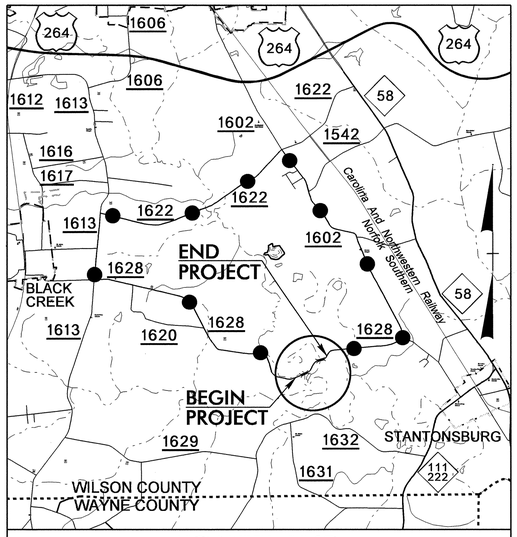
09/08/09

TIP PROJECT: B-4682/B-4992

CONTRACT: C202236

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



VICINITY MAP

OFF-SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

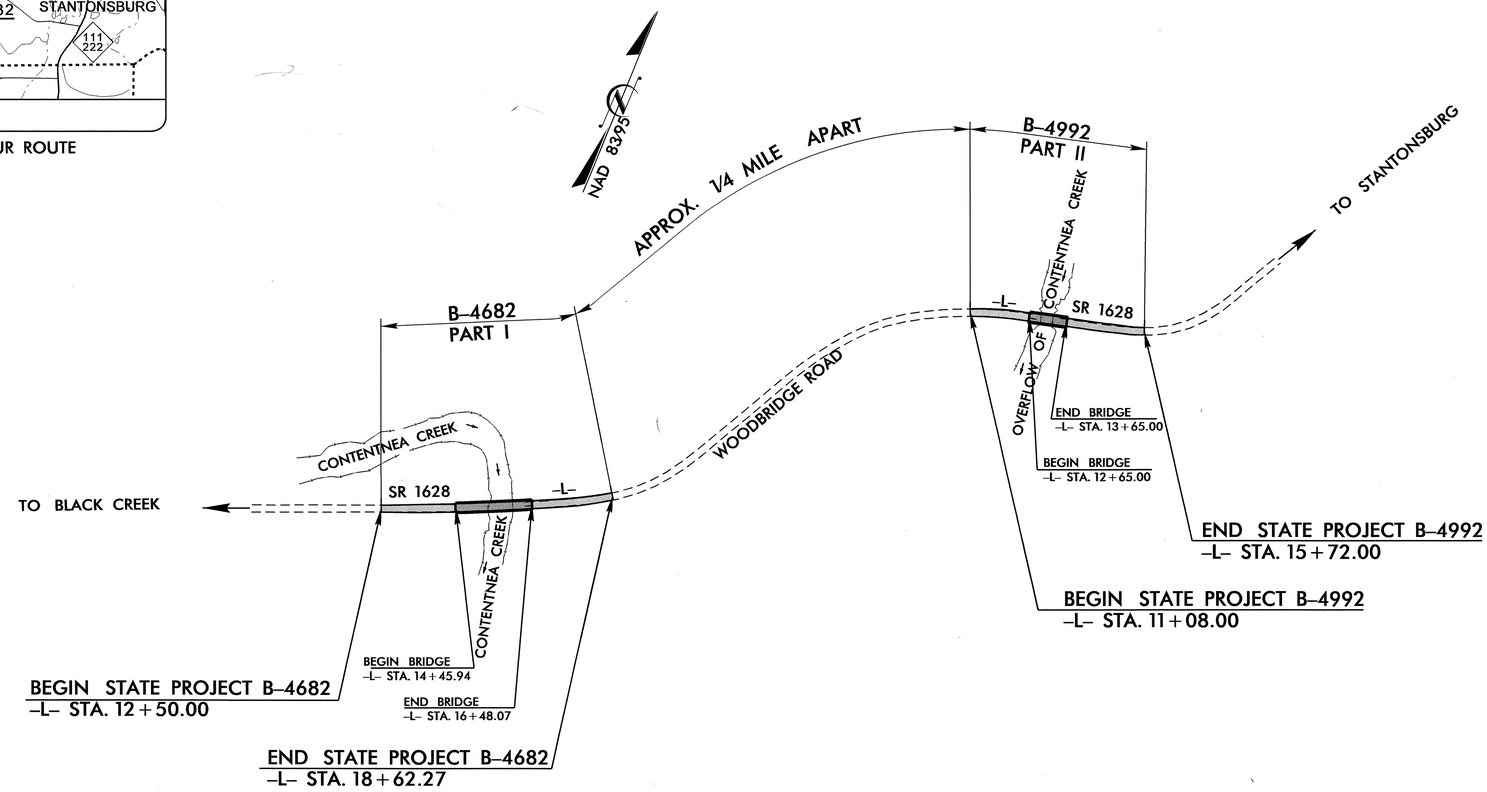
WILSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4682/B-4992	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
	B-4682	
33835.1.1	BRSTP-1628(1)	PE
33835.2.1	BRSTP-1628(1)	R/W, UTIL.
33835.3.1	BRSTP-1628(1)	CONST.
	B-4992	
41537.1.1	BRSTP-1628(2)	PE
41537.2.1	BRSTP-1628(2)	R/W, UTIL.
41537.3.1	BRSTP-1628(2)	CONST.

LOCATION: BRIDGE NO. 1 AND NO. 2 ON SR 1628 (WOODBRIDGE ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES



PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4682 /B-4992	=	0.147 MI
LENGTH STRUCTURE TIP PROJECT B-4682 /B-4992	=	0.057 MI
TOTAL LENGTH TIP PROJECT B-4682 /B-4992	=	0.204 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

RIGHT OF WAY DATE: (B-4682): JULY 10, 2008
RIGHT OF WAY DATE: (B-4992): NOVEMBER 17, 2008

LETTING DATE: JUNE 15, 2010

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 026480 ENGINEER ALBERT D. ROBINSON, JR.
3-26-10
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 20111 ENGINEER BRIAN BONNE
3/25/10
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Art McMillan P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
B-4682 /B-4992	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20111 ENGINEER A. K. BOATIE

5/31/10

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

INDEX OF SHEETS

SHEET NUMBER	SHEET
COMBINED (B-4682 & B-4992)	
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
3	SUMMARY OF QUANTITIES
PART I (B-4682)	
1	TITLE SHEET
1-C	LOCATION AND SURVEYS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A THRU 2-B	METHOD OF PIPE INSTALLATION
2-C	ANCHORAGE FOR FRAMES
3-A	SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-2	TRAFFIC CONTROL PLANS
SD-1	SPEICAL SIGN DETAIL
PM-1 THRU PM-2	PAVEMENT MARKING PLANS
RF-1	REFORESTATION PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY
X-1 THRU X-5	CROSS-SECTIONS
S-1 THRU S-22	STRUCTURE PLANS
PART II (B-4992)	
1	TITLE SHEET
1-C	LOCATION AND SURVEYS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A THRU 2-B	METHOD OF PIPE INSTALLATION
2-C	ANCHORAGE FOR FRAMES
3-A	SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-4	TRAFFIC CONTROL PLANS
SD-1	SPECIAL SIGN DETAIL
PM-1 THRU PM-2	PAVEMENT MARKING PLANS
RF-1	REFORESTATION PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY
X-1 THRU X-4	CROSS-SECTIONS
S-23 THRU S-40	STRUCTURE PLANS

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

TOWN OF STANTONSBURG

EMBARQ

PROGRESS ENERGY

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. 07-18-06
REV. 01-02-07

2006 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 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-4682 /B-4992	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

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 Marker — RW
- 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 Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- 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 Wheel Chair Ramp — WCR
- 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 — HH
- 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
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-4682/B-4992	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202236

