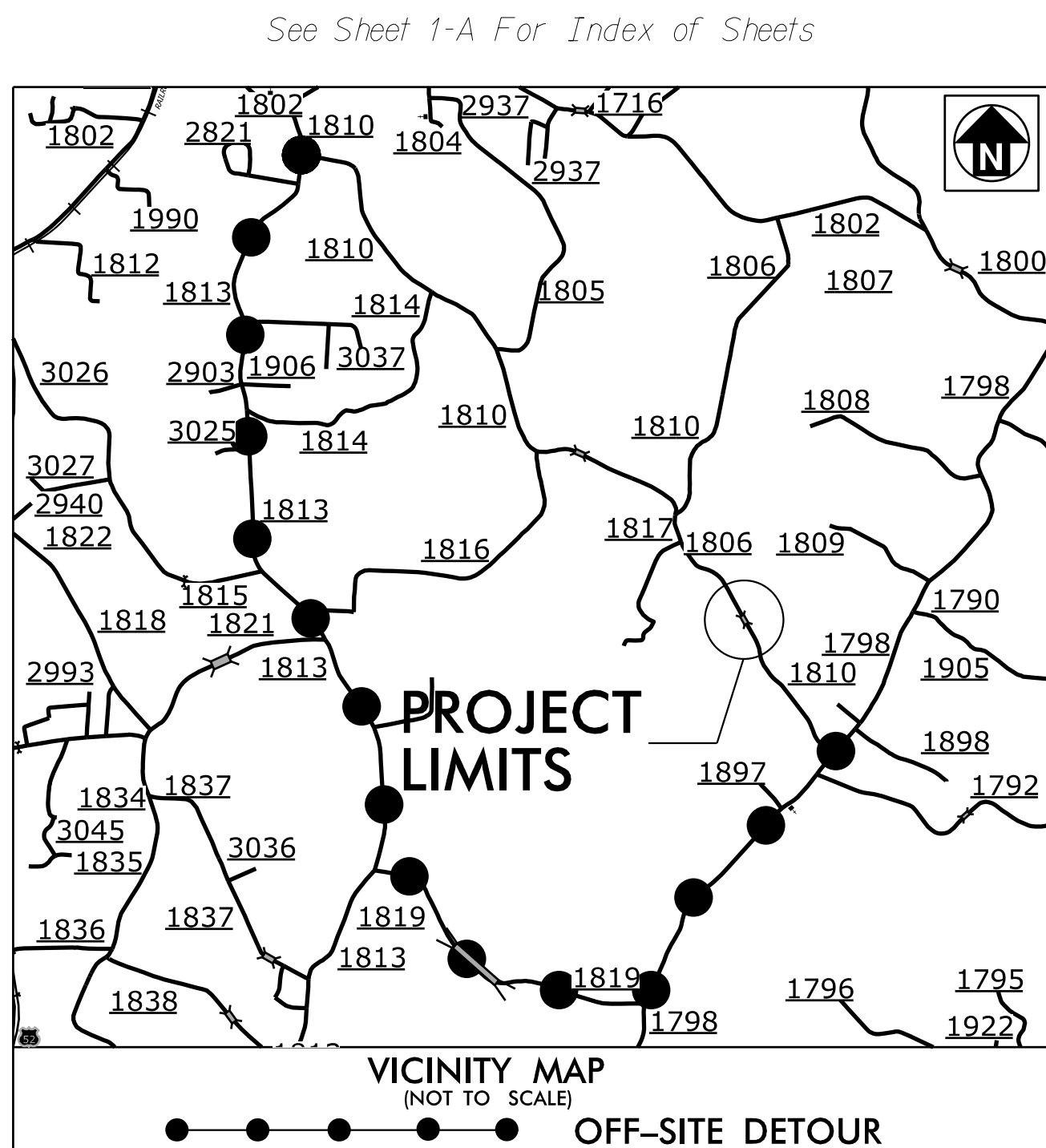


PROJECT: 17BP.9.R.101



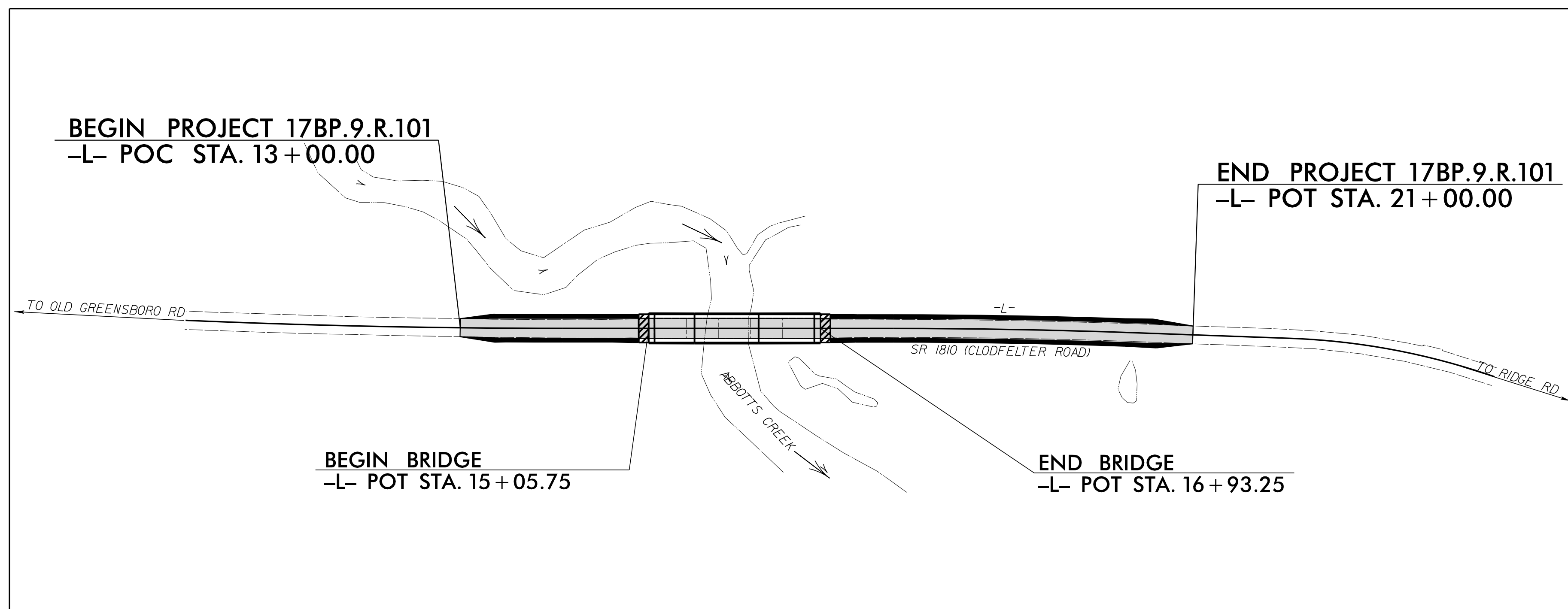
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

**LOCATION: BRIDGE NO. 100 OVER ABBOTTS CREEK
ON SR 1810 (CLODFELTER ROAD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND BRIDGE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.R.101	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.9.R.101	N/A	PE	



NAD 83 2011 1107388

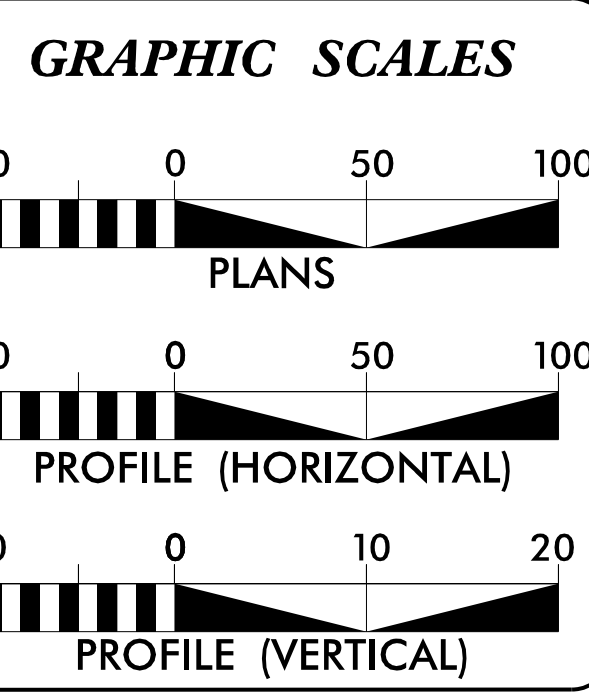
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

M PO Box 700
Fuquay-Varina, NC 27526
(919) 552-2253
M (919) 552-2254 (Fax)
MOTT www.mottmac.com/americas
MACDONALD

LICENSE NO. F-0669

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



DESIGN DATA

ADT (2012) = 970

V = 55 MPH

FUNC CLASS = MAJOR COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT = 0.116 MILES

LENGTH STRUCTURE PROJECT = 0.036 MILES

TOTAL LENGTH PROJECT = 0.152 MILES

Prepared in the Office of Mott MacDonald for
DIVISION 9
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 16, 2018

LETTING DATE:
OCTOBER 24, 2018

DAVID C. WALLER, PE
PROJECT ENGINEER

JAMES RICE, PE
HYDRAULIC ENGINEER

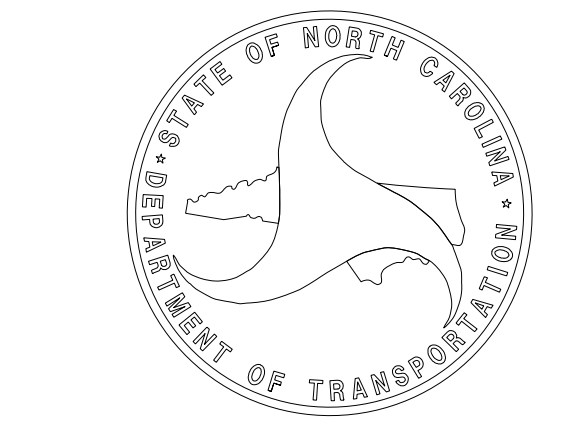
DANIEL DAGENHART
NCDOT BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER

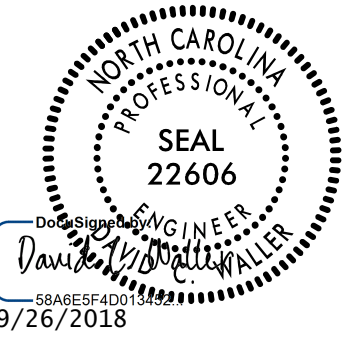
ROADWAY DESIGN ENGINEER

Seal and signature of James R. Rice, PE, dated 9/26/2018.

Seal and signature of David C. Waller, PE, dated 9/26/2018.



5/14/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.91	1A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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 III.

SUPERELEVATION:

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

GUARDRAIL:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE AT&T, ENERGY UNITED, DAVIDSON WATER, NORTH STATE COMMUNICATIONS & TIME WARNER CABLE.

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

RIGHT-OF-WAY MARKERS:

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

1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARDS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-2	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3A-1	ROADWAY SUMMARIES
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-3	TRANSPORTATION MANAGEMENT PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UD-1	UTILITIES BY OTHERS PLAN
X-1 THRU X-8	CROSS SECTIONS
S-1 THRU S-24	STRUCTURE PLANS

EFF. 01-16-2018
REV.

2018 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, 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
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
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
806.02	Granite Right-of-Way Marker
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Special Detail for Type III Anchor Units Sheets 1 of 7 and 2 of 7)
876.02	Guide for Rip Rap at Pipe Outlets

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STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	--- WLB ---
Proposed Wetland Boundary	--- WLB ---
Existing Endangered Animal Boundary	--- EAB ---
Existing Endangered Plant Boundary	--- EPB ---
Existing Historic Property Boundary	--- HPB ---
Known Contamination Area: Soil	☠ s ☠
Potential Contamination Area: Soil	☠ s ☠
Known Contamination Area: Water	☠ w ☠
Potential Contamination Area: Water	☠ w ☠
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	○ R W
New Right of Way Line with Pin and Cap	○ R W ◆
New Right of Way Line with Concrete or Granite R/W Marker	△ R W
New Control of Access Line with Concrete C/A Marker	△ C/A
Existing Control of Access	△ C/A
New Control of Access	△ C/A
Existing Easement Line	--- E ---
New Temporary Construction Easement	--- E ---
New Temporary Drainage Easement	--- TDE ---
New Permanent Drainage Easement	--- PDE ---
New Permanent Drainage / Utility Easement	--- DUE ---
New Permanent Utility Easement	--- PUE ---
New Temporary Utility Easement	--- TUE ---
New Aerial Utility Easement	--- AUE ---

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	--- C ---
Proposed Slope Stakes Fill	--- F ---
Proposed Curb Ramp	--- CR ---
Existing Metal Guardrail	--- T ---
Proposed Guardrail	--- T ---
Existing Cable Guiderail	--- T ---
Proposed Cable Guiderail	--- T ---
Equality Symbol	⊕
Pavement Removal	⊠

VEGETATION:

Single Tree	☼
Single Shrub	☼

Note: Not to Scale *S.U.E. = *Subsurface Utility Engineering*

Hedge	-----
Woods Line	-----
Orchard	☼ ☼ ☼ ☼
Vineyard	□ Vineyard

EXISTING STRUCTURES:

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

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	●
U/G Power Line LOS B (S.U.E.*)	--- P ---
U/G Power Line LOS C (S.U.E.*)	--- P ---
U/G Power Line LOS D (S.U.E.*)	--- P ---

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	○
U/G Telephone Cable LOS B (S.U.E.*)	--- T ---
U/G Telephone Cable LOS C (S.U.E.*)	--- T ---
U/G Telephone Cable LOS D (S.U.E.*)	--- T ---
U/G Telephone Conduit LOS B (S.U.E.*)	--- TC ---
U/G Telephone Conduit LOS C (S.U.E.*)	--- TC ---
U/G Telephone Conduit LOS D (S.U.E.*)	--- TC ---
U/G Fiber Optics Cable LOS B (S.U.E.*)	--- T FO ---
U/G Fiber Optics Cable LOS C (S.U.E.*)	--- T FO ---
U/G Fiber Optics Cable LOS D (S.U.E.*)	--- T FO ---

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	--- W ---
U/G Water Line LOS C (S.U.E.*)	--- W ---
U/G Water Line LOS D (S.U.E.*)	--- W ---
Above Ground Water Line	--- A/G Water ---

TV:

TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	○
U/G TV Cable LOS B (S.U.E.*)	--- TV ---
U/G TV Cable LOS C (S.U.E.*)	--- TV ---
U/G TV Cable LOS D (S.U.E.*)	--- TV ---
U/G Fiber Optic Cable LOS B (S.U.E.*)	--- TV FO ---
U/G Fiber Optic Cable LOS C (S.U.E.*)	--- TV FO ---
U/G Fiber Optic Cable LOS D (S.U.E.*)	--- TV FO ---

GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	--- G ---
U/G Gas Line LOS C (S.U.E.*)	--- G ---
U/G Gas Line LOS D (S.U.E.*)	--- G ---
Above Ground Gas Line	--- A/G Gas ---

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	--- SS ---
Above Ground Sanitary Sewer	--- A/G Sanitary Sewer ---
SS Forced Main Line LOS B (S.U.E.*)	--- FSS ---
SS Forced Main Line LOS C (S.U.E.*)	--- FSS ---
SS Forced Main Line LOS D (S.U.E.*)	--- FSS ---

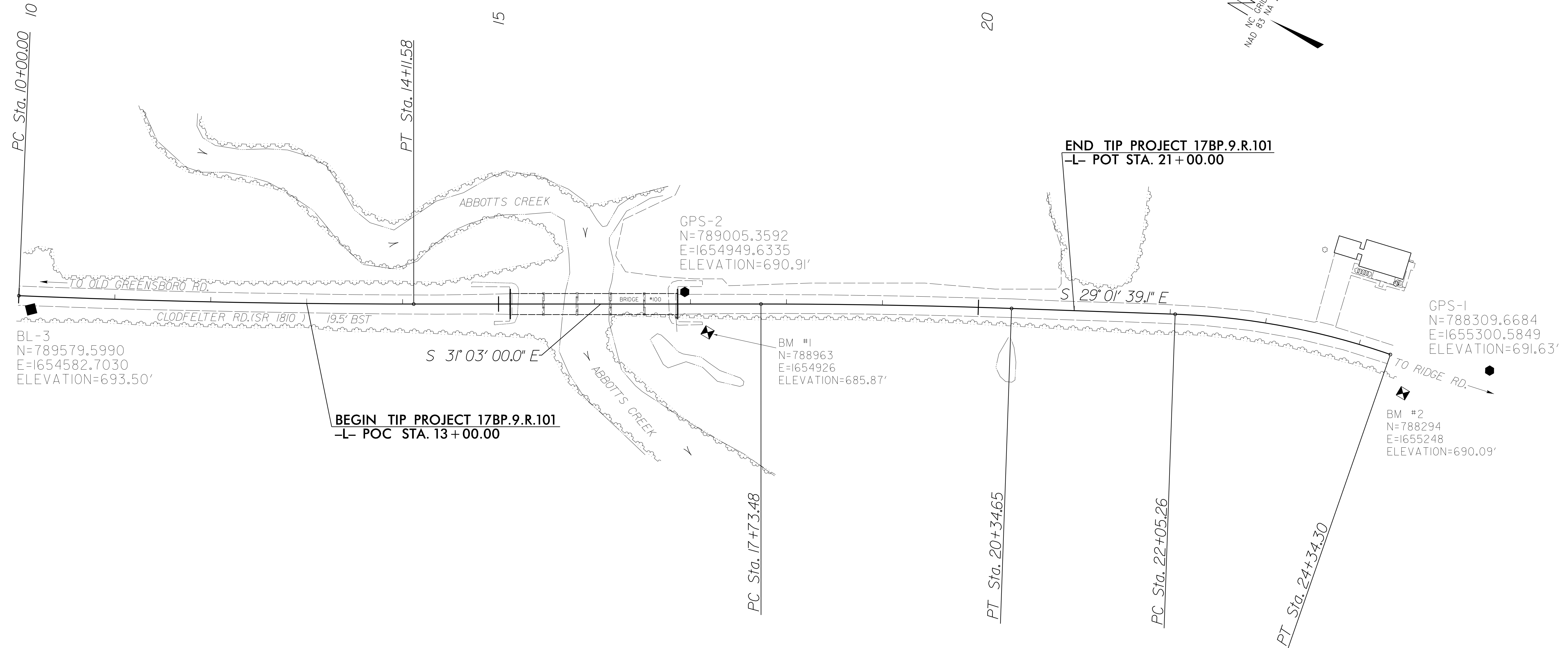
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	--- 70TL ---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

SURVEY CONTROL SHEET

17BP.9.5.101

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.101	1C-1
Location and Surveys	



BL-3
N=789579.5990
E=1654582.7030
ELEVATION=693.50'

BEGIN TIP PROJECT 17BP.9.R.101
-L- POC STA. 13+00.00

GPS-2
N=789005.3592
E=1654949.6335
ELEVATION=690.91'

BM #1
N=788963
E=1654926
ELEVATION=685.87'

GPS-1
N=788309.6684
E=165300.5849
ELEVATION=691.63'

BM #2
N=788294
E=1655248
ELEVATION=690.09'

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	B5776	BL-3	789579.5990	1654582.7030	693.50	10+13.29	13.78 RT
2	B5776	-2	789005.3592	1654949.6335	690.91	16+94.05	12.58 LT
1	B5776	-1	788309.6684	1655300.5849	691.63		OUTSIDE PROJECT LIMITS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5776-2"
 WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 789005.3592(FT) EASTING: 1654949.6335(FT)
 ELEVATION: 690.91(FT)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99991089
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5776-2" TO -L- STATION 10+00.00 IS
 N 31° 22' 3.6" W DISTANCE: 693.94 FT
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

```

    *****
    BM#1    ELEVATION = 685.87'
    N 788963    E 1654926
    L STATION 17+18.00 30' RIGHT
    RAIL ROAD SPIKE SET IN 15" OAK
    *****
    BM#2    ELEVATION = 690.09'
    N 788294    E 1655248
    L STATION 24+34.00
    S 27°25'09.2" W    DIST 53.94'
    RAIL ROAD SPIKE SET IN 11" SWEET GUM
    *****
    
```

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

SURVEY CONTROL SHEET

17BP.9.R.101

TYPE	STATION	L	
		NORTH	EAST
PC	10+00.00	789597.8745	1654588.4196
PT	14+11.58	789240.8671	1654793.1648
PC	17+73.48	788930.8240	1654979.8260
PT	20+34.65	788704.7441	1655110.5572
PC	22+05.26	788555.5617	1655193.3441
PT	24+34.30	788341.7488	1655273.0170

ROW MARKER CONCRETE OR GRANITE -E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	13+00.00	-30.00	789351.9677	1654762.0409
L	13+00.00	-40.00	789357.0267	1654770.6669
L	13+00.00	30.00	789321.6139	1654710.2853
L	13+00.00	40.00	789316.5549	1654701.6594
L	21+00.00	30.00	788633.0455	1655116.0357
L	21+00.00	40.00	788628.1932	1655107.2918
L	21+00.00	-30.00	788662.1593	1655168.4989
L	21+00.00	-40.00	788667.0116	1655177.2428

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5776-2"

WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 789005.3592(ft) EASTING: 1654949.6335(ft)
 ELEVATION: 690.91(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99991089

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5776-2" TO -L- STATION 10+00.00 IS
 N 31° 22' 3.6" W DISTANCE: 693.94 ft

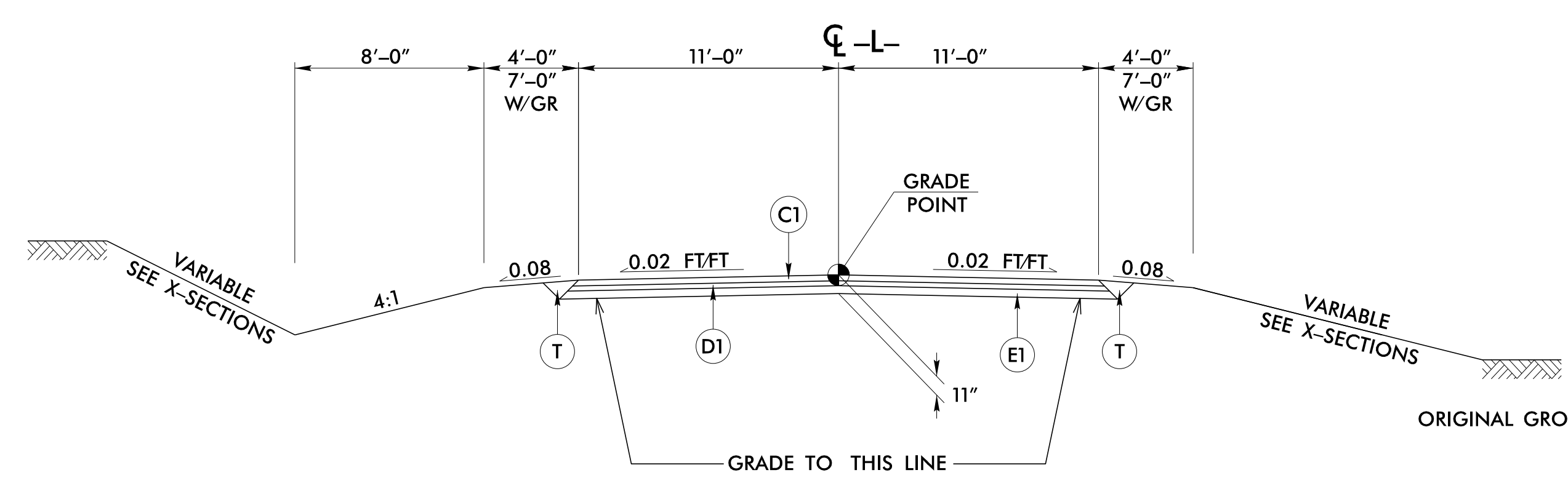
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

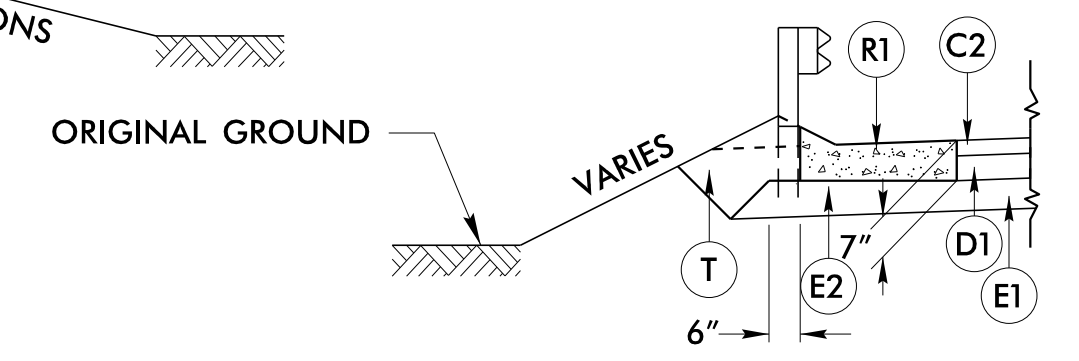
6/22/19

PROJECT REFERENCE NO. 17BP.9.R.101	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas



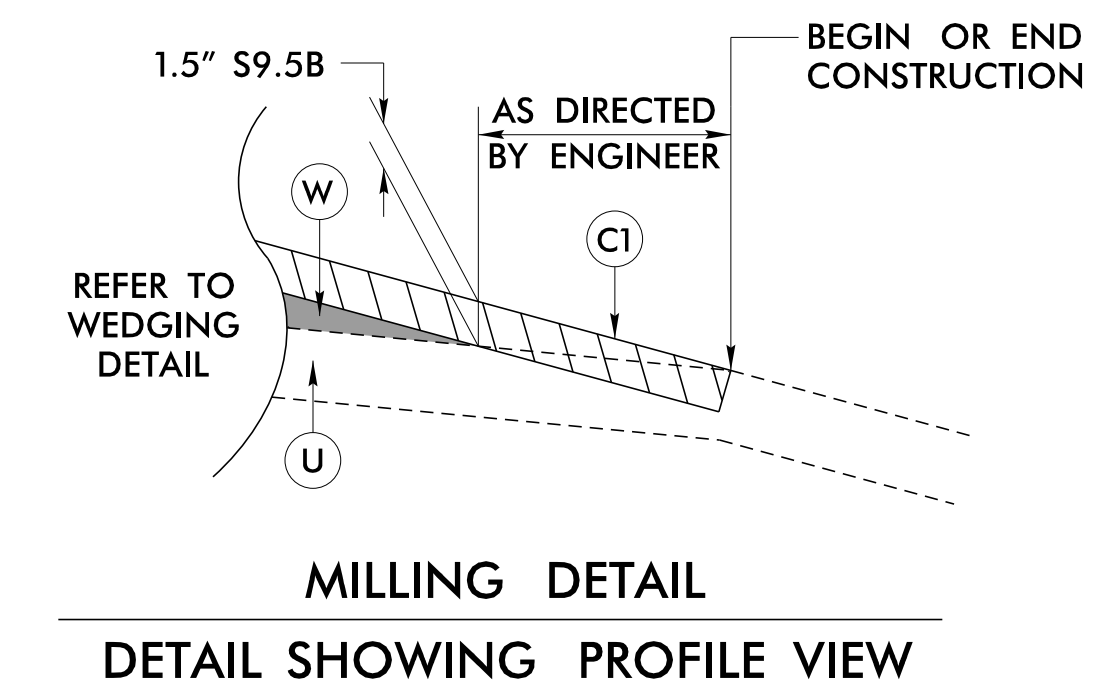
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1:
 -L- STA 13+00.00 TO 15+05.75 (BEGIN BRIDGE)
 -L- STA 16+93.25 (END BRIDGE) TO 17+30.00

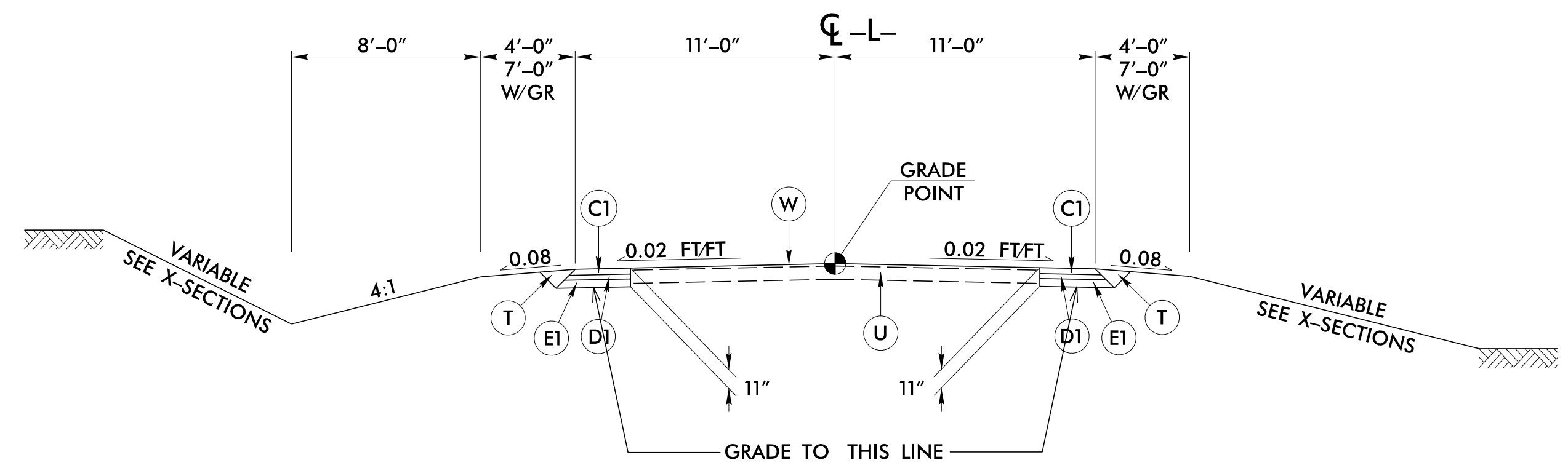


DETAIL SHOWING SHOULDER BERM GUTTER LOCATIONS

-L- STA. 14+70.00 TO STA. 15+07.00 LT & RT

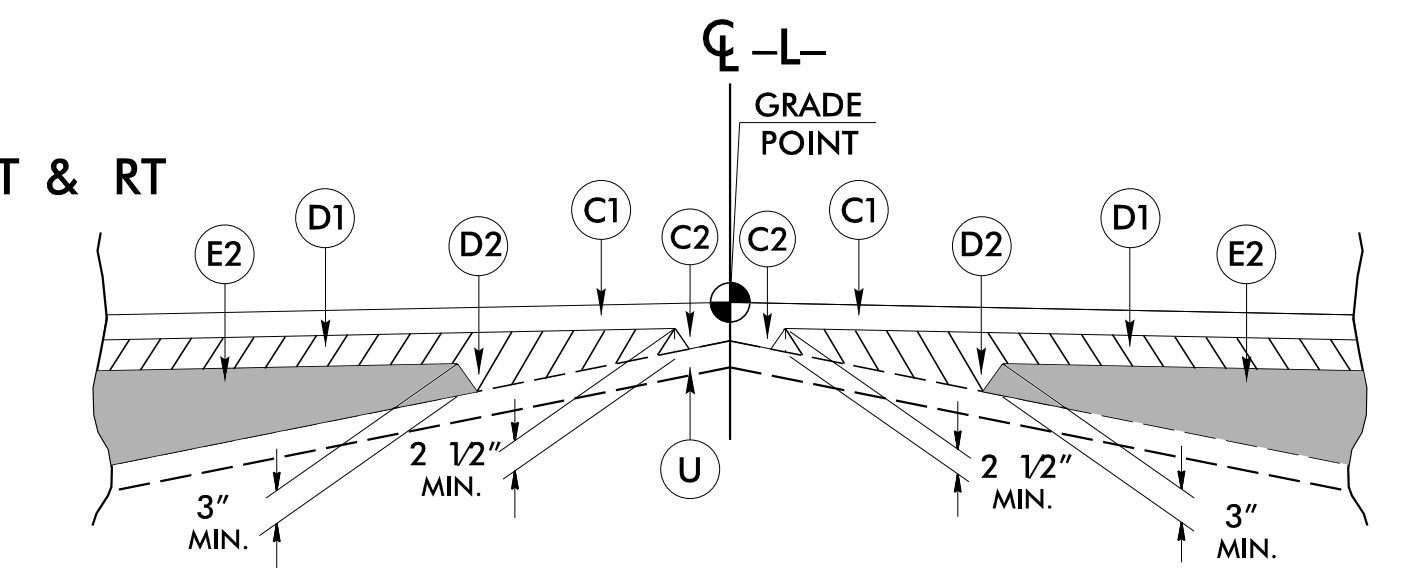


MILLING DETAIL
DETAIL SHOWING PROFILE VIEW

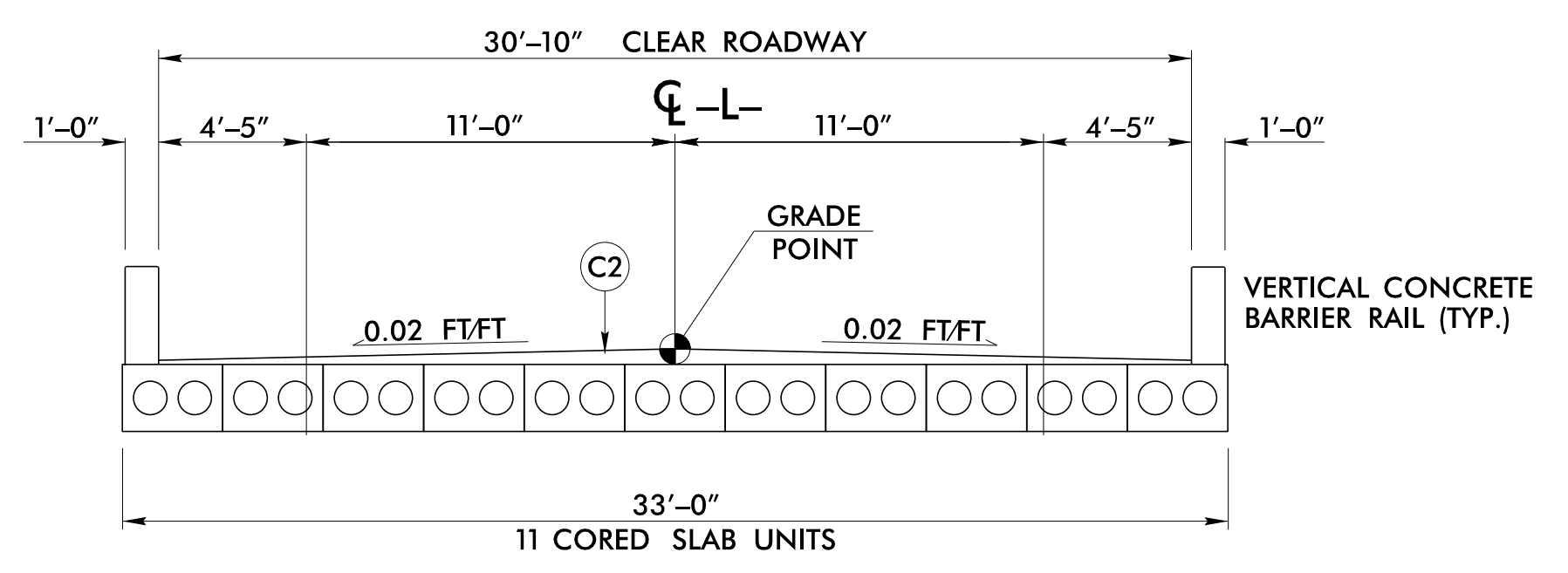


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3:
 -L- STA 17+30.00 TO 21+00.00



Detail Showing Method of Wedging



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2:
 -L- STA 15+05.75 (BEGIN BRIDGE) TO 16+93.25 (END BRIDGE)

NOTE: SEE STRUCTURE PLANS FOR PAVEMENT DEPTHS ON STRUCTURE

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 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 1/2" IN DEPTH.
R1	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE DETAIL SHOWING METHOD OF WEDGING).

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

I:\A746 AM\Projects\17BP.9.R.101\B5776.rdy.tup.dgn 6/22/19

COMPUTED BY: VICTORIA RIEGE DATE: 11-21-2017
CHECKED BY: DAVID WALLER DATE: 11-21-2017

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Table with columns: STATION, UNCL. EXCAV., EMBANK. +%, BORROW, WASTE. Includes project totals and grand totals.

SHOULDER BERM GUTTER SUMMARY

Table with columns: SURVEY LINE, STATION, STATION, LENGTH. Shows totals for survey lines.

EXISTING ASPHALT PAVEMENT REMOVAL SUMMARY

Table with columns: SURVEY LINE, STATION, STATION, LOCATION LT/RT/CL, YD. Shows totals for pavement removal.

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

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout. LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER) See "Standard Specifications For Roads and Structures, Section 300-5".

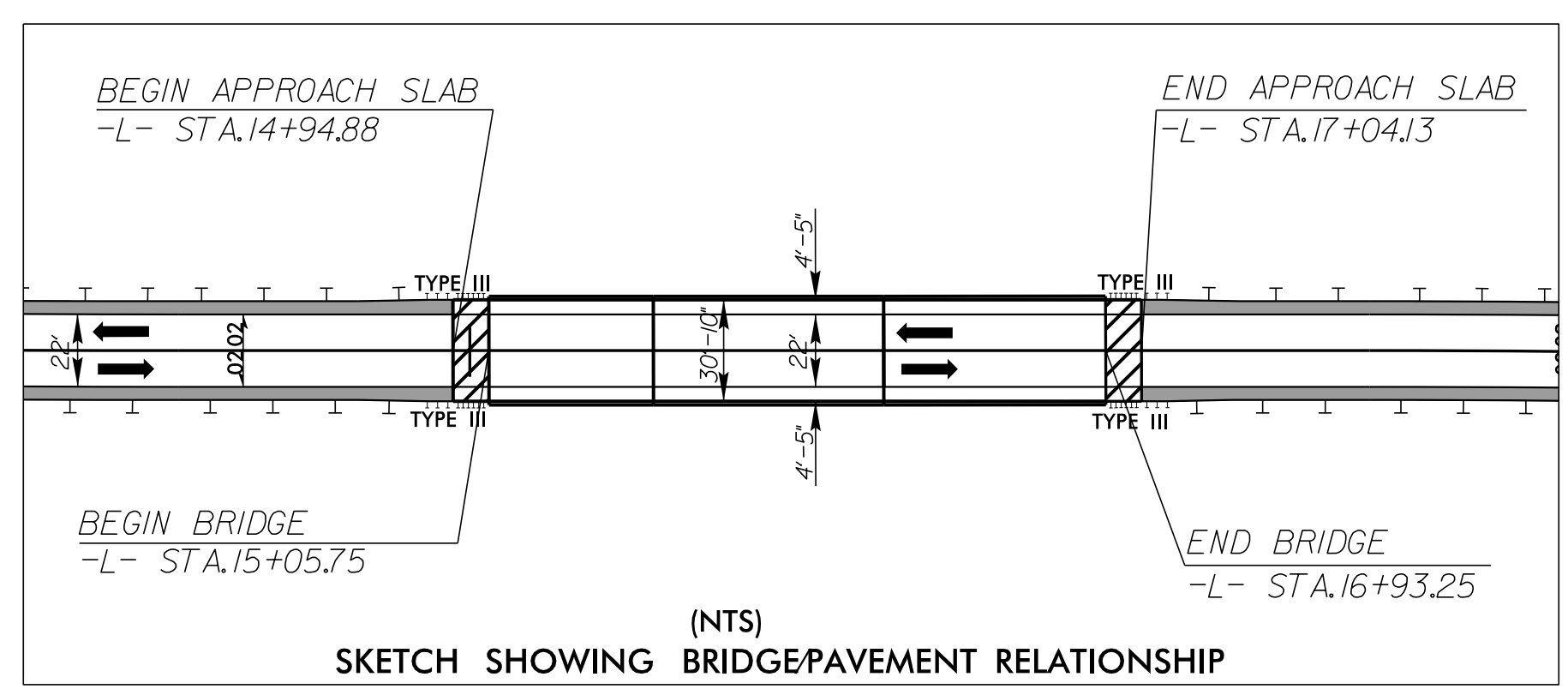
Large table listing pipe specifications: STATION, LOCATION, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC), C.S. PIPE, R.C. PIPE (CLASS III), R.C. PIPE (CLASS IV), ENDWALLS, QUANTITIES FOR PIPELINE STRUCTURES, FRAME, GRATES AND HOOD STANDARD 840.03, CONCRETE TRANSITIONAL SECTION, TYPE OF GRATE, CATCH BASIN, DROP INLET, CORR. STEEL ELBOWS NO. & SIZE, CONC. COLLARS CL. "B" C.Y. STD. 840.72, CONC. & BRCK PIPE PLUG C.Y. STD. 840.71, PIPE REMOVAL LIFT, ABBREVIATIONS, REMARKS.

FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

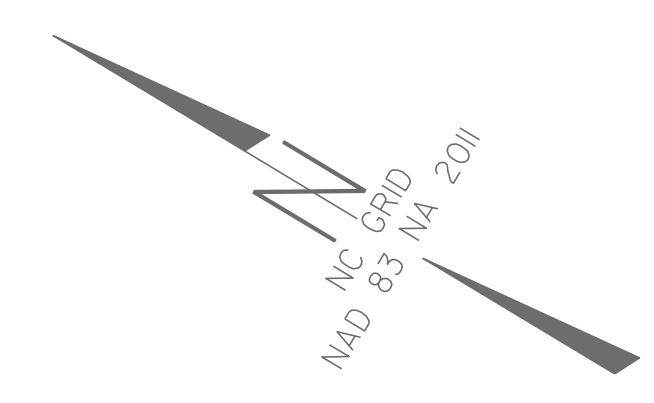
Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (XI MOD, XI, GREU, TL-3, M-350, TYPE III, CAT-1, VI MOD, BIC, AT-1), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

PROJECT REFERENCE NO. 17BP.9.R.101	SHEET NO. 4
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M PO Box 700 Fuquay-Varina, NC 27526 MOTT MACDONALD www.mottmac.com/motmac

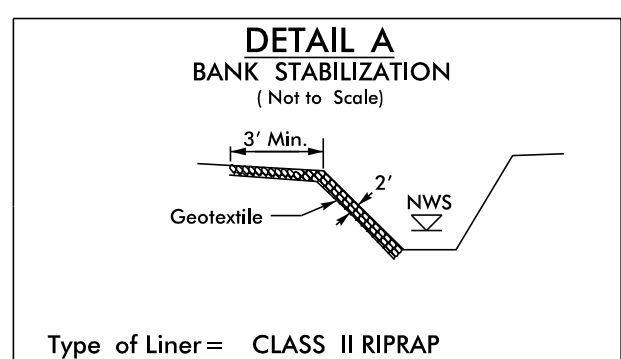
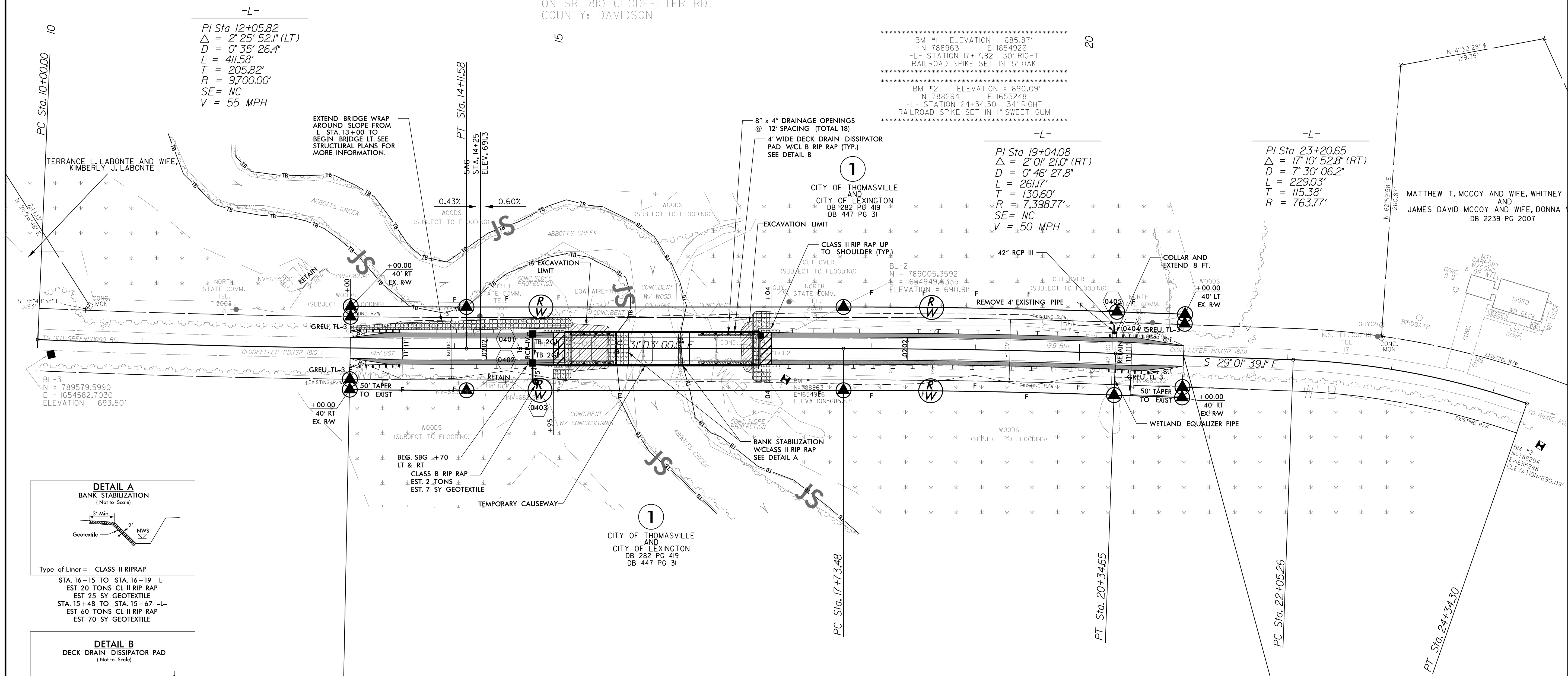


BD1 = N 789160.7240 E 1654854.1800 ELEV. 691.05'
 BD2 = N 789149.3690 E 1654835.4860 ELEV. 691.05'
 BD3 = N 788999.2530 E 1654925.8510 ELEV. 691.07'
 BD4 = N 789010.6120 E 1654944.5670 ELEV. 691.10'
 BCL1 = N 789154.8550 E 1654844.5830 ELEV. 691.16'
 BCL2 = N 789004.8870 E 1654935.0450 ELEV. 691.16'

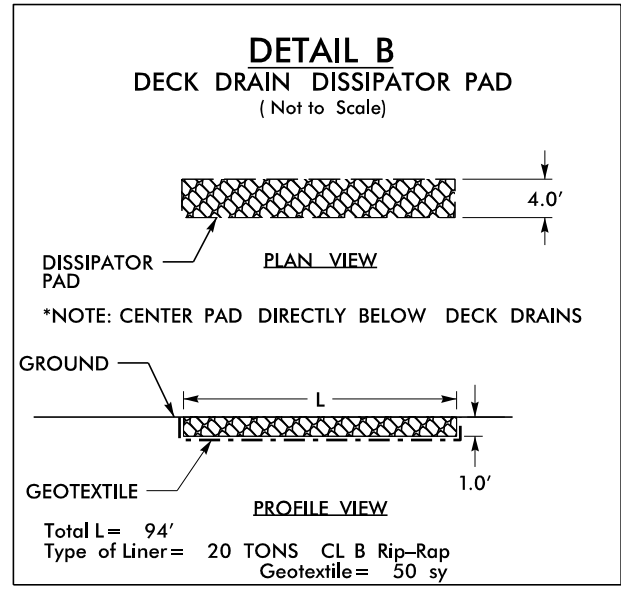
BD = BRIDGE DECK CORNER
 BCL = BRIDGE DECK CENTER LINE POINT



STRUCTURE: BRIDGE 100 OVER ABBOTTS CREEK
 ON SR 1810 CLODFELTER RD.
 COUNTY: DAVIDSON



Type of Liner = CLASS II RIPRAP
 STA. 16+15 TO STA. 16+19 -L-
 EST 20 TONS CL II RIP RAP
 EST 25 SY GEOTEXTILE
 STA. 15+48 TO STA. 15+67 -L-
 EST 60 TONS CL II RIP RAP
 EST 70 SY GEOTEXTILE



FROM STA. 15+12 TO STA. 15+53 -L- LT. & RT. L=41'
 FROM STA. 16+34 TO STA. 16+87 -L- LT. & RT. L=53'

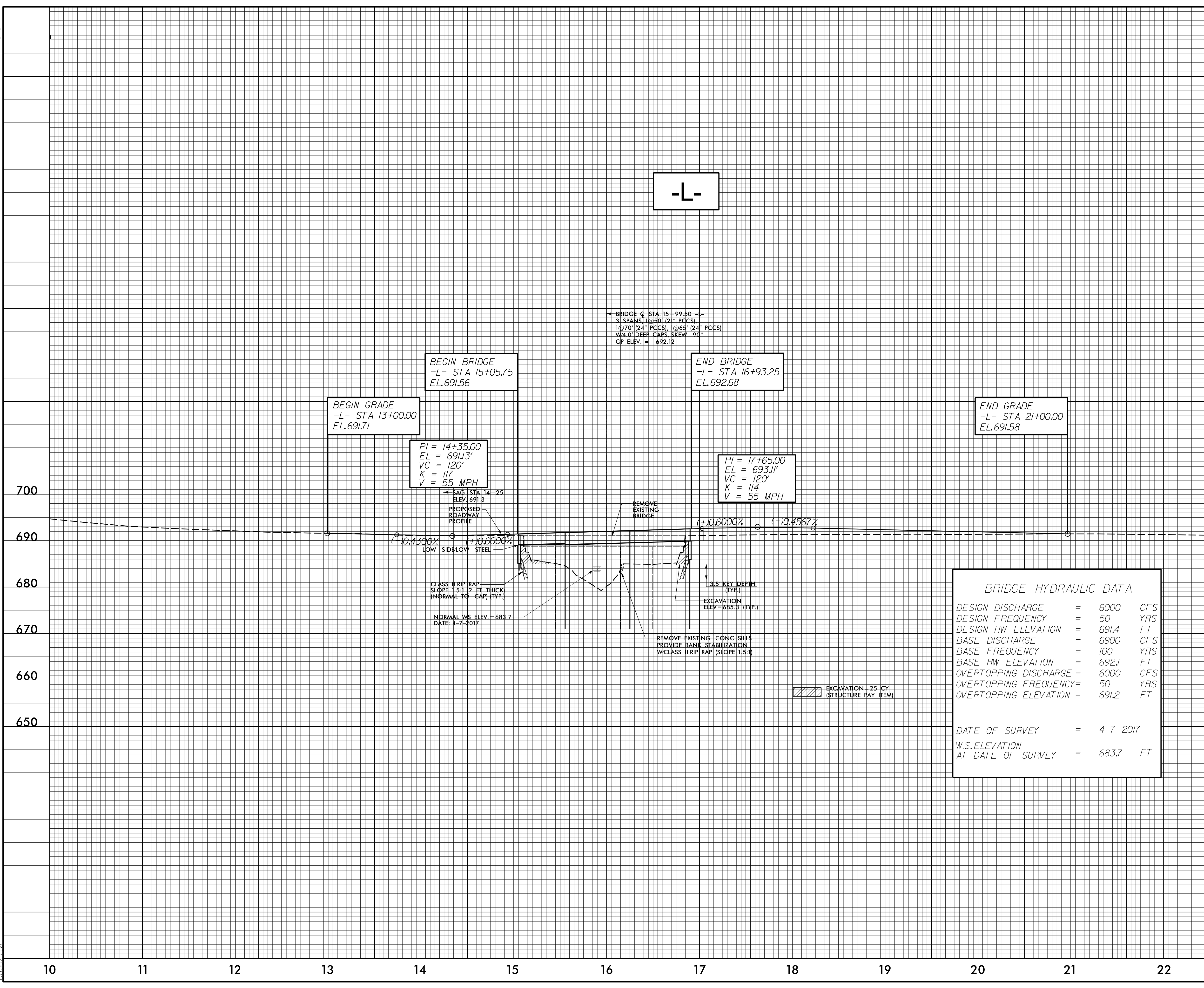
BEGIN PROJECT 17BP.9.R.101
 -L- POC STA. 13+00.00

END PROJECT 17BP.9.R.101
 -L- POT STA. 21+00.00

8.17.19
 158.54 AM
 R:\Projects\17BP.9.R.101\Drawings\17BP.9.R.101.dwg
 10/26/2018

5/14/19

PROJECT REFERENCE NO. <i>17BP.9.R.101</i>	SHEET NO. <i>5</i>
ROADWAY DESIGN ENGINEER <i>David D. Waller</i>	HYDRAULICS ENGINEER <i>David D. Rice</i>
Prepared in the Office of: M MOTT MACDONALD	
PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas	



11:50:01 AM
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5/14/99

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.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS – LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS – TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS – BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS – INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS – TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- B) PROVIDE PERMANENT SIGNING.
- C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

- E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

- G) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.101 – DAVIDSON 100	TMP-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
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PHASING

- STEP 1: USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, AND SHEET TMP-2, PERFORM THE FOLLOWING:
 - INSTALL ALL ROAD CLOSURE AND DETOUR SIGNING INCLUDING BARRICADES
 - CLOSE SR 1810 (CLODFELTER ROAD)
 - PLACE TRAFFIC ONTO OFF- SITE DETOUR
- STEP 2: REMOVE EXISTING BRIDGE #100 AND CONSTRUCT THE PROPOSED BRIDGE AND APPROACHES AS SHOWN IN THE CONSTRUCTION PLANS.
- STEP 3: INSTALL FINAL PAVEMENT MARKINGS.
- STEP 4: REMOVE ALL TRAFFIC CONTROL SIGNING AND DEVICES AND RE-OPEN SR 1810 (CLODFELTER ROAD) TO THE FINAL TRAFFIC PATTERN.

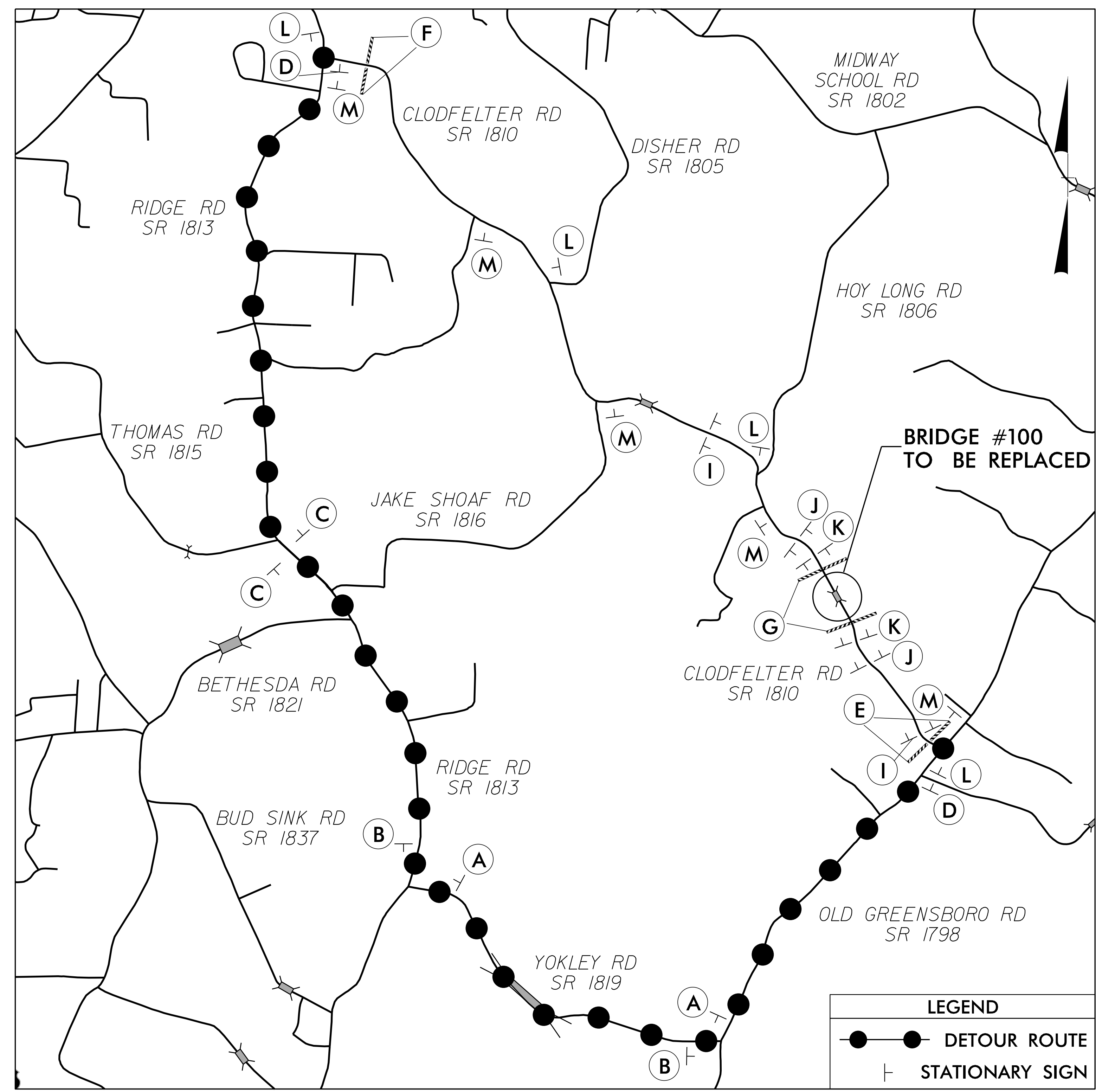
PAVEMENT MARKING

PAINT WHITE EDGELINE (4") 3200' LF
 PAINT YELLOW DOUBLE CENTER (4") 3200' LF

NOTE: QUANTITY INCLUDES 2 APPLICATIONS OF EACH

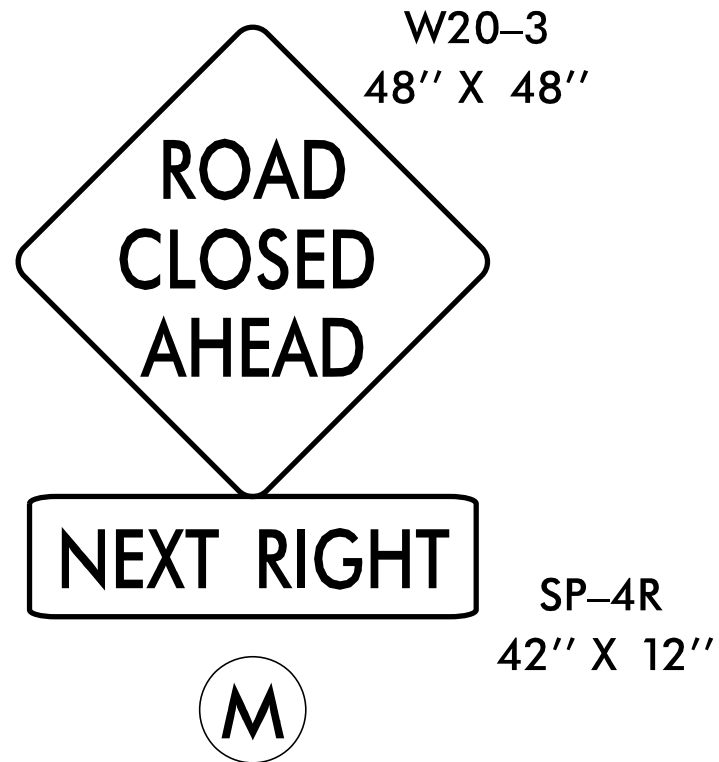
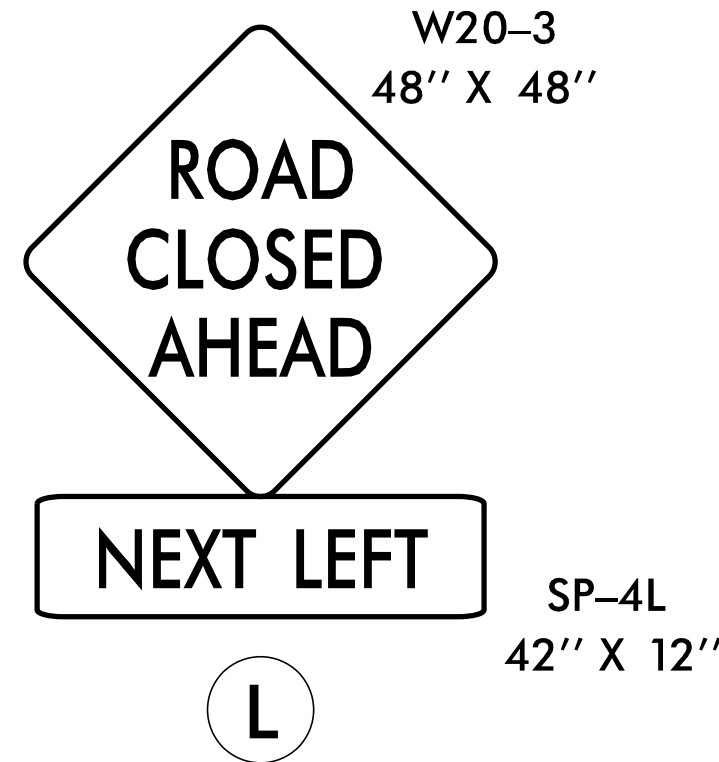
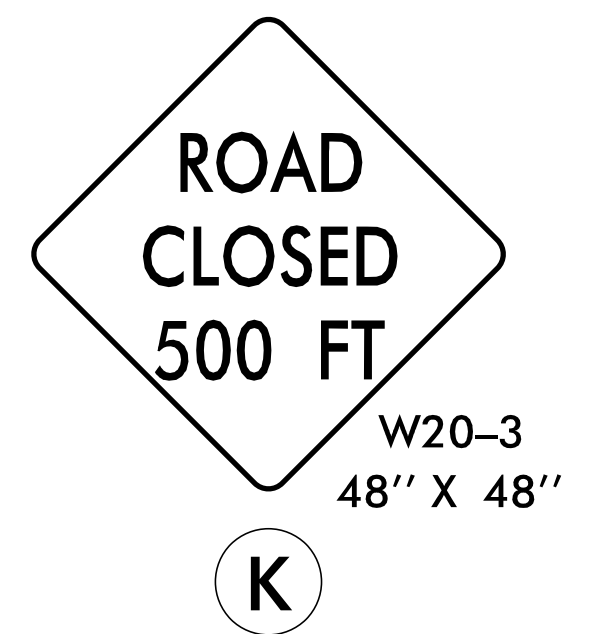
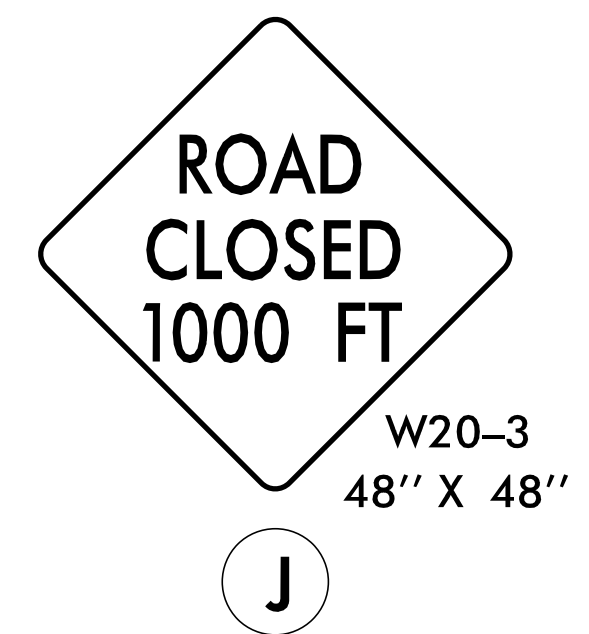
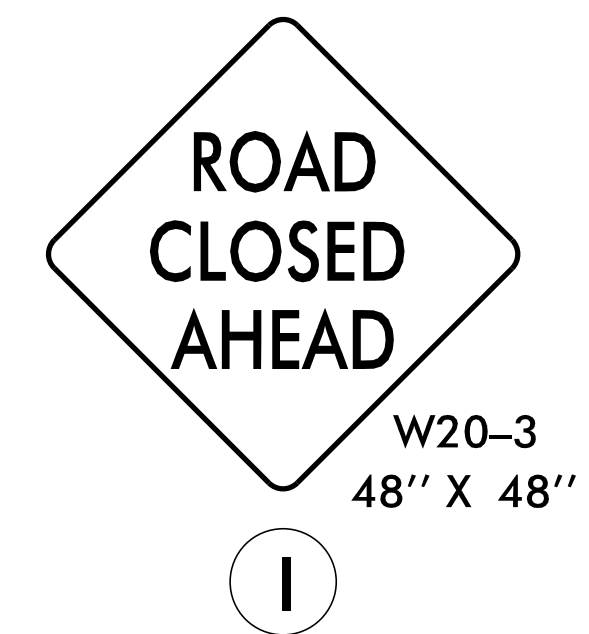
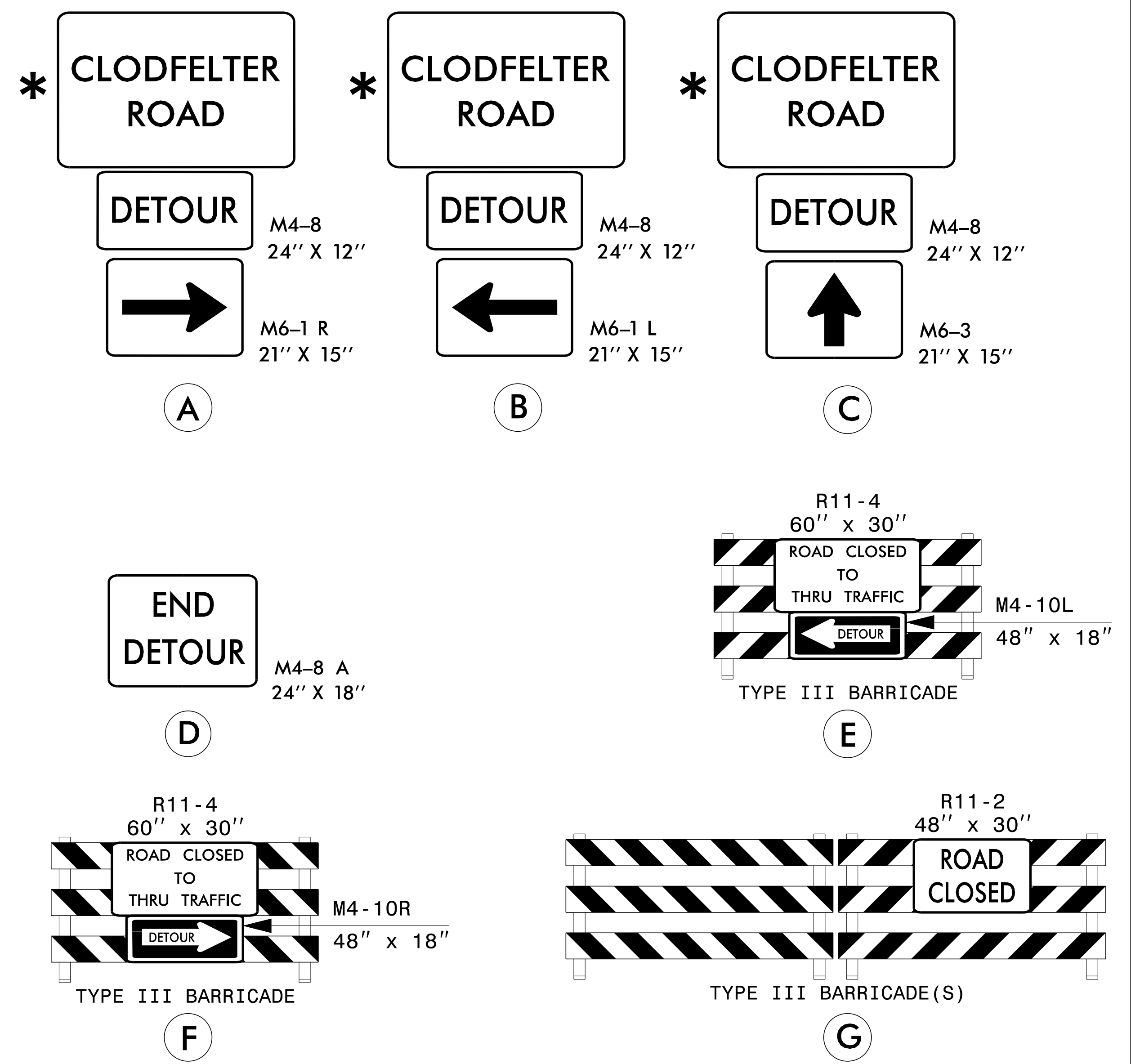
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5/14/99

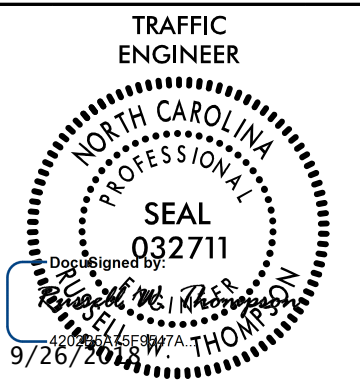


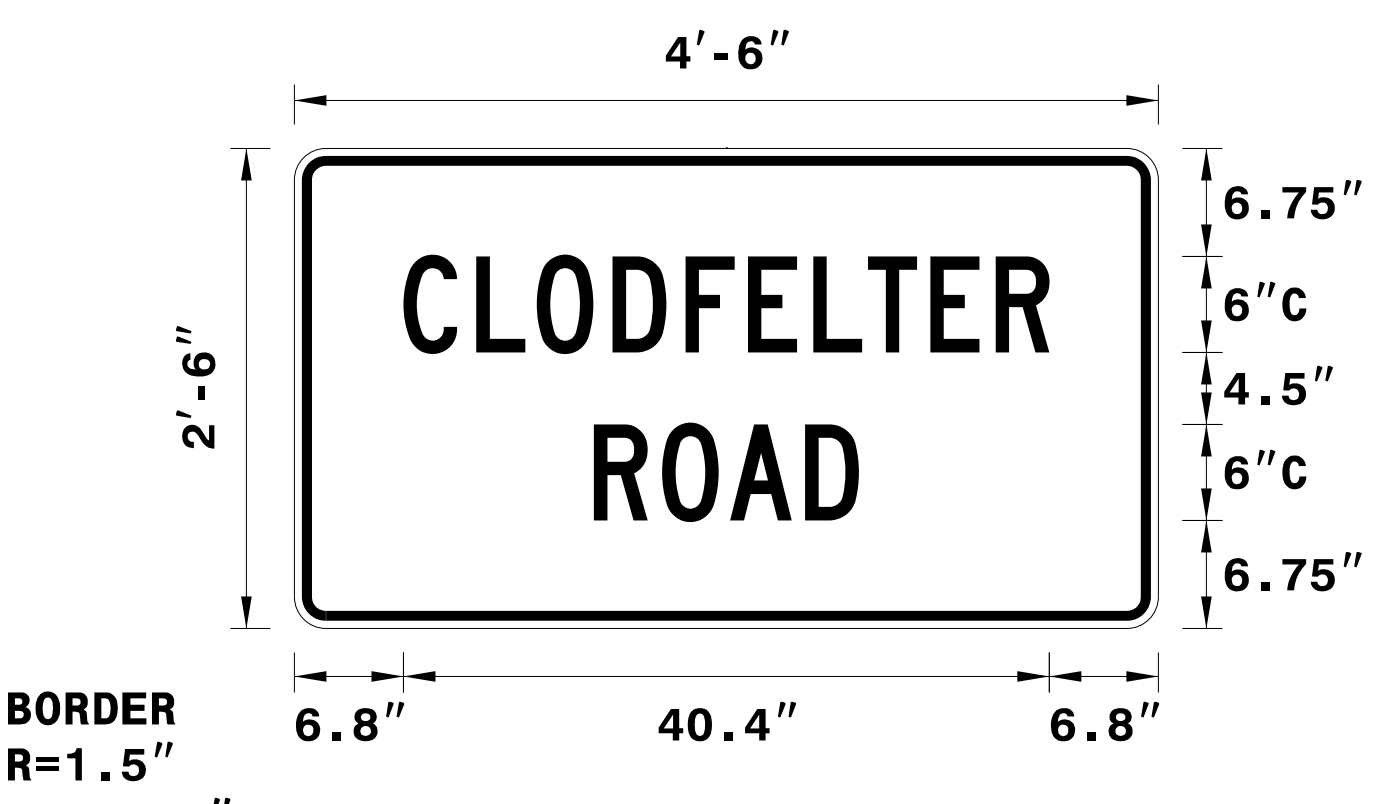
PROJECT REFERENCE NO. 17BP-9.R101 - DAVIDSON 100	SHEET NO. TMP-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Office of:	MOTT MACDONALD
	PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas

* SEE SHEET TMP-3 FOR SPECIAL SIGN DESIGNS



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PROJECT REFERENCE 17BP.9.R.101 - DAVIDSON 100	SHEET NO. TMP-3
TRAFFIC ENGINEER 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M PO Box 700 Fuquay-Varina, NC 27526 MOTT MACDONALD www.mottmac.com/america

SIGN NUMBER: SD-1 BACKG COLOR: Fluorescent Orange	DESIGN BY: BLP	CHECKED BY: RWT	DATE: Aug 13, 2018																																				
TYPE: D COPY COLOR: Black	PROJECT ID: 17BP.9.R.101	DIV: 9																																					
QUANTITY: SEE PLANS	<table border="1"><thead><tr><th>SYMBOL</th><th>X</th><th>Y</th><th>WID</th><th>HT</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>	SYMBOL	X	Y	WID	HT																																	
SYMBOL	X	Y	WID	HT																																			
SIGN WIDTH: 4'-6" HEIGHT: 2'-6" TOTAL AREA: 11.3 Sq.Ft.																																							
BORDER TYPE: INSET RECESS: 0.47" WIDTH: 0.63" RADII: 1.5"																																							
NO. Z BARS: MAT'L: 0.080" (2.0 mm) ALUMINUM LENGTH:																																							
USE NOTES: 1,2																																							
1. Legend and border shall be direct applied black non-reflective sheeting.																																							
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.																																							
	BORDER R=1.5" TH=0.63" IN=0.47"																																						
	Panel Style: construction_guide.ssi M.U.T.C.D.: 2009 Edition Spacing Factor is 1 unless specified otherwise																																						

LETTER POSITIONS

Letter locations are panel edge to lower left corner

	C	L	O	D	F	E	L	T	E	R	Series/Size
	6.8	11.4	15.2	19.9	24.5	28.4	32.4	35.9	39.8	43.8	Text Length
											C 2000
											40.4
											C 2000
											16.6

FILENAME: B5774_rdy_tmp3 **NORTH CAROLINA D.O.T. SIGN DETAIL**

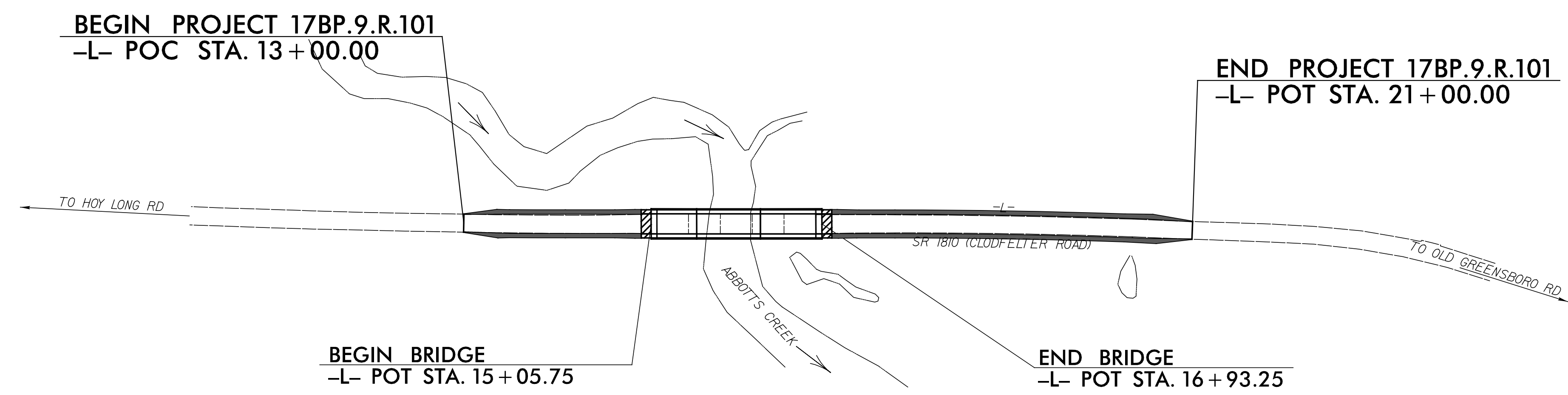
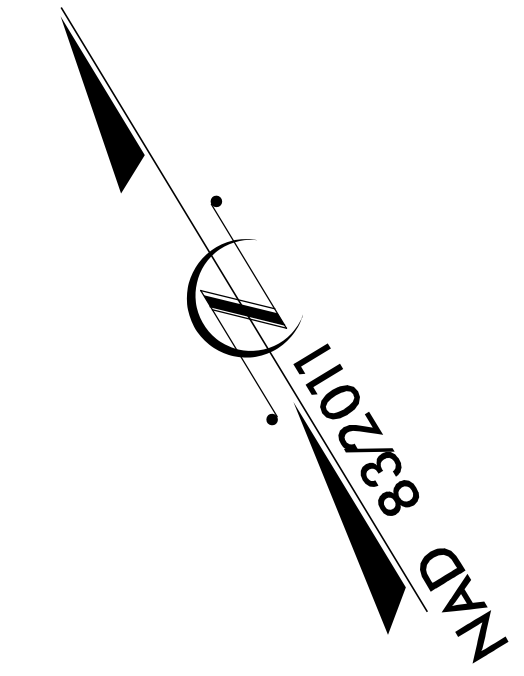
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.R.101	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PROJECT: 17BP.9.R.101

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

DAVIDSON COUNTY

LOCATION: BRIDGE NO. 100 OVER ABBOTTS CREEK
ON SR 1810 (CLODFELTER ROAD)



EROSION AND SEDIMENT CONTROL MEASURES

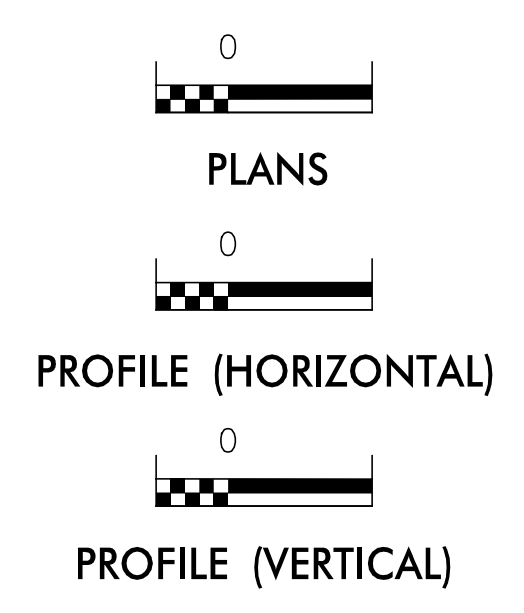
Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	
1630.05	Temporary Diversion	
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	
	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	
1632.02	Type B	
1632.03	Type C	
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:



HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-01116

Designed by:

ALEXANDER D. SNIDER, P.E. 3064
NAME LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:

PHIL H. SUGGS, CPESC

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		

\$\$\$SYSTEM\$\$\$
\$\$\$DGN\$\$\$
\$\$\$USERNAME\$\$\$

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

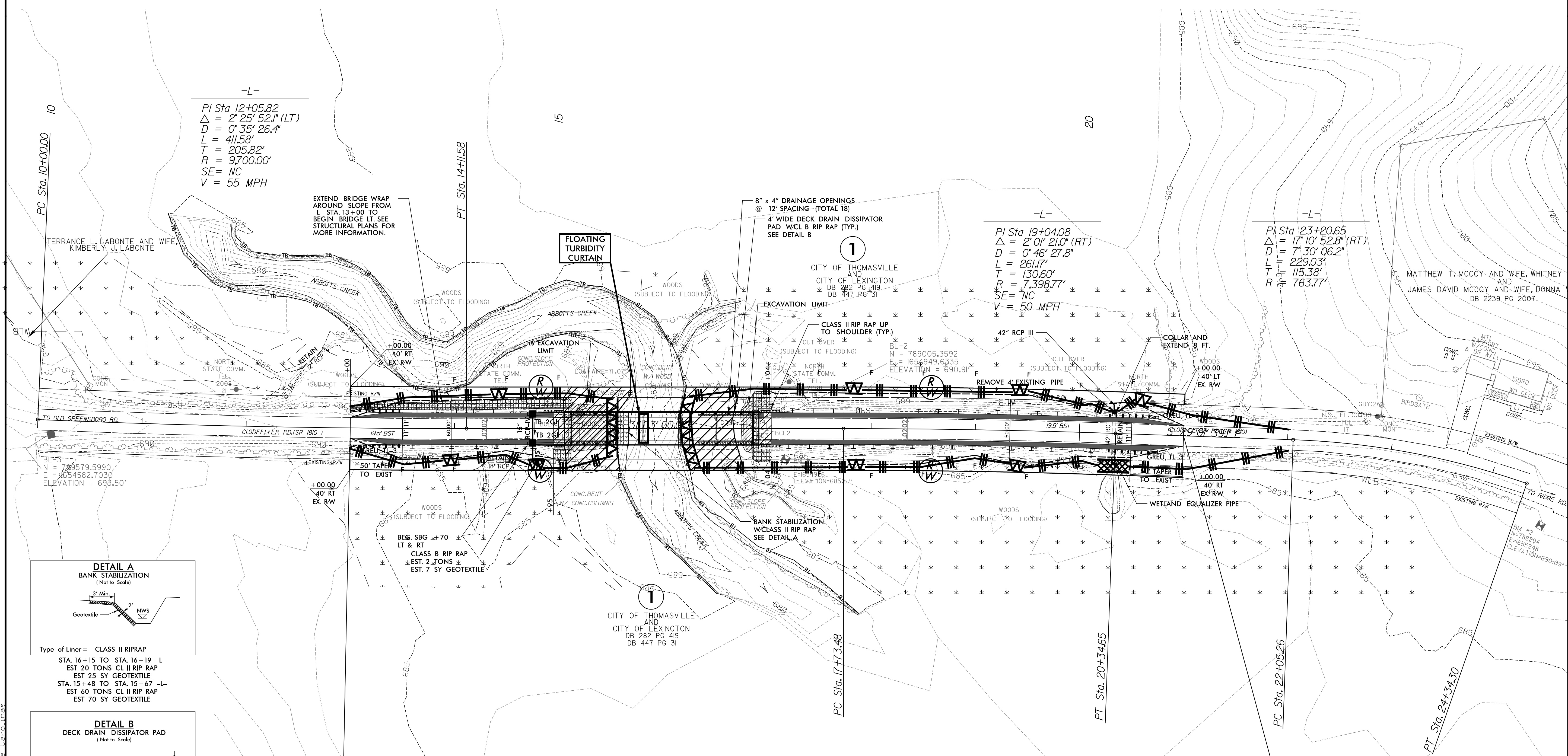
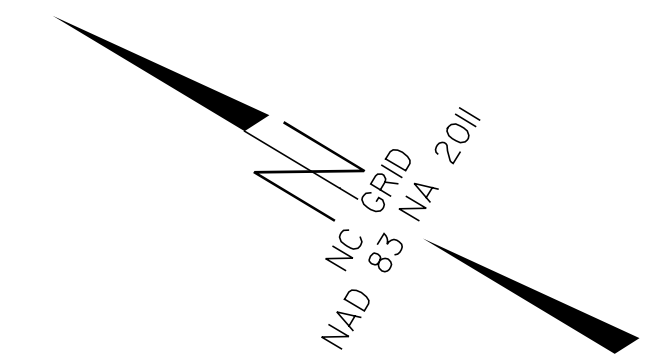
SOIL STABILIZATION TIMEFRAMES

<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.

