

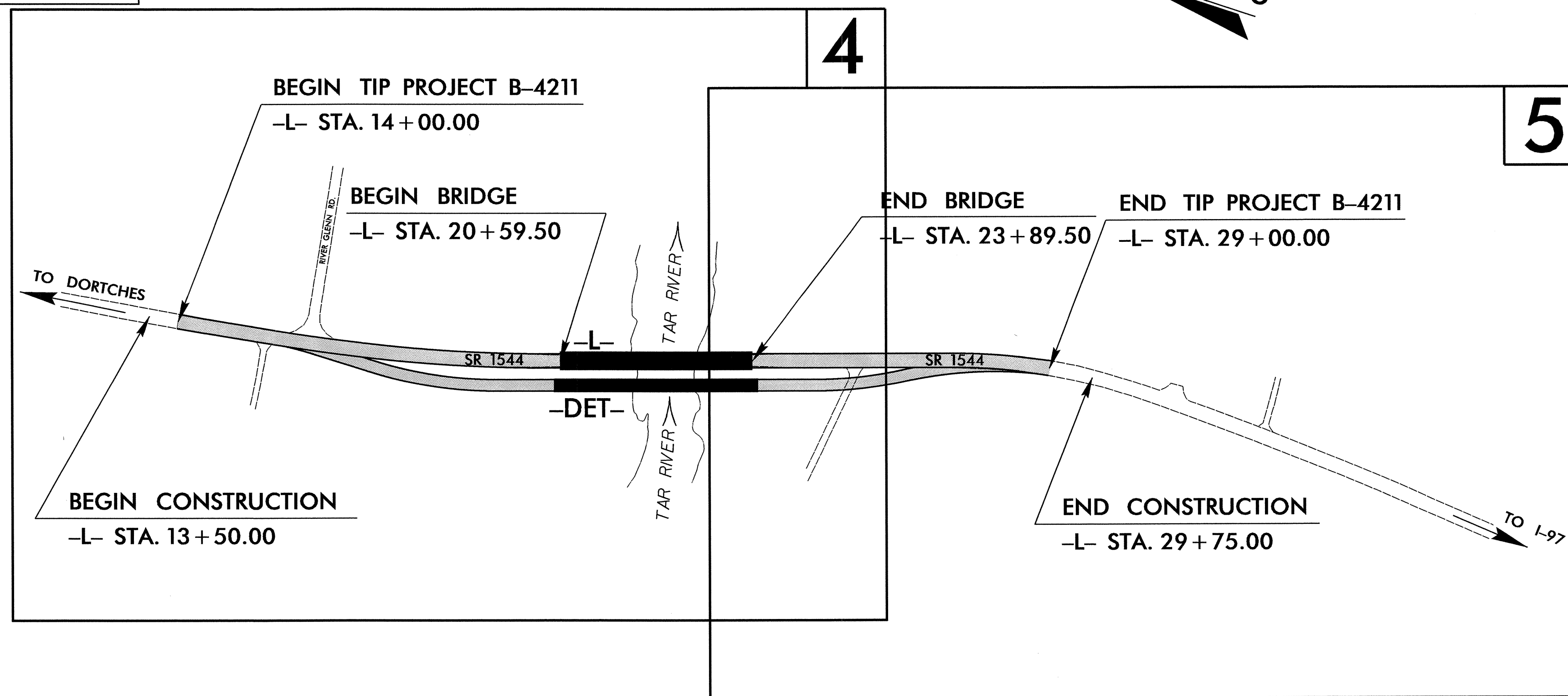
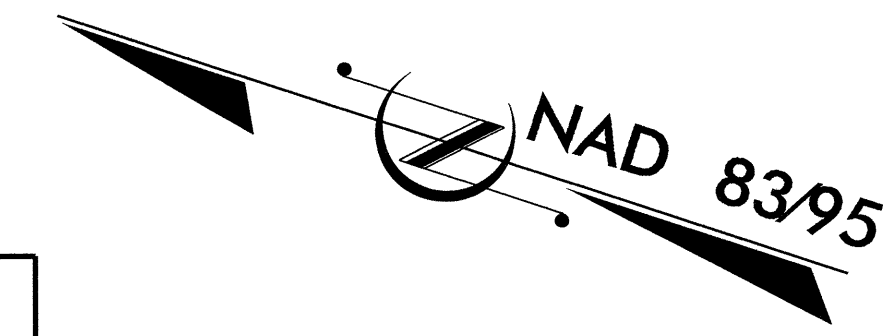
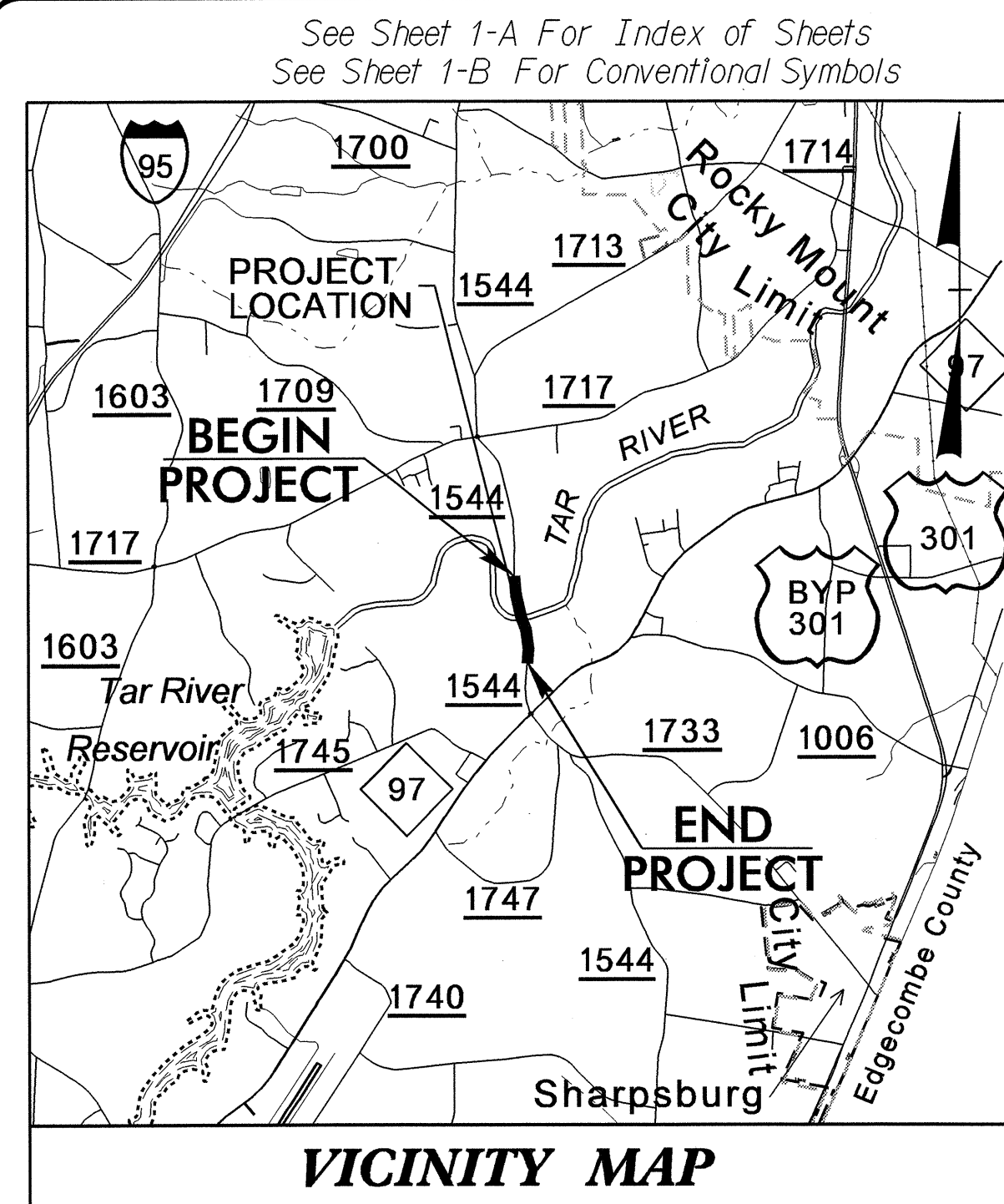
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4211	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33557.1.1	BRZ-1544(2)	PE	
33557.2.1	BRZ-1544(2)	RW, UTIL.	
33557.3.1	BRZ-1544(2)	CONST.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**NASH COUNTY**

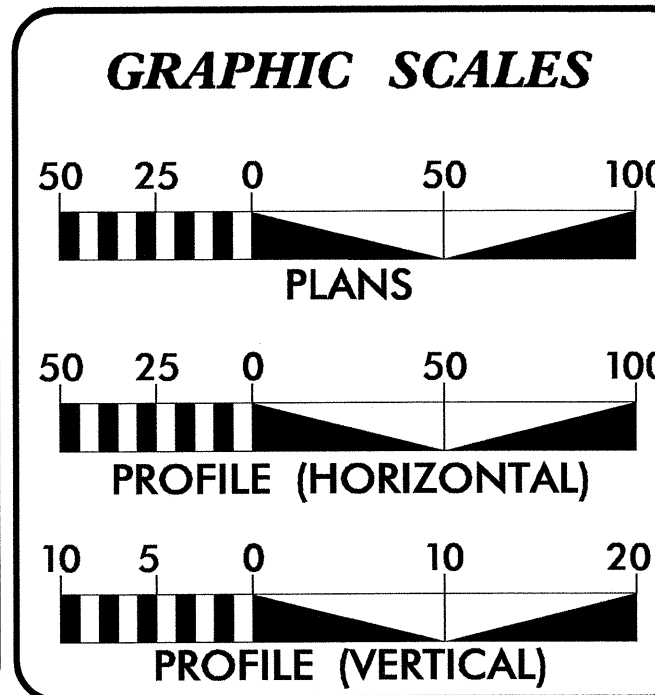
LOCATION: BRIDGE NO. 56 OVER TAR RIVER ON SR 1544 (S. HALIFAX RD.)

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



TIP PROJECT: B-4211

CONTRACT: C202909



**DESIGN DATA**

ADT 2011 =	8950 VPD
ADT 2030 =	15600 VPD
DHV =	14 %
D =	55 %
T =	3 % *
V =	50 MPH
V <sub>DET</sub> =	45 MPH
* TTST	1 % DUAL 2 %
Func. Class. =	Collector
	Statewide Tier

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4211 =	0.221 MI
LENGTH STRUCTURE TIP PROJECT B-4211 =	0.063 MI
TOTAL LENGTH TIP PROJECT B-4211 =	0.284 MI

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

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
OCTOBER 20, 2010

**LETTING DATE:**  
DECEMBER 20, 2011

**JAMES A. SPEER, P.E.**  
PROJECT ENGINEER

**NYA K. BOAYUE, P.E.**  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

*(Signature)*  
20329  
ENGINEER  
JAY A. BILLINGS

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

*(Signature)*  
SEAL  
2011  
ENGINEER  
NYA K. BOAYUE

SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS**  
STATE OF NORTH CAROLINA

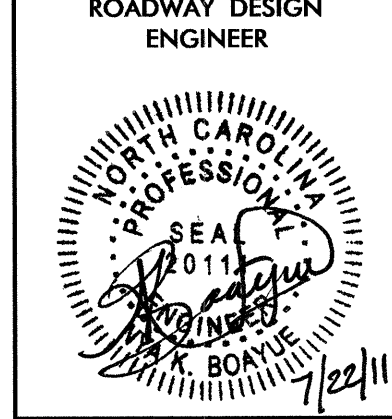
STATE HIGHWAY DESIGN ENGINEER

P.E.

01-NOV-2011 09:45 R:\Roadway\Proj\11\B4211\rdy-tsh.dgn \$\$\$USERNAME\$\$\$

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**INDEX OF SHEETS**

PROJECT REFERENCE NO.	SHEET NO.
B-4211	1-A



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C THRU 1-D	LOCATION AND SURVEYS
2 THRU 2-B	TYPICAL SECTIONS, PAVEMENT SCHEDULE, AND MISCELLANEOUS DETAILS
2-C THRU 2-E	ANCHORAGE FOR FRAMES AND METHOD OF PIPE INSTALATION
3	SUMMARY OF QUANTITIES
3-A THRU 3-B	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, ASPHALT PAVEMENT REMOVAL SUMMARY, CHAIN LINK FENCE, AND SUMMARY OF DRAINAGE QUANTITIES
3-C	PARCEL INDEX SHEET
4 THRU 6	PLAN SHEET
7 THRU 8	PROFILE SHEET
TMP-1 THRU TMP-4	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-8	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UD-1 THRU UD-3	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-24	CROSS SECTION PLANS
S-1 THRU S-42	STRUCTURE 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.

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 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  
City of Rocky Mount  
Centurylink Telephone  
Suddenlink CATV  
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.

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 Superlevation - Two Lane Pavement
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
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
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.01	Chain Link Fence - 4', 5' and 6' High Fence
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

04/16/11

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	○ EIP
Property Corner	-----
Property Monument	□ ECM
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	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

## BUILDINGS AND OTHER CULTURE:

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

## HYDROLOGY:

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

## RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

## RIGHT OF WAY:

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

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	○ CR
Curb Cut Future Ramp	○ CCFR
Existing Metal Guardrail	-T-T-T-
Proposed Guardrail	-T-T-T-
Existing Cable Guiderail	-P-P-P-
Proposed Cable Guiderail	-P-P-P-
Equality Symbol	⊕
Pavement Removal	▭

## VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	~~~~~
Woods Line	~~~~~

Orchard	○ ○ ○ ○
Vineyard	▭ Vineyard

## EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	▭ CONC
Bridge Wing Wall, Head Wall and End Wall	▭ CONC WW
MINOR:	
Head and End Wall	▭ CONC HW
Pipe Culvert	▭
Footbridge	▭
Drainage Box: Catch Basin, DI or JB	▭ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	-S-

## UTILITIES:

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

## TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Booth	▭
Telephone Pedestal	▭
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	○ W
Water Meter	○
Water Valve	○
Water Hydrant	○
Recorded U/G Water Line	-W-
Designated U/G Water Line (S.U.E.*)	-W-
Above Ground Water Line	-A/G Water-

## TV:

TV Satellite Dish	⊗
TV Pedestal	▭
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:

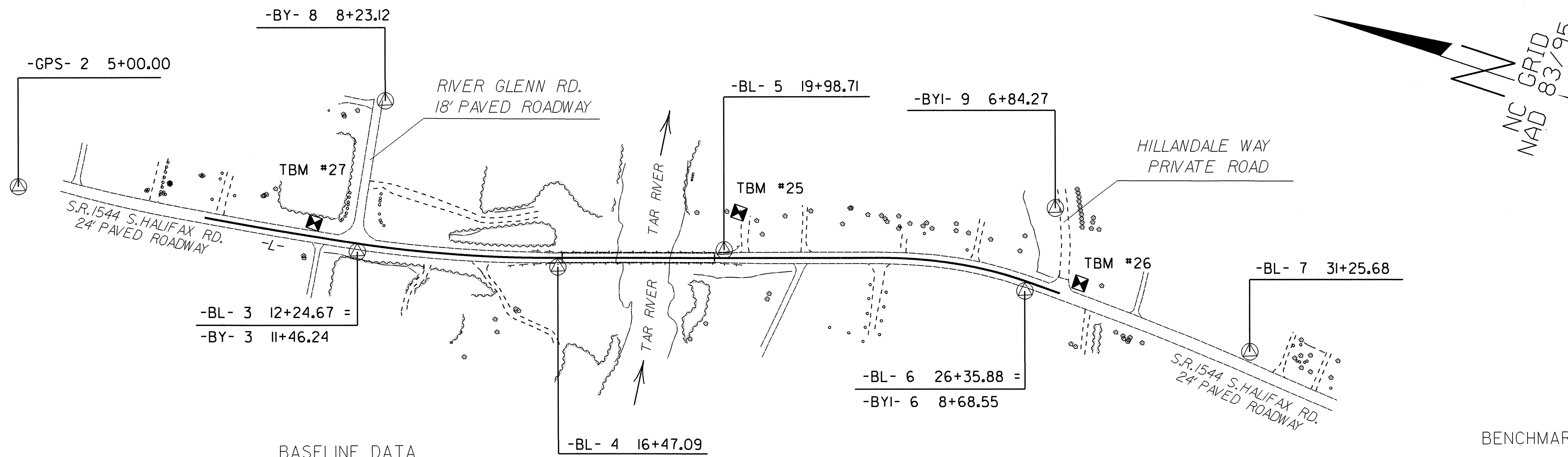
Utility Pole	●
Utility Pole with Base	▭
Utility Located Object	○
Utility Traffic Signal Box	▭
Utility Unknown U/G Line	-2UTL-
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	▭ UST
A/G Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊗
U/G Test Hole (S.U.E.*)	⊗
Abandoned According to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

6/22/99

I:\JUL-2010\038  
R:\Roadway\Projects\B4211\1s-1c-110713.dgn

# SURVEY CONTROL SHEET B-4211

PROJECT REFERENCE NO.	SHEET NO.
B-4211	1-C
Location and Surveys	



BASELINE DATA

BENCHMARK DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	-GPS- 2		785587.2570	2335747.0280	131.63	OUTSIDE PROJECT LIMITS	
3	-BL- 3	12+24.67 =	784868.6410	2335840.4730	116.76	16+35.34	16.56 RT
4	-BL- 4	11+46.24	784458.5190	2335941.6610	115.97	20+55.53	19.27 RT
5	-BL- 5		784137.7230	2336085.6350	116.86	24+05.28	16.95 LT
6	-BL- 6	26+35.88 =	783511.2870	2336202.1030	120.88	30+48.35	19.49 RT
7	-BL- 7		783022.1770	2336228.0680	139.75	OUTSIDE PROJECT LIMITS	

BY	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
8	-BY- 8		784911.5900	2336160.7250	116.64	16+48.97	306.30 LT
24	-BY- 3		784868.6410	2335840.4730	116.76	16+35.34	16.56 RT

