TIP PROJECT: B-4665

CONTRACT: C201931

09/08/99

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

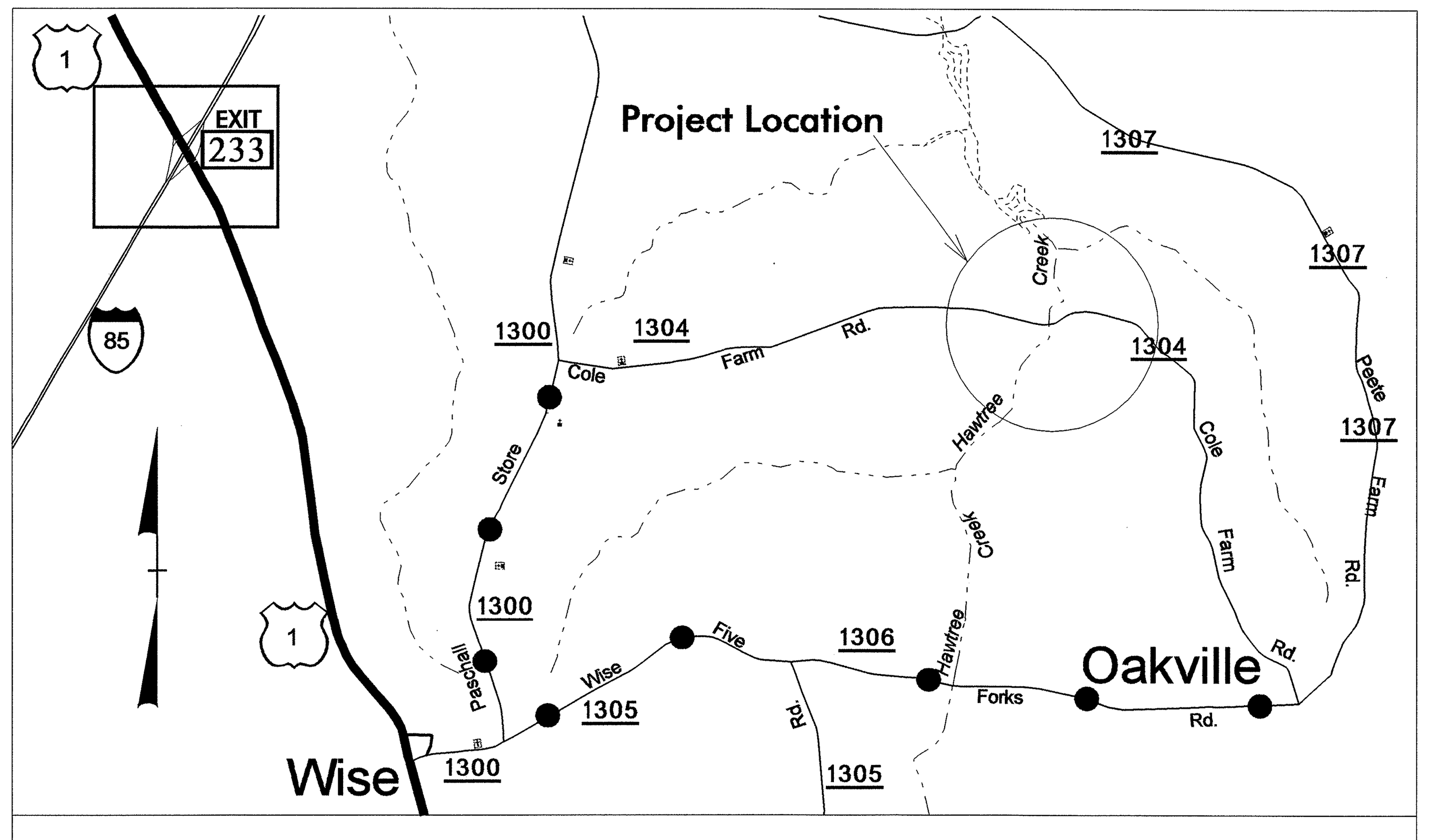
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4665	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33825.1.1	BRZ-1304 (8)	PE
33825.2.1	BRZ-1304 (8)	R/W & Util
33825.3.1	BRZ-1304 (8)	CONSTRUCTION

