

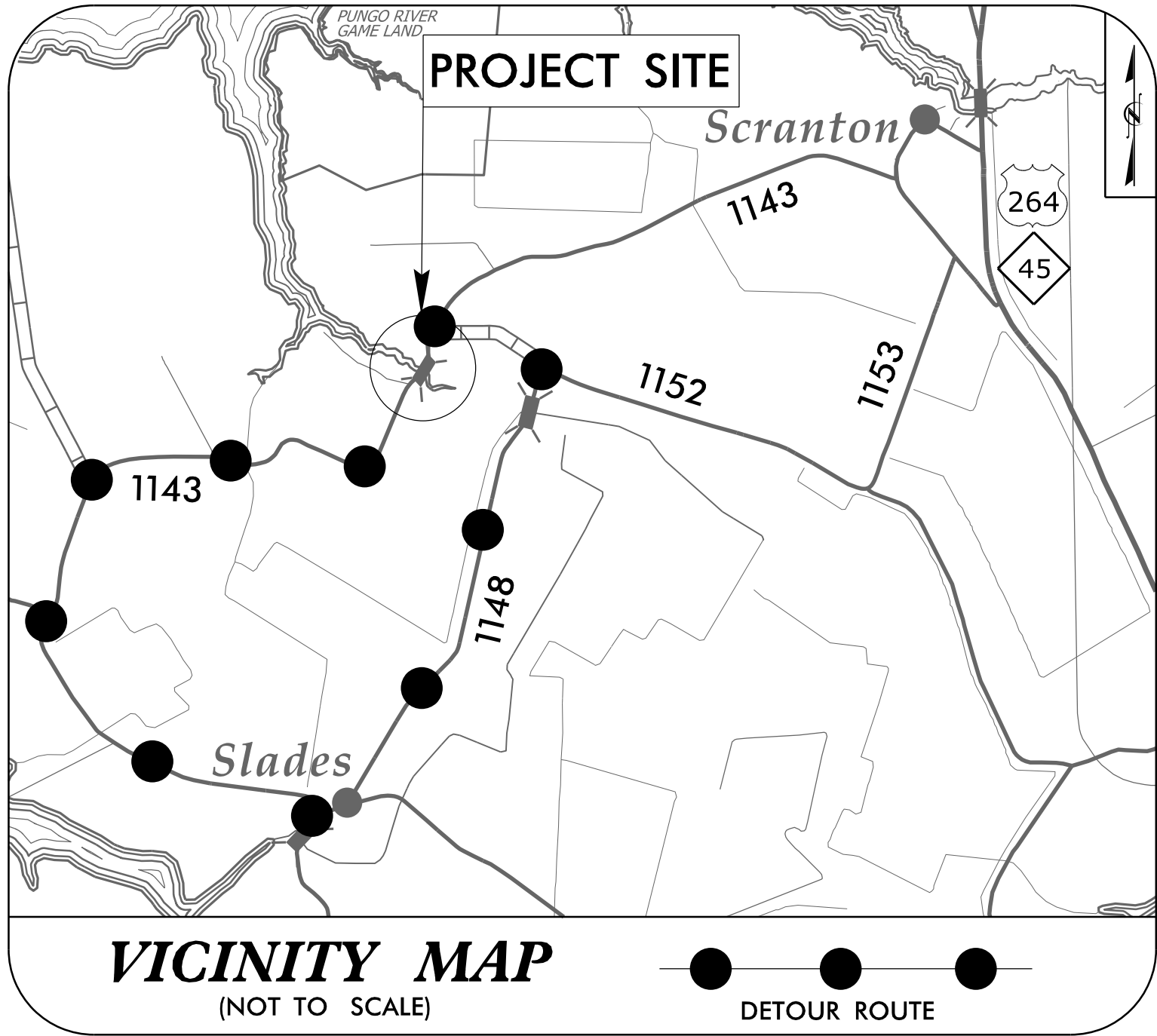
**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

PROJECT: 17BP.1.R.63

CONTRACT: _____



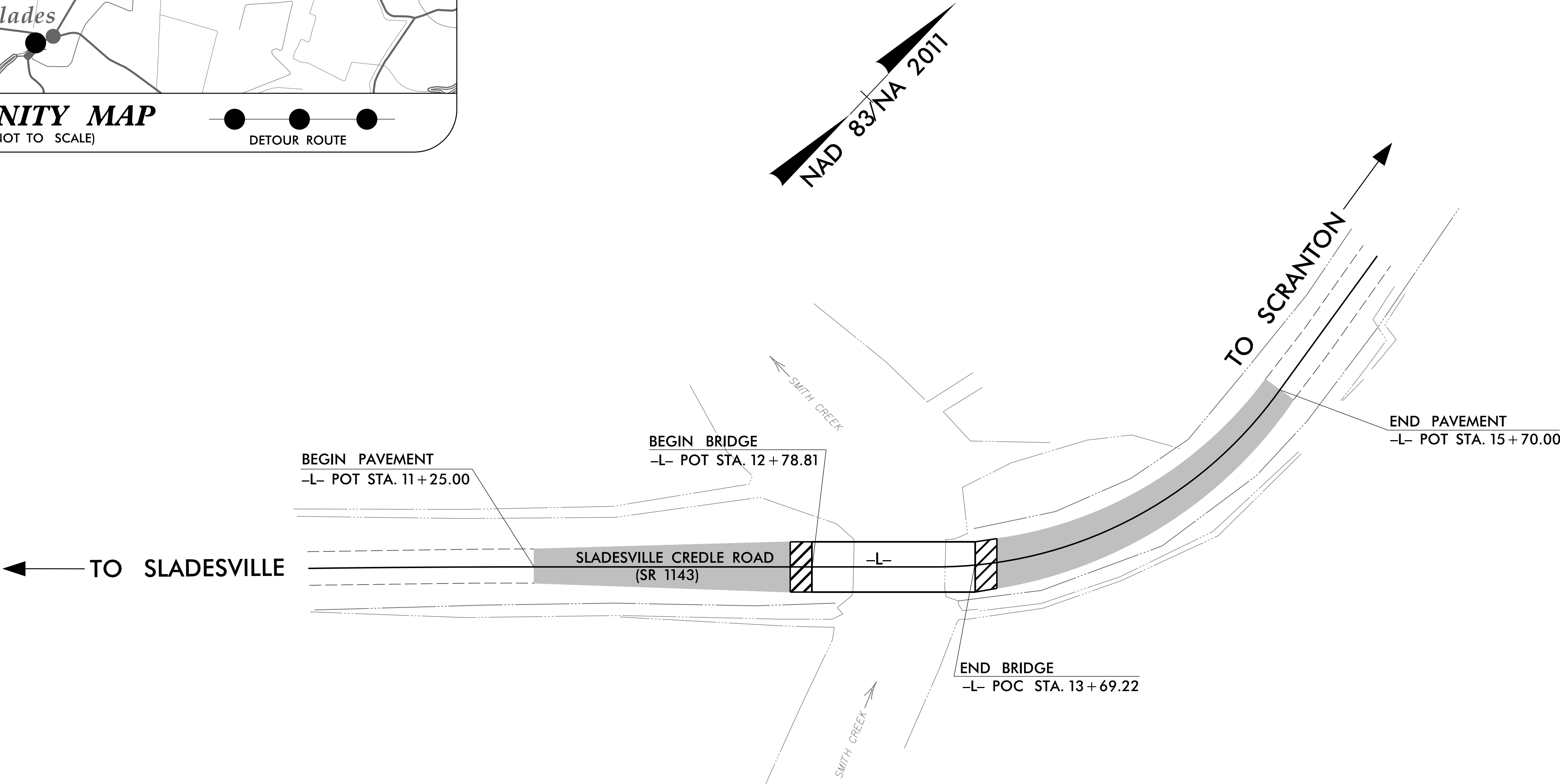
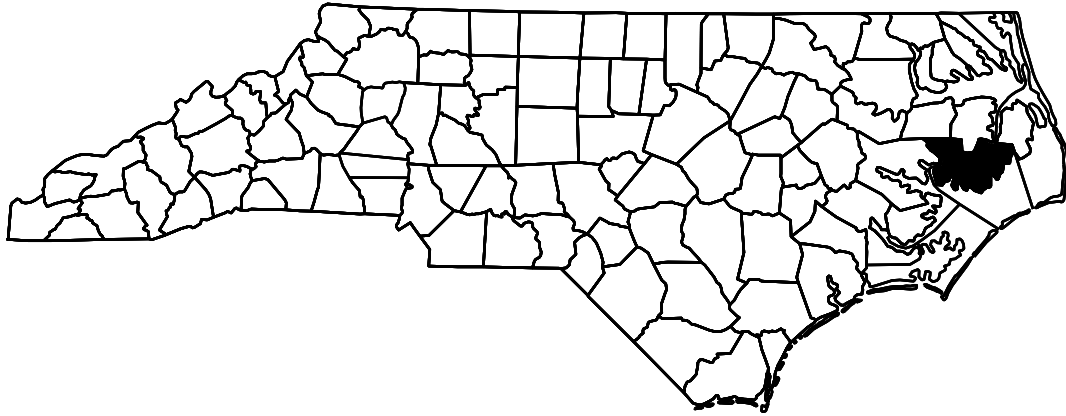
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HYDE COUNTY

**LOCATION: BRIDGE NO. 36 OVER SMITH CREEK
ON SR 1143 (SLADESVILLE CREDLE ROAD)**

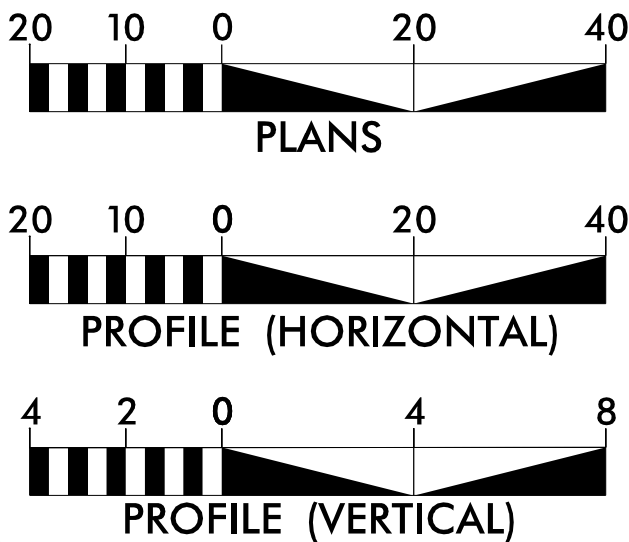
TYPE OF WORK: PAVING, GRADING, DRAINAGE & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.1.R.63	1	35
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
17BP.1.R.63		PE	
17BP.1.R.63		ROW, UTIL.	
17BP.1.R.63		CONST.	



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

GRAPHIC SCALES



DESIGN DATA

ADT 2011 = 210

K = NA
D = NA
T = 6 %
V = 30 MPH

FUNC CLASSIFICATION = LOCAL

SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT = 0.067 Miles
LENGTH OF STRUCTURE PROJECT = 0.017 Miles
TOTAL LENGTH OF PROJECT = 0.084 Miles

URS

Prepared In the Office of:
URS Corporation - North Carolina
1600 Perimeter Park Drive
Morrisville, North Carolina 27560
TELEPHONE (919) 461-1100 FAX (919) 461-1415
NC LICENSE # C-2243

2018 STANDARD SPECIFICATIONS

LETTING DATE:

DENNIS K. HOYLE, PE
PROJECT ENGINEER

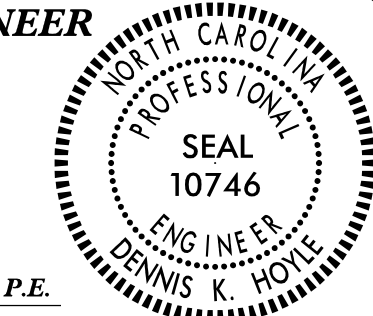
KIMBERLY A. KOIVUNIEMI, PE
PROJECT DESIGN ENGINEER

RYAN L. SHOOK
NCDOT CONTACT

HYDRAULICS ENGINEER

DocuSigned by:
Dennis Hoyle
F008CFD0A9777419

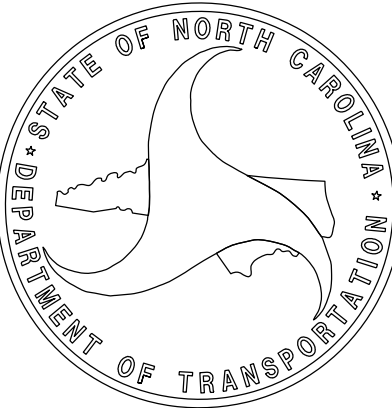
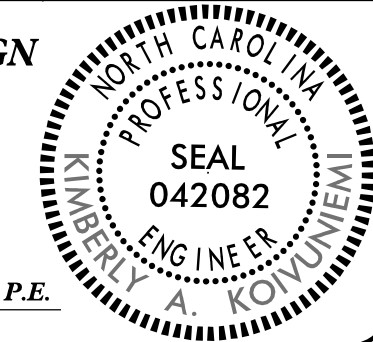
SIGNATURE:



ROADWAY DESIGN ENGINEER

DocuSigned by:
Kim Koivuniemi
A98AA27892EC48B...

SIGNATURE:



PROJECT REFERENCE NO.	SHEET NO.
17BP.J.R.63	1-A

INDEX OF SHEETS

SHEET NUMBER	TITLE
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS, PAVEMENT SCHEDULE , AND WEDGING DETAIL
2-A	DETAIL FOR STRUCTURE ANCHOR UNIT, TYPE III
2C-1	DETAIL FOR CONCRETE FLUME IN 2'-6" C&G
3-A	SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, REMOVAL OF EXISTING ASPHALT PAVEMENT SUMMARY, AND BREAKING OF EXISTING ASPHALT PAVEMENT SUMMARY
4	PLAN SHEET & PROFILE
TMP-1	TRAFFIC MANAGEMENT PLAN
EC-1 THRU EC-4, RF-1	EROSION CONTROL PLANS
X-1 THRU X-4	CROSS-SECTIONS
S-1 THRU S-17	STRUCTURE PLANS
N/A	STRUCTURE STANDARD NOTES

GENERAL NOTES

GENERAL NOTES:	2018 SPECIFICATIONS	EFFECTIVE: 01-16-2018 REVISED:
GRADING AND SURFACING OR RESURFACING AND WIDENING:	THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.	
CLEARING:	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II (MODIFIED).	
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	
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.	
SUBSURFACE PLANS:	NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.	
END BENTS:	THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.	
UTILITIES:	UTILITY OWNERS ON THIS PROJECT IS CENTURY LINK (TELEPHONE) AND TIDELAND ELECTRIC (POWER LINE). ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.	

STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS	EFF. 01-16-2018 REV.
The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 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	
422.02	Reinforced Bridge Approach Fills - Type II Modiefied Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.20	Frames and Wide Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
846.04	Drop Inlet Installation in Shoulder Berm Gutter

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	
Known Soil Contamination: Area or Site	
Potential Soil Contamination: Area or Site	

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 RW Marker	
Proposed Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
Proposed Control of Access	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage / Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	
Proposed Permanent Easement with Iron Pin and Cap Marker	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	
Single Tree	
Single Shrub	
Hedge	
Woods Line	

VEGETATION:

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	

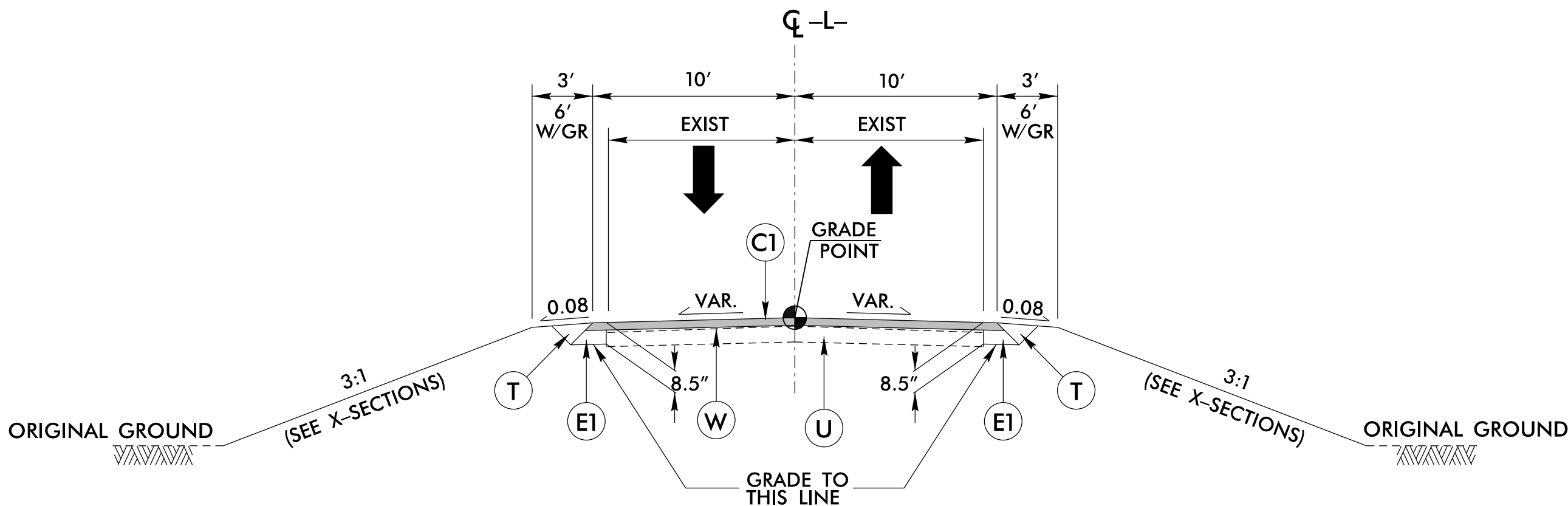
SANITARY SEWER:

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:

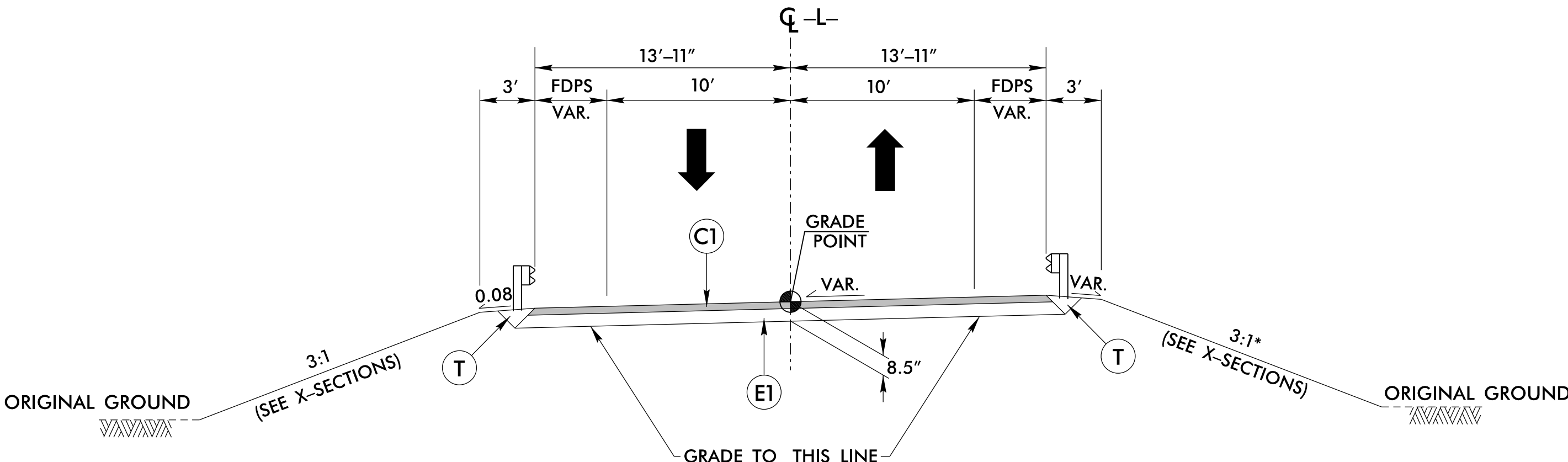
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
U/G Test Hole (S.U.E.*)	
Abandoned According to Utility Records	
End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

6/2/99



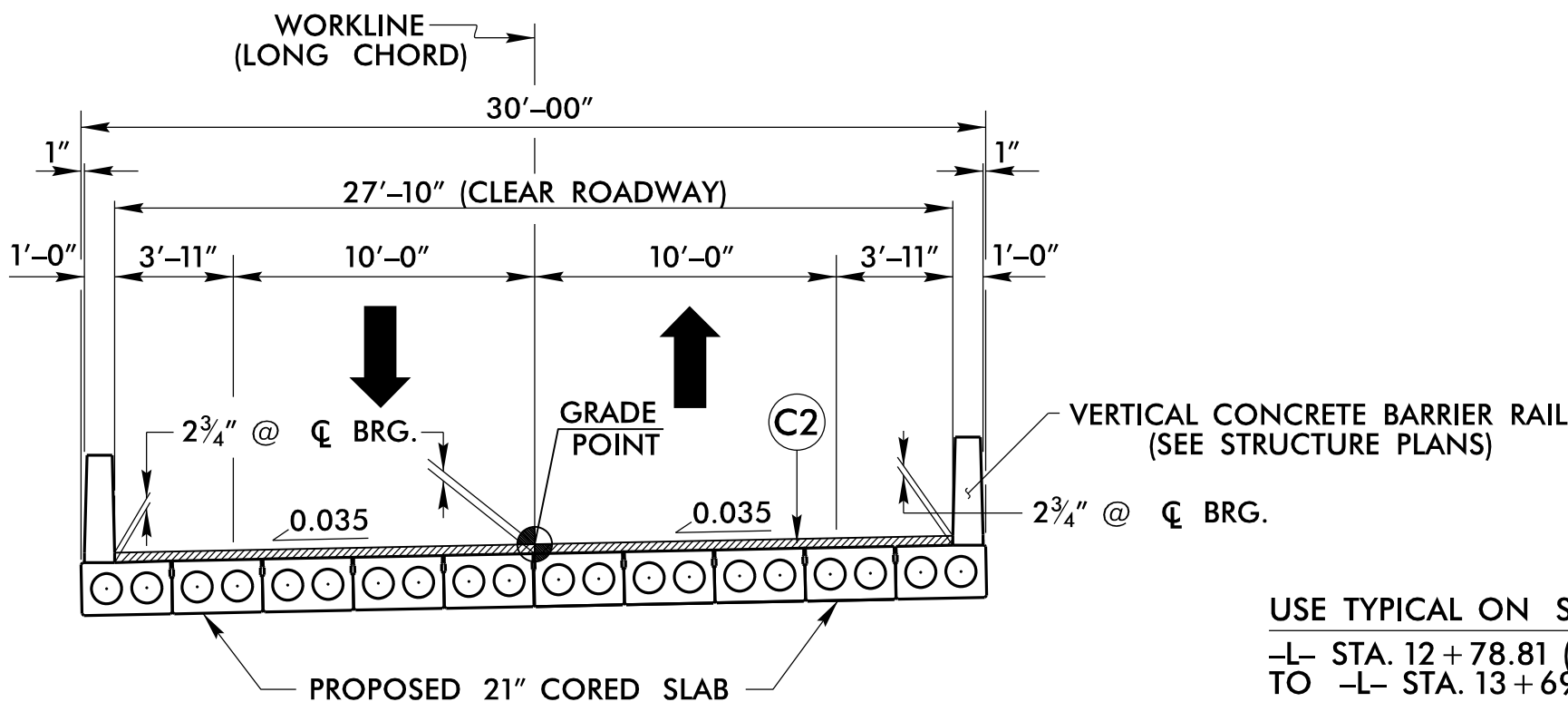
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 11+25.00 TO -L- STA. 12+00.00
-L- STA. 15+00.00 TO -L- STA. 15+70.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA. 12+00.00 TO -L- STA. 12+78.81 (BEGIN BRIDGE)
-L- STA. 13+69.22 (END BRIDGE) TO -L- STA. 15+00.00



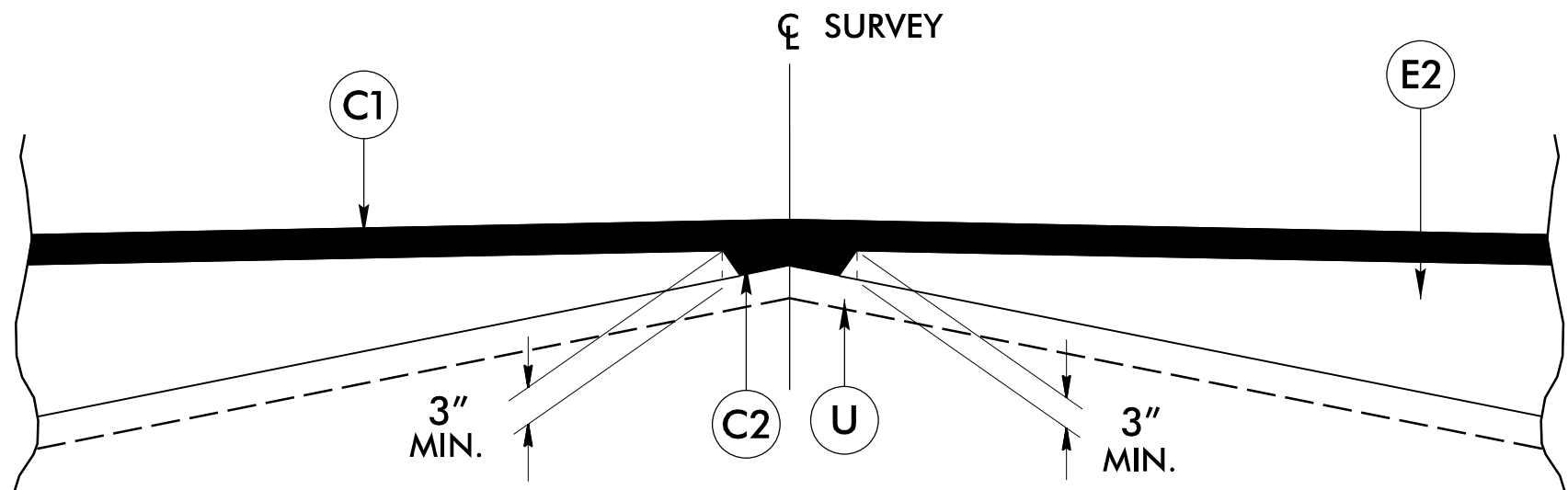
TYPICAL SECTION ON STRUCTURE
(SEE STRUCTURE PLANS)

USE TYPICAL ON STRUCTURE
-L- STA. 12+78.81 (BEGIN BRIDGE)
TO -L- STA. 13+69.22 (END BRIDGE)

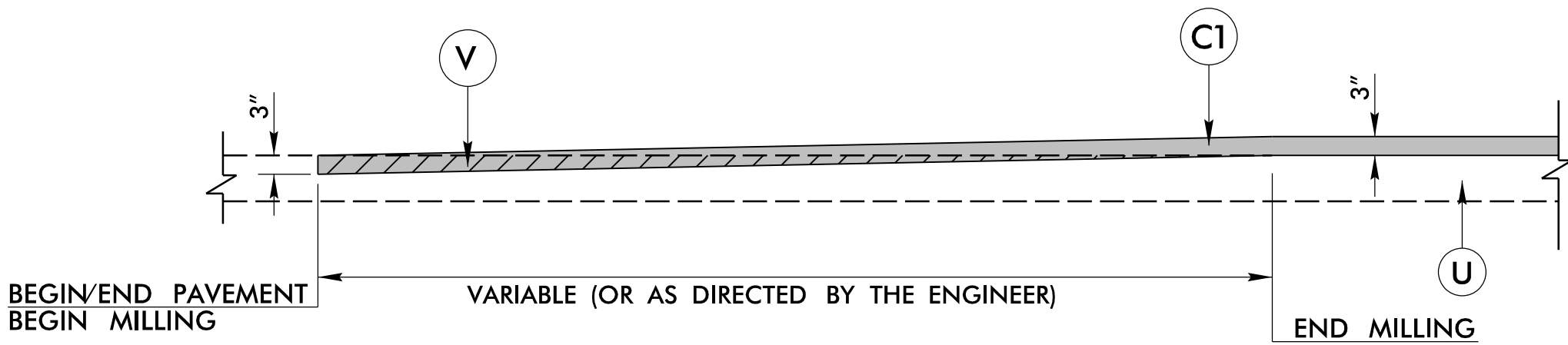
PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	TIE-IN MILLING.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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



W DETAIL SHOWING METHOD OF WEDGING



V TIE-IN MILLING DETAIL

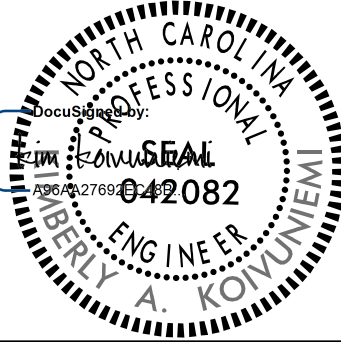
NOTE: END MILLING WHERE PROPOSED GRADE IS 3" ABOVE EXISTING PAVEMENT

PROJECT REFERENCE NO.	SHEET NO.
17BP.I.R.63	2
HYDE COUNTY BRIDGE NO. 470036	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

This document originally issued and sealed by Jerry B. Javellana, 039831, on July 31, 2015. This medium shall not be considered a certified document.



Changed C1 and C2 to S9.5B, Changed E1 and E2 to B25.0C.



10/15/2019
R:\Roadway\Projs\Hyde36_rdy.tup.dgn
Moran Foster

SHEET 2 OF 7

862d03

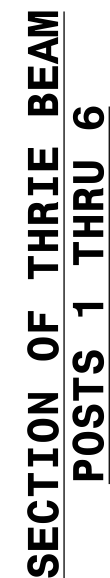
SHEET 2 OF 7

862d03



PLAN VIEW

**GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER**



SHEET 3 OF 7
862d03

SHEET 3 OF 7

862d03

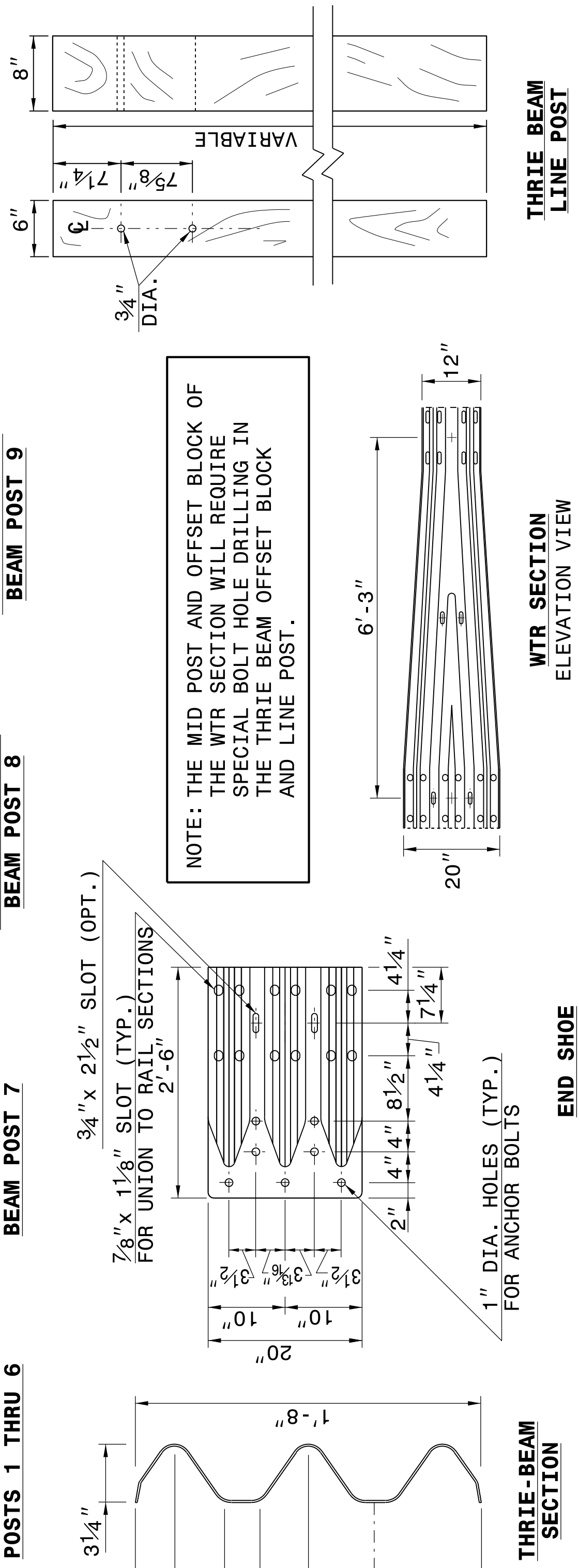


SECTION OF 'W'
BEAM POST 9

**SECTION OF WTR
BEAM POST 8**

SECTION OF THRIE
BEAM POST 7

SECTION OF THRIE BEAM
POSTS 1 THRU 6



THRIE BEAM
LINE POST

WTR SECTION
ELEVATION VIEW

END SHOE

THREE-BEAM SECTION

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

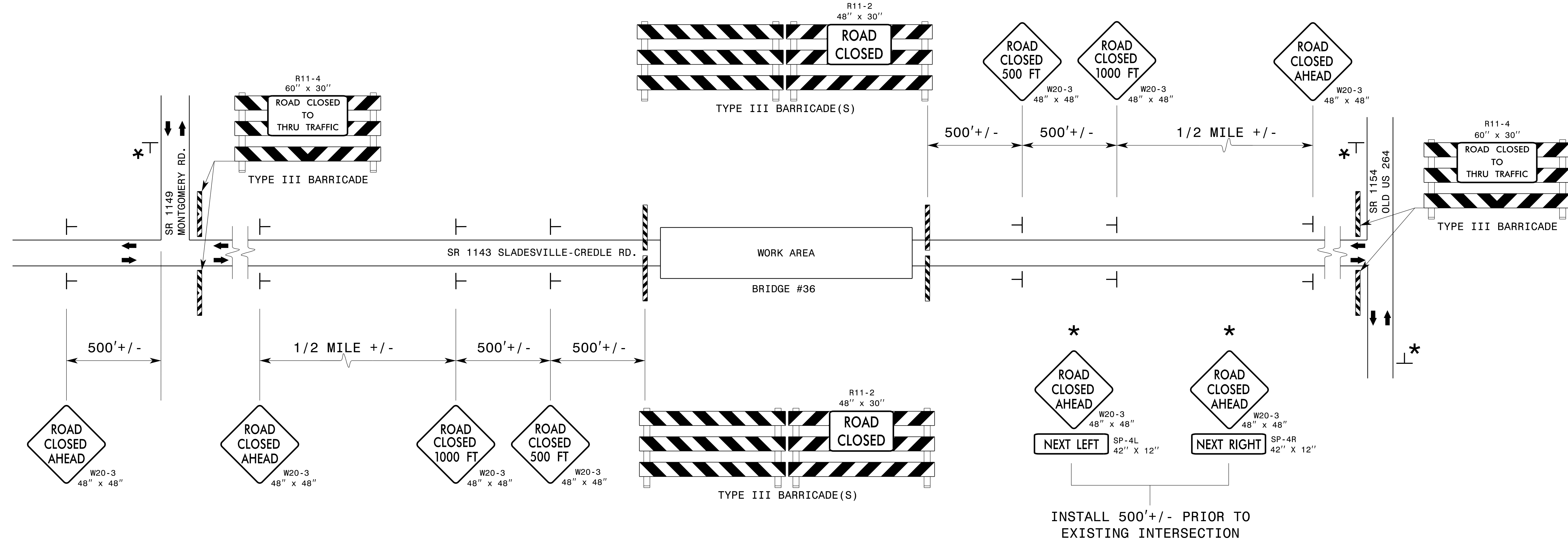
SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON	DATE: 06-22-12
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	

WBS # 17BP.1.R.63

CONTRACT #:

TRAFFIC MANAGEMENT FOR TEMPORARY ROAD CLOSURE



LEGEND

- DIRECTION OF TRAFFIC FLOW
- STATIONARY SIGN
- BARRICADE (TYPE III)

GENERAL NOTES

- 1 - INSTALLATION OF TEMPORARY ROUTE MARKERS, DESTINATION SIGNS AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY OTHERS (STATE OR CITY FORCES) UNLESS OTHERWISE DESIGNATED IN PLANS. PROVIDE A MINIMUM 21 CALENDAR DAY NOTICE TO STATE FORCES BEFORE A ROADWAY IS CLOSED TO TRAFFIC SUCH THAT NECESSARY PROVISIONS CAN BE MADE TO INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.
- 2 - INSTALL SIGNS BEFORE THE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL/REMOVE SIGNS AND BARRICADES WITHIN THE SAME CALENDAR DAY.
- 3 - POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE THE STRIPES DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.
- 4 - USE ADDITIONAL TYPE III BARRICADES IN STAGGERED LOCATIONS SUPPLEMENTED WITH SIGN R11-4 "ROAD CLOSED TO THRU TRAFFIC" IN THE EVENT THAT TRAFFIC MUST BE MAINTAINED BEYOND THE DETOUR POINT.
- 5 - SEE STANDARD SPECIFICATION 1089-1 FOR WORK ZONE SIGNS.
- 6 - SEE STANDARD SPECIFICATION 1089-2 FOR WORK ZONE SIGN SUPPORTS.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH N.C., ARE CONSIDERED A PART OF THE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1145.01	BARRICADES
904.10	ORIENTATION OF GROUND MOUNTED SIGNS

DRAWN BY: LHM DATE: 06/26/15
CHECKED BY: JBJ DATE: 07/03/15

Prepared by

URS

URS Corporation - North Carolina
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560
PHONE: 919/461-1100 FAX: 919/461-1415
NC LIC. # C-2243

PROJECT: 17BP.1.R.63
HYDE COUNTY
STATION: 13+24.00 -L-

REPLACES BRIDGE NO. 470036
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRAFFIC MANAGEMENT PLAN

27'-10" CLEAR ROADWAY - 90° SKEW

REVISIONS						SHEET NO. TMP-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			1			TOTAL SHEETS 1
2			2			

7/31/2015

NORTH CAROLINA
PROFESSIONAL
SEAL
039831
ENGINEER
JERRY B. JAVELLANA

DocuSigned by:
Jerry Javellana
1A363F025A19407...

