

09/08/09

See Sheet 1-A For Index of Sheets

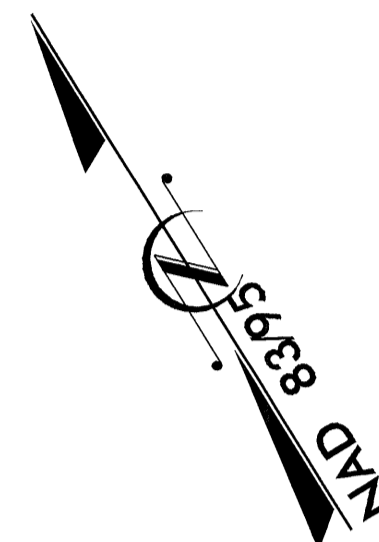
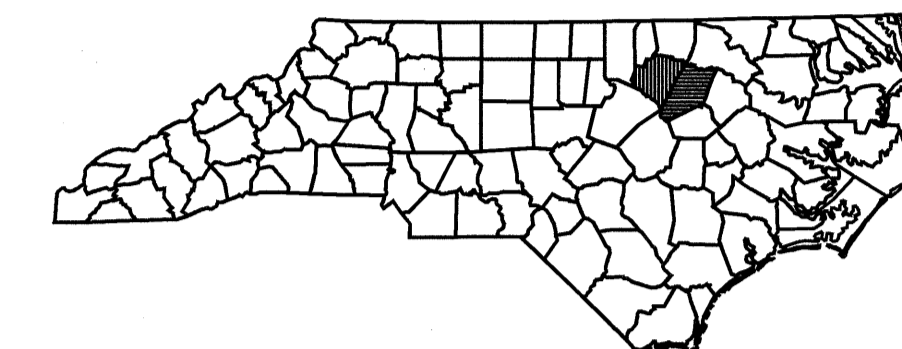
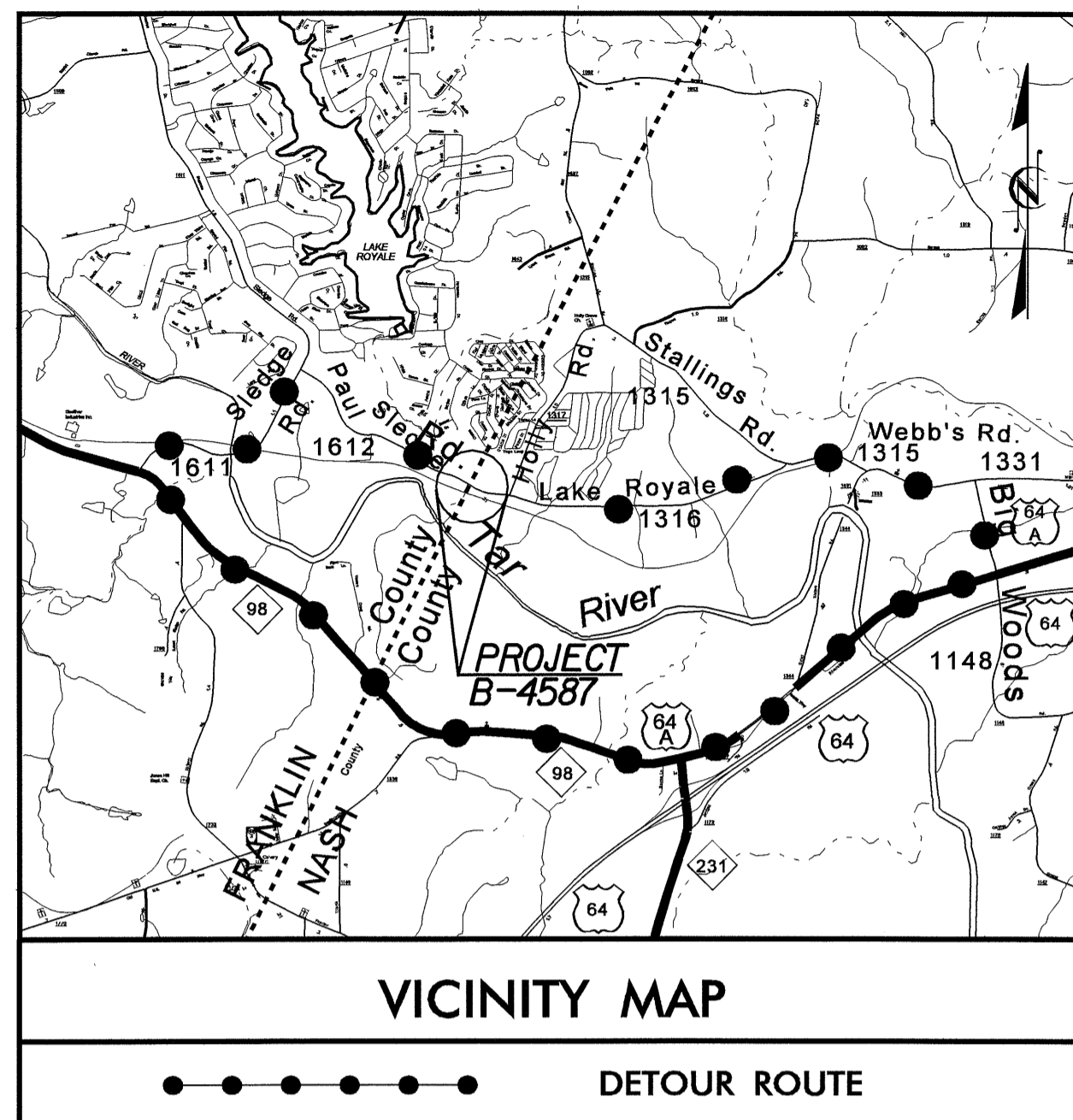
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NASH-FRANKLIN COUNTIES

LOCATION: BRIDGE 82 OVER CYPRESS CREEK ON SR 1316

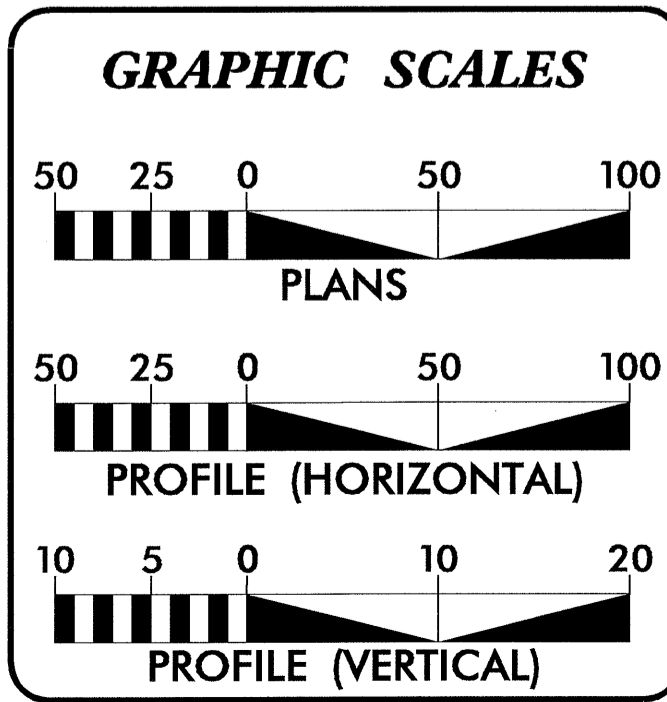
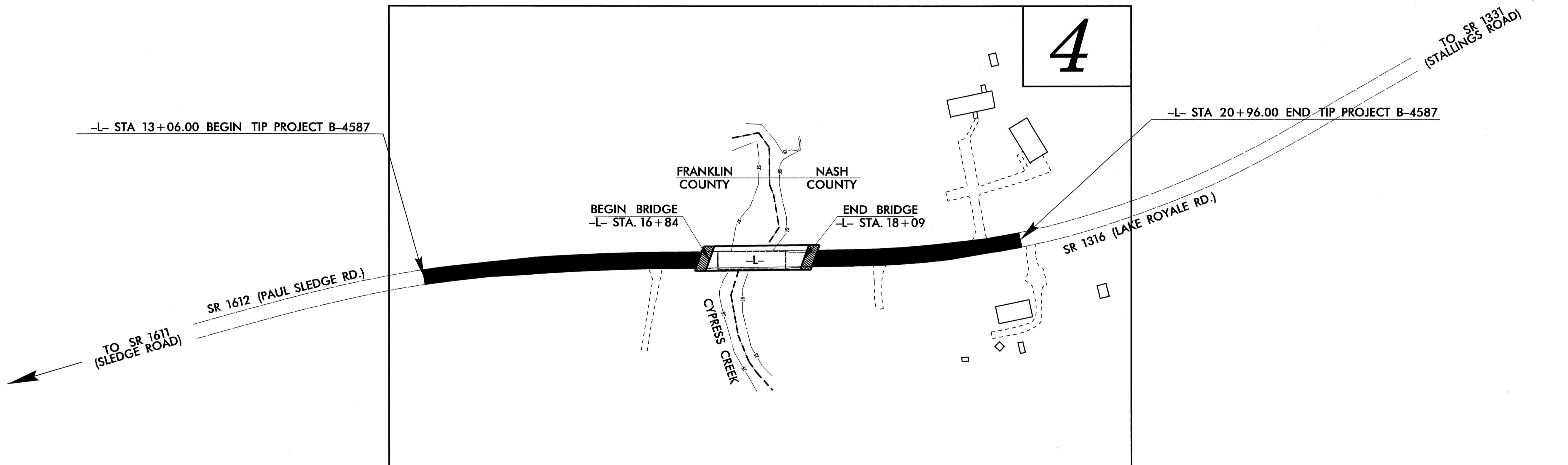
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4587	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33787.1.1	BRZ-1316(4)	PE	
33787.2.1	BRZ-1316(4)	RW, & UTI	
33787.3.STI	STM-1316(12)	CONST.	



TIP PROJECT: B-4587

CONTRACT: C202160



DESIGN DATA

ADT 2009 = 635

ADT 2030 = 1,200

DHV = 10 %

D = 60 %

T = 3 % *

V = 50 MPH

* TTST 1 DUAL 2

FUNC. CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4587 = 0.126 Mi.

LENGTH STRUCTURE TIP PROJECT B-4587 = 0.024 Mi.

TOTAL LENGTH TIP PROJECT B-4587 = 0.150 Mi.

