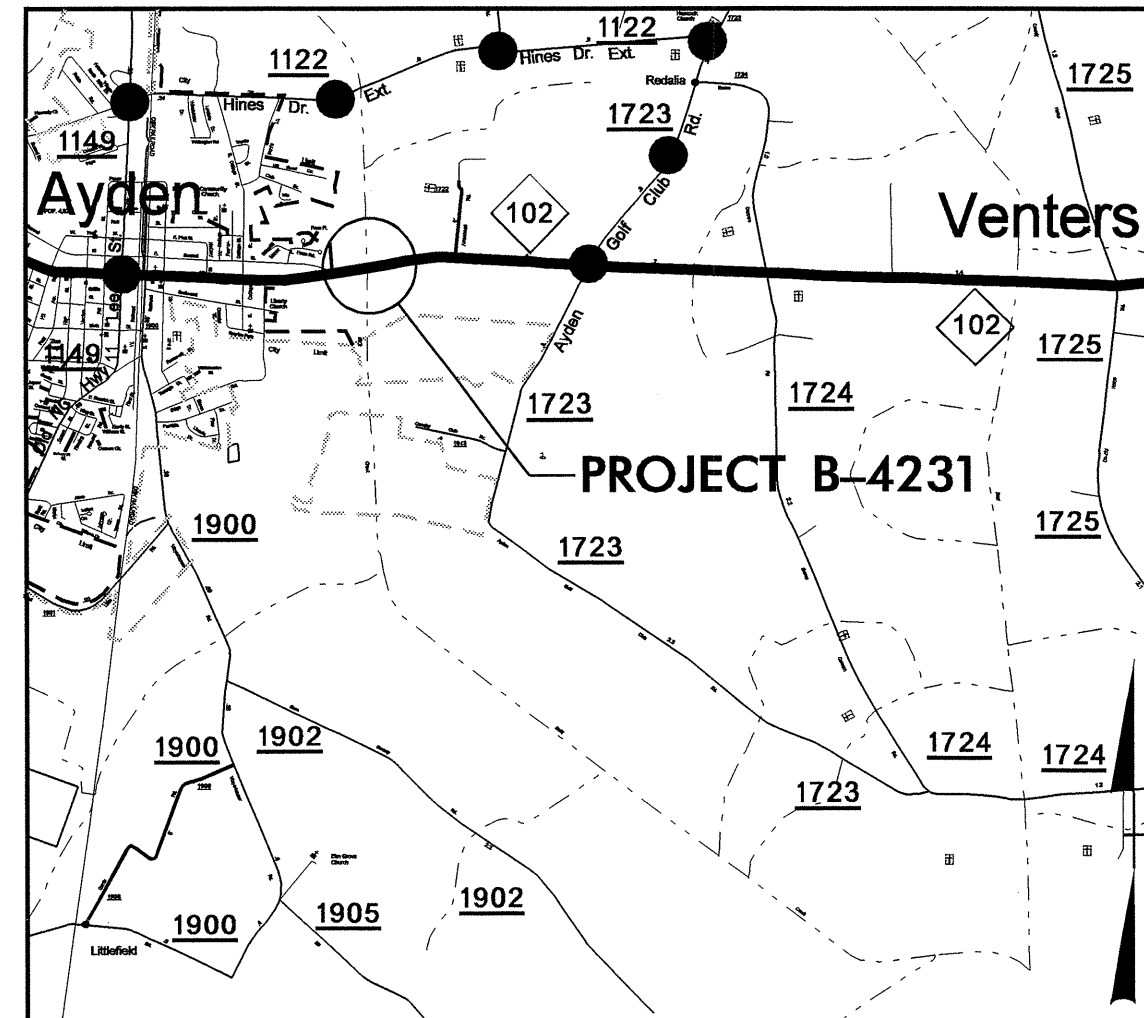


09/28/09

TIP PROJECT: B-4231

CONTRACT: C201587

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional symbols
See Sheet 1-C For Survey Control Sheet



VICINITY MAP

● OFFSITE DETOUR ROUTE
(SEE SHEET 2-A AND 2-B FOR DETOUR IMPROVEMENTS)

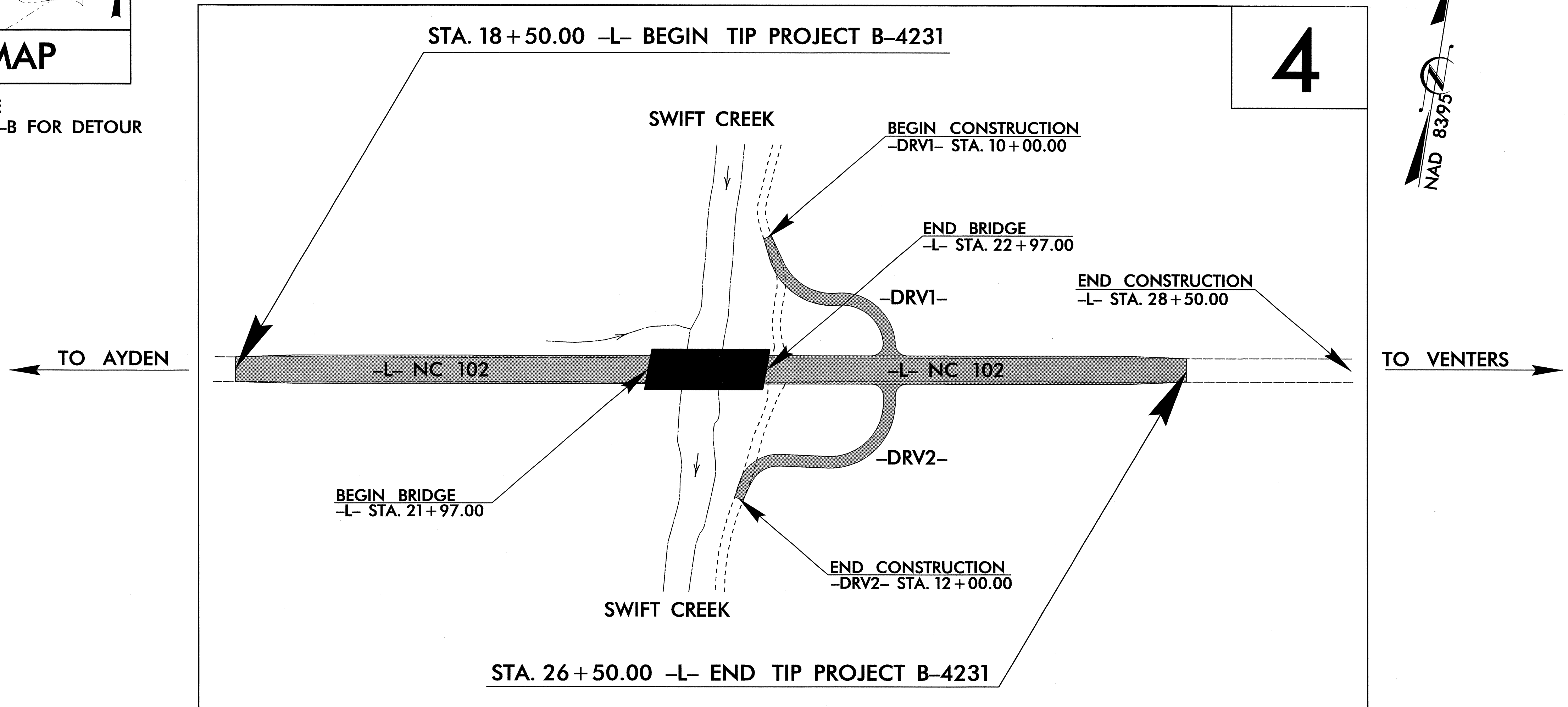
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PITT COUNTY

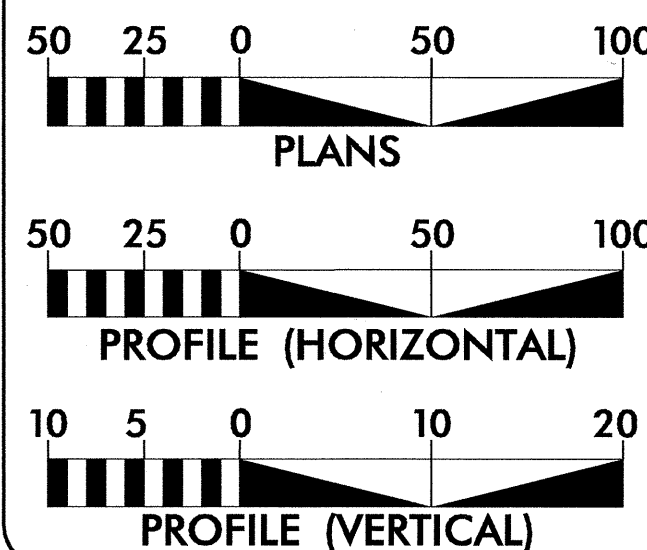
LOCATION: BRIDGE NO. 53 OVER SWIFT CREEK ON NC 102

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4231	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33574.1.1	BRSTP-102(2)	PE	
33574.2.1	BRSTP-102(2)	R/W & UTILITIES	
33574.3.1	BRSTP-102(2)	CONST.	



GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 5035
 ADT 2025 = 7400
 DHV = 60 %
 D = 10 %
 T = 3 % *
 V = 60 MPH
 * TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4231 = 0.133 MILES
 LENGTH STRUCTURE TIP PROJECT B-4231 = 0.019 MILES
 TOTAL LENGTH OF TIP PROJECT B-4231 = 0.152 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 SEPTEMBER 16, 2005

LETTING DATE:
 FEBRUARY 19, 2008

JAMES A. SPEER, PE
 PROJECT ENGINEER

DANNY GARDNER
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Professional Engineer Seal for James A. Speer, No. 20870, dated 11-15-07.

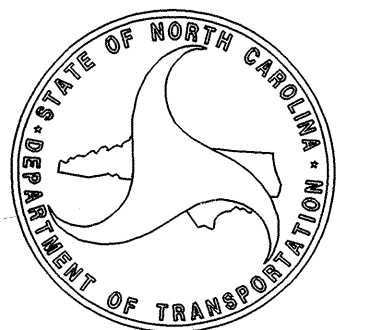
SIGNATURE: [Signature]

ROADWAY DESIGN ENGINEER

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SIGNATURE: [Signature]

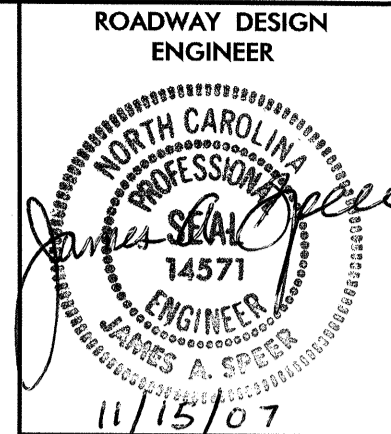
DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA



Professional Engineer Seal for Danny Gardner, No. 20870, dated 11/15/07.

SIGNATURE: [Signature]

09-NOV-2007 09:25
r:\p09\dwg\p09\10\B4231_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$



SHEET NUMBER	INDEX OF SHEETS 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 THRU 2-B	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAIL
2-C	ANCHORAGE FOR FRAMES DETAIL
3	SUMMARY OF QUANTITIES
3-A	DRAINAGE SUMMARY, GUARDRAIL SUMMARY, AND REMOVAL OF EXISTING ASPHALT REMOVAL SUMMARY
3-B	EARTHWORK SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-8	TRAFFIC CONTROL PLANS
PM-1 THRU PM-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-1	CROSS SECTION SUMMARY
X-2 THRU X-10	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.

