

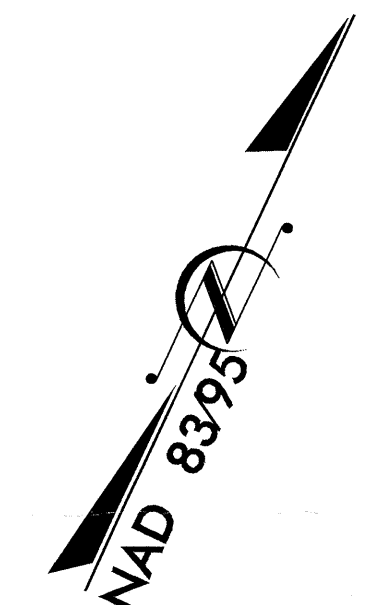
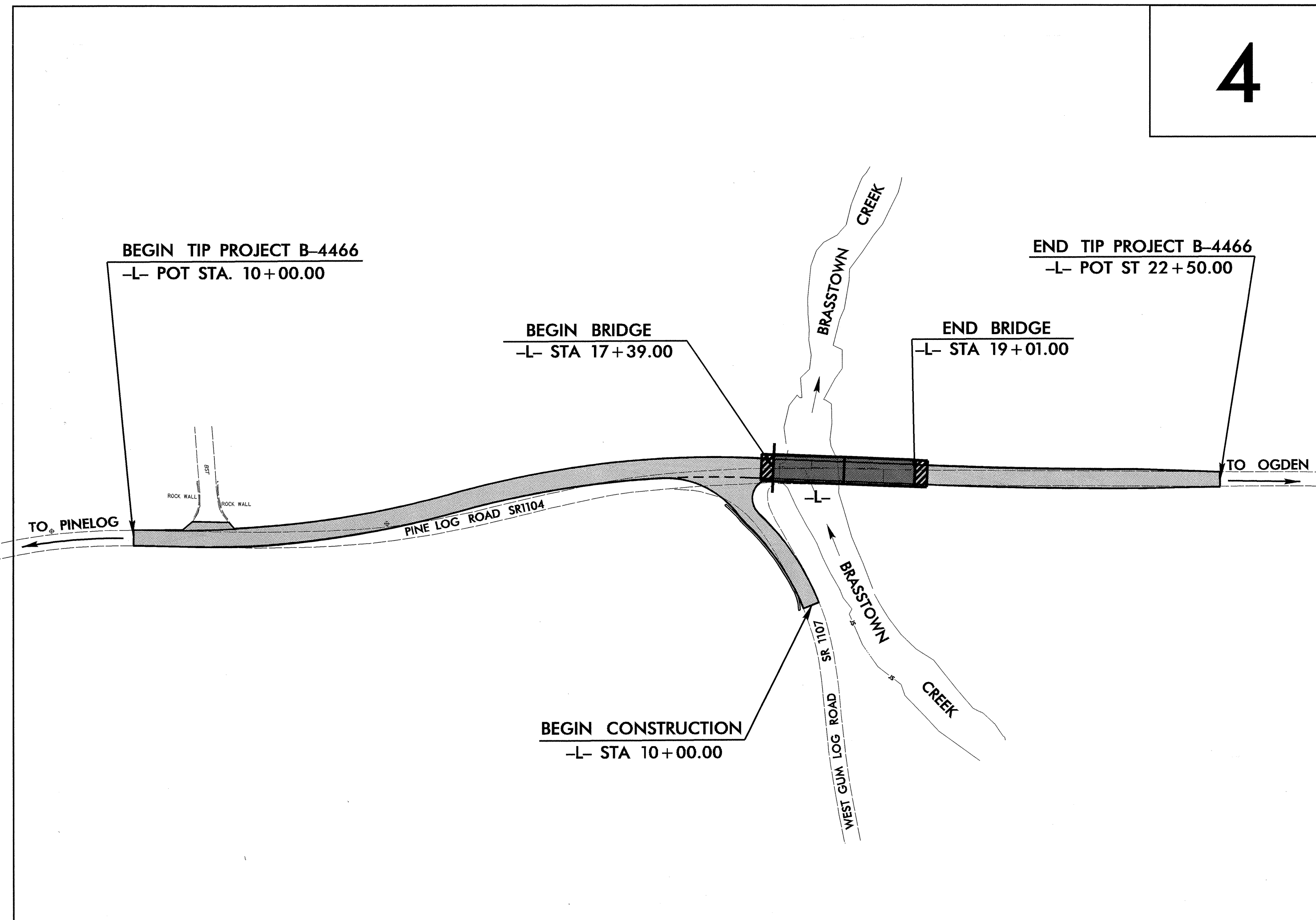
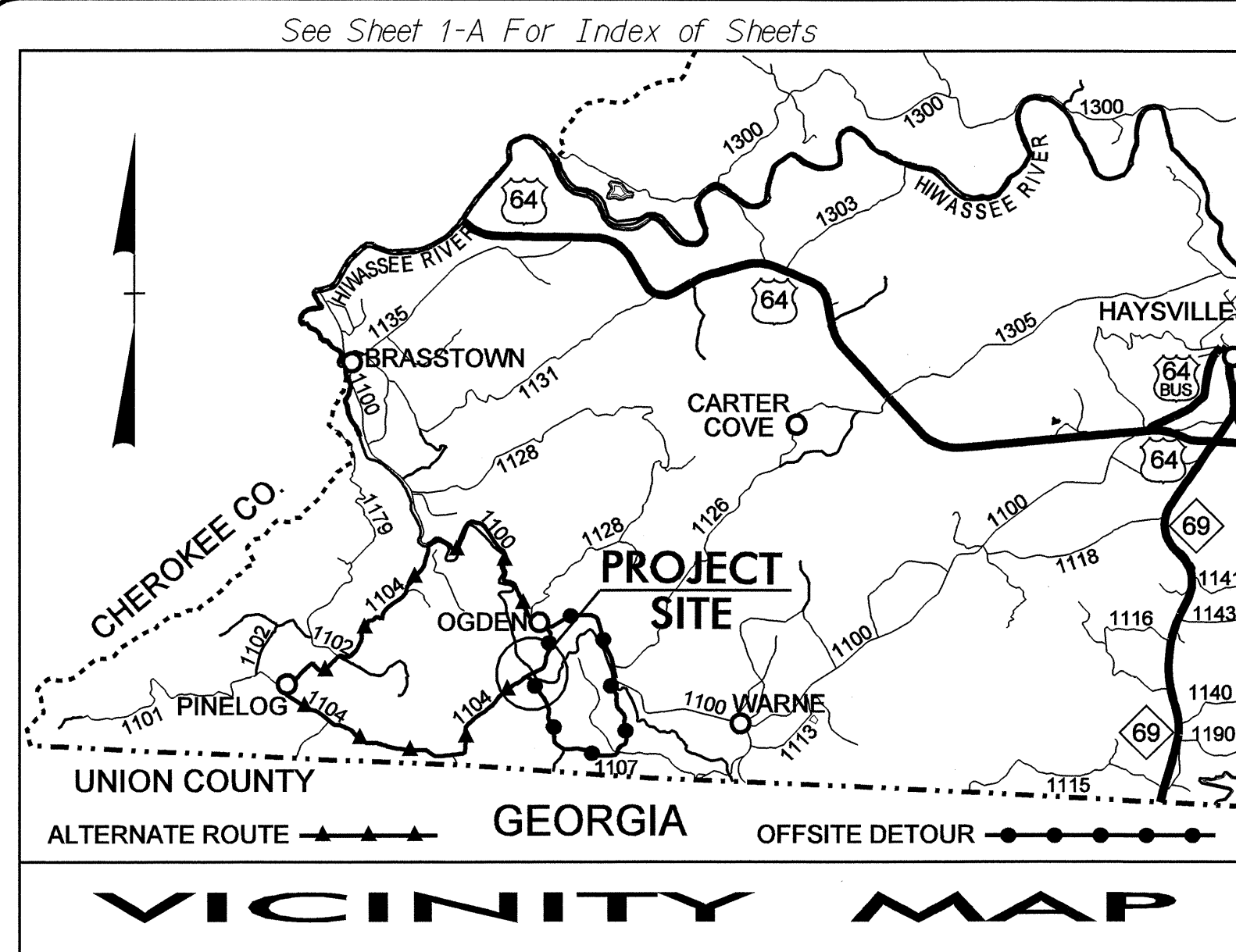
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4466	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33715.1.1	BRZ-1104(11)	PE	
33715.2.1	BRZ-1104(11)	ROW /UTIL.	
33715.3.1	BRZ-1104(11)	CONST.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CLAY COUNTY

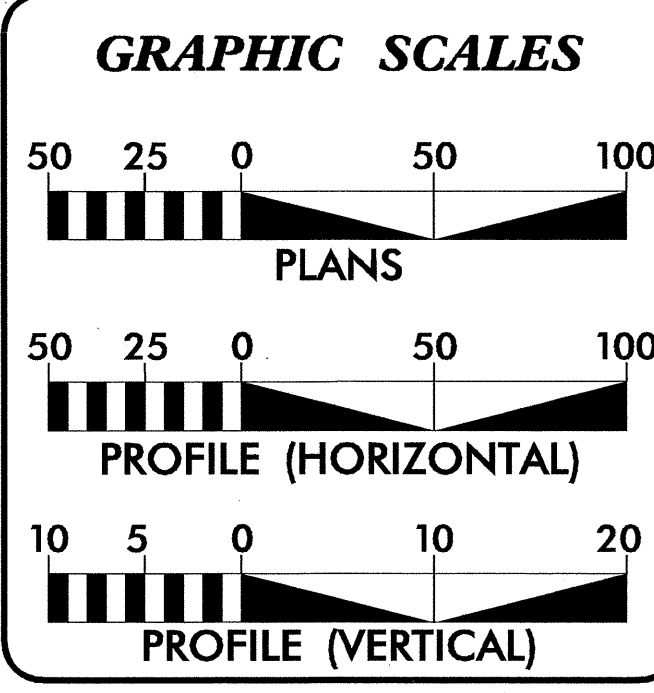
LOCATION: BRIDGE 4 OVER BRASSTOWN CREEK ON
SR 1104 (PINE LOG ROAD)

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



TIP PROJECT: B-4466

CONTRACT: C201875



DESIGN DATA

ADT 2008 =	462
ADT 2030 =	800
DHV =	10 %
D =	60 %
T =	3 % *
V =	55 MPH
* TTST 1	DUAL 2
RURAL COLLECTOR	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4466 =	0.206 MI.
LENGTH STRUCTURE TIP PROJECT B-4466 =	0.031 MI.
TOTAL LENGTH OF TIP PROJECT B-4466 =	0.237 MI.

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

2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	JULY 20, 2007
LETTING DATE:	JULY 15, 2008
	JASON MOORE, PE PROJECT ENGINEER
	BRYAN KEY, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *M. T. Show*

ROADWAY DESIGN ENGINEER

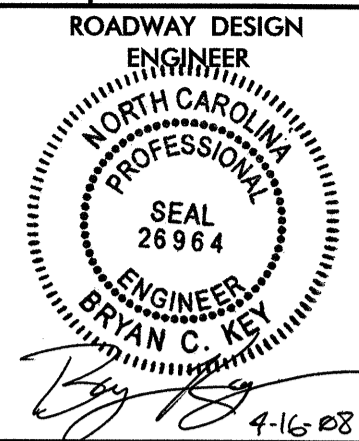
SIGNATURE: *Bryan C. Key* 7-16-08

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Art M. Miller P.E.
STATE HIGHWAY DESIGN ENGINEER

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STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS



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

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2-A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-B	DETAIL OF ANCHORAGE FOR FRAMES
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-6	TRAFFIC CONTROL PLANS
PM-1	PAVEMENT MARKING PLANS
SD-1	SIGNING DETAIL
EC-1 THRU EC-5	EROSION CONTROL PLANS
UD-1 THRU UD-2	UTILITIES PLANS
X-1	CROSS-SECTIONS SUMMARY SHEET
X-2 THRU X-11	CROSS-SECTIONS
S-1 THRU S-21	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 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.

