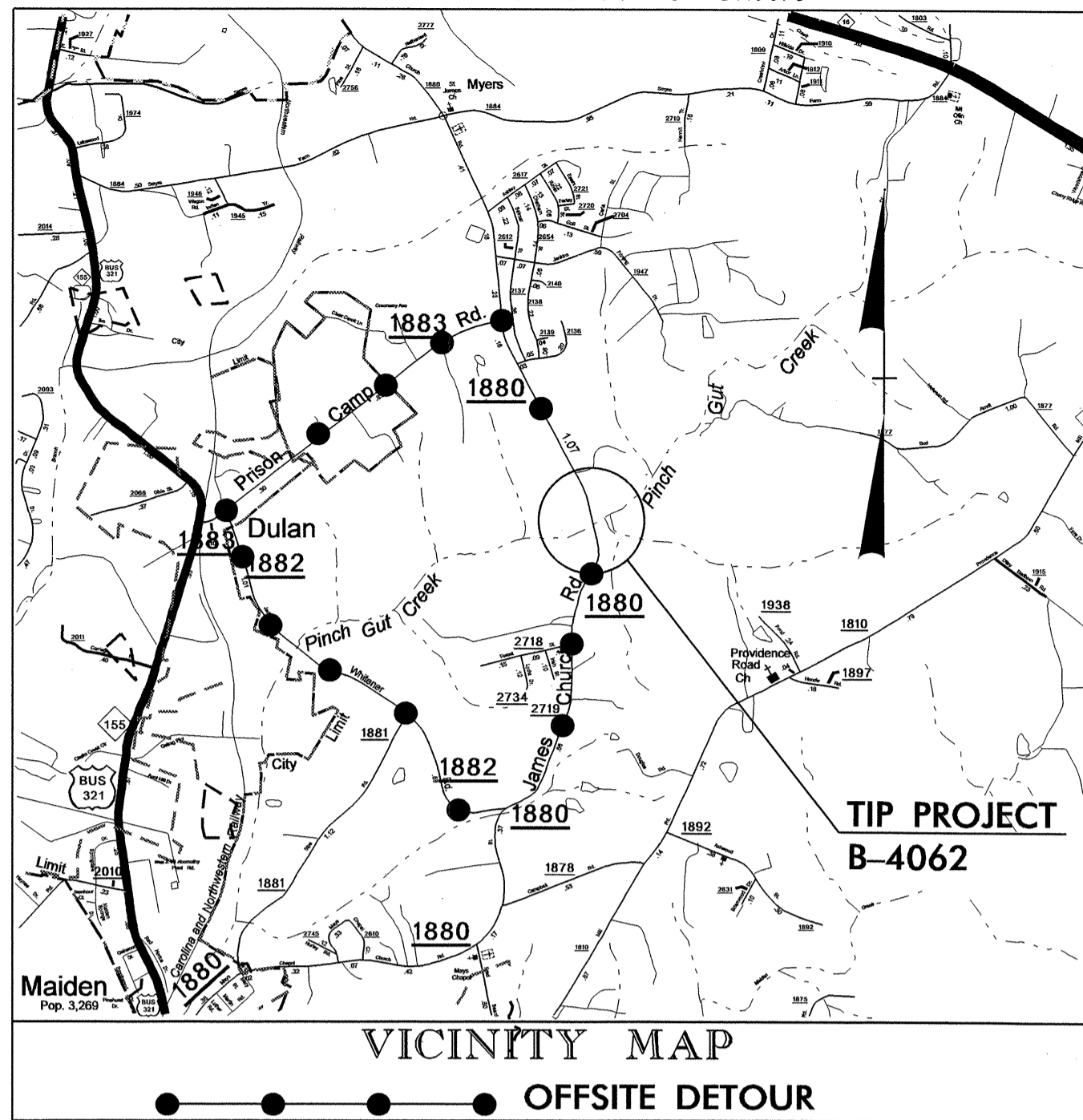


09/08/09

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CATAWBA COUNTY

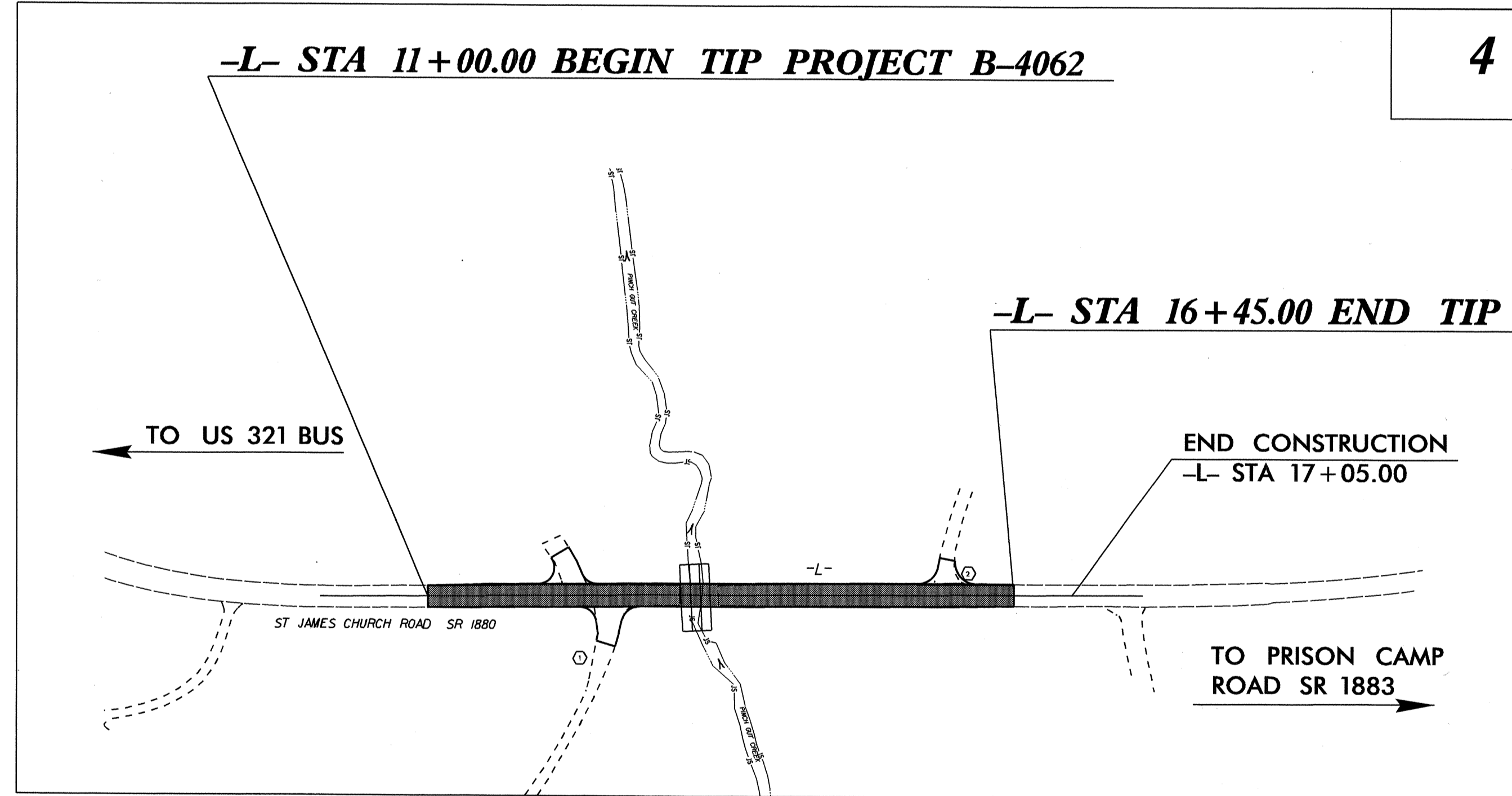
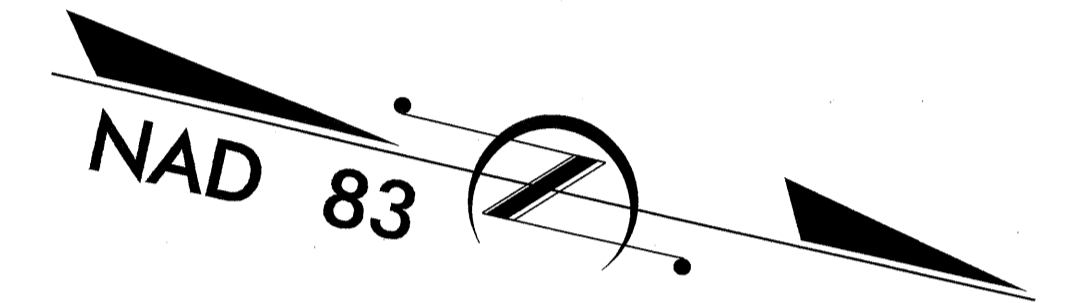
**LOCATION: BRIDGE NO. 127 OVER PINCH GUT CREEK
ON SR 1880 (ST. JAMES CHURCH RD.)**

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

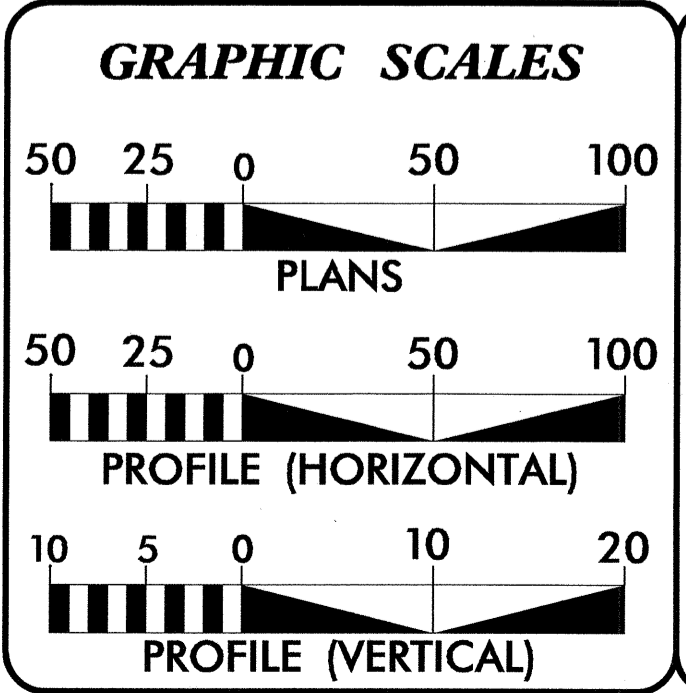
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4062	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33426.1.1	BRZ-1880(1)	P.E.	
33426.2.1	BRZ-1880(1)	ROW/UTIL	
33426.3.1	BRZ-1880(1)	CONST.	

TIP PROJECT: B-4062

CONTRACT: C202577



** DESIGN EXCEPTION REQUIRED



DESIGN DATA

ADT (2009) = 3340
ADT (2035) = 5720

DHV = 12 %
D = 70 %
T = 6 % *
V = 50 MPH

* (TTST 2% + DUAL 4%)

SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4062 = 0.103 MILES
TOTAL LENGTH TIP PROJECT B-4062 = 0.103 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 16, 2009

LETTING DATE:
JANUARY 18, 2011

TED S. WALLS
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Professional Engineer Seal for Ted S. Walls, No. 21656, State of North Carolina. Signature: Ted S. Walls, 10/23/10, P.E.

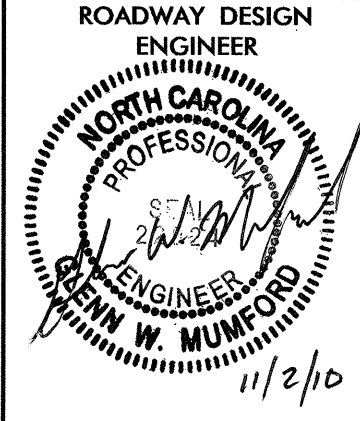
ROADWAY DESIGN

Professional Engineer Seal for Allison K. White, No. 22924, State of North Carolina. Signature: Allison K. White, 10/22/10, P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Art Smillen
STATE HIGHWAY DESIGN ENGINEER P.E.

20-OCT-2010 16:22
F:\Roadway\Proj\B-4062_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND A LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEETS
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF EARTHWORK, SUMMARY OF GUARDRAIL, AND SUMMARY OF REMOVAL OF EXISTING ASPHALT PAVEMENT
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-4	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-6	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
SIGN-1 THRU SIGN-2	SIGNING PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-3	CROSS-SECTION PLANS
C-1 THRU C-6	CULVERT PLANS

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

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

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

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

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.

