



REVISIONS

**INDEX OF SHEETS**

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES & LIST OF STANDARDS
1-B	SYMBOLOLOGY SHEET
2	TYPICAL SECTION SHEET
3	EARTHWORK, PAVEMENT REMOVAL, GUARDRAIL SUMMARY, ROW SUMMARY, & DRAINAGE SUMMARY SHEET
4	PLAN & PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC CONTROL PLANS
EC-1	EROSION CONTROL TITLE SHEET
EC-2	EROSION CONTROL - COIR FIBER WATTLE DETAIL
EC-3	EROSION CONTROL- WATTLE / SILT FENCE BREAK DETAIL
EC-4	EROSION CONTROL - SOIL STABILIZATION TIME FRAMES
EC-5	EROSION CONTROL SHEET
P-1	PERMIT DRAWING
X-1 THRU X-5	-L- CROSS SECTION SHEETS
S-1 THRU S-18	BRIDGE PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS

GENERAL NOTES: 2012 SPECIFICATIONS  
 EFFECTIVE: 01-17-12  
 REVISED: 11/01/11

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.

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.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS 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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Water - City of Kinston  
 Power - City of Kinston  
 Phone - Century Link  
 Gas - Piedmont Natural Gas

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.

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 Superelevation - 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 Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
840.20	Frames and Wide Slot Flat Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets













**Note: Not to Scale**

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












STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

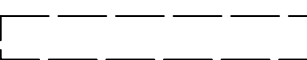









**BOUNDARIES AND PROPERTY:**

State Line	_____
County Line	_____
Township Line	_____
City Line	_____
Reservation Line	_____
Property Line	_____
Existing Iron Pin	_____ 
Property Corner	_____ 
Property Monument	_____ 
Parcel/Sequence Number	_____ 
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	_____ 






**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	_____ 
Buffer Zone 1	_____ 
Buffer Zone 2	_____ 
Flow Arrow	_____ 
Disappearing Stream	_____ 
Spring	_____ 
Wetland	_____ 
Proposed Lateral, Tail, Head Ditch	_____ 
False Sump	_____ 

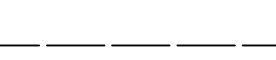
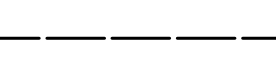







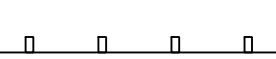



**RAILROADS:**

Standard Gauge	_____ 
RR Signal Milepost	_____ 
Switch	_____ 
RR Abandoned	_____ 
RR Dismantled	_____ 

**RIGHT OF WAY:**

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

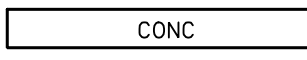
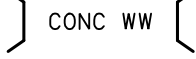
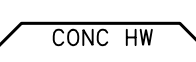


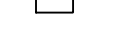



**ROADS AND RELATED FEATURES:**

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










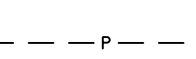

**VEGETATION:**

Single Tree	_____ 
Single Shrub	_____ 
Hedge	_____ 
Woods Line	_____ 
Orchard	_____ 
Vineyard	_____ 








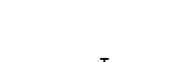
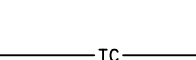
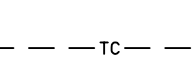

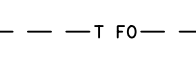

**EXISTING STRUCTURES:**

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








**UTILITIES:**

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









**TELEPHONE:**

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






**WATER:**

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







**TV:**

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











**GAS:**

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

**SANITARY SEWER:**

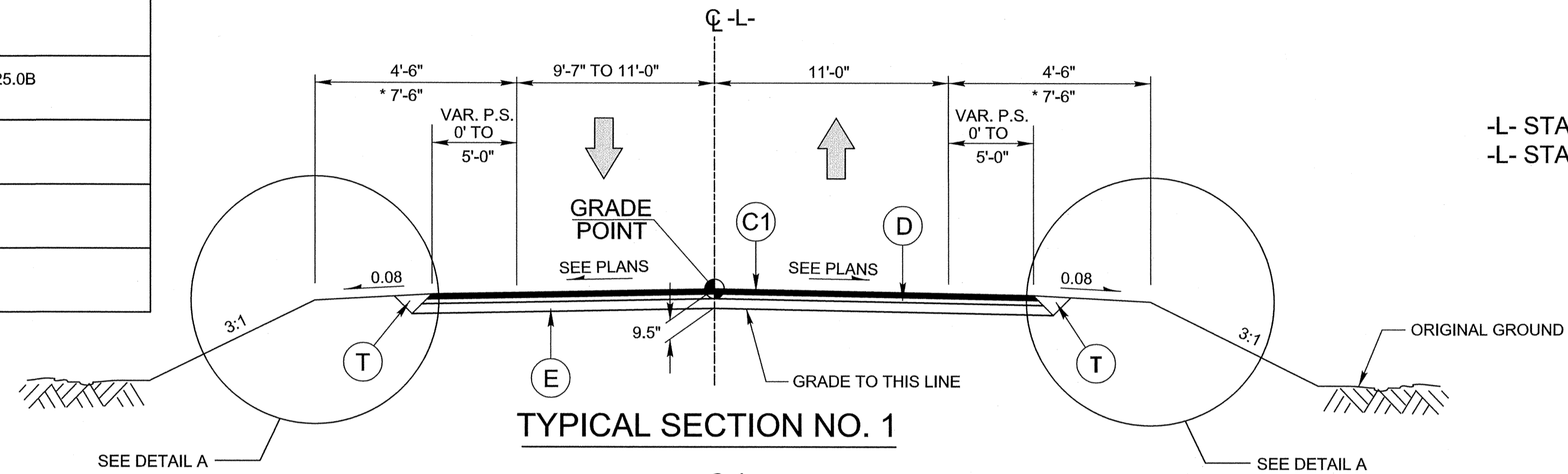
Sanitary Sewer Manhole	_____ 
Sanitary Sewer Cleanout	_____ 
U/G Sanitary Sewer Line	_____ 
Above Ground Sanitary Sewer	_____ 
Recorded SS Forced Main Line	_____ 
Designated SS Forced Main Line (S.U.E.*)	_____ 

**MISCELLANEOUS:**

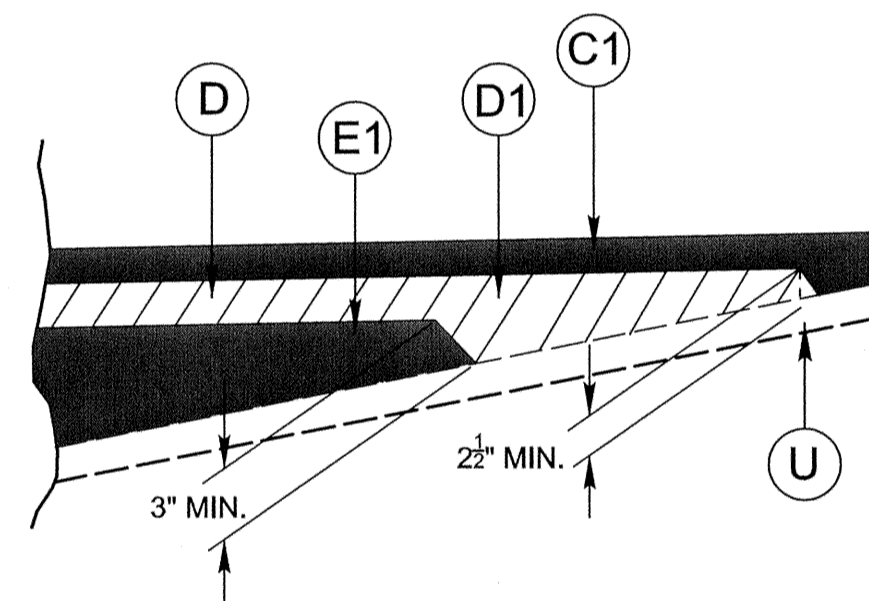
Utility Pole	_____ 
Utility Pole with Base	_____ 
Utility Located Object	_____ 
Utility Traffic Signal Box	_____ 
Utility Unknown U/G Line	_____ 
U/G Tank; Water, Gas, Oil	_____ 
A/G Tank; Water, Gas, Oil	_____ 
U/G Test Hole (S.U.E.*)	_____ 
Abandoned According to Utility Records	_____ 
End of Information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

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
D	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
E1	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER INCH.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING (SEE DETAIL)

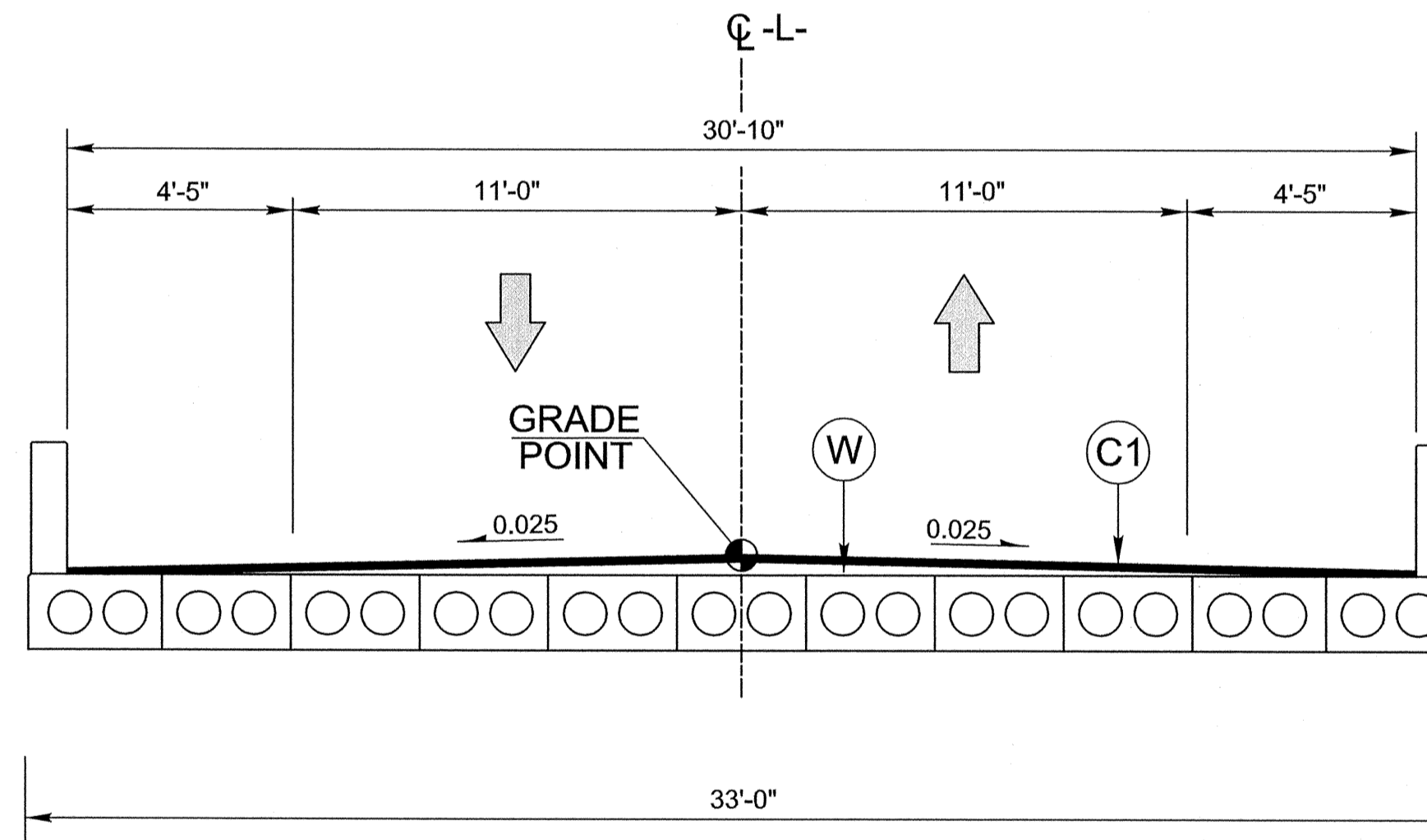
ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



USE TYPICAL SECTION NO. 1 FROM:  
 -L- STA. 10+90.00 TO -L- STA. 12+71.75 (BEGIN BRIDGE)  
 -L- STA. 13+74.25 (END BRIDGE) TO -L- STA. 15+05.00

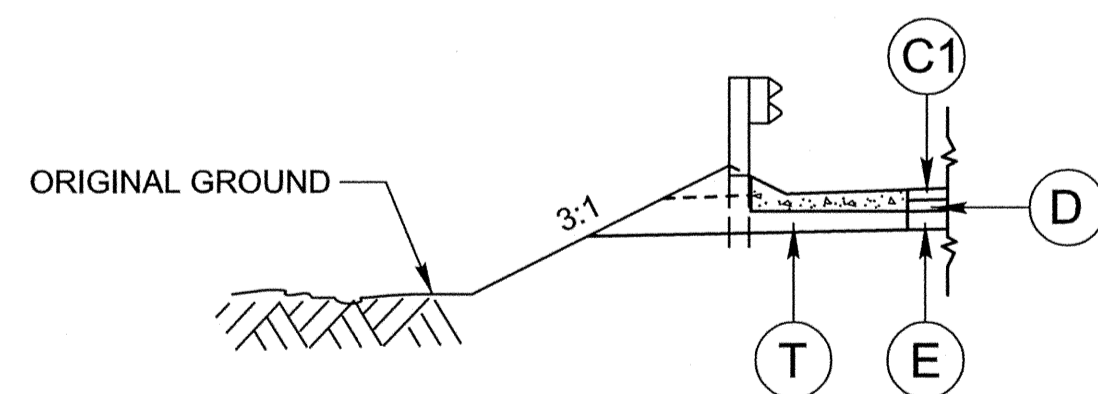


**DETAIL SHOWING METHOD OF WEDGING**  
 SEE TYPICAL SECTIONS



USE TYPICAL SECTION NO. 2 FROM:  
 -L- STA. 12+71.75 TO -L- STA. 13+74.25

**TYPICAL SECTION NO. 2**  
 CORED SLAB BRIDGE OVERLAY



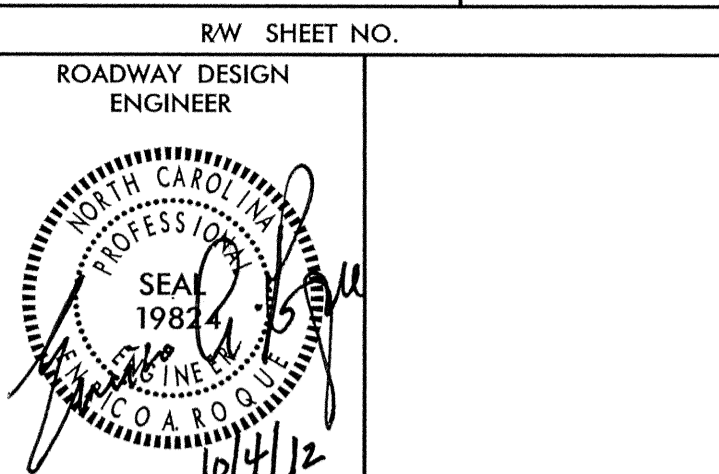
**DETAIL A**

SHOULDER BERM GUTTER LOCATIONS  
 -L- STA. 13+85.3 TO -L- STA. 14+18.1 LT  
 -L- STA. 13+85.3 TO -L- STA. 14+16.5 RT

\* SHOULDER WIDTH INCREASED 3' WITH THE USE OF GUARDRAIL

REVISIONS

\$\$\$DATE\$\$\$  
 \$\$\$SYSTEM\$\$\$  
 \$\$\$CDN\$\$\$



**RIGHT OF WAY AREA DATA**

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	ROW AREA TAKEN (SQFT)	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.	PERM. UTILITY EASE.
1	LENOIR COUNTY	0.60	-	-	0.60			1063.7
2	EVELYN H. KING	-	355.8	-	-			
3	SOUTHWEST CHRISTIAN CHURCH	2.04	455.5	-	2.03	1350.0		
4	LENOIR COUNTY	1.11	-	1.11	-			930.2
5	LOU ELLA VAUSE	-	1616.2	-	-			
6	LOU ELLA VAUSE	-	388.6	-	-			

**SUMMARY OF EARTHWORK  
IN CUBIC YARDS**

STATION	STATION	UNCLASSIFIED EXCAVATION	EMBANK. +%	BORROW	WASTE
-L- STA. 10+90.00	-L- STA. 12+82.00	456	20		436
-L- STA. 13+48.00	-L- STA. 15+05.00	481	12		472
GRAND TOTALS:		937	32		908
SAY:		940	40		900

**DRAINAGE SUMMARY**

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)			QUANTITIES FOR DRAINAGE STRUCTURES		REMARKS
		FROM	TO					15"	18"	24"	PER EACH (0 THRU 5.0')	TOTAL LF FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B')	
-L- 14+14.28	LT	0401		31.25							1	1	
-L- 14+13.89	LT	0402		31.14							1	1	
-L- 14+14.28	LT	0401	0402		27.81	27.53							
-L- 14+06.86	LT	0402	OUT		27.53	27.44	X						
TOTAL								48			2	2	

**PAVEMENT REMOVAL SUMMARY  
IN SQUARE YARDS**

LOCATION	REMOVAL OF ASPHALT PAVEMENT	BREAKING OF ASPHALT PAVEMENT
-L- STA. 10+90 TO 12+86	446	
-L- STA. 13+62 TO 15+05	385	
GRAND TOTAL	841	
SAY	850	

**GUARDRAIL SUMMARY**

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	TYPE 350 (TL-3)	XIII	CAT-1	III	BIC	AT-1	EA	G					NG
-L-	11+96.75	12+71.75	RT	75.0				12+71.75	4.5	7.5	50		1																	
-L-	11+96.75	12+71.75	LT	75.0				12+71.75	4.5	7.5		50		1																
-L-	13+74.25	14+39.58	RT	50.0	50.0			13+74.25	4.5	7.5		0		1																
-L-	13+74.25	14+33.48	LT	50.0	25.0			13+74.25	4.5	7.5	50		1																	
LESS ANCHOR DEDUCTIONS																														
				TYPE 350, TL-3	2 @ 50.00'	=		100.00																						
				TYPE III	4 @ 18.75'	=		75.00																						
				AT-1	2 @ 6.25'	=		12.5																						
				TOTAL				62.5		75.0																				
				SAY				75.0		75.0																				
(5 ADDITIONAL GUARDRAIL POST)																														

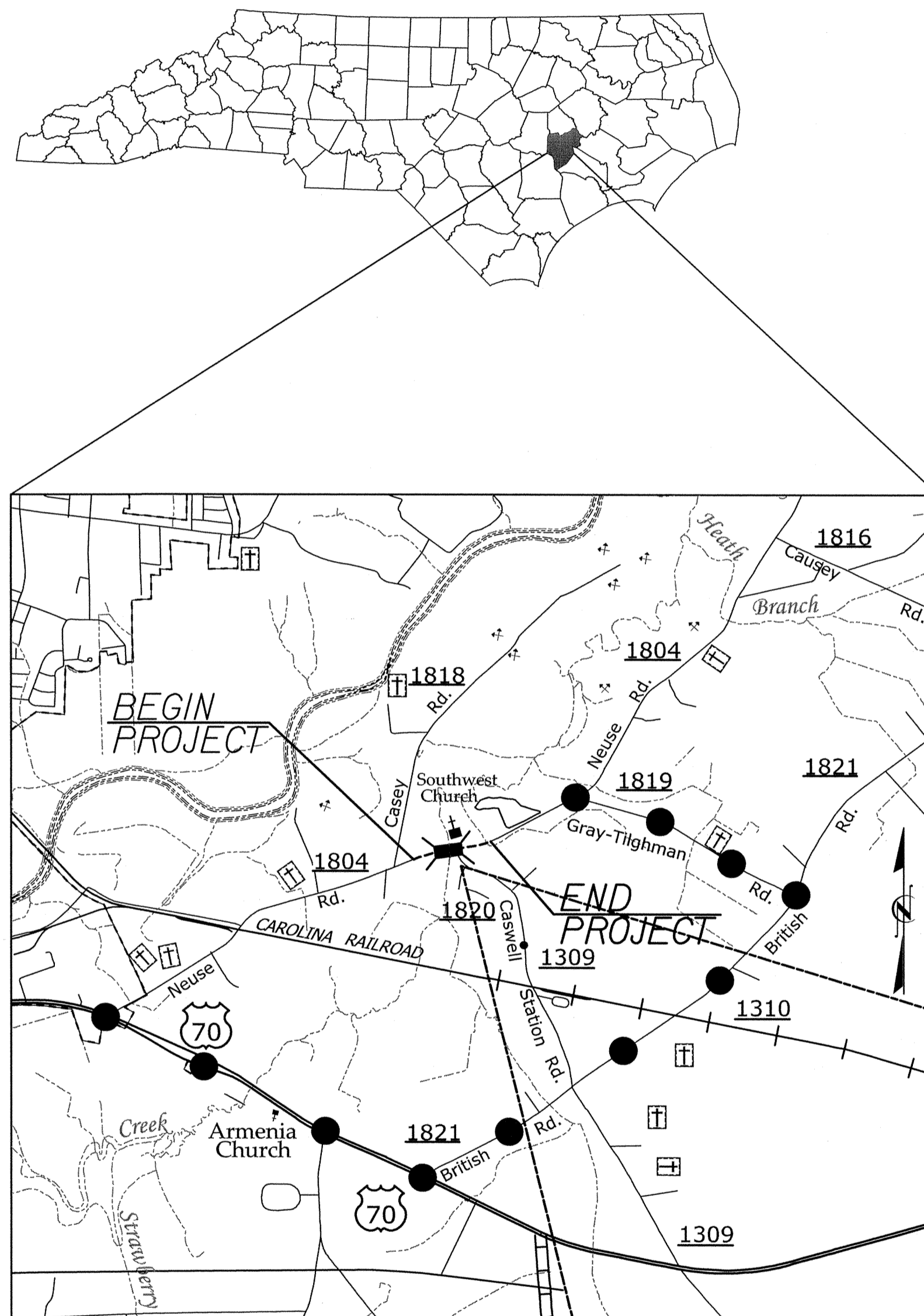
REVISIONS



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**LENOIR COUNTY**



SHEET NO.  
TMP-1

**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET WITH VICINITY MAP & INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-2	PROJECT NOTES, DETOUR AND PLANS.

**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 JAN 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCED WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.11	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1150.01	FLAGGING DEVICES

**LEGEND**

**GENERAL**

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA

**TRAFFIC CONTROL DEVICES**

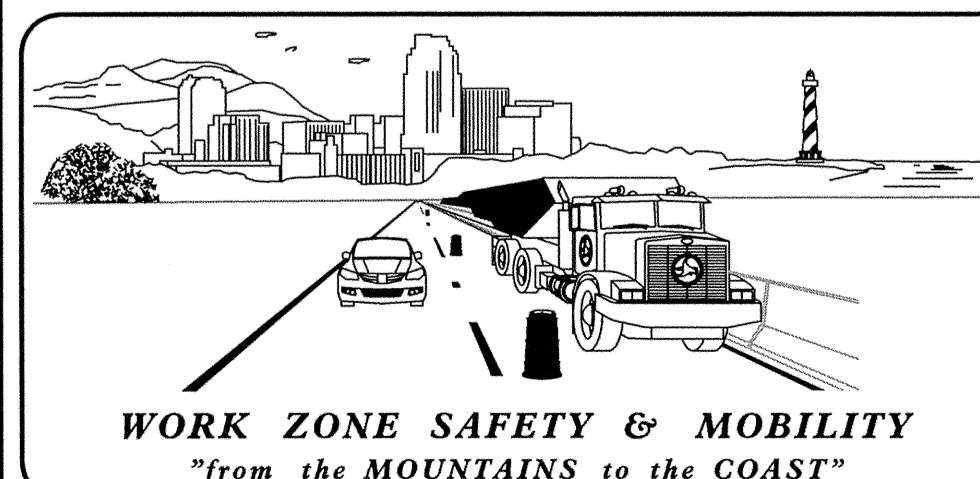
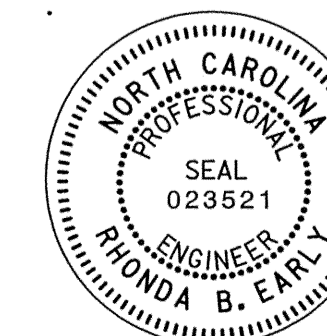
- BARRICADE (TYPE III)

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

R. B. EARLY, PE                      **TRAFFIC CONTROL PROJECT ENGINEER**  
R. B. EARLY, PE                      **TRAFFIC CONTROL PROJECT DESIGN ENGINEER**  
J. A. PHILLIPS                      **TRAFFIC CONTROL DESIGN ENGINEER**

APPROVED:                       
DATE: 7-27-12

SEAL



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

STEVEN HAMILTON, PE **DIVISION TRAFFIC ENGINEER**



**BD-5102K**

**TIP PROJECT:**

\$\$\$\$\$ SYSTEMS \$\$\$\$\$\$  
\$\$\$\$\$ DESIGN \$\$\$\$\$\$  
\$\$\$\$\$ DRAWING \$\$\$\$\$\$  
\$\$\$\$\$ SERVICE \$\$\$\$\$\$





STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5102K	EC-1	5
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

**TIP PROJECT: BD-5102K**

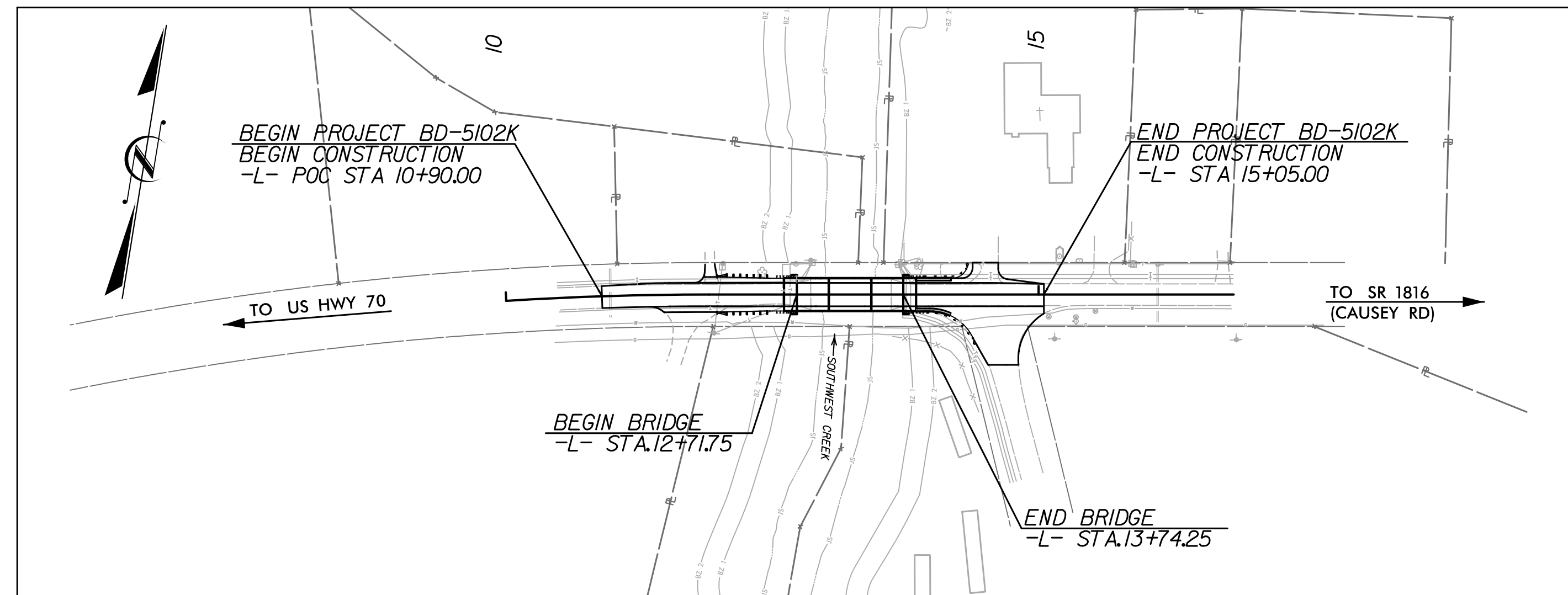
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL**

**LOCATION: LENOIR COUNTY BRIDGE NO. 017 OVER  
SOUTHWEST CREEK ON SR 1804 (NEUSE ROAD)**

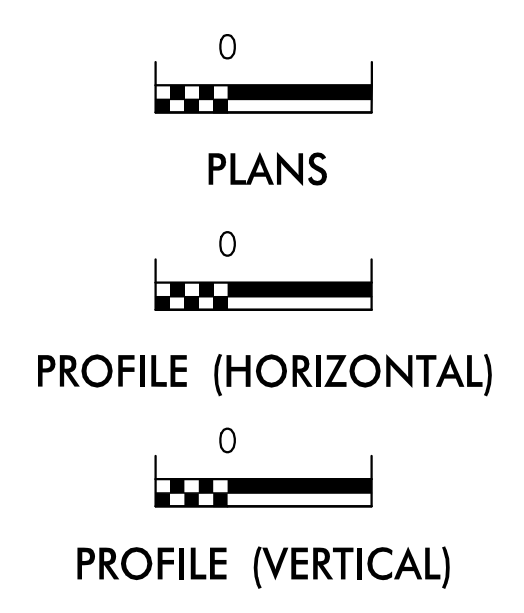
**TYPE OF WORK: LOW IMPACT BRIDGE REPLACEMENT**

**EROSION AND SEDIMENT CONTROL MEASURES**

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	△△△
1622.01	Temporary Berms and Slope Drains	→
	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	⊗
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	⊗
	Temporary Rock Silt Check Type-B	→
	Wattle/Coir Fiber Wattle	⌒
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	⌒
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	▭



**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:

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

**2012 STANDARD SPECIFICATIONS**

PHILLIP E. ROGERS, P.E.  
EROSION CONTROL  
LEVEL III-A  
CERTIFICATION #330

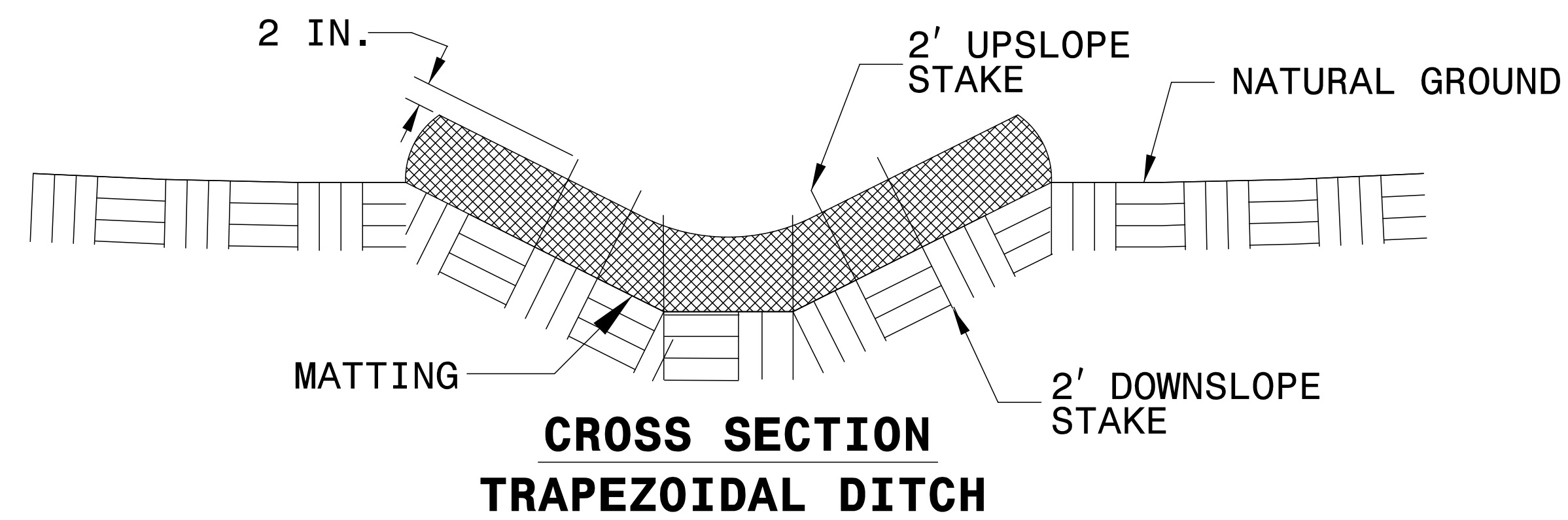
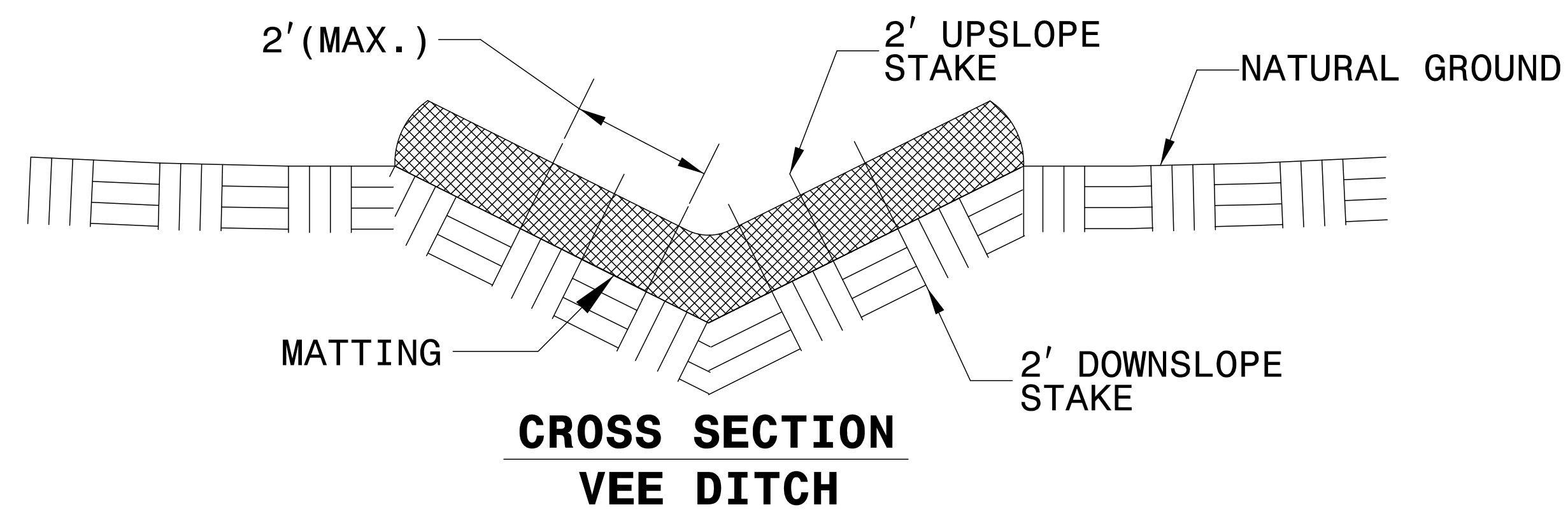
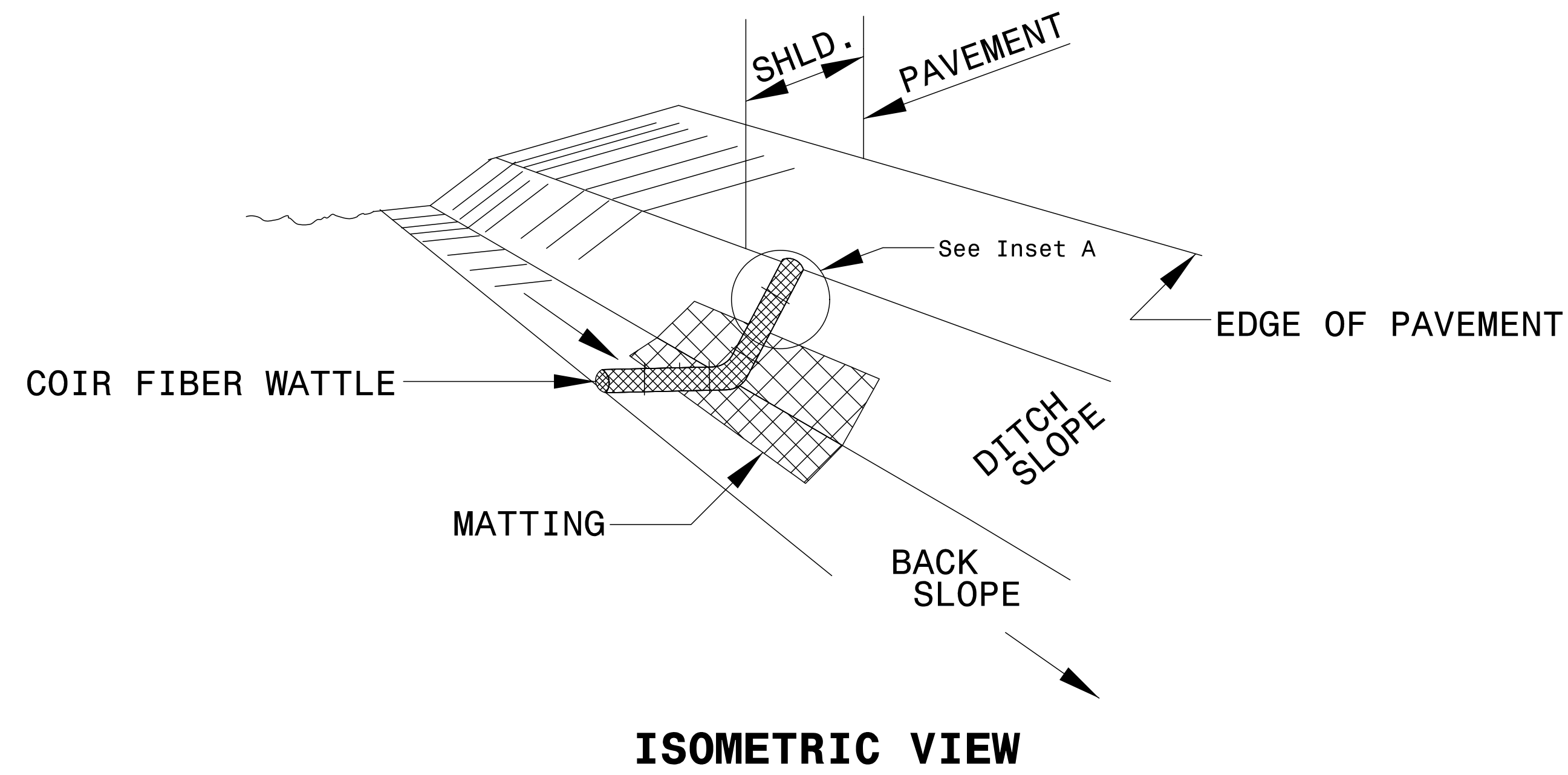
Roadway Standard Drawings

