

09/08/99

See Sheet 1-A For Index of Sheets

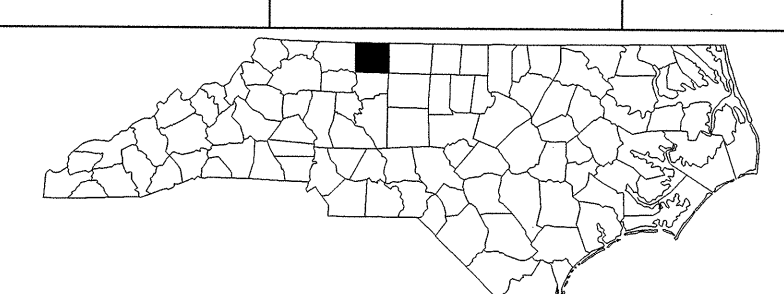
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## STOKES COUNTY

**LOCATION: BRIDGE 14 AND BRIDGE 44 ON NC 8 OVER TOWN  
FORK CREEK AND TOWN FORK CREEK OVERFLOW**

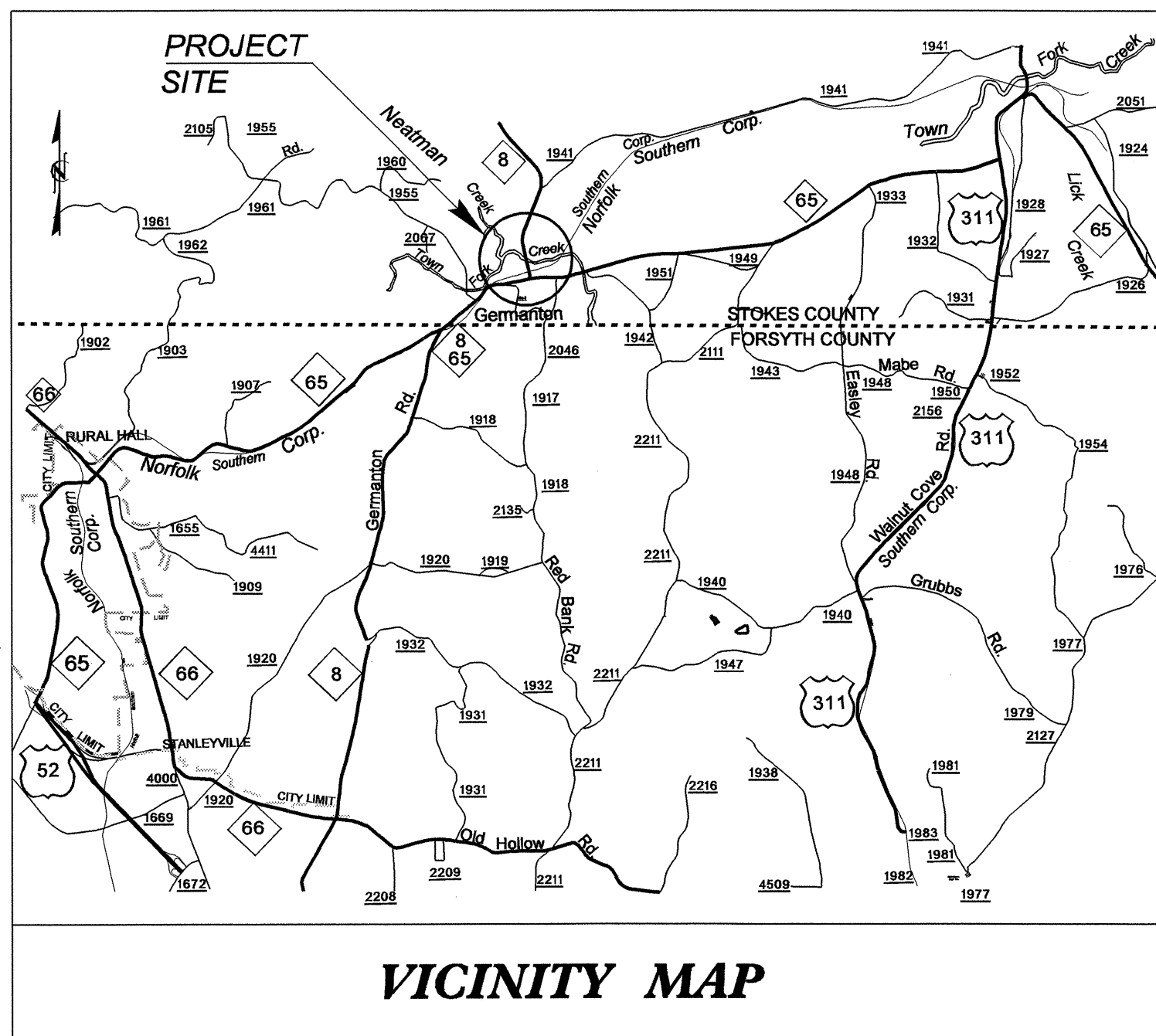
**TYPE OF WORK: GRADING, DRAINAGE, PAVING  
AND STRUCTURES**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4280	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33620.1.1	BRSTP-8(2)	PE	
33620.2.2	BRSTP-8(2)	R/W & UTL	
33620.3.1	BRSTP-8(6)	CONST.	

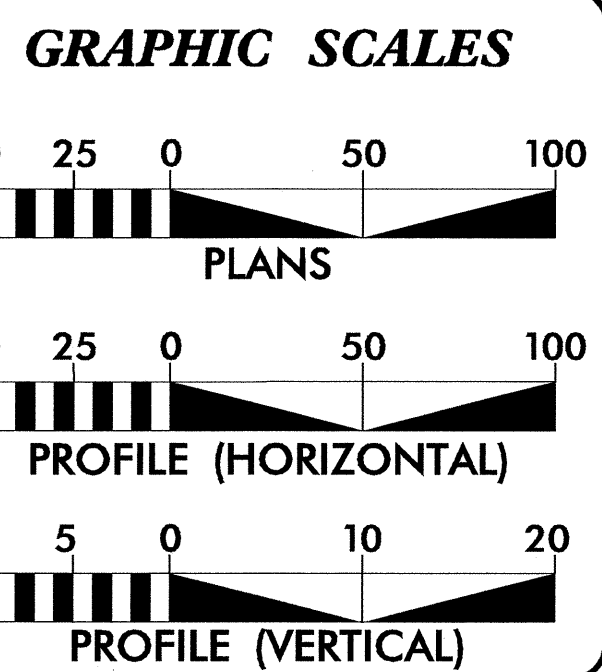
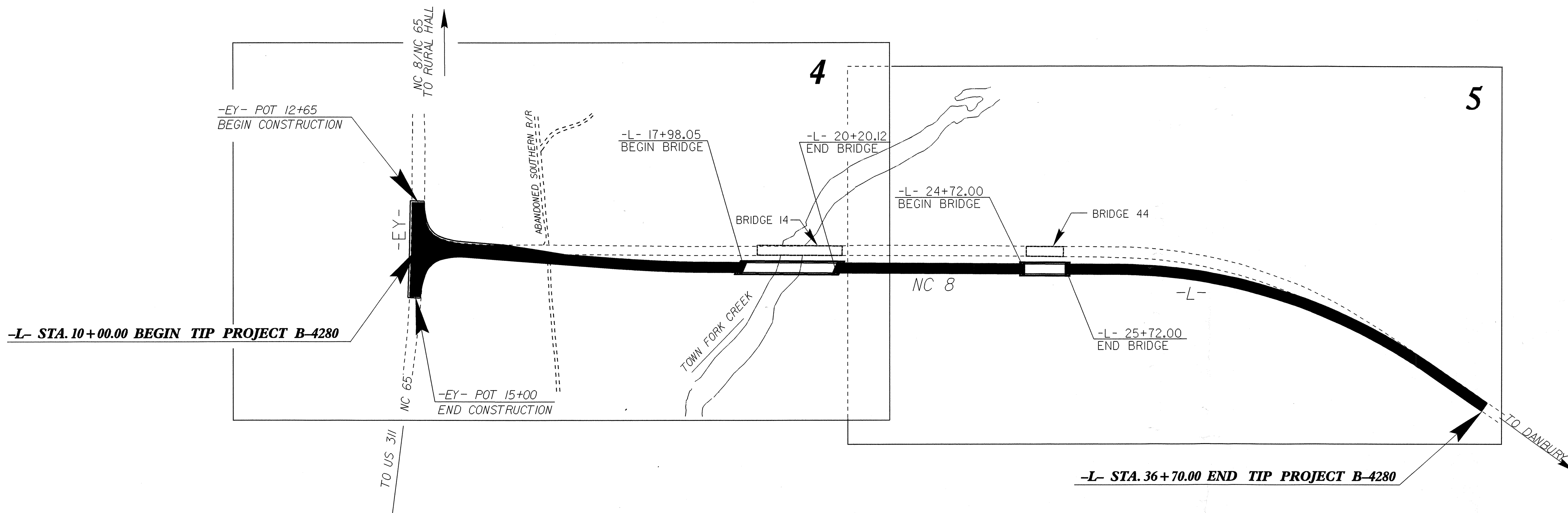
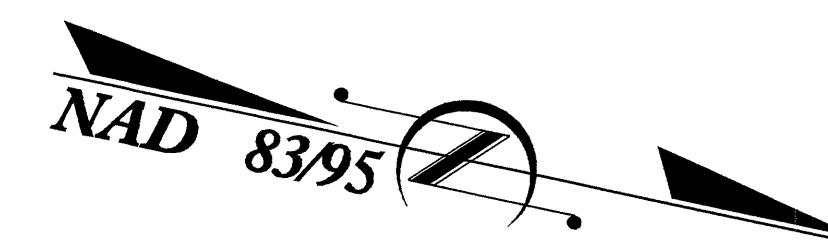


**TIP PROJECT: B-4280**

**CONTRACT: C201500**



**VICINITY MAP**



**DESIGN DATA**

ADT 2006 =	7,900
ADT 2025 =	12,200
DHV =	13 %
D =	60 %
*T =	6 %
V =	60 MPH
* TTST 1% DUAL 5%	

FUNCTIONAL CLASSIFICATION  
RURAL MAJOR COLLECTOR

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4280 =	0.445 Miles
LENGTH STRUCTURE TIP PROJECT B-4280 =	0.061 Miles
TOTAL LENGTH OF TIP PROJECT B-4280 =	0.506 Miles

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 23, 2005	G.E. BREW, PE PROJECT ENGINEER
LETTING DATE: JULY 15, 2008	I.T. YOUNIS PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

Signature: *David A. Chan*

SEAL 18377

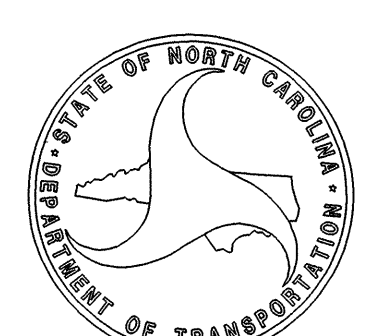
**ROADWAY DESIGN ENGINEER**

Signature: *Morgan E. Brew*

SEAL 18903

4-10-08

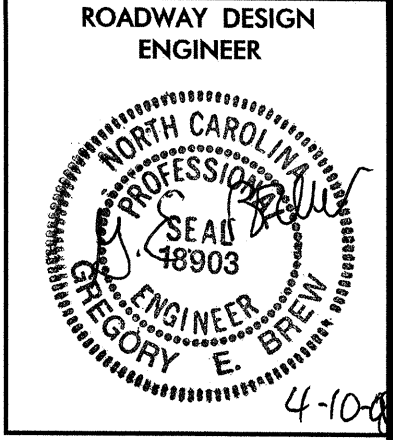
**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**



Signature: *Est. [unclear]*

STATE HIGHWAY DESIGN ENGINEER

17-MAR-2008 15:54  
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\$\$\$\$\$USERNAME\$\$\$\$\$



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

GENERAL NOTES: 2006 SPECIFICATIONS  
EFFECTIVE: 07-18-06  
REVISED:

EFF. 07-18-06

INDEX OF SHEETS	SUBJECT/DESCRIPTION
SHEET NO.	
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
1-D	CENTERLINE COORDINATE LIST
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	TYPICAL SECTION
2-B	DETAIL OF TEMP. ANCHOR UNIT TYPE W-BEAM
2-C	DETAIL OF ANCHORAGE FOR FRAMES-BRICK/CONCRETE/PRECAST CONCRETE
2-D	TEMPORARY SHORING
3	SUMMARY OF QUANTITIES
3-A	DRAINAGE SUMMARY
3-B	SUMMARY OF PAVEMENT REMOVAL AND SUMMARY OF EARTHWORK
3-C	GUARDRAIL SUMMARY
3-D	PARCEL INDEX SHEET
4 THRU 5	PLAN SHEETS
6	PROFILE SHEET
TCP-1 THRU TCP-8	TRAFFIC CONTROL PLANS
PM-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-5	SIGNING PLANS
UC-1 THRU UC-2	UTILITIES CONSTRUCTION
UO-1 THRU UO-3	UTILITIES BY OTHERS
X-1A	CROSS SECTION EARTHWORK SUMMARY
X-1 THRU X-10	CROSS-SECTIONS
S-1 THRU S- 51	STRUCTURE PLANS

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

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

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

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

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

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

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

TEMPORARY SHORING:  
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE SHORING.