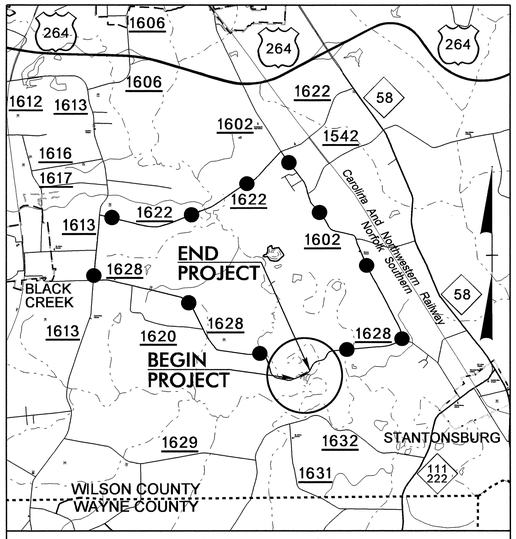
ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (13+15.00)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (15+47.00)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	2	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	400	CY	UNDERCUT EXCAVATION
0196000000-E	270	600	SY	FABRIC FOR SOIL STABILIZATION
0234000000-E	SP	600	CY	GENERIC GRADING ITEM SELECT GRANULAR MATERIAL
0320000000-E	SP	30	SY	FOUNDATION CONDITIONING FABRIC
0330000000-E	SP	10	TON	GENERIC DRAINAGE ITEM FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0335200000-E	SP	76	LF	15" DRAINAGE PIPE
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1489000000-E	610	280	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	462	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	50	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2000000000-N	806	12	EA	RIGHT OF WAY MARKERS
2022000000-E	815	67.2	CY	SUBDRAIN EXCAVATION
2033000000-E	815	33.6	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	200	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	6	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	4	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	165	LF	SHOULDER BERM GUTTER
3030000000-E	862	475	LF	STEEL BM GUARDRAIL
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3215000000-N	862	8	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	7	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3649000000-E	876	24	TON	RIP RAP, CLASS B
3656000000-E	876	964	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4155000000-N	907	4	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4158000000-N	907	2	EA	DISPOSAL OF SIGN SYSTEM, WOOD
4400000000-E	1110	819	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	163	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	160	LF	BARRICADES (TYPE III)
4810000000-E	1205	8,616	LF	PAINT PAVEMENT MARKING LINES (4")
4900000000-N	1251	10	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	1,200	LF	TEMPORARY SILT FENCE
6006000000-E	1610	450	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	80	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	85	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	2.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	400	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	8	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	1,750	LF	SAFETY FENCE
6030000000-E	1630	145	CY	SILT EXCAVATION
6036000000-E	1631	3,550	SY	MATTING FOR EROSION CONTROL
6042000000-E	1632	350	LF	1/4" HARDWARE CLOTH
6071010000-E	SP	40	LF	WATTLE
6071020000-E	SP	10	LB	POLYACRYLAMIDE (PAM)
6084000000-E	1660	8	ACR	SEEDING & MULCHING
6087000000-E	1660	1	ACR	MOWING
6090000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
6114500000-N	SP	20	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	24	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.2	ACR	REFORESTATION

09/08/09

TIP PROJECT: B-4682

CONTRACT:

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



VICINITY MAP

OFF-SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILSON COUNTY

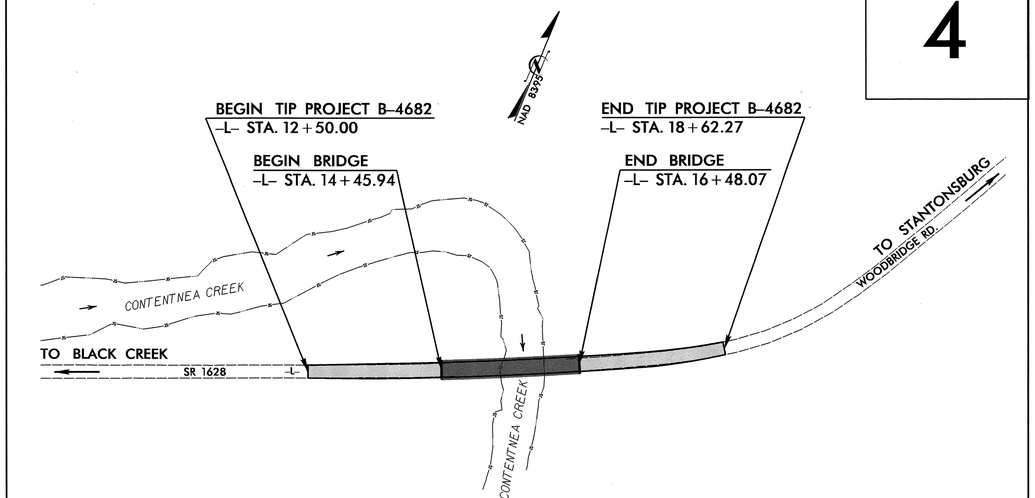
LOCATION: BRIDGE NO. 2 ON SR 1628 (WOODBRIDGE ROAD) OVER CONTENTNEA CREEK

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

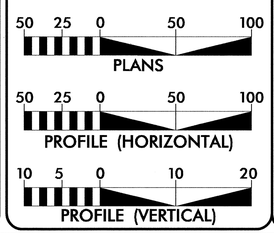
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4682	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33835.1.1	BRSTP-1628(1)	PE
33835.2.1	BRSTP-1628(1)	R/W, UTIL.
33835.3.1	BRSTP-1628(1)	CONST.

4



GRAPHIC SCALES



DESIGN DATA

ADT 2010 = 580
ADT 2030 = 800
DHV = 10 %
D = 60 %
T = 3 % *
V = 50 MPH

* TTST 1% DUAL 2%
FUNC. CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4682 = 0.078 MI
LENGTH STRUCTURE TIP PROJECT B-4682 = 0.038 MI
TOTAL LENGTH TIP PROJECT B-4682 = 0.116 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 10, 2008

LETTING DATE: JUNE 15, 2010

JAMES A. SPEER, PE
PROJECT ENGINEER

NYA K. BOAYUE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026480 ENGINEER JAMES D. ROBINSON, JR.

3-26-10

P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 29 ENGINEER NYA K. BOAYUE

2/25/10

P.E.

SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.

STATE HIGHWAY DESIGN ENGINEER

24-MAR-2010 lh6
R:\Roadway\PROJECTS\b4682_rdy_tsh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4682	1-C
Location and Surveys	

SURVEY CONTROL SHEET B4682

BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	GPS B4682-2	678408.4170	2336239.9660	85.92	OUTSIDE PROJECT LIMITS	
101	-BL- 101	678602.5980	2336836.7510	67.44	OUTSIDE PROJECT LIMITS	
102	-BL- 102	678902.1004	2337471.0775	69.11	16+35.16	12.47 LT
103	-BL- 103	679129.9980	2337824.8550	66.25	20+58.50	14.85 RT
104	-BL- 104	679679.4820	2338108.9110	64.49	OUTSIDE PROJECT LIMITS	
105	-BL- 105	679860.8930	2338602.5040	65.61	OUTSIDE PROJECT LIMITS	
106	-BL- 106	680037.1730	2338964.6750	66.59	OUTSIDE PROJECT LIMITS	
107	-BL- 107	680520.1080	2339224.9460	66.64	OUTSIDE PROJECT LIMITS	
108	-BL- 108	680580.9120	2339648.0570	66.65	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

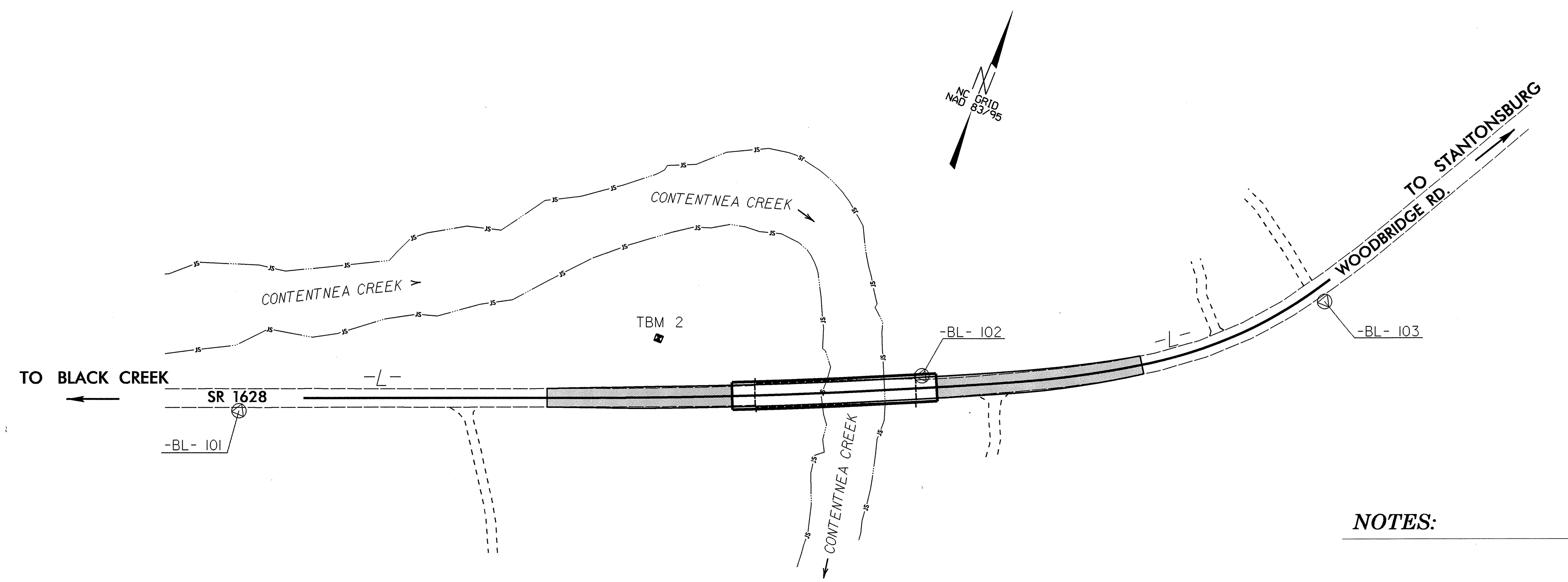
802 ELEVATION = 84.28
N 678472 E 2336310
L STATION 10+00
S 73° 59' 11.7" W DIST 606.56
TBM 1 RAILROAD SPIKE IN BASE OF 30" PINE

