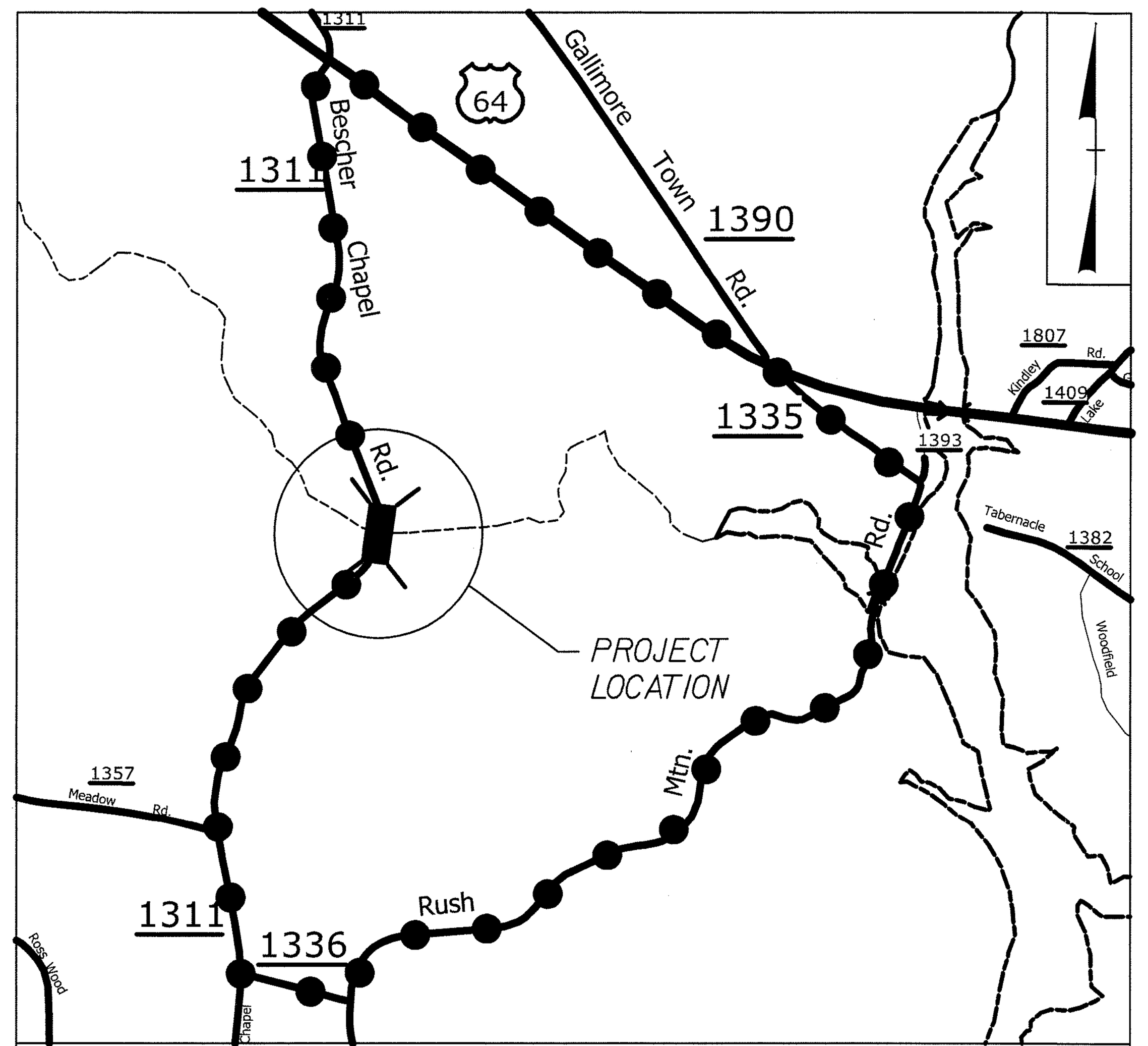
PROJECT: 17BP.8.R.62

CONTRACT:

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



VICINITY MAP

OFF–SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

LOCATION: BRIDGE NO. 366 ON SR 1311 (BESCHER CHAPEL ROAD) OVER UNNAMED CREEK

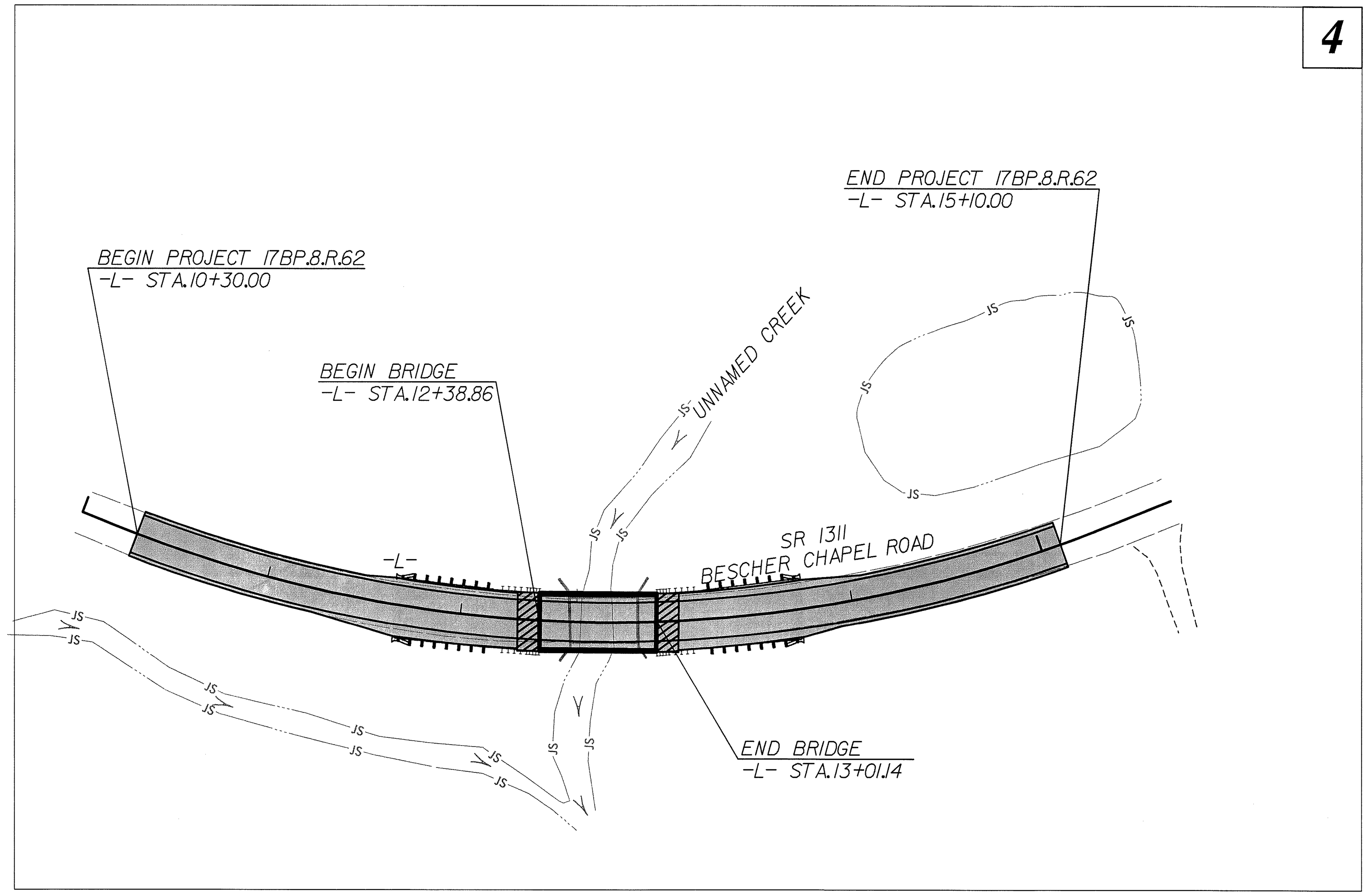
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.62	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.8.R.62		PE
17BP.8.R.62		ROW & UTIL
17BP.8.R.62		CONST.

NC GRID NAD 83 NA 2011

TO JACKSON CREEK



TO US 64

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

20 10 0 20 40
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 708

T = 6 % *
V = 55 MPH
* TTST = 3% DUAL 3%
FUNC CLASS = LOCAL

SUB–REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.8.R.62 = 0.079 MI
LENGTH OF STRUCTURE PROJECT 17BP.8.R.62 = 0.012 MI
TOTAL LENGTH OF PROJECT 17BP.8.R.62 = 0.091 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
FOR THE NORTH CAROLINA DEPT. OF TRANSPORATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH, 2014

LETTING DATE:
SEPT. 23, 2014

STEVE SCOTT, PE
PROJECT ENGINEER

AGNIESZKA NAU, PE
PROJECT DESIGN ENGINEER

TIM WELCH, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040266 ENGINEER ELIZABETH G. DINATALE

6-14-14 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029712 ENGINEER AGNIESZKA NAU

06-14-14 P.E.
SIGNATURE:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99

$$$$$$SYSTIME$$$$ $$$$$$$$$DGN$$$$$$$$$$$$$$$$ $$$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	1-A

INDEX OF SHEETS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11-01-11

GRADE LINE:
GRADING AND SURFACING:

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

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.

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.

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:

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.

EFF. 01-17-12
REV. 11-01-11

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 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	
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

12/05/11

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — 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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — 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
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (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
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

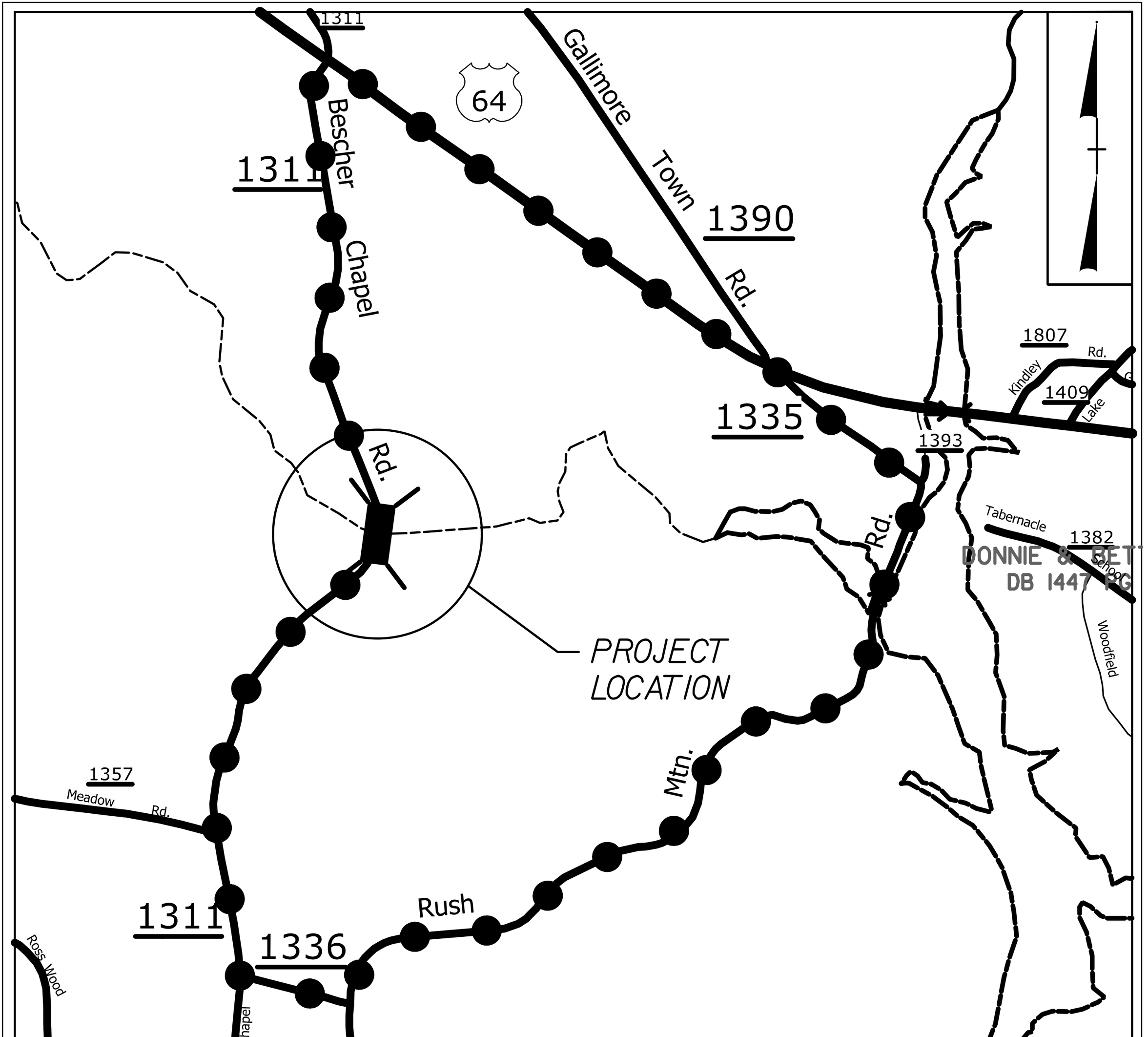
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According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

REVISIONS

SURVEY CONTROL SHEET 17BP.8.R.62

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	1-C
R/W SHEET NO.	

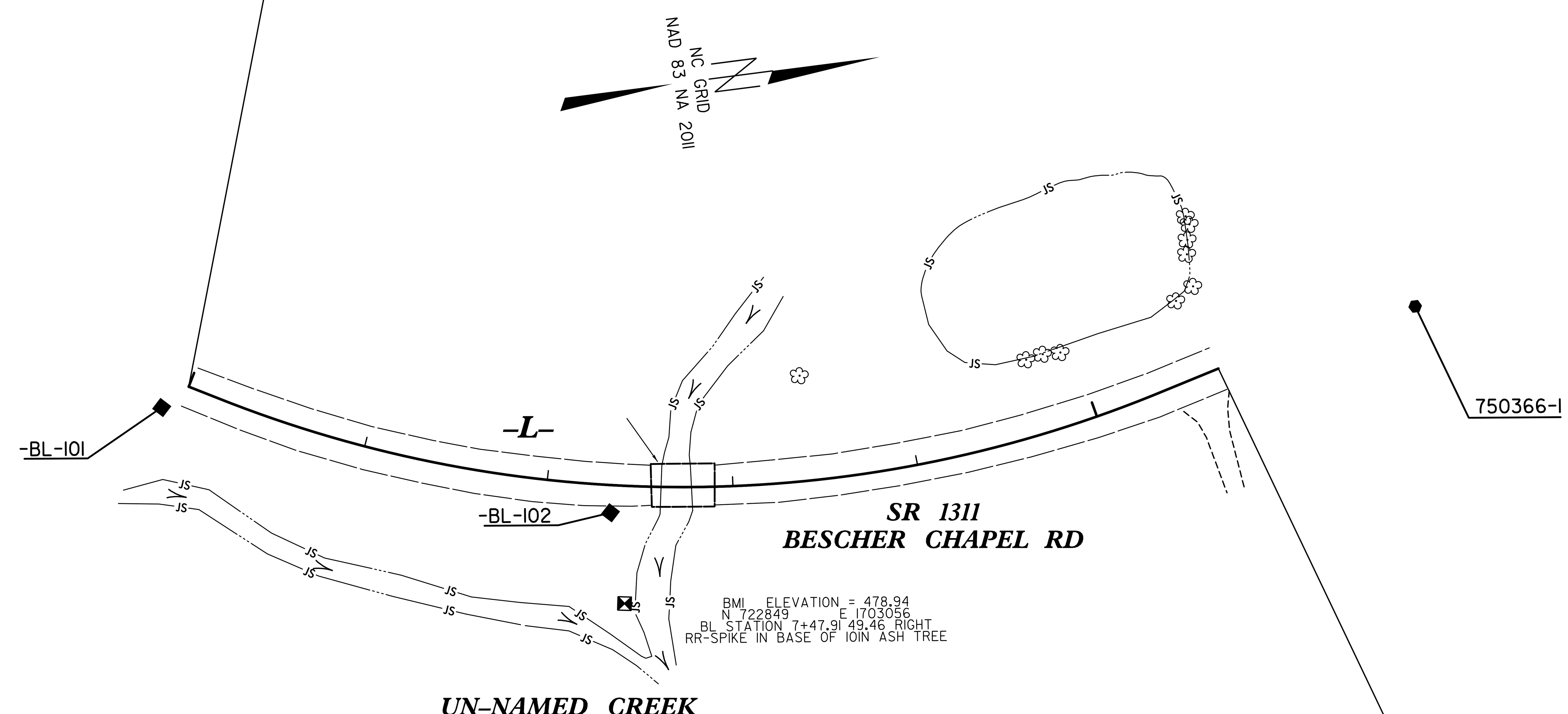


VICINITY MAP

OFF–SITE DETOUR ROUTE

BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
101	BL-101	722615.6106	1702918.9336	489.03	OUTSIDE PROJECT LIMITS	
102	BL-102	722847.6807	1703006.1379	484.27	12+34.89	14.86 RT
1	750366-1	723291.2110	1702951.7340	495.37	OUTSIDE PROJECT LIMITS	

–L– STA. 10+30.00 BEGIN STATE PROJECT 17BP.8.R.62
LOCALIZED PROJECT COORDINATES
N = 722,631.43’ E = 1,702,909.76’



–L– STA. 15+10.00 END STATE PROJECT 17BP.8.R.62
LOCALIZED PROJECT COORDINATES
N = 723,181.92’ E = 1,702,971.28’

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "750366-1"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 723291.2110(ft) EASTING: 1702951.7340(ft)
ELEVATION: 495.3740(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998889280
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "750366-1" TO -L- STATION 10+00.00 IS 661.1199' S03°38'25.36"W

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

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT WAS PROVIDED BY NCDOT.*
   CONTROL POINTS PROVIDED ARE AS FOLLOWS:
   750366–1 N = 723,291.2110 E = 1,702,951.7340 ELEV = 495.374’

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

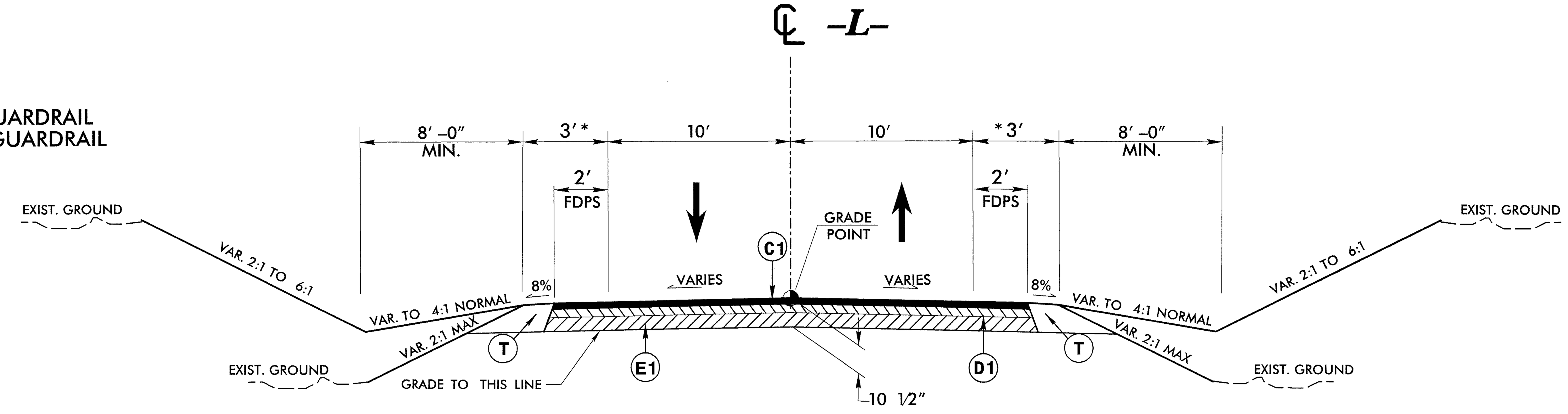
⬢ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

◆ *INDICATES CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY NCDOT.*

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	2
R/W SHEET NO.	
	ROADWAY ENGINEER

* ADD 3' TO SHOULDERS FOR GUARDRAIL
PAVE SHOULDER TO FACE OF GUARDRAIL



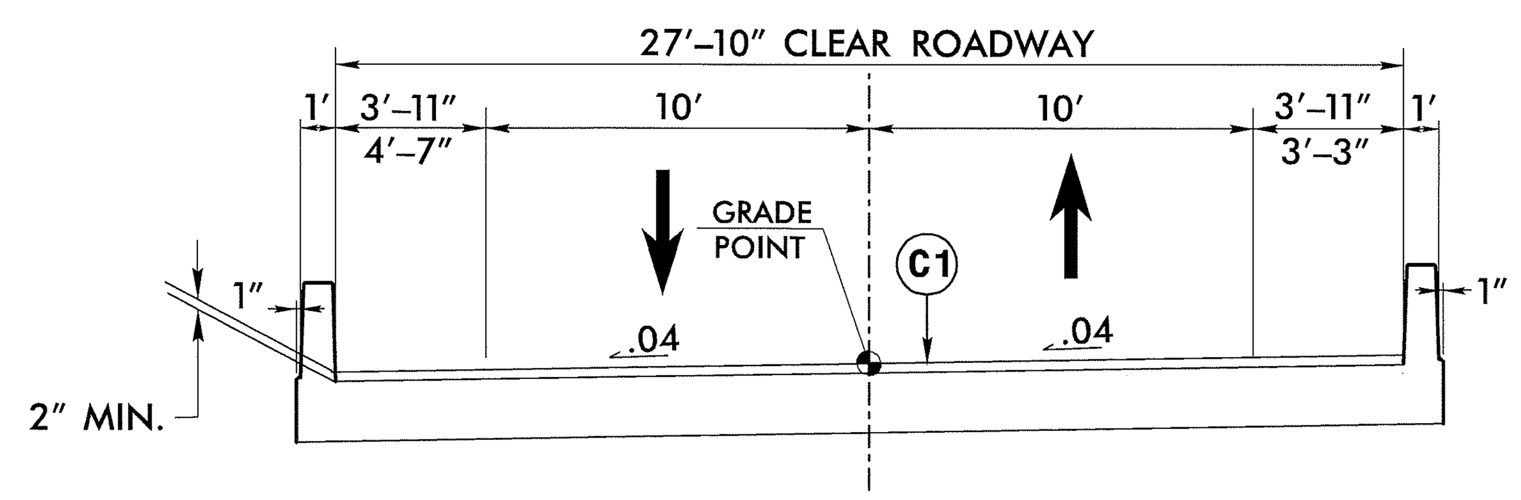
TYPICAL SECTION NO. 1

-L- STA. 10+30.00 TO -L- STA. 12+38.86 (BEGIN BRIDGE)
-L- STA. 13+01.14 (END BRIDGE) TO -L- STA. 15+10.00

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.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
T	EARTH MATERIAL.

