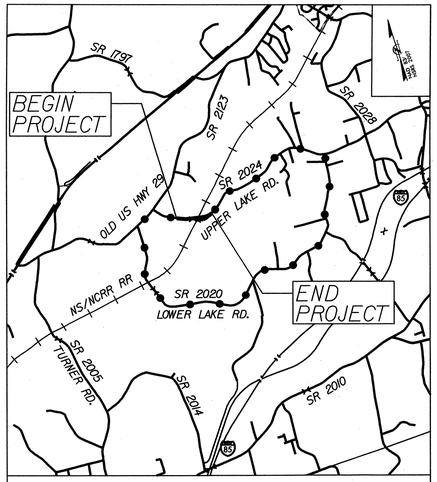
DGN 0259DEL_PIN2

TIP PROJECT: C-4901B

CONTRACT: C203141

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
RAIL DIVISIONS

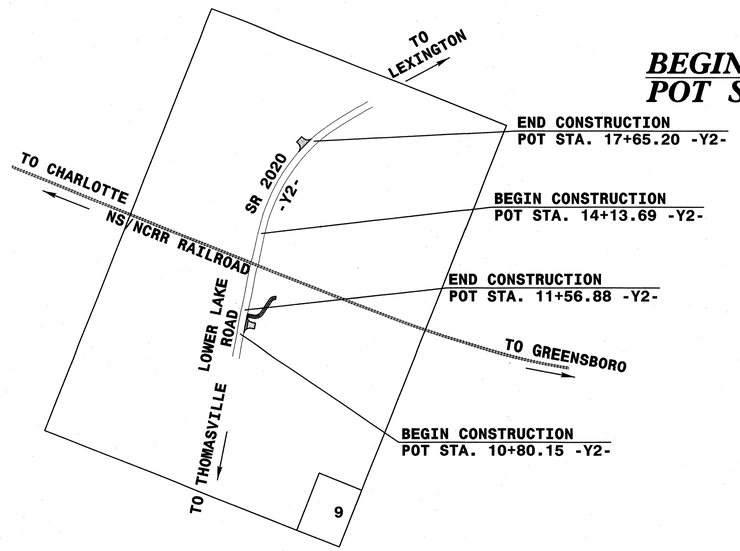
DAVIDSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	C-4901B	1	

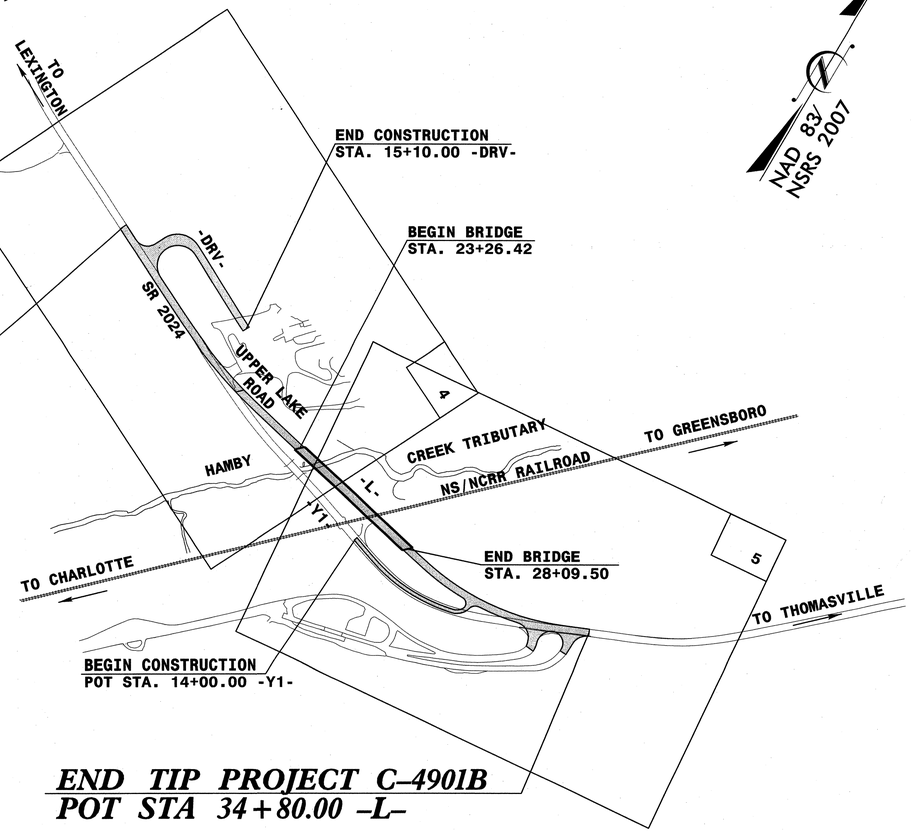
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
49010.1.STR05T1B		PE, UTIL PE
49010.1.STR06T3		PE, UTIL PE
43219.2.STR02C4901		R/W
49010.3.STR02T4D	FRA-FR-HSR-0006-10-01-00	UTIL CONST., CONST.

LOCATION: UPPER LAKE RD. (SR 2024) GRADE SEPARATION OVER HAMBY CREEK TRIBUTARY AND NS/NCRR RAILROAD

TYPE OF WORK: PAVING, GRADING, DRAINAGE AND STRUCTURE

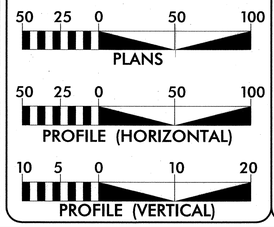


BEGIN TIP PROJECT C-4901B
POT STA. 13+90.00 -L-



END TIP PROJECT C-4901B
POT STA 34+80.00 -L-

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 1080
ADT 2035 = 2400
DHV = 11 %
D = 55 %
T = 36 % *
V = 50 MPH
* TTST = 3% DUAL 33%
FUNC CLASS = LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT C-4901B = 0.305 MILES

LENGTH STRUCTURE TIP PROJECT C-4901B = 0.091 MILES

TOTAL LENGTH TIP PROJECT C-4901B = 0.396 MILES

PARSONS
RALEIGH, NORTH CAROLINA

Prepared for the North Carolina Department of Transportation In the office of:

3540 Centerview Drive
Suite 217
Raleigh NC 27606
License No.: F-0246
Bus: 919-854-1345
Fax: 919-851-2103

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 30, 2012

LETTING DATE:
MARCH 19, 2013

EDWARD S. ROBBINS P.E.
PROJECT ENGINEER

DAVID GARRETT
PROJECT DESIGN ENGINEER

SANDRA A. STEPNEY P.E.
ENGINEERING & SAFETY BRANCH: SENIOR PROJECT ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 009334 ENGINEER JEREMY WELSH

11/2/13 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 39050 ENGINEER EDWARD S. ROBBINS

11/2/13 P.E.
SIGNATURE:

NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
PLANNING AND DEVELOPMENT

31-DEC-2012 14:59
J:\C-4901B\Roadway\Proj\C4901B_Rdy_TSH.dgn
$$$$USERNAME$$$$

DGN 0259DEL_P10c2

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. C-4901B
SHEET NO. 1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30050 ENGINEER EDWARD S. ROBERTS
1-18-2013

INDEX OF SHEETS

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	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
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 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
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
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
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
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 07/30/12

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.

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 - Power

North State Communications - Phone

City of Lexington - Natural Gas

Davidson Water Systems - Water

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

18-JAN-2013 09:44
J:\C-4901B\Roadway\Proj\C4901B_Rdy_TSH.dgn
$$$$USERNAME$$$$

DGN 0259DEL_P10c2

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
RAIL DIVISION

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite 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 Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

- Gas Valve
- Gas Meter — G
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

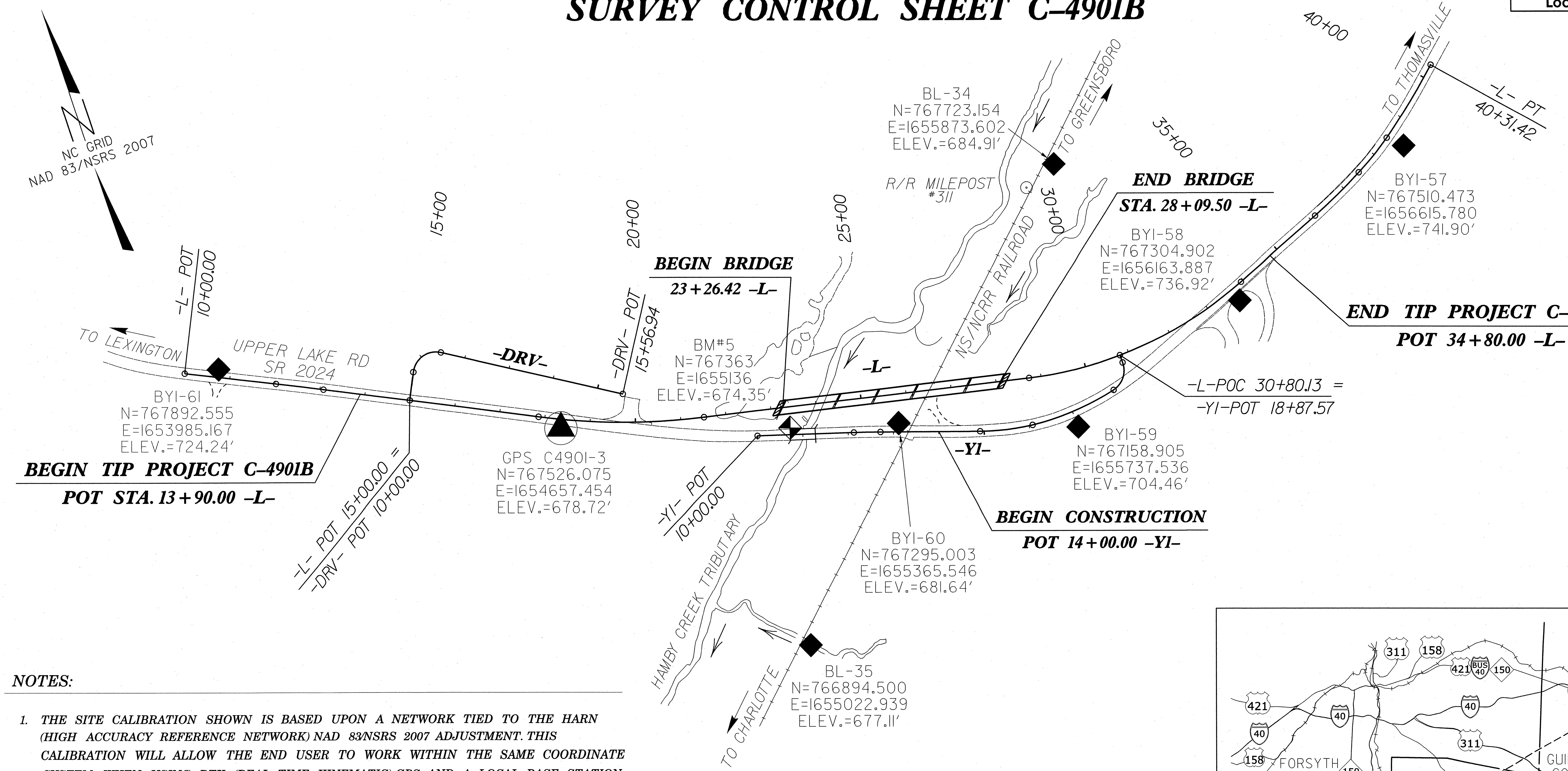
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	1-C
Location and Surveys	

SURVEY CONTROL SHEET C-4901B



NOTES:

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/NSRS 2007 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.

2. 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:
C4901B-C4901_LS_GPSCALIB.HTML
C4901B-C4901_LS_WGS84.TXT
C4901B-C4901_LS_LOCAL.TXT
C4901B_LS_CONTROL.TXT

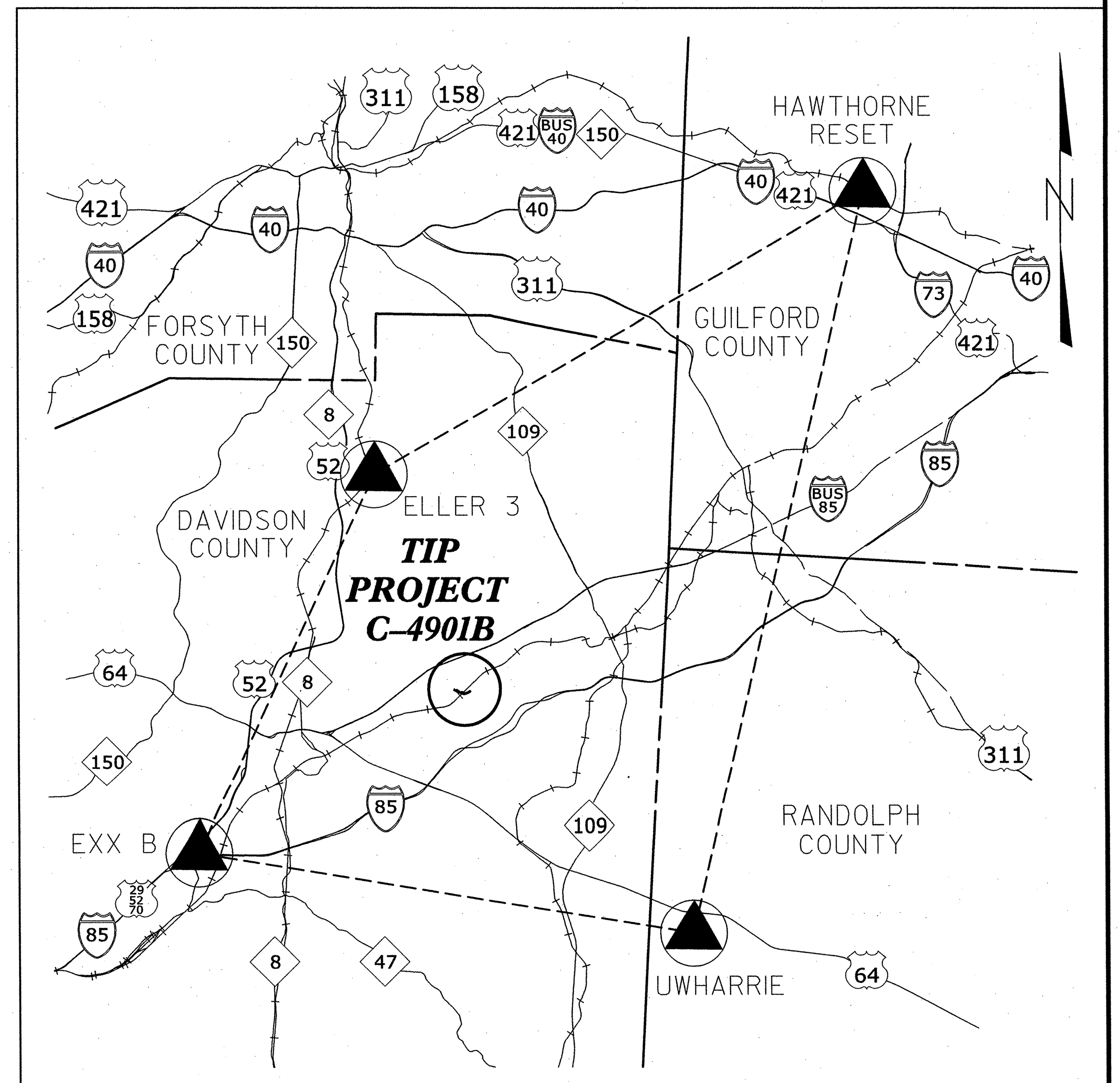
THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

