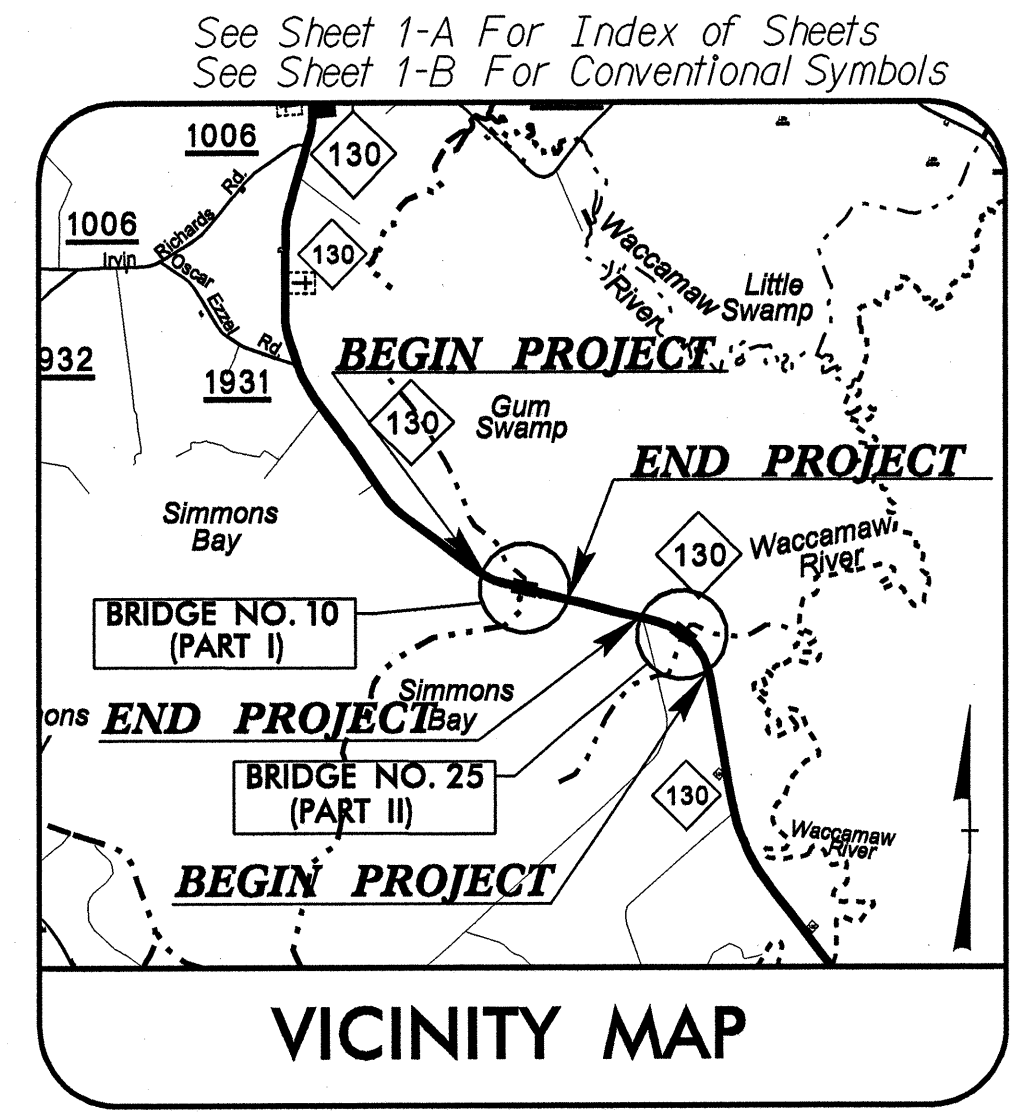


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4077/B-4078	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33439.1.1	BRSTP-130 (2)	B-4077 (P.E.)	
33439.2.1	BRSTP-130 (2)	B-4077 (RW & UTIL.)	
33440.1.1	BRSTP-0130 (4)	B-4078 (P.E.)	
33440.2.1	BRSTP-0130 (4)	B-4078 (RW & UTIL.)	
33439.3.1	BRSTP-130 (6)	B-4077 (CONST.)	
33440.3.1	BRSTP-130 (4)	B-4078 (CONST.)	

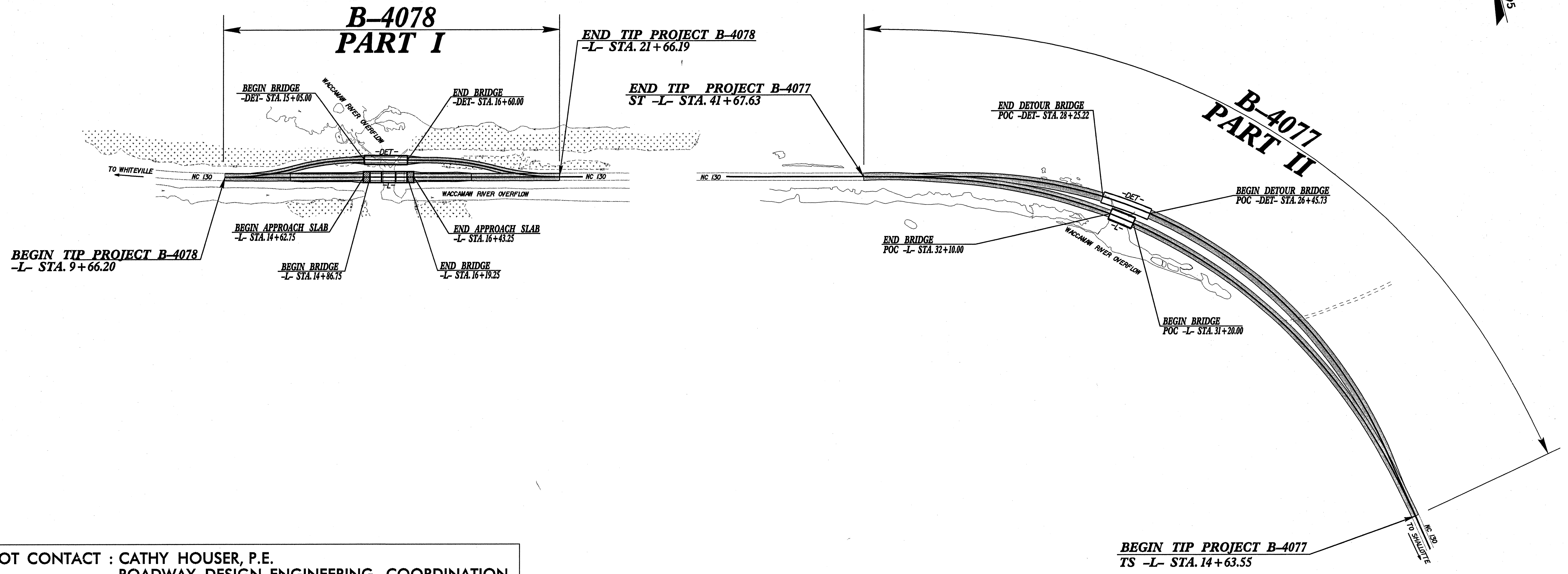
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**COLUMBUS COUNTY**

LOCATION: BRIDGE NO. 10 & BRIDGE NO. 25 OVER WACCAMAW RIVER OVERFLOW ON NC 130

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



CONTRACT: C201962 TIP PROJECTS: B-4077 / B-4078



NCDOT CONTACT : CATHY HOUSER, P.E.  
ROADWAY DESIGN-ENGINEERING COORDINATION

PROJECT LENGTH	
Length Roadway TIP Project B-4077/B-4078	= 0.697 Miles
Length Structure TIP Project B-4077/B-4078	= 0.042 Miles
Total Length TIP Project B-4077/B-4078	= 0.739 Miles

Prepared In the Office of:

**THE LPA GROUP**  
TRANSPORTATION CONSULTANTS

THE LPA GROUP of North Carolina, p.a.  
5000 Falls of Neuse Rd., Suite 304  
Raleigh, North Carolina 27609

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
DECEMBER 21, 2007

LETTING DATE:  
SEPTEMBER 16, 2008

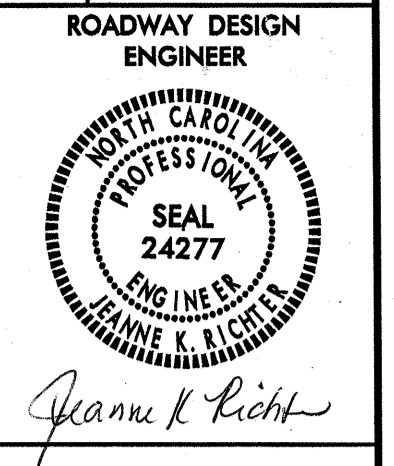
JEANNE K. RICHTER, P.E.  
PROJECT ENGINEER

JODY L. COLE  
PROJECT DESIGN ENGINEER

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

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

SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET (B-4077/B-4078)
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
3	SUMMARY OF QUANTITIES
<b>PART I</b>	
1	TITLE SHEET (B-4078)
1-C	SURVEY CONTROL SHEET
2 THRU 2A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2B	DETOUR PLAN AND PROFILE
2C	ROCK PLATING DETAIL
2D	ANCHORAGE FOR FRAMES
3A	SUMMARY OF EARTHWORK, AND PAVEMENT REMOVAL SUMMARY
3B	SUMMARY OF DRAINAGE QUANTITIES, AND SUMMARY OF GUARDRAIL
4	PLAN AND PROFILE SHEET
TCP-1 THRU TCP-11	TRAFFIC CONTROL PLANS (B-4077/B-4078)
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
UD-1 THRU UD-2	UTILITIES BY OTHERS PLANS
X-1	CROSS SECTION SUMMARY SHEET
X-2 THRU X-9	CROSS-SECTIONS
S-1 THRU S-21	STRUCTURE PLANS
<b>PART II</b>	
1	TITLE SHEET (B-4077)
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2A	ANCHORAGE FOR FRAMES
3A	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4 THRU 6	PLAN SHEETS
7 THRU 9	DETOUR SHEETS
10 THRU 12	PROFILE SHEETS
EC-1 THRU EC-12	EROSION CONTROL PLANS
UD-1 THRU UD-4	UTILITIES BY OTHERS PLANS
X-1	CROSS SECTION SUMMARY SHEET
X-2 THRU X-9	CROSS-SECTIONS
S-22 THRU S-49	STRUCTURE PLANS

**GENERAL NOTES:**

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

**GRADING AND SURFACING OR RESURFACING AND WIDENING:**

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

**CLEARING:**

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

**SUPERELEVATION:**

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

**SHOULDER CONSTRUCTION:**

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

**SIDE ROADS:**

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

**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 PROJECT B-4077. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

**END BENTS:**

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

**UTILITIES:**

THE UTILITY OWNER ON THIS PROJECT IS  
Brunswick EMC

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

**RIGHT-OF-WAY MARKERS:**

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD. NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation - Method 'A'
<b>DIVISION 4 - MAJOR STRUCTURES</b>	
422.10	Reinforced Bridge Approach Fills
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<b>DIVISION 8 - INCIDENTALS</b>	
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
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
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

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	○
Property Corner	✕
Property Monument	□
Parcel/Sequence Number	⑫③
Existing Fence Line	✕-✕-✕-✕
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----

## BUILDINGS AND OTHER CULTURE:

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

## HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	-----
Buffer Zone 1	-----
Buffer Zone 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	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Utility Easement	-----

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Wheel Chair Ramp	-----
Proposed Wheel Chair Ramp Curb Cut	-----
Curb Cut for Future Wheel Chair Ramp	-----
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	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	-----

## 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	-----
Designated U/G Power Line (S.U.E.*)	-----

## 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	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

## WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

## TV:

TV Satellite Dish	⊗
TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	□
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

