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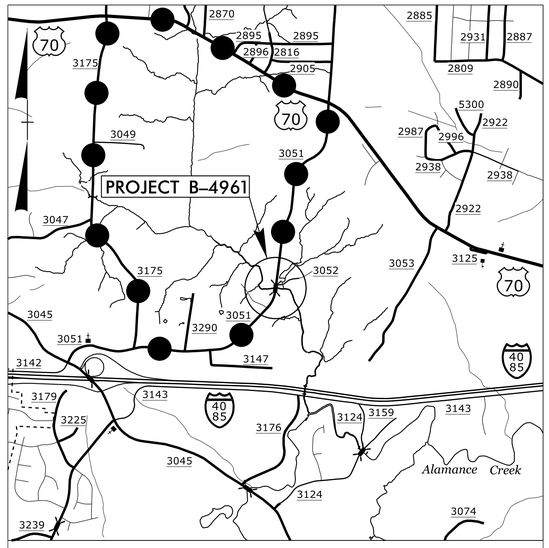
**This file or an individual page shall not be considered a certified document.**

09/08/99

**TIP PROJECT: B–4961**

**CONTRACT: C203808**

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Plan Sheet Symbols
See Sheets 1C-1 Thru 1C-2 For Survey Control Sheets




VICINITY MAP

OFFSITE DETOUR

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

# GUILFORD COUNTY

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | B–4961 | 1 | |

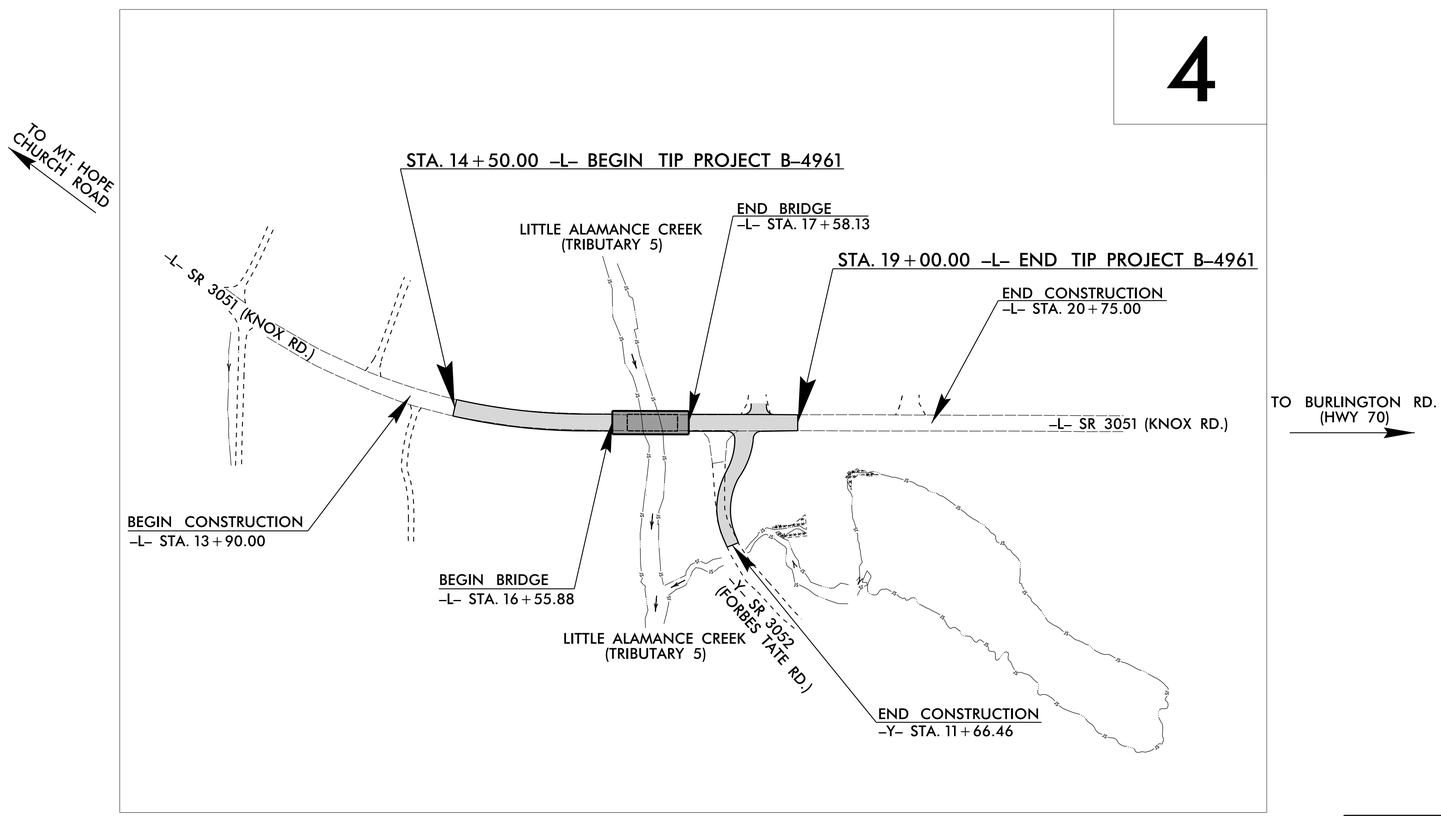
| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 40152.1.1 | BRZ–3051(1) | PE |
| 40152.2.1 | | R/W |
| 40152.2.2 | | UTILITIES |
| 40152.3.1 | | CONST. |

***LOCATION: BRIDGE NO. 208 OVER LITTLE ALAMANCE CREEK (TRIBUTARY 5) ON SR 3051 (KNOX ROAD)***

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

NAD 83/
NSRS 2007

4




DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCES.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

***GRAPHIC SCALES***

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

***DESIGN DATA***

ADT 2016 = 2,080
ADT 2035 = 3,600
K = 14 %
D = 55 %
T = 5 % *
V = 55 MPH
* TTST=1% DUAL=4%
FUNC CLASS = COLLECTOR
"SUBREGIONAL TIER"

***PROJECT LENGTH***

LENGTH ROADWAY TIP PROJECT B–4961 = 0.066 MILES
LENGTH STRUCTURE TIP PROJECT B–4961 = 0.019 MILES
TOTAL LENGTH OF TIP PROJECT B–4961 = 0.085 MILES

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

*2012 STANDARD SPECIFICATIONS*

***RIGHT OF WAY DATE:***
OCTOBER 5, 2015

***LETTING DATE:***
JUNE 21, 2016

JAMES A. SPEER, PE
*PROJECT ENGINEER*

DANIEL W. GARDNER, JR., PE
*PROJECT DESIGN ENGINEER*

***HYDRAULICS ENGINEER***
NORTH CAROLINA PROFESSIONAL SEAL 019775 ENGINEER RAY D. LOVINGGOOD
3/11/2016
DocuSigned by: Ray D. Lovinggood
P.E.
SIGNATURE:

***ROADWAY DESIGN ENGINEER***
NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER JR.
3/11/2016
DocuSigned by: Daniel W. Gardner, Jr.
P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10-MAR-2016 08:22
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8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4961 | 1A |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER JR.