WBS # 17BP.1.R.63

CONTRACT #:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
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: 17BP.1.R.63

HYDE COUNTY

STATION: 13+24.00 -L-

REPLACES BRIDGE NO. 470036

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EROSION CONTROL PLAN
BRIDGE #470036
ON SR 1143
OVER SMITH CREEK

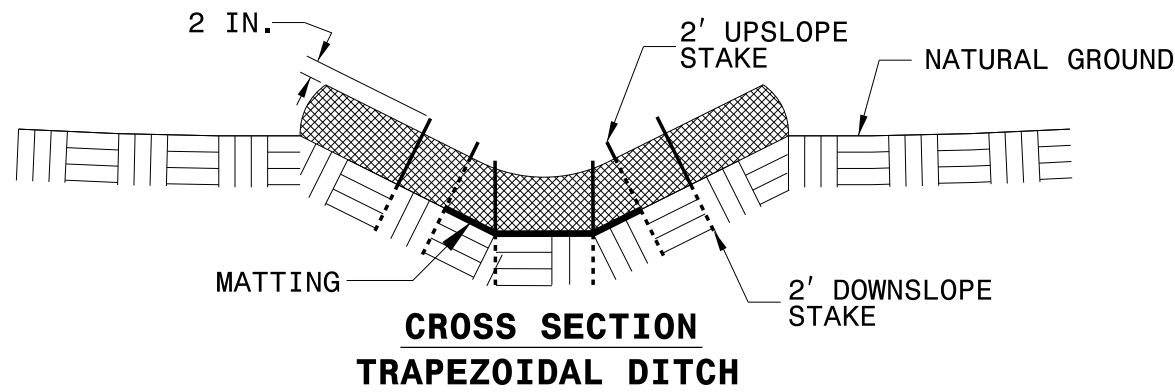
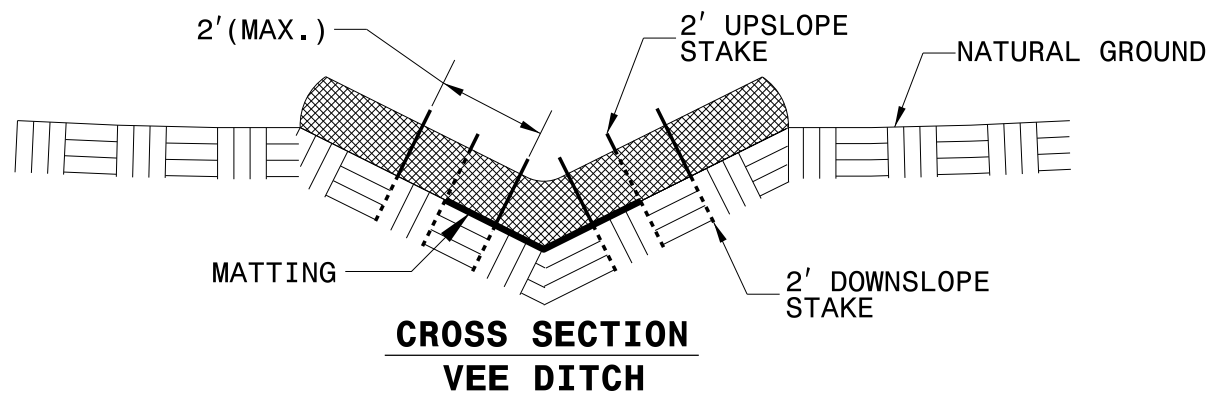
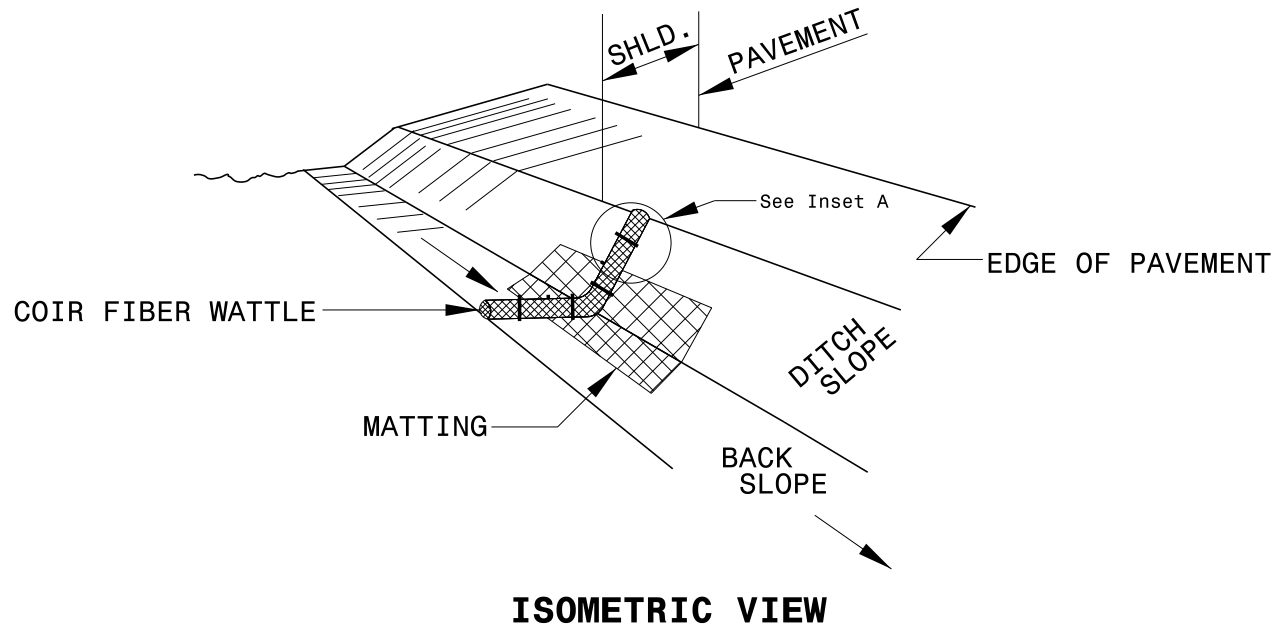
27'-10" CLEAR ROADWAY - 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	EC-1
1			1			TOTAL SHEETS
2			2			5

CONTRACT #:

REVISIONS						SHEET NO. EC-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			1			TOTAL SHEETS 5
2			2			

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.

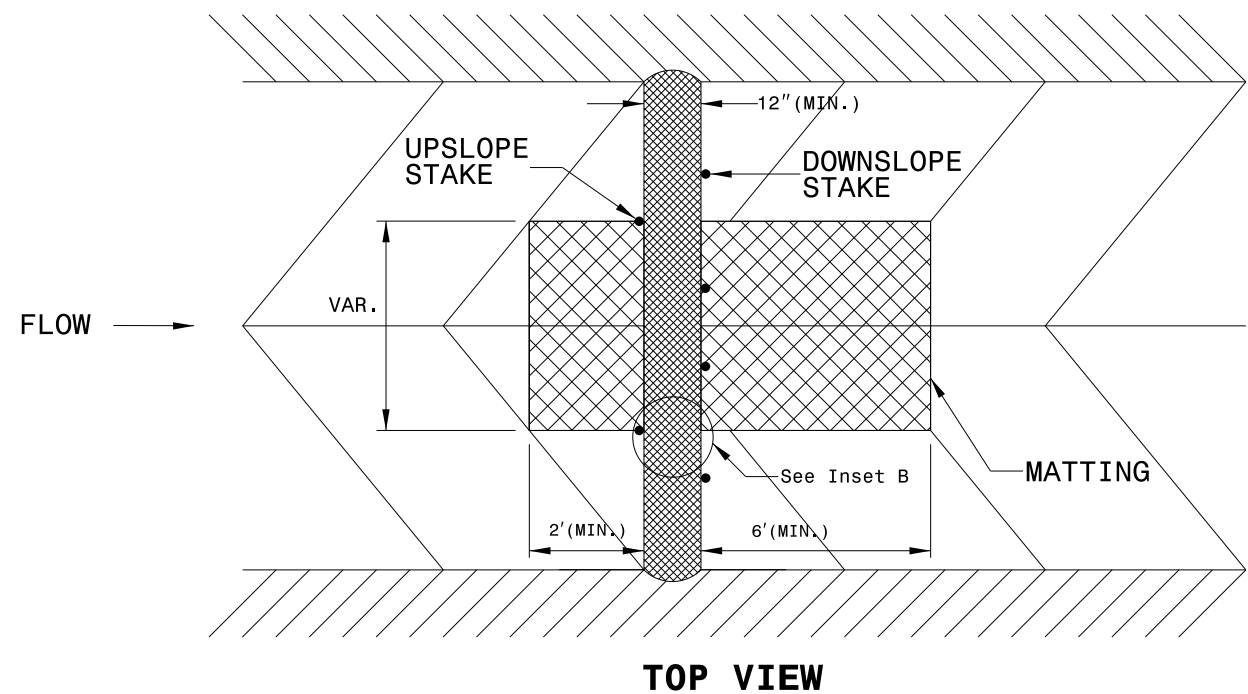
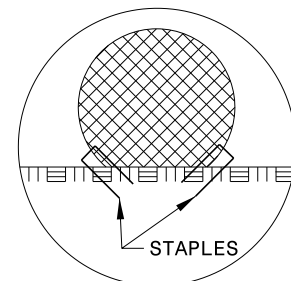
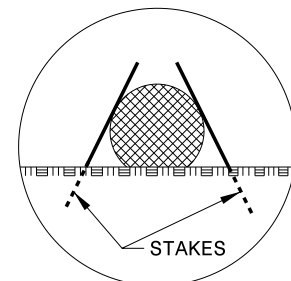
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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.

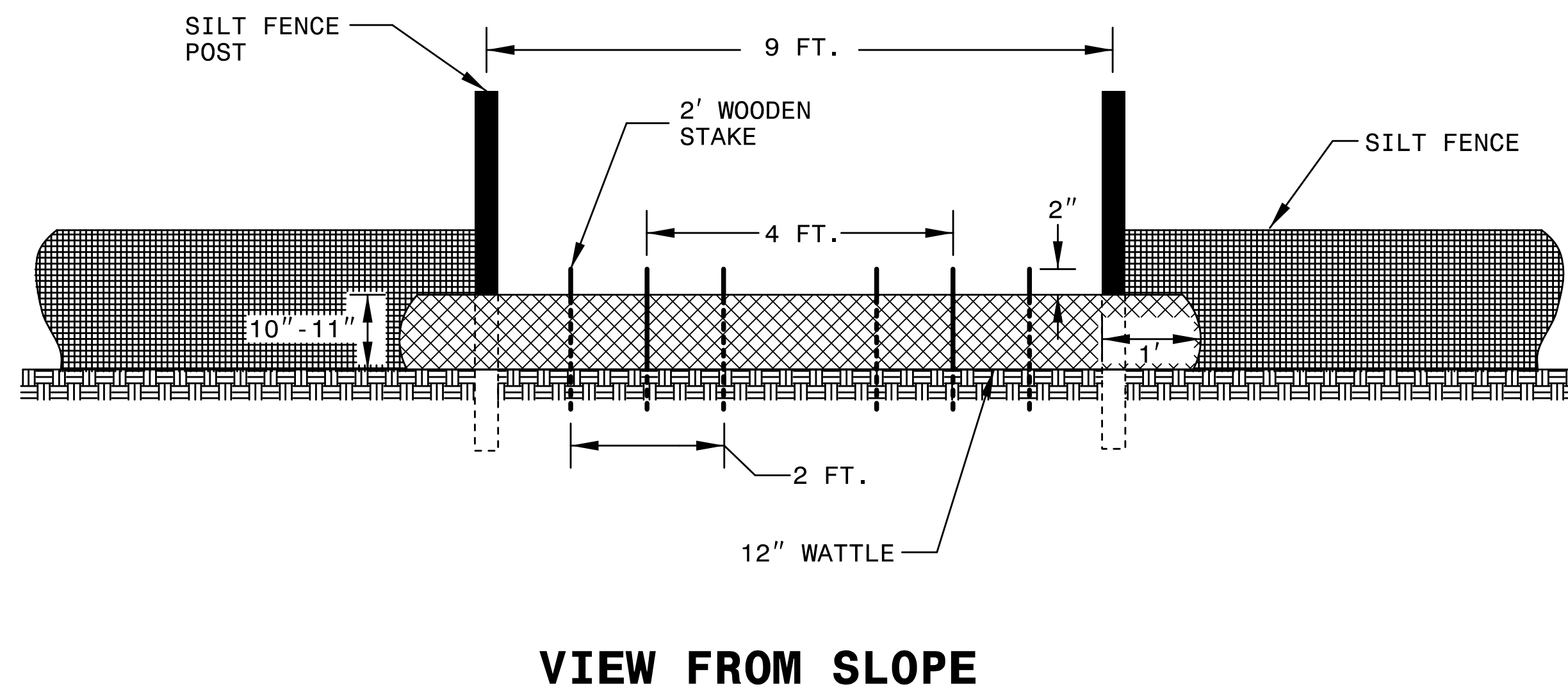
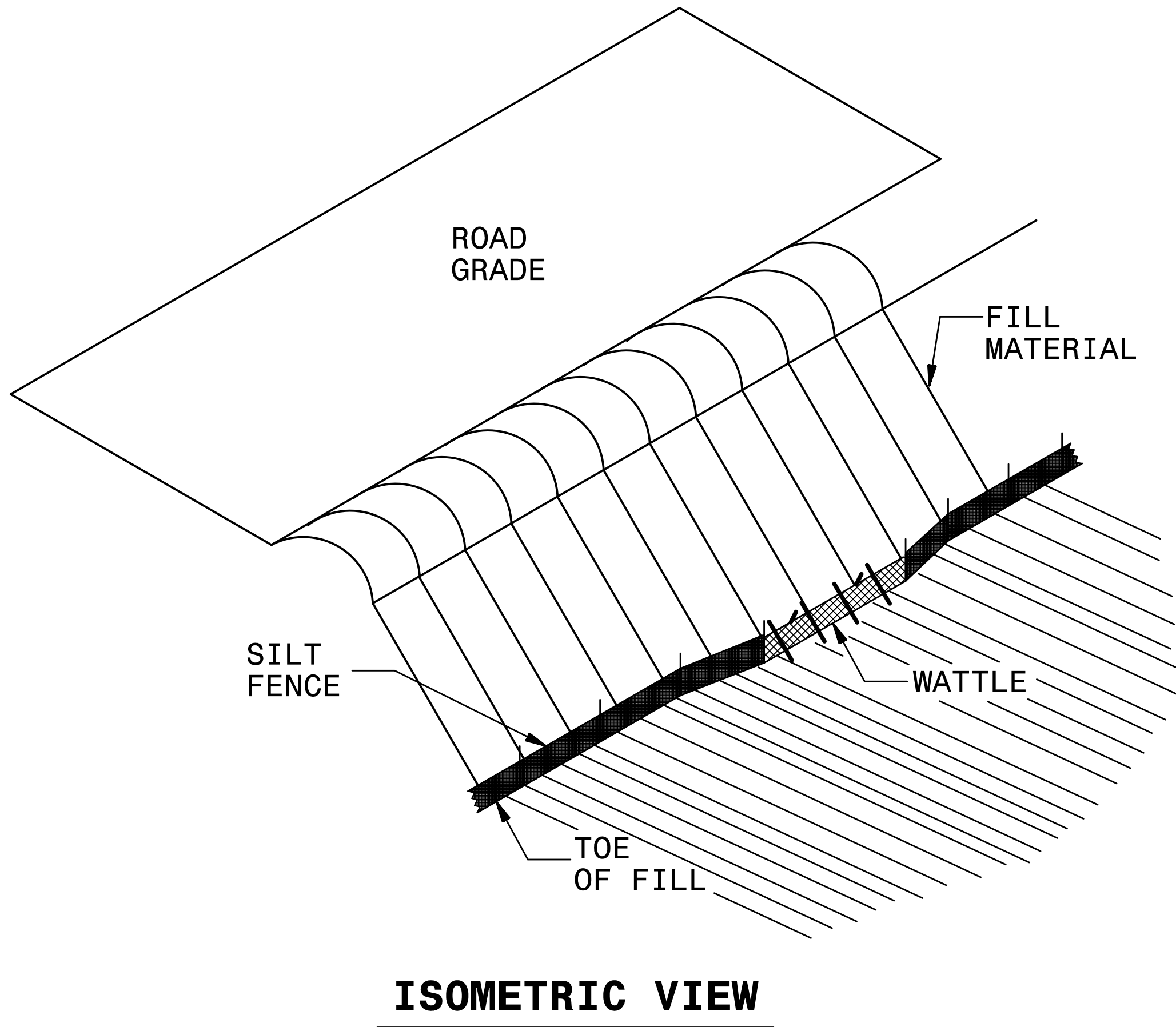
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



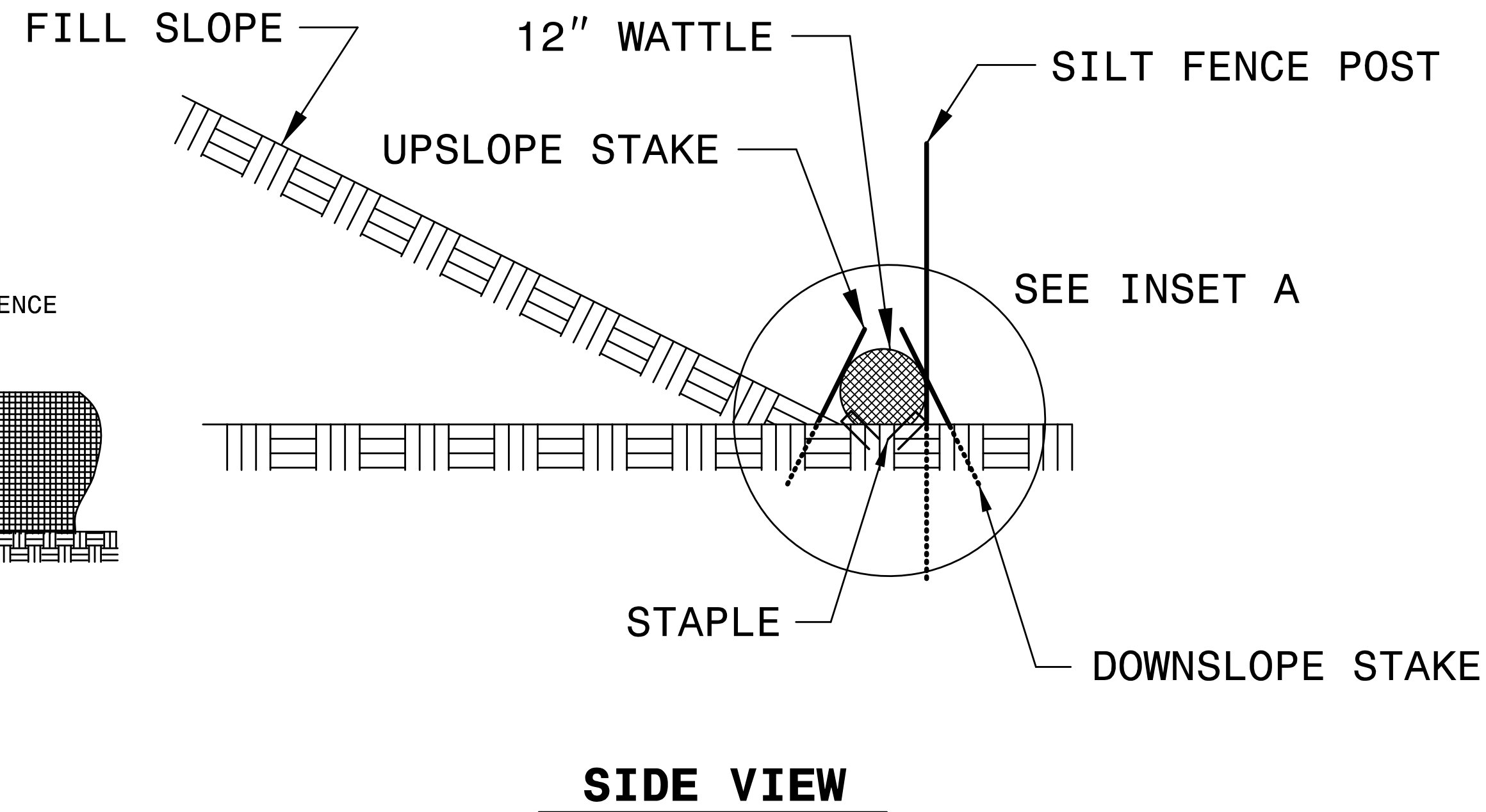
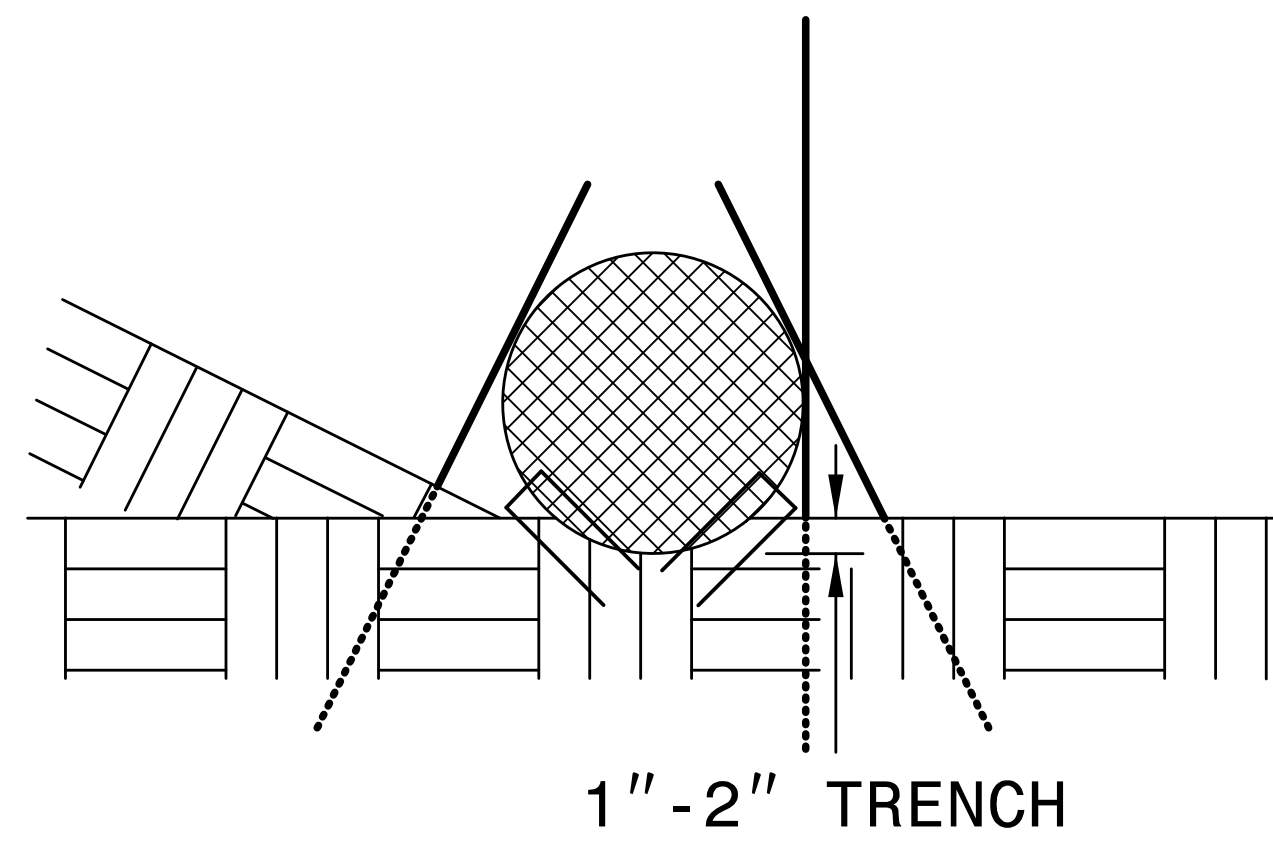
WBS # 17BP.1.R.63

CONTRACT #:

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



INSET A



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.

PROJECT: 17BP.1.R.63

HYDE COUNTY

STATION: 13+24.00 -L-

REPLACES BRIDGE NO. 470036

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EROSION CONTROL PLAN

BRIDGE #470036
ON SR 1143
OVER SMITH CREEK

27'-10" CLEAR ROADWAY - 90° SKEW

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

WBS # 17BP.1.R.63

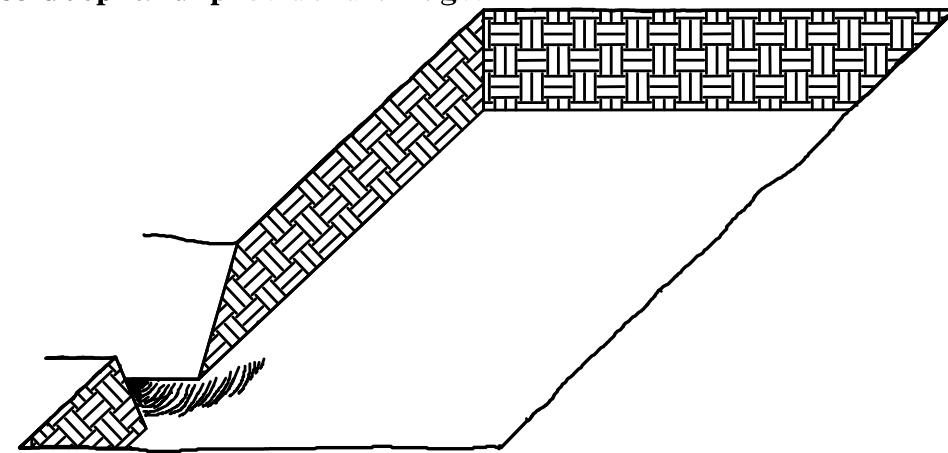
CONTRACT #:

PLANTING DETAILS

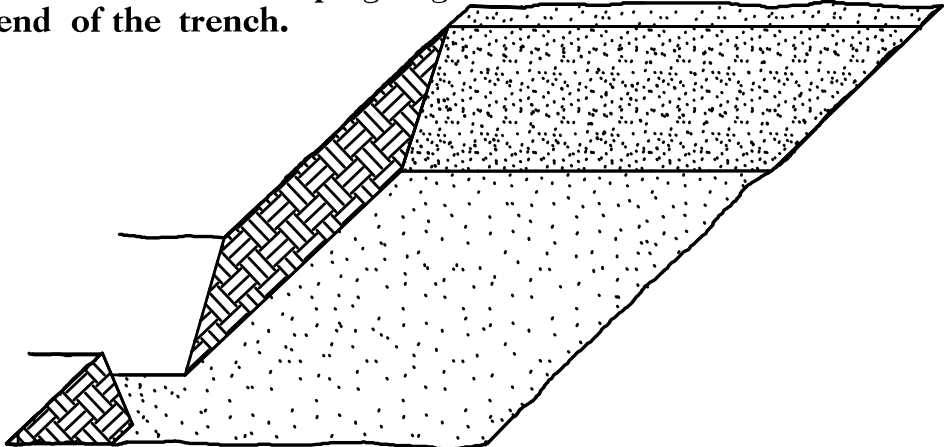
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

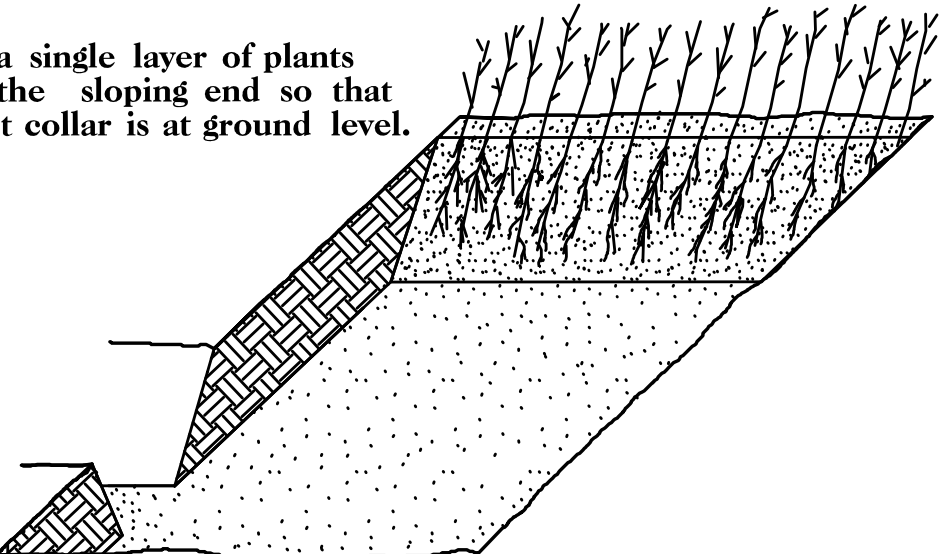
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



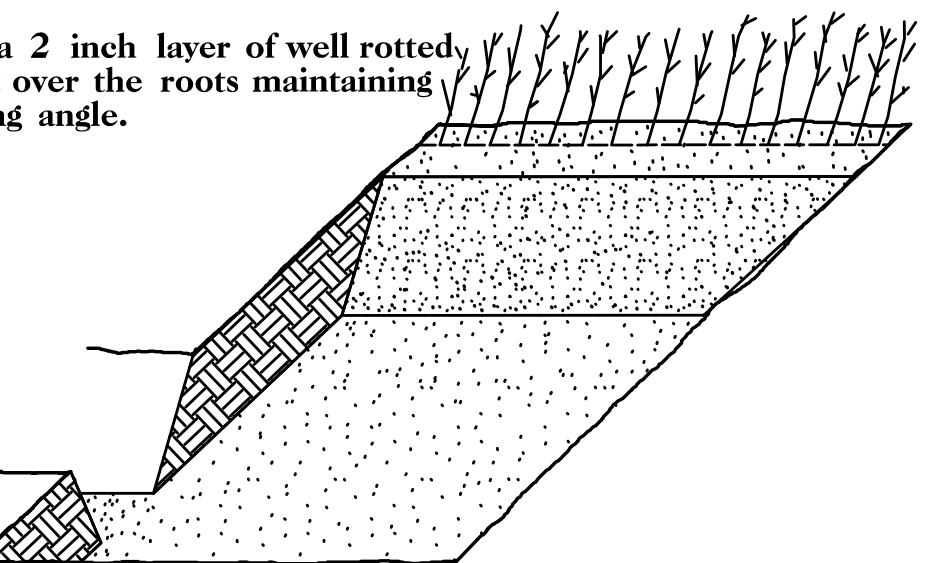
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

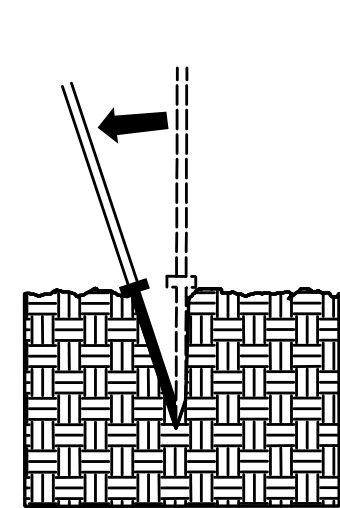


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

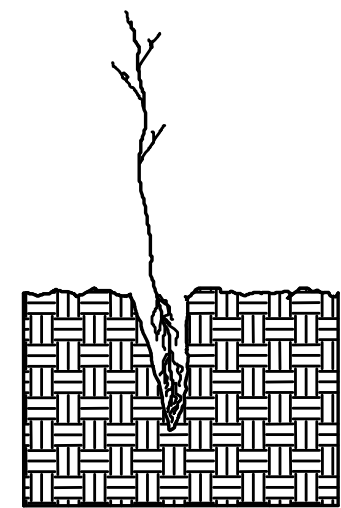


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

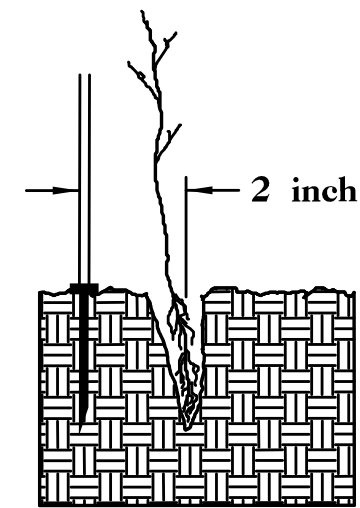
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



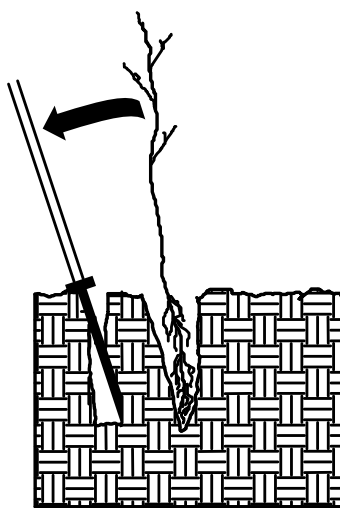
1. Insert planting bar as shown and pull handle toward planter.