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	

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###USERNAME###

# COIR FIBER WATTLE DETAIL



**NOTES:**

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

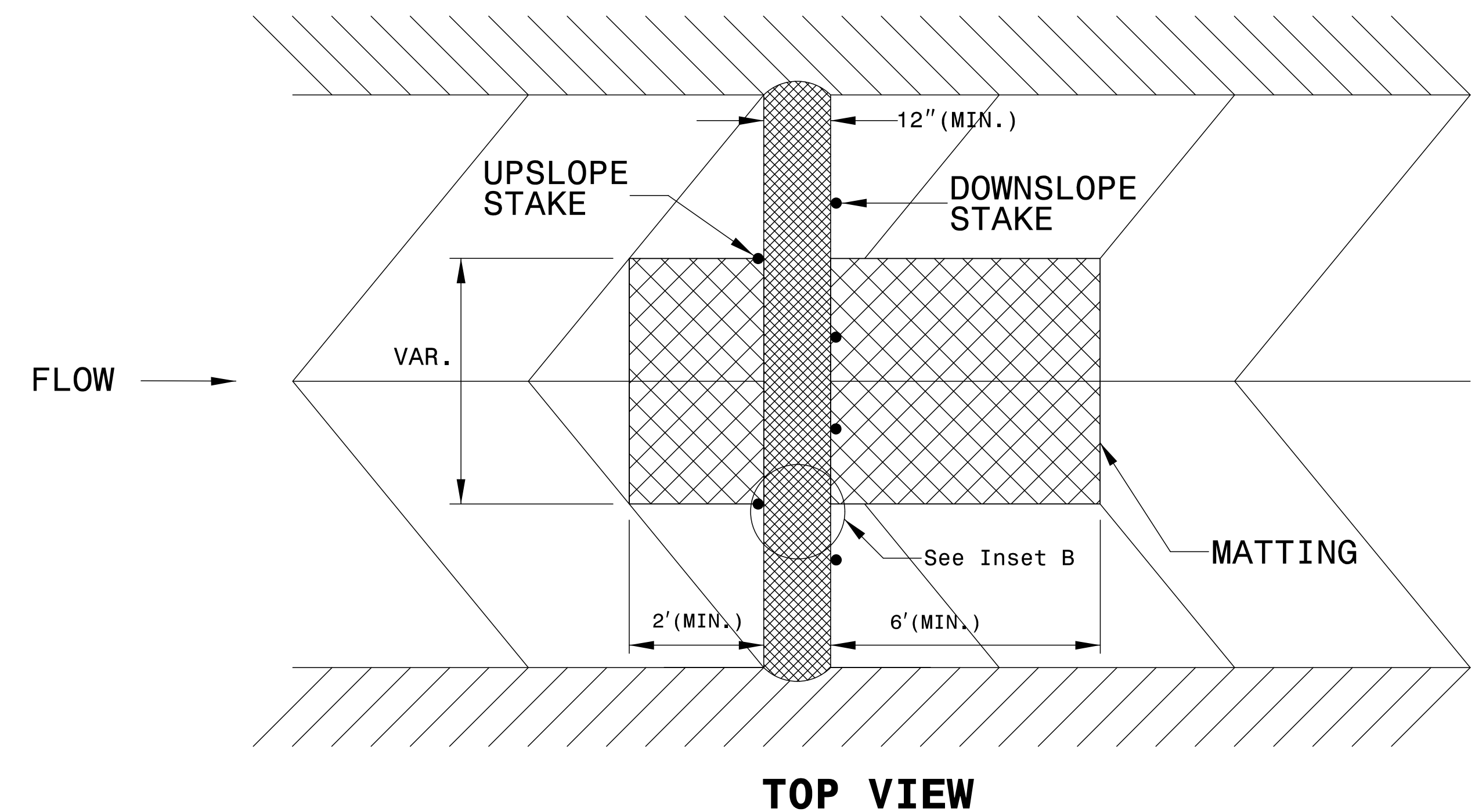
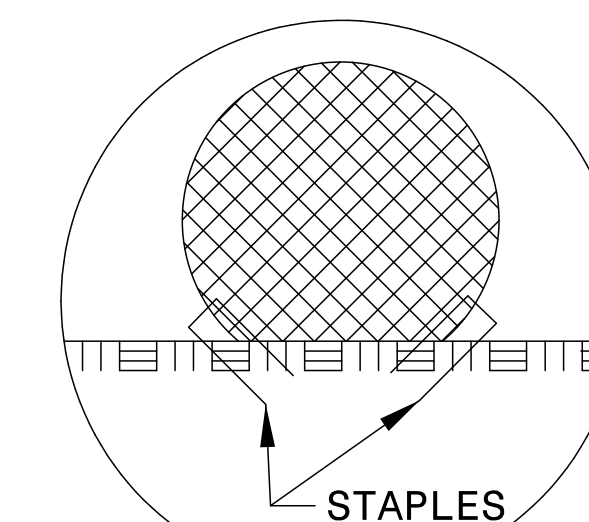
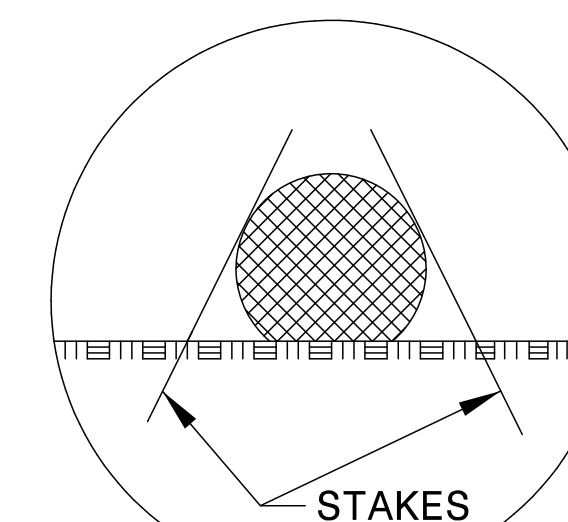
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

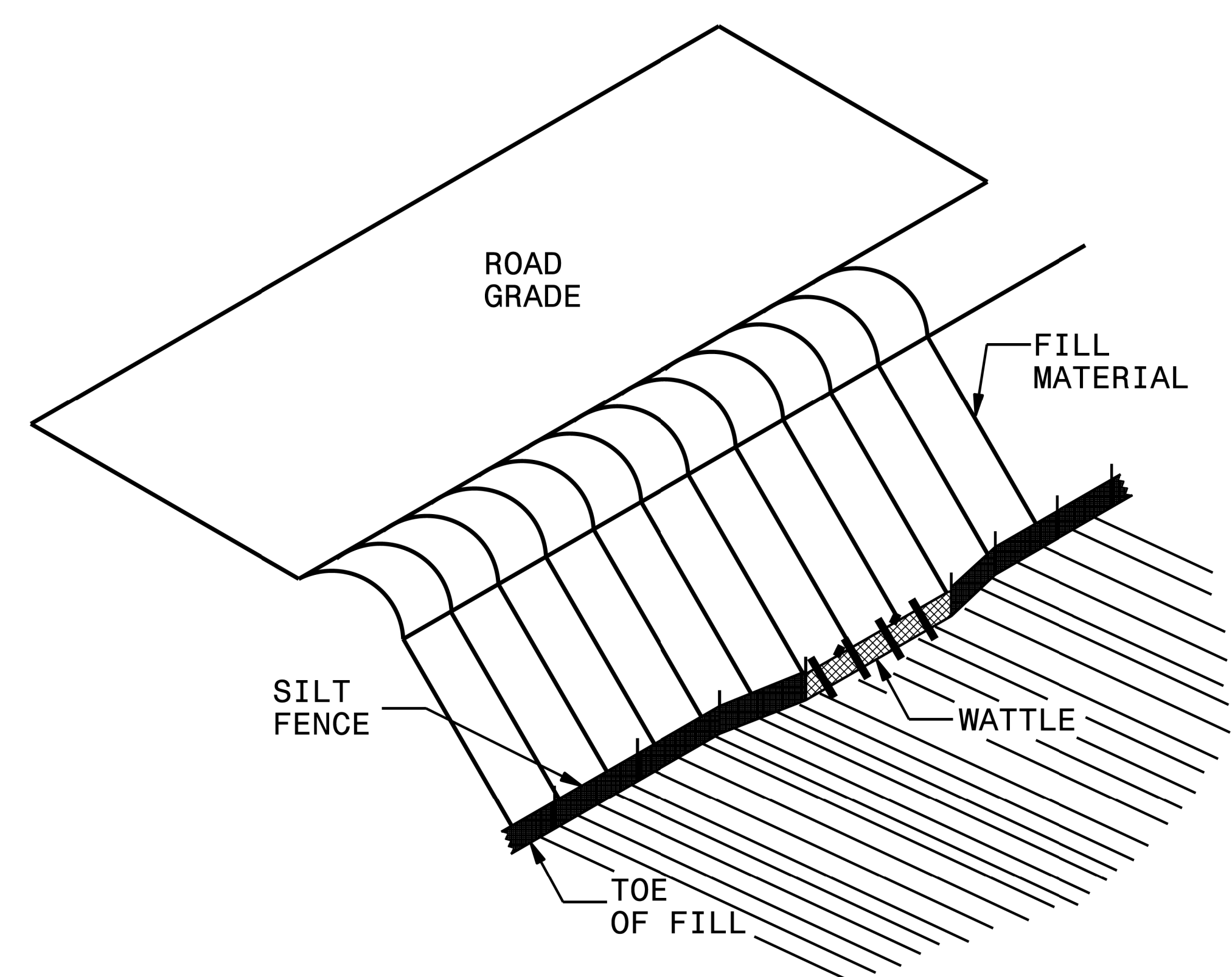
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

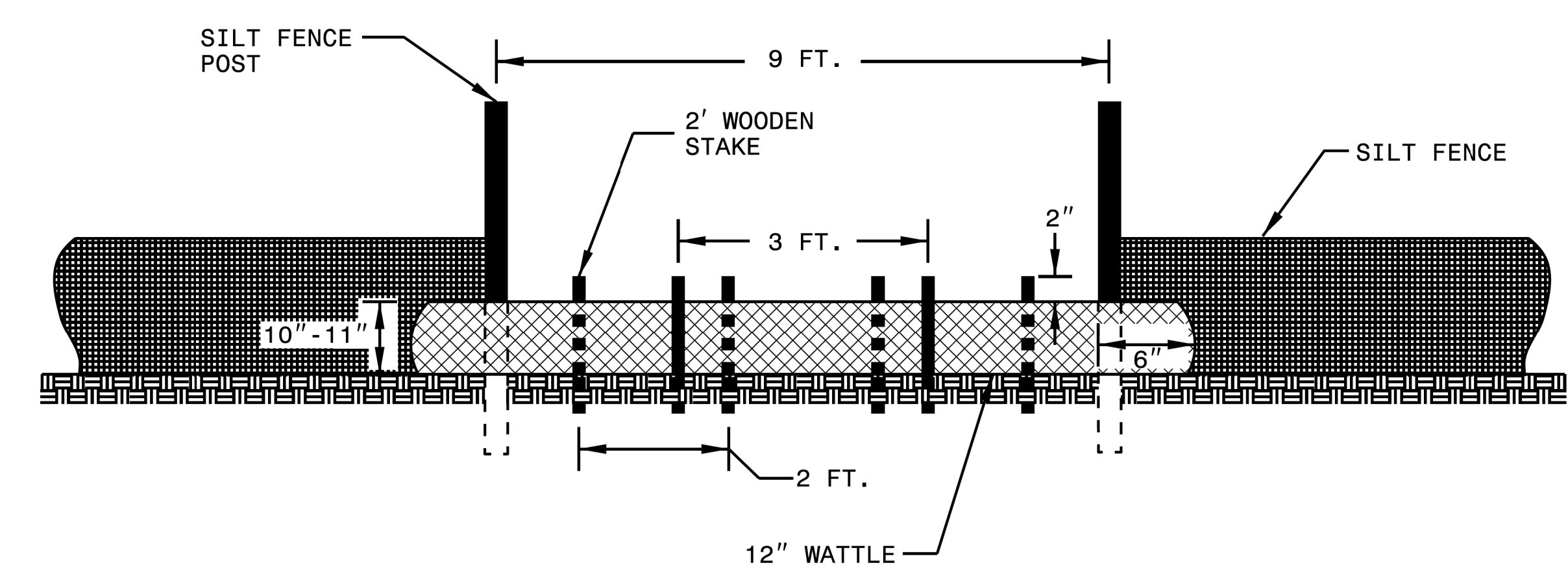
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



# SILT FENCE COIR FIBER WATTLE BREAK DETAIL



**ISOMETRIC VIEW**

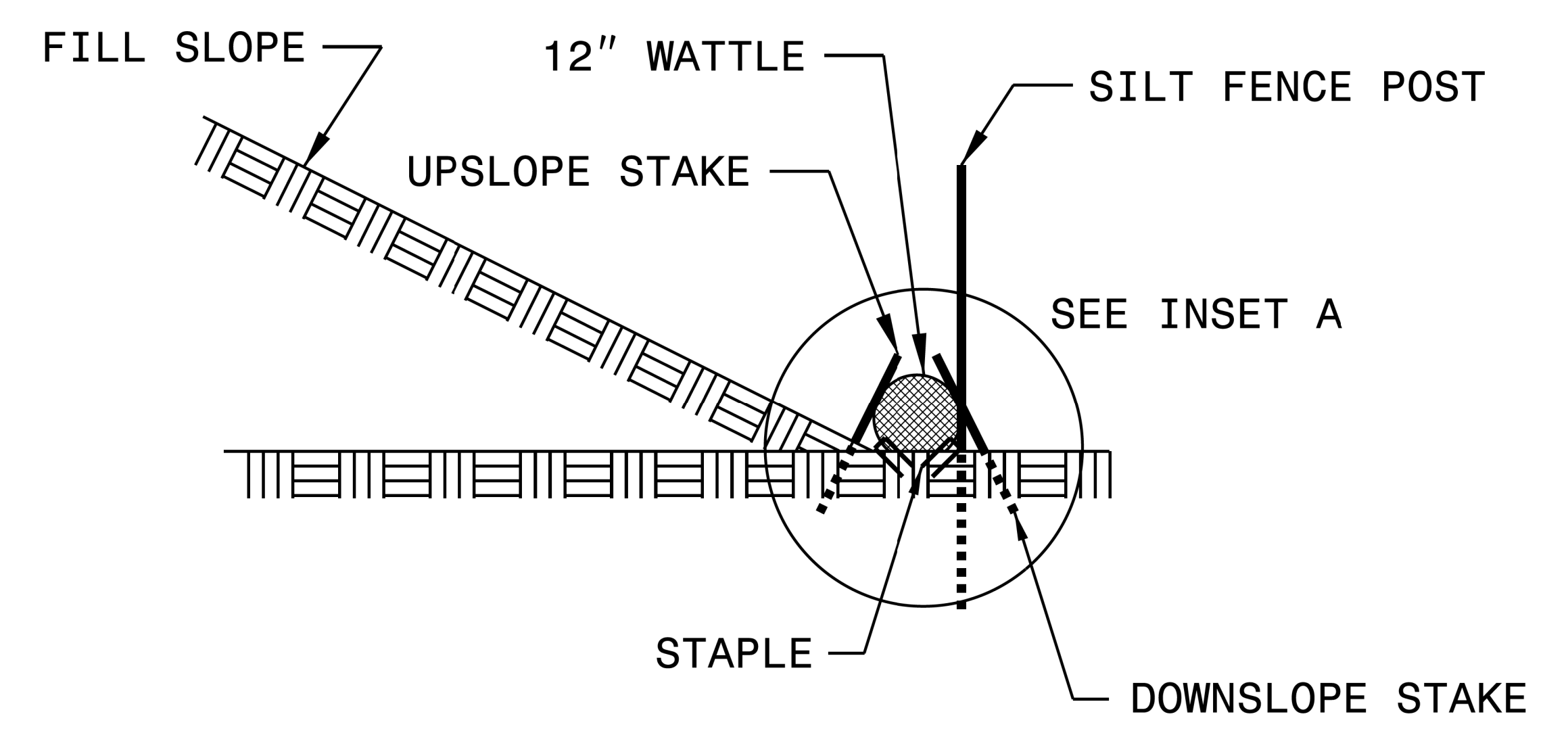
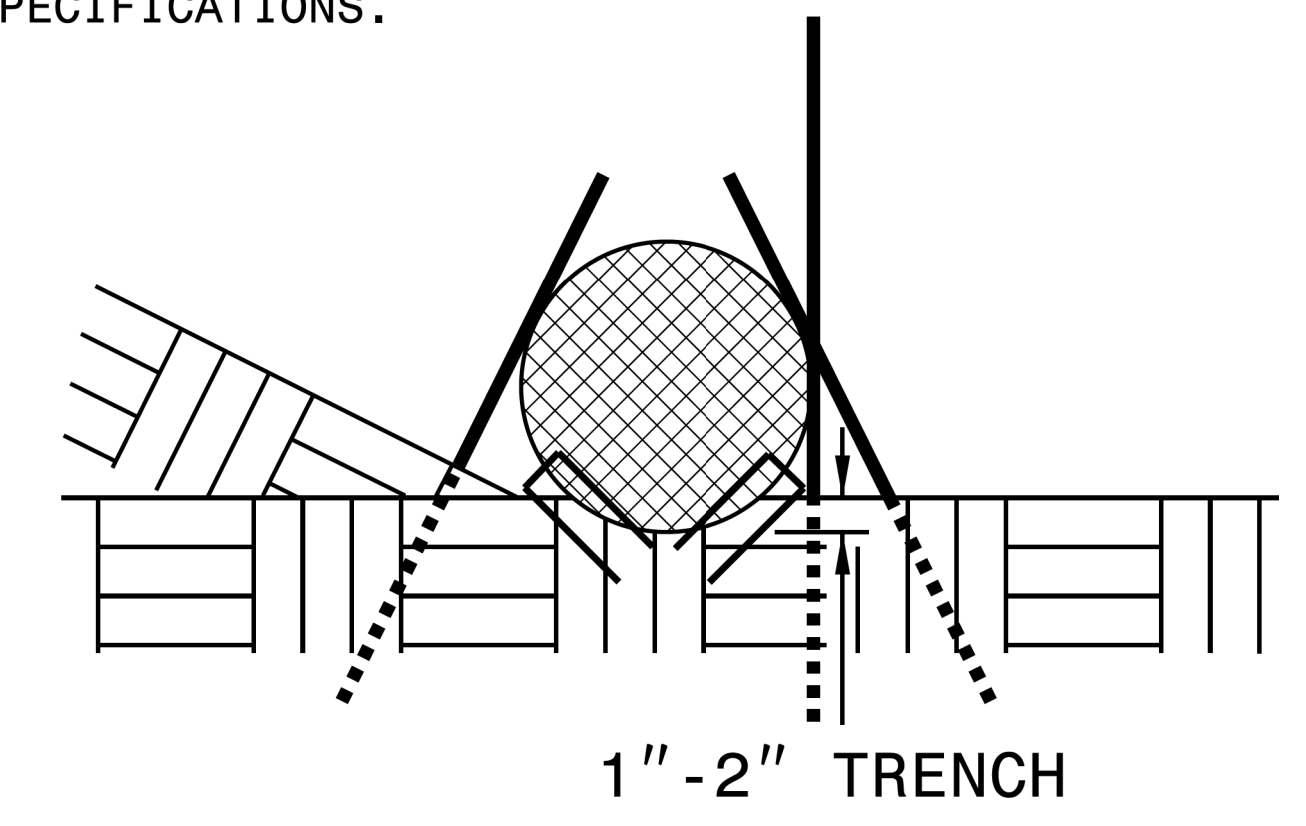


**VIEW FROM SLOPE**

**NOTES:**

- USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- 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.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

**INSET A**



**SIDE VIEW**

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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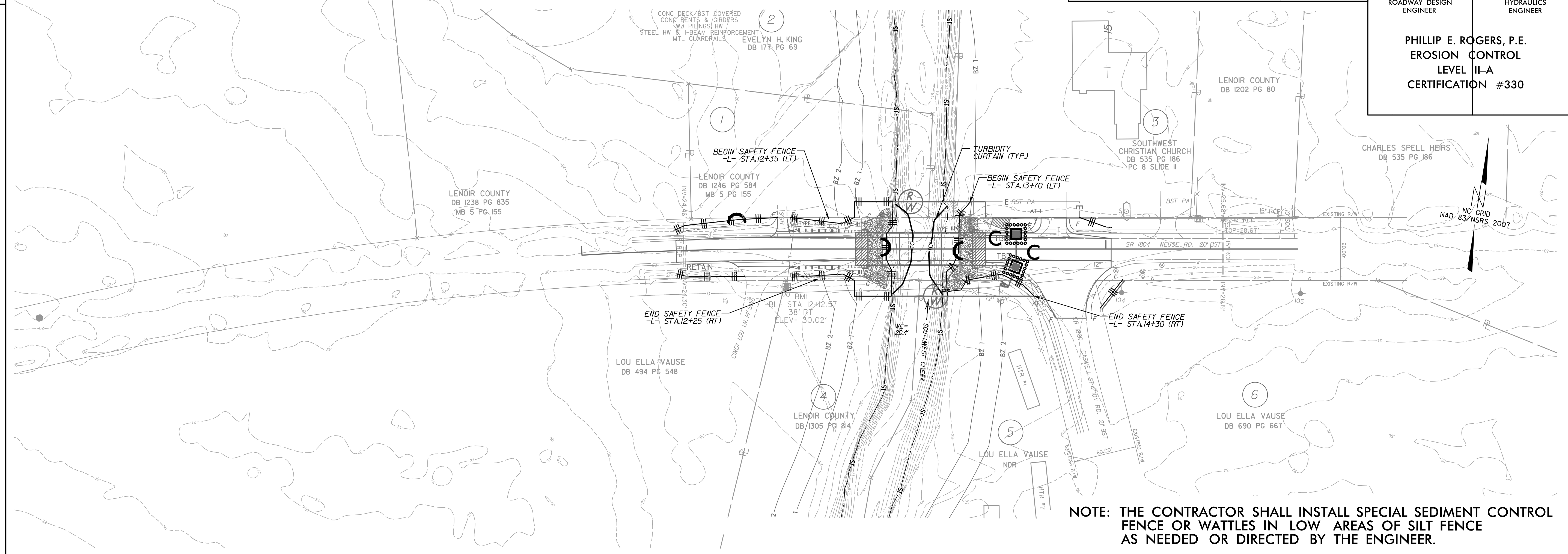
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## ***SOIL STABILIZATION TIMEFRAMES***

<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.

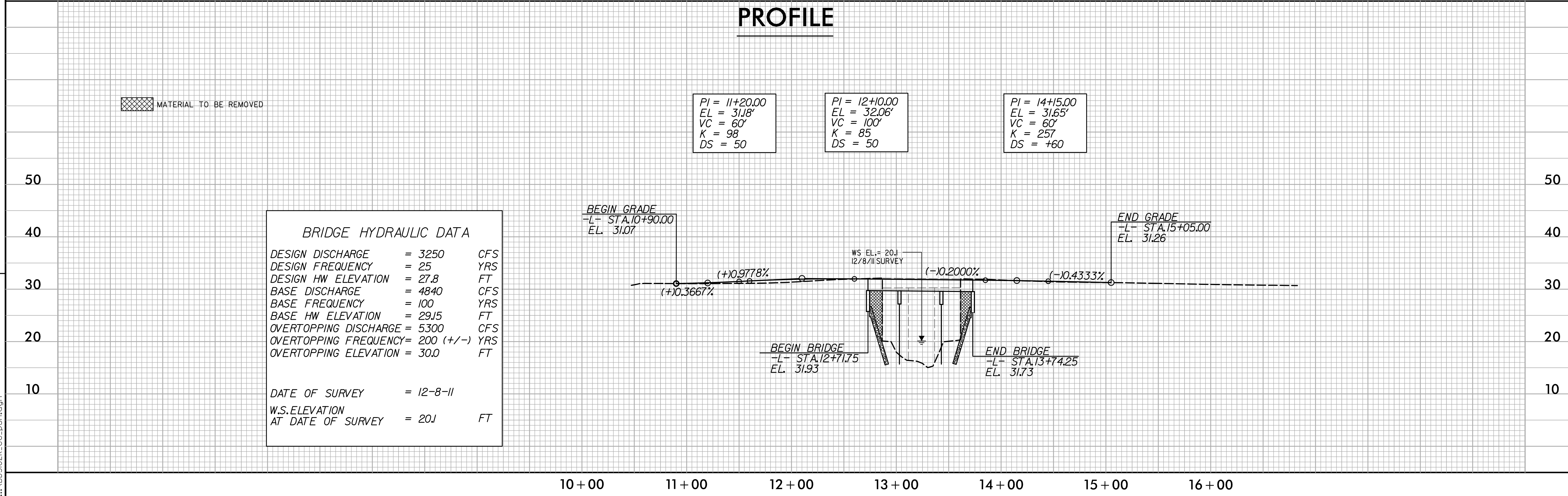
PROJECT REFERENCE NO. <i>BD-5102K</i>	SHEET NO. <i>EC-5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PHILLIP E. ROGERS, P.E.</b> <b>EROSION CONTROL</b> <b>LEVEL II-A</b> <b>CERTIFICATION #330</b>	

**PLAN**



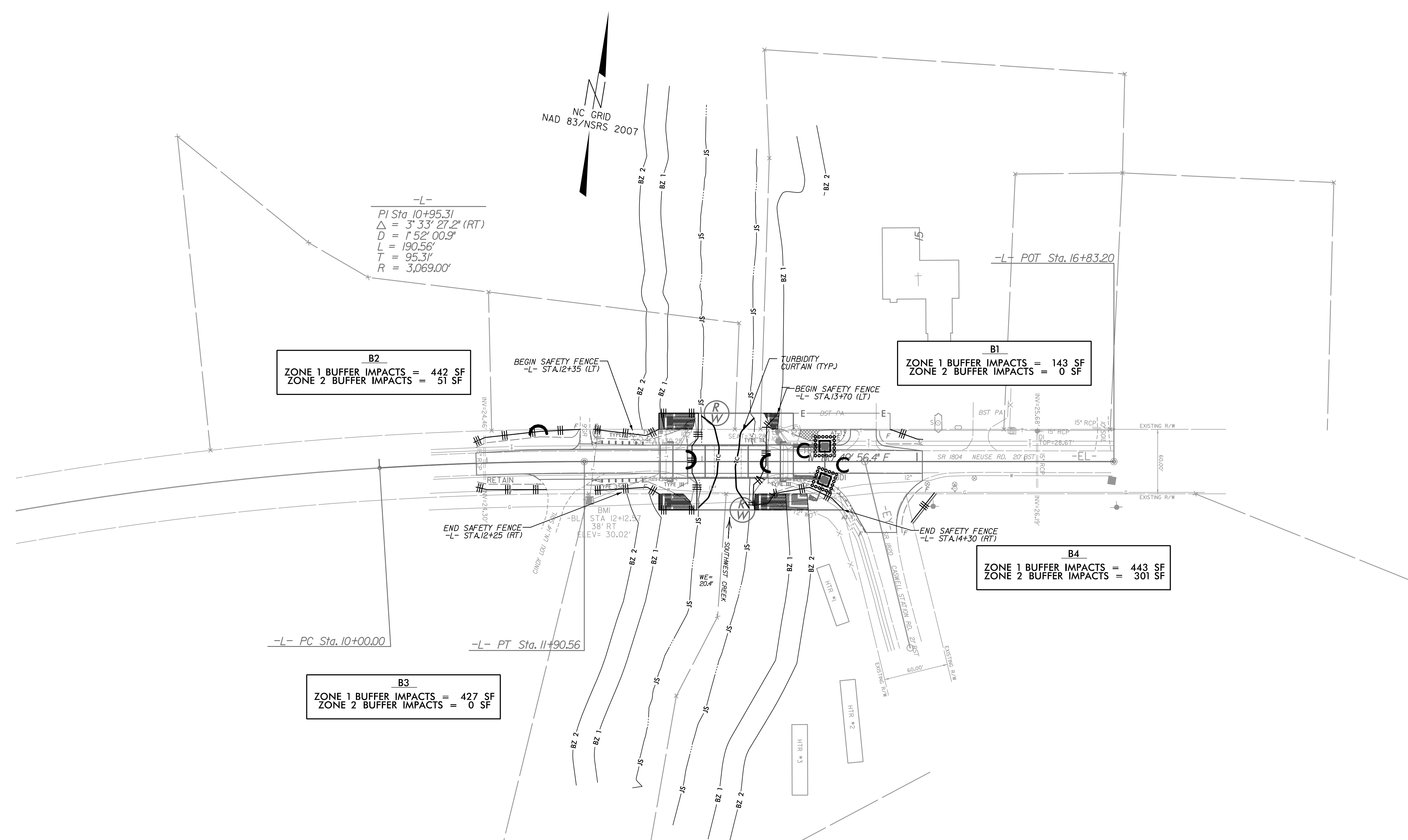
**NOTE: THE CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AS NEEDED OR DIRECTED BY THE ENGINEER.**

**PROFILE**



REVISIONS

7/24/2012 2:17:38 PM  
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-L-  
 PI Sta 10+95.31  
 $\Delta = 3^{\circ} 33' 27.2''$  (RT)  
 $D = 1^{\circ} 52' 00.9''$   
 $L = 190.56'$   
 $T = 95.31'$   
 $R = 3,069.00'$


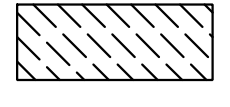
**B2**  
 ZONE 1 BUFFER IMPACTS = 442 SF  
 ZONE 2 BUFFER IMPACTS = 51 SF

**B1**  
 ZONE 1 BUFFER IMPACTS = 143 SF  
 ZONE 2 BUFFER IMPACTS = 0 SF

**B4**  
 ZONE 1 BUFFER IMPACTS = 443 SF  
 ZONE 2 BUFFER IMPACTS = 301 SF

**B3**  
 ZONE 1 BUFFER IMPACTS = 427 SF  
 ZONE 2 BUFFER IMPACTS = 0 SF

**IMPACT SUMMARY:**  
 404 WETLAND IMPACTS = 0.00 AC  
 STREAM IMPACTS = 0 FT.  
 BUFFER ZONE 1 IMPACT = 1455 SQ FT.  
 BUFFER ZONE 2 IMPACT = 352 SQ FT.

**LEGEND**  
 ALLOWABLE IMPACTS ZONE 1  
 ALLOWABLE IMPACTS ZONE 2

**NCDOT**  
 BD-5102K LENOIR COUNTY  
 REPLACE BRIDGE NO. 0017  
 SR 1804 (NEUSE RD.)  
 OVER SOUTHWEST CREEK  
 BETWEEN SR 1818 AND SR 1819  
 SCALE: 1" = 50'  
 MAY 18, 2012  
 FOR PERMITTING ONLY:  
 NOT FOR CONSTRUCTION

3:49:23 PM  
 BD-5102K-hyd\_P1.dgn  
 \$\$\$\$SUBSERIAL\$\$\$\$

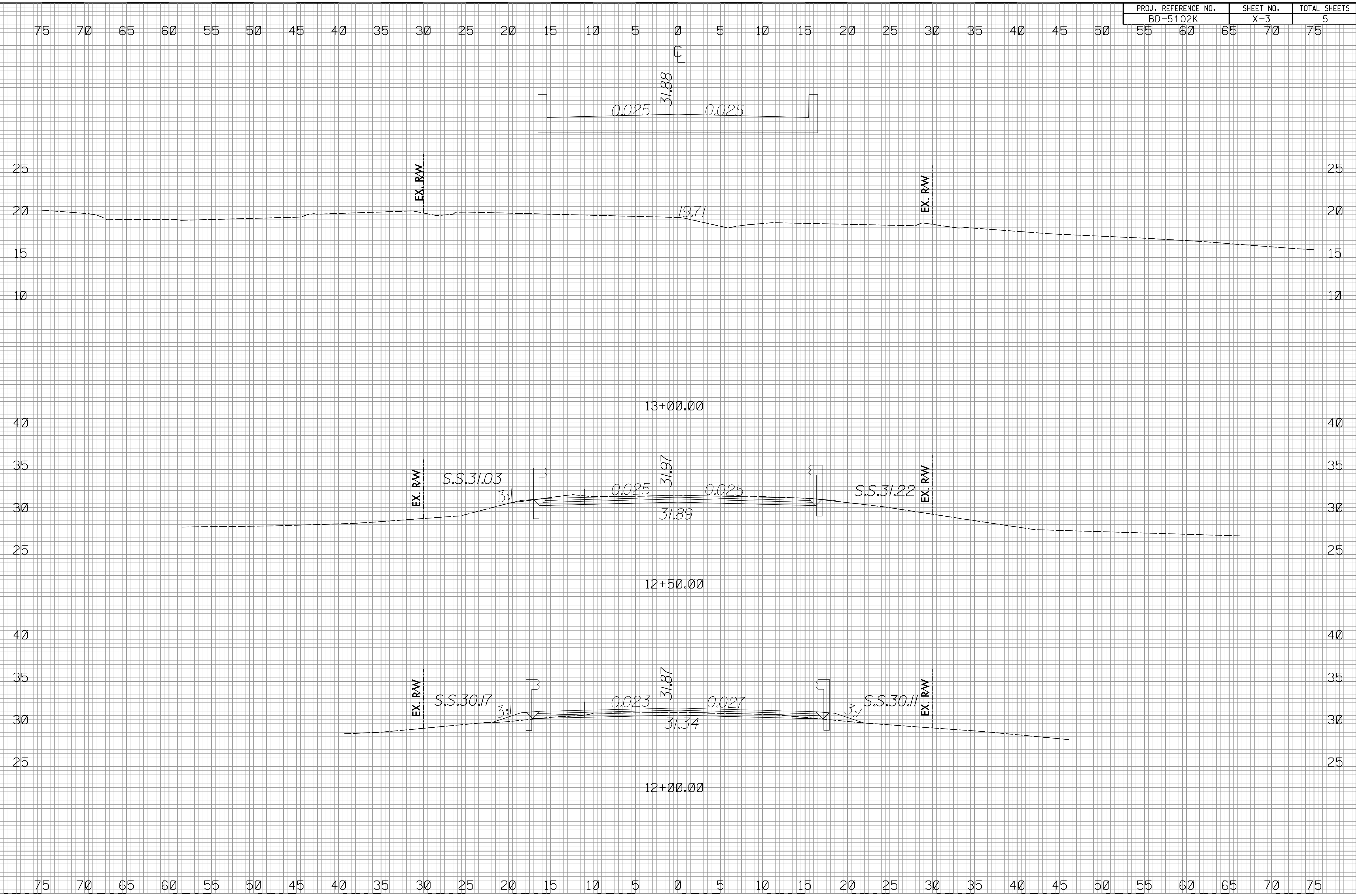






02/03/98

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
BD-5102K	X-3	5







FOR GENERAL NOTES, SEE SHEET 2.

**BRIDGE HYDRAULIC DATA**

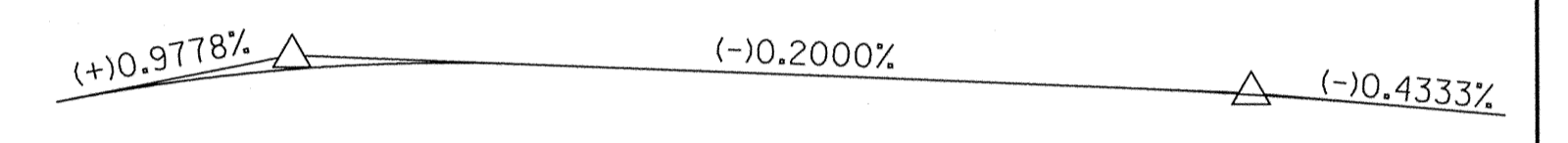
DESIGN DISCHARGE	=	3250 CFS
FREQUENCY OF DESIGN FLOOD	=	25 YR
DESIGN HIGH WATER ELEVATION	=	27.80 FT.
DRAINAGE AREA	=	63.6 SQ. MI.
BASIC DISCHARGE (Q100)	=	4840 CFS
BASIC HIGH WATER ELEVATION	=	29.15 FT.

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE	=	5300 CFS
FREQUENCY OF OVERTOPPING FLOOD	=	200 YR +/-
OVERTOPPING FLOOD ELEVATION	=	29.98 FT.

NOTE: OVERTOPPING OCCURS AT ROADWAY STA. 21+67±.

