

9/09/99

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

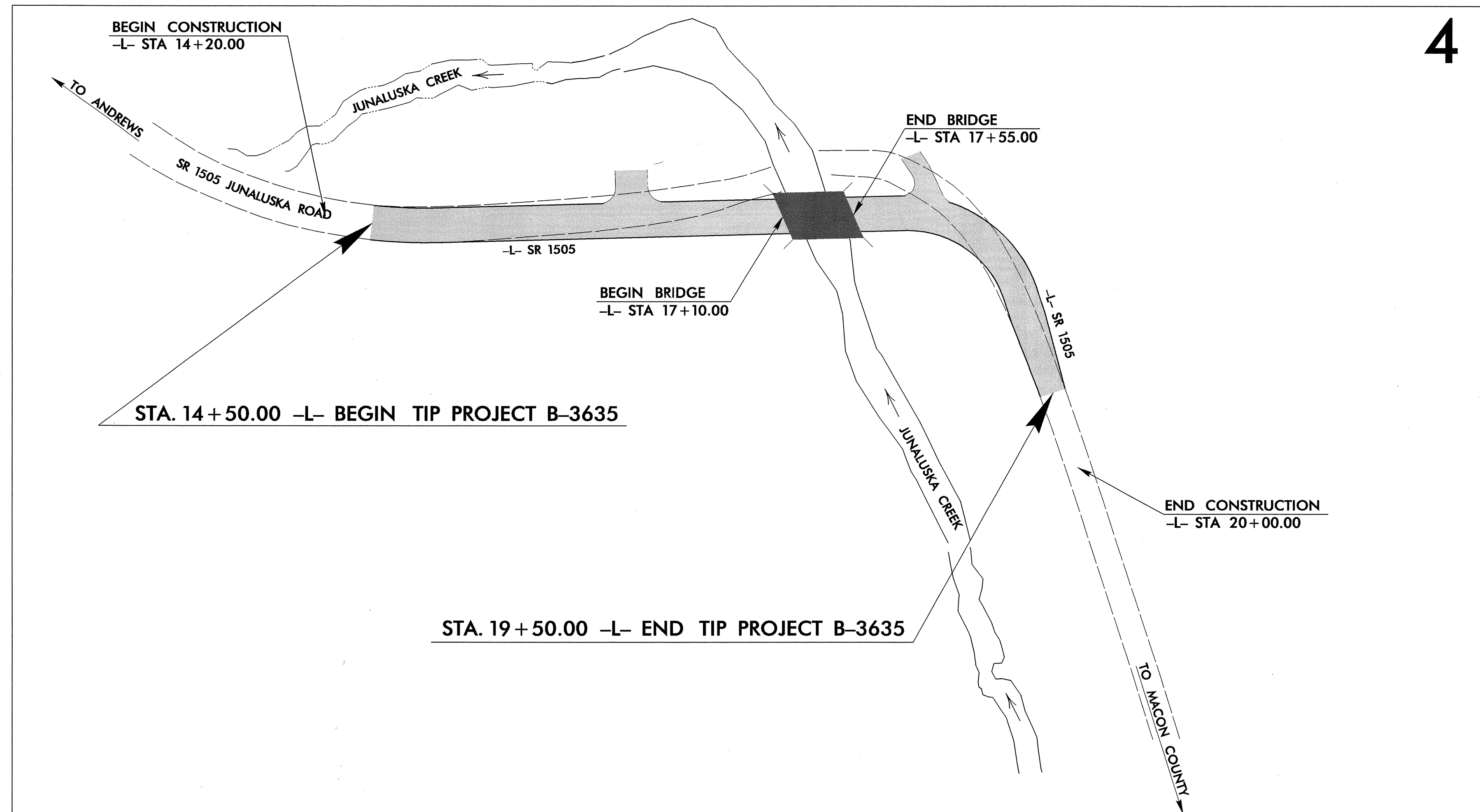
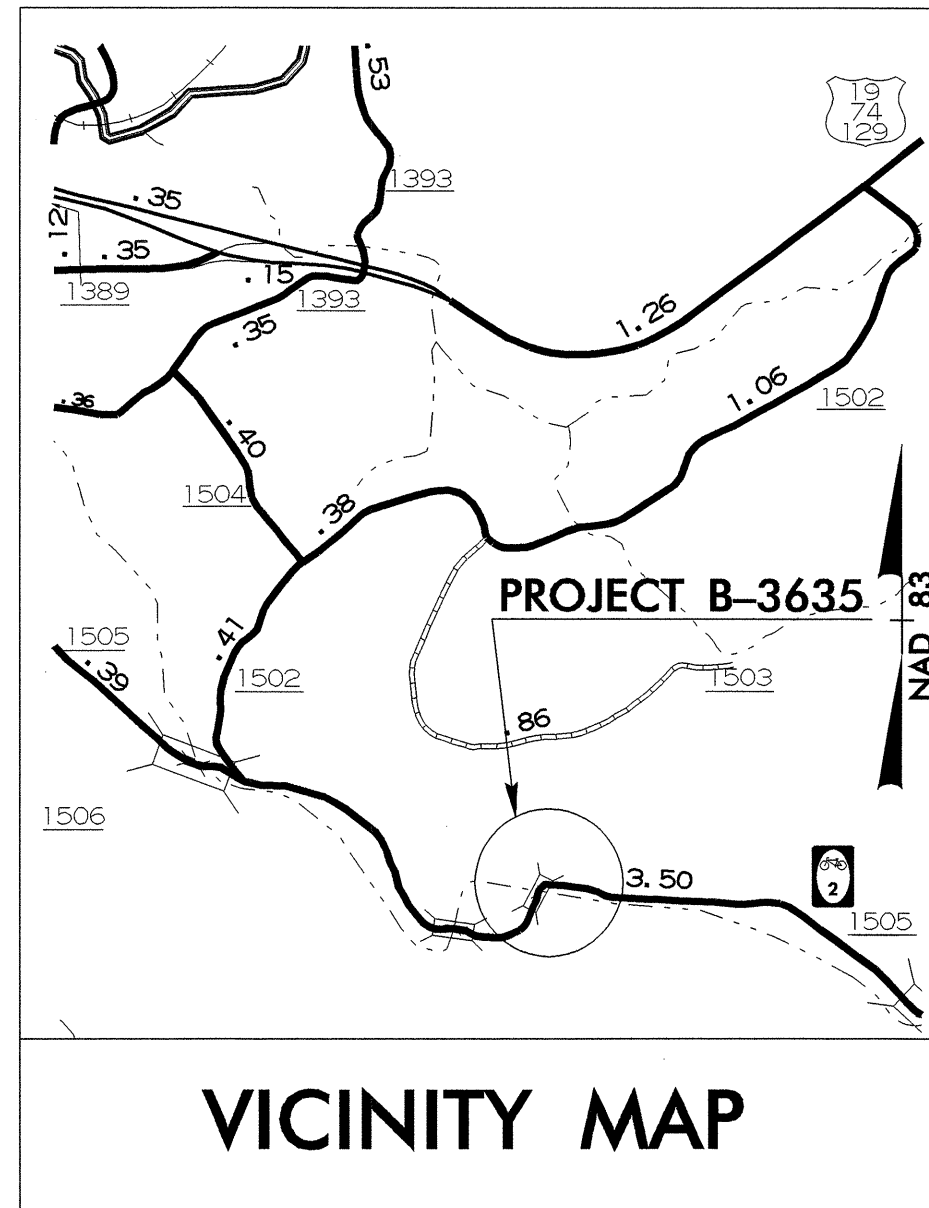
**CHEROKEE COUNTY**

**LOCATION: BRIDGE NO. 26 OVER JUNALUSKA CREEK  
AND APPROACHES ON SR 1505 (JUNALUSKA ROAD)**

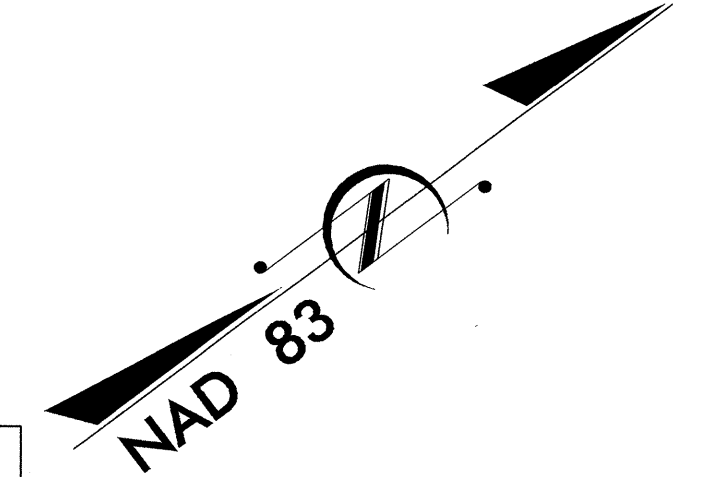
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3635	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33183.1.1	BRSTP-1505(1)	P.E.	
33183.2.1	BRSTP-1505(1)	RW & UTILITIES	
33183.3.1	BRSTP-1505(1)	CONST.	

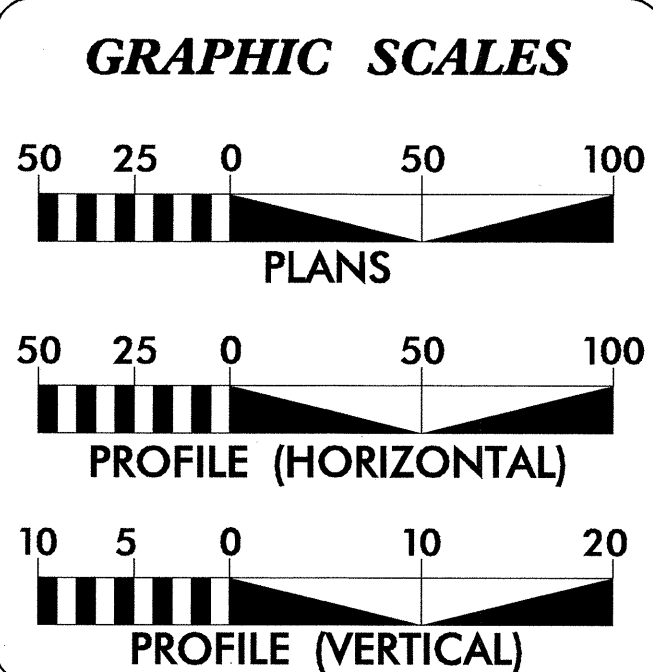
**CONTRACT: C202038 TIP PROJECT: B-3635**



4



\*\* DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED, MINIMUM HORIZONTAL CURVE RADIUS, SUPERELEVATION, AND ASSOCIATED STOPPING SIGHT DISTANCE.



**DESIGN DATA**

ADT 2008 =	1280
ADT 2025 =	1800
DHV =	14 %
D =	60 %
T =	3 % *
V =	30 MPH**
* TTST 1 %	DUAL 2 %

**PROJECT LENGTH**

LENGTH ROADWAY OF TIP PROJECT B-3635 =	0.086 MILES
LENGTH STRUCTURE OF TIP PROJECT B-3635 =	0.009 MILES
TOTAL LENGTH OF TIP PROJECT B-3635 =	0.095 MILES

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

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
DECEMBER 9, 2005

**LETTING DATE:**  
DECEMBER 16, 2008

**JAMES A. SPEER, PE**  
PROJECT ENGINEER

**DANIEL W. GARDNER, JR., PE**  
PROJECT DESIGN ENGINEER

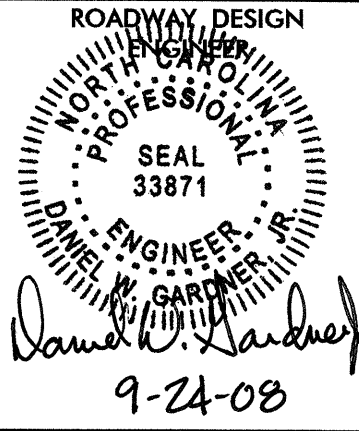
**HYDRAULICS ENGINEER**

**ROADWAY DESIGN ENGINEER**

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

*D. W. Gardner, Jr.*  
P.E.  
STATE HIGHWAY DESIGN ENGINEER

24-JUN-2008 08:31  
R:\proj\B-3635\RD238350.dwg  
User: dwgarden



8/17/09

GENERAL NOTES: 2006 SPECIFICATIONS  
EFFECTIVE: 07-18-06  
REVISED: 09-12-08

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

CLEARING:  
  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 11.

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.