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



TYPICAL SECTION NO. 2

-L- STA. 12+38.86 (BEGIN BRIDGE)
TO -L- STA. 13+01.14 (END BRIDGE)

COMPUTED BY: ____________ DATE: ____________
CHECKED BY: ____________ DATE: ____________

6/21/00

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	3

ITEM NUMBER	SECTION NUMBER	DESCRIPTION	QUANTITY	UNIT
0000100000-N	800	MOBILIZATION	1	LS
0030000000-N	SP	BRIDGE APPROACH FILL-SUB REGIONAL TIER, STATION -L- STA. 12+70.00	1	LS
0043000000-N	226	GRADING	1	LS
0050000000-E	226	SUPPLEMENTARY CLEARING & GRUBBING	1	ACR
0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	240	SY
0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	2	TON
0335200000-E	305	15" DRAINAGE PIPE	16	LF
0335850000-E	305	15" DRAINAGE PIPE ELBOWS	2	EA
1220000000-E	545	INCIDENTAL STONE	100	TON
1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	510	TON
1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	280	TON
1525000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	210	TON
1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	50	TON
2286000000-N	840	MASONARY DRAINAGE STRUCTURE	1	EA
2364200000-N	840	WIDE SLOT FLAT GRATE, 840.20	1	EA
2556000000-E	846	SHOULDER BERM GUTTER	54	LF
3030000000-E	862	STEEL BM GUARDRAIL	25	LF
3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	5	EA
3215000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE III	4	EA
3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	4	EA
3628000000-E	876	RIP RAP, CLASS I	32	TON
3649000000-N	876	RIP RAP, CLASS B	2	TON
3656000000-E	876	GEOTEXTILE FOR DRAINAGE	232	SY
4457000000-N	SP	TEMPORARY TRAFFIC CONTROL	1	LS
4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	1,920	LF
5325600000-E	1510	6" WATER LINE	270	LF
5540000000-E	1515	6" VALVE	2	EA
5800000000-E	1530	ABANDON 6" UTILITY PIPE	310	LF
5871400000-E	1550	6" TRENCHLESS INSTALL (IN SOIL)	150	LF
5871410000-E	1550	6" TRENCHLESS INSTALL (NOT IN SOIL)	120	LF
6000000000-E	1605	TEMPORARY SILT FENCE	510	LF
6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	80	TON
6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	155	TON
6012000000-E	1610	SEDIMENT CONTROL STONE	75	TON
6015000000-E	1615	TEMPORARY MULCHING	0.5	ACR
6018000000-E	1620	SEED FOR TEMPORARY SEEDING	50	LB
6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	0.25	TON
6024000000-E	1622	TEMPORARY SLOPE DRAINS	200	LF
6029000000-E	SP	SAFETY FENCE	200	LF
6030000000-E	1630	SILT EXCAVATION	10	CY
6036000000-E	1631	MATTING FOR EROSION CONTROL	6,895	SY
6037000000-E	SP	COIR FIBER MAT	400	SY
6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	150	SY
6042000000-E	1632	1/4" HARDWARE CLOTH	160	LF
6071012000-E	SP	COIR FIBER WATTLE	25	LF
6071020000-E	SP	POLYACRYLAMIDE (PAM)	25	LB
6084000000-E	1660	SEEDING AND MULCHING	0.5	ACR
6087000000-E	1660	MOWING	0.5	ACR
6090000000-E	1661	SEED FOR REPAIR SEEDING	50	LB
6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.25	TON
6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	50	LB
6108000000-E	1665	FERTILIZER TOPDRESSING	0.5	TON
6114500000-N	1667	SPECIALIZED HAND MOWING	10	MHR
6117000000-N	SP	RESPONSE FOR EROSION CONTROL	13	EA

ITEM NUMBER	SECTION NUMBER	DESCRIPTION	QUANTITY	UNIT
8035000000-N	402	REM OF EX STRUCTURE AT STATION 12+70.00 -L-	1	LS
8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 12+70.00 -L-	1	LS
8182000000-E	420	CLASS A CONCRETE (BRIDGE)	26.6	CY
8210000000-N	422	BRIDGE APPROACH SLABS, STATION -L- 12+70.00	1	LS
8217000000-E	425	REINFORCING STEEL (BRIDGE)	3,954	LB
8364000000-E	450	HP 12X53 STEEL PILES	250	LF
8505000000-E	460	VERTICAL CONCRETE BARRIER RAIL	120	LF
8606000000-E	876	RIP RAP CLASS II (2'-0" THICK)	140	TON
8622000000-E	876	GEOTEXTILE FOR DRAINAGE	155	SY
8657000000-N	430	ELASTOMERIC BEARINGS	1	LS
8763000000-E	430	3'-0" X 2'-0" PRESTRESSED CONC CORED SLABS	600	LF

4/04/06

COMPUTED BY:	DATE:
CHECKED BY:	DATE:

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUB–REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300–5".

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
13+31 –L–	LT	401		484.87					16							X		X	X
		401	402		482.12	477.41	29%												
TOTALS									16										

STATION	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
13+31 –L–																						
TOTALS																						

STATION	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	PIPE ELBOWS	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.29	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	T.B.G.D.I. STD. 840.35	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
13+31 –L–																		2		1			1					
TOTALS																		2		1			1					

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$$

5/14/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	3-B
R/W SHEET NO.	

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- STA. 10+30.00 TO BRIDGE	296		8		288
SUBTOTAL	296		8		288
BRIDGE TO -L- STA. 15+10.00	241		152		89
SUBTOTAL	241		152		89
TOTAL	537		161		376
LOSS DUE TO CLEAR & GRUB.					
WASTE IN LEU OF BORROW					
PROJECT TOTAL	537		161		376
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTAL	537		161		376
SAY	540				

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

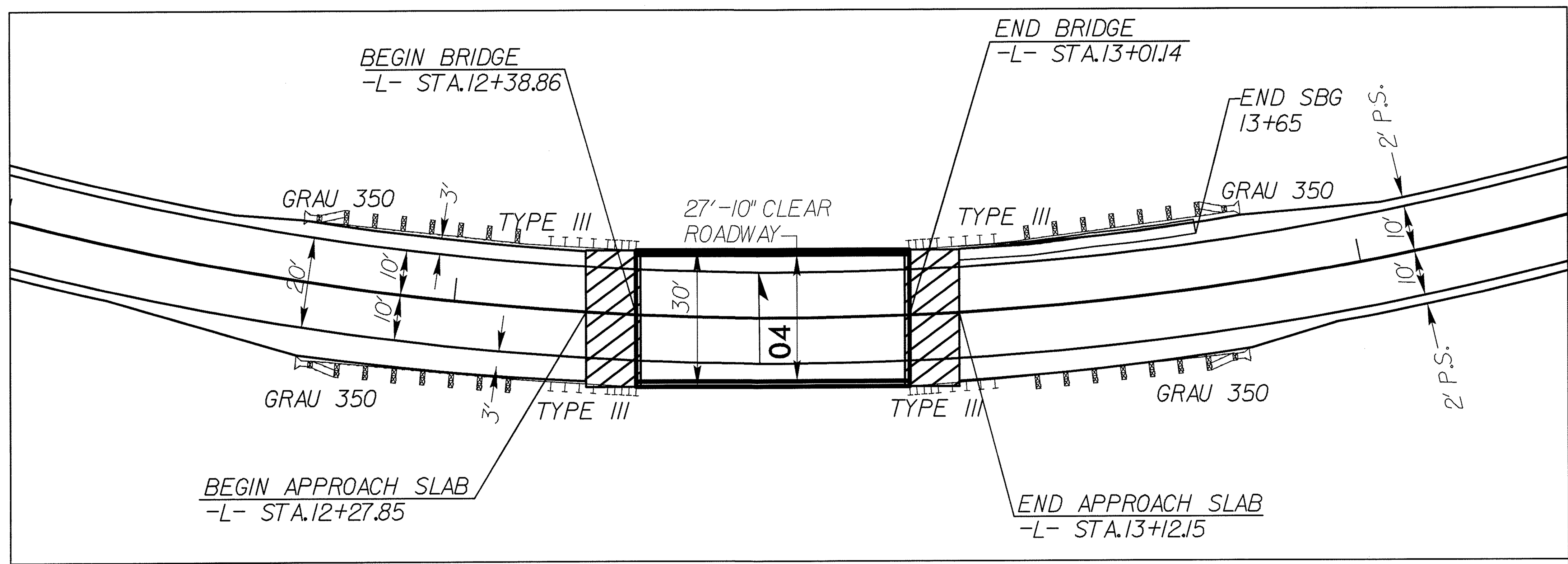
GUARDRAIL SUMMARY

SURVEY LINE	BEGINNING STATION	END STATION	LOCATION	LENGTH			WARRENT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS			REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU-350	AT-1	TYPE III	
-L-	11+68.00	12+40.83	RT	75.00'			12+40.83		4'-0"	7'-0"					1		1	
-L-	12+99.49	13+73.00	RT	75.00'				12+99.49	4'-0"	7'-0"					1		1	
-L-	13+75.00	12+99.49	LT	75.00'			12+99.49		3'-0"	6'-0"					1		1	
-L-	12+39.39	11+65.00	LT	75.00'				12+39.39	3'-0"	6'-0"					1		1	
SUBTOTAL				300.00'														
LESS ANCHOR DEDUCTIONS																		
GRAU-350 4 @ 50' =				-200.00'														
TYPE III 4 @ 18.75' =				-75.00'														
			TOTAL	25.00'			ADDITIONAL GUARDRAIL POSTS - 5 EA											
			SAY	25.00'											4		4	

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	4
R/W SHEET NO.	

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

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

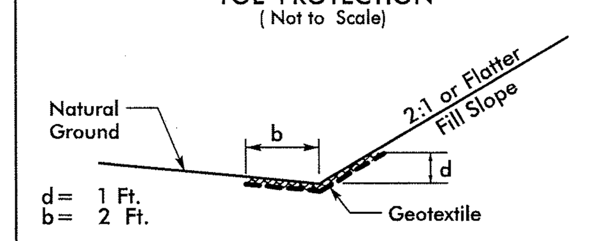


Sketch showing Dimensions of Pavement and Shoulder in Relation to Proposed Bridge Width

NC GRID NAD 83 NA 2011

-L-
PI Sta 12+91.43
Δ = 43° 40' 24.3" (LT)
D = 8° 29' 17.7"
L = 514.52'
T = 270.48'
R = 675.00'
D.S. = 40 mph

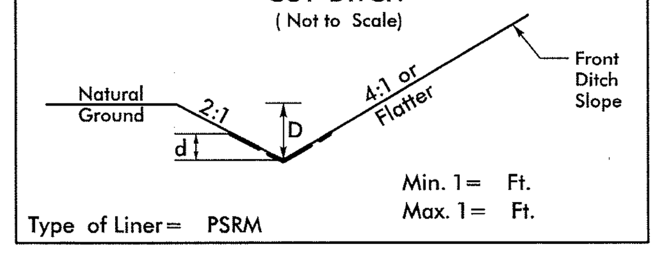
DETAIL 2
TOE PROTECTION
(Not to Scale)



Type of Liner= Class I Rip-Rap

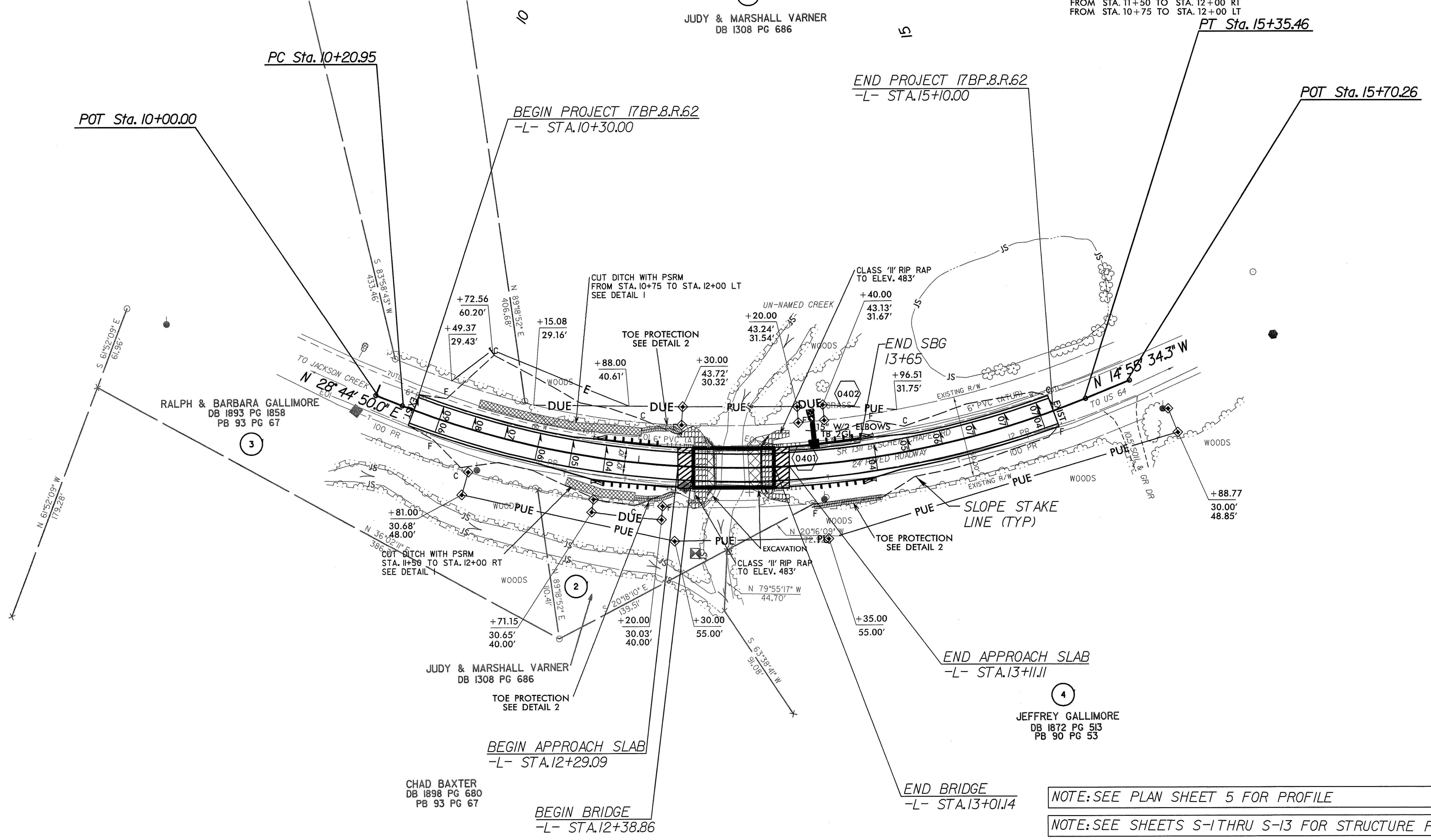
FROM STA. 12+00 TO STA. 12+30 LT
FROM STA. 12+00 TO STA. 12+30 RT
FROM STA. 13+30 TO STA. 13+75 RT

DETAIL 1
CUT DITCH
(Not to Scale)



Type of Liner= PSRM

FROM STA. 11+50 TO STA. 12+00 RT
FROM STA. 10+75 TO STA. 12+00 LT



NOTE: SEE PLAN SHEET 5 FOR PROFILE

NOTE: SEE SHEETS S-1 THRU S-13 FOR STRUCTURE PLANS

REVISIONS

8/17/99

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

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029712 AGNIESZKA J. NAU 06-14-14

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040266 ELIZABETH G. DINATALE 6-14-14

5/14/99

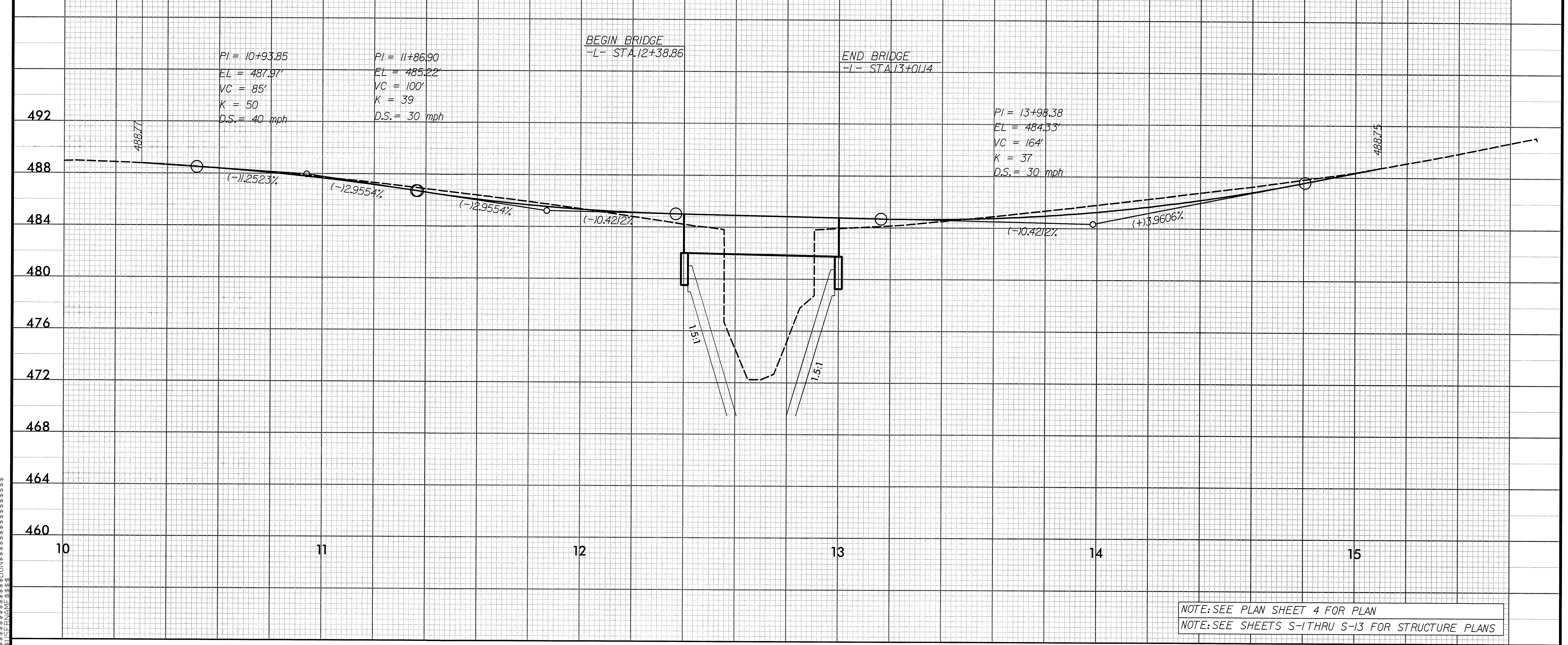
-L-

BM 1
Sta. -BL- 7+47.91
OFF 49.46' RT
ELEV. 478.94'
RR SPIKE IN BASE
OF 10" ASH

-L-
Sta. 12+44.30
OFF 63.30' RT

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	850	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	478.8	FT
BASE DISCHARGE	=	1200	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	479.66	FT
OVERTOPPING DISCHARGE	=	3300	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	485.5	FT
DATE OF SURVEY	=	10/13	
W.S. ELEVATION AT DATE OF SURVEY	=	473.8	FT



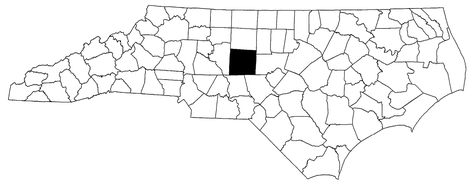
NOTE: SEE PLAN SHEET 4 FOR PLAN
NOTE: SEE SHEETS S-1 THRU S-13 FOR STRUCTURE PLANS

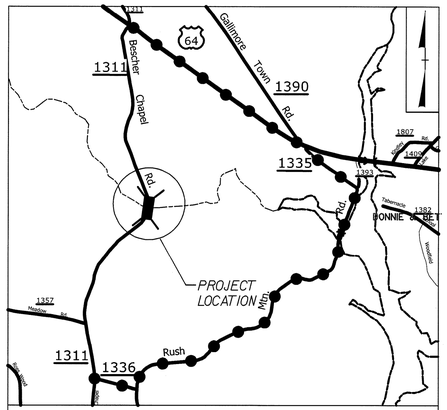
$$$$$$SYSTIME$$$$$ $$$$$$DGN$$$$$$$$$$$$$$$ $$$$$$USERNAME$$$$$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

RANDOLPH COUNTY





VICINITY MAP

OFF-SITE DETOUR ROUTE

LOCATION: ***BRIDGE NO. 366 OVER UNNAMED CREEK ON SR 1311 (BESCHER CHAPEL ROAD)***

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

INDEX OF SHEETS

SHEET NO.
TMP-1

17BP.8.R.62

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*
J. ISHAK, 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

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

APPROVED: Steven Miller
DATE: 6-3-14

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037026 STEVEN D. MILLER

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.62	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 (TEMP)

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

APPROVED: _____ DATE: 6-2-14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

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

ROADWAY STANDARD DRAWINGS & LEGEND

$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.62	TMP-1B

MANAGEMENT STRATEGIES

-CLOSE SR 1311 (BESCHER CHAPEL ROAD) AND DETOUR TRAFFIC OFF-SITE

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

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.

SIGNING

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

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC MANAGEMENT PLANS.

B) 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.

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

LOCAL NOTES

1. NOTIFY THE ENGINEER AT LEAST ONE MONTH PRIOR TO ANY TRAFFIC PATTERN ALTERATION.
2. NOTIFY RANDOLPH COUNTY SCHOOLS AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.
3. NOTIFY RANDOLPH COUNTY EMERGENCY SERVICES AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.

PHASING

STEP 1 USING RSD 1101.03 SHEET 1 OF 9, CLOSE BESCHER CHAPEL ROAD (SR 1311) 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 BESCHER CHAPEL ROAD (SR 1311) TO TRAFFIC AND REMOVE ALL TRAFFIC CONTROL DEVICES.

APPROVED: _____ DATE: 5-10-14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

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

TRANSPORTATION OPERATIONS PLAN

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.62	TMP-2

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

SIGN NUMBER: SP-1 BACKG COLOR:Fluorescent Orange
TYPE: STATIONARY COPY COLOR: Black
QUANTITY: SEE PLANS

SIGN WIDTH: 36″
HEIGHT: 36″
TOTAL AREA: 9.0 Sq. Ft.

