

05/08/99

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3841	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33289.1.1	BRSTP-1138(10)	PE	
33289.2.2	BRSTP-1138(10)	RW,UTIL.	
33289.3.1	BRSTP-1138(10)	CONST.	

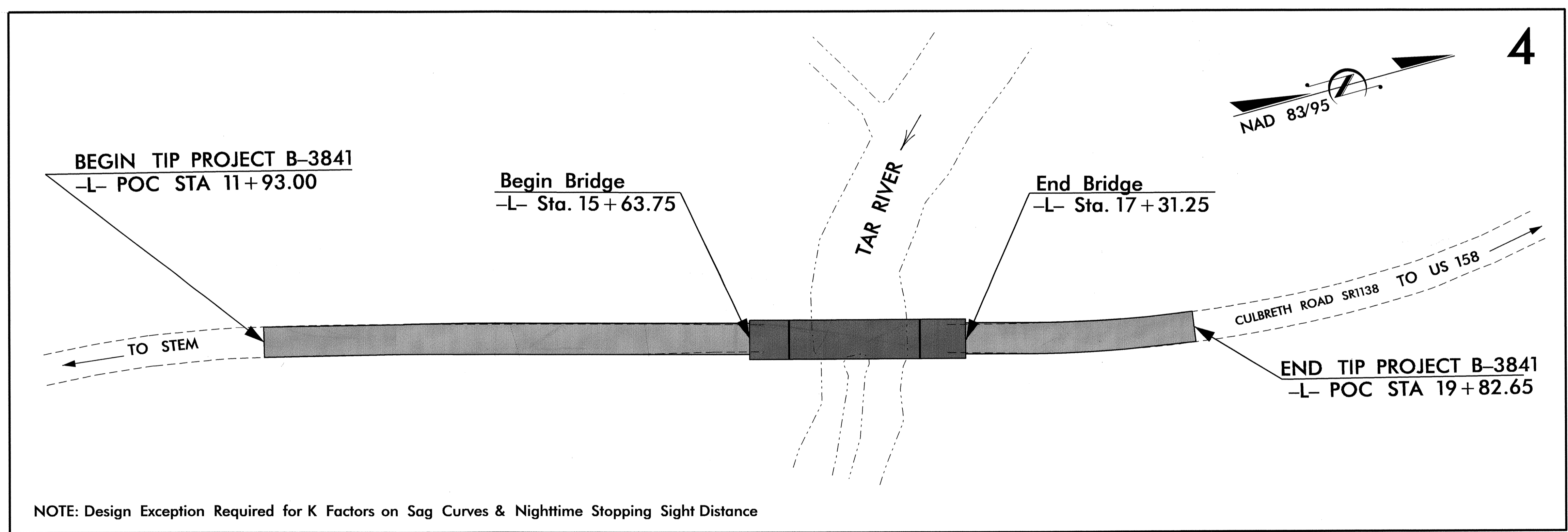
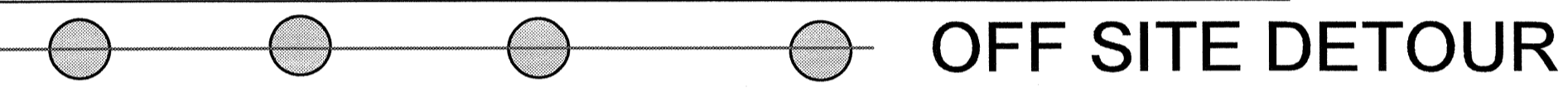
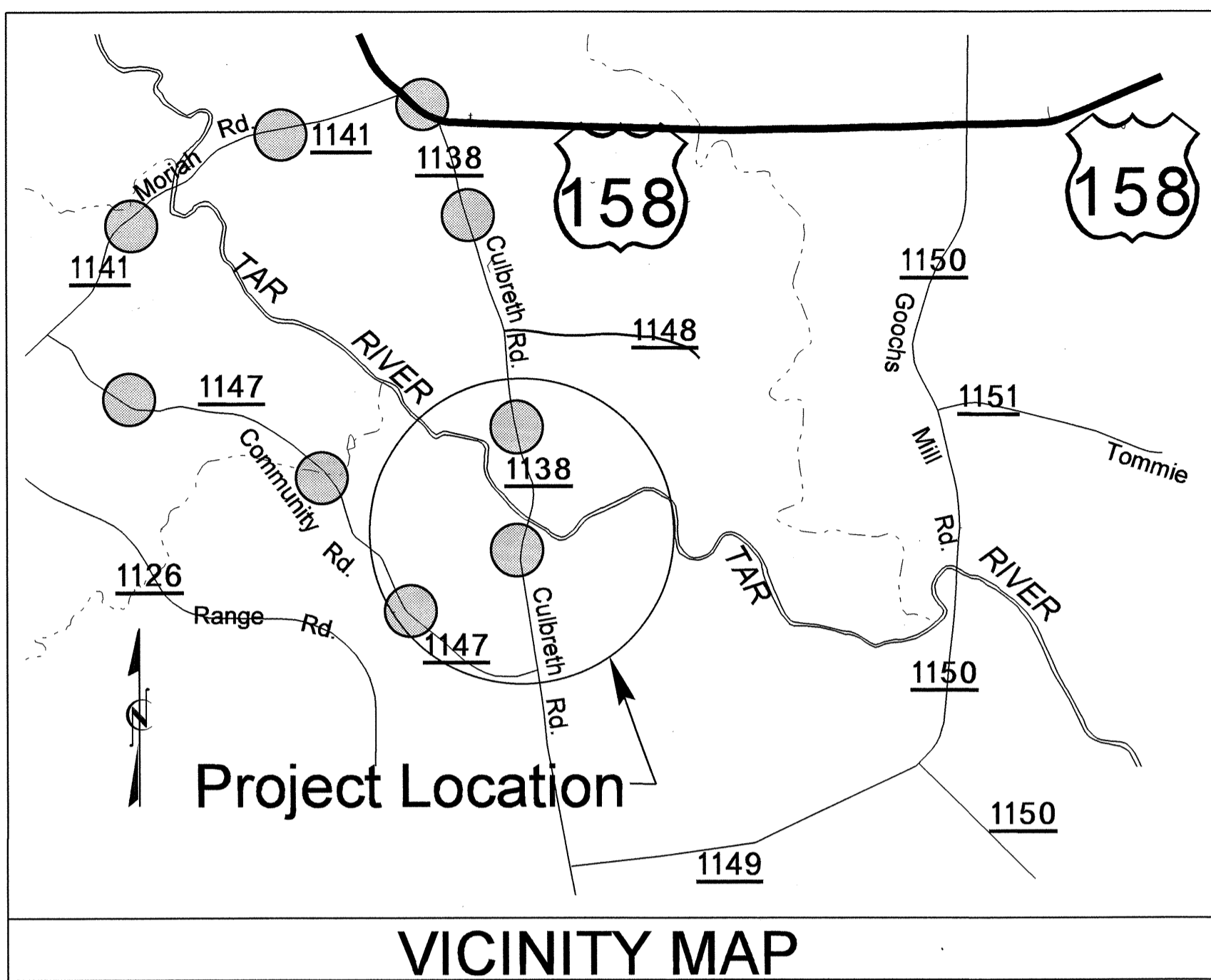
# GRANVILLE COUNTY

**LOCATION:** Bridge # 83 over Tar River and  
Approaches on SR 1138 (Culbreth Rd)

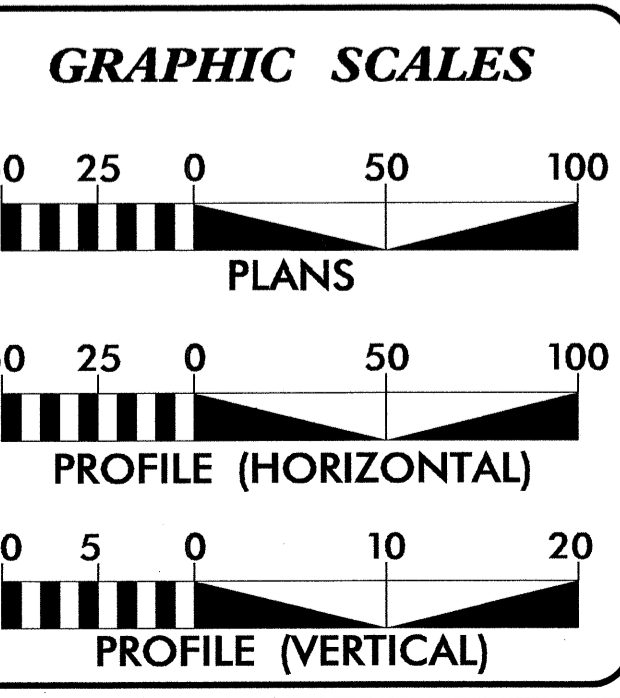
**TYPE OF WORK:** Grading, Drainage, Paving, and Structure