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 DUKE ENERGY-POWER, CHEROKEE CABLEVISION CORPORATION-CABLE, AND VERIZON-TELEPHONE  
  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

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 DETAIL
2-A	MODIFIED CONCRETE FLUME DETAIL
2-B	ANCHORAGE FOR FRAMES DETAIL
2-C	TEMPORARY STEEL PLATE COVER DETAIL
3	SUMMARY OF QUANTITIES
3-A	GUARDRAIL SUMMARY, DRAINAGE SUMMARY, ASPHALT PAVEMENT REMOVAL SUMMARY, ASPHALT PAVEMENT BREAK-UP SUMMARY, AND EARTHWORK SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-5	TRAFFIC CONTROL PLANS
PM-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UD-1 THRU UD-2	UTILITIES BY OTHERS
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-8	CROSS-SECTIONS
S-1 THRU S-24	STRUCTURE PLANS

2006 ROADWAY ENGLISH STANDARD DRAWINGS  
EFF. 07-18-06  
REV. 01-02-07

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

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method 11
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method 1
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
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

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Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

**BOUNDARIES AND PROPERTY:**

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	→
Property Monument	□ ECM
Parcel/Sequence Number	(23)
Existing Fence Line	-x-x-x-
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	○ S
Well	○ W
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	← FLOW
False Sump	◇

**RAILROADS:**

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ 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	○ RW
Proposed Right of Way Line with Iron Pin and Cap Marker	○ RW ▲
Proposed Right of Way Line with Concrete or Granite Marker	○ RW
Existing Control of Access	○ CA
Proposed Control of Access	○ CA
Existing Easement Line	-E-
Proposed Temporary Construction Easement	-E-
Proposed Temporary Drainage Easement	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent Utility Easement	-PUE-

**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
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	□ 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	-----

**UTILITIES:**

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ P
Power Line Tower	□
Power Transformer	□
U/G Power Cable Hand Hole	PH
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	○ T
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	□
U/G Telephone Cable Hand Hole	PH
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	○ W
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	PH
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	○ SS
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	-UTL-
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

# B-3635 SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-3635	I-C
LOCATION AND SURVEYS	

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/

FILE: B3635\_LS\_CONTROL\_050715.TXT

\*\*\*\*\*  
 BM1 ELEVATION = 2020.21  
 N 555225 E 569923  
 BL STATION 5+00  
 S 84° 12' 53.2" W DIST 139.59  
 8 INCH SPIKE IN 18 INCH POPLAR TREE  
 \*\*\*\*\*

\*\*\*\*\*  
 BM2 ELEVATION = 2029.49  
 N 555260 E 570421  
 BL STATION 8+57 10 RIGHT  
 CHISLED SQUARE ON EAST END OF HEAD WALL  
 \*\*\*\*\*

\*\*\*\*\*  
 BM3 ELEVATION = 2040.07  
 N 555660 E 570575  
 BL STATION 12+96 49 LEFT  
 CHISLED SQUARE ON ROCK  
 \*\*\*\*\*

\*\*\*\*\*  
 BM4 ELEVATION = 2061.53  
 N 555546 E 571428  
 BL STATION 20+64  
 S 85° 01' 23.2" E DIST 120.65  
 8 INCH SPIKE IN BASE OF 18 INCH PINE TREE  
 \*\*\*\*\*

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1		555239.5260	570061.5460	2025.53	OUTSIDE PROJECT LIMITS	
2	BL-2		555256.0470	570404.9140	2030.23	13+09.81	22.37 RT
3	BL-3		555452.6620	570560.1930	2034.97	15+53.52	15.44 RT
4	BL-4		555722.8350	570646.9910	2044.99	18+17.54	42.26 LT
5	BL-5		555642.3280	571115.5940	2056.33	OUTSIDE PROJECT LIMITS	
6	BL-6		555556.2330	571307.6510	2058.97	OUTSIDE PROJECT LIMITS	

**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "HOGAN AZ MK" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 557821.817 (ft) EASTING: 568080.002 (ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997810570 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "HOGAN AZ MK" TO -L- STA 10+00.00 IS S 38° 02' 38.75" E 3265.62' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

NCGS MONUMENT "HOGAN"  
 LOCALIZED PROJECT COORDINATES  
 N = 557821.817  
 E = 568080.002

NCDOT BASELINE STATION B3635-BL1  
 LOCALIZED PROJECT COORDINATES  
 N = 555239.5260  
 E = 570061.5460  
 ELEV. = 2025.53

NCDOT BASELINE STATION B3635-BL2  
 LOCALIZED PROJECT COORDINATES  
 N = 555256.0470  
 E = 570404.9140  
 ELEV. = 2030.23

NCDOT BASELINE STATION B3635-BL3  
 LOCALIZED PROJECT COORDINATES  
 N = 555452.6620  
 E = 570560.1930  
 ELEV. = 2034.97

NCDOT BASELINE STATION B3635-BL4  
 LOCALIZED PROJECT COORDINATES  
 N = 555722.8350  
 E = 570646.9910  
 ELEV. = 2044.99

NCDOT BASELINE STATION B3635-BL5  
 LOCALIZED PROJECT COORDINATES  
 N = 555642.3280  
 E = 571115.5940  
 ELEV. = 2056.33

NCDOT BASELINE STATION B3635-BL6  
 LOCALIZED PROJECT COORDINATES  
 N = 555556.2330  
 E = 571307.6510  
 ELEV. = 2058.97

PROJECT CONTROL ESTABLISHED UTILIZING EXISTING NCGS MONUMENT "HOGAN"

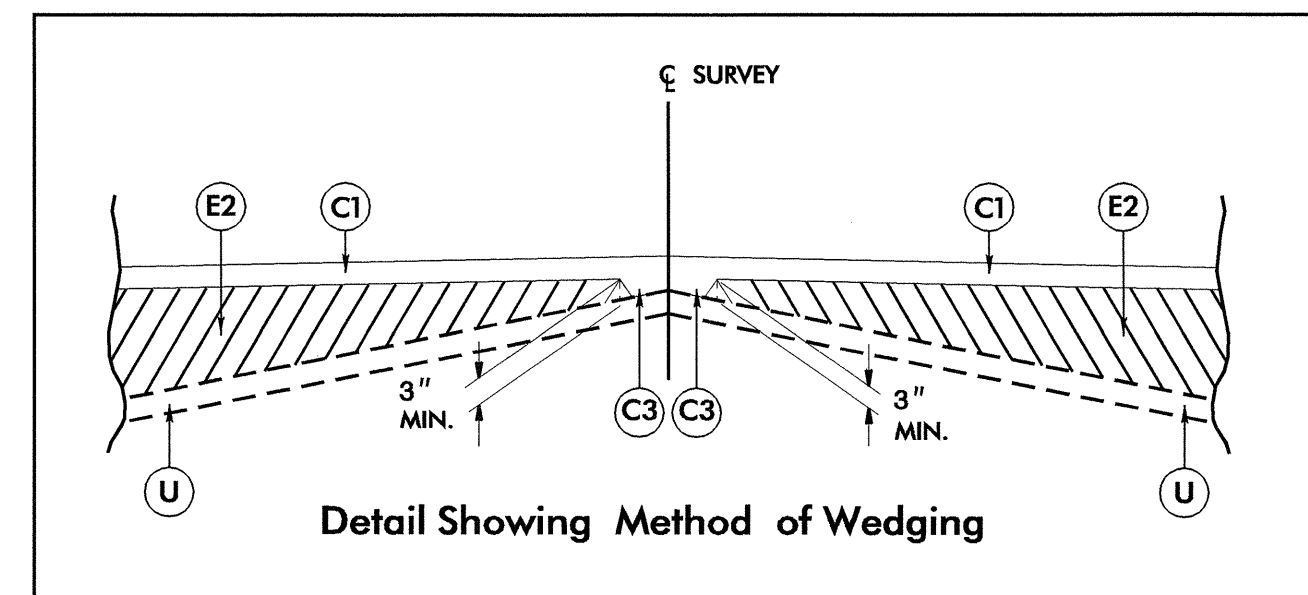
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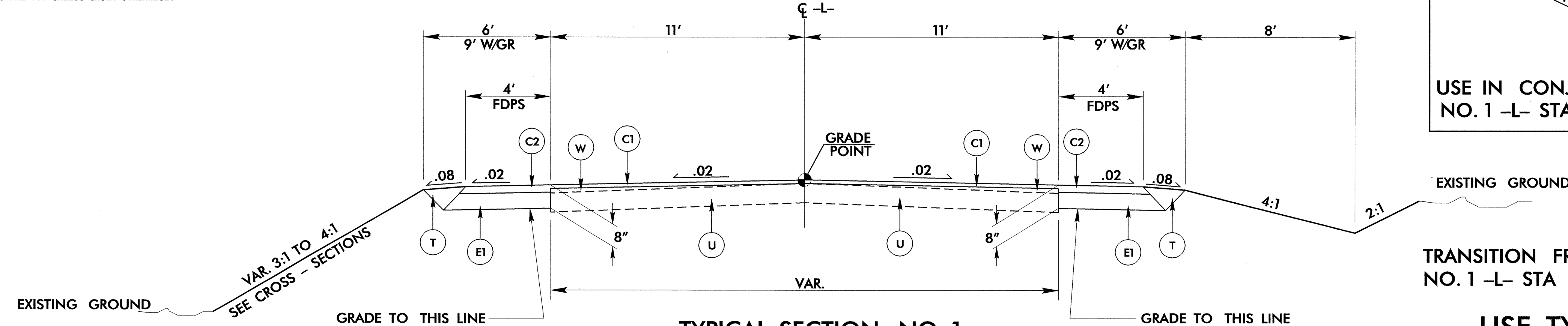
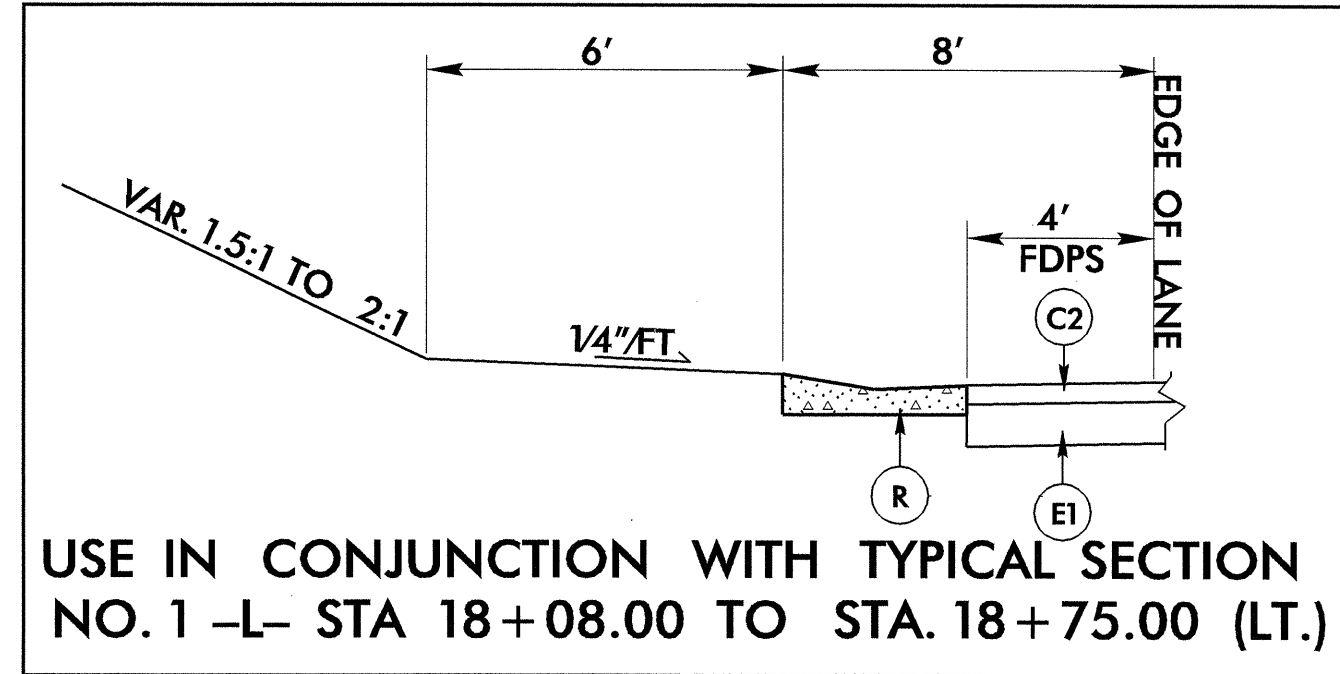
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PROJECT REFERENCE NO. B-3635	SHEET NO. 2
ROADWAY DESIGN ENGINEER SEAL 33871 DANIEL W. GARDNER 9-24-08	PAVEMENT DESIGN ENGINEER SEAL 13388 CHI CHEN 9/23/08

PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	R	EXPRESSWAY GUTTER
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
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 1 1/2" IN DEPTH.	U	EXISTING PAVEMENT
E1	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)
E2	PROP. VAR. ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.		



