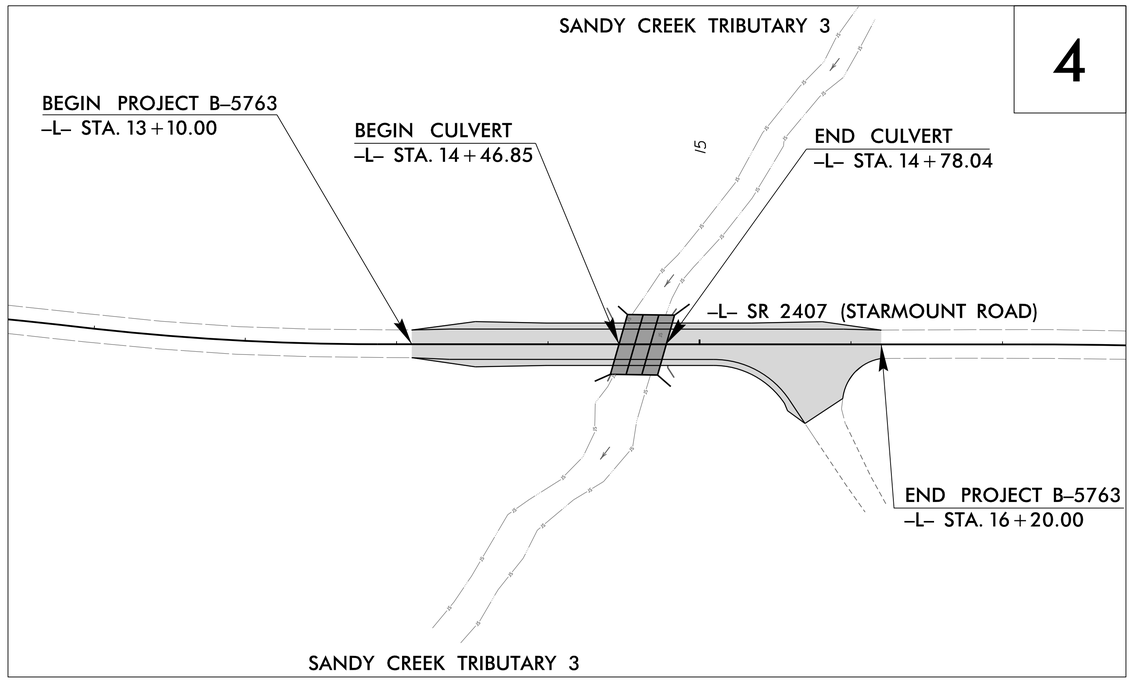
LOCATION: BRIDGE NO. 129 OVER SANDY CREEK TRIBUTARY 3 ON SR 2407 (STARMOUNT ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–5763	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45719.1.1		PE
45719.1.1		R/W & UTILITIES
45719.3.1		CONST.

NA 2011 NAD 83



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS 20 10 0 20 40

PROFILE (HORIZONTAL) 20 10 0 20 40

PROFILE (VERTICAL) 10 5 0 10 20

DESIGN DATA

ADT = 540

V = 50 MPH

FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

TOTAL LENGTH OF ROADWAY PROJECT B–5763 = 0.053 MI
LENGTH OF STRUCTURE PROJECT B–5763 = 0.006 MI
TOTAL LENGTH OF PROJECT B–5763 = 0.059 MI

Prepared In the Office of:
SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License: C-2197

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:
APRIL 25, 2017

BEN CRAWFORD, PE
PROJECT ENGINEER

MATTHEW COPPLE, PE
PROJECT DESIGN ENGINEER

TIM WELCH, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 29474 ENGINEER DAVID S WEBB

3/30/2017
DocuSigned by: David S. Webb
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 32606 ENGINEER BENJAMIN K CRAWFORD

3/30/2017
DocuSigned by: Benjamin K. Crawford
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

3/30/2017
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USER:rdgardner

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-5763	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 32606 ENGINEER BENJAMIN R. CRAWFORD

3/30/2017

DocuSigned by:
Benjamin R. Crawford
DD1AEA1C9BC047F...

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License: C-2197

INDEX OF SHEETS

GENERAL NOTES:

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

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
Duke Energy - Power (Distribution)
Randolph Communications - Communications
AT&T - Communications

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.

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 Superelevation - Two Lane Pavement
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
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels

3/28/2017
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04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-5763	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- 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 — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- 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 R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- 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
- U/G Telephone Cable Hand Hole — HH
- 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 — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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 — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- 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.

PROJECT REFERENCE NO.	SHEET NO.
B-5763	1C-1
Location and Surveys	

SURVEY CONTROL SHEET B-5763

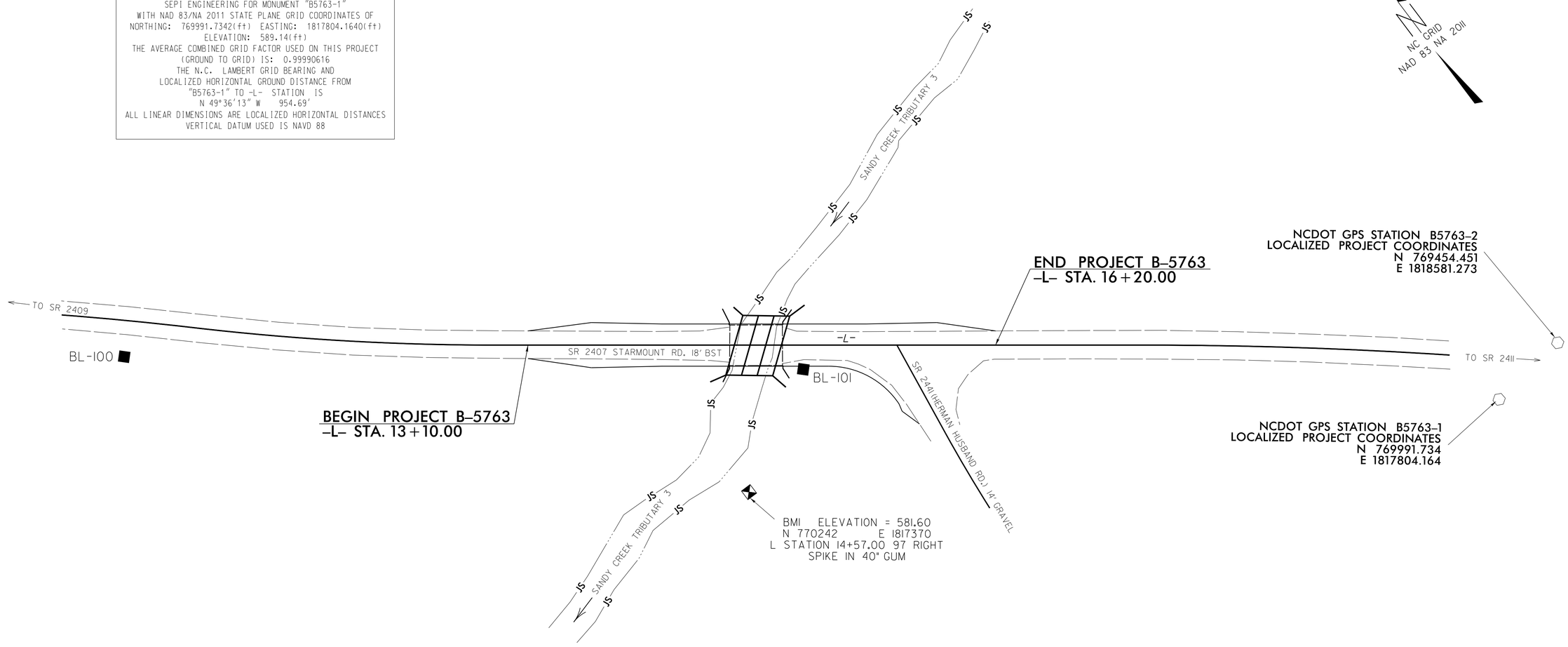
Prepared in the Office of:

SEPI ENGINEERING & CONSTRUCTION

1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License: C-2197

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY SEPI ENGINEERING FOR MONUMENT "B5763-1" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 769991.7342(ft) EASTING: 1817804.1640(ft) ELEVATION: 589.14(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990616
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5763-1" TO -L- STATION IS N 49°36'13" W 954.69'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
100	BL-100	770563.3725	1817093.4264	584.62	10+43.87	24.06 RT
101	BL-101	770285.4822	1817447.8542	585.00	14+92.55	16.07 RT
1	B5763-1	769991.7342	1817804.1640	589.14	OUTSIDE PROJECT LIMITS	
2	B5763-2	769454.4509	1818581.2728	624.48	OUTSIDE PROJECT LIMITS	

```
*****************************************
BM1       ELEVATION = 581.60
N 770242      E 1817370
L STATION 14+57.00 97 RIGHT
SPIKE IN 40" GUM
*****************************************
```

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT WAS PROVIDED BY SEPI ENGINEERING & CONSTRUCTION*

   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.

PROJECT REFERENCE NO.	SHEET NO.
B-5763	2A-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
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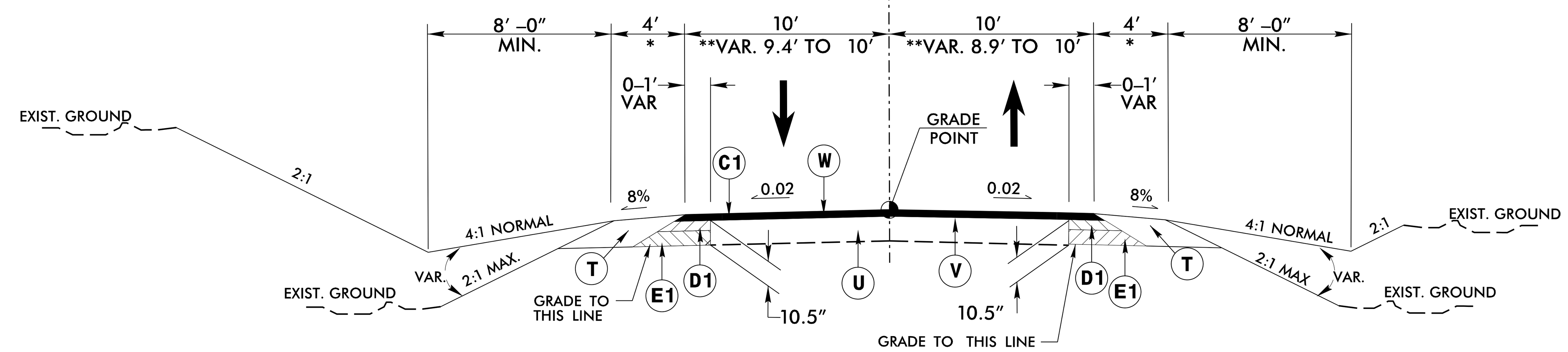
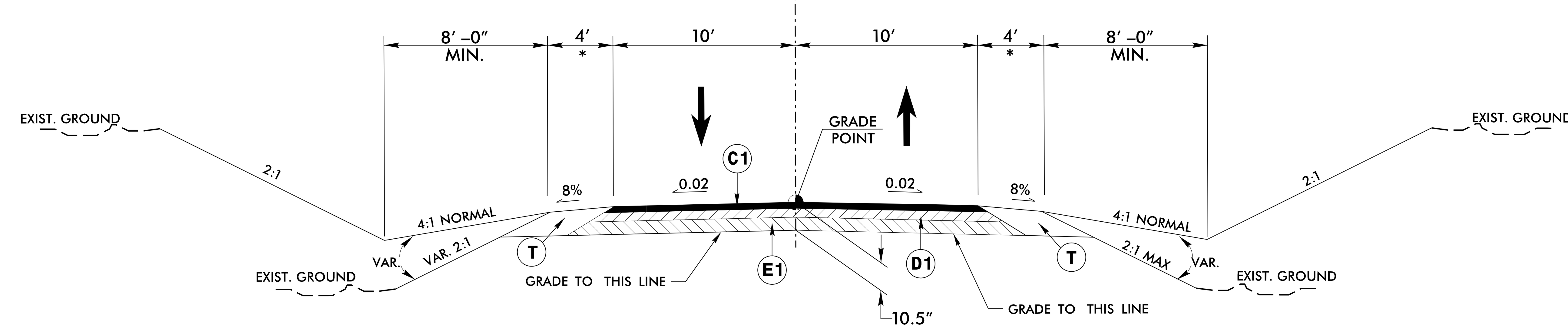
License: C-2197



TYPICAL SECTION NO. 1

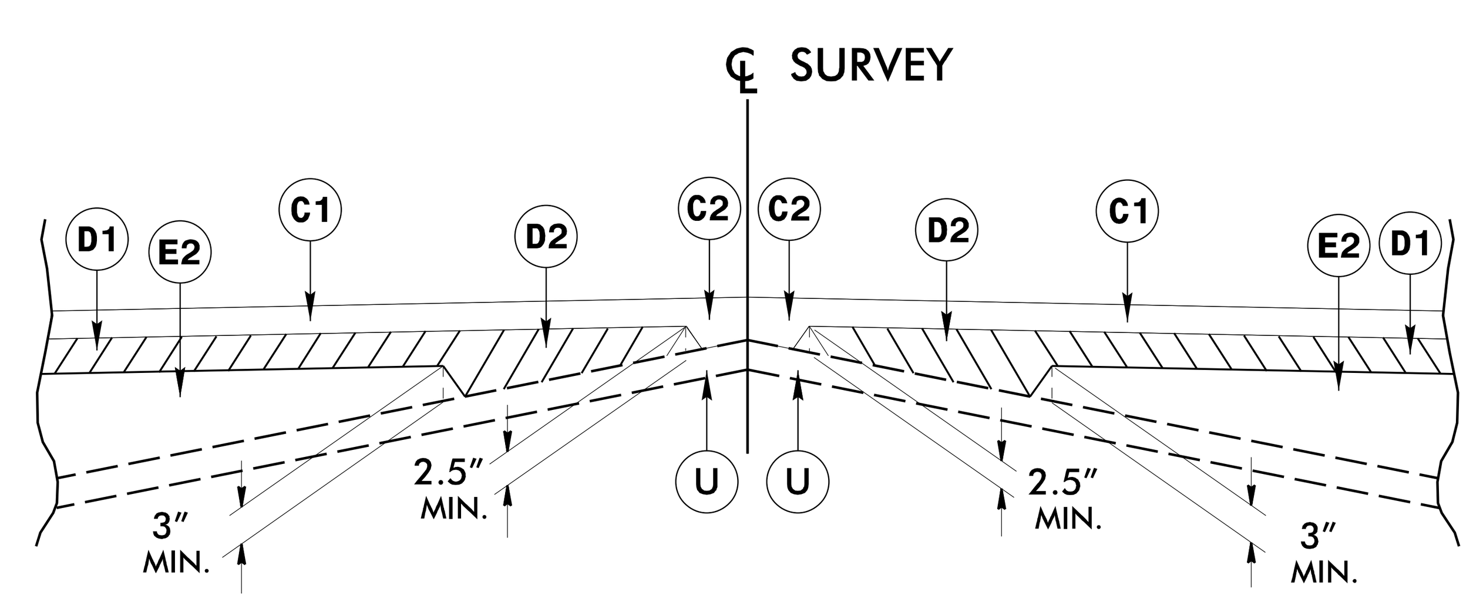
**-L- STA. 13+10.00 TO -L- STA. 13+35.00
-L- STA. 13+35.00 TO -L- STA. 14+25.00
-L- STA. 15+00.00 TO -L- STA. 15+95.00
**-L- STA. 15+95.00 TO -L- STA. 16+20.00

* ADD 3' TO SHOULDERS FOR GUARDRAIL



TYPICAL SECTION NO. 2

-L- STA. 14+25.00 TO -L- STA. 15+00.00



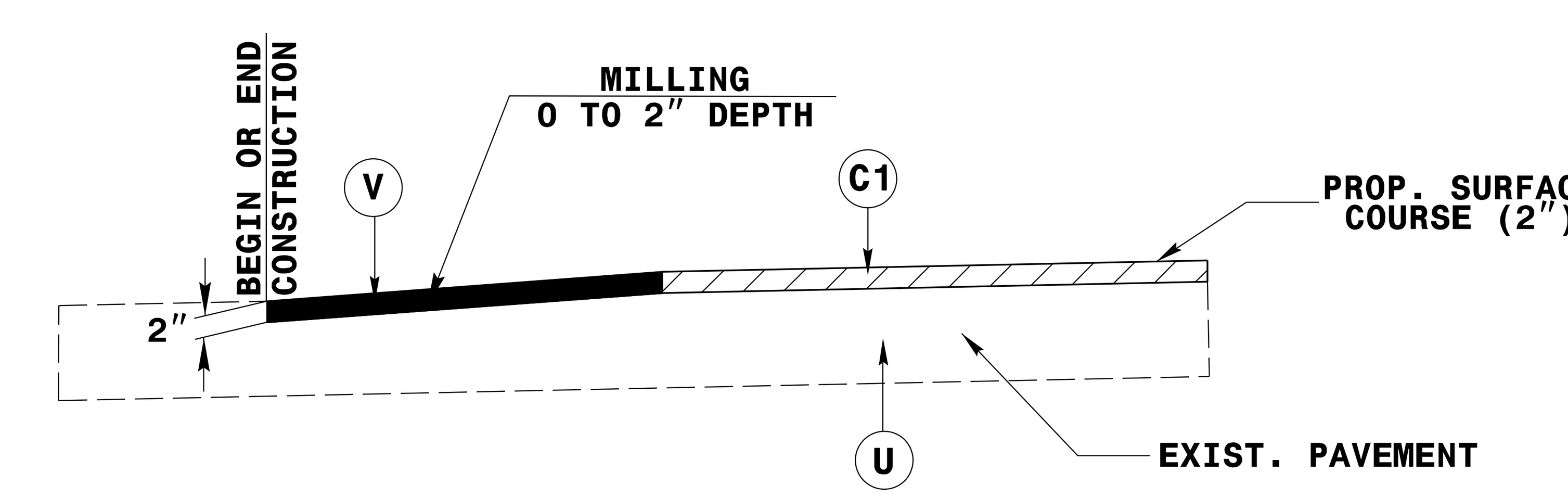
Detail Showing Method of Wedging

PAVEMENT SCHEDULE

C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
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 TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 3.0" ASPHALT CONCRETE BASE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT GREATER THAN 4.0" IN DEPTH OR LESS THAN 2.5" IN DEPTH.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT GREATER THAN 5.5" IN DEPTH OR LESS THAN 3.0" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	0"-2" VARIABLE MILLING.
W	WEDGING.