## GAS:

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

## SANITARY SEWER:

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

## MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	-----
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.

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**SUMMARY OF QUANTITIES**

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201962										STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201962				
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	2022000000-E	815	45	CY	SUBDRAIN EXCAVATION	4465000000-N	1160	1	EA	TEMPORARY CRASH CUSHIONS
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING	2033000000-E	815	34	CY	SUBDRAIN FINE AGGREGATE	4650000000-N	1251	343	EA	TEMPORARY RAISED PAVEMENT MARKERS
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (15+53.00)	2044000000-E	815	200	LF	6" PERFORATED SUBDRAIN PIPE	4685000000-E	1205	7,808	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (31+65.00)	2055000000-E	815	6	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	4686000000-E	1205	7,808	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	2066000000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	4810000000-E	1205	53,316	LF	PAINT PAVEMENT MARKING LINES (4")
0057000000-E	226	500	CY	UNDERCUT EXCAVATION	2077000000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)	4900000000-N	1251	53	EA	PERMANENT RAISED PAVEMENT MARKERS
0063000000-N	SP	Lump Sum		GRADING	2286000000-N	840	3	EA	MASONRY DRAINAGE STRUCTURES	6000000000-E	1605	7,970	LF	TEMPORARY SILT FENCE
0106000000-E	230	46,900	CY	BORROW EXCAVATION	2367000000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.29	6006000000-E	1610	120	TON	STONE FOR EROSION CONTROL, CLASS A
0195000000-E	265	4,800	CY	SELECT GRANULAR MATERIAL	2556000000-E	846	88.5	LF	SHOULDER BERM GUTTER	6009000000-E	1610	395	TON	STONE FOR EROSION CONTROL, CLASS B
0196000000-E	270	10,900	SY	FABRIC FOR SOIL STABILIZATION	3030000000-E	862	1,200	LF	STEEL BM GUARDRAIL	6012000000-E	1610	220	TON	SEDIMENT CONTROL STONE
0241000000-E	SP	50	SY	GENERIC GRADING ITEM ROCK PLATING	3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS	6015000000-E	1615	8	ACR	TEMPORARY MULCHING
0318000000-E	300	18	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	3270000000-N	SP	8	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6018000000-E	1620	350	LB	SEED FOR TEMPORARY SEEDING
0366000000-E	310	32	LF	15" RC PIPE CULVERTS, CLASS III	3317000000-N	862	8	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	6021000000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING
0588000000-E	310	72	LF	18" CS PIPE CULVERTS, 0.064" THICK	3380000000-E	862	881.25	LF	TEMPORARY STEEL BM GUARDRAIL	6024000000-E	1622	160	LF	TEMPORARY SLOPE DRAINS
0708000000-E	310	24	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK	3387000000-N	862	9	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (III)	6027000000-N	1622	6	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
0806000000-E	310	2	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK	3389100000-N	SP	10	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY	6029000000-E	SP	3,670	LF	SAFETY FENCE
0995000000-E	340	72	LF	PIPE REMOVAL	3649000000-E	876	3	TON	RIP RAP, CLASS B	6030000000-E	1630	600	CY	SILT EXCAVATION
1121000000-E	520	3,918	TON	AGGREGATE BASE COURSE	3656000000-E	876	525	SY	FILTER FABRIC FOR DRAINAGE	6036000000-E	1631	2,800	SY	MATting FOR EROSION CONTROL
1275000000-E	600	633	GAL	PRIME COAT	4400000000-E	1110	152	SF	WORK ZONE SIGNS (STATIONARY)	6042000000-E	1632	305	LF	1/4" HARDWARE CLOTH
1489000000-E	610	620	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	4405000000-E	1110	192	SF	WORK ZONE SIGNS (PORTABLE)	6070000000-N	SP	2	EA	SPECIAL STILLING BASINS
1498000000-E	610	365	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	4410000000-E	1110	72	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6071010000-E	SP	145	LF	WATTLE
1519000000-E	610	2,940	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	4430000000-N	1130	188	EA	DRUMS	6071020000-E	SP	36	LB	POLYACRYLAMIDE (PAM)
1560000000-E	620	225	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	4435000000-N	1135	77	EA	CONES	6071030000-E	SP	160	LF	COIR FIBER BAFFLES
					4445000000-E	1145	64	LF	BARRICADES (TYPE III)	6084000000-E	1660	15.1	ACR	SEEDING & MULCHING
					4455000000-N	1150	80	MD	FLAGGER	6087000000-E	1660	7	ACR	MOWING
										6090000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
										6093000000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
										6096000000-E	1662	275	LB	SEED FOR SUPPLEMENTAL SEEDING
										6108000000-E	1665	8.25	TON	FERTILIZER TOPDRESSING
										6114000000-N	SP	7.5	HR	SPECIALIZED HAND MOWING
										6117000000-N	SP	39	EA	RESPONSE FOR EROSION CONTROL
										6123000000-E	1670	1	ACR	REFORESTATION

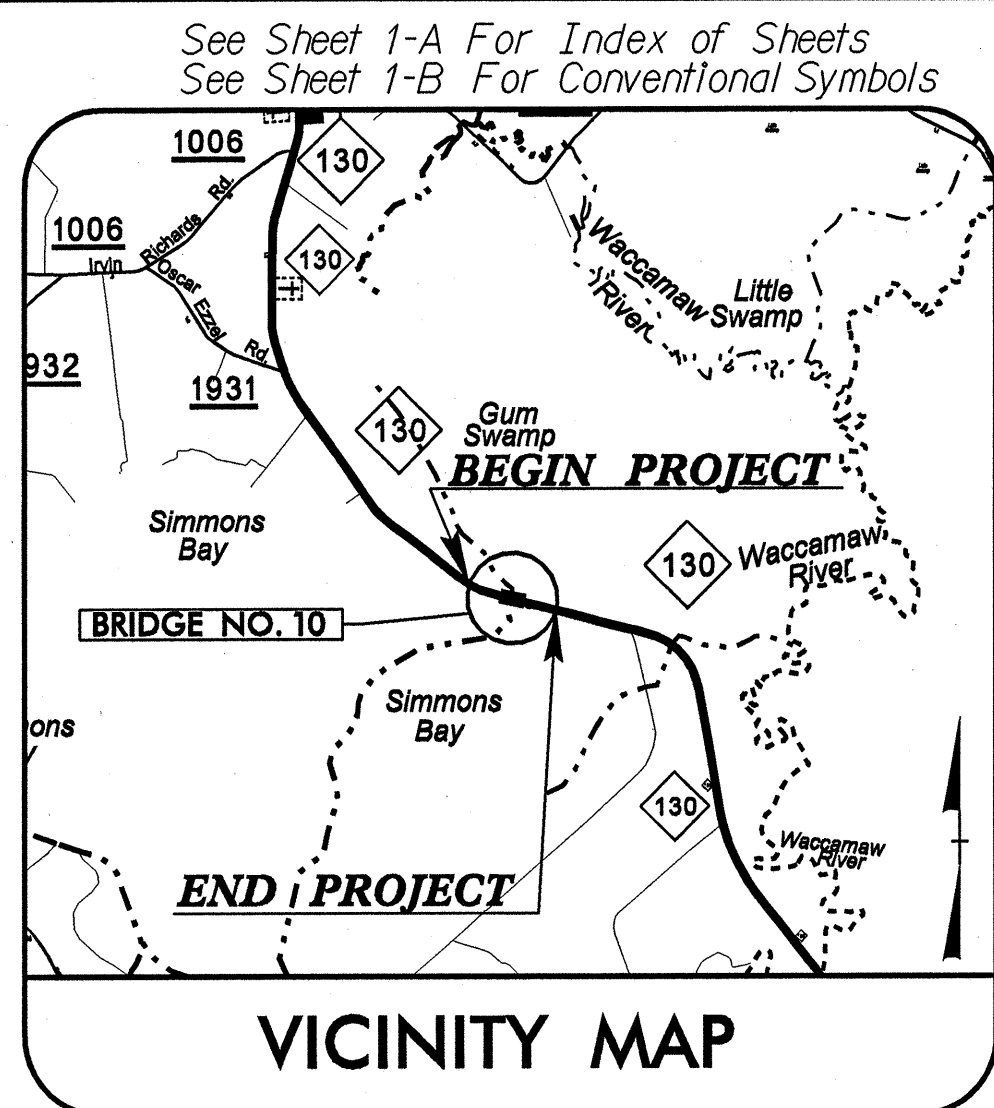
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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4078	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33440.1.1	BRSTP-0130 (4)	PE	
33440.2.1	BRSTP-0130 (4)	RW & UTIL.	
33440.3.1	BRSTP-130 (4)	CONST.	

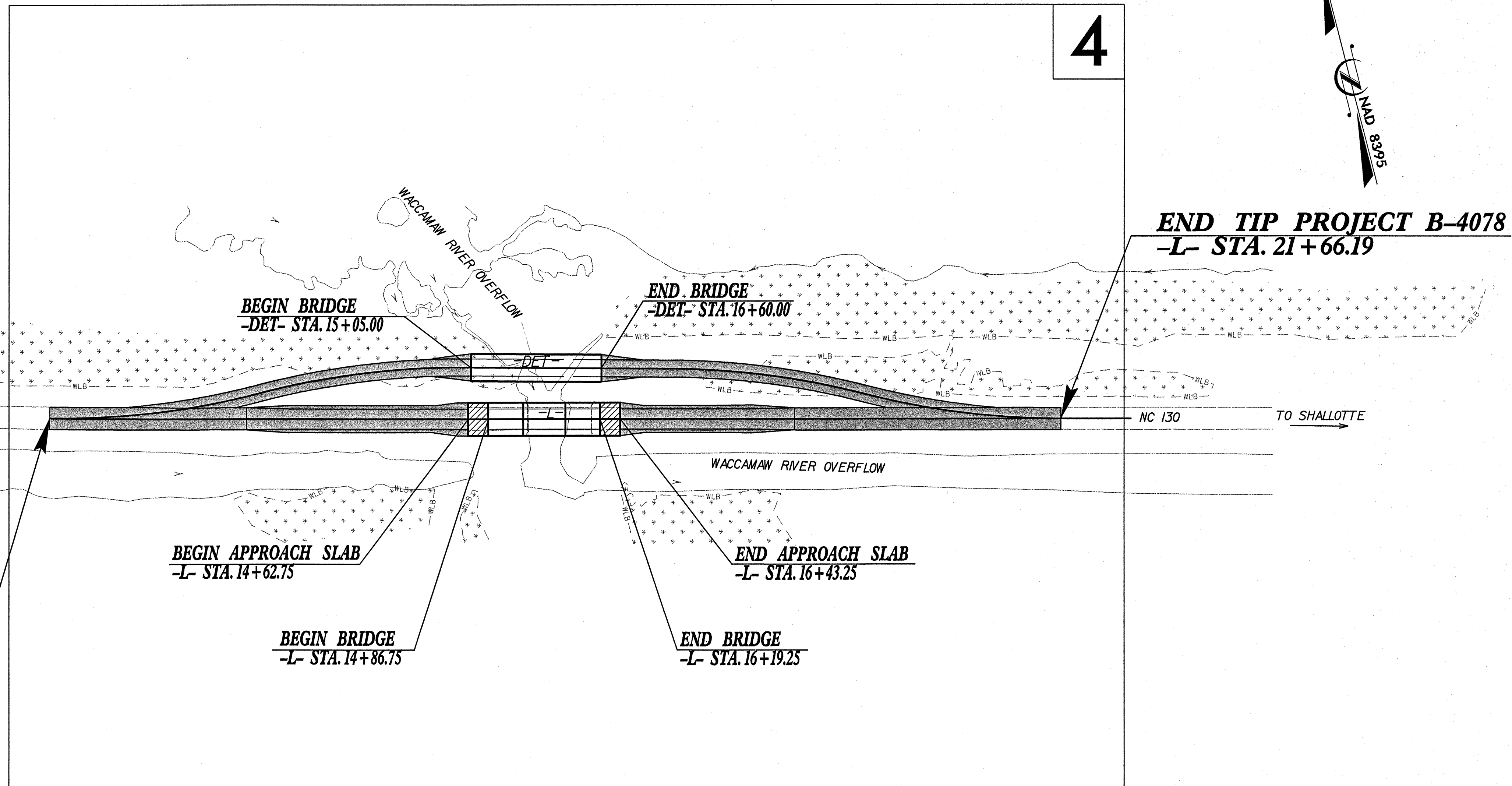
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**COLUMBUS COUNTY**