▲ 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 EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "C4901-10"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 763942.485(ft) EASTING: 1652216.385(ft)
ELEVATION: 660.18(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989917
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "C4901-10" TO -L- STATION 10+00.0 IS
N 23°08'45.5" E 4313.43'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE



VICINITY MAP

DGN 0259DEL_P1tc2

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	1-D
Location and Surveys	

SURVEY CONTROL SHEET C-4901B

GPS Calibration Report

Project : C4901Z

TIP Number C-4901
User name tbovender Date & Time 1:38:06 PM 3/5/2012
Coordinate System US State Plane 1983(at ground) Zone North Carolina 3200
Horizontal Datum NAD 1983 (Conus)
Vertical Datum NAVD 88 Geoid Model G03NC
Coordinate Units US survey feet
Distance Units US survey feet
Height Units US survey feet

LOCAL SITE INFORMATION
Localized around
Latitude 35^50'36.16842"N
Longitude 80^10'24.56378"W
Site Scale Factor 1.0001008430
Height 557.829sft

The North Carolina Department of Transportation uses a Localized Coordinate System which is very similar to North Carolina Zone 3200 from which it is derived. Please take care in utilizing these coordinates to eliminate confusion of the two systems. This file is to aid in the use of Real Time Kinematic (RTK) GPS during construction layout.

Updated Default Projection (Transverse Mercator) Definition

Updated default projection not requested

Horizontal Adjustment Parameters

Northing coordinate of rotation center 763951.961sft
Easting coordinate of rotation center 1647536.620sft
Rotation about the center point 0^00'00"
Translation north -0.001sft
Translation east -0.001sft
Scale factor 0.99999974

Vertical Adjustment Parameters

Northing coordinate of origin point 767526.072sft
Easting coordinate of origin point 1654657.452sft
Vertical separation at origin 0.084sft
Slope north -0.086ppm
Slope east 1.335ppm

Geoid Model Definition

G03NC

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary

	Maximum error	Root Mean Square error	Point
Horizontal	0.004sft	0.001	3_GPS
Vertical	0.002sft	0.000	9_GPS
Three-dimensional	0.004sft	0.001	3_GPS

Datum Transformation Parameters

Datum Transformation computation not requested

Point GPS C4901-3
Latitude 35°51'11.88864"N.
Longitude 80°09'55.42852"W
Height 576.180sft

Northing 767526.072sft
Easting 1654657.452sft
Elevation 678.719sft
Horz error 0.004sft
Vert error 0.000sft
3D error 0.004sft

Point 3
Northing 767526.075sft
Easting 1654657.454sft
Elevation 678.719sft
Utilized Horz and Vert
Quality Adjusted quality

Point GPS C4901-4
Latitude 35°51'09.77076"N
Longitude 80°09'46.67606"W
Height 578.812sft

Northing 767303.472sft
Easting 1655375.433sft
Elevation 681.314sft
Horz error 0.002sft
Vert error 0.001sft
3D error 0.003sft

Point 4
Northing 767303.474sft
Easting 1655375.435sft
Elevation 681.315sft
Utilized Horz and Vert
Quality Adjusted quality

NOTE: GPS C4901-4 HAS BEEN PAVED OVER
AND REPLACED BY NEARBY POINT BY1-60 (PK NAIL)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "C4901-10" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 763942.485(ft) EASTING: 1652216.385(ft) ELEVATION: 660.18(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989917
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "C4901-10" TO -L- STATION 10+00.0 IS N 23°08'45.5" E 4313.43'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/NSRS 2007 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *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:
   C4901B–C4901_LS_GPSCALIB.HTML
   C4901B–C4901_LS_WGS84.TXT
   C4901B–C4901_LS_LOCAL.TXT
   C4901B_LS_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. 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 EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

31-DEC-2012 13:54
J:\C4901B_LS\dwg\Proj\C-4901B_LS_ld.dgn
$$$$USERNAME$$$$

SURVEY CONTROL SHEET C-4901B

DCN 0259DEL_P10e2

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
34	BL-34	767723.1540	1655873.6020	684.91	31+07.35	446.46 LT
35	BL-35	766894.5000	1655022.9390	677.11	23+25.34	527.08 RT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
56	BY1-56	767948.0320	1657086.9670	755.44	OUTSIDE PROJECT LIMITS	
57	BY1-57	767510.4735	1656615.7798	741.90	38+53.09	40.46 RT
58	BY1-58	767304.9018	1656163.8868	736.92	33+65.55	29.66 RT
59	BY1-59	767158.9047	1655737.5365	704.46	29+56.66	123.26 RT
60	BY1-60	767295.0026	1655365.5458	681.64	25+76.28	63.60 RT
3	GPS C4901-3	767526.0750	1654657.4540	678.72	18+37.23	19.51 RT
61	BY1-61	767892.5550	1653985.1670	724.24	10+73.11	16.93 LT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "C4901-10"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 763942.485(ft) EASTING: 1652216.385(ft)
ELEVATION: 660.18(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989917
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "C4901-10" TO -L- STATION 10+00.0 IS
N 23°08'45.5" E 4313.43'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BENCHMARKS (NAVD 88)
****
BM#5 ELEVATION = 674.35'
N 767363 E 1655136
L STATION 27+26 7' LEFT
RR SPIKE IN TOP OF POST SUPPORTING WOODEN HEADWALL OF BRIDGE ON UPPER LAKE RD OVER SMALL STREAM NEAR QUARRY. BOLT IS IN NE CORNER OF BRIDGE
****

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/NSRS 2007 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *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:
   C4901B-C4901_LS_GPSCALIB.HTML
   C4901B-C4901_LS_WGS84.TXT
   C4901B-C4901_LS_LOCAL.TXT
   C4901B_LS_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. 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 EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	1F
Location and Surveys	

DGN 0259DEL_P10c2

SURVEY CONTROL SHEET C-4901B
FINAL

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+90.00	-30.00	767766.6356	1654276.5400
L	13+90.00	-50.00	767784.5995	1654285.3319
L	13+90.00	30.00	767712.7439	1654250.1641
L	13+90.00	50.00	767694.7800	1654241.3721
L	17+85.99	-50.00	767610.5230	1654641.0080
L	17+85.99	50.00	767520.7035	1654597.0482
L	20+27.24	50.00	767429.5558	1654828.7867
L	21+51.61	-50.00	767495.1852	1654974.1715
L	22+85.07	-50.00	767467.1822	1655104.6561
L	28+69.96	-50.00	767344.4543	1655676.5266
L	28+73.61	-50.00	767343.6878	1655680.0982
L	32+14.69	50.00	767242.0517	1656017.8184
L	33+94.22	50.00	767297.3016	1656199.3327
L	33+94.22	-50.00	767389.3656	1656160.2916
L	34+80.00	50.00	767330.7900	1656278.3027
L	34+80.00	30.00	767349.2028	1656270.4945
L	34+80.00	-30.00	767404.4413	1656247.0698
L	34+80.00	-50.00	767422.8541	1656239.2616

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+52.00	-50.00	767757.3444	1654341.0200
L	14+52.00	-80.00	767784.2902	1654354.2079
L	15+38.00	-50.00	767719.5389	1654418.2647
L	15+38.00	-80.00	767746.4848	1654431.4527
L	15+77.00	50.00	767612.5751	1654409.3345
L	15+77.00	75.00	767590.1203	1654398.3445
L	16+30.00	75.00	767566.8216	1654445.9488
L	16+30.00	50.00	767589.2764	1654456.9388
L	18+43.92	-50.00	767586.8814	1654691.7729
L	18+55.33	-204.26	767724.0021	1654763.2065
L	18+75.05	-50.00	767574.9963	1654719.4082
L	18+89.17	-195.01	767704.1156	1654786.6734

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	10+64.81	47.54	764741.6051	1651972.0898
Y2	10+64.81	30.00	764735.6821	1651955.5825
Y2	11+45.07	62.66	764822.2603	1651959.2203
Y2	16+80.61	30.00	765314.9480	1651821.9492
Y2	16+80.61	-30.00	765323.5987	1651762.5761
Y2	16+92.52	-30.00	765335.9677	1651764.5069
Y2	17+16.95	-67.73	765368.9407	1651732.3229
Y2	17+53.14	-71.77	765409.2545	1651737.9274
Y2	17+69.55	-30.00	765414.7391	1651783.0135

L (UPPER LAKE ROAD)

TYPE	STATION	NORTH	EAST
POT	10+00.00	767908.7141	1653911.8869
PC	12+02.61	767821.5693	1654094.7941
PT	13+07.87	767775.7950	1654189.5810
PC	17+85.99	767565.6132	1654619.0281
PT	21+51.61	767446.2983	1654963.6800
PC	28+73.61	767294.8009	1655669.6067
PT	33+94.22	767343.3336	1656179.8122
PC	36+13.41	767428.9075	1656381.6064
PCC	37+48.05	767486.8036	1656503.1156
PCC	38+46.05	767538.8383	1656586.0601
PT	40+31.42	767656.5546	1656729.1213

Y2 (LOWER LAKE ROAD)

TYPE	STATION	NORTH	EAST
POT	10+00.00	764664.5504	1651949.2323
PC	12+25.14	764876.4639	1651873.1962
PT	12+73.19	764921.9404	1651857.6964
PC	14+16.21	765058.0350	1651813.7309
PCC	15+08.60	765147.8729	1651792.6287
PCC	17+85.33	765421.0002	1651816.5172
PCC	18+42.02	765473.2932	1651838.2755
PT	19+82.95	765596.9854	1651905.7525

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	767370.0434	1655062.2450
PC	12+12.52	767308.2410	1655265.5777
PT	12+71.31	767290.3205	1655321.5662
PC	14+91.16	767220.2305	1655529.9466
PCC	16+07.93	767195.6903	1655643.8580
PCC	18+02.82	767209.4589	1655837.3170
PT	18+70.84	767259.5794	1655875.3092
POT	18+87.57	767276.3012	1655874.7813

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "C4901-10"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 763942.485(ft) EASTING: 1652216.385(ft)
ELEVATION: 660.18(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989917
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"C4901-10" TO -L- STATION 10+00.0 IS
N 23°08'45.5" E 4313.43'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/NSRS 2007 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *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:
C4901B-C4901_LS_GPSCALIB.HTML
C4901B-C4901_LS_WGS84.TXT
C4901B-C4901_LS_LOCAL.TXT
C4901B_LS_CONTROL.TXT

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. 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 EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

31-DEC-2012 13:54
V:\Projects\Highway\Proj\C-4901B_LS_1f.dgn
$$$$USERNAME$$$$

DGN 0259DEL_P10c2

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	1-G

STATE OF NORTH CAROLINA
RAIL DIVISION

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
1	L	10+00.00	767908.7141	1653911.8869
2	L	11+00.00	767865.7022	1654002.1641
3	L	12+00.00	767822.6902	1654092.4413
4	L	13+00.00	767779.2508	1654182.5131
5	L	14+00.00	767735.2937	1654272.3340
6	L	15+00.00	767691.3339	1654362.1534
7	L	16+00.00	767647.3741	1654451.9729
8	L	17+00.00	767603.4143	1654541.7923
9	L	18+00.00	767559.5133	1654631.6404
10	L	19+00.00	767519.4327	1654723.2364
11	L	20+00.00	767485.5430	1654817.2991
12	L	21+00.00	767457.9947	1654913.4104
13	L	22+00.00	767436.1457	1655010.9879
14	L	23+00.00	767415.1626	1655108.7617
15	L	24+00.00	767394.1796	1655206.5355
16	L	25+00.00	767373.1966	1655304.3093
17	L	26+00.00	767352.2136	1655402.0831
18	L	27+00.00	767331.2305	1655499.8568
19	L	28+00.00	767310.2475	1655597.6306
20	L	29+00.00	767289.6657	1655695.4862
21	L	30+00.00	767277.5490	1655794.6913
22	L	31+00.00	767277.1603	1655894.6329
23	L	32+00.00	767288.5049	1655993.9293
24	L	33+00.00	767311.4262	1656091.2077
25	L	34+00.00	767345.5891	1656185.1309
26	L	35+00.00	767384.6303	1656277.1950
27	L	36+00.00	767423.6714	1656369.2590
28	L	37+00.00	767464.9281	1656460.3343
29	L	38+00.00	767512.8983	1656548.0198
30	L	39+00.00	767571.4293	1656629.0483
31	L	40+00.00	767635.4842	1656705.8201
32	L	40+31.42	767656.5546	1656729.1213
33	Y1	10+00.00	767370.0434	1655062.2450
34	Y1	10+50.00	767355.5029	1655110.0840
35	Y1	11+00.00	767340.9623	1655157.9230
36	Y1	11+50.00	767326.4218	1655205.7621
37	Y1	12+00.00	767311.8813	1655253.6011
38	Y1	12+50.00	767297.0053	1655301.3359
39	Y1	13+00.00	767281.1728	1655348.7627
40	Y1	13+50.00	767265.2325	1655396.1537
41	Y1	14+00.00	767249.2923	1655443.5447
42	Y1	14+50.00	767233.3520	1655490.9357
43	Y1	15+00.00	767217.4832	1655538.3503
44	Y1	15+50.00	767204.6636	1655586.6591
45	Y1	16+00.00	767196.5412	1655635.9754
46	Y1	16+50.00	767193.0419	1655685.8365
47	Y1	17+00.00	767193.9295	1655735.8126
48	Y1	17+50.00	767199.1919	1655785.5188
49	Y1	18+00.00	767208.7887	1655834.5728
50	Y1	18+50.00	767239.2109	1655871.6688
51	Y1	18+87.57	767276.3012	1655874.7813
52	Y2	10+00.00	764664.5504	1651949.2323
53	Y2	10+50.00	764711.6127	1651932.3461
54	Y2	11+00.00	764758.6749	1651915.4598
55	Y2	11+50.00	764805.7371	1651898.5735
56	Y2	12+00.00	764852.7993	1651881.6872
57	Y2	12+50.00	764899.9301	1651864.9952
58	Y2	13+00.00	764947.4530	1651849.4545
59	Y2	13+50.00	764995.0319	1651834.0841
60	Y2	14+00.00	765042.6108	1651818.7138
61	Y2	14+50.00	765090.4810	1651804.3108
62	Y2	15+00.00	765139.3831	1651793.9688
63	Y2	15+50.00	765189.0024	1651787.9356
64	Y2	16+00.00	765238.9555	1651786.1565
65	Y2	16+50.00	765288.8785	1651788.6422
66	Y2	17+00.00	765338.4079	1651795.3747
67	Y2	17+50.00	765387.1830	1651806.3048
68	Y2	18+00.00	765434.8201	1651821.4334
69	Y2	18+50.00	765480.4208	1651841.8700
70	Y2	19+00.00	765524.7421	1651865.0108
71	Y2	19+50.00	765568.4880	1651889.2218
72	Y2	19+82.95	765596.9854	1651905.7525
73	DRV1	10+00.00	764796.4922	1651901.9384
74	DRV1	10+50.00	764818.3698	1651945.8012
75	DRV1	11+00.00	764867.6913	1651951.0147
76	DRV1	11+50.00	764905.2841	1651975.9717
77	DRV1	11+51.61	764906.0144	1651977.4017
78	DRV	10+00.00	767686.4409	1654372.1510