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 Verizon
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
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
876.04	Drainage Ditches with Class 'B' Rip Rap

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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 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 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 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 Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

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

EXISTING STRUCTURES:

Table listing symbols for 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 POWER: Existing Power Pole, Proposed Power Pole, Existing Joint Use Pole, Proposed Joint Use Pole, Power Manhole, Power Line Tower, Power Transformer, U/G Power Cable Hand Hole, H-Frame Pole, Recorded U/G Power Line, Designated U/G Power Line (S.U.E.*).

TELEPHONE:

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

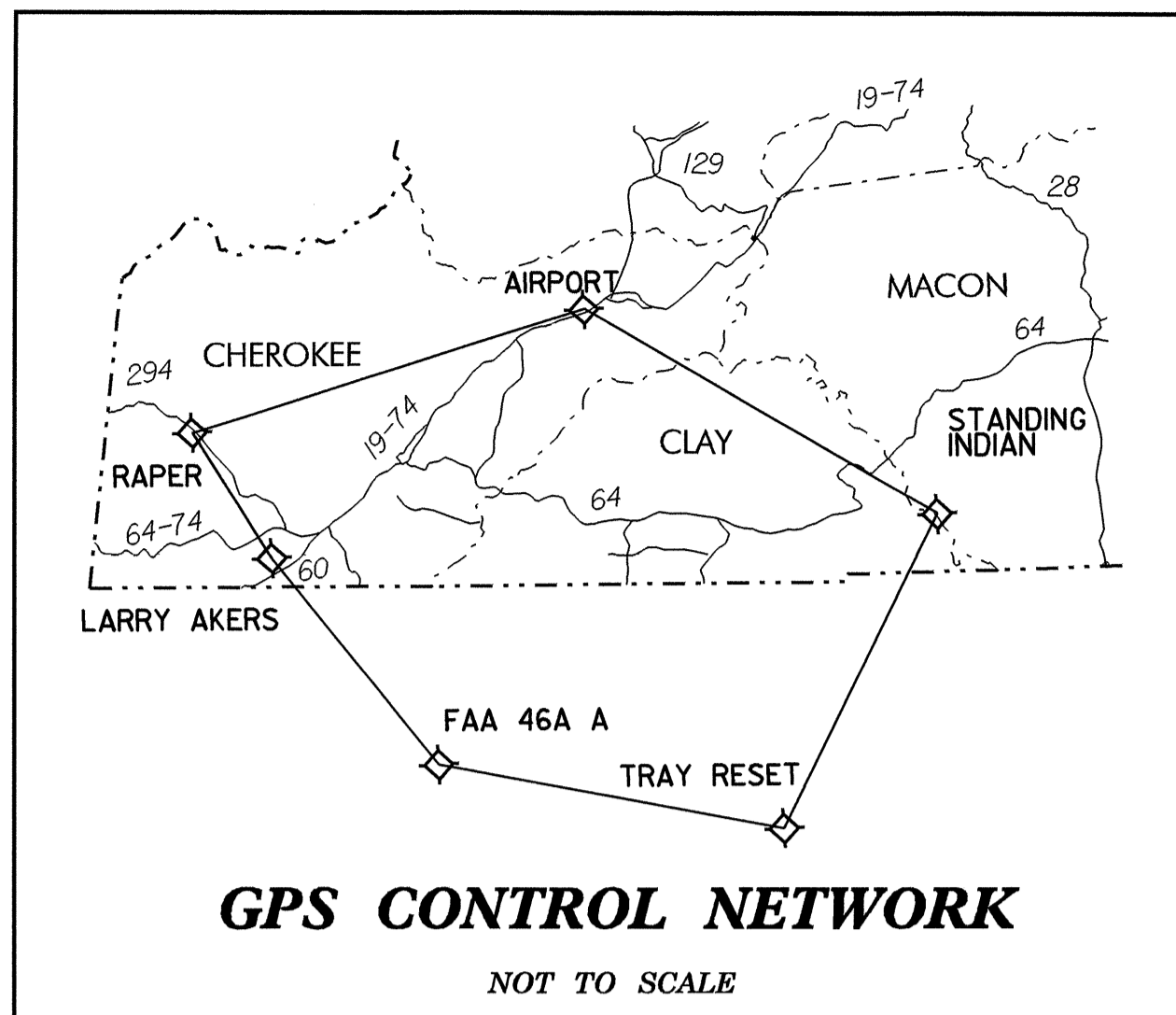
SANITARY SEWER:

Table listing symbols for Sanitary Sewer 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 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-4466



.....
 BM1 ELEVATION = 1688.15
 N 490737 E 524176
 L STATION 10+00
 S 46° 24' 36.3" W DIST 333.34
 8 INCH SPIKE IN 12 INCH POPAR TREE.

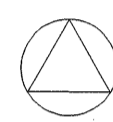
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 BM2 ELEVATION = 1688.89
 N 491221 E 524896
 L STATION 15+43 59 RIGHT
 8 INCH SPIKE IN 12 INCH PINE.

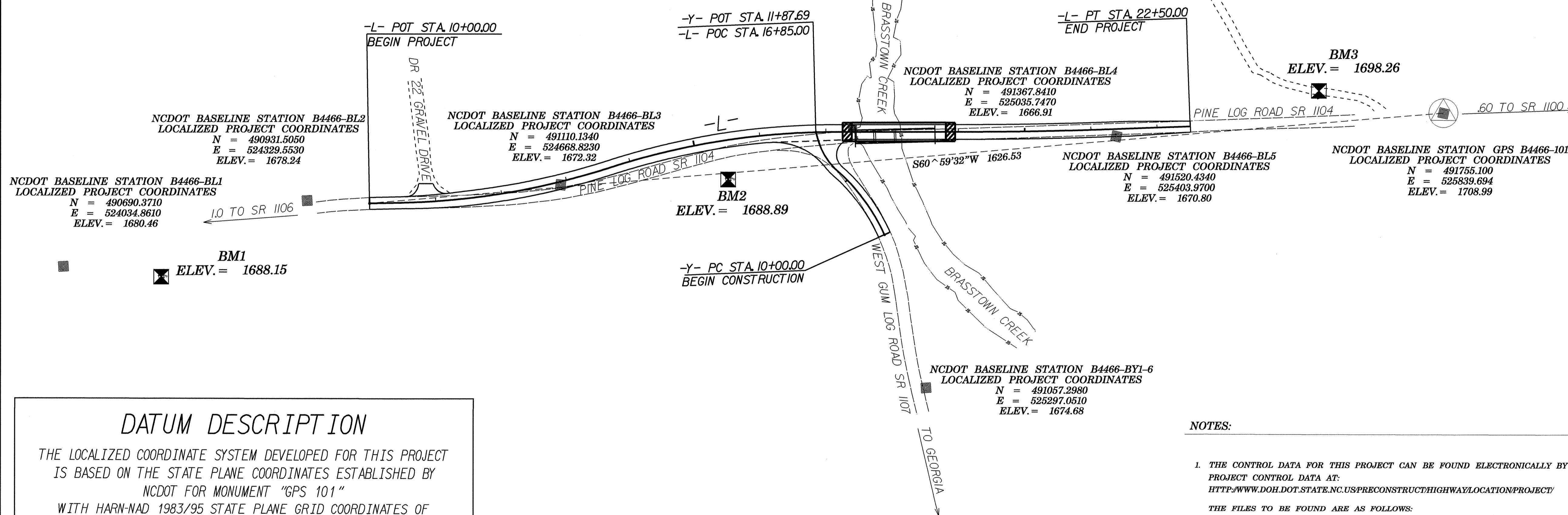
.....
 BM3 ELEVATION = 1698.26
 N 491702 E 525658
 L STATION 23+76
 N 34° 08' 56.5" E DIST 80.28
 12 INCH SPIKE SET IN 18 INCH PINE.

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	490690.3710	524034.8610	1680.46	OUTSIDE PROJECT LIMITS	
2	BL-2	490931.5050	524329.5530	1678.24	OUTSIDE PROJECT LIMITS	
3	BL-3	491110.1340	524668.8230	1672.32	12+89.90	4.60 RT
4	BL-4	491367.8410	525035.7470	1666.91	17+39.94	5.13 LT
5	BL-5	491520.4340	525403.9700	1670.80	21+38.02	10.88 RT
101	GPS-101	491755.1000	525839.6940	1708.99	OUTSIDE PROJECT LIMITS	

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
44	BY1-44	491367.8410	525035.7470	1666.91	11+77.39	54.24 RT
6	BY1-6	491057.2980	525297.0510	1674.68	OUTSIDE PROJECT LIMITS	




 NCDOT BASELINE STATION GPS B4466-102
 LOCALIZED PROJECT COORDINATES
 N = 492195.683
 E = 525940.208
 ELEV. = 1714.95



NCDOT BASELINE STATION B4466-BL2
 LOCALIZED PROJECT COORDINATES
 N = 490931.5050
 E = 524329.5530
 ELEV. = 1678.24

NCDOT BASELINE STATION B4466-BL3
 LOCALIZED PROJECT COORDINATES
 N = 491110.1340
 E = 524668.8230
 ELEV. = 1672.32

NCDOT BASELINE STATION B4466-BL4
 LOCALIZED PROJECT COORDINATES
 N = 491367.8410
 E = 525035.7470
 ELEV. = 1666.91

NCDOT BASELINE STATION B4466-BL5
 LOCALIZED PROJECT COORDINATES
 N = 491520.4340
 E = 525403.9700
 ELEV. = 1670.80

NCDOT BASELINE STATION GPS B4466-101
 LOCALIZED PROJECT COORDINATES
 N = 491755.1000
 E = 525839.6940
 ELEV. = 1708.99

BM1
 ELEV. = 1688.15

BM2
 ELEV. = 1688.89

BM3
 ELEV. = 1698.26

NCDOT BASELINE STATION B4466-BY1-6
 LOCALIZED PROJECT COORDINATES
 N = 491057.2980
 E = 525297.0510
 ELEV. = 1674.68

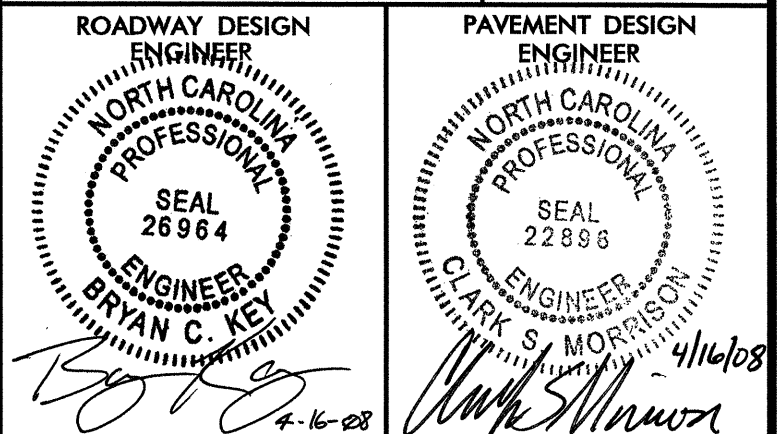
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS 101" WITH HARN-NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 491,755.100(ft) EASTING: 525,839.694(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .99980487 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS 101" TO -L- STATION 10+00.00 IS S 60° 59' 32.00" W DISTANCE 1626.53' 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/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 TIPB-4466_LS_CONTROL_070403.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 EXISTING HARN MONUMENTATION