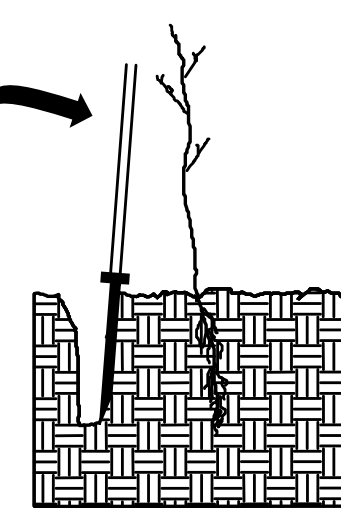
2. Remove planting bar and place seedling at correct depth.



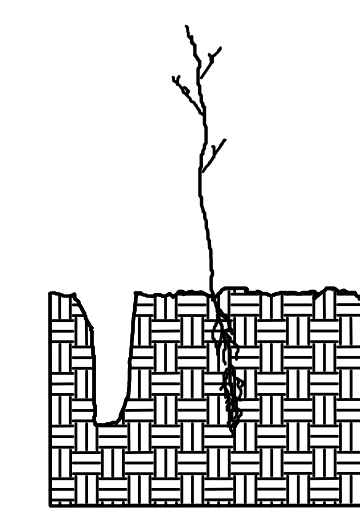
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



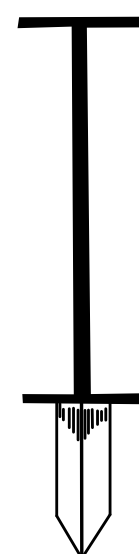
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION DETAIL SHEET

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

REFORESTATION

- ☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

PROJECT: 17BP.1.R.63

HYDE COUNTY

STATION: 13+24.00 -L-

REPLACES BRIDGE NO. 470036

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH


EROSION CONTROL PLAN

BRIDGE #470036
ON SR 1143
OVER SMITH CREEK

27'-10" CLEAR ROADWAY - 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	RF-1
1			1			TOTAL SHEETS
2			2			5

8/23/99

02.55	PROJ. REFERENCE NO.	SHEET NO.
	17BP.1.R.63	X-1

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

15 10 5 0 -5 15 10 5 0 -5 15 10 5 0 -5 15 10 5 0 -5

EXROW

WLB

S.S. 1.36

3:1

0.004

2.06

0.026

3:1

S.S. 0.91

EXROW

WLB

11 + 50.00

EXROW

WLB

EXIST.

2.07

EXIST.

EXROW

WLB

11 + 25.00


2.13

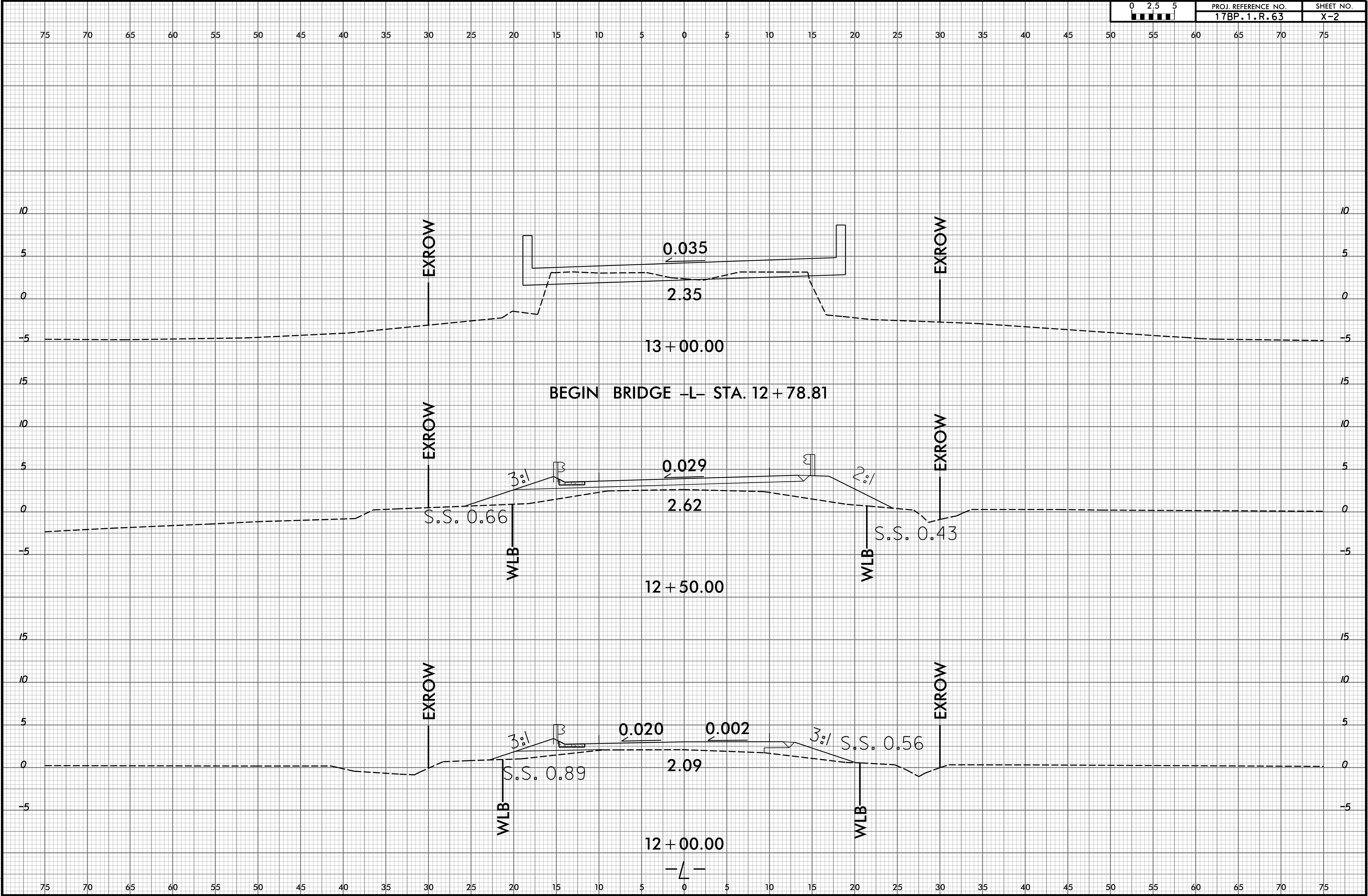
11 + 00.00

-L-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

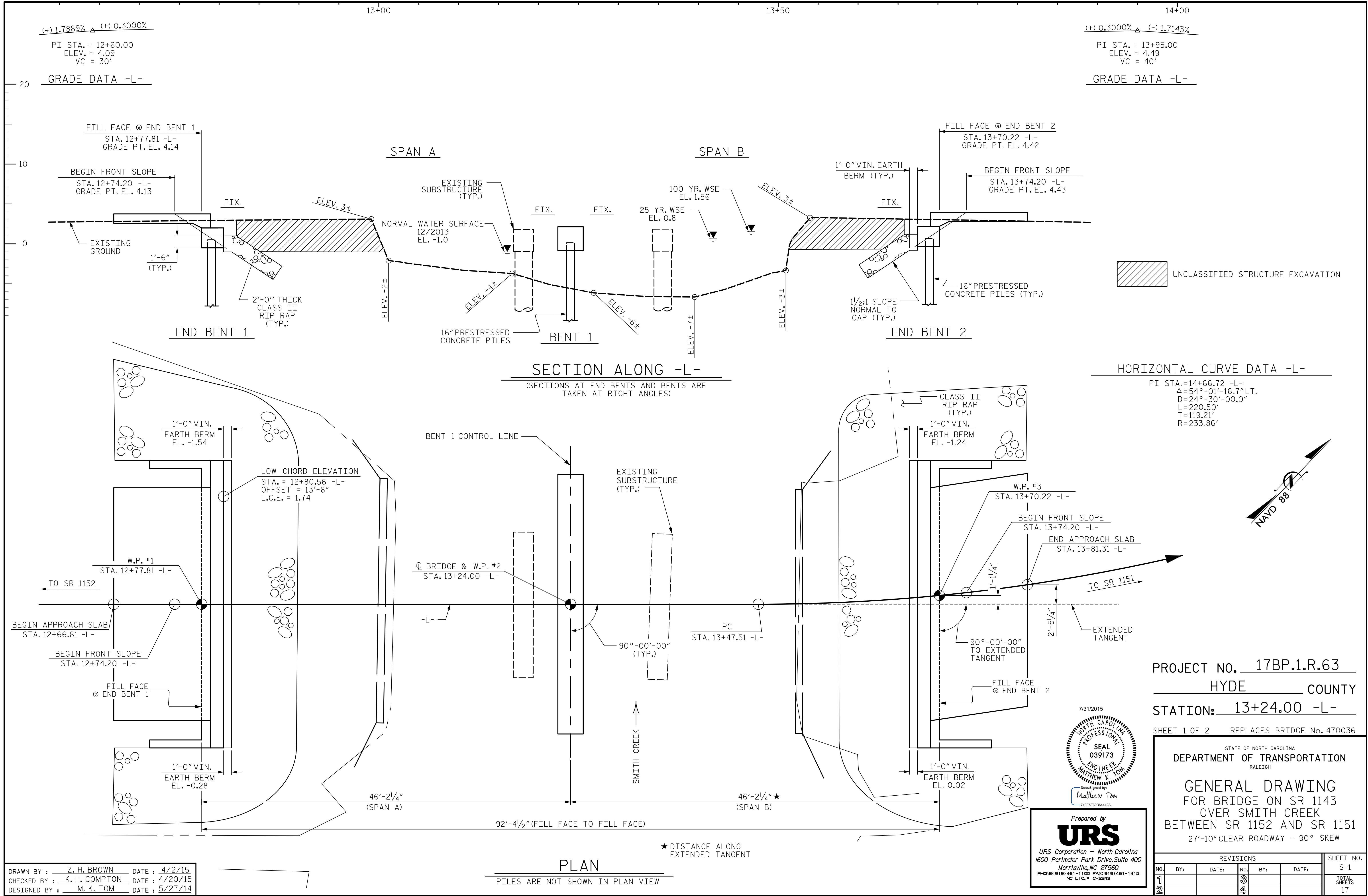
8/23/99

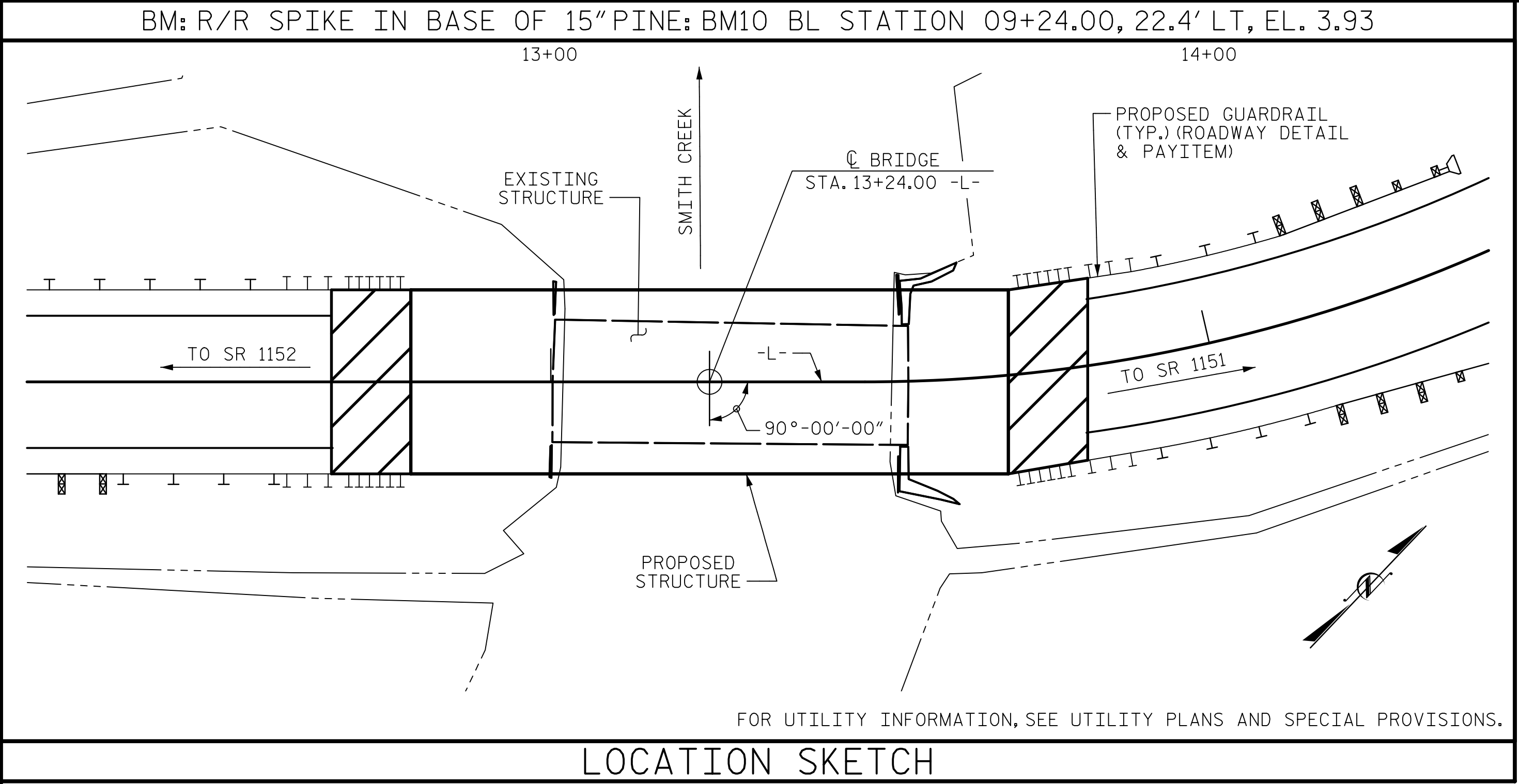
02.55	PROJ. REFERENCE NO.	SHEET NO.
	17BP.1.R.63	X-2











NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASTHO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

FOR UTILITY INFORMATION, SEE UTILITY PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS, PILE CAPS, AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL, BENT CAPS, END BENTS CAPS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICAITONS.

THE CONCRETE IN THE BENT CAP, END BENT CAPS, AND PILES OF BENT NO. 1 AND END BENTS NO.1 & 2 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 3 SPANS TOTALING 52'-0", WITH TIMBER FLOORS AND TIMBER JOISTS, ON TIMBER CAPS WITH TIMBER PILES, AND 19'-2' CLEAR ROADWAY TO BE REMOVED). THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

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

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

FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENTS No.1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.

DRIVE PILES AT END BENTS No.1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

PILES AT BENT No.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.

DRIVE PILES AT BENT No.1 TO A REQUIRED DRIVING RESISTANCE OF 185 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAW OR SCOUR.

INSTALL PILES AT BENT No.1 TO A TIP ELEVATION NO HIGHER THAN -40 FT.

THE SCOUR CRITICAL ELEVATION FOR BENT No.1 IS ELEVATION -12 FT. SCOUR CRITICAL ELEVATION IS USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 15 TO 25 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT No.1 AND 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 35 TO 45 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT No.1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

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

STEEL PILE TIPS ARE REQUIRED FOR PRESTRESSED CONCRETE PILES AT END BENTS No.1 AND 2, AND BENT No.1. FOR STEEL PILE TIPS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PREDRILLING FOR PILES IS REQUIRED AT END BENTS No.1 AND 2, AND BENT No.1. PREDRILL PILE LOCATIONS TO ELEVATION -20 FT WITH EQUIPMENT THAT WILL RESULT IN A MAXIMUM PREDRILLING DIAMETER OF 23" FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

SPODDING MAY BE USED INSTEAD OF PREDRILLING AT END BENT No.1 AND 2, AND BENT No.1.

TEMPORARY STEEL CASINGS ARE REQUIRED FOR PREDRILLING AT END ENTS No.1 AND 2, AND BENT No.1.

TOTAL BILL OF MATERIAL								
	REMOVAL OF EXISTING STRUCTURE AT STA 13+24.00 -L-	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR 16" PRESTRESSED CONCRETE PILES
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH
SUPERSTRUCTURE								
END BENT 1					13.7		1983	5
BENT 1					9.3		1909	7
END BENT 2					13.7		1983	5
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	36.7	LUMP SUM	5875	17

TOTAL BILL OF MATERIAL										
	16" PRESTRESSED CONCRETE PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAILS	RIP RIP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CORED SLABS		PREDRILLING FOR PILES
	No.	LIN. FT.	EACH	LIN. FT.	TON	SQ. YDS.	LUMP SUM	No.	LIN. FT.	LIN. FT.
SUPERSTRUCTURE				90				20	900	
END BENT 1	5	400	3		70	80				100
BENT 1	7	630	4							105
END BENT 2	5	375	3		70	80				100
TOTAL	17	1405	10	90	140	160	LUMP SUM	20	900	305

DRAWN BY : Z. H. BROWN DATE : 4/2/15
CHECKED BY : K. H. COMPTON DATE : 4/20/15
DESIGNED BY : M. K. TOM DATE : 5/27/14

10/7/2019
\\USRAL3\Fp001.na.decomnet.com\Data\Morrisville\Jobs\WCDOT Division On-Call\Assignment #1\Low Impact Bridge Projects\Hyde 36\Structures\Drawings\17BP.1.R.36.SD.GD_02.dgn
matt.tom

HYDRAULIC DATA

DESIGN DISCHARGE_____ = 470 CFS.
FREQUENCY OF DESIGN FLOOD_____ = 25 YR.
DESIGN HIGH WATER ELEVATION_____ = 0.8 FT.
DRAINAGE AREA_____ = 2.92 SQ. MI.
BASE FLOOD DISCHARGE (Q100)_____ = 700 CFS.
BASE HIGH WATER ELEVATION_____ = 1.56 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE_____ = 615 CFS
FREQUENCY OF OVERTOPPING FLOOD_____ = 50(+) YR.
OVERTOPPING FLOOD ELEVATION_____ = 1.0FT.



PROJECT NO. 17BP.1.R.63

HYDE COUNTY

STATION: 13+24.00 -L-

SHEET 2 OF 2 REPLACES BRIDGE No. 470036

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON SR 1143
OVER SMITH CREEK
BETWEEN SR 1152 AND SR 1151
27'-10" CLEAR ROADWAY - 90° SKEW

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

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	
							LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT					
								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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.088	--	1.75	0.277	1.34	45'	EL	22	0.539	1.23	45'	EL	2.2	0.80	0.277	1.09	45'	EL	22	
		HL-93(0pr)	N/A	--	1.590	--	1.35	0.277	1.74	45'	EL	22	0.539	1.59	45'	EL	2.2	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.336	48.104	1.75	0.277	1.65	45'	EL	22	0.539	1.45	45'	EL	2.2	0.80	0.277	1.34	45'	EL	22	
		HS-20(0pr)	36.000	--	1.882	67.763	1.35	0.277	2.14	45'	EL	22	0.539	1.88	45'	EL	2.2	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.611	35.252	1.4	0.277	4.02	45'	EL	22	0.539	4.01	45'	EL	2.2	0.80	0.277	2.61	45'	EL	22	
		SNGARBS2	20.000	--	2.108	42.166	1.4	0.277	3.25	45'	EL	22	0.539	2.94	45'	EL	2.2	0.80	0.277	2.11	45'	EL	22	
		SNAGRIS2	22.000	--	2.067	45.466	1.4	0.277	3.15	45'	EL	17.6	0.539	2.77	45'	EL	2.2	0.80	0.277	2.07	45'	EL	22	
		SNCOTTS3	27.250	--	1.304	35.527	1.4	0.277	2.01	45'	EL	22	0.539	2.01	45'	EL	2.2	0.80	0.277	1.30	45'	EL	22	
		SNAGGRS4	34.925	--	1.150	40.181	1.4	0.277	1.77	45'	EL	22	0.539	1.74	45'	EL	2.2	0.80	0.277	1.15	45'	EL	22	
		SNS5A	35.550	--	1.121	39.841	1.4	0.277	1.73	45'	EL	22	0.539	1.79	45'	EL	2.2	0.80	0.277	1.12	45'	EL	22	
		SNS6A	39.950	--	1.056	42.175	1.4	0.277	1.63	45'	EL	22	0.539	1.67	45'	EL	2.2	0.80	0.277	1.06	45'	EL	22	
		SNS7B	42.000	3	1.006	42.268	1.4	0.277	1.55	45'	EL	22	0.539	1.68	45'	EL	2.2	0.80	0.277	1.01	45'	EL	22	
	TTST	TNAGRIT3	33.000	--	1.296	42.759	1.4	0.277	2	45'	EL	22	0.539	1.96	45'	EL	2.2	0.80	0.277	1.30	45'	EL	22	
		TNT4A	33.075	--	1.309	43.305	1.4	0.277	2.02	45'	EL	22	0.539	1.88	45'	EL	2.2	0.80	0.277	1.31	45'	EL	22	
		TNT6A	41.600	--	1.099	45.712	1.4	0.277	1.69	45'	EL	22	0.539	1.83	45'	EL	2.2	0.80	0.277	1.10	45'	EL	22	
		TNT7A	42.000	--	1.120	47.043	1.4	0.277	1.73	45'	EL	22	0.539	1.69	45'	EL	2.2	0.80	0.277	1.12	45'	EL	22	
		TNT7B	42.000	--	1.166	48.975	1.4	0.277	1.8	45'	EL	22	0.539	1.61	45'	EL	2.2	0.80	0.277	1.17	45'	EL	22	
		TNAGRIT4	43.000	--	1.111	47.757	1.4	0.277	1.71	45'	EL	22	0.539	1.55	45'	EL	2.2	0.80	0.277	1.11	45'	EL	22	
		TNAGT5A	45.000	--	1.033	46.505	1.4	0.277	1.59	45'	EL	22	0.539	1.59	45'	EL	2.2	0.80	0.277	1.03	45'	EL	22	
		TNAGT5B	45.000	--	1.009	45.408	1.4	0.277	1.56	45'	EL	22	0.539	1.47	45'	EL	2.2	0.80	0.277	1.01	45'	EL	22	

LOAD FACTORS:

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

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:

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-
-
-

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

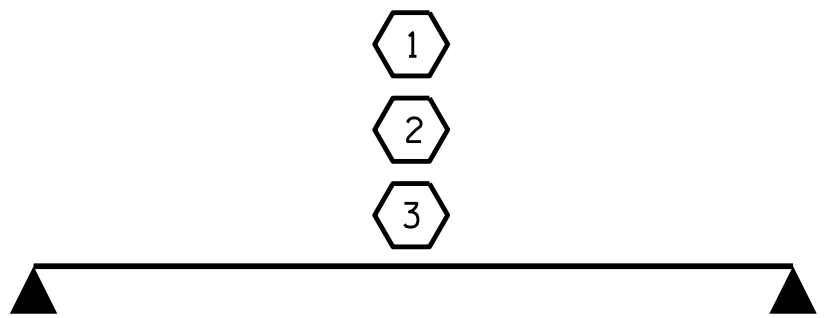
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY
FOR SPANS 'A' & 'B'

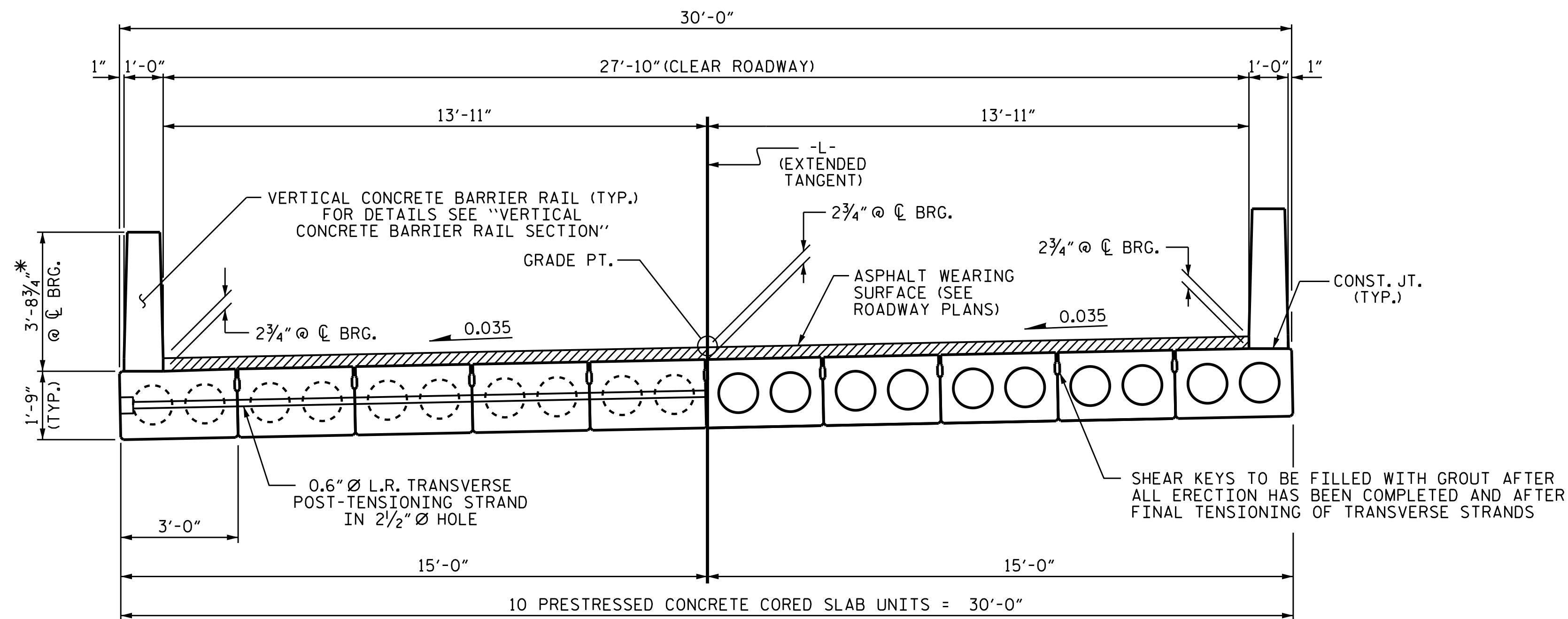
PROJECT NO. 17BP.1.R.63
HYDE COUNTY
STATION: 13+24.00 -L-

ASSEMBLED BY : M.M. AHMED	DATE : 3-2-15
CHECKED BY : P.N. HOLDER	DATE : 3-17-15
DRAWN BY : CVC	6/10
CHECKED BY : DNS	6/10

DocuSigned by:
Greg Dickey
3/27/2015
884E48BCE584B6

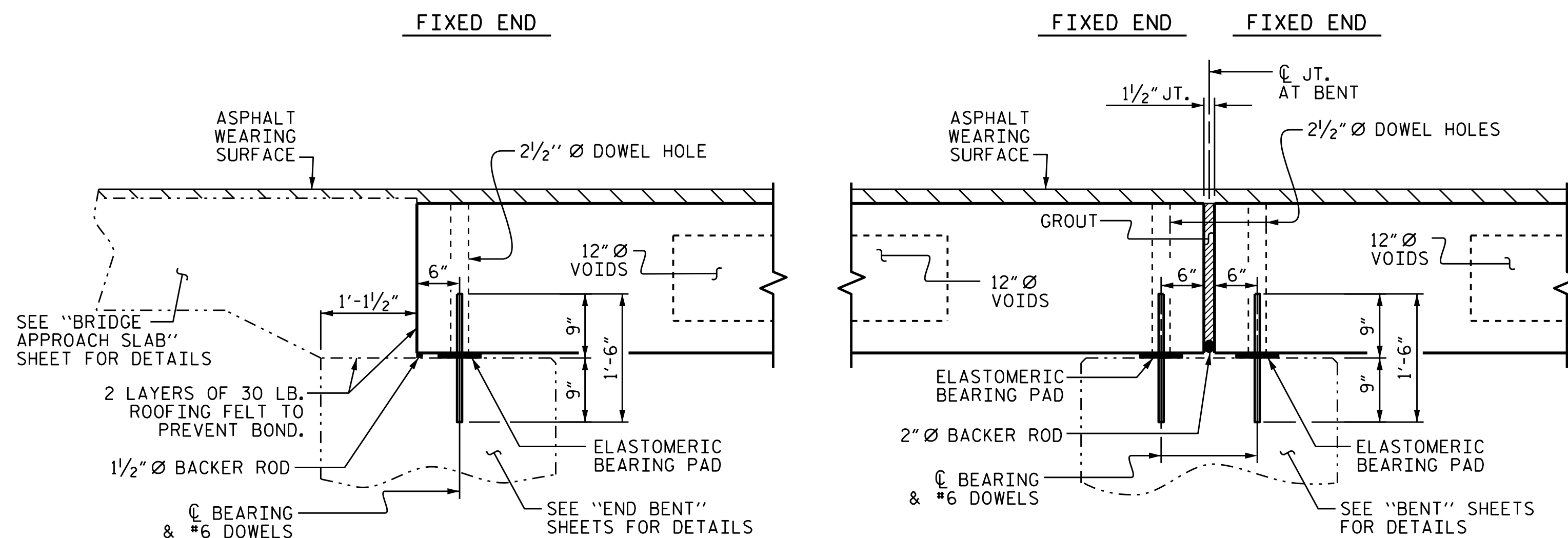
NORTH CAROLINA
PROFESSIONAL
SEAL
21271
ENGINEER
GREGORY W. DICKEY

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD LRFR SUMMARY FOR 45' CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)						SHEET NO. S-3
REVISIONS						TOTAL SHEETS 17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



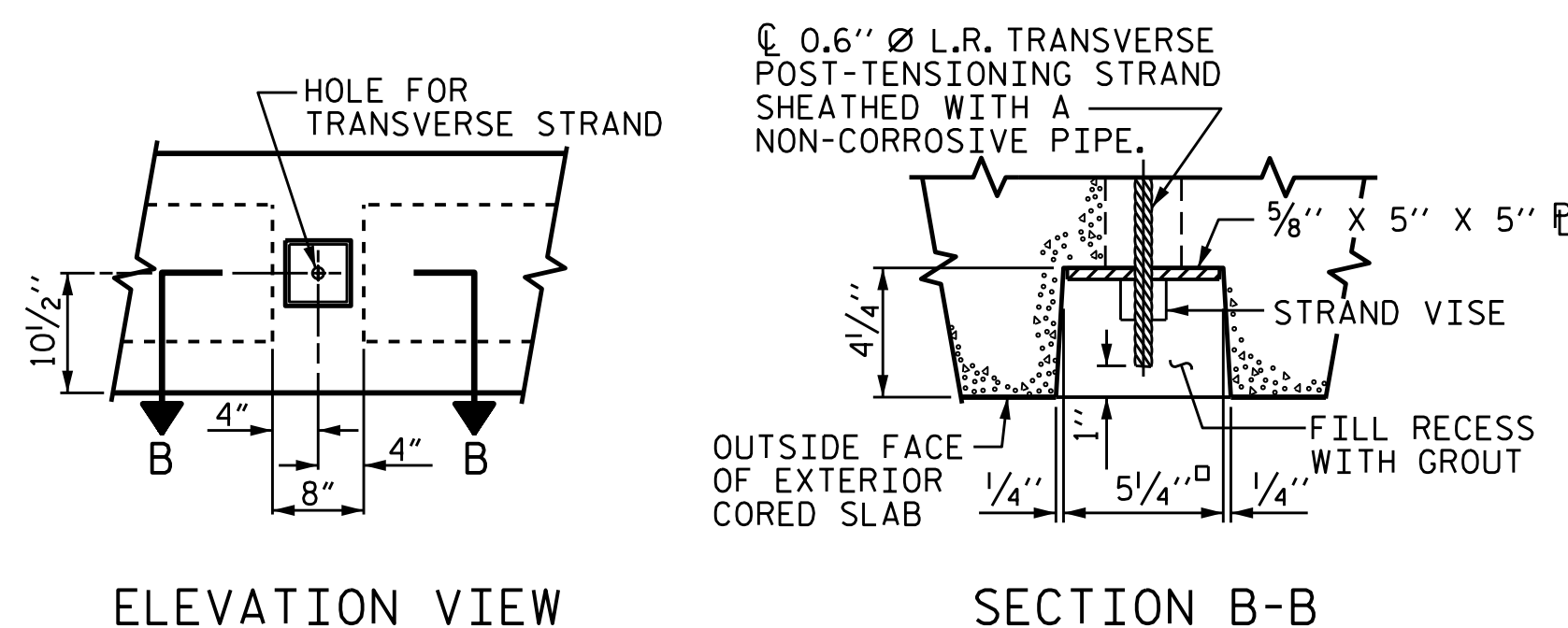
TYPICAL SECTION

* - 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 GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

