

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WARREN COUNTY

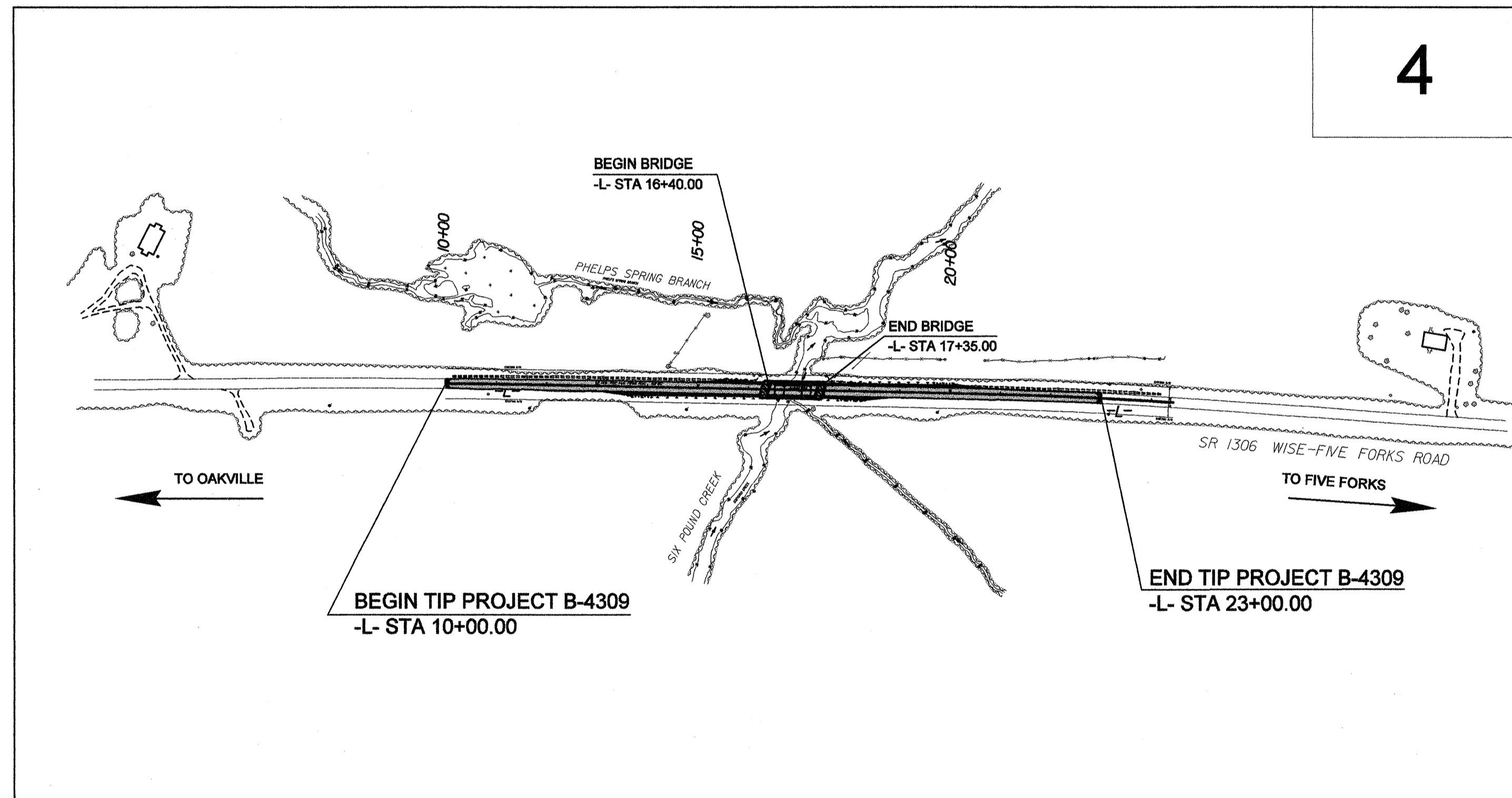
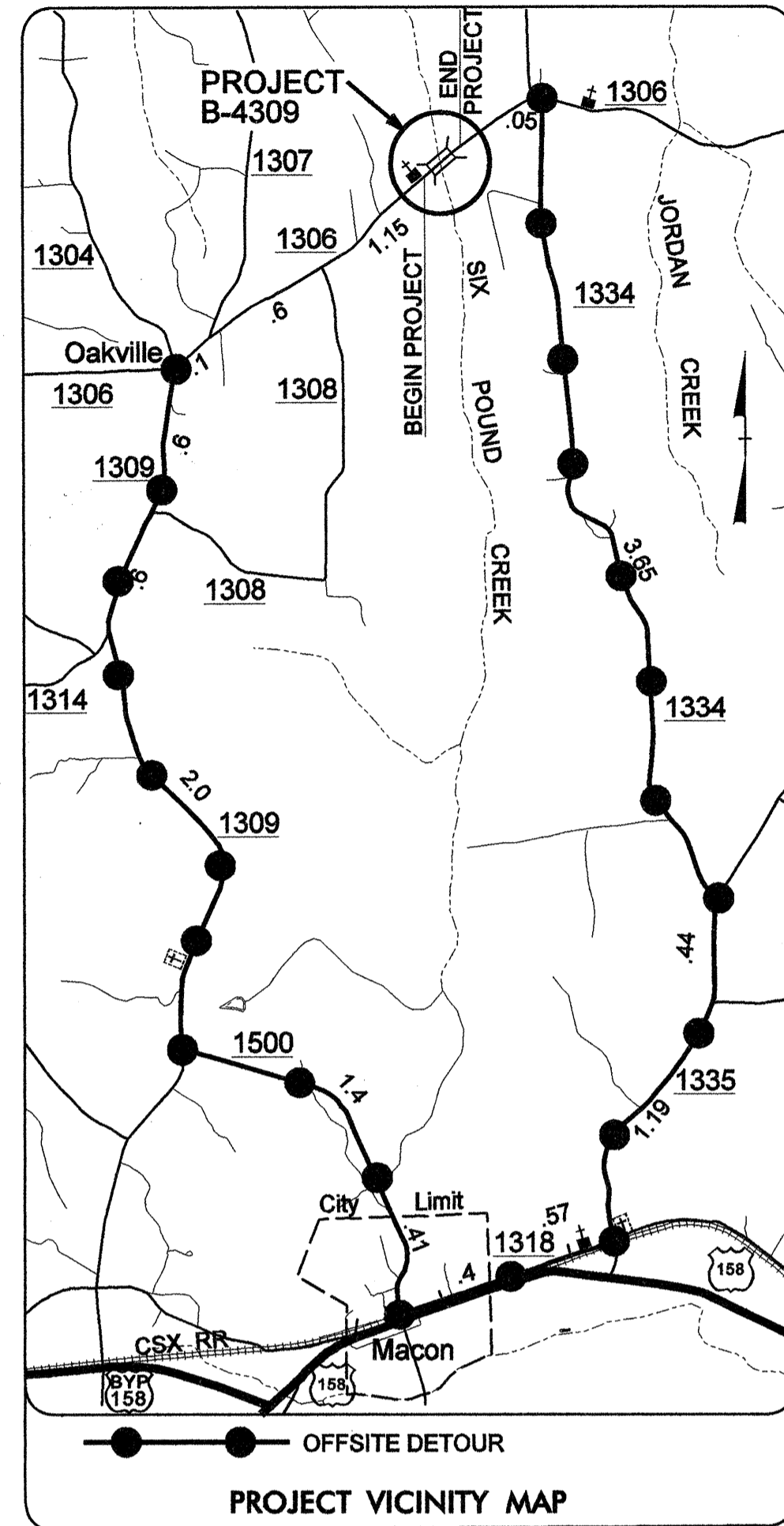
**LOCATION: BRIDGE NO. 38 ON SR 1306 OVER
SIX POUND CREEK**

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

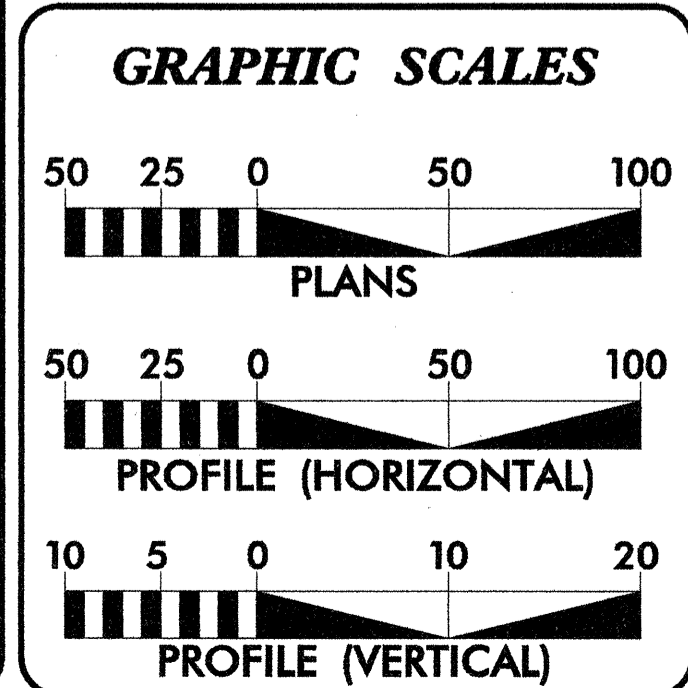
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4309	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33646.1.1	BRZ-1306(10)	P.E.	
33646.2.1	BRZ-1306(10)	R.W. & UTILITY	
33646.3.1	BRZ-1306(10)	CONST.	