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:  
STOKES COUNTY - WATER  
DUKE ENERGY CORP.  
TIME WARNER CABLE  
SPRINT TELEPHONE  
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.

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

STD.NO.	TITLE
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
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
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & 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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Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

**BOUNDARIES AND PROPERTY:**

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	-----
Property Monument	□
Parcel/Sequence Number	(123)
Existing Fence Line	-----
Proposed Woven Wire Fence	-----
Proposed Chain Link Fence	-----
Proposed Barbed Wire Fence	-----
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing High Quality Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----

**BUILDINGS AND OTHER CULTURE:**

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

**HYDROLOGY:**

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
River Basin Buffer	-----
Flow Arrow	-----
Disappearing Stream	-----
Spring	○
Swamp Marsh	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

**RAILROADS:**

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

**RIGHT OF WAY:**

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Utility Easement	-----

**ROADS AND RELATED FEATURES:**

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Wheel Chair Ramp	-----
Curb Cut for Future Wheel Chair Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊗
Pavement Removal	-----

**VEGETATION:**

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

**EXISTING STRUCTURES:**

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

**UTILITIES:**

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

**TELEPHONE:**

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

**WATER:**

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

**TV:**

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

**GAS:**

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

**SANITARY SEWER:**

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

**MISCELLANEOUS:**

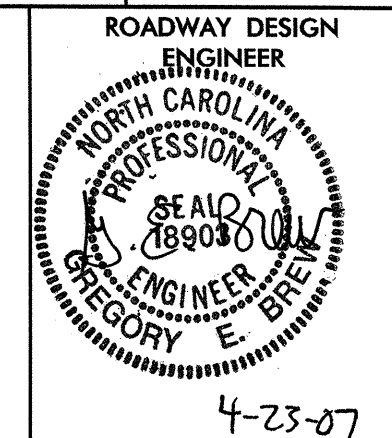
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.







STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**CENTERLINE COORDINATE LIST**

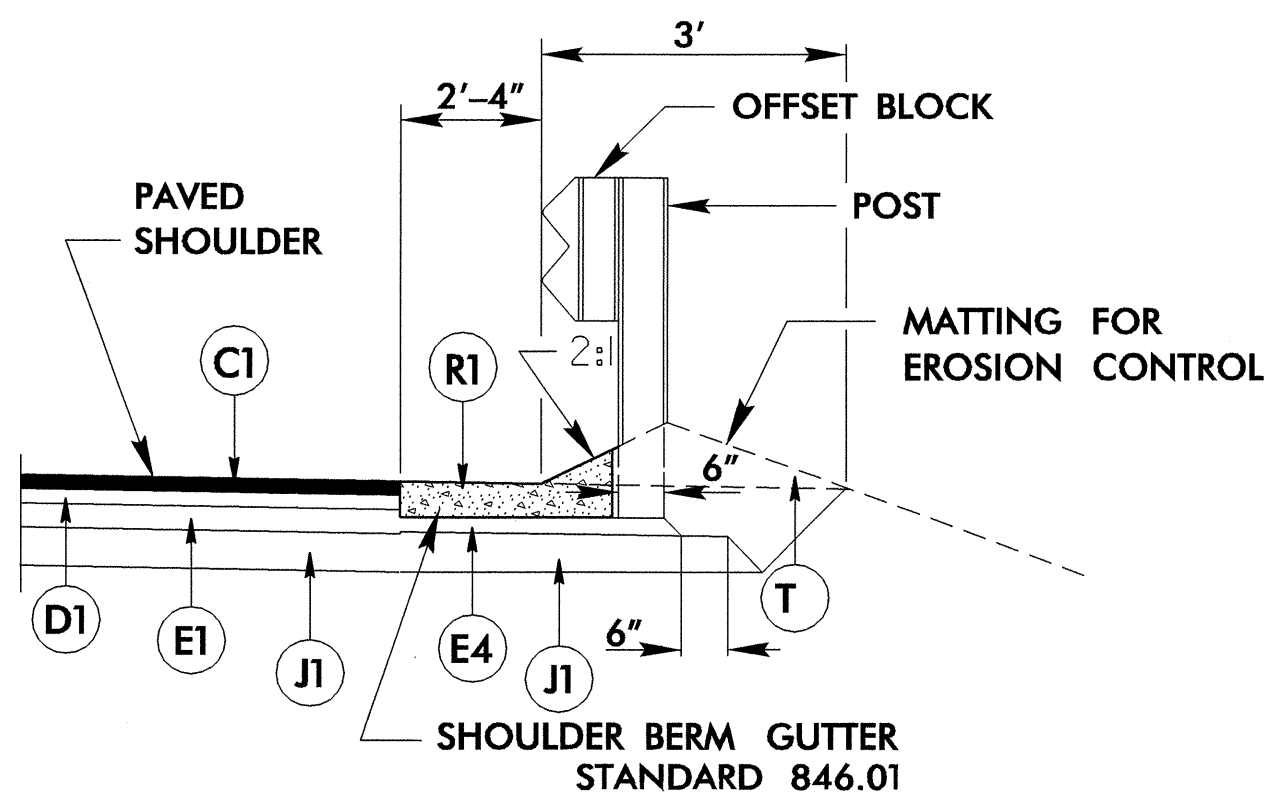


Disclaimer: This coordinate list is provided for the convenience of interested contractors and is intended for use during the project bidding process only. Coordinates are localized to this particular project and any conversion to state grid coordinates or other formats will be the responsibility of the recipient. While every effort has been made to provide up-to-date, accurate information, NCDOT makes no express guarantee as to the validity or potential for revision of this information prior to project letting.

Point #	Chain	Station	Northing(Y)	Easting(X)
1	L	10+00.000	917755.0748	1639749.2097
2	L	11+00.000	917854.3324	1639737.0478
3	L	12+00.000	917953.5901	1639724.8859
4	L	13+00.000	918052.8478	1639712.7240
5	L	14+00.000	918152.1055	1639700.5621
6	L	15+00.000	918251.3630	1639688.3990
7	L	16+00.000	918350.3873	1639674.4972
8	L	17+00.000	918448.8933	1639657.3029
9	L	18+00.000	918547.0623	1639638.2542
10	L	19+00.000	918645.2298	1639619.1981
11	L	20+00.000	918743.3973	1639600.1419
12	L	21+00.000	918841.5649	1639581.0857
13	L	22+00.000	918939.7324	1639562.0296
14	L	23+00.000	919037.8999	1639542.9734
15	L	24+00.000	919136.0674	1639523.9172
16	L	25+00.000	919234.2350	1639504.8611
17	L	26+00.000	919332.4025	1639485.8049
18	L	27+00.000	919430.5702	1639466.7497
19	L	28+00.000	919529.3720	1639451.4648
20	L	29+00.000	919629.0341	1639443.5338
21	L	30+00.000	919729.0098	1639443.0001
22	L	31+00.000	919828.7508	1639449.8668
23	L	32+00.000	919927.7102	1639464.0961
24	L	33+00.000	920025.3451	1639485.6100
25	L	34+00.000	920121.1202	1639514.2905
26	L	35+00.000	920214.5100	1639549.9803
27	L	36+00.000	920306.5322	1639589.1202
28	L	37+00.000	920398.5543	1639628.2600
29	L	37+10.071	920407.8209	1639632.2014

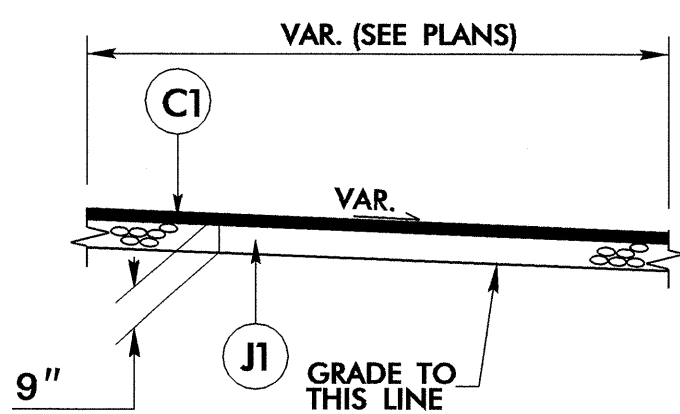
FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE.
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.

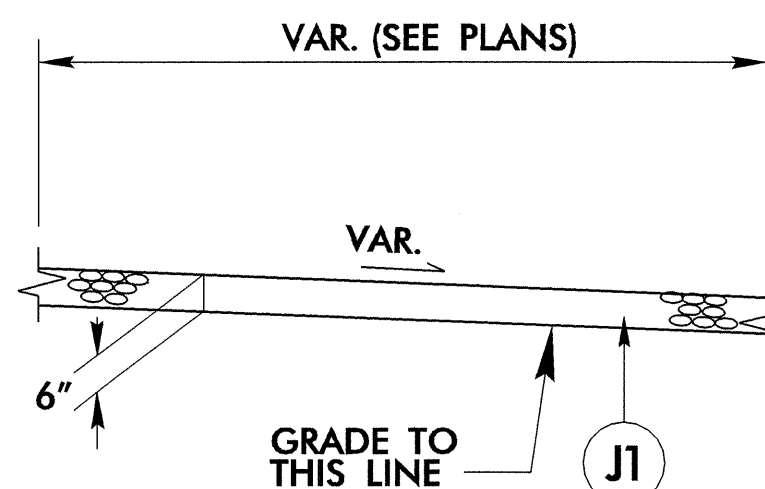


DETAIL SHOWING SHOULDER BERM GUTTER

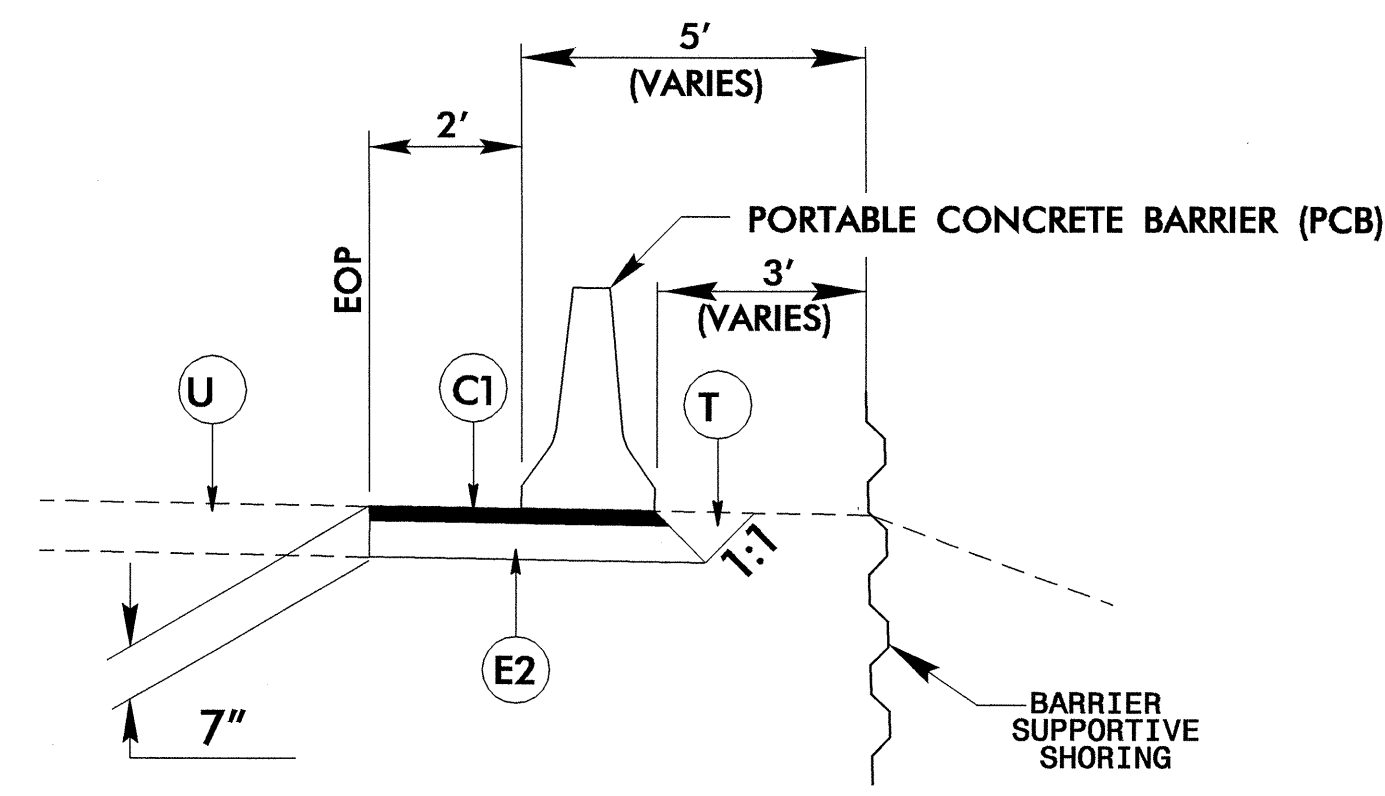
(SEE STD 846.02)  
SEE PLANS FOR LOCATIONS