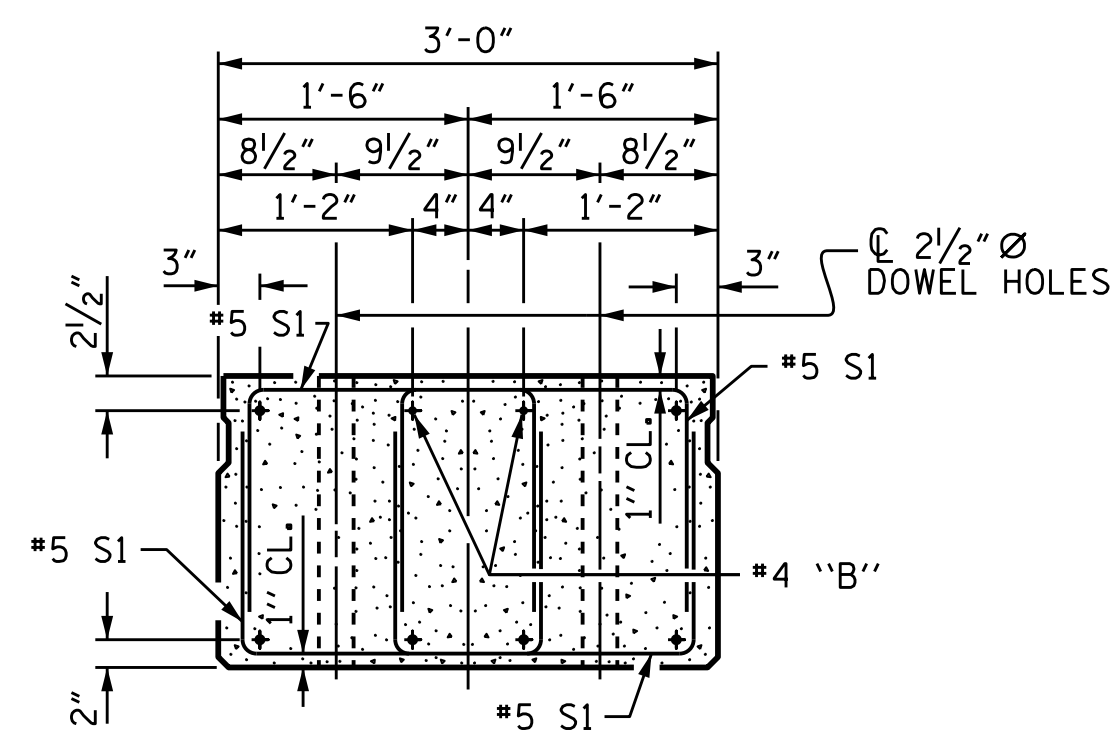


SECTION AT END BENT

SECTION AT BENT

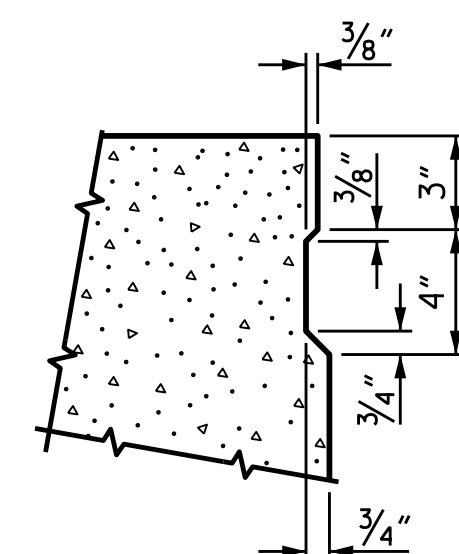


GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



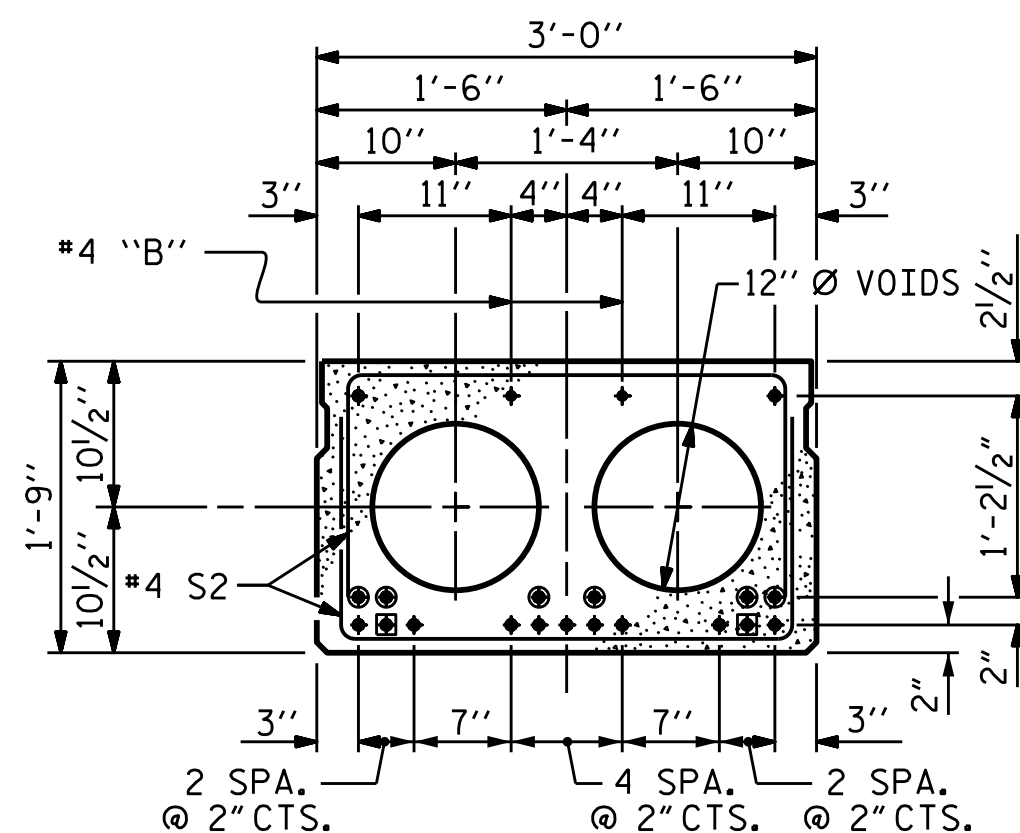
END ELEVATION

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



SHEAR KEY DETAIL

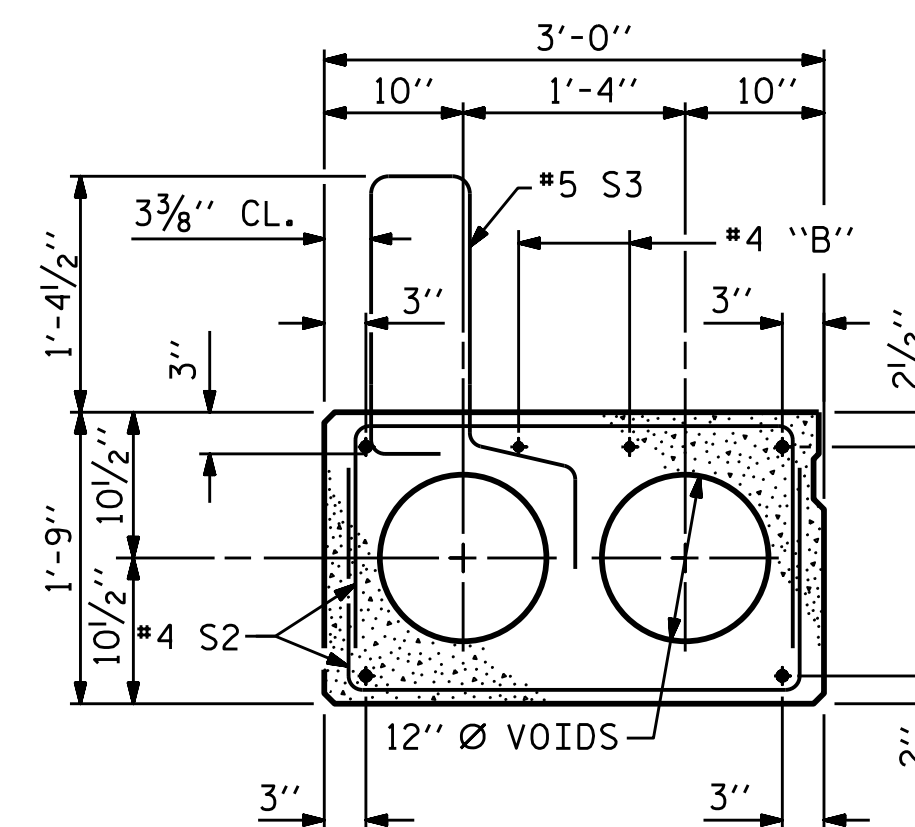
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



INTERIOR SLAB SECTION (45' UNIT)

(13 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT



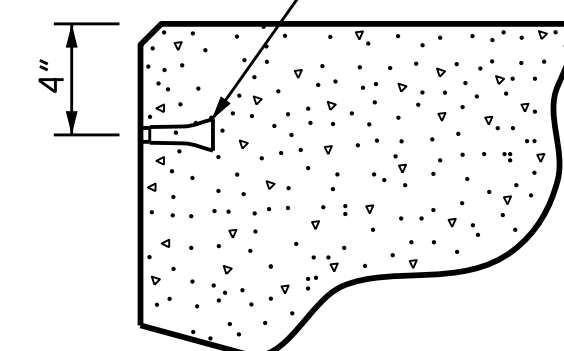
EXT. SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL

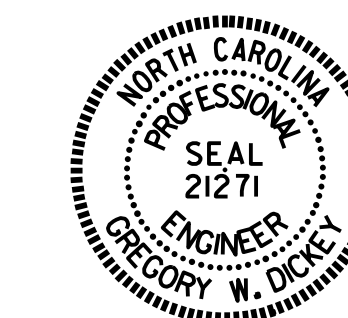
PROJECT NO. 17BP.1.R.63
HYDE COUNTY
STATION: 13+24.00 -L-

SHEET 1 OF 4

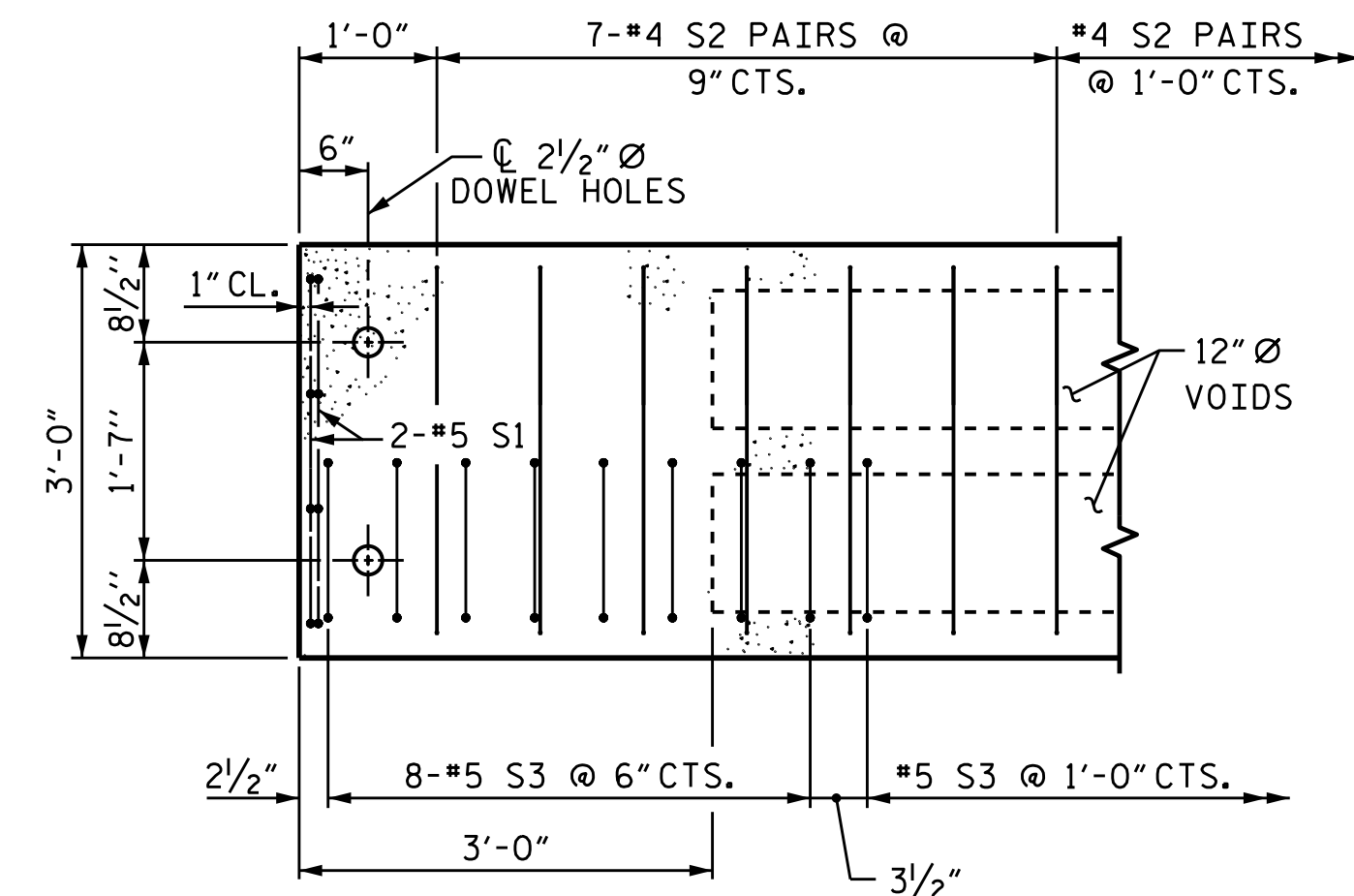
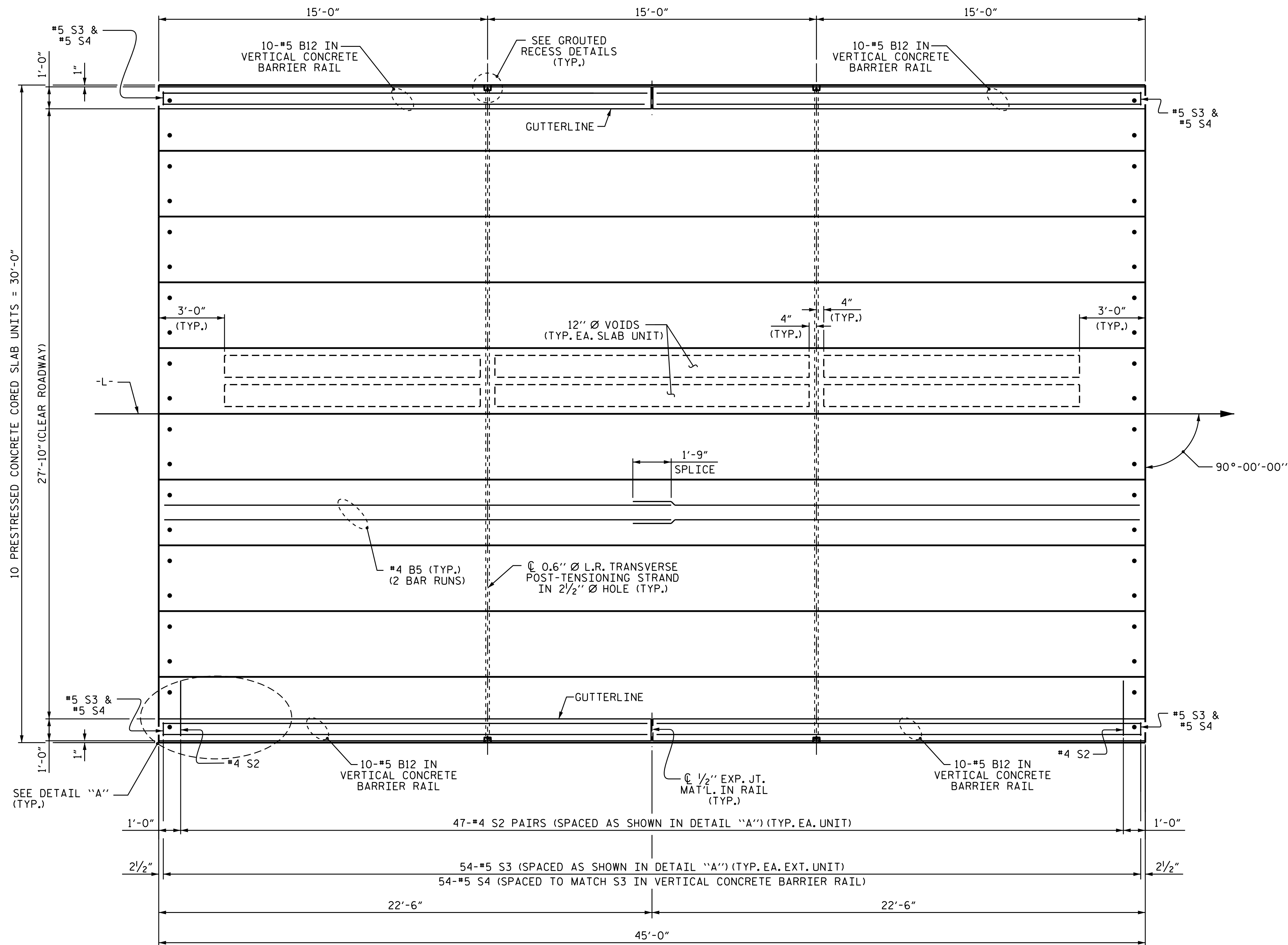
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT

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

ASSEMBLED BY : M.M. AHMED	DATE : 3-2-15
CHECKED BY : P.N. HOLDER	DATE : 3-17-15
DRAWN BY : DGE 5/09	
CHECKED BY : BCH 6/09	



Drawn By: 3/27/2015
Gregory W. Dickey



DETAIL "A"
(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR
UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT
NO DECK DRAINS REQUIRED

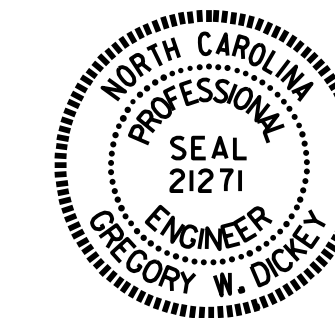
PROJECT NO. 17BP.1.R.63
HYDE COUNTY
STATION: 13+24.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 45' UNIT
27'-10" CLEAR ROADWAY
90° SKEW
SPAN A

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

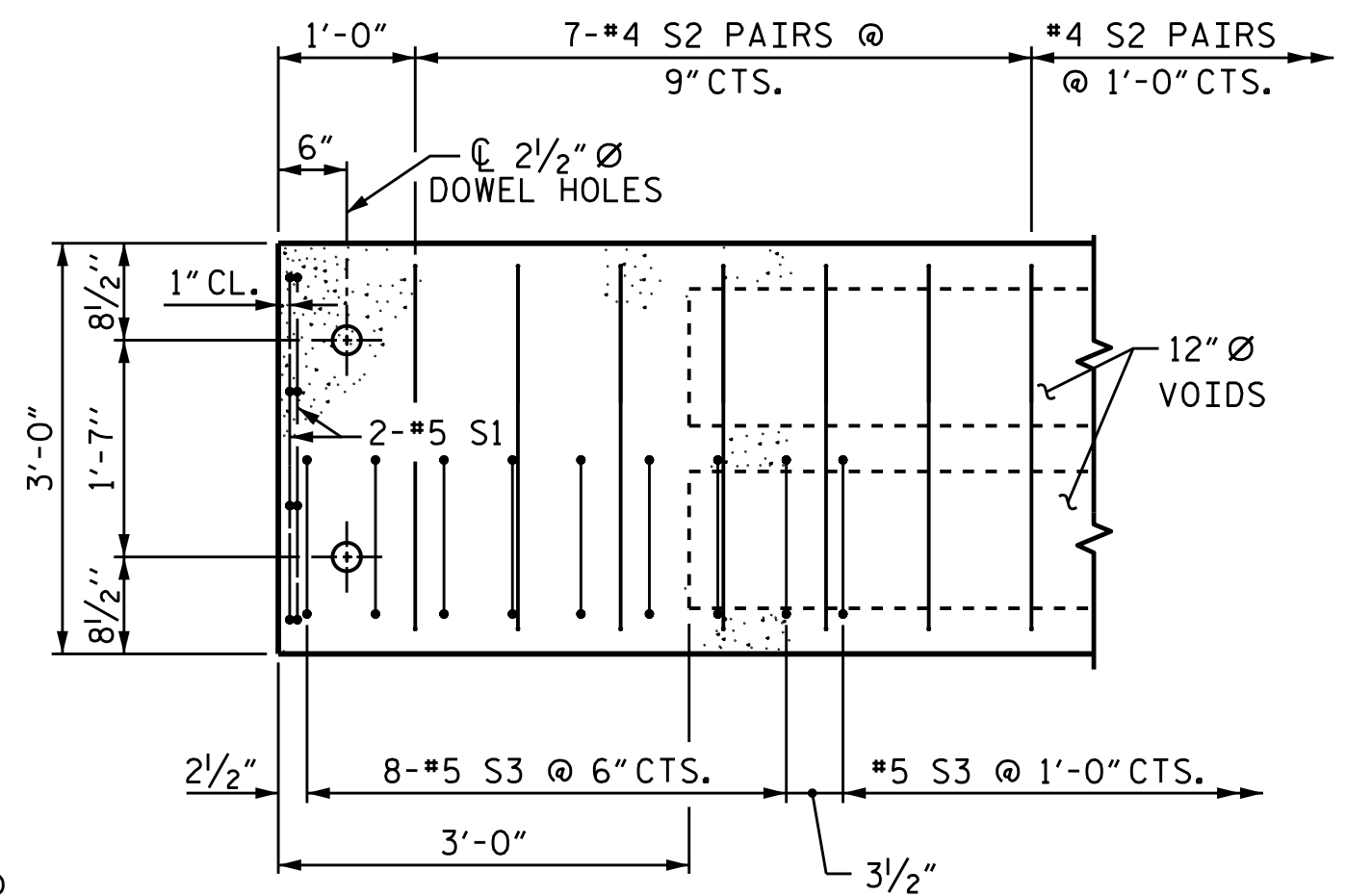
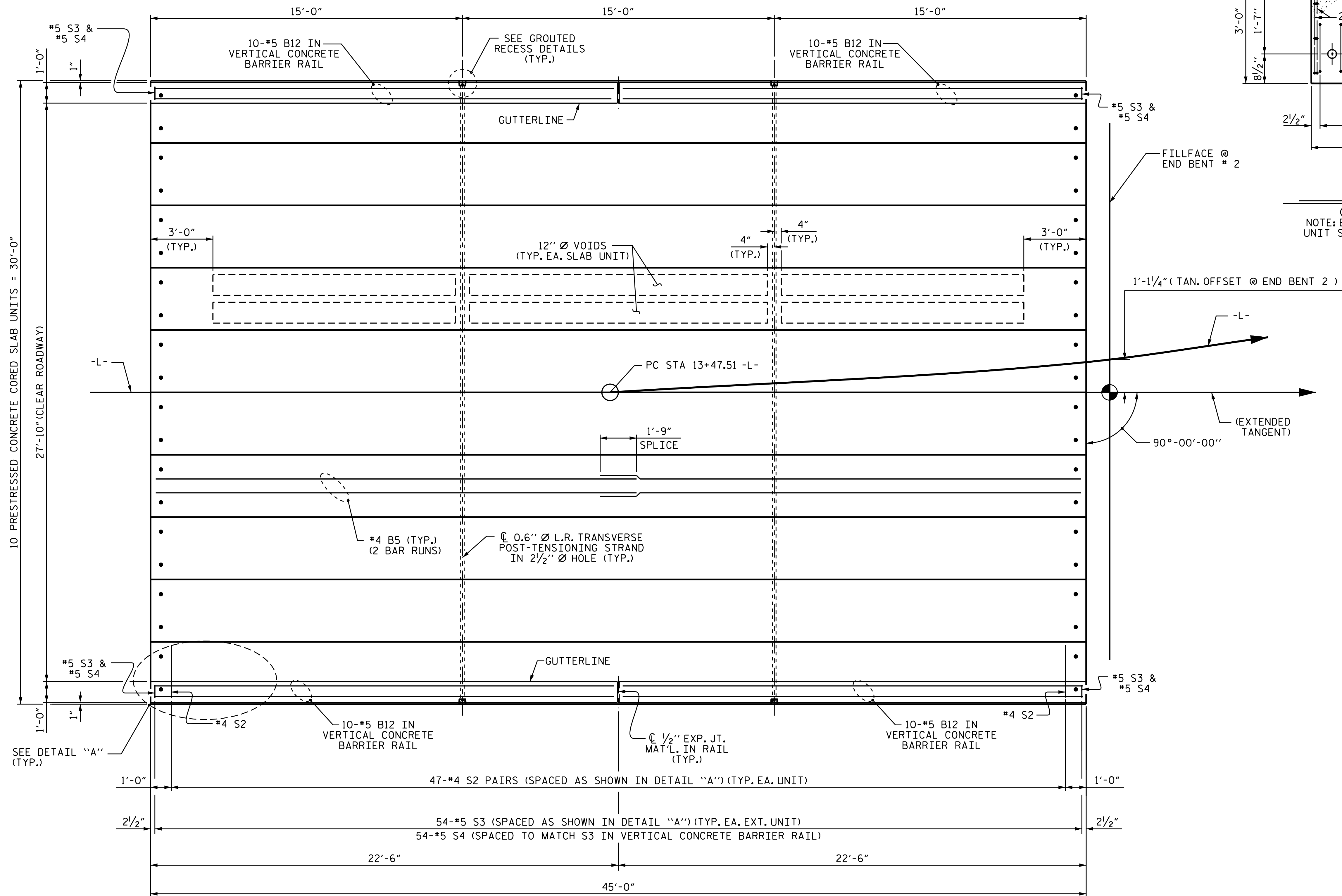


Drawn by: 3/27/2015
Greg Dickey

ASSEMBLED BY : M.M. AHMED	DATE : 3-2-15
CHECKED BY : P.N. HOLDER	DATE : 3-17-15
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	REV. 8/14 MAA/TMG

26-MAR-2015 09:01
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gdcickey

STD. NO. 21" PCS_30_90S_45L



DETAIL "A"

(TYPICAL EACH END OF UNIT)

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

PLAN OF UNIT NO DECK DRAINS REQUIRED

PROJECT NO. 17BP.1.R.63

HYDE COUNTY

STATION: 13+24.00 -L-

SHEET 3 OF 4					
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF 45' UNIT 27'-10" CLEAR ROADWAY 90° SKEW SPAN B					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-6					TOTAL SHEETS 17

ASSEMBLED BY : M.M. AHMED	DATE : 3-2-15
CHECKED BY : P.N. HOLDER	DATE : 3-17-15
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	REV. 8/14 MAA/TMG



Designed by: 3/27/2015

Gregory W. Dickey

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.)

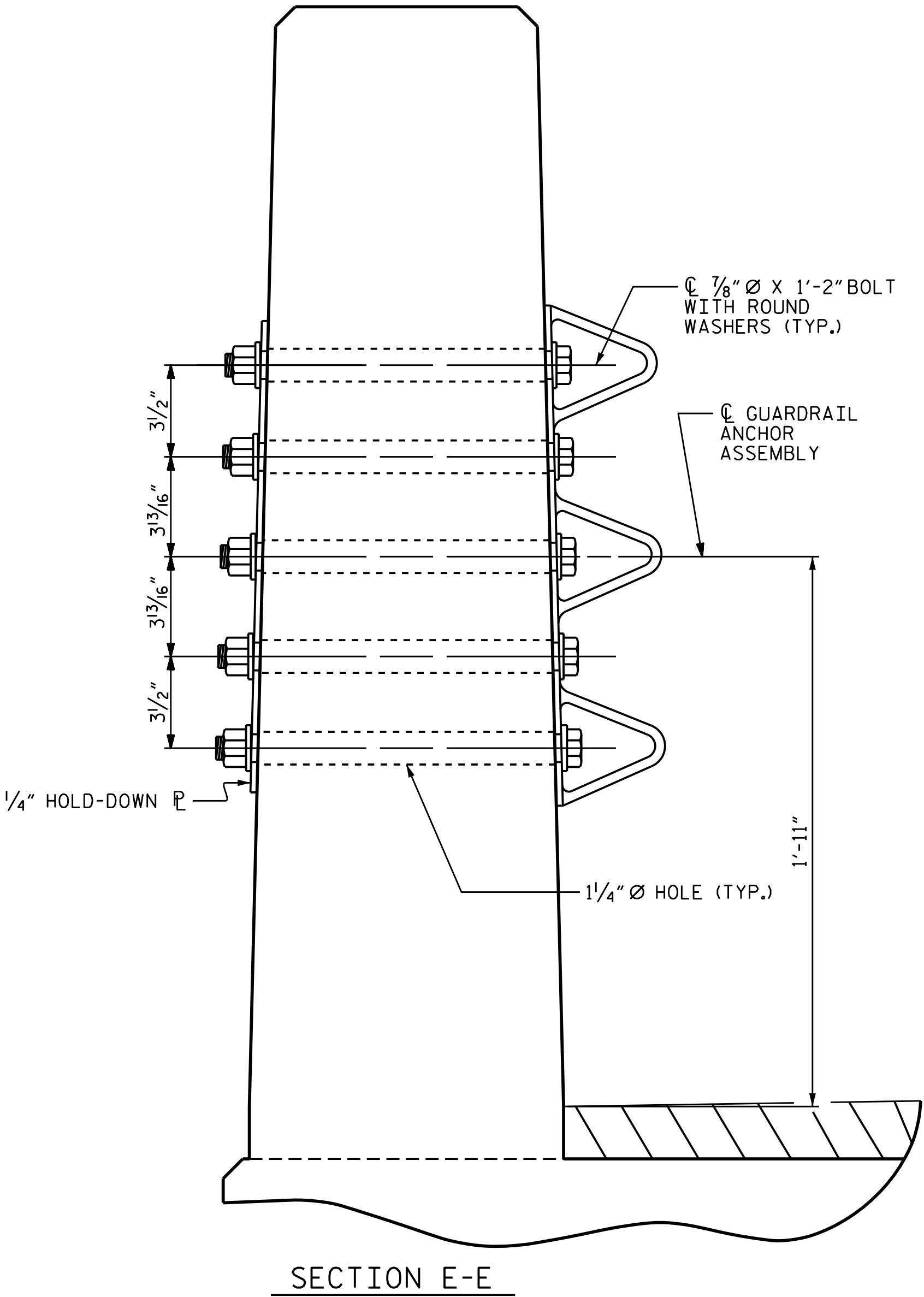
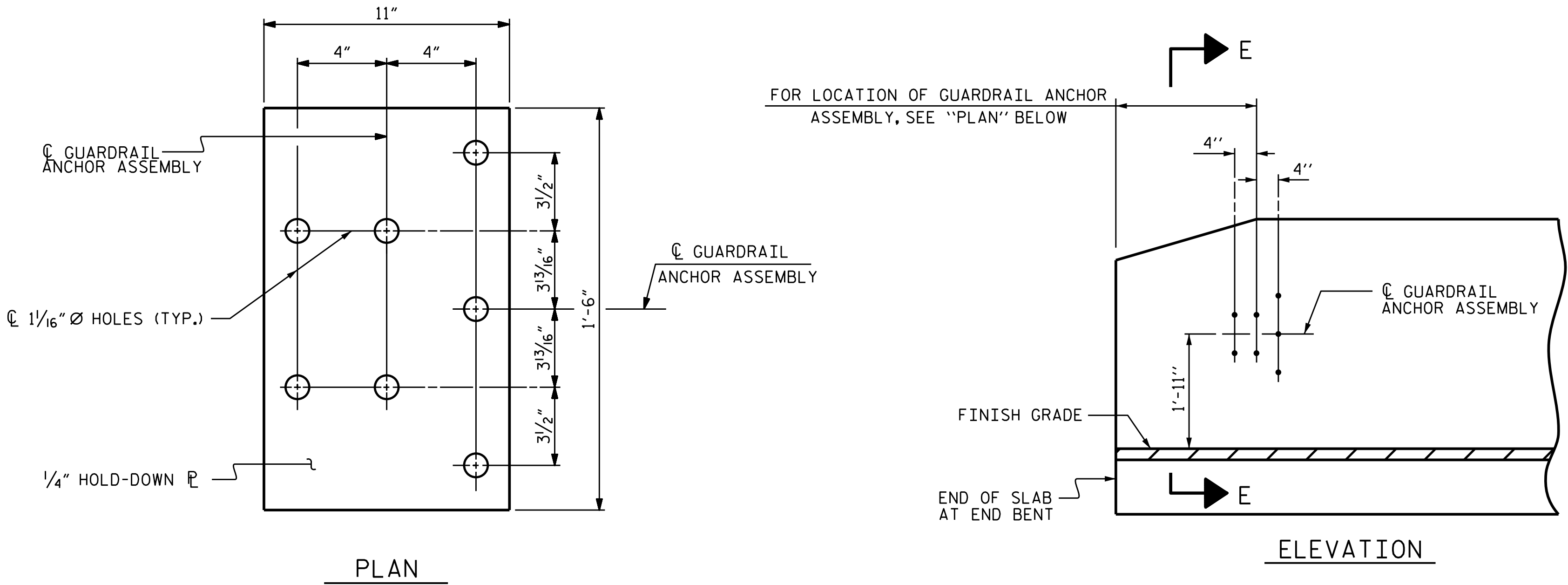
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

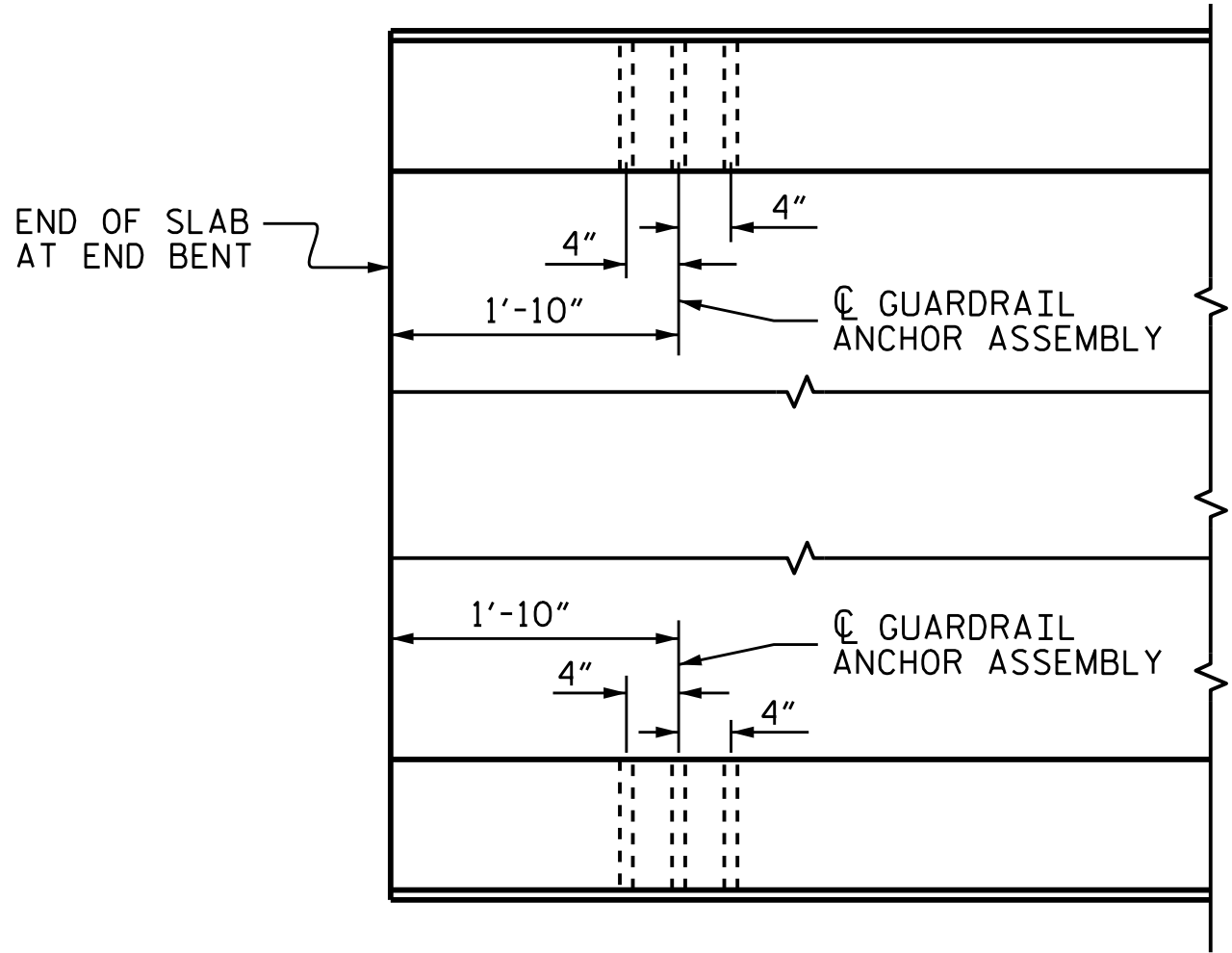
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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.