TIP PROJECT: B-4309

CONTRACT: C201763



NCDOT Contact: B. Doug Taylor, PE
Roadway Design-Engineering Coordination



DESIGN DATA

ADT 2008 = 440
ADT 2028 = 590
DHV = 10 %
D = 60 %
T = 4% (TTST 2%, DUAL 2%)
V = 60 MPH

DESIGN EXCEPTION

MAX. GRADE = 6.9259%
SAG K VALUE = 100
FUNC CLASS = RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4309 = 0.228 MILES
LENGTH STRUCTURE TIP PROJECT B-4309 = 0.018 MILES
TOTAL LENGTH TIP PROJECT B-4309 = 0.246 MILES

Prepared In the Office of
DYER, RIDDLE, MILLS & PRECOURT, INC. (DRMP)
7506 EAST INDEPENDENCE BLVD., SUITE 105
CHARLOTTE, NORTH CAROLINA 28227
(704) 332-2289

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 18, 2006

LETTING DATE:
JANUARY 15, 2008

Ronald C. Smith, PE
PROJECT ENGINEER

Moriah B. Ellington, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Roger S. Weadon
10/23/07
P.E.

ROADWAY DESIGN ENGINEER

Ronald C. Smith
10/23/07
P.E.

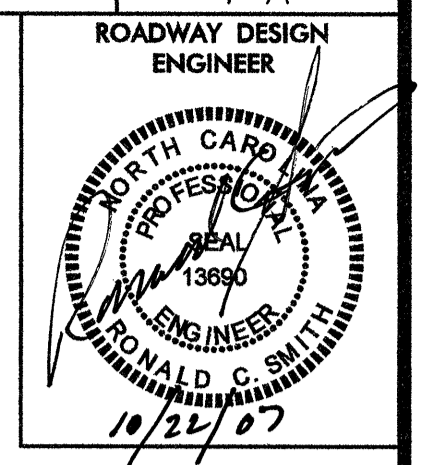
**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER

R:\Roadway\Proj\FINAL PLANS\B4309_Rdy_1.sh.dgn 10/22/2007 10:54 AM

8/17/09

R:\AR09d\gvy\Proj\FINAL PLANS\B-4309.Rdy_Sht_1-A.dgn
11/17/06 PM
10/22/07



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 DETAILS
2-A	ANCHORAGE FOR FRAMES
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
3-B	SUMMARY OF DRAINAGE QUANTITIES
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-4	TRAFFIC CONTROL PLANS
SD-1	SPECIAL SIGN DESIGN
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-1 THRU X-8	CROSS-SECTION SUMMARY SHEET CROSS-SECTIONS
S-1 THRU S-18	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.

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: WARREN COUNTY, EMBARQ CO., AND HALIFAX EMC CO.
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

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

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
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 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
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
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
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
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 High Quality 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, River Basin Buffer, Flow Arrow, Disappearing Stream, Spring, Swamp Marsh, 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, 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: 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.*).

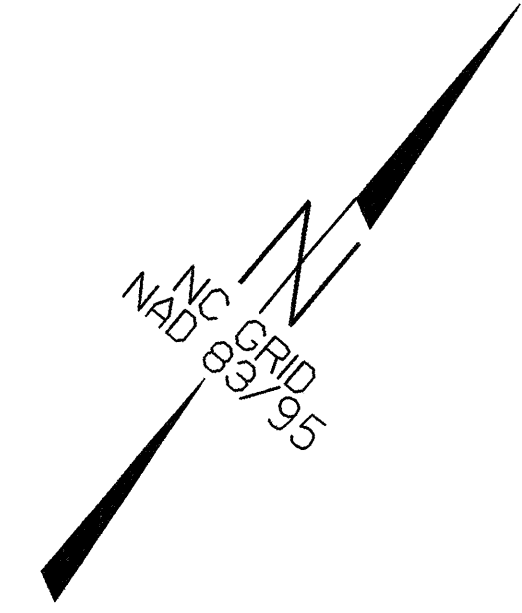
MISCELLANEOUS:

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.

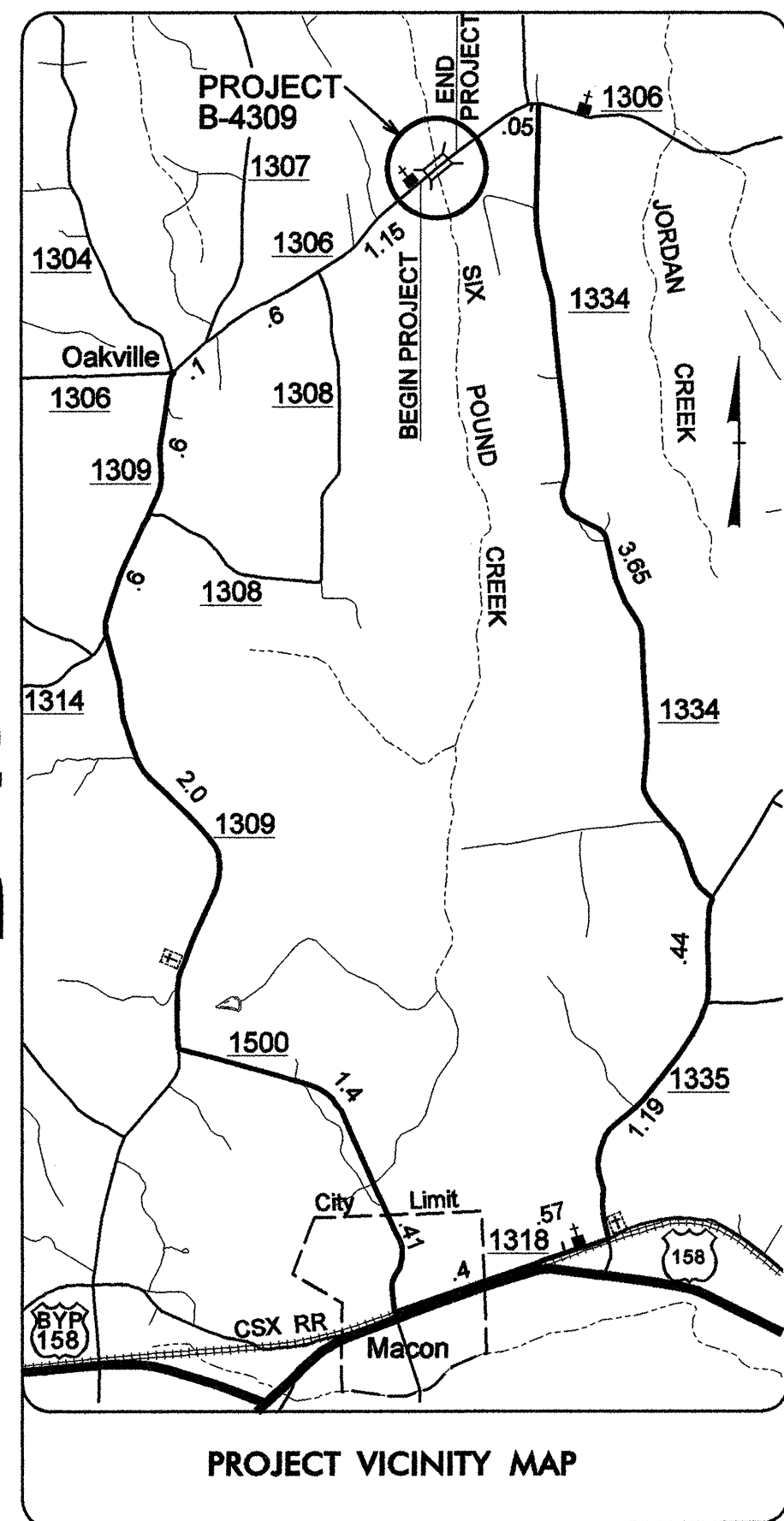
SURVEY CONTROL SHEET B-4309

WARREN COUNTY

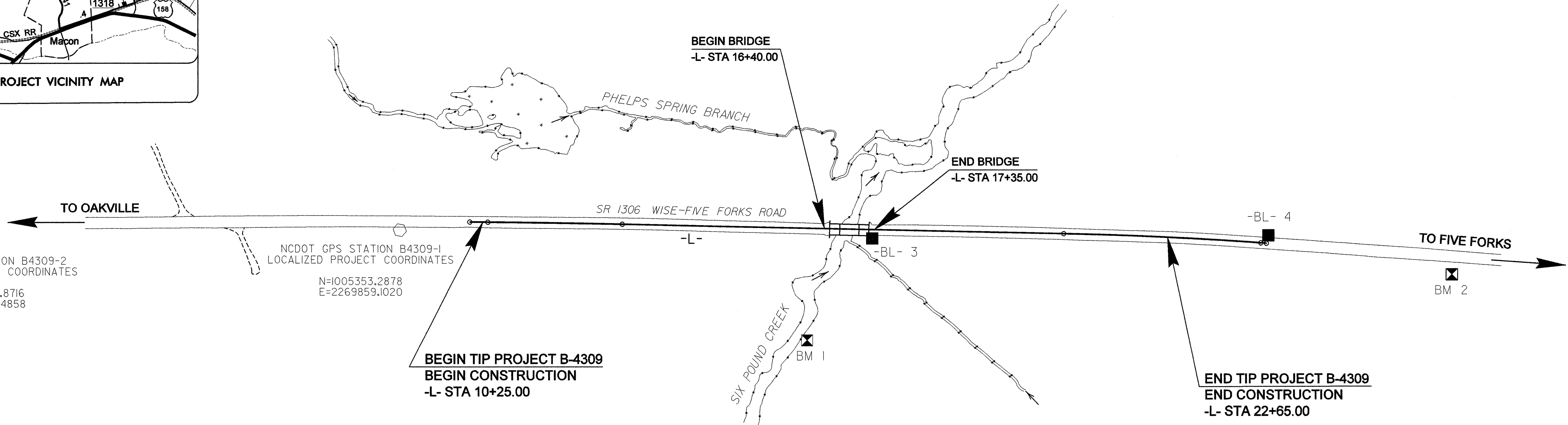
**LOCATION: BRIDGE NO. 38 OVER SIX POUND CREEK
AND APPROACHES ON SR 1306 (WISE-FIVE FORKS ROAD)**