Point #	Chain	Station	Northing (Y)	Easting (X)
79	DRV	10+50.00	767731.3506	1654394.1309
80	DRV	11+00.00	767775.2050	1654417.9031
81	DRV	11+50.00	767801.4793	1654459.4388
82	DRV	12+00.00	767797.6986	1654508.4415
83	DRV	12+50.00	767774.8378	1654552.9018
84	DRV	13+00.00	767751.7369	1654597.2453
85	DRV	13+50.00	767728.6360	1654641.5888
86	DRV	14+00.00	767705.5350	1654685.9323
87	DRV	14+50.00	767682.4341	1654730.2759
88	DRV	15+00.00	767659.3332	1654774.6194
89	DRV	15+50.00	767636.2323	1654818.9629
90	DRV	15+65.20	767629.2117	1654832.4392

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

DGN 0259DEL_P10-2

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30050 ENGINEER EDWARD S. ADDISON 1/9/13

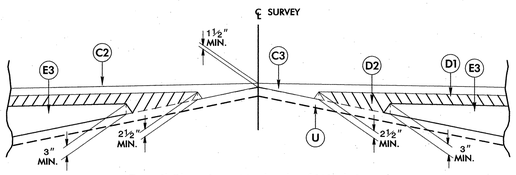
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 1/9/13

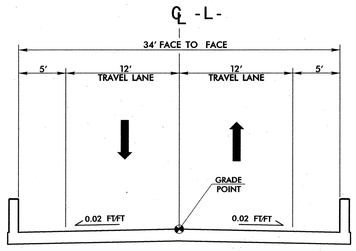
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, 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.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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.
J1	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL ON THIS SHEET).

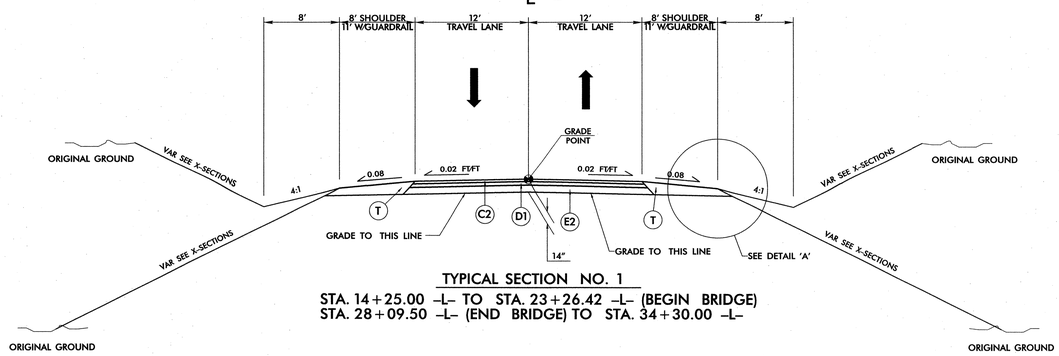
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



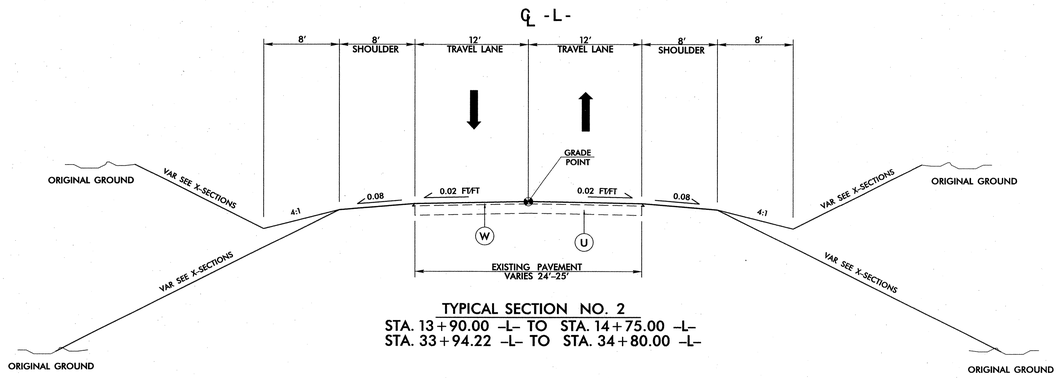
Detail Showing Method of Wedging



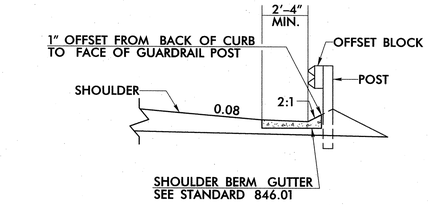
STRUCTURE TYPICAL SECTION
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1
STA. 23+26.42 –L– (BEGIN BRIDGE) TO STA. 28+09.50 –L– (END BRIDGE)



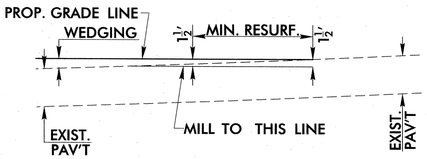
TYPICAL SECTION NO. 1
STA. 14+25.00 –L– TO STA. 23+26.42 –L– (BEGIN BRIDGE)
STA. 28+09.50 –L– (END BRIDGE) TO STA. 34+30.00 –L–



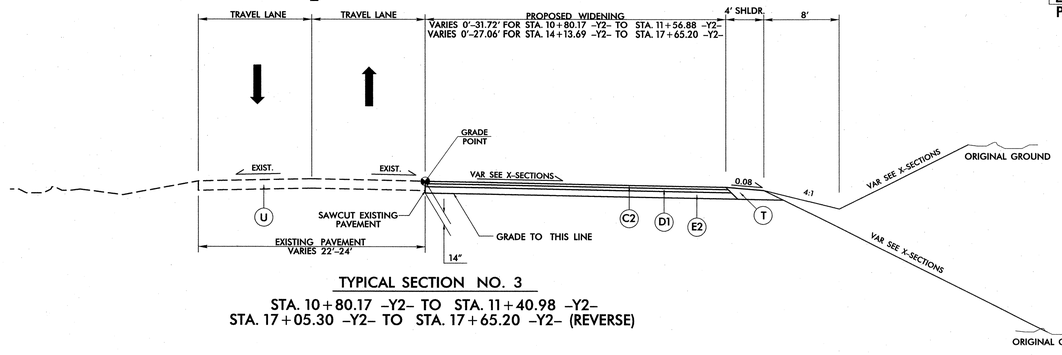
TYPICAL SECTION NO. 2
STA. 13+90.00 –L– TO STA. 14+75.00 –L–
STA. 33+94.22 –L– TO STA. 34+80.00 –L–



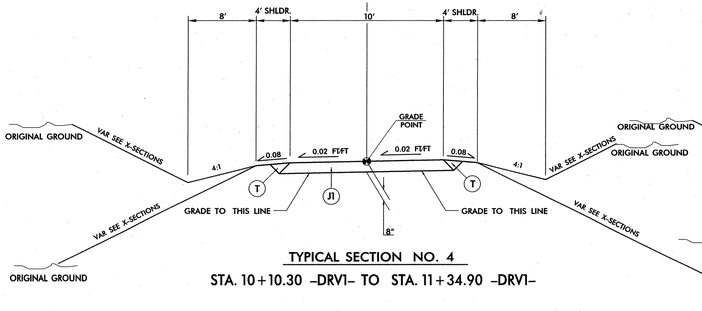
DETAIL 'A'
STA. 23+05 –L– LT TO STA. 23+23.97 (BEGIN APPROACH SLAB)
STA. 22+88 –L– RT TO 23+02.84 (BEGIN APPROACH SLAB)
FROM STA. 28+33.09 (END APPROACH SLAB) TO STA. 31+50 –L– LT



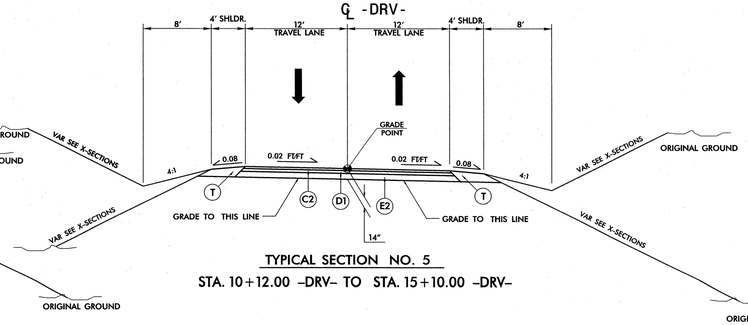
DETAIL OF INCIDENTAL MILLING



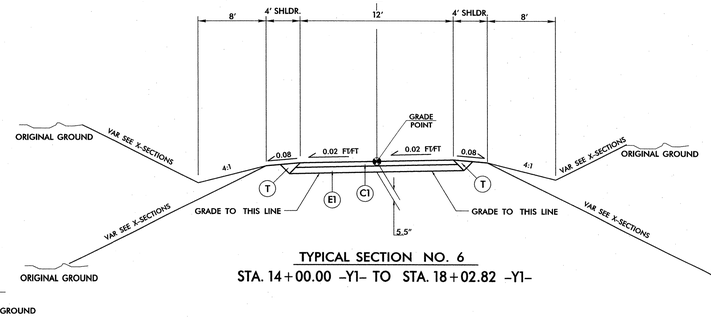
TYPICAL SECTION NO. 3
STA. 10+80.17 –Y2– TO STA. 11+40.98 –Y2–
STA. 17+05.30 –Y2– TO STA. 17+65.20 –Y2– (REVERSE)



TYPICAL SECTION NO. 4
STA. 10+10.30 –DRV1– TO STA. 11+34.90 –DRV1–



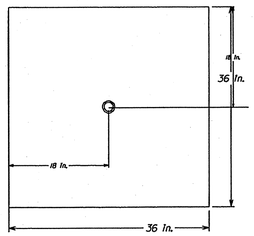
TYPICAL SECTION NO. 5
STA. 10+12.00 –DRV– TO STA. 15+10.00 –DRV–



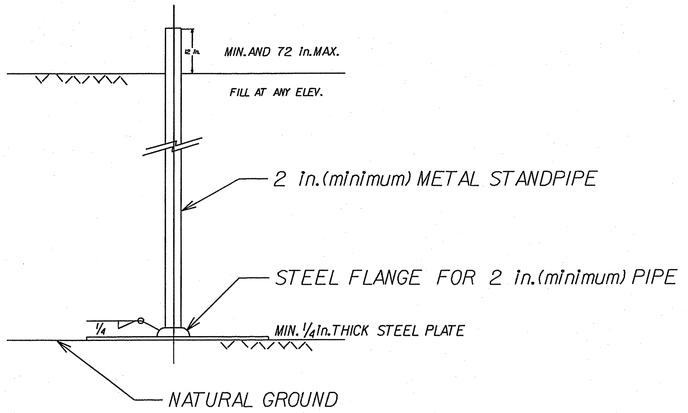
TYPICAL SECTION NO. 6
STA. 14+00.00 –Y1– TO STA. 18+02.82 –Y1–

DGN 03501DEL_Pin2

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	2-A



DETAIL OF STEEL BASE

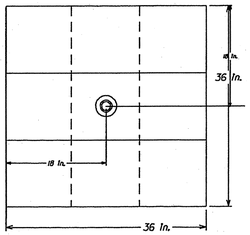


QUANTITY

EMBANKMENT SETTLEMENT GAUGE.....2 each

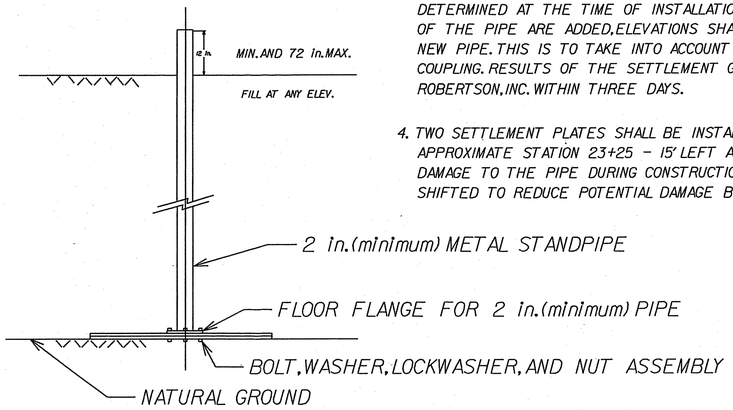
NOTES:

1. THE USE OF EITHER THE WOOD BASE OR THE STEEL BASE SETTLEMENT GAUGE SHALL BE THE CONTRACTOR'S OPTION.
2. SETTLEMENT GAUGES SHALL BE INSTALLED BEFORE THE EMBANKMENT IS PLACED.
3. SETTLEMENT GAUGE ELEVATIONS ARE TO BE DETERMINED AND RECORDED WEEKLY BEGINNING WHEN EMBANKMENT PLACEMENT STARTS. THE INITIAL ELEVATION OF THE SETTLEMENT GAUGE PLATE (AT THE TOP OF PLATE) SHALL BE DETERMINED AT THE TIME OF INSTALLATION ALONG WITH THE EMBANKMENT ELEVATION AT THE TIME. WHEN NEW SECTIONS OF THE PIPE ARE ADDED, ELEVATIONS SHALL BE RECORDED AT THE TOP OF EXISTING PIPE AND AT THE TOP OF THE NEW PIPE. THIS IS TO TAKE INTO ACCOUNT INTERIM SETTLEMENT, VARIABLE PIPE LENGTHS AND THREAD LENGTHS IN COUPLING. RESULTS OF THE SETTLEMENT GAUGE READINGS SHALL BE FORWARDED TO MICHAEL J. WALKO, P.E. OF FROEHLING & ROBERTSON, INC. WITHIN THREE DAYS.
4. TWO SETTLEMENT PLATES SHALL BE INSTALLED AT END BENT 1. THE SETTLEMENT PLATES SHOULD BE PLACED AT APPROXIMATE STATION 23+25 - 15' LEFT AND 15' RIGHT. THE PLATES SHOULD BE LOCATED AND MARKED TO PREVENT DAMAGE TO THE PIPE DURING CONSTRUCTION AND SUBSEQUENT READINGS; HOWEVER, THE PLATE LOCATIONS MAY BE SHIFTED TO REDUCE POTENTIAL DAMAGE BUT MUST BE PLACED IN THE VICINITY OF THE PROPOSED END BENT.