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

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

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

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE AT & T, DUKE ENERGY
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 OTHERS.

2006 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 07-18-06
REV. 01-02-07
The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
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

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	②③
Existing Fence Line	-----
Proposed Woven Wire Fence	-----
Proposed Chain Link Fence	-----
Proposed Barbed Wire Fence	-----
Existing Wetland Boundary	----- WLB
Proposed Wetland Boundary	----- WLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	⋈
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	□
Church	⊕
Dam	⊕

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
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	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	○
Proposed Control of Access	○
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 Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Wheel Chair Ramp	----- WCR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----

VEGETATION:

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

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	⊕
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	⊕
Telephone Booth	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	⊕
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	⊕
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	⊕
TV Tower	⊕
U/G TV Cable Hand Hole	⊕
Recorded U/G TV Cable	----- TV
Designated U/G TV Cable (S.U.E.*)	----- TV
Recorded U/G Fiber Optic Cable	----- TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	----- TV FO

GAS:

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

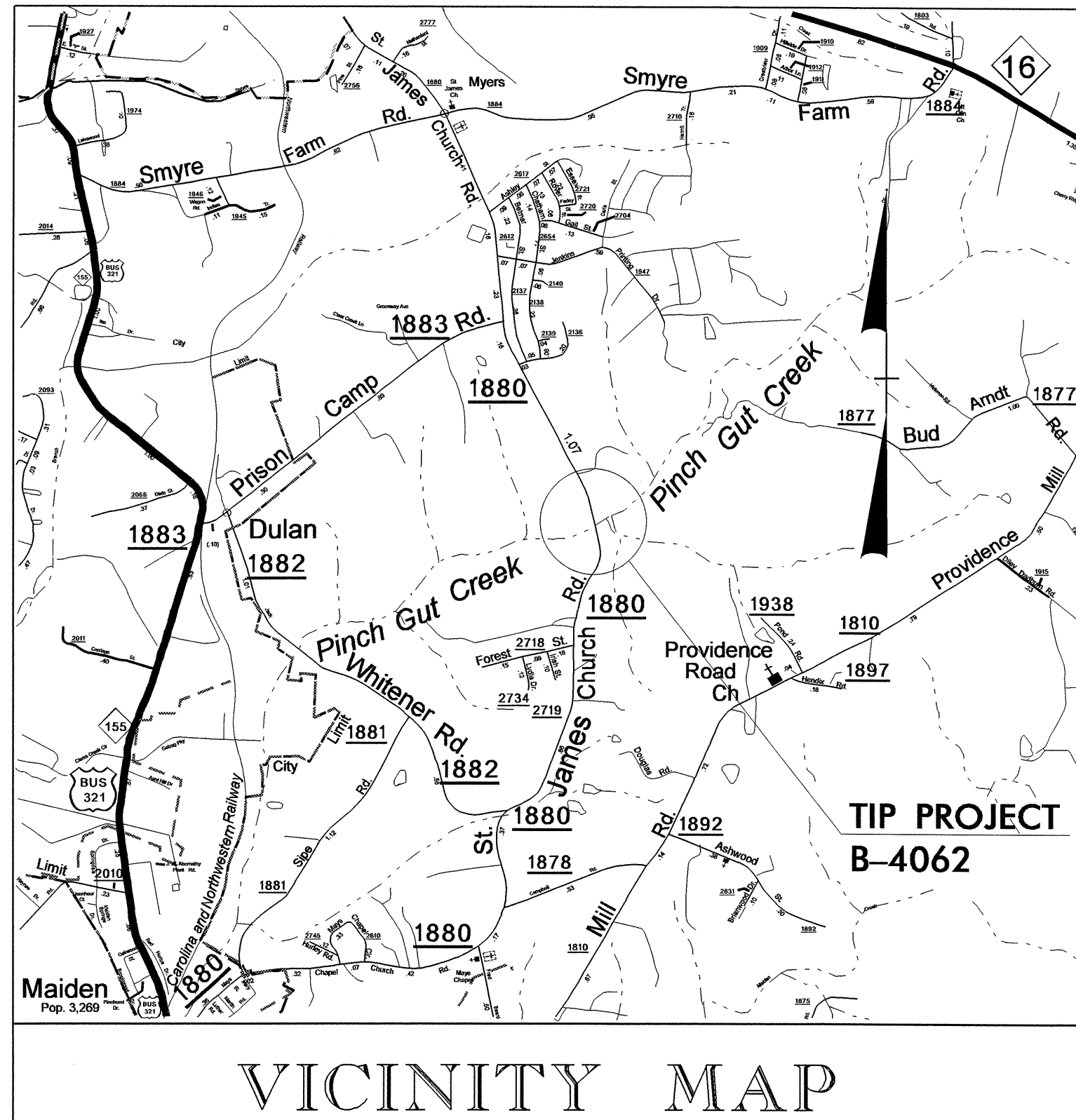
SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	----- 2UTL
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

SURVEY CONTROL SHEET B-4062

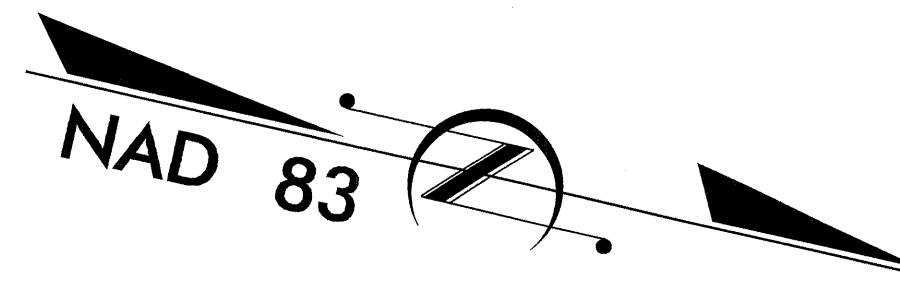


BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL3	(BL-3)	684684.8472	1349232.8038	901.21'	OUTSIDE PROJECT LIMITS	
BL4	(BL-4)	685108.8948	1349502.7356	877.92'	OUTSIDE PROJECT LIMITS	
BL5	(BL-5)	685755.3143	1349365.6973	854.43'	13+81.12	15.84 LT
B40622	(GPS B4062-2)	686403.1470	1349242.0800	881.63'	OUTSIDE PROJECT LIMITS	

