

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4157	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33505.1.1	BRZ-1581 (2)	P.E.	
33505.2.1	BRZ-1581 (2)	RW, UTIL.	
33505.3.1	BRZ-1581 (2)	CONST.	

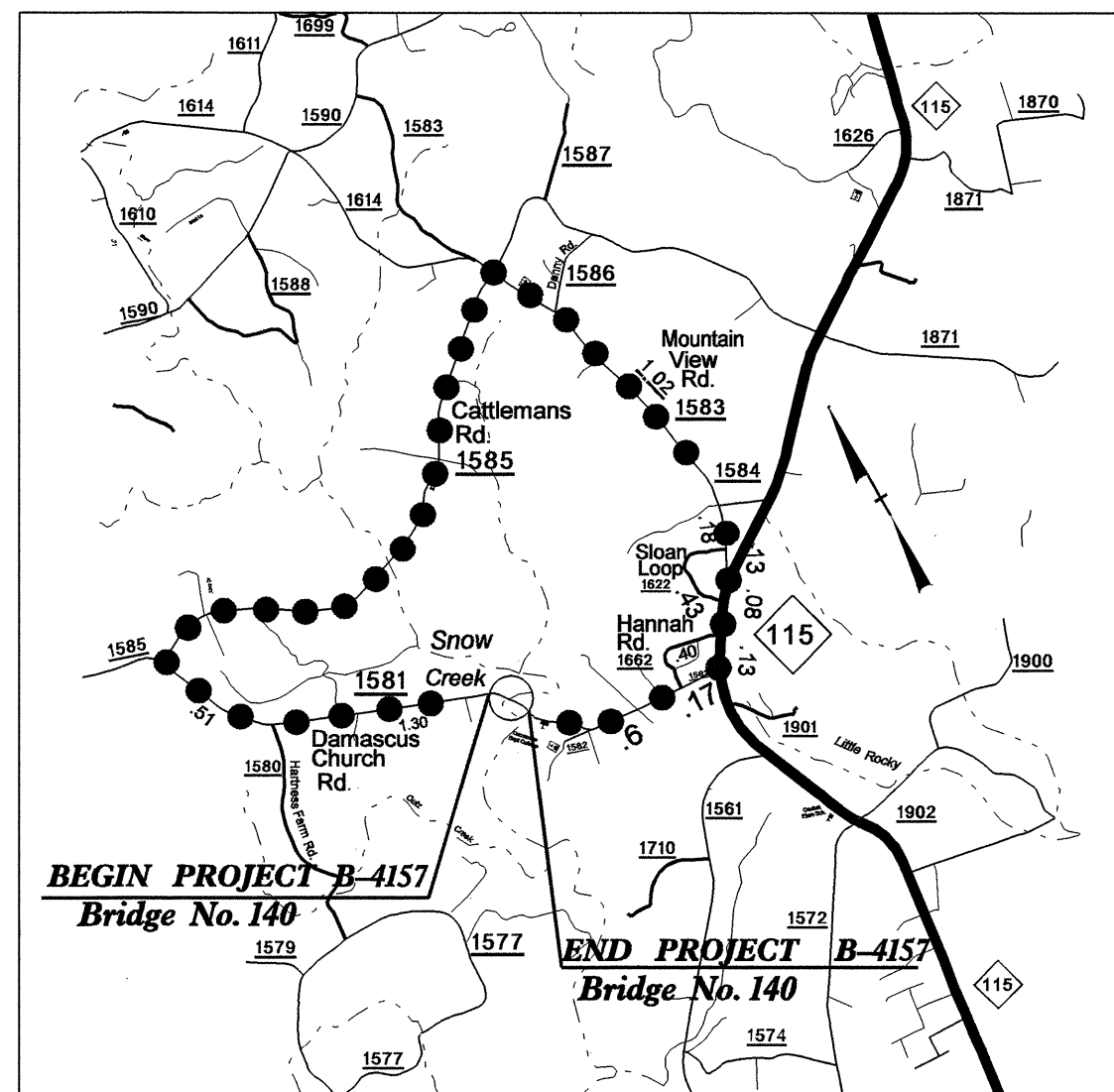
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**IREDELL COUNTY**

LOCATION: BRIDGE No. 140 OVER SNOW CREEK ON SR 1581

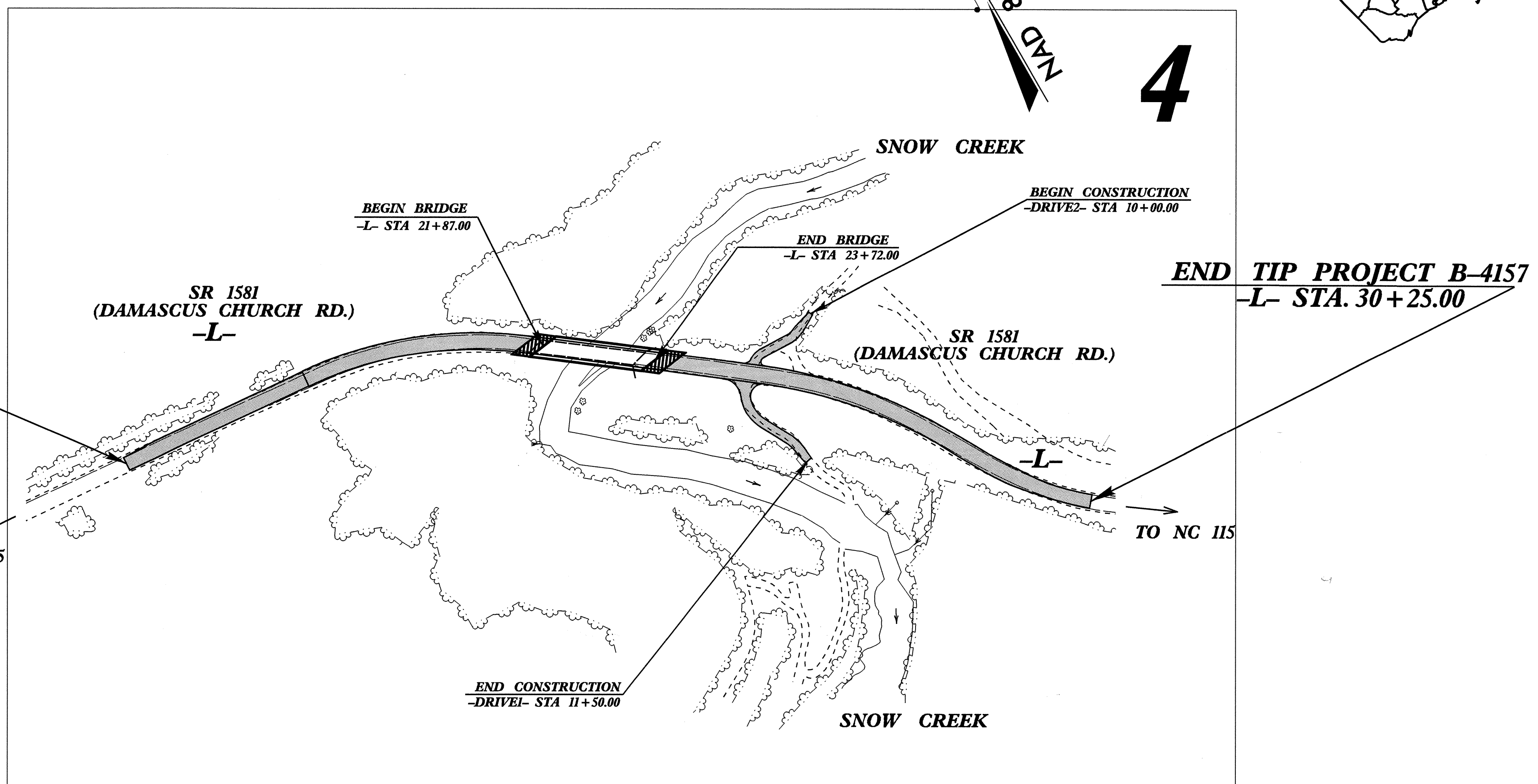
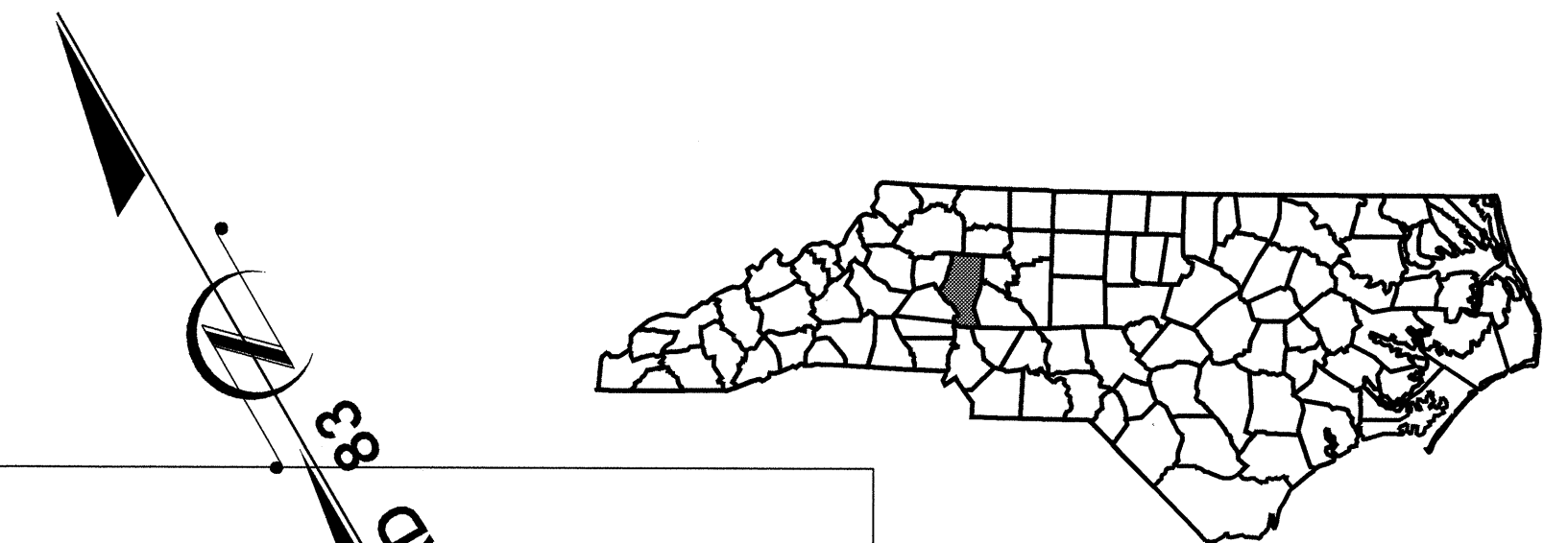
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

See Sheet 1-A For Index of Sheets



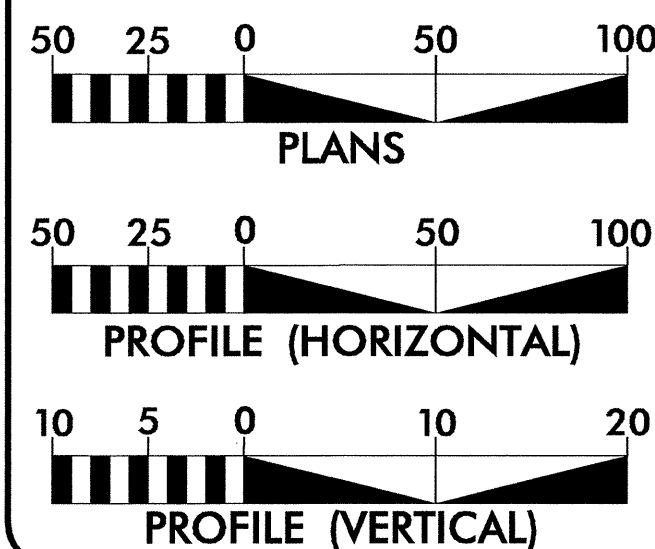
●●●●● OFF-SITE DETOUR

**VICINITY MAP**



**\*\*DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 60 MPH TO 25 MPH. THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.**

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2008 = 1139  
ADT 2028 = 1917  
DHV = 10 %  
D = 60 %  
T = 3 % \*  
\*\*V = 60 MPH  
\* TTST 1% DUAL 2%  
FUNC CLASS = LOCAL

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4157 = 0.216 MILE  
LENGTH STRUCTURE TIP PROJECT B-4157 = 0.035 MILE  
TOTAL LENGTH TIP PROJECT B-4157 = 0.251 MILE

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

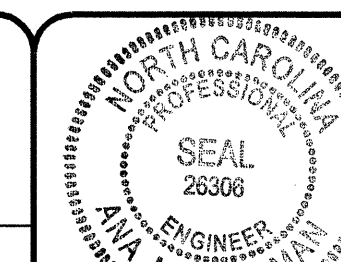
2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
MARCH 2, 2007