BY1	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
9	-BY1- 9		783504.4160	2336386.2490	119.85	30+53.24	164.71 LT
30	-BY1- 6		783511.2870	2336202.1030	120.88	30+48.35	19.49 RT

\*\*\*\*\*  
TBM 25 ELEVATION = 109.91  
N 784133 E 2336170  
L STATION 24+36 95 LEFT  
RAILROAD SPIKE IN BASE OF 24" OAK TREE  
\*\*\*\*\*

\*\*\*\*\*  
TBM 26 ELEVATION = 126.97  
N 783406 E 2336253  
L STATION 31+19  
S 43° 52' 30.4" E DIST 47.27  
CHISELED "X" ON A FIRE HYDRANT FLANGE BOLT  
\*\*\*\*\*

\*\*\*\*\*  
TBM 27 ELEVATION = 119.40  
N 784973 E 2335870  
L STATION 15+37 29 LEFT  
CHISELED "X" ON FIRE HYDRANT FLANGE BOLT  
\*\*\*\*\*

### 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:  
B4211\_LS\_CONTROL\_081121.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 USER SERVICE (OPUS)

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4211 GPS-2"  
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF  
NORTHING: 785587.257 (FT) EASTING: 2335747.028 (FT)  
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99993628  
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4211 GPS-2" TO L- STATION 13+07.77 IS  
S 8°49'22.5 E 396.62 FT  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

# SURVEY CONTROL SHEET B-4211

### ROW MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	16+54.65	-40.00	784859.5090	2335899.5105
L	17+80.23	29.72	784722.7878	2335856.2543
L	17+76.27	60.00	784719.9953	2335825.8320
L	18+21.00	104.00	784665.0537	2335793.5637
L	18+67.06	110.00	784617.1579	2335799.5017
L	18+76.87	50.00	784622.7194	2335860.0913
L	20+00.00	60.00	784499.3020	2335885.5616
L	20+00.00	-40.00	784529.4005	2335980.9245
L	20+00.00	-60.00	784535.4202	2335999.9971
L	20+34.97	-60.00	784502.8756	2336010.5010
L	23+50.00	60.00	784166.1145	2335995.2421
L	25+60.00	75.00	783961.9879	2336046.7917
L	25+76.91	45.00	783955.3245	2336080.5806
L	27+50.00	45.00	783791.5355	2336134.5188
L	29+00.00	45.00	783652.3487	2336166.5659
L	29+00.00	30.00	783654.5640	2336181.4014
L	26+66.00	-30.00	783894.2219	2336179.7155
L	26+66.00	-60.00	783903.6212	2336208.2052
L	26+44.00	-90.00	783933.9127	2336229.8020
L	25+42.61	-90.00	784030.1941	2336198.0372
L	25+01.09	-60.00	784060.2270	2336156.5383
L	23+50.00	90.00	784156.7153	2335966.7526

### PERMANENT EASEMENT POINTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	23+23.29	60.00	784191.4774	2335986.8745
L	23+16.65	90.00	784188.3849	2335956.3042
L	20+13.00	76.00	784481.7503	2335874.3581
L	20+51.00	76.00	784445.0479	2335886.3701
L	20+13.00	60.00	784486.6391	2335889.5918
L	20+51.00	60.00	784450.0608	2335901.5645

### DESIGN ALIGNMENTS

TYPE	STATION	NORTH	EAST
PC	13+07.77	785195.3334	2335807.8616
PT	15+67.66	784938.2313	2335845.7924
PC	16+10.64	784895.8159	2335852.7064
PT	20+34.97	784484.0772	2335953.5218
PC	27+36.26	783818.0993	2336173.2393
PT	30+64.64	783494.8775	2336221.3502
POT	31+19.42	783440.1140	2336220.0824

### DRV2

TYPE	STATION	NORTH	EAST
POT	10+00.00	784710.1401	2335889.6947
PC	10+52.73	784698.0303	2335838.3750
PT	10+95.65	784666.0900	2335815.3904
PC	11+19.94	784641.8970	2335817.6110
PT	11+88.08	784575.1690	2335830.7744
PC	12+01.41	784562.4230	2335834.6893
PT	12+34.63	784531.8982	2335826.7093

### DRV3

TYPE	STATION	NORTH	EAST
POT	10+00.00	783969.4233	2336123.3149
POT	11+98.52	783994.7249	2335926.4112

### DRV4

TYPE	STATION	NORTH	EAST
POT	10+00.00	783900.0172	2336146.2132
PC	10+42.98	783913.4845	2336187.0333
PT	10+90.06	783951.3281	2336206.1385
POT	11+96.02	784052.0079	2336173.0991

### NOTES:

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PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

### DATUM DESCRIPTION

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WITH NAD 83/95 STATE PLANE GRID COORDINATES OF  
 NORTHING: 785587.257 (FT) EASTING: 2335747.028 (FT)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT  
 (GROUND TO GRID) IS: 0.99993628

THE N.C. LAMBERT GRID BEARING AND  
 LOCALIZED HORIZONTAL GROUND DISTANCE FROM  
 "B-4211 GPS-2" TO -L- STATION 13+07.77 IS  
 S 8°49'22.5 E 396.62 FT

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

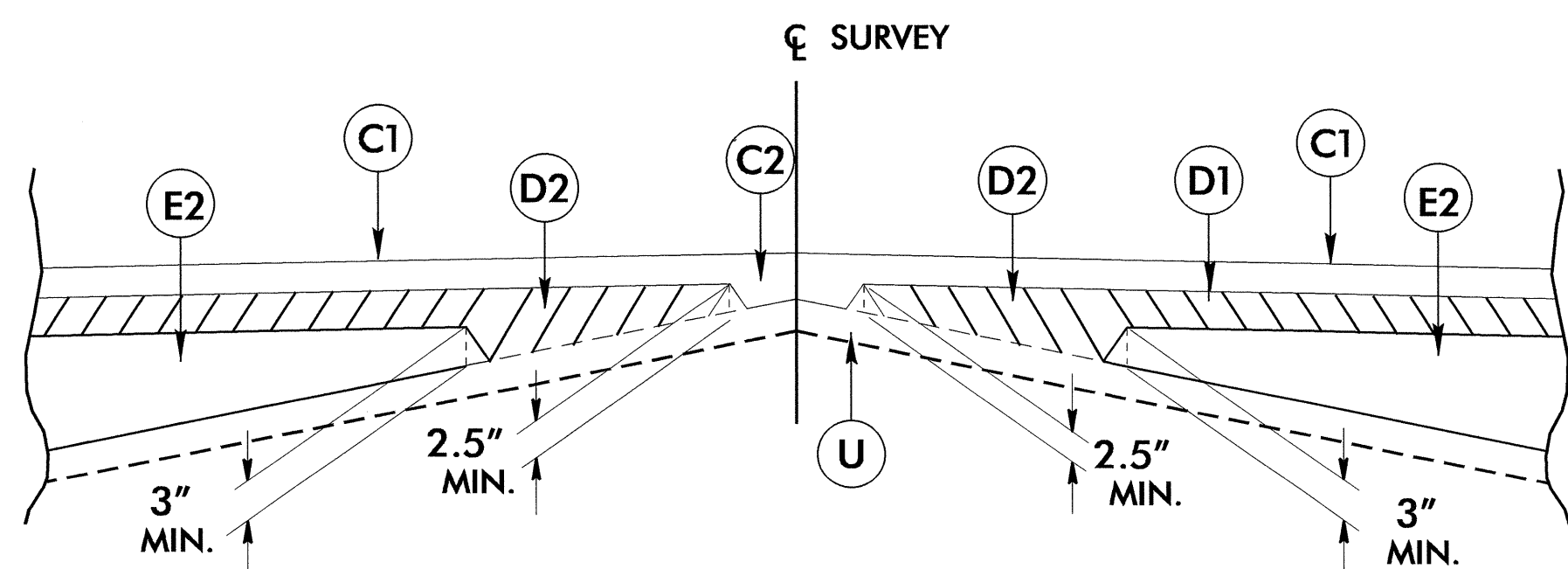
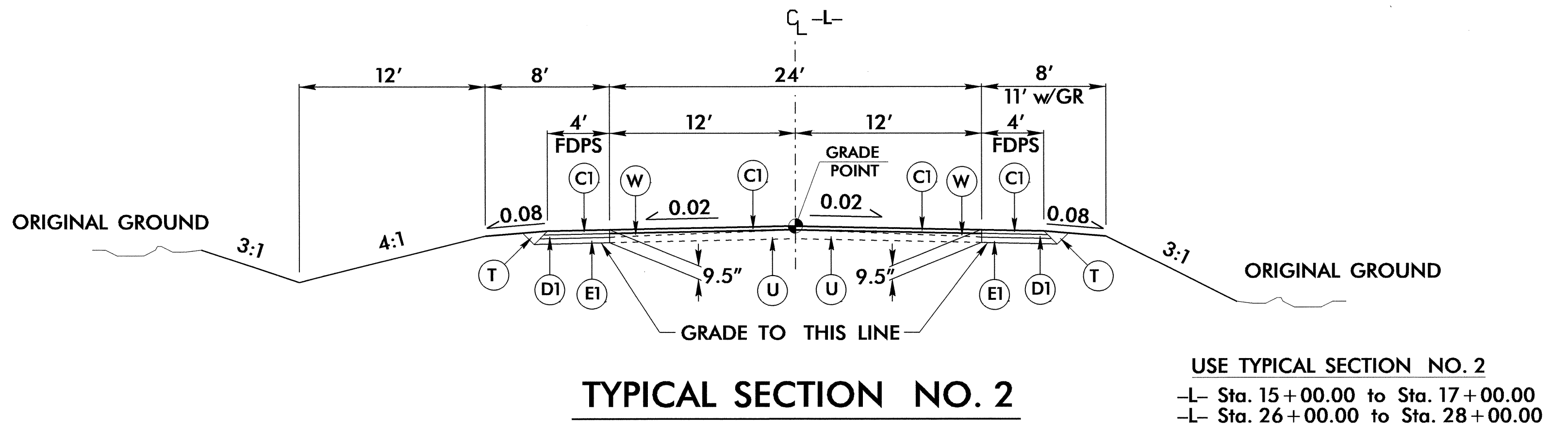
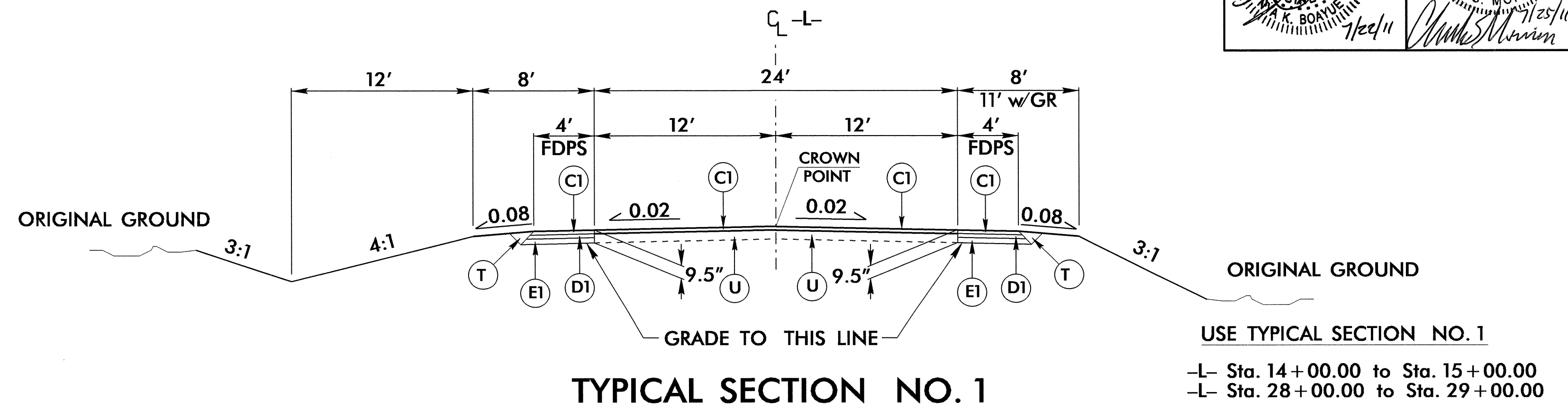
NOTE: DRAWING NOT TO SCALE

6/2/99

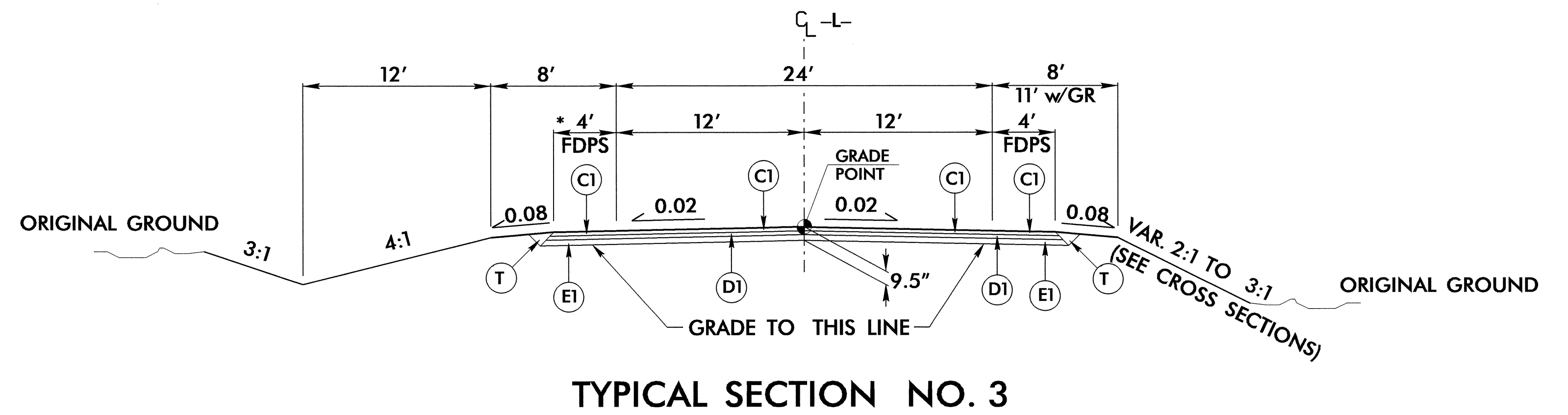
PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
A	PROP. 6" PORTLAND CEMENT CONCRETE PAVEMENT.
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD, PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 2.5" 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 2.5" 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 5.5" IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE.
J2	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT RATE OF 0.35 GAL. PER SQ. YARD
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL NO. 1)

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

PROJECT REFERENCE NO. B-4211	SHEET NO. 2
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	PAVEMENT DESIGN ENGINEER <i>[Signature]</i>
SEAL 2011 K. BOATMAN	SEAL 22896 CLARK S. MORRISON

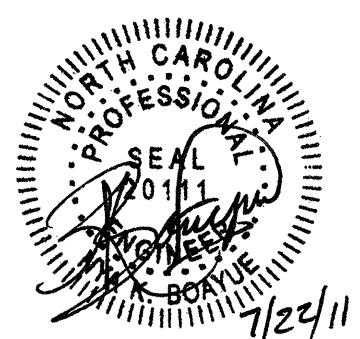
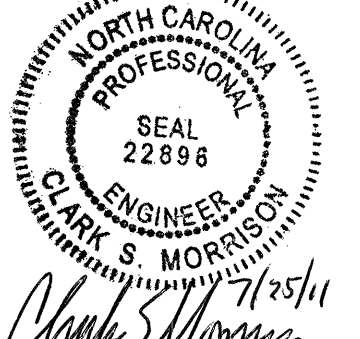


**Detail Showing Method of Wedging**  
**DETAIL NO. 1**

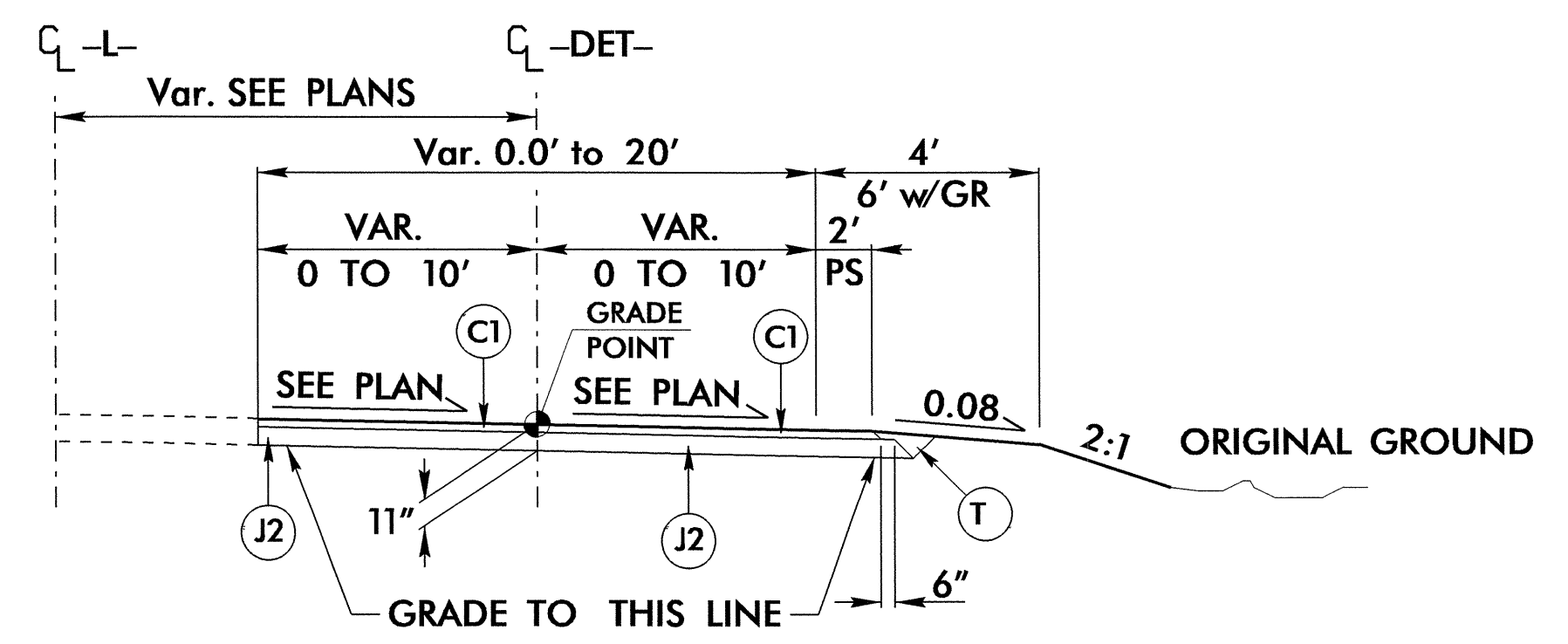


\* INSTALL SHOULDER BERM GUTTER AS FOLLOWS:  
-L- (LT) 24+13.67 TO -L- STA. 24+50.00  
SEE ROADWAY STD. DWG. NO. 846.02

25-JUL-2011 14:04  
R:\Roadway\Projects\B-4211-rdy-tyr.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$