**LOCATION: BRIDGE NO. 10 OVER WACCAMAW RIVER OVERFLOW ON NC 130**  
**TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING**

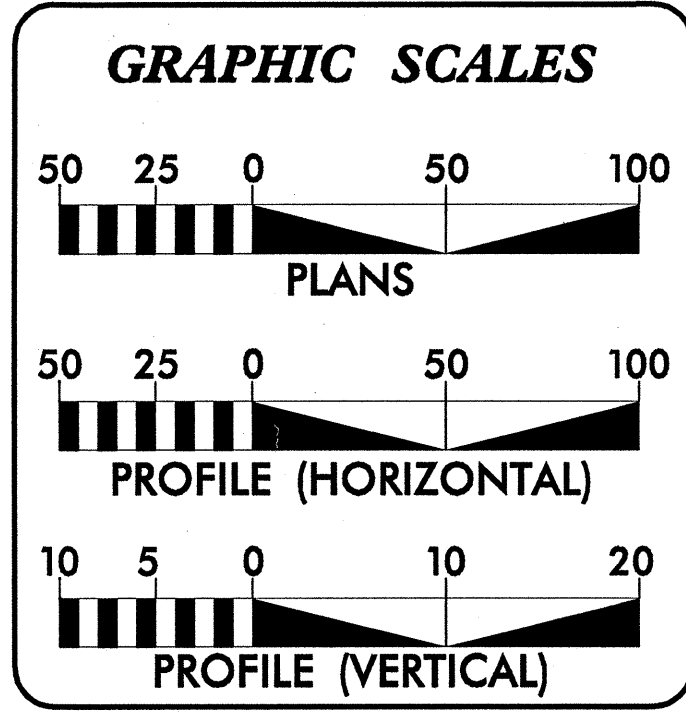


**TIP PROJECT: B-4078**

**CONTRACT: C201962**



NCDOT CONTACT : CATHY HOUSER, P.E.  
ROADWAY DESIGN-ENGINEERING COORDINATION



**DESIGN DATA**

ADT 2008 =	5,000
ADT 2028 =	9,000
DHV =	10 %
D =	60 %
T =	7 % *
V =	60 MPH
* TTST 4% +	DUALS 3%
FUNC. CLASS =	RURAL MINOR ARTERIAL

**PROJECT LENGTH**

Length Roadway TIP Project B-4078 =	0.202 Miles
Length Structure TIP Project B-4078 =	0.025 Miles
Total Length TIP Project B-4078 =	0.227 Miles

Prepared In the Office of:

**THE LPA GROUP**  
TRANSPORTATION CONSULTANTS

THE LPA GROUP of North Carolina, p.a.  
5000 Falls of Neuse Rd., Suite 304  
Raleigh, North Carolina 27609

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
DECEMBER 21, 2007

**LETTING DATE:**  
SEPTEMBER 16, 2008

**JEANNE K. RICHTER, P.E.**  
PROJECT ENGINEER

**JODY L. COLE**  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

7/15/08  
SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

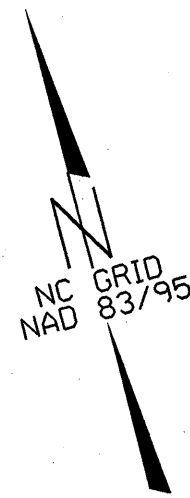
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**DIVISION OF HIGHWAYS**  
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

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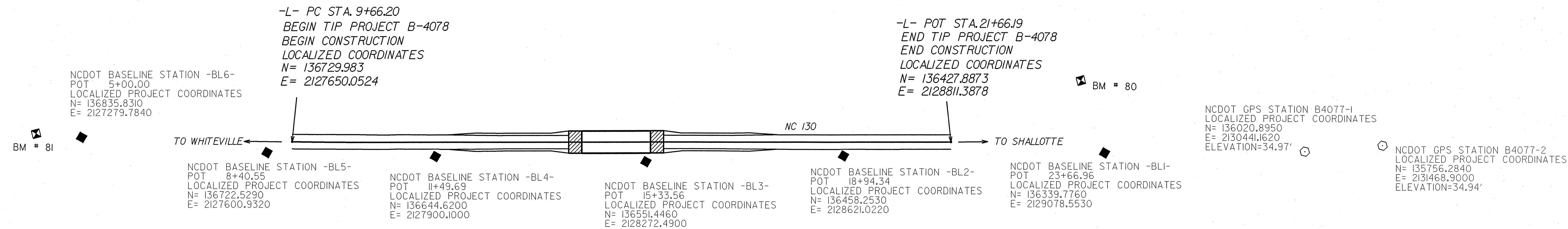
# SURVEY CONTROL SHEET B-4078



BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
6	B4078	- BL6	136835.8310	2127279.7840	35.45	OUTSIDE PROJECT LIMITS	
5	B4078	- BL5	136722.5290	2127600.9320	34.87	OUTSIDE PROJECT LIMITS	
4	B4078	- BL4	136644.6200	2127900.1000	34.44	12+29.67	18.79 RT
3	B4078	- BL3	136551.4460	2128272.4900	34.31	16+13.53	15.57 RT
2	B4078	- BL2	136458.2530	2128621.0220	34.44	19+74.29	18.36 RT
1	B4078	- BL1	136339.7760	2129078.5530	34.17	OUTSIDE PROJECT LIMITS	

.....  
 80 ELEVATION = 30.54  
 N 136471 E 2129065  
 L STATION 21+66  
 N 80° 19' 43.3" E DIST 257.27  
 RR SPIKE IN 24 INCH PINE  
 .....

.....  
 81 ELEVATION = 33.94  
 N 136858 E 2127200  
 L STATION 9+66  
 N 74° 07' 14.6" W DIST 467.88  
 RR SPIKE IN 18 INCH PINE  
 .....



### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4077-2" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 135756.2836(±) EASTING: 2131468.8998(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00006900 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4077-2" TO -L- STATION 9+66.20 IS S 75 41 45.42 E 3,941.0260' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

### NOTES:

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

THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B4078\_LS\_CONTROL\_070306.TXT

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

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)  
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

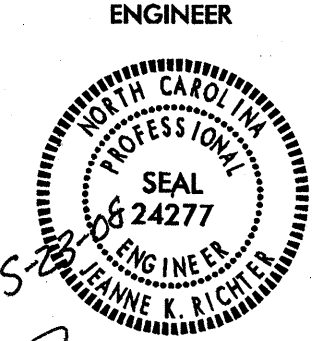
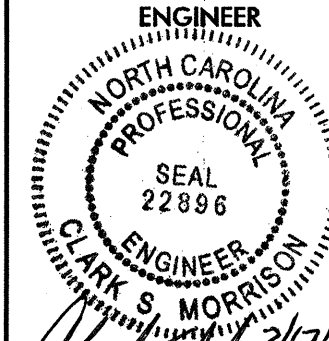
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 6/2/99

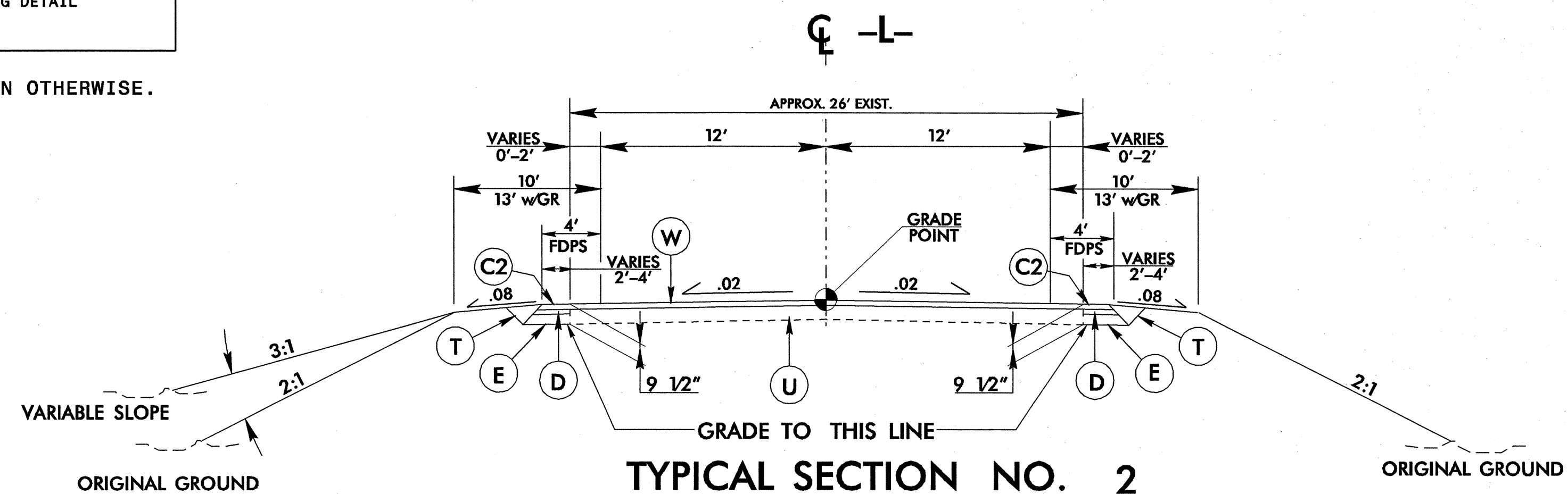
5/14/99

**PAVEMENT SCHEDULE**  
(FINAL PAVEMENT DESIGN)

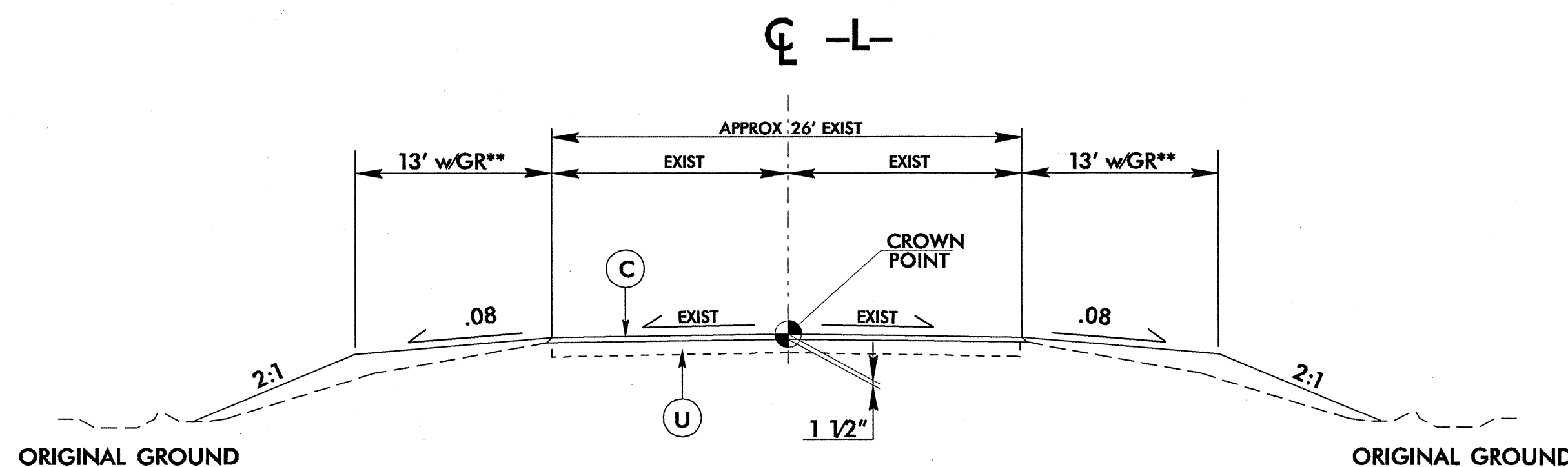
A	VAR. DEPTH PORTLAND CEMENT CONCRETE PAVEMENT.	E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN ONE LAYER.	E1	PROP. VAR. DEPTH ASPHALT 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.
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD. IN ONE LAYER.	J	PROP. 8" AGGREGATE BASE COURSE.
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.	P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
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.	T	EARTH MATERIAL.
D	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET 2A)