LEVEL III CERTIFIED BY:
ALEXANDER D SNIDER, PE
CERTIFICATION NUMBER: 3064
ISSUED: AUGUST 11, 2017

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

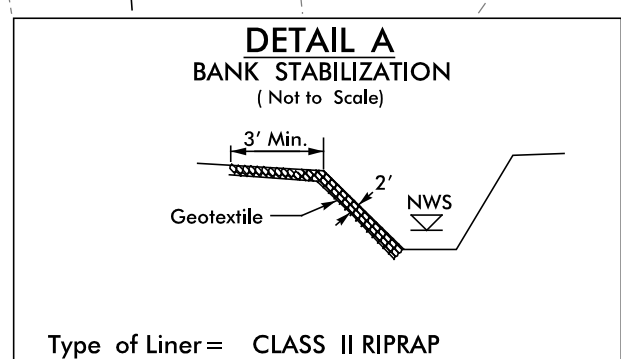
 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



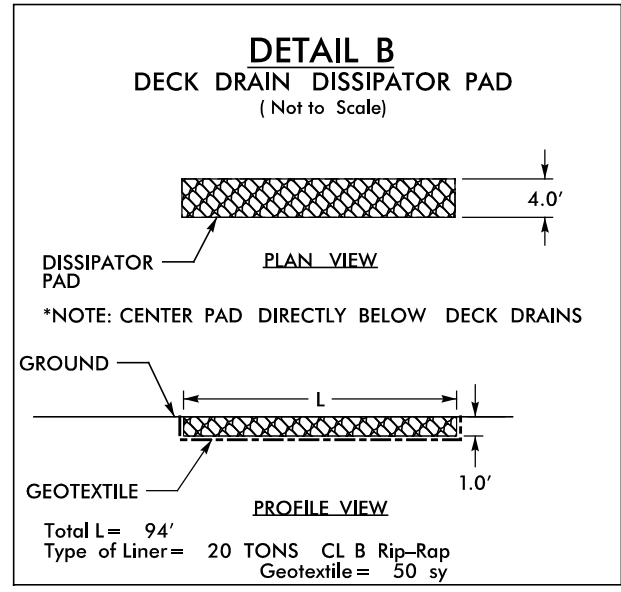
-L-
PI Sta 12+05.82
 $\Delta = 2' 25' 52.1''$ (LT)
 $D = 0' 35' 26.4''$
 $L = 411.58'$
 $T = 205.82'$
 $R = 9,700.00'$
 $SE = NC$
 $V = 55$ MPH

-L-
PI Sta 19+04.08
 $\Delta = 2' 01' 21.0''$ (RT)
 $D = 0' 46' 27.8''$
 $L = 261.17'$
 $T = 130.60'$
 $R = 7,398.77'$
 $SE = NC$
 $V = 50$ MPH

-L-
PI Sta 23+20.65
 $\Delta = 17' 10' 52.8''$ (RT)
 $D = 7' 30' 06.2''$
 $L = 229.03'$
 $T = 115.38'$
 $R = 763.77'$



STA. 16+15 TO STA. 16+19 -L-
EST 20 TONS CL II RIP RAP
EST 25 SY GEOTEXTILE
STA. 15+48 TO STA. 15+67 -L-
EST 60 TONS CL II RIP RAP
EST 70 SY GEOTEXTILE



FROM STA. 15+12 TO STA. 15+53 -L- LT. & RT. L=41'
FROM STA. 16+34 TO STA. 16+87 -L- LT. & RT. L=53'

BEGIN TIP PROJECT 17BP.9.R.101
-L- POC STA. 13+00.00

END TIP PROJECT 17BP.9.R.101
-L- POT STA. 21+00.00

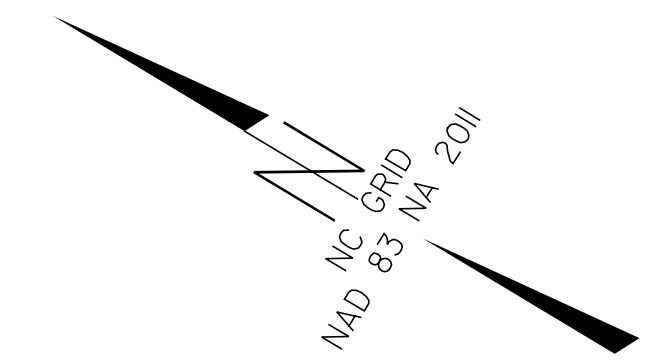
NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTE:
ALL EROSION CONTROL DEVICES SHOWN ARE
LOCATED WITHIN RW OR EASEMENT.

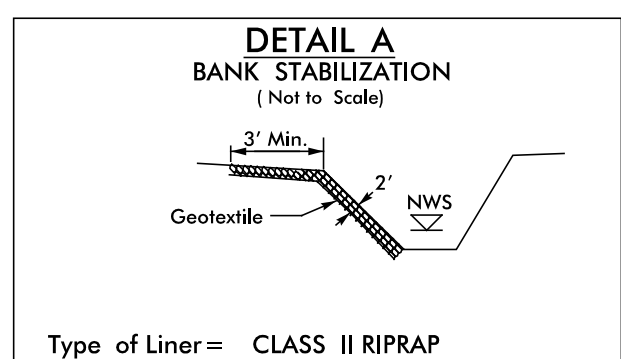
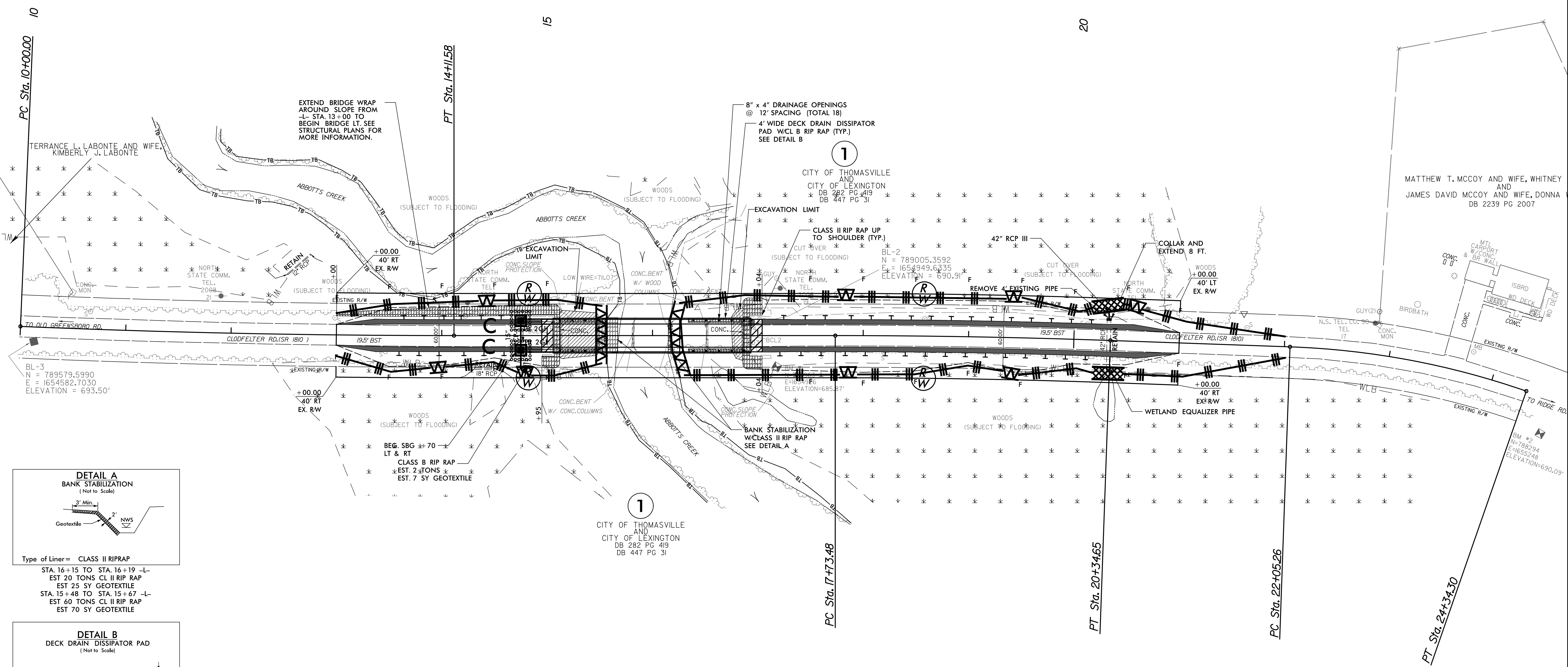
8/17/99
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17BP.9.R.101\6.0_CAD_BIM\6.2_Work_In_Progress\Hydraulics\Erosion_Control\Cadd\B-5776_hyd.ec.&g.dwg

LEVEL III CERTIFIED BY:
 ALEXANDER D SNIDER, PE
 CERTIFICATION NUMBER: 3064
 ISSUED: AUGUST 11, 2017

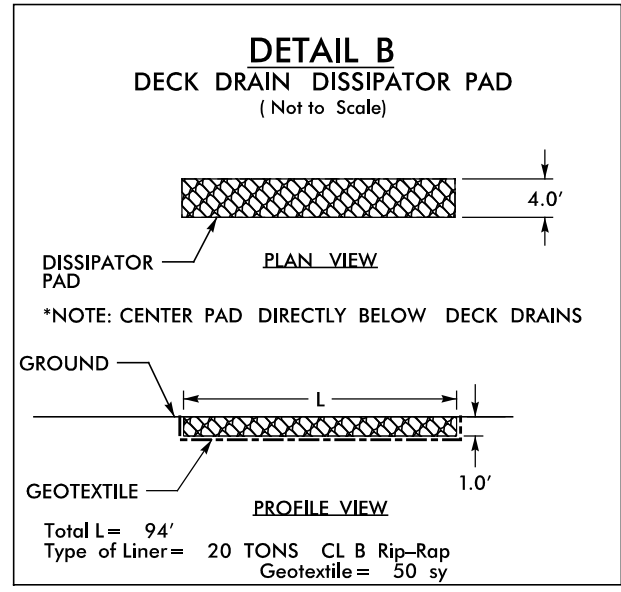
**FINAL EROSION CONTROL
 FOR CONSTRUCTION
 SHEET 04**



8/17/99
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 17BP.9.R.101\6.0_CAD_BIM\6.2_Work_In_Progress\Hydraulics\Erosion_Control\Cadd\B-5776_hyd.ec.final.dgn



STA. 16+15 TO STA. 16+19 -L-
 EST 20 TONS CL II RIP RAP
 EST 25 SY GEOTEXTILE
 STA. 15+48 TO STA. 15+67 -L-
 EST 60 TONS CL II RIP RAP
 EST 70 SY GEOTEXTILE



FROM STA. 15+12 TO STA. 15+53 -L- LT. & RT., L=41'
 FROM STA. 16+34 TO STA. 16+87 -L- LT. & RT., L=53'

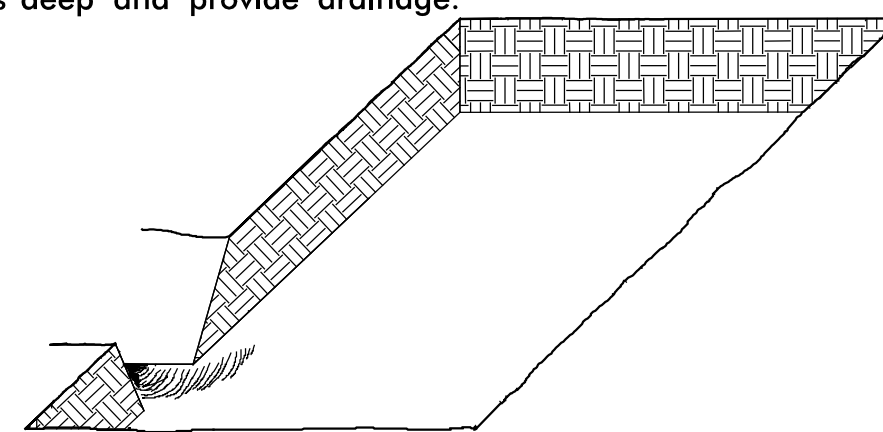
NOTE:
 ALL EROSION CONTROL DEVICES SHOWN ARE
 LOCATED WITHIN RW OR EASEMENT.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.R.101	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

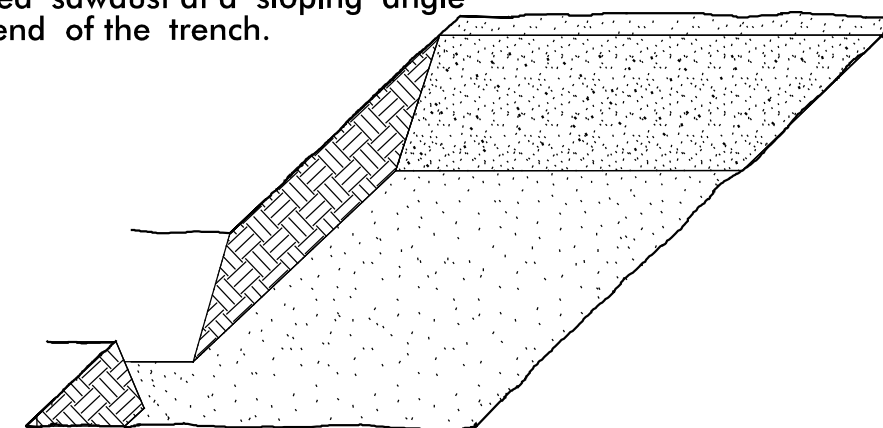
PLANTING DETAILS

HEALING IN

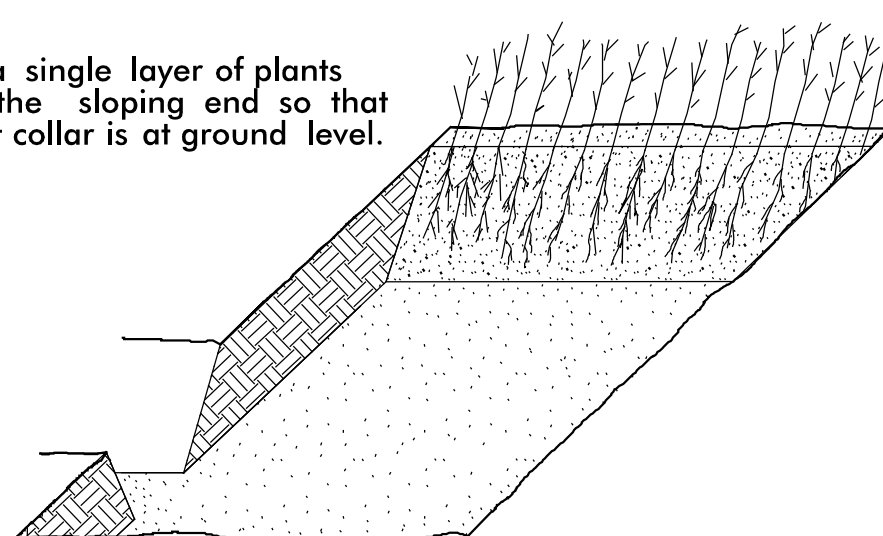
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



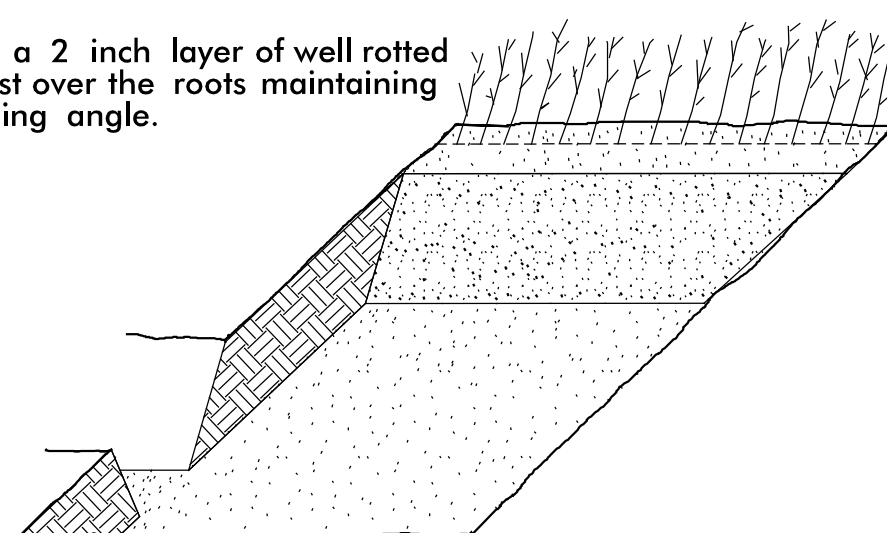
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

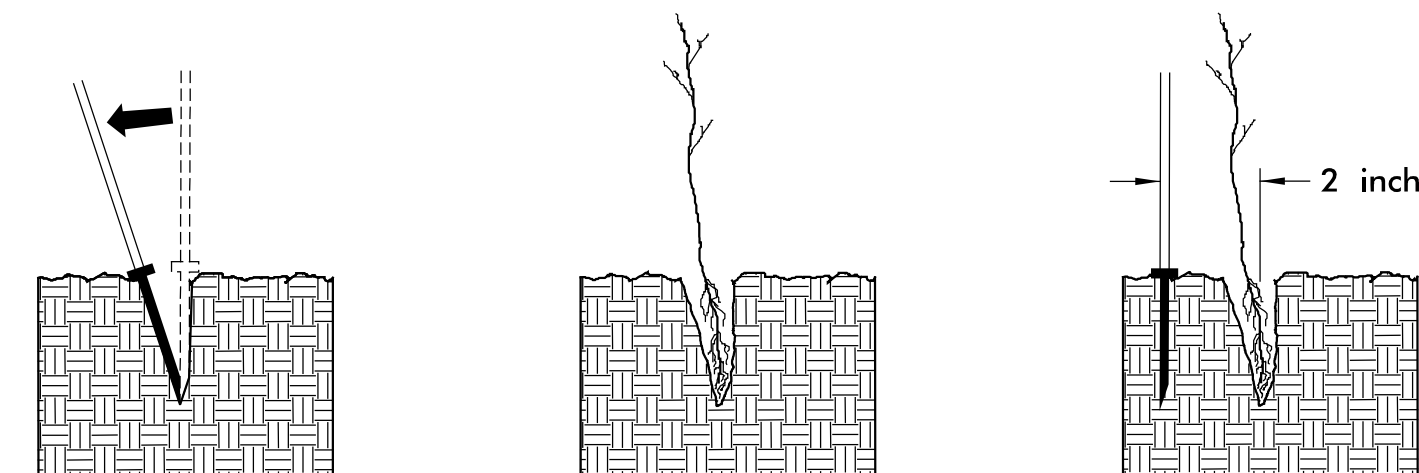


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

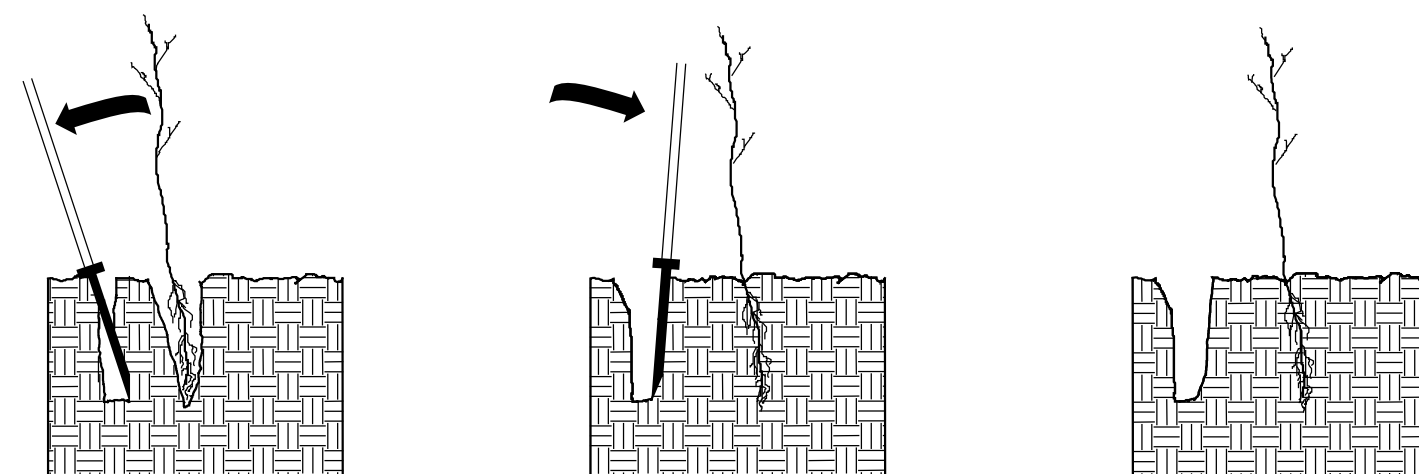


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

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.



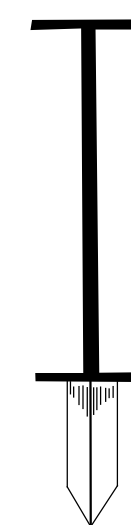
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

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

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

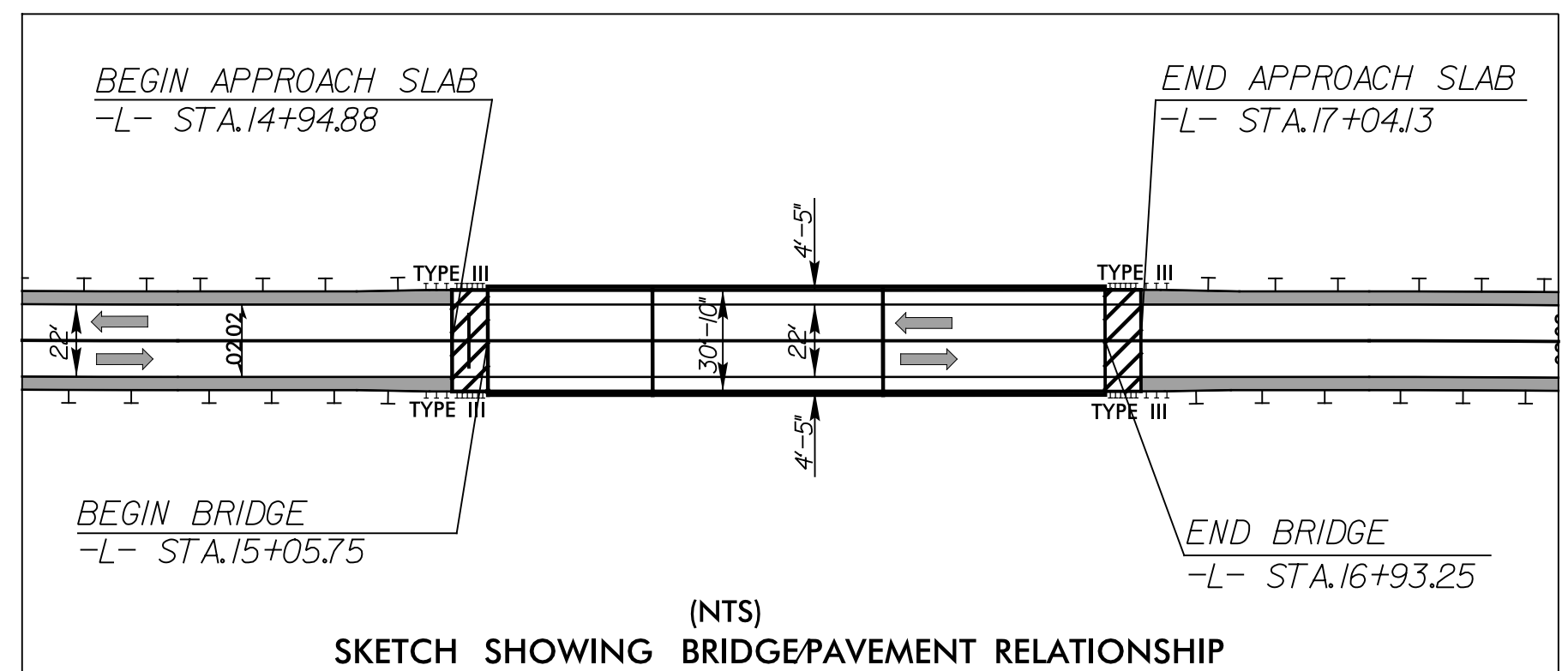
REFORESTATION

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

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	AMERICAN 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

REFORESTATION DETAIL SHEET

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



BL	POINT	DESC.	NORTH	EAST	ELEVATION	-L- STATION	OFFSET
3	B5776-3		789579.5990	1654582.7030	693.50	10+13.29	13.78 RT
2	B5776-2		789005.3592	1654949.6335	690.91	16+94.05	12.58 LT
1	B5776-1		788309.6684	1655300.5849	691.63		OUTSIDE PROJECT LIMITS

BD1 = N 789160.7240	E 1654854.1800	ELEV. 691.05'
BD2 = N 789149.3690	E 1654835.4860	ELEV. 691.05'
BD3 = N 788999.2530	E 1654925.8510	ELEV. 691.07'
BD4 = N 789010.6120	E 1654944.5670	ELEV. 691.10'
BCL1 = N 789154.8550	E 1654844.5830	ELEV. 691.16'
BCL2 = N 789004.8870	E 1654935.0450	ELEV. 691.16'

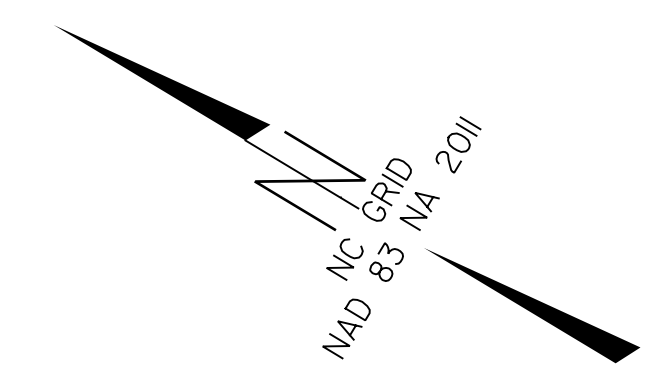
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5776-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 789005.3592(±) EASTING: 1654949.6335(±) ELEVATION: 690.91(±) FT

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99991089

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5776-2" TO -L- STATION 10+00.00 IS N 31° 22' 3.6" W DISTANCE: 693.94 FT

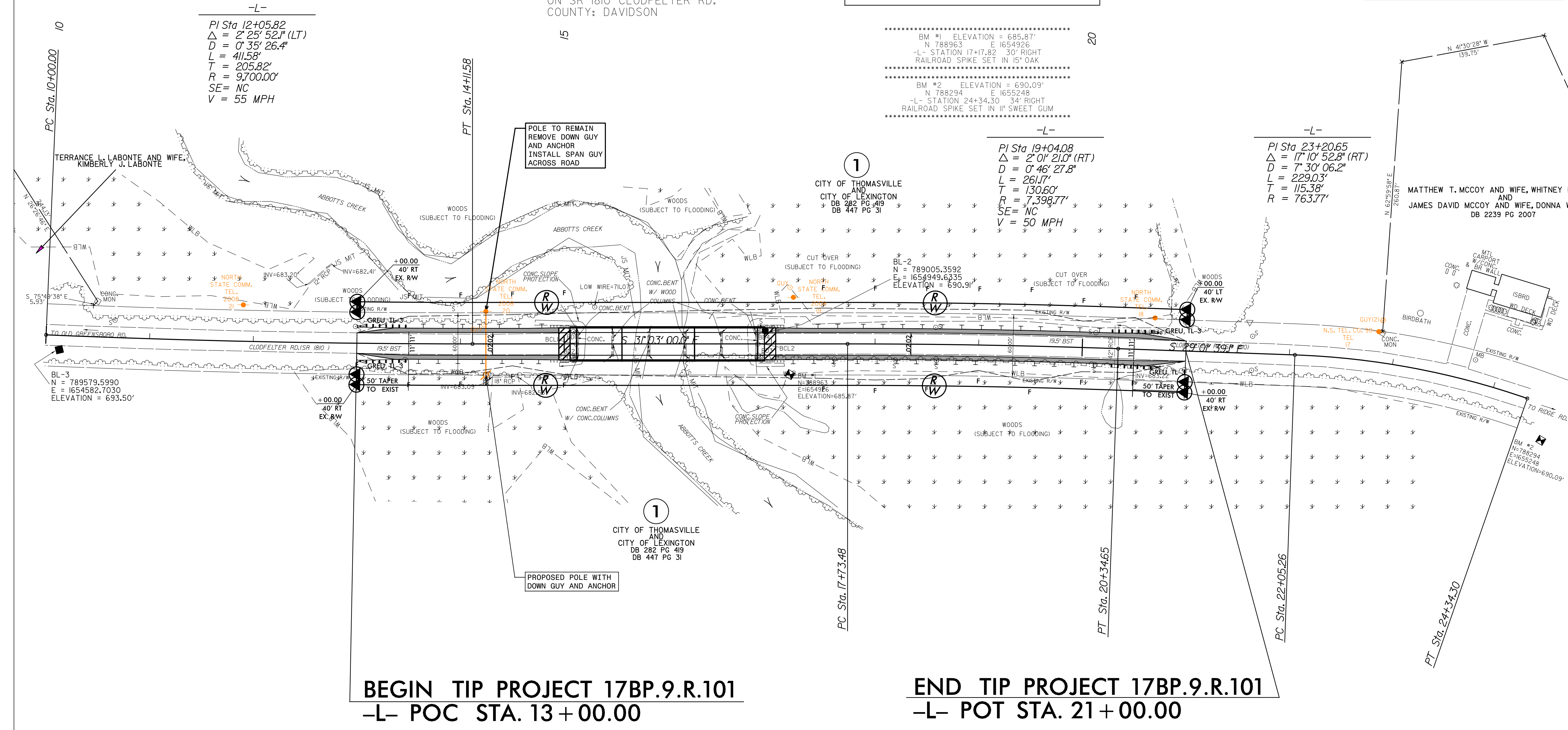
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88



BD = BRIDGE DECK CORNER
BCL = BRIDGE DECK CENTER LINE POINT

STRUCTURE: BRIDGE 100 OVER ABBOTTS CREEK
ON SR 1810 CLODFELTER RD.
COUNTY: DAVIDSON

PROJECT REFERENCE	SHEET NO.
17BP.9.R.101 - DAVIDSON 100	UO-1
Prepared in the Office of:	
<p>THE WOOTEN COMPANY 120 North Boylan Avenue Raleigh, NC 27603-1423 919.828.0531 fax 919.834.3589 License Number: F-0115</p>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
GRAPHIC SCALE 	
UTILITIES BY OTHERS	
NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS	

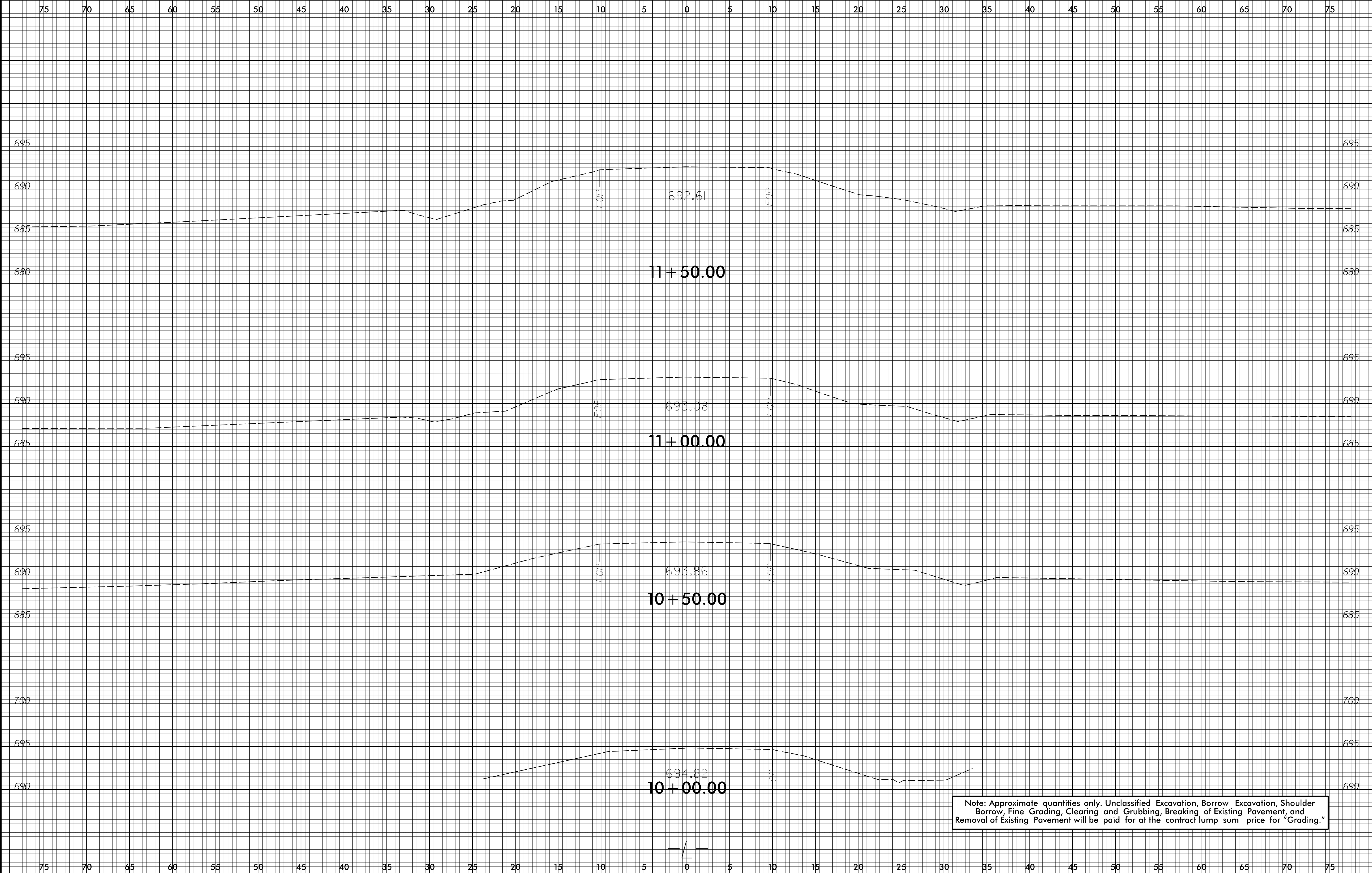


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.101	X-1

PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.101	X-1



Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

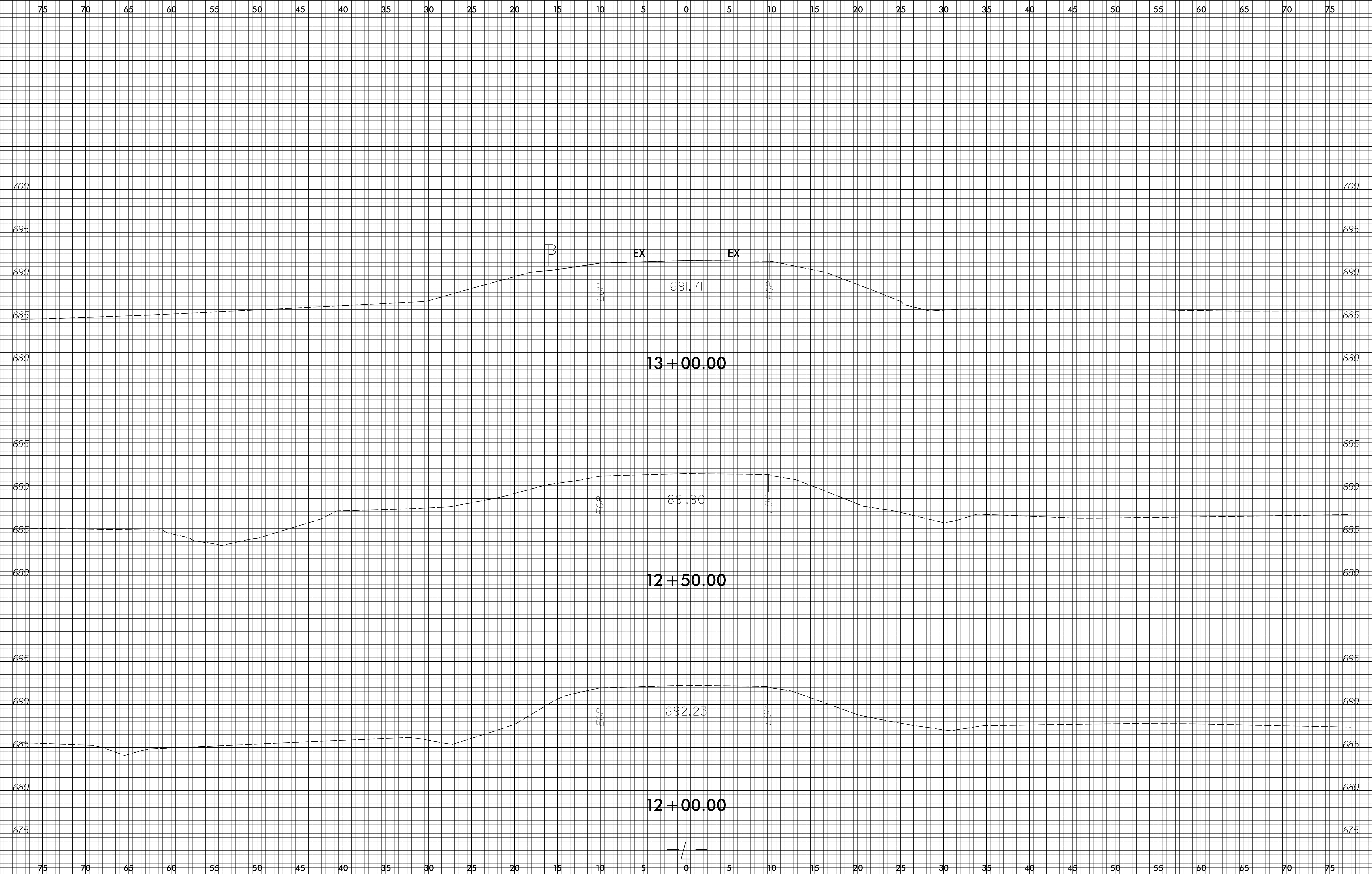
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.101	X-2

PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.101	X-2



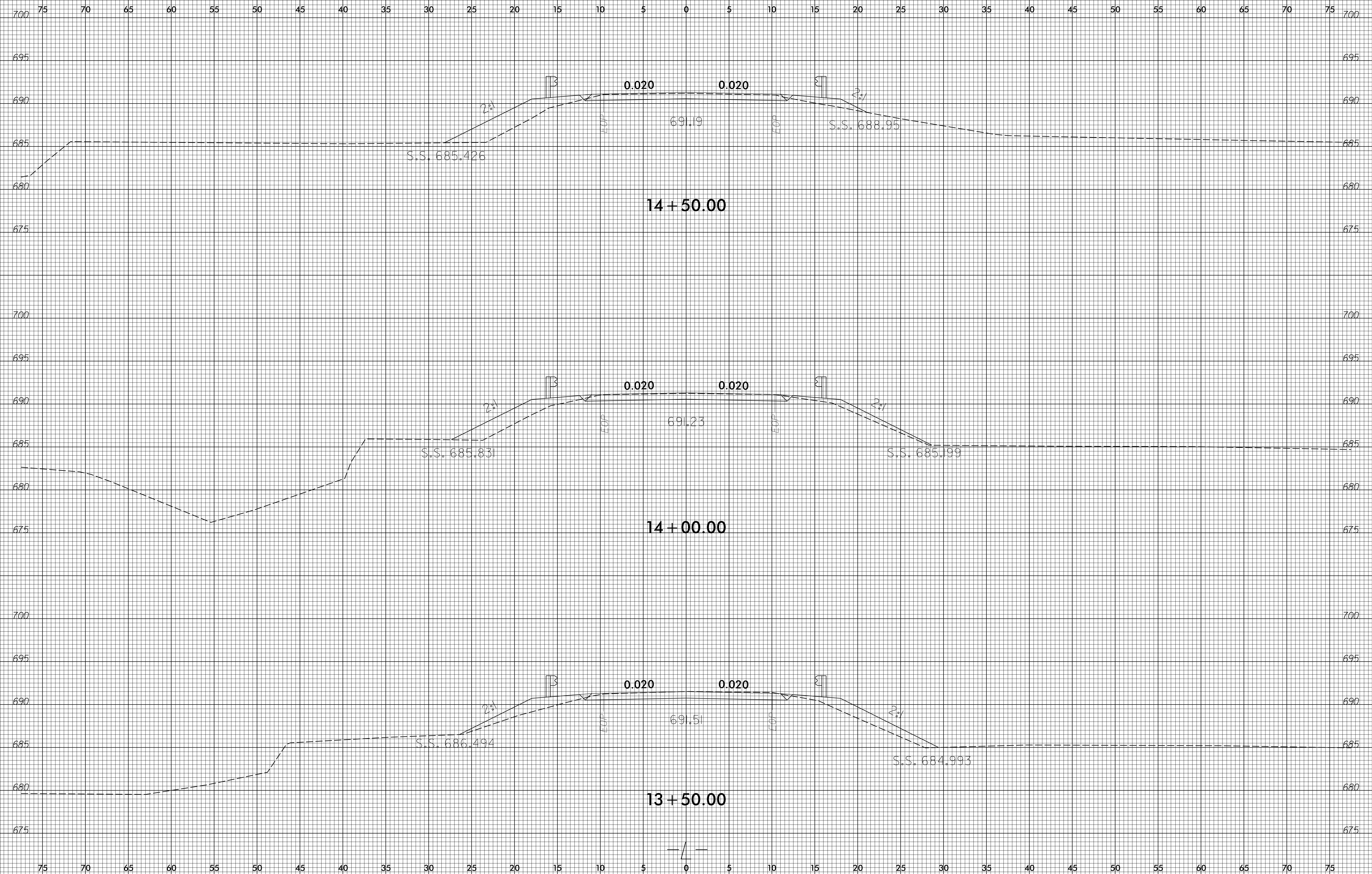
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6/23/16



PROJ. REFERENCE NO.
17BP.9.R.101

SHEET NO.
X-3

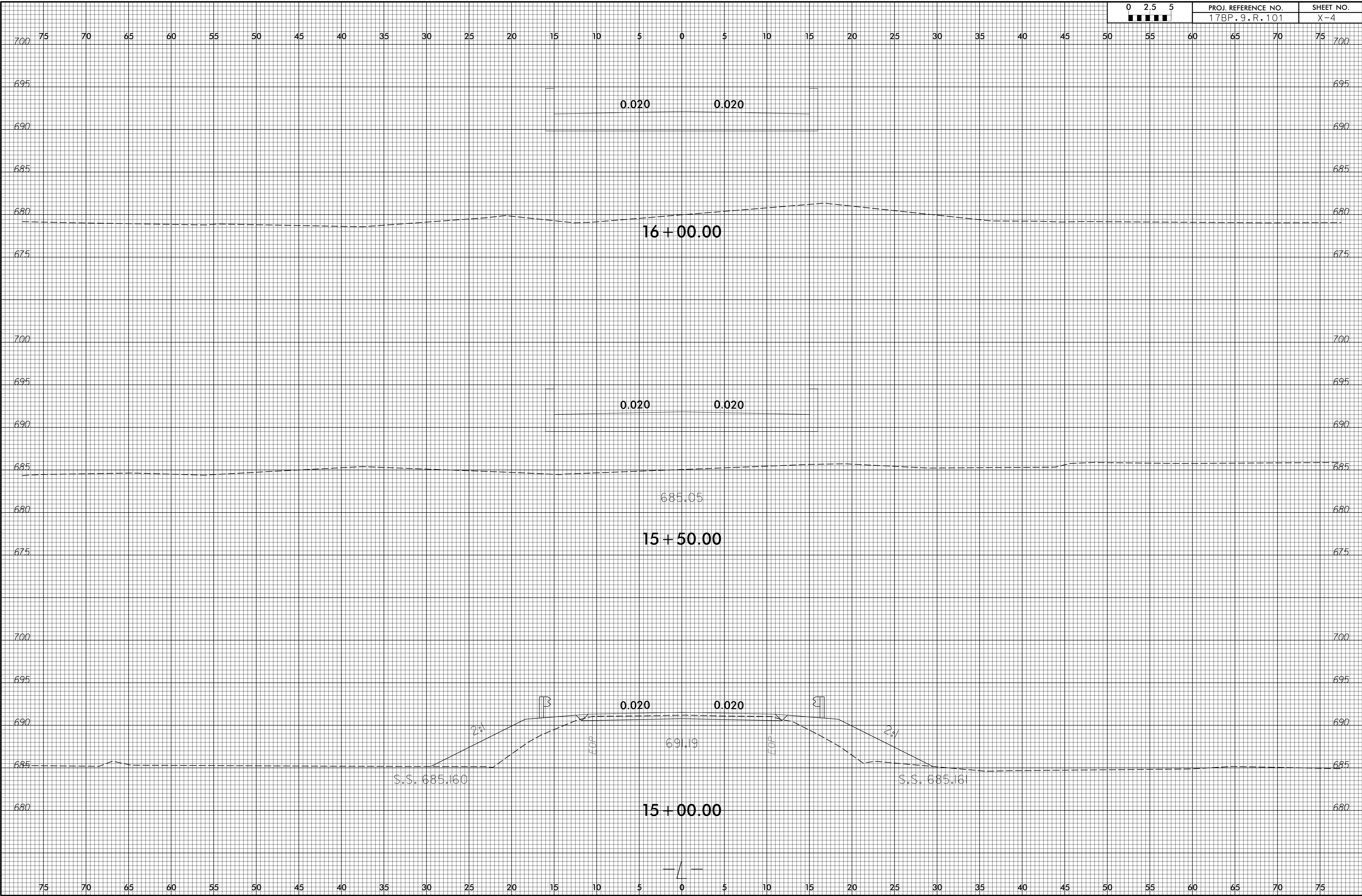


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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
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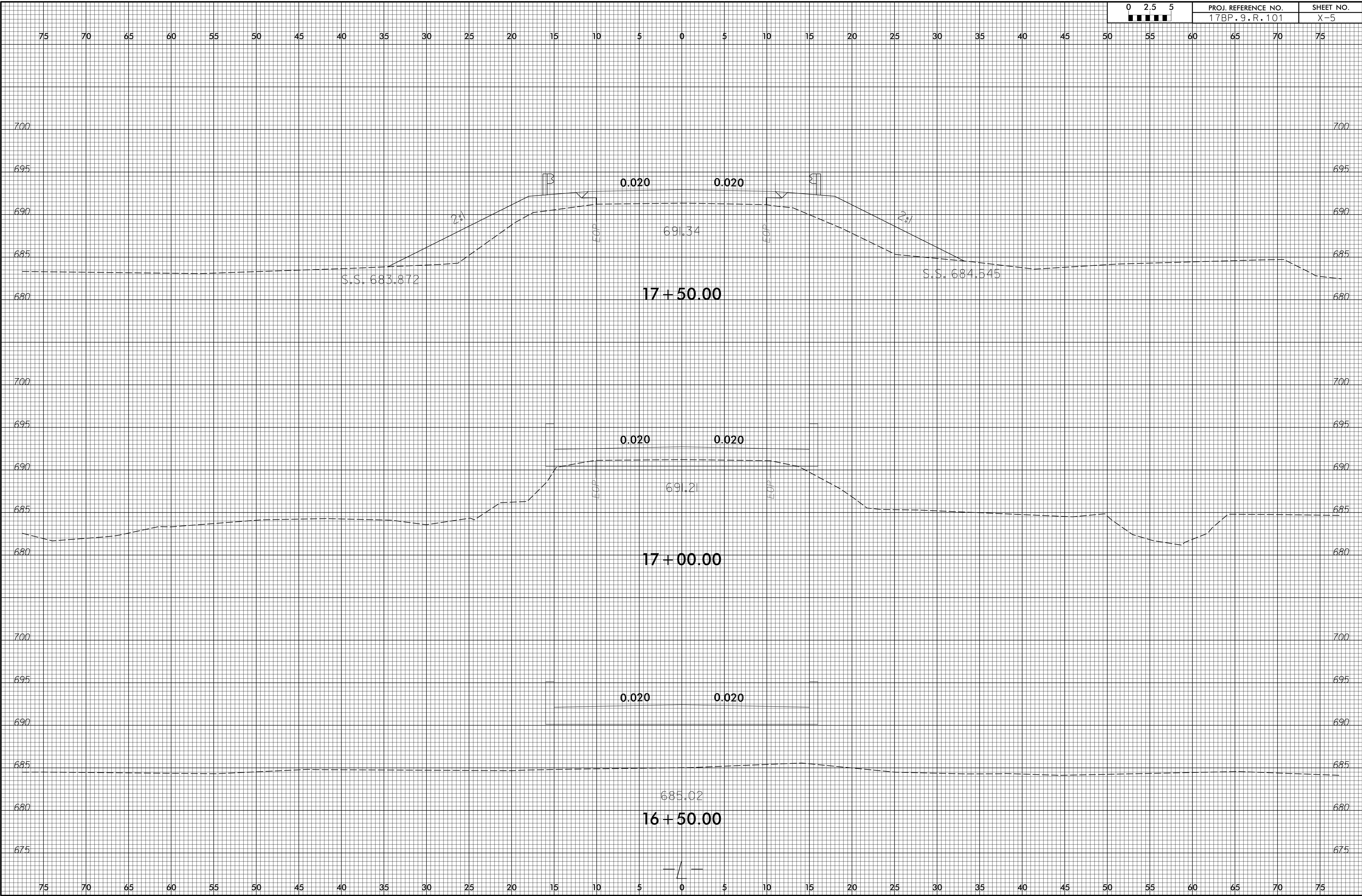


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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.101	X-5



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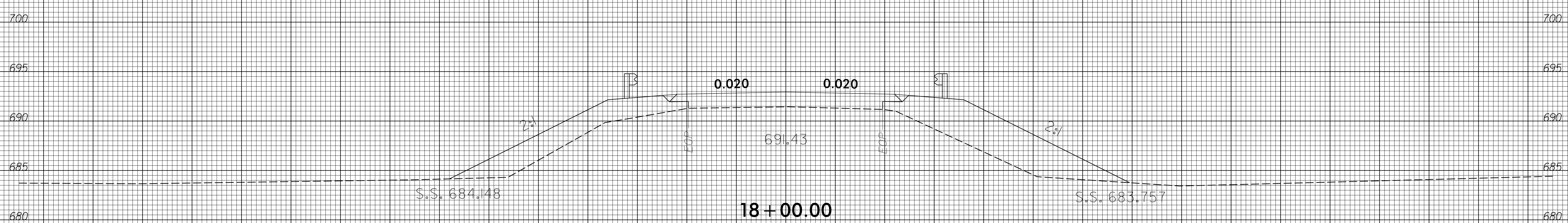
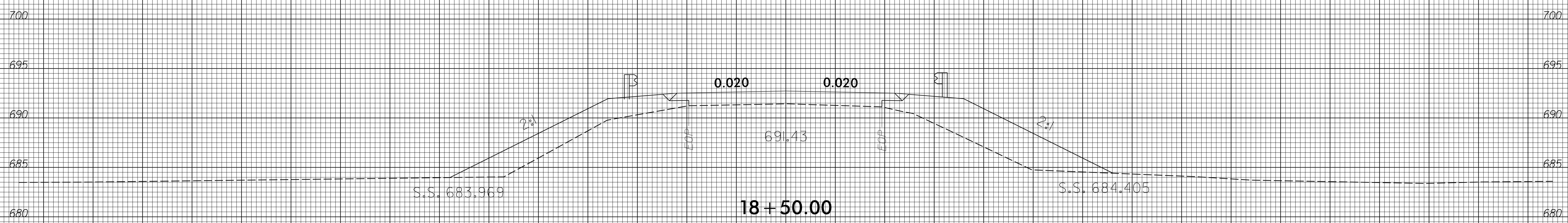
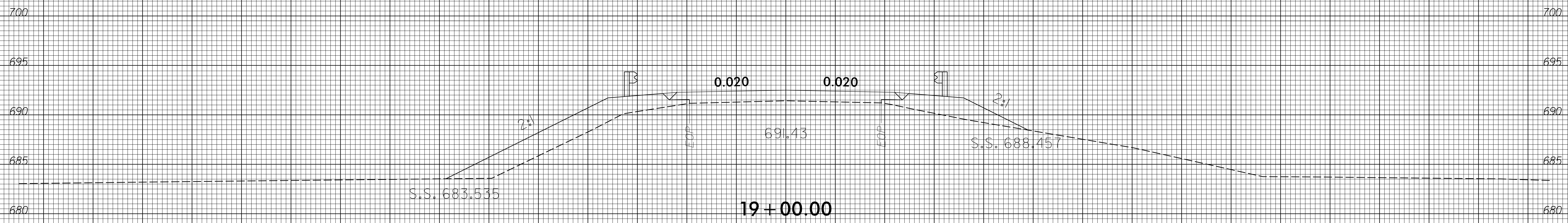
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PROJ. REFERENCE NO.
17BP.9.R.101

SHEET NO.
X-6

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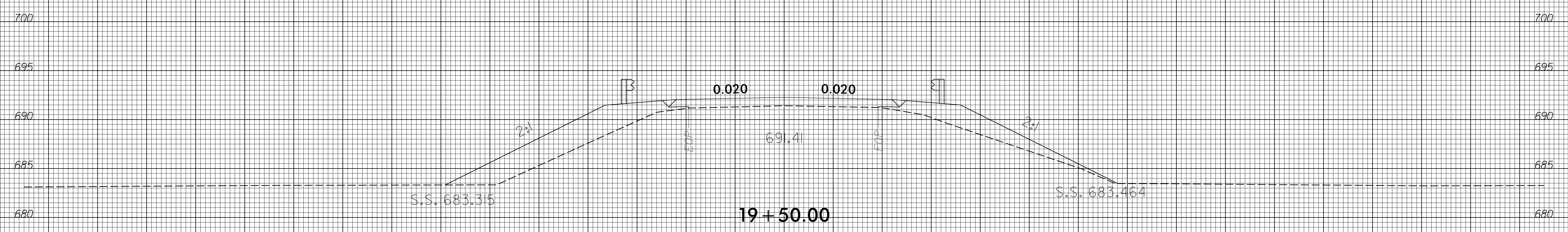
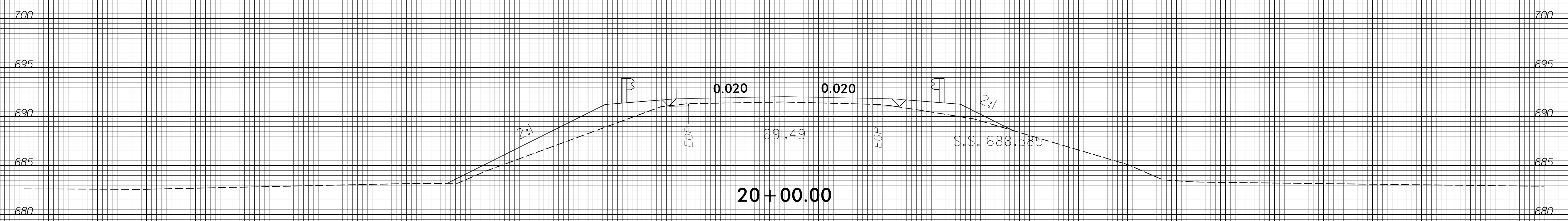
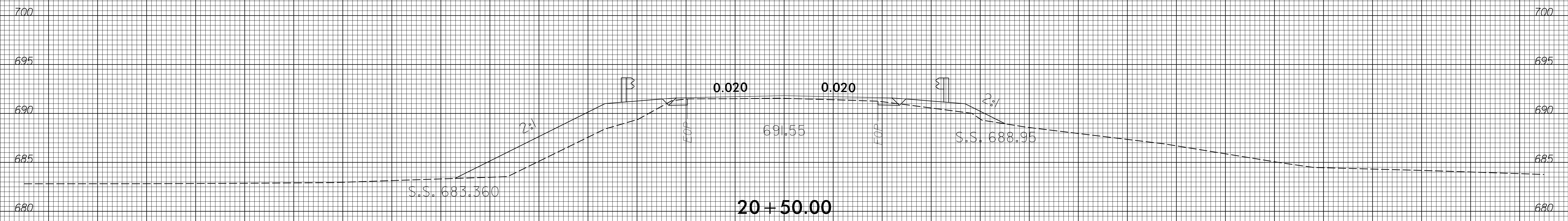
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PROJ. REFERENCE NO.
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X-7

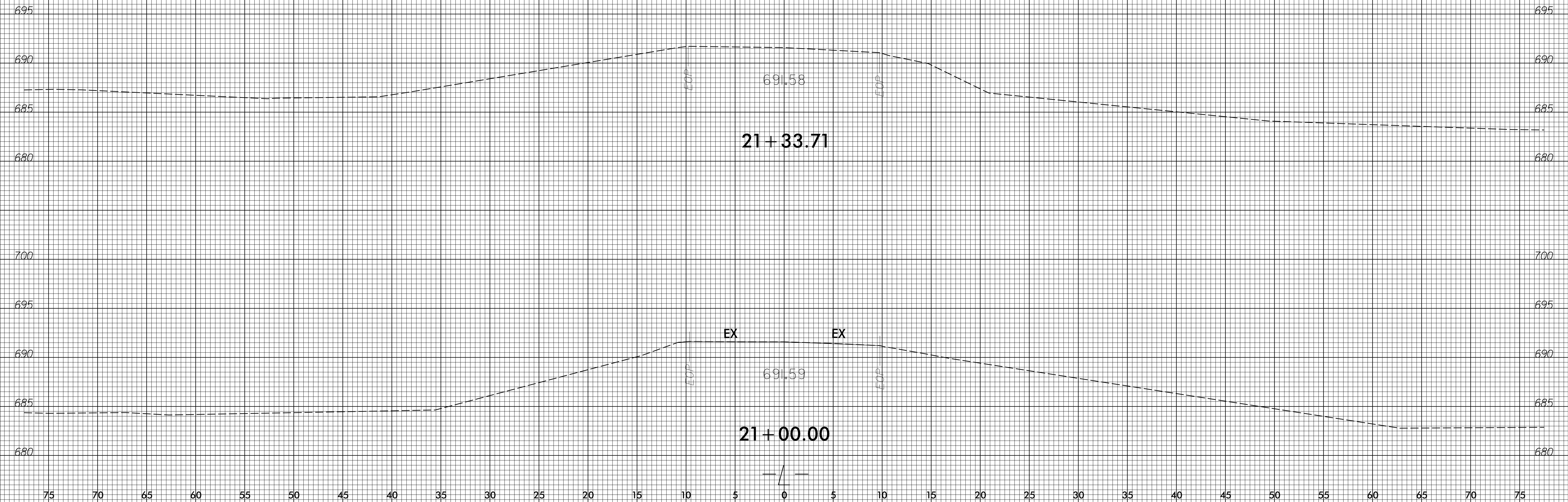
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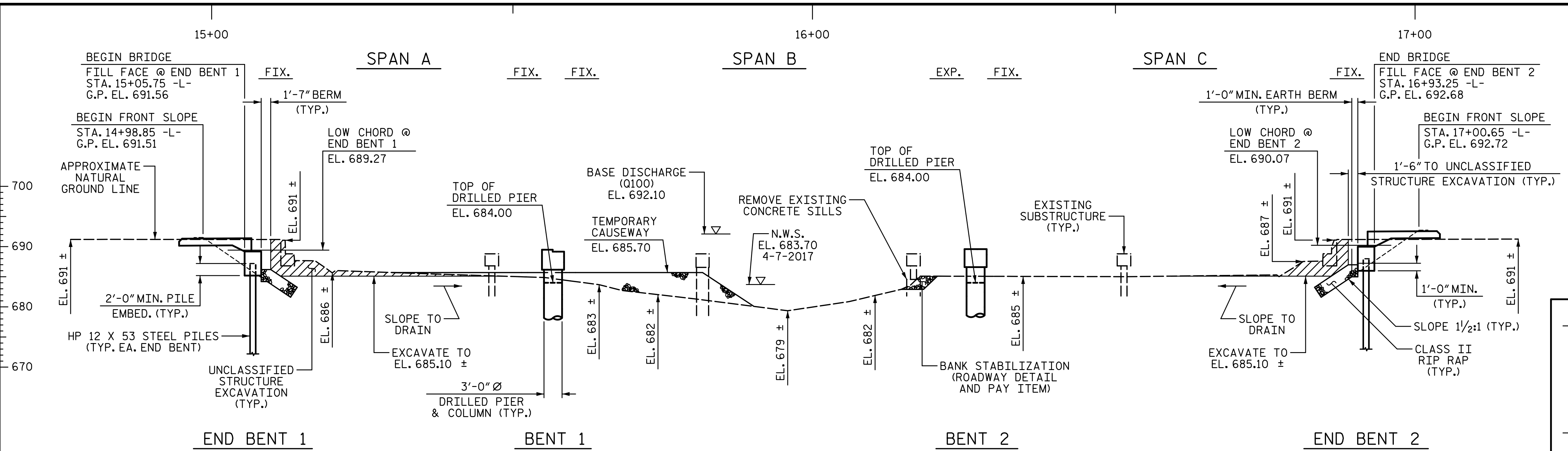
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GRADE DATA -L-

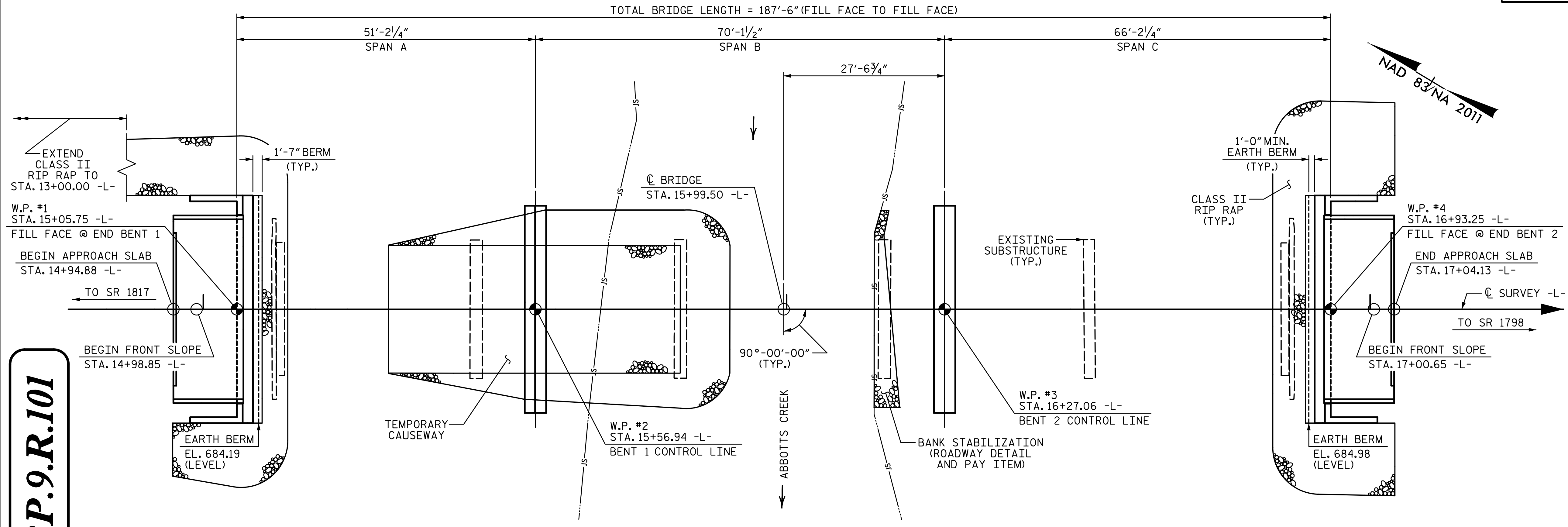
(-0.4300%	(+0.6000%
PVI STA. 14+35.00 EL. = 691.13 VC = 120'	
(+0.6000%	(-0.4567%
PVI STA. 17+65.00 EL. = 693.11 VC = 120'	

HYDRAULIC DATA:

DESIGN DISCHARGE	= 6000 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YEAR
DESIGN HIGH WATER ELEVATION	= 691.4
DRAINAGE AREA	= 40.0 SQ. MI.
BASE DISCHARGE (Q 100)	= 6900 CFS
BASE HIGH WATER ELEVATION	= 692.1

OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE	= 6000 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 50 YEAR
OVERTOPPING FLOOD ELEVATION	= 691.2 **
** OVERTOPPING OCCURS AT ROADWAY STA. 14+25.00 -L-	



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.9.R.101
 DAVIDSON COUNTY
 STATION: 15+99.50 -L-

SHEET 1 OF 2 REPLACES BRIDGE #100

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 1810
 (CLODFELTER RD)
 OVER ABBOTTS CREEK
 BETWEEN SR 1817 AND SR 1798

30'-10" CLEAR ROADWAY - 90° SKEW

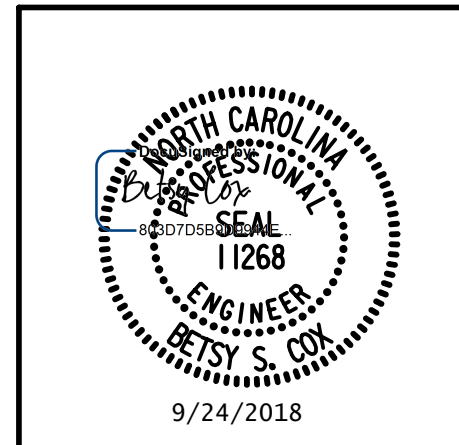
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NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

TOTAL SHEETS: 24

TIP: 17BP.9.R.101

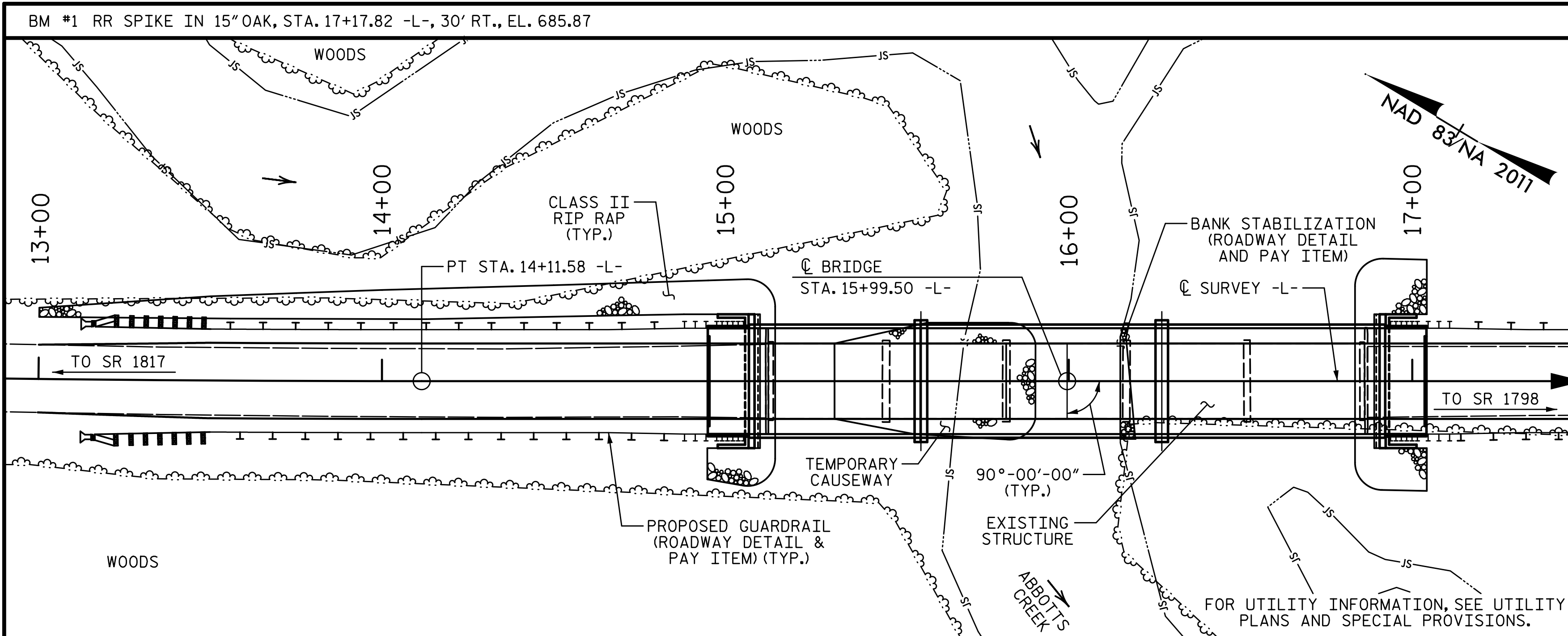
DRAWN BY: S.D. COOPER DATE: 9-18
 CHECKED BY: B.S. COX DATE: 9-18
 DESIGN ENGINEER OF RECORD: B.S. COX DATE: 9-18

PLANS PREPARED BY:
SE & A
 IMPSON ENGINEERS & ASSOCIATES
 5640 Dillard Drive
 Suite 200
 Cary, NC 27518
 (919) 852-0468
 (919) 852-0538 (Fax)
 www.slmpsonengr.com
 LICENSURE NO. C-2521



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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LOCATION SKETCH

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMP ACCESS	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	3'-0" DIA. DRILLED PIER IN SOIL	3'-0" DIA. DRILLED PIER NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIERS	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL
	LS	LS	LS	LF	LF	LF	EA	LS	CY	LS	LB
SUPERSTRUCTURE											
END BENT 1								LS	21.6		2,636
BENT 1				40.0	29.0	33.0			16.9		8,160
BENT 2				39.0	30.0	30.0			16.5		8,070
END BENT 2								LS	21.8		2,636
TOTAL	LS	LS	LS	79.0	59.0	63.0	1	LS	76.8	LS	21,502

TOTAL BILL OF MATERIAL

	SPIRAL COLUMN REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
			NO.	LF					NO.	LF	NO.	LF
SUPERSTRUCTURE	LB	EA			LF	TON	SY	LS	NO.	LF	NO.	LF
END BENT 1			7	105	370.75	400	445	LS	11	550.00	22	1485.00
BENT 1	1,431											
BENT 2	1,446											
END BENT 2			7	140		95	105					
TOTAL	2,877	14	14	245	370.75	495	550	LS	11	550.00	22	1485.00

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.

DRIVE PILES AT END BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 117 TONS PER PILE.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 661 FT. SATISFY THE REQUIRED TIP RESISTANCE AND HAVE A PENETRATION OF AT LEAST 6 FT. INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

DRILLED PIERS AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 425.0 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30.0 TSF.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 673.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 669.0 FT. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

DRILLED PIERS AT BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 425.0 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30.0 TSF.

INSTALL DRILLED PIERS AT BENT 2 TO A TIP ELEVATION NO HIGHER THAN 661 FT. SATISFY THE REQUIRED TIP RESISTANCE AND HAVE A PENETRATION OF AT LEAST 6 FT. INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 2. IF REQUIRED, DO NOT EXTEND CASING BELOW ELEVATION 674.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS ELEVATION 670.0 FT. THE SCOUR CRITICAL ELEVATION ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 80 TONS PER PILE.

DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 133 TONS PER PILE.

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. LEFT AND 25 FT. RIGHT 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 EXISTING STRUCTURE CONSISTS OF 5 SPANS @ 35'-0". THE SUPERSTRUCTURE HAS A CLEAR ROADWAY WIDTH OF 22'-0" WITH REINFORCED CONCRETE DECK ON STEEL I-BEAMS. THE END BENTS AND INTERIOR BENTS 1, 3 AND 4 CONSIST OF REINFORCED CAPS ON TIMBER PILES. INTERIOR BENT 2 CONSISTS OF REINFORCED CONCRETE POST AND BEAM. THE EXISTING STRUCTURE, WHICH IS LOCATED AT THE SITE OF THE PROPOSED STRUCTURE, SHALL 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, THE LOAD LIMIT 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. 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.

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

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.

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

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 15+99.50 -L-.

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 15+99.50 -L-."

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
 STATION: 15+99.50 -L-

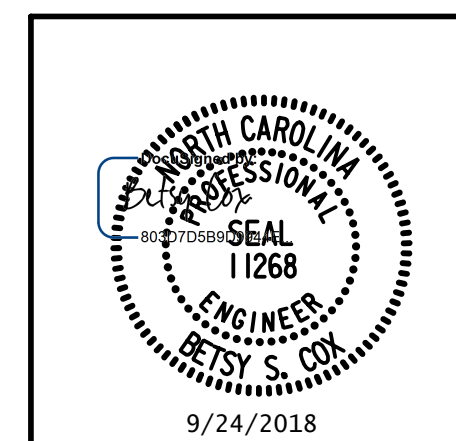
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1810
 (CLODFELTER RD)
 OVER ABBOTT'S CREEK
 BETWEEN SR 1817 AND SR 1798

30'-10" CLEAR ROADWAY - 90° SKEW



PLANS PREPARED BY:

S&E
 SIMPSON ENGINEERS & ASSOCIATES
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 Suite 200
 Cary, NC 27518
 (919) 852-0468
 (919) 852-0598 (Fax)
 www.simpsonengr.com
 LICENSURE NO. C-2521

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			24

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

DRAWN BY: S.D. COOPER DATE: 9-18
 CHECKED BY: B.S. COX DATE: 9-18
 DESIGN ENGINEER OF RECORD: B.S. COX DATE: 9-18

9/21/2018 9:11:55 AM G:\Projects\2017\Division 9 (Mott Macdonald)\B-5776 Davidson 100 (90 2124CSU VCBR 5070)\Structures\Drawings\Final\401_B5776_SMU_LRFR_280100.dgn

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	1.394	--	1.75	0.276	1.57	50'	EL	24.5	0.531	1.39	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5		
	HL-93(Opr)	N/A	--	1.807	--	1.35	0.276	2.03	50'	EL	24.5	0.531	1.81	50'	EL	2.45	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.667	60.007	1.75	0.276	1.95	50'	EL	24.5	0.531	1.67	50'	EL	2.45	0.80	0.276	1.79	50'	EL	24.5		
	HS-20(Opr)	36.000	--	2.161	77.787	1.35	0.276	2.52	50'	EL	24.5	0.531	2.16	50'	EL	2.45	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.635	49.079	1.4	0.276	4.95	50'	EL	24.5	0.531	4.7	50'	EL	2.45	0.80	0.276	3.64	50'	EL	24.5	
		SNGARBS2	20.000	--	2.871	57.42	1.4	0.276	3.91	50'	EL	24.5	0.531	3.42	50'	EL	2.45	0.80	0.276	2.87	50'	EL	24.5	
		SNAGRIS2	22.000	--	2.778	61.109	1.4	0.276	3.78	50'	EL	19.6	0.531	3.21	50'	EL	2.45	0.80	0.276	2.78	50'	EL	24.5	
		SNCOTTS3	27.250	--	1.814	49.418	1.4	0.276	2.47	50'	EL	24.5	0.531	2.36	50'	EL	2.45	0.80	0.276	1.81	50'	EL	24.5	
		SNAGGRS4	34.925	--	1.577	55.063	1.4	0.276	2.15	50'	EL	24.5	0.531	2.01	50'	EL	2.45	0.80	0.276	1.58	50'	EL	24.5	
		SNS5A	35.550	--	1.537	54.657	1.4	0.276	2.09	50'	EL	24.5	0.531	2.07	50'	EL	2.45	0.80	0.276	1.54	50'	EL	24.5	
		SNS6A	39.950	--	1.438	57.43	1.4	0.276	1.96	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5	
	SNS7B	42.000	--	1.370	57.54	1.4	0.276	1.87	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.37	50'	EL	24.5		
	TTST	TNAGRIT3	33.000	--	1.761	58.118	1.4	0.276	2.4	50'	EL	24.5	0.531	2.25	50'	EL	2.45	0.80	0.276	1.76	50'	EL	24.5	
		TNT4A	33.075	--	1.777	58.759	1.4	0.276	2.42	50'	EL	24.5	0.531	2.17	50'	EL	2.45	0.80	0.276	1.78	50'	EL	24.5	
		TNT6A	41.600	--	1.480	61.558	1.4	0.276	2.01	50'	EL	24.5	0.531	2.08	50'	EL	2.45	0.80	0.276	1.48	50'	EL	24.5	
		TNT7A	42.000	--	1.502	63.087	1.4	0.276	2.05	50'	EL	24.5	0.531	1.94	50'	EL	2.45	0.80	0.276	1.57	50'	EL	24.5	
		TNT7B	42.000	--	1.566	65.773	1.4	0.276	2.13	50'	EL	24.5	0.531	1.84	50'	EL	2.45	0.80	0.276	1.49	50'	EL	24.5	
		TNAGRIT4	43.000	--	1.486	63.902	1.4	0.276	2.02	50'	EL	24.5	0.531	1.77	50'	EL	2.45	0.80	0.276	1.39	50'	EL	24.5	
TNAGT5A		45.000	--	1.388	62.47	1.4	0.276	1.89	50'	EL	24.5	0.531	1.8	50'	EL	2.45	0.80	0.276	1.39	50'	EL	24.5		
TNAGT5B	45.000	3	1.360	61.206	1.4	0.276	1.85	50'	EL	24.5	0.531	1.68	50'	EL	2.45	0.80	0.276	1.36	50'	EL	24.5			

LOAD FACTORS:

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

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.
 ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.
 DISTANCE FROM LEFT END OF SPAN IS MEASURED FROM \bar{C} BEARING.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

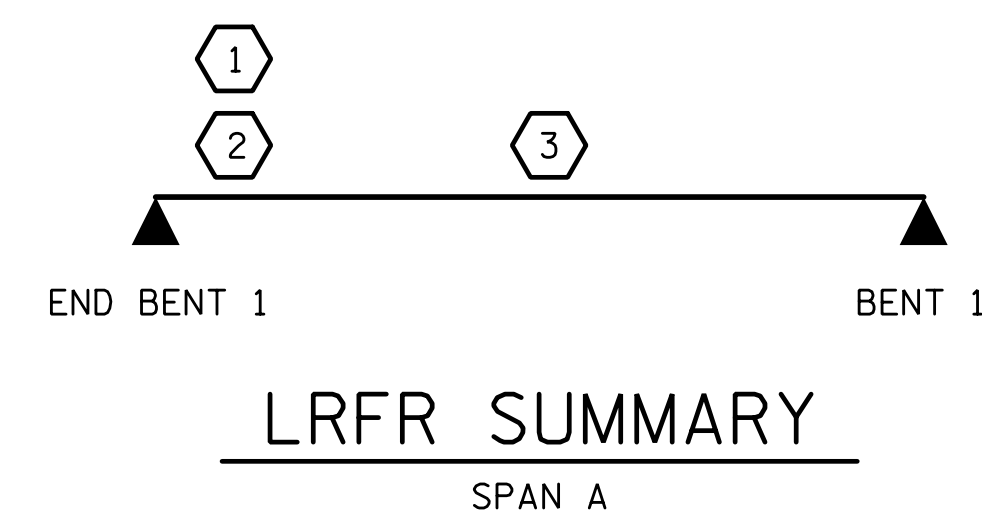
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