PI STA. = 12+10.00	PI STA. = 14+15.00
ELEV = 32.060	ELEV = 31.650
V.C. = 100'	V.C. = 60'



**GRADE DATA -L-**

I HEREBY CERTIFY THESE PLANS ARE AS-BUILT PLANS

PROJECT NO. BD-5102K  
 LENOIR COUNTY  
 STATION: 13+23.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 0017

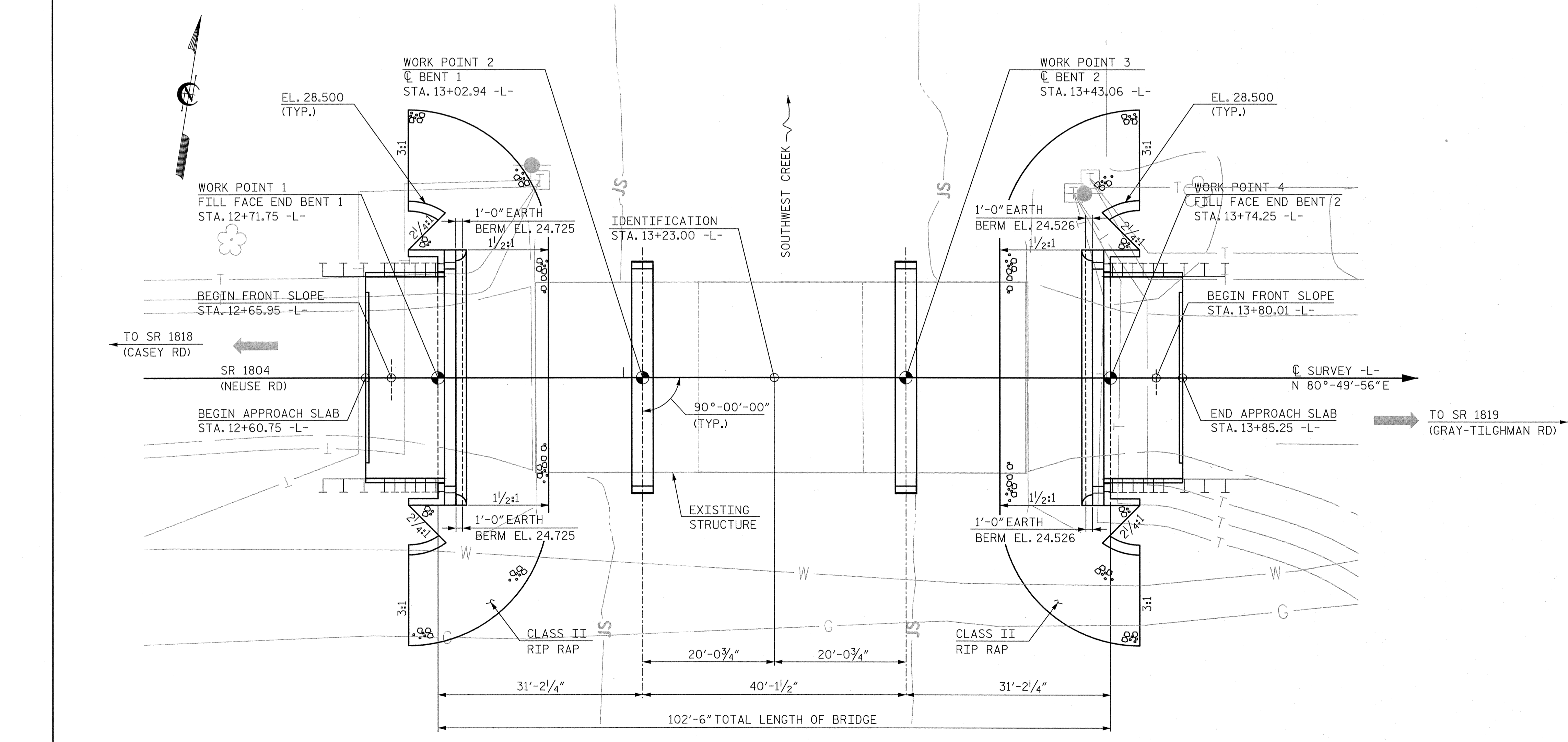
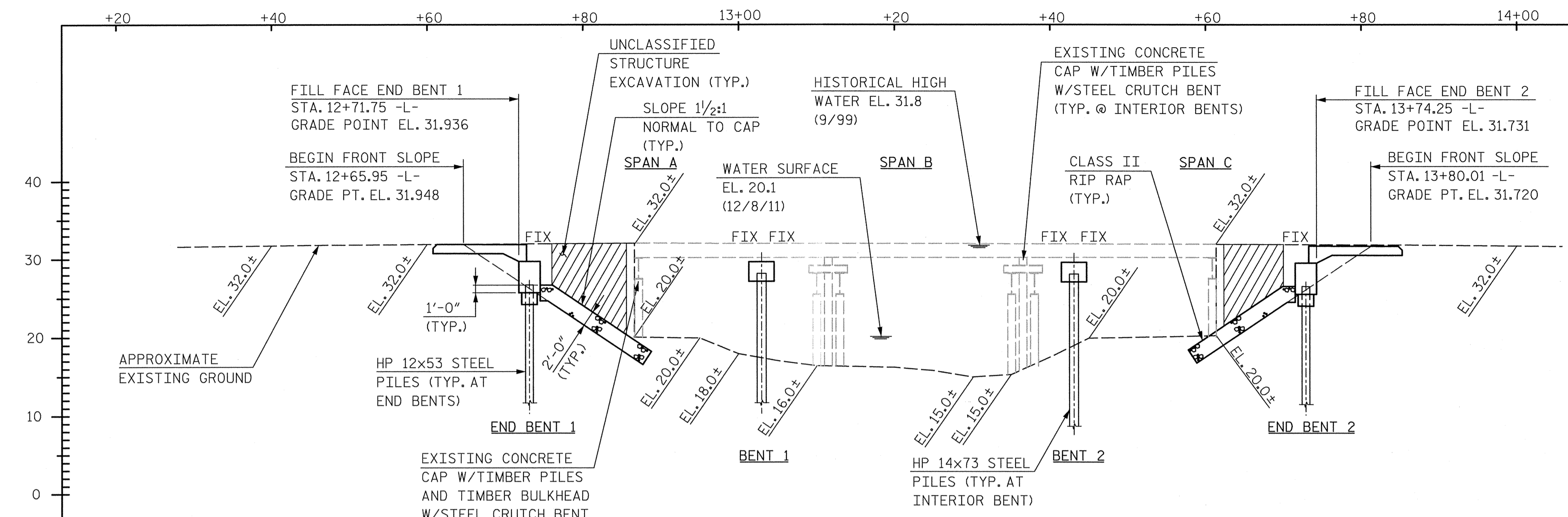
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE ON SR 1804  
 OVER SOUTHWEST CREEK  
 BETWEEN SR 1818  
 AND SR 1819



**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

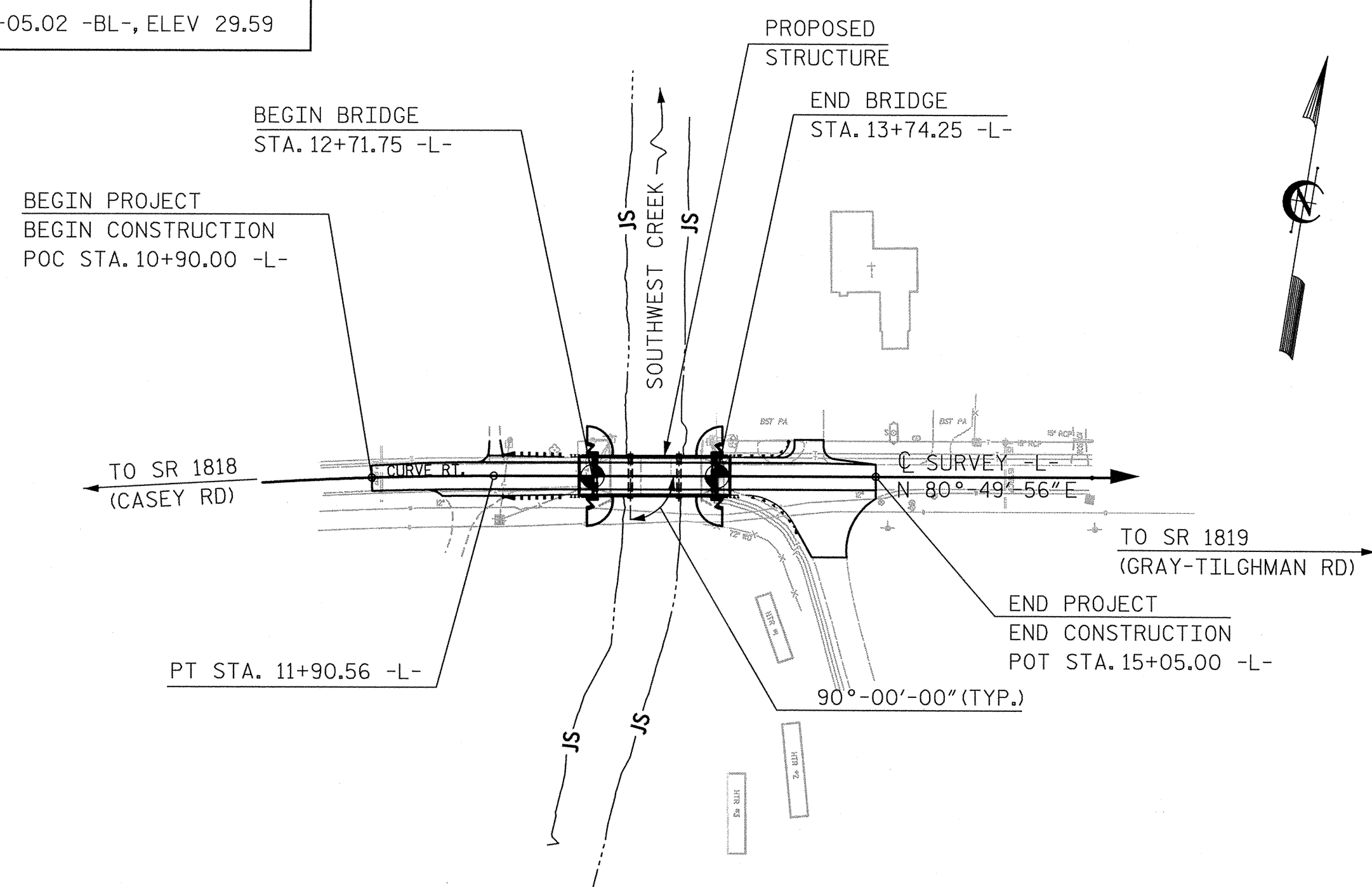
DRAWN BY J. BAYNE DATE 2/12  
 CHECKED BY P. BARBER DATE 2/12 DWG. NO. 1

REVISIONS						SHEET NO. <b>S-1</b>
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS <b>17</b>
2			4			



FILL FACE END BENT 1 STA. 12+71.75 -L- GRADE POINT EL. 31.936  
 BEGIN FRONT SLOPE STA. 12+65.95 -L- GRADE PT. EL. 31.948  
 UNCLASSIFIED STRUCTURE EXCAVATION (TYP.) SLOPE 1/2:1 NORMAL TO CAP (TYP.)  
 HISTORICAL HIGH WATER EL. 31.8 (9/99)  
 EXISTING CONCRETE CAP W/TIMBER PILES W/STEEL CRUTCH BENT (TYP. @ INTERIOR BENTS)  
 FILL FACE END BENT 2 STA. 13+74.25 -L- GRADE POINT EL. 31.731  
 BEGIN FRONT SLOPE STA. 13+80.01 -L- GRADE PT. EL. 31.720  
 APPROXIMATE EXISTING GROUND  
 HP 12x53 STEEL PILES (TYP. AT END BENTS)  
 END BENT 1  
 EXISTING CONCRETE CAP W/TIMBER PILES AND TIMBER BULKHEAD W/STEEL CRUTCH BENT (TYP. @ END BENTS)  
 SPAN A  
 WATER SURFACE EL. 20.1 (12/8/11)  
 SPAN B  
 SPAN C  
 CLASS II RIP RAP (TYP.)  
 END BENT 2  
 HP 14x73 STEEL PILES (TYP. AT INTERIOR BENT)  
 BENT 1  
 BENT 2

WORK POINT 2 C BENT 1 STA. 13+02.94 -L- EL. 28.500 (TYP.)  
 WORK POINT 1 FILL FACE END BENT 1 STA. 12+71.75 -L-  
 BEGIN FRONT SLOPE STA. 12+65.95 -L-  
 TO SR 1818 (CASEY RD)  
 SR 1804 (NEUSE RD)  
 BEGIN APPROACH SLAB STA. 12+60.75 -L-  
 1'-0" EARTH BERM EL. 24.725  
 IDENTIFICATION STA. 13+23.00 -L-  
 SOUTHWEST CREEK  
 90°-00'-00" (TYP.)  
 EXISTING STRUCTURE  
 WORK POINT 3 C BENT 2 STA. 13+43.06 -L- EL. 28.500 (TYP.)  
 WORK POINT 4 FILL FACE END BENT 2 STA. 13+74.25 -L-  
 BEGIN FRONT SLOPE STA. 13+80.01 -L-  
 TO SR 1819 (GRAY-TILGHMAN RD)  
 END APPROACH SLAB STA. 13+85.25 -L-  
 1'-0" EARTH BERM EL. 24.526  
 CLASS II RIP RAP  
 20'-0 3/4"  
 20'-0 3/4"  
 31'-2 1/4"  
 40'-1 1/2"  
 31'-2 1/4"  
 102'-6" TOTAL LENGTH OF BRIDGE



LOCATION SKETCH  
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 55 TONS PER PILE. DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 95 TONS PER PILE. PILES AT BENT NO.1 AND BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.

DRIVE PILES AT BENT NO.1 AND BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 155 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN -6.0 FT.

INSTALL PILES AT BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN -4.0 FT.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 10.5 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.2 IS ELEVATION 13.5 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

STEEL H PILE POINTS ARE REQUIRED FOR STEEL H PILES AT BENT NO.1 AND BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30 TO 45 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO.1 AND END BENT NO.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.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40 TO 70 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO.1 AND BENT NO.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 THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT NO.1 OR BENT NO.2. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IF NECESSARY, PREDRILL PILE LOCATIONS AT BENT NO.1 AND BENT NO.2 TO ELEVATION -4.0 FT. WITH EQUIPMENT THAT WILL RESULT IN A MAXIMUM PREDRILLING DIAMETER OF 16". FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

SPUDDING MAY BE USED INSTEAD OF PREDRILLING AT BENT NO.1 AND BENT NO.2.

TEMPORARY STEEL CASINGS ARE REQUIRED FOR PREDRILLING AND SPUDDING AT BENT NO.1 AND BENT NO.2.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STATION 13+23.00 -L-	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 13+23.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS, STA. 13+23.00 -L-	REINFORCING STEEL	HP 12x53 STEEL PILES	HP 14x73 GALVANIZED STEEL PILES	STEEL PILE POINTS	PREDRILLING FOR PILES	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"x1'-6" PRESTRESSED CONCRETE CORED SLABS
	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO. LIN. FT.	NO. LIN. FT.	EACH	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO. LIN. FT.
SUPERSTRUCTURE	LUMP SUM		LUMP SUM		LUMP SUM							200.75			LUMP SUM	33 1,100
END BENT NO.1			LUMP SUM	21.4		2,628	7 245				4		145	160		
BENT NO.1		1		10.8		2,162		8 360	8	172	4					
BENT NO.2				10.8		2,162		8 360	8	184	4					
END BENT NO.2			LUMP SUM	21.4		2,628	7 245				4		130	140		
TOTAL	LUMP SUM	1	LUMP SUM	64.4	LUMP SUM	9,580	14 490	16 720	16	356	16	200.75	275	300	LUMP SUM	33 1,100

GENERAL 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 REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING PAVEMENT WITHIN THE AREA OF THE END BENT PILES SHALL BE REMOVED AND THE ROADBED SCARIFIED TO A MINIMUM DEPTH OF 2'-0".

THE EXISTING 3 SPAN STRUCTURE WITH SPAN LENGTHS OF 25'-5", 25'-0" AND 25'-8" WITH 12 LINES OF PRECAST CONCRETE CHANNEL BEAMS AND AN ASPHALT WEARING SURFACE WITH A 29'-2" CLEAR ROADWAY WIDTH ON CONCRETE CAP AND TIMBER PILES AND STEEL CRUTCH BENTS SHALL BE REMOVED. IN ADDITION, ANY PILES REMAINING FROM PREVIOUS BRIDGE CONSTRUCTION OR MAINTENANCE OPERATIONS SHALL BE REMOVED AND INCLUDED IN THE LUMP SUM PAY ITEM FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+23.00 -L-".

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 19'-6" 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.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE 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.

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES" MAY, 2001.

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.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+23.00 -L-".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

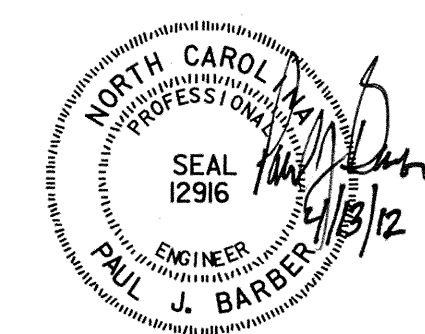
THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED. CONTRACTOR SHALL NOT PLACE OR OPERATE A CRANE ON SPAN B.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR INTERIOR BENTS 1 AND 2, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED PILES.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.



PROJECT NO. BD-5102K  
LENOIR COUNTY  
STATION: 13+23.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING  
FOR BRIDGE ON SR 1804  
OVER SOUTHWEST CREEK  
BETWEEN SR 1818  
AND SR 1819

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY	J. BAYNE	DATE	2/12
CHECKED BY	P. BARBER	DATE	2/12
		DWG. NO.	2

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO.  
**S-2**  
TOTAL SHEETS  
**17**

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(Invt)	N/A	1	1.077	--	1.75	0.279	1.28	B	EL	19.5	0.547	1.22	B	EL	1.95	0.80	0.279	1.08	B	EL	19.5		
	HL-93(Opr)	N/A	--	1.58	--	1.35	0.279	1.65	B	EL	19.5	0.547	1.58	B	EL	1.95	N/A	--	--	--	--	--		
	HS-20(Invt)	36.000	2	1.352	48.658	1.75	0.279	1.6	B	EL	19.5	0.547	1.42	B	EL	1.95	0.80	0.279	1.35	B	EL	19.5		
	HS-20(Opr)	36.000	--	1.846	66.456	1.35	0.279	2.08	B	EL	19.5	0.547	1.85	B	EL	1.95	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.5	33.749	1.4	0.279	3.7	B	EL	19.5	0.571	3.69	A	EL	1.45	0.80	0.279	2.50	B	EL	19.5	
		SNGARBS2	20.000	--	2.071	41.423	1.4	0.279	3.05	B	EL	15.6	0.547	2.84	B	EL	1.95	0.80	0.279	2.07	B	EL	19.5	
		SNAGRIS2	22.000	--	2.045	44.991	1.4	0.279	2.98	B	EL	15.6	0.547	2.69	B	EL	1.95	0.80	0.279	2.05	B	EL	15.6	
		SNCOTTS3	27.250	--	1.25	34.052	1.4	0.279	1.85	B	EL	19.5	0.571	1.86	A	EL	1.45	0.80	0.279	1.25	B	EL	19.5	
		SNAGGRS4	34.925	--	1.125	39.28	1.4	0.279	1.67	B	EL	19.5	0.547	1.68	B	EL	1.95	0.80	0.279	1.12	B	EL	19.5	
		SNS5A	35.550	--	1.094	38.892	1.4	0.279	1.62	B	EL	19.5	0.547	1.75	B	EL	1.95	0.80	0.279	1.09	B	EL	19.5	
	TTST	SNS6A	39.950	--	1.041	41.584	1.4	0.279	1.54	B	EL	19.5	0.547	1.64	B	EL	1.95	0.80	0.279	1.04	B	EL	19.5	
		SNS7B	42.000	3	1.000	41.693	1.4	0.279	1.47	B	EL	19.5	0.547	1.67	B	EL	1.95	0.80	0.279	1.00	B	EL	19.5	
		TNAGRIT3	33.000	--	1.281	42.267	1.4	0.279	1.9	B	EL	19.5	0.547	1.92	B	EL	1.95	0.80	0.279	1.28	B	EL	19.5	
		TNT4A	33.075	--	1.297	42.908	1.4	0.279	1.92	B	EL	19.5	0.547	1.83	B	EL	1.95	0.80	0.279	1.30	B	EL	19.5	
		TNT6A	41.600	--	1.1	45.771	1.4	0.279	1.63	B	EL	19.5	0.547	1.79	B	EL	1.95	0.80	0.279	1.10	B	EL	19.5	
		TNT7A	42.000	--	1.128	47.381	1.4	0.279	1.67	B	EL	19.5	0.547	1.65	B	EL	1.95	0.80	0.279	1.13	B	EL	19.5	
TNT7B	42.000	--	1.153	48.444	1.4	0.279	1.71	B	EL	19.5	0.547	1.59	B	EL	1.95	0.80	0.279	1.15	B	EL	19.5			
TNAGRIT4	43.000	--	1.122	48.252	1.4	0.279	1.66	B	EL	19.5	0.547	1.52	B	EL	1.95	0.80	0.279	1.12	B	EL	19.5			
TNAGT5A	45.000	--	1.038	46.728	1.4	0.279	1.54	B	EL	19.5	0.547	1.58	B	EL	1.95	0.80	0.279	1.04	B	EL	19.5			
TNAGT5B	45.000	--	1.009	45.406	1.4	0.279	1.49	B	EL	19.5	0.547	1.44	B	EL	1.95	0.80	0.279	1.01	B	EL	19.5			

NOTES:

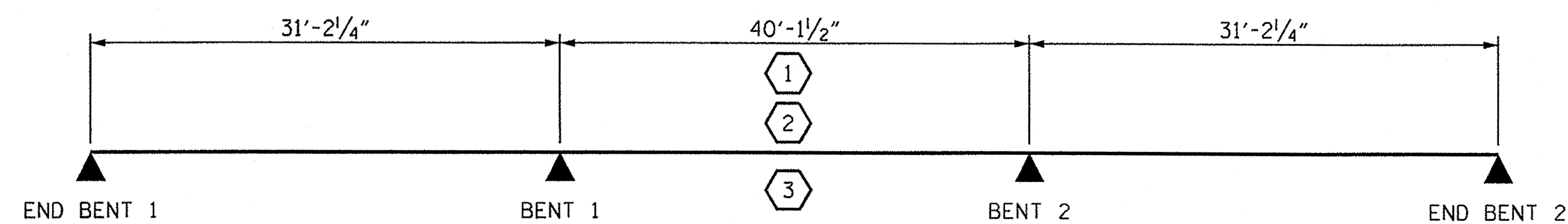
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

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

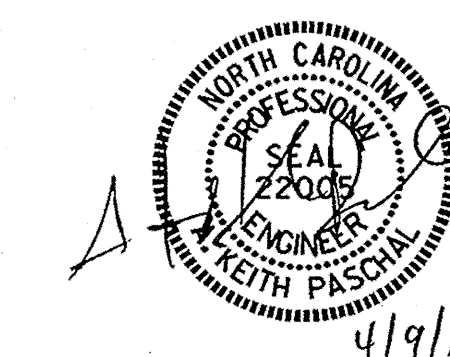
#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER	
EL - EXTERIOR LEFT GIRDER	
ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY

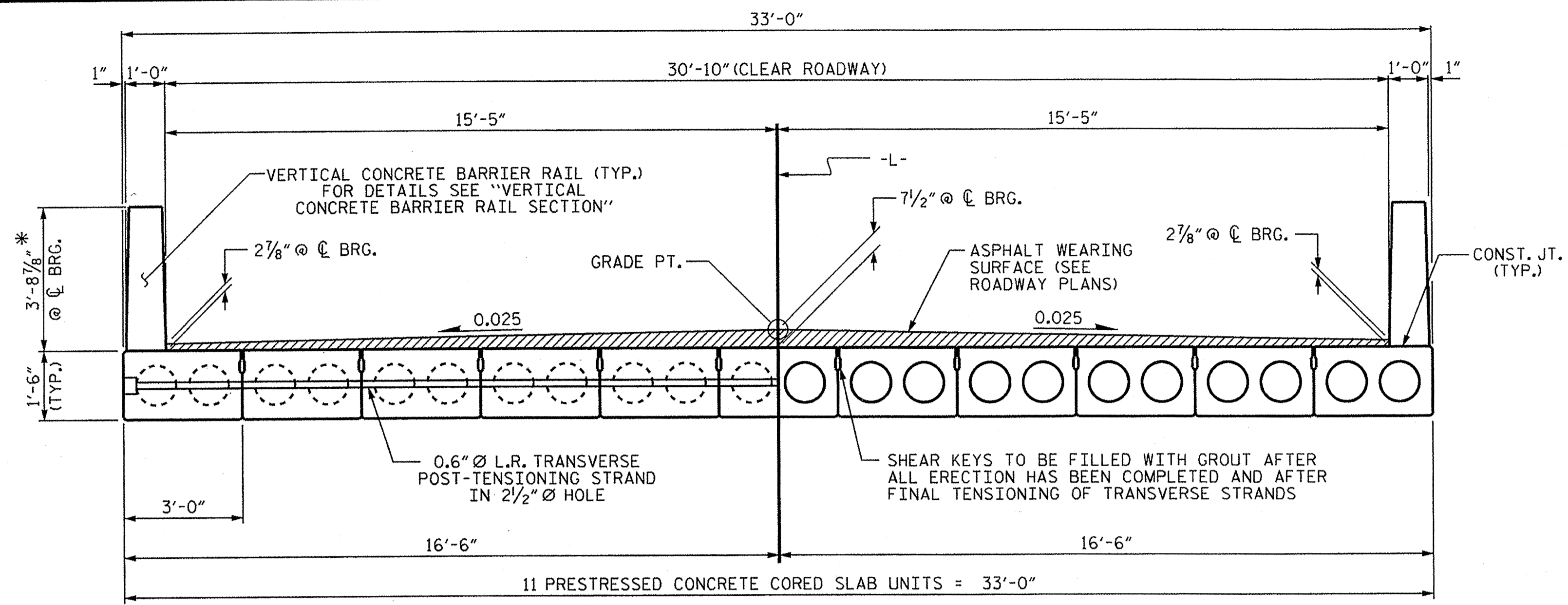
PROJECT NO. BD-5102K  
LENOIR COUNTY  
 STATION: 13+23.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 LRFR SUMMARY FOR  
 PRESTRESSED  
 CONCRETE GIRDERS  
 (NON-INTERSTATE TRAFFIC)



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-3
2			4			17

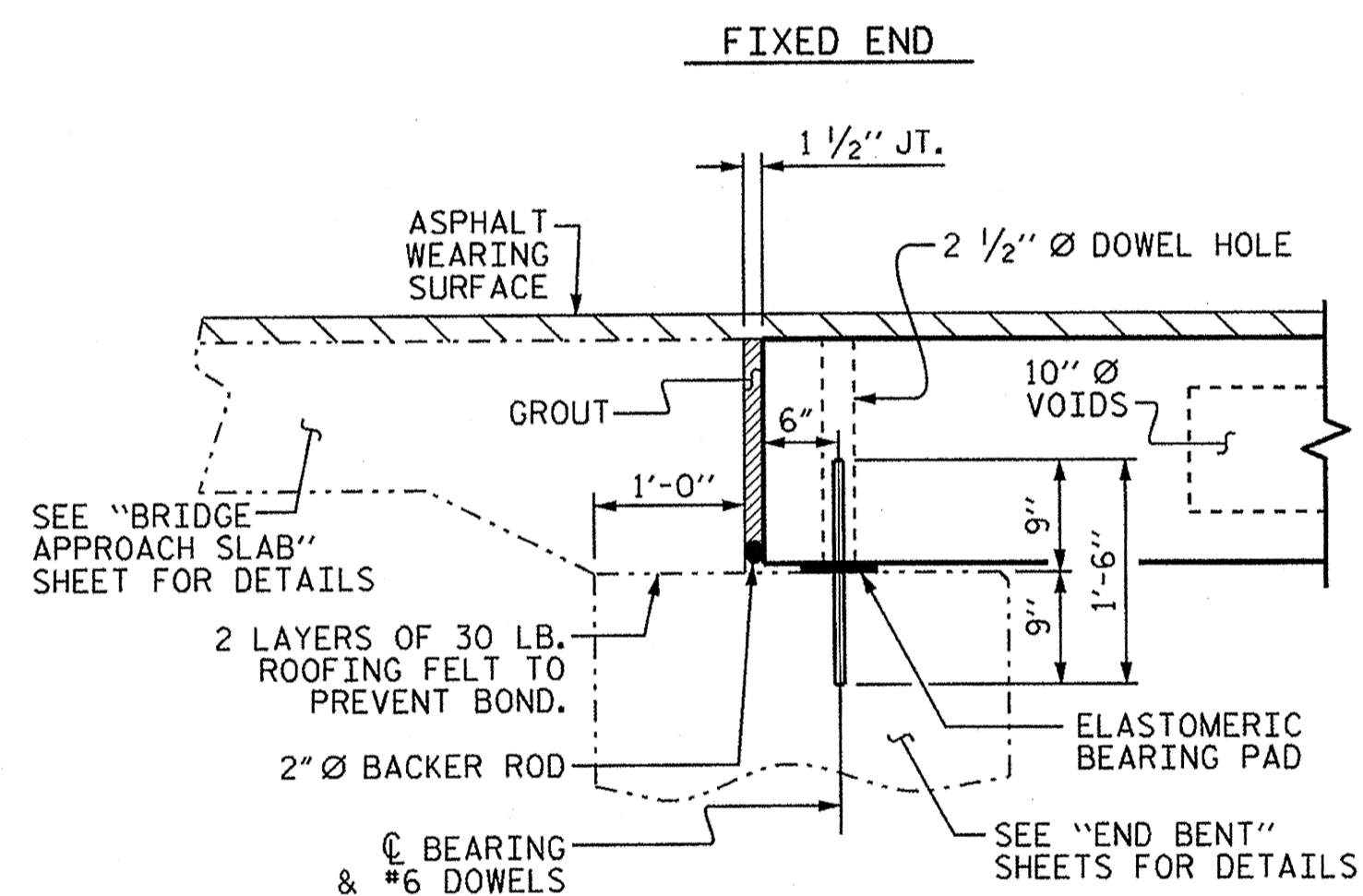
ASSEMBLED BY: B. L. GREEN DATE: 3/7/12  
 CHECKED BY: O. PUIGCERVER DATE: 3/7/12  
 DRAWN BY: MAA 1/08 REV. 11/12/08R MAA/GM  
 CHECKED BY: GM/DI 2/08



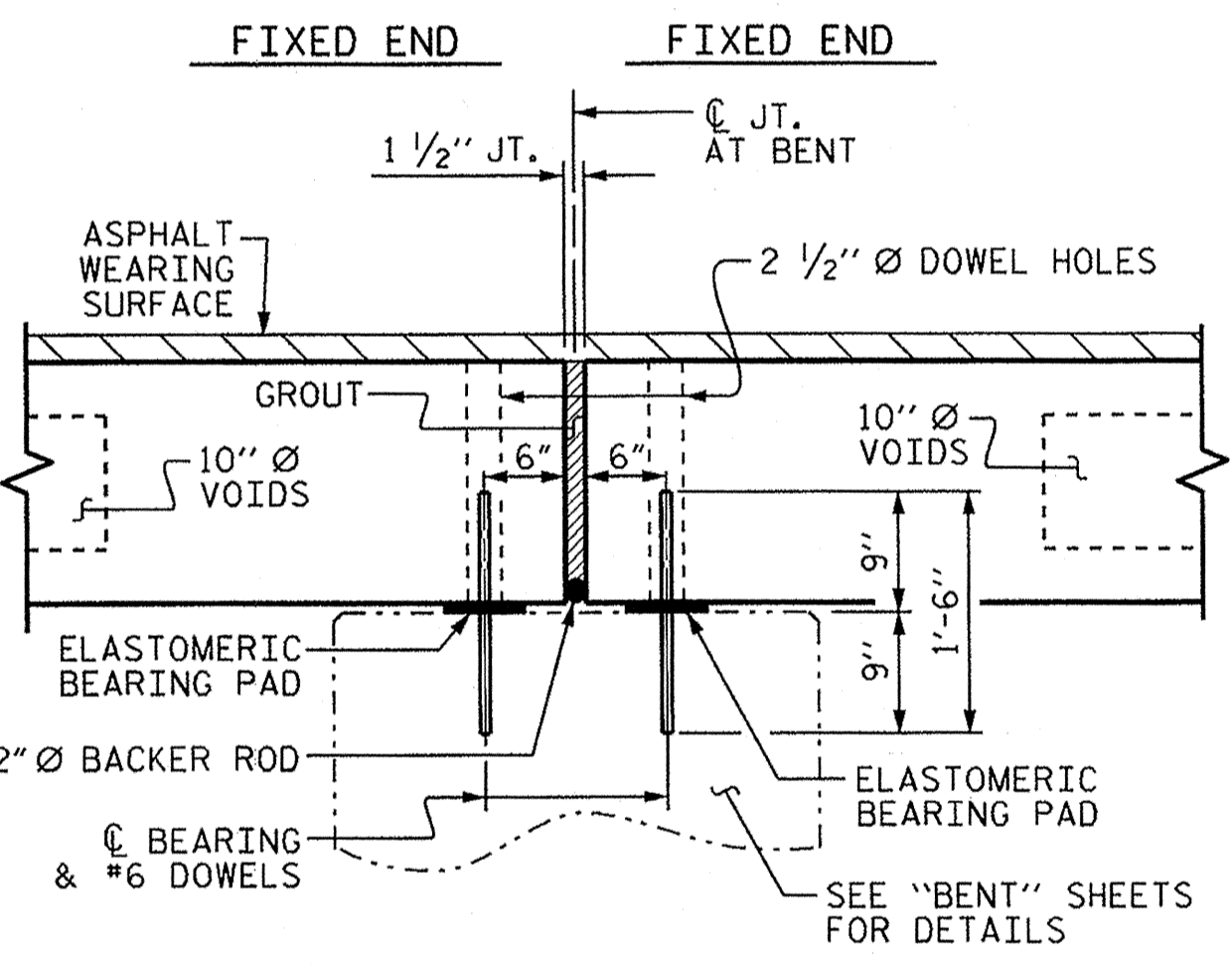
HALF SECTION AT INTERMEDIATE DIAPHRAGMS      HALF SECTION THROUGH VOIDS

**TYPICAL SECTION**

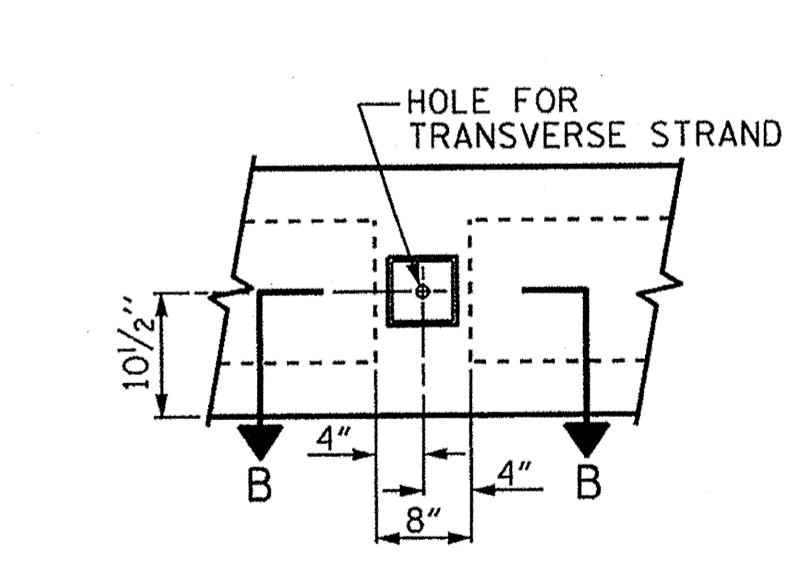
\* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE CUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



