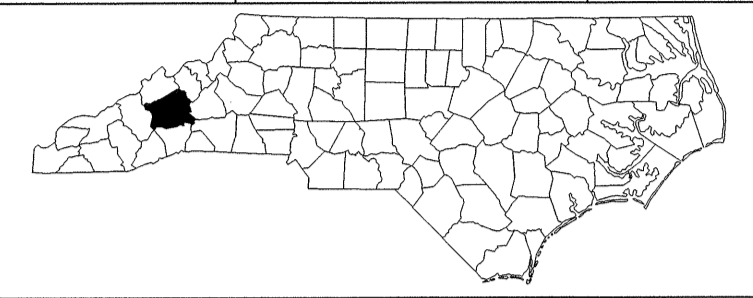


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5167	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42324.1.1	BRSTP-2806(1)	PE	
42324.2.1	BRSTP-2806(1)	R/W & UTIL	
42324.3.FD1	BRSTP-2806(1)	CONST.	



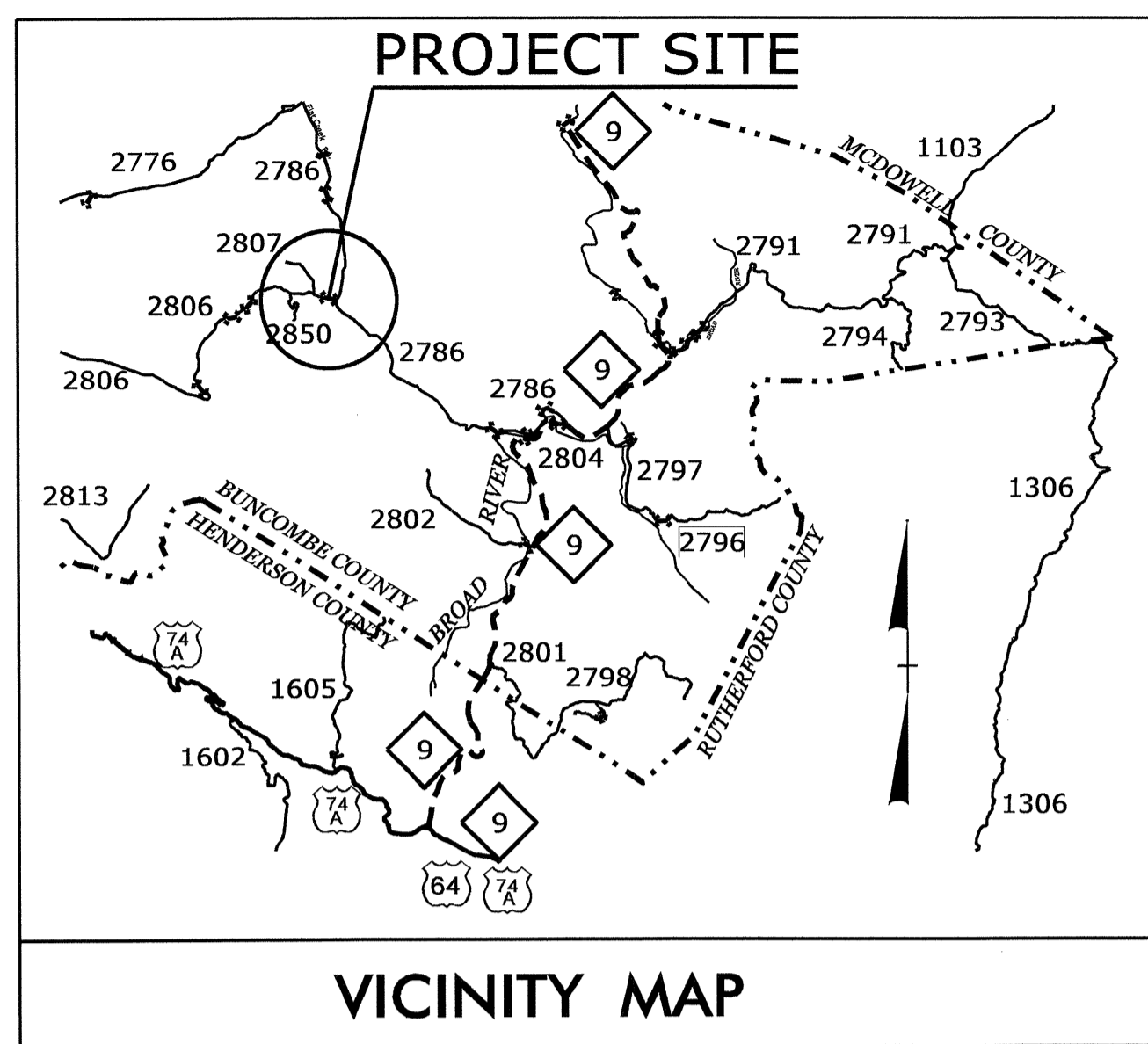
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

LOCATION: BRIDGE 108 OVER UPPER FLAT CREEK ON SR 2806 (GARREN CREEK ROAD)

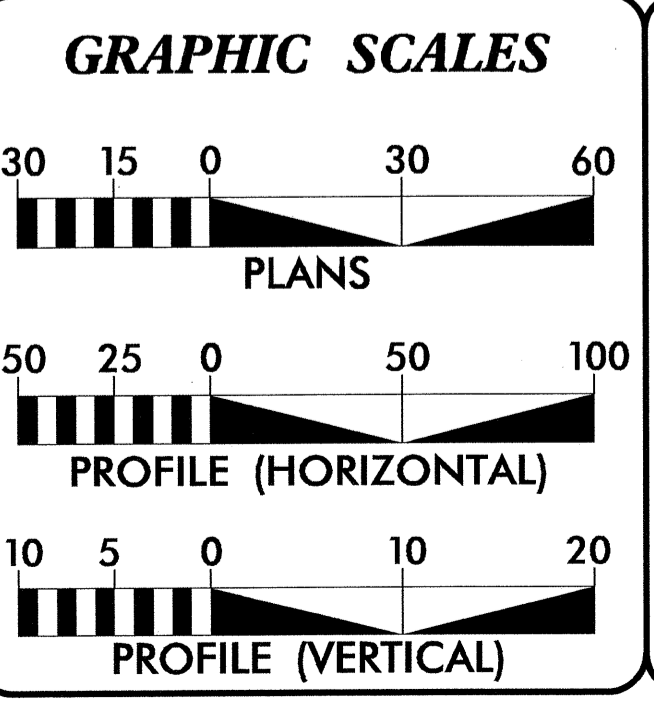
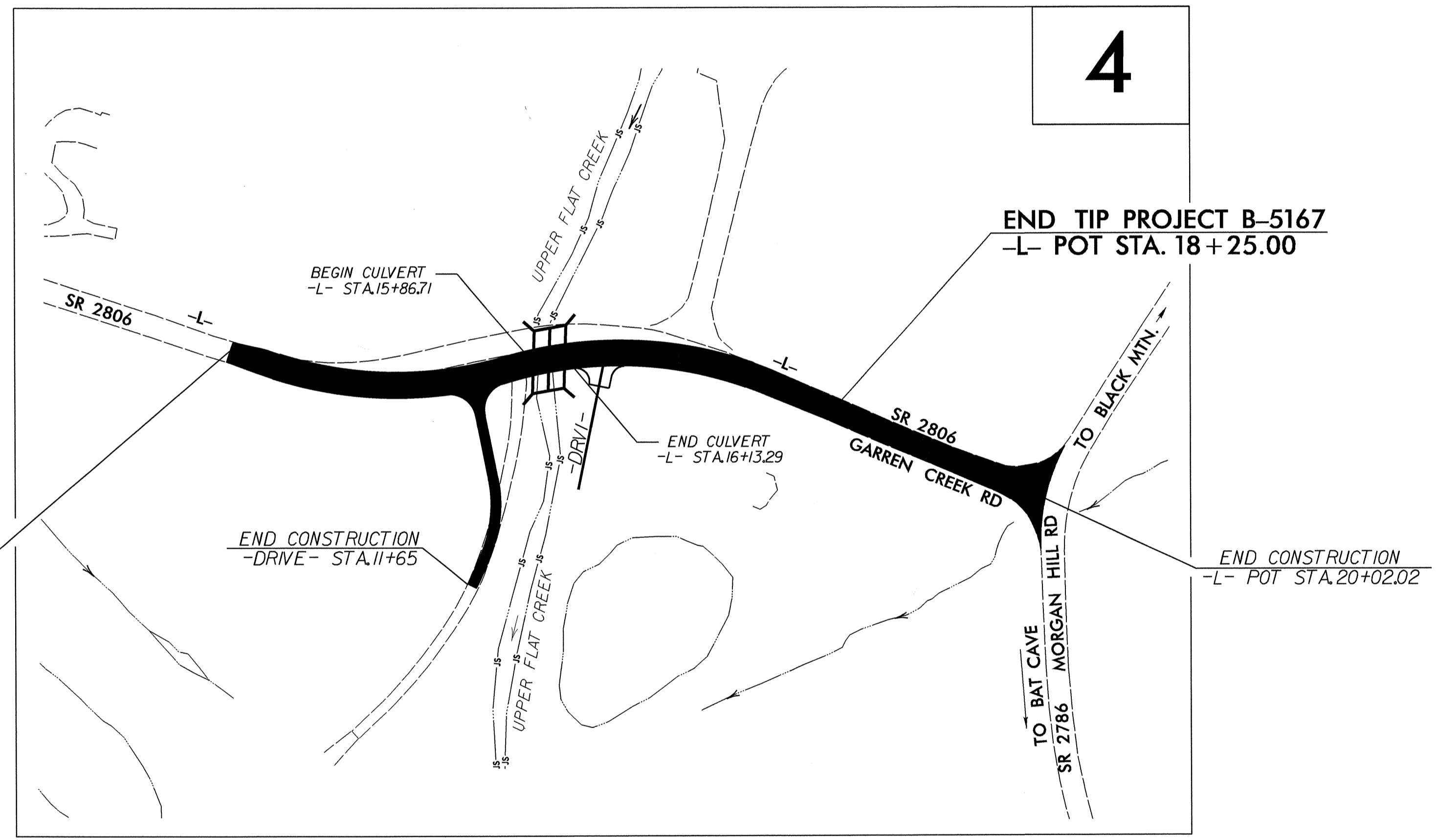
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT, AND TEMPORARY SIGNALS.

See Sheet 1-A For Index of Sheets



TIP PROJECT: B-5167

CONTRACT: C203369



DESIGN DATA

ADT 2014 =	166
ADT 2035 =	250
K =	10 %
D =	60 %
T =	5 % *
V =	30 MPH
*TTST =	2% DUAL 3%
FUNC CLASS =	RURAL LOCAL
SUB-REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5167 =	0.085 MILES
LENGTH STRUCTURE TIP PROJECT B-5167 =	0.005 MILES
TOTAL LENGTH TIP PROJECT B-5167 =	0.090 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 11, 2013

LETTING DATE:
MARCH 18, 2014

G. E. BREW, PE
PROJECT ENGINEER

I. T. YOUNIS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SEAL 18903
GREGORY E. BREW
SIGNATURE: Gregory E. Brew
P.E. 12-18-2013

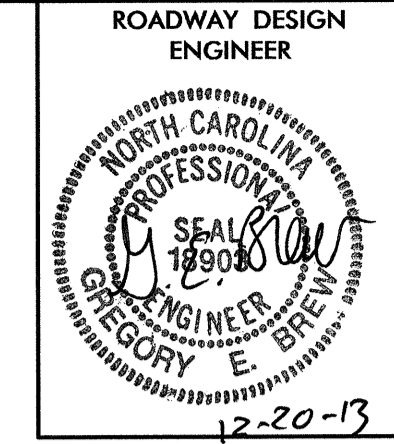
ROADWAY DESIGN ENGINEER

SEAL 18903
GREGORY E. BREW
SIGNATURE: Gregory E. Brew
12-20-13

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

10-DEC-2013 08:22 R:\Roadway\Proj\B5167_Tip\sh.dgn \$\$\$USERNAME\$\$\$



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

GENERAL NOTES

LIST OF 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 THRU 1-D	SURVEY CONTROL SHEETS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS AND WEDGING DETAIL
2-A	DETAIL OF SUPERELEVATION LAYOUT
2-B	DRAINAGE DITCH DETAILS
2-C	DETAIL OF TEMPORARY GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED
2-D	DETAIL OF TEMPORARY GUARDRAIL ANCHOR UNIT TYPE W-BEAM
2-E	DETAIL OF STANDARD TEMPORARY SHORING
2-F THRU 2-H	DETAILS OF STANDARD TEMPORARY WALL
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF EARTHWORK, GUARDRAIL SUMMARY AND SUMMARY OF ASPHALT PAVEMENT REMOVAL
3-C	SUMMARY OF SUBSURFACE DRAINAGE AND SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-9	TRANSPORTATION MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLAN
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
SIGN-1 THRU SIGN-2	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-5	CROSS-SECTIONS
C-1 THRU C-10	CULVERT PLANS

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

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 11.

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 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

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".

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE :
AT&T OF NC
DUKE PROGRESS ENERGY

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 01-17-2012
REV. 10-30-2012

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
200.02	Method of Clearing - Method II
225.04	Method of Obtaining Superelevation - Two Lane Pavement
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
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
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels

8/17/99
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B5167.dwg

12/05/11

Note: Not to Scale

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

*S.U.E. = Subsurface Utility Engineering

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing boundary symbols: State Line, County Line, Township Line, City Line, Reservation Line, Property Line, Existing Iron Pin, Property Corner, Property Monument, Parcel/Sequence Number, Existing Fence Line, Proposed Woven Wire Fence, Proposed Chain Link Fence, Proposed Barbed Wire Fence, Existing Wetland Boundary, Proposed Wetland Boundary, Existing Endangered Animal Boundary, Existing Endangered Plant Boundary, Known Soil Contamination: Area or Site, Potential Soil Contamination: Area or Site.

BUILDINGS AND OTHER CULTURE:

Table listing building and culture symbols: Gas Pump Vent or U/G Tank Cap, Sign, Well, Small Mine, Foundation, Area Outline, Cemetery, Building, School, Church, Dam.

HYDROLOGY:

Table listing hydrology symbols: Stream or Body of Water, Hydro, Pool or Reservoir, Jurisdictional Stream, Buffer Zone 1, Buffer Zone 2, Flow Arrow, Disappearing Stream, Spring, Wetland, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing railroad symbols: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing right of way symbols: 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 R/W Marker, Proposed Control of Access Line with Concrete C/A 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 Drainage / Utility Easement, Proposed Permanent Utility Easement, Proposed Temporary Utility Easement, Proposed Aerial Utility Easement, Proposed Permanent Easement with Iron Pin and Cap Marker.

ROADS AND RELATED FEATURES:

Table listing road and related features symbols: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Curb 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:

Table listing existing structures symbols: MAJOR: Bridge, Tunnel or Box Culvert, Bridge Wing Wall, Head Wall and End Wall; MINOR: Head and End Wall, Pipe Culvert, Footbridge, Drainage Box: Catch Basin, DI or JB, Paved Ditch Gutter, Storm Sewer Manhole, Storm Sewer.

UTILITIES:

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

TELEPHONE:

Table listing telephone symbols: Existing Telephone Pole, Proposed Telephone Pole, Telephone Manhole, Telephone Booth, Telephone Pedestal, Telephone Cell Tower, U/G Telephone Cable Hand Hole, Recorded U/G Telephone Cable, Designated U/G Telephone Cable (S.U.E.*), Recorded U/G Telephone Conduit, Designated U/G Telephone Conduit (S.U.E.*), Recorded U/G Fiber Optics Cable, Designated U/G Fiber Optics Cable (S.U.E.*).

WATER:

Table listing water symbols: Water Manhole, Water Meter, Water Valve, Water Hydrant, Recorded U/G Water Line, Designated U/G Water Line (S.U.E.*), Above Ground Water Line.

TV:

Table listing TV symbols: TV Satellite Dish, TV Pedestal, TV Tower, U/G TV Cable Hand Hole, Recorded U/G TV Cable, Designated U/G TV Cable (S.U.E.*), Recorded U/G Fiber Optic Cable, Designated U/G Fiber Optic Cable (S.U.E.*).

GAS:

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

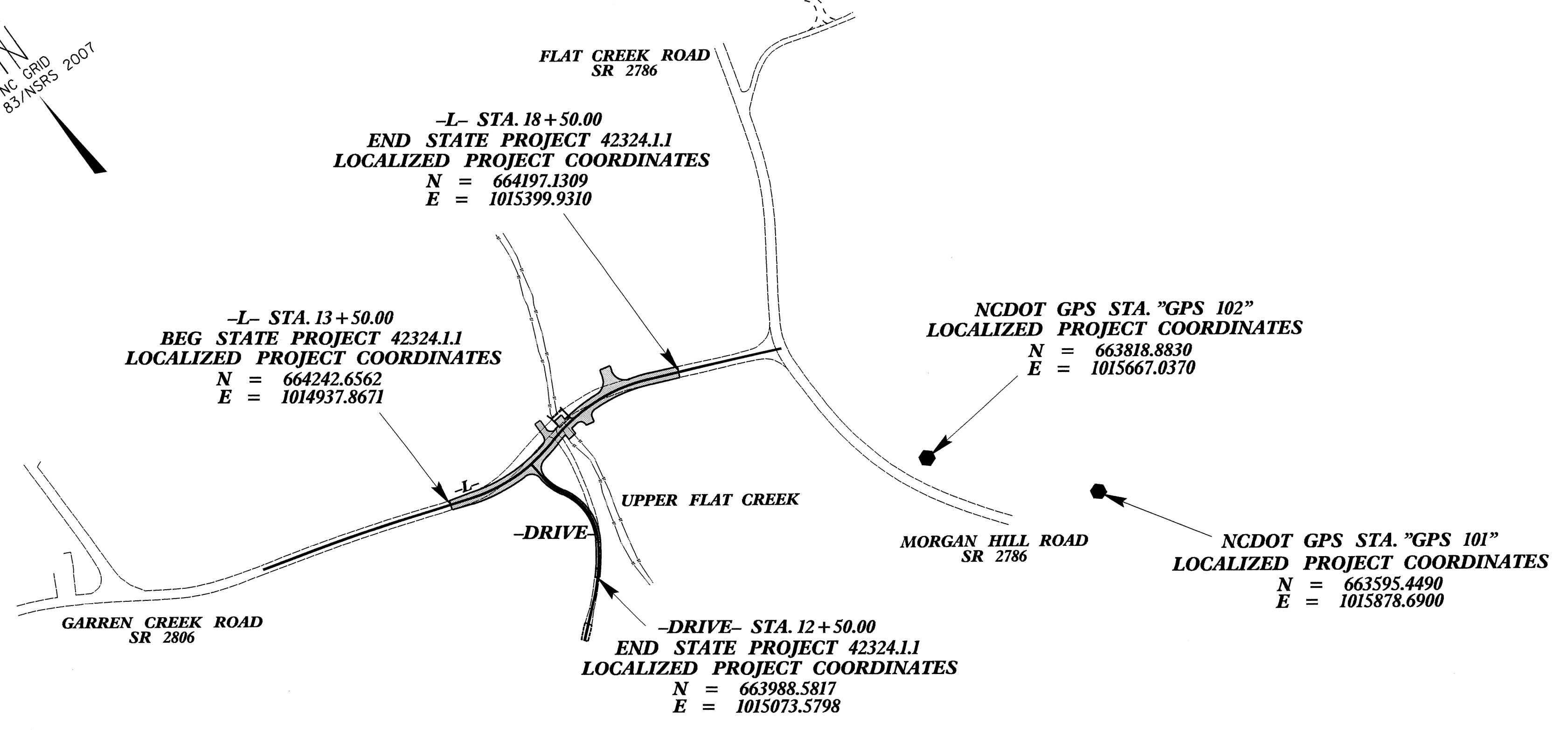
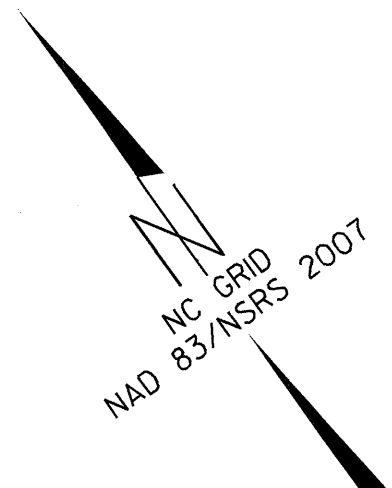
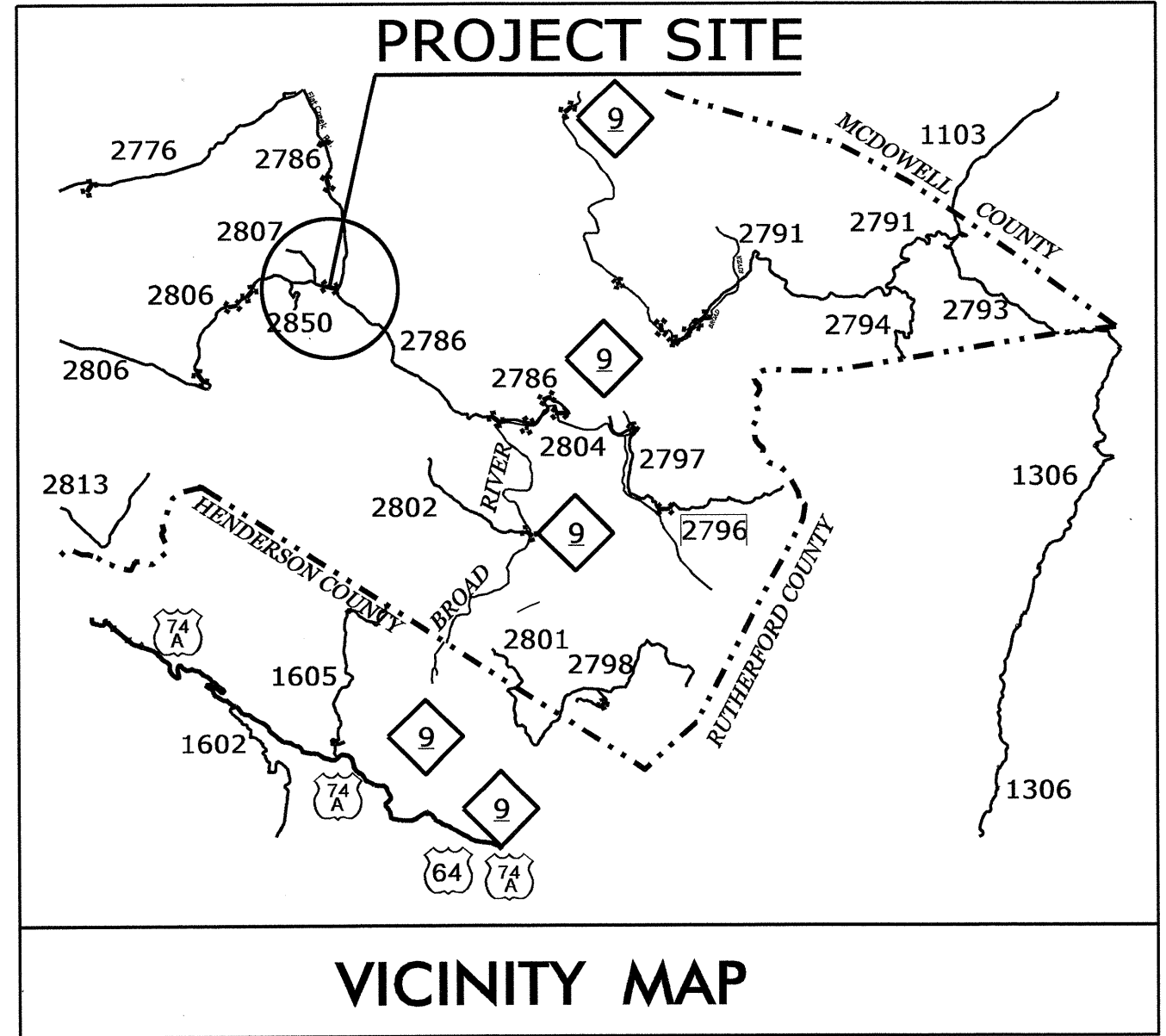
SANITARY SEWER:

Table listing sanitary sewer symbols: Sanitary Sewer Manhole, Sanitary Sewer Cleanout, U/G Sanitary Sewer Line, Above Ground Sanitary Sewer, Recorded SS Forced Main Line, Designated SS Forced Main Line (S.U.E.*).

MISCELLANEOUS:

Table listing miscellaneous symbols: Utility Pole, Utility Pole with Base, Utility Located Object, Utility Traffic Signal Box, Utility Unknown U/G Line, U/G Tank; Water, Gas, Oil, Underground Storage Tank, Approx. Loc., A/G Tank; Water, Gas, Oil, Geoenvironmental Boring, U/G Test Hole (S.U.E.*), Abandoned According to Utility Records, End of Information.

SURVEY CONTROL SHEET B-5167



.....

BM1 ELEVATION = 2500.28
 N 664114 E 1015189
 BL STATION 10+43.00 113 RIGHT
 RR SPIKE IN POWER POLE

BM2 ELEVATION = 2504.73
 N 664206 E 1015429
 BL STATION 12+73.00 19 LEFT
 RR SPIKE IN 8' MAPLE

.....

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL 1		664311.4380	1014667.7440	2519.67	10+71.11	13.83 RT
2	BL 2		664214.6900	1014990.9760	2509.74	14+08.41	10.89 RT
3	BL-3		664229.4900	1015149.2760	2502.45	15+66.31	1.42 LT
4	BL 4		664216.4610	1015389.8040	2502.80	18+08.16	13.88 LT
5	BL 5		664058.1030	1015556.4030	2507.57	OUTSIDE PROJECT LIMITS	

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:
 B5167_LS_CONTROL.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)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-102"

WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
 NORTHING: 663818.883(++) EASTING: 1015667.037(++)

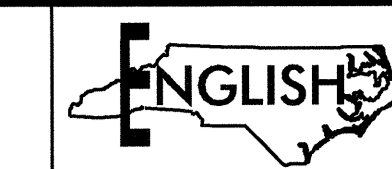
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99976864

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-102" TO -L- STATION 13+50.00 IS
 N 63° 46' 12" W 1,186.49'

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

NOTE: DRAWING NOT TO SCALE

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SURVEY CONTROL SHEET B-5167

FINAL

(DESIGN ALIGNMENTS)

-L-

L			
TYPE	STATION	NORTH	EAST
POT	10+00.00	664343.2812	1014602.7202
PC	10+57.06	664328.4582	1014657.8183
PT	12+57.74	664271.2636	1014850.1549
PC	13+87.27	664231.0989	1014973.3026
PRC	15+67.76	664228.5281	1015151.0611
PT	17+73.28	664217.2095	1015352.2727
POT	20+10.78	664124.9994	1015571.1415

-DRIVE-

DRIVE			
TYPE	STATION	NORTH	EAST
POT	10+00.00	664221.9297	1015124.1075
PC	10+79.64	664143.7803	1015139.4469
PCC	11+37.13	664087.3242	1015134.1444
PT	12+94.37	663959.6517	1015044.7546
POT	13+67.36	663910.9648	1014990.3790

(ROW MARKERS)

-L-

ROW MARKER CONCRETE OR GRANITE-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	13+50.00	25.00	664218.8884	1014930.1152
L	13+50.00	-20.00	664261.6705	1014944.0686
L	13+50.00	-11.50	664253.5894	1014941.4329
L	13+50.00	11.50	664231.7231	1014934.3012
L	13+87.27	25.00	664207.3319	1014965.5482
L	14+50.00	-30.00	664247.8331	1015037.7102
L	15+25.00	25.00	664194.6678	1015112.9054
L	15+62.39	-40.00	664265.6250	1015135.2878
L	15+67.76	48.00	664182.4826	1015164.6188
L	15+70.00	-53.00	664280.1052	1015138.6230
L	16+15.00	48.00	664190.6537	1015203.4086
L	16+25.00	25.00	664214.4894	1015209.5612
L	16+50.00	-52.00	664292.7174	1015231.4975
L	16+75.00	-50.00	664289.8589	1015260.6675
L	17+50.00	-40.00	664263.3638	1015343.1105
L	17+53.00	-31.00	664253.7635	1015343.4054
L	17+73.28	25.00	664194.1707	1015342.5664
L	17+73.00	-20.00	664235.7584	1015359.7577
L	18+25.00	-20.00	664215.5620	1015407.6960
L	18+25.00	-11.50	664207.7288	1015404.3959
L	18+25.00	25.00	664174.0921	1015390.2246
L	18+25.00	11.50	664186.5331	1015395.4661

-DRIVE-

ROW MARKER CONCRETE OR GRANITE-E				
ALIGN	STATION	OFFSET	NORTH	EAST
DRIVE	10+79.64	15.00	664140.8918	1015124.7276
DRIVE	11+00.00	-22.00	664123.3270	1015163.3134
DRIVE	11+37.13	15.00	664092.9035	1015120.2206
DRIVE	11+65.00	-15.00	664055.2143	1015136.1622
DRIVE	11+65.00	15.00	664068.6009	1015109.3145

(PERMANENT EASEMENTS)

-L-

IRON PIN AND CAP PERMANENT EASEMENT-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	14+45.00	25.00	664193.6923	1015026.4914
L	14+58.00	-54.00	664271.0897	1015046.7853
L	14+82.00	-36.76	664253.0725	1015066.4530
L	14+85.00	-48.00	664264.3263	1015068.9675
L	16+50.00	42.58	664198.1445	1015232.6527
L	16+54.00	25.00	664215.7435	1015236.1045

-DRIVE-

IRON PIN AND CAP PERMANENT EASEMENT-E				
ALIGN	STATION	OFFSET	NORTH	EAST
DRIVE	10+88.00	15.00	664133.8697	1015125.8034
DRIVE	11+00.00	-54.00	664123.0142	1015195.3119
DRIVE	11+40.00	-13.78	664079.4356	1015145.8151
DRIVE	11+40.00	-45.00	664067.5809	1015174.6968

DATUM DESCRIPTION

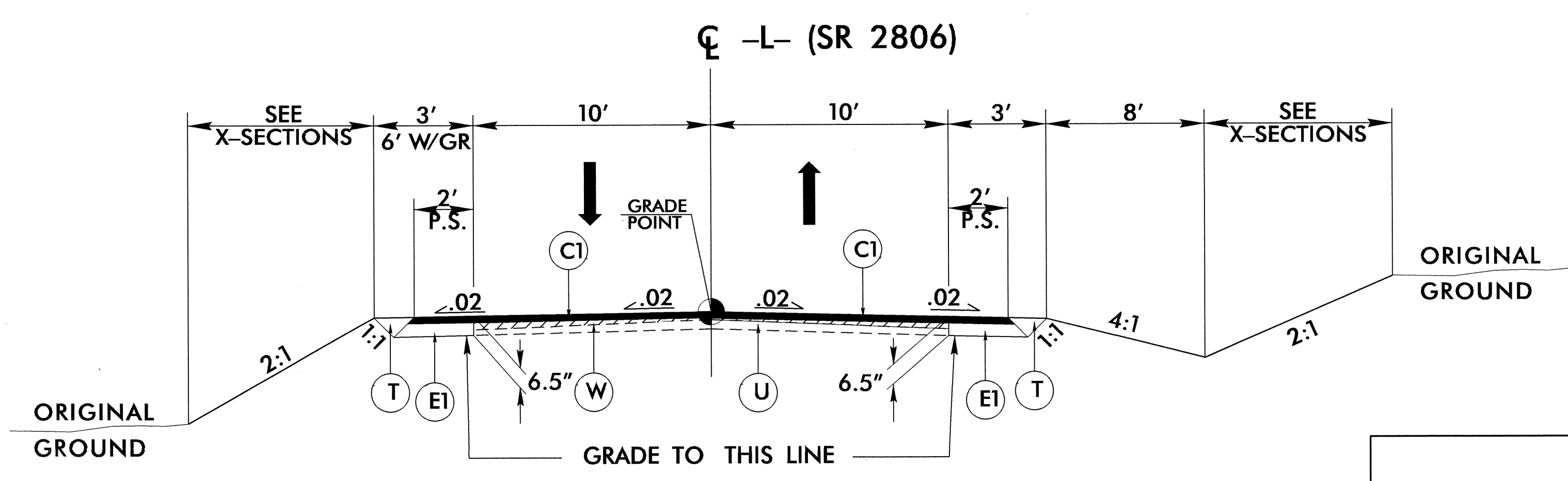
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 N 63° 46' 12.47" W 1,186.4922'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

6/2/09

PROJECT REFERENCE NO. B-5167	SHEET NO. 2
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER

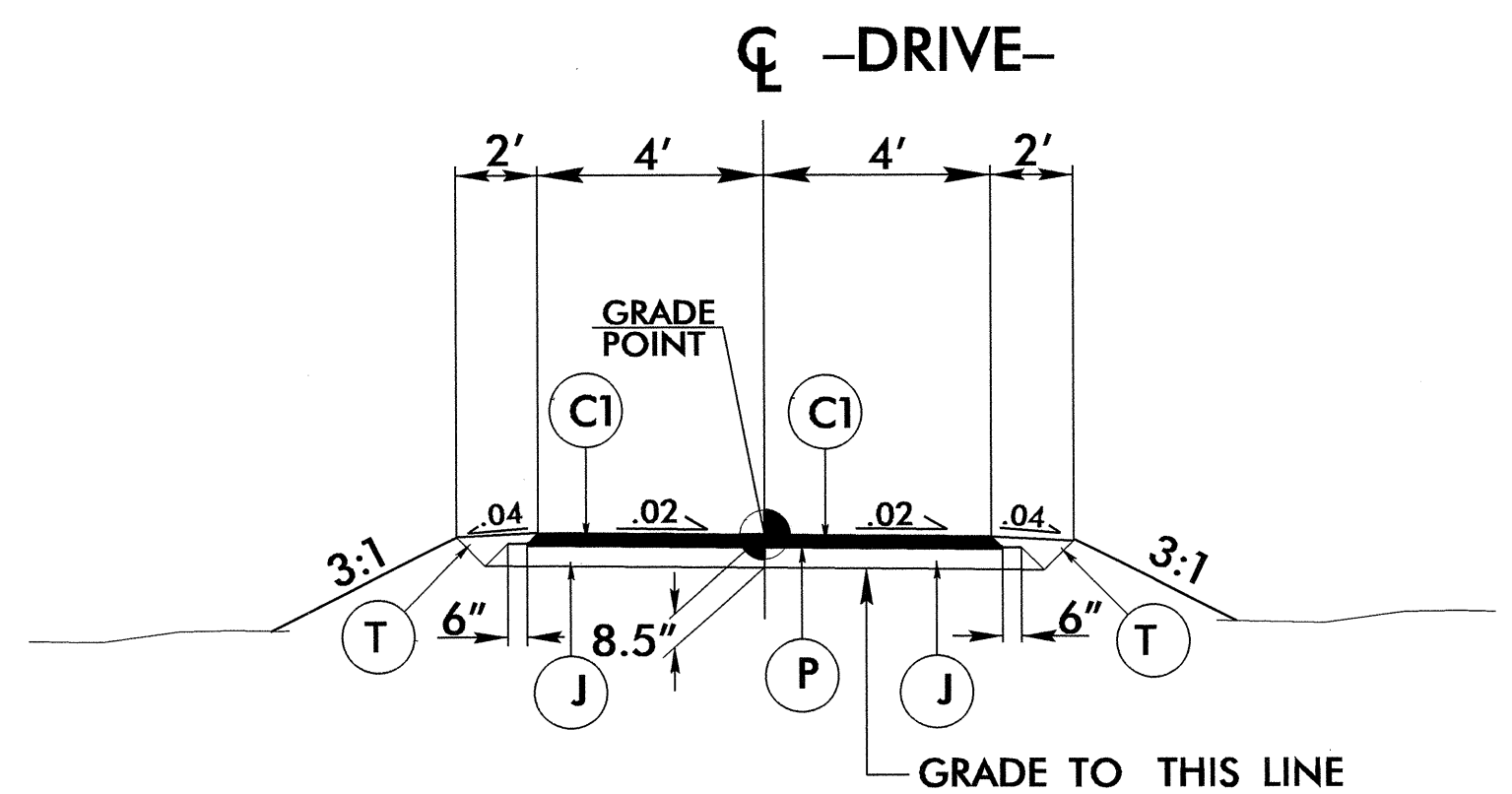
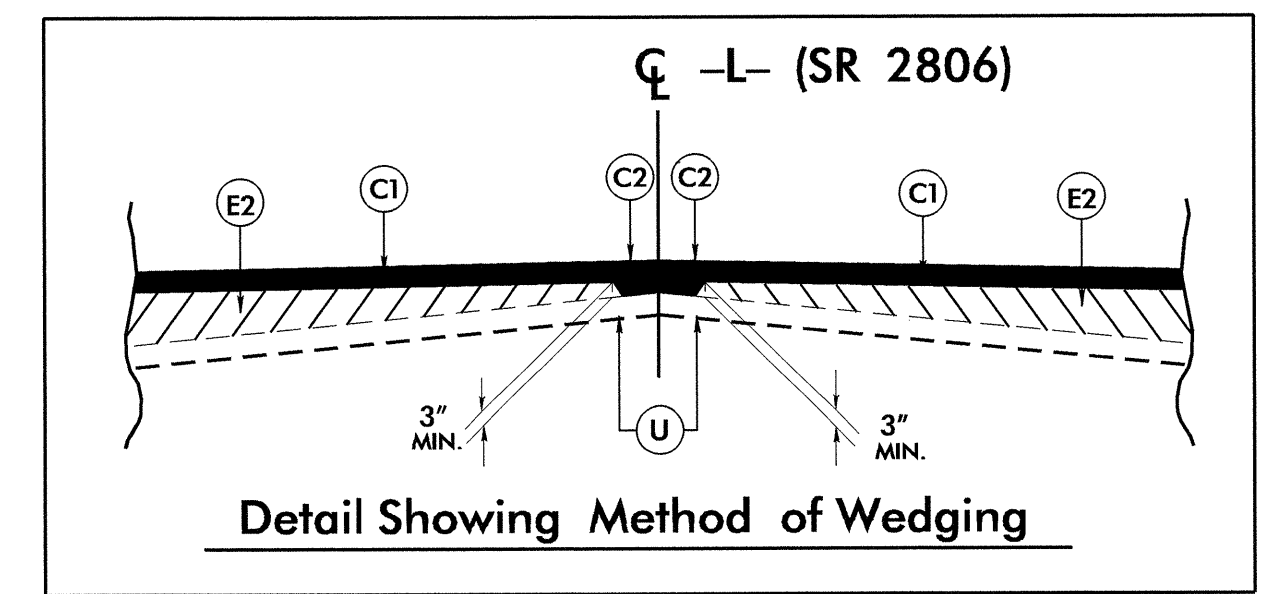
FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS 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.
J	PROP. 6" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT.