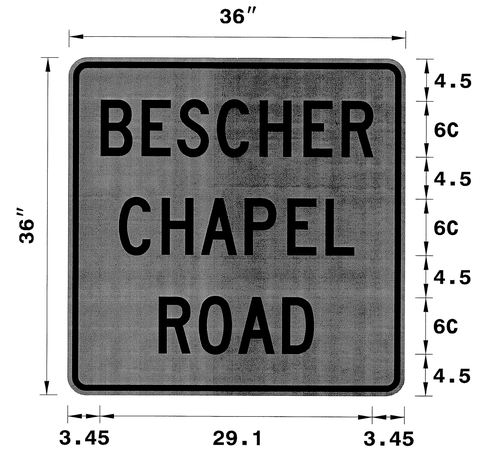
BORDER TYPE: RECESSED
RECESS: 0.47″
WIDTH: 0.63″
RADII: 1.5″

MAT'L: 0.125″ (3.2 mm) ALUMINUM
0.079″ COMPOSITE

USE NOTES

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be Type VII, VIII, or IX (prismatic) fluorescent orange retroreflective sheeting.

DESIGN BY: R. DRAYTON CHECKED BY: S. MILLER
PROJECT ID:17BP.8.R.62 DIV: 8 DATE: Sep 26, 2013



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner								Series/Size Text Length
B	E	S	C	H	E	R		C 2000
3.45	7.83	11.61	15.87	20.43	25.11	29.19		29.1
C	H	A	P	E	L			C 2000
5.43	9.99	14.19	18.87	23.43	27.51			25.14
R	O	A	D					C 2000
9.72	13.98	18.24	22.92					16.56

FILENAME: 750366 Sign Design

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: [signature] DATE: 6-2-14

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037026 STEVEN D. MILLER

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

SPECIAL SIGN DESIGN

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.62	TMP-3

INSET A
(SEE TMP-4)

DETOUR ROUTE

(SEE TMP-4 FOR SIGN LEGEND)

APPROVED: [signature] DATE: 6-2-14

SEAL

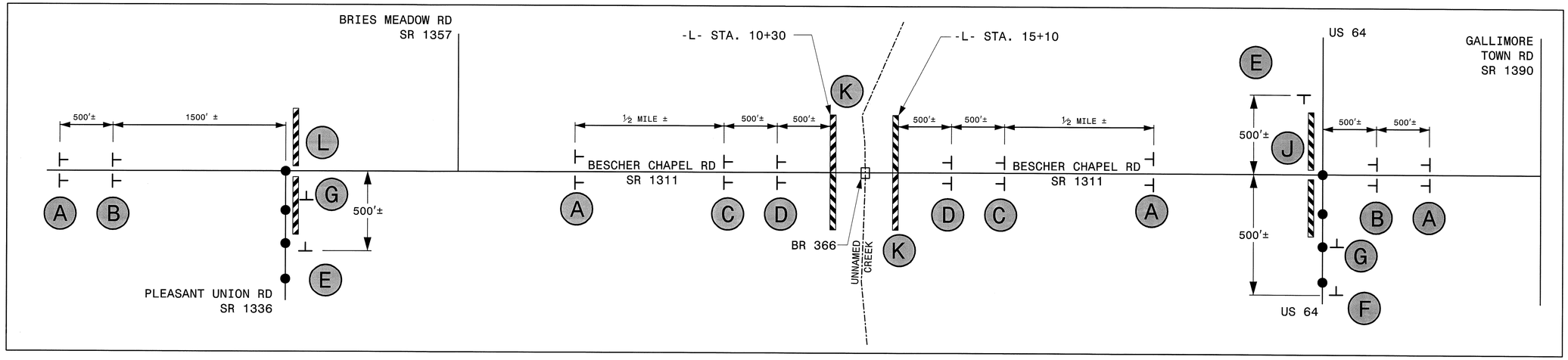
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037026 STEVEN D. MILLER

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

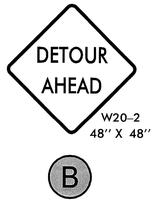
OFF-SITE DETOUR

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.62	TMP-4

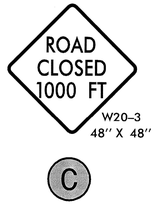
INSET A



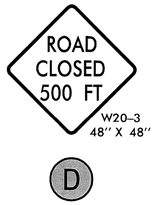
A



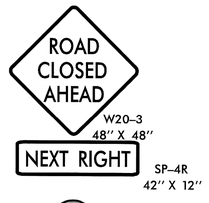
B



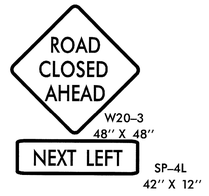
C



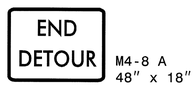
D



E

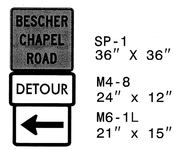


F

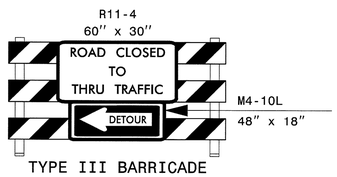


G

H

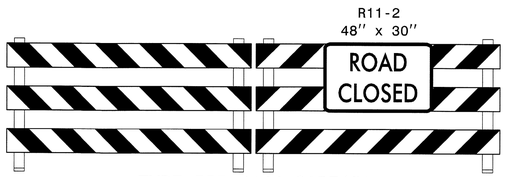


I



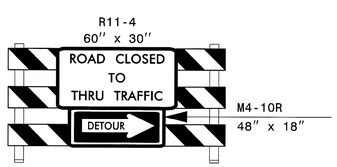
TYPE III BARRICADE

J



TYPE III BARRICADE(S)

K



TYPE III BARRICADE

L

APPROVED: _____ DATE: 6-9-14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

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

ROAD CLOSURE

$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$USERNAME$$$$

09/08/99

PROJECT: 17BP.8.R.62

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.62	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA

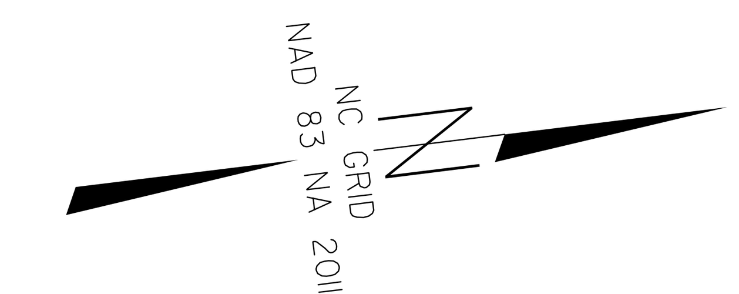
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

PLAN FOR PROPOSED

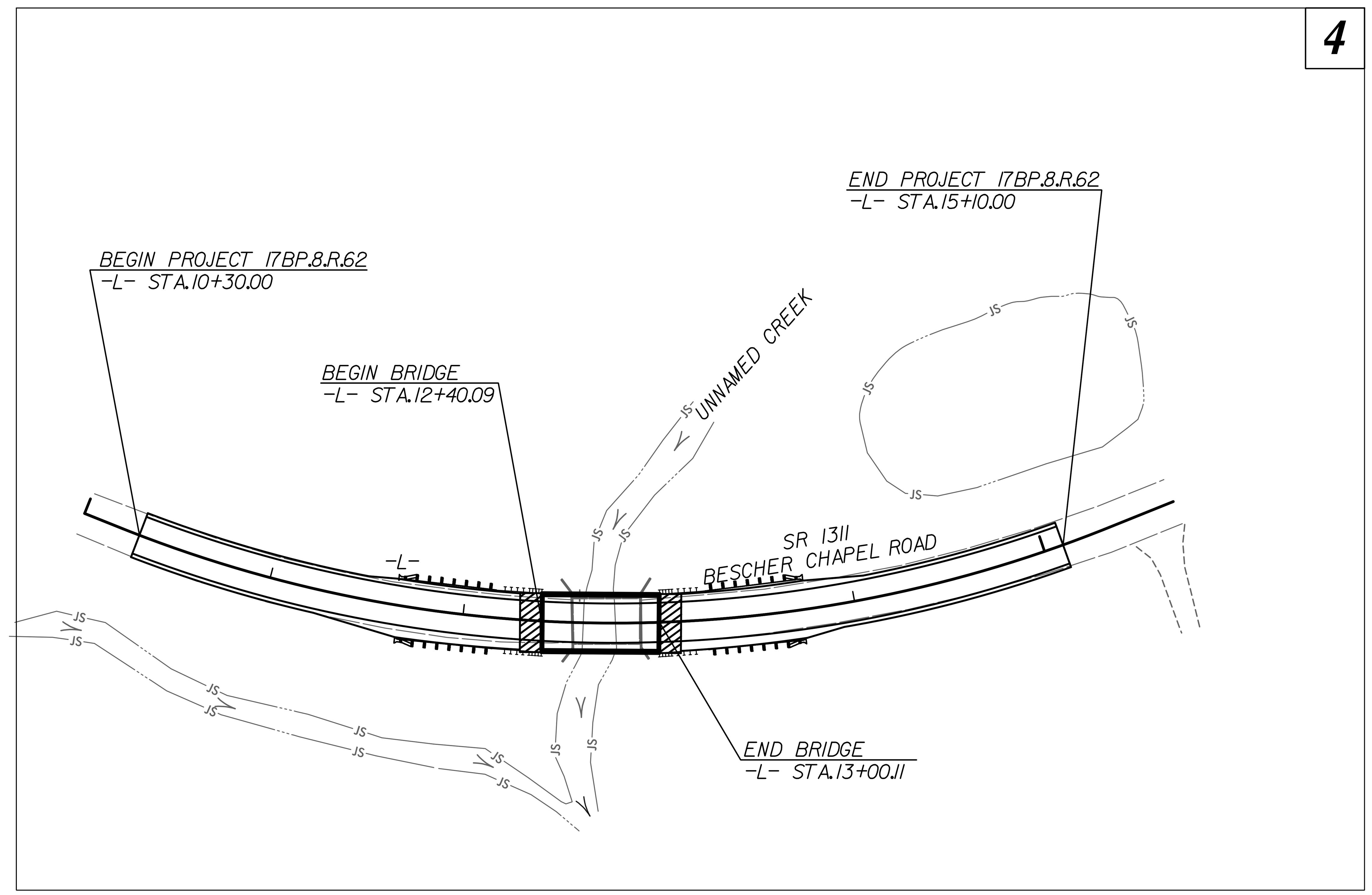
HIGHWAY EROSION CONTROL

LOCATION: BRIDGE NO. 366 ON SR 1311 (BESCHER CHAPEL ROAD)
OVER UNNAMED CREEK
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE



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 HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

High Quality Water Zone(s) Exist
From Sta. 12+09
to Sta. 13+30
Refer To E. C. Special Provisions for Special Considerations.

303(d) IMPAIRED WATER(S) EXIST ON THIS PROJECT

303(d) Impaired Water Zone(s) Exist
From Sta. 12+09
to Sta. 13+30
Refer To E. C. Special Provisions for Special Considerations.

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

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

CONTRACT:

$$$$SYSTIME$$$$
$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

GRAPHIC SCALES

20 10 0 20 40
PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

ELIZABETH G. DINATALE
LEVEL III DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS
3480
LEVEL III CERTIFICATION NO.

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

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

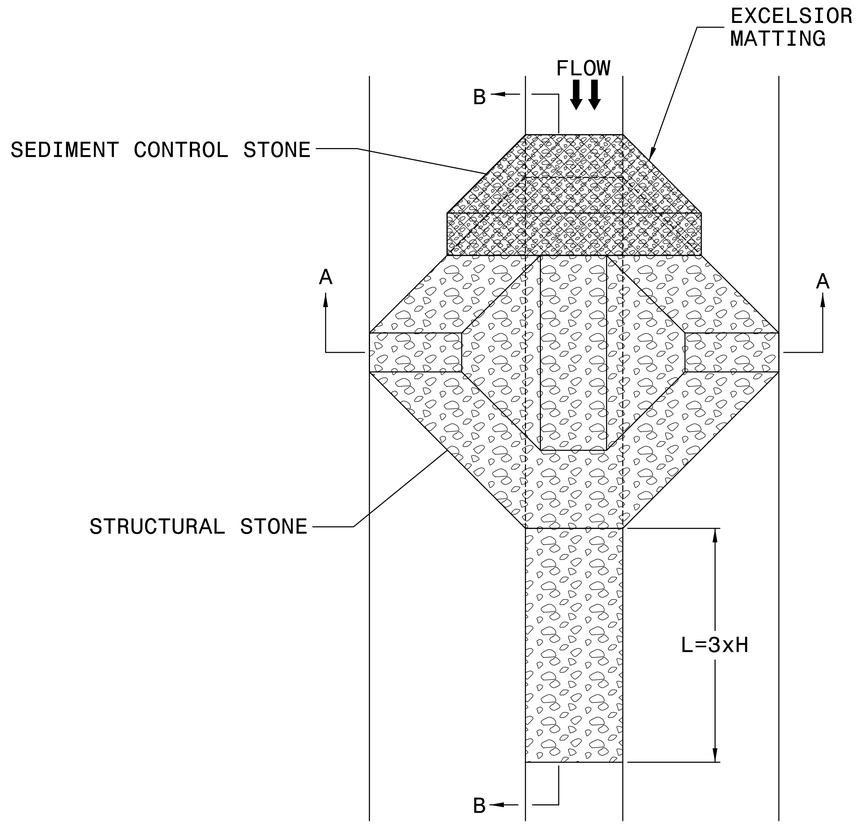
Roadway Standard Drawings

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.

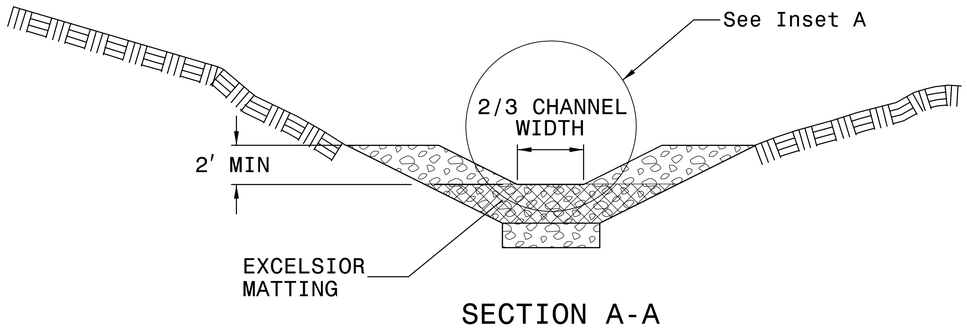
1604.01	Railroad Erosion Control Detail
1605.01	Temporary Silt Fence
1606.01	Special Sediment Control Fence
1607.01	Gravel Construction Entrance
1622.01	Temporary Berms and Slope Drains
1630.01	Riser Basin
1630.02	Silt Basin Type B
1630.03	Temporary Silt Ditch
1630.04	Stilling Basin
1630.05	Temporary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

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



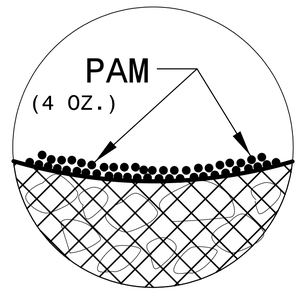
SECTION A-A

NOTES

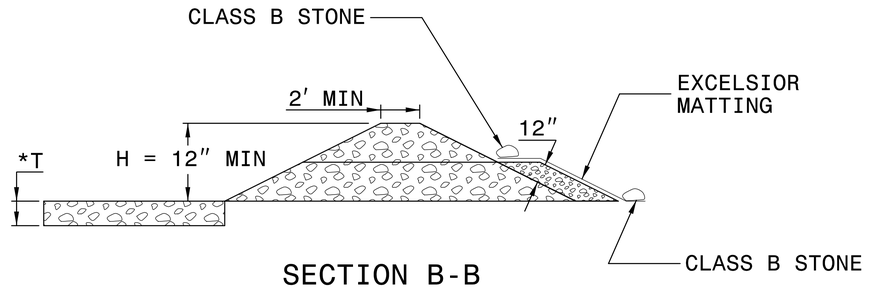
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
			SUBTOTAL		
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					465
				TOTAL	
				SAY	

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+75	12+00	LT	90
4	-L-	11+50	12+00	RT	35
			SUBTOTAL		125
		ADDITIONAL PSRM TO BE INSTALLED			
				TOTAL	125
				SAY	150

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.62	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

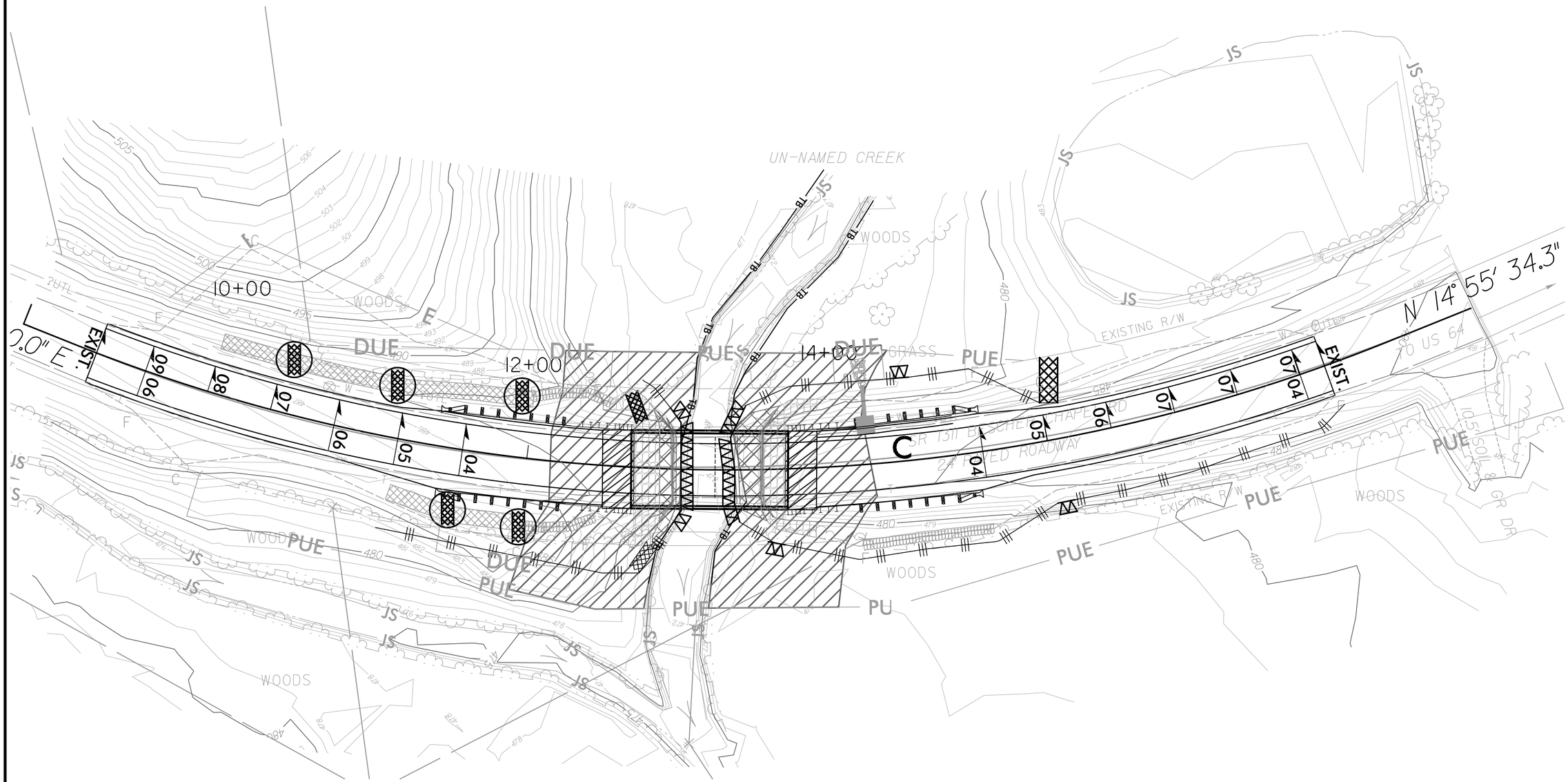
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NC GRID NAD 83 NA 2011

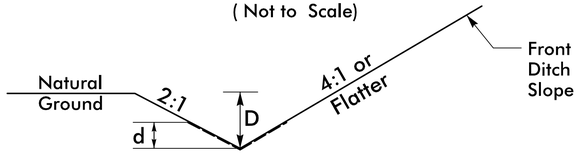
20 10 0 20 40
PLANS



PROJECT REFERENCE NO.	SHEET NO.
I7BP.8.R.62	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

DETAIL 1
CUT DITCH
(Not to Scale)

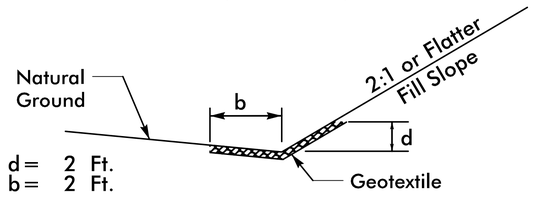


Min. d = 1 Ft.
Max. D = 1 Ft.

Type of Liner = PSRM

FROM STA. 11+50 TO STA. 12+00 RT
FROM STA. 10+75 TO STA. 12+00 LT

DETAIL 2
TOE PROTECTION
(Not to Scale)



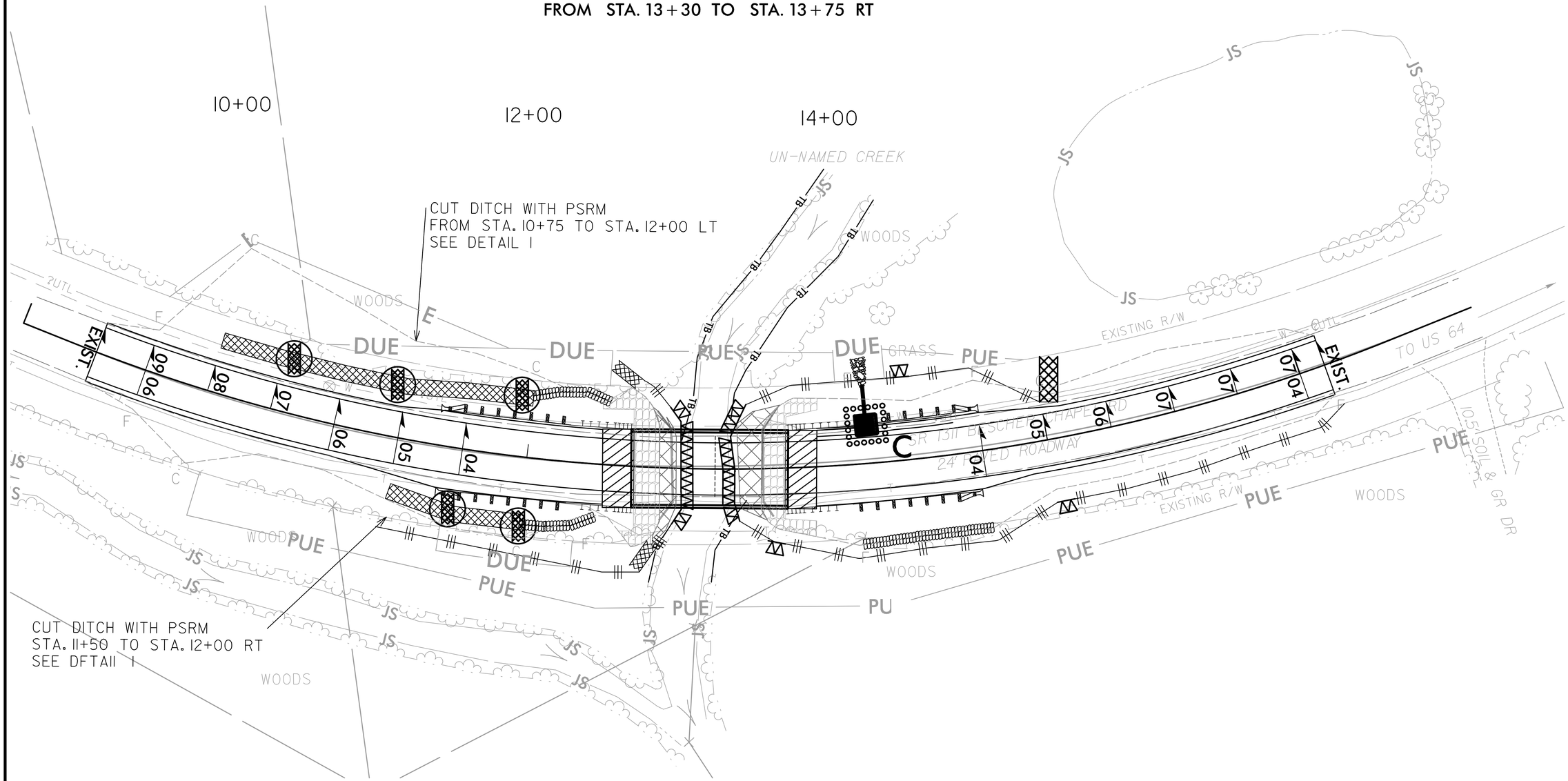
d = 2 Ft.
b = 2 Ft.