B-4309



PROJECT VICINITY MAP



NCDOT GPS STATION B4309-2
LOCALIZED PROJECT COORDINATES
N=1004796.8716
E=2269212.4858

NCDOT GPS STATION B4309-1
LOCALIZED PROJECT COORDINATES
N=1005353.2878
E=2269859.1020

**BEGIN TIP PROJECT B-4309
BEGIN CONSTRUCTION
-L- STA 10+25.00**

**END TIP PROJECT B-4309
END CONSTRUCTION
-L- STA 22+65.00**

BASELINE POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	B4309-2	1004796.8716	2269212.4858	281.74	OUTSIDE PROJECT LIMITS	
1	B4309-1	1005353.2878	2269859.1020	237.51	OUTSIDE PROJECT LIMITS	
3	BL-3	1005894.9380	2270522.3350	221.12	17+29.70	15.73 RT
4	BL-4	1006362.9840	2271067.0140	264.28	OUTSIDE PROJECT LIMITS	

 BM1 ELEVATION = 217.37
 N 1005679 E 2270551
 L STATION 16+15 202' RIGHT
 R/R SPIKE IN 20" HARD WOOD TREE

 BM2 ELEVATION = 278.24
 N 1006524 E 2271366
 L STATION 24+44.47 (OUTSIDE PROJECT LIMITS)
 N 59° 10' 16.4" E DIST 340.53'
 R/R SPIKE IN POWER POLE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4309-2"

WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 1004796.8716(±) EASTING: 2269212.4858(±)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00010598

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4309-2" TO -L- STATION 10+00.00 IS
 N 48°30'14.8" E 980.22'

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/B4309_ls_control_060525.txt](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/B4309_ls_control_060525.txt)
 2. 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

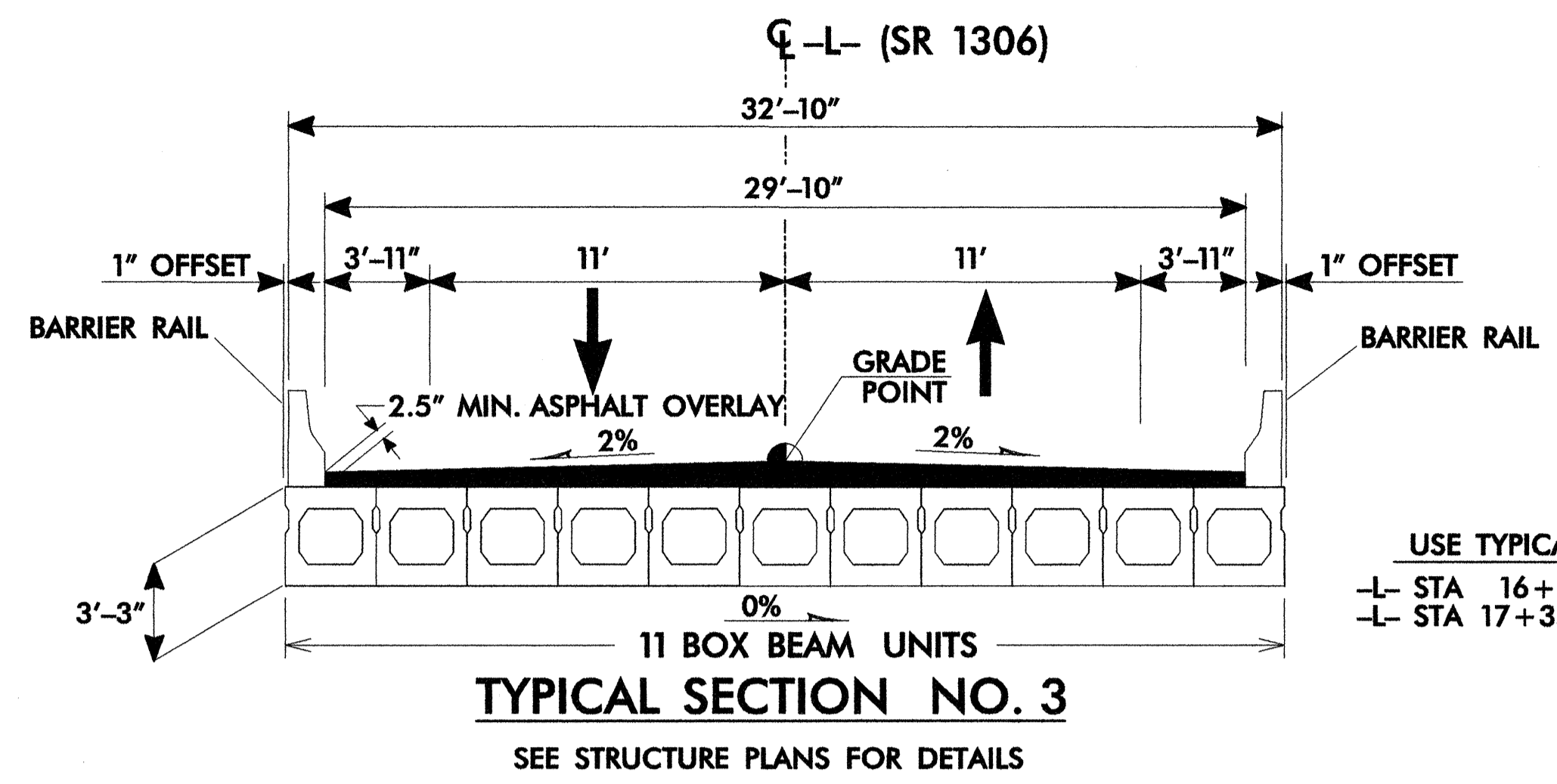
6/12/99
 R:\Roadway\Projects\Warren\B4309\B4309_1s_1c_060525.dgn
 3:26:13 PM
 10/22/2007

6/2/99

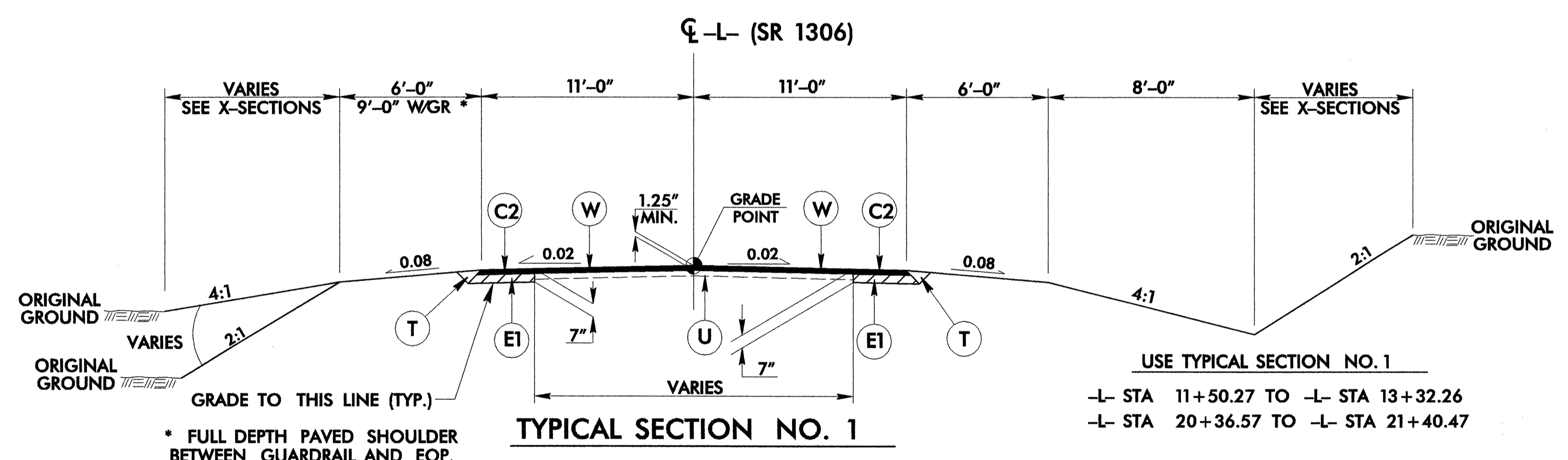
PROJECT REFERENCE NO. B-4309	SHEET NO. 2
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER
DRMP ENGINEERS - PLANNERS - SCIENTISTS DYER, BOBLE, MILLS & PEACOCK, INC. 17506 EAST INDEPENDENCE BLVD., SUITE 105 CHARLOTTE, NORTH CAROLINA 28227 (704) 332-2289	

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	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 1.0" IN DEPTH OR GREATER THAN 1.5" IN DEPTH.
E1	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 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.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING. (SEE WEDGING DETAIL, THIS SHEET)

