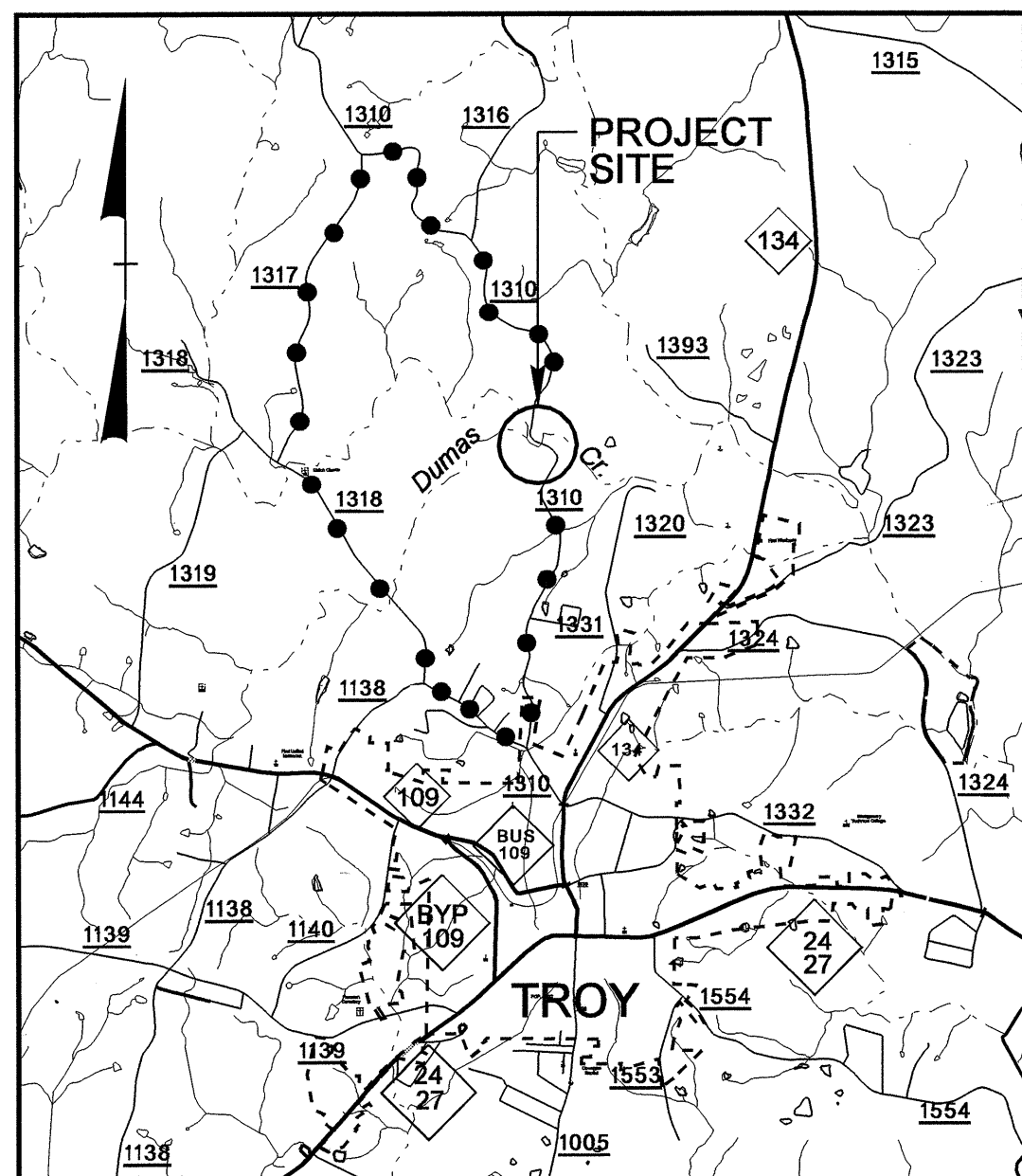


09/08/99

TIP PROJECT: B-4205

CONTRACT: C201814

See Sheet 1-A For Index of Sheets



VICINITY MAP

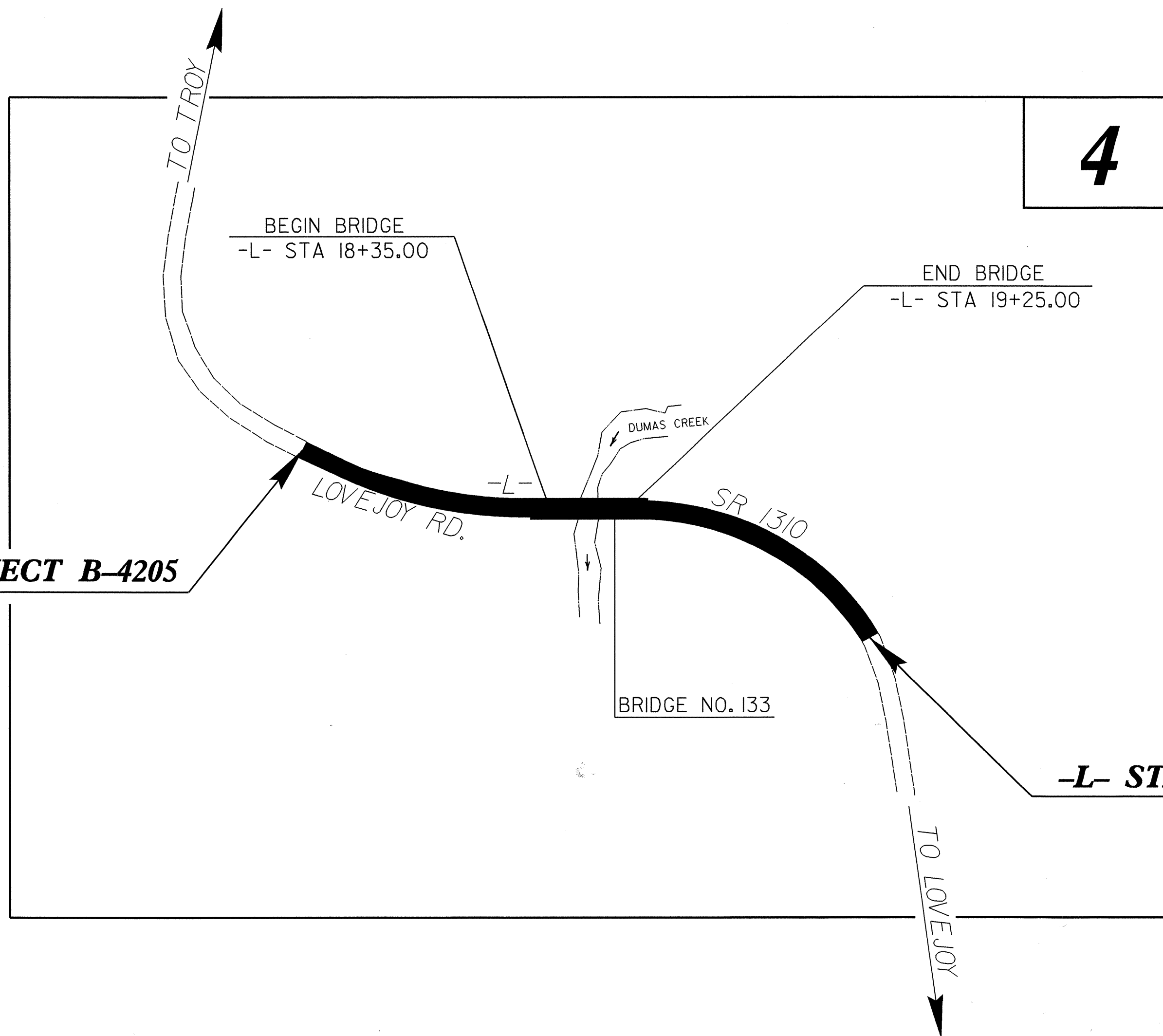
--- DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MONTGOMERY COUNTY

**LOCATION: BRIDGE 133 AND APPROACHES ON SR 1310
OVER DUMAS CREEK**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



-L- STA. 15+00.00 BEGIN TIP PROJECT B-4205

-L- STA. 23+00.00 END TIP PROJECT B-4205



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4205	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33552.1.1	BRZ-1310(3)	PE	
33552.2.2	BRZ-1310(3)	R/W & UTIL	
33552.3.1	BRZ-1310(3)	CONST.	