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

-L-



LINE	FROM	TO
-L-	13+10.00	13+60.00
-L-	15+70.00	16+20.00

NOTE: MIRROR FOR END OF CONSTRUCTION

REVISIONS

8/17/99

3/28/2017

12/06/07

COMPUTED BY: DWG DATE: 10/5/16
CHECKED BY: DB DATE: 10/25/16

PROJECT REFERENCE NO.	SHEET NO.
B-5763	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
SUMMARY NO. 1					
–L– 13+10.00	–L– 16+20.00	26	282	256	
TOTAL SUMMARY NO. 1		26	282	256	
SUMMARY TOTALS		26	282	256	
EST. SHOULDER MATERIAL			72	72	
PROJECT TOTALS		26	354	328	
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT				16	
CULVERT INLET/OUTLET EXCAVATION		85			
GRAND TOTAL		111	354	344	
SAY		150		400	
EST. UNDERCUT CONTINGENCY = 135 CUBIC YARDS					

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.

Note: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

"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

GUARDRAIL SUMMARY

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			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	AT-1							EA	G	NG				
–L–	13+48.00	15+85.50	LT.	237.50			14+93.38	14+46.26	4′	7′	50′	50′	1′	1′	2														
–L–	13+48.00	15+58.00	RT.	161.00	62.50		14+30.83	14+80.97	4′	7′	50′		1′		1	1													
			TOTALS	398.50	62.50										3	1													
		LESS DEDUCTION FOR ANCHORS																											
		GRAU-350 3 @ 50′ =		–150																									
		AT-1 1 @ 6.25′ =			–6.25																								
			PROJECT TOTALS	248.50	56.25										3	1													
ADDITIONAL GUARDRAIL POSTS = 5 EA.			SAY	275	62.50																								

REMOVAL OF ASPHALT PAVEMENT SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	14+25.00	14+43.73	LT/RT	44.29
–L–	14+78.71	15+00.00	LT/RT	48.07
			TOTAL:	92.36
			SAY:	100.00

3/28/2017
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PROJECT REFERENCE NO.	SHEET NO.
B-5763	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 32606 — 3/30/2017 — DocuSigned by: Benjamin R. Crawford

HYDRAULICS ENGINEER — SEAL 29474 — 3/30/2017 — DocuSigned by: David S. Webb

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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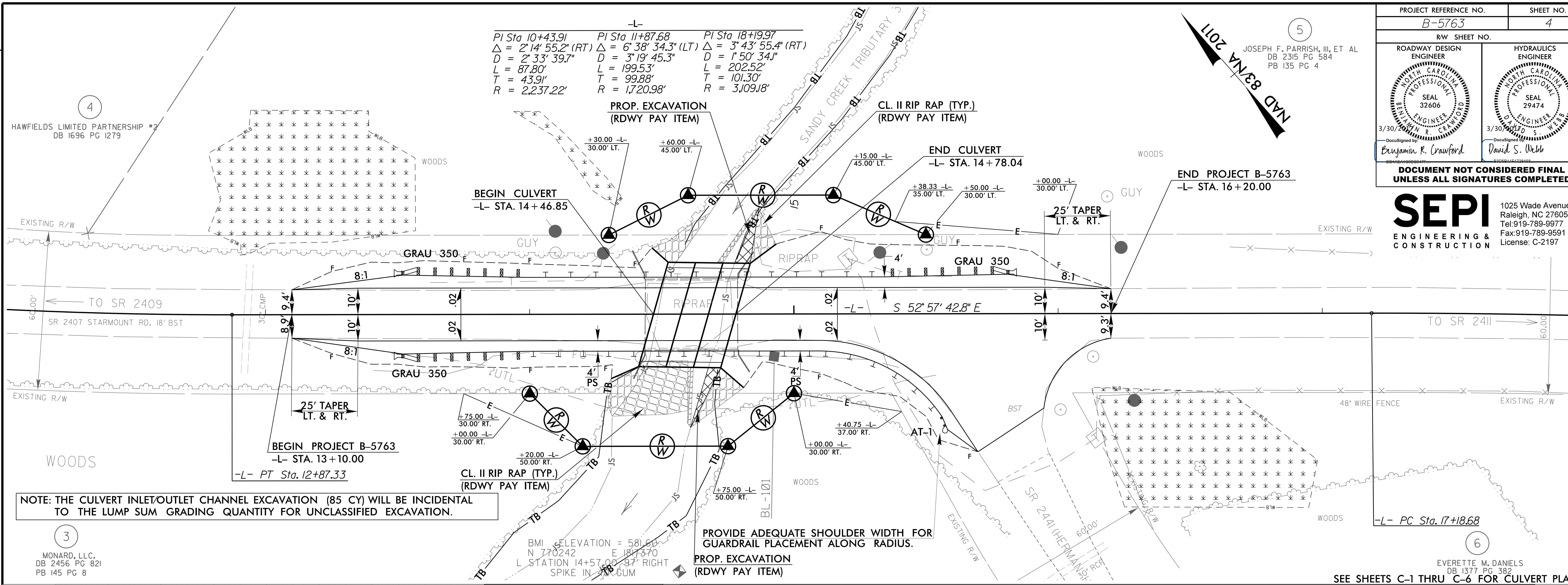
REVISIONS



NOTE: THE CULVERT INLET/OUTLET CHANNEL EXCAVATION (85 CY) WILL BE INCIDENTAL TO THE LUMP SUM GRADING QUANTITY FOR UNCLASSIFIED EXCAVATION.

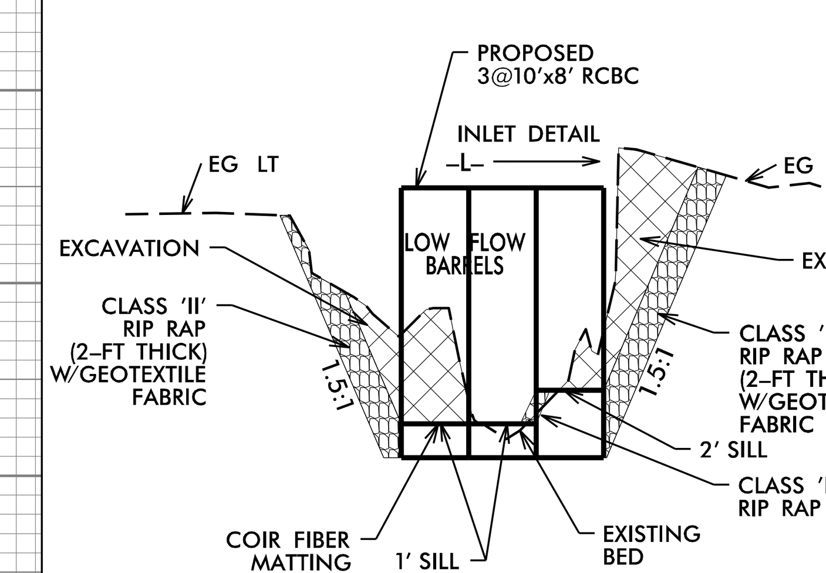
SEE SHEETS C-1 THRU C-6 FOR CULVERT PLANS

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1800	CFS
DESIGN FREQUENCY	= 10	YRS
DESIGN HW ELEVATION	= 583.30	FT
BASE DISCHARGE	= 2500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 585.37	FT
OVERTOPPING DISCHARGE	= 1900	CFS
OVERTOPPING FREQUENCY	= 10+	YRS
OVERTOPPING ELEVATION	= 583.8	FT

INLET/OUTLET CHANNEL DETAIL

UPSTREAM



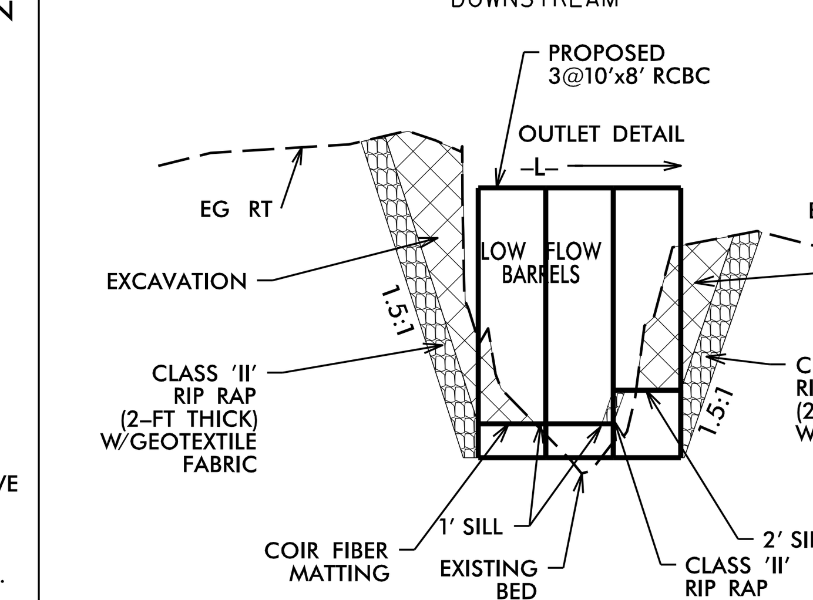
STREAM CROSS SECTION (NOT TO SCALE)

DENOTES EXCAVATION

TOTAL EST. EXCAVATION AT INLET = 35 C.Y.
TOTAL EST. CL 'II' RIP RAP AT INLET = 30 TONS
TOTAL EST. GEOTEXTILE AT INLET = 10 S.Y.

NOTE: EXCAVATE FLOODPLAIN BENCH 1.0′ ABOVE STREAM BED TO MATCH WIDTH OF CULVERT. LAY BACK BANK SLOPES TO 1.5:1. LINE SLOPES WITH CLASS 'II' RIP RAP BOULDERS AND LINE FLOODPLAIN BENCH WITH COIR FIBER MATTING.

DOWNSTREAM

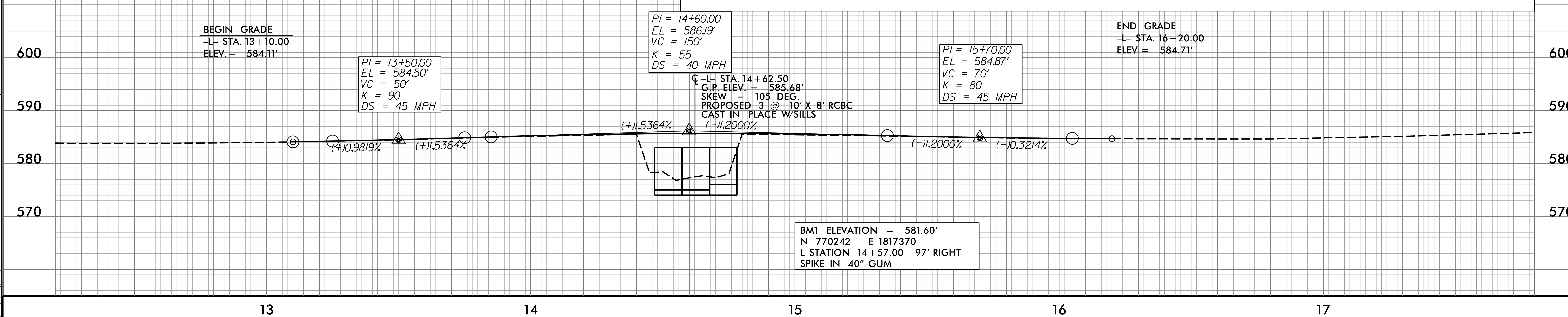


STREAM CROSS SECTION (NOT TO SCALE)

DENOTES EXCAVATION

TOTAL EST. EXCAVATION AT OUTLET = 50 C.Y.
TOTAL EST. CL 'II' RIP RAP AT OUTLET = 25 TONS
TOTAL EST. GEOTEXTILE AT OUTLET = 6 S.Y.

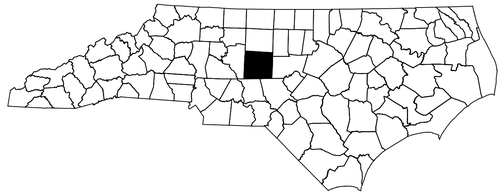
NOTE: EXCAVATE FLOODPLAIN BENCH 1.0′ ABOVE STREAM BED TO MATCH WIDTH OF CULVERT. LAY BACK BANK SLOPES TO 1.5:1. LINE SLOPES WITH CLASS 'II' RIP RAP BOULDERS AND LINE FLOODPLAIN BENCH WITH COIR FIBER MATTING.

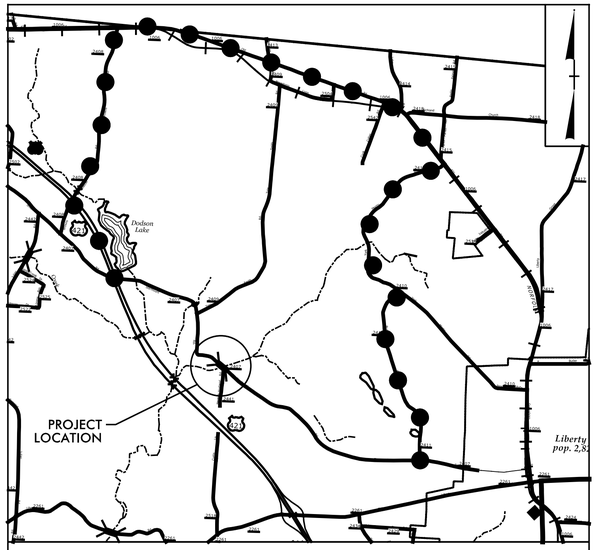


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

RANDOLPH COUNTY





VICINITY MAP

OFF-SITE DETOUR ROUTE =

LOCATION: BRIDGE NO. 129 ON STARMOUNT ROAD (SR 2407) OVER SANDY CREEK TRIBUTARY 3

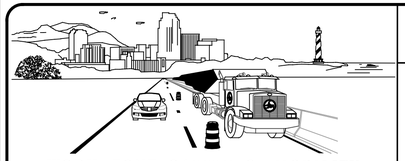
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

INDEX OF SHEETS

SHEET NO.
TMP-1

B-5763

TIP PROJECT:



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. *STATE TRAFFIC MANAGEMENT ENGINEER*

D. W. BISSETTE, P.E. *TRAFFIC CONTROL PROJECT ENGINEER*

_____ *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*

_____ *TRAFFIC CONTROL DESIGN ENGINEER*

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License: C-2197

APPROVED: DocuSigned by: Steve Miller 9FBC6C15CEEB486...