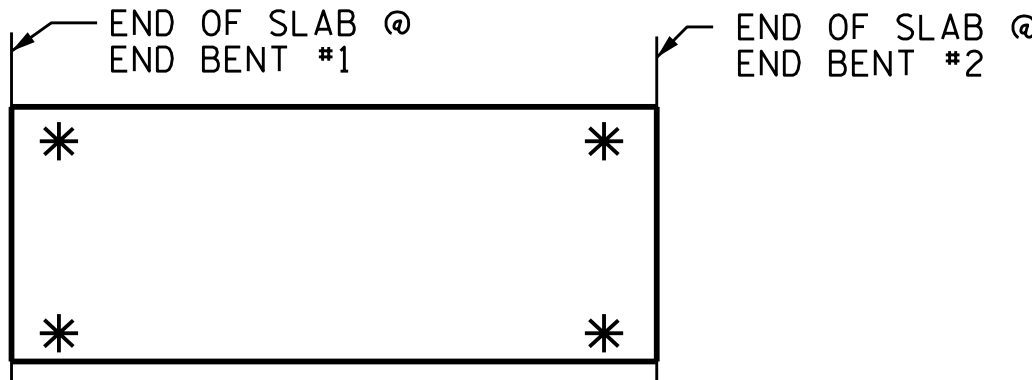


SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF
ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING
POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.1.R.63
HYDE COUNTY
STATION: 13+24.00 -L-

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

REVISIONS						SHEET NO. S-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 17
2			4			



DocuSigned by:
Gregory W. Dickey
3/27/2015

ASSEMBLED BY : M.M. AHMED	DATE : 3-2-15
CHECKED BY : P.N. HOLDER	DATE : 3-17-15
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11
	REV. 12/5/11
	MAA/GM
	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.

ALL BAR SUPPORTS AND REINFORCING STEEL SHALL BE EPOXY COATED.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER 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.

TOP OF PILE ELEVATIONS

①	0.03
②	0.32
③	0.61
④	0.90
⑤	1.19

PROJECT NO. 17BP.1.R.63

HYDE COUNTY

STATION: 13+24.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1

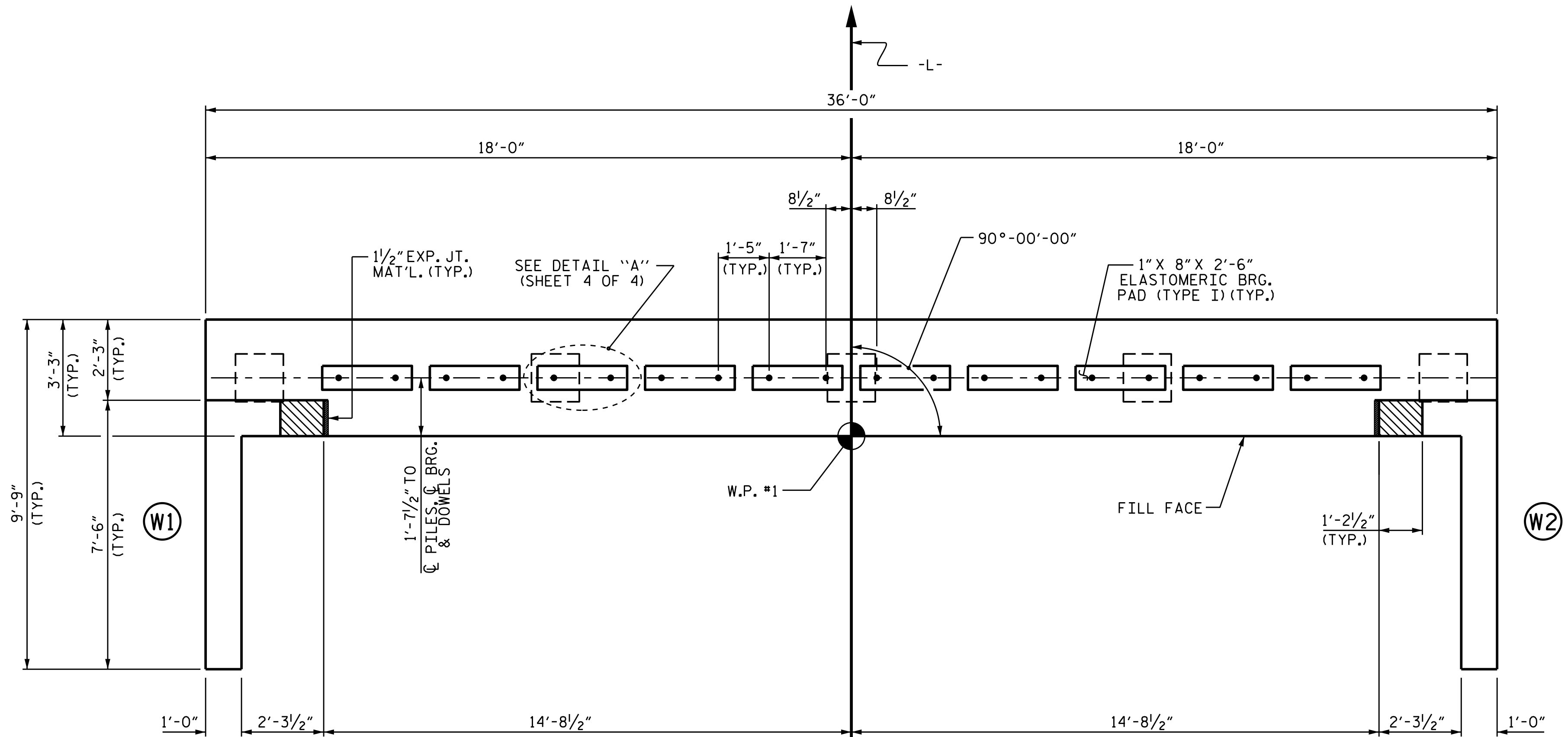
REVISIONS

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

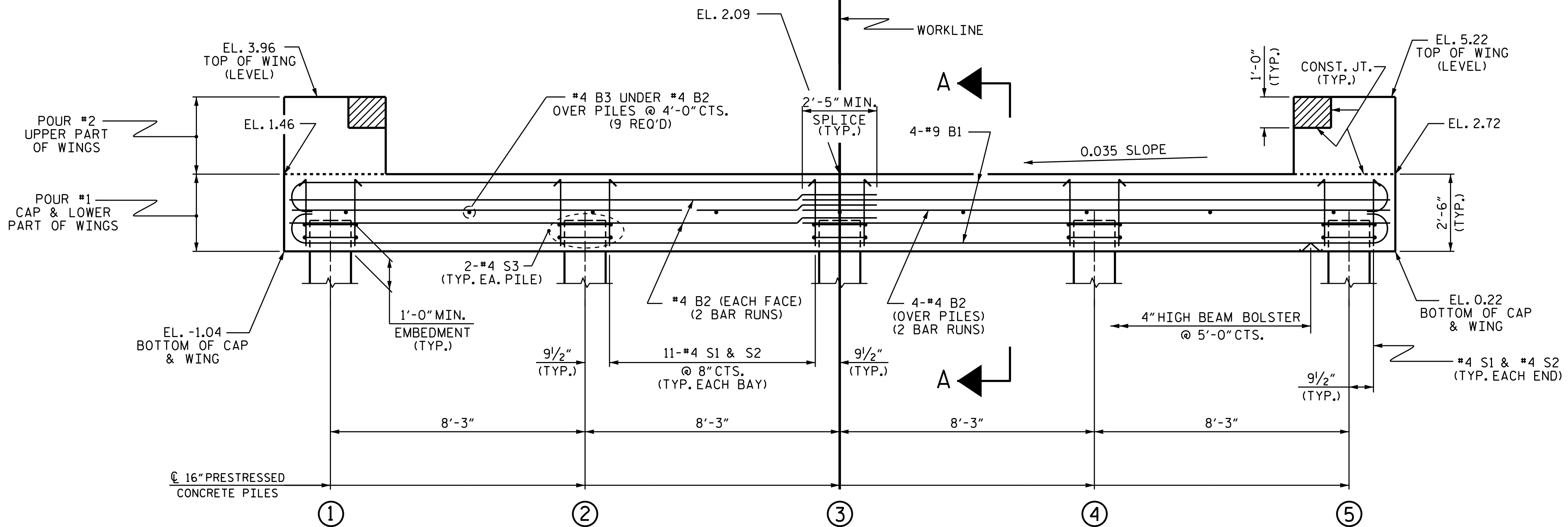
SHEET NO.
S-9
TOTAL SHEETS
17



DocuSigned by:
Gregory W. Dickey
3/27/2015
884E468BC5E9D486



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.

ASSEMBLED BY : M.M. AHMED	DATE : 3-5-15
CHECKED BY : P.N. HOLDER	DATE : 3-17-15
DRAWN BY : DGE 01/10	REV. 11/14
CHECKED BY : MKT 01/10	MAA/TMG

26-MAR-2015 09:02
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gdckey

STD. NO. EB_30_90S

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.

ALL BAR SUPPORTS AND REINFORCING STEEL
SHALL BE EPOXY COATED.

THE CONTRACTOR SHALL PROVIDE FOR
INSTALLATION OF THE 4" DIAMETER 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.

TOP OF PILE ELEVATIONS	
①	0.33
②	0.62
③	0.91
④	1.20
⑤	1.49

PROJECT NO. 17BP.1.R.63
HYDE COUNTY
 STATION: 13+24.00 -L-

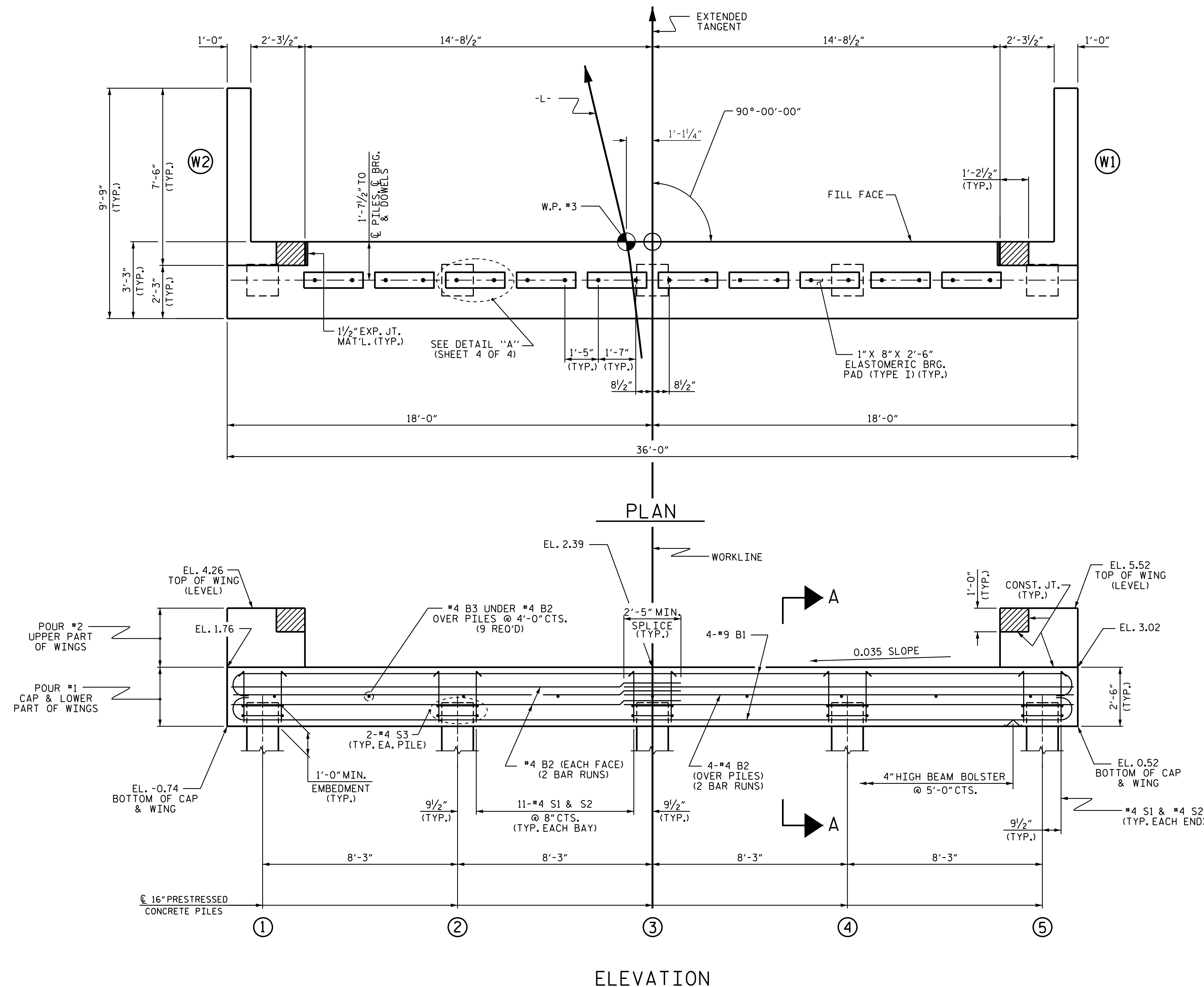
SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 17
2			4			

STD. NO. EB_30_90S



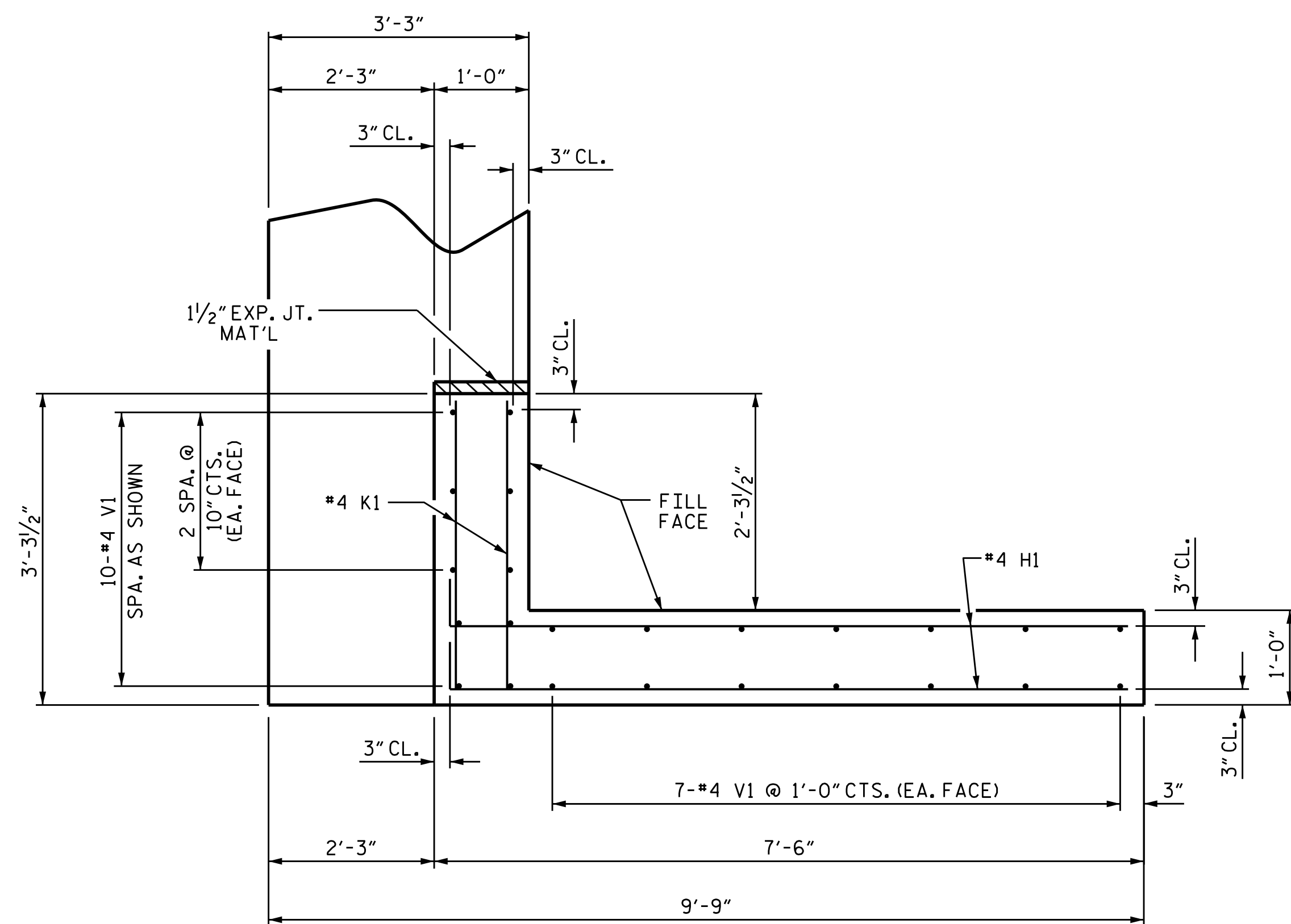
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.

ASSEMBLED BY : M.M. AHMED		DATE : 3-2-15	
CHECKED BY : P.N. HOLDER		DATE : 3-17-15	
DRAWN BY : DGE		01/10	REV. 11/14
CHECKED BY : MKT		01/10	
MAA/TMG			

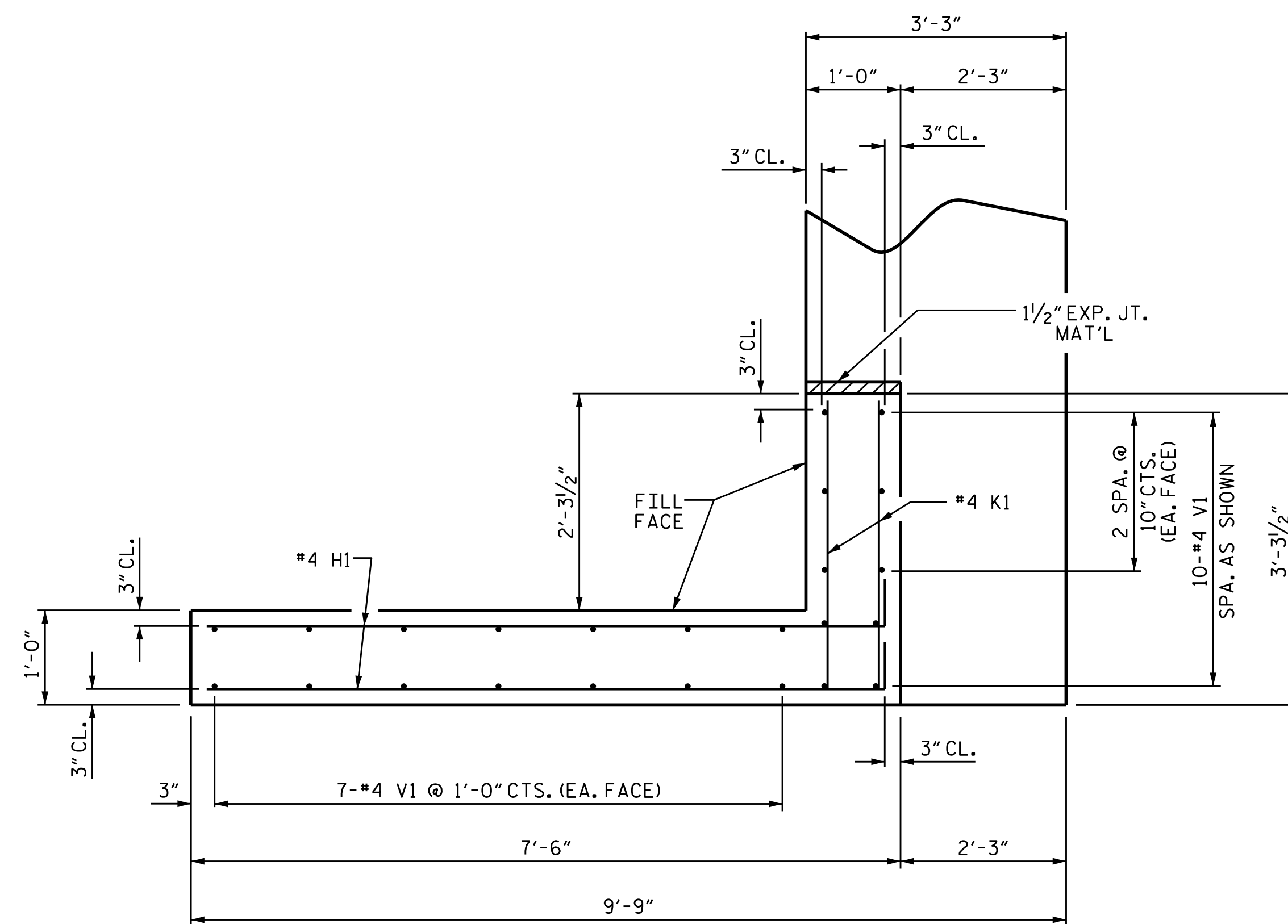
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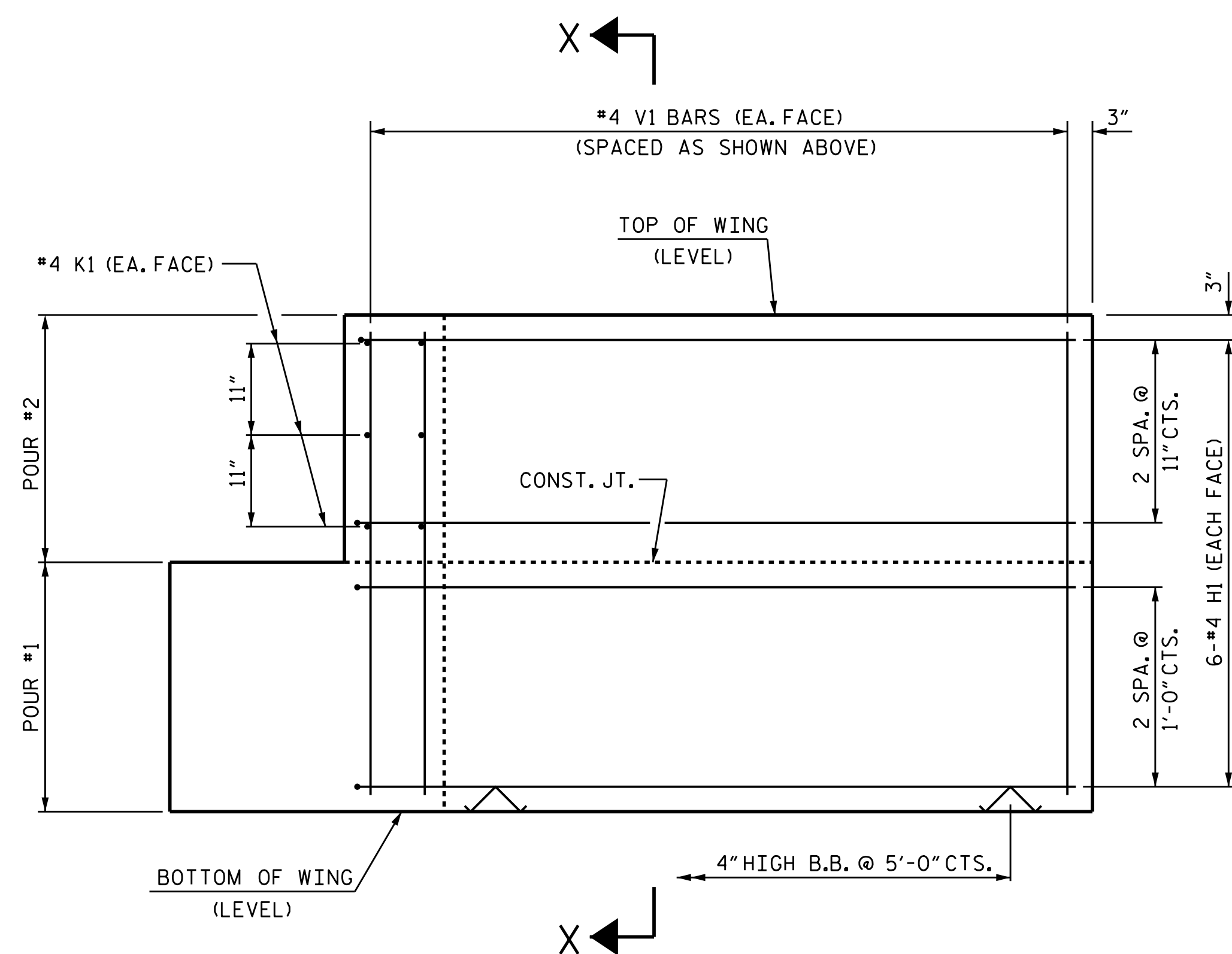
DocuSigned by:
Greg Dickey
3/27/201



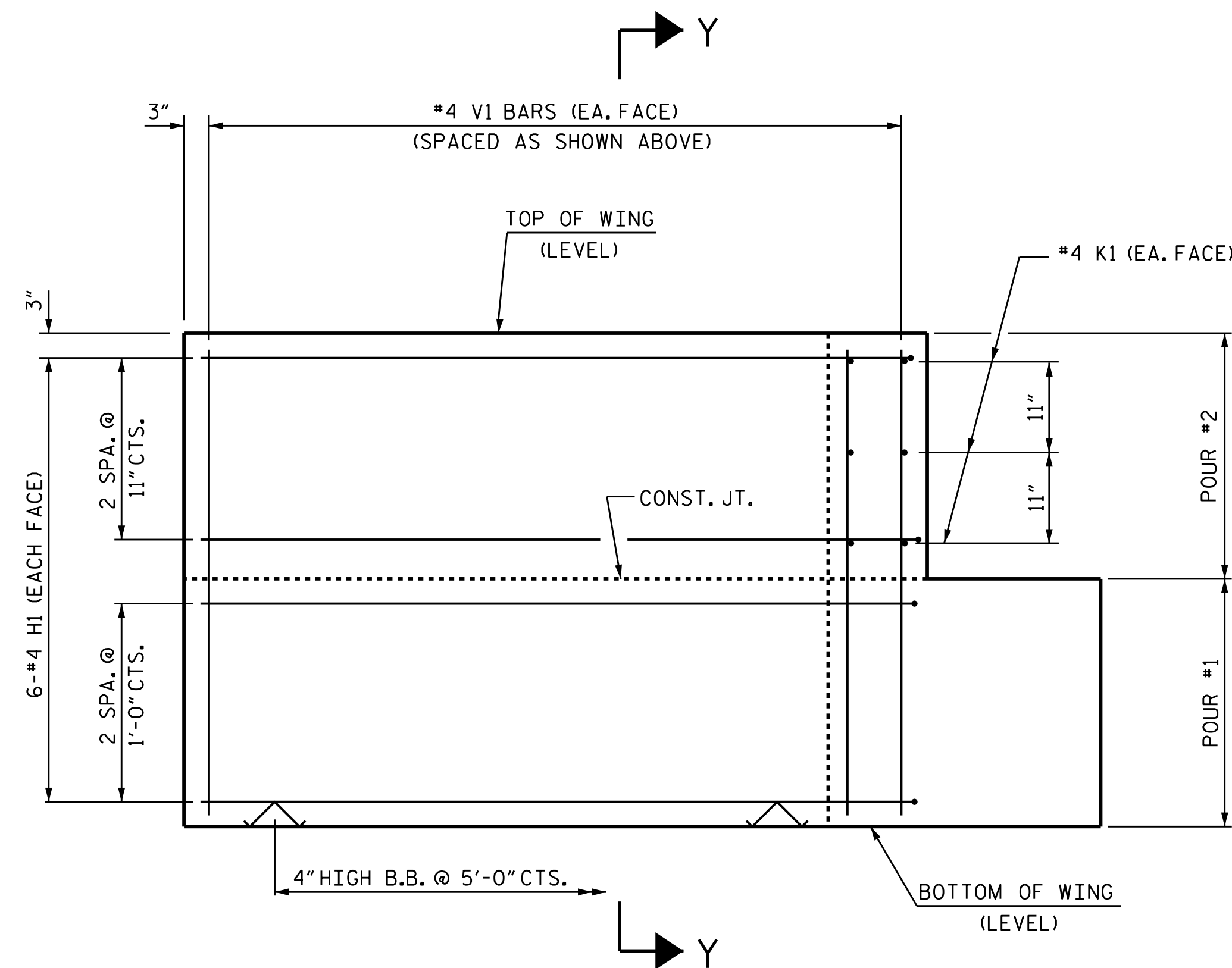
PLAN OF WING (W1)



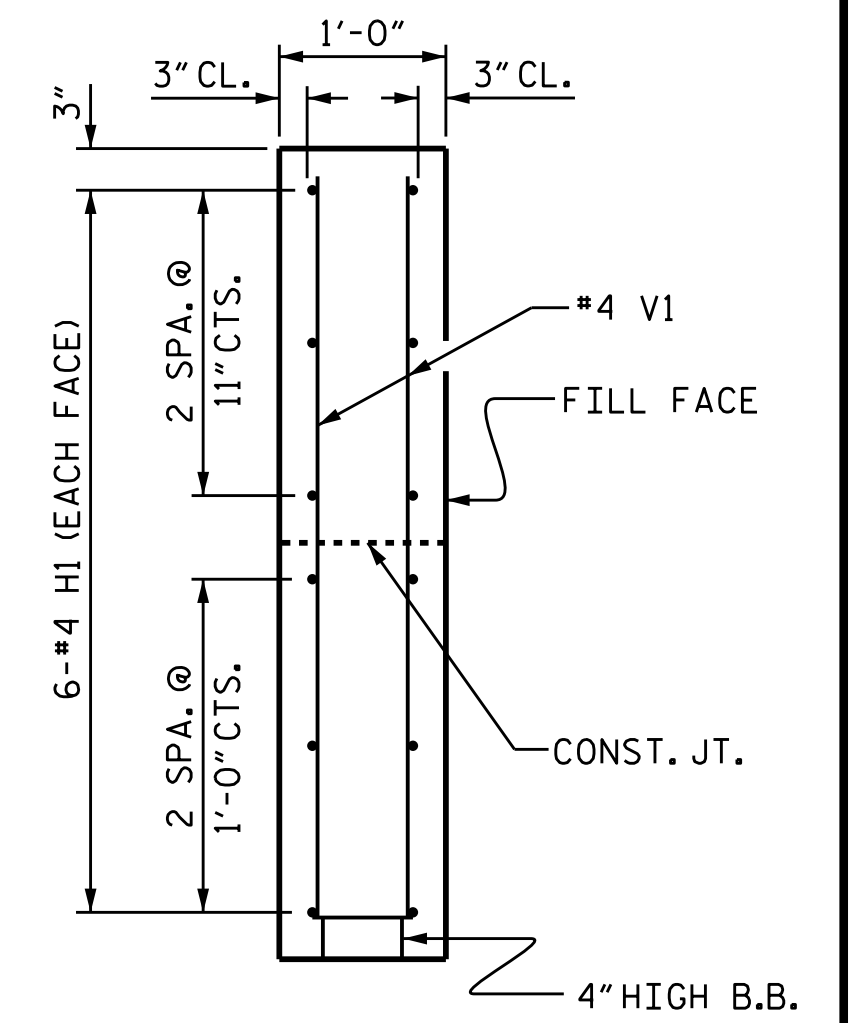
PLAN OF WING (W2)



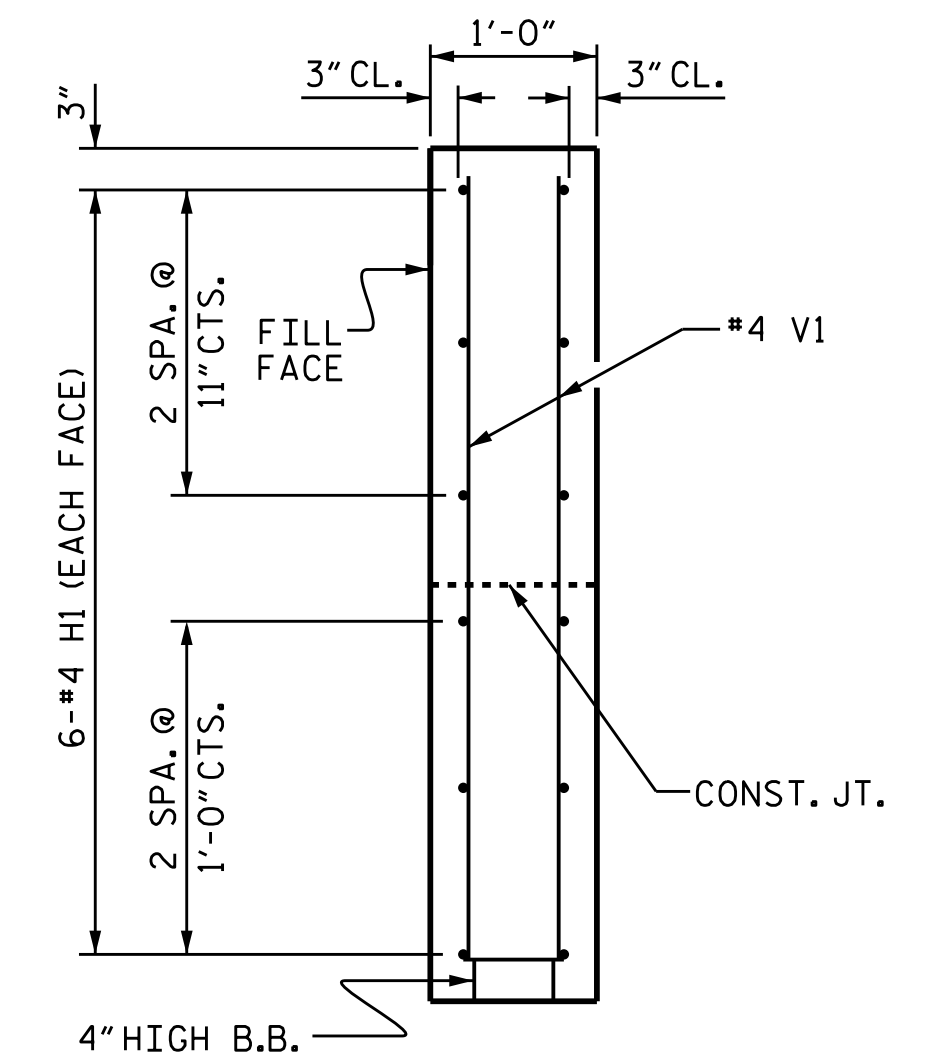
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

PROJECT NO. 17BP.1.R.63

HYDE COUNTY

STATION: 13+24.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

END BENT
WING DETAILS

WING DETAILS

REVISIONS						SHEET NO. S-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 17
2			4			

ASSEMBLED BY : M.M. AHMED		DATE : 3-2-15	
CHECKED BY : P.N. HOLDER		DATE : 3-17-15	
DRAWN BY : DGE 02/10		REV. 11/14	MAA/TMG
CHECKED BY : MKT 02/10			

DATE : 3-2-15
DATE : 3-17-15

DRAWN BY : DGE 02/10		REV. 11/14	
CHECKED BY : MKT 02/10		MAA/TMG	

DRAWN BY : DGE 02/10	REV. 11/14	MAA/TMG
CHECKED BY : MKT 02/10		

REV. 11/14 MAA/TMG

MAA/TMG

26-MAR-2015 09:02
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qdickey

gdickey



21271
ENGINEER
GREGORY W. DICKEY

ENGINEER
GREGORY W. DICKEY

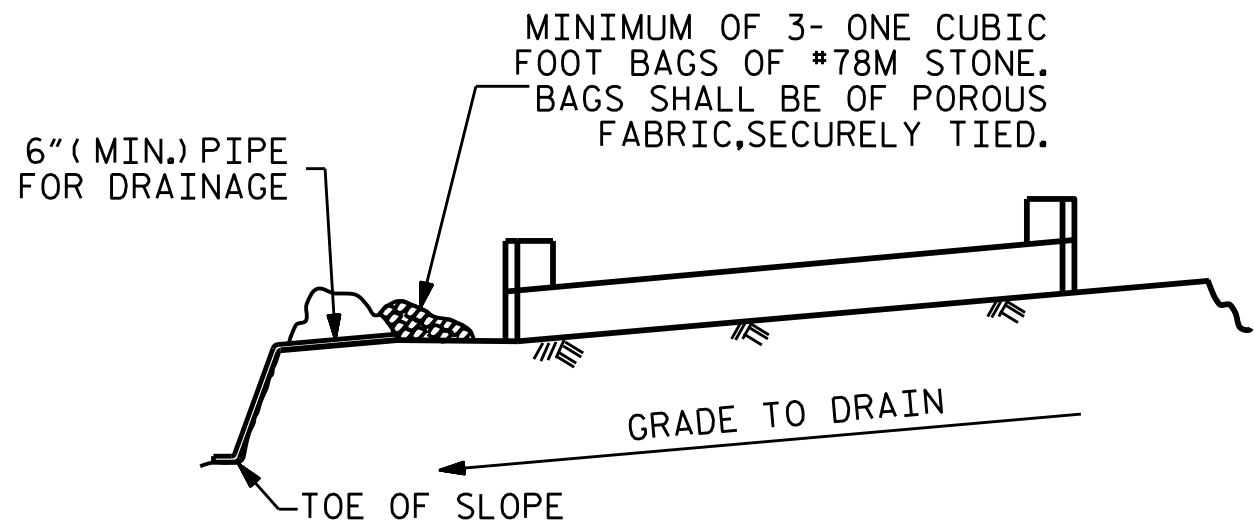
GREGORY W. DICKE

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DocuSigned by: 3/27/
Greg Dickey
884E46B8CE5B4B6...