LETTING DATE:  
MARCH 18, 2008

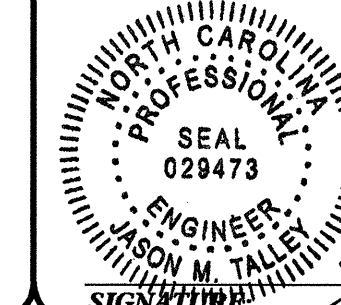
**TONY HOUSER, PE**  
PROJECT ENGINEER

**JASON TALLEY, PE**  
PROJECT DESIGN ENGINEER



SIGNATURE:

*Anthony Houser* 1-16-08



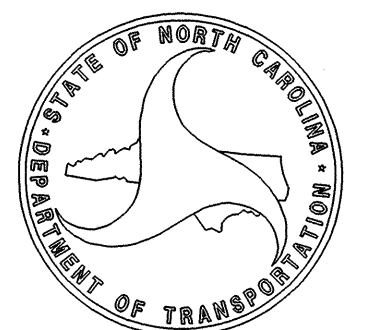
SIGNATURE:

*Jason M. Talley* 1-10-08

**HYDRAULICS ENGINEER**

**ROADWAY DESIGN ENGINEER**

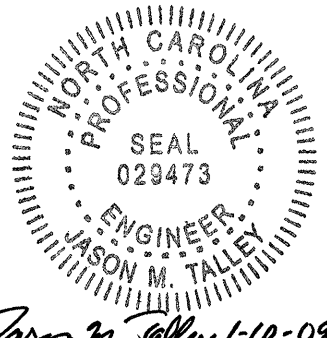
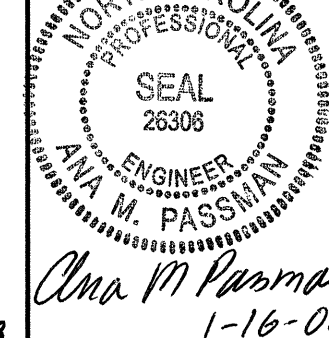
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA



*Art McMillan*  
STATE HIGHWAY DESIGN ENGINEER

TIP PROJECT: B-4157

CONTRACT: C201782

PROJECT REFERENCE NO. B-4157	SHEET NO. 1-A
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER  <i>A.M. Passman</i> 1-16-08

CONTRACT: C201782  
TIP PROJECT: B-4157  
COUNTY: IREDELL

SHEET NUMBER	SHEET TITLE
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C	LOCATION AND SURVEYS
2	PAVEMENT SCHEDULE, DETAIL SHOWING METHOD OF WEDGING, TYPICAL SECTION, AND DETAIL SHOWING RELATIONSHIP OF PAVED SHOULDER AND SHOULDER BERM GUTTER TO GUARDRAIL
2-A	DITCH AND INTERSECTION DETAILS
2-B	DETAIL SHOWING ANCHORAGE FOR FRAMES
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, SUMMARY OF PAVEMENT REMOVAL, SUMMARY OF EARTHWORK, AND PARCEL INDEX
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS
X-0	CROSS SECTION SUMMARY
X-1 THRU X-17	CROSS SECTIONS
S-1 THRU S-33	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 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.

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

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

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

**UTILITIES:**  
UTILITY OWNERS ON THIS PROJECT ARE AT&T OF NORTH CAROLINA, AND ENERGY UNITED (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>	
200.03	Method of Clearing - Method III
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'
310.10	Driveway Pipe Construction
<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 6 - ASPHALT BASES AND PAVEMENTS</b>	
654.01	Pavement Repairs
<b>DIVISION 8 - INCIDENTALS</b>	
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
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete (Beg. January 2007 Let Use Detail in Lieu of Standard)
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
840.46	Traffic Bearing Precast Drainage Structure
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
866.04	Barbed Wire Fence with Wood Posts (2 - 7 Strands)
876.04	Drainage Ditches with Class 'B' Rip Rap

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

Note: Not to Scale

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

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for 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, 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded U/G Gas Line, Designated U/G Gas Line (S.U.E.\*), Above Ground Gas Line.

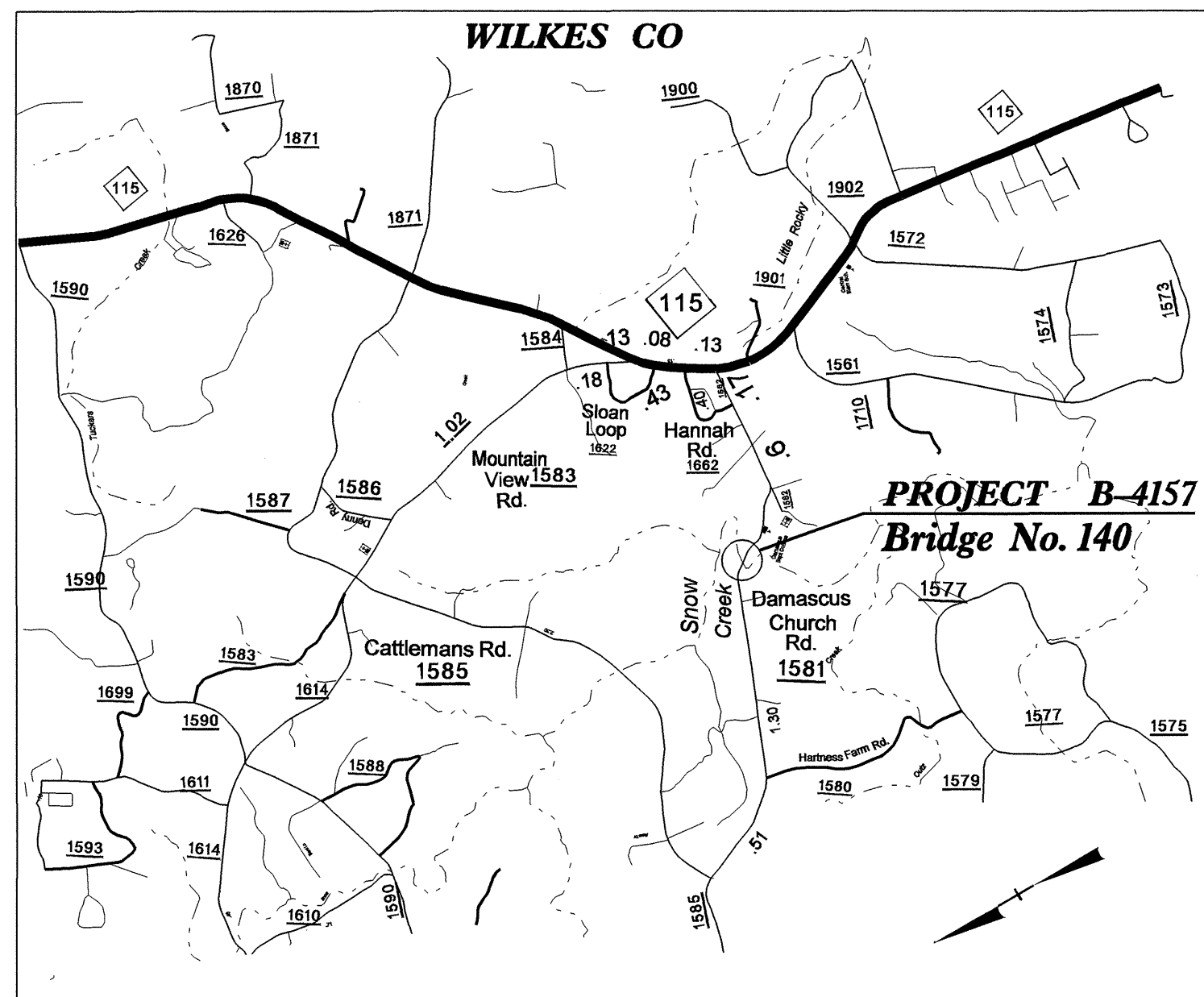
SANITARY SEWER:

Table listing symbols for 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:

Table listing symbols for 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, End of Information.

# SURVEY CONTROL SHEET B-4157



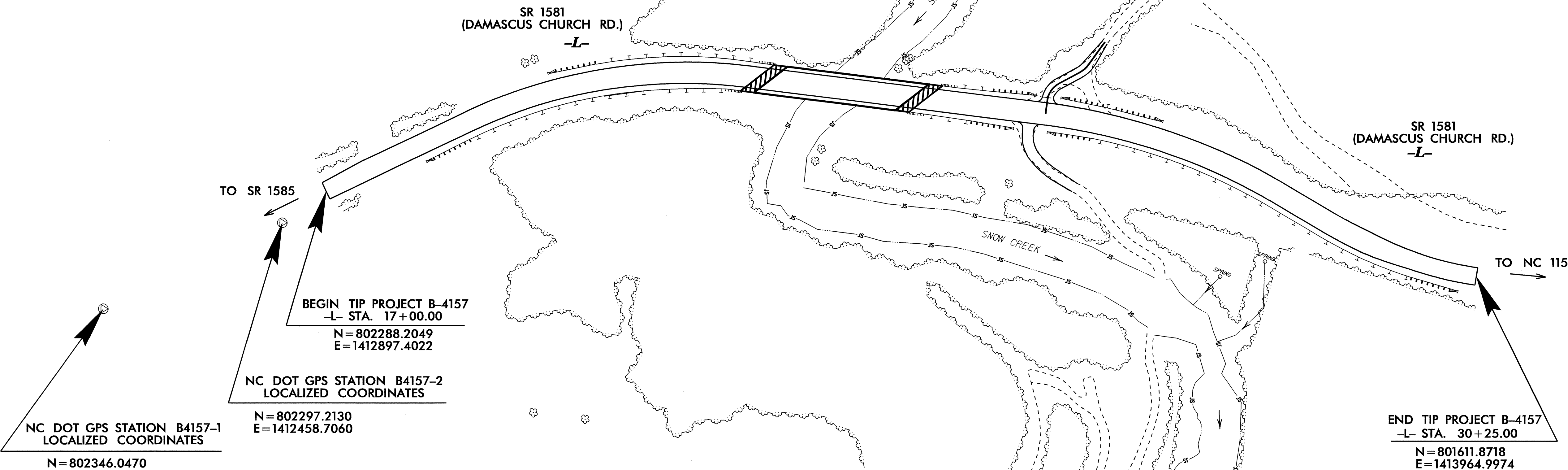
**VICINITY MAP**

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		GPS-B4157-1	802346.0470	1411345.6720	1028.10'	OUTSIDE PROJECT LIMITS	
2		GPS-B4157-2	802297.2130	1412458.7060	1000.11'	12+61.42	13.57' RT
3		BL-3	802275.3768	1412860.9223	967.32'	16+64.23	14.69' RT
4		BL-4	802293.8658	1413131.4175	939.29'	19+32.06	19.07' LT
5		BL-5	802064.0425	1413497.0775	915.88'	23+64.09	18.74' RT
6		BL-6	801647.8623	1413899.0340	954.77'	29+53.17	17.52' RT
7		BL-7	801395.7577	1414436.2815	1009.15'	OUTSIDE PROJECT LIMITS	

\*\*\*\*\*  
 BM \*1 ELEVATION = 1021.02'  
 N 802367 E 1411926  
 OUTSIDE PROJECT LIMITS  
 RR SPIKE IN TWIN 12" CHERRY TREE  
 \*\*\*\*\*

\*\*\*\*\*  
 BM \*2 ELEVATION = 905.17'  
 N 801893 E 1413565  
 L STATION 25+18 119' RIGHT  
 RR SPIKE IN 30" SYCAMORE  
 \*\*\*\*\*

\*\*\*\*\*  
 BM \*3 ELEVATION = 1010.24'  
 N 801474 E 1414423  
 OUTSIDE PROJECT LIMITS  
 RR SPIKE IN 30" OAK  
 \*\*\*\*\*



## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4157-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 802346.0470(ft) EASTING: 1411345.6720(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990097 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4157-1" TO -L- STATION 17+00 IS S 87°51'55" E 1,552.81 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

## NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 b4157\_LS\_CONTROL\_060307.TXT

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

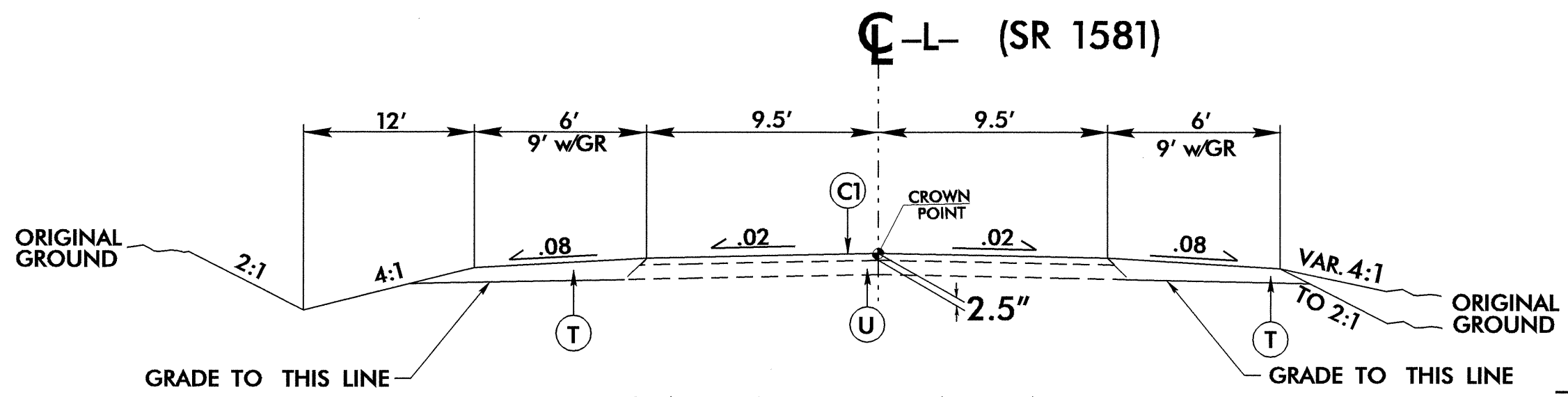
© INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