ROADWAY  
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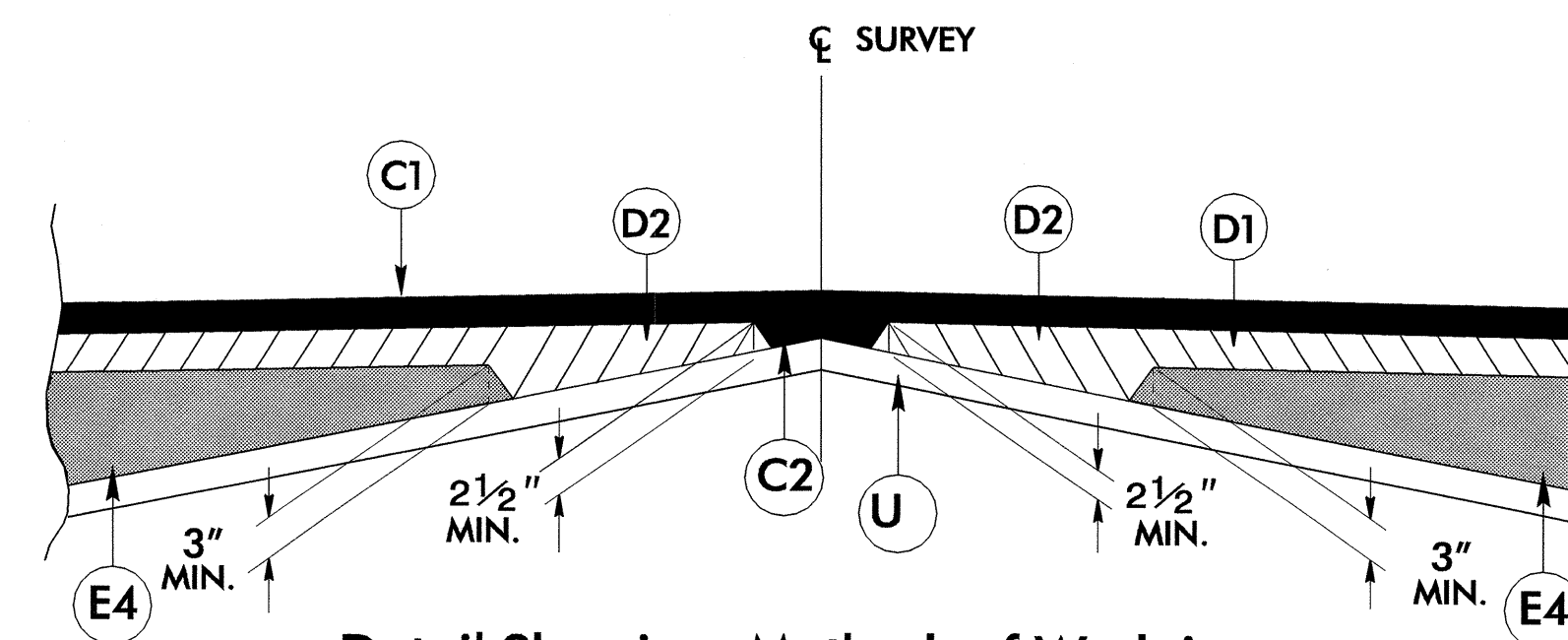


REMARKS  
SEE PLANS FOR LOCATIONS



DETAIL SHOWING TEMPORARY WIDENING

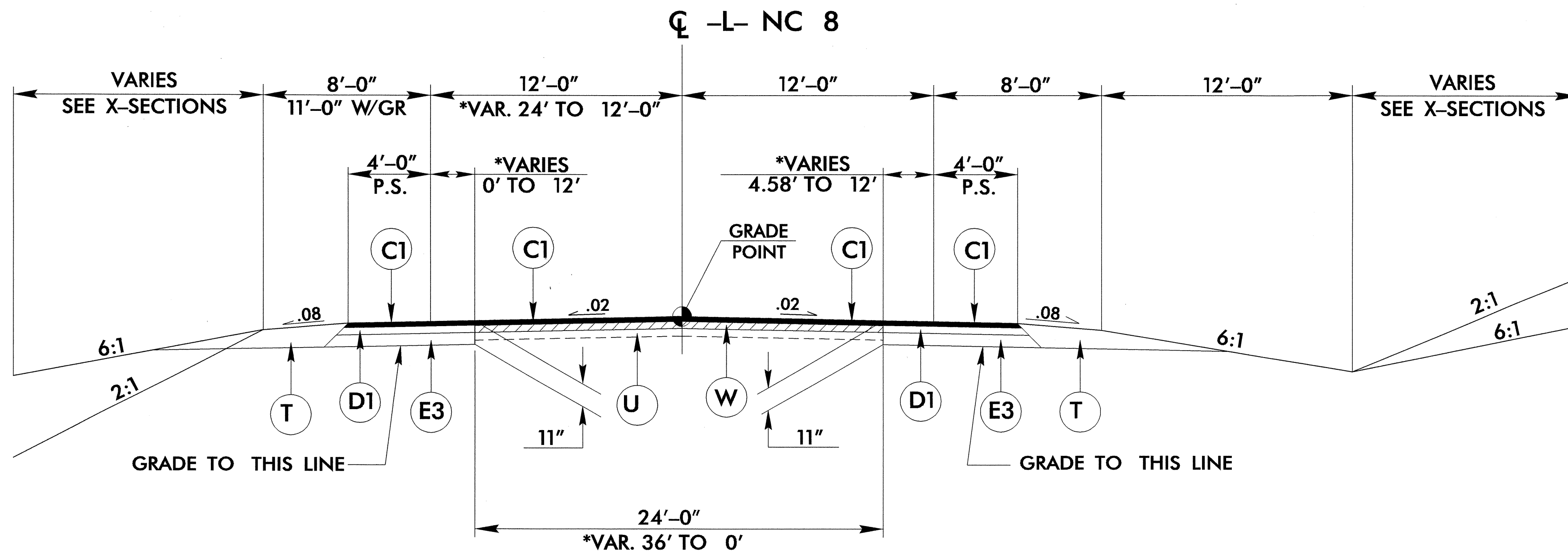
FROM APPROX. -L- STA. 16+40 TO 18+27.34 LT.  
FROM APPROX. -L- STA. 20+32.43 TO 24+77.43 LT.  
FROM APPROX. -L- STA. 25+67.81 TO 27+20 LT.



Detail Showing Method of Wedging

(USE WITH TYPICAL SECTION 1)

ROADWAY  
MISC. UNPAVED PRIVATE DRIVES  
REMARKS  
SEE PLANS FOR LOCATIONS



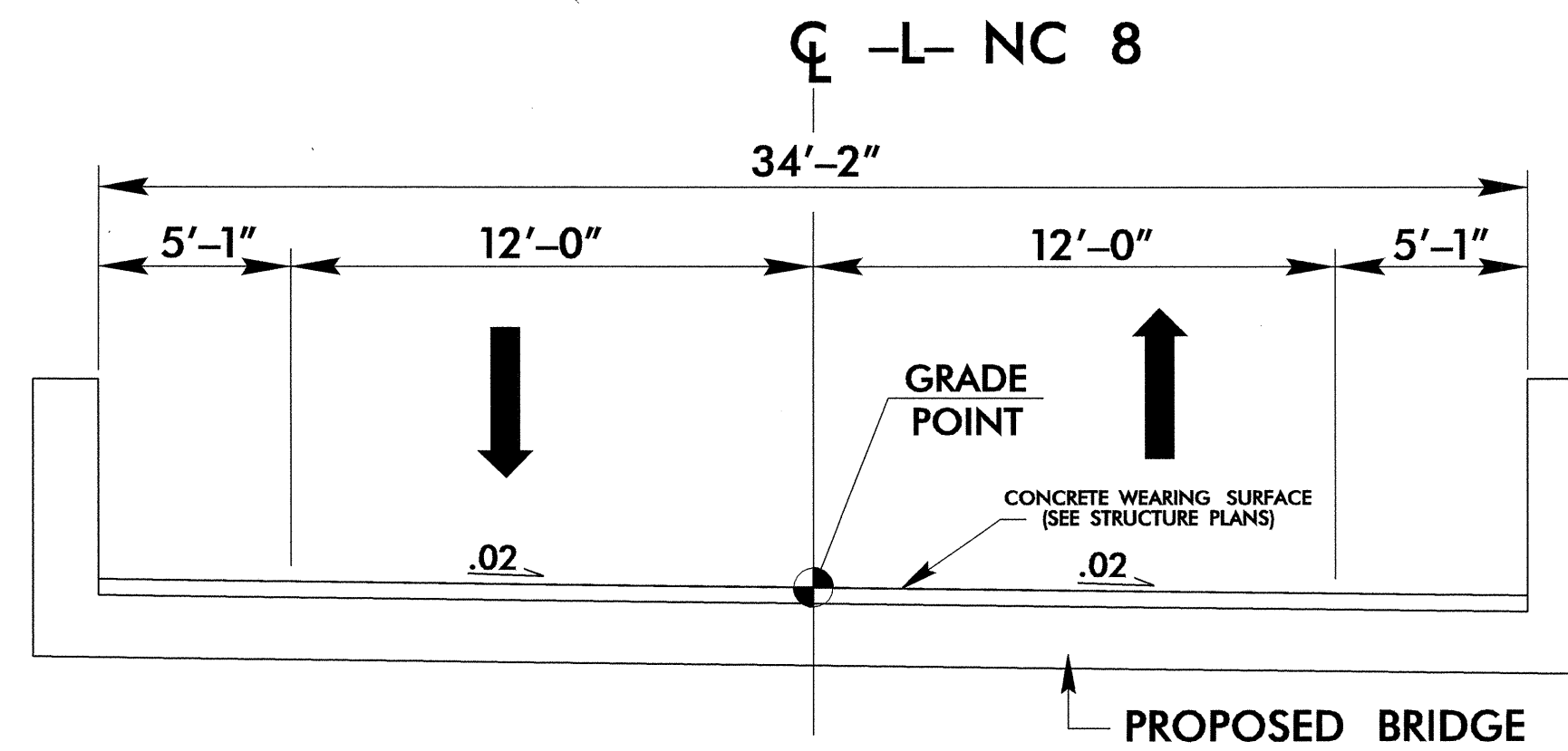
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1  
\*-L- STA. 10+18.27 TO 13+58.81  
-L- STA. 31+46.00 TO 36+50.00

-L- STA. 36+50 TO 36+70, TRANSITION  
FROM T.S. 1 TO EXISTING

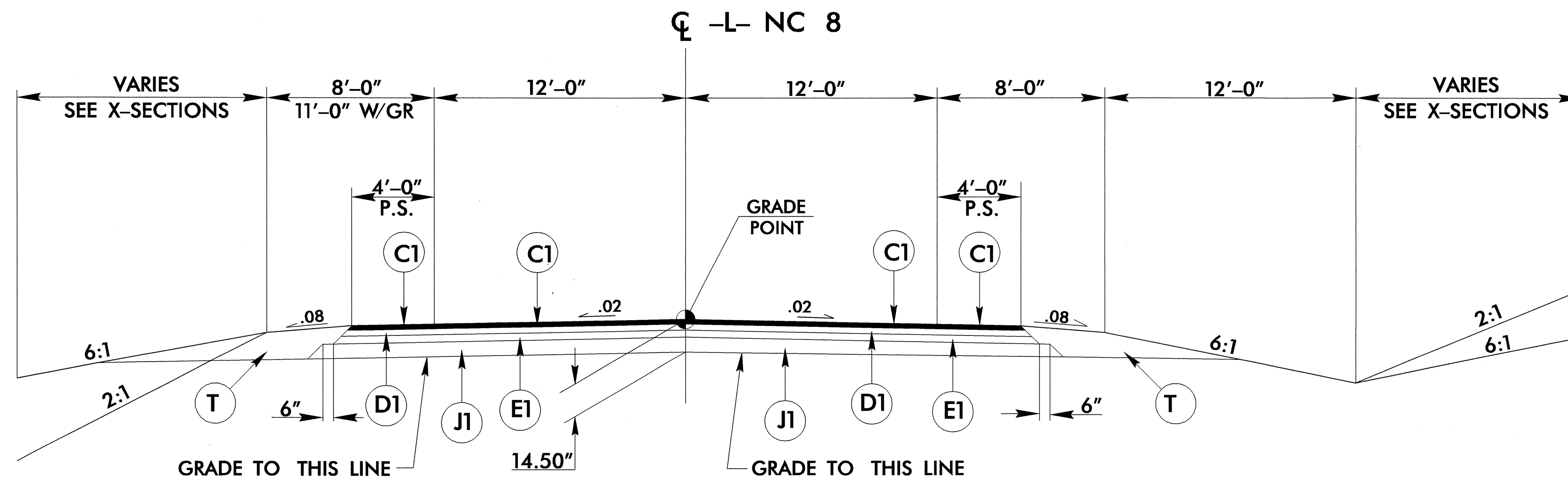
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ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18903 GREGORY E. BRUNN	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896 CLARK S. MORRISON
4-23-07	4/20/07

PROJECT REFERENCE NO. B-4280	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER GREGORY E. BRINLEY SEAL 08904 NORTH CAROLINA PROFESSIONAL ENGINEER 4-23-07	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON SEAL 22896 NORTH CAROLINA PROFESSIONAL ENGINEER 4/24/07
FINAL PAVEMENT DESIGN	
C1	3.0" S9.5B
D1	2.5" I19.0B
E1	3.0" B25.0B
J1	6.0" ABC
T	EARTH MATERIAL
U	EXIST PAVEMENT