**** DESIGN EXCEPTION FOR DESIGN SPEED REQUIRED**

GRAPHIC SCALES



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 460
 ADT 2025 = 600
 DHV = 10%
 D = 60%
 T = 3%*
 **V = 30 MPH
 * TTST 1% DUAL 2%

FUNCTIONAL CLASSIFICATION
LOCAL RURAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4205 = 0.135 Miles
 LENGTH OF STRUCTURE TIP PROJECT B-4205 = 0.017 Miles
 TOTAL LENGTH OF TIP PROJECT B-4205 = 0.152 Miles

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

2006 STANDARD SPECIFICATIONS

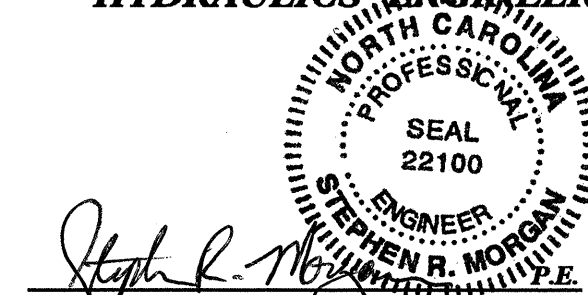
RIGHT OF WAY DATE:
APRIL 4, 2007

LETTING DATE:
APRIL 15, 2008

G.E. BREW, PE
PROJECT ENGINEER

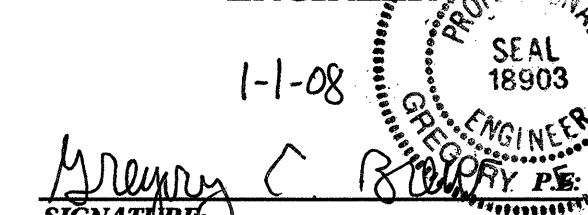
I.T. YOUNIS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER



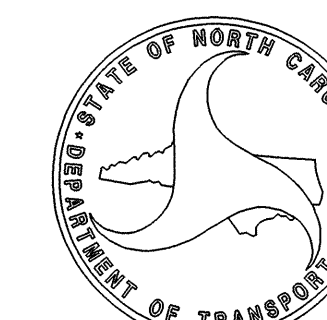
SIGNATURE: Stephen R. Morgan

ROADWAY DESIGN ENGINEER



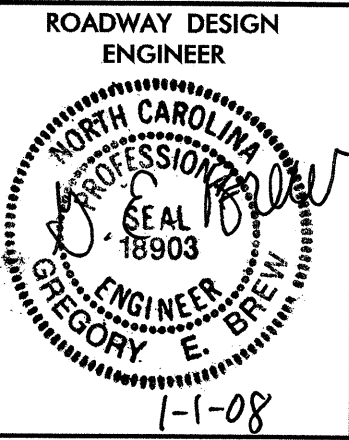
SIGNATURE: Gregory C. Brew

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



at miller P.E.
STATE HIGHWAY DESIGN ENGINEER

07-JAN-2008 14:49
r:\p00dwy\proj\14205_r.dwg - t.sh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$



EFF. 07-18-06

REV. 01-02-07

2006 ROADWAY ENGLISH STANDARD DRAWINGS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	DETAIL OF ANCHORAGE FOR FRAMES-BRICK/CONCRETE/PRECAST CONCRETE
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE QUANTITIES
3B	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
SD-1	SPECIAL SIGN DETAIL
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UC-1 THRU UC-3	UTILITY CONSTRUCTION PLANS
UD-1 THRU UD-2	UTILITIES PLANS
X-1A	CROSS-SECTION SUMMARY
X-1 THRU X-4	CROSS-SECTIONS
S-1 THRU S-18	STRUCTURE PLANS

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
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
300.01	Method of Pipe Installation - Method 'A'
422.10	Reinforced Bridge Approach Fills
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
654.01	Pavement Repairs
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
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
876.04	Drainage Ditches with Class 'B' Rip Rap

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.

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 Emborg, Montgomery County Water System. 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 CONTRACT.

3/15/06

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4205
SHEET NO. I-B

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----
Property Monument	□ EDM
Parcel/Sequence Number	123
Existing Fence Line	-----
Proposed Woven Wire Fence	-----
Proposed Chain Link Fence	-----
Proposed Barbed Wire Fence	-----
Existing Wetland Boundary	----- WLB
Proposed Wetland Boundary	----- WLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB

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	----- JS
Buffer Zone 1	----- BZ 1
Buffer Zone 2	----- BZ 2
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Wetland	-----
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	----- C
Proposed Slope Stakes Fill	----- F
Proposed Wheel Chair Ramp	----- WCR
Proposed Wheel Chair Ramp Curb Cut	----- WCC
Curb Cut for Future Wheel Chair Ramp	----- CCFR
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	----- CONC
Bridge Wing Wall, Head Wall and End Wall	----- CONC WW
MINOR:	
Head and End Wall	----- CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	----- CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	----- S
Storm Sewer	----- S

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	----- P
Designated U/G Power Line (S.U.E.*)	----- P

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	----- T
Designated U/G Telephone Cable (S.U.E.*)	----- T
Recorded U/G Telephone Conduit	----- TC
Designated U/G Telephone Conduit (S.U.E.*)	----- TC
Recorded U/G Fiber Optics Cable	----- T FO
Designated U/G Fiber Optics Cable (S.U.E.*)	----- T FO

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

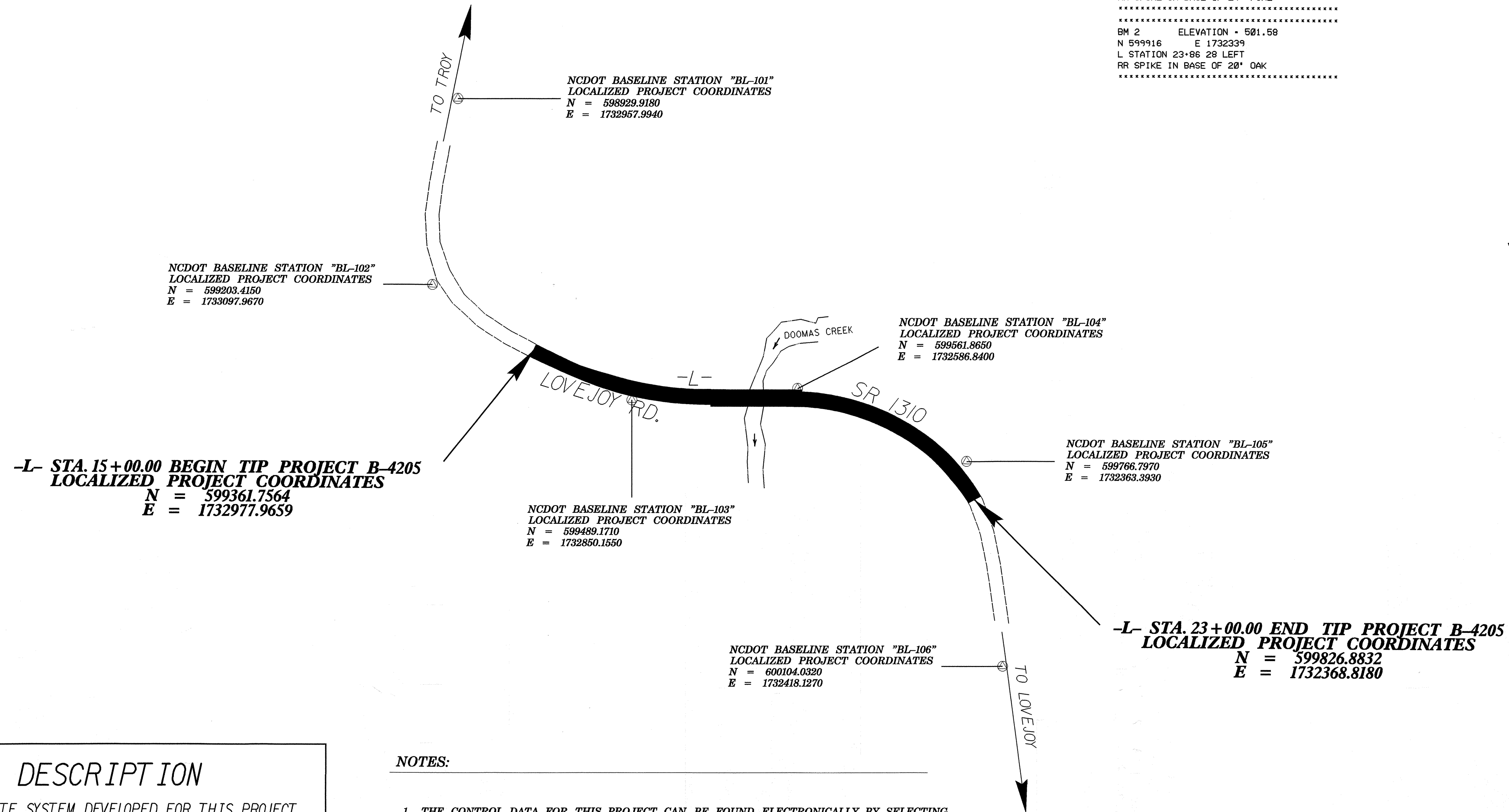
SURVEY CONTROL SHEET B-4205

PROJECT REFERENCE NO. B-4205	SHEET NO. I-C
Location and Surveys	

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101	BL-101	598929.9180	1732957.9940	519.21	10+01.76	14.00 LT
102	BL-102	599203.4150	1733097.9670	507.16	13+06.05	20.35 RT
103	BL-103	599489.1710	1732850.1550	489.64	16+78.14	14.98 RT
104	BL-104	599561.8650	1732586.8400	486.89	19+48.31	14.43 LT
105	BL-105	599766.7970	1732363.3930	491.68	22+45.31	20.97 LT
106	BL-106	600104.0320	1732418.1270	509.59	25+83.64	14.27 RT

 BM 1 ELEVATION = 513.99
 N 599064 E 1733011
 L STATION 11+45 34 LEFT
 RR SPIKE IN BASE OF 24' PINE

 BM 2 ELEVATION = 501.58
 N 599916 E 1732339
 L STATION 23+96 28 LEFT
 RR SPIKE IN BASE OF 20' OAK



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "B4205-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 597338.3460(ft) EASTING: 1733060.6120(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998547 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4205-1" TO -L- STATION 15+00.00 IS N 2°20'20.2" W 2,025.0975 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:
 B-4205_LS_CONTROL_050414.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)

