

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3854	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33301.1.1	BRZ-1309(3)	PE	
33301.2.1	BRZ-1309(3)	RW, UTIL	
33301.3.1	BRZ-1309(3)	CONST.	

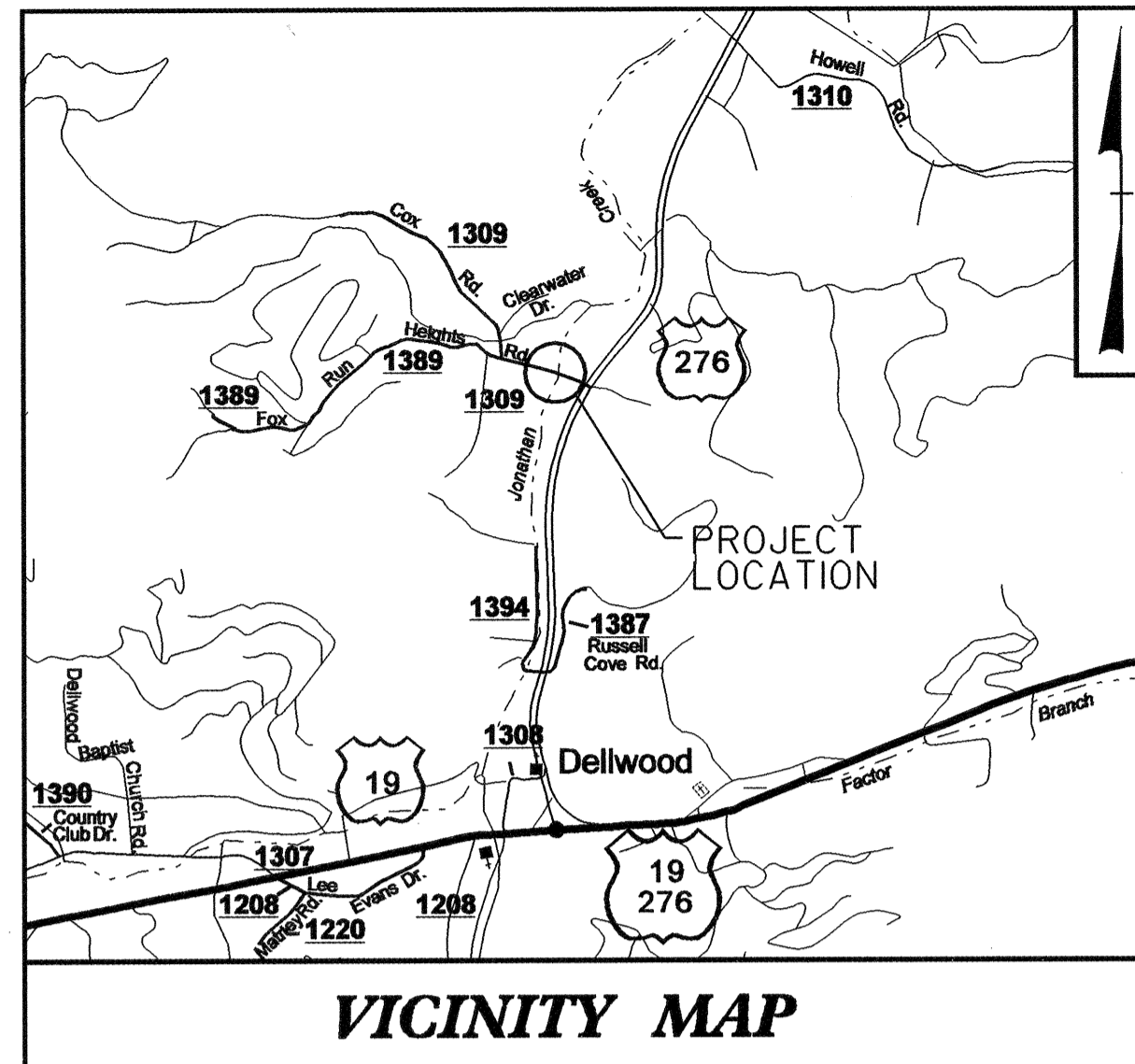
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

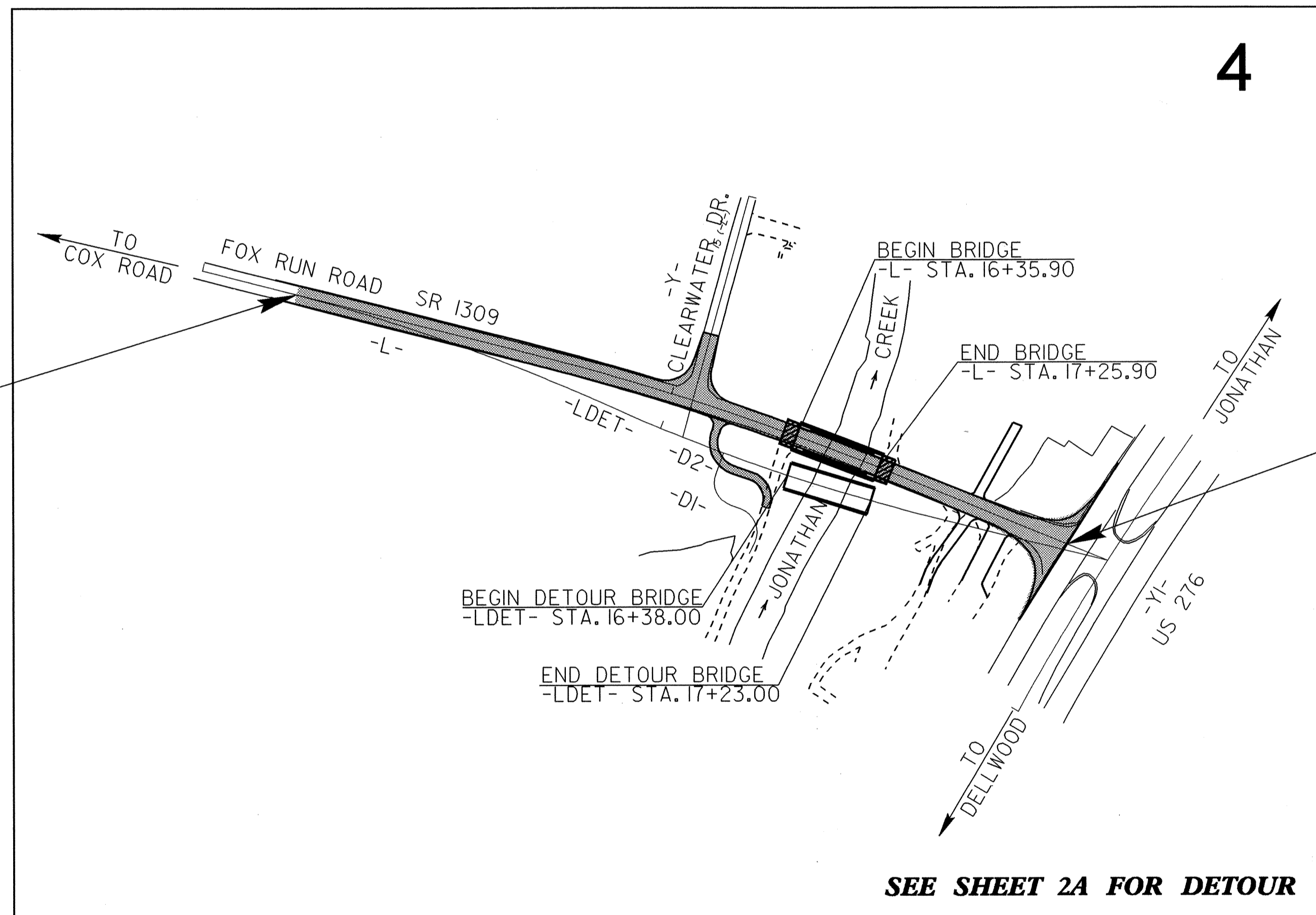
**LOCATION: BRIDGE NO. 329 OVER JONATHAN CREEK
ON SR 1309**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND
STRUCTURES**

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



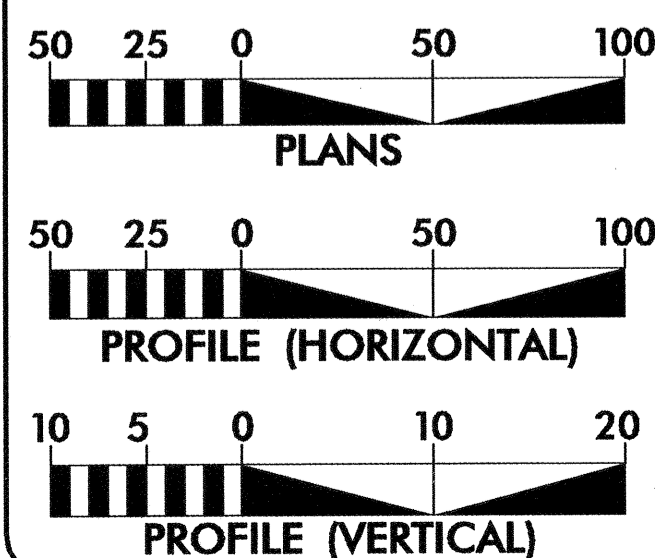
VICINITY MAP



SEE SHEET 2A FOR DETOUR

NCDOT CONTACT: CATHY S. HOUSER, PE
PROJECT ENGINEER
ROADWAY DESIGN

GRAPHIC SCALES



DESIGN DATA

ADT 2007 = 660
ADT 2027 = 960
DHV = 25 %
D = 60 %
T = 3 % *
V = 40 MPH
* TTST 1% DUAL 2%
FUNC CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3854 = 0.146 MILES
LENGTH STRUCTURES TIP PROJECT B-3854 = 0.017 MILES
TOTAL LENGTH OF TIP PROJECT B-3854 = 0.163 MILES

Prepared in the Office of:
PBSJ 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
PHONE: (919) 876-6888

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
September 16, 2005

David W. Bass, PE
PROJECT ENGINEER

LETTING DATE:
October 16, 2007

Clinton J. Morgan, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

North Carolina Professional Engineer Seal
SEAL 29185
Signature: [Signature]
7/24/07 P.E.