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

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

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

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

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

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE TOWN OF AYDEN POWER AND EMBARO
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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
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 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
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.51	Brick Manhole - 12" thru 36" Pipe
840.53	Precast Manhole with Masonry Base - 12" thru 42" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
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

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

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:

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: 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.

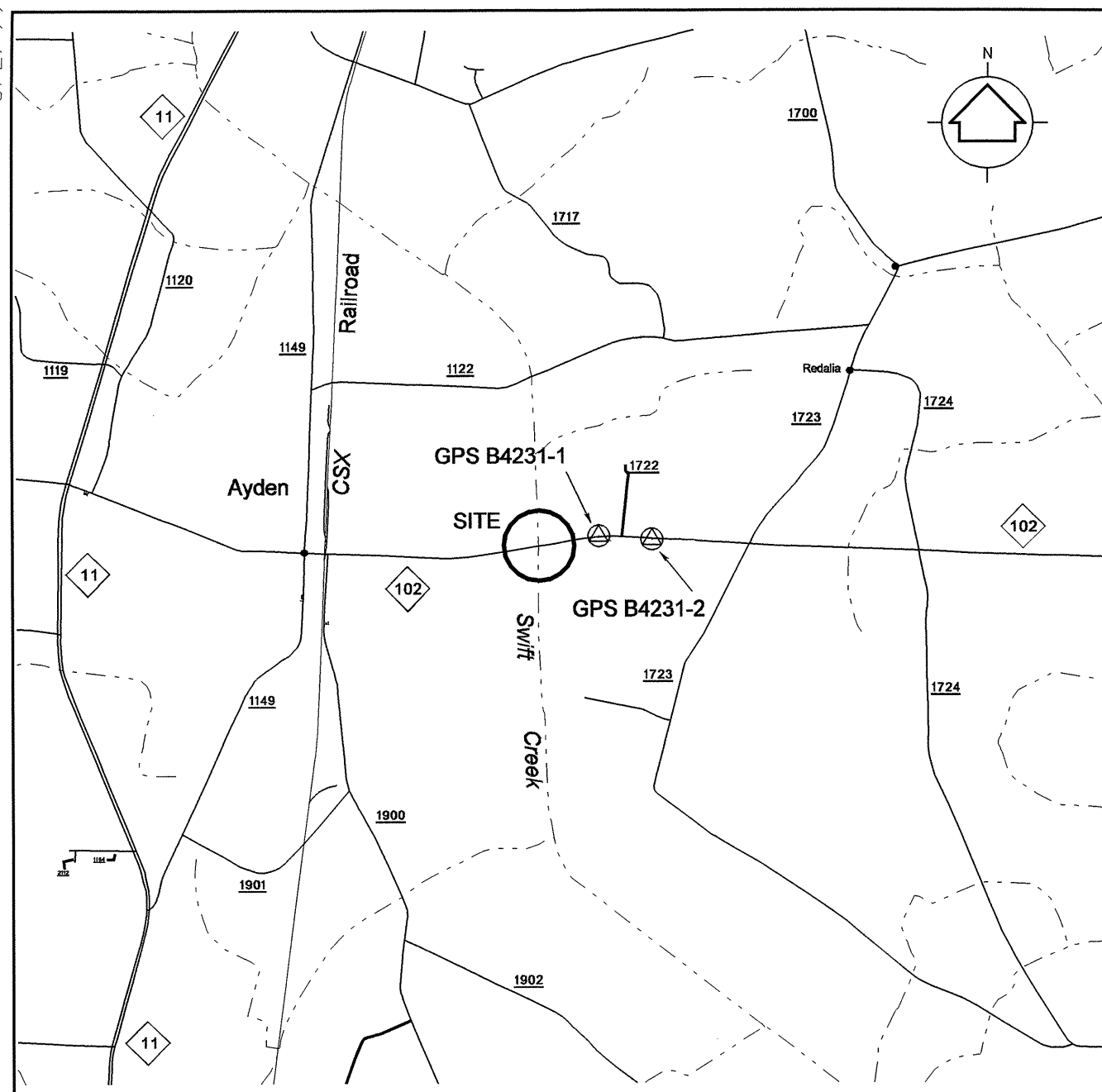
SANITARY SEWER:

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-4231



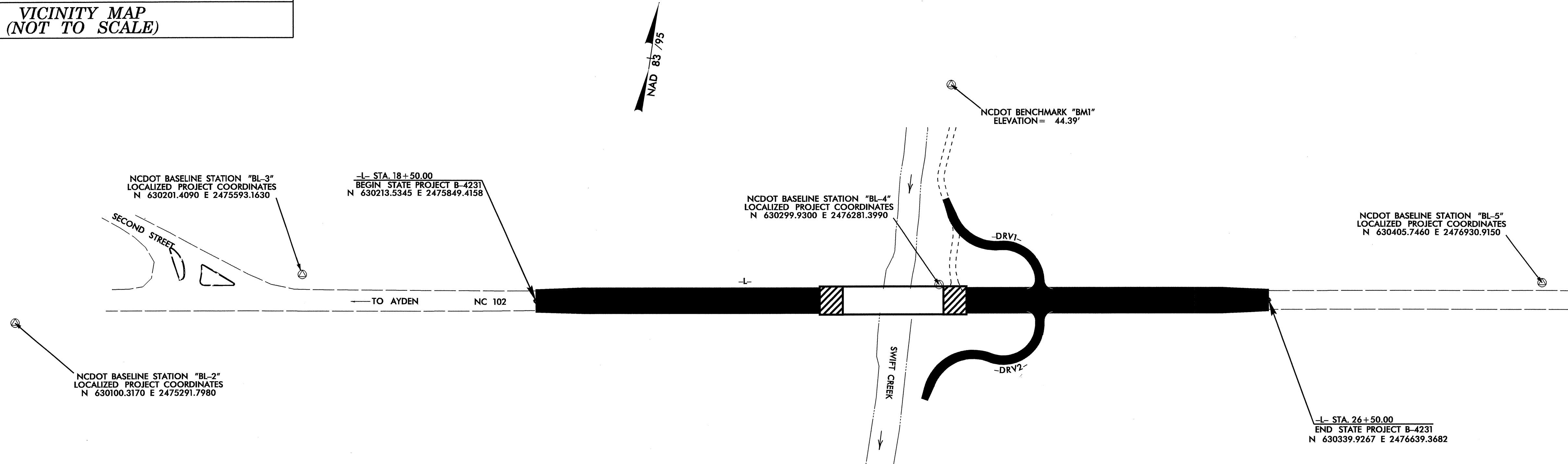
**VICINITY MAP
(NOT TO SCALE)**

CONTROL DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	BL-2	630100.3170	2475291.7980	44.96	12+81.50	23.70 RT
3	BL-3	630201.4090	2475593.1630	41.78	15+95.05	28.51 LT
4	BL-4	630299.9300	2476281.3990	42.70	22+90.21	17.06 LT
5	BL-5	630405.7460	2476930.9150	41.83	29+48.28	18.93 LT

BENCHMARK DATA

.....
 BM1 ELEVATION = 44.39
 N 630518 E 2476260
 L STATION 23+04 235 LEFT
 RR SPIKE SET IN 20" GUM



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4231-1"

WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 630502.6134(ft) EASTING: 247564.8644(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988327

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4231-1" TO L- STATION 18+50.00 IS
 S 80°26'04.8" W 1739.635(ft)

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

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/b4231_ls_control_050223.txt](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/b4231_ls_control_050223.txt)

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

⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

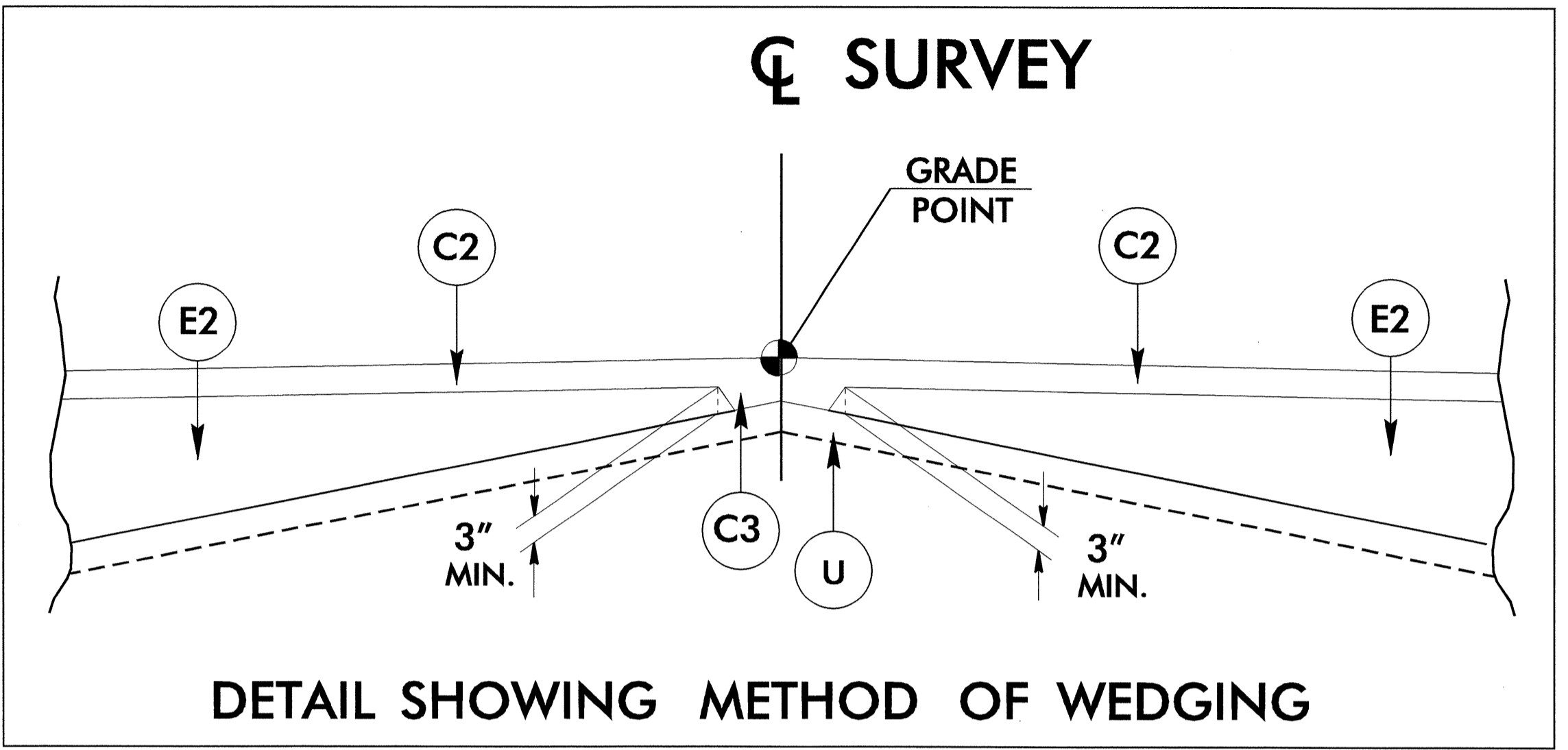
NOTE: DRAWING NOT TO SCALE

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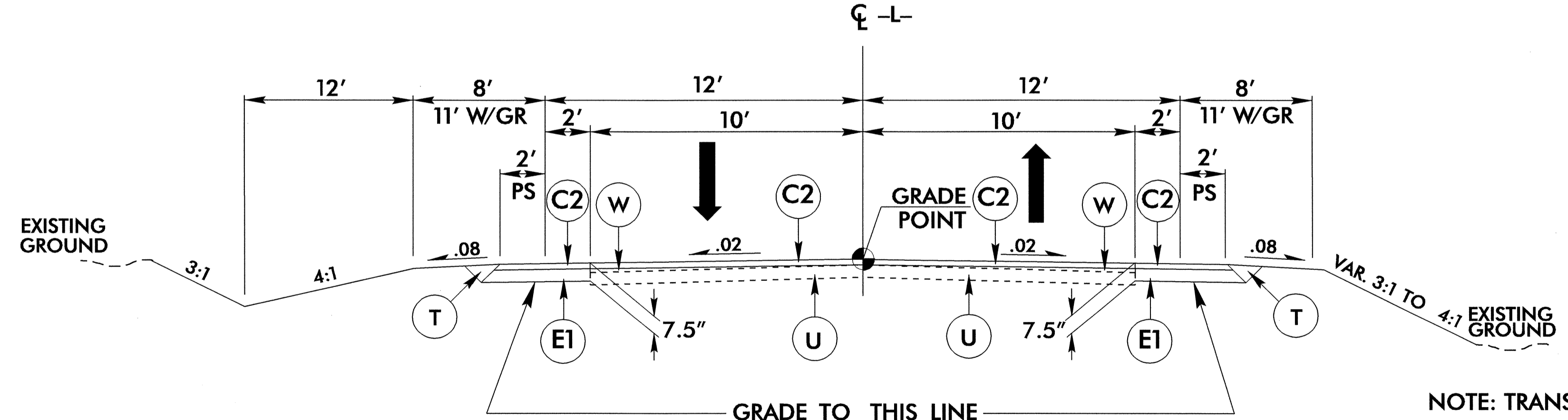
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4231	2
ROADWAY DESIGN ENGINEER JAMES P. SPEER SEAL 14571 11/15/07	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON SEAL 22898 11/15/07

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
E1	PROP. APPROX. 4½" 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 5½" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT (SEE STANDARD WEDGING DETAIL).