WARREN COUNTY

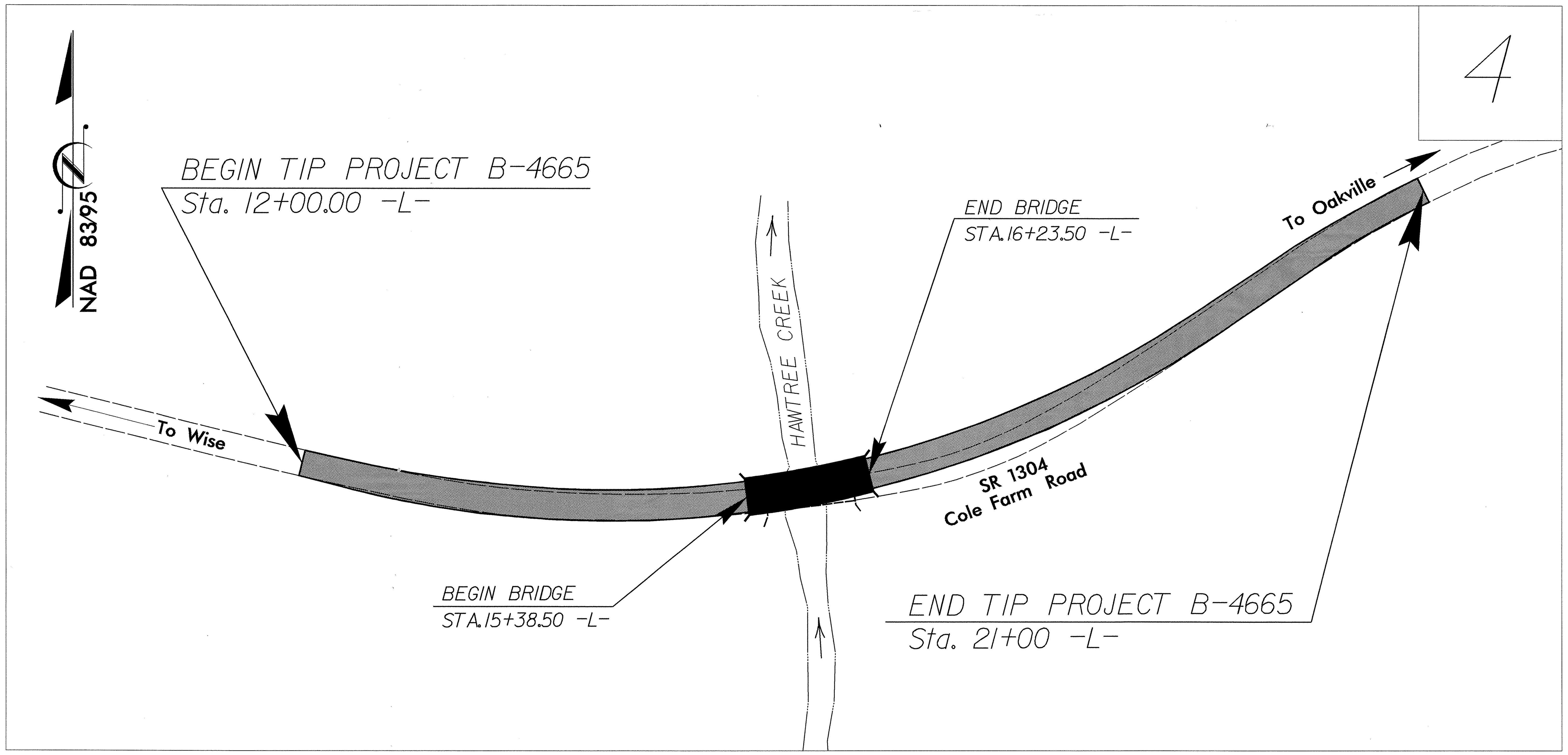
LOCATION: Bridge No. 36 Over Hawtree Creek on SR 1304 (Cole Farm Road)

TYPE OF WORK: Grading, Paving, Drainage, Structure



VICINITY MAP

● ● ● ● ● ● ● ● ● OFF SITE DETOUR



**Design exception required for design speed (45 mph), Sag vertical curve (K factor), & stopping sight distances.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2007 = 170 VPD
ADT 2030 = 300 VPD
DHV = 13 %
D = 60 %
T = 3 % *
**V = 45 MPH

* TTST 1% *DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4665 = 0.154 mi
LENGTH STRUCTURE TIP PROJECT B-4665 = 0.016 mi
TOTAL LENGTH TIP PROJECT B-4665 = 0.170 mi

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 3, 2007

LETTING DATE: SEPTEMBER 16, 2008

JAMES A. SPEER, PE
PROJECT ENGINEER

JOHN LANSFORD, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

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RD223174 6/10/2008 b4665_tsh jgperkins RD-Oce34

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4665	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19439 ENGINEER JOHN C LANSFORD

6/24/08

WARREN COUNTY

PROJECT: 33825.3.1 (B-4665)

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAIL
2-A	ANCHORAGE FOR FRAMES DETAIL SHEET
3	SUMMARY OF QUANTITIES
3-A	LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER), SUMMARY OF GUARDRAIL, SUMMARY OF EARTHWORK, AND SUMMARY OF PAVEMENT REMOVAL
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
SD-1	SPECIAL SIGN DESIGN
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-1	CROSS SECTION SUMMARY SHEET
X-2 THRU X-10	CROSS-SECTIONS
S-1 THRU S-23	STRUCTURE PLANS

GENERAL NOTES:

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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 Embarq (Telephone)

