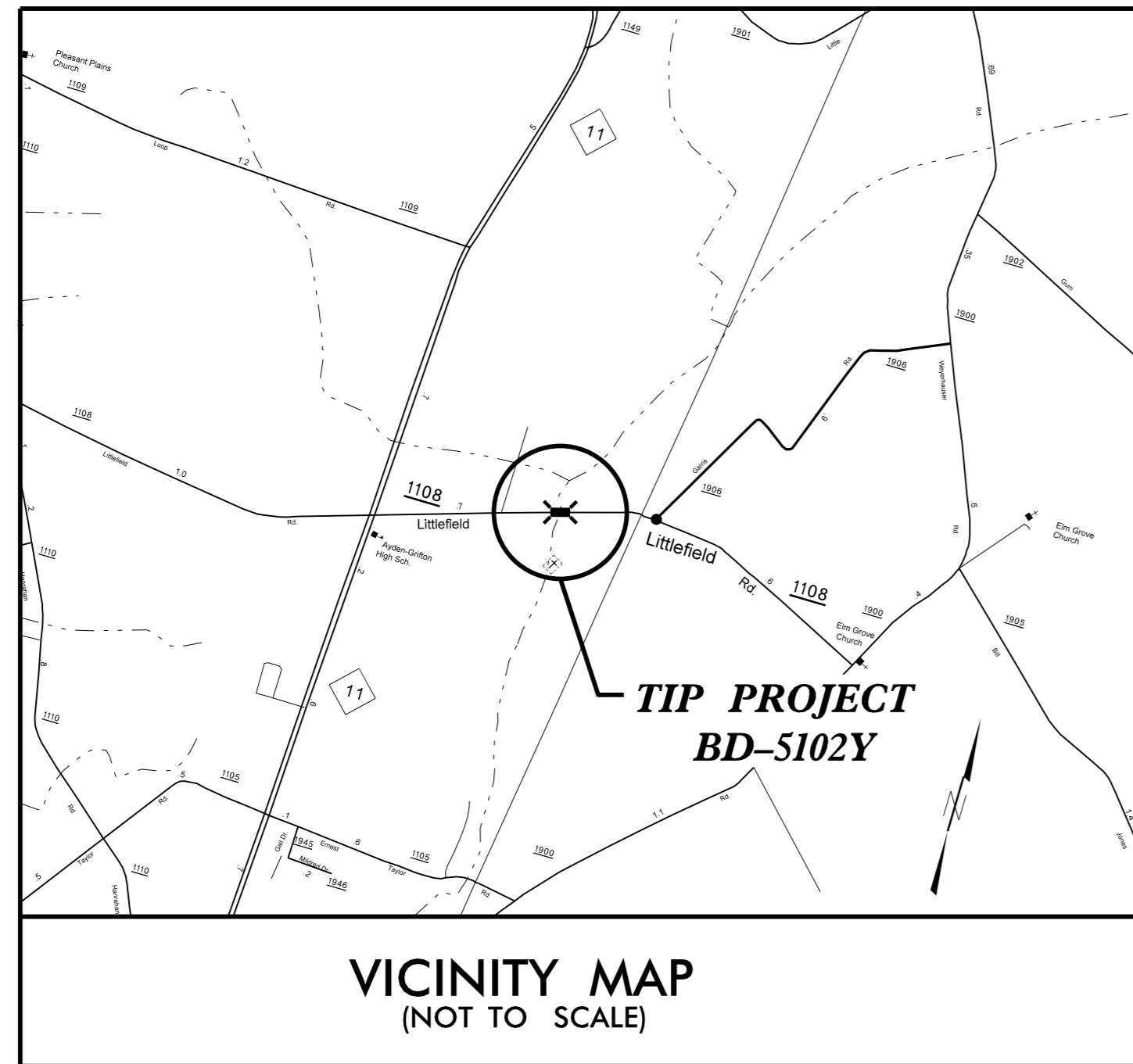


09/08/99

**TIP PROJECT: BD-5102Y**



See Sheet 1-A For Index of Sheets

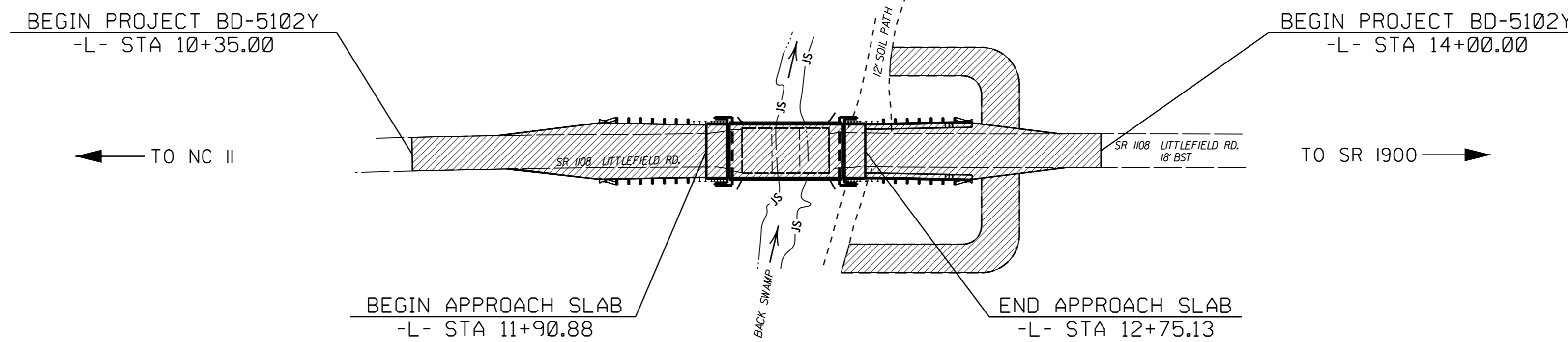
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**PITT COUNTY**

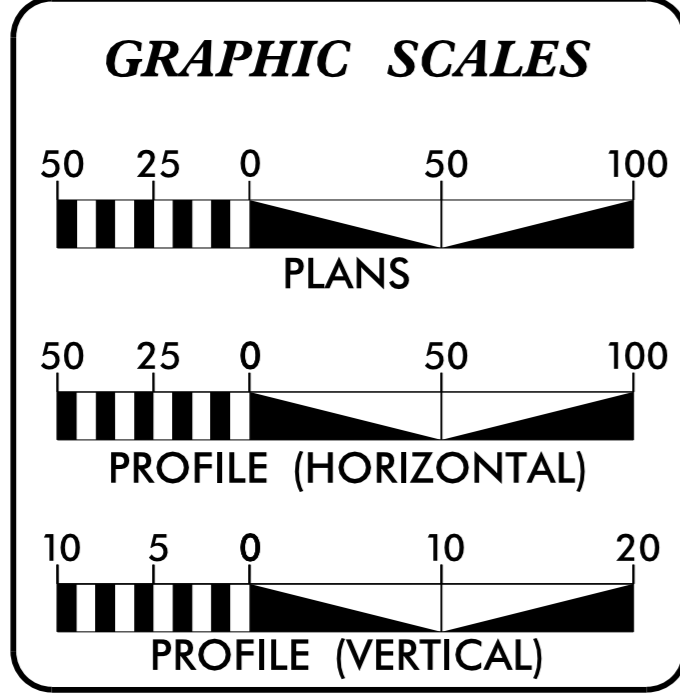
**LOCATION: BRIDGE #415 OVER BACK SWAMP  
ON SR 1108.**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5102Y	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45348.1.25	BRZ-1108(17)	PE	
45348.2.25	BRZ-1108(17)	RW	
17BP.2.R.63		CONST	



**CONTRACT:**



**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT BD-5102Y = 0.053 MILES  
 LENGTH STRUCTURE TIP PROJECT BD-5102Y = 0.016 MILES  
 TOTAL LENGTH TIP PROJECT BD-5102Y = 0.069 MILES

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
 1704 North Greene St., Greenville NC, 27834

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 2014  
 LETTING DATE: JANUARY 2016

DWAYNE H. ALLIGOOD, PE  
PROJECT ENGINEER

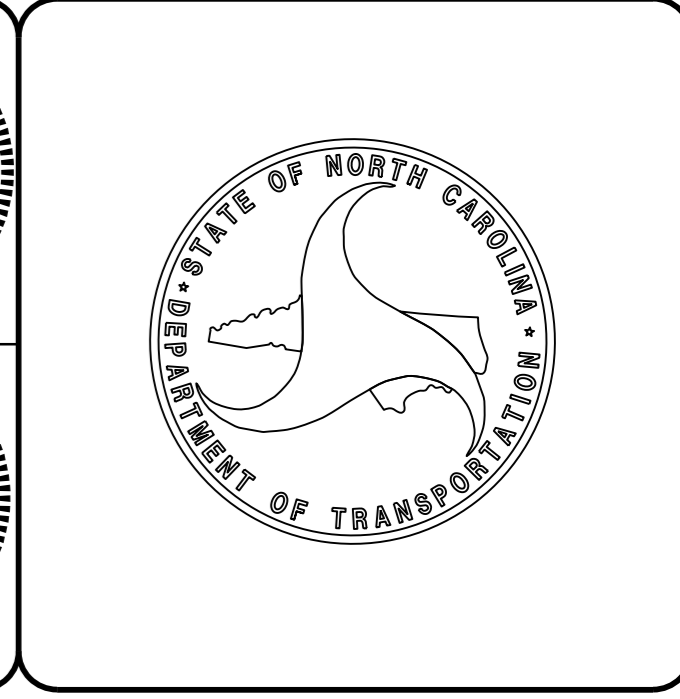
LANG JONES  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

*Dwayne H. Alligood*  
SIGNATURE: 03/18/2014

ROADWAY DESIGN ENGINEER

*Dwayne H. Alligood*  
SIGNATURE: 03/18/2014



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 \$\$\$USERNAME\$\$\$

INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE, GUARDRAIL AND EARTHWORK QUANTITIES
4	PLAN AND PROFILE SHEET
4A	RIGHT OF WAY SHEET
TMP1-TMP2	TRAFFIC MANAGEMENT PLANS
EC1-EC3	EROSION CONTROL SHEETS
UC1-UC4	UTILITY CONSTRUCTION SHEETS
X1A	CROSS-SECTION SUMMARY
X1-X2	CROSS-SECTIONS
S1-S14	STRUCTURE PLANS (BRIDGE)

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Super-elevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2012 SPECIFICATIONS  
EFFECTIVE: 01-17-12  
REVISED: 07/30/12

GRADE LINE:  
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

UNDERDRAINS:

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

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

### BOUNDARIES AND PROPERTY:

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

### BUILDINGS AND OTHER CULTURE:

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

### HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⊥
Wetland Boundary	-WLB-
Proposed Lateral, Tail, Head Ditch	→
False Sump	▽

### RAILROADS:

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

### RIGHT OF WAY:

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

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
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:

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

### UTILITIES:

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

### TELEPHONE:

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

### WATER:

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

### TV:

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

### GAS:

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

### SANITARY SEWER:

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

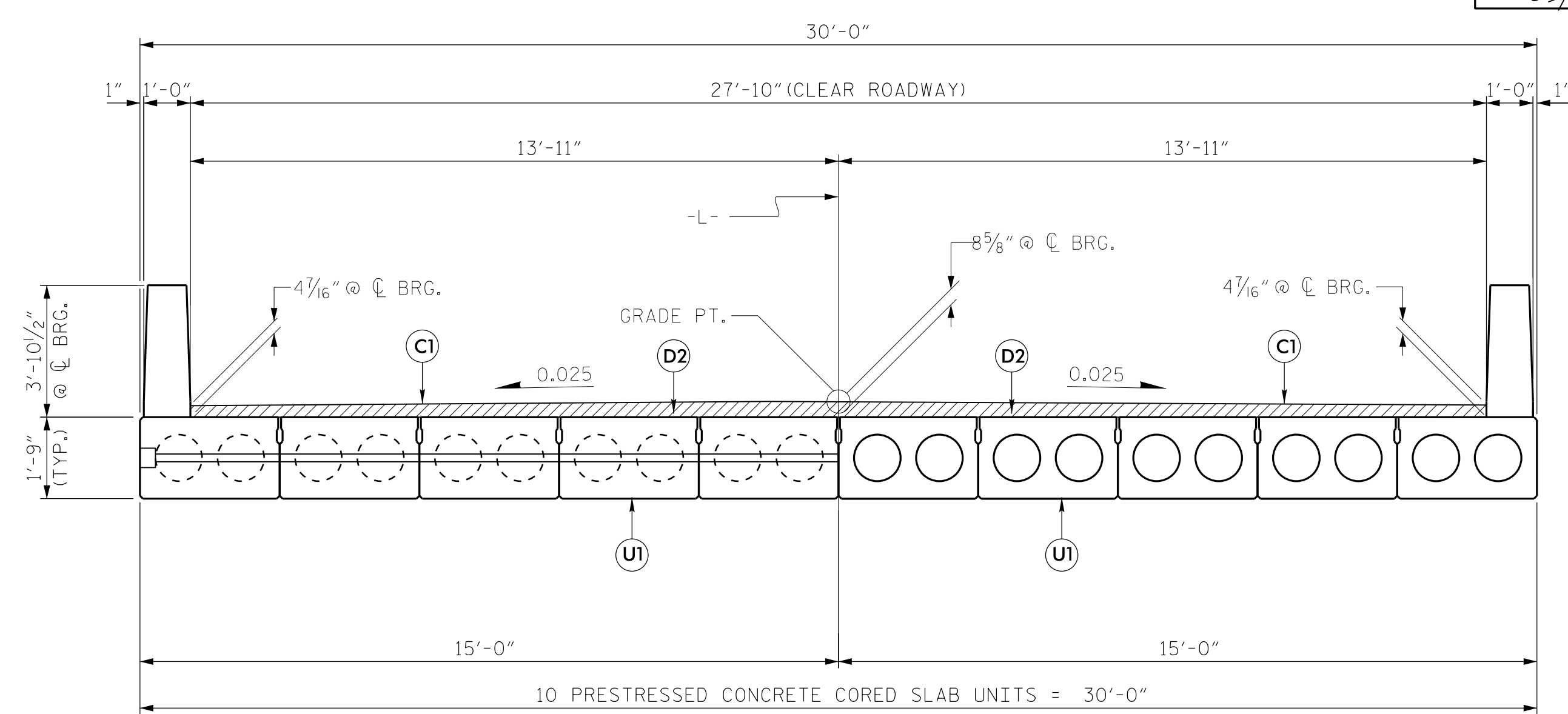
### MISCELLANEOUS:

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

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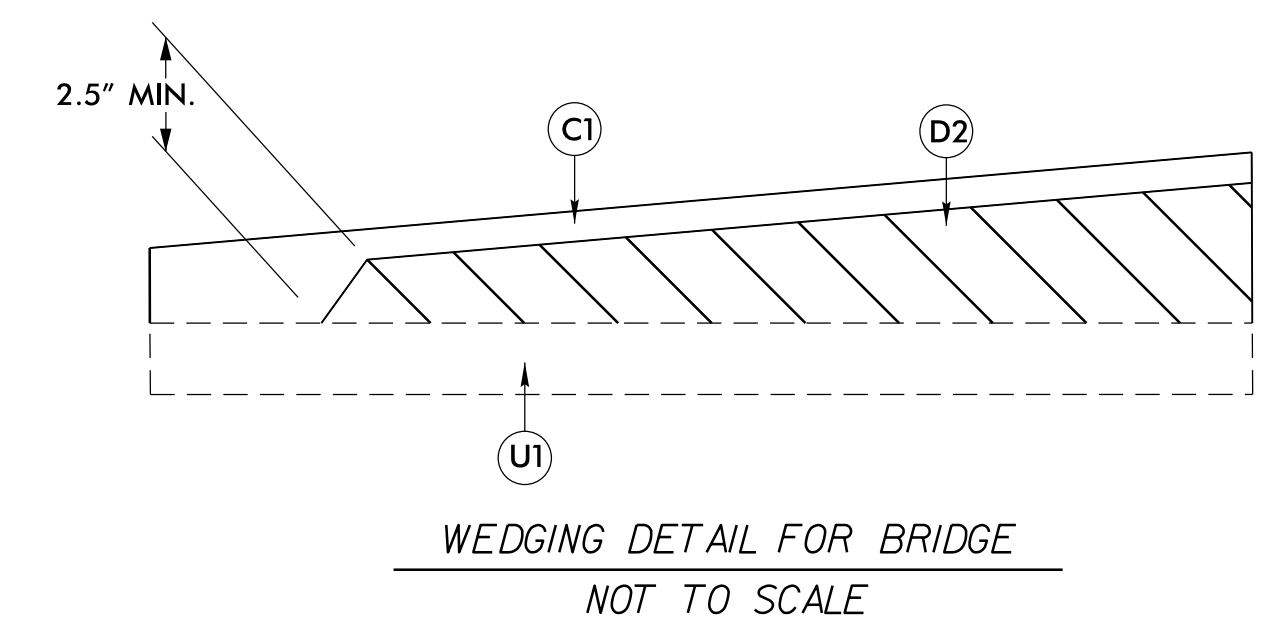
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 336 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
U1	CONCRETE CORED SLABS

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

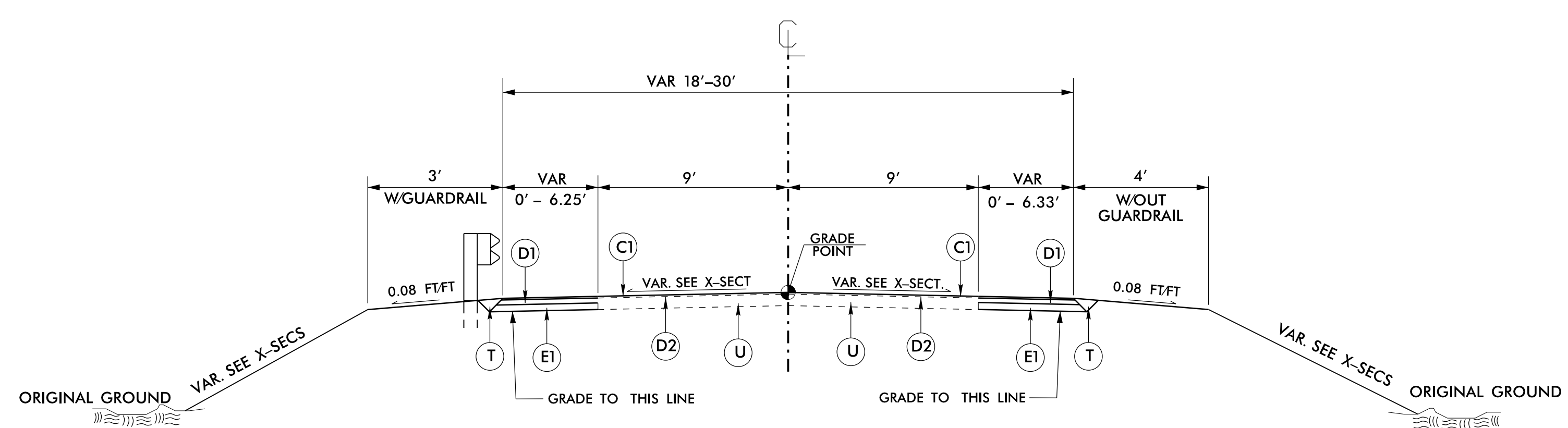


TYPICAL BRIDGE SECTION (NTS)

-L- 12+01.88 - 12+64.13

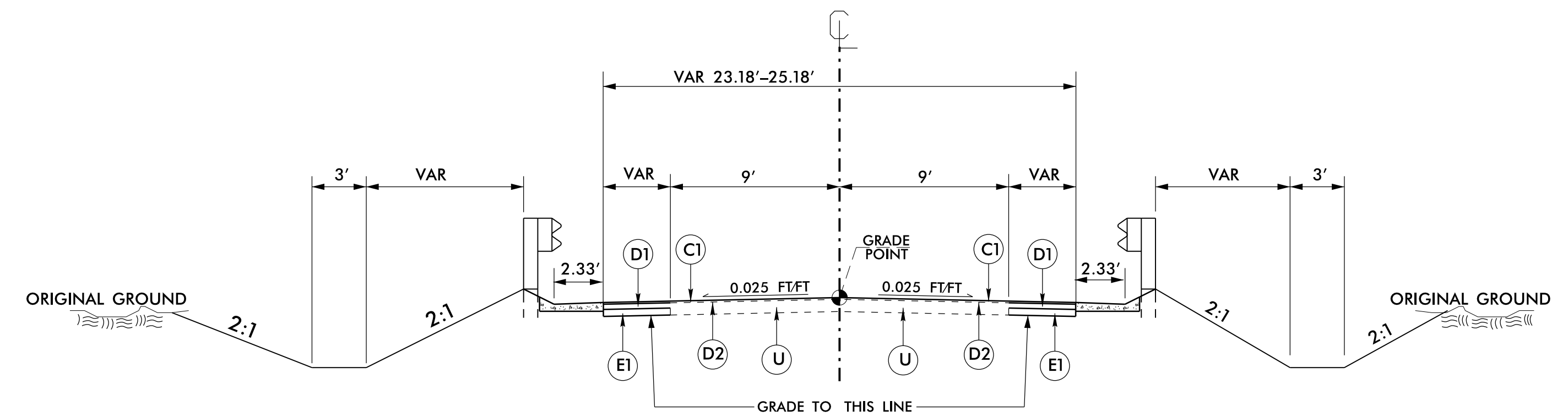


WEDGING DETAIL FOR BRIDGE  
NOT TO SCALE



USE TYPICAL SECTION #1 (NTS)

-L- 10+35.00 - 11+90.88  
-L- 12+75.13 - 14+00.00



USE TYPICAL SECTION #2 (NTS)

-L- 12+75.13 - 13+31.79

REVISIONS

8/17/99

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
SUMMARY OF QUANTITIES

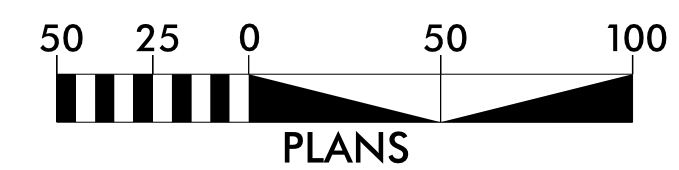
ITEM	SECT	QUANTITY	UNIT	ITEM DESCRIPTION	ITEM	SECT	QUANTITY	UNIT	ITEM DESCRIPTION
1	800	1	LS	MOBILIZATION	31	SP	350	LF	SAFETY FENCE
2	801	1	LS	CONSTRUCTION SURVEYING	32	1630	5	CY	SILT EXCAVATION
3	SP	1	LS	REINFORCED BRIDGE APPROACH FILL, -L- STA 12+33.00	33	1631	500	SY	MATTING FOR EROSION CONTROL
4	226	1	LS	GRADING	34	1632	70	LF	1/4" HARDWARE CLOTH
5	226	200	CY	UNDERCUT EXCAVATION	35	SP	80	SY	FLOATING TURBIDITY CURTAIN
6	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	36	SP	250	LF	WATTLE
7	300	90	SY	FOUNDATION CONDITIONING GEOTEXTILE	37	SP	5	LB	POLYACRYLAMIDE (PAM)
8	305	144	LF	18" DRAINAGE PIPE	38	1660	1	ACRE	SEEDING AND MULCHING
9	305	80	LF	24" DRAINAGE PIPE	39	1661	50	LB	SEED FOR REPAIR SEEDING
10	310	24	LF	15" R.C. PIPE CULVERTS, CLASS III	40	1661	0.2	TON	FERTILIZER FOR REPAIR SEEDING
11	340	156	LF	PIPE REMOVAL	41	SP	1	LS	RELOCATE EXISTING 6" WATER MAIN
12	610	55	TON	ASPHALT CONCRETE BASE COURSE, TYPE B25.0B					
13	610	90	TON	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B					
14	610	190	TON	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	42	402	1	LS	REMOVAL OF EXISTING STRUCTURE AT -L- STA 12+33.00
15	620	20	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG64-22	43	412	1	LS	UNCLASSIFIED STRUCTURE EXCAVATION
16	840	2	EA	MASONRY DRAINAGE STRUCTURES	44	SP	1	EA	PDA TESTING
17	840	2	EA	FRAME WITH GRATE, STD 840.29	45	420	26.2	CY	CLASS A CONCRETE (BRIDGE)
18	846	114	LF	SHOULDER BERM GUTTER	46	422	1	LS	BRIDGE APPROACH SLABS
19	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III	47	425	3954	LB	REINFORCING STEEL (BRIDGE)
20	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	48	450	700	LF	HP 12 X 53 STEEL PILES
21	876	5	TON	RIP RAP, CLASS I	49	450	6	EA	PILE REDRIVES
22	876	20	TON	RIP RAP, CLASS B	50	SP	120	LF	VERTICAL CONCRETE BARRIER RAIL
23	876	65	SY	GEOTEXTILE FOR DRAINAGE	51	876	261	TON	RIP RAP, CLASS II (2'-0" THICK)
24	1605	520	LF	TEMPORARY SILT FENCE	52	876	287	SY	GEOTEXTILE FOR DRAINAGE
25	1610	5	TON	STONE FOR EROSION CONTROL, CLASS B	53	430	1	LS	ELASTOMETRIC BEARINGS
26	1610	5	TON	SEDIMENT CONTROL STONE	54	430	600	LF	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS
27	1615	1	ACRE	TEMPORARY MULCHING					
28	1620	50	LB	SEED FOR TEMPORARY SEEDING					
29	1620	0.2	TON	FERTILIZER FOR TEMPORARY SEEDING					
30	1622	200	LF	TEMPORARY SLOPE DRAINS					

REVISIONS

8/17/99

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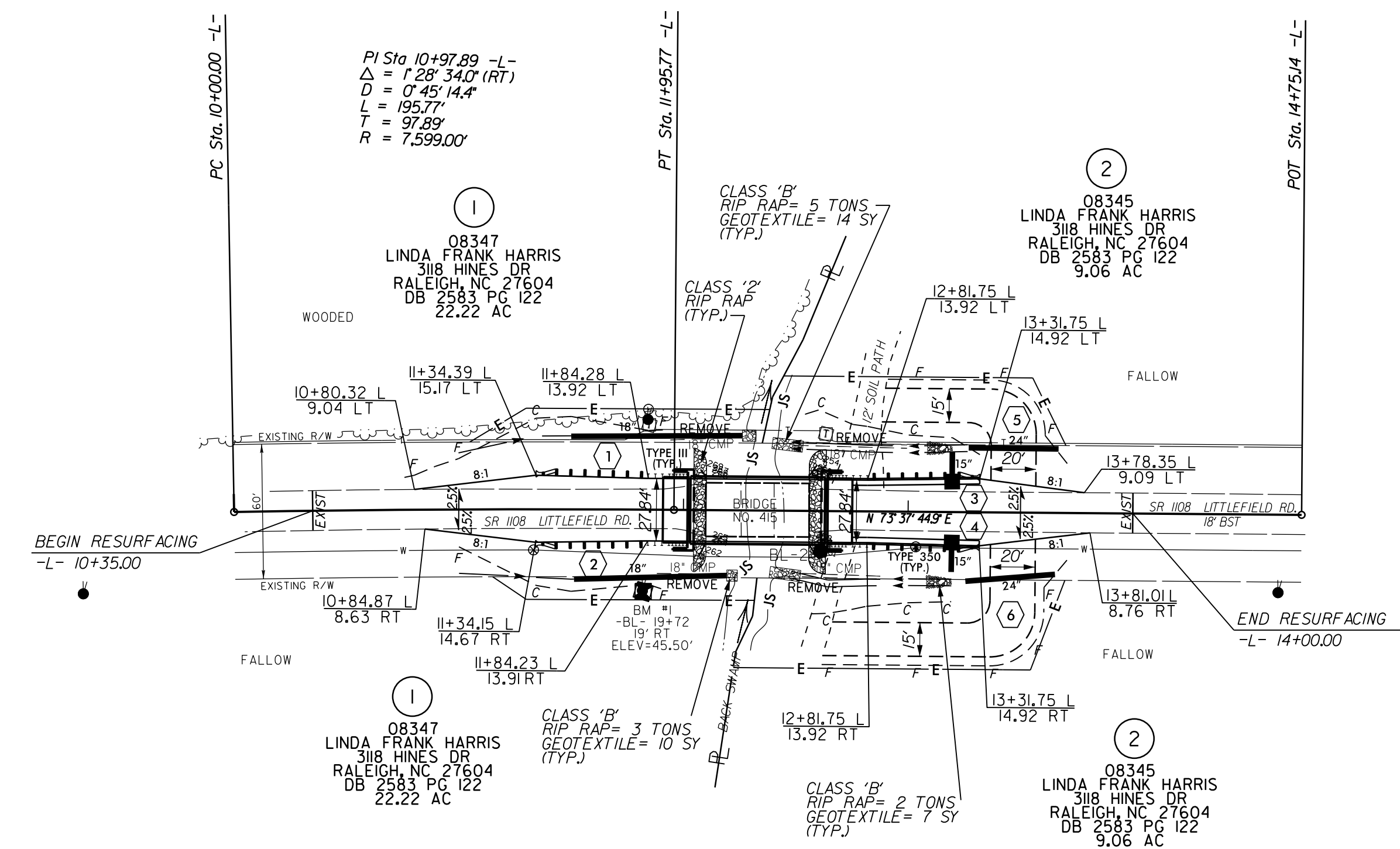




SHOULDER BEAM GUTTER  
-L- STA 12+75.13 - 13+31.79 LT/RT

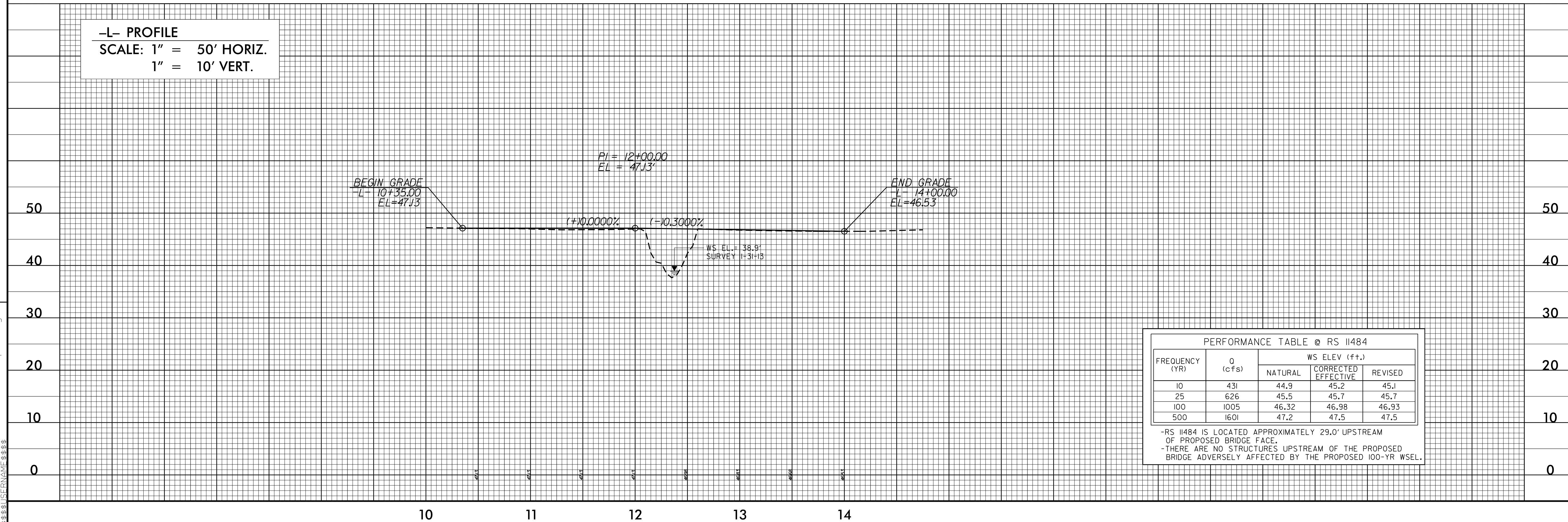
WORK POINT DESCRIPTION	
WORK POINT #1	-L- STATION 12+01.88 CL
WORK POINT #2	-L- STATION 12+64.13 CL

**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-2"  
 WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF  
 NORTHING: 616262.872(ft) EASTING: 2469085.960(ft)  
 ELEVATION: 45.744(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988105  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- STATION 10+00.00 IS  
 S 76° 58' 11" W 261.6295'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88



Point	North	East	Elevation	Description
1	615835.1920	2467594.9010	58.8000	BL-1
2	616262.8720	2469085.9600	45.7440	BL-2
3	616552.0510	2469951.6800	53.4600	BL-3
BM1	616222.7290	2469015.5920	45.5000	R/R SPIKE SET IN POWER POLE NO. 9-25/7

-L- PROFILE  
 SCALE: 1" = 50' HORIZ.  
 1" = 10' VERT.



FREQUENCY (YR)	Q (cfs)	WS ELEV (ft.)		
		NATURAL	CORRECTED EFFECTIVE	REVISED
10	431	44.9	45.2	45.1
25	626	45.5	45.7	45.7
100	1005	46.32	46.98	46.93
500	1601	47.2	47.5	47.5

-RS 11484 IS LOCATED APPROXIMATELY 29.0' UPSTREAM OF PROPOSED BRIDGE FACE.  
 -THERE ARE NO STRUCTURES UPSTREAM OF THE PROPOSED BRIDGE ADVERSELY AFFECTED BY THE PROPOSED 100-YR WSEL.