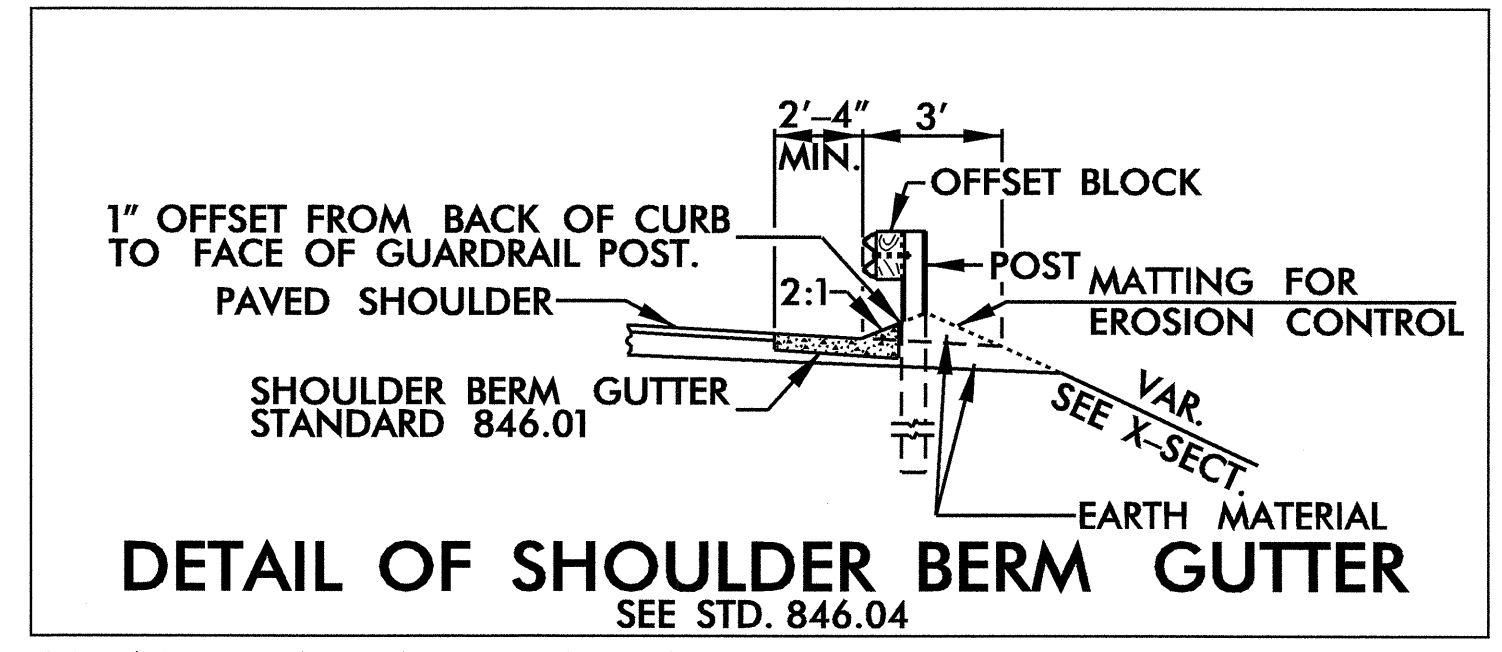
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



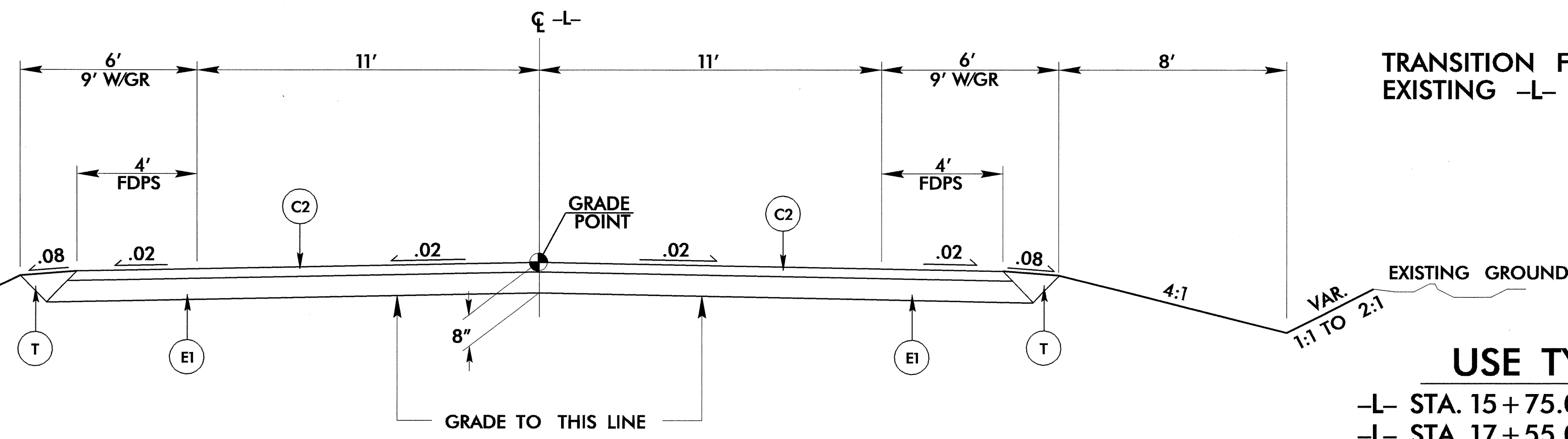
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1 -L- STA 14+50.00 TO STA 15+00.00

**USE TYPICAL SECTION NO. 1**

-L- STA. 15+00.00 TO STA. 15+75.00  
-L- STA. 18+00.00 TO STA. 19+00.00



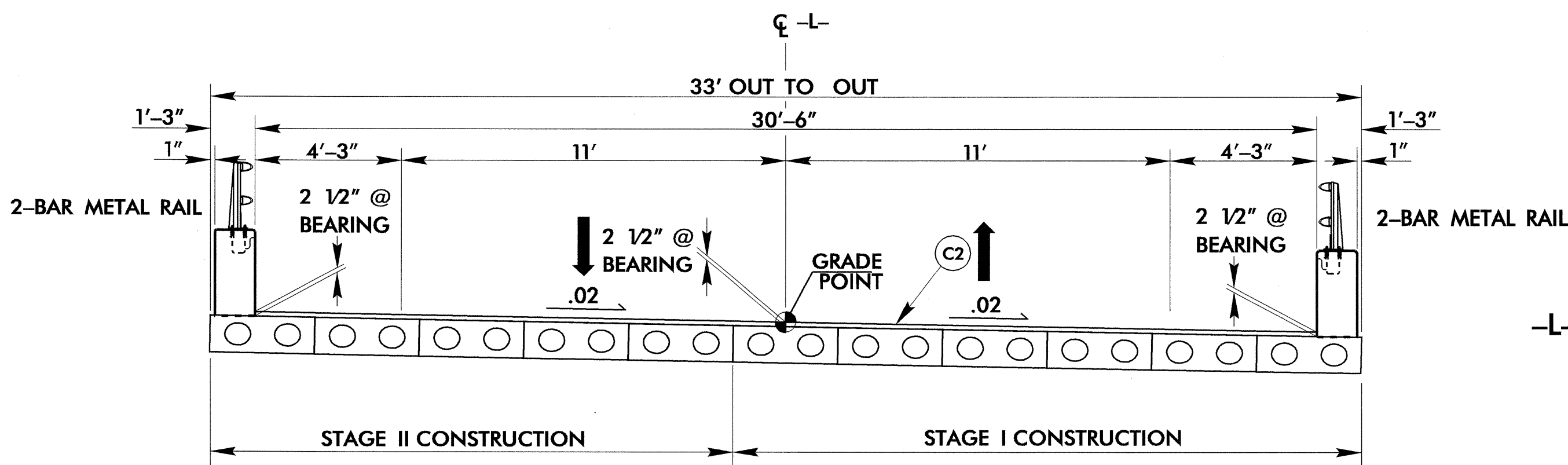
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1 & 2  
-L- STA 16+60.00 TO STA. 17+02.03 (RT.)  
-L- STA 17+75.03 TO STA. 18+50.00 (RT.)



TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING -L- STA 19+00.00 TO STA 19+50.00

**USE TYPICAL SECTION NO. 2**

-L- STA. 15+75.00 TO STA. 17+10.00 (BEGIN BRIDGE)  
-L- STA. 17+55.00 (END BRIDGE) TO STA. 18+00.00



**USE TYPICAL SECTION NO. 3**

-L- STA. 17+10.00 (BEGIN BRIDGE) TO STA. 17+55.00 (END BRIDGE)

NOTE: SR 1505, JUNALUSKA RD. IS A DESIGNATED BICYCLE ROUTE (NC 2)

22-SEP-2008 15:02  
\$\$\$\$\$USERNAME\$\$\$\$\$ b3635.tjrp

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

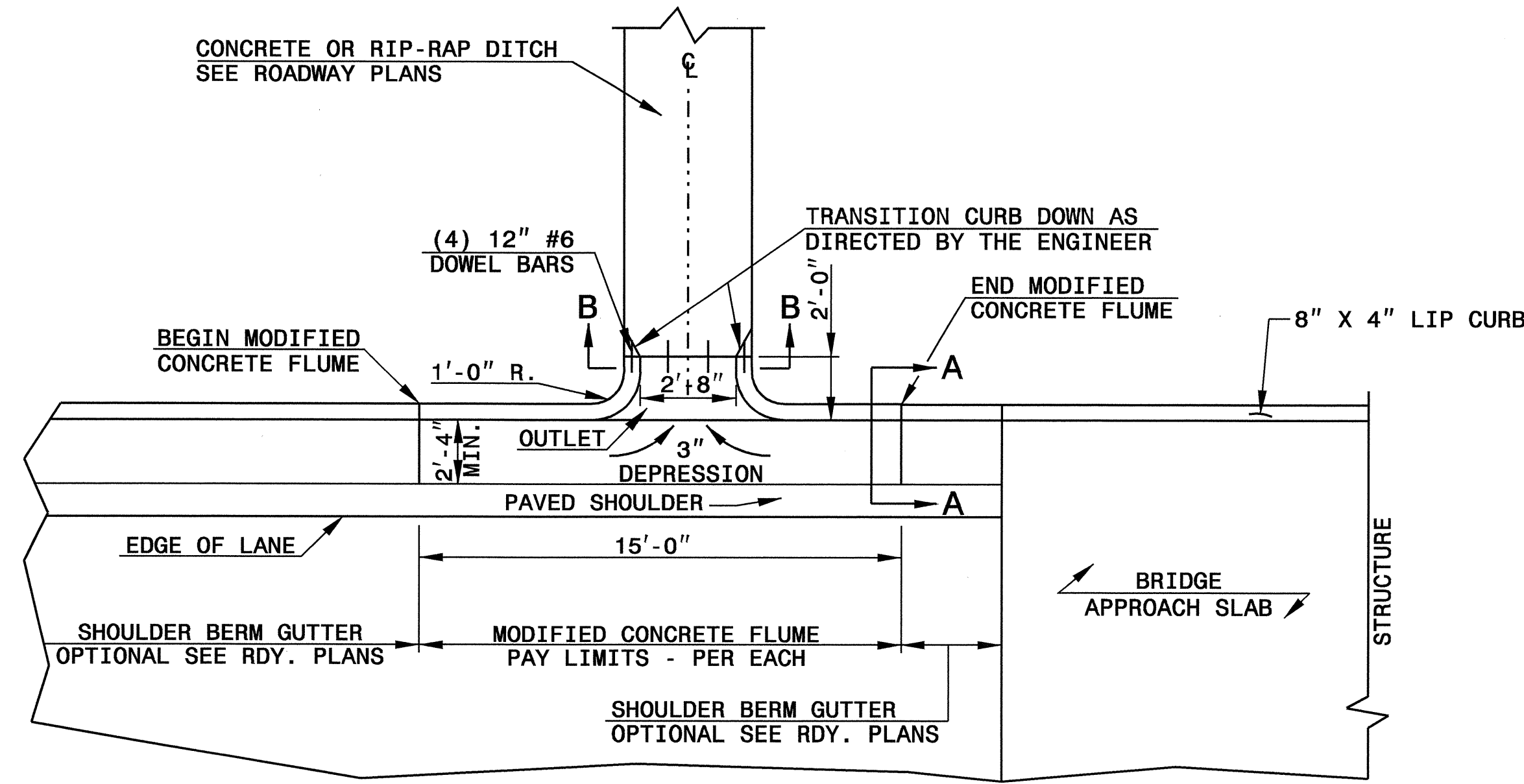
ENGLISH DETAIL DRAWING FOR  
**MODIFIED CONCRETE FLUME**  
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1  
MODFLMDTCH