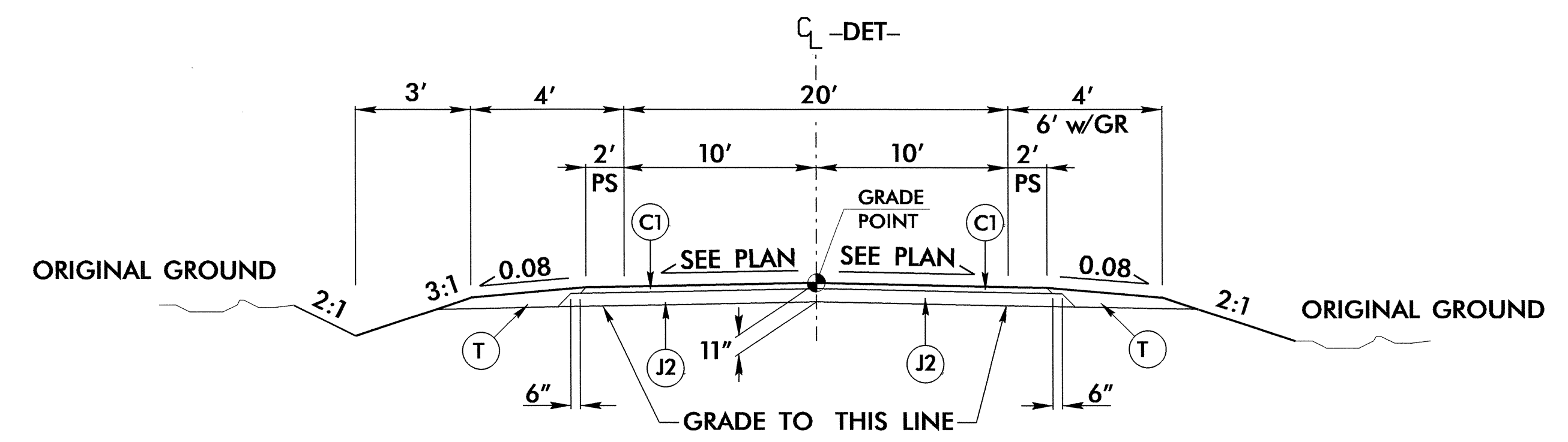
PROJECT REFERENCE NO. <b>B-4211</b>	SHEET NO. <b>2-A</b>
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 

PAVEMENT SCHEDULE	
C1	3" S9.5B
J2	8" ABC
T	EARTH MATERIAL



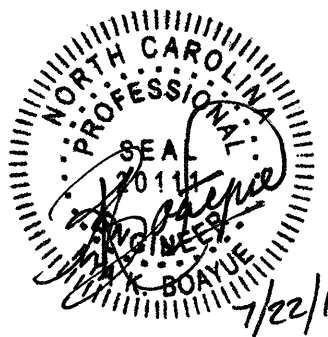
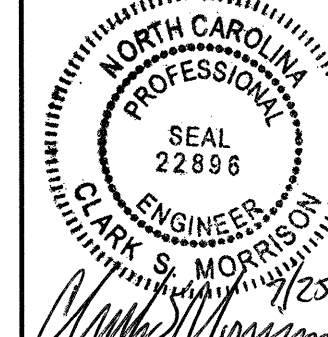
**TYPICAL SECTION NO. 4**

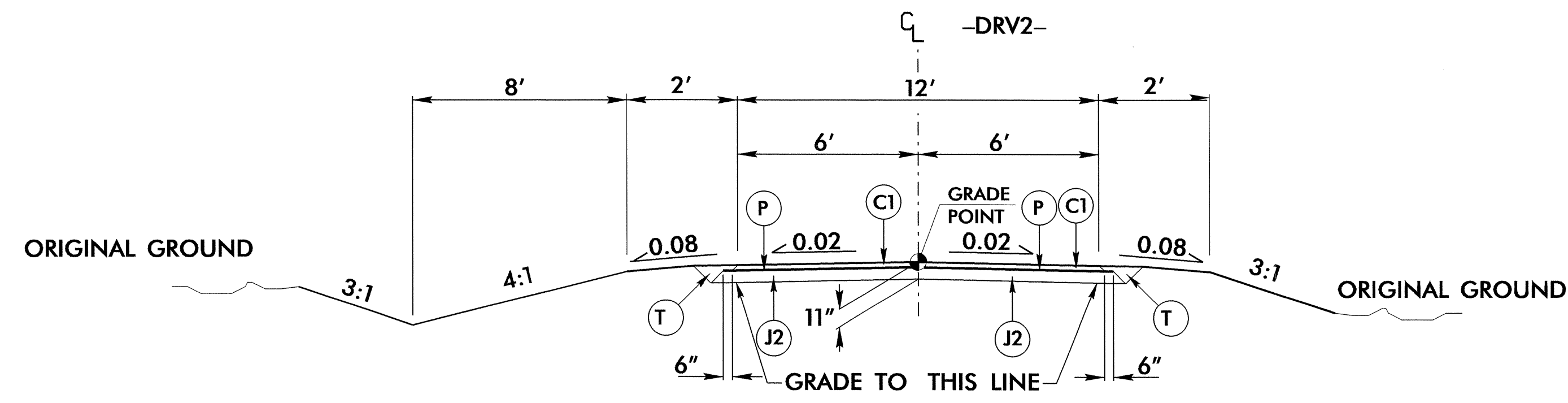
USE TYPICAL SECTION NO. 6  
 -DET- Sta. 10+00.00 to Sta. 11+84.02  
 -DET- Sta. 21+41.15 to Sta. 23+72.46



**TYPICAL SECTION NO. 5**

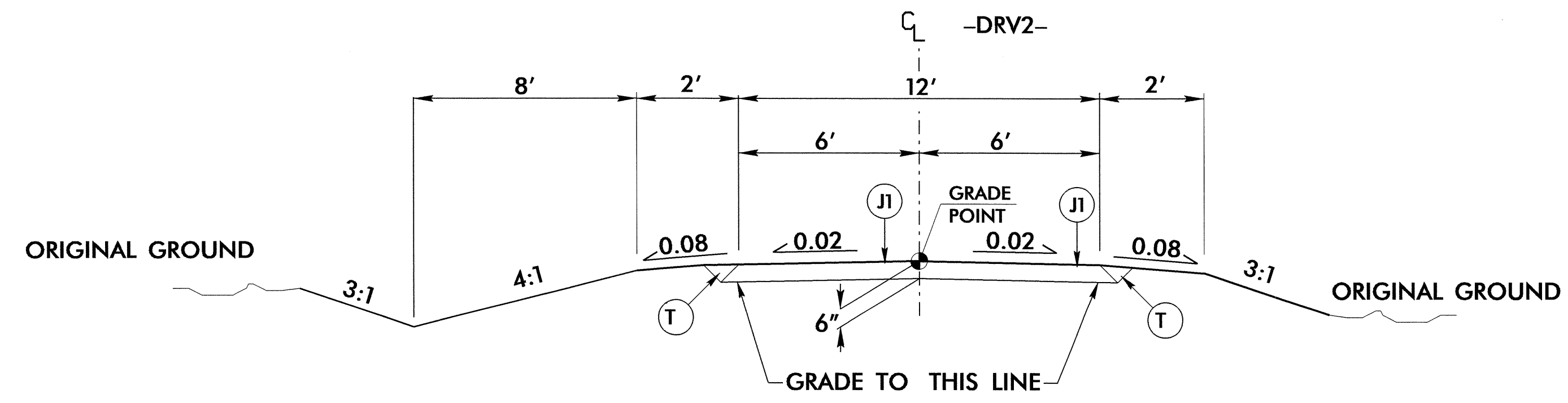
USE TYPICAL SECTION NO. 7  
 -DET- Sta. 11+84.02 to Sta. 15+44.00 (BEG. BRIDGE)  
 -DET- Sta. 18+50.00 (END BRIDGE) to Sta. 21+41.15

PROJECT REFERENCE NO. <b>B-4211</b>	SHEET NO. <b>2-B</b>
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 



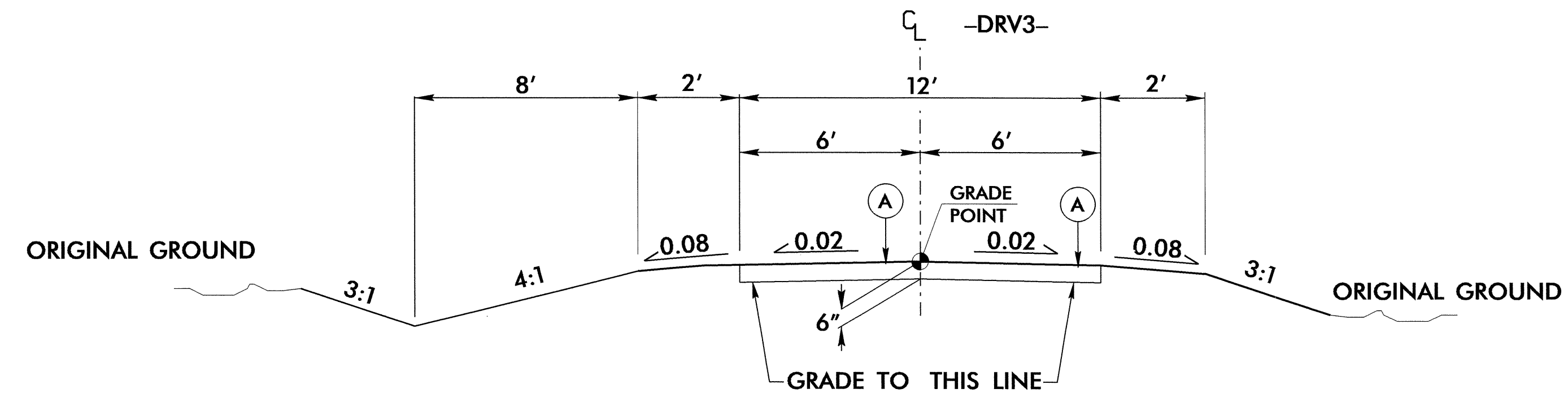
**TYPICAL SECTION NO. 6**

USE TYPICAL SECTION NO. 6  
 -DRV2- Sta. 10+16.00 to Sta. 11+45.00



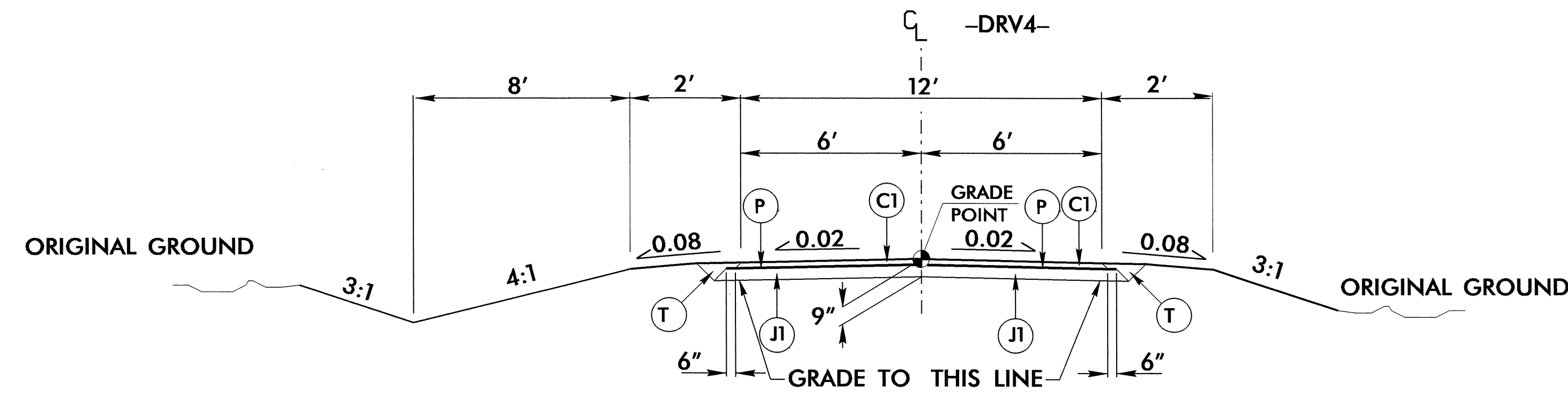
**TYPICAL SECTION NO. 7**

USE TYPICAL SECTION NO. 7  
 -DRV2- Sta. 11+45.00 to Sta. 12+34.63  
 -TDRV2- Sta. 10+46.00 to Sta. 12+34.63



**TYPICAL SECTION NO. 8**

USE TYPICAL SECTION NO. 8  
 -DRV3- Sta. 10+12.00 to Sta. 10+65.00



**TYPICAL SECTION NO. 9**

USE TYPICAL SECTION NO. 9  
 -DRV4- Sta. 10+12.00 to Sta. 11+96.02

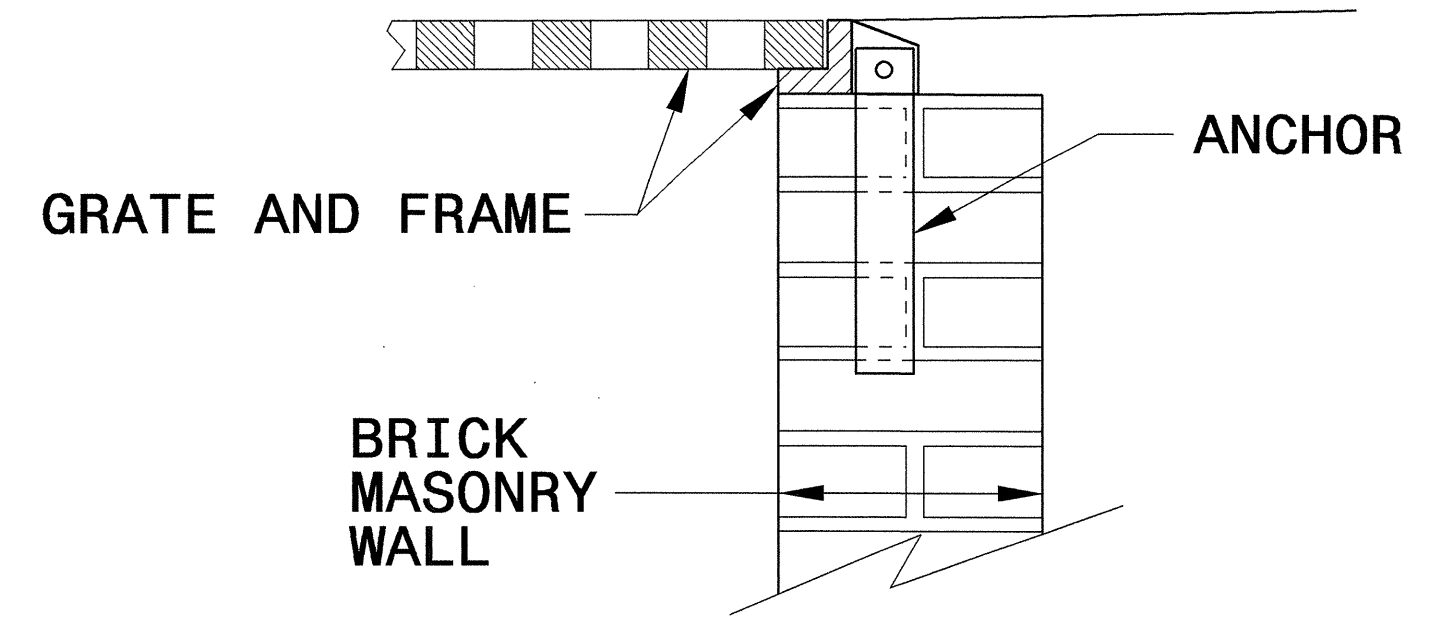
PAVEMENT SCHEDULE	
A	6" CONCRETE
C1	3" S9.5B
J1	6" ABC
J2	8" ABC
P	PRIME COAT
T	EARTH MATERIAL