834 ELEVATION = 69.71
N 678836 E 2337207
L STATION 13+65 61 LEFT
TBM 2 RAILROAD SPIKE IN BASE OF 36" PIN OAK

1251 ELEVATION = 68.58
N 679340 E 2337959
L STATION 20+76
N 36° 21' 00.3" E DIST 231.95
TBM 3 RAILROAD SPIKE IN BASE OF 36" PIN OAK

586 ELEVATION = 67.65
N 679926 E 2338890
L STATION 20+76
N 54° 06' 50.2" E DIST 1318.90
TBM 4 RAILROAD SPIKE IN BASE OF 30" TWIN PINE

1677 ELEVATION = 65.96
N 680615 E 2339446
L STATION 20+76
N 48° 00' 08.9" E DIST 2186.01
TBM 5 RAILROAD SPIKE IN BASE OF 24" GUM



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS "B4682-2""
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
NORTHING: 678408.417(ft) EASTING: 2336239.966(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989348
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS "B4682-2"" TO -L- STATION 12+50.00 IS
N 69°43'22.2" E 942.73'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
B4682_LS_CONTROL_080118.TXT

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

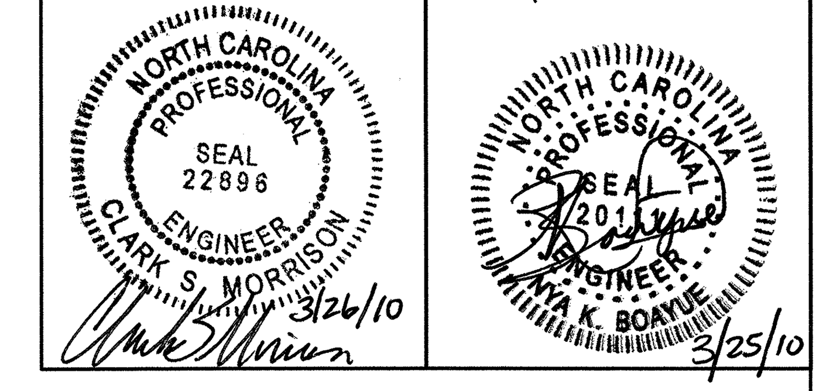
(symbol) INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

6/2/99

b4682_ls_lc_100302.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4682	2

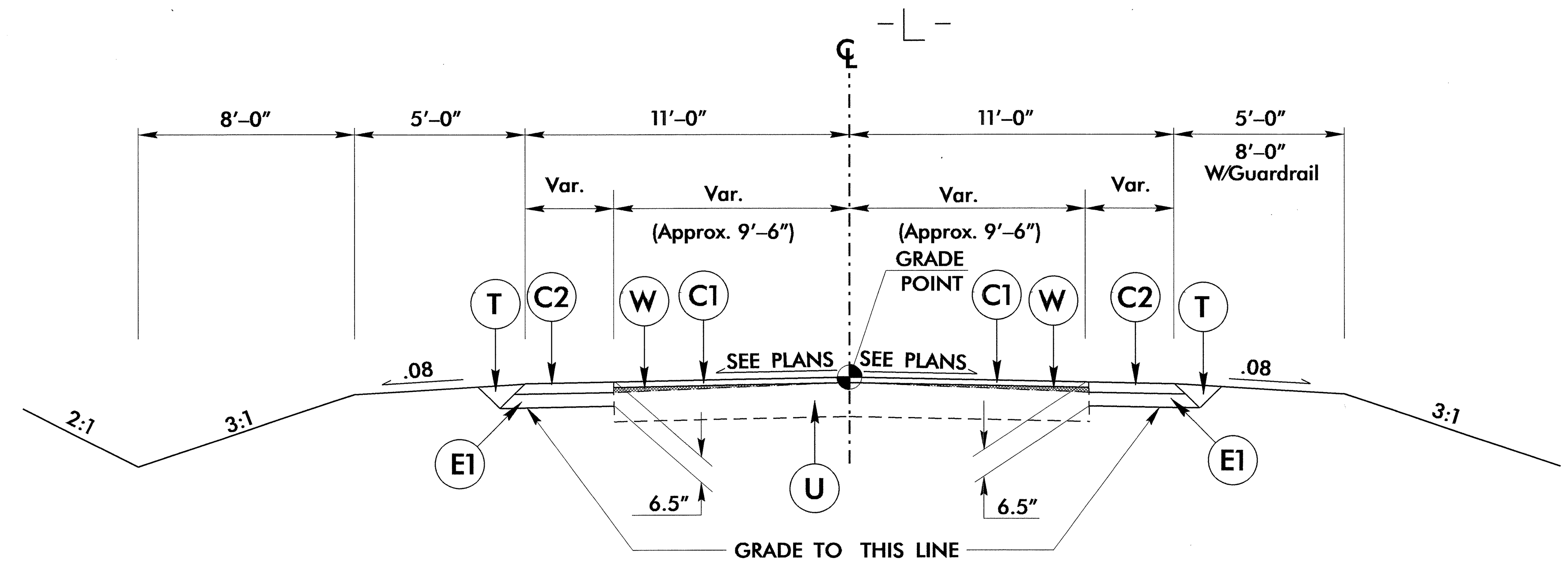
~~ROADWAY~~ Pavement DESIGN ENGINEER — ~~PAVEMENT~~ Roadway DESIGN ENGINEER



PAVEMENT SCHEDULE

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 3½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 128.33 LBS. PER SQ. YD. IN EACH OF THREE LAYERS.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
U	EXISTING PAVEMENT.
T	EARTH MATERIAL.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL 1)

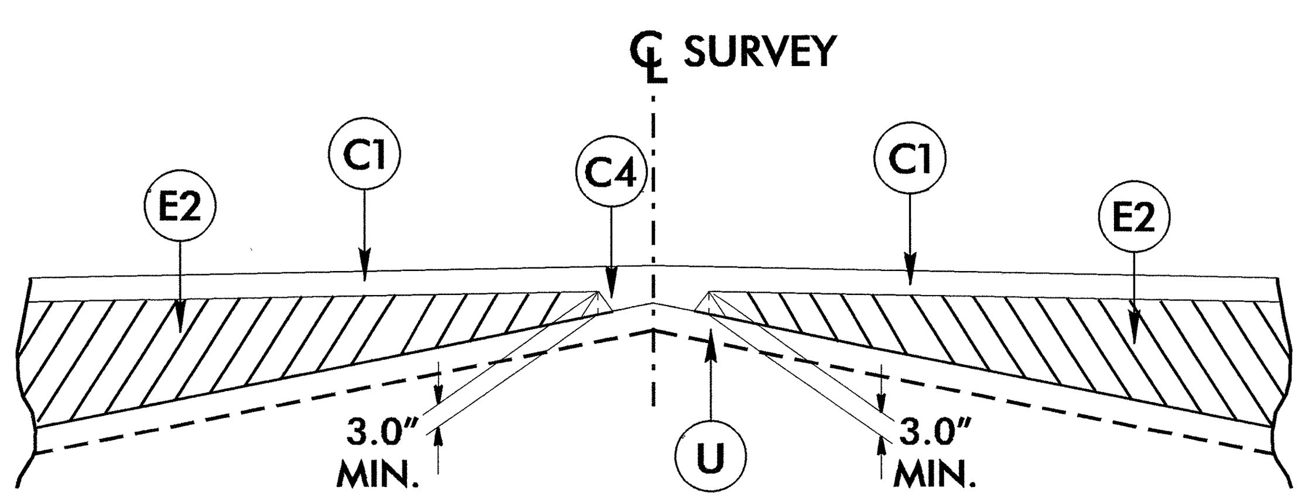
NOTE: ALL SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