3/27/

STD. NO. EB_30_90S



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.

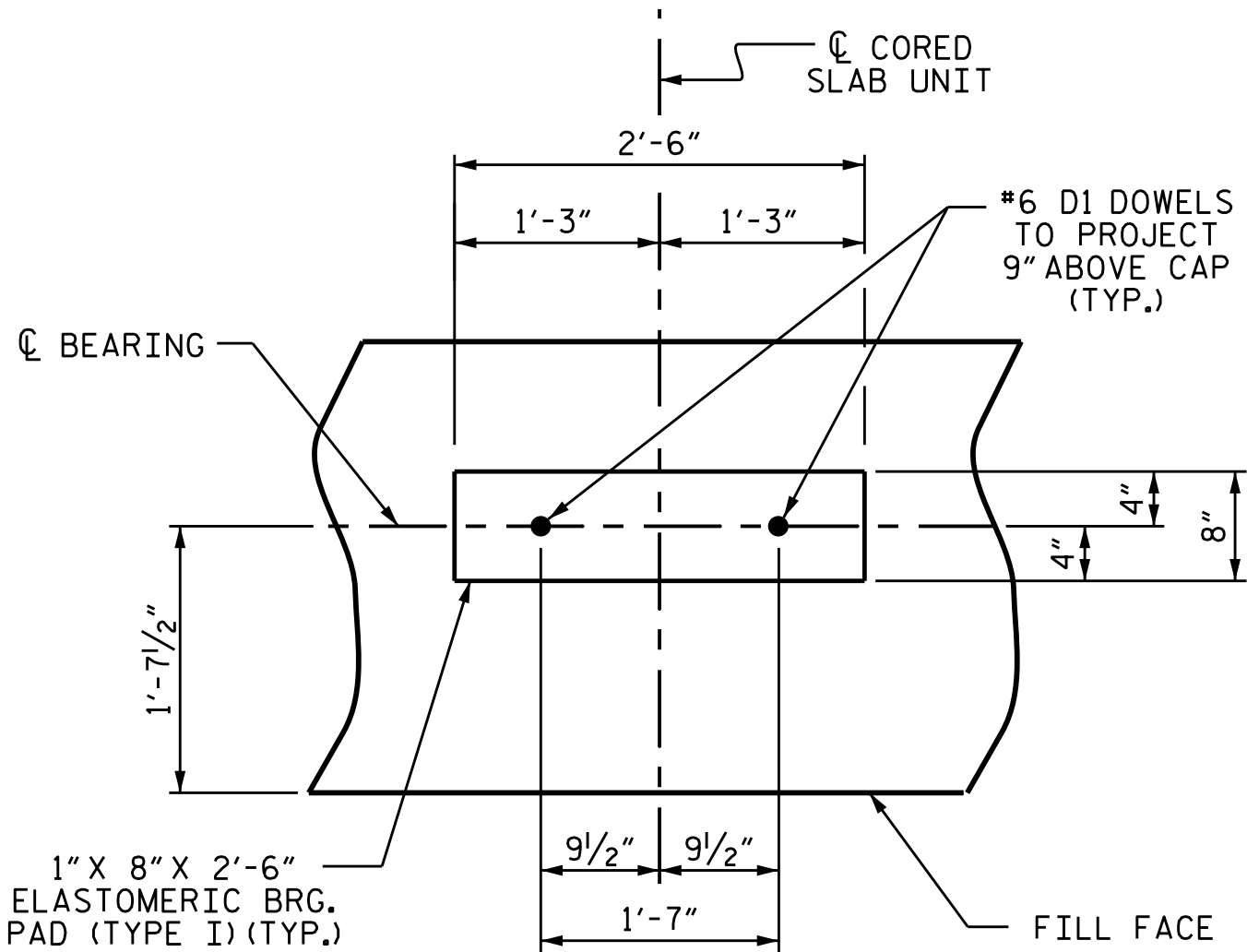
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

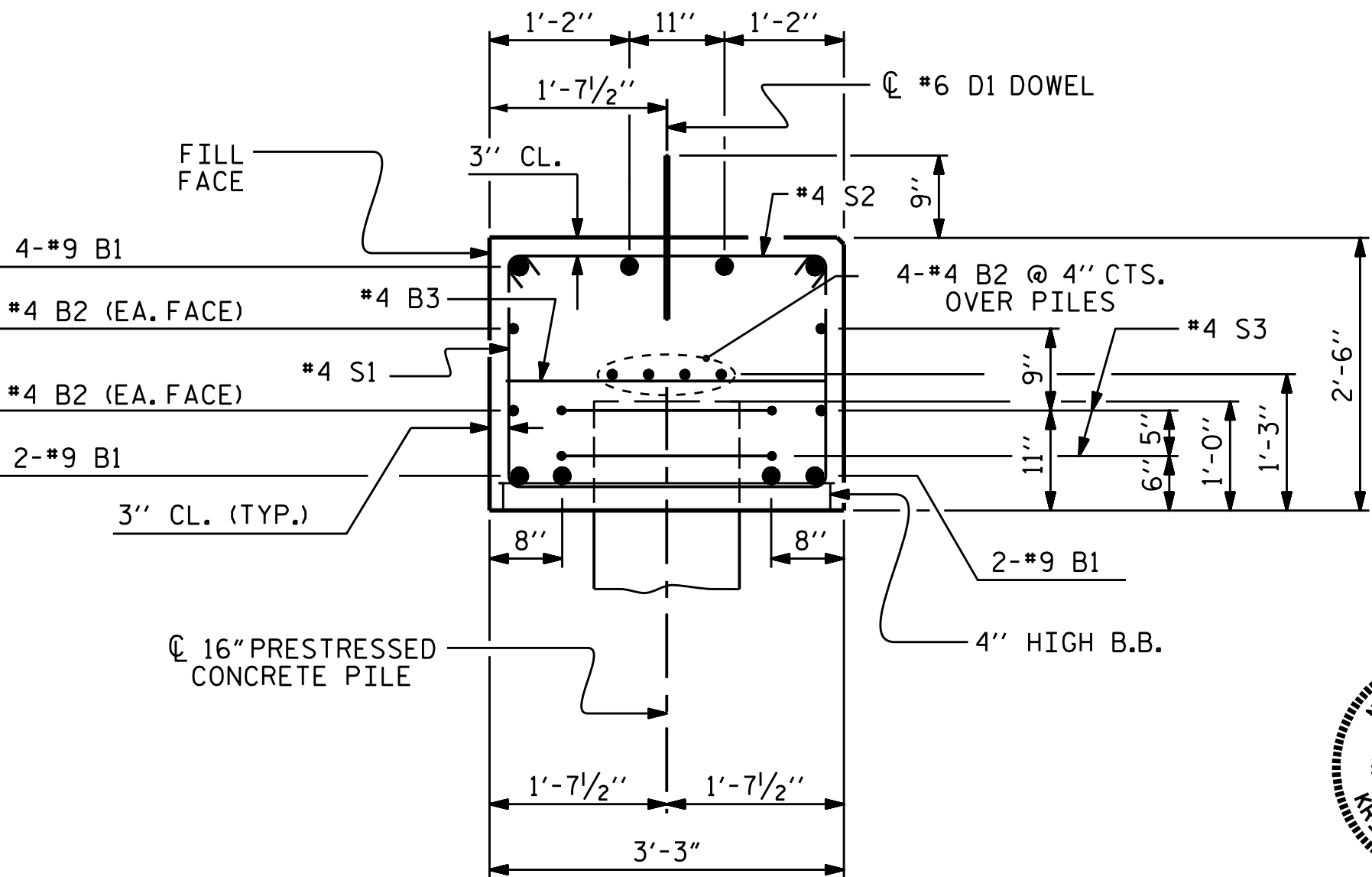
BAR TYPES	
ALL BAR DIMENSIONS ARE OUT TO OUT.	
END BENT No.1	END BENT No.2
16"PS CONCRETE PILES NO: 5 LIN. FT.= 400.0	16"PS CONCRETE PILES NO: 5 LIN. FT.= 375.0
PREDRILLING LIN. FT. = 100.0 FOR PILES	PREDRILLING LIN. FT. = 100.0 FOR PILES
PILE DRIVING EQUIPMENT SETUP FOR 16"PRESTRESSED CONCRETE PILES NO: 5	PILE DRIVING EQUIPMENT SETUP FOR 16"PRESTRESSED CONCRETE PILES NO: 5
PILE REDRIVES 3 EA.	PILE REDRIVES 3 EA.
STEEL PILE POINTS 5 EA.	STEEL PILE POINTS 5 EA.

BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	37'-11"	1031
B2	16	#4	STR	19'-1"	204
B3	9	#4	STR	2'-9"	17
D1	20	#6	STR	1'-6"	45
H1	24	#4	2	7'-8"	123
K1	12	#4	STR	2'-11"	23
S1	46	#4	3	7'-5"	228
S2	46	#4	4	3'-6"	108
S3	10	#4	5	8'-1"	54
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT) 1983 LBS.					
CLASS AA CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS 11.9 C.Y.					
POUR #2 UPPER PART OF WINGS 1.8 C.Y.					
TOTAL CLASS AA CONCRETE 13.7 C.Y.					
▲ CONCRETE DISPLACED BY THE 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.					



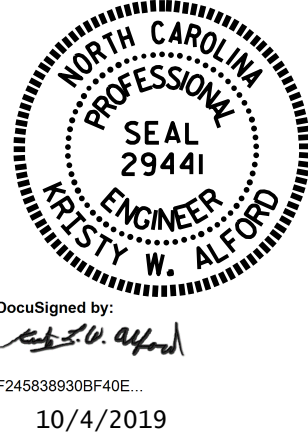
DETAIL "A"

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



SECTION A-A

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



PROJECT NO. 17BP.1.R.63
HYDE COUNTY
STATION: 13+24.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No.1 & 2
DETAILS

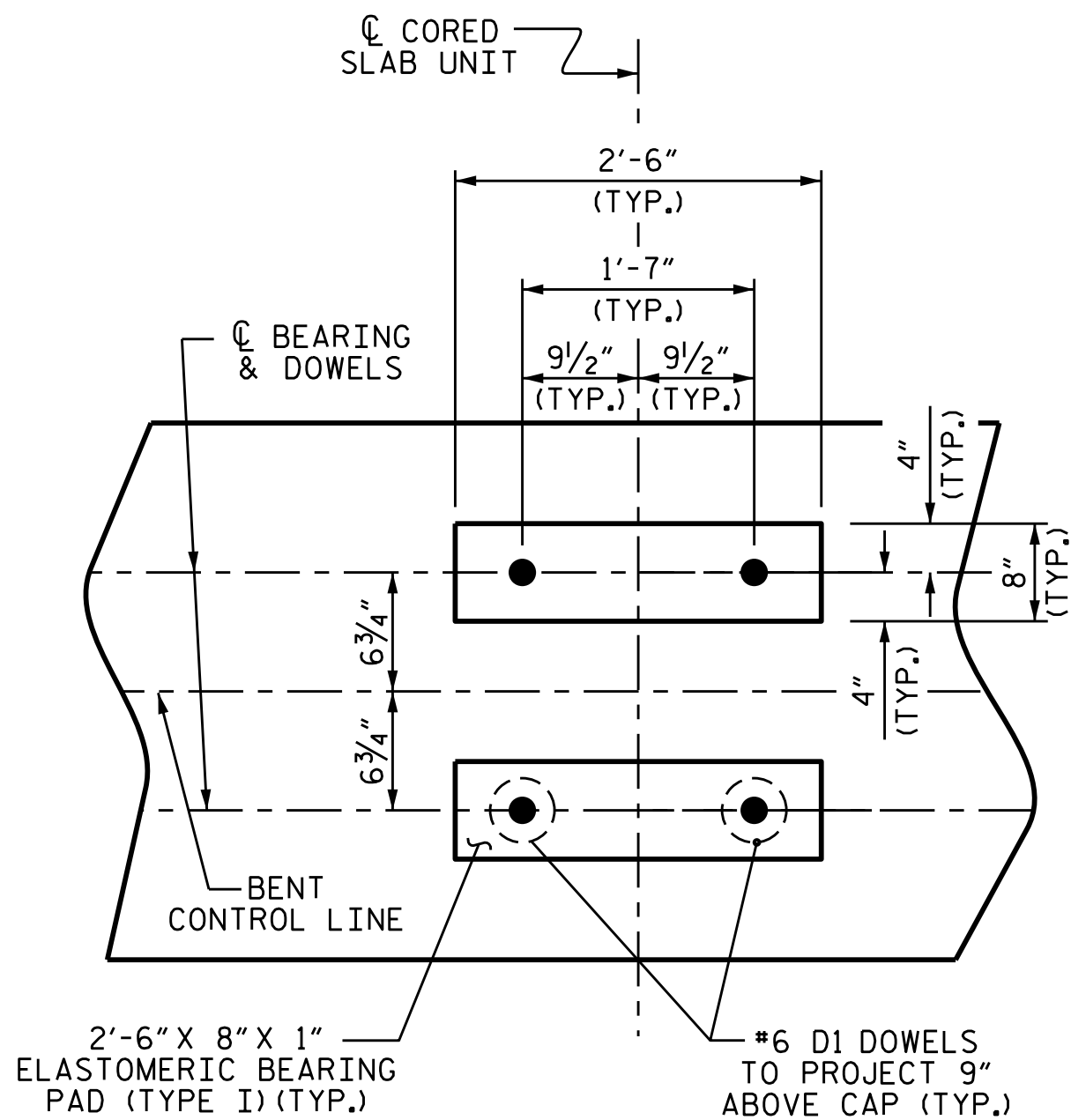
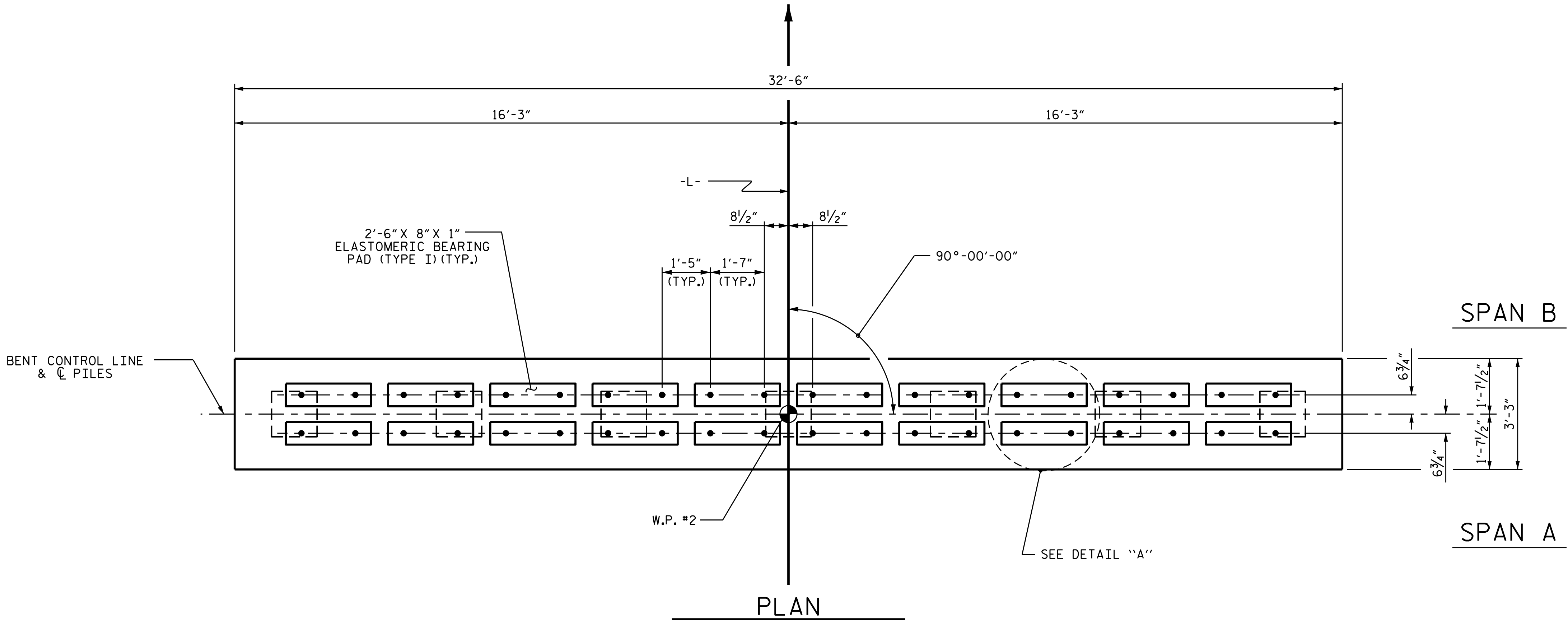
REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 17
2			4			

ASSEMBLED BY : K.W. ALFORD	DATE : 10/19
CHECKED BY : P.K. NEWTON	DATE : 10/19
DRAWN BY : DGE	12/09
CHECKED BY : MKT	01/10
REV. 4/17	MAA/THC

NOTES

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

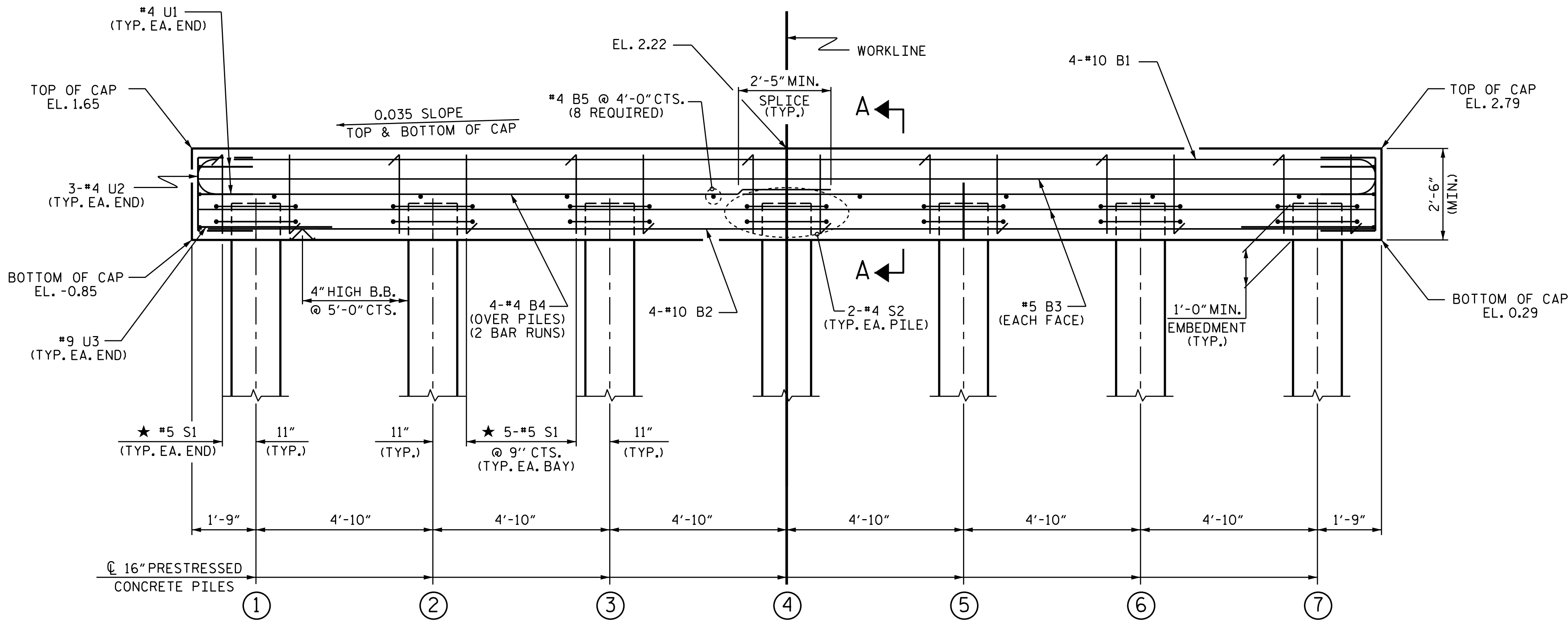
★ INVERT ALTERNATE STIRRUPS.



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

TOP OF PILE ELEVATIONS	
①	0.23
②	0.40
③	0.57
④	0.74
⑤	0.91
⑥	1.08
⑦	1.25



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 3

ASSEMBLED BY :	M.M. AHMED	DATE :	3-4-15
CHECKED BY :	P.N. HOLDER	DATE :	3-17-15
DRAWN BY :	DGE	5/10	
CHECKED BY :	MKT	5/10	

REV. 11/14 MAA/TMG

26-MAR-2015 09:02
S:\DPG\Division\17BP.1.R.63\FinalPlans\17BP.1.R.63_SD_CS.dgn
gdckey



DocuSigned by:
Gregory W. Dickey
3/27/2015

PROJECT NO. 17BP.1.R.63

HYDE COUNTY

STATION: 13+24.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

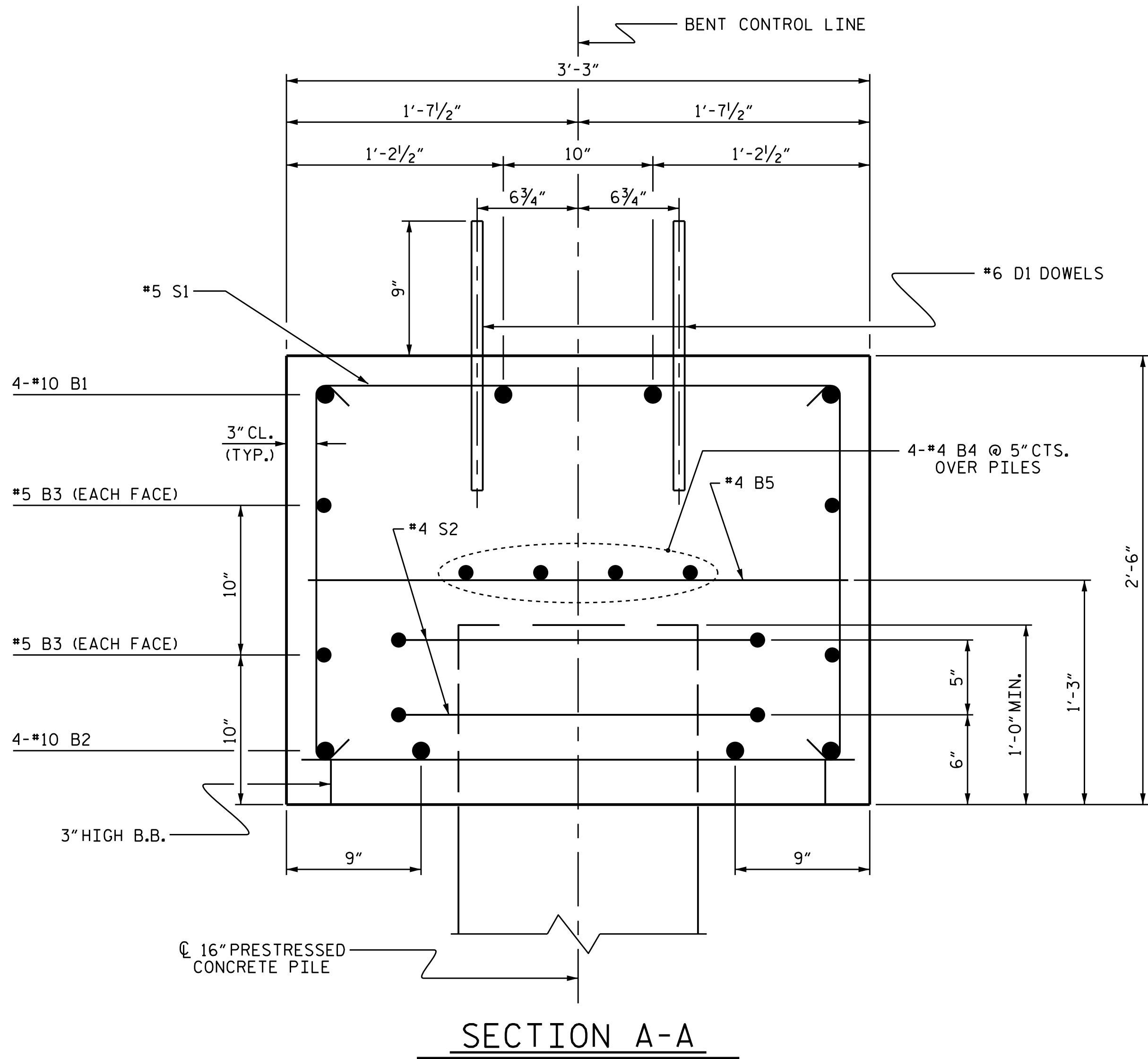
SUBSTRUCTURE
BENT No. 1

REVISIONS

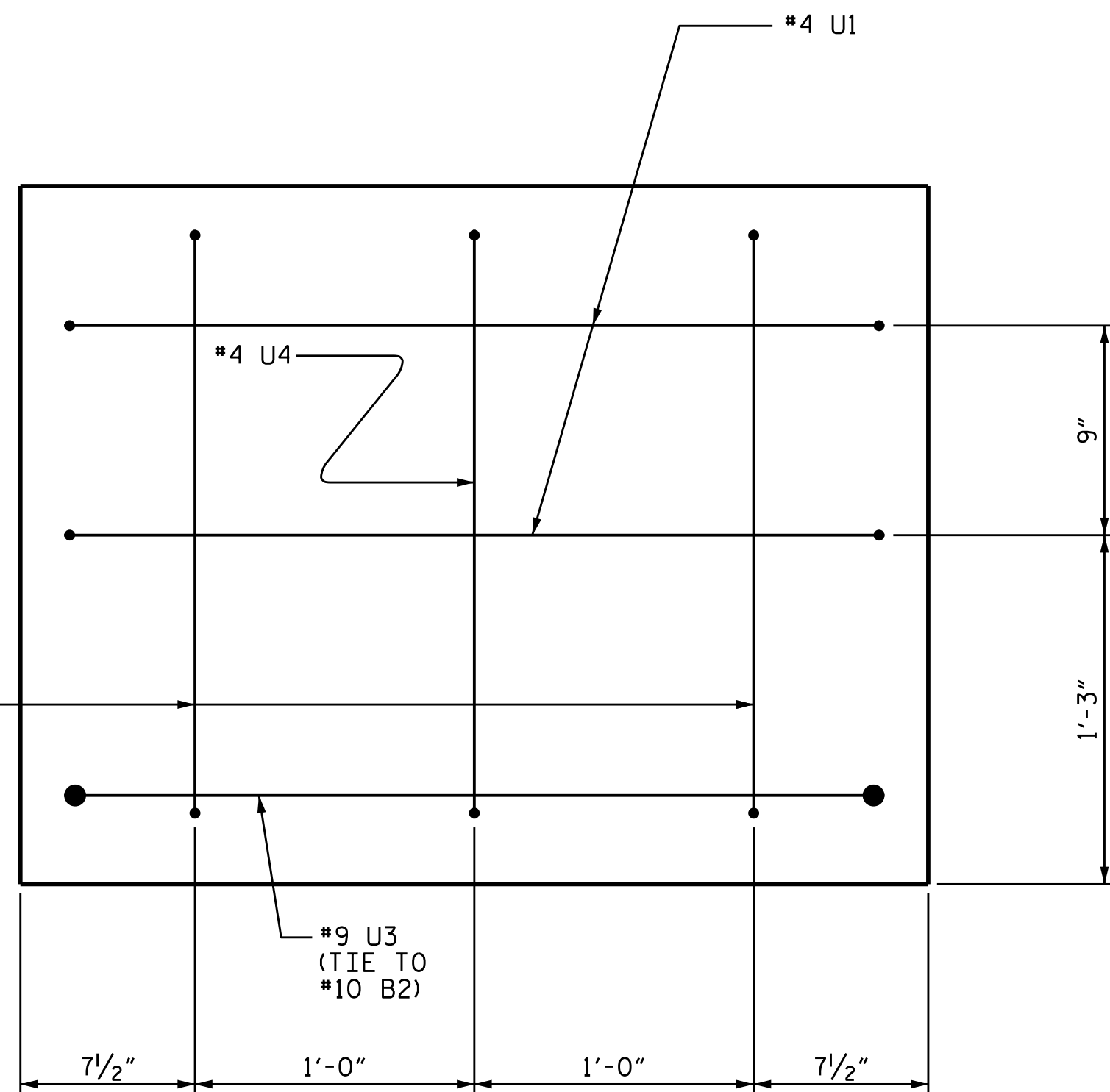
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.	S-13
TOTAL SHEETS	17

STD.NO. 16" PS-BT_30_90S_<60"



BILL OF MATERIAL					
FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	34'-9"	598
B2	4	#10	STR	32'-0"	551
B3	4	#5	STR	32'-0"	134
B4	8	#4	STR	17'-3"	92
B5	8	#4	STR	2'-9"	15
D1	40	#6	STR	1'-6"	90
S1	32	#5	2	7'-7"	253
S2	14	#4	3	8'-1"	76
U1	4	#4	4	5'-8"	15
U2	4	#4	4	4'-10"	13
U3	2	#9	4	9'-11"	67
U4	2	#4	4	4'-0"	5
REINFORCING STEEL (FOR ONE BENT) 1909 LBS					
CLASS AA CONCRETE BREAKDOWN (FOR ONE BENT)					
TOTAL CLASS AA CONCRETE ▲ 9.3 C.Y.					
16" PRESTRESSED CONCRETE PILES (FOR ONE BENT)					
No. 7 LIN. FT. 630.0					
PILE DRIVING EQUIPMENT SETUP FOR 16" PRESTRESSED CONCRETE PILES (FOR ONE BENT)					
No. 7					
PREDRILLING FOR PILES LIN. FT. 105.0					
PILE REDRIVES 4 EA.					
STEEL PILE POINTS 7 EA.					

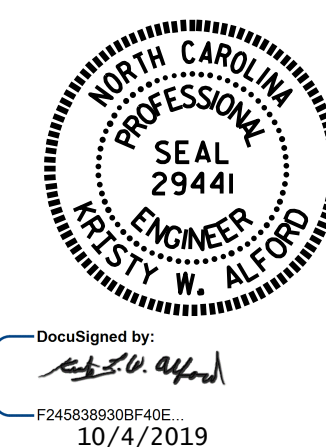


▲ CONCRETE DISPLACED BY THE 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

PROJECT NO. 17BP.1.R.63
HYDE COUNTY
STATION: 13+24.00 -L-

SHEET 2 OF 2

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. S-14					TOTAL SHEETS 17



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

ASSEMBLED BY : K.W. ALFORD	DATE : 10/19
CHECKED BY : P.K. NEWTON	DATE : 10/19
DRAWN BY : DGE 05/10	REV. 6/17
CHECKED BY : MKT 05/10	MAA/THC

NOTES

PRESTRESSED CONCRETE STRENGTH : $f'_c = 7,500$ PSI
BUILD-UP CONCRETE STRENGTH : $f'_c = 7,500$ PSI

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION, $\frac{1}{2}$ " OR 0.6" STRANDS MAY BE USED IN EITHER STRAND CONFIGURATION SHOWN IN THE TYPICAL SECTION DETAIL. MIXING OF STRAND SIZE IS NOT ALLOWED.