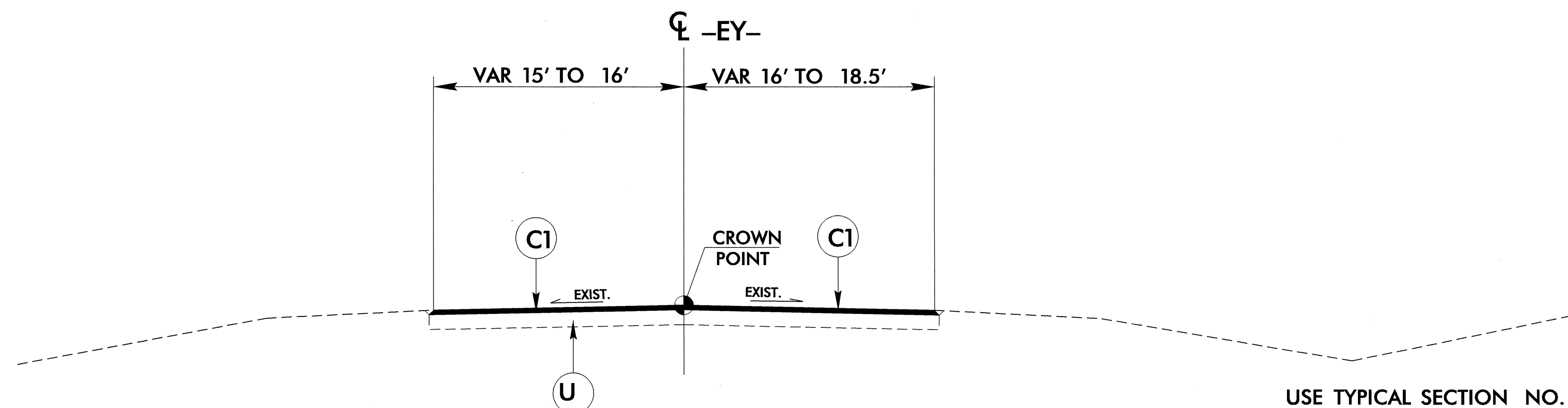
USE TYPICAL SECTION NO. 2  
-L- STA. 24+72.00 TO 25+72.00

TYPICAL SECTION NO. 2



USE TYPICAL SECTION NO. 3  
-L- STA. 13+58.81 TO 17+98.05 (BEGIN BRIDGE)  
-L- STA. 20+20.12 (END BRIDGE) TO 24+72.00 (BEGIN BRIDGE)  
-L- STA. 25+72.00 (END BRIDGE) TO 31+46.00

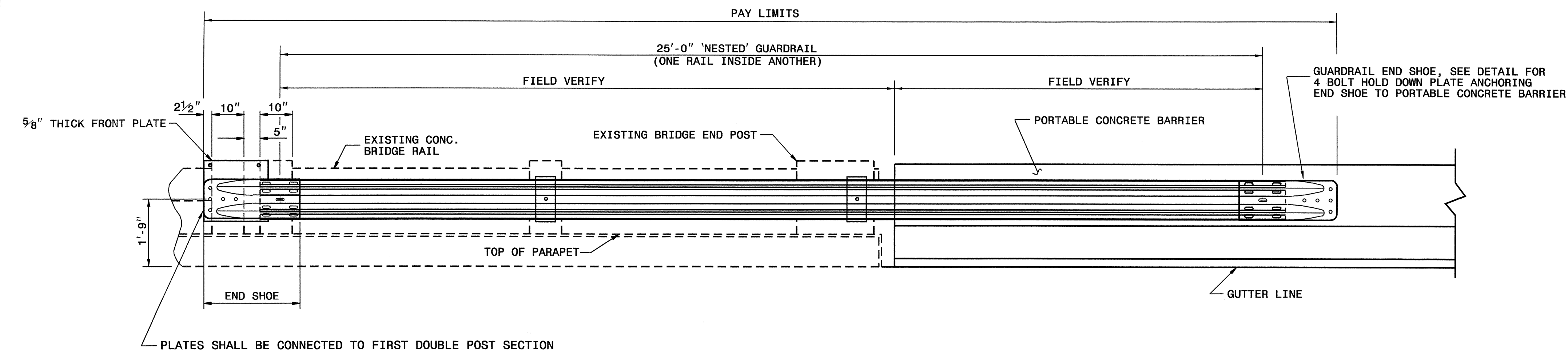
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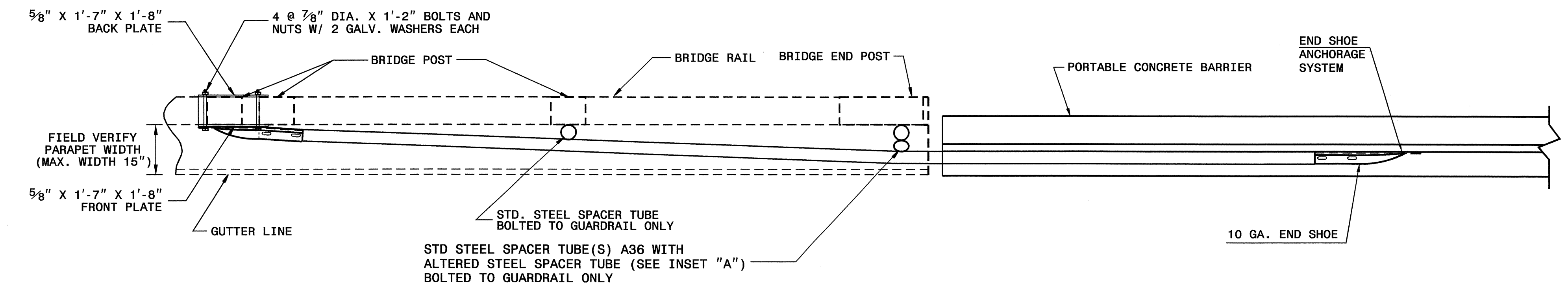
USE TYPICAL SECTION NO. 4  
-EY- STA. 12+65.00 TO 15+00.00