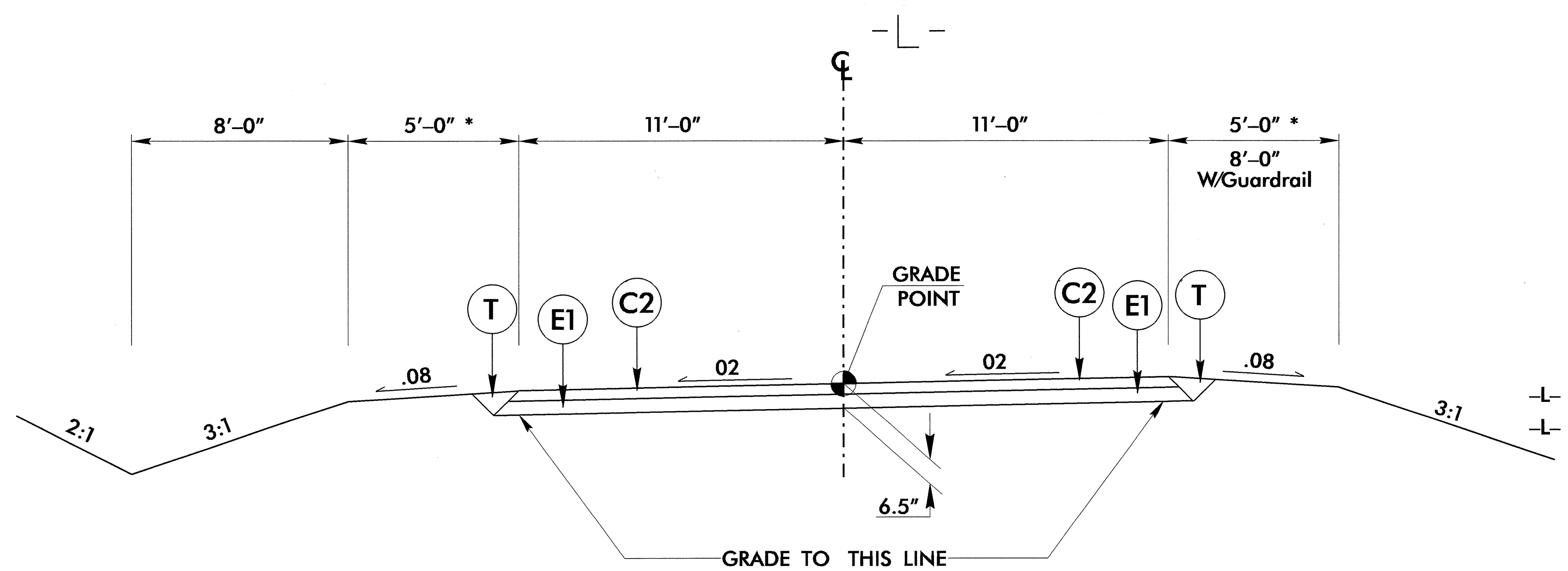
USE TYPICAL SECTION NO. 1

-L- STA. 12+50.00 to -L- STA. 13+90.00
-L- STA. 17+00.00 to -L- STA. 18+62.27



Detail Showing Method of Wedging

DETAIL 1

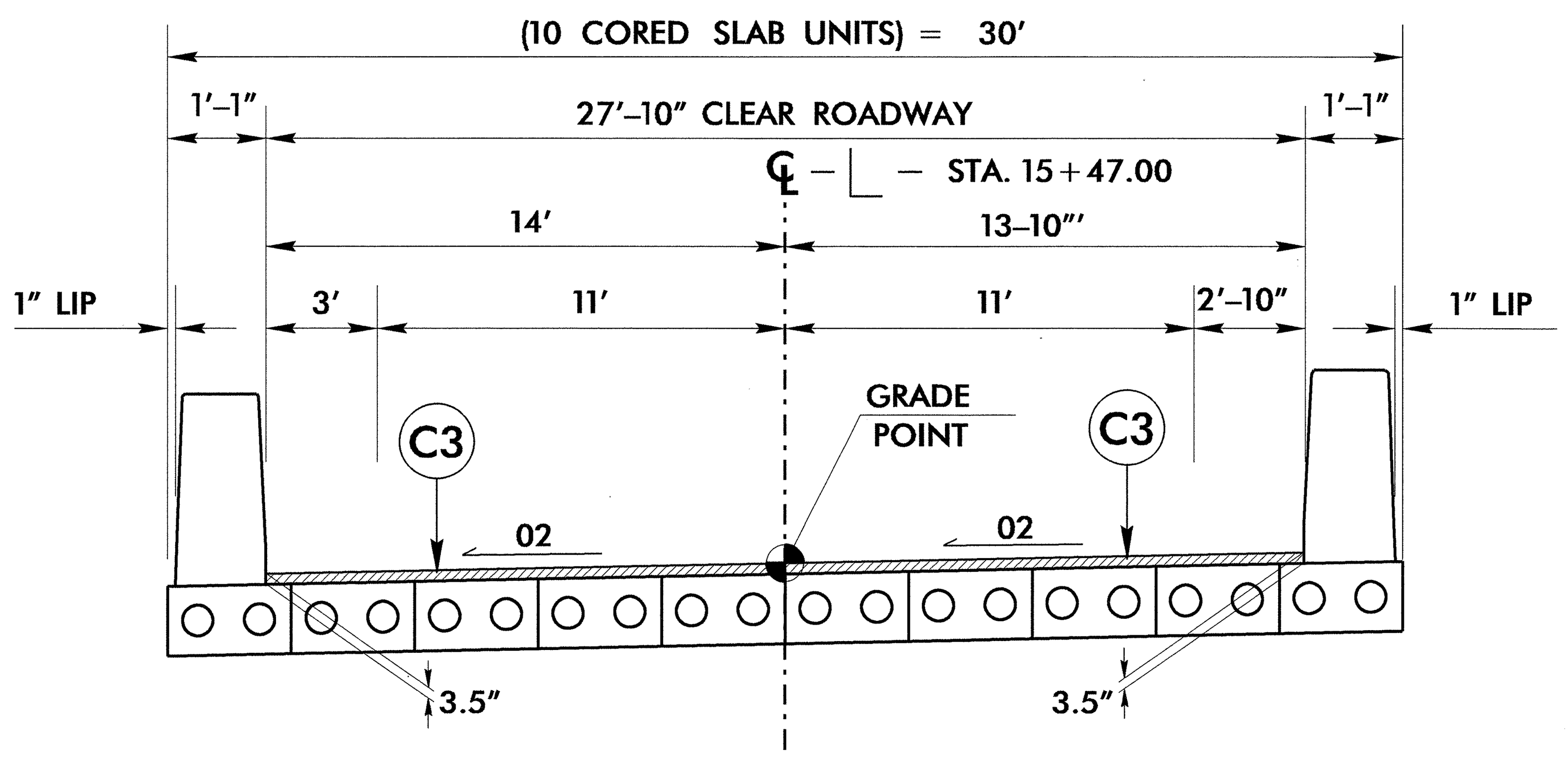


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 13+90.00 to -L- STA. 14+45.94 (BEG. BRIDGE)
-L- STA. 16+48.07 (END BRIDGE) to -L- STA. 17+00.00

* INSTALL SHOULDER BERM GUTTER AS FOLLOWS:
STA. 14+00.00 TO STA. 14+34.94 LT
STA. 16+59.07 TO STA. 17+50.00 LT
SEE ROADWAY STD. DRWG. No. 846.03