Type of Liner = ? Rip-Rap

FROM STA. 12+00 TO STA. 12+30 LT
FROM STA. 12+00 TO STA. 12+30 RT
FROM STA. 13+30 TO STA. 13+75 RT

NC GRID NAD 83 NA 2011

20 10 0 20 40
PLANS



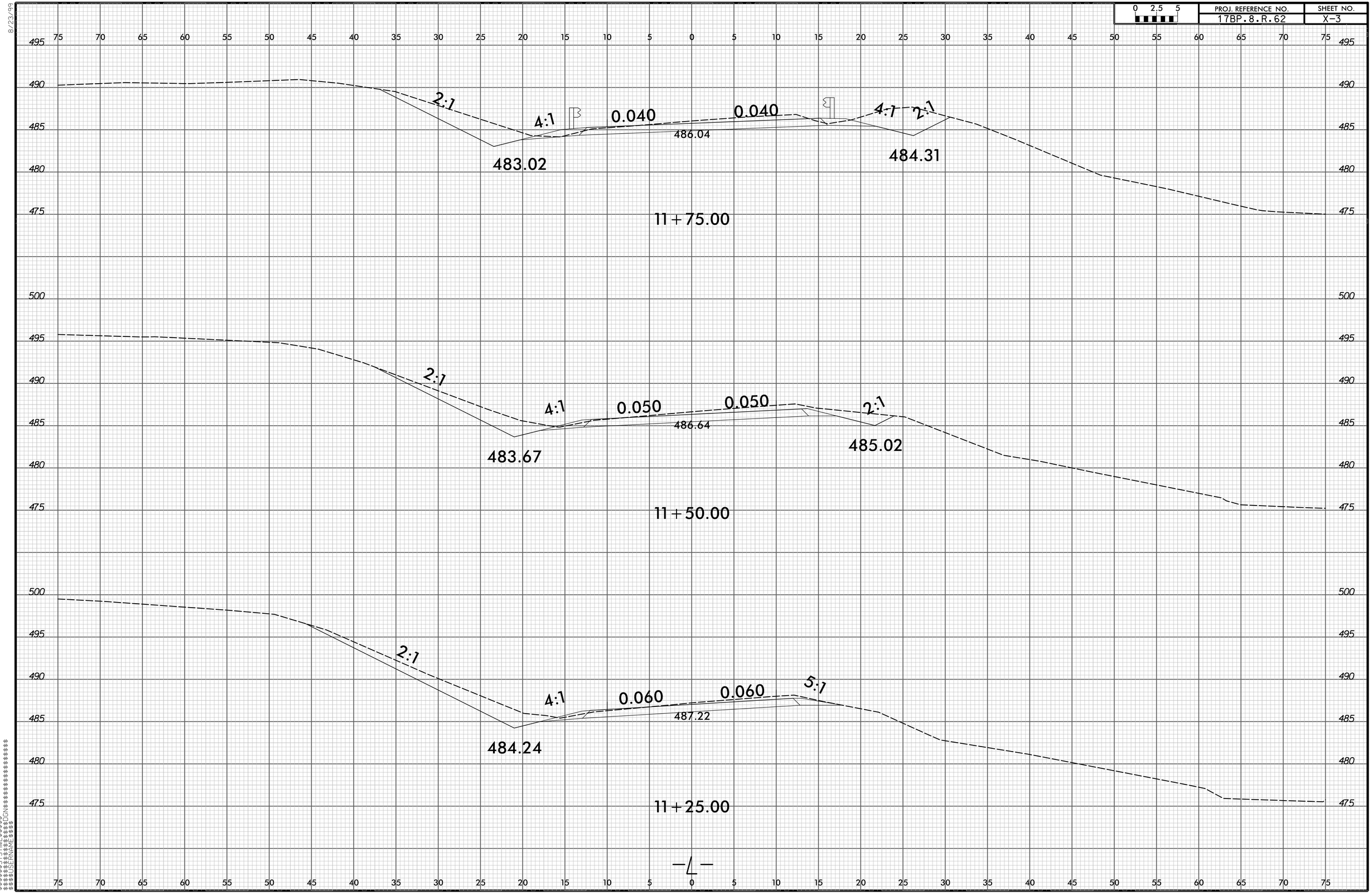
PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.62	X-1

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


0 2.5 5
PROJ. REFERENCE NO.
17BP.8.R.62
SHEET NO.
X-2
8/23/99
2:1
4:1
0.070
0.060
5:1
487.74
484.74
11+00.00
2:1
4:1
0.080
0.060
6:1
488.17
485.11
10+75.00
505
500
495
490
485
480
475
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
$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.8.R.62	X-3



$$$$$$$$SYSTIME$$$$
$$$$$$$$FILENAME$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.8.R.62	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

495 490 485 480 475 470

0.040 0.040

483.97

12+50.00

BEGIN BRIDGE -L- STA.12+38.86

2:1 0.040 0.040 2:1

484.66

12+25.00

2:1 4:1 0.040 0.040 4:1 2:1

482.59 485.38 483.84

12+00.00

-L-

$$$$$$$$SYSTIME$$$$
$$$$$$$$FILENAME$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

0 2.5 5
PROJ. REFERENCE NO.
17BP.8.R.62
SHEET NO.
X-5
2:1
0.040
0.040
2:1
484.21
13 + 25.00
END BRIDGE -L- STA.13+01.14
0.040
0.040
483.92
13 + 00.00
0.040
0.040
472.65
12 + 75.00
-L-
8/23/99
$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.8.R.62	X-6

8/23/99

$$$$$SYSTIME$$$$$
$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 2.5 5
PROJ. REFERENCE NO.
17BP.8.R.62
SHEET NO.
X-7
489.29
15+25.00
3:1
0.060
0.040
3:1
488.39
15+00.00
5:1
0.070
0.040
4:1
487.68
14+75.00
5:1
0.070
0.040
5:1
487.02
14+50.00

-2.9554% -0.4212%
PI = 11+86.90 -L-
EL = 485.22'
VC = 100'

GRADE DATA

-0.4212% 3.9606%
PI = 13+98.38 -L-
EL = 484.33'
VC = 164'

GRADE DATA

12+20 12+40 12+60 12+80 13+00 13+20

490
480
470

UNCLASSIFIED STRUCTURE EXCAVATION

SPAN A

FIXED

FILL FACE @ END BENT 1
STA. 12+38.86 -L-
GRADE POINT EL. 485.00

BEGIN FRONT SLOPE
STA. 12+34.33 -L-
EL. 485.02

EL. 484.1±
LOW CHORD
EL. 481.95±
EL. 483.8±
EXISTING STRUCTURE (TYP.)
EL. 484.5±
1'-6" (TYP.)
HP 12 X 53 STEEL PILES
CLASS II RIP RAP (TYP.)
EL. 476.6±
EL. 477.03
NWS
EL. 473.8
(10/21/13)
EL. 472.2±
EL. 479.66
(Q100)
EL. 472.6±

B

END BENT 1

SECTION ALONG -L-

1'-7" MIN. BERM
(NORMAL TO CAP) (TYP.)
LOW CHORD
EL. 481.70±
EL. 483.8±
EL. 478.7±
EL. 477.7
EL. 478.27
1½:1 SLOPE NORMAL TO CAP (TYP.)

FIXED

FILL FACE @ END BENT 2
STA. 13+01.14 -L-
GRADE POINT EL. 484.74
BEGIN FRONT SLOPE
STA. 13+05.61 -L-
EL. 484.72
EL. 483.9±
EL. 484.1±
APPROXIMATE NATURAL GROUND LINE
HP 12 X 53 STEEL PILES
1'-0" MIN. EARTH BERM
(NORMAL TO CAP) (TYP.)

END BENT 2

CLASS II RIP RAP
B
1'-0" MIN. EARTH BERM
EL. 478.75 (NORMAL TO CAP)

W.P. #1
FILL FACE @ END BENT 1
STA. 12+38.86 -L-
BEGIN FRONT SLOPE
STA. 12+34.33 -L-
BEGIN APPROACH SLAB
STA. 12+27.85 -L-
TO SR 1357

A
A

UN-NAMED TRIBUTARY TO UWHARRIE RIVER
EXISTING STRUCTURE (TYP.)
LONG CHORD
STA. 12+70.00 -L-
BRIDGE ID

90°-00'-00" (TYP. TO LONG CHORD)
FILL FACE

CLASS II RIP RAP
1'-0" MIN. EARTH BERM
EL. 478.50 (NORMAL TO CAP)

W.P. #2
FILL FACE @ END BENT 2
STA. 13+01.14 -L-
BEGIN FRONT SLOPE
STA. 13+05.61 -L-
END APPROACH SLAB
STA. 13+12.15 -L-
TO US 64
-L-

A
A
FILL FACE

1'-0" MIN. EARTH BERM
EL. 480.19 (NORMAL TO CAP)
1'-0" MIN. EARTH BERM
EL. 479.94 (NORMAL TO CAP)
B
B

31'-1½" (ALONG LONG CHORD)
31'-1½" (ALONG LONG CHORD)
62'-3" (TOTAL LENGTH OF BRIDGE)
(FILL FACE @ END BENT 1 TO FILL FACE @ END BENT 2 ALONG LONG CHORD)

PLAN

PILES NOT SHOWN FOR CLARITY

1'-7" MIN. BERM
NORMAL TO CAP
1'-6"
SLOPE 1½:1
GROUND LINE
2'-0"
1'-0" MIN EARTH BERM
NORMAL TO CAP
3'-6" MIN.
GEOTEXTILE FOR DRAINAGE

SECTION A-A

GRADE LINE
EL. 483±
SLOPE 2:1
GROUND LINE
2'-0"
3'-6" MIN.
GEOTEXTILE FOR DRAINAGE

SECTION B-B

RIP RAP DETAIL

HORIZONTAL CURVE DATA

PI STA. 12+91.43 -L-
Δ = 43°-40'-24.3" (LT.)
D = 8°-29'-17.7"
L = 514.52'
T = 270.48'
R = 675.00'

PROJECT NO. 17BP.8.R.62
RANDOLPH COUNTY
STATION: 12+70.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE #366

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER UN-NAMED TRIBUTARY TO UWHARRIE RIVER ON SR 1311 BETWEEN US 64 AND SR 1357

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 4/29/14

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH 4/28/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			12

DRAWN BY : M.E. GILES DATE : 3/21/14
CHECKED BY : P.S. ADKINS DATE : 3/26/14
DESIGN ENGINEER OF RECORD: D.R. SMITH DATE : 3/27/14

29-APR-2014 11:44
S:\DPG3\Divisionlets\Div08\17BP8R62\Plans\17BP8R62_SD_GD_01.dgn
drsmith

B.M. #1 - RAILROAD SPIKE IN BASE OF 10" ASH TREE,
49.46' RT OF -BL- STA. 7+47.91, EL. 478.94

HYDRAULIC DATA

DESIGN DISCHARGE	=	850 C.F.S.
FREQUENCY OF DESIGN FLOOD	=	25 YEARS
DESIGN HIGH WATER ELEVATION	=	478.8 FT.
DRAINAGE AREA	=	2.15 SQ. MI.
BASE DISCHARGE (Q100)	=	1200 C.F.S.
BASE HIGH WATER ELEVATION	=	479.66 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	3300 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	=	500 YEARS +
OVERTOPPING FLOOD ELEVATION	=	485.5 FT.

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

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.

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS (1 @ 17'-2" AND 1 @ 17'-11") WITH A TIMBER DECK ON TIMBER JOISTS WITH A CLEAR ROADWAY WIDTH OF 23.167 FT. ON TIMBER CAPS ON TIMBER PILES AND TIMBER BULKHEADS AND LOCATED AT PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

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 SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

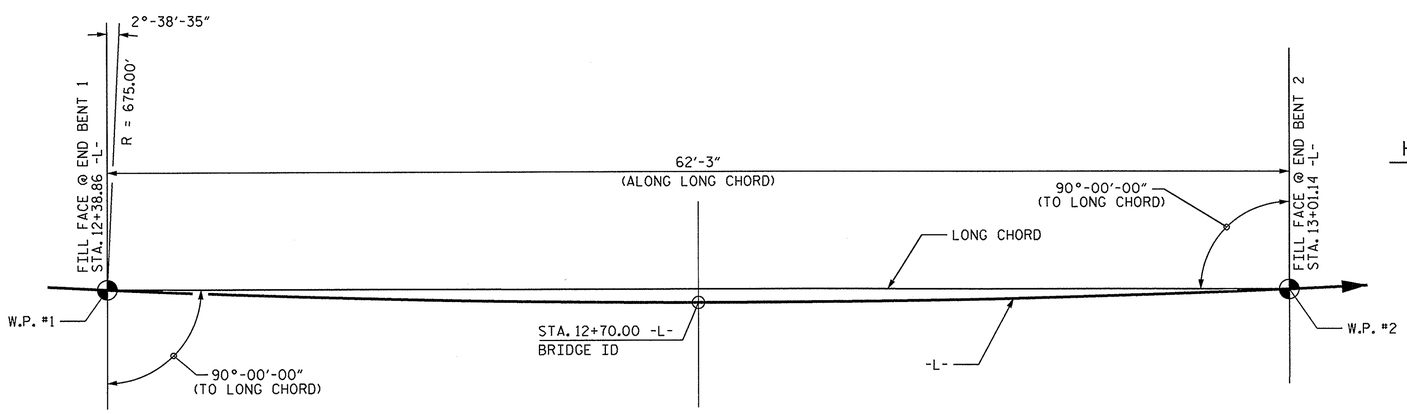
THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES".

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.



HORIZONTAL CURVE DATA

PI STA. 12+91.43 -L-
Δ = 43°-40'-24.3" (LT.)
D = 8°-29'-17.7"
L = 514.52'
T = 270.48'
R = 675.00'

LONG CHORD LAYOUT

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	CLASS II RIP RAP (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE				LUMP SUM				120.00			LUMP SUM	10	600.00
END BENT 1			13.3		1,977	5	100		75	85			
END BENT 2			13.3		1,977	5	150		65	70			
TOTAL	LUMP SUM	LUMP SUM	26.6	LUMP SUM	3,954	10	250	120.00	140	155	LUMP SUM	10	600.00

PROJECT NO. 17BP.8.R.62
RANDOLPH COUNTY
STATION: 12+70.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER UN-NAMED TRIBUTARY TO UWHARRIE RIVER ON SR 1311 BETWEEN US 64 AND SR 1357

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH
4/28/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			12

DRAWN BY : M.E. GILES DATE : 3/23/14
CHECKED BY : P.S. ADKINS DATE : 3/26/14
DESIGN ENGINEER OF RECORD: D.R. SMITH DATE : 3/27/14

29-APR-2014 11:44
S:\DPG3\DivisionLets\Div08\17BP8R62\Plans\17BP8R62_SD_GD_01.dgn
drsmith

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.33	--	1.75	0.275	1.33	60'	EL	29.5	0.52	**1.33**	60'	EL	**5.9**	0.80	0.275	1.37	60'	EL	29.5	
		HL-93(Opr)	N/A	--	1.725	--	1.35	0.275	1.73	60'	EL	29.5	0.52	1.72	60'	EL	5.9	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.601	57.643	1.75	0.275	1.69	60'	EL	29.5	0.52	**1.60**	60'	EL	**5.9**	0.80	0.275	1.74	60'	EL	29.5	
		HS-20(Opr)	36.000	--	2.076	74.723	1.35	0.275	2.19	60'	EL	29.5	0.52	2.08	60'	EL	5.9	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.745	50.557	1.4	0.275	4.55	60'	EL	29.5	0.52	4.63	60'	EL	5.9	0.80	0.275	3.74	60'	EL	29.5	
		SNGARBS2	20.000	--	2.867	57.338	1.4	0.275	3.48	60'	EL	29.5	0.52	3.33	60'	EL	5.9	0.80	0.275	2.87	60'	EL	29.5	
		SNAGRIS2	22.000	--	2.748	60.460	1.4	0.275	3.34	60'	EL	29.5	0.52	3.11	60'	EL	5.9	0.80	0.275	2.75	60'	EL	29.5	
		SNCOTTS3	27.250	--	1.866	50.841	1.4	0.275	2.27	60'	EL	29.5	0.52	2.31	60'	EL	5.9	0.80	0.275	1.87	60'	EL	29.5	
		SNAGGRS4	34.925	--	1.588	55.465	1.4	0.275	1.93	60'	EL	29.5	0.52	1.95	60'	EL	5.9	0.80	0.275	1.59	60'	EL	29.5	
		SNS5A	35.550	--	1.551	55.139	1.4	0.275	1.89	60'	EL	29.5	0.52	1.99	60'	EL	5.9	0.80	0.275	1.55	60'	EL	29.5	
		SNS6A	39.950	--	1.435	57.347	1.4	0.275	1.74	60'	EL	29.5	0.52	1.83	60'	EL	5.9	0.80	0.275	1.44	60'	EL	29.5	
		SNS7B	42.000	--	1.367	57.434	1.4	0.275	1.66	60'	EL	29.5	0.52	1.81	60'	EL	5.9	0.80	0.275	1.37	60'	EL	29.5	
	TTST	TNAGRIT3	33.000	--	1.754	57.887	1.4	0.275	2.13	60'	EL	29.5	0.52	2.17	60'	EL	5.9	0.80	0.275	1.75	60'	EL	29.5	
		TNT4A	33.075	--	1.765	58.389	1.4	0.275	2.15	60'	EL	29.5	0.52	2.10	60'	EL	5.9	0.80	0.275	1.77	60'	EL	29.5	
		TNT6A	41.600	--	1.456	60.551	1.4	0.275	1.77	60'	EL	29.5	0.52	1.96	60'	EL	5.9	0.80	0.275	1.46	60'	EL	29.5	
		TNT7A	42.000	--	1.469	61.714	1.4	0.275	1.79	60'	EL	29.5	0.52	1.88	60'	EL	5.9	0.80	0.275	1.47	60'	EL	29.5	
		TNT7B	42.000	--	1.535	64.463	1.4	0.275	1.87	60'	EL	29.5	0.52	1.76	60'	EL	5.9	0.80	0.275	1.53	60'	EL	29.5	
		TNAGRIT4	43.000	--	1.450	62.329	1.4	0.275	1.76	60'	EL	29.5	0.52	1.70	60'	EL	5.9	0.80	0.275	1.45	60'	EL	29.5	
		TNAGT5A	45.000	--	1.361	61.247	1.4	0.275	1.65	60'	EL	29.5	0.52	1.71	60'	EL	5.9	0.80	0.275	1.36	60'	EL	29.5	
		TNAGT5B	45.000	3	1.340	60.282	1.4	0.275	1.63	60'	EL	29.5	0.52	1.61	60'	EL	5.9	0.80	0.275	**1.34**	60'	EL	**29.5**	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

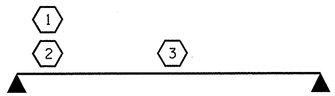
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. 17BP.8.R.62

RANDOLPH COUNTY

STATION: 12+70.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 60' CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH JR
4/28/14

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

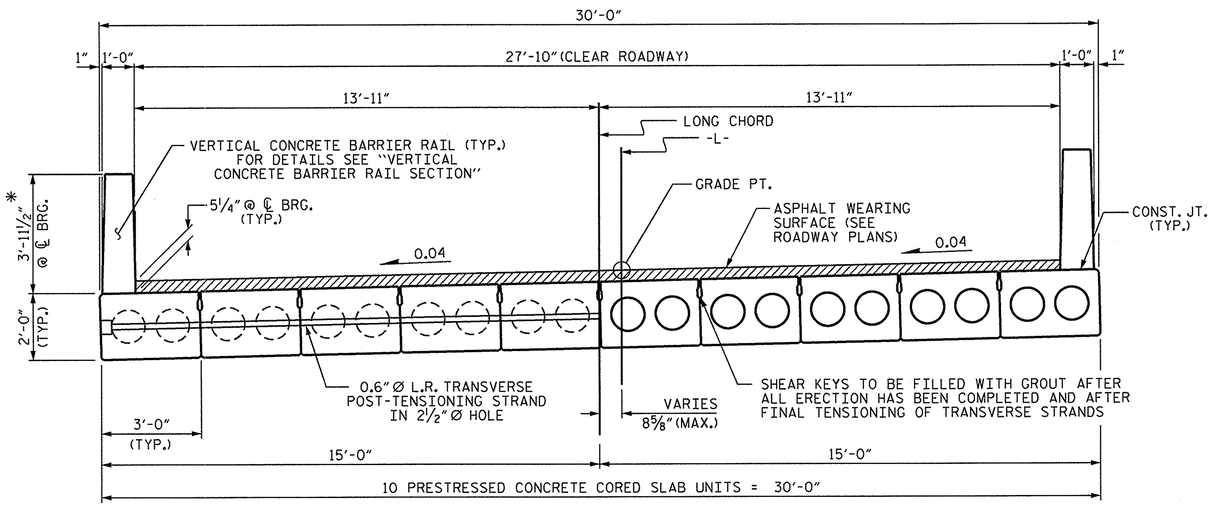
SHEET NO. S-3

TOTAL SHEETS 12

STD. NO. 24LRFR1_90S_60L

ASSEMBLED BY : M.E.GILES	DATE : 3/13/14
CHECKED BY : D.R. SMITH	DATE : 3/20/14
DRAWN BY : CVC 6/10	
CHECKED BY : DNS 6/10	