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 15, 2008

LETTING DATE: AUGUST 18, 2009

JIMMY GOODNIGHT, P.E.
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Mark T. Shum
SIGNATURE: 6-22-09

ROADWAY DESIGN ENGINEER

James S. Aashby
SIGNATURE: 6-22-09

Professional Engineer Seals for Marc T. Shum and James S. Aashby.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

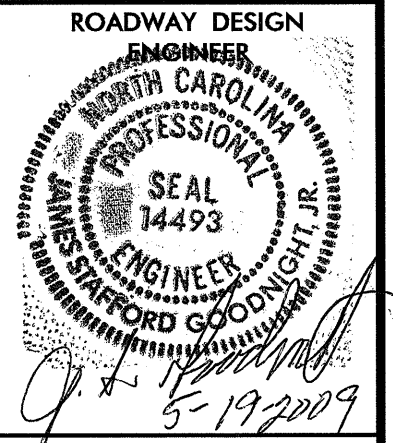
Professional Engineer Seal for James S. Aashby.

STATE HIGHWAY DESIGN ENGINEER

22-JUN-2009 09:09
X:\OCC\DD\JP\0906\B-4587_rdy_tsh.dgn
\$\$\$\$SERNAME\$\$\$\$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4587	SHEET NO. 1-A
---------------------------------	------------------



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	BRIDGE APPROACH FILL (SUB REGIONAL TIER)
2-B	ANCHORAGE FOR FRAME
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN /PROFILE SHEET
TCP-1 THRU TCP-4	TRAFFIC CONTROL PLANS
PM-1 THRU PM-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS PLANS
X-1A	EARTHWORK VOLUMES SHEET
X-1 THRU X-4	CROSS-SECTIONS
S-1 THRU S-21	STRUCTURE PLANS

GENERAL NOTES: 2006 SPECIFICATIONS

EFFECTIVE: 07-18-06
REVISED: 07-30-08

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

UNDERDRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Embarq, Progress Energy
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

8/17/09

19-MAY-2009 11:42
c:\ncd\hwy\proj\B4587_rdy_tsh.dgn
\$\$\$\$\$

3/15/06

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	✕
Property Monument	◻
Parcel/Sequence Number	123
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:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	✕
Foundation	◻
Area Outline	◻
Cemetery	+
Building	◻
School	◻
Church	+
Dam	-----

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	-----
Buffer Zone 1	-----
Buffer Zone 2	-----
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Swamp Marsh	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	◻
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite 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:

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:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

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

UTILITIES:

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

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○
Telephone Booth	◻
Telephone Pedestal	◻
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	◻
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

Water Manhole	○
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

TV Satellite Dish	⊠
TV Pedestal	◻
TV Tower	⊗
U/G TV Cable Hand Hole	◻
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

GAS:

Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	◻
Utility Located Object	○
Utility Traffic Signal Box	◻
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	◻
A/G Tank; Water, Gas, Oil	◻
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

SURVEY CONTROL SHEET B-4587

BENCHMARK DATA

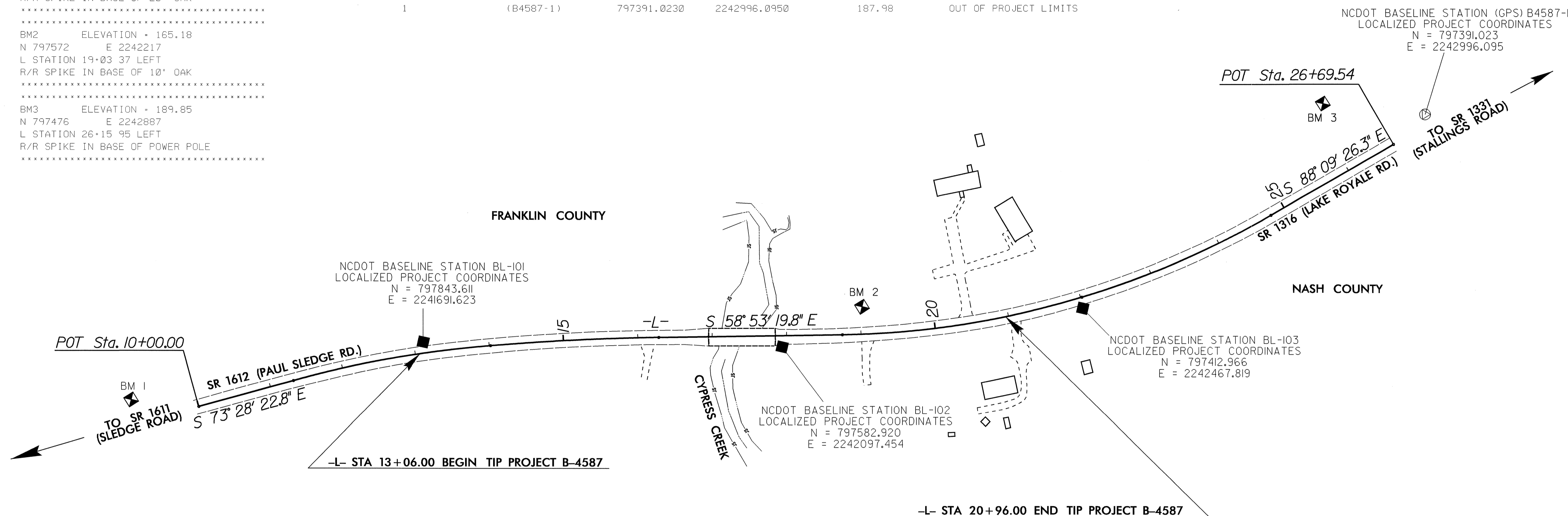
```

.....
BM1  ELEVATION = 187.25
N 797985  E 2241317
OUT OF PROJECT LIMITS
R/R SPIKE IN BASE OF 20" OAK
.....
BM2  ELEVATION = 165.18
N 797572  E 2242217
L STATION 19+03.37 LEFT
R/R SPIKE IN BASE OF 10" OAK
.....
BM3  ELEVATION = 189.85
N 797476  E 2242887
L STATION 26+15.95 LEFT
R/R SPIKE IN BASE OF POWER POLE
.....

```

BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101	(BL-101)	797843.6110	2241691.6230	168.10	13+12.71	15.22 LT
102	(BL-102)	797582.9200	2242097.4540	164.97	17+93.53	15.40 RT
103	(BL-103)	797412.9660	2242467.8190	175.07	21+98.57	14.57 RT
1	(B4587-1)	797391.0230	2242996.0950	187.98	OUT OF PROJECT LIMITS	



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:
 b4587_ls_control_070424.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)

DATUM DESCRIPTION

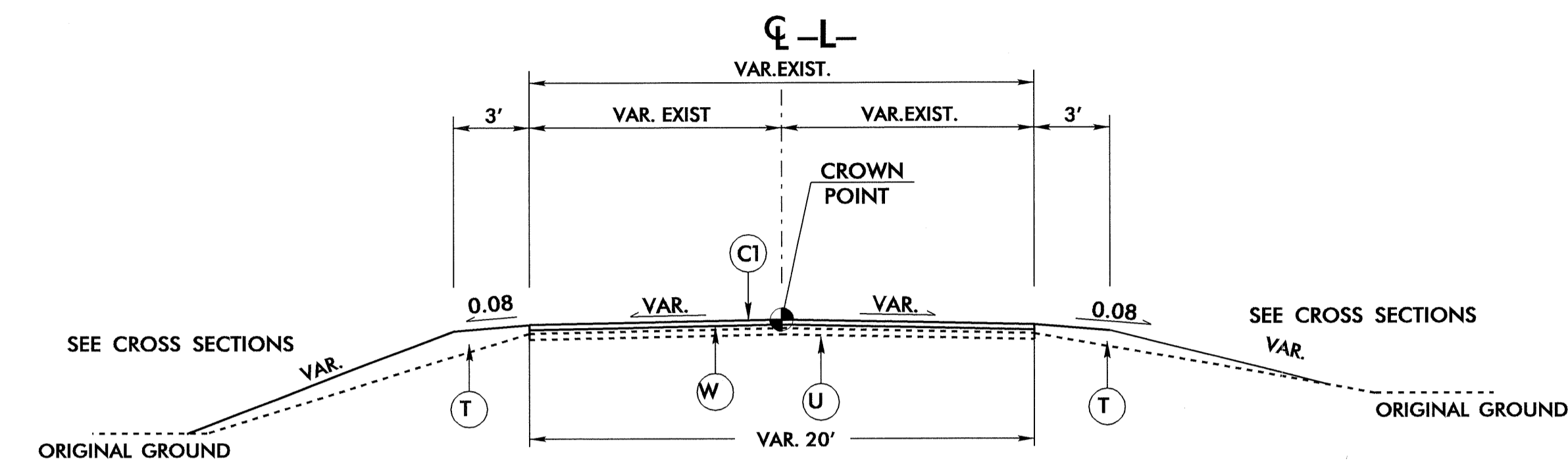
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B4587-1"
 WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 797391.024(++) EASTING: 2242996.095(++)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994072
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B4587-1" TO -L- STATION 10+00.00 IS
 N 71°29'03" W 1694.47'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