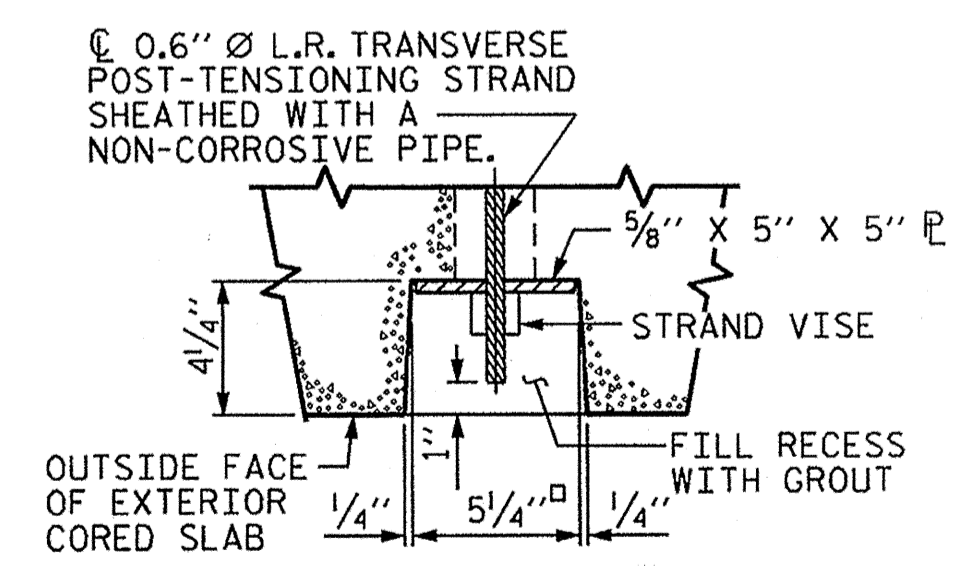
**SECTION AT END BENT**



**SECTION AT BENT**

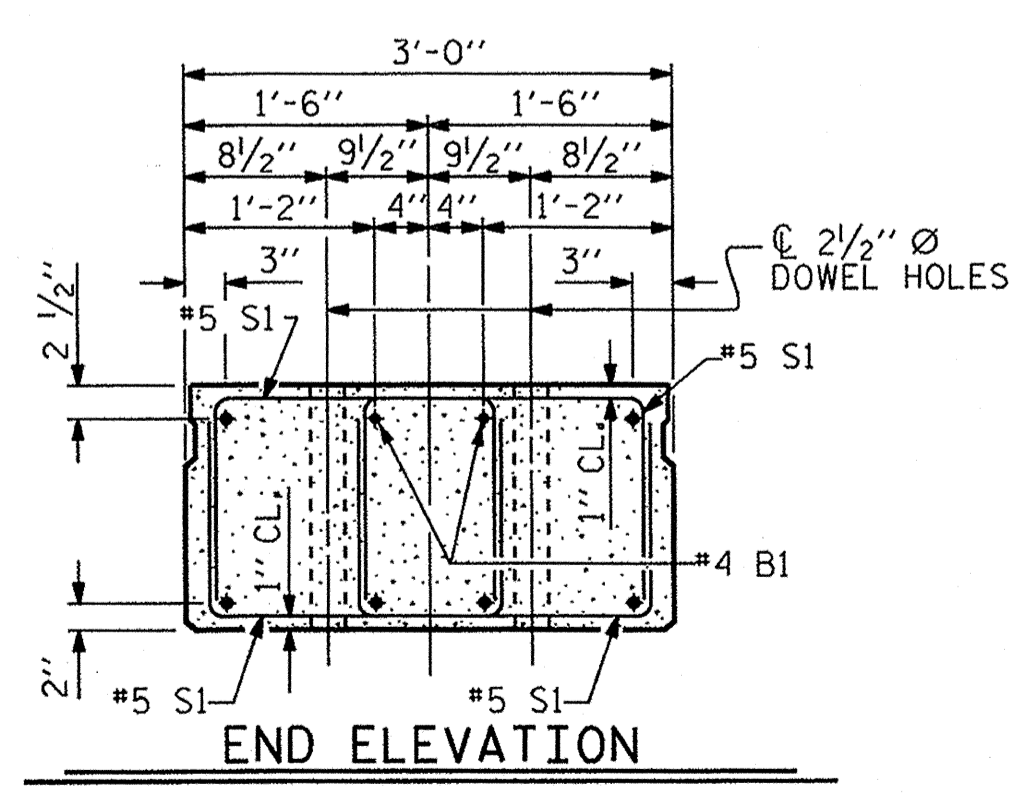


**ELEVATION VIEW**



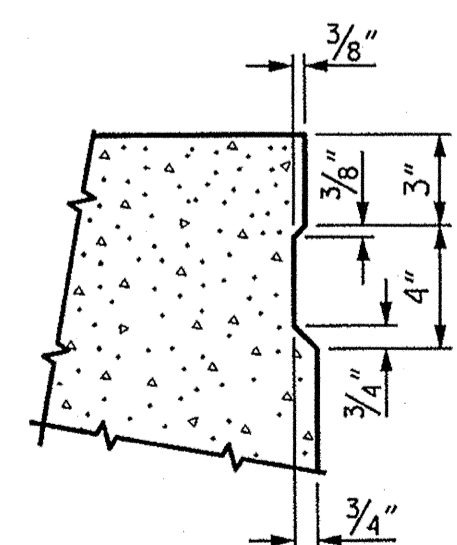
**SECTION B-B**

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



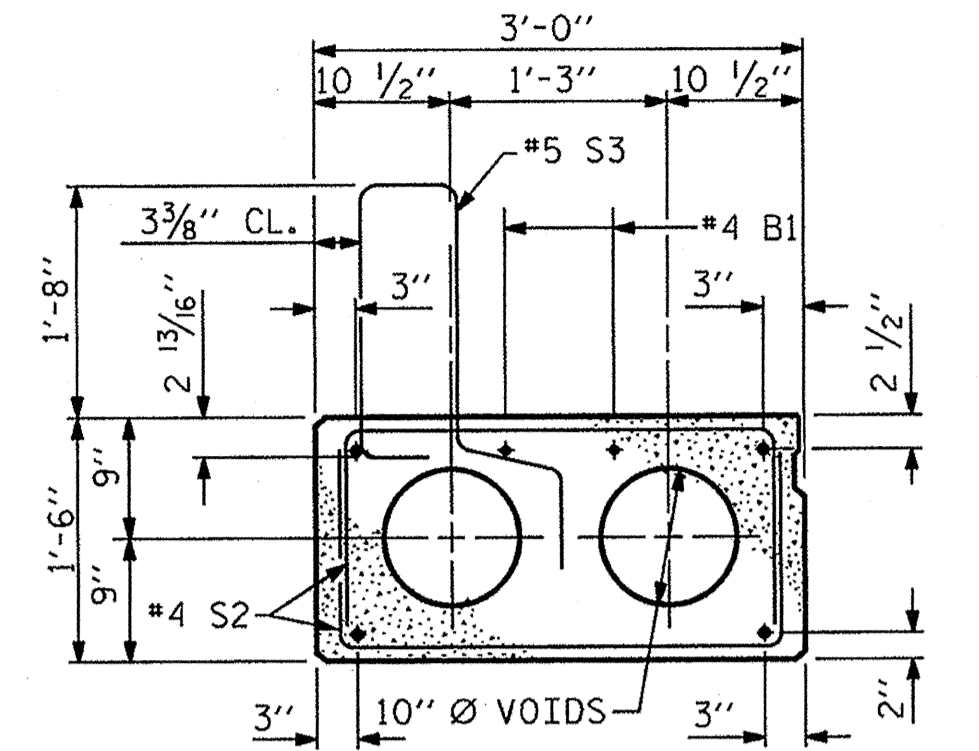
**END ELEVATION**

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

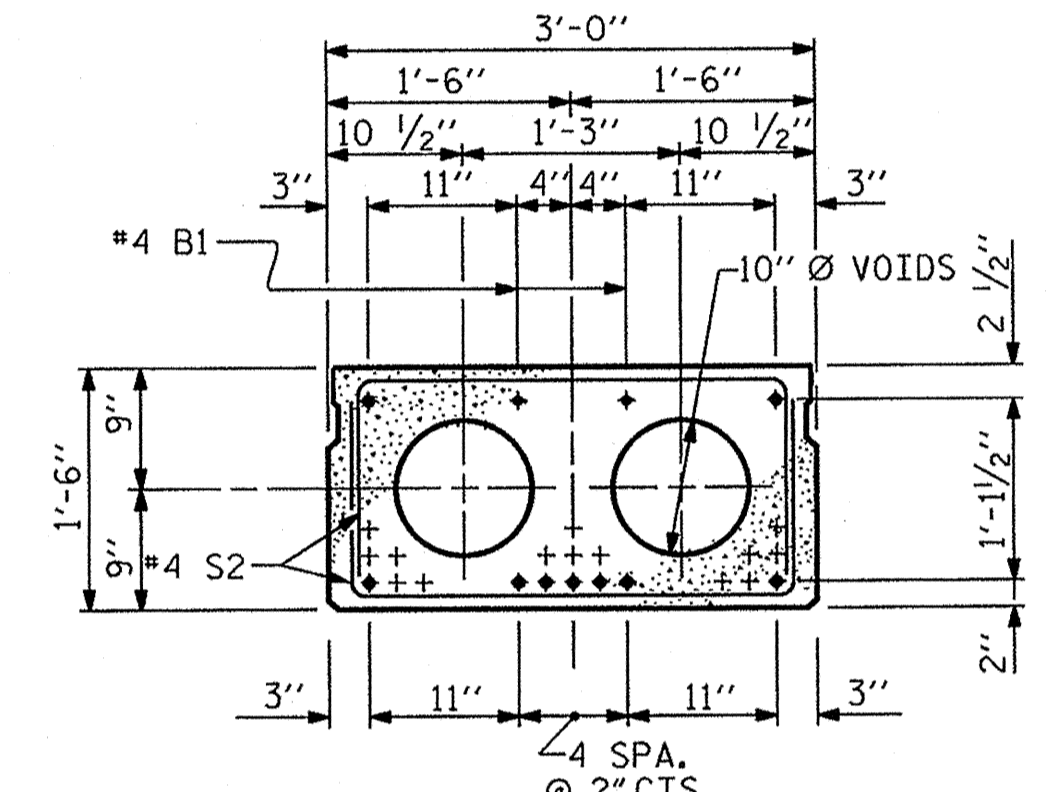


**SHEAR KEY DETAIL**

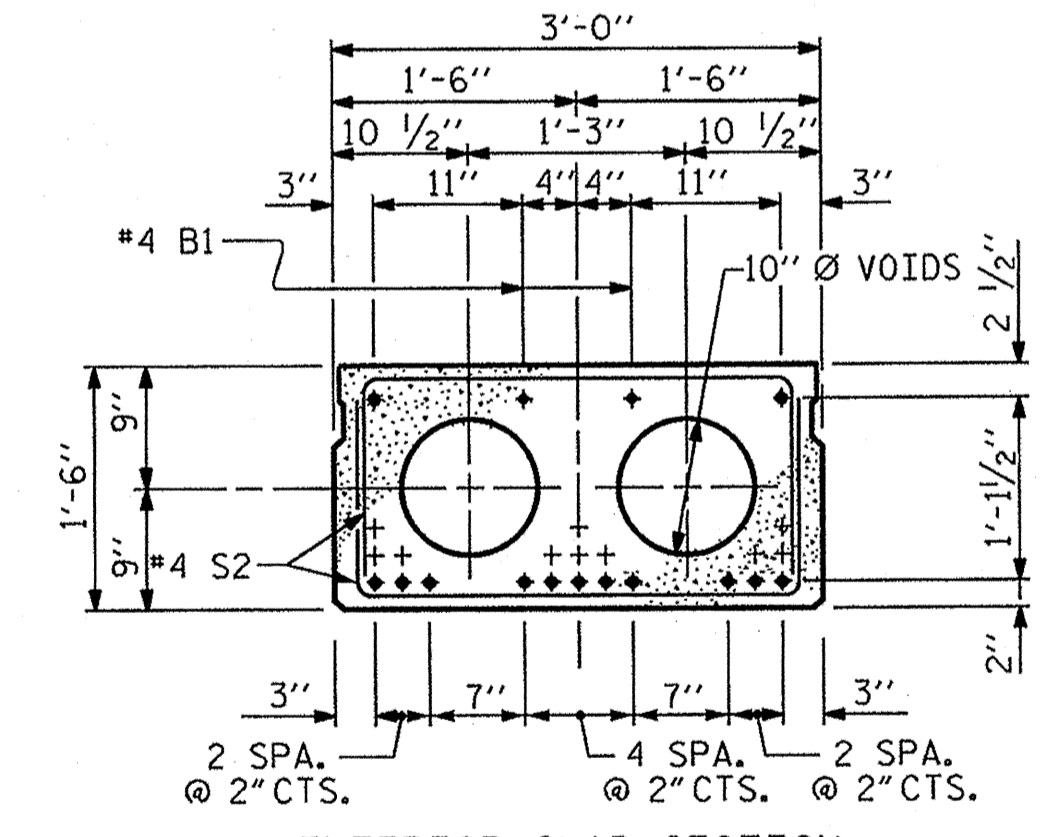
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



**EXTERIOR SLAB SECTION**  
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION)



**INTERIOR SLAB SECTION**  
SPANS A & C  
(9 STRANDS TOTAL)



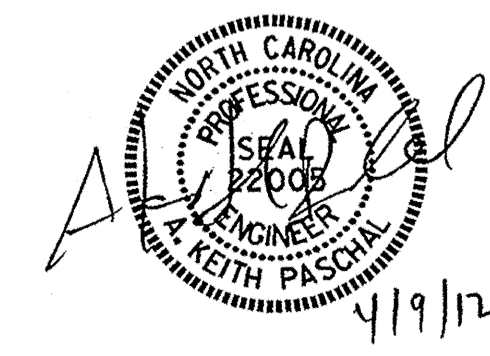
**INTERIOR SLAB SECTION**  
SPAN B  
(13 STRANDS TOTAL)  
**0.6" Ø LOW RELAXATION STRAND LAYOUT**

PROJECT NO. BD-5102K  
LENOIR COUNTY  
STATION: 13+23.00 -L-

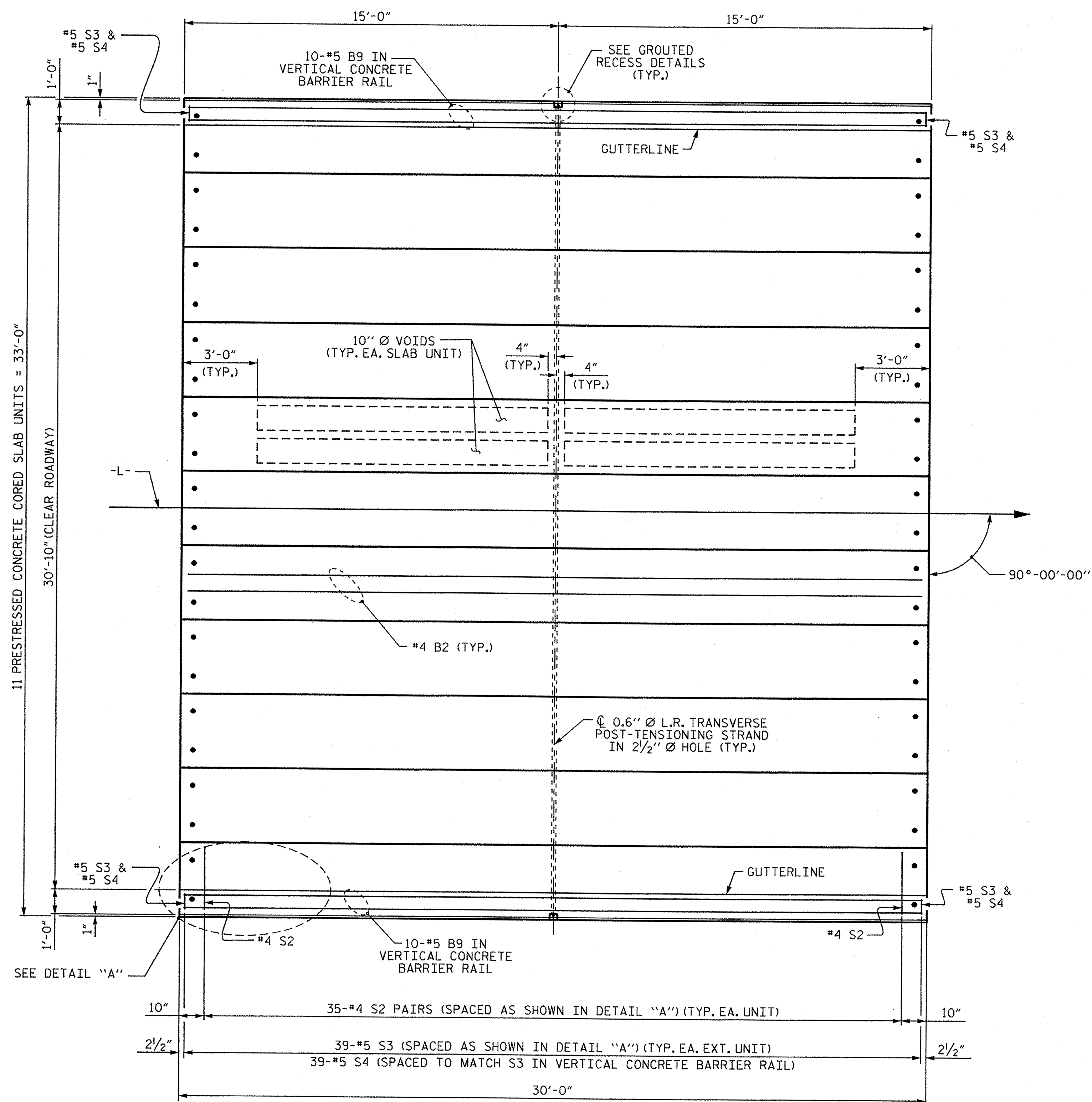
SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 1'-6"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT  
90° SKEW

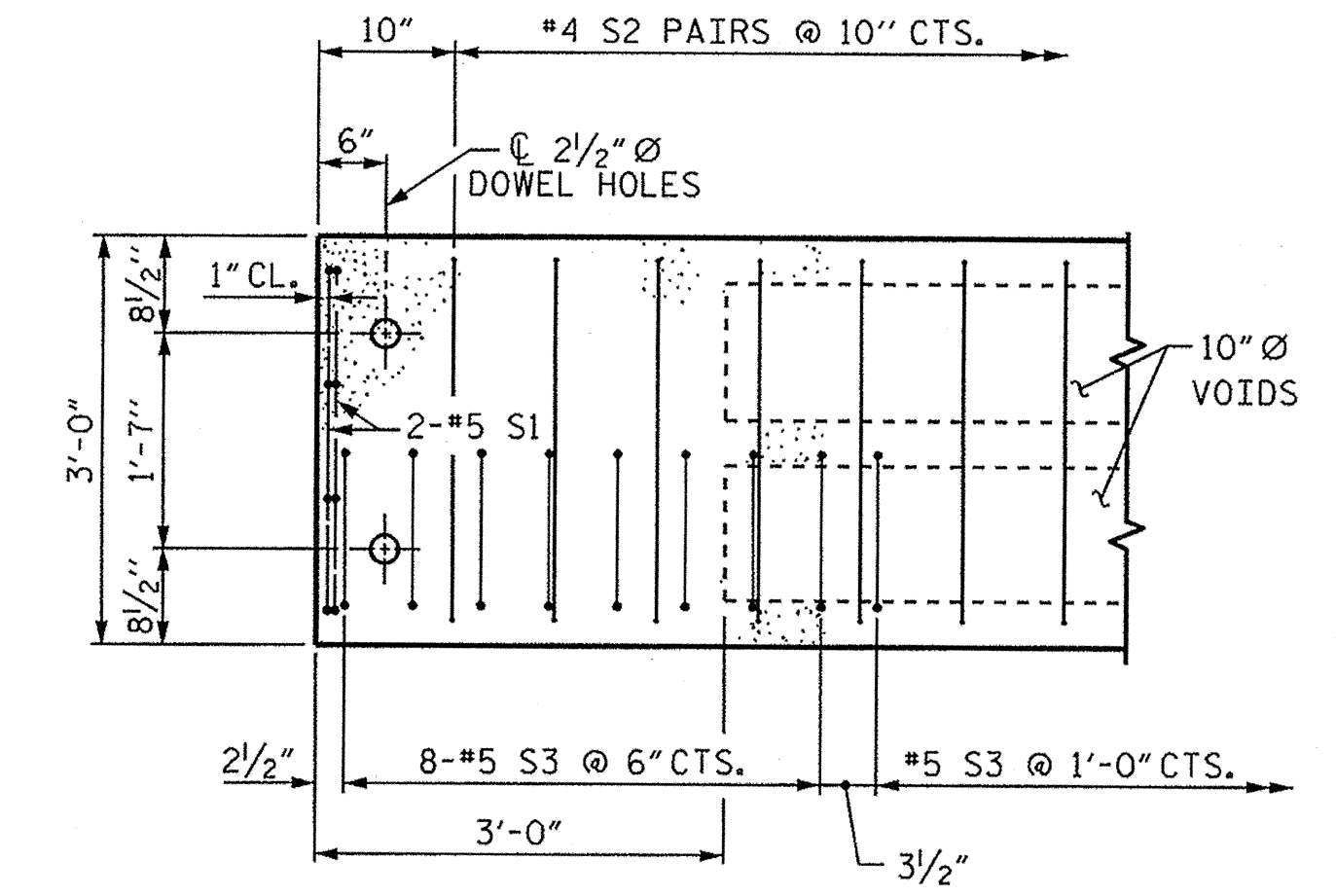
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	NO.
1			3			17
2			4			



ASSEMBLED BY : B. L. GREEN	DATE : 2/27/12
CHECKED BY : O. PUIGSERVER	DATE : 3/6/12
DRAWN BY : DGE 5/09	REV. 12/11 MAA/AAC
CHECKED BY : BCH 6/09	



PLAN OF UNIT



DETAIL "A"

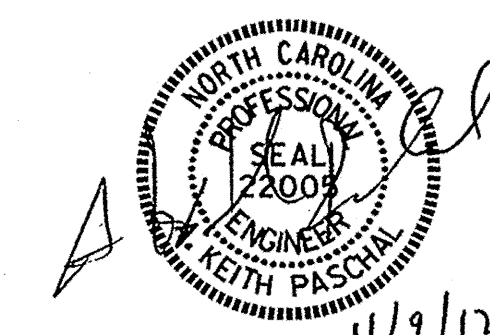
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. BD-5102K  
LENOIR COUNTY  
 STATION: 13+23.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF 30' UNIT  
 30'-10" CLEAR ROADWAY  
 90° SKEW

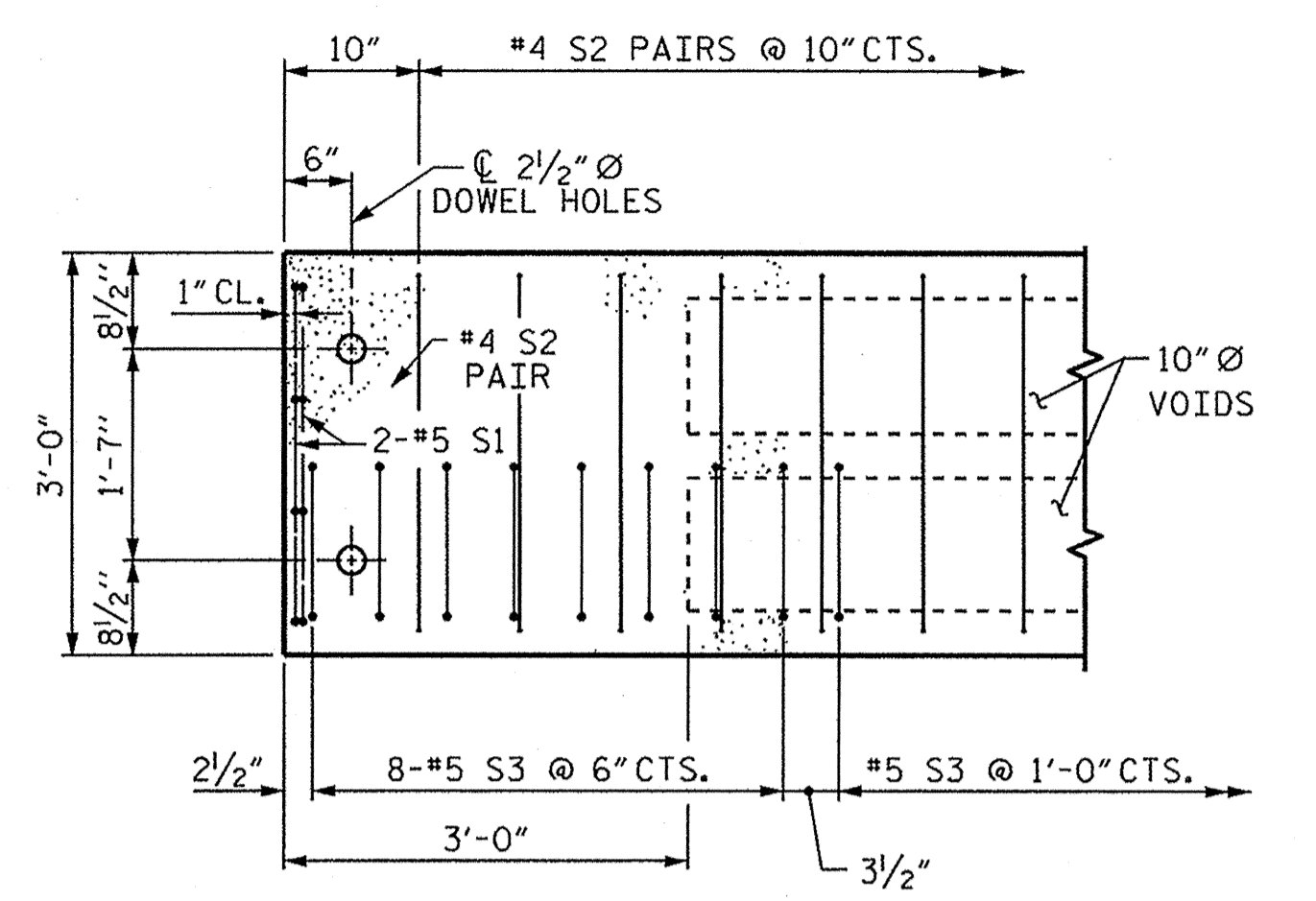
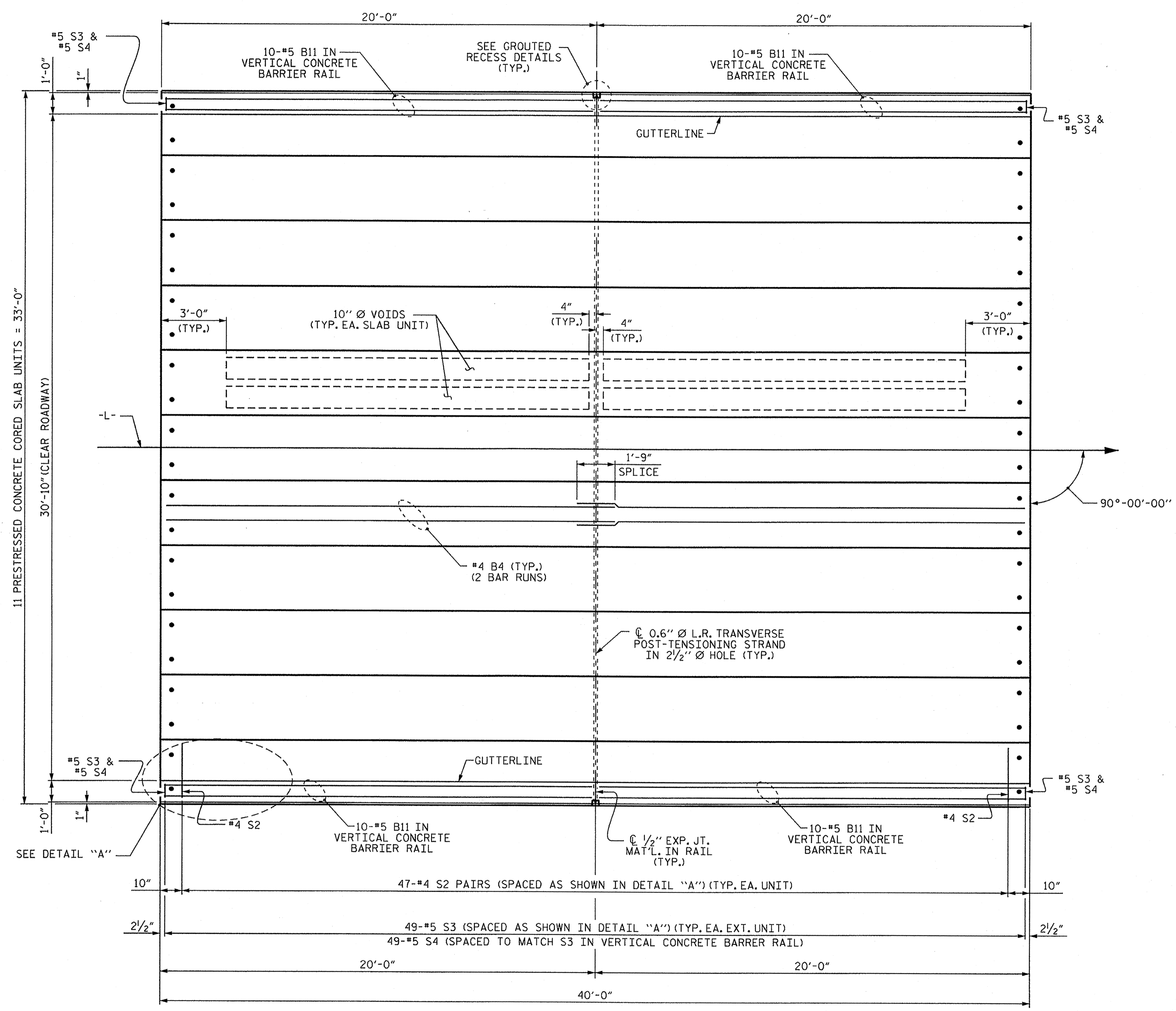


ASSEMBLED BY : B. L. GREEN	DATE : 2/27/12
CHECKED BY : O. PUTIGERVER	DATE : 3/6/12
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			17
2			4			





DETAIL "A"

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

PLAN OF UNIT

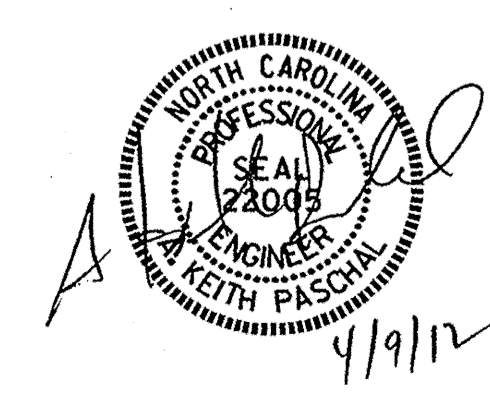
PROJECT NO. BD-5102K  
LENOIR COUNTY  
 STATION: 13+23.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF 40' UNIT  
 30'-10" CLEAR ROADWAY  
 90° SKEW

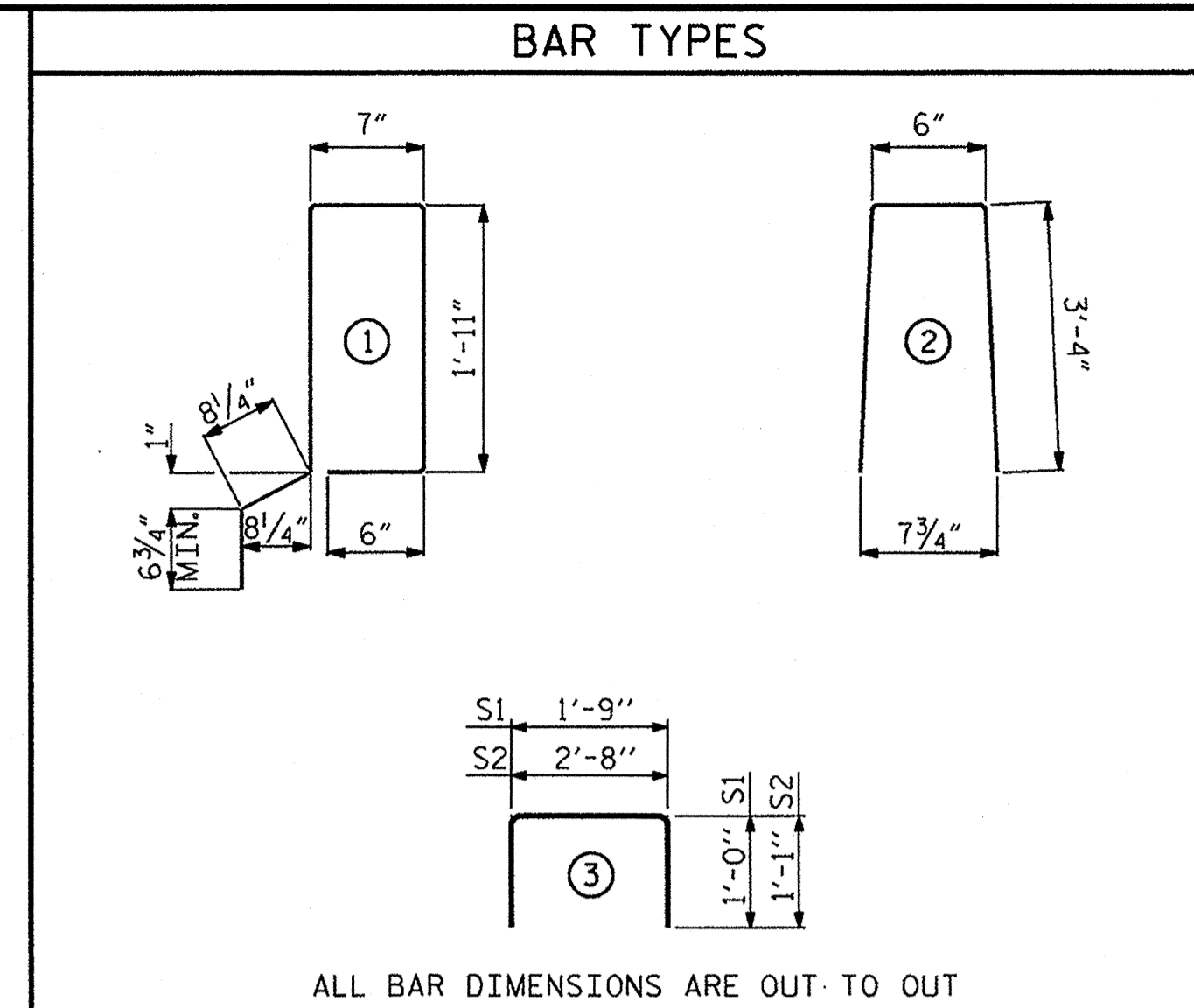
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NO.	BY:	DATE:	NO.	BY:	DATE:	5-6
1			3			TOTAL SHEETS
2			4			17



ASSEMBLED BY : B. L. GREEN DATE : 2/27/12  
 CHECKED BY : O. PUIGCERVER DATE : 3/6/12  
 DRAWN BY : DGE 3/09 REV. 12/5/11 MAA/AAC  
 CHECKED BY : BCH 3/09

BILL OF MATERIAL FOR ONE 30' CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B2	2	#4	STR	29'-8"	40	29'-8"	40
S1	8	#5	3	3'-9"	31	3'-9"	31
S2	70	#4	3	4'-10"	226	4'-10"	226
*S3	39	#5	1	6'-2"	251		
REINFORCING STEEL				LBS.	297		297
*EPOXY COATED REINFORCING STEEL				LBS.	251		
5000 P.S.I. CONCRETE				CU. YDS.	4.0		4.0
0.6" Ø L.R. STRANDS				No.	9		9

BILL OF MATERIAL FOR ONE 40' CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B4	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	3'-9"	31	3'-9"	31
S2	94	#4	3	4'-10"	303	4'-10"	303
*S3	49	#5	1	6'-2"	315		
REINFORCING STEEL				LBS.	389		389
*EPOXY COATED REINFORCING STEEL				LBS.	315		
5000 P.S.I. CONCRETE				CU. YDS.	5.2		5.2
0.6" Ø L.R. STRANDS				No.	13		13



**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" Ø 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.

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
30' UNIT			
EXTERIOR C.S.	4	30'-0"	120'-0"
INTERIOR C.S.	18	30'-0"	540'-0"
TOTAL	22		660'-0"

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

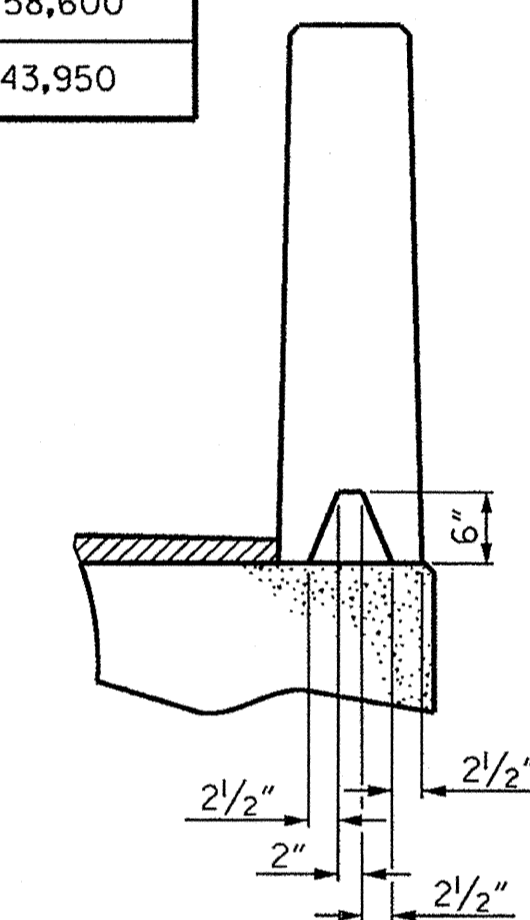
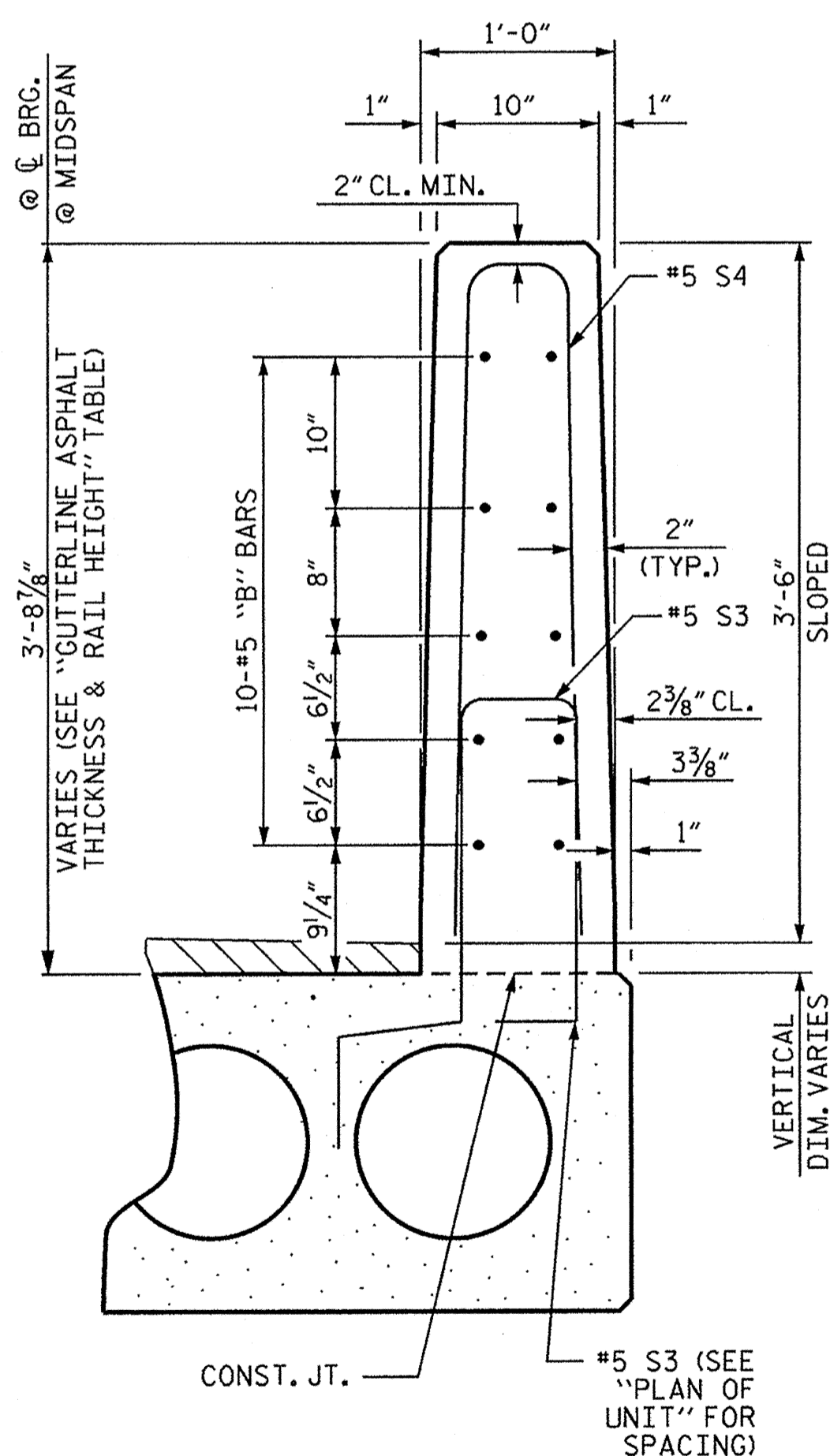
CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
40' UNIT			
EXTERIOR C.S.	2	40'-0"	80'-0"
INTERIOR C.S.	9	40'-0"	360'-0"
TOTAL	11		440'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
30' UNIT						
*B9	20	40	#5	STR	29'-7"	1234
*S4	78	156	#5	2	7'-2"	1166
*EPOXY COATED REINFORCING STEEL				LBS.		2400
CLASS AA CONCRETE				CU. YDS.		15.8
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		120.50