NOTE: DRAWING NOT TO SCALE

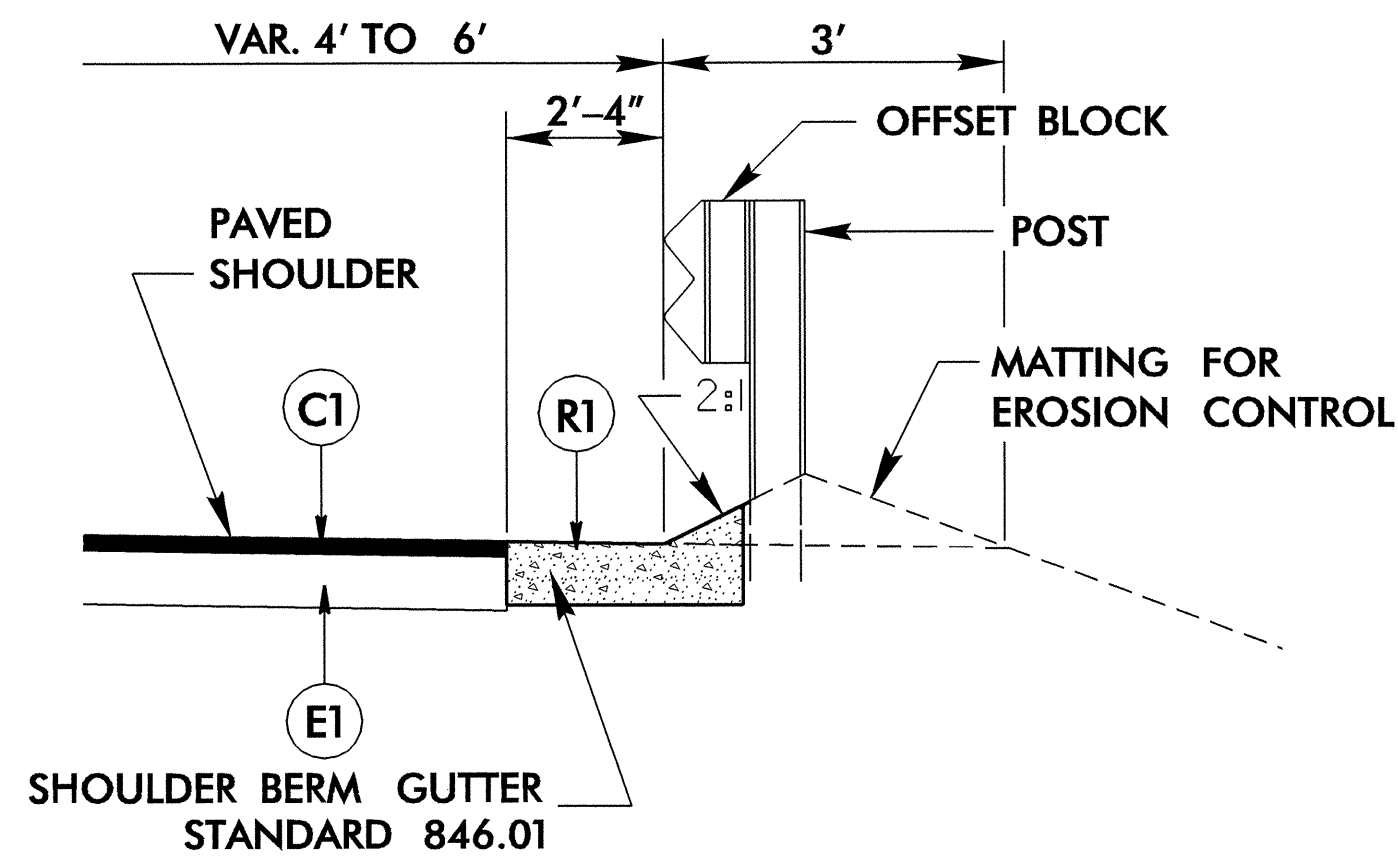
7/12/2007

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 \$\$\$\$LISTENING\$\$\$\$

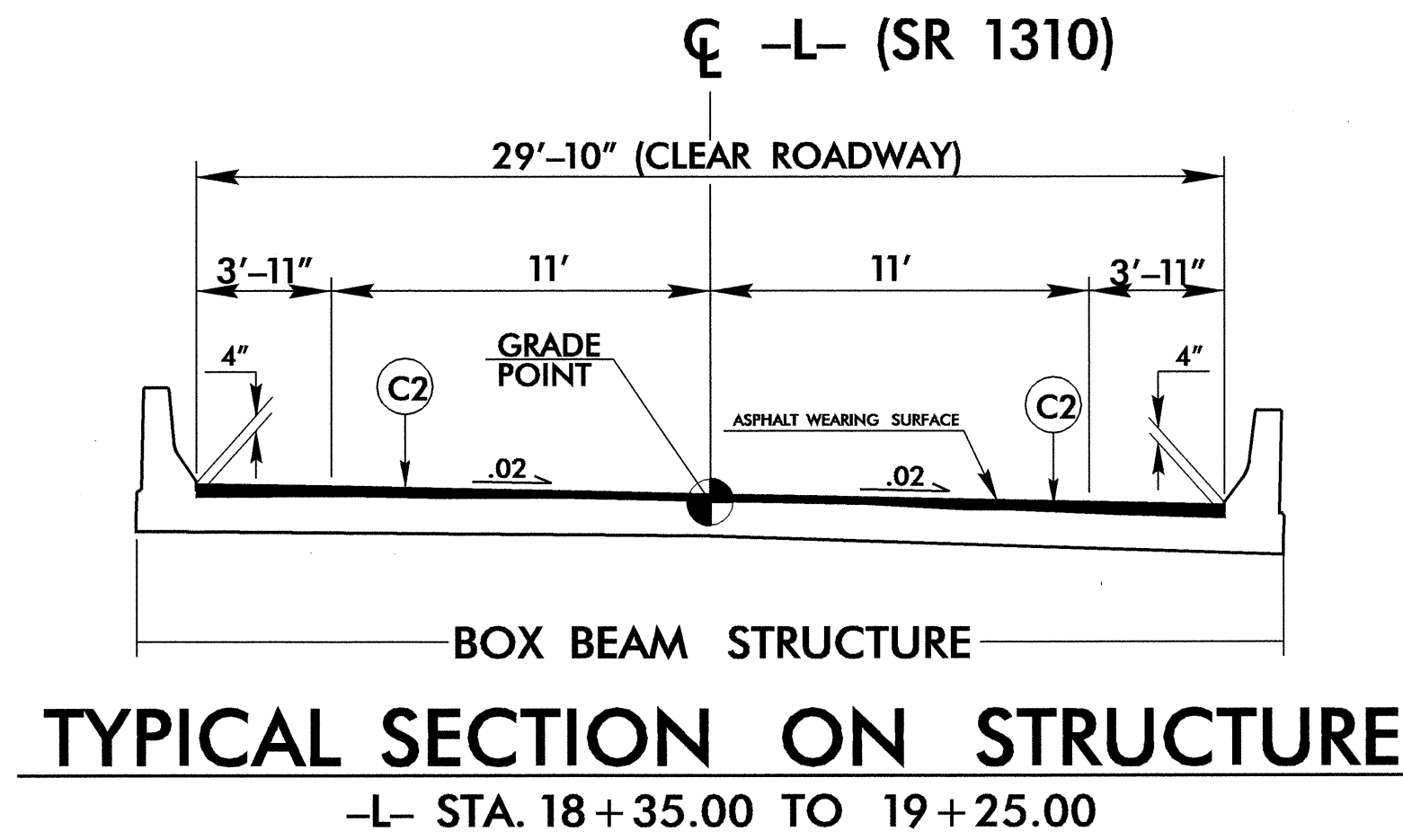
09-JAN-2008 14:01 4205.rdy-tyt.dgn
 6/2/99

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
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 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 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.
R1	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE WEDGING DETAIL)

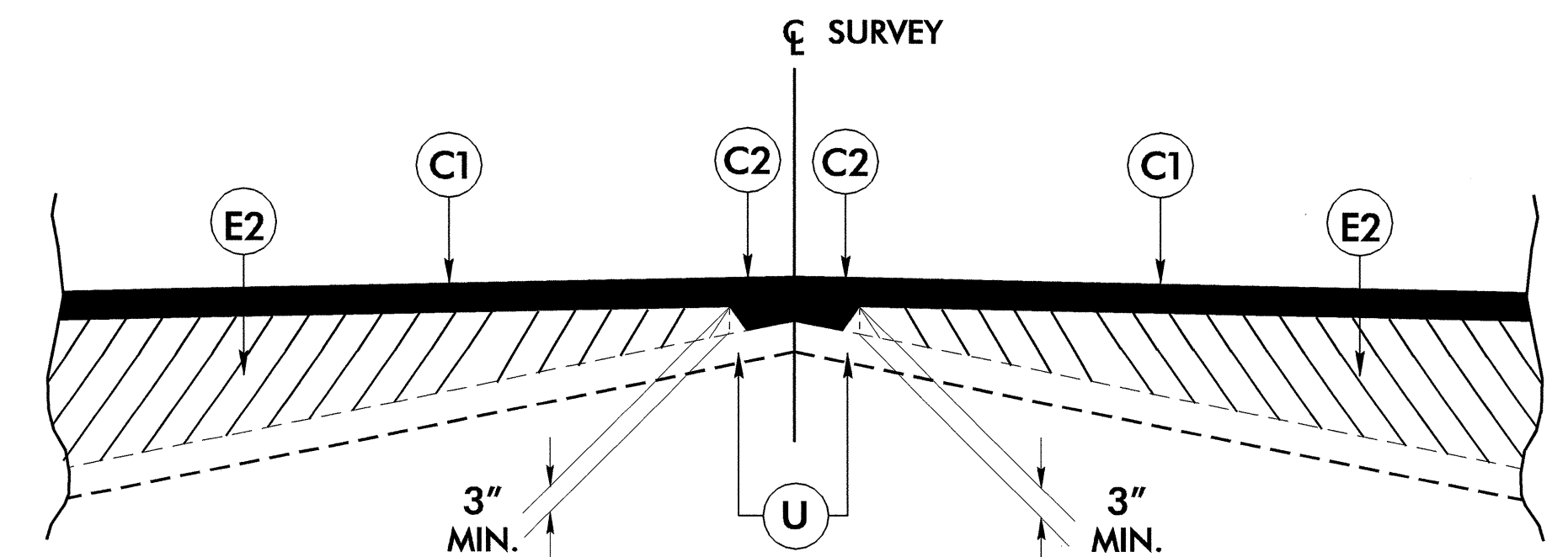
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