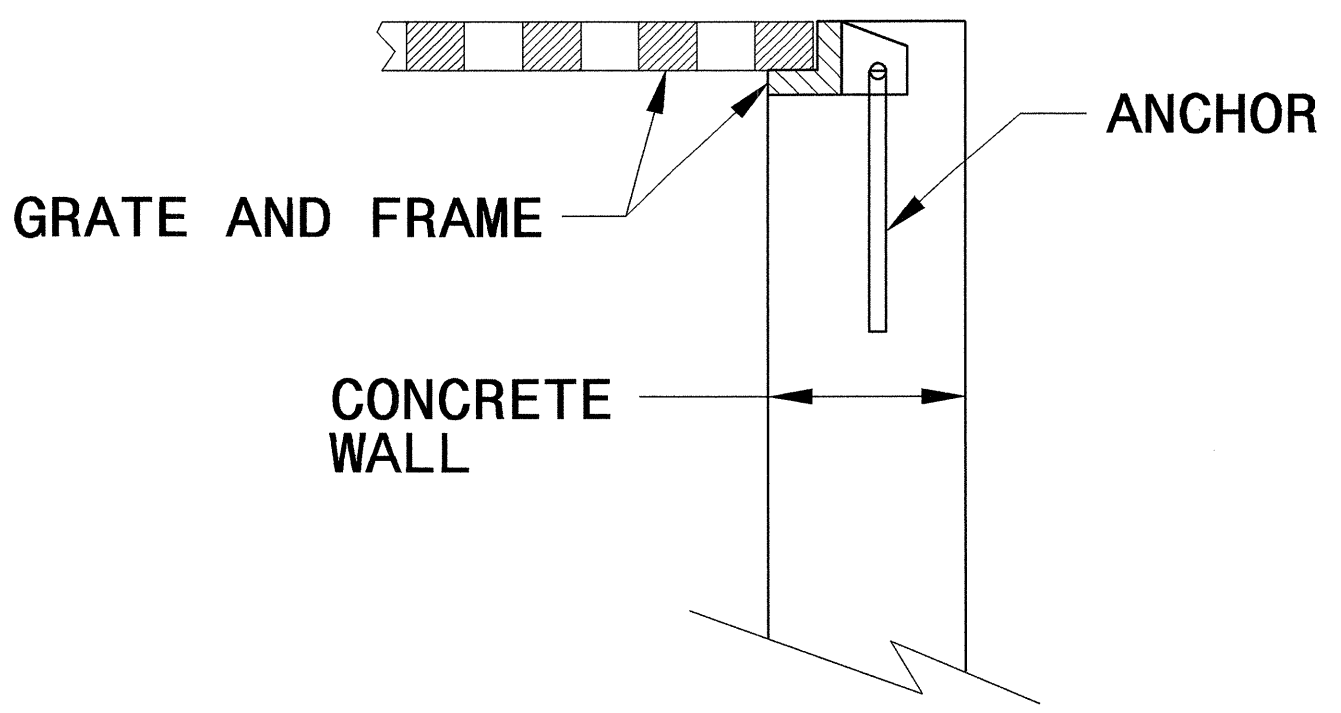
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

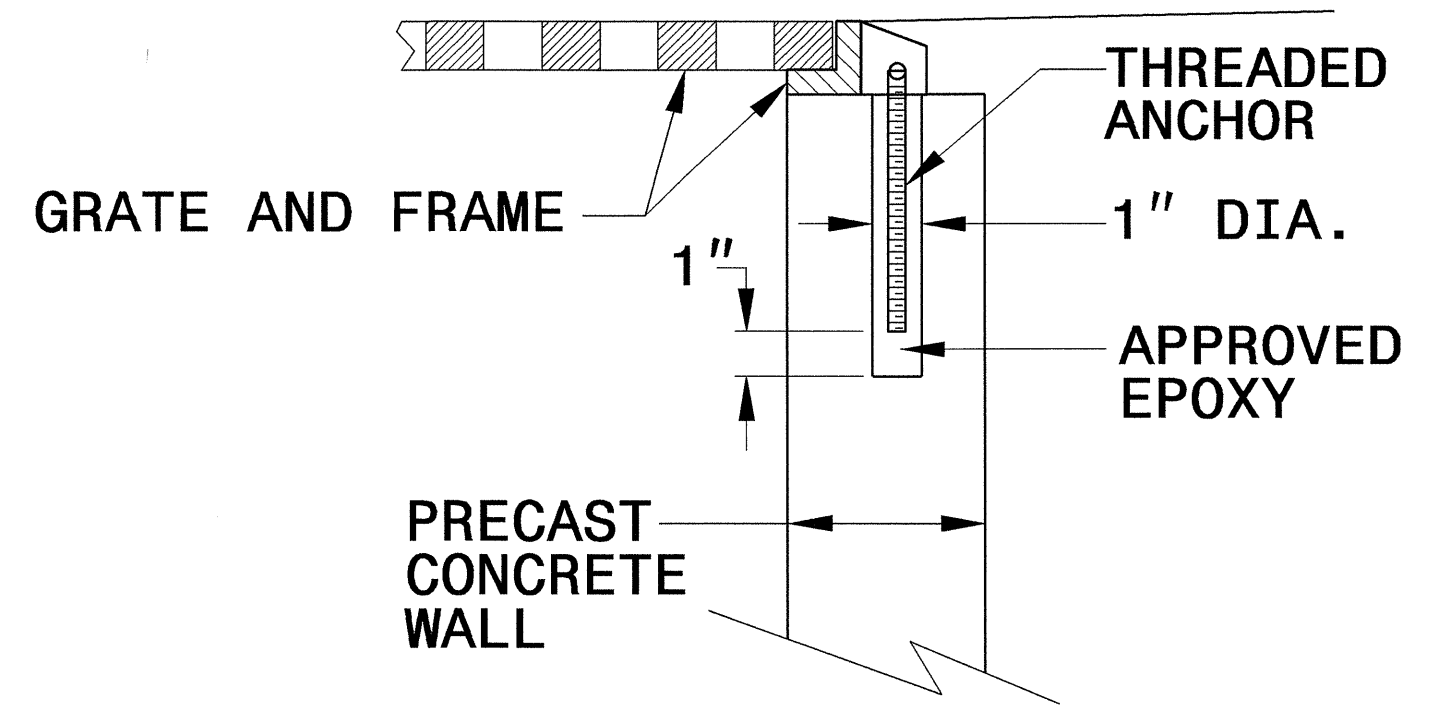
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



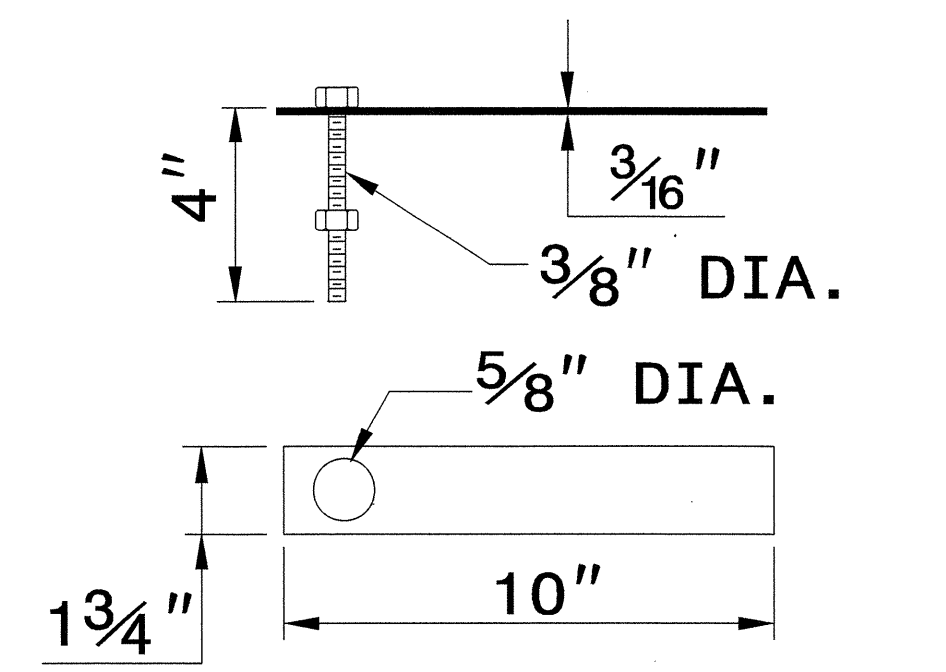
**CONCRETE CONSTRUCTION**



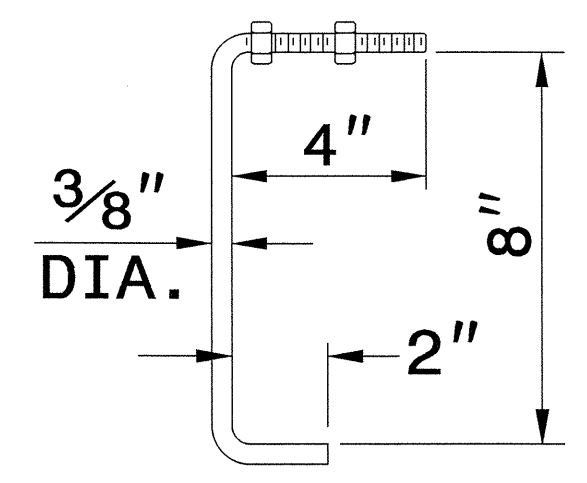
**PRECAST CONCRETE CONSTRUCTION**

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

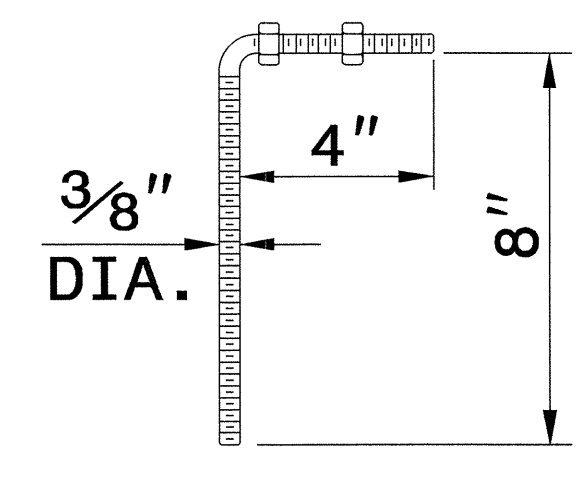
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



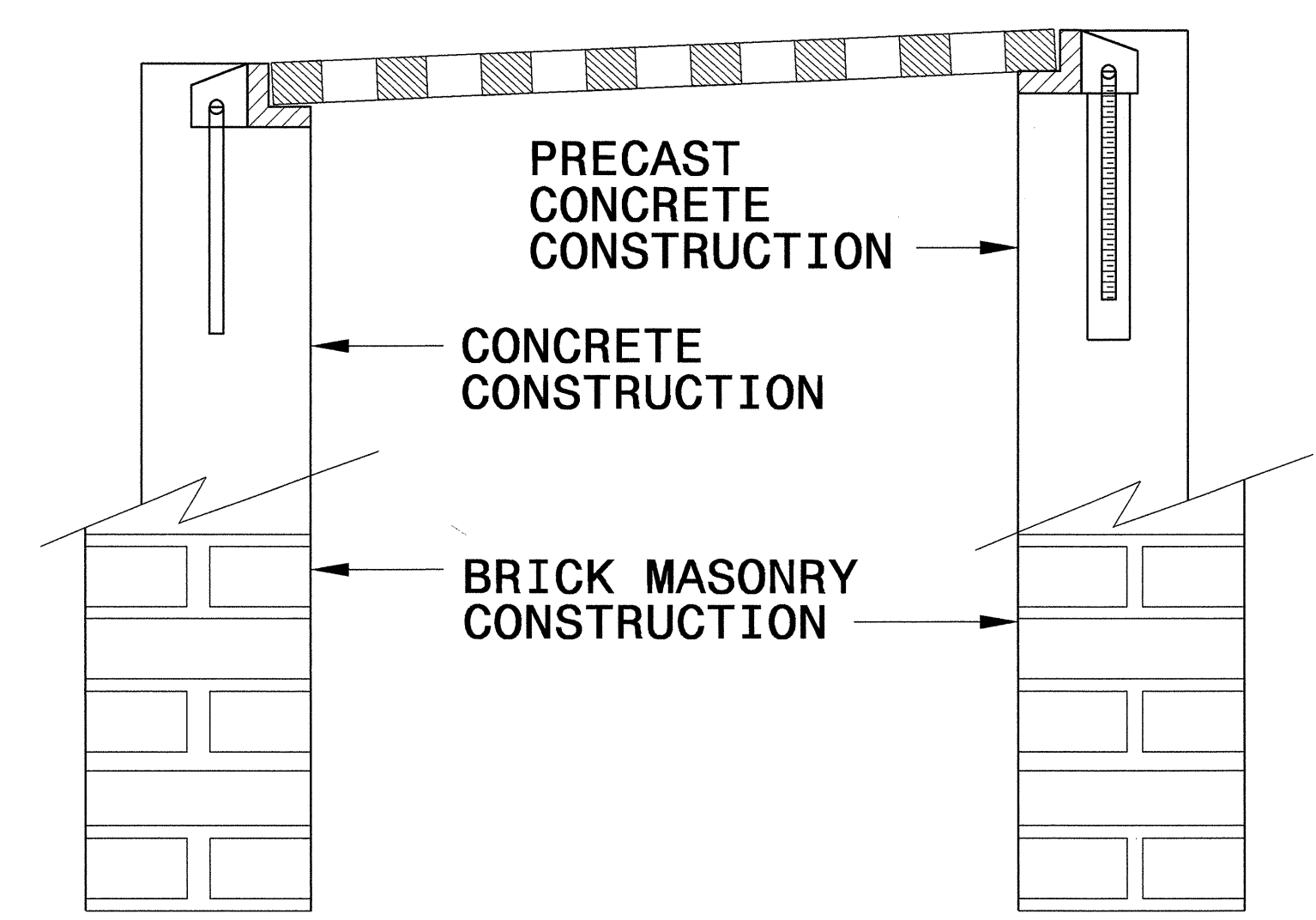
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



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



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



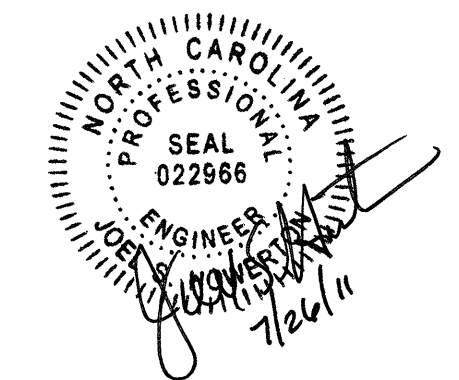
**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

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**

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$



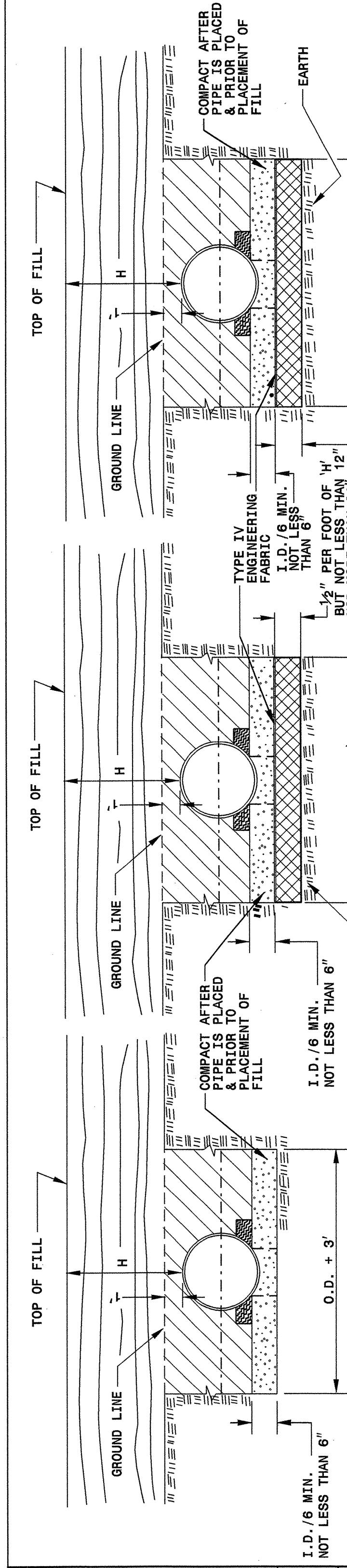
**PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN**  
Office 919-250-4128 FAX 919-250-4119

**SEE PLATE FOR TITLE**

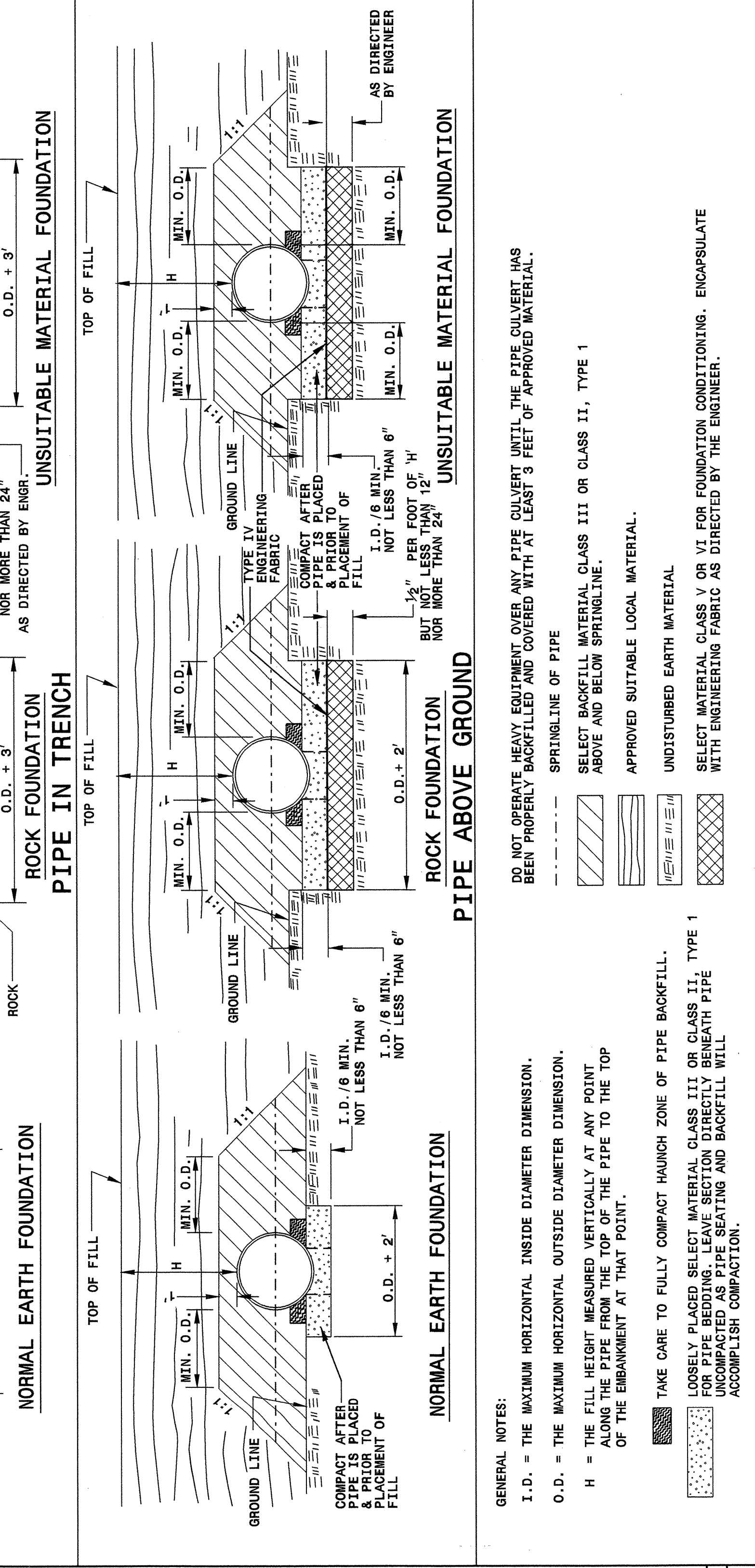
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MODIFIED BY: E.E. WARD DATE: 9/25/06  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
FILE SPEC.: \_\_\_\_\_