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
40' UNIT						
*B11	40	40	#5	STR	19'-7"	817
*S4	98	98	#5	2	7'-2"	733
*EPOXY COATED REINFORCING STEEL				LBS.		1550
CLASS AA CONCRETE				CU. YDS.		10.5
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		80.25

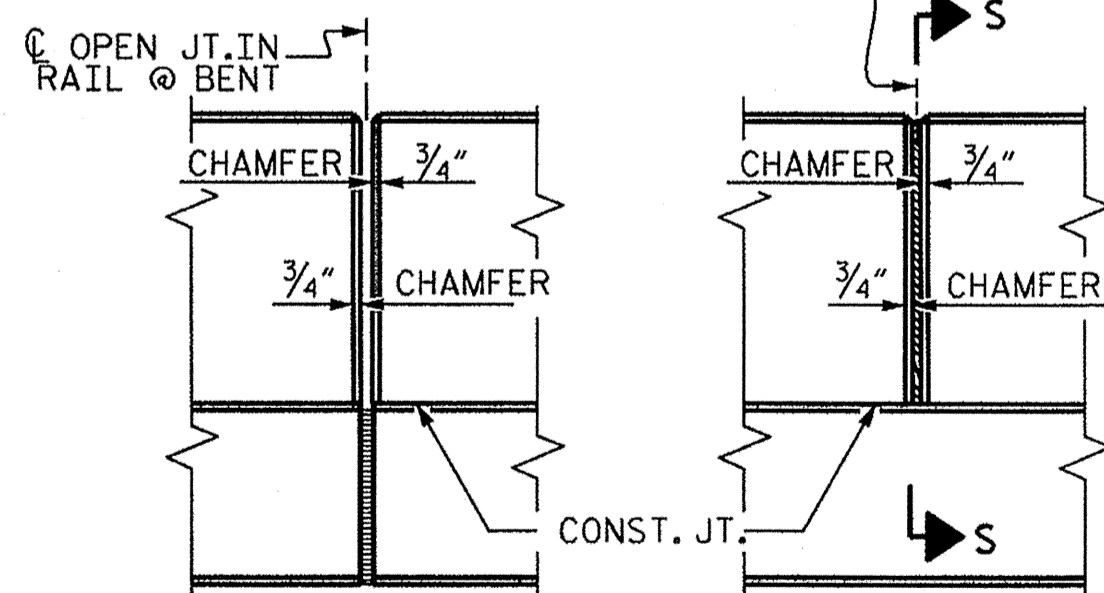
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
30'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	NORMAL CROWN SECTION	
30' UNITS	2 1/2"	3'-8 1/2"
40' UNIT	1 5/8"	3'-7 5/8"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
30' & 40' UNITS	4000



**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**

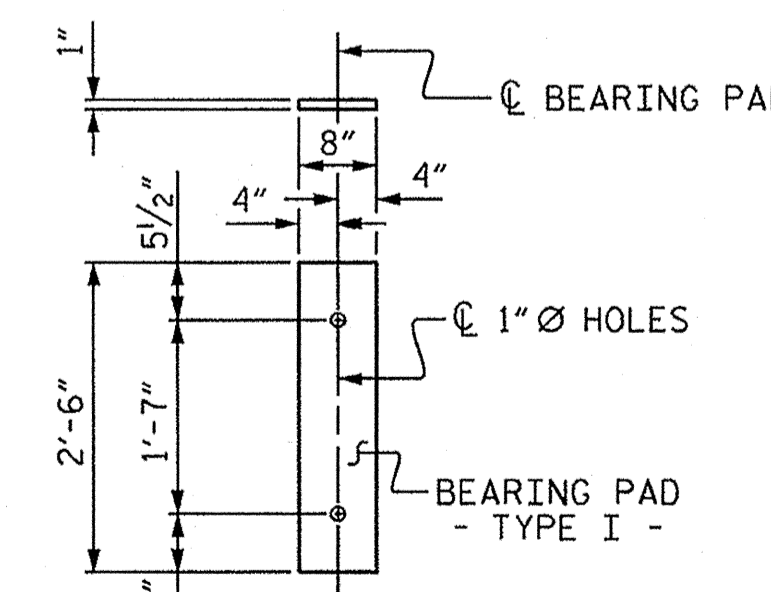
**VERTICAL CONCRETE BARRIER RAIL SECTION**

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-6"
30' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	3/8" ↑

\*\* INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-6"
40' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 1/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/4" ↓
FINAL CAMBER	1 3/16" ↑

\*\* INCLUDES FUTURE WEARING SURFACE



**ELASTOMERIC BEARING DETAILS**

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

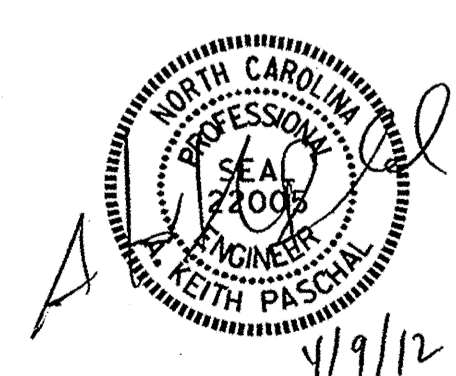
ASSEMBLED BY : B. L. GREEN DATE : 2/27/12  
CHECKED BY : O. PUTIGER DATE : 3/6/12  
DRAWN BY : DGE 5/09 REV. 12/11 MAA/AAC  
CHECKED BY : BCH 6/09

PROJECT NO. BD-5102K  
LENOIR COUNTY  
STATION: 13+23.00 -L-  
SHEET 4 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 1'-6"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT  
90° SKEW

REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 17



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.)

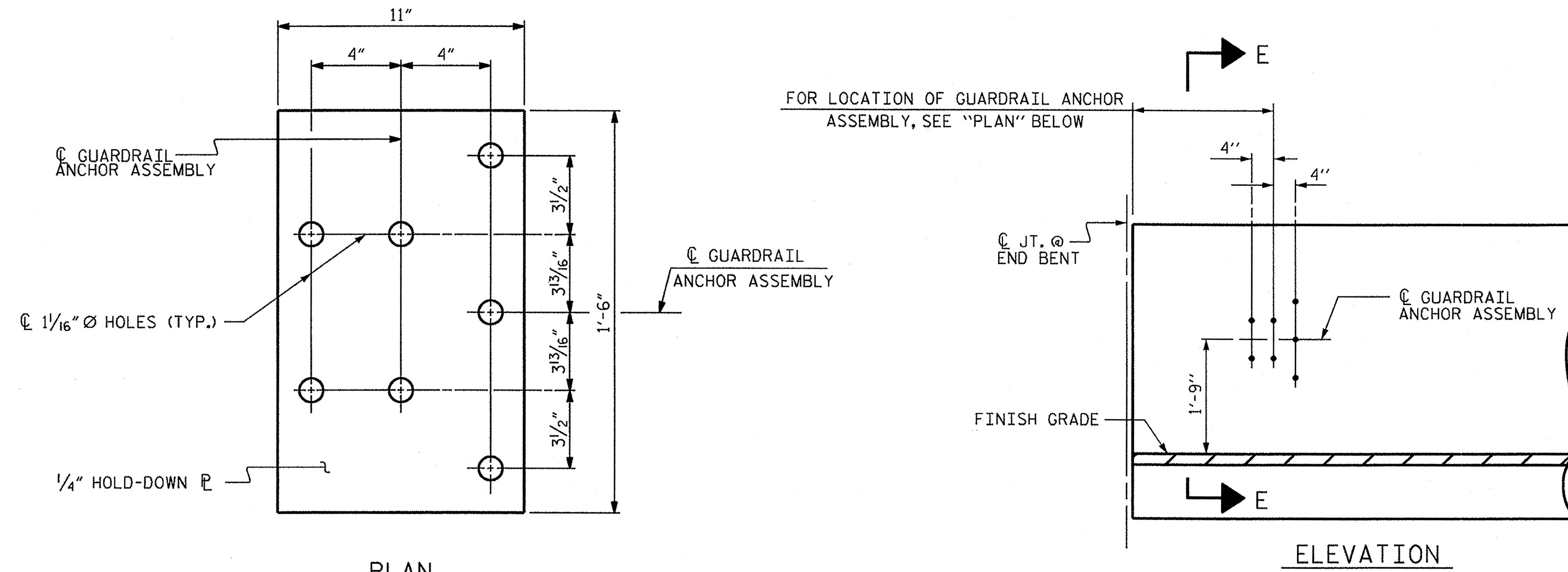
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

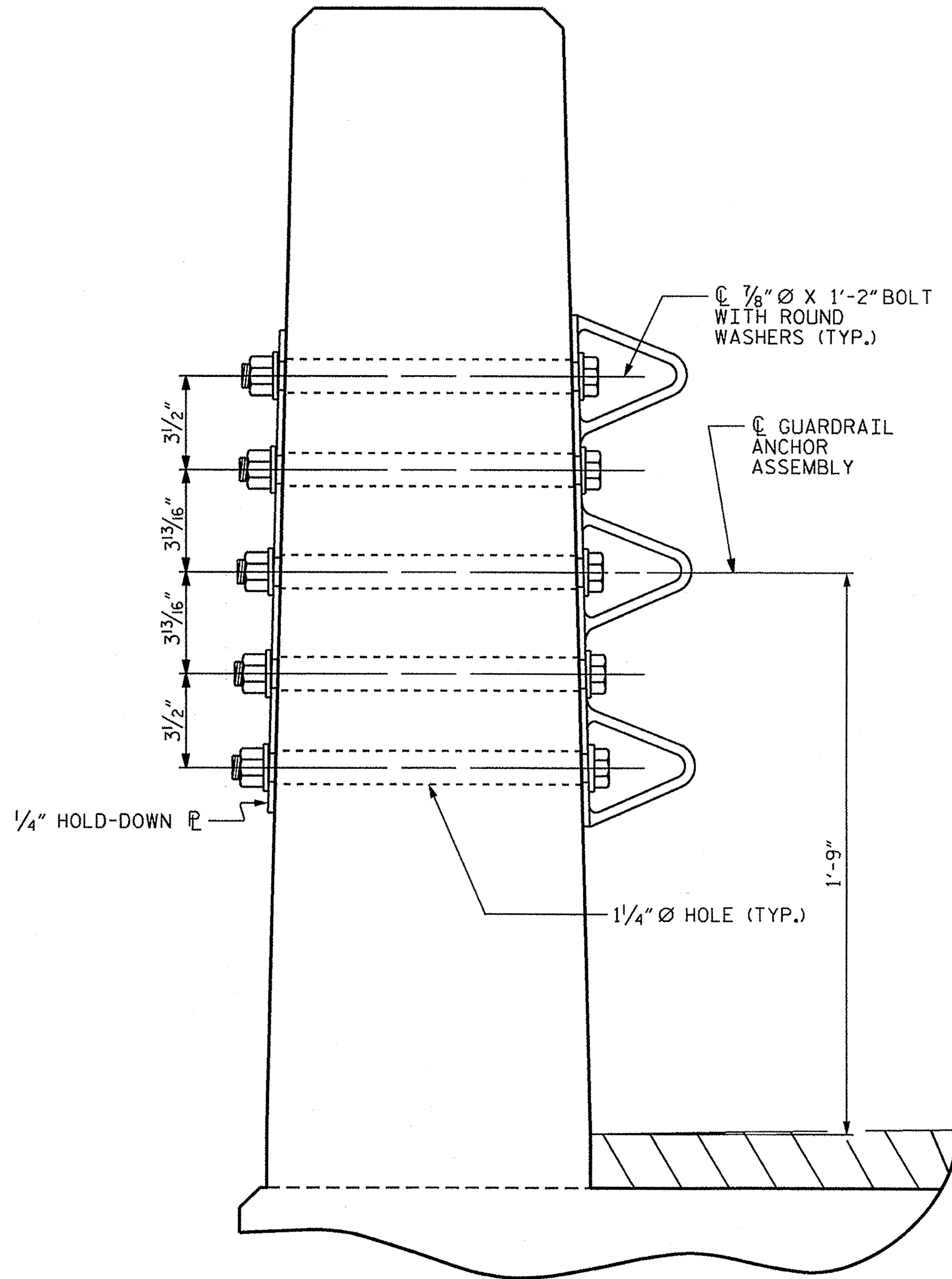
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.

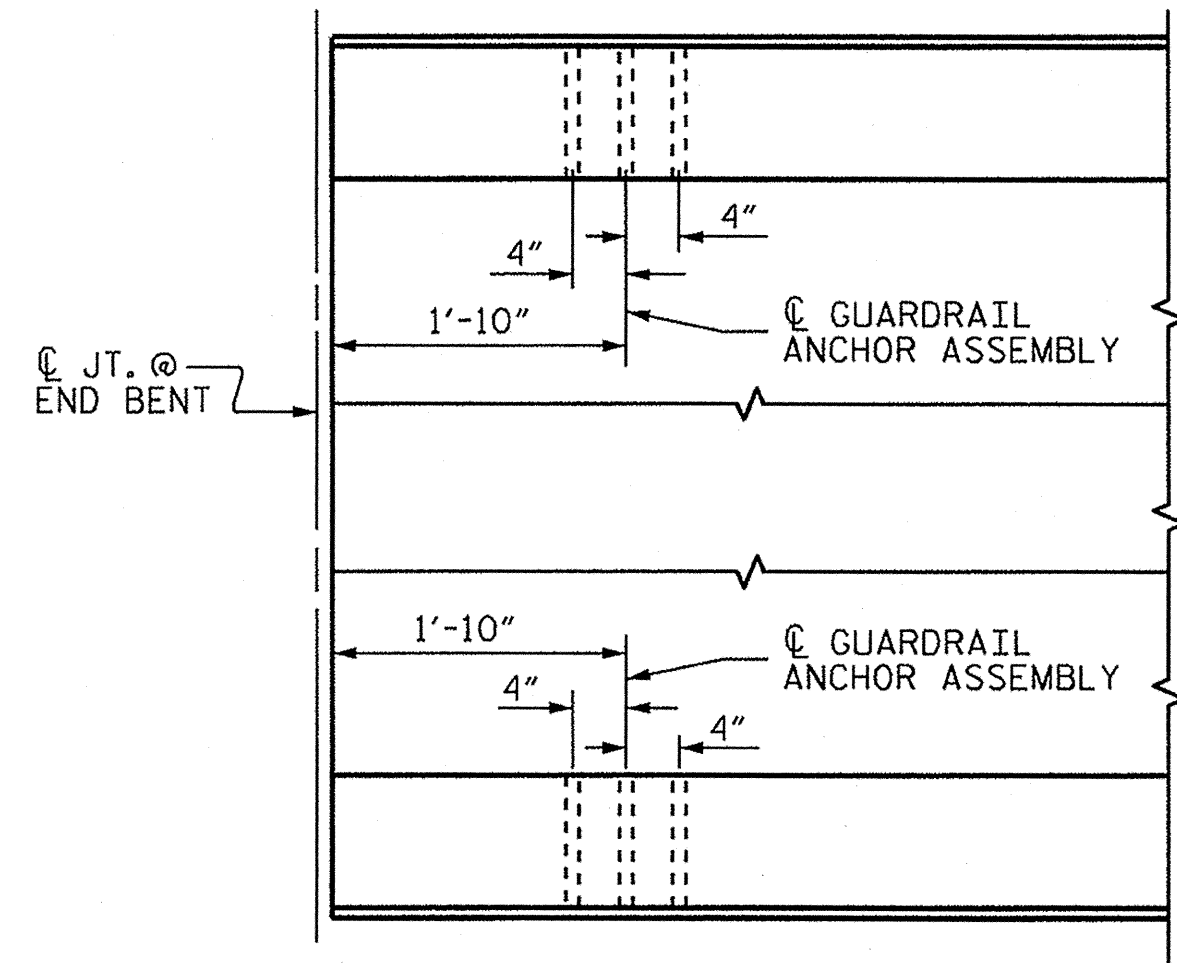


PLAN

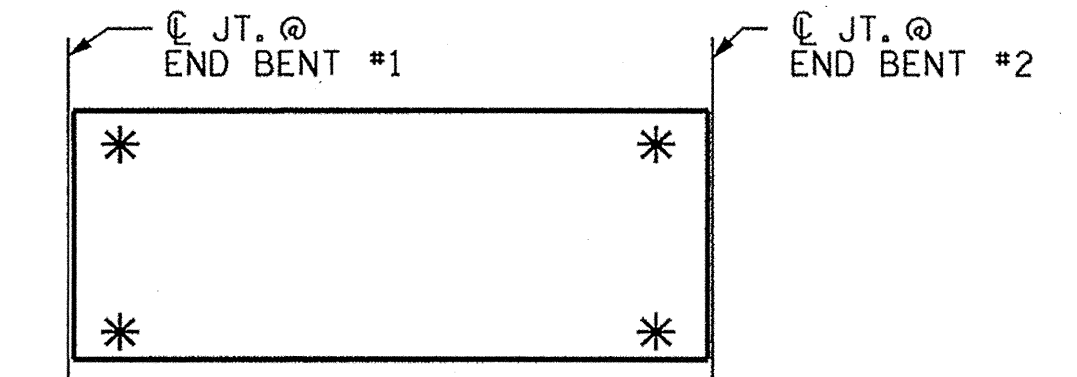
ELEVATION



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



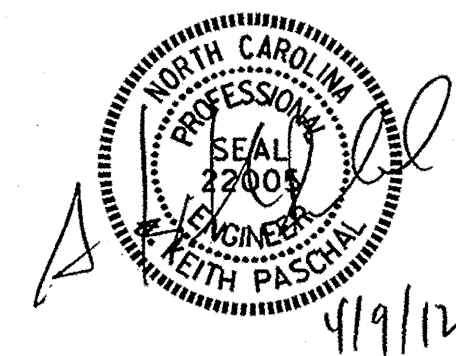
PLAN  
LOCATION OF ANCHORS FOR GUARDRAIL  
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT  
\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5102K  
LENOIR COUNTY  
 STATION: 13+23.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 5-8
					TOTAL SHEETS 17



ASSEMBLED BY: B. L. GREEN DATE: 2/27/12  
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 DRAWN BY: MAA 5/10  
 CHECKED BY: GM 5/10  
 ADDED 5/6/10  
 REV. 10/1/11 MAA/GM  
 REV. 12/5/11 MAA/GM

**NOTES**

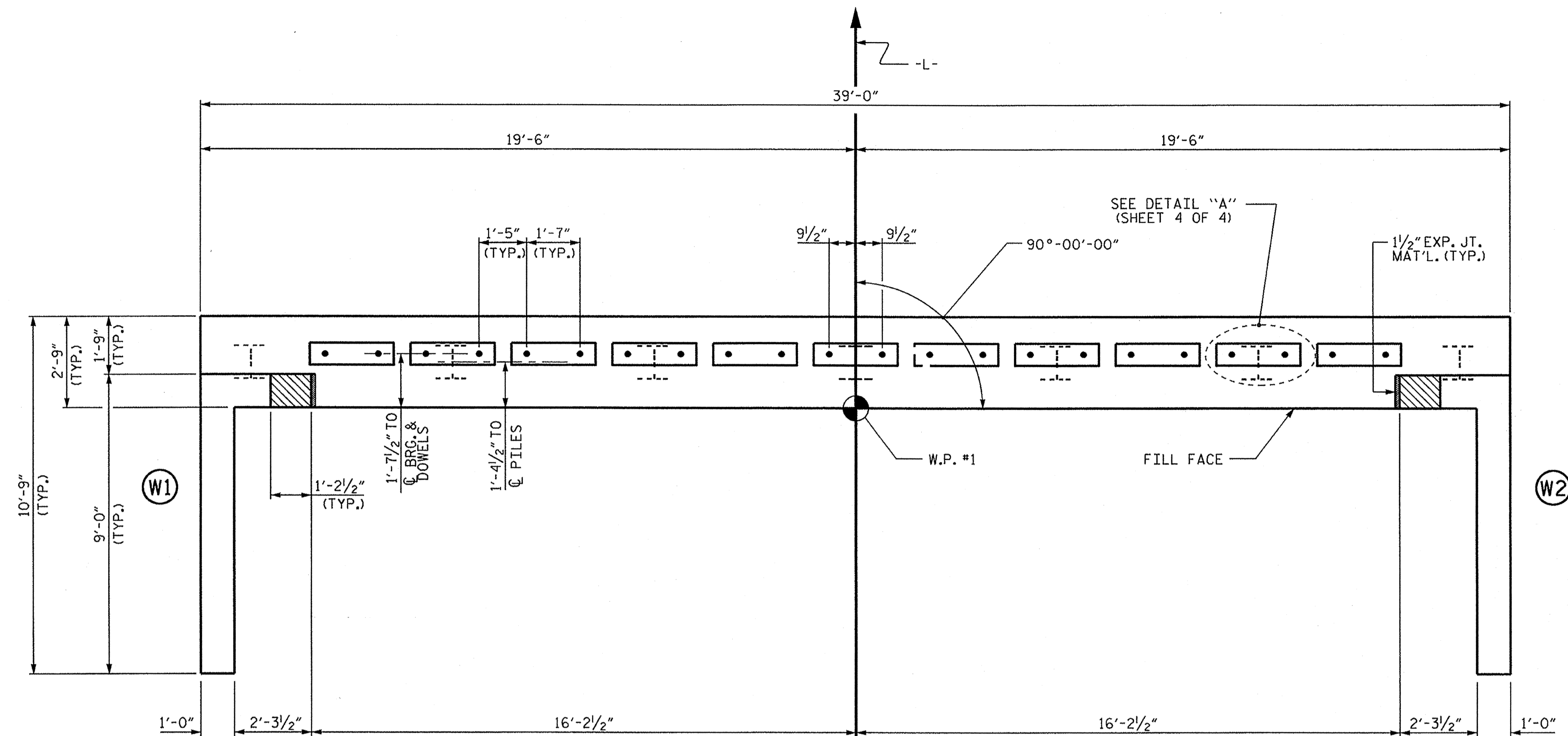
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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.

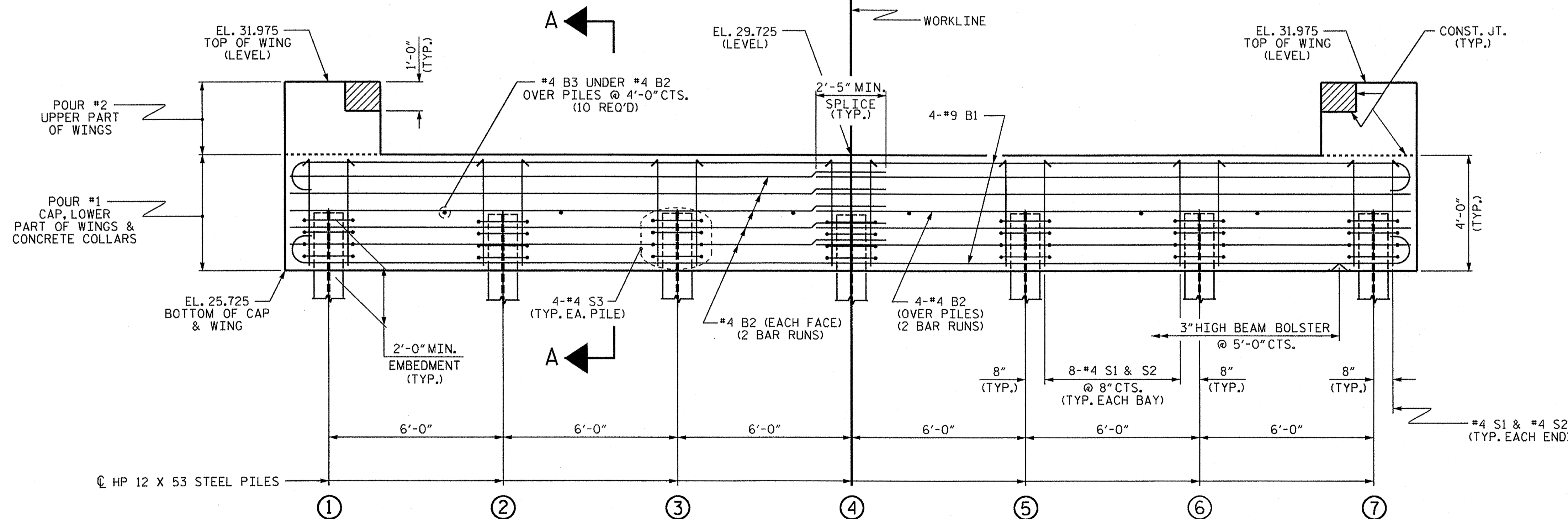
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

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.

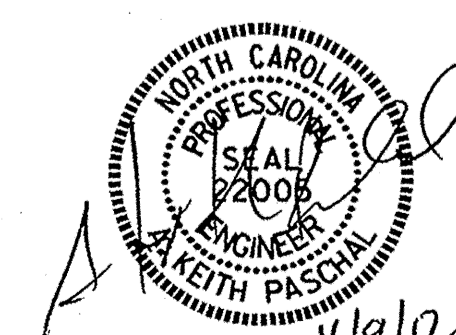
PROJECT NO. BD-5102K  
LENOIR COUNTY  
STATION: 13+23.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-9
2			4			TOTAL SHEETS 17



ASSEMBLED BY : B. L. GREEN DATE : 2/27/12  
CHECKED BY : O. PUIGSERVER DATE : 3/7/12  
DRAWN BY : WJH 12/11  
CHECKED BY : AAC 12/11

**NOTES**

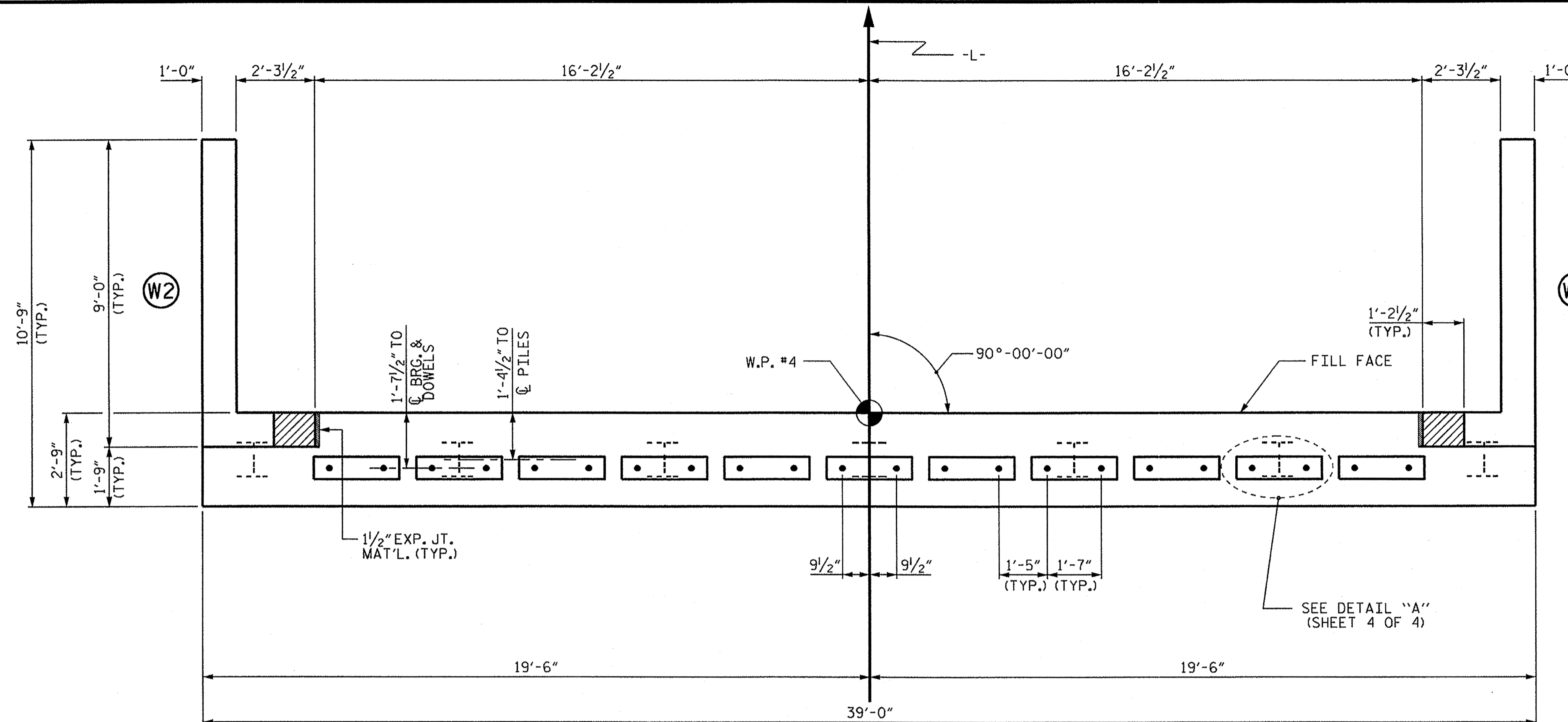
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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.

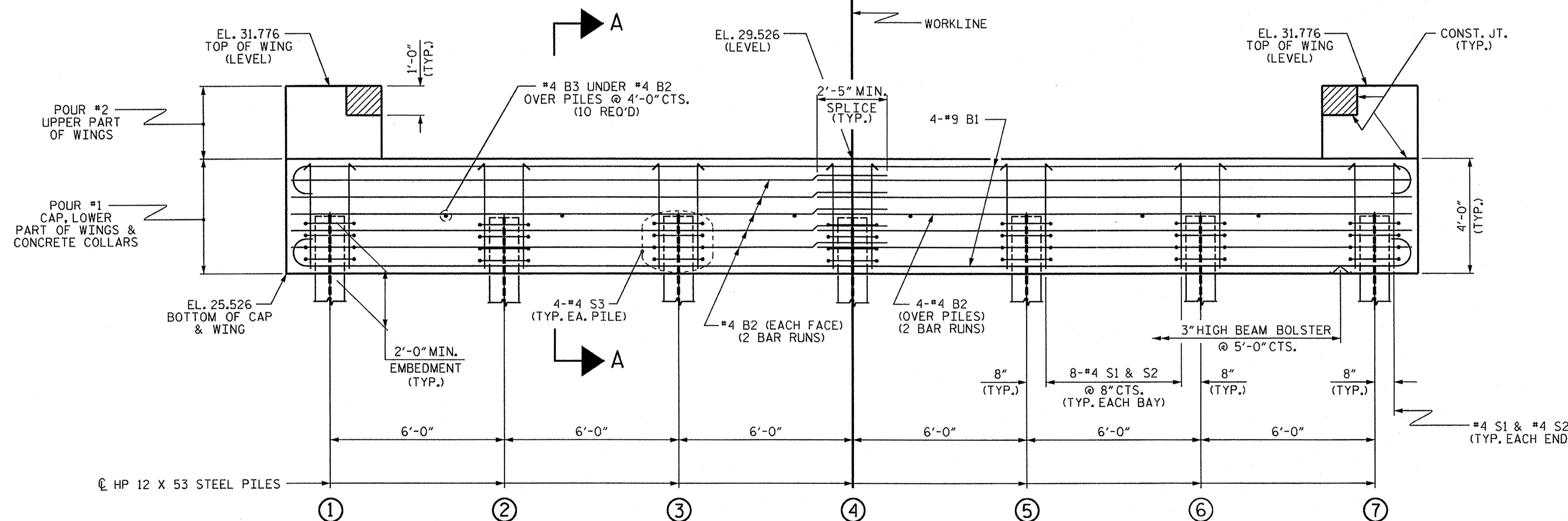
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

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**



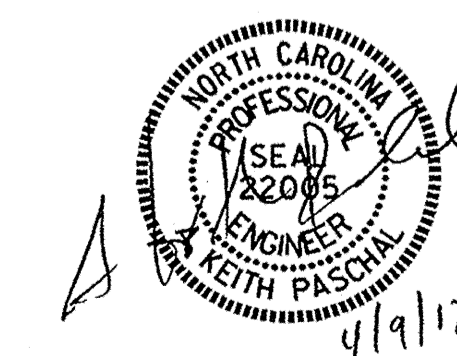
**ELEVATION**

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-5102K  
LENOIR COUNTY  
STATION: 13+23.00 -L-  
SHEET 2 OF 4

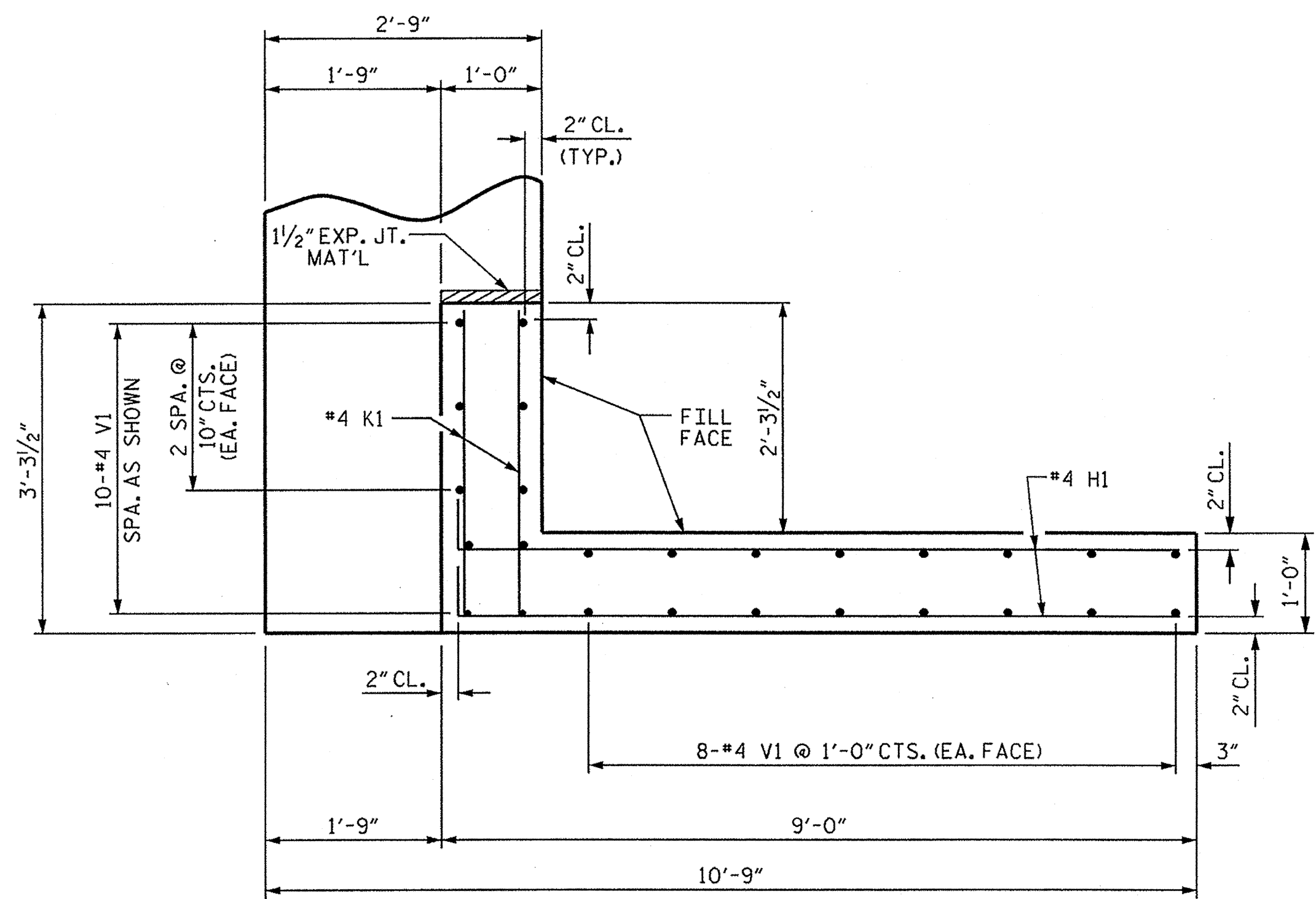
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT No. 2