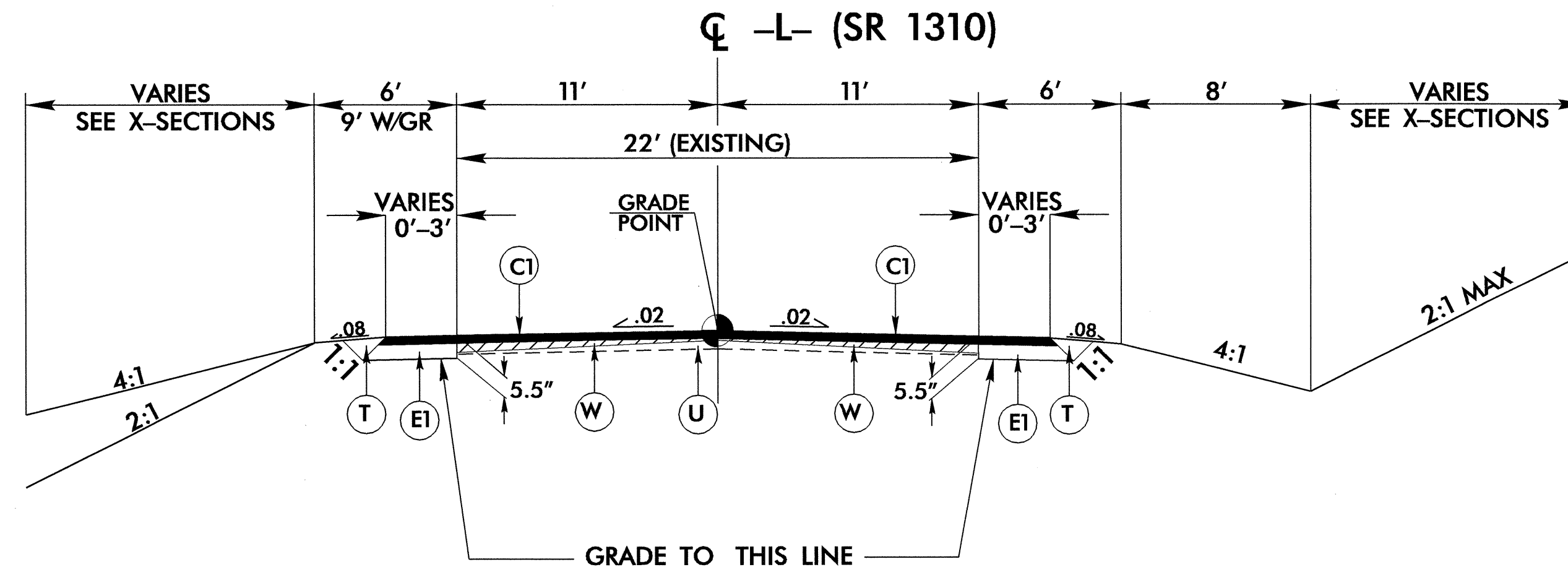
DETAIL SHOWING SHOULDER BERM GUTTER
 USE WITH TYPICAL SECTION NO. 2
 -L- STA. 19+50.00 TO 20+15.00 (RIGHT)
 (SEE STD. 846.03)



TYPICAL SECTION ON STRUCTURE
 -L- STA. 18+35.00 TO 19+25.00

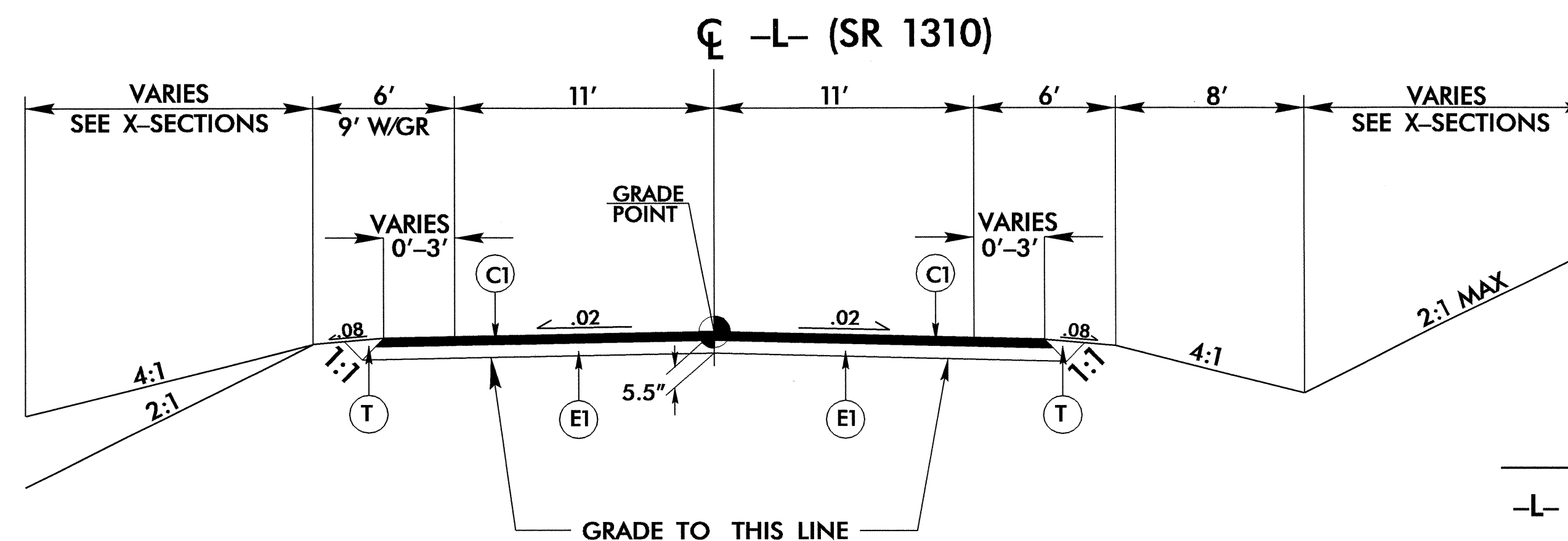


Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

- USE TYPICAL SECTION NO. 1**
- L- STA. 15+00 TO 15+50, TRANSITION FROM EXIST. TO TYPICAL SECTION 1
 - L- STA. 15+50.00 TO 17+50.00
 - L- STA. 20+15.00 TO 22+50.00
 - L- STA. 22+50 TO 23+00, TRANSITION FROM TYPICAL SECTION 1 TO EXISTING



TYPICAL SECTION NO. 2

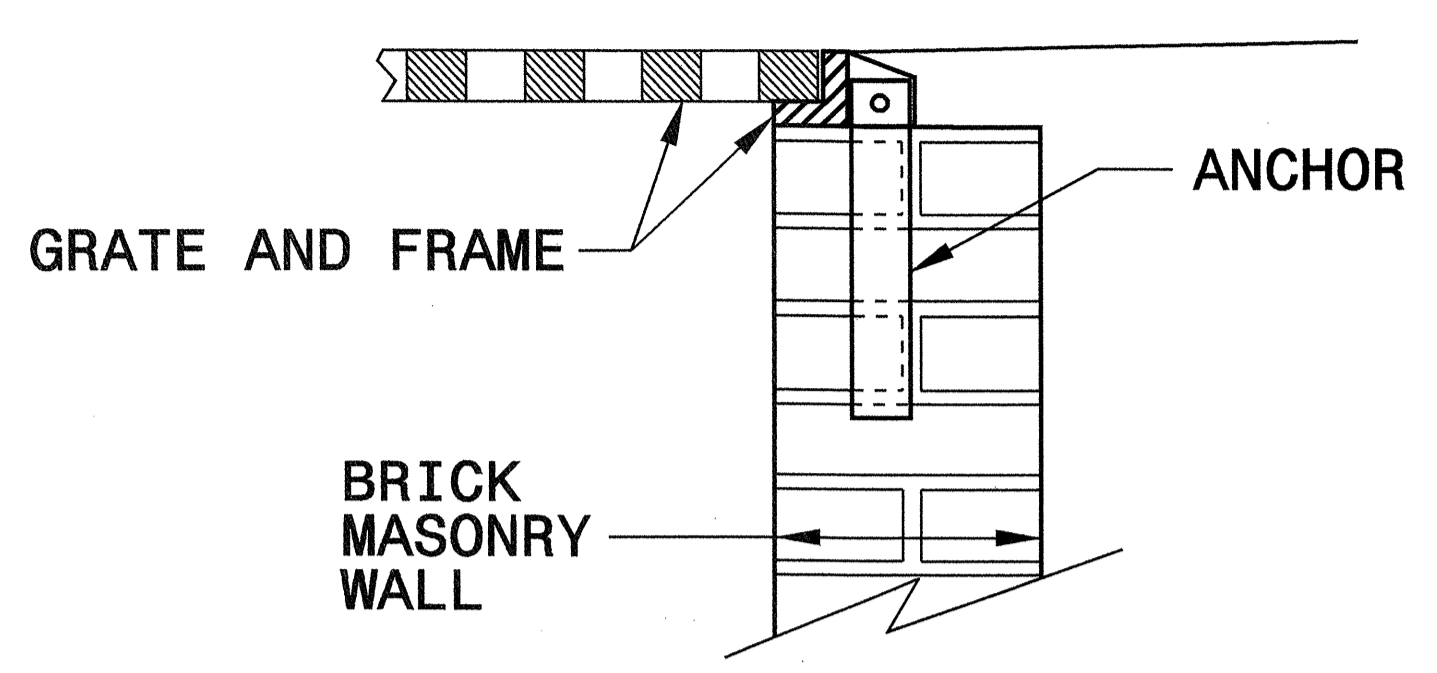
- USE TYPICAL SECTION NO. 2**
- L- STA. 17+50.00 TO 18+35.00 (BEG. BRIDGE)
 - L- STA. 19+25.00 (END BRIDGE) TO 20+15.00