DETAIL OF WOOD BASE

SIX - 1 in. X 12 in. X 36 in. PLANKS OF LUMBER OR TWO PIECES 1 in. X 36 in. X 36 in. EXTERIOR GRADE PLYWOOD, SECURELY FASTENED AND THEN COATED WITH WOOD PRESERVATIVE



EMBANKMENT SETTLEMENT GAUGE DETAIL

NOT TO SCALE

PROJECT NO. C-4901B

DAVIDSON **COUNTY**

STATION 26+52.19 -L-

7642+59.64 -TRK2-PR-

NORTH CAROLINA PROFESSIONAL SEAL 029617 ENGINEER MICHAEL J. WALKO 12/3/12

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

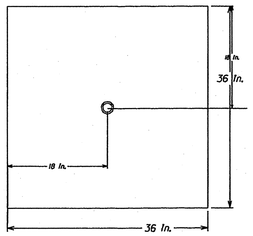
EMBANKMENT MONITORING
AT END BENT 1

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

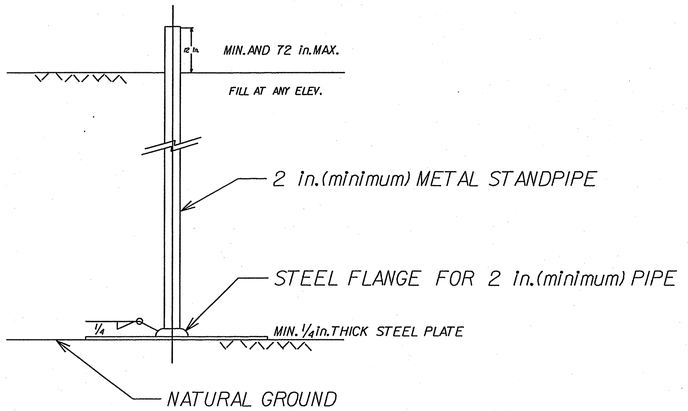
DRAWN BY : R. KRAL, E.I. DATE : 06-01-12
CHECKED BY : M. WALKO, P.E. DATE : 06-01-12

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	2-B

DCN 0359DEL_PIN2



DETAIL OF STEEL BASE

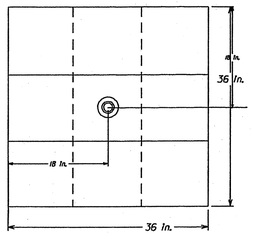


QUANTITY

EMBANKMENT SETTLEMENT GAUGE.....2 each

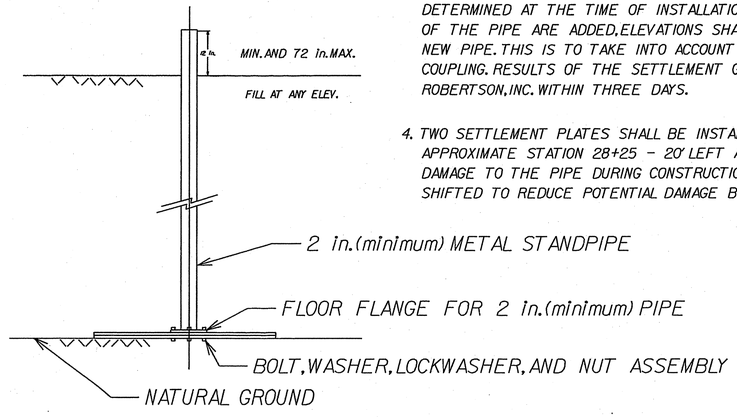
NOTES:

1. THE USE OF EITHER THE WOOD BASE OR THE STEEL BASE SETTLEMENT GAUGE SHALL BE THE CONTRACTOR'S OPTION.
2. SETTLEMENT GAUGES SHALL BE INSTALLED BEFORE THE EMBANKMENT IS PLACED.
3. SETTLEMENT GAUGE ELEVATIONS ARE TO BE DETERMINED AND RECORDED WEEKLY BEGINNING WHEN EMBANKMENT PLACEMENT STARTS. THE INITIAL ELEVATION OF THE SETTLEMENT GAUGE PLATE (AT THE TOP OF PLATE) SHALL BE DETERMINED AT THE TIME OF INSTALLATION ALONG WITH THE EMBANKMENT ELEVATION AT THE TIME. WHEN NEW SECTIONS OF THE PIPE ARE ADDED, ELEVATIONS SHALL BE RECORDED AT THE TOP OF EXISTING PIPE AND AT THE TOP OF THE NEW PIPE. THIS IS TO TAKE INTO ACCOUNT INTERIM SETTLEMENT, VARIABLE PIPE LENGTHS AND THREAD LENGTHS IN COUPLING. RESULTS OF THE SETTLEMENT GAUGE READINGS SHALL BE FORWARDED TO MICHAEL J. WALKO, P.E. OF FROEHLING & ROBERTSON, INC. WITHIN THREE DAYS.
4. TWO SETTLEMENT PLATES SHALL BE INSTALLED AT END BENT 2. THE SETTLEMENT PLATES SHOULD BE PLACED AT APPROXIMATE STATION 28+25 - 20' LEFT AND 20' RIGHT. THE PLATES SHOULD BE LOCATED AND MARKED TO PREVENT DAMAGE TO THE PIPE DURING CONSTRUCTION AND SUBSEQUENT READINGS; HOWEVER, THE PLATE LOCATIONS MAY BE SHIFTED TO REDUCE POTENTIAL DAMAGE BUT MUST BE PLACED IN THE VICINITY OF THE PROPOSED END BENT.



DETAIL OF WOOD BASE

SIX - 1in. X 12 in. X 36 in. PLANKS OF LUMBER OR TWO PIECES 1in. X 36 in. X 36 in. EXTERIOR GRADE PLYWOOD, SECURELY FASTENED AND THEN COATED WITH WOOD PRESERVATIVE



EMBANKMENT SETTLEMENT GAUGE DETAIL

NOT TO SCALE

PROJECT NO. C-4901B

DAVIDSON **COUNTY**

STATION 26+52.19 -L-

7642+59.64 -TRK2-PR-

NORTH CAROLINA PROFESSIONAL SEAL 032961 ENGINEER MICHAEL J. WALKO 12/3/12

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EMBANKMENT MONITORING
AT END BENT 2

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

DRAWN BY : R. KRAL, E.I. DATE : 06-01-12
CHECKED BY : M. WALKO, P.E. DATE : 06-01-12

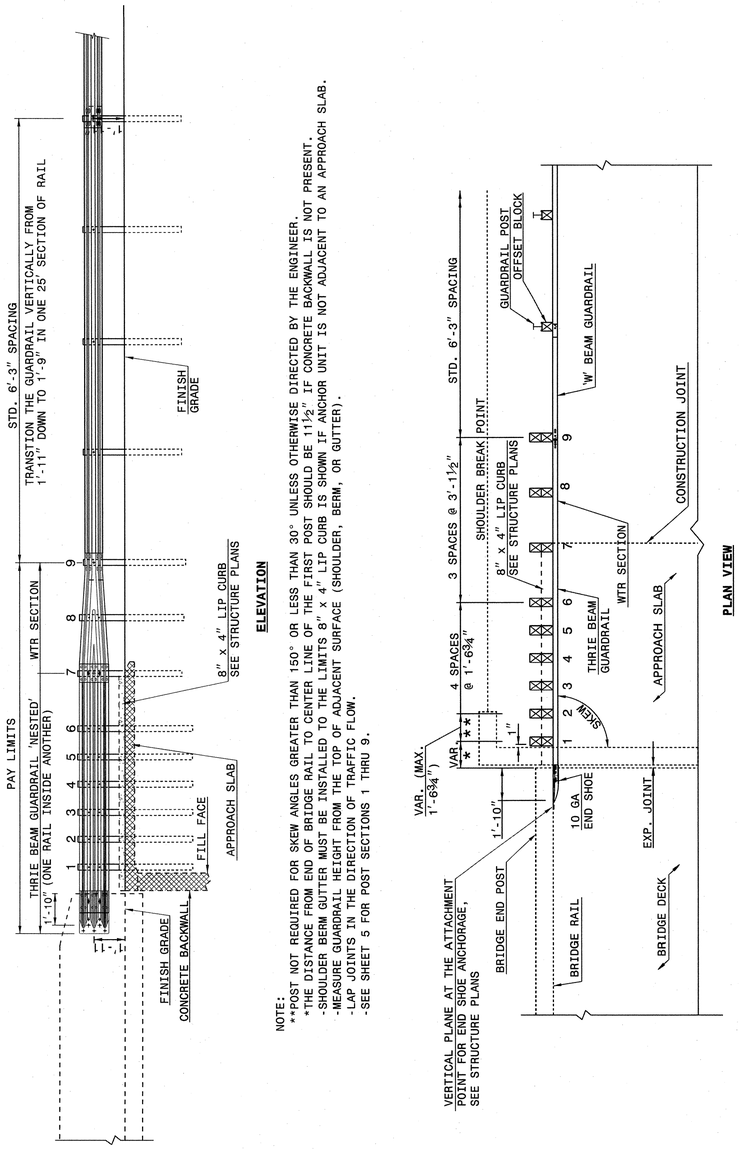
PROJECT REFERENCE NO.	SHEET NO.
C-4901B	2-C

DGN 0259DEL_P1062

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



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.

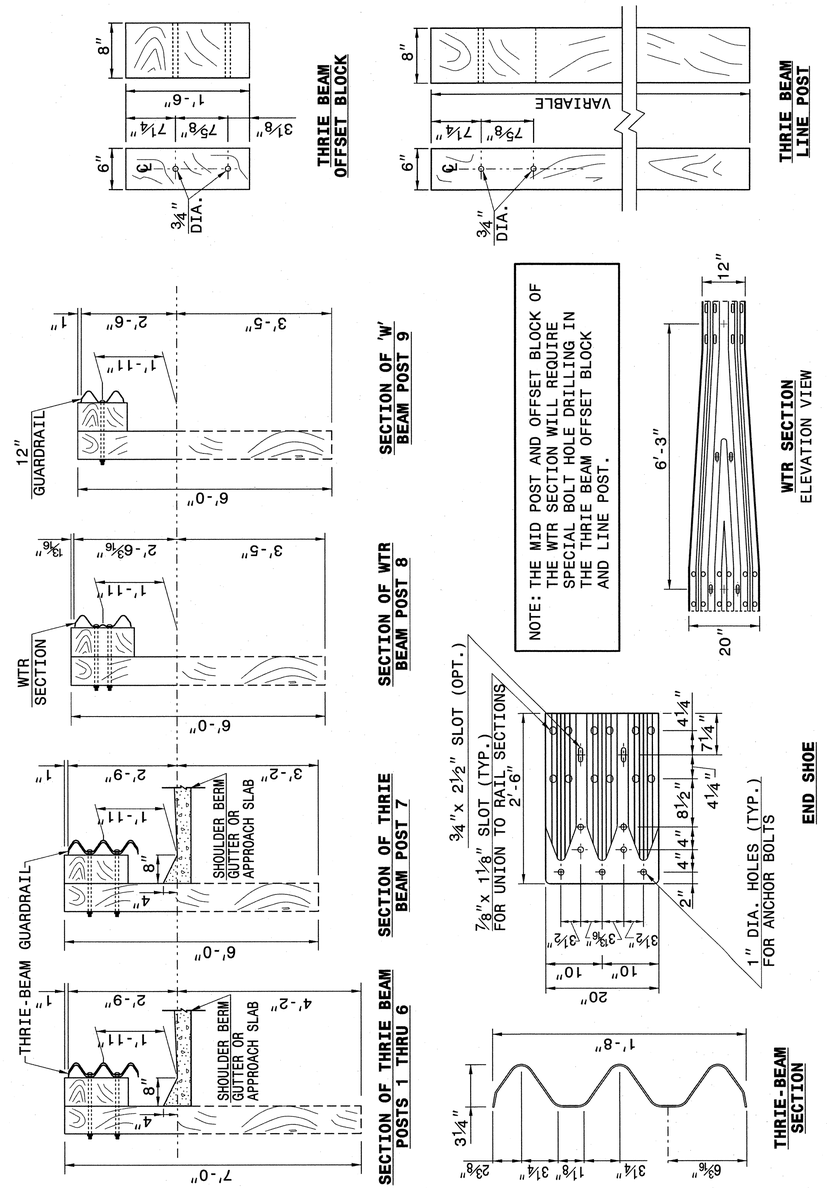
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