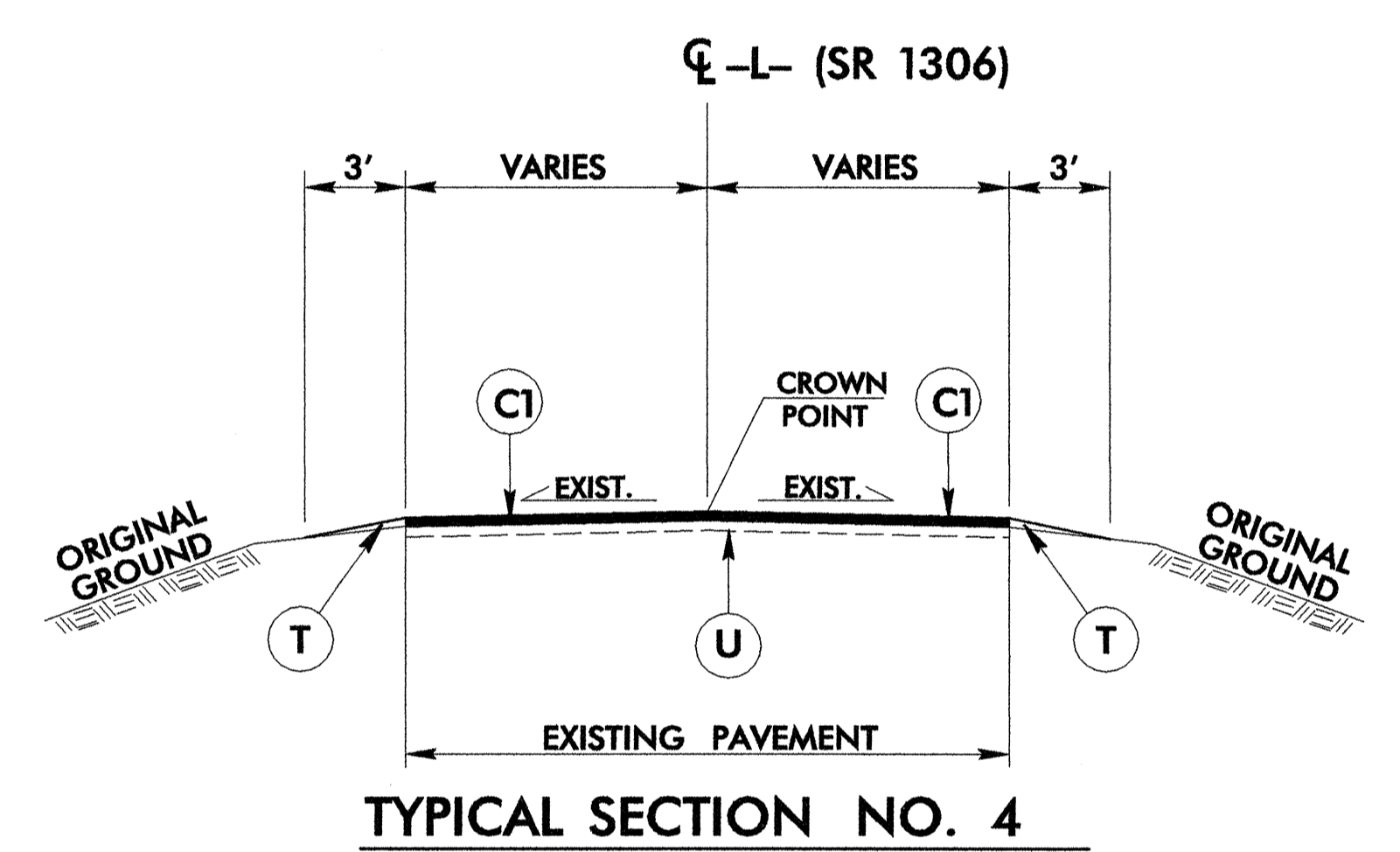
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



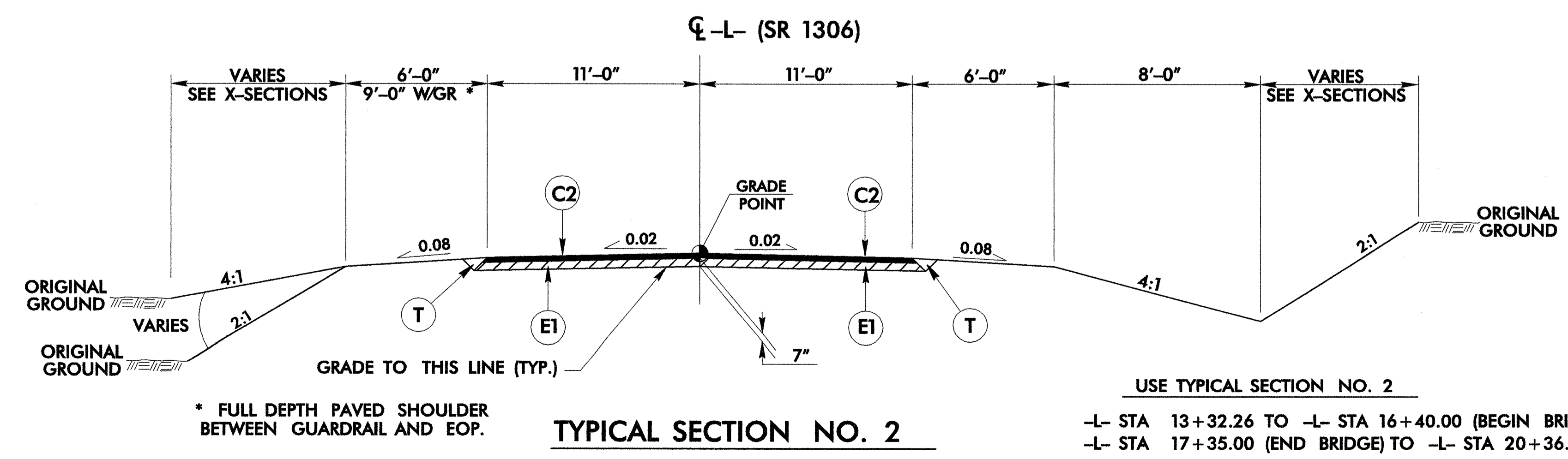
USE TYPICAL SECTION NO. 3
-L- STA 16+40.00 (BEGIN BRIDGE) TO
-L- STA 17+35.00 (END BRIDGE)



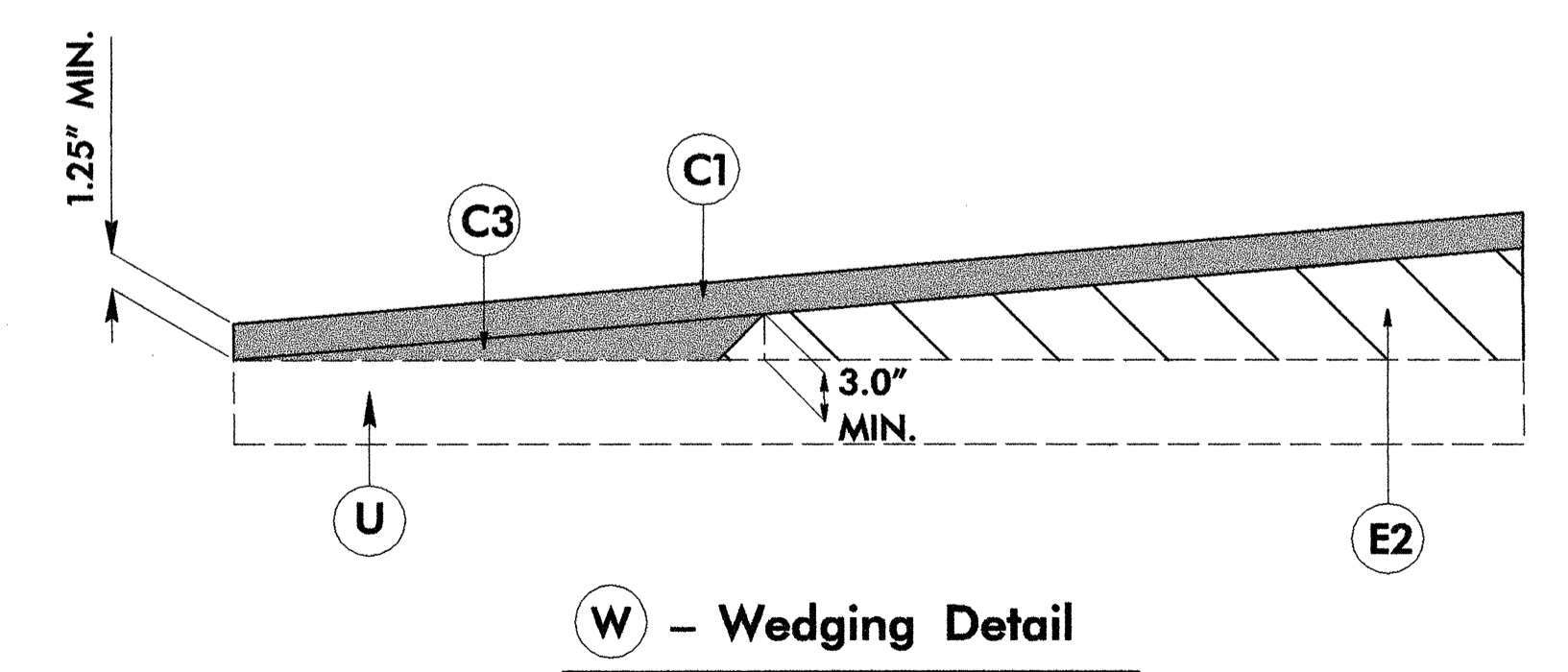
* FULL DEPTH PAVED SHOULDER BETWEEN GUARDRAIL AND EOP.



TRANSITION FROM TYPICAL SECTION NO. 4 TO EXISTING (INCLUDES FEATHERING)
-L- STA 10+00.00 (BEGIN PROJECT) TO -L- STA 10+15.00
-L- STA 22+85.00 TO -L- STA 23+00.00 (END PROJECT)



* FULL DEPTH PAVED SHOULDER BETWEEN GUARDRAIL AND EOP.