6/2/09
 23-APR-2009 09:56
 658070424.dgn
 658070424.dgn

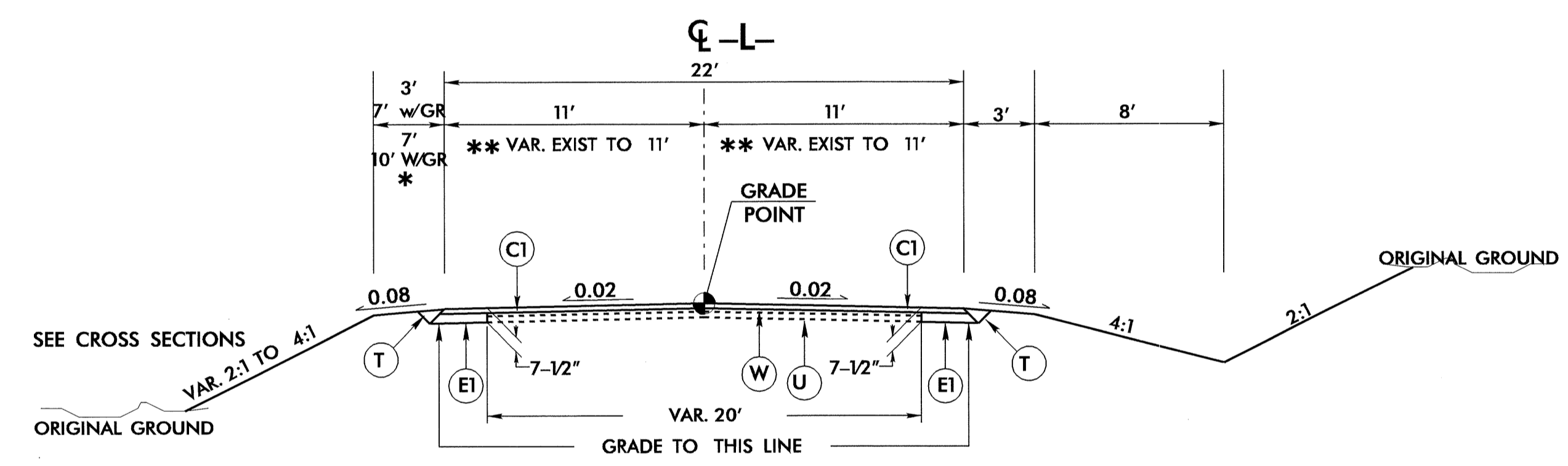
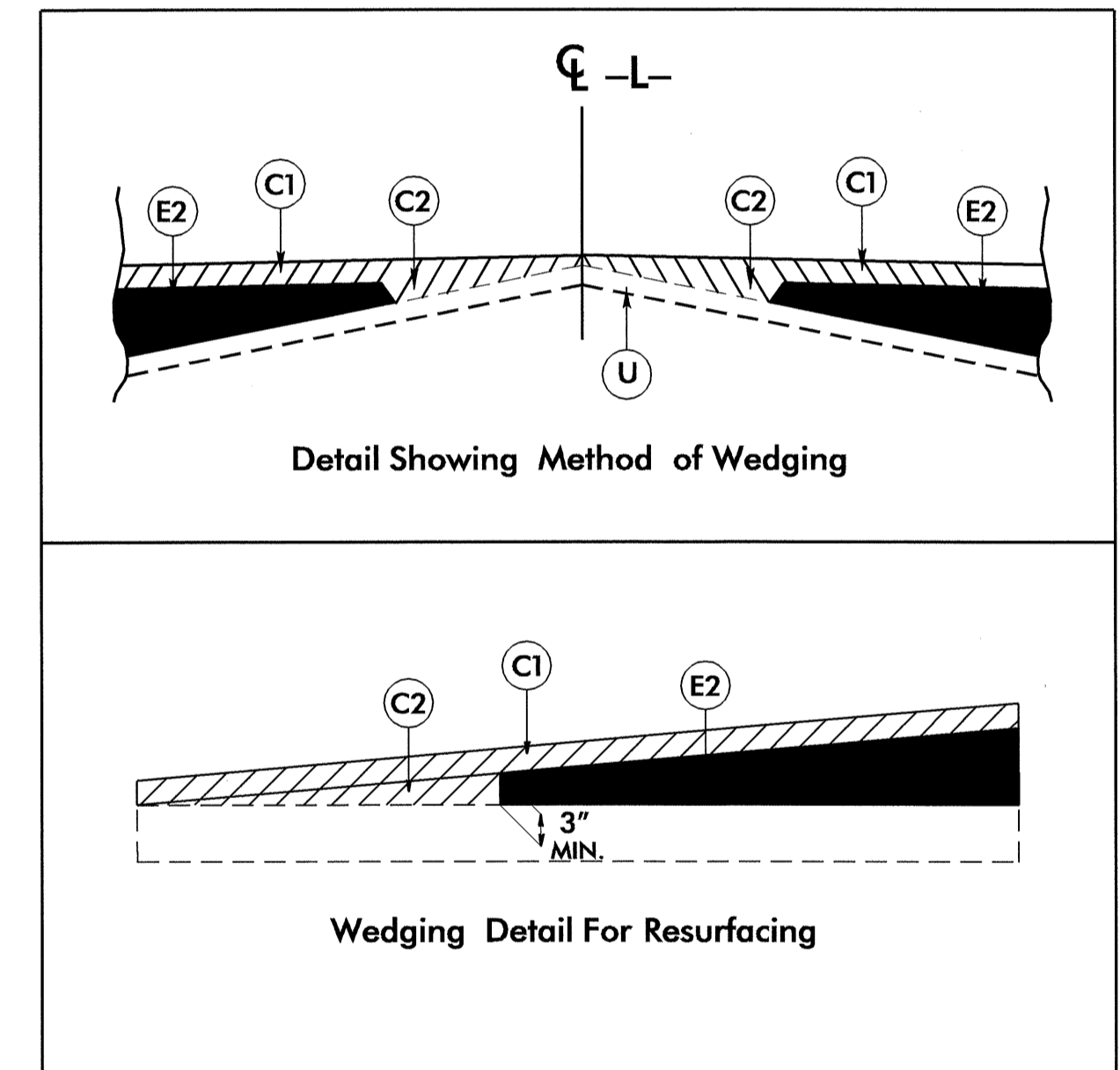
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 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 1/2" IN DEPTH.
T	EARTH MATERIAL
W	WEDGING
U	EXISTING PAVEMENT

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



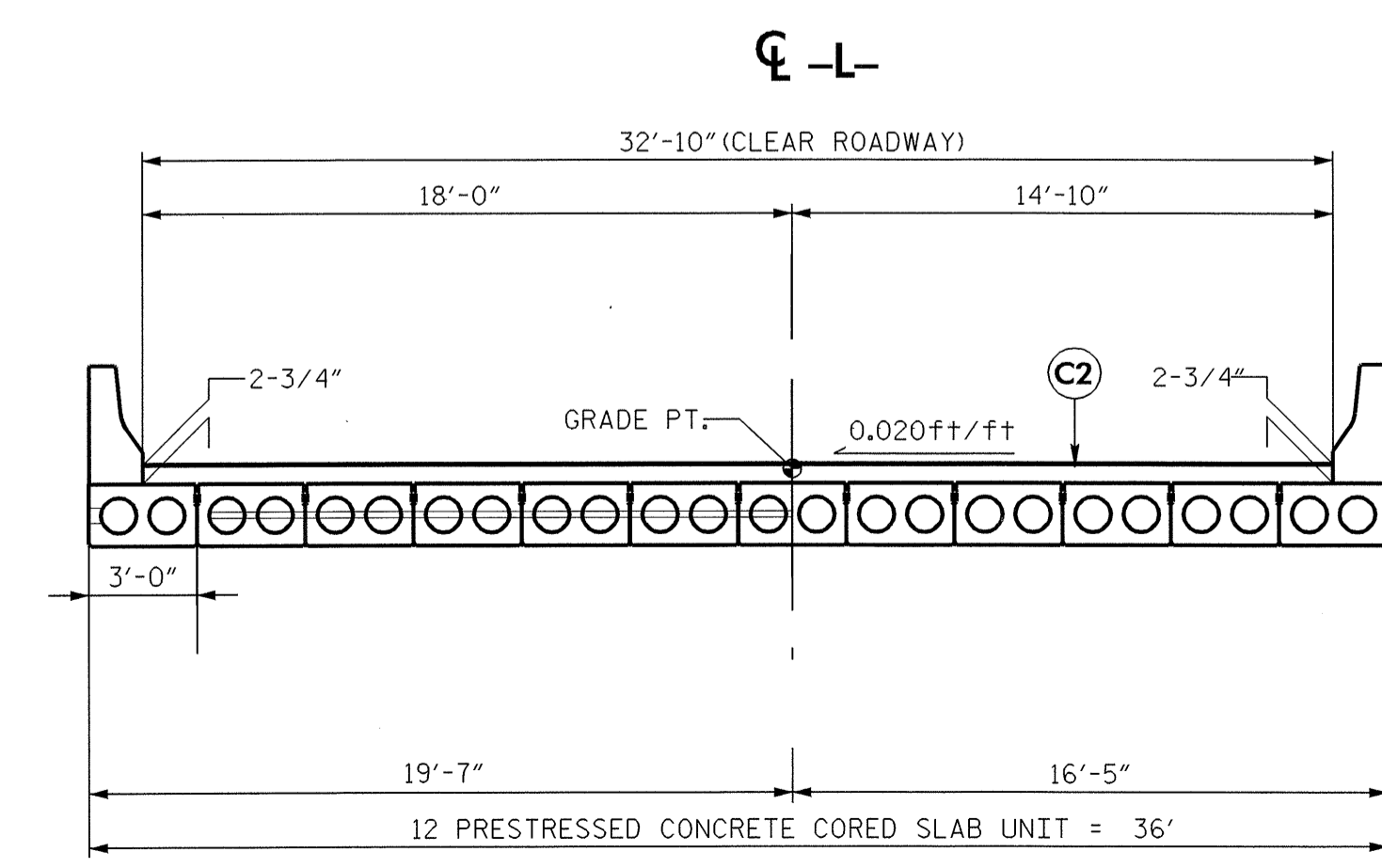
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 13+06.00 TO STA. 14+00.00
 -L- STA. 20+50.00 TO STA. 20+96.00



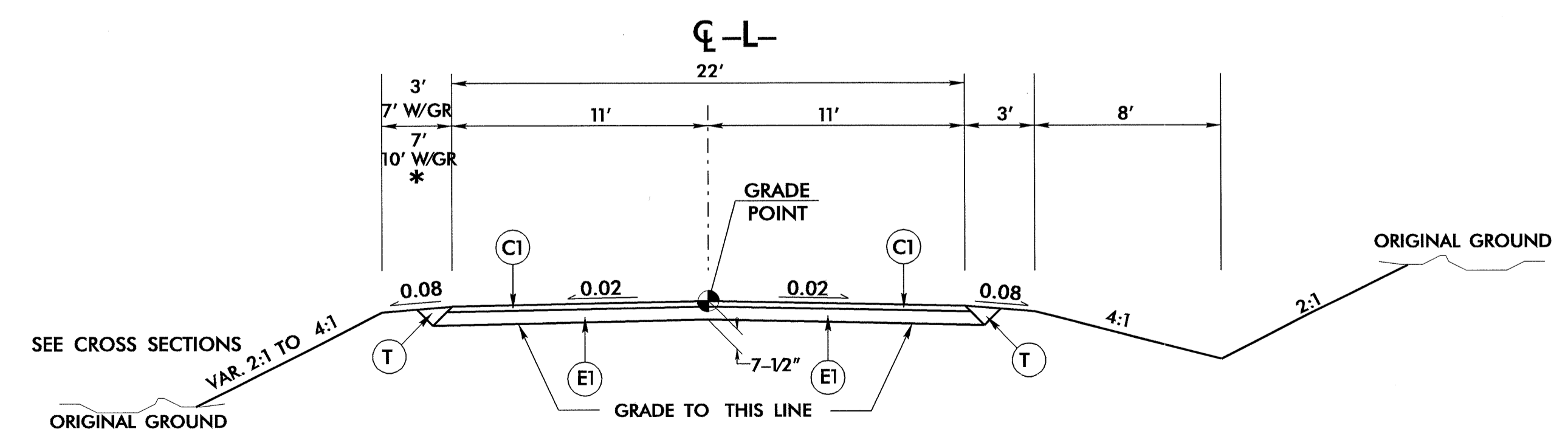
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO.2 AS FOLLOWS:
 ** -L- STA. 14+00.00 TO STA. 14+50.00
 -L- STA. 14+50.00 TO STA. 16+34.00
 -L- STA. 18+59.00 TO STA. 20+00.00
 ** -L- STA. 20+00.00 TO STA. 20+50.00
 * -L- LT WHERE GUARDRAIL IS LOCATED