DATE: 3/28/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

10/12/2016
G:\Roadway\R0l6.00l.00_Division_8\R0l6.00l.05_B-5763\Traffic\TrafficControl\TCP\B-5763 TMP-1.dgn
Mlshak

PROJ. REFERENCE NO.	SHEET NO.
B-5763	TMP-1A

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 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES - TYPE III

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

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DATE: 3/28/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS & LEGEND

2/24/2016
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lwiles

PROJ. REFERENCE NO.	SHEET NO.
B-5763	TMP-1B

MANAGEMENT STRATEGIES

- CLOSE SR 2407 (STARMOUNT ROAD) AND DETOUR TRAFFIC OFF-SITE

- LOCAL ACCESS TO ALL RESIDENCES AND BUSINESSES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION

- PROVIDE ONE MONTH NOTICE TO THE ENGINEER, RANDOLPH COUNTY EMERGENCY SERVICES, AND RANDOLPH COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURE

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER ONE MONTH PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

B) INSTALL ADVANCE WORK ZONE WARNING SIGNS NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE.

D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PHASING

STEP 1: USING RSD 1101.03 SHEET 1 OF 9, CLOSE SR 2407 (STARMOUNT ROAD) AND DETOUR TRAFFIC OFF-SITE AS SHOWN ON TMP-3. MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN CLOSURE POINTS.

STEP 2: REMOVE THE EXISTING STRUCTURE.

STEP 3: CONSTRUCT THE PROPOSED STRUCTURE AND ROADWAY.

STEP 4: PLACE FINAL PAVEMENT MARKINGS ACCORDING TO THE PAVEMENT MARKING PLANS.

STEP 5: OPEN SR 2407 (STARMOUNT ROAD) TO TRAFFIC AND REMOVE ALL WORKZONE TRAFFIC CONTROL DEVICES.

SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
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Tel:919-789-9977
Fax:919-789-9591
License: C-2197

APPROVED: DocuSigned by: Steve Miller SFBC6C15CEEB486...

DATE: 3/28/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D MILLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION OPERATIONS PLAN

2/24/2016
G:\Roadway\R0I6.00I.00_Division_8\R0I6.00I.05_B-5763\Traffic\TrafficControl\TCP\B-5763 TMP-IB.dgn
jwiles

PROJ. REFERENCE NO.	SHEET NO.
B-5763	TMP-2

SIGN NUMBER: SP-1
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 3′-6″
HEIGHT: 2′-0″
TOTAL AREA: 7.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.47″
WIDTH: 0.63″
RADII: 1.5″

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

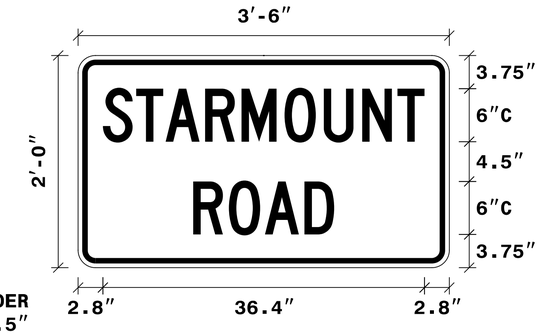
SYMBOL	X	Y	WID	HT

MAT′L: 0.080″ (2.0 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

DESIGN BY: R DRAYTON
CHECKED BY: S MILLER
Feb 24, 2016
PROJECT ID: B-5763
DIV: 8



BORDER
R=1.5″
TH=0.63″
IN=0.47″

Spacing Factor is .75

LETTER POSITIONS

Letter spacings are to start of next letter

Series/Size
Text Length

		S	T	A	R	M	O	U	N	T																C 2000
	2.8	3.8	3.3	4.5	4.1	4.9	4.4	4.4	4	3.1	2.8															36.4
		R	O	A	D																					C 2000
	13	4	4.1	4.5	3.4	13																				15.9

FILENAME: B-5763 Sign Design

NORTH CAROLINA D.O.T. SIGN DETAIL

SEPI ENGINEERING & CONSTRUCTION
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Raleigh, NC 27605
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Fax:919-789-9591
License: C-2197

APPROVED: DocuSigned by: Steve Miller 9FBC6C15CEEB486...
DATE: 3/28/2017
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

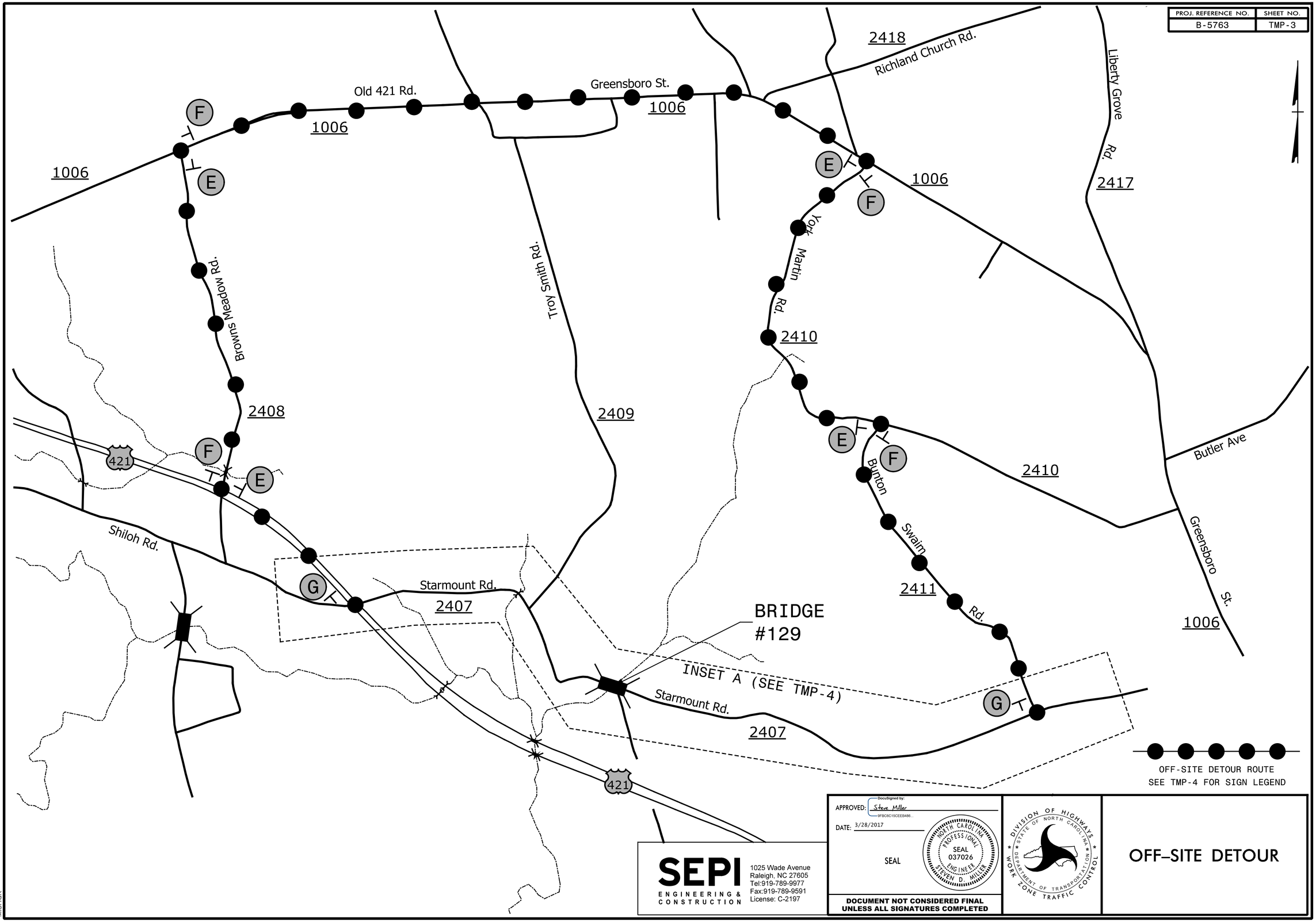
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SIGN DESIGN

2/24/2016
G:\Roadway\R016.001.00_Division_8\R016.001.05_B-5763\Traffic\TrafficControl\TCP\B-5763 TMP-2.dgn
jwiles

PROJ. REFERENCE NO.	SHEET NO.
B-5763	TMP-3



OFF-SITE DETOUR ROUTE
SEE TMP-4 FOR SIGN LEGEND

APPROVED: DocuSigned by: Steve Miller SFBC6C15CEEB486...

DATE: 3/28/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

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

OFF-SITE DETOUR

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License: C-2197

10/12/2016
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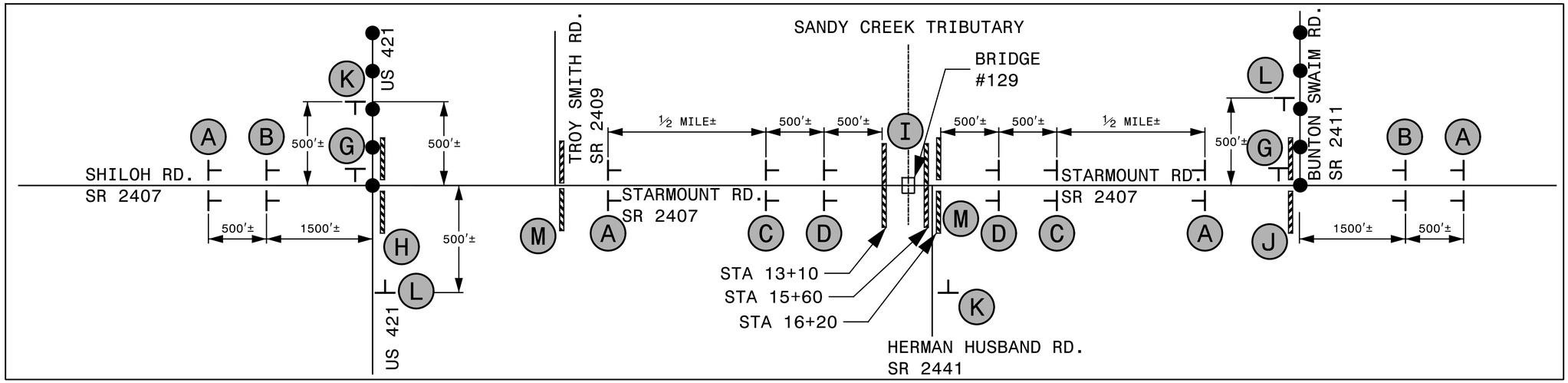
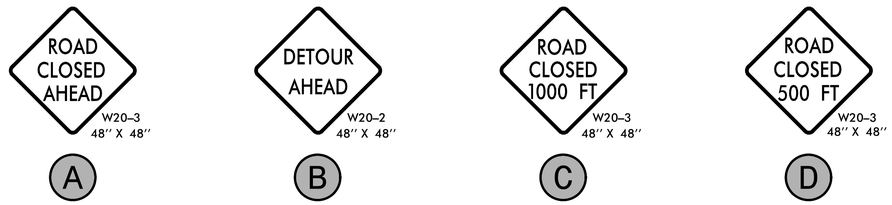
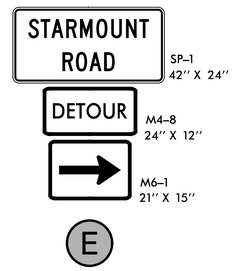
Mishak

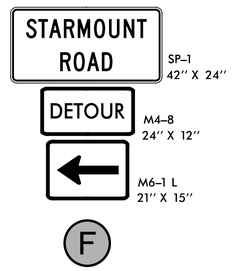
PROJ. REFERENCE NO.	SHEET NO.
B-5763	TMP-4

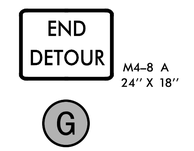
INSET A

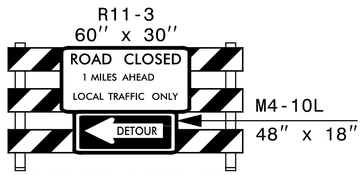


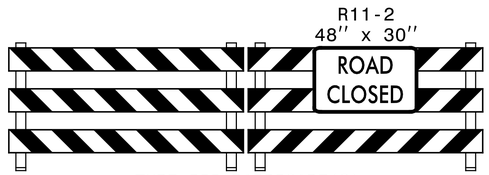


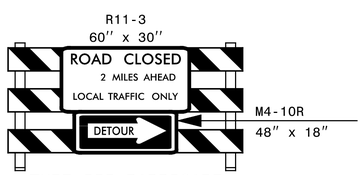












SEPI
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License: C-2197

APPROVED: DocuSigned by: Steve Miller 9FBC6C15CEEB486...

DATE: 3/28/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROAD CLOSURE

10/25/2016
G:\Roadway\R016.001.00_Division_8\R016.001.05_B-5763\Traffic\TrafficControl\TCP\B-5763 TMP-4.dgn
Mishak

T.I.P.: B-5763

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
RANDOLPH COUNTY

TIP NO.	SHEET NO.
B-5763	PMP-1

APPROVED: DocuSigned by: Steve Miller 0F3C6C15CEEB486...

DATE: 3/28/2017

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NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

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INDEX

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
STARMOUNT RD.	THERMOPLASTIC	NONE

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
	THERMOPLASTIC (4", 90 MIL)
TA	WHITE EDGELINE
	THERMOPLASTIC (4", 120 MIL)
TI	YELLOW DOUBLE CENTER

N.C.D.O.T. SIGNING AND DELINEATION UNIT

RENEE ROACH, PE — SIGNING AND DELINEATION REGIONAL ENGINEER

_____ — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

PLAN PREPARED BY: SEPI Engineering

STEVE MILLER, P.E. — PROJECT MANAGER

MARIO ISHAK — TRAFFIC ENGINEER

SEPI ENGINEERING & CONSTRUCTION
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Fax:919-789-9591
License: C-2197

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mlisk

TIP NO.	SHEET NO.
B-5763	PMP-2

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DATE: 3/28/2017

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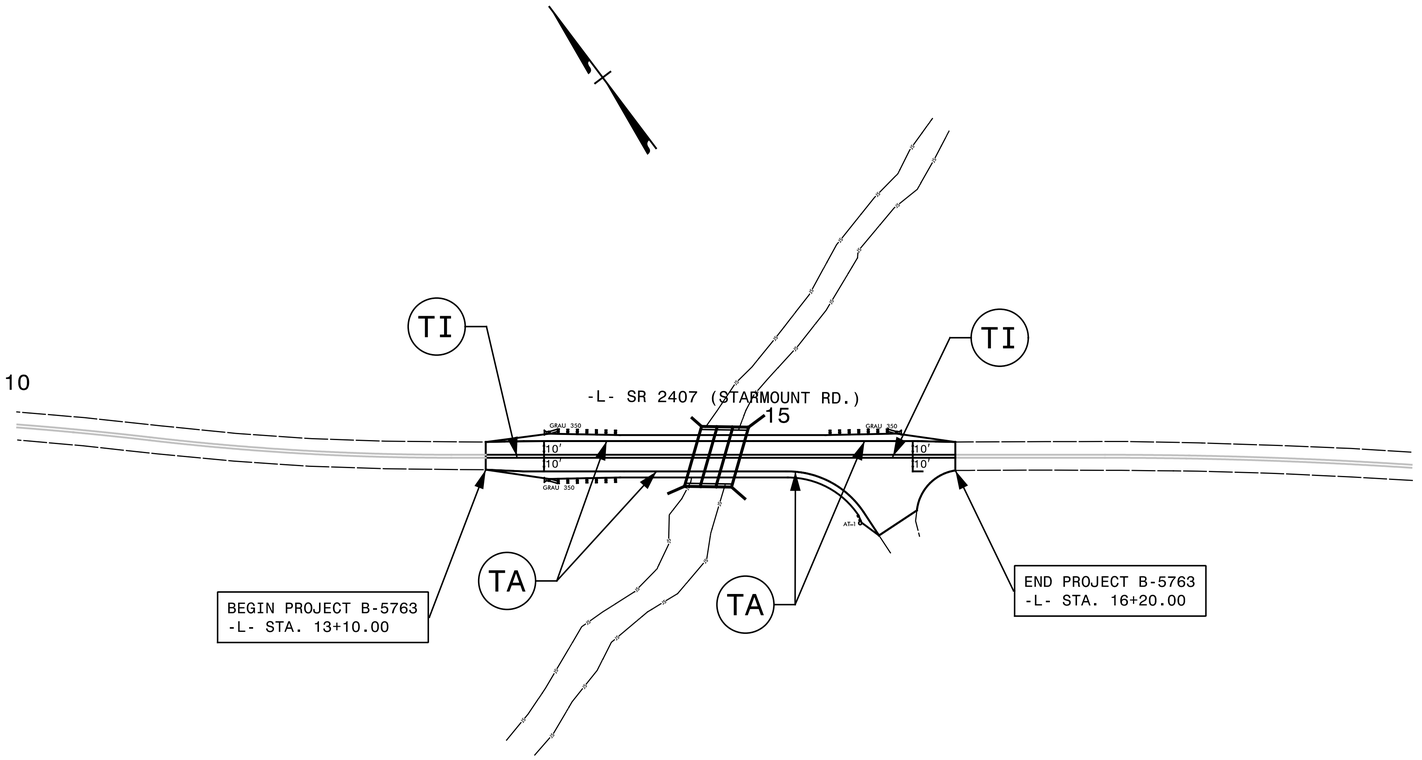