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



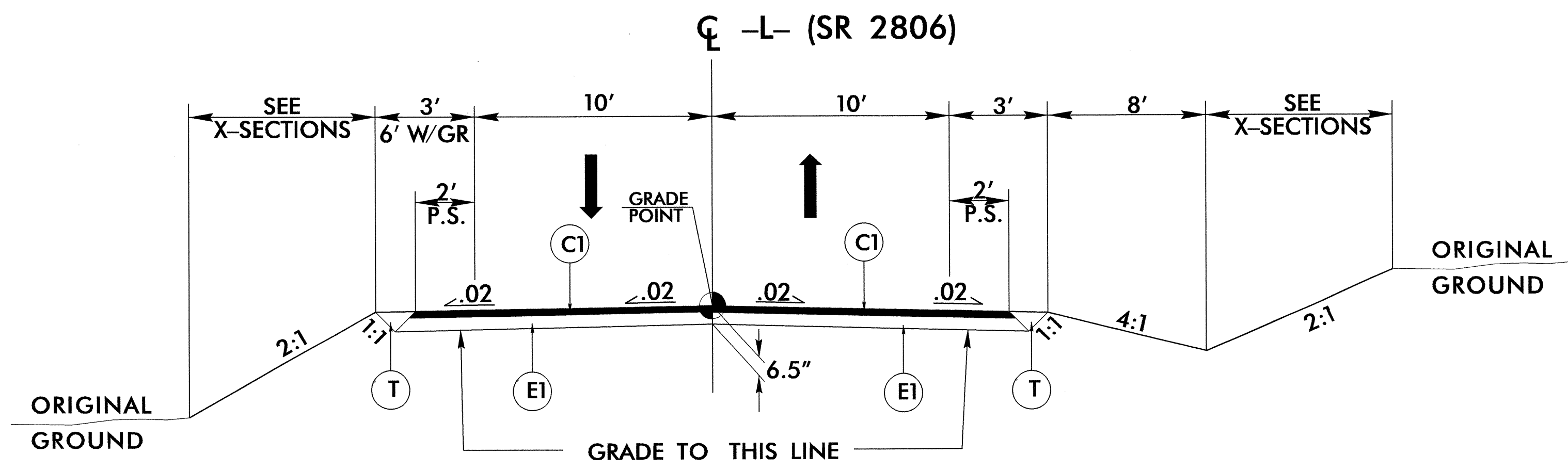
TYPICAL SECTION NO. 1

-L- STA 13+50.00 TO 14+50.00
-L- STA 16+25.00 TO 18+25.00



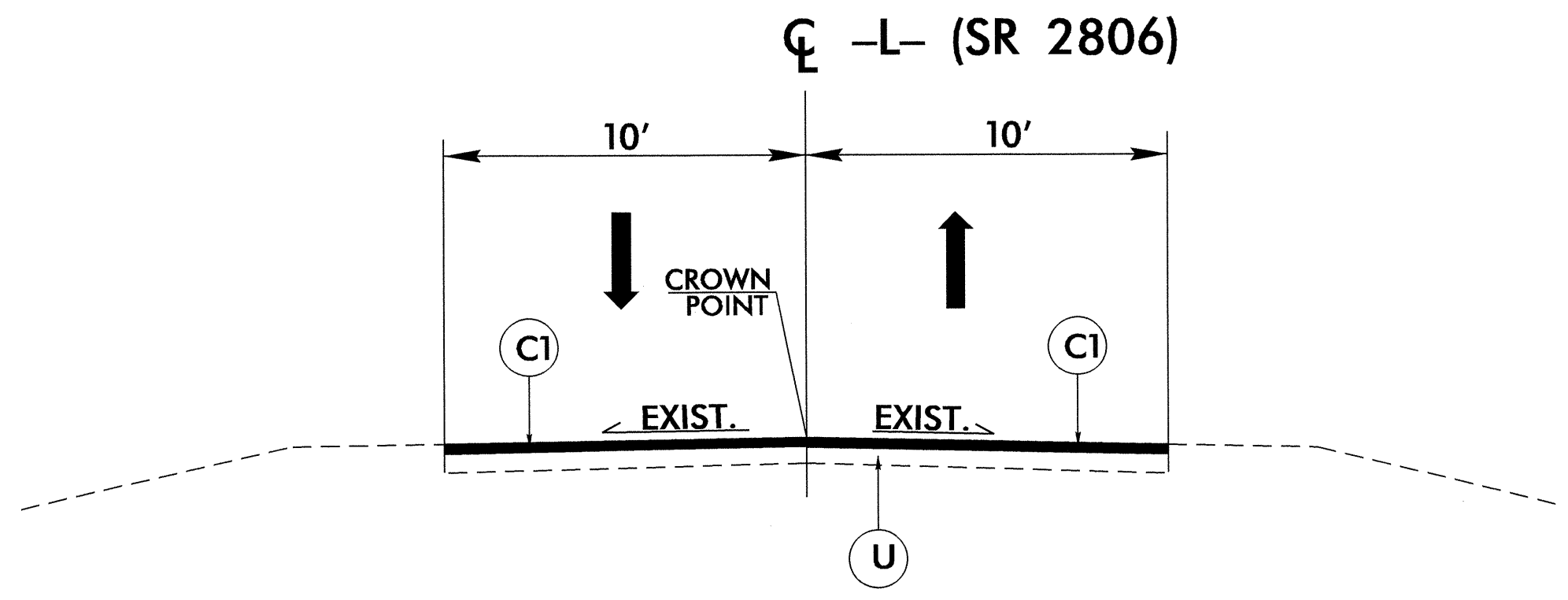
TYPICAL SECTION NO. 4

-DRIVE- STA 10+16.43 TO 11+65.00



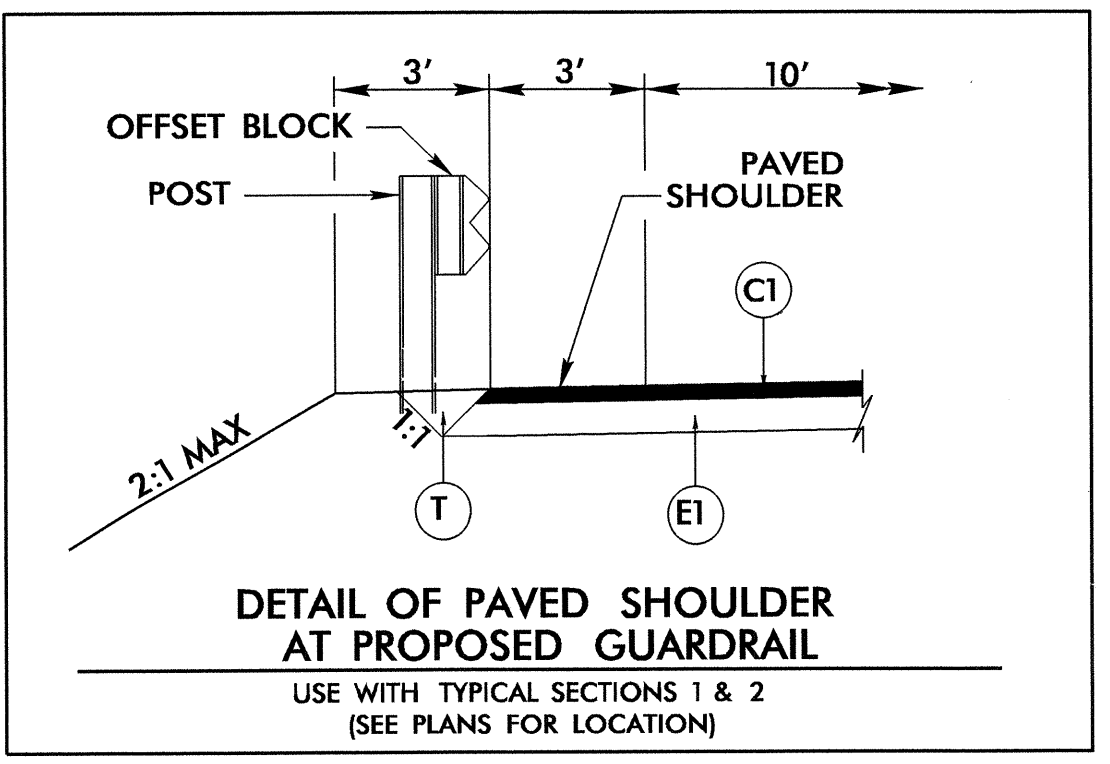
TYPICAL SECTION NO. 2

-L- STA 14+50.00 TO 16+25.00



TYPICAL SECTION NO. 3

-L- STA 18+25.00 TO 20+02.02

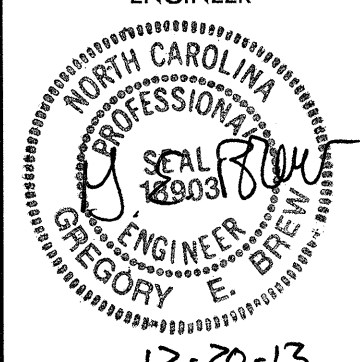


DETAIL OF PAVED SHOULDER AT PROPOSED GUARDRAIL
USE WITH TYPICAL SECTIONS 1 & 2 (SEE PLANS FOR LOCATION)

13-DEC-2013 10:07 R:\Projects\0401\01\B5167_rdy_twp.dgn

6/2/99

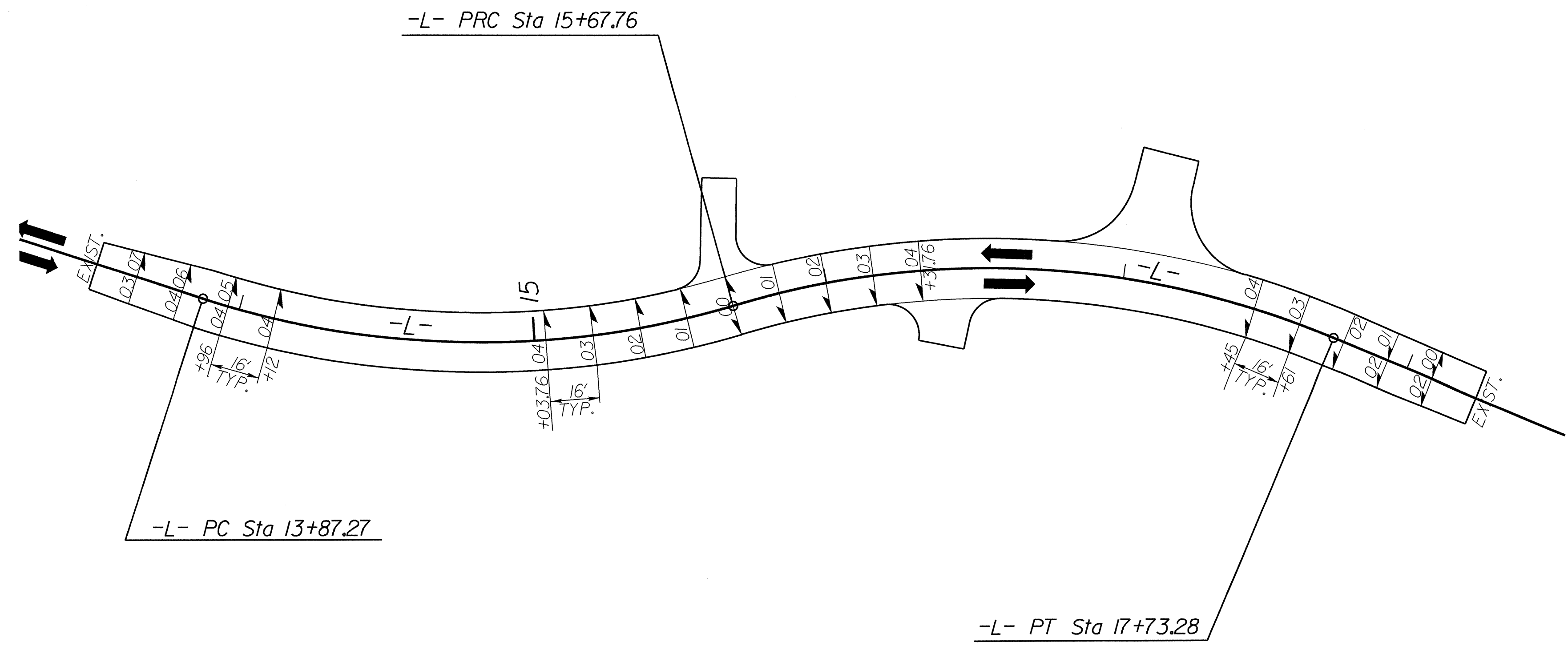
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PROJECT REFERENCE NO. B-5167	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
	

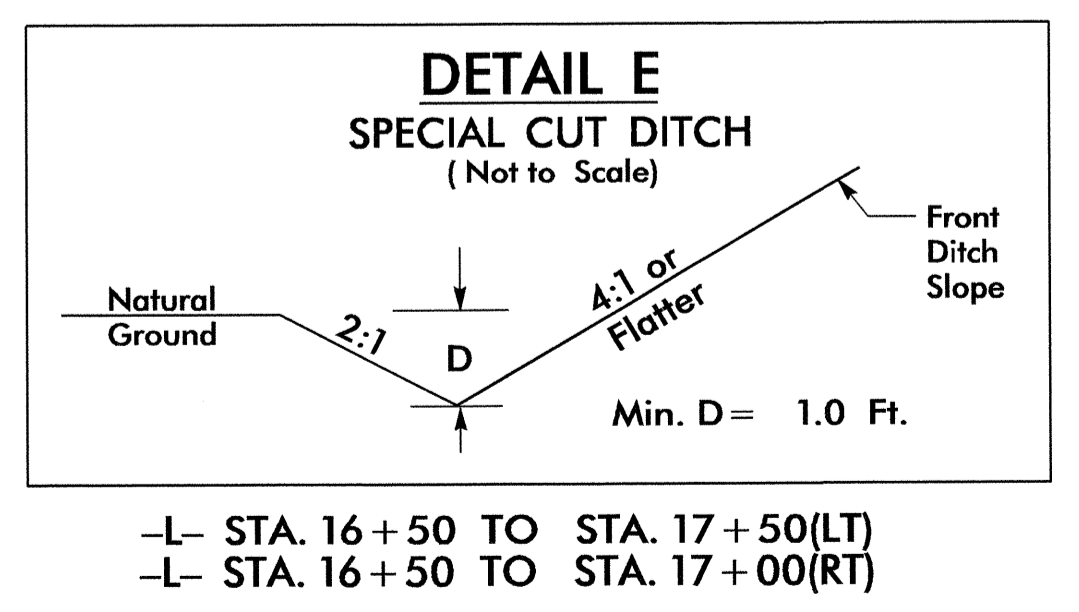
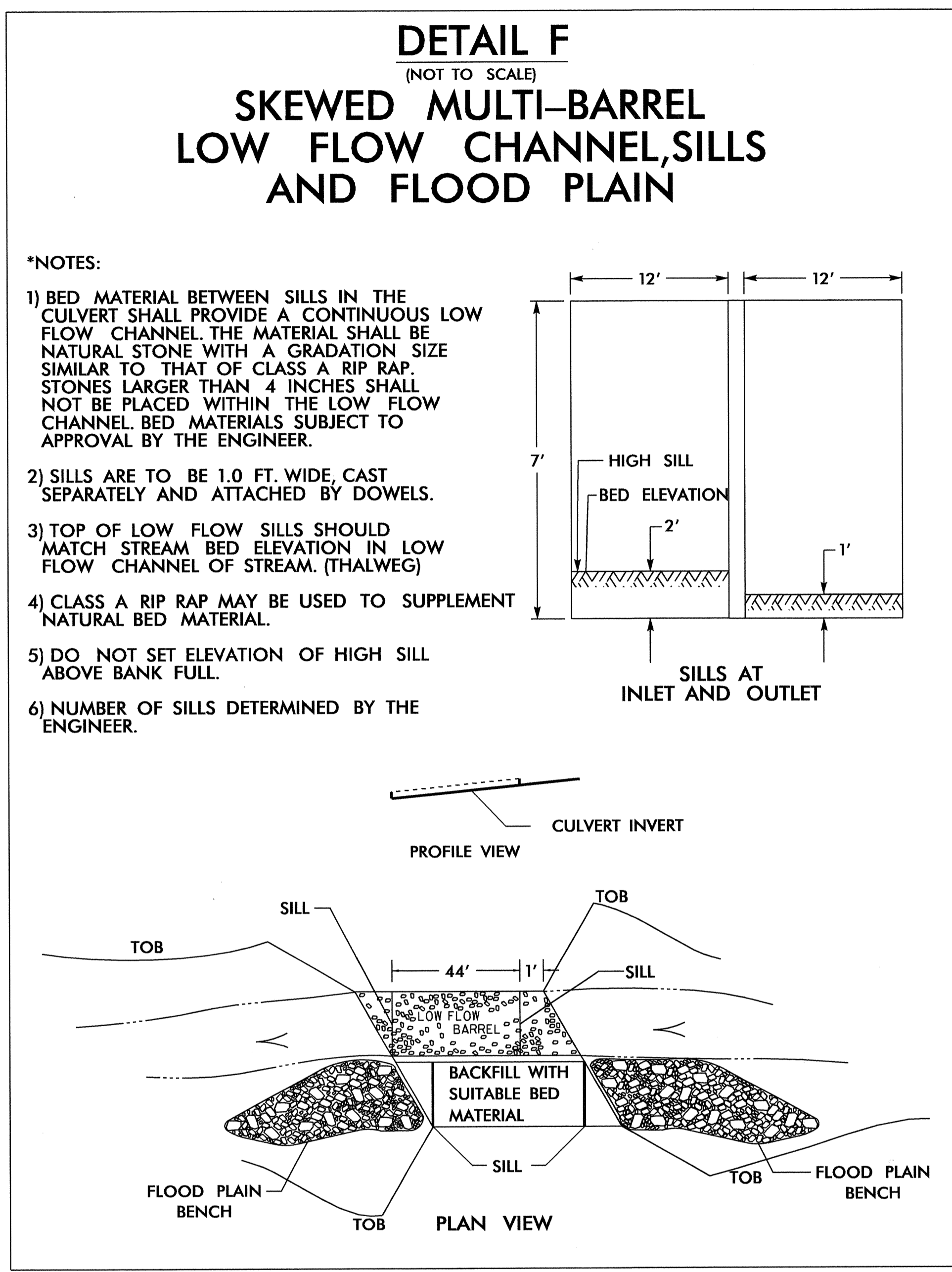
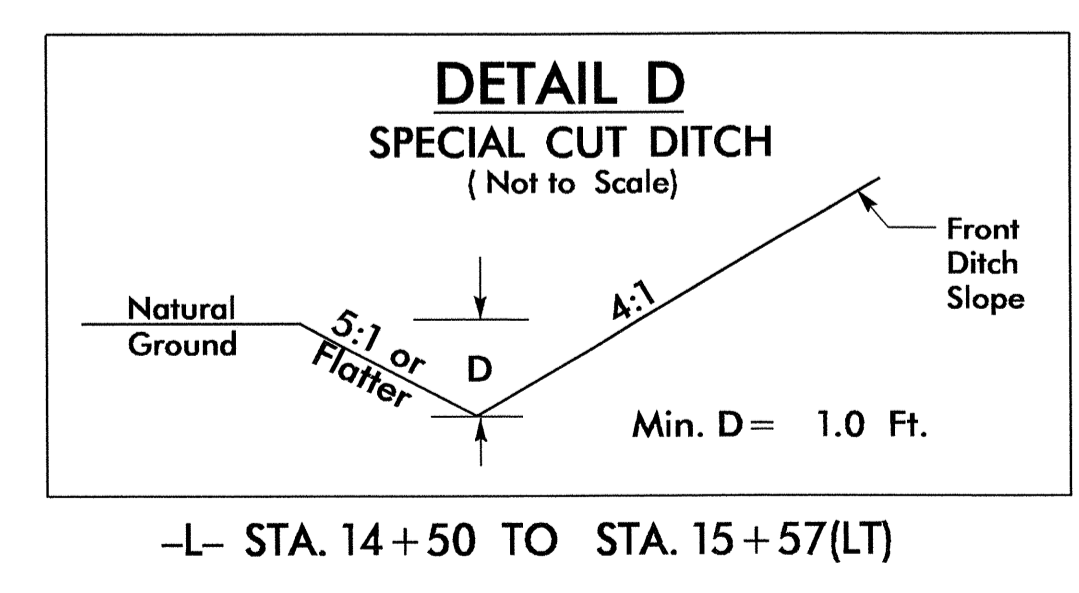
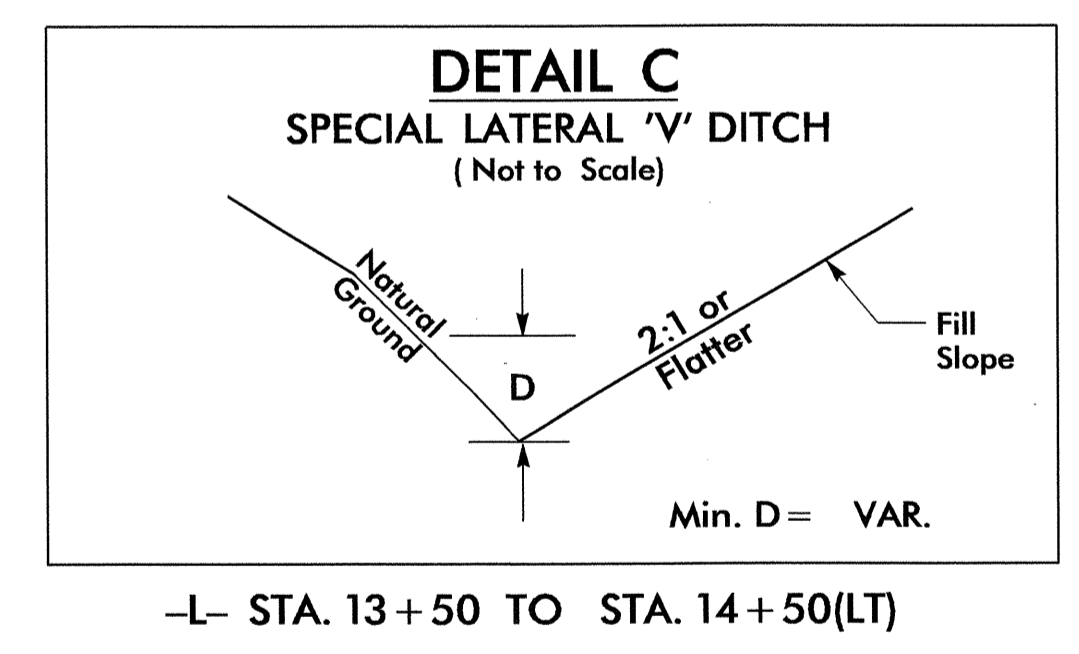
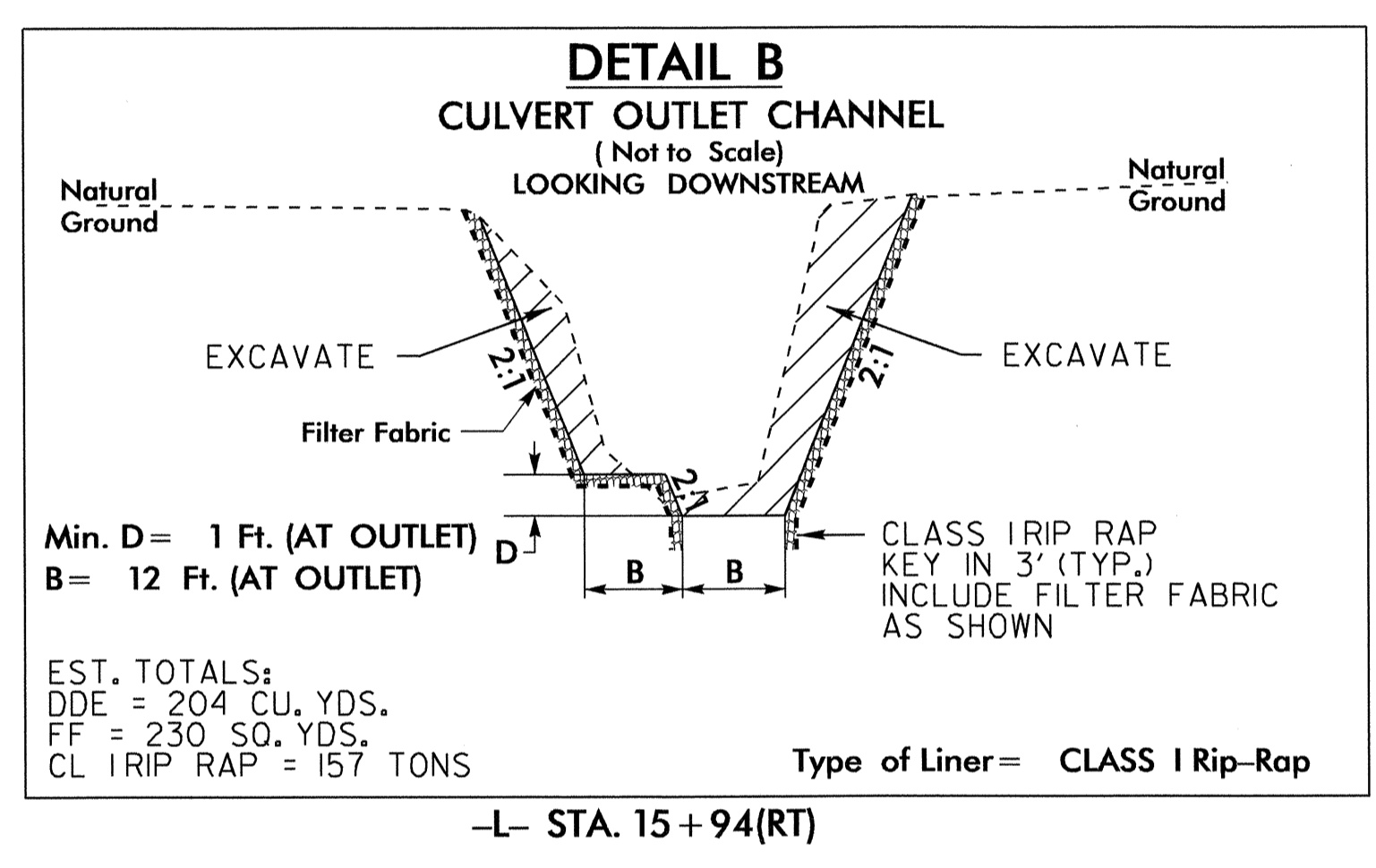
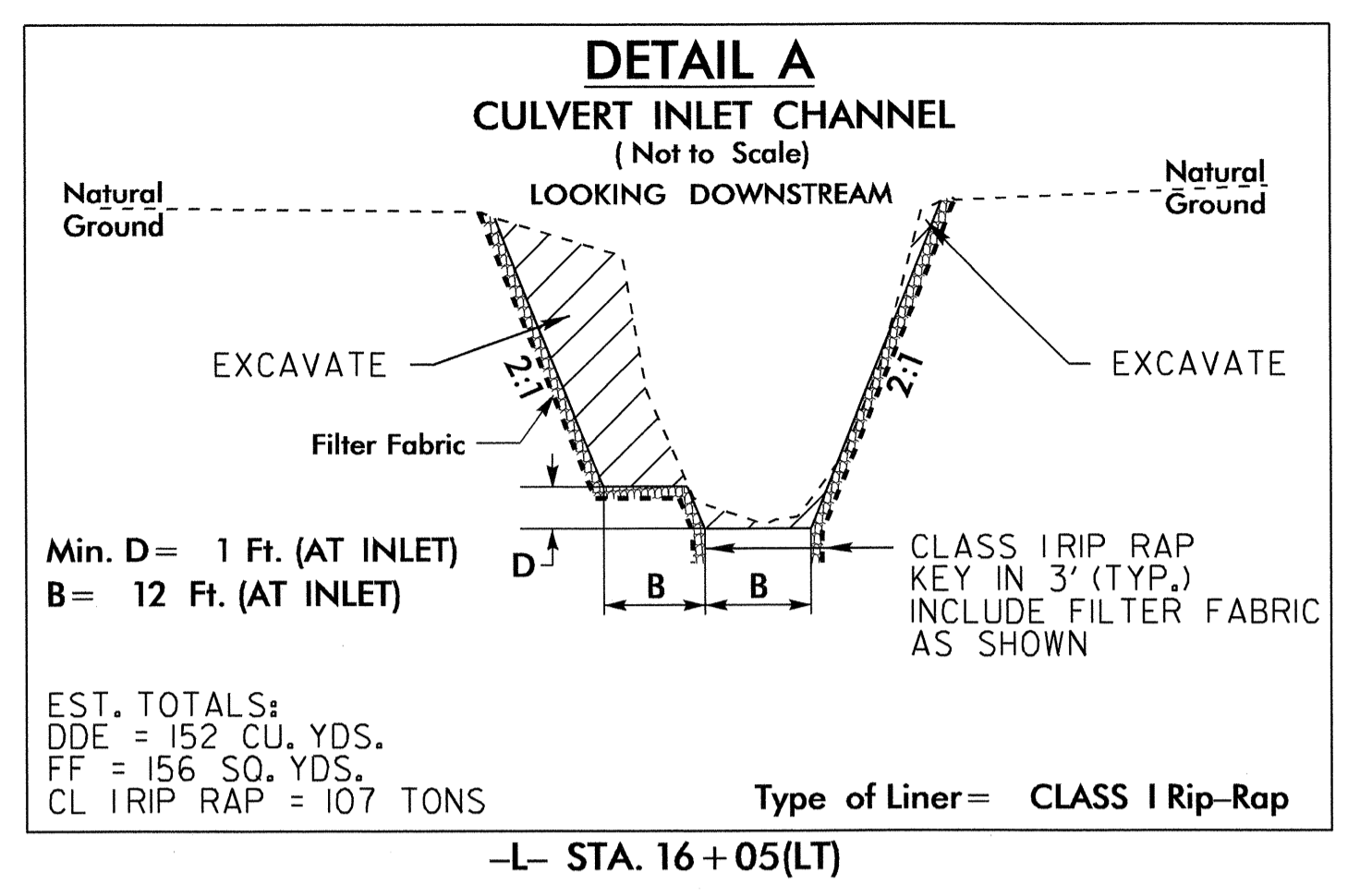
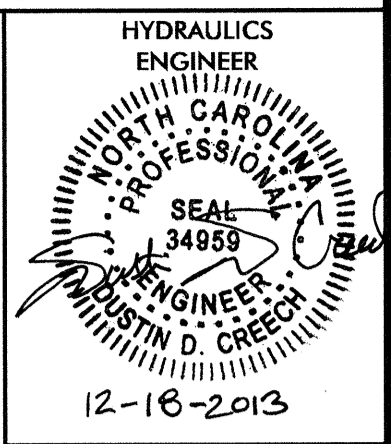
DETAIL OF SUPERELEVATION LAYOUT

NOT TO SCALE

FOR PLANS SEE SHEET 4



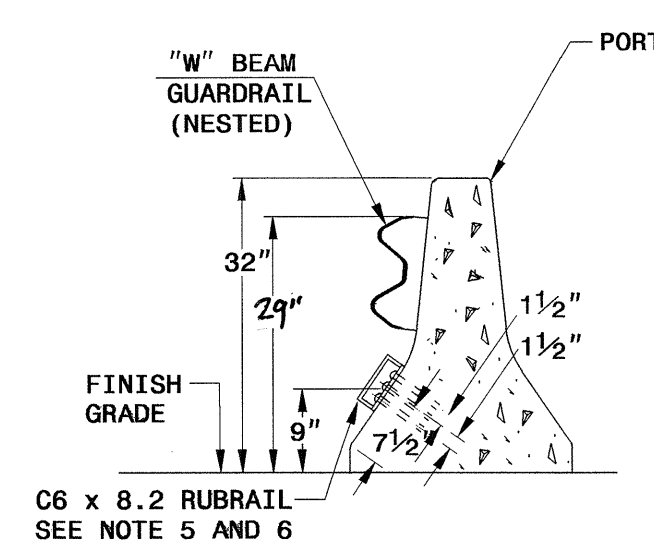
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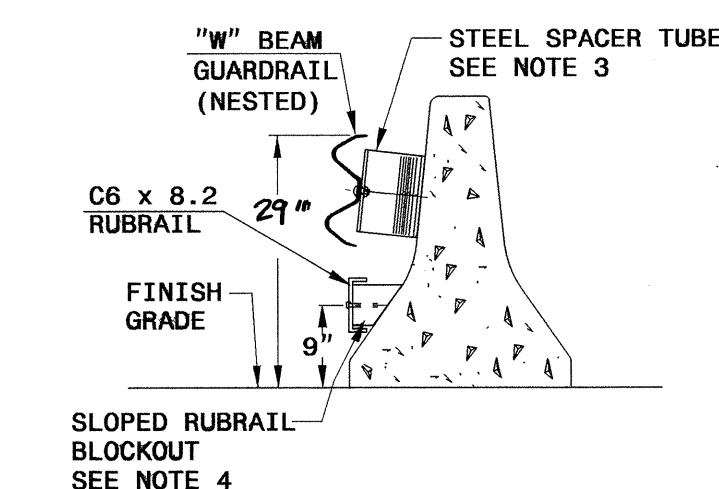
REVISIONS

8/17/99

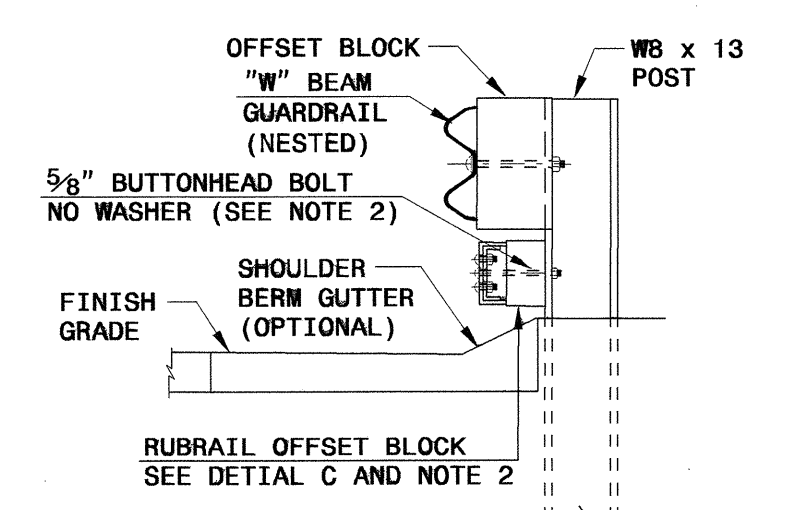
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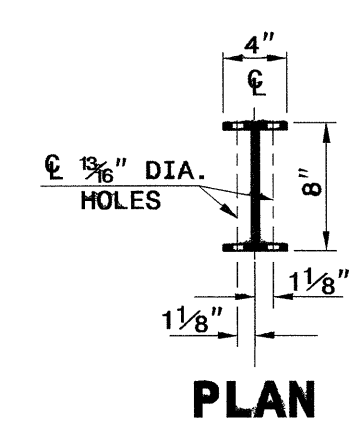
SECTION A-A



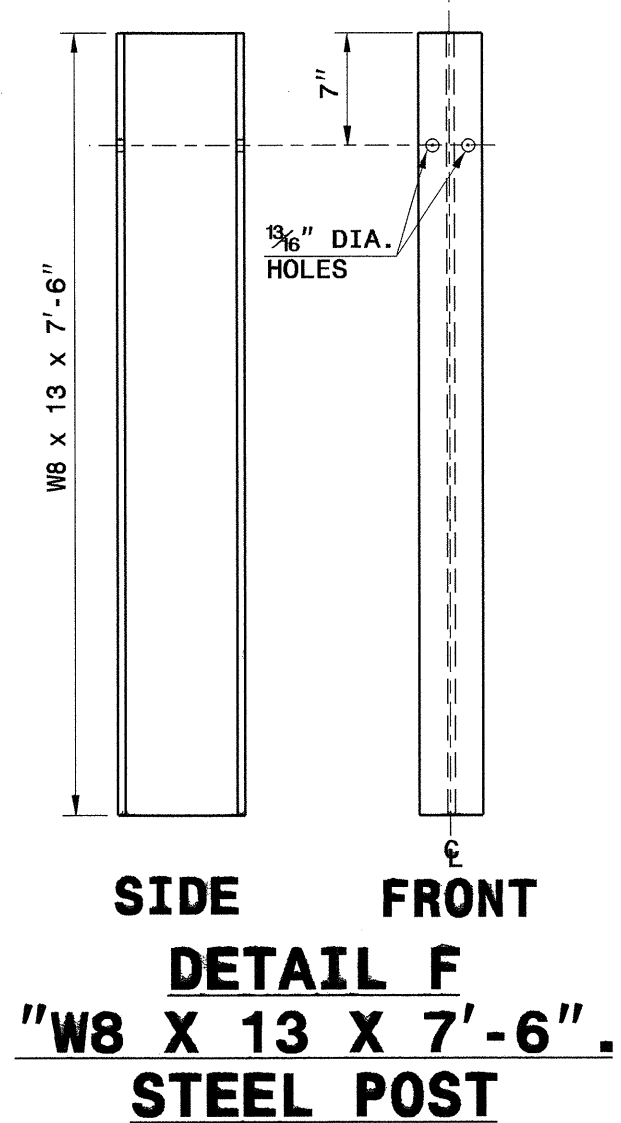
SECTION B-B



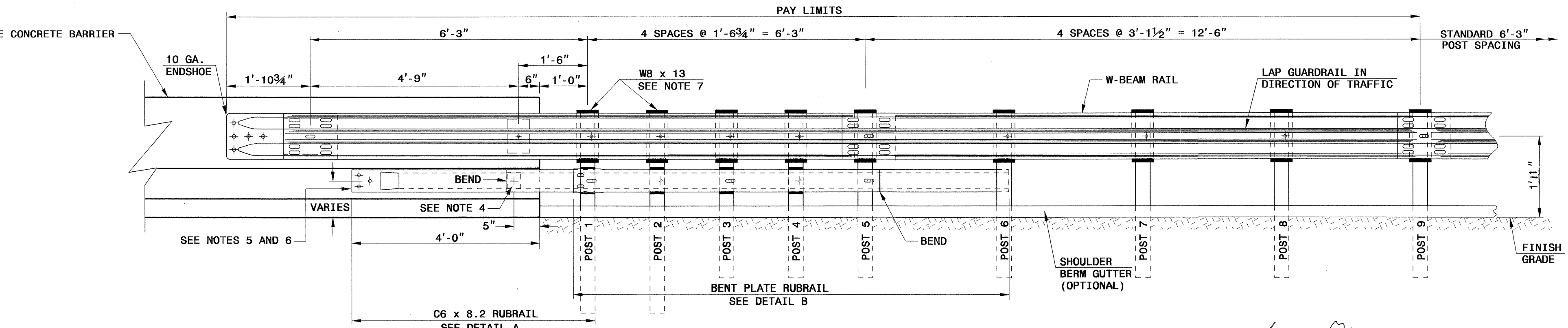
SECTION C-C



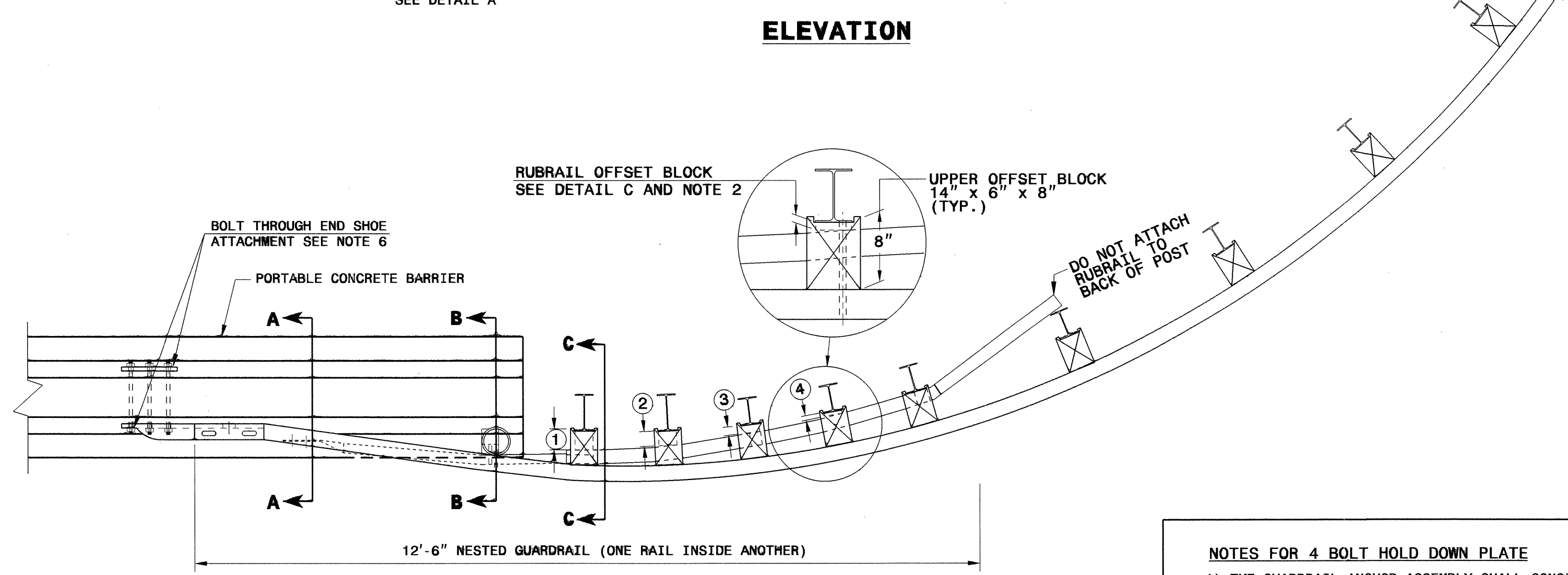
PLAN



DETAIL F
"W8 X 13 X 7'-6".
STEEL POST

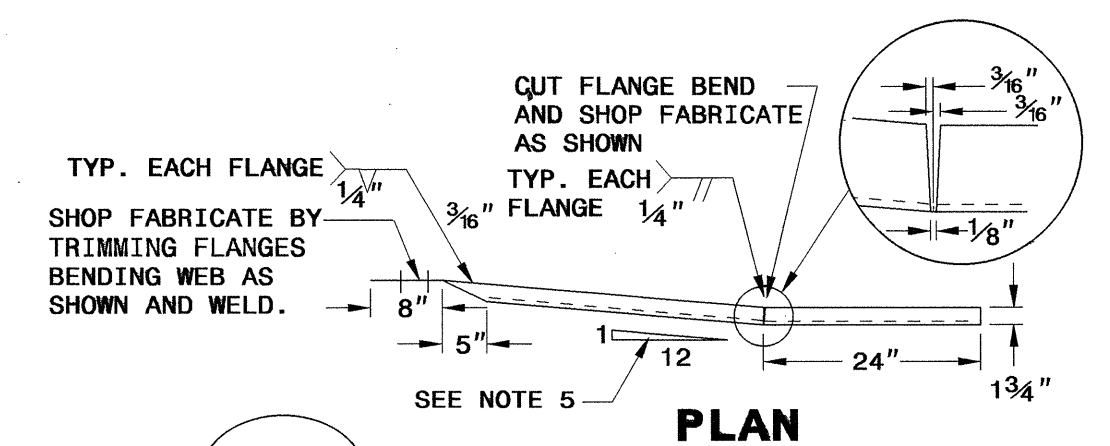


ELEVATION

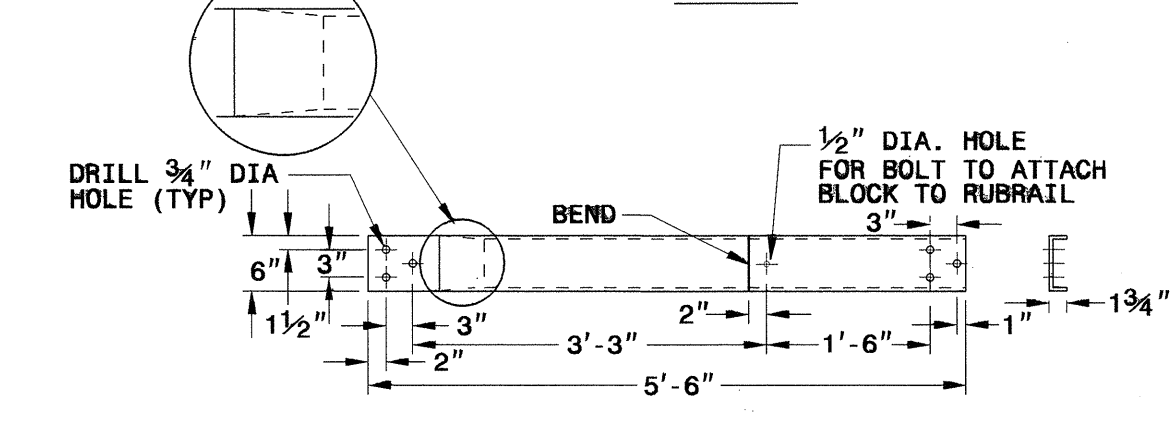


PLAN

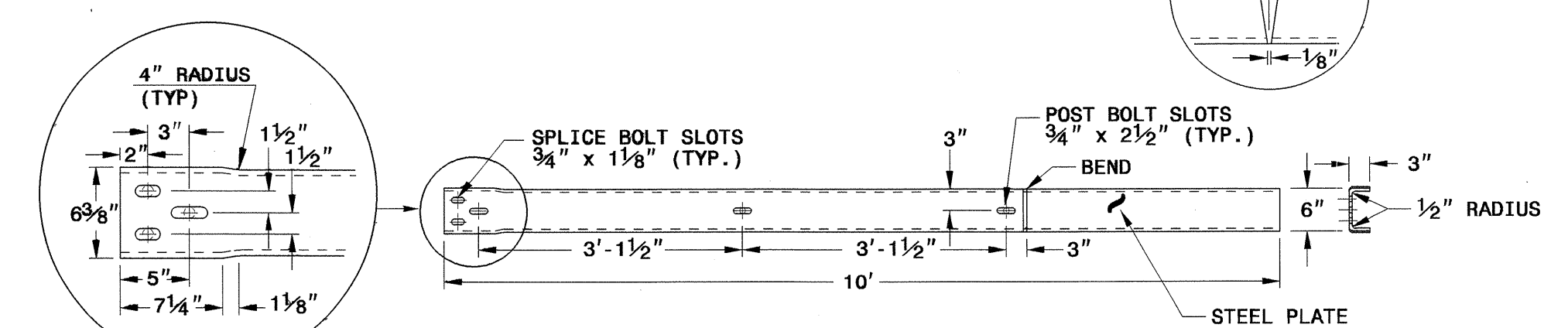
- GENERAL NOTES:**
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
 - RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4 1/2" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
 - STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" x 1 1/4" LONG BUTTONHEAD BOLT AND RECTANGULAR PLATE WASHER.
 - SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER.
 - SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE JERSEY SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
 - ANCHORAGE:
 - AT PORTABLE CONCRETE BARRIER, ANCHOR RUBRAIL USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS.
 - AT PORTABLE CONCRETE BARRIER, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD-DOWN PLATE AS SHOWN. INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
 - POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.