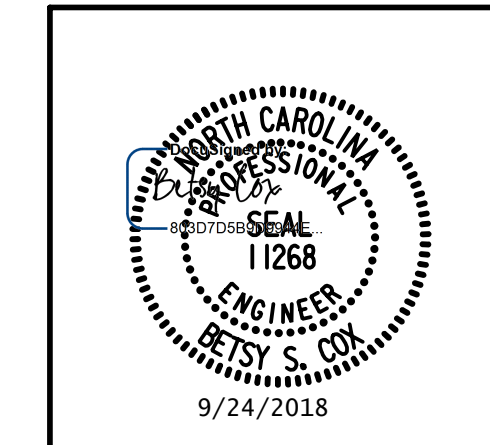
I - INTERIOR GIRDER
 EL - EXTERIOR LEFT GIRDER
 ER - EXTERIOR RIGHT GIRDER



PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
 STATION: 15+99.50 -L-

DRAWN BY: S.D. COOPER DATE: 9-18
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**LRFR SUMMARY FOR
 50' CORED SLAB UNITS
 90° SKEW
 (NON-INTERSTATE TRAFFIC)**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			24

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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	1.006	--	1.75	0.273	1.03	70'	EL	34.5	0.507	1.32	70'	EL	6.9	0.80	0.273	1.01	70'	EL	34.5		
	HL-93(0pr)	N/A	--	1.341	--	1.35	0.273	1.34	70'	EL	34.5	0.507	1.72	70'	EL	6.9	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.306	47.02	1.75	0.273	1.34	70'	EL	34.5	0.507	1.65	70'	EL	6.9	0.80	0.273	1.31	70'	EL	34.5		
	HS-20(0pr)	36.000	--	1.74	62.64	1.35	0.273	1.74	70'	EL	34.5	0.507	2.14	70'	EL	6.9	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.917	39.379	1.4	0.273	3.75	70'	EL	34.5	0.507	4.87	70'	EL	6.9	0.80	0.273	2.92	70'	EL	34.5	
		SNGARBS2	20.000	--	2.187	43.741	1.4	0.273	2.81	70'	EL	34.5	0.507	3.47	70'	EL	6.9	0.80	0.273	2.19	70'	EL	34.5	
		SNAGRIS2	22.000	--	2.077	45.69	1.4	0.273	2.67	70'	EL	34.5	0.507	3.23	70'	EL	6.9	0.80	0.273	2.08	70'	EL	34.5	
		SNCOTTS3	27.250	--	1.452	39.565	1.4	0.273	1.87	70'	EL	34.5	0.507	2.43	70'	EL	6.9	0.80	0.273	1.45	70'	EL	34.5	
		SNAGGRS4	34.925	--	1.218	42.554	1.4	0.273	1.57	70'	EL	34.5	0.507	2.03	70'	EL	6.9	0.80	0.273	1.22	70'	EL	34.5	
		SNS5A	35.550	--	1.191	42.346	1.4	0.273	1.53	70'	EL	34.5	0.507	2.06	70'	EL	6.9	0.80	0.273	1.19	70'	EL	34.5	
		SNS6A	39.950	--	1.095	43.747	1.4	0.273	1.41	70'	EL	34.5	0.507	1.88	70'	EL	6.9	0.80	0.273	1.10	70'	EL	34.5	
	SNS7B	42.000	--	1.043	43.801	1.4	0.273	1.34	70'	EL	34.5	0.507	1.85	70'	EL	6.9	0.80	0.273	1.04	70'	EL	34.5		
	TTST	TNAGRIT3	33.000	--	1.336	44.087	1.4	0.273	1.72	70'	EL	34.5	0.507	2.23	70'	EL	6.9	0.80	0.273	1.34	70'	EL	34.5	
		TNT4A	33.075	--	1.342	44.401	1.4	0.273	1.72	70'	EL	34.5	0.507	2.17	70'	EL	6.9	0.80	0.273	1.34	70'	EL	34.5	
		TNT6A	41.600	--	1.1	45.746	1.4	0.273	1.41	70'	EL	34.5	0.507	1.98	70'	EL	6.9	0.80	0.273	1.10	70'	EL	34.5	
		TNT7A	42.000	--	1.106	46.462	1.4	0.273	1.42	70'	EL	34.5	0.507	1.94	70'	EL	6.9	0.80	0.273	1.11	70'	EL	34.5	
		TNT7B	42.000	--	1.147	48.18	1.4	0.273	1.47	70'	EL	34.5	0.507	1.8	70'	EL	6.9	0.80	0.273	1.15	70'	EL	34.5	
		TNAGRIT4	43.000	--	1.089	46.838	1.4	0.273	1.4	70'	EL	34.5	0.507	1.74	70'	EL	6.9	0.80	0.273	1.09	70'	EL	34.5	
TNAGT5A		45.000	--	1.026	46.175	1.4	0.273	1.32	70'	EL	34.5	0.507	1.74	70'	EL	6.9	0.80	0.273	1.03	70'	EL	34.5		
TNAGT5B	45.000	3	1.013	45.579	1.4	0.273	1.3	70'	EL	34.5	0.507	1.66	70'	EL	6.9	0.80	0.273	1.01	70'	EL	34.5			

LOAD FACTORS:

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

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.
 ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.
 DISTANCE FROM LEFT END OF SPAN IS MEASURED FROM \bar{C} BEARING.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

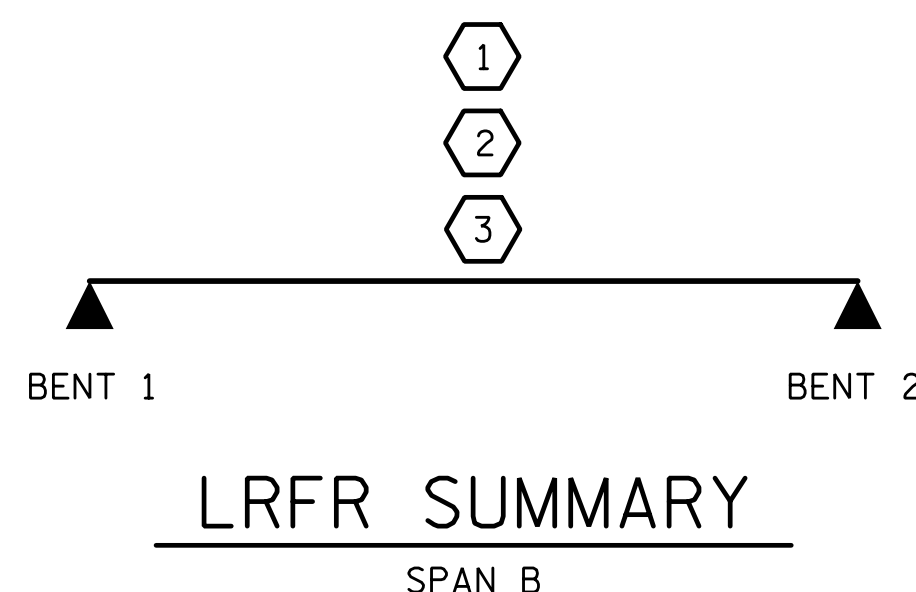
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING ***

*** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

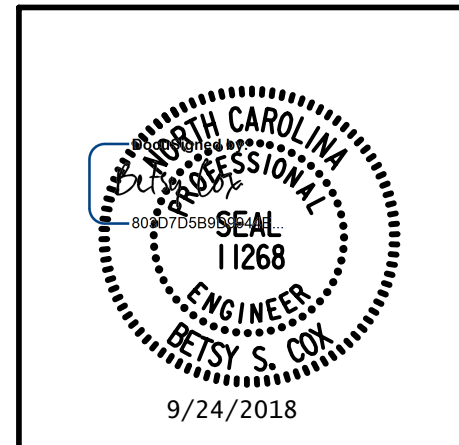
I - INTERIOR GIRDER
 EL - EXTERIOR LEFT GIRDER
 ER - EXTERIOR RIGHT GIRDER



PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
 STATION: 15+99.50 -L-

DRAWN BY: S.D. COOPER DATE: 9-18
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**LRFR SUMMARY FOR
 70' CORED SLAB UNITS
 90° SKEW
 (NON-INTERSTATE TRAFFIC)**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			24

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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	1.018	--	1.75	0.274	1.05	65'	EL	32	0.513	1.2	65'	EL	6.4	0.80	0.274	1.02	65'	EL	32		
	HL-93(Opr)	N/A	--	1.358	--	1.35	0.274	1.36	65'	EL	32	0.513	1.56	65'	EL	6.4	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.306	47.014	1.75	0.274	1.34	65'	EL	32	0.513	1.48	65'	EL	6.4	0.80	0.274	1.31	65'	EL	32		
	HS-20(Opr)	36.000	--	1.742	62.706	1.35	0.274	1.74	65'	EL	32	0.513	1.92	65'	EL	6.4	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.868	38.725	1.4	0.274	3.69	65'	EL	32	0.513	4.33	65'	EL	6.4	0.80	0.274	2.87	65'	EL	32	
		SNGARBS2	20.000	--	2.171	43.424	1.4	0.274	2.79	65'	EL	32	0.513	3.11	65'	EL	6.4	0.80	0.274	2.17	65'	EL	32	
		SNAGRIS2	22.000	--	2.071	45.552	1.4	0.274	2.66	65'	EL	32	0.513	2.89	65'	EL	6.4	0.80	0.274	2.07	65'	EL	32	
		SNCOTTS3	27.250	--	1.428	38.924	1.4	0.274	1.84	65'	EL	32	0.513	2.17	65'	EL	6.4	0.80	0.274	1.43	65'	EL	32	
		SNAGGRS4	34.925	--	1.206	42.136	1.4	0.274	1.55	65'	EL	32	0.513	1.81	65'	EL	6.4	0.80	0.274	1.21	65'	EL	32	
		SNS5A	35.550	--	1.179	41.911	1.4	0.274	1.52	65'	EL	32	0.513	1.85	65'	EL	6.4	0.80	0.274	1.18	65'	EL	32	
		SNS6A	39.950	--	1.087	43.43	1.4	0.274	1.4	65'	EL	32	0.513	1.69	65'	EL	6.4	0.80	0.274	1.09	65'	EL	32	
	SNS7B	42.000	--	1.035	43.489	1.4	0.274	1.33	65'	EL	32	0.513	1.67	65'	EL	6.4	0.80	0.274	1.04	65'	EL	32		
	TTST	TNAGRIT3	33.000	--	1.327	43.8	1.4	0.274	1.71	65'	EL	32	0.513	2.01	65'	EL	6.4	0.80	0.274	1.33	65'	EL	32	
		TNT4A	33.075	--	1.335	44.142	1.4	0.274	1.72	65'	EL	32	0.513	1.95	65'	EL	6.4	0.80	0.274	1.33	65'	EL	32	
		TNT6A	41.600	--	1.096	45.613	1.4	0.274	1.41	65'	EL	32	0.513	1.8	65'	EL	6.4	0.80	0.274	1.10	65'	EL	32	
		TNT7A	42.000	--	1.105	46.4	1.4	0.274	1.42	65'	EL	32	0.513	1.74	65'	EL	6.4	0.80	0.274	1.10	65'	EL	32	
		TNT7B	42.000	--	1.15	48.298	1.4	0.274	1.48	65'	EL	32	0.513	1.62	65'	EL	6.4	0.80	0.274	1.15	65'	EL	32	
		TNAGRIT4	43.000	--	1.089	46.815	1.4	0.274	1.4	65'	EL	32	0.513	1.57	65'	EL	6.4	0.80	0.274	1.09	65'	EL	32	
TNAGT5A		45.000	--	1.024	46.084	1.4	0.274	1.32	65'	EL	32	0.513	1.57	65'	EL	6.4	0.80	0.274	1.02	65'	EL	32		
TNAGT5B	45.000	3	1.01	45.431	1.4	0.274	1.3	65'	EL	32	0.513	1.49	65'	EL	6.4	0.80	0.274	1.01	65'	EL	32			

LOAD FACTORS:

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

NOTES:

- MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.
- ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.
- DISTANCE FROM LEFT END OF SPAN IS MEASURED FROM \bar{C} BEARING.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

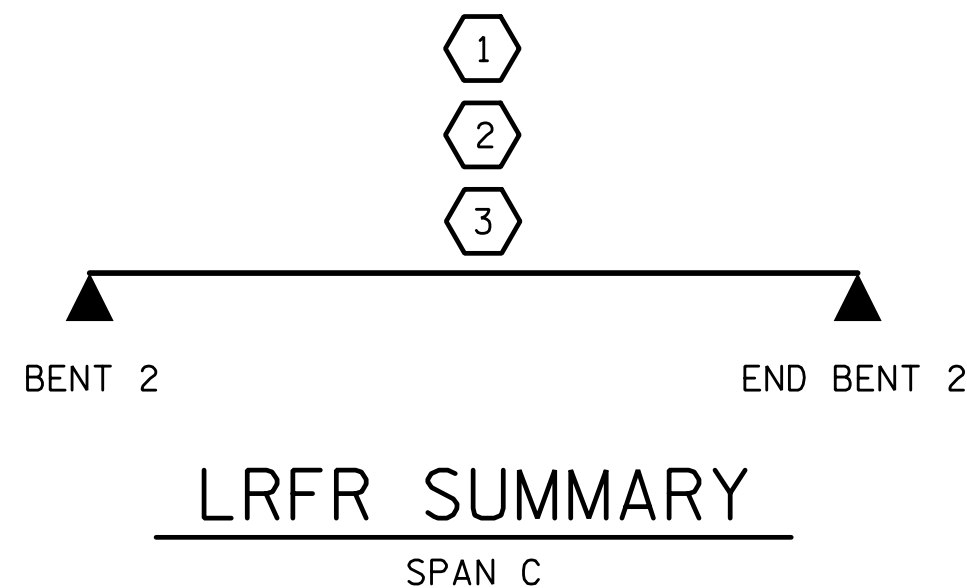
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING ***

*** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

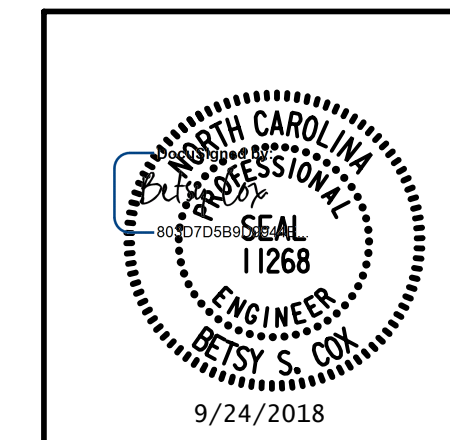


PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
STATION: 15+99.50 -L-

DRAWN BY: S.D. COOPER DATE: 9-18
CHECKED BY: B.S. COX DATE: 9-18
DESIGN ENGINEER OF RECORD: B.S. COX DATE: 9-18

PLANS PREPARED BY:

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(919) 852-0538 (Fax)
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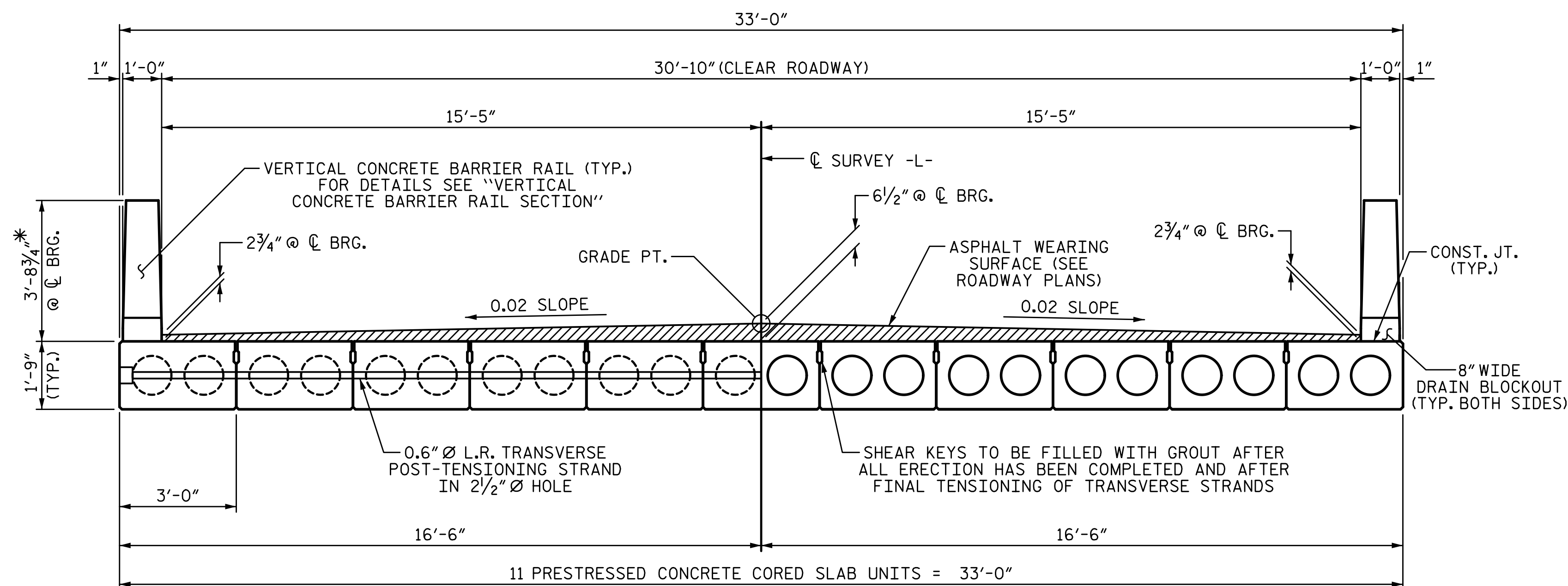
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**LRFR SUMMARY FOR
65' CORED SLAB UNITS
90° SKEW
(NON-INTERSTATE TRAFFIC)**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			24

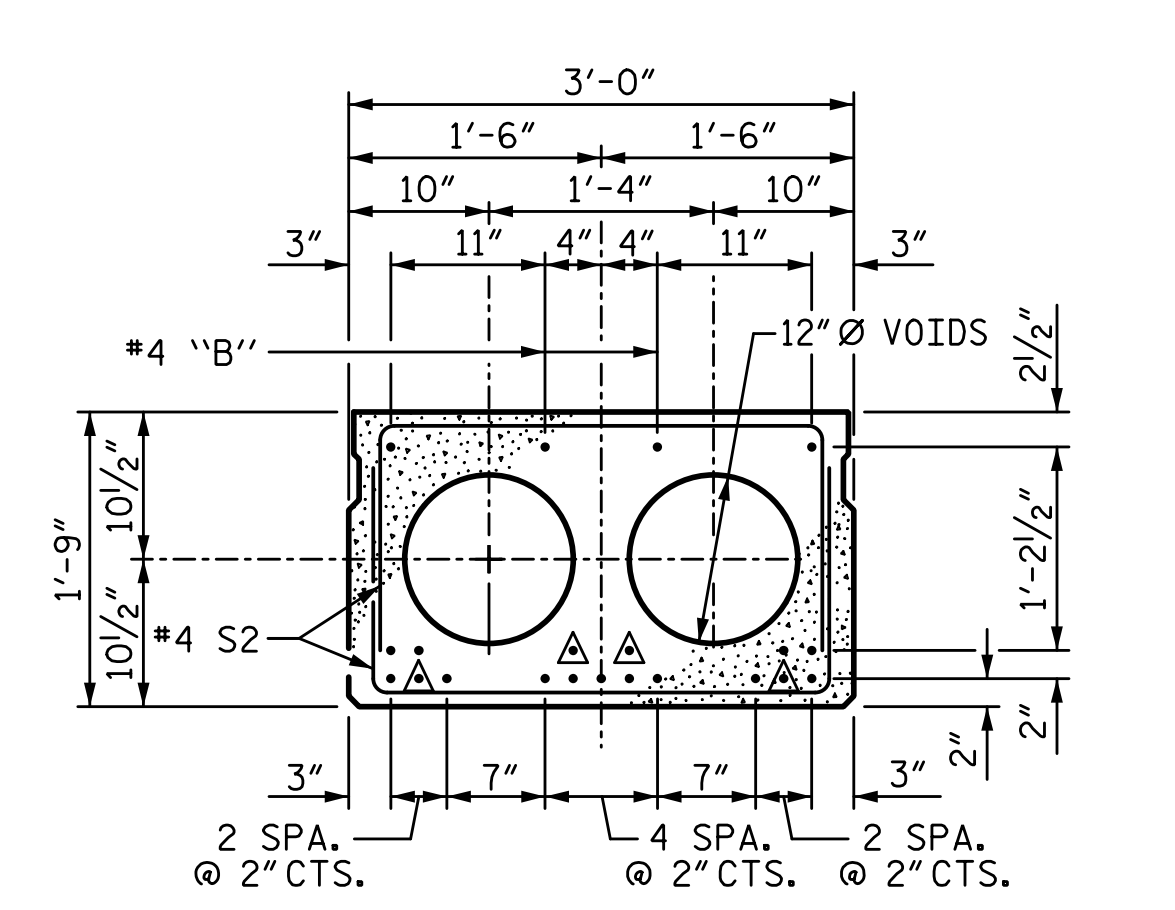
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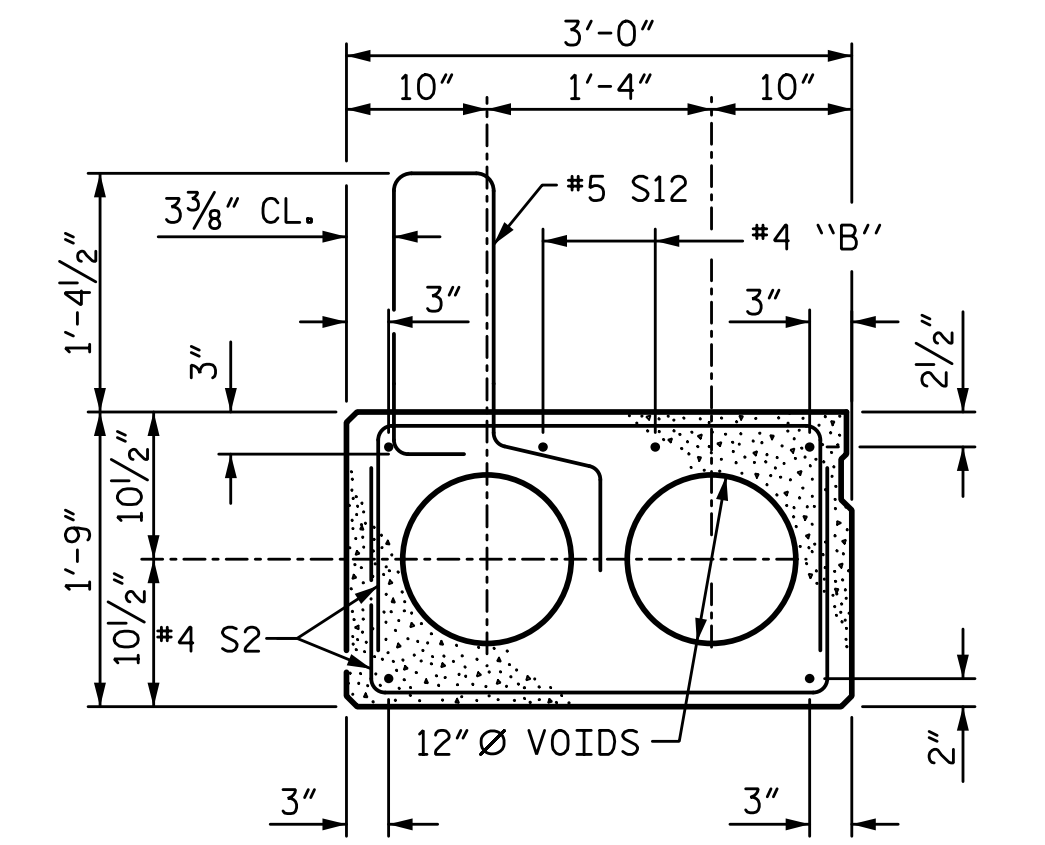
HALF SECTION AT INTERMEDIATE DIAPHRAGMS
 HALF SECTION THROUGH VOIDS
TYPICAL SECTION - SPAN A

* - 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.



INTERIOR SLAB SECTION (50'-0" UNIT)
 (19 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

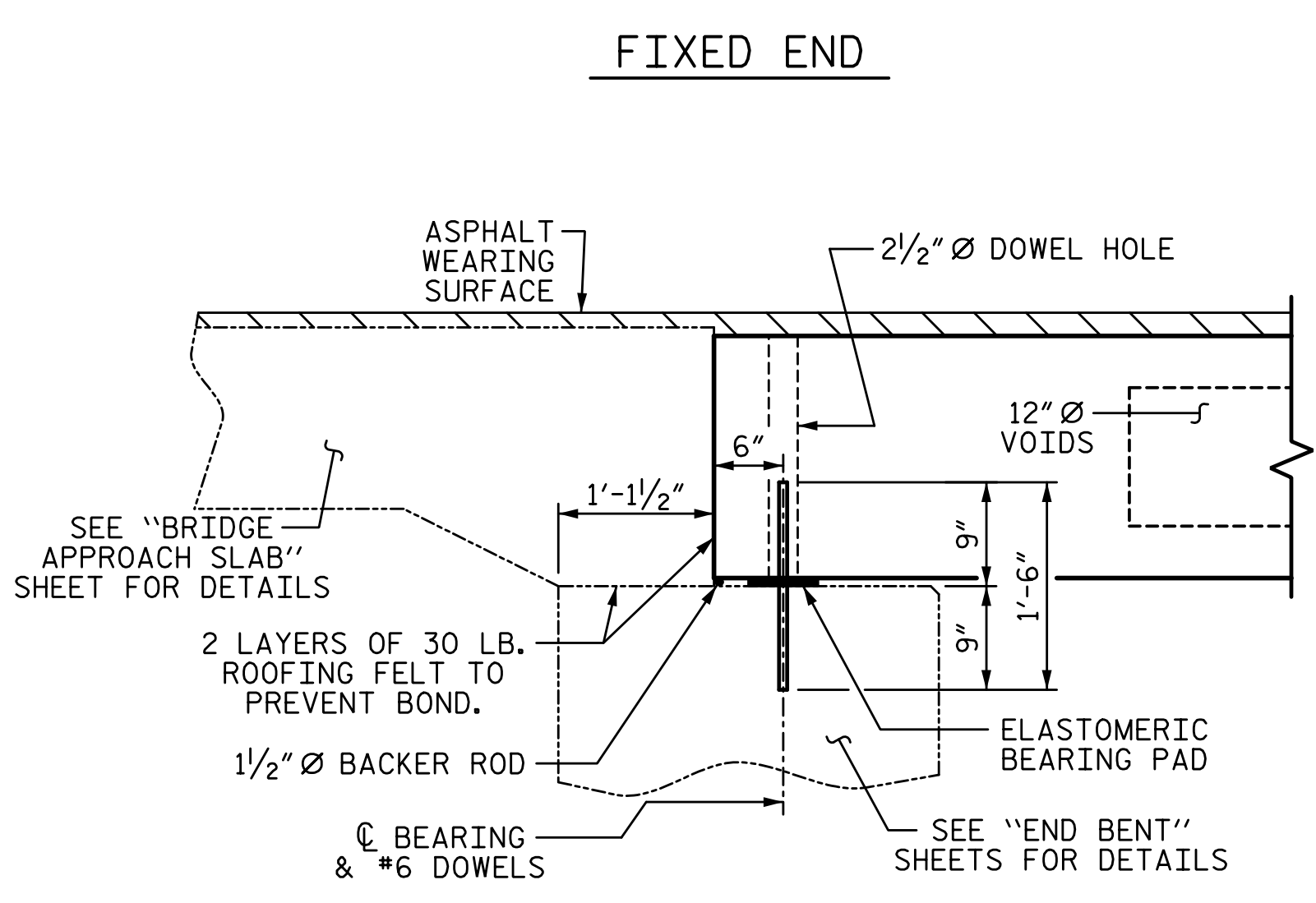


EXTERIOR SLAB SECTION

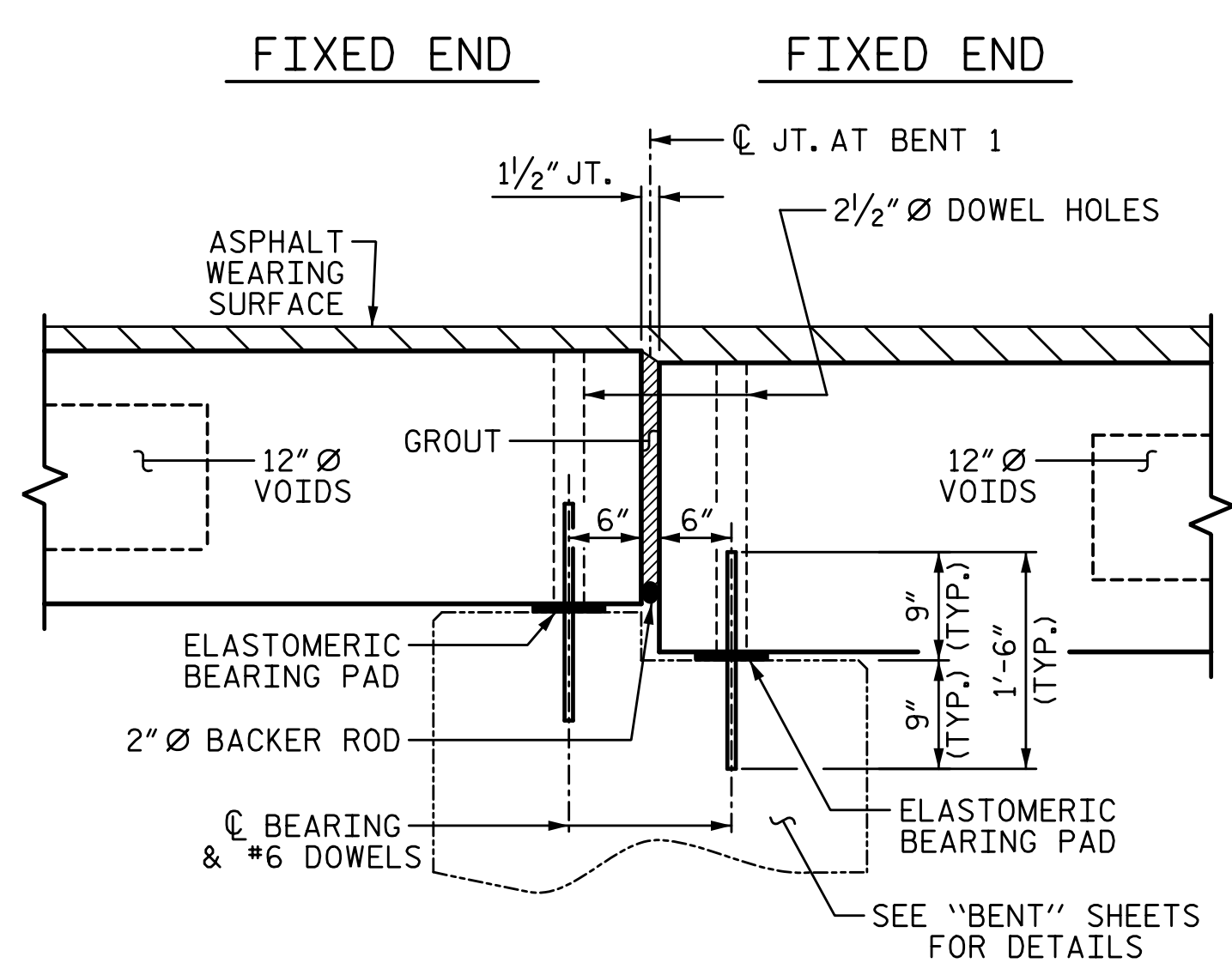
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

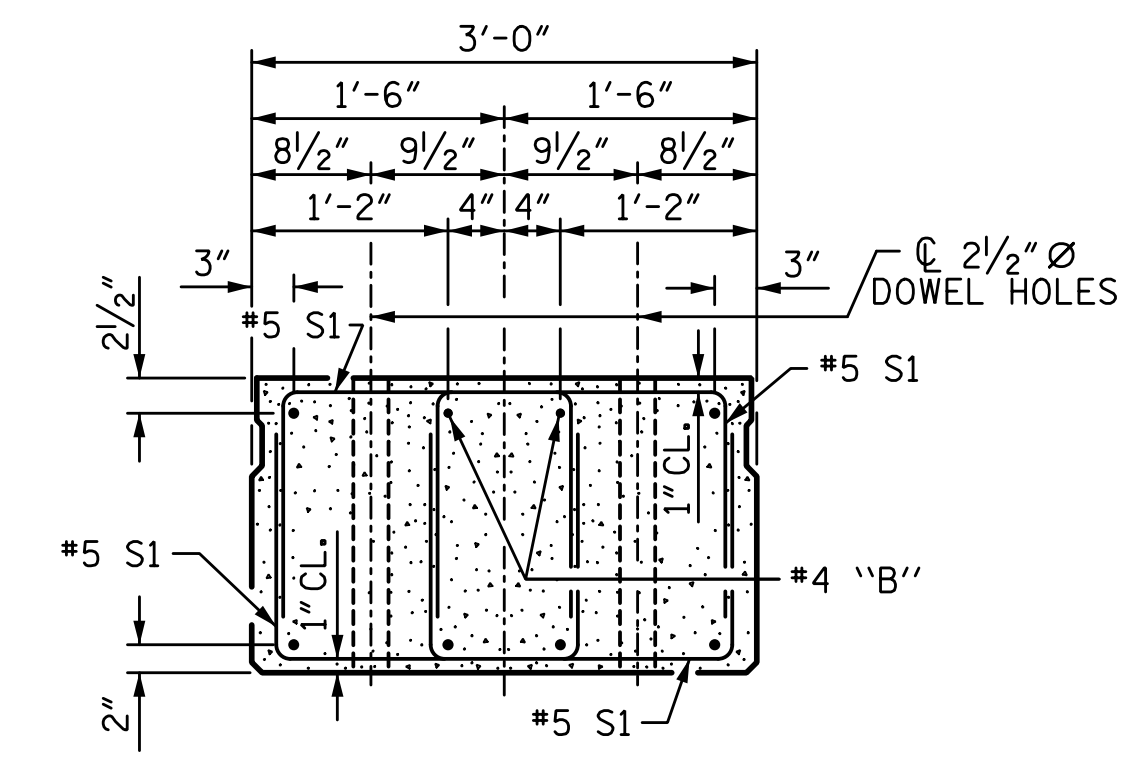
DEBONDING LEGEND



SECTION AT END BENT 1



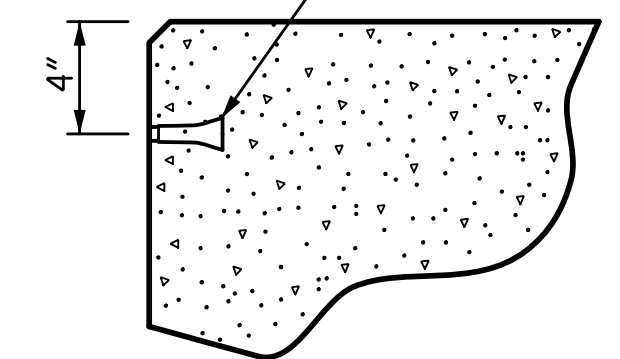
SECTION AT BENT 1



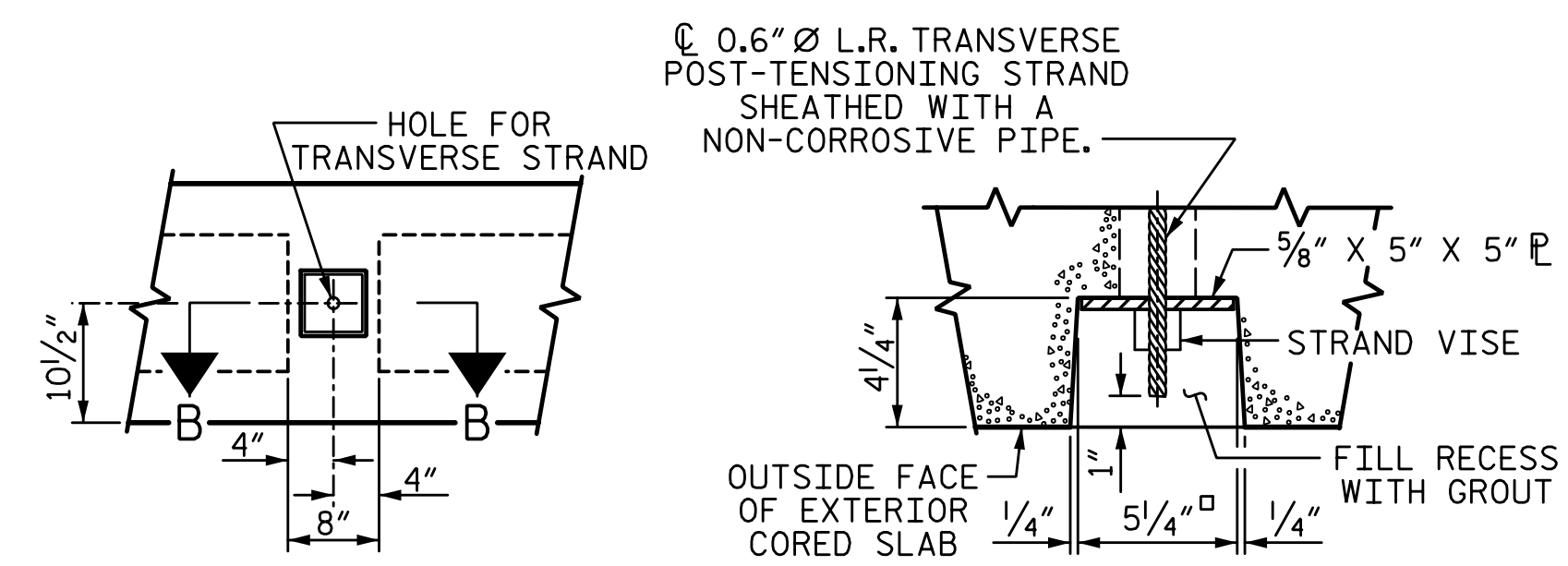
END ELEVATION

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.