TYPICAL SECTION NO. 4

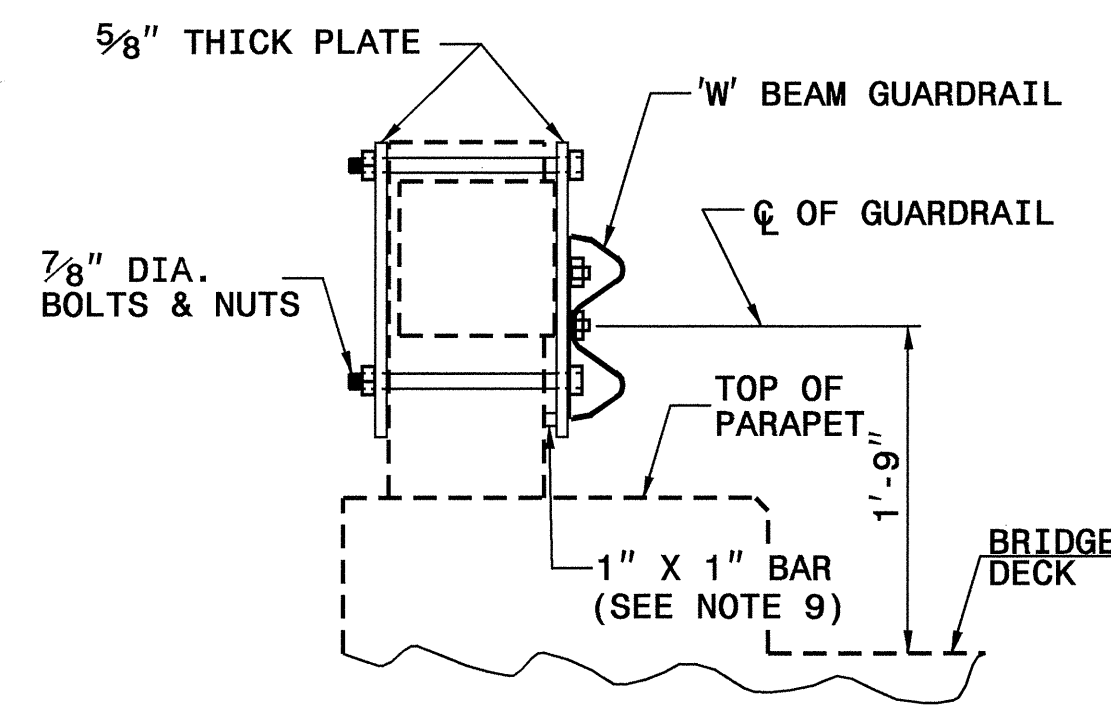




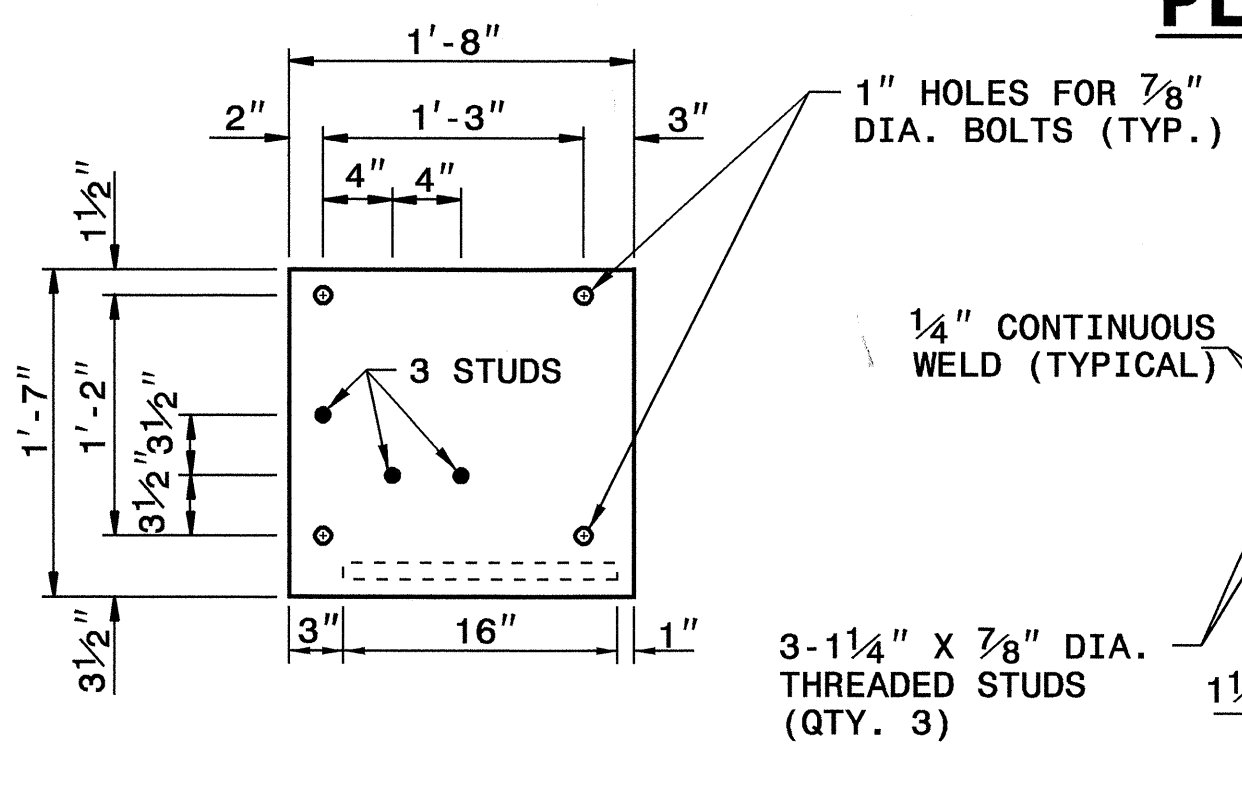
**ELEVATION VIEW**



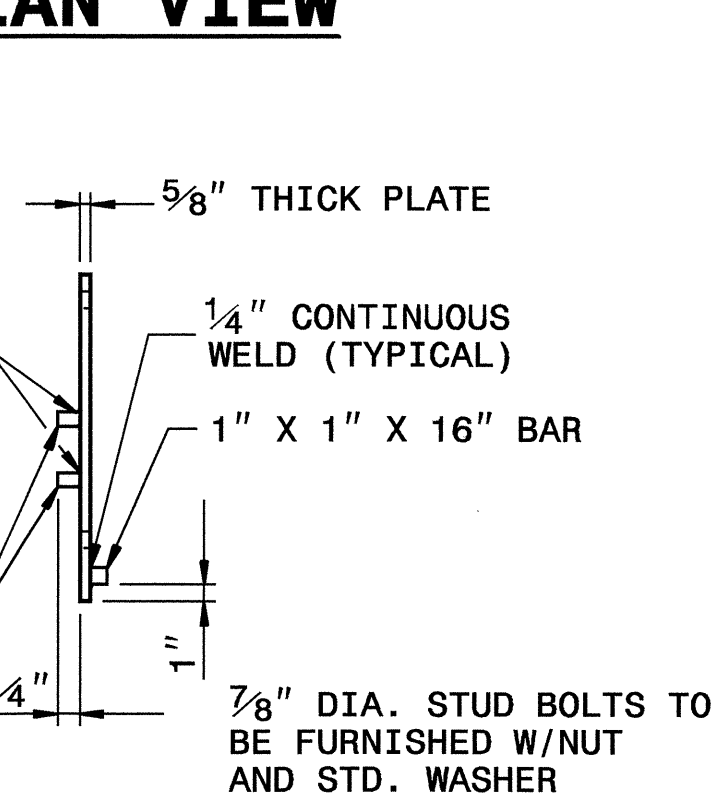
**PLAN VIEW**



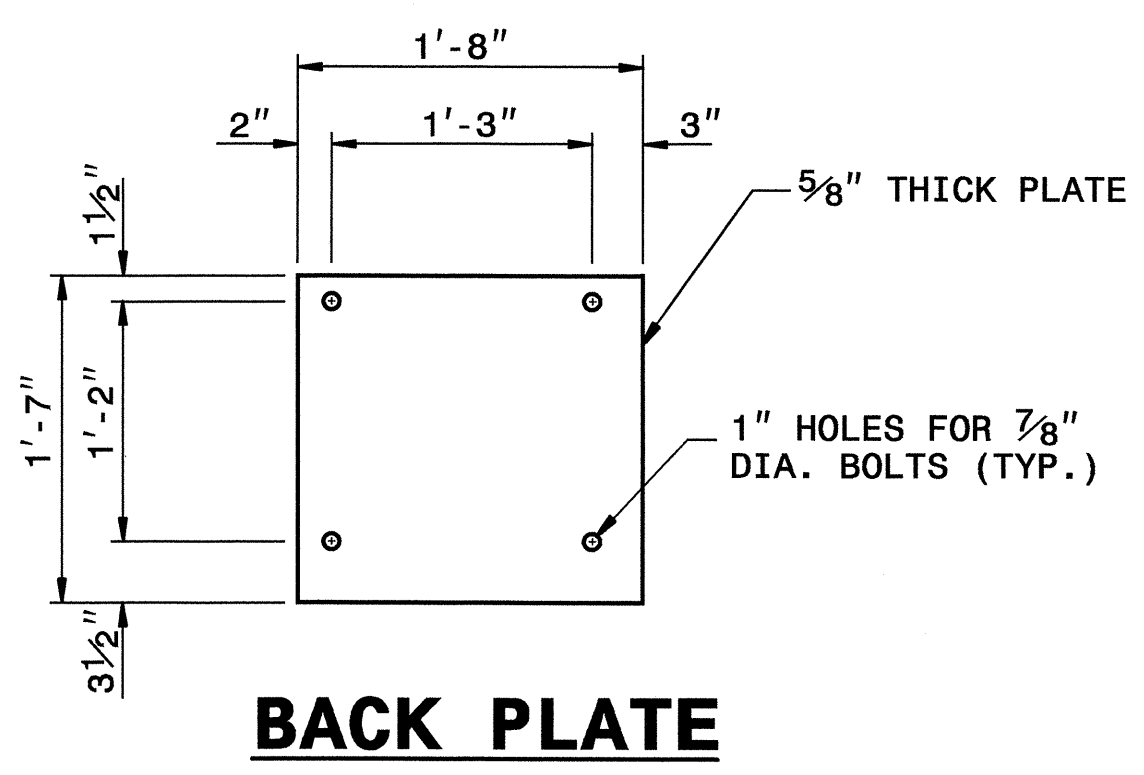
**SECTION VIEW**



**FRONT VIEW**

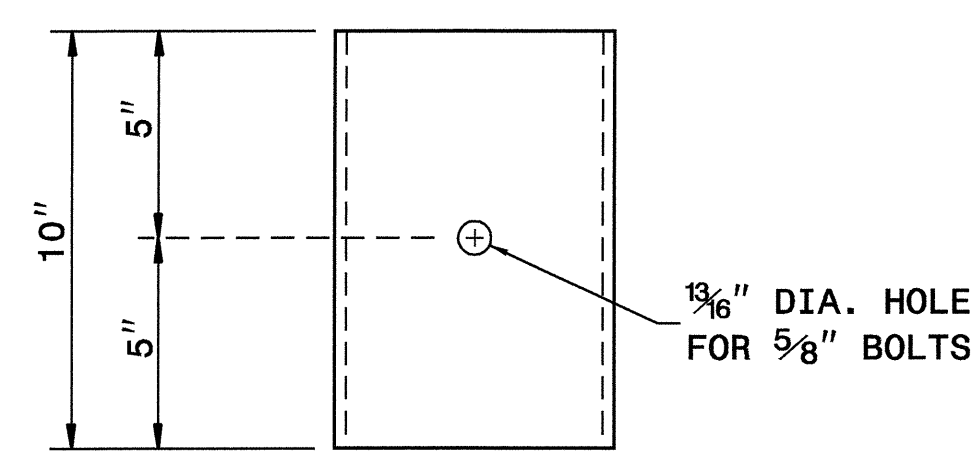


**SIDE VIEW**



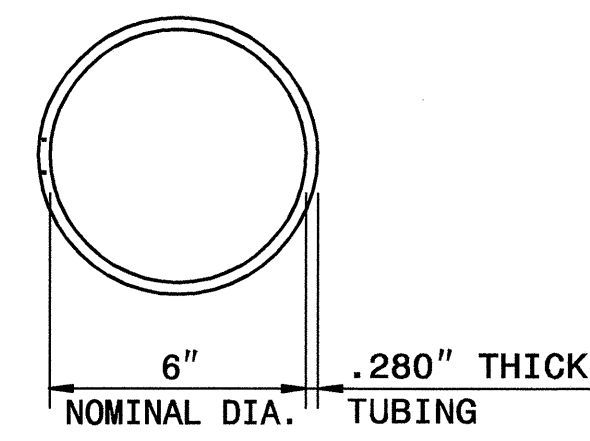
**BACK PLATE**

STUDS MAY BE ADJUSTED TO MEET FIELD CONDITIONS

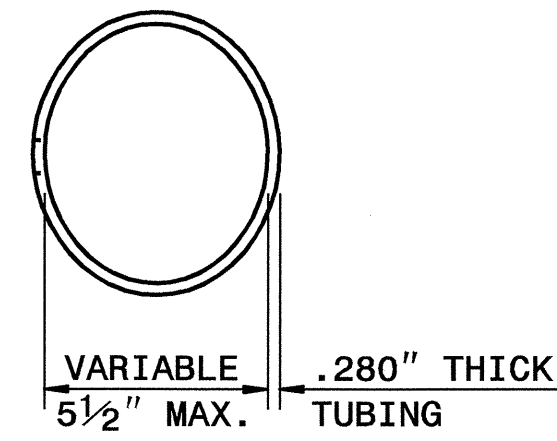


**FRONT VIEW**

**STEEL SPACER TUBE**



**PLAN VIEW**



**PLAN VIEW INSET "A"**

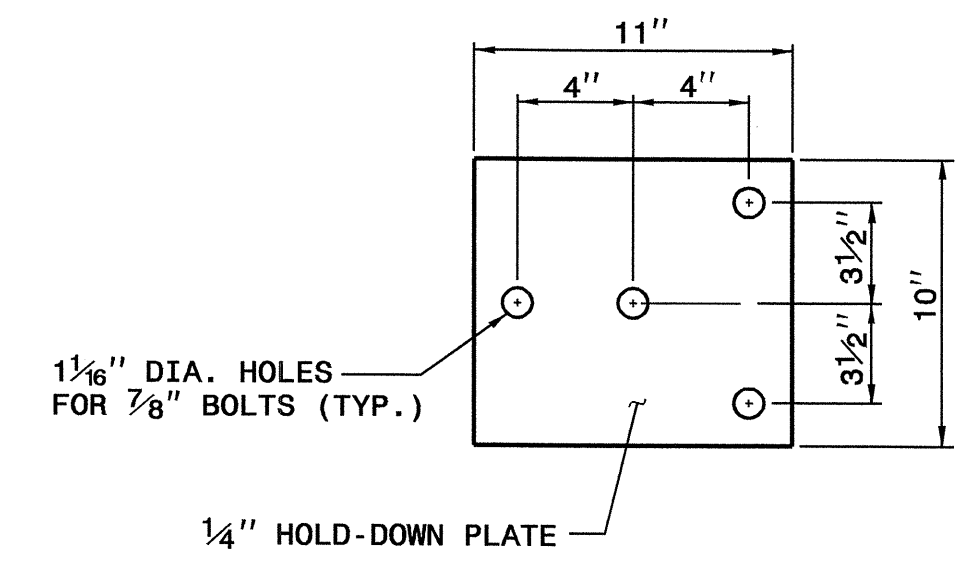
**FRONT PLATE**

**NOTES FOR 4 BOLT HOLD DOWN PLATE**

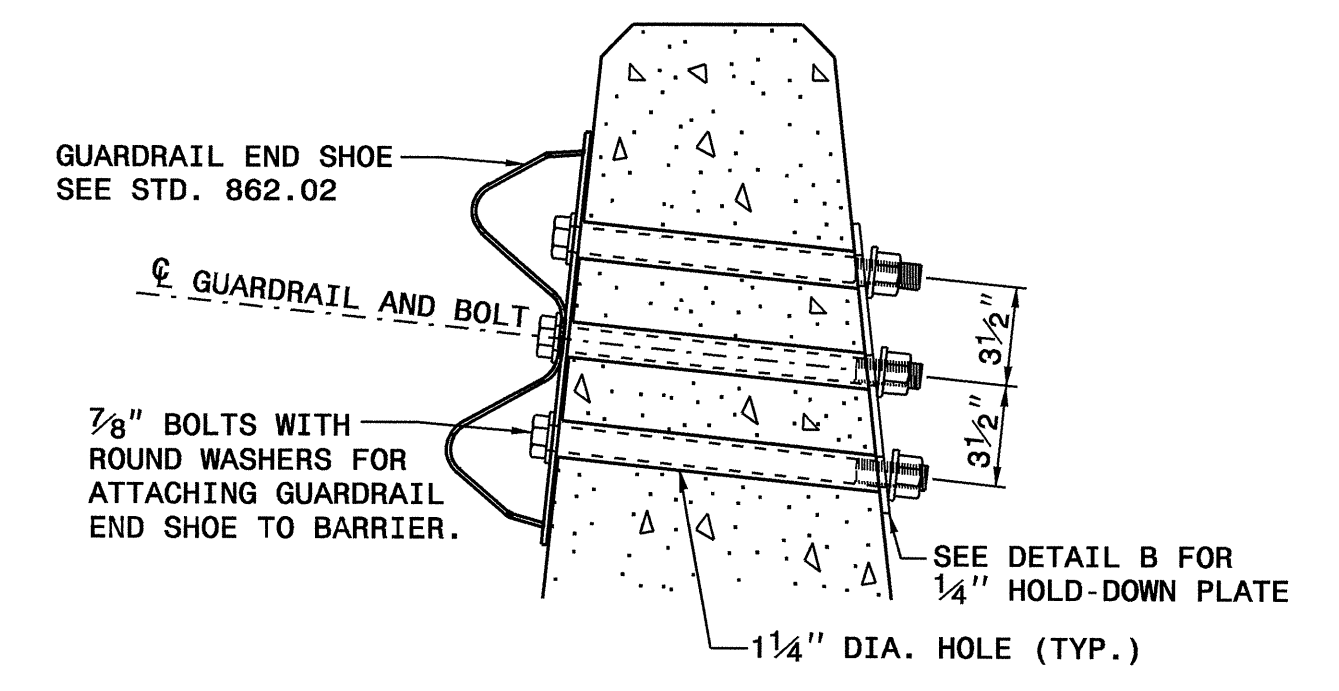
THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 7/8" DIA. BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL. THE 1/4" DIA. HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

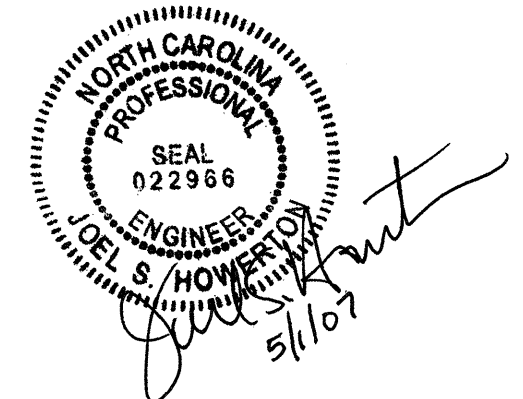


**4 BOLT HOLD DOWN PLATE**



**PART SECTION OF BARRIER OR RAIL THRU END SHOE SECTION AND 4 BOLT HOLD DOWN PLATE**

- GENERAL NOTES:**
- USE NUTS, BOLTS, AND WASHERS CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-307 AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
  - TAP NUTS FOR THE 7/8" DIA. STUDS AND BOLTS AFTER GALVANIZING SEE A.S.T.M. A-563.
  - USE PLATES AND TUBES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
  - ADDITIONAL FIELD HOLES MAY BE DRILLED IN STEEL RAIL AS DIRECTED BY THE ENGINEER.
  - INSTALL FACE OF GUARDRAIL AS NEAR AS POSSIBLE TO PLUMB WITH THE PARAPET FACE AT BRIDGE END POST SPACER TUBE LOCATION BY USING STANDARD OR ALTERED SPACER TUBES OR A COMBINATION THEREOF OR AS DIRECTED BY THE ENGINEER. FOR VERY SMALL PARAPET WIDTHS, GUARDRAIL MAY BE INSTALLED AGAINST BRIDGE RAIL WITHOUT SPACER TUBES.
  - DO NOT DRILL BRIDGE RAIL IN ORDER TO INSTALL GUARDRAIL ANCHOR UNIT.
  - KEEP TOE OF PORTABLE CONCRETE BARRIER FLUSH WITH FACE OF PARAPET.
  - ATTACH 1" X 1" BAR AND THREADED STUDS TO PLATE WITH 1/4" WELDS ALL AROUND.
  - 1" X 1" BAR MAY NOT BE NEEDED ON BRIDGE RAILS WHERE FACE OF RAIL DOES NOT PROJECT BEYOND FACE OF POST.