DETAIL A
C6 x 8.2 RUBRAIL



DETAIL B
BENT PLATE RUBRAIL



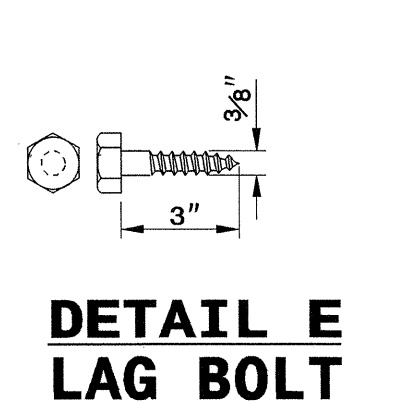
DETAIL C
SLOPED RUBRAIL BLOCKOUT

NOTES FOR 4 BOLT HOLD DOWN PLATE

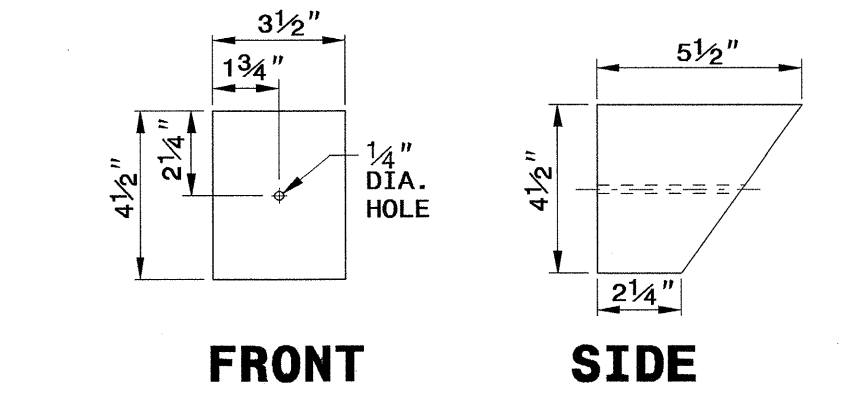
- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 7/8" DIA. BOLTS WITH NUTS AND WASHERS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL. THE 1 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



DETAIL E
LAG BOLT

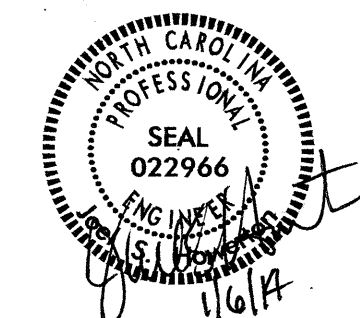


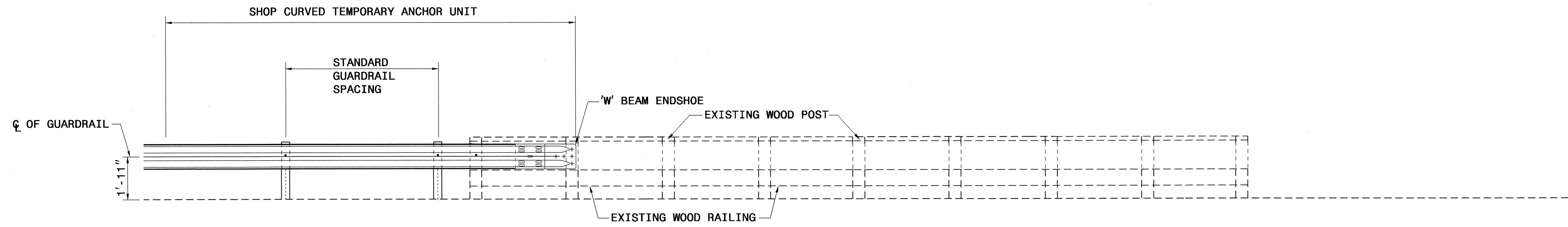
DETAIL D
SLOPED RUBRAIL BLOCKOUT

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

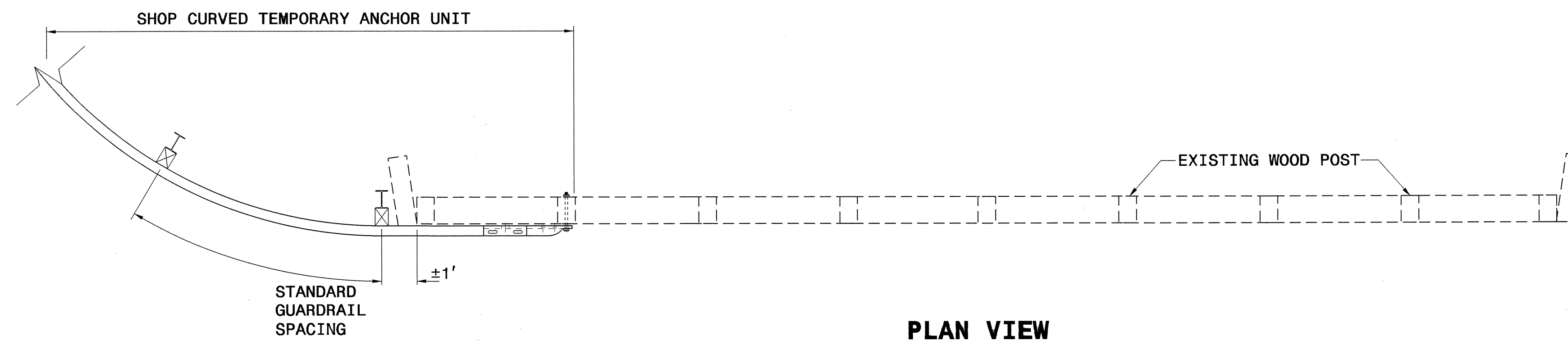
TEMPORARY GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

ORIGINAL BY: E.E. WARD DATE: 04-07-04
 MODIFIED BY: E.E. WARD DATE: 07-14-05
 CHECKED BY: [Signature] DATE: [Blank]
 FILE SPEC.: [Blank]

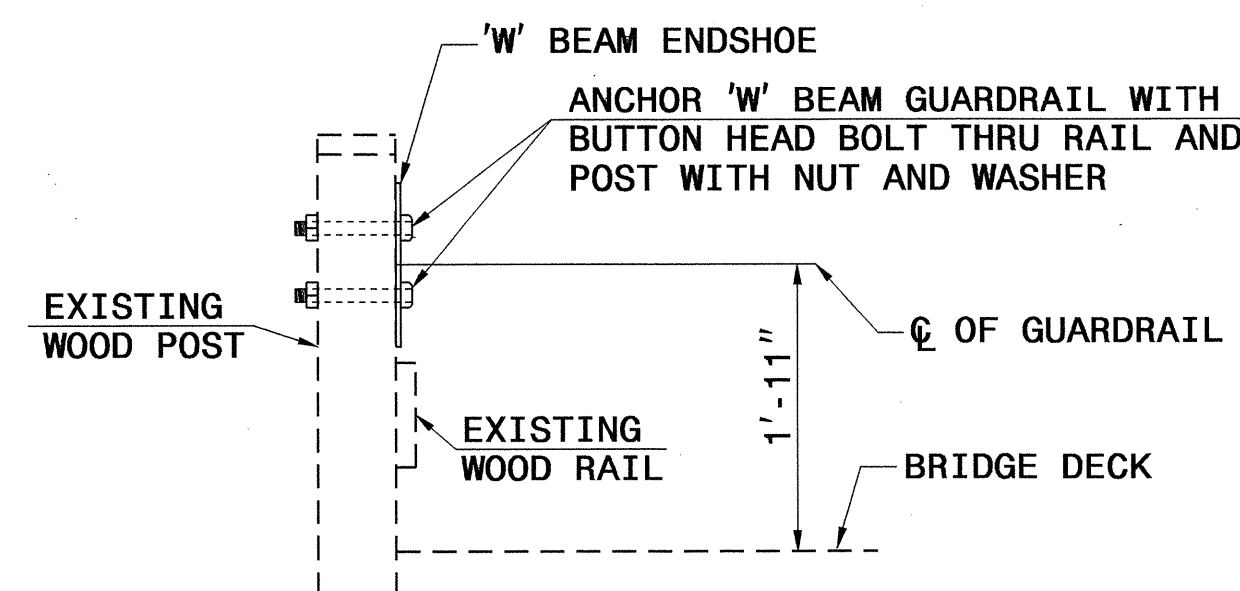




ELEVATION VIEW



PLAN VIEW

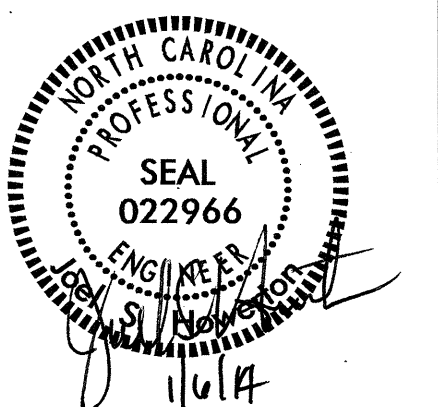


SECTION VIEW

**GUARDRAIL ATTACHMENT
TO WOOD POST**

NOTES:

SEE ROADWAY PLANS FOR LOCATION AND RADIUS OF SHOP CURVE.



**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

**DETAIL OF TEMPORARY
W-BEAM GUARDRAIL ANCHOR
UNIT - SHOP CURVED**

ORIGINAL BY: E.E. WARD	DATE: 10-04
MODIFIED BY: K/A. KEMPE	DATE: 10-12
CHECKED BY: <i>[Signature]</i>	DATE: 12/11/13
FILE SPEC.: usr/details/stand/bp.dgn	

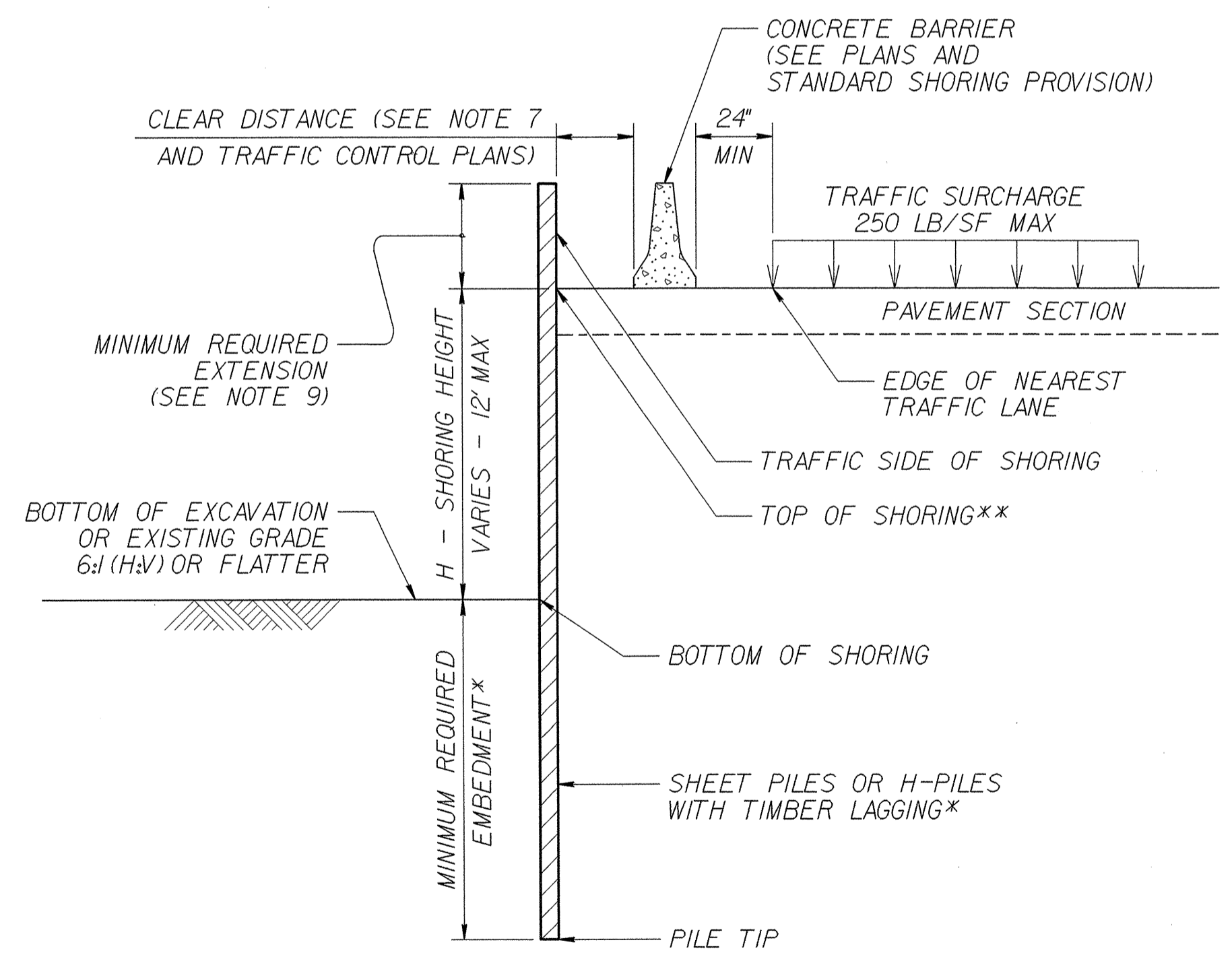
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
		HP 10x42	HP 12x53	HP 14x73	HP 10x42	HP 12x53	HP 14x73	HP 10x42	HP 12x53	HP 14x73	
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

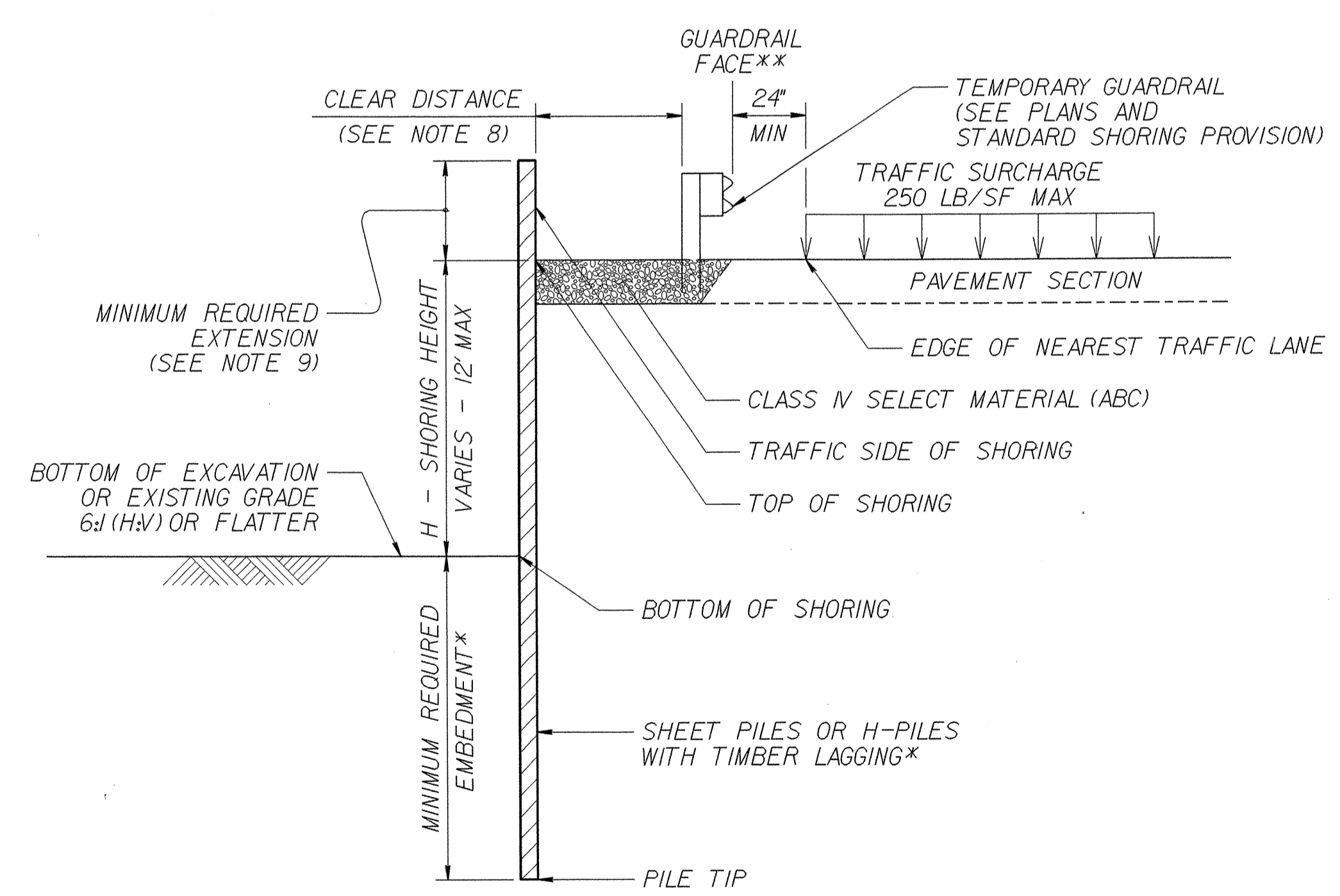
***DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**

NOTES:

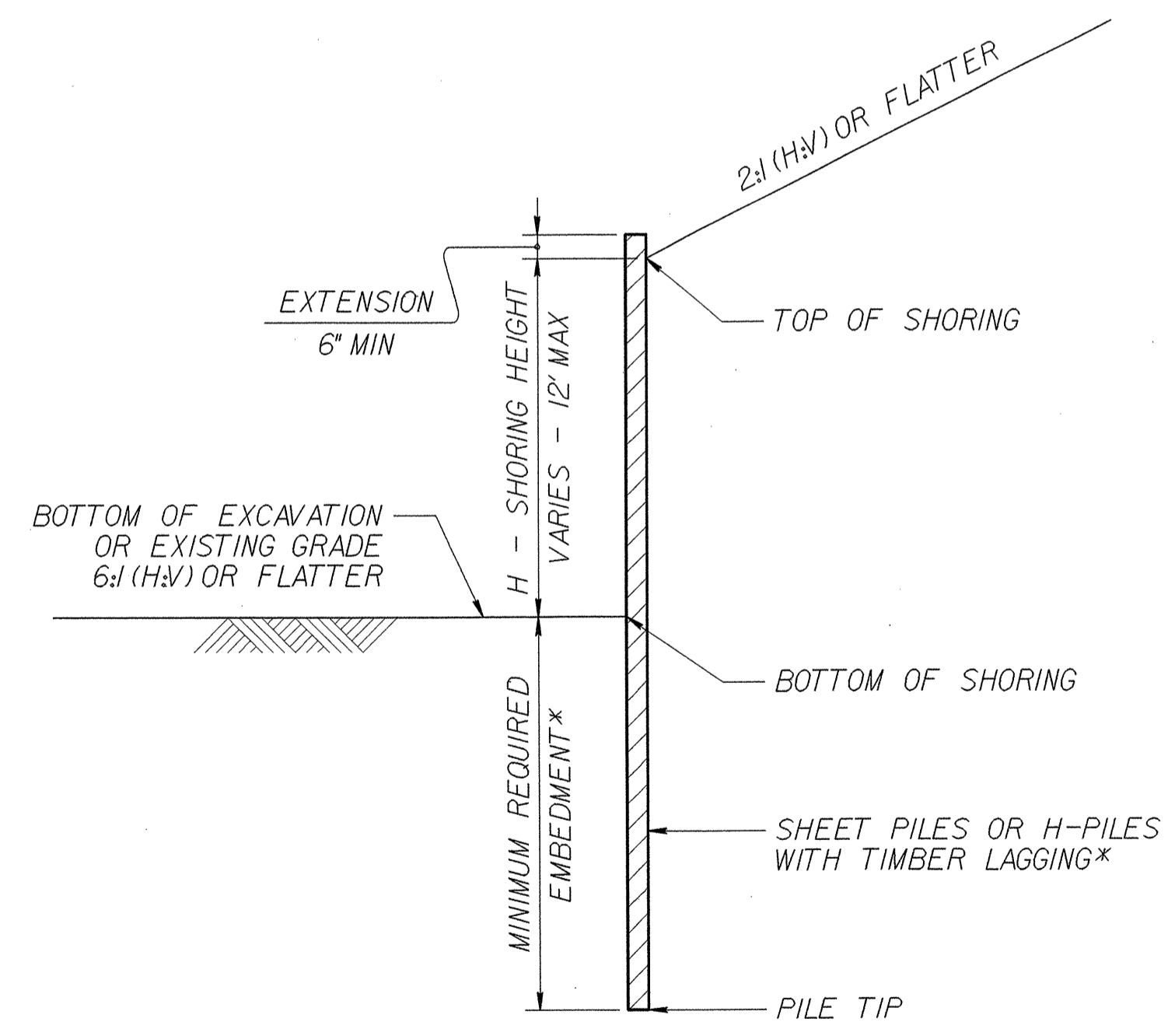
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ LB/CF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ LB/SF
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:
connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



CONCRETE BARRIER
**TOP OF SHORING = EDGE OF PAVEMENT



TEMPORARY GUARDRAIL
**GUARDRAIL FACE = EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING (SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING (SURCHARGE CASE)
*SEE TABLE ABOVE.

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

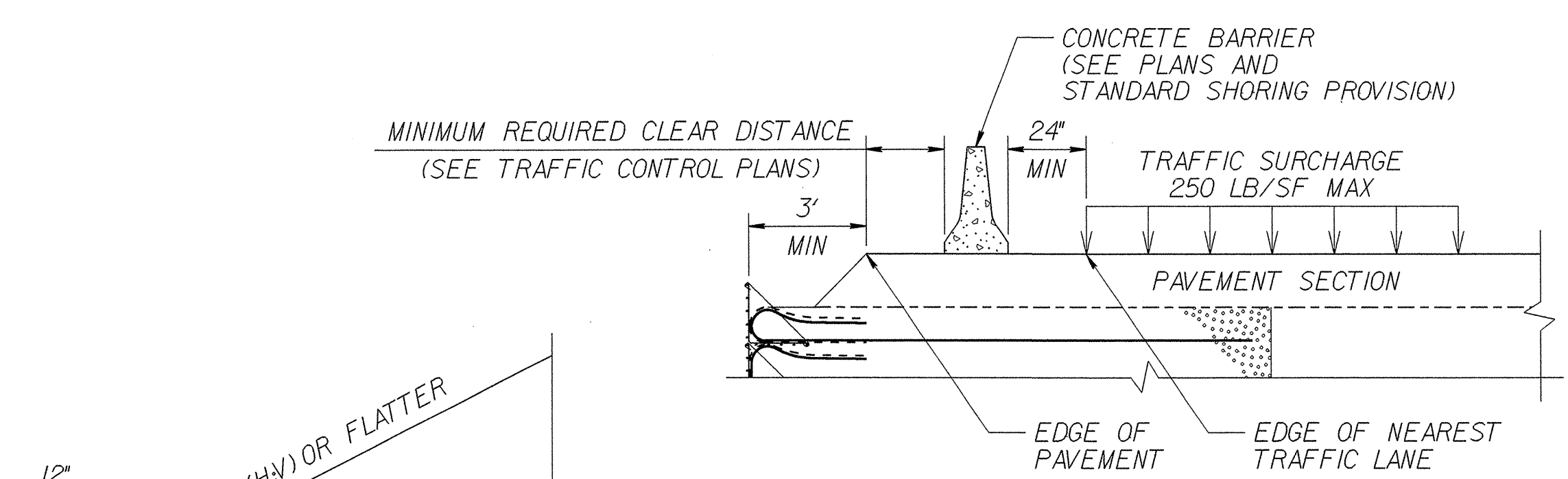
GEOTECHNICAL ENGINEER

ENGINEER

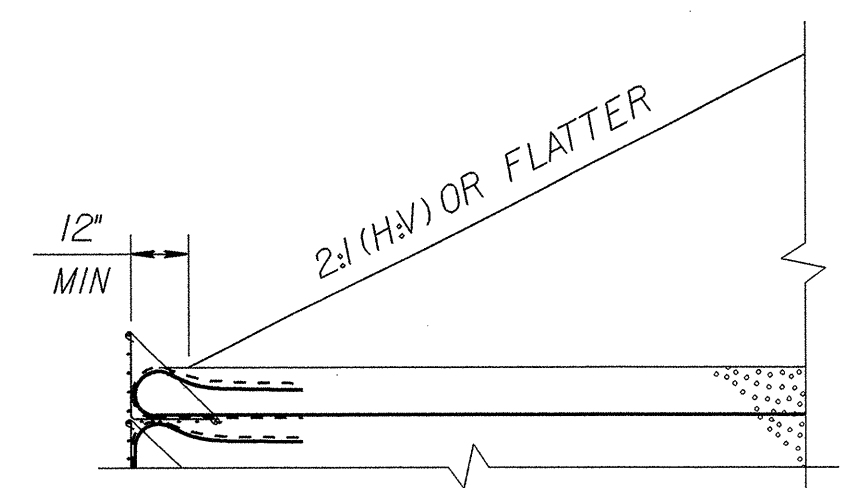


Scott A. Hildebrand 7/22/13
SIGNATURE DATE

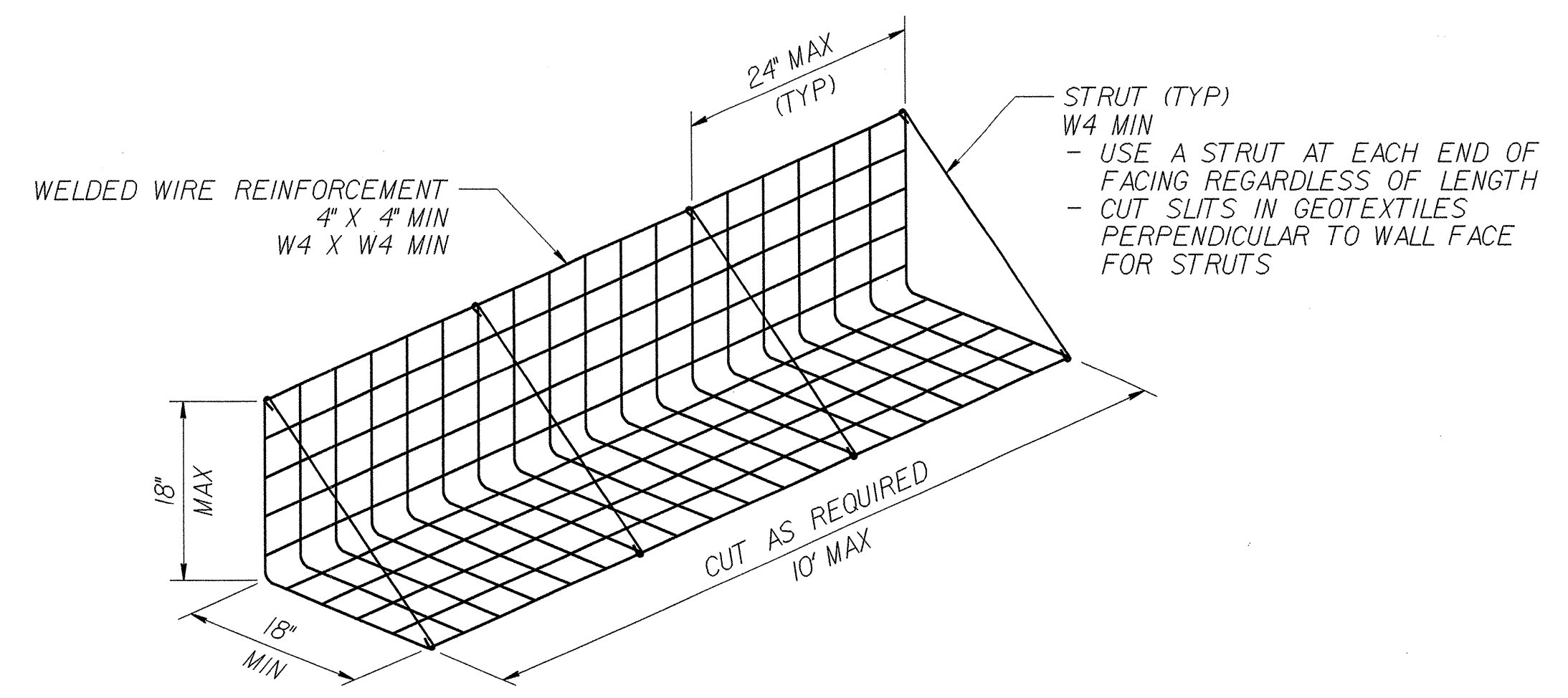
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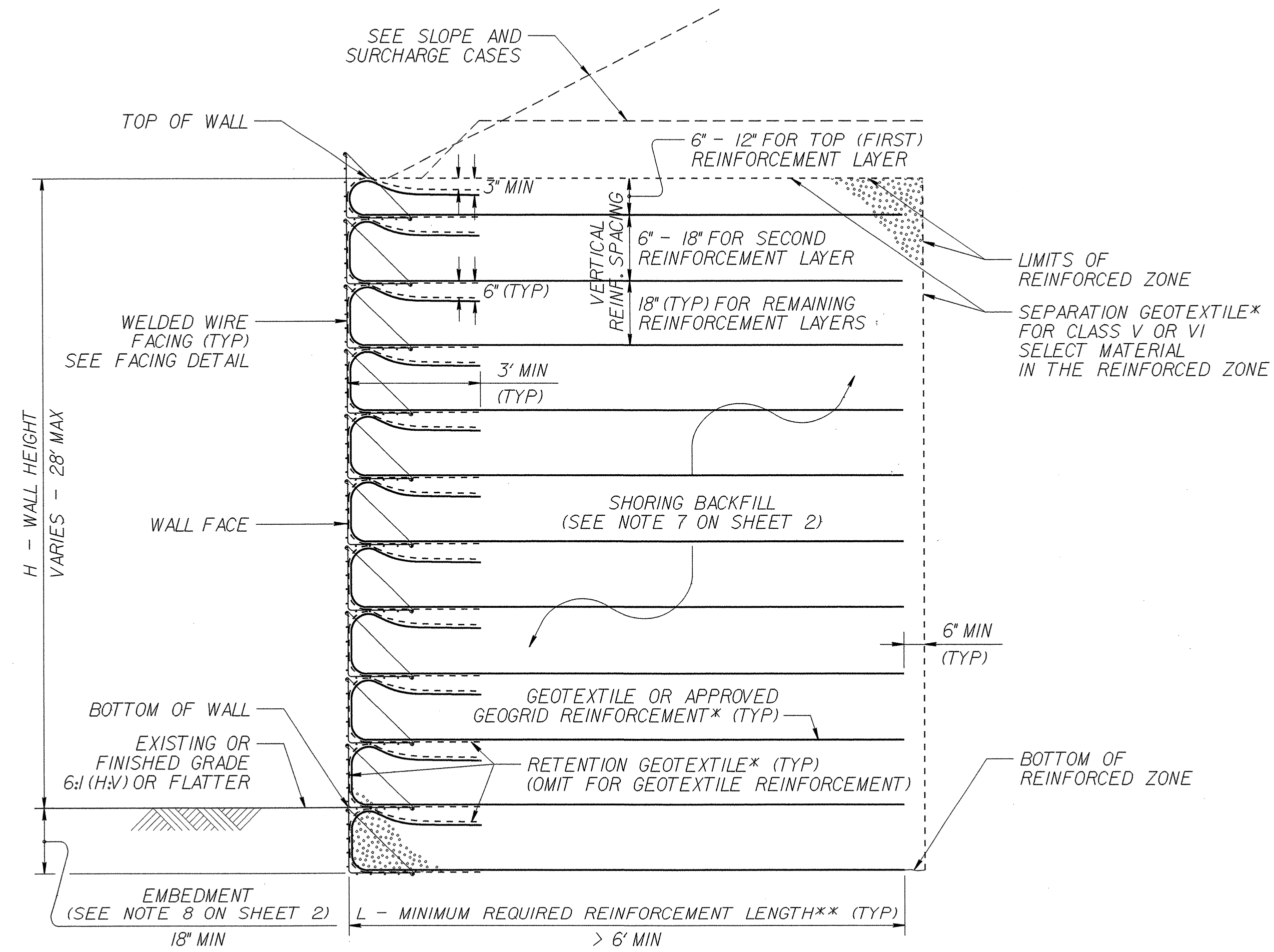
SURCHARGE CASE



SLOPE CASE

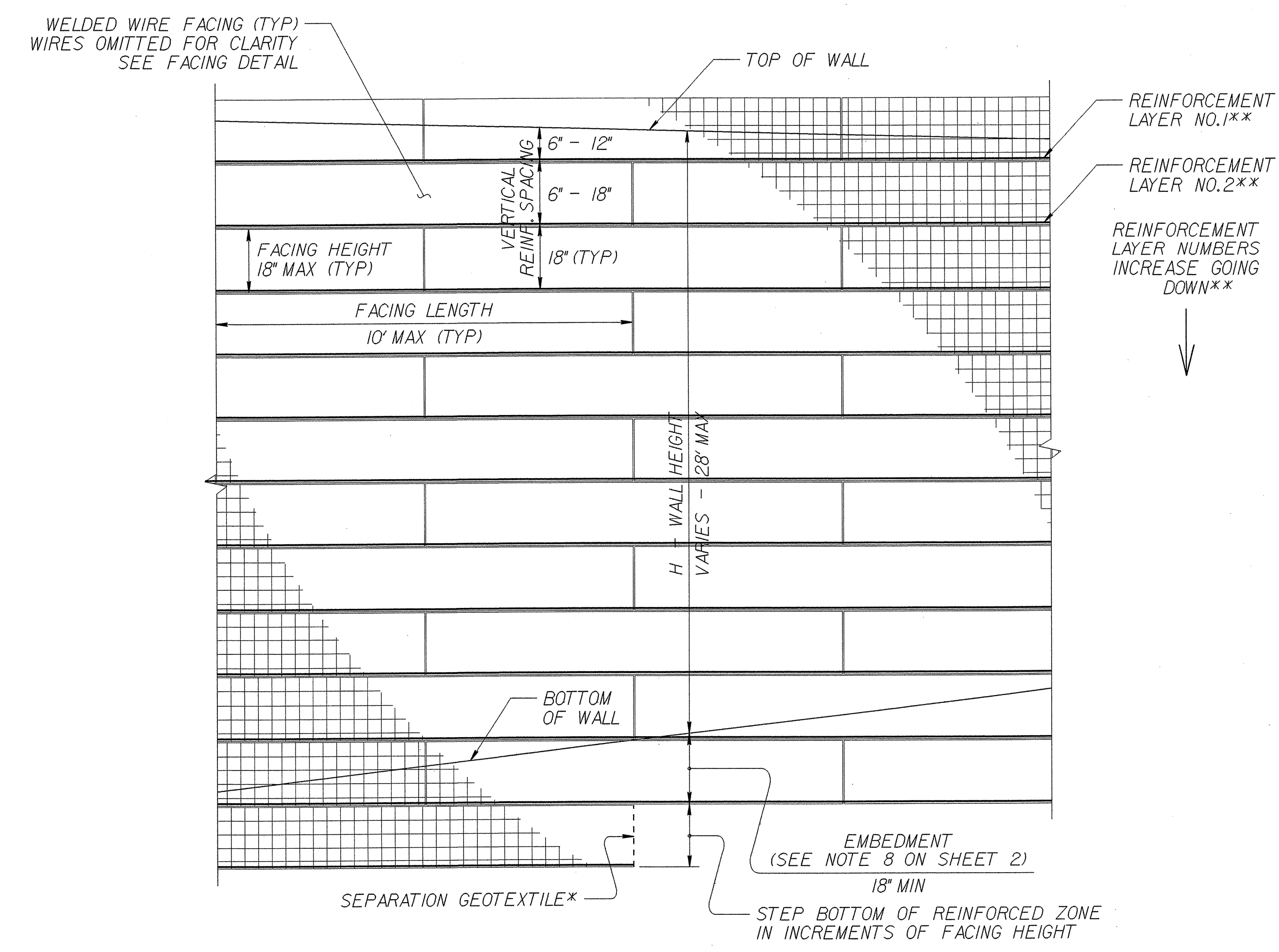


FACING DETAIL



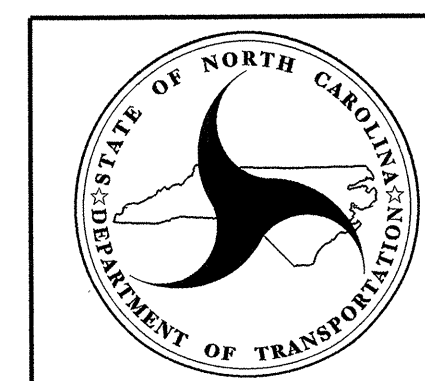
STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL - PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

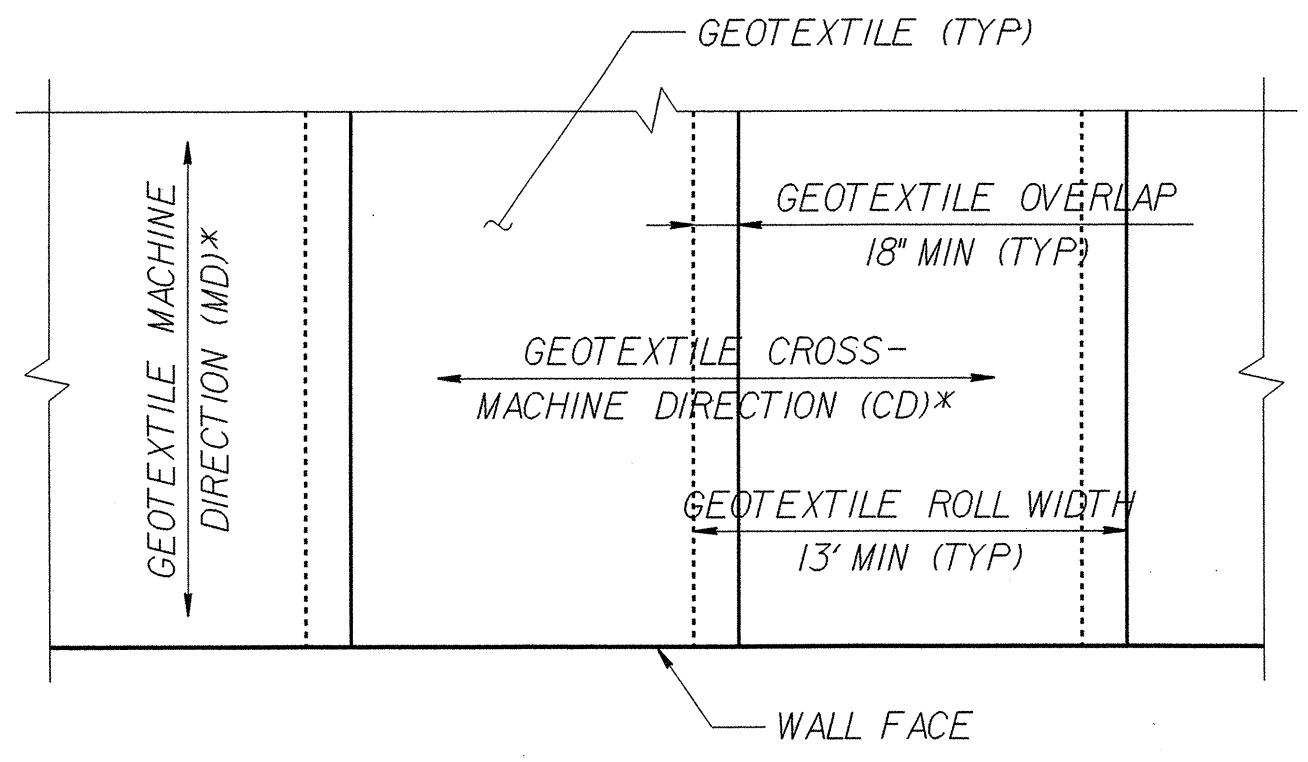


GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

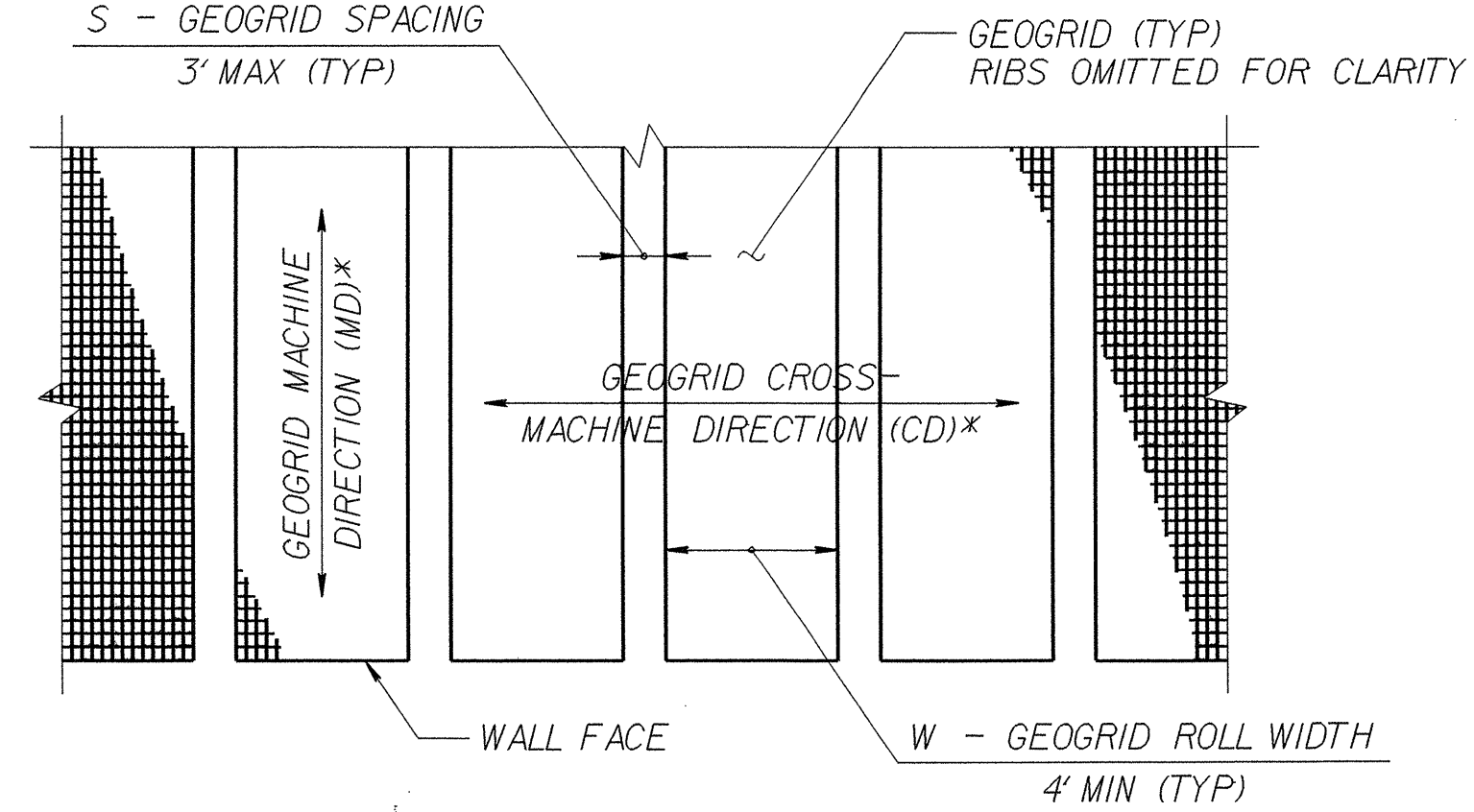
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STANDARD TEMPORARY WALL
Sheet 1 of 3

DATE: 11-19-13

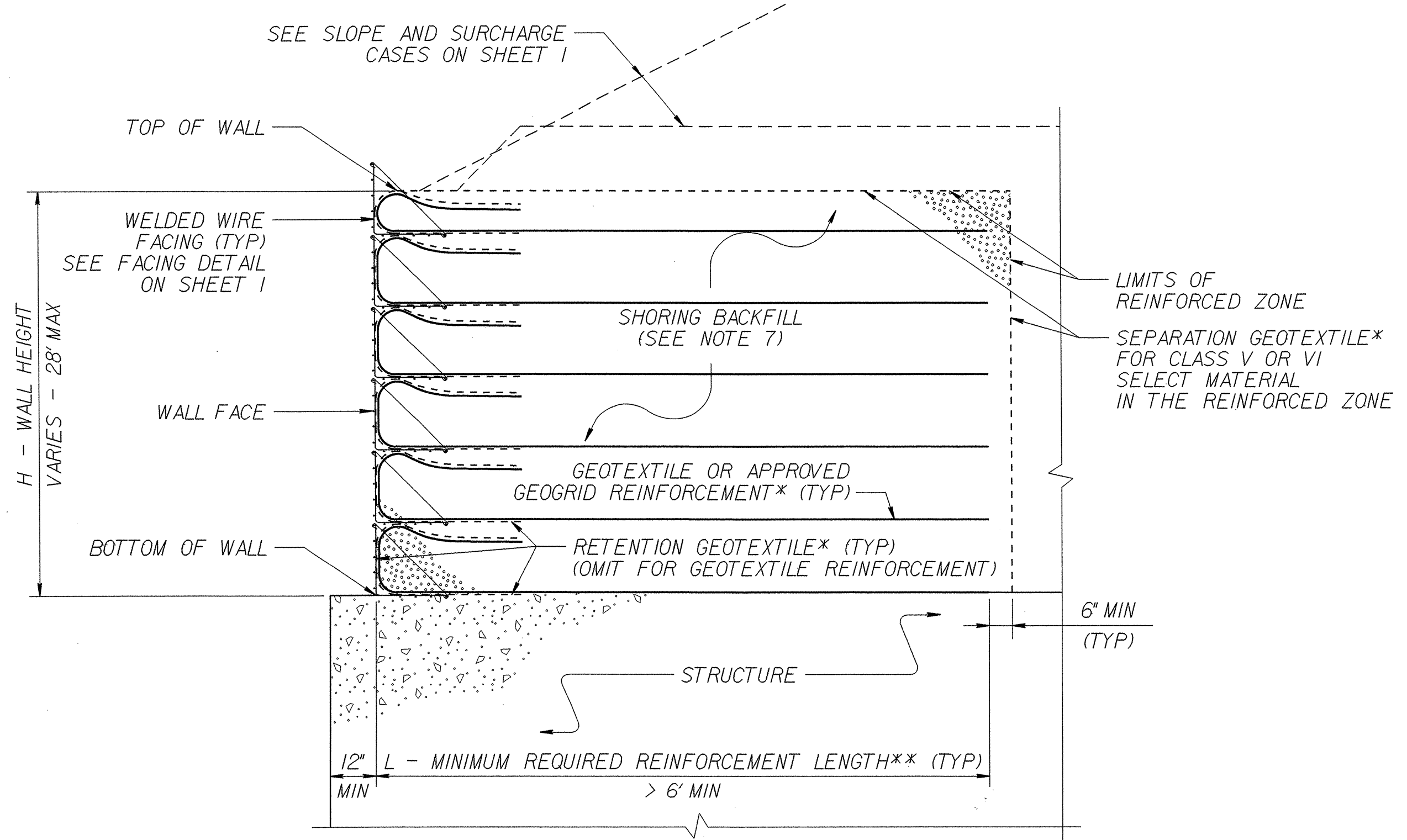


GEOTEXTILE PLACEMENT
 (100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



GEOGRID PLACEMENT
 (80% COVERAGE MIN FOR GEOGRID REINFORCEMENT - $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS
 (PLAN VIEW)
 *SEE NOTE 12.