REVISIONS

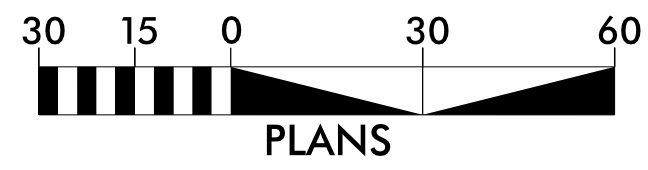
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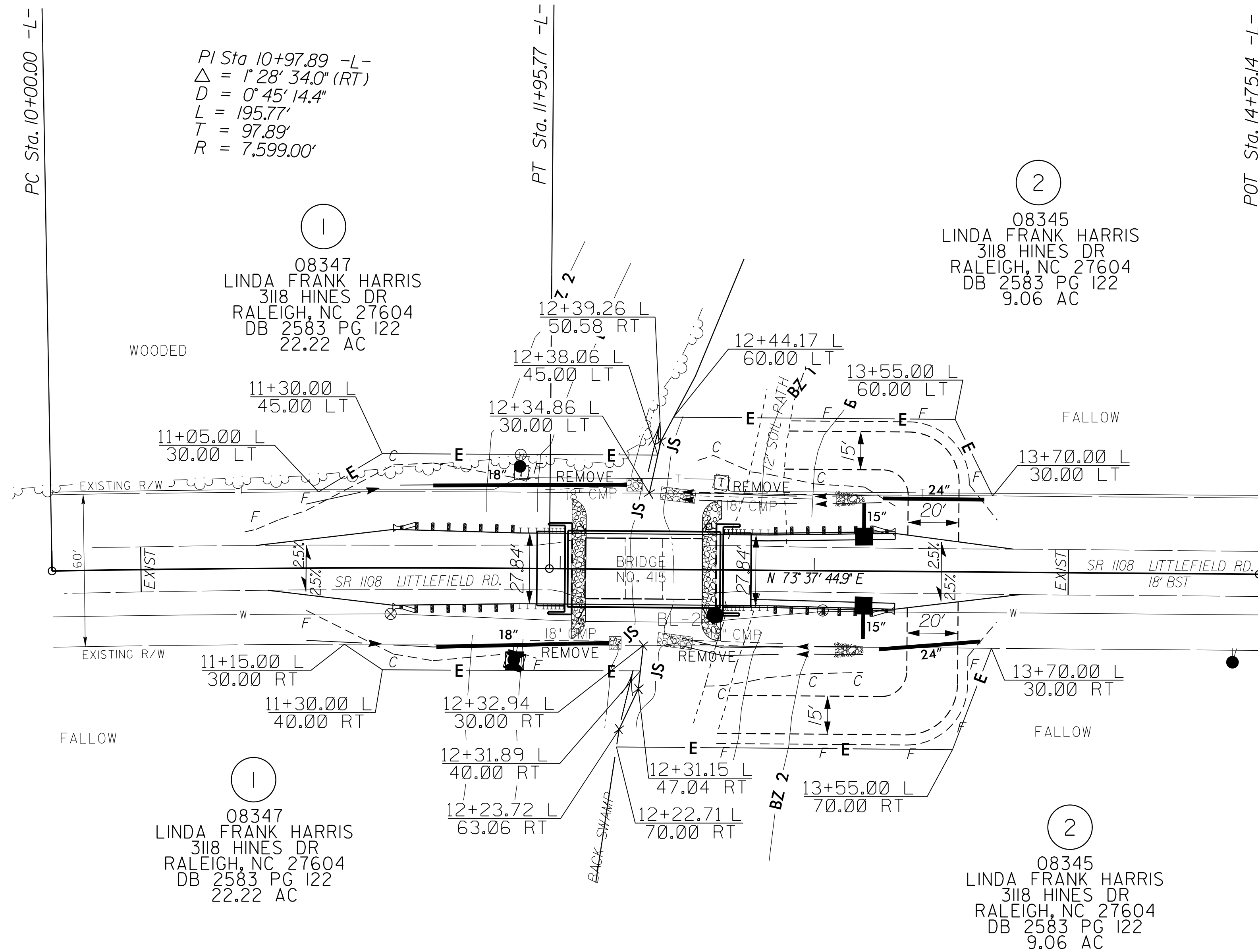
# RIGHT OF WAY AREA SUMMARY

PARCEL NO.	PROPERTY OWNER NAME	LOCATION	TOTAL PARCEL AREA [ACRES]	AREA TO BE DEDICATED (CONST. EASEMENT) [ACRES]	AREA TO BE PURCHASED (RIGHT OF WAY) [ACRES]	PARCEL AREA REMAINING [ACRES]
1	LINDA FRANK HARRIS	LT	22.22	0.041		22.15
		RT		0.026		
2	LINDA FRANK HARRIS	LT	9.06	0.085		8.85
		RT		0.123		

PROJECT REFERENCE NO. BD-5102Y	SHEET NO. 4A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
03/18/2014	03/18/2014



REVISIONS



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-2" WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF NORTHING: 616262.872(ft) EASTING: 2469085.960(ft) ELEVATION: 45.744(ft)

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

8/17/99

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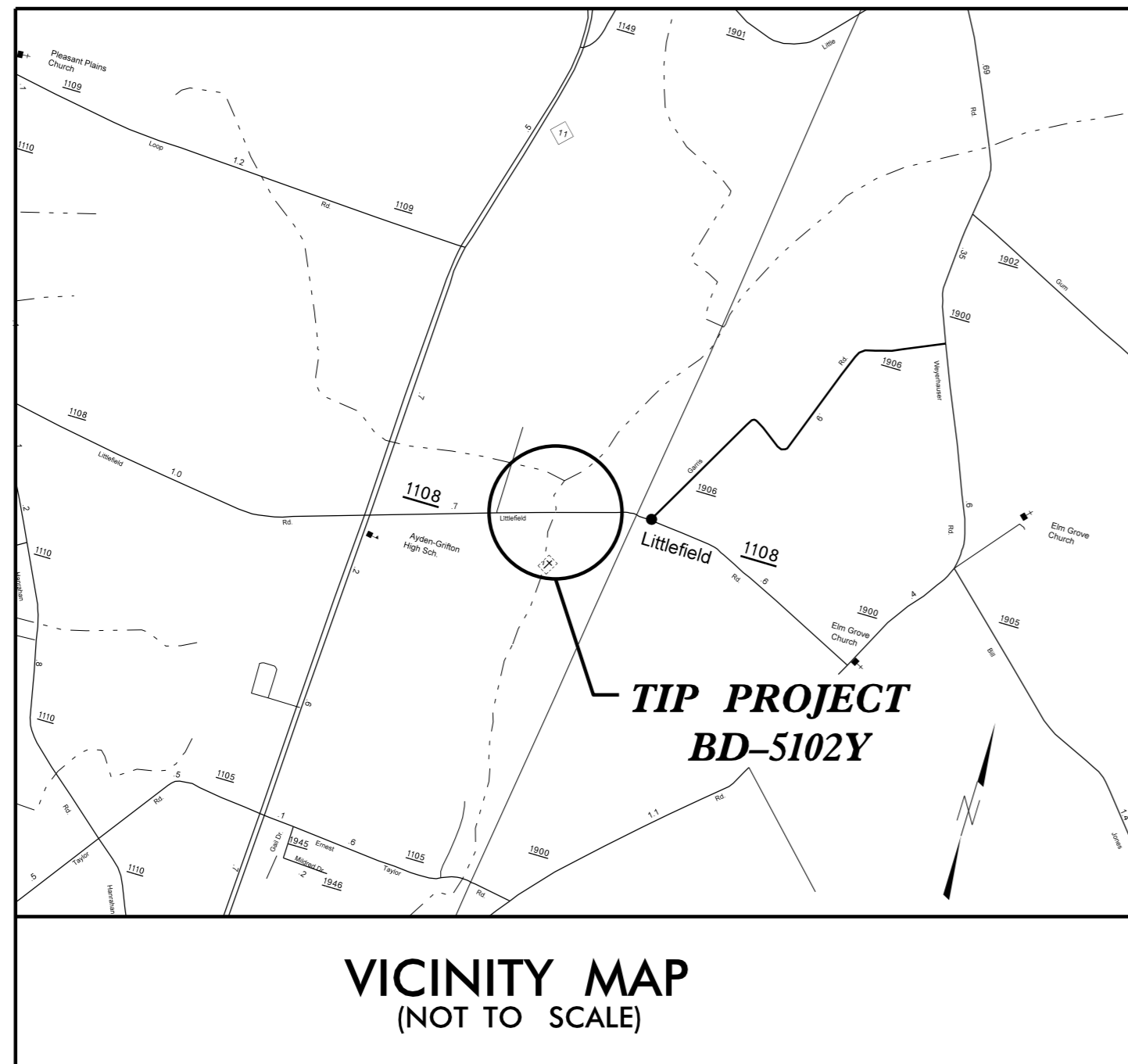
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>BD-5102Y</b>	<b>1</b>	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45348.1.25	BRZ-1108(17)	PE	
45348.2.25	BRZ-1108(17)	RW	
45348.3.25	BRZ-1108(17)	CONST	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**PITT COUNTY**

**LOCATION: BRIDGE #415 OVER BACK SWAMP  
ON SR 1108**

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

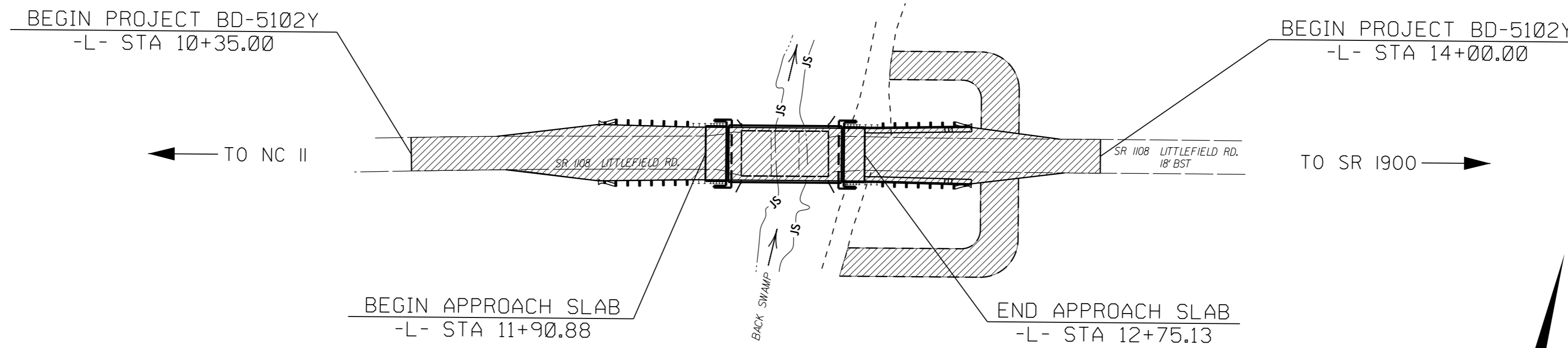


VICINITY MAP  
(NOT TO SCALE)

See Sheet 1-A For Index of Sheets

**EROSION AND SEDIMENT CONTROL MEASURES**

Std. #	Description	Symbol
1605.01	High Vis Temporary Silt Fence	
1632.03	Rock Inlet Sediment Trap Type C	
SP	Wattle	
SP	Wattle with Polyacrylamide (PAM)	



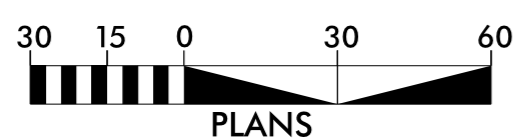
**THIS PROJECT HAS  
BEEN DESIGNED TO  
SENSITIVE WATERSHED  
STANDARDS.**

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

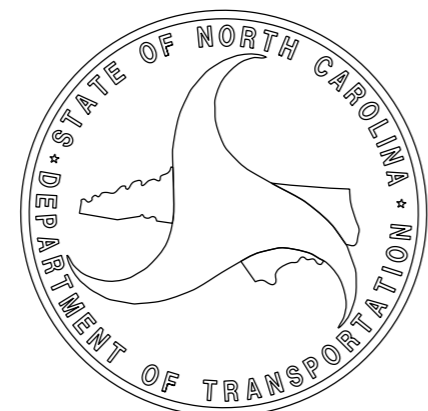
**TIP PROJECT: BD-5102Y**

**CONTRACT:**

**GRAPHIC SCALE**



DIVISION TWO DDC 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.**

**2012 STANDARD SPECIFICATIONS**

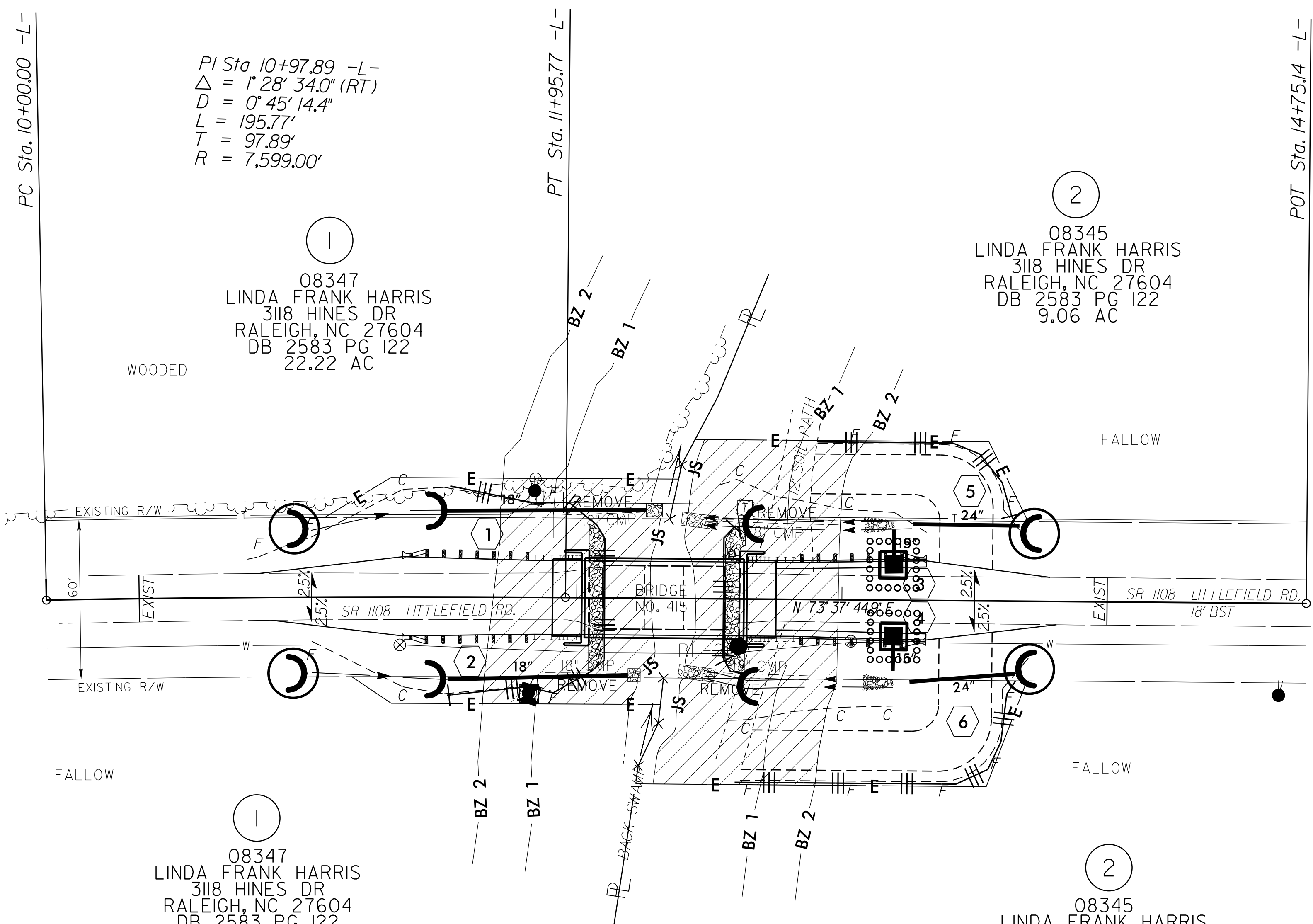
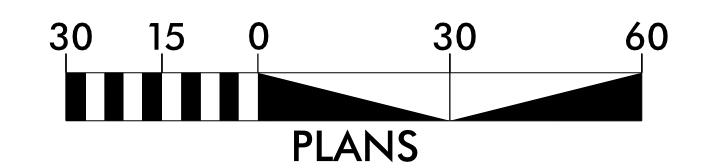
Prepared in the Office of:  
**DIVISION 2 DDC**  
PO Box 1587  
Greenville, NC 27835

Lang Jones, DDC Engineer  
Level IIIA  
Certification #276

**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	



PI Sta 10+97.89 -L-  
 $\Delta = 1^{\circ} 28' 34.0''$  (RT)  
 $D = 0^{\circ} 45' 14.4''$   
 $L = 195.77'$   
 $T = 97.89'$   
 $R = 7,599.00'$

08347  
 LINDA FRANK HARRIS  
 3118 HINES DR  
 RALEIGH, NC 27604  
 DB 2583 PG 122  
 22.22 AC

08345  
 LINDA FRANK HARRIS  
 3118 HINES DR  
 RALEIGH, NC 27604  
 DB 2583 PG 122  
 9.06 AC

08347  
 LINDA FRANK HARRIS  
 3118 HINES DR  
 RALEIGH, NC 27604  
 DB 2583 PG 122

08345  
 LINDA FRANK HARRIS  
 3118 HINES DR  
 RALEIGH, NC 27604

ENVIRONMENTALLY SENSITIVE AREA  
 SEE PROJECT SPECIAL PROVISIONS

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.  
 ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.  
 CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AS NEEDED OR DIRECTED BY THE ENGINEER.

### SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) 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 HOW ZONES.

Std. #	Description	Symbol
1605.01	High Vis Temporary Silt Fence	
1632.03	Rock Inlet Sediment Trap Type C	
SP	Wattle	
SP	Wattle with Polyacrylamide	

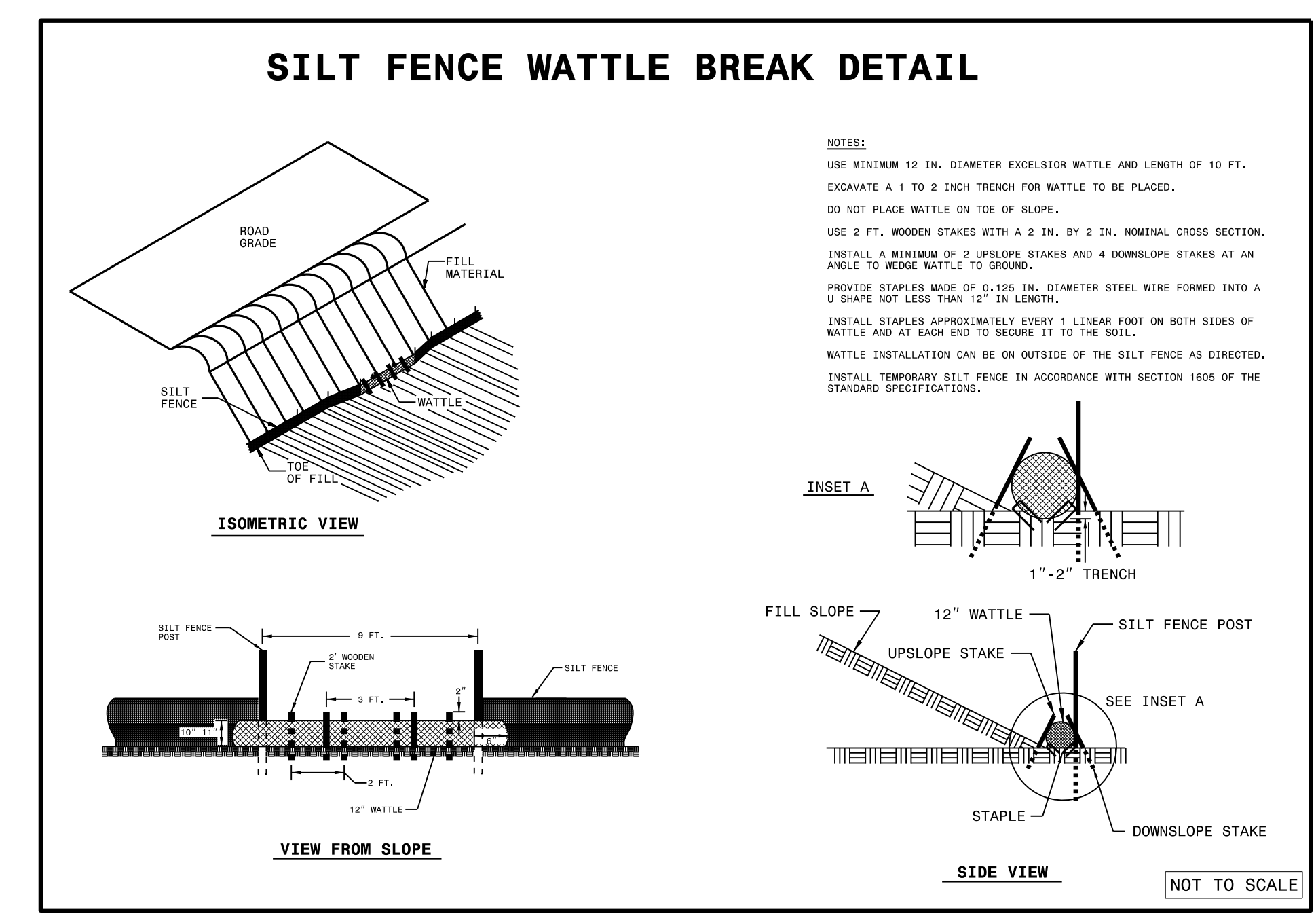
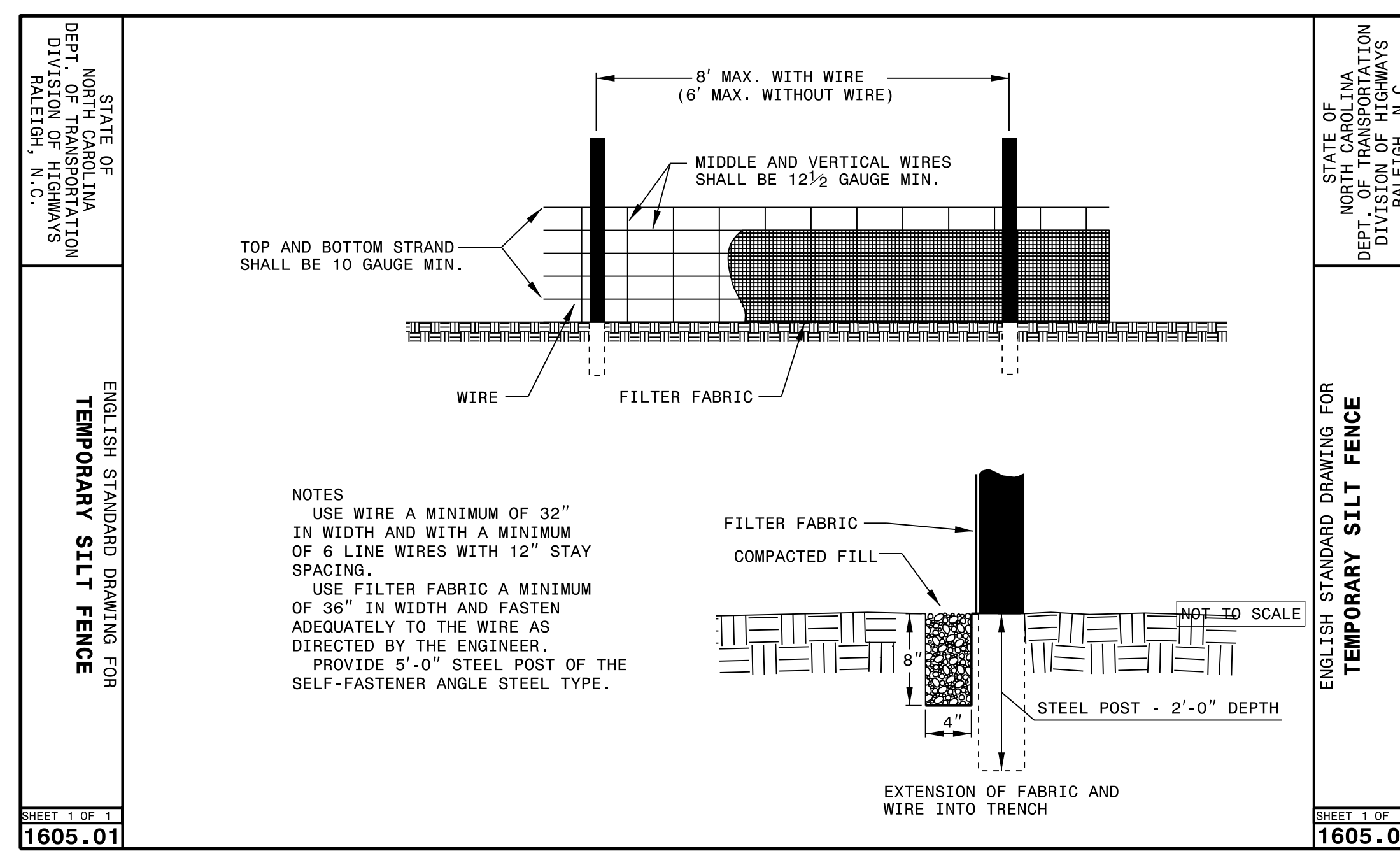
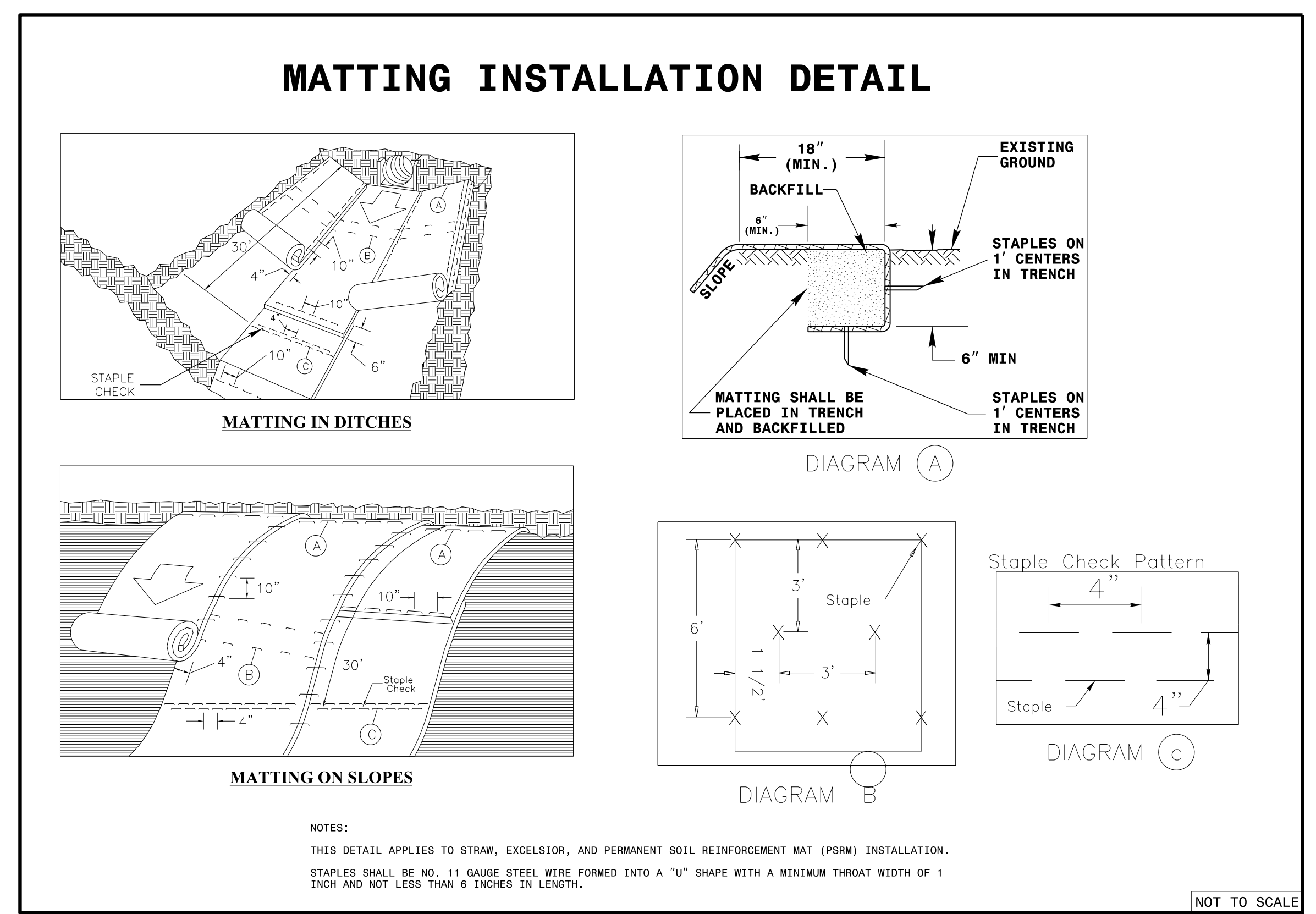
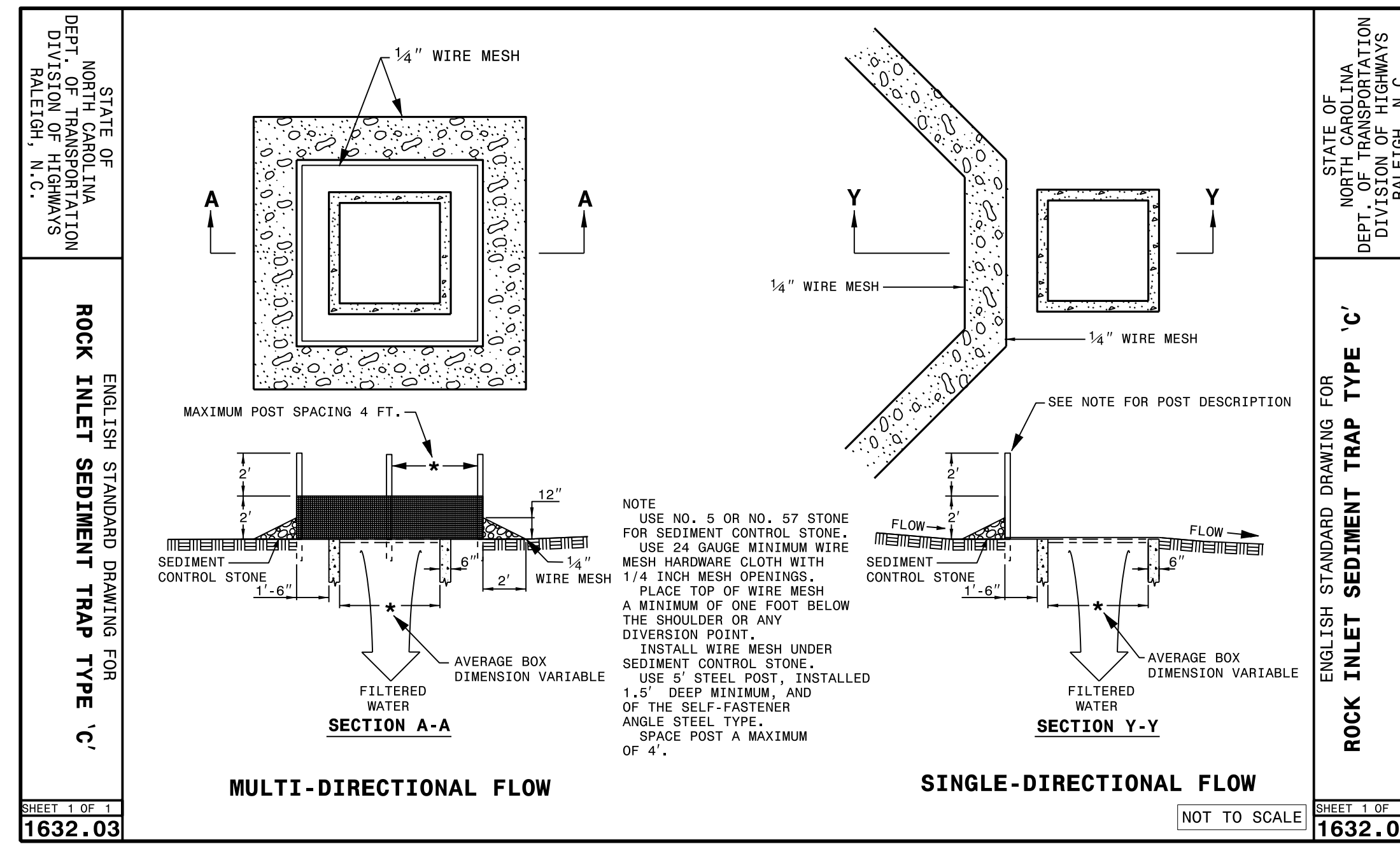
REVISIONS

8/17/99

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8/17/99

REVISIONS



20-MAR-2014 09:15  
 9:58:51 AM  
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09/08/99

**TIP PROJECT: BD-5102Y**

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\$\$\$\$\$USERNAME\$\$\$\$\$

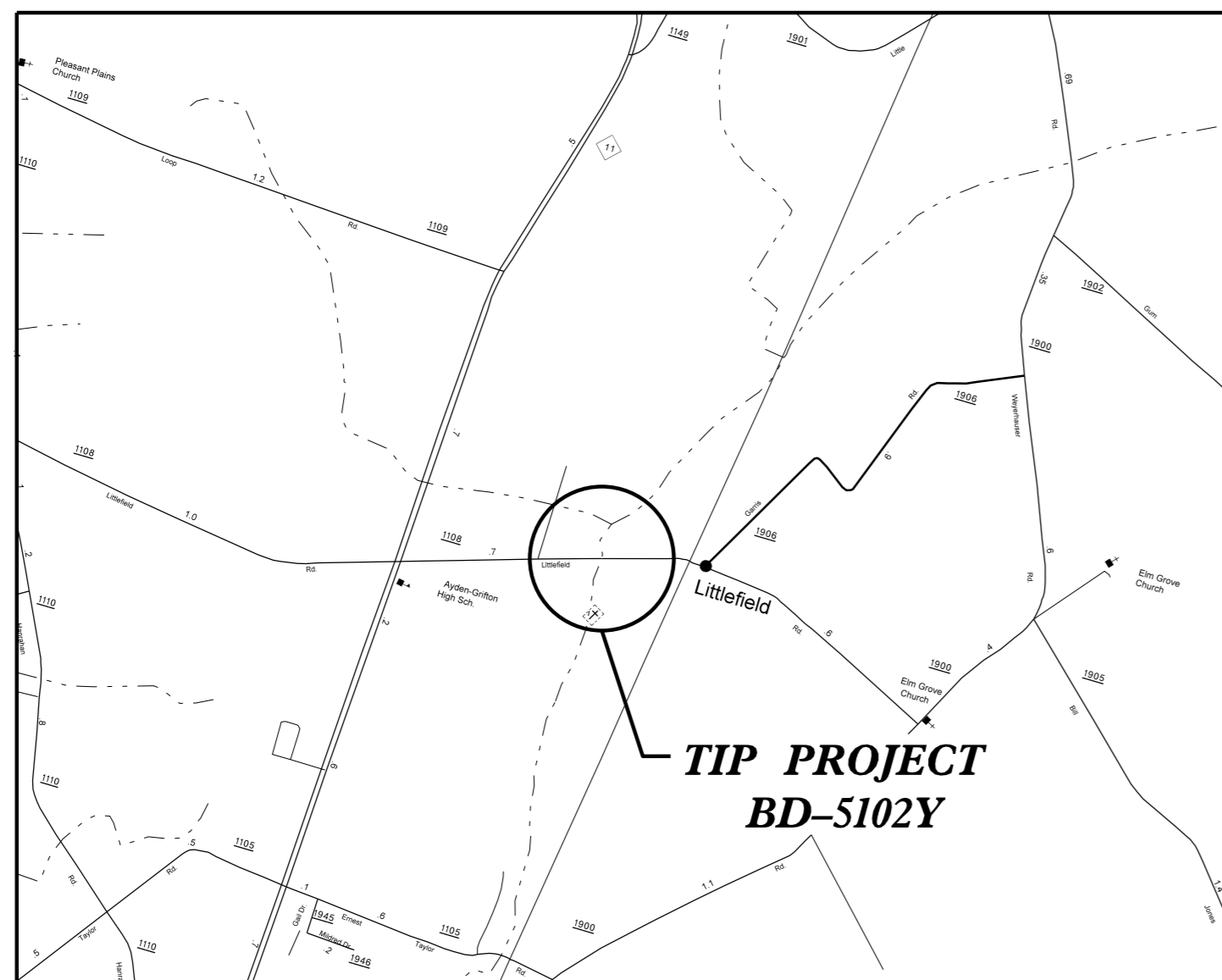
T.I.P. NO.	SHEET NO.
BD-5102Y	UC-1

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS  
PITT COUNTY**

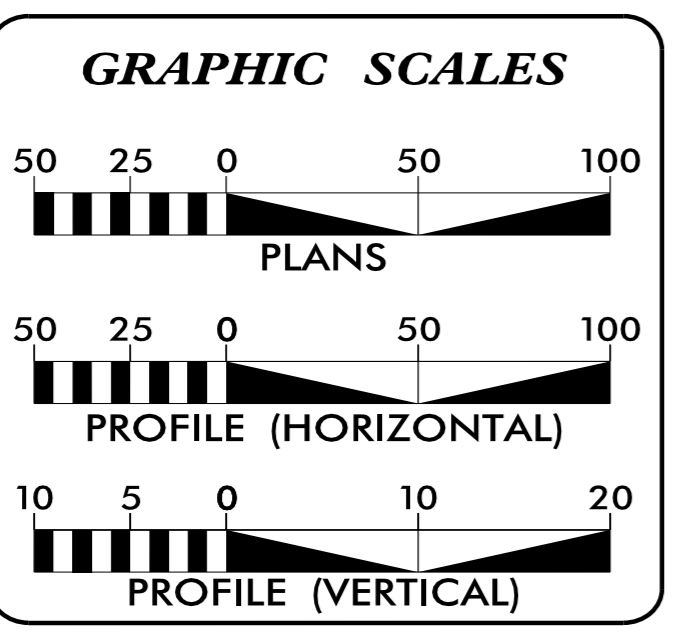
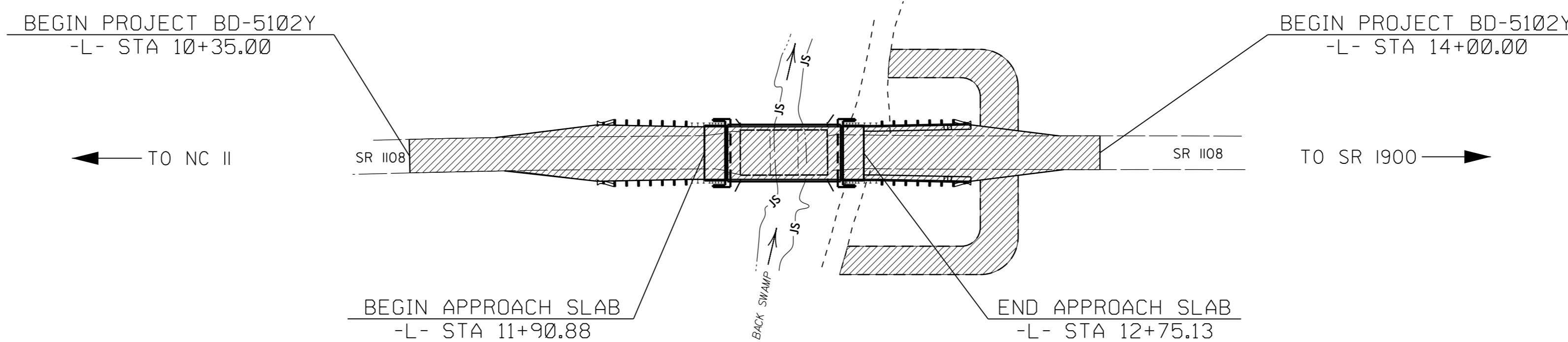
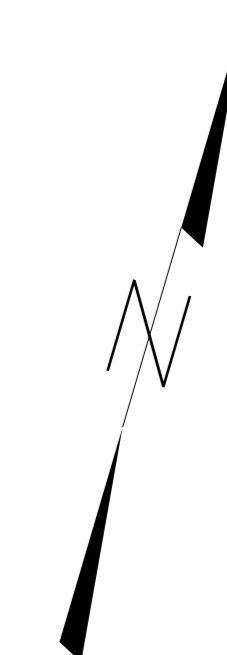
**LOCATION: BRIDGE #415 OVER BACK SWAMP ON SR 1108**

**TYPE OF WORK: WATER MAIN RELOCATION**



**TIP PROJECT  
BD-5102Y**

**VICINITY MAP  
(NOT TO SCALE)**



**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	SUMMARY OF QUANTITIES
UC-3	UTILITY CONSTRUCTION SHEET
UC-4	DETAILS SHEET

**WATER OWNER ON PROJECT**  
(1) THE TOWN OF AYDEN - WATER

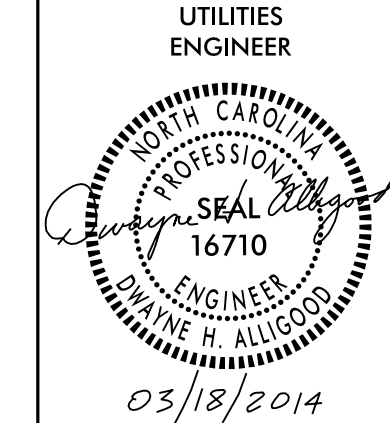
SEAL

03/18/2014

PREPARED IN THE OFFICE OF:  
**DIVISION OF HIGHWAYS  
DIVISION 2 - DDC**

P.O. BOX 1587  
GREENVILLE, NC 27835  
PHONE (252) 439-2800  
FAX (252) 830-3352

**DWAYNE H. ALLIGOOD, P.E.** UTILITIES ENGINEER  
**VAN TRAN, E.I.** UTILITIES PROJECT DESIGNER



# UTILITY CONSTRUCTION

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

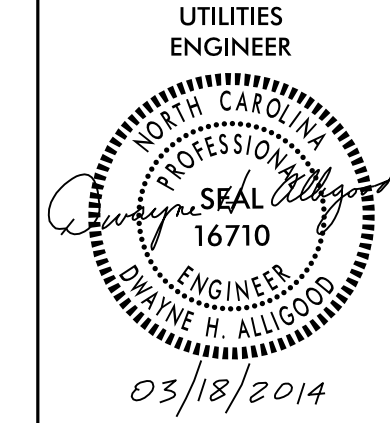
<i>WATER MAIN</i>	<i>QUANTITY</i>	<i>UNIT</i>	<i>ITEM DESCRIPTION</i>
	40	LF	6" DI PIPE - PC 350 (AWWA C600)
	350	LF	8" HDPE PIPE - DR9 (AWWA C906)
	2	EA	6" GATE VALVE AND VALVE BOX
	2	EA	DI PIPE TO HDPE TRANSITION
	2	EA	CONCRETE THRUST COLLAR
	538	LF	ABANDON 6" UTILITY PIPE
	250	LF	TEMPORARY SILT FENCE
	0.2	ACRES	SEEDING AND MULCHING

REVISIONS

8/17/99

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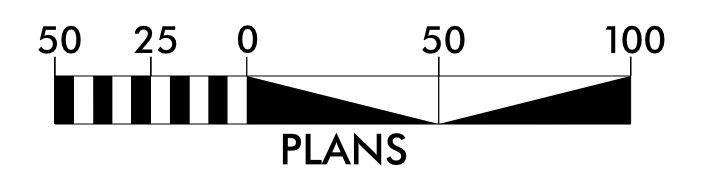




# UTILITY CONSTRUCTION PLAN

- NOTES:**
- 8" HDPE WATER MAIN TO CONFORM TO THE FOLLOWING: AWWA C906, AWWA M55, PRESSURE CLASS 200, DR9, DUCTILE IRON PIPE SIZE (DIPS) DIMENSIONS, AND MATERIAL DESIGNATION PE 3408 AND NSF APPROVED FOR POTABLE WATER.
  - THE PROPOSED WATER LINE RELOCATION DOES NOT IMPACT ANY ENVIRONMENTALLY SENSITIVE AREAS AND NO ENVIRONMENTAL PERMITS ARE REQUIRED.
  - LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY CONTRACTOR AND MAINTAIN 18" MINIMUM VERTICAL SEPARATION.
  - RECONNECT ALL WATER SERVICE LINES AS NECESSARY.