TYPICAL SECTION NO. 4

-L- STA. 16+84.00 TO -L- STA. 18+09



TYPICAL SECTION NO. 3

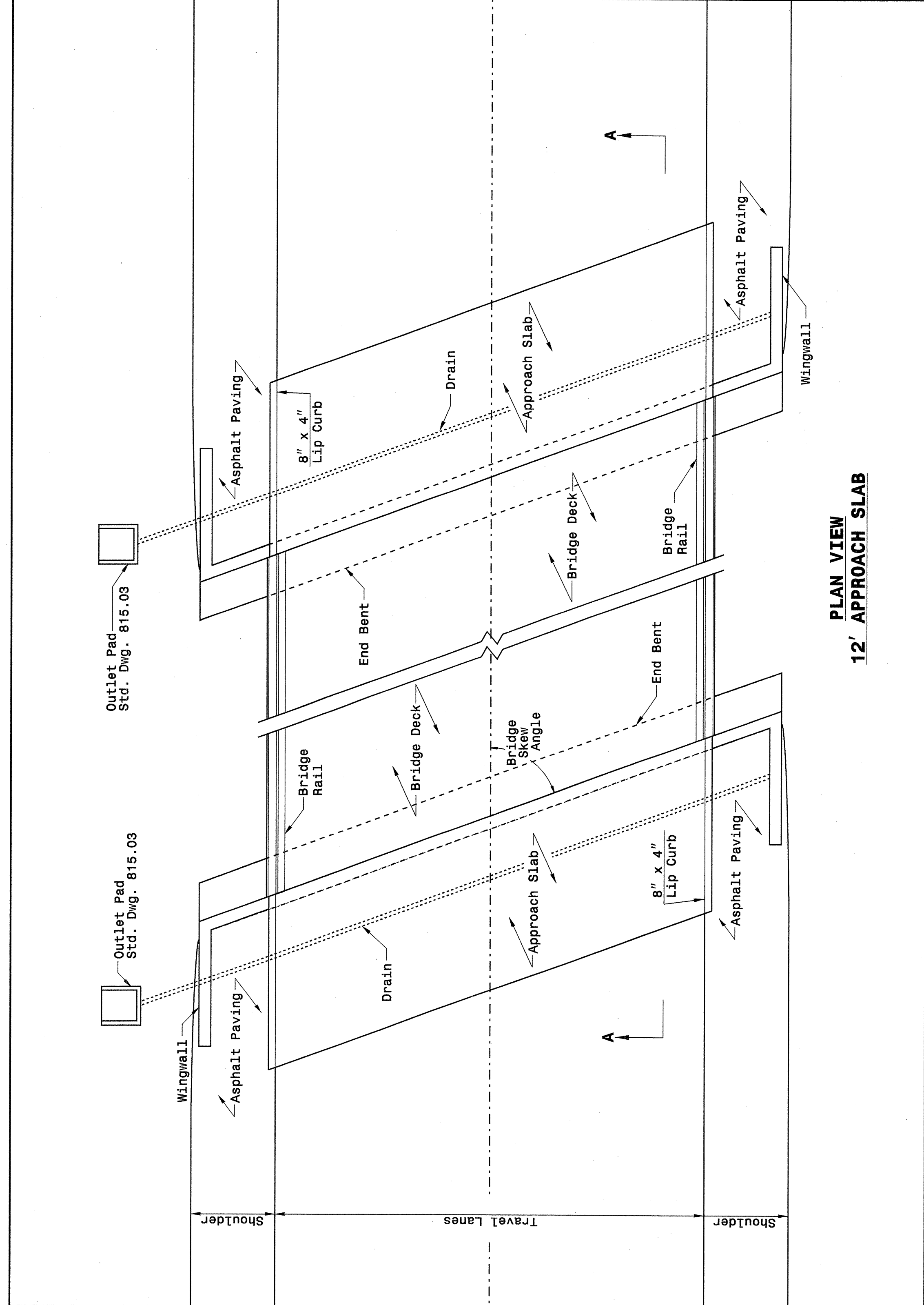
USE TYPICAL SECTION NO. 3 AS FOLLOWS:
 -L- STA. 16+34.00 TO BEG BRIDGE STA. 16+84.00
 -L- END BRIDGE STA. 18+09.00 TO STA. 18+59.00
 * -L- LT WHERE GUARDRAIL IS LOCATED

12-MAY-2009 08:47
 C:\pwork\proj\B4587_r.dwg - tujp.dgn
 \$\$\$\$C:\P\ERNA\B4587\$\$\$\$

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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 1 OF 2
422D11



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

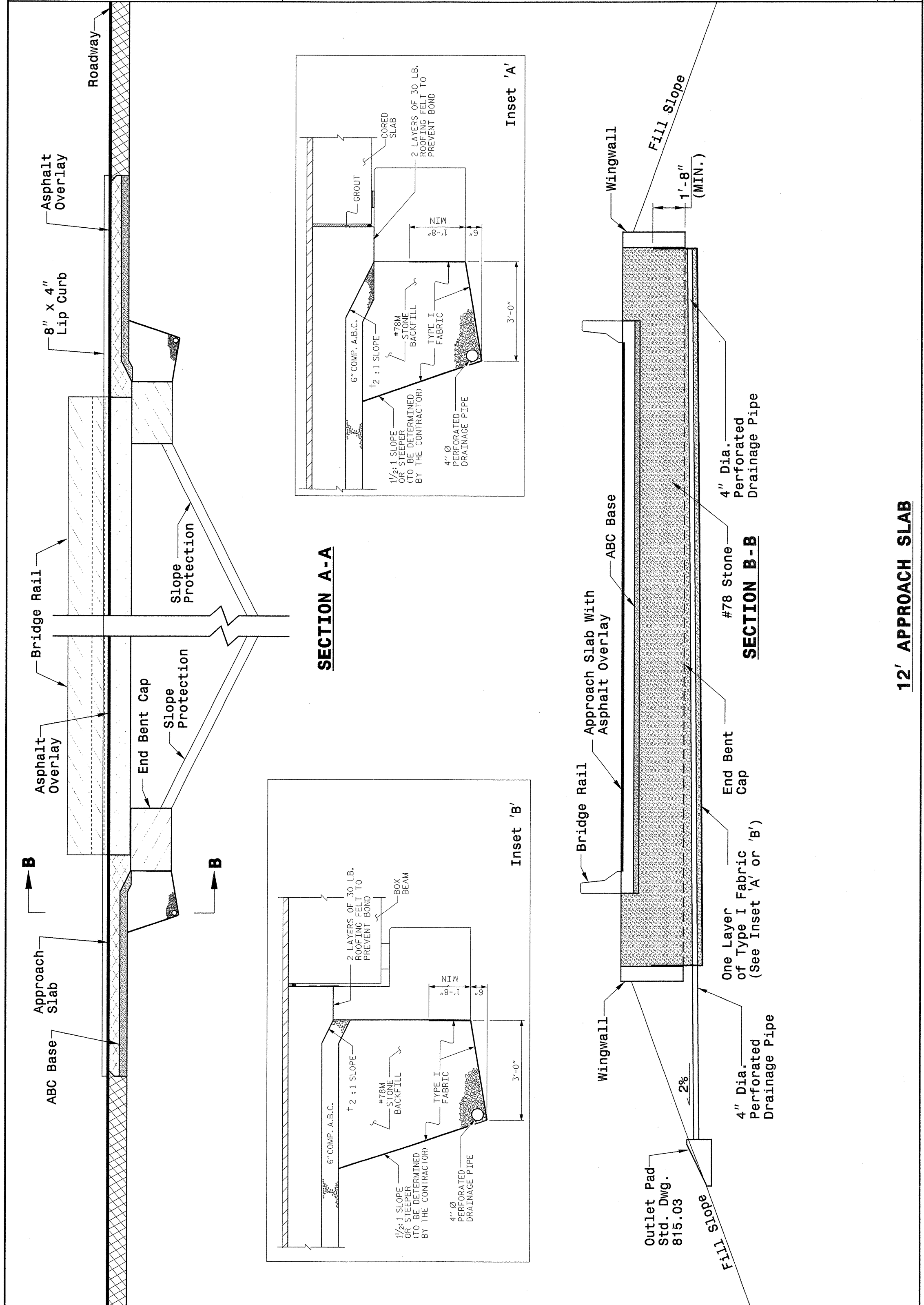
ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 1 OF 2
422D11

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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

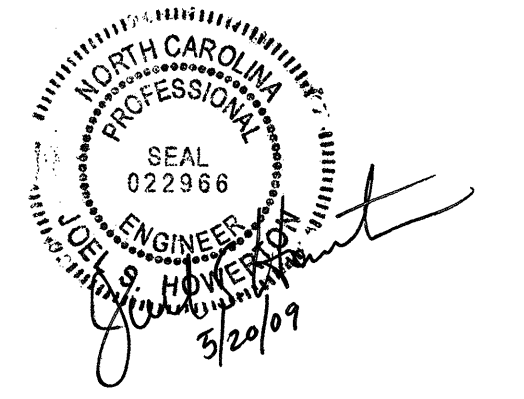
SHEET 2 OF 2
422D11



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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 2 OF 2
422D11



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

BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

ORIGINAL BY: K. A. Kempf DATE: 6-10-08
MODIFIED BY: *Joel S. Kempf* DATE: *2/16/09*
CHECKED BY: *Joel S. Kempf* DATE: *2/16/09*
FILE SPEC.: k Kempf/english/bridge approach fills.dgn