PROJECT REFERENCE NO. B-4205	SHEET NO. 2
ROADWAY DESIGN ENGINEER GREGORY E. BREW 1-1-08	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON 1/9/08

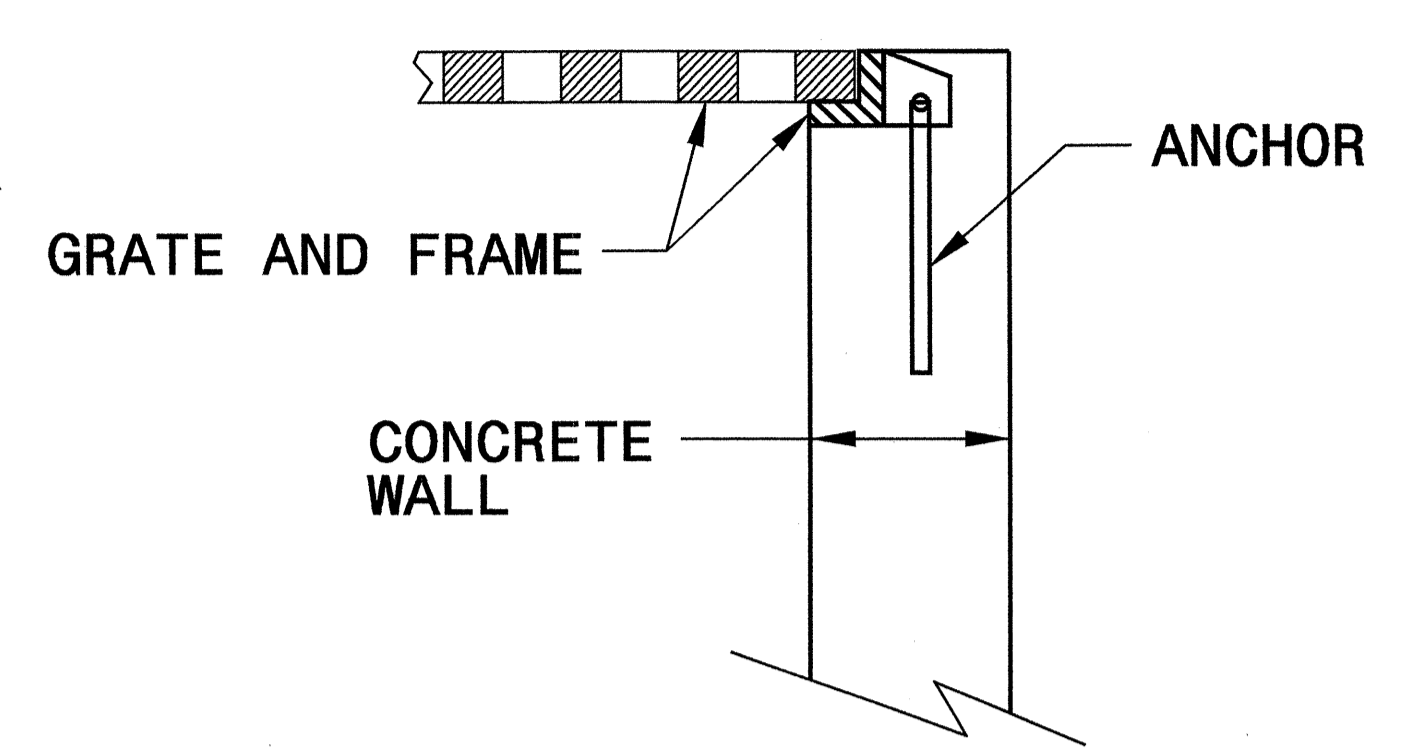
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

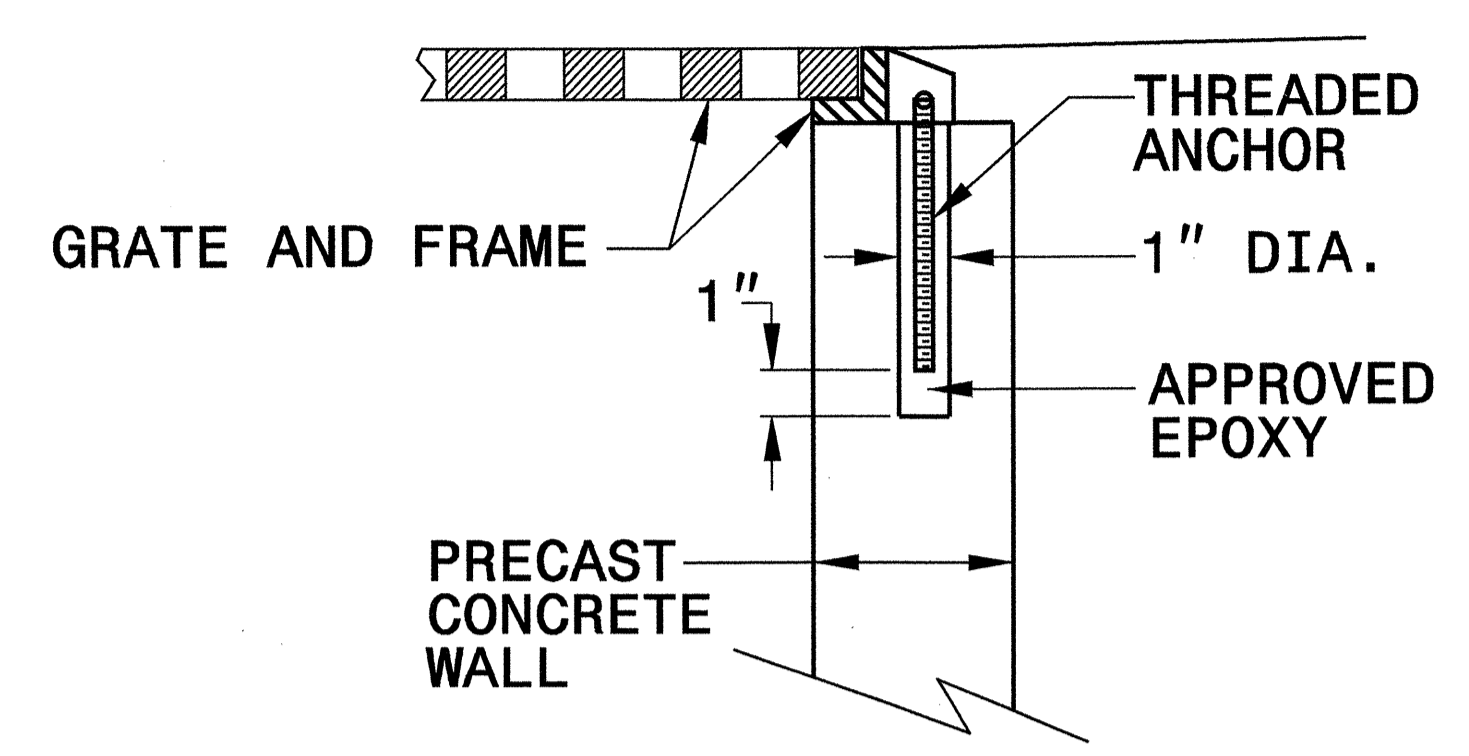
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