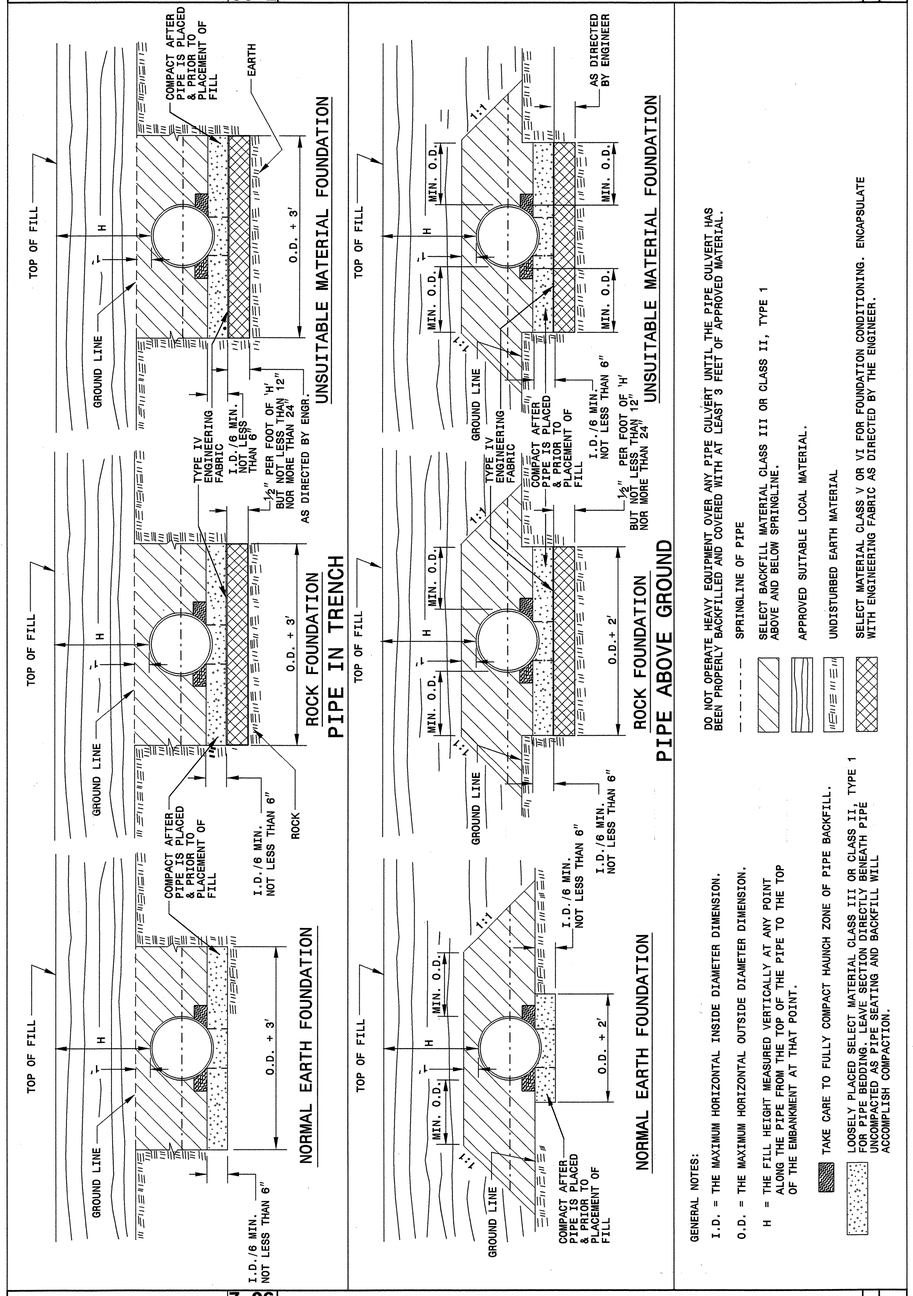


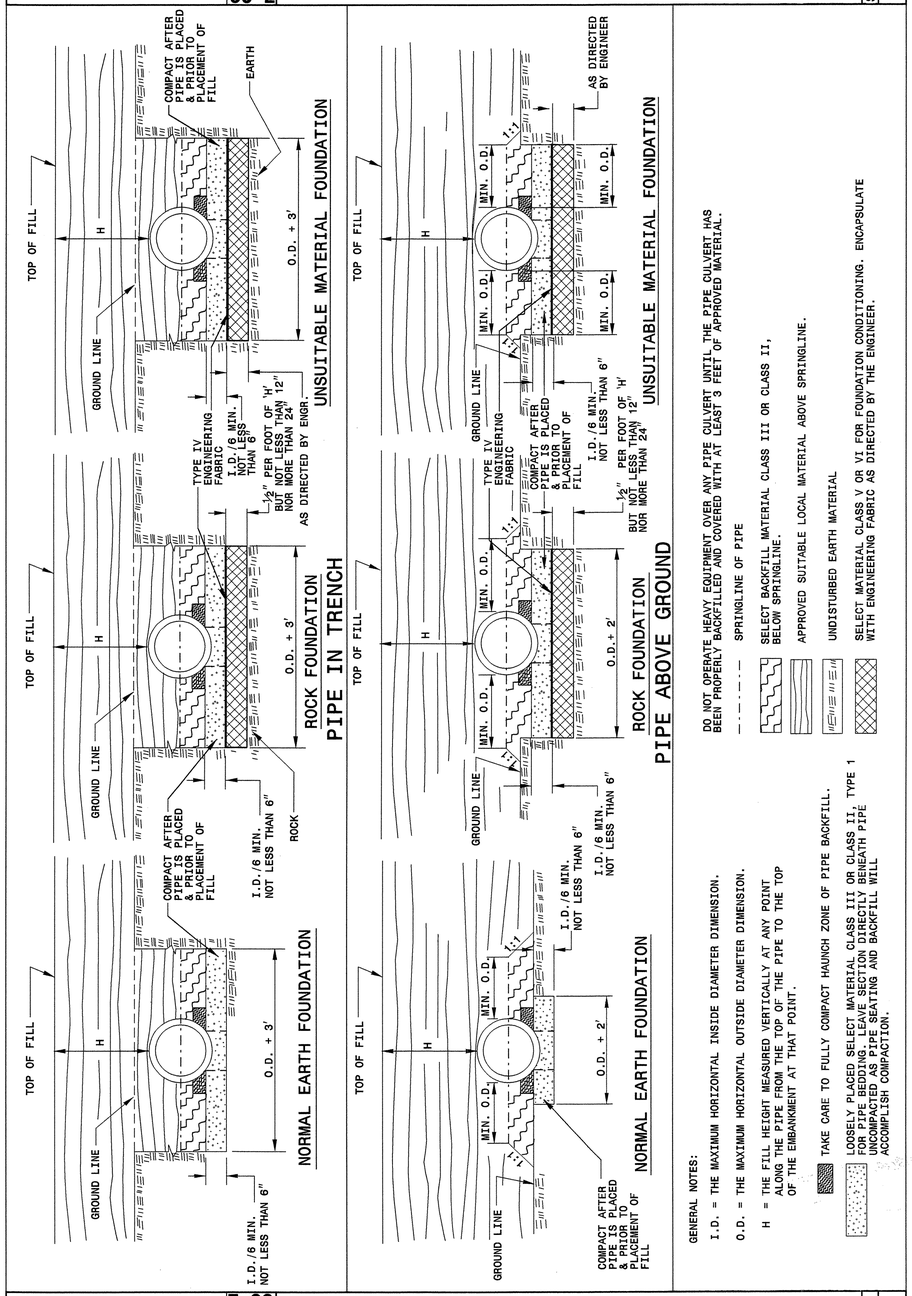
TYPICAL SECTION ON STRUCTURE

BEGIN BRIDGE -L- STA. 14+45.94 TO END BRIDGE -L- STA. 16+48.07

10/26/98

24-MAR-2010 11:16
r:\roadway\proj\b4682_rdy_typ.dgn
$$$$USERNAME$$$$





PROJECT REFERENCE NO.	SHEET NO.
B-4682	2-A

7-06
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

SHEET 1 OF 3
300D01

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

▩ TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

░ LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

-·-·-·- SPRINGLINE OF PIPE

▨ SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

▥ APPROVED SUITABLE LOCAL MATERIAL.

≡ UNDISTURBED EARTH MATERIAL

▦ SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

7-06
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 3
300D01

7-06
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 3
300D01

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

▩ TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

░ LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

-·-·-·- SPRINGLINE OF PIPE

▨ SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

▥ APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

≡ UNDISTURBED EARTH MATERIAL

▦ SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

7-06
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 3
300D01

SEAL 022566
JOEL S. HOWERTON
3/31/10

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: Joel S. Howerton DATE: 7/30/09
FILE SPEC: c:/ericward/stds/stdstodetails/30001/0300d01.dgn

5/14/99

30-JUL-2009 08:48
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jhowerton AT PS23750I

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4682	2-B

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≤ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
* (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
3/31/10

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: [signature] DATE: 7/30/09
FILE SPEC: c:/ericward/stds/stdstodetails/30001/0300d01.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4682	2-C

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

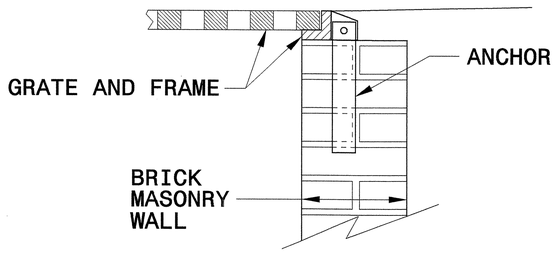
ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

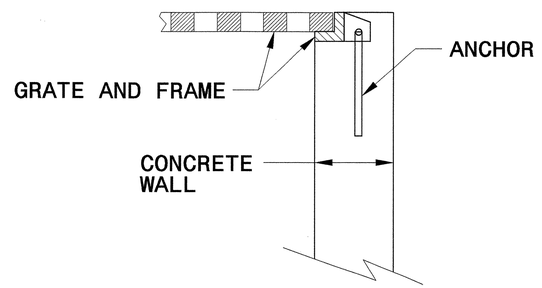
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