3/10/2021

DocuSigned by:
Daniel W. Gardner, Jr.
2F3B8F1EN3CB4B0...

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

INDEX OF SHEETS

| SHEET NUMBER | SHEET |
|---|---|
| 1 | TITLE SHEET |
| 1A | INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS |
| 1B | CONVENTIONAL PLAN SHEET SYMBOLS |
| 1C-1 THRU 1C-2 | SURVEY CONTROL SHEETS |
| 2A-1 | PAVEMENT SCHEDULE, WEDGING DETAIL, AND TYPICAL SECTIONS |
| 2C-1 | GUARDRAIL ANCHOR UNIT, TYPE III |
| 3B-1 | SUMMARY OF EARTHWORK, GUARDRAIL SUMMARY, SUMMARY OF ASPHALT PAVEMENT REMOVAL, AND SHOULDER BERM GUTTER SUMMARY |
| 3D-1 | DRAINAGE SUMMARY |
| 4 | PLAN SHEET |
| 5 | PROFILE SHEET |
| TMP-1 THRU TMP-4 | TRANSPORTATION MANAGEMENT PLANS |
| PMP-1 | PAVEMENT MARKING PLANS |
| EC-1 THRU EC-5 | EROSION CONTROL PLANS |
| RF-1 | REFORESTATION PLANS |
| SIGN-1 THRU SIGN-2 | SIGNING PLANS |
| UO-1 THRU UO-2 | UTILITIES BY OTHERS PLANS |
| X-1 | CROSS-SECTION SUMMARY SHEET |
| X-1 THRU X-9 | CROSS-SECTIONS |
| S-1 THRU S-19 | STRUCTURE PLANS |

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE
Duke Energy Progress - Power (Distribution)
AT&T - Communications
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

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

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 January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

| STD. NO. | TITLE |
|---|---|
| DIVISION 2 - EARTHWORK | |
| 200.02 | Method of Clearing - Method II |
| 225.02 | Guide for Grading Subgrade - Secondary and Local |
| 225.04 | Method of Obtaining Superelevation - Two Lane Pavement |
| DIVISION 3 - PIPE CULVERTS | |
| 300.01 | Method of Pipe Installation |
| 310.10 | Driveway Pipe Construction |
| DIVISION 4 - MAJOR STRUCTURES | |
| 422.11 | Reinforced Bridge Approach Fills - Sub Regional Tier |
| DIVISION 5 - SUBGRADE, BASES AND SHOULDERS | |
| 560.01 | Method of Shoulder Construction - High Side of Superelevated Curve - Method I |
| DIVISION 8 - INCIDENTALS | |
| 806.01 | Concrete Right-of-Way Marker |
| 806.02 | Granite Right-of-Way Marker |
| 840.00 | Concrete Base Pad for Drainage Structures |
| 840.25 | Anchorage for Frames - Brick or Concrete or Precast |
| 840.29 | Frames and Narrow Slot Flat Grates |
| 840.35 | Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates |
| 840.46 | Traffic Bearing Precast Drainage Structure |
| 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 |
| 876.02 | Guide for Rip Rap at Pipe Outlets |

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04/06/15

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4961 | 1B |

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

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

## BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

## BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

## HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

## RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

## RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

## ROADS AND RELATED FEATURES:

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

## VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

## EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

## UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

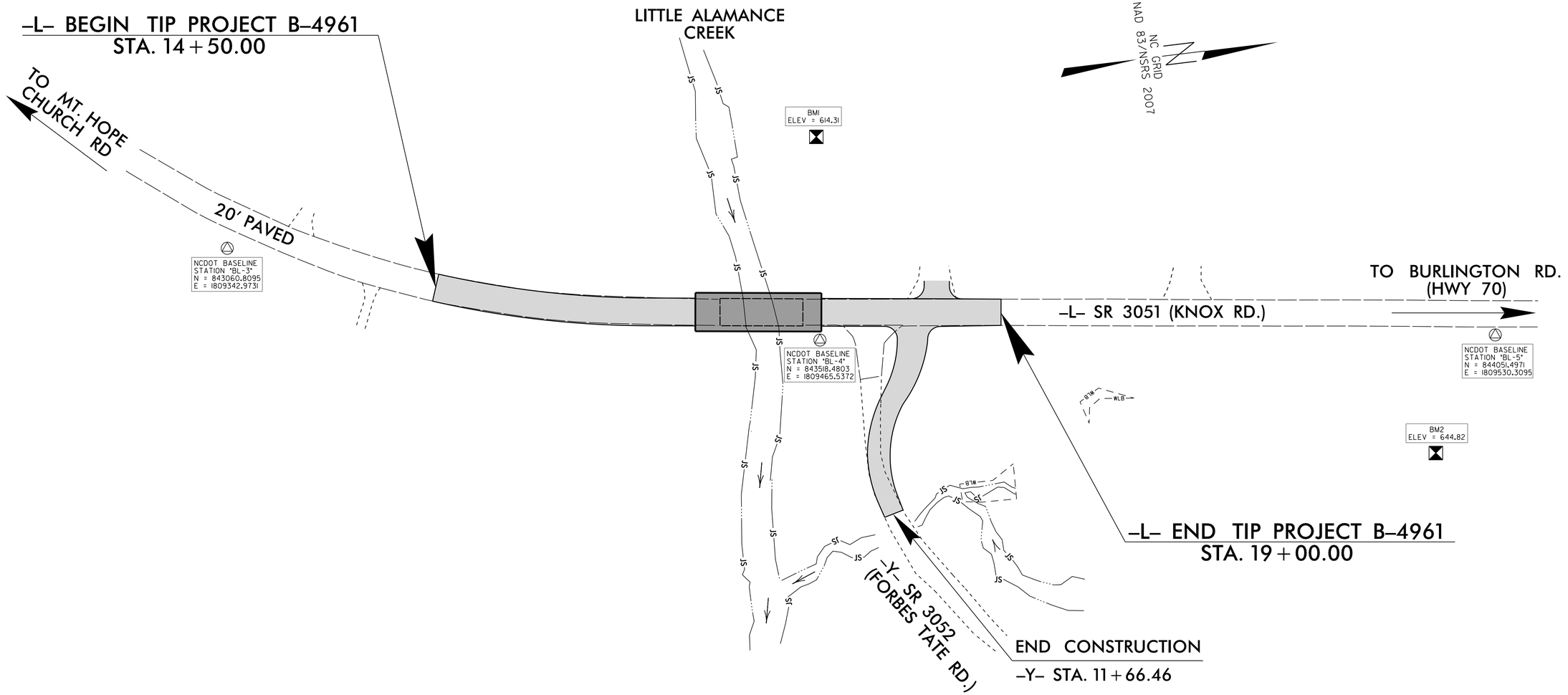
MISCELLANEOUS:

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

12/01/2005

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B–4961 | 1C–1 |
| Location and Surveys | |

# *B–4961 SURVEY CONTROL SHEET*




## NOTES

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   *HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/PAGES/DEFAULT.ASPX*

   *THE FILES TO BE FOUND ARE AS FOLLOWS:*
   *B4961_LS_CONTROL.TXT*

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

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

*PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.*

## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4961-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 842650.9330(ft) EASTING: 1808969.9940(ft)
ELEVATION: 664.96'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999458801
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4961-2" TO –L– STATION 14+50.00 IS N 36°37'51" E 710.57'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

## BASELINE DATA

BL

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 1 | B4961-1 | 841940.5470 | 1808230.5780 | 695.42 | OUTSIDE PROJECT LIMITS | |
| 2 | B4961-2 | 842650.9330 | 1808969.9940 | 664.96 | OUTSIDE PROJECT LIMITS | |
| 3 | BL-3 | 843060.8095 | 1809342.9731 | 639.15 | 12+85.86 | 24.69 RT |
| 4 | BL-4 | 843518.4803 | 1809465.5372 | 620.26 | 17+55.29 | 15.36 RT |
| 5 | BL-5 | 844051.4971 | 1809530.3095 | 653.08 | 22+92.23 | 13.70 RT |

## BENCHMARK DATA

BM1 ELEVATION = 614.31
N 843535 E 1809312
L STATION 17+53.00 139 LEFT
RR SPIKE IN ROOT OF 15" SWEET GUM

BM2 ELEVATION = 644.82
N 843993 E 1809620
L STATION 22+45.00 110 RIGHT
RR SPIKE IN ROOT OF 36" POPLAR

*NOTE: DRAWING NOT TO SCALE*

29-FEB-2016 J222
22:10:28 Alan.Hopper
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ATS\Roadway\MicroStation

12/01/2005

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B–4961 | 1C–2 |
| Location and Surveys | |

# *B–4961 SURVEY CONTROL SHEET*

L

| TYPE | STATION | NORTH | EAST |
|---|---|---|---|
| POT | 10+00.00 | 842857.3336 | 1809136.4896 |
| PC | 11+32.97 | 842953.5414 | 1809228.2712 |
| PT | 16+20.25 | 843386.3743 | 1809433.5934 |
| POT | 23+00.00 | 844060.9065 | 1809517.6719 |

Y

| TYPE | STATION | NORTH | EAST |
|---|---|---|---|
| POT | 10+00.00 | 843594.5164 | 1809459.5377 |
| PC | 10+16.00 | 843592.5377 | 1809475.4121 |
| PRC | 10+66.96 | 843573.2911 | 1809521.9410 |
| PT | 11+53.83 | 843556.3627 | 1809604.0911 |
| POT | 11+66.46 | 843559.5374 | 1809616.3211 |

-L- PRELIMINARY NEW R/W MONUMENTS

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| L | 15+50.00 | -50.00 | 843327.8782 | 1809372.8755 |
| L | 15+50.00 | -30.00 | 843323.5925 | 1809392.4110 |
| L | 16+20.25 | -50.00 | 843392.5588 | 1809383.9773 |
| L | 18+15.00 | -50.00 | 843585.8161 | 1809408.0663 |
| L | 18+15.00 | -35.00 | 843583.9607 | 1809422.9511 |

-Y- PRELIMINARY NEW R/W MONUMENTS

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| Y | 11+66.46 | -30.00 | 843588.5750 | 1809608.7833 |
| Y | 11+53.83 | -30.00 | 843585.4003 | 1809596.5534 |
| Y | 11+66.46 | 30.00 | 843530.4998 | 1809623.8588 |
| Y | 11+53.83 | 30.00 | 843527.3250 | 1809611.6288 |
| Y | 10+69.29 | 30.00 | 843547.7507 | 1809505.9782 |
| Y | 10+66.96 | -30.00 | 843596.9831 | 1809540.3446 |
| Y | 10+30.50 | -30.00 | 843618.5152 | 1809497.7999 |
| Y | 11+66.46 | 8.01 | 843551.7790 | 1809618.3301 |
| Y | 11+66.46 | -7.02 | 843566.3342 | 1809614.5567 |

-L- PRELIMINARY NEW PERMANENT UTILITY EASEMENTS

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| L | 20+55.00 | -35.00 | 843822.1177 | 1809452.6367 |
| L | 20+55.00 | -60.00 | 843825.2100 | 1809427.8287 |
| L | 20+70.00 | -60.00 | 843840.0948 | 1809429.6840 |
| L | 20+70.00 | -35.00 | 843837.0026 | 1809454.4921 |
| L | 20+75.00 | 35.00 | 843833.3059 | 1809524.5730 |
| L | 20+75.00 | 40.00 | 843832.6874 | 1809529.5346 |

-L- PRELIMINARY NEW PERMANENT DRAINAGE UTILITY EASEMENTS

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| L | 14+70.00 | 30.00 | 843230.6054 | 1809428.9854 |
| L | 14+70.00 | 50.00 | 843224.3011 | 1809447.9658 |

-Y- PRELIMINARY NEW PERMANENT DRAINAGE UTILITY EASEMENTS

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| Y | 10+90.00 | 30.00 | 843534.0719 | 1809529.4905 |

-Y- PRELIMINARY NEW PERMANENT UTILITY EASEMENTS

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| Y | 10+55.00 | -30.00 | 843605.8291 | 1809527.3444 |

## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "B4961-2"
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VERTICAL DATUM USED IS NAVD 88

*NOTE: DRAWING NOT TO SCALE*

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$$STYLESHEET$$

6/2/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4961 | 2A-1 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER

3/10/2021

DocuSigned by: Daniel W. Gardner, Jr.