ROADWAY DESIGN

North Carolina Professional Engineer Seal
SEAL 024929
Signature: [Signature]
7/25/07 P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

Signature: [Signature] P.E.
STATE DESIGN ENGINEER
**DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**
APPROVED DIVISION ADMINISTRATOR DATE

CONTRACT: C201681 TIP PROJECT: B-3854

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B-3854
HAYWOOD COUNTY
Index of Sheets

Sheet Number	Sheet
1	Title Sheet
1-A	Index of Sheets, Roadway Standards, General Notes
1-B	Conventional Symbols
1-C	Survey Control Sheet
2	Typical Sections, Pavement Schedule and Wedging Detail
2-A	Temporary Detour Detail
2-B	Anchorage For Frames Detail
3	Summary of Quantities
3-A	Summary of Earthwork, Summary of Existing Asphalt Pavement Removal
3-B	Summary of Drainage Quantities and Summary of Guardrail
4 Thru 6	Plan and Profile Sheets
TCP-1 Thru TCP-6	Traffic Control Plans
EC-1 Thru EC-6	Erosion Control Plans
RF-1	Reforestation Detail Sheet
UO-1 Thru UO-2	Utilities by Others Plans
UC-1 Thru UC-3	Utility Construction Plans
X-1	Cross-section Index Sheet
X-1A	Cross-section Summary Sheet
X-2 Thru X-15	Cross Sections
S-1 Thru S-18	Structure Plans

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

GRADE LINE:
GRADING AND SURFACING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

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

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

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

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

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

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

DRIVEWAYS:
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS 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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE SHORING.

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 Haywood Cable TV,
Maggie Valley Sanitary District, Haywood Electric Membership Corp., Bell South
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

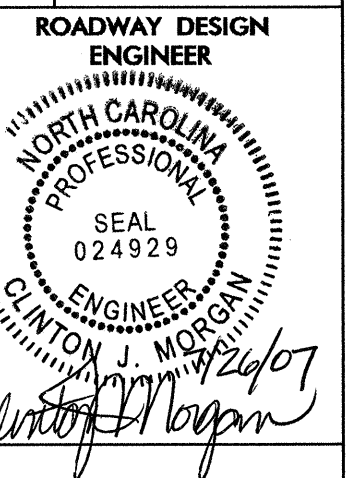
RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

2006 ROADWAY 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 Superlevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
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	
815.03	Pipe Underdrain and Blind Drain
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
876.02	Guide for Rip Rap at Pipe Outlets

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement	
Curb	
Prop. Slope Stakes Cut	
Prop. Slope Stakes Fill	
Prop. Woven Wire Fence	
Prop. Chain Link Fence	
Prop. Barbed Wire Fence	
Prop. Wheelchair Ramp	
Exist. Guardrail	
Prop. Guardrail	
Equality Symbol	
Pavement Removal	

RIGHT OF WAY

Baseline Control Point	
Existing Right of Way Marker	
Exist. Right of Way Line w/Marker	
Prop. Right of Way Line with Proposed	
R/W Marker (Iron Pin & Cap)	
Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker	
Exist. Control of Access Line	
Prop. Control of Access Line	
Exist. Easement Line	
Prop. Temp. Construction Easement Line	
Prop. Temp. Drainage Easement Line	
Prop. Perm. Drainage Easement Line	

HYDROLOGY

Stream or Body of Water	
Flow Arrow	
Disappearing Stream	
Spring	
Swamp Marsh	
Shoreline	
Falls, Rapids	
Prop Lateral, Tail, Head Ditches	

STRUCTURES

MAJOR Bridge, Tunnel, or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	

MINOR Head & End Wall	
Pipe Culvert	
Footbridge	
Drainage Boxes	
Paved Ditch Gutter	

UTILITIES

Exist. Pole	
Exist. Power Pole	
Prop. Power Pole	
Exist. Telephone Pole	
Prop. Telephone Pole	
Exist. Joint Use Pole	
Prop. Joint Use Pole	
Telephone Pedestal	
Cable TV Pedestal	
Hydrant	
Satellite Dish	
Exist. Water Valve	
Sewer Clean Out	
Power Manhole	
Telephone Booth	
Water Manhole	
Light Pole	
H-Frame Pole	
Power Line Tower	
Pole with Base	
Gas Valve	
Gas Meter	
Telephone Manhole	
Power Transformer	
Sanitary Sewer Manhole	
Storm Sewer Manhole	
Tank; Water, Gas, Oil	
Water Tank With Legs	
Traffic Signal Junction Box	
Fiber Optic Splice Box	
Television or Radio Tower	

Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement	
Water Line	
Sanitary Sewer	
Sanitary Sewer Force Main	
Gas Line	
Storm Sewer	
Power Line	
Telephone Cable	
UG Telephone Conduit	
Unknown Utility	
Television Cable	
Fiber Optics Cable	
Exist. Water Meter	
Drawn According to U/G Records	
Abandoned According to U/G Records	
End Of Information	

BOUNDARIES & PROPERTIES

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Property Line Symbol	
Exist. Iron Pin	
Property Corner	
Property Monument	
Property Number	
Parcel Number	
Fence Line	
Existing Wetland Boundaries	
Proposed Wetland Boundaries	
Existing Endangered Animal Boundaries	
Existing Endangered Plant Boundaries	

BUILDINGS & OTHER CULTURE

Buildings	
Foundations	
Area Outline	
Gate	
Gas Pump Vent or U/G Tank Cap	
Church	
School	
Park	
Cemetery	
Dam	
Sign	
Well	
Small Mine	
Swimming Pool	

TOPOGRAPHY

Loose Surface	
Hard Surface	
Change in Road Surface	
Curb	
Right of Way Symbol	
Guard Post	
Paved Walk	
Bridge	
Box Culvert or Tunnel	
Ferry	
Culvert	
Footbridge	
Trail, Footpath	
Light House	

VEGETATION

Single Tree	
Single Shrub	
Hedge	
Woods Line	
Orchard	
Vineyard	

RAILROADS

Standard Gauge	
RR Signal Milepost	
Switch	

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B3854 SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-3854	1C
LOCATION AND SURVEYS	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1		674419.2460	801207.1220	2701.20	10+24.41	14.69 LT
2	BL-2		674296.9570	801666.9160	2696.91	14+99.47	13.95 LT
3	BL-3		674246.7080	801809.1890	2697.12	16+49.70	12.40 LT
4	BL-4		674100.9590	802040.5700	2700.30	19+18.61	36.78 RT

BY	POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
5	BY-5		674475.9660	801752.5520	2692.47	10+07.35	11.68 LT
22	BL-2		674296.9570	801666.9160	2696.91	12+02.75	22.90 RT

NOTES

- 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 FILE TO BE FOUND ARE AS FOLLOWS:
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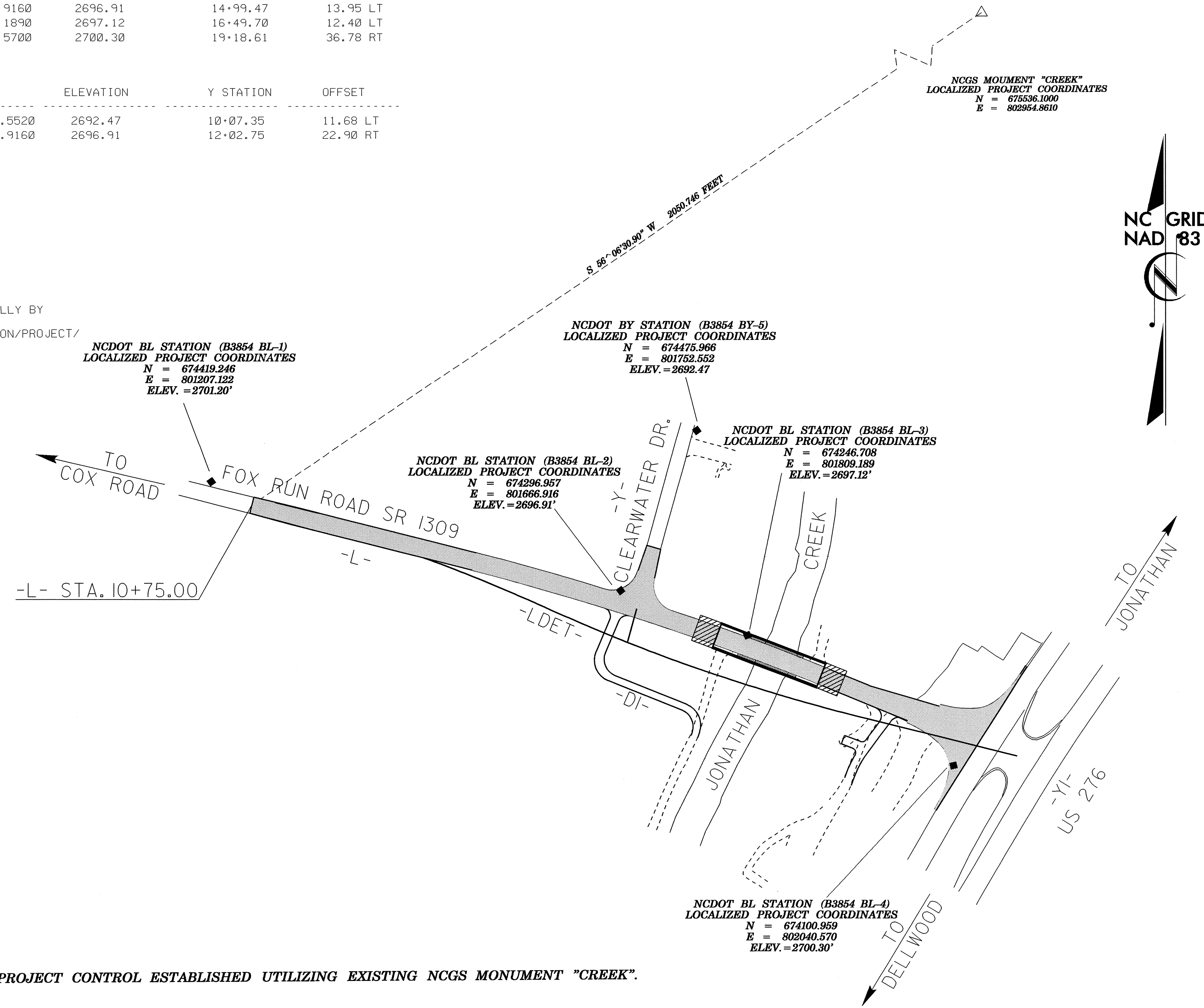
 BM1 ELEVATION = 2704.32
 N 674485 E 801176
 L STATION 10+00
 N 2° 58' 18.2" W DIST 74.30
 CHISLED SQUARE ON NE CORNER OF CONC.
 SLAB