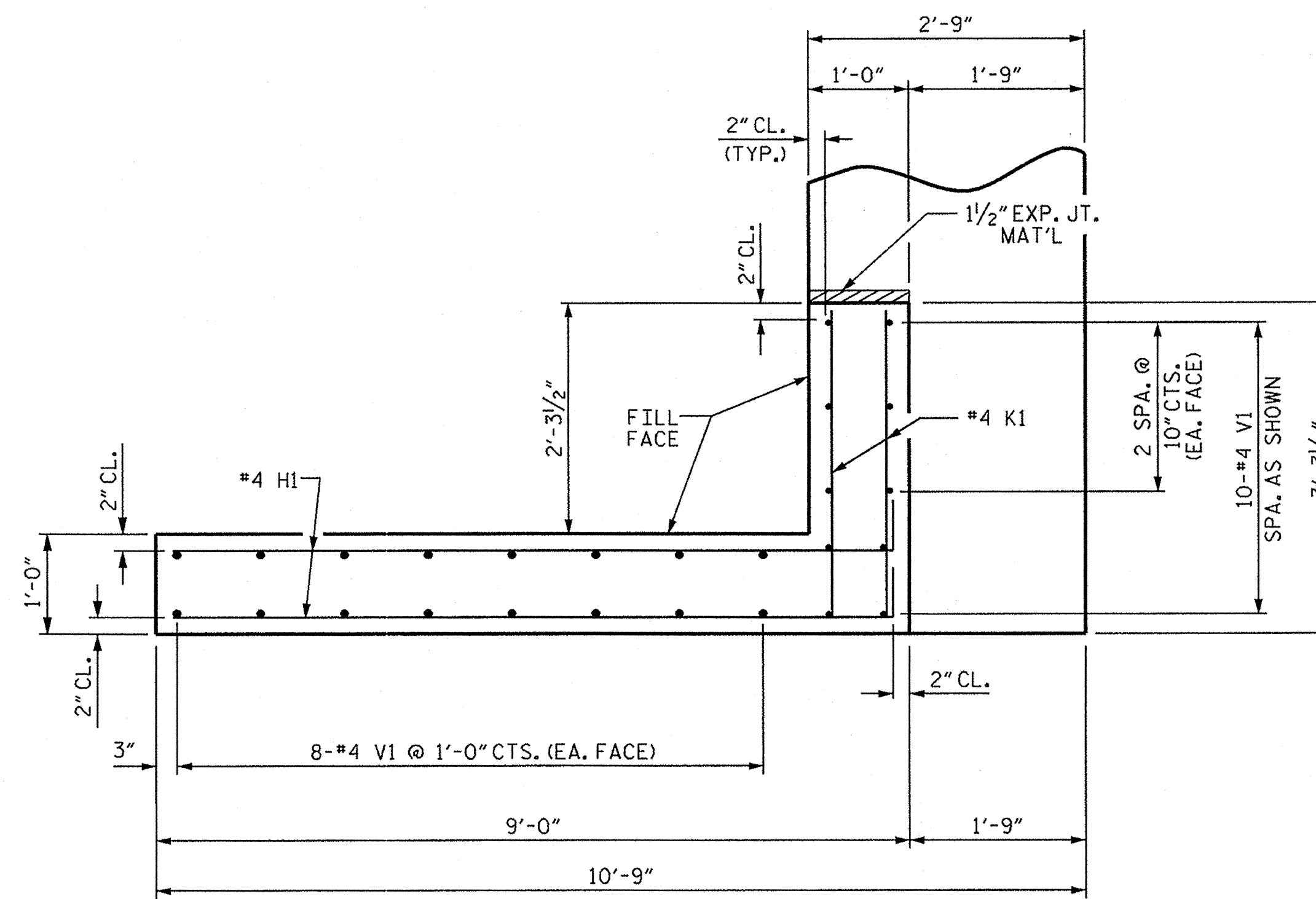


ASSEMBLED BY : B. L. GREEN DATE : 2/27/12  
CHECKED BY : O. PUIGSERVER DATE : 3/7/12  
DRAWN BY : WJH 12/11  
CHECKED BY : AAC 12/11

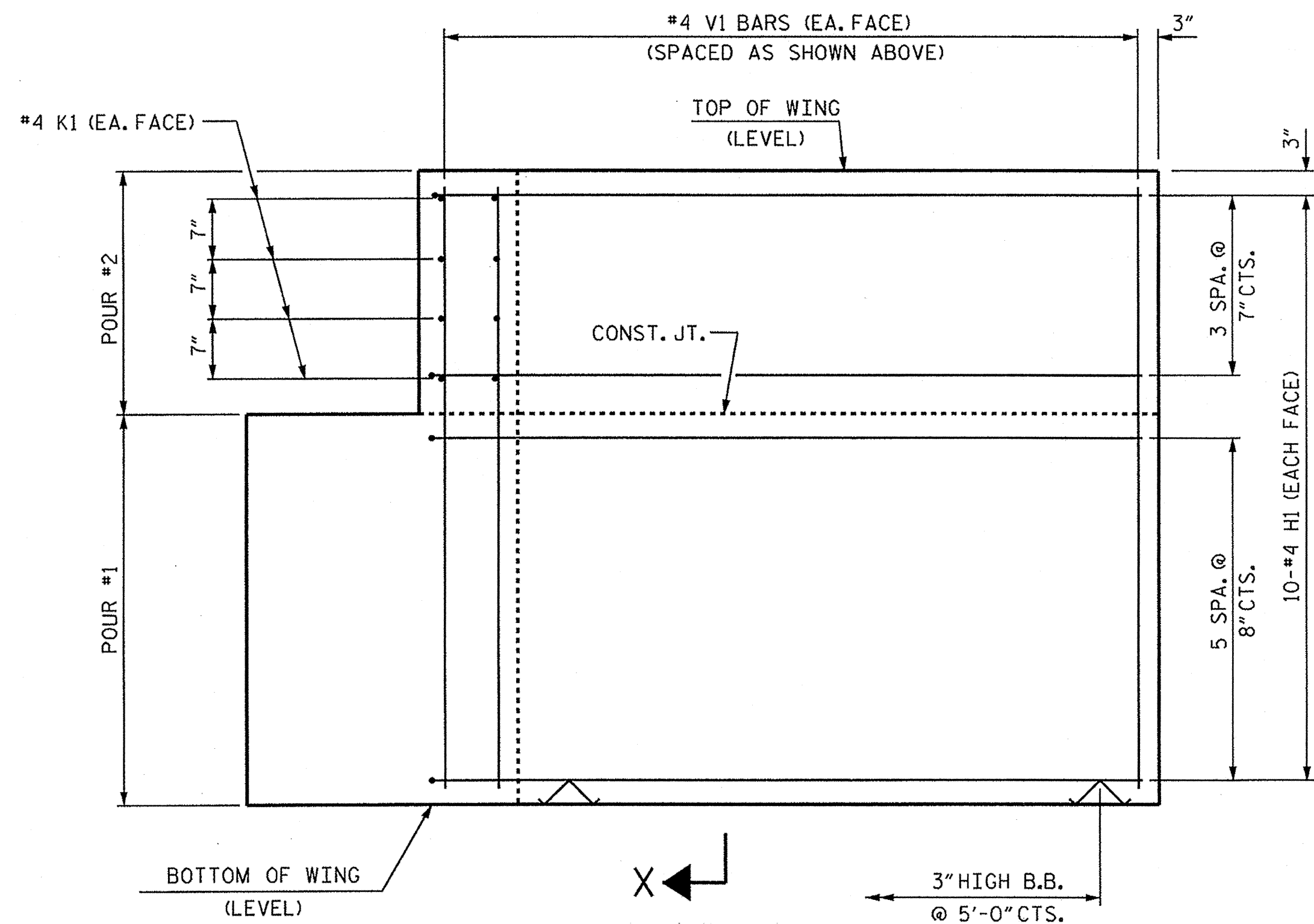
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



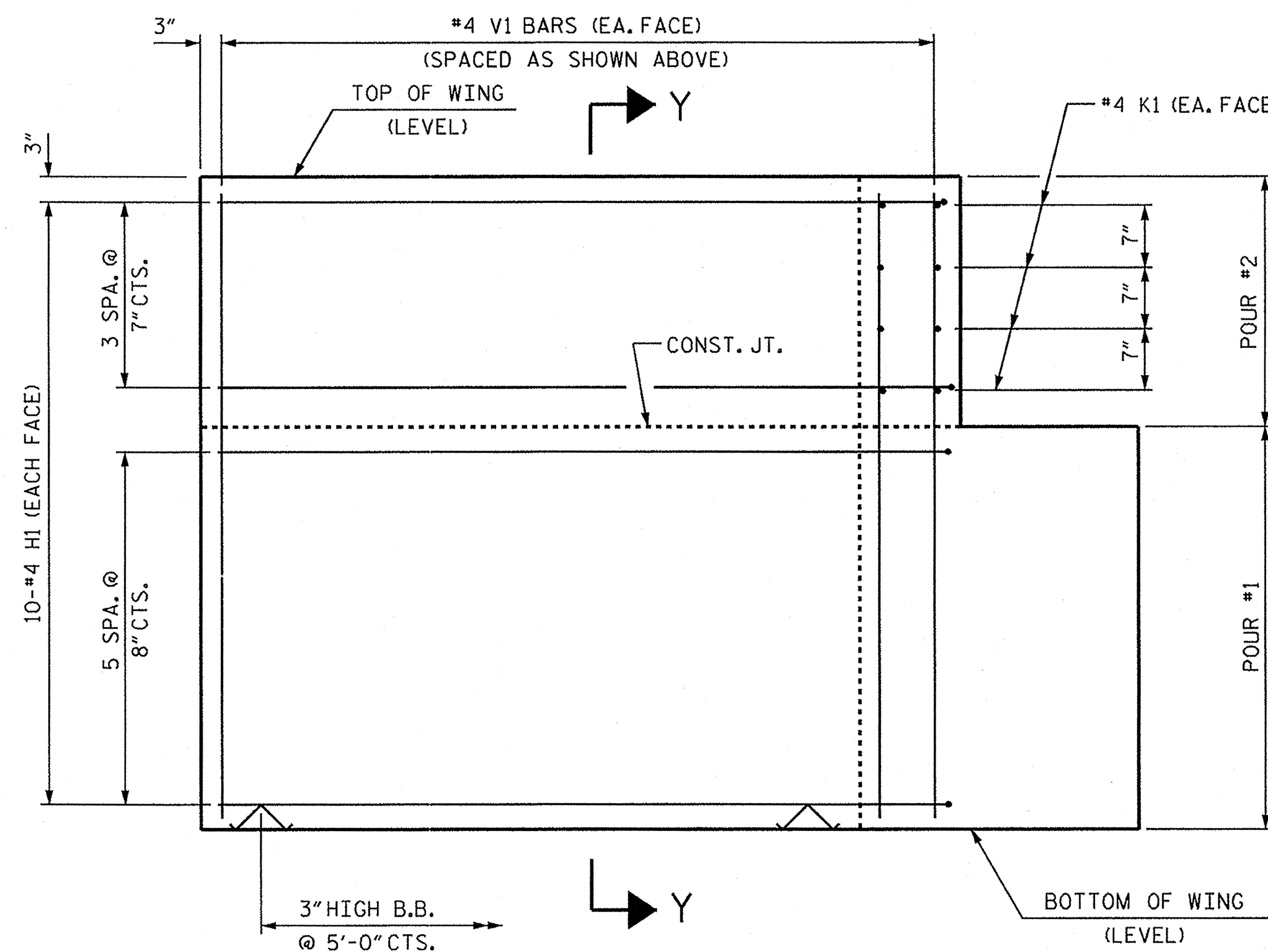
PLAN OF WING (W1)



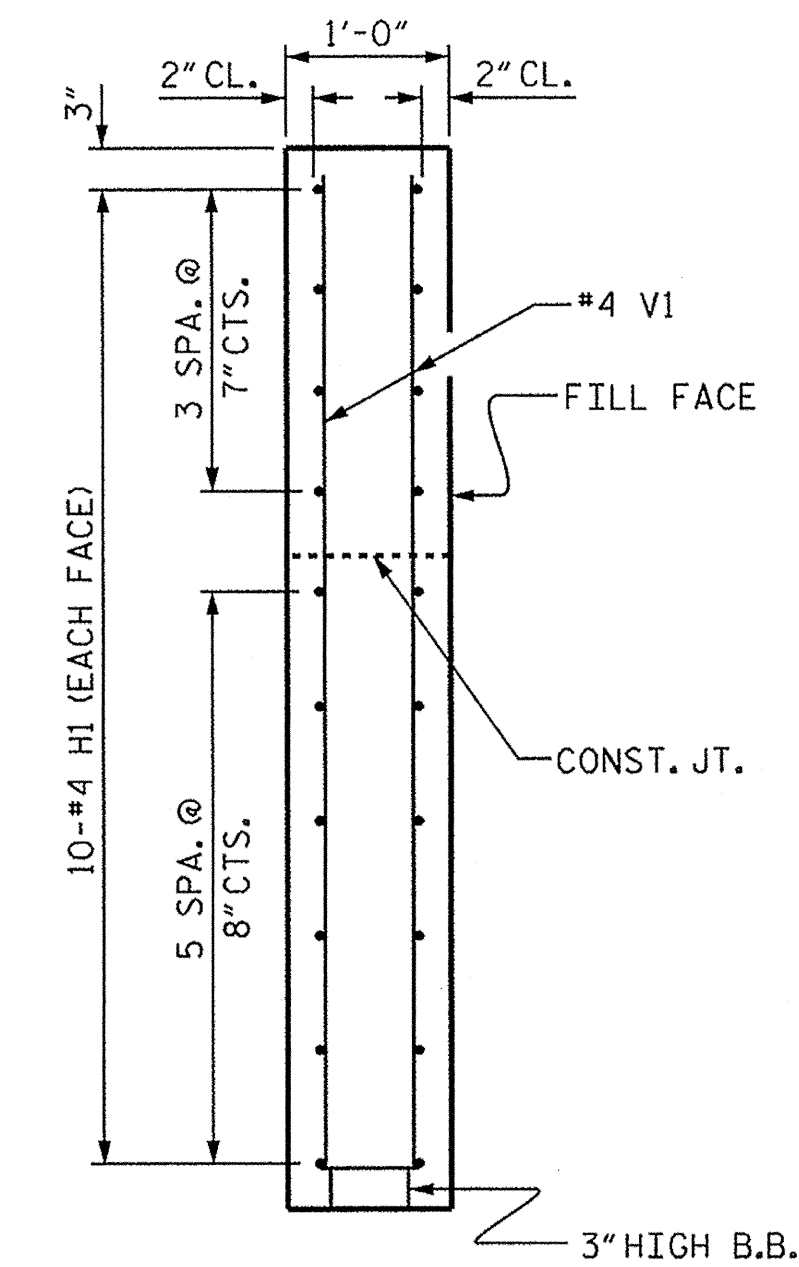
PLAN OF WING (W2)



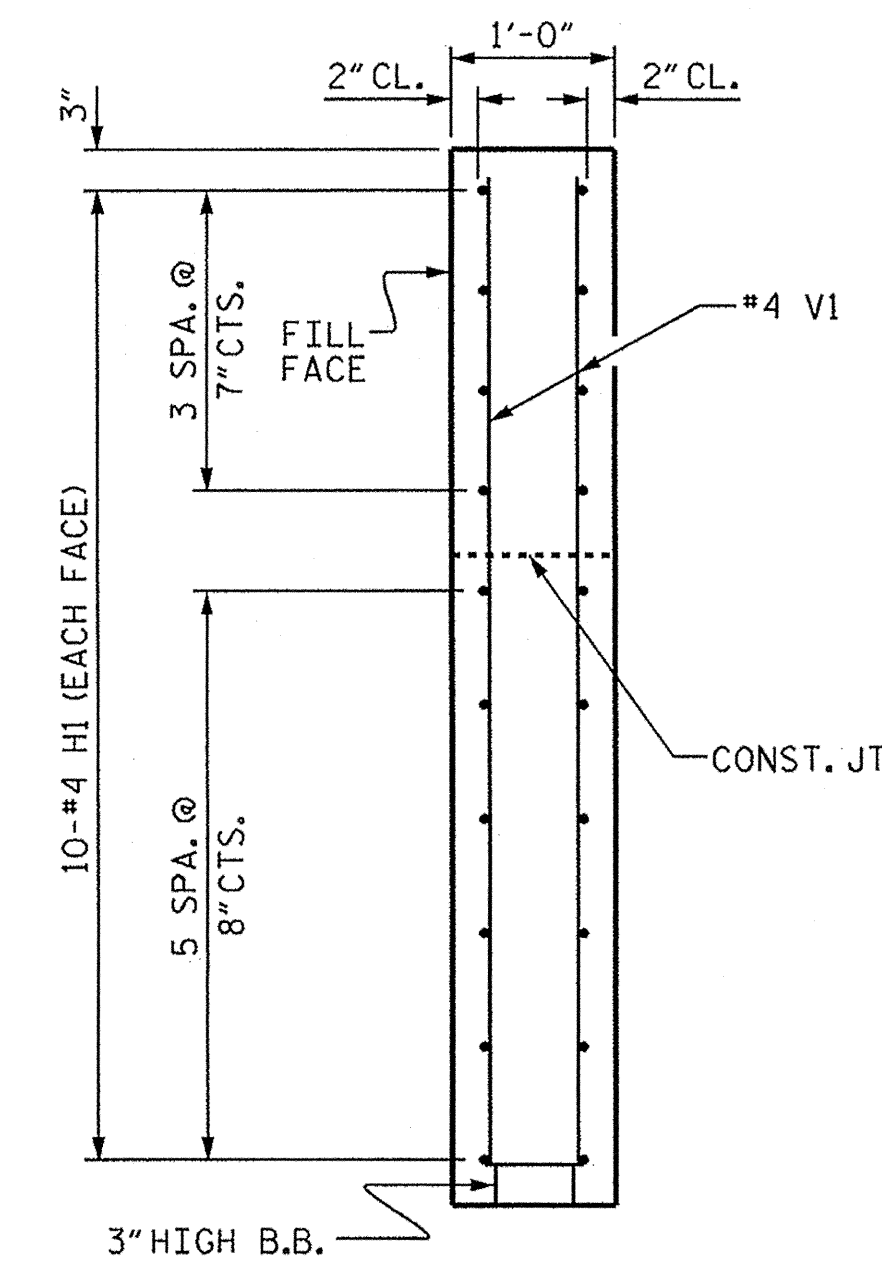
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



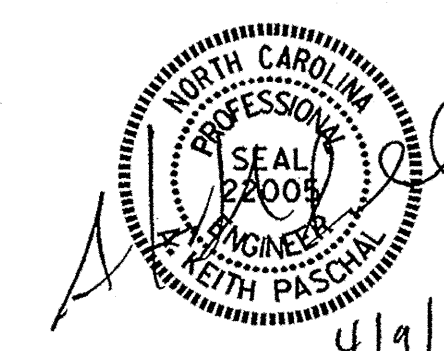
SECTION Y-Y

PROJECT NO. BD-5102K  
LENOIR COUNTY  
 STATION: 13+23.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT  
 WING DETAILS

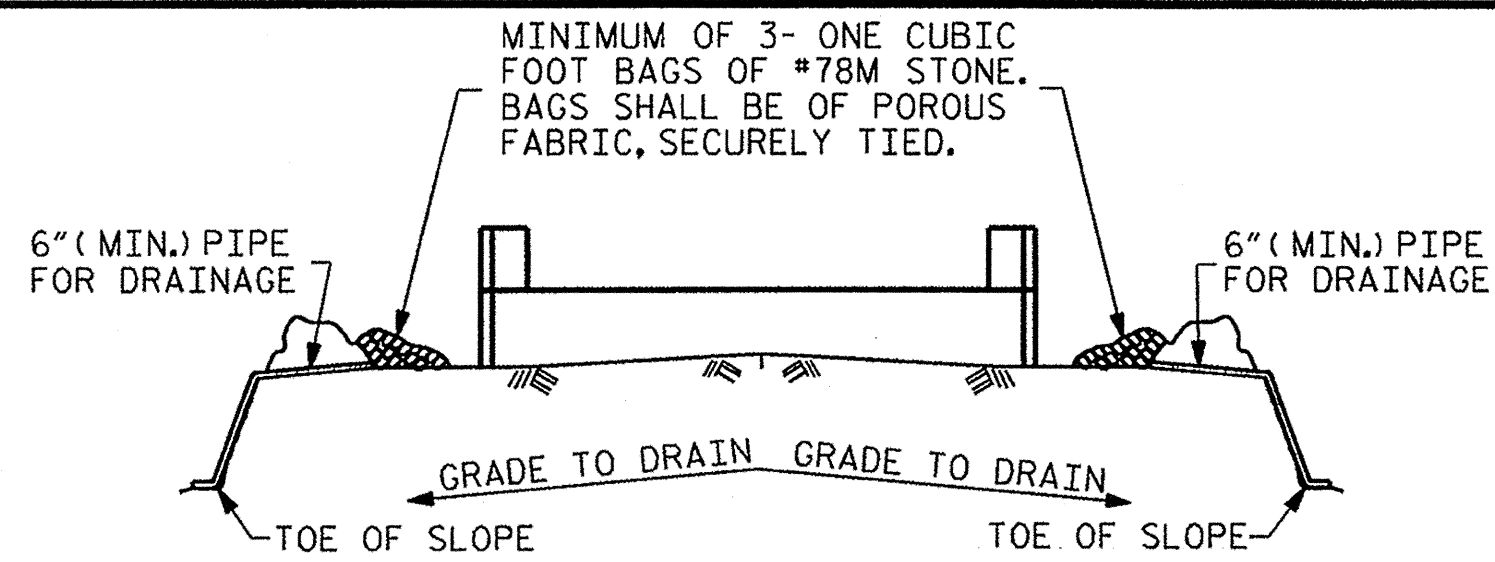


ASSEMBLED BY : B. L. GREEN DATE : 2/27/12  
 CHECKED BY : O. FLUGGER DATE : 3/7/12  
 DRAWN BY : WJH 12/11  
 CHECKED BY : AAC 12/11

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WING DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
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2			4				

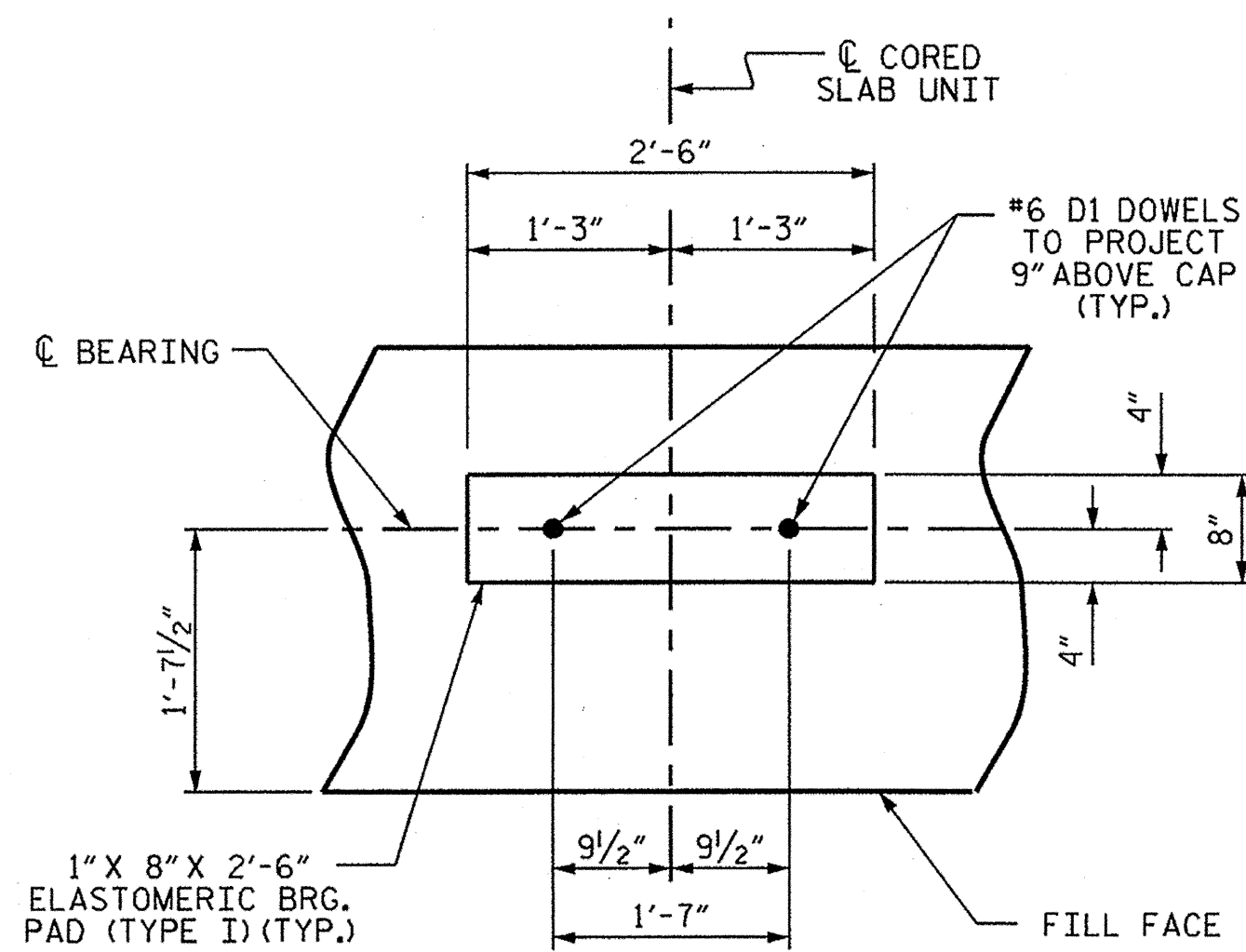
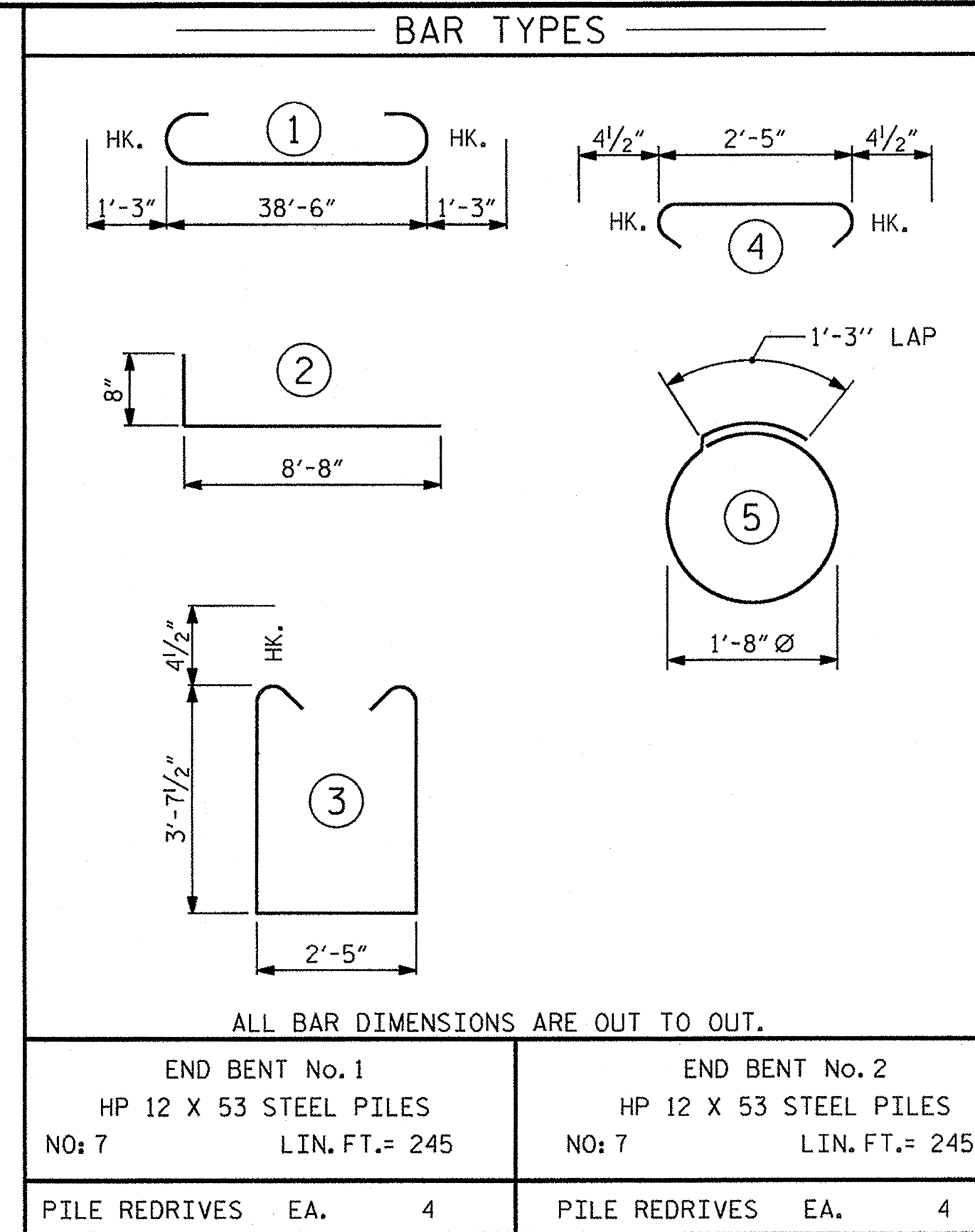
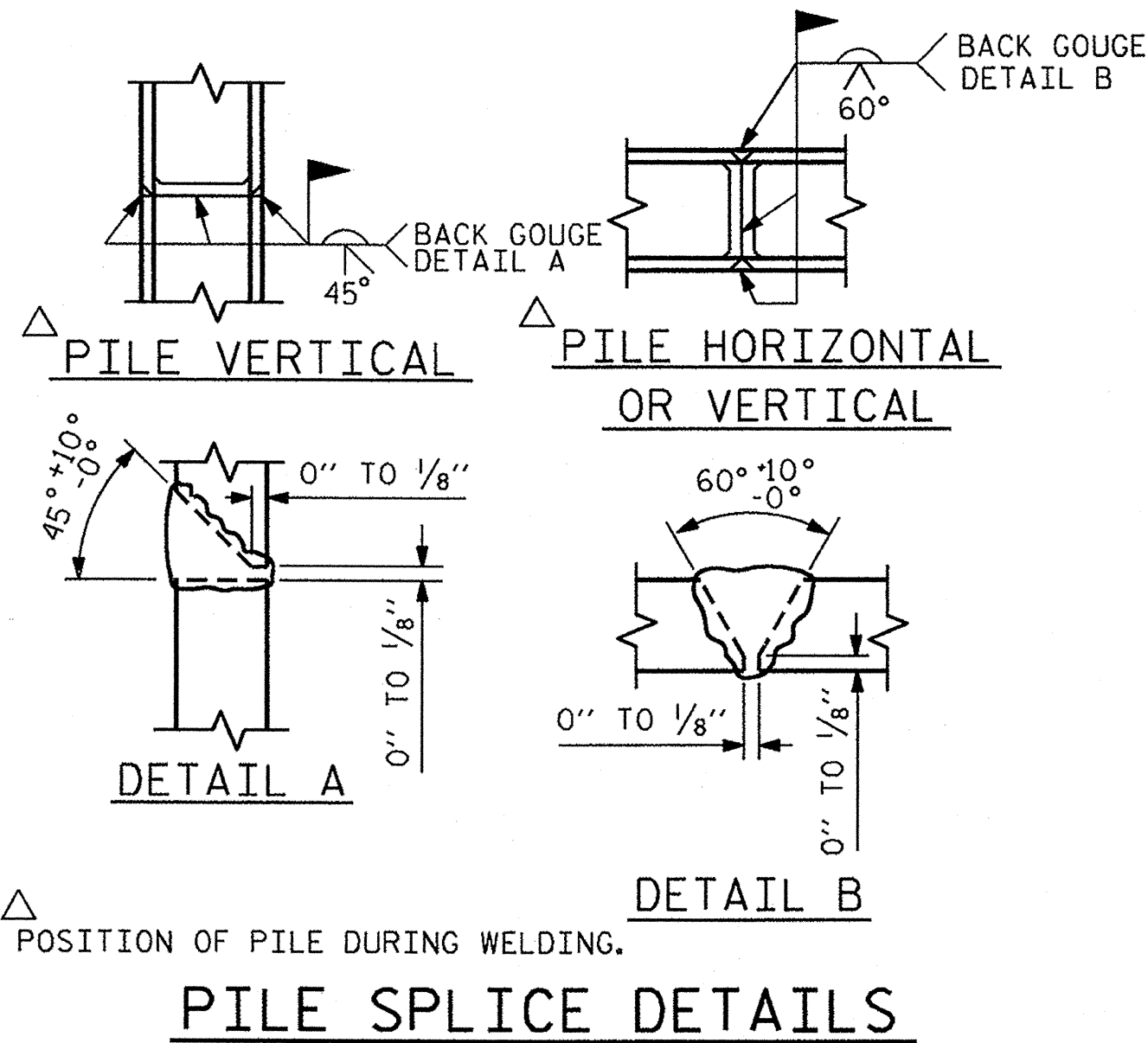


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

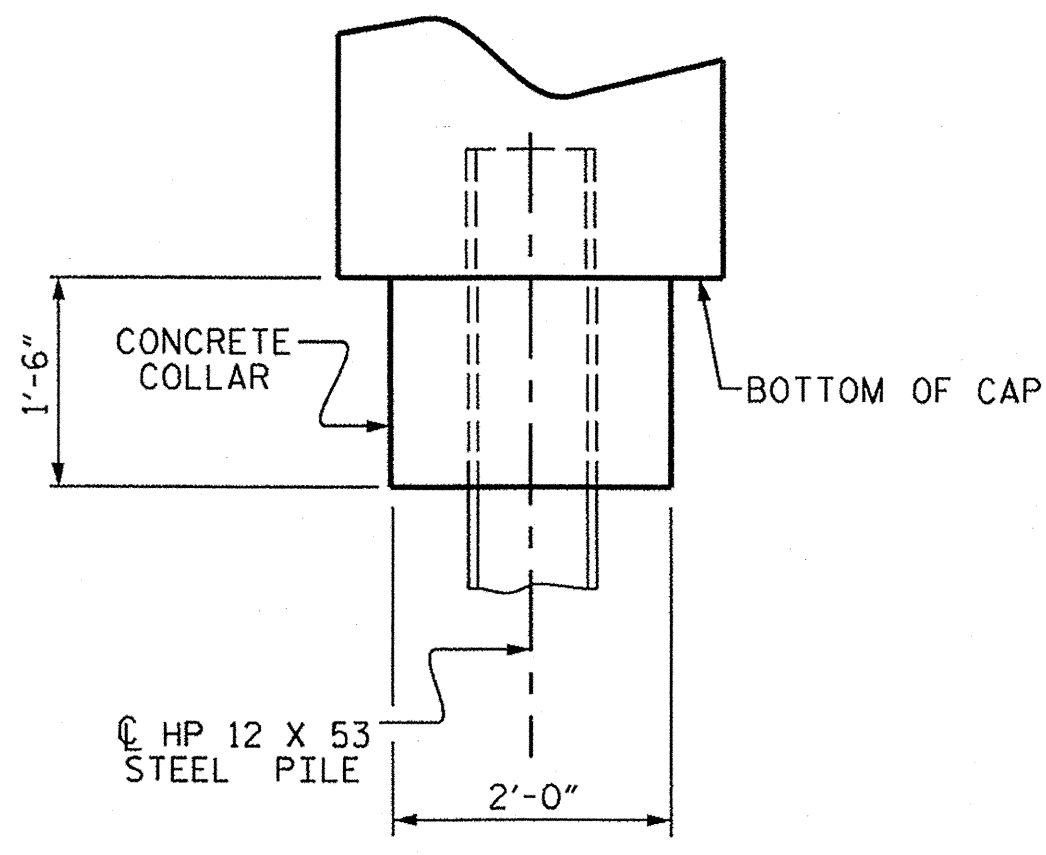
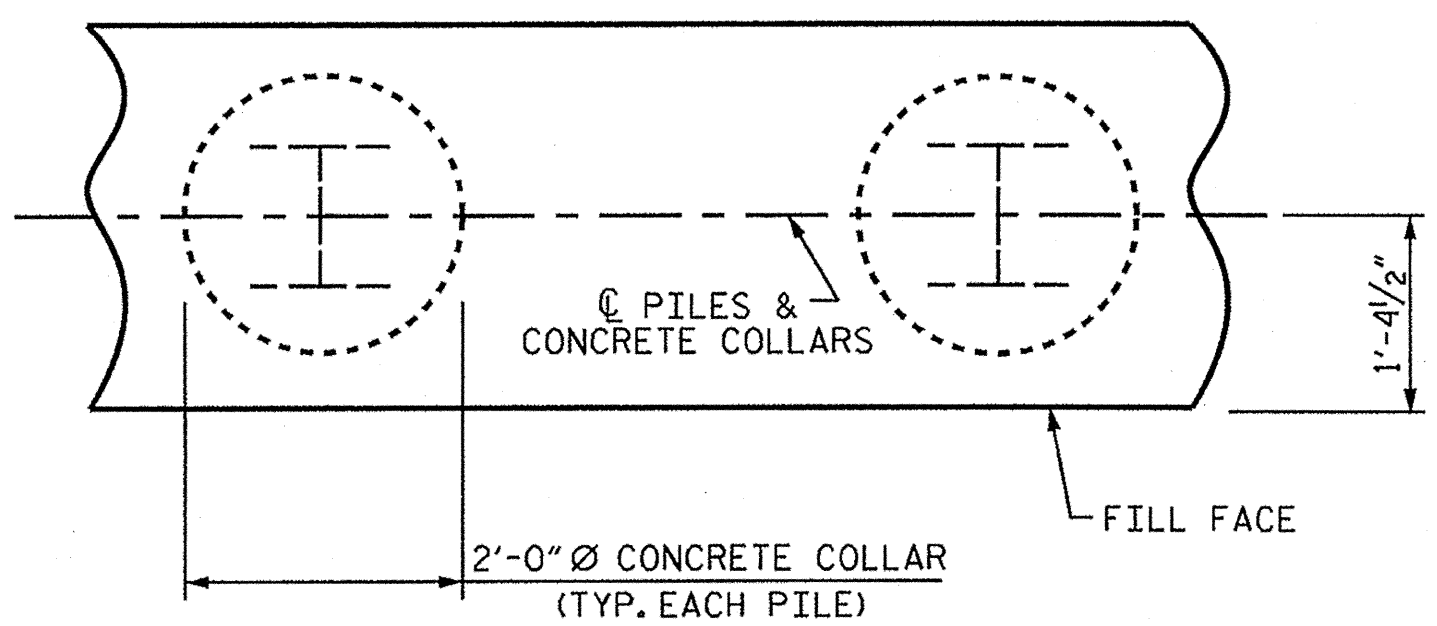
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