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 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
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
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
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
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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RD223174 6/17/2008 b4665_psh 1a jgperkins RD-Oce34

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-4665	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

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
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- 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
- 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

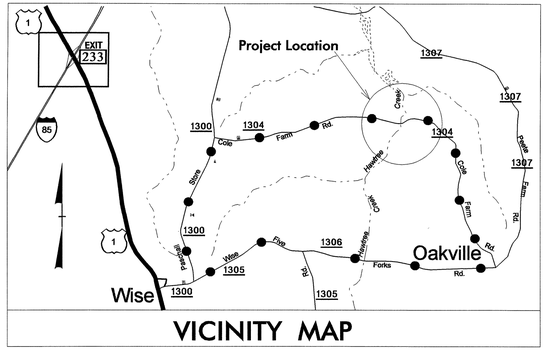
MISCELLANEOUS:

- 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.

03/13/06

PROJECT REFERENCE NO.	SHEET NO.
B-4665	1-C
Location and Surveys	

B-4665



OFF SITE DETOUR

SURVEY CONTROL SHEET B-4665

WARREN COUNTY

LOCATION: Bridge No. 36 Over Hawtree Creek on SR 1304 (Cole Farm Road)

NAD 83/95

BEGIN TIP PROJECT B-4665
Sta. 12+00 -L-

END TIP PROJECT B-4665
Sta. 21+00 -L-

B4665-2

BL-101

BL-102

BL-103

BL-104

BL-105

BM-1

BM-2

To Wise

To Oakville

SR 1304

Cole Farm Road

HAWTREE CREEK

#36

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101	BL-101	1010485.3320	2257818.8710	237.69	OUTSIDE PROJECT LIMITS	
102	BL-102	1010421.4000	2258082.5320	225.85	11+94.59	18.72 RT
103	BL-103	1010408.4240	2258511.2380	209.56	16+19.40	18.70 RT
104	BL-104	1010674.7160	2259050.8440	238.94	22+23.37	14.85 RT
105	BL-105	1010720.2970	2259596.2930	257.22	OUTSIDE PROJECT LIMITS	

600 ELEVATION = 257.78
N 1010736 E 2259524
L STATION 24+01
N 86° 43' 11.9" E DIST 303.12
BM-1

601 ELEVATION = 206.64
N 1010461 E 2258497
L STATION 16+18 36 LEFT
BM-2

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B4665-2" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 1010792.6963(ft) EASTING: 2256618.528 1(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000111150 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B4665-2" TO -L- STATION 12+00 IS S 76°28'17"E ,151523'

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

NOTE: DRAWING NOT TO SCALE

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

HTTP:\WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT

b4665_ls_control_060313.txt

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

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

PROJECT REFERENCE NO.	SHEET NO.
B-4665	2

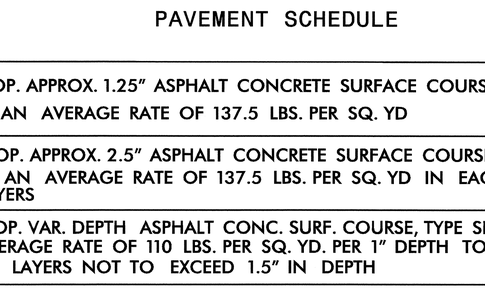
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15435 ENGINEER JOHN C. LANSFORD — 6/24/08

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22[illegible] ENGINEER CLARK S. MORRIS — 6/23/08

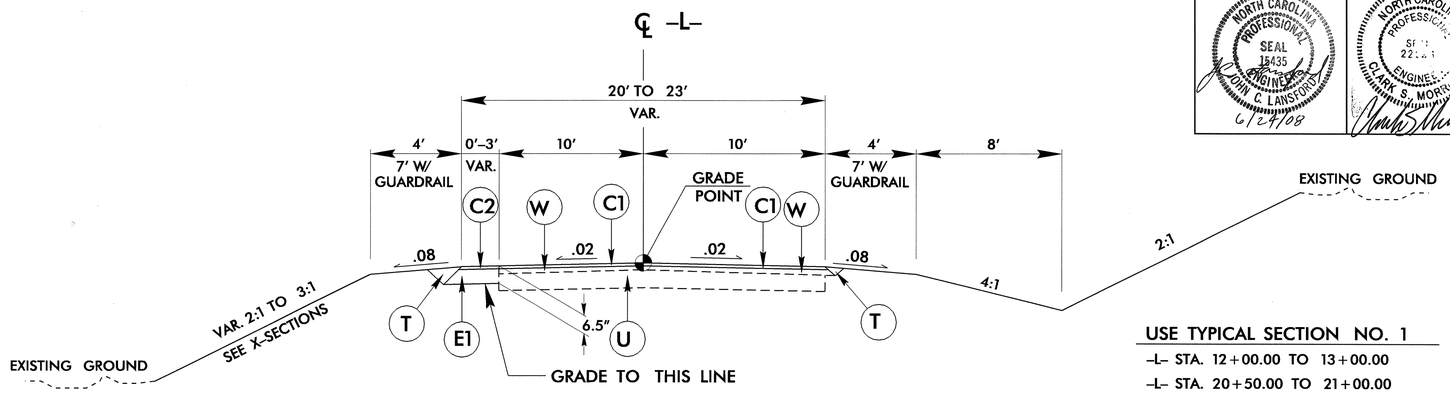
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD
C2	PROP. APPROX. 2.5" 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. VAR. DEPTH ASPHALT CONC. SURF. 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" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONC. 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 5.5" IN DEPTH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	ASPHALT WEDGING (SEE DETAIL)