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

PROJECT REFERENCE NO. B-4078	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 

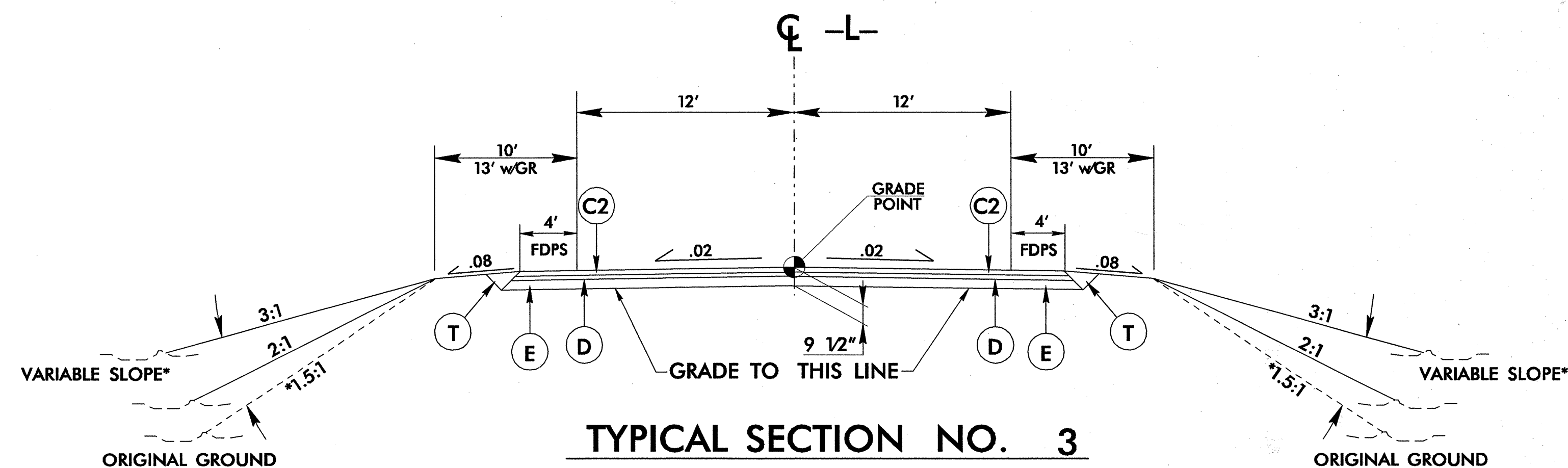


-L- STA. 12+00.00 TO STA. 13+50.00  
-L- STA. 17+50.00 TO STA. 18+50.00



**TYPICAL SECTION NO. 1**

-L- STA. 9+66.20 TO STA. 12+00.00  
-L- STA. 18+50.00 TO STA. 21+66.19  
\* GRADE SHOULDER FOR GUARDRAIL PLACEMENT. SEE PLAN FOR LOCATIONS.

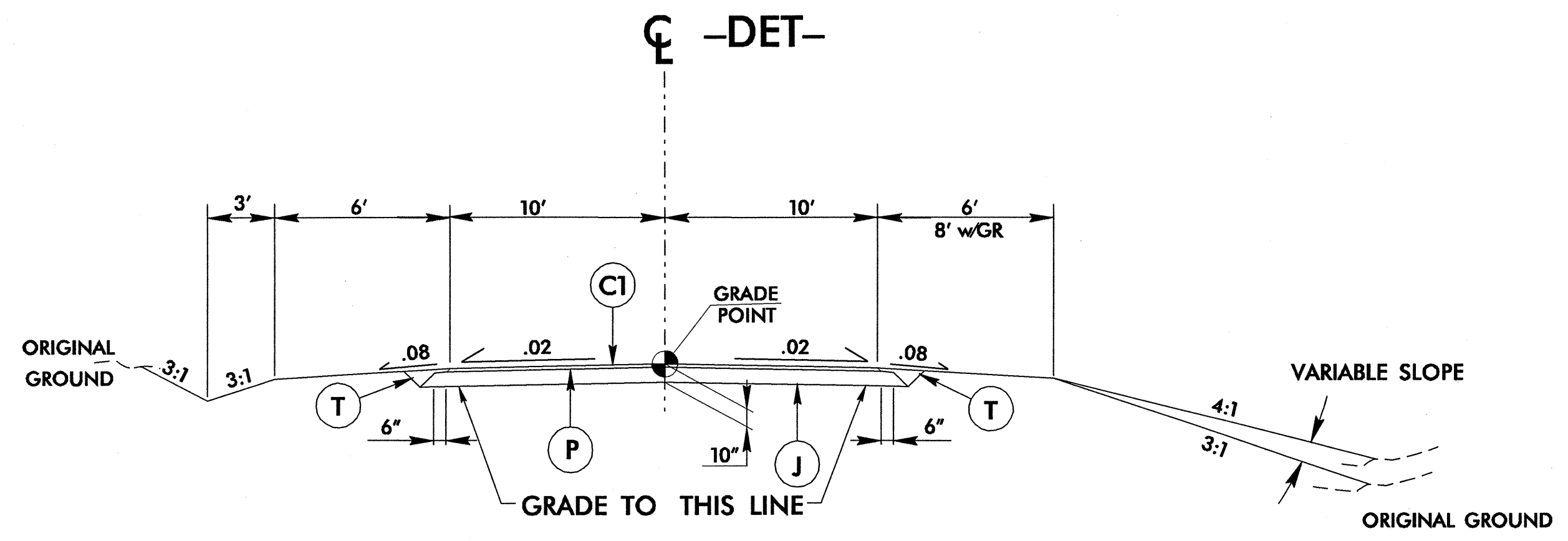


**TYPICAL SECTION NO. 3**

-L- STA. 13+50.00 TO STA. 14+86.75 (BEGIN BRIDGE)  
-L- STA. 16+19.25 (END BRIDGE) TO STA. 17+50.00  
\* MAXIMUM SLOPE CAN BE INCREASED TO 1.5:1 IN ROCK PLATING LOCATIONS ONLY. SEE ROCK PLATING DETAIL ON SHEET 4 FOR LIMITS.

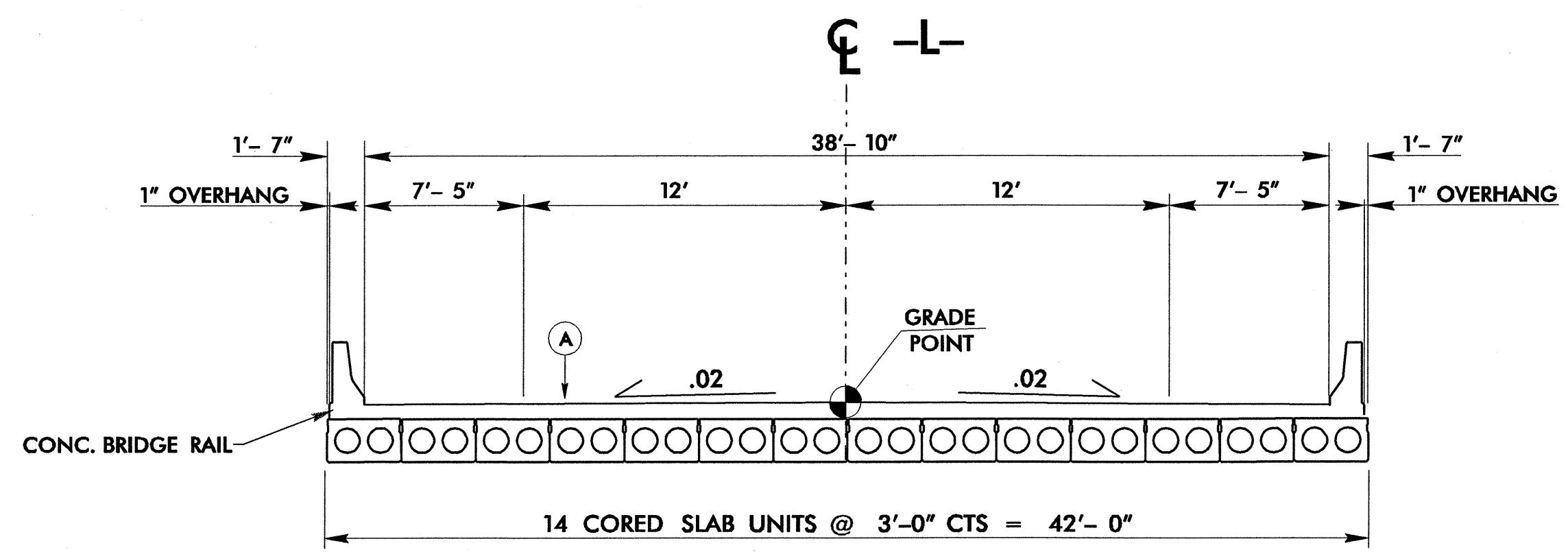
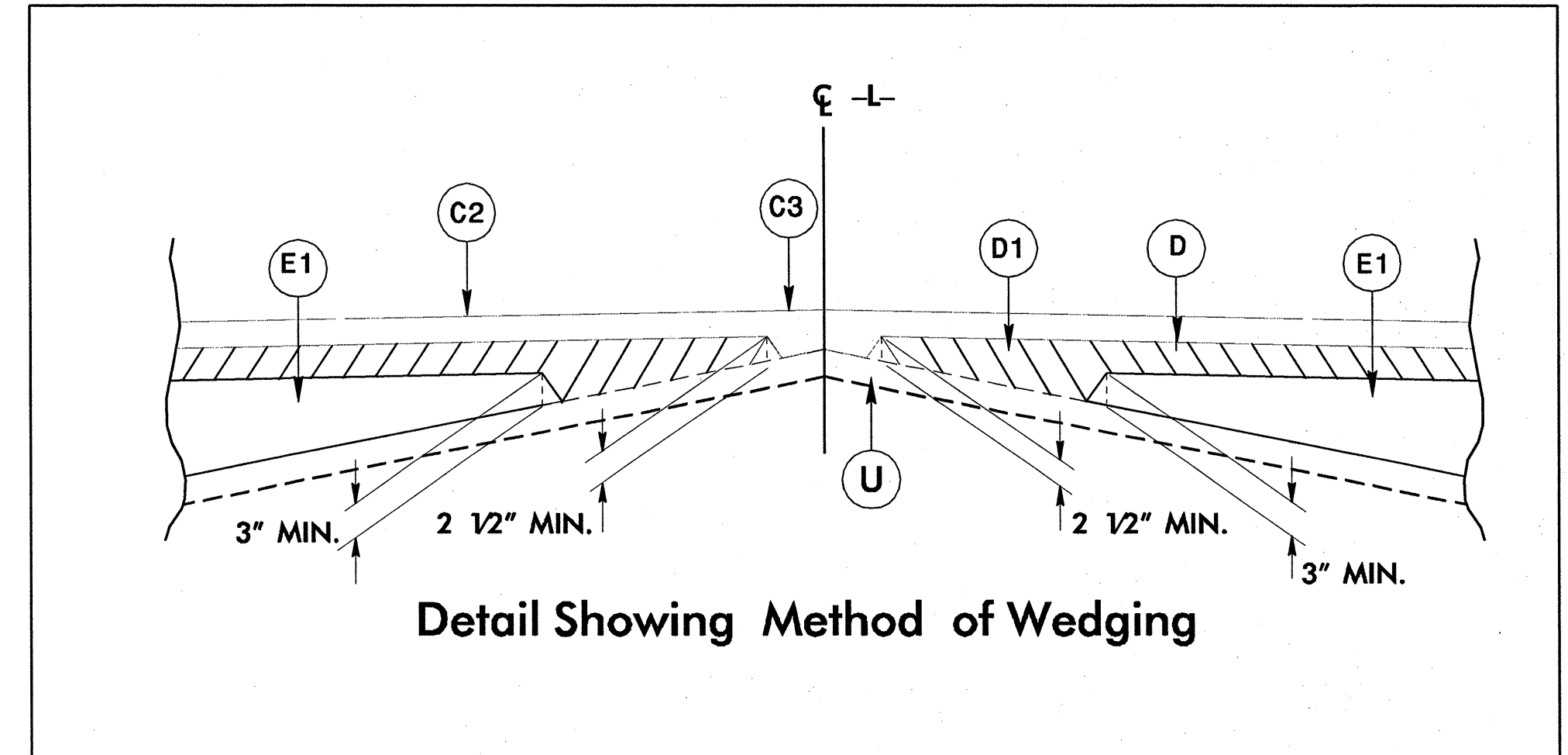
22-MAY-2008 16:26  
e:\Group 46\Files\Design\B4078\Roadway\Proj\B4078\_rdy\_tup.dgn  
Scale: 1/8" = 1'-0"