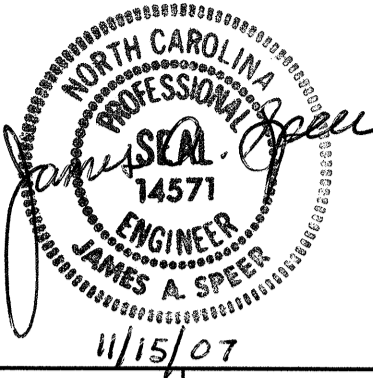
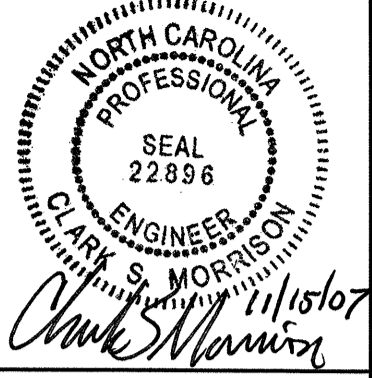
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

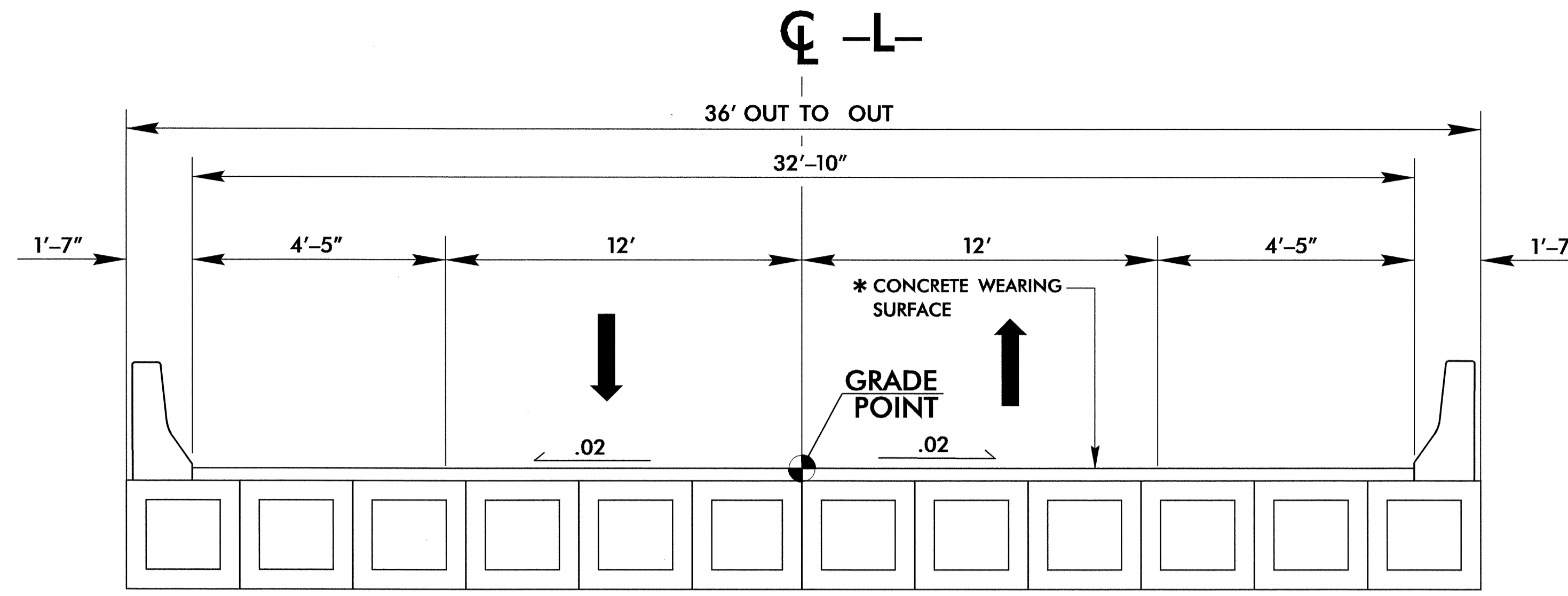


TYPICAL SECTION NO. 1

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
-L- STA. 18+50.00 TO STA. 19+00.00
USE TYPICAL SECTION NO. 1
-L- STA. 19+00.00 TO STA. 21+97.00 (BEGIN BRIDGE)
-L- STA. 22+97.00 (END BRIDGE) TO STA. 26+00.00
NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING
-L- STA. 26+00.00 TO STA. 26+50.00

C:\NOV-2007\15-48-4231_rdy_tjpd.dgn 5:53:59 AM 11/15/07

PROJECT REFERENCE NO. B-4231		SHEET NO. 2-A	
ROADWAY DESIGN ENGINEER 		PAVEMENT DESIGN ENGINEER 	
C1	1 1/2" TYPE S9.5B	C2	3" TYPE S9.5B
C3	VAR. DEPTH TYPE S9.5B	E1	4 1/2" TYPE B25.0B
E2	VAR. DEPTH TYPE B25.0B	J	6" ABC
T	EARTH MATERIAL	U	EXISTING PAVEMENT
W	WEDGING		

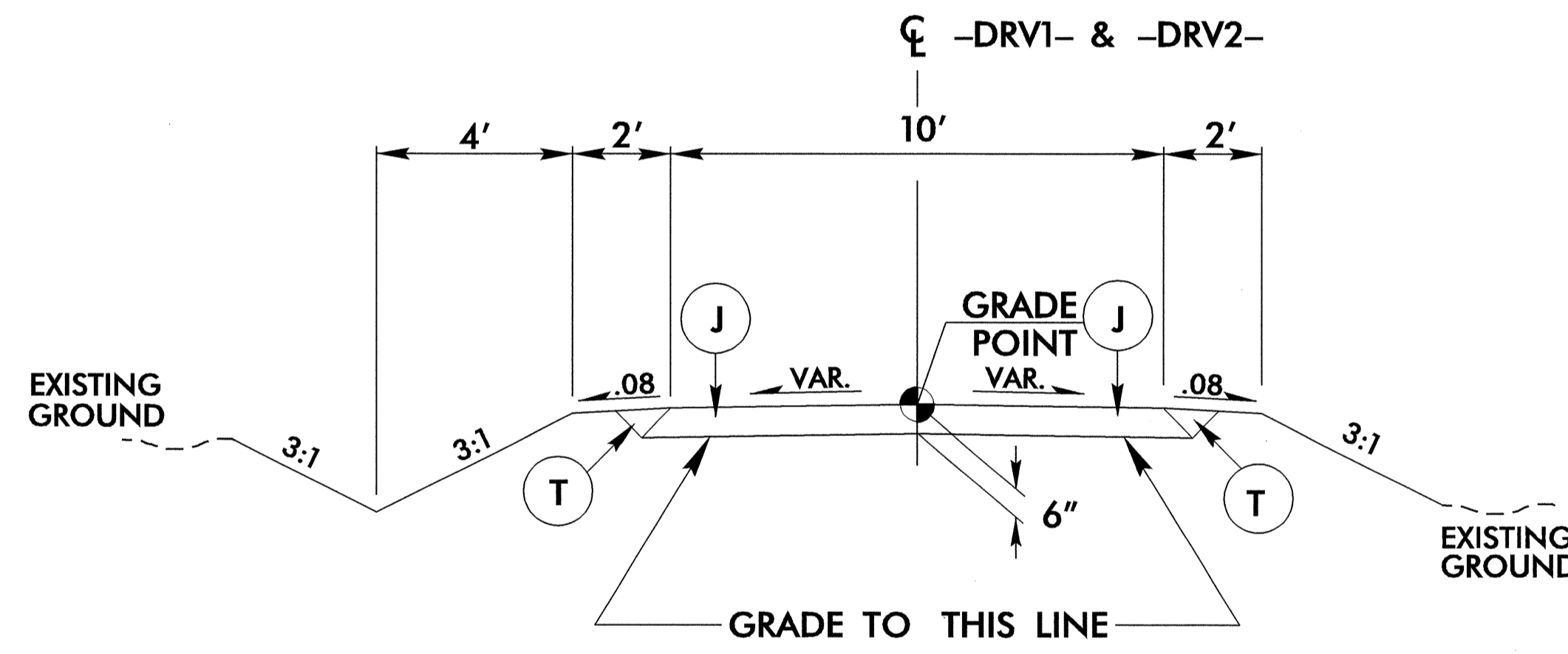


TYPICAL SECTION NO. 2

NOTE: BRIDGE HAS BEEN WIDENED TO ACCOMMODATE HYDRAULIC DESIGN SPREAD.