- LEGEND:**
- Temporary Silt Fence
  - Tapping Gate Valve (TGV)
  - HDPE to DIP Transition
  - Thrust Collar
  - Relocated Existing Fire Hydrant (RFH)



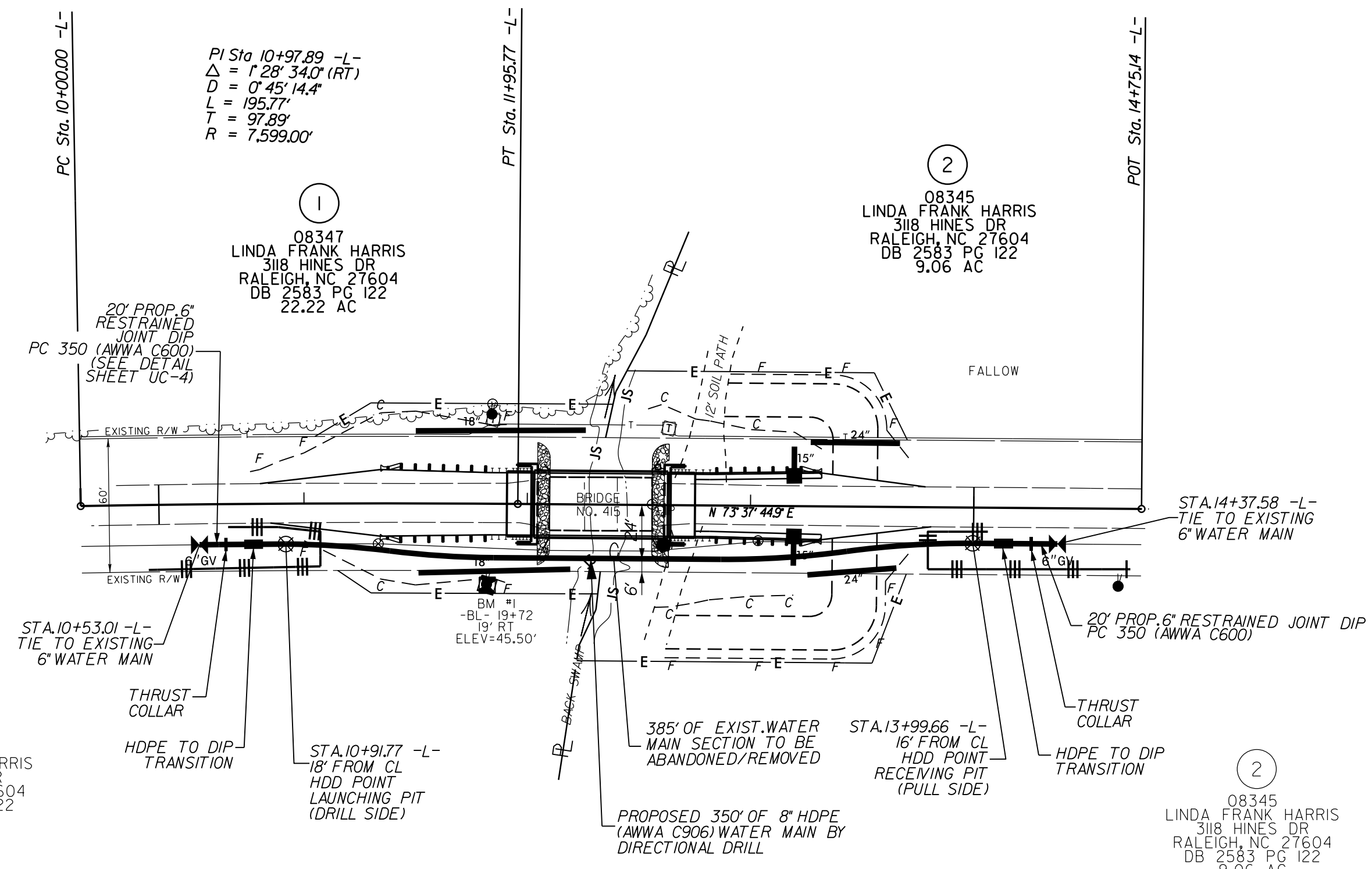
**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-2" WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF NORTHING: 616262.872(ft) EASTING: 2469085.960(ft) ELEVATION: 45.744(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988105

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- STATION IS

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

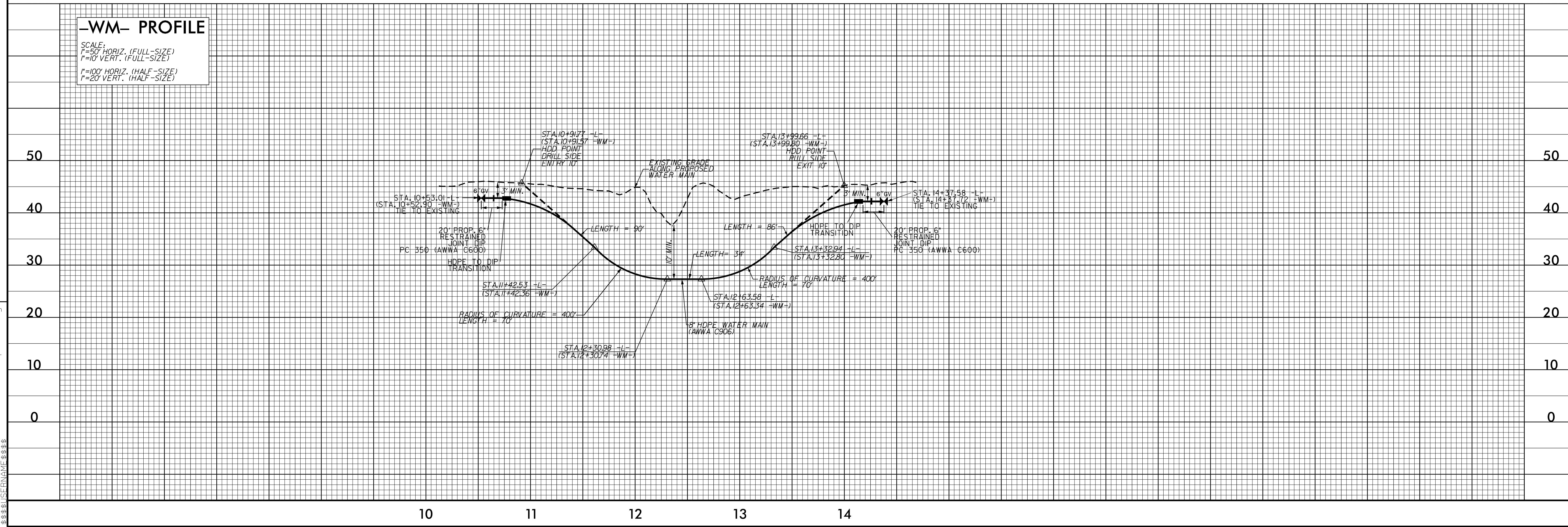


Point	North	East	Elevation	Description
1	615835.1920	2467594.9010	58.8000	BL-1
2	616262.8720	2469085.9600	45.7440	BL-2
3	616552.0510	2469951.6800	53.4600	BL-3
BM1	616222.7290	2469015.5920	45.5000	R/R SPIKE SET IN POWER POLE NO. 9-25/7

PROFILE ALONG PROPOSED WATER LINE -WM-

**-WM- PROFILE**

SCALE:  
 1"=50' HORIZ. (FULL-SIZE)  
 1"=10' VERT. (FULL-SIZE)  
 1"=100' HORIZ. (HALF-SIZE)  
 1"=20' VERT. (HALF-SIZE)



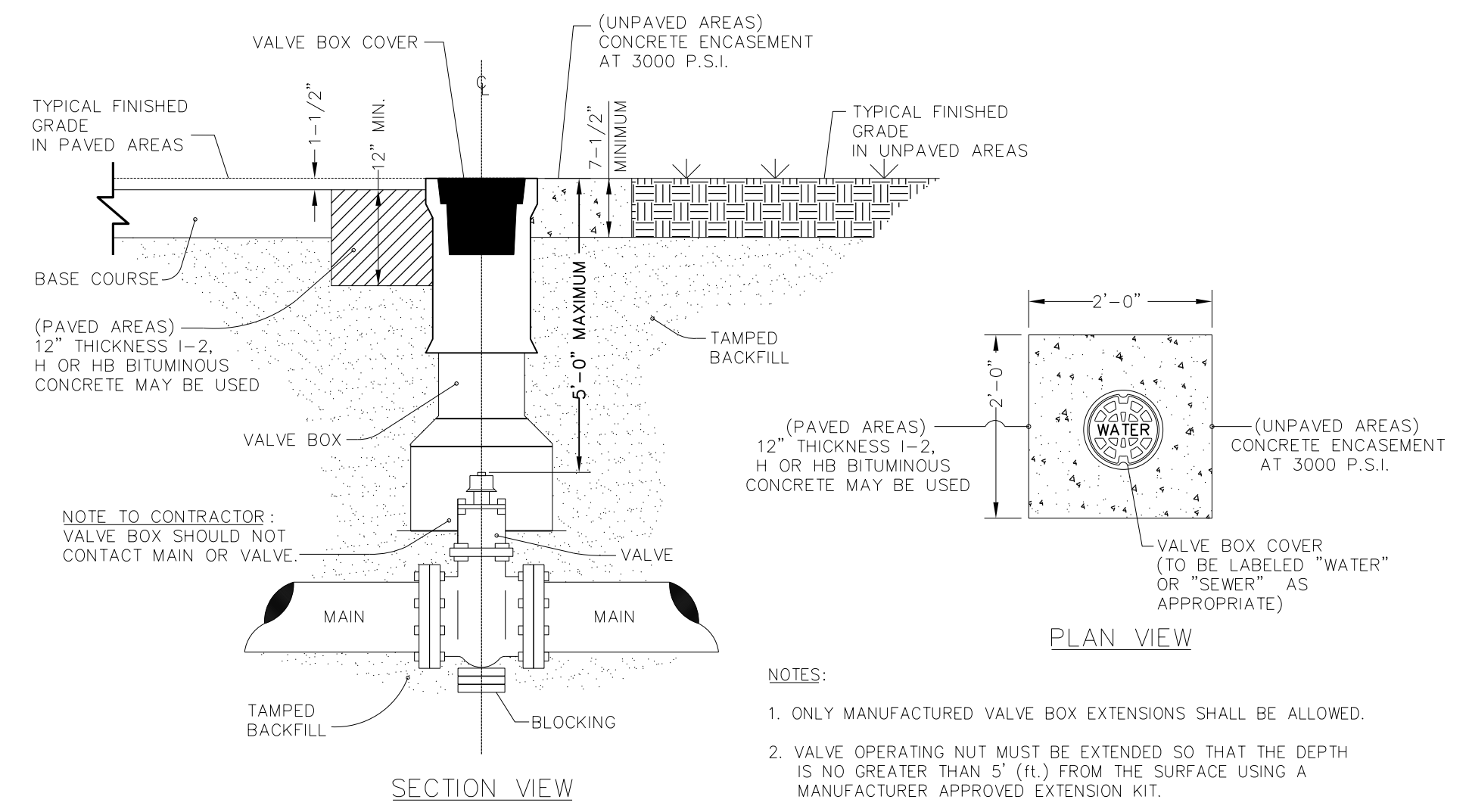
REVISIONS

8/17/99

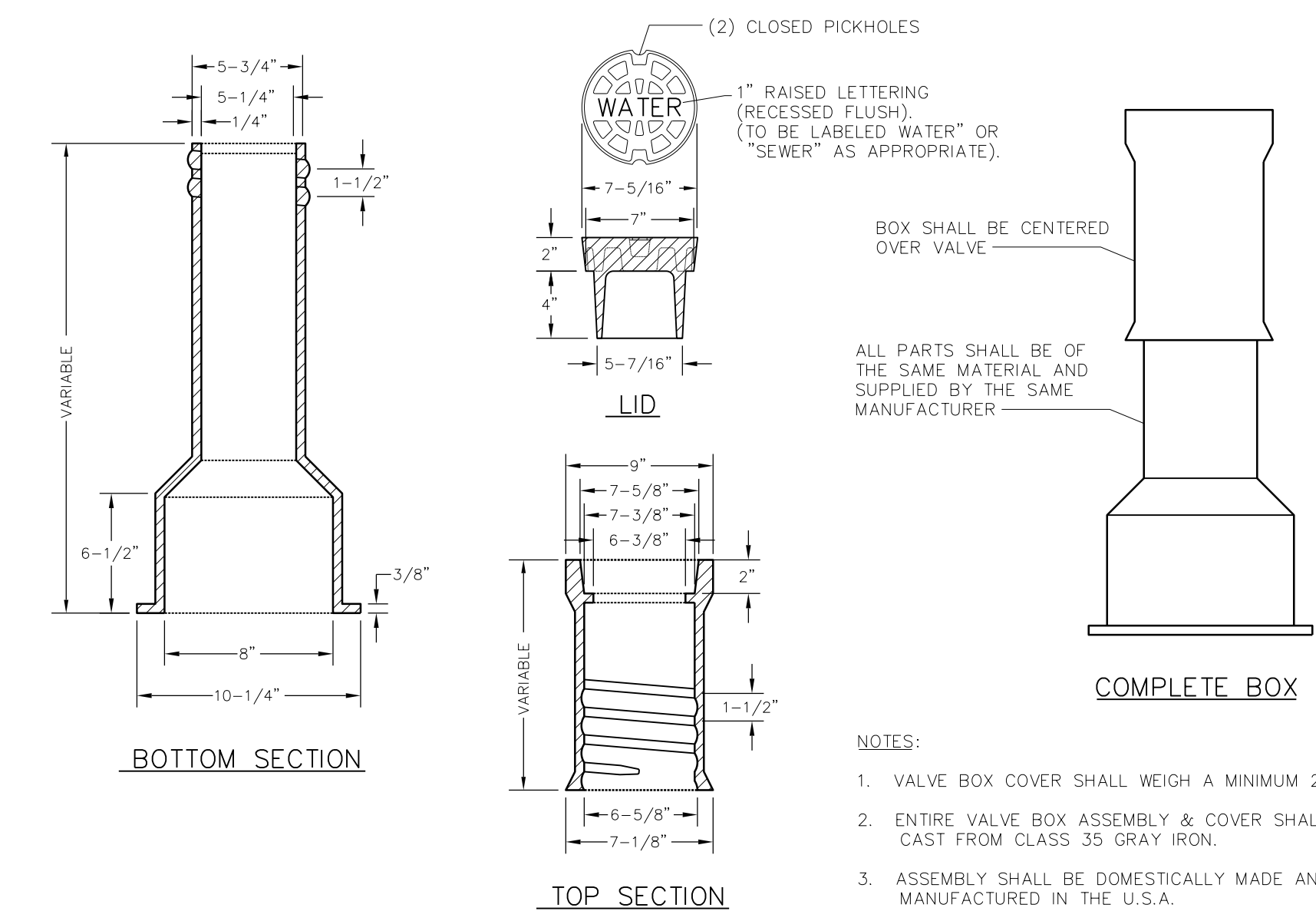
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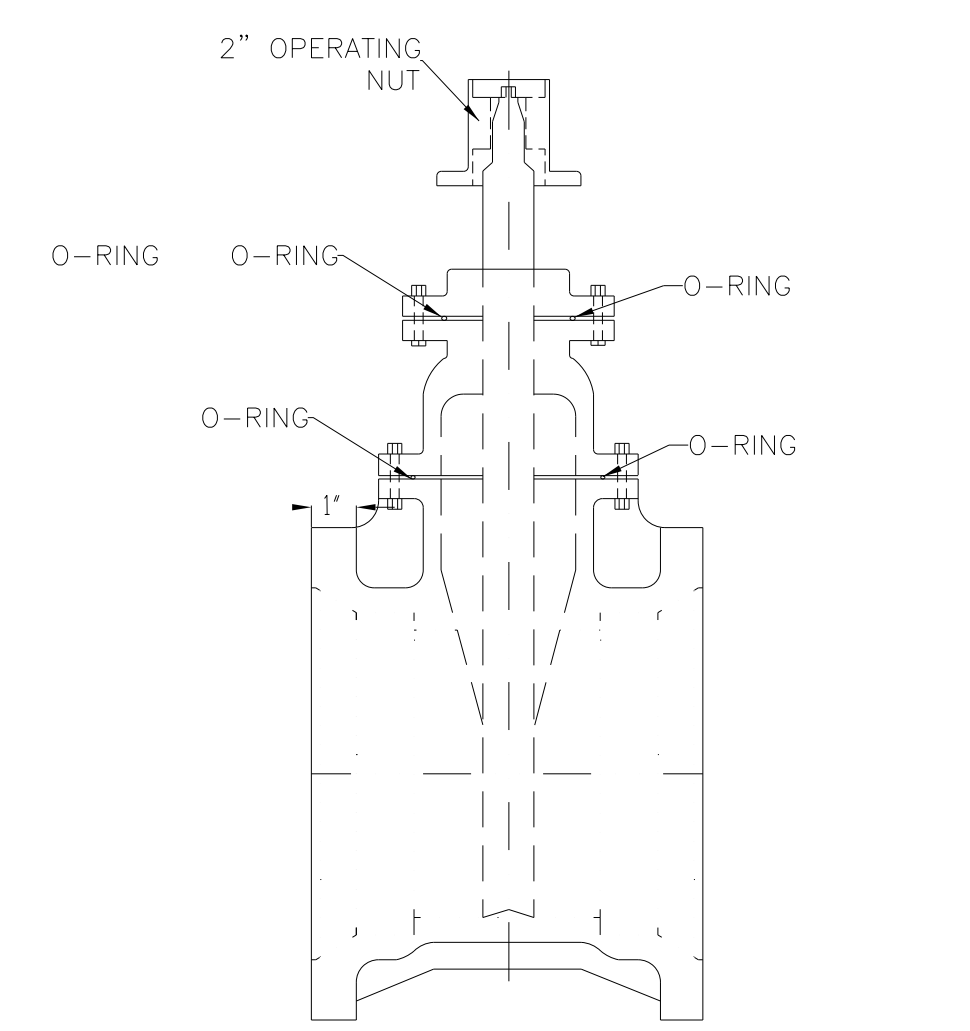
# UTILITY CONSTRUCTION DETAILS SHEET



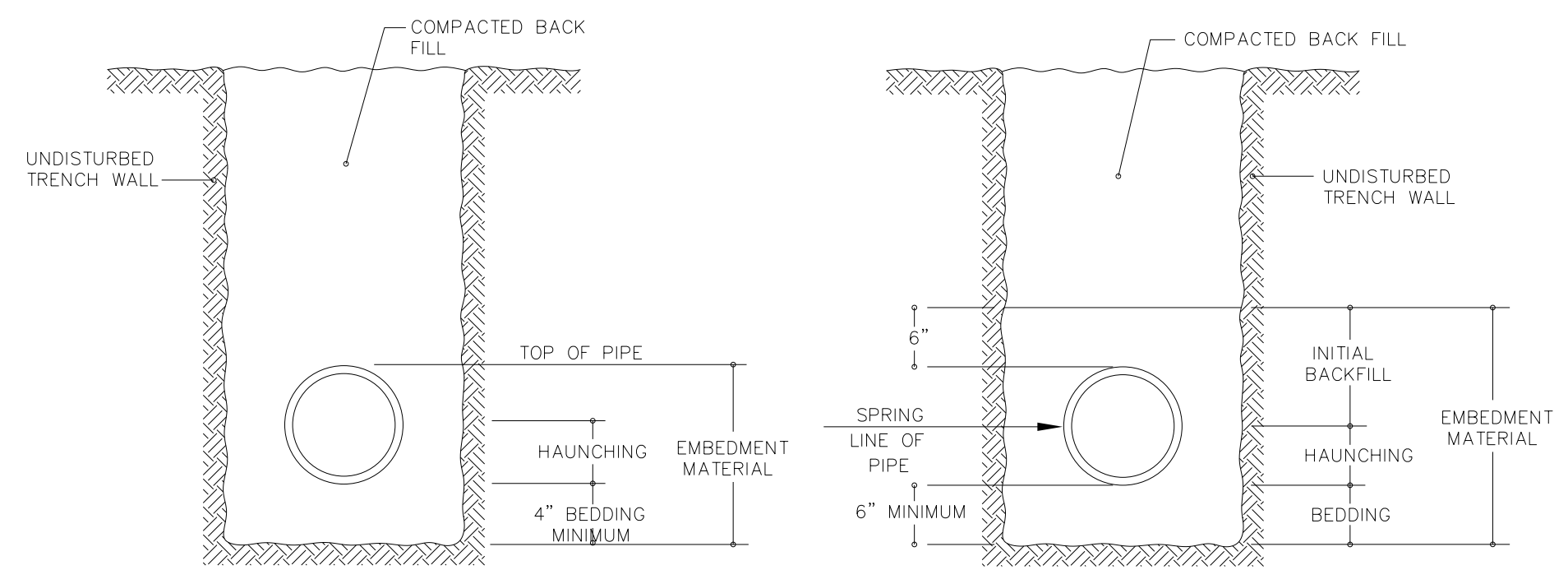
TYPICAL VALVE BOX  
 NTS



TYPICAL VALVE BOX  
 NTS



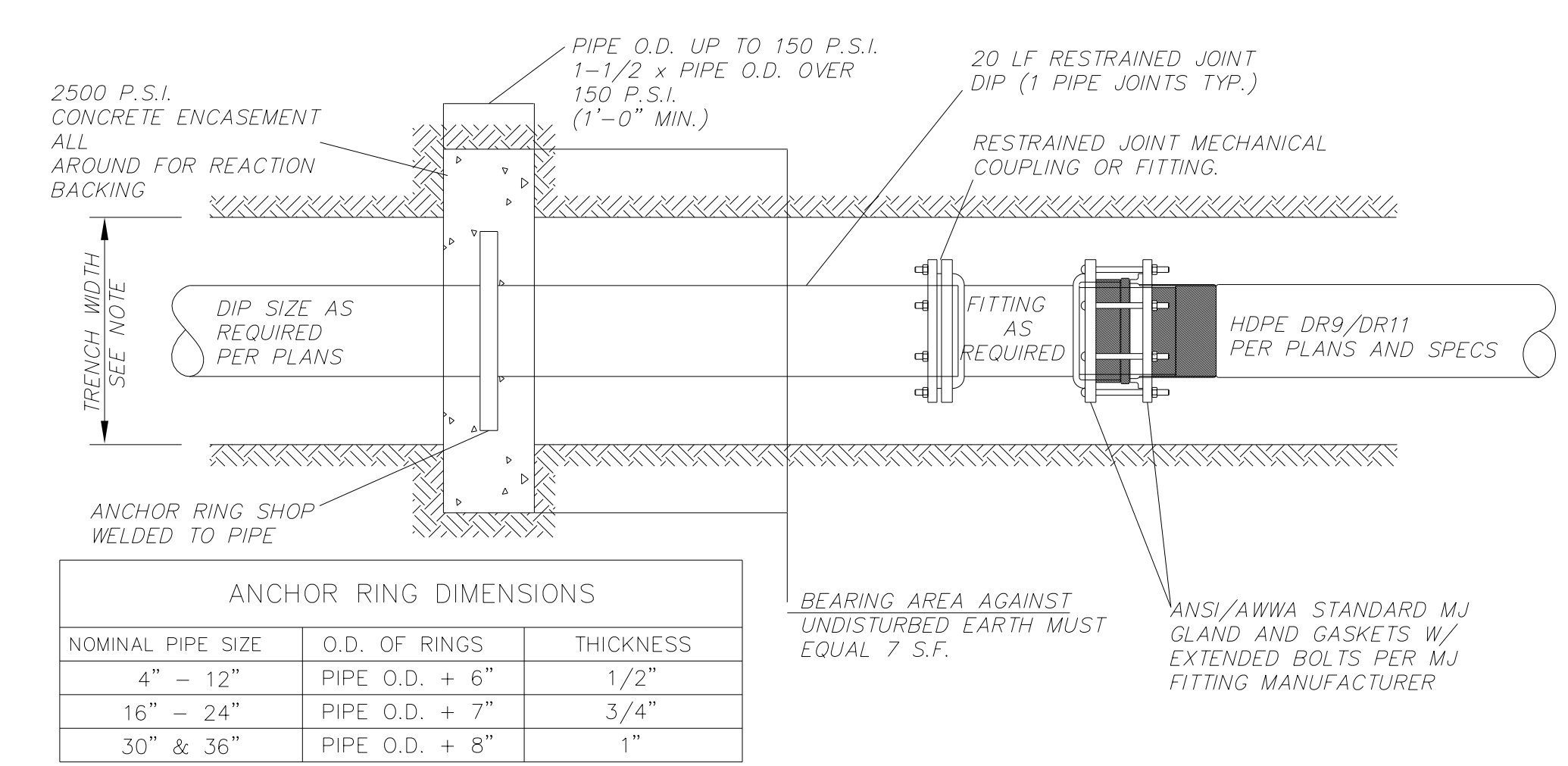
TYPICAL RESILIENT MECHANICAL JOINT GATE VALVE DETAIL  
 NTS



TYPICAL BEDDING FOR FLEXIBLE & SEMI-RIGID PIPE  
 NTS

**NOTES:**

1. EMBEDMENT MATERIAL MUST BE CLASS I (NO. 67 OR NO. 78M WASHED STONE IS TYPICALLY USED).
2. EMBEDMENT MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY FOR CLASS I MATERIAL.
3. STANDARD BEDDING SHALL BE UTILIZED FOR ALL CASES WHERE TRENCH BOTTOMS ARE UNSTABLE DUE TO SOIL TYPE, OR MOISTURE CONDITIONS.



TYPICAL DIP TO HDPE TRANSITION DETAIL WITH THRUST COLLAR  
 NTS

8/17/99

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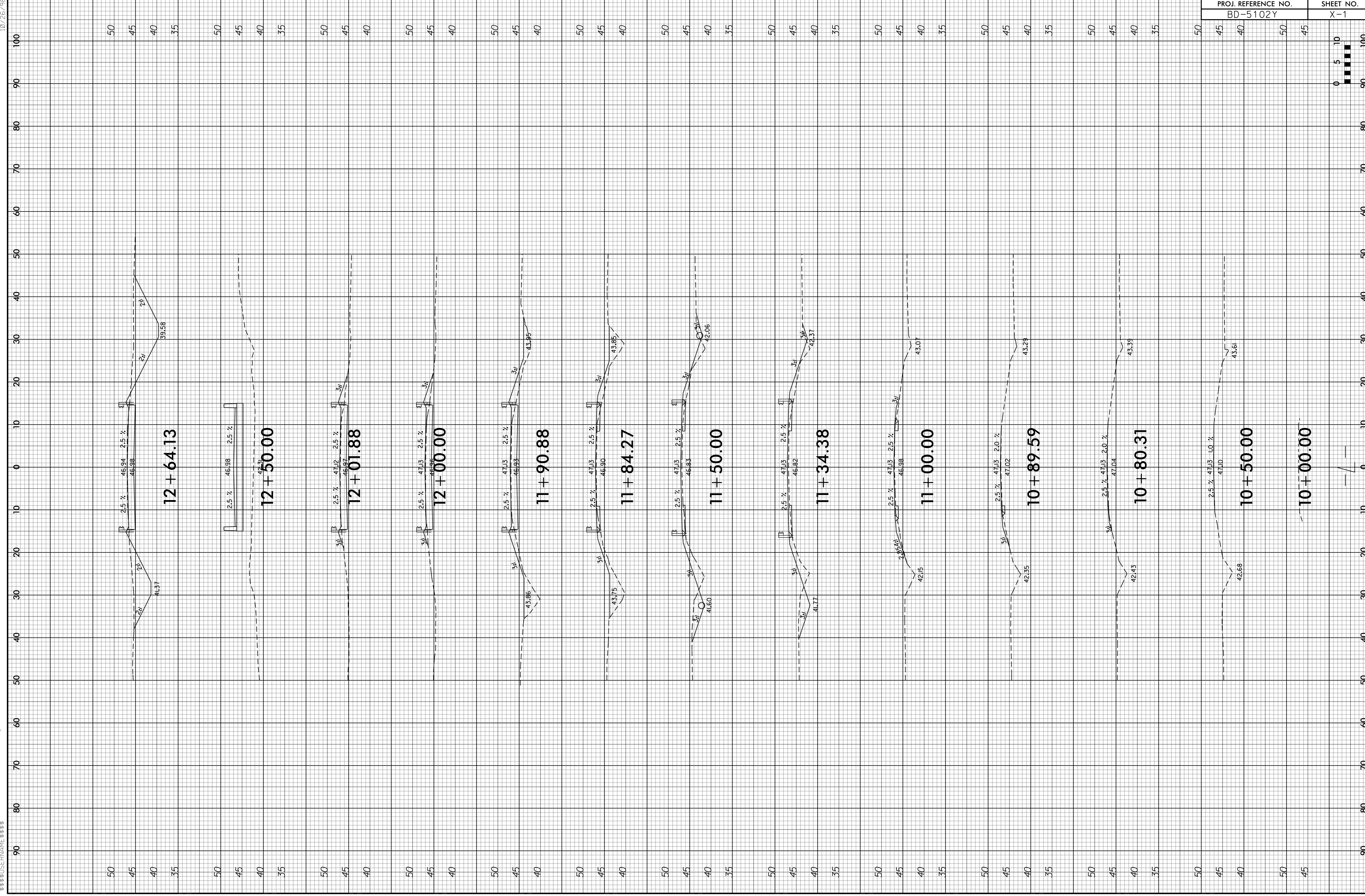
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

**CROSS-SECTION SUMMARY**  
*IN CUBIC YARDS*

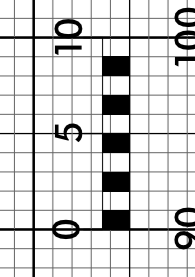
NOTE: Approximate quantities only. Unclassified excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, Removal of Existing Pavement and Breaking of Existing Pavement will be paid for at the contract Lump Sum price for "Grading".