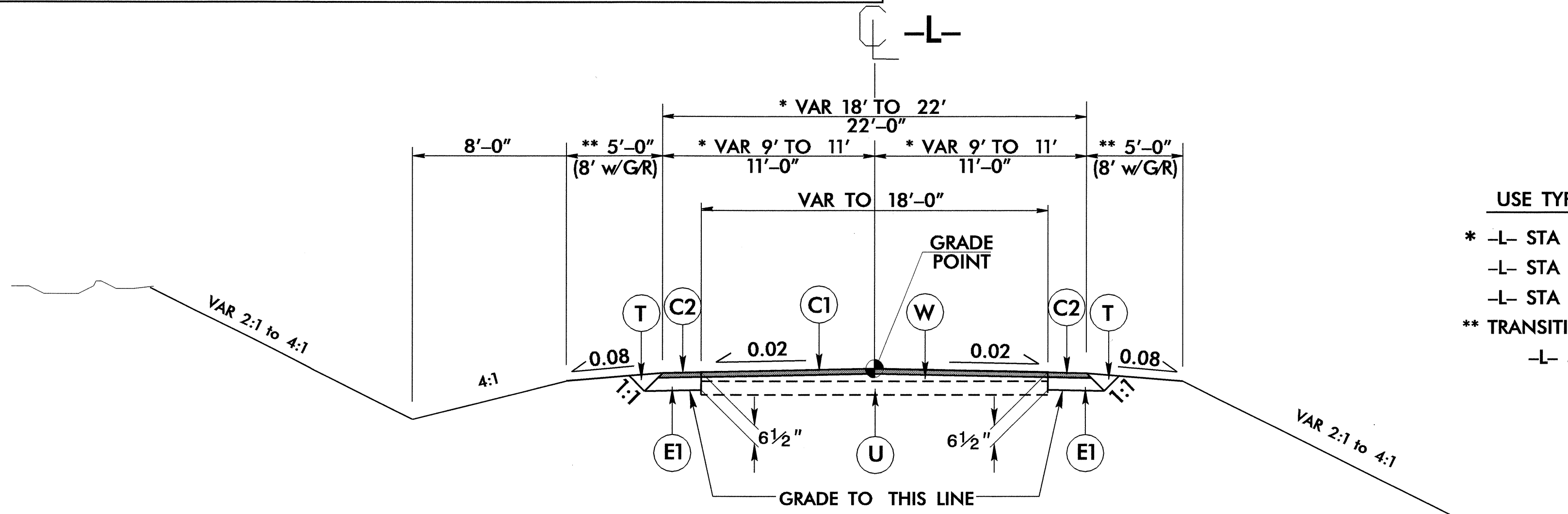
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PAVEMENT SCHEDULE

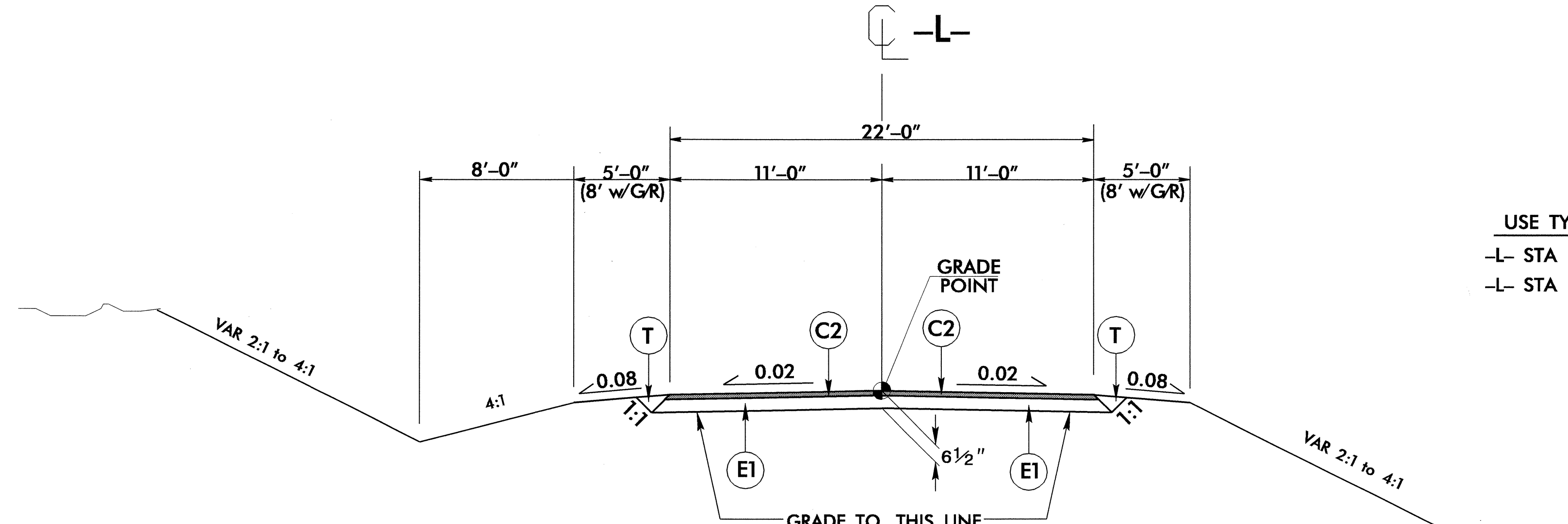
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
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	R	2'-6" CONCRETE CURB & GUTTER
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 1½" IN DEPTH.	T	EARTH MATERIAL.
C4	PROP. APPROX. 4.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF THREE LAYERS	U	EXISTING PAVEMENT.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS ON SHEET 2-A)
E2	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.	



USE TYPICAL SECTION NO.1

- * -L- STA 10+00.00 TO -L- STA 11+50.00
- L- STA 11+50.00 TO -L- STA 12+50.00
- L- STA 20+50.00 TO -L- STA 21+45.00
- ** TRANSITION SHOULDER FROM EXIST. TO PROPOSED
- L- STA 10+25 RT. TO -L- STA 11+50 LT.RT.