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PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137½ LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	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 LESS THAN 1" OR GREATER THAN 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E3	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.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

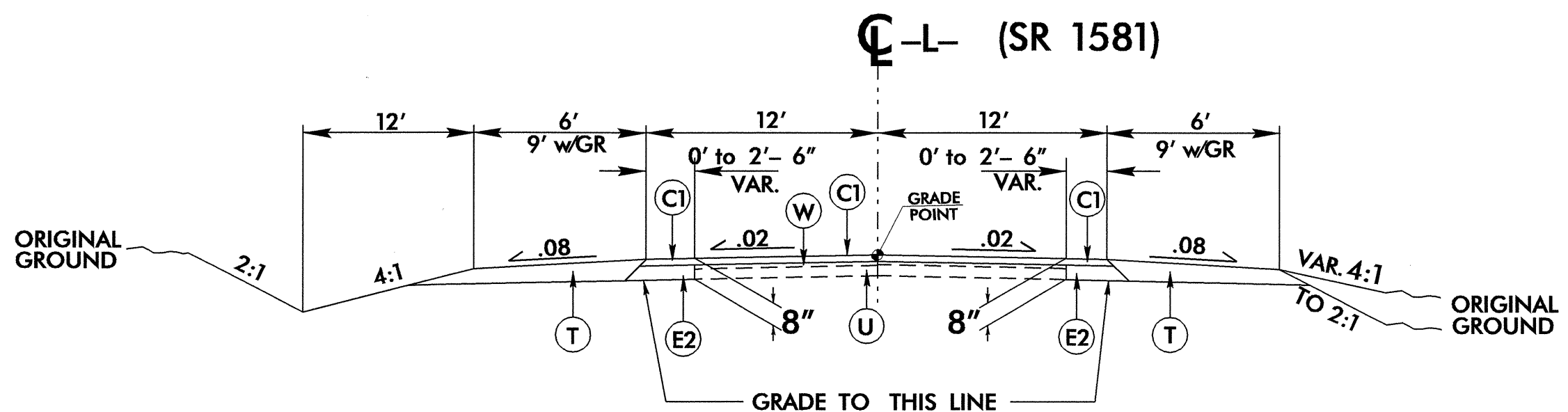
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



**TYPICAL SECTION NO. 1**

USE TYPICAL SECTION NO. 1 FOR THE FOLLOWING:

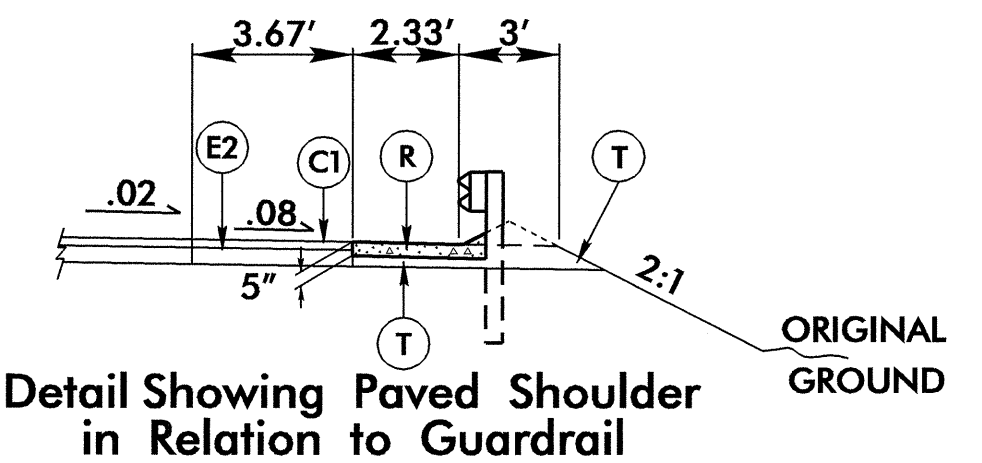
- \* OVERLAY EXISTING PAVEMENT
- L- STA. 17+00.00 TO -L- STA. 17+50.00
- L- STA. 29+00.00 TO -L- STA. 30+25.00



**TYPICAL SECTION NO. 2**

USE TYPICAL SECTION NO. 2 FOR THE FOLLOWING:

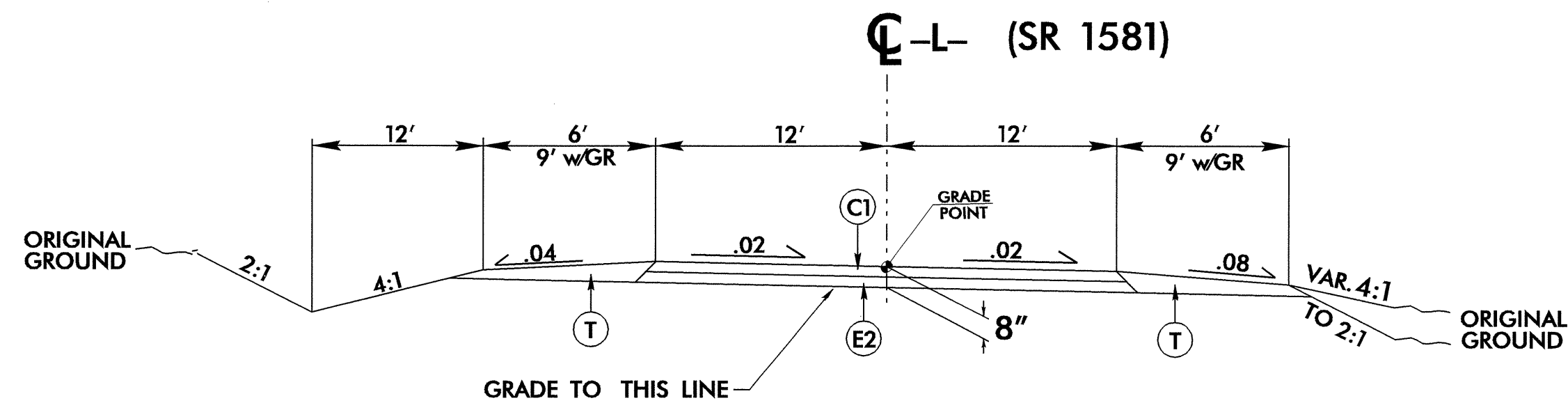
- L- STA. 17+50.00 TO -L- STA. 19+50.00
- L- STA. 28+00.00 TO -L- STA. 29+00.00



Detail Showing Paved Shoulder in Relation to Guardrail

USE SHOULDER BERM GUTTER FOR THE FOLLOWING:

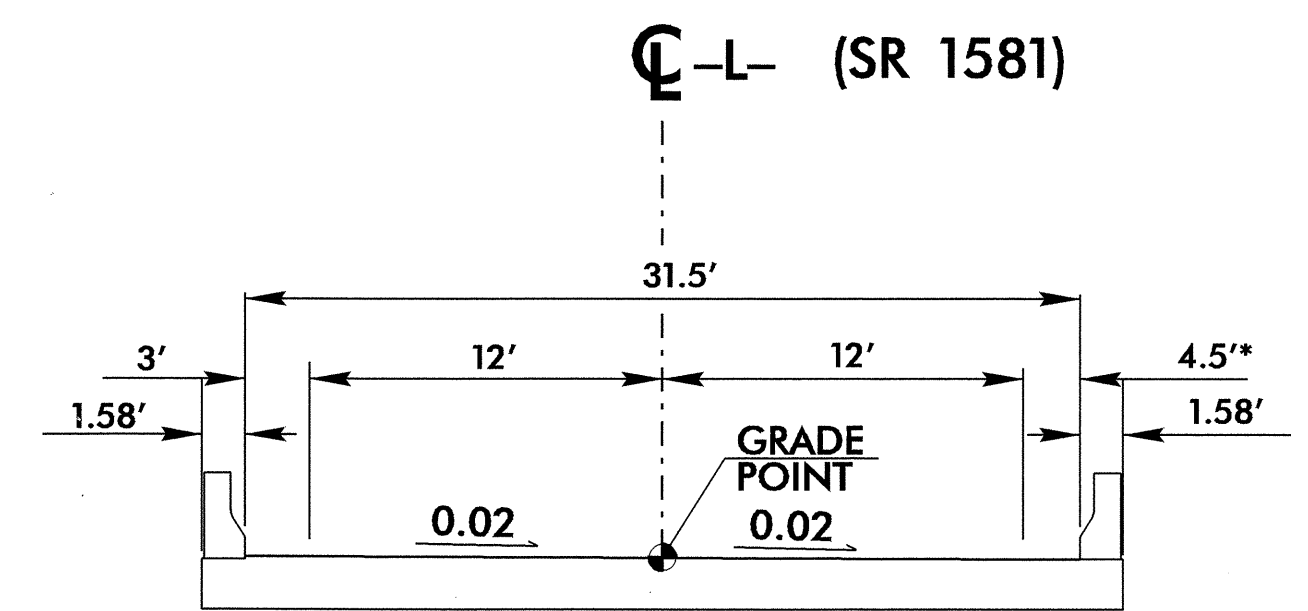
- L- STA. 18+50.00 TO -L- STA. 21+62.98 (RT)
- L- STA. 23+76.47 TO -DRIVE 1- STA. 10+28.74 (RT)
- DRIVE 1- STA. 10+37.24 TO -L- STA. 28+00.00 (RT)



**TYPICAL SECTION NO. 3**

USE TYPICAL SECTION NO. 3 FOR THE FOLLOWING:

- L- STA. 19+50.00 TO -L- STA. 21+87.00 (BEGIN BRIDGE)
- L- STA. 23+72.00 (END BRIDGE) TO -L- STA. 28+00.00

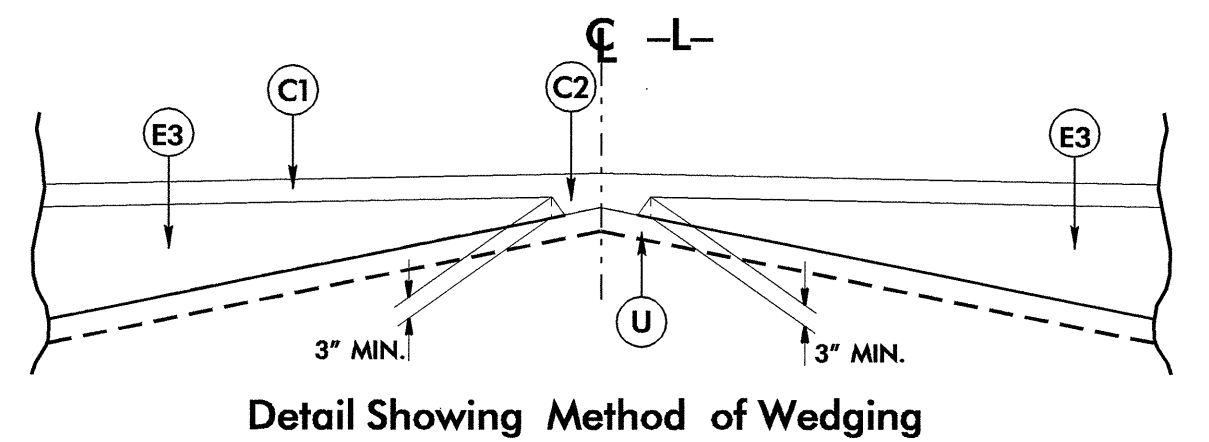


**TYPICAL SECTION NO. 4**

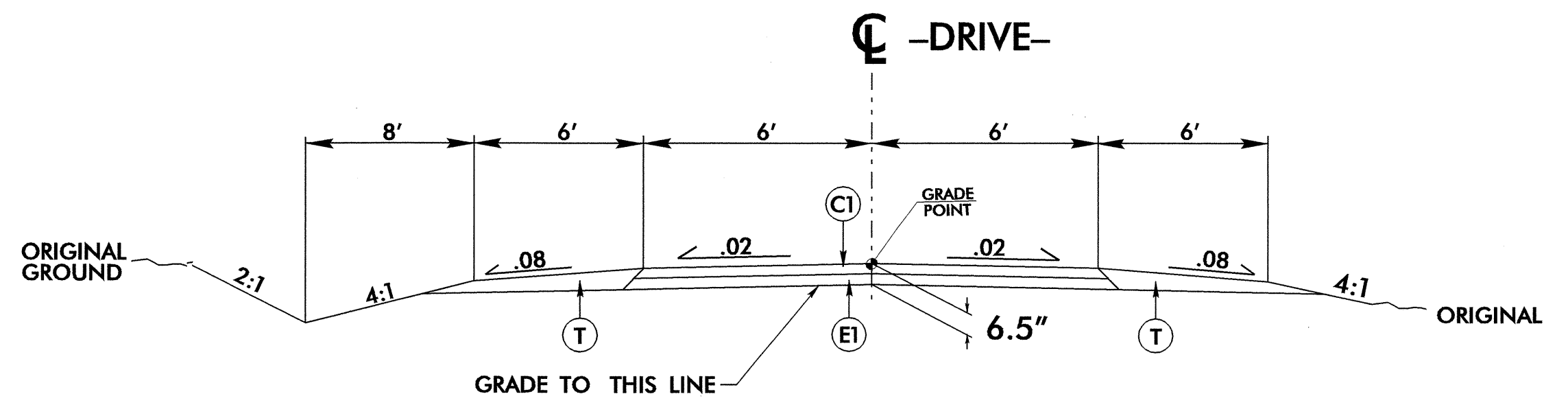
USE TYPICAL SECTION NO. 4 FOR THE FOLLOWING:

- L- STA. 21+87.00 TO -L- STA. 23+72.00

\* USED 4.5' OFFSET ON RIGHT SIDE DUE TO HYDRAULIC SPREAD



Detail Showing Method of Wedging



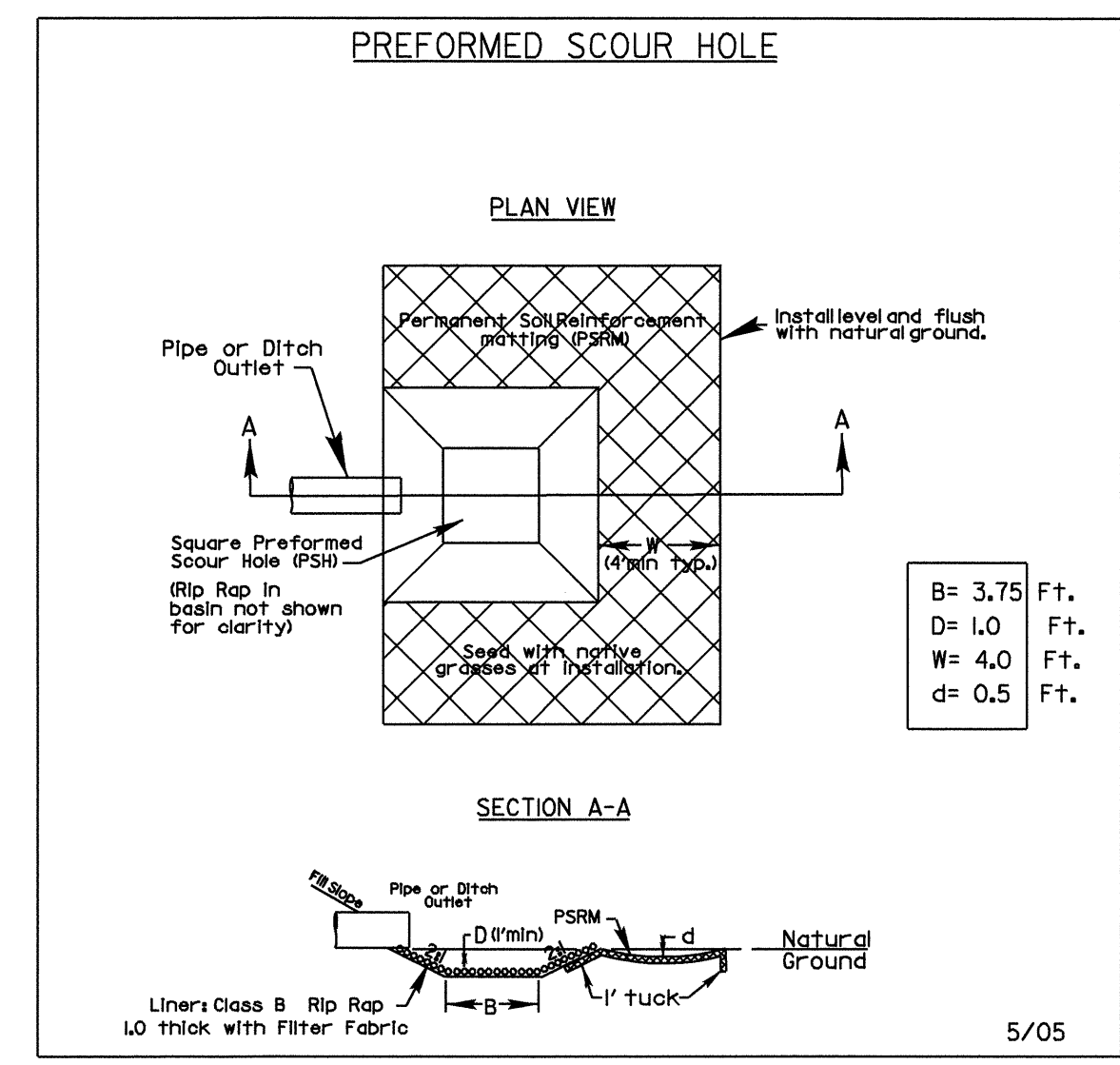
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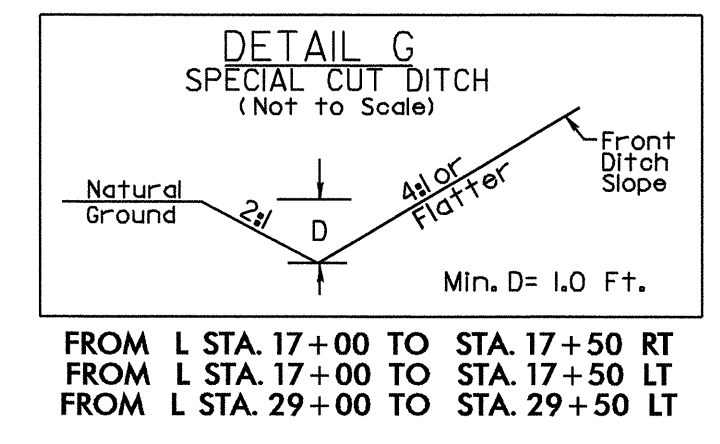
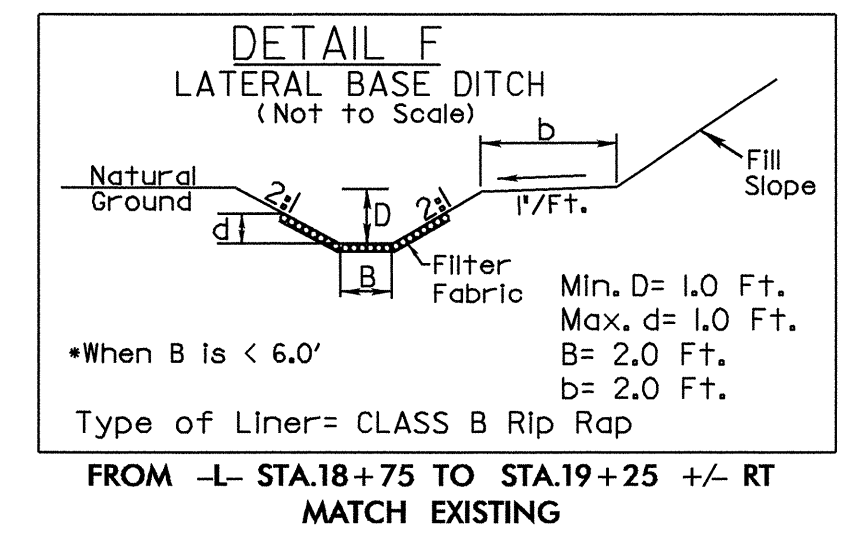
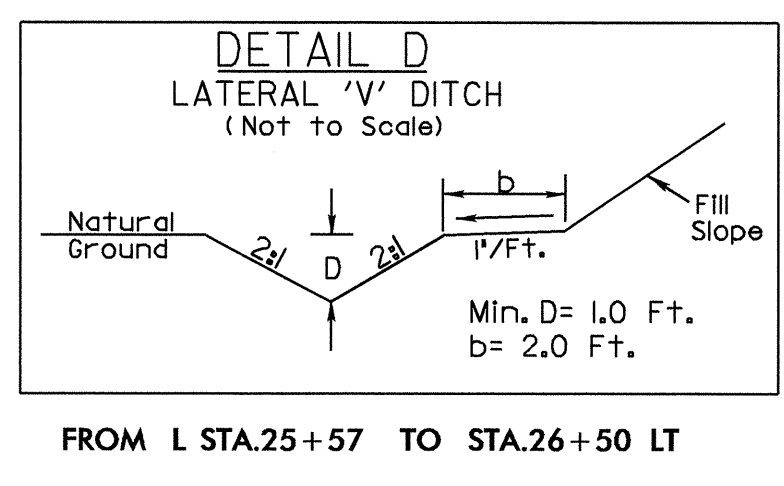
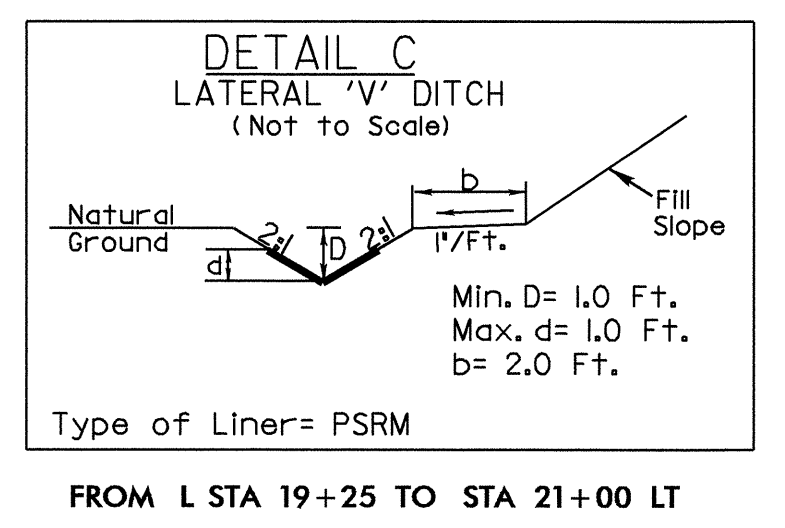
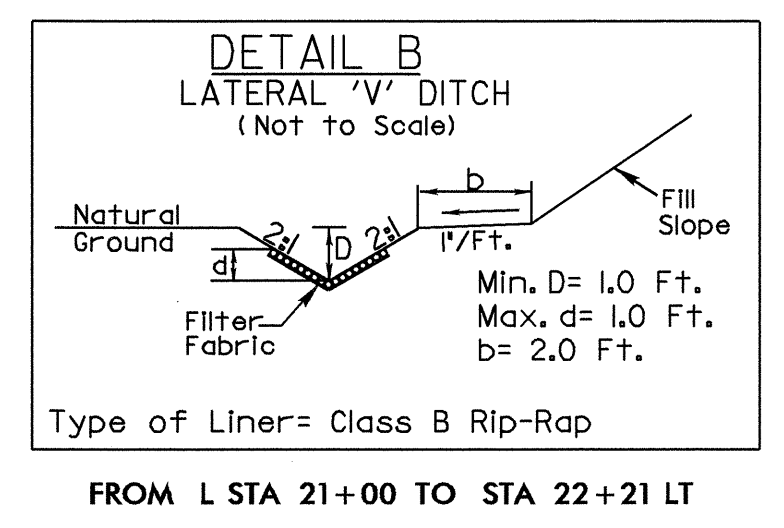
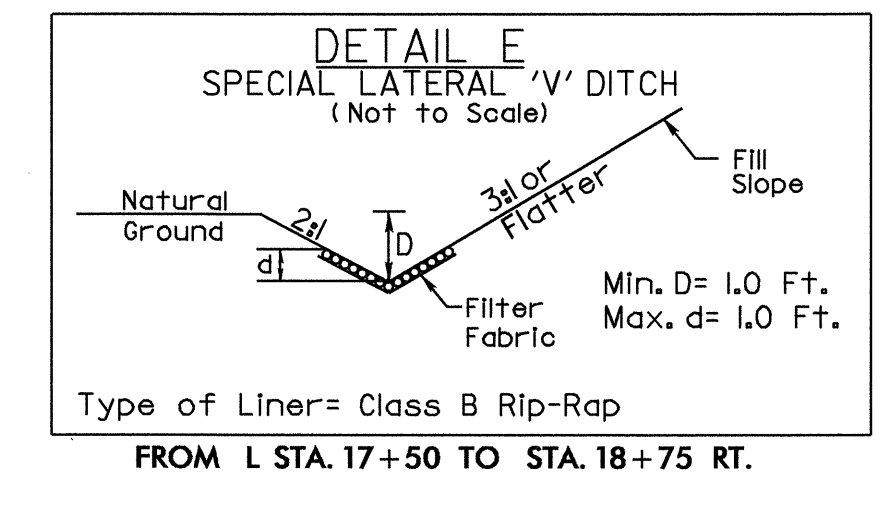
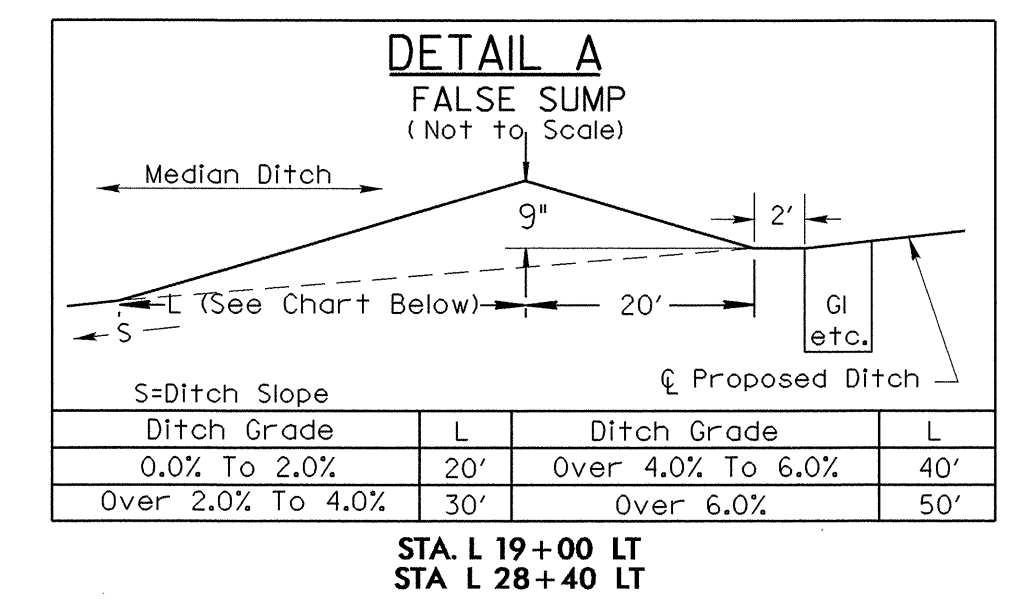
- DRIVE1- STA. 11+12.83 TO -DRIVE1- STA. 11+50
- DRIVE2- STA. 10+00.00 TO -DRIVE2- STA. 10+96.19