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STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.  
 7-06  
 ENGLISH DETAIL DRAWING FOR  
 METHOD OF PIPE INSTALLATION  
 FLEXIBLE PIPE

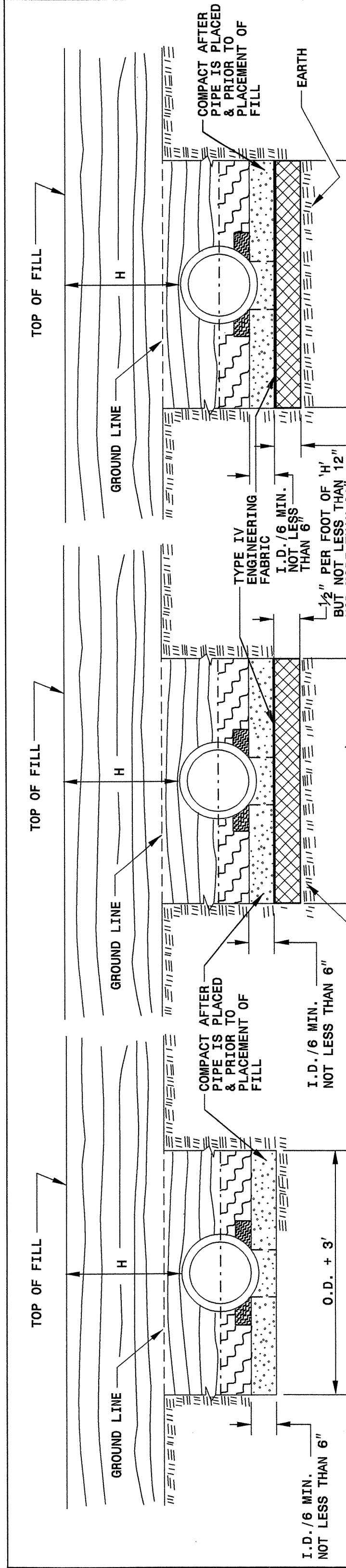


STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.  
 7-06  
 ENGLISH DETAIL DRAWING FOR  
 METHOD OF PIPE INSTALLATION  
 FLEXIBLE PIPE



SHEET 1 OF 3  
 300D01

STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.  
 7-06  
 ENGLISH DETAIL DRAWING FOR  
 METHOD OF PIPE INSTALLATION  
 RIGID PIPE



SHEET 2 OF 3  
 300D01

**GENERAL NOTES:**  
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.  
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.  
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

--- SPRINGLINE OF PIPE  
 SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.  
 APPROVED SUITABLE LOCAL MATERIAL.  
 UNDISTURBED EARTH MATERIAL  
 SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

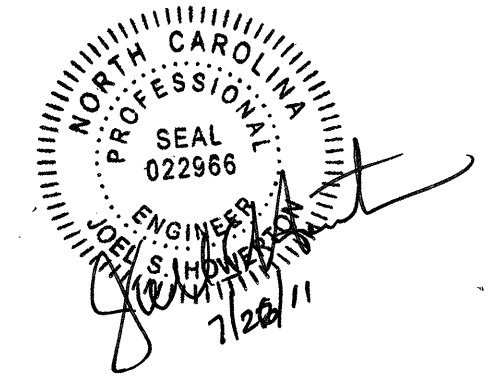
TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.  
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

**GENERAL NOTES:**  
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.  
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.  
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

--- SPRINGLINE OF PIPE  
 SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.  
 APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.  
 UNDISTURBED EARTH MATERIAL  
 SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.  
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.



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

**SEE PLATE FOR TITLE**

ORIGINAL BY: K Kempf DATE: 5-15-09  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE: 7/20/11  
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30-JUL-2008 08:49  
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 Power ton AT PS237501

5/14/99

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

7-06

ENGLISH DETAIL DRAWING FOR  
**METHOD OF PIPE INSTALLATION**

FILL HEIGHT TABLES

SHEET 3 OF 3  
**300D01**

**FLEXIBLE PIPE**

Round Corrugated Steel Pipe  
 2 2/3 x 1/2 corrugation \*\*

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet)				
		(Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe  
 2 2/3 x 1/2 corrugation \*\*

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet)				
		(Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

\*\* FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- CSP - AASHTO M36
- CAAP - AASHTO M196
- HDPE - AASHTO M294
- PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

**RIGID PIPE**

- RCP - \* (Minimum fill) 1' for Class IV & CLASS V  
 2' for Class III & Class II
- \* (Maximum fill) 10' - Class II pipe  
 20' - Class III pipe  
 30' - Class IV pipe  
 40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

\* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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

7-06

ENGLISH DETAIL DRAWING FOR  
**METHOD OF PIPE INSTALLATION**

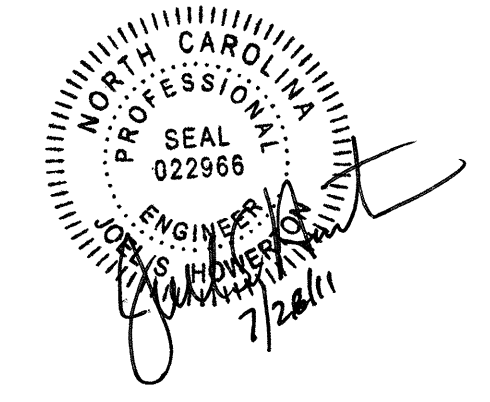
FILL HEIGHT TABLES

SHEET 3 OF 3  
**300D01**

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

**SEE PLATE FOR TITLE**

ORIGINAL BY: K Kempf DATE: 5-15-09  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE: 7/30/09  
 FILE SPEC: ericward/stds/stdstodetails/30001/0300d01.dgn



# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202657

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (22+24.50)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
005700000-E	226	200	CY	UNDERCUT EXCAVATION
013400000-E	240	680	CY	DRAINAGE DITCH EXCAVATION
019500000-E	SP	200	CY	SELECT GRANULAR MATERIAL
019600000-E	270	3,500	SY	FABRIC FOR SOIL STABILIZATION
031800000-E	SP	60	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
032000000-E	SP	180	SY	FOUNDATION CONDITIONING FABRIC
034300000-E	SP	260	LF	15" SIDE DRAIN PIPE
034400000-E	SP	72	LF	18" SIDE DRAIN PIPE
036600000-E	SP	64	LF	15" RC PIPE CULVERTS, CLASS III
058200000-E	SP	128	LF	15" CS PIPE CULVERTS, 0.064" THICK
063600000-E	SP	4	EA	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")
099500000-E	340	255	LF	PIPE REMOVAL
112100000-E	520	1,350	TON	AGGREGATE BASE COURSE
122000000-E	545	100	TON	INCIDENTAL STONE BASE
127500000-E	600	172	GAL	PRIME COAT
133000000-E	607	120	SY	INCIDENTAL MILLING
148900000-E	610	590	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	400	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0B
151900000-E	610	1,140	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
157500000-E	SP	115	TON	ASPHALT BINDER FOR PLANT MIX
186900000-E	710	113	SY	***** PORT CEM CONC PAVEMENT, MISCELLANEOUS (WITHOUT DOWELS) (6")
200000000-N	806	23	EA	RIGHT OF WAY MARKERS
202200000-E	SP	22.4	CY	SUBDRAIN EXCAVATION
203300000-E	SP	16.8	CY	SUBDRAIN FINE AGGREGATE
204400000-E	SP	100	LF	6" PERFORATED SUBDRAIN PIPE
207000000-N	SP	1	EA	SUBDRAIN PIPE OUTLETS
207700000-E	SP	6	LF	6" OUTLET PIPE (SUBDRAINS)
228600000-N	840	7	EA	MASONRY DRAINAGE STRUCTURES
235500000-N	840	7	EA	FRAME WITH GRATE, STD 840.29
255600000-E	846	40	LF	SHOULDER BERM GUTTER
303000000-E	862	600	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	935	LF	REMOVE EXISTING GUARDRAIL
338000000-E	862	400	LF	TEMPORARY STEEL BM GUARDRAIL
338700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (B-77)
338900000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (350)
353300000-E	866	92	LF	CHAIN LINK FENCE, *** FABRIC (48")
353900000-E	866	8	EA	METAL LINE POSTS FOR *** CHAIN LINK FENCE (48")
354500000-E	866	2	EA	METAL TERMINAL POSTS FOR *** CHAIN LINK FENCE (48")
355100000-E	866	2	EA	METAL GATE POSTS FOR *** CHAIN LINK FENCE, SINGLE GATE (48")

ItemNumber	Sec #	Quantity	Unit	Description
356400000-E	866	1	EA	SINGLE GATES, *** HIGH, ** WIDE, ** OPENING (48", 21", 22')
364900000-E	876	111	TON	RIP RAP, CLASS B
365600000-E	876	2,125	SY	FILTER FABRIC FOR DRAINAGE
365900000-N	SP	2	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
407200000-E	903	52	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
409600000-N	904	2	EA	SIGN ERECTION, TYPE D
415500000-N	907	14	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
440000000-E	1110	92	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	128	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	36	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	40	EA	DRUMS
443500000-N	1135	30	EA	CONES
444500000-E	1145	32	LF	BARRICADES (TYPE III)
445000000-N	1150	3,200	HR	FLAGGER
468500000-E	1205	2,553	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
468600000-E	1205	2,539	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
471000000-E	1205	25	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
481000000-E	1205	18,000	LF	PAINT PAVEMENT MARKING LINES (4")
485000000-E	1205	5,600	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
489100000-E	1205	1,324	LF	GENERIC PAVEMENT MARKING ITEM COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE II or III (4")
490000000-N	1251	260	EA	PERMANENT RAISED PAVEMENT MARKERS
600000000-E	1605	3,400	LF	TEMPORARY SILT FENCE
600600000-E	1610	310	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	1,100	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	710	TON	SEDIMENT CONTROL STONE
601500000-E	1615	5	ACR	TEMPORARY MULCHING
601800000-E	1620	200	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	1.75	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	480	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	11	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
602900000-E	SP	600	LF	SAFETY FENCE
603000000-E	1630	1,600	CY	SILT EXCAVATION
603600000-E	1631	3,600	SY	MATting FOR EROSION CONTROL
603700000-E	SP	50	SY	COIR FIBER MAT
603800000-E	SP	250	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	430	LF	1/4" HARDWARE CLOTH
604800000-E	SP	100	SY	FLOATING TURBIDITY CURTAIN
607000000-N	SP	12	EA	SPECIAL STILLING BASINS
607102000-E	SP	180	LB	POLYACRYLAMIDE (PAM)
607103000-E	SP	400	LF	COIR FIBER BAFFLE
607105000-E	SP	4	EA	*** SKIMMER (1-1/2")
608400000-E	1660	5	ACR	SEEDING & MULCHING
608700000-E	1660	5	ACR	MOWING
609000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	125	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	3.5	TON	FERTILIZER TOPDRESSING
611450000-N	SP	15	MHR	SPECIALIZED HAND MOWING
611700000-N	SP	50	EA	RESPONSE FOR EROSION CONTROL

ItemNumber	Sec #	Quantity	Unit	Description
612300000-E	1670	0.5	ACR	REFORESTATION

12/06/07

COMPUTED BY: TAH DATE: 6/28/11  
 CHECKED BY: NKB DATE: 7/1/11

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4211 SHEET NO. 3-A

48" CHAIN LINK FENCE

STATION TO STATION	LOCATION LT/RT/CL	48" FABRIC LF	LINE POST	TERMINAL POST
-L- 24+68.18 TO 25+11.00	LT	51.32	4.11	1
-L- 25+27.57 TO 25+60.00	LT	40.14	3.18	1
	TOTAL:	91.46	7.29	2
	SAY:	92	8	2
METAL GATE POSTS FOR 48" CHAIN LINK FENCE, SINGLE GATE - 2 EACH				
SINGLE GATES, 48" HIGH, 21' WIDE, 22' OPENING - 1 EACH				

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +25%	BORROW	WASTE
PHASE I (CONST. -DET-)					
-DET- 10+00.00	-DET- 15+44.00	34	3333	3299	
-DET- 18+50.00	-DET- 22+00.00	87	1648	1561	
-TDRV2- 10+64.63	-TDRV2- 11+45.00	14	120	106	
SUBTOTAL:		135	5101	4966	
PHASE II (CONST. -L-)					
-L- 14+00.00	-L- 20+59.50	187	1574	1387	
-L- 23+89.50	-L- 29+00.00	362	1140	778	
-DRV4- 10+25.00	-DRV4- 11+75.00	19	33	14	
SUBTOTAL:		568	2747	2179	
PHASE III (REMOVE -DET-)					
-DET- 10+00.00	-DET- 15+44.00	2626	121		2505
-DET-18+50.00	-DET- 22+00.00	1006	110		896
-TDRV2- 10+64.63	-TDRV2- 11+45.00	96	18		78
SUBTOTAL:		3728	249		3479
TOTAL:		4431	8097	7145	3479
LOSS TO CLEARING AND GRUBBING		-206		206	
PROJECT TOTALS:		4250	8097	7351	3479
5% FOR BORROW PIT				368	
GRAND TOTALS:		4250		7719	
SAY:		4250		7750	

DRAINAGE DITCH EXCAVATION = 680 CY  
 UNDERCUT EXCAVATION = 200 CY

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

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.

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD'
ASPHALT PAVEMENT REMOVAL				
-L-	17+00.00	20+64.00	CL	970.67
-L-	23+85.00	26+00.00	CL	573.33
-DET-	10+00.00	11+94.41	CL	217.96
-DET-	11+94.41	15+44.00	CL	932.24
-DET-	18+50.00	21+30.56	CL	748.16
-DET-	21+30.56	29+00.00	CL	85.49
TOTAL:				3527.85
SAY:				3530
CONCRETE PAVEMENT REMOVAL				
-DRV3-	10+16.00	10+90.00	CL	112.51
TOTAL:				112.51
SAY:				113

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	24+13.67 (LT)	24+50.00 (LT)	36.33
TOTAL:			36.33
SAY:			40

"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 SHOULDER WIDTH	FLARE LENGTH W				ANCHORS				IMPACT ATTENUATOR TYPE 350			REMOVE EXISTING GUARDRAIL	TEMP. STEEL BEAM GUARDRAIL	REMARKS				
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TEMP. TYPE 350	TYPE III	TEMP. TYPE B-77	NO.	PERMITTED	G	NG							
-L-	17+52.00	20+59.50	LT.	318.75'				17+50.00	4'-0"	8'-0"		200.00'		1'														
-L-	18+30.00	20+59.50	RT.	231.25'				18+30.00	4'-0"	8'-0"	162.50'		1'															
-L-	23+89.50	26+08.25	LT.	218.75'				26+08.25	4'-0"	8'-0"	150.00'		1'															
-L-	23+89.50	24+90.00	RT.	106.25'				24+90.00	4'-0"	8'-0"		37.50'	1'															
-L-	20+00.46	24+37.31	LT.																									
-L-	19+51.36	24+43.06	RT.																									
-DET-	13+00.25	15+44.00	RT.					13+00.25	2'-0"	4'-0"	100.00'		1'															
-DET-	14+50.25	15+44.00	LT.					14+50.25	2'-0"	4'-0"		25.00'	1'															
-DET-	18+50.00	20+93.75	LT.					20+93.75	2'-0"	4'-0"	100.00'		1'															
-DET-	18+50.00	19+43.75	RT.					19+43.75	2'-0"	4'-0"		25.00'	1'															
SUBTOTAL				875.00'																								
LESS ANCHOR DEDUCTIONS:																												
GRAU-350 4 @ 50 ft.				200.00'																								
TEMP. GRAU-350 4 @ 50 ft.				200.00'																								
TEMP. TYPE B-77 4 @ 18.75 ft.				75.00'																								
ANCHOR TOTALS:				275.00'																								
TOTAL				600.00'																								
SAY				600.00'																								
ADDITIONAL GUARDRAIL POST = 5 EA																												