TYPICAL SECTION NO. 1



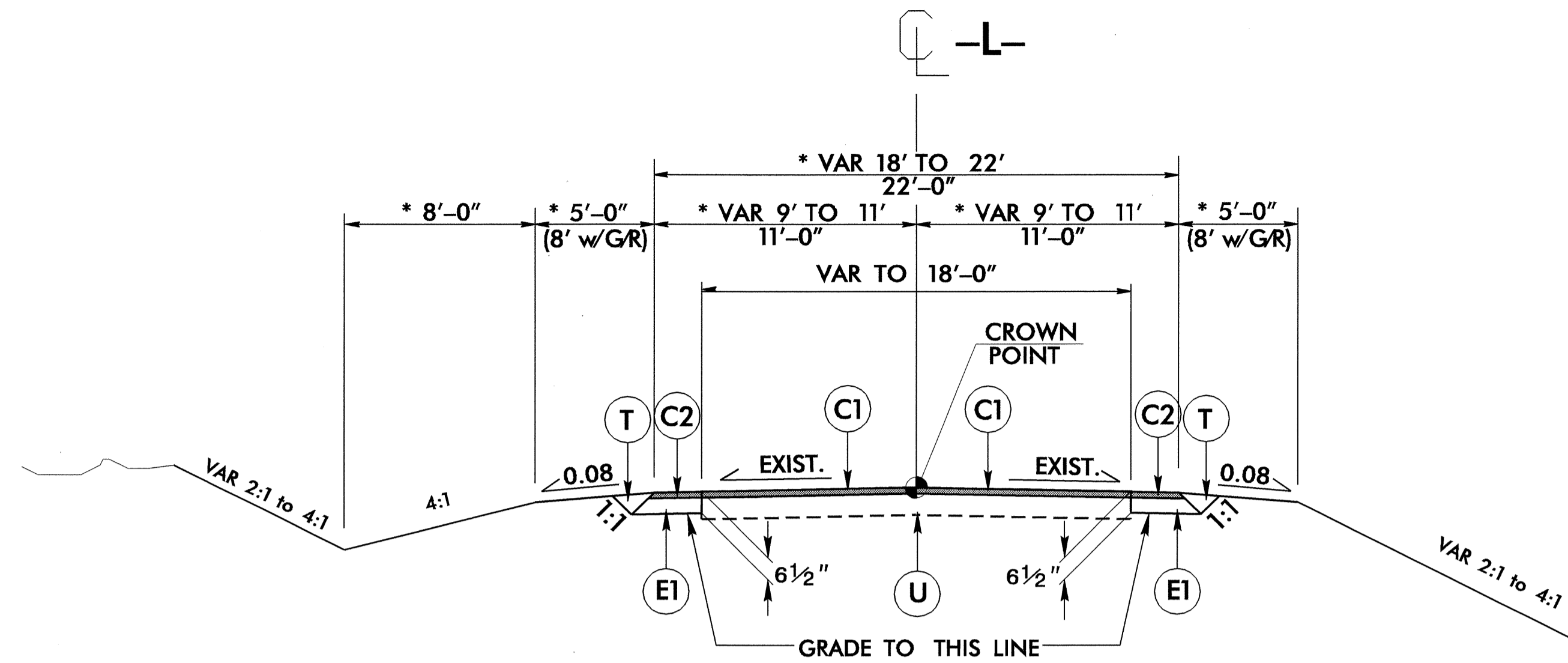
USE TYPICAL SECTION NO.2

- L- STA 12+50.00 TO -L- STA 17+39.00 (BEGIN BRIDGE)
- L- STA 19+01.00 (END BRIDGE) TO -L- STA 20+50.00

TYPICAL SECTION NO. 2

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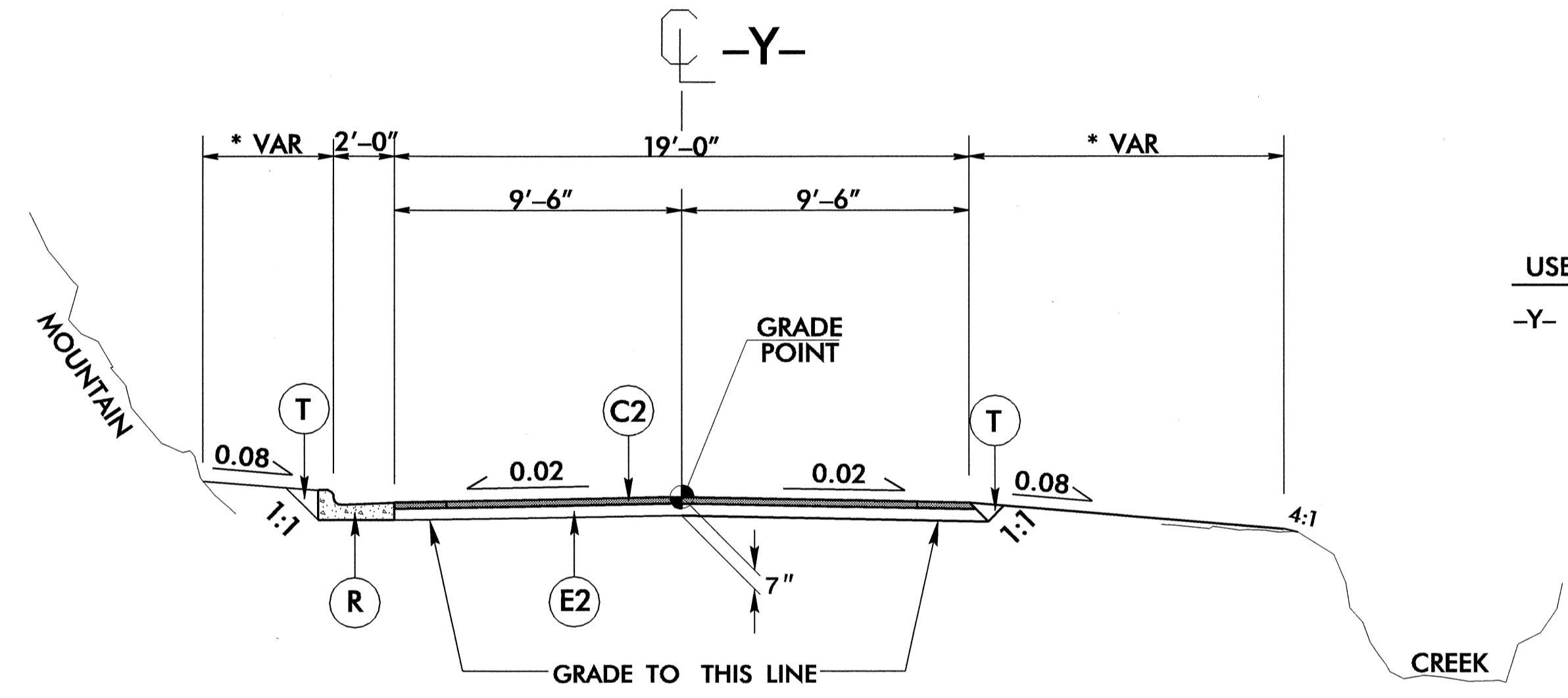
PROJECT REFERENCE NO. B-4466		SHEET NO. 2-A	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 28964 BRYAN C. KEY		PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22898 CLYDE S. MORRISON	
C1	1 1/4" TYPE SF9.5A		
C2	2 1/2" TYPE SF9.5A		
C3	VAR. DEPTH SF9.5A		
C4	4 1/2" TYPE SF9.5A		
E1	4" TYPE B25.0B		
E2	4 1/2" TYPE B25.0B		
E3	VAR. DEPTH B25.0B		
R	2'-6" CURB & GUTTER		
T	EARTH MATERIAL		
U	EXISTING PAVEMENT		
W	WEDGING		



TYPICAL SECTION NO. 3

* TRANSITION PAVEMENT, SHOULDERS AND DITCHES FROM PROPOSED TO EXISTING.

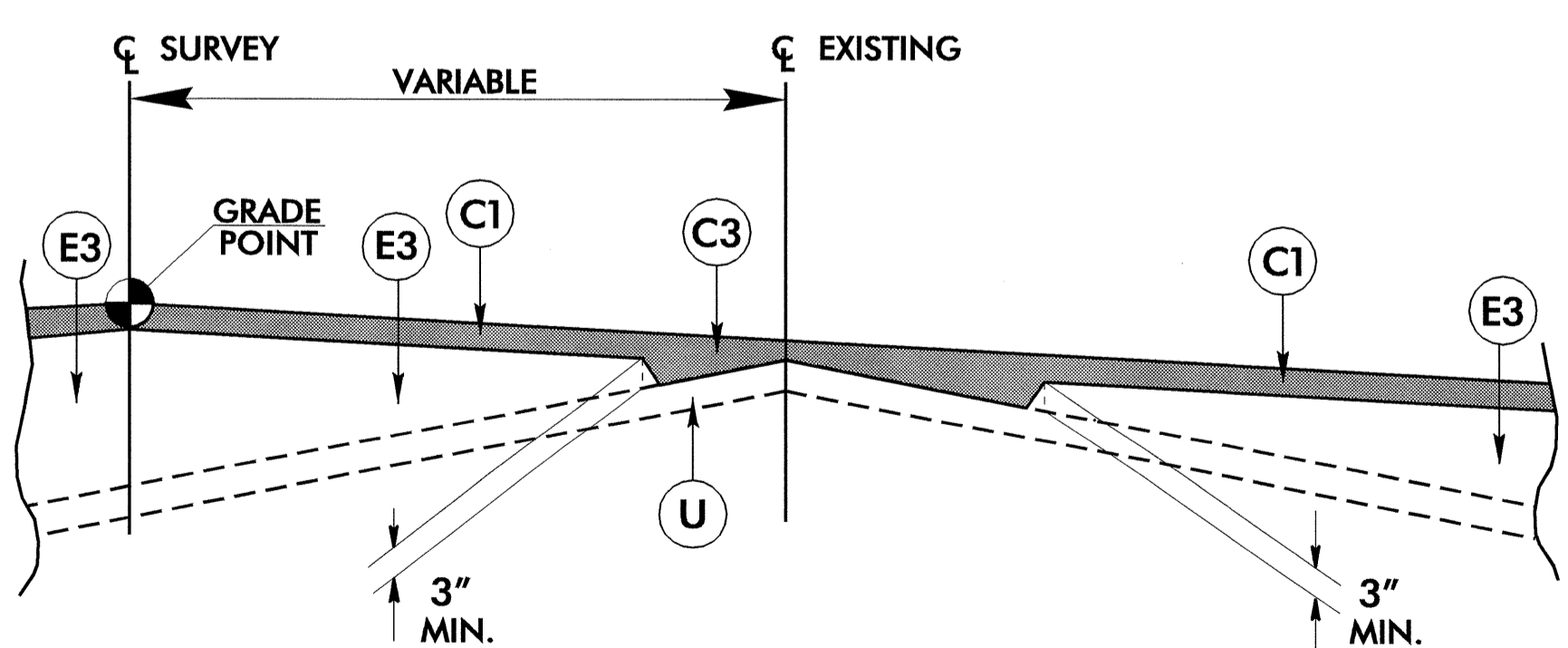
USE TYPICAL SECTION NO.3
-L- STA 21+45.00 TO -L- STA 21+50.00
*-L- STA 21+50.00 TO -L- STA 22+50.00



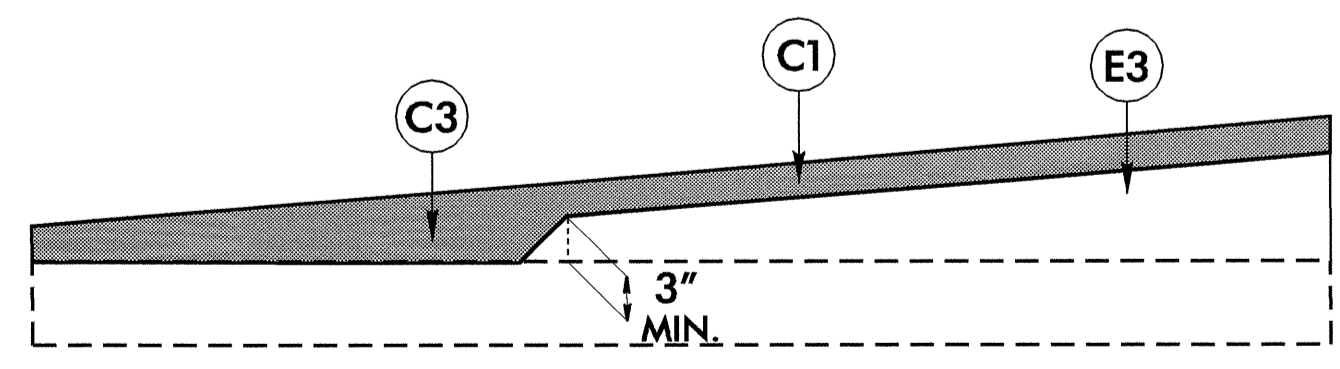
TYPICAL SECTION NO. 4

* SEE CROSS SECTIONS.

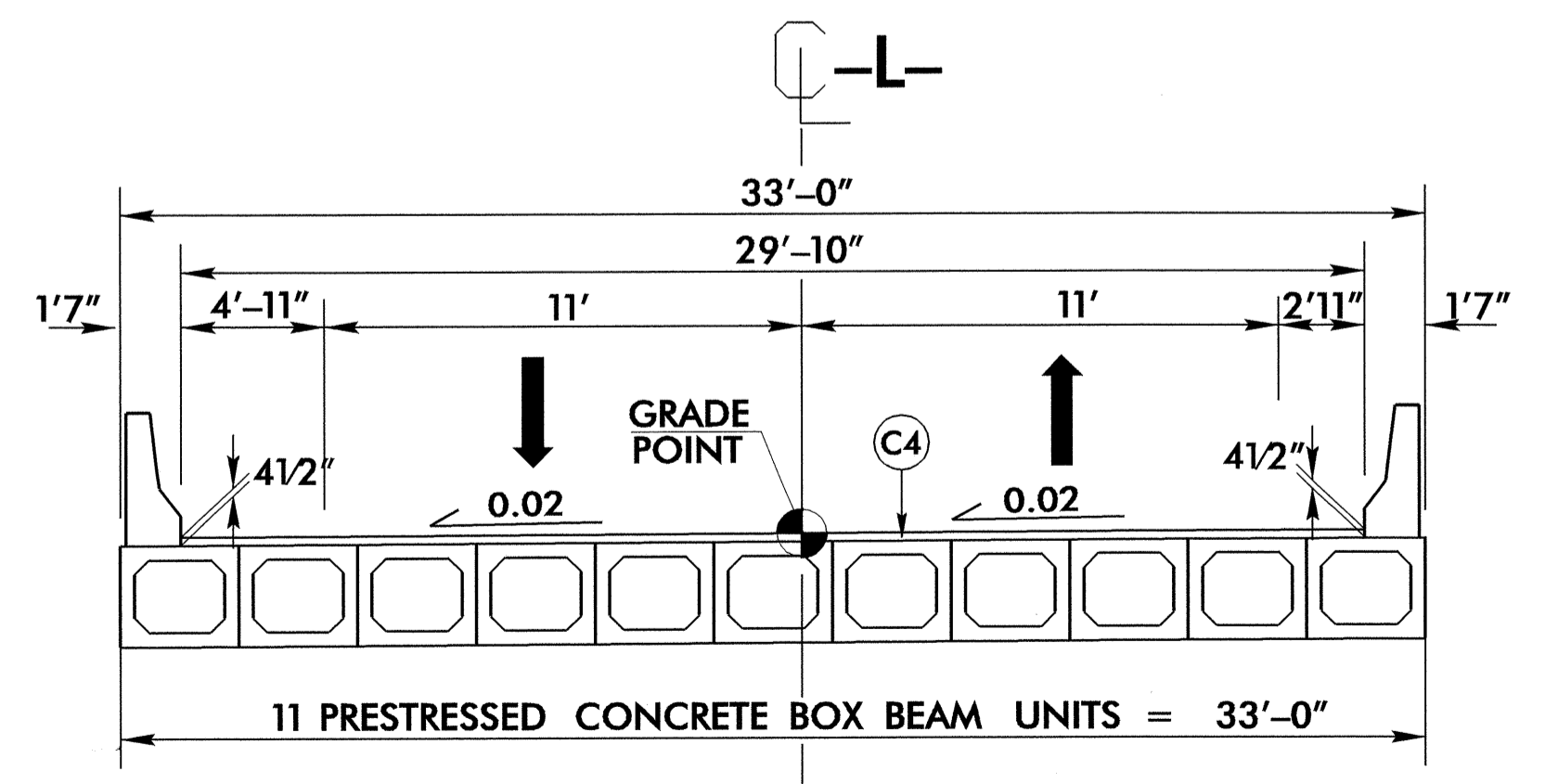
USE TYPICAL SECTION NO.4
-Y- STA 10+00.00 TO -Y- STA 11+76.53