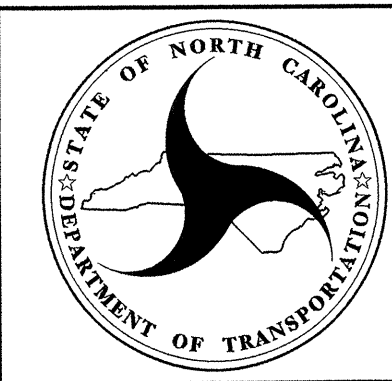
TEMPORARY WALL ON STRUCTURE DETAIL
 *SEE GEOSYNTHETIC PLACEMENT DETAILS.
 **SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 UNIT WEIGHT, $\gamma = 120$ LB/CF
 FRICTION ANGLE, $\phi = 30$ DEGREES
 COHESION, $c = 0$ LB/SF
- DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
- DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
- EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
- DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
- GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM:
connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx
 DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- IF THE WEBSITE DOES NOT LIST A SHORT-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID, USE A SHORT-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 3.5 FOR THE GEOGRID REINFORCEMENT.
- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
 - AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
 - W (REINFORCEMENT ROLL WIDTH) \geq (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
 - REINFORCEMENT STRENGTH IN CD \geq MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
 - SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:
connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
 - DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
 - FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
 - DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
 - CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
 - FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
 - FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.



GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL
 Sheet 2 of 3

DATE: 11-19-13



Scott A. Niddens 7/29/13
SIGNATURE DATE

ENGINEER

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)
(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

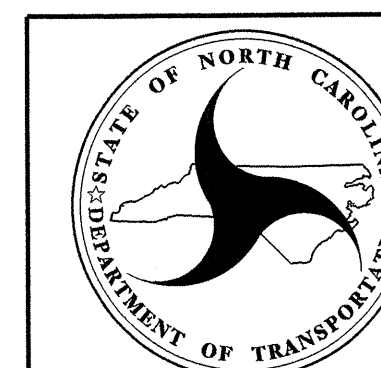
GEOGRID REINFORCEMENT
SHORT-TERM DESIGN STRENGTH (LB/FT)

(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

(SEE NOTE 9 ON SHEET 2.)

*SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.



GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL
Sheet 3 of 3

DATE: 11-19-13

COMPUTED BY: SCC DATE: 12/9/13
 CHECKED BY: SCC DATE: 12/9/13

PROJECT NO.
B-5167

SHEET NO.
3-C

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				UD	240
				TOTAL LF:	240

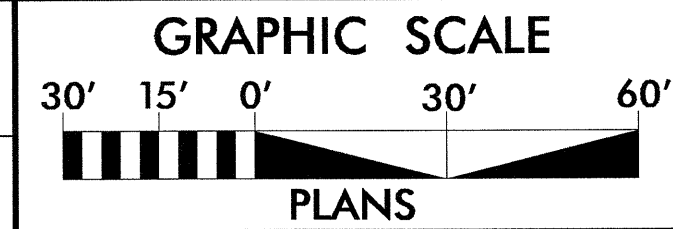
*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		44	83	88		
			TOTAL CY/TONS/SY:		44	83	88	0	0

*ASU = Aggregate Subgrade
 *AST = Aggregate Stabilization

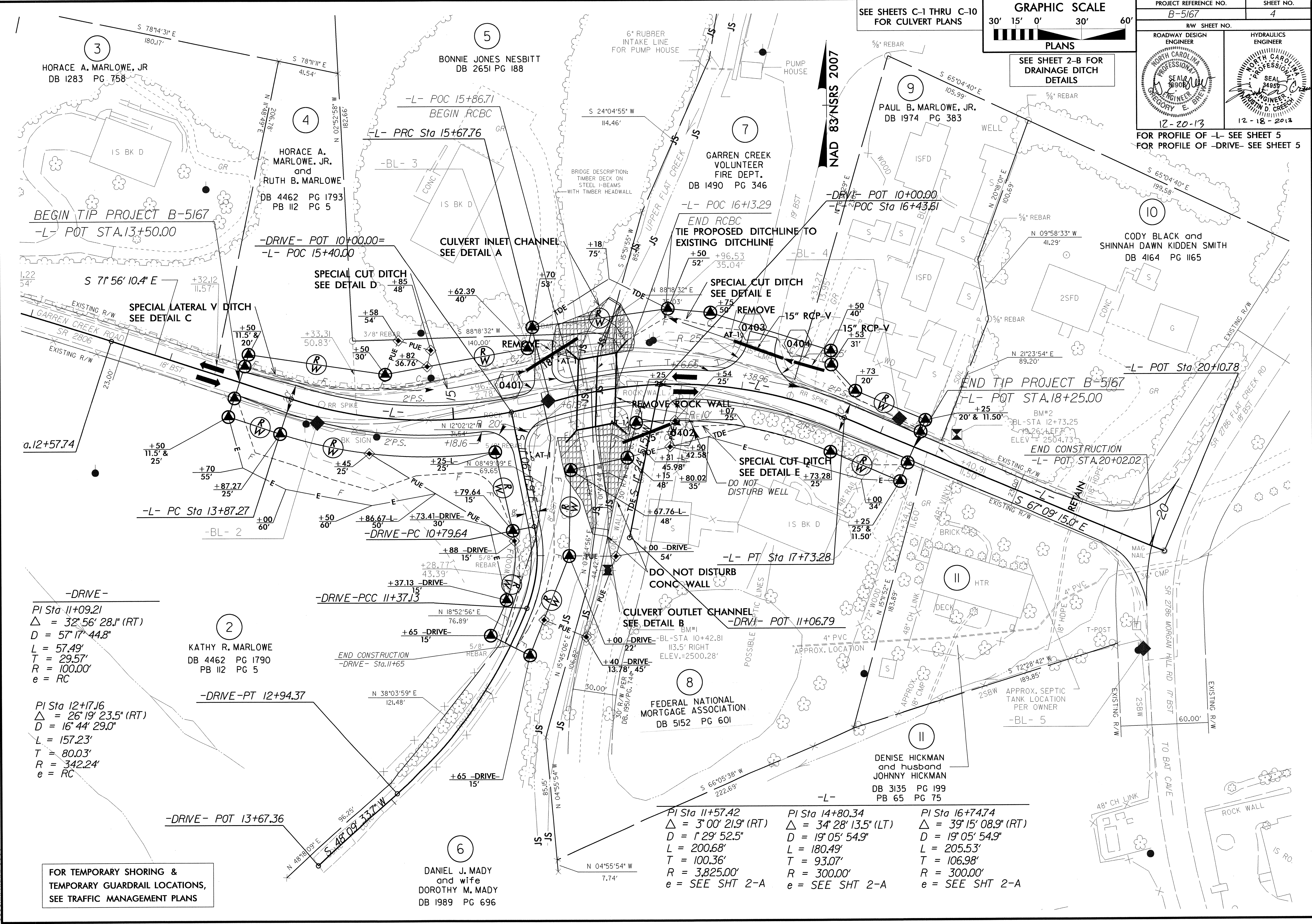
SEE SHEETS C-1 THRU C-10 FOR CULVERT PLANS



SEE SHEET 2-B FOR DRAINAGE DITCH DETAILS

PROJECT REFERENCE NO. B-5167	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18908 CATEGORIES E 12-20-13	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34955 WILSON D. CREECH 12-18-2013

FOR PROFILE OF -L- SEE SHEET 5
FOR PROFILE OF -DRIVE- SEE SHEET 5



-DRIVE-
PI Sta 11+09.21
Δ = 32°56' 28.1" (RT)
D = 57°17' 44.8"
L = 57.49'
T = 29.57'
R = 100.00'
e = RC

PI Sta 12+17.16
Δ = 26°19' 23.5" (RT)
D = 16°44' 29.0"
L = 157.23'
T = 80.03'
R = 342.24'
e = RC

FOR TEMPORARY SHORING & TEMPORARY GUARDRAIL LOCATIONS, SEE TRAFFIC MANAGEMENT PLANS

PI Sta 11+57.42 Δ = 3°00' 21.9" (RT) D = 1°29' 52.5" L = 200.68' T = 100.36' R = 3,825.00' e = SEE SHT 2-A	PI Sta 14+80.34 Δ = 34°28' 13.5" (LT) D = 19°05' 54.9" L = 180.49' T = 93.07' R = 300.00' e = SEE SHT 2-A	PI Sta 16+74.74 Δ = 39°15' 08.9" (RT) D = 19°05' 54.9" L = 205.53' T = 106.98' R = 300.00' e = SEE SHT 2-A
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REVISIONS

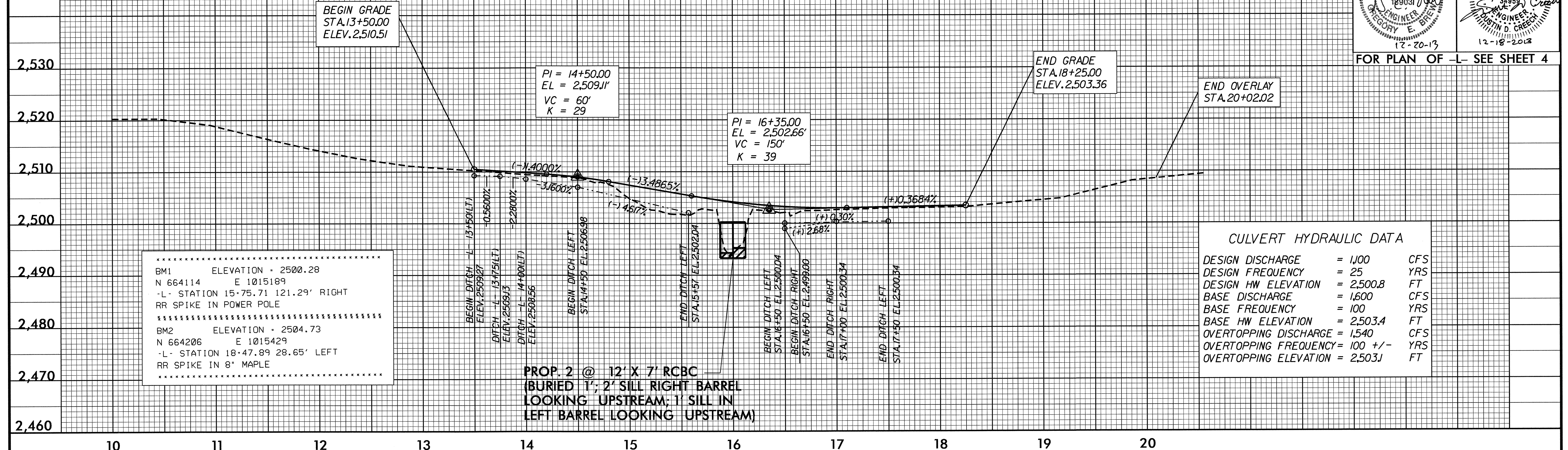
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5/28/99

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

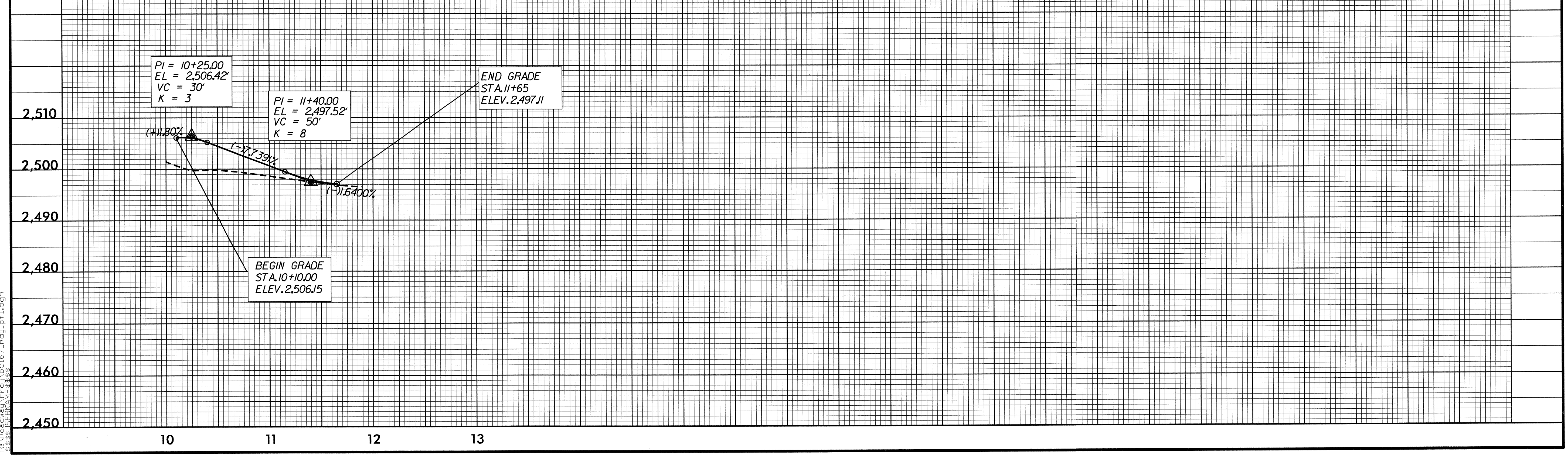
PROJECT REFERENCE NO. B-5167	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

FOR PLAN OF -L- SEE SHEET 4



FOR PLAN OF -DRIVE- SEE SHEET 4

-DRIVE-

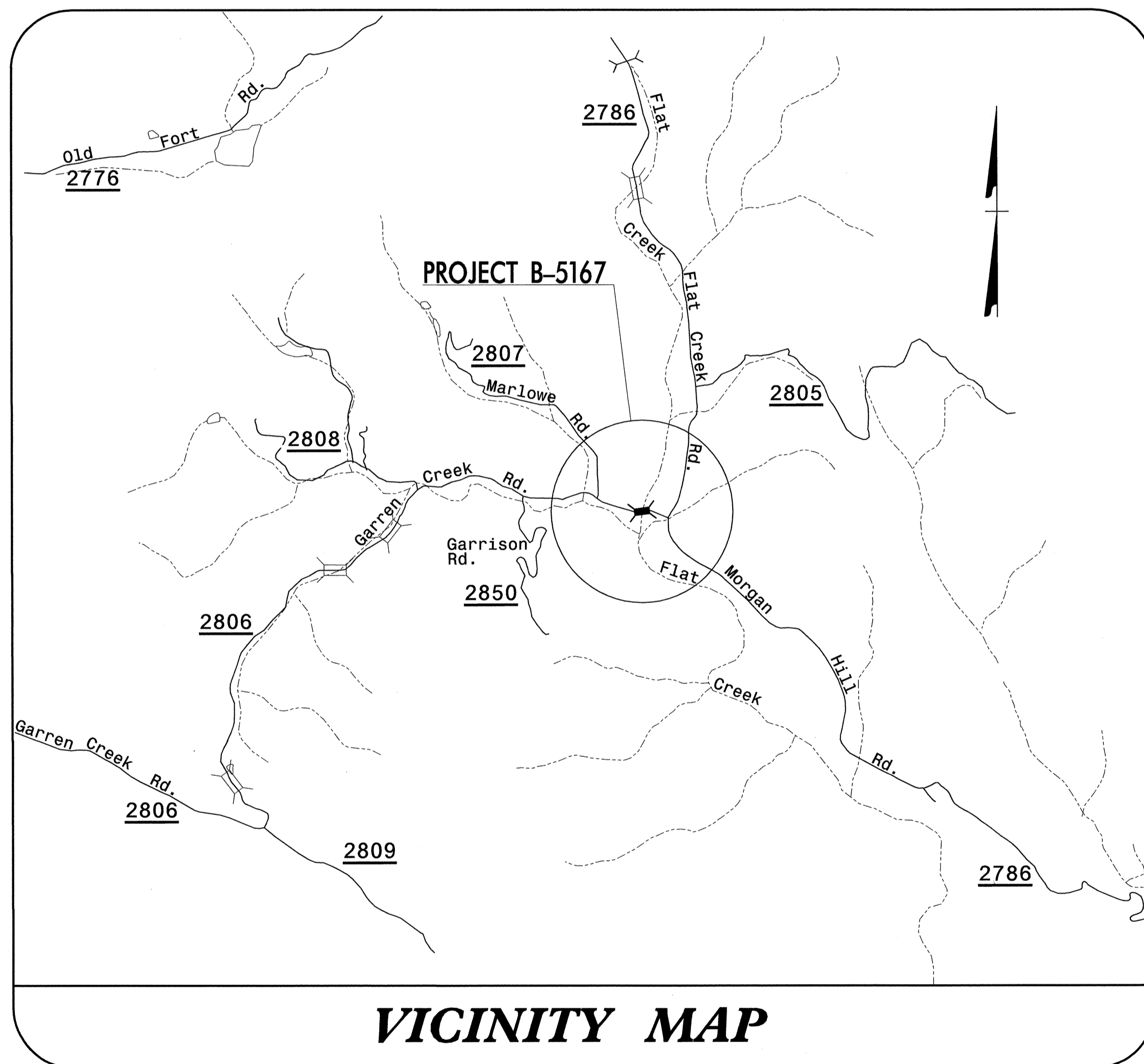
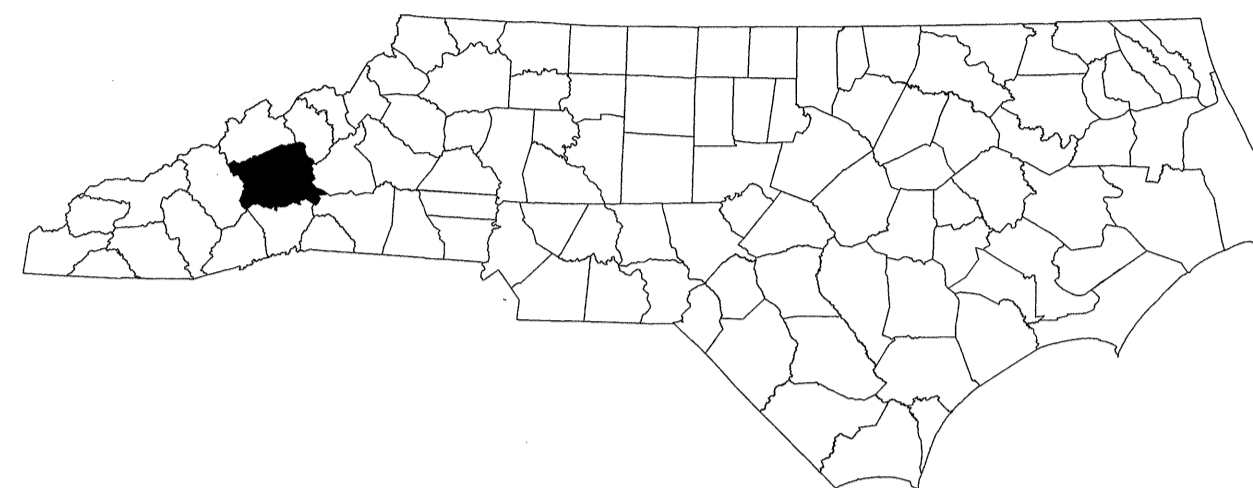


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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

BUNCOMBE COUNTY



VICINITY MAP

SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKINGS
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (TRANSPORTATION OPERATIONS AND GENERAL NOTES)
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-2A	TEMPORARY SHORING DATA
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4	PHASE I DETAILS
TMP-5	PHASE II DETAILS
TMP-6	PHASE II DETAILS
TMP-7	PHASE II DETAILS
TMP-8	PHASE III DETAILS
TMP-9	PHASE III DETAILS

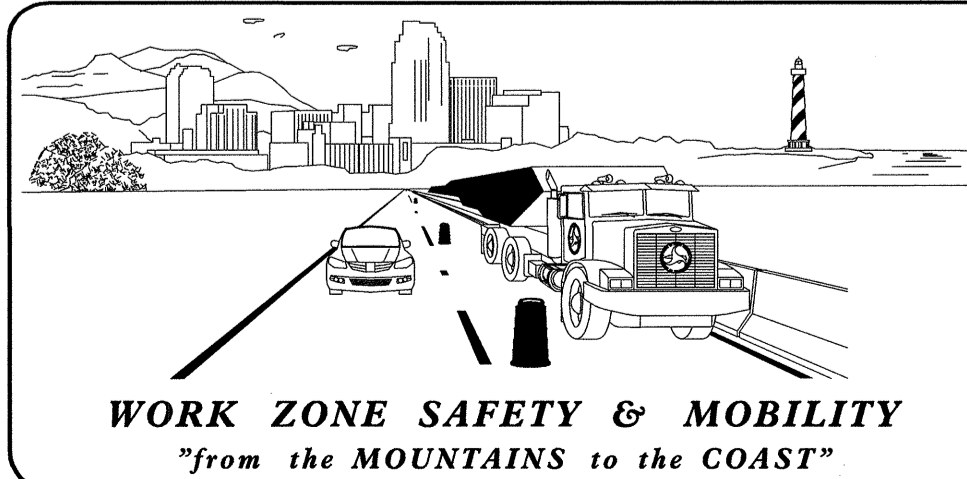
SHEET NO.

TMP-1

B-5167

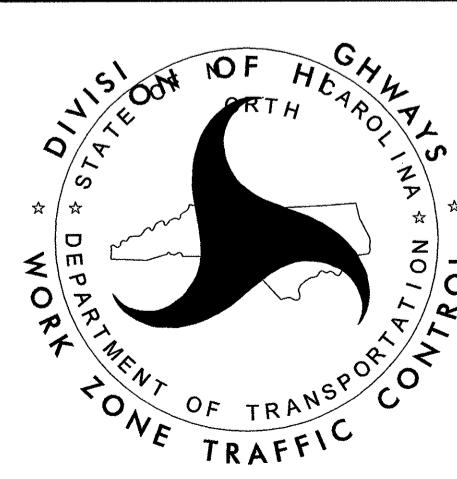
TIP PROJECT:

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N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
G. L. GETTIER, P.E. TRAFFIC CONTROL PROJECT ENGINEER
J. W. WOOLARD, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
S. B. COATS TRAFFIC CONTROL DESIGN ENGINEER



APPROVED: _____
DATE: _____

SEAL

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

USER DEFINED (IF NEEDED)

USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

- PA - 4" WHITE EDGELINE (PAINT)
- PD - 4" 3 FT. WHITE MINISKIP (PAINT)
- PI - 4" YELLOW DOUBLE CENTER (PAINT)
- P2 - 24" WHITE STOP BAR (PAINT)

11/26/2013
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APPROVED:	DATE: 12/3/13			ROADWAY STANDARD DRAWINGS & LEGEND
SEAL				

TRANSPORTATION OPERATIONS

CONSTRUCTION

STAGE CONSTRUCT REALIGNMENT OF SR 2806 (GARREN CREEK RD.), INCLUDING NEW CULVERT AND DRIVES AS SHOWN IN THE CONSTRUCTION PLANS. OBLITERATE EXISTING BRIDGE AND INSTALL DRAINAGE PIPES AS SHOWN IN THE CONSTRUCTION PLANS.

TMP DESIGN PARAMETERS

UTILIZE FLAGGERS, TEMPORARY SIGNAGE, STAGED CONSTRUCTION, TEMPORARY SIGNALS, TEMPORARY GUARDRAIL, TEMPORARY SHORING. AND TRAFFIC CONTROL DEVICES TO CONSTRUCT REALIGNMENT ON SR 2806 (GARREN CREEK RD.) (SEE SHEET TMP-3 THRU TMP-9).

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

TRAFFIC PATTERN ALTERATIONS

- G) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

TRAFFIC BARRIER

- H) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- I) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH OR HIGHER	30 FT

SIGNING

- J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

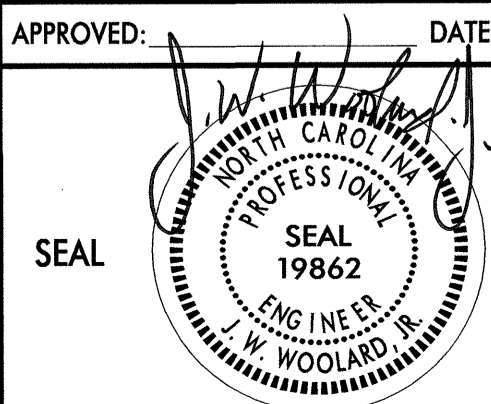
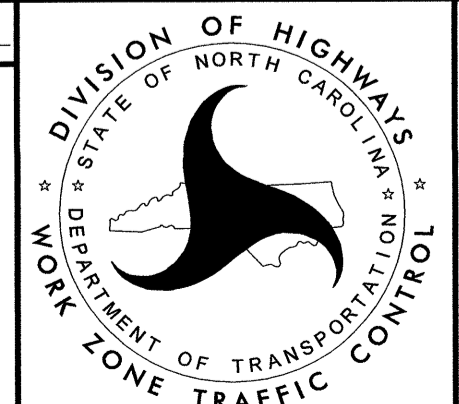
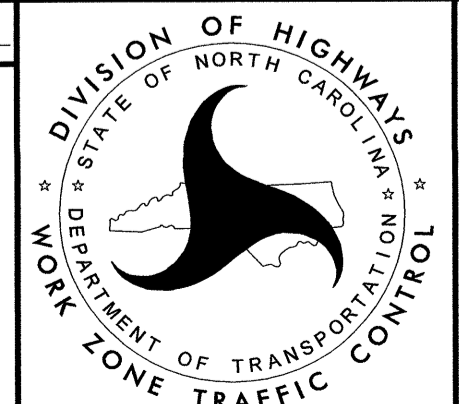
- L) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADIUS, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- M) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

- N) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 2806	PAINT	TEMPORARY RAISED

- O) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

APPROVED: 	DATE: 12/31/13		<h2>TRANSPORTATION OPERATIONS PLAN</h2>
			

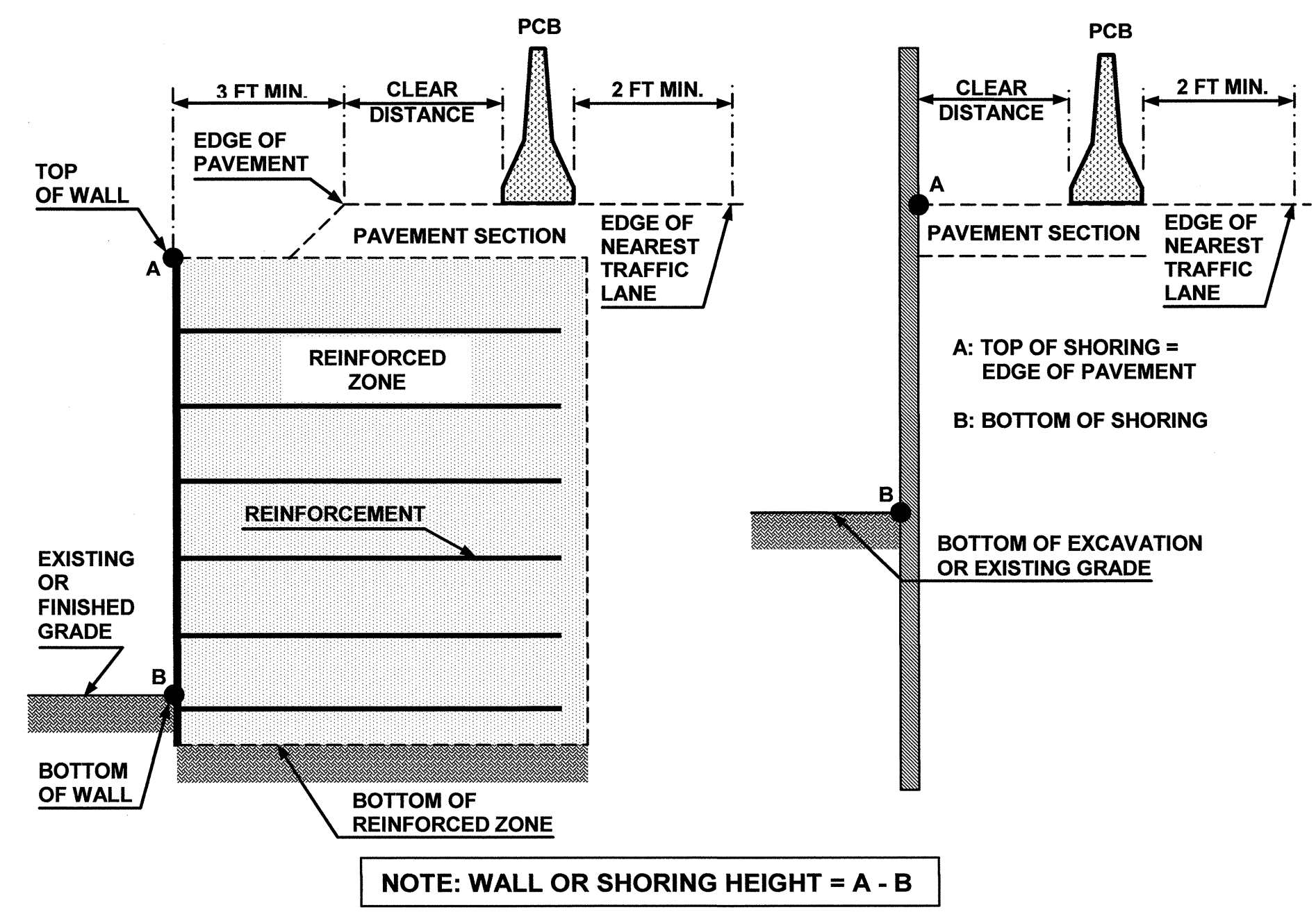


FIGURE A

NOTES

- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).
- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.
- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
	>56	32	36	42	45	47	51	
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
50-56		26	26	28	32	35	38	
>56	26	27	29	32	36	38		
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

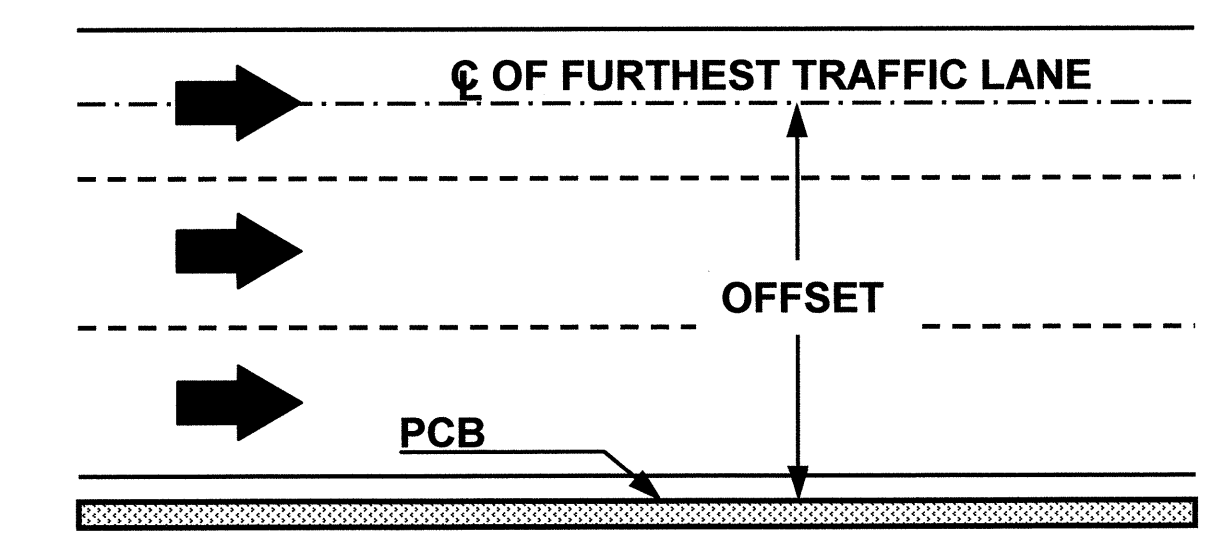
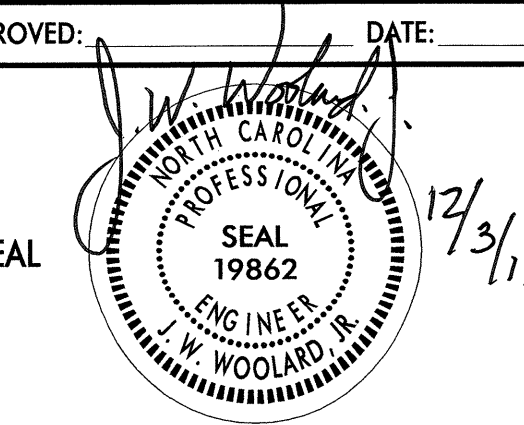
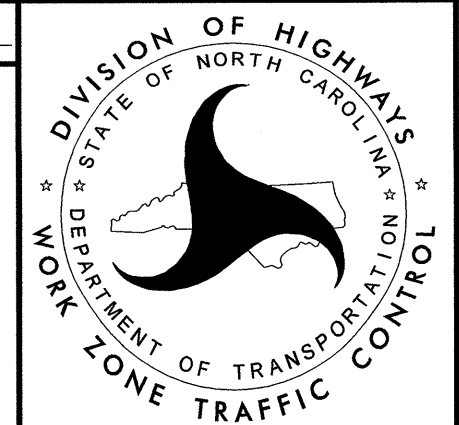


FIGURE B

APPROVED:  DATE: 12/3/13		PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
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SHORING LOCATION NO.	BEGIN STATION AND OFFSET	END STATION AND OFFSET	ESTIMATED AVERAGE HEIGHT	ESTIMATED MAXIMUM HEIGHT	SHORING LOCATION TYPE
NO. 1	STA. 15+85+/- -L- 11.17 FT. LT.	STA. 15+93+/- -L- 11.17 FT. LT.	9.2 FT.	9.2 FT.	STRUCTURE
NO. 2	STA. 16+15+/- -L- 11.17 FT. LT.	STA. 16+20+/- -L- 11.17 FT. LT.	9.2 FT.	9.2 FT.	STRUCTURE
NO. 3	STA. 15+85+/- -L- 7.0 FT. LT.	STA. 16+20+/- -L- 7.0 FT. LT.	5.5 FT.	10.2 FT.	STRUCTURE
NO. 4	STA. 16+20+/- -L- 11.17 FT. LT.	STA. 16+20+/- -L- 32.2 FT. RT.	9.4 FT.	10.8 FT.	STRUCTURE
NO. 5	STA. 15+85+/- -L- 7.0 FT. LT.	STA. 15+85+/- -L- 41.0 FT. LT.	9.0 FT.	10.8 FT.	STRUCTURE

TEMPORARY SHORING NOTES

SHORING LOCATION NO. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 15+85+/- -L-, 11.17 FT. LEFT, TO STATION 15+93+/- -L-, 11.17 FT. LEFT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 2495 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 15+85+/- -L-, 11.17 FT. LEFT, TO STATION 15+93+/- -L-, 11.17 FT. LEFT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 15+85+/- -L-, 11.17 FT. LEFT, TO STATION 15+93+/- -L-, 11.17 FT. LEFT WILL NOT PENETRATE BELOW ELEVATION 2490 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 15+85+/- -L-, 11.17 FT. LEFT, TO STATION 15+93+/- -L-, 11.17 FT. LEFT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 15+85+/- -L-, 11.17 FT. LEFT, TO STATION 15+93+/- -L-, 11.17 FT. LEFT FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

SHORING LOCATION NO. 2

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 16+15+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 11.17 FT. LEFT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 2495 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 16+15+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 11.17 FT. LEFT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 16+15+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 11.17 FT. LEFT WILL NOT PENETRATE BELOW ELEVATION 2490 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 16+15+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 11.17 FT. LEFT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 16+15+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 11.17 FT. LEFT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

SHORING LOCATION NO. 3

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 15+85+/- -L-, 7.0 FT. LEFT, TO STATION 16+20+/- -L-, 7.0 FT. LEFT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 2495 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 15+85+/- -L-, 7.0 FT. LEFT, TO STATION 16+20+/- -L-, 7.0 FT. LEFT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 15+85+/- -L-, 7.0 FT. LEFT, TO STATION 16+20+/- -L-, 7.0 FT. LEFT WILL NOT PENETRATE BELOW ELEVATION 2490 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

AT THE CONTRACTOR'S OPTION, USE STANDARD SHORING FOR TEMPORARY SHORING FROM STATION 15+85+/- -L-, 7.0 FT. LEFT, TO STATION 16+20+/- -L-, 7.0 FT. LEFT. SEE STANDARD DRAWING NO. 1801.01 STANDARD TEMPORARY SHORING AND 1801.02 FOR STANDARD TEMPORARY WALLS.

SHORING LOCATION NO. 4

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 16+20+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 32.2 FT. RIGHT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 2495 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 16+20+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 32.2 FT. RIGHT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 16+20+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 32.2 FT. RIGHT WILL NOT PENETRATE BELOW ELEVATION 2490 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

AT THE CONTRACTOR'S OPTION, USE STANDARD SHORING FOR TEMPORARY SHORING FROM STATION 16+20+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 32.2 FT. RIGHT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING AND 1801.02 FOR STANDARD TEMPORARY WALLS.

WHEN BACKFILL FOR RETAINING WALLS AND/OR BRIDGE APPROACH FILLS OVERLAPS WITH THE REINFORCED ZONE OF TEMPORARY WALLS, USE SHORING BACKFILL OR BACKFILL MATERIAL REQUIRED FOR RETAINING WALLS AND/OR BRIDGE APPROACH FILLS, WHICHEVER IS BETTER, IN THE REINFORCED ZONE OF TEMPORARY WALLS.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 16+20+/- -L-, 11.17 FT. LEFT, TO STATION 16+20+/- -L-, 32.2 FT. RIGHT FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

SHORING LOCATION NO. 5

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 15+85+/- -L-, 7.0 FT. LEFT, TO STATION 15+85+/- -L-, 41.0 FT. LEFT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 2495 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 15+85+/- -L-, 7.0 FT. LEFT, TO STATION 15+85+/- -L-, 41.0 FT. LEFT. THE INFORMATION PROVIDED FOR THE TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

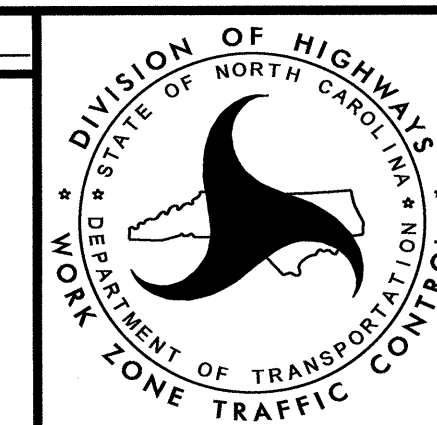
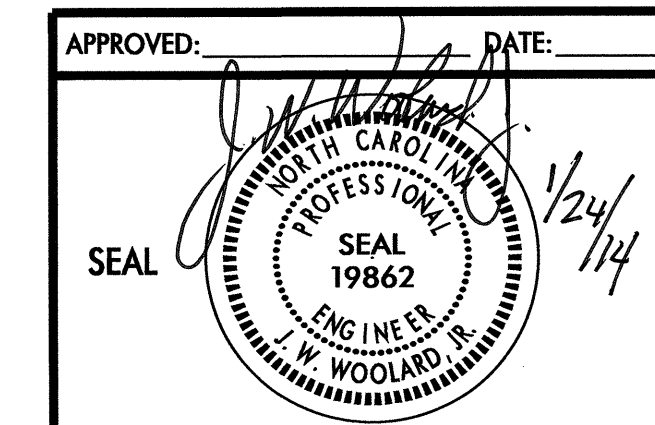
DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 15+85+/- -L-, 7.0 FT. LEFT, TO STATION 15+85+/- -L-, 41.0 FT. LEFT WILL NOT PENETRATE BELOW ELEVATION 2490 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STA. 15+85+/- -L-, 7.0 FT. LEFT, TO STA. 15+85+/- -L-, 41.0 FT. LEFT.

AT THE CONTRACTOR'S OPTION, USE STANDARD SHORING FOR TEMPORARY SHORING FROM STATION 15+85+/- -L-, 7.0 FT. LEFT, TO STATION 15+85+/- -L-, 41.0 FT. LEFT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 15+85+/- -L-, 7.0 FT. LEFT, TO STATION 15+85+/- -L-, 41.0 FT. LEFT FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON 12-03-2013 AND SEALED BY A PROFESSIONAL ENGINEER, SHANE C. CLARK, LICENSE # 029869.



TEMPORARY SHORING DATA

TEMPORARY TRAFFIC CONTROL PHASING

PHASE I

- STEP 1. INSTALL ALL ADVANCE WORK ZONE SIGNS ON SR 2806 (GARREN CREEK RD.), SEE RSD 1101.01 (SHEET 3 OF 3).
- STEP 2. USING RSD NO. 1101.02 (SHEET 1 OF 15), CONSTRUCT -DRIVE- LINE, UP TO EDGE AND ELEVATION OF THE EXISTING PAVEMENT AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-4):
- STA. 9+88+/- -DRIVE- TO STA. 10+00+/- -DRIVE-
 - STA. 10+50+/- -DRIVE- TO STA. 11+17+/- -DRIVE-
- USING RSD NO. 1101.02 (SHEET 1 OF 15), CONSTRUCT -DRIVE- LINE, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-4):
- STA. 10+00+/- -DRIVE- TO STA. 10+50+/- -DRIVE-
- INSTALL/CONSTRUCT TEMPORARY SIGNALS, INCLUDING SIGNAGE, BUT DO NOT ACTIVATE (SEE TMP-5). COVER SIGNS UNTIL SIGNALS ARE ACTIVATED.