 BM2 ELEVATION = 2697.15
 N 674261 E 801795
 L STATION 16+31 20 LEFT
 CHISLED SQUARE ON SW CORNER OF CONC.
 RET. WALL

 BM3 ELEVATION = 2700.17
 N 674181 E 802000
 L STATION 18+51 22 LEFT
 8 INCH SPIKE IN ROOT OF 12 INCH MAPLE
 TREE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "CREEK"
 WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 675536.100(1) EASTING: 802954.861(1)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 999757087
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "CREEK" TO -L- STATION 10+75.00 IS
 S 56°06'30.90" W 2,050.746(1)
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NGVD 29

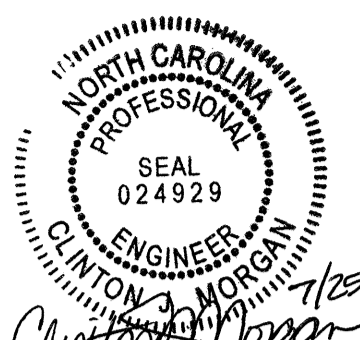
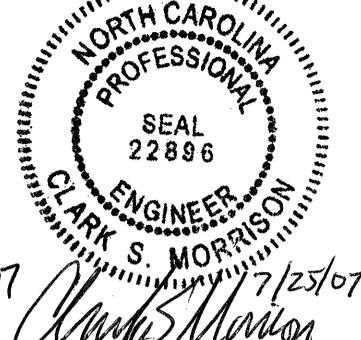


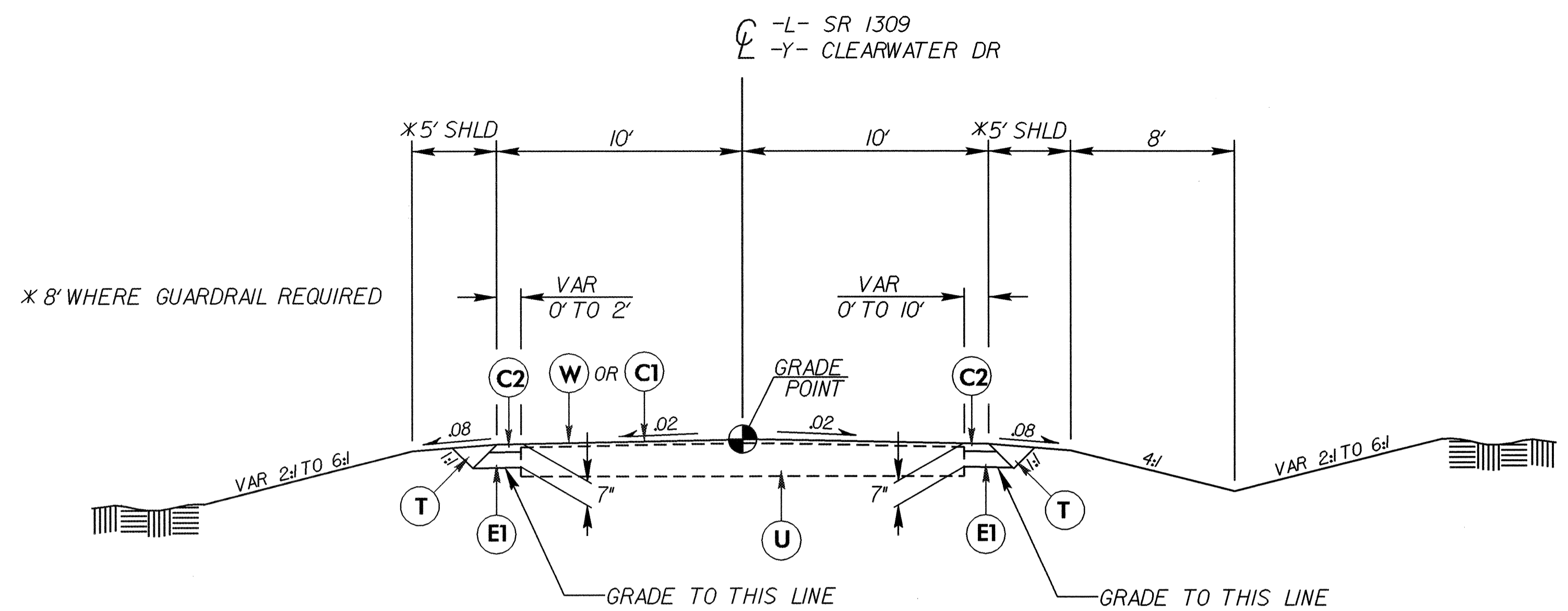
PROJECT CONTROL ESTABLISHED UTILIZING EXISTING NCGS MONUMENT "CREEK".

NOTE: DRAWING NOT TO SCALE

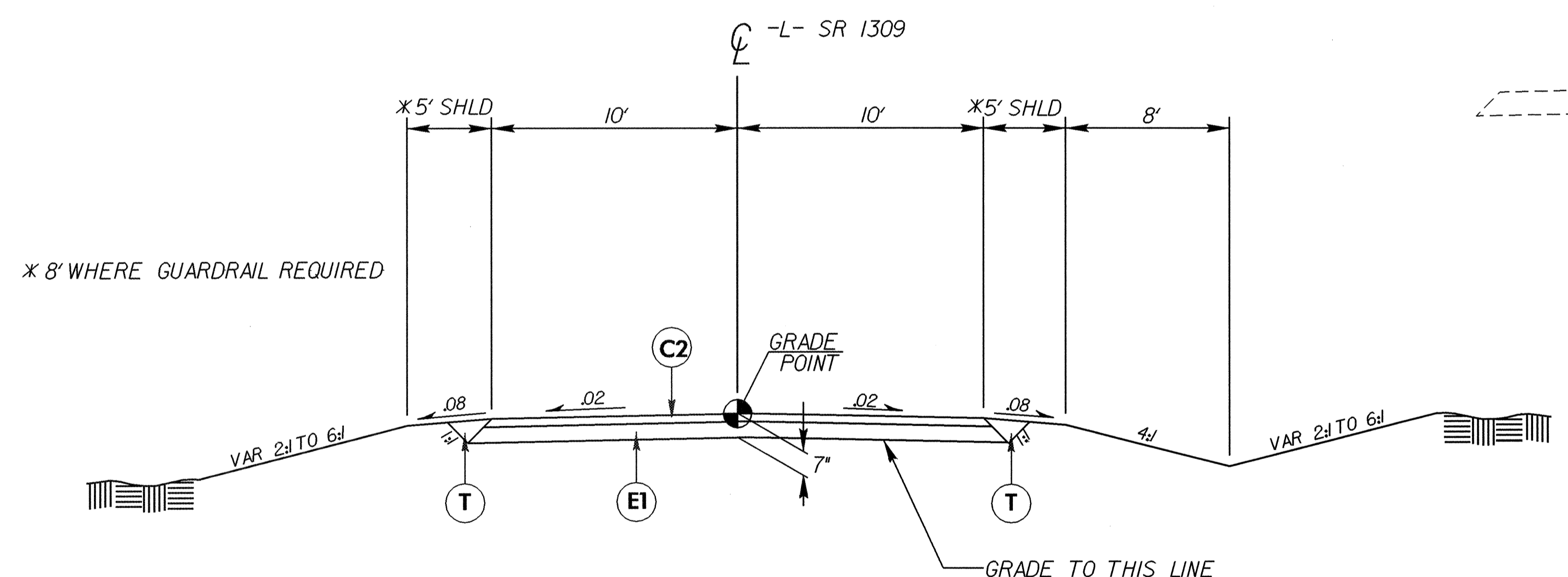
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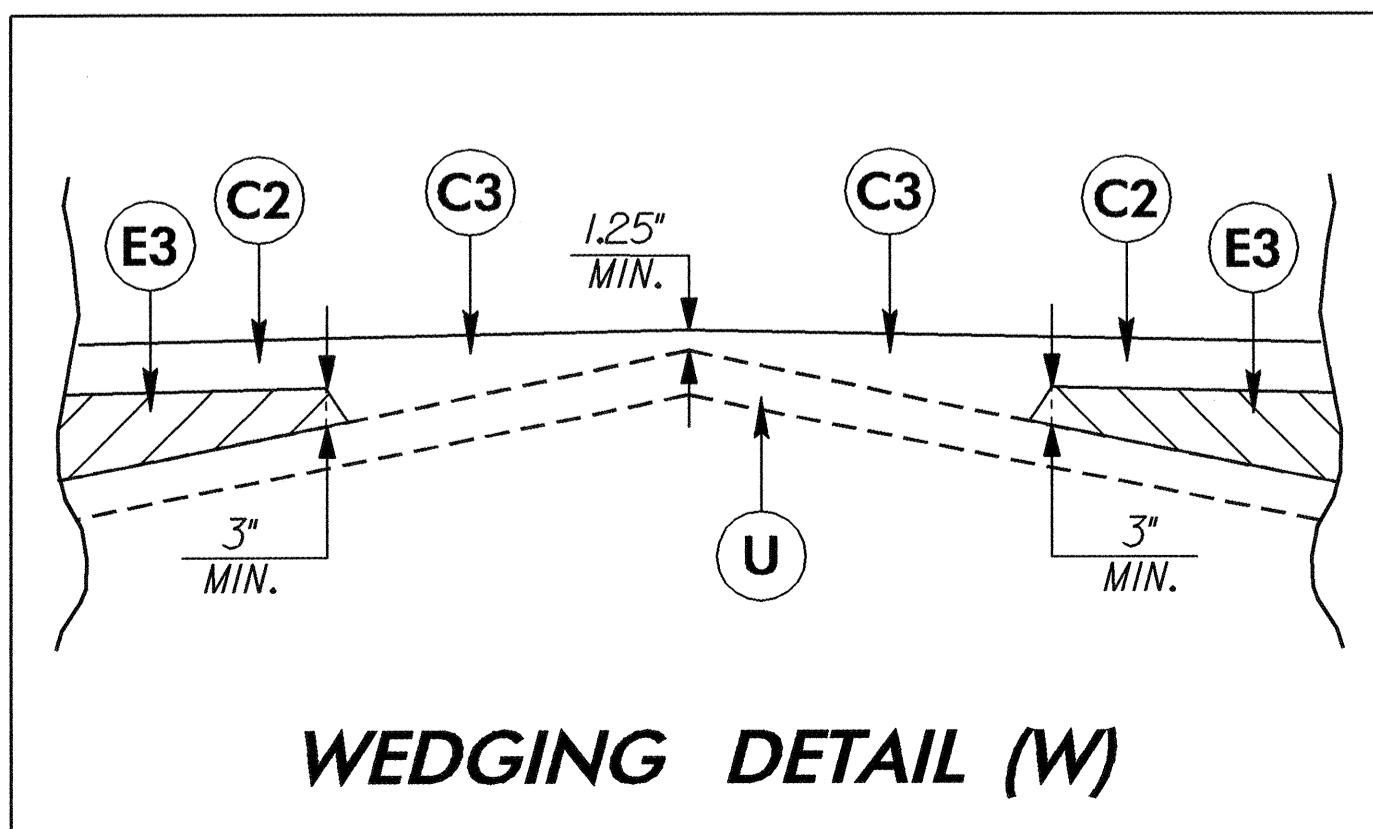
PROJECT REFERENCE NO. B-3854		SHEET NO. 2	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
			