 BM 1 ELEVATION = 881.59'
 N 685057. E 1349551.
 -L- STATION 10+00
 S 13° 24' 03.4" E DIST 340.69'
 8" SPIKE IN ROOT OF 6" MAPLE

 BM 2 ELEVATION = 847.69'
 N 685504. E 1349327.
 -L- STATION 11+46 113' LEFT
 8" SPIKE IN ROOT OF 8" MAPLE

 BM 3 ELEVATION = 867.44'
 N 686157. E 1349210.
 -L- STATION 17+65
 N 72° 36' 15.2" W DIST 85.39'
 8" SPIKE IN BASE OF POWER POLE



**NCDOT GPS STATION B4062-1
 LOCALIZED COORDINATES**
 N = 683962.4970
 E = 1348990.2680

BEGIN TIP PROJECT B-4062 STA. -L- 11+00.00

North = 685,485.9613
 East = 1,349,447.9178

END TIP PROJECT B-4062 -L- STA 16+45.00

North = 686,015.5604
 East = 1,349,319.2784

**NCDOT GPS STATION B4062-2
 LOCALIZED COORDINATES**
 N = 686403.1470
 E = 1349242.0800

TO US 321 BUS

TO PRISON CAMP
 ROAD SR 1883

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4062-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 683962.4970(±) EASTING: 1348990.2680(±) ELEVATION: 926.38(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999854 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4062-1" TO -L- STATION 11+85 IS N 15° 13' 57" E 1664.47 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4062_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.

NOTE: DRAWING NOT TO SCALE

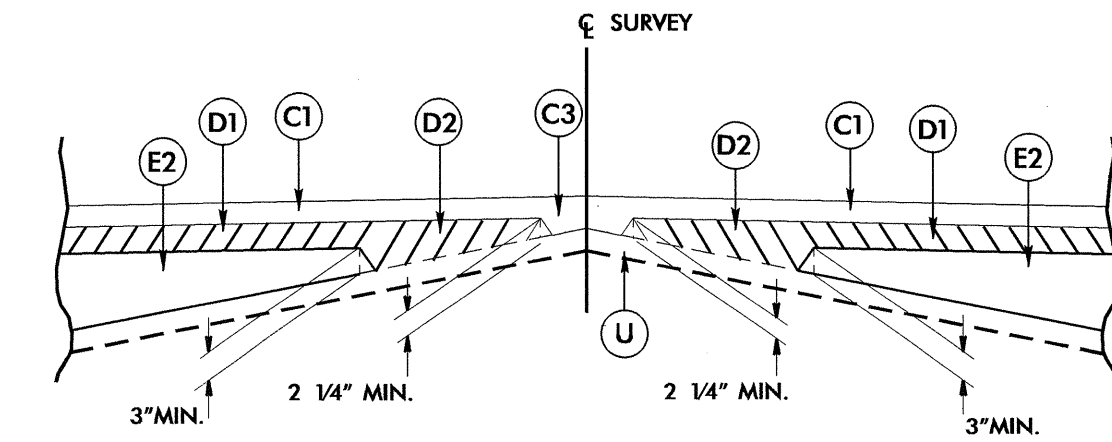
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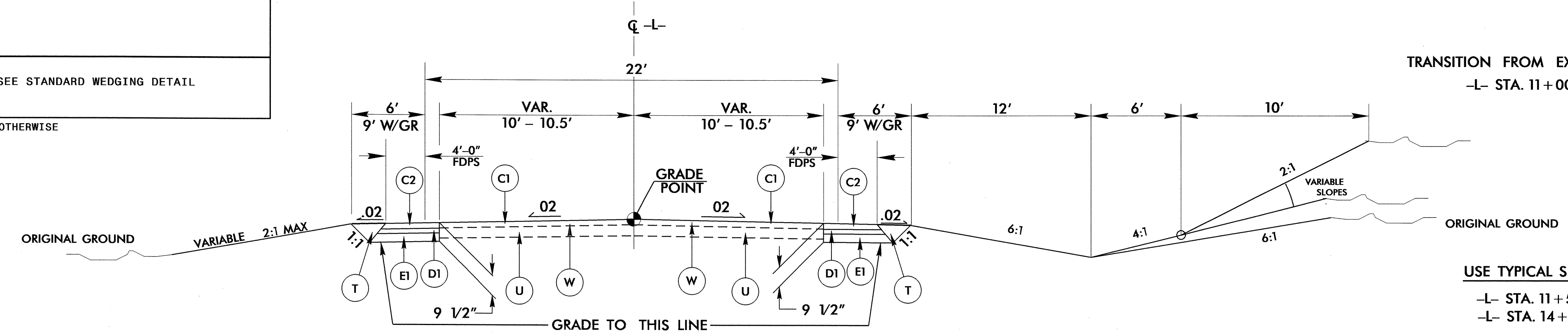
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, 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. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
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 2¼" 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. 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.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 1)

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

PROJECT REFERENCE NO. B-4062	SHEET NO. 2
ROADWAY DESIGN NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22324 11/3/10 GLEN W. MUMFORD	PAVEMENT DESIGN NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22898 11/4/10 CLARK S. MORRIS