28-APR-2014 10:26
S:\DPG3\Division1ets\Div08\17BP8R62\Plans\17BP8R62_SD_AS_01.dgn
drsmith



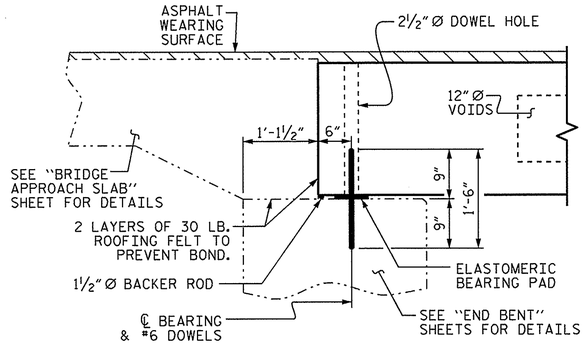
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

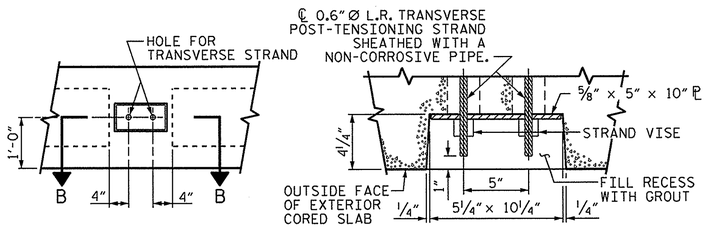
TYPICAL SECTION

* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END



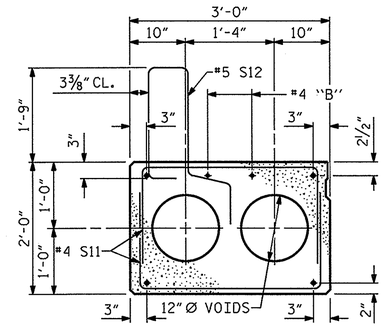
SECTION AT END BENT



ELEVATION VIEW

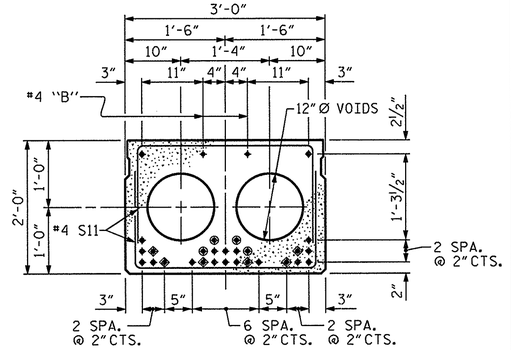
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



EXTERIOR SLAB SECTION

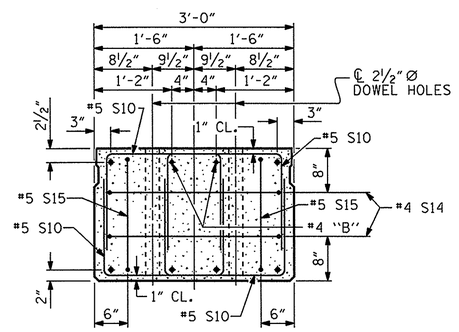
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (60' UNIT)

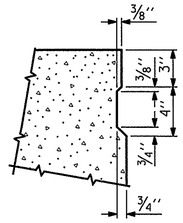
(24 STRANDS REQUIRED)

0.6'' Ø LOW RELAXATION STRAND LAYOUT



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PROJECT NO. 17BP.8.R.62
RANDOLPH COUNTY
STATION: 12+70.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3'-0'' X 2'-0'' PRESTRESSED CONCRETE CORED SLAB UNIT

90° SKEW

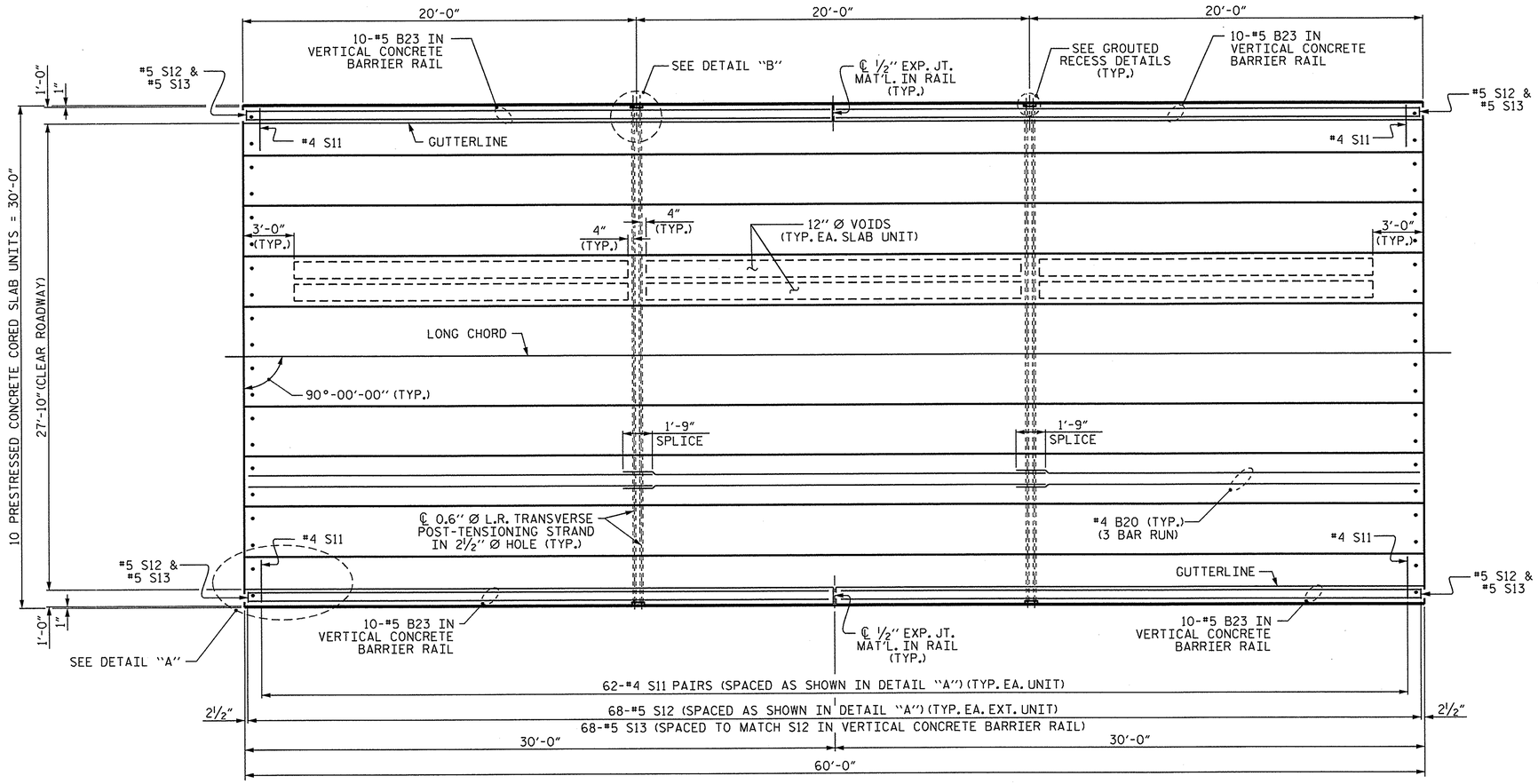
NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH
4/24/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			12

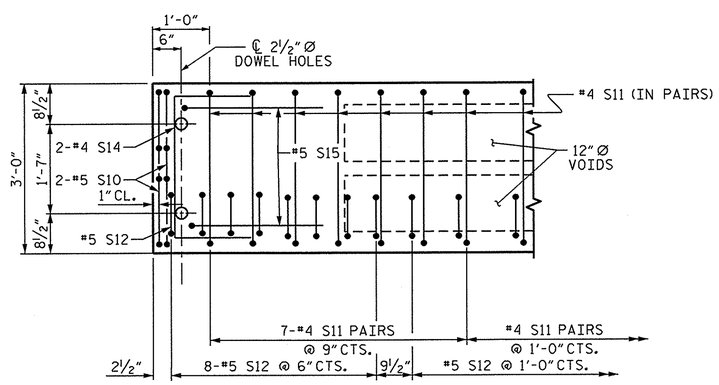
STD. NO. 24PCS4_30_90S

ASSEMBLED BY : M.E.GILES		DATE : 3/10/14
CHECKED BY : D.R. SMITH		DATE : 3/20/14
DRAWN BY : MAA	6/10	REV. 12/11 MAA/AAC
CHECKED BY : MKT	7/10	

28-APR-2014 09:30
S:\DPGS\Division1_ots\Div08\17BP8R62\Plans\17BP8R62_SD_CS_01.dgn
drsmith

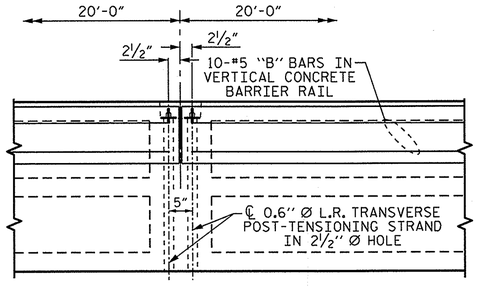


PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2½" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

ASSEMBLED BY :	M.E.GILES	DATE :	3/10/14
CHECKED BY :	D.R. SMITH	DATE :	3/20/14
DRAWN BY :	MAA	6/10	REV. 12/5/11 MAA/AAC
CHECKED BY :	MKT	7/10	

28-APR-2014 09:30
S:\DPG3\DivisionLets\Div08\17BP8R62\Plans\17BP8R62_SD_CS_01.dgn
drsmith

PROJECT NO. 17BP.8.R.62

RANDOLPH COUNTY

STATION: 12+70.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

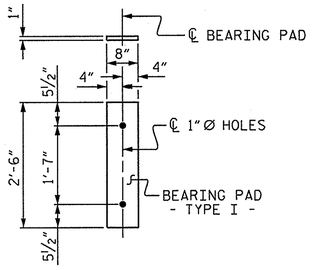
PLAN OF 60' UNIT 27'-10" CLEAR ROADWAY

90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH, JR.
4/28/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			12

STD. NO. 24PCS_30_90S_60L



FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 60' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B23	40	40	#5	STR	29'-7"	1234
*S13	136	136	#5	2	7'-2"	1017
* EPOXY COATED REINFORCING STEEL				LBS.		2,251
CLASS AA CONCRETE				CU.YDS.		16.2
TOTAL VERTICAL CONCRETE BARRIER RAIL				LIN.FT.		120.00

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
60' UNITS	2⅜"	3'-8⅝"

BILL OF MATERIAL FOR ONE 60' CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B20	6	#4	STR	21'-1"	85	21'-1"	85
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	124	#4	3	5'-10"	483	5'-10"	483
*S12	68	#5	1	6'-4"	449		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		653		653
* EPOXY COATED REINFORCING STEEL			LBS.		449		
6,000 P.S.I. CONCRETE			CU. YDS.		10.2		10.2
0.6" Ø L.R. STRANDS			No.		24		24

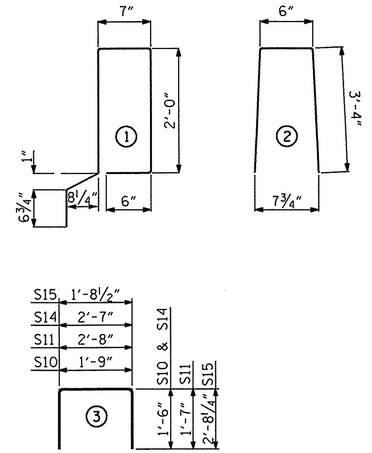
CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
60' UNIT			
EXTERIOR C.S.	2	60'-0"	120'-0"
INTERIOR C.S.	8	60'-0"	480'-0"
TOTAL	10		600'-0"

GRADE 270 STRANDS

	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 2'-0"
60' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3⅜" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	½" ↓
FINAL CAMBER	2⅞" ↑

** INCLUDES FUTURE WEARING SURFACE

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½'' IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

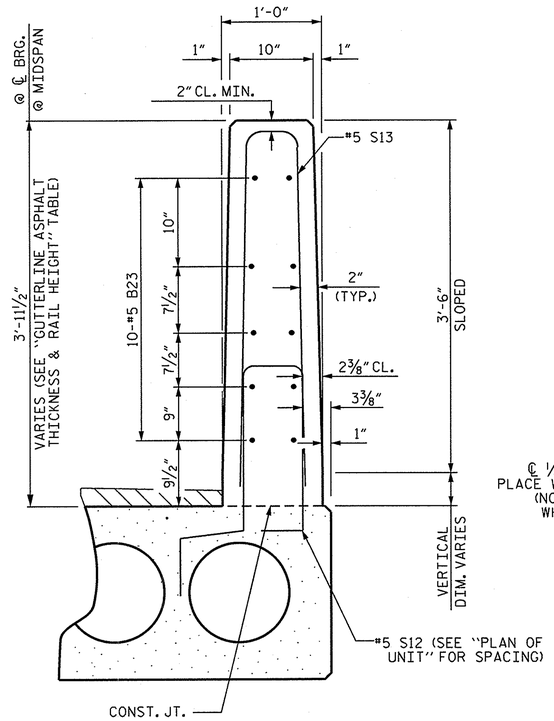
TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,800 PSI.

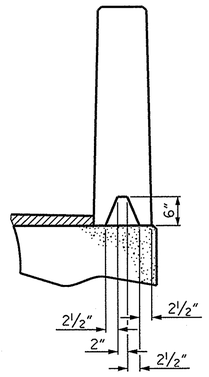
MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

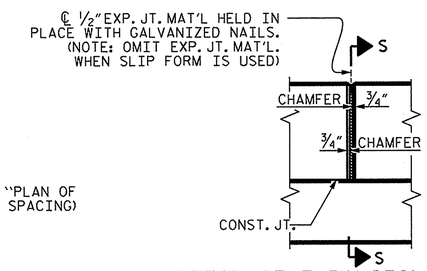
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



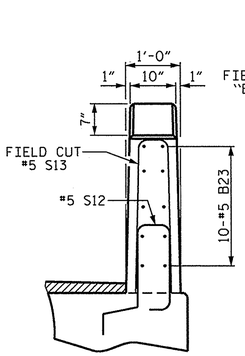
SECTION THRU RAIL



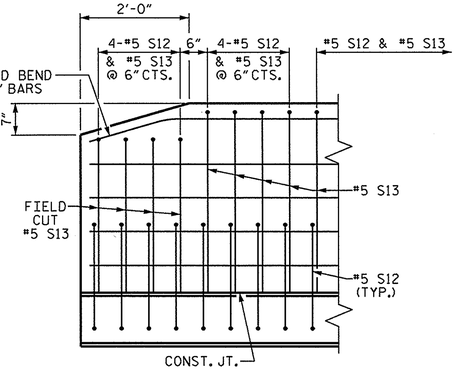
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

VERTICAL CONCRETE BARRIER RAIL DETAILS

ASSEMBLED BY : M.E.GILES		DATE : 3/10/14	
CHECKED BY : D.R. SMITH		DATE : 3/20/14	
DRAWN BY : MAA	6/10	REV. 12/11	MAA/AAC
CHECKED BY : MKT	7/10		

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH
4/25/14

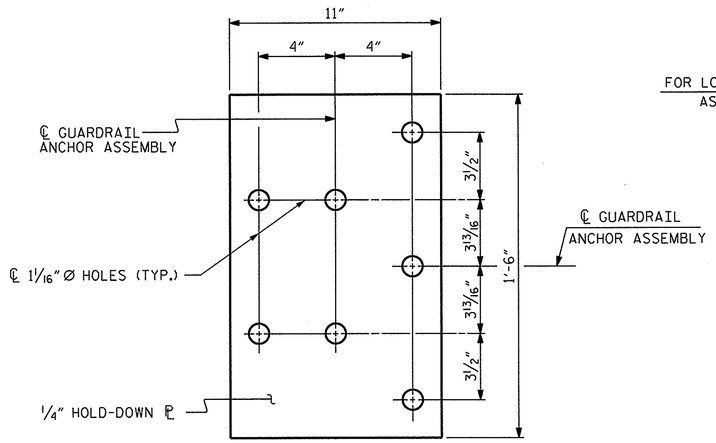
PROJECT NO. 17BP.8.R.62
RANDOLPH COUNTY
STATION: 12+70.00 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

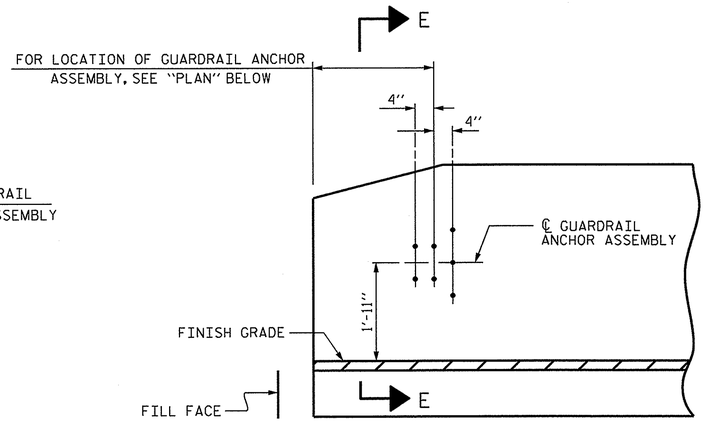
REVISIONS NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-6
2			4			TOTAL SHEETS 12

STD. NO. 24PCS3_30_90S

28-APR-2014 09:30
S:\DPG3\DivisionLets\Div08\17BP8R62\Plans\17BP8R62_SD_CS_01.dgn
drsmith



PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS 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.)

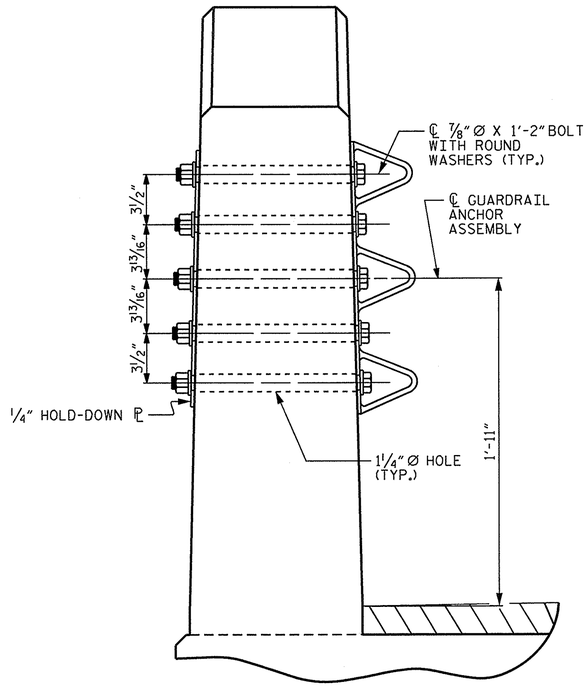
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

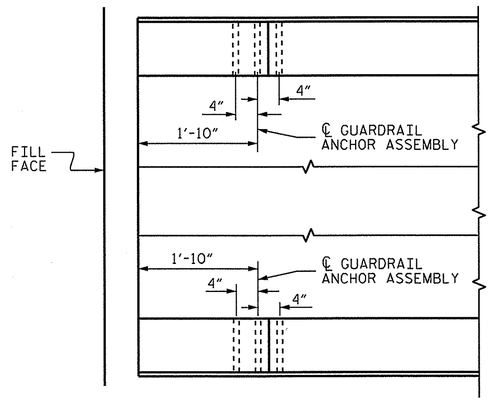
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E

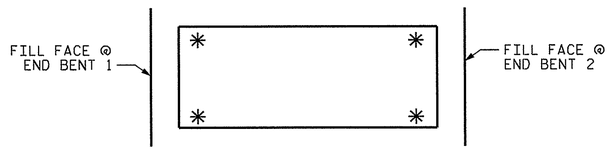
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.8.R.62

RANDOLPH COUNTY

STATION: 12+70.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

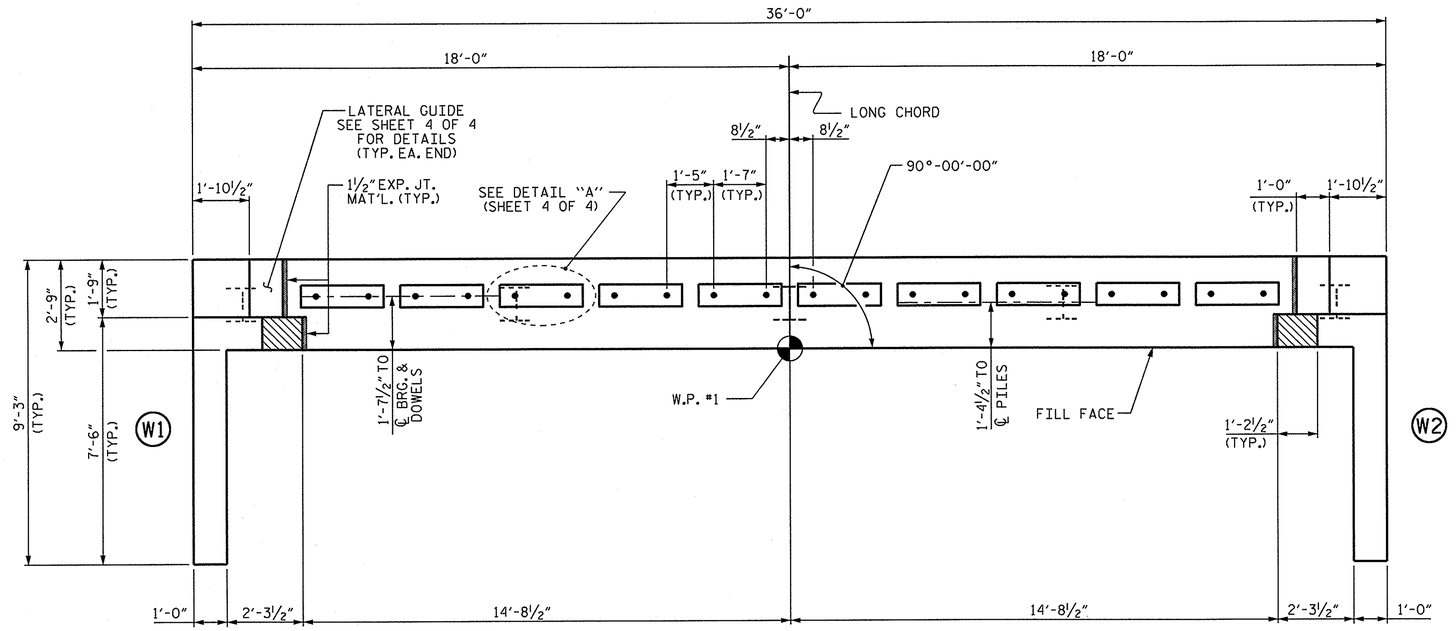
NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH, JR. 4/24/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			12