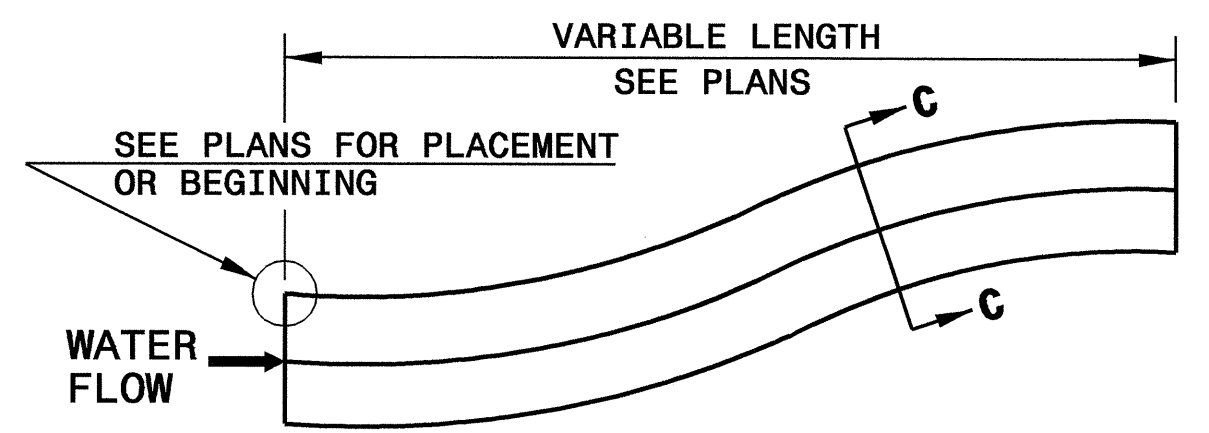
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**MODIFIED CONCRETE FLUME**  
WITH CONCRETE OR RIP-RAP DITCH

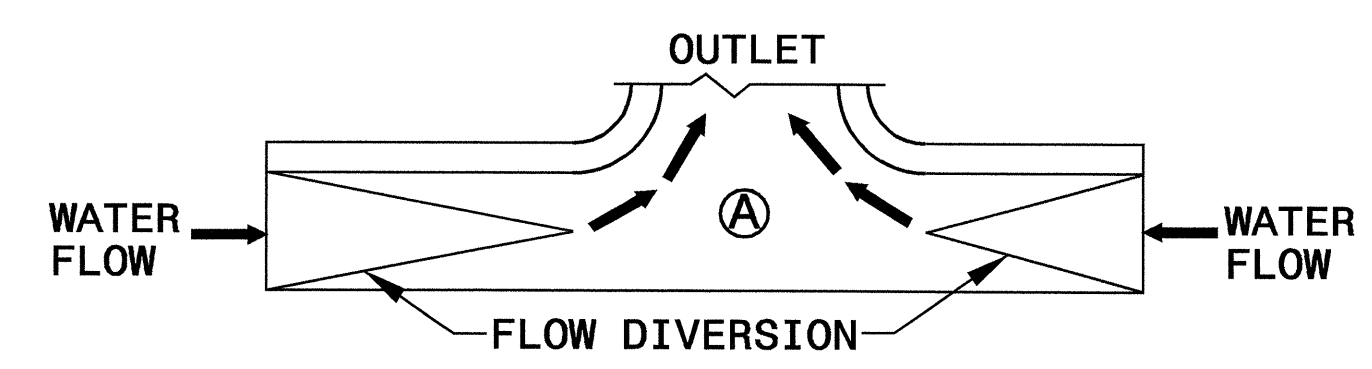
SHEET 1 OF 1  
MODFLMDTCH



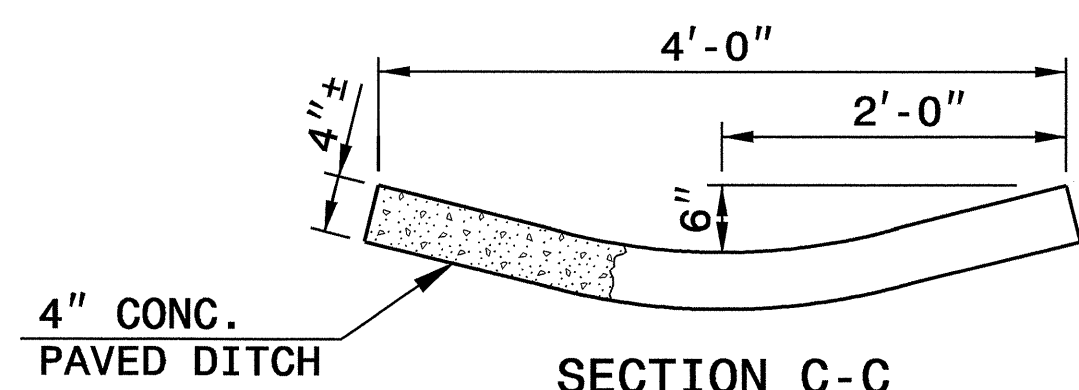
PLAN VIEW



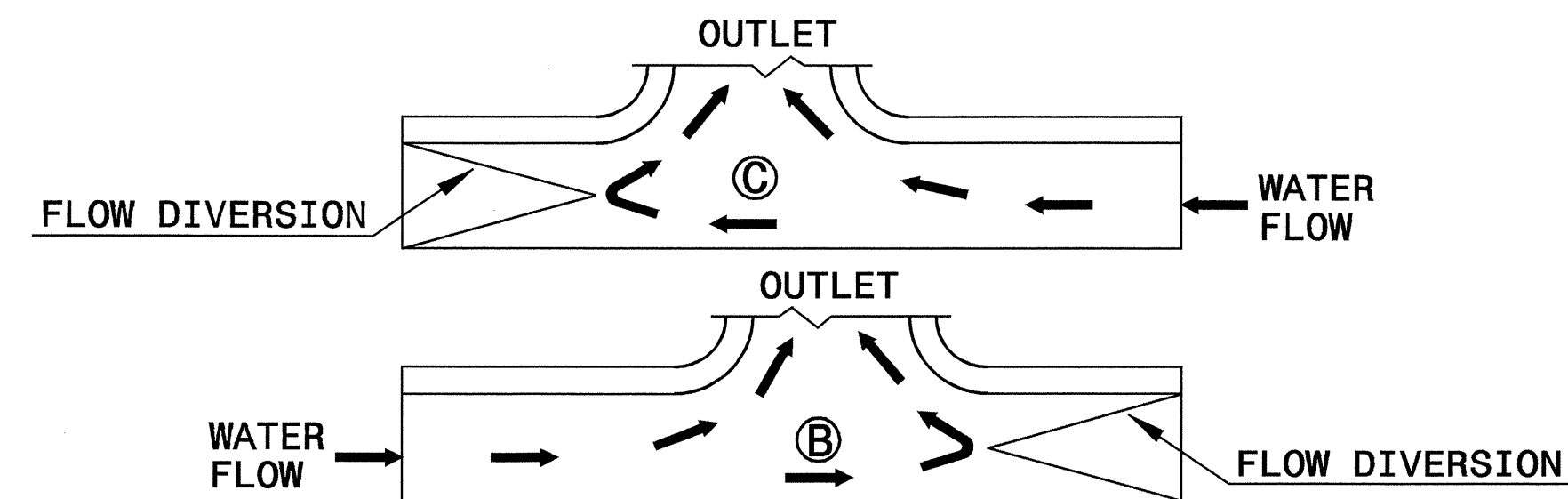
DOWNGRADE OR SAG



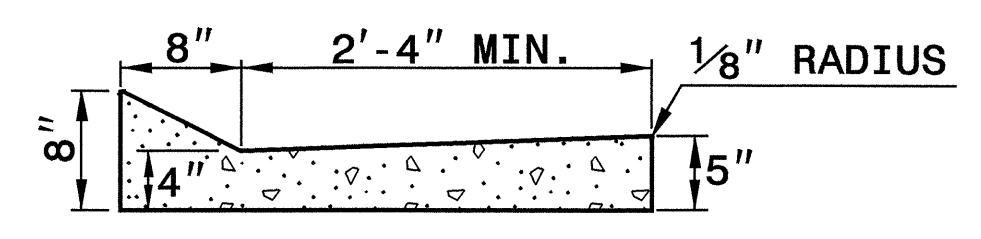
SAG



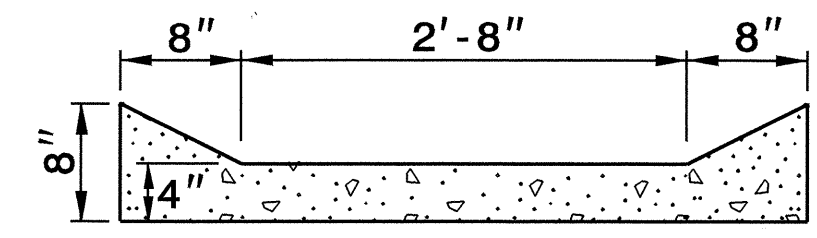
SECTION C-C



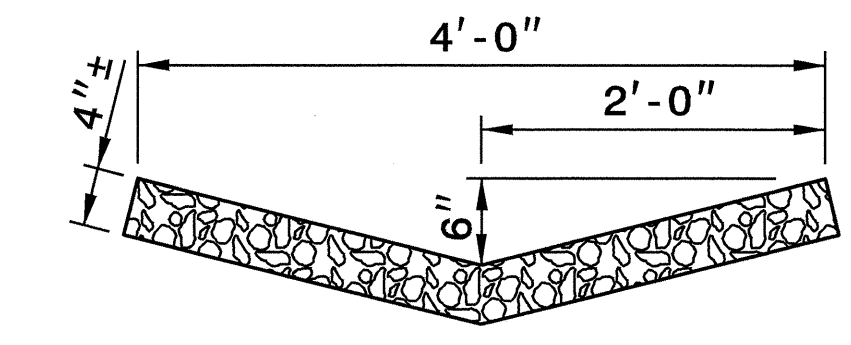
FLOW DIVERSION EXAMPLES



SECTION A-A



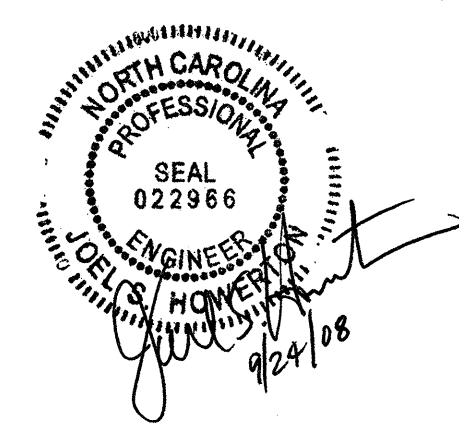
SECTION B-B



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.