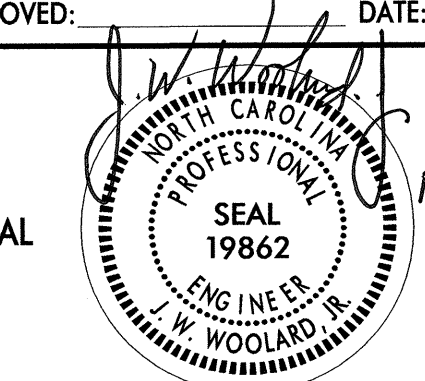
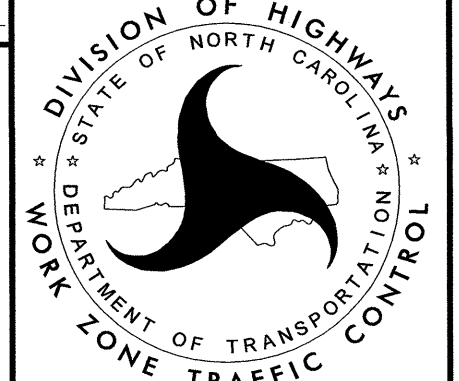
PHASE II

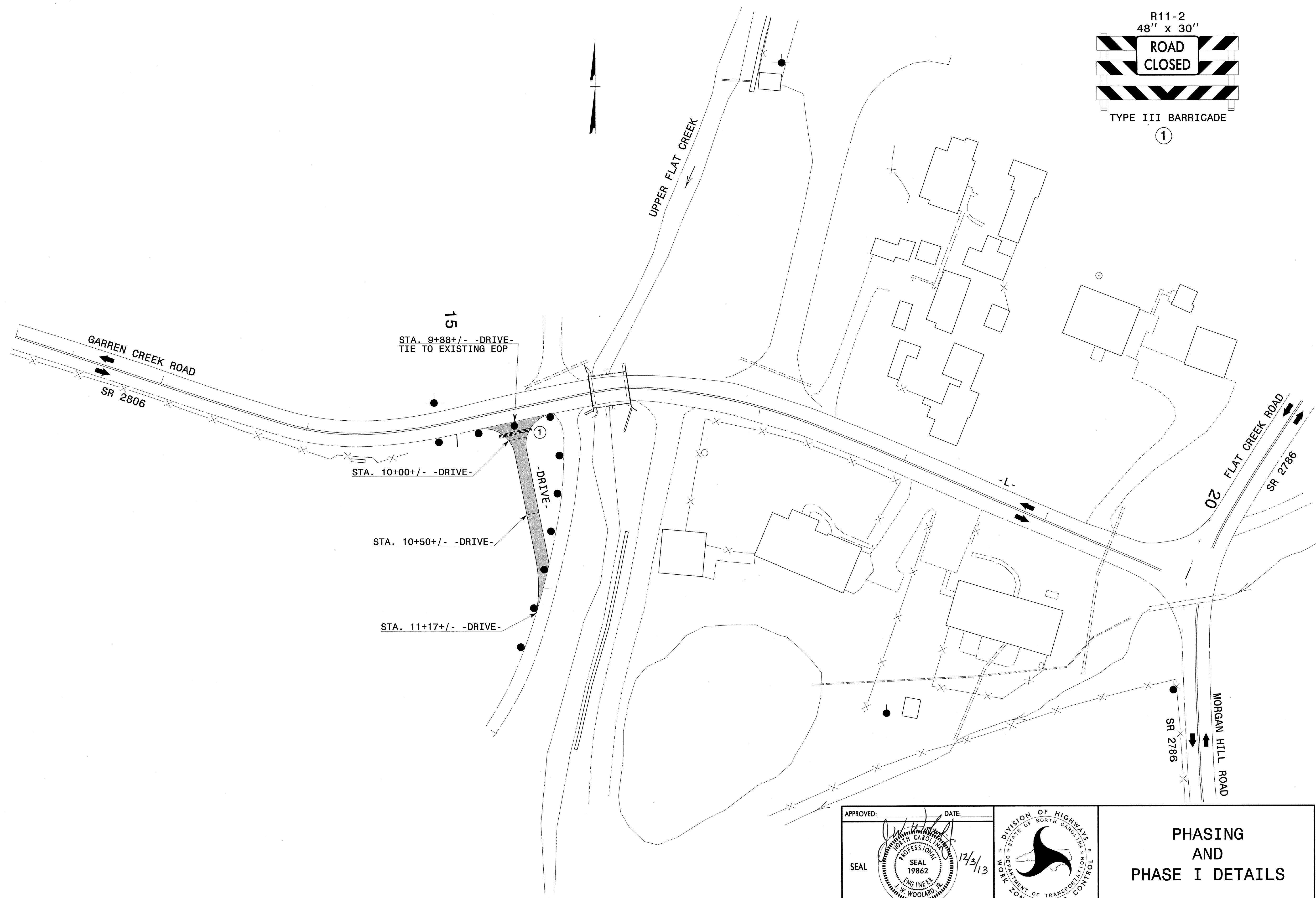
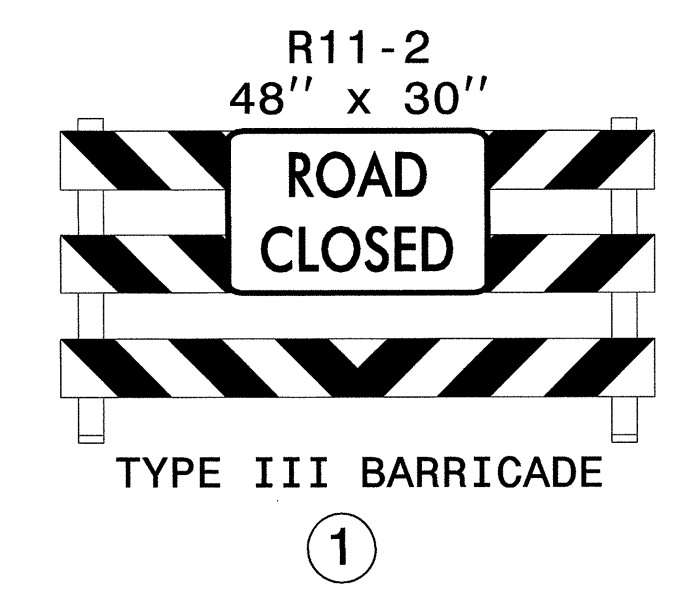
- STEP 1. USING RSD NO. 1101.02 (SHEET 1 OF 15), PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AND ACTIVATE TEMPORARY SIGNALS AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-5):
- STA. 13+35+/- -L- TO STA. 18+10+/- -L-
- SHIFT TRAFFIC FROM A TWO-LANE, TWO-WAY TRAFFIC TO A ONE-LANE, TWO-WAY TRAFFIC PATTERN ON -L- LINE.
- USING FLAGGERS, COMPLETE -DRIVE- LINE, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-5):
- STA. 10+50+/- -DRIVE- TO STA. 11+65+/- -DRIVE-
- USING FLAGGERS, REMOVE PORTION OF EXISTING BRIDGE AND RELOCATE EXISTING RAIL AS SHOWN ON TMP-5.
- STEP 2. USING FLAGGERS, CONSTRUCT -L- LINE, INCLUDING NEW CULVERT (STAGE I), TEMPORARY SHORING, UP TO BASE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-6):
- STA. 14+50+/- -L- TO STA. 15+36+/- -L-
 - STA. 15+54+/- -L- TO STA. 16+20+/- -L-
- USING FLAGGERS, WIDEN -L- LINE, UP TO EDGE AND ELEVATION OF THE EXISTING PAVEMENT AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-6):
- STA. 13+50+/- -L- TO STA. 14+50+/- -L-
 - STA. 16+47+/- -L- TO STA. 18+25+/- -L-
- STEP 3. USING FLAGGERS, CONSTRUCT -L- LINE, UP TO BASE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-7):
- STA. 16+20+/- -L- TO STA. 16+25+/- -L-
- USING FLAGGERS, WIDEN -L- LINE, INCLUDING DRIVEWAY, UP TO EDGE AND ELEVATION OF THE EXISTING PAVEMENT AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-7):
- STA. 16+25+/- -L- TO STA. 16+47+/- -L-
- INSTALL DRAINAGE PIPE AND EXCAVATE TAIL DITCH.

PHASE III

- STEP 1. USING FLAGGERS, PAVE -L- LINE (2' SHOULDER AND 14' LANE WIDTH), UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.
- STA. 13+35+/- -L- TO STA. 18+10+/- -L-
- STEP 2. USING RSD NO. 1101.02 (SHEET 1 OF 15), PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AND ACTIVATE TEMPORARY SIGNALS AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-8):
- STA. 13+50+/- -L- TO STA. 18+10+/- -L-
- SHIFT TRAFFIC FROM A ONE-LANE, TWO-WAY TRAFFIC TO A ONE-LANE, TWO-WAY TRAFFIC PATTERN ON -L- LINE.
- STEP 3. USING FLAGGERS, CONSTRUCT -L- LINE, INCLUDING NEW CULVERT (STAGE II), TEMPORARY GUARDRAIL, TEMPORARY SHORING, DRIVEWAY, AND DRAINAGE PIPE INSTALLATION, UP TO BASE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-8):
- STA. 14+50+/- -L- TO STA. 16+25+/- -L-
- USING FLAGGERS, WIDEN -L- LINE, INCLUDING DRIVEWAY AND DRAINAGE PIPE INSTALLATION UP TO EDGE AND ELEVATION OF THE EXISTING PAVEMENT AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-8):
- STA. 13+50+/- -L- TO STA. 14+50+/- -L-
 - STA. 16+25+/- -L- TO STA. 18+25+/- -L-
- STEP 4. USING FLAGGERS, PAVE -L- LINE (2' SHOULDER AND 6' LANE WIDTH), UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.
- STA. 13+35+/- -L- TO STA. 18+10+/- -L-
- STEP 5. USING RSD NO. 1101.02 (SHEET 1 OF 15), DEACTIVATE TEMPORARY SIGNALS AND PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-9):
- STA. 13+35+/- -L- TO STA. 18+25+/- -L-
- SHIFT TRAFFIC FROM A ONE-LANE, TWO-WAY TRAFFIC TO A TWO-LANE, TWO-WAY TRAFFIC PATTERN ON -L- LINE.
- STEP 6. USING RSD NO. 1101.02 (SHEET 1 OF 15), INSTALL PERMANENT GUARDRAIL AND EXCAVATE TAIL DITCH (SEE CONSTRUCTION PLANS AND TMP-9).
- STEP 7. USING RSD NO. 1101.02 (SHEET 1 OF 15), PAVE/WEDGE UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS):
- STA. 13+33+/- -L- TO STA. 20+02+/- -L-
 - STA. 10+10+/- -DRIVE- TO STA. 11+65+/- -DRIVE-
- USING RSD NO. 1101.02 (SHEET 1 OF 15), PLACE FINAL PAVEMENT MARKINGS AS FOLLOWS (SEE FINAL PAVEMENT MARKING PLANS):
- STA. 13+33+/- -L- TO STA. 19+92+/- -L-
- REMOVE ALL TRAFFIC CONTROL DEVICES AND ADVANCE WARNING SIGNS FROM SR 2806 (-L-).

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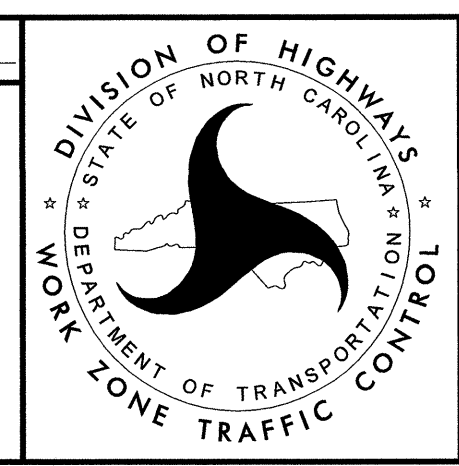
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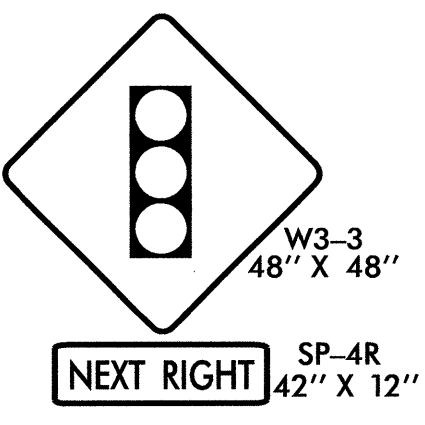
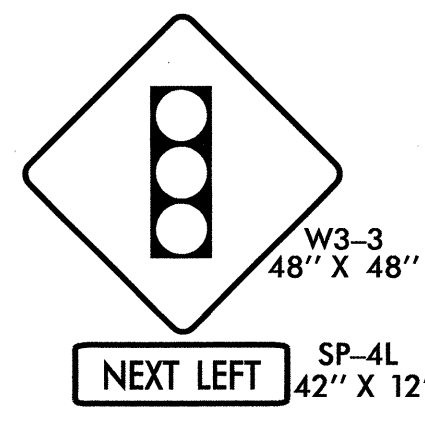
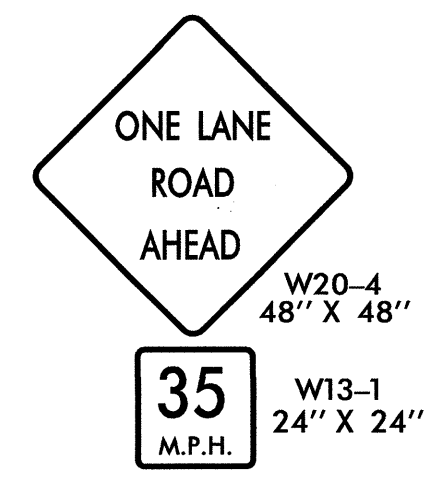
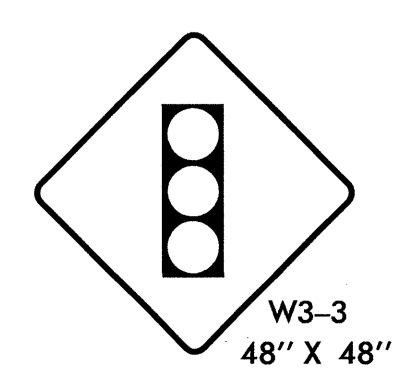
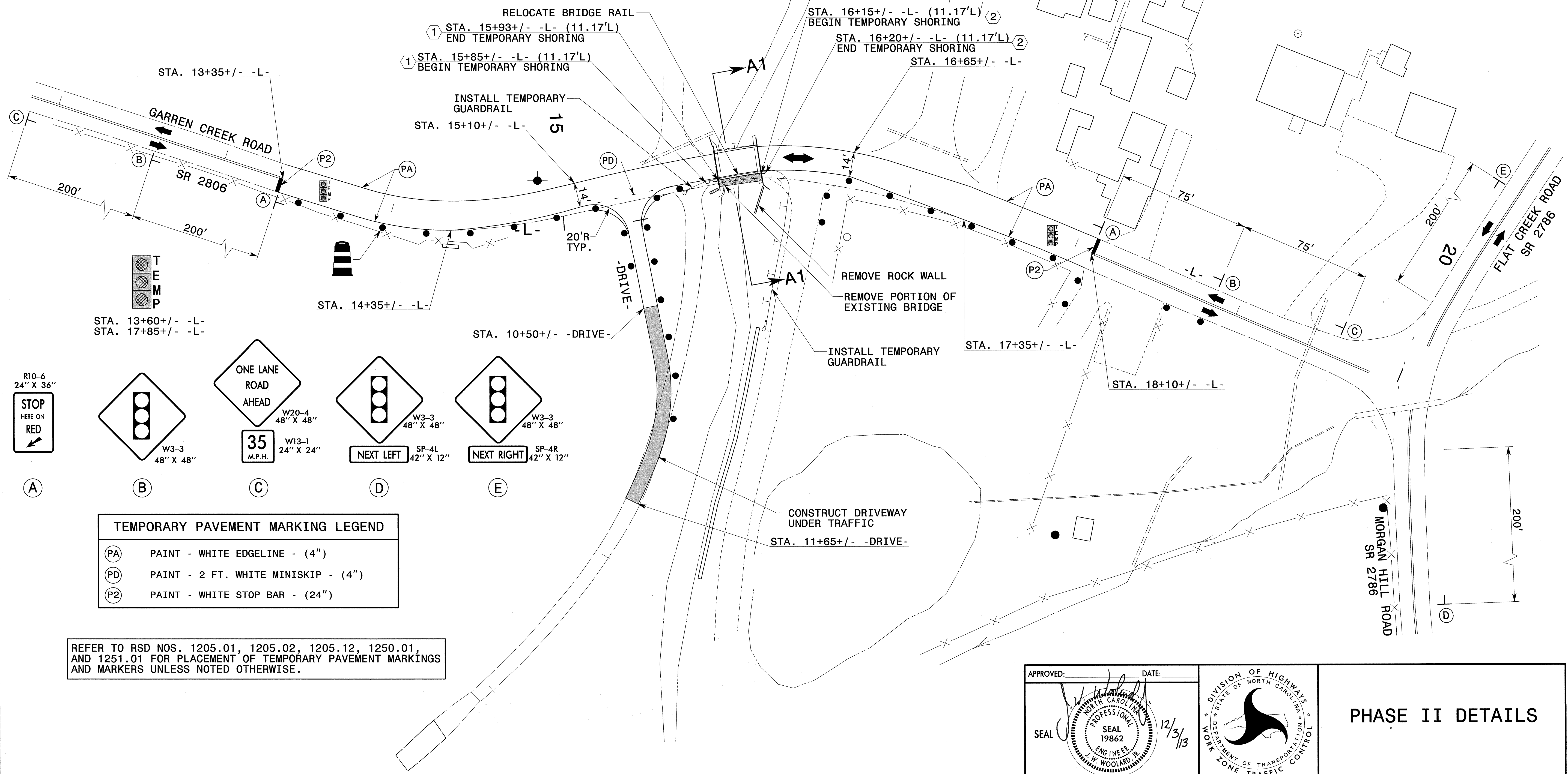
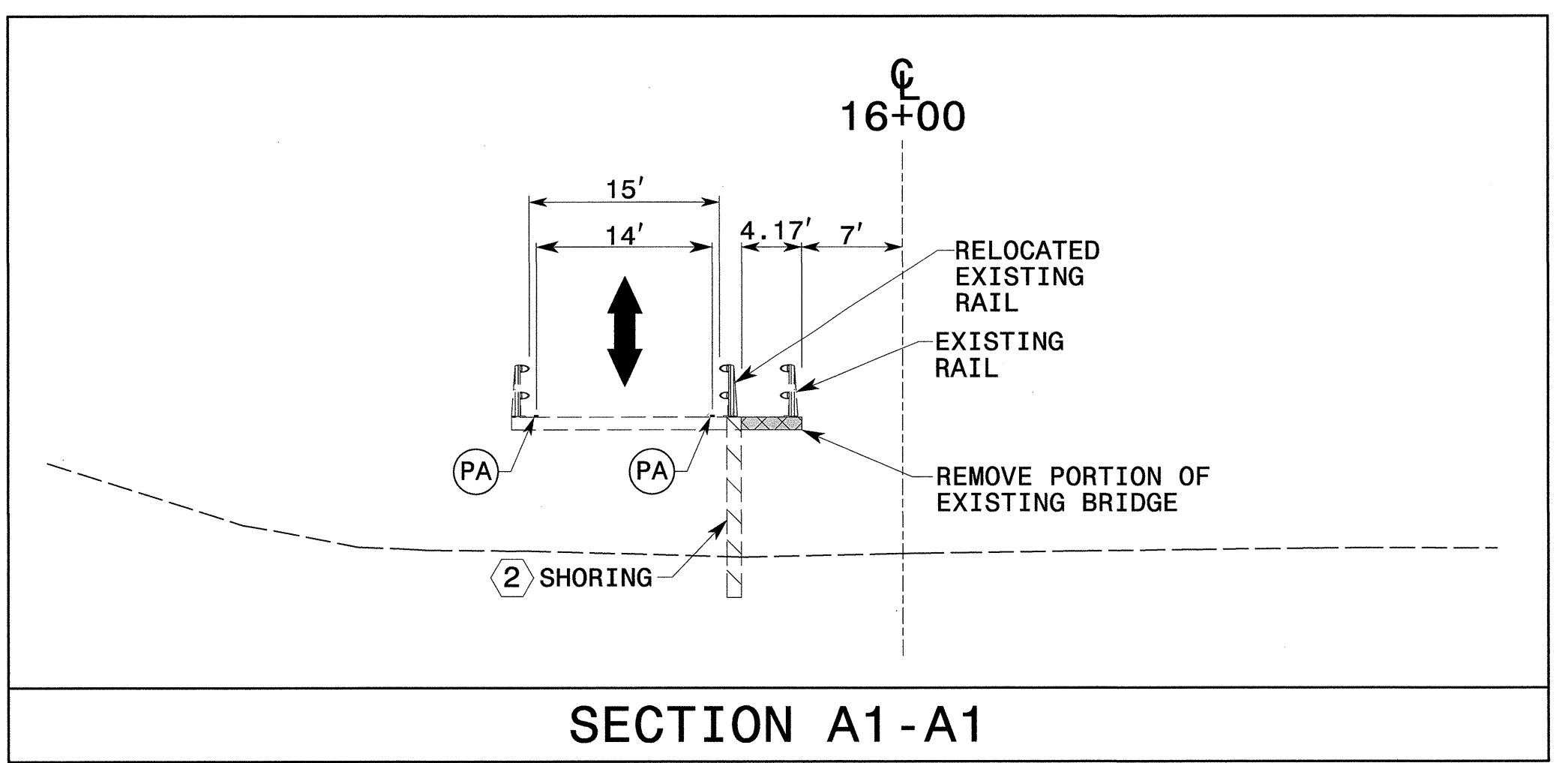
APPROVED: _____ DATE: 12/3/13

SEAL



**PHASING
AND
PHASE I DETAILS**

Shoring I.D. No.	Estimated Average Height (ft.)	Quantity (sq. ft.)
①	9.2 FT.	74 SQ. FT.
②	9.2 FT.	46 SQ. FT.



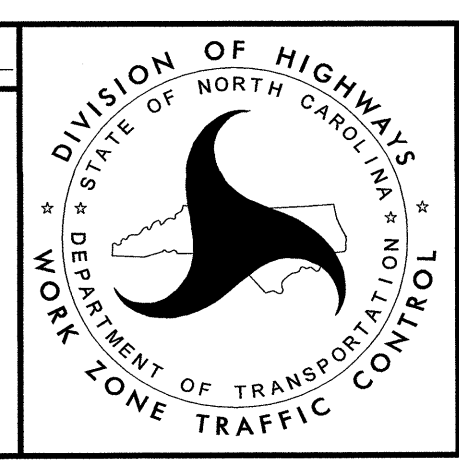
TEMPORARY PAVEMENT MARKING LEGEND

(PA)	PAINT - WHITE EDGELINE - (4")
(PD)	PAINT - 2 FT. WHITE MINISKIP - (4")
(P2)	PAINT - WHITE STOP BAR - (24")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.

APPROVED: _____ DATE: 12/3/13

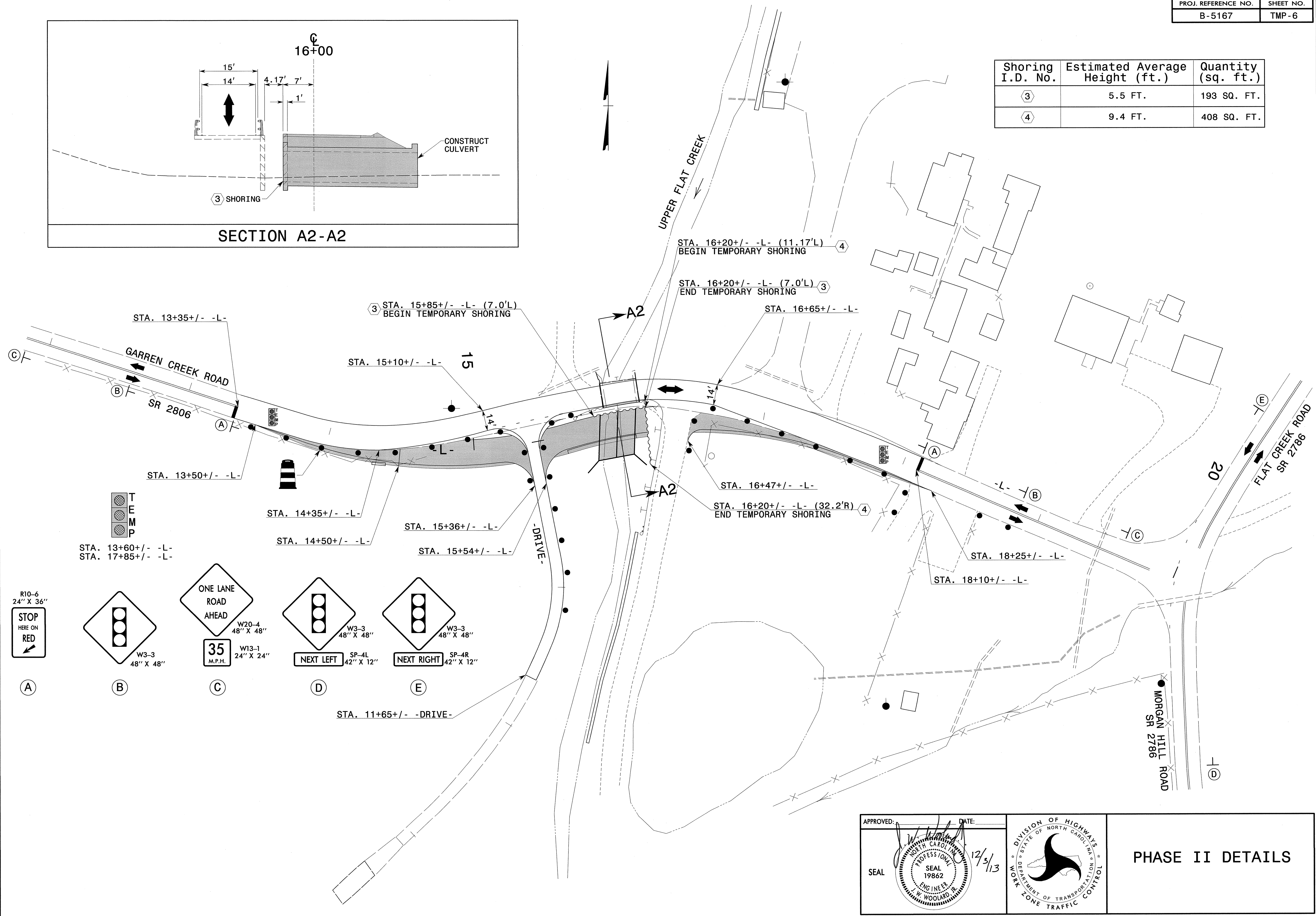
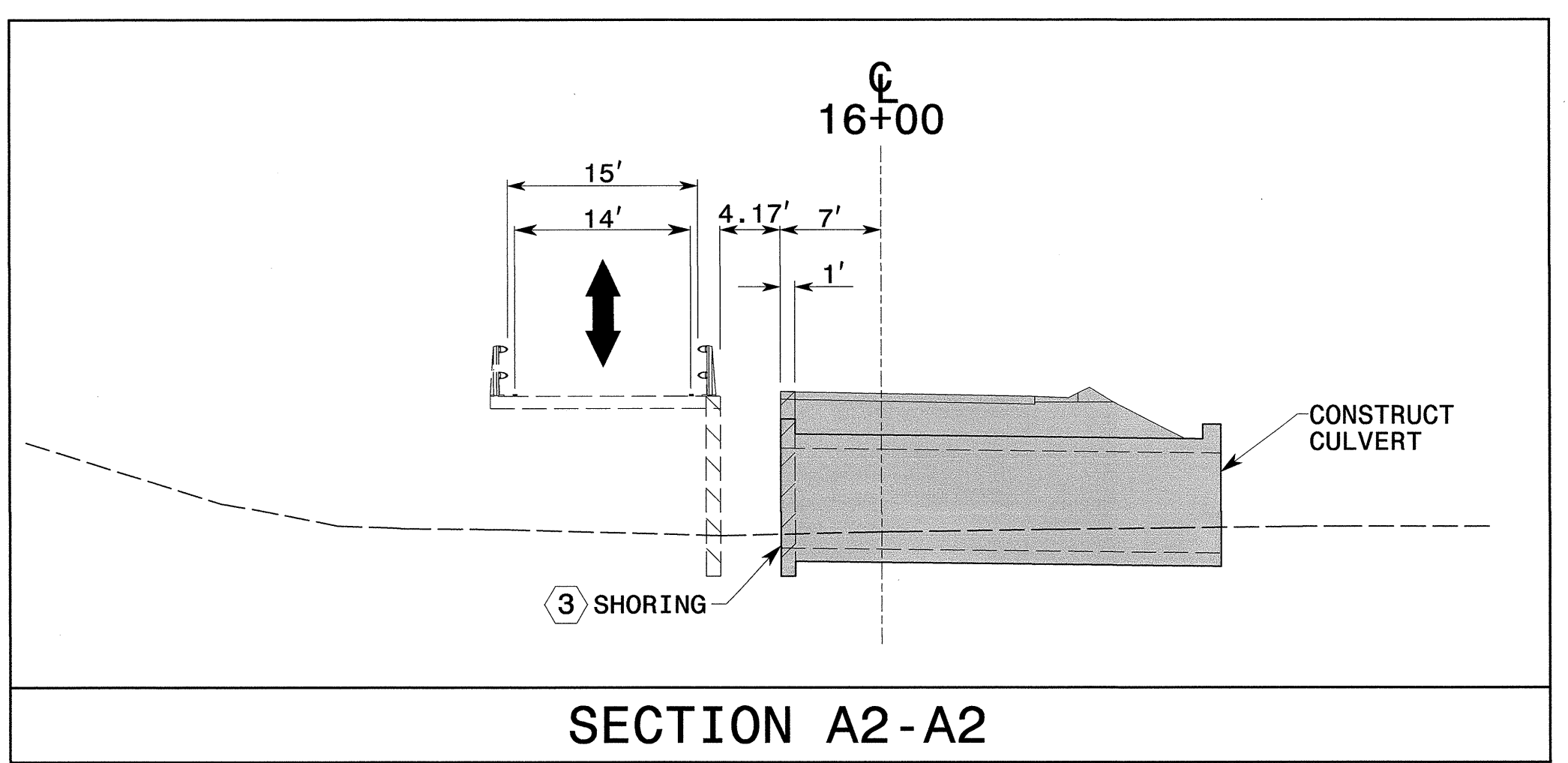
SEAL: [Professional Engineer Seal for W. WOOLARD, No. 19862, State of North Carolina]



PHASE II DETAILS

11/26/2013 p:\projects\traffic\trafficcontrol\top\B5167_TC_PH2_TMP05.dgn User:scotts

Shoring I.D. No.	Estimated Average Height (ft.)	Quantity (sq. ft.)
③	5.5 FT.	193 SQ. FT.
④	9.4 FT.	408 SQ. FT.



R10-6
24" X 36"
STOP
HERE ON
RED

TEMP
STA. 13+60+/- -L-
STA. 17+85+/- -L-

ONE LANE
ROAD
AHEAD
W20-4
48" X 48"
35
M.P.H.
W13-1
24" X 24"

W3-3
48" X 48"
NEXT LEFT
SP-4L
42" X 12"

W3-3
48" X 48"
NEXT RIGHT
SP-4R
42" X 12"

Ⓐ

Ⓑ

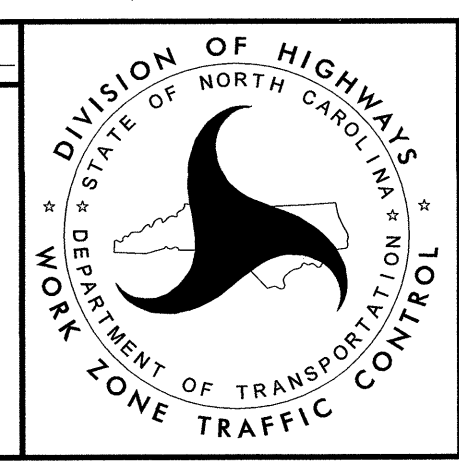
Ⓒ

Ⓓ

Ⓔ

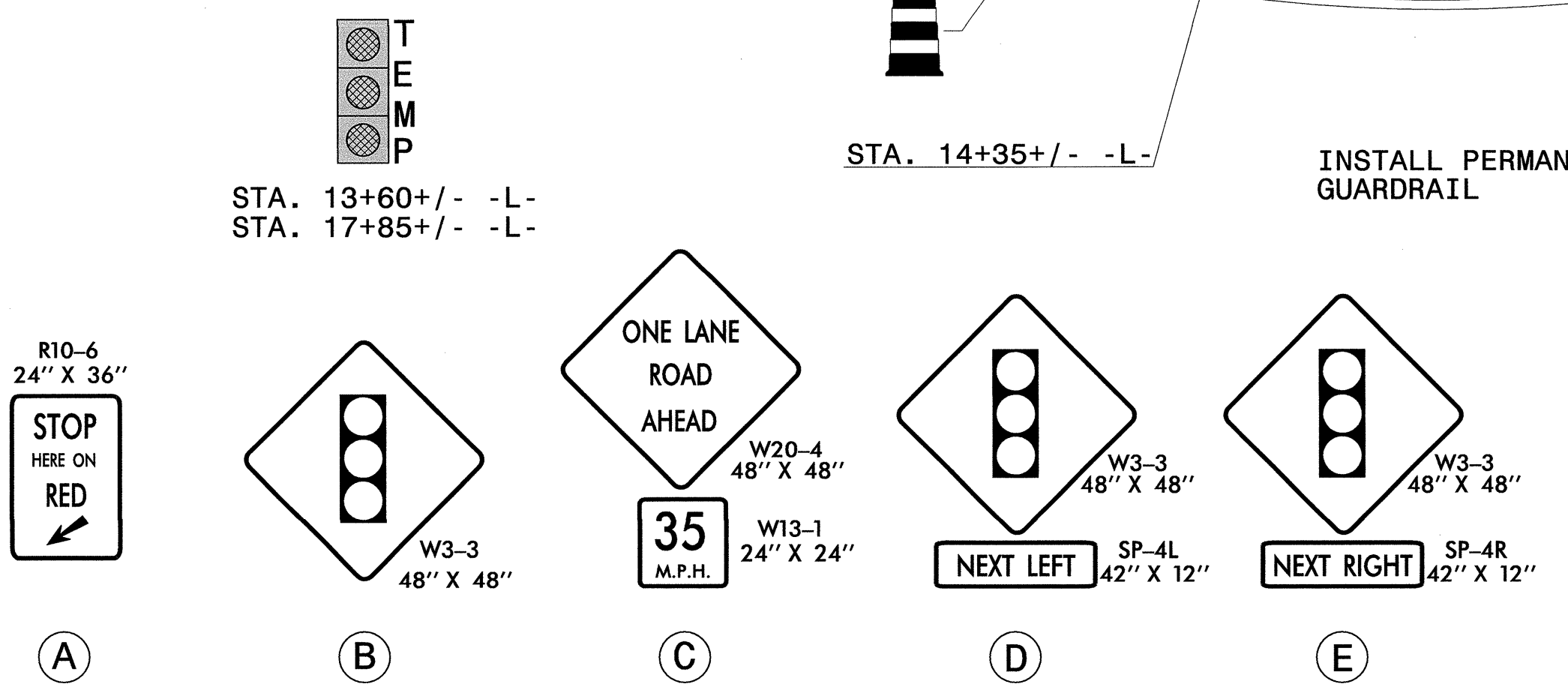
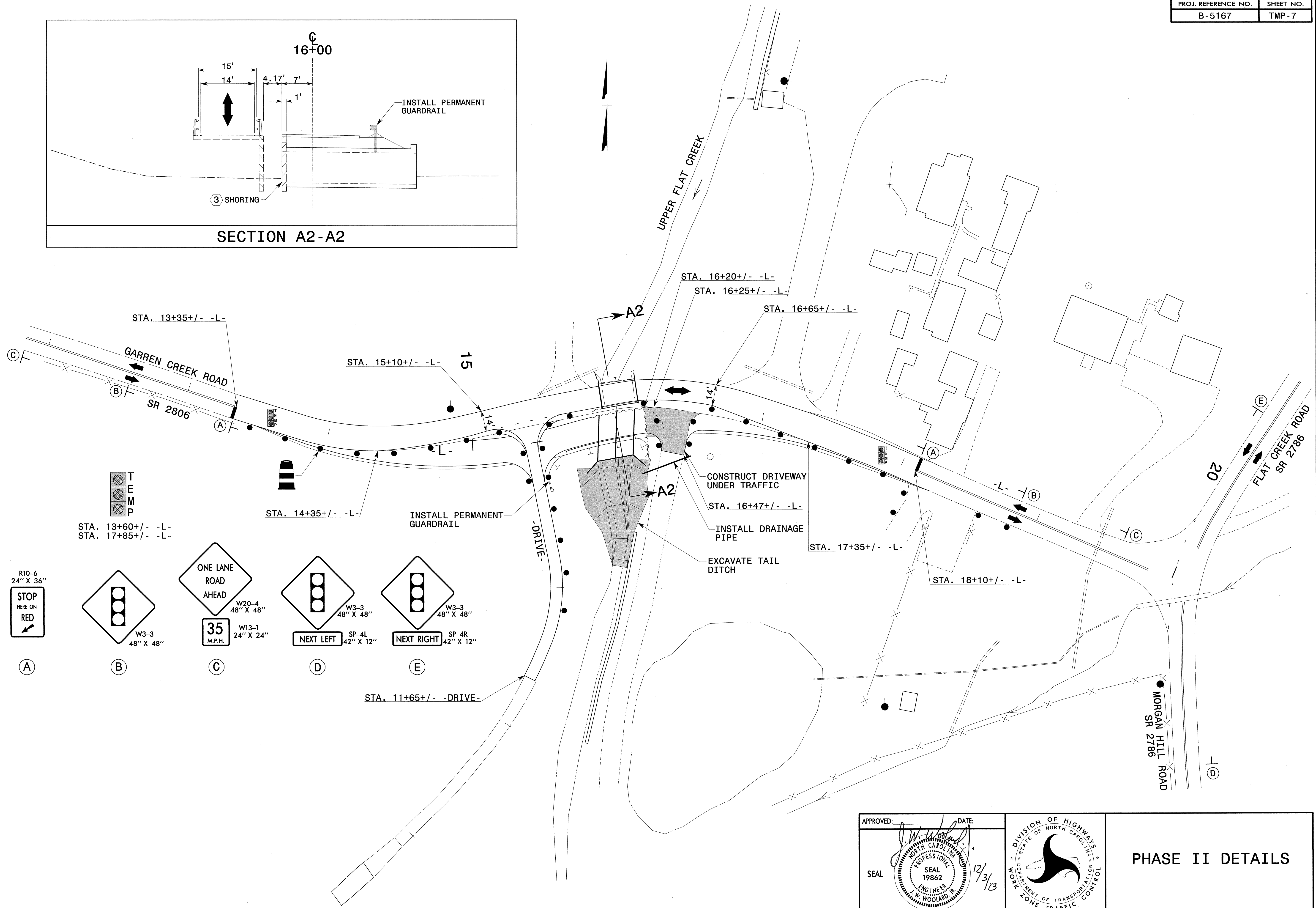
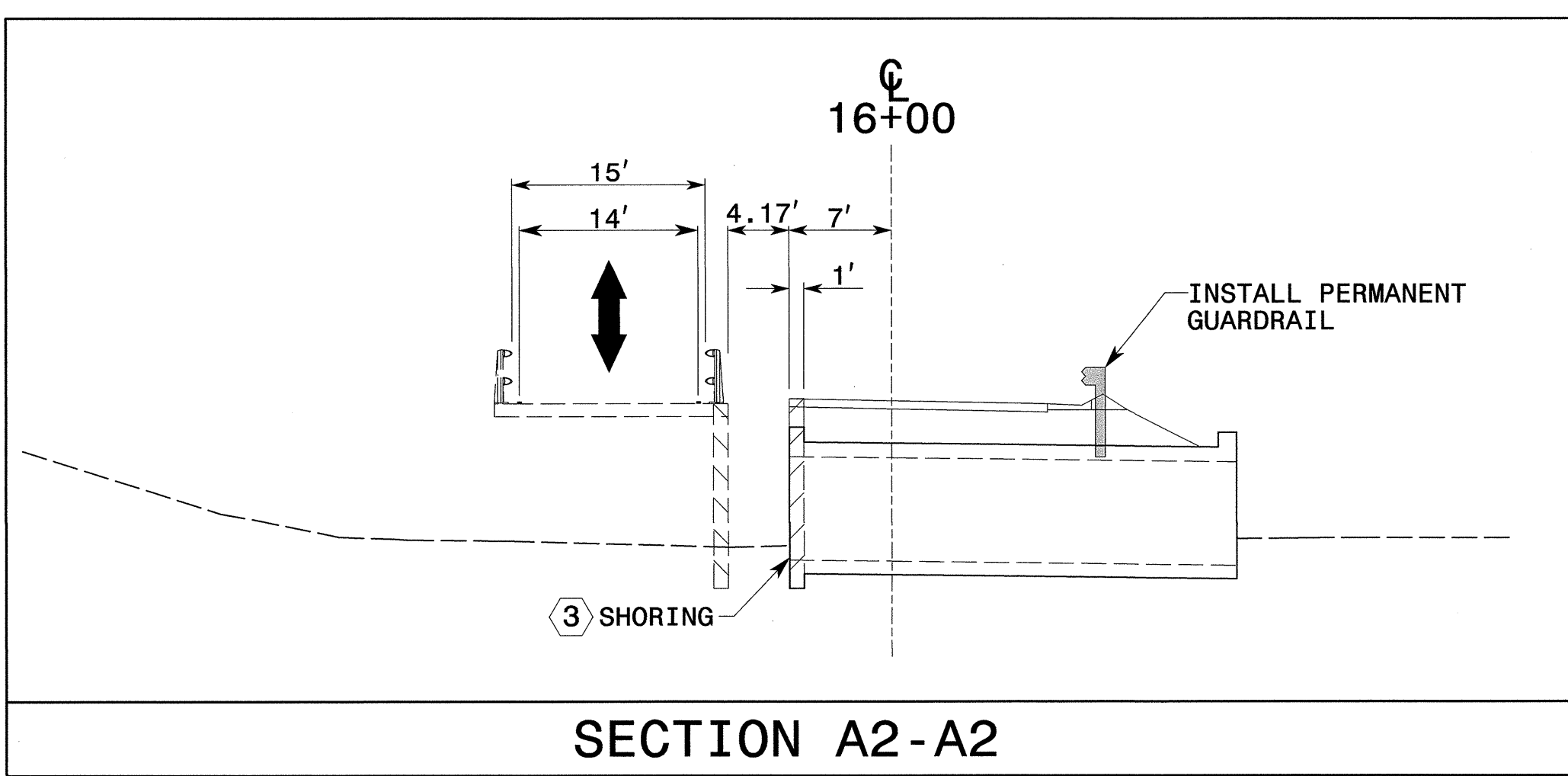
STA. 11+65+/- -DRIVE-