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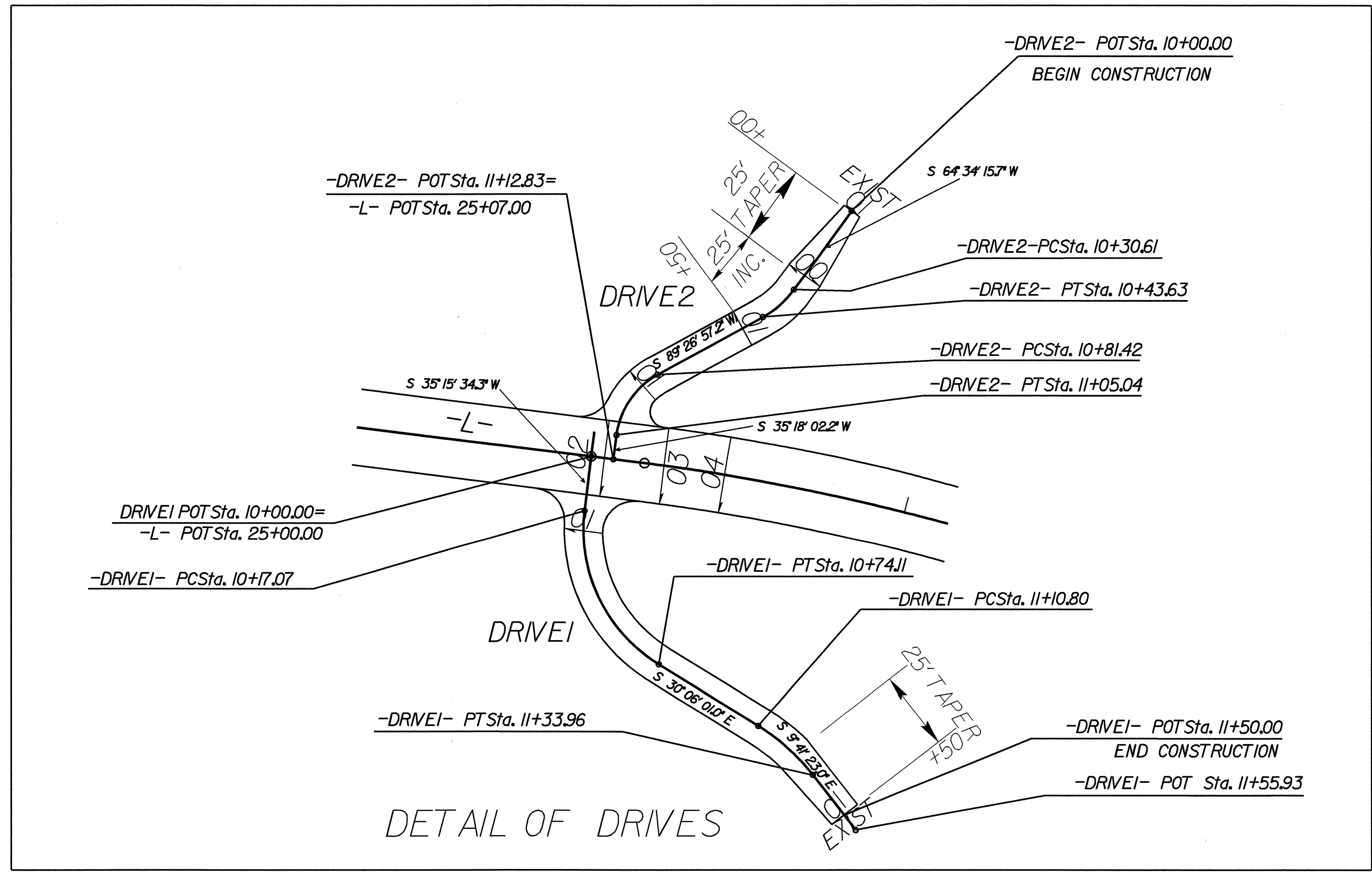
### DITCH DETAILS



- L- STA 21+39 RT
- L- STA 24+71 RT
- L- STA 22+21 LT



### INTERSECTION DETAIL



6/2/09  
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STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

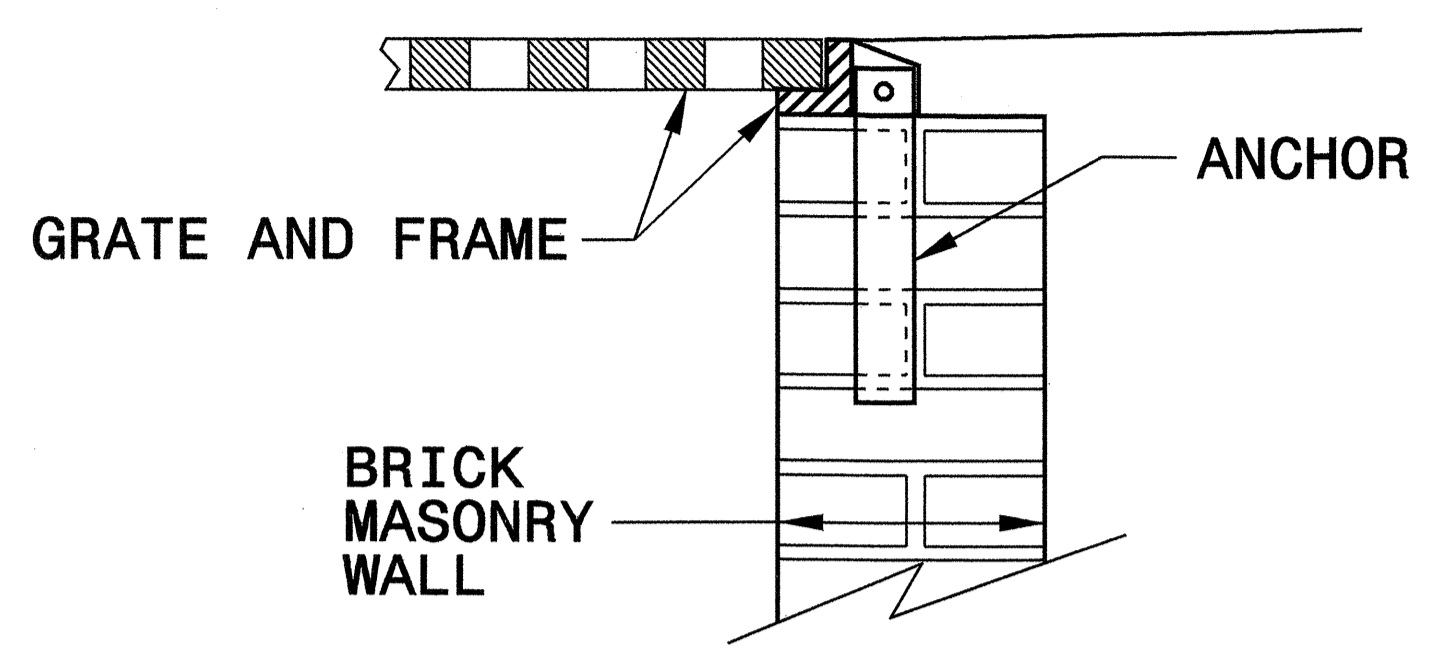
ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1  
**840D25**

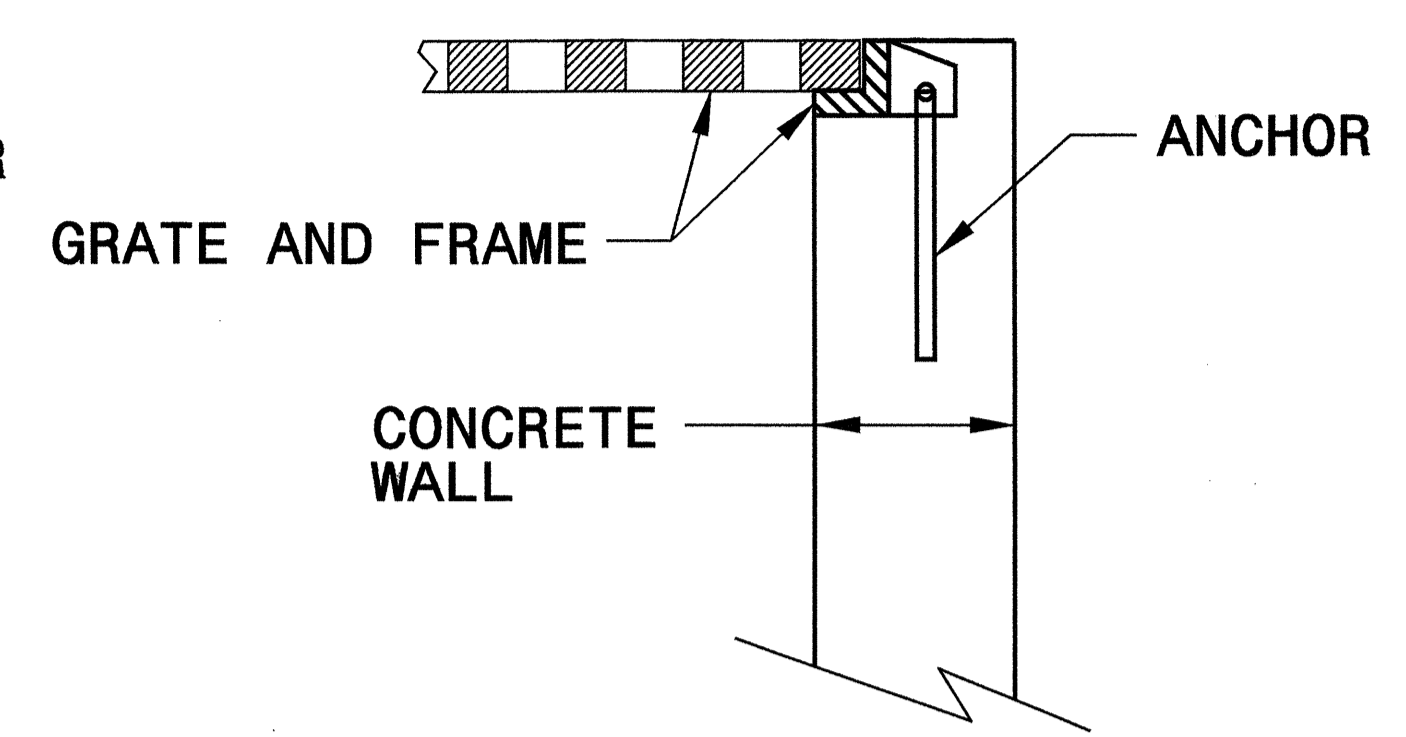
STATE OF  
NORTH CAROLINA  
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DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