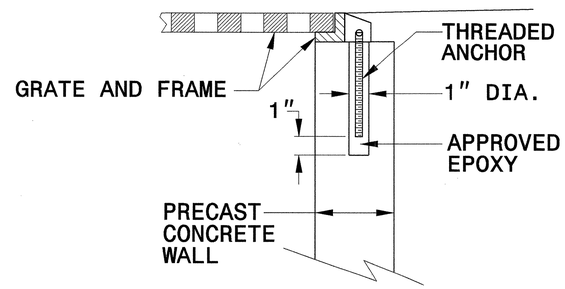
840D25



BRICK MASONRY CONSTRUCTION



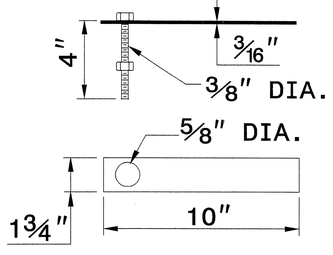
CONCRETE CONSTRUCTION



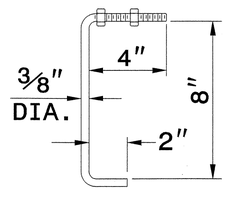
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

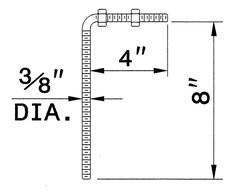
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



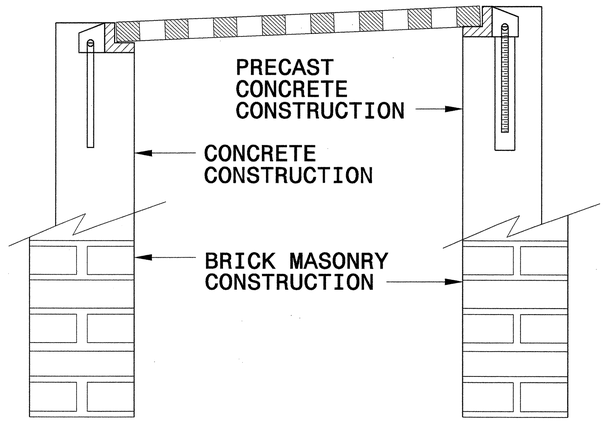
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

840D25

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWARD 3/7/10

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: DATE: 11/14/06
FILE SPEC.:

$$$$$$$SYSTIME$$$$$$$
$$$$$$$USERNAME$$$$$$$

12/06/07

COMPUTED BY: TO DATE: 2/19/10
CHECKED BY: NKB DATE: 2/19/10

PROJECT REFERENCE NO.	SHEET NO.
B-4682	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUB-REGIONAL & REGIONAL

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

STATION	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) SIZE	12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE												
14+00.00	LT	1		68.9	64.4					1										
14+00.00	LT	1	2		64.4	64.1				16										
17+50.00	LT	3		67.7	63.9					1										
17+50.00	LT	3	4		63.9	63.7				16										
TOTALS										32										
B-4682 PROJECT TOTALS										32										
B-4992 PROJECT TOTALS										44										
GRAND TOTAL										76										

C.S. PIPE 12"	15"	18"	24"	36"	42"	48"
	.064	.064	.064	.079	.109	.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"

*** 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.	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES + TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. A + (1.3 X COL. B') PER EACH (0' THRU 5.0')	LIN. FT. A (5.0' THRU 10.0')	LIN. FT. B (10.0' AND ABOVE)	C.B. STD. 840.01 OR STD. 840.02
							1			
							1			
							2			
							2			
							2			
							4			

FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	T.B.D.I. STD. 840.35	T.B.D.I. (N.S.) FRAME WITH TWO GRATES, STD. 840.29	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
									1	1					
									1	1					
									2	2					
									2	2					
									2	2					
									4	4					

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	13+90.00	14+64.00	CL	162.22
-L-	16+28.00	17+00.00	CL	152.33
		TOTAL:		314.56
		SAY:		320
		B-4682 PROJECT TOTAL:		320
		B-4682 PROJECT TOTAL:		252
		GRAND TOTAL:		572

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
12+50.00	14+45.94	173	35		138
16+48.07	18+50.00	83	245	162	
SUBTOTALS:		256	280	162	138
WASTE IN LIEU OF BORROW				-138	-138
PROJECT TOTALS:		256	280	24	0
5% FOR BORROW PIT				1	
SAY:		260		25	
B-4682 PROJECT TOTALS:		260		30	
B-4992 PROJECT TOTALS:		470		75	
PROJECT TOTALS:		730		105	

UNDERCUT EXCAVATION = 400 CY NOTE: (B-4682 = 200 CY AND B-4992 = 200CY)
SELECT MATERIAL (CLASS II OR III) = 600 CY NOTE: (B-4682 = 300 CY AND B-4992 = 300CY)

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

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

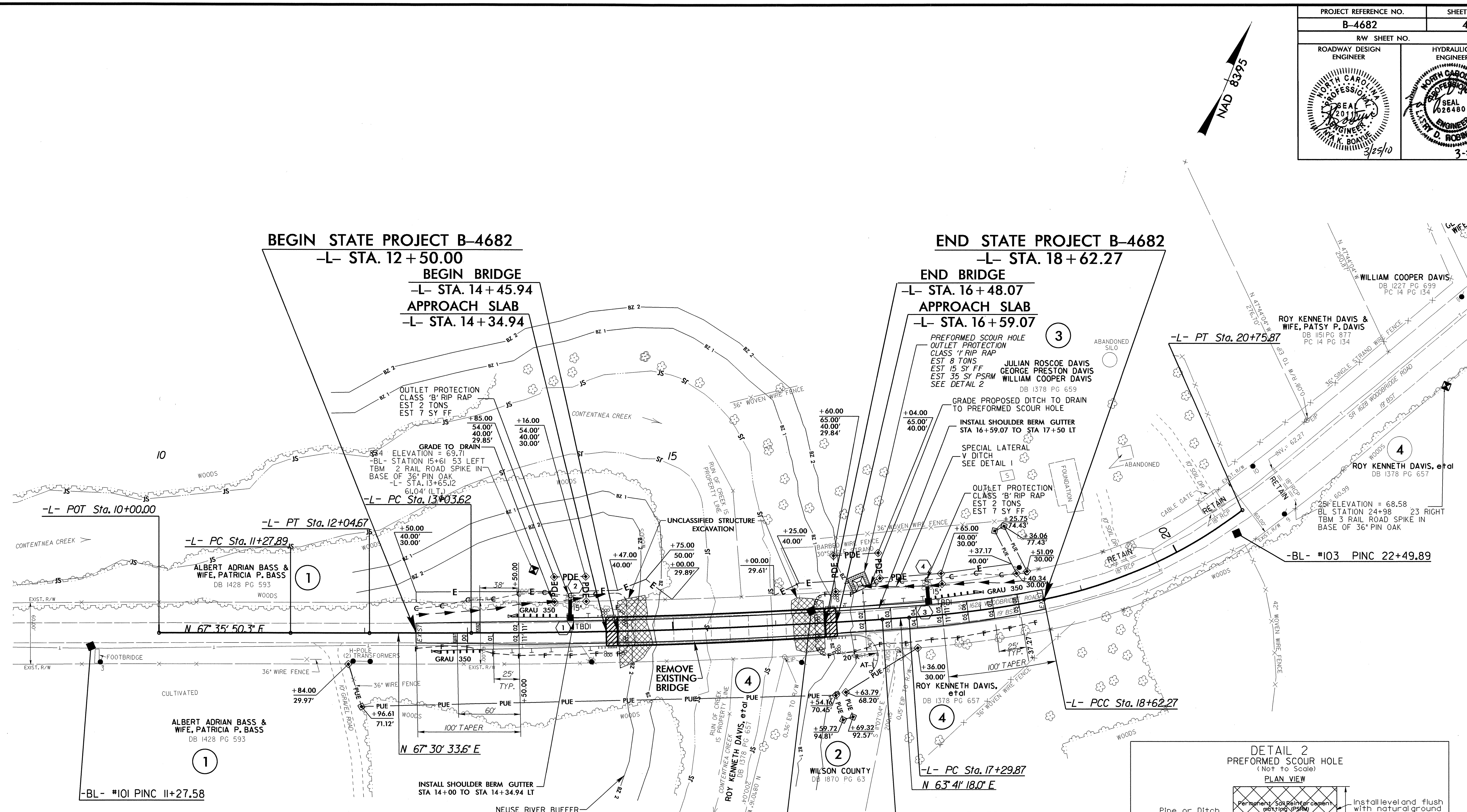
SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS								IMPACT ATTENUATOR TYPE 350 NO.	PERMITTED G	PERMITTED NG				REMARKS
																	TYPE 350		TYPE III		AT-1								
L	13+39.70	14+45.94	LT	106.24'				14+45.94	3'-0"	5'-0"			1'	1'			1		1									
L	16+48.07	18+03.30	LT	155.23'			14+45.94		3'-0"	5'-0"			1'	1'			1		1									
L	12+64.72	14+45.94	RT	181.22'			16+48.07		2'-10"	5'-0"			1'	1'			1		1									
L	16+48.07	16+97.00	RT	77.33'				16+97.00	2'-10"	5'-0"			1'	1'			1		1		1							
SUB-TOTAL:				520.02'													3		4		1							
		LESS ANCHOR DEDUCTIONS:																										
		GRAU-350	3 @ 50 ft	150.00'																								
		TYPE 111	4 @ 18.75 ft	75.00'																								
		AT-1	1 @ 6.25 ft	6.25'																								
		ANCHOR TOTALS:		231.25'																								
			TOTAL	288.77'																								
			SAY	300.00'																								
B-4682 PROJECT TOTALS:		ADDITIONAL GUARDRAIL POST = 5 EA		300.00'													3		4		1							
B-4992 PROJECT TOTALS:		ADDITIONAL GUARDRAIL POST = 5 EA		175.00'													4		4									
GRAND TOTALS:		ADDITIONAL GUARDRAIL POST = 10 EA		475.00'													7		8		1							