PAVEMENT SCHEDULE	
A	VAR. PCCP
C	1 1/2" S9.5B
C1	2" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
D	2 1/2" I19.0B
D1	VAR. I19.0B
E	4" B25.0B
E1	VAR. B25.0B
J	8" ABC
P	.35 PRIME COAT
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



**TYPICAL SECTION NO. 4**

-DET- STA. 11+66.61 TO STA. 15+05.00 (BEGIN BRIDGE)  
 -DET- STA. 16+60.00 (END BRIDGE) TO STA. 20+53.05

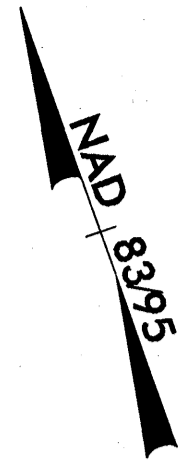


**TYPICAL SECTION NO. 5**

-L- STA. 14+86.75 (BEGIN BRIDGE) TO STA. 16+19.25 (END BRIDGE)

5/14/09  
 22-MAY-2008 16:26  
 C:\pwork\B4078\Roadway\Proj\B4078-rdy-typr.dgn



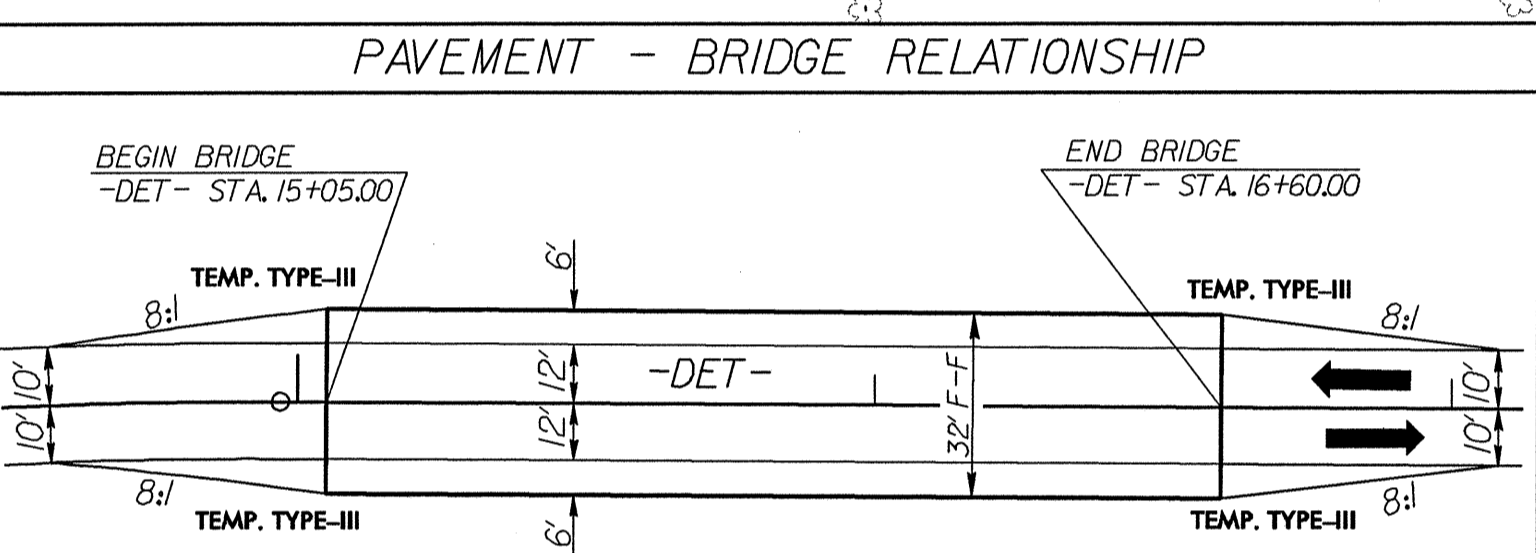
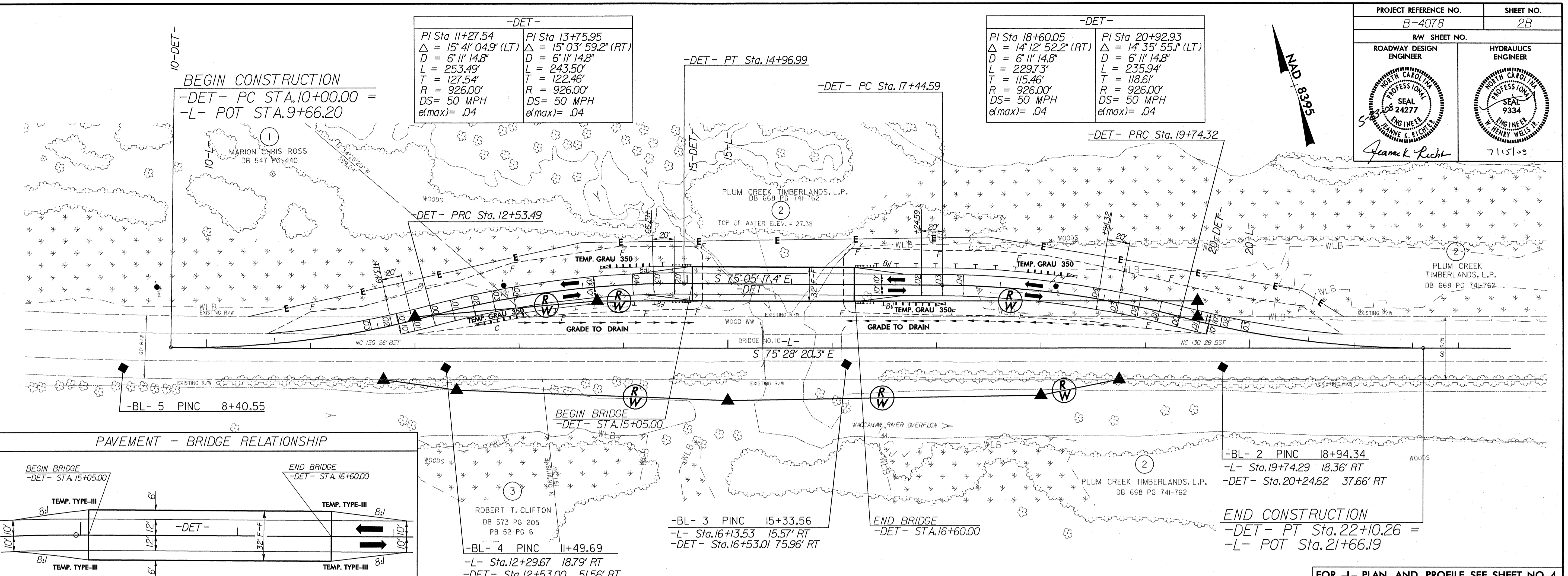


**-DET-**

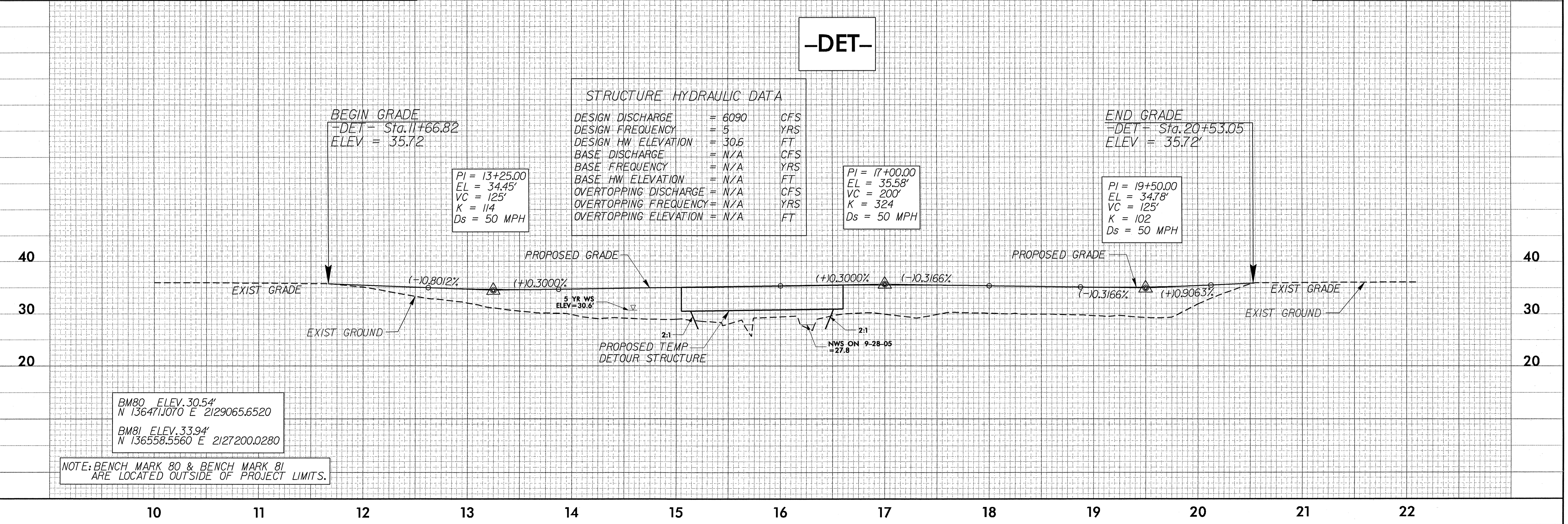
PI Sta 11+27.54 Δ = 15° 41' 04.9" (LT) D = 6' 11" 14.8" L = 253.49' T = 127.54' R = 926.00' DS = 50 MPH e(max) = .04	PI Sta 13+75.95 Δ = 15° 03' 59.2" (RT) D = 6' 11" 14.8" L = 243.50' T = 122.46' R = 926.00' DS = 50 MPH e(max) = .04
---	---

**-DET-**

PI Sta 18+60.05 Δ = 14° 12' 52.2" (RT) D = 6' 11" 14.8" L = 229.73' T = 115.46' R = 926.00' DS = 50 MPH e(max) = .04	PI Sta 20+92.93 Δ = 14° 35' 55.1" (LT) D = 6' 11" 14.8" L = 235.94' T = 118.61' R = 926.00' DS = 50 MPH e(max) = .04
---	---