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

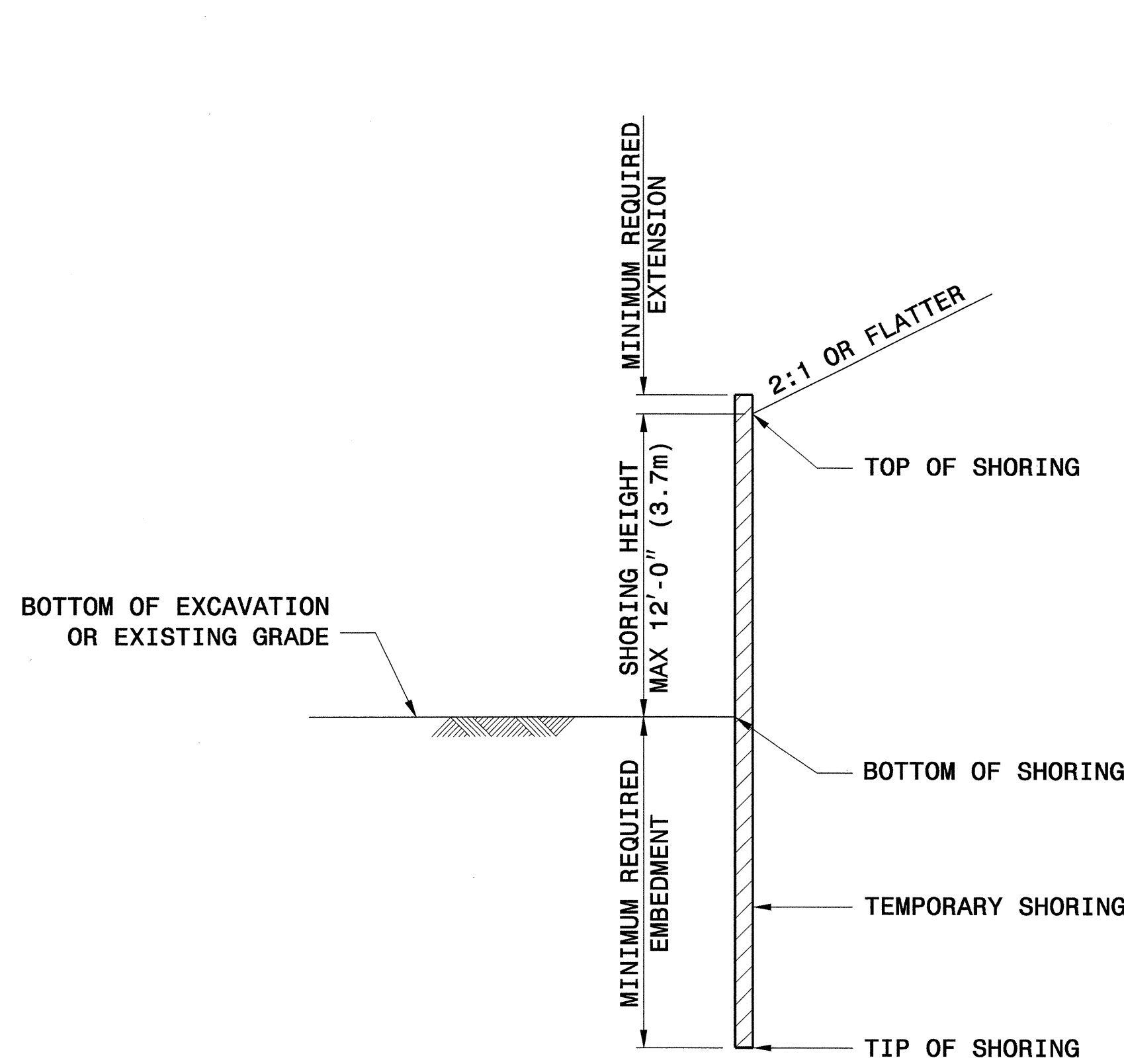
**TEMPORARY ANCHOR  
UNIT TYPE W-BEAM**

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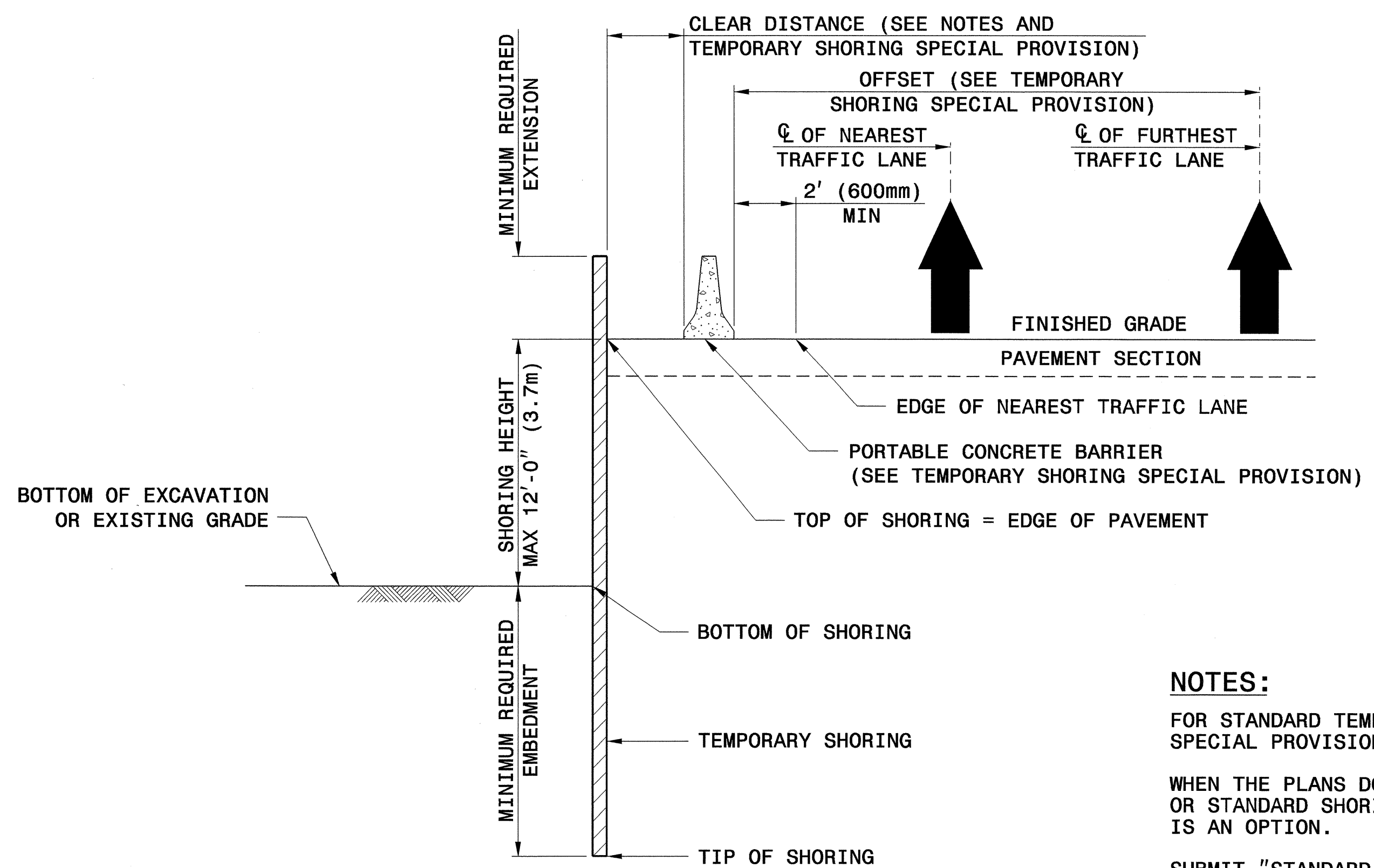
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**SLOPE CASE**



**SURCHARGE CASE**

**NOTES:**

FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN THE PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, THE USE OF STANDARD TEMPORARY SHORING IS AN OPTION.

SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:

- 1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
- 2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
- 3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
- 4) H PILE SPACING IS 6'-0" (1.8m).
- 5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
- 6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

THE STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:

- TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M<sup>3</sup>)
- FRICTION ANGLE = 30 DEGREES
- COHESION = 0 PSF (0 KPA)
- GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.

VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TEMPORARY SHORING SPECIAL PROVISION, USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT" AND SET THE BARRIER AGAINST THE BACK OF THE SHORING.

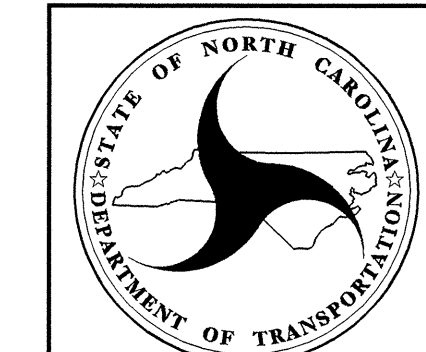
AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.

CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

GROUNDWATER CONDITION	SHORING HEIGHT FT (m)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H PILES WITH TIMBER LAGGING			SHEET PILES		H PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN <sup>3</sup> /FT (cm <sup>3</sup> /m)	MINIMUM REQUIRED EMBEDMENT FT (m)			MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN <sup>3</sup> /FT (cm <sup>3</sup> /m)	MINIMUM REQUIRED EMBEDMENT FT (m)		
			HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)			HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)	
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND TIP OF SHORING	< 6 (1.8)	7.5 (2.3)	3.0 (161)	8.0 (2.4)	8.0 (2.4)	8.0 (2.4)	11.0 (3.4)	10.0 (538)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)
	7 (2.1)	8.5 (2.6)	4.5 (242)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	12.0 (3.7)	12.0 (645)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)
	8 (2.4)	10.0 (3.0)	6.5 (349)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	12.5 (3.8)	14.0 (753)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)
	9 (2.7)	11.0 (3.4)	9.5 (511)	--	12.0 (3.7)	12.0 (3.7)	13.5 (4.1)	16.5 (887)	--	12.5 (3.8)	12.5 (3.8)
	10 (3.0)	12.5 (3.8)	13.0 (699)	--	--	13.5 (4.1)	14.0 (4.3)	19.5 (1048)	--	13.5 (4.1)	13.5 (4.1)
	11 (3.4)	13.5 (4.1)	17.0 (914)	--	--	14.5 (4.4)	15.0 (4.6)	22.5 (1210)	--	--	14.5 (4.4)
GROUNDWATER ELEVATION BELOW TIP OF SHORING	< 6 (1.8)	11.5 (3.5)	4.5 (242)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	16.0 (4.9)	12.0 (645)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)
	7 (2.1)	13.0 (4.0)	7.0 (376)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	17.0 (5.2)	14.5 (780)	14.5 (4.4)	14.5 (4.4)	14.5 (4.4)
	8 (2.4)	15.0 (4.6)	10.0 (538)	--	15.0 (4.6)	15.0 (4.6)	18.0 (5.5)	17.0 (914)	--	15.5 (4.7)	15.5 (4.7)
	9 (2.7)	17.0 (5.2)	14.0 (753)	--	17.0 (5.2)	17.0 (5.2)	19.0 (5.8)	20.0 (1075)	--	17.0 (5.2)	17.0 (5.2)
	10 (3.0)	18.5 (5.6)	19.5 (1048)	--	--	18.5 (5.6)	20.0 (6.1)	23.5 (1263)	--	--	18.5 (5.6)
	11 (3.4)	20.5 (6.3)	26.0 (1398)	--	--	--	21.0 (6.4)	28.0 (1505)	--	--	20.0 (6.1)
	12 (3.7)	22.5 (6.9)	33.0 (1774)	--	--	--	22.0 (6.7)	33.0 (1774)	--	--	21.5 (6.6)

NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".