**TIP PROJECT: B-3841**

**CONTRACT: C203149**



NOTE: Design Exception Required for K Factors on Sag Curves & Nighttime Stopping Sight Distance



**DESIGN DATA**

ADT 2013 =	1285 vpd
ADT 2035 =	2200 vpd
DHV =	13 %
D =	65 %
T =	9 % *
V =	55 MPH
* TTST 4%	* DUAL 5%
Sub Regional Tier	
Func: Rural Major Collector	

**PROJECT LENGTH**

Length Roadway TIP Project B-3841 =	0.118 Miles
Length Structure TIP Project B-3841 =	0.032 Miles
Total Length TIP Project B-3841 =	0.150 miles

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

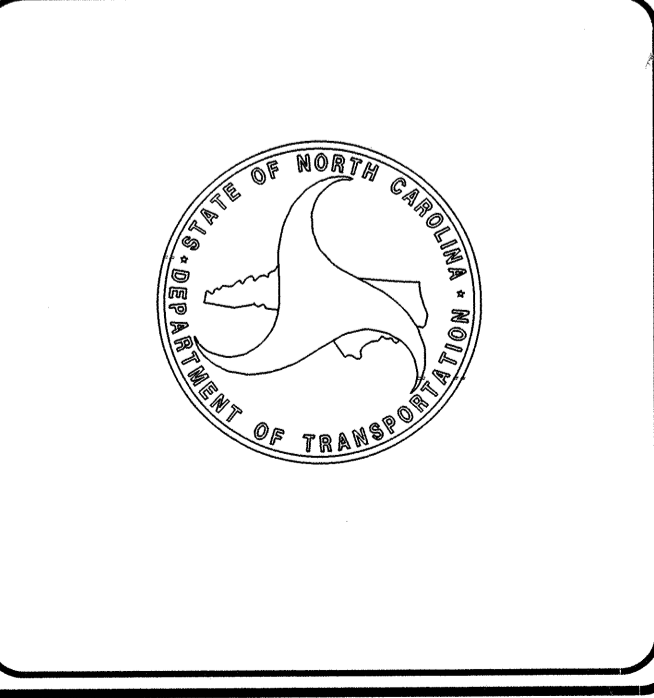
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: May 1, 2012	James Speer, PE PROJECT ENGINEER
LETTING DATE: May 21, 2013	John Lansford, PE PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

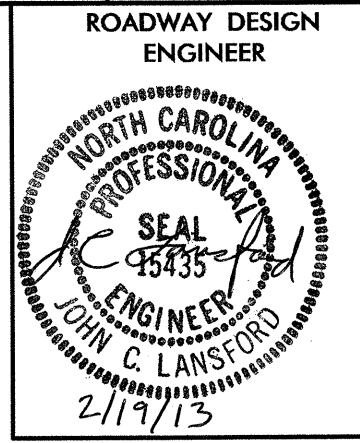
SIGNATURE: *Paul Atkinson*

**ROADWAY DESIGN ENGINEER**

SIGNATURE: *John C. Lansford*



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\$\$\$\$\$USERNAME\$\$\$\$\$



8/17/99

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAIL
2-A	STRUCTURE ANCHOR UNIT DETAIL
3	SUMMARY OF QUANTITIES
3A	SUB-REGIONAL & REGIONAL LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER ), SUMMARY OF EARTHWORK, REMOVAL OF EXISTING PAVEMENT, SHOULDER BERM GUTTER SUMMARY, SUMMARY OF SUB-SURFACE DRAINAGE, AND GUARDRAIL SUMMARY
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-2	TRANSPORTATION MANAGEMENT PLANS
SD-1	WORK ZONE SIGNS
PMP-1	PAVEMENT MARKING PLAN
EC-1 THRU EC-5	PLAN FOR PROPOSED HIGHWAY EROSION CONTROL
RF-1	REFORESTATION DETAIL SHEET
SIGN-1 THRU SIGN-2	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-12	CROSS-SECTIONS
S-1 THRU S-27	STRUCTURE PLANS

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
<b>DIVISION 2 - EARTHWORK</b>	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation
<b>DIVISION 4 - MAJOR STRUCTURES</b>	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
<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>	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.13	Concrete Bridge Approach Drop Inlet - 12" thru 24" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets
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.

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

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

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

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

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

**UTILITIES:** UTILITY OWNERS ON THIS PROJECT ARE Century Link-Telephone  
 ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

*Note: Not to Scale*

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

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ <sub>EP</sub>
Property Corner	-----
Property Monument	□ <sub>ECM</sub>
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-w.l.b.-
Proposed Wetland Boundary	-w.l.b.-
Existing Endangered Animal Boundary	-e.a.b.-
Existing Endangered Plant Boundary	-e.p.b.-
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	○
Well	○
Small Mine	⊗
Foundation	▭
Area Outline	▭
Cemetery	⊕
Building	▭
School	▭
Church	▭
Dam	▭

### HYDROLOGY:

Stream or Body of Water	~~~~~
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	-j.s.-
Buffer Zone 1	-b.z.1-
Buffer Zone 2	-b.z.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 RW Marker	-----
Proposed Control of Access Line with Concrete C/A 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 Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb 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:

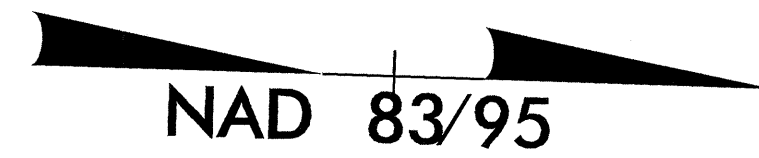
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

### 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	▭
Underground Storage Tank, Approx. Loc.	⊕
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.

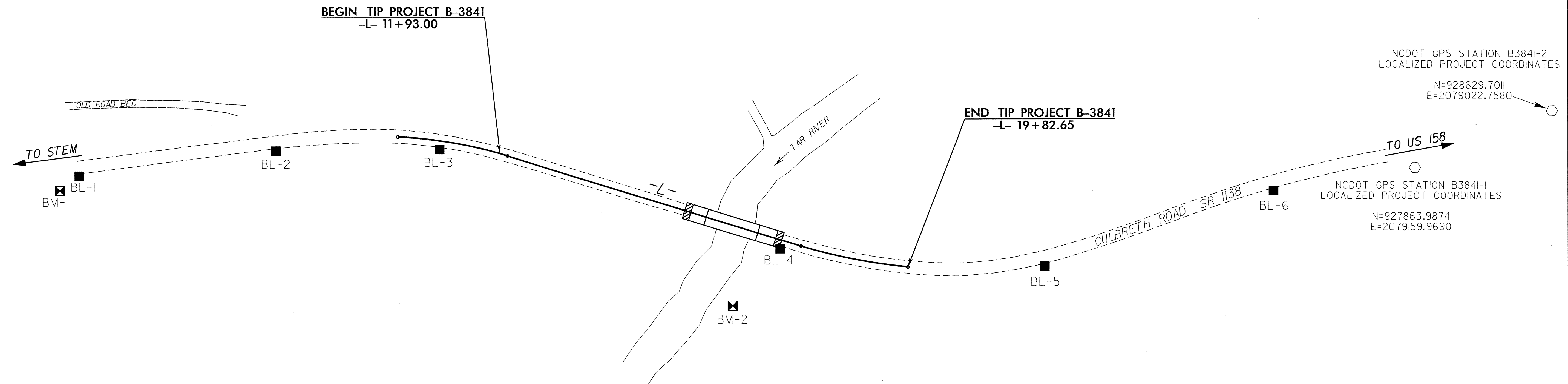
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# SURVEY CONTROL SHEET B-3841



		L	
TYPE	STATION	NORTH	EAST
POT	10+00.00	925859.1636	2079192.8228
PC	10+10.33	925869.4914	2079192.9852
PT	12+07.73	926064.4856	2079220.2841
PC	17+79.41	926616.5904	2079368.6154
PT	19+82.65	926816.8675	2079401.1095