Detail No 1 Showing Method of Wedging

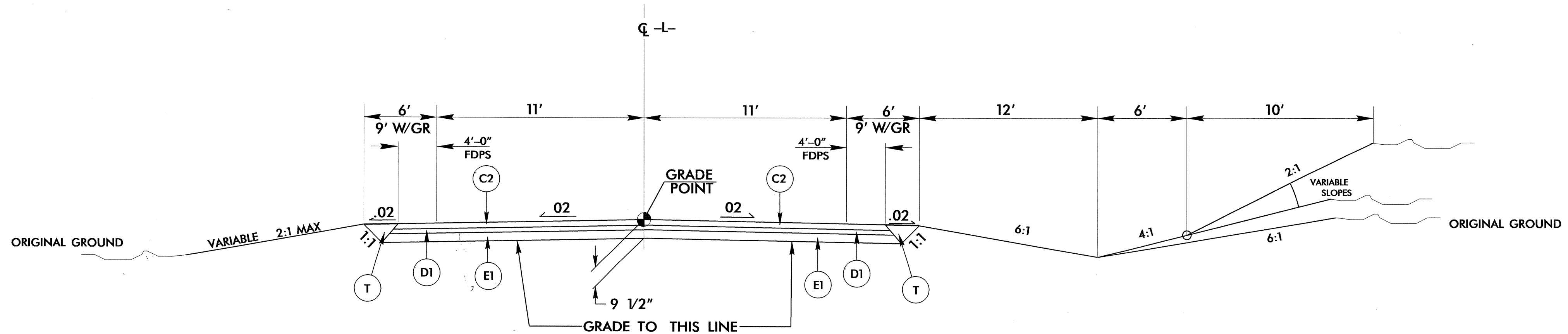


TYPICAL SECTION NO. 1

TRANSITION FROM EXISTING TO TYPICAL SECTION NO.1
 -L- STA. 11+00.00 TO STA. 11+50.00

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 11+50.00 TO STA. 13+00.00
 -L- STA. 14+00.00 TO STA. 15+95.00

TRANSITION FROM TYPICAL SECTION NO.1 TO EXISTING
 -L- STA. 15+95.00 TO STA. 16+45.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
 -L- STA. 13+00.00 TO STA. 14+00.00

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202577

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0038000000-E	SP	100	CY	SHALLOW UNDERCUT
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	350	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0080000000-E	SP	200	TON	CLASS IV SUBGRADE STABILIZATION
0106000000-E	230	2,020	CY	BORROW EXCAVATION
0134000000-E	240	336	CY	DRAINAGE DITCH EXCAVATION
0196000000-E	270	950	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	SP	10	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0320000000-E	SP	30	SY	FOUNDATION CONDITIONING FABRIC
0335200000-E	SP	64	LF	15" DRAINAGE PIPE
0995000000-E	340	60	LF	PIPE REMOVAL
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1489000000-E	610	200	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	190	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0B
1519000000-E	610	320	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	40	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	25	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	SP	45	CY	SUBDRAIN EXCAVATION
2033000000-E	SP	34	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	SP	200	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	SP	1	EA	SUBDRAIN PIPE OUTLETS
2077000000-E	SP	6	LF	6" OUTLET PIPE (SUBDRAINS)
3030000000-E	862	150	LF	STEEL BM GUARDRAIL

ItemNumber	Sec #	Quantity	Unit	Description
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3628000000-E	876	50	TON	RIP RAP, CLASS I
3635000000-E	876	20	TON	RIP RAP, CLASS II
3649000000-E	876	56	TON	RIP RAP, CLASS B
3656000000-E	876	730	SY	FILTER FABRIC FOR DRAINAGE
4072000000-E	903	28	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4116100000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)
4155000000-N	907	7	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	361	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	80	LF	BARRICADES (TYPE III)
4685000000-E	1205	1,090	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	1,090	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4905000000-N	1253	9	EA	SNOWPLOWABLE PAVEMENT MARKERS
6000000000-E	1605	1,100	LF	TEMPORARY SILT FENCE
6006000000-E	1610	225	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	120	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	70	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	1.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	315	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	4	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	400	LF	SAFETY FENCE

ItemNumber	Sec #	Quantity	Unit	Description
6030000000-E	1630	240	CY	SILT EXCAVATION
6036000000-E	1631	2,400	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	400	SY	COIR FIBER MAT
6042000000-E	1632	150	LF	1/4" HARDWARE CLOTH
6069000000-E	1638	170	CY	STILLING BASINS
6071010000-E	SP	500	LF	WATTLE
6071020000-E	SP	300	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	350	LF	COIR FIBER BAFFLES
6071050000-E	SP	1	EA	*** SKIMMER (1-1/2")
6084000000-E	1660	1.5	ACR	SEEDING & MULCHING
6087000000-E	1660	1	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	0.75	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	210	LF	IMPERVIOUS DIKE
6114500000-N	SP	20	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6120000000-E	SP	150	CY	CULVERT DIVERSION CHANNEL
6123000000-E	1670	0.2	ACR	REFORESTATION

5/28/99

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STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

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

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

STATION	LOCATION (L/RT, OR CL)	STRUCTURE NO.	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC)								C.S. PIPE								R.C. PIPE (CLASS III)								R.C. PIPE (CLASS IV)								ENDWALLS		QUANTITIES FOR PIPE STRUCTURES	PER E.A.C.H. (0' THRU 5.0')	TYPE OF GRATE	CONCRETE TRANSITIONAL SECTION		PIPE REMOVAL LIN.FT.	REMARKS
							12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE)	C.U. YDS.	CATCH BASIN				DROP INLET	ABBREVIATIONS		
							DO NOT USE RCP								DO NOT USE CSP								DO NOT USE CAAP								DO NOT USE HDPE								R.C.P.	C.S.P.				A	B		
-L- 12+64.99	RT	1	OUT				32																																				40	DRIVEWAY PIPE			
-L- 15+80.00	LT	2	OUT				32																																			20	DRIVEWAY PIPE				
TOTAL							64																																			60					

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
11+00	16+45	625	2188	1563	
PROJECT TOTALS:		625	2188	1563	
LOSS DUE TO CLEARING & GRUBBING		-350		350	
5% TO REPLACE BORROW				96	
GRAND TOTALS:		275		2009	
SAY:		300		2020	

ESTIMATED DRAINAGE DITCH EXCAVATION = 336 CY
 ESTIMATED SHALLOW UNDERCUT EXCAVATION = 100 CY
 ESTIMATED UNDERCUT EXCAVATION = 350 CY

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

Approximate quantities only. Unclassified excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