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

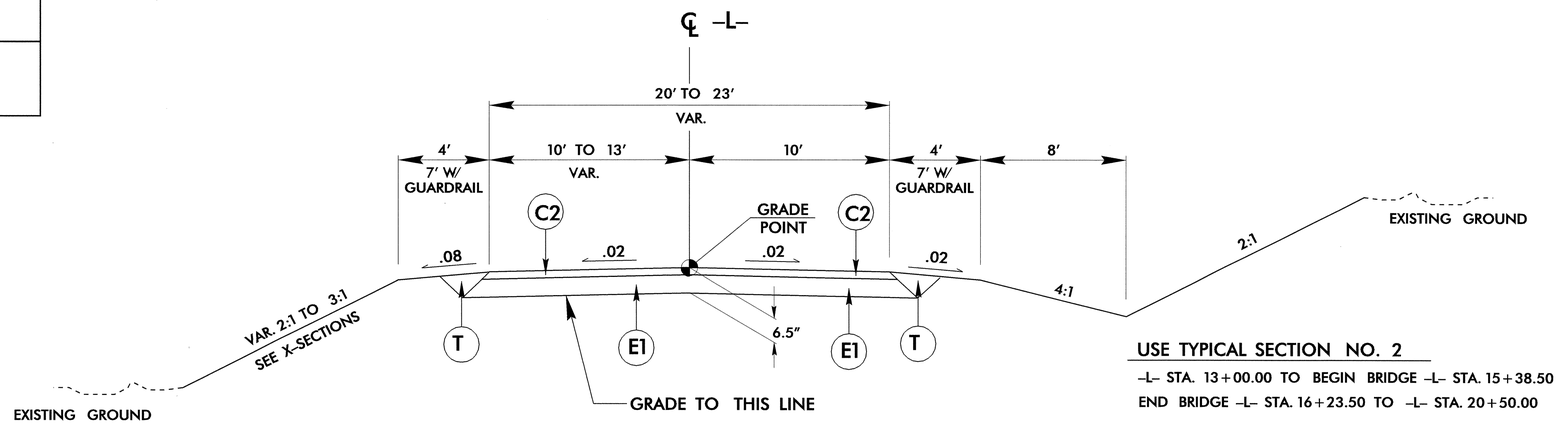


Wedging Detail For Resurfacing



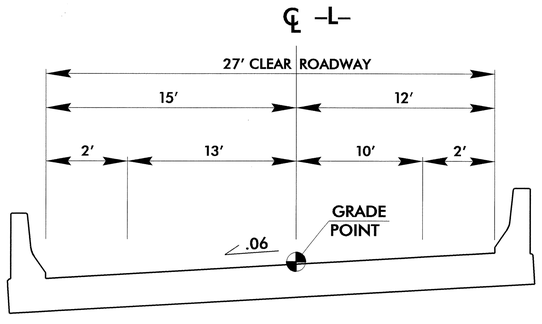
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 12+00.00 TO 13+00.00
-L- STA. 20+50.00 TO 21+00.00

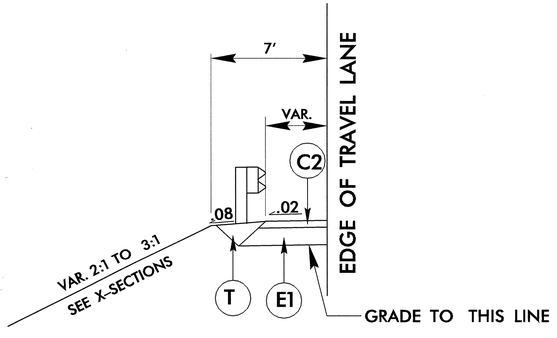


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA. 13+00.00 TO BEGIN BRIDGE -L- STA. 15+38.50
END BRIDGE -L- STA. 16+23.50 TO -L- STA. 20+50.00



TYPICAL SECTION ON STRUCTURE



USE TYPICAL SECTION NO. 2

FULL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL (SEE PLAN)