ROW MARKER BRIDGE SPIKE				
ALIGN	STATION	OFFSET	NORTH	EAST
L	11+93.00	-45.00	926061.1043	2079172.9281
L	12+07.73	-45.00	926076.1615	2079176.8253
L	11+93.00	-30.00	926057.4796	2079187.4836
L	11+93.00	30.00	926042.9810	2079245.7055
L	12+07.73	29.88	926056.7341	2079249.1362
L	15+00.00	-60.00	926362.3186	2079238.1737
L	15+00.00	-45.00	926358.4266	2079252.6600
L	15+20.00	65.00	926349.2007	2079364.0821
L	15+20.00	29.02	926358.5365	2079329.3332
L	17+79.39	45.00	926604.8969	2079412.0695
L	17+80.53	65.00	926600.8794	2079431.6994
L	17+79.41	-60.00	926632.1603	2079310.6707
L	17+79.41	-45.00	926628.2663	2079325.1565
L	19+82.65	30.00	926815.0917	2079431.0569
L	19+82.65	45.00	926814.2038	2079446.0313
L	19+82.65	-30.00	926818.6431	2079371.1620
L	19+82.65	-45.00	926819.5309	2079356.1884



**CONTROL DATA**

BASELINE POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	925268.7360	2079286.3670	463.85	OUTSIDE PROJECT LIMITS	
2	BL-2	925633.0689	2079227.2093	439.88	OUTSIDE PROJECT LIMITS	
3	BL-3	925938.0853	2079212.8902	426.83	10+80.71	15.79 RT
4	BL-4	926577.8568	2079375.3648	406.23	17+43.75	16.57 RT
5	BL-5	927071.5480	2079390.7837	426.91	OUTSIDE PROJECT LIMITS	
6	BL-6	927492.5494	2079234.2843	436.42	OUTSIDE PROJECT LIMITS	
7	B3841-1	927863.9874	2079159.9690	449.67	OUTSIDE PROJECT LIMITS	

**BENCHMARK DATA**

```

*****
BM-1      ELEVATION = 469.94'
N 925234      E 2079315
FROM -L- STATION 10+00.00
  S 11°05'34.20" E DIST 637.37'
R/R SPIKE SET IN 20" PINE
*****
BM-2      ELEVATION = 395.92'
N 926493      E 2079485
L STATION 16+91.00 144' RIGHT
R/R SPIKE SET IN 41" OAK
*****
  
```

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3841-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 927863.9874(±) EASTING: 2079159.9690(±) ELEVATION: 449.67(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00002329 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3841-1" TO -L- STATION 11+93.00 IS S 01°47'17.5" E 1814.6408'

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/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
B3841\_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.  
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

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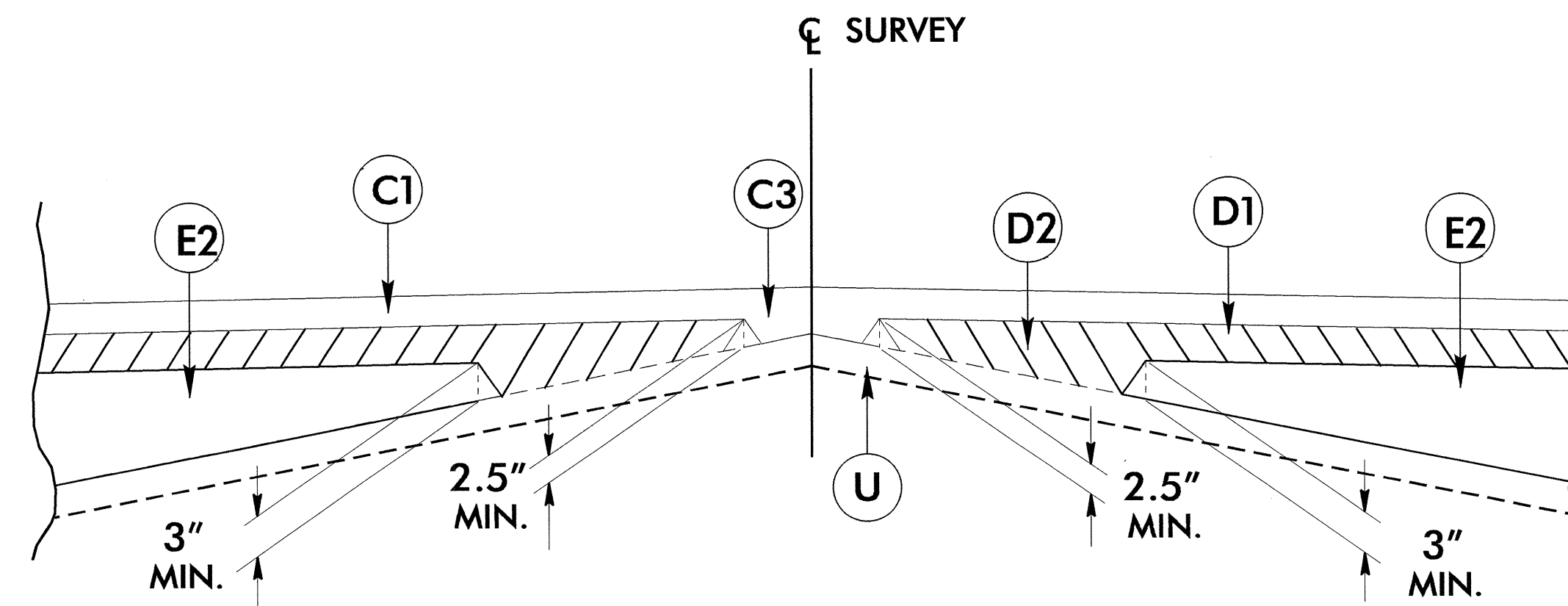
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# PAVEMENT SCHEDULE

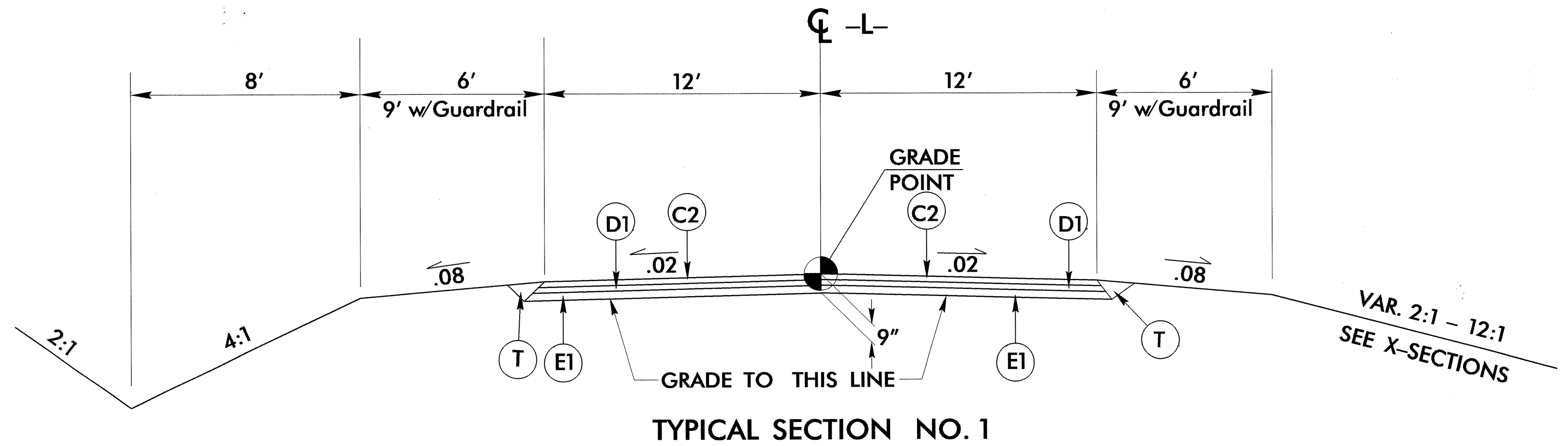
<b>C1</b>	PROP. APPROX. 1.25" ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS PER SQ. YD.
<b>C2</b>	PROP. APPROX. 2.5" ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS PER SQ. YD. IN EACH OF TWO LAYERS
<b>C3</b>	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 1.5" IN DEPTH
<b>D1</b>	PROP. APPROX. 2.5" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285.0 LBS PER SQ. YD.
<b>D2</b>	PROP. VAR. DEPTH ASPHALT CONC. 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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH
<b>E1</b>	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456.0 LBS PER SQ. YD.
<b>E2</b>	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 5.5" IN DEPTH.
<b>T</b>	EARTH MATERIAL
<b>R</b>	SHOULDER BERM GUTTER
<b>U</b>	EXISTING PAVEMENT
<b>W</b>	ASPHALT WEDGING (SEE DETAIL)