USE TYPICAL SECTION NO. 2

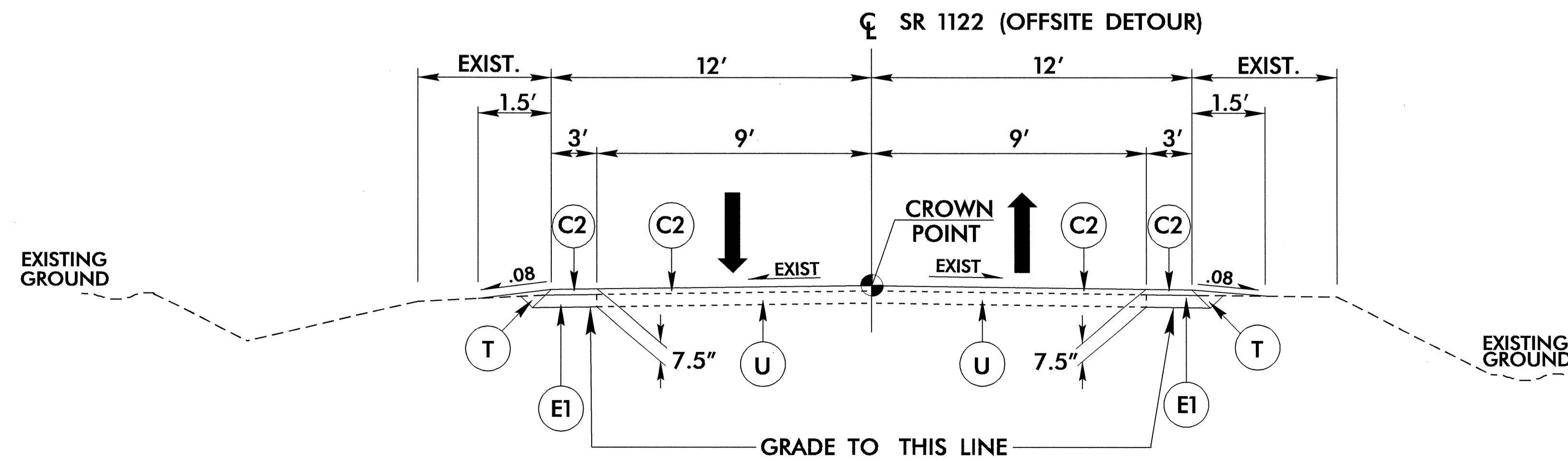
-L- STA. 21+97.00 (BEGIN BRIDGE) TO STA. 22+97.00 (END BRIDGE)
* NOTE: SEE STRUCTURE PLAN SHEET S-4



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-DRV1- STA. 10+00.00 TO STA. 11+60.25
-DRV2- STA. 10+12.00 TO STA. 12+00.00



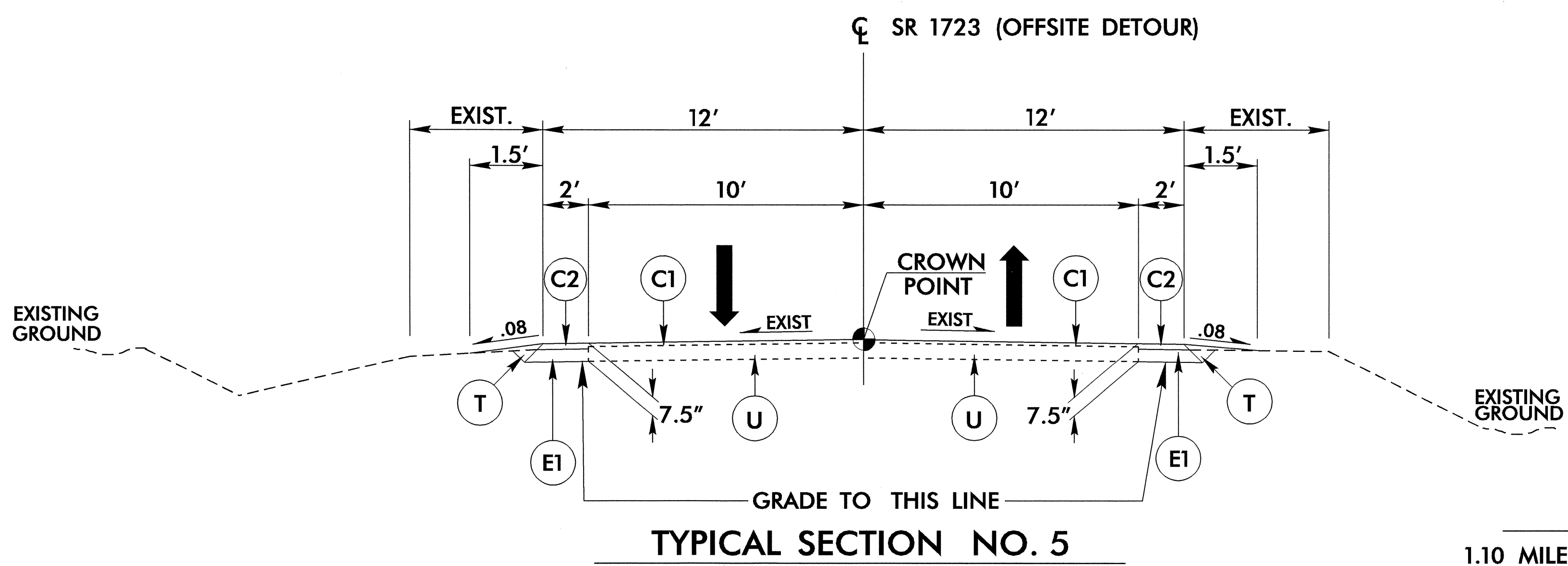
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

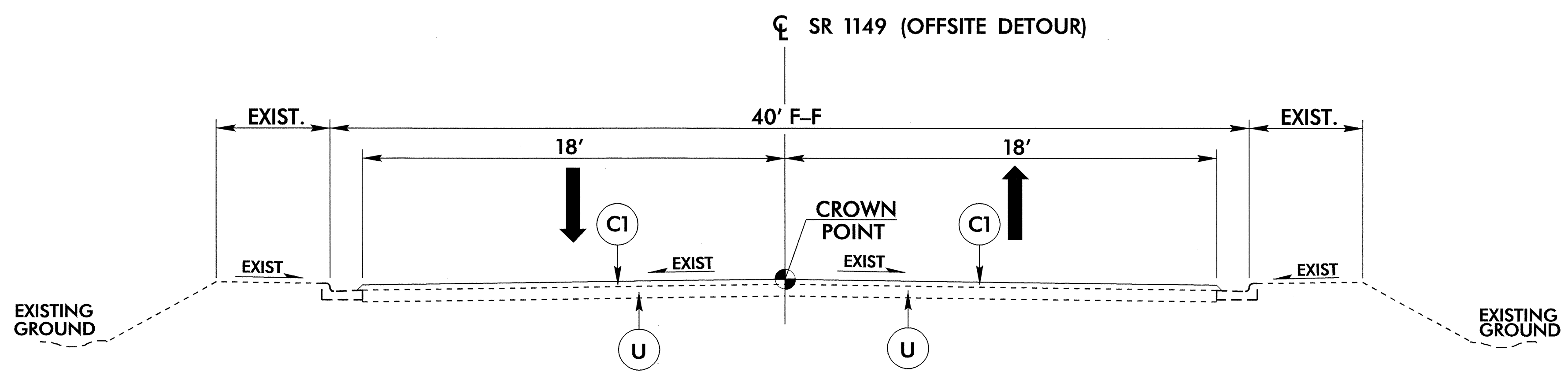
2.05 MILES SR 1122 (HINES DRIVE EXT.)

6/2/99

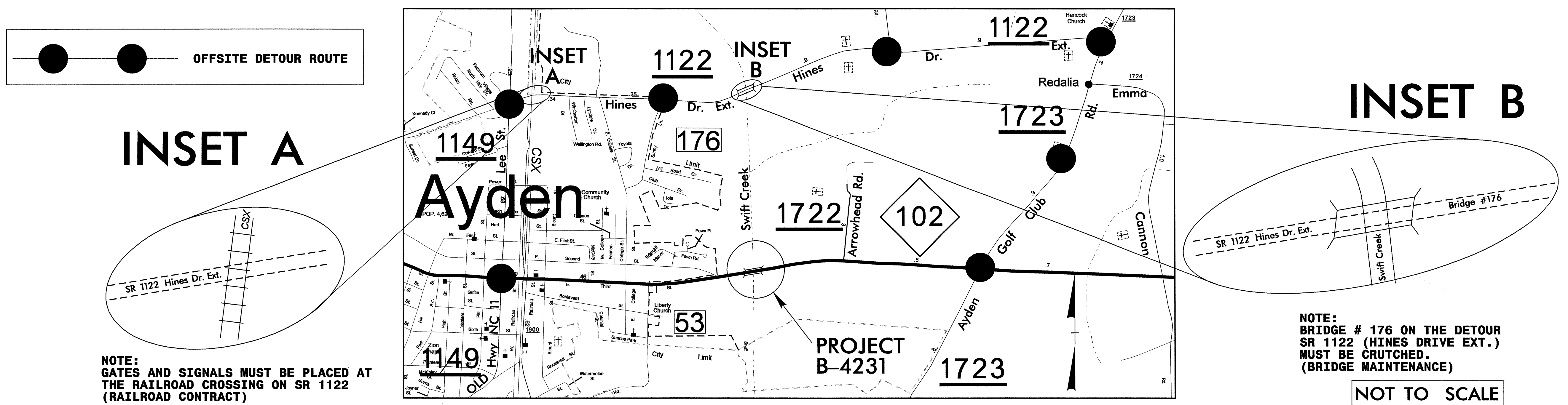
PROJECT REFERENCE NO. B-4231	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 14571 JAMES A. SPEED 11/15/07	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22896 CLARK S. MORRISON 11/15/07
C1	1 1/2" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VAR. DEPTH TYPE S9.5B
E1	4 1/2" TYPE B25.0B
E2	VAR. DEPTH TYPE B25.0B
J	6" ABC
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING



USE TYPICAL SECTION NO. 5
1.10 MILES SR 1723 (AYDEN GOLF CLUB ROAD)



USE TYPICAL SECTION NO. 6
0.68 MILES SR 1149 (LEE STREET)
NOTE: ADD INCIDENTAL STONE FOR APPROX. 27 DRIVEWAY TIE-INS
ALONG THE DETOUR ROUTE. (16' AVG. WIDTH X 12' LONG)



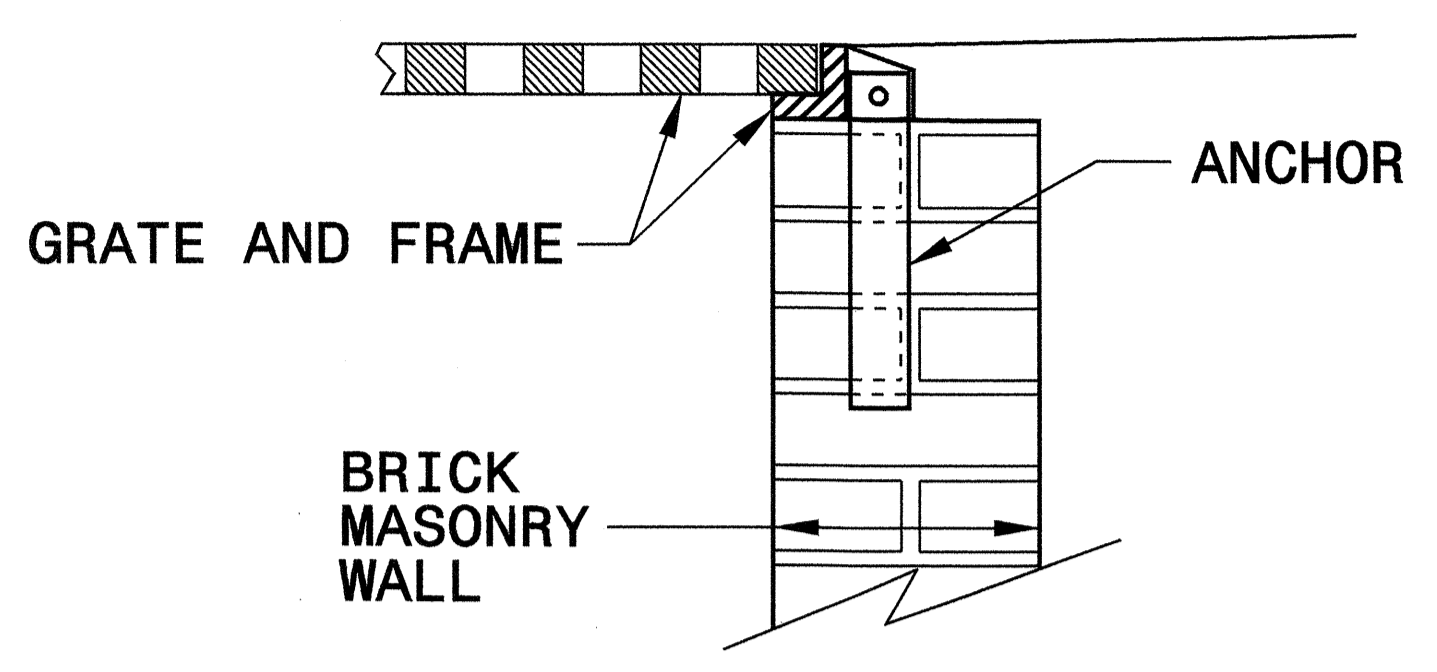
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