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON

3/10/2021

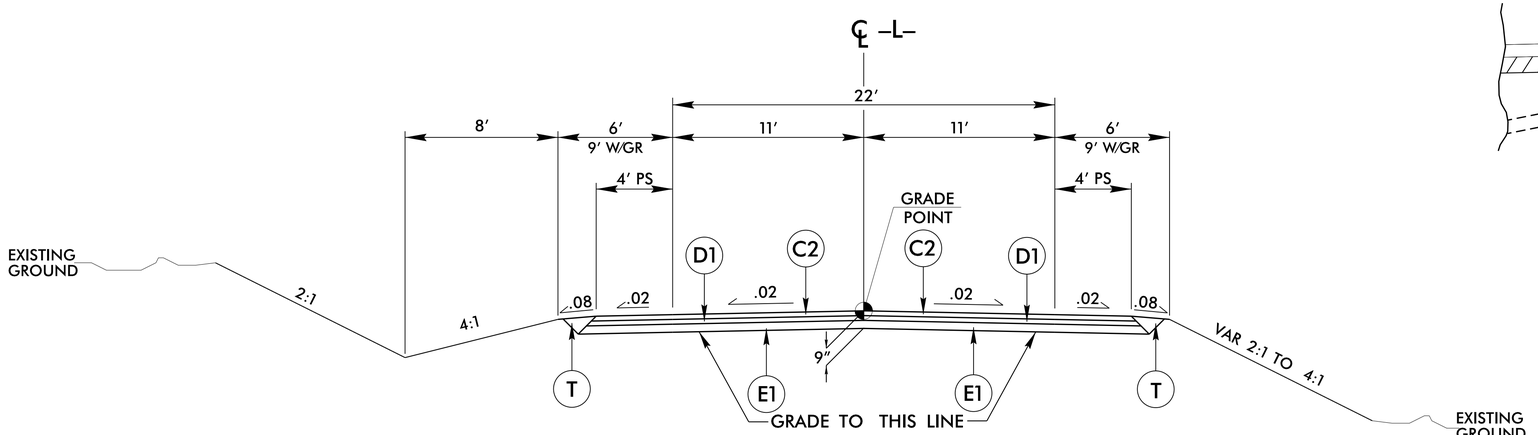
DocuSigned by: Clark S Morrison

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

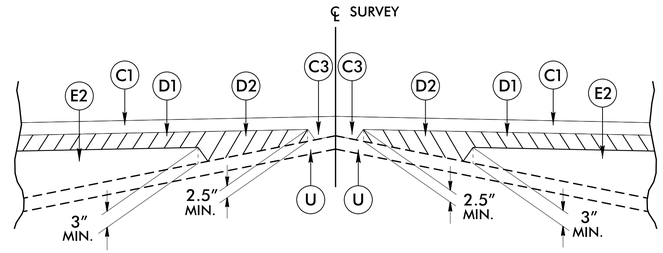
## PAVEMENT SCHEDULE

| | | | |
|---|---|---|---|
| C1 | PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. | E1 | PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 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. | 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. |
| C3 | 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 1½" IN DEPTH. | T | EARTH MATERIAL. |
| D1 | PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. | U | EXISTING PAVEMENT. |
| D2 | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH. | W | VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL). |

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




## TYPICAL SECTION NO. 1



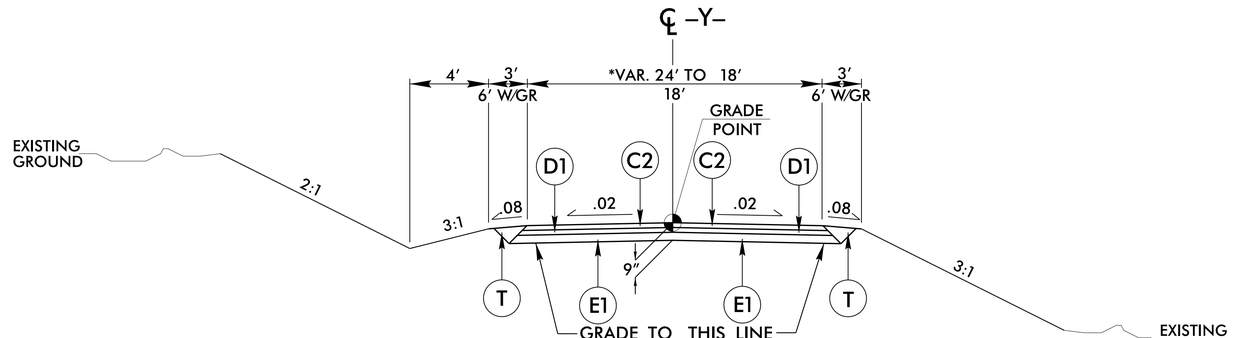

Detail Showing Method of Wedging

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
–L– STA. 14+50.00 TO STA. 15+00.00

USE TYPICAL SECTION NO. 1

–L– STA. 15+00.00 TO STA. 16+55.88 (BEGIN BRIDGE)
–L– STA. 17+58.13 (END BRIDGE) TO STA. 18+50.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING
–L– STA. 18+50.00 TO STA. 19+00.00

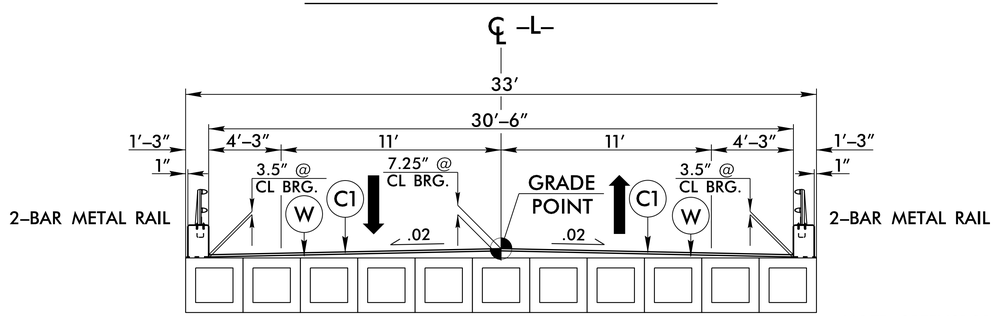



## TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

* –Y– STA. 10+22.51 TO STA. 10+72.51
–Y– STA. 10+72.51 TO STA. 11+16.46

NOTE: TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING
–Y– STA. 11+16.46 TO STA. 11+66.46