REMOVAL OF EXISTING ASPHALT PAVEMENT SUMMARY

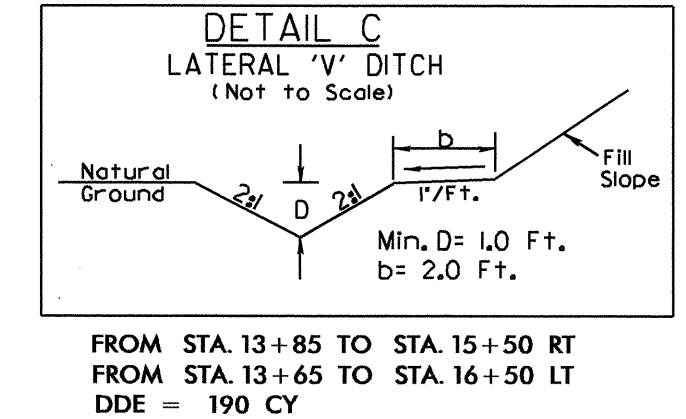
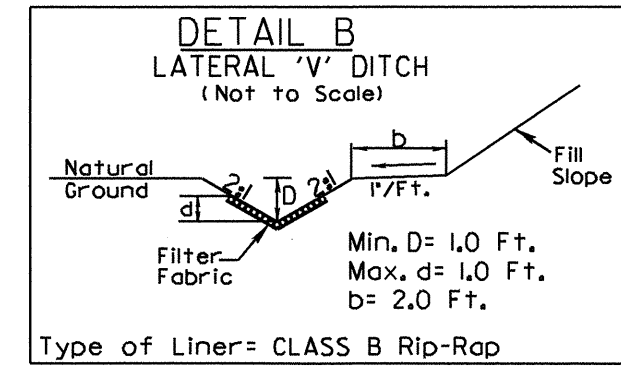
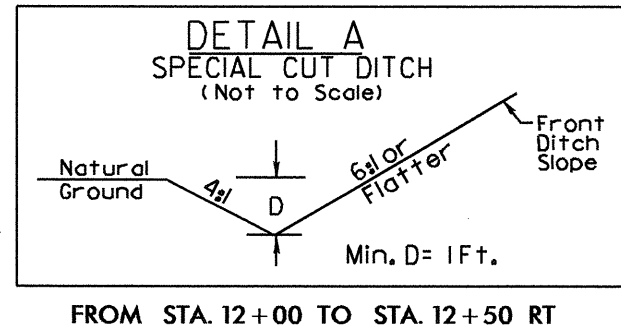
SURVEY LINE	STATION	STATION	LOCATION L/RT/CL	YD ³
-L-	13+00	13+35.22	LT & RT	78.27
-L-	13+69.33	14+00	LT & RT	68.16
TOTAL:				146.42
SAY:				150

"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			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	EA	G	NG					
				-L-	12+58.71	14+49.10	LEFT	190.39					13+70.64	13+33.36	6	9	50	50					
-L-	12+88.52	14+46.26	RIGHT	157.74			13+33.36	13+70.64	6	9	50	50	1	1	2								
SUB-TOTAL :				348.13																			
LESS DEDUCTIONS																							
GRAU-350 4 @ 50':				-200'																			
TOTAL :				148.13																			
SAY :				150																			
ADDITIONAL GUARDRAIL POST =				5																			

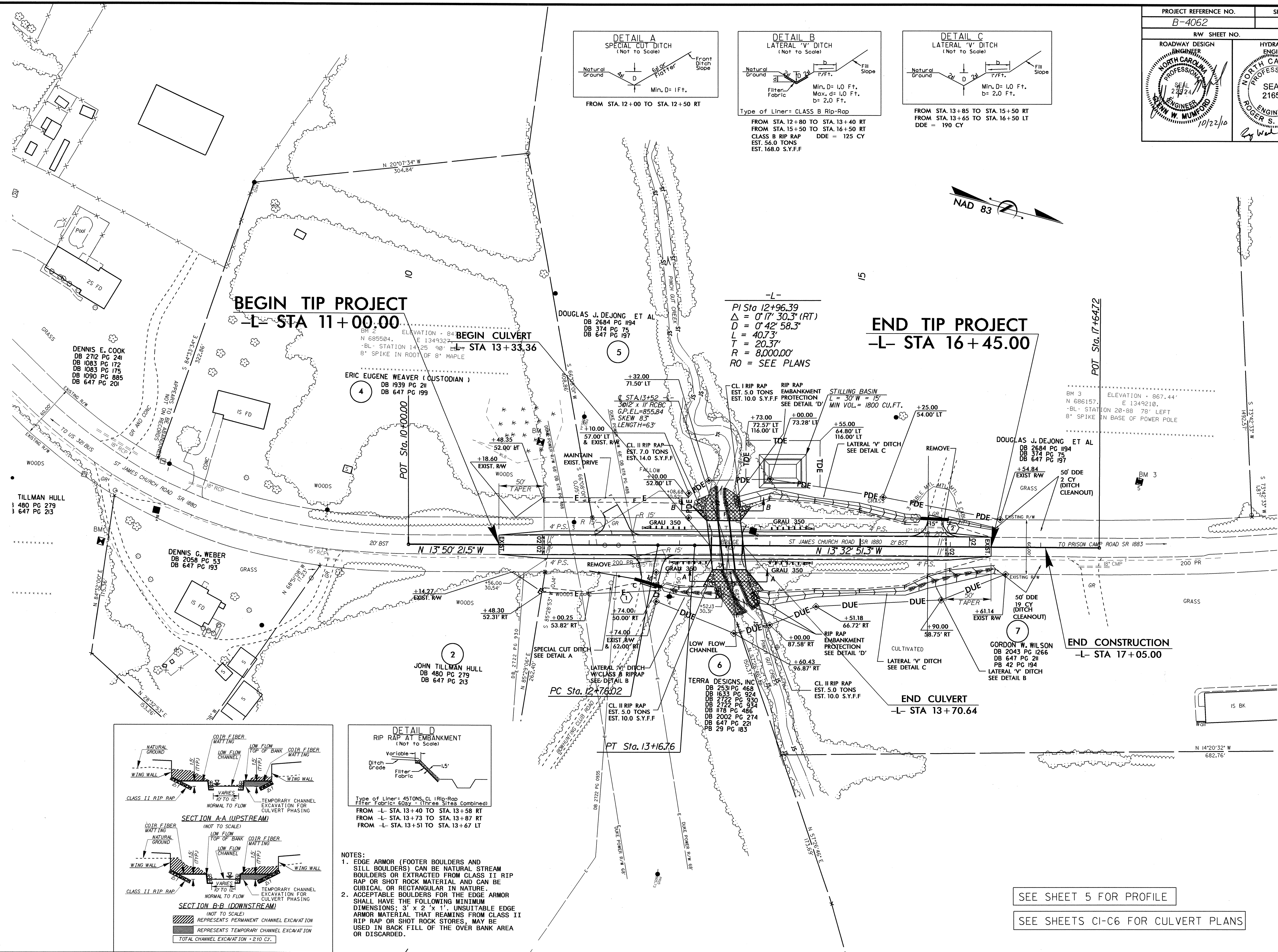
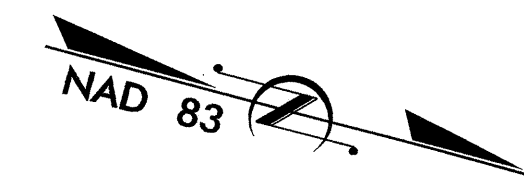
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FROM STA. 12+00 TO STA. 12+50 RT