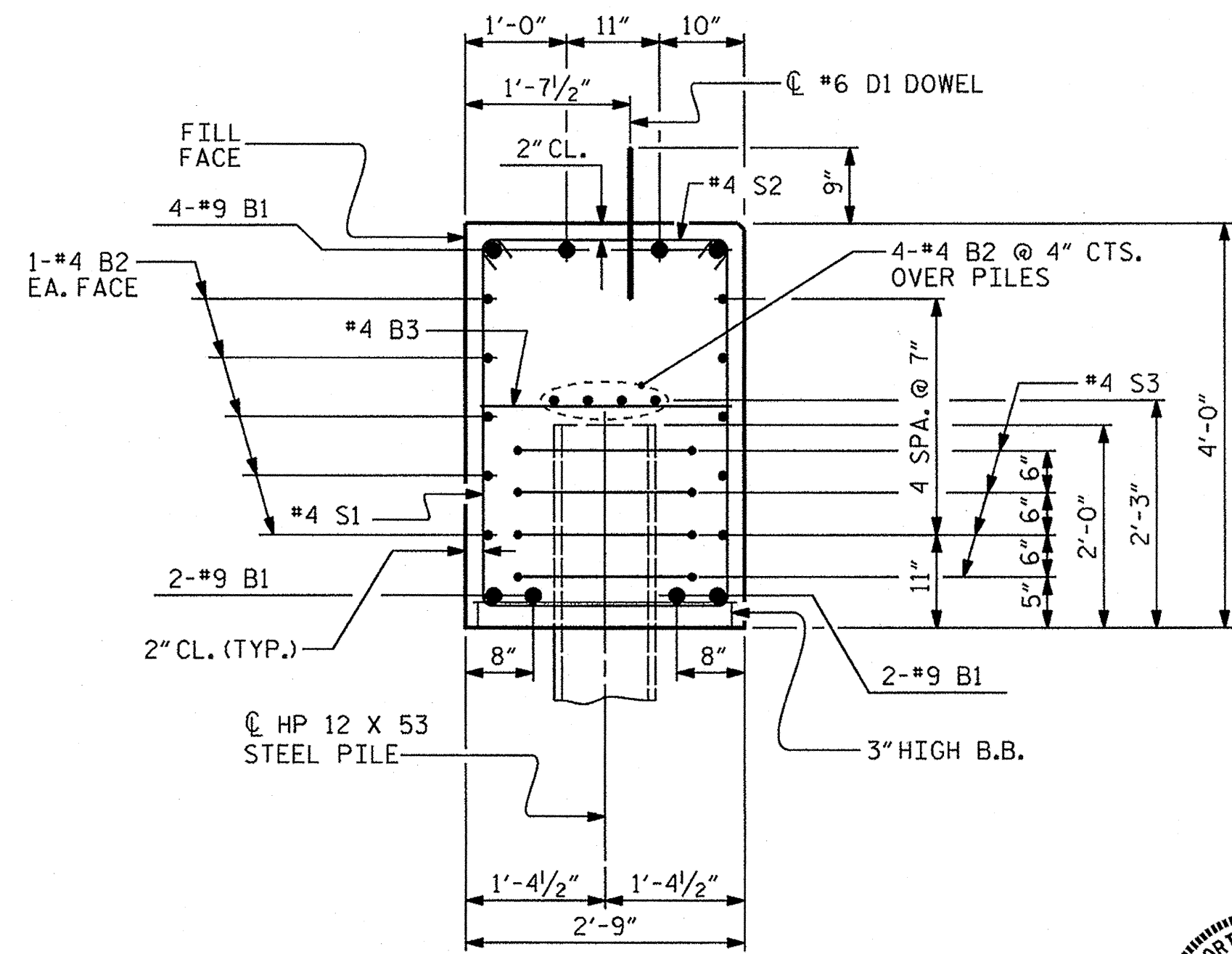


(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



**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-5102K  
LENOIR COUNTY  
 STATION: 13+23.00 -L-  
 SHEET 4 OF 4

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

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			17
2			4			

SHEET NO. 5-12

ASSEMBLED BY : B. L. GREEN DATE : 2/27/12  
 CHECKED BY : O. PUIGCERVER DATE : 3/7/12  
 DRAWN BY : WJH 12/11  
 CHECKED BY : AAC 12/11

**NOTES**

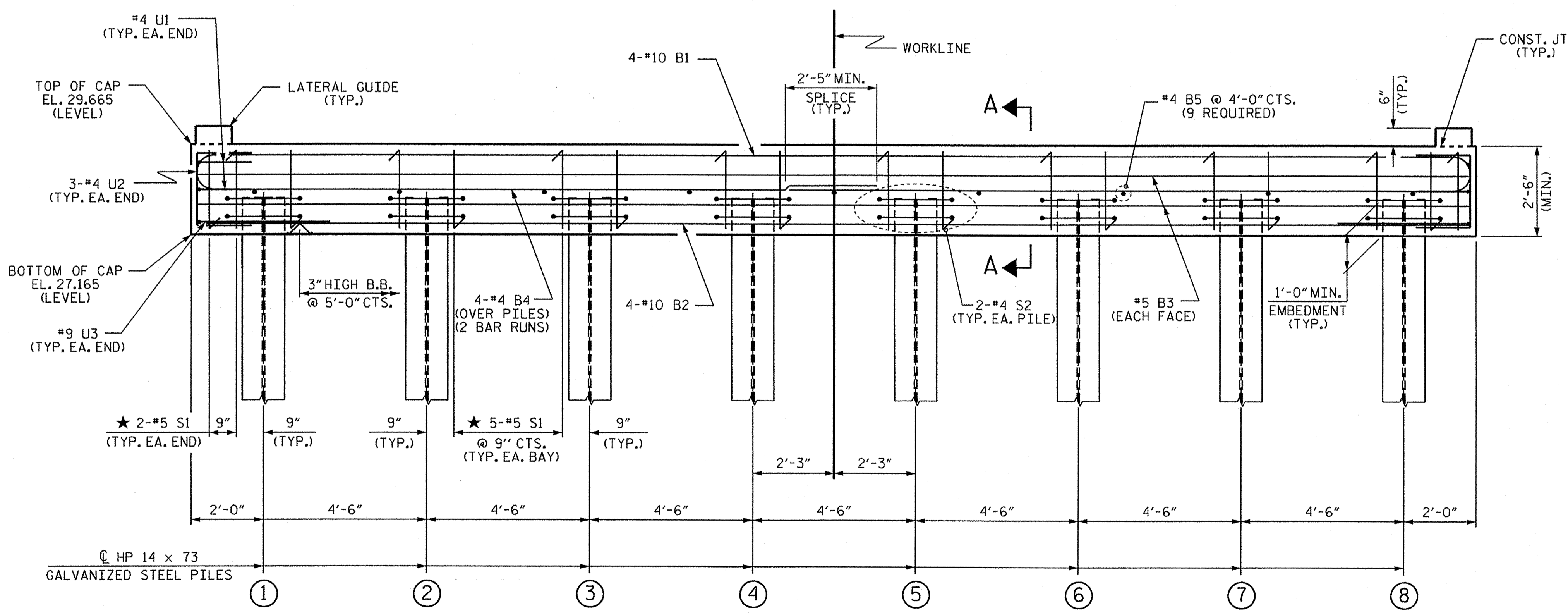
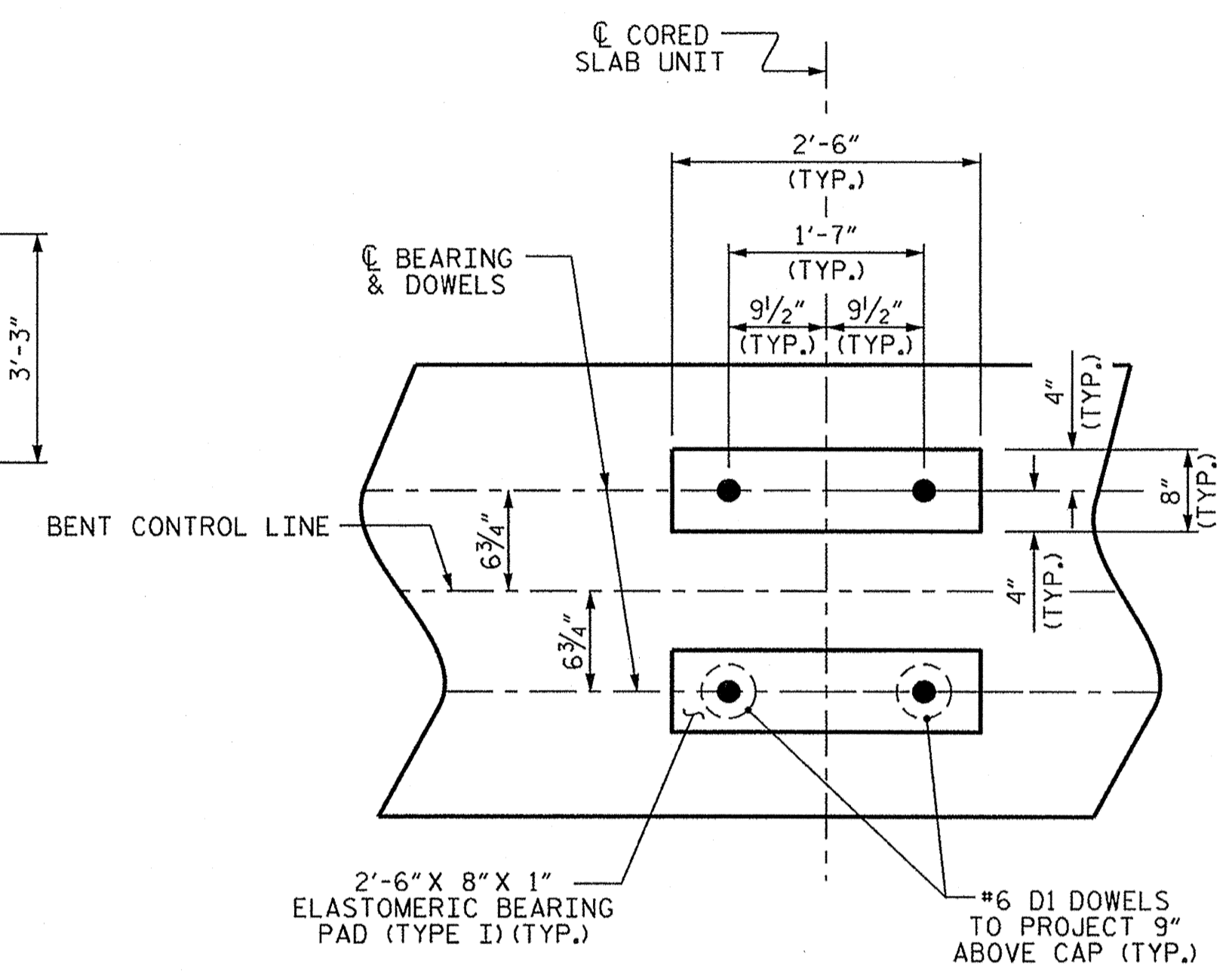
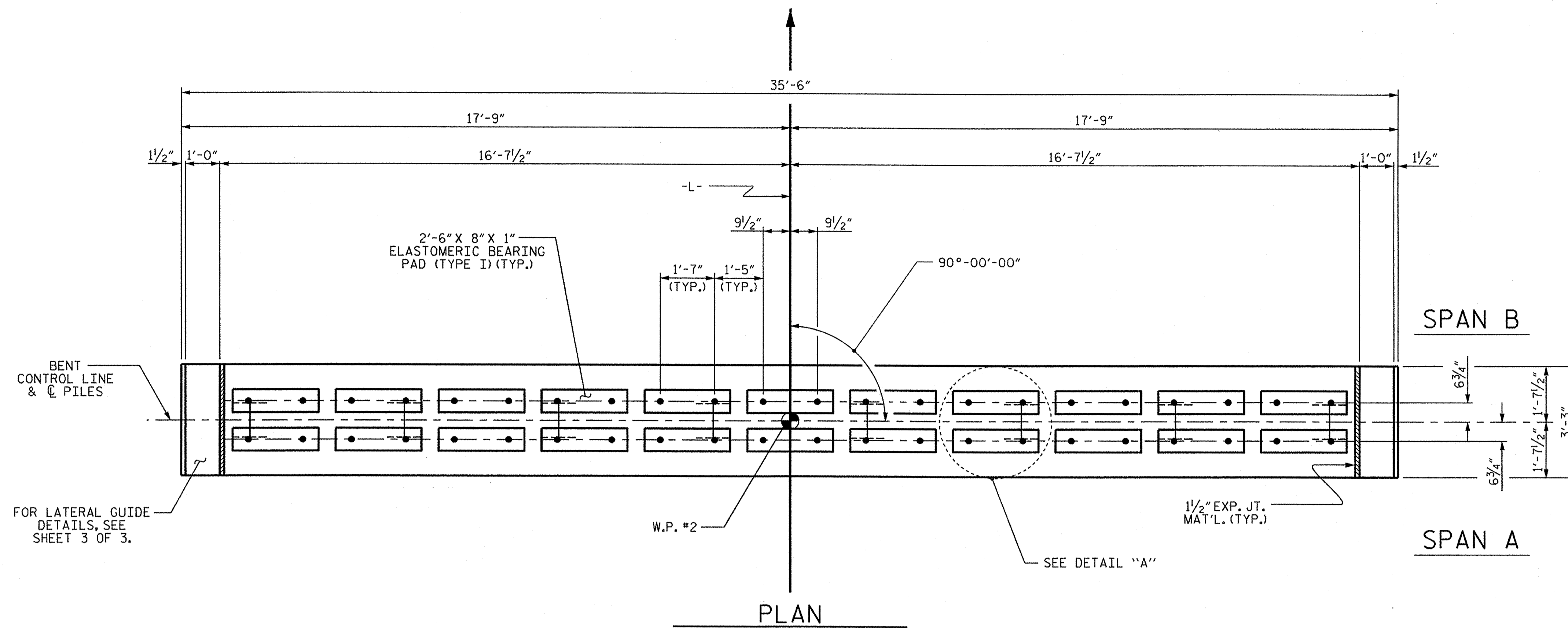
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

★ INVERT ALTERNATE STIRRUPS.

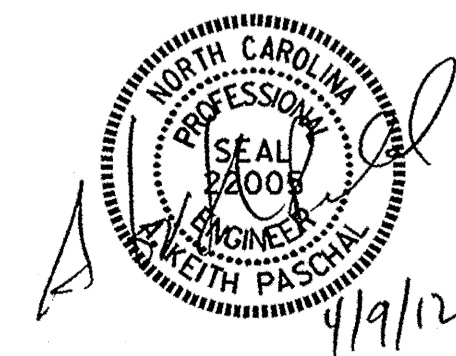
GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

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



PROJECT NO. BD-5102K  
LENOIR COUNTY  
 STATION: 13+23.00 -L-  
 SHEET 1 OF 3

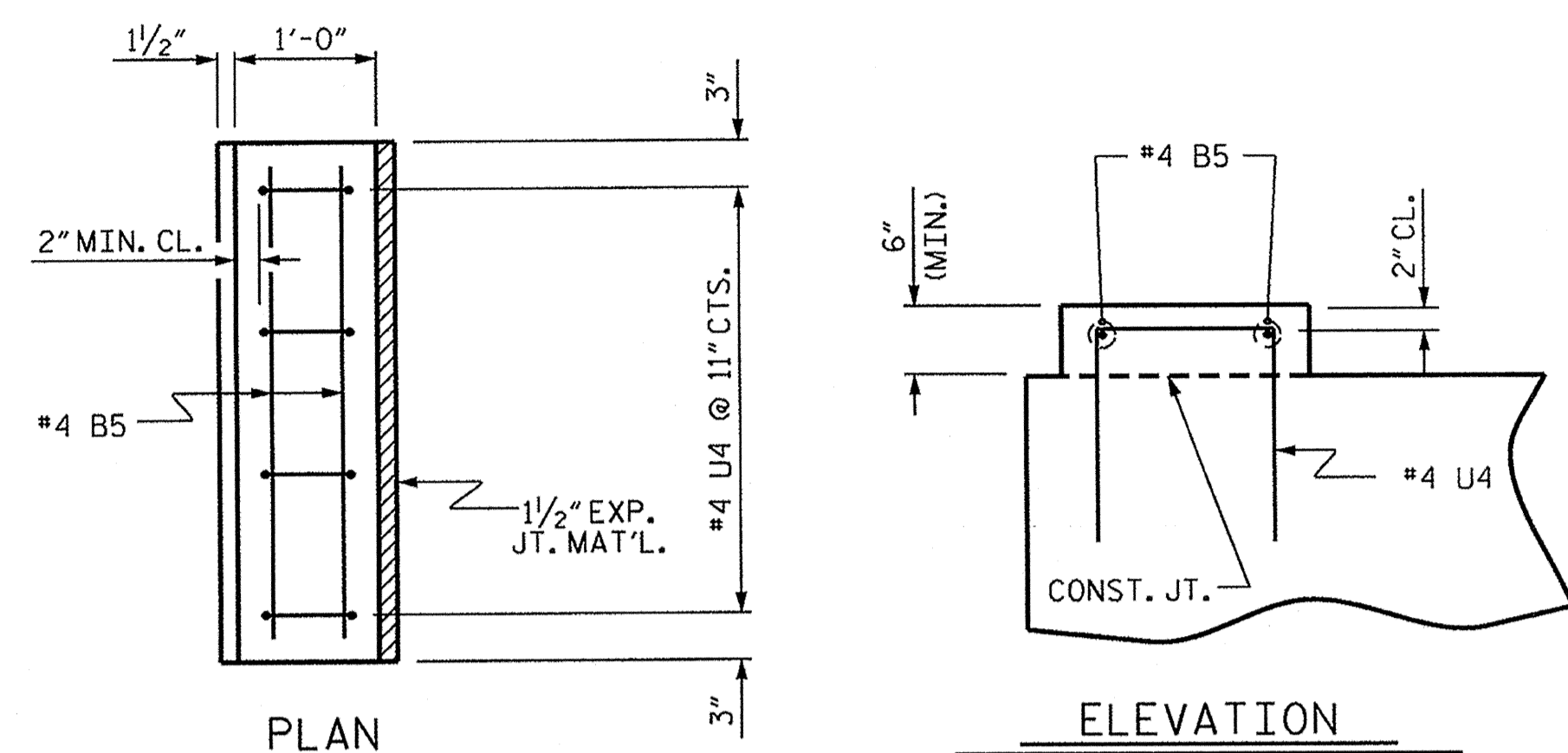
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT No. 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 5-13
					TOTAL SHEETS 17



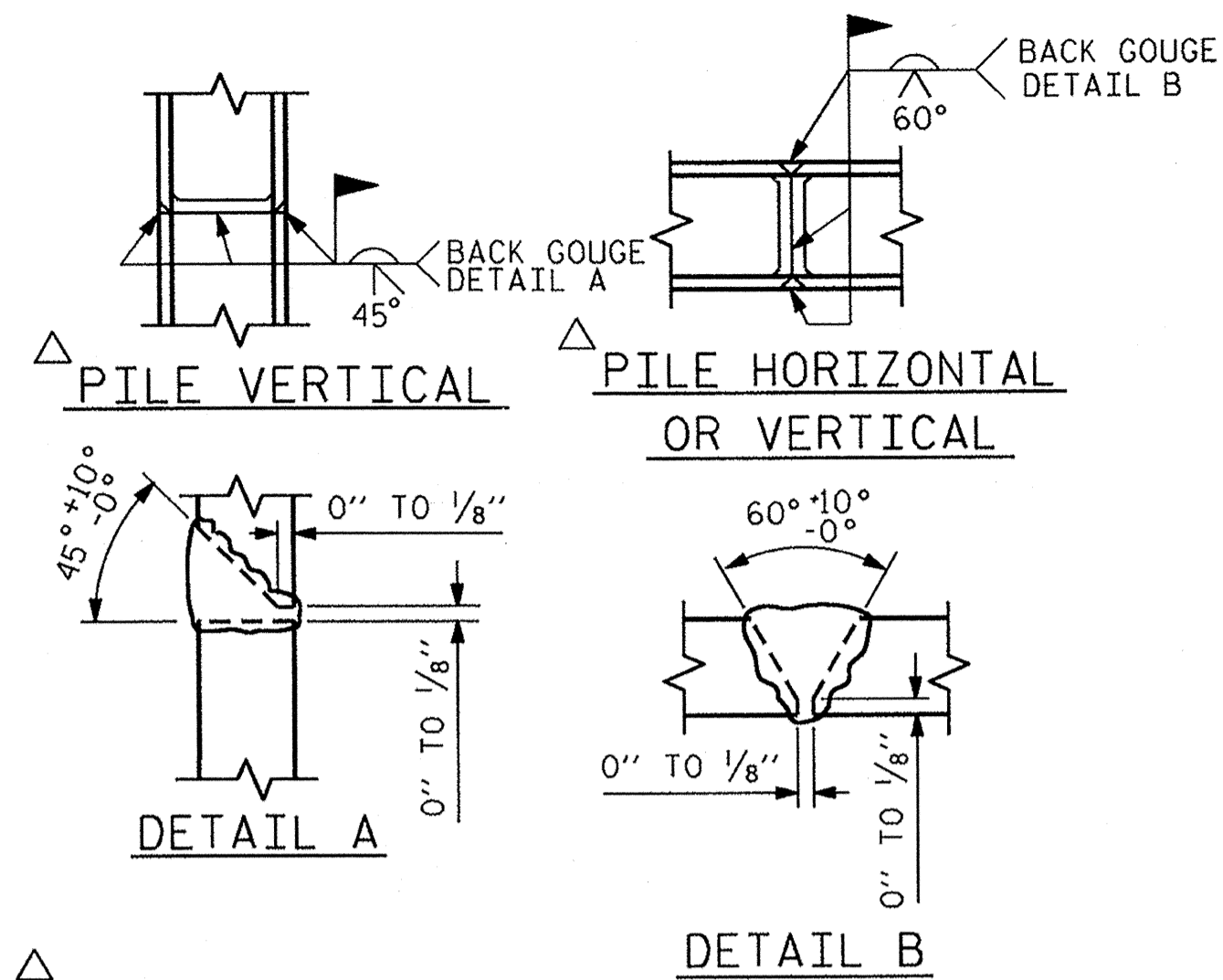
ASSEMBLED BY: B.L. GREEN DATE: 2/27/12  
 CHECKED BY: O. PUIGSERVER DATE: 3/7/12  
 DRAWN BY: DGE 05/10  
 CHECKED BY: MKT 05/10



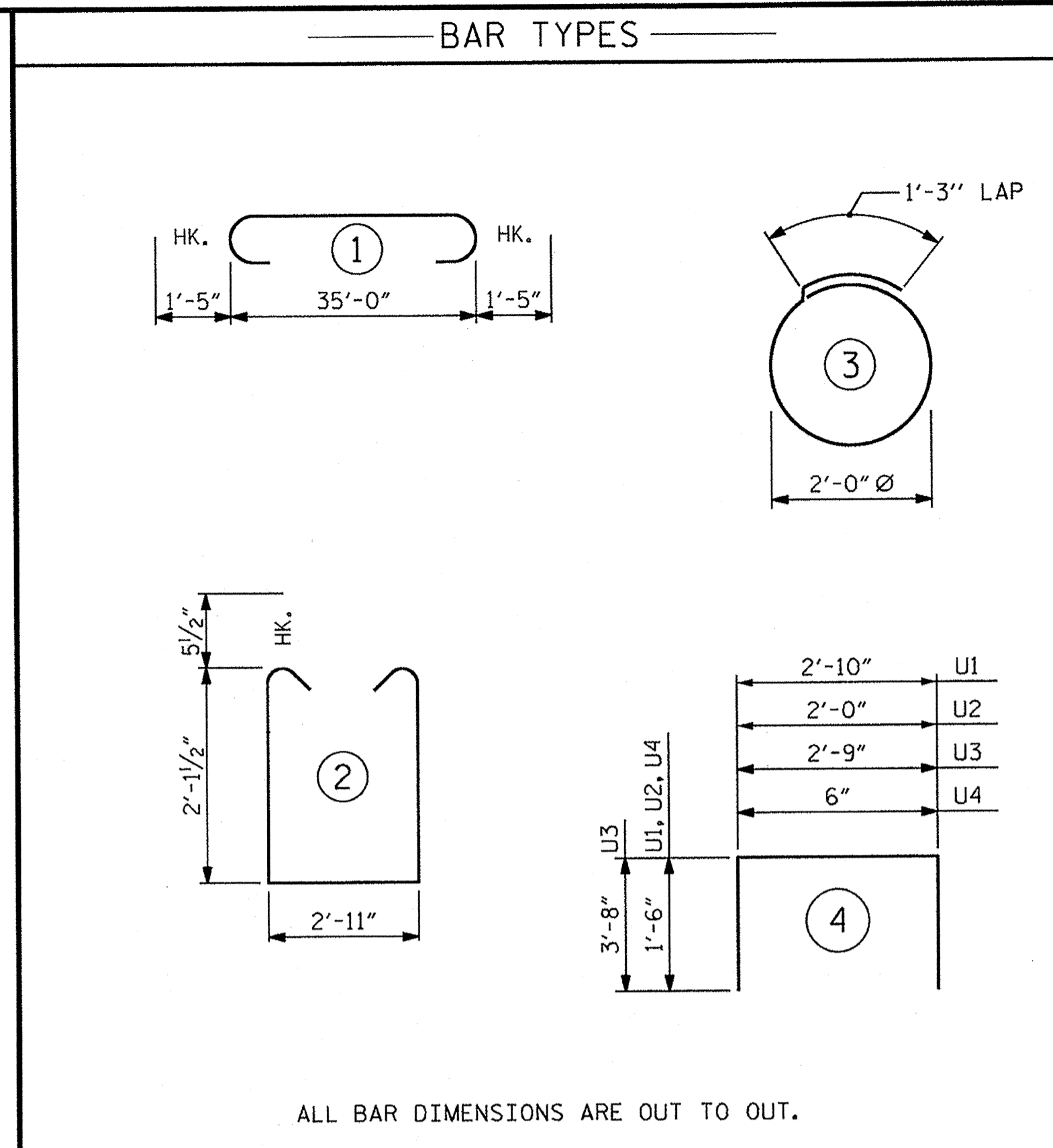




**LATERAL GUIDE DETAILS**  
(LEFT LATERAL GUIDE SHOWN, RIGHT SIDE SIMILAR)



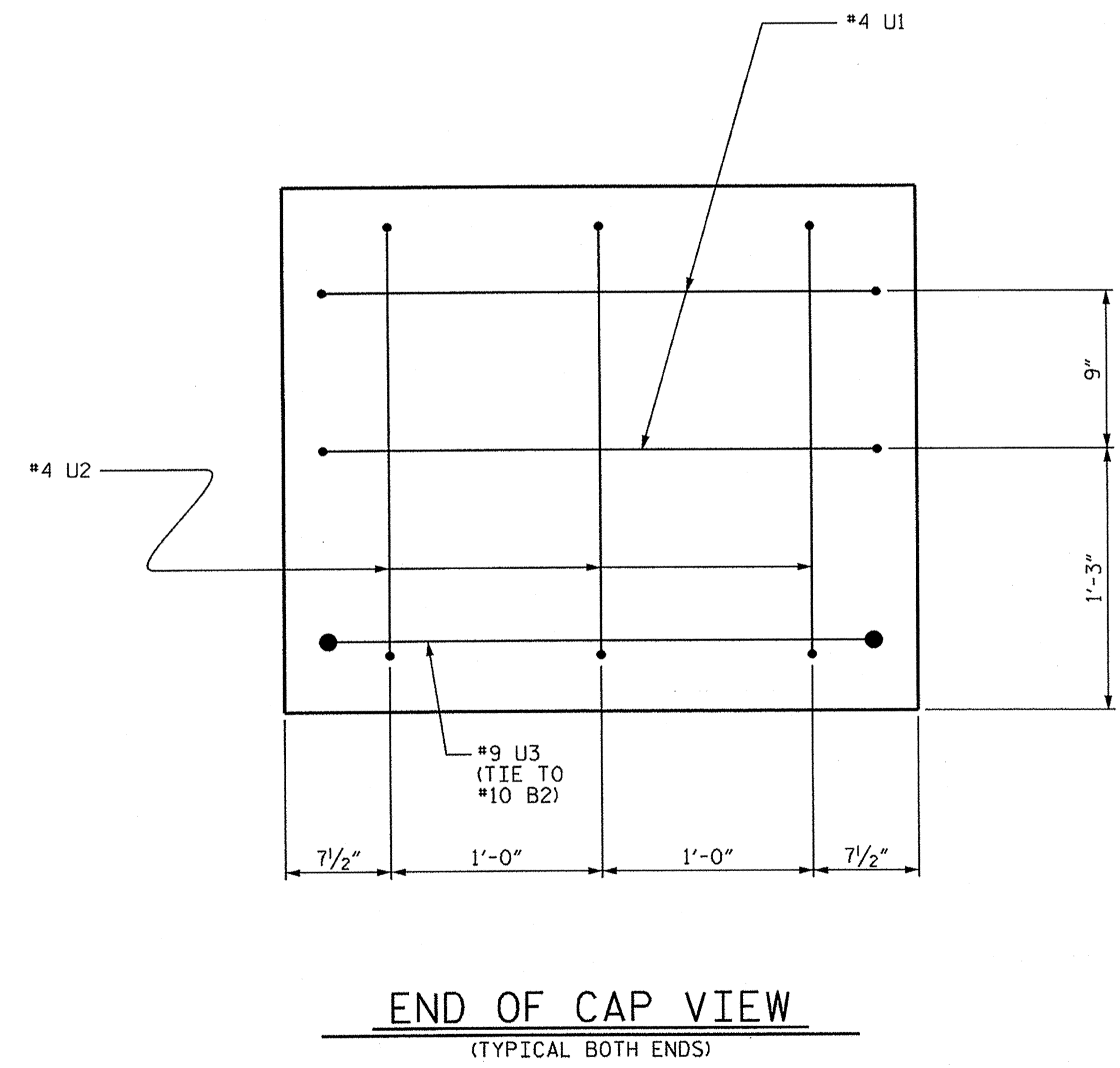
**PILE SPLICE DETAILS**



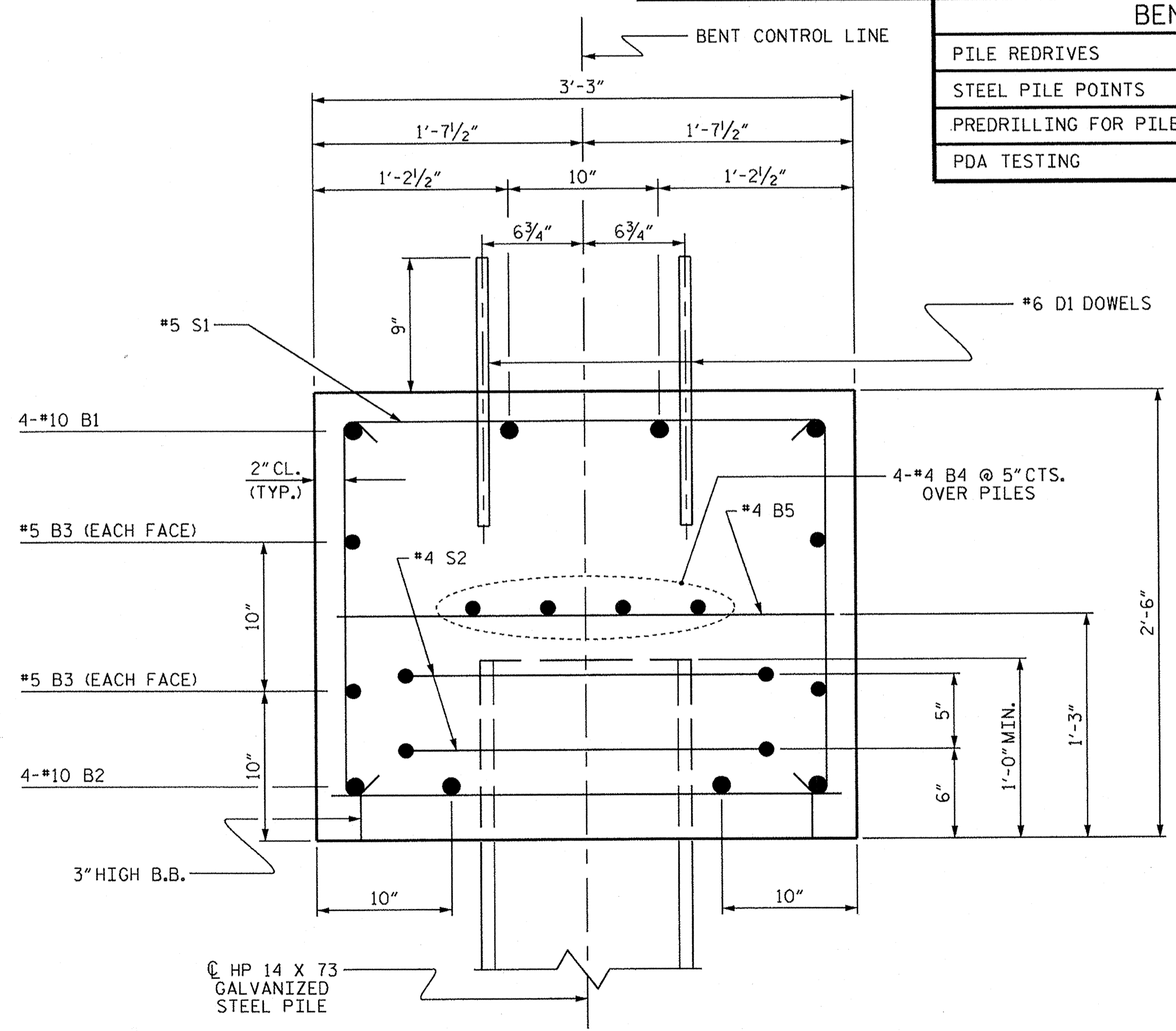
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	37'-10"	651
B2	4	#10	STR	35'-2"	605
B3	4	#5	STR	35'-2"	147
B4	8	#4	STR	18'-10"	101
B5	13	#4	STR	2'-11"	25
D1	44	#6	STR	1'-6"	99
S1	39	#5	2	8'-1"	329
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	8	#4	4	3'-6"	19
REINFORCING STEEL (FOR ONE BENT)				2162 LBS	
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #1 (CAP)				10.7 C.Y.	
POUR #2 (LATERAL GUIDES)				0.1 C.Y.	
TOTAL CLASS A CONCRETE				10.8 C.Y.	
HP 14 X 73 GALVANIZED STEEL PILES (FOR ONE BENT)					
No. 8		LIN. FT.		360	

BENT #1		BENT #2	
PILE REDRIVES	EA. 4	PILE REDRIVES	EA. 4
STEEL PILE POINTS	EA. 8	STEEL PILE POINTS	EA. 8
PREDRILLING FOR PILES	LIN. FT. 172	PREDRILLING FOR PILES	LIN. FT. 184
PDA TESTING	EA. 1		



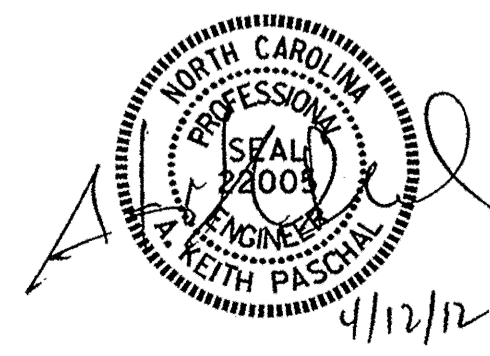
**END OF CAP VIEW**  
(TYPICAL BOTH ENDS)



**SECTION A-A**

PROJECT NO. BD-5102K  
LENOIR COUNTY  
 STATION: 13+23.00 -L-  
 SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENTS No. 1 & 2