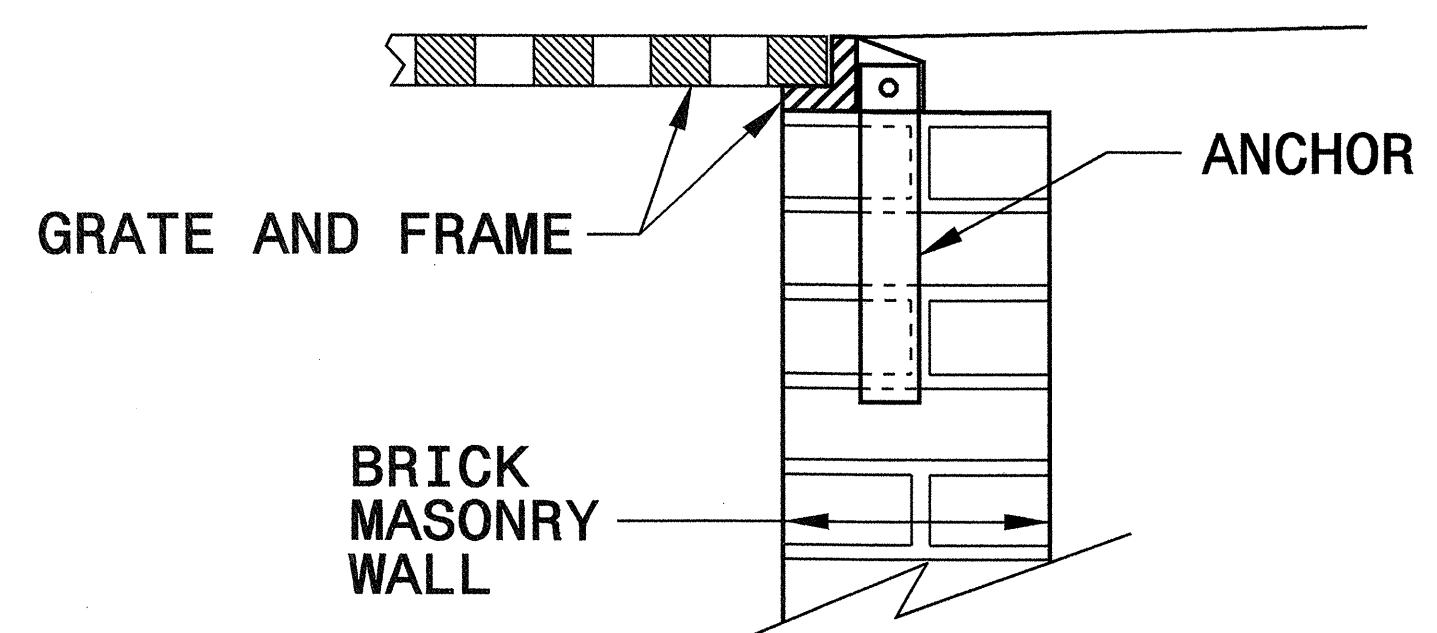


R:\Roadway\Proj\FINAL PLANS\B4309_rdy_typ.dgn
11/17/06
10/22/2007

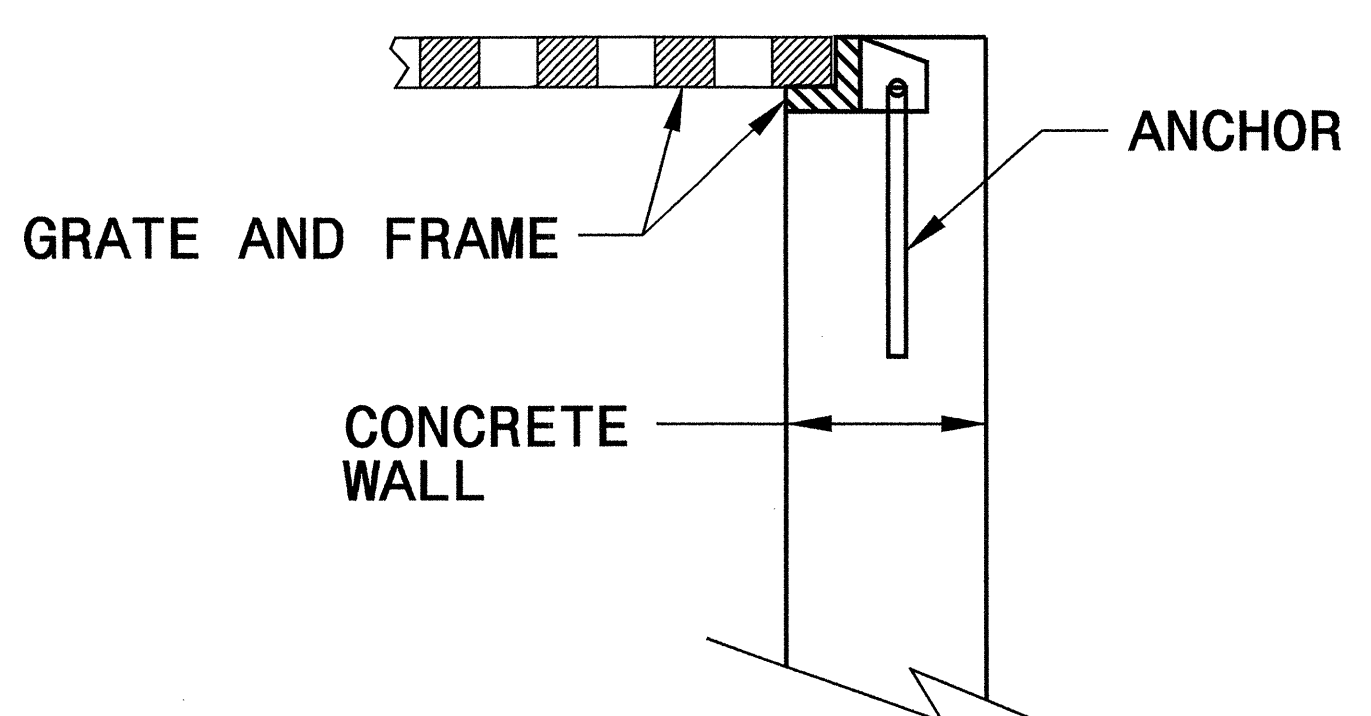
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