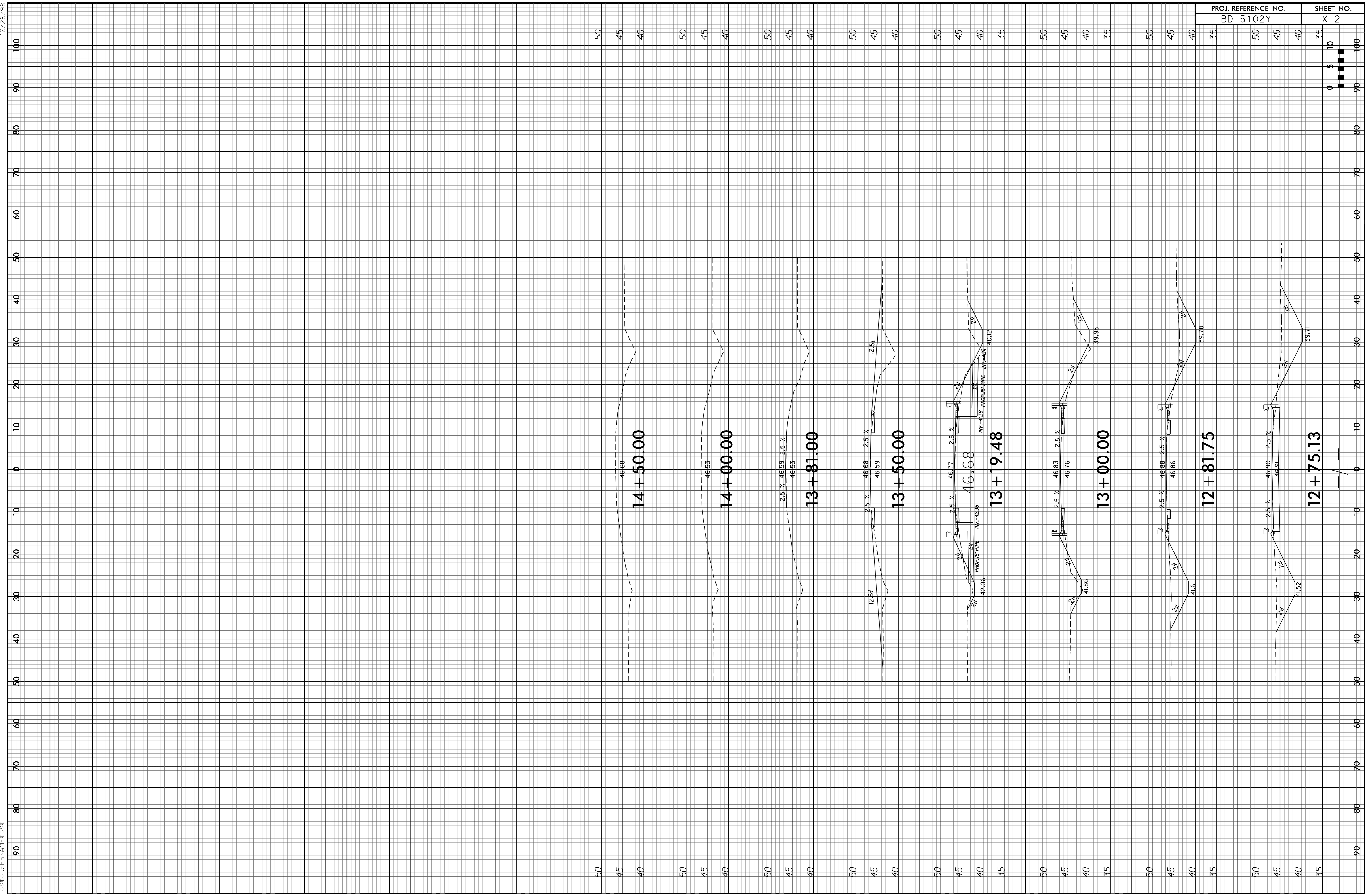
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

LOCATION (-L-)	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT
<i>10 + 80.31</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>10 + 89.59</i>	<i>0</i>	<i>0</i>	<i>1</i>
<i>11 + 00.00</i>	<i>1</i>	<i>0</i>	<i>1</i>
<i>11 + 34.38</i>	<i>16</i>	<i>0</i>	<i>19</i>
<i>11 + 50.00</i>	<i>13</i>	<i>0</i>	<i>15</i>
<i>11 + 84.27</i>	<i>18</i>	<i>0</i>	<i>54</i>
<i>11 + 90.88</i>	<i>5</i>	<i>0</i>	<i>13</i>
<i>12 + 00.00</i>	<i>13</i>	<i>0</i>	<i>10</i>
<i>12 + 01.88</i>	<i>3</i>	<i>0</i>	<i>1</i>
<b>BRIDGE</b>			
<i>12 + 64.13</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>12 + 75.13</i>	<i>72</i>	<i>0</i>	<i>1</i>
<i>12 + 81.75</i>	<i>33</i>	<i>0</i>	<i>1</i>
<i>13 + 00.00</i>	<i>44</i>	<i>0</i>	<i>7</i>
<i>13 + 19.48</i>	<i>22</i>	<i>0</i>	<i>11</i>
<i>13 + 50.00</i>	<i>21</i>	<i>0</i>	<i>61</i>

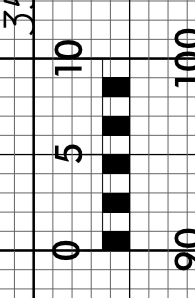


PROJ. REFERENCE NO.	SHEET NO.
BD-5102Y	X-1

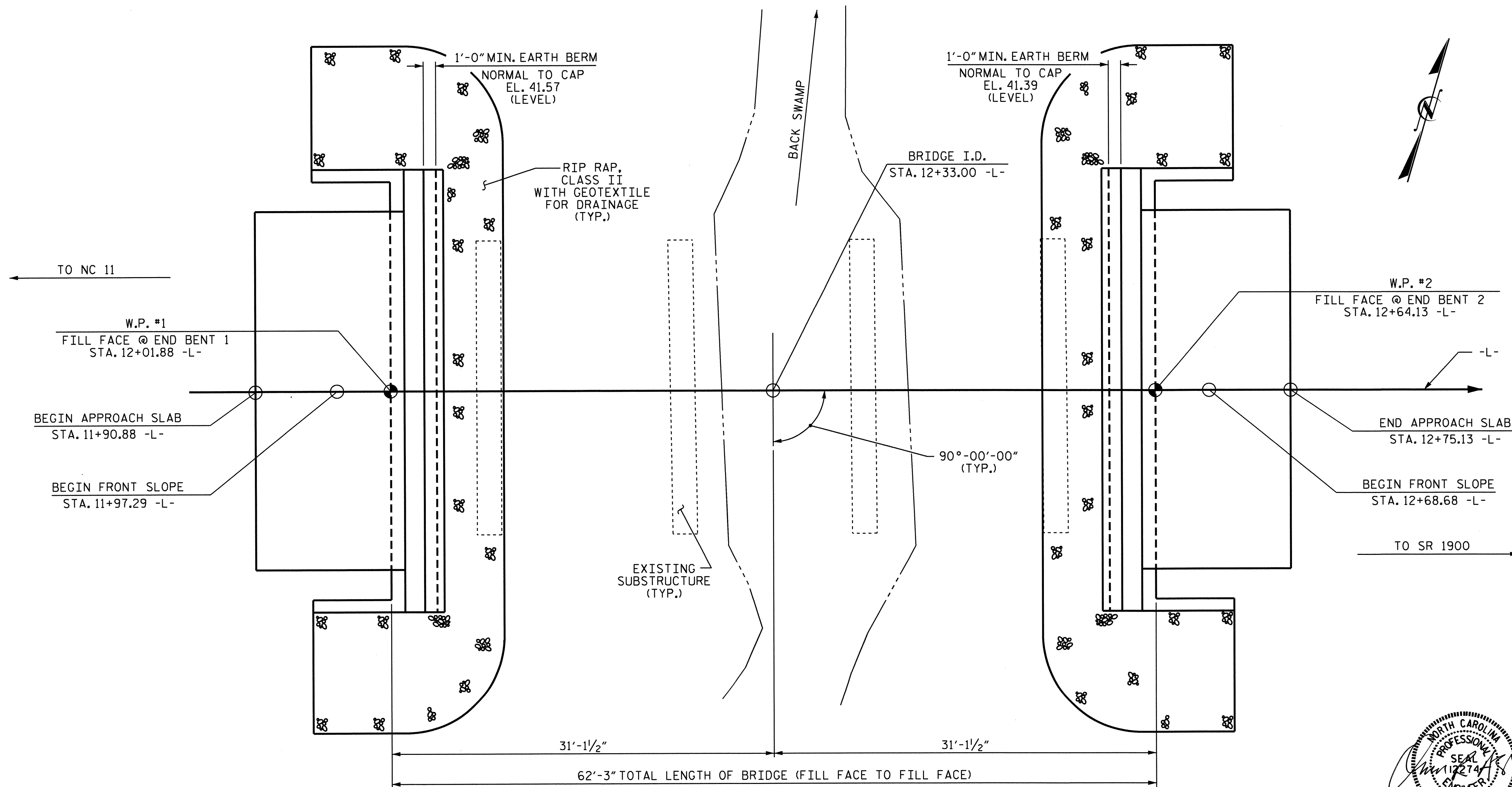
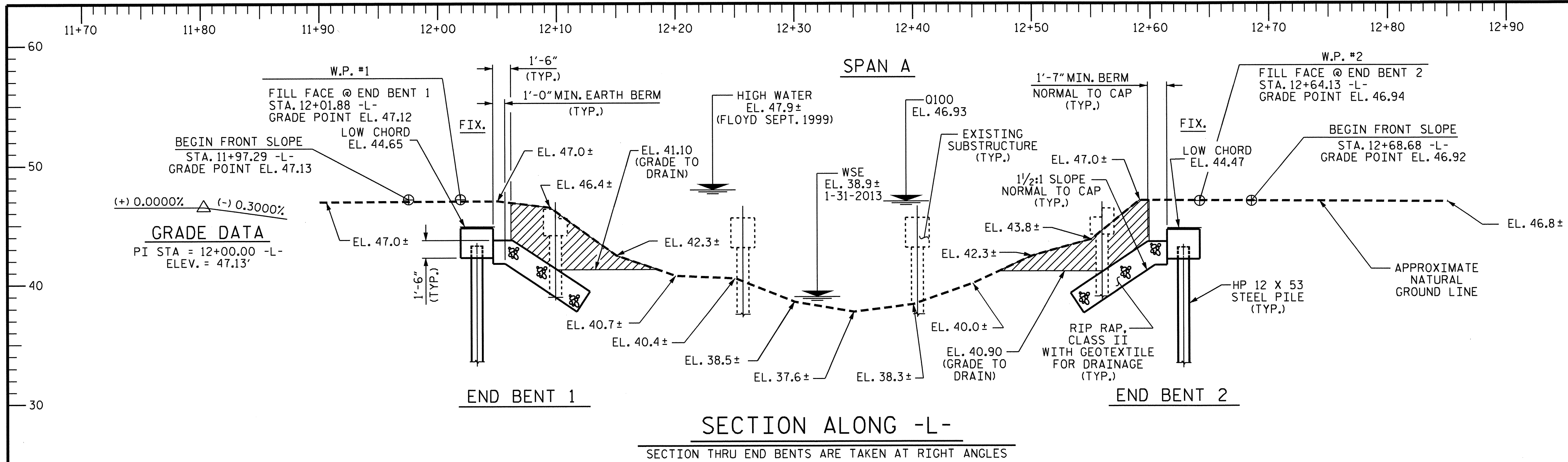




PROJ. REFERENCE NO.	SHEET NO.
BD-5102Y	X-2







I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 0415

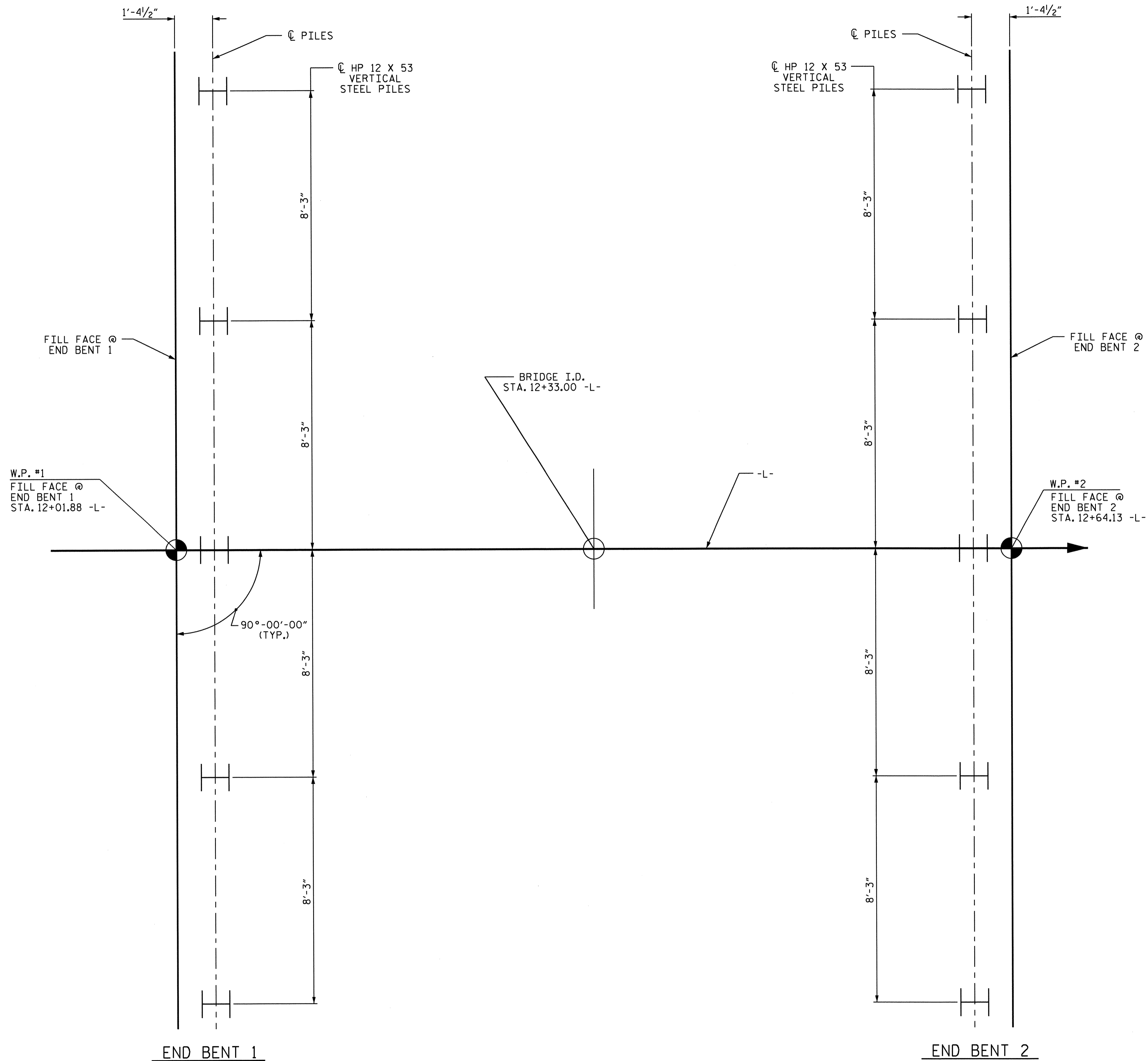
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 BRIDGE OVER BACK SWAMP  
 ON SR 1108 BETWEEN  
 NC 11 AND SR 1900



DRAWN BY : PEGGY ADKINS DATE : 7-30-13  
 CHECKED BY : D. G. ELY DATE : 10-30-13  
 DESIGN ENGINEER OF RECORD: J. LAZAROVICH DATE : 10-22-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			14



**NOTES:**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40 TO 50 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT 1 AND END BENT 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

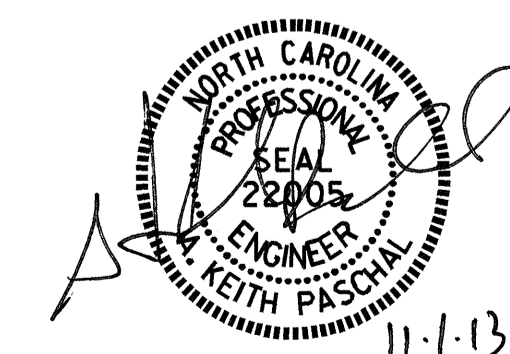
TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION.

PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 BRIDGE OVER BACK SWAMP  
 ON SR 1108 BETWEEN  
 NC 11 AND SR 1900



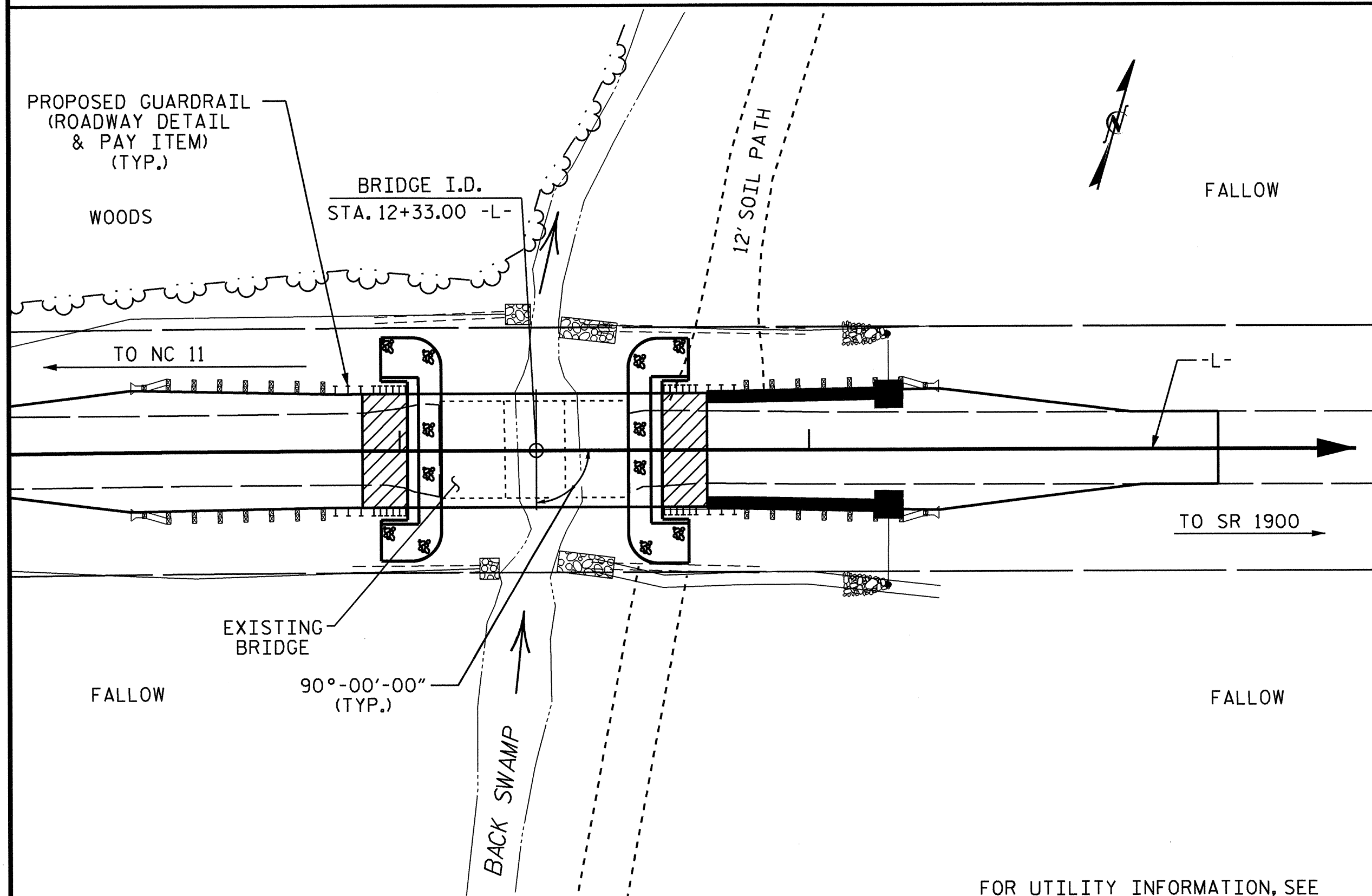
**FOUNDATION LAYOUT**  
 DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE AT THE BOTTOM OF THE CAP.

DRAWN BY : PEGGY ADKINS DATE : 7-31-13  
 CHECKED BY : D.G. ELY DATE : 10-30-13  
 DESIGN ENGINEER OF RECORD: J. LAZAROVICH DATE : 10-22-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			14



BM1 : RAIL ROAD SPIKE IN POWER POLE NO. 9-25/7,  
36' RIGHT OF STA. 11+82.00 -L-, EL. 45.50', NAVD 88.



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS, 1 @ 15'-11", 1 @ 14'-10" AND 1 @ 15'-10" WITH A CLEAR ROADWAY WIDTH OF 24'-0" AND A REINFORCED CONCRETE DECK ON TIMBER JOISTS AND SUPPORTED BY A TIMBER CAP AND TIMBER PILES AT THE END BENTS AND BENT AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE, SHALL BE REMOVED.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 18 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18- EVALUATING SCOUR AT BRIDGES."

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE = 626 C.F.S.  
 FREQUENCY OF DESIGN FLOOD = 25 YRS.  
 DESIGN HIGH WATER ELEVATION = 45.70'  
 DRAINAGE AREA = 3.4 SQ. MI.  
 BASE DISCHARGE (Q100) = 1005 C.F.S.  
 BASE HIGH WATER ELEVATION = 46.93'

\* OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 855 C.F.S.  
 FREQUENCY OF OVERTOPPING FLOOD = 50 YRS.(+)  
 OVERTOPPING FLOOD ELEVATION = 46.50'

\* @ SAG -L- STA. 23+49.00

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 x 53 STEEL PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
							NO.	LIN. FT.						NO.	LIN. FT.
	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.			EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM		
SUPERSTRUCTURE					LUMP SUM								LUMP SUM	10	600.00
END BENT 1			LUMP SUM	13.1		1977	5	350	3		132	145			
END BENT 2			LUMP SUM	13.1		1977	5	350	3		129	142			
TOTAL	LUMP SUM	1	LUMP SUM	26.2	LUMP SUM	3954	10	700	6	120.00	261	287	LUMP SUM	10	600.00

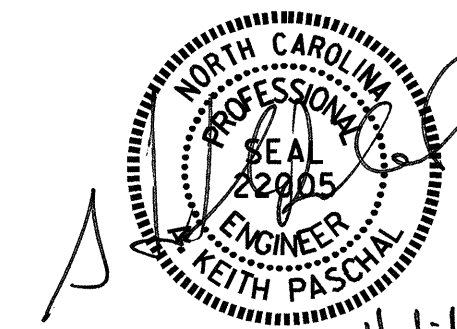
PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING

BRIDGE OVER BACK SWAMP  
 ON SR 1108 BETWEEN  
 NC 11 AND SR 1900



11.1.13

DRAWN BY : PEGGY ADKINS DATE : 7-31-13  
 CHECKED BY : D.G. ELY DATE : 10-30-13  
 DESIGN ENGINEER OF RECORD: J. LAZAROVICH DATE : 10-22-13

01-NOV-2013 09:29  
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 kposchal

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			14

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(InV)	N/A	1	1.08	--	1.75	0.275	1.56	A	EL	29.5	0.516	1.3	A	EL	2.95	0.80	0.275	1.08	A	EL	29.500		
	HL-93(0pr)	N/A	--	1.69	--	1.35	0.275	2.03	A	EL	29.5	0.516	1.69	A	EL	2.95	N/A	--	--	--	--	--		
	HS-20(InV)	36.000	2	1.37	49.305	1.75	0.275	1.98	A	EL	29.5	0.516	1.59	A	EL	2.95	0.80	0.275	1.37	A	EL	29.500		
	HS-20(0pr)	36.000	--	2.07	74.418	1.35	0.275	2.57	A	EL	29.5	0.516	2.07	A	EL	2.95	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13,500	--	2.95	39.804	1.4	0.275	5.34	A	EL	29.5	0.516	4.65	A	EL	2.95	0.80	0.275	2.95	A	EL	29.500	
		SNGARBS2	20,000	--	2.26	45.143	1.4	0.275	4.09	A	EL	29.5	0.516	3.33	A	EL	2.95	0.80	0.275	2.26	A	EL	29.500	
		SNAGRIS2	22,000	--	2.16	47.601	1.4	0.275	3.92	A	EL	29.5	0.516	3.11	A	EL	2.95	0.80	0.275	2.16	A	EL	29.500	
		SNCOTTS3	27,250	--	1.47	40.028	1.4	0.275	2.66	A	EL	29.5	0.516	2.32	A	EL	2.95	0.80	0.275	1.47	A	EL	29.500	
		SNAGGRS4	34,925	--	1.25	43.668	1.4	0.275	2.26	A	EL	29.5	0.516	1.95	A	EL	2.95	0.80	0.275	1.25	A	EL	29.500	
		SNS5A	35,550	--	1.22	43.411	1.4	0.275	2.21	A	EL	29.5	0.516	1.99	A	EL	2.95	0.80	0.275	1.22	A	EL	29.500	
		SNS6A	39,950	--	1.13	45.150	1.4	0.275	2.05	A	EL	29.5	0.516	1.82	A	EL	2.95	0.80	0.275	1.13	A	EL	29.500	
	SNS7B	42,000	--	1.08	45.218	1.4	0.275	1.95	A	EL	29.5	0.516	1.8	A	EL	2.95	0.80	0.275	1.08	A	EL	29.500		
	TTST	TNAGRIT3	33,000	--	1.38	45.575	1.4	0.275	2.5	A	EL	29.5	0.516	2.16	A	EL	2.95	0.80	0.275	1.38	A	EL	29.500	
		TNT4A	33,075	--	1.39	45.970	1.4	0.275	2.52	A	EL	29.5	0.516	2.09	A	EL	2.95	0.80	0.275	1.39	A	EL	29.500	
		TNT6A	41,600	--	1.15	47.672	1.4	0.275	2.07	A	EL	29.5	0.516	1.94	A	EL	2.95	0.80	0.275	1.15	A	EL	29.500	
		TNT7A	42,000	--	1.16	48.588	1.4	0.275	2.09	A	EL	29.5	0.516	1.87	A	EL	2.95	0.80	0.275	1.16	A	EL	29.500	
		TNT7B	42,000	--	1.21	50.752	1.4	0.275	2.19	A	EL	29.5	0.516	1.75	A	EL	2.95	0.80	0.275	1.21	A	EL	29.500	
		TNAGRIT4	43,000	--	1.14	49.072	1.4	0.275	2.07	A	EL	29.5	0.516	1.69	A	EL	2.95	0.80	0.275	1.14	A	EL	29.500	
TNAGT5A		45,000	--	1.07	48.220	1.4	0.275	1.94	A	EL	29.5	0.516	1.69	A	EL	2.95	0.80	0.275	1.07	A	EL	29.500		
TNAGT5B	45,000	3	1.06	47.460	1.4	0.275	1.91	A	EL	29.5	0.516	1.61	A	EL	2.95	0.80	0.275	1.05	A	EL	29.500			

NOTES:

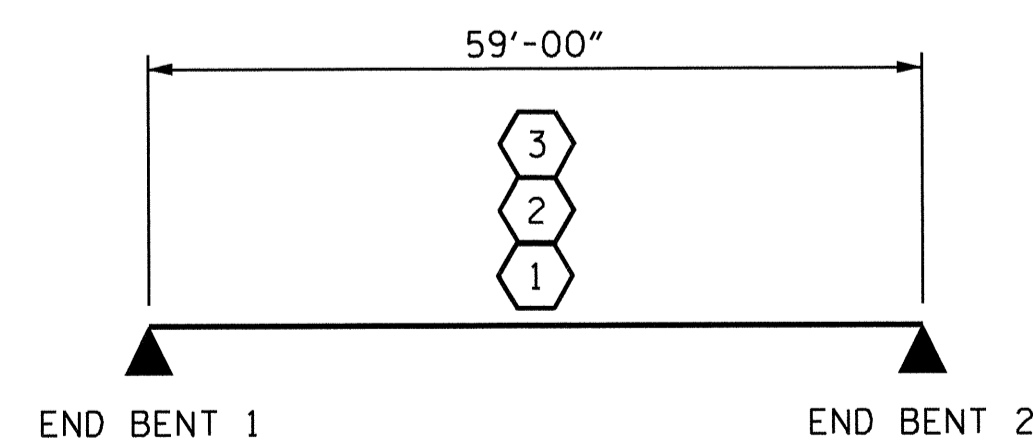
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



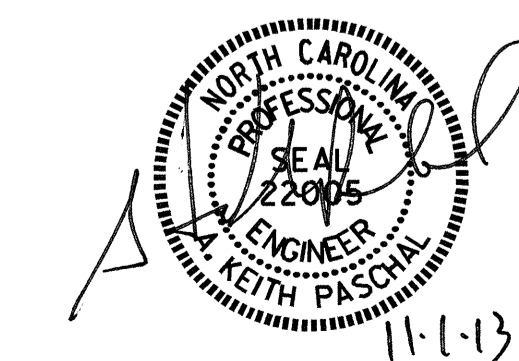
LRFR SUMMARY

PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

LRFR SUMMARY FOR  
 PRESTRESSED  
 CONCRETE GIRDERS  
 (NON-INTERSTATE TRAFFIC)

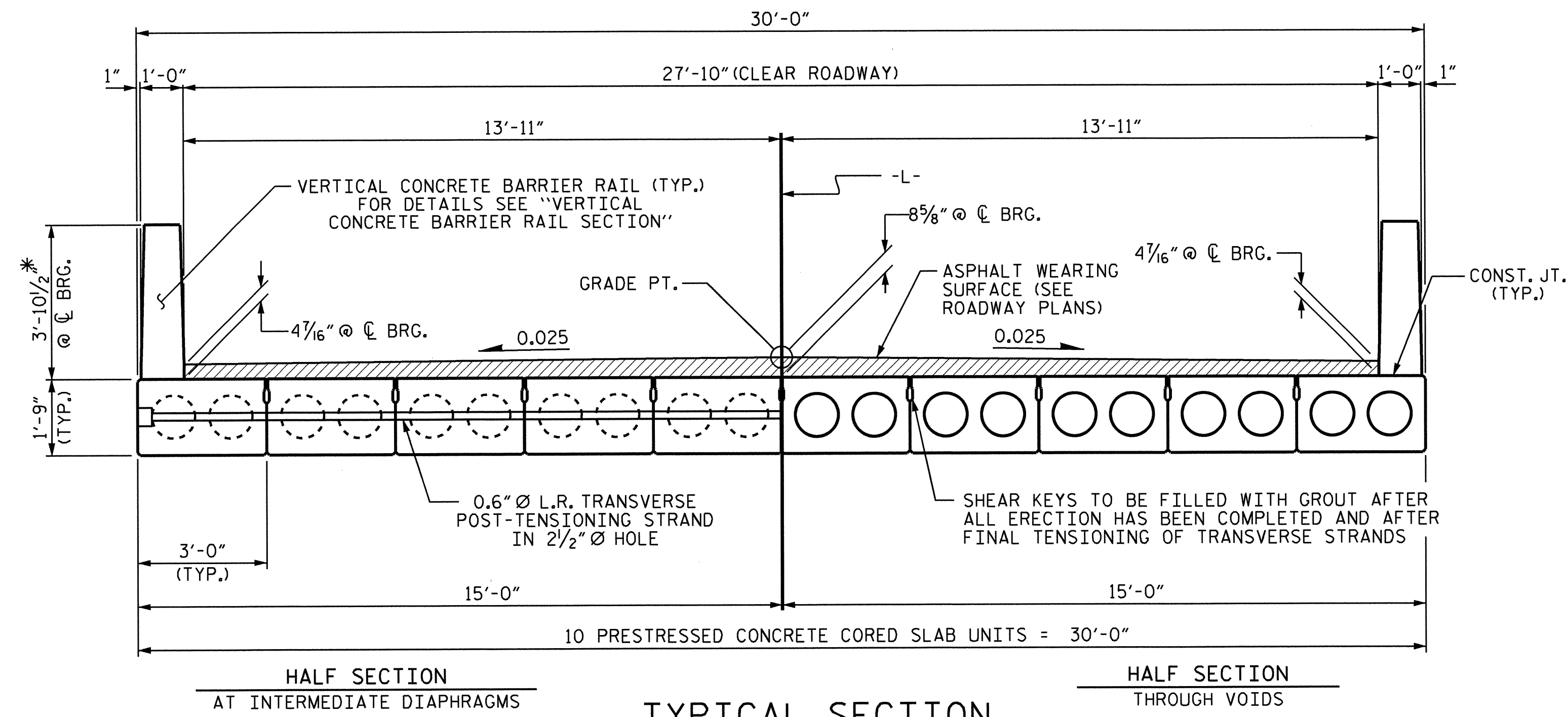
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			14



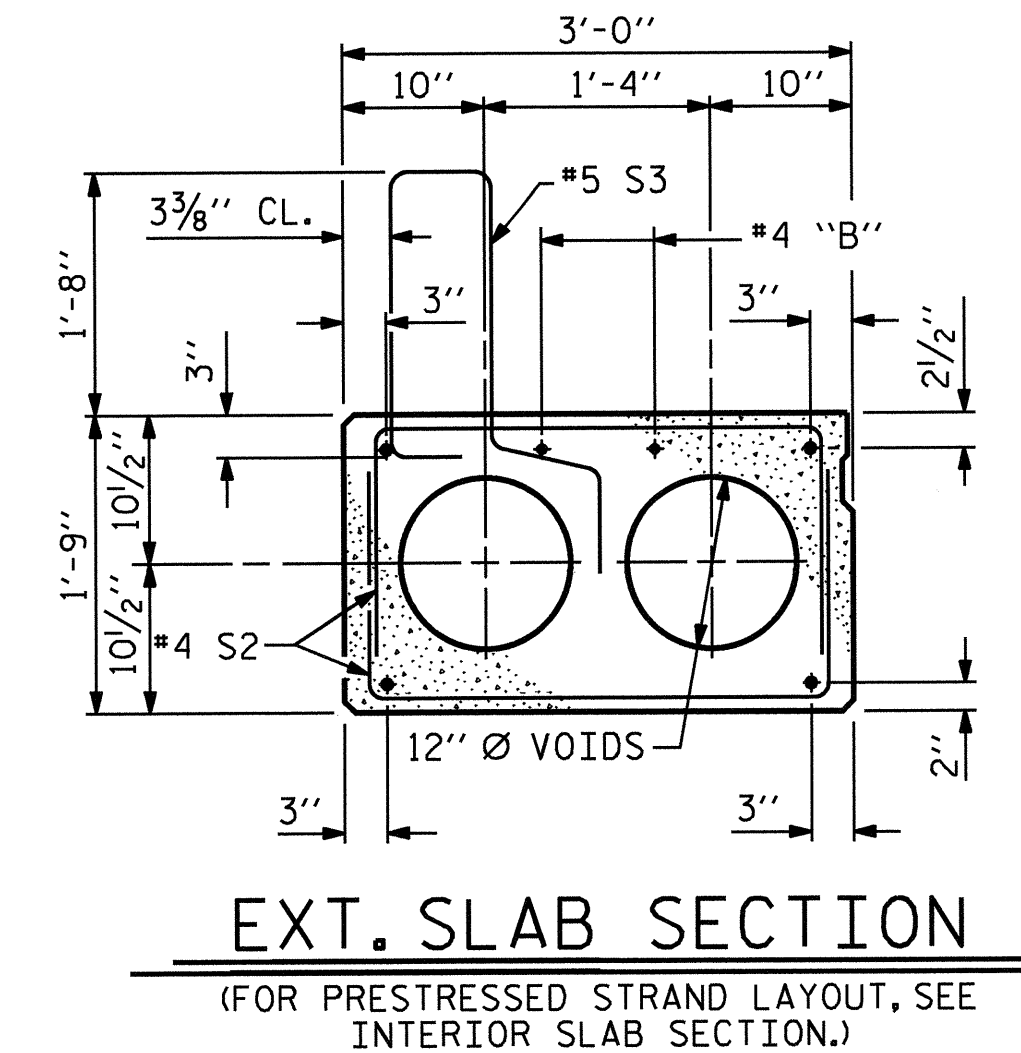
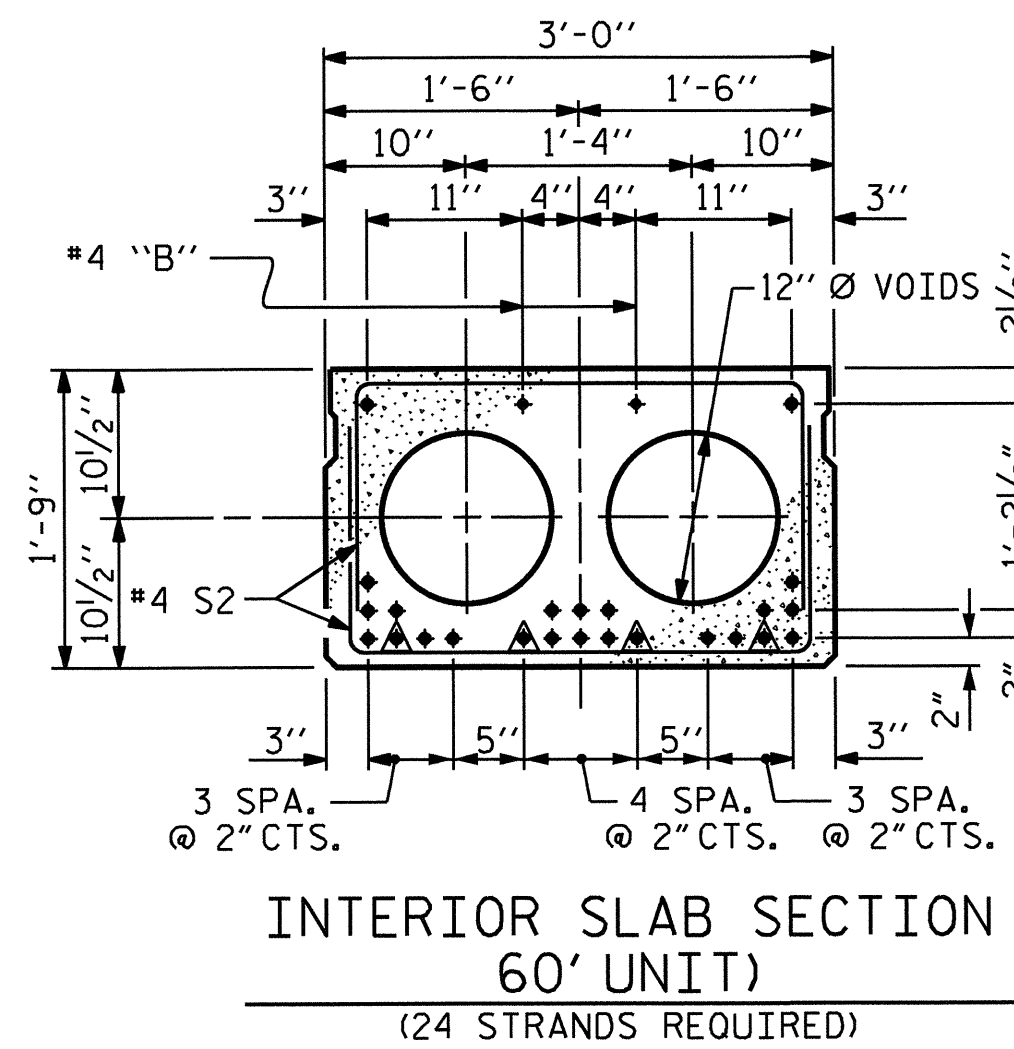
ASSEMBLED BY : J. LAZAROVICH      DATE : 10-2013  
 CHECKED BY : O. PUIGCERVER      DATE : 10-2013  
 DESIGN ENGINEER OF RECORD : J. LAZAROVICH      DATE : 10-2013