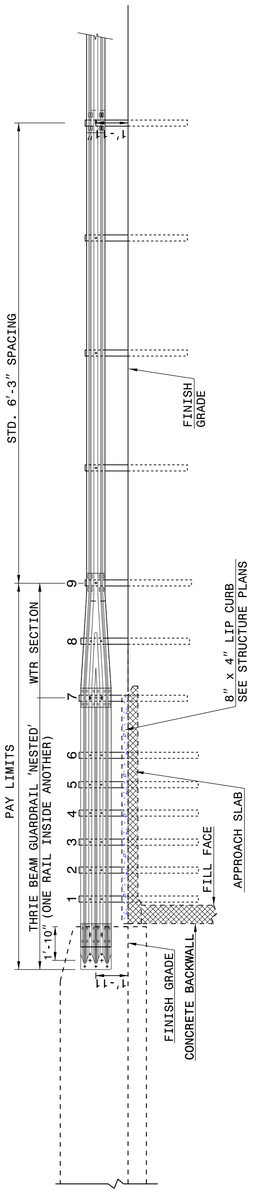

## TYPICAL SECTION NO. 3

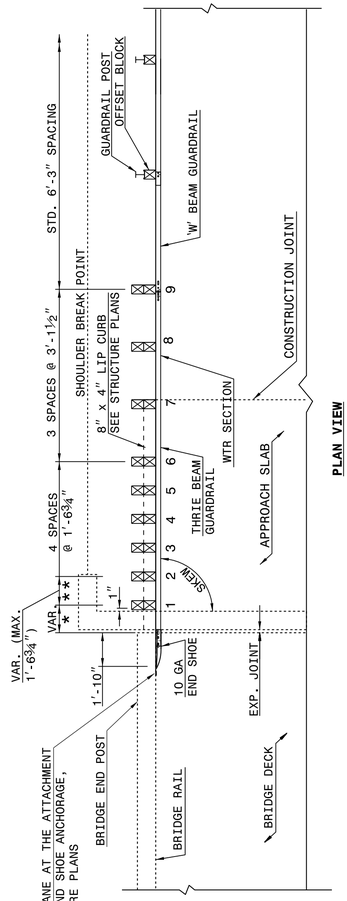
USE TYPICAL SECTION NO. 3

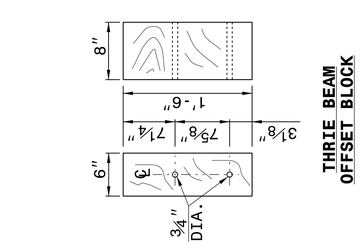
–L– STA. 16+55.88 (BEGIN BRIDGE) TO STA. 17+58.13 (END BRIDGE)

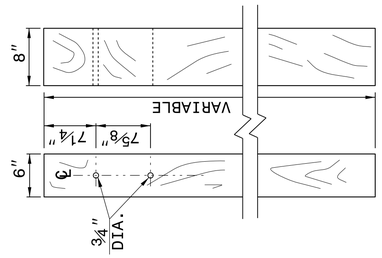
NOTE: GREENSBORO MPO'S BICYCLE, PEDESTRIAN, AND GREENWAY'S MASTER PLAN IDENTIFIES SR 3051 (KNOX ROAD) AS A BICYCLE ROUTE. THE PLAN ALSO IDENTIFIES THE FUTURE SEDALIA GREENWAY (GREENWAY # 80) TO PASS BENEATH BRIDGE # 208 (NORTH SIDE).

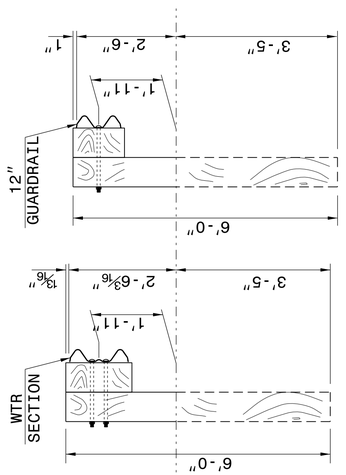
29-FEB-2016 13:41
R:\Roadway\Projects\B4961_rdy_typ.dgn
$$USERNAME$$
$$DESIGNFILE$$

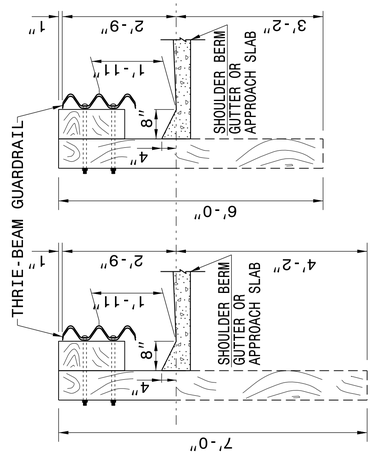


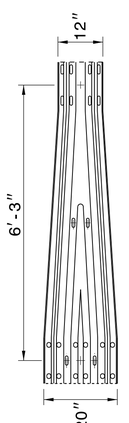


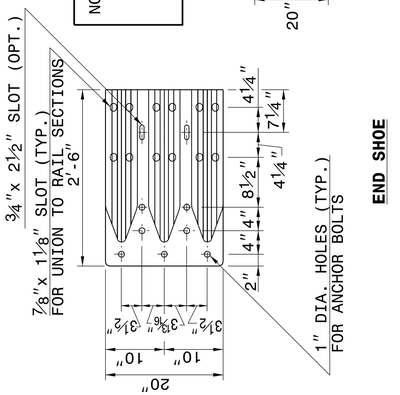


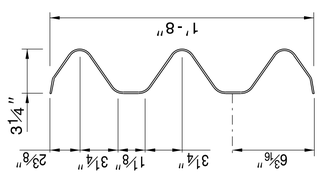












| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4961 | 2C-1 |

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER
SHEET 2 OF 7
862d03

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

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

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

SHEET 2 OF 7
862d03

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
SHEET 3 OF 7
862d03

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

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

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

SHEET 3 OF 7
862d03

Joel S. Howerton
022966
3/10/2016
DocuSigned by:
Joel Howerton
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

**SEE TITLE BLOCK**

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

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

COMPUTED BY: VBB DATE: 02/18/15
CHECKED BY: DWG DATE: 02/29/16

| PROJECT NO. | SHEET NO. |
|---|---|
| B-4961 | 3B-1 |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## SUMMARY OF EARTHWORK