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



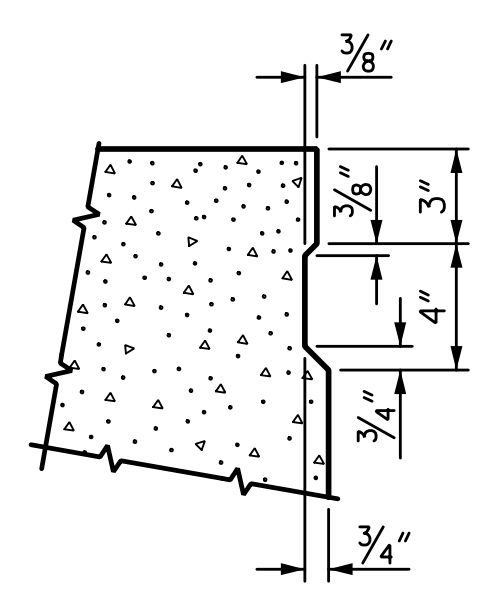
THREADED INSERT DETAIL



ELEVATION VIEW

SECTION B-B

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



SHEAR KEY DETAIL

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

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
 STATION: 15+99.50 -L-

SHEET 1 OF 7

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

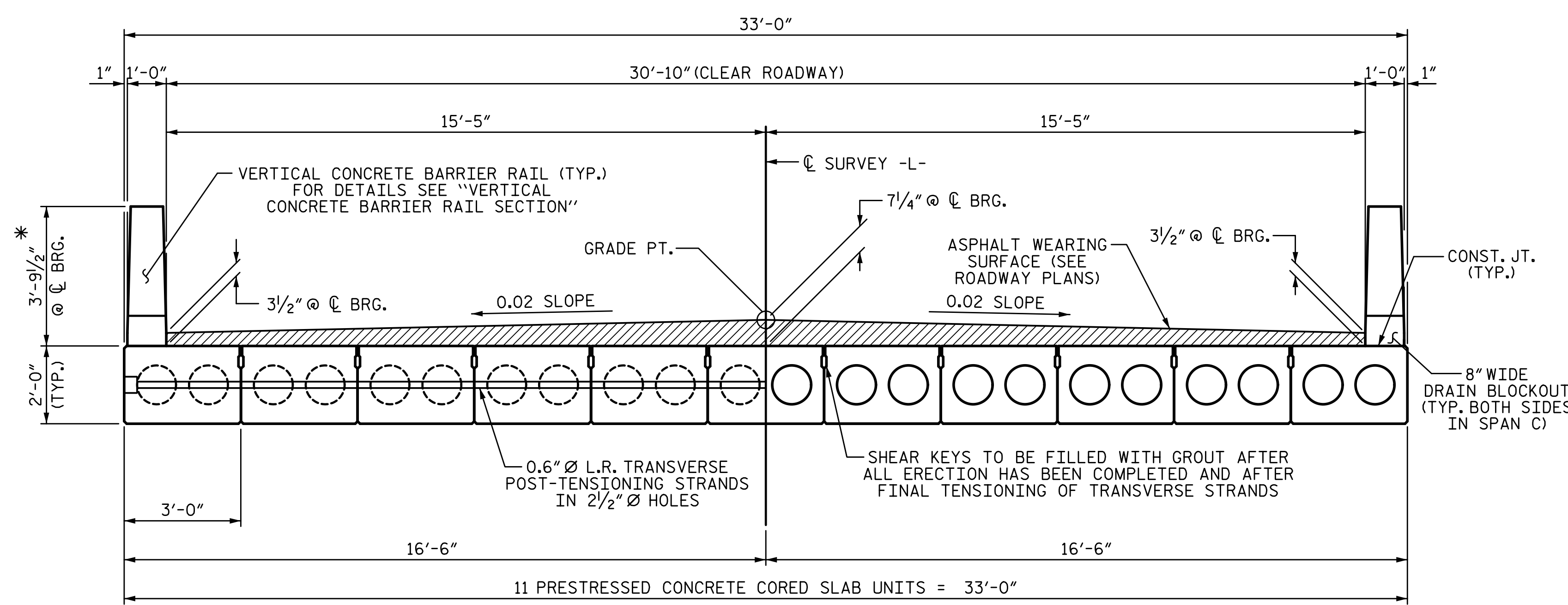
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 24

DRAWN BY: S.D. COOPER DATE: 9-18
 CHECKED BY: B.S. COX DATE: 9-18
 DESIGN ENGINEER OF RECORD: B.S. COX DATE: 9-18

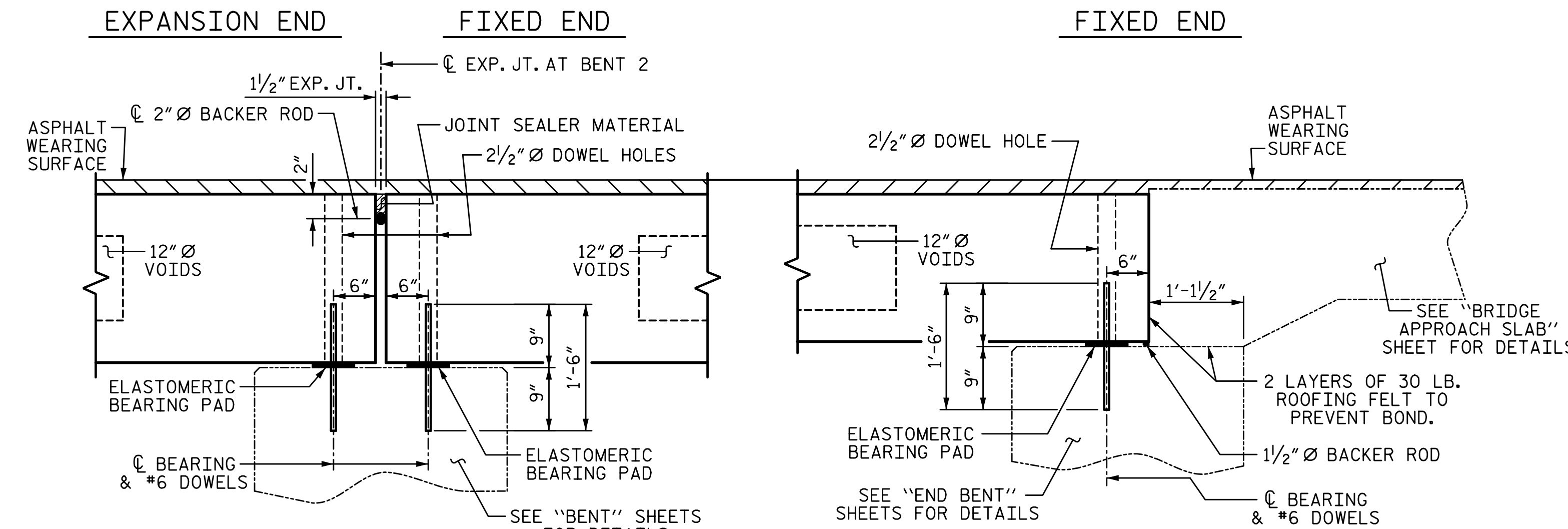
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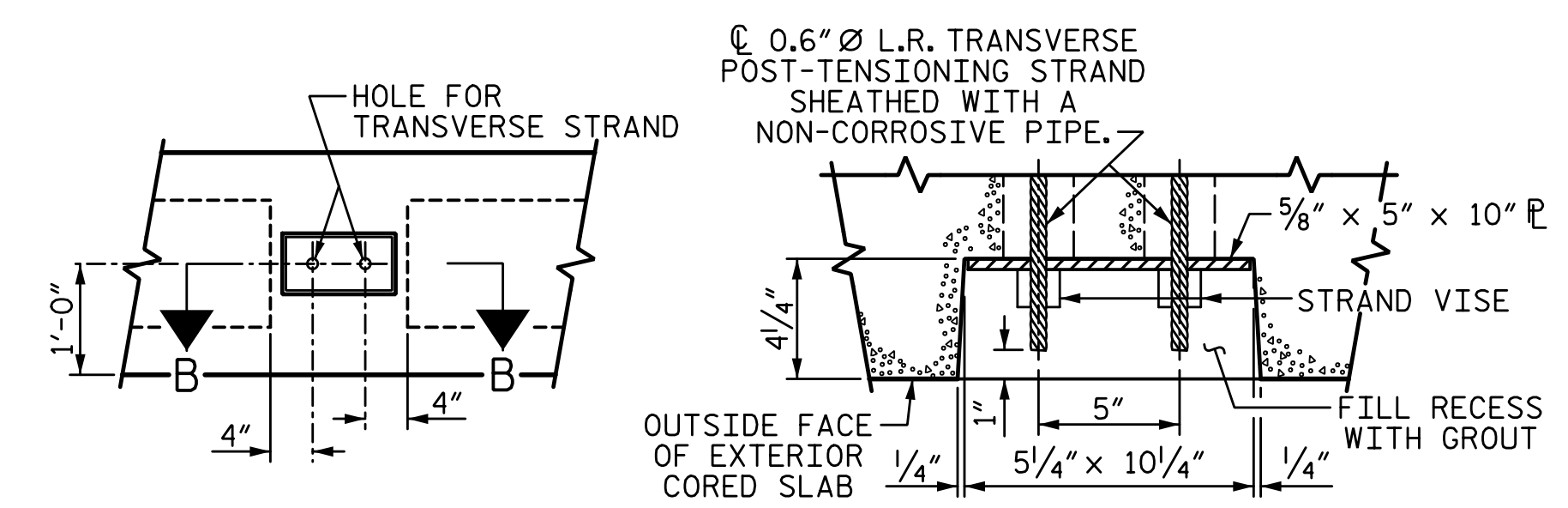


HALF SECTION AT INTERMEDIATE DIAPHRAGMS
 HALF SECTION THROUGH VOIDS
TYPICAL SECTION - SPANS B & C

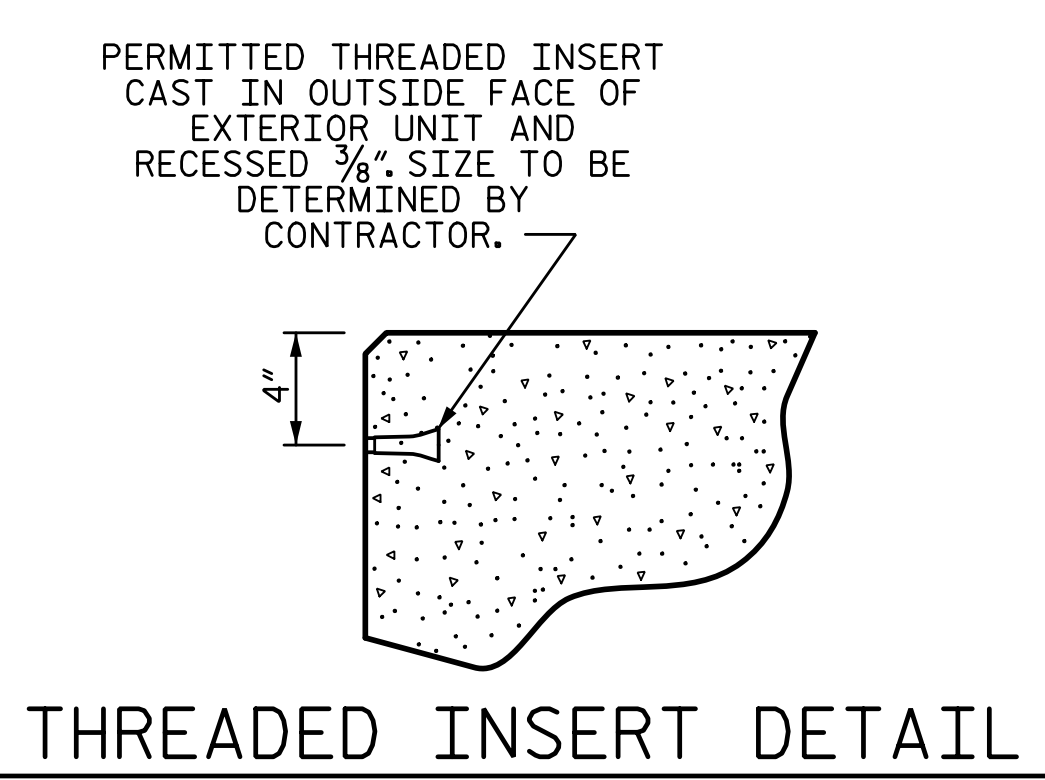
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



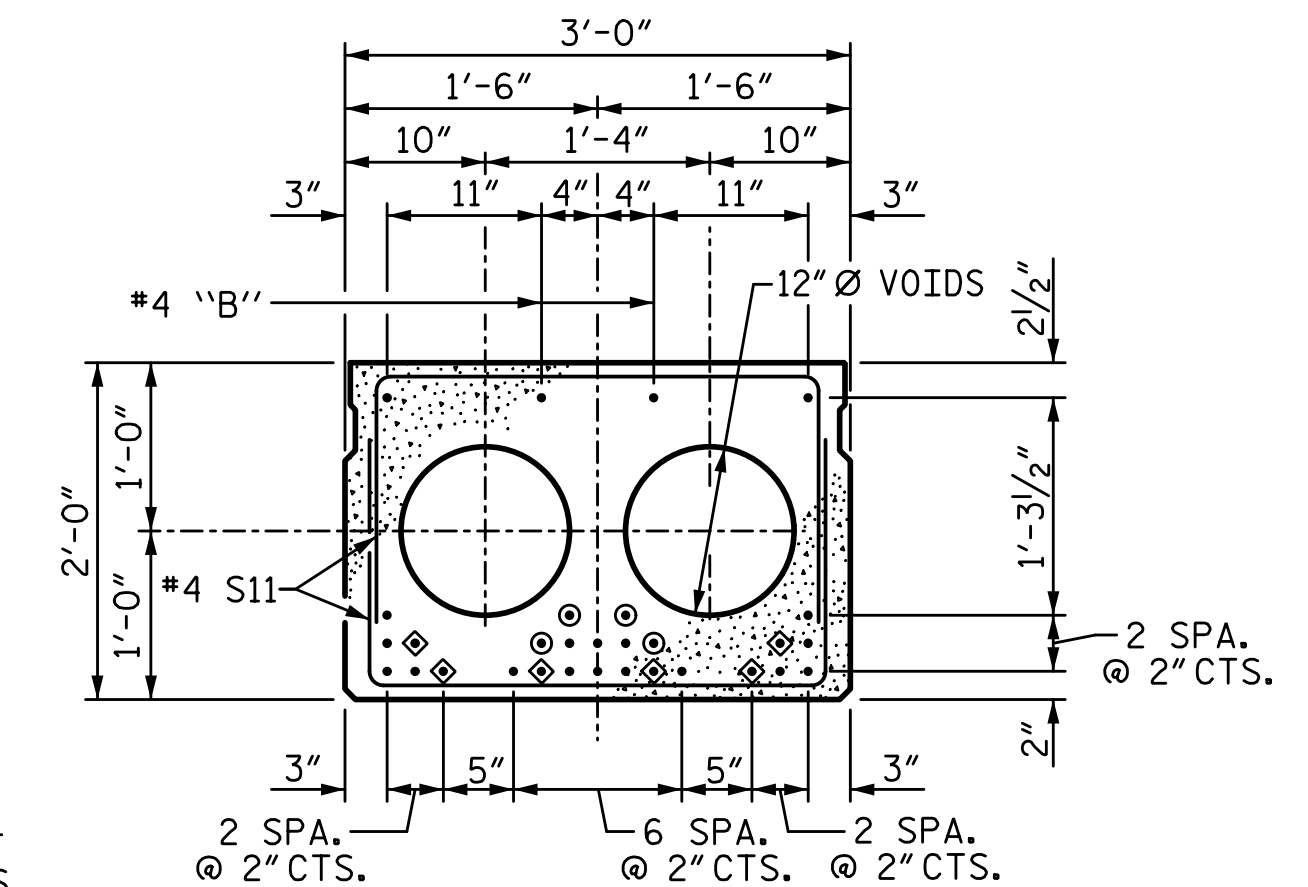
SECTION AT BENT 2 **SECTION AT END BENT 2**



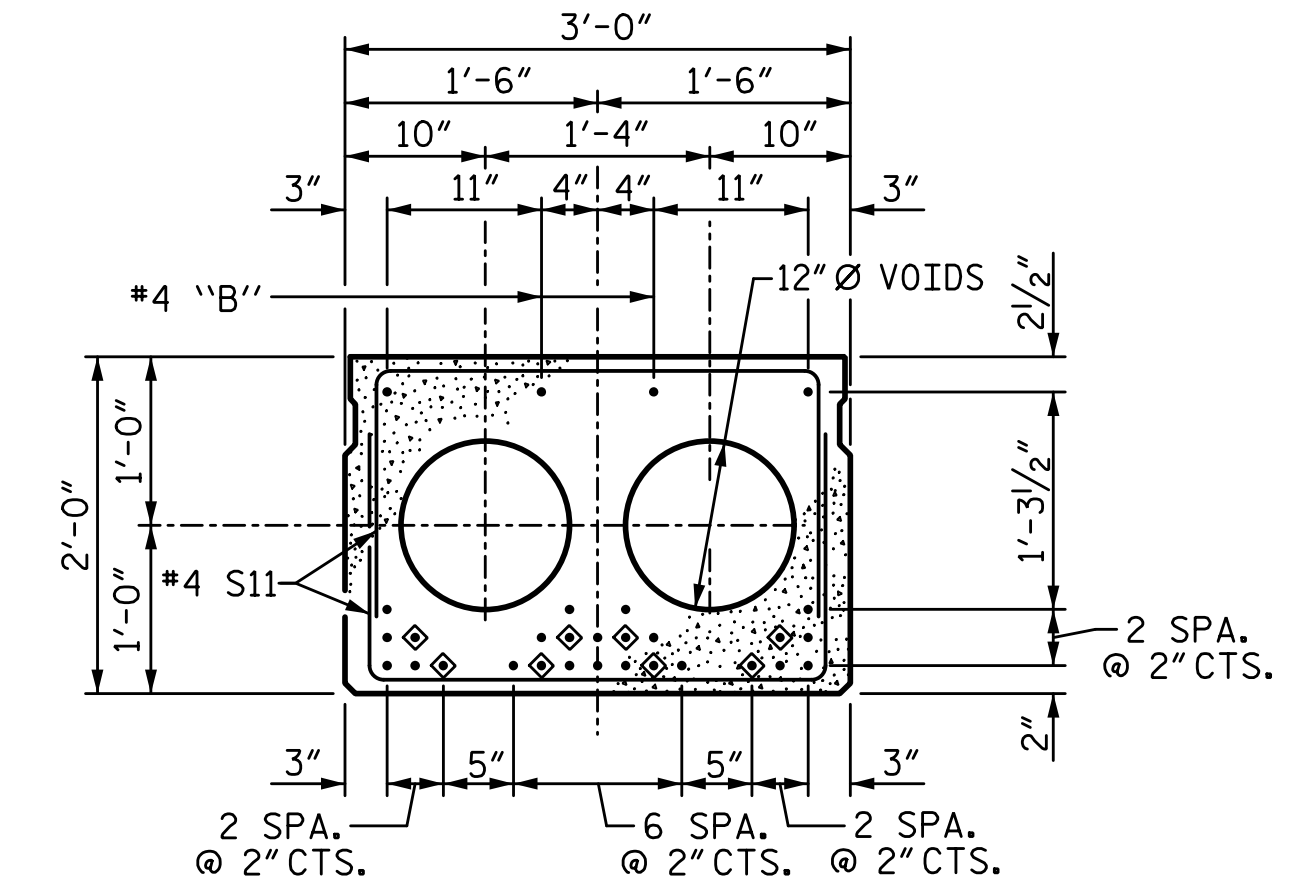
ELEVATION VIEW **SECTION B-B**
GROUTED RECESS AT END OF POST-TENSIONED STRAND FOR CORED SLABS



THREADED INSERT DETAIL



INTERIOR SLAB SECTION (65'-0" UNIT)
 (24 STRANDS REQUIRED)

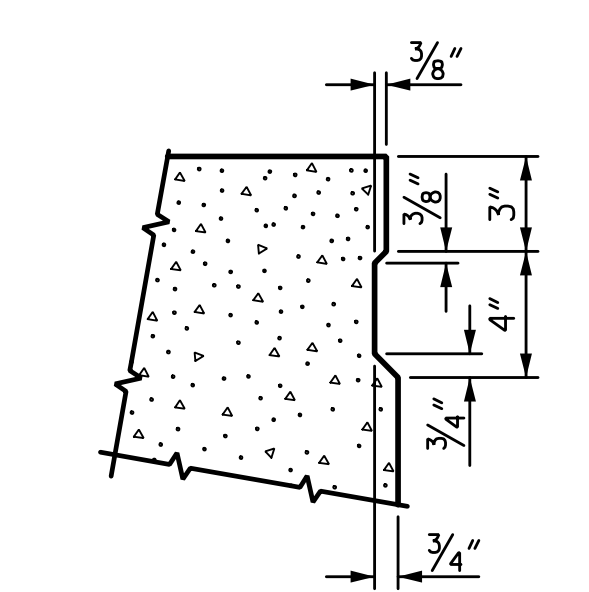


INTERIOR SLAB SECTION (70'-0" UNIT)
 (28 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

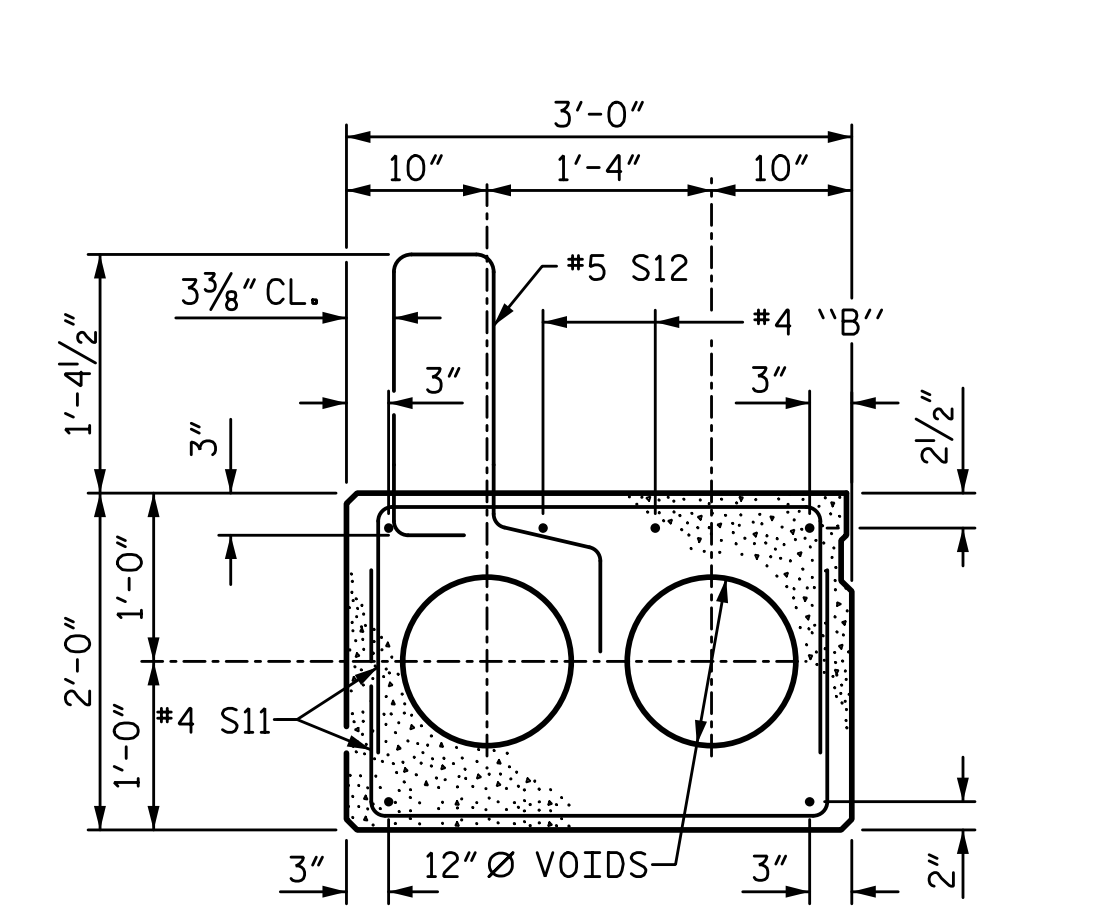
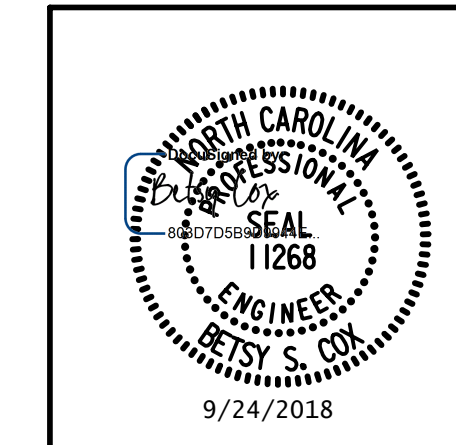
- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

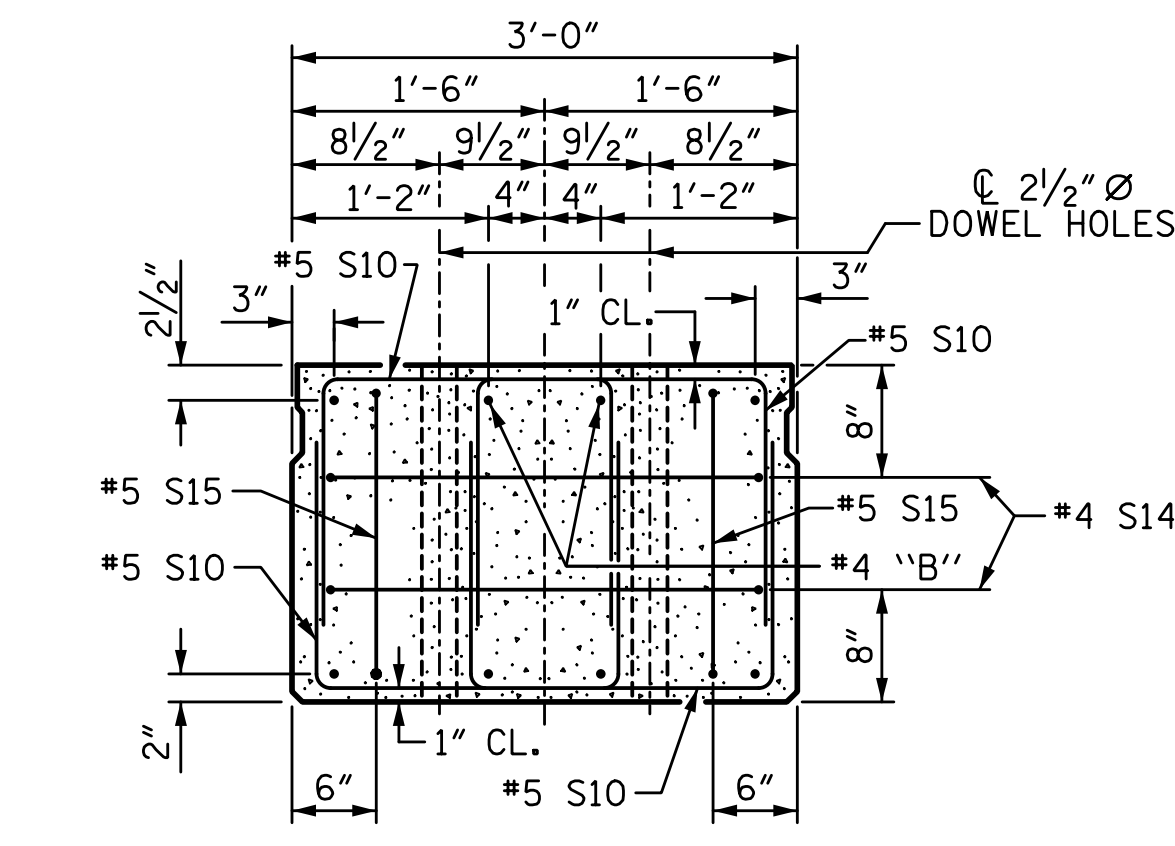


SHEAR KEY DETAIL
 NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

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 www.simpsonengr.com
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EXTERIOR SLAB SECTION
 (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



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.

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
 STATION: 15+99.50 -L-

SHEET 2 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 3'-0" X 2'-0"
PRESTRESSED CONCRETE CORED SLAB UNIT
 (SPANS B & C) 90° SKEW

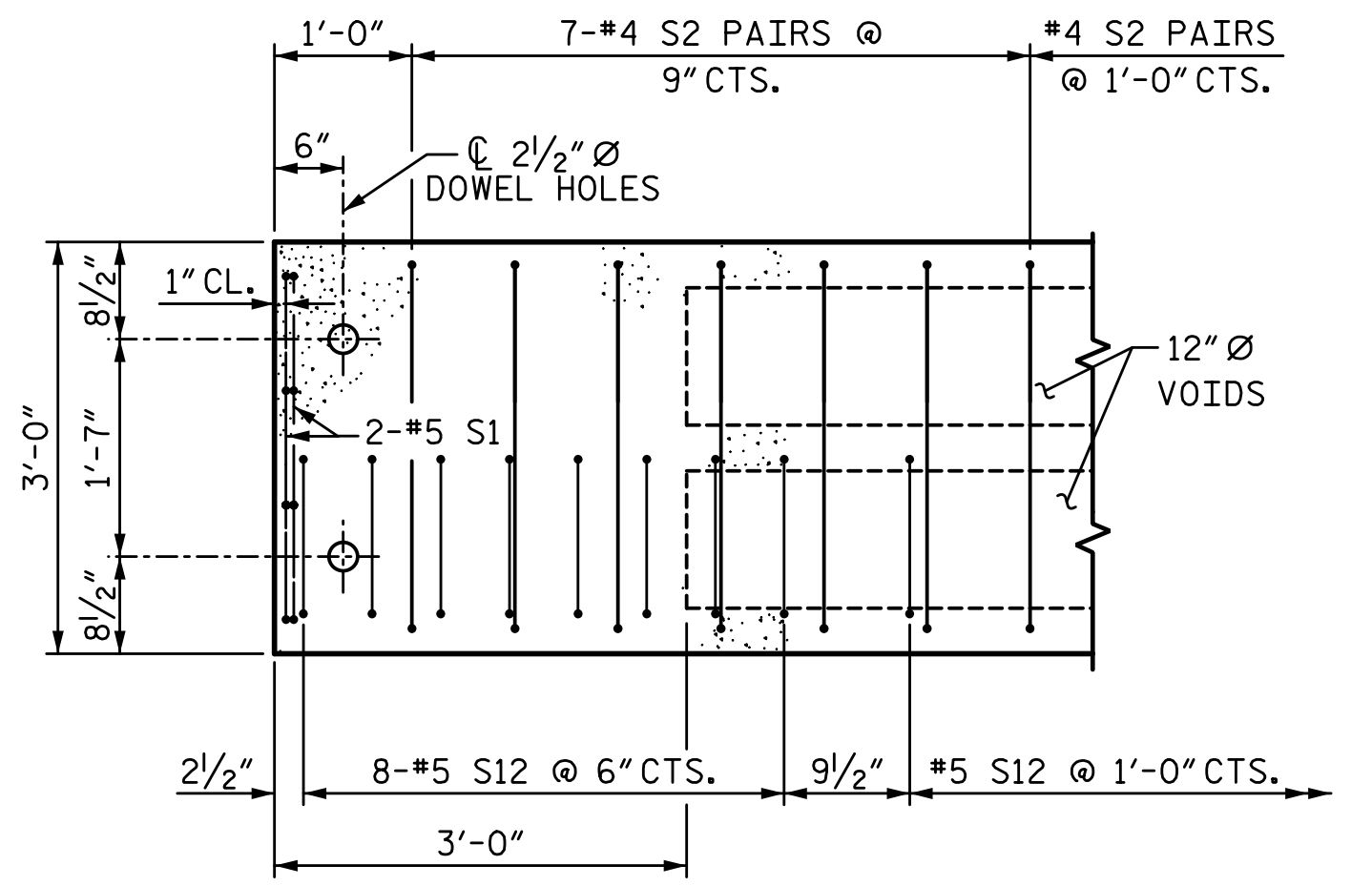
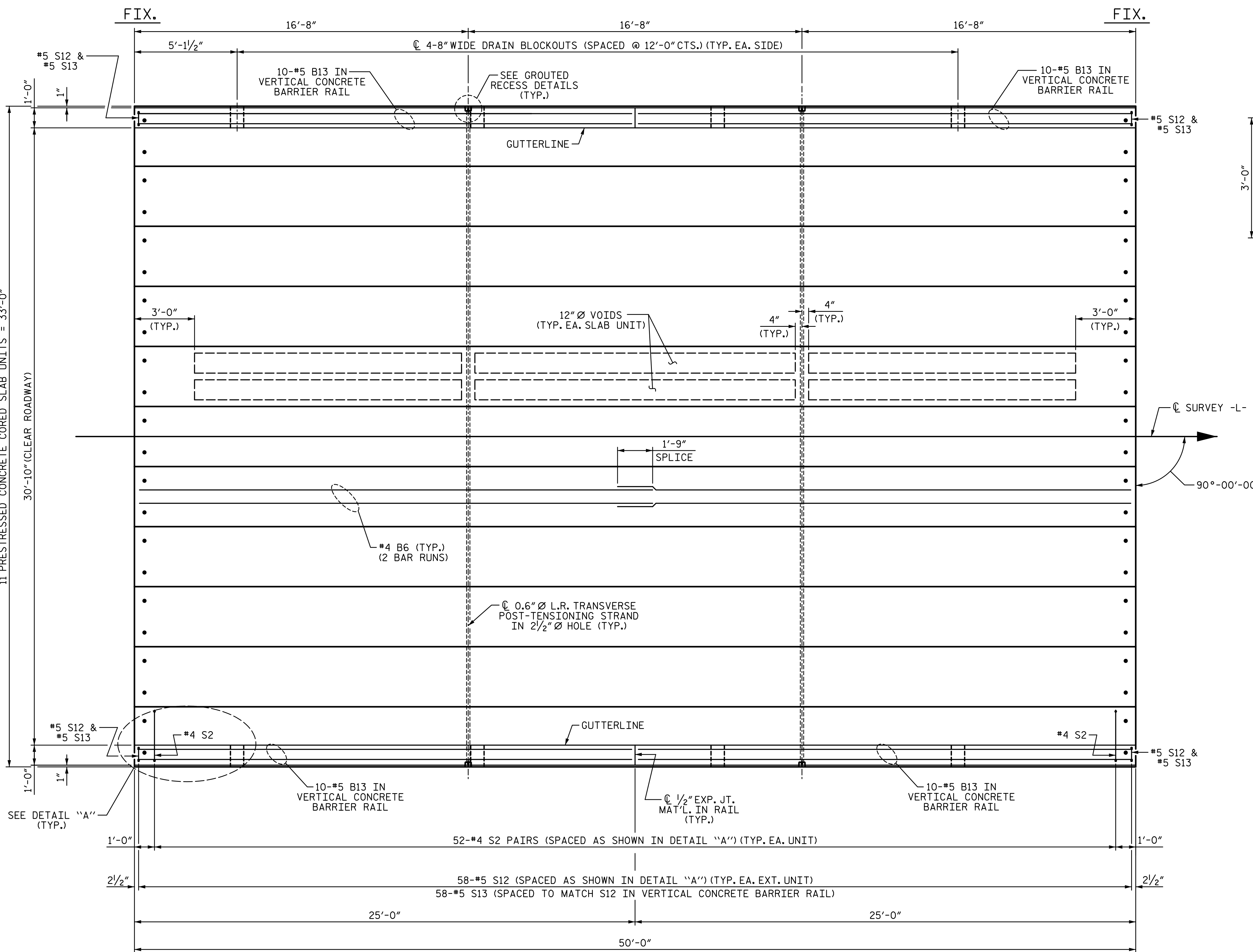
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 24

DRAWN BY: S.D. COOPER DATE: 9-18
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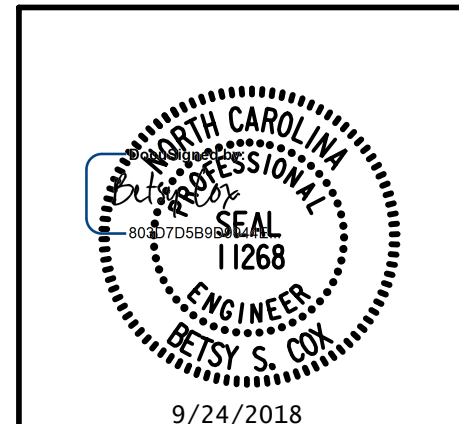


DETAIL "A"
(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
STATION: 15+99.50 -L-

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN A
(50'-0" UNIT)
30'-10" CLEAR ROADWAY
90° SKEW



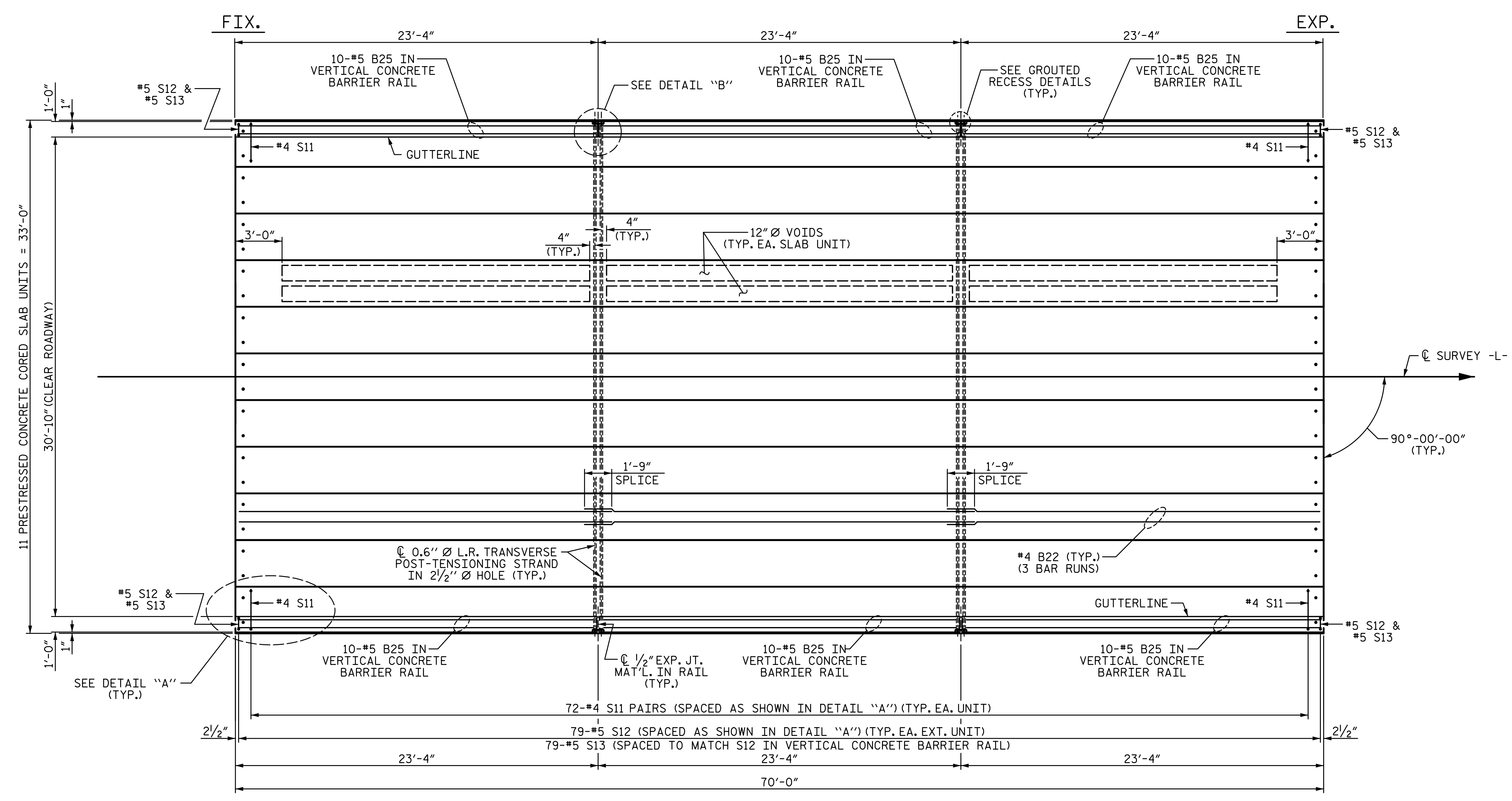
PLANS PREPARED BY:
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(919) 852-0538 (Fax)
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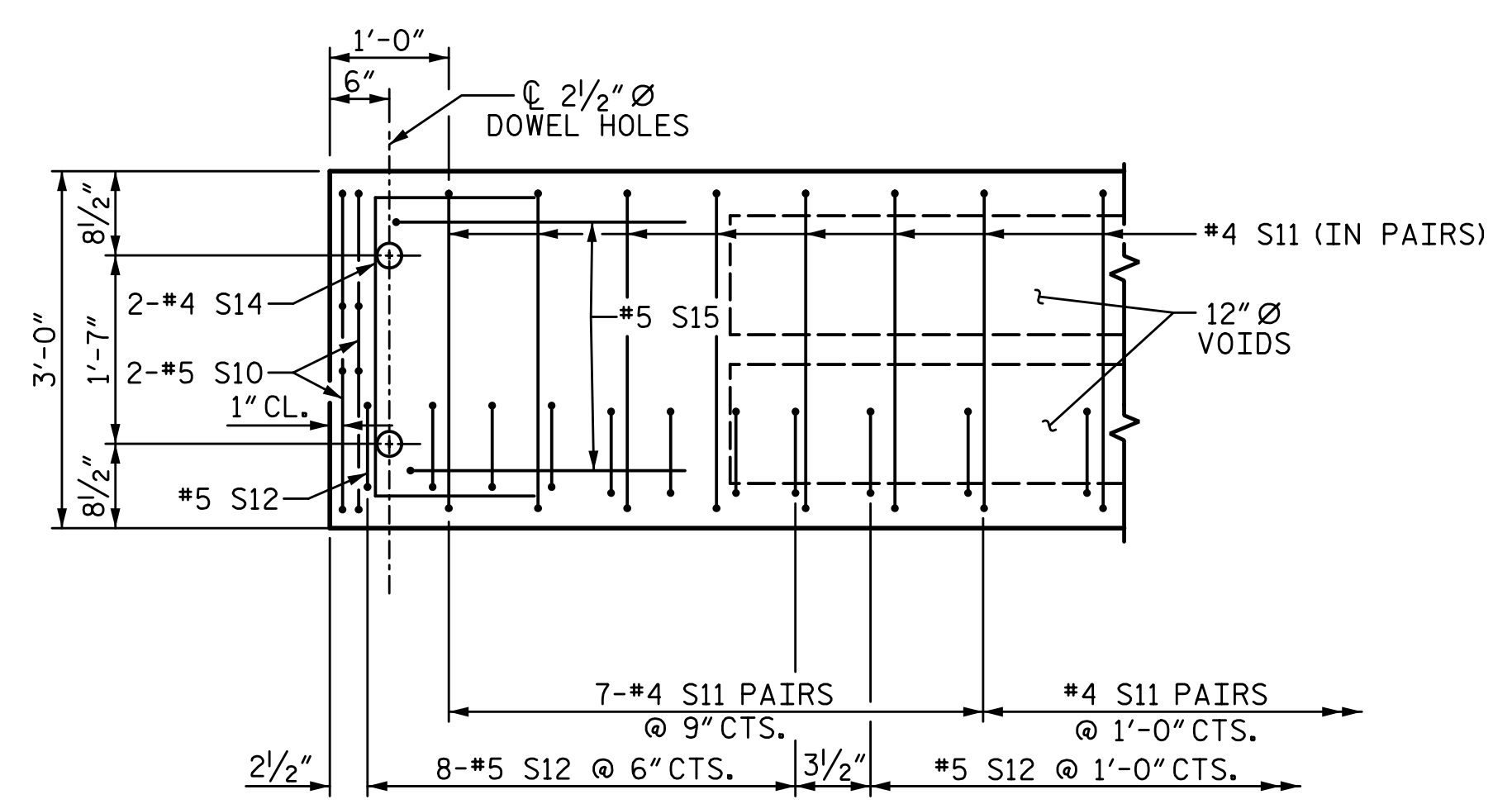
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			24