DRAWN BY : MAA /O8      REV. 11/12/OBRR      MAA/GM  
 CHECKED BY : GM/DI 2/O8      REV. 10/11/II      MAA/GM





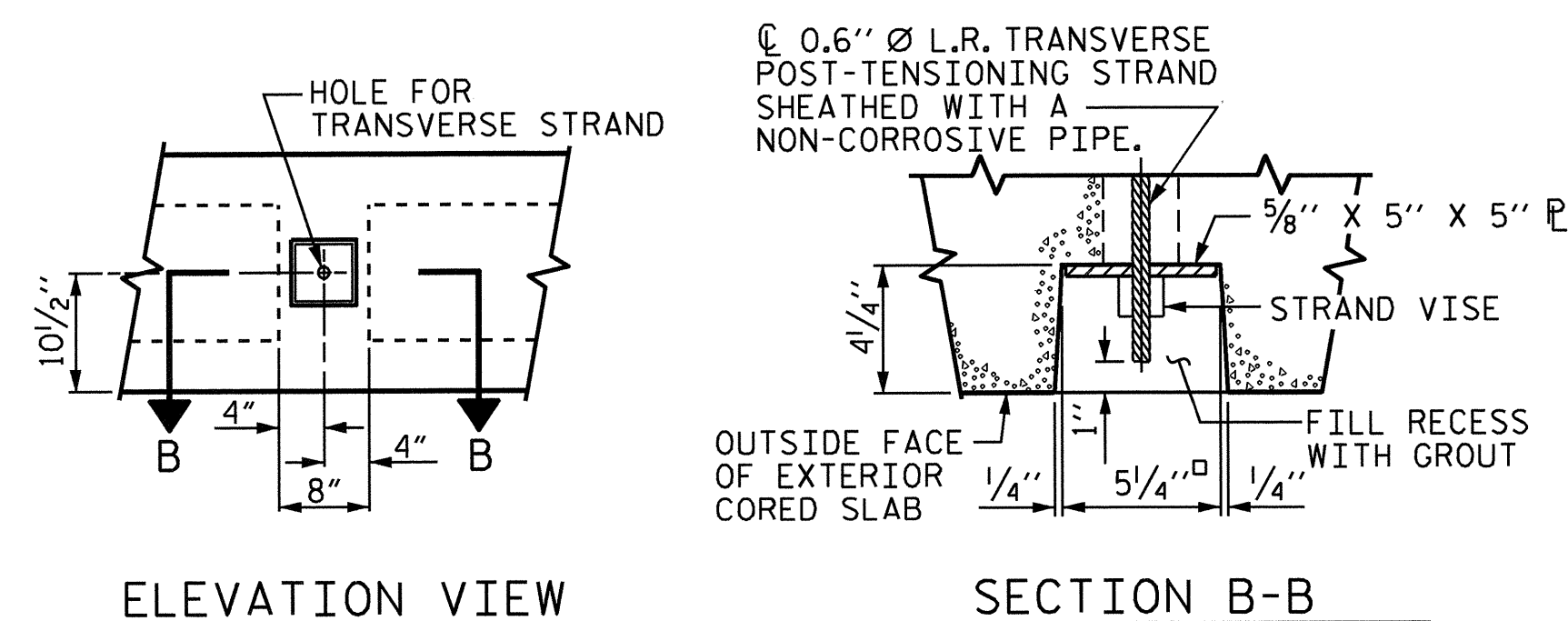
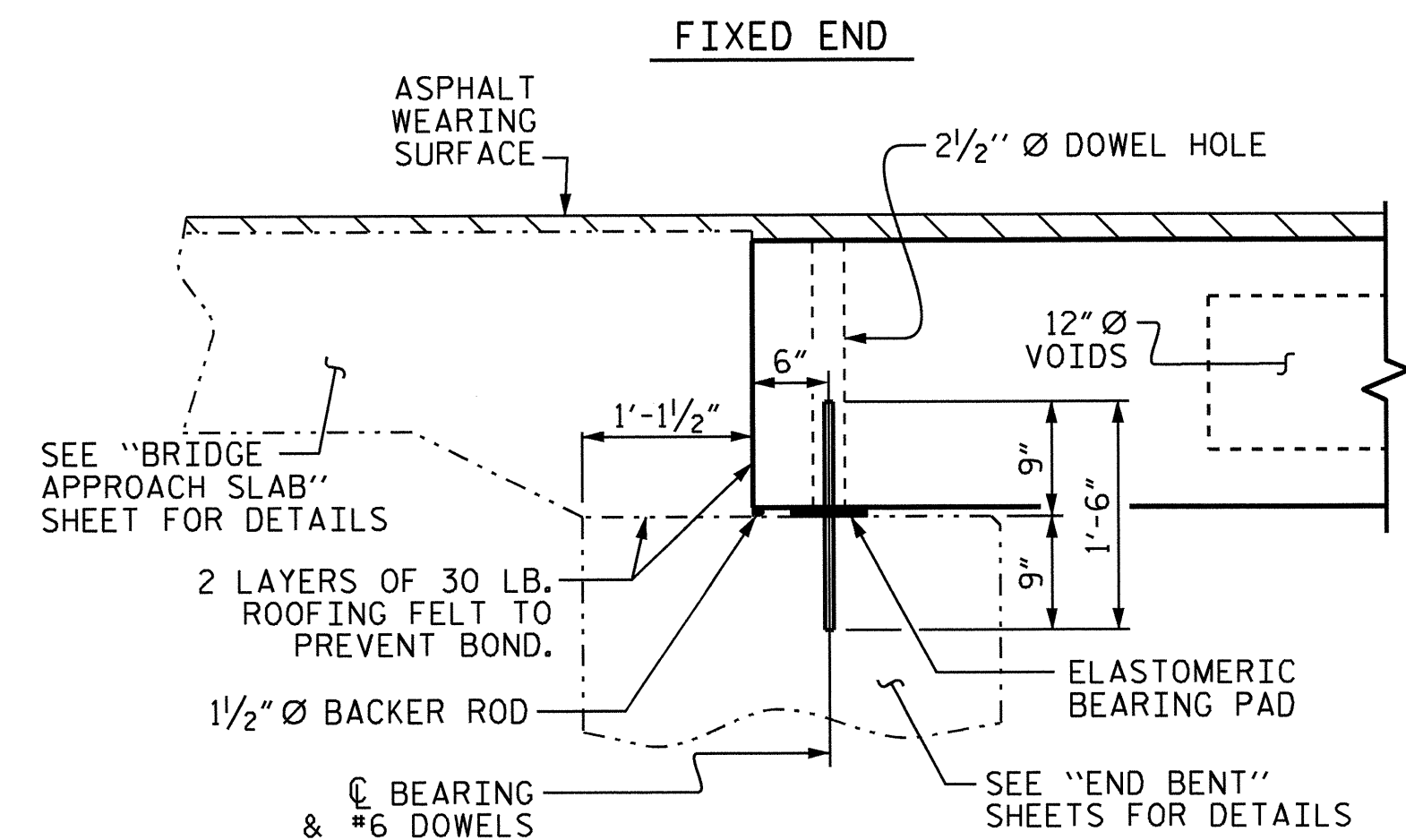
\* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



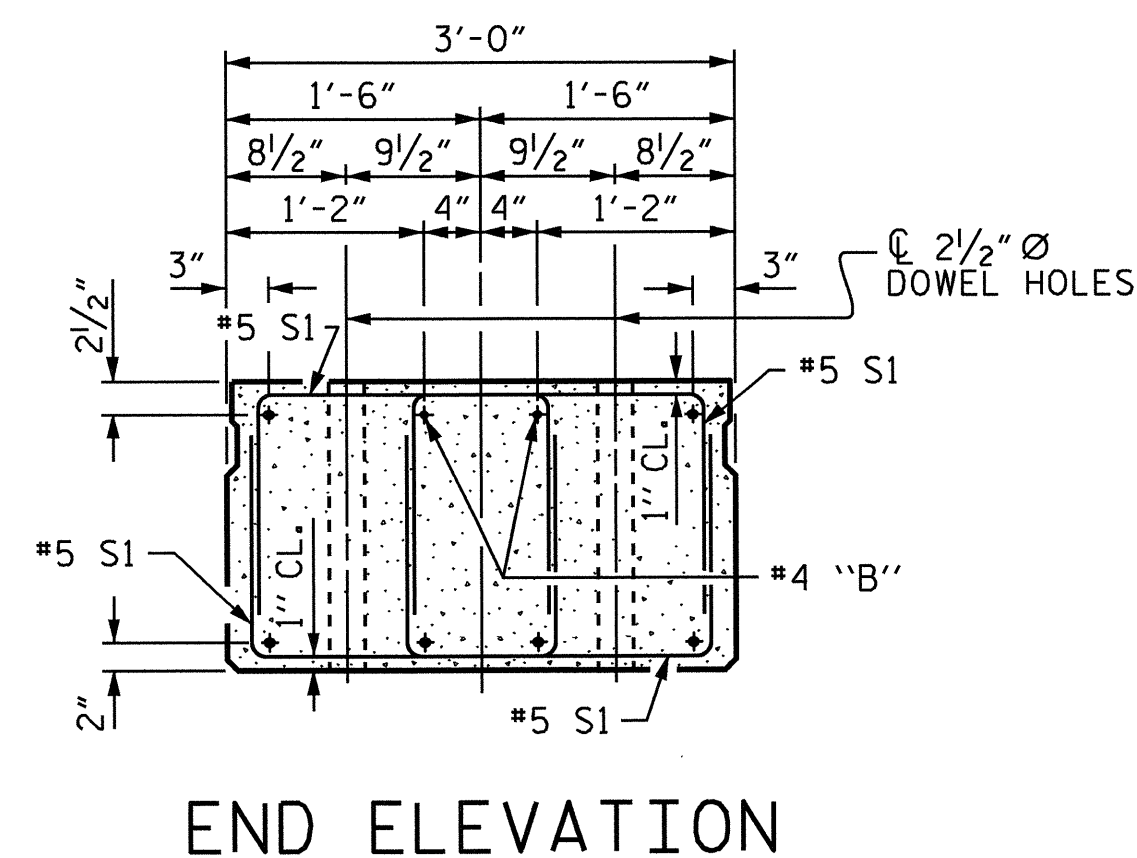
**0.6" Ø LOW  
RELAXATION STRAND LAYOUT**

▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

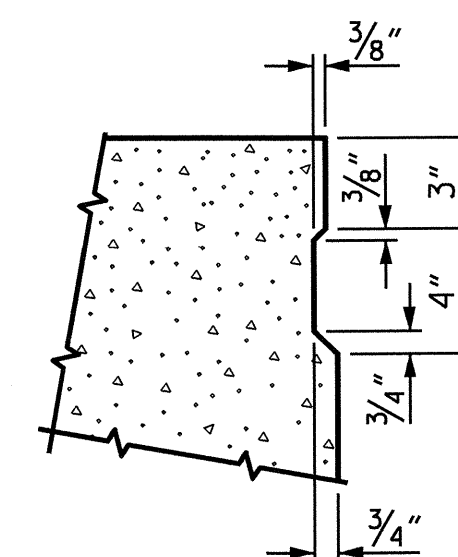
**DEBONDING LEGEND**



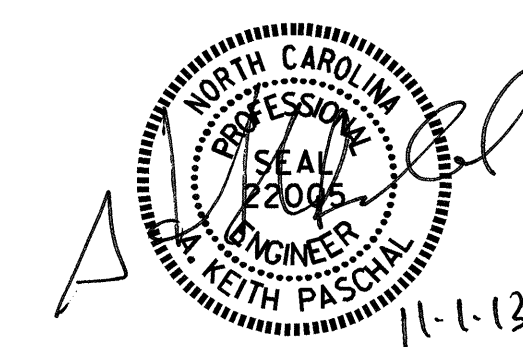
**GROUTED RECESS AT END OF  
POST-TENSIONED STRAND OF CORED SLABS**



SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



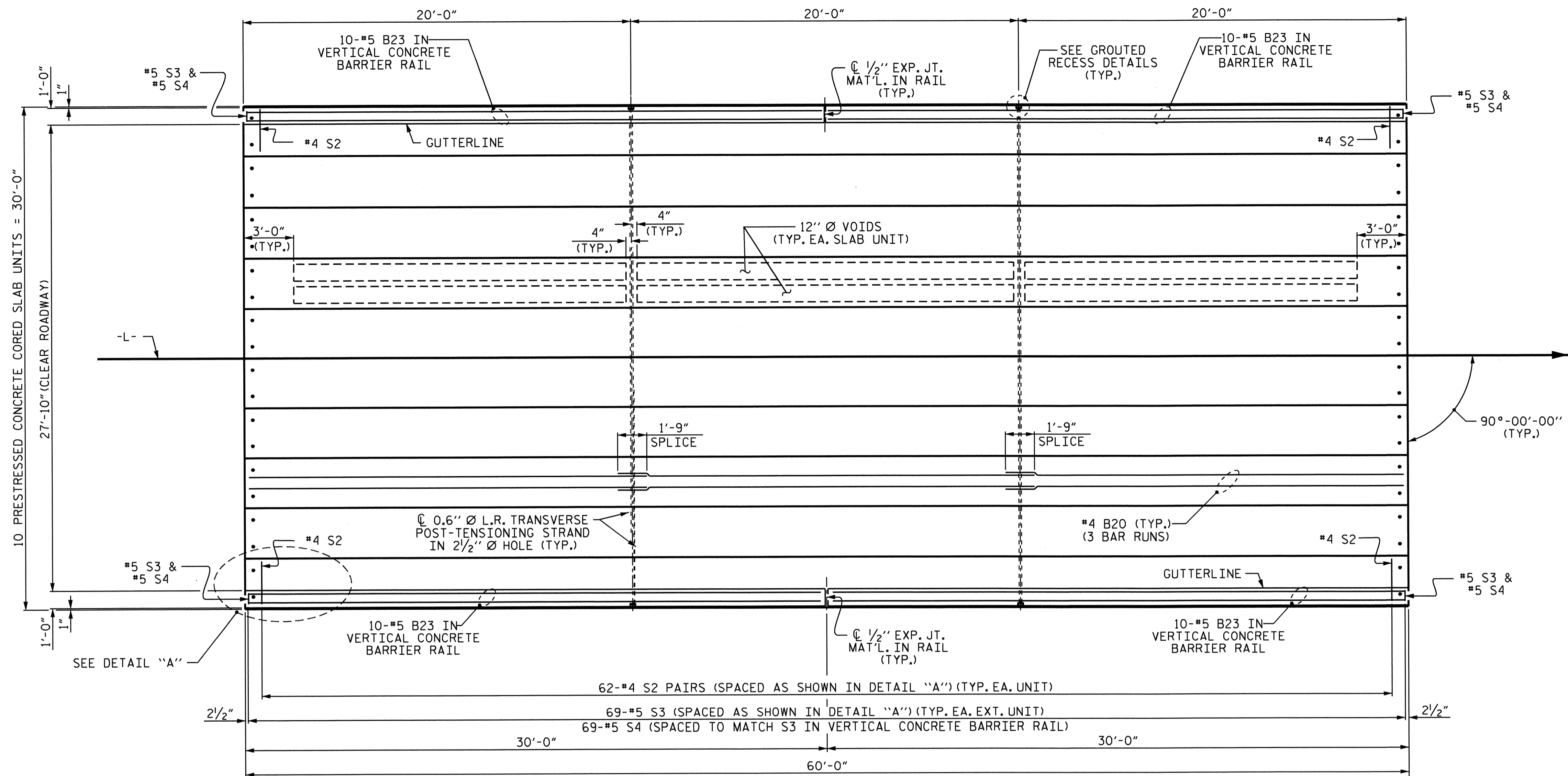
PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-

SHEET 1 OF 3

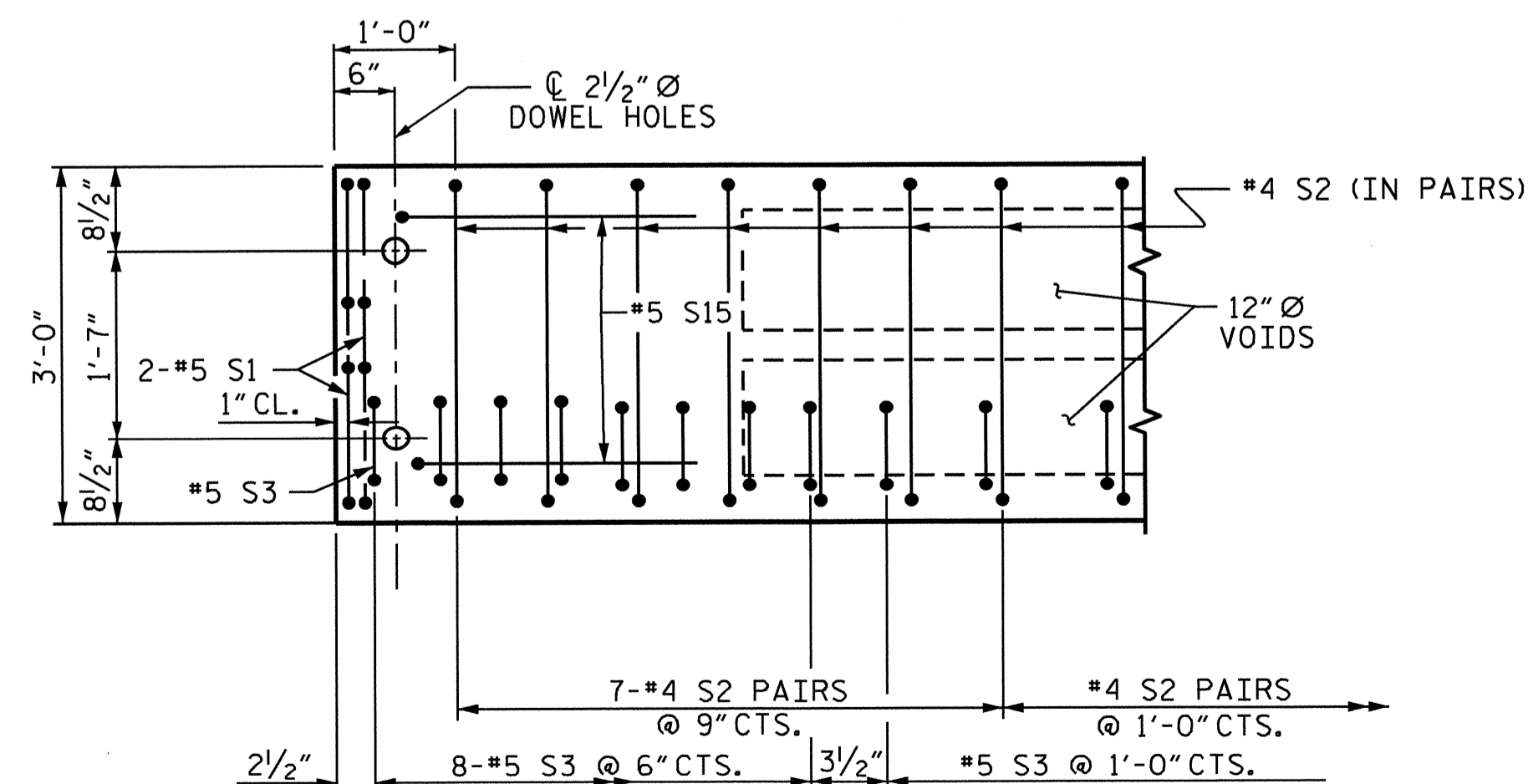
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 3'-0" X 1'-9"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 90° SKEW

ASSEMBLED BY : J. LAZAROVICH	DATE : 10-2013
CHECKED BY : O. PUIGCERVER	DATE : 10-2013
DESIGN ENGINEER OF RECORD : J. LAZAROVICH	DATE : 10-2013
DRAWN BY : DGE 5/09	REV. 12/11
CHECKED BY : BCH 6/09	MAA/AAC

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS 14
2			4			



PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

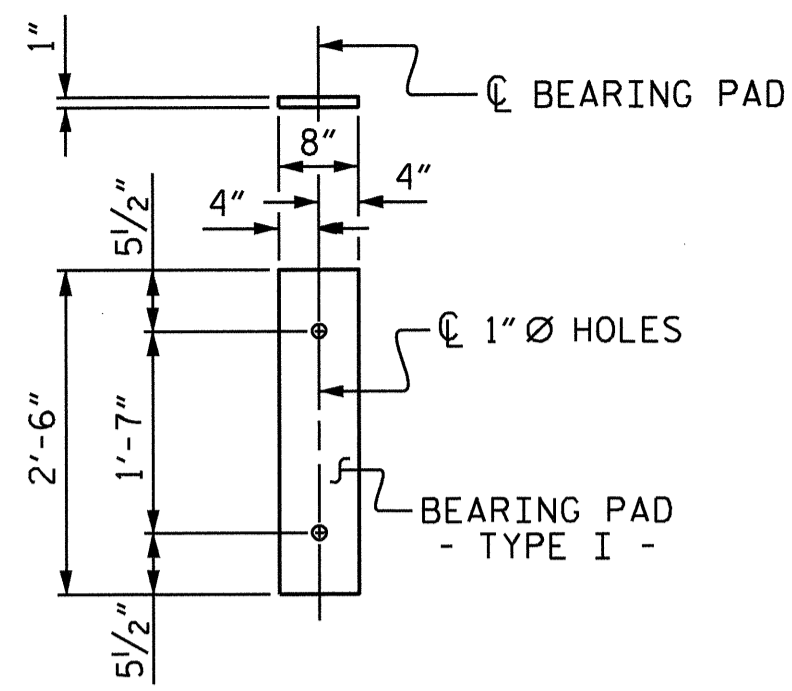
SPAN A  
 PLAN OF 60' UNIT  
 27'-10" CLEAR ROADWAY  
 90° SKEW



ASSEMBLED BY : J. LAZAROVICH DATE : 10-2013  
 CHECKED BY : O. PUIGSERVERER DATE : 10-2013  
 DESIGN ENGINEER OF RECORD : J. LAZAROVICH DATE : 10-2013  
 DRAWN BY : MAA 6/10 REV. 12/5/11 MAA/AAC  
 CHECKED BY : MKT 7/10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			14



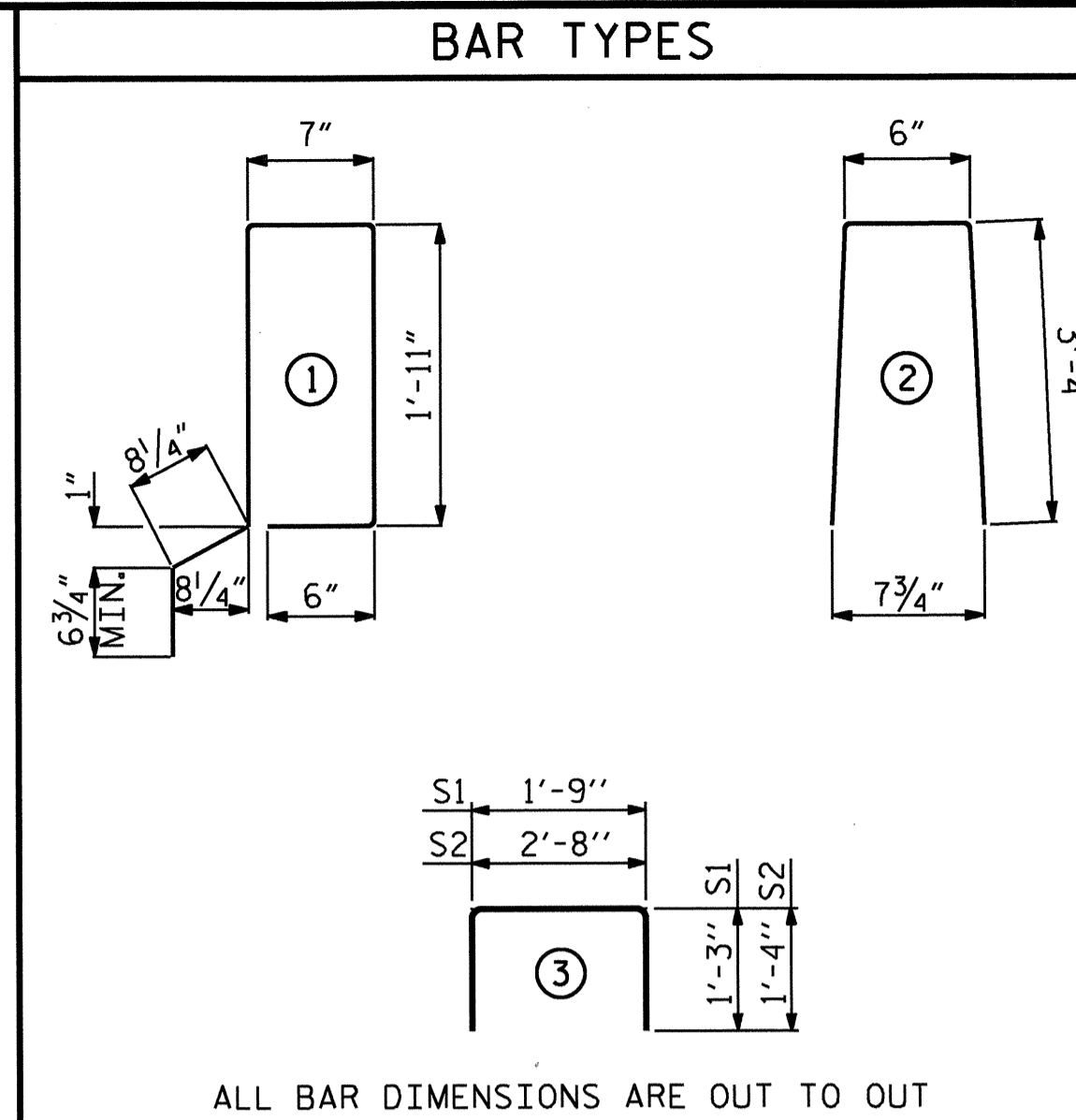


FIXED END  
(TYPE I - 20 REQ'D)

**ELASTOMERIC BEARING DETAILS**

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BILL OF MATERIAL FOR ONE 60' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B20	6	#4	STR	21'-2"	85	21'-2"	85
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	124	#4	3	5'-4"	442	5'-4"	442
* S3	69	#5	1	6'-2"	444		
REINFORCING STEEL				LBS.	562		562
* EPOXY COATED REINFORCING STEEL				LBS.	444		
9000 P.S.I. CONCRETE				CU. YDS.	8.7		8.7
0.6" L.R. STRANDS				No.	24		24



ALL BAR DIMENSIONS ARE OUT TO OUT

**NOTES**

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" DIA DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

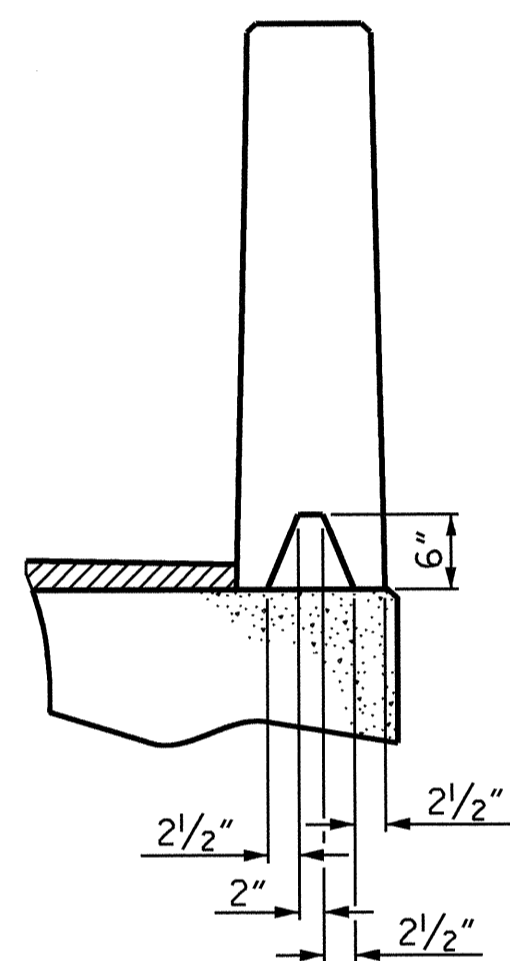
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

DEAD LOAD DEFLECTION AND CAMBER	
60' CORED SLAB UNIT	3'-0" x 1'-9" 0.6" L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/16" ↓
FINAL CAMBER	2 3/16" ↑

\*\* INCLUDES FUTURE WEARING SURFACE

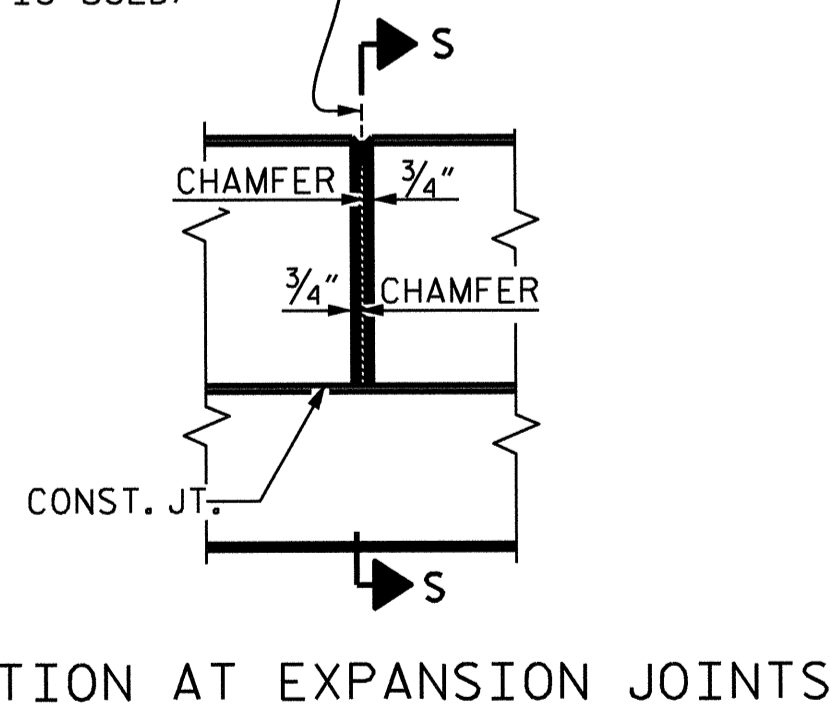
GRADE 270 STRANDS	
AREA ( SQUARE INCHES )	0.217
ULTIMATE STRENGTH ( LBS. PER STRAND )	58,600
APPLIED PRESTRESS ( LBS. PER STRAND )	43,950

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	NORMAL CROWN SECTION	
60' UNITS	1 5/8"	3'-7 5/8"



SECTION S-S  
AT DAM IN OPEN JOINT  
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.  
(NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED)

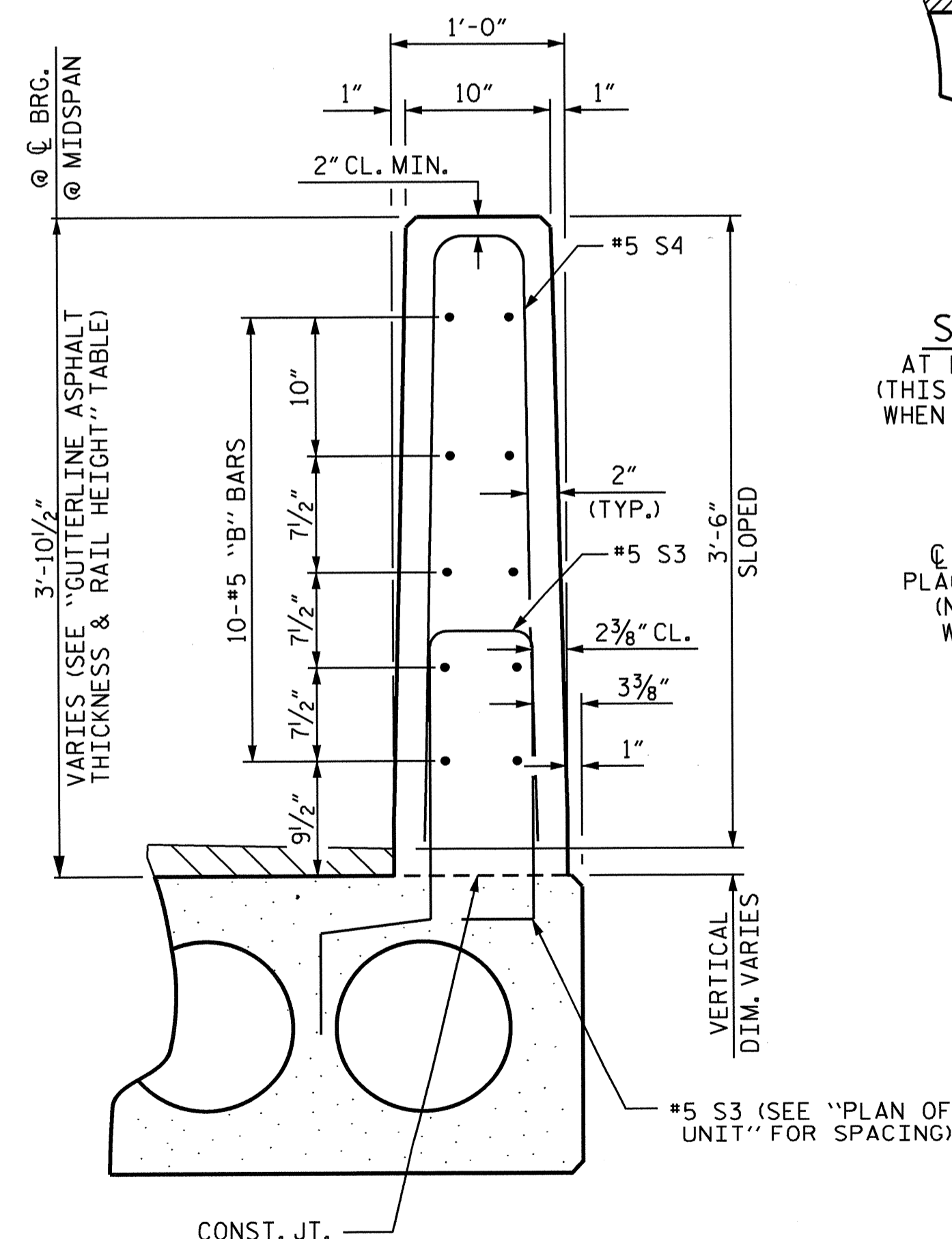


ELEVATION AT EXPANSION JOINTS

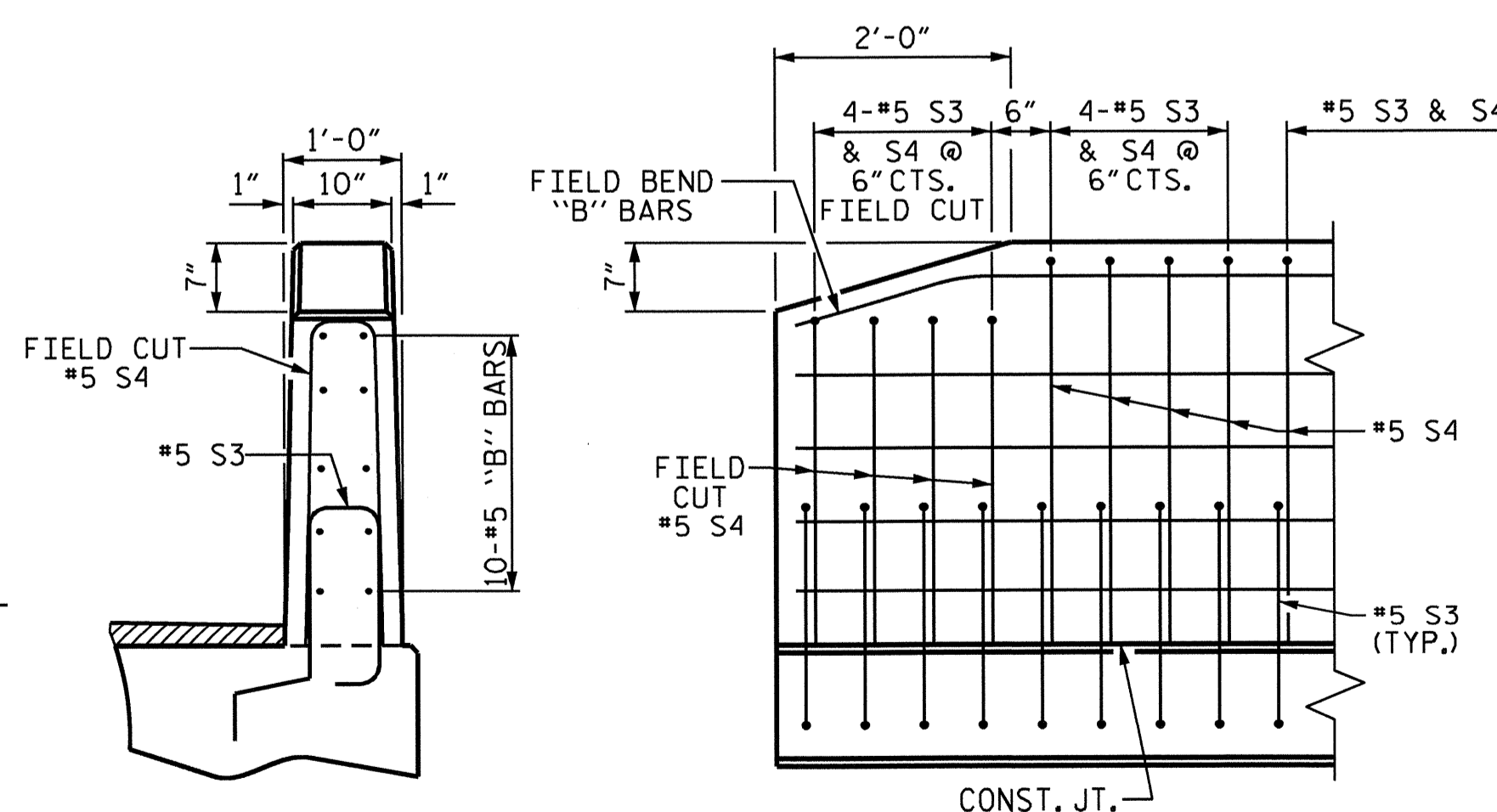
CORED SLABS REQUIRED			
60' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	60'-0"	120'-0"
INTERIOR C.S.	8	60'-0"	480'-0"
TOTAL			600'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
60' UNIT						
*B23	40		#5	STR	29'-7"	1234
* S4	138		#5	2	7'-2"	1032
* EPOXY COATED REINFORCING STEEL				LBS.		2266
CLASS AA CONCRETE				CU. YDS.		15.7
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		120.00

CONCRETE RELEASE STRENGTH	
UNIT	PSI
60' UNITS	6400



VERTICAL CONCRETE BARRIER RAIL SECTION



END VIEW

SIDE VIEW

END OF RAIL DETAILS

PROJECT NO. BD-5102Y  
PITT COUNTY  
STATION: 12+33.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
3'-0" X 1'-9"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT  
90° SKEW