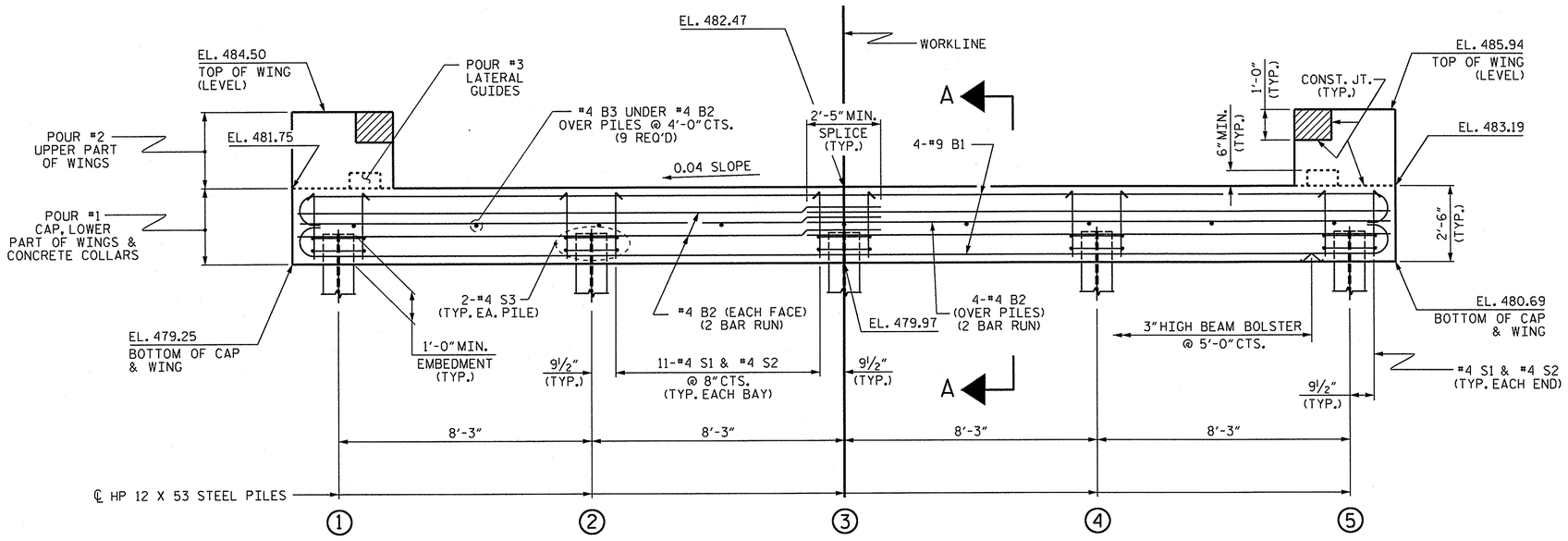
STD. NO. GRA3

ASSEMBLED BY : M.E.GILES	DATE : 3/19/14	
CHECKED BY : D.R. SMITH	DATE : 3/20/14	
DRAWN BY : MAA 5/10	REV. 10/1/11	MAA/GM
CHECKED BY : GM 5/10	REV. 12/5/11	MAA/GM
	REV. 6/13	MAA/GM

28-APR-2014 09:30
S:\DPG3\DivisionLets\Div08\17BP8R62\Plans\17BP8R62_SD_GR_01.dgn
drsmith



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

TOP OF PILE ELEVATIONS	
①	480.33
②	480.66
③	480.99
④	481.32
⑤	481.65

PROJECT NO. 17BP.8.R.62
RANDOLPH COUNTY
STATION: 12+70.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

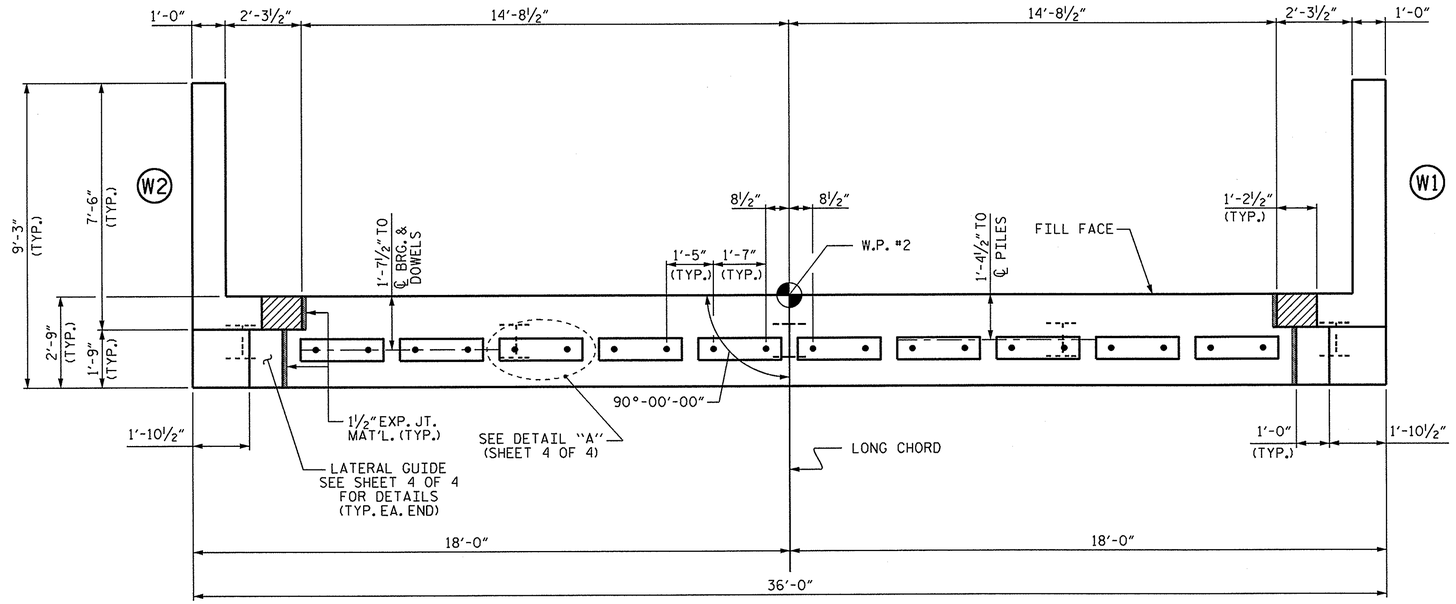
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			12

STD. NO. EB_30_90S

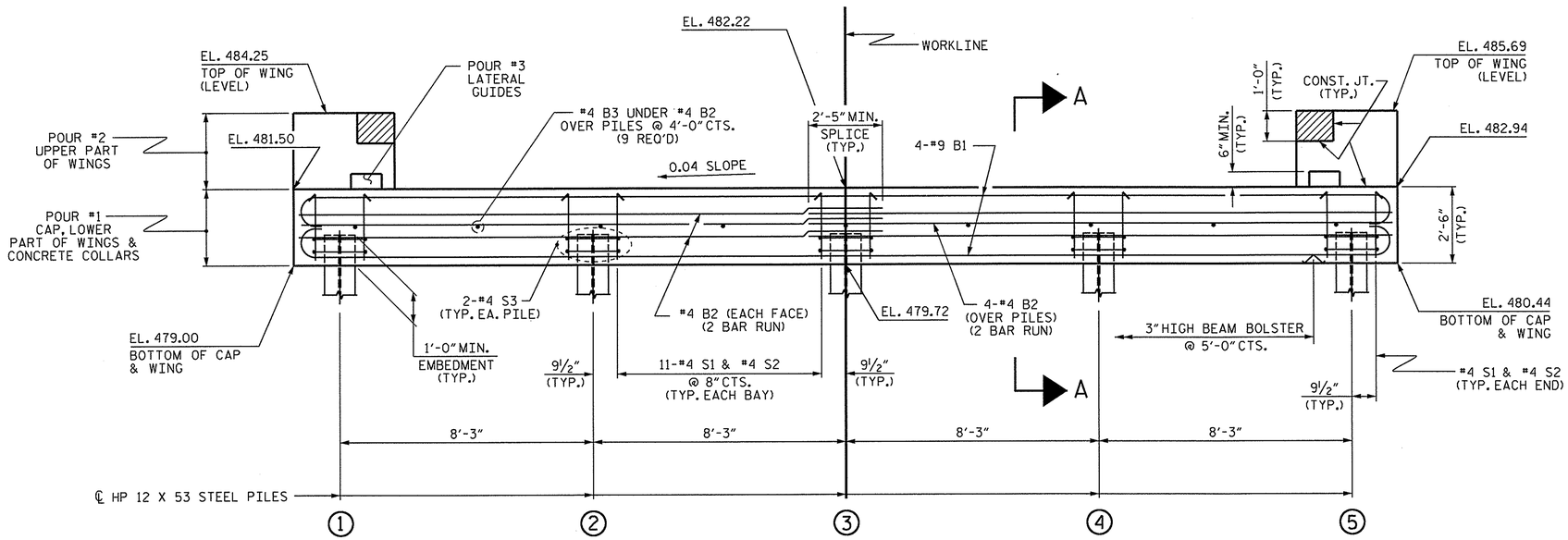
NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH
4/29/14

ASSEMBLED BY :	M.E.GILES	DATE : 3/18/14
CHECKED BY :	D.R. SMITH	DATE : 3/20/14
DRAWN BY :	DGE	02/10
CHECKED BY :	MKT	02/10

28-APR-2014 09:30
S:\DPG3\DivisionLets\Div08\17BP8R62\Plans\17BP8R62_SD_E*_01.dgn
drsmith



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

TOP OF PILE ELEVATIONS	
①	480.08
②	480.41
③	480.74
④	481.07
⑤	481.40

PROJECT NO. 17BP.8.R.62
RANDOLPH COUNTY
STATION: 12+70.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

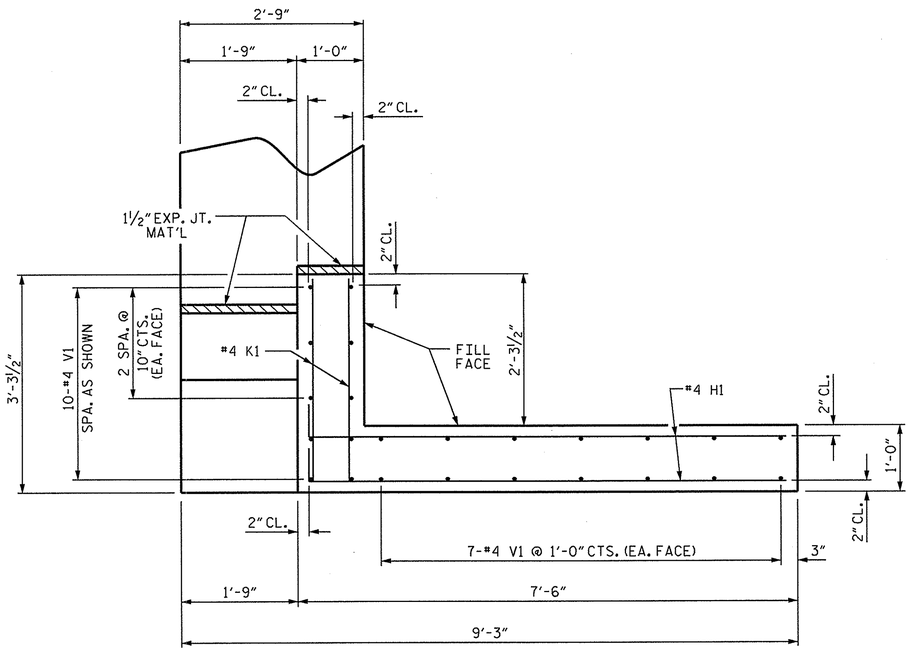
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			12

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH JR
4/09/14

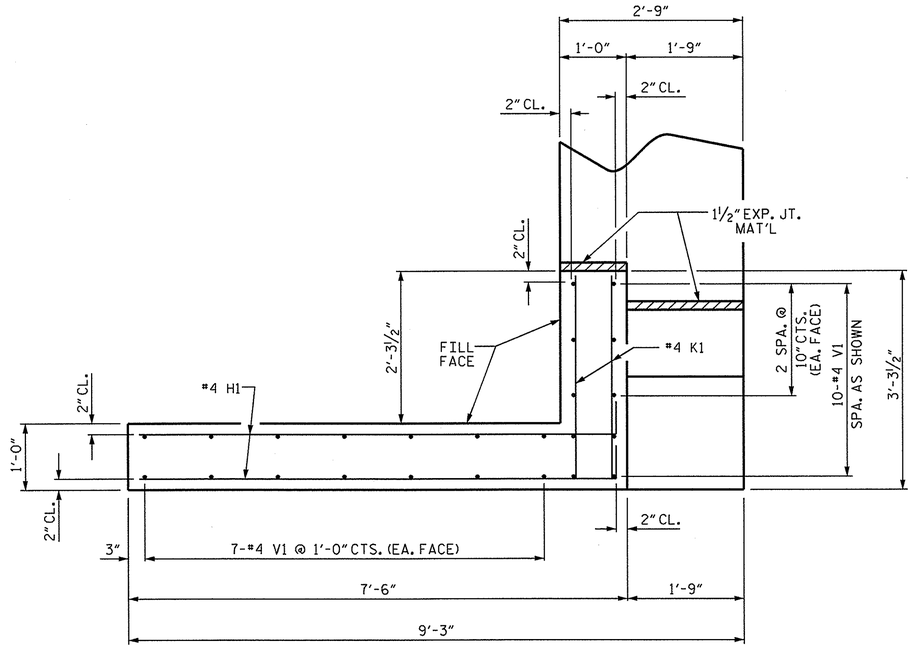
STD. NO. EB_30_90S

ASSEMBLED BY :	M.E.GILES	DATE : 3/18/14
CHECKED BY :	D.R. SMITH	DATE : 3/20/14
DRAWN BY : DGE	02/10	
CHECKED BY : MKT	02/10	

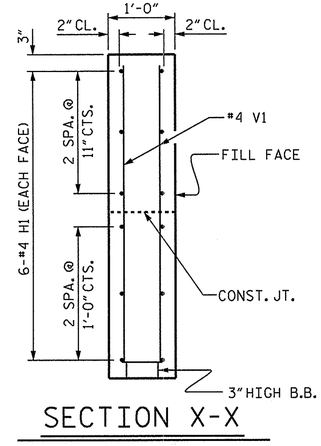
28-APR-2014 09:30
S:\DPG3\DivisionLets\Div08\17BP8R62\Plans\17BP8R62_SD_E*_01.dgn
drsmith



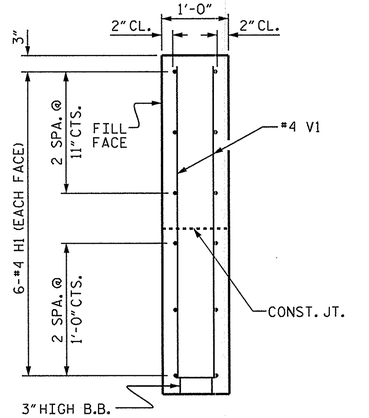
PLAN OF WING (W1)



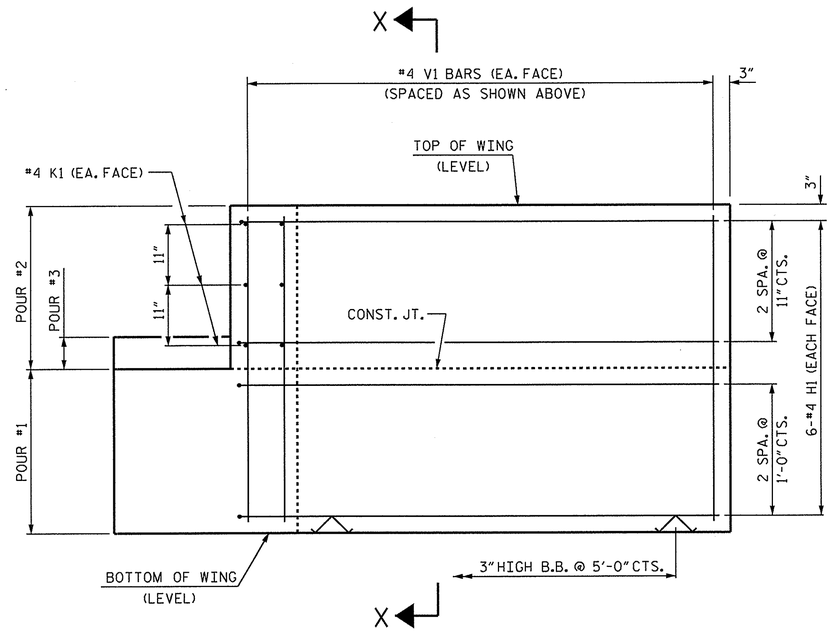
PLAN OF WING (W2)



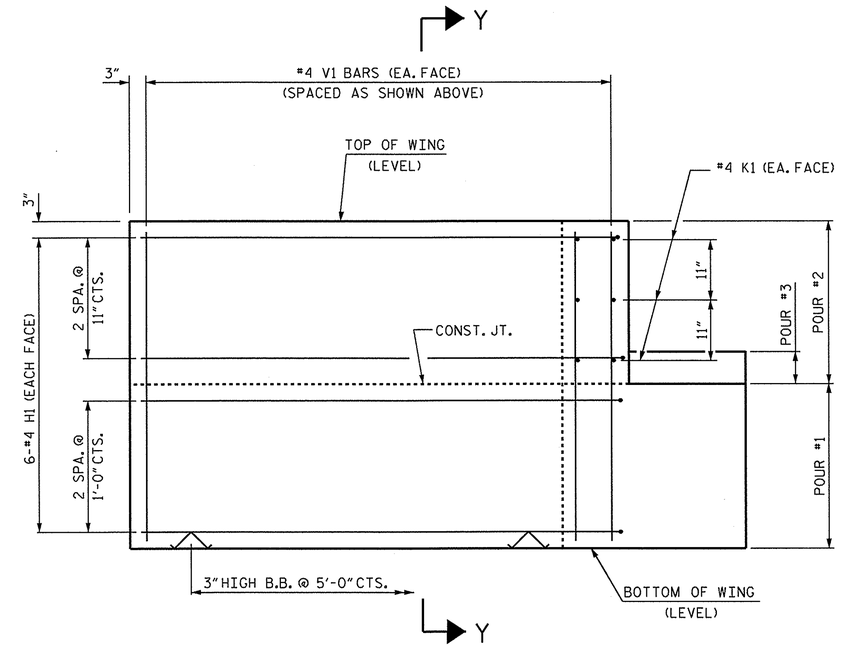
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

ASSEMBLED BY : M.E.GILES	DATE : 3/18/14		
CHECKED BY : D.R. SMITH	DATE : 3/20/14		
DRAWN BY : DGE	02/10		
CHECKED BY : MKT	02/10		

28-APR-2014 09:30
S:\DP03\DivisionLets\Div08\17BP8R62\Plans\17BP8R62_SD_E*_01.dgn
drsmith

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH, JR.
4/28/14

PROJECT NO. 17BP.8.R.62
RANDOLPH COUNTY
STATION: 12+70.00 -L-

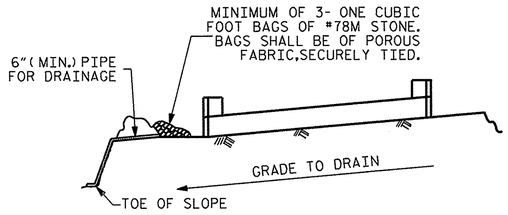
SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			12

STD. NO. EB_30_90S

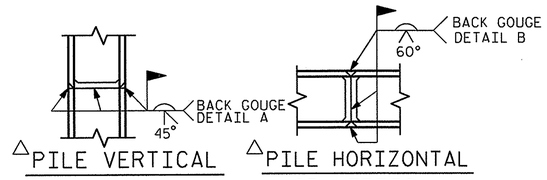


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

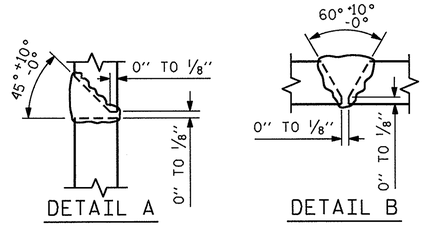
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



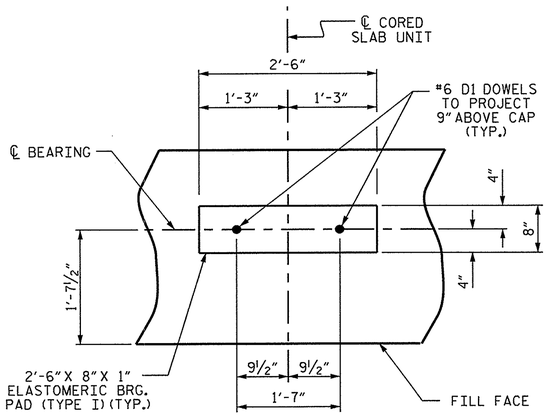
△PILE VERTICAL

△PILE HORIZONTAL OR VERTICAL



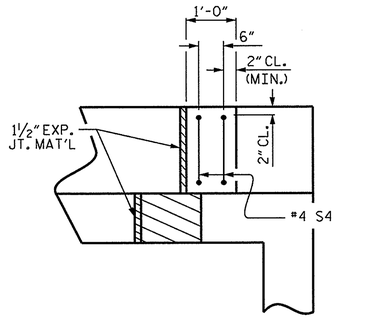
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

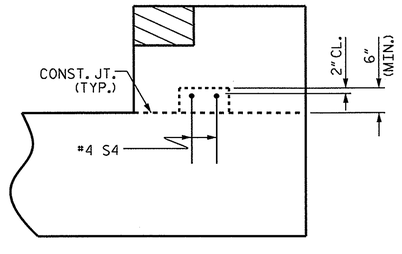


DETAIL "A"

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



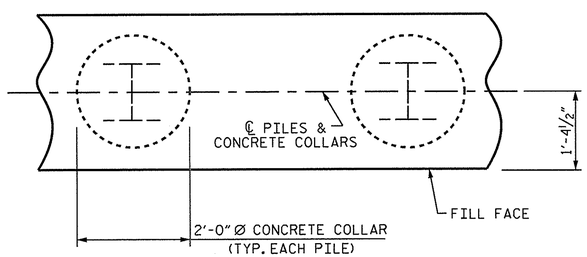
PLAN



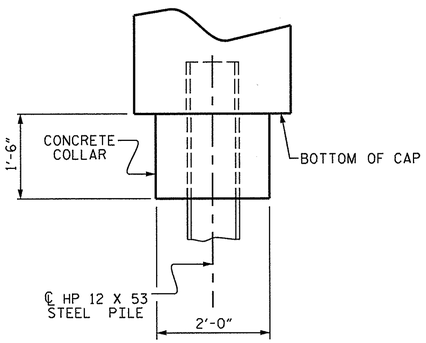
ELEVATION

LATERAL GUIDE DETAILS

(RIGHT LATERAL GUIDE SHOWN, LEFT END SIMILAR)



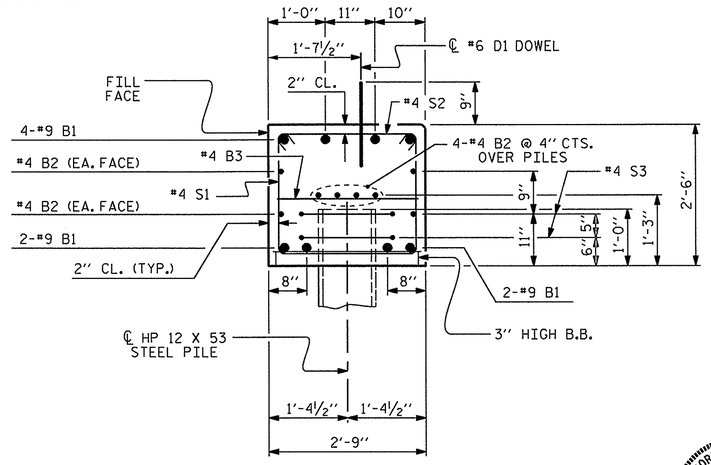
PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

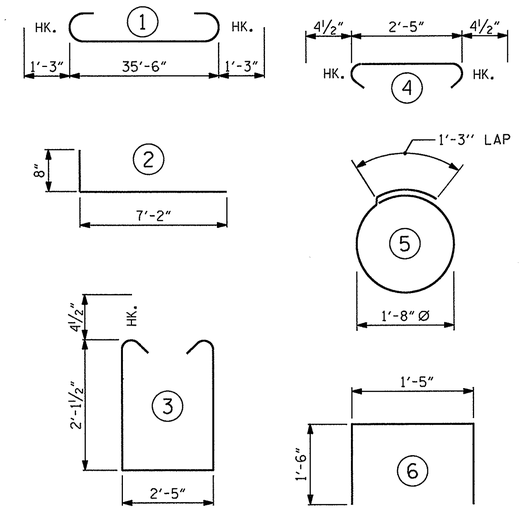
(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT 1	END BENT 2
HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES
NO: 5 LIN. FT.= 100	NO: 5 LIN. FT.= 150

BILL OF MATERIAL FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	16	#4	STR	19'-1"	204
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	46	#4	3	7'-5"	228
S2	46	#4	4	3'-2"	97
S3	10	#4	5	6'-6"	43
S4	4	#4	6	4'-5"	12
V1	48	#4	STR	4'-8"	150

REINFORCING STEEL (FOR ONE END BENT) LBS. 1,977

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	C.Y.	11.2
POUR #2	UPPER PART OF WINGS	C.Y.	2.0
POUR #3	LATERAL GUIDES	C.Y.	0.1
TOTAL CLASS A CONCRETE		C.Y.	13.3

PROJECT NO. 17.BP.8.R.62

RANDOLPH COUNTY

STATION: 12+70.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 & 2 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH, JR.