PROJECT REFERENCE NO.	SHEET NO.
B-4682	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

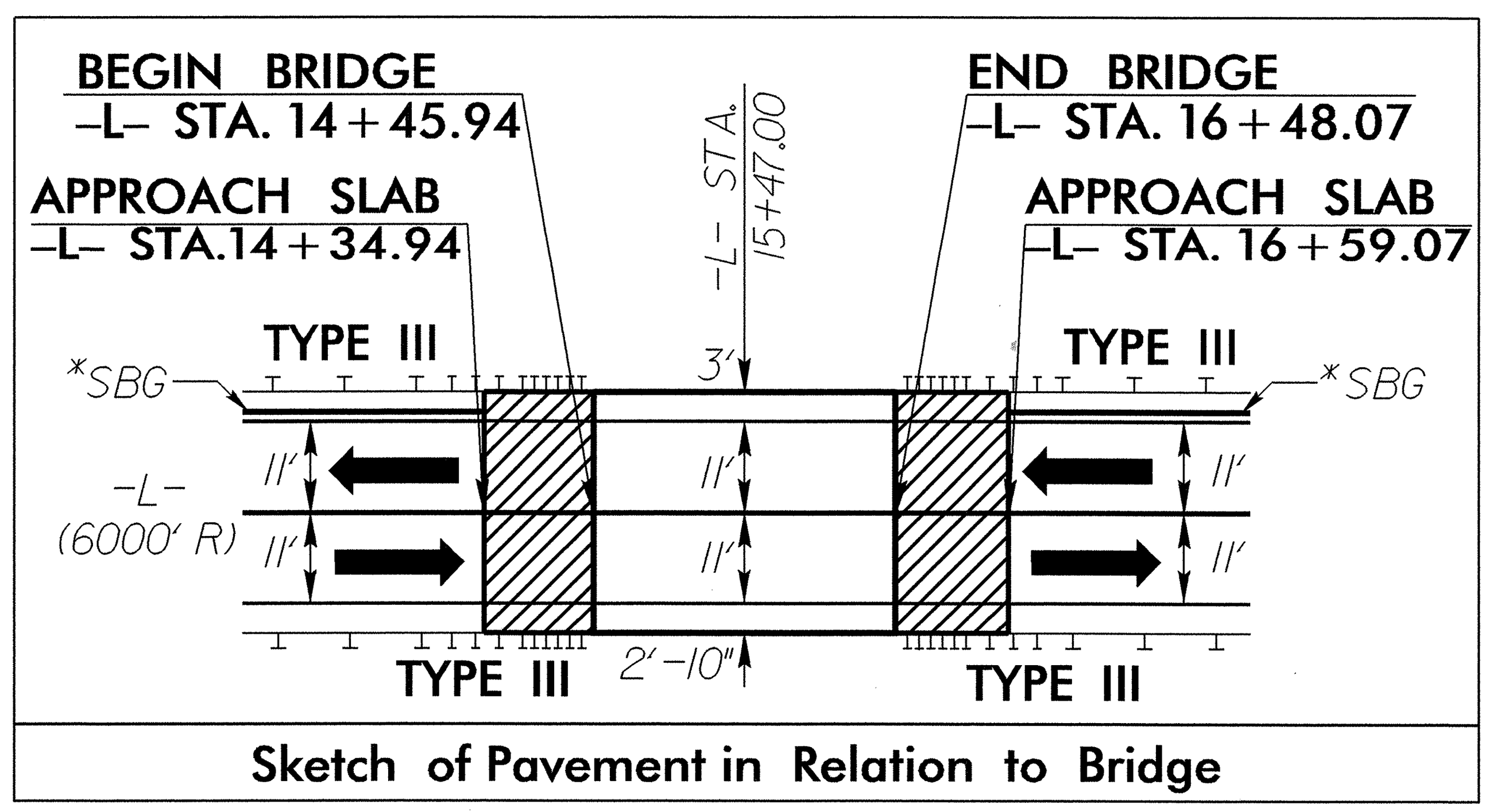
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 020011 ... K. BOAYUE 3/25/10

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026480 LARRY D. ROBINSON, JR. 3-26-10

REVISIONS



NAD 83/95
BEGIN STATE PROJECT B-4682
-L- STA. 12+50.00
BEGIN BRIDGE
-L- STA. 14+45.94
APPROACH SLAB
-L- STA. 14+34.94
END STATE PROJECT B-4682
-L- STA. 18+62.27
END BRIDGE
-L- STA. 16+48.07
APPROACH SLAB
-L- STA. 16+59.07
PREFORMED SCOUR HOLE
OUTLET PROTECTION
CLASS 'I' RIP RAP
EST 8 TONS
EST 15 SY FF
EST 35 SY PSRM
SEE DETAIL 2
JULIAN ROSCOE DAVIS
GEORGE PRESTON DAVIS
WILLIAM COOPER DAVIS
DB 1378 PG 659
GRADE PROPOSED DITCH TO DRAIN TO PREFORMED SCOUR HOLE
INSTALL SHOULDER BERM GUTTER STA 16+59.07 TO STA 17+50 LT
SPECIAL LATERAL V DITCH SEE DETAIL 1
OUTLET PROTECTION CLASS 'B' RIP RAP EST 2 TONS EST 7 SY FF
OUTLET PROTECTION CLASS 'B' RIP RAP EST 2 TONS EST 7 SY FF
BM4 ELEVATION = 69.71
-BL- STATION 15+61 53 LEFT
TBM 2 RAIL ROAD SPIKE IN BASE OF 36" PIN OAK
-L- STA. 13+65.12 61.04' (LT.)
GRADE TO DRAIN
-L- POT Sta. 10+00.00
-L- PC Sta. 13+03.62
-L- PT Sta. 12+04.67
-L- PC Sta. 11+27.89
CONTENTNEA CREEK
ALBERT ADRIAN BASS & WIFE, PATRICIA P. BASS
DB 1428 PG 593
N 67° 35' 50.3" E
N 67° 30' 33.6" E
UNCLASSIFIED STRUCTURE EXCAVATION
REMOVE EXISTING BRIDGE
INSTALL SHOULDER BERM GUTTER STA 14+00 TO STA 14+34.94 LT
NEUSE RIVER BUFFER
-BL- #101 PINC 11+27.58
-BL- #102 PINC 18+29.06
ROY KENNETH DAVIS, etal
DB 1378 PG 657
WILSON COUNTY
DB 1870 PG 63
-L- PC Sta. 17+29.87
N 63° 41' 18.0" E
-L- PT Sta. 17+03.75
-L- PCC Sta. 18+62.27
-L- PT Sta. 20+75.87
WILLIAM COOPER DAVIS
DB 1227 PG 699
PC 14 PG 134
ROY KENNETH DAVIS & WIFE, PATSY P. DAVIS
DB 1151 PG 877
PC 14 PG 134
BM5 ELEVATION = 68.58
BL STATION 24+98 23 RIGHT
TBM 3 RAIL ROAD SPIKE IN BASE OF 36" PIN OAK
-BL- #103 PINC 22+49.89
ABANDONED SILO
FOUNDATION
CULTIVATED
WOODS
FOOTBRIDGE
36" WIRE FENCE
36" WOVEN WIRE FENCE
42" WOVEN WIRE FENCE
SR 1628 WOODBRIDGE ROAD
RETAIN
100' TAPER



Sketch of Pavement in Relation to Bridge

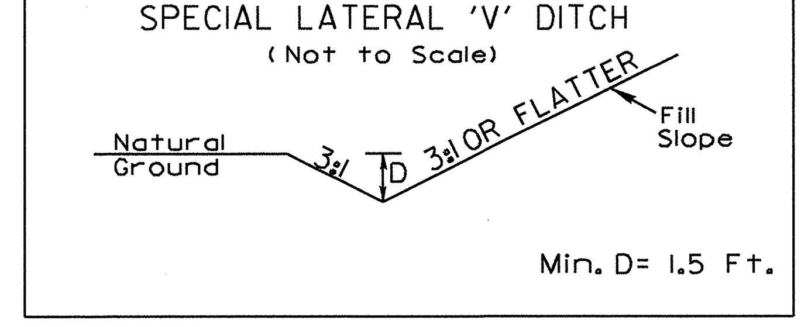
* SBG DENOTES "SHOULDER BERM GUTTER"