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Fax:919-789-9591
License: C-2197

PAVEMENT MARKING DETAIL

10/28/2016
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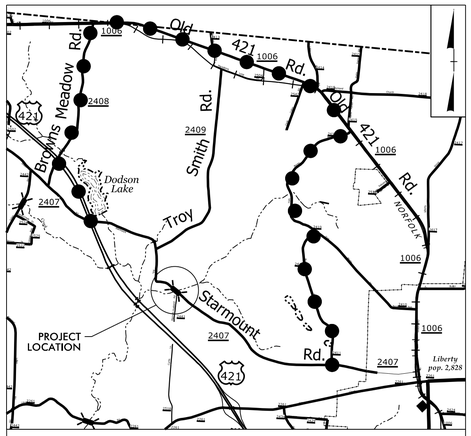
09/08/99

TIP PROJECT: B–5763

CONTRACT: DH00234



VICINITY MAP

OFF–SITE DETOUR ROUTE =

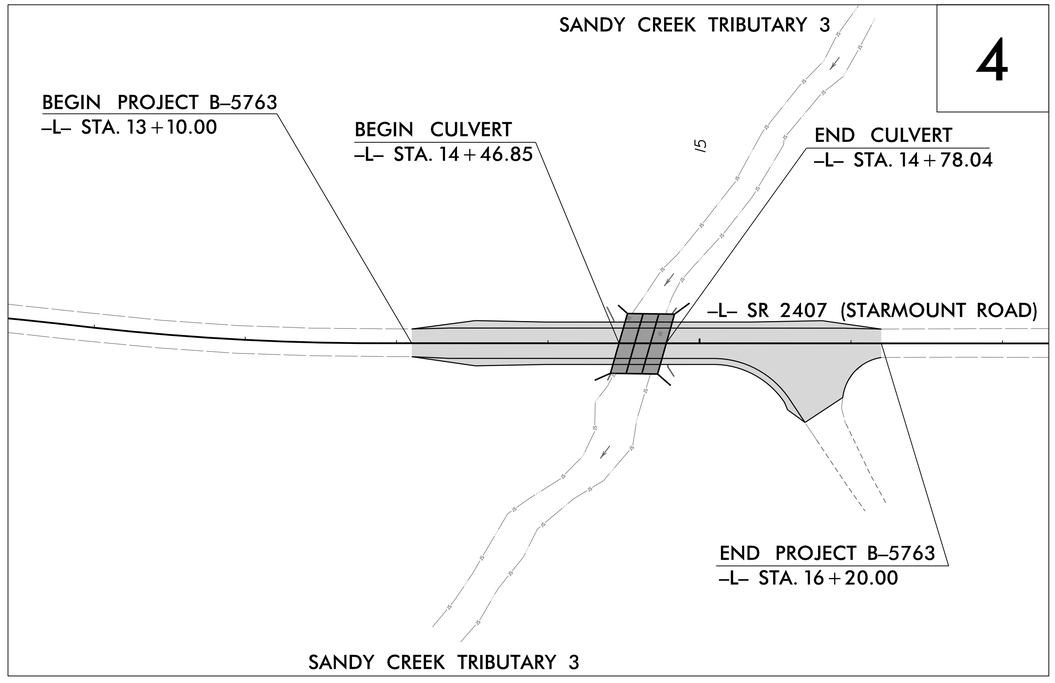
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

RANDOLPH COUNTY

LOCATION: BRIDGE NO. 129 OVER SANDY CREEK TRIBUTARY 3 ON SR 2407 (STARMOUNT ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & CULVERT



NA 2011 NAD 83

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–5763	1	5

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45719.1.1		PE
45719.1.1		R/W & UTILITIES
45719.3.1		CONST.

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

GRAPHIC SCALE

0 30 60

PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:

SEPI
ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License: C-2197

Designed by:

ELIZABETH G. DINATALE, PE 3480
NAME *LEVEL III CERTIFICATION NO.*

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

JEFF WALSTON, PE

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

3/29/2017
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USER:rhowell

PROJECT REFERENCE NO.	SHEET NO.
B-5763	EC-2

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1025 Wade Avenue
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Fax:919-789-9591
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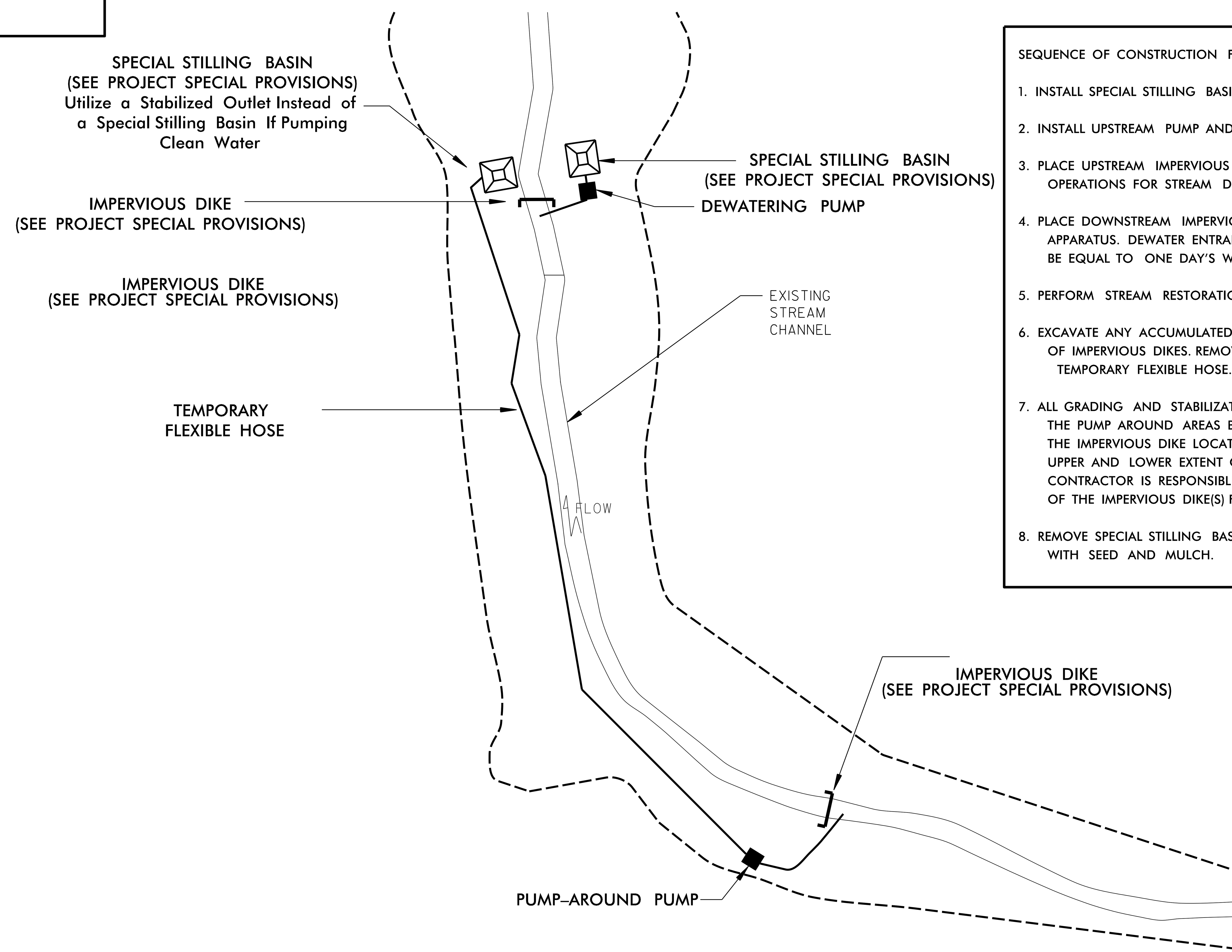
8/17/99

REVISIONS

EXAMPLE OF PUMP–AROUND OPERATION

NOTES:
1) All excavation shall be performed in only dry or isolated sections of channel.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) All graded areas shall be stabilized within 24 hours.
4) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
5) Pumps and hoses shall be of sufficient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. PERFORM STREAM RESTORATION WORK IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. ALL GRADING AND STABILIZATION MUST BE COMPLETED IN ONE DAY WITHIN THE PUMP AROUND AREAS BETWEEN THE IMPERVIOUS DIKES. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKE(S) FOR EACH DAY'S WORK.
8. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

PROJECT REFERENCE NO.	SHEET NO.
B-5763	EC-3

SEPI ENGINEERING & CONSTRUCTION
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

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REVISIONS

NOTES:

1. CULVERT CONSTRUCTION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.

2. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.

3. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.

4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.

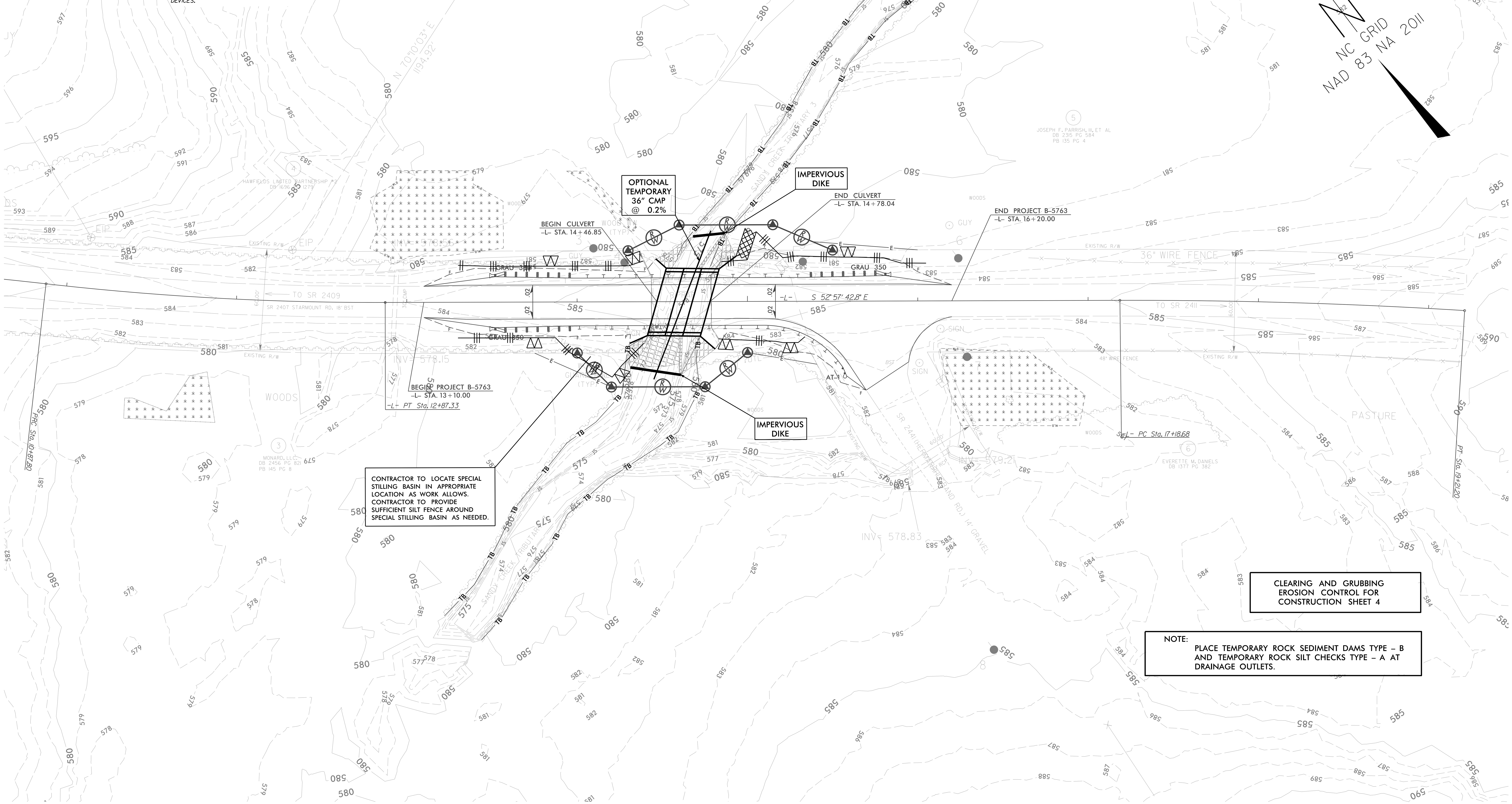
5. PUMPS AND HOSES SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA.

6. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM. FOR DE-WATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH SPECIAL STILLING BASIN.

CONSTRUCTION SEQUENCE

1. SET UP OFFSITE DETOUR AND RE-ROUTE TRAFFIC PER APPROVED TRAFFIC CONTROL PLANS.
2. INSTALL PERIMETER EROSION CONTROL MEASURES INCLUDING SPECIAL STILLING BASIN, DEWATERING AND BYPASS PUMPS IF USED.
3. INSTALL IMPERVIOUS DIKES AND TEMPORARY PIPE OR BEGIN BYPASS PUMPING OF CREEK
4. DEWATER WORK AREA THROUGH SPECIAL STILLING BASIN
5. REMOVE EXISTING BRIDGE & WINGWALLS
6. INSTALL CULVERT AND CONNECT HEADWALLS
7. BACKFILL CULVERT, STABILIZE DISTURBED AREAS.
8. COMPLETE ROADWAY
9. ENSURE DISTURBED LAND IS STABILIZED.
10. REMOVE TEMPORARY EROSION CONTROL DEVICES.

GRAPHIC SCALE



CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

PROJECT REFERENCE NO.	SHEET NO.
B-5763	EC-5/CONST.4

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REVISIONS

NOTES:

1.CULVERT CONSTRUCTION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.

2.IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.

3.ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.

4.MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK.THIS INCLUDES POLYETHYLENE SHEETING,DIVERSION PIPES,PUMPS AND HOSES.

5.PUMPS AND HOSES SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA.

6.THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM.FOR DE-WATERING OF CULVERT SITES,THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH SPECIAL STILLING BASIN.

CONSTRUCTION SEQUENCE

1.SET UP OFFSITE DETOUR AND RE-ROUTE TRAFFIC PER APPROVED TRAFFIC CONTROL PLANS.

2.INSTALL PERIMETER EROSION CONTROL MEASURES INCLUDING SPECIAL STILLING BASIN,DEWATERING AND BYPASS PUMPS IF USED.

3.INSTALL IMPERVIOUS DIKES AND TEMPORAY PIPE OR BEGIN BYPASS PUMPING OF CREEK

4.DEWATER WORK AREA THROUGH SPECIAL STILLING BASIN

5.REMOVE EXISTING BRIDGE & WINGWALLS

6.INSTALL CULVERT AND CONNECT HEADWALLS

7.BACKFILL CULVERT,STABILIZE DISTURBED AREAS.