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

PROJECT REFERENCE NO. <i>B-3841</i>	SHEET NO. <i>2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>JOHN C. LANSFORD</i> 2/19/13	PAVEMENT DESIGN ENGINEER <i>CLARK S. MORRISON</i> 2/19/13



Detail Showing Method of Wedging

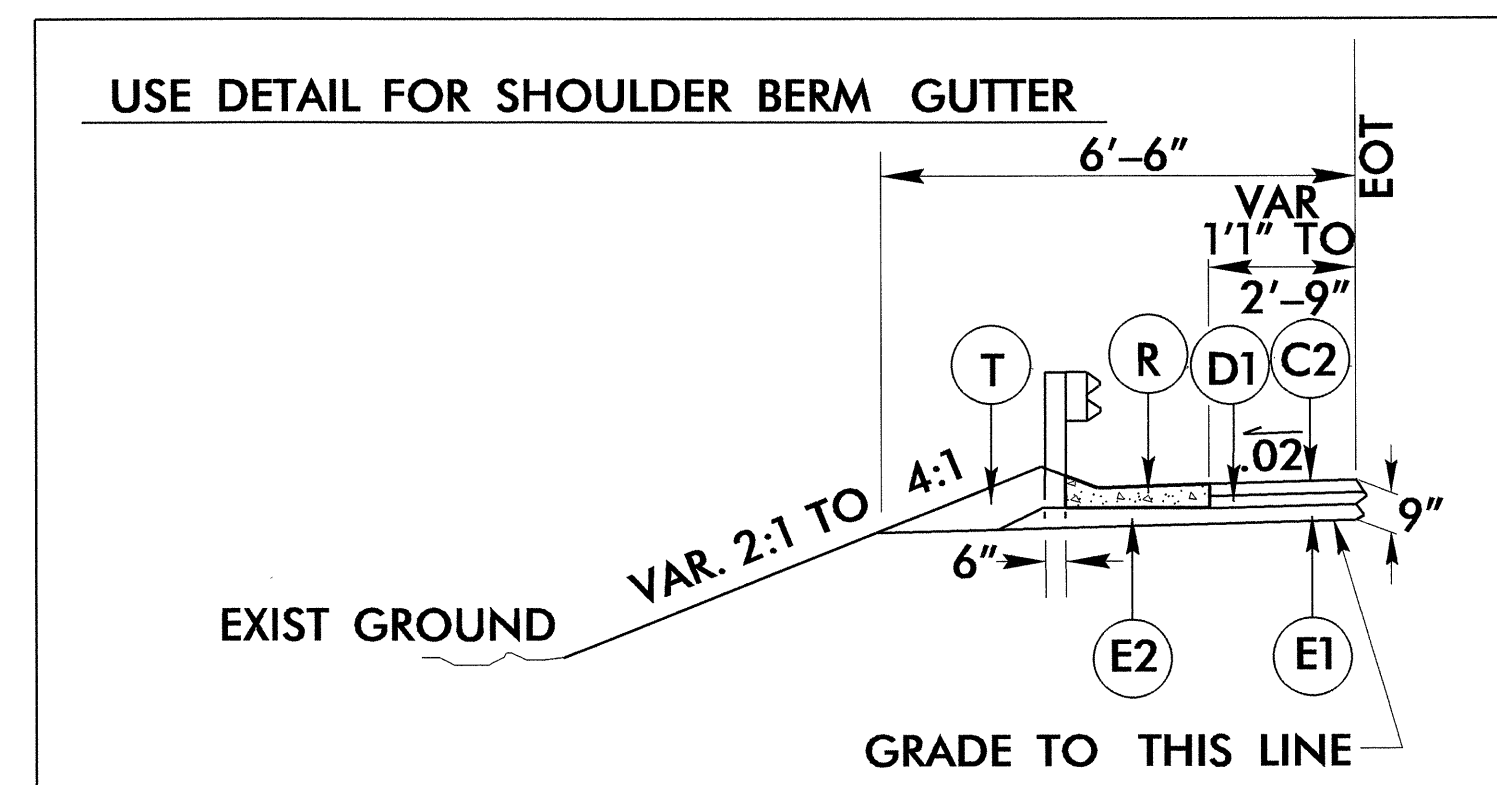


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA 11+93.00 TO (Begin Bridge) 15+63.75  
-L- (End Bridge) 17+31.25 TO 18+70.00

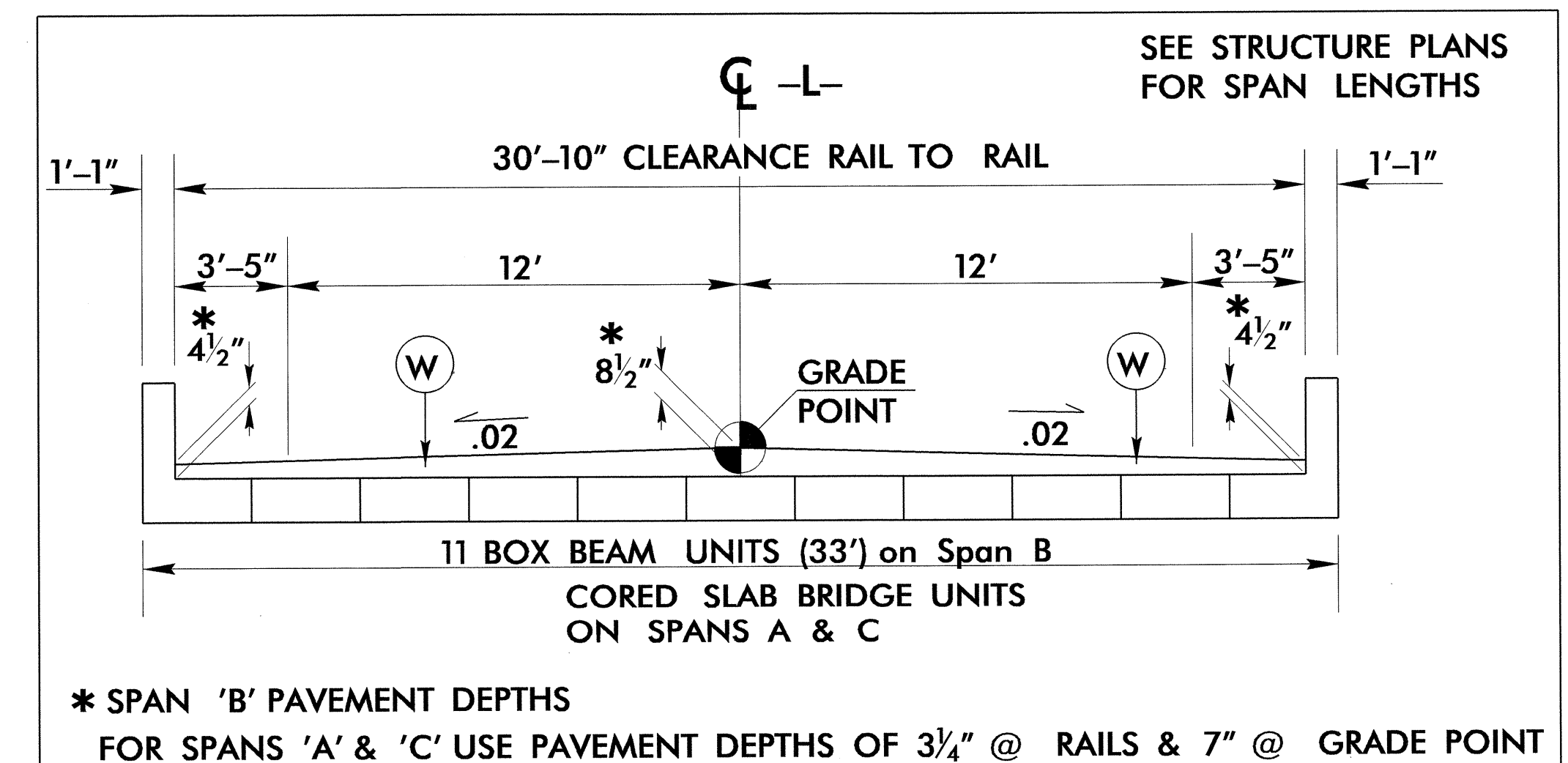
Note : Replace Existing Pavement with Proposed Full Depth from 18+70.00 To 19+00.00



USE SHOULDER BERM GUTTER

-L- STA. 15+38.00 TO 15+53.00 LT.  
-L- STA. 14+35.00 TO 15+53.00 RT.  
-L- STA. 17+42.00 TO 17+79.00 LT.  
-L- STA. 17+42.00 TO 17+80.00 RT.