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
***PARCEL INDEX SHEET***

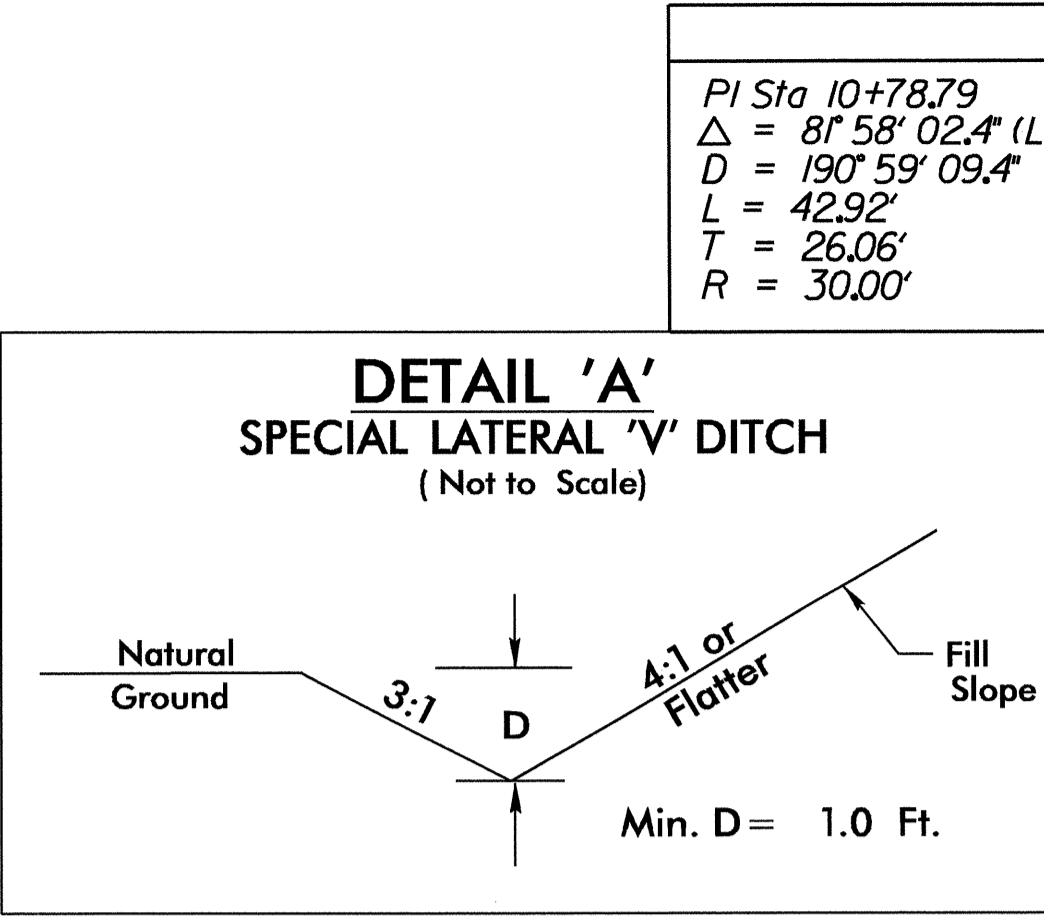
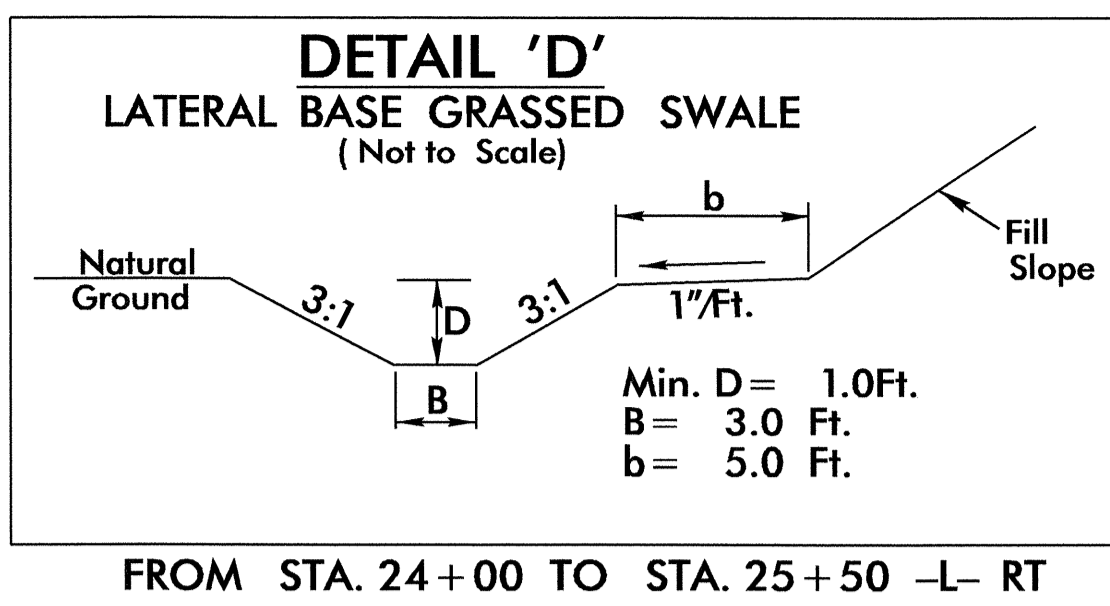
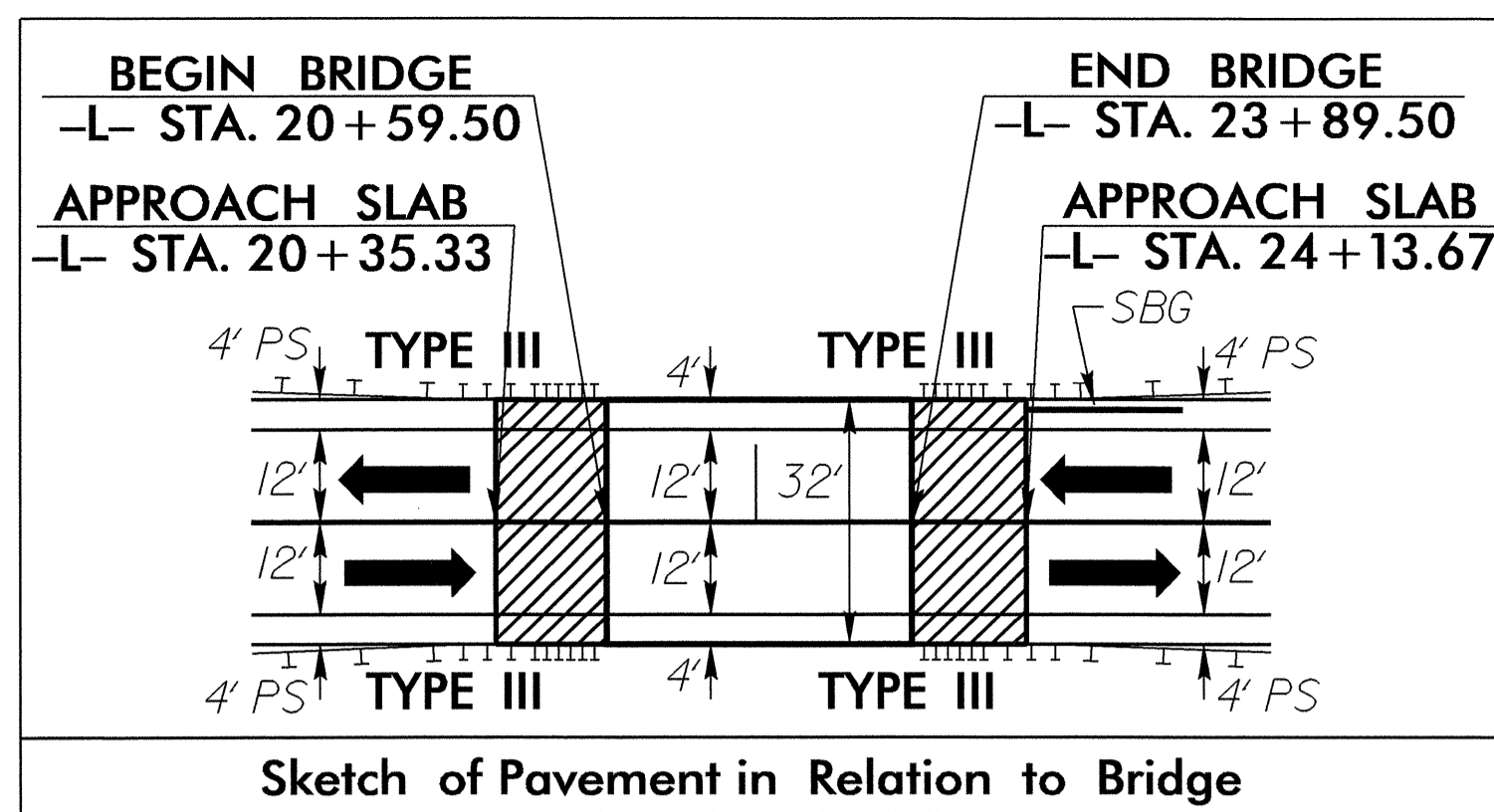
PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME
1	4	WALTER PRICE MOORE & WIFE, OLIVE KORNEGAY MOORE
2	4	NASH COUNTY (FEMA)
3	4	THE CITY OF ROCKY MOUNT
4	4	THOMAS J. VICK & WIFE, RUTH S.VICK
5	4	DANIEL T. DAVIS & WIFE ROXIE D. DAVIS
6	4, 5	WILLIAM D. PRIDGEN
7	4, 5	DALE M. PRIDGEN & WIFE, CYNTHIA V. PRIDGEN
8	5	DALE M. PRIDGEN
9	5	MARY ELIZABETH PRIDGEN BATTS
10	5	DALE M. PRIDGEN

52899

REVOLUTIONS

8/17/99

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-DRV2-		
PI Sta 10+78.79	PI Sta 11+54.13	PI Sta 12+19.96
$\Delta = 81^{\circ}58'02.4''$ (LT)	$\Delta = 1^{\circ}49'47.4''$ (LT)	$\Delta = 63^{\circ}27'00.8''$ (RT)
$D = 190^{\circ}59'09.4''$	$D = 17^{\circ}21'44.5''$	$D = 190^{\circ}59'09.4''$
$L = 42.92'$	$L = 68.14'$	$L = 33.22'$
$T = 26.06'$	$T = 34.19'$	$T = 18.55'$
$R = 30.00'$	$R = 330.00'$	$R = 30.00'$

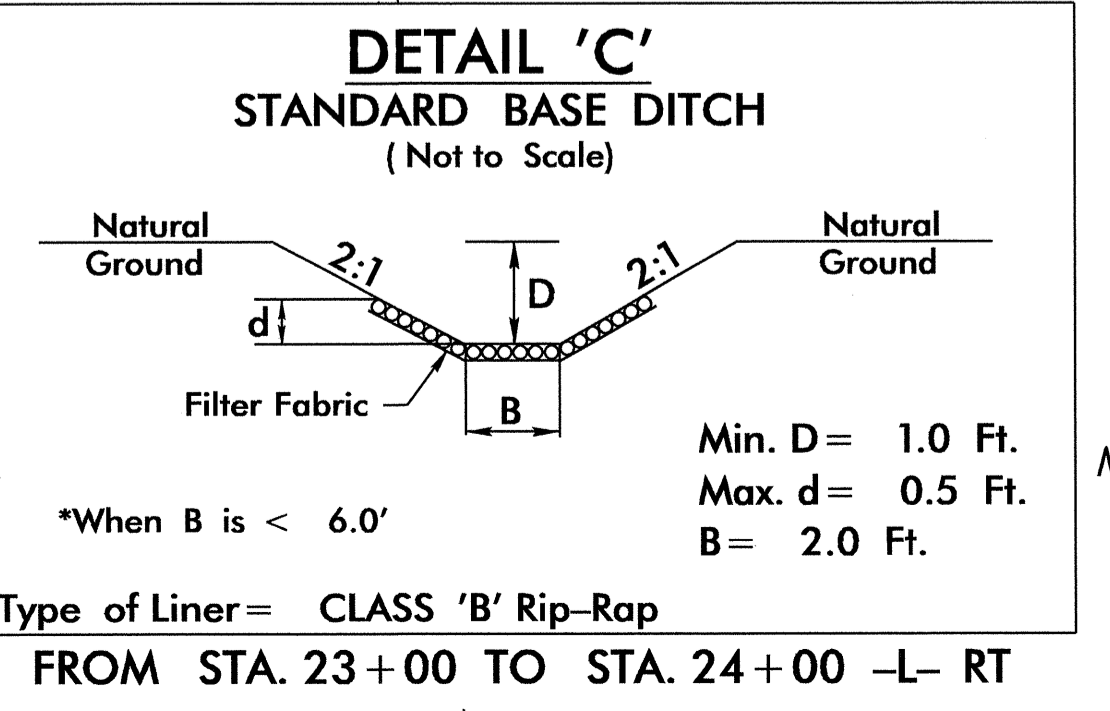
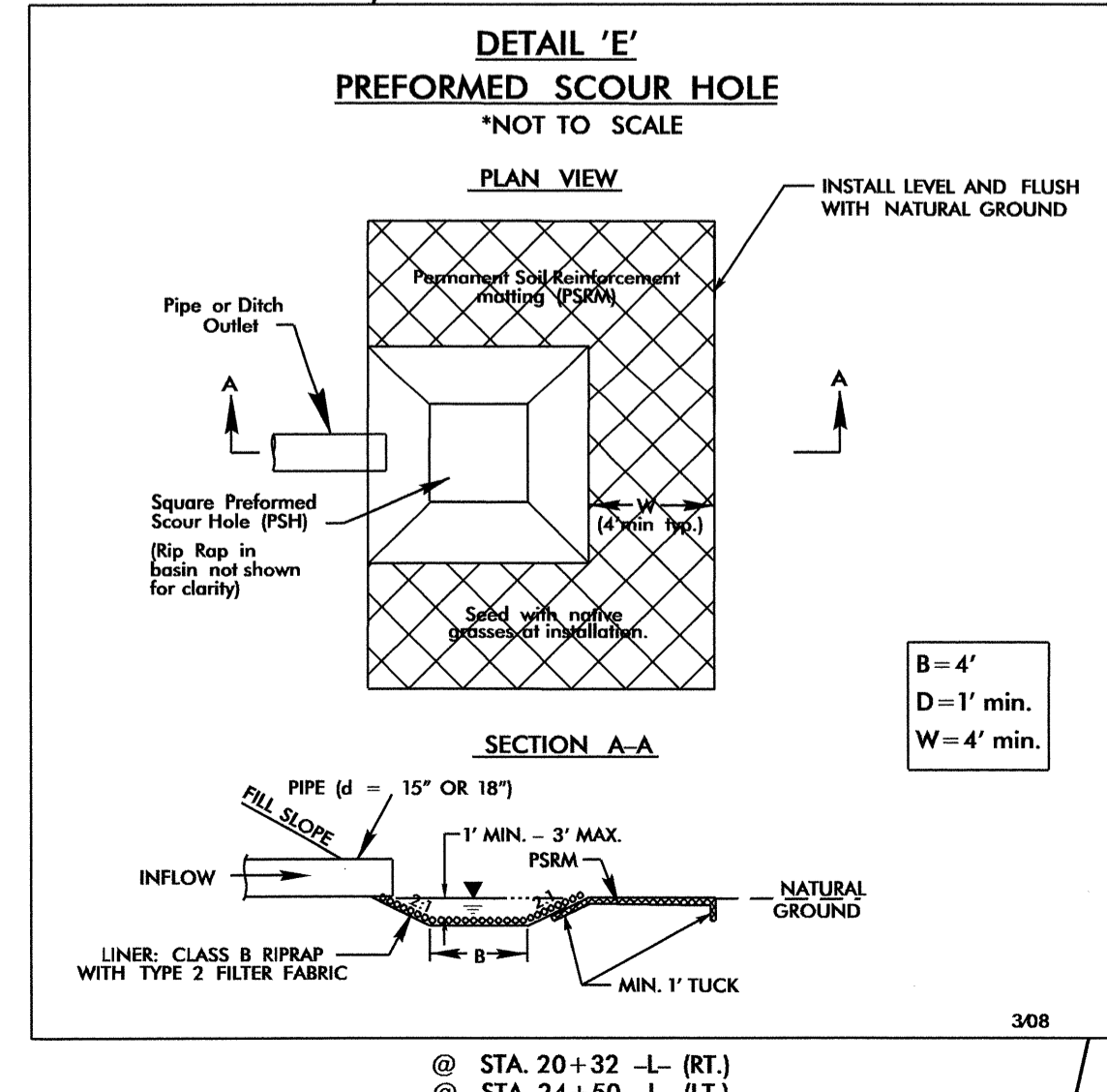
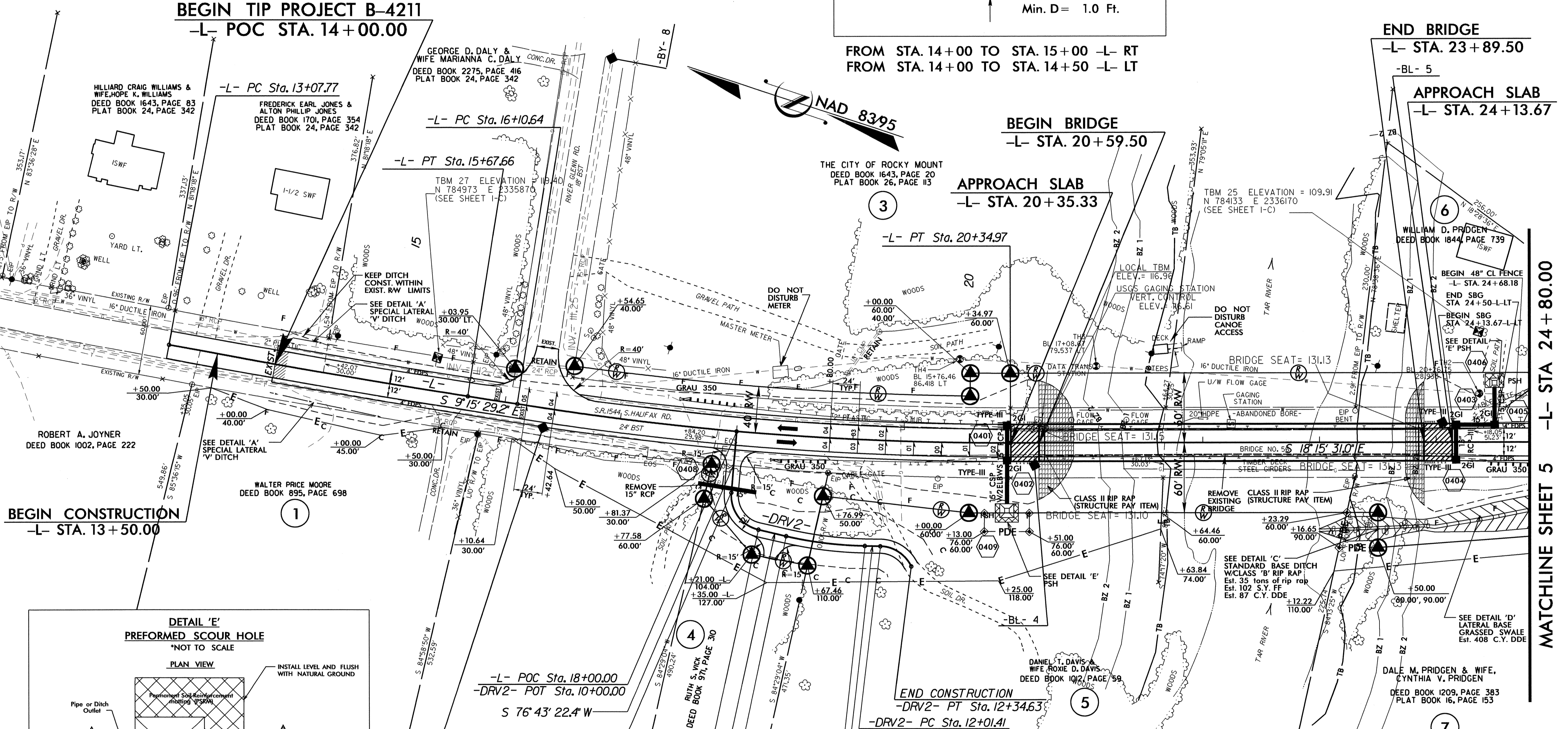
-L-	
PI Sta 14+37.72	PI Sta 18+23.24
$\Delta = 1^{\circ}43'53.0''$ (LT)	$\Delta = 9^{\circ}00'01.8''$ (LT)
$D = 0^{\circ}39'58.3''$	$D = 2^{\circ}07'15.8''$
$L = 259.89'$	$L = 424.34'$
$T = 129.96'$	$T = 212.61'$
$R = 8,600.60'$	$R = 2,701.27'$
$SE = N/A$	$SE = 04$
$RO = SEE PLANS$	$RO = 96'$