8.COMPLETE ROADWAY

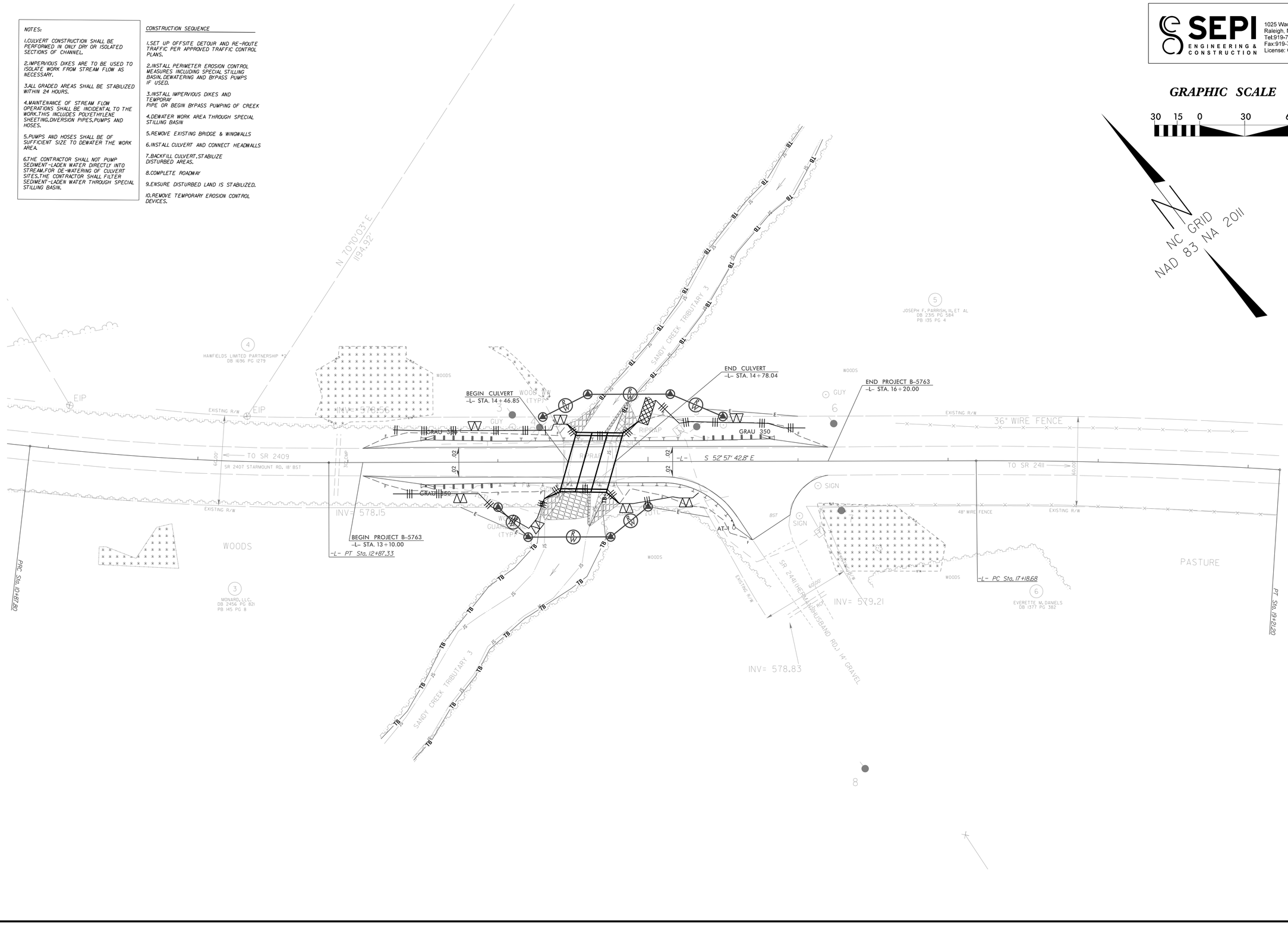
9.ENSURE DISTURBED LAND IS STABILIZED.

10.REMOVE TEMPORARY EROSION CONTROL DEVICES.

GRAPHIC SCALE

30 15 0 30 60

NC GRID
NAD 83 NA 2011



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PROJECT: B–5763

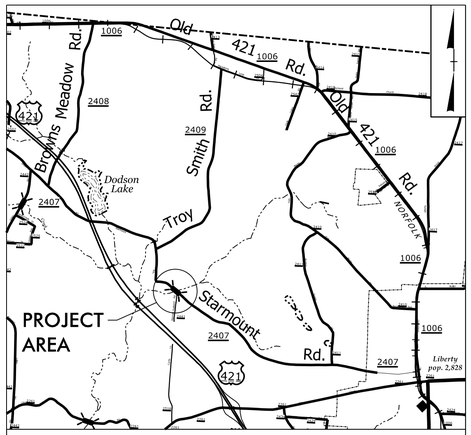
T.I.P. NO.	SHEET NO.
B–5763	UO–1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY BY OTHERS PLANS
RANDOLPH COUNTY

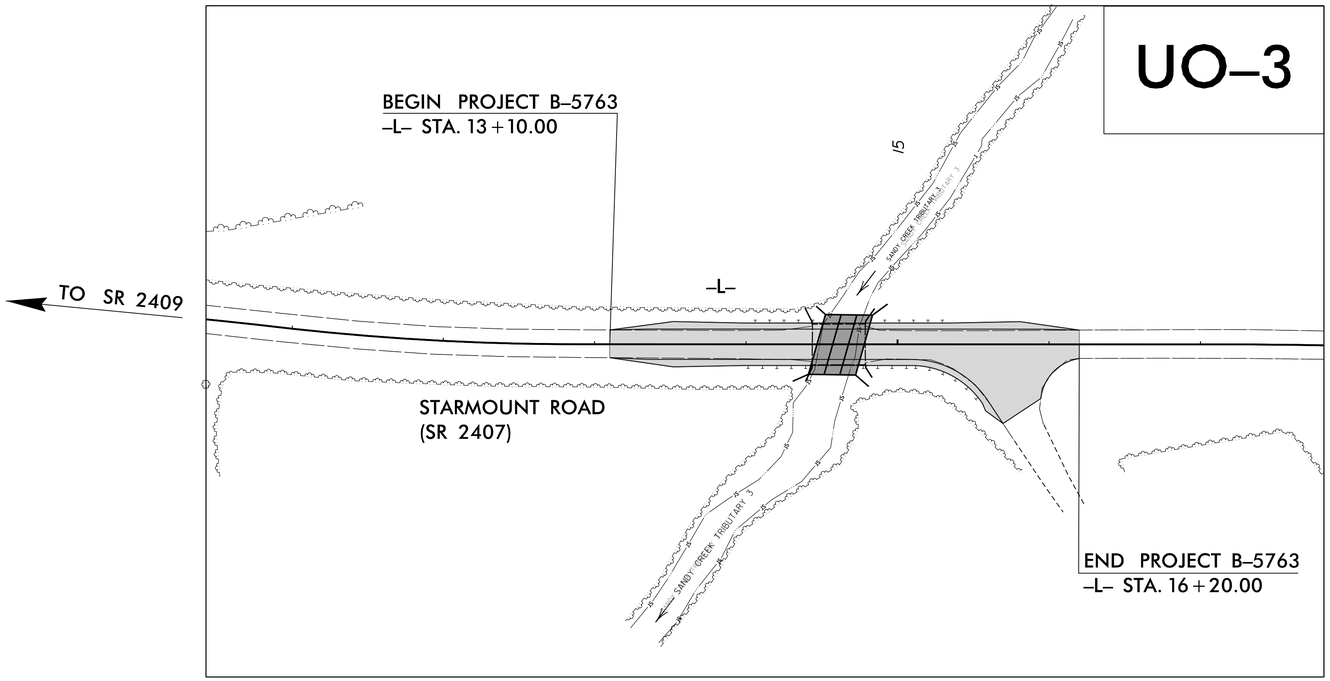
LOCATION: BRIDGE NO. 129 OVER SANDY CREEK TRIBUTARY 3 ON SR 2407 (STARMOUNT ROAD)

TYPE OF WORK: ELECTRIC POWER DISTRIBUTION, TELEPHONE, CABLE TV



VICINITY MAP

NA 2011
NAD 83



GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UO–1	*TITLE SHEET*
UO–2	*UTILITY SYMBOLOGY SHEET*
UC–3	*UTILITY BY OTHERS SHEET*

UTILITY OWNERS ON PROJECT

(1) DUKE ENERGY – POWER (DISTRIBUTION)

(2) RANDOLPH COMMUNICATIONS – COMMUNICATIONS

(3) AT&T – COMMUNICATIONS

SEPI ENGINEERING & CONSTRUCTION
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Fax:919-789-9591
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Tim Welch, PE — *DIVISION 8 BRIDGE MANAGER*
Jamie Yow — *DIVISION 8 UTILITY COORDINATOR*
Kelly Hayes, PE, PLS — *UTILITIES COORDINATION CONSULTANT*

3/29/2017
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USER:tharris

5/14/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License: C-2197

PROJECT REFERENCE NO.	SHEET NO.
B-5763	U0-2

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole — W
- Power Manhole — P
- Telephone Manhole — T
- Sanitary Sewer Manhole — S
- Hand Hole for Cable — HH
- Power Transformer
- Telephone Pedestal — T
- CATV Pedestal — C
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

REV: 2/1/2012

3/28/2017
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USER:fneal


PROJECT REFERENCE NO. B-5763
SHEET NO. UO-3
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
UTILITIES BY OTHERS
SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue Raleigh, NC 27605 Tel:919-789-9977 Fax:919-789-9591 License: C-2197
NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS
EXISTING 10-FIBER AND 200-PAIR COPPER RANDOLPH COMMUNICATIONS (TO BE ABANDONED)
NEW DUKE ENERGY AND AT&T AERIAL LINE
EXISTING AT&T POLE (TO BE REMOVED)
EXISTING DUKE ENERGY POLE (TO BE REMOVED)
NEW DUKE ENERGY POLE
EXISTING AT & T (TO BE RELOCATED TO NEW DUKE ENERGY POLE)
BEGIN CULVERT -L- STA. 14+46.85
END CULVERT -L- STA. 14+78.04
END PROJECT B-5763 -L- STA. 16+20.00
25' TAPER LT. & RT.
GRAU 350
8:1
TO SR 2409
SR 2407 STARMOUNT RD. 18' BST
-L- S 52° 57' 42.8" E
SR 2441 (HERMAN HUSBAND RD.)
TO SR 2411
HAWFIELDS LIMITED PARTNERSHIP #2 DB 1696 PG 1279
JOSEPH F. PARRISH, III, ET AL DB 2315 PG 584 PB 135 PG 4
MONARD, LLC. DB 2456 PG 821 PB 145 PG 8
EVERETTE M. DANIELS DB 1377 PG 382
SANDY CREEK TRIBUTARY
WOODS
EXISTING R/W
48' WIRE FENCE
MATCHLINE -L- STA. 17+98.30
EXISTING 144-FIBER (TO REMAIN) AND 200-PAIR COPPER (TO BE ABANDONED) RANDOLPH COMMUNICATIONS
BEGIN PROJECT B-5763 -L- STA. 13+10.00
-L- PT Sta. 12+87.33
-L- PC Sta. 17+18.68
EXISTING 144 - FIBER RANDOLPH COMMUNICATIONS (TO REMAIN)
EXISTING 200-PAIR COPPER RANDOLPH COMMUNICATIONS (TO BE ABANDONED)
EXISTING DUKE ENERGY AERIAL LINE (TO BE REMOVED)
EXISTING 144-FIBER RANDOLPH COMMUNICATIONS (TO REMAIN)
EXISTING DUKE ENERGY POLE (TO REMAIN)
BMI ELEVATION = 581.60 N 770242 E 1817370 L STATION 14+57.00 97' RIGHT SPIKE IN 40" GUM
NOTE: CONTRACTOR TO USE CAUTION WHEN EXCAVATING AND GUARDRAIL INSTALLATION NEAR AND/OR OVER THE EXISTING RANDOLPH COMMUNICATIONS U/G LINES AND/OR THE EXISTING AT&T U/G LINES.
BM #1 Sta. 9+16.00 OFF 82' RT ELEV. 581.60' R/R SPIKE IN 40" GUM
-L- Sta. 14+56.54 OFF 97.37' LT
INSET
NEW DUKE ENERGY POLE
MATCHLINE -L- STA. 1798.30
D557AF
#2 AAAC (A,N) 111'
PASTURE
30' GUY LEAD VERT
END GRADE -L- STA. 16+20.00 ELEV.= 584.71'
BEGIN GRADE -L- STA. 13+10.00 ELEV.= 584.11'
PI = 13+50.00 EL = 584.50' VC = 50' K = 90 DS = 45 MPH
PI = 14+60.00 EL = 586.19' VC = 150' K = 55 DS = 40 MPH
PI = 15+70.00 EL = 584.87' VC = 70' K = 80 DS = 45 MPH
℄ -L- STA. 14+62.50 G.P. ELEV. = 585.68' SKEW = 105 DEG. PROPOSED 3 @ 10' X 8' RCBC CAST IN PLACE W/SILLS
(+)0.9819%
(+)1.5364%
(-)1.2000%
(-)0.3214%
600
590
580
570
13
14
15
16
17
REVISIONS
3/29/2017 B-5763_Ut_psh_U03.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

PROJ. REFERENCE NO.	SHEET NO.
B-5763	X-1

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

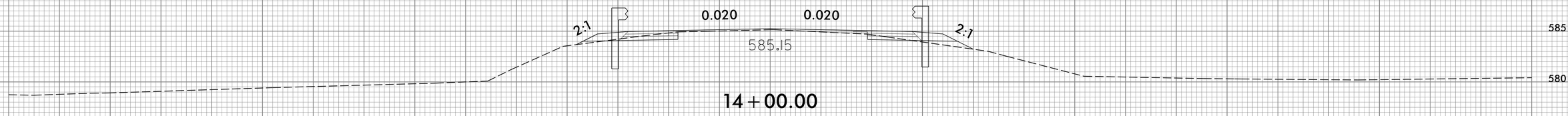
Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+10.00	0	0
13+25.00	1	0
13+50.00	3	1
13+75.00	4	1
14+00.00	4	2
14+25.00	4	1
14+46.85	0	41
14+50.00.	0	12
14+75.00.	0	86
14+78.04.	0	10
15+00.00	2	35
15+25.00	3	12
15+50.00	1	17
15+75.00	1	11
16+00.00	2	6
16+20.00	1	0

6/23/16

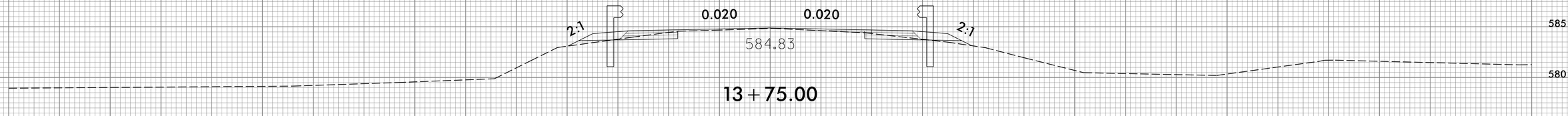
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5763	X-2