Detail Showing Method Of Wedging



Wedging Detail For Resurfacing



USE TYPICAL SECTION ON STRUCTURE
-L- STA 17+39.00 TO -L- STA 19+01.00

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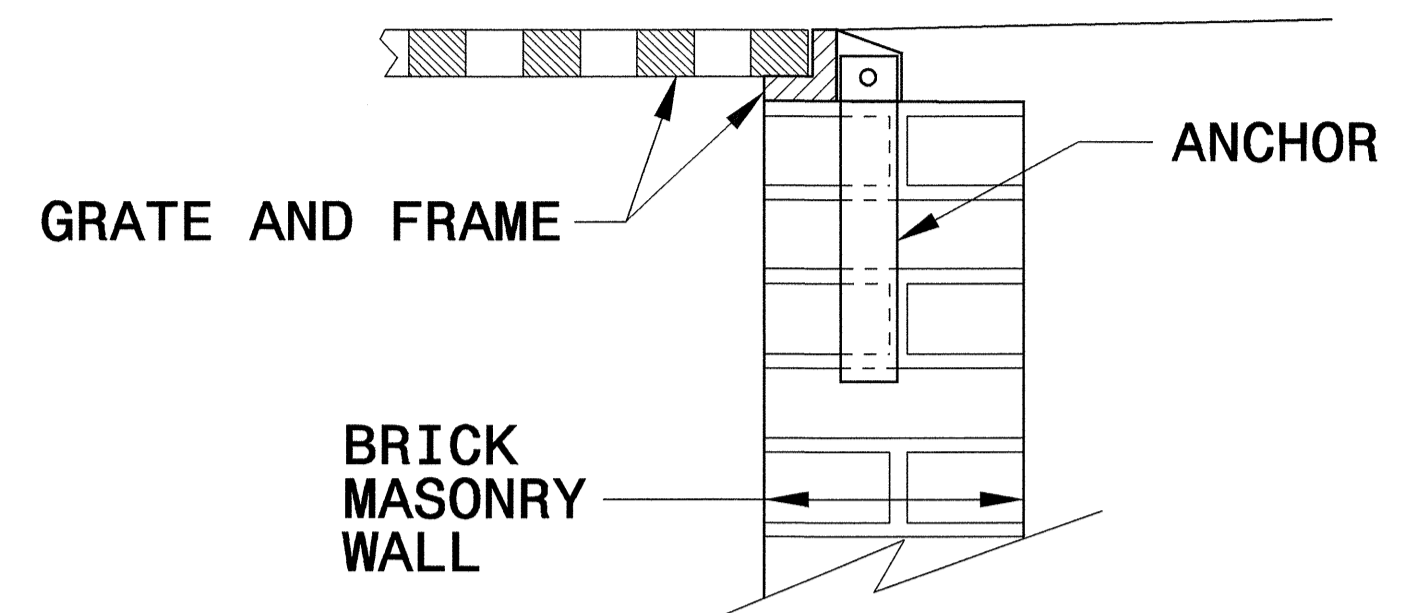
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

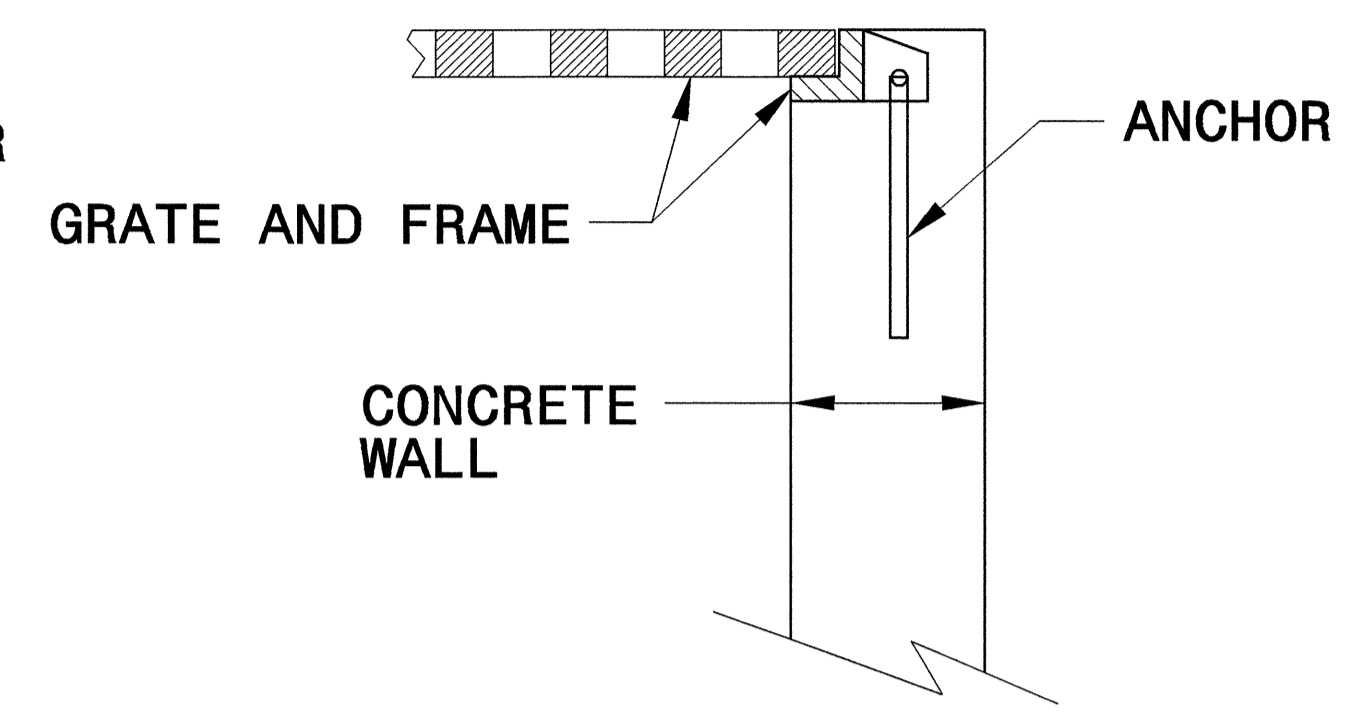
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

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

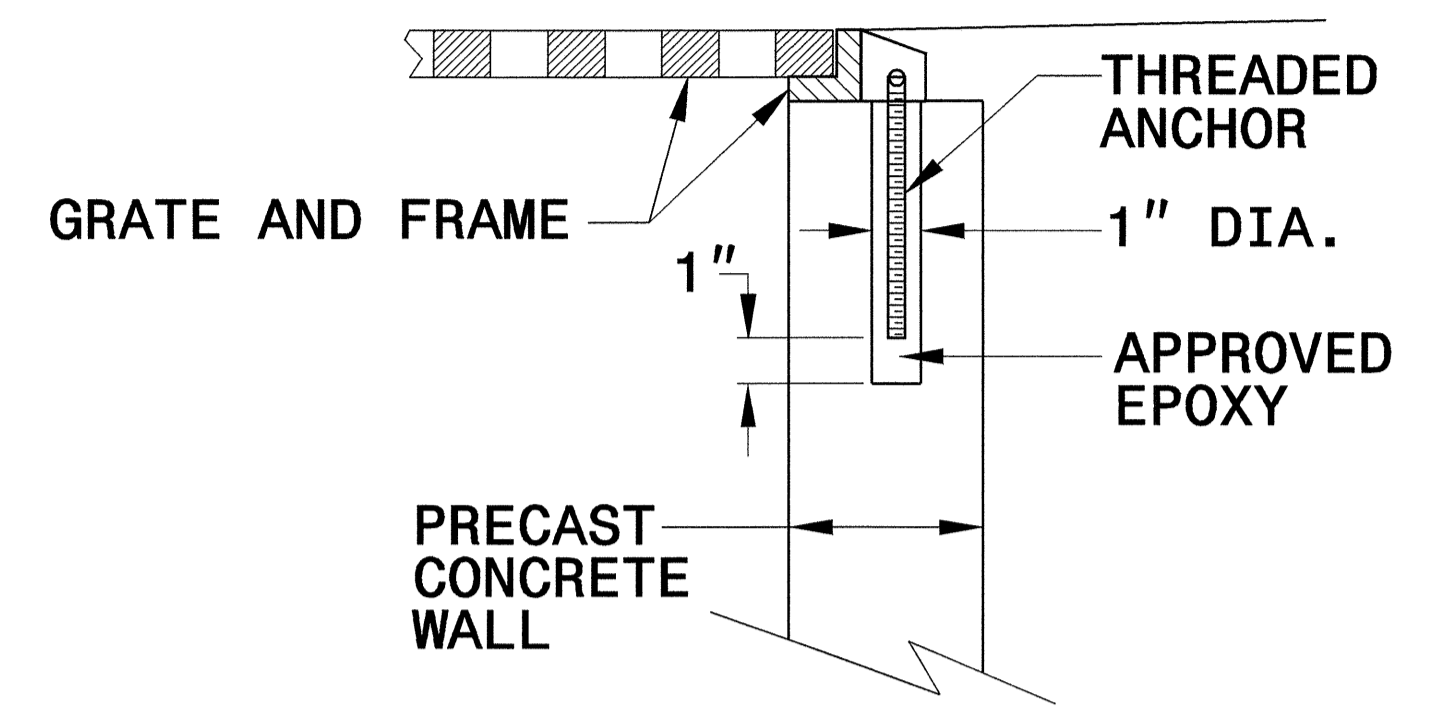
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE