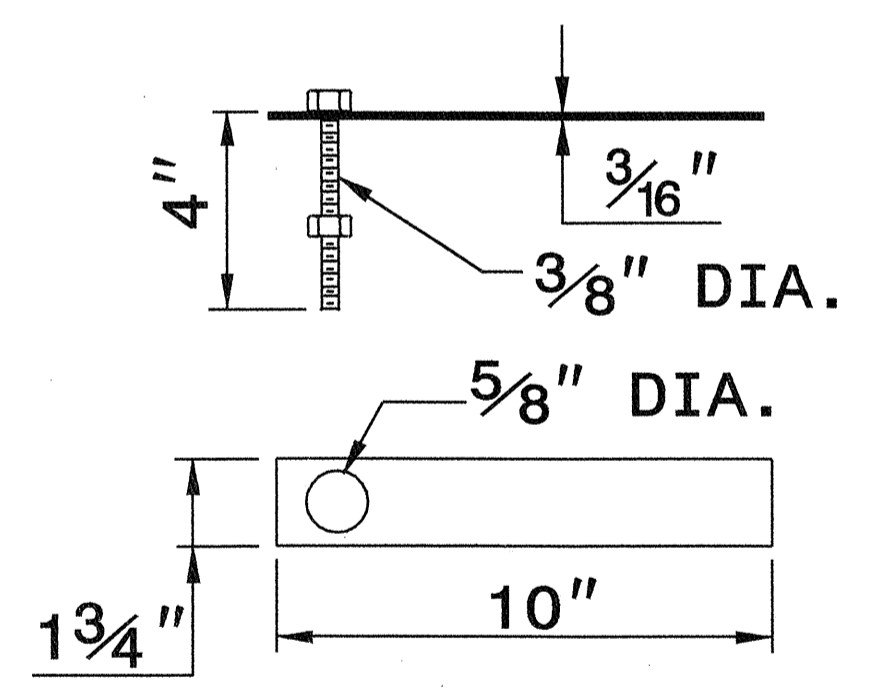
CONCRETE CONSTRUCTION



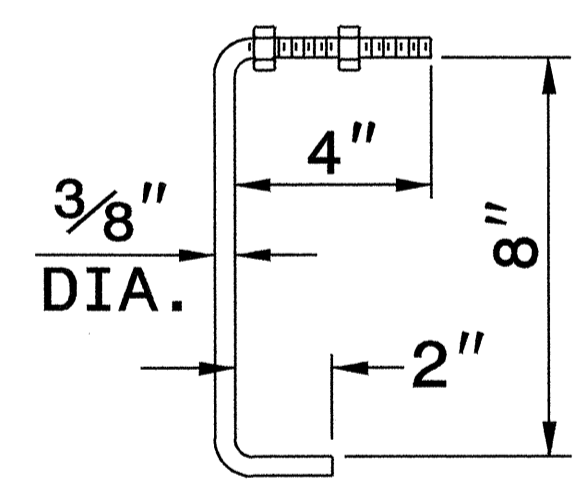
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

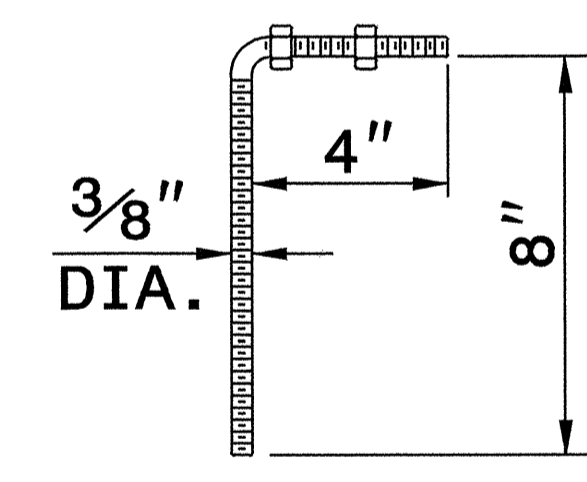
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



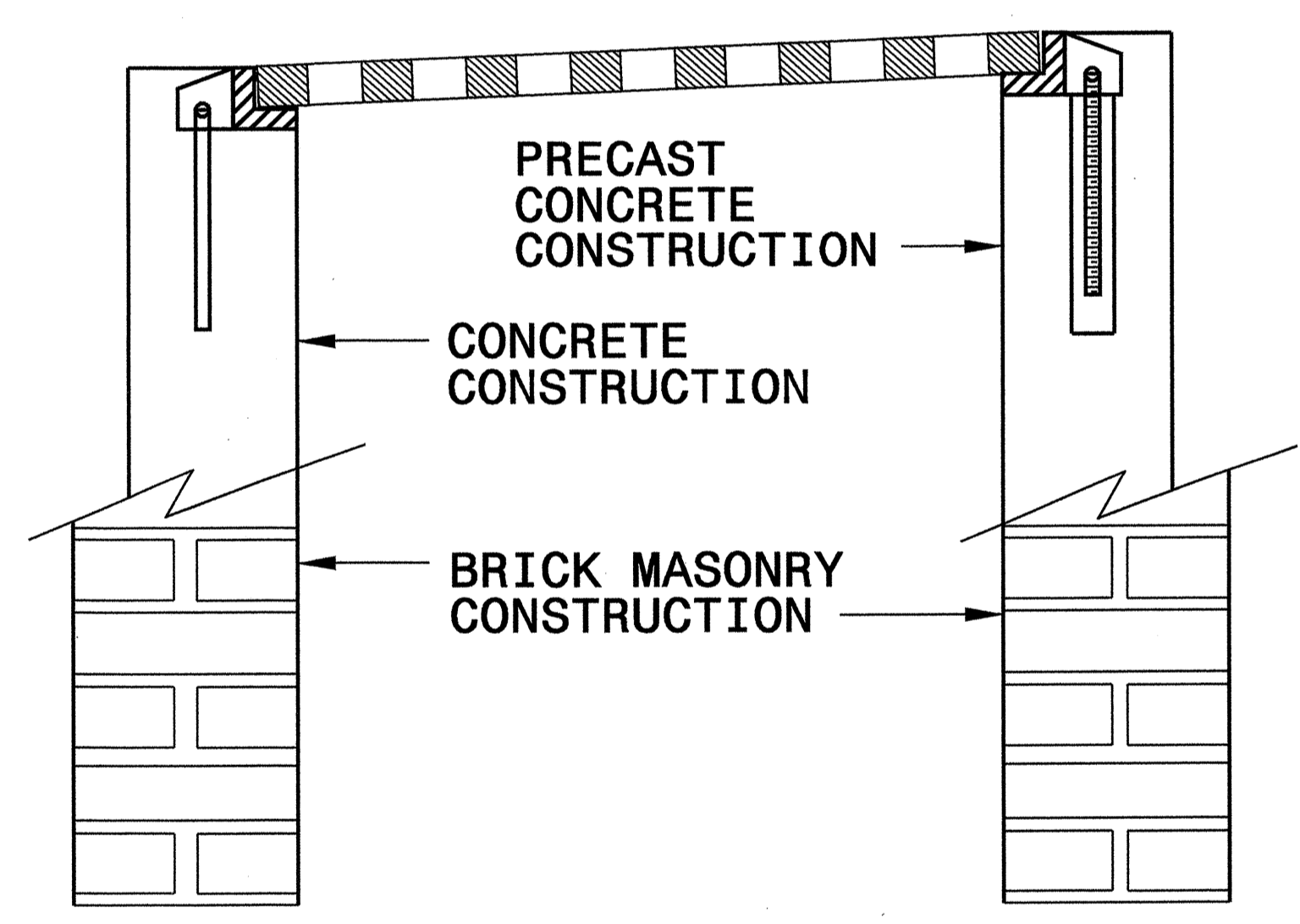
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR

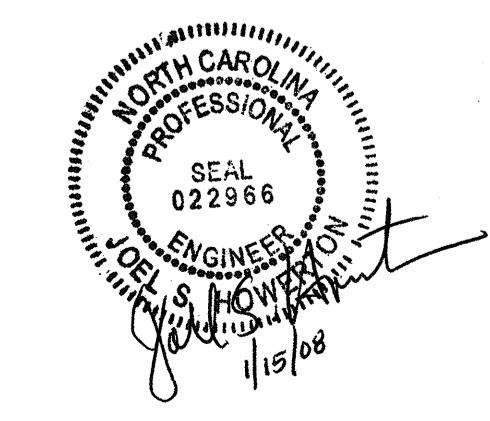


FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

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

SHEET 1 OF 1
840D25



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.:

O:\MAR-2007_09\04...special details\enward\stds\06\stds to special details\840D25 anchorage for frames\0840d25.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201814