**GEOTECHNICAL ENGINEERING UNIT**  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD TEMPORARY SHORING



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201500

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION	402500000-E	901	40.1	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (D)
001500000-N	205	1	EA	SEALING ABANDONED WELLS	402500000-E	901	15.25	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (19+10 -L-)	402500000-E	901	108.25	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (F)
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (25+22 -L-)	407200000-E	903	352	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	409600000-N	904	3	EA	SIGN ERECTION, TYPE D
005700000-E	226	750	CY	UNDERCUT EXCAVATION	410200000-N	904	2	EA	SIGN ERECTION, TYPE E
006300000-N	SP	Lump Sum		GRADING	410800000-N	904	7	EA	SIGN ERECTION, TYPE F
010600000-E	230	32,000	CY	BORROW EXCAVATION	415500000-N	907	21	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
013400000-E	240	283	CY	DRAINAGE DITCH EXCAVATION	440000000-E	1110	331	SF	WORK ZONE SIGNS (STATIONARY)
019500000-E	265	3,250	CY	SELECT GRANULAR MATERIAL	440500000-E	1110	128	SF	WORK ZONE SIGNS (PORTABLE)
019600000-E	270	2,500	SY	FABRIC FOR SOIL STABILIZATION	441000000-E	1110	87	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
019900000-E	SP	1,269	SF	TEMPORARY SHORING	443000000-N	1130	54	EA	DRUMS
031800000-E	300	47	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	444500000-E	1145	80	LF	BARRICADES (TYPE III)
034300000-E	310	152	LF	15" SIDE DRAIN PIPE	445500000-N	1150	24	MD	FLAGGER
034400000-E	310	28	LF	18" SIDE DRAIN PIPE	446500000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
037800000-E	310	120	LF	24" RC PIPE CULVERTS, CLASS III	448000000-N	1165	2	EA	TMIA
038400000-E	310	56	LF	30" RC PIPE CULVERTS, CLASS III	448500000-E	1170	760	LF	PORTABLE CONCRETE BARRIER
070800000-E	310	84	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK	465000000-N	1251	80	EA	TEMPORARY RAISED PAVEMENT MARKERS
080600000-E	310	6	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK	468500000-E	1205	5,780	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
099500000-E	340	136	LF	PIPE REMOVAL	468600000-E	1205	6,094	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
112100000-E	520	2,000	TON	AGGREGATE BASE COURSE	469500000-E	1205	126	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
122000000-E	545	30	TON	INCIDENTAL STONE BASE	471000000-E	1205	37	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
148900000-E	610	1,875	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	472500000-E	1205	5	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
149800000-E	610	1,225	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	481000000-E	1205	20,825	LF	PAINT PAVEMENT MARKING LINES (4")
151900000-E	610	1,800	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	484500000-N	1205	4	EA	PAINT PAVEMENT MARKING SYMBOL
156000000-E	620	247	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	490500000-N	1253	96	EA	SNOWFLOWABLE PAVEMENT MARKERS
169300000-E	654	20	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	564800000-N	1515	4	EA	RELOCATE WATER METER
200000000-N	806	23	EA	RIGHT OF WAY MARKERS	567200000-N	1515	2	EA	RELOCATE FIRE HYDRANT
202200000-E	815	115	CY	SUBDRAIN EXCAVATION	600000000-E	1605	2,200	LF	TEMPORARY SILT FENCE
203300000-E	815	85	CY	SUBDRAIN FINE AGGREGATE	600600000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS A
204400000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE	600900000-E	1610	345	TON	STONE FOR EROSION CONTROL, CLASS B
205500000-E	815	15	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	601200000-E	1610	450	TON	SEDIMENT CONTROL STONE
206600000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	601500000-E	1615	4.5	ACR	TEMPORARY MULCHING
207700000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)	601800000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
225300000-E	840	2	CY	PIPE COLLARS	602100000-E	1620	0.75	TON	FERTILIZER FOR TEMPORARY SEEDING
228600000-N	840	3	EA	MASONRY DRAINAGE STRUCTURES	602400000-E	1622	170	LF	TEMPORARY SLOPE DRAINS
236700000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.29	602700000-N	1622	4	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
255600000-E	846	40	LF	SHOULDER BERM GUTTER	602900000-E	SP	300	LF	SAFETY FENCE
284500000-N	858	1	EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES	603000000-E	1630	1,725	CY	SILT EXCAVATION
303000000-E	862	1,862.5	LF	STEEL BM GUARDRAIL	603600000-E	1631	2,310	SY	MATting FOR EROSION CONTROL
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	603700000-E	SP	50	SY	COIR FIBER MAT
321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III	603800000-E	SP	525	SY	PERMANENT SOIL REINFORCEMENT MAT
327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	604200000-E	1632	250	LF	1/4" HARDWARE CLOTH
331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	607000000-N	SP	12	EA	SPECIAL STILLING BASINS
338700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (W-BEAM)	6071030000-E	SP	200	LF	COIR FIBER BAFFLES
3389100000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY	6071050000-E	SP	5	EA	*** SKIMMER (1-1/2")
364900000-E	876	126	TON	RIP RAP, CLASS B	6071050000-E	SP	1	EA	*** SKIMMER (2-1/2")
365600000-E	876	1,192	SY	FILTER FABRIC FOR DRAINAGE	608400000-E	1660	6.5	ACR	SEEDING & MULCHING
					608700000-E	1660	2.5	ACR	MOWING

ItemNumber	Sec #	Quantity	Unit	Description
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	4.75	TON	FERTILIZER TOPDRESSING
611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
611700000-N	SP	8	EA	RESPONSE FOR EROSION CONTROL

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STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**SUMMARY OF QUANTITIES**

**SUMMARY OF EARTHWORK  
 IN CUBIC YARDS**

STATION - STATION	TOTAL EXC. (UNCL.)	EMBANK. + %	BORROW	WASTE
<b>SUMMARY NO. 1</b>				
<b>PHASE 1</b>				
-L- 16+40 TO 18+27.34 LT TEMP.	6	7	1	
-L- 20+42.43 TO 24+77.43 LT TEMP.	19	6		13
-L- 10+00 TO 17+98.08 RT	495	10,442	9,947	
-L- 20+20.08 TO 24+72 RT		10,729	10,729	
<b>PHASE 2</b>				
-L- 10+00 TO 17+98.08 LT	769	14		755
-L- 20+20.08 TO 24+72 LT	550			550
<b>SUMMARY NO. 1 TOTAL</b>	<b>1,839</b>	<b>21,199</b>	<b>20,678</b>	<b>1,318</b>
<b>SUMMARY NO. 2</b>				
<b>PHASE 1</b>				
-L- 25+67.81 TO 27+20 LT TEMP.	7			7
-L- 25+72 TO 36+70 RT	174	8,819	8,645	
<b>PHASE 2</b>				
-L- 25+72 TO 36+70 LT	1,363	557		806
<b>SUMMARY NO. 2 TOTAL</b>	<b>1,544</b>	<b>9,376</b>	<b>8,645</b>	<b>813</b>
<b>PROJECT SUB-TOTAL</b>	<b>3,383</b>	<b>30,575</b>	<b>29,323</b>	<b>2,131</b>
WASTE IN LIEU OF BORROW			-959	-959
LOSS DUE TO CLEAR. & GRUBB	-169		169	
EST. SHOULDER MATERIAL			1,403	
EST. 5% TO REPLACE TOPSOIL AT BORROW PIT			1,497	
<b>PROJECT TOTAL</b>	<b>3,214</b>		<b>31,432</b>	<b>1,172</b>
SAY	3,220		31,500	
ESTIMATED DDE = 291 C.Y.				
ESTIMATED UNDERCUT = 750 C.Y.				

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, SHOULDER BORROW, 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.

**SUMMARY OF ASPHALT  
 PAVEMENT REMOVAL**

STATION - STATION	LOCATION	REMOVAL SQ. YDS.
-L- 12+17.84 TO 18+27.10	LEFT	1,504.49
-L- 20+32.79 TO 24+77.43	LEFT	1,402.51
-L- 25+67.83 TO 33+96.66	LEFT	2,015.86
	TOTAL	4,922.86
	SAY	5,000

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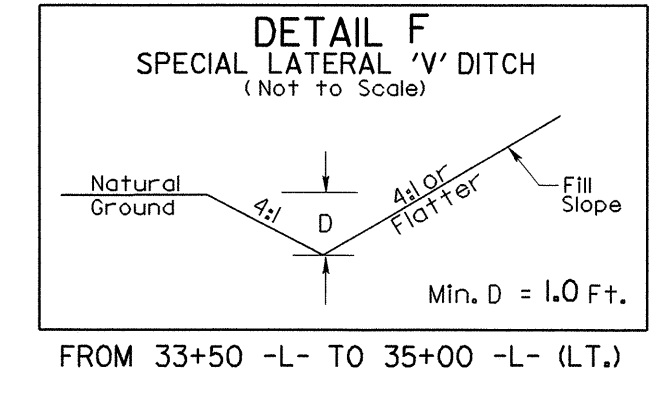
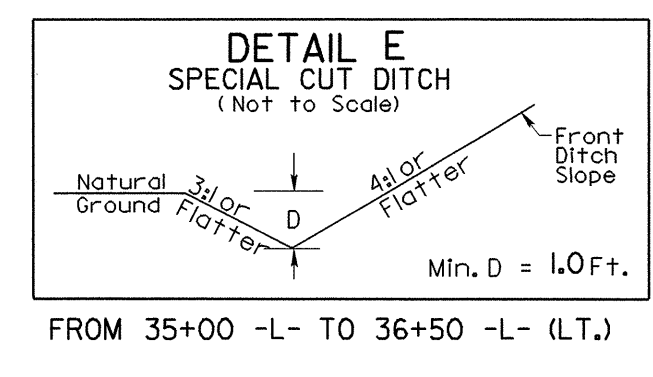
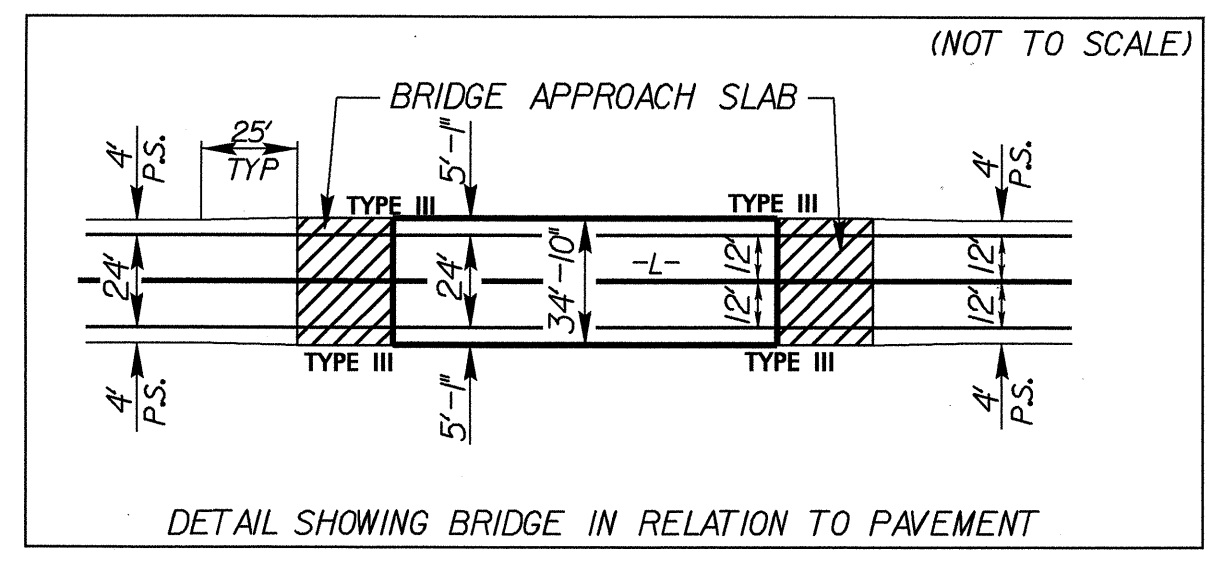