ASSEMBLED BY : J. LAZAROVICH	DATE : 10-2013
CHECKED BY : O. PUIGCERVER	DATE : 10-2013
DESIGN ENGINEER OF RECORD : J. LAZAROVICH	DATE : 10-2013
DRAWN BY : DGE 5/09	REV. 12/11
CHECKED BY : BCH 6/09	MAA/AAC

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			14

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø 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.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

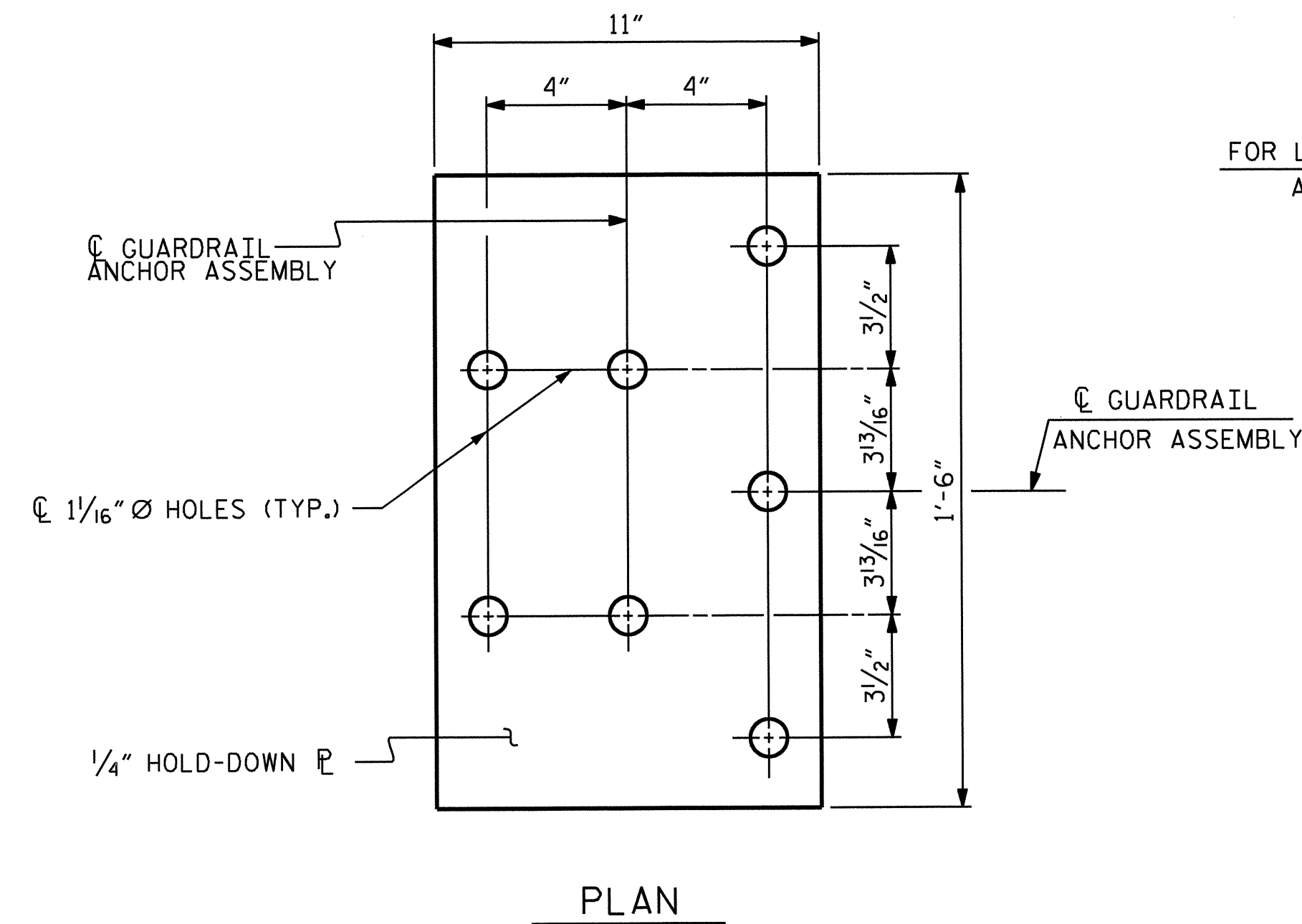
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

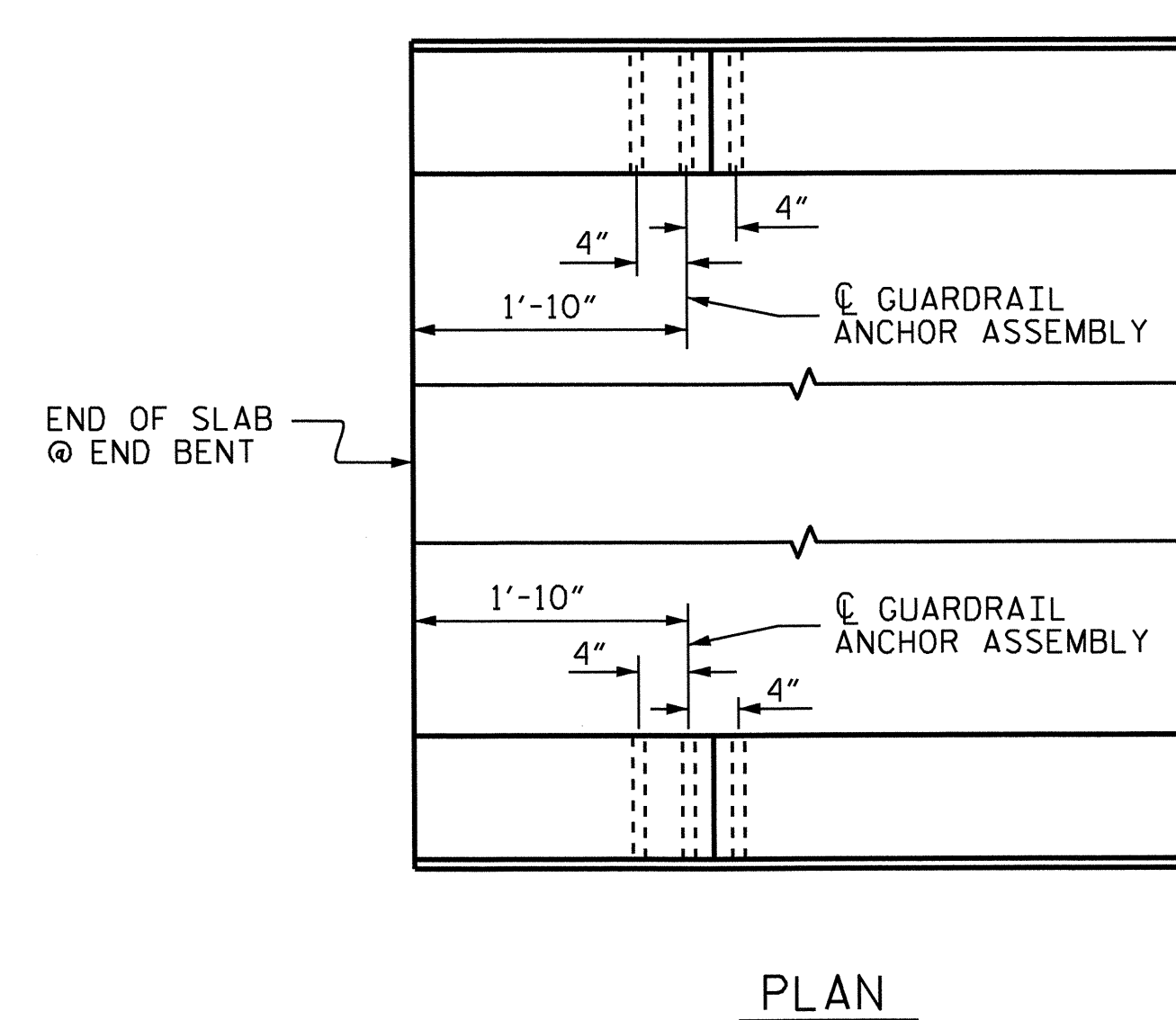
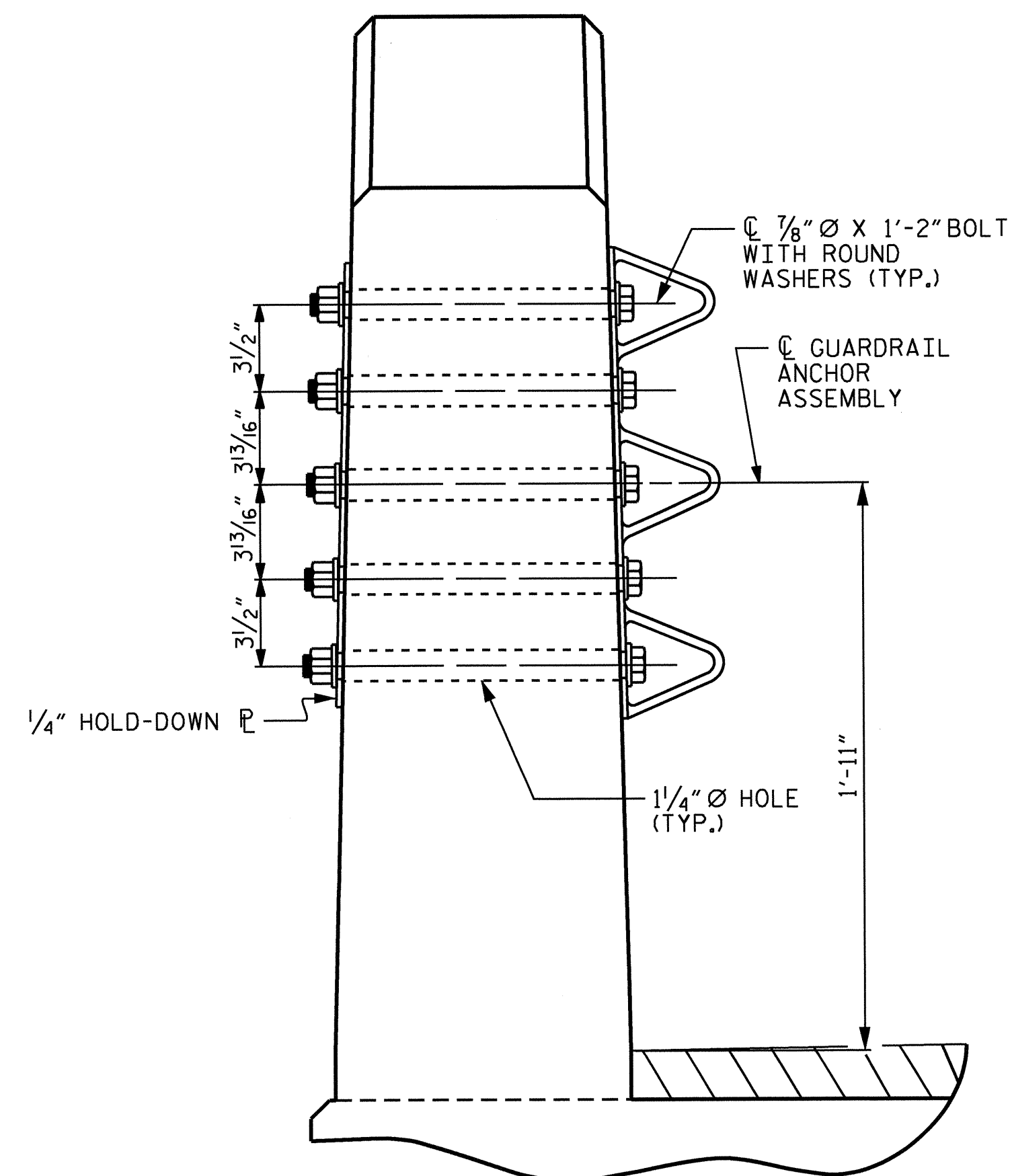
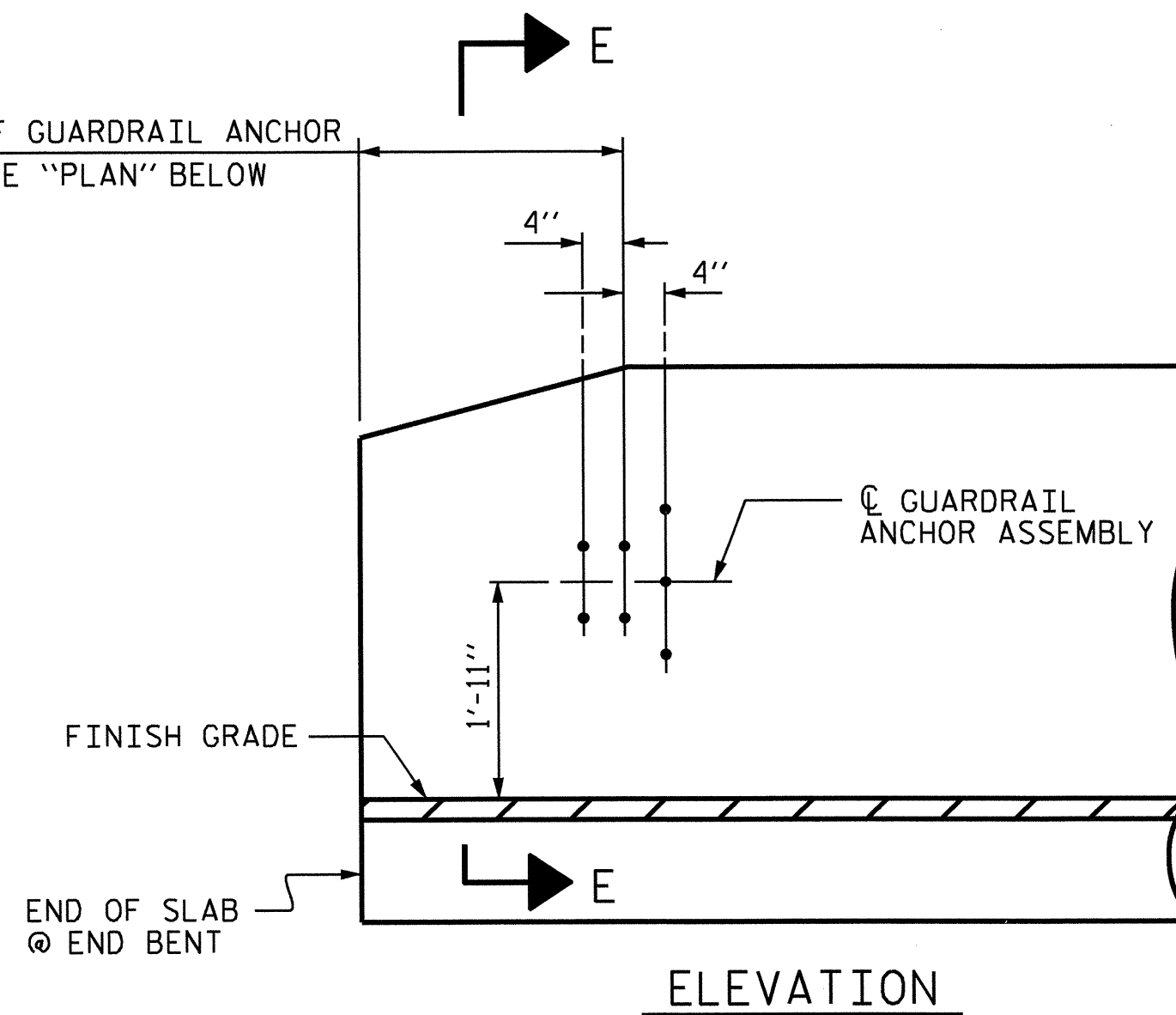
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø 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.

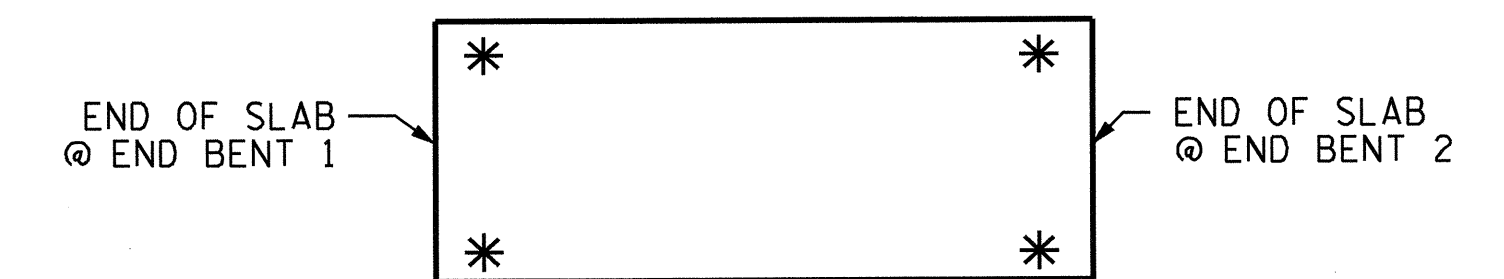


FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



LOCATION OF ANCHORS FOR GUARDRAIL

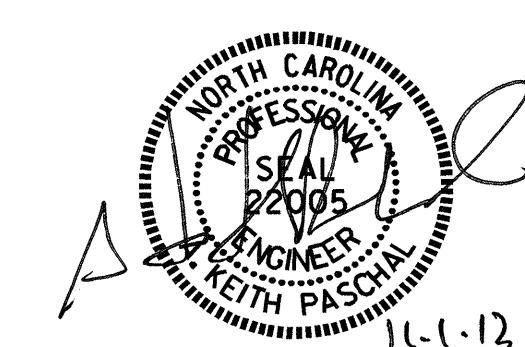
END BENT 1 SHOWN, END BENT 2 SIMILAR.



\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 GUARDRAIL ANCHORAGE  
 FOR VERTICAL CONCRETE  
 BARRIER RAIL



ASSEMBLED BY : C. B. PRUETT	DATE : 10-31-13
CHECKED BY : A. K. PASCHAL	DATE : 10-31-13
DRAWN BY : MAA 5/10	REV. 10/1/11 MAA/GM
CHECKED BY : GM 5/10	REV. 12/5/11 MAA/GM
	REV. 6/13 MAA/GM

01-NOV-2013 09:29  
 S:\DPG1\Keith\BD-5102Y\Final Plans\BD-5102Y\_SD\_CR.dgn  
 kpaschal

REVISIONS						SHEET NO. S-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 14
2			4			

(SHT 1) STD. NO. GRA3



**NOTES**

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

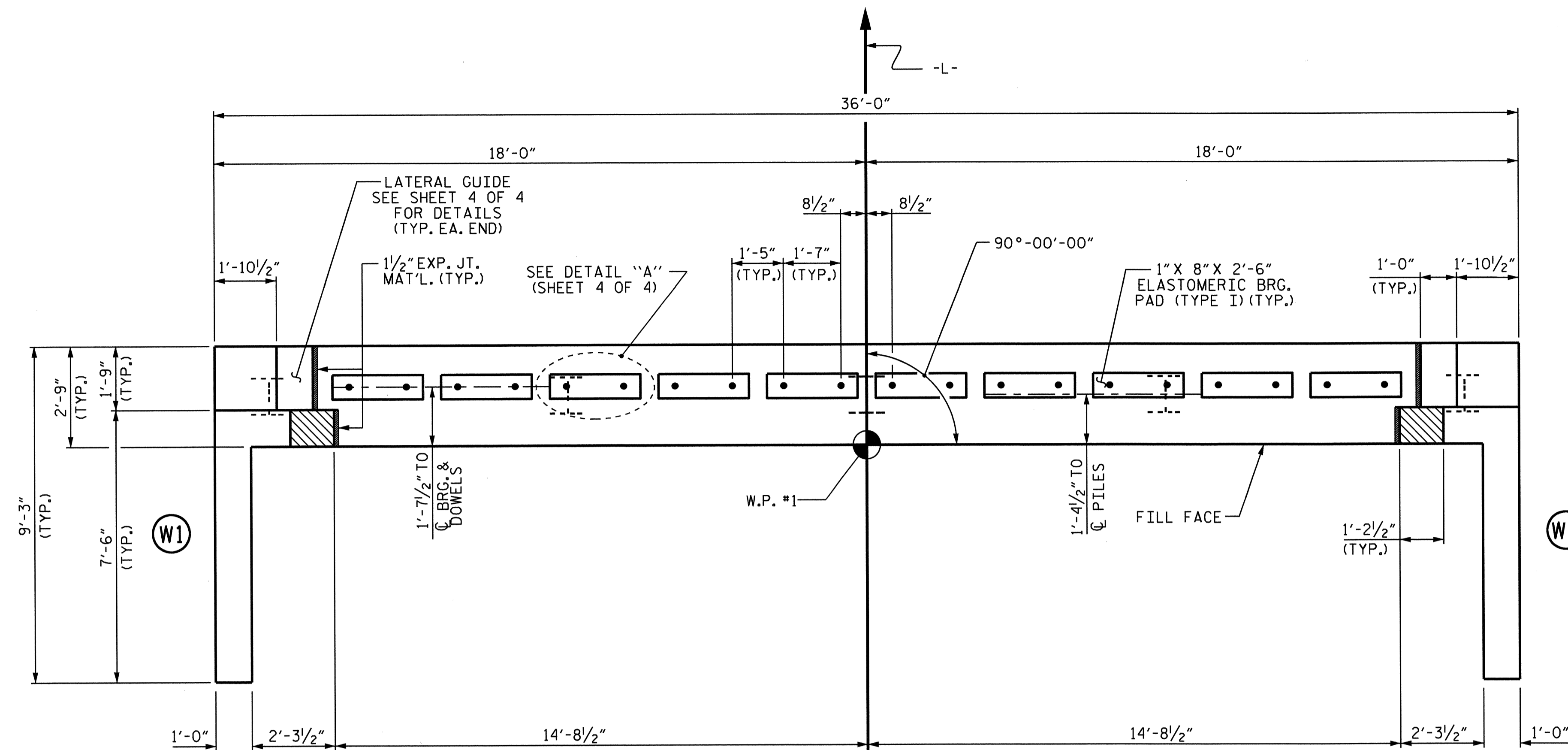
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

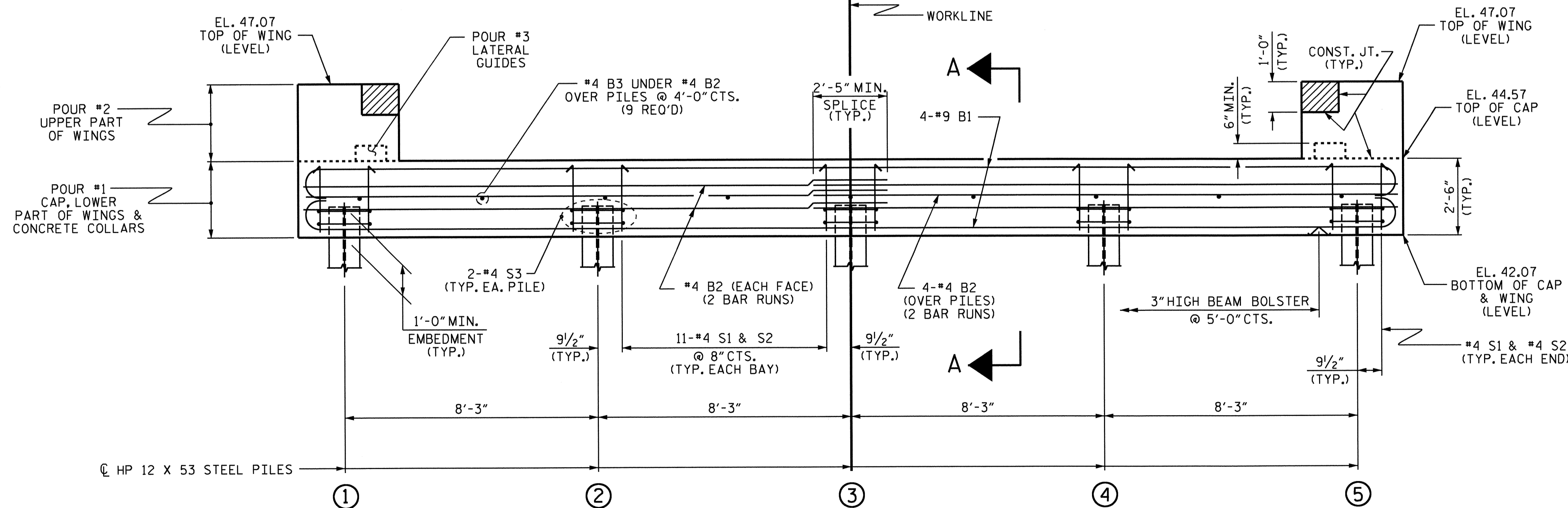
FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



**PLAN**



**ELEVATION**

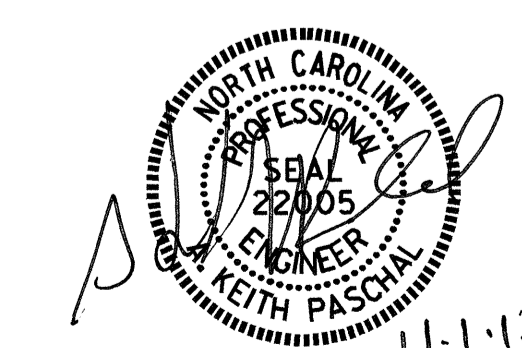
WINGS NOT SHOWN FOR CLARITY.  
FOR SECTION A-A, SEE SHEET 4 OF 4.  
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BD-5102Y  
PITT COUNTY  
STATION: 12+33.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT No. 1



ASSEMBLED BY : M.D.PISO DATE : 06-27-13  
CHECKED BY : J. LAZAROVICH DATE : 10-17-13  
DRAWN BY : DGE 02/10  
CHECKED BY : MKT 02/10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			14

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

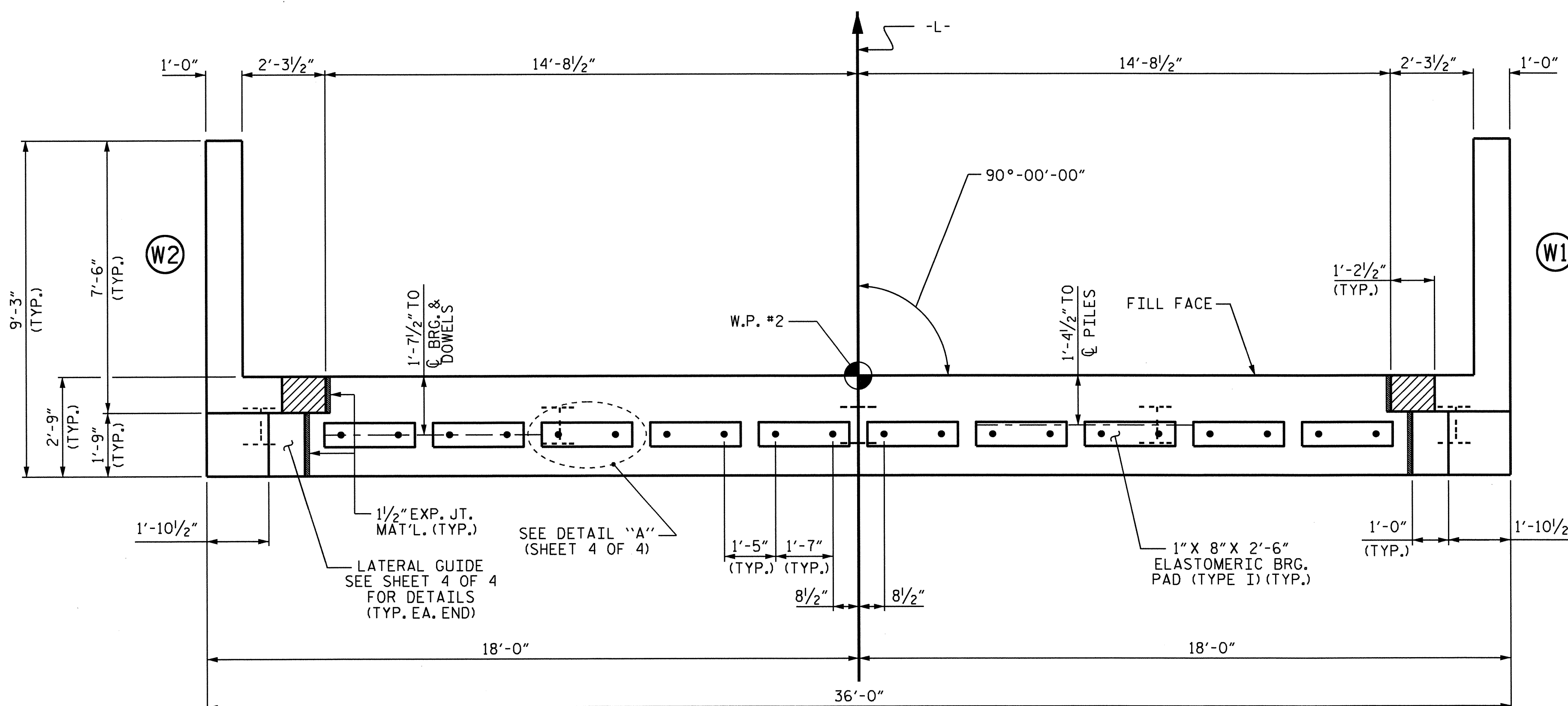
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

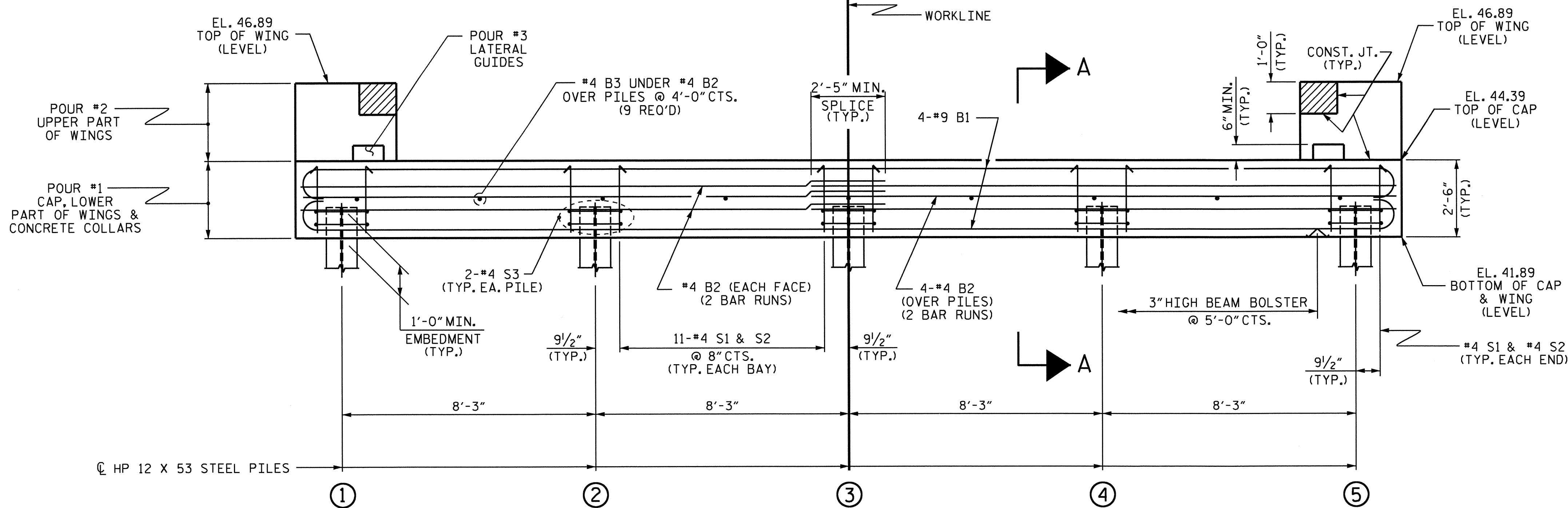
FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.  
FOR SECTION A-A, SEE SHEET 4 OF 4.  
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BD-5102Y  
PITT COUNTY  
STATION: 12+33.00 -L-

SHEET 2 OF 4

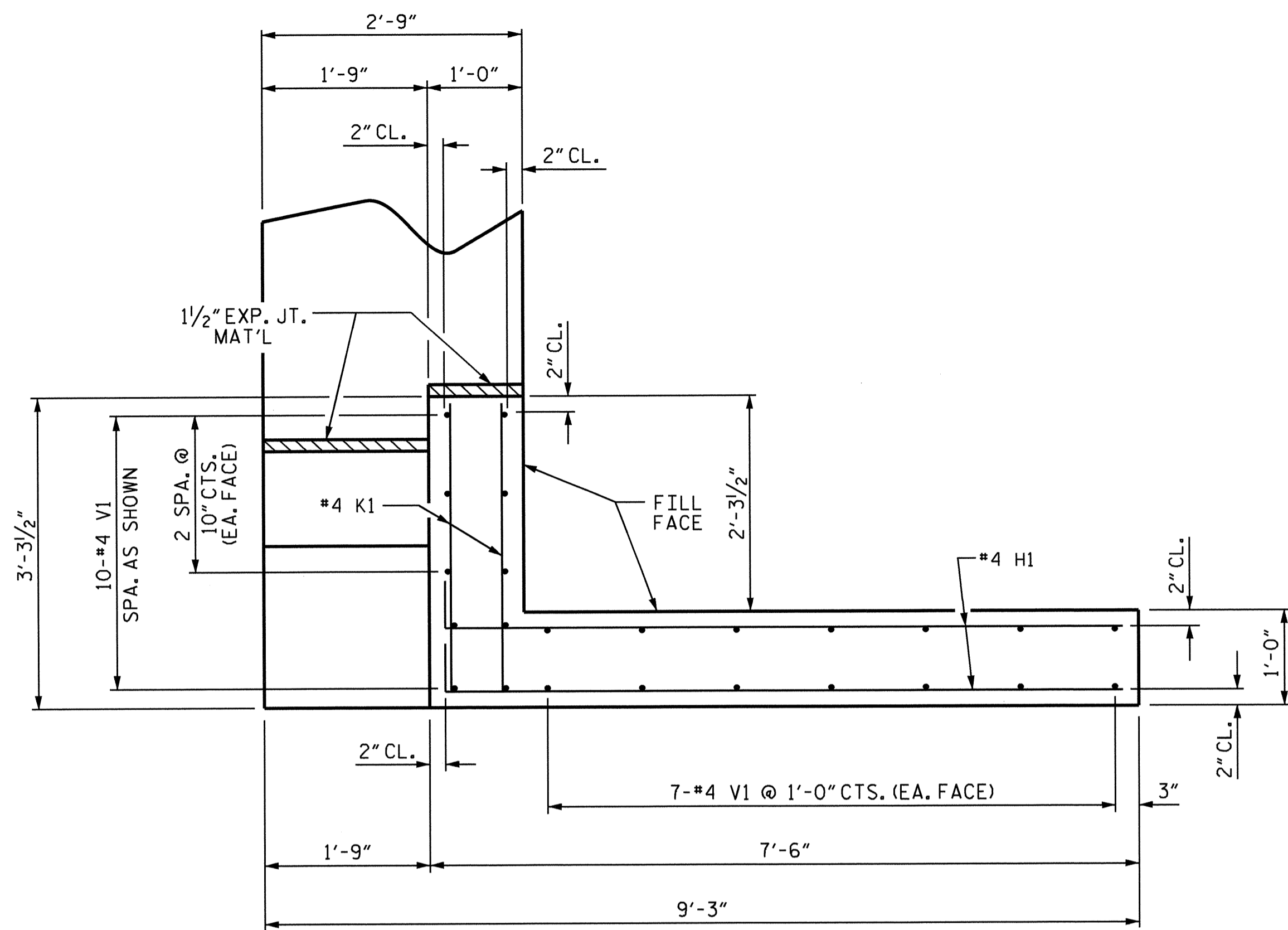
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT No. 2