FOR -L- PLAN AND PROFILE, SEE SHEET NO. 4



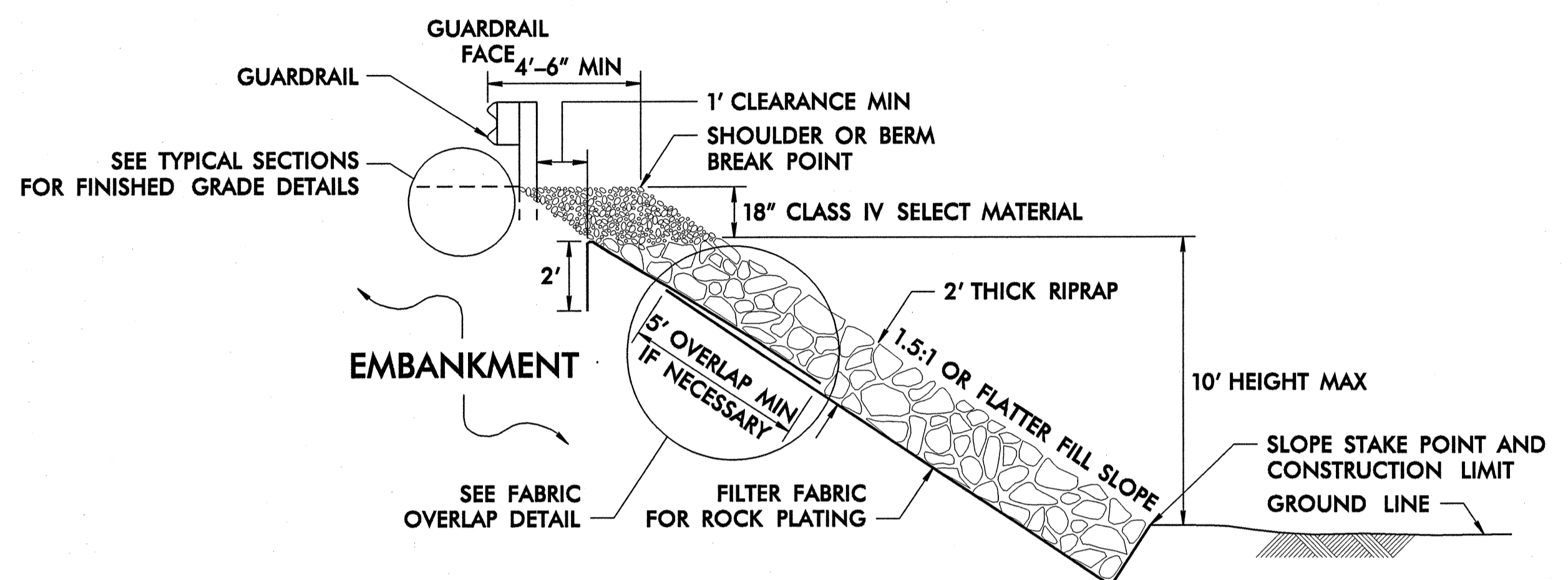
BM80 ELEV. 30.54'  
N 136471.070 E 2129065.6520  
BM81 ELEV. 33.94'  
N 136558.5560 E 2127200.0280

NOTE: BENCH MARK 80 & BENCH MARK 81 ARE LOCATED OUTSIDE OF PROJECT LIMITS.

REVISIONS

8/17/99

23 MAY 2008 10:16 T:\Bridges Group 46 Final Design\B4078\Roadway\Proj\B4078\_rdy\_psh02B.dgn  
 10:16 T:\Bridges Group 46 Final Design\B4078\Roadway\Proj\B4078\_rdy\_psh02B.dgn

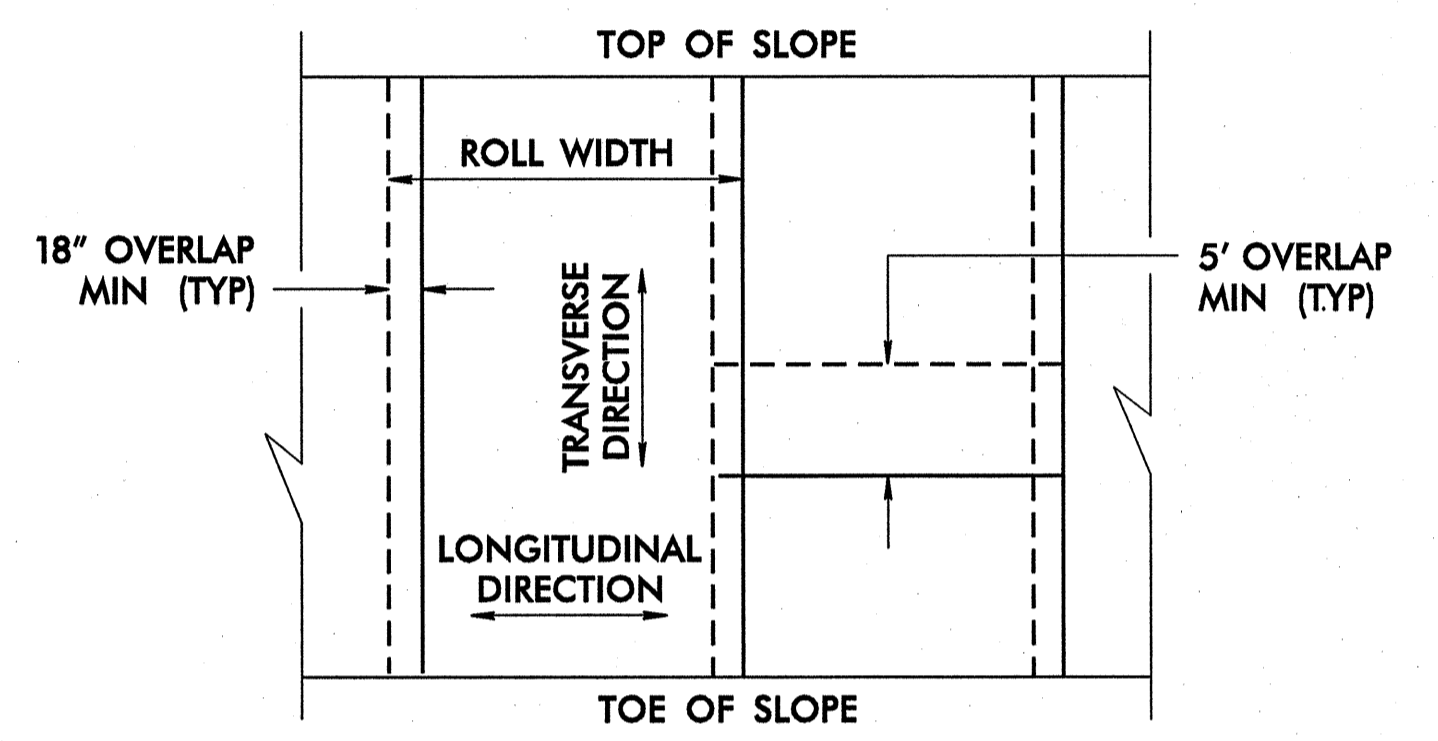


**ROCK PLATING DETAIL NO. 1**

USE ROCK PLATING DETAIL NO. 1  
AT THE FOLLOWING LOCATIONS:

-L- STA 16+27 ± TO -L- STA 16+50 ± LT+RT  
EXTEND ROCK PLATING LIMITS TO STABILIZE SLOPES.

ESTIMATED QUANTITIES:  
ROCK PLATING ----- 50 SQ. YD.



**FABRIC OVERLAP DETAIL  
(PLAN VIEW)**

REVISIONS

8/17/99

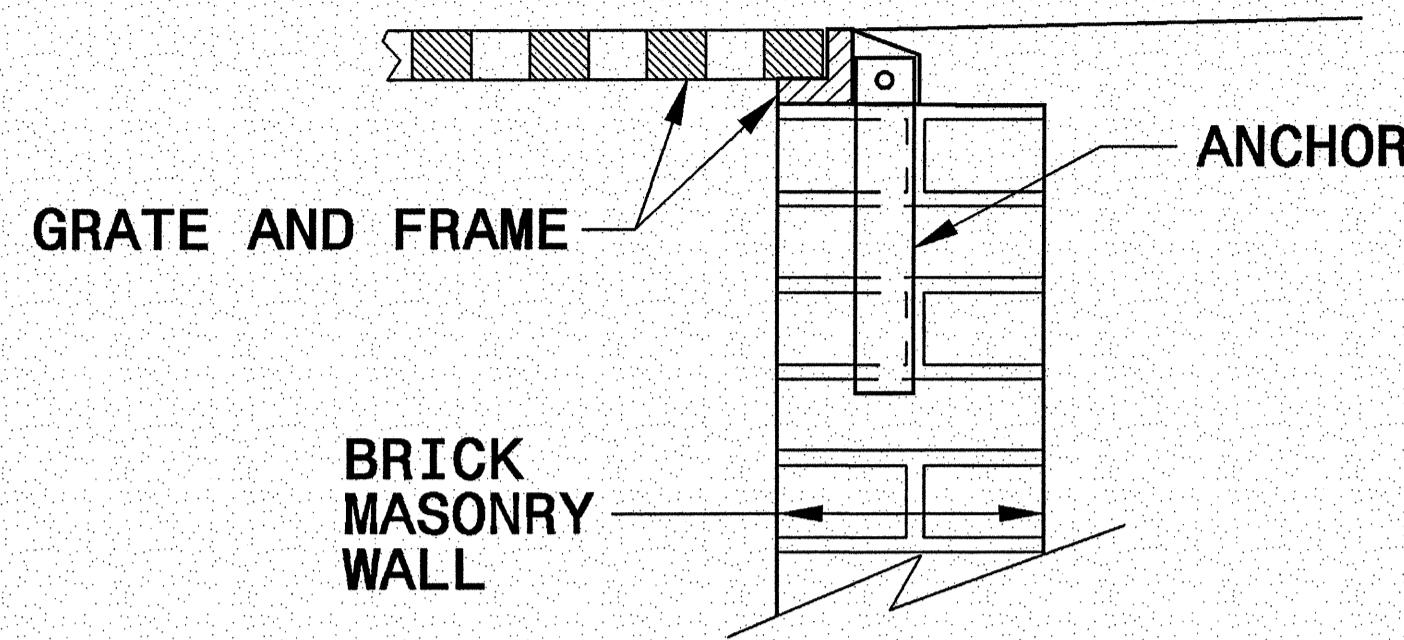
23-MAY-2008 14:02  
I:\Projects\B4078\Roadway\Proj\B4078\_rdy.psh02C.dgn  
Roadway Design Group 46 Final Design

ROCK PLATING DETAIL(S) AND LOCATION(S) WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE ROADWAY DESIGN UNIT ON 2/22/2008 AND SEALED BY A PROFESSIONAL ENGINEER, JAMES R. BATTS, JR., LICENSE # 18899.

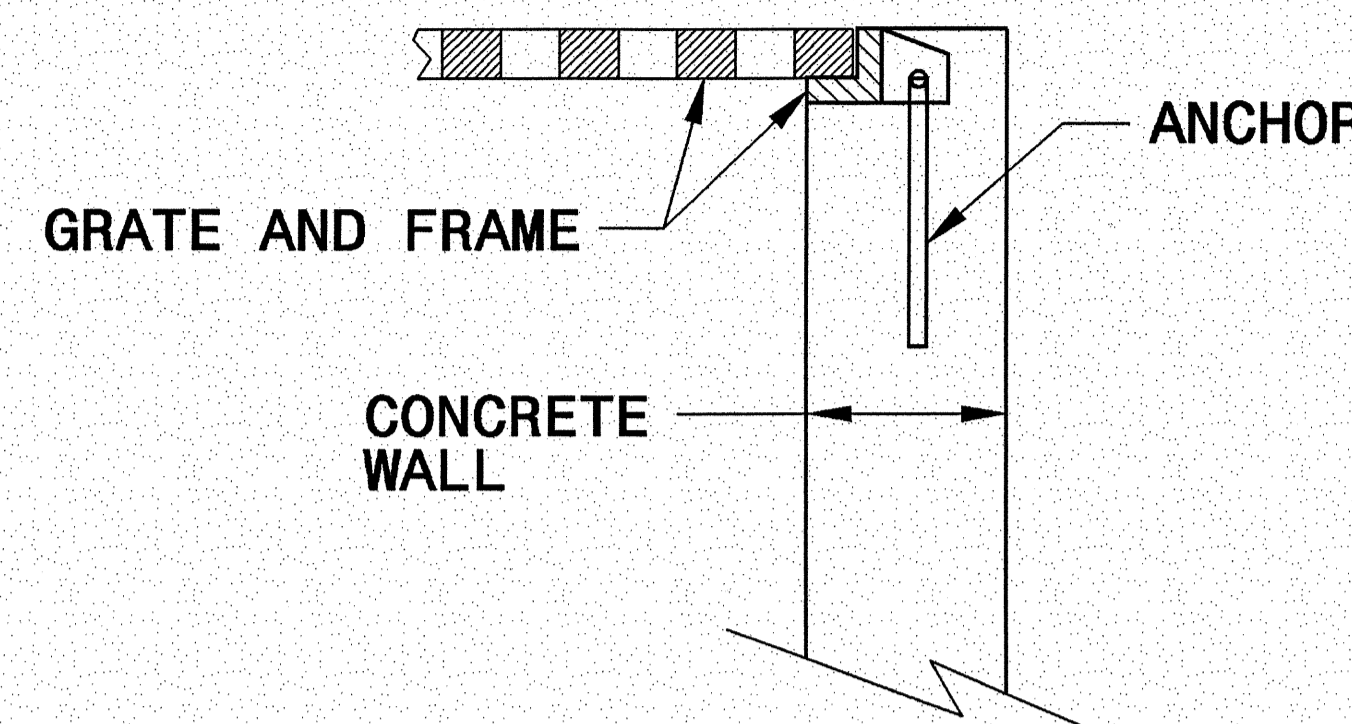
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