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

**SEE PLATE FOR TITLE**

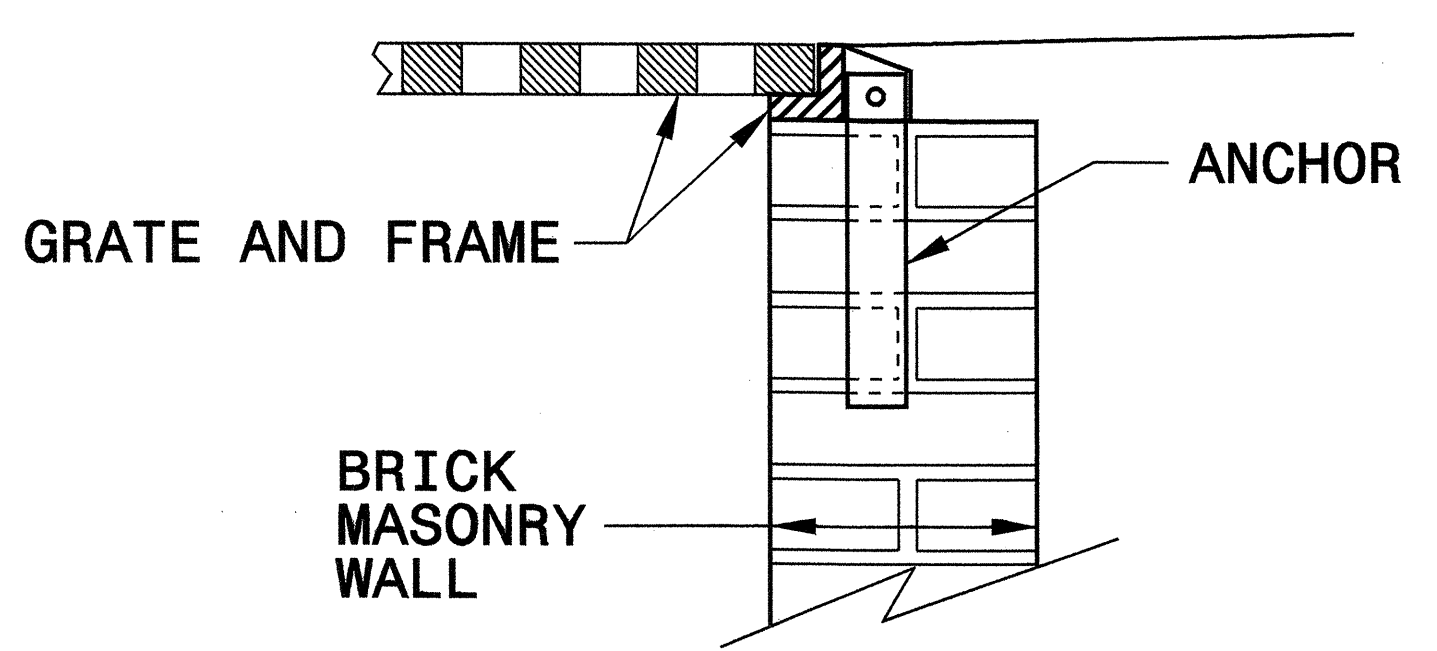
ORIGINAL BY: E.E. Ward DATE: Apr. 2002  
 MODIFIED BY: E.E. Ward DATE: July 2004  
 CHECKED BY: DATE:  
 FILE SPEC.: w:\details\stand\modifiedflume.dgn

13-FEB-2008 10:49 AM C:\OS2\WORK\13-FEB-2008 10:49 AM C:\OS2\WORK\13-FEB-2008 10:49 AM C:\OS2\WORK\13-FEB-2008 10:49 AM

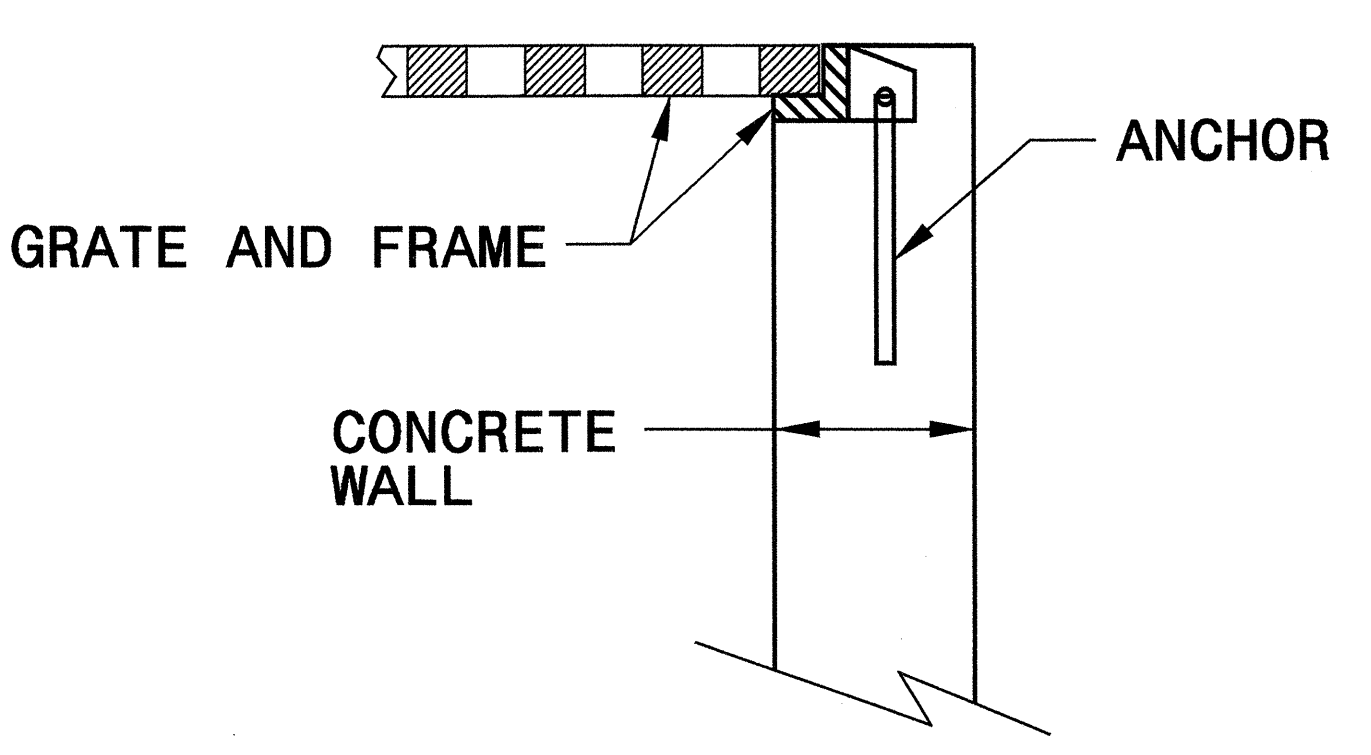
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

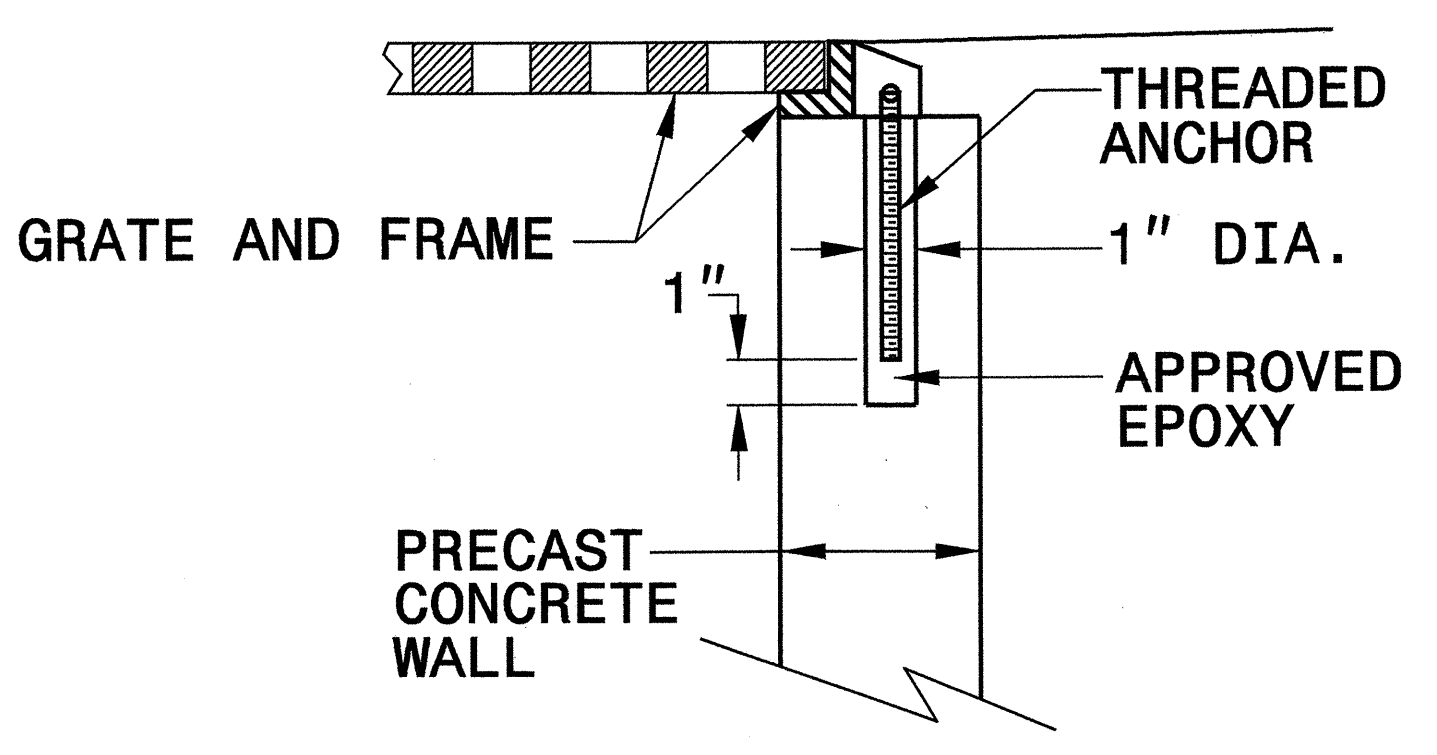
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



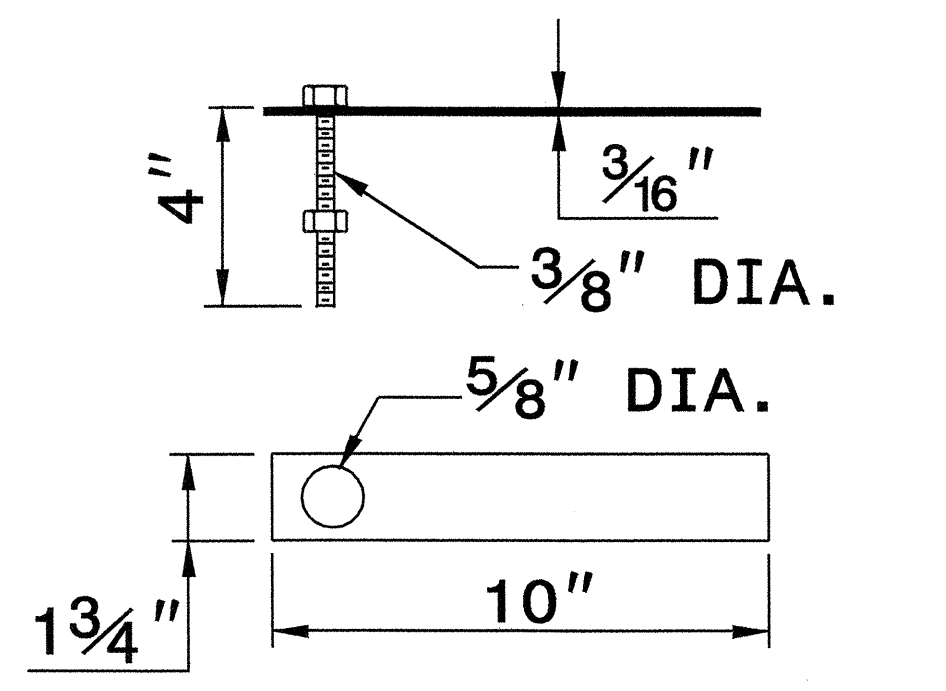
**CONCRETE CONSTRUCTION**



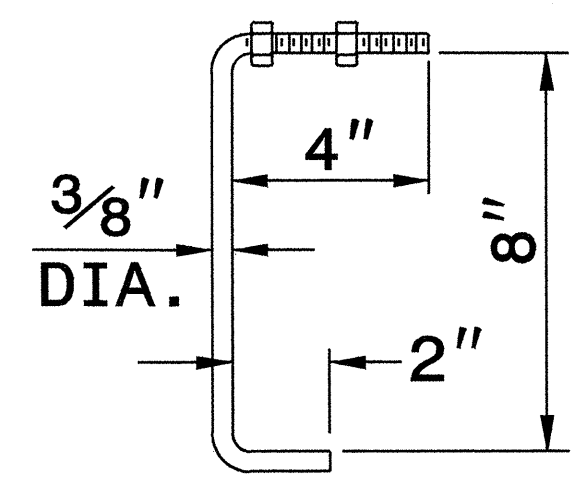
**PRECAST CONCRETE CONSTRUCTION**

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

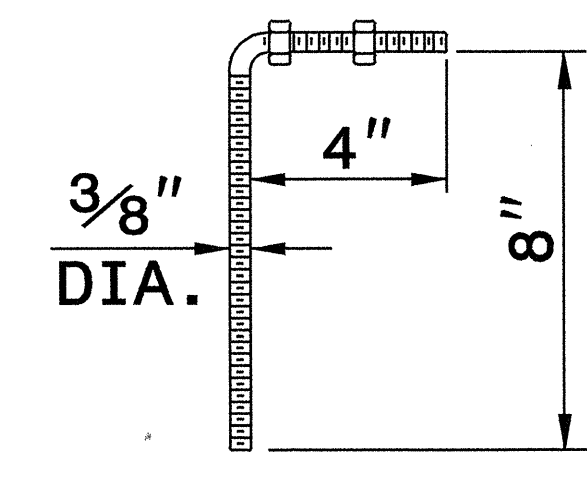
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