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

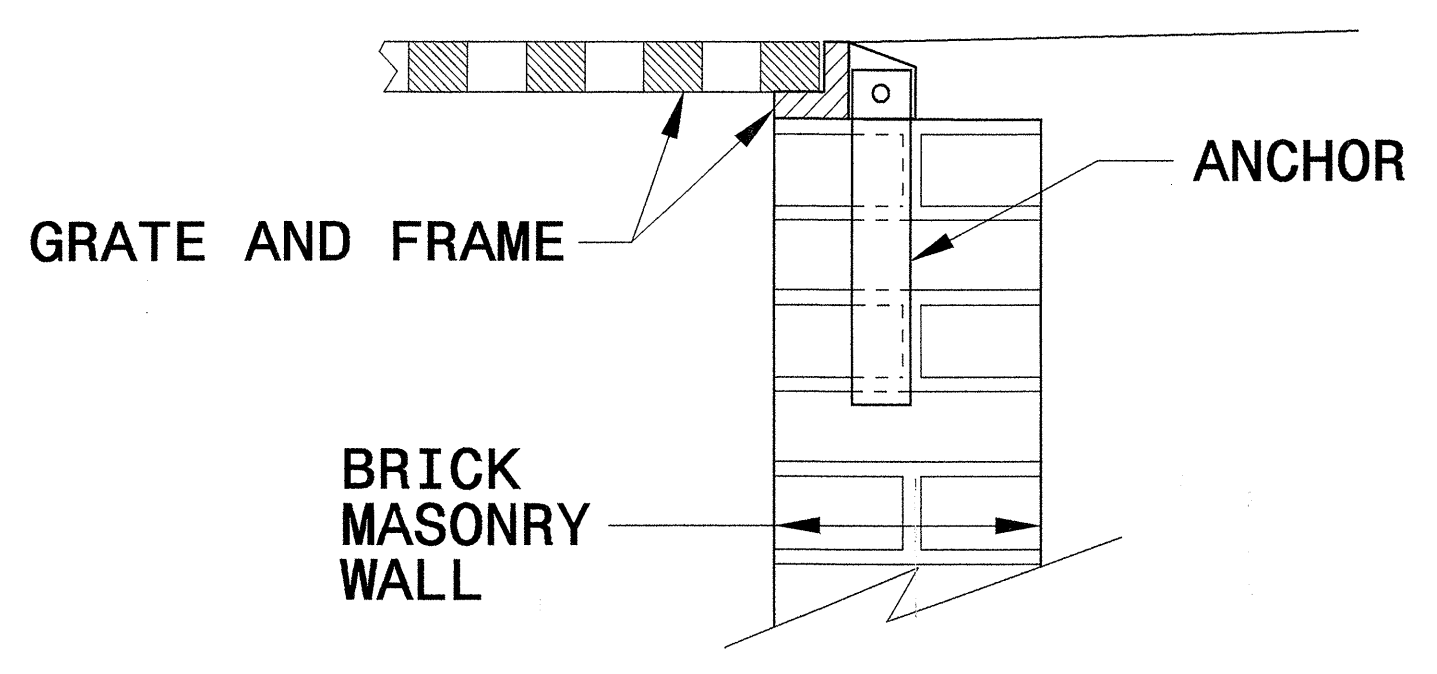
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
 BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

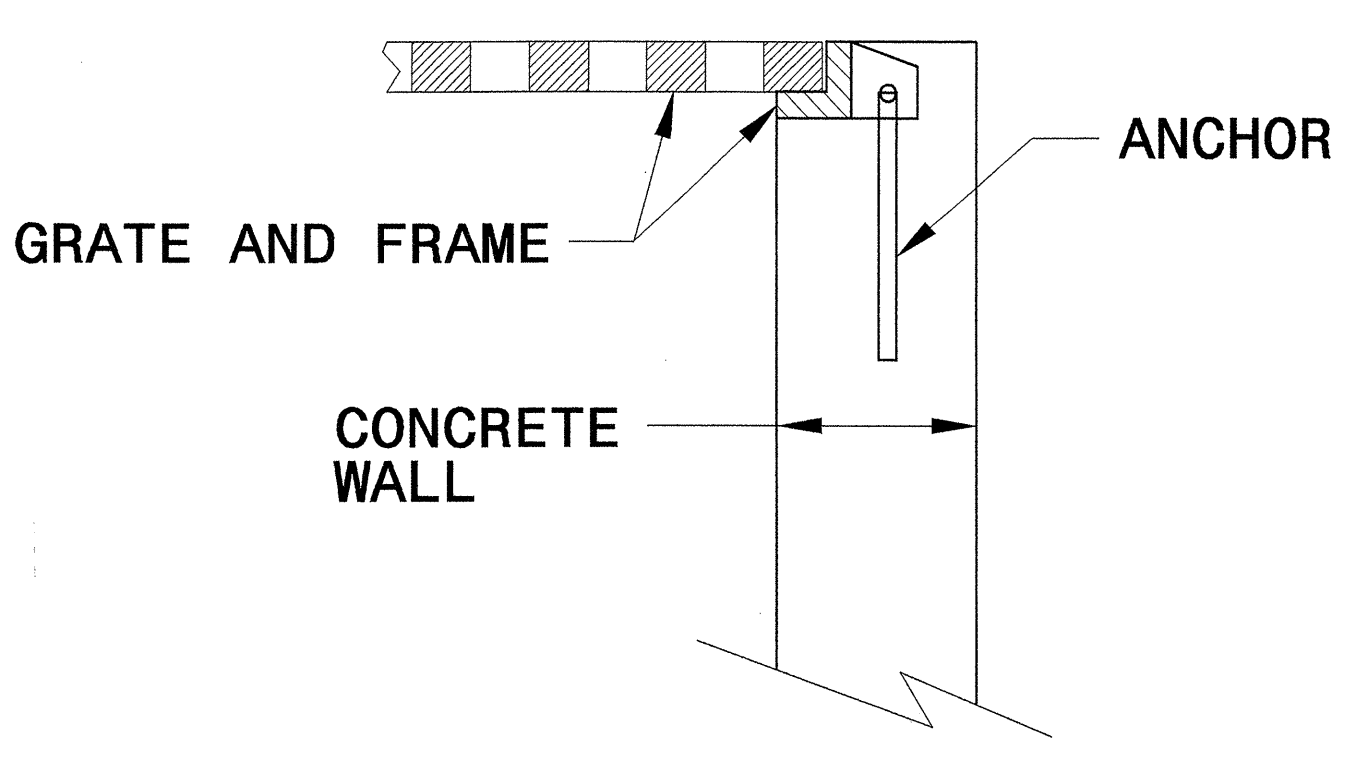
STATE OF
 NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