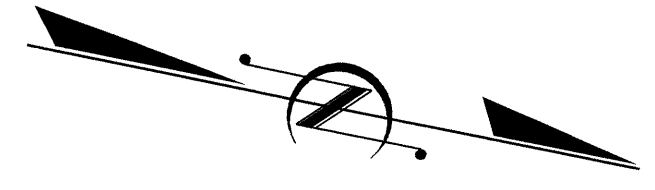




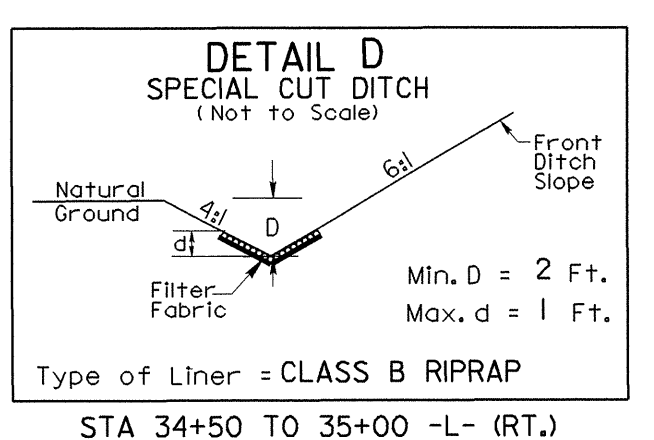
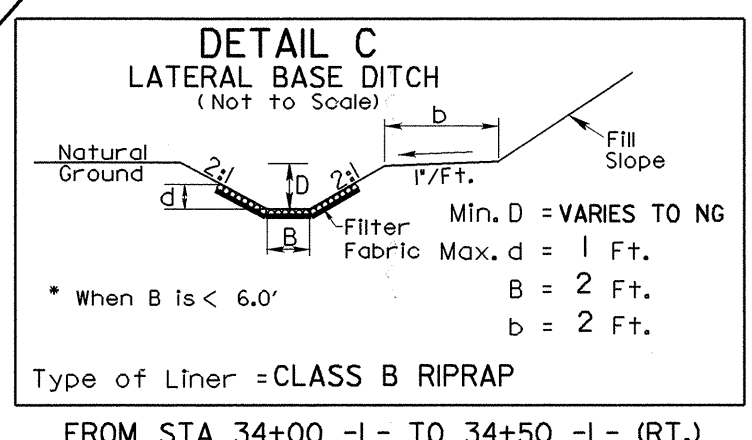
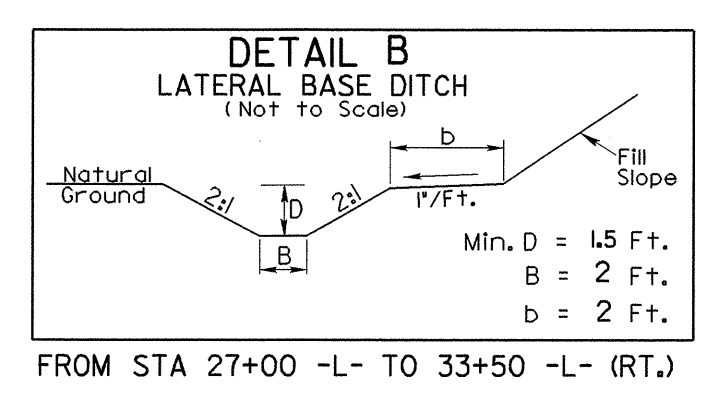
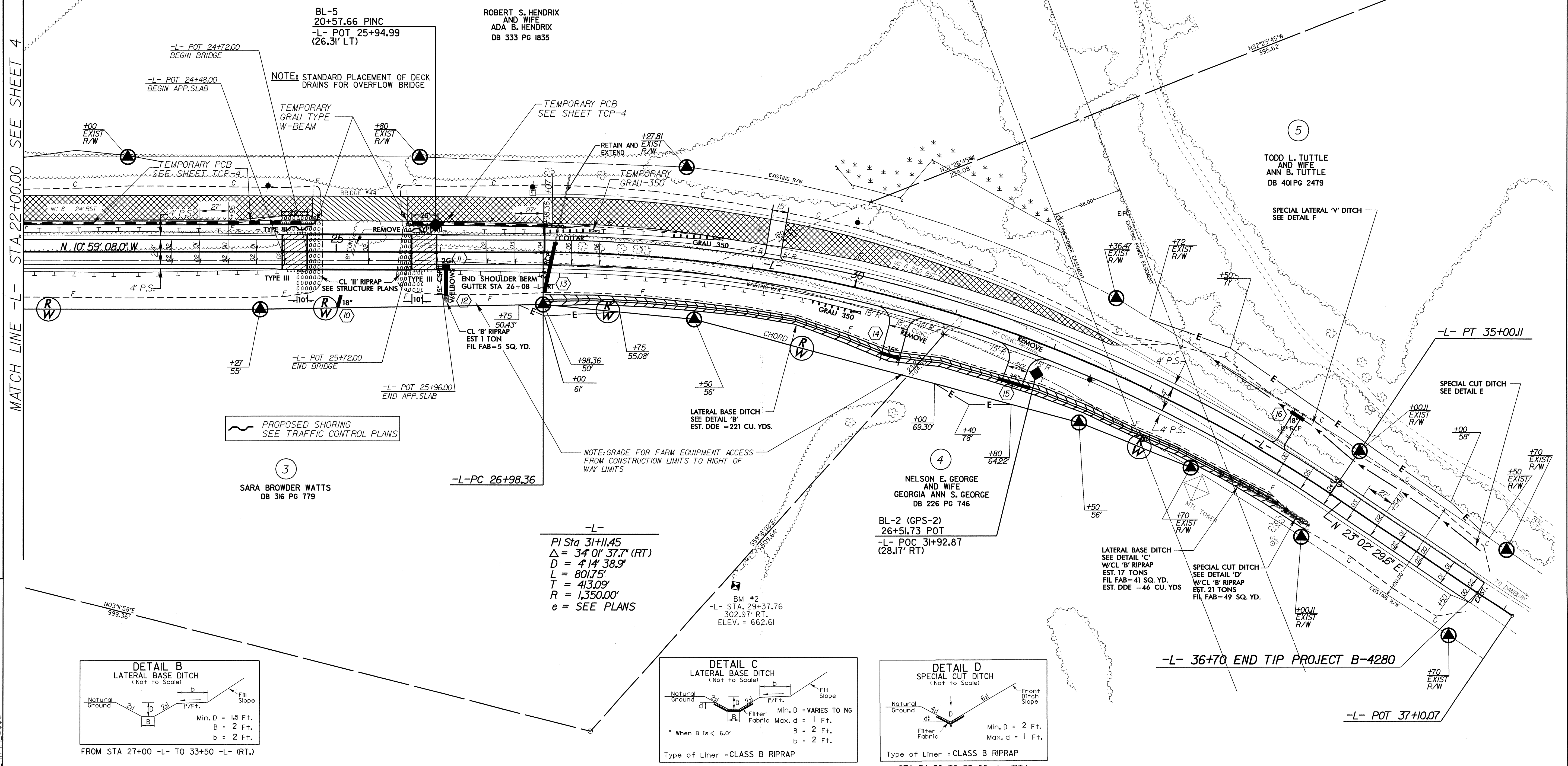
SEE SHEET 6 FOR PROFILE OF -L-  
SEE SHEET S-1 THRU S-51 FOR STRUCTURE PLANS



DENOTES PAVEMENT REMOVAL  
 DENOTES BRIDGE REMOVAL



8/17/99  
 REVISIONS  
 MATCH LINE -L- STA. 22+00.00 SEE SHEET 4  
 PROVIDE DRIVEWAY ACCESS FOR PARCEL NO. 3 NEAR -L- STA 30+50 RT. 11/30/2007 IF  
 27-MAR-2008 10:36  
 P:\roadwork\proj\B-4280\_rdg\_psh\05.dgn  
 \$\$\$USERNAME\$\$\$

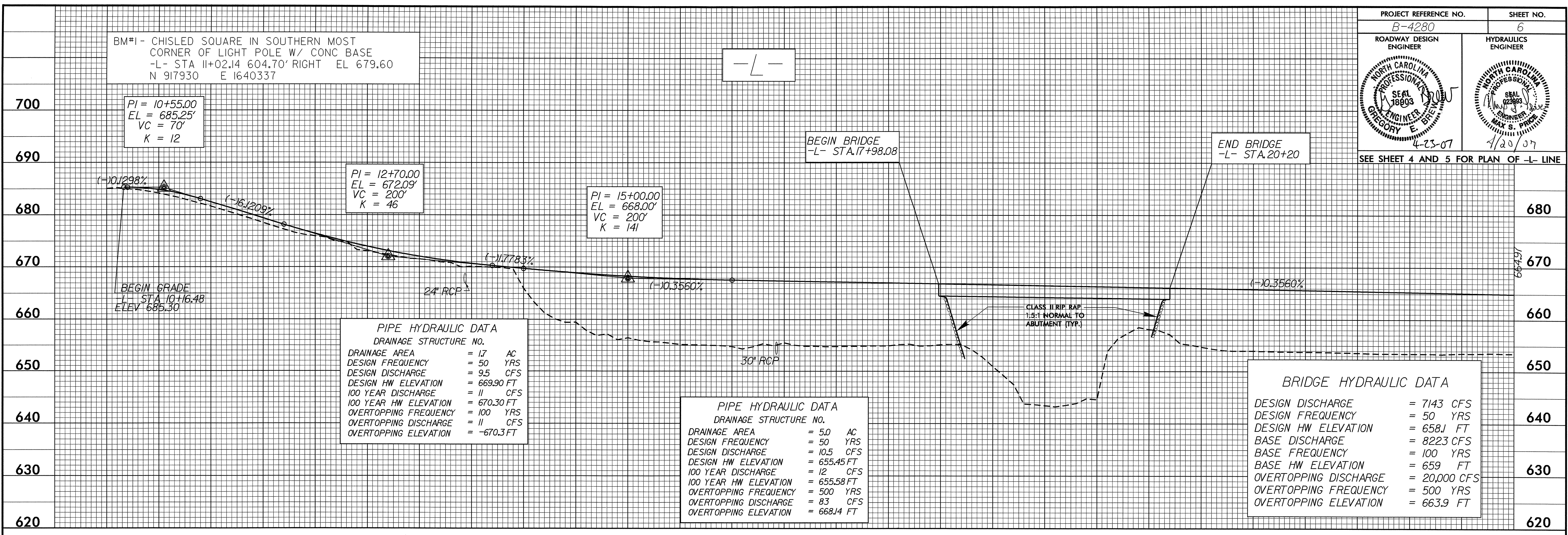


-L- POT 37+10.07



5/28/99

PROJECT REFERENCE NO. B-4280	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
4-23-07	1/20/07
SEE SHEET 4 AND 5 FOR PLAN OF -L- LINE	



BM#1 - CHISELED SQUARE IN SOUTHERN MOST CORNER OF LIGHT POLE W/ CONC BASE  
-L- STA 11+02.14 604.70' RIGHT EL 679.60  
N 917930 E 1640337

PI = 10+55.00  
EL = 685.25'  
VC = 70'  
K = 12

PI = 12+70.00  
EL = 672.09'  
VC = 200'  
K = 46

PI = 15+00.00  
EL = 668.00'  
VC = 200'  
K = 141

PIPE HYDRAULIC DATA

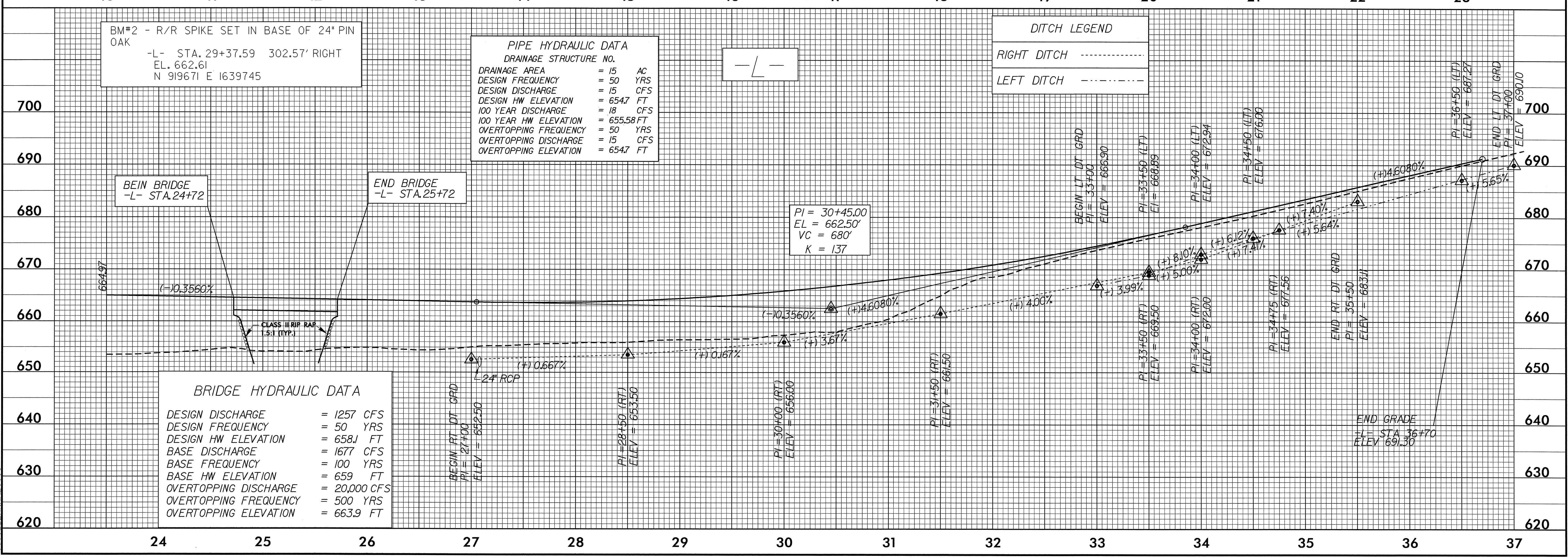
DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 17 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 9.5 CFS
DESIGN HW ELEVATION	= 669.90 FT
100 YEAR DISCHARGE	= 11 CFS
100 YEAR HW ELEVATION	= 670.30 FT
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 11 CFS
OVERTOPPING ELEVATION	= 670.3 FT

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 5.0 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 10.5 CFS
DESIGN HW ELEVATION	= 655.45 FT
100 YEAR DISCHARGE	= 12 CFS
100 YEAR HW ELEVATION	= 655.58 FT
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING DISCHARGE	= 83 CFS
OVERTOPPING ELEVATION	= 668.14 FT

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 7143 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 658.1 FT
BASE DISCHARGE	= 8223 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 659 FT
OVERTOPPING DISCHARGE	= 20,000 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 663.9 FT



BM#2 - R/R SPIKE SET IN BASE OF 24" PIN OAK  
-L- STA. 29+37.59 302.57' RIGHT  
EL. 662.61  
N 919671 E 1639745

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 15 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 15 CFS
DESIGN HW ELEVATION	= 654.7 FT
100 YEAR DISCHARGE	= 18 CFS
100 YEAR HW ELEVATION	= 655.58 FT
OVERTOPPING FREQUENCY	= 50 YRS
OVERTOPPING DISCHARGE	= 15 CFS
OVERTOPPING ELEVATION	= 654.7 FT

DITCH LEGEND

RIGHT DITCH	-----
LEFT DITCH	-----

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1257 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 658.1 FT
BASE DISCHARGE	= 1677 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 659 FT
OVERTOPPING DISCHARGE	= 20,000 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 663.9 FT

06-MAR-2007 11:35  
r:\p09\dwg\p09\p09\_b4280\_r\_dj\_p1.dgn  
4888 USER:DWG