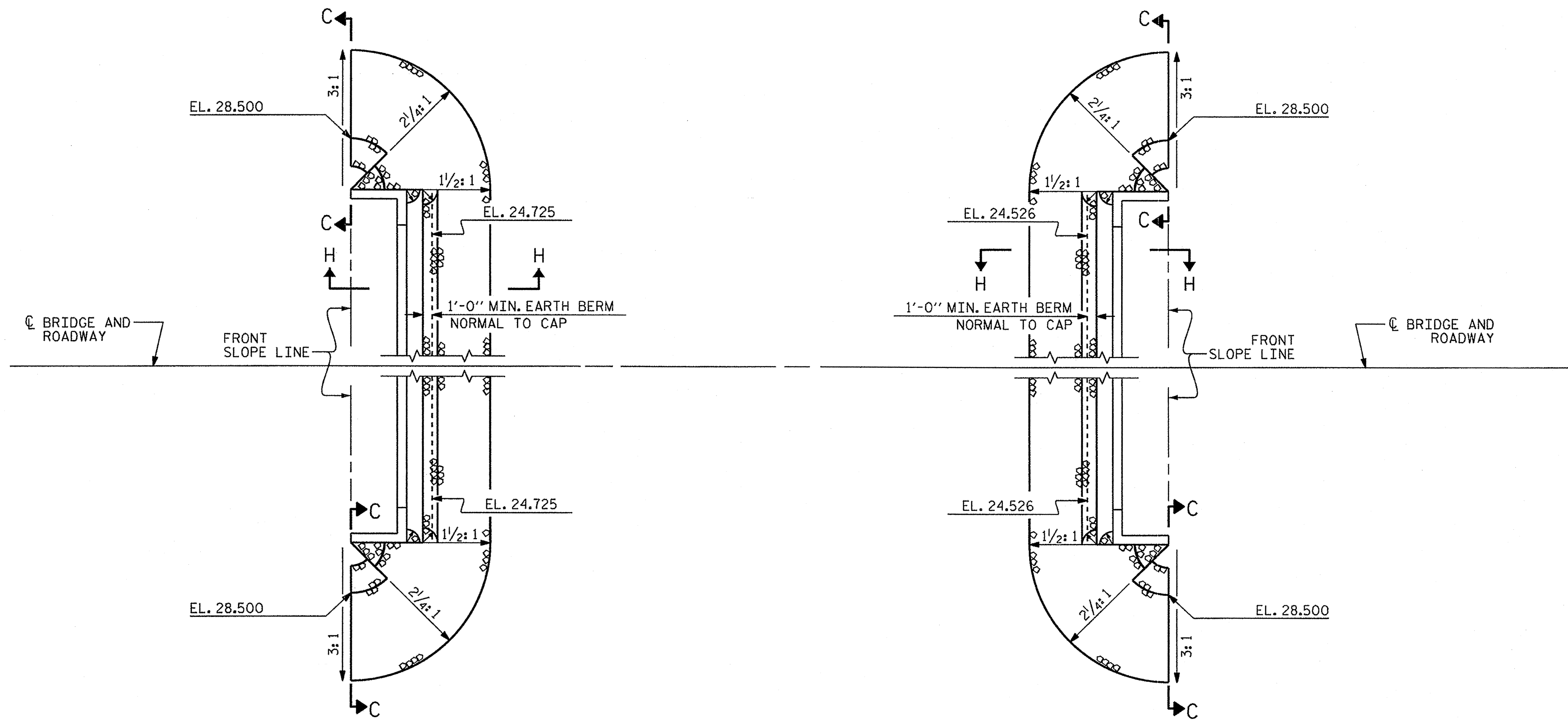


DRAWN BY: B. L. GREEN DATE: 2/27/12  
 CHECKED BY: O. PUIGCERVER DATE: 3/7/12  
 DRAWN BY: DGE 05/10  
 CHECKED BY: MKT 05/10

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

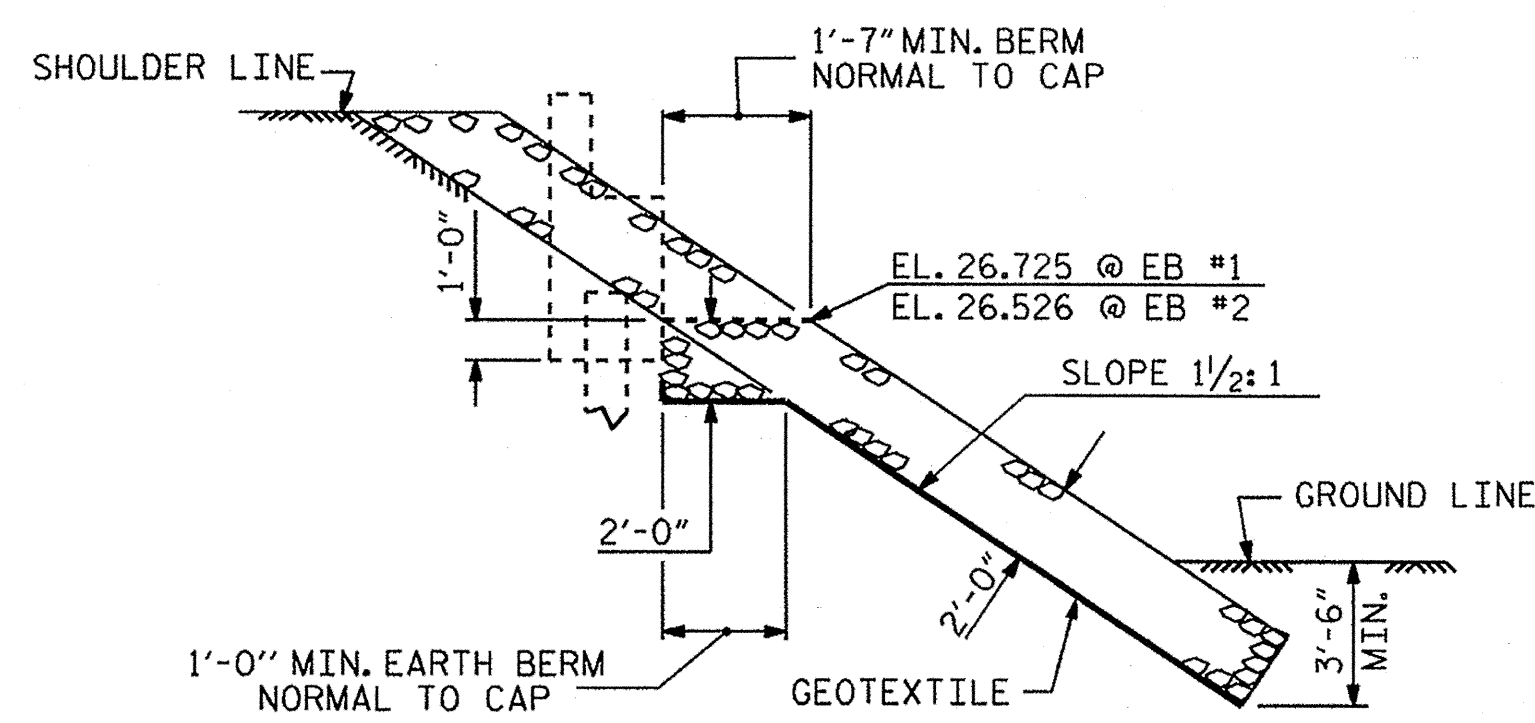
SHEET NO. 5-15  
 TOTAL SHEETS 17

NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

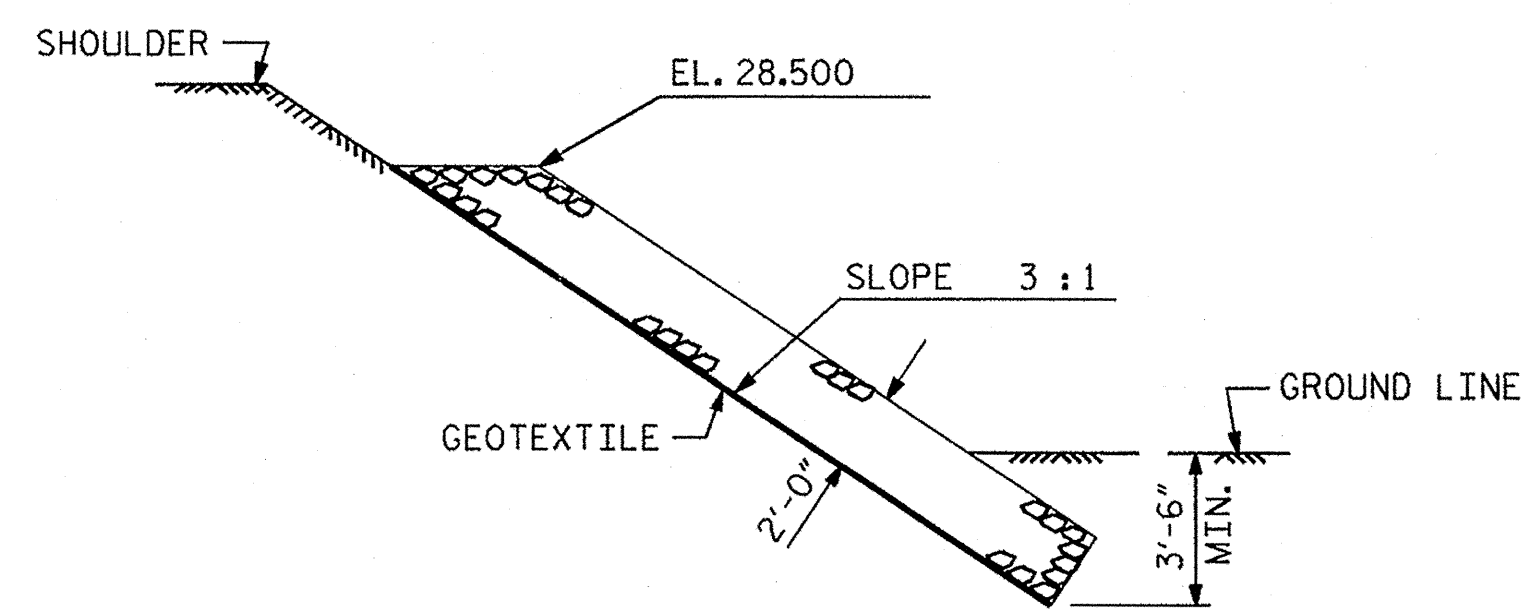


PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+23.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	145	160
END BENT 2	130	140



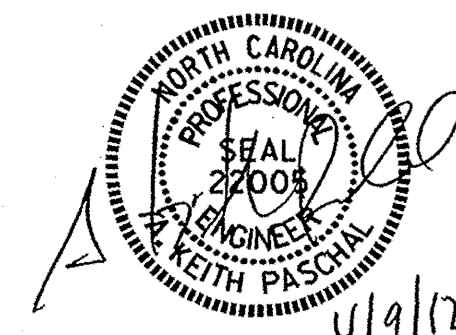
SECTION H-H



SECTION C-C

PROJECT NO. BD-5102K  
LENOIR COUNTY  
STATION: 13+23.00 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
RIP RAP DETAILS



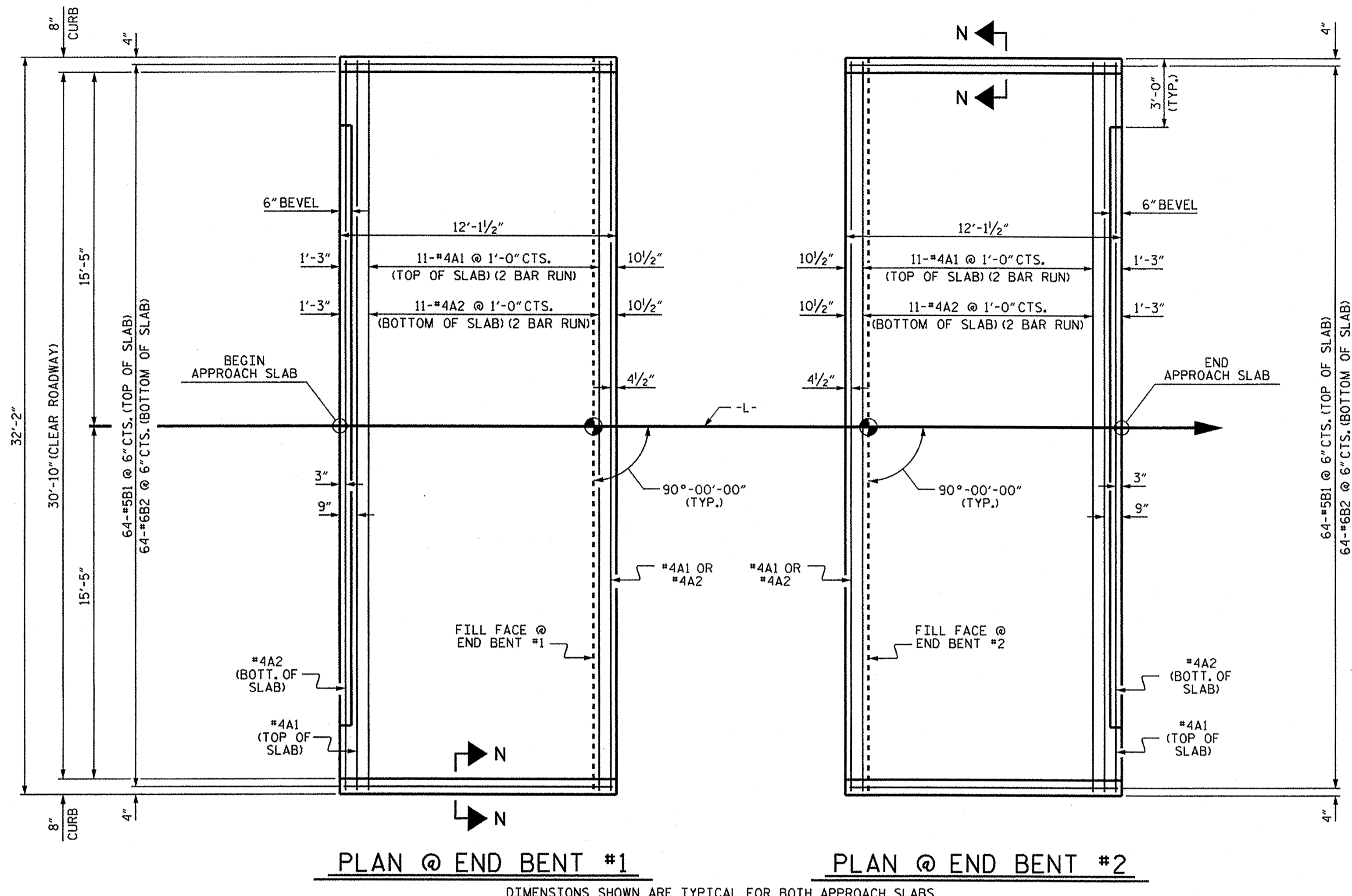
ASSEMBLED BY : B. L. GREEN DATE : 2/27/12  
CHECKED BY : O. PUIGCERVER DATE : 3/7/12  
DRAWN BY : REK 1/84  
CHECKED BY : RDU 1/84

REV. 5/1/06R TLA/GM  
REV. 10/1/11 MAA/GM  
REV. 12/2/11 MAA/GM

10-APR-2012 13:40  
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bgreen

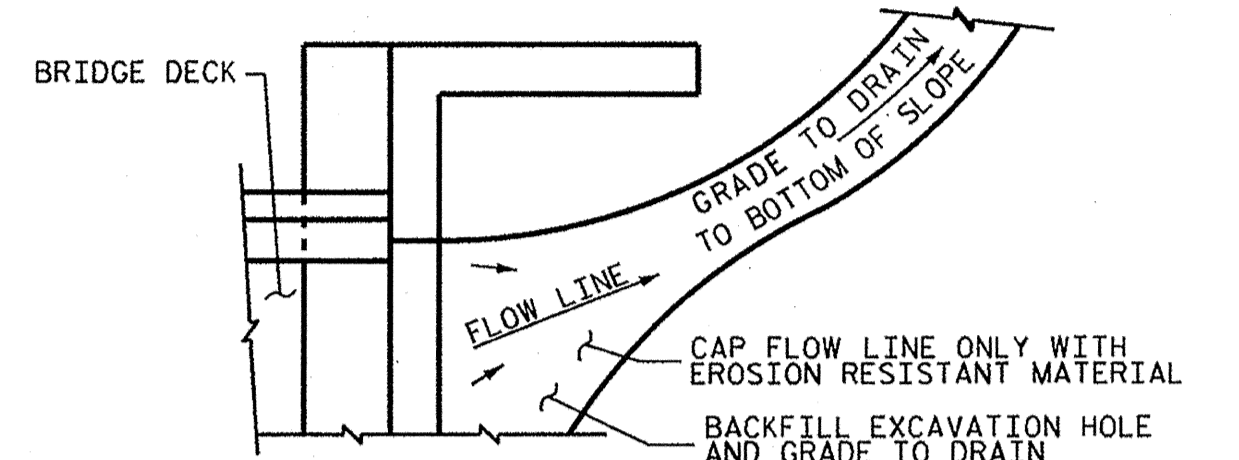
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-16
2			4			TOTAL SHEETS 17

STD. NO. RR1 (Sht 2)



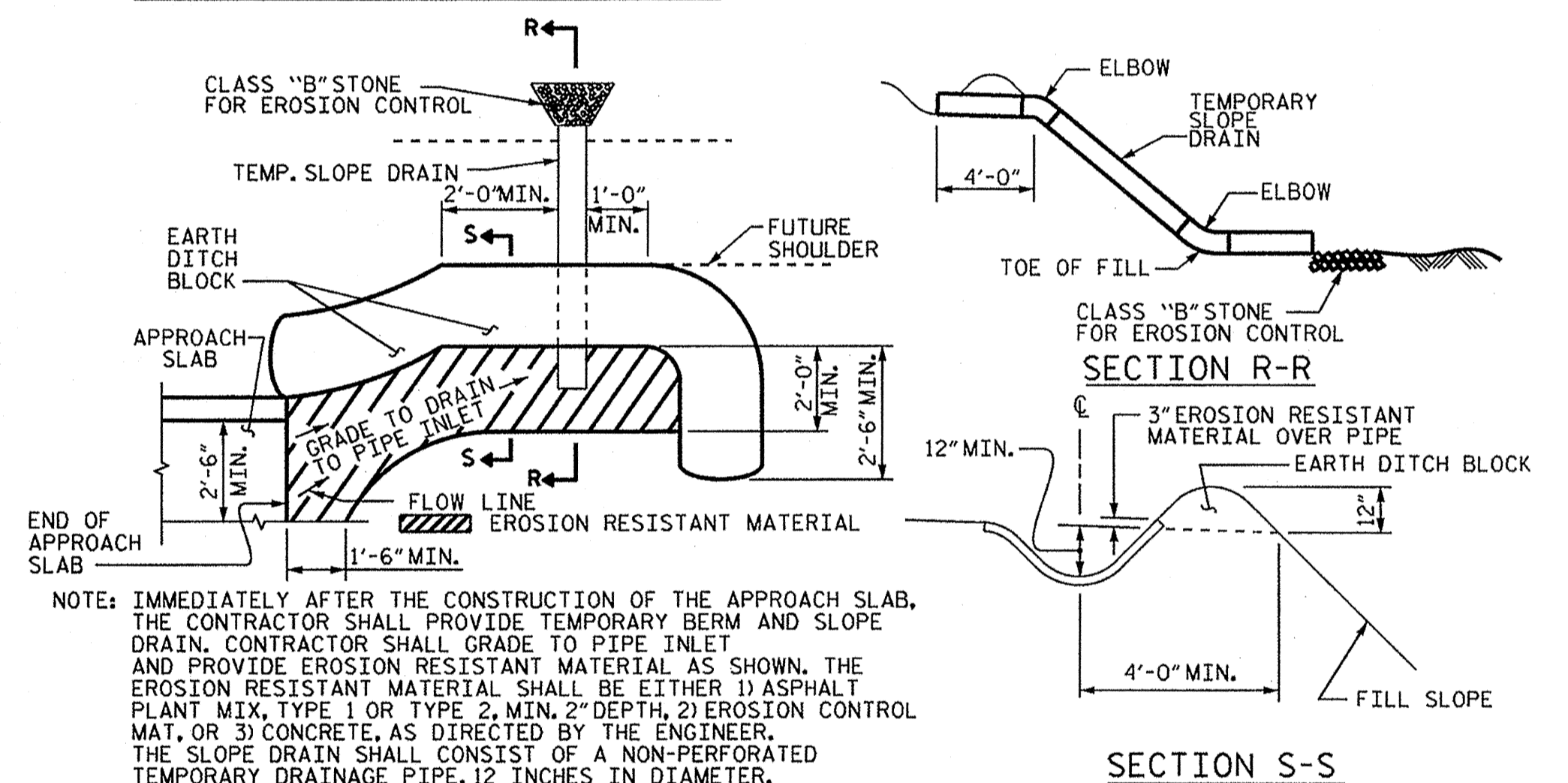
**NOTES**

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.



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.

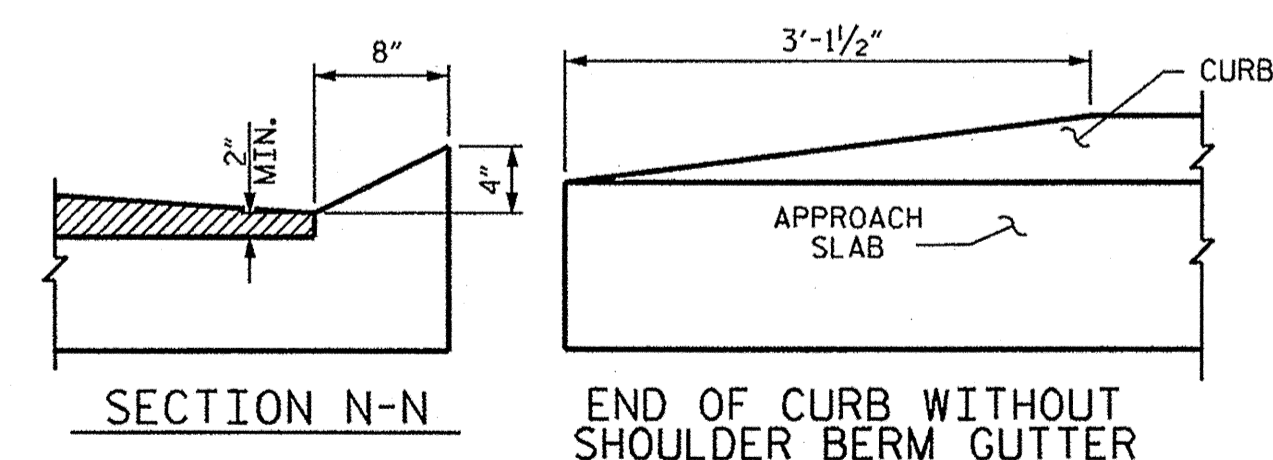
**TEMPORARY DRAINAGE DETAIL**



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.

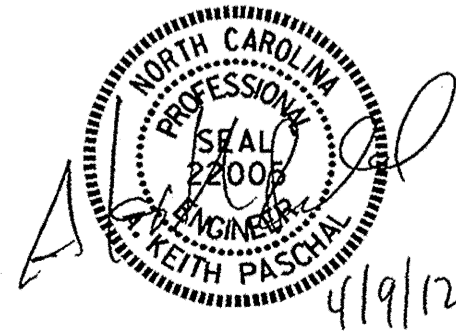
**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

(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"



BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-11"	294
A2	26	#4	STR	16'-9"	291
*B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL					LBS. 1412
* EPOXY COATED REINFORCING STEEL					LBS. 1039
CLASS AA CONCRETE					C. Y. 17.3
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-11"	294
A2	26	#4	STR	16'-9"	291
*B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL					LBS. 1412
* EPOXY COATED REINFORCING STEEL					LBS. 1039
CLASS AA CONCRETE					C. Y. 17.3

PROJECT NO. BD-5102K  
 LENOIR COUNTY  
 STATION: 13+23.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 (SUB-REGIONAL TIER)  
 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-17
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : B. L. GREEN DATE : 2/27/12  
 CHECKED BY : O. PUIGCERVER DATE : 3/7/12  
 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:

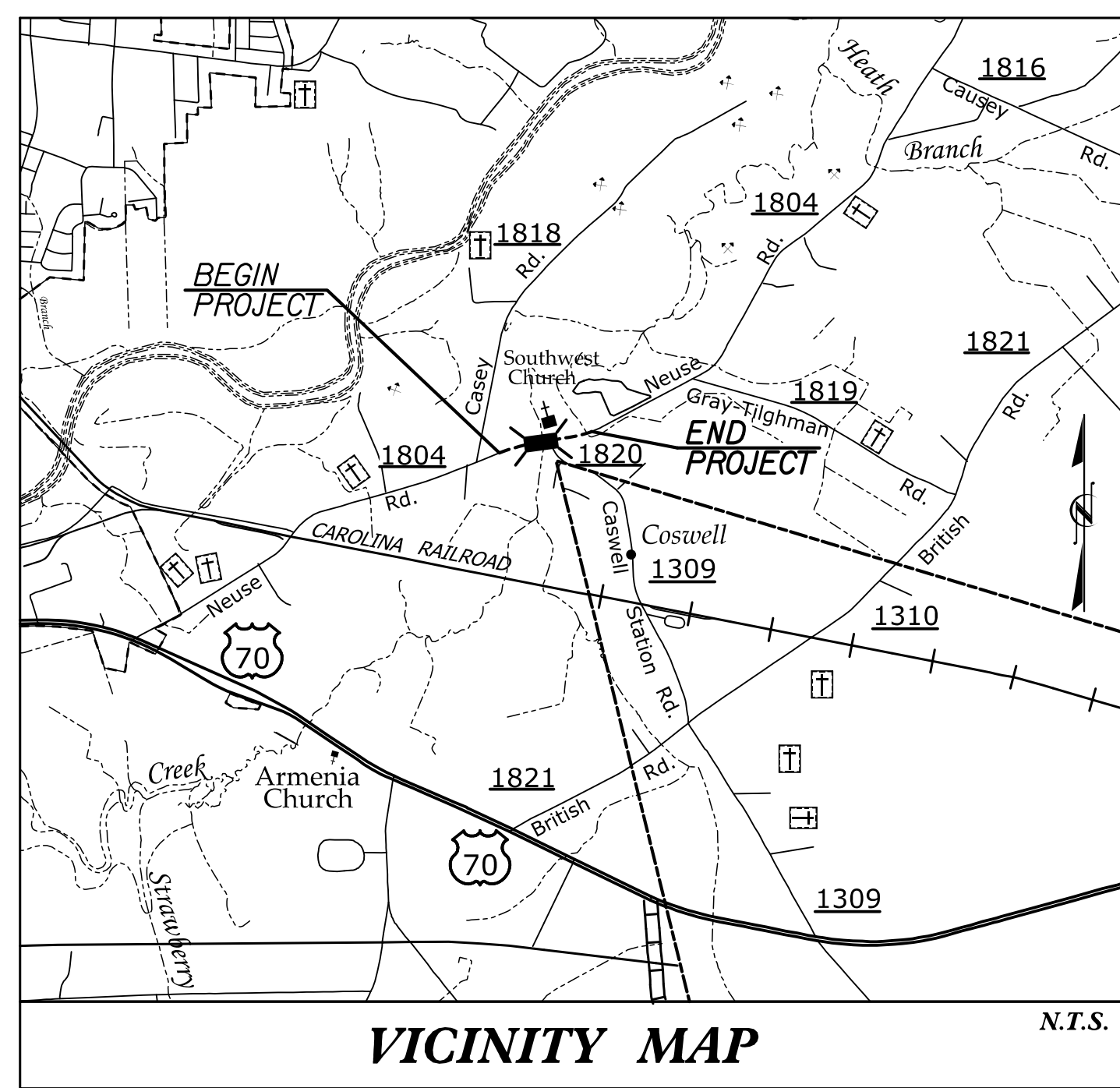
GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

09.08.99

**TIP PROJECT: BD-5102K**



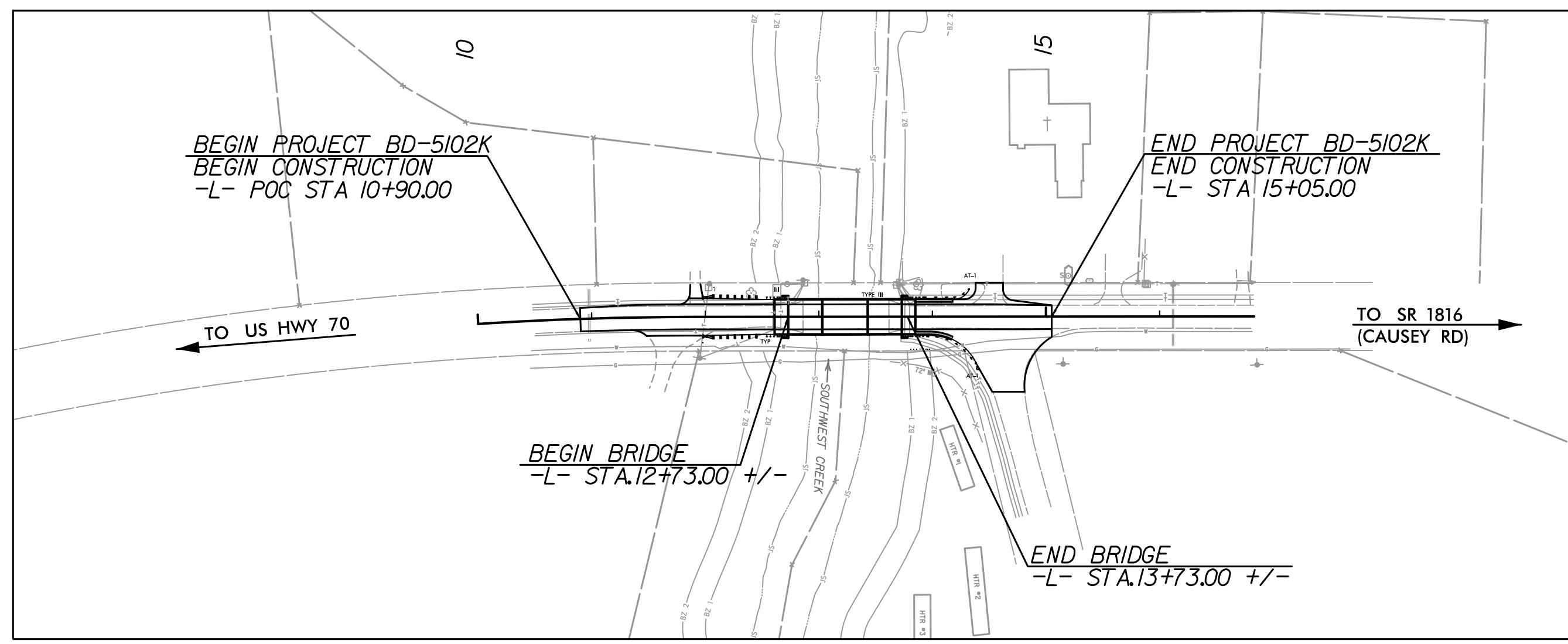
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
BD-5102K	UO-1

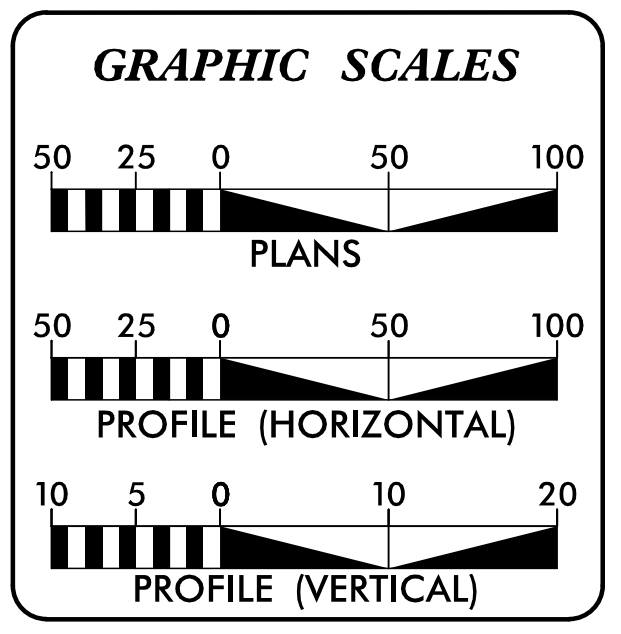
**UTILITIES BY OTHERS PLANS  
LENOIR COUNTY**

**LOCATION: BRIDGE NO. 017 OVER SOUTHWEST CREEK  
ON SR 1804 (NEUSE ROAD)**

**TYPE OF WORK: UTILITY BY OTHERS RELOCATION**



**CONTRACT:**



**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	PLAN SHEET

**UTILITY OWNERS ON PROJECT**

- (1) WATER - CITY OF KINSTON - STEVE MILLER - (252) 939-3285
- (2) TELEPHONE - CENTURY LINK - ROD MEDLIN - (252) 413-7711
- (3) GAS - PIEDMONT NATURAL GAS - BOB BARRET - (704) 731-4060

**UTILITY DESIGN BY:**

**MA Engineering**  
CONSULTANTS, INC.  
598 East Chatham Street Suite 137 Cary, NC 27511  
Phone: 919 297 0220 Fax: 919 297 0221

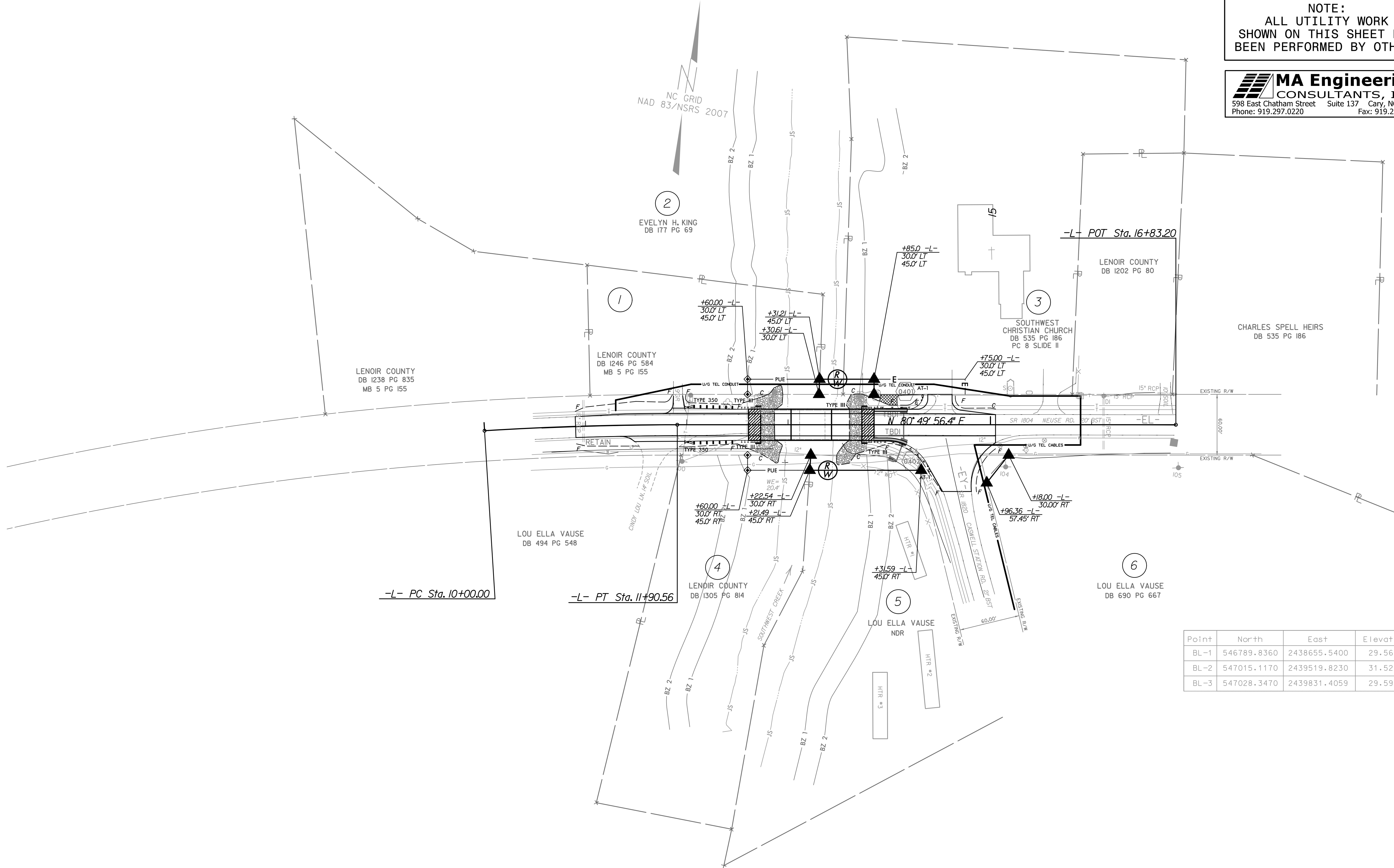
**NCDOT PROJECT ENGINEER:**  
MARIA ROGERSON, P.E.  
**PREPARED FOR:**  
NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION 2 BRIDGE PROGRAM  
GREENVILLE, NC

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\$\$\$\$\$SERNAME\$\$\$\$\$

### UTILITIES BY OTHERS

**NOTE:**  
ALL UTILITY WORK  
SHOWN ON THIS SHEET HAS  
BEEN PERFORMED BY OTHERS

**MA Engineering**  
CONSULTANTS, INC.  
598 East Chatham Street Suite 137 Cary, NC 27511  
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Point	North	East	Elevation
BL-1	546789.8360	2438655.5400	29.56
BL-2	547015.1170	2439519.8230	31.52
BL-3	547028.3470	2439831.4059	29.59