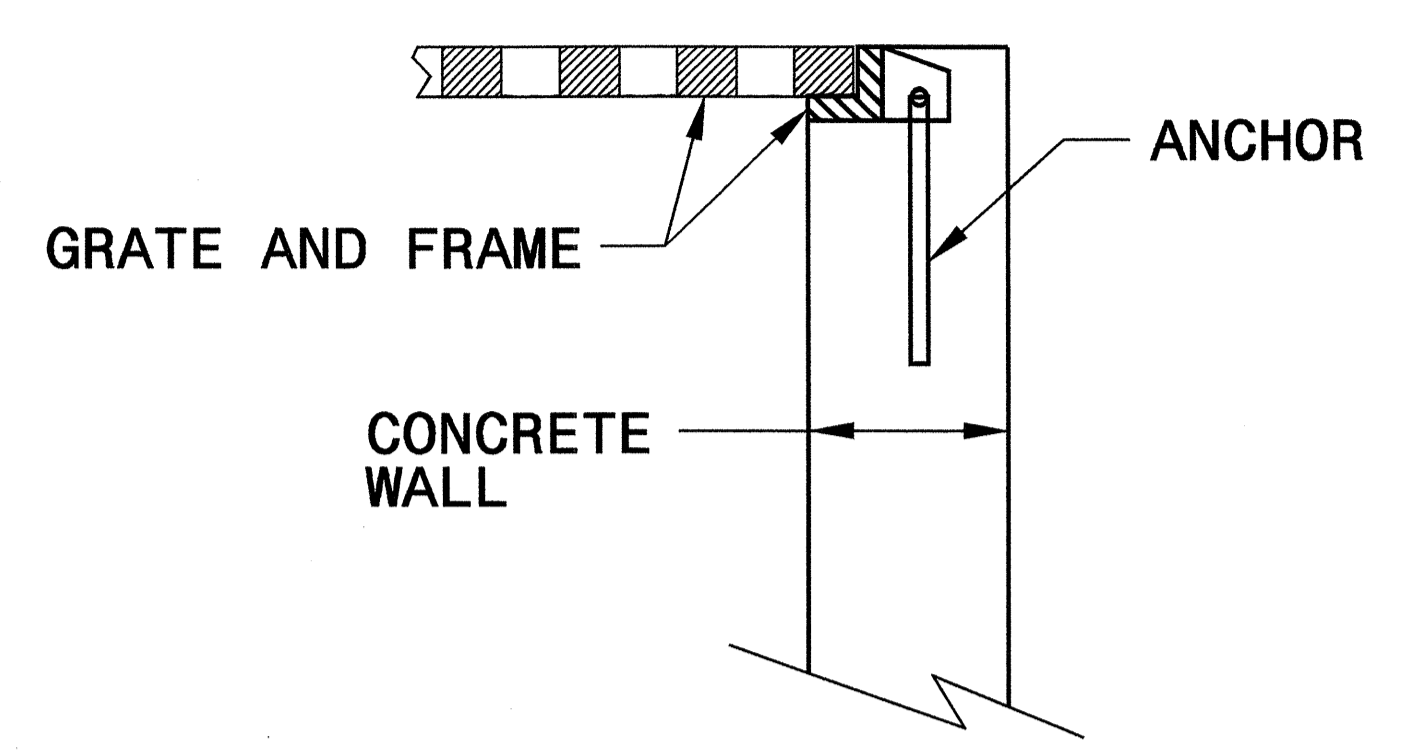
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

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

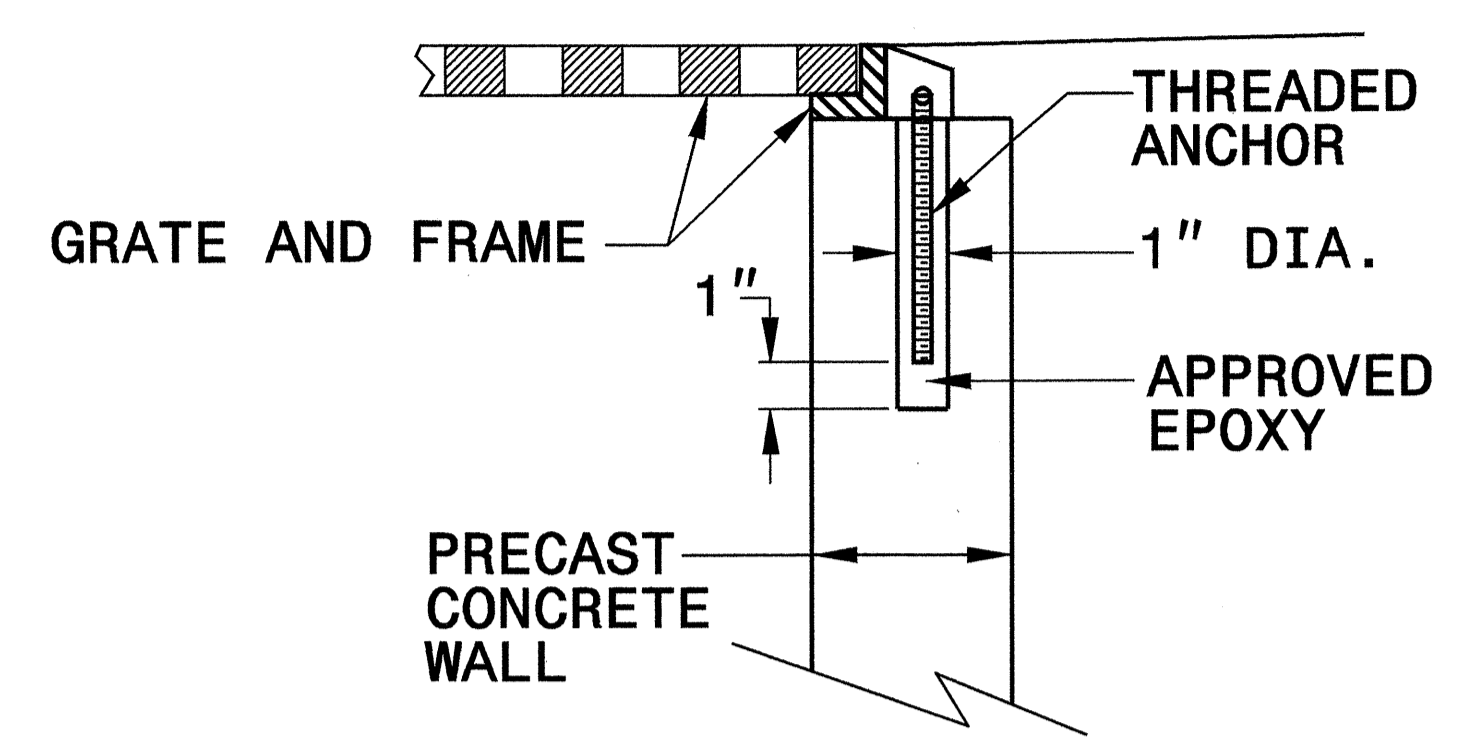
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE



BRICK MASONRY CONSTRUCTION



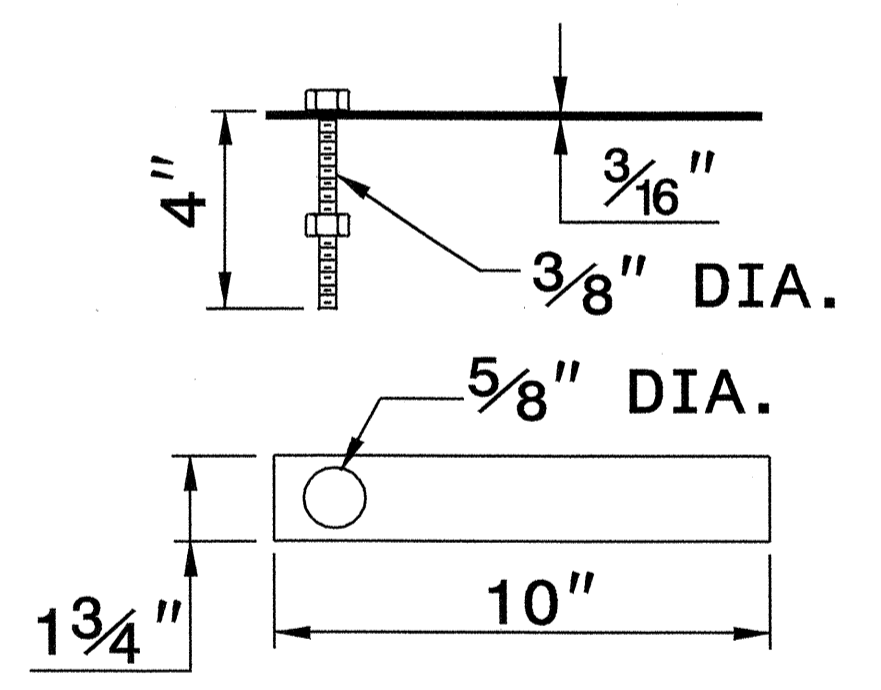
CONCRETE CONSTRUCTION



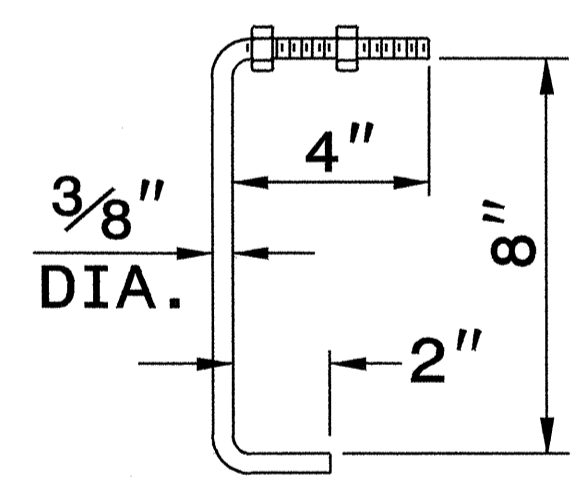
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

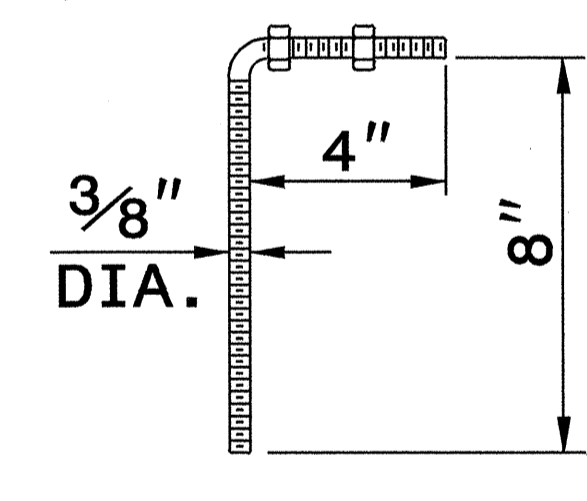
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