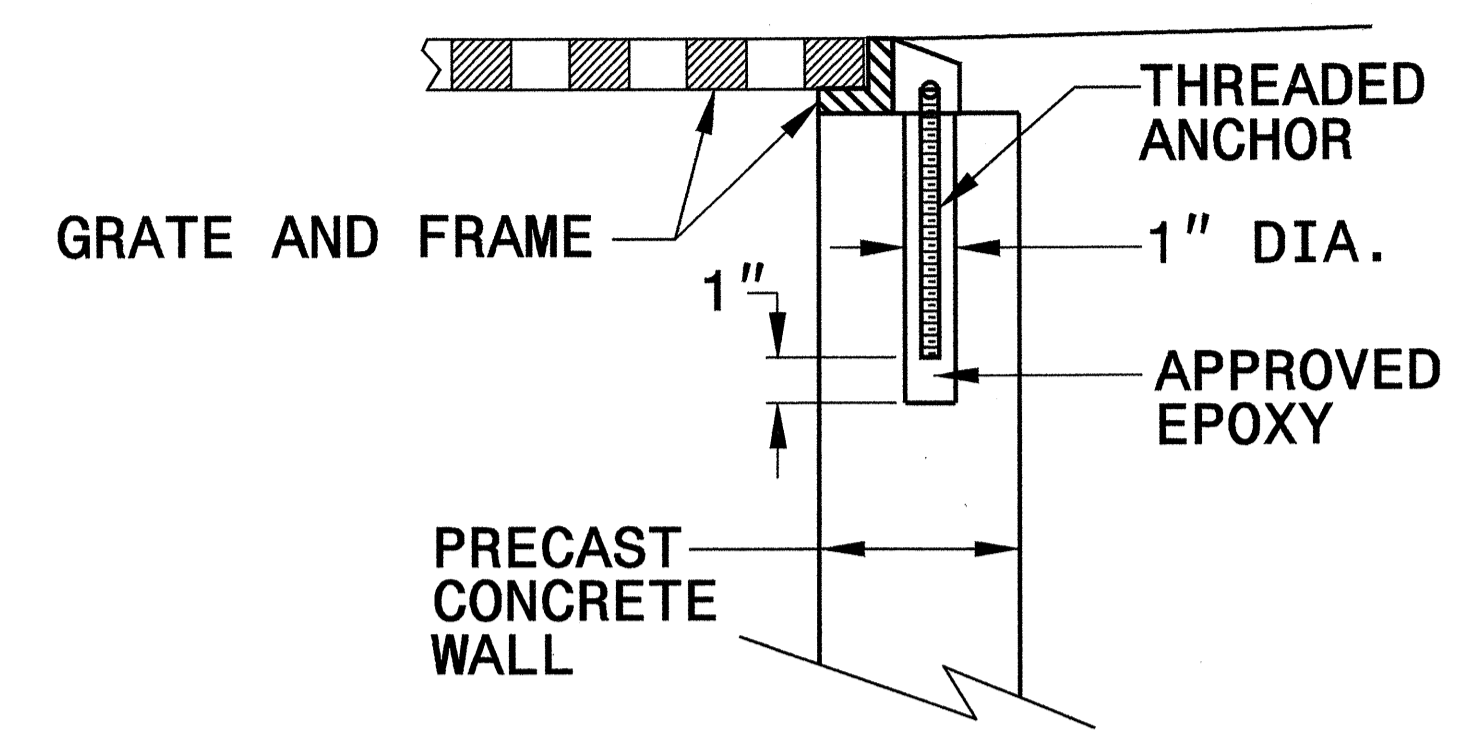
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY  
CONSTRUCTION**



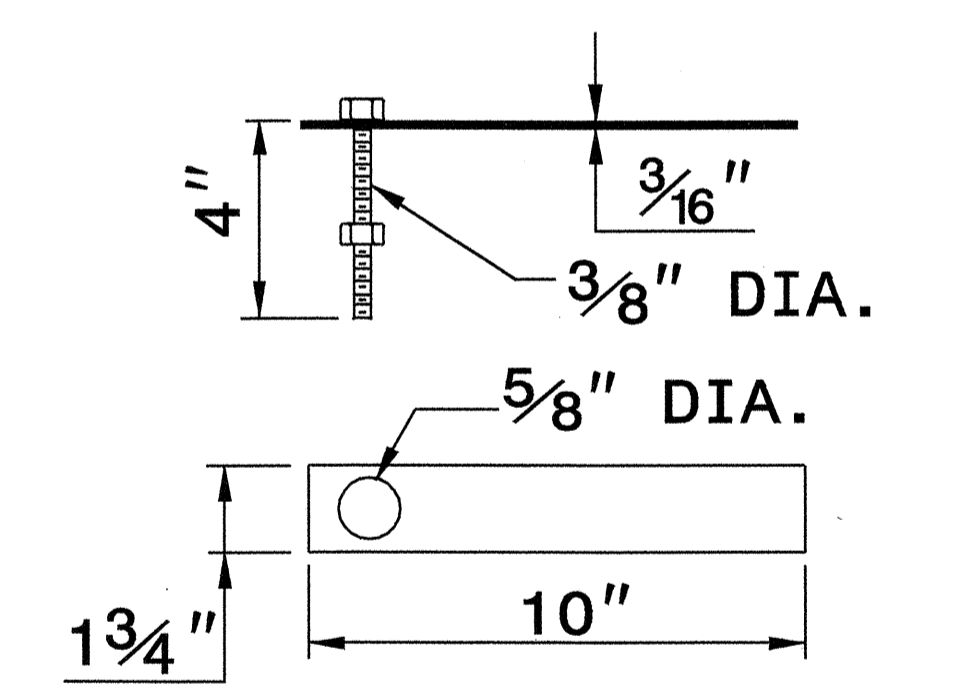
**CONCRETE  
CONSTRUCTION**



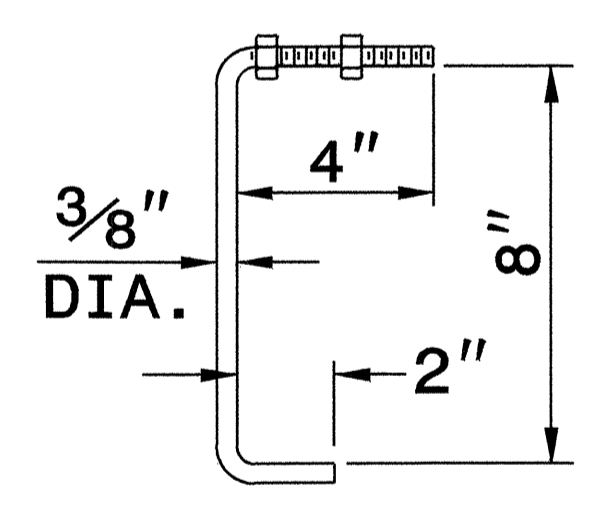
**PRECAST CONCRETE  
CONSTRUCTION**

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

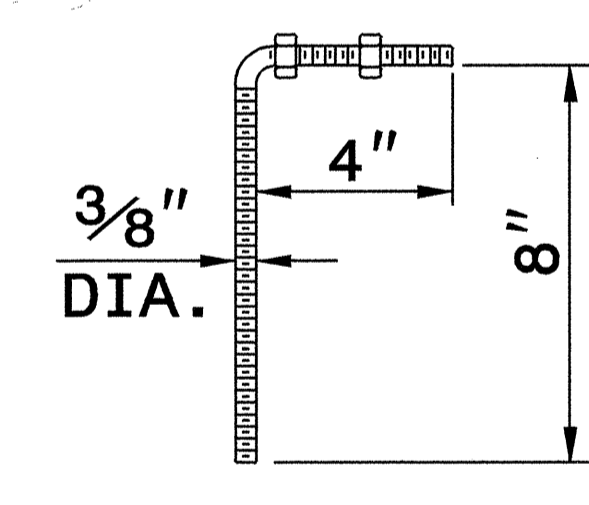
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL  
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



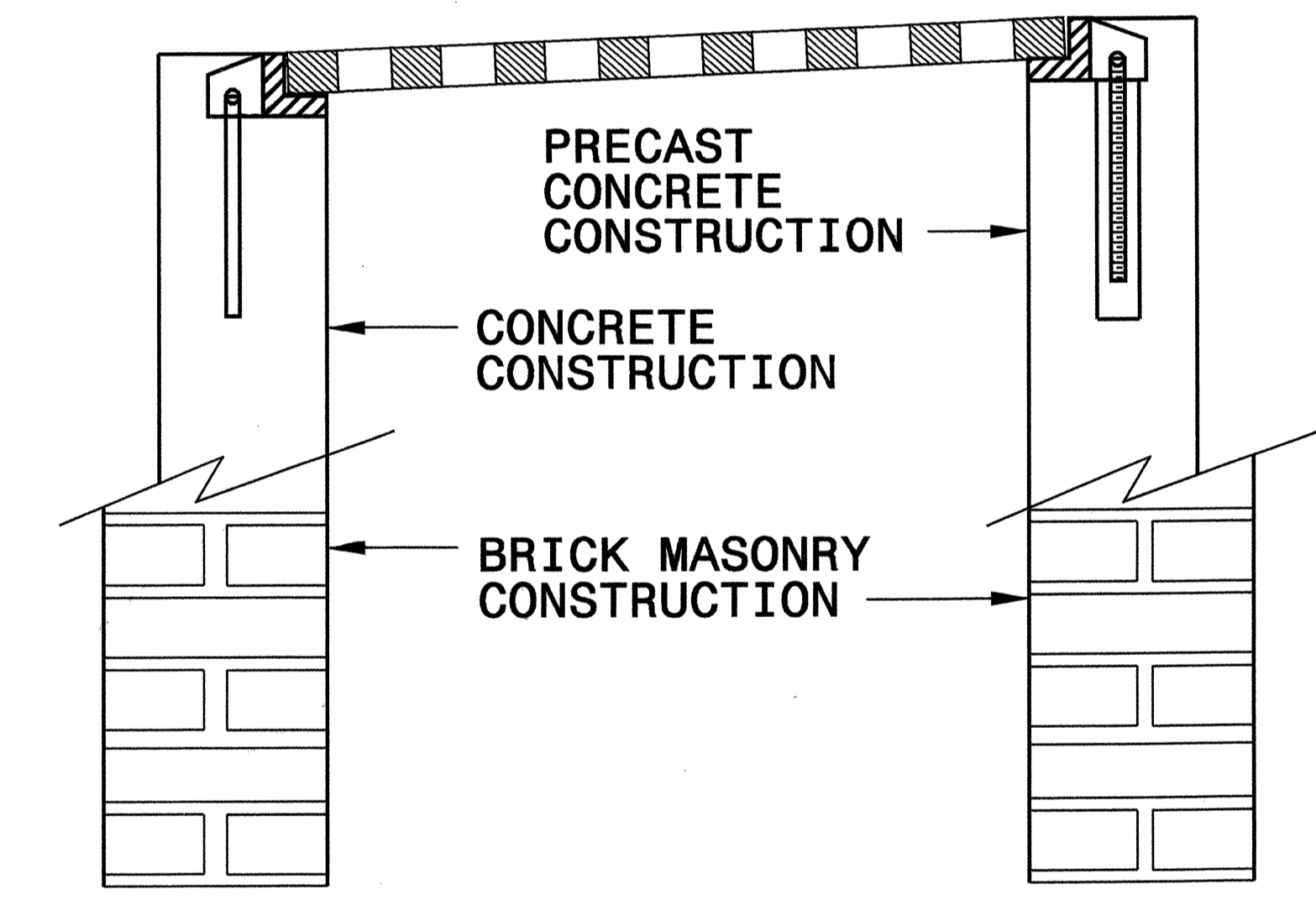
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



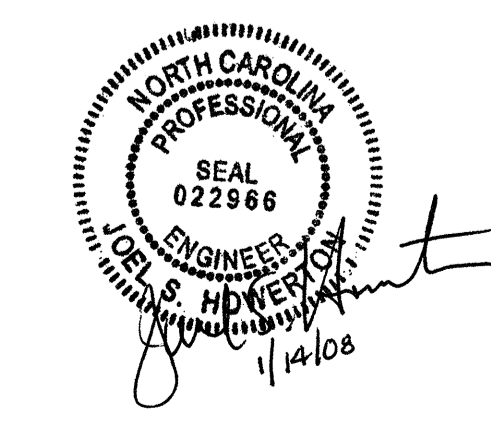
**CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



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



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



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.:

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 jhoverton 1/14/08

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201782

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (22+79.50)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	600	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0106000000-E	230	8,820	CY	BORROW EXCAVATION
0134000000-E	240	495	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	750	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	250	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	60	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0366000000-E	310	136	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	310	148	LF	18" RC PIPE CULVERTS, CLASS III
0708000000-E	310	52	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0714000000-E	310	164	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0806000000-E	310	2	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0807000000-E	310	6	EA	18" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0995000000-E	340	128	LF	PIPE REMOVAL
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1489000000-E	610	890	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	530	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	73	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	3	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR

ItemNumber	Sec #	Quantity	Unit	Description
2286000000-N	840	8	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	1.6	LF	MASONRY DRAINAGE STRUCTURES
2366000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	6	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	740	LF	SHOULDER BERM GUTTER
3030000000-E	862	1,175	LF	STEEL BM GUARDRAIL
3045000000-E	862	75	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3270000000-N	SP	6	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3559000000-E	866	850	LF	** STRAND BARBED WIRE FENCE WITH POSTS (5)
3649000000-E	876	115	TON	RIP RAP, CLASS B
3656000000-E	876	565	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	3	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4400000000-E	1110	388	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	48	LF	BARRICADES (TYPE III)
4810000000-E	1205	10,600	LF	PAINT PAVEMENT MARKING LINES (4")
6000000000-E	1605	300	LF	TEMPORARY SILT FENCE
6006000000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	220	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	230	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	3	ACR	TEMPORARY MULCHING

ItemNumber	Sec #	Quantity	Unit	Description
6018000000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	80	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	1	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	360	LF	SAFETY FENCE
6030000000-E	1630	960	CY	SILT EXCAVATION
6036000000-E	1631	1,250	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	30	SY	COIR FIBER MAT
6038000000-E	SP	180	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	575	LF	1/4" HARDWARE CLOTH
6071030000-E	SP	140	LF	COIR FIBER BAFFLES
6071050000-E	SP	3	EA	*** SKIMMER (1-1/2")
6071050000-E	SP	1	EA	*** SKIMMER (2")
6084000000-E	1660	3.5	ACR	SEEDING & MULCHING
6087000000-E	1660	2	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	2.75	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	75	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	0.25	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	3	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

Main table listing pipe and endwall details including station, size, structure no., invert elevation, pipe class (III R.C. or Bituminous Coated C.S.), quantities for drainage structures, and various grate specifications.