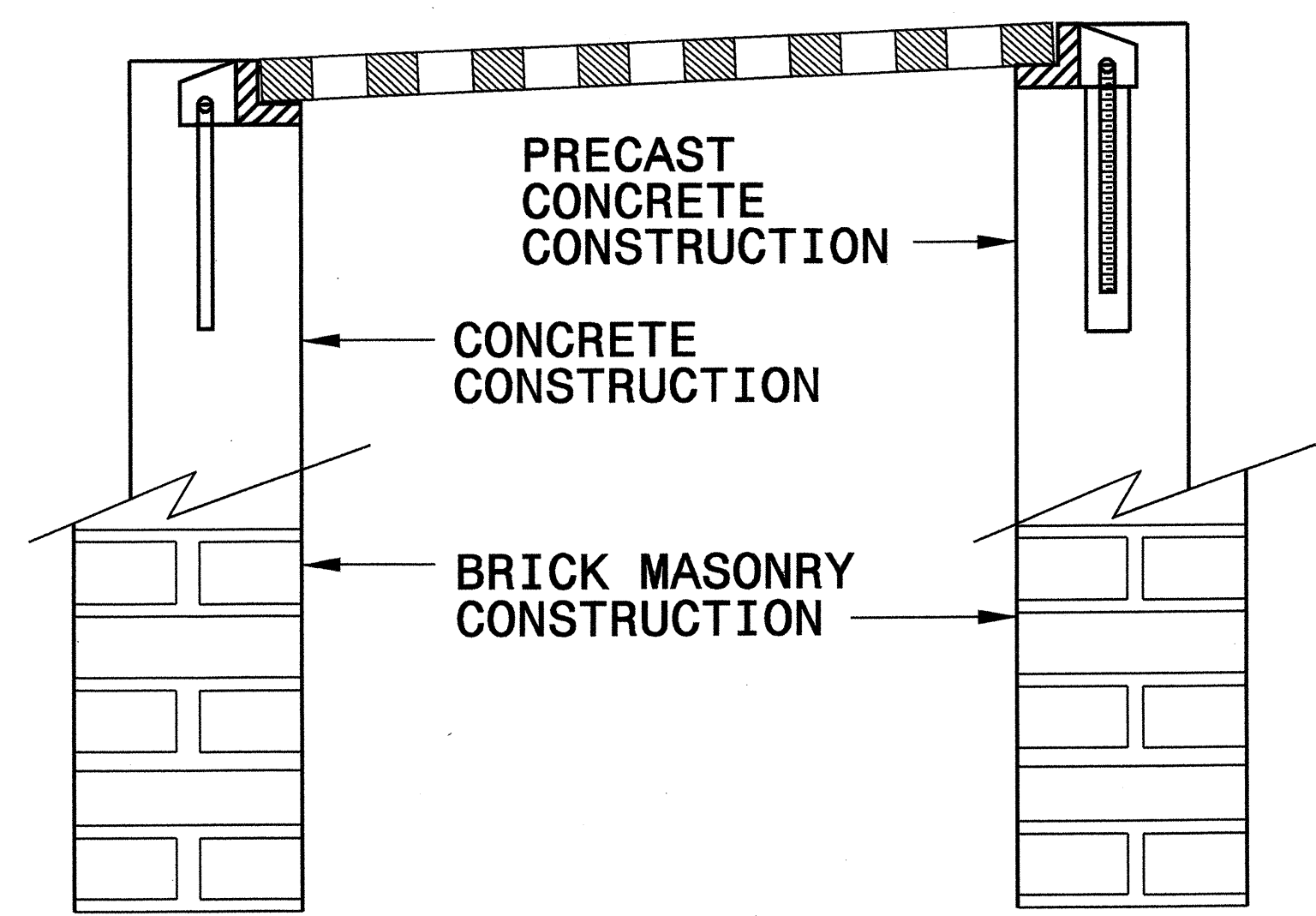
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



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



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



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

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

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

SHEET 1 OF 1  
**840D25**

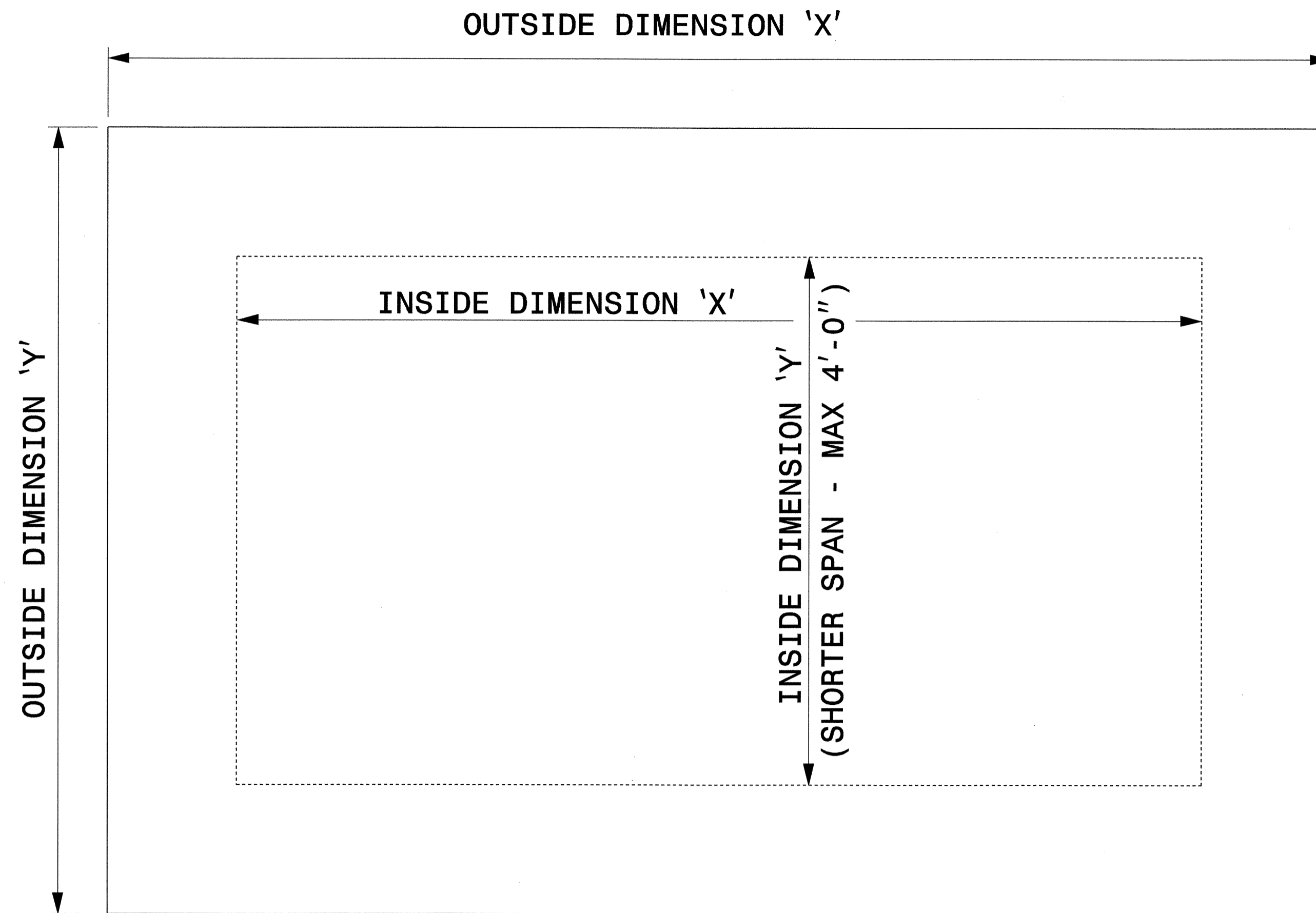
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**PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN**  
Office 919-250-4128 FAX 919-250-4119

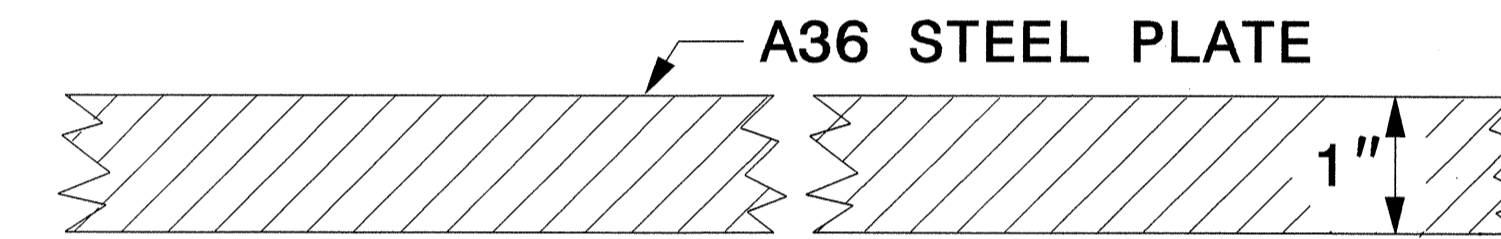
**SEE PLATE FOR TITLE**

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06  
MODIFIED BY: E.E. WARD DATE: 9/25/06  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
FILE SPEC.: \_\_\_\_\_



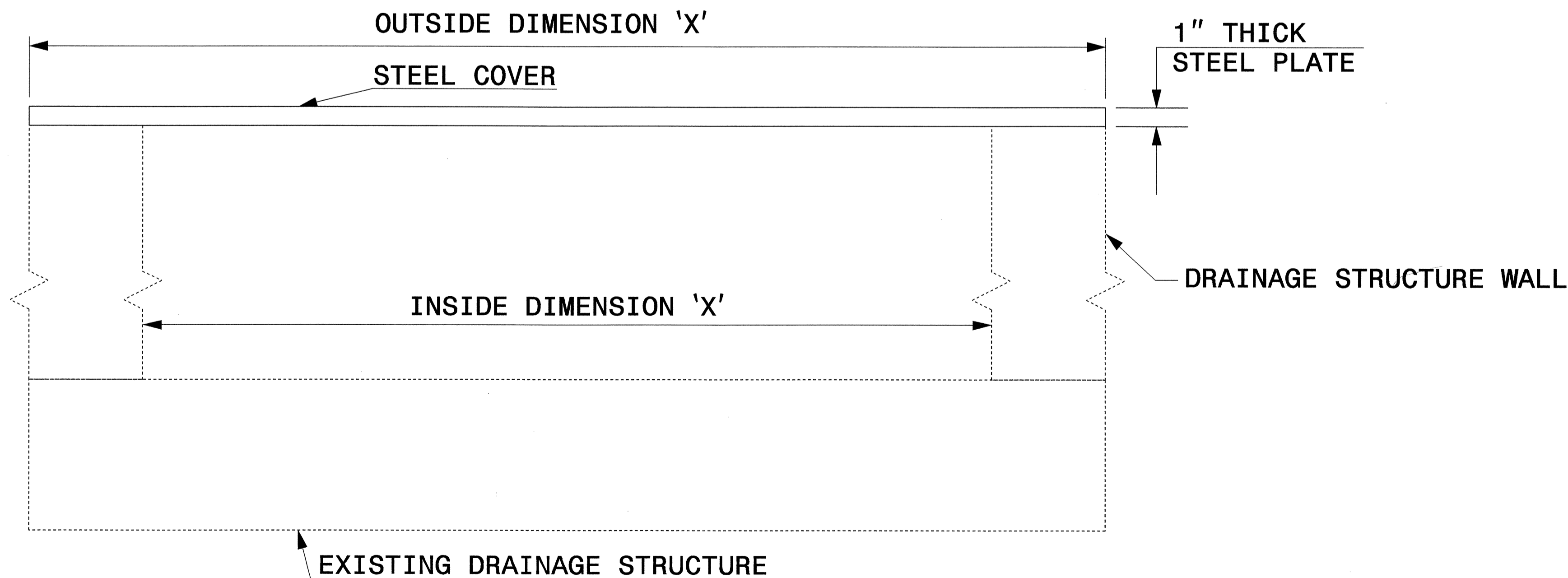
**GENERAL NOTES:**

- USE GRADE A36 STEEL
- STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
- FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
- SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
- QUANTITIES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.