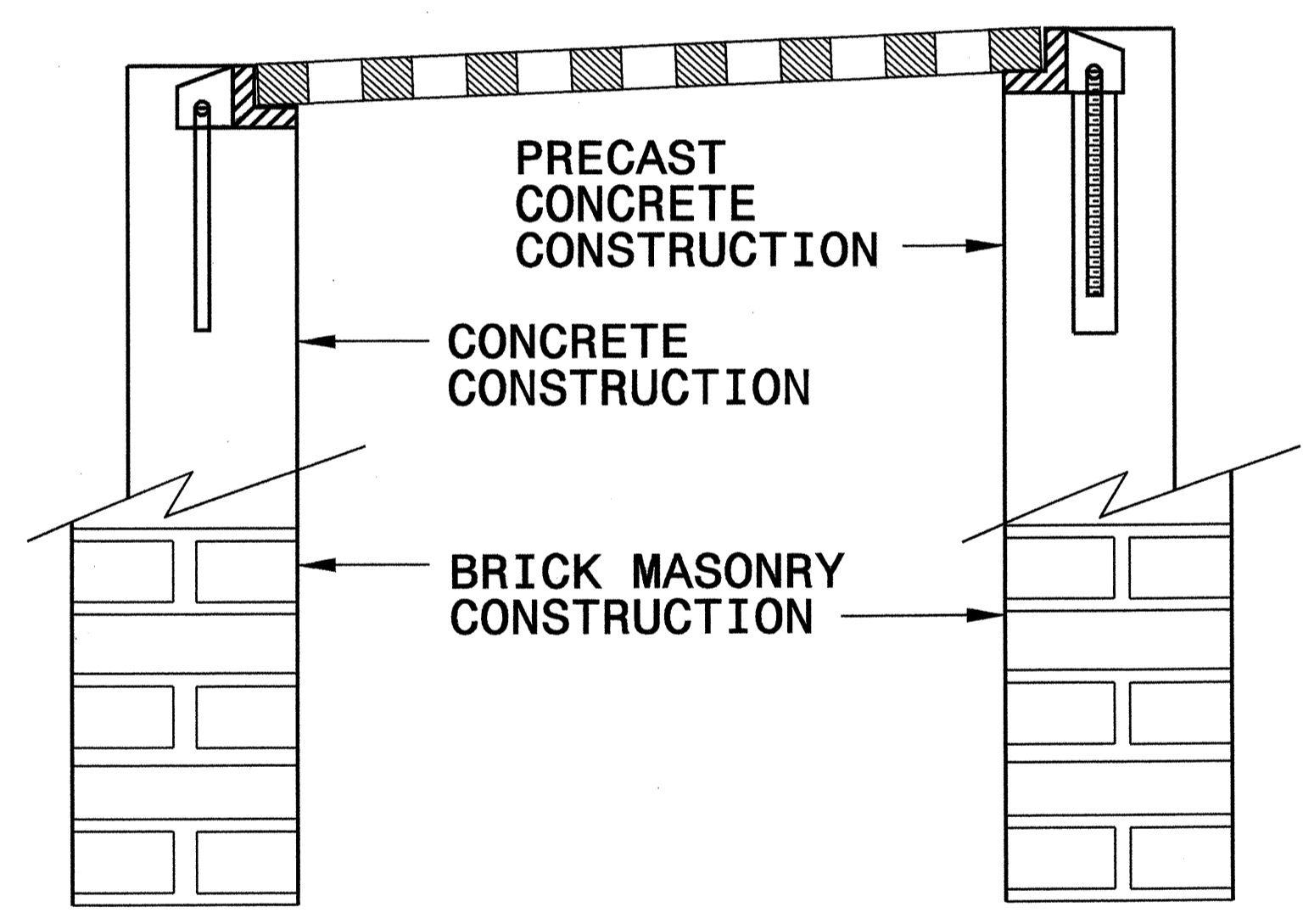
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR

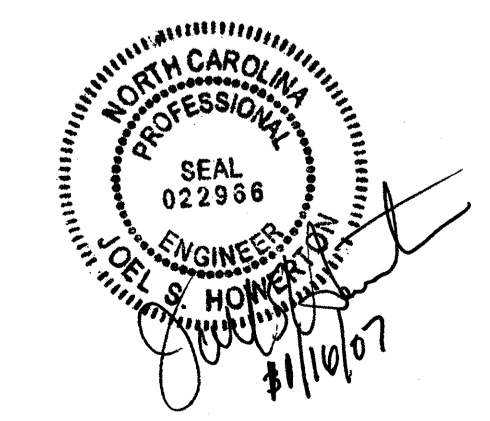


FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

SHEET 1 OF 1
840D25

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.: _____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201587

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (22+47.000 -L-)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB- BING
005700000-E	226	200	CY	UNDERCUT EXCAVATION
013400000-E	240	321	CY	DRAINAGE DITCH EXCAVATION
019600000-E	270	100	SY	FABRIC FOR SOIL STABILIZATION
023400000-E	SP	100	CY	GENERIC GRADING ITEM SELECT GRANULAR MATERIAL
031800000-E	300	160	TON	FOUNDATION CONDITIONING MATE- RIAL, MINOR STRS
034500000-E	310	288	LF	24" SIDE DRAIN PIPE
070800000-E	310	276	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
080600000-E	310	3	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
095000000-E	340	18	LF	PIPE REMOVAL
112100000-E	520	150	TON	AGGREGATE BASE COURSE
122000000-E	545	125	TON	INCIDENTAL STONE BASE
124500000-E	SP	7	SMI	SHOULDER RECONSTRUCTION
148900000-E	610	3,600	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
151900000-E	610	8,060	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
156000000-E	620	639	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
169300000-E	654	70	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
202200000-E	815	30	CY	SUBDRAIN EXCAVATION
203300000-E	815	20	CY	SUBDRAIN FINE AGGREGATE
204400000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
205500000-E	815	3	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
206600000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
207700000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
228600000-N	840	9	EA	MASONRY DRAINAGE STRUCTURES
230800000-E	840	0.3	LF	MASONRY DRAINAGE STRUCTURES
236700000-N	840	5	EA	FRAME WITH TWO GRATES, STD 840.29
239600000-N	840	4	EA	FRAME WITH COVER, STD 840.54
255600000-E	846	340	LF	SHOULDER BERM GUTTER
303000000-E	862	400	LF	STEEL BM GUARDRAIL
315000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
336000000-E	863	100	LF	REMOVE EXISTING GUARDRAIL
364900000-E	876	54	TON	RIP RAP, CLASS B
365600000-E	876	219	SY	FILTER FABRIC FOR DRAINAGE
402500000-E	901	22	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
408200000-E	903	54	LF	SUPPORTS, WOOD
410200000-N	904	3	EA	SIGN ERECTION, TYPE E
415800000-N	907	5	EA	DISPOSAL OF SIGN SYSTEM, WOOD
440000000-E	1110	1,092	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	288	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	89	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
442000000-N	1120	1	EA	CHANGEABLE MESSAGE SIGN
443000000-N	1130	160	EA	DRUMS
444500000-E	1145	80	LF	BARRICADES (TYPE III)
445500000-N	1150	45	MD	FLAGGER

ItemNumber	Sec #	Quantity	Unit	Description
468500000-E	1205	1,400	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
468600000-E	1205	175	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
471500000-E	1205	230	LF	THERMOPLASTIC RUMBLE STRIP (4" 240 MILS)
477000000-E	1205	225	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (TYPE 3)
481000000-E	1205	227,530	LF	PAINT PAVEMENT MARKING LINES (4")
482000000-E	1205	720	LF	PAINT PAVEMENT MARKING LINES (8")
483000000-E	1205	240	LF	PAINT PAVEMENT MARKING LINES (16")
483500000-E	1205	576	LF	PAINT PAVEMENT MARKING LINES (24")
484000000-N	1205	12	EA	PAINT PAVEMENT MARKING CHARAC- TER
484500000-N	1205	24	EA	PAINT PAVEMENT MARKING SYMBOL
485000000-E	1205	230	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
487000000-E	1205	12	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
490000000-N	1251	288	EA	PERMANENT RAISED PAVEMENT MARKERS
600000000-E	1605	850	LF	TEMPORARY SILT FENCE
600600000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	135	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	65	TON	SEDIMENT CONTROL STONE
601500000-E	1615	2	ACR	TEMPORARY MULCHING
601800000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEED- ING
602400000-E	1622	90	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	2	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS

ItemNumber	Sec #	Quantity	Unit	Description
602900000-E	SP	300	LF	SAFETY FENCE
603000000-E	1630	210	CY	SILT EXCAVATION
603600000-E	1631	175	SY	MATTING FOR EROSION CONTROL
604200000-E	1632	150	LF	1/4" HARDWARE CLOTH
608400000-E	1660	2	ACR	SEEDING & MULCHING
608700000-E	1660	1.5	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	1.5	TON	FERTILIZER TOPDRESSING
611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
612300000-E	1670	0.1	ACR	REFORESTATION

***** BEGIN SCHEDULE AA ***** ***** (3 ALTERNATES) *****				
037200000-E AA1	310	592	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E AA1	310	352	LF	24" RC PIPE CULVERTS, CLASS III
*** OR ***				
053600000-E AA2	SP	592	LF	*** HDPE PIPE CULVERTS (18")
053600000-E AA2	SP	352	LF	*** HDPE PIPE CULVERTS (24")
*** OR ***				
054000000-E AA3	SP	592	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (18", 0.064")
054000000-E AA3	SP	352	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (24", 0.064")
***** END SCHEDULE AA *****				

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

STATION	LOCATION (L/RT, OR C)	STRUCTURE NO.	TOP 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 C.S. PIPE, TYPE IR ALUMINIZED OR HDPE PIPE, TYPE S OR D						ENDWALLS		FRAME GRATES AND HOOD STANDARD 840.03	CORR. STEEL ELBOWS NO. & SIZE	PIPE REMOVAL LIN. FT.	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"	STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE)	CU. YDS.
																								R.C.P.	C.S.P.					QUANTITIES FOR DRAINAGE STRUCTURES	PER EACH (0' THRU 5.0')				
-L- STA. 19+39	RT.	1	42.4																					1			1	1							
		1	OUT	39.2	36.0																												1@15"		
-L- STA. 20+94	LT.	2	43.0																						1			1							
		3		39.9	39.8																														
-L- STA. 20+94	RT.	3	43.0																						1			1							
		3	OUT	39.8	35.7																												1@15"		
-L- STA. 23+33	LT.	4	43.3																						1			1							
		4	5	40.2	40.1																														
-L- STA. 23+33	RT.	5	43.3																						1			1							
		5	6	40.1	39.7																														
-L- STA. 24+49	RT.	6	43.4																						1										
		6	OUT	39.7	35.6																												1@15"		
-L- STA. 20+00	LT.	7	40.8																						1										
		7	IN	36.1	36.0																														
		7	OUT	36.0	35.0																														
-L- STA. 25+50	LT.	8	40.8																						1										
		8	IN	36.2	36.0																														
		8	OUT	36.0	35.0																														
-L- STA. 25+50	RT.	9	41.2																						1	0.3									
		9	IN	36.1	35.9																														
		9	OUT	35.9	35.0																														
-L- STA. 23+40	LT.	10																																	
		10																																	
-L- STA. 23+40	RT.	11																																	
		11																																	
-L- STA. 22+00	RT.	12																																	
		12																																	
PROJECT TOTAL																																			

GUARDRAIL SUMMARY

"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

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 EA G NG	GUARDRAIL REMOVAL	REMARKS			
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	TYPE B-77										
-L-	18+81.30	21+93.80	RT	312.50					8	11														30		
-L-	22+93.80	23+81.30	RT	87.50					8	11														15		
-L-	20+37.35	21+99.85	LT	162.50					8	11														30		
-L-	22+99.85	23+87.35	LT	87.50					8	11														15		
SUB-TOTAL				650.00																				90		
LESS DEDUCTIONS FOR ANCHORS																										
GRAU-350 4@50 =				-200																						
TYPE B-77 4@18.75 =				-75																						
PROJECT TOTAL				375.00																					90	
ADDITIONAL GUARDRAIL POSTS = 10 EA.				SAY 400.00																					100	