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

Guardrail summary table with columns for Survey Line, Beg. Sta., End Sta., Location, Length (Straight, Shop Curved, Double Faced), Warrant Point (Approach End, Trailing End), Flare Length, W, Anchors, Impact Attenuator, Single Faced, Remove Existing, and Remove and Stockpile Existing.

SUMMARY OF EARTHWORK

Summary of Earthwork table showing excavation and embankment quantities in cubic yards for various locations and materials.

REMOVAL OF ASPHALT PAVEMENT

Removal of Asphalt Pavement table showing survey line, beg. sta., end sta., and area in square yards.

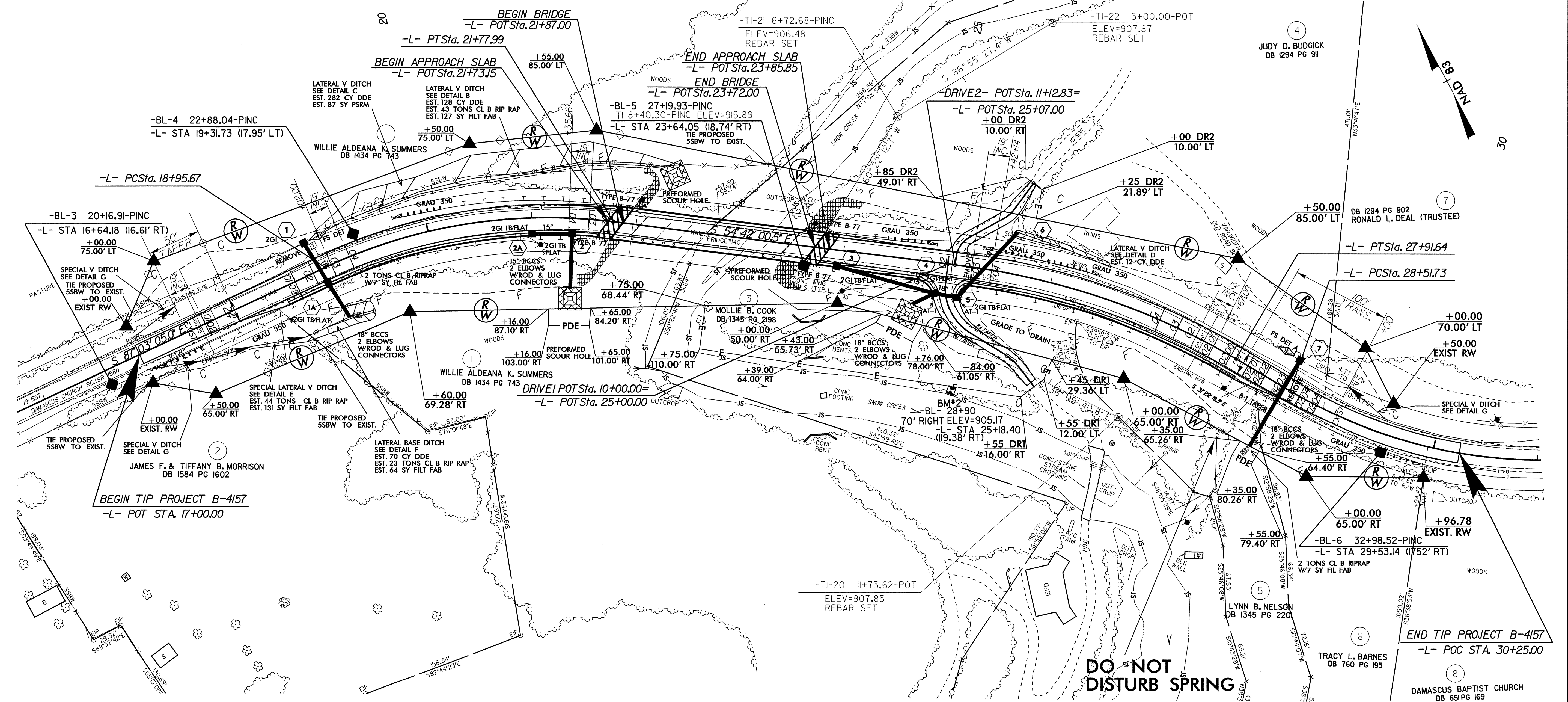
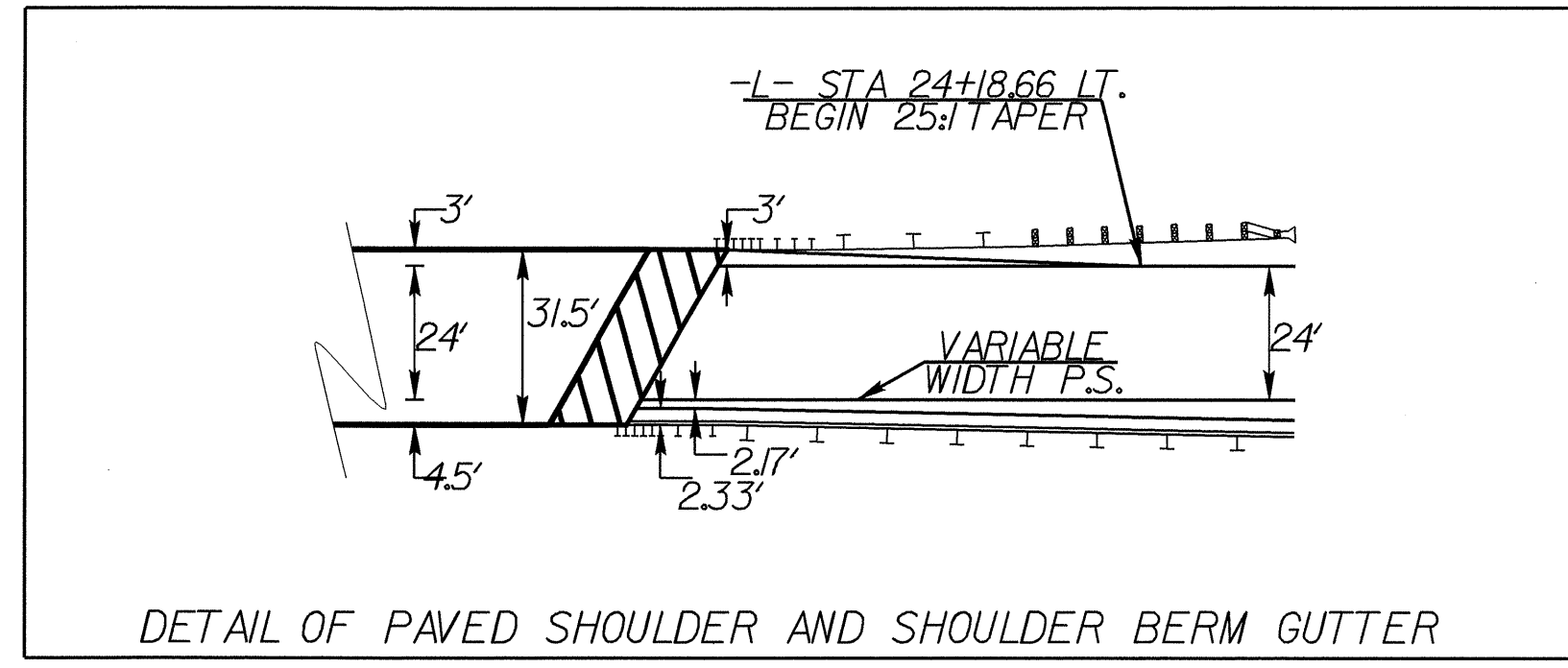
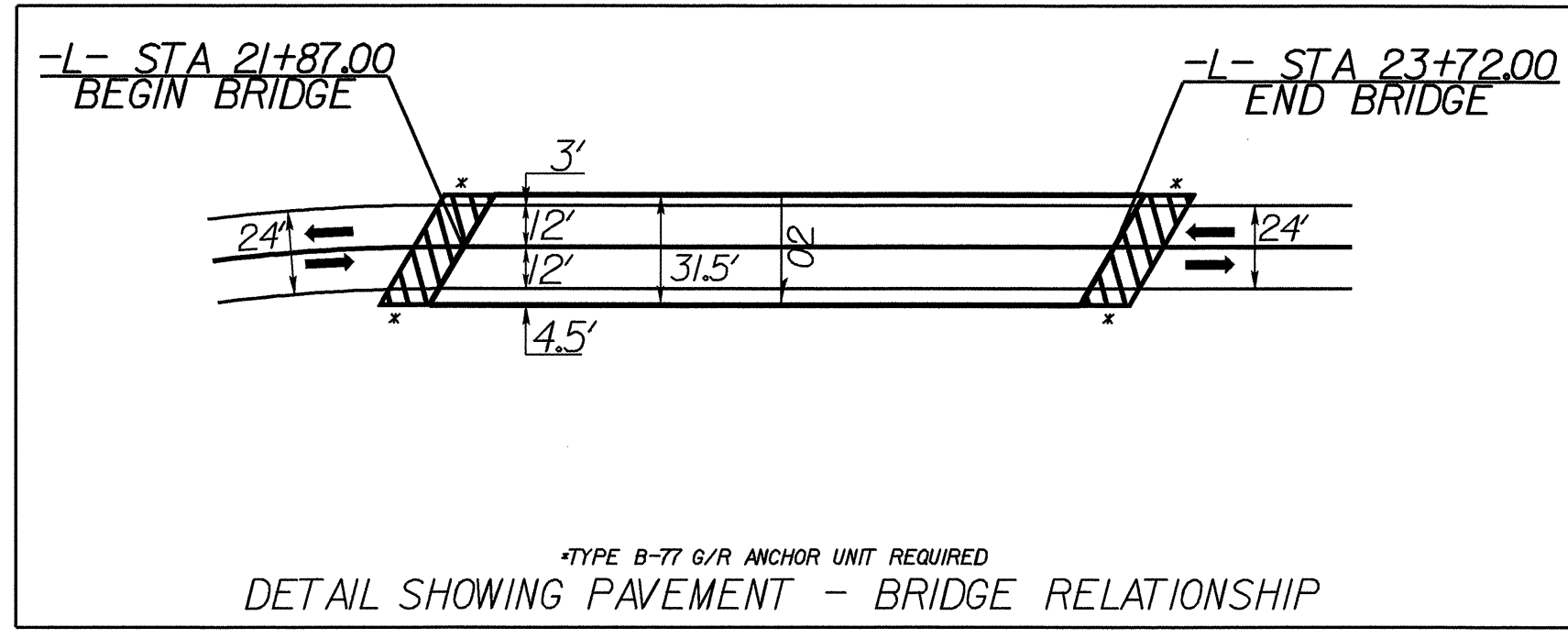
PARCEL INDEX

Parcel Index table listing parcel no., property owners names, and sheet no.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

\*\* DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 60 MPH TO 25 MPH

PROJECT REFERENCE NO. B-4157	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 028473 JASON TALLEY	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 26306 M. M. PASSMAN
Jan 21 Today 1-10-08	Apr 11 1-16-08



CURVE DATA

-L-			-DRIVE1-		-DRIVE2-	
PI Sta 20+40.70	PI Sta 26+56.15	PI Sta 29+88.63	PI Sta 10+49.14	PI Sta 11+22.50	PI Sta 10+37.22	PI Sta 10+94.20
$\Delta = 32^\circ 31' 04.5''$ (RT)	$\Delta = 23^\circ 19' 41.2''$ (RT)	$\Delta = 32^\circ 09' 22.8''$ (LT)	$\Delta = 65^\circ 21' 35.3''$ (LT)	$\Delta = 20^\circ 24' 38.0''$ (LT)	$\Delta = 24^\circ 52' 41.4''$ (RT)	$\Delta = 54^\circ 08' 55.0''$ (LT)
D = 11' 27' 33.0"	D = 8' 29' 17.7"	D = 12' 03' 44.2"	D = 14' 35' 29.6"	D = 88' 08' 50.5"	D = 190' 59' 09.4"	D = 229' 10' 59.2"
L = 282.32'	L = 27.483'	L = 266.59'	L = 57.04'	L = 23.16'	L = 13.03'	L = 23.63'
T = 145.03'	T = 139.34'	T = 136.91'	T = 32.07'	T = 11.70'	T = 6.62'	T = 12.78'
R = 500.00'	R = 675.00'	R = 475.00'	R = 50'	R = 65.00'	R = 30.00'	R = 25.00'
SE = 04	SE = 04	SE = 04				
RO = 76'	RO = 76'	RO = 76'				
V = 39 MPH	V = 40 MPH	V = 35 MPH				