APPROVED: [Signature]
DATE: 12/3/13
SEAL
W. WOOLARD
19862
ENGINEER



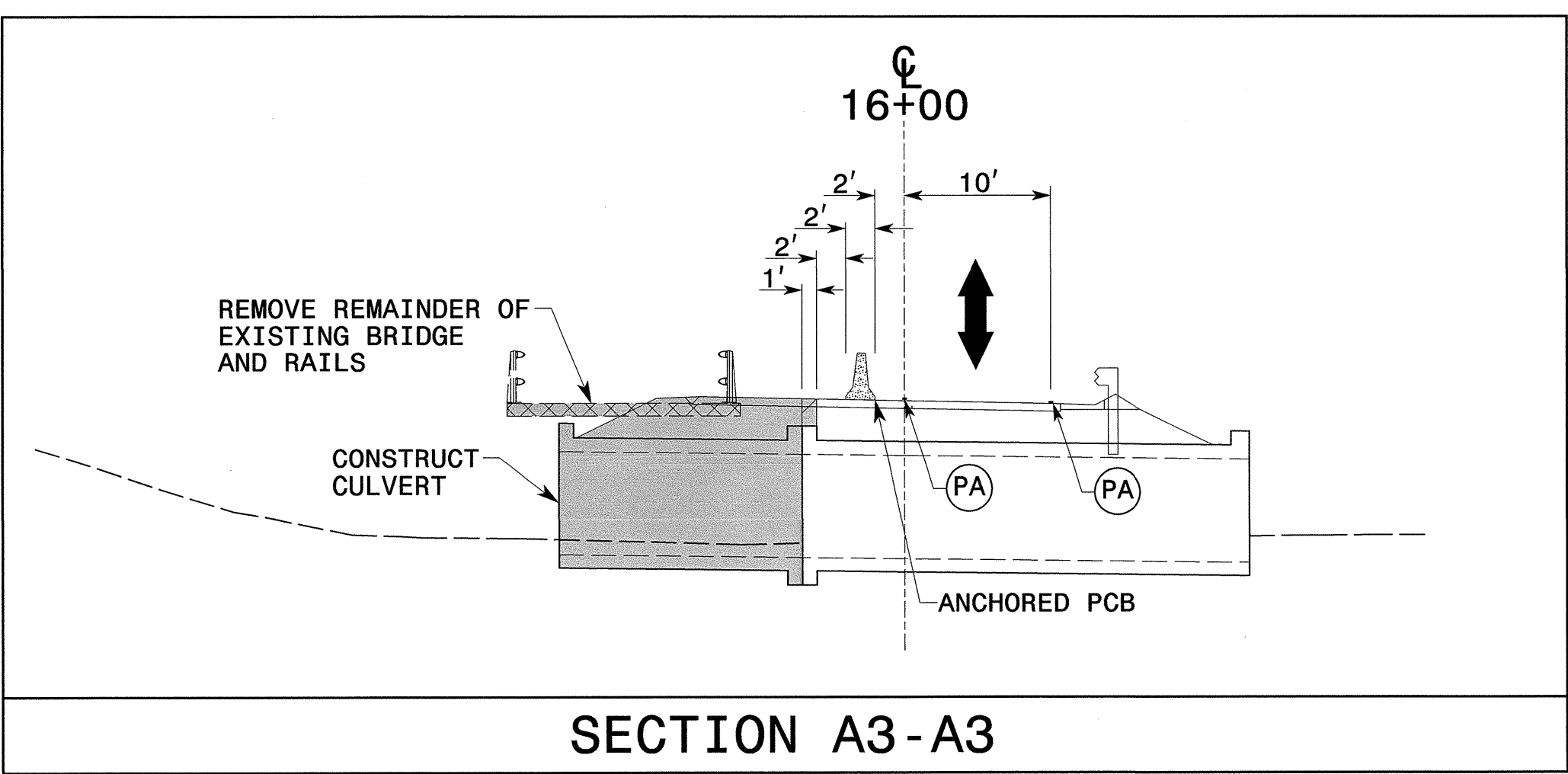
PHASE II DETAILS

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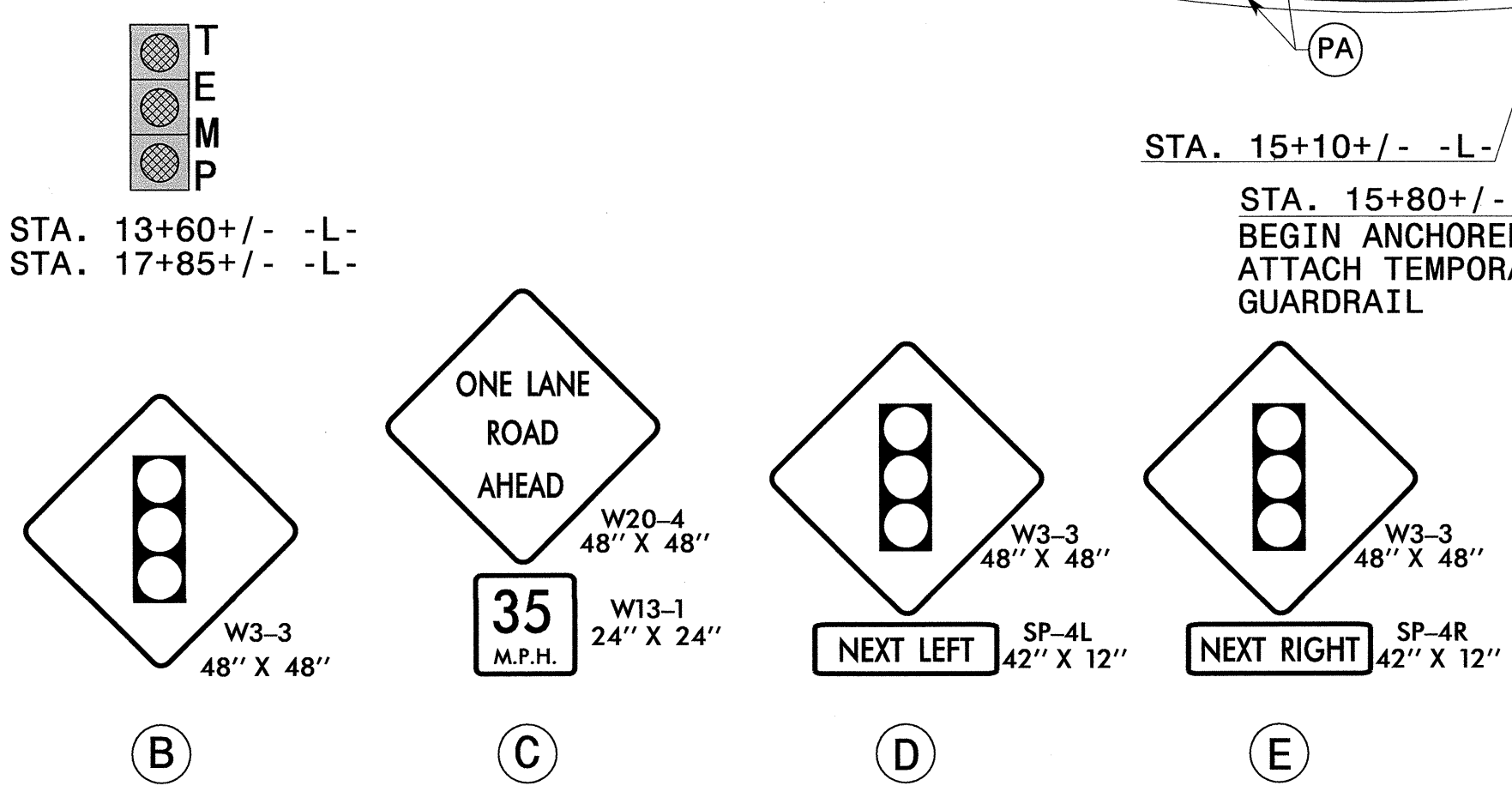
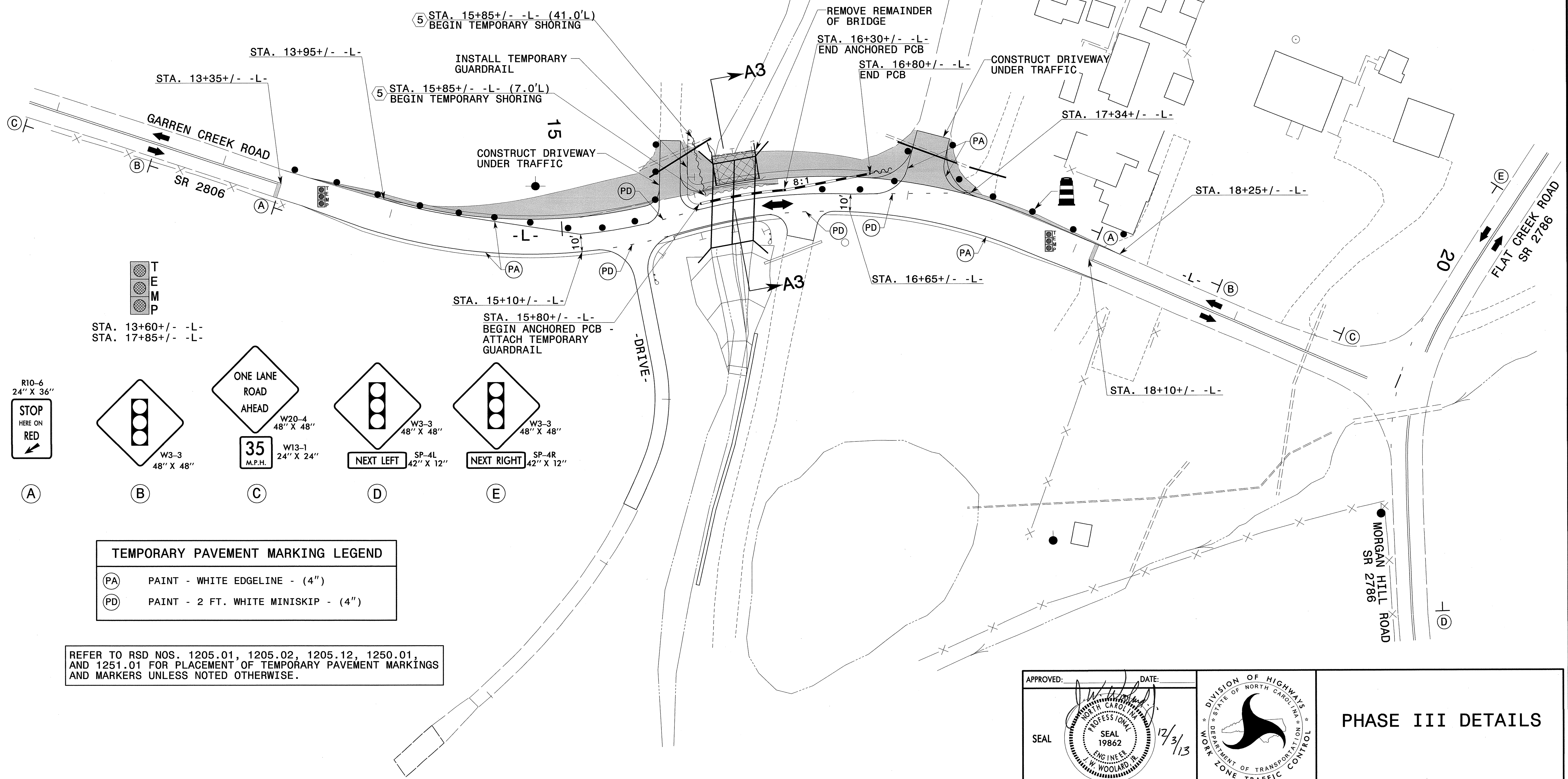


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 User:scotts

APPROVED:	DATE:		PHASE II DETAILS
	12/3/13		



Shoring I.D. No.	Estimated Average Height (ft.)	Quantity (sq. ft.)
5	9.0 FT.	306 SQ. FT.

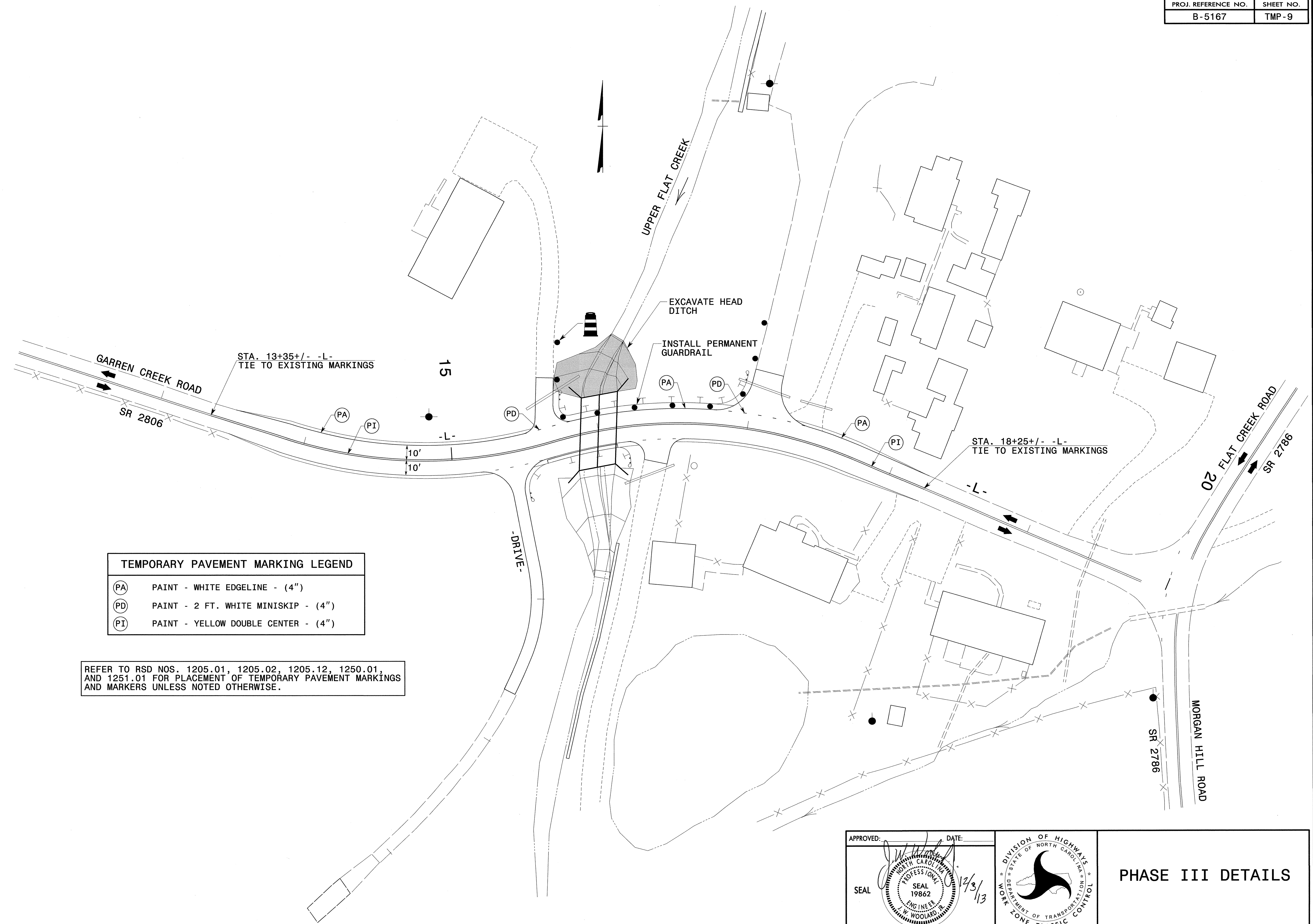


(PA)	PAINT - WHITE EDGELINE - (4")
(PD)	PAINT - 2 FT. WHITE MINISKIP - (4")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.

APPROVED:	DATE: 12/3/13		<h3>PHASE III DETAILS</h3>
SEAL			

11/26/2013 p:\projects\B5167\Traffic\TrafficControl\B5167_TC_PH3_TMP08.dgn User:scotts



TEMPORARY PAVEMENT MARKING LEGEND	
(PA)	PAINT - WHITE EDGELINE - (4")
(PD)	PAINT - 2 FT. WHITE MINISKIP - (4")
(PI)	PAINT - YELLOW DOUBLE CENTER - (4")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.

11/26/2013
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 User:scotts

APPROVED:	DATE:		PHASE III DETAILS
	2/3/13		

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
BUNCOMBE COUNTY

LOCATION: BRIDGE 108 OVER UPPER FLAT CREEK ON
SR 2806 (GARREN CREEK RD)

TIP NO. B-5167	SHEET NO. PMP-1
APPROVED: <i>[Signature]</i>	
DATE: 11/22/13	
SEAL	

T.I.P.: B-5167

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	FINAL PAVEMENT MARKINGS PAINT (4")
PA	WHITE EDGELINE	
PI	YELLOW DOUBLE CENTER	
PD	3 FT-9 FT/SP WHITE MINISKIP	

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 2806	PAINT	NONE

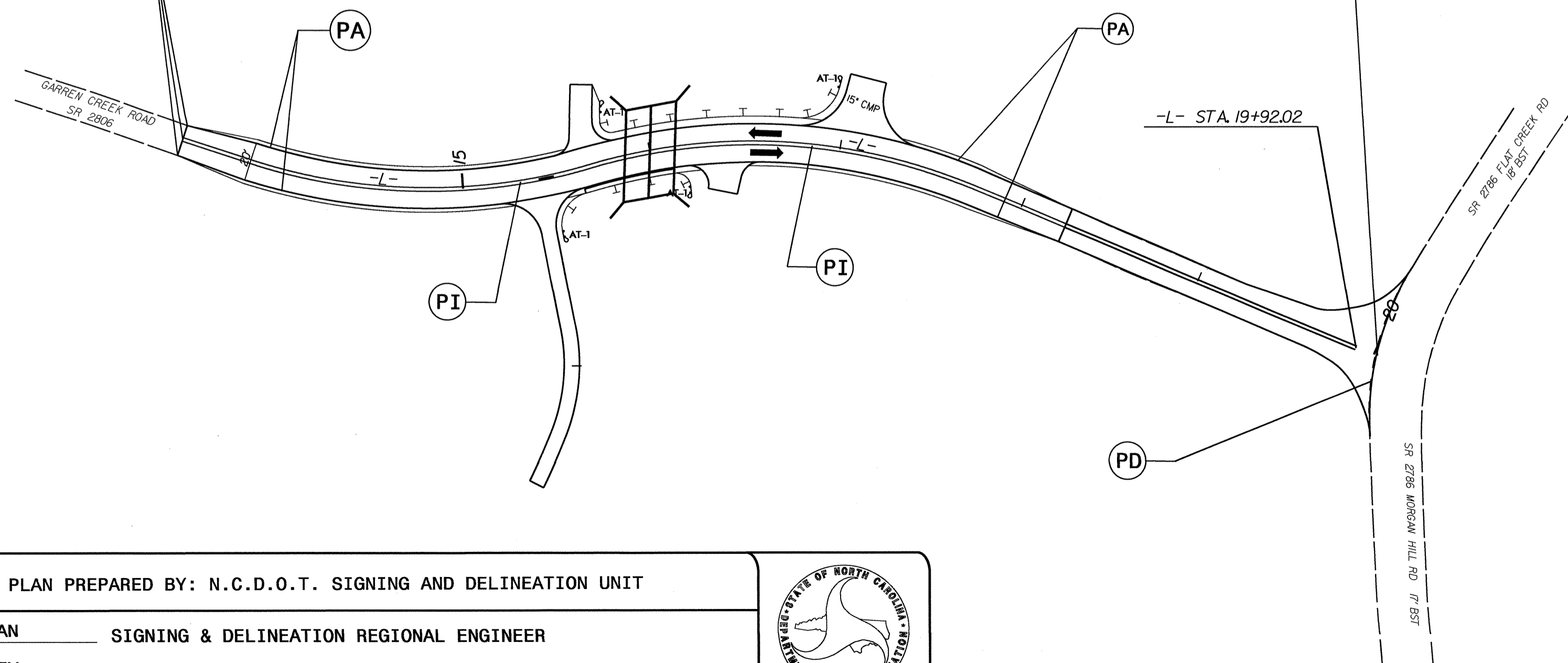
B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

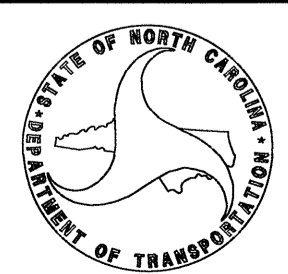
E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

BEGIN TIP PROJECT B-5167
-L- POT STA.13+50.00
TIE PAVEMENT MARKINGS
WITH EXISTING



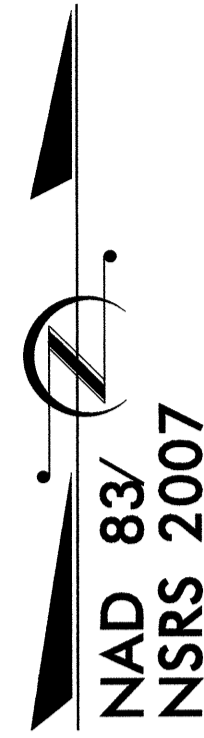
PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

K. JORDAN SIGNING & DELINEATION REGIONAL ENGINEER
M. TRACEY SIGNING & DELINEATION PROJECT DESIGN ENGINEER/TECHNICIAN



CONTRACT:

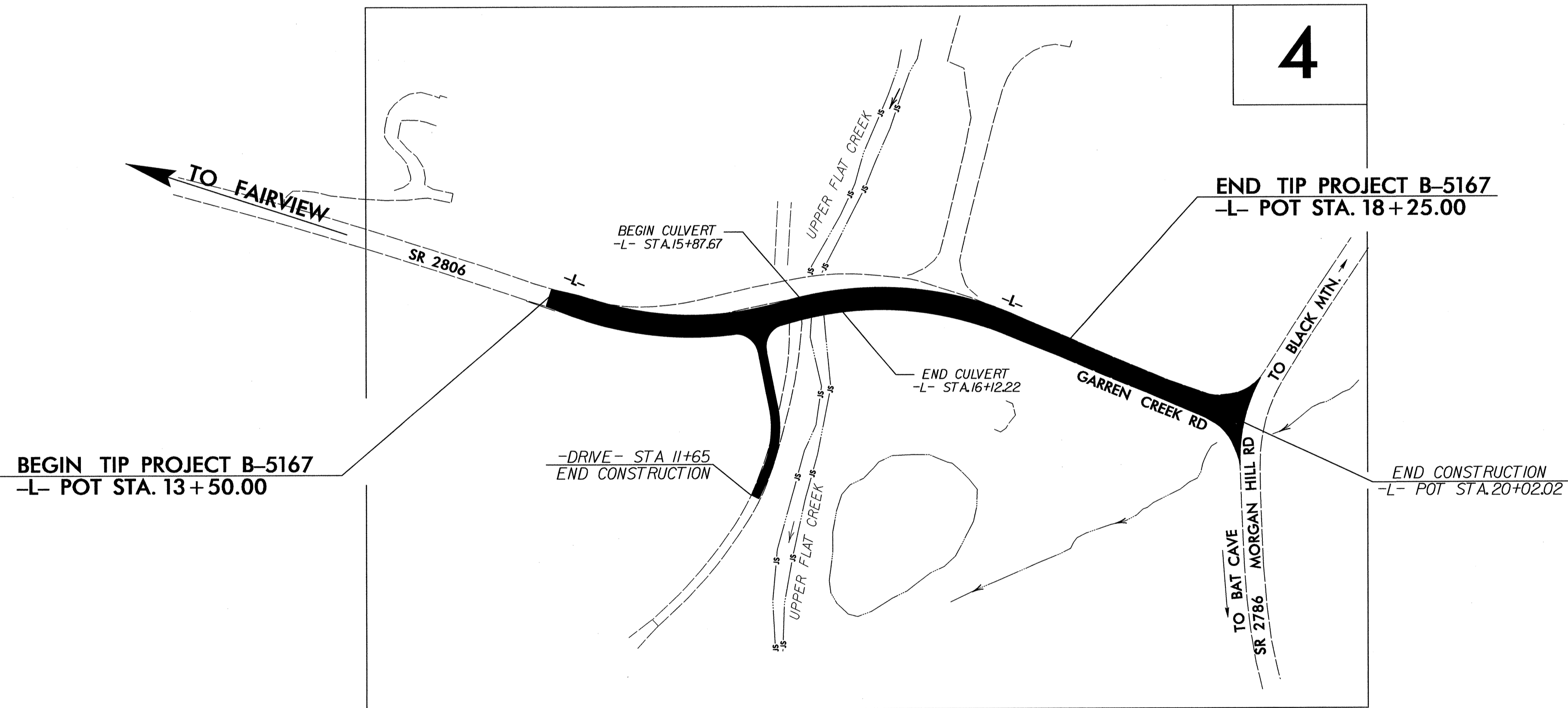
TIP PROJECT: B-5167



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
BUNCOMBE COUNTY

**LOCATION: BRIDGE 108 OVER UPPER FLAT CREEK ON
SR 2806 (GARREN CREEK ROAD)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT,
AND TEMPORARY SIGNALS.**



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5167	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

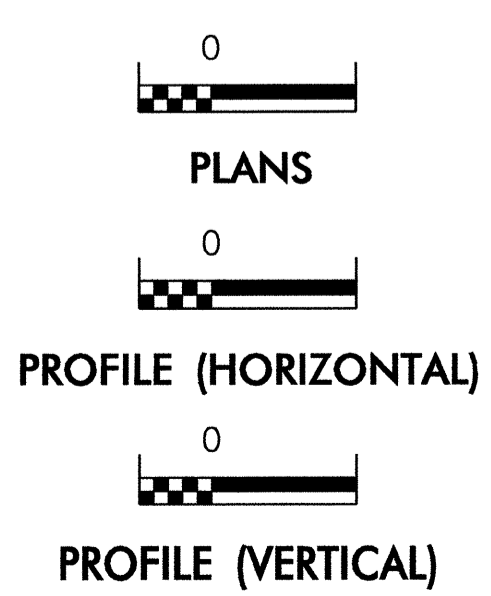
Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1650.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	▲▲▲▲▲
1622.01	Temporary Berms and Slope Drains	— T —
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▩
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▩
1633.02	Temporary Rock Silt Check Type-B	▩
	Wattle/Coir Fiber Wattle	— W —
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	— W —
1634.01	Temporary Rock Sediment Dam Type-A	▩
1634.02	Temporary Rock Sediment Dam Type-B	▩
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊓
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊓
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

**THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.**

**THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.**

**ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT**
*Refer To E. C. Special Provisions
for Special Considerations.*

GRAPHIC SCALE



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

**THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY
WITH THE REGULATIONS SET FORTH BY THE
NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011
ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES DIVISION OF WATER QUALITY.**

Prepared in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611
2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

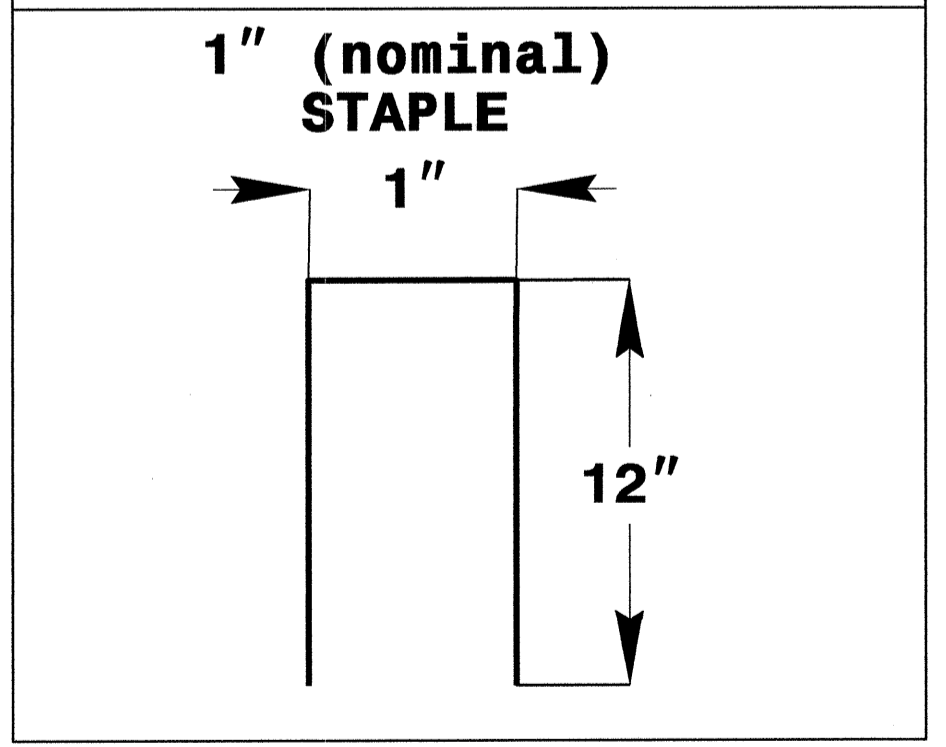
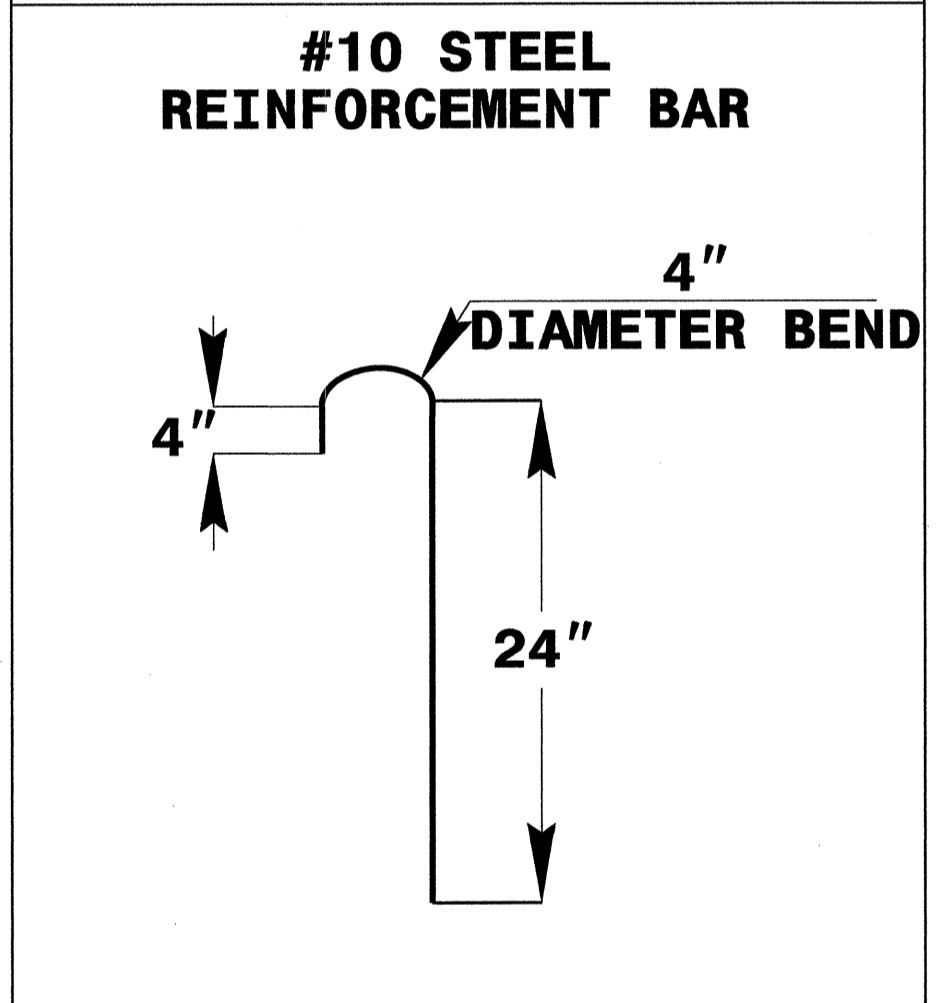
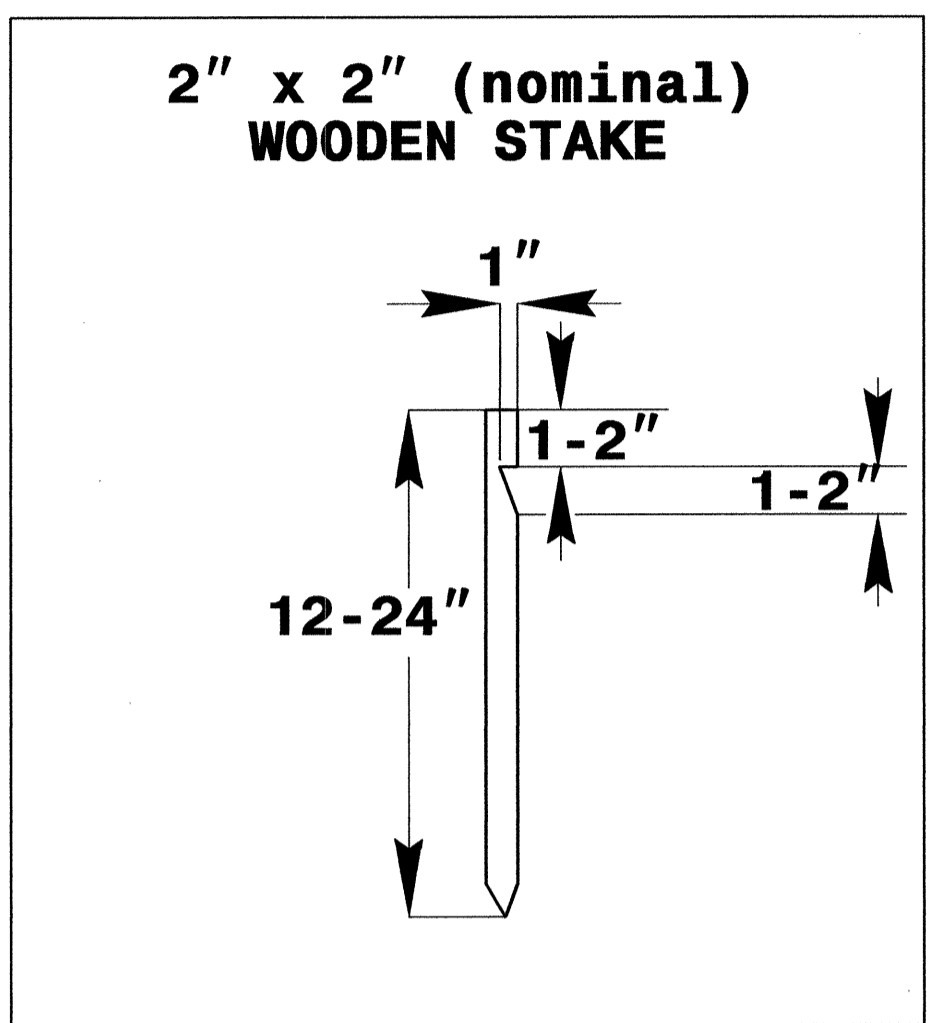
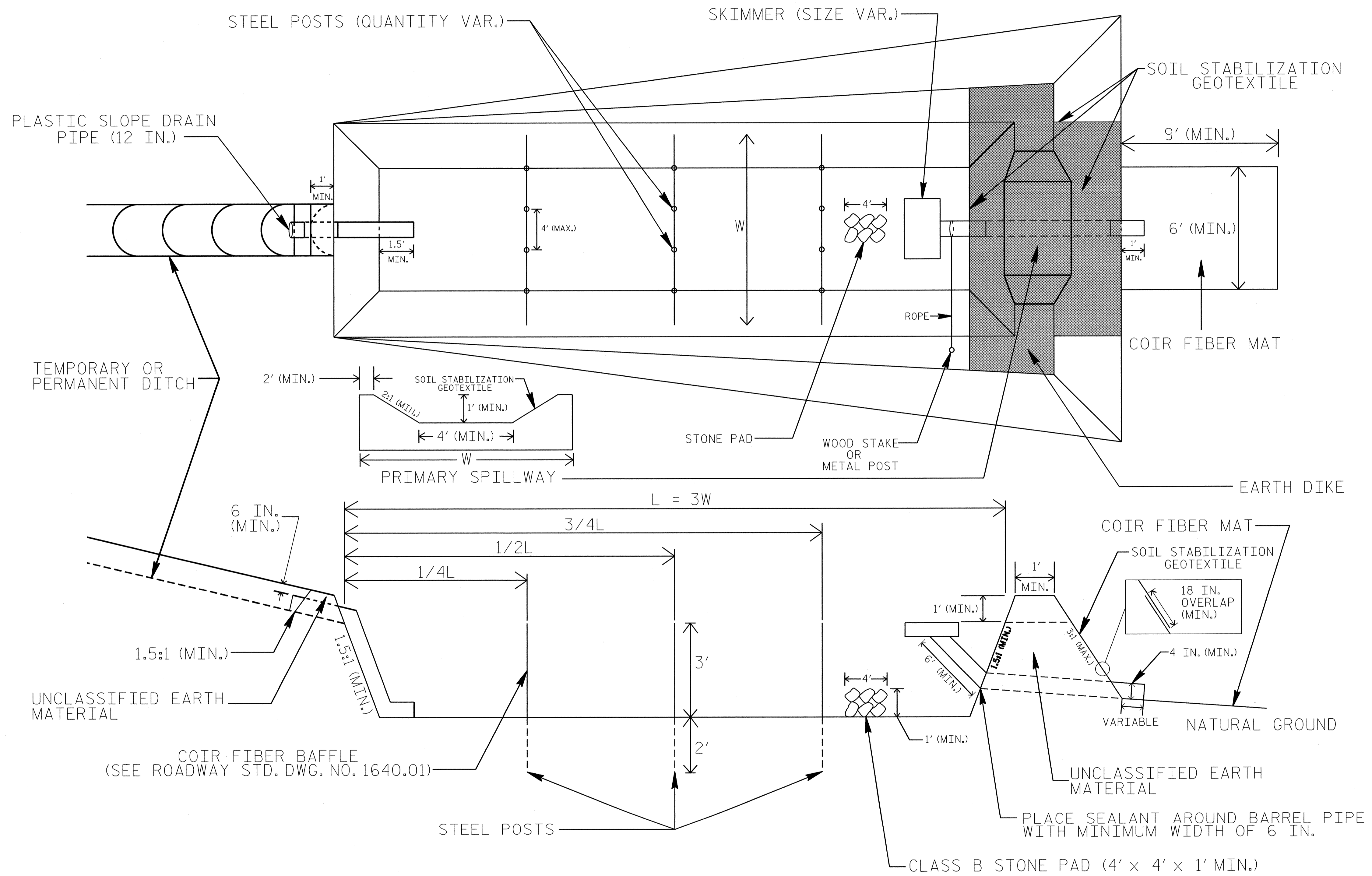
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

B: 26-NOV-2013 09:55 b5167.ec.tsh.dgn

PROJECT REFERENCE NO. B-5167	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL



COIR FIBER MAT ANCHOR OPTIONS

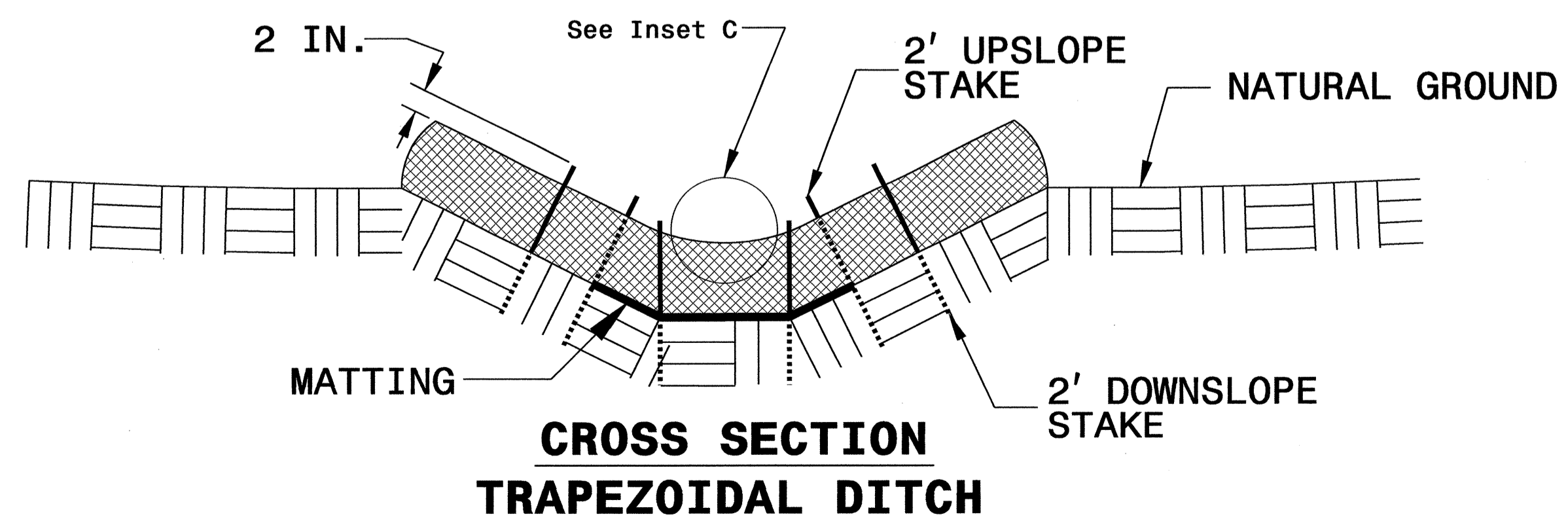
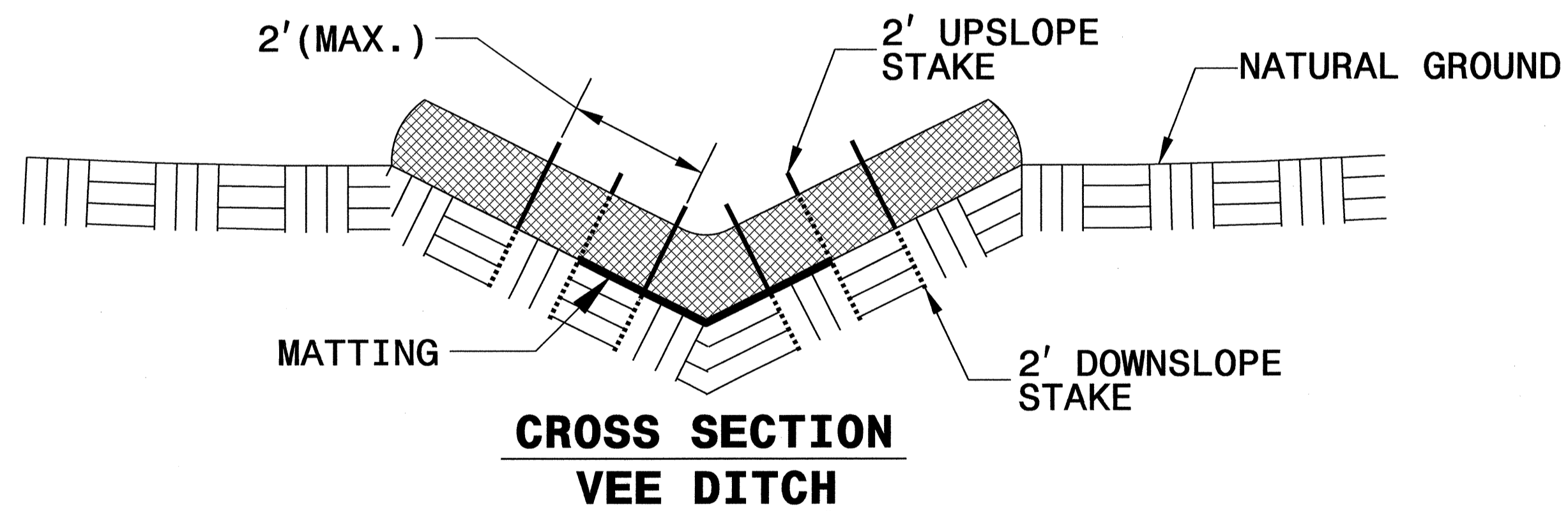
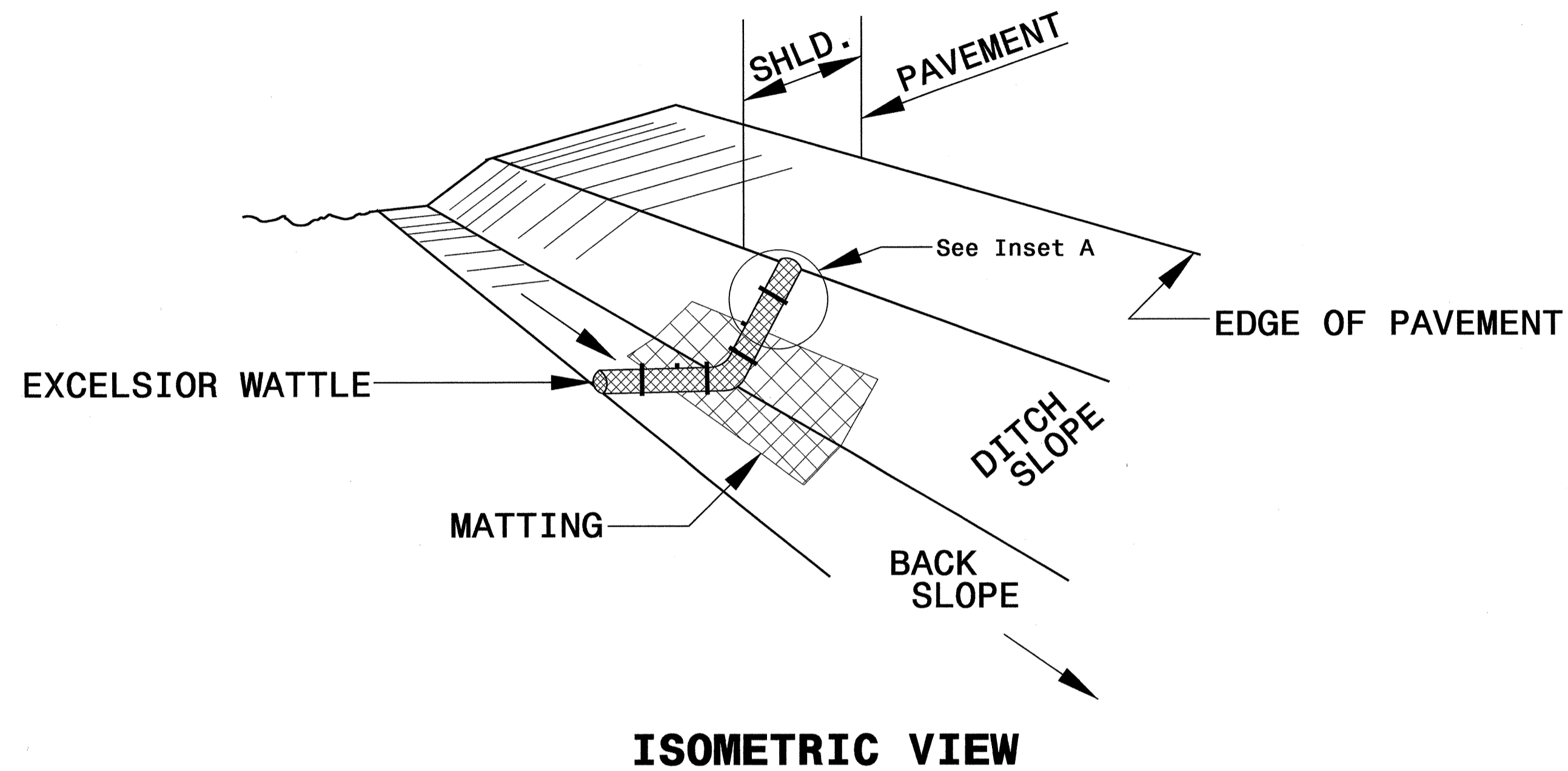
NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING $Q/0.4$, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