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION	315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	602400000-E	1622	30	LF	TEMPORARY SLOPE DRAINS
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING	327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	602700000-N	1622	1	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (18+80.00-L-)	331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	602900000-E	SP	250	LF	SAFETY FENCE
004300000-N	226	Lump Sum		GRADING	364900000-E	876	23	TON	RIP RAP, CLASS B	603000000-E	1630	675	CY	SILT EXCAVATION
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	365600000-E	876	212	SY	FILTER FABRIC FOR DRAINAGE	603600000-E	1631	570	SY	MATTING FOR EROSION CONTROL
005700000-E	226	200	CY	UNDERCUT EXCAVATION	402500000-E	901	18	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)	604200000-E	1632	50	LF	1/4" HARDWARE CLOTH
013400000-E	240	22	CY	DRAINAGE DITCH EXCAVATION	407200000-E	903	36	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	607103000-E	SP	310	LF	COIR FIBER BAFFLES
019500000-E	265	200	CY	SELECT GRANULAR MATERIAL	410200000-N	904	6	EA	SIGN ERECTION, TYPE E	608400000-E	1660	1.5	ACR	SEEDING & MULCHING
019600000-E	270	100	SY	FABRIC FOR SOIL STABILIZATION	415500000-N	907	8	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	608700000-E	1660	1	ACR	MOWING
031800000-E	300	72	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	415500000-N	907	8	EA	DISPOSAL OF SIGN SYSTEM, WOOD	609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
036600000-E	310	52	LF	15" RC PIPE CULVERTS, CLASS III	415800000-N	907	3	EA	DISPOSAL OF SIGN SYSTEM, WOOD	609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
038400000-E	310	60	LF	30" RC PIPE CULVERTS, CLASS III	440000000-E	1110	397	SF	WORK ZONE SIGNS (STATIONARY)	609600000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
070800000-E	310	16	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK	441000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	610800000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
080600000-E	310	1	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK	444500000-E	1145	64	LF	BARRICADES (TYPE III)	611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
099500000-E	340	40	LF	PIPE REMOVAL	481000000-E	1205	6,400	LF	PAINT PAVEMENT MARKING LINES (4")	611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
148900000-E	610	475	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	490000000-N	1251	12	EA	PERMANENT RAISED PAVEMENT MARKERS					
152500000-E	610	275	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	532560000-E	1510	539	LF	6" WATER LINE					
156000000-E	620	39	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	554000000-E	1515	2	EA	6" VALVE					
169300000-E	654	11	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	580000000-E	1530	523	LF	ABANDON 6" UTILITY PIPE					
200000000-N	806	14	EA	RIGHT OF WAY MARKERS	600000000-E	1605	1,100	LF	TEMPORARY SILT FENCE					
228600000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES	600600000-E	1610	105	TON	STONE FOR EROSION CONTROL, CLASS A					
236700000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29	600900000-E	1610	275	TON	STONE FOR EROSION CONTROL, CLASS B					
255600000-E	846	80	LF	SHOULDER BERM GUTTER	601200000-E	1610	105	TON	SEDIMENT CONTROL STONE					
303000000-E	862	375	LF	STEEL BM GUARDRAIL	601500000-E	1615	1.5	ACR	TEMPORARY MULCHING					
					601800000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING					
					602100000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING					

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COMPUTED BY: JBT DATE: 10-8-07
 CHECKED BY: IY DATE: 10-29-07

PROJECT NO. B-4205 SHEET NO. 3-B

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

CUBIC YARDS				
Station to Station	Uncl. Exc. C.Y.	Embank. +% C.Y.	Borrow C.Y.	Waste C.Y.
SUMMARY NO. 1				
-L- 15+00 TO 18+35	424	485	61	
SUMMARY NO. 1 TOTALS				
	424	485	61	
SUMMARY NO. 2				
-L- 19+25 TO 23+00	21	550	529	
SUMMARY NO. 2 TOTALS				
	21	550	529	
PROJECT SUB TOTAL				
	445	1,035	590	
Waste In Lieu of Borrow				
Loss due to Clearing&Grubbing	-75		75	
Est 5% To Replace Topsoil at Borrow Pit			21	
GRAND TOTALS				
	370		686	
SAY				
	385		700	
ESTIMATED DDE = 22 CY				
ESTIMATED UNDERCUT = 200 CY				

SUMMARY OF ASPHALT PAVEMENT REMOVAL

LINE	Station to Station	LOC LT/RT/CL	Asphalt Removal SQ. YDS.
L	17+50 TO 18+46.01	CL	220.7
L	19+12.94 TO 20+50	CL	326.11
PROJECT TOTAL			546.81
SAY			550

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 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.

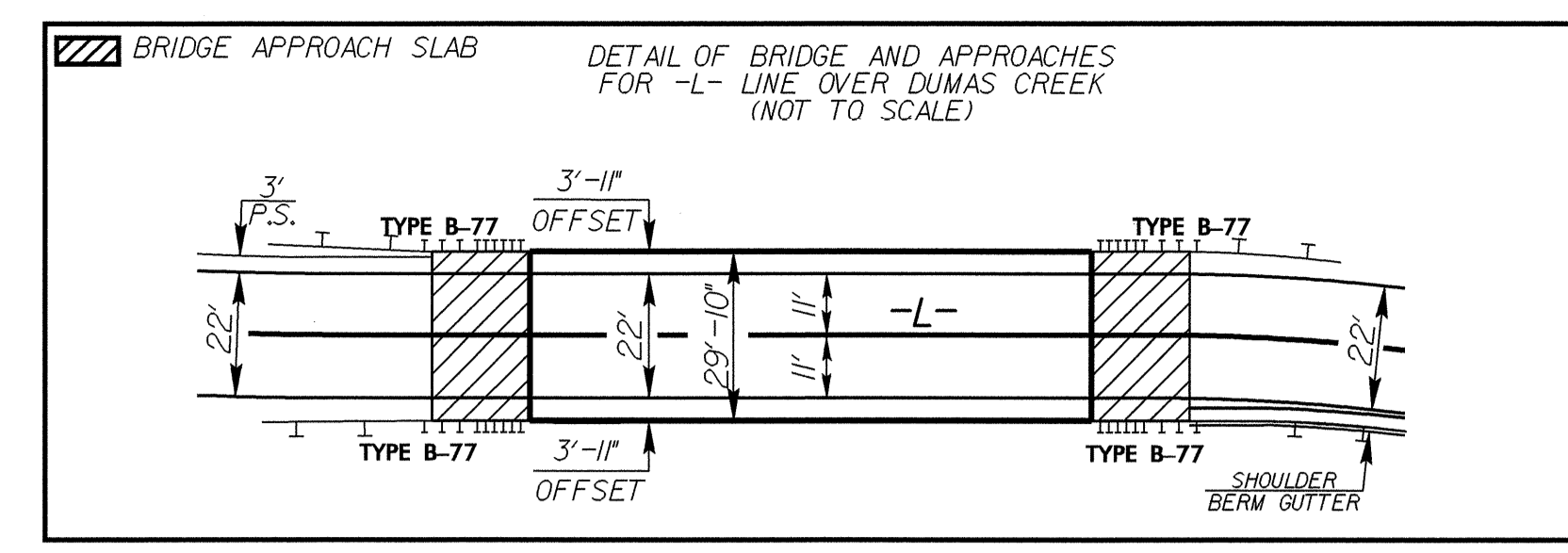
GUARDRAIL SUMMARY

"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

LINE	BEG. STA.	END STA.	LOC.	LENGTH (FT.)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH		W		ANCHORS				IMP. ATTEN. TYPE 350			REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	GRAU 350	TYPE B-77	EA	G	NG				
L	16+22.50	18+35.00	RT	212.50			18+35.00		6'	9'	193.75'		3'			1	1						BRIDGE WARRANT
L	19+25.00	20+75.00	RT	150.00				20+00.00	6'	9'		131.25'		3'		1	1						FILL WARRANT
L	17+60.00	18+35.00	LT	75.00				18+35.00	6'	9'		56.25'		1.125'		1	1						BRIDGE WARRANT
L	19+25.00	21+37.50	LT	212.50			19+37.00		6'	9'	193.75'		3'			1	1						BRIDGE WARRANT
SUBTOTALS				650.00												4	4						TOTAL
DEDUCTION FOR ANCHOR UNITS																							
(4 GRAU@50')				-200																			
(4 TYPE B-77 @18.75')				-75																			
PROJECT TOTAL				375												4	4						