IN CUBIC YARDS

| Station | Station | Uncl. Excav. | Embank. +% | Borrow | Waste |
|---|---|---|---|---|---|
| SUMMARY NO. I | | | | | |
| -L- STA. 14+50.00 | -L- STA. 16+55.88 (BB) | 283 | 337 | 54 | |
| **SUMMARY NO. I TOTALS** | | 283 | 337 | 54 | |
| SUMMARY NO. II | | | | | |
| -L- STA. 17+58.13 (EB) | -L- STA. 19+00.00 | 22 | 236 | 214 | |
| -Y- STA. 10+11.00 | -Y- STA. 11+66.46 | 15 | 498 | 483 | |
| **SUMMARY NO. II TOTALS** | | 37 | 734 | 697 | |
| **SUMMARY TOTALS** | | 320 | 1071 | 751 | |
| LOSS DUE TO CLEARING & GRUBBING | | -40 | | 40 | |
| **PROJECT TOTALS:** | | 280 | 1071 | 791 | |
| EST. 5% TO REPLACE TOPSOIL ON BORROW PIT | | | | 40 | |
| **GRAND TOTALS:** | | 280 | 1071 | 831 | |
| **SAY:** | | **300** | | **850** | |
| EST. UNDERCUT CONTINGENCY = 450 CY | | | | | |
| SELECT GRANULAR MATERIAL = 200 CY | | | | | |
| GEOTEXTILE FOR SOIL STABILIZATION = 300 SY | | | | | |

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

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"

"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

## *GUARDRAIL SUMMARY*

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

| SURVEY LINE | BEG. STA. | END STA. | LOCATION | LENGTH | | | WARRANT POINT | | "N" DIST. FROM E.O.L. | TOTAL SHOUL WIDTH | FLARE LENGTH | | W | | ANCHORS | | | | | | | | IMPACT ATTENUATOR TYPE 350 | | SINGLE FACED CONCRETE BARRIER | REMOVE EXISTING GUARDRAIL | REMOVE & STOCKPILE EXISTING GUARDRAIL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | STRAIGHT | SHOP CURVED | DOUBLE FACED | APPROACH END | TRAILING END | | | APPROACH END | TRAILING END | APPROACH END | TRAILING END | GRAU 350 | TYPE III | AT-1 | | | | | | G | NG | | | | |
| -L- | STA. 15+80.88 | STA. 16+55.88 | LT. | 75 | | | | STA. 16+55.88 | 4.25 | 9 | | 56.25 | | | 1 | 1 | | | | | | | | | | | | |
| -L- | STA. 15+80.88 | STA. 16+55.88 | RT. | 75 | | | STA. 15+80.88 | | 4.25 | 9 | 56.25 | | 1.25 | | 1 | 1 | | | | | | | | | | | | |
| -L- | STA. 17+58.13 | STA. 18+33.13 | LT. | 75 | | | STA. 18+33.13 | | 4.25 | 9 | 56.25 | | | | 1 | 1 | | | | | | | | | | | | |
| -L- | STA. 17+58.13 | STA. 18+08.13 | RT. | 43.75 | 31.25 | | | STA. 17+58.13 | 4.25 | 9 | | | | | | 1 | 1 | | | | | | | | | | | |
| | | | SUB-TOTAL | 268.75 | 31.25 | | | | | | | | | | 3 | 4 | 1 | | | | | | | | | | | |
| LESS DEDUCTIONS FOR ANCHORS | | | GRAU-350 3@50 = | -150 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | AT-1 1@6.25 = | | -6.25 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | TYPE III 4@18.75 = | -75 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | PROJECT TOTAL | 43.75 | 25.00 | | | | | | | | | | 3 | 4 | 1 | | | | | | | | | | | |
| | | | **SAY** | **75** | **37.5** | | | | | | | | | | | | | | | | | | | | | | | |
| ADDITIONAL GUARDRAIL POSTS = 5 EA. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

| SURVEY LINE | Station | Station | LOCATION LT/RT/CL | ASPHALT REMOVAL | ASPHALT BREAKUP | CONCRETE REMOVAL | CONCRETE BREAKUP |
|---|---|---|---|---|---|---|---|
| -L- | 14+50.00 | 16+76.00 | CL | 537.34 | | | |
| -L- | 17+42.81 | 19+00.00 | CL | 357.53 | | | |
| -Y- | 10+10.56 | 10+70.46 | RT | 115.10 | | | |
| | | **TOTAL:** | | 1009.97 | | | |
| | | **SAY:** | | **1050** | | | |

## SHOULDER BERM GUTTER/CURB SUMMARY

| LINE | Station | Station | LENGTH |
|---|---|---|---|
| -L- LT | 17+69.13 | 17+84.00 | 14.87 |
| -L- RT | 17+69.13 | 17+84.00 | 14.87 |
| | | **TOTAL:** | 29.74 |
| | | **SAY:** | **30** |

RD269445

COMPUTED BY: VBB DATE: 02/20/15

CHECKED BY: DWG DATE: 01/06/16

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| B-4961 | 3D-1 |

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

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)*

| LINE & STATION | OFFSET | | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | 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 | DO NOT USE PVC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | THICKNESS OR GAUGE | | | | | | | | | | | | |
| L 17+81 | 13 | RT | 0401 | | 623.8 | | | | | | | | | | | | | | | | |
| | | | 0401 | 0402 | | 621.0 | 620.5 | | | | | | | | | | | | | | |
| L 17+81 | 13 | LT | 0402 | | 623.8 | | | | | | | | | | | | | | | | |
| | | | 0402 | 0403 | | 620.5 | 619.0 | | | 16 | | | | | | | | | | | |
| Y 10+33 | 0 | CL | 0404 | 0405 | | 619.8 | 618.1 | | | | 60 | | | | | | | | | | |
| Y 10+54 | 20 | RT | | | | | | | | | | | | | | | | | | | |
| Y 10+82.74 | 5 | LT | | | | | | | | | | | | | | | | | | | |
| L 16+25.26 | 24 | LT | | | | | | | | | | | | | | | | | | | |
| L 18+01.24 | 22 | LT | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | | | 16 | 60 | | | | | | | | | | |
| PROJECT TOTALS | | | | | | | | | | 16 | 60 | | | | | | | | | | |