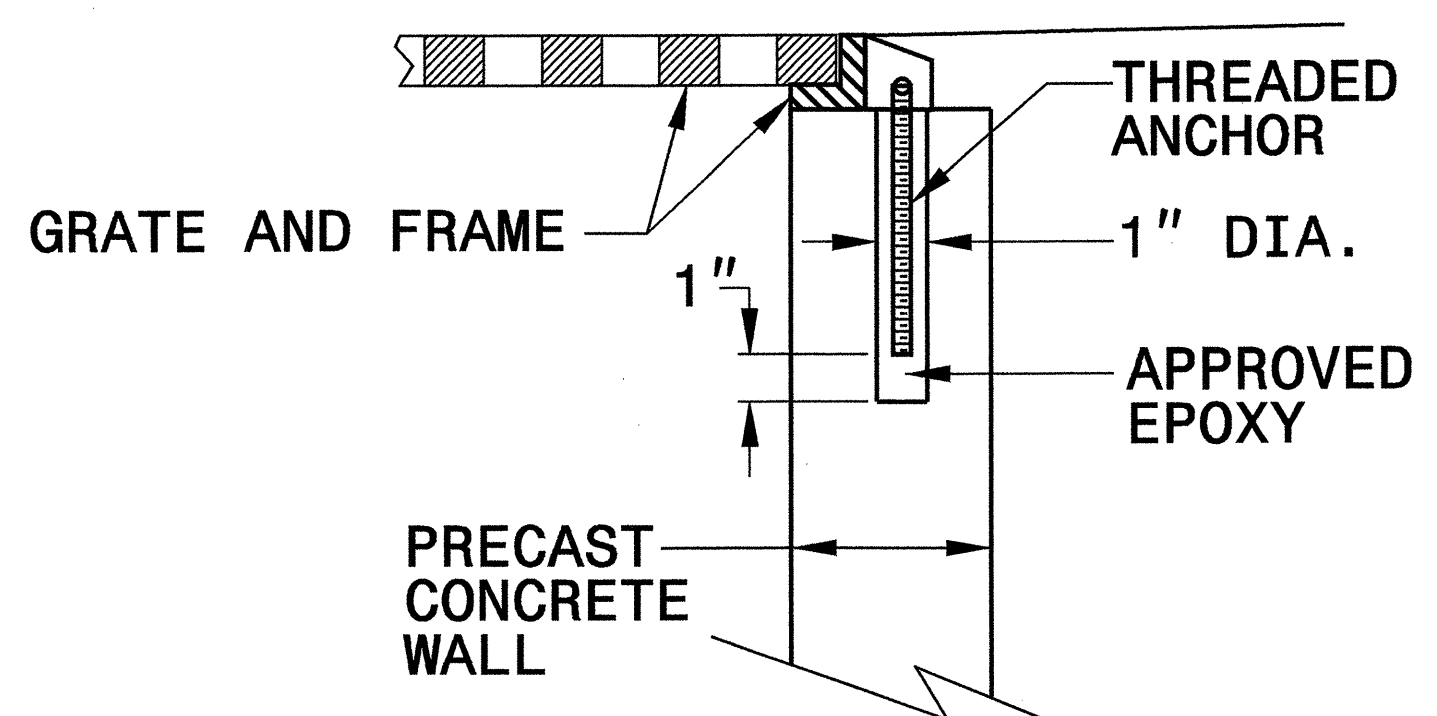
SHEET 1 OF 1
840D25



**BRICK MASONRY
CONSTRUCTION**



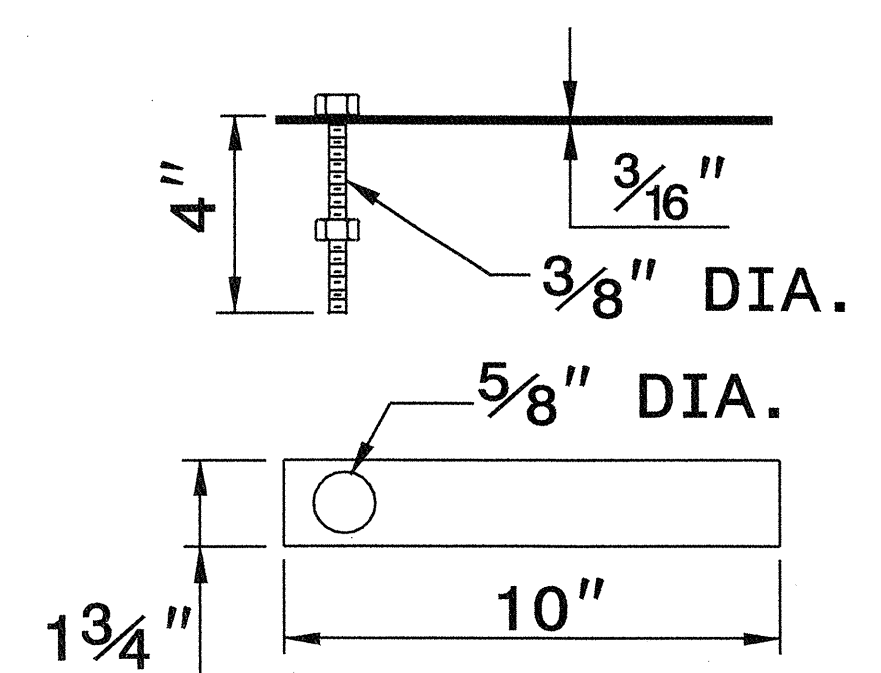
**CONCRETE
CONSTRUCTION**



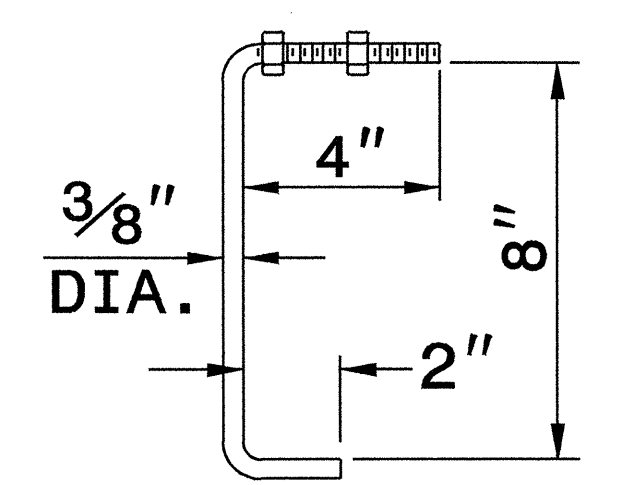
**PRECAST CONCRETE
CONSTRUCTION**

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

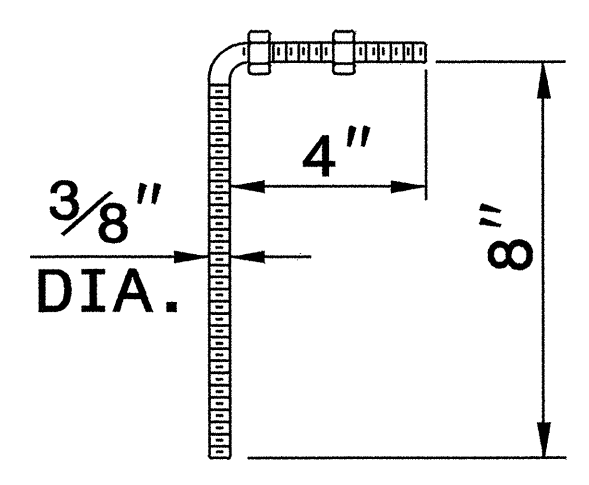
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



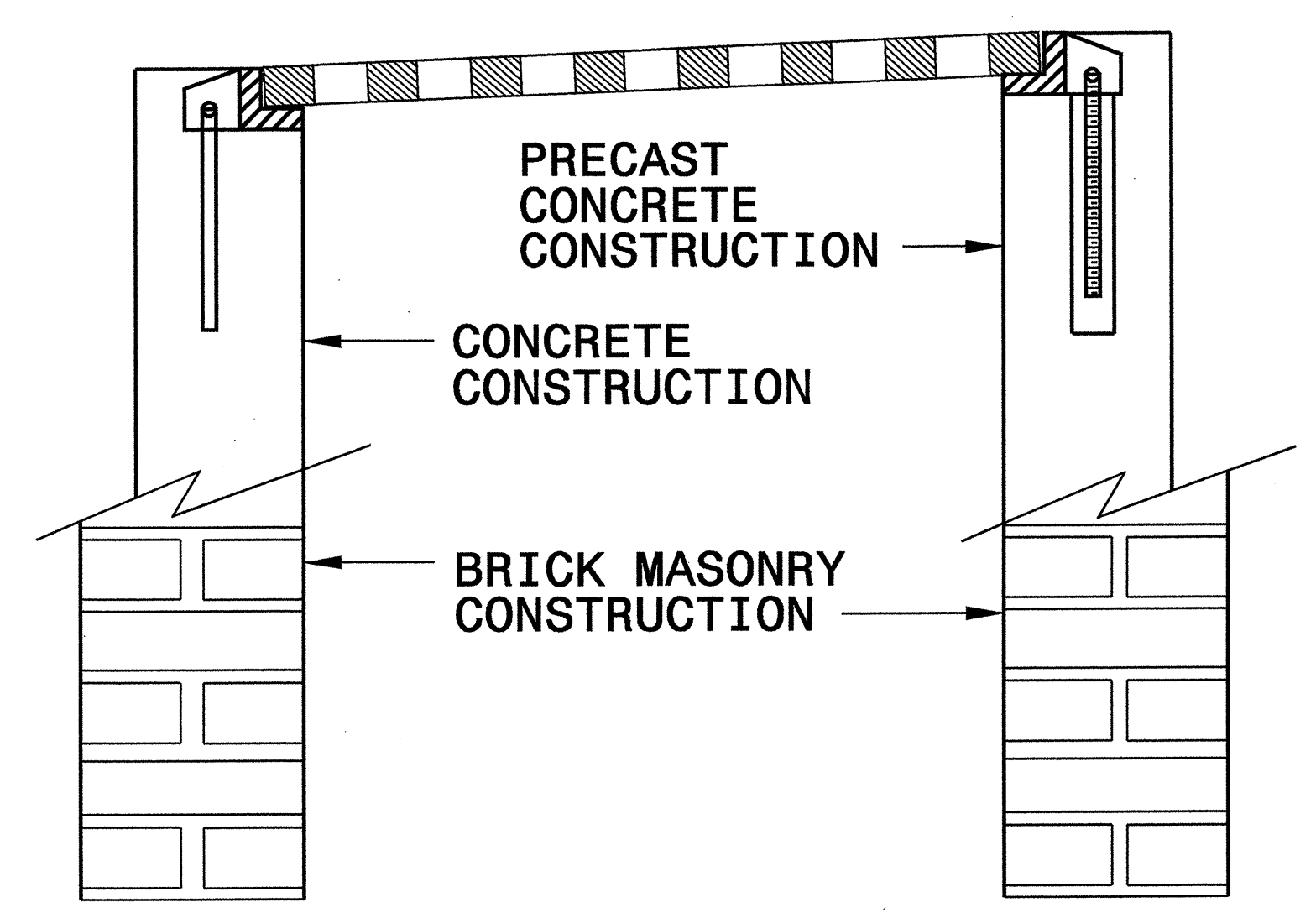
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



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



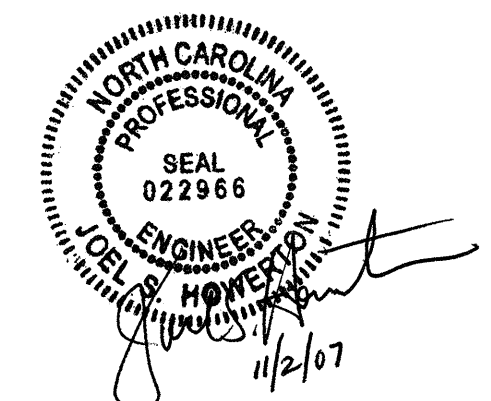
**FRAME AND GRATE INSTALLATION
FOR NORMAL CROWN AND
SUPERELEVATED SECTIONS**

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

01-MAR-2007 09:04
 s:\contracts\cor\p322206\special_details\verward\stds\06' stds to special_details\84025 anchorage For Frames\0840d25.dgn
 jlower-ton



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.:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201773

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (18+00.000)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	500	CY	UNDERCUT EXCAVATION
0080000000-E	SP	100	TON	CLASS IV SUBGRADE STABILIZATION
0134000000-E	240	60	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	400	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	400	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	10	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0366000000-E	310	24	LF	15" RC PIPE CULVERTS, CLASS III
0708000000-E	310	24	LF	15" 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
1121000000-E	520	35	TON	AGGREGATE BASE COURSE
1330000000-E	607	225	SY	INCIDENTAL MILLING
1489000000-E	610	220	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	490	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	45	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2022000000-E	815	45	CY	SUBDRAIN EXCAVATION
2033000000-E	815	35	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	200	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	6	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)

ItemNumber	Sec #	Quantity	Unit	Description
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	84	LF	SHOULDER BERM GUTTER
3030000000-E	862	962.5	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3628000000-E	876	15	TON	RIP RAP, CLASS I
3649000000-E	876	75	TON	RIP RAP, CLASS B
3656000000-E	876	310	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	406	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
4810000000-E	1205	7,600	LF	PAINT PAVEMENT MARKING LINES (4")
4900000000-N	1251	12	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	355	LF	TEMPORARY SILT FENCE
6006000000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	70	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	75	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	1	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	25	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	250	LF	SAFETY FENCE
6030000000-E	1630	330	CY	SILT EXCAVATION

ItemNumber	Sec #	Quantity	Unit	Description
6036000000-E	1631	800	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	25	SY	COIR FIBER MAT
6042000000-E	1632	185	LF	1/4" HARDWARE CLOTH
6071030000-E	SP	105	LF	COIR FIBER BAFFLES
6071050000-E	SP	2	EA	** SKIMMER (1-1/2")
6084000000-E	1660	1	ACR	SEEDING & MULCHING
6087000000-E	1660	0.5	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	0.75	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	2.5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