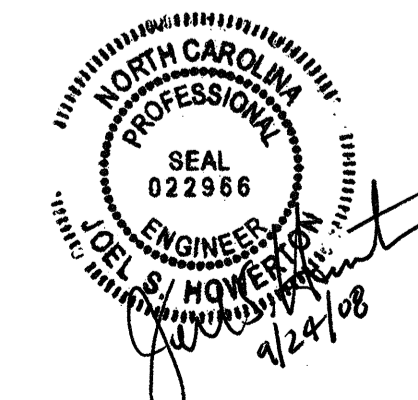


**SECTION VIEW OF STEEL TOP PLATE**

**PLAN VIEWS**



**ELEVATION VIEWS**



<b>PROJECT SERVICES UNIT</b>	
<b>STANDARDS AND SPECIAL DESIGN</b>	
Office 919-250-4128	FAX 919-250-4119
<b>DETAIL OF TEMPORARY</b>	
<b>1" STEEL COVER</b>	
<b>OVER DRAINAGE STRUCTURE</b>	
ORIGINAL BY: E.E. WARD	DATE: 2-2-98
MODIFIED BY:	DATE:
CHECKED BY: <i>Eric S. Howard</i>	DATE: 9/24/08
FILE SPEC.: <i>eric:\usr\details\metric\stand\stlcvr2.dgn</i>	

SYSTEMS  
 DESIGN  
 SERVICES



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**SUMMARY OF QUANTITIES**

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202038														
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION	205500000-E	815	15	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	440000000-E	1110	177	SF	WORK ZONE SIGNS (STATIONARY)
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING	206600000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	440500000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
004300000-N	226	Lump Sum		GRADING	207700000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)	441000000-E	1110	72	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	219000000-N	828	1	EA	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	443000000-N	1130	60	EA	DRUMS
005700000-E	226	500	CY	UNDERCUT EXCAVATION	228600000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES	444500000-E	1145	80	LF	BARRICADES (TYPE III)
008000000-E	SP	600	TON	CLASS IV SUBGRADE STABILIZATION	230800000-E	840	1	LF	MASONRY DRAINAGE STRUCTURES	445000000-N	1150	2,500	HR	FLAGGER
013400000-E	240	40	CY	DRAINAGE DITCH EXCAVATION	236700000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29	446500000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
019500000-E	265	500	CY	SELECT GRANULAR MATERIAL	255600000-E	846	120	LF	SHOULDER BERM GUTTER	448000000-N	1165	2	EA	TMIA
019600000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION	257700000-E	846	70	LF	CONCRETE EXPRESSWAY GUTTER	448500000-E	1170	80	LF	PORTABLE CONCRETE BARRIER
025500000-E	SP	4.5	TON	GENERIC GRADING ITEM #57 LIMESTONE	257700000-E	846	70	LF	CONCRETE EXPRESSWAY GUTTER	449000000-E	1170	45	LF	PORTABLE CONCRETE BARRIER (ANCHORED)
025500000-E	SP	2	TON	GENERIC GRADING ITEM AGRICULTURAL GRADE GROUND LIMESTONE	303000000-E	862	125	LF	STEEL BM GUARDRAIL	465000000-N	1251	40	EA	TEMPORARY RAISED PAVEMENT MARKERS
031800000-E	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	304500000-E	862	75	LF	STEEL BM GUARDRAIL, SHOP CURVED	481000000-E	1205	6,670	LF	PAINT PAVEMENT MARKING LINES (4")
034400000-E	310	44	LF	18" SIDE DRAIN PIPE	315000000-N	862	15	EA	ADDITIONAL GUARDRAIL POSTS	600000000-E	1605	300	LF	TEMPORARY SILT FENCE
038400000-E	310	184	LF	30" RC PIPE CULVERTS, CLASS III	316500000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (TL-2)	600600000-E	1610	115	TON	STONE FOR EROSION CONTROL, CLASS A
099500000-E	340	34	LF	PIPE REMOVAL	321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III	600900000-E	1610	125	TON	STONE FOR EROSION CONTROL, CLASS B
122000000-E	545	500	TON	INCIDENTAL STONE BASE	327000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	601200000-E	1610	50	TON	SEDIMENT CONTROL STONE
130800000-E	607	270	SY	MILLING ASPHALT PAVEMENT, **** TO ***** DEPTH (0" TO 1.25")	338000000-E	862	25	LF	TEMPORARY STEEL BM GUARDRAIL	601500000-E	1615	2.5	ACR	TEMPORARY MULCHING
148900000-E	610	450	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	338700000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (TYPE III)	601800000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
152500000-E	610	240	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	338900000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (TL-2)	602100000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
156000000-E	620	35	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	356600000-E	867	200	LF	WOVEN WIRE FENCE RESET	602900000-E	SP	250	LF	SAFETY FENCE
169300000-E	654	50	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	363500000-E	876	6	TON	RIP RAP, CLASS II	603000000-E	1630	385	CY	SILT EXCAVATION
202200000-E	815	120	CY	SUBDRAIN EXCAVATION	364900000-E	876	8	TON	RIP RAP, CLASS B	603600000-E	1631	1,200	SY	MATTING FOR EROSION CONTROL
203300000-E	815	90	CY	SUBDRAIN FINE AGGREGATE	365600000-E	876	295	SY	FILTER FABRIC FOR DRAINAGE	603700000-E	SP	10	SY	COIR FIBER MAT
204400000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE						603800000-E	SP	160	SY	PERMANENT SOIL REINFORCEMENT MAT
										604200000-E	1632	60	LF	1/4" HARDWARE CLOTH
										607101000-E	SP	25	LF	WATTLE
										607102000-E	SP	9	LB	POLYACRYLAMIDE (PAM)
										607103000-E	SP	155	LF	COIR FIBER BAFFLES
										607105000-E	SP	1	EA	*** SKIMMER (1-1/2")
										608400000-E	1660	3	ACR	SEEDING & MULCHING
										608700000-E	1660	1	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	1.25	TON	FERTILIZER TOPDRESSING
										611400000-N	SP	5	HR	SPECIALIZED HAND MOWING
										611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

5/28/99  
20-MAR-2008 11:41  
C:\PROJECTS\B0600000\SUM  
RD238350.DWG

COMPUTED BY: WPB DATE: 4-08-03  
CHECKED BY: JBG DATE: 04-28-03

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
GUARDRAIL SUMMARY  
IN FEET

"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

Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOULDER WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (TYPE III, TYPE GRAU-350, TYPE TL-2, TEMP. TYPE III, TEMP. TYPE TL-2), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

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

Table with columns: STATION, LOCATION (LT, RT, OR CI), STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, CLASS III R.C. PIPE, BITUMINOUS COATED C.S. PIPE, CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, ENDWALLS, TYPE OF GRATE, FRAME, GRATES AND HOOD STANDARD 840.03, TYPE OF GRATE, PIPE REMOVAL LIN. FT., ABBREVIATIONS, REMARKS.

SUMMARY OF EARTHWORK  
IN CUBIC YARDS

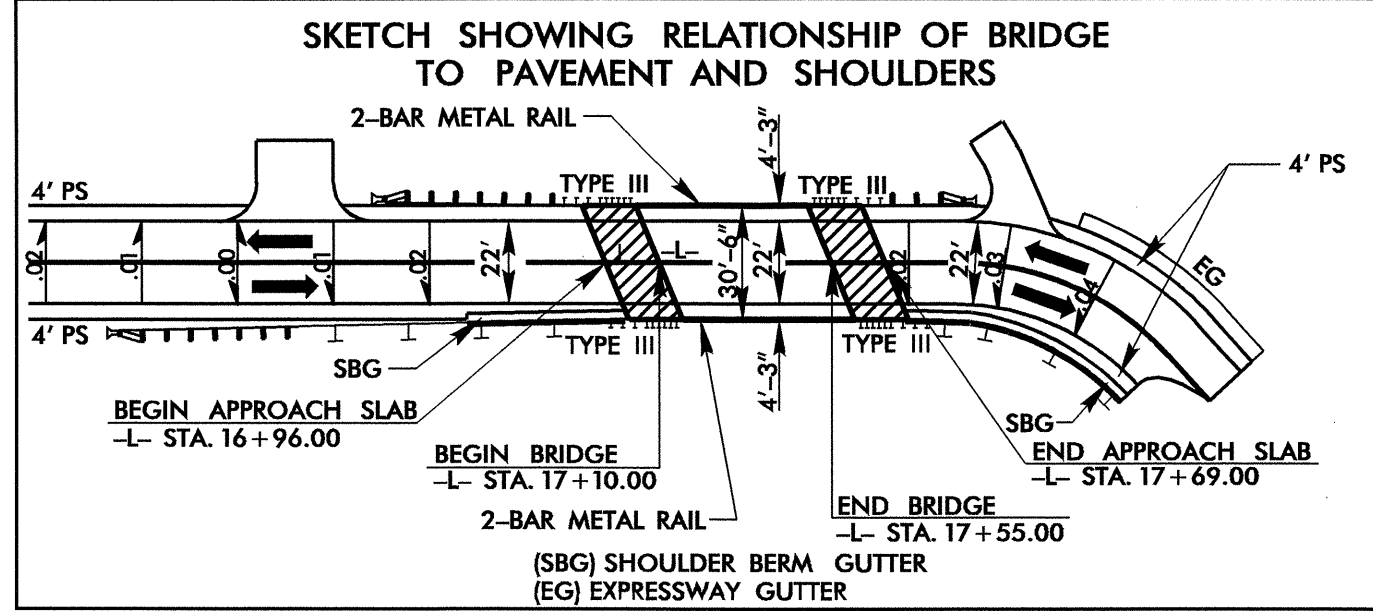
Table with columns: LOCATION, UNCL. EXCAVATION, EMBT + %, BORROW, WASTE. Includes sub-totals for Summary No. 1 and Summary No. 2, and a PROJECT TOTAL.

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.

SUMMARY OF PAVEMENT REMOVAL  
IN SQUARE YARDS

Table with columns: LINE, STATION TO STATION, LOCATION, ASPHALT REMOVAL, ASPHALT BREAK-UP. Includes sub-totals for each line and a PROJECT TOTAL.

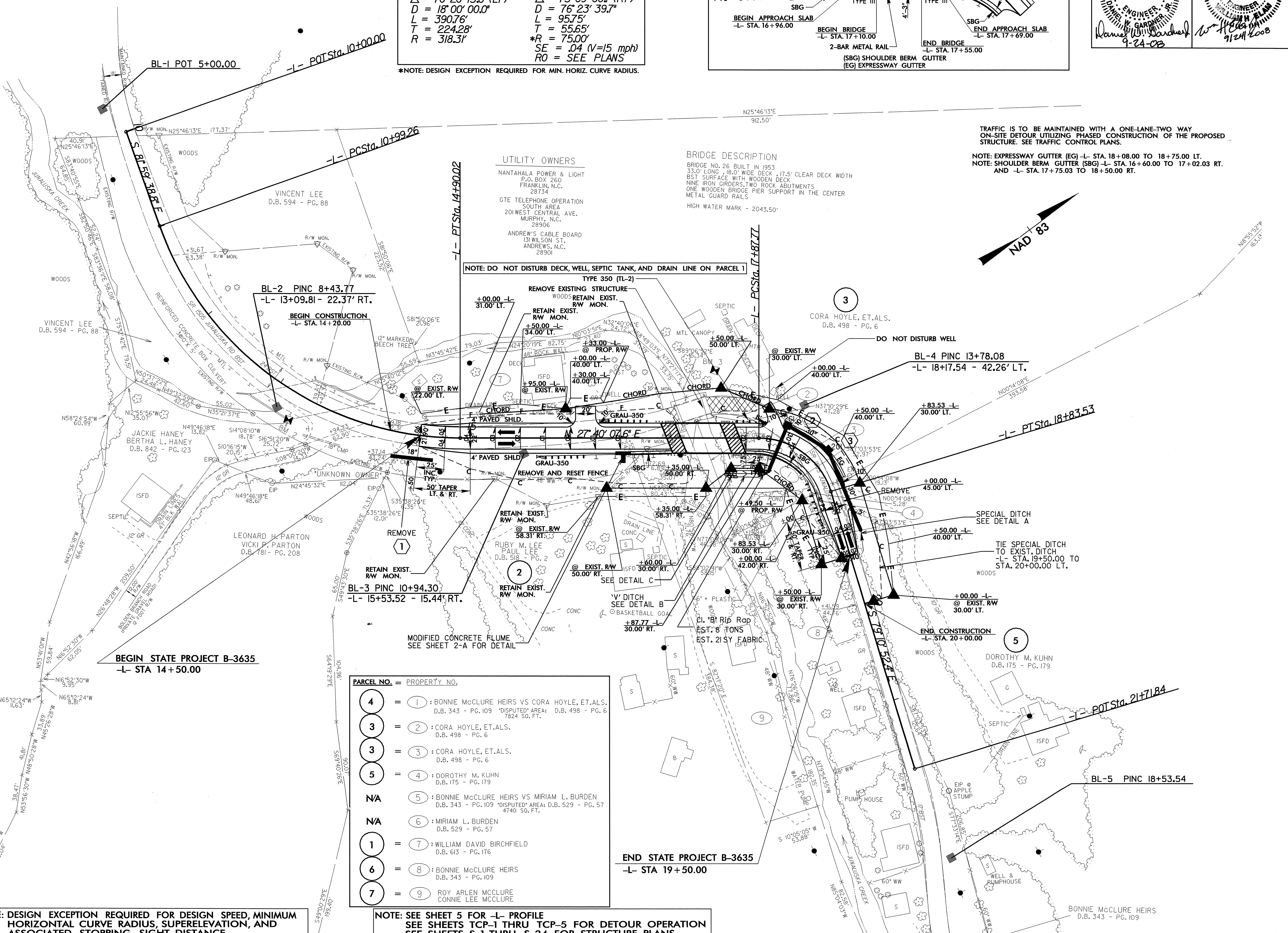
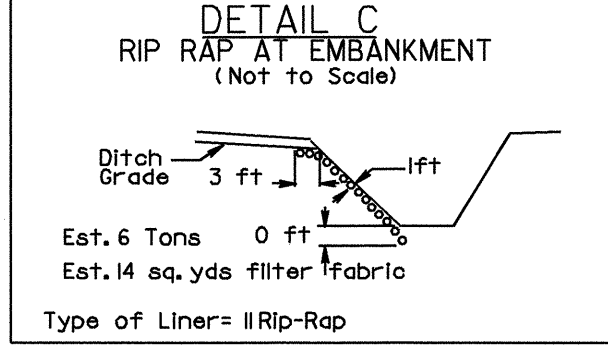
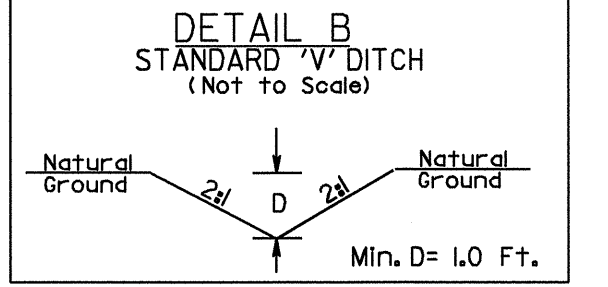
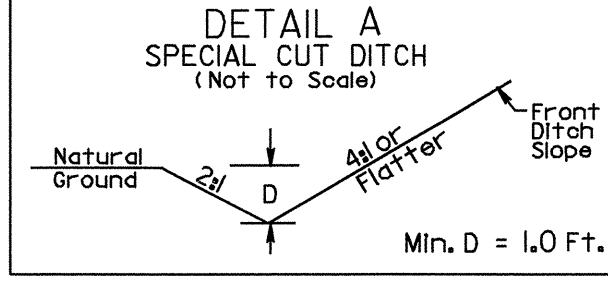
NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".