| LINE & STATION | C. S. PIPE SIZE: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | .064 | .064 | .064 | .064 | .079 | .079 | .109 | .109 | R. C. PIPE CLASS III: 12 | 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: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | REINFORCED ENDWALLS CY | DRAINAGE STRUCTURE MASONRY CY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | THICKNESS OR GAUGE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 17+81 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 28 | | | | | | | | | | | | | | | | | | | | |
| L 17+81 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y 10+33 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y 10+54 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y 10+82.74 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 16+25.26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 18+01.24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | | | | | | | | | | | | | | | | | | 28 | | | | | | | | | | | | | | | | | | | | |
| PROJECT TOTALS | | | | | | | | | | | | | | | | | | | | | | | | | 28 | | | | | | | | | | | | | | | | | | | | |

| LINE & STATION | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1,3 X B)) 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | B: 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840,03 GRATE TYPE E | F | G | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | T.B.D.I. STD. 840.35 | 15" DRAINAGE PIPE ELBOWS | ADJUST MANHOLE | ADJUSTMENT OF VALVE BOXES | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L 17+81 | | 1 | | | | | | | | | 1 | 1 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| L 17+81 | | 1 | | | | | | | | | 1 | 1 | | | | | | | | |
| | | | | | | | | | | | | | 2 | | | | | | | |
| Y 10+33 | | | | | | | | | | | | | | | | | | | | |
| Y 10+54 | | | | | | | | | | | | | | | | | | | 40 | |
| Y 10+82.74 | | | 2.21 | | | | | | | | | | | 1 | | | | | | *Manhole Adjustment (620.05'-617.84')=2.21 LF |
| L 16+25.26 | | | | | | | | | | | | | | | 1 | | | | | |
| L 18+01.24 | | | | | | | | | | | | | | | 1 | | | | | |
| SHEET TOTALS | | 2 | 2.2 | | | | | | | | 2 | 2 | 2 | 1 | 2 | | | | 40 | |
| PROJECT TOTALS | | 2 | 2.2 | | | | | | | | 2 | 2 | 2 | 1 | 2 | | | | 40 | |

**ABBREVIATIONS**

| | |
|---|---|
| C.A.A. | CORRUGATED ALUMINIUM ALLOY |
| C.B. | CATCH BASIN |
| C.S. | CORRUGATED STEEL |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| H.D.P.E. | HIGH DENSITY POLYETHYLENE |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| N.S. | NARROW SLOT |
| P.V.C. | POLYVINYL CHLORIDE |
| R.C. | REINFORCED CONCRETE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |
| W.S. | WIDE SLOT |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4961 | 4 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER — 4/28/2016 — DocuSigned by: Daniel W. Gardner, Jr.

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 019775 ENGINEER RAY D. LOVINGGOOD — 4/28/2016 — DocuSigned by: Ray D. Lovinggood

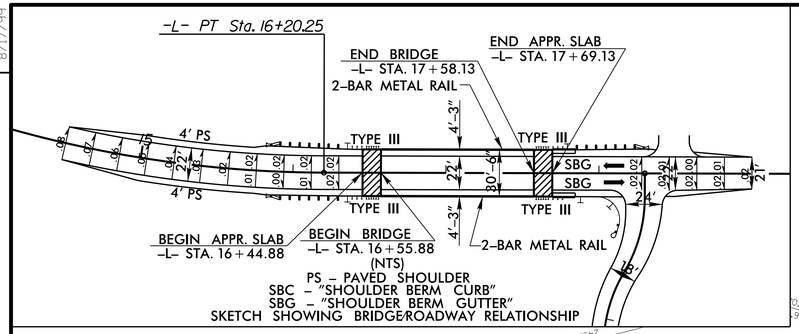
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

| -L- | -Y- | |
|---|---|---|
| PI Sta 13+85.22 | PI Sta 10+42.11 | PI Sta 11+13.70 |
| Δ = 36° 32' 46.1" (LT) | Δ = 30° 44' 03.9" (RT) | Δ = 52° 23' 29.2" (LT) |
| D = 7° 30' 00.0" | D = 60° 18' 33.7" | D = 60° 18' 33.7" |
| L = 487.28' | L = 50.96' | L = 86.87' |
| T = 252.25' | T = 26.11' | T = 46.74' |
| R = 763.94' | R = 95.00' | R = 95.00' |
| SE = SEE PLANS | SE = SEE PLANS | SE = SEE PLANS |

NAD 83/NSRS 2007

REVISIONS

8/17/99




-L- POT Sta. 10+00.00

BURCH CREEK FARM, LLC
DB 6338 PG 3061
PB 82 PG 55

-L- PC Sta. 11+32.97

1
WILLIAM A. & ELLEN M. HEFNER
DB 3765 PG 363
DB 4646 PG 545
PB 95 PG 142

BEGIN CONSTRUCTION
-L- STA. 13+90.00

-L- PT Sta. 16+20.25

EXISTING RIP RAP TO BE RETAINED
BMI
ELEV = 614.31
SEE SHEET 1C-1

TIE TO EXISTING DITCH
CLASS II RIP RAP (TYP.)
(STR. PAY ITEM)

DO NOT DISTURB ABOVE GROUND WATER LINE

END SBG
STA. 17+84 -L- EDWARD W. & MARTHA G. ALLRED
DB 7229 PG 2124
PB 121 PG 66

3

AREA UNDER CONSTRUCTION

5' PERMANENT FIBER OPTIC EASEMENT
35' PERMANENT SEWER EASEMENT
DB 7329 PG 238

RICHARD L. & RUBY S BOSLEY
DB 5124 PG 1268
PB 121 PG 66

END TIP PROJECT B-4961
-L- STA. 19+00.00

-L- Sta. 18+30.00=
-Y- Sta. 10+00.00
50' TAPER LT. & RT.

-L- POT Sta. 23+00.00

END CONSTRUCTION
-L- STA. 20+75.00

BEGIN TIP PROJECT B-4961
-L- STA. 14+50.00

TO MT. HOPE CHURCH RD.

TO BURLINGTON RD. (HWY 70)

SR 3051 (KNOX RD) 20' PAVED

N 7°06'18.4" E 20

S 82°53'41.6" E

-BL-3

-BL-4

-BL-5

THOMAS E. & VICKIE C. SMITH
DB 5694 PG 395

RETAIN & CLEAN OUT EX. 12" RCP

THOMAS E. & VICKIE C. SMITH
DB 4733 PG 1666
PB 79 PG 109

REMOVE EXISTING BRIDGE

2
LAND PORT INVESTMENTS,LLC
DB 6431 PG 2107

3'X3' CLASS B RIPRAP PAD
EST 1 TON
EST 3 SY GEOTEXTILE

CLASS B RIP RAP
EST 2 TONS
EST 7 SY GEOTEXTILE

-Y- PT Sta. 11+53.83

-Y- PRC Sta. 10+16.00

-Y- PRT Sta. 10+66.96

END CONSTRUCTION
-Y- STA. 11+66.46

SPECIAL CUT DITCH
SEE DETAIL 1

RETAIN EX. 48" CMP

SR 3052 (FORBES TATE RD.)