## BRIDGE TYPICAL SECTION



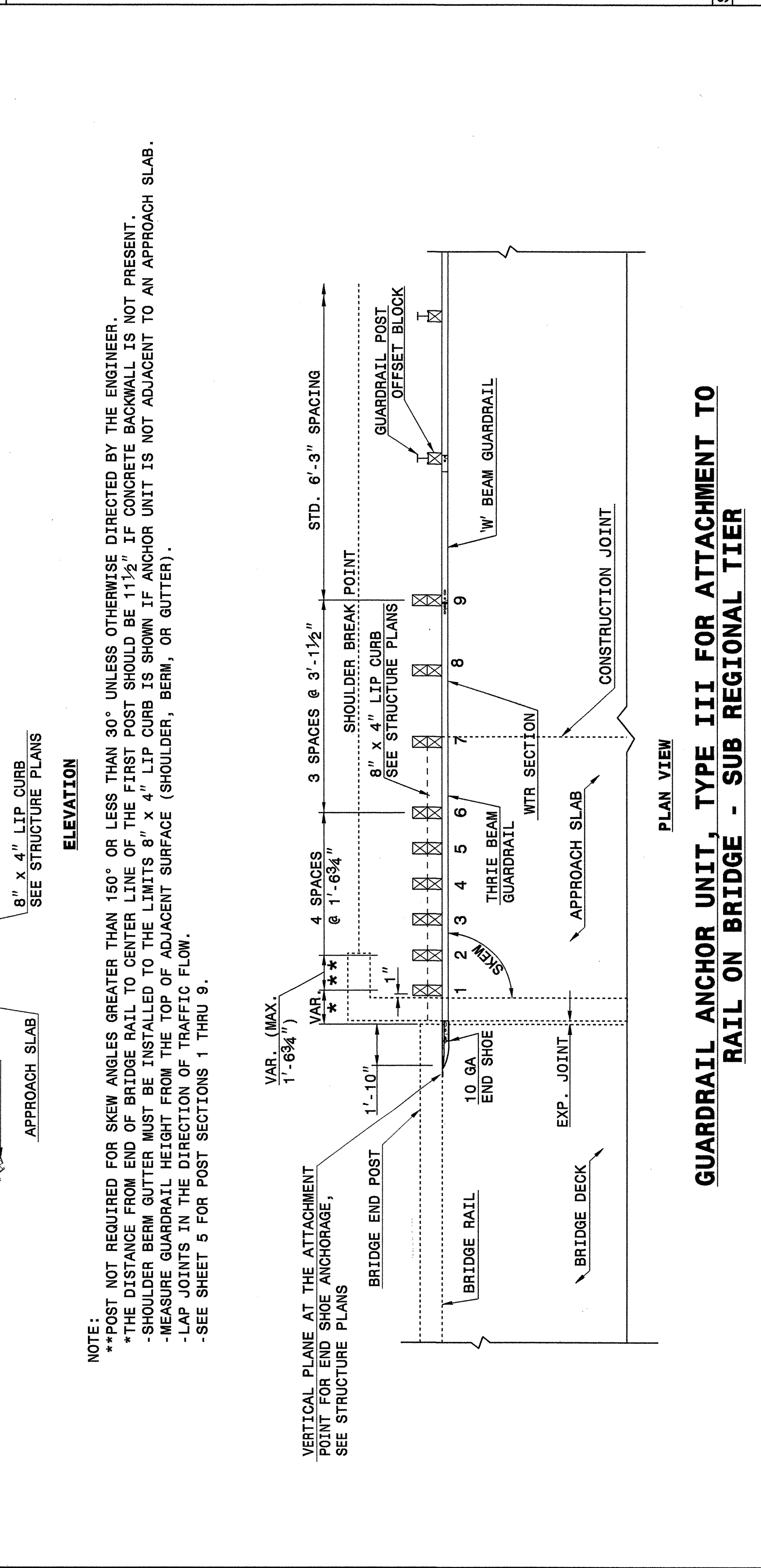
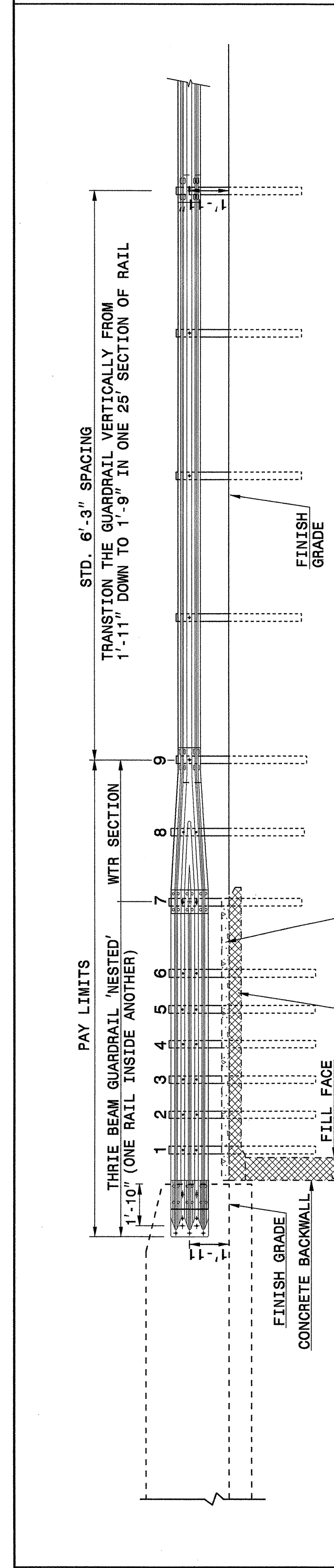
\* SPAN 'B' PAVEMENT DEPTHS  
FOR SPANS 'A' & 'C' USE PAVEMENT DEPTHS OF 3/4" @ RAILS & 7" @ GRADE POINT

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

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

SHEET 2 OF 7  
**862d03**



**NOTE:**  
 \*\*POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.  
 \*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.  
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.  
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).  
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.  
 -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.