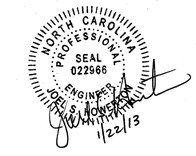
SHEET 2 OF 7
862d03

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





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

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

SEE TITLE BLOCK

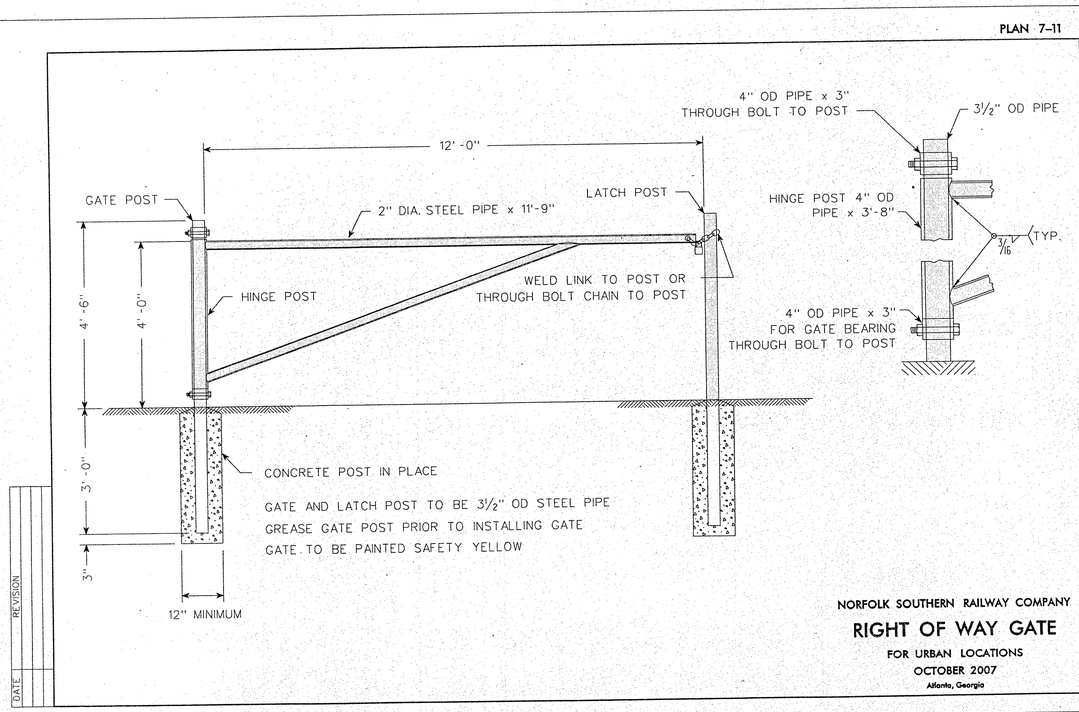
ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

15-JAN-2013 09:17
J:\C-4901B_Roadway\Proj\C-4901B_Rdy_PSH_2C.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	2-D

DGN 0259DEL_Plot2

PLAN 7-11



NORFOLK SOUTHERN RAILWAY COMPANY

RIGHT OF WAY GATE

FOR URBAN LOCATIONS

OCTOBER 2007

Atlanta, Georgia

17-JAN-2013 17:40
J:\ALL\4901B_Roadway\Proj\C-4901B_Rdy_PSH_2D.dgn
$$$$USERNAME$$$$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203141

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 ********** (25+67.96)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	10,500	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0106000000-E	230	78,900	CY	BORROW EXCAVATION
0127000000-N	SP	4	EA	EMBANKMENT SETTLEMENT GAUGES
0134000000-E	240	1,660	CY	DRAINAGE DITCH EXCAVATION
0192000000-N	260	1.1	HR	PROOF ROLLING
0194000000-E	SP	10,500	CY	SELECT GRANULAR MATERIAL, CLASS III
0196000000-E	270	10,680	SY	GEOTEXTILE FOR SOIL STABILIZATION
0318000000-E	300	70	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	190	SY	FOUNDATION CONDITIONING GEOTEXTILE
0335200000-E	305	280	LF	15" DRAINAGE PIPE
0335850000-E	305	4	EA	** DRAINAGE PIPE ELBOWS (15")
0448200000-E	310	156	LF	15" RC PIPE CULVERTS, CLASS IV
0576000000-E	310	128	LF	** CS PIPE CULVERTS, ***** THICK (36", 0.079")
0973100000-E	330	48	LF	** WELDED STEEL PIPE, **** THICK, GRADE B IN SOIL (48", 0.688")
0973300000-E	330	48	LF	** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (48", 0.688")
0986000000-E	SP	20	LF	GENERIC PIPE ITEM 48" WELDED STEEL PIPE, 0.688" THICK, GRADE B, OPEN CUT
0995000000-E	340	149	LF	PIPE REMOVAL
6009000000-E	1610	1,200	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	750	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	15	ACR	TEMPORARY MULCHING
6018000000-E	1620	500	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	3	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	1,000	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	200	LF	SAFETY FENCE
6030000000-E	1630	1,000	CY	SILT EXCAVATION
6036000000-E	1631	20,940	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	100	SY	COIR FIBER MAT
6038000000-E	SP	220	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	600	LF	1/4" HARDWARE CLOTH
6070000000-N	1639	16	EA	SPECIAL STILLING BASINS
6071010000-E	SP	1,650	LF	WATTLE
6071020000-E	SP	300	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	300	LF	COIR FIBER BAFFLE
6071050000-E	SP	3	EA	** SKIMMER (1-1/2")
6084000000-E	1660	15	ACR	SEEDING & MULCHING
6087000000-E	1660	8	ACR	MOWING
6090000000-E	1661	150	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	300	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	9	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL

SUMMARY OF QUANTITIES - C-4901B

ItemNumber	Sec #	Quantity	Unit	Description
1121000000-E	520	73	TON	AGGREGATE BASE COURSE
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1330000000-E	607	175	SY	INCIDENTAL MILLING
1489000000-E	610	130	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1491000000-E	610	2,910	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1503000000-E	610	1,100	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C
1523000000-E	610	1,100	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
1525000000-E	610	50	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1575000000-E	620	260	TON	ASPHALT BINDER FOR PLANT MIX
1693000000-E	654	25	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	27	EA	RIGHT OF WAY MARKERS
2209000000-E	838	10	CY	ENDWALLS
2253000000-E	840	1	CY	PIPE COLLARS
2275000000-E	SP	25	CY	FLOWABLE FILL
2286000000-N	840	5	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.29
2396000000-N	840	1	EA	FRAME WITH COVER, STD 840.54
2556000000-E	846	360	LF	SHOULDER BERM GUTTER
3030000000-E	862	1,912.5	LF	STEEL BM GUARDRAIL
3105000000-N	862	4	EA	STEEL BM GUARDRAIL TERMINAL SECTIONS
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3578000000-N	SP	1	EA	GENERIC FENCING ITEM RIGHT OF WAY GATE
3628000000-E	876	370	TON	RIP RAP, CLASS I
3649000000-E	876	550	TON	RIP RAP, CLASS B
3656000000-E	876	3,645	SY	GEOTEXTILE FOR DRAINAGE
4025000000-E	901	90	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
4072000000-E	903	344	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4102000000-N	904	15	EA	SIGN ERECTION, TYPE E
4155000000-N	907	8	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4238000000-N	907	8	EA	DISPOSAL OF SIGN, D, E OR F
4400000000-E	1110	500	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	100	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	120	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	30	EA	DRUMS
4445000000-E	1145	80	LF	BARRICADES (TYPE III)
4450000000-N	1150	40	HR	FLAGGER
4685000000-E	1205	4,200	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	4,540	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4770000000-E	1205	1,952	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (I)
4810000000-E	1205	7,500	LF	PAINT PAVEMENT MARKING LINES (4")
4875000000-N	1205	2	EA	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS
4955000000-N	1264	6	EA	OBJECT MARKERS (END OF ROAD)
5325600000-E	1510	215	LF	6" WATER LINE
5606600000-E	1515	1	EA	6" BLOW OFF
5648000000-N	1515	1	EA	RELOCATE WATER METER
6000000000-E	1605	7,000	LF	TEMPORARY SILT FENCE
6006000000-E	1610	115	TON	STONE FOR EROSION CONTROL, CLASS A
7985000000-N	SP	Lump Sum		GENERIC SIGNAL ITEM REMOVAL & DISPOSAL OF RAILROAD WARNING BEACON & EQUIPMENT

DCN 0259DEL_P10c2

COMPUTED BY: DBG	DATE: 9/4/12
CHECKED BY: ESR	DATE: 9/4/12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	3-A

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) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
23+11 -L-	LT	0401		696.44															
		0401	0402		693.69	692.66													
22+91 -L-	RT		0402	695.41															
		0402	0403		692.66	675.51			48							X			
10+60 -DRV-	LT	0404		677.2															
	LT	0404	0405																
10+32 -DRV-	LT		0405	676.4															
15+91 -L-	RT	0406																	
14+75 -DRV-	RT	0407																	
24+24 -L-	LT	0408																	
29+00 -L-	LT	0501		723.40															
29+00 -L-	LT	0501	0502		720.65	719.14													
29+00 -L-	LT	0502		721.89															
28+45 -L-	LT	0502	0503		719.14	670.08			108							X			
27+46 -L-	LT	0504			668.94	668.30													
17+90 -L-	LT																		
19+45 -L-	LT																		
23+40 -L-	LT																		
26+97 -L-	LT																		
28+09 -L-	LT																		
11+22 -Y2-	RT	0901							72										
17+35 -Y2-	LT	0902							52										
TOTAL									280										
SAY									280										

SIZE / THICKNESS OR GAUGE (continued)

STATION	FROM	TO	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
23+11 -L-	0401																							
	0401	0402																40						
22+91 -L-		0402																						
	0402	0403																						
10+60 -DRV-	0404																							
	0404	0405					56																	
10+32 -DRV-		0405																						
15+91 -L-	0406						28																	
14+75 -DRV-	0407																	60						
24+24 -L-	0408						44																	
29+00 -L-	0501																							
29+00 -L-	0501	0502																56						
29+00 -L-	0502																							
28+45 -L-	0502	0503																						
27+46 -L-	0504																							
17+90 -L-																								
19+45 -L-																								
23+40 -L-																								
26+97 -L-																								
28+09 -L-																								
11+22 -Y2-	0901																							
17+35 -Y2-	0902																							
TOTAL							128											156						
SAY							128											156						

STATION	FROM	TO	48" WELDED STEEL PIPE, 0.688" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE, 0.688" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE, 0.688" THICK, GRADE B, OPEN CUT	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	
23+11 -L-	0401									1							
	0401	0402															
22+91 -L-		0402								1							
	0402	0403															
10+60 -DRV-	0404																
	0404	0405															
10+32 -DRV-		0405								1							
15+91 -L-	0406																
14+75 -DRV-	0407																
24+24 -L-	0408																
29+00 -L-	0501									1							
29+00 -L-	0501	0502															
29+00 -L-	0502									1							
28+45 -L-	0502	0503															
27+46 -L-	0504		48	48	20												
17+90 -L-																	
19+45 -L-																	
23+40 -L-																	
26+97 -L-									5								
28+09 -L-									5								
11+22 -Y2-	0901																
17+35 -Y2-	0902																
TOTAL			48	48	20				10	5							
SAY			48	48	20				10	5							

STATION	FROM	TO	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. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.J.B. STD. 840.34	T.B.G.D.I. STD. 840.35	DRAINAGE PIPE ELBOWS NO. & SIZE	MANHOLE FRAME & COVER STD. 840.54	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
23+11 -L-	0401							1		1						
	0401	0402														
22+91 -L-		0402						1		1						
	0402	0403									2-15"					
10+60 -DRV-	0404															
	0404	0405														
10+32 -DRV-		0405							1			1				
15+91 -L-	0406												0.7640			
14+75 -DRV-	0407															
24+24 -L-	0408															
29+00 -L-	0501							1		1						
29+00 -L-	0501	0502														
29+00 -L-	0502							1		1						
28+45 -L-	0502	0503									2-15"					
27+46 -L-	0504															
17+90 -L-															34	
19+45 -L-															74	
23+40 -L-															41	
26+97 -L-																
28+09 -L-																
11+22 -Y2-	0901															
17+35 -Y2-	0902															
TOTAL								4	1	4	4-15"	1	0.7640		149	
SAY								4	1	4	4-15"	1	1		149	

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

"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
-L-	14+71.00	23+13.25	RT	850.00			14+71.00		8	11	50		1	
-L-	17+45.75	23+37.50	LT	587.50				17+45.75	8	11		50		1
-L-	27+98.15	30+51.25	RT	256.25				27+98.15	8	11		50		1
-L-	28+20.85	32+76.75	LT	443.75			28+20.85		8	11	50		1	
-Y2-	11+49.35		LT/RT	25.00										
-Y2-	14+31.21		LT/RT	25.00										
		TOTALS:		2187.50										
		DEDUCT FOR ANCHOR UNITS												
		GRAU 350 TL-3 4 @ 50' =		-200										
		TYPE III 4 @ 18.75' =		-75										
				SAY 1912.50			5 EA ADDITIONAL GUARDRAIL POSTS							

SURVEY LINE	BEG. STA.	ANCHORS XI MOD	XI	GRAU 350 (TL-3)	M-350	III	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+71.00			1		1											
-L-	17+45.75			1		1											
-L-	27+98.15			1		1											
-L-	28+20.85			1		1											
-Y2-	11+49.35																TERMINAL END SECTIONS: 2 EA
-Y2-	14+31.21																TERMINAL END SECTIONS: 2 EA
TOTALS:				4		4											

31-DEC-2012 13:54
J:\C-4901B\Roadway\Proj\C-4901B_Rdy_sum_3A.dgn
$$$$USERNAME$$$$

DCN 0259DEL_P10c2

COMPUTED BY: DBG DATE: 9/4/12
CHECKED BY: ESR DATE: 9/4/12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	3-B

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
–L– LT	23+05	23+35.2	30.2
–L– RT	22+88	23+15.6	27.6
–L– LT	28+20.8	31+50	329.2
		TOTAL:	356.8
		SAY:	360

BREAKING OF EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
–L–	16+00	23+25	RT	1,881.1
–Y1–	14+00	–L– 33+25	CL	1,962.3
–Y2–	11+45.25	11+56.75	CL	29.6
–Y2–	13+59.75	14+35.25	CL	190.3
–Y2–	16+74.75	16+99.00	RT	6.9
			TOTAL:	4,070.2
			SAY:	4,080

REMOVAL OF EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
–L–	14+50	16+00	CL	400.0
–L–	21+65	23+35	RT	138.7
–L–	33+25	34+25	CL	266.7
–Y1–	11+27	12+24	CL	245.9
–Y2–	11+45	11+59	CL	29.5
–Y2–	13+57	14+35	CL	186.7
–Y2–	16+74	16+99	RT	6.9
			TOTAL:	1,274.4
			SAY:	1,280