TO BE USED IN CONJUNCTION WITH T.S. NO. 2 AT GUARDRAIL LOCATIONS

5/28/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4665	2-A

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

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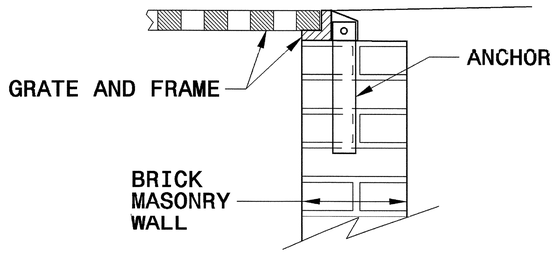
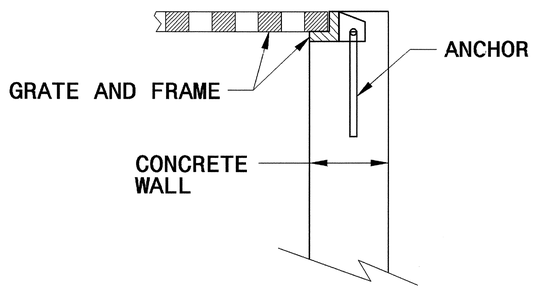
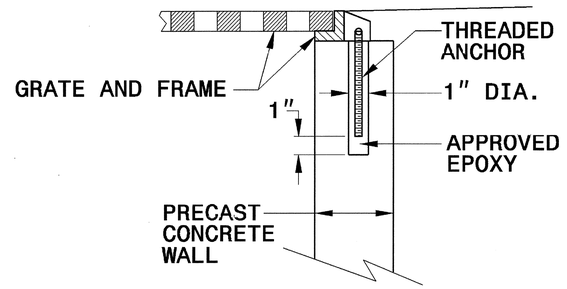


BRICK MASONRY CONSTRUCTION



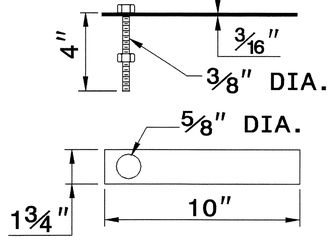
CONCRETE CONSTRUCTION



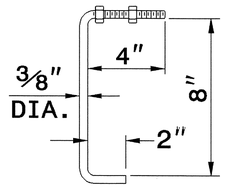
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

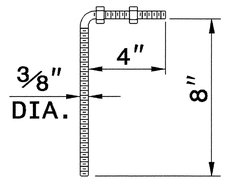
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



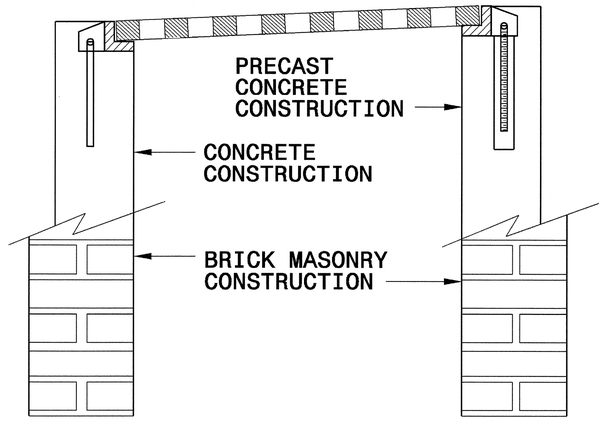
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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 E. HOUSTON 6/24/08

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:
FILE SPEC.:

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ericward AI PS222293

PROJECT REFERENCE NO.	SHEET NO.
B-4665	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201931

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 ********** (15+81.00)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	200	CY	UNDERCUT EXCAVATION
0134000000-E	240	35	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	200	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	200	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	5	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0708000000-E	310	40	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0806000000-E	310	4	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1489000000-E	610	418	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	280	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	37	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2000000000-N	806	20	EA	RIGHT OF WAY MARKERS
2022000000-E	815	23	CY	SUBDRAIN EXCAVATION
2033000000-E	815	17	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	3	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	55	LF	SHOULDER BERM GUTTER
3030000000-E	862	100	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3649000000-E	876	295	TON	RIP RAP, CLASS B
3656000000-E	876	1,965	SY	FILTER FABRIC FOR DRAINAGE
4072000000-E	903	16	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4102000000-N	904	2	EA	SIGN ERECTION, TYPE E
4155000000-N	907	9	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	377	SF	WORK ZONE SIGNS (STATIONARY)
4411000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
4685000000-E	1205	1,630	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	1,630	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4770000000-E	1205	340	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)
4900000000-N	1251	20	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	3,300	LF	TEMPORARY SILT FENCE
6006000000-E	1610	230	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	240	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	70	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	4.5	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	480	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	4	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	250	LF	SAFETY FENCE
6030000000-E	1630	400	CY	SILT EXCAVATION
6036000000-E	1631	7,700	SY	MATTING FOR EROSION CONTROL
6038000000-E	SP	130	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	40	LF	1/4" HARDWARE CLOTH
6071030000-E	SP	200	LF	COIR FIBER BAFFLES
6084000000-E	1660	8	ACR	SEEDING & MULCHING
6087000000-E	1660	2	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	2.5	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