FROM STA. 12+80 TO STA. 13+40 RT
FROM STA. 15+50 TO STA. 16+50 RT
CLASS B RIP RAP DDE = 125 CY
EST. 56.0 TONS
EST. 168.0 S.Y.F.F

FROM STA. 13+85 TO STA. 15+50 RT
FROM STA. 13+65 TO STA. 16+50 LT
DDE = 190 CY



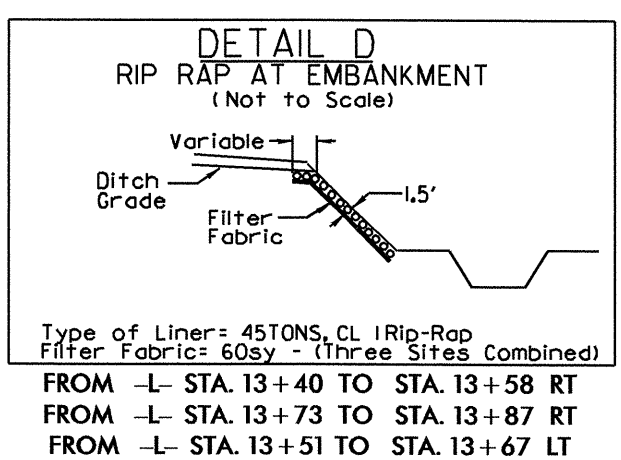
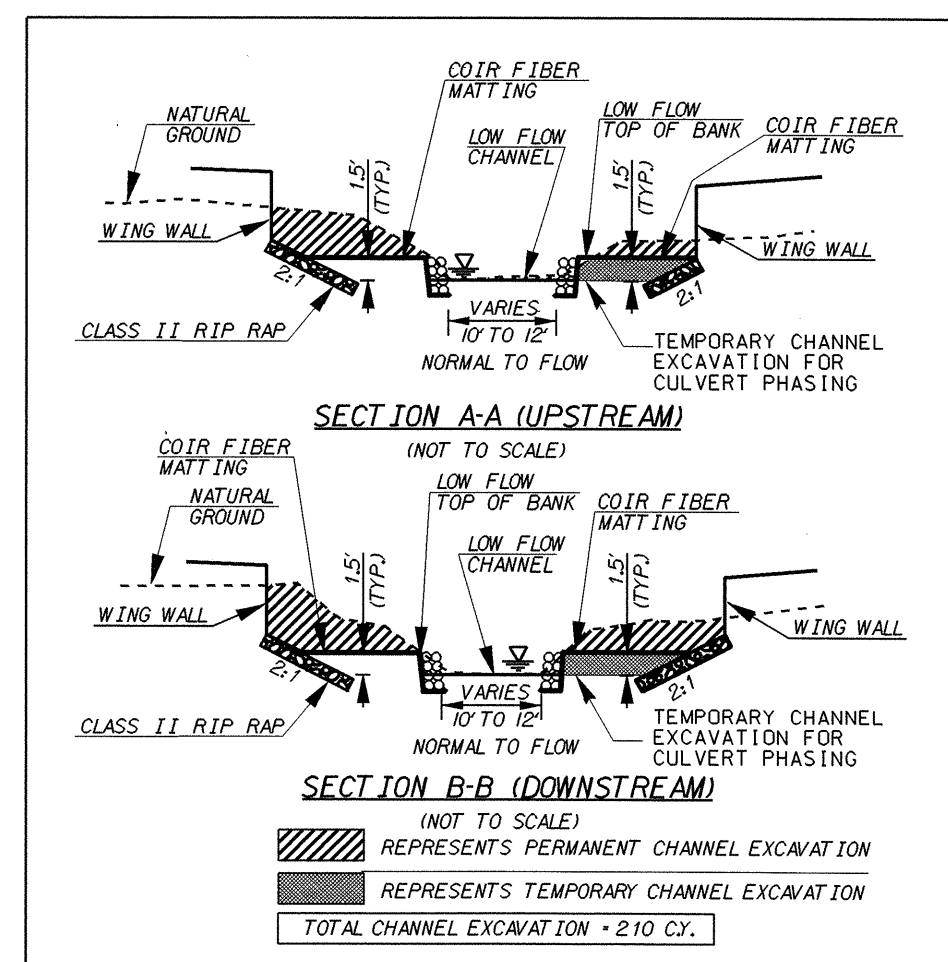
BEGIN TIP PROJECT
-L- STA 11+00.00

BEGIN CULVERT
-L- STA 13+33.36

END TIP PROJECT
-L- STA 16+45.00

END CONSTRUCTION
-L- STA 17+05.00

-L-
PI Sta 12+96.39
 $\Delta = 0' 17' 30.3'' (RT)$
 $D = 0' 42' 58.3''$
 $L = 40.73'$
 $T = 20.37'$
 $R = 8,000.00'$
RO = SEE PLANS



NOTES:
1. EDGE ARMOR (FOOTER BOULDERS AND STILL BOULDERS) CAN BE NATURAL STREAM BOULDERS OR EXTRACTED FROM CLASS II RIP RAP OR SHOT ROCK MATERIAL AND CAN BE CUBICAL OR RECTANGULAR IN NATURE.
2. ACCEPTABLE BOULDERS FOR THE EDGE ARMOR SHALL HAVE THE FOLLOWING MINIMUM DIMENSIONS: 3' x 2' x 1'. UNSUITABLE EDGE ARMOR MATERIAL THAT REMAINS FROM CLASS II RIP RAP OR SHOT ROCK STORES, MAY BE USED IN BACK FILL OF THE OVER BANK AREA OR DISCARDED.