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

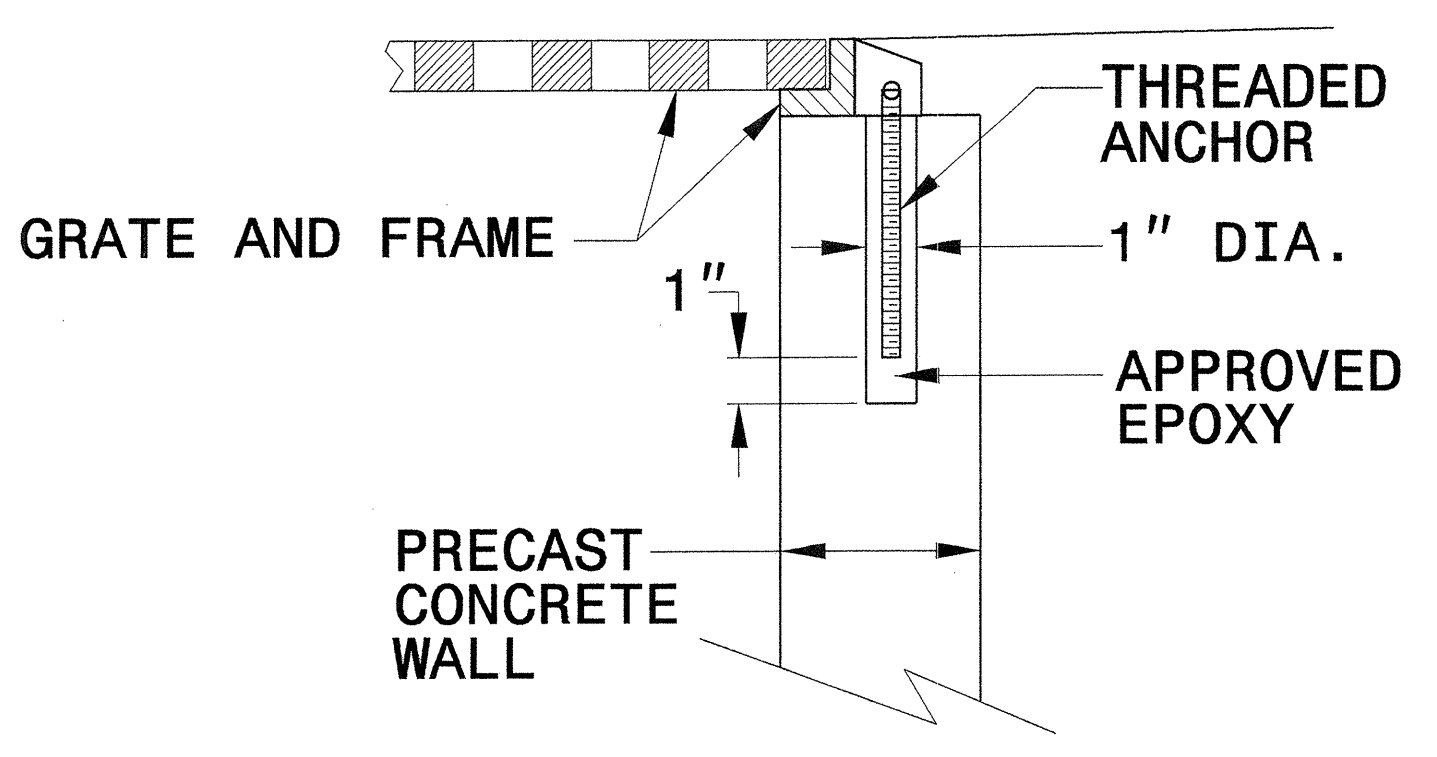
SHEET 1 OF 1
840D25



**BRICK MASONRY
 CONSTRUCTION**



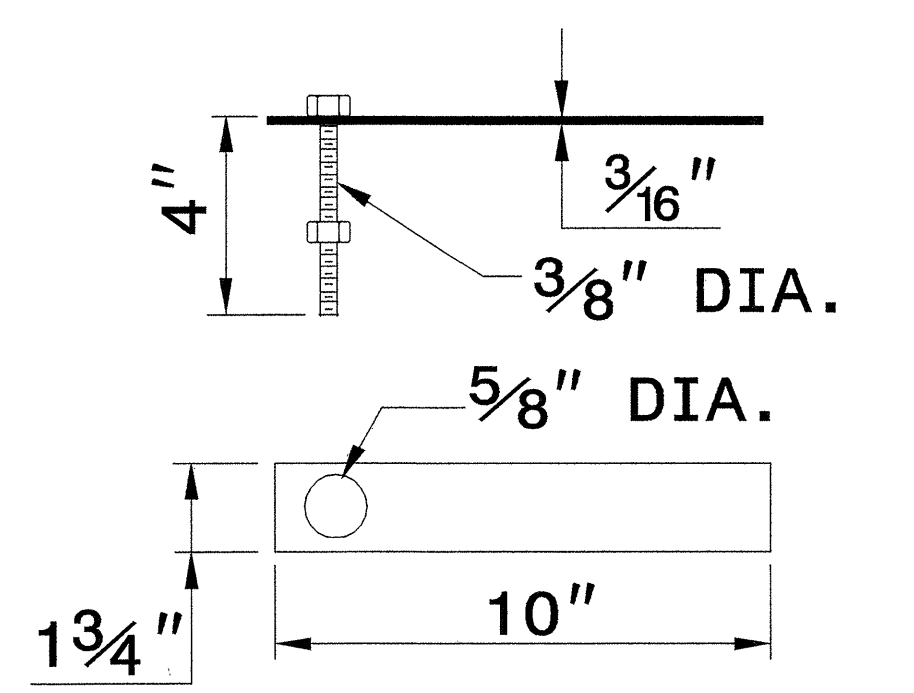
**CONCRETE
 CONSTRUCTION**



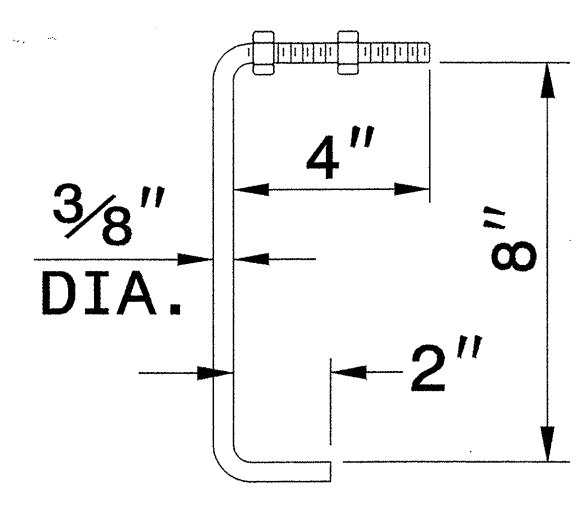
**PRECAST CONCRETE
 CONSTRUCTION**

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

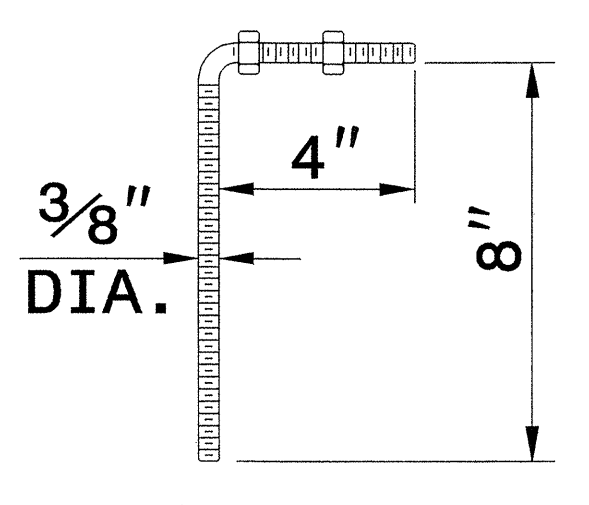
NOTE:
 CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
 OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



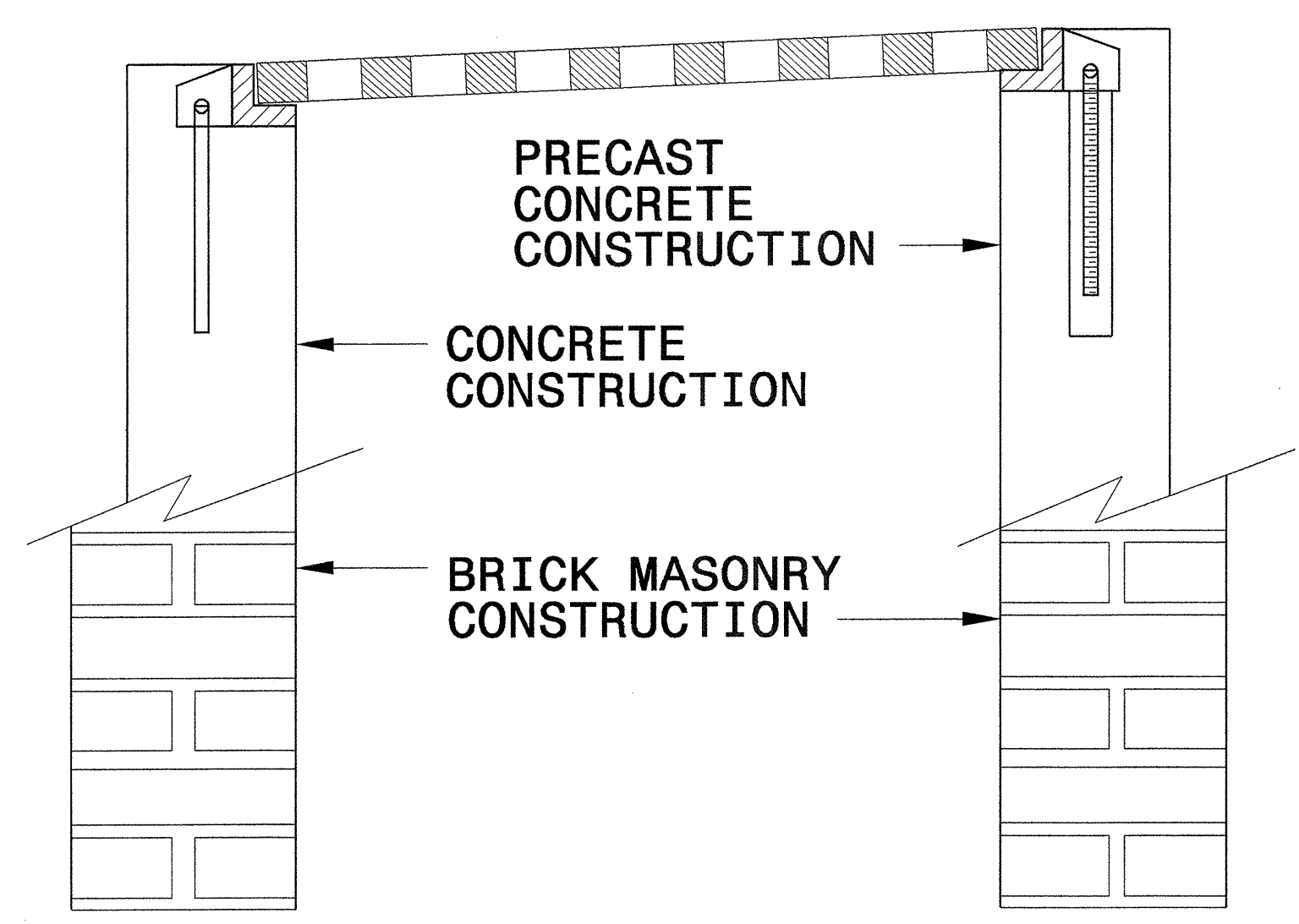
MASONRY ANCHOR
 3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
 3/8" DIA. BENT BAR

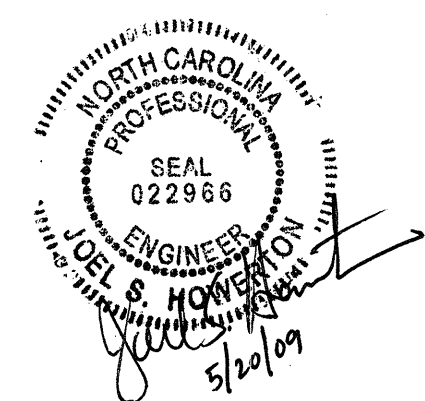


**PRECAST
 CONCRETE ANCHOR**
 3/8" DIA. BENT BAR



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

 840D25



**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: 07/19/06
 MODIFIED BY: E. E. WARD DATE: 9/25/06
 CHECKED BY: *Joel S. Howerton* DATE: 11/13/08
 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 - C202160