BRICK MASONRY CONSTRUCTION



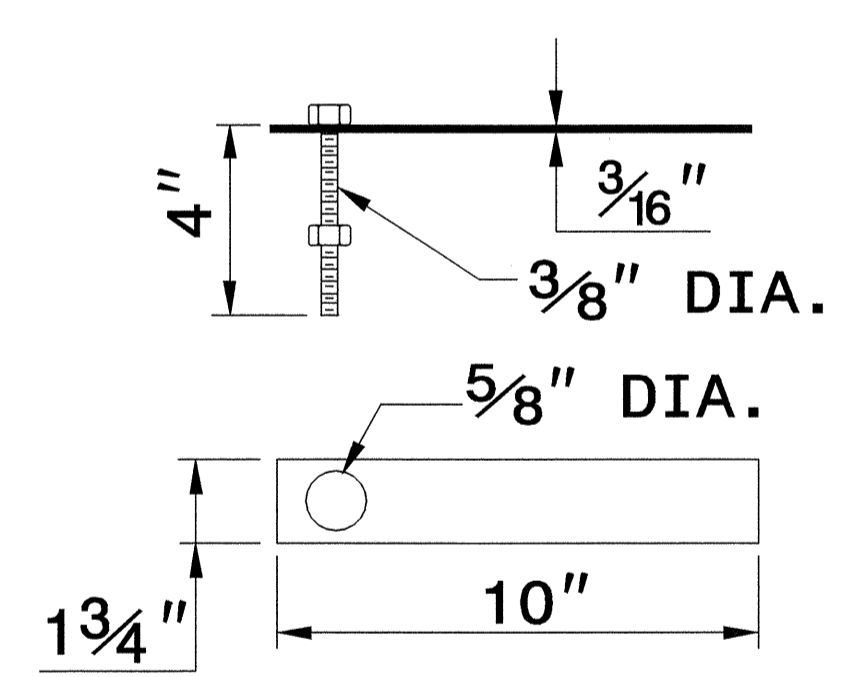
CONCRETE CONSTRUCTION



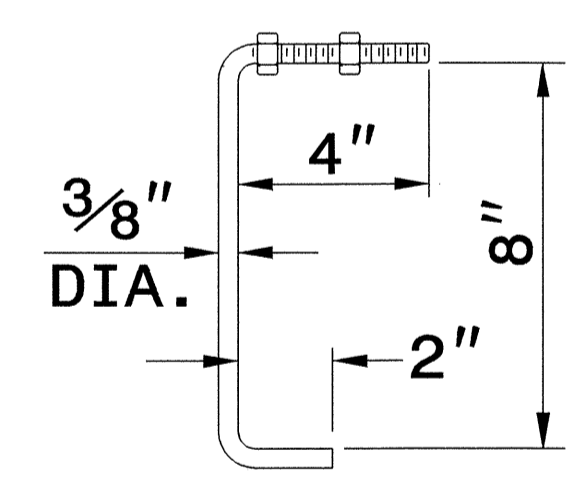
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

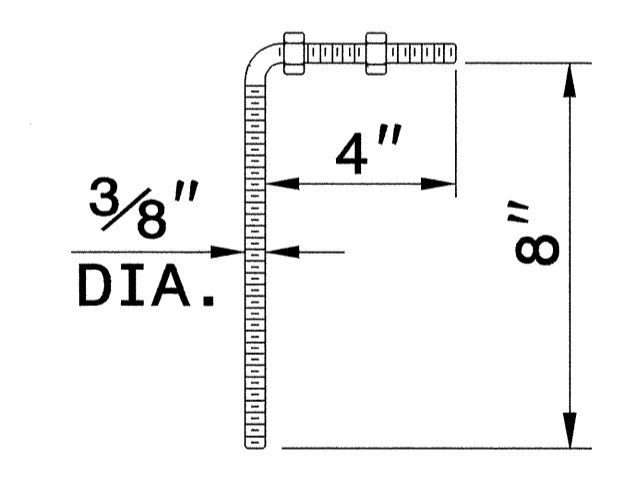
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



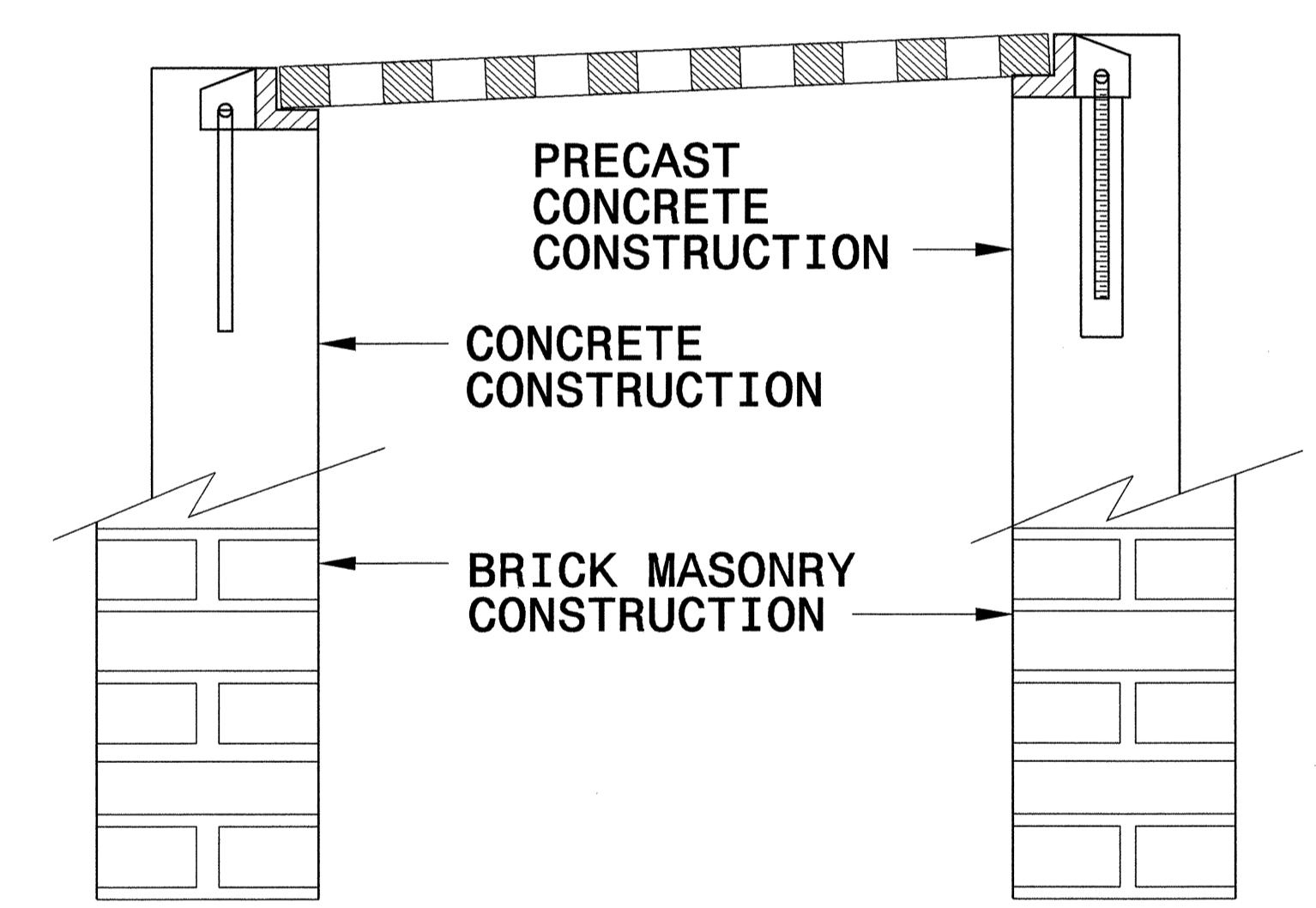
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



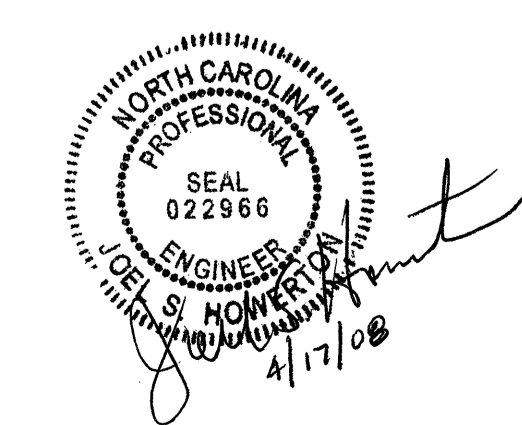
CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS



**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
RALEIGH, N.C.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201875