4/04/06

COMPUTED BY: JGP	DATE: 6/17/08
CHECKED BY:	DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4665	3-A

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	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109
-L- 15+19.00	Lt	1		213.5'	210.7'																		
-L- 15+19.00	Lt	1	2		210.7'	205.3'											20'						
-L- 16+43.00	Lt	3		215.3'	212.5'																		
-L- 16+43.00	Lt	3	4		212.5'	206.8'											20'						
Total																	40'						

STATION	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" 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	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.29	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	J.B. STD. 840.31 OR 840.32	TRAFFIC BEARING G.D.I. STD 840.35	CORR. STEEL ELBOWS NO. & SIZE (BIT. COATED)	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.
-L- 15+19.00														1												1		1			
-L- 15+19.00																													2-15'			
-L- 16+43.00														1												1		1			
-L- 16+43.00																													2-15'			
Total														2												2		2	4-15'			

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

REMARKS

"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	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS XI MOD	B-77	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	14+57.25	15+38.50	Lt.	12.5'			15+38.50		4'	7'	50'		1'			1	1													
-L-	14+44.75	15+38.50	Rt.	25'			15+38.50		4'	7'	50'		1'			1	1													
-L-	16+23.50	17+04.75	Lt.	12.5'			16+23.50		4'	7'	50'		1'			1	1													
-L-	16+23.50	17+17.25	Rt.	25'			16+23.50		4'	7'	50'		1'			1	1													
	TOTAL			75'												4	4													
	SAY			100'																										
	ANCHOR LENGTHS:						ADDITIONAL GUARDRAIL POSTS 5 EACH																							
	TYPE GRAU-350 = 50' EACH																													
	TYPE B-77 = 18.75' EACH																													

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
-L- STA. 12+00.00	-L- STA. 15+38.50	58		1573	1518	3
	SUBTOTAL	58		1573	1518	3
-L- STA. 16+23.50	-L- STA. 21+00.00	119		3897	3784	6
	SUBTOTAL	119		3897	3784	6
	PROJECT TOTAL	177		5470	5302	9
5% FOR BORROW PIT					265	
	GRAND TOTAL	177			5567	9
	SAY	180			5600	
UNDERCUT			200			
DRAINAGE DITCH EXCAVATION (35 CY)						

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."

NOTE: 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.

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	AREA
-L-	13+00.00	15+50.00	C/L	556
-L-	16+17.00	20+50.00	C/L	962
		TOTAL		1518
		SAY		1525