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

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

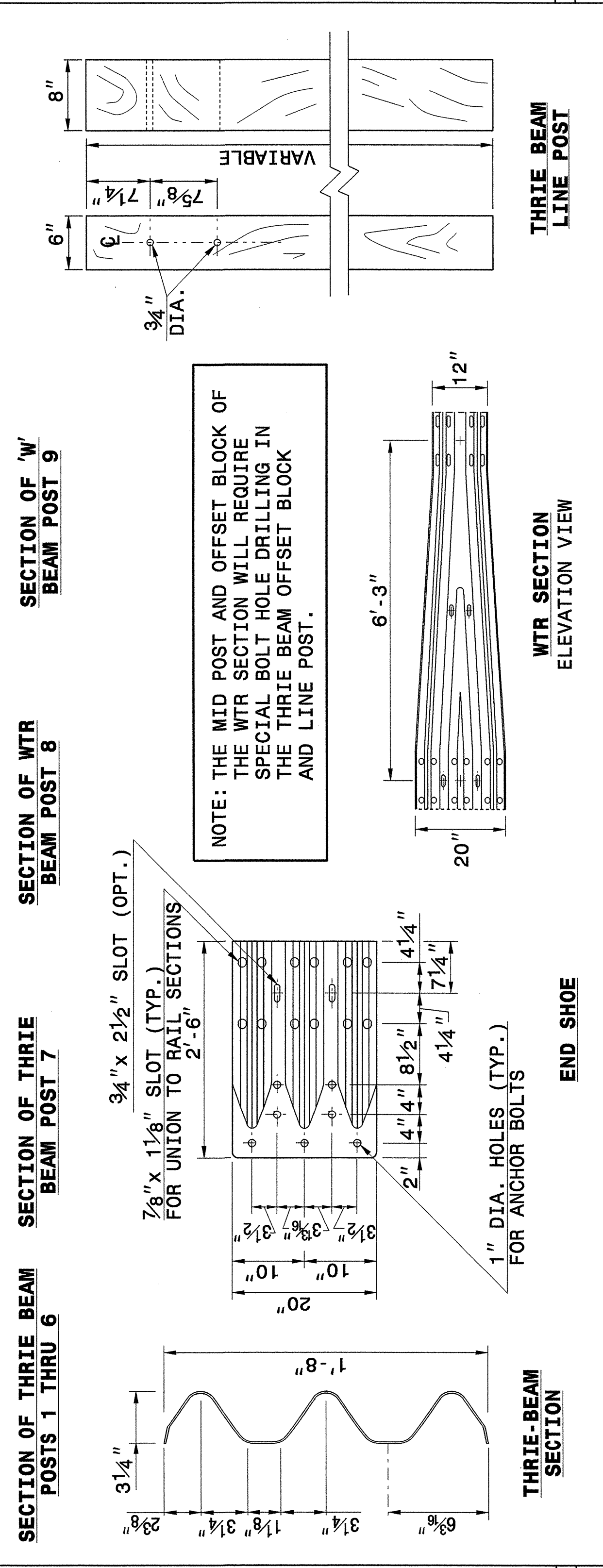
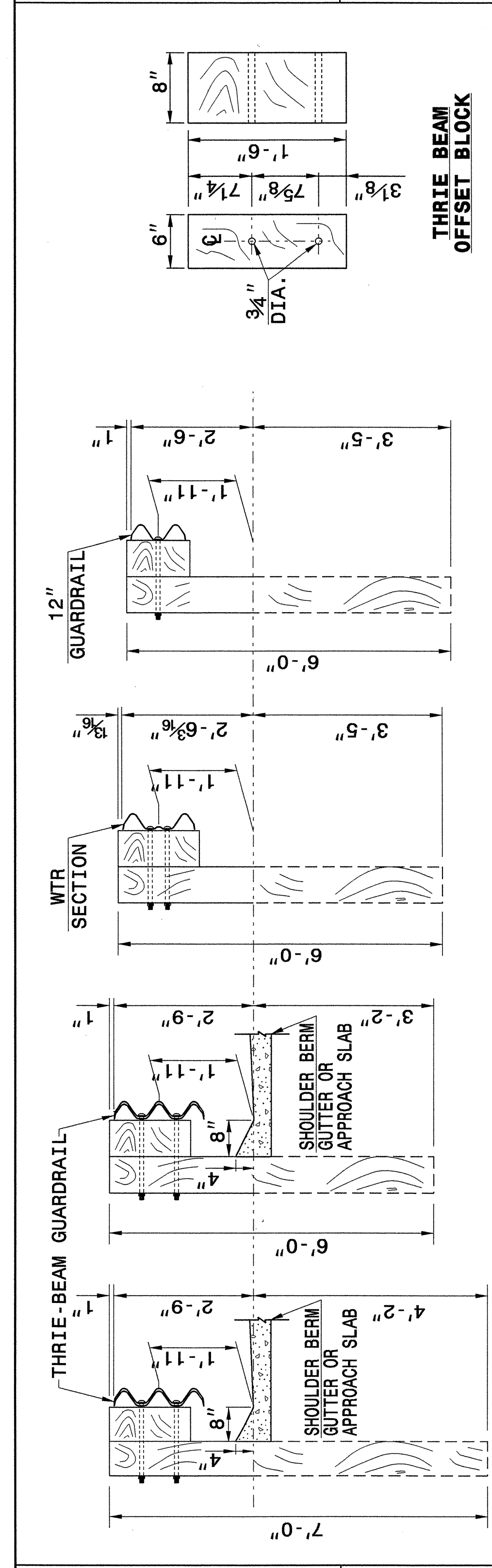
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862d03**

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

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

SHEET 3 OF 7  
**862d03**

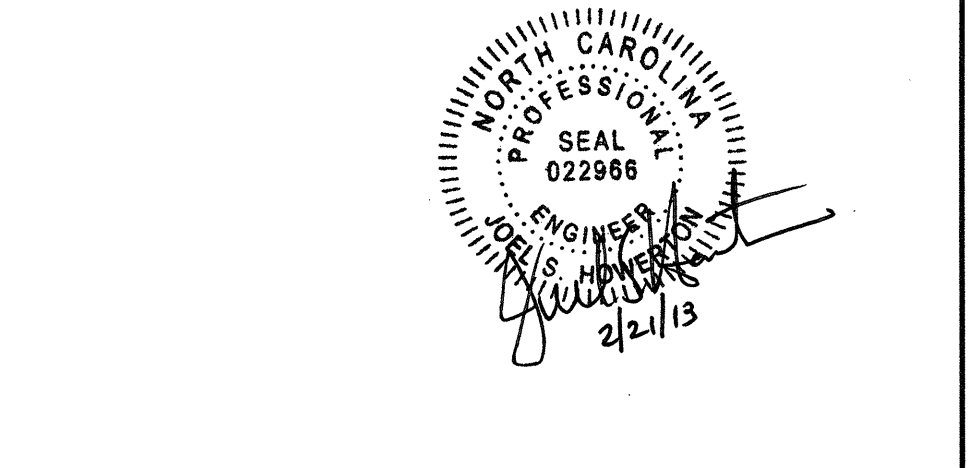


**NOTE:** THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.

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

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

SHEET 3 OF 7  
**862d03**



**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: 11/13/12  
 FILE SPEC.:

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203149

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
003000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (16+47.50)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
005700000-E	226	200	CY	UNDERCUT EXCAVATION
019500000-E	265	200	CY	SELECT GRANULAR MATERIAL
019600000-E	270	300	SY	GEOTEXTILE FOR SOIL STABILIZATION
031800000-E	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
032000000-E	300	80	SY	FOUNDATION CONDITIONING GEOTEXTILE
033520000-E	305	48	LF	15" DRAINAGE PIPE
033530000-E	305	116	LF	18" DRAINAGE PIPE
058800000-E	310	64	LF	18" CS PIPE CULVERTS, 0.064" THICK
063600000-E	310	4	EA	*** CS PIPE ELBOWS, ***** THICK (18", 0.064")
122000000-E	545	100	TON	INCIDENTAL STONE BASE
148900000-E	610	450	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	328	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
152500000-E	610	266	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
157500000-E	620	54	TON	ASPHALT BINDER FOR PLANT MIX
200000000-N	806	17	EA	RIGHT OF WAY MARKERS
202200000-E	815	34	CY	SUBDRAIN EXCAVATION
203300000-E	815	26	CY	SUBDRAIN FINE AGGREGATE
204400000-E	815	150	LF	6" PERFORATED SUBDRAIN PIPE
207000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
207700000-E	815	6	LF	6" OUTLET PIPE

SUMMARY OF QUANTITIES - B-3841

ItemNumber	Sec #	Quantity	Unit	Description
228600000-N	840	5	EA	MASONRY DRAINAGE STRUCTURES
230800000-E	840	3	LF	MASONRY DRAINAGE STRUCTURES
236700000-N	840	5	EA	FRAME WITH TWO GRATES, STD 840.29
255600000-E	846	210	LF	SHOULDER BERM GUTTER
303000000-E	862	250	LF	STEEL BM GUARDRAIL
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
336000000-E	863	625	LF	REMOVE EXISTING GUARDRAIL
363500000-E	876	44	TON	RIP RAP, CLASS II
364900000-E	876	165	TON	RIP RAP, CLASS B
365600000-E	876	1,895	SY	GEOTEXTILE FOR DRAINAGE
407200000-E	903	69	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
409600000-N	904	2	EA	SIGN ERECTION, TYPE D
415500000-N	907	6	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
440000000-E	1110	366	SF	WORK ZONE SIGNS (STATIONARY)
441000000-E	1110	114	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
444500000-E	1145	64	LF	BARRICADES (TYPE III)
481000000-E	1205	6,318	LF	PAINT PAVEMENT MARKING LINES (4")
600000000-E	1605	1,725	LF	TEMPORARY SILT FENCE
600600000-E	1610	270	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	65	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	355	TON	SEDIMENT CONTROL STONE
601500000-E	1615	1.5	ACR	TEMPORARY MULCHING
601800000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING

ItemNumber	Sec #	Quantity	Unit	Description
602100000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
602900000-E	SP	300	LF	SAFETY FENCE
603000000-E	1630	440	CY	SILT EXCAVATION
603600000-E	1631	3,100	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	900	SY	COIR FIBER MAT
603800000-E	SP	425	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	265	LF	1/4" HARDWARE CLOTH
607000000-N	1639	12	EA	SPECIAL STILLING BASINS
6071012000-E	SP	330	LF	COIR FIBER WATTLE
6071020000-E	SP	100	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	210	LF	COIR FIBER BAFFLE
6071050000-E	SP	2	EA	*** SKIMMER (1-1/2")
608400000-E	1660	1.5	ACR	SEEDING & MULCHING
608700000-E	1660	0.6	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	1	TON	FERTILIZER TOPDRESSING
611450000-N	1667	10	MHR	SPECIALIZED HAND MOWING
611700000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL
612300000-E	1670	0.1	ACR	REFORESTATION

12/06/07

COMPUTED BY: KTB DATE: 01-03-12  
CHECKED BY: JAW DATE: 01-18-13

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-3841  
SHEET NO. 3-A

SUMMARY OF SUBSURFACE DRAINAGE REMOVAL OF EXISTING PAVEMENT SHOULDER BERM GUTTER SUMMARY

SUMMARY OF EARTHWORK  
IN CUBIC YARDS

Table with columns: LINE, STATION, STATION, LOCATION LTR/CL, DRAIN TYPE\* (UD/BD/SD), LF. Includes a CONTINGENCY row with TOTAL LF: 150'.