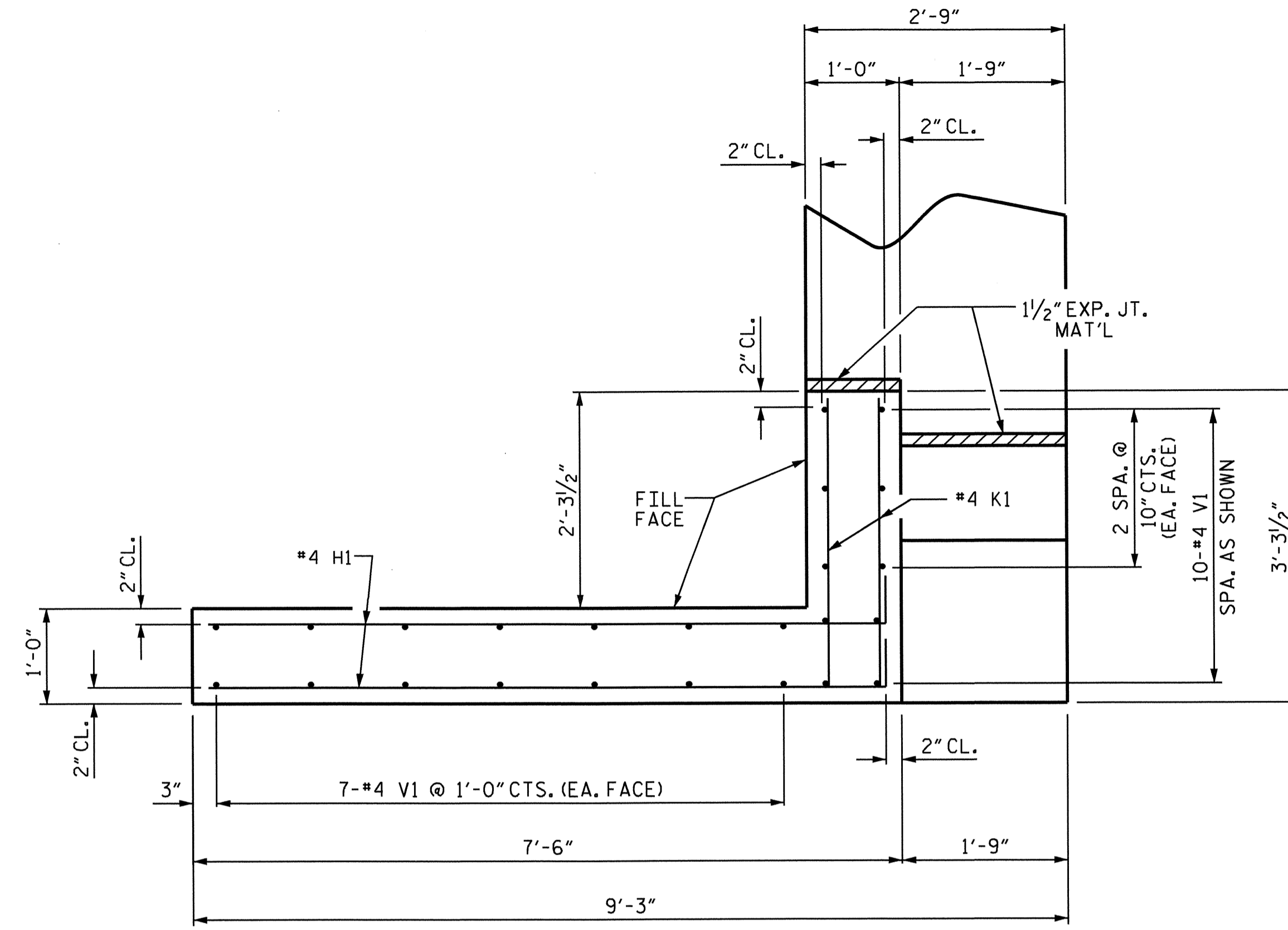


ASSEMBLED BY : M.D.PISO DATE : 06-27-13  
CHECKED BY : J. LAZAROVICH DATE : 10-17-13  
DRAWN BY : DGE 02/10  
CHECKED BY : MKT 02/10

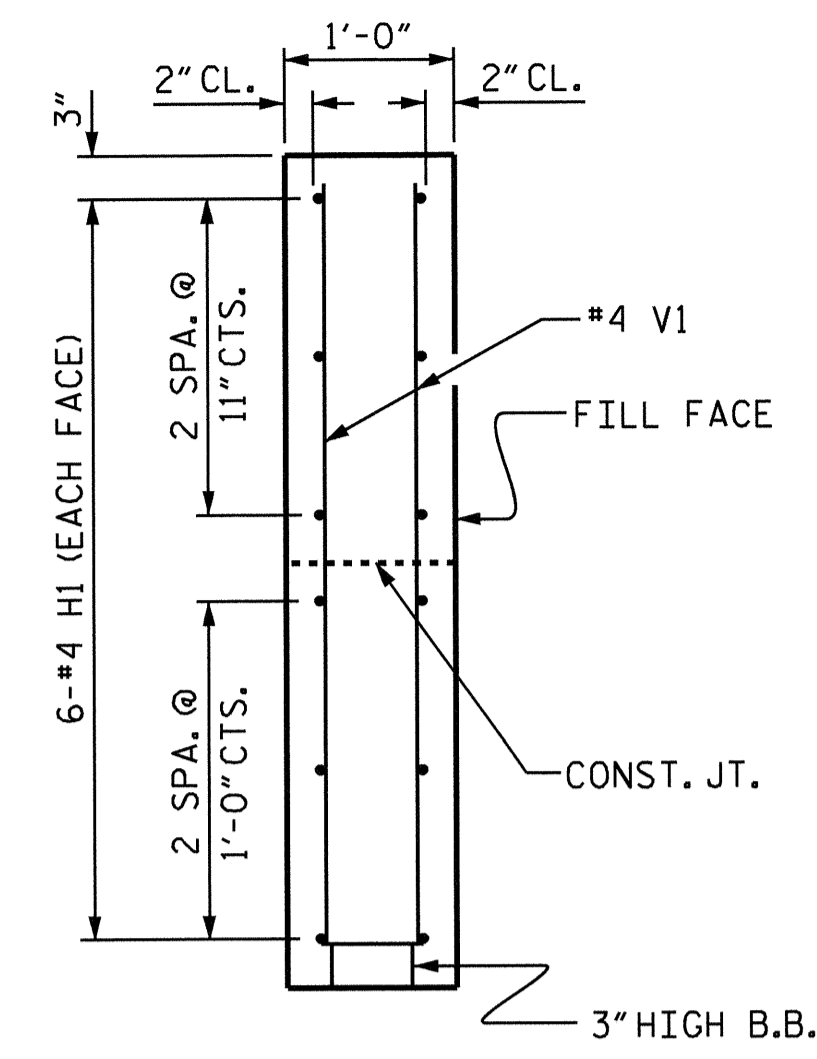
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS 14
2			4			



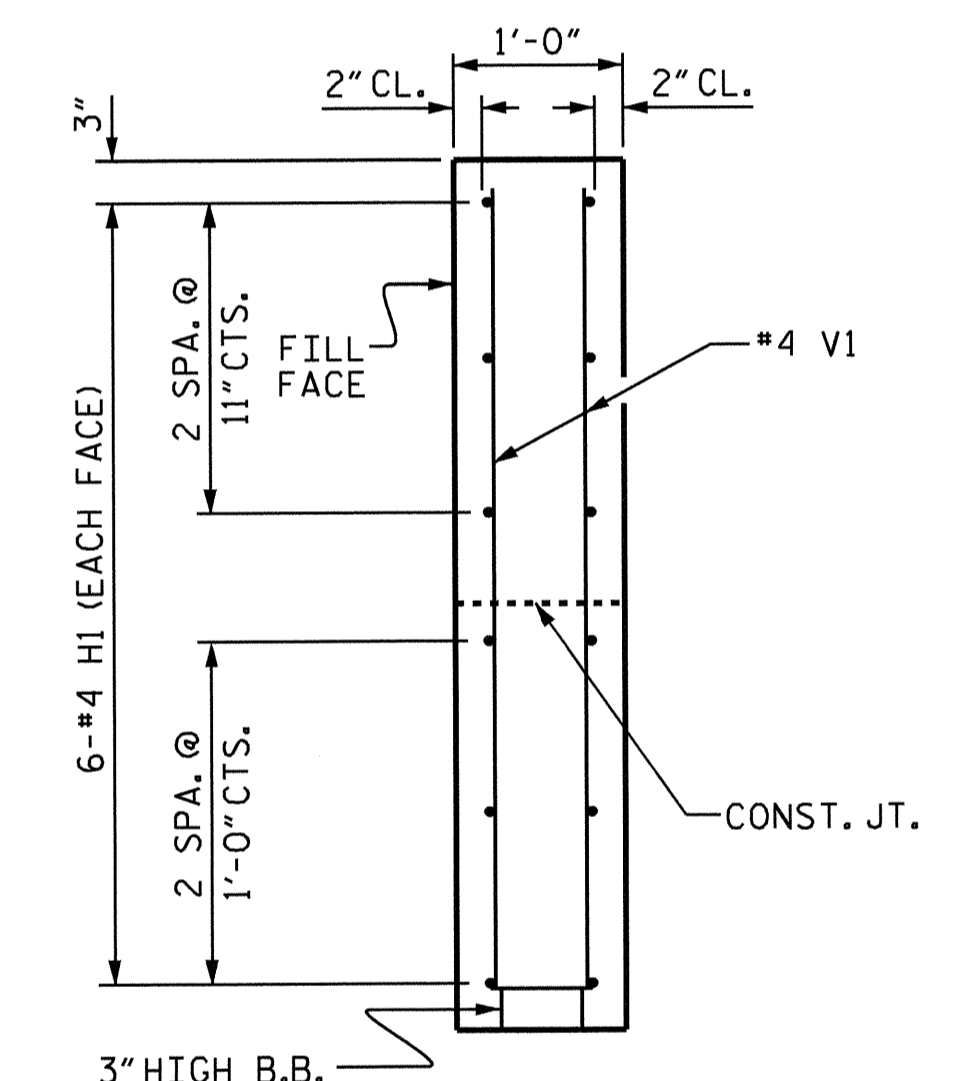
PLAN OF WING (W1)



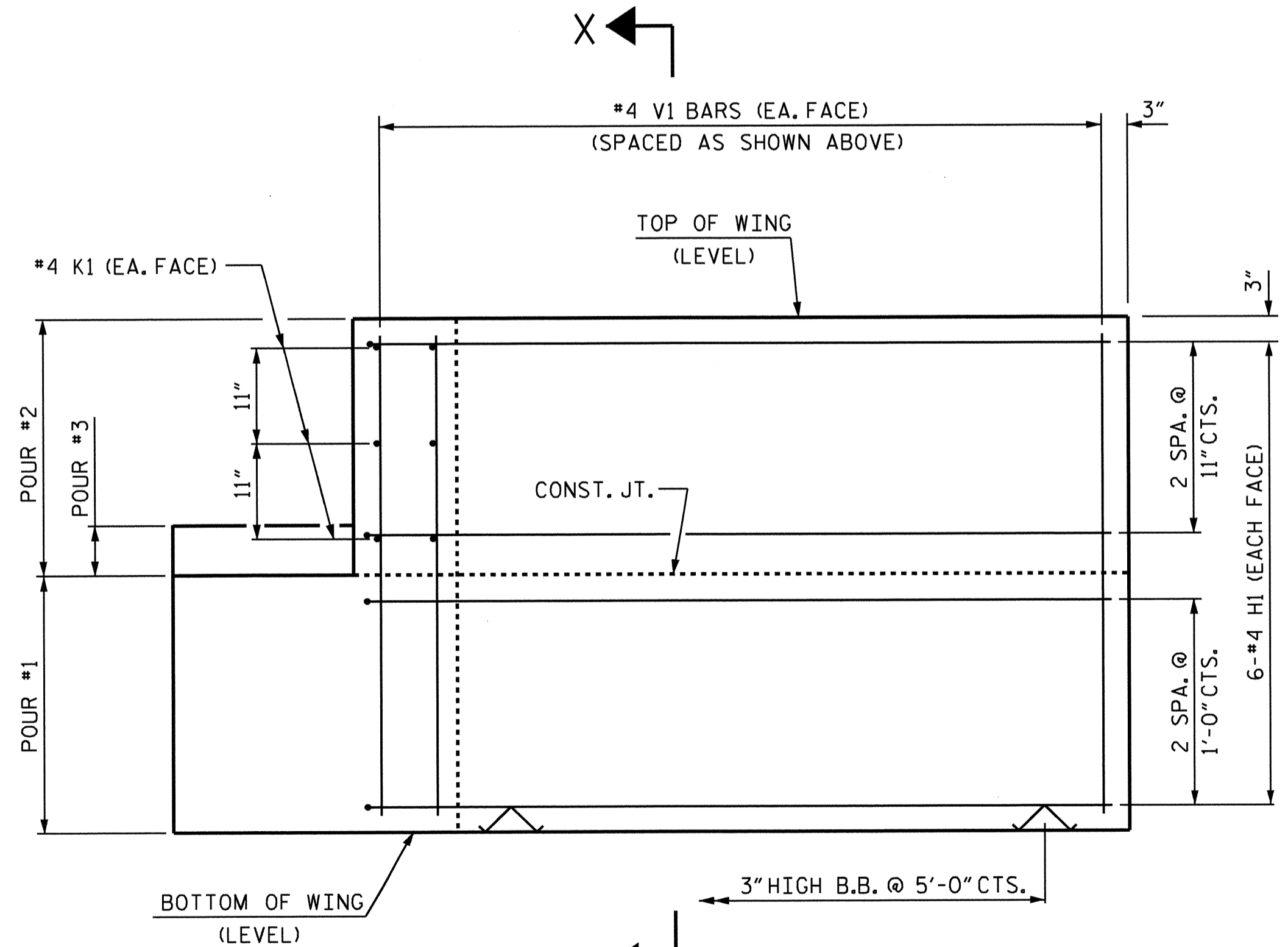
PLAN OF WING (W2)



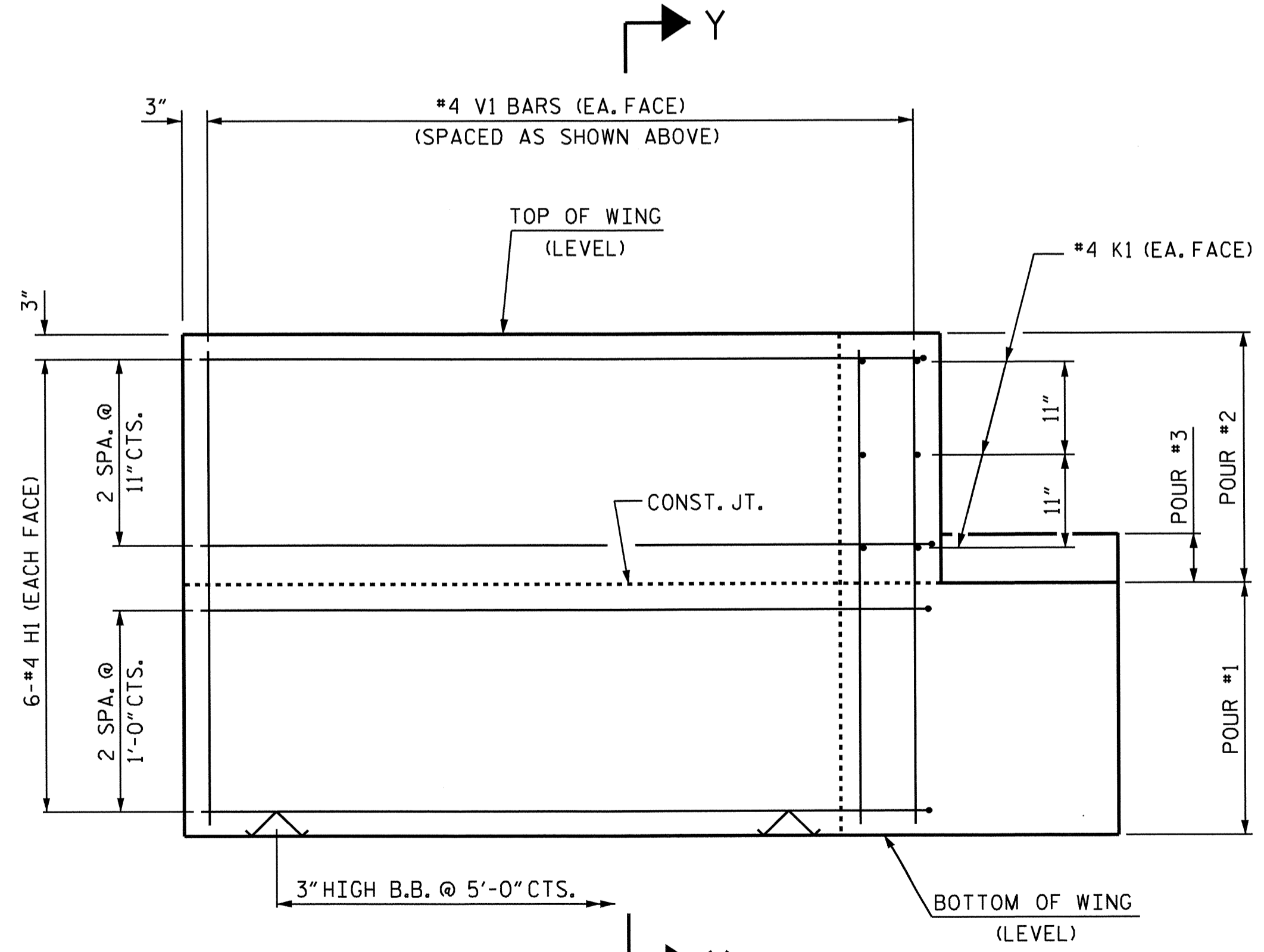
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



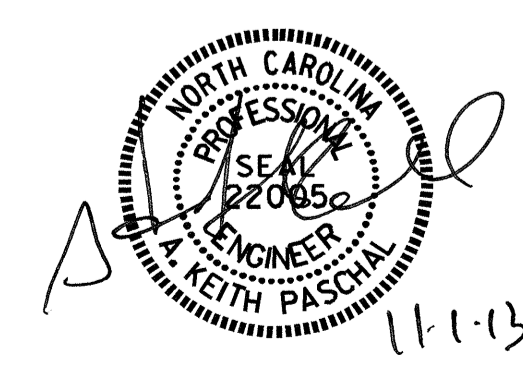
ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-

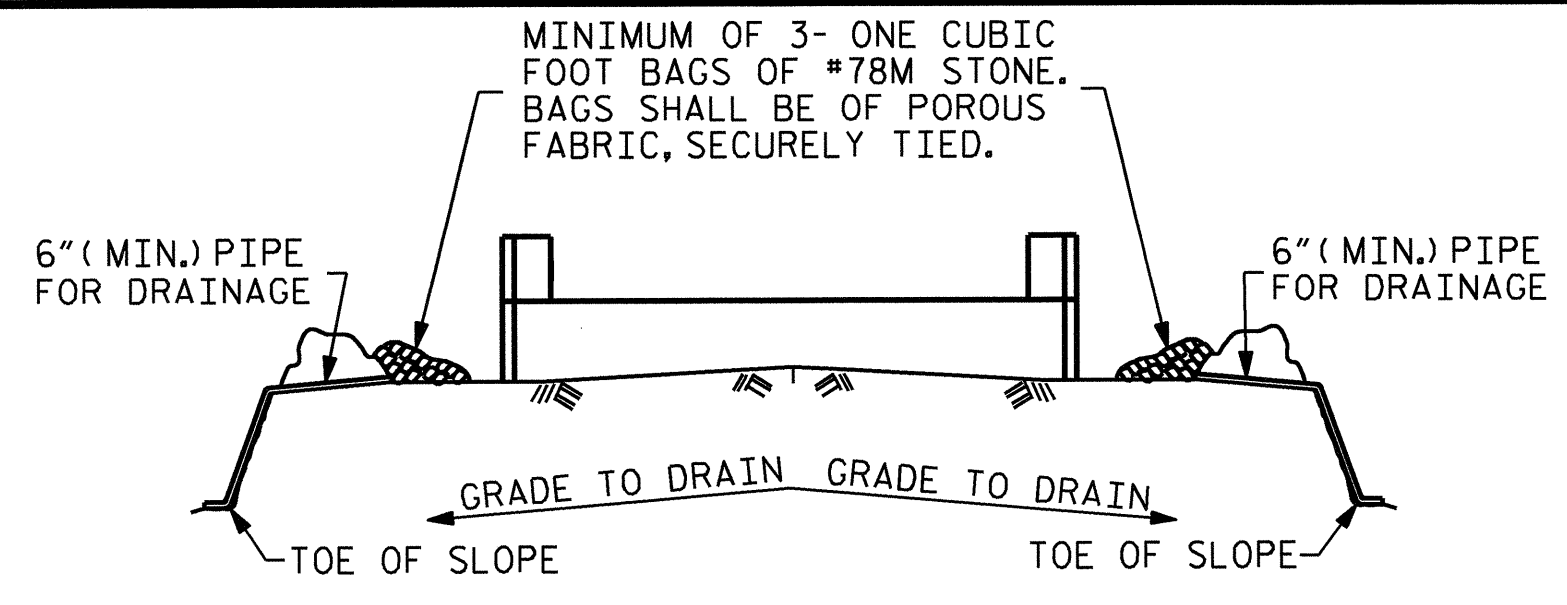
SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-11					TOTAL SHEETS 14



ASSEMBLED BY : M.D.PISO DATE : 06-27-13  
 CHECKED BY : J. LAZAROVICH DATE : 10-17-13  
 DRAWN BY : DGE 02/10  
 CHECKED BY : MKT 02/10



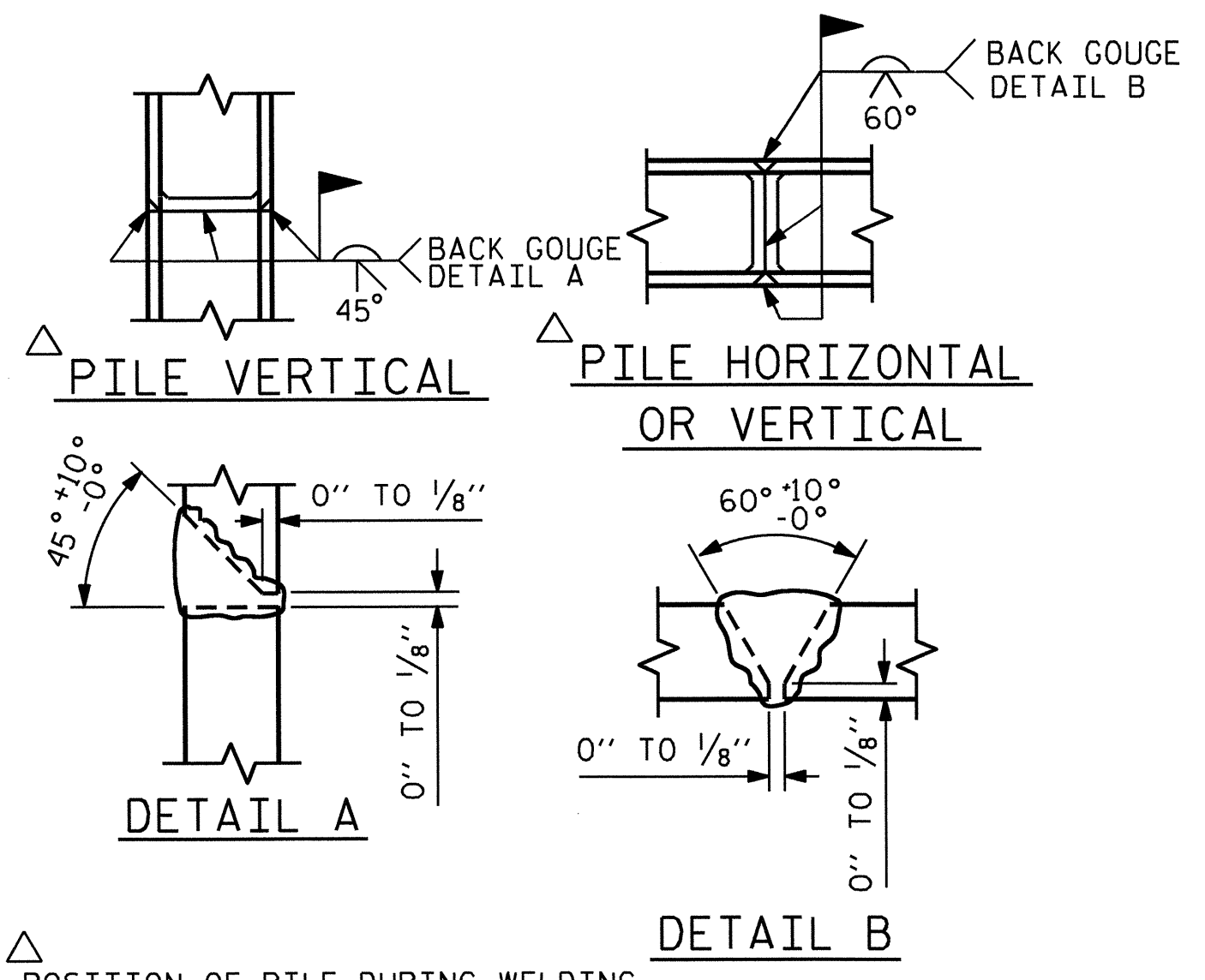


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

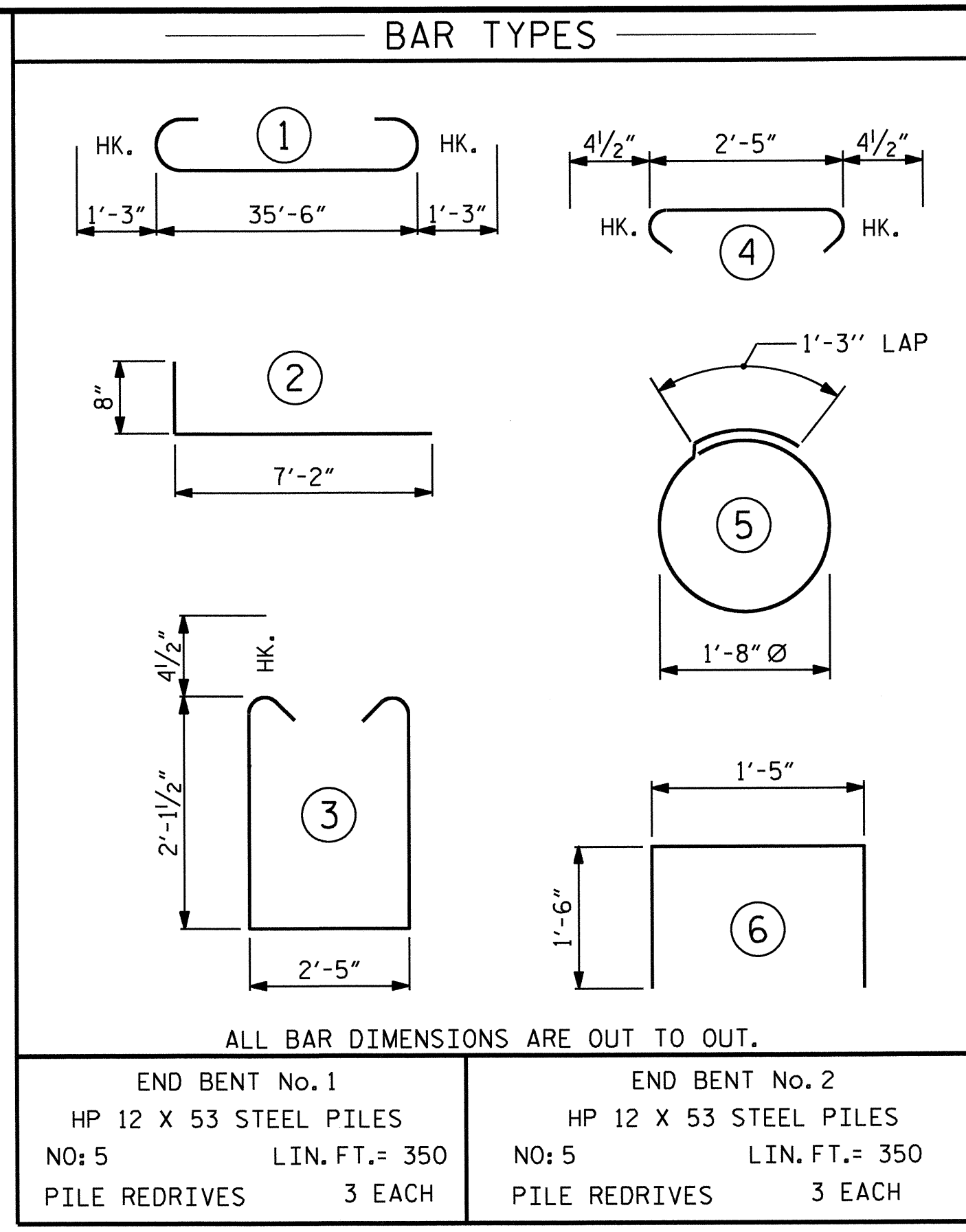
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

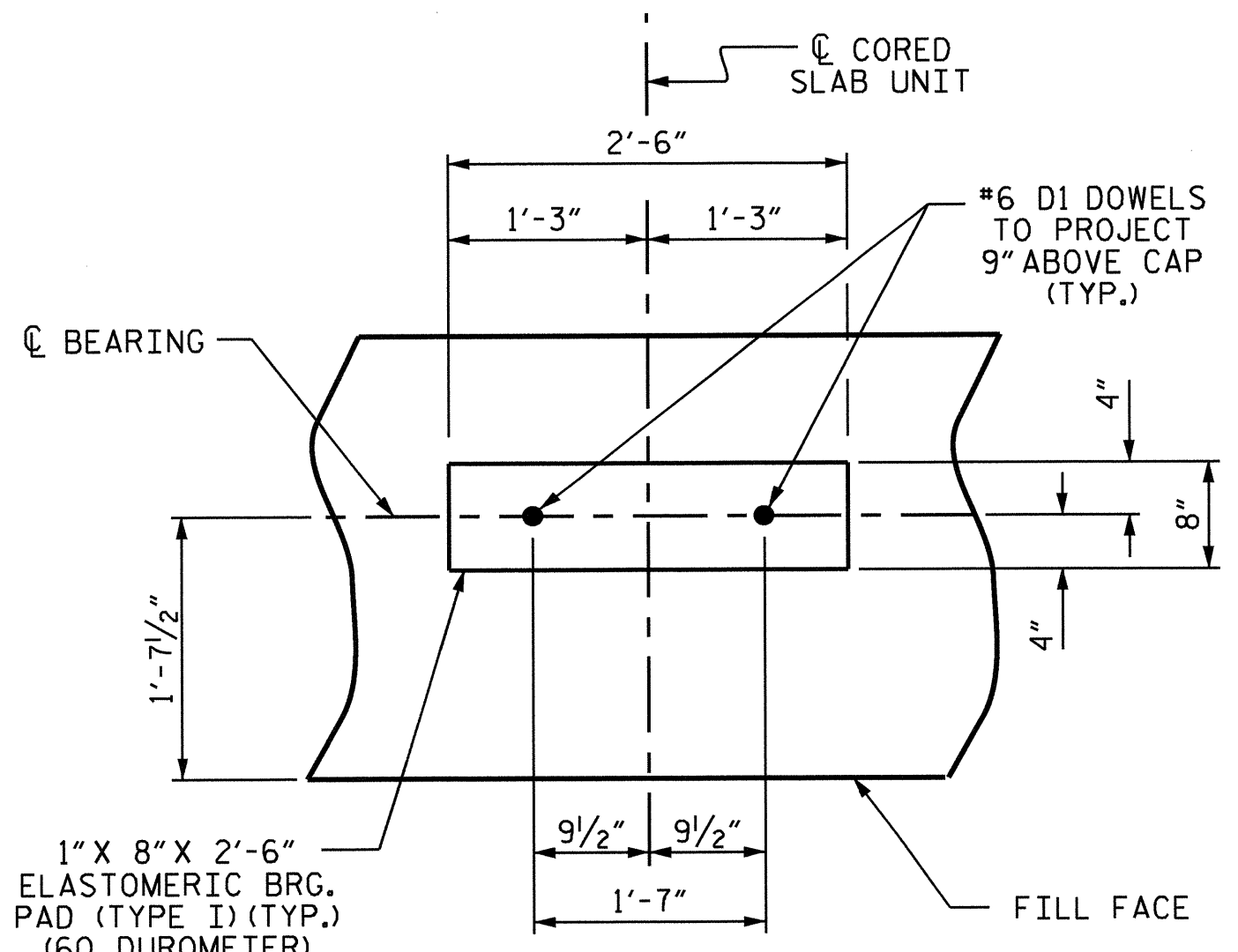
**TEMPORARY DRAINAGE AT END BENT**



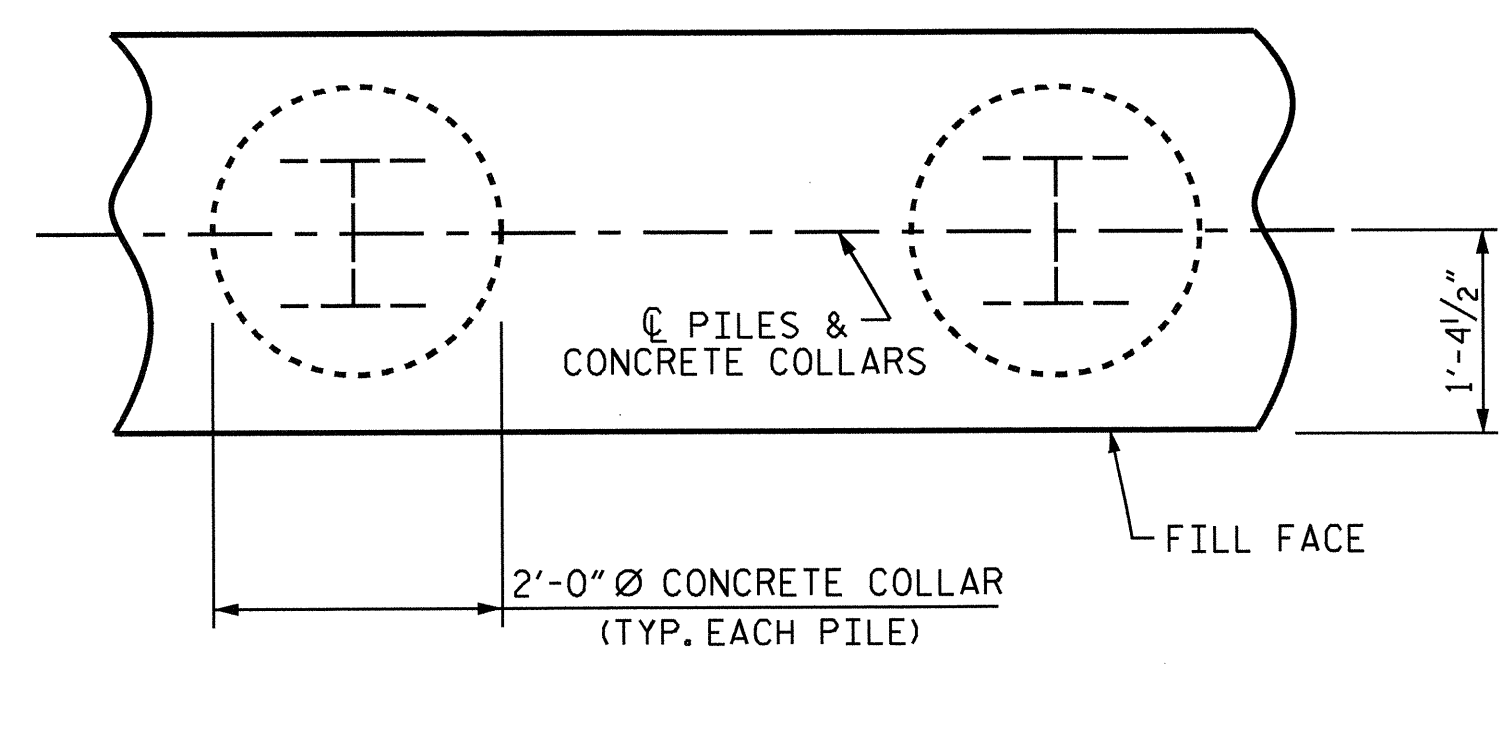
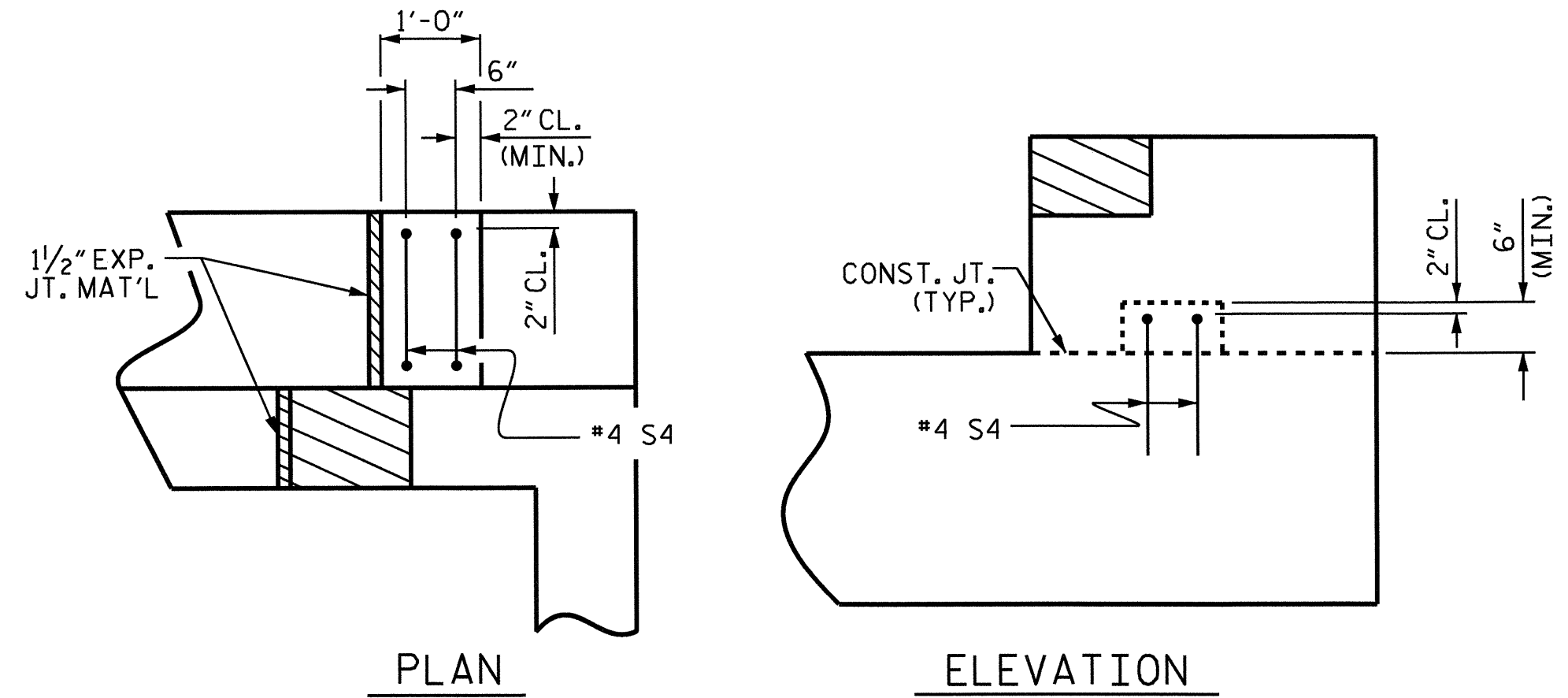
**PILE SPLICE DETAILS**



BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	16	#4	STR	19'-1"	204
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	46	#4	3	7'-5"	228
S2	46	#4	4	3'-2"	97
S3	10	#4	5	6'-6"	43
S4	4	#4	6	4'-5"	12
VI	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT)					1977 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS				11.2 C.Y.
POUR #2	UPPER PART OF WINGS				1.8 C.Y.
POUR #3	LATERAL GUIDES				0.1 C.Y.
TOTAL CLASS A CONCRETE					13.1 C.Y.