5/28/99

R:\Roadway\Proj\FINAL PLANS\B-4309_Rdy_sum.dgn
10:05:16 AM
05/28/99

COMPUTED BY: MBE DATE: 3/07
 CHECKED BY: RCS DATE: 10/07

PROJECT NO. B-4309 SHEET NO. 3-A

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF PAVEMENT REMOVAL/BREAKING

SUMMARY OF EARTHWORK

Station	Station	TOTAL UNCLASS. EXCAV.	UNDERCUT	Embank. +%	Borrow	Waste
10+00.00	16+40.00 (BEG. BRIDGE)	8		676	670	2
SUBTOTAL:		8		676	670	2
17+35.00 (END BRIDGE)	23+00.00	238		1676	1498	60
SUBTOTAL:		238		1676	1498	60
SUMMARIES SUBTOTAL:		246		2352	2168	62
EST. LOSS DUE TO CLEARING & GRUBBING		-100			100	
PROJECT TOTALS:		146		2352	2268	62
EST. 5% FOR REPLACING TOP SOIL ON BORROW PITS					113	
GRAND TOTALS:					2381	
SAY:		150			2400	

LINE	STATION TO STATION	LOC	ASPHALT REMOVAL (SY)	ASPHALT BREAKING (SY)	CONCRETE REMOVAL (SY)	CONCRETE BREAKING (SY)
-L-	13+32 - 15+72	LT/RT	531.80			
-L-	15+72 - 16+52	LT/RT		176.67		
-L-	17+23 - 19+75	LT/RT		567.05		
-L-	19+75 - 20+37	LT/RT	141.20			
GRAND TOTAL:			673.00	743.72		
SAY:			680	750		

UNDERCUT= 250
DDE= 98

NOTE: 180 CY UNCLASSIFIED STRUCTURE EXCAVATION MAY BE USED IN THE EMBANKMENT IF DEEMED SUITABLE BY THE ENGINEER.

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

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

"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

LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		"N" DIST FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH		W		ANCHORS							IMP. ATTEN. TYPE 350			REMOVE EXISTING GRDRAIL	REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	XI MOD	XI	GRAU 350	M-350	XII	CAT-1	B-77	EA	G	NG				
-L-	13+61	16+36	RT	275.00			13+61		3' 11"	6' 11"	200		1' 1"			1								1				
-L-	15+44	16+44	LT	100.00				15+44	3' 11"	6' 11"		25		1' 1"		1								1				
-L-	17+31	18+31	RT	100.00				18+31	3' 11"	6' 11"		25		1' 1"		1								1				
-L-	17+39	20+14	LT	275.00			20+14		3' 11"	6' 11"	200			1' 1"		1								1				
SUBTOTAL				750.00																								

ANCHOR UNIT DEDUCTIONS			
GRAU 350	=	4 x 50	= -200.00
TYPE B-77	=	4 x 25	= -100.00
		TOTAL	450.00
		SAY	475.00

(5 ADDITIONAL GUARDRAIL POST)

DRMP
 ENGINEERS • PLANNERS • SCIENTISTS
 DYER, RIDdle, MILLS & PRECOURT, INC.
 7506 EAST INDEPENDENCE BLVD., S-105
 CHARLOTTE, NC 28227
 704-332-2289

CH-RSMITH

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT NO. SHEET NO. B-4309 3-B

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

COMPUTED BY: RSW DATE: 3/18/2007 CHECKED BY: RCS DATE: 3/22/2007

Main data table with columns: STATION, LOCATION, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, CLASS III R.C. PIPE, BITUMINOUS COATED C.S. PIPE, CLASS III R.C. PIPE OR C.S. PIPE, ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD STANDARD, CORR. STEEL ELBOWS, CONC. COLLARS, CONC. & BRICK PIPE PLUG, PIPE REMOVAL, and REMARKS.

DYER, RIDdle, MILLS & PRECOURT, INC. 7506 EAST INDEPENDENCE BLVD., S-105 CHARLOTTE, NC 28227 704-332-2289



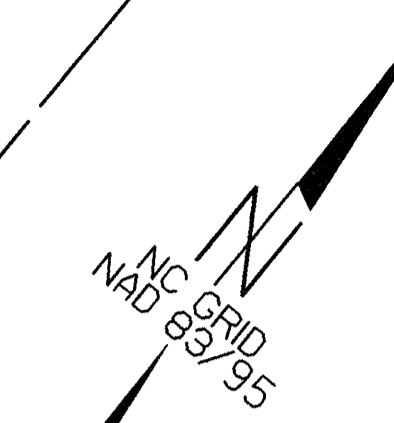
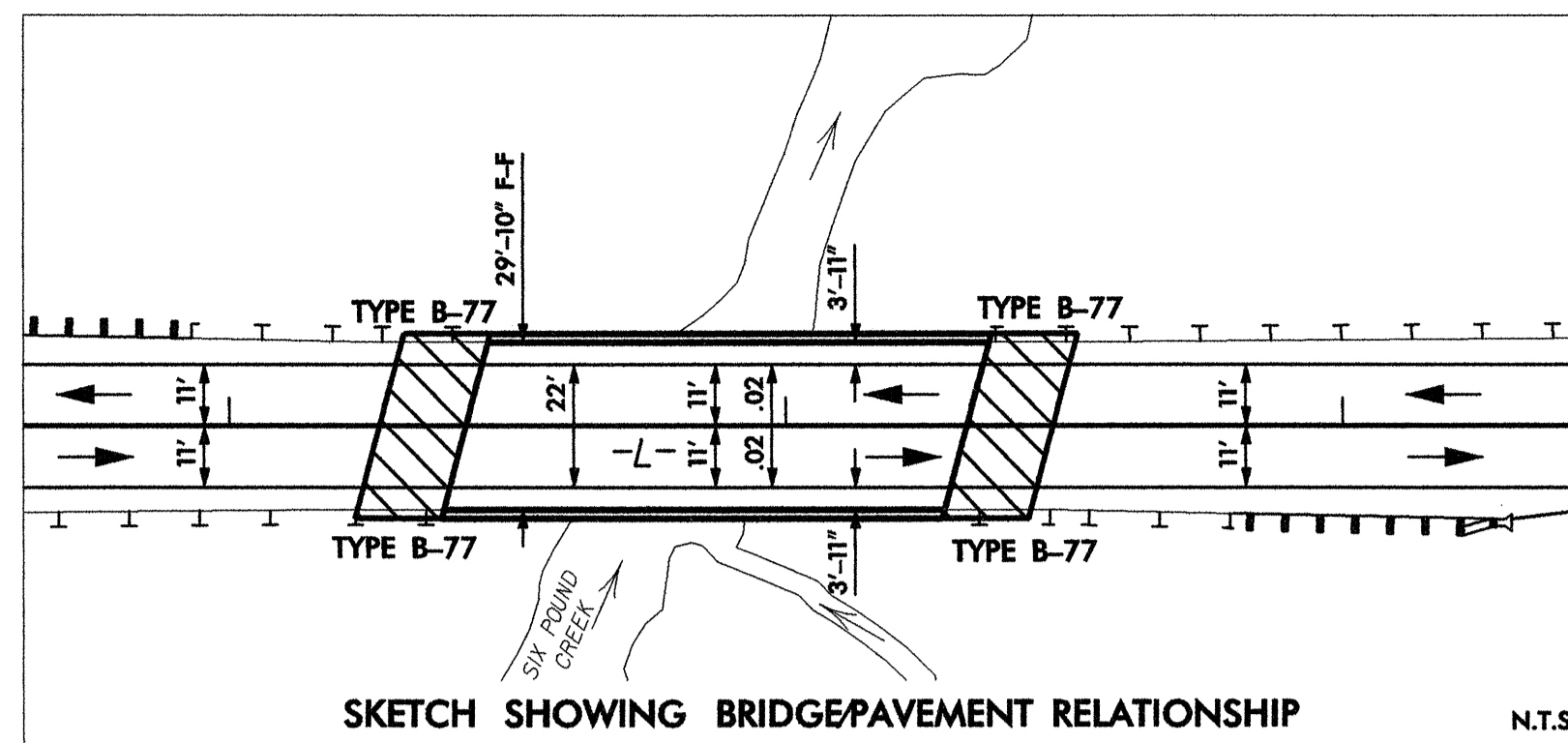
MA Engineering CONSULTANTS, INC. 598 East Chatham Street, Suite 137 Cary, NC 27511 Phone: 919.297.0220 Fax: 919.297.0221

SHEET TOTALS row showing totals for various columns: 52, 32, 3, 3, 1

8/17/99

REVISIONS

PROJECT REFERENCE NO. B-4309	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