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS, BURN IN OPPOSITE PAIRS AND SYMMETRICALLY ABOUT BOTH THE VERTICAL AND HORIZONTAL AXES. STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 3-3 AND 4-4, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.

DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

PRESTRESSED PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE PILES OF BENT NO.1 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

DOWEL INSTALLATION FOR OPTIONAL BUILD-UP

GROUT COMPRESSIVE STRENGTH: $f'_c = 5,000$ PSI

BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.

DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN $\frac{1}{2}$ " CLEAR TO ALL EXISTING PRESTRESSING STRANDS IN THE CONCRETE PILE.

FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS. DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.

THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.

THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPLICED BY OVERLAPPING A MIN. OF ONE TURN.

PROJECT NO. 17BP.1.R.63

HYDE COUNTY

STATION: 13+24.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

16" PRESTRESSED
CONCRETE PILE

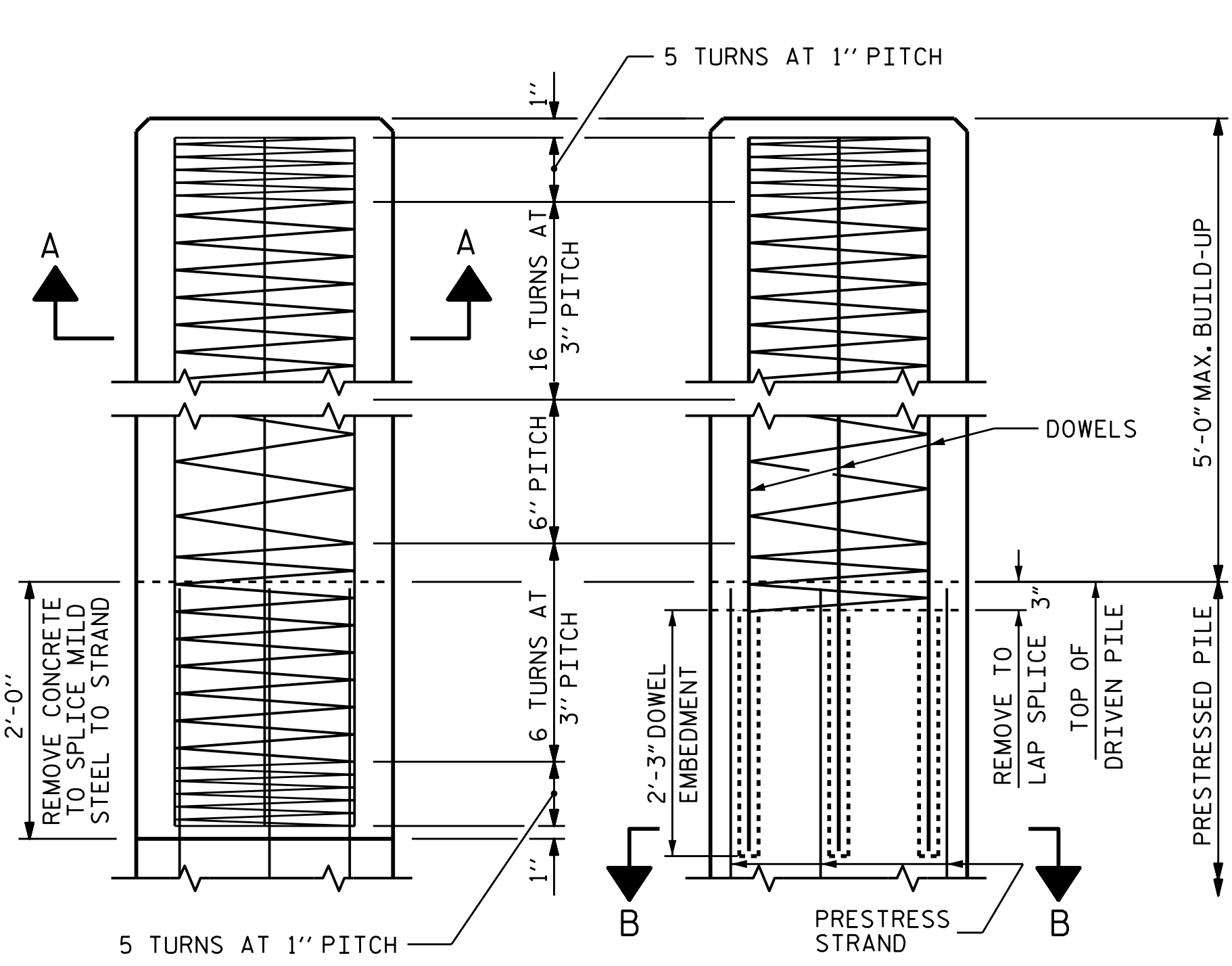
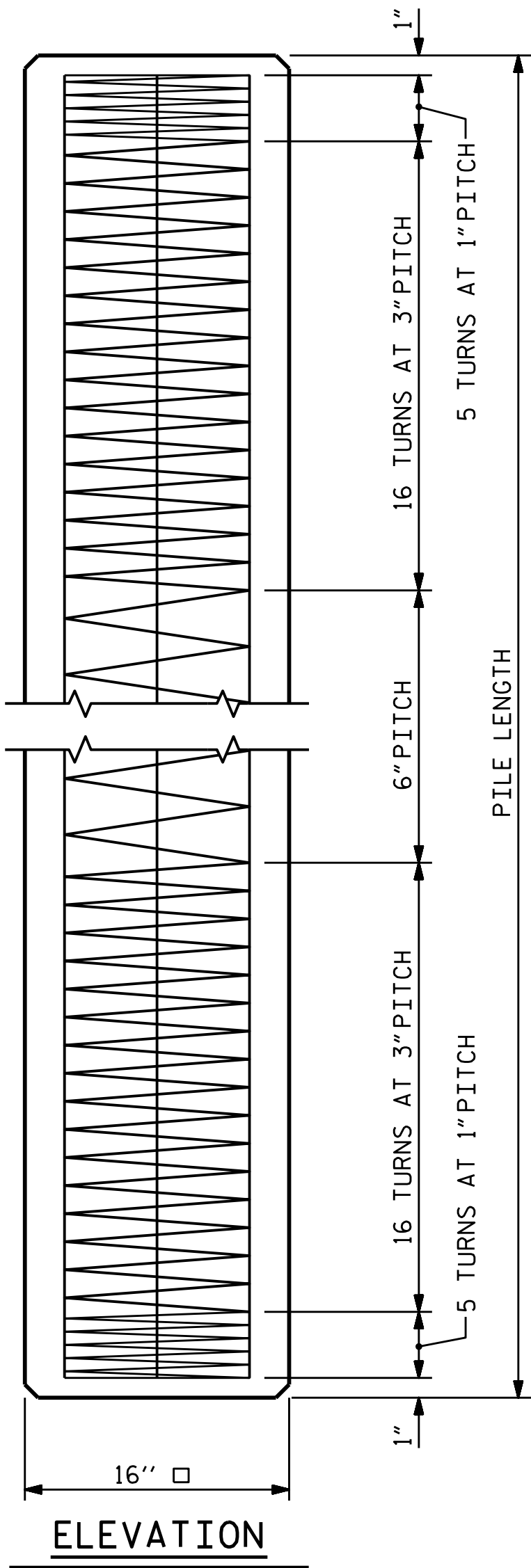
REVISIONS

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

SHEET NO.
S-15
TOTAL
SHEETS
17

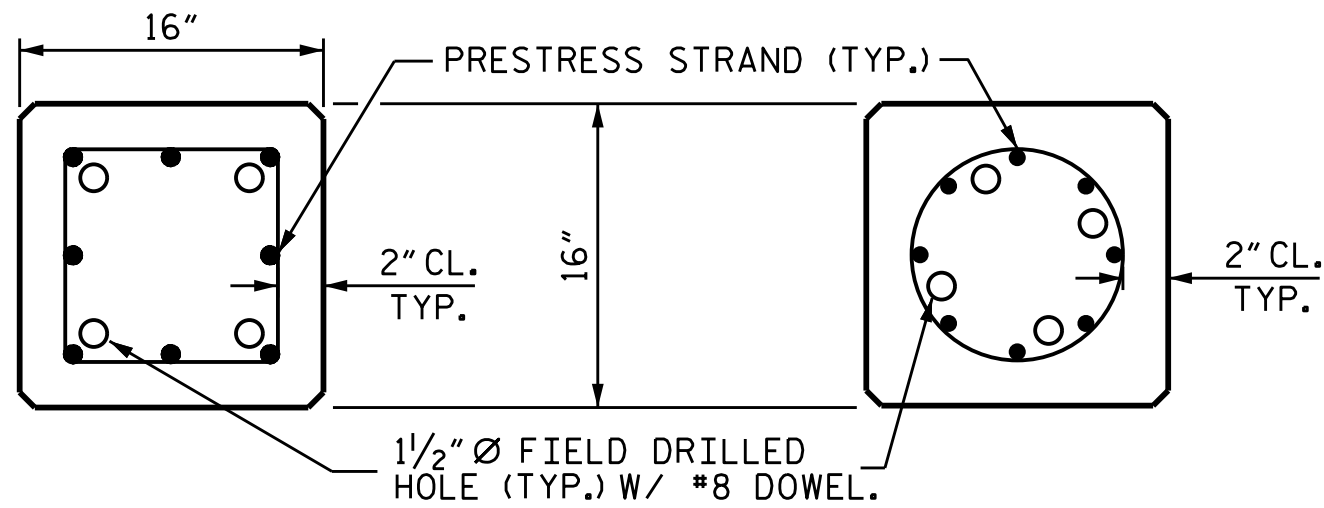


Drawn/Signed by: 3/27/2015
Gregory W. Dickey
884E48BC5B486...



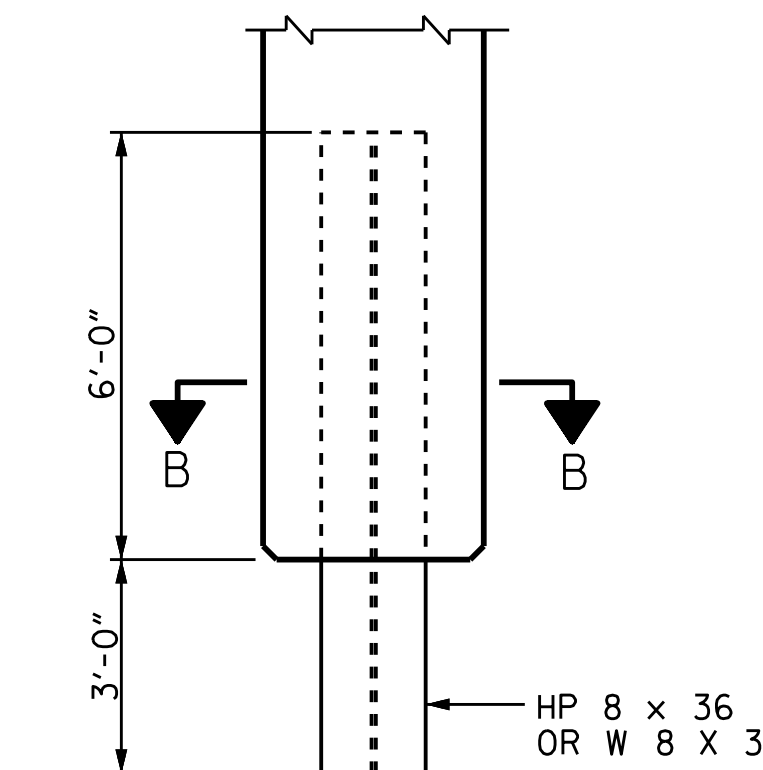
BUILD-UP AND
SPIRAL REINFORCING

OPTIONAL BUILD-UP
WITH DOWELS

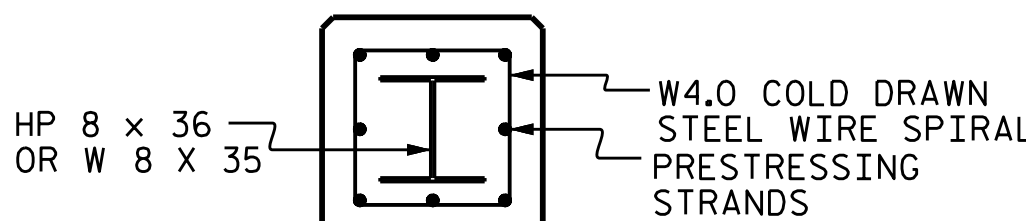


SECTION "B-B"

(AT THE CONTRACTOR'S OPTION, PILE BUILD-UP MAY BE CONSTRUCTED WITH DOWELS.)



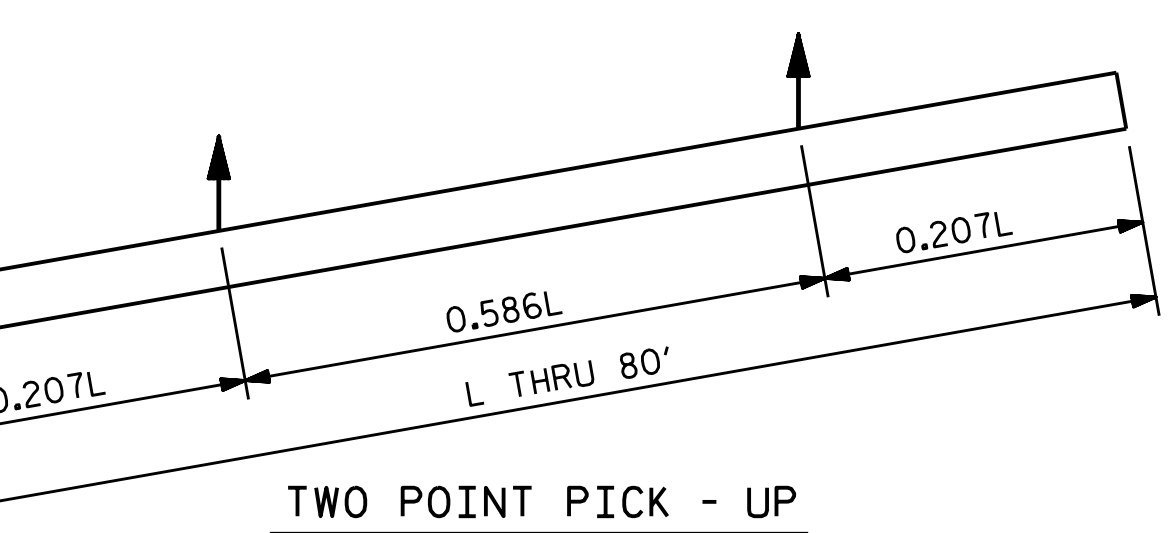
ELEVATION



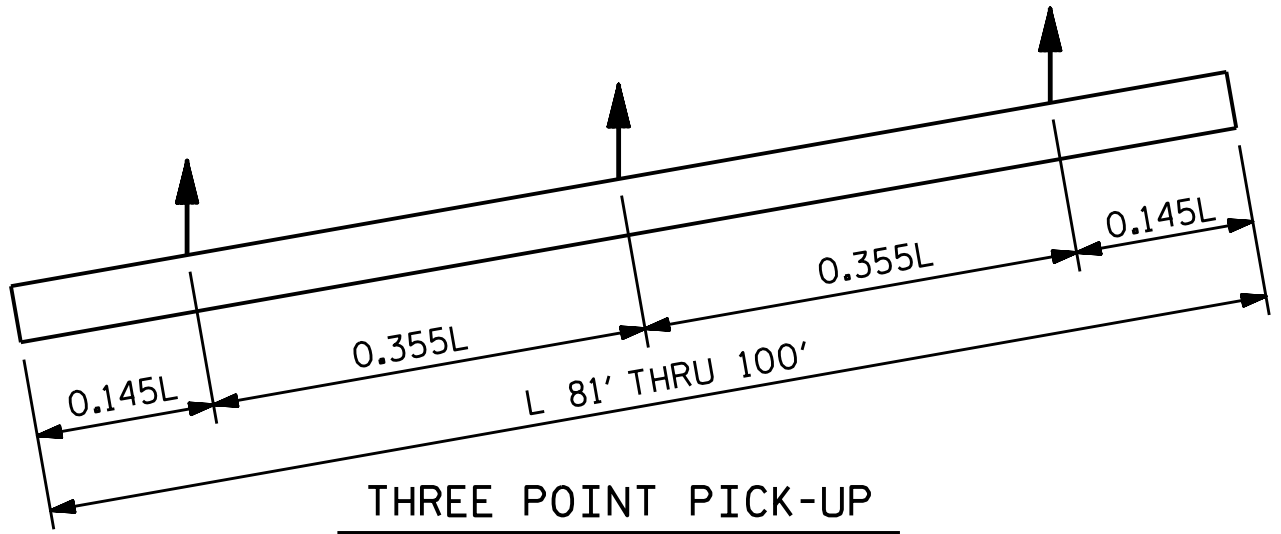
PILE TIP DETAILS

FOR 16" SQUARE PRESTRESSED CONCRETE PILE

ASSEMBLED BY :	M.M. AHMED	DATE :	3-4-15
CHECKED BY :	P.N. HOLDER	DATE :	3-17-15
DRAWN BY :	RH 9/98	REV. 11/30/10	WMC/GM
CHECKED BY :	LES 10/98	REV. 10/1/11	MAA/GM
		REV. 12/14	MAA/TMG



TWO POINT PICK - UP



THREE POINT PICK-UP

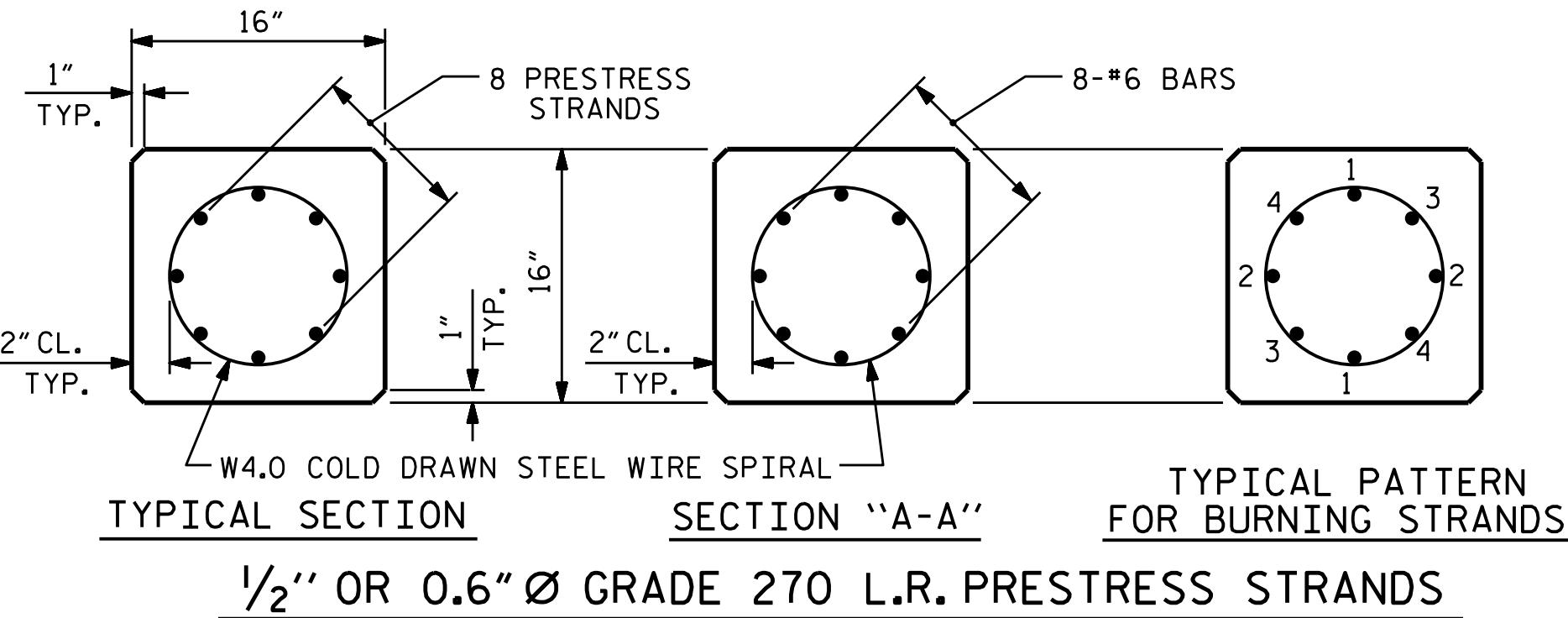
PICK - UP POINTS

QUANTITIES FOR ONE 16" PRESTRESSED PILE

LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	TWO POINT PICK-UP		THREE POINT PICK-UP	
			0.207L	0.586L	0.145L	0.355L
60'-0"	3.92	7.94	12'-5"	35'-2"		
65'-0"	4.25	8.60	13'-5 1/2"	38'-1"		
70'-0"	4.57	9.26	14'-6"	41'-0"		
75'-0"	4.90	9.92	15'-6 1/2"	43'-11"		
80'-0"	5.23	10.58	16'-7"	46'-10"		
85'-0"	5.55	11.24			12'-4"	30'-2"
90'-0"	5.88	11.91			13'-1"	32'-0"
95'-0"	6.21	12.58			13'-9"	33'-9"
100'-0"	6.53	13.22			14'-6"	35'-6"

STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
1/2"	270 L.R.	0.153	41,300* PER STRAND	30,980* PER STRAND
0.6"	270 L.R.	0.217	58,600* PER STRAND	43,940* PER STRAND

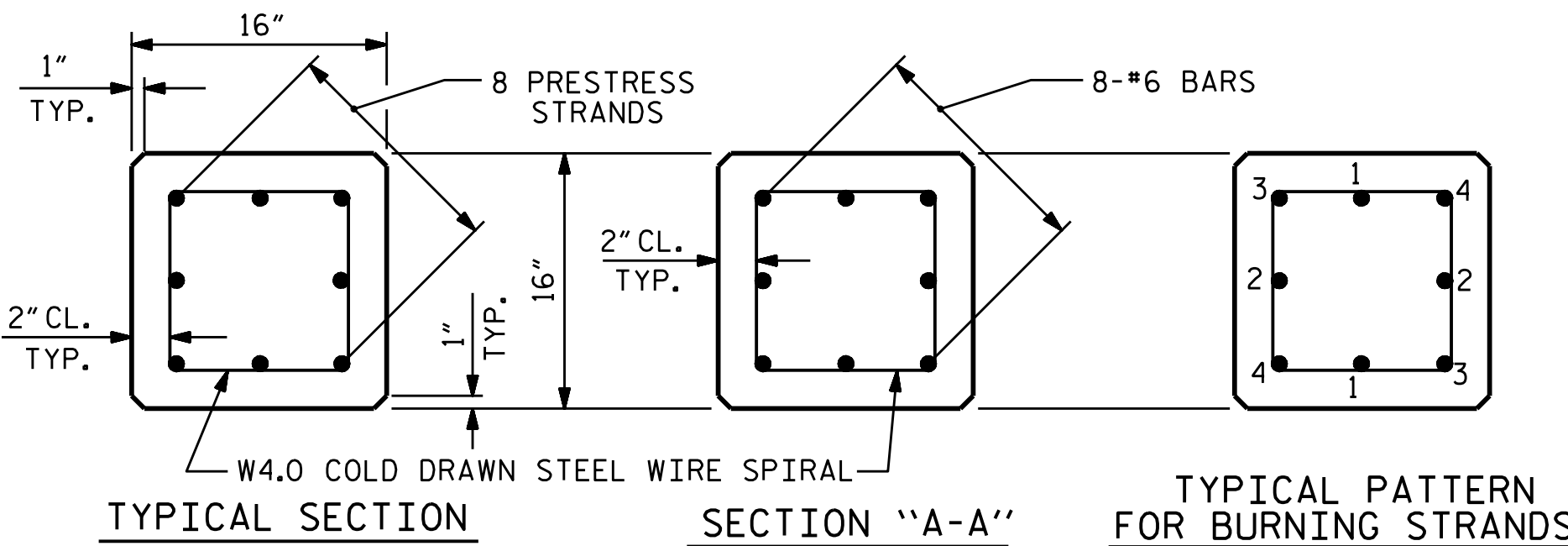


TYPICAL SECTION

SECTION "A-A"

TYPICAL PATTERN
FOR BURNING STRANDS

1/2" OR 0.6" Ø GRADE 270 L.R. PRESTRESS STRANDS

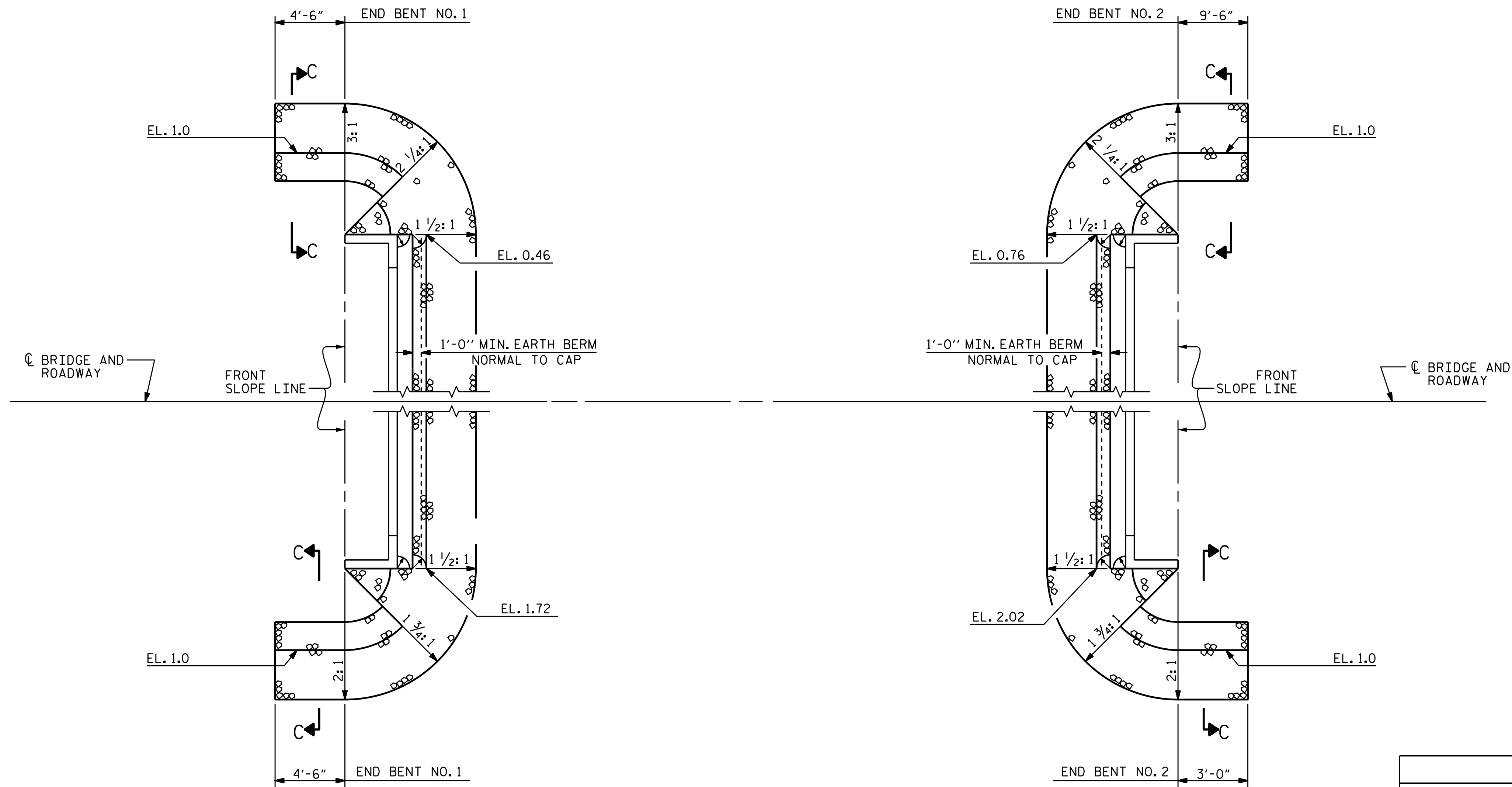


TYPICAL SECTION

SECTION "A-A"

TYPICAL PATTERN
FOR BURNING STRANDS

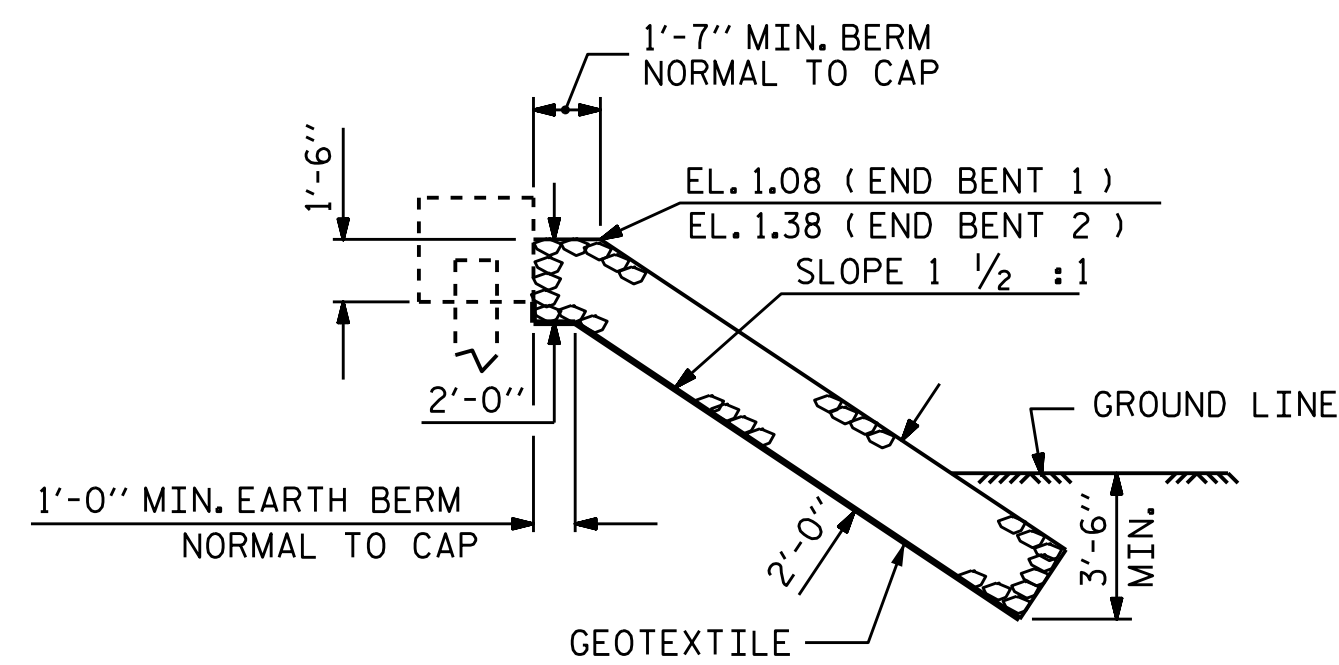
1/2" OR 0.6" Ø GRADE 270 L.R. PRESTRESS STRANDS



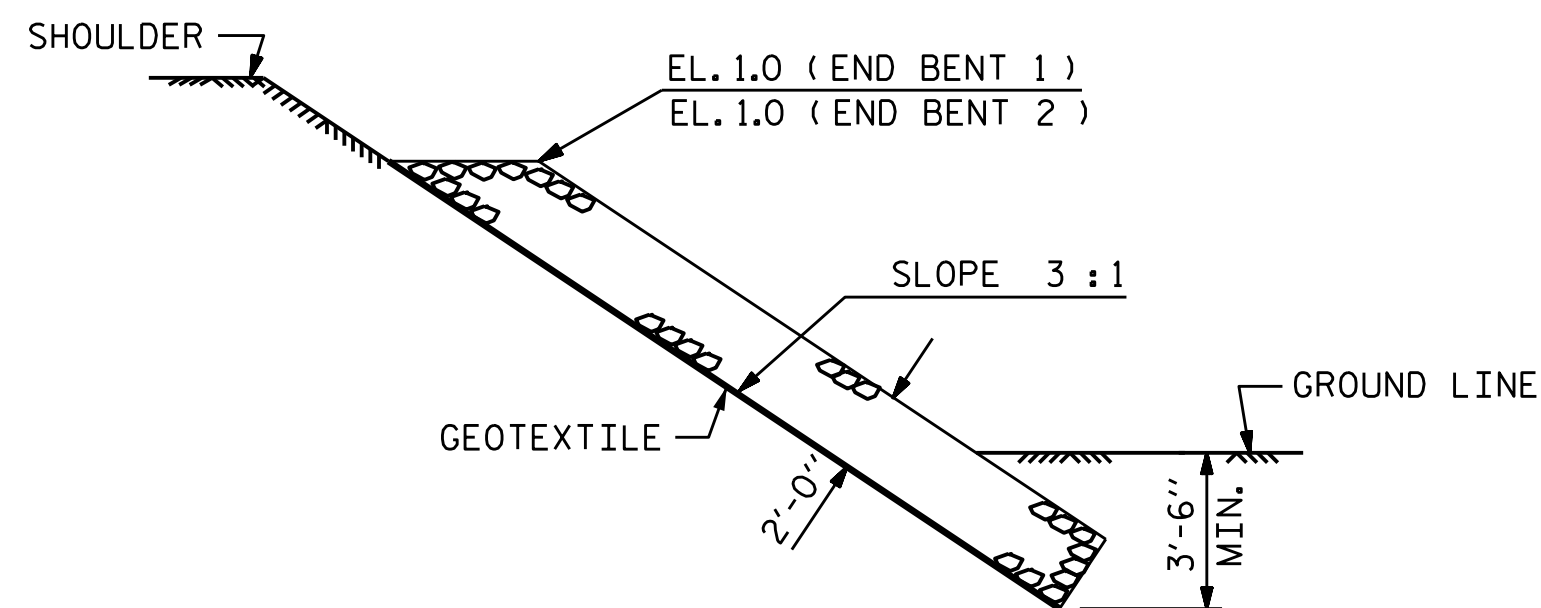
NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

BERM RIP RAPPED

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+24.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	70	80
END BENT 2	70	80



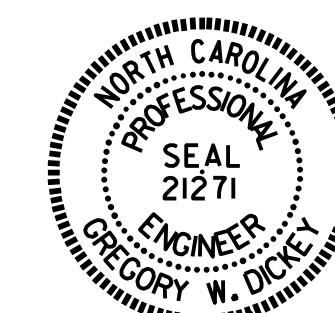
SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. 17BP.1.R.63
HYDE COUNTY
STATION: 13+24.00 -L-