1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 PHONE: (919)76-6888			



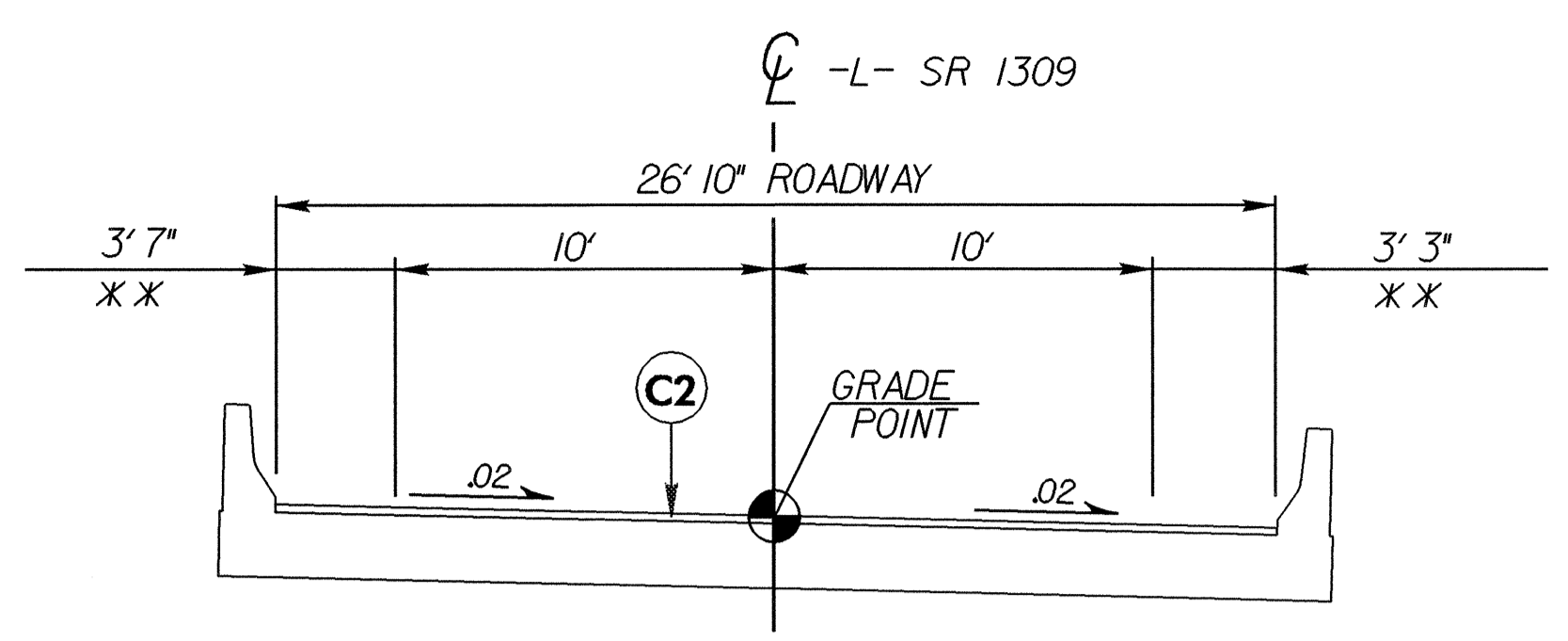
TYPICAL SECTION NO. 1
 USE TYPICAL SECTION NO.1 AS FOLLOWS:
 -L- STA 10+75.00 TO STA 15+40.00
 -L- STA 17+90.00 TO STA 19+35.75



TYPICAL SECTION NO. 2
 USE TYPICAL SECTION NO.2 AS FOLLOWS:
 -L- STA 15+40.00 TO STA 16+21.90 (BEGIN BRIDGE)
 -L- STA 17+39.90 (END BRIDGE) TO STA 17+90.00

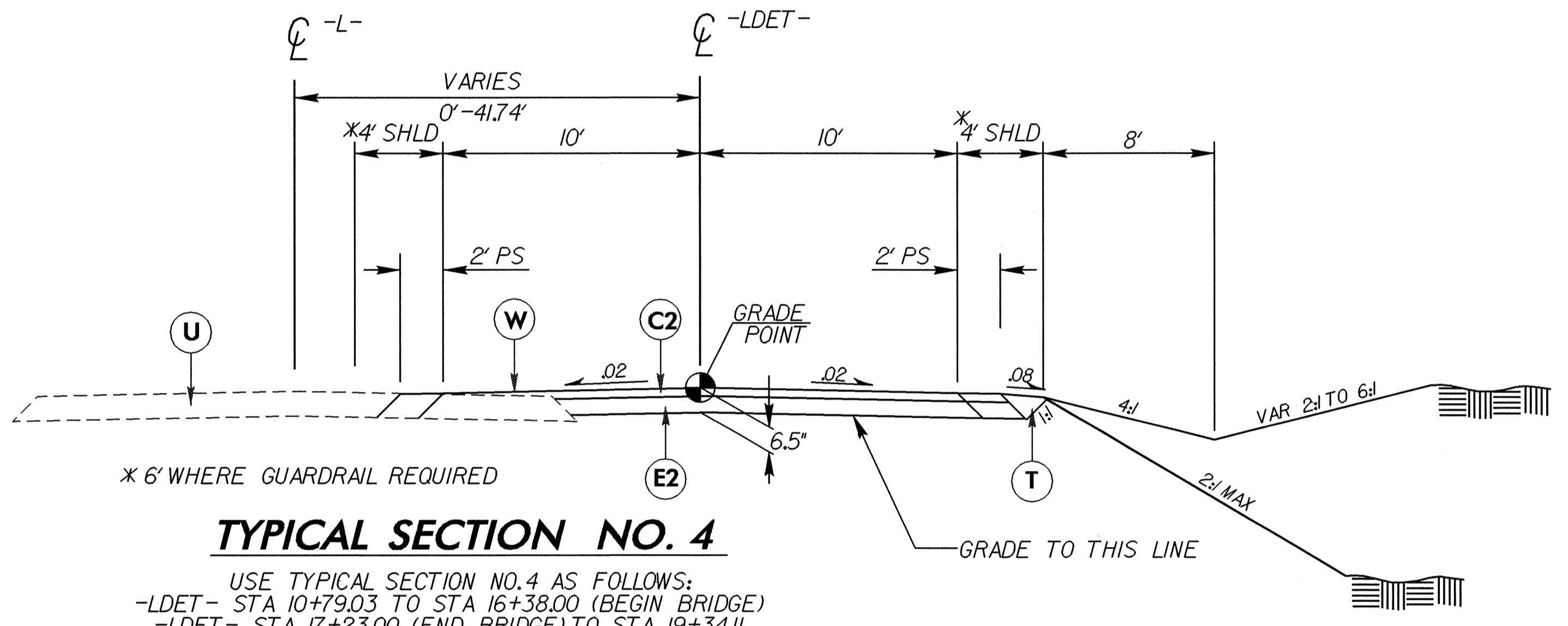


WEDGING DETAIL (W)

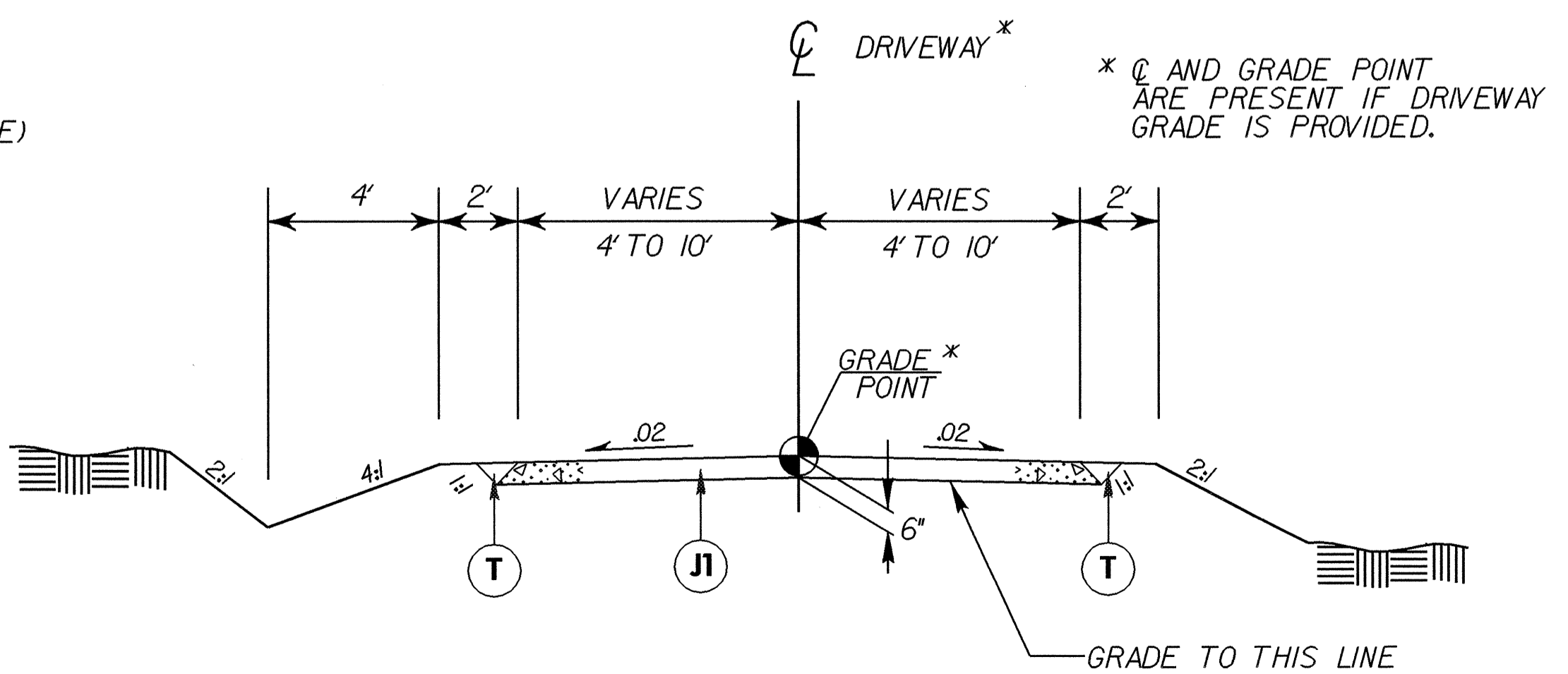


TYPICAL SECTION NO. 3
 USE TYPICAL SECTION NO.3 AS FOLLOWS:
 -L- STA 16+35.90 (BEGIN BRIDGE) TO STA 17+25.90 (END BRIDGE)

* * * SHOULDER WIDTHS VARY DUE TO USING A STRAIGHT BRIDGE ON A CURVED ROAD. (3' MINIMUM SHOULDER WIDTH ENCRoACHED BY LESS THAN 1' ON EACH SIDE.)