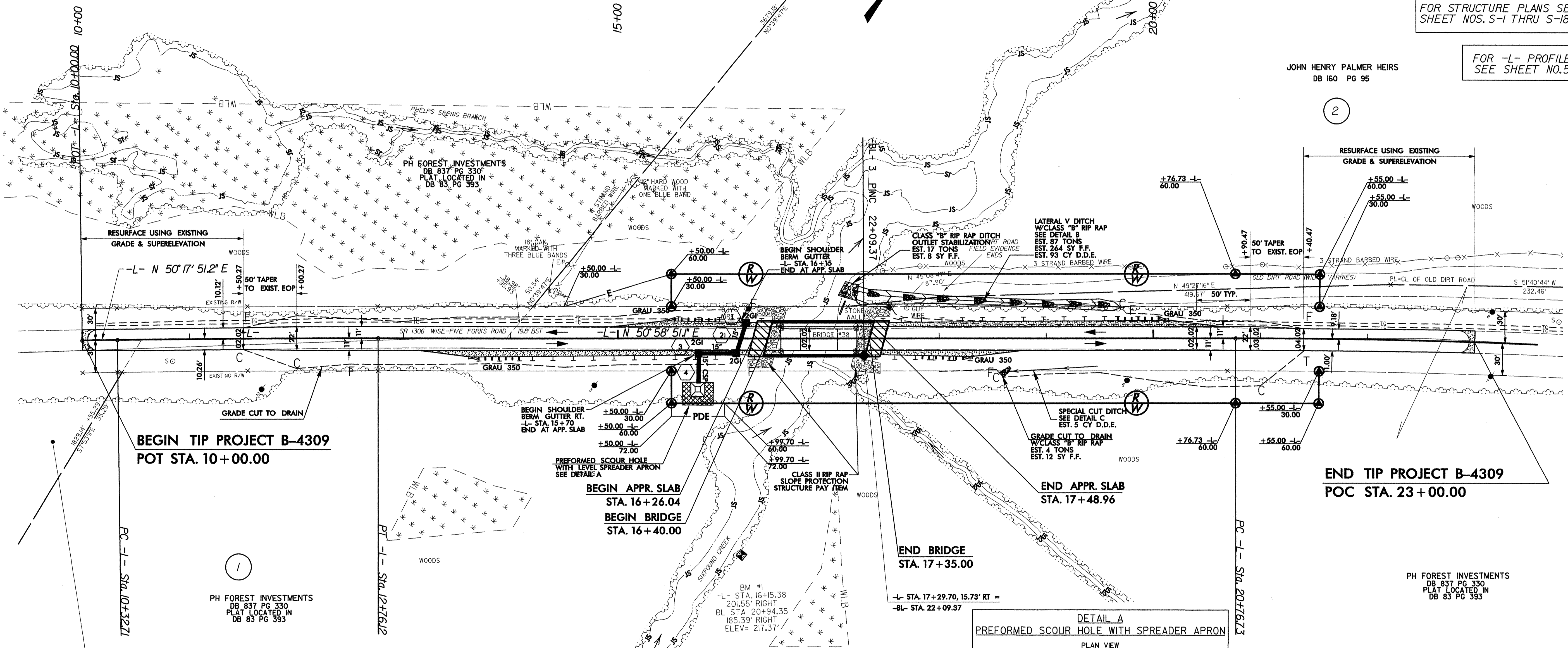


FOR STRUCTURE PLANS SEE SHEET NOS. S-1 THRU S-18

FOR -L- PROFILE SEE SHEET NO.5

JOHN HENRY PALMER HEIRS DB 160 PG 95

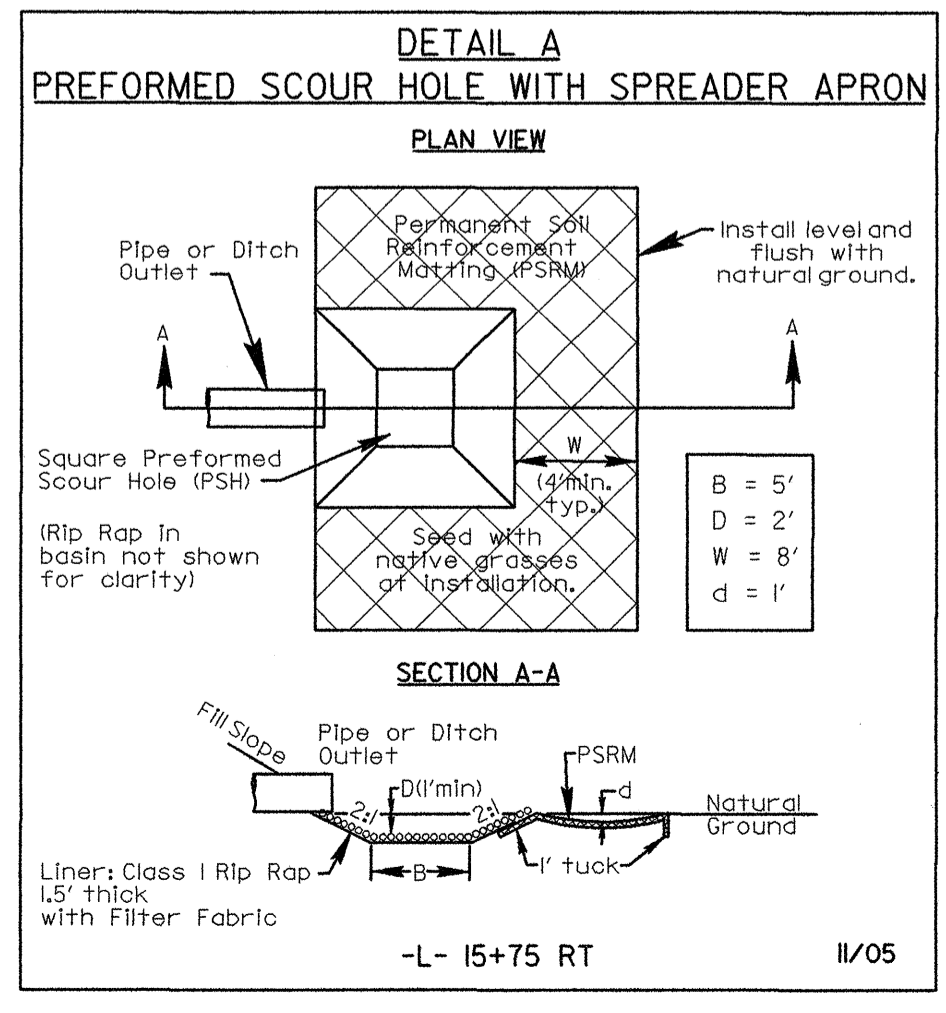
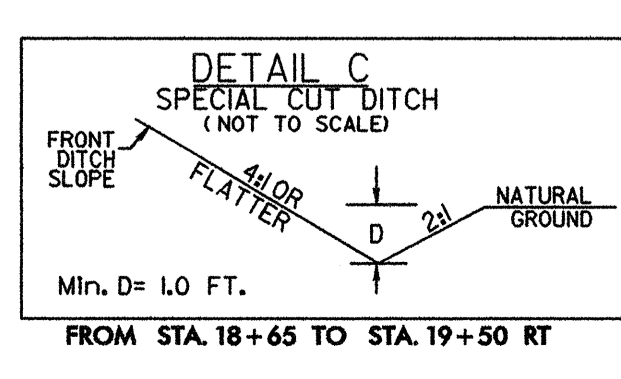
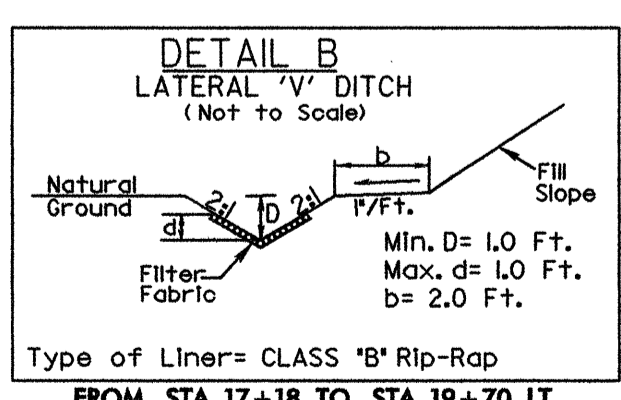
2



CURVE DATA

CURVE 1
 PI -L- Sta 11+54.42
 $\Delta = 0^\circ 40' 59.9''$ (RT)
 $D = 0^\circ 16' 50.6''$
 $L = 243.41'$
 $T = 121.71'$
 $R = 20,410.36'$
 $e = NC$
 DESIGN SPEED = 60 MPH

CURVE 2
 PI -L- Sta 22+55.70
 $\Delta = 2^\circ 49' 09.8''$ (RT)
 $D = 0^\circ 47' 16.2''$
 $L = 357.86'$
 $T = 178.97'$
 $R = 7,272.55'$
 $e = NC$
 DESIGN SPEED = 60 MPH



SUSTAINABLE FORESTS DB 712 PG 117 AND DEED DATED 25 FEB 56 (40 ACRE TRACT) PLAT LOCATED IN DB 83 PG 393

B:\Roadway\Pro\FINAL PLANS\B4309_Rdy_psh.dgn 3/26/05 10:22:22 AM

5/14/99

R:\Roadway\Projects\FINAL PLANS\B-4309.Rdy.plt.dgn
3/23/06 BY
10/22/2007

PROJECT REFERENCE NO. B-4309	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DRMP ENGINEERS - PLANNERS - SCIENTISTS DYER, RIDOLE, MILLS & PRECOURT, INC. 1506 EAST INDEPENDENCE BLVD., SUITE 105 CHARLOTTE, NORTH CAROLINA 28227 (704) 332-2289	MA Engineering CONSULTANTS, INC. 210 East Chatham Street Suite 107 Charlotte, NC 28203 Phone: 919.297.0220

-L-

BM #1
 -L- STA 16+15.38, 201.55' RT
 -BL- STA 20+94.35, 185.39' RT
 ELEV= 217.37

BM #2
 -L- EXTENDED STA 27+83.50, 31.87' RT
 -BL- STA 32+59.39, 72.40' RT
 ELEV= 278.24

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2000 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 218.6 FT
BASE DISCHARGE	= 3100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 220.5 FT
OVERTOPPING DISCHARGE	= 3275 CFS
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING ELEVATION	= 221.6 FT
DATE OF SURVEY	= 11/2005
W.S.ELEVATION AT DATE OF SURVEY	= 212.0 FT

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

DESIGN EXCEPTION
 -L- STA 11+50.27 TO -L- STA 21+40.47
 K = 100
 VC = 990.20'
 PVI = 16+45.37
 EL = 211.30'
 DESIGN SPEED = 50 MPH