ROADWAY DESIGN ENGINEER: [Signature]

HYDRAULICS ENGINEER: [Signature]

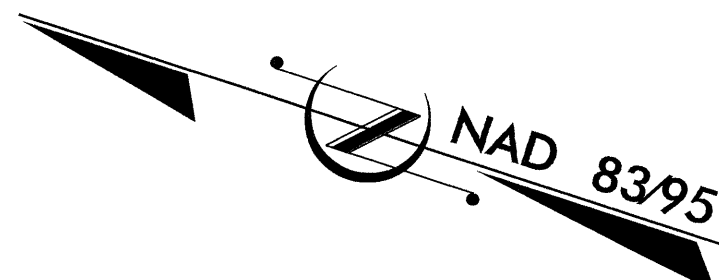
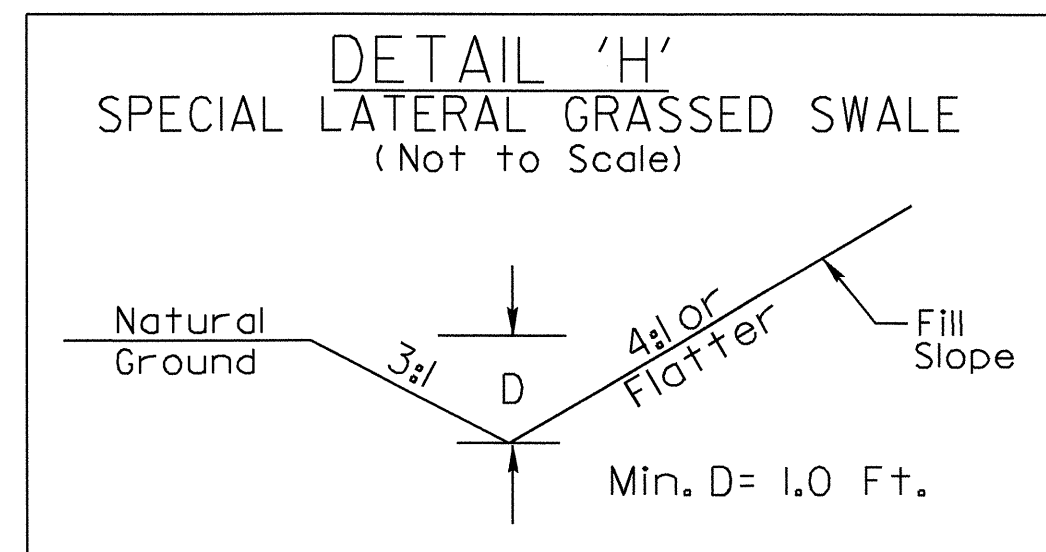
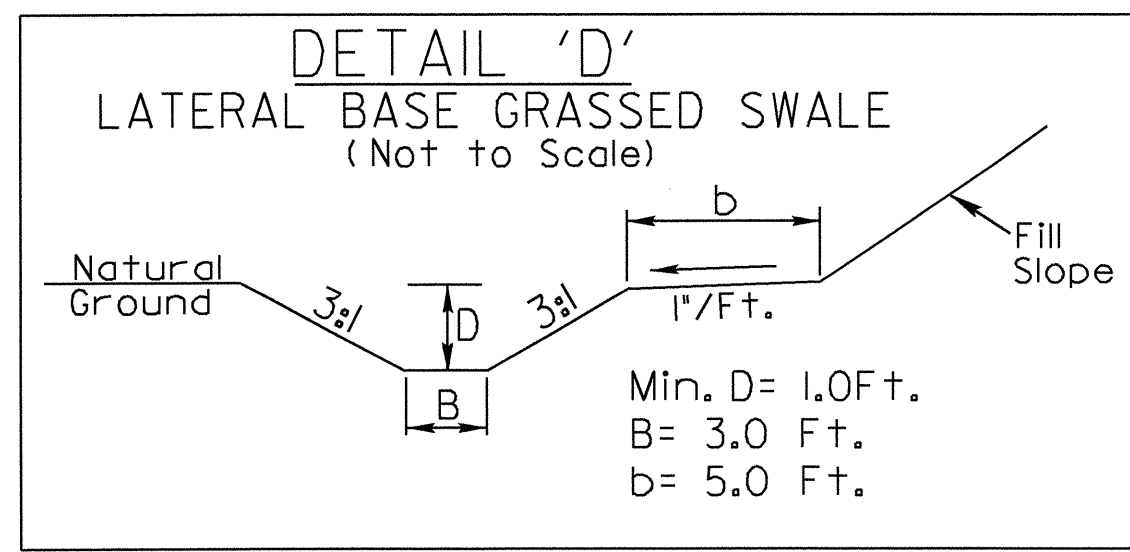
PROFESSIONAL SEAL: [Stamp]

9/2/11



NOTE:  
 SEE SHEET No.6 FOR DET ALIGNMENT  
 SEE SHEET No.7 FOR -L- & -DET- PROFILE  
 SEE SHEET No.8 FOR -DRV- PROFILES  
 SEE SHEET S-1 THRU S-42 FOR STRUCTURE PLANS

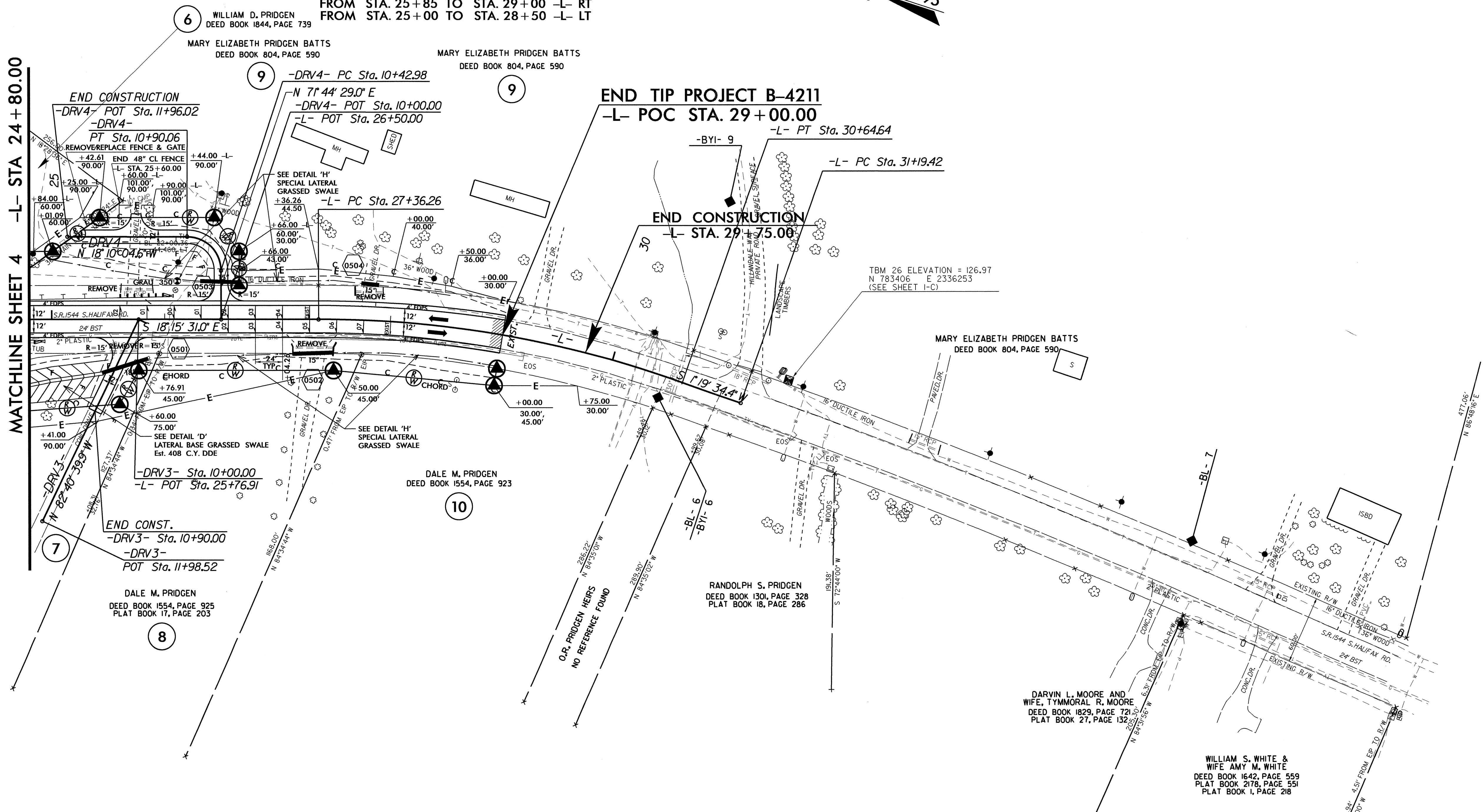




FROM STA. 24+00 TO STA. 25+50 -L- RT

FROM STA. 25+85 TO STA. 29+00 -L- RT  
FROM STA. 25+00 TO STA. 28+50 -L- LT

MATCHLINE SHEET 4 -L- STA 24+80.00



-L-	-DRV4-
PI Sta 29+02.07	PI Sta 10+72.94
$\Delta = 19^{\circ} 35' 05.3''$ (RT)	$\Delta = 89^{\circ} 54' 33.7''$ (LT)
D = 5' 57' 50.7"	D = 190' 59' 09.4"
L = 328.38'	L = 47.08'
T = 165.81'	T = 29.95'
R = 960.68'	R = 30.00'
SE = N/A	
RO = SEE PLANS	

NOTE: SEE SHEET No.6 FOR DET ALIGNMENT  
SEE SHEET No.7 FOR -L- & -DET- PROFILE  
SEE SHEET No.8 FOR -DRV- PROFILES

REVISIONS

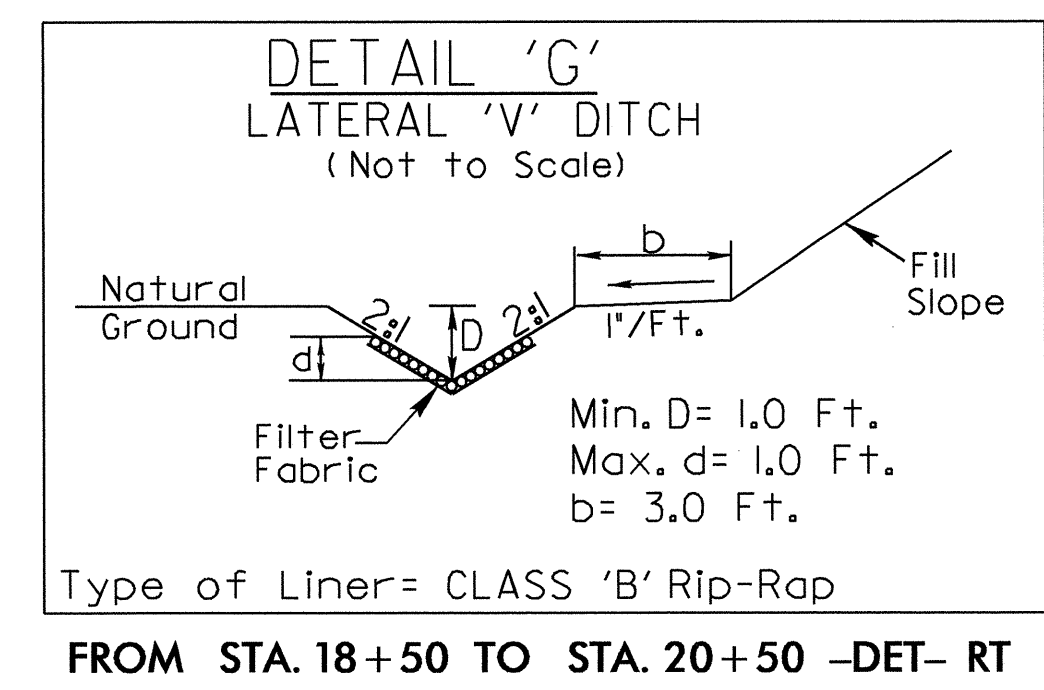
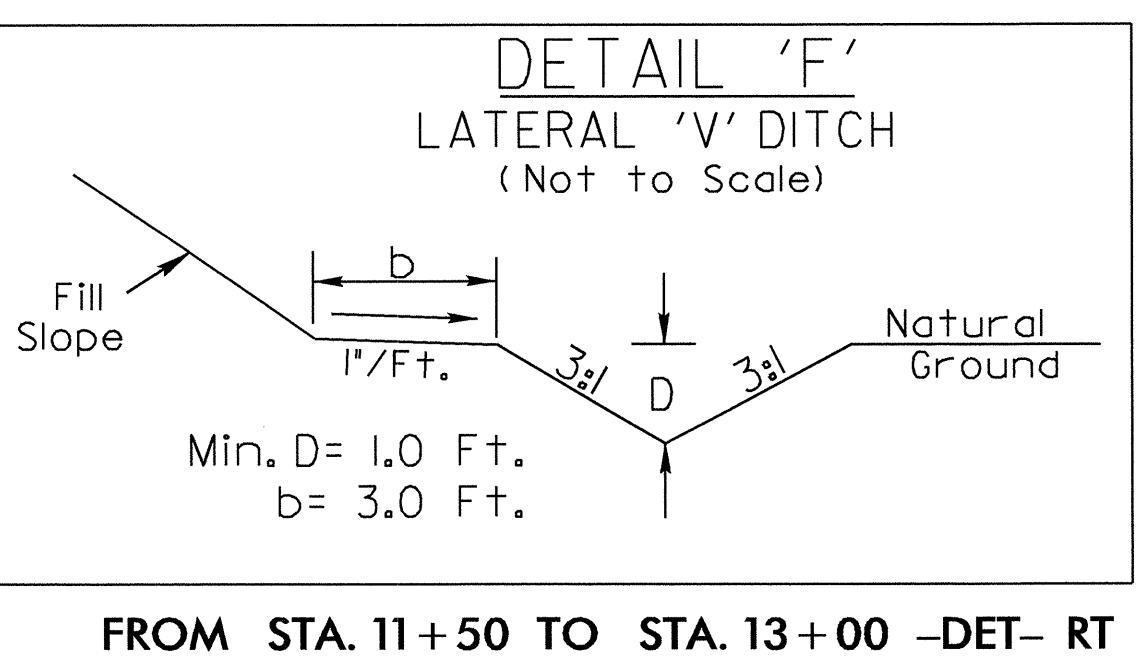
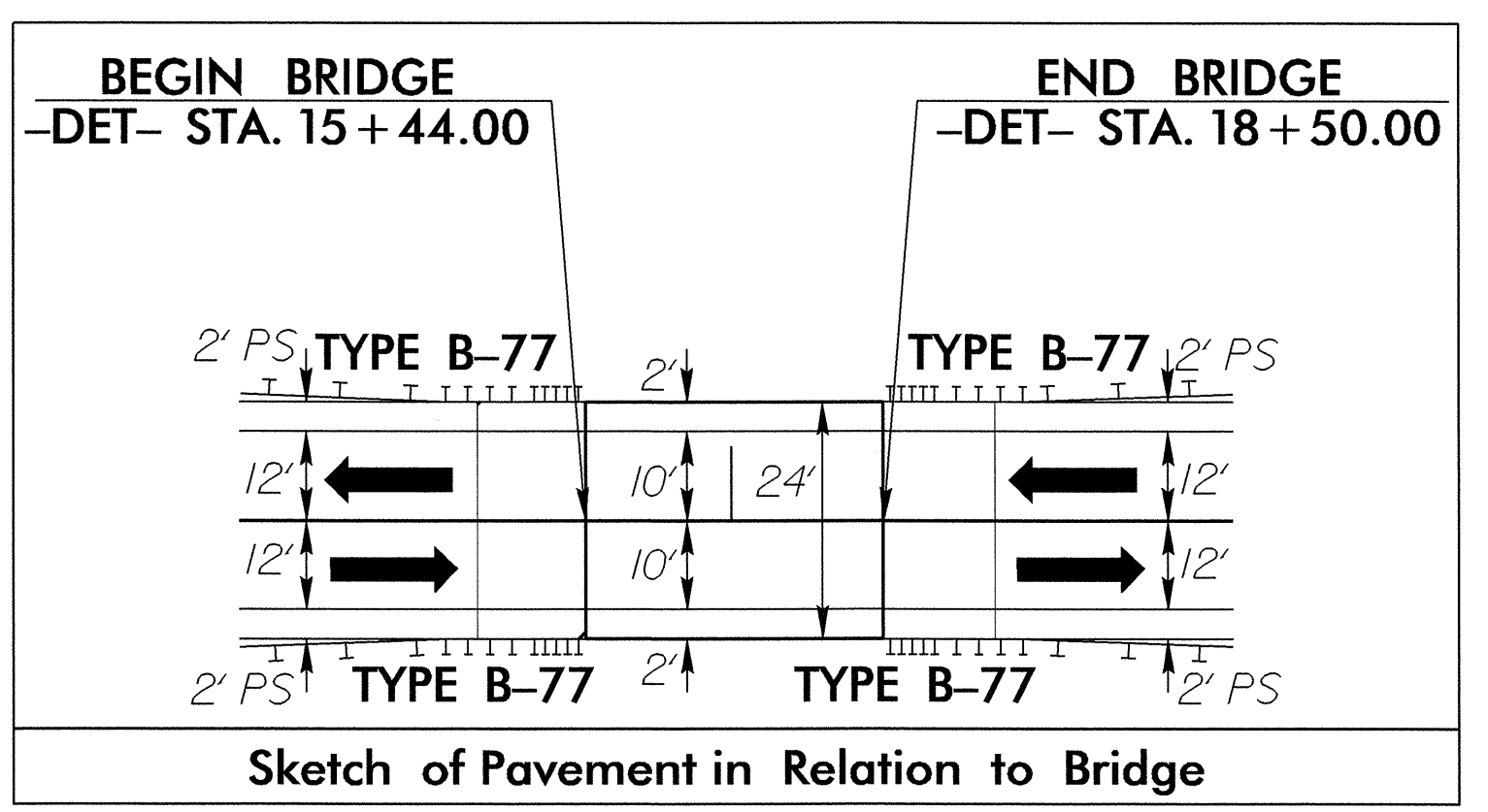
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8/17/99