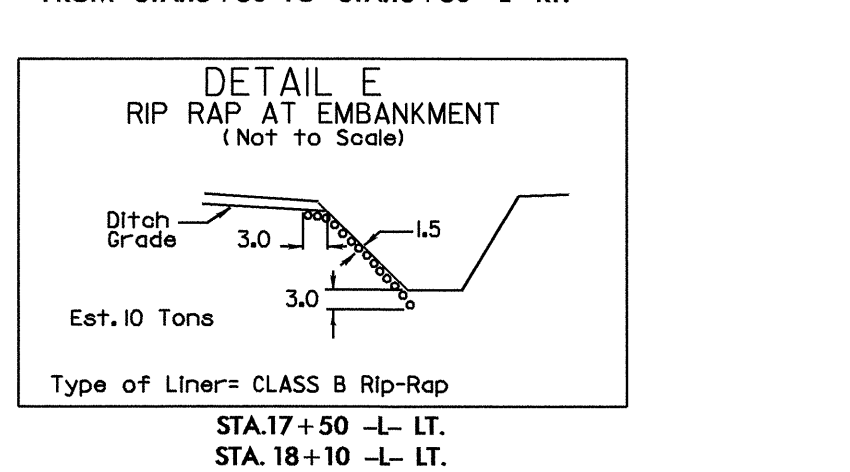
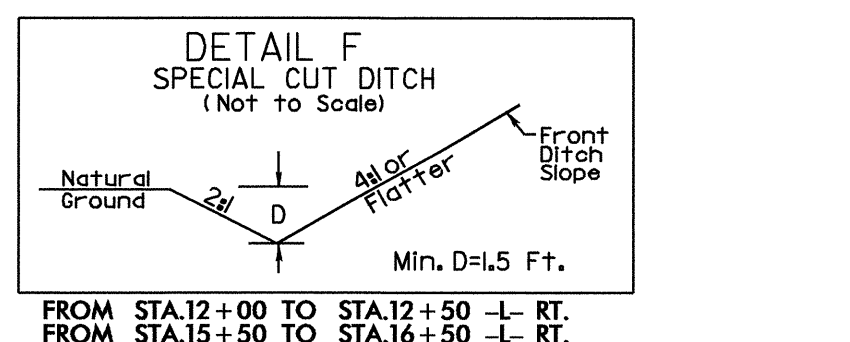
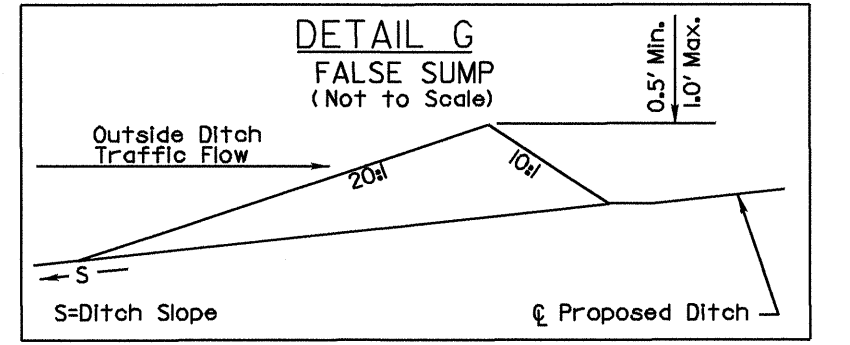
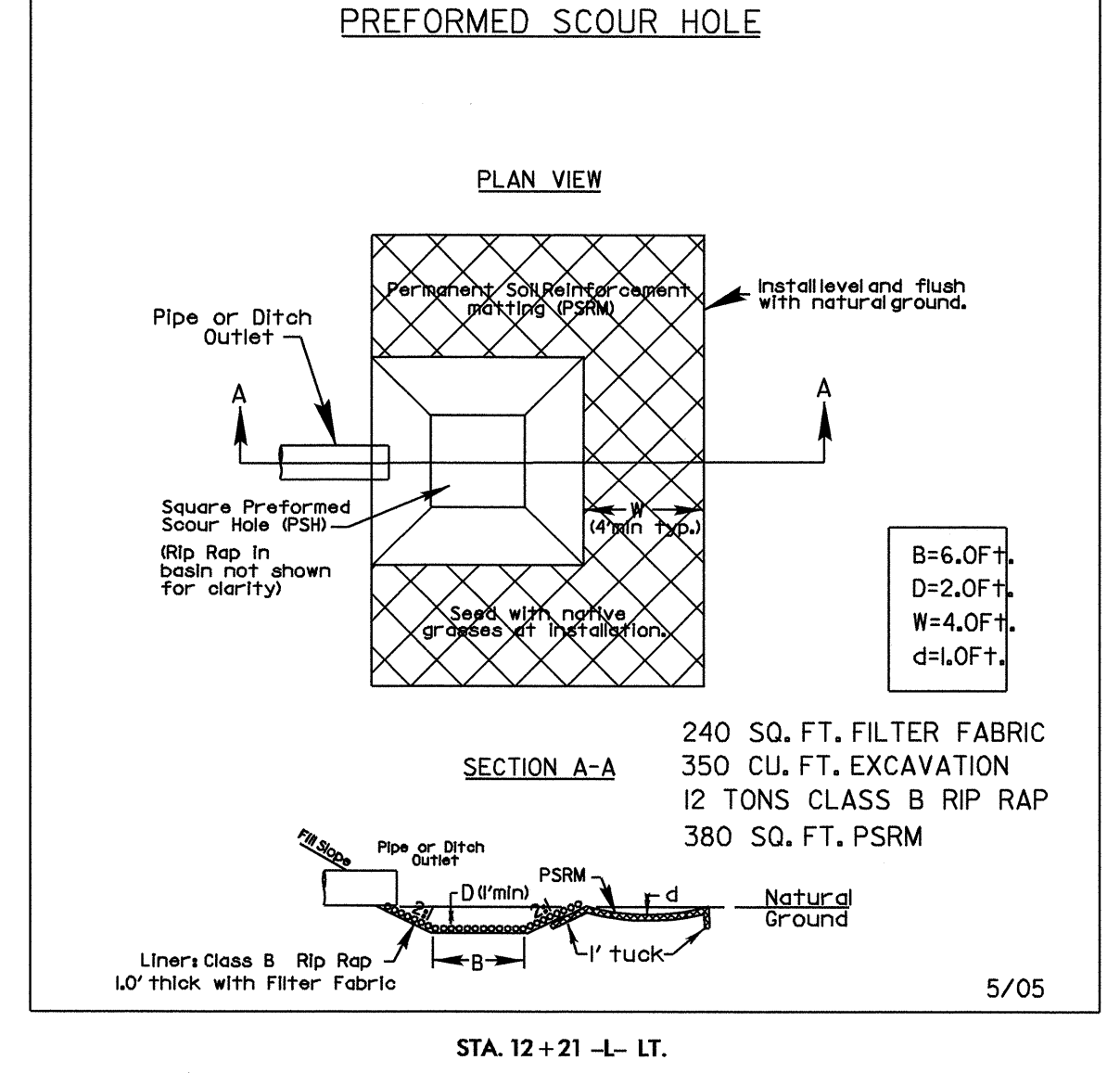
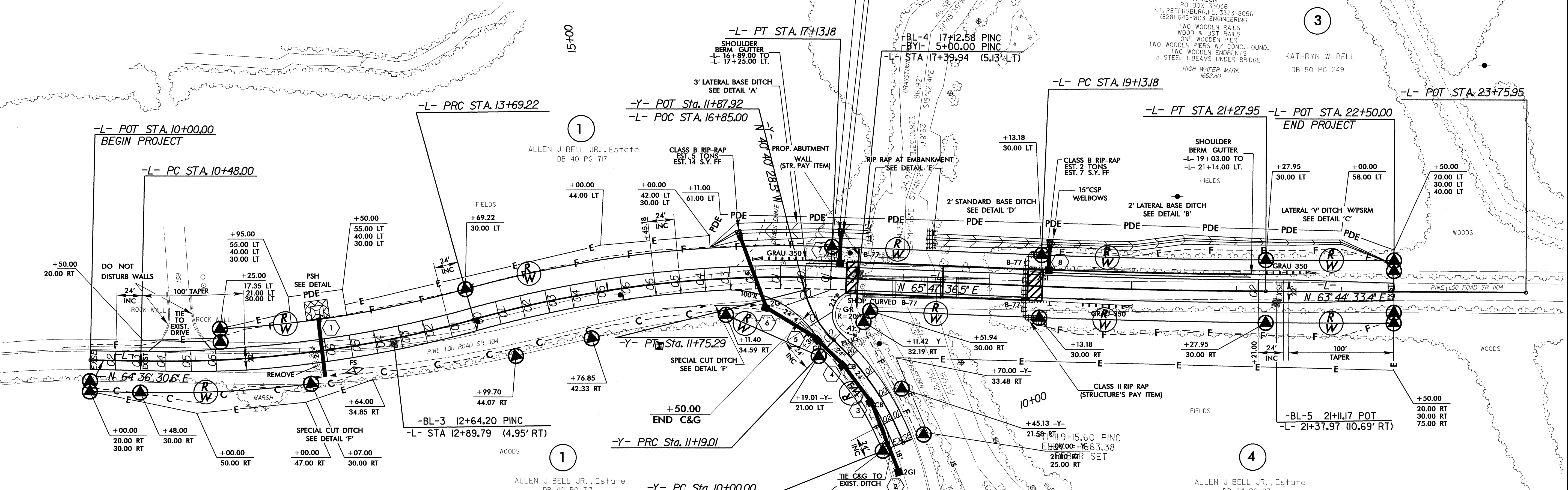
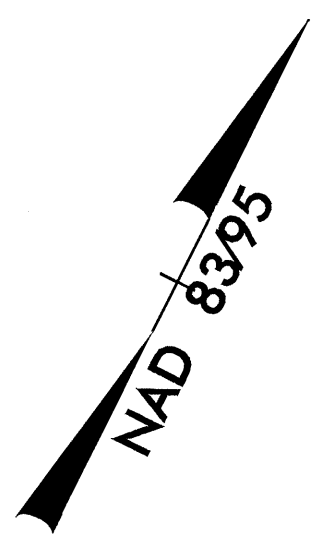
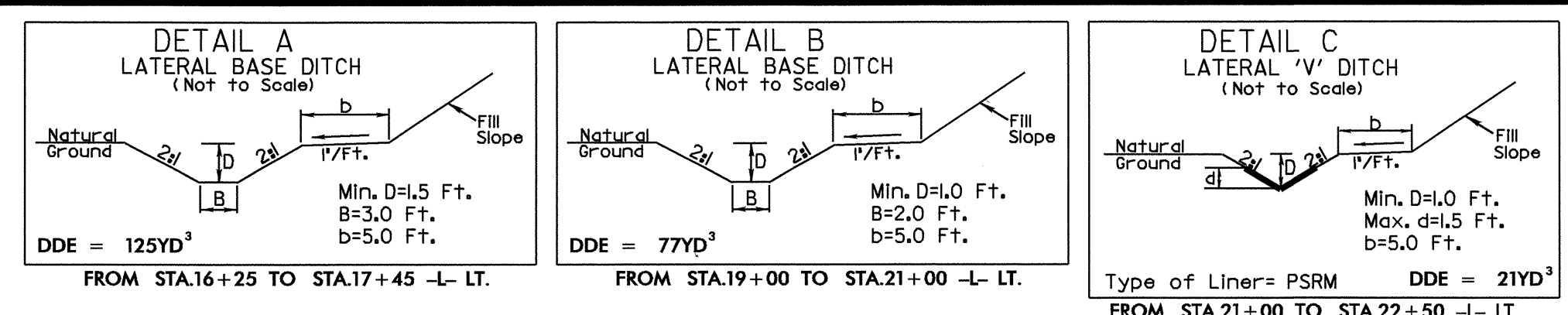
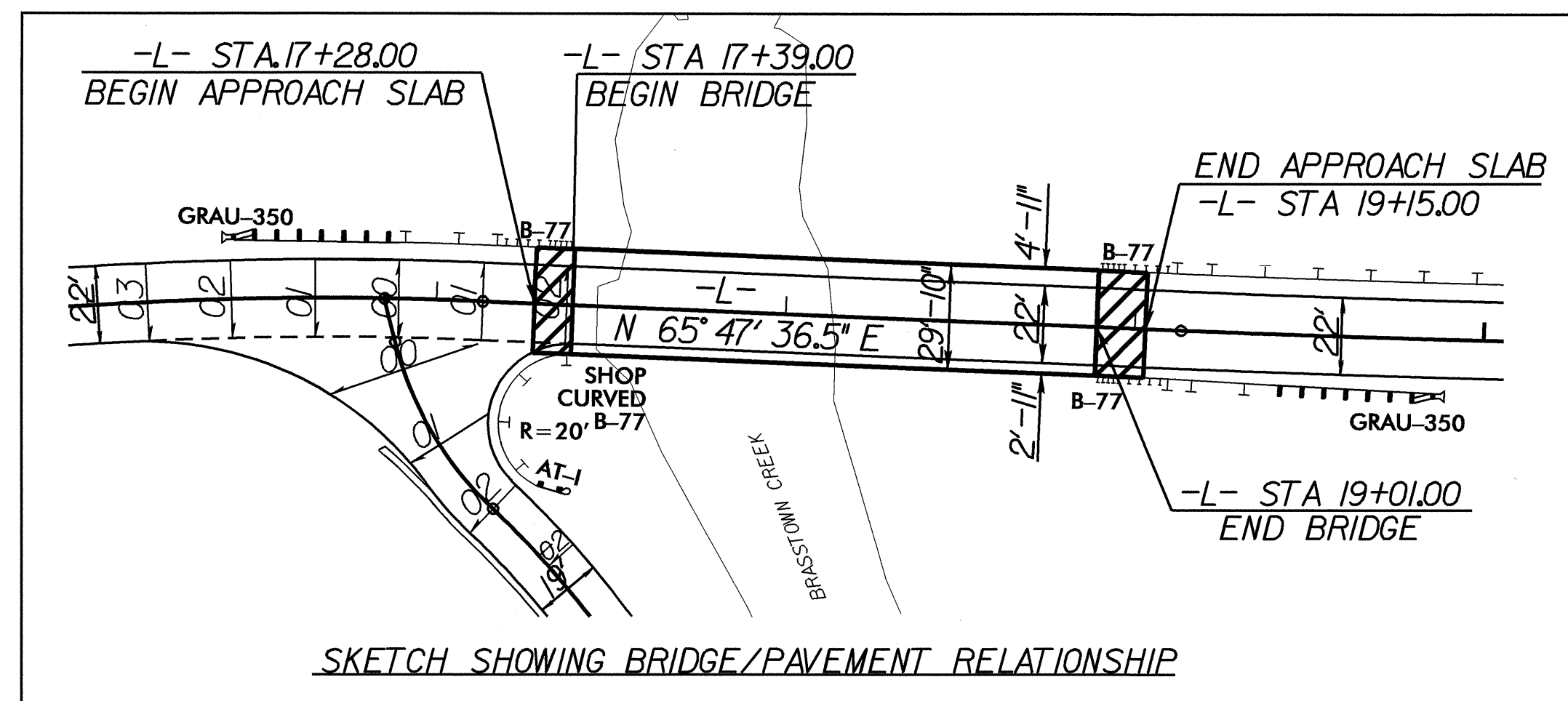
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FIL, STATION ***** (19+01.00-L-)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB- BING
005700000-E	226	50	CY	UNDERCUT EXCAVATION
008000000-E	SP	50	TON	CLASS IV SUBGRADE STABILIZA- TION
013400000-E	240	290	CY	DRAINAGE DITCH EXCAVATION
019500000-E	265	50	CY	SELECT GRANULAR MATERIAL
019600000-E	270	50	SY	FABRIC FOR SOIL STABILIZATION
031800000-E	300	40	TON	FOUNDATION CONDITIONING MATE- RIAL, MINOR STRS
037200000-E	310	68	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	260	LF	24" RC PIPE CULVERTS, CLASS III
070800000-E	310	52	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
080600000-E	310	4	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
099500000-E	340	30	LF	PIPE REMOVAL
148900000-E	610	650	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
152500000-E	610	360	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	52	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
200000000-N	806	25	EA	RIGHT OF WAY MARKERS
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)
226400000-E	840	0.13	CY	PIPE PLUGS
228600000-N	840	7	EA	MASONRY DRAINAGE STRUCTURES
236400000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.16
236700000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.29
237400000-N	840	1	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
237400000-N	840	2	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
254900000-E	846	160	LF	2'-6" CONCRETE CURB & GUTTER
255600000-E	846	248	LF	SHOULDER BERM GUTTER
303000000-E	862	250	LF	STEEL BM GUARDRAIL
304500000-E	862	56.25	LF	STEEL BM GUARDRAIL, SHOP CURVED
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
319500000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
327000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
364900000-E	876	20	TON	RIP RAP, CLASS B
365600000-E	876	450	SY	FILTER FABRIC FOR DRAINAGE
365900000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
440000000-E	1110	762	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	112	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	190	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	50	EA	DRUMS
444500000-E	1145	170	LF	BARRICADES (TYPE III)