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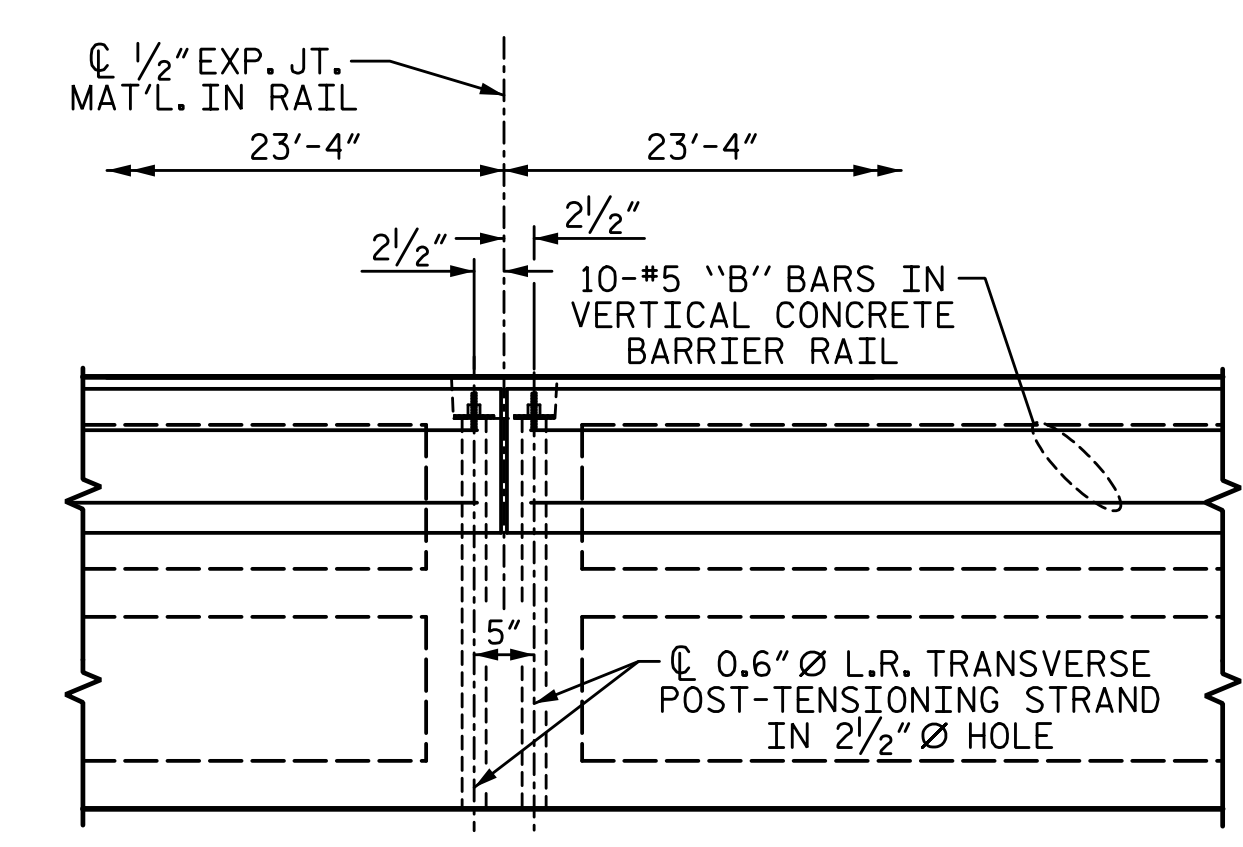


PLAN OF SPAN B



DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

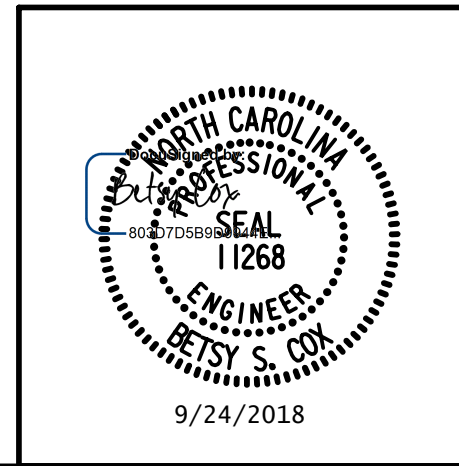
*4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
STATION: 15+99.50 -L-

SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN B
(70'-0" UNIT)
30'-10" CLEAR ROADWAY
90° SKEW

PLANS PREPARED BY:
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(919) 852-0598 (Fax)
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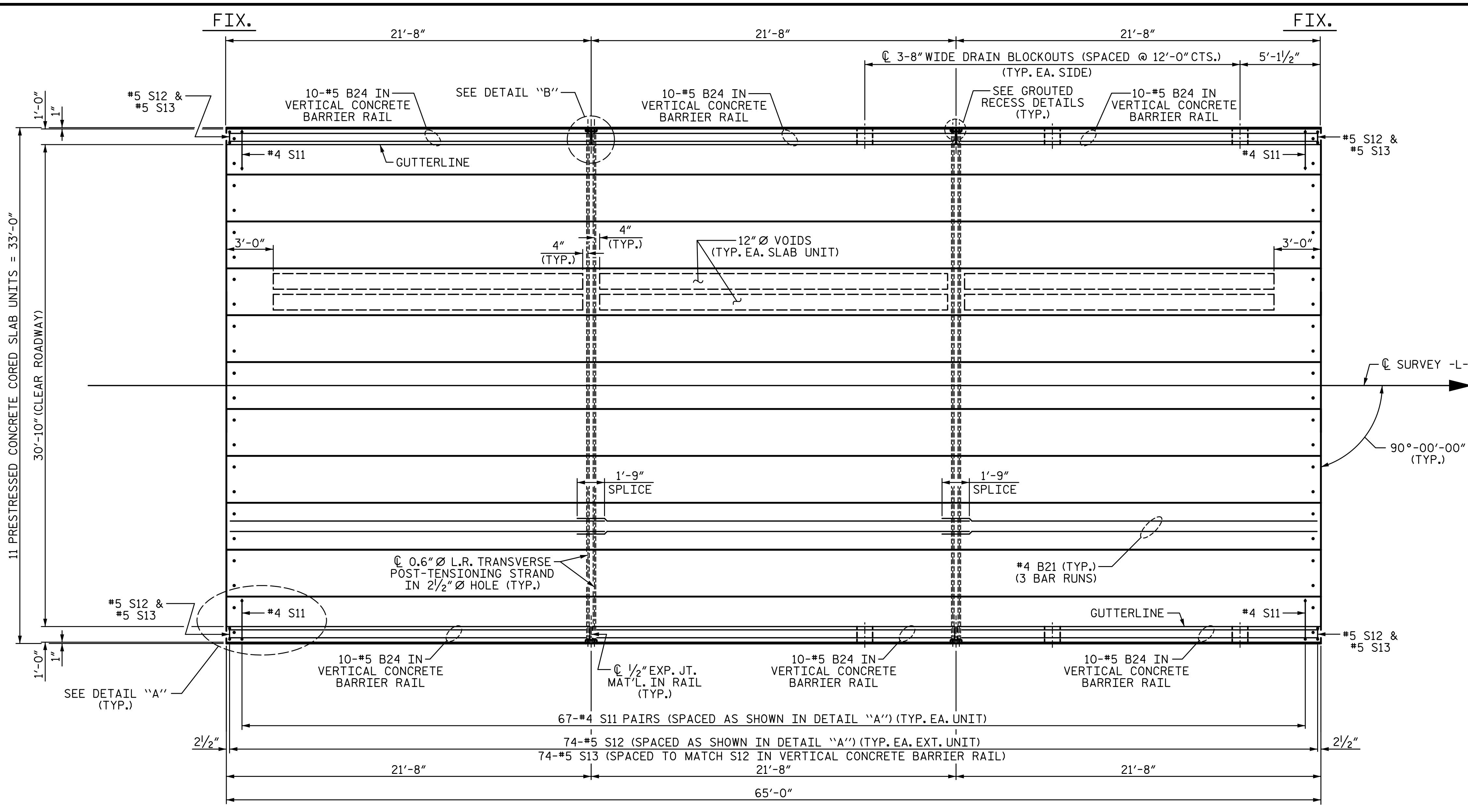


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			24

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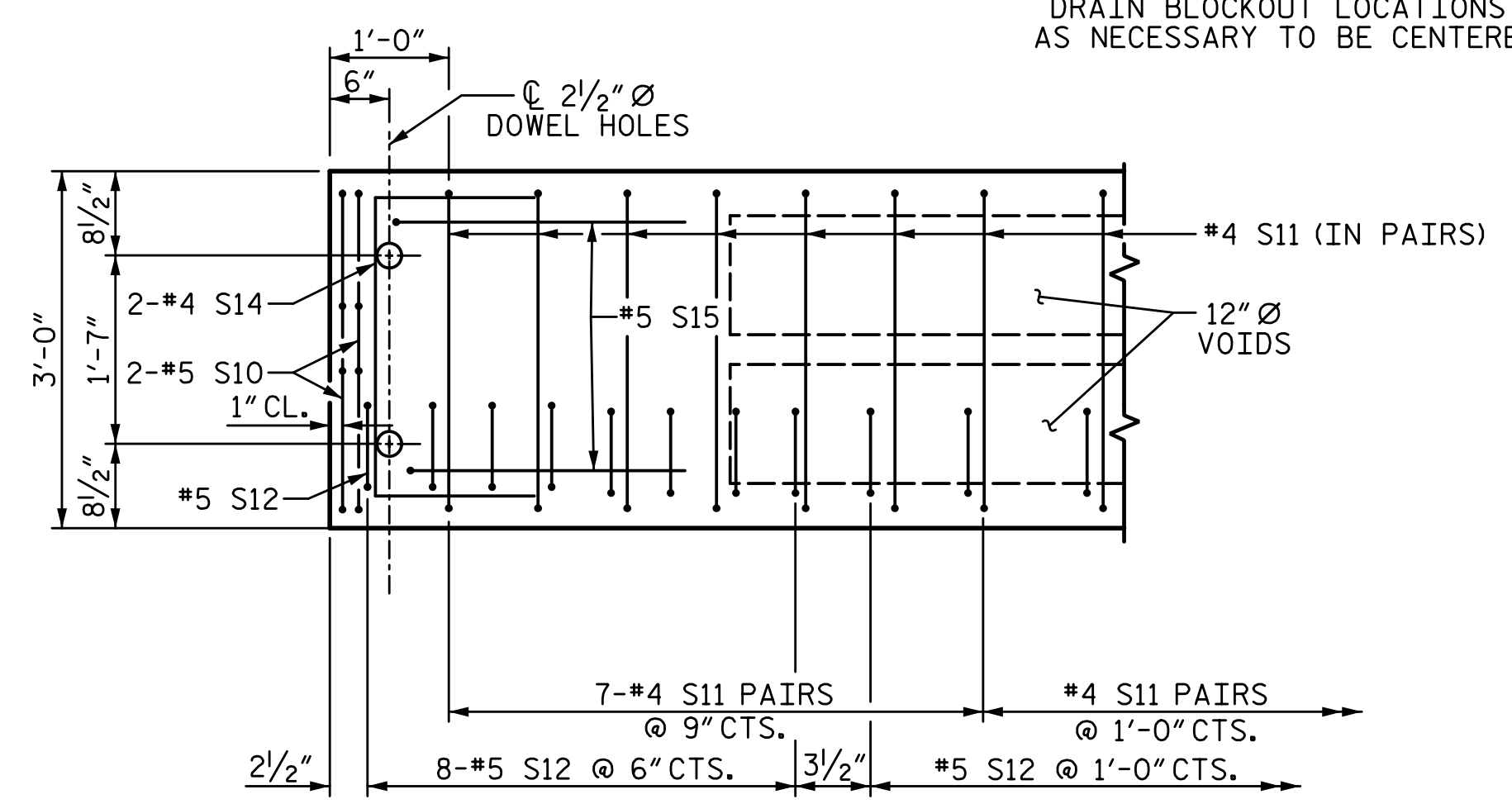
DRAWN BY: S.D. COOPER DATE: 9-18
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DESIGN ENGINEER OF RECORD: B.S. COX DATE: 9-18

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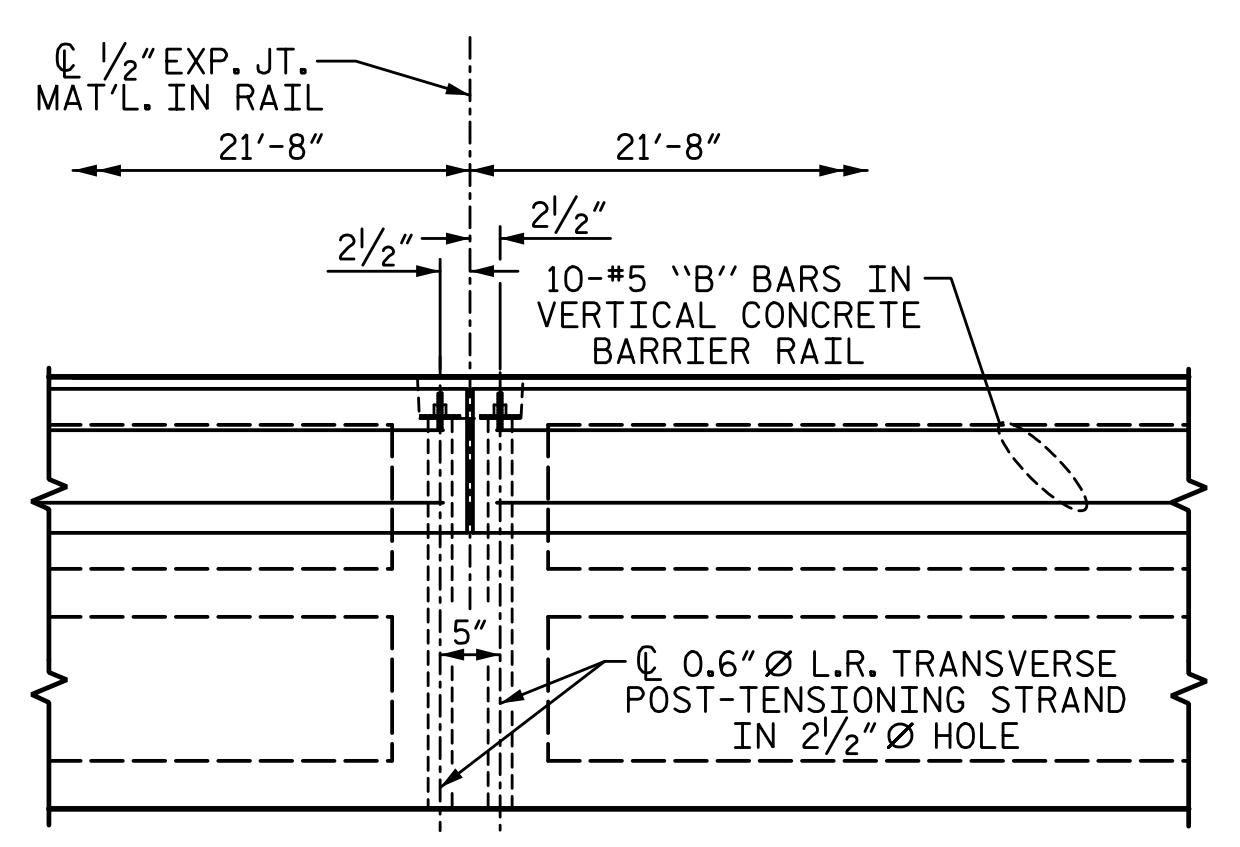
PLAN OF SPAN C

DRAIN BLOCKOUT LOCATIONS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO BE CENTERED BETWEEN S12 & S13 BARS.



DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
STATION: 15+99.50 -L-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN C
(65'-0" UNIT)
30'-10" CLEAR ROADWAY
90° SKEW



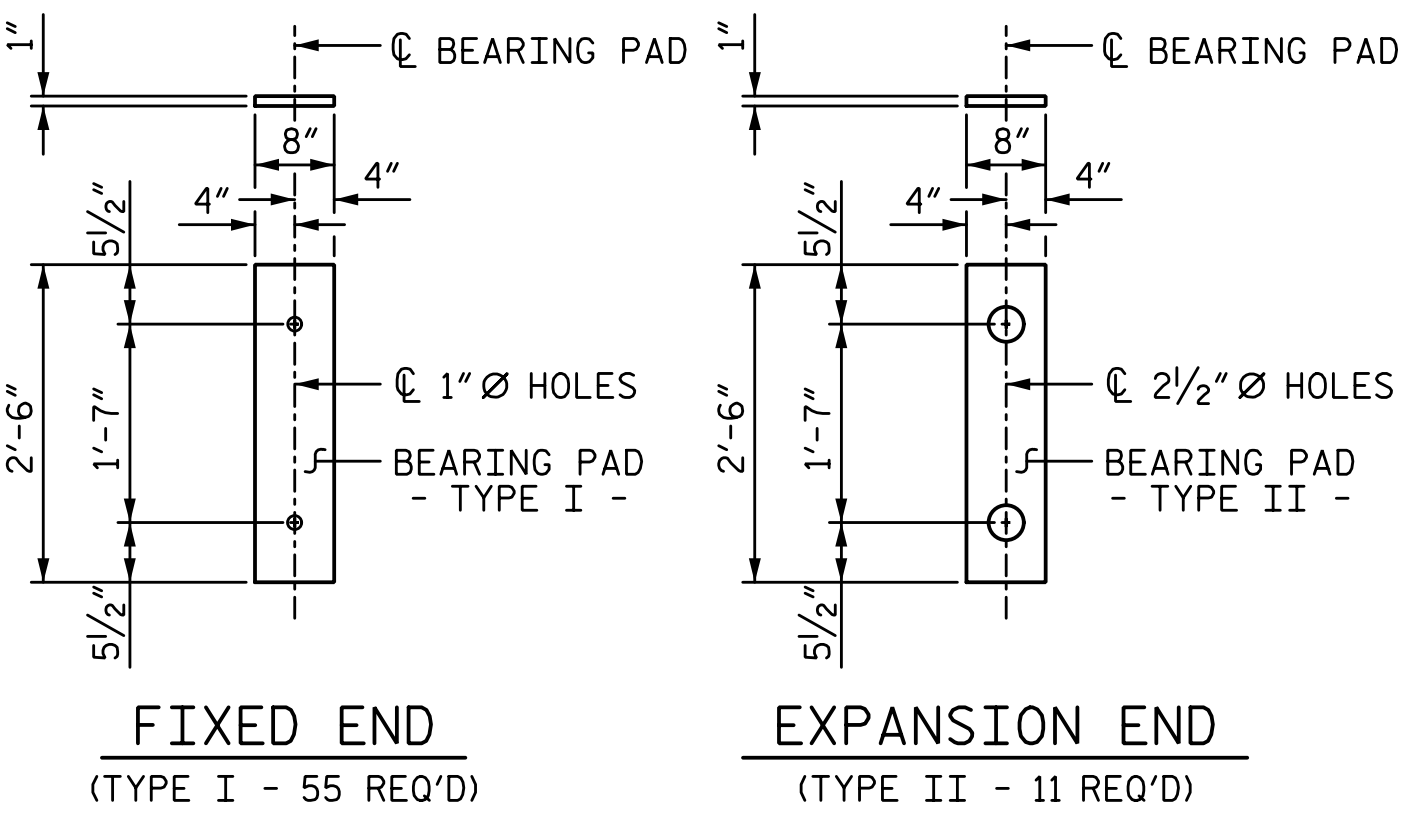
PLANS PREPARED BY:
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CHECKED BY: <u>B.S. COX</u>	DATE: <u>9-18</u>
DESIGN ENGINEER OF RECORD: <u>B.S. COX</u>	DATE: <u>9-18</u>

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			24

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ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

DEAD LOAD DEFLECTION AND CAMBER	
50' CORED SLAB UNIT	3'-0" x 1'-9"
CAMBER (SLAB ALONE IN PLACE)	1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/8" ↓
FINAL CAMBER	1/8" ↑

** INCLUDES FUTURE WEARING SURFACE

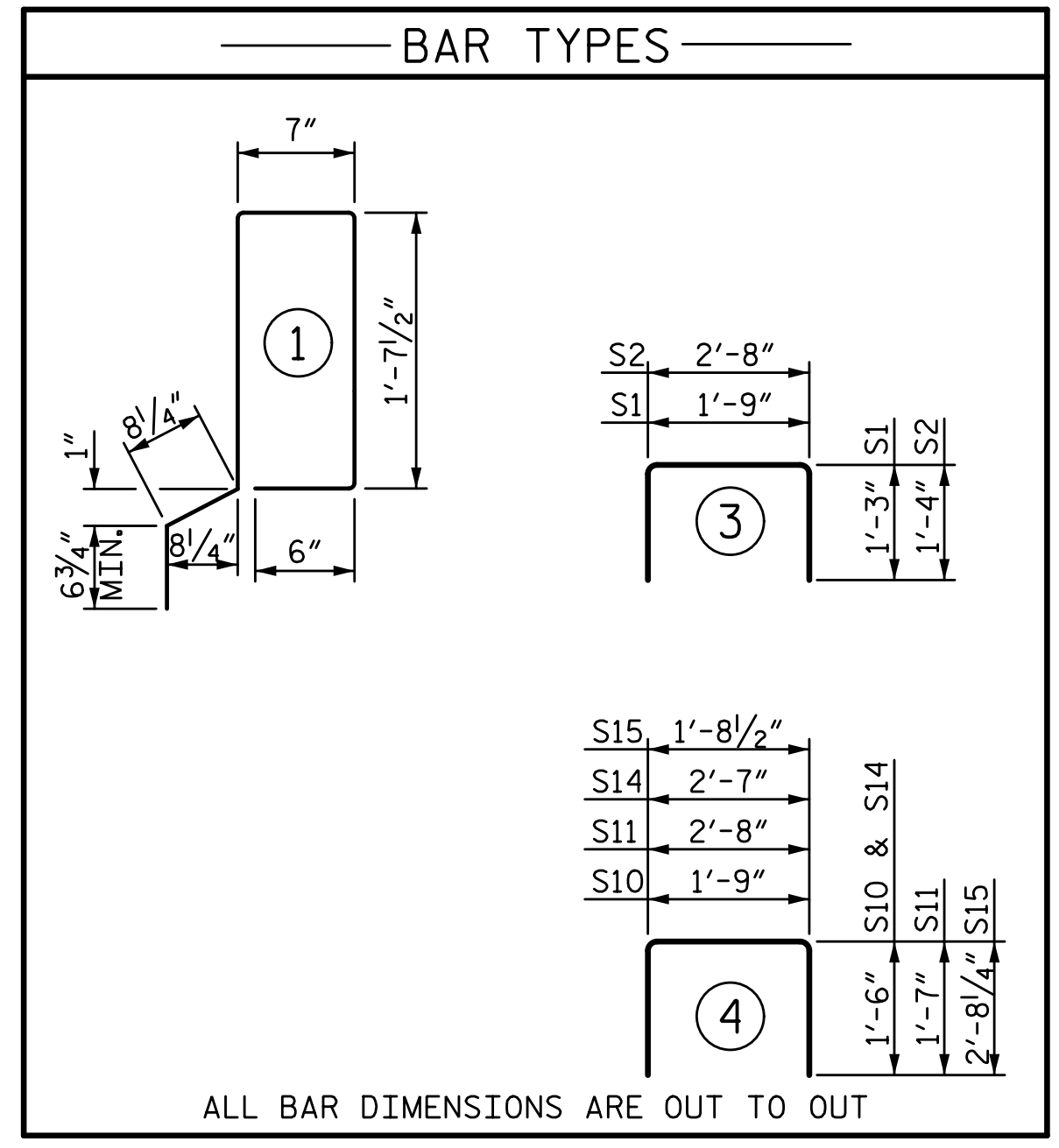
DEAD LOAD DEFLECTION AND CAMBER	
65' CORED SLAB UNIT	3'-0" x 2'-0"
CAMBER (SLAB ALONE IN PLACE)	1/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	1 3/8" ↑

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER	
70' CORED SLAB UNIT	3'-0" x 2'-0"
CAMBER (SLAB ALONE IN PLACE)	2/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/4" ↓
FINAL CAMBER	1 1/2" ↑

** INCLUDES FUTURE WEARING SURFACE

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
50' UNITS	1 5/8"	3'-7 5/8"
65' UNITS	2 1/8"	3'-8 1/8"
70' UNITS	2"	3'-8"



CORED SLABS REQUIRED			
50' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	50'-0"	100'-0"
INTERIOR C.S.	9	50'-0"	450'-0"
TOTAL	11		550'-0"

CORED SLABS REQUIRED			
65' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	65'-0"	130'-0"
INTERIOR C.S.	9	65'-0"	585'-0"
TOTAL	11		715'-0"

CORED SLABS REQUIRED			
70' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	9	70'-0"	630'-0"
TOTAL	11		770'-0"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
50' UNITS	4900
65' UNITS	4800
70' UNITS	5500

BILL OF MATERIAL FOR ONE 50' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B6	4	#4	STR	25'-9"	69	25'-9"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	104	#4	3	5'-4"	371	5'-4"	371
*S12	58	#5	1	5'-7"	338		
REINFORCING STEEL			LB		475		475
*EPOXY COATED REINFORCING STEEL			LB		338		
6500 P.S.I. CONCRETE			CY		7.1		7.1
0.6" Ø L.R. STRANDS	No.				19		19

BILL OF MATERIAL FOR ONE 65' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B21	6	#4	STR	22'-10"	92	22'-10"	92
S10	8	#5	4	4'-9"	40	4'-9"	40
S11	134	#4	4	5'-10"	522	5'-10"	522
*S12	74	#5	1	5'-7"	431		
S14	4	#4	4	5'-7"	15	5'-7"	15
S15	4	#5	4	7'-1"	30	7'-1"	30
REINFORCING STEEL			LB		699		699
*EPOXY COATED REINFORCING STEEL			LB		431		
6000 P.S.I. CONCRETE			CY		11.0		11.0
0.6" Ø L.R. STRANDS	No.				24		24

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	4	4'-9"	40	4'-9"	40
S11	144	#4	4	5'-10"	561	5'-10"	561
*S12	79	#5	1	5'-7"	460		
S14	4	#4	4	5'-7"	15	5'-7"	15
S15	4	#5	4	7'-1"	30	7'-1"	30
REINFORCING STEEL			LB		744		744
*EPOXY COATED REINFORCING STEEL			LB		460		
7000 P.S.I. CONCRETE			CY		11.8		11.8
0.6" Ø L.R. STRANDS	No.				28		28

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

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 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF SLAB SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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.

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.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS 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.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM OF THE 2'-0" UNITS.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS OF THE 2'-0" UNITS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

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SHEET 6 OF 7

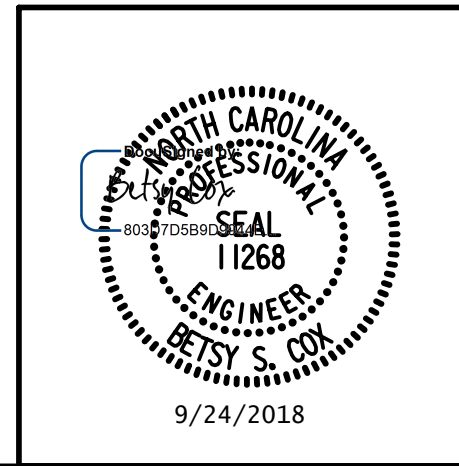
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 3'-0" X 1'-9" &
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNITS
 90° SKEW

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1			3			TOTAL SHEETS
2			4			24

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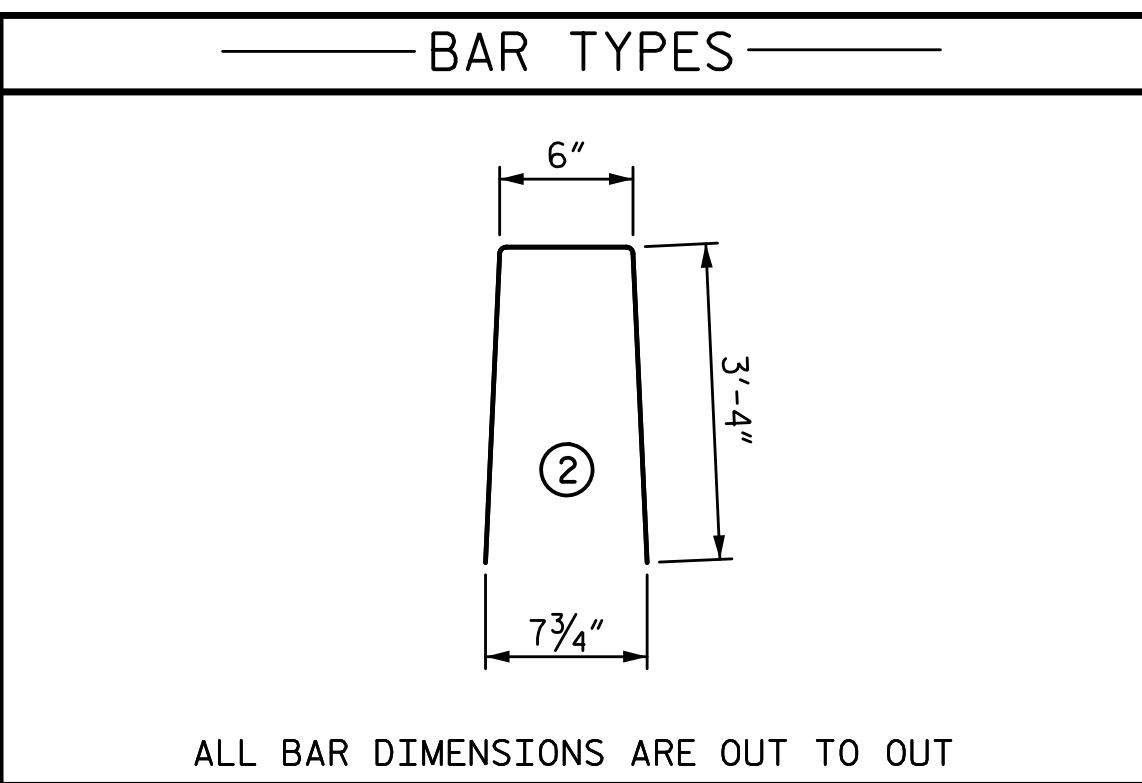
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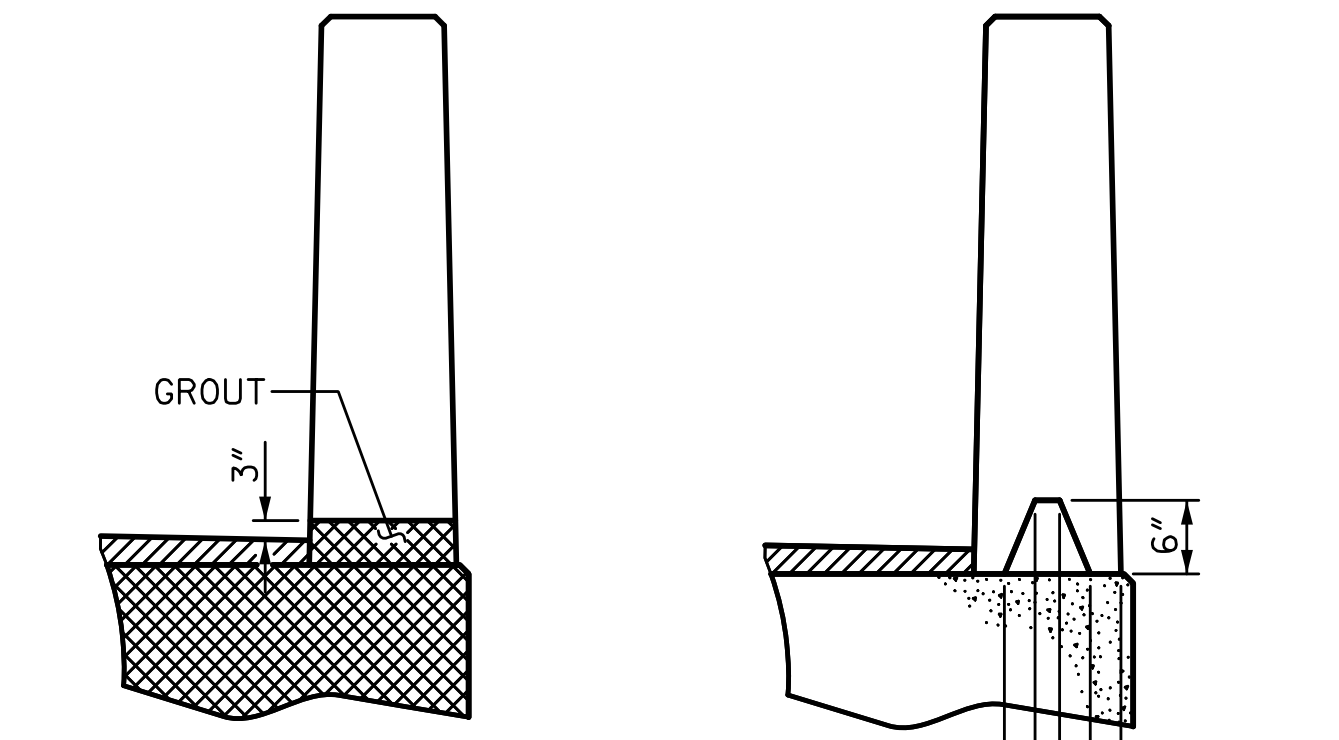
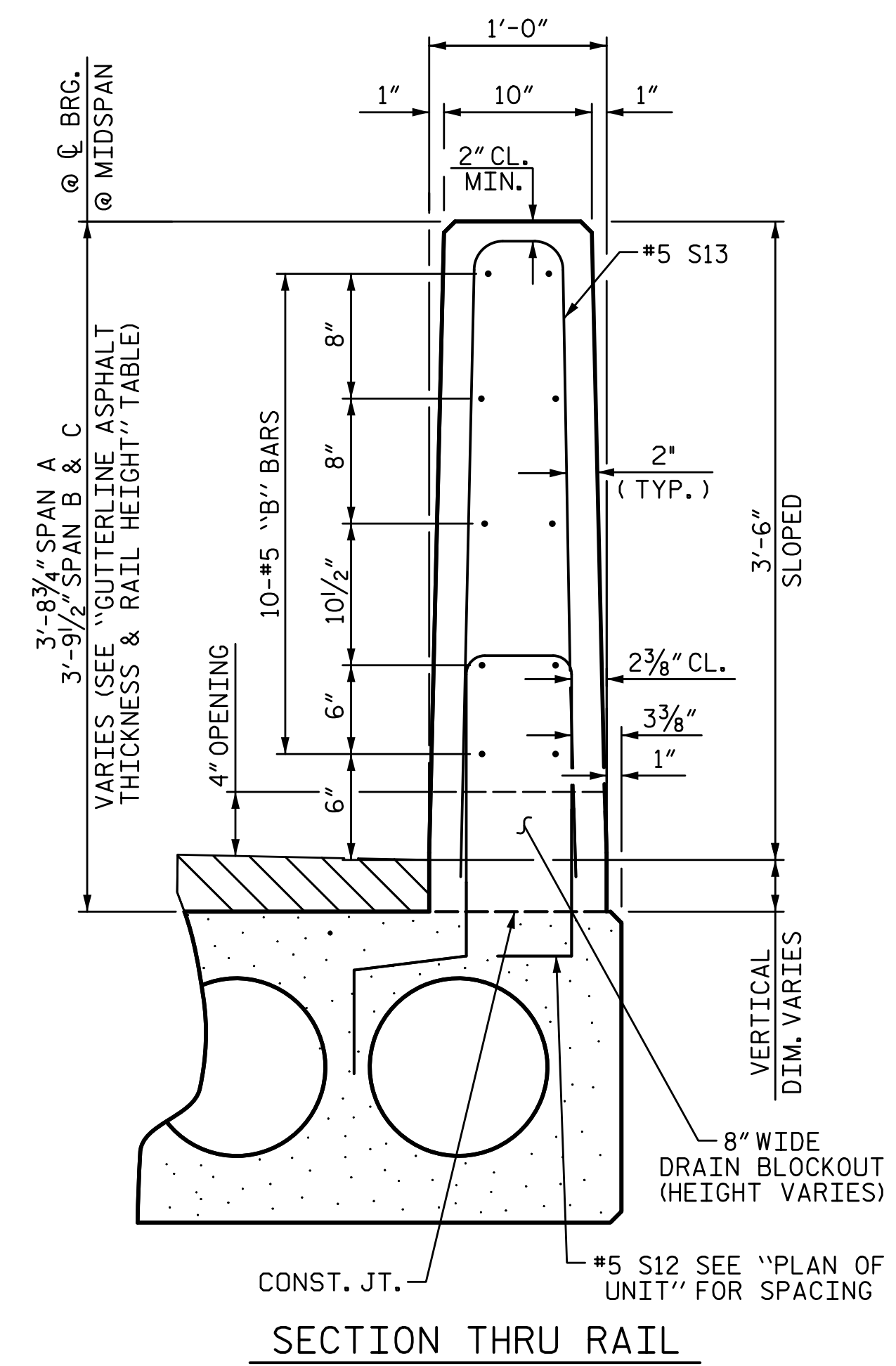


BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
50' UNIT						
*B13	40	40	#5	STR	24'-7"	1026
*S13	116	116	#5	2	7'-2"	867
*EPOXY COATED REINFORCING STEEL						LB 1893
CLASS AA CONCRETE						CY 12.8
TOTAL VERTICAL CONCRETE BARRIER RAIL						LF 100.25

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
65' UNIT						
*B24	60	60	#5	STR	21'-3"	1330
*S13	148	148	#5	2	7'-2"	1106
*EPOXY COATED REINFORCING STEEL						LB 2436
CLASS AA CONCRETE						CY 16.9
TOTAL VERTICAL CONCRETE BARRIER RAIL						LF 130.25

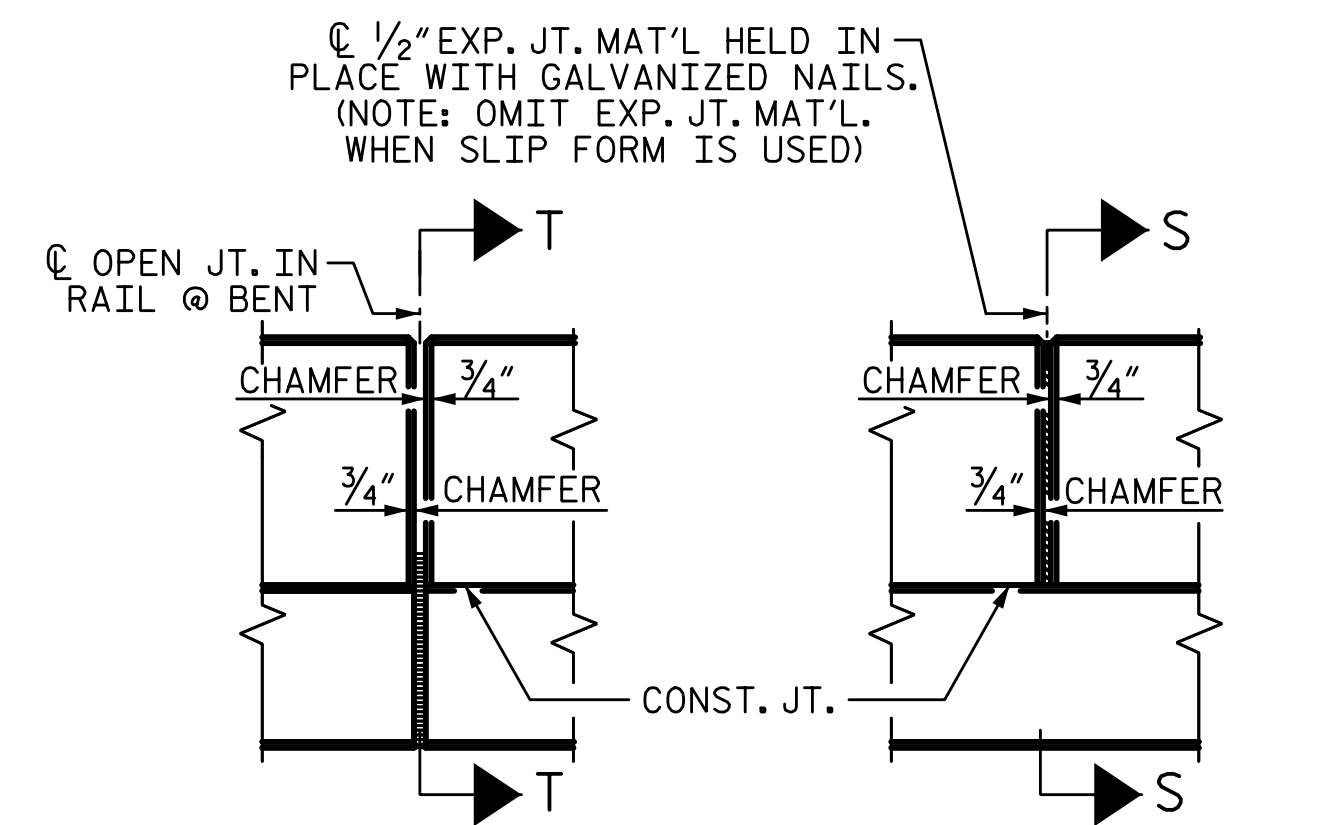
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
70' UNIT						
*B25	60	60	#5	STR	22'-11"	1434
*S13	158	158	#5	2	7'-2"	1181
*EPOXY COATED REINFORCING STEEL						LB 2615
CLASS AA CONCRETE						CY 18.1
TOTAL VERTICAL CONCRETE BARRIER RAIL						LF 140.25

NOTES:
 THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 4" X 8". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE CORED SLAB UNIT TO THE TOP OF THE DRAIN OPENING.
 APPLY EPOXY PROTECTIVE COATING TO EXTERIOR FACE OF THE EXTERIOR CORED SLAB UNITS THAT REQUIRE DRAINS IN THE BARRIER RAIL.