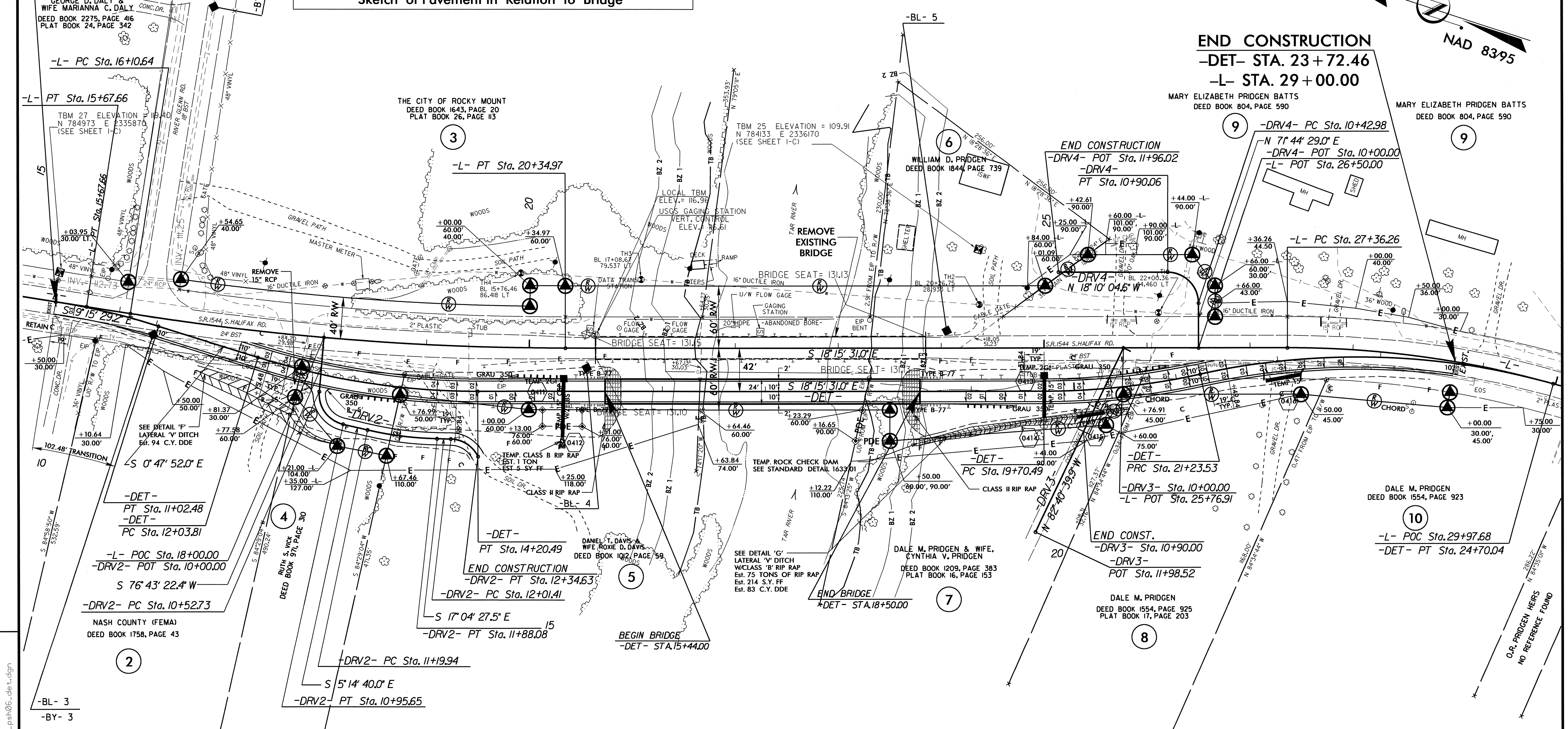
PROJECT REFERENCE NO. B-4211	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20111 M. K. BOHME 9/2/11	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20329 M. A. BILLINGS 9/2/11

**-DETOUR-**



**BEGIN CONSTRUCTION**  
-DET- PC STA. 10+00.00  
-L- POC STA. 15+37.37

**END CONSTRUCTION**  
-DET- STA. 23+72.46  
-L- STA. 29+00.00



REVISIONS

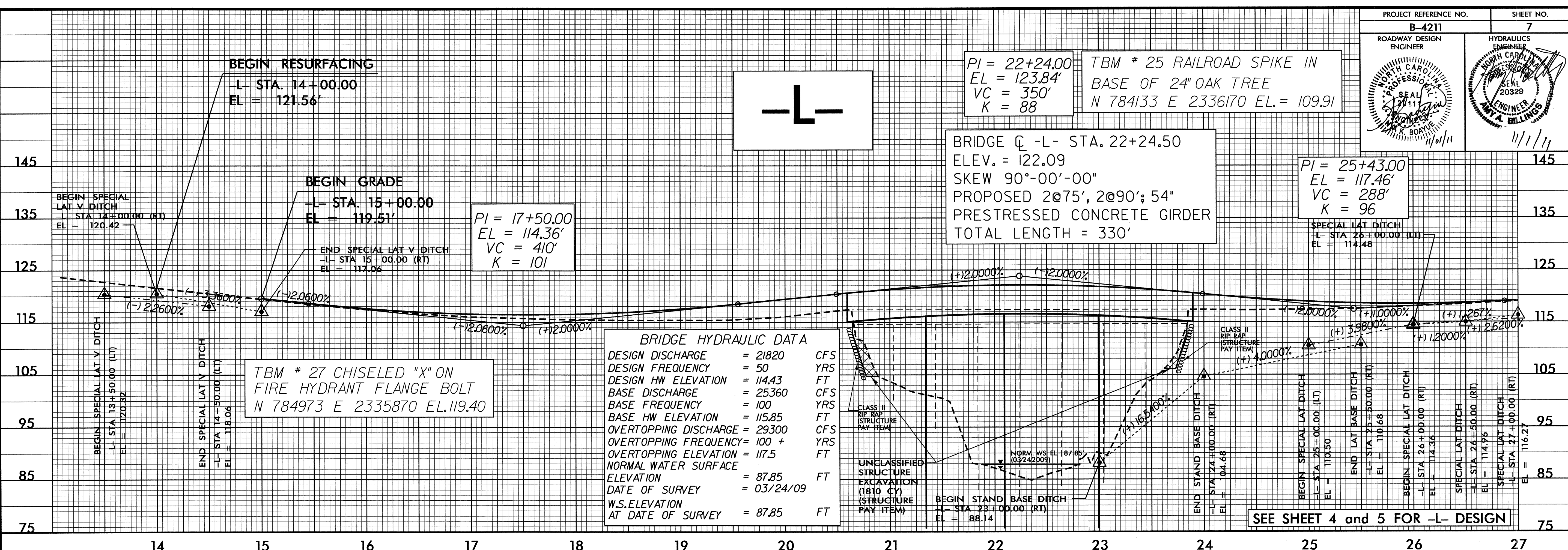
-L-	-DETOUR- $V_{DET} = 45\text{mph}$				-DRV2-		
SEE SHEETS 4 & 5 FOR -L- LINE CURVE DATA	PI Sta 10+51.33 $\Delta = 8' 15' 30.6''$ (RT) $D = 8' 03' 30.5''$ $L = 102.48'$ $T = 51.33'$ $R = 711.00'$ $SE = 03$ $RO = \text{SEE PLANS}$	PI Sta 13+13.00 $\Delta = 17' 27' 39.0''$ (LT) $D = 8' 03' 30.5''$ $L = 216.68'$ $T = 109.18'$ $R = 711.00'$ $SE = 04$ $RO = \text{SEE PLANS}$	PI Sta 20+47.30 $\Delta = 12' 19' 56.7''$ (LT) $D = 8' 03' 30.5''$ $L = 153.04'$ $T = 76.82'$ $R = 711.00'$ $SE = 04$ $RO = \text{SEE PLANS}$	PI Sta 23+00.29 $\Delta = 27' 55' 24.9''$ (RT) $D = 8' 03' 30.5''$ $L = 346.51'$ $T = 176.77'$ $R = 711.00'$ $SE = 08$ $RO = \text{SEE PLANS}$	PI Sta 10+78.79 $\Delta = 8' 58' 02.4''$ (LT) $D = 190' 59' 09.4''$ $L = 42.92'$ $T = 26.06'$ $R = 30.00'$	PI Sta 11+54.13 $\Delta = 11' 49' 47.4''$ (LT) $D = 17' 21' 44.5''$ $L = 68.13'$ $T = 34.19'$ $R = 330.00'$	PI Sta 12+19.96 $\Delta = 63' 27' 00.8''$ (RT) $D = 190' 59' 09.4''$ $L = 33.22'$ $T = 18.55'$ $R = 30.00'$

NOTE: SEE SHEET No.7 FOR -DET- PROFILE  
SEE SHEET No.8 FOR -DRV2- PROFILE  
SEE SHEET No.8 FOR -DRV- PROFILES

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\$\$\$\$\$ICPRNAME\$\$\$\$\$

5/28/99

PROJECT REFERENCE NO. <b>B-4211</b>	SHEET NO. <b>7</b>
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>
SEAL 2011	SEAL 2009



**-L-**

PI = 22+24.00  
EL = 123.84'  
VC = 350'  
K = 88

TBM # 25 RAILROAD SPIKE IN  
BASE OF 24" OAK TREE  
N 784133 E 2336170 EL. = 109.91

BRIDGE CQ -L- STA. 22+24.50  
ELEV. = 122.09  
SKEW 90°-00'-00"  
PROPOSED 2@75', 2@90'; 54"  
PRESTRESSED CONCRETE GIRDER  
TOTAL LENGTH = 330'

PI = 25+43.00  
EL = 117.46'  
VC = 288'  
K = 96

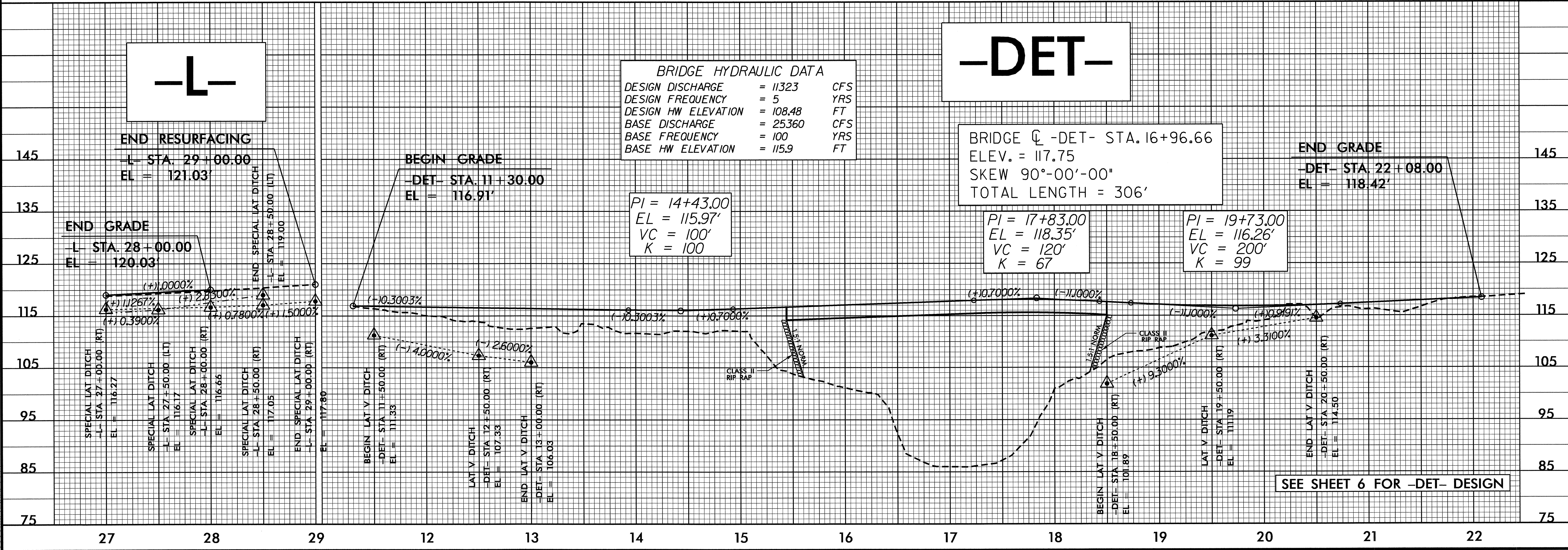
**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 21820	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 114.43	FT
BASE DISCHARGE	= 25360	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 115.85	FT
OVERTOPPING DISCHARGE	= 29300	CFS
OVERTOPPING FREQUENCY	= 100 +	YRS
NORMAL WATER SURFACE ELEVATION	= 87.85	FT
DATE OF SURVEY	= 03/24/09	
W.S.ELEVATION AT DATE OF SURVEY	= 87.85	FT

TBM # 27 CHISELED "X" ON  
FIRE HYDRANT FLANGE BOLT  
N 784973 E 2335870 EL.119.40

SEE SHEET 4 and 5 FOR -L- DESIGN

REVISIONS



**-DET-**

**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 11323	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 108.48	FT
BASE DISCHARGE	= 25360	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 115.9	FT

BRIDGE CQ -DET- STA. 16+96.66  
ELEV. = 117.75  
SKEW 90°-00'-00"  
TOTAL LENGTH = 306'

PI = 17+83.00  
EL = 118.35'  
VC = 120'  
K = 67

PI = 19+73.00  
EL = 116.26'  
VC = 200'  
K = 99

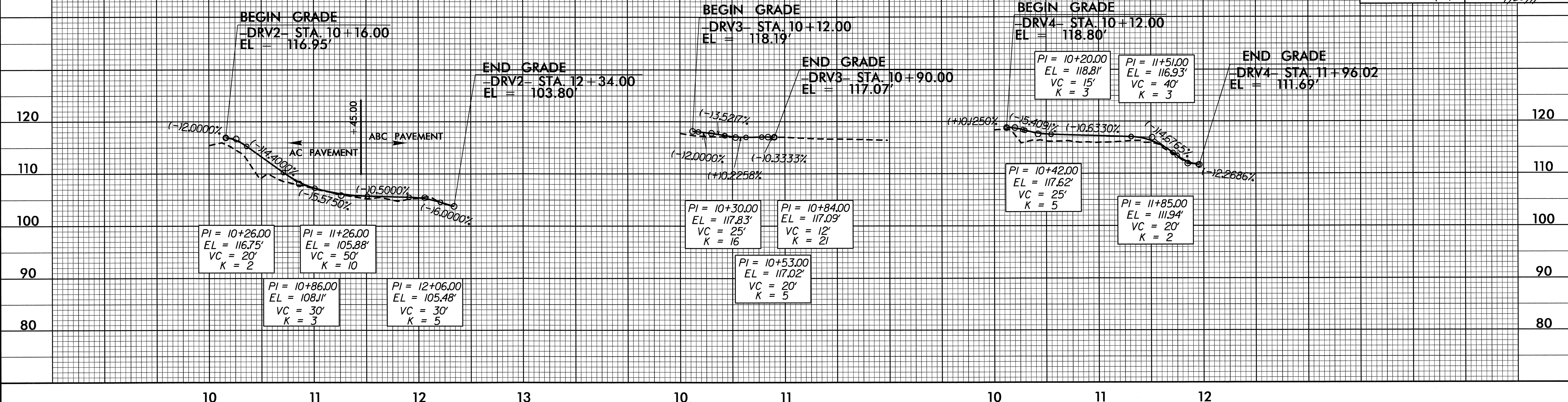
SEE SHEET 6 FOR -DET- DESIGN

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# -DRV2-

# -DRV3-

# -DRV4-



# -TDRV2-

TEMPORARY PROFILE  
(TIE TO DETOUR)