TYPICAL SECTION NO. 4
 USE TYPICAL SECTION NO.4 AS FOLLOWS:
 -LDET- STA 10+79.03 TO STA 16+38.00 (BEGIN BRIDGE)
 -LDET- STA 17+23.00 (END BRIDGE) TO STA 19+34.11



TYPICAL SECTION NO. 5
 USE TYPICAL SECTION NO. 5 AS FOLLOWS:
 ALL PROPOSED DRIVEWAYS

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5LBS. 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 TO EXCEED 2" 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. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 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 5 1/2" IN DEPTH.
J1	PROPOSED 6" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING DETAIL

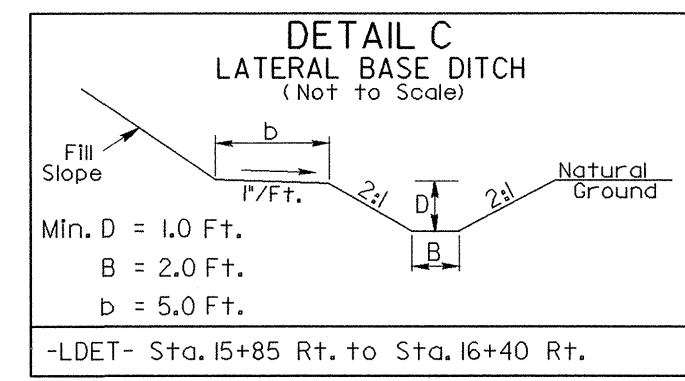
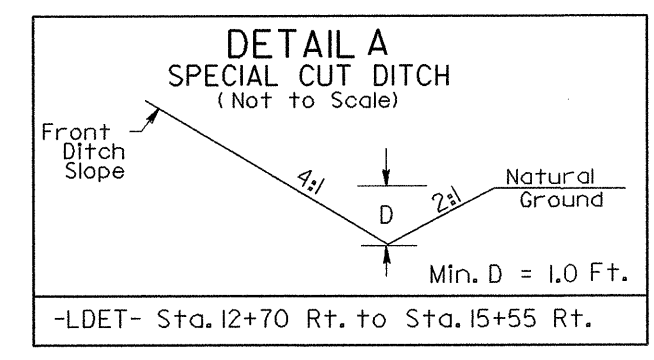
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

8/17/99

PROJECT REFERENCE NO. B-3854		SHEET NO. 2A	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 024929 CLAYTON MORGAN 8/30/07		HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 29185 RICHARD L. HIER 8/6/07	
166 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 PHONE: (919) 876-6888			

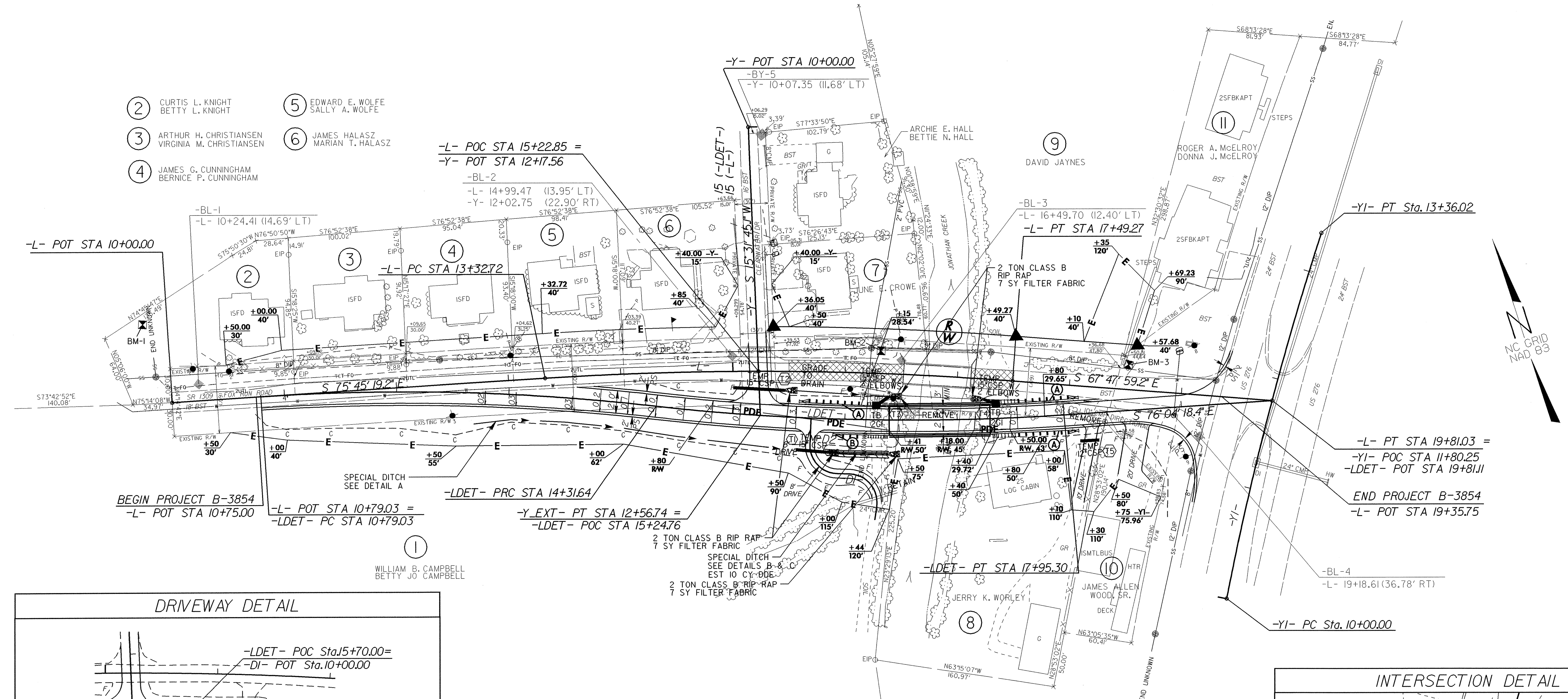
DETOUR DETAIL

-DI-		-L-		-LDET-		-YI-	
PI Sta 10+46.91	PI Sta 11+01.45	PI Sta 15+41.33	PI Sta 12+55.80	PI Sta 16+13.97	PI Sta 11+68.20		
$\Delta = 83^\circ 47' 25.3" (LT)$	$\Delta = 90^\circ 00' 01.5" (RT)$	$\Delta = 7^\circ 57' 20.0" (RT)$	$\Delta = 10^\circ 06' 05.4" (RT)$	$\Delta = 10^\circ 25' 04.6" (LT)$	$\Delta = 6^\circ 43' 13.1" (RT)$		
D = 190' 59' 09.4"	D = 229' 10' 59.2"	D = 1' 54' 35.5"	D = 2' 51' 53.2"	D = 2' 51' 53.2"	D = 2' 00' 00.0"		
L = 43.87'	L = 39.27'	L = 416.55'	L = 352.61'	L = 363.66'	L = 336.02'		
T = 26.91'	T = 25.00'	T = 208.61'	T = 176.76'	T = 182.33'	T = 168.20'		
R = 30.00'	R = 25.00'	R = 3,000.00'	R = 2,000.00'	R = 2,000.00'	R = 2,864.79'		
		SE = RC	SE = RC	SE = EXISTING			
		DS = 40 MPH	DS = 45 MPH	SE = EXISTING			



REVISIONS

- ② CURTIS L. KNIGHT
BETTY L. KNIGHT
- ③ ARTHUR H. CHRISTIANSEN
VIRGINIA M. CHRISTIANSEN
- ④ JAMES G. CUNNINGHAM
BERNICE P. CUNNINGHAM
- ⑤ EDWARD E. WOLFE
SALLY A. WOLFE
- ⑥ JAMES HALASZ
MARIAN T. HALASZ