ItemNumber	Sec #	Quantity	Unit	Description
445000000-N	1150	320	HR	FLAGGER
481000000-E	1205	18,020	LF	PAINT PAVEMENT MARKING LINES (4")
483500000-E	1205	70	LF	PAINT PAVEMENT MARKING LINES (24")
485000000-E	1205	200	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
600000000-E	1605	800	LF	TEMPORARY SILT FENCE
600600000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	230	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	210	TON	SEDIMENT CONTROL STONE
601500000-E	1615	6	ACR	TEMPORARY MULCHING
601800000-E	1620	200	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	1	TON	FERTILIZER FOR TEMPORARY SEED- ING
602400000-E	1622	70	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	2	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
602900000-E	SP	200	LF	SAFETY FENCE
603000000-E	1630	1,110	CY	SILT EXCAVATION
603600000-E	1631	1,600	SY	MATting FOR EROSION CONTROL
603800000-E	SP	250	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	100	LF	1/4" HARDWARE CLOTH
607000000-N	SP	4	EA	SPECIAL STILLING BASINS
607103000-E	SP	310	LF	COIR FIBER BAFFLES
608400000-E	1660	6	ACR	SEEDING & MULCHING
608700000-E	1660	3.5	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	150	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	4.25	TON	FERTILIZER TOPDRESSING

ItemNumber	Sec #	Quantity	Unit	Description
611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

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-Y-	
PI Sta 10+60.45	PI Sta 11+47.92
$\Delta = 24' 47' 47.0''$ (LT)	$\Delta = 32' 14' 37.4''$ (RT)
$D = 20' 50' 05.4''$	$D = 57' 17' 44.8''$
$L = 119.0'$	$L = 56.28'$
$T = 60.45'$	$T = 28.90'$
$R = 275.00'$	$R = 100.00'$

-L-		
PI Sta 12+09.76	PI Sta 15+42.62	PI Sta 20+20.58
$\Delta = 16' 43' 52.6''$ (LT)	$\Delta = 17' 54' 58.5''$ (RT)	$\Delta = 2' 03' 03.1''$ (LT)
$D = 5' 12' 31.3''$	$D = 5' 12' 31.3''$	$D = 0' 57' 17.7''$
$L = 321.22'$	$L = 343.97'$	$L = 214.77'$
$T = 161.76'$	$T = 173.40'$	$T = 107.39'$
$R = 1,000.00'$	$R = 1,000.00'$	$R = 6,000.00'$
$V_p = 55$ MPH	$V_p = 55$ MPH	$V_p = 55$ MPH
$SE = 6.0\%$	$SE = 6.0\%$	$SE = RC$

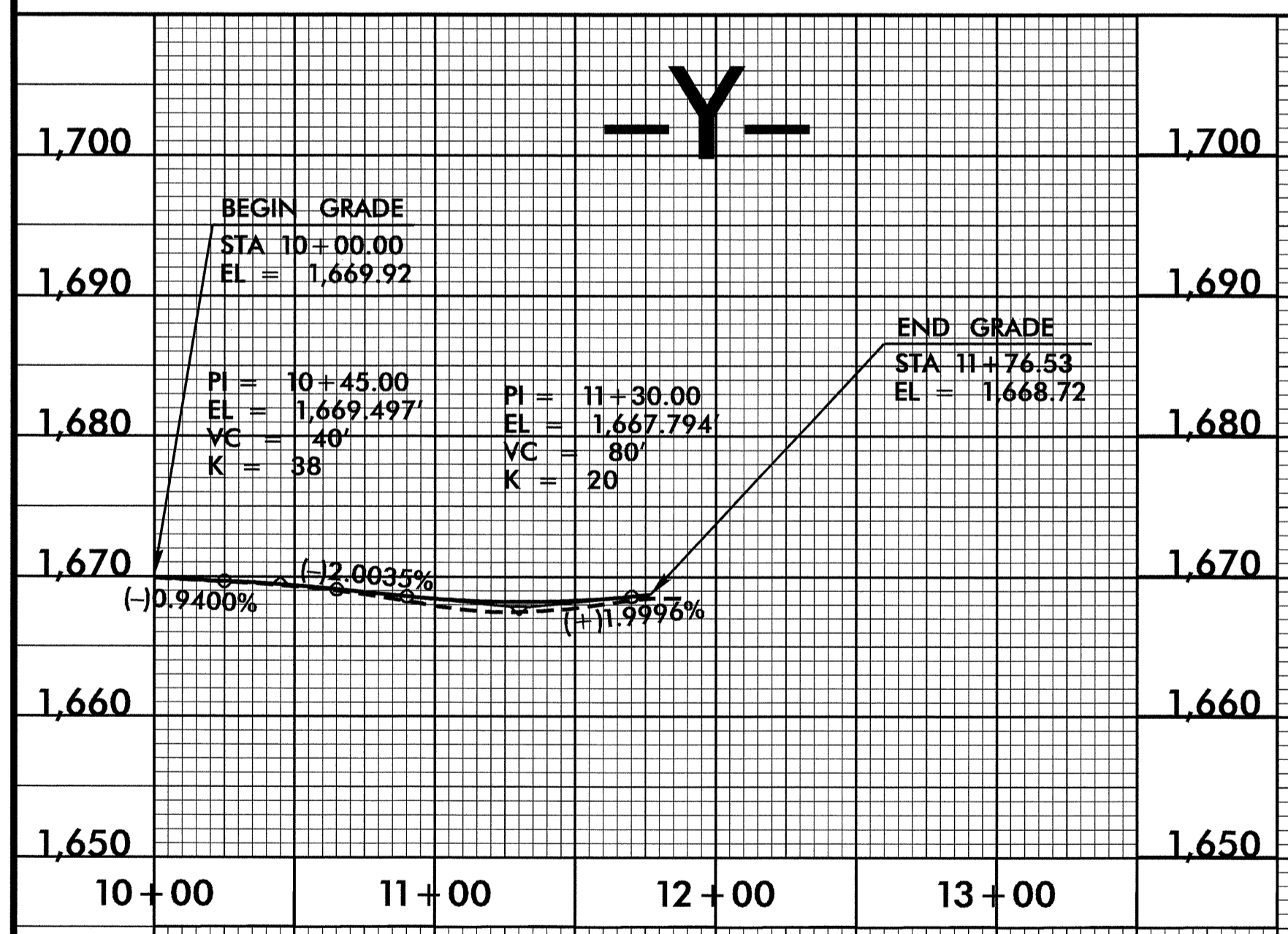
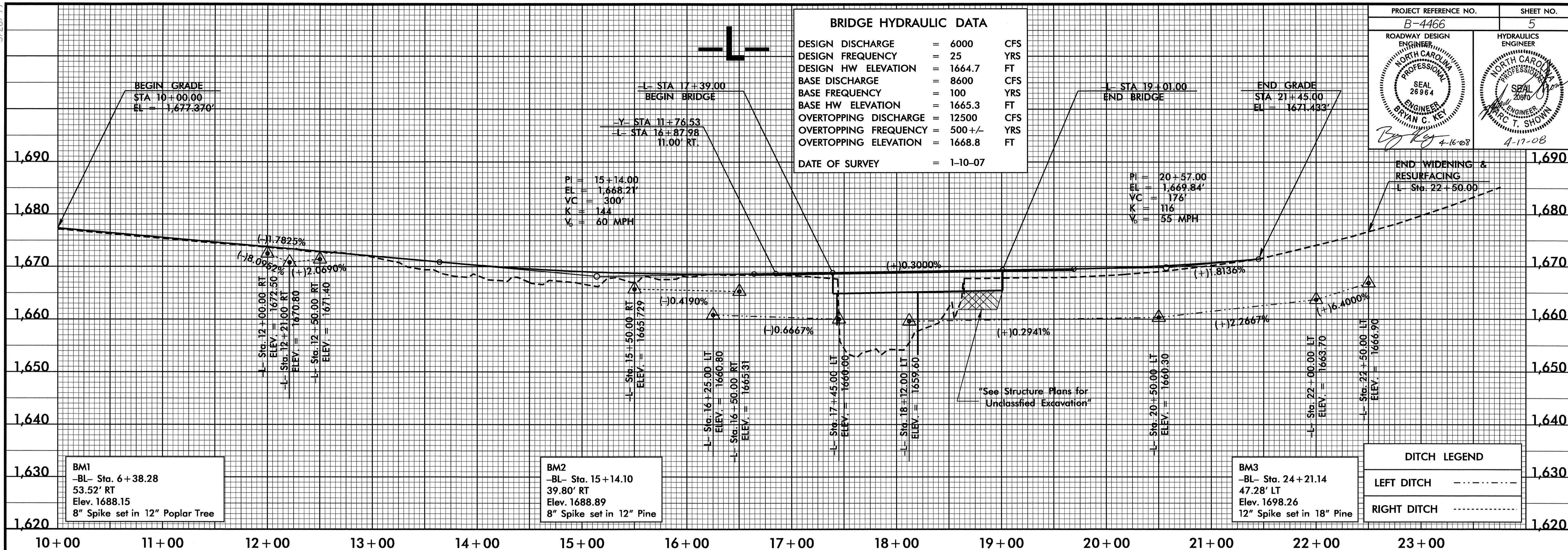
SEE SHEET 5 FOR -L- & -Y- PROFILES
SEE SHEET S-1 THRU S-21 FOR STRUCTURE PLANS

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 8/17/09
 REVISIONS

5/28/08

PROJECT REFERENCE NO. B-4466	SHEET NO. 5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26964 BRYAN C. KEY	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26970 MARC T. SHOWN
<i>Bryan C. Key</i> 4-16-08	4-17-08

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	=	6000 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	1664.7 FT
BASE DISCHARGE	=	8600 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1665.3 FT
OVERTOPPING DISCHARGE	=	12500 CFS
OVERTOPPING FREQUENCY	=	500 +/- YRS
OVERTOPPING ELEVATION	=	1668.8 FT
DATE OF SURVEY	=	1-10-07



SEE SHEET 4 FOR PLAN VIEW

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