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	2556000000-E	846	42	LF	SHOULDER BERM GUTTER	6021000000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEED-ING
0008000000-E	200	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	3030000000-E	862	50	LF	STEEL BM GUARDRAIL	6024000000-E	1622	160	LF	TEMPORARY SLOPE DRAINS
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (17+46.50)	3045000000-E	862	25	LF	STEEL BM GUARDRAIL, SHOP CURVED	6027000000-N	1622	4	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
0036000000-E	225	200	CY	UNDERCUT EXCAVATION	3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	6029000000-E	SP	570	LF	SAFETY FENCE
0043000000-N	226	Lump Sum		GRADING	3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1	6030000000-E	1630	485	CY	SILT EXCAVATION
0134000000-E	240	10	CY	DRAINAGE DITCH EXCAVATION	3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6036000000-E	1631	1,000	SY	MATting FOR EROSION CONTROL
0195000000-E	265	200	CY	SELECT GRANULAR MATERIAL	3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	6037000000-E	SP	550	SY	COIR FIBER MAT
0196000000-E	270	200	SY	FABRIC FOR SOIL STABILIZATION	3649000000-E	876	2	TON	RIP RAP, CLASS B	6038000000-E	SP	80	SY	PERMANENT SOIL REINFORCEMENT MAT
0318000000-E	300	10	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	3656000000-E	876	1,110	SY	FILTER FABRIC FOR DRAINAGE	6042000000-E	1632	140	LF	1/4" HARDWARE CLOTH
0343000000-E	310	44	LF	15" SIDE DRAIN PIPE	4072000000-E	903	75	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	6070000000-N	SP	12	EA	SPECIAL STILLING BASINS
0995000000-E	340	22	LF	PIPE REMOVAL	4096000000-N	904	2	EA	SIGN ERECTION, TYPE D	6071010000-E	SP	75	LF	WATTLE
1220000000-E	545	100	TON	INCIDENTAL STONE BASE	4116100000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)	6071020000-E	SP	27	LB	POLYACRYLAMIDE (PAM)
1489000000-E	610	335	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	4155000000-N	907	8	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	6071030000-E	SP	230	LF	COIR FIBER BAFFLES
1525000000-E	610	370	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	4400000000-E	1110	248	SF	WORK ZONE SIGNS (STATIONARY)	6071050000-E	SP	3	EA	*** SKIMMER (1-1/2")
1560000000-E	620	40	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	4410000000-E	1110	119	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6084000000-E	1660	5	ACR	SEEDING & MULCHING
1693000000-E	654	50	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	4445000000-E	1145	96	LF	BARRICADES (TYPE III)	6087000000-E	1660	1.5	ACR	MOWING
2000000000-N	806	8	EA	RIGHT OF WAY MARKERS	4810000000-E	1205	29,900	LF	PAINT PAVEMENT MARKING LINES (4")	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
2022000000-E	815	45	CY	SUBDRAIN EXCAVATION	4900000000-N	1251	96	EA	PERMANENT RAISED PAVEMENT MARKERS	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
2033000000-E	815	34	CY	SUBDRAIN FINE AGGREGATE	6000000000-E	1605	800	LF	TEMPORARY SILT FENCE	6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
2044000000-E	815	200	LF	6" PERFORATED SUBDRAIN PIPE	6006000000-E	1610	125	TON	STONE FOR EROSION CONTROL, CLASS A	6108000000-E	1665	1.5	TON	FERTILIZER TOPDRESSING
2055000000-E	815	6	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	6009000000-E	1610	175	TON	STONE FOR EROSION CONTROL, CLASS B	6114000000-N	SP	5	HR	SPECIALIZED HAND MOWING
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	6012000000-E	1610	350	TON	SEDIMENT CONTROL STONE	6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)	6015000000-E	1615	3	ACR	TEMPORARY MULCHING	6123000000-E	1670	0.15	ACR	REFORESTATION
2286000000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES	6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING	# ***** BEGIN SCHEDULE AA ***** ***** (3 ALTERNATES) *****				
2367000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29						0354000000-E	310	36	LF	*** RC PIPE CULVERTS, CLASS AA1 ***** (15") CLASS III
										*** OR ***				
										0536000000-E	SP	36	LF	*** HDPE PIPE CULVERTS (15")
										*** OR ***				
										0540000000-E	SP	36	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")
										***** END SCHEDULE AA *****				

5/28/99

23-APR-2009 09:56
C:\WORK\2009\NCDOT\B4587_rdlj_sum.dgn

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

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

STATION	LOCATION (L, RT, OR CU)	STRUCTURE NO.	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)								CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE 1R OR HDPE PIPE, TYPE S OR D								ENDWALLS	QUANTITIES FOR PIPE STRUCTURES	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG C.Y. STD. 840.71	PIPE REMOVAL UNFT.	REMARKS
							12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"							
16+42	LT	1	164.3																																		
16+42	LT	1		161.5	161.4																																
	RT	3																																			
TOTALS																																					

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
 G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350			REMARKS					
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE 350	AT-1	TYPE B-77	NO.	G	NG							
-L-	16+20.11	16+78.60	RT	43.75	25			16+78.68	3.83	6.83															15' R ON SHOP CURVED		
-L-	16+15.55	16+90.55	LT	75				16+90.55	7	10	56.25		1				1		1								
-L-	18+03.60	18+78.60	RT	75				18+03.60	3.83	6.83	56.25		1				1		1								
-L-	18+15.55	18+90.55	LT	75				18+15.55	7	10	56.25		1				1		1								
TOTALS				268.75	25												3	1	4								
ANCHOR DEDUCTIONS:				4 B-77 @ 18.75' ea. = 75																							
				3 GRAU 350's @ 50' ea. = 150																							
GRAND TOTAL				43.75	25													3	1	4							
SAY				50	25	ADDITIONAL GUARDRAIL POSTS = 5								3	1	4											

SUMMARY OF PAVEMENT REMOVAL/BREAKING IN SQUARE YARDS

STATION TO STATION	PAVEMENT REMOVAL			PAVEMENT BREAKING		
	LENGTH	WIDTH	SQUARE YARDS	LENGTH	WIDTH	SQUARE YARDS
-L- STA 16+34 TO 16+95	61'	19.4'	131.5 SY			
-L- STA 17+84 TO 18+59	75'	19.6'	163.3 SY			
TOTAL			294.80 SY			
SAY			325 SY			

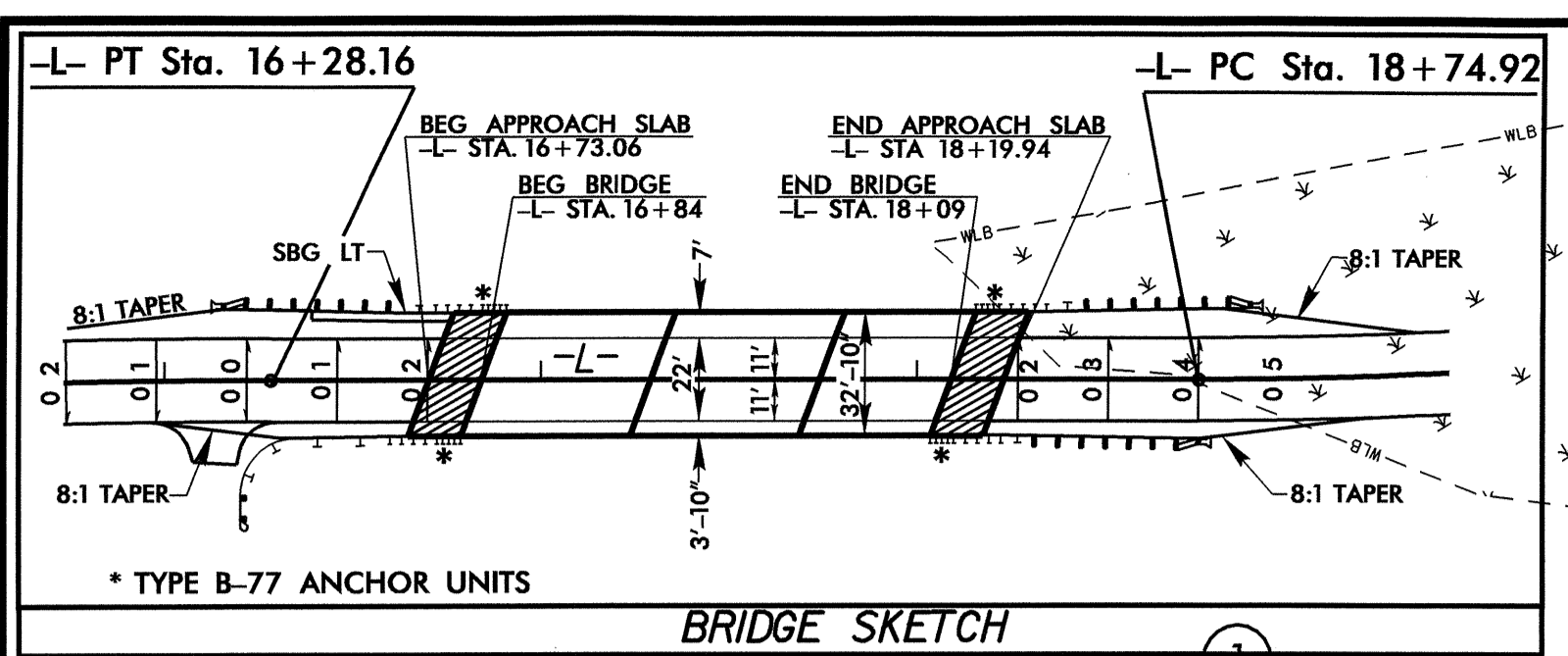
SUMMARY OF EARTHWORK IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- STA 13+06 TO STA 16+88.50	75		207	132	
-L- STA 18+04 TO STA 20+96.00	67		170	103	
SUBTOTAL	142		377	235	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				12	
GRAND TOTAL	142		377	247	
SAY	150			250	