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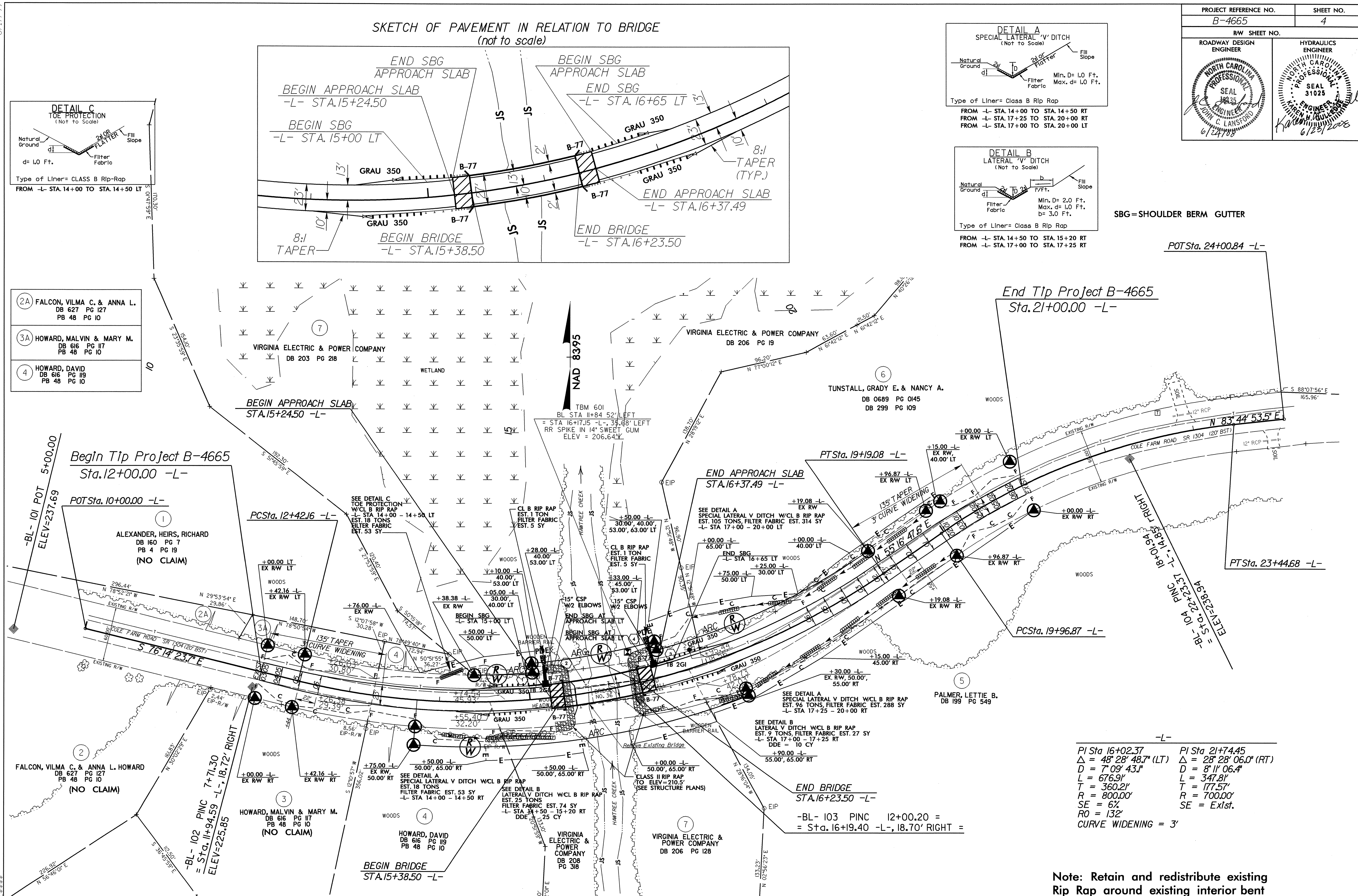
PROJECT REFERENCE NO.	SHEET NO.
B-4665	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SKETCH OF PAVEMENT IN RELATION TO BRIDGE
(not to scale)
END SBG APPROACH SLAB
BEGIN APPROACH SLAB -L- STA.15+24.50
BEGIN SBG -L- STA.15+00 LT
BEGIN SBG APPROACH SLAB
END SBG -L- STA.16+65 LT
GRAU 350
B-77
8:1 TAPER (TYP.)
END APPROACH SLAB -L- STA.16+37.49
END BRIDGE -L- STA.16+23.50
BEGIN BRIDGE -L- STA.15+38.50
8:1 TAPER
DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
Type of Liner= Class B Rip Rap
FROM -L- STA. 14+00 TO STA. 14+50 RT
FROM -L- STA. 17+25 TO STA. 20+00 RT
FROM -L- STA. 17+00 TO STA. 20+00 LT
DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Min. D= 2.0 Ft.
Max. d= 1.0 Ft.
b= 3.0 Ft.
Type of Liner= Class B Rip Rap
FROM -L- STA. 14+50 TO STA. 15+20 RT
FROM -L- STA. 17+00 TO STA. 17+25 RT
DETAIL C
TOE PROTECTION
(Not to Scale)
d= 1.0 Ft.
Type of Liner= CLASS B Rip-Rap
FROM -L- STA. 14+00 TO STA. 14+50 LT
SBG=SHOULDER BERM GUTTER
2A FALCON, VILMA C. & ANNA L. DB 627 PG 127 PB 48 PG 10
3A HOWARD, MALVIN & MARY M. DB 616 PG 117 PB 48 PG 10
4 HOWARD, DAVID DB 616 PG 119 PB 48 PG 10
NAD 83/95
TBM 601 BL STA 11+84 52' LEFT = STA 16+17.15 -L-, 35.68' LEFT RR SPIKE IN 14" SWEET GUM ELEV = 206.64'
VIRGINIA ELECTRIC & POWER COMPANY DB 203 PG 218
VIRGINIA ELECTRIC & POWER COMPANY DB 206 PG 19
TUNSTALL, GRADY E. & NANCY A. DB 0689 PG 0145 DB 299 PG 109
ALEXANDER, HEIRS, RICHARD DB 160 PG 7 PB 4 PG 19 (NO CLAIM)
FALCON, VILMA C. & ANNA L. HOWARD DB 627 PG 127 PB 48 PG 10 (NO CLAIM)
HOWARD, MALVIN & MARY M. DB 616 PG 117 PB 48 PG 10 (NO CLAIM)
HOWARD, DAVID DB 616 PG 119 PB 48 PG 10
PALMER, LETTIE B. DB 199 PG 549
VIRGINIA ELECTRIC & POWER COMPANY DB 206 PG 128
VIRGINIA ELECTRIC & POWER COMPANY DB 208 PG 318
Begin Tip Project B-4665 Sta.12+00.00 -L-
End Tip Project B-4665 Sta.21+00.00 -L-
POT Sta. 10+00.00 -L-
POT Sta. 24+00.84 -L-
PC Sta. 12+42.16 -L-
PT Sta. 19+19.08 -L-
PC Sta. 19+96.87 -L-
PT Sta. 23+44.68 -L-
-BL- 101 POT 5+00.00 ELEV=237.69
-BL- 102 PINC 7+71.30 = Sta. 11+94.59 -L-, 18.72' RIGHT ELEV=225.85
-BL- 103 PINC 12+00.20 = = Sta. 16+19.40 -L-, 18.70' RIGHT =
-BL- 104 PINC 18+01.94 = Sta. 22+23.37 -L-, 14.85' RIGHT ELEV=238.94
S 76°14'23.7" E
N 55°16'47.6" E
N 83°44'53.5" E
COLE FARM ROAD SR 1304 (20' BST)
HAWTREE CREEK
WETLAND
WOODS