\*UD=UNDERDRAIN  
\*BD=BLINDRAIN  
\*SD=SUBSURFACE DRAIN

Table with columns: STATION - STATION, LOCATION, ASPHALT REMOVAL, ASPHALT BREAKUP, CONCRETE REMOVAL, CONCRETE BREAKUP. Includes a TOTAL row with 1014 and 428.

Table with columns: SURVEY LINE, STATION, STATION, LENGTH (FT). Includes a TOTAL row with 208' and a SAY row with 210'.

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

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.

Table with columns: STATION, STATION, UNCL. EXCAV., EMBANK. +%, BORROW, WASTE. Includes SUBTOTALS, TOTALS, PROJECT TOTALS, EST. 5% TO REPLACE TOPSOIL ON BORROW PITS, and GRAND TOTALS.

Contingency Undercut 200 CY

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".

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

Large table listing pipe details: STATION, LOCATION, STRUCTURE NO., DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC), C.S. PIPE, R.C. PIPE (CLASS III), R.C. PIPE (CLASS IV), ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES AND HOOD STANDARD 840.03, CONCRETE TRANSITIONAL SECTION, TYPE OF GRATE, and REMARKS.

SAY: 3'

"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

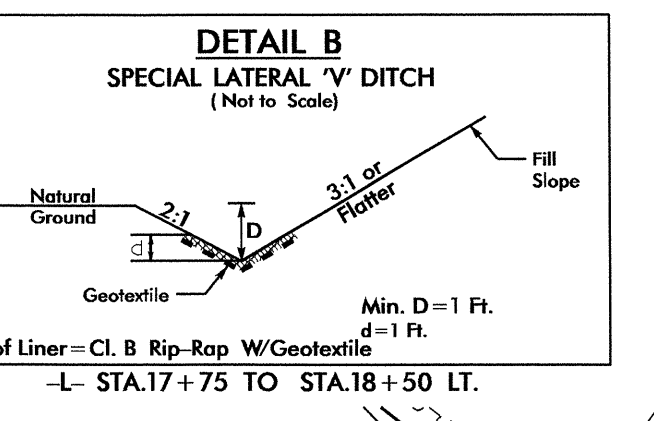
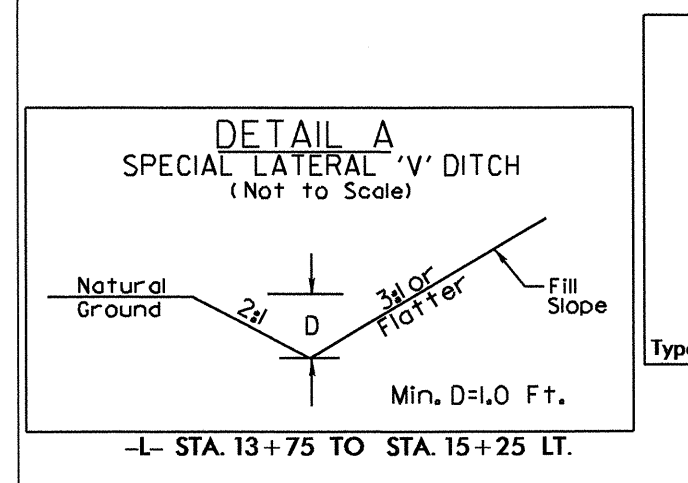
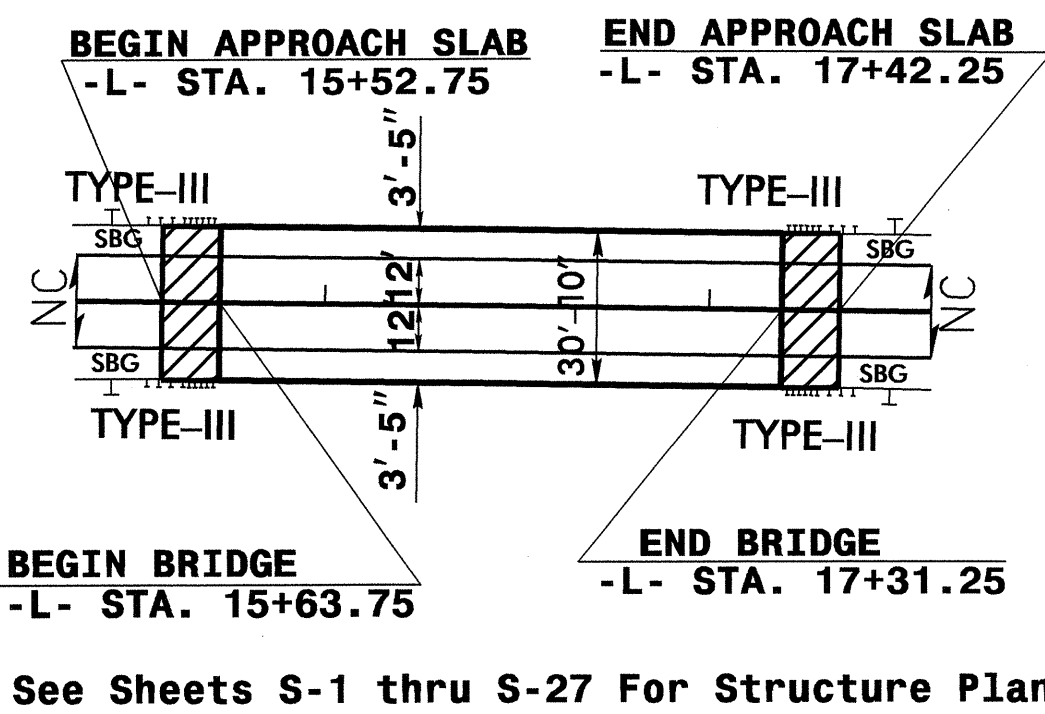
GUARDRAIL SUMMARY

Table with columns: 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.