**SUMMARY OF PAVEMENT REMOVAL
 IN SQUARE YARDS**

STATION TO STATION	ASPHALT REMOVAL
-L- STA. 21+73 TO STA. 22+06	73.33
-L- STA. 22+82 TO STA. 23+21	86.67
TOTAL	160.00
SAY	180.00

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SUMMARY OF EARTHWORK IN CUBIC YARDS

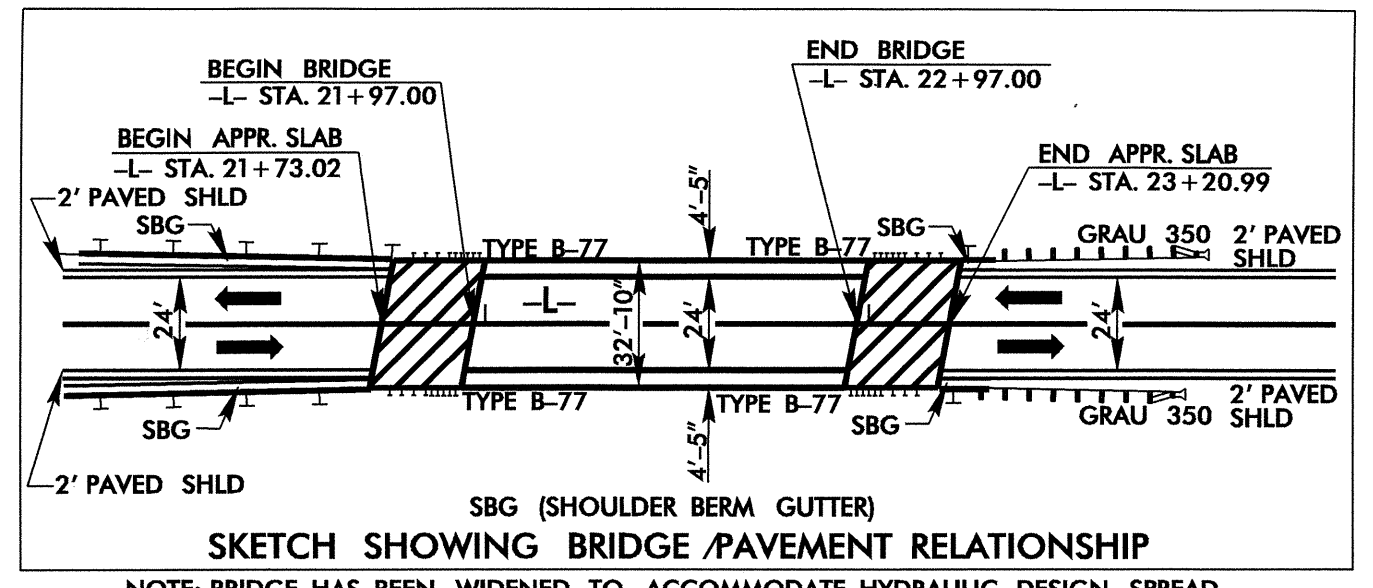
LOCATION	UNCL. EXCAVATION	EMBT + %	BORROW	WASTE
SUMMARY NO. 1				
-L- STA 18+50.00 TO 21+97.00 (BEG BRG)	2	982	980	
TOTAL SUMMARY NO. 1	2	982	980	
SUMMARY NO. 2				
-L- STA 22+97.00 (END BRG) TO 26+50.00	192	1177	985	
-DRV1- STA 10+00.00 TO 11+60.25	11	409	398	
-DRV2- STA 10+12.00 TO 12+00.00	12	510	498	
TOTAL SUMMARY NO. 2	215	2096	1881	
SUMMARY TOTALS				
5% TO REPLACE TOPSOIL IN BORROW PIT			143	
PROJECT TOTAL	217		3004	
SAY	250 YD³		3030 YD³	
UNDERCUT = 200 CY	FABRIC FOR SOIL STABILIZATION = 100 SY			
SELECT GRANULAR = 100 CY	DRAINAGE DITCH EXCAVATION = 321 CY			

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

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.

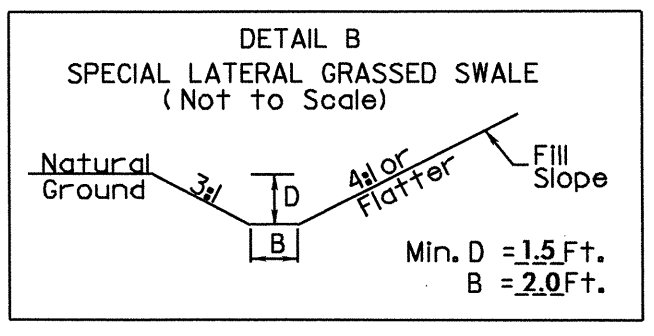
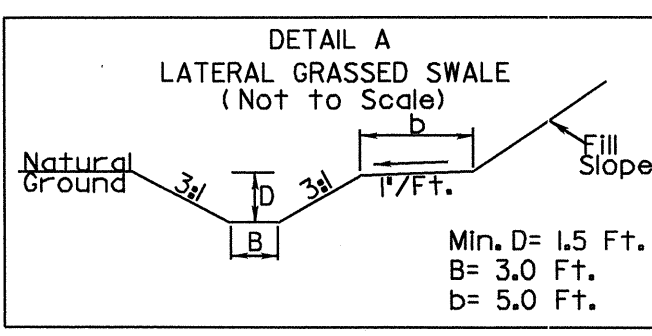
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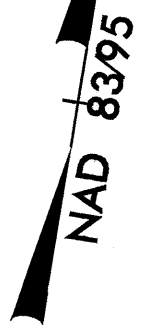
-DRV1-	
PI Sta 10+58.65	PI Sta 11+29.60
$\Delta = 74^{\circ} 48' 30.8''$ (LT)	$\Delta = 95^{\circ} 19' 43.9''$ (RT)
$D = 114^{\circ} 35' 29.6''$	$D = 143^{\circ} 14' 22.0''$
$L = 65.28'$	$L = 66.55'$
$T = 38.23'$	$T = 43.90'$
$R = 50.00'$	$R = 40.00'$
$SE = VAR.$	$SE = VAR.$

-DRV2-	
PI Sta 10+80.00	PI Sta 11+70.70
$\Delta = 92^{\circ} 18' 58.1''$ (RT)	$\Delta = 72^{\circ} 26' 14.2''$ (LT)
$D = 114^{\circ} 35' 29.6''$	$D = 190^{\circ} 59' 09.4''$
$L = 80.56'$	$L = 37.93'$
$T = 52.06'$	$T = 21.97'$
$R = 50.00'$	$R = 30.00'$
$SE = VAR.$	$SE = VAR.$



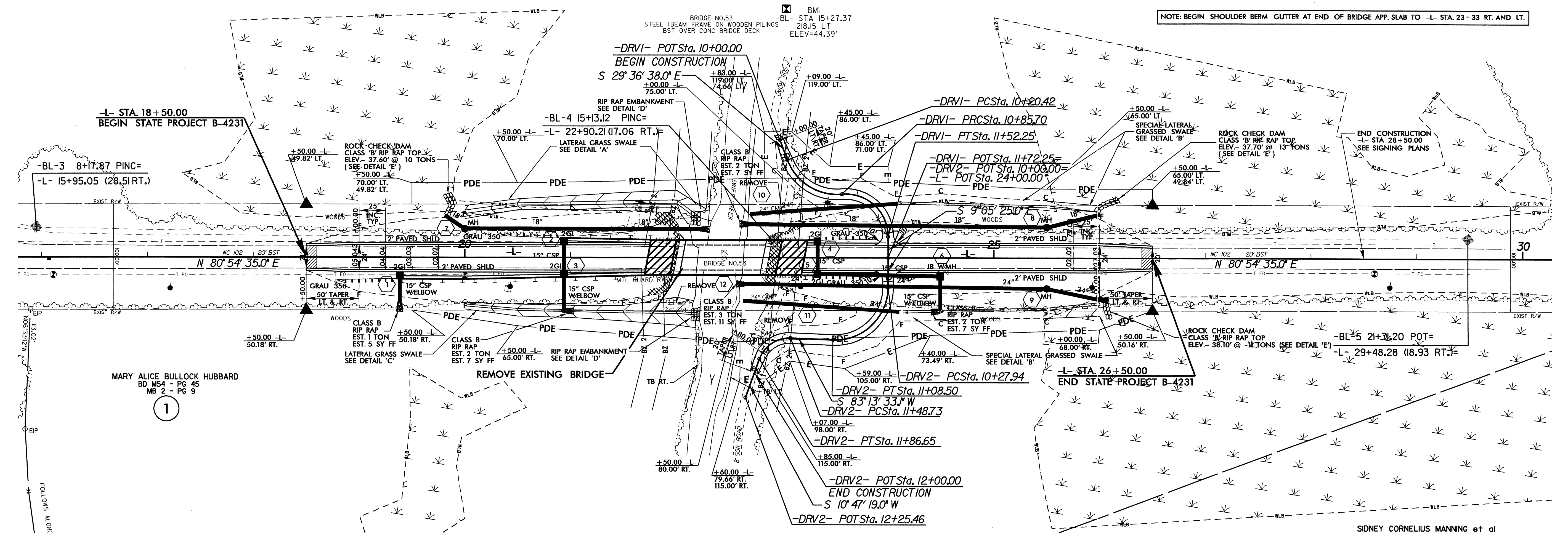
FROM STA. 20+00 -L- TO STA. 22+20 -L- LT.
DDE = 156 CY

FROM STA. 24+05 -L- TO 26+00 -L- LT.
FROM STA. 24+10 -L- TO 26+00 -L- RT.



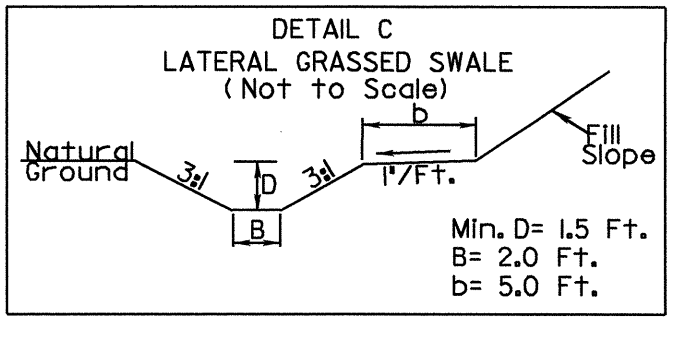
1
MARY ALICE BULLOCK HUBBARD
BD M54 - PG 45
MB 2 - PG 9
NOTE: BEGIN SHOULDER BERM GUTTER -L- STA. 19+39 TO BEGIN BRIDGE APP. SLAB RT.
BEGIN SHOULDER BERM GUTTER -L- STA. 20+94 TO BEGIN BRIDGE APP. SLAB LT.

NOTE: BEGIN SHOULDER BERM GUTTER AT END OF BRIDGE APP. SLAB TO -L- STA. 23+33 RT. AND LT.