SEE SHEET 5 FOR PROFILE

SEE SHEETS CI-C6 FOR CULVERT PLANS

REVISIONS

8/17/99

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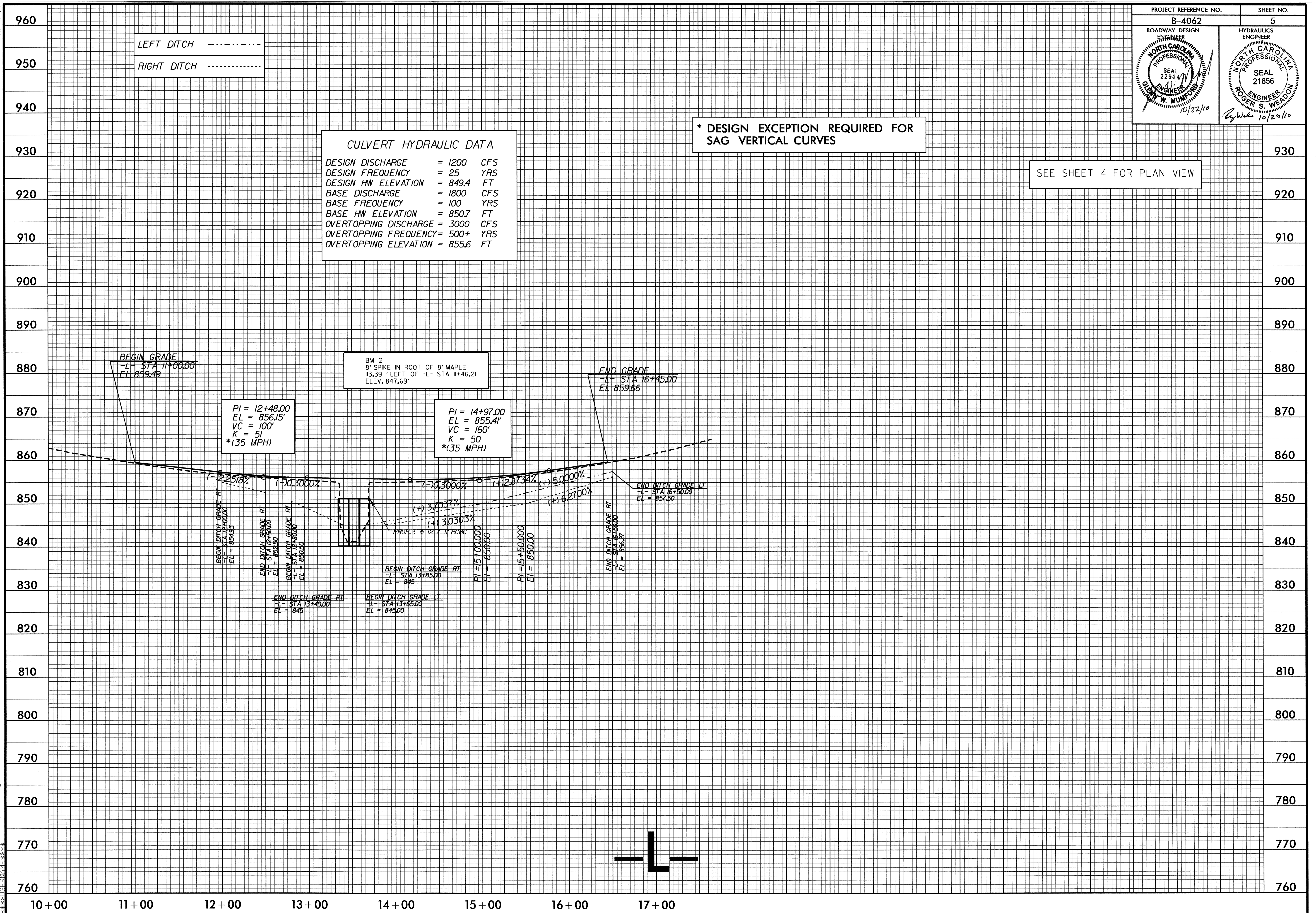
PROJECT REFERENCE NO. B-4062	SHEET NO. 5
ROADWAY DESIGN ENGINEER W. MUMFORD SEAL 22924 10/22/10	HYDRAULICS ENGINEER ROGER S. WEADON SEAL 21656 10/20/10

LEFT DITCH -----
RIGHT DITCH -----

CULVERT HYDRAULIC DATA
 DESIGN DISCHARGE = 1200 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HW ELEVATION = 849.4 FT
 BASE DISCHARGE = 1800 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 850.7 FT
 OVERTOPPING DISCHARGE = 3000 CFS
 OVERTOPPING FREQUENCY = 500+ YRS
 OVERTOPPING ELEVATION = 855.6 FT

*** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES**

SEE SHEET 4 FOR PLAN VIEW



BEGIN GRADE
L- STA 11+00.00
EL = 859.49

BM 2
8' SPIKE IN ROOT OF 8' MAPLE
113.39' LEFT OF L- STA 11+46.21
ELEV. 847.69'

END GRADE
L- STA 16+45.00
EL = 859.66

PI = 12+48.00
EL = 856.15'
VC = 100'
K = 51
*(35 MPH)

PI = 14+97.00
EL = 855.41'
VC = 160'
K = 50
*(35 MPH)

BEGIN DITCH GRADE RT
L- STA 11+00.00
EL = 854.53

END DITCH GRADE RT
L- STA 12+50.00
EL = 852.50

BEGIN DITCH GRADE RT
L- STA 13+00.00
EL = 850.20

BEGIN DITCH GRADE RT
L- STA 13+85.00
EL = 845

PI = 15+00.00
EL = 850.00

PI = 15+50.00
EL = 850.00

END DITCH GRADE RT
L- STA 16+50.00
EL = 857.50

END DITCH GRADE RT
L- STA 13+40.00
EL = 845

BEGIN DITCH GRADE LL
L- STA 13+65.00
EL = 845.00

-12.2518% -10.3000% -10.3000% +12.8734% +5.0000%

(+) 3.037%
(+) 3.0303%
PROP. 3" @ 12" X 11" RCBC

END DITCH GRADE LT
L- STA 16+50.00
EL = 857.50

END DITCH GRADE RT
L- STA 16+50.00
EL = 857.50