SUMMARY OF EMBANKMENT WAITING PERIODS

SURVEY LINE	END BENT STATION	MONTHS
–L–	23+26.42 (END BENT #1)	2
–L–	28+09.50 (END BENT #2)	2

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

SUMMARY OF EARTHWORK

VOLUME IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
13+90.00 –L–	23+26.42 –L–	227	4,485	30,648	30,421	4,485
10+50.00 –DRV–	15+10.00 –DRV–	17,102		128		16,974
SUBTOTAL		17,329	4,485	30,776	30,421	21,459
28+09.50 –L–	34+80.00 –L–	225	5,421	55,625	55,400	5,421
14+00.00 –Y1–	18+50.00 –Y1–	416		4,801	4,385	
SUBTOTAL		641	5,421	60,426	59,785	5,421
10+74.31 –Y2–	11+45.32 –Y2–	162		4		158
10+00.00 –DRV1–	11+35.00 –DRV1–	274		0		274
16+98.86 –Y2–	17+65.20 –Y2–	106		2		104
SUBTOTAL		542		6		536
PROJECT SUBTOTAL		18,512	9,906	91,208	90,206	27,416
ADDITIONAL UNDERCUT*			500			500
SHOULDER MATERIAL				1,884	1,884	
WASTE IN LIEU OF BORROW					–16,974	–16,974
PROJECT TOTAL		18,512	10,406	93,092	75,116	10,942
EST TO REPLACE TOP SOIL ON BORROW PIT					3,756	
GRAND TOTAL		18,512	10,406		78,872	
SAY		18,600	10,500		78,900	

*500 CY OF UNDERCUT CONT. PER GEOTECHNICAL RECOMM. DATED 8/17/2012
DRAINAGE DITCH EXCAVATION = 1,660 CY
SELECT MATERIAL CLASS III = 10,500 CY

SUMMARY OF SETTLEMENT GAUGES

GAUGE NO.	LINE	APPROX. STATION	APPROX. OFFSET
1	–L–	23+25	15.0' LEFT
2	–L–	23+25	15.0' RIGHT
3	–L–	28+25	20.0' LEFT
4	–L–	28+25	20.0' RIGHT
		TOTAL GAUGES (EACH):	4

28-JAN-2013 15:47
J:\C4901B_Roadway\Pro\NC-4901B_Rdy_sum_3B.dgn
$$$$USERNAME$$$$

DCN 0259DEL_P10c2

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

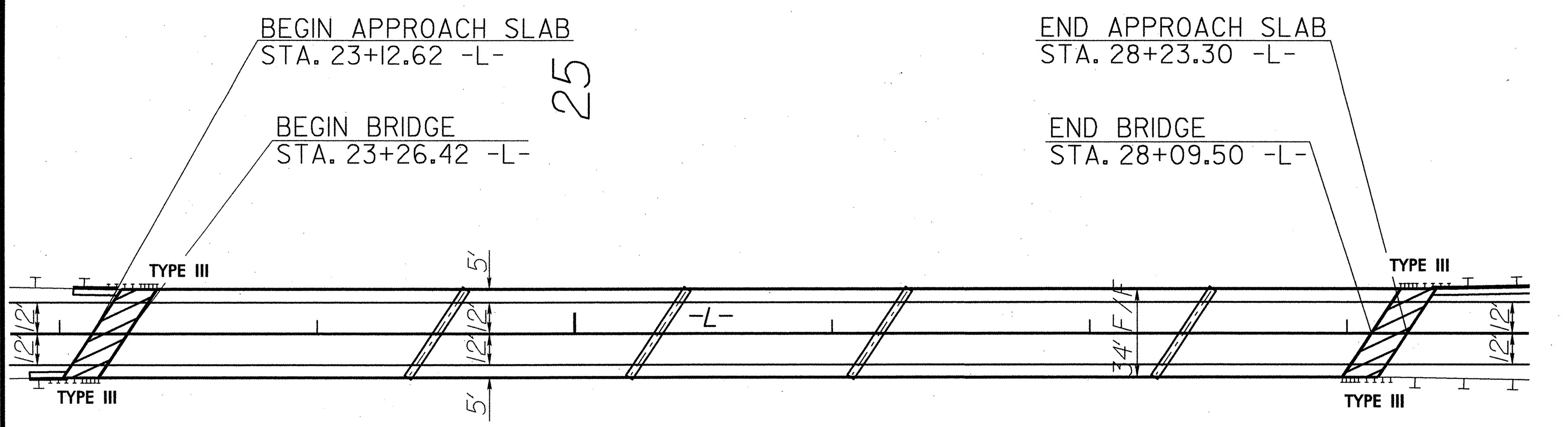
PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1B	4 & 5	MARTIN MARIETTA MATERIALS INC
2B	9	BRANDY E ATTIA
3B	9	RICHARD L ECHERD

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

31-DEC-2012 13:54
J:\C-4901B\Roadway\Proj\C-4901B_Rdy_psh_3C.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP



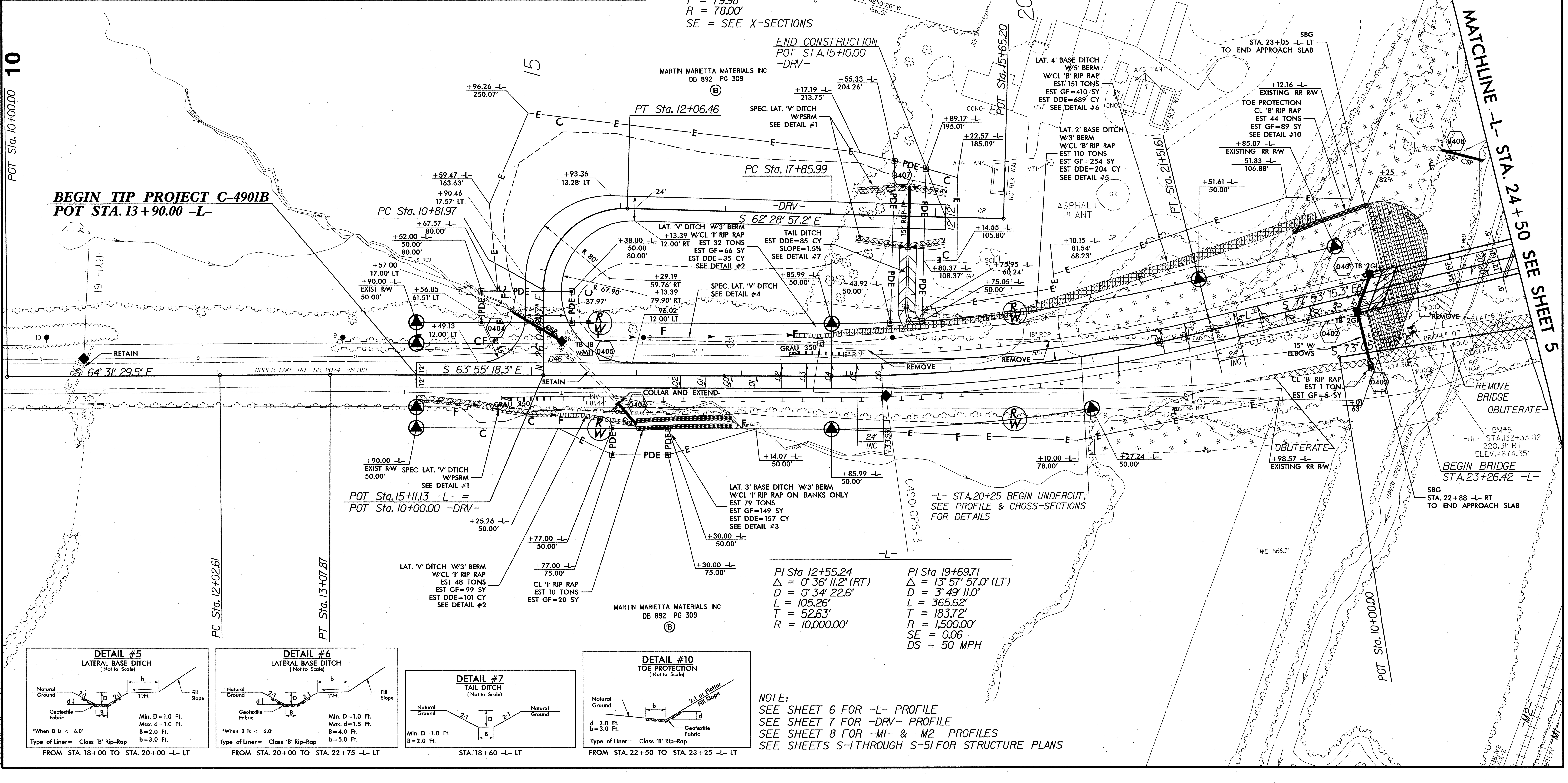
DETAIL #1 SPECIAL LATERAL 'V' DITCH (Not to Scale)
Min. D=1.0 Ft. Max. d=1.0 Ft. Type of Liner= PSRM
FROM STA. 13+90 TO STA. 15+25 -L- RT
FROM STA. 14+25 TO STA. 15+10 -DRV- LT & RT

DETAIL #2 LATERAL 'V' DITCH (Not to Scale)
Min. D=1.0 Ft. Max. d=1.0 Ft. b=3.0 Ft. Type of Liner= Class 'I' Rip-Rap
FROM STA. 15+25 TO STA. 16+00 -L- RT
FROM STA. 17+50 TO STA. 18+00 -L- LT
FROM STA. 15+50 TO STA. 18+35 -Y1- RT

DETAIL #3 LATERAL BASE DITCH (Not to Scale)
*When B is > 6.0' Std. No. 876.01
Min. D=1.0 Ft. Max. d=1.0 Ft. B=3.0 Ft. b=3.0 Ft. Type of Liner= Class 'I' Rip-Rap
FROM STA. 16+00 TO STA. 16+90 -L- RT

DETAIL #4 SPECIAL LATERAL 'V' DITCH (Not to Scale)
Min. D=1.0 Ft.
FROM STA. 15+75 TO STA. 17+50 -L- LT

-DRV-
PI Sta 11+61.96
Δ = 91° 26' 21.1" (RT)
D = 73° 27' 22.1"
L = 124.48'
T = 79.98'
R = 78.00'
SE = SEE X-SECTIONS



-L-

PI Sta 12+55.24	PI Sta 19+69.71
Δ = 0° 36' 11.2" (RT)	Δ = 13° 57' 57.0" (LT)
D = 0° 34' 22.6"	D = 3° 49' 11.0"
L = 105.26'	L = 365.62'
T = 52.63'	T = 183.72'
R = 10,000.00'	R = 1,500.00'
	SE = 0.06
	DS = 50 MPH

DETAIL #5 LATERAL BASE DITCH (Not to Scale)
*When B is < 6.0'
Min. D=1.0 Ft. Max. d=1.0 Ft. B=2.0 Ft. b=3.0 Ft. Type of Liner= Class 'B' Rip-Rap
FROM STA. 18+00 TO STA. 20+00 -L- LT

DETAIL #6 LATERAL BASE DITCH (Not to Scale)
*When B is < 6.0'
Min. D=1.0 Ft. Max. d=1.5 Ft. B=4.0 Ft. b=5.0 Ft. Type of Liner= Class 'B' Rip-Rap
FROM STA. 20+00 TO STA. 22+75 -L- LT

DETAIL #7 TAIL DITCH (Not to Scale)
Min. D=1.0 Ft. B=2.0 Ft.
STA. 18+60 -L- LT

DETAIL #10 TOE PROTECTION (Not to Scale)
d=2.0 Ft. b=3.0 Ft. Type of Liner= Class 'B' Rip-Rap
FROM STA. 22+50 TO STA. 23+25 -L- LT

NOTE:
SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -DRV- PROFILE
SEE SHEET 8 FOR -M1- & -M2- PROFILES
SEE SHEETS S-1 THROUGH S-51 FOR STRUCTURE PLANS

31-DEC-2012 13:55
J:\C4901B_Roadway\Proj\C4901B_Rdy_psh_04.dgn

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 30050, NORTH CAROLINA PROFESSIONAL ENGINEER, EDWARD S. ROBBINS, 1-18-2013

HYDRAULICS ENGINEER — SEAL 009334, NORTH CAROLINA PROFESSIONAL ENGINEER, W. HENRY WELLS, JR., 1/18/13

DETAIL #2
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground; Fill Slope; Geotextile Fabric
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
b = 3.0 Ft.
Type of Liner = Class 'I' Rip-Rap

FROM STA. 15+25 TO STA. 16+00 -L- RT
FROM STA. 17+50 TO STA. 18+00 -L- LT
FROM STA. 15+50 TO STA. 18+35 -Y1- RT

DETAIL #8
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground; 4:1 or Flatter; Fill Slope; Geotextile Fabric
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = Class 'B' Rip-Rap

FROM STA. 32+25 TO STA. 32+75 -L- LT
FROM STA. 31+00 TO STA. 32+50 -L- RT

DETAIL #9
TOE PROTECTION
(Not to Scale)

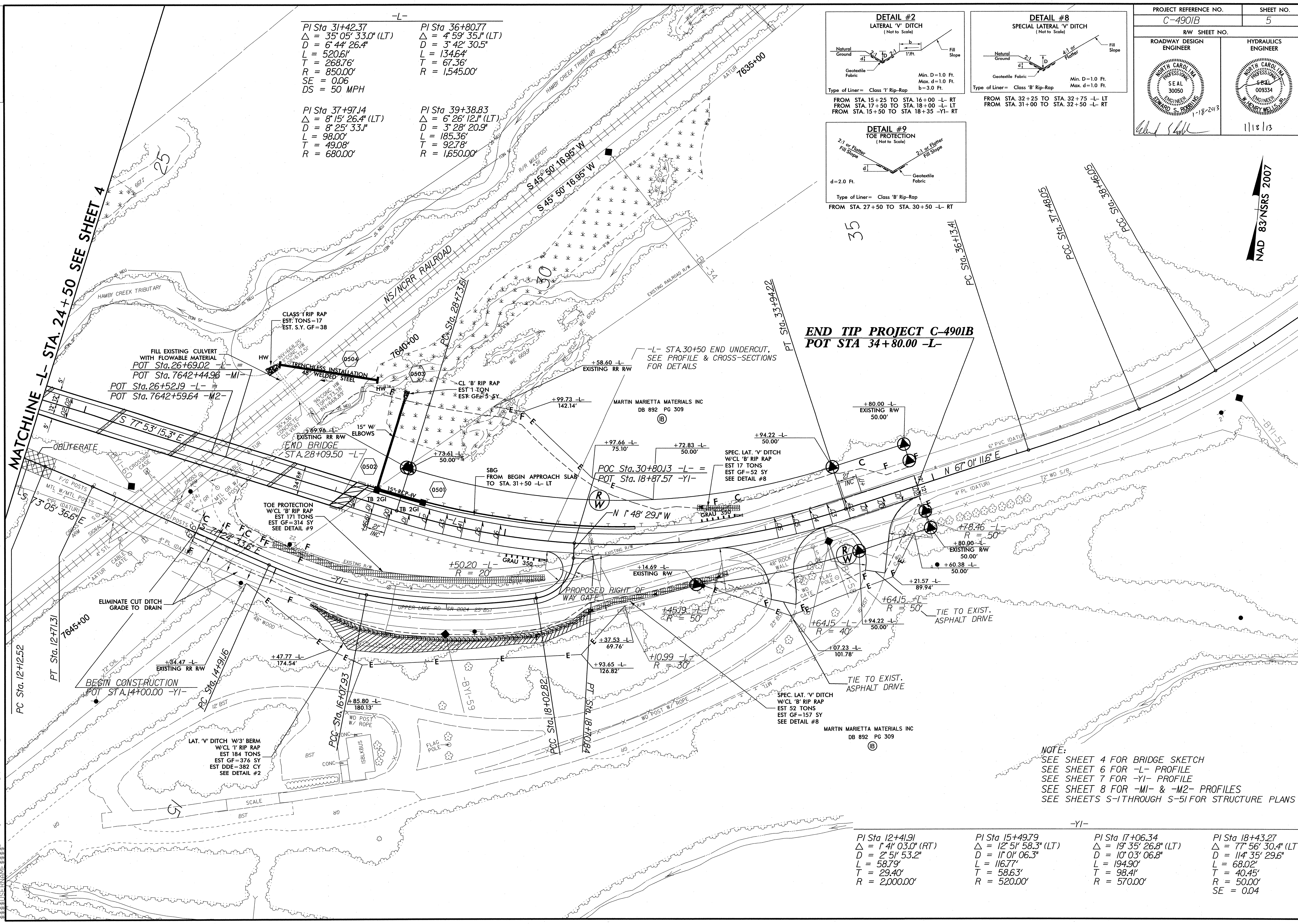
2:1 or Flatter Fill Slope; Geotextile Fabric
d = 2.0 Ft.
Type of Liner = Class 'B' Rip-Rap