N 75°26'53.1" E

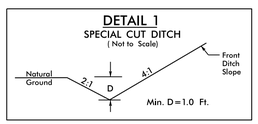
4
AMANDA LEIGH VOSLOH
DB 7324 PG 2157

4
AMANDA LEIGH VOSLOH
DB 7324 PG 2157

BM2
ELEV= 644.82
SEE SHEET 1C-1

5
STEVEN TROY SMITH
DB 7362 PG 1149
PB 121 PG 66

DETAIL 1
SPECIAL CUT DITCH
( Not to Scale)




-L- STA. 14+75 TO STA. 16+48 LT
-Y- STA. 11+25 TO STA. 11+66 LT

NOTE: ACCOMMODATIONS HAVE BEEN MADE FOR A FUTURE (UNPAVED 10'-12') GREENWAY UNDER THE NEW BRIDGE ON THE NORTH SIDE OF THE LITTLE ALAMANCE CREEK (TRIBUTARY 5).

NOTE: PAVED SHOULDER TRANSITION FROM -L- STA. 14+50.00 TO 15+00.00 AND -L- STA. 18+50.00 TO 19+00.00

SEE SHEET 5 FOR -L- AND -Y- PROFILE
SEE SHEETS S-1 THRU S-19 FOR STRUCTURE PLANS

28-APR-2016 07:29
I:\Projects\B4961\Roadway\Sheets\B4961_rdy_psh.dgn

5/28/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4961 | 5 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER JR.
3/11/2015
DocuSigned by: David W. Gardner, Jr.

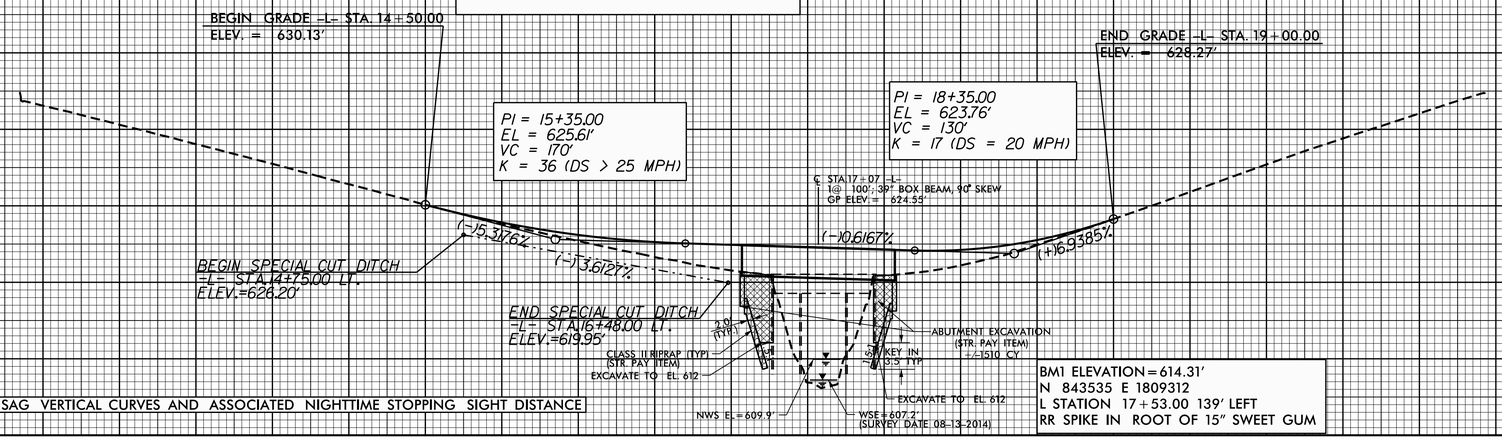
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 019775 ENGINEER RAY D. LOVINGGOOD
3/11/2015
DocuSigned by: Ray D. Lovinggood

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

## BRIDGE HYDRAULIC DATA

| | | |
|---|---|---|
| DESIGN DISCHARGE | = 1704 | CFS |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN HW ELEVATION | = 615.1 | FT |
| BASE DISCHARGE | = 2408 | CFS |
| BASE FREQUENCY | = 100 | YRS |
| BASE HW ELEVATION | = 616.91 | FT |
| OVERTOPPING DISCHARGE | = 3255+ | CFS |
| OVERTOPPING FREQUENCY | = 500+ | YRS |
| OVERTOPPING ELEVATION | = 624.1 | FT |
| DATE OF SURVEY | = 08-13-2014 | |
| W.S. ELEVATION AT DATE OF SURVEY | = 607.2 | FT |

## -L-



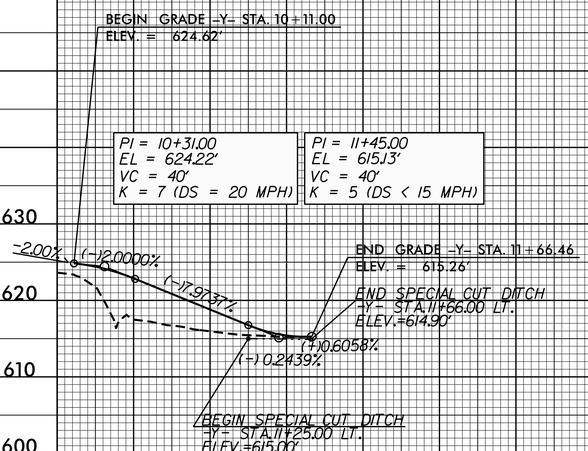

DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCE

BM2 ELEVATION=644.82'
N 843993 E 1809620
L STATION 22+45.00 110' RIGHT
RR SPIKE IN ROOT OF 36" POPLAR

BM1 ELEVATION=614.31'
N 843535 E 1809312
L STATION 17+53.00 139' LEFT
RR SPIKE IN ROOT OF 15" SWEET GUM

DITCH LEGEND
LEFT DITCH
SEE SHEET 4 FOR PLAN VIEW

## -Y-




DITCH LEGEND
LEFT DITCH
SEE SHEET 4 FOR PLAN VIEW