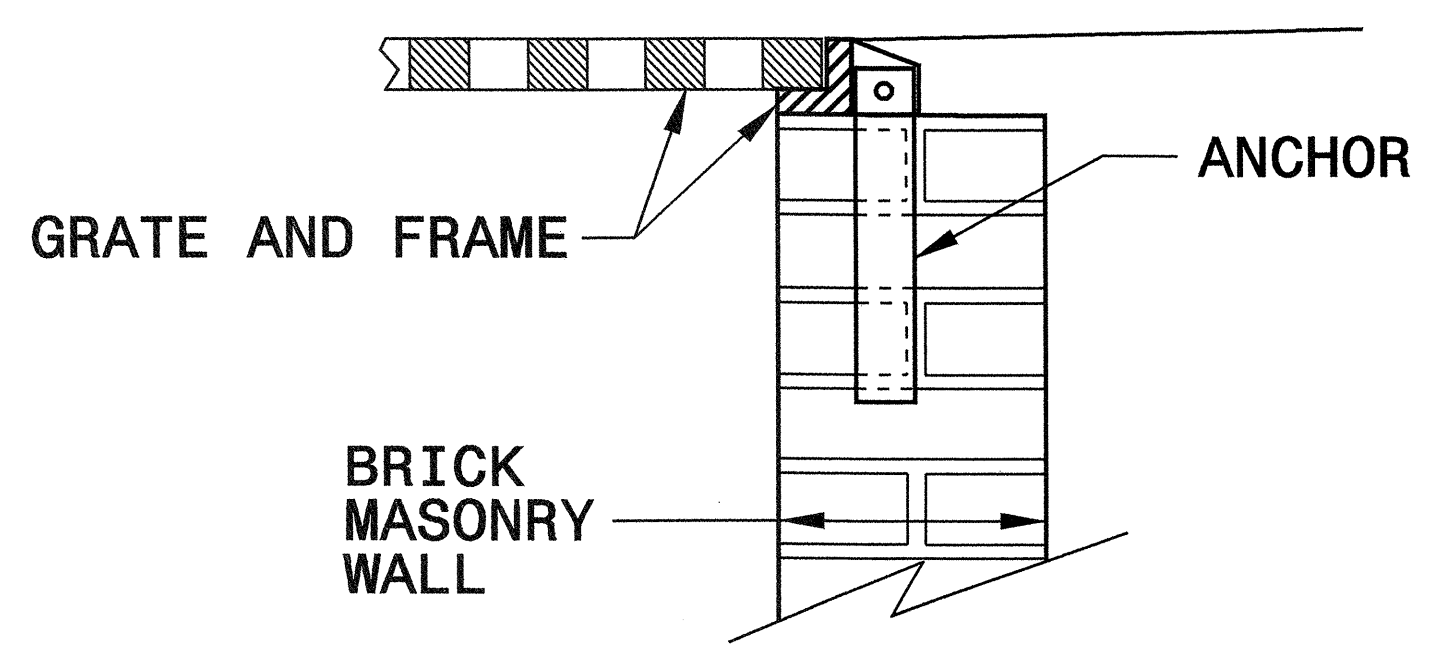


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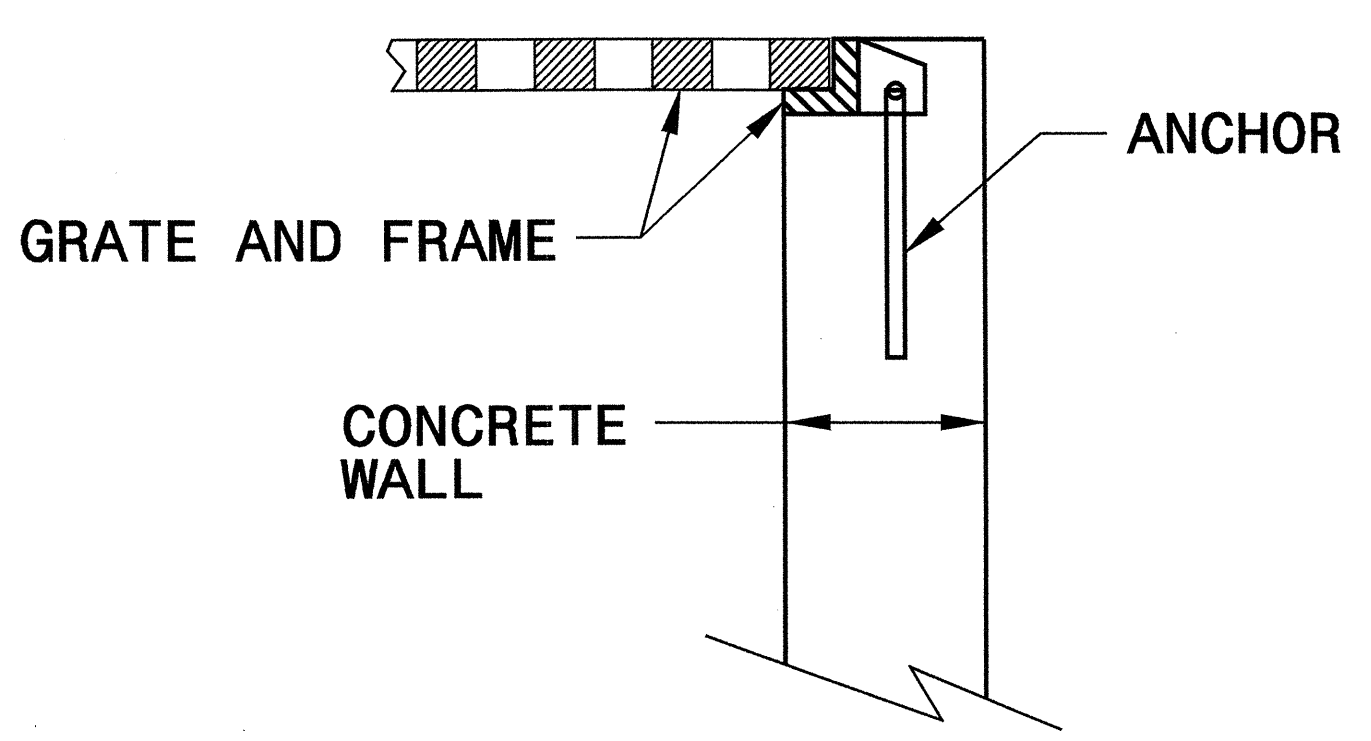
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

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

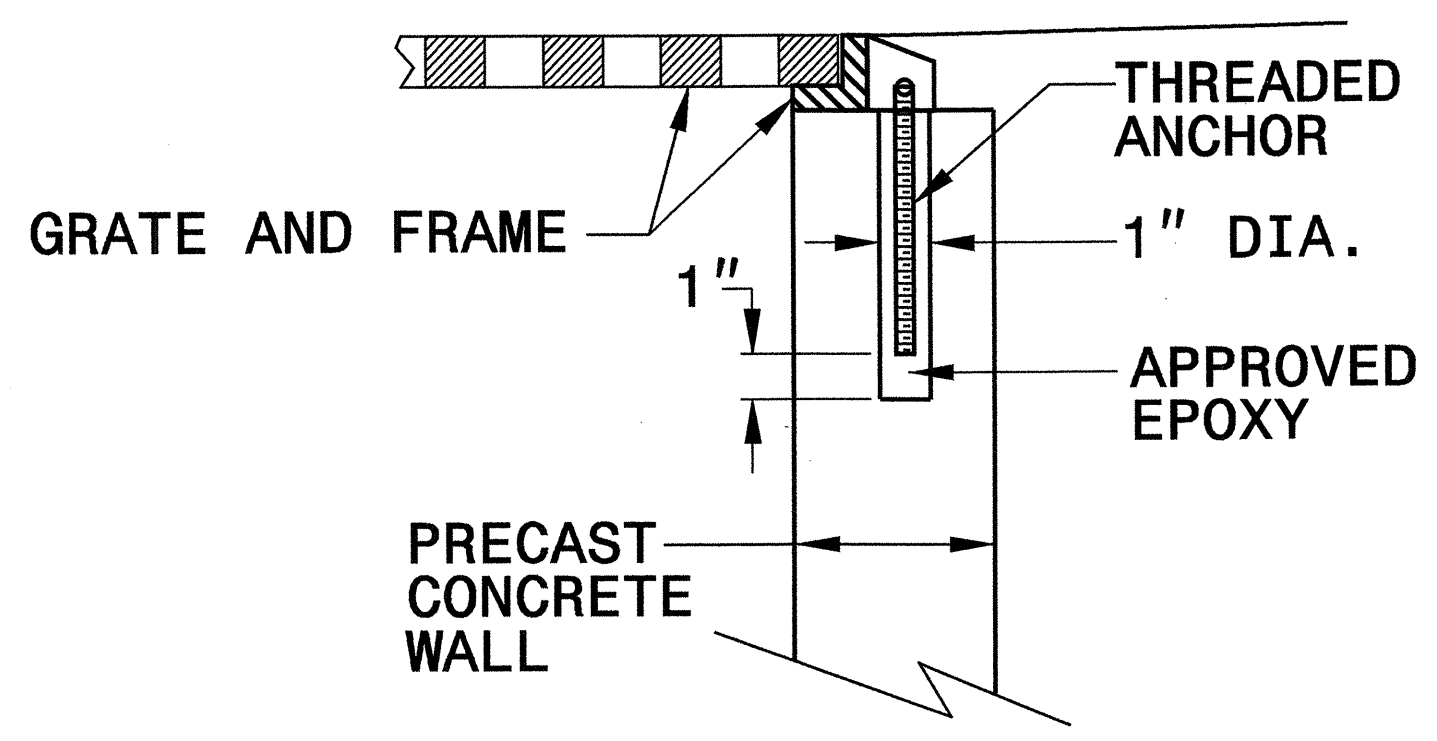
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



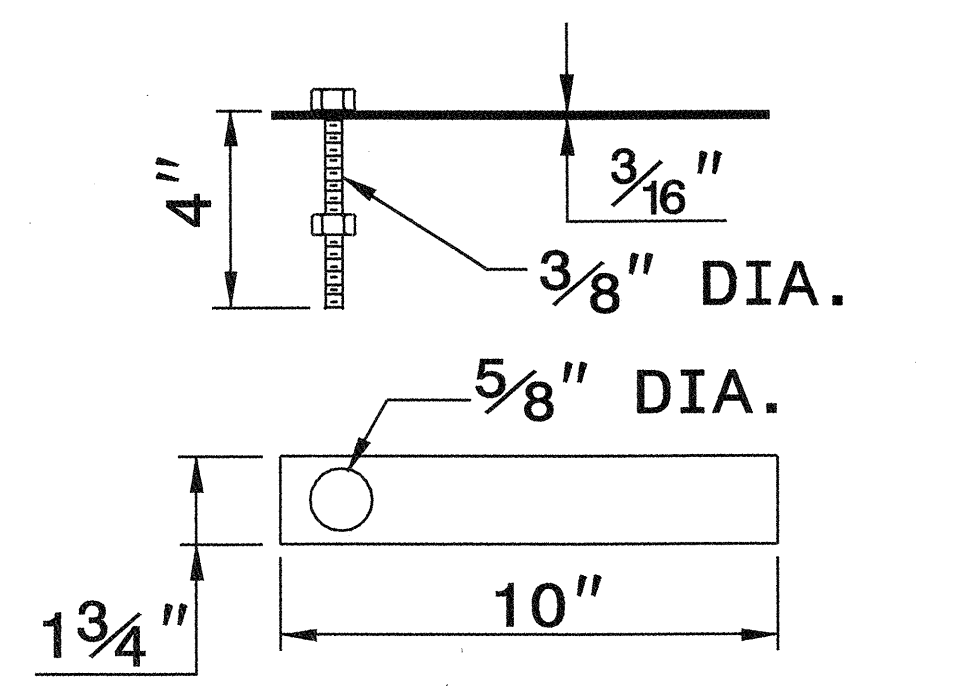
CONCRETE CONSTRUCTION



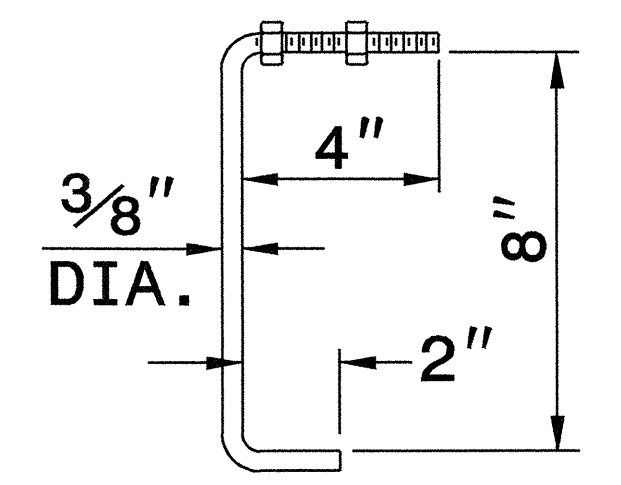
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