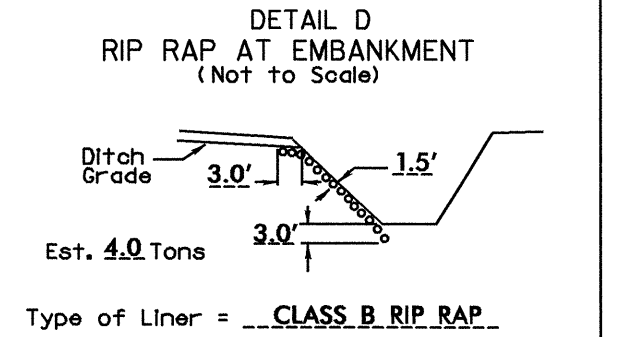


1
MARY ALICE BULLOCK HUBBARD
BD M54 - PG 45
MB 2 - PG 9

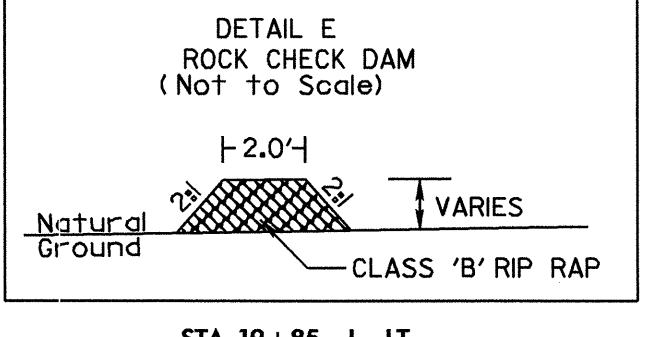
SIDNEY CORNELIUS MANNING et al
DB 337 - PG 485
DB 268 - PG 423



FROM STA. 20+00 -L- TO STA. 22+20 -L- RT.
DDE = 165 CY



FROM STA. 22+20 -L- LT.
FROM STA. 22+20 -L- RT.



STA. 19+85 -L- LT.
STA. 26+00 -L- LT.
STA. 26+00 -L- RT.

SEE SHEET 5 FOR -L-, -DRV1-, & -DRV2- PROFILES
SEE SHEETS S-1 THRU S-18 FOR STRUCTURE PLANS

REVISIONS

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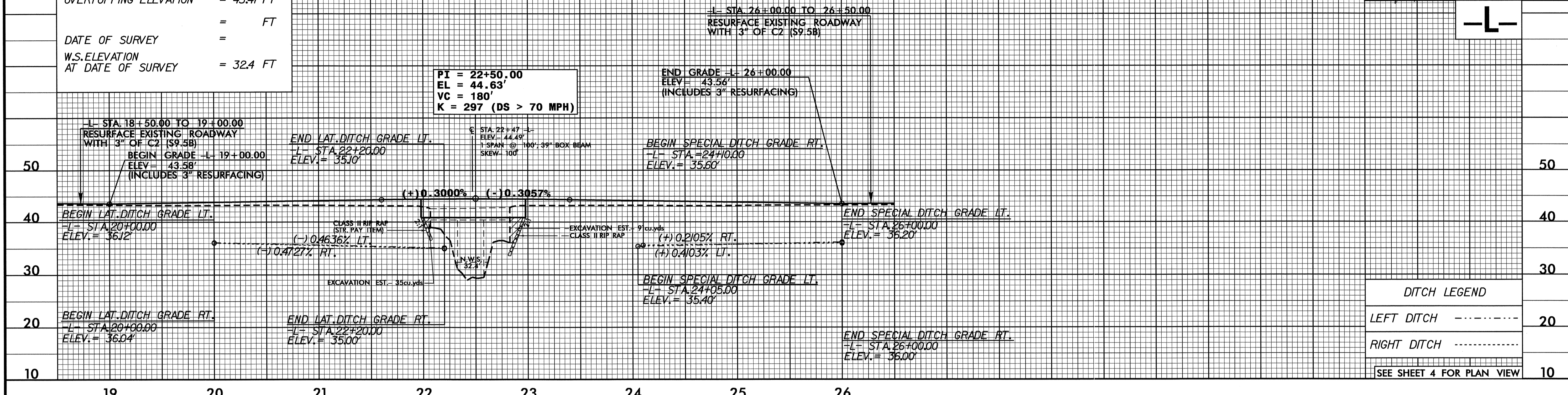
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 2400 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 40.14 FT
 BASE DISCHARGE = 3000 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 41.48 FT
 OVERTOPPING DISCHARGE = 4800 CFS
 OVERTOPPING FREQUENCY = 500 YRS
 OVERTOPPING ELEVATION = 43.47 FT

DATE OF SURVEY = FT
 W.S. ELEVATION AT DATE OF SURVEY = 32.4 FT

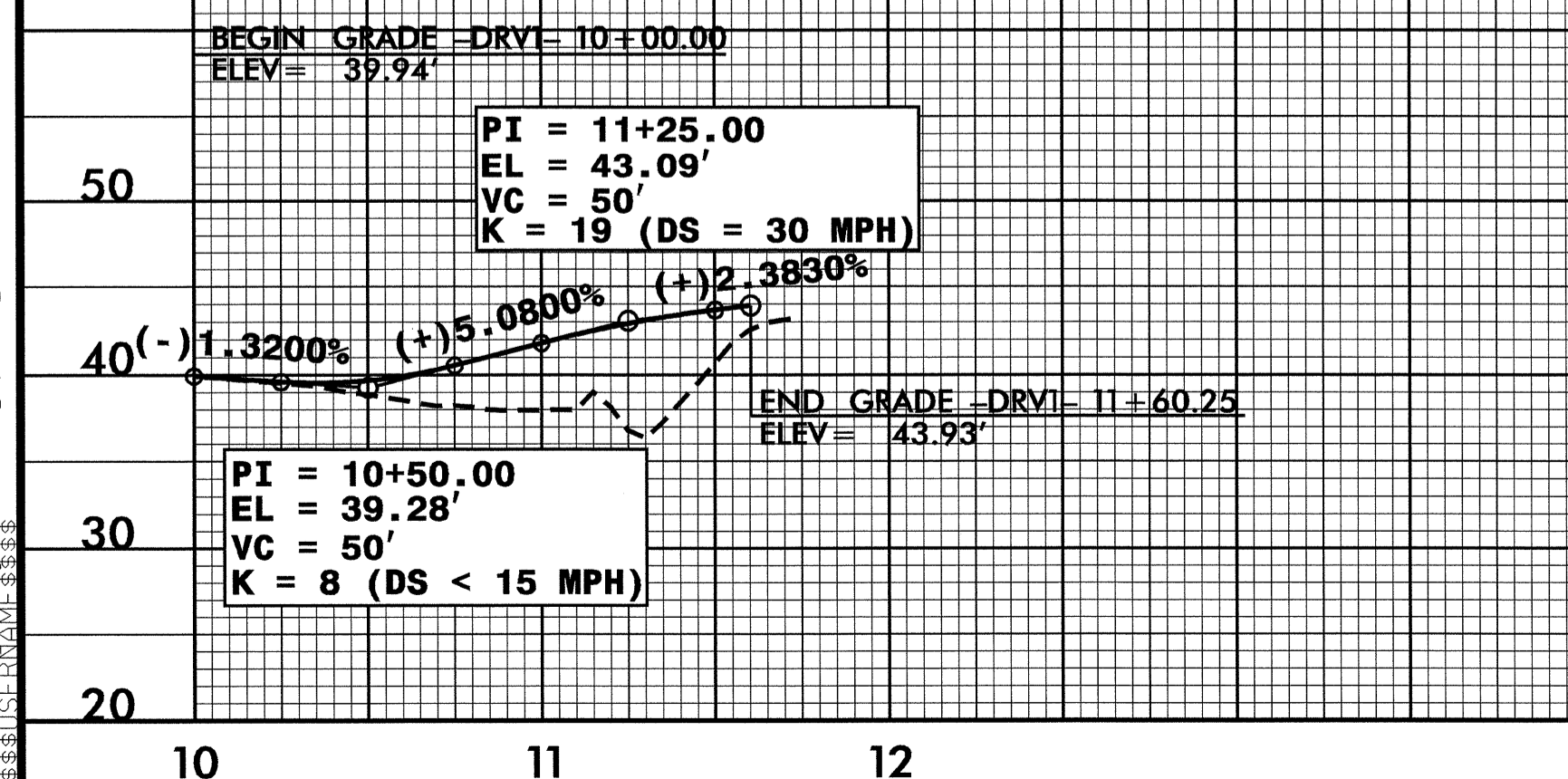
BM#1 ELEVATION = 44.39'
 N 630518 E 2476260
 -L- STATION 15+27.37 218.15 LEFT =
 -L- STATION 23+03.84 235.25 LEFT
 RR SPIKE SET IN BASE OF 20" GUM

PROJECT REFERENCE NO. B-4231	SHEET NO. 5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 14571 JAMES A. SPEER 11/15/07	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 20870 MARC T. SHOWN 11-15-07

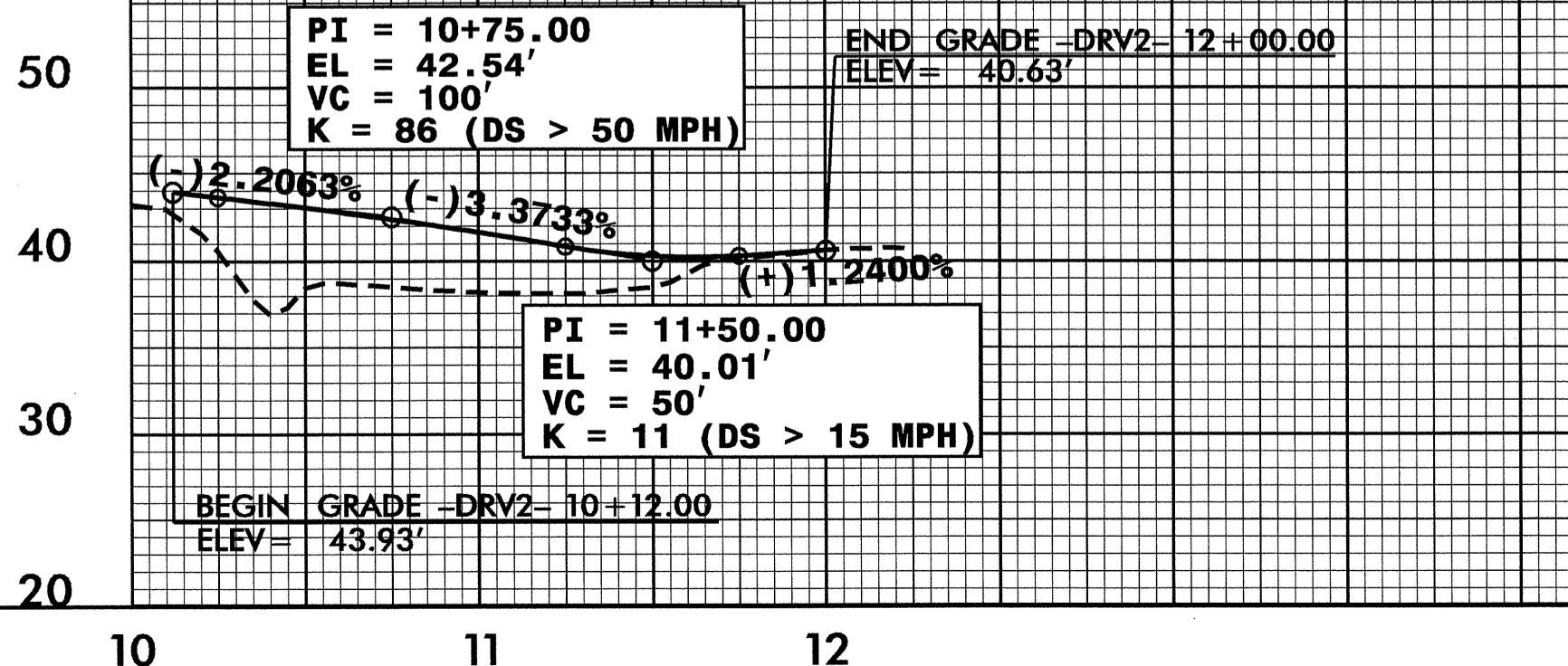


DITCH LEGEND	
LEFT DITCH	-----
RIGHT DITCH	-----
SEE SHEET 4 FOR PLAN VIEW	

-DRV1-



-DRV2-



SEE SHEET 4 FOR PLAN VIEW

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