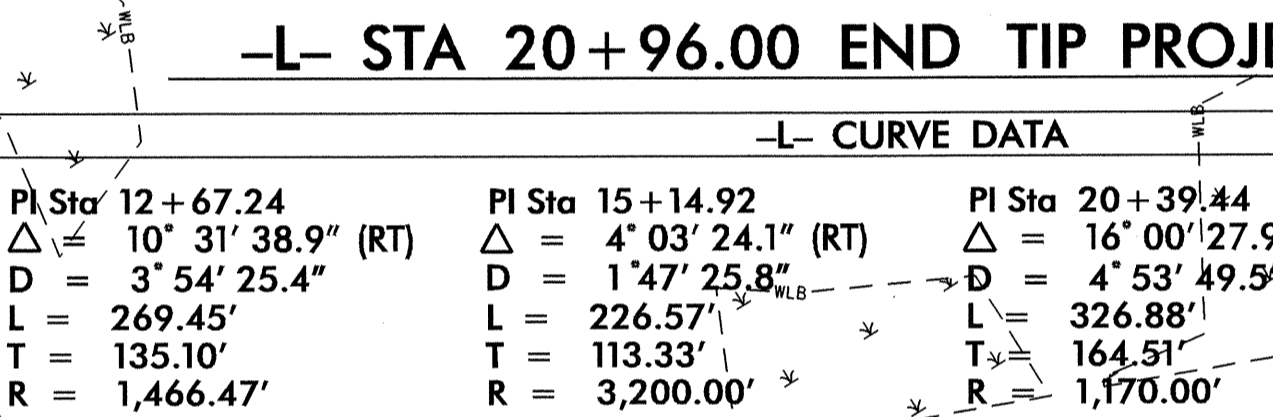
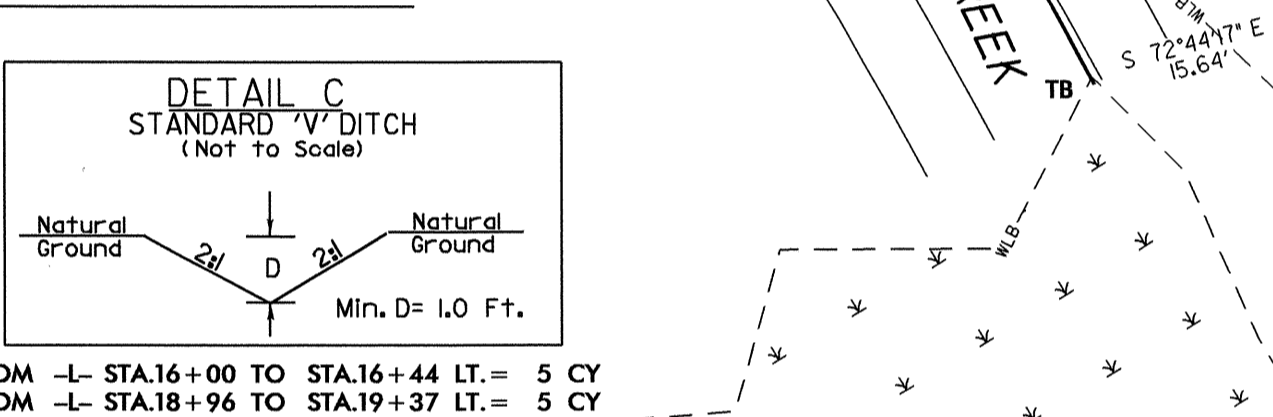
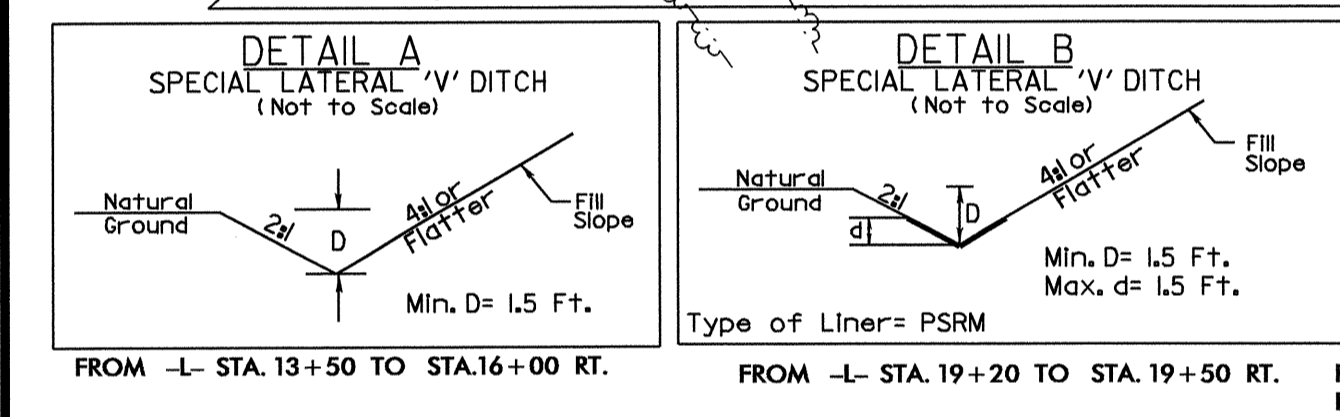
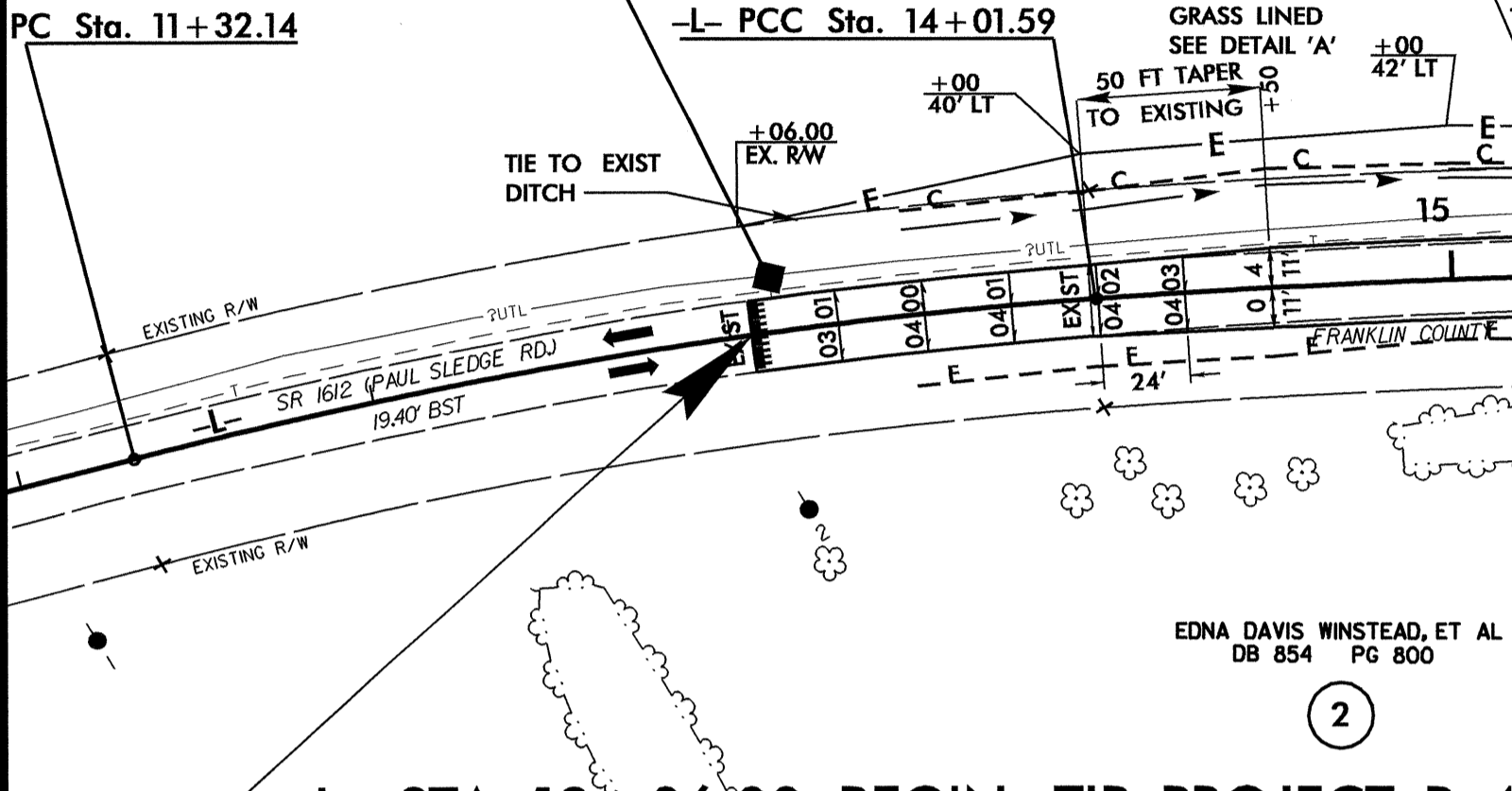
NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION FINE GRADING, CLEARING AND GRUBBING AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE OF GRADING

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

EST DDE = 10 CY
 GEOTECH REC'S
 FABRIC for SOIL STABILIZATION = 200 SY
 SUBDRAIN = 200 FT
 UNDERCUT = 200 CY
 SELECT GRANULAR MATERIAL, CLASS II or III = 200 CY



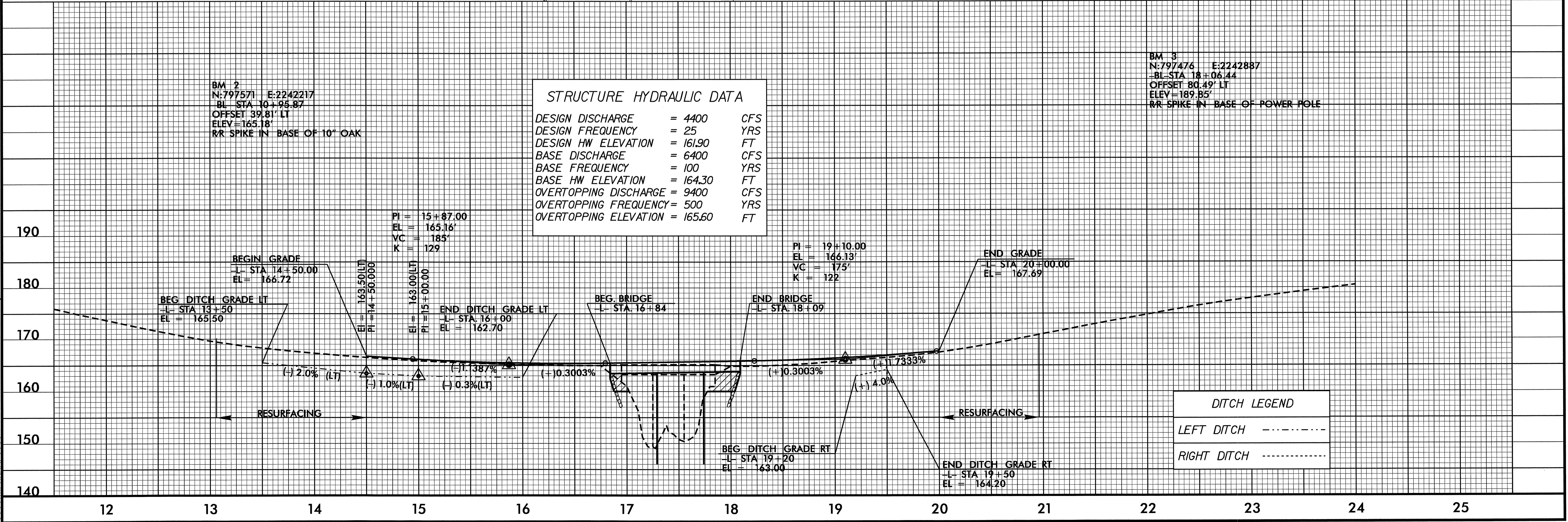
* TYPE B-77 ANCHOR UNITS



-L- CURVE DATA			
PI Sta 12+67.24	PI Sta 15+14.92	PI Sta 20+39.44	PI Sta 23+41.30
$\Delta = 10^\circ 31' 38.9''$ (RT)	$\Delta = 4^\circ 03' 24.1''$ (RT)	$\Delta = 16^\circ 00' 27.9''$ (LT)	$\Delta = 13^\circ 15' 38.5''$ (LT)
D = 3' 54' 25.4"	D = 1' 47' 25.8"	D = 4' 53' 49.5"	D = 4' 46' 28.7"
L = 269.45'	L = 226.57'	L = 326.88'	L = 277.73'
T = 135.10'	T = 113.33'	T = 164.51'	T = 139.49'
R = 1,466.47'	R = 3,200.00'	R = 1,170.00'	R = 1,200.00'

SEE PLANS FOR SUPERELEVATION AND RUNOFF

SEE S-1 THRU S-21 FOR STRUCTURE PLANS



8/17/99
 REVISIONS
 21-MAY-2009 08:45
 F:\ncod\eva\proj\4587\rdy\psrh4.dgn