-L-

PI Sta 13+23.54 $\Delta = 70^{\circ} 20' 13.6''$ (LT) $D = 18^{\circ} 00' 00.0''$ $L = 390.76'$ $T = 224.28'$ $R = 318.31'$	PI Sta 18+43.42 $\Delta = 73^{\circ} 09' 00.7''$ (RT) $D = 76^{\circ} 23' 39.7''$ $L = 95.75'$ $T = 55.65'$ $R = 75.00'$ $SE = .04$ (V=15 mph) $RO = \text{SEE PLANS}$
--	---

**\*NOTE: DESIGN EXCEPTION REQUIRED FOR MIN. HORIZ. CURVE RADIUS.**



TRAFFIC IS TO BE MAINTAINED WITH A ONE-LANE-TWO WAY ON-SITE DETOUR UTILIZING PHASED CONSTRUCTION OF THE PROPOSED STRUCTURE. SEE TRAFFIC CONTROL PLANS.

NOTE: EXPRESSWAY GUTTER (EG) -L- STA. 18+08.00 TO 18+75.00 LT.  
NOTE: SHOULDER BERM GUTTER (SBG) -L- STA. 16+60.00 TO 17+02.03 RT.  
AND -L- STA. 17+75.03 TO 18+50.00 RT.

**UTILITY OWNERS**

NANTAHALA POWER & LIGHT  
P.O. BOX 260  
FRANKLIN, N.C.  
28734

GTE TELEPHONE OPERATION  
SOUTH AREA  
201 WEST CENTRAL AVE.  
MURPHY, N.C.  
28546

ANDREW'S CABLE BOARD  
131 WILSON ST.  
ANDREWS, N.C.  
28901

**BRIDGE DESCRIPTION**

BRIDGE NO. 26 BUILT IN 1953  
33.0' LONG - 18.0' WIDE DECK - 17.5' CLEAR DECK WIDTH  
BEST SURFACE WITH WOODEN DECK  
NINE IRON GIRDERS, TWO ROCK ABUTMENTS  
ONE WOODEN BRIDGE PIER SUPPORT IN THE CENTER  
METAL GUARD RAILS  
HIGH WATER MARK - 2043.50'

**PARCEL NO. = PROPERTY NO.**

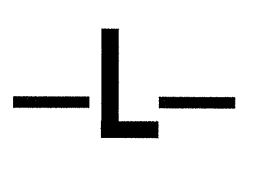
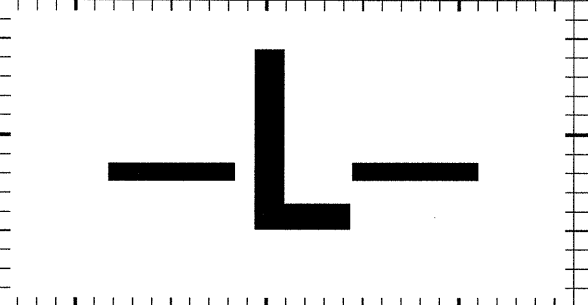
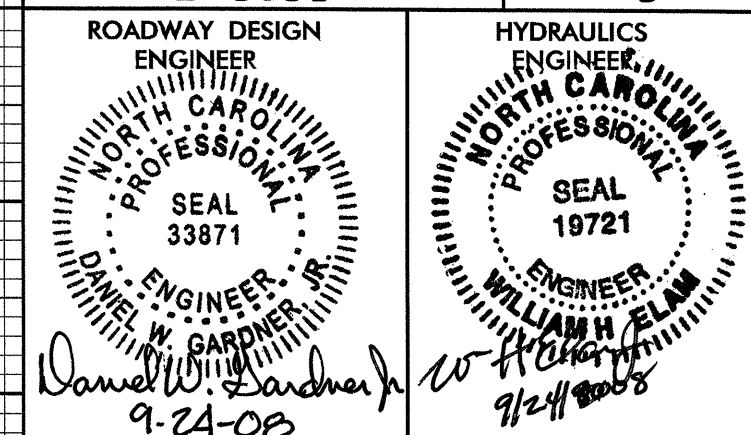
4	= 1 : BONNIE MCCLURE HEIRS VS CORA HOYLE, ET. ALS. D.B. 343 - PG. 109 *DISPUTED* AREA: D.B. 498 - PG. 6 7824 SQ. FT.
3	= 2 : CORA HOYLE, ET. ALS. D.B. 498 - PG. 6
3	= 3 : CORA HOYLE, ET. ALS. D.B. 498 - PG. 6
5	= 4 : DOROTHY M. KUHN D.B. 175 - PG. 179
N/A	= 5 : BONNIE MCCLURE HEIRS VS MIRIAM L. BURDEN D.B. 343 - PG. 109 *DISPUTED* AREA: D.B. 529 - PG. 57 1140 SQ. FT.
N/A	= 6 : MIRIAM L. BURDEN D.B. 529 - PG. 57
1	= 7 : WILLIAM DAVID BIRCHFIELD D.B. 613 - PG. 176
6	= 8 : BONNIE MCCLURE HEIRS D.B. 343 - PG. 109
7	= 9 : ROY ARLEN MCCLURE CONNIE LEE MCCLURE

**NOTE: DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED, MINIMUM HORIZONTAL CURVE RADIUS, SUPERELEVATION, AND ASSOCIATED STOPPING SIGHT DISTANCE.**

**NOTE: SEE SHEET 5 FOR -L- PROFILE  
SEE SHEETS TCP-1 THRU TCP-5 FOR DETOUR OPERATION  
SEE SHEETS S-1 THRU S-24 FOR STRUCTURE PLANS**

7/2/99

09-SEP-2008 14:07  
44608083883888



**BM1 - ELEVATION = 2020.21'**  
 N 555,225.4550 E 569,922.6630  
 -BL- STATION 5+00.00  
 S 84 12 53 W DIST. 139.59'  
 8" SPIKE IN 18" POPLAR TREE

**BM2 - ELEVATION = 2029.49'**  
 N 555,260.2060 E 570,421.3680  
 -BL- STATION 8+57.00 10.00' RIGHT=  
 -L- STATION 13+24.86 27.35' RIGHT  
 CHISLED SQUARE ON EAST END OF HEAD WALL

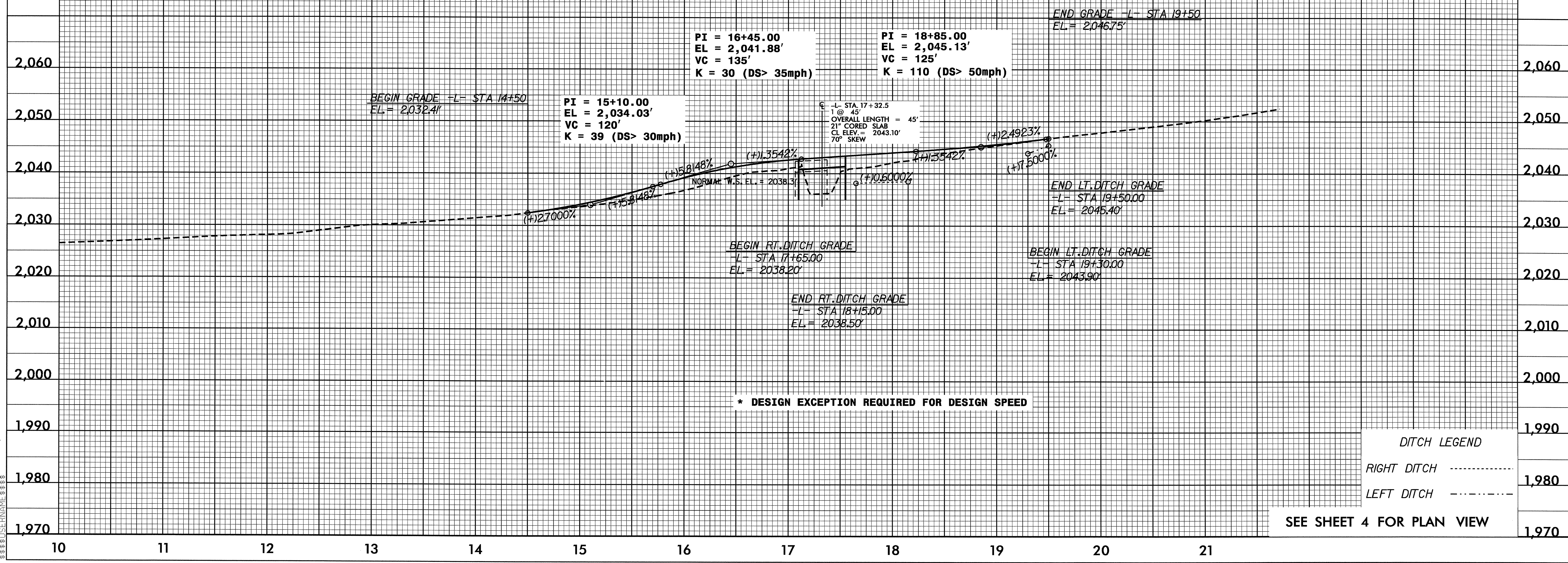
**BM3 - ELEVATION = 2040.07'**  
 N 555,659.9370 E 570,574.9330  
 -BL- STATION 12+96.00 49.00' LEFT=  
 -L- STATION 17+43.94 67.76' LEFT  
 CHISLED SQUARE ON ROCK

**BM4 - ELEVATION = 2061.53'**  
 N 555,545.7660 E 571,427.8480  
 -BL- STATION 20+64.00  
 S 85 01 23 E DIST. 120.65'  
 8" SPIKE IN BASE OF 18" PINE TREE

**STRUCTURE HYDRAULIC DATA**

DESIGN DISCHARGE = 1650 CFS  
 DESIGN FREQUENCY = 25 YRS  
 DESIGN HW ELEVATION = 2043.4 FT  
 BASE DISCHARGE = 2500 CFS  
 BASE FREQUENCY = 100 YRS  
 BASE HW ELEVATION = 2044.2 FT  
 OVERTOPPING DISCHARGE = 1200 CFS  
 OVERTOPPING FREQUENCY = 10 YRS  
 OVERTOPPING ELEVATION = 2042.9 FT

DATE OF SURVEY = 6/22/05  
 W.S.ELEVATION = 2038.3 FT  
 AT DATE OF SURVEY



**DITCH LEGEND**

RIGHT DITCH - - - - -

LEFT DITCH - - - - -

SEE SHEET 4 FOR PLAN VIEW