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

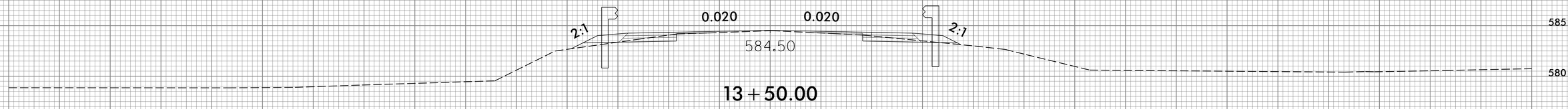
585
580



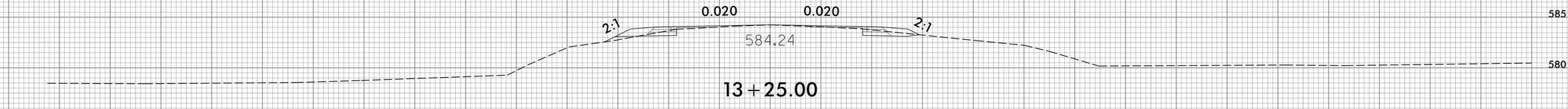
14+00.00



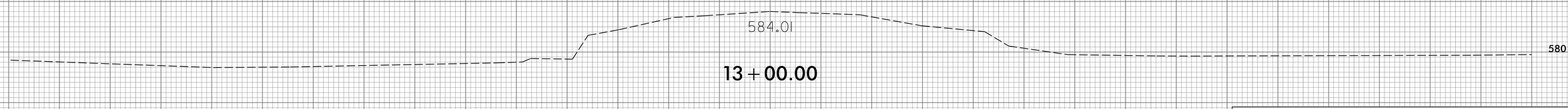
13+75.00



13+50.00



13+25.00



13+00.00

–L–

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

3/28/2017
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5763	X-3

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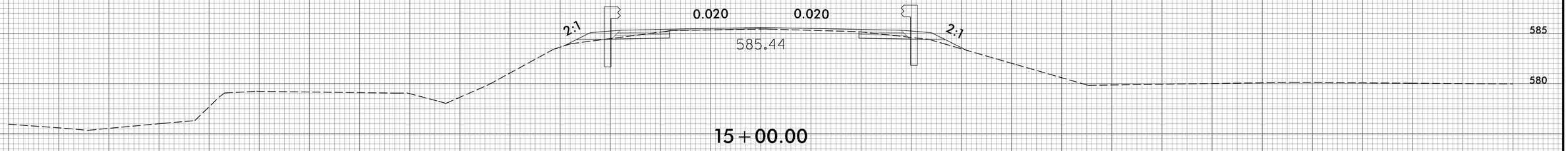
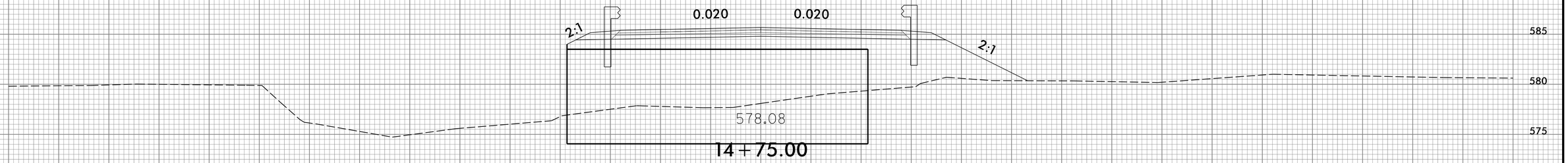
585
580



15+00.00

585
580
575



14+75.00

585
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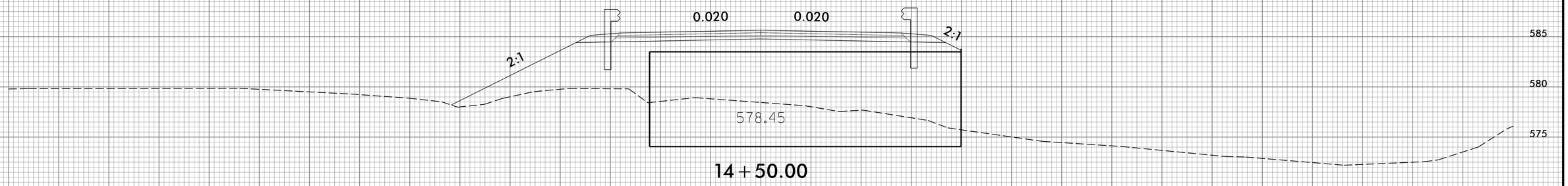
575



14+50.00

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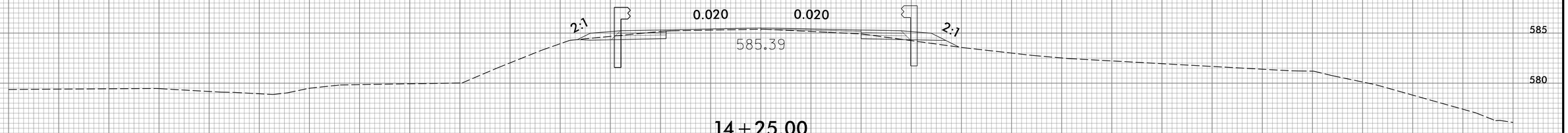

14+25.00

–L–

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

3/28/2017
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User:Rdgardner

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5763	X-4

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

584.69

16+25.00

580 580

585 585

0.020 0.020 TIE TO DRIVE

2:1

584.77

16+00.00

585 585

580 580

0.020 0.020 TIE TO DRIVE

2:1

584.88

15+75.00

585 585

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0.020 0.020 TIE TO DRIVE

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585.09

15+50.00

585 585

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2:1 2:1

585.29

15+25.00

585 585

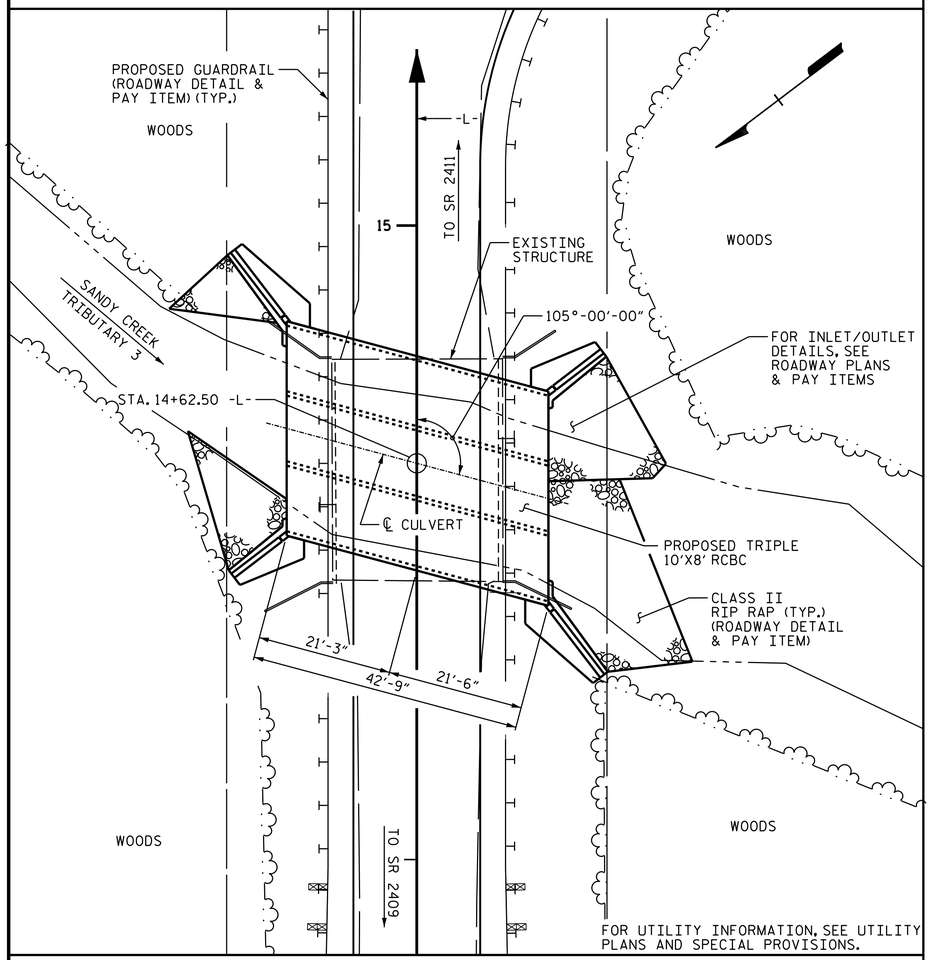
580 580

–L–

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

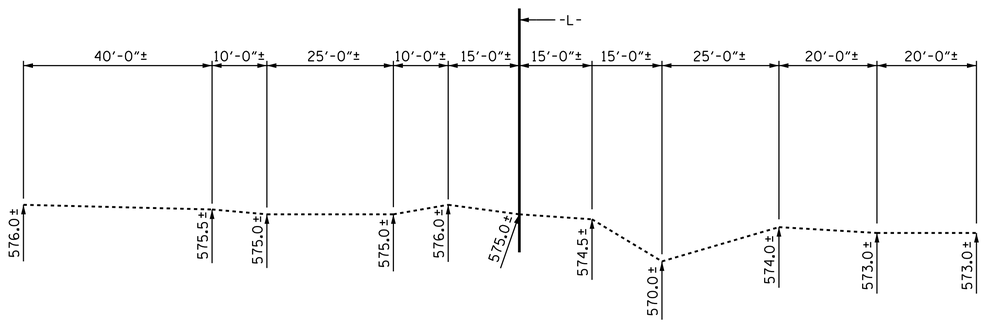
3/28/2017
...\Roadway\XSC\B-5763_Rdy_xpl.dgn
User:RobertDner

BM #1: RR SPIKE IN 40" GUM TREE STA. 14+56.54 -L-, 97.37' RT., ELEV. 581.60



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH



PROFILE ALONG ℄ CULVERT

ROADWAY DATA	
GRADE POINT EL. @ STA 14+62.50 -L-	= 585.68
BED EL. @ STA. 14+62.50 -L-	= 574.05
ROADWAY FILL SLOPES	= 2:1

HYDRAULIC DATA	
DESIGN DISCHARGE	= 1800 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 10 YRS.
DESIGN HIGH WATER ELEVATION	= 583.3
DRAINAGE AREA	= 5.4 SQ. MI.
BASE DISCHARGE (Q100)	= 2500 C.F.S.
BASE HIGH WATER ELEVATION	= 585.37

OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 1900 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 10+ YRS.
OVERTOPPING FLOOD ELEVATION	= 584.7

TOTAL STRUCTURE QUANTITIES		
REMOVAL OF EXISTING STRUCTURE	LUMP SUM	
CULVERT EXCAVATION	LUMP SUM	
FOUNDATION CONDITIONING MATERIAL	200	TONS
CLASS A CONCRETE		
BARRELS @ 2.869 C.Y./FT.	122.6	C.Y.
SILLS	3.1	C.Y.
WINGS, ETC.	29.5	C.Y.
TOTAL	155.2	C.Y.
REINFORCING STEEL		
BARRELS	17,252	LBS.
WINGS, ETC.	1,547	LBS.
TOTAL	18,799	LBS.
ASBESTOS ASSESSMENT	LUMP SUM	

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

DESIGN FILL = 3.14 FEET.

FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.

3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS, CURTAIN WALLS AND FLOOR SLAB INCLUDING 4"OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT, FOLLOWED BY ROOF SLAB AND HEADWALLS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF THE CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES WILL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL ABOVE THE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE."

THE ENTIRE COST OF WORK REQUIRED TO PLACE THE EXCAVATED MATERIAL AS SHOWN ON THE PLANS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID FOR CULVERT EXCAVATION.

THE ENTIRE COST OF WORK REQUIRED TO CONSTRUCT THE SILLS SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE EXISTING STRUCTURE CONSISTING OF SPANS: 1 @ 35'-6" WITH 24'-3" CLEAR ROADWAY WIDTH AND TIMBER DECK ON STEEL GIRDERS ON TIMBER CAP & PILES WITH TIMBER BULKHEADS AT THE END BENTS AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

NATIVE BED MATERIAL SHALL BE PLACED BETWEEN THE SILLS IN THE LOW FLOW CULVERT. NATIVE MATERIALS CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN, AT THE PROJECT SITE, DURING CULVERT CONSTRUCTION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL. IF RIP RAP IS USED, NATIVE MATERIAL SHOULD BE PLACED ON TOP OF FILL TO FACILITATE ANIMAL PASSAGE. THE TOP SURFACE OF THE NATURAL STREAM BED MATERIAL SHALL BE PLACED AND LEVELED TO A FLAT SURFACE TO ALLOW FOR ANIMAL PASSAGE. THE HIGH FLOW BARRELS SHALL BE BACK FILLED WITH NATIVE MATERIAL AND/OR RIP RAP. NATIVE MATERIAL AND RIP RAP ARE SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS. BED MATERIALS: SAND, SMALL TO MEDIUM ROCKS. PAYMENT FOR THE PLACEMENT OF NATURAL STREAM BED MATERIAL SHALL BE INCLUDED IN THE COST OF CULVERT EXCAVATION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON THE WING SHEETS.

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

F.A. PROJECT NO. BRZ-2407(001)

PROJECT NO. B-5763

RANDOLPH COUNTY

STATION: 14+62.50 -L-

SHEET 1 OF 6 REPLACES BRIDGE NO. 129

NORTH CAROLINA PROFESSIONAL SEAL 039349 ENGINEER JEREMY P. MCCARTHA

DocuSigned by: Jeremy McCartha 10/21/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE 10 FT. X 8 FT. CONCRETE BOX CULVERT

105° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			6

STD. NO. CB223A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : J.S. SMITH DATE : 8/23/16
CHECKED BY : J.P. MCCARTHA DATE : 8/26/16
DESIGN ENGINEER OF RECORD: J.S. SMITH DATE : 8/31/16

20-OCT-2016 14:43
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LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERT

LEVEL		VEHICLE	WEIGHT (W) (TONS)	⟨#⟩ CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE									COMMENT NUMBER
							LIVE-LOAD FACTORS (γ_{LL})	MOMENT				SHEAR				
								RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	⟨1⟩	**1.08**	--	1.75	**1.08**	1	TOP SLAB	**4.53**	1.19	1	TOP SLAB	9.64	
		HL-93 (OPERATING)	N/A		1.40	--	1.35	1.40	1	TOP SLAB	4.53	1.54	1	TOP SLAB	9.64	
		HS-20 (INVENTORY)	36.000	⟨2⟩	**1.18**	42.49	1.75	**1.18**	1	TOP SLAB	**4.53**	1.28	1	BOTTOM SLAB	9.79	
		HS-20 (OPERATING)	36.000		1.53	55.08	1.35	1.53	1	TOP SLAB	4.53	1.66	1	BOTTOM SLAB	9.79	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.15	28.96	1.40	2.15	1	TOP SLAB	4.80	2.58	1	TOP SLAB	9.64	
		SNGARBS2	20.000		2.01	40.21	1.40	2.01	1	TOP SLAB	4.80	2.41	1	TOP SLAB	9.64	
		SNAGRIS2	22.000		2.15	47.20	1.40	2.15	1	TOP SLAB	4.80	2.57	1	TOP SLAB	9.64	
		SNCOTTS3	27.250		1.35	36.77	1.40	1.35	1	TOP SLAB	4.53	1.49	1	TOP SLAB	9.64	
		SNAGGRS4	34.925		1.66	57.89	1.40	1.70	1	TOP SLAB	4.80	1.66	1	BOTTOM SLAB	9.79	
		SNS5A	35.550		1.59	56.57	1.40	1.59	1	TOP SLAB	4.80	1.63	1	BOTTOM SLAB	9.79	
		SNS6A	39.950		1.45	57.95	1.40	1.59	1	TOP SLAB	4.80	1.45	1	BOTTOM SLAB	9.79	
		SNS7B	42.000		1.40	58.64	1.40	1.66	1	TOP SLAB	4.80	1.40	1	BOTTOM SLAB	9.79	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.76	58.20	1.40	2.15	1	TOP SLAB	4.80	1.76	1	BOTTOM SLAB	9.79	
		TNT4A	33.075		1.61	53.09	1.40	1.61	1	TOP SLAB	4.53	1.77	1	TOP SLAB	9.64	
		TNT6A	41.600		1.46	60.87	1.40	1.63	1	TOP SLAB	4.53	1.46	1	BOTTOM SLAB	9.79	
		TNT7A	42.000		1.47	61.70	1.40	1.65	1	TOP SLAB	4.53	1.47	1	BOTTOM SLAB	9.79	
		TNT7B	42.000		1.47	61.53	1.40	1.59	1	TOP SLAB	4.80	1.47	1	BOTTOM SLAB	9.79	
		TNAGRIT4	43.000		1.37	59.01	1.40	1.53	1	TOP SLAB	4.53	1.37	1	BOTTOM SLAB	9.79	
		TNAGT5A	45.000	⟨3⟩	**1.29**	57.99	1.40	1.58	1	TOP SLAB	4.53	**1.29**	1	BOTTOM SLAB	**9.79**	
		TNAGT5B	45.000		1.29	58.01	1.40	1.60	1	TOP SLAB	4.53	1.29	1	BOTTOM SLAB	9.79	