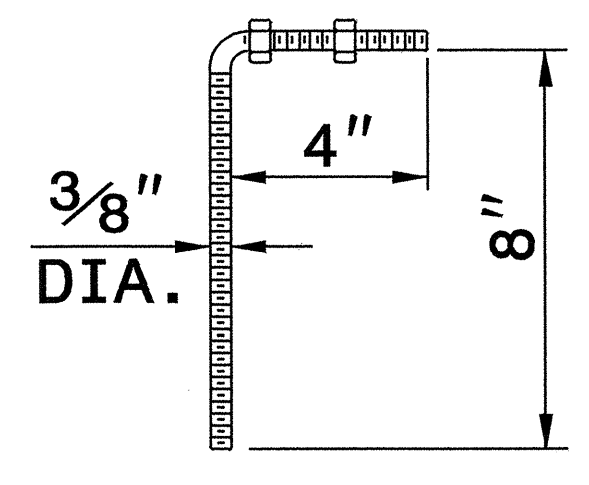
NOTE:
 CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



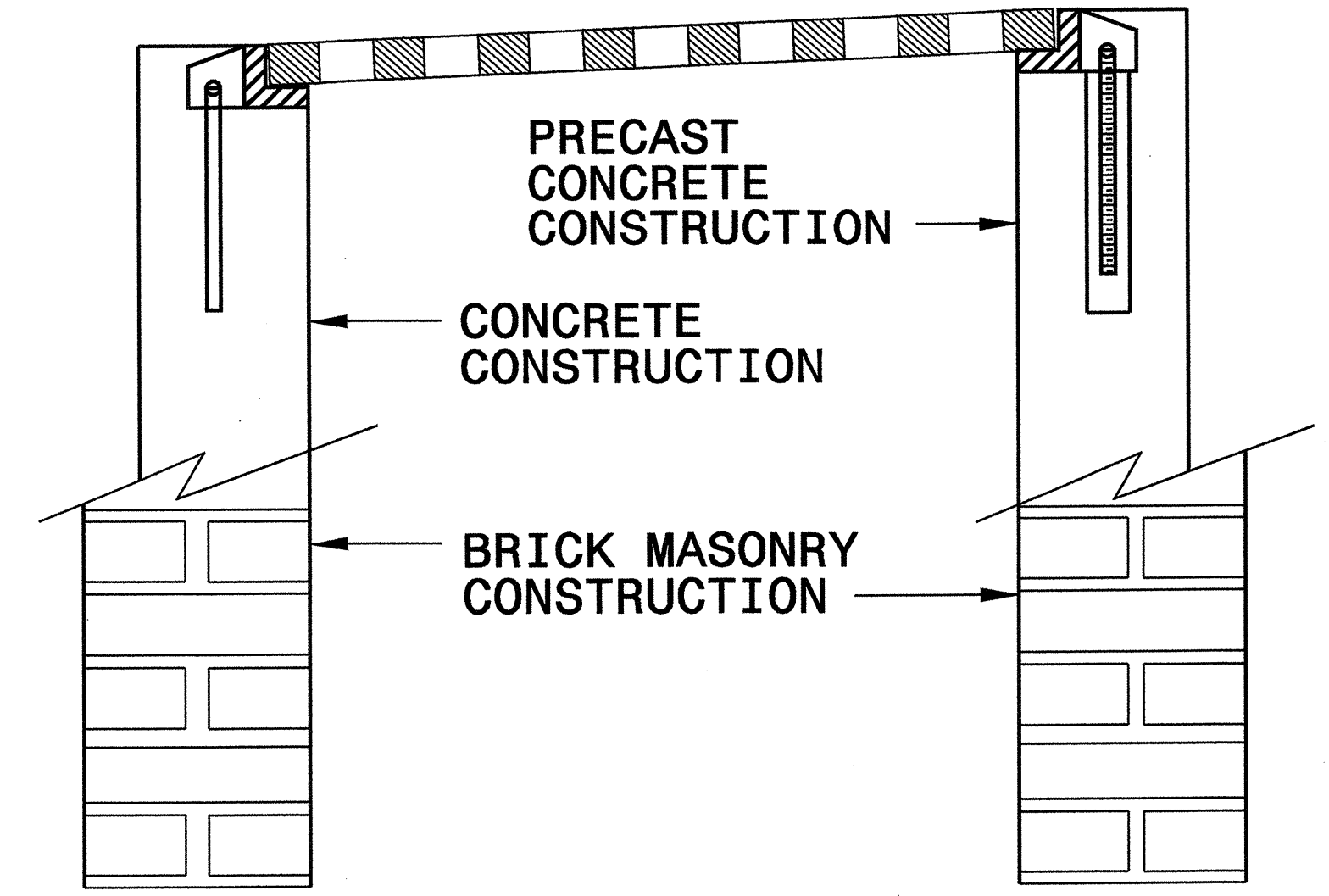
MASONRY ANCHOR
 3/8" DIA. BOLT WITH PLATE



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

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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.: _____

COMPUTED BY: _____
 CHECKED BY: _____

DATE: _____
 DATE: _____

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

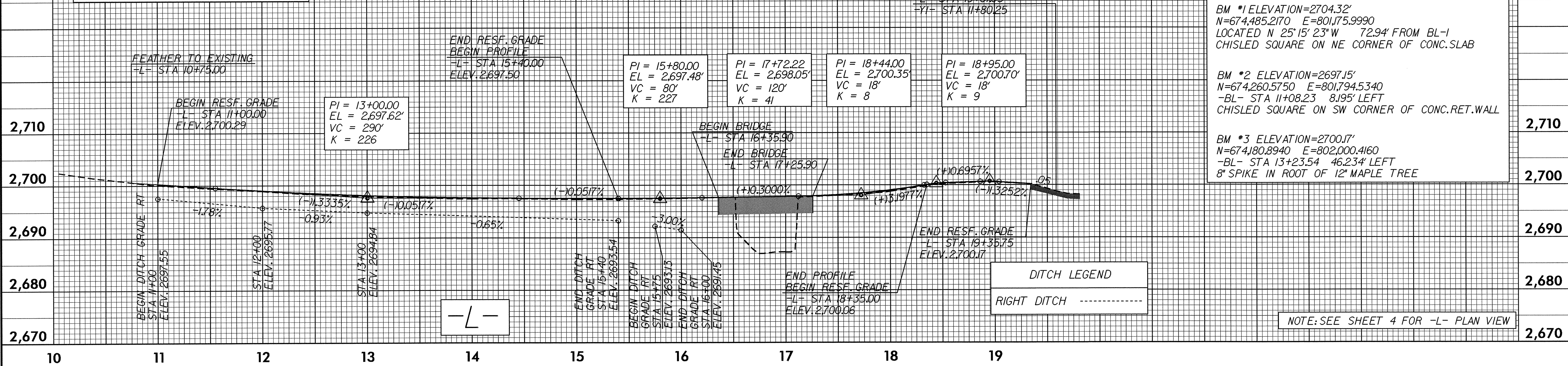
ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (16+80.90 -L-)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	600	CY	UNDERCUT EXCAVATION
0080000000-E	SP	500	TON	CLASS IV SUBGRADE STABILIZATION
0134000000-E	240	40	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	45	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0343000000-E	310	32	LF	15" SIDE DRAIN PIPE
0366000000-E	310	52	LF	15" RC PIPE CULVERTS, CLASS III
0576000000-E	310	16	LF	*** CS PIPE CULVERTS, ***** THICK (12", 0.064")
0582000000-E	310	112	LF	15" CS PIPE CULVERTS, 0.064" THICK
0636000000-E	310	4	EA	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")
0706000000-E	310	20	LF	12" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0708000000-E	310	52	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0806000000-E	310	4	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0995000000-E	340	234	LF	PIPE REMOVAL
1121000000-E	520	210	TON	AGGREGATE BASE COURSE
1220000000-E	545	500	TON	INCIDENTAL STONE BASE
1330000000-E	607	200	SY	INCIDENTAL MILLING
1489000000-E	610	470	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	440	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	49	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	18	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	224	CY	SUBDRAIN EXCAVATION
2033000000-E	815	168	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	1,000	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	30	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	4	EA	MASONRY DRAINAGE STRUCTURES
2354200000-N	840	4	EA	FRAME WITH GRATE, STD #40.24
2556000000-E	846	100	LF	SHOULDER BERM GUTTER
3030000000-E	862	275	LF	STEEL BM GUARDRAIL
3045000000-E	862	75	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3165000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (TL-2)
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3270000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3380000000-E	862	50	LF	TEMPORARY STEEL BM GUARDRAIL
3387000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (B-77)
3389000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (TL-2)

ItemNumber	Sec #	Quantity	Unit	Description
3389100000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY
3649000000-E	876	15	TON	RIP RAP, CLASS B
3656000000-E	876	380	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	2	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4400000000-E	1110	224	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	256	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	56	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	1	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	1	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	70	EA	DRUMS
4435000000-N	1135	50	EA	CONES
4445000000-E	1145	80	LF	BARRICADES (TYPE III)
4450000000-N	1150	1600	HR	FLAGGER
4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
4516000000-N	1180	50	EA	SKINNY DRUM
4650000000-N	1251	100	EA	TEMPORARY RAISED PAVEMENT MARKERS
4810000000-E	1205	18,005	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	284	LF	PAINT PAVEMENT MARKING LINES (24")
4850000000-E	1205	1,950	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4870000000-E	1205	30	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
5325600000-E	1510	139	LF	6" WATER LINE
5800000000-E	1530	265	LF	ABANDON 6" UTILITY PIPE
5888000000-E	SP	168	LF	GENERIC UTILITY ITEM 8" HDPE WATER PIPE, SDR 9 200# WP BY DIRECTIONAL BORE
6000000000-E	1605	850	LF	TEMPORARY SILT FENCE
6006000000-E	1610	180	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	190	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	80	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	3	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6029000000-E	SP	225	LF	SAFETY FENCE
6030000000-E	1630	655	CY	SILT EXCAVATION
6036000000-E	1631	1,500	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	30	SY	COIR FIBER MAT
6042000000-E	1632	80	LF	1/4" HARDWARE CLOTH
6071030000-E	SP	150	LF	COIR FIBER BAFFLES
6071050000-E	SP	5	EA	*** SKIMMER (1-1/2")
6084000000-E	1660	3	ACR	SEEDING & MULCHING
6087000000-E	1660	2	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	75	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	2.25	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	24	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.2	ACR	REFORESTATION