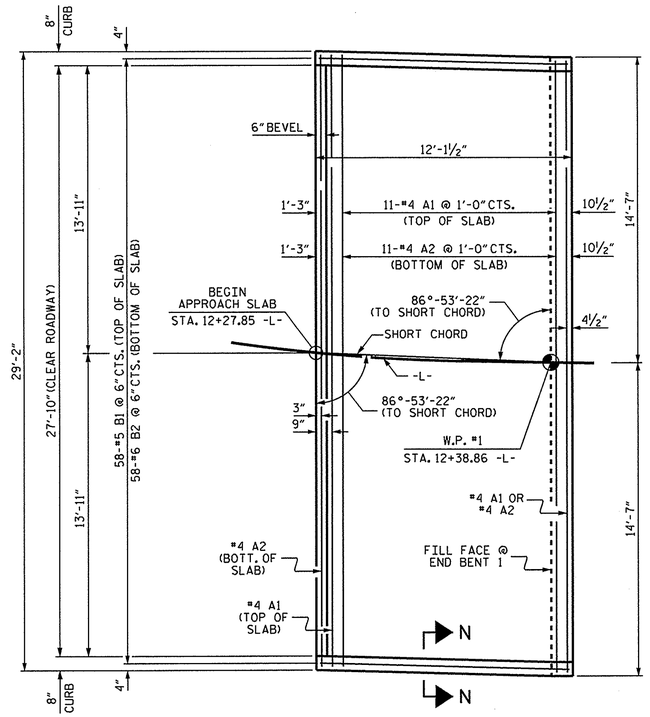
4/29/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			12

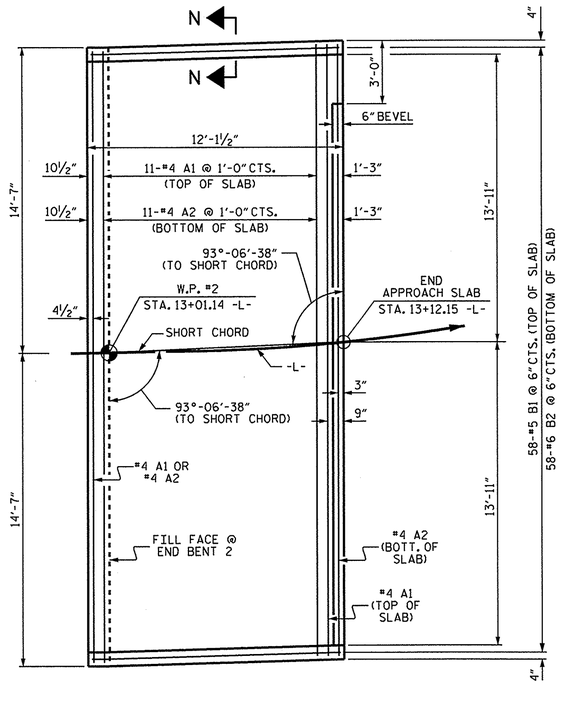
STD. NO. EB_30_90S

ASSEMBLED BY : M.E.GILES		DATE : 3/18/14
CHECKED BY : D.R. SMITH		DATE : 3/20/14
DRAWN BY : DGE	02/10	
CHECKED BY : MKT	02/10	

28-APR-2014 09:30
S:\DPG3\DivisionLets\Div08\17BP8R62\Plans\17BP8R62_SD_E*_01.dgn
drsmith

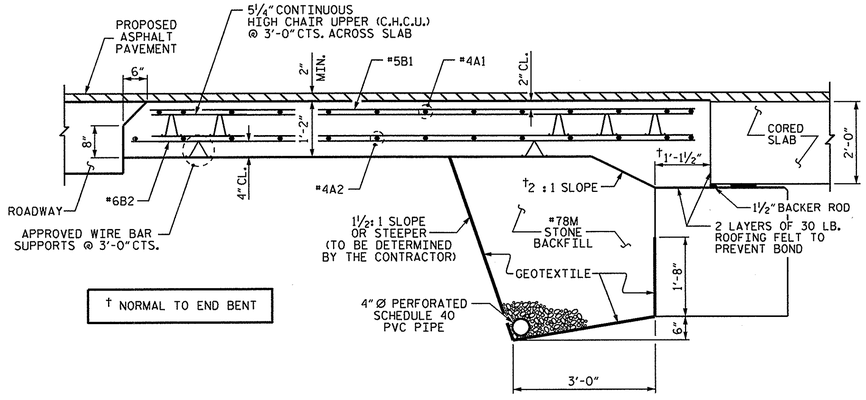


PLAN @ END BENT 1



PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS
ARC OFFSETS ARE NEGLIGIBLE.



† NORMAL TO END BENT

SECTION THRU SLAB

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL. SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

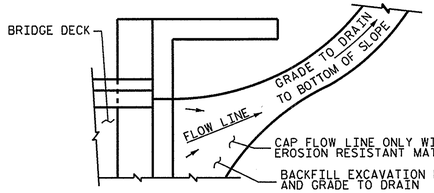
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

BILL OF MATERIAL

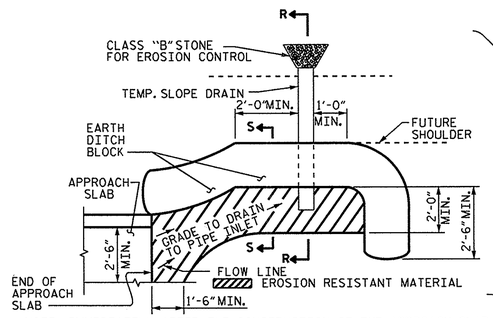
APPROACH SLAB AT EB 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1,266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C.Y.	18.3

APPROACH SLAB AT EB 2

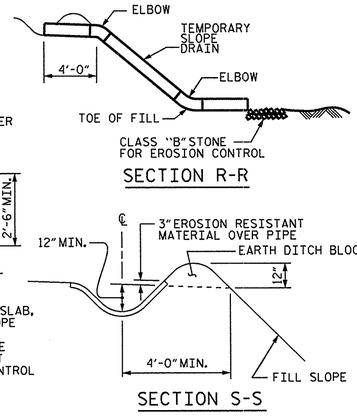
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1,266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C.Y.	18.3

TEMPORARY DRAINAGE DETAIL



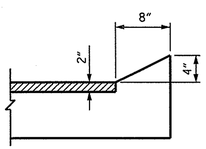
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

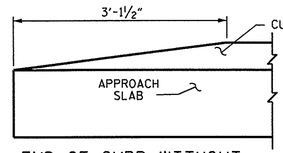


TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

PROJECT NO. 17BP.8.R.62

RANDOLPH COUNTY

STATION: 12+70.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT
(SUB-REGIONAL TIER)
90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER DONALD R. SMITH, JR.
4/6/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			12

STD. NO. BAS_30_90S

ASSEMBLED BY : M.E.GILES	DATE : 3/13/14
CHECKED BY : D.R. SMITH	DATE : 3/20/14
DRAWN BY : SHS/MAA 5-09	REV. 12-11 MAA/AAC
CHECKED BY : BCH 5-09	

28-APR-2014 09:30
S:\DPG3\DivisionLets\Div08\17BP8R62\Plans\17BP8R62_SD_AS_01.dgn
drsmith

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

09-FEB-2012 10:06
R:\Structures\Plans\BD_5110P_SD_AS.dgn
jpadams

ENGLISH

JANUARY, 1990

STD. NO. SN

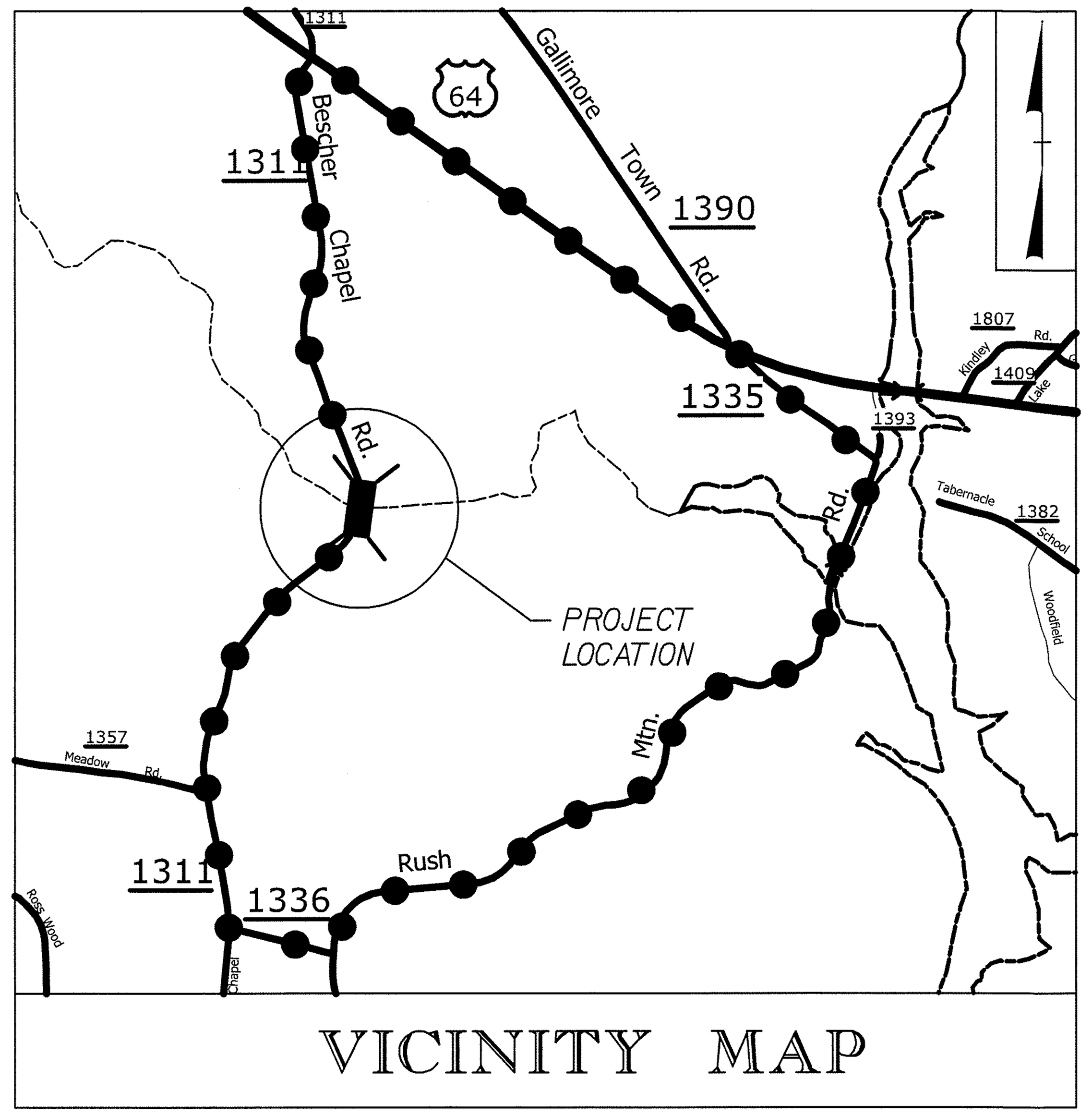
09/08/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

T.I.P. NO.	SHEET NO.
17BP.8.R.62	UC-1

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

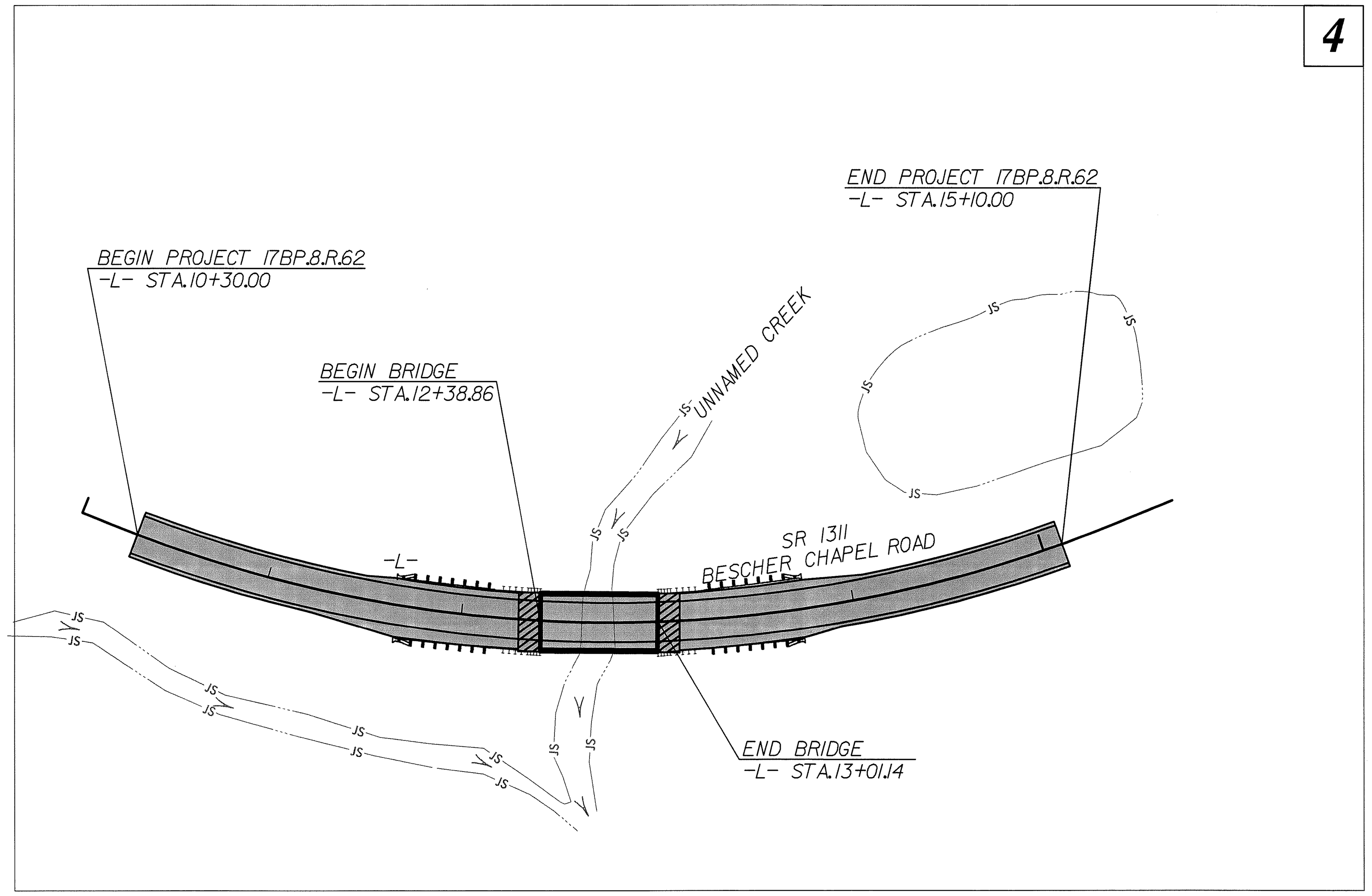


OFF-SITE DETOUR ROUTE

LOCATION: BRIDGE NO. 366 ON SR 1311 (BESCHER CHAPEL ROAD)
OVER UNNAMED CREEK

TYPE OF WORK: WATER LINE RELOCATION

NC GRID NAD 83 NA 2011



TO JACKSON CREEK

TO US 64

TIP PROJECT: 17BP.8.R.62

$$$$$SYSTIME$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

GRAPHIC SCALES

50 25 0 50 100
PLANS
50 25 0 50 100
PROFILE (HORIZONTAL)
10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UC-1	*TITLE SHEET*
UC-2	*UTILITY CONSTRUCTION PLAN SHEETS*

WATER AND SEWER OWNERS ON PROJECT

1) WATER - DAVIDSON WATER, INC.

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 37378 ENGINEER CHARLES M CULLIPHER
6/3/14

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

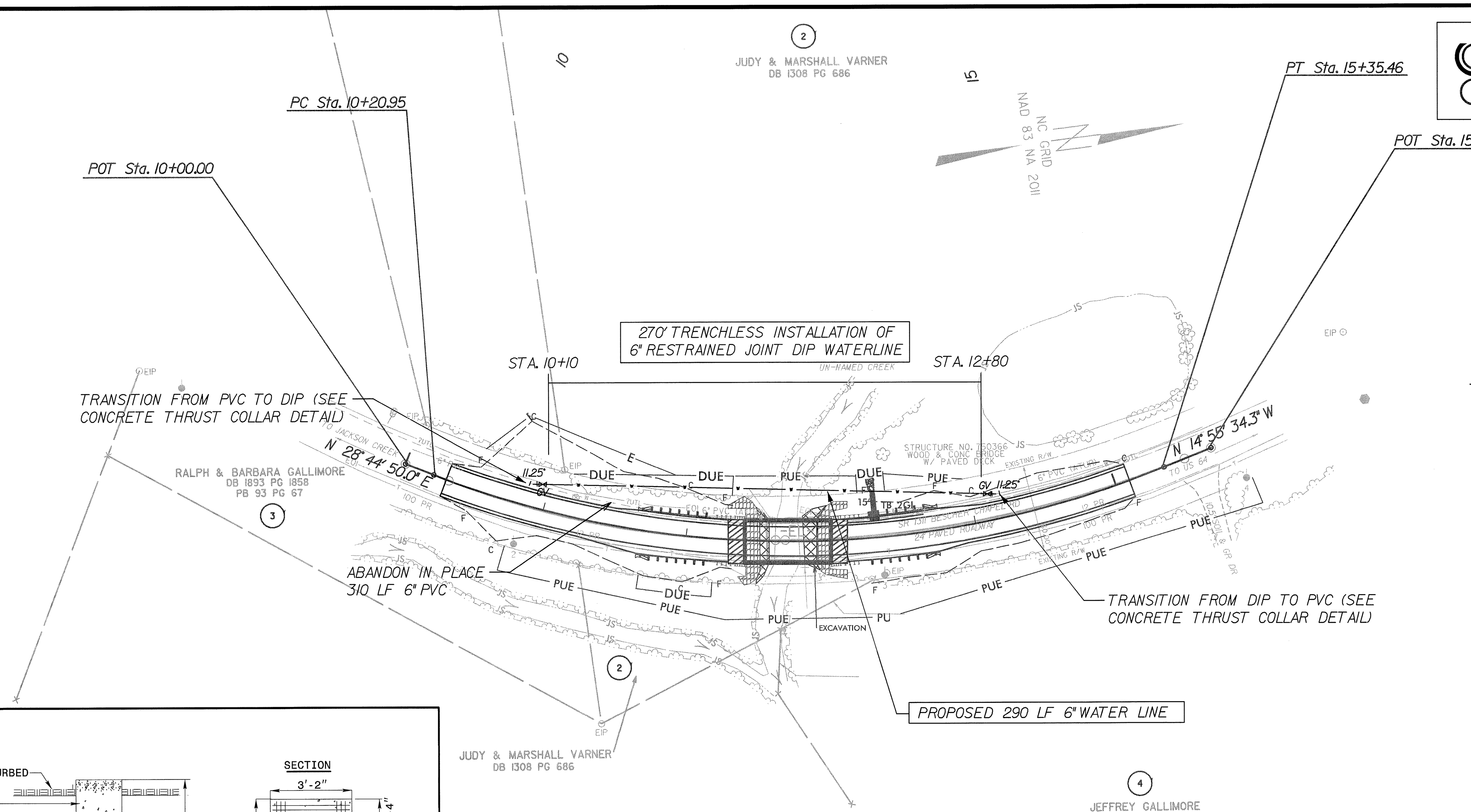
Roger Worthington, P.E. *UTILITIES SECTION ENGINEER*
Charles M. Cullipher, PE *UTILITIES PROJECT DESIGNER*