LOAD FACTORS

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTE

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

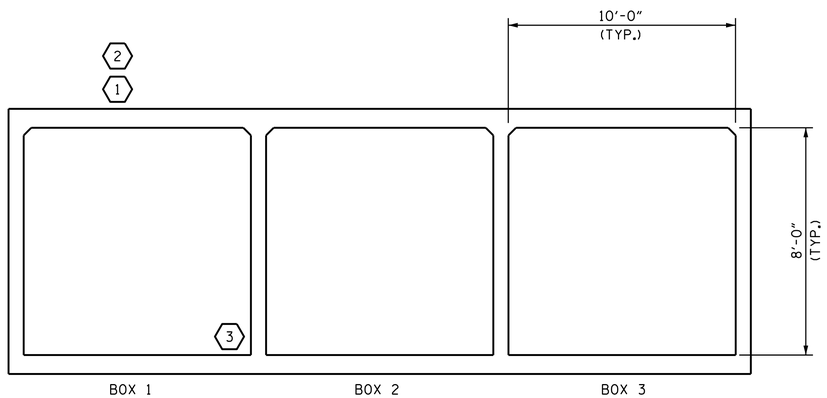
⟨#⟩ CONTROLLING LOAD RATING

⟨1⟩ DESIGN LOAD RATING (HL-93)

⟨2⟩ DESIGN LOAD RATING (HS-20)

⟨3⟩ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY

(LOOKING DOWNSTREAM)

PROJECT NO. B-5763

RANDOLPH COUNTY

STATION: 14+62.50 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 039349 ENGINEER JEREMY P. McCARTHA

DocuSigned by: Jeremy McCartha 10/21/2016

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1			3			TOTAL SHEETS
2			4			6

STD. NO. LRFR5

ASSEMBLED BY : J.S. SMITH		DATE : 8/24/16
CHECKED BY : J.P. MCCARTHA		DATE : 8/26/16
DESIGN ENGINEER OF RECORD : J.S. SMITH		DATE : 8/31/16
DRAWN BY : WMC 7/11	REV. 10/1/11	MAA/GM
CHECKED BY : GM 7/11		

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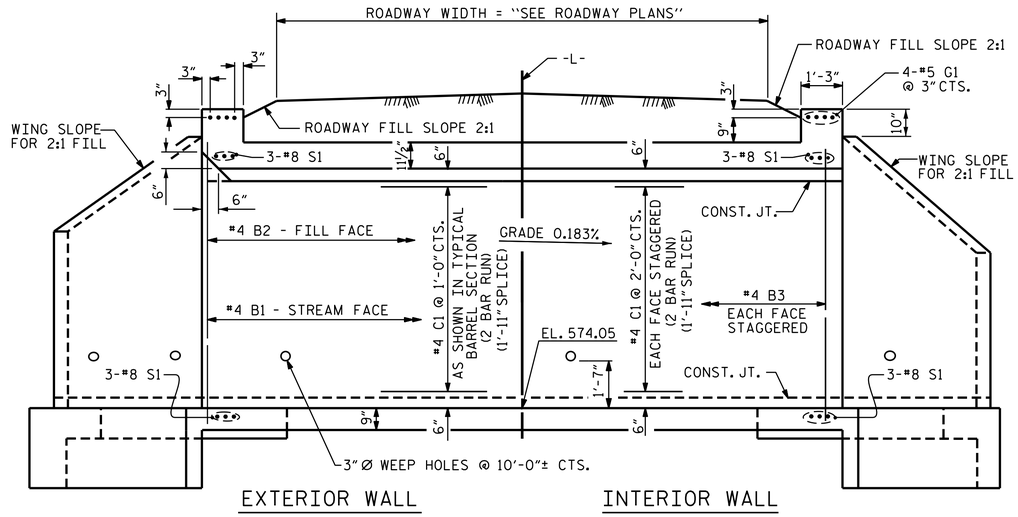
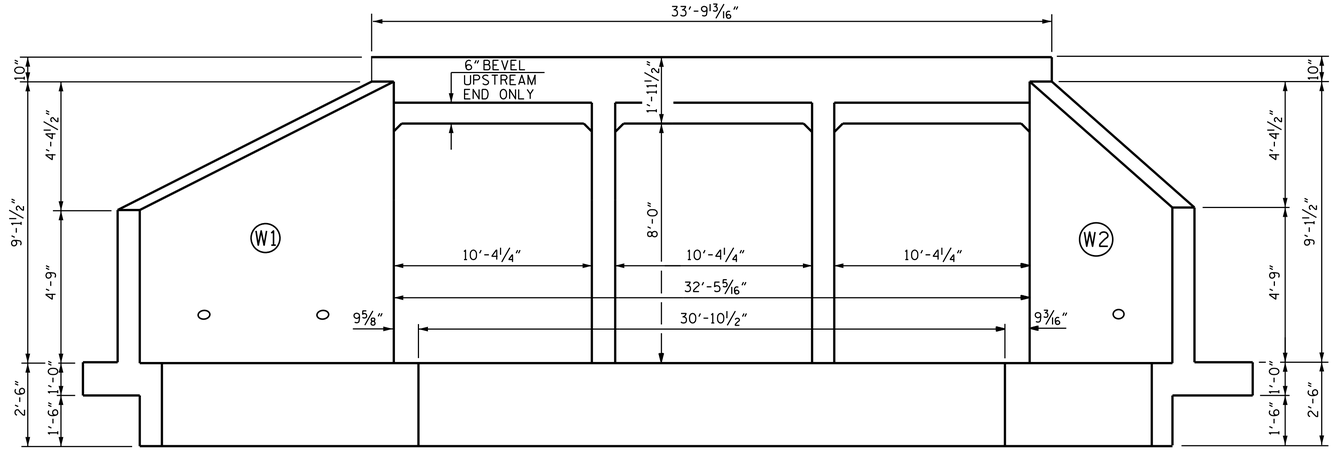
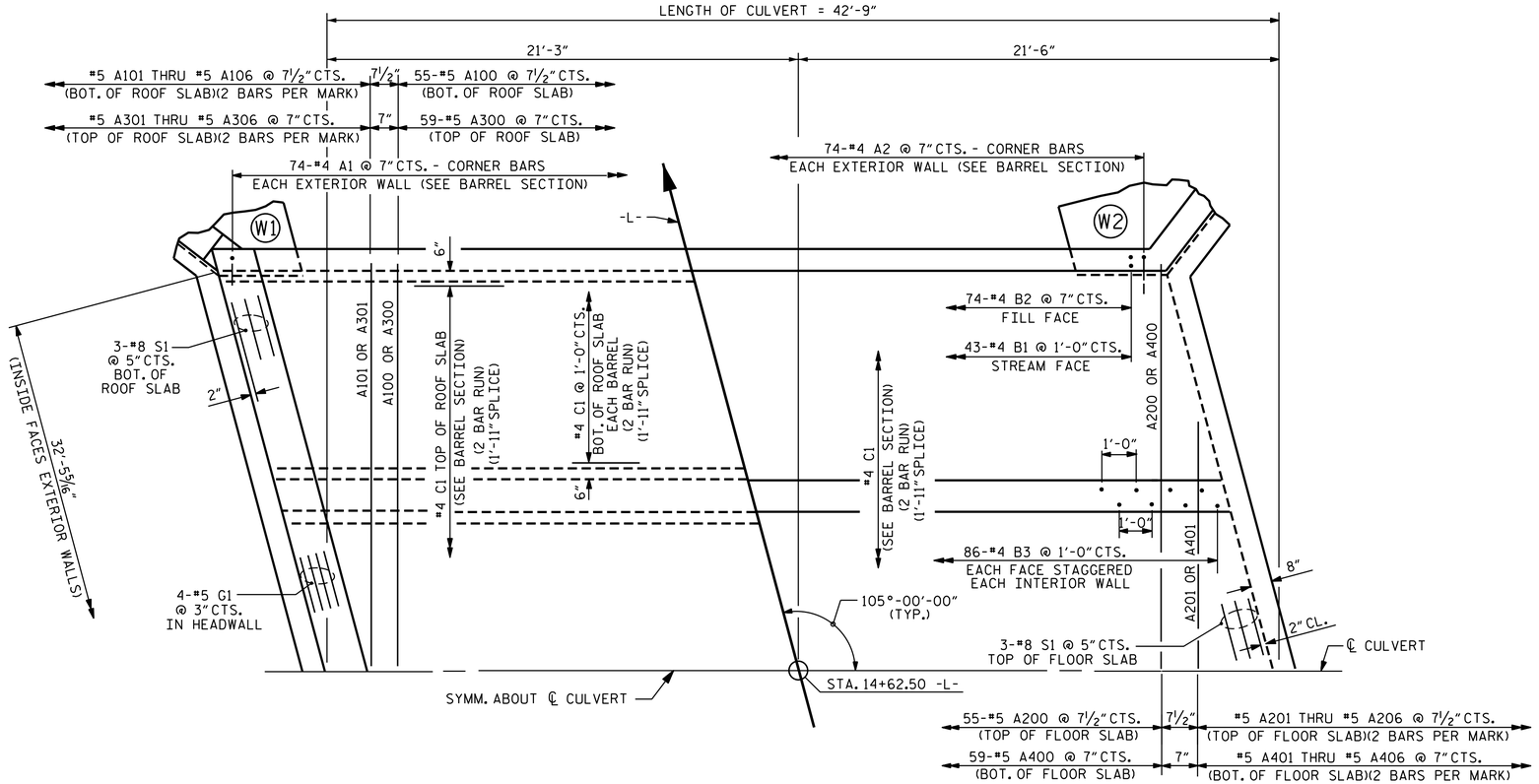


CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW



PART PLAN - ROOF SLAB

PART PLAN - FLOOR SLAB

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. B-5763

RANDOLPH COUNTY

STATION: 14+62.50 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE 10 FT. X 8 FT. CONCRETE BOX CULVERT 105° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 039349 ENGINEER JEREMY P. MCCARTHA

DocuSigned by: Jeremy McCartha F2E1A1195C0D3476...
10/21/2016

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2			4			6

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DESIGN ENGINEER OF RECORD: J.S. SMITH DATE : 8/31/16

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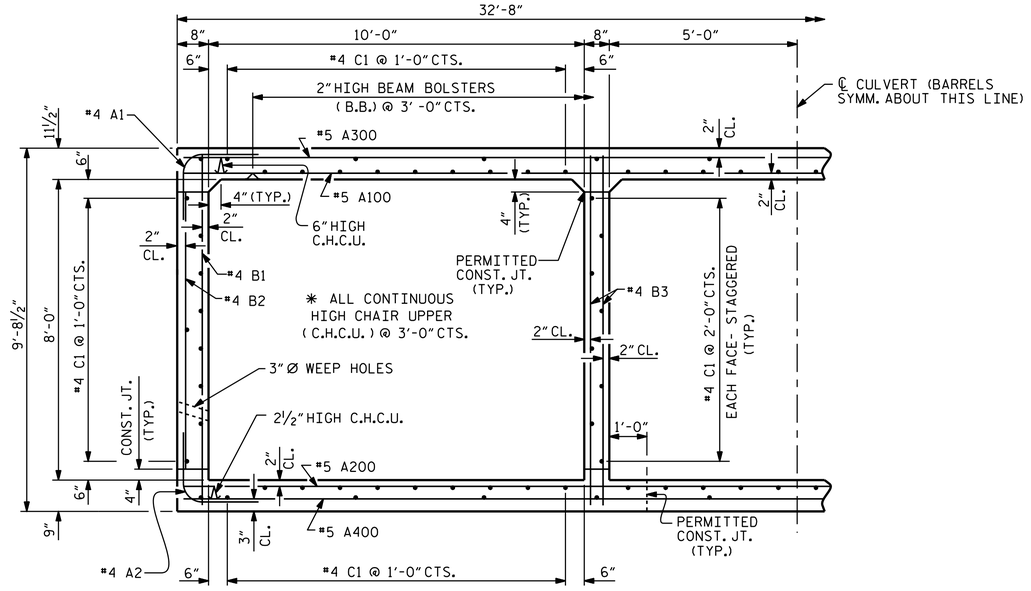
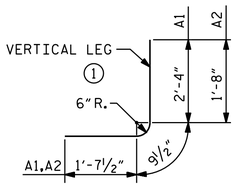


RIGHT ANGLE SECTION OF BARREL

THERE ARE 114 C1 BARS IN SECTION OF BARREL.

BAR TYPE



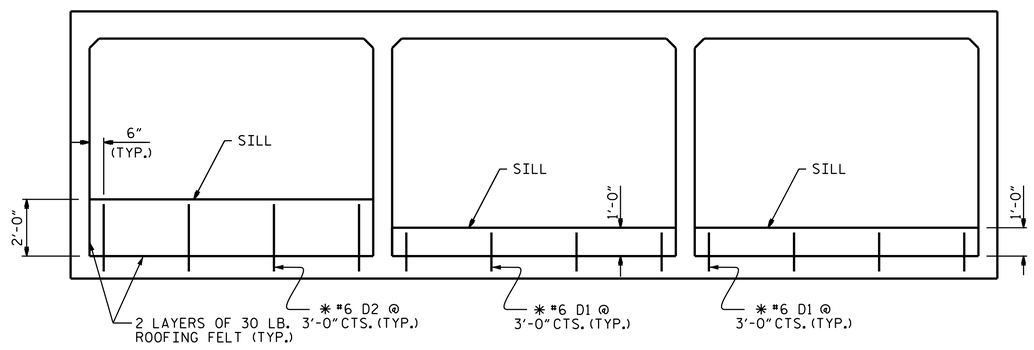
ALL BAR DIMENSIONS ARE OUT TO OUT.

SPLICE CHART

BAR	SIZE	SPLICE LENGTH
A200	#5	1'-9"
A400	#5	1'-9"
B1	#4	1'-5"
B3	#4	1'-5"
C1	#4	1'-11"

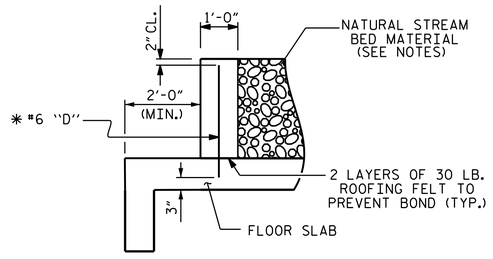
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	148	#4	1	4'-9"	470
A2	148	#4	1	4'-1"	404
A100	55	#5	STR	32'-3"	1850
A101	4	#5	STR	27'-2"	113
A102	4	#5	STR	22'-6"	94
A103	4	#5	STR	17'-10"	74
A104	4	#5	STR	13'-2"	55
A105	4	#5	STR	8'-6"	35
A106	4	#5	STR	3'-10"	16
A200	55	#5	STR	32'-3"	1850
A201	4	#5	STR	27'-2"	113
A202	4	#5	STR	22'-6"	94
A203	4	#5	STR	17'-10"	74
A204	4	#5	STR	13'-2"	55
A205	4	#5	STR	8'-6"	35
A206	4	#5	STR	3'-10"	16
A300	59	#5	STR	32'-3"	1985
A301	4	#5	STR	27'-6"	115
A302	4	#5	STR	23'-1"	96
A303	4	#5	STR	18'-9"	78
A304	4	#5	STR	14'-5"	60
A305	4	#5	STR	10'-1"	42
A306	4	#5	STR	5'-8"	24
A400	59	#5	STR	32'-3"	1985
A401	4	#5	STR	27'-6"	115
A402	4	#5	STR	23'-1"	96
A403	4	#5	STR	18'-9"	78
A404	4	#5	STR	14'-5"	60
A405	4	#5	STR	10'-1"	42
A406	4	#5	STR	5'-8"	24
B1	86	#4	STR	9'-2"	527
B2	148	#4	STR	7'-4"	725
B3	172	#4	STR	9'-2"	1053
C1	228	#4	STR	22'-3"	3389
G1	8	#5	STR	33'-5"	279
S1	12	#8	STR	33'-5"	1071
D1	16	#6	STR	1'-4"	32
D2	8	#6	STR	2'-4"	28
REINFORCING STEEL				LBS.	17,252
CLASS A CONCRETE					
BARRELS:				C.Y.	122.6
SILLS:				C.Y.	3.1



ELEVATION

(LOOKING DOWNSTREAM)



SECTION THROUGH SILL

✱ DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED

SILL DETAILS

SILLS AT INLET AND OUTLET

PROJECT NO. B-5763

RANDOLPH COUNTY

STATION: 14+62.50 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE 10 FT. X 8 FT. CONCRETE BOX CULVERT

105° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 039349 ENGINEER JEREMY P. MCCARTHA