5/28/99

PROJECT REFERENCE NO. B-3854	SHEET NO. 5
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
PBS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 PHONE: (919) 876-6888	

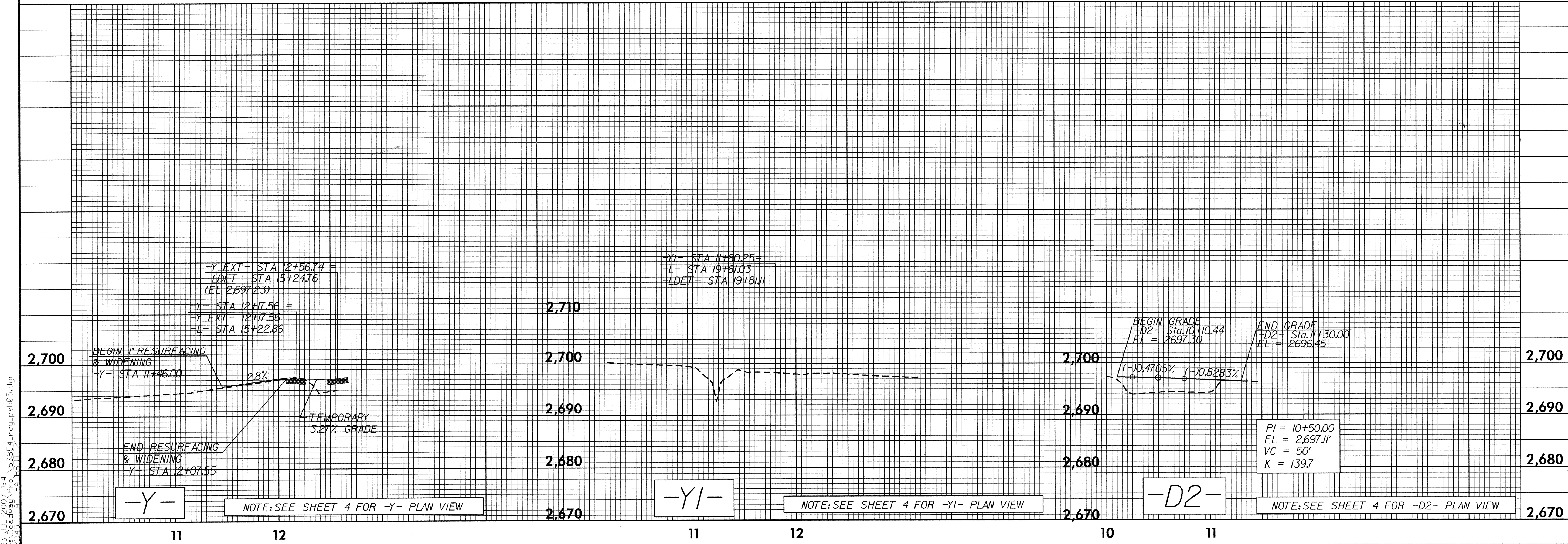
STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 3650 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2695.9 FT
BASE DISCHARGE	= 5000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2697.1 FT
OVERTOPPING DISCHARGE	= 5750 CFS
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING ELEVATION	= 2697.2 FT



BM #1 ELEVATION=2704.32'
 N=674,485.2170 E=801,175.9990
 LOCATED N 25°15' 23"W 72.94' FROM BL-1
 CHISLED SQUARE ON NE CORNER OF CONC.SLAB

BM #2 ELEVATION=2697.15'
 N=674,260.5750 E=801,794.5340
 -BL- STA 11+08.23 8.195' LEFT
 CHISLED SQUARE ON SW CORNER OF CONC.RET.WALL

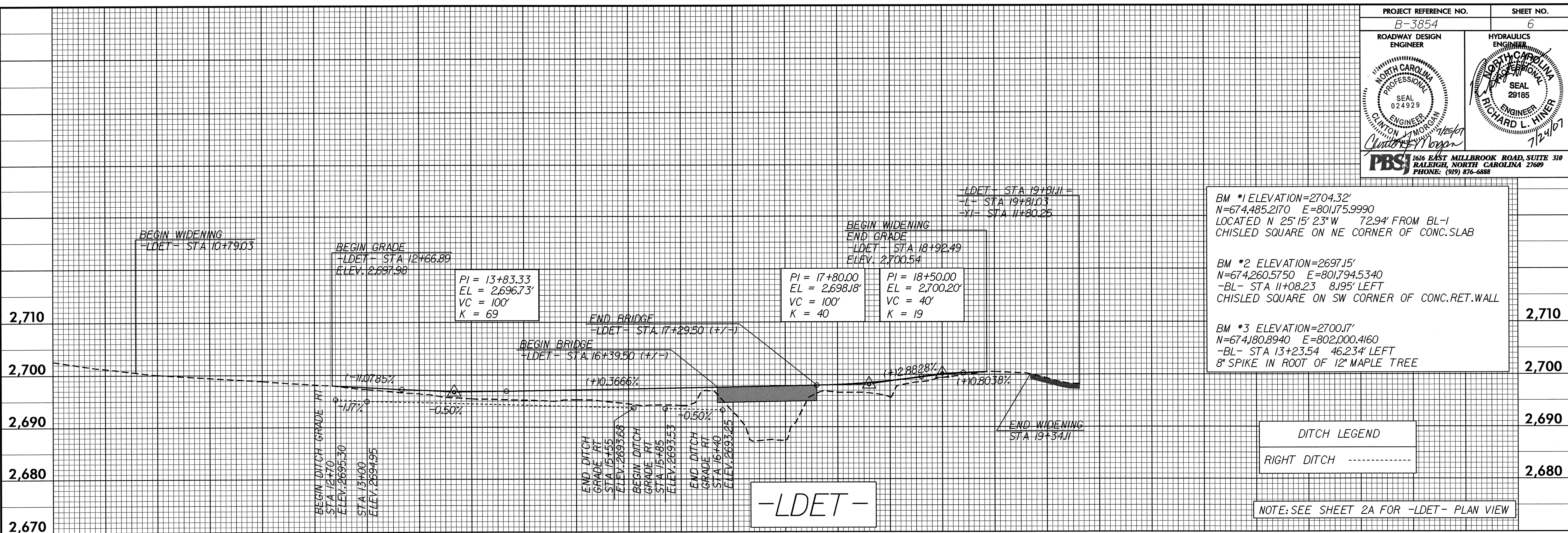
BM #3 ELEVATION=2700.17'
 N=674,180.8940 E=802,000.4160
 -BL- STA 13+23.54 46.234' LEFT
 8" SPIKE IN ROOT OF 12" MAPLE TREE



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5/28/99

PROJECT REFERENCE NO. B-3854	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 PHONE: (919) 876-6888	



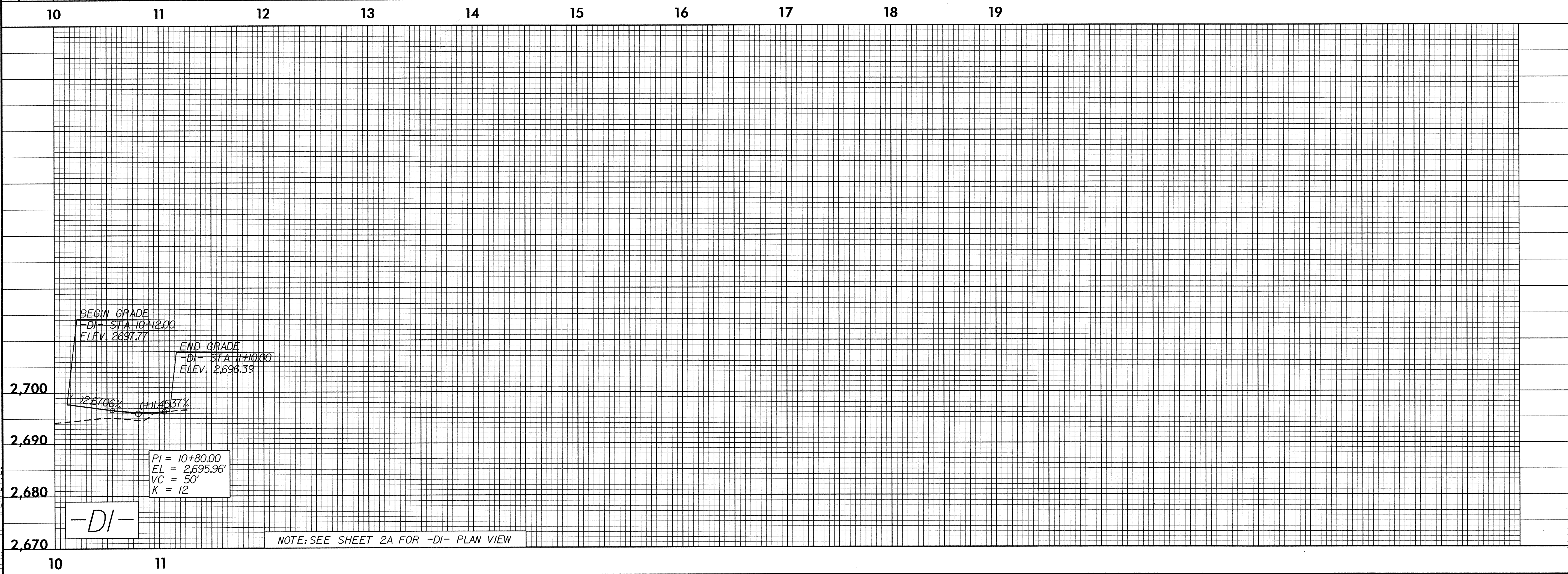
BM #1 ELEVATION=2704.32'
 N=674,485.2170 E=801,175.9990
 LOCATED N 25° 15' 23" W 72.94' FROM BL-1
 CHISLED SQUARE ON NE CORNER OF CONC.SLAB

BM #2 ELEVATION=2697.15'
 N=674,260.5750 E=801,794.5340
 -BL- STA 11+08.23 8.195' LEFT
 CHISLED SQUARE ON SW CORNER OF CONC.RET.WALL

BM #3 ELEVATION=2700.17'
 N=674,180.8940 E=802,000.4160
 -BL- STA 13+23.54 46.234' LEFT
 8" SPIKE IN ROOT OF 12" MAPLE TREE

DITCH LEGEND
 RIGHT DITCH -----

NOTE: SEE SHEET 2A FOR -LDET- PLAN VIEW



NOTE: SEE SHEET 2A FOR -DI- PLAN VIEW

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