FROM STA. 27+50 TO STA. 30+50 -L- RT

-L-

PI Sta 31+42.37	PI Sta 36+80.77
Δ = 35° 05' 33.0" (LT)	Δ = 4° 59' 35.1" (LT)
D = 6° 44' 26.4"	D = 3° 42' 30.5"
L = 520.61'	L = 134.64'
T = 268.76'	T = 67.36'
R = 850.00'	R = 1,545.00'
SE = 0.06	
DS = 50 MPH	

PI Sta 37+97.14	PI Sta 39+38.83
Δ = 8° 15' 26.4" (LT)	Δ = 6° 26' 12.1" (LT)
D = 8° 25' 33.1"	D = 3° 28' 20.9"
L = 98.00'	L = 185.36'
T = 49.08'	T = 92.78'
R = 680.00'	R = 1,650.00'

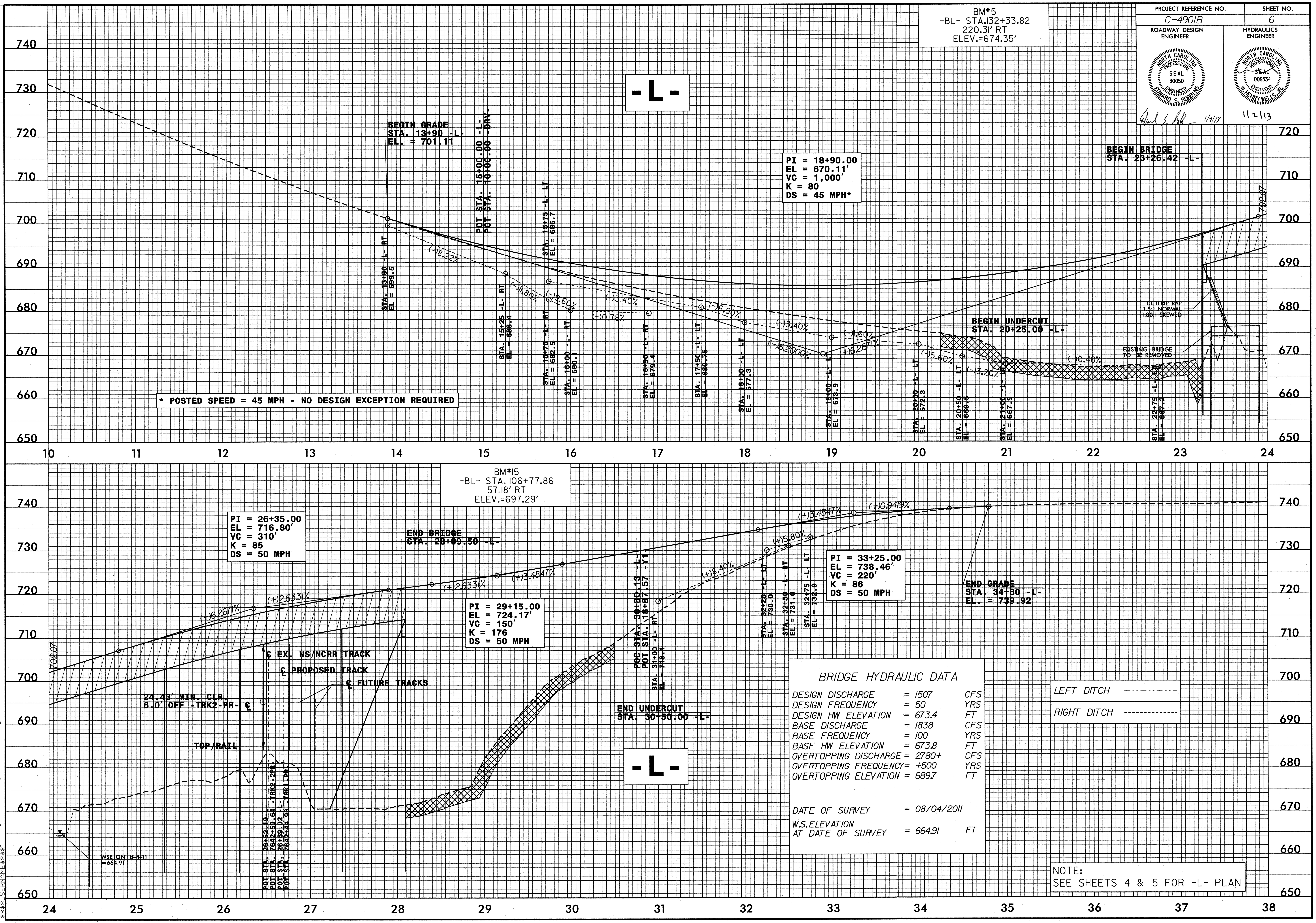


MATCHLINE -L- STA. 24+50 SEE SHEET 4
NAD 83/NSRS 2007
END TIP PROJECT C-4901B
POT STA 34+80.00 -L-
NS/NCRR RAILROAD
S 45° 50' 16.95" W
HAMBY CREEK TRIBUTARY
-L- STA. 30+50 END UNDERCUT. SEE PROFILE & CROSS-SECTIONS FOR DETAILS
MARTIN MARIETTA MATERIALS INC
DB 892 PG 309
CLASS 'I' RIP RAP
EST. TONS = 17
EST. S.Y. GF = 38
FILL EXISTING CULVERT WITH FLOWABLE MATERIAL
POT Sta. 26+69.02 -L- =
POT Sta. 7642+44.96 -M1-
POT Sta. 26+52.19 -L- =
POT Sta. 7642+59.64 -M2-
TRENCHLESS INSTALLATION 48" WELDED STEEL
CL 'B' RIP RAP
EST 1 TON
EST GF = 5 SY
15" W/ ELBOWS
END BRIDGE
STA. 28+09.50 -L-
S 77° 53' 15.3" E
OBLITERATE
TOE PROTECTION
W/CL 'B' RIP RAP
EST 171 TONS
EST GF = 314 SY
SEE DETAIL #9
SBG FROM BEGIN APPROACH SLAB TO STA. 31+50 -L- LT
POC Sta. 30+80.13 -L- =
POT Sta. 18+87.57 -Y1-
N 1° 48' 29.1" W
SPEC. LAT. 'V' DITCH
W/CL 'B' RIP RAP
EST 17 TONS
EST GF = 52 SY
SEE DETAIL #8
N 67° 01' 11.6" E
PC Sta. 28+73.61
PT Sta. 33+94.22
PC Sta. 36+13.41
PCC Sta. 37+48.05
POC Sta. 38+46.05
S 73° 05' 36.6" E
S 74° 24' 33.6" E
ELIMINATE CUT DITCH GRADE TO DRAIN
PROPOSED RIGHT OF WAY GATE
UPPER LAKE RD SR 2024 25' BST
BEGIN CONSTRUCTION
POT STA. 14+00.00 -Y1-
PC Sta. 12+12.52
PT Sta. 12+71.31
PC Sta. 14+91.16
POC Sta. 16+07.93
POC Sta. 18+02.82
PT Sta. 18+70.84
LAT. 'V' DITCH W/3' BERM
W/CL 'I' RIP RAP
EST 184 TONS
EST GF = 376 SY
EST DDE = 382 CY
SEE DETAIL #2
SPEC. LAT. 'V' DITCH
W/CL 'B' RIP RAP
EST 52 TONS
EST GF = 157 SY
SEE DETAIL #8
TIE TO EXIST. ASPHALT DRIVE
TIE TO EXIST. ASPHALT DRIVE

NOTE:
SEE SHEET 4 FOR BRIDGE SKETCH
SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -Y1- PROFILE
SEE SHEET 8 FOR -M1- & -M2- PROFILES
SEE SHEETS S-1 THROUGH S-51 FOR STRUCTURE PLANS

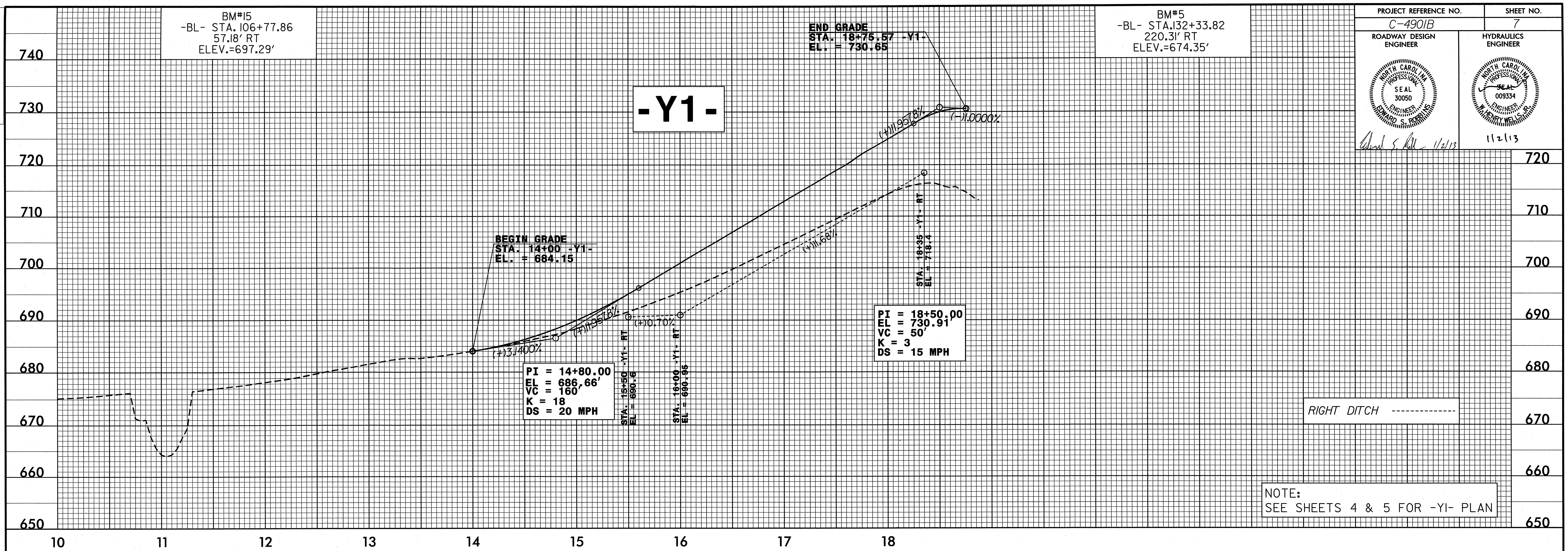
-Y1-

PI Sta 12+41.91	PI Sta 15+49.79	PI Sta 17+06.34	PI Sta 18+43.27
Δ = 1° 41' 03.0" (RT)	Δ = 12° 51' 58.3" (LT)	Δ = 19° 35' 26.8" (LT)	Δ = 77° 56' 30.4" (LT)
D = 2° 51' 53.2"	D = 11° 01' 06.3"	D = 10° 03' 06.8"	D = 114° 35' 29.6"
L = 58.79'	L = 116.77'	L = 194.90'	L = 68.02'
T = 29.40'	T = 58.63'	T = 98.41'	T = 40.45'
R = 2,000.00'	R = 520.00'	R = 570.00'	R = 50.00'
			SE = 0.04



PROJECT REFERENCE NO.
C-4901B
SHEET NO.
6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 30050 ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 009334 ENGINEER
11/2/17
11/2/13
BM#5
-BL- STA.132+33.82
220.31' RT
ELEV.=674.35'
-L-
BEGIN GRADE
STA. 13+90 -L-
EL. = 701.11
POT STA. 15+00.00 -L-
POT STA. 10+00.00 -DRV-
PI = 18+90.00
EL = 670.11'
VC = 1,000'
K = 80
DS = 45 MPH*
BEGIN BRIDGE
STA. 23+26.42 -L-
BEGIN UNDERCUT
STA. 20+25.00 -L-
CL II RIP RAP
1.5:1 NORMAL
1.80:1 SKEWED
EXISTING BRIDGE TO BE REMOVED
* POSTED SPEED = 45 MPH - NO DESIGN EXCEPTION REQUIRED
BM#15
-BL- STA. 106+77.86
57.18' RT
ELEV.=697.29'
PI = 26+35.00
EL = 716.80'
VC = 310'
K = 85
DS = 50 MPH
END BRIDGE
STA. 28+09.50 -L-
PI = 29+15.00
EL = 724.17'
VC = 150'
K = 176
DS = 50 MPH
PI = 33+25.00
EL = 738.46'
VC = 220'
K = 86
DS = 50 MPH
END GRADE
STA. 34+80 -L-
EL. = 739.92
℄ EX. NS/NCRR TRACK
℄ PROPOSED TRACK
℄ FUTURE TRACKS
24.43' MIN. CLR.
6.0' OFF -TRK2-PR- ℄
TOP/RAIL
END UNDERCUT
STA. 30+50.00 -L-
WSE ON 8-4-11 =664.91
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 1507 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 673.4 FT
BASE DISCHARGE = 1838 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 673.8 FT
OVERTOPPING DISCHARGE = 2780+ CFS
OVERTOPPING FREQUENCY = +500 YRS
OVERTOPPING ELEVATION = 689.7 FT
DATE OF SURVEY = 08/04/2011
W.S.ELEVATION AT DATE OF SURVEY = 664.91 FT
LEFT DITCH
RIGHT DITCH
NOTE:
SEE SHEETS 4 & 5 FOR -L- PLAN

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



0259DEL_P10c2

DCN

31-DEC-2012 16:12
J:\C-4901B\Roadway\Proj\C4901B_Rdy_psh_07_L45.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	8

PROFILES PROVIDED BY THE RAIL DIVISION ON DECEMBER 28, 2012 AND SEALED BY A PROFESSIONAL ENGINEER, COREY VERNIER OF HNTB, P.C., LICENSE # 037992.