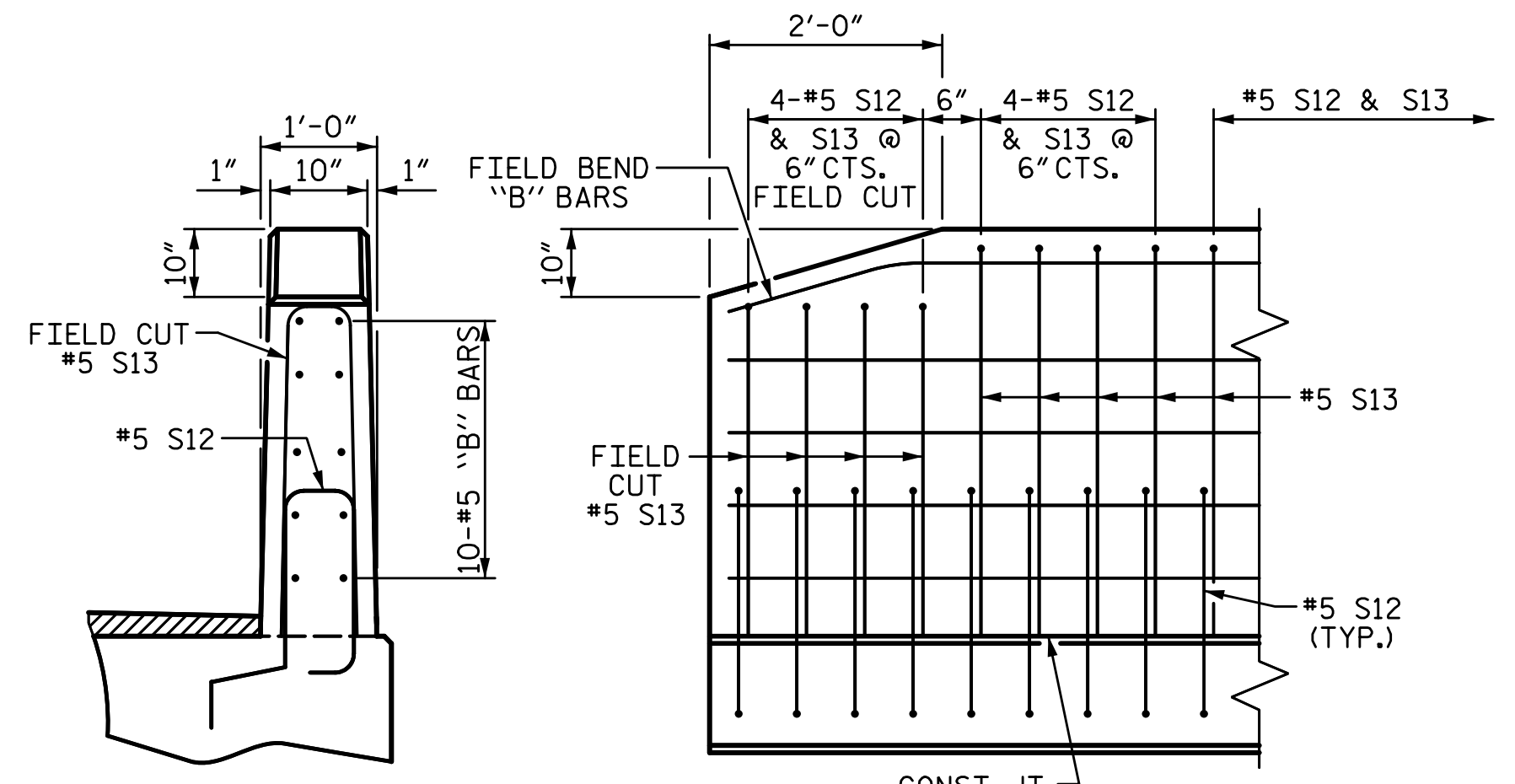


SECTION T-T
 AT OPEN JOINT AT BENT
 (THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)

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



ELEVATION AT EXPANSION JOINTS



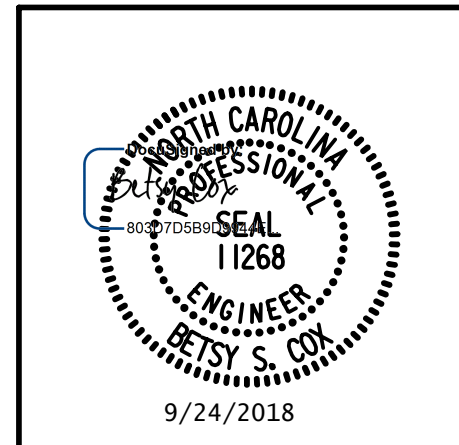
END VIEW SIDE VIEW

END OF RAIL DETAILS

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SHEET 7 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 3'-0" X 1'-9" &
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNITS
 90° SKEW



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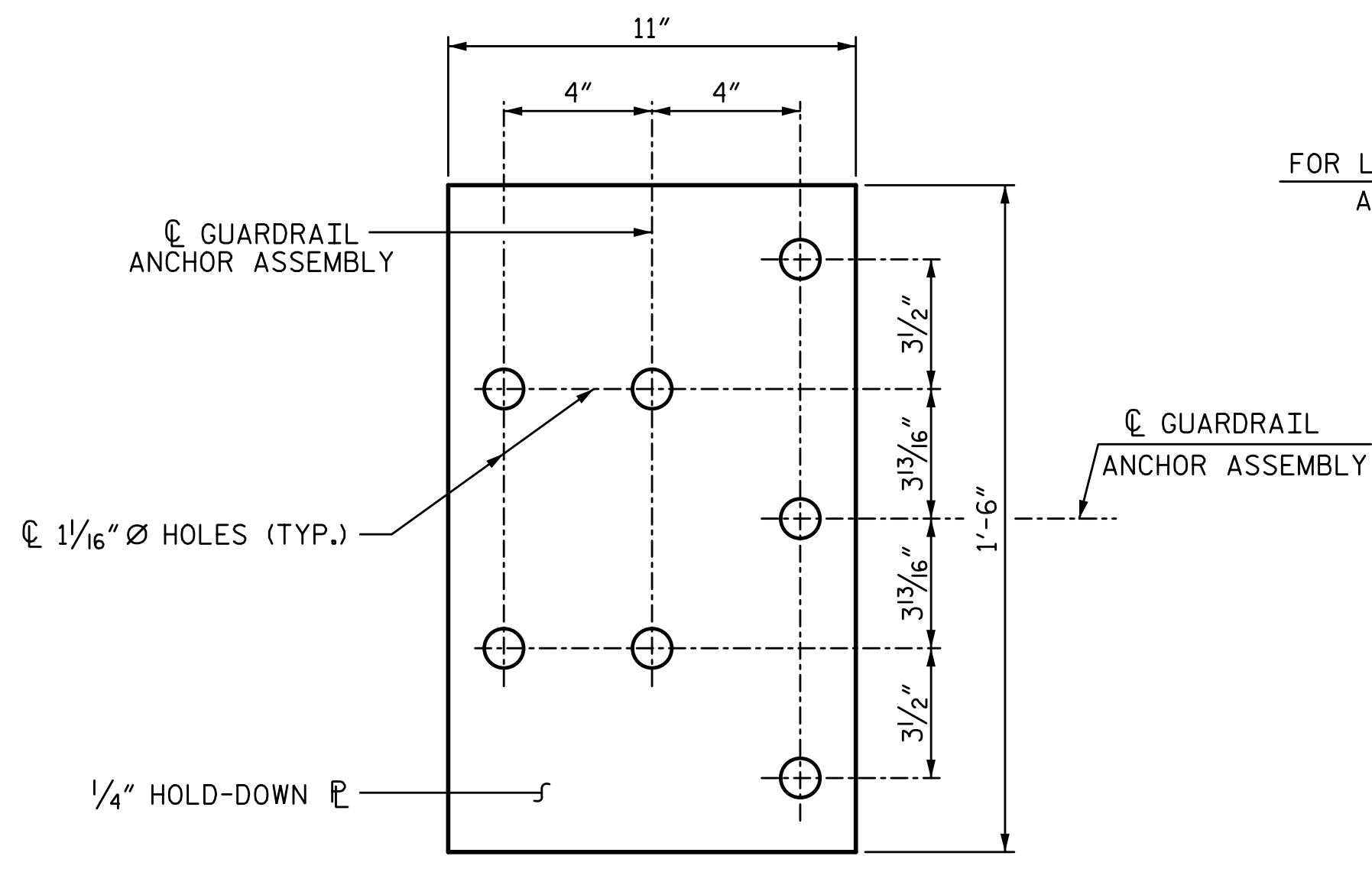
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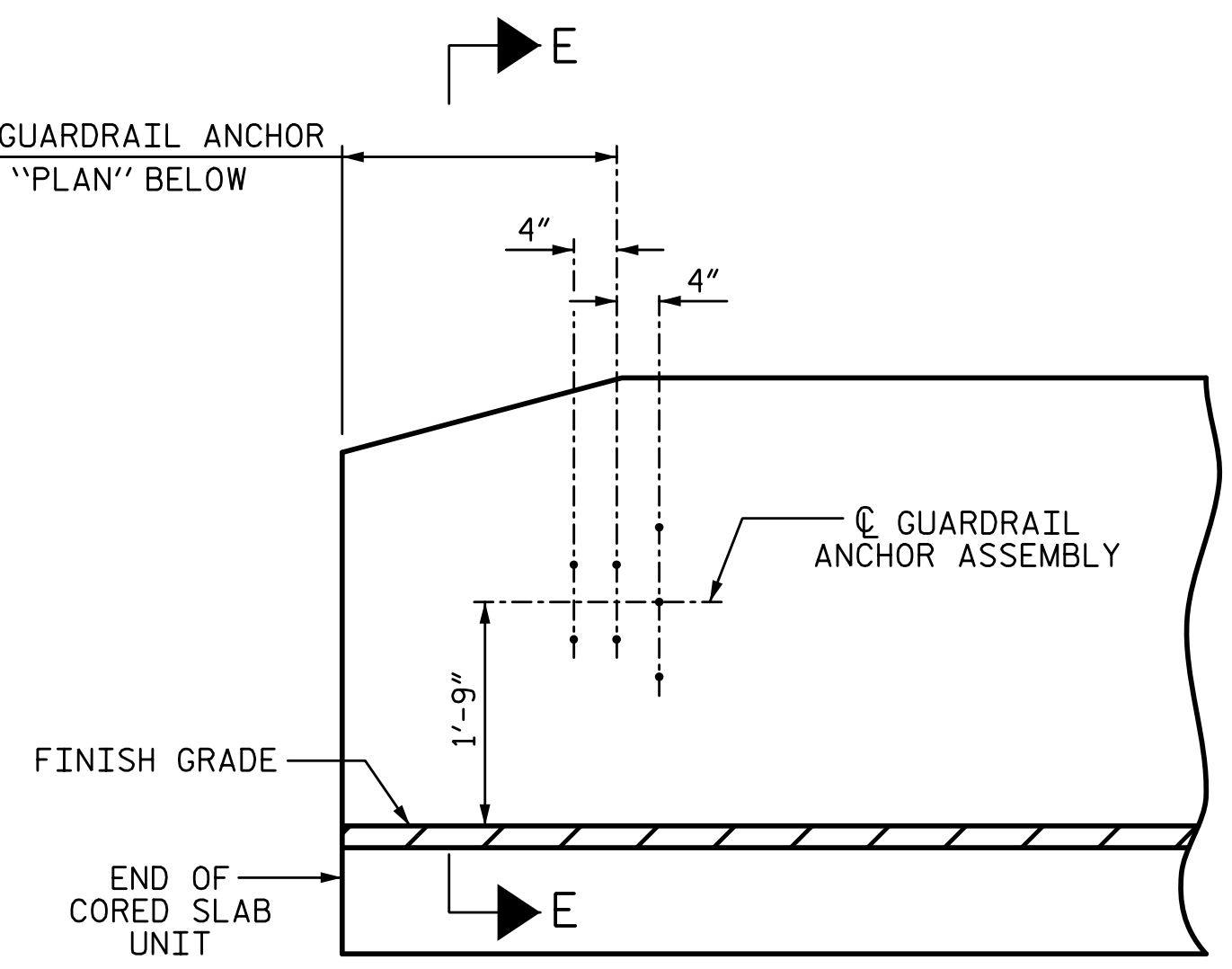
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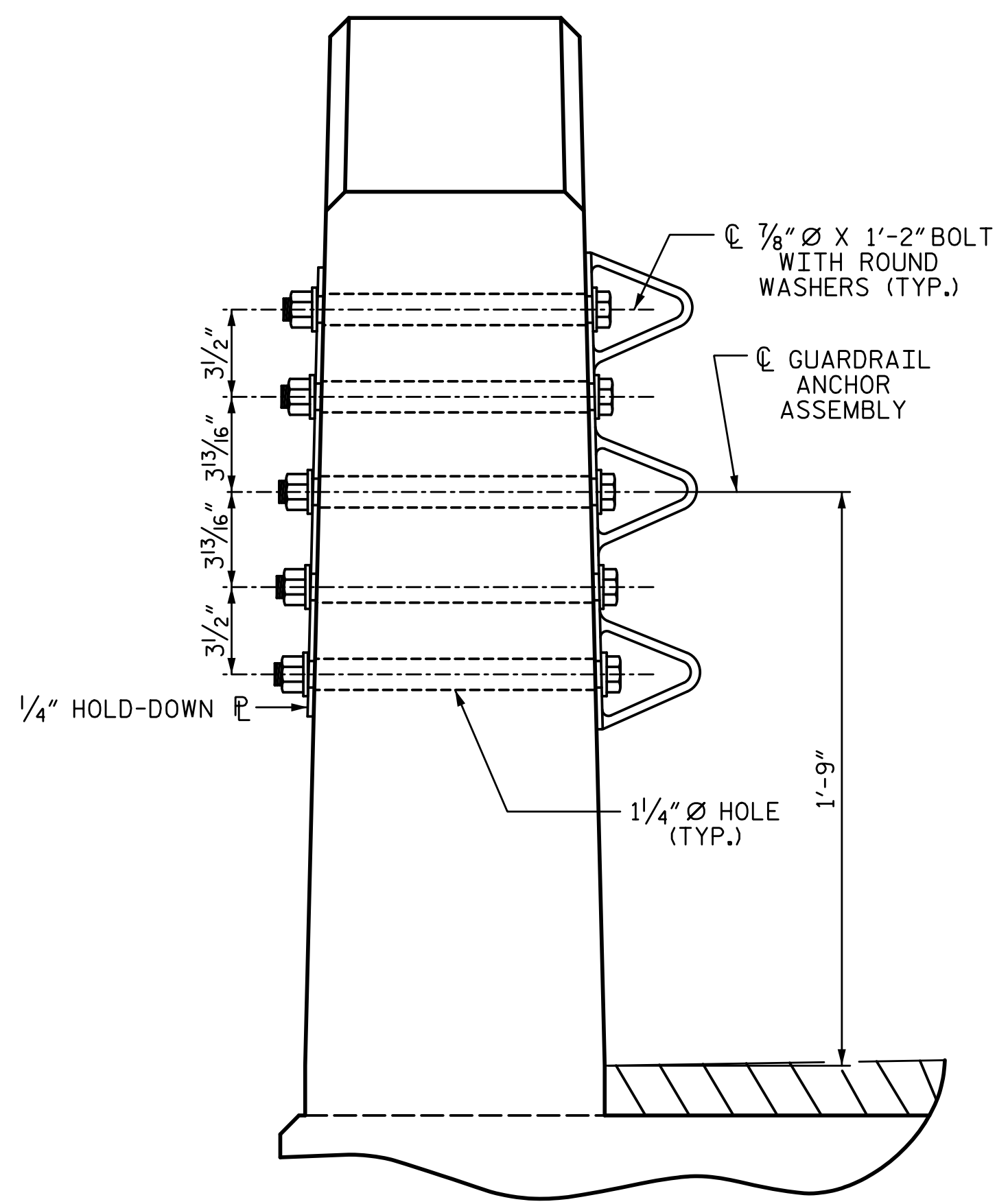


FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

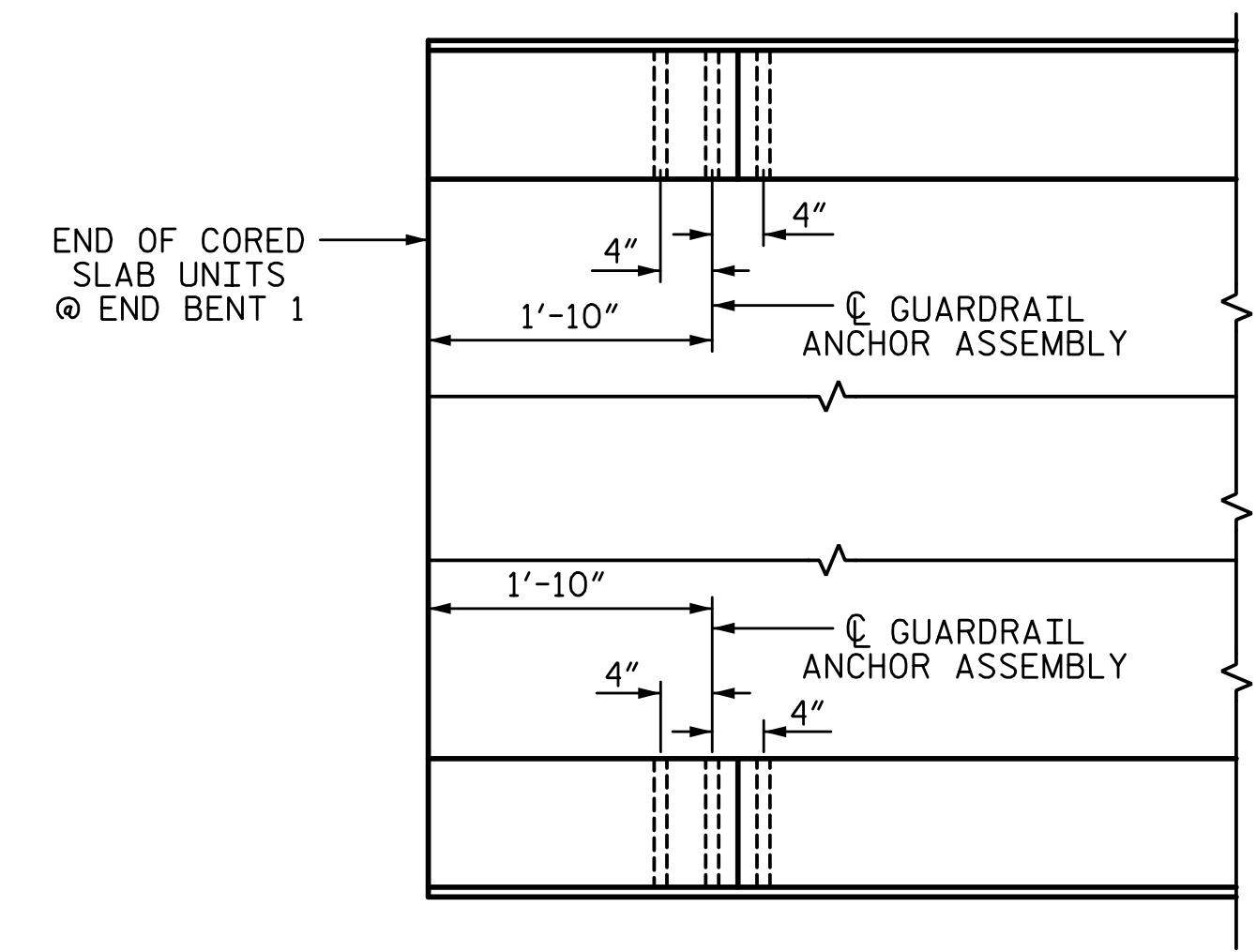


NOTES:

- 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 1/4" 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.



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

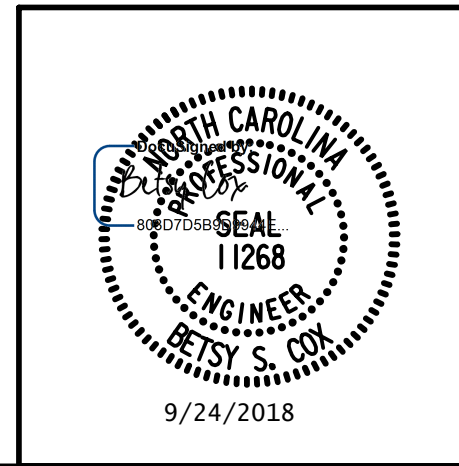
END BENT 1 SHOWN, END BENT 2 SIMILAR.



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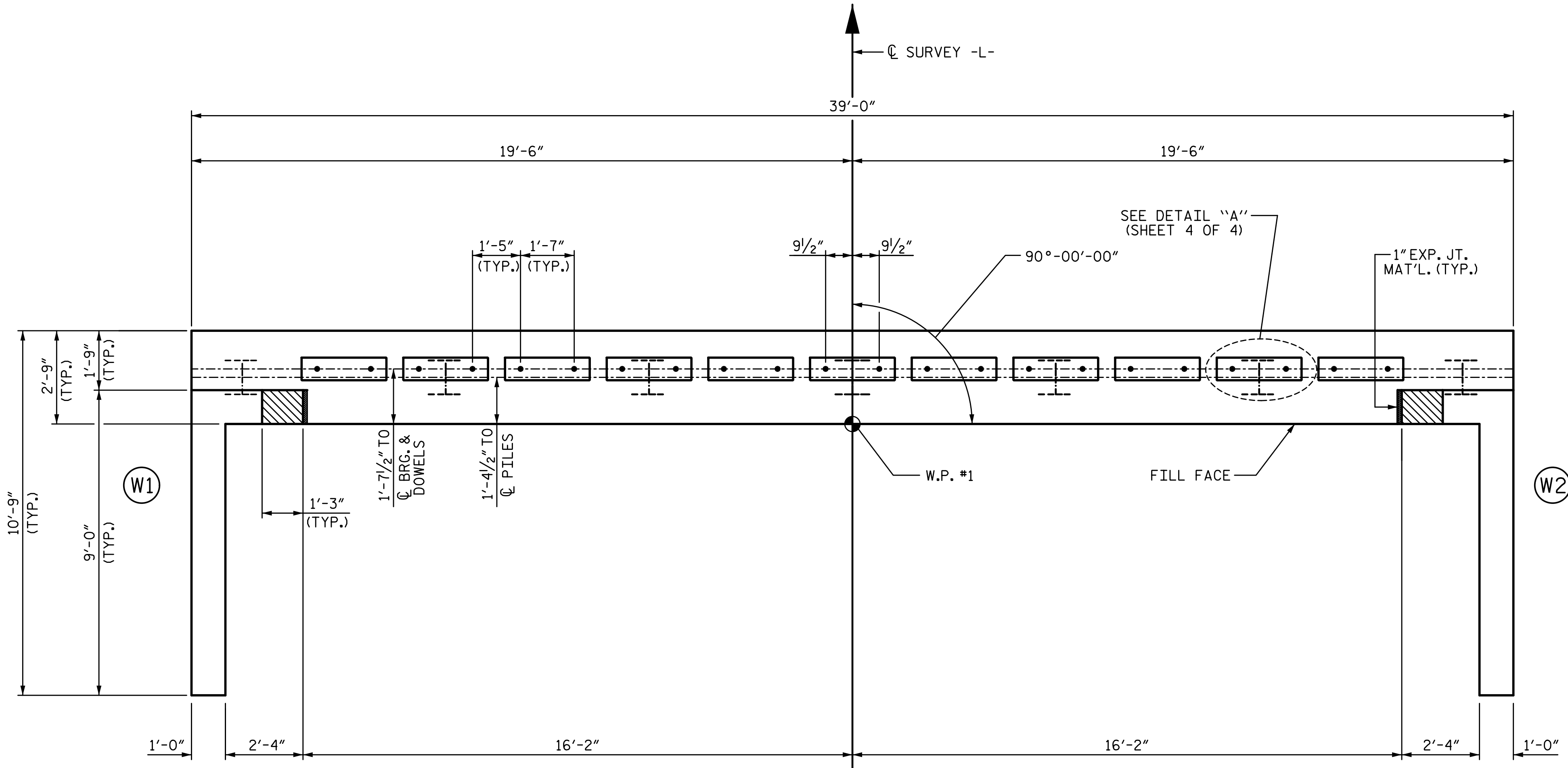


STATE OF NORTH CAROLINA
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 RALEIGH
 SUPERSTRUCTURE
**GUARDRAIL ANCHORAGE
 DETAILS FOR
 VERTICAL CONCRETE
 BARRIER RAIL**

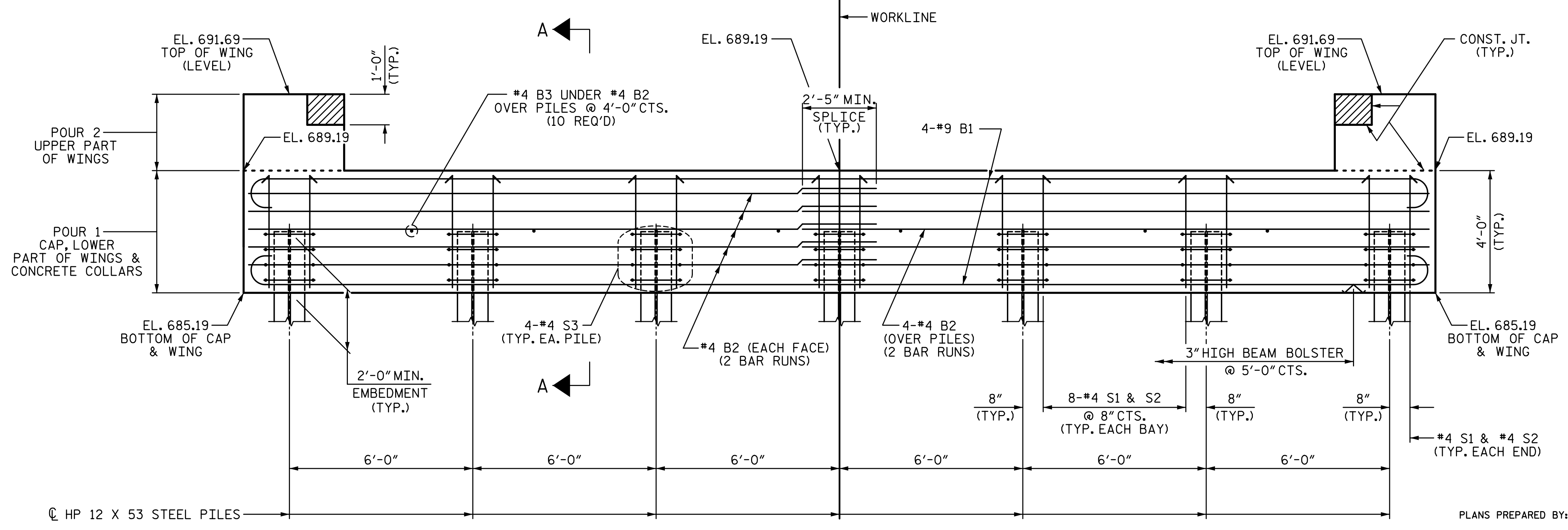
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PLAN



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.

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.

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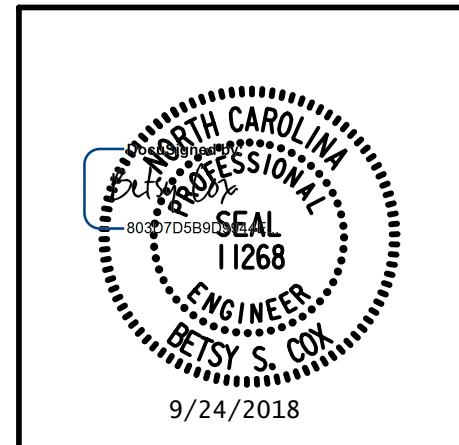
SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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 SUBSTRUCTURE

END BENT 1

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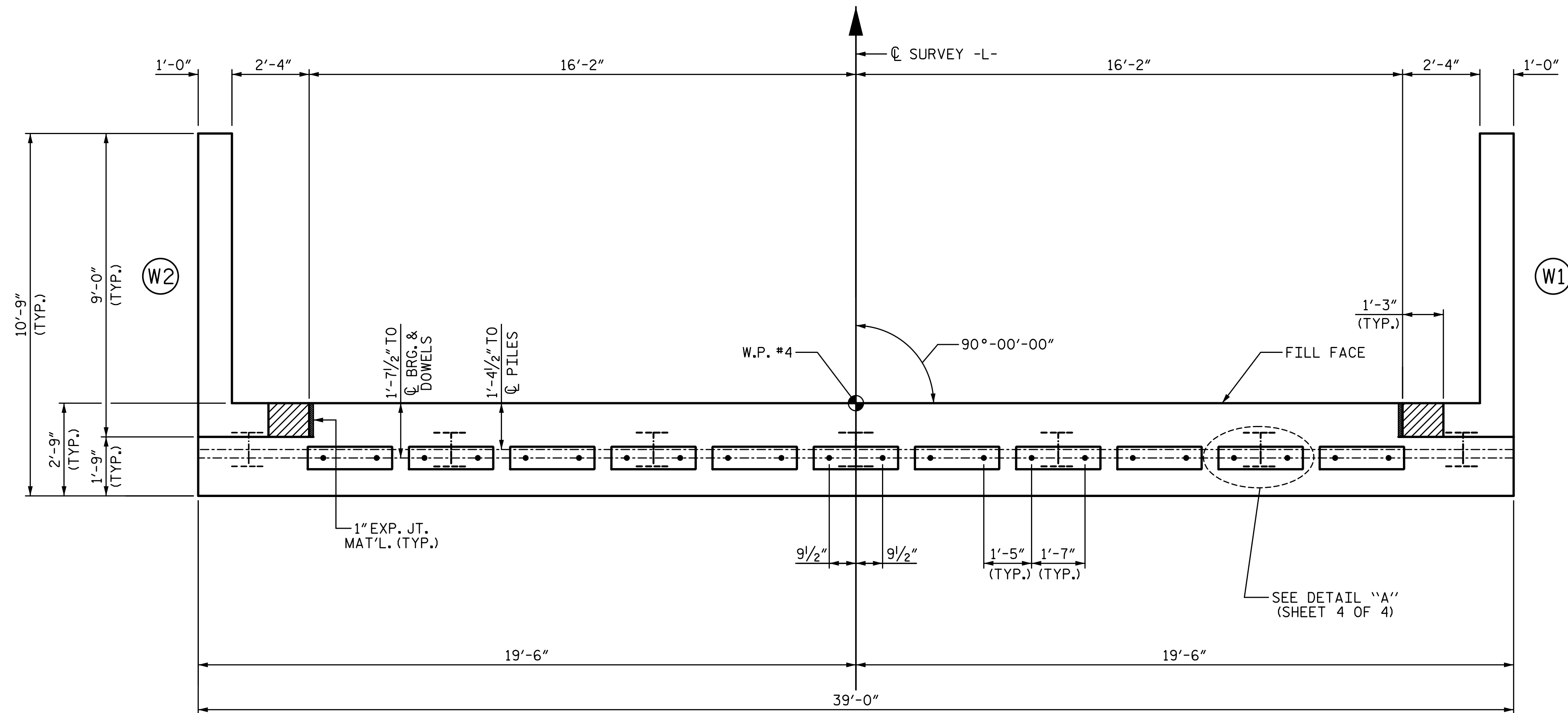


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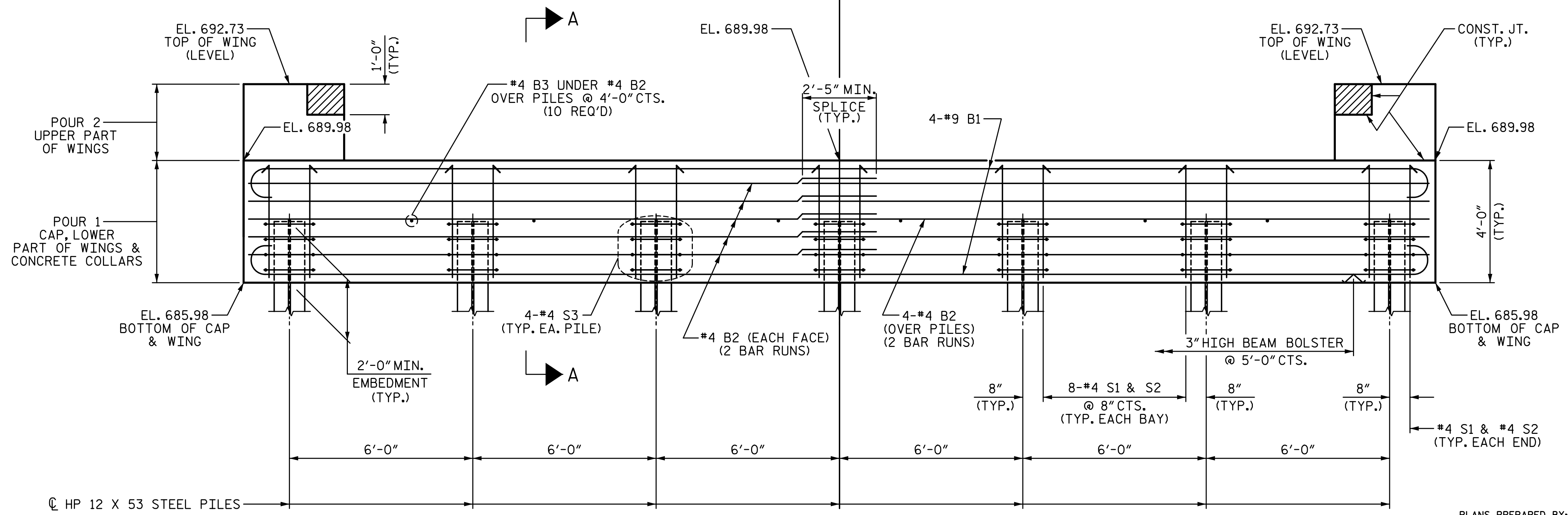
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PLAN



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.

NOTES:

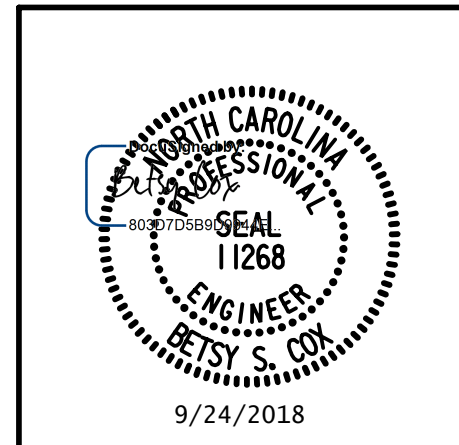
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
FOR WING DETAILS, SEE SHEET 3 OF 4.

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
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SHEET 2 OF 4

STATE OF NORTH CAROLINA
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END BENT 2

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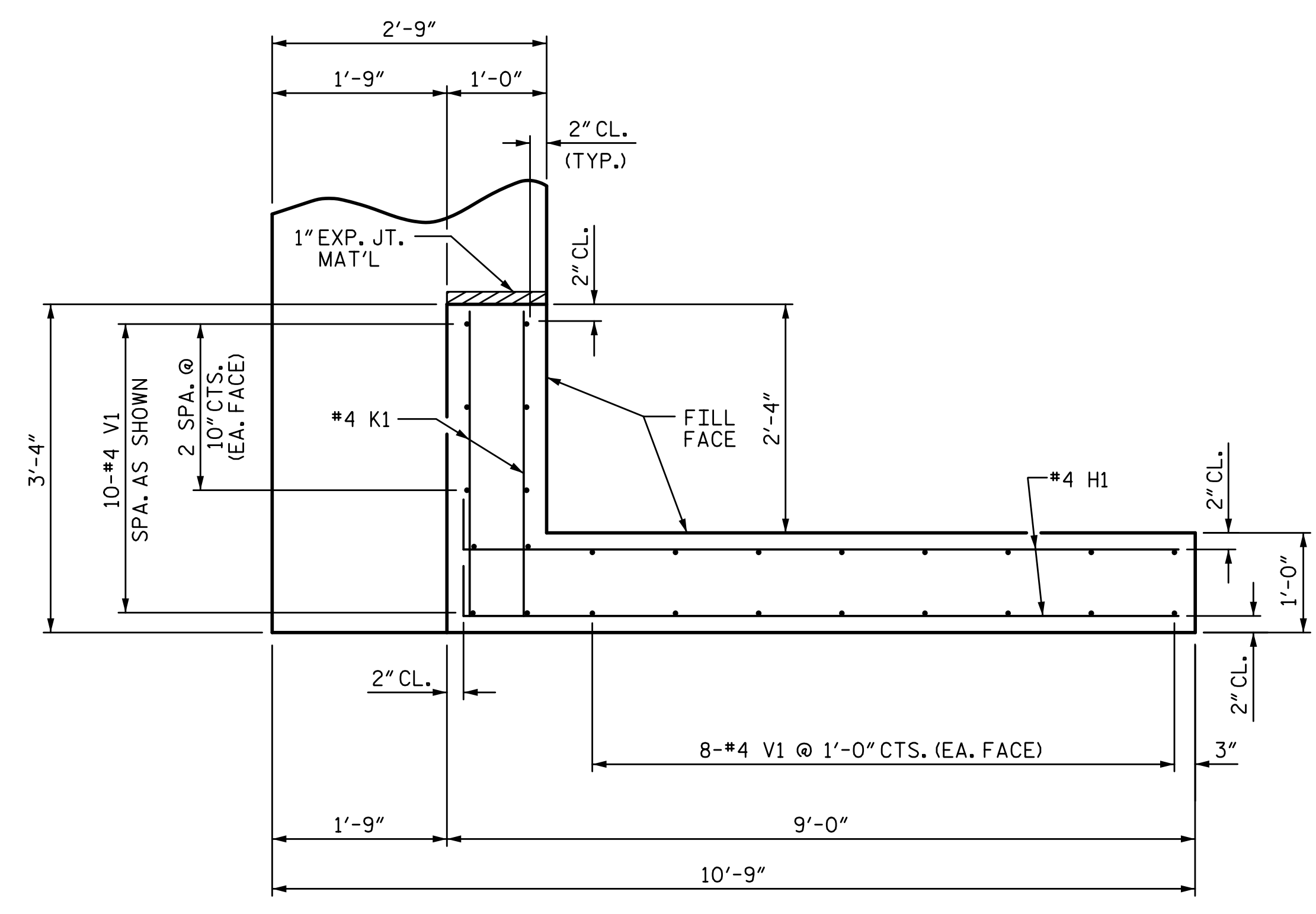


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