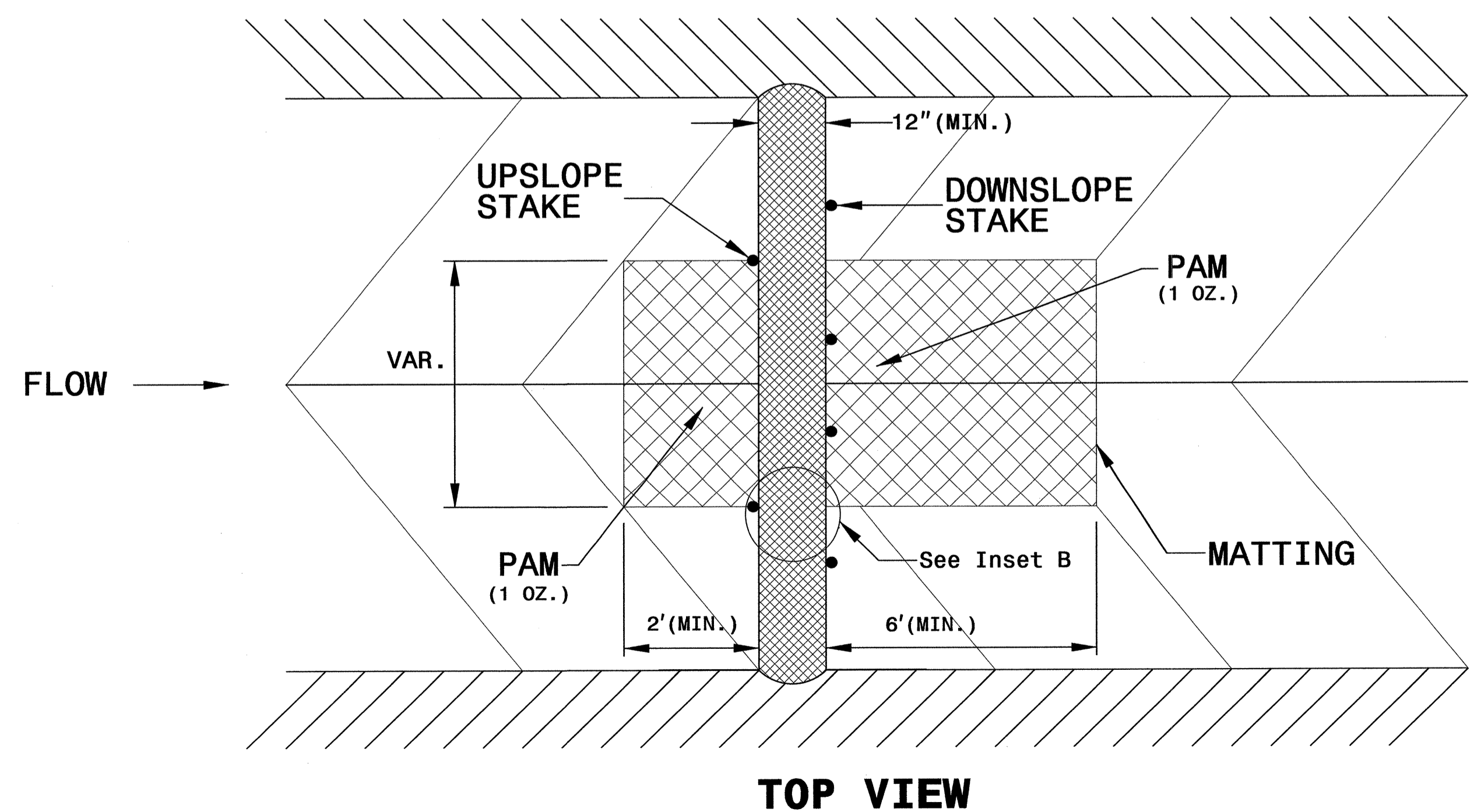
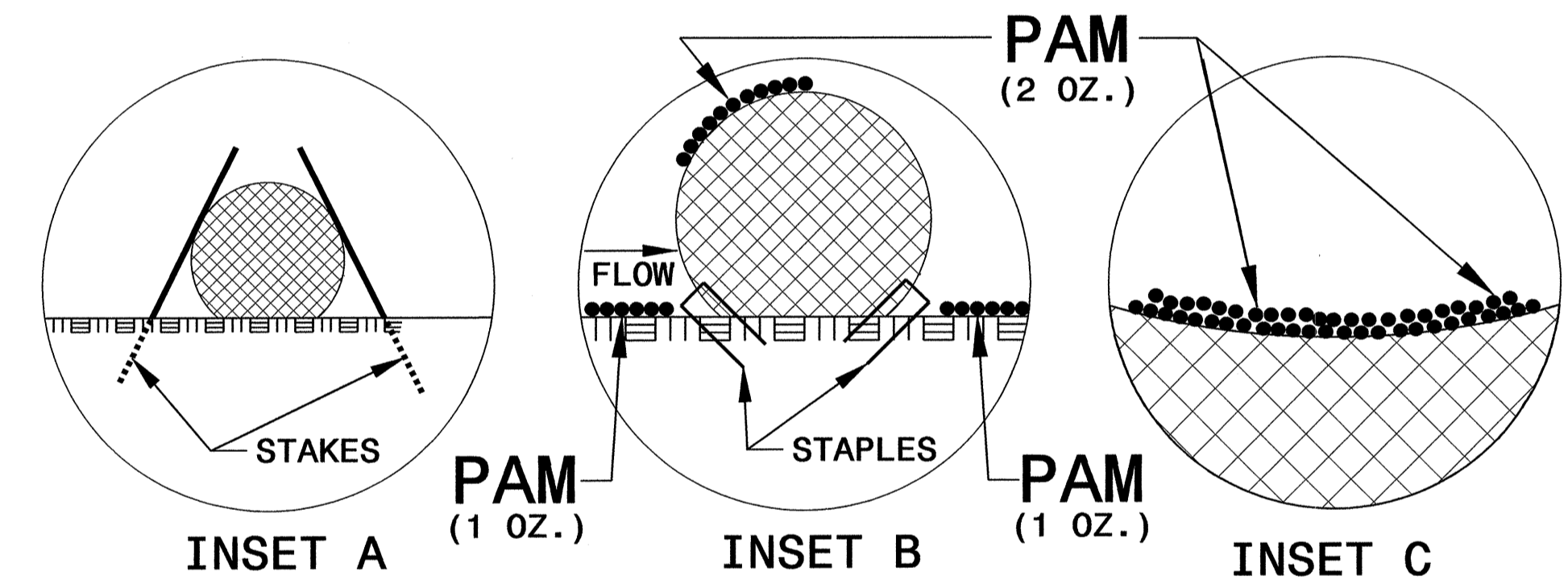
PROJECT REFERENCE NO. B-5167	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



NOTES:

- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
- PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
- INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>B-5167</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

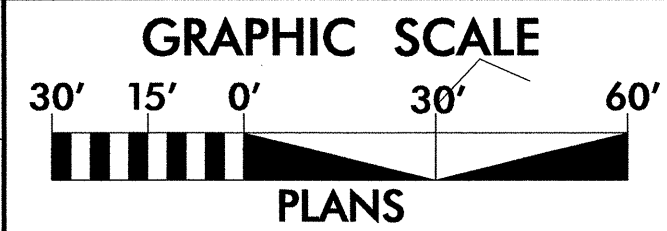
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

REVISIONS
RAW REVISIONS- KDA 10-25-2013, REMOVED ENCROACHING TCE INTO PILE PARCEL 2, REVISED PUE ON PARCEL 4, REDUCED THE PROPOSED RW ON PARCEL 9,
CHANGED THE PDE TO TDE ON PARCEL 8 NEAR WELL AND ADDED "DO NOT DISTURB WELL".

26-Nov-2013 13:21
C:\Users\kda\Documents\B5167.ec.psh.04.dgn
kda

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

SEE SHEET C-1 THRU C-2
FOR CULVERT PLANS

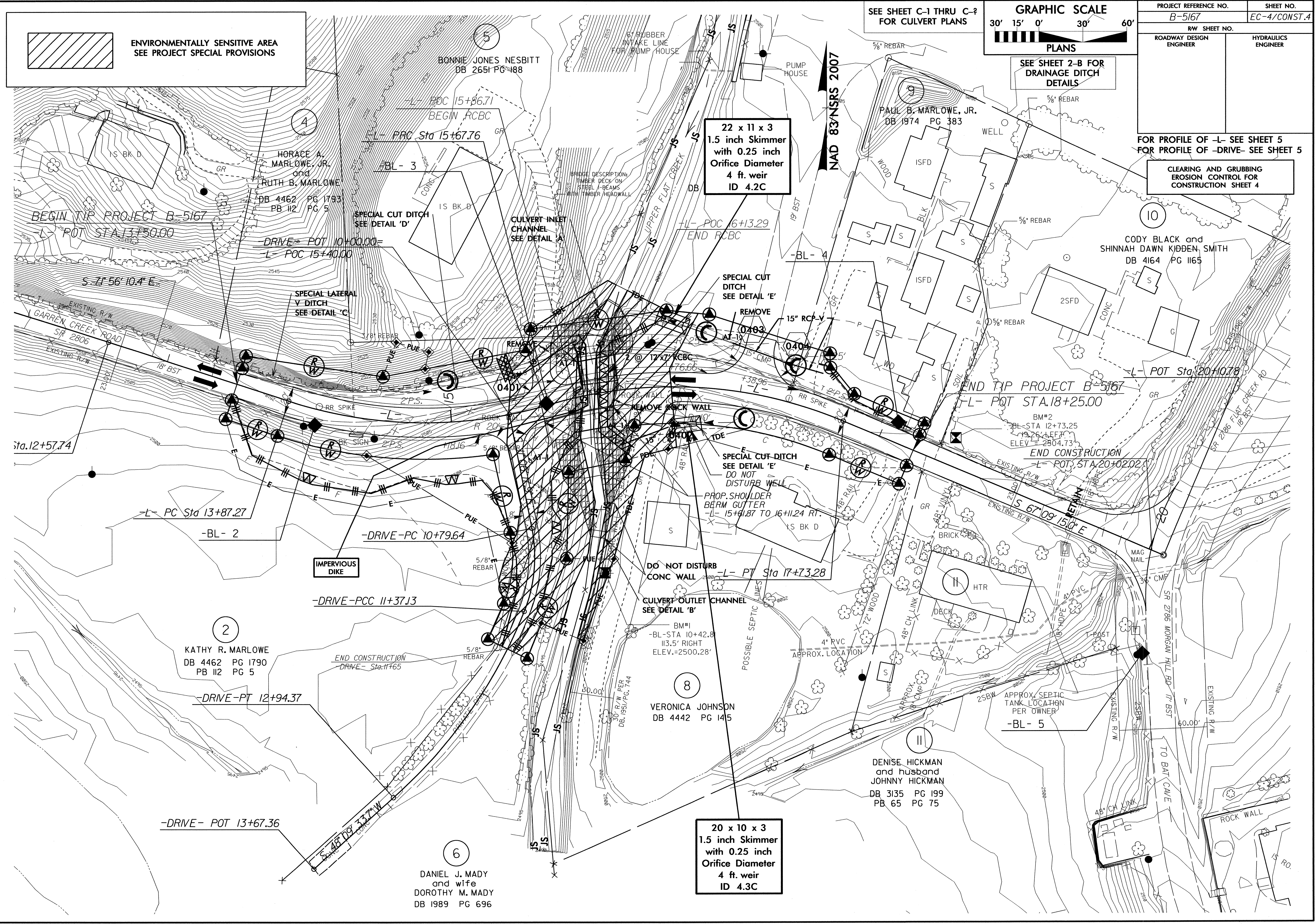


PROJECT REFERENCE NO. B-5167	SHEET NO. EC-4/CONST.4
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

SEE SHEET 2-B FOR
DRAINAGE DITCH
DETAILS

FOR PROFILE OF -L- SEE SHEET 5
FOR PROFILE OF -DRIVE- SEE SHEET 5

CLEARING AND GRUBBING
EROSION CONTROL
FOR CONSTRUCTION SHEET 4



22 x 11 x 3
1.5 inch Skimmer
with 0.25 inch
Orifice Diameter
4 ft. weir
ID 4.2C

20 x 10 x 3
1.5 inch Skimmer
with 0.25 inch
Orifice Diameter
4 ft. weir
ID 4.3C

-DRIVE- POT 13+67.36

KATHY R. MARLOWE
DB 4462 PG 1790
PB 112 PG 5

VERONICA JOHNSON
DB 4442 PG 145

DENISE HICKMAN
and husband
JOHNNY HICKMAN
DB 3135 PG 199
PB 65 PG 75

DANIEL J. MADY
and wife
DOROTHY M. MADY
DB 1989 PG 696

KATHY R. MARLOWE
DB 4462 PG 1790
PB 112 PG 5

VERONICA JOHNSON
DB 4442 PG 145

DENISE HICKMAN
and husband
JOHNNY HICKMAN
DB 3135 PG 199
PB 65 PG 75

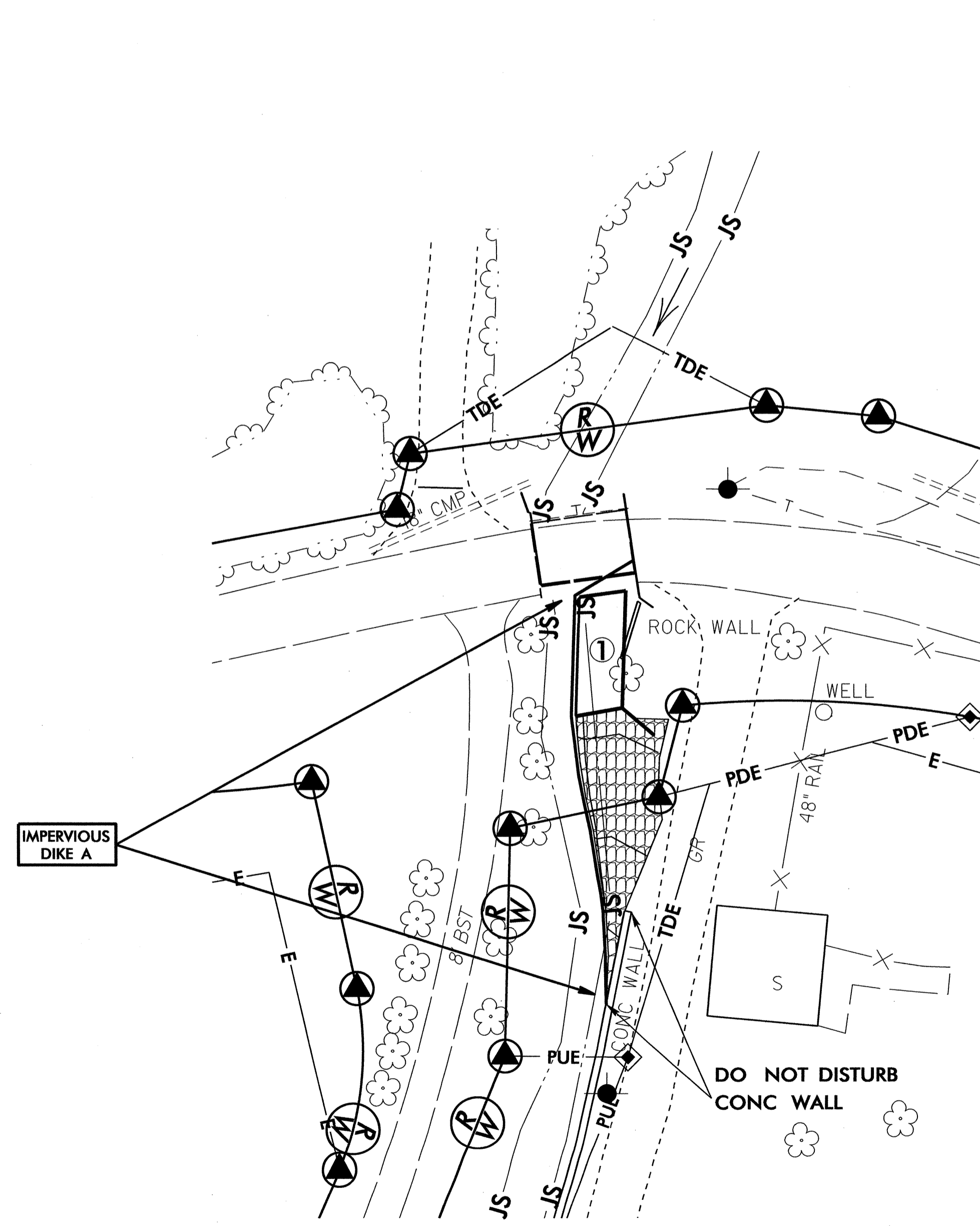
DANIEL J. MADY
and wife
DOROTHY M. MADY
DB 1989 PG 696

PROJECT REFERENCE NO. B-5167	SHEET NO. EC-5/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 16+00 -L-

PHASE I

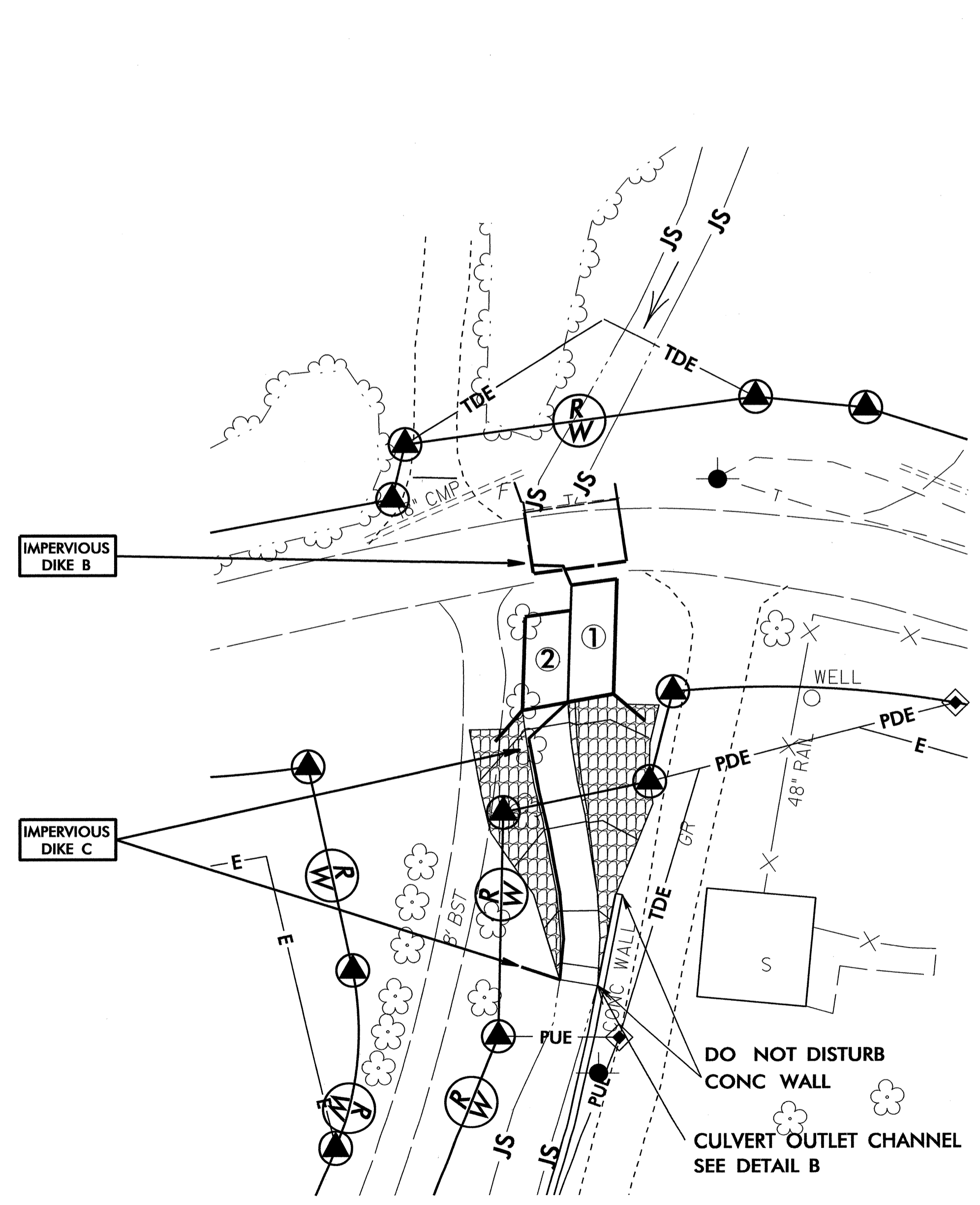
1. REMOVE APPROXIMATELY 4.17 FT. OF EXISTING BRIDGE WIDTH FROM DOWNSTREAM SIDE AND SHIFT TRAFFIC.
2. UTILIZE SPECIAL STILLING BASIN(S) TO DEWATER SITE THROUGHOUT CULVERT CONSTRUCTION.
3. CONSTRUCT IMPERVIOUS DIKE A, DIVERTING FLOW.
4. CONSTRUCT APPROXIMATELY 30.5 FT. OF BARREL 1 OF PROPOSED CULVERT AND PORTION OF OUTLET CHANNEL IMPROVEMENTS.
5. REMOVE IMPERVIOUS DIKE A.



NAD 83/NSRS 2007

PHASE II

6. CONSTRUCT IMPERVIOUS DIKES B AND C, DIVERTING FLOW INTO BARREL 1 OF PROPOSED CULVERT.
7. CONSTRUCT APPROXIMATELY 24.5 FT. OF BARREL 2 OF PROPOSED CULVERT.
8. CONSTRUCT REMAINDER OF OUTLET CHANNEL IMPROVEMENTS.
9. REMOVE IMPERVIOUS DIKES B AND C.



NAD 83/NSRS 2007

PROJECT REFERENCE NO. B-5167	SHEET NO. EC-6/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

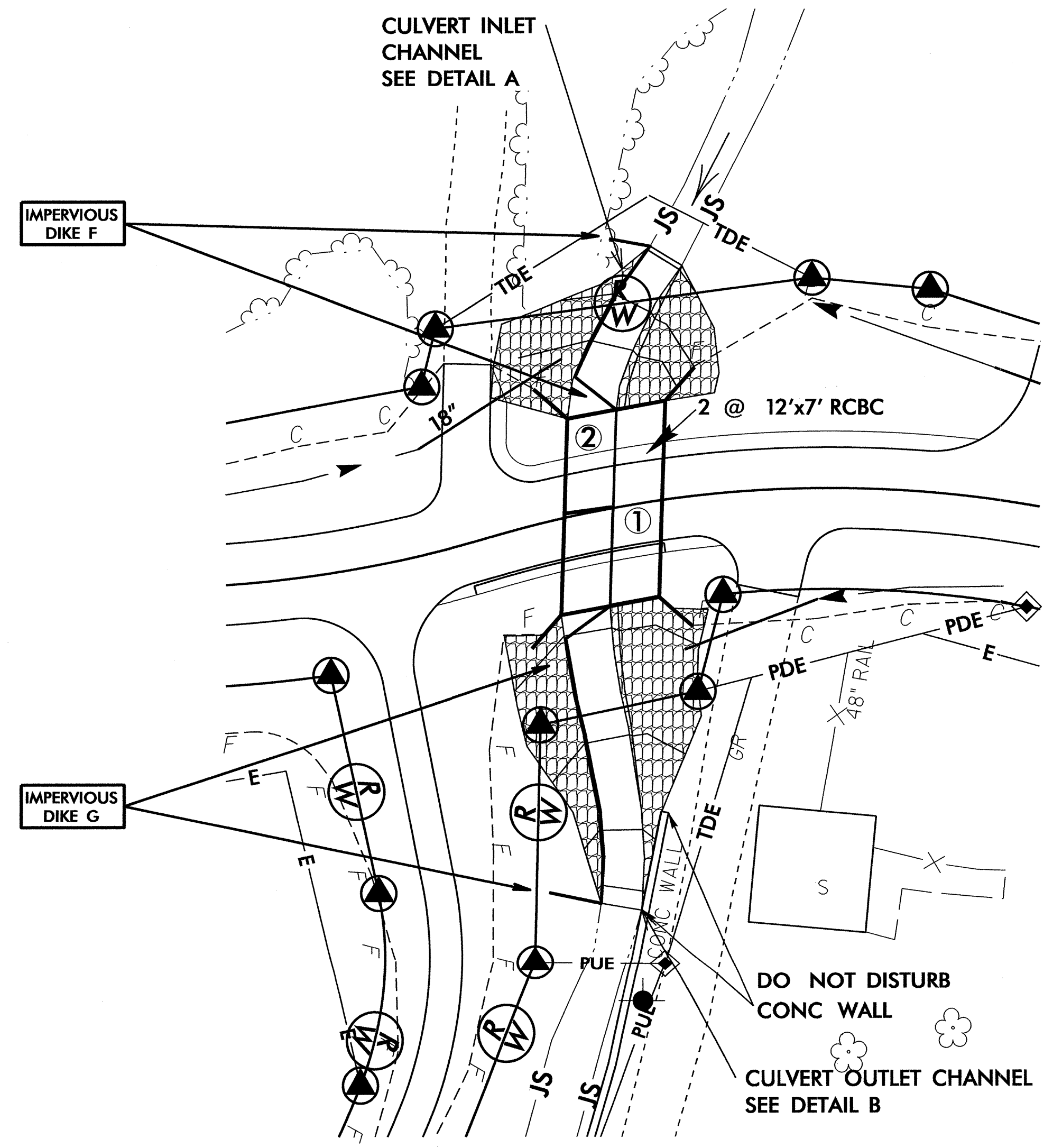
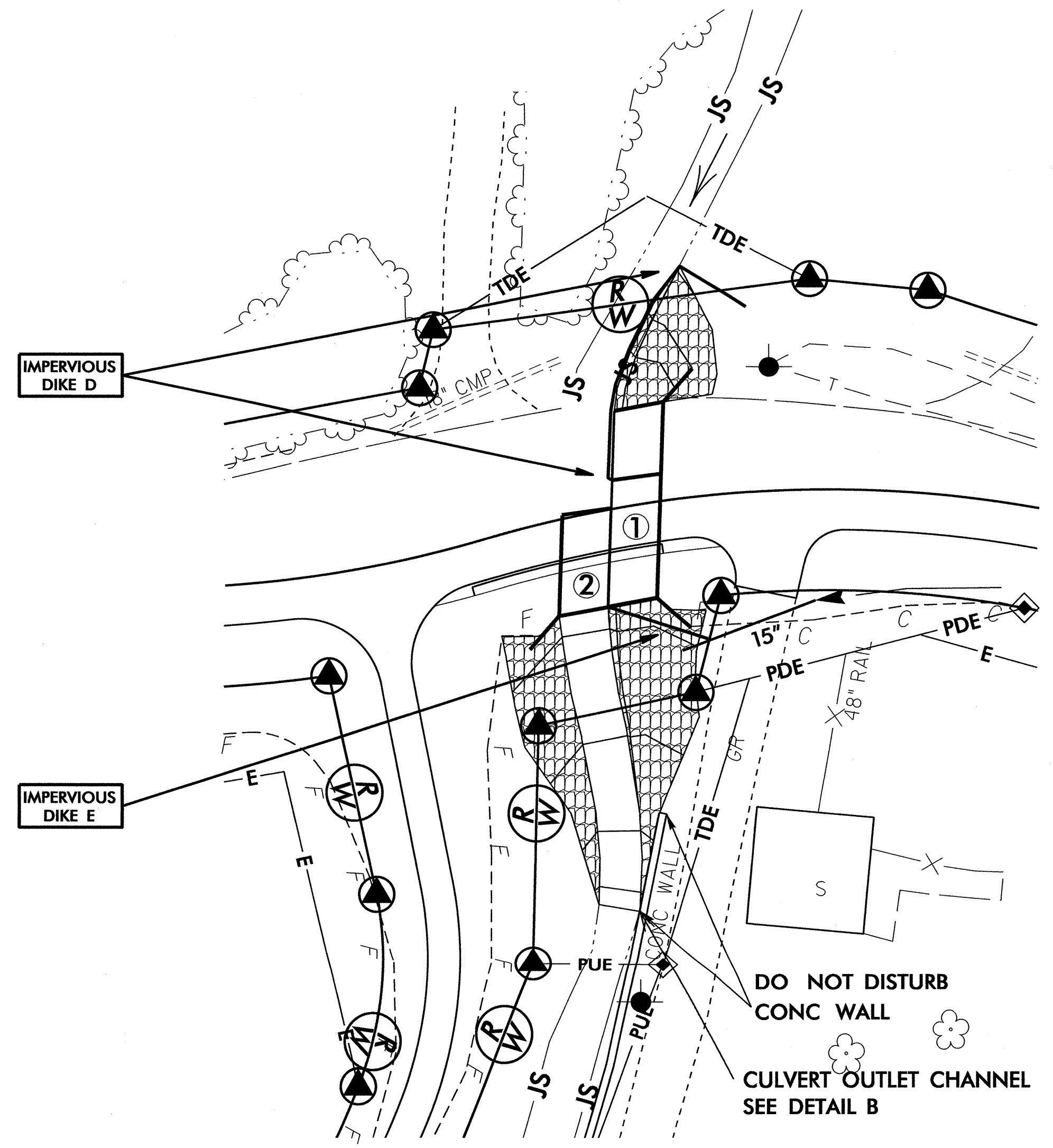
CULVERT CONSTRUCTION SEQUENCE STA. 16+00 -L-

PHASE III

PHASE IV

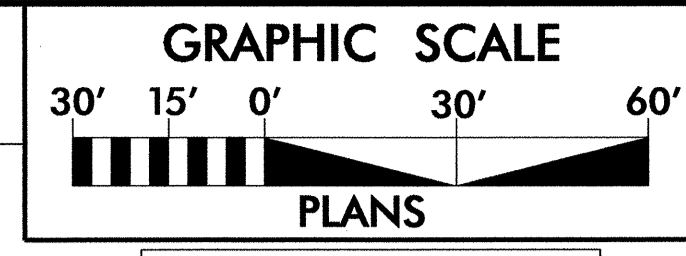
10. COMPLETE ROADWAY WORK TO SOUTH SECTION OF NEWLY CONSTRUCTED CULVERT.
11. SHIFT TRAFFIC TO THE SOUTH SECTION AND REMOVE REMAINDER OF EXISTING BRIDGE.
12. CONSTRUCT IMPERVIOUS DIKES D AND E, DIVERTING FLOW TO BARREL 2 OF PROPOSED CULVERT.
13. CONSTRUCT REMAINDER OF BARREL 1 OF PROPOSED CULVERT AND PORTION OF INLET CHANNEL IMPROVEMENTS.
14. REMOVE IMPERVIOUS DIKES D AND E.

15. CONSTRUCT IMPERVIOUS DIKES F AND G, DIVERTING FLOW INTO BARREL 1 OF PROPOSED CULVERT.
16. CONSTRUCT REMAINDER OF BARREL 2 OF PROPOSED CULVERT.
17. CONSTRUCT REMAINDER OF INLET CHANNEL IMPROVEMENTS.
18. REMOVE IMPERVIOUS DIKES F AND G, ALLOWING NORMAL FLOW THROUGH PROPOSED CULVERT.
19. REMOVE ANY REMAINING SPECIAL STILLING BASIN(S), AND COMPLETE ROADWAY.



8/17/09

SEE SHEET C-1 THRU C-2 FOR CULVERT PLANS

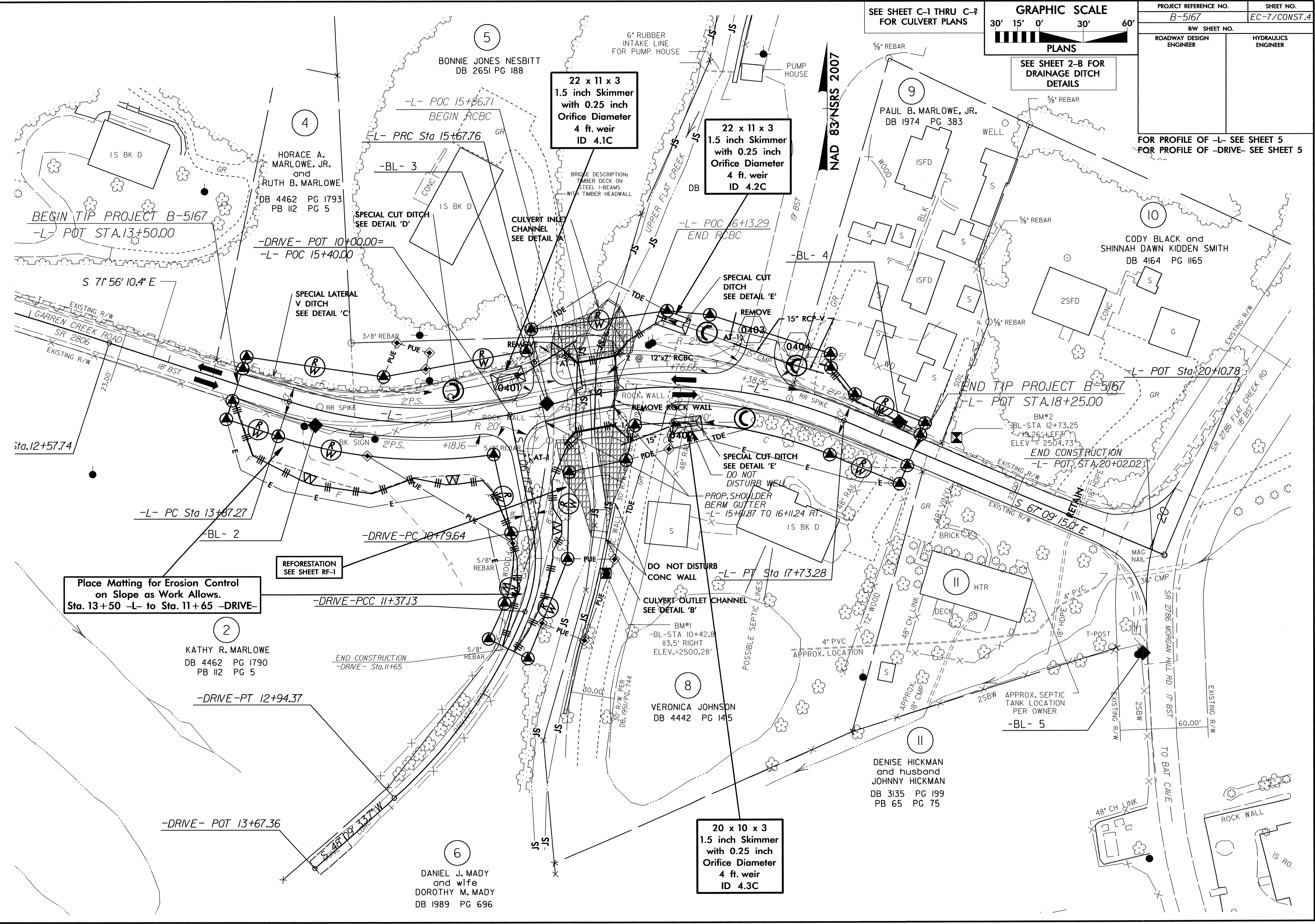


PROJECT REFERENCE NO. B-5167	SHEET NO. EC-7/CONST.4
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

FOR PROFILE OF -L- SEE SHEET 5 FOR PROFILE OF -DRIVE- SEE SHEET 5

REVISIONS
RW REVISIONS- KDA 10-25-2013, REMOVED ENCRoACHING TCE INTO RUE ON PARCEL 2, REVISED RUE ON PARCEL 4, REDUCED THE PROPOSED RW ON PARCEL 9, CHANGED THE PDE TO TDE ON PARCEL 8 AND ADDED "DO NOT DISTURB WELL".

26 NOV-2013 13:24
D:\projects\B5167_ec_psh04.dgn
B:\blackburn



22 x 11 x 3
1.5 inch Skimmer
with 0.25 inch
Orifice Diameter
4 ft. weir
ID 4.1C

22 x 11 x 3
1.5 inch Skimmer
with 0.25 inch
Orifice Diameter
4 ft. weir
ID 4.2C

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 13+50 -L- to Sta. 11+65 -DRIVE-

20 x 10 x 3
1.5 inch Skimmer
with 0.25 inch
Orifice Diameter
4 ft. weir
ID 4.3C

REFORESTATION
SEE SHEET RF-1

DO NOT DISTURB
CONC WALL

CULVERT OUTLET CHANNEL
SEE DETAIL 'B'

BM#1
-BL-STA 10+42.8
113.5' RIGHT
ELEV.=2500.28'

APPROX. SEPTIC TANK LOCATION
PER OWNER

48" CH LINK

ROCK WALL

NAD 83 NSRS 2007

DANIEL J. MADY
and wife
DOROTHY M. MADY
DB 1989 PG 696

KATHY R. MARLOWE
DB 4462 PG 1790
PB 112 PG 5

HORACE A. MARLOWE, JR.
and
RUTH B. MARLOWE
DB 4462 PG 1793
PB 112 PG 5

BONNIE JONES NESBITT
DB 2651 PG 188

DENISE HICKMAN
and husband
JOHNNY HICKMAN
DB 3135 PG 199
PB 65 PG 75

VERONICA JOHNSON
DB 4442 PG 145

CODY BLACK and
SHINNAH DAWN KIDDEN SMITH
DB 4164 PG 1165

PAUL B. MARLOWE, JR.
DB 1974 PG 383

BEGIN TIP PROJECT B-5167
-L- POT STA.13+50.00

END TIP PROJECT B-5167
-L- POT STA.18+25.00

END CONSTRUCTION
-L- POT STA.20+02.02

-DRIVE-PT 12+94.37

-DRIVE- POT 13+67.36

-DRIVE-PCC 11+37.13

-DRIVE-PC 10+19.64

-L- PC Sta 13+87.27

-DRIVE- POT 10+00.00=
-L- POC 15+40.00

-L- POC 15+67.76
BEGIN RCBC

-L- POC 16+13.29
END RCBC

-L- POT Sta.20+10.78

S 67° 09' 15.0" E

S 71° 56' 10.4" E

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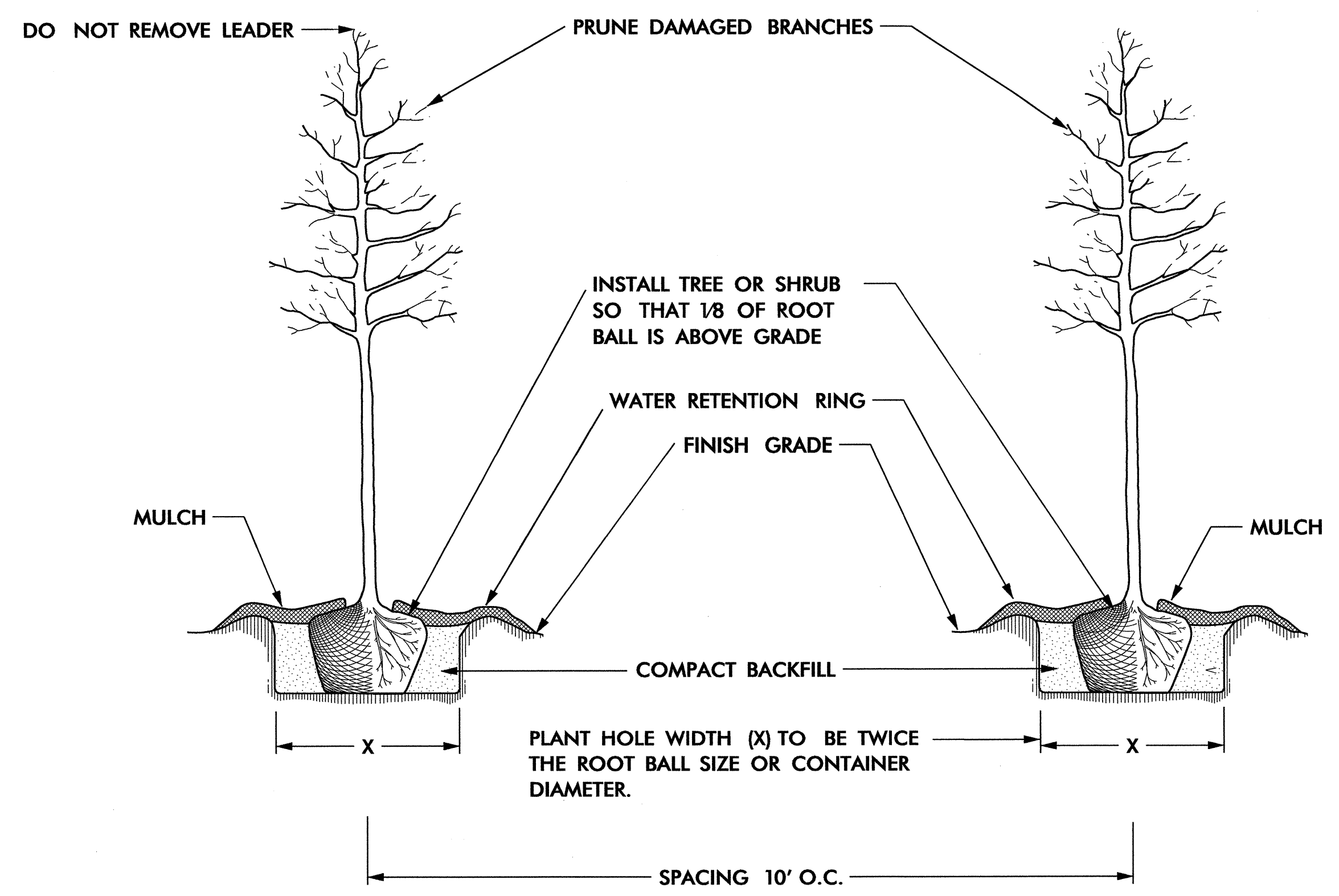
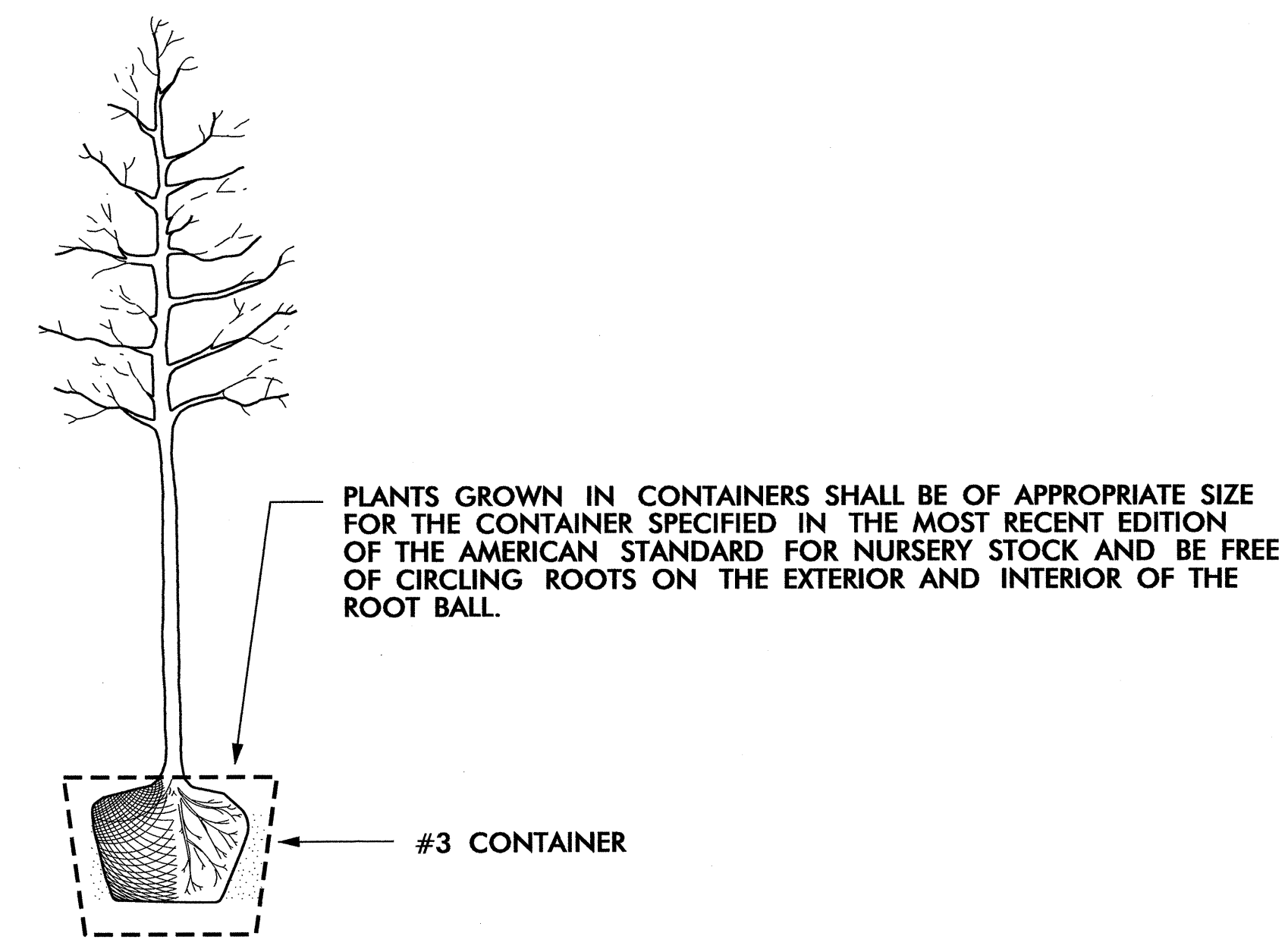
5/8" REBAR

<

PROJECT REFERENCE NO. B-5167	SHEET NO. RF-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

CONTAINER PLANTING DETAIL



TREE OR SHRUB PLANTING DETAIL
(LEVEL GROUND)

REFORESTATION


- TREE REFORESTATION SHALL BE PLANTED 10 FT. ON CENTER.
- PLANTS SHALL BE TRUE TO SPECIES AND VARIETY SPECIFIED AND NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES.
- PLANTS GROWN IN CONTAINERS SHALL BE OF APPROPRIATE SIZE FOR THE CONTAINER SPECIFIED IN THE MOST RECENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK AND BE FREE OF CIRCLING ROOTS ON THE EXTERIOR AND INTERIOR OF THE ROOT BALL.
- PLANTS SHALL BE PROTECTED FROM DRYING AND DAMAGE UNTIL SHIPPED AND DELIVERED TO THE PLANTING SITE. CONTAINERS SHALL BE CHECKED REGULARLY AND WATERED SUFFICIENTLY TO MAINTAIN ROOT VIABILITY.
- WHEN PLANTING REMOVE PLASTIC, PAPER, OR FIBER POTS FROM CONTAINERIZED PLANT MATERIAL. PULL ROOTS OUT OF THE ROOT MAT, AND CUT ANY CIRCLING ROOTS WITH A SHARP KNIFE. INSTALL THE PLANT IMMEDIATELY AFTER REMOVING THE CONTAINER TO PREVENT DRYING OF ROOTS.
- SCHEDULE FOR PLANT HOLE SIZE: PLANT HOLE WIDTH (X) TO BE TWICE THE ROOT BALL SIZE OR CONTAINER DIAMETER.
- APPLY FERTILIZER AT PLANTING TIME IN THE FORM OF A SLOW RELEASE PELLET OR TABLET. APPLY AT RATE RECOMMENDED BY MANUFACTURER. BOTH RATE AND FORMULATION MUST BE APPROVED BY FIELD ENGINEER PRIOR TO APPLICATION.
- ALL PRUNING TO FOLLOW STANDARD ARBORICULTURAL PRACTICES AS SPECIFIED BY INTERNATIONAL SOCIETY OF ARBORICULTURE.
- DO NOT ATTEMPT TO STRAIGHTEN A TREE THAT HAS BEEN PLANTED AT AN ANGLE WITH THE USE OF STAKING OR GUYING. DIG TREE AND REPLANT TO UPRIGHT POSITION.