-L-	
PI Sta 16+02.37	PI Sta 21+74.45
Δ = 48° 28' 48.7" (LT)	Δ = 28° 28' 06.0" (RT)
D = 7° 09' 43.1"	D = 8° 11' 06.4"
L = 676.91'	L = 347.81'
T = 360.21'	T = 177.57'
R = 800.00'	R = 700.00'
SE = 6%	SE = Exist.
RO = 132'	
CURVE WIDENING = 3'	

Note: Retain and redistribute existing Rip Rap around existing interior bent following removal.

Note: See sheet 5 for -L- profile.

Note: See sheets S-1 thru S-23 for Structure Plans.

Design exceptions required for design speed (45mph) and horizontal stopping sight distance

8/17/99

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4665	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18435 ENGINEER JOHN C. LANSFORD 6/24/08

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31025 ENGINEER KARIM GUIREGUI 6/23/2008

Design exceptions required for sag vertical curve (K factor) and for stopping sight distance

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 3300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2095	FT
BASE DISCHARGE	= 4900	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2111	FT
OVERTOPPING DISCHARGE	= 7200	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 215.2	FT

—L—

TBM #601 RR SPIKE IN 14" SWEET GUM
STA. -L- 16+17.15 36' LT
N 1010461 E 2258497 ELEV. = 206.64'

BEGIN GRADE
STA. 12+00 -L-
EL. 225.91

SPECIAL LATERAL V DITCH
-L- STA 18+50.00 (LT)
EL. = 221.40

END SPECIAL LATERAL V DITCH
-L- STA 20+00.00 (LT)
EL. = 227.00

END GRADE
STA. 21+00 -L-
EL. 235.34

SPECIAL LATERAL V DITCH
-L- STA 19+00.00 (LT)
EL. = 223.60

SPECIAL LATERAL V DITCH
-L- STA 18+00.00 (LT)
EL. = 216.80

PI = 14+85.00
EL = 209.18'
VC = 435'
K = 43

SPECIAL LATERAL V DITCH
-L- STA 19+50.00 (LT)
EL. = 225.40

SPECIAL LATERAL V DITCH
-L- STA 17+50.00 (LT)
EL. = 210.00

BEGIN SPECIAL LATERAL V DITCH
-L- STA 17+00.00 (LT)
EL. = 206.00

225.91

235.34

-L- STA 15+81
PLATE GIRDER BRIDGE
SINGLE SPAN, TOTAL LENGTH = 85'
GRADE POINT ELEV = 214.98'
SKEW = 95°

(+)4.2537%

(-)15.8702%

(-)4.9200%

(-)4.0714%

(+)3.6000%

(+)3.2000%

(+)4.0000%

(+)4.4000%

(+)7.2000%

(+)6.4000%

(+)8.0000%

(+)10.0000%

(+)12.0000%

(+)9.0000%

BEGIN SPECIAL LATERAL V DITCH
-L- STA 14+00.00 (RT)
EL = 209.31

END SPECIAL LATERAL V DITCH
BEGIN LATERAL V DITCH
-L- STA 14+50.00 (RT)
EL = 206.85

END LATERAL V DITCH
-L- STA 15+20.00 (RT)
EL = 204.00

ABUTMENT EXCAVATION

CLASS II RIP RAP (SEE STRUCTURE PLANS)

ABUTMENT EXCAVATION

BEGIN LATERAL V DITCH
-L- STA 17+00.00 (RT)
EL = 206.50

END LATERAL V DITCH
BEGIN SPECIAL LATERAL V DITCH
-L- STA 17+25.00 (RT)
EL = 209.00

SPECIAL LATERAL V DITCH
-L- STA 17+50.00 (RT)
EL = 212.00

SPECIAL LATERAL V DITCH
-L- STA 18+00.00 (RT)
EL = 216.50

SPECIAL LATERAL V DITCH
-L- STA 18+50.00 (RT)
EL = 220.00

SPECIAL LATERAL V DITCH
-L- STA 19+00.00 (RT)
EL = 223.20

SPECIAL LATERAL V DITCH
-L- STA 19+50.00 (RT)
EL = 225.20

END SPECIAL LATERAL V DITCH
-L- STA 20+00.00 (RT)
EL = 227.00

LEFT DITCH

RIGHT DITCH

250 240 230 220 210 200 190

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

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