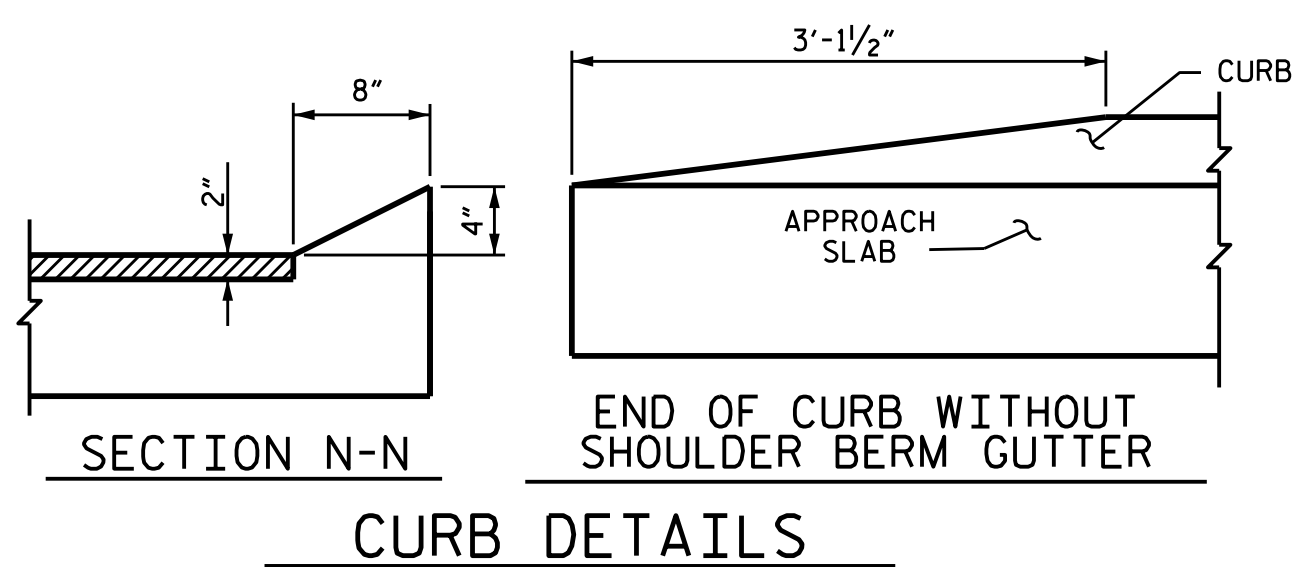
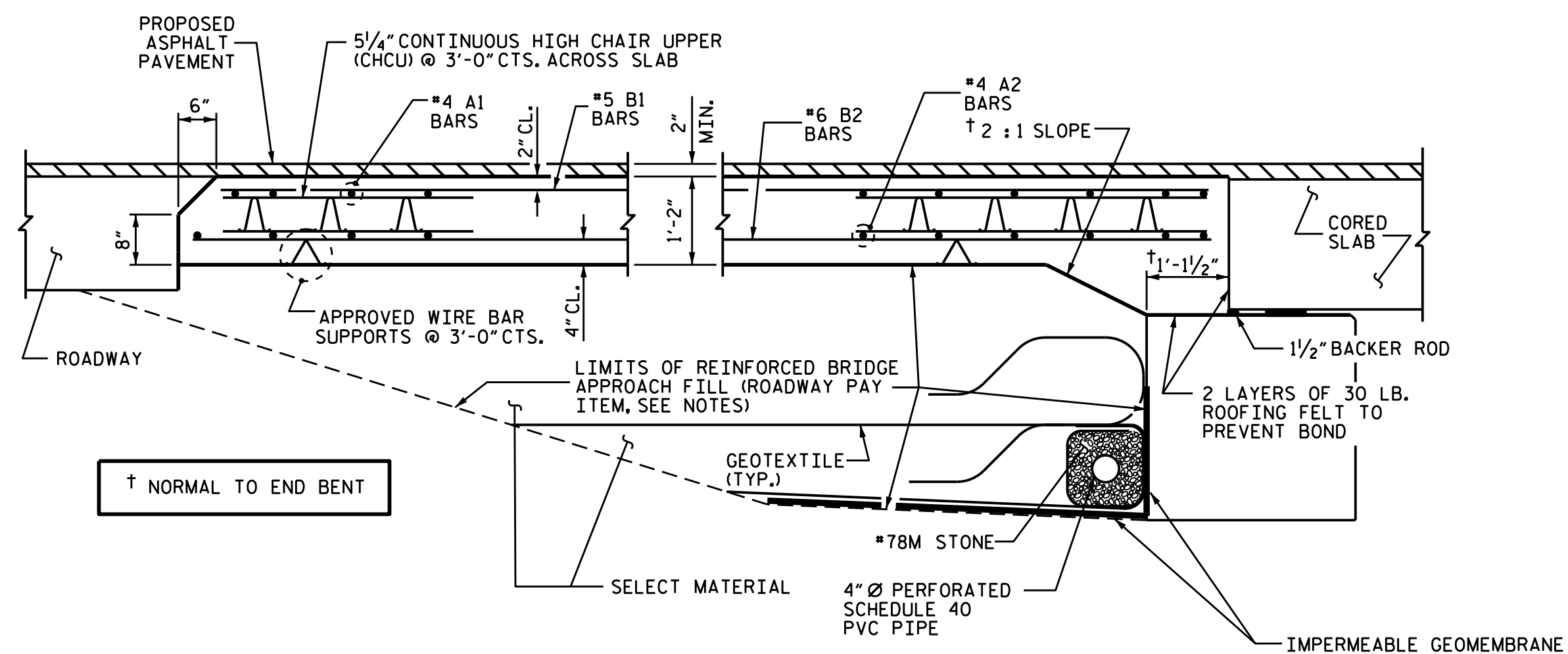
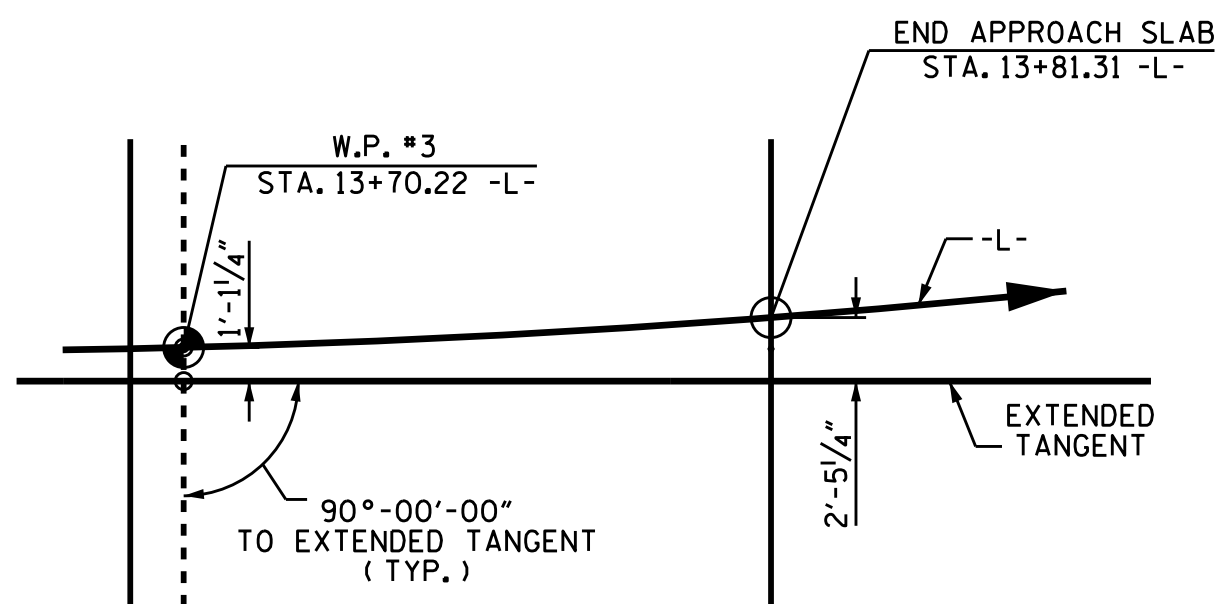
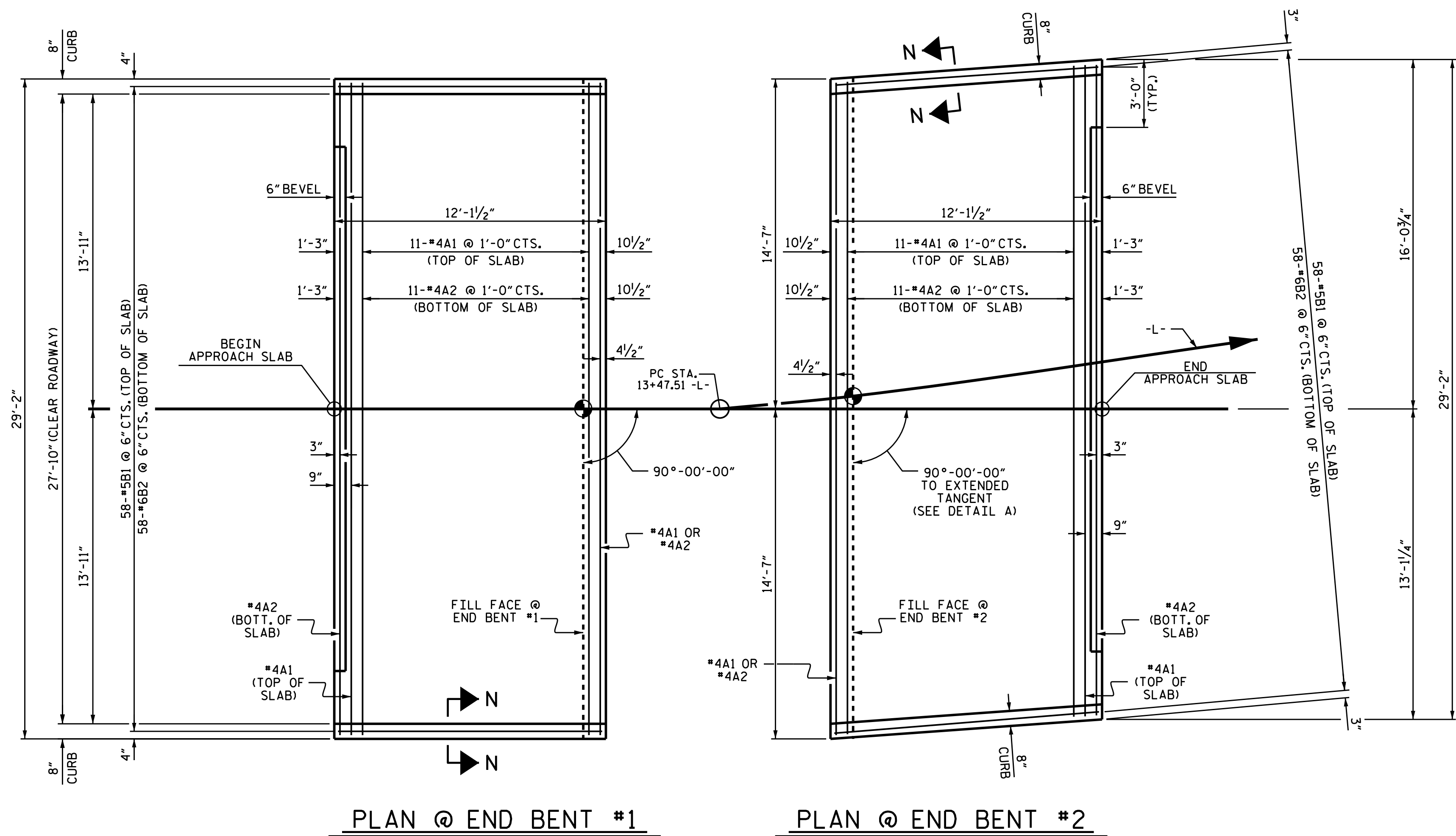
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
—RIP RAP DETAILS—					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-16					TOTAL SHEETS 17



DocuSigned by:
Greg Dickey
180468BCE5B4B6

3/27/2015

ASSEMBLED BY : M.M. AHMED	DATE : 3-4-15
CHECKED BY : P.N. HOLDER	DATE : 3-17-15
DRAWN BY : REK 1/84	REV. 5/1/06R TLA/GM
CHECKED BY : ROU 1/84	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM



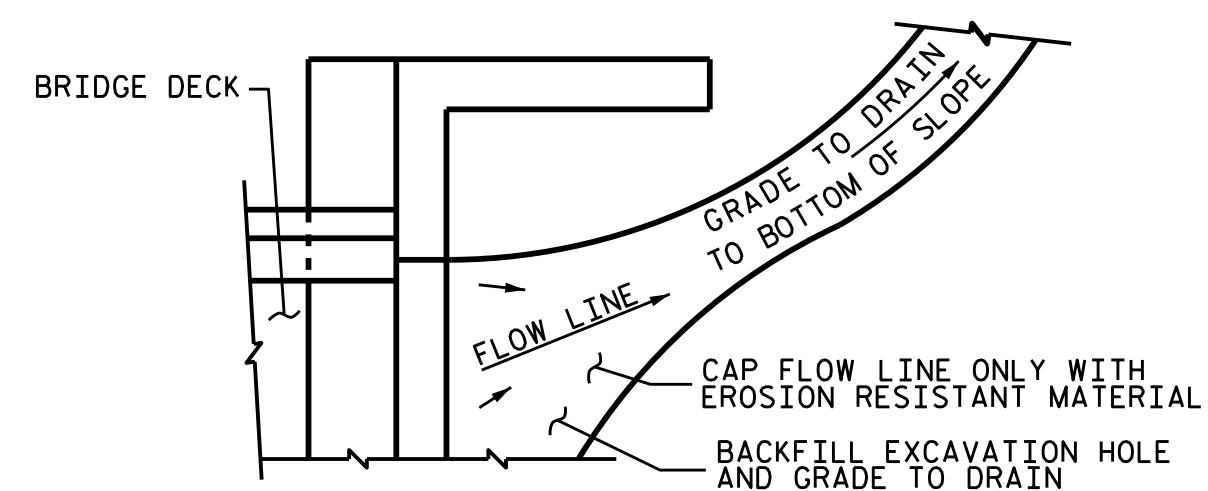
SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

NOTES

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

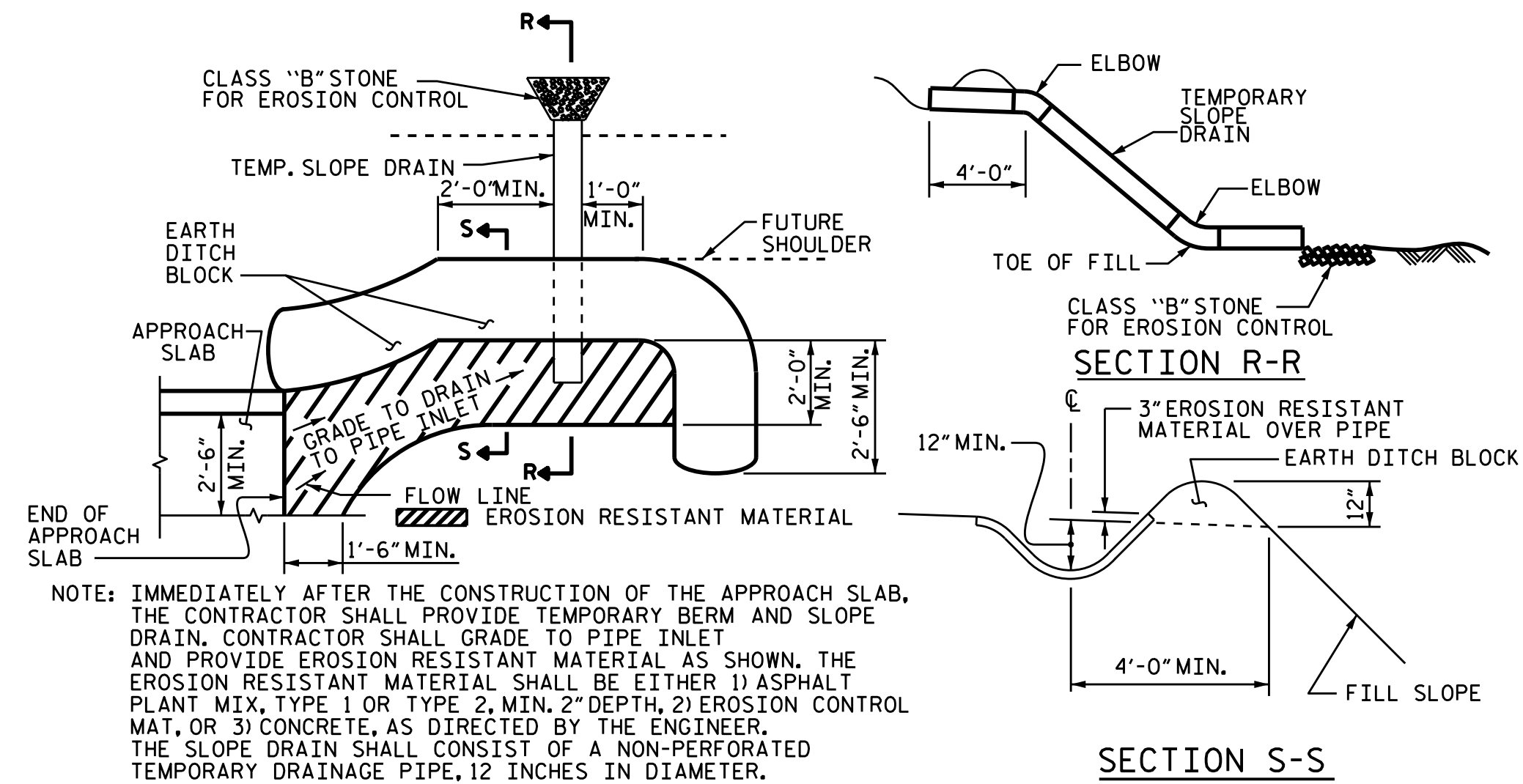
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. 17BP.1.R.63
HYDE COUNTY
STATION: 13+24.00 -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:
1			3		
2			4		
TOTAL SHEETS			17		

ASSEMBLED BY : M.M. AHMED DATE : 3-4-15
CHECKED BY : P.N. HOLDER DATE : 3-17-15
DRAWN BY : SHS/MAA 5-09
CHECKED BY : BCH 5-09

REV. 12-11
REV. 8-14
MAA/AAC
MAA/TMG



Drawn by: Greg Dickey
3/27/2015

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 2018 "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.

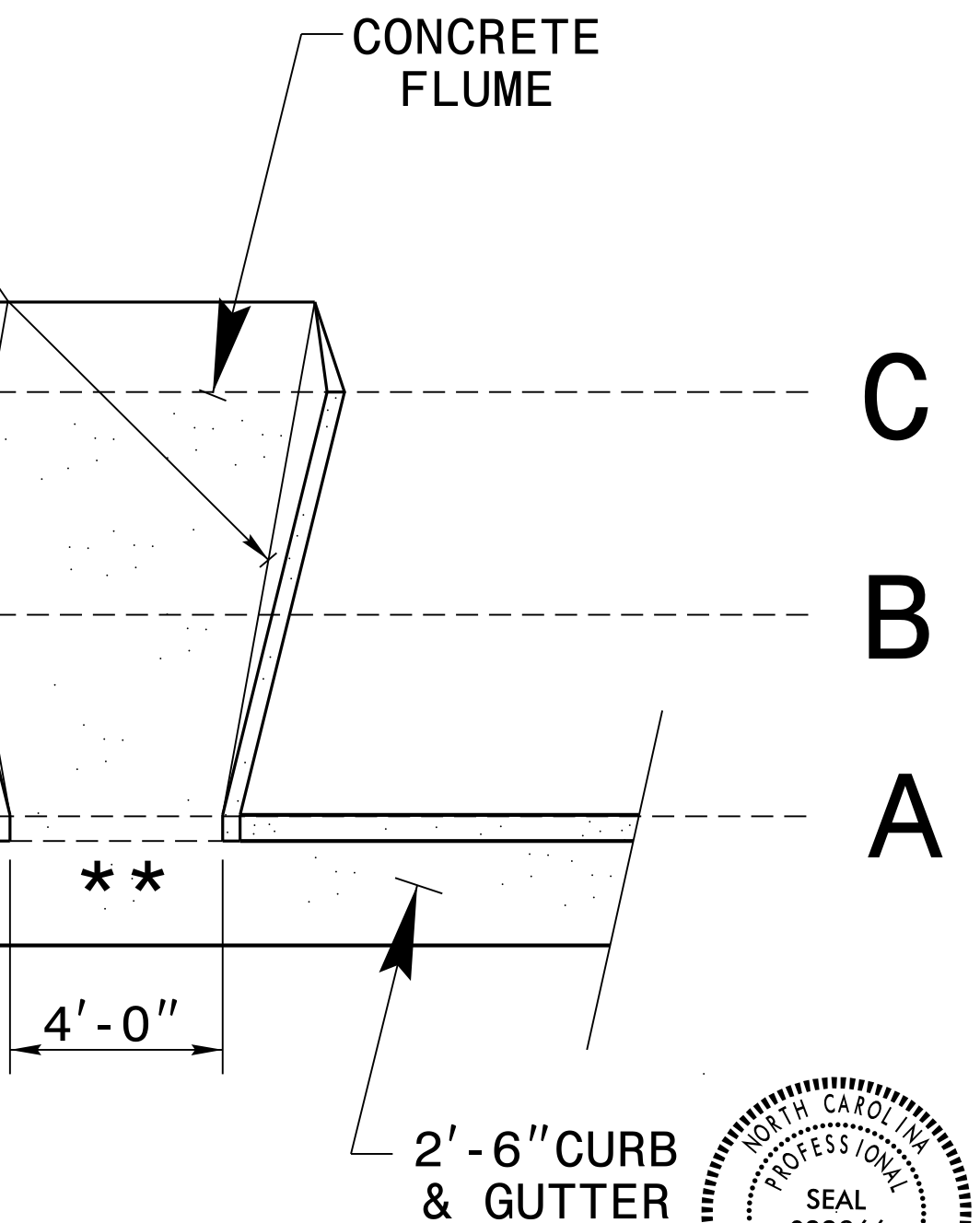
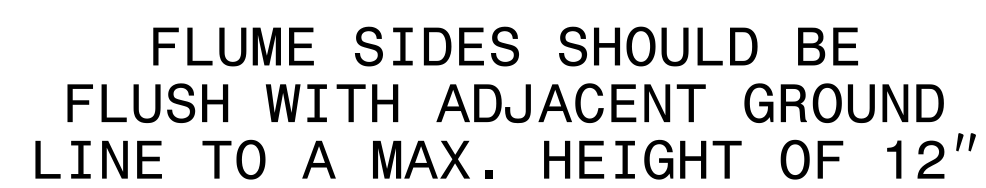
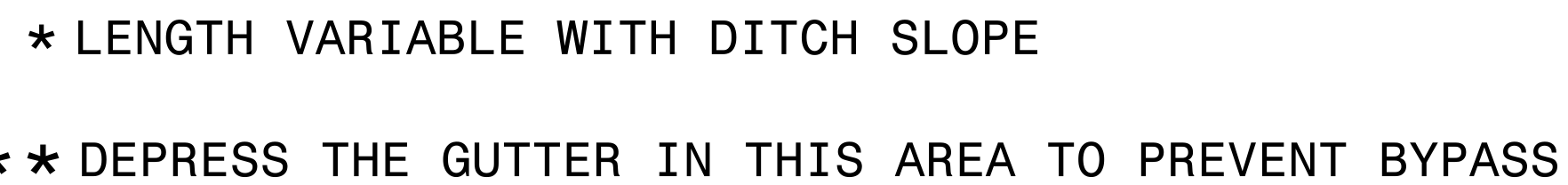
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL 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

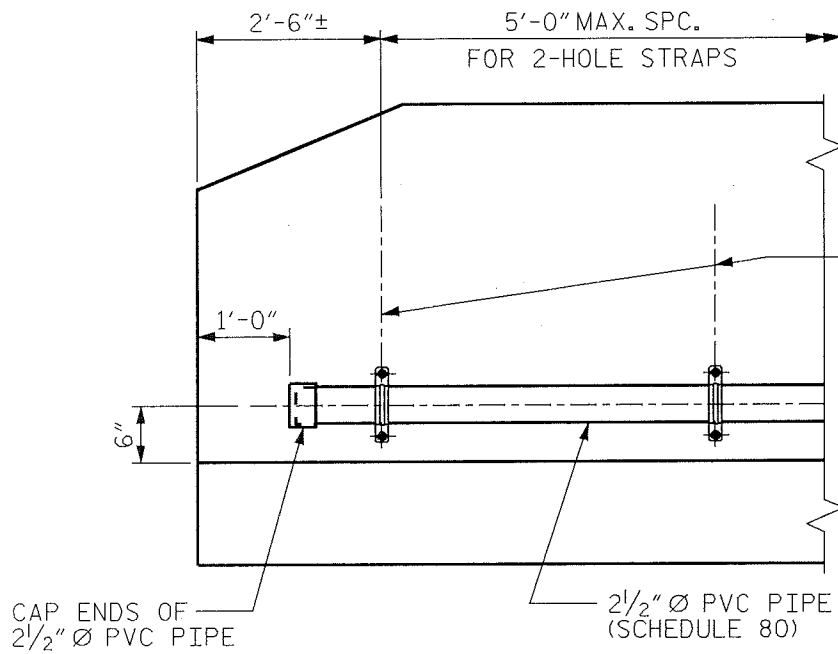
JANUARY, 1990



- CONSTRUCT CONCRETE FLUME IN ACCORDANCE WITH THIS DETAIL.
- RIP RAP LINED DITCH WILL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE.
- MODIFICATIONS MAY BE MADE AS DIRECTED BY THE ENGINEER.

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MODIFIED BY: nbritt	DATE: 05-11-04
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FILE SPEC.: details\nbritt\metric\r220\modifiedflume.dgn	

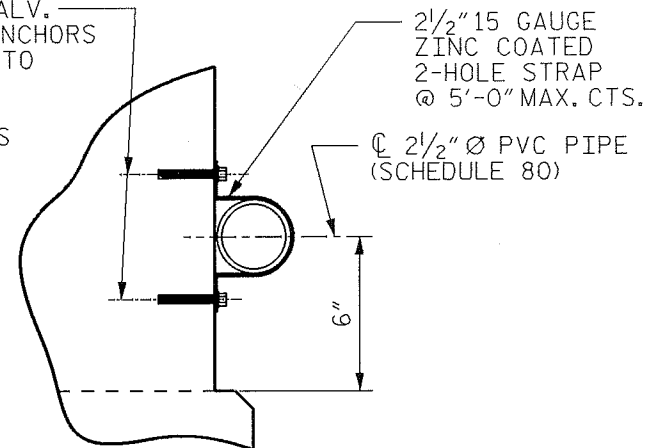




ELEVATION

1/4" x 2 1/4" GALV.
CONCRETE ANCHORS
EPOXIED INTO
CONCRETE

2-HOLE STRAPS
AND CONCRETE
ANCHORS



SECTION

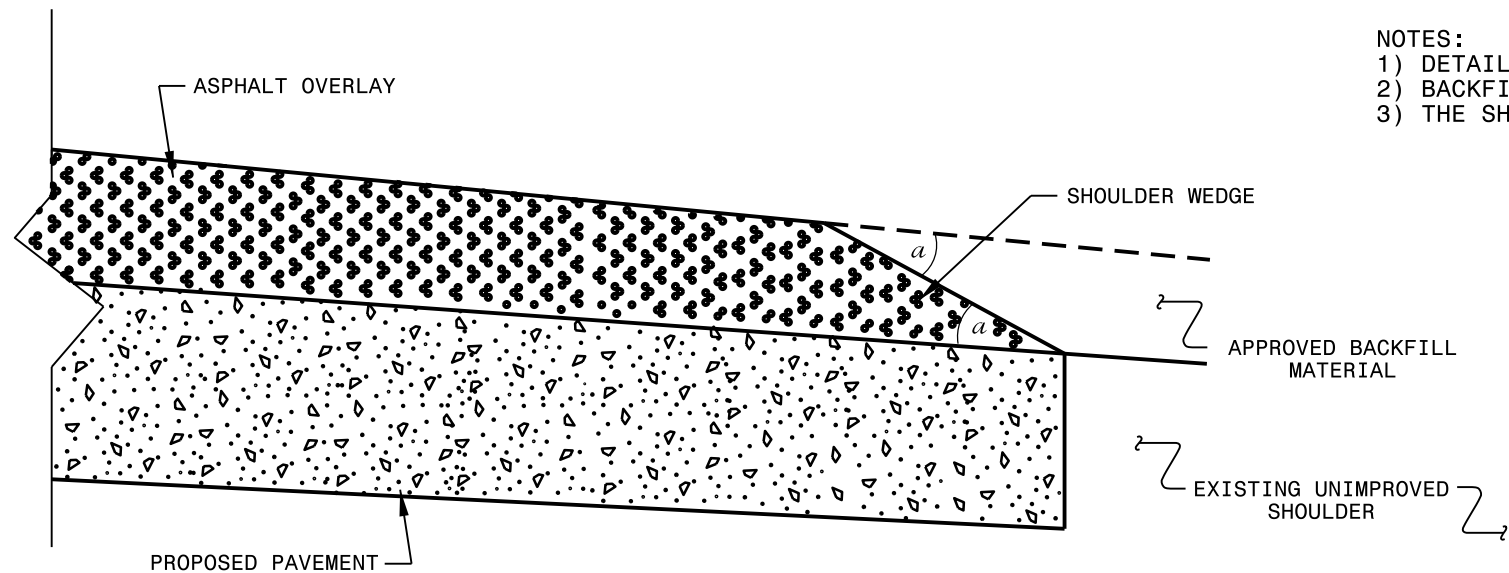
FIBER OPTIC CONDUIT SYSTEM DETAILS

2 1/2" Ø SCHEDULE 80 PVC PIPE ATTACHED TO THE
BACK OF BOTH RAILS FOR FUTURE FIBER OPTIC CABLE.

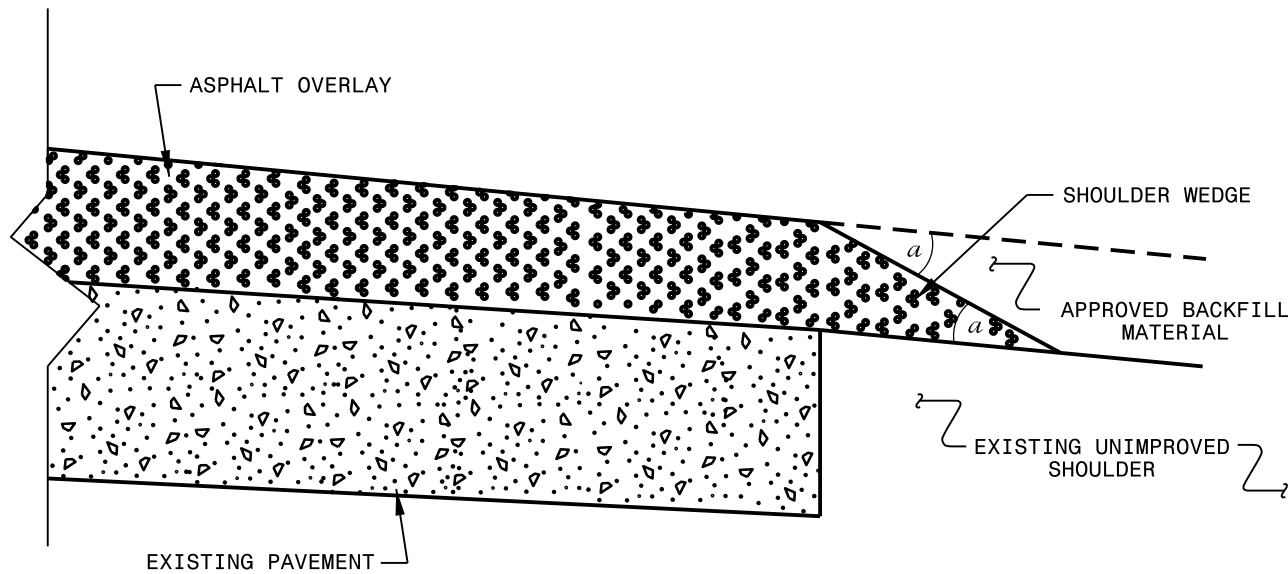
ADD TO NOTES:

FOR FIBER OPTIC CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.

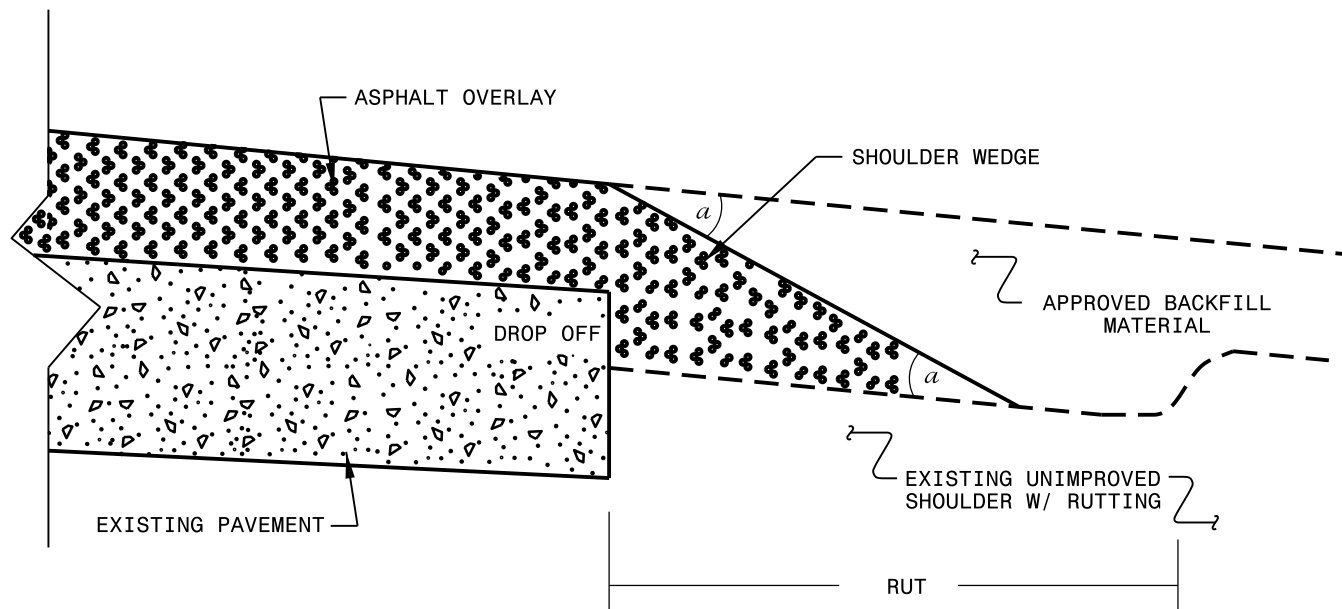
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFD AND ULTRA-THIN BONDED WEARING COURSE.
 - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



SHOULDER WEDGE DETAIL
(Resurfacing Projects w/ Widening or
with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL
(Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL
(Resurfacing Adjacent to
Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

CONTRACT STANDARDS AND DEVELOPMENT UNIT			
Office 919-707-6950		FAX 919-250-4119	
SHOULDER WEDGE DETAILS			
ORIGINAL BY:	T. SPELL	DATE:	7-19-11
MODIFIED BY:		DATE:	10/16/12
CHECKED BY:		DATE:	
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