REFORESTATION		
QUANTITY, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:		
3 ea. - <i>CARPINUS CAROLINIANA</i>	IRONWOOD	#3 CONTAINER
3 ea. - <i>ALNUS SERRULATA</i>	TAG ALDER	#3 CONTAINER

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

TIP NO. B-5167	SHEET NO. SIGN-1
APPROVED: <i>[Signature]</i>	
DATE: 11/22/13	
SEAL	
	

**SIGNING PLAN
BUNCOMBE COUNTY**

**LOCATION: BRIDGE 108 OVER UPPER FLAT CREEK ON
SR 2806 (GARREN CREEK RD)**

T.I.P.: B-5167

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	27	L.F.
4102000000	904	SIGN ERECTION, TYPE E	2	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	6	EA.
4192000000	907	DISPOSAL OF SUPPORT, U-CHANNEL	1	EA.

GENERAL NOTES

- . SIGNS FURNISHED BY STATE
- . WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- . ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- . WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- . THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- . SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

ROADWAY STANDARD DRAWING

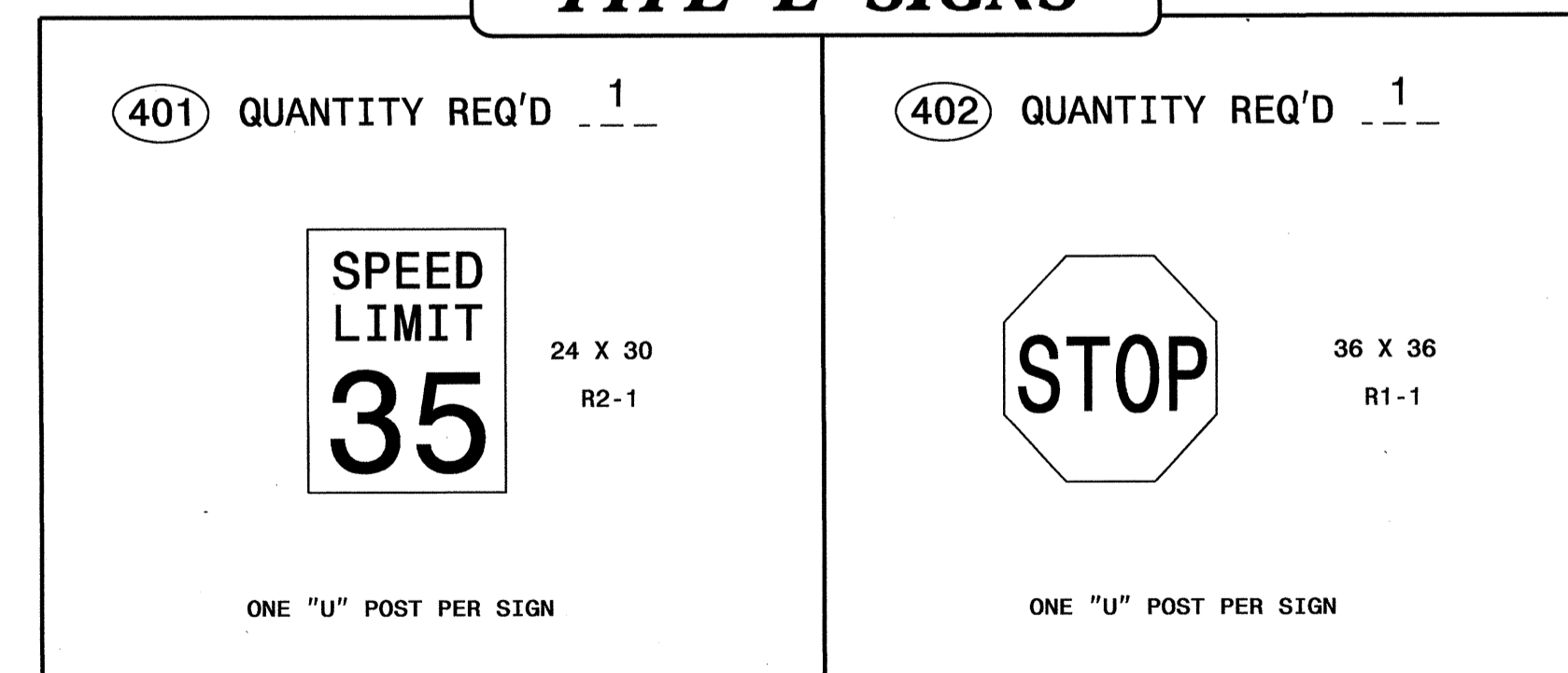
THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

PROJECT NOTES

- 1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL
- 2 DISPOSAL OF SUPPORT, U-CHANNEL

TYPE E SIGNS

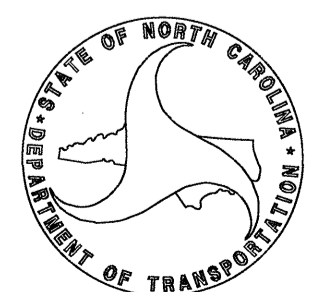


INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET, QUANTITIES, NOTES, 'E' SIGNS
SIGN-2	SIGN DETAIL SHEET

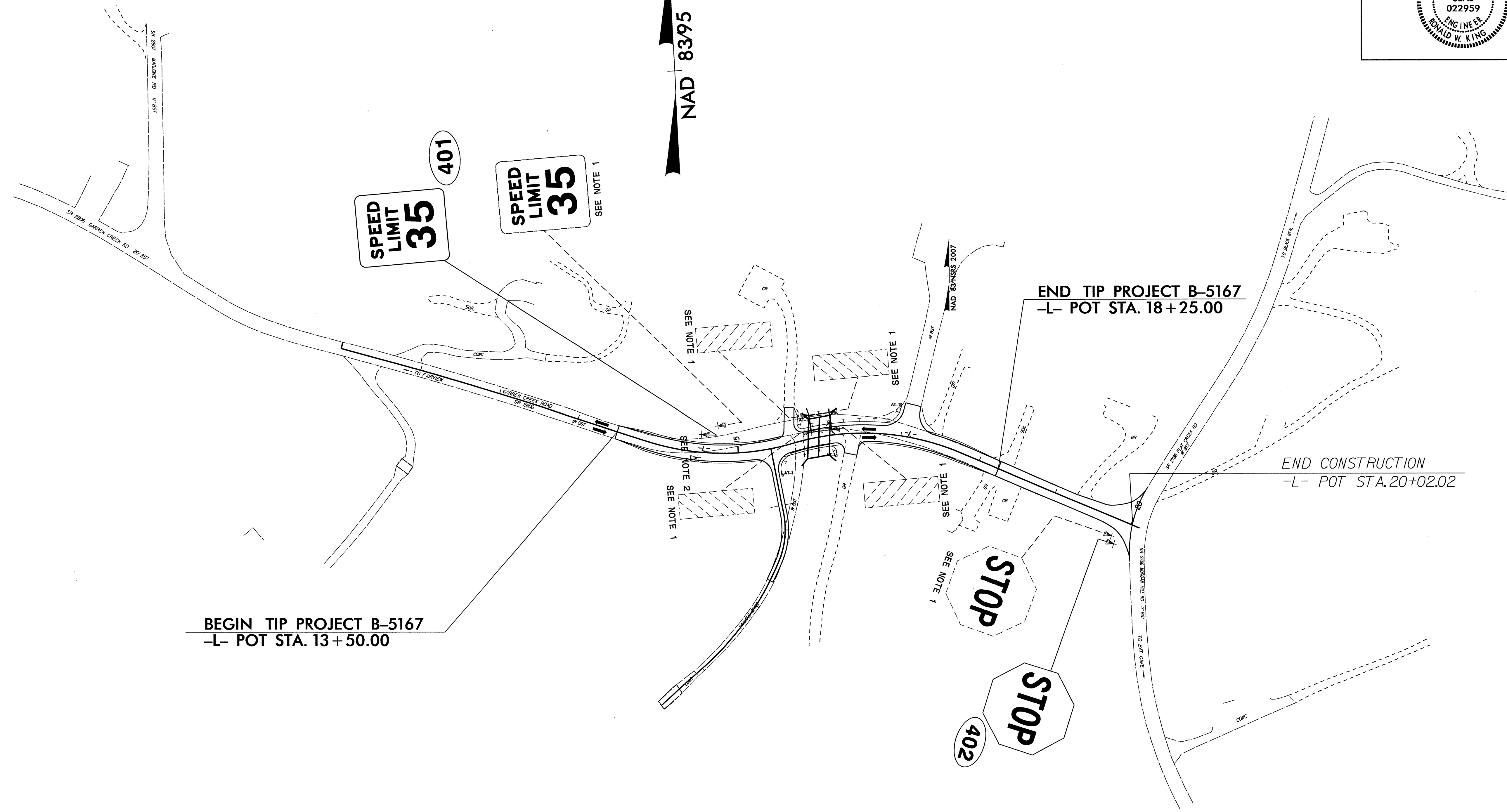
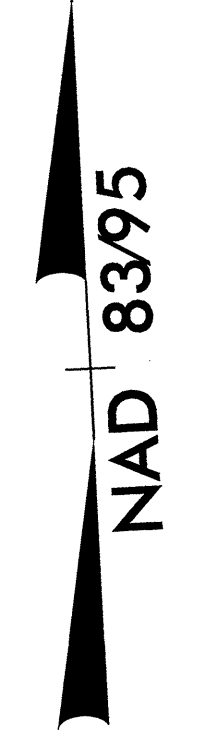
PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

K. JORDAN SIGNING & DELINEATION REGIONAL ENGINEER
M. TRACEY SIGNING & DELINEATION PROJECT DESIGN ENGINEER



CONTRACT:

TIP NO. B-5167	SHEET NO. SIGN-2
APPROVED: <i>RWJ</i>	
DATE: <i>11/21/13</i>	
SEAL	

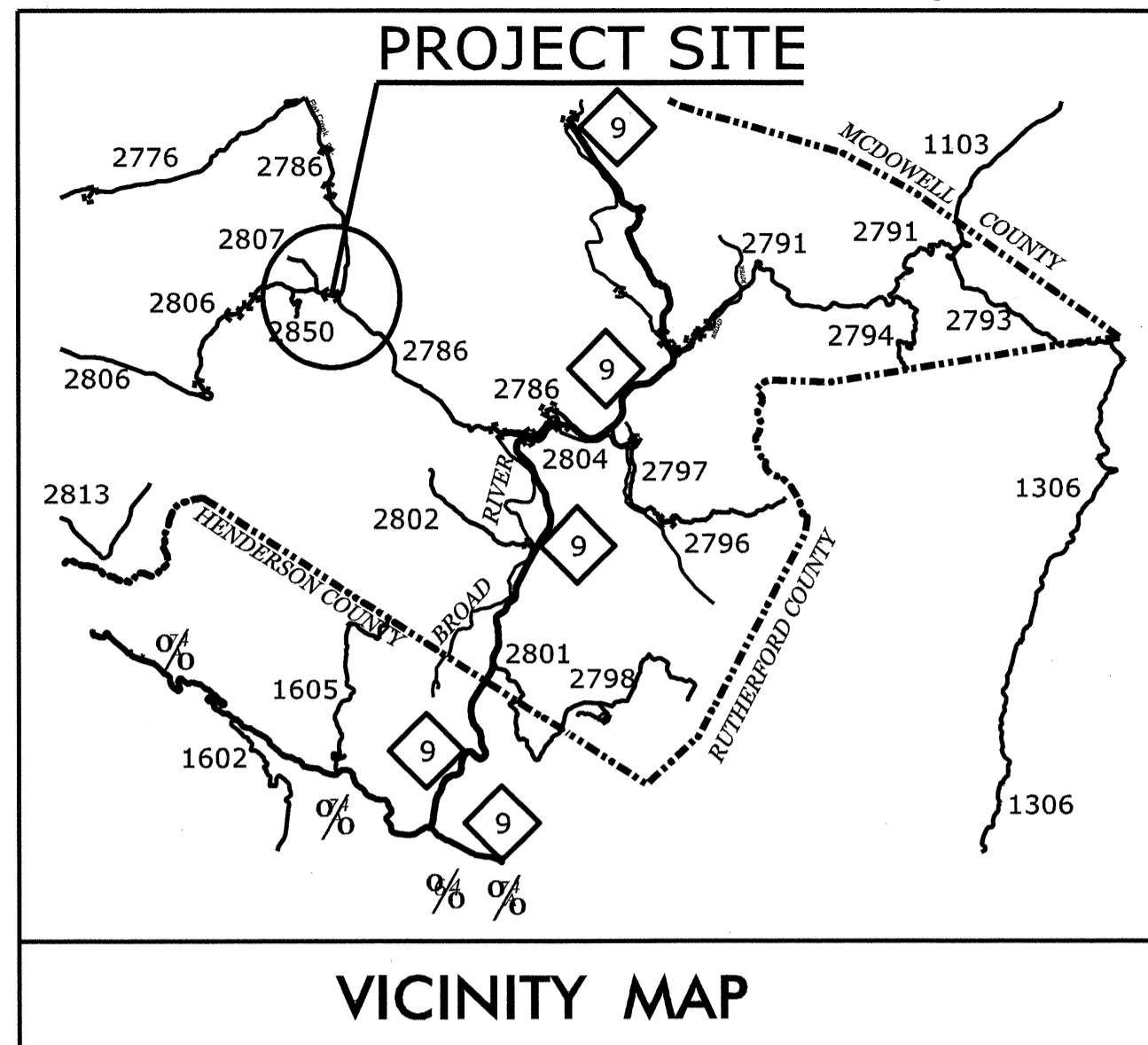


SIGN DETAIL SHEET

09/05/99
 \$\$\$\$\$\$SYTIME\$\$\$\$\$\$
 \$\$\$\$\$\$DGN\$\$\$\$\$\$
 \$\$\$\$\$\$USERAME\$\$\$\$\$\$

TIP PROJECT: B-5167

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

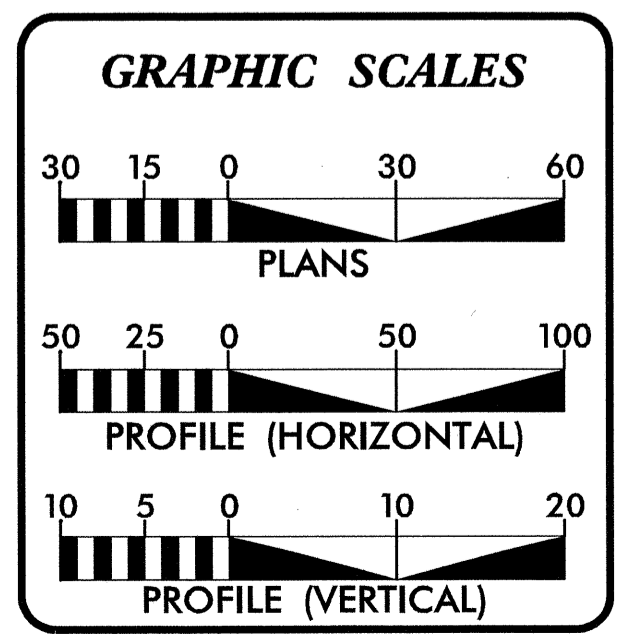
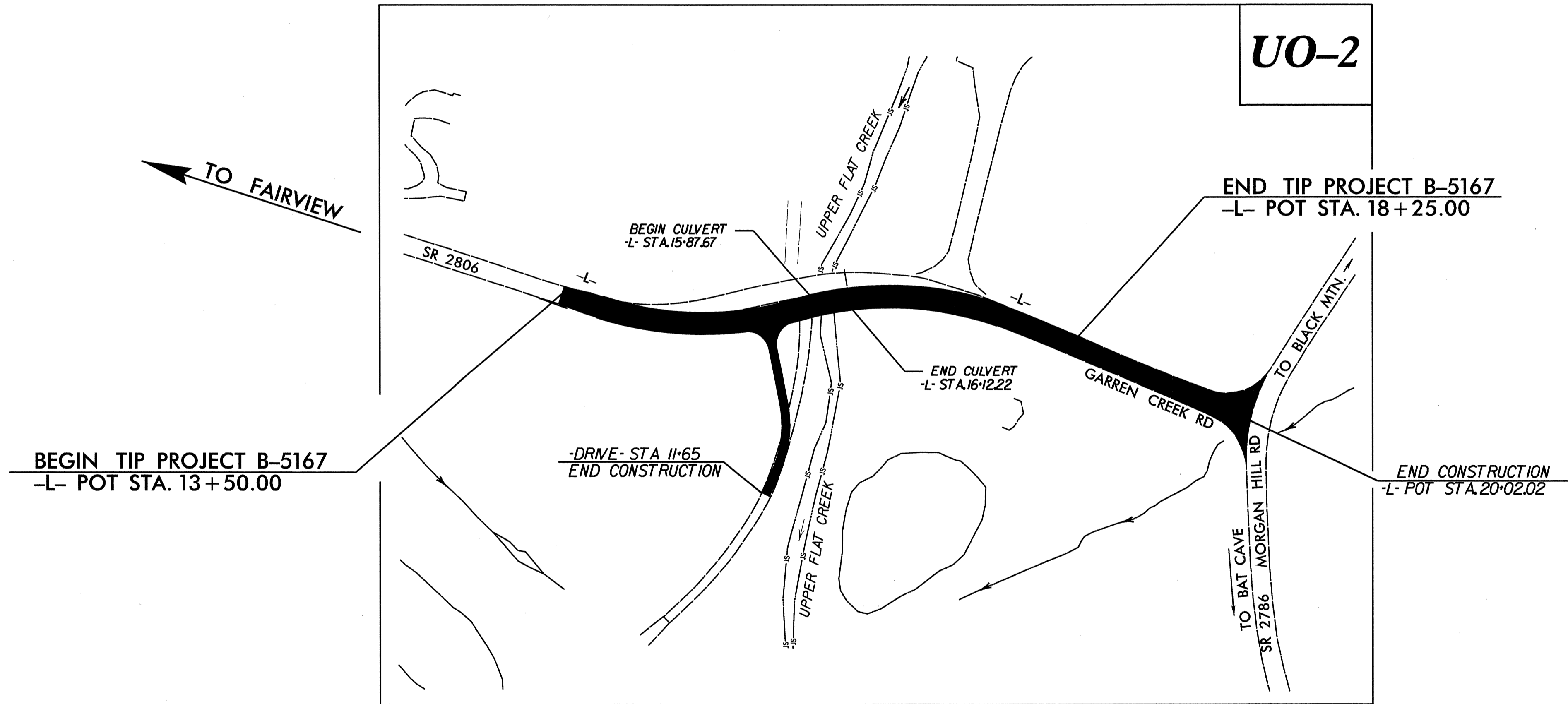
**UTILITIES BY OTHERS PLANS
BUNCOMBE COUNTY**

T.I.P. NO.	SHEET NO.
B-5167	UO-1



**LOCATION: BRIDGE 108 OVER UPPER FLAT CREEK ON
SR 2806 (GARREN CREEK ROAD)**

TYPE OF WORK: AERIAL POWER AND TELEPHONE



INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS PLAN SHEET

- UTILITY OWNERS ON PROJECT**
- (1) DUKE ENERGY (POWER DISTRIBUTION)
 - (2) AT&T OF NC (TELEPHONE)

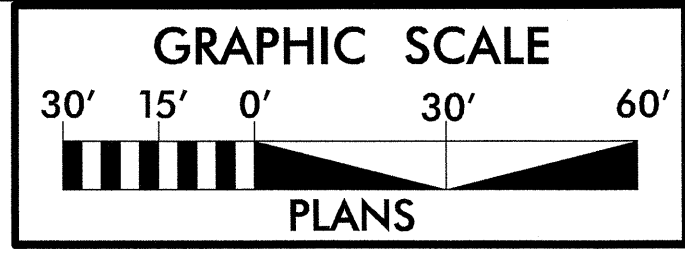
Cardno
 CARDNO (NC), INC.
 7606 WHITEHALL EXECUTIVE CENTER DR
 SUITE 800
 CHARLOTTE NC 28273
 PHONE (704) 927-9700
 FAX (704) 529-3272

Thomas J. Yocom, P.L.S. SENIOR PROJECT MANAGER

PREPARED IN THE OFFICE OF:
**DIVISION OF HIGHWAYS
 UTILITIES UNIT
 UTILITIES ENGINEERING**

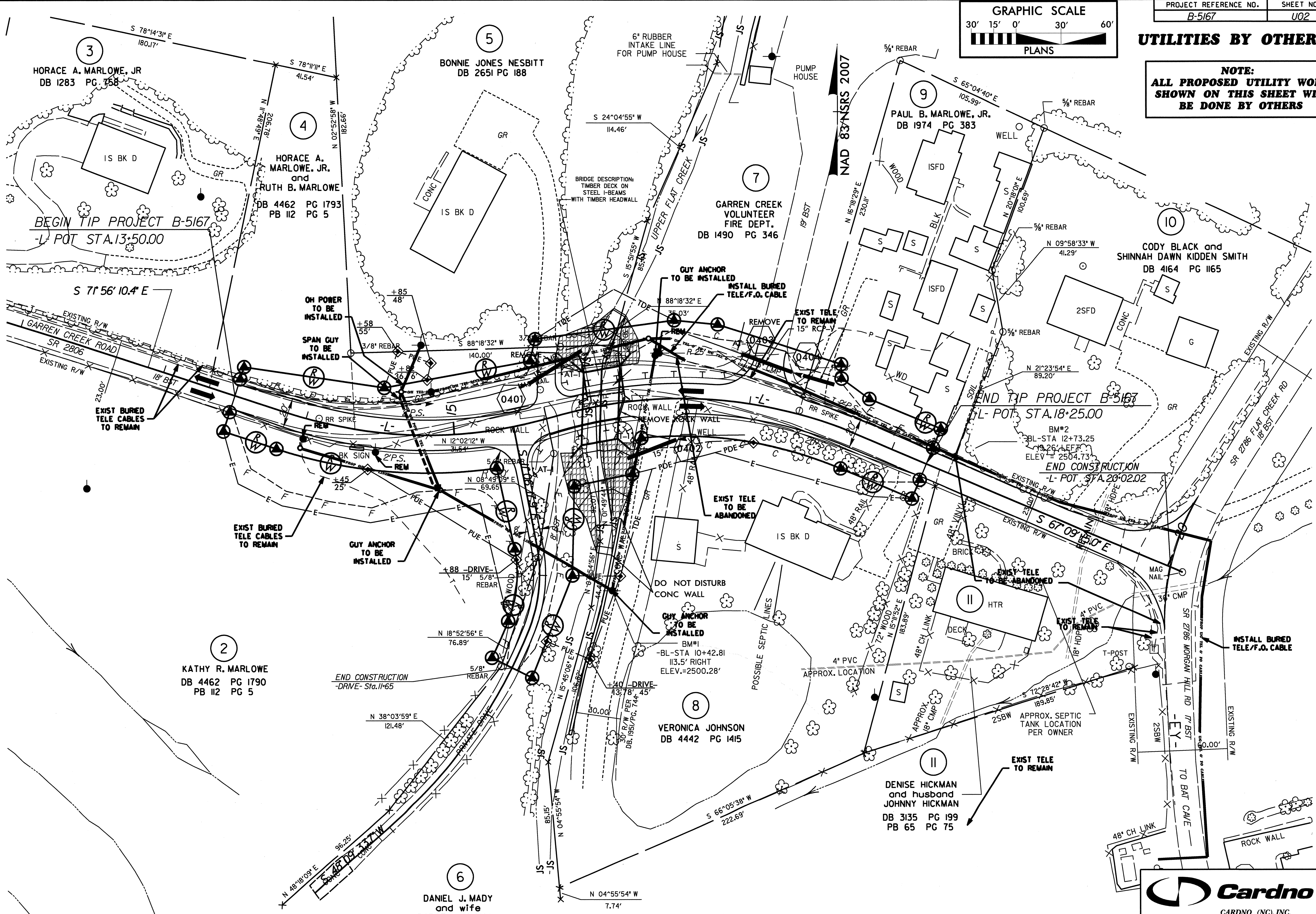
1555 MAIL SERVICES CENTER
 RALEIGH NC 27699-1555
 PHONE (919) 707-6690
 FAX (919) 250-4151

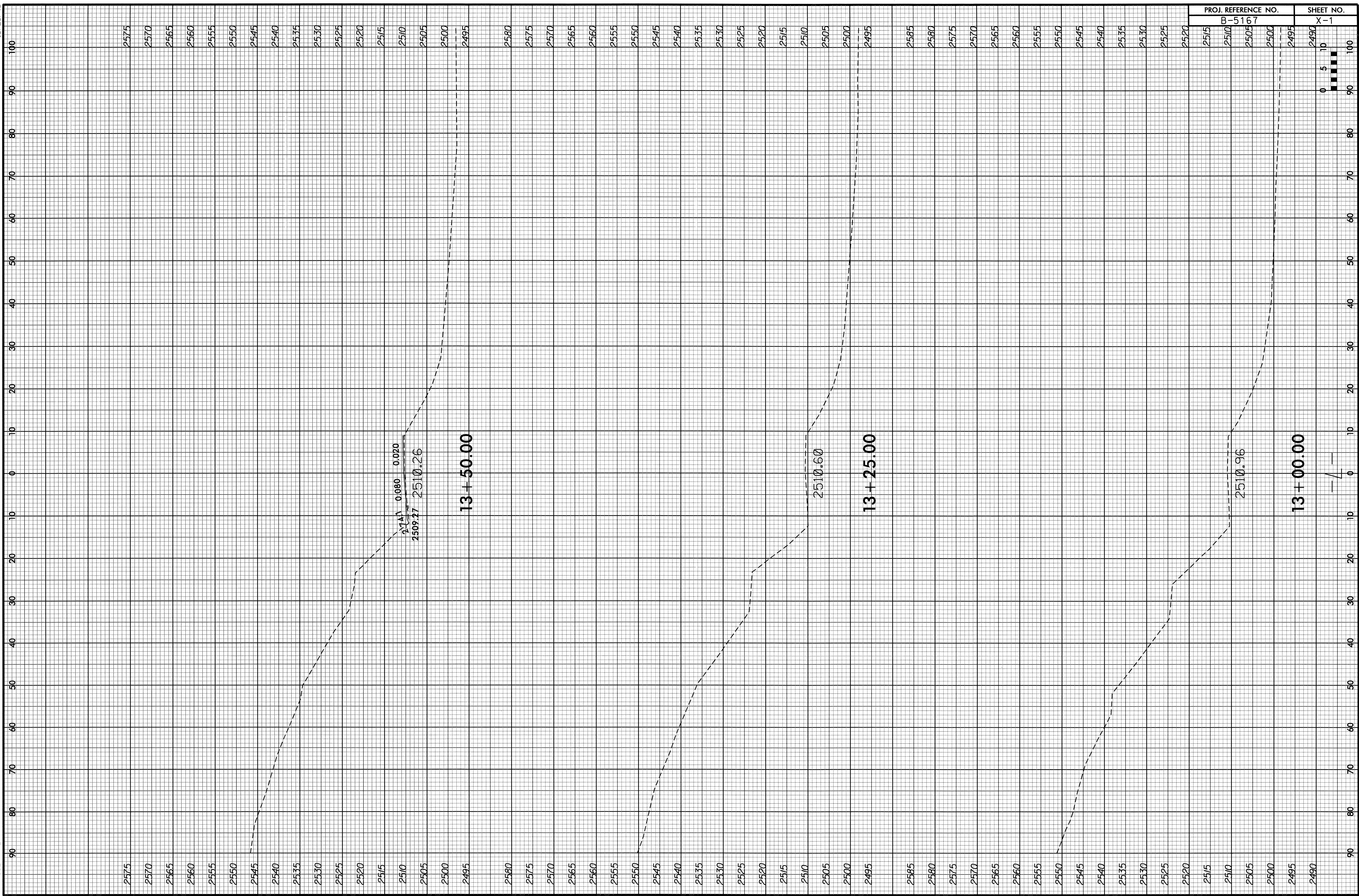
Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Carl A. Barclay, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Ali Kouchehi, P.E. UTILITIES PROJECT DESIGNER

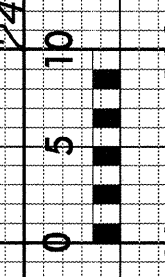
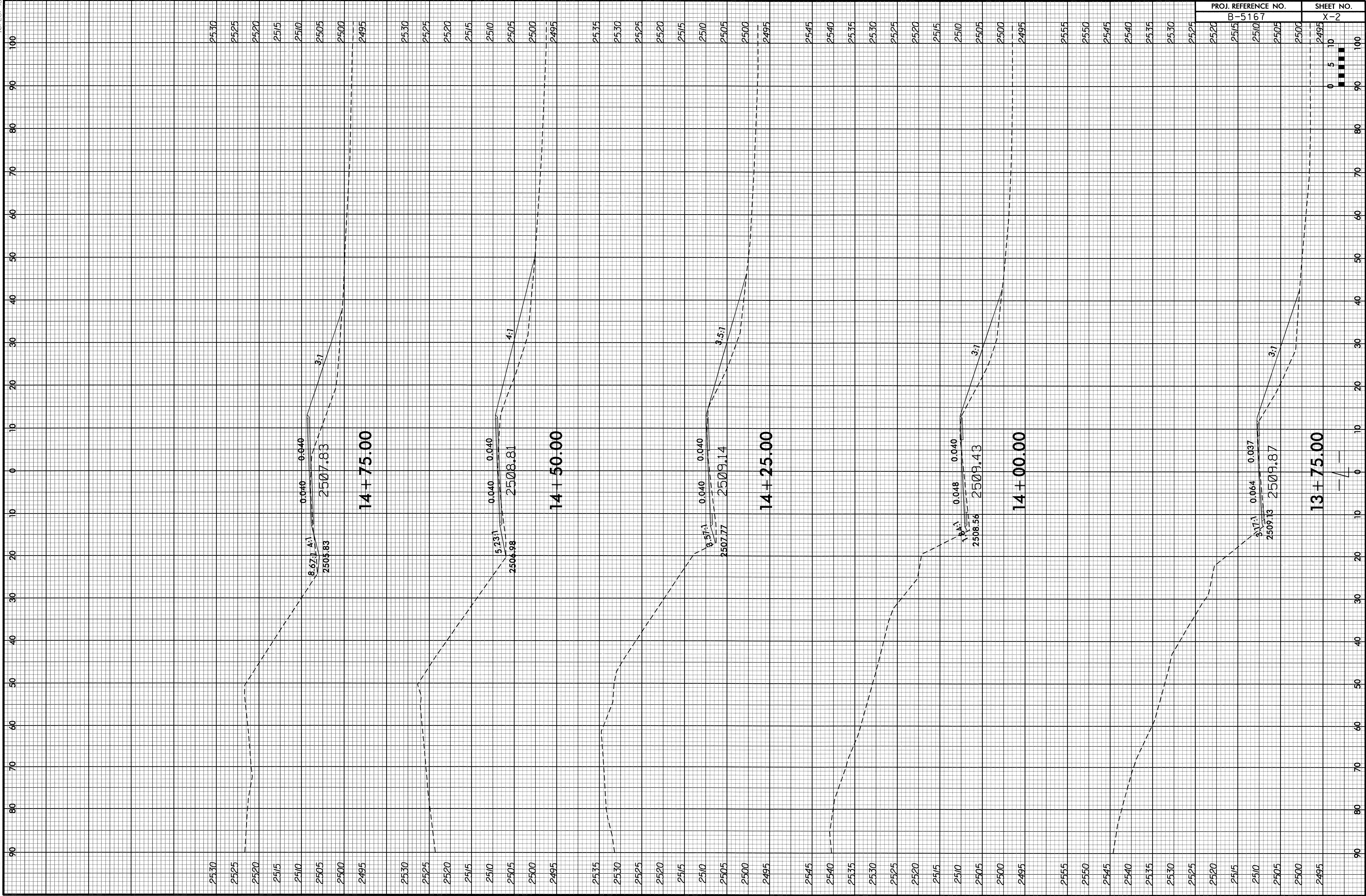


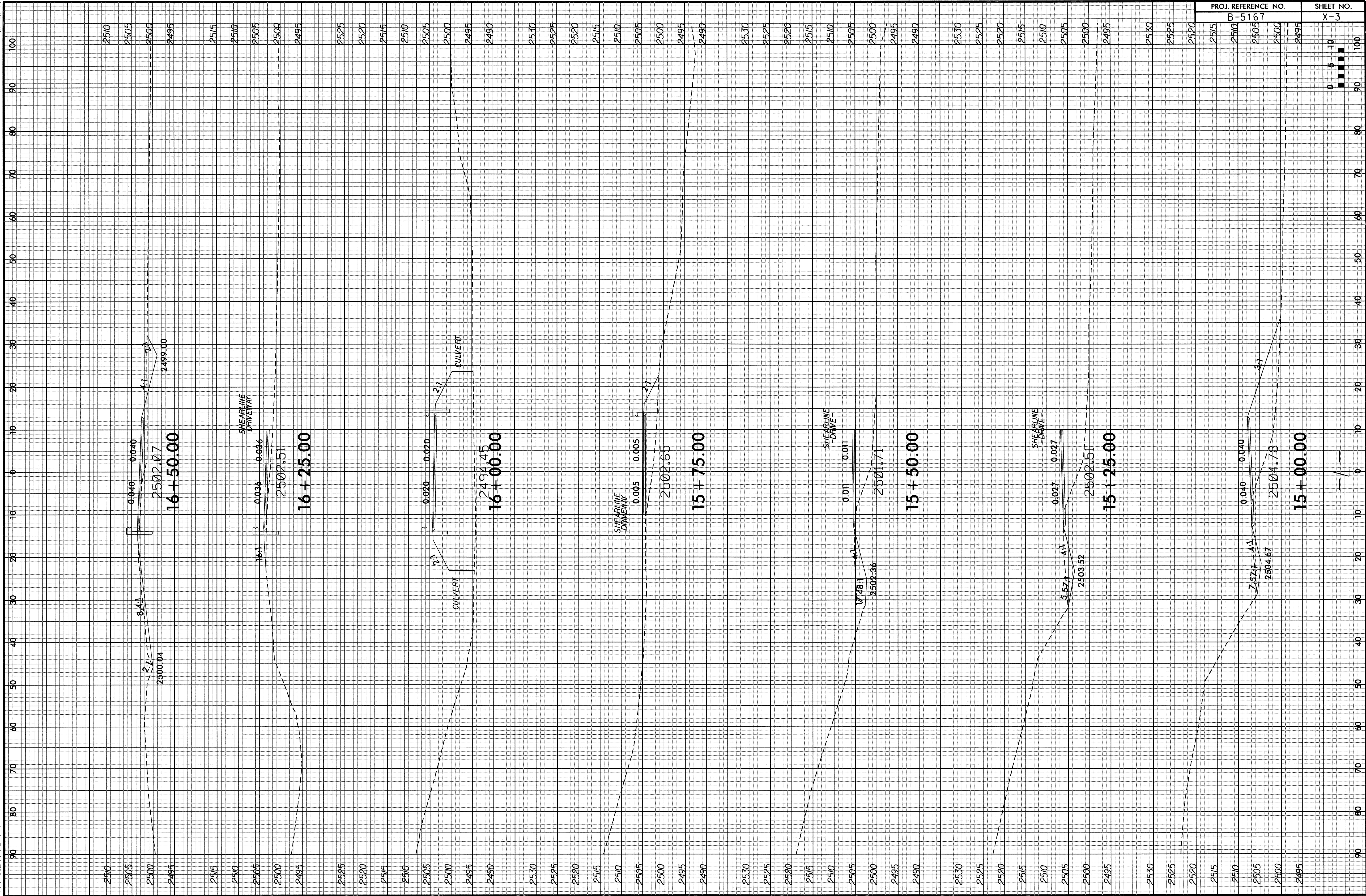
UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

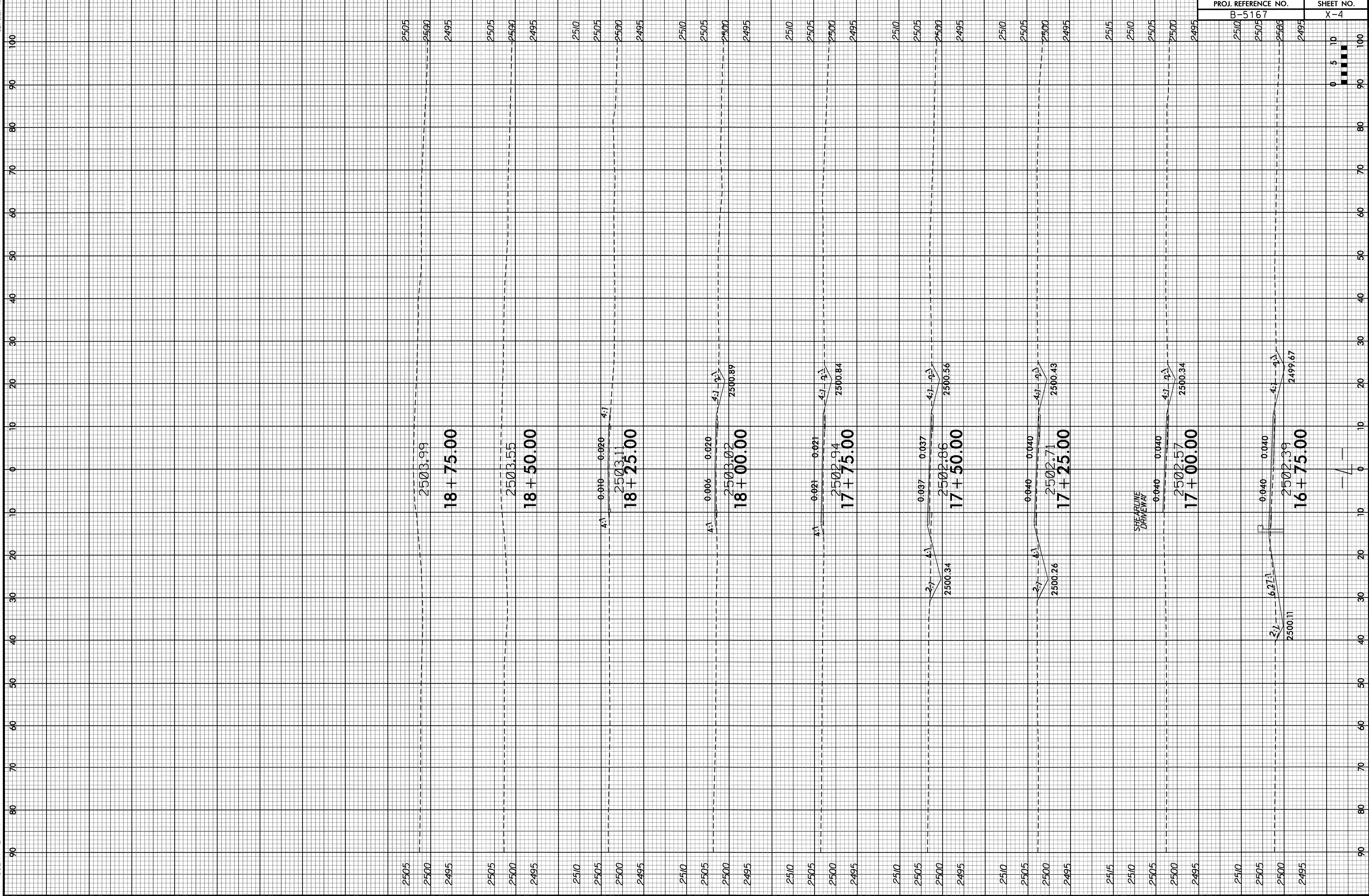








PROJ. REFERENCE NO.			SHEET NO.
2510	2505	2500	B-5167
2495	2515	2510	X-3
2505	2500	2495	



PROJ. REFERENCE NO.		SHEET NO.
B-5167		X-4