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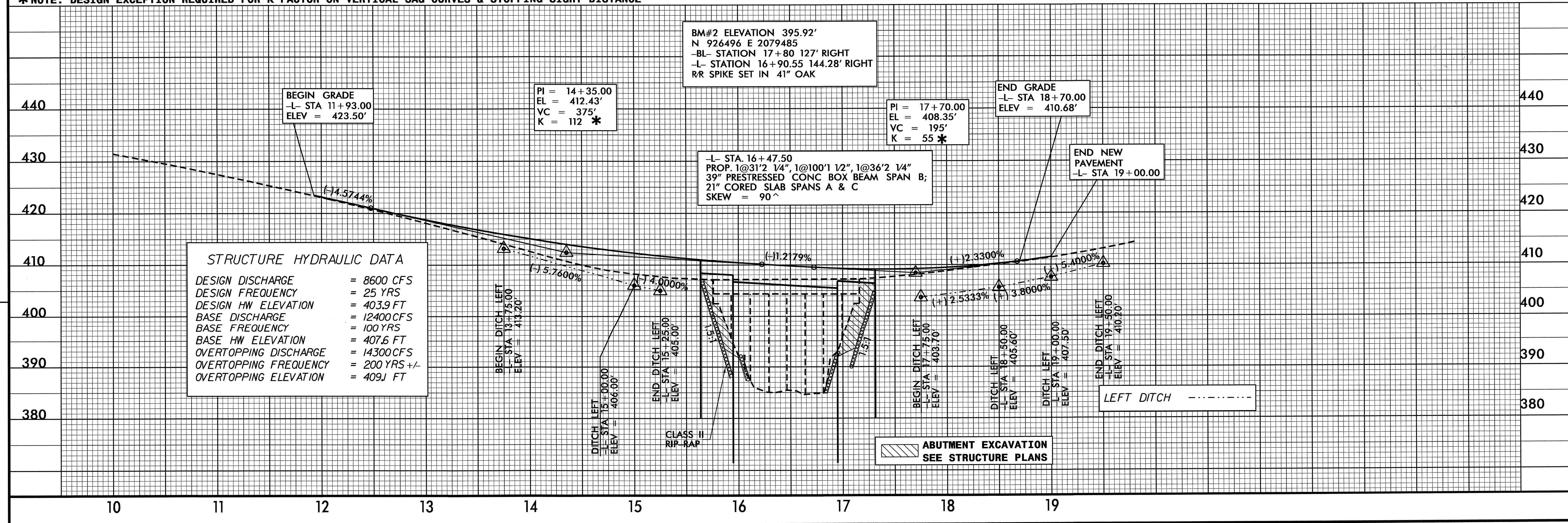
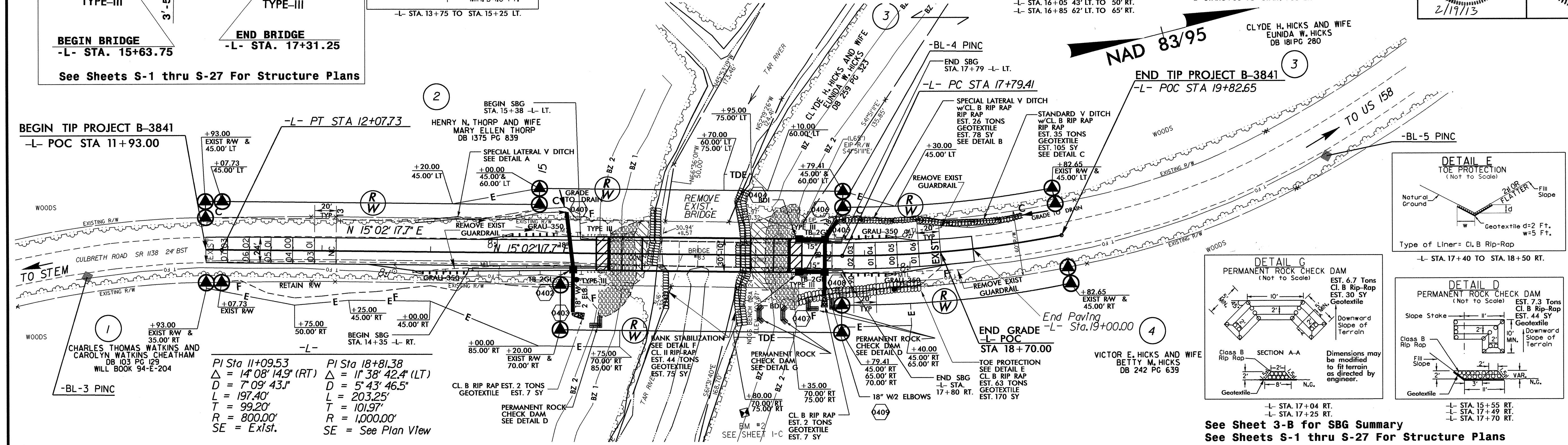
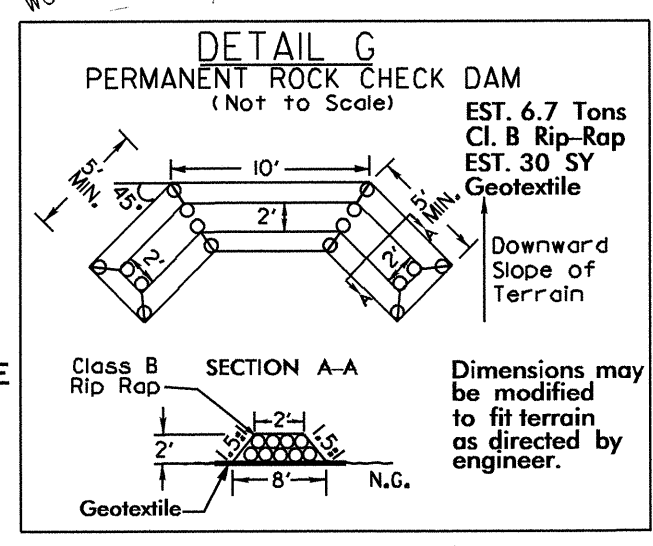
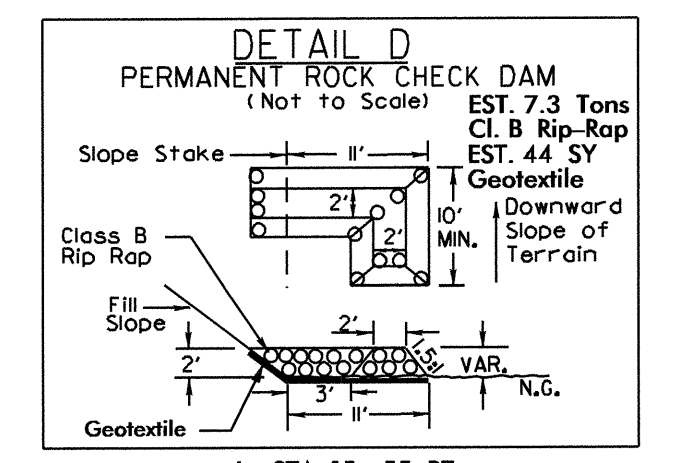
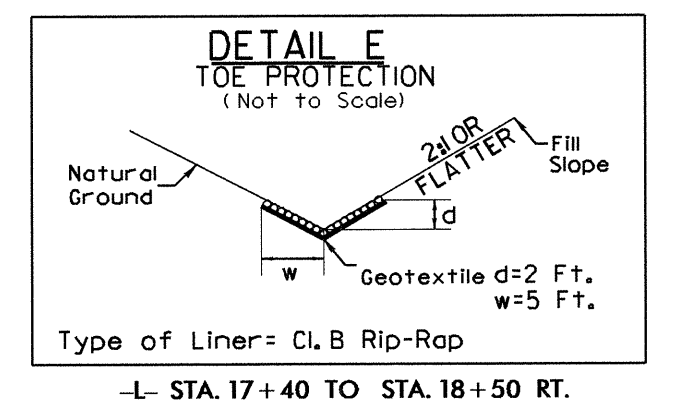
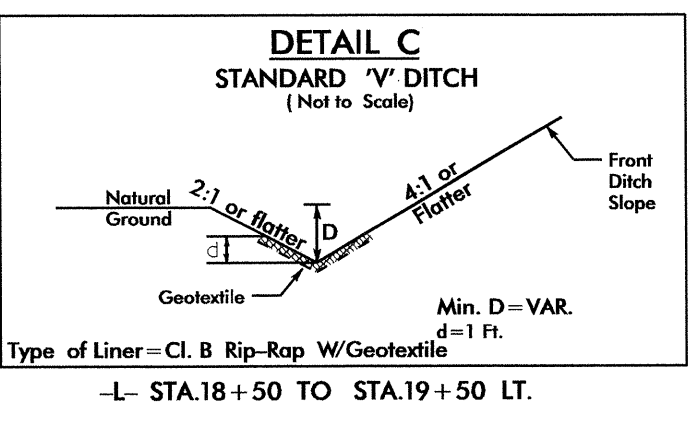
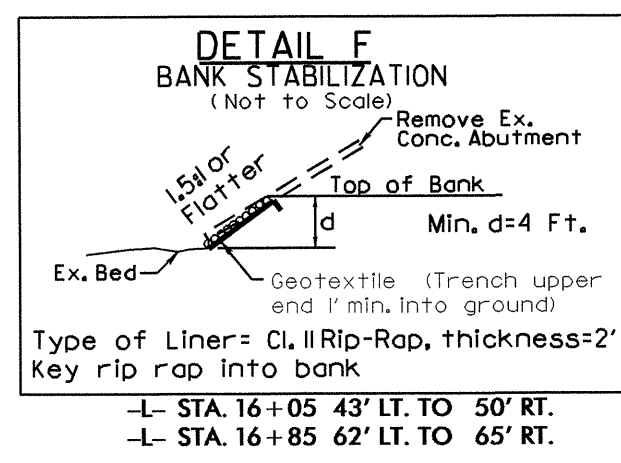


**SKETCH OF PAVEMENT IN RELATION TO BRIDGE**



**ABUTMENT EXCAVATION**  
SEE STRUCTURE PLANS

**PROP APPROACH SLAB**



8/17/99

REVISIONS