5/14/99

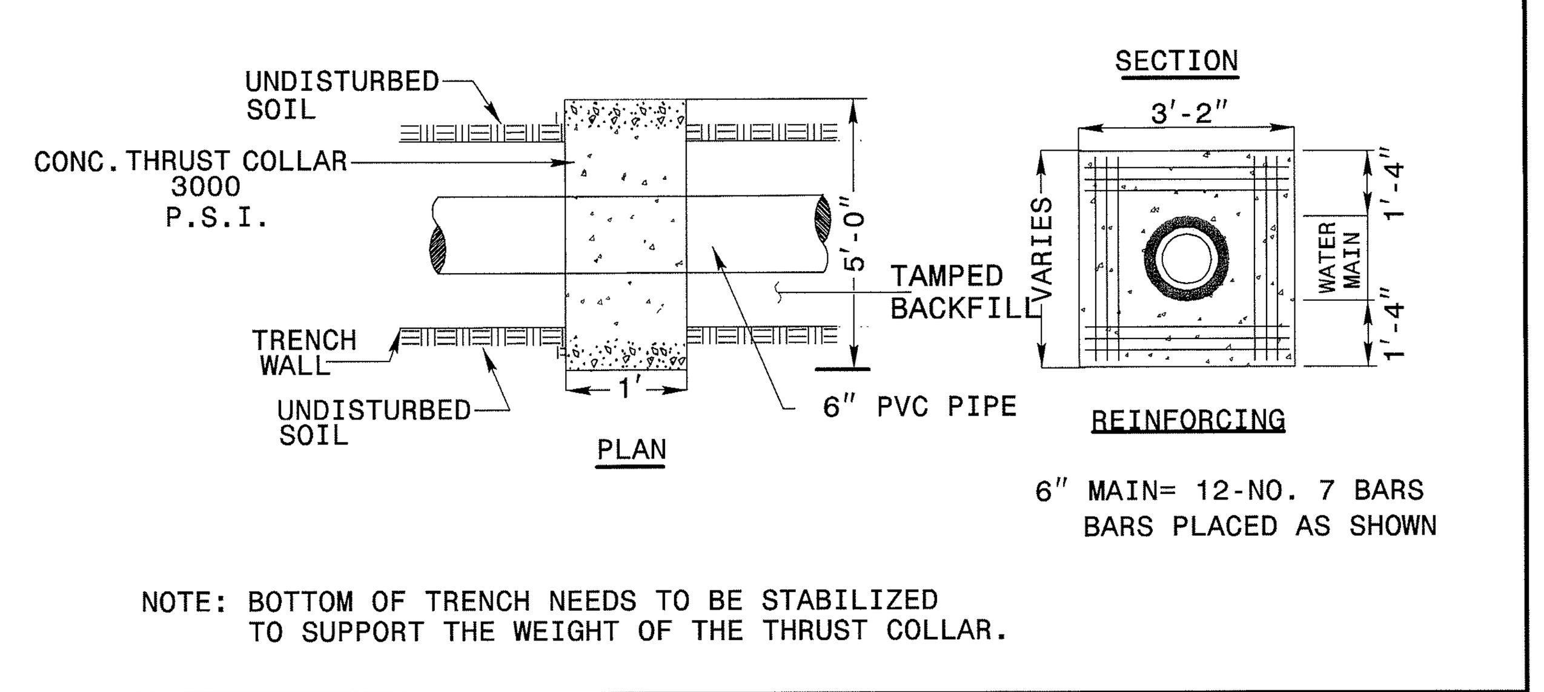
PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	UC-2
RANDOLPH NO.750366	
R/W SHEET NO.	
	UTILITY ENGINEER

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

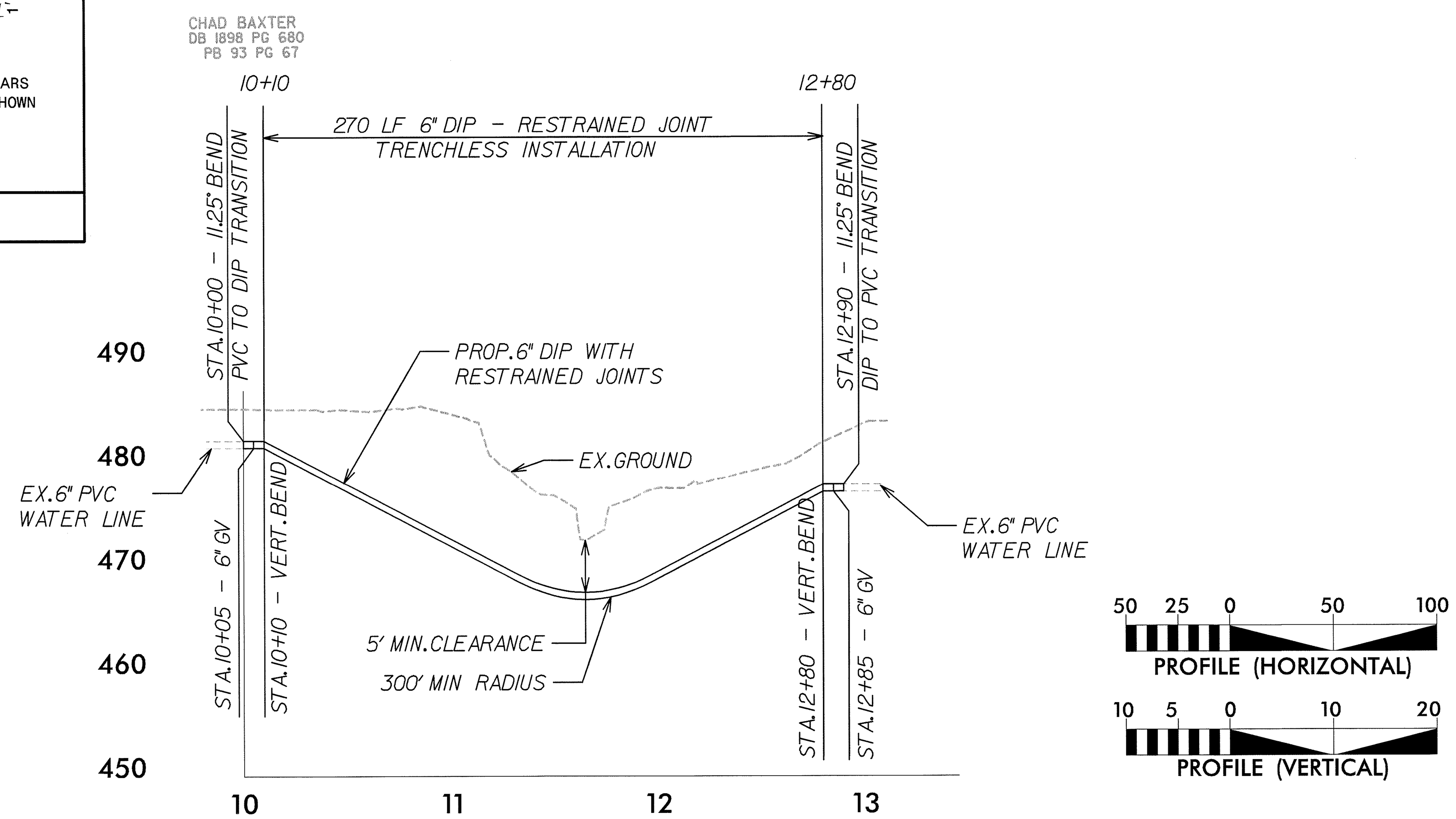
NORTH CAROLINA PROFESSIONAL SEAL 37378 ENGINEER CHARLES M. CULLIPHER 6/3/14



6" DIP WATER LINE PLAN VIEW



CONCRETE THRUST COLLAR DETAIL - 6" WATER LINES



6" DIP WATER LINE PROFILE

NOTES:

1. ALL PROPOSED PIPE SHALL BE 6" RESTRAINED JOINT DUCTILE IRON PIPE WITH MINIMUM 4° OF ALLOWABLE DEFLECTION AS PER PROJECT SPECIFICATIONS.

2. THE CONTRACTOR SHALL COORDINATE ISOLATION OF THE EXISTING WATER MAIN FOR TIE-INS WITH DAVIDSON WATER, INC.

3. PRIOR TO MAKING TIE-INS, FACILITATE FILLING, FLUSHING, TESTING, STERILIZATION AND BLOWOFF TO PROPOSED WATER MAIN BY INSTALLING 6" X 2" TAPPING SADDLE AND VALVE ON THE SECTION OF EXISTING 6" MAIN. HARDPIPE FROM TAPPING VALVE TO STUBBED OUT END OF PROPOSED 6" WATER MAIN WITH 2" SOLVENT WELD SCH40 PVC PIPE. PROVIDE RESTRAINED 6" CAP TAPPED FOR 2" CONNECTION. PROVIDE TEMPORARY 2" BLOWOFF ON OPPOSITE END OF PROPOSED MAIN WITH LIKE MATERIALS INCLUDING 2" ISOLATION VALVE.

4. FLUSH PROPOSED 6" MAIN AT 2.5 FPS VELOCITY AND PRESSURE TEST PROPOSED 6" WATER MAIN AT MINIMUM 200 PSI FOR 3 HOURS AS PER DAVIDSON WATER, INC. SPECIFICATION.

5. AFTER SATISFACTORY BACTERIALOGICAL SAMPLING AND PRESSURE TEST, MAKE TIE-INS BE REMOVING EXISTING 6" MAIN AND CONNECTING 6" RESTRAINED JOINT BEND WITH CONCRETE THRUST BLOCK PER DETAIL. CONCRETE SHALL BE POURED A MINIMUM 24 HOURS BEFORE MAKING CONNECTION.

6. THE CONTRACTOR SHALL RESTRAIN FITTINGS AND PIPE.

7. COVER OVER PIPE AT STREAM CROSSING SHALL BE 5' MIN BELOW STREAM BOTTOM TO TOP OF PIPE.

8. ALL WORK SHALL BE IN ACCORDANCE WITH DAVIDSON WATER INC. UTILITY SPECIFICATIONS. SPECIFICATIONS CAN BE OBTAINED FROM THE ENGINEER OR WWW.DAVIDSONWATER.COM.

9. AN NCDOT OR DAVIDSON WATER INC. REPRESENTATIVE SHALL BE PRESENT FOR ALL TESTS.

10. CONTRACTOR SHALL COORDINATE WATER LINE INSTALLATION AND CONNECTION WITH DAVIDSON WATER, INC. EXISTING WATER LINE SHALL REMAIN IN SERVICE UNTIL BORE, TESTING AND DISINFECTION OF NEW WATER LINE IS COMPLETE.

11. IF TEMPORARY SHUT DOWN IS REQUIRED THE CONTRACTOR WILL COORDINATE THIS SHUT DOWN WITH DAVIDSON WATER, INC. IN A MANNER THAT IS MOST CONVENIENT FOR CUSTOMERS AND DAVIDSON WATER, INC.

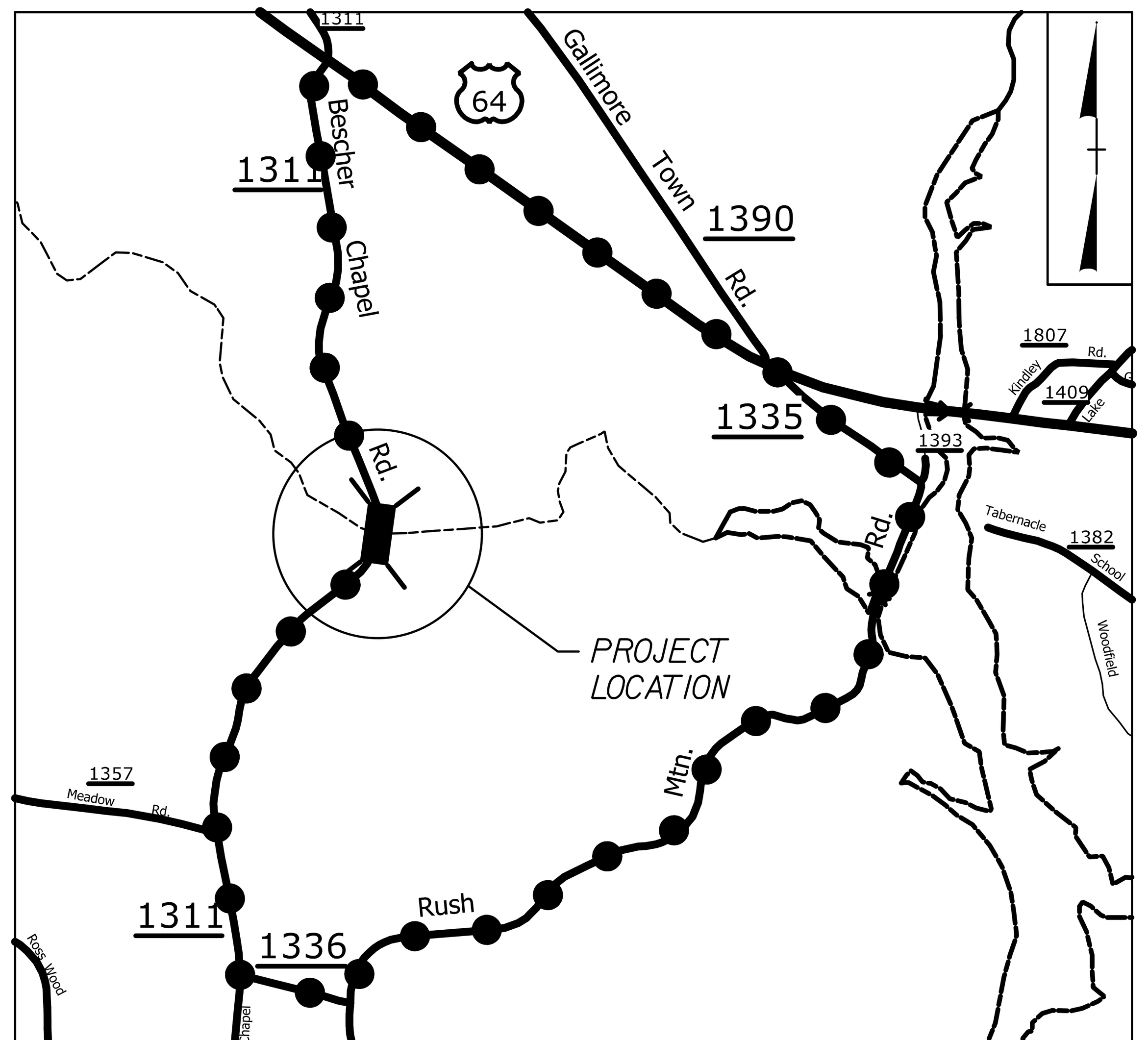
$$$$SYSTIME$$$$ $$$$DGN$$$$$$$$$$$$$$ $$$$USERNAME$$$$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

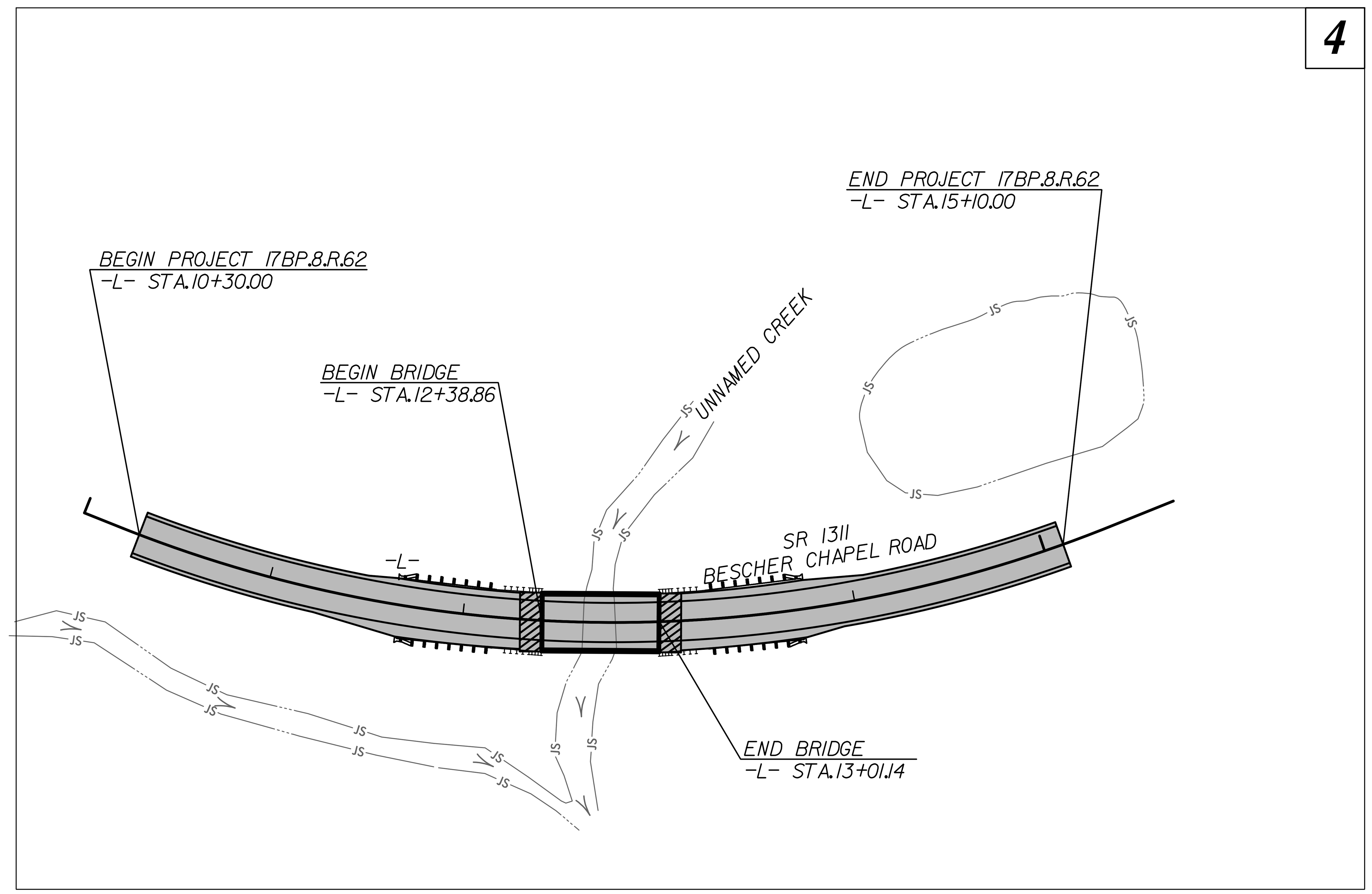
LOCATION: BRIDGE NO. 366 ON SR 1311 (BESCHER CHAPEL ROAD) OVER UNNAMED CREEK

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



VICINITY MAP

OFF-SITE DETOUR ROUTE



NC GRID NAD 83 NA 2011

TIP PROJECT: 17BP.8.R.62

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS PLAN SHEET

UTILITY OWNERS ON PROJECT

1) RANDOLF ELECTRIC MEMBERSHIP CORP. (REMC)

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

UTILITIES COORDINATION CONSULTANT
Lavon Tyson

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Ron Wilkins, PE UTILITIES SQUAD LEADER PROJECT ENGINEER

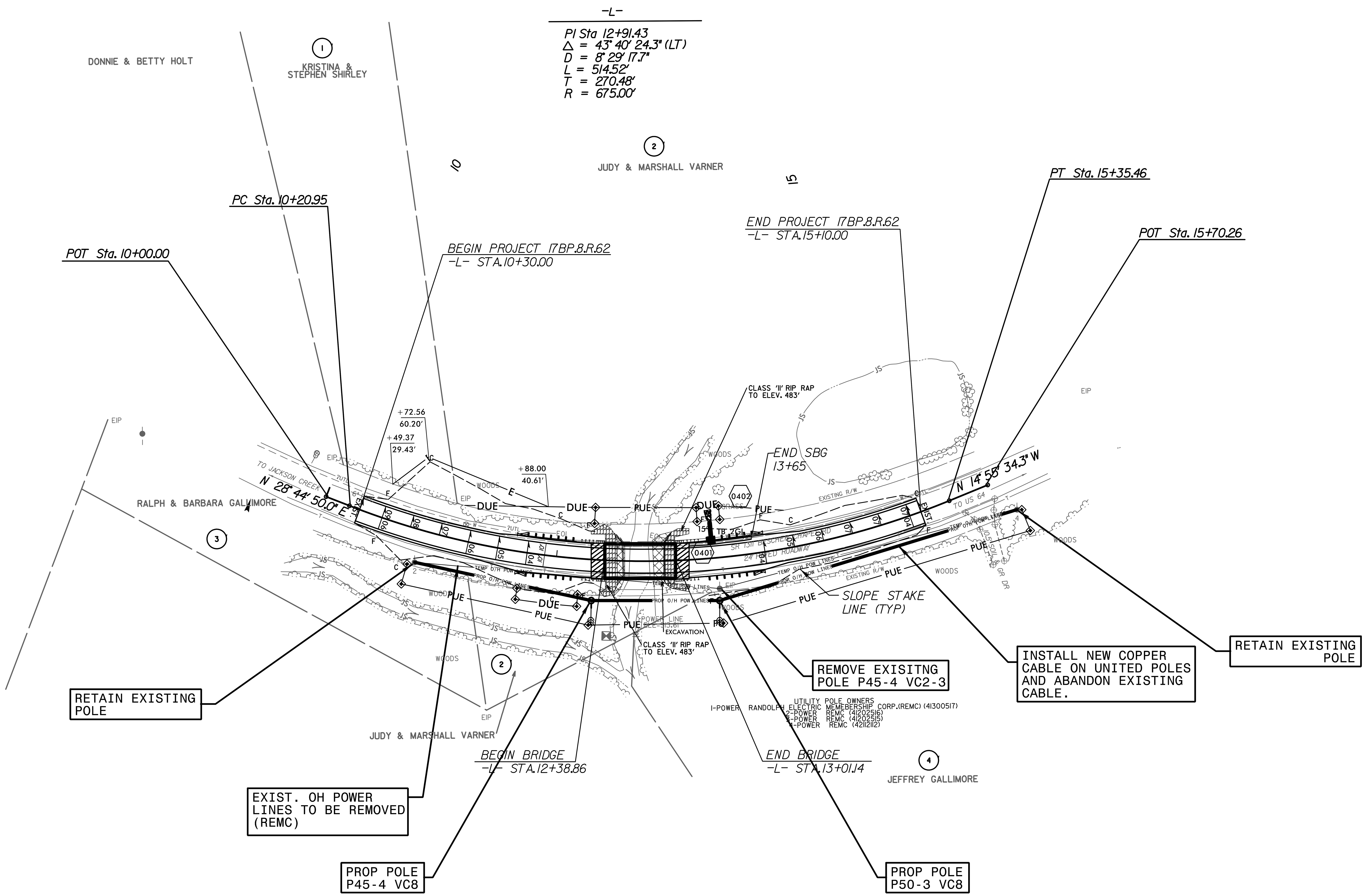
09/08/99
$$$$SYSTIME$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.62	U0-2
R/W SHEET NO.	

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

UTILITIES BY OTHERS

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



50 25 0 50 100
SCALE

REVISIONS

8/17/99

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$$