-L-			
PI Sta 11+66.28	PI Sta 15+03.76	PI Sta 17+96.16	PI Sta 19+70.93
Δ = 0° 05' 16.7" (LT)	Δ = 3° 49' 15.6" (LT)	Δ = 7° 24' 28.5" (LT)	Δ = 25° 56' 55.1" (LT)
D = 0° 06' 52.5"	D = 0° 57' 17.7"	D = 5° 35' 43.0"	D = 12° 08' 53.0"
L = 76.78'	L = 400.13'	L = 132.40'	L = 213.60'
T = 38.39'	T = 200.14'	T = 66.29'	T = 108.67'
R = 50,000.00'	R = 6,000.00'	R = 1,024.00'	R = 471.65'
	SE = 02	SE = SEE PLANS	
	RO = SEE PLANS	RO = SEE PLANS	

DETAIL 1

SPECIAL LATERAL 'V' DITCH

(Not to Scale)

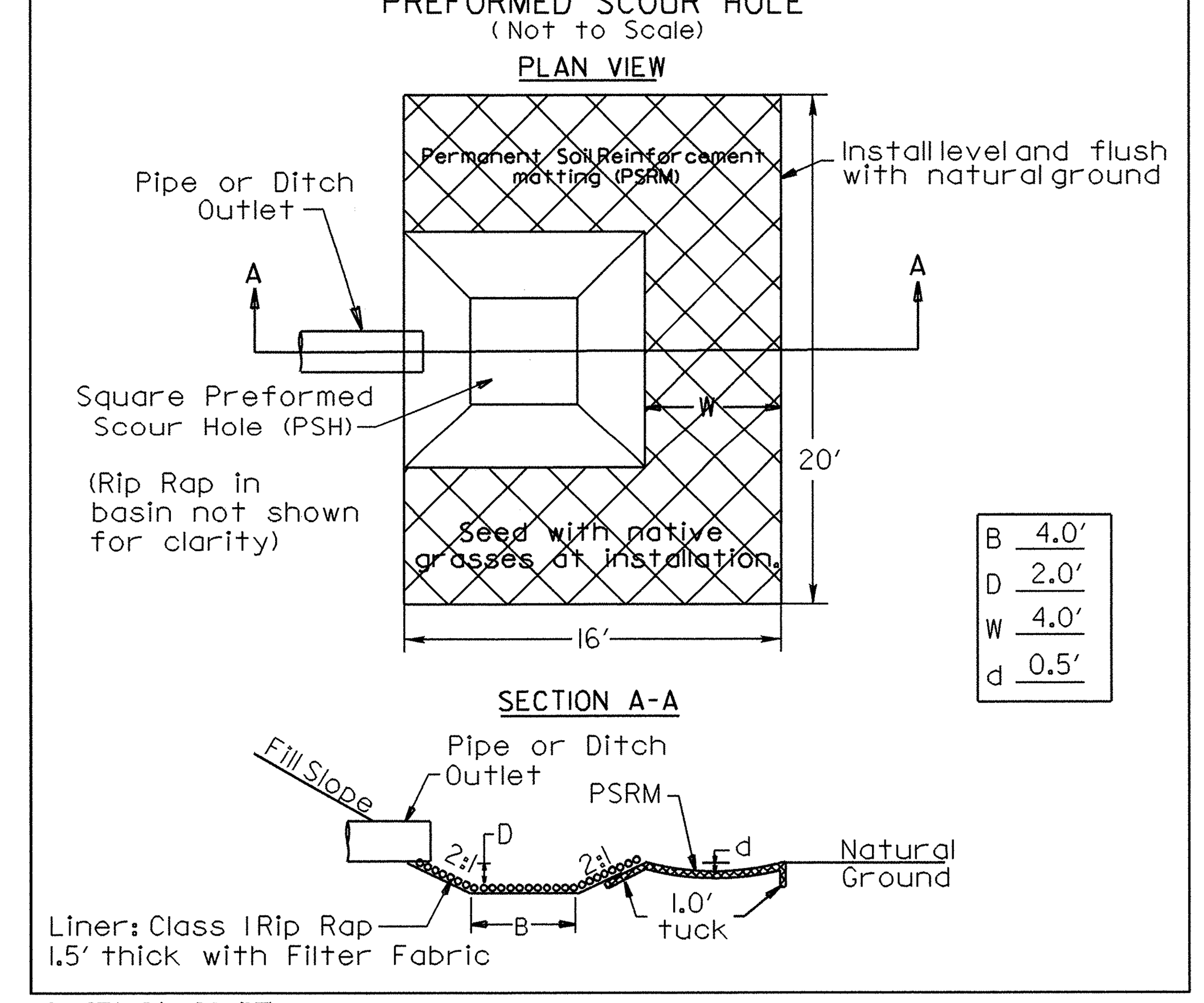


-L- STA 12+50 TO STA 14+35 (LT)
-L- STA 16+80 TO STA 18+50 (LT)

DETAIL 2

PREFORMED SCOUR HOLE

(Not to Scale)



PLAN VIEW
Pipe or Ditch Outlet
Permanent Soil Reinforcement matting (PSRM)
Install level and flush with natural ground
Square Preformed Scour Hole (PSH)
(Rip Rap in basin not shown for clarity)
Seed with native grasses at installation
20'
16'
B 4.0'
D 2.0'
W 4.0'
d 0.5'
SECTION A-A
Fill Slope
Pipe or Ditch Outlet
PSRM
Natural Ground
1.0' tuck
Liner: Class I Rip Rap 1.5' thick with Filter Fabric

-L- STA 16+80 (LT)

NOTE: SEE SHEET NO. 5 FOR -L- PROFILE
SEE SHEET S-1 THRU S-22 FOR STRUCTURE PLANS

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8/17/99

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4682	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20 ENGINEER M. K. BOATTIE
3/25/10

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026480 ENGINEER LARRY D. ROBINSON, JR.
3-26-10

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 7800	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 66.2	FT
BASE DISCHARGE	= 11000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 67.4	FT
OVERTOPPING DISCHARGE	= <5900	CFS
OVERTOPPING FREQUENCY	= <10	YRS
OVERTOPPING ELEVATION	= 65.1	FT
NORMAL WATER SURFACE ELEVATION	= 54.75	FT
DATE OF SURVEY	= 12/06/07	

-L-

BRIDGE ℄ STA.15+47 -L-
ELEV.= 70.01'
SKEW = 90°
PROPOSED 2 @ 50' AND 2 @ 51'-0¾":
21" PRESTRESSED CONCRETE
CORED SLAB.OAL=202.13'

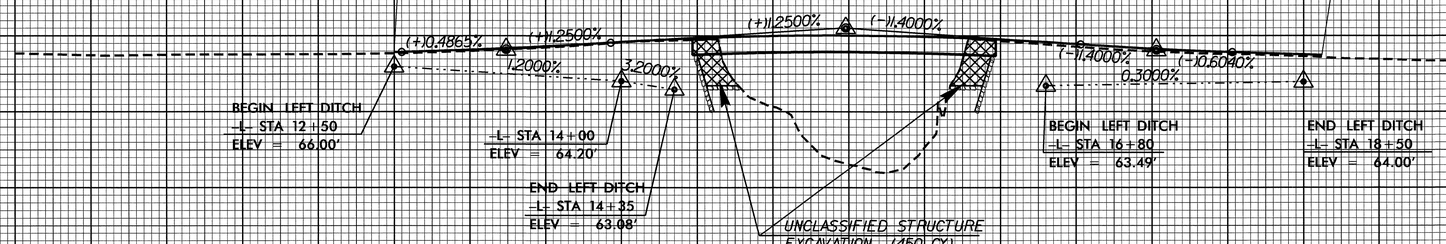
BEGIN GRADE
-L- STA. 12+50
EL = 67.88'

PI = 13+24.00
EL = 68.24'
VC = 138'
K = 181

PI = 15+48.00
EL = 71.04'
VC = 310'
K = 117

PI = 17+53.00
EL = 68.17'
VC = 100'
K = 126

END GRADE
-L- STA. 18+62.27
EL = 67.51'



TBM # 2 RR SPIKE IN BASE OF 36" PIN OAK
-L- STA. 13+65.12 61.04 LT.
N 678836 E 2337207 ELEV. = 69.71'

DITCH LEGEND	
LEFT DITCH	-·-·-·-

SEE SHEET 4 FOR -L- DESIGN

24-MAR-2010 11:16
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