BRIDGE APPROACH SLAB

FOR DRAINAGE DITCH DETAILS, SEE SHEET 2-A

FOR DRIVEWAY INTERSECTION DETAIL, SEE SHEET 2-A

FOR L, DRIVE1, & DRIVE2 PROFILES, SEE SHEET NO. 5

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-33

REVISIONS

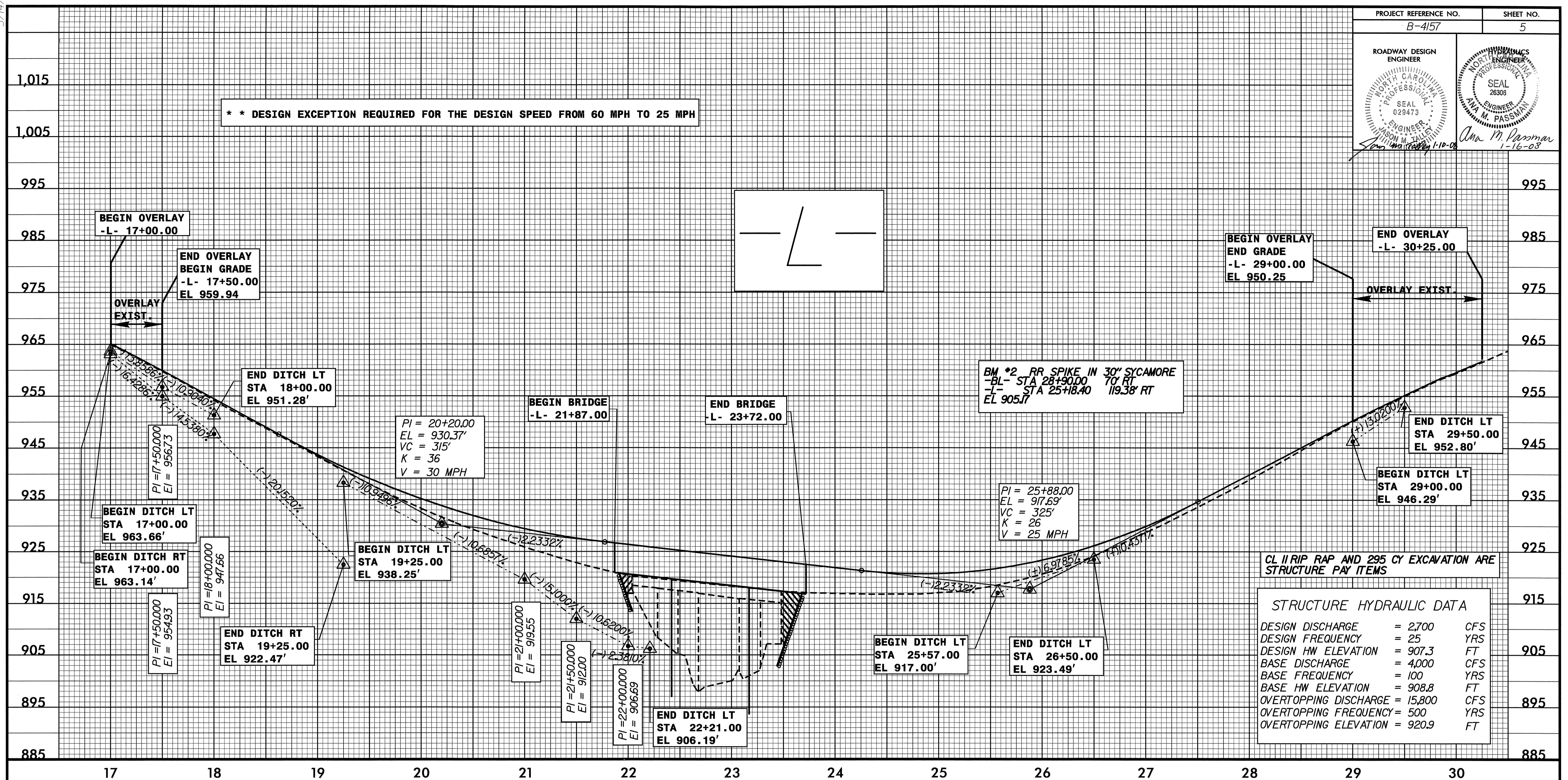
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ROADWAY DESIGN ENGINEER  
 NORTH CAROLINA PROFESSIONAL SEAL 029473  
 ENGINEER  
 MASON M. JAMES  
 1-10-08

HYDRAULICS ENGINEER  
 NORTH CAROLINA PROFESSIONAL SEAL 26306  
 ENGINEER  
 ANA M. PASSMAN  
 1-16-03

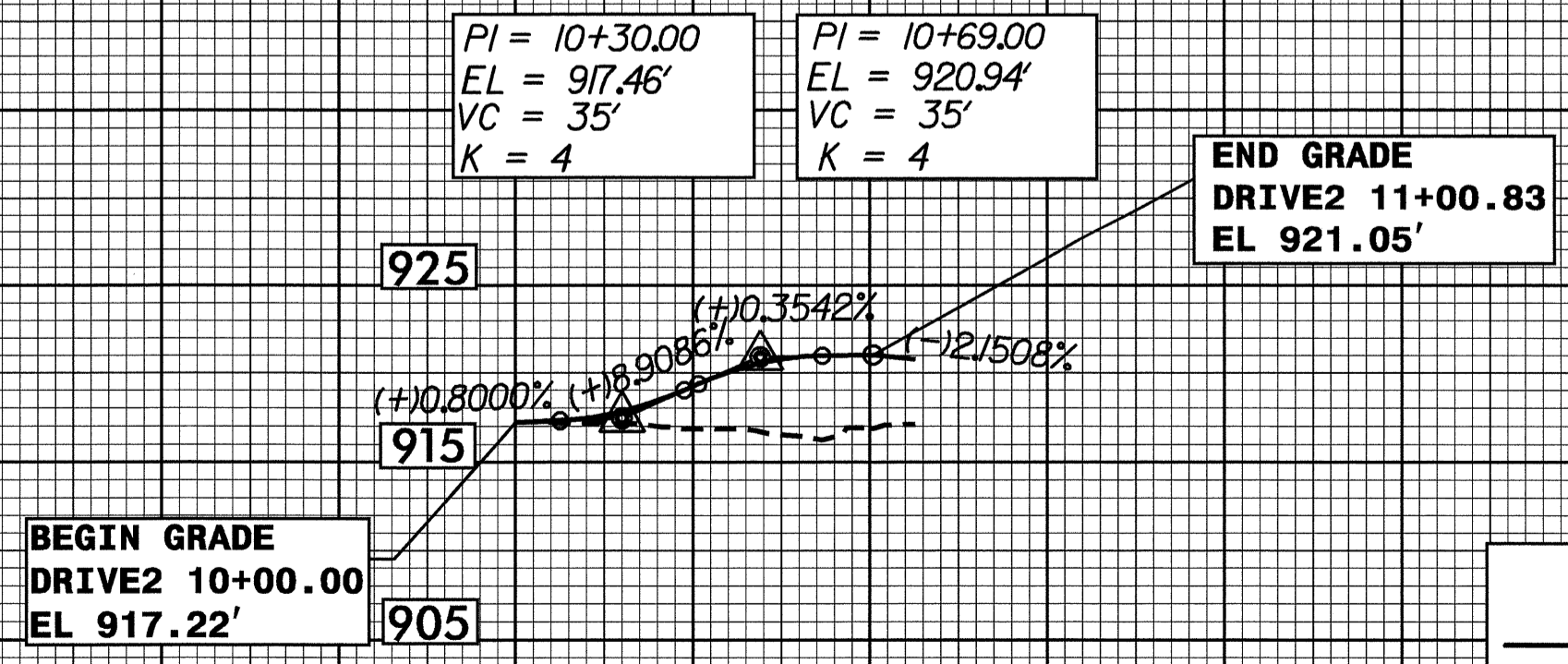
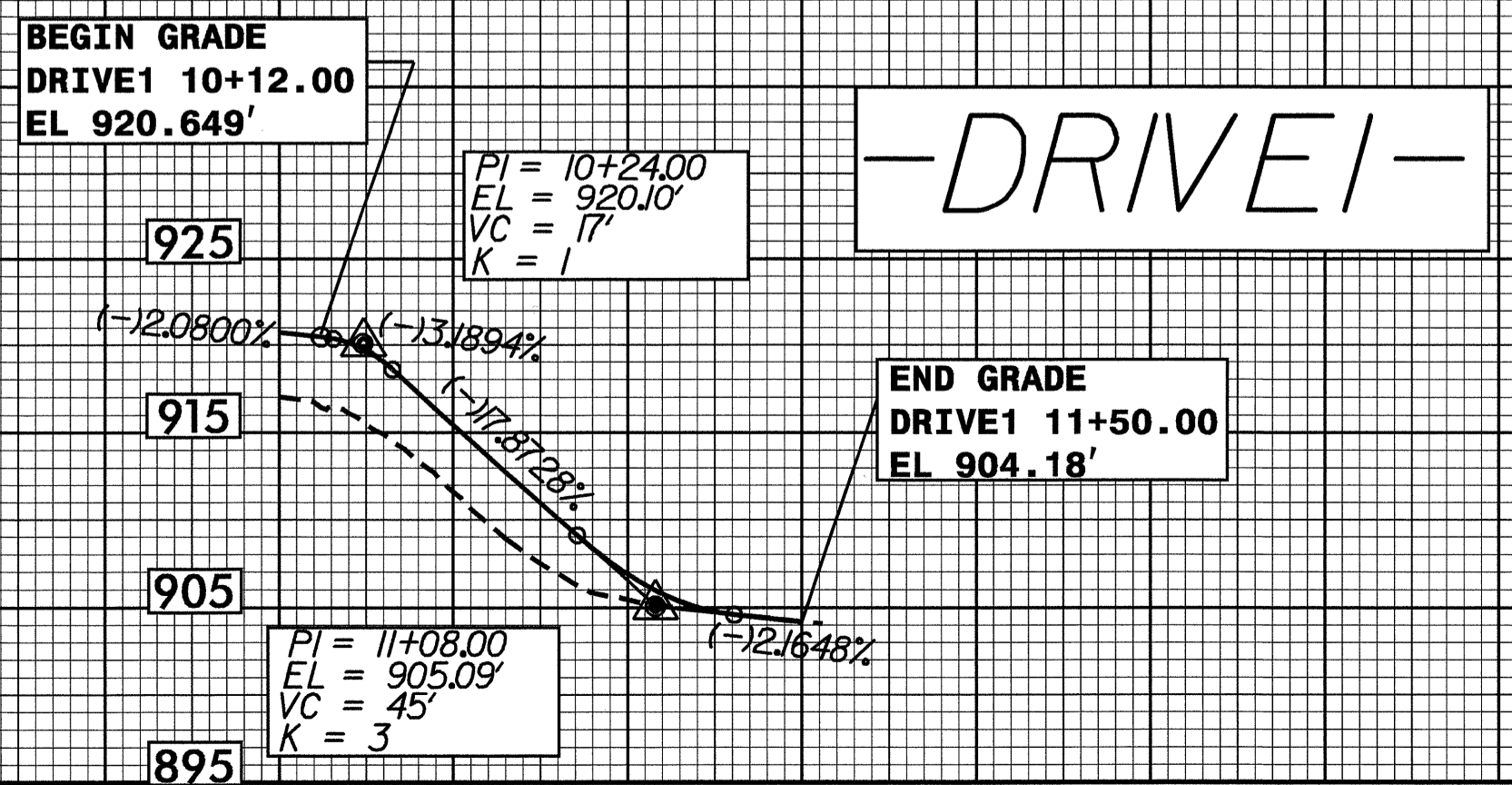
\*\* DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 60 MPH TO 25 MPH



CL II RIP RAP AND 295 CY EXCAVATION ARE STRUCTURE PAY ITEMS

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2,700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 907.3	FT
BASE DISCHARGE	= 4,000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 908.8	FT
OVERTOPPING DISCHARGE	= 15,800	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 920.9	FT



LEFT DITCH - - - - -  
 RIGHT DITCH - - - - -  
 SEE SHEET 4 FOR -L- ALIGNMENT  
 SEE SHEET 4 FOR -DRIVE1- ALIGNMENT  
 SEE SHEET 4 FOR -DRIVE2- ALIGNMENT

5/14/09

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