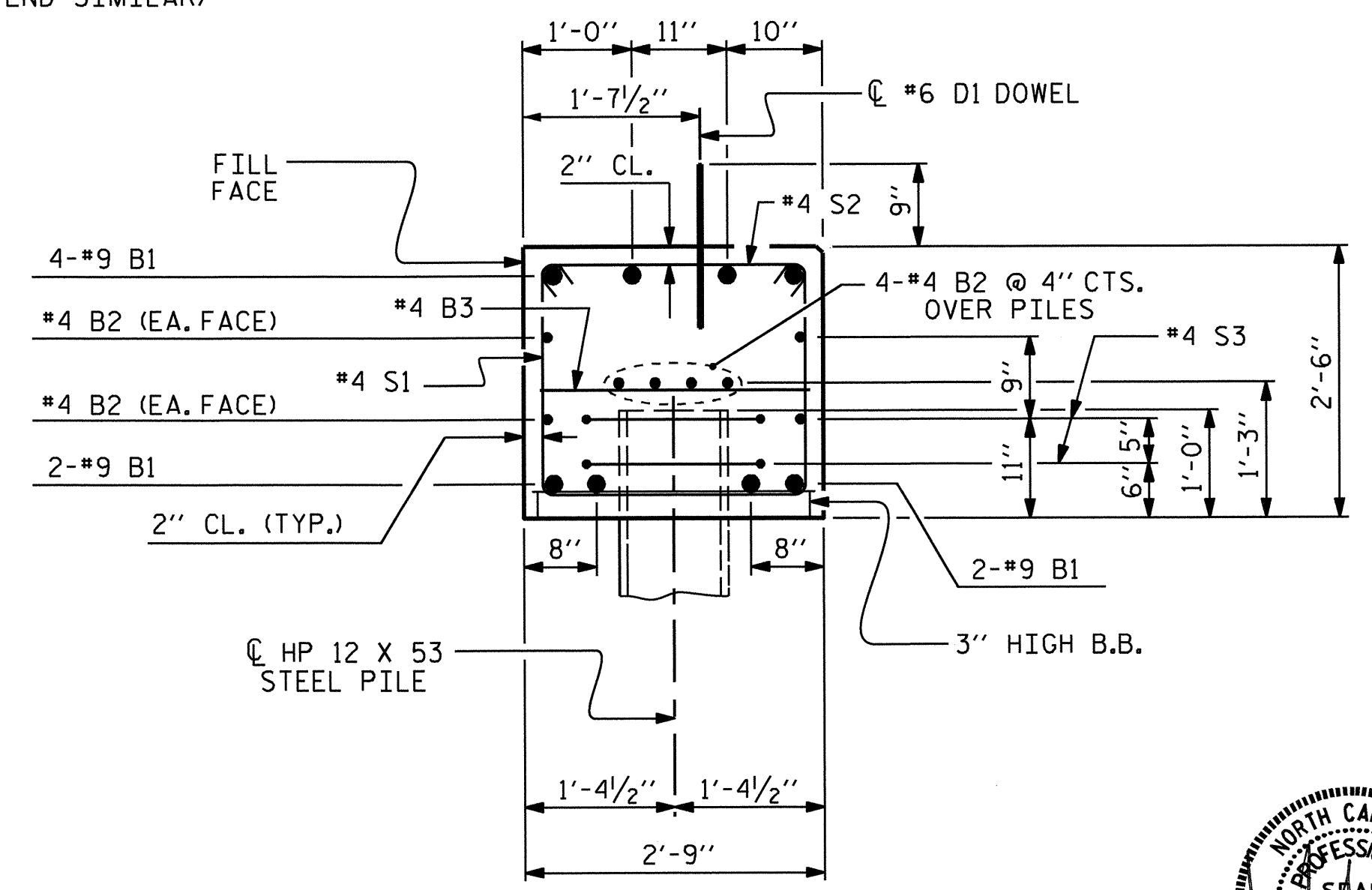
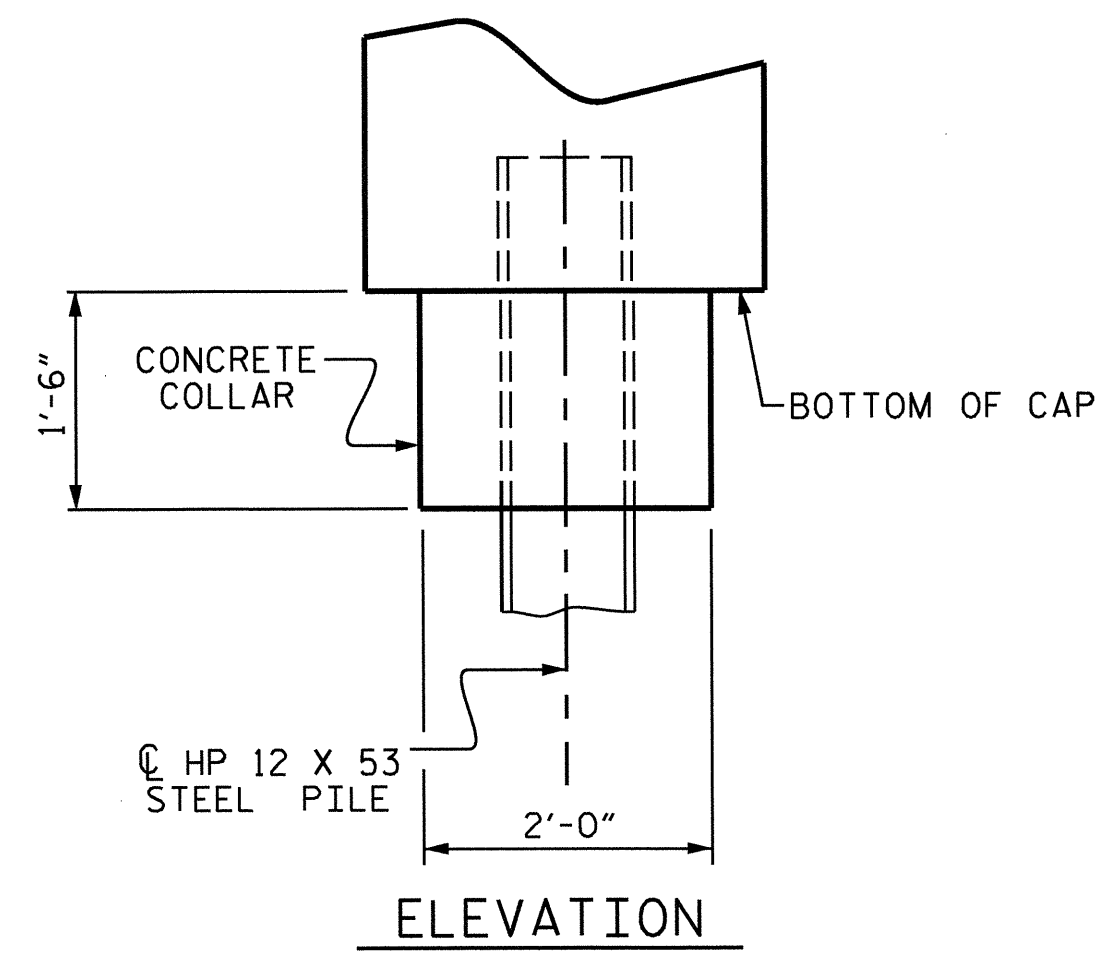


(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



**CORROSION PROTECTION FOR STEEL PILES DETAIL**

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



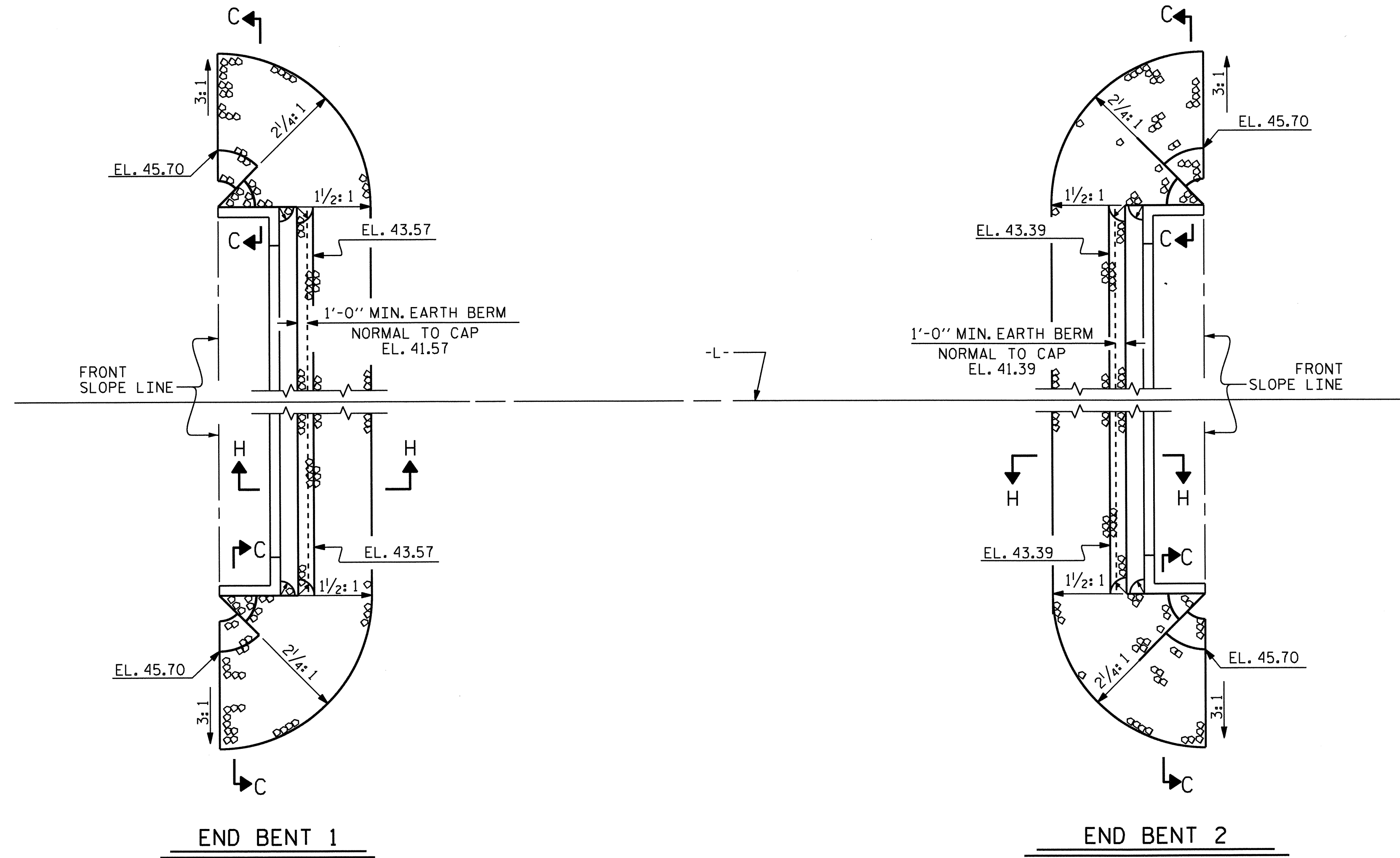
PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-  
 SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT No. 1 & No. 2  
 DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS	14
2			4				

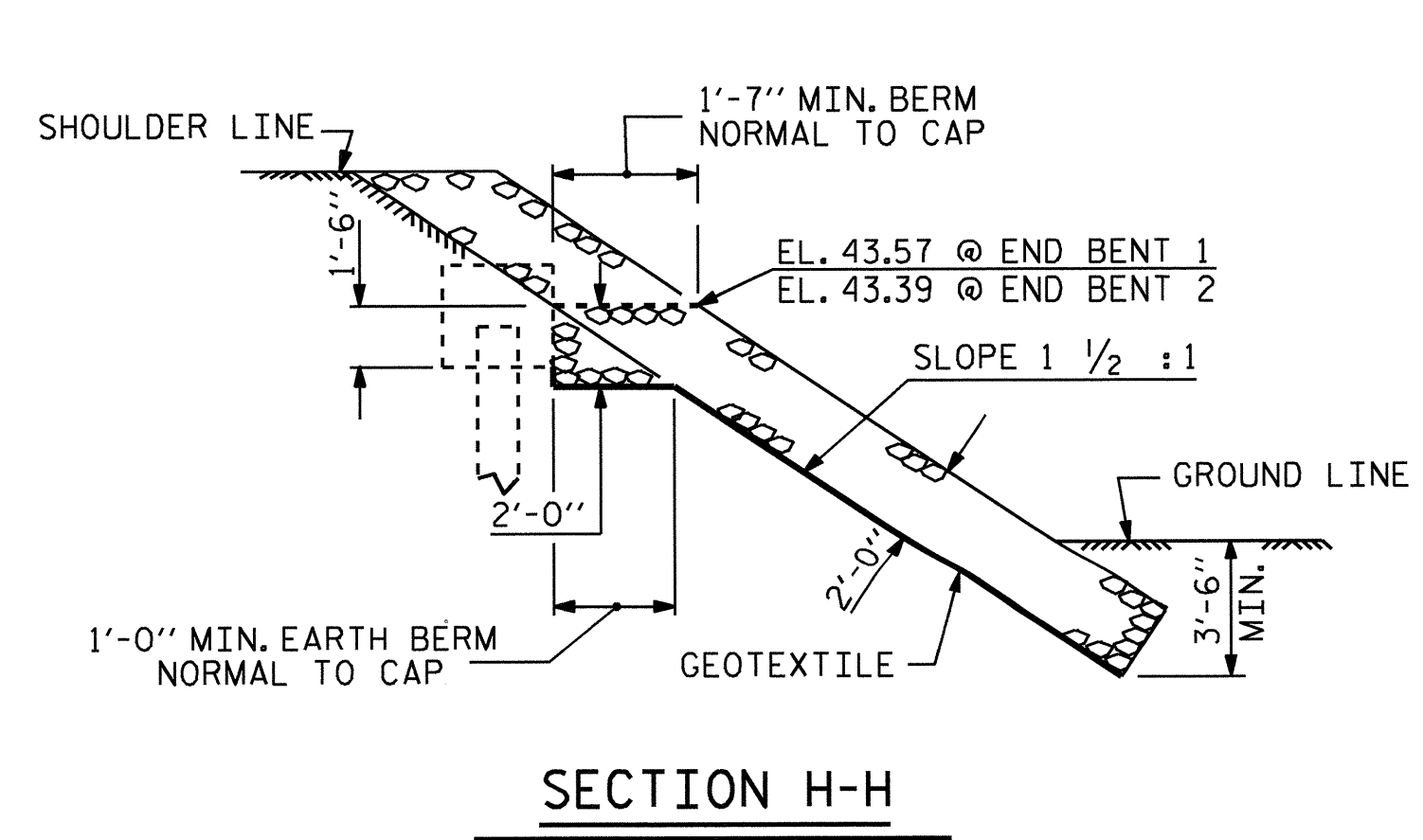
ASSEMBLED BY : M.D.PISO DATE : 06-27-13  
 CHECKED BY : J. LAZAROVICH DATE : 10-17-13  
 DRAWN BY : DGE 02/10  
 CHECKED BY : MKT 02/10

NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

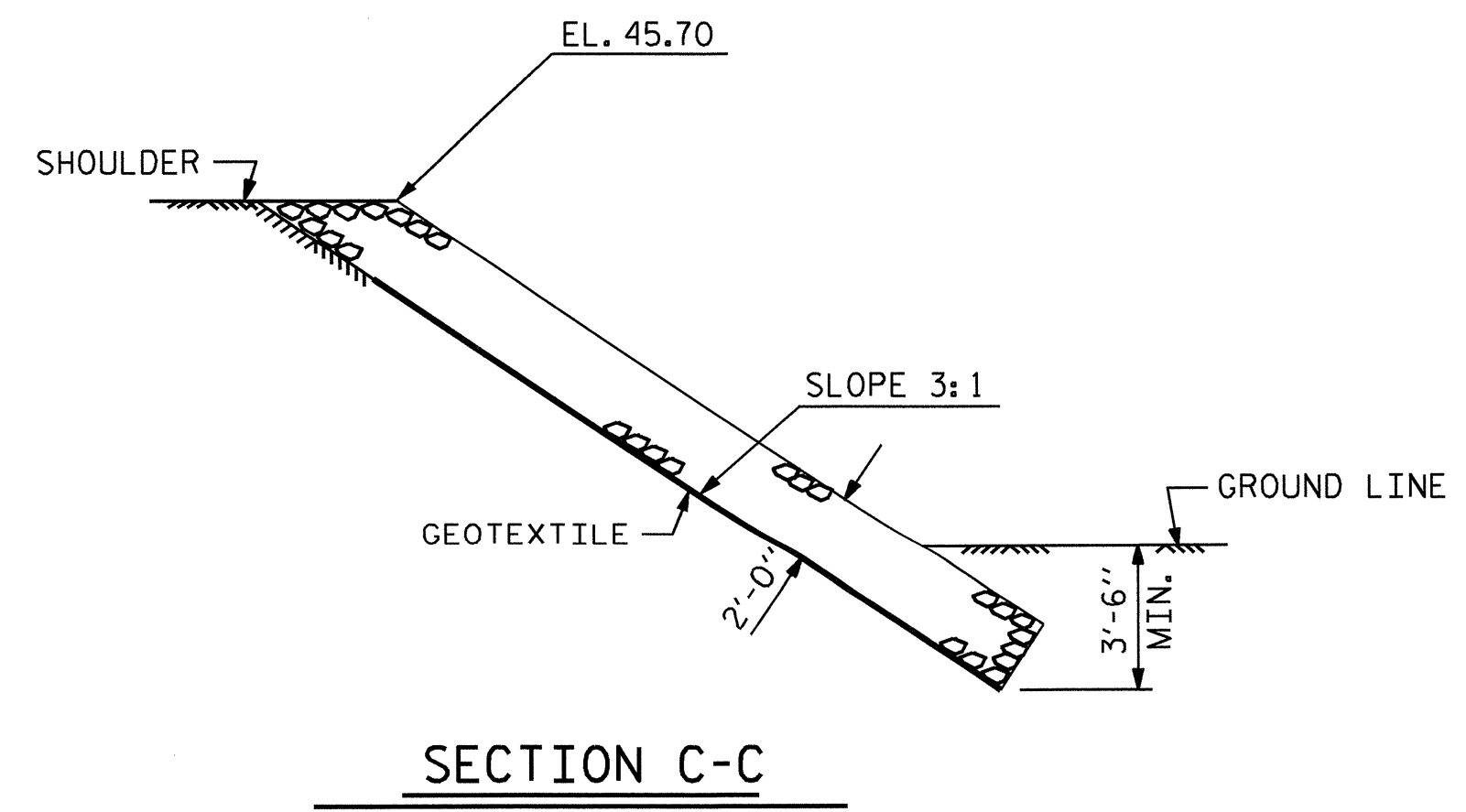


SECTION ALONG -L-

ESTIMATED QUANTITIES		
BRIDGE @ STA. 12+33.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	132	145
END BENT 2	129	142



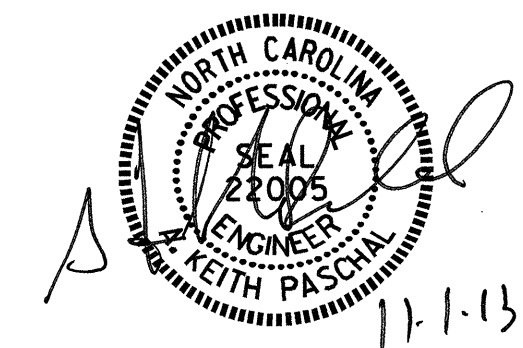
SECTION H-H



SECTION C-C

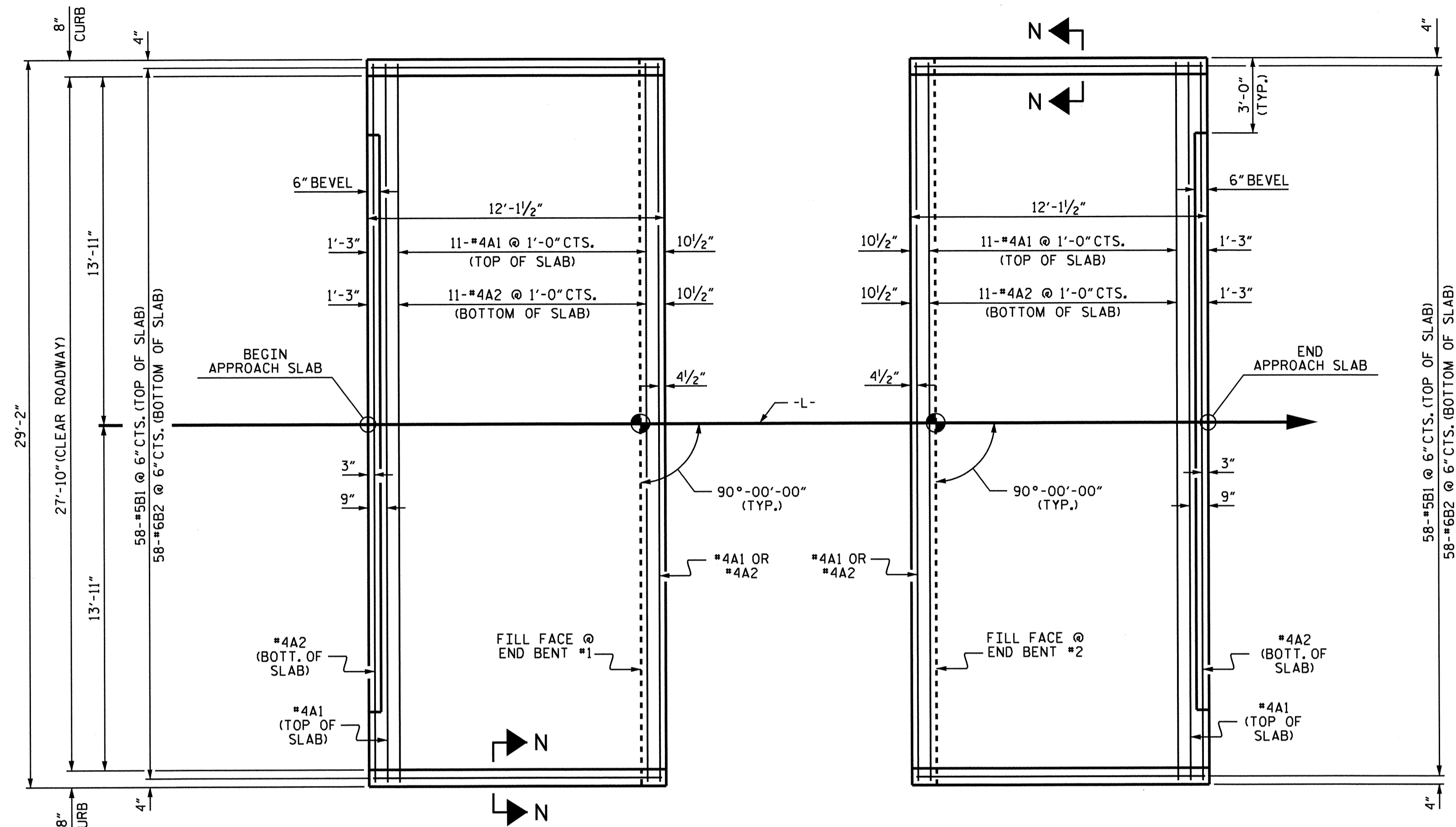
PROJECT NO. BD-5102Y  
PITT COUNTY  
STATION: 12+33.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
= RIP RAP DETAILS =					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



ASSEMBLED BY : M.D.PISO DATE : 06-28-13  
CHECKED BY : D.G. ELY DATE : 10-31-13  
DRAWN BY : REK 1/84 REV. 5/1/06R TLA/GM  
CHECKED BY : RDU 1/84 REV. 10/1/11 MAA/GM  
REV. 12/21/11 MAA/GM





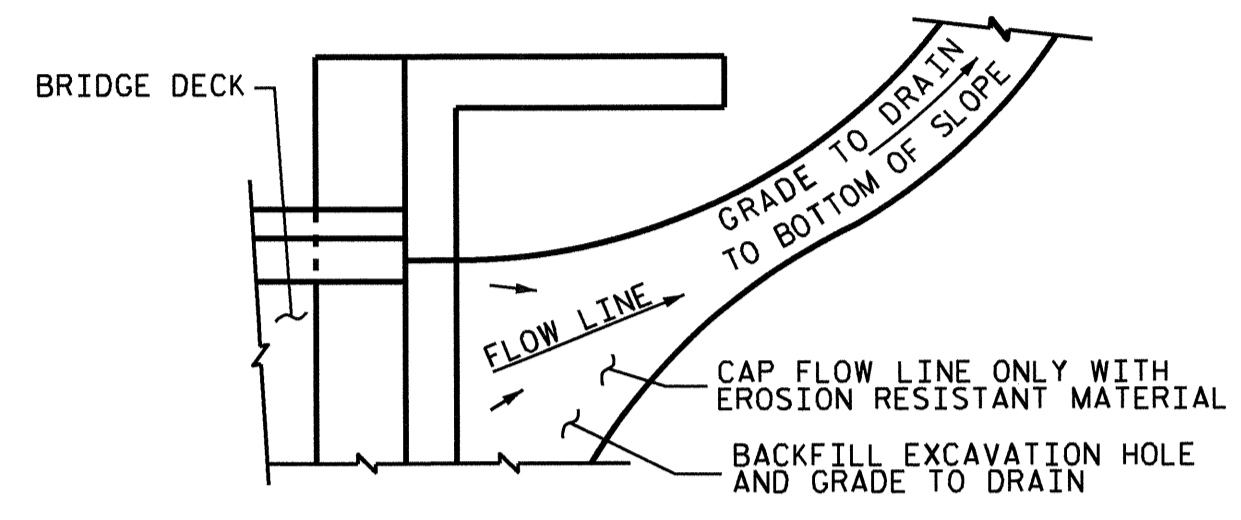
**NOTES**

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

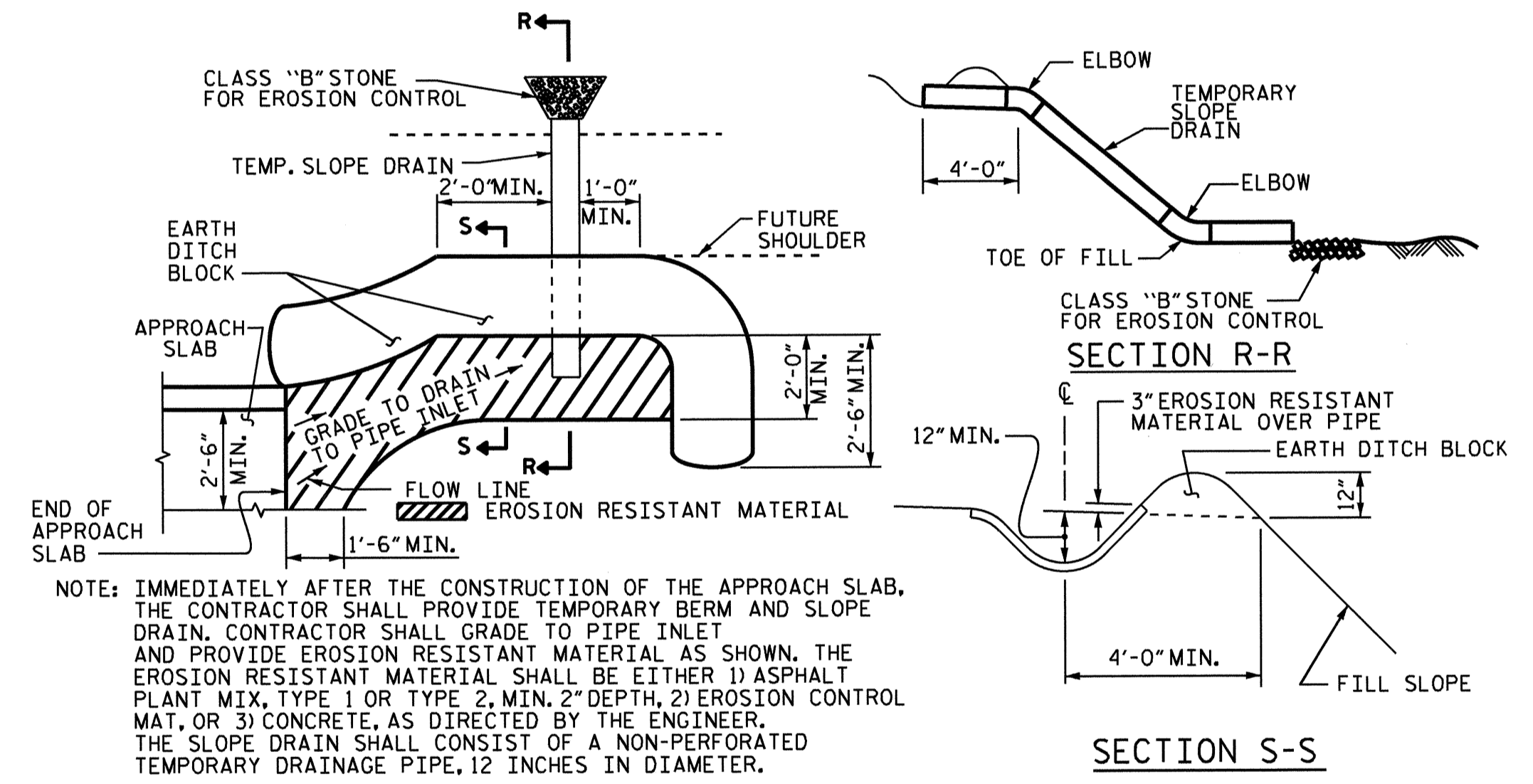
APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	28'-10"	250	
A2	13	#4	STR	28'-10"	250	
*B1	58	#5	STR	11'-2"	676	
B2	58	#6	STR	11'-8"	1016	
REINFORCING STEEL					LBS.	1266
* EPOXY COATED REINFORCING STEEL					LBS.	926
CLASS AA CONCRETE					C. Y.	16.9
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	28'-10"	250	
A2	13	#4	STR	28'-10"	250	
*B1	58	#5	STR	11'-2"	676	
B2	58	#6	STR	11'-8"	1016	
REINFORCING STEEL					LBS.	1266
* EPOXY COATED REINFORCING STEEL					LBS.	926
CLASS AA CONCRETE					C. Y.	16.9



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

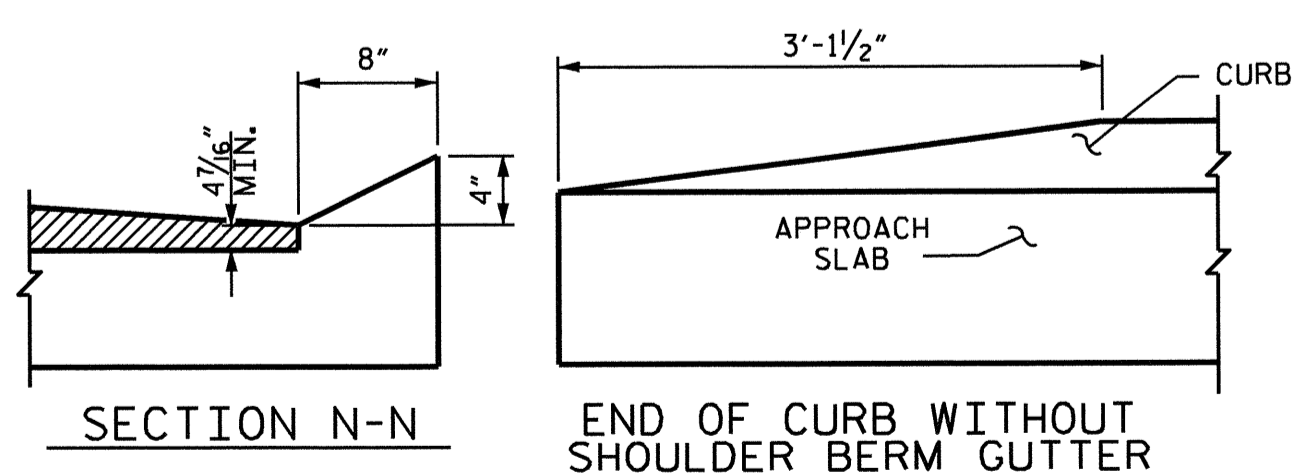
**TEMPORARY DRAINAGE DETAIL**



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

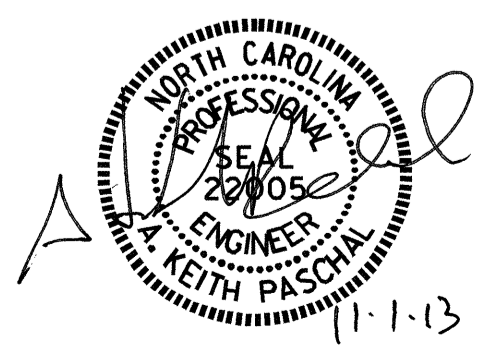
**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



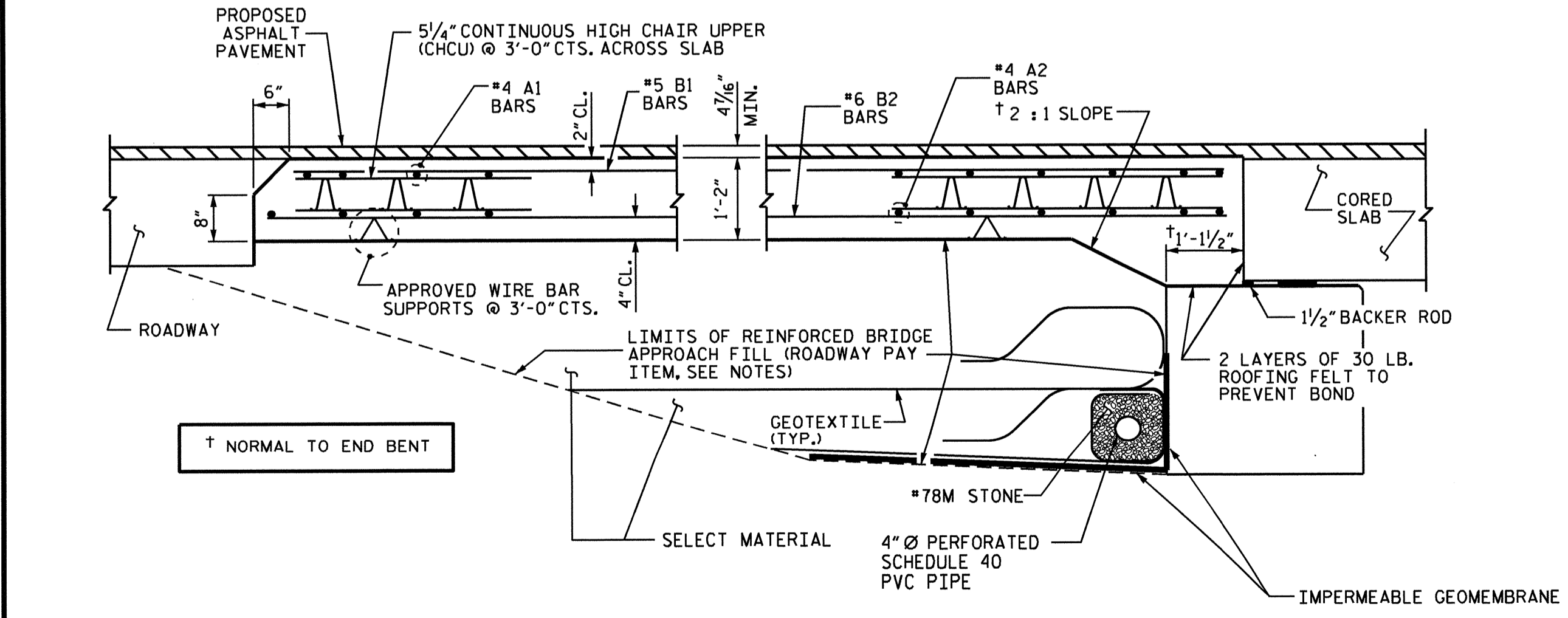
**CURB DETAILS**

SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



PROJECT NO. BD-5102Y  
PITT COUNTY  
 STATION: 12+33.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT					
90° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 14



**SECTION THRU SLAB**

ASSEMBLED BY : M.D.PISO DATE : 06-17-13  
 CHECKED BY : J.LAZAROVICH DATE : 10-17-13  
 DRAWN BY : SHS/MAA 5-09 REV. 12-11 MAA/AAC  
 CHECKED BY : BCH 5-09

## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	- -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	- - - - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.  
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.  
IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.  
DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.  
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

# ENGLISH

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