DocuSigned by: Jeremy McCartha F2E41B9CDD3476...
10/21/2016

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			6

DRAWN BY : J.S. SMITH DATE : 8/24/16
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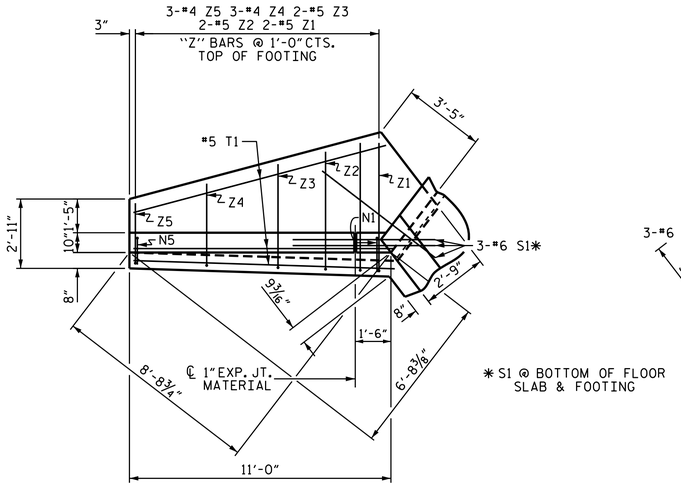
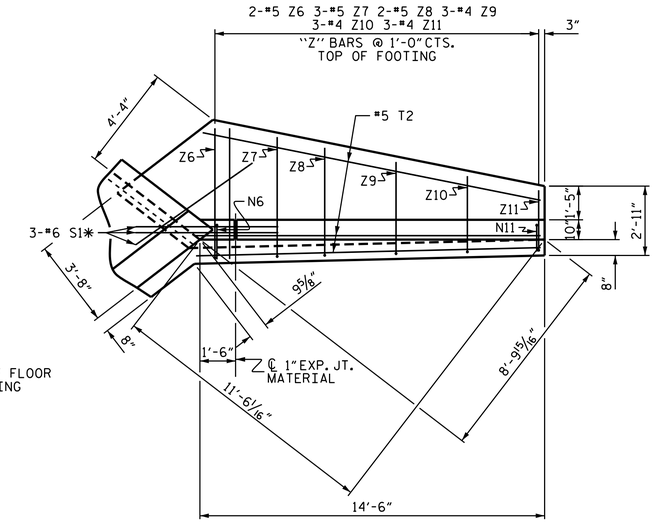
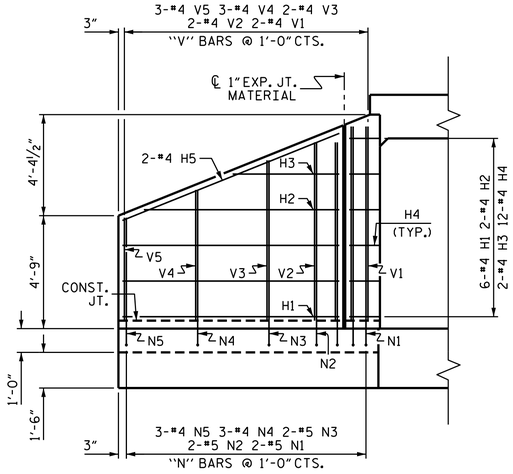


* S1 @ BOTTOM OF FLOOR SLAB & FOOTING

PLAN W2



PLAN W1



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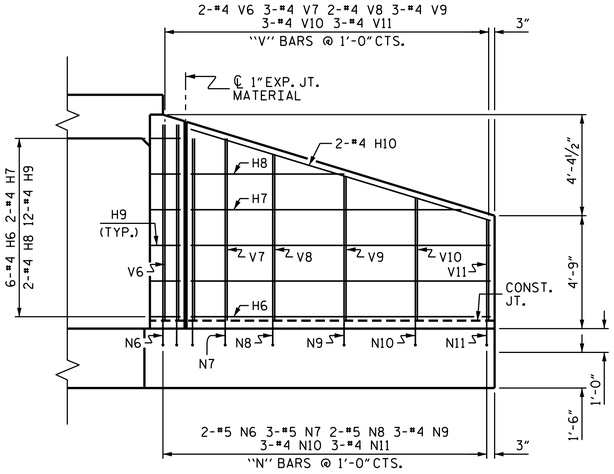

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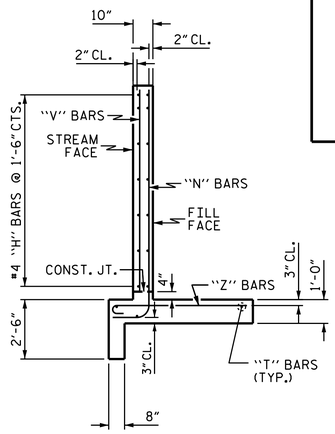
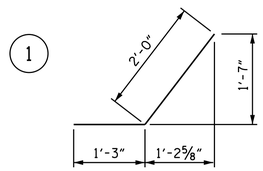
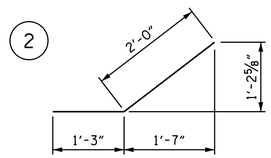
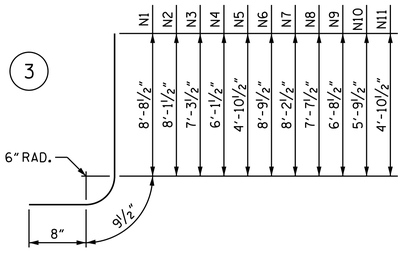


TYPICAL WING SECTION

BAR TYPES







Z1	5'-5" 7"
Z2	5'-0" 7"
Z3	4'-5" 7"
Z4	3'-6" 6"
Z5	2'-7" 6"
Z6	5'-6" 7"
Z7	5'-1" 7"
Z8	4'-7" 7"
Z9	3'-11" 6"
Z10	3'-3" 6"
Z11	2'-7" 6"

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ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	9'-1"	73
H2	4	#4	STR	8'-2"	22
H3	4	#4	STR	4'-5"	12
H4	24	#4	1	3'-3"	52
H5	4	#4	STR	9'-10"	26
H6	12	#4	STR	12'-7"	101
H7	4	#4	STR	11'-4"	30
H8	4	#4	STR	6'-5"	17
H9	24	#4	2	3'-3"	52
H10	4	#4	STR	13'-2"	35
N1	4	#5	3	10'-2"	42
N2	4	#5	3	9'-7"	40
N3	4	#5	3	8'-9"	37
N4	6	#4	3	7'-7"	30
N5	6	#4	3	6'-4"	25
N6	4	#5	3	10'-3"	43
N7	6	#5	3	9'-8"	60
N8	4	#5	3	9'-1"	38
N9	6	#4	3	8'-2"	33
N10	6	#4	3	7'-3"	29
N11	6	#4	3	6'-4"	25
S1	12	#6	STR	6'-0"	108
T1	6	#5	STR	11'-0"	69
T2	6	#5	STR	14'-6"	91
V1	4	#4	STR	8'-2"	22
V2	4	#4	STR	7'-6"	20
V3	4	#4	STR	6'-9"	18
V4	6	#4	STR	5'-6"	22
V5	6	#4	STR	4'-4"	17
V6	4	#4	STR	8'-3"	22
V7	6	#4	STR	7'-8"	31
V8	4	#4	STR	7'-0"	19
V9	6	#4	STR	6'-1"	24
V10	6	#4	STR	5'-2"	21
V11	6	#4	STR	4'-3"	17
Z1	4	#5	4	6'-0"	25
Z2	4	#5	4	5'-7"	23
Z3	4	#5	4	5'-0"	21
Z4	6	#4	4	4'-0"	16
Z5	6	#4	4	3'-1"	12
Z6	4	#5	4	6'-1"	25
Z7	6	#5	4	5'-8"	35
Z8	4	#5	4	5'-2"	22
Z9	6	#4	4	4'-5"	18
Z10	6	#4	4	3'-9"	15
Z11	6	#4	4	3'-1"	12

REINFORCING STEEL FOR 4 WINGS	LBS.	1,547
CLASS A CONCRETE		
4 WINGS	C.Y.	22.6
2 HEADWALLS	C.Y.	3.1
2 END CURTAIN WALLS	C.Y.	3.8
TOTAL	C.Y.	29.5

PROJECT NO. B-5763

RANDOLPH COUNTY

STATION: 14+62.50 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD WINGS FOR CONCRETE BOX CULVERT

H = 8'-0" 105° SKEW SLOPE = 2:1

NORTH CAROLINA PROFESSIONAL SEAL 039349 ENGINEER JEREMY P. McCARTHA

DocuSigned by: Jeremy McCartha 10/21/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS
2			4			6

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : J.S. SMITH	DATE : 8/23/16
CHECKED BY : J.P. MCCARTHA	DATE : 8/29/16
DRAWN BY : CCJ 01/00	
CHECKED BY : RWW 03/00	

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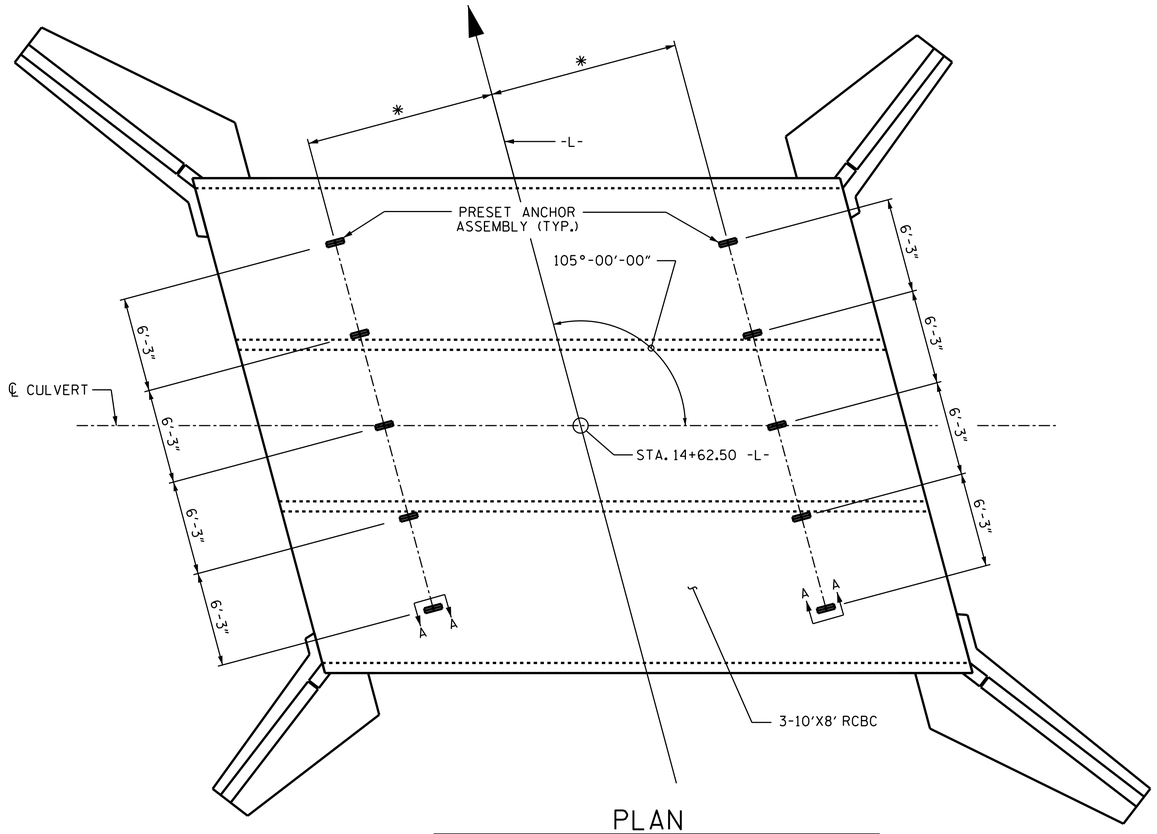
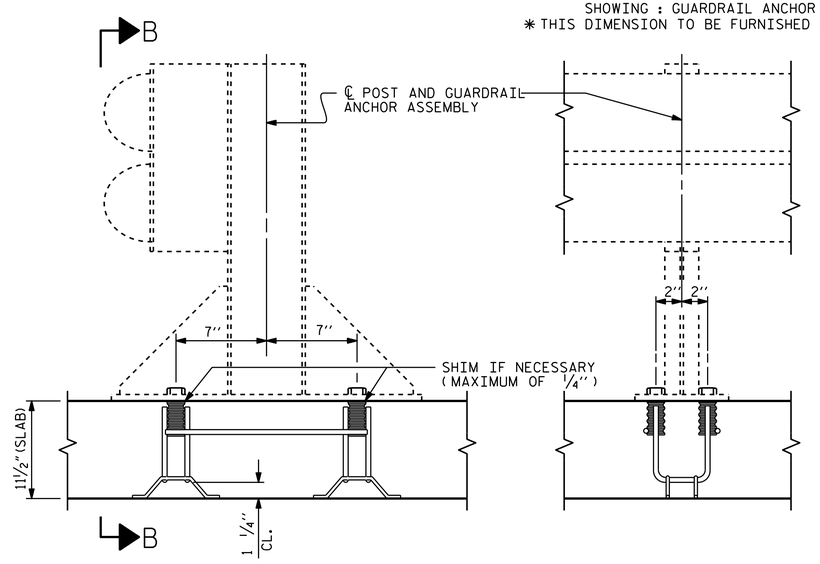
STD. NO. CW7508



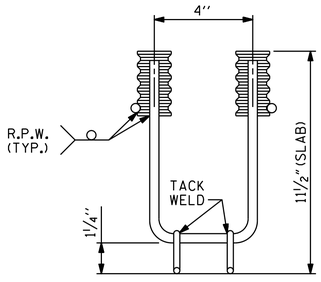
PLAN

SHOWING : GUARDRAIL ANCHOR ASSEMBLY SPACING.
* THIS DIMENSION TO BE FURNISHED BY THE RESIDENT ENGINEER.



SECTION A-A

SECTION B-B



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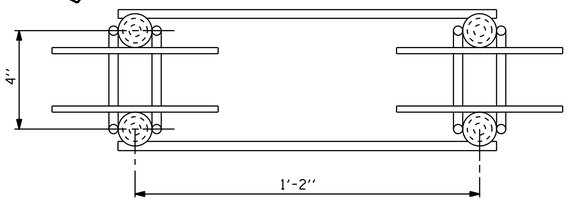
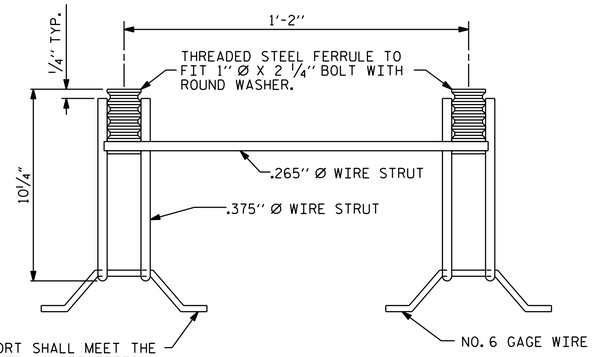


PLAN



SIDE VIEW

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS SHALL CONSIST OF THE FOLLOWING COMPONENTS :

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2½".

B. 4 - 1" Ø X 2 ¼" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1" Ø X 2¼" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CLASS "A" CONCRETE.

FERRULES TO BE PLUGGED DURING POURING OF SLAB AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

SLAB REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL ANCHOR ASSEMBLY. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO A MINIMUM.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

ASSEMBLED BY : J.S. SMITH	DATE : 8/23/16
CHECKED BY : J.P. MCCARTHA	DATE : 8/29/16
DESIGN ENGINEER OF RECORD: J.S. SMITH	DATE : 8/31/16
DRAWN BY : FCJ 6/88	REV. 5/7/03 RWW/JTE
CHECKED BY : ARB 6/88	REV. 5/1/06R KMM/GM
	REV. 10/1/11 MAA/GM

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NORTH CAROLINA PROFESSIONAL SEAL 039349 ENGINEER JEREMY P. MCCARTHA

DocuSigned by: Jeremy McCartha F2E4119GC003476...
10/21/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. B-5763
RANDOLPH COUNTY
STATION: 14+62.50 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

ANCHORAGE DETAILS FOR GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6
1			3			TOTAL SHEETS
2			4			6

STD. NO. GRA1

GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

REV. 6-16-95 EEM (c) RGW REV. 5-7-03 RWW (c) JTE REV. 10-1-11 MAA (c) GM
REV. 8-16-99 RWW (c) LES REV. 5-1-06 TLA (c) GM

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ENGLISH

JANUARY, 1990

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