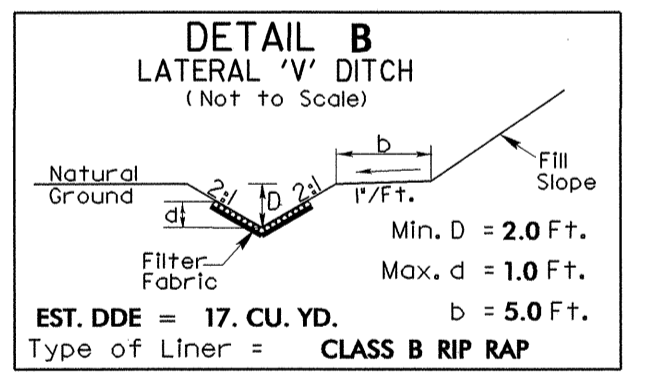
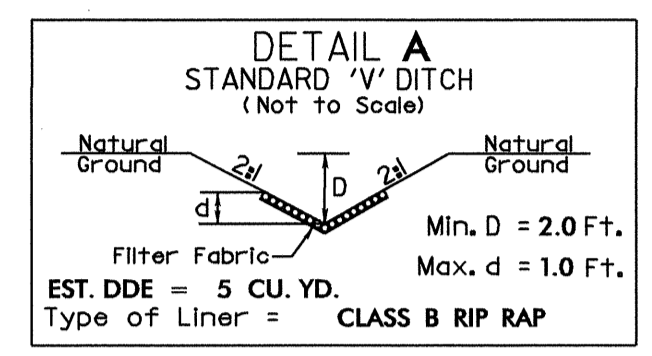
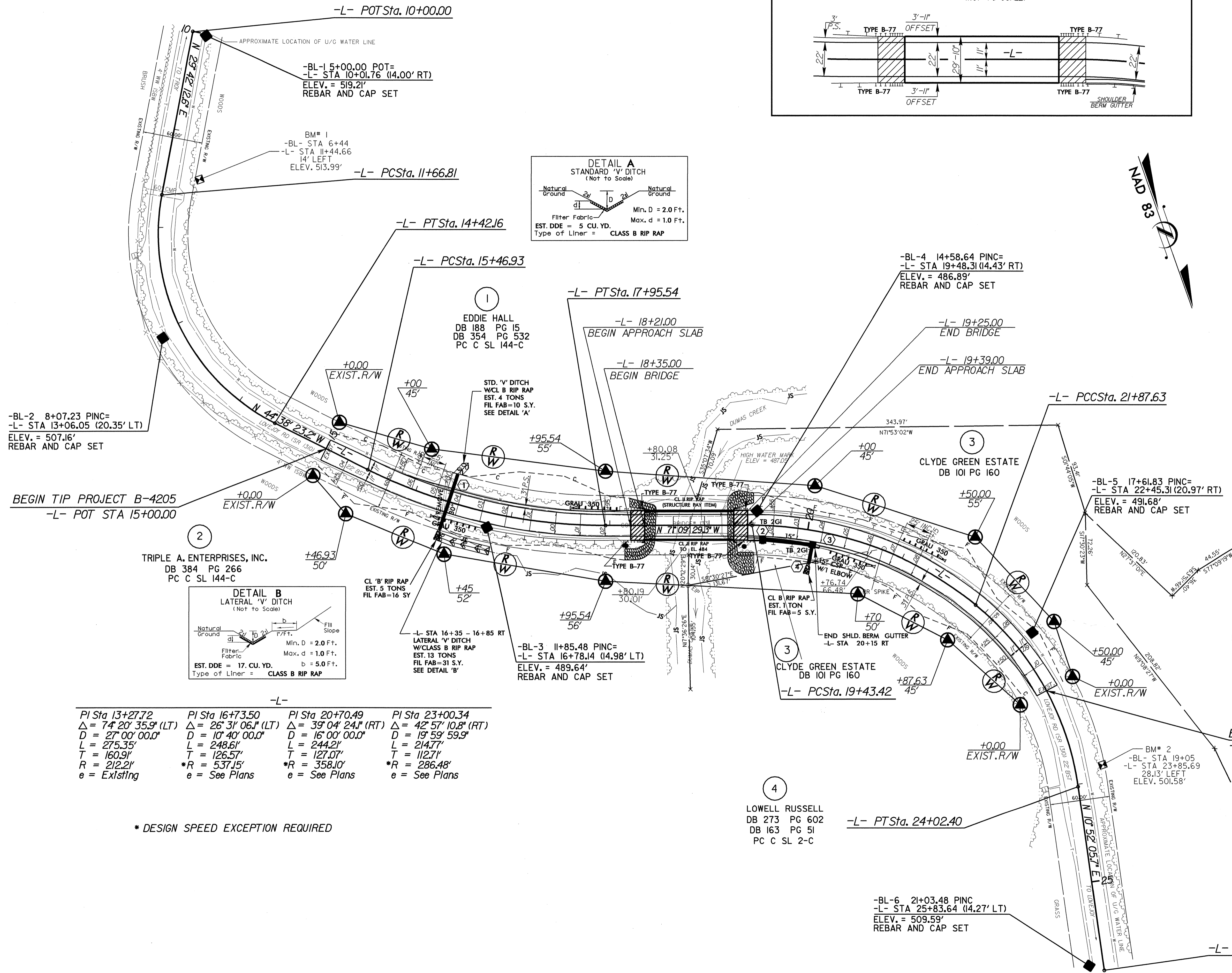
ADDITIONAL GUARDRAIL POSTS= 5 EA

RD223184



SEE SHEET 5 FOR PROFILE

SEE SHEETS S-1 THRU S-18 FOR STRUCTURE PLANS



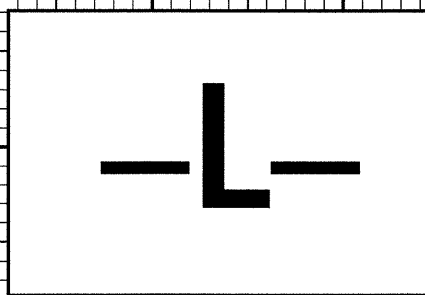
PI Sta	PI Sta	PI Sta	PI Sta
13+27.72	16+73.50	20+70.49	23+00.34
$\Delta = 74^{\circ} 20' 35.9''$ (LT)	$\Delta = 26^{\circ} 31' 06.1''$ (LT)	$\Delta = 39^{\circ} 04' 24.1''$ (RT)	$\Delta = 42^{\circ} 57' 10.8''$ (RT)
$D = 27^{\circ} 00' 00.0''$	$D = 10^{\circ} 40' 00.0''$	$D = 16^{\circ} 00' 00.0''$	$D = 19^{\circ} 59' 59.9''$
$L = 275.35'$	$L = 248.61'$	$L = 244.21'$	$L = 214.77'$
$T = 160.91'$	$T = 126.57'$	$T = 112.07'$	$T = 112.71'$
$R = 212.21'$	$*R = 537.15'$	$*R = 358.10'$	$*R = 286.48'$
$e = Existing$	$e = See Plans$	$e = See Plans$	$e = See Plans$

* DESIGN SPEED EXCEPTION REQUIRED

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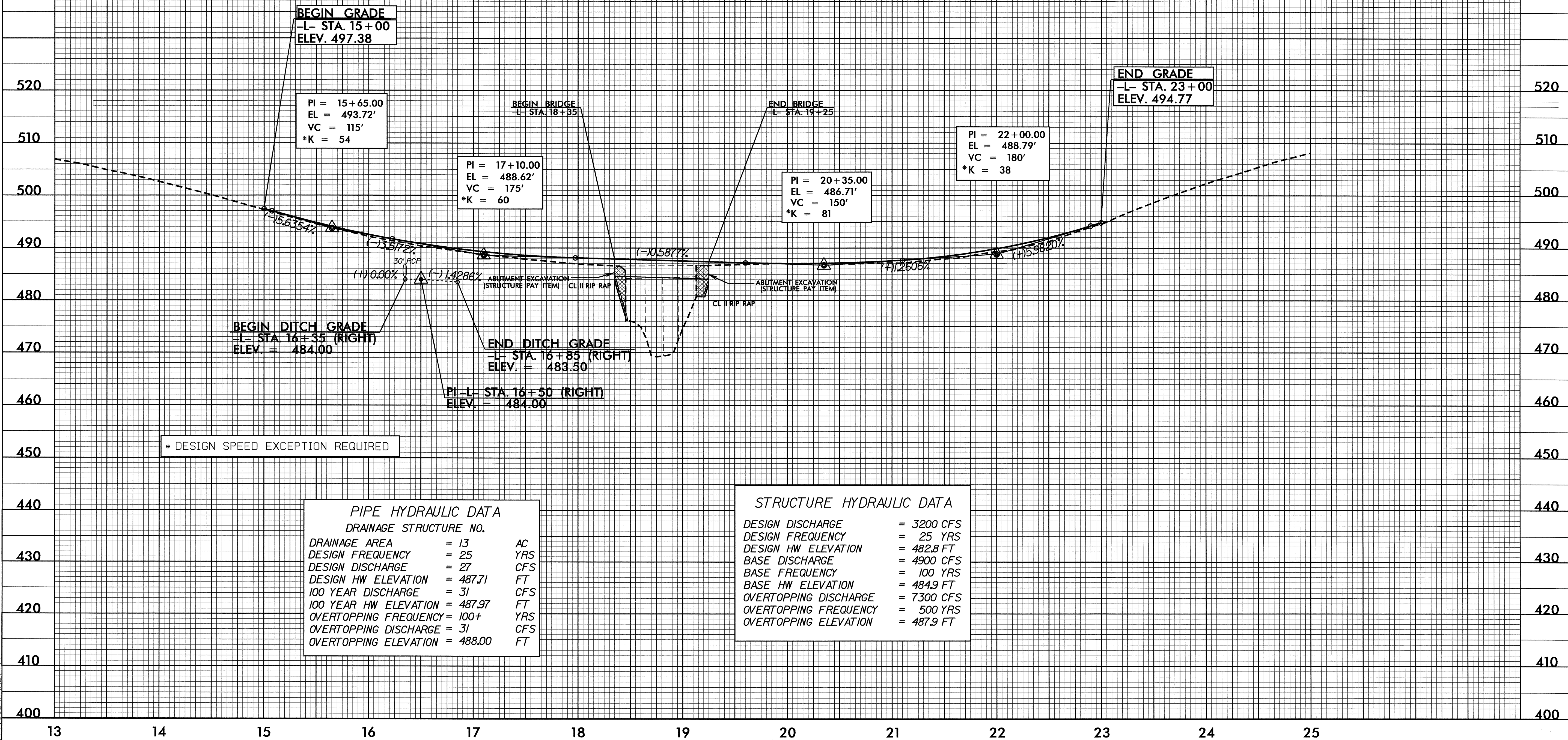
PROJECT REFERENCE NO. B-4205	SHEET NO. 5
ROADWAY DESIGN ENGINEER GREGORY E. BROWN	HYDRAULICS ENGINEER J. BROWN

B.M.#1 - RR SPIKE IN BASE OF 24" PINE
-L- STA. 11+44.66 34.47' LEFT
ELEV. 513.99'



B.M.#2 - RR SPIKE IN BASE OF 20" OAK
-L- STA. 23+85.69 28.13' LEFT
ELEV. 501.58'

SEE SHEET 4 FOR PLANS



PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 13 AC
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 27 CFS
DESIGN HW ELEVATION	= 487.71 FT
100 YEAR DISCHARGE	= 31 CFS
100 YEAR HW ELEVATION	= 487.97 FT
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING DISCHARGE	= 31 CFS
OVERTOPPING ELEVATION	= 488.00 FT

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 3200 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 482.8 FT
BASE DISCHARGE	= 4900 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 484.9 FT
OVERTOPPING DISCHARGE	= 7300 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 487.9 FT

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