BM#15
-BL- STA. 106+77.86
57.18' RT
ELEV.=697.29'

BM#5
-BL- STA.132+33.82
220.31' RT
ELEV.=674.35'

-M2-PR-

PI = 7644+50.00
EL = 681.98'

PI = 7642+00.00
EL = 683.55'

PI = 7640+00.00
EL = 684.78'

POT STA. 25+42.18 - L - M2-
POT STA. 7642+77.67 - M2-
POT STA. 25+32.19 - L - M2-
POT STA. 7642+69.84 - M2-
POT STA. 25+52.20 - L - M2-
POT STA. 7642+41.60 - M2-

681.71

685.49

(−)0.5326%

(−)0.6306%

(−)0.6128%

(−)0.6969%

NOTE:
SEE SHEET 5 FOR M2 PLAN

-M1-PR-

PI = 7643+30.00
EL = 682.68'
VC = 210'

POT STA. 25+59.01 - L - M1-
POT STA. 7642+83.00 - M1-
POT STA. 25+69.02 - L - M1-
POT STA. 7642+44.96 - M1-
POT STA. 25+79.04 - L - M1-
POT STA. 7642+25.93 - M1-

681.96

685.96

(−)0.4379%

(−)0.6979%

NOTE:
SEE SHEET 5 FOR MIPLAN

7645 7644 7643 7642 7641 7640 7639

730 720 710 700 690 680 670 660 650 640

DGN 0259DEL_P10c2

15-JAN-2013 09:24
J:\C-4901B\Roadway\Proj\C4901B_Rdy_psh_08.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
C-4901B	9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 30050 — 1/2/13

HYDRAULICS ENGINEER — SEAL 009334 — 1/2/13

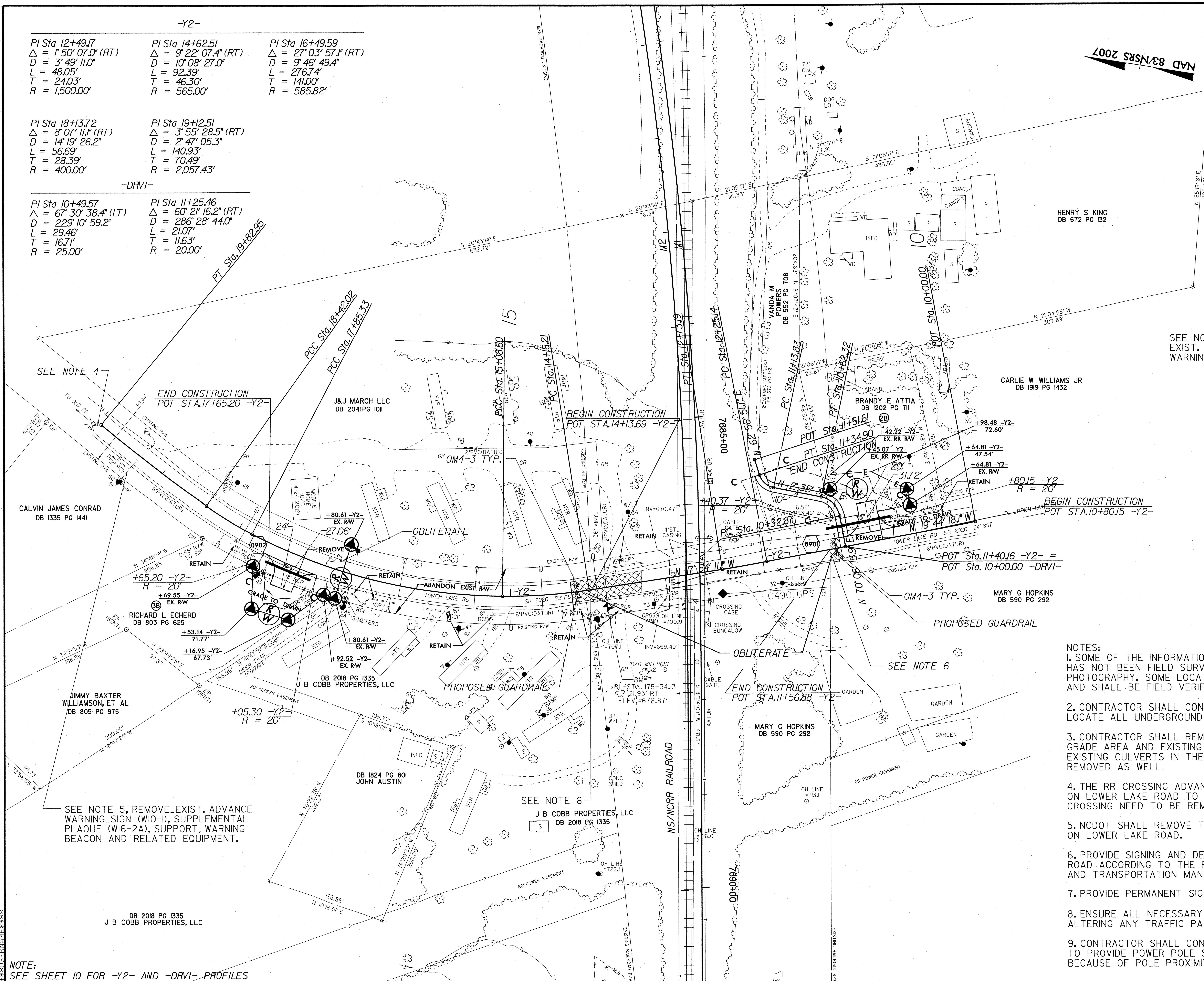
-Y2-

PI Sta 12+49.17	PI Sta 14+62.51	PI Sta 16+49.59
Δ = 1° 50' 07.0" (RT)	Δ = 9° 22' 07.4" (RT)	Δ = 27° 03' 57.1" (RT)
D = 3° 49' 11.0"	D = 10° 08' 27.0"	D = 9° 46' 49.4"
L = 48.05'	L = 92.39'	L = 276.74'
T = 24.03'	T = 46.30'	T = 141.00'
R = 1,500.00'	R = 565.00'	R = 585.82'

PI Sta 18+13.72	PI Sta 19+12.51
Δ = 8° 07' 11.1" (RT)	Δ = 3° 55' 28.5" (RT)
D = 14° 19' 26.2"	D = 2° 47' 05.3"
L = 56.69'	L = 140.93'
T = 28.39'	T = 70.49'
R = 400.00'	R = 2,057.43'

-DRV1-

PI Sta 10+49.57	PI Sta 11+25.46
Δ = 67° 30' 38.4" (LT)	Δ = 60° 21' 16.2" (RT)
D = 229° 10' 59.2"	D = 286° 28' 44.0"
L = 29.46'	L = 21.07'
T = 16.71'	T = 11.63'
R = 25.00'	R = 20.00'

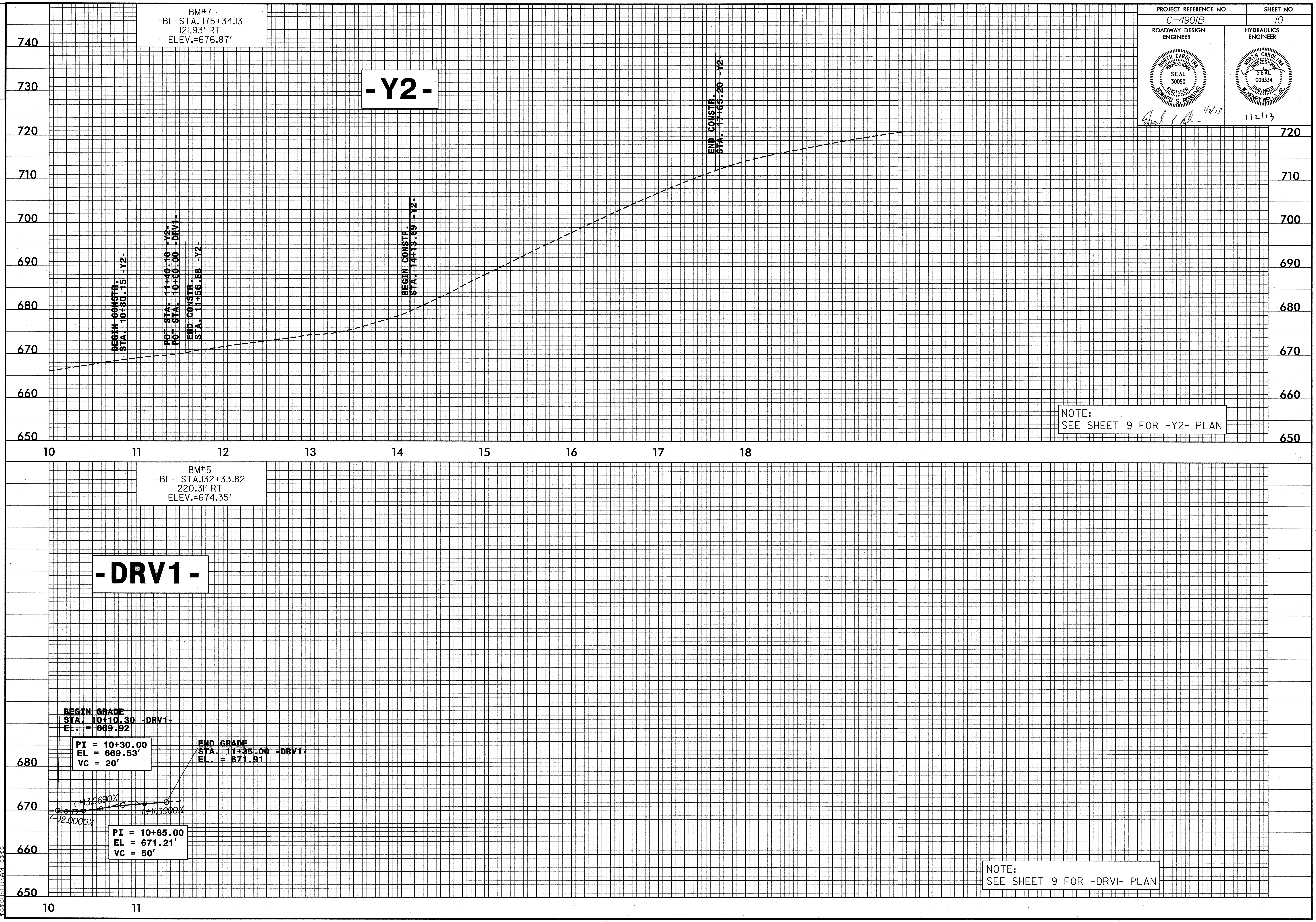


NOTE:
SEE SHEET 10 FOR -Y2- AND -DRV1- PROFILES

NOTES:

1. SOME OF THE INFORMATION SHOWN ON THE PLAN SHEET HAS NOT BEEN FIELD SURVEYED AND IS BASED ON AERIAL PHOTOGRAPHY. SOME LOCATIONS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL CONTACT NORTH CAROLINA 811 TO LOCATE ALL UNDERGROUND UTILITIES IN THE WORK AREA.
3. CONTRACTOR SHALL REMOVE EXISTNG ROADBED AND GRADE AREA AND EXISTING DITCHES TO DRAIN. ANY EXISTING CULVERTS IN THE ROADWAY DITCHES SHALL BE REMOVED AS WELL.
4. THE RR CROSSING ADVANCE WARNING PAVEMENT MARKINGS ON LOWER LAKE ROAD TO THE NORTH AND SOUTH OF CROSSING NEED TO BE REMOVED AS WELL.
5. NCDOT SHALL REMOVE THE RR ADVANCE WARNING SIGNING ON LOWER LAKE ROAD.
6. PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRANSPORTATION MANAGEMENT PLANS.
7. PROVIDE PERMANENT SIGNING AS SHOWN.
8. ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
9. CONTRACTOR SHALL CONTACT DUKE POWER AT 704-645-2700 TO PROVIDE POWER POLE SUPPORT DURING CONSTRUCTION BECAUSE OF POLE PROXIMITY TO EXISTING ROAD.

31-DEC-2012 13:55
J:\C-4901B_Roadway\Proj\C4901B_Rdy_psh_09.dgn


PROJECT REFERENCE NO.
C-4901B
SHEET NO.
10
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 30050 ENGINEER EDWARD S. ROBBINS
1/2/13
NORTH CAROLINA PROFESSIONAL SEAL 009334 ENGINEER
1/2/13
BM#7
-BL-STA. 175+34.13
121.93' RT
ELEV.=676.87'
-Y2-
BEGIN CONSTR.
STA. 10+80.15 -Y2-
POT STA. 11+40.16 -Y2-
POT STA. 10+00.00 -DRV1-
END CONSTR.
STA. 11+56.88 -Y2-
BEGIN CONSTR.
STA. 14+13.69 -Y2-
END CONSTR.
STA. 17+65.20 -Y2-
NOTE:
SEE SHEET 9 FOR -Y2- PLAN
740
730
720
710
700
690
680
670
660
650
10
11
12
13
14
15
16
17
18
BM#5
-BL- STA.132+33.82
220.31' RT
ELEV.=674.35'
-DRV1-
BEGIN GRADE
STA. 10+10.30 -DRV1-
EL. = 669.92
PI = 10+30.00
EL = 669.53'
VC = 20'
END GRADE
STA. 11+35.00 -DRV1-
EL. = 671.91
(+)3.0690%
(-)2.0000%
(+)1.3900%
PI = 10+85.00
EL = 671.21'
VC = 50'
NOTE:
SEE SHEET 9 FOR -DRVI- PLAN
680
670
660
650
10
11
31-DEC-2012 16:12
J:\C-4901B\Roadway\Proj\C4901B_Rdy_psh_10.dgn