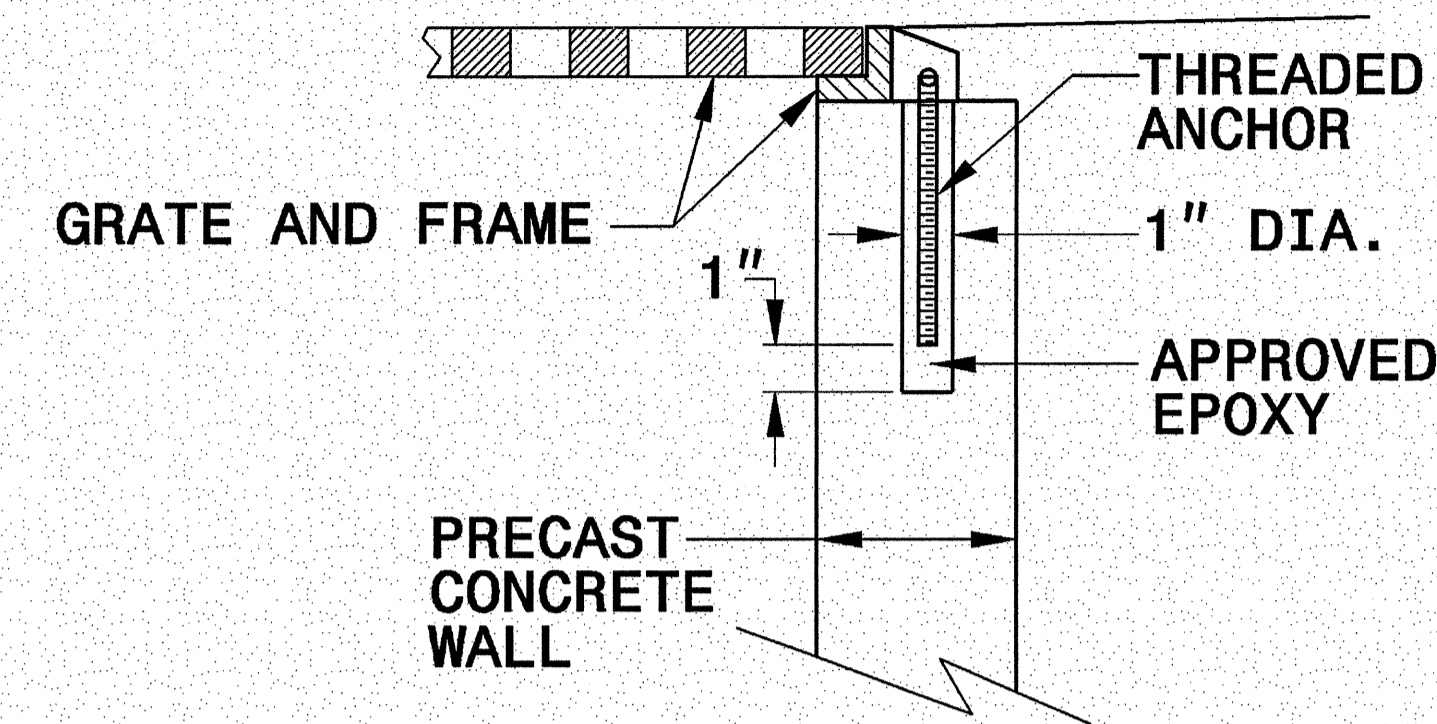
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



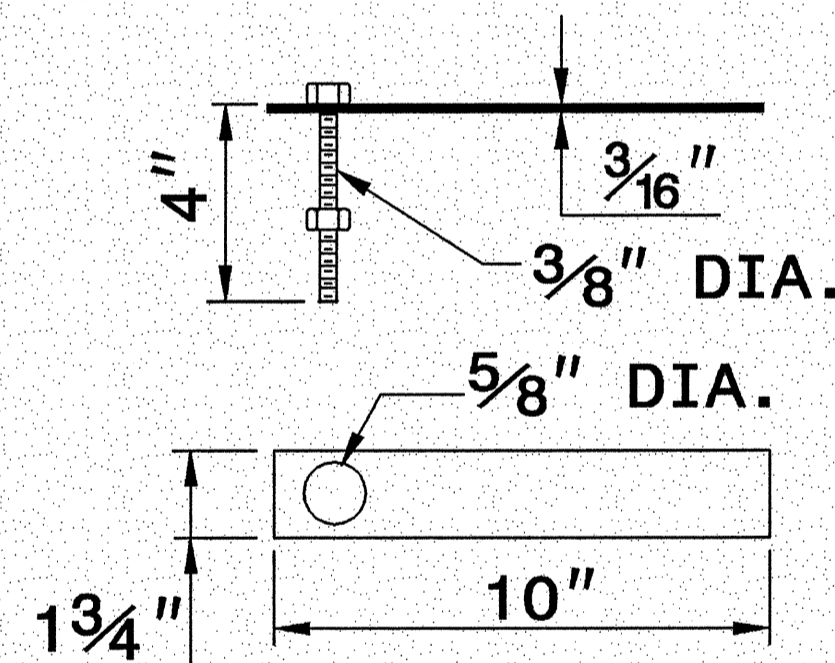
**CONCRETE CONSTRUCTION**



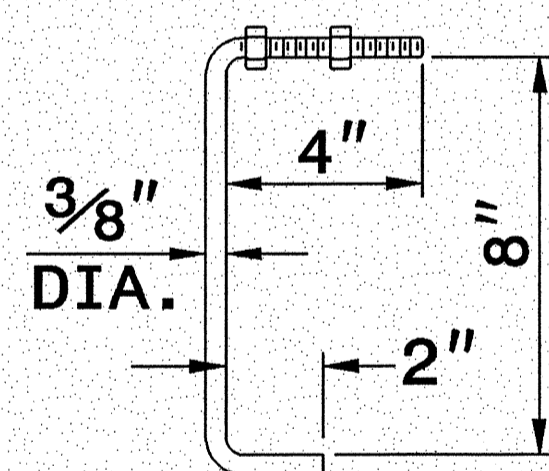
**PRECAST CONCRETE CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET**

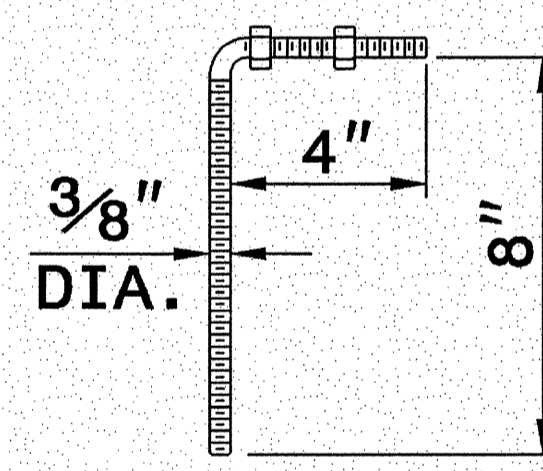
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



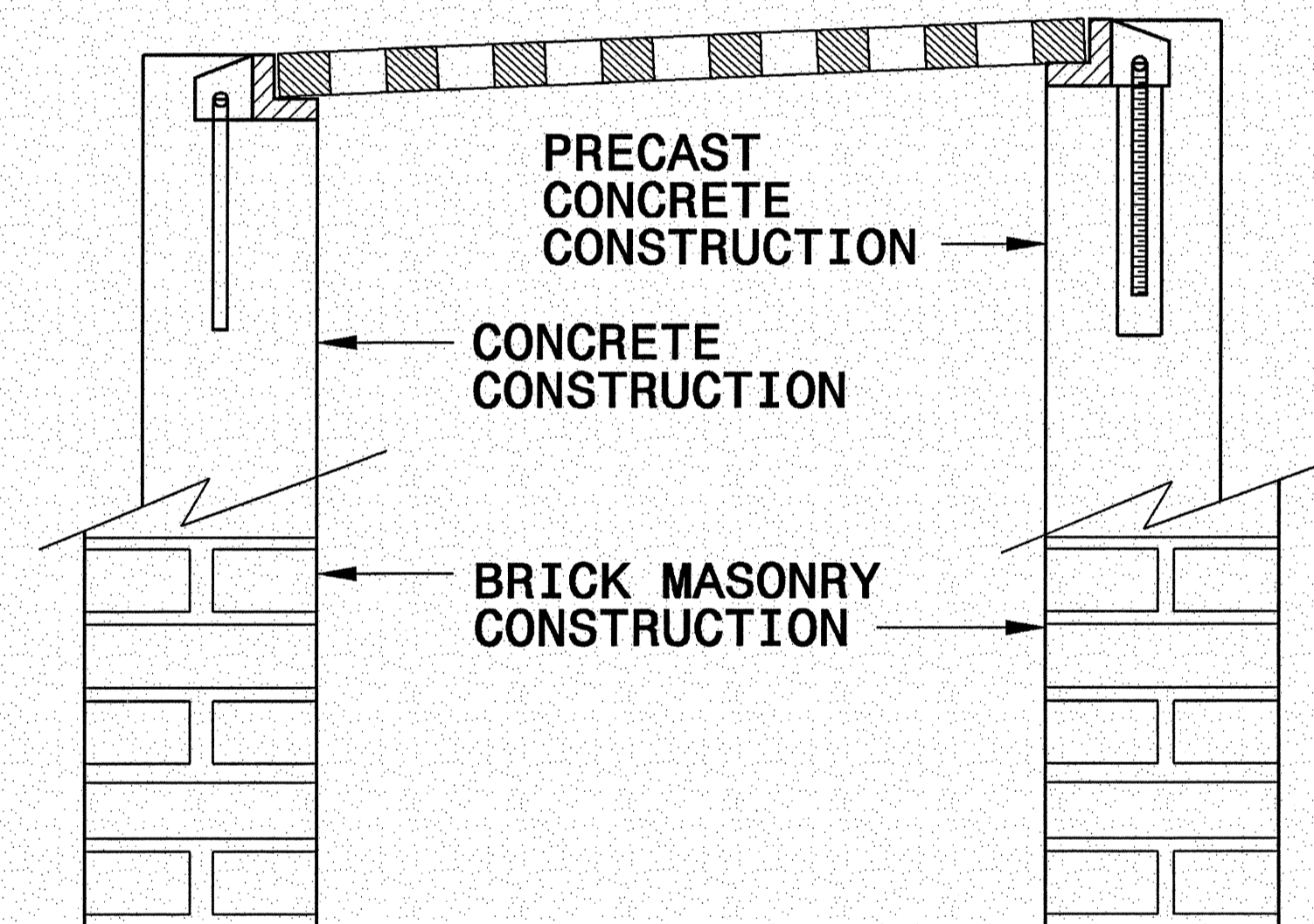
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



**CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



**PRECAST CONCRETE ANCHOR**  
3/8" DIA. BENT BAR

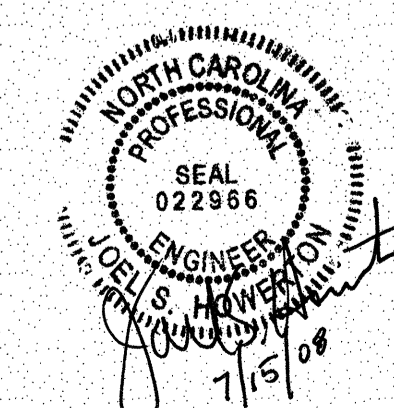


**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

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

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1  
**840D25**



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

**SEE PLATE FOR TITLE**

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

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

**SUMMARY OF EARTHWORK**  
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
<b>PHASE I</b>					
-DET- 10+93.69 TO 15+05.00 (BEGIN BRIDGE)	47		2,104	2,057	
-DET- 16+60.00 (END BRIDGE) TO 21+31.80	13		3,879	3,866	
SUBTOTAL	60		5,983	5,923	
<b>PHASE II</b>					
-L- 9+66.20 TO 14+86.75 (BEGIN BRIDGE)	129		324	195	
-L- 16+19.25(END BRIDGE) TO 21+66.19	32		719	687	
SUBTOTAL	161		1,043	882	
<b>PHASE III (-L- /W-DET- REMOVAL)</b>					
-L- 10+58.75 TO 14+66.03 (BEGIN BRIDGE)	1,681		38		1,643
-L- 16+21.02 (END BRIDGE) TO 20+09.74	2,972		11		2,961
SUBTOTAL	4,653		49		4,604
PROJECT SUBTOTAL	4,874		7,075	6,805	4,604
EST. 5% FOR REPLACING TOPSOIL ON ON BORROW PIT				340	
PROJECT TOTAL	4,874			7,145	
SAY	4,900			7,200	
B-4078 PROJECT TOTALS (SAY)	4,900			7,200	
EST. SELECT GRANULAR MATERIAL = 4,700 C.Y.					
EST. UNDERCUT EXCAVATION = 300 C.Y.					
B-4077 PROJECT TOTALS (SAY)	27,100			39,700	
EST. SELECT GRANULAR MATERIAL = 100 C.Y.					
EST. UNDERCUT EXCAVATION = 200 C.Y.					
GRAND TOTAL	32,000			46,900	

GRAND TOTAL EST. SELECT GRANULAR MATERIAL = 4,800 C.Y.  
 GRAND TOTAL EST. UNDERCUT EXCAVATION = 500 C.Y.

**PAVEMENT  
 REMOVAL SUMMARY**

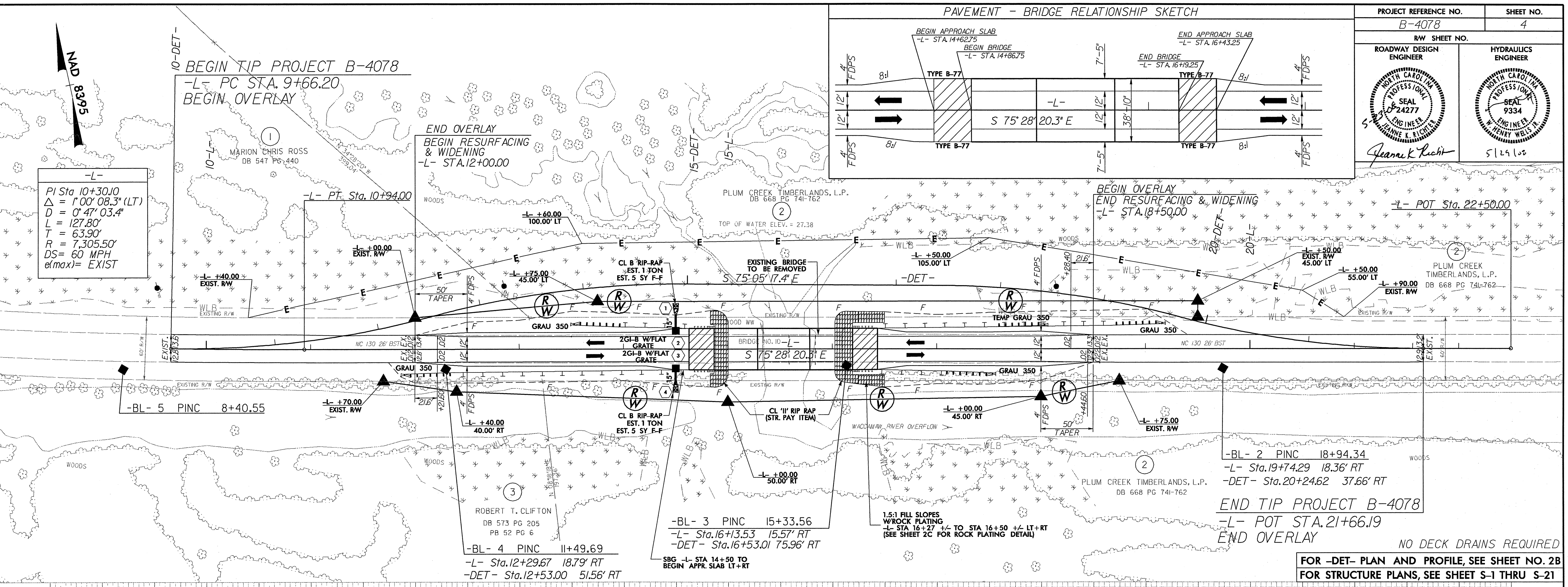
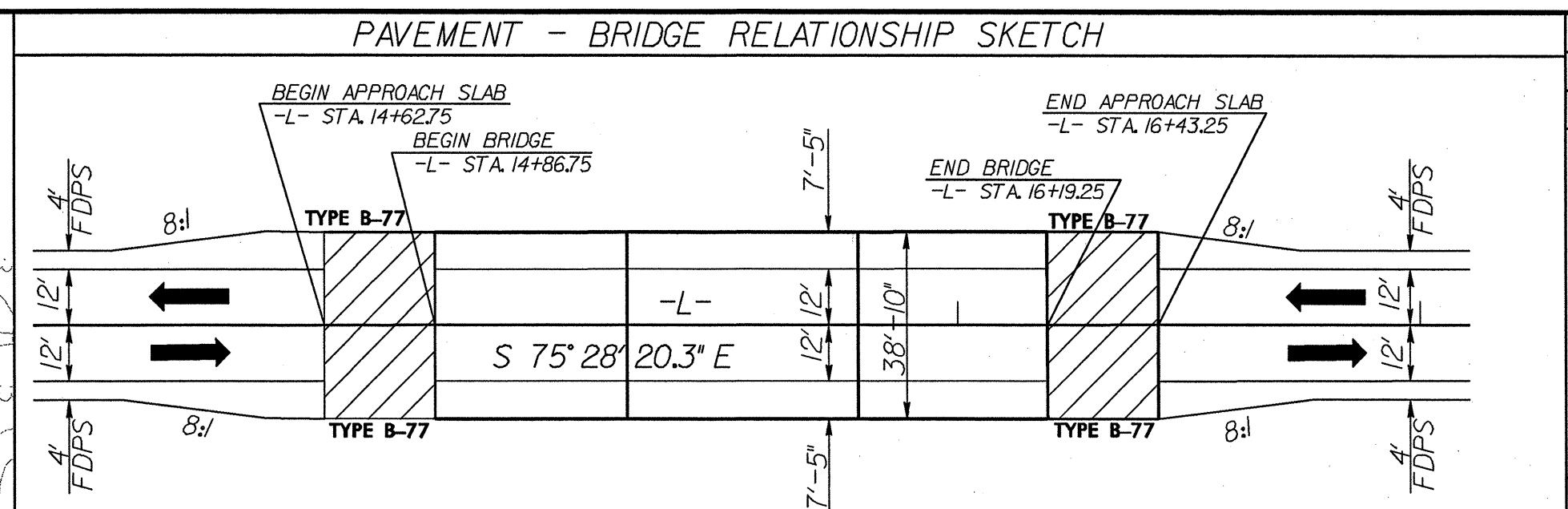
SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD'
-L-	13+50.00	15+33.35	CL	530.29
-L-	16+09.07	17+50.00	CL	411.83
-DET-	10+93.54	12+20.07	CL	122.22
-DET-	12+20.07	14+57.00	CL	526.51
-DET-	14+57.00	15+05.00	CL	138.67
-DET-	16+60.00	17+08.00	CL	138.67
-DET-	17+08.00	20+02.97	CL	655.49
-DET-	20+02.97	21+31.80	CL	120.33
			TOTAL:	2,644.01
			B-4078 TOTAL (SAY):	2,650
			B-4077 TOTAL (SAY):	5,270
			GRAND TOTAL:	7,920

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

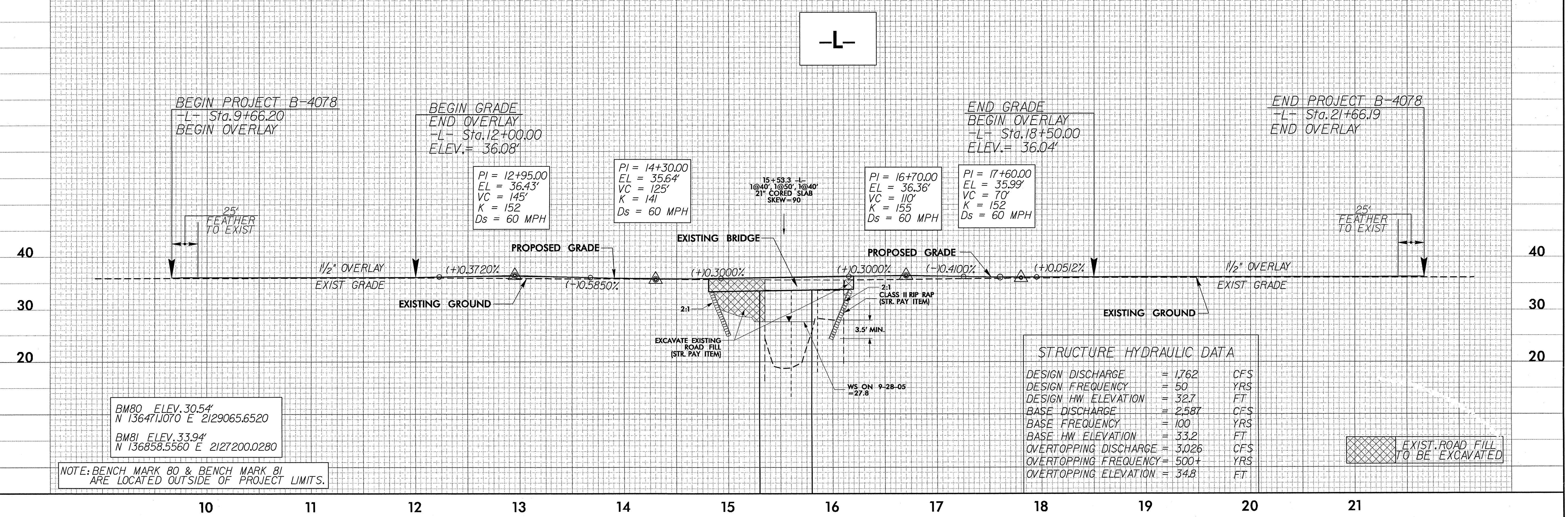
NOTE: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing and Removal of Exist Asphalt Pavement will be paid for at the contract lump sum price for "Grading."

I:\JUL-2008 07:54  
 Y:\Projects\NCDOT\Bridges Group 46 Final Design\B4078 Roadway\Proj\B4078\_rdy\_psh03.dgn  
 5/29/08





NO DECK DRAINS REQUIRED  
 FOR -DET- PLAN AND PROFILE, SEE SHEET NO. 2B  
 FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-21



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 1,762	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 32.7	FT
BASE DISCHARGE	= 2,587	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 33.2	FT
OVERTOPPING DISCHARGE	= 3,026	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 34.8	FT

BM80 ELEV 30.54'  
 N 136471.070 E 2129065.6520  
 BM81 ELEV 33.94'  
 N 136858.5560 E 2127200.0280

NOTE: BENCH MARK 80 & BENCH MARK 81 ARE LOCATED OUTSIDE OF PROJECT LIMITS.

EXIST. ROAD FILL TO BE EXCAVATED

REVISIONS

8/17/99

P:\MAY-2008\046\_Bridge Group 46 F.mel Desig\B4078\Roadway\Proj\B4078-rdy.psh04.dgn  
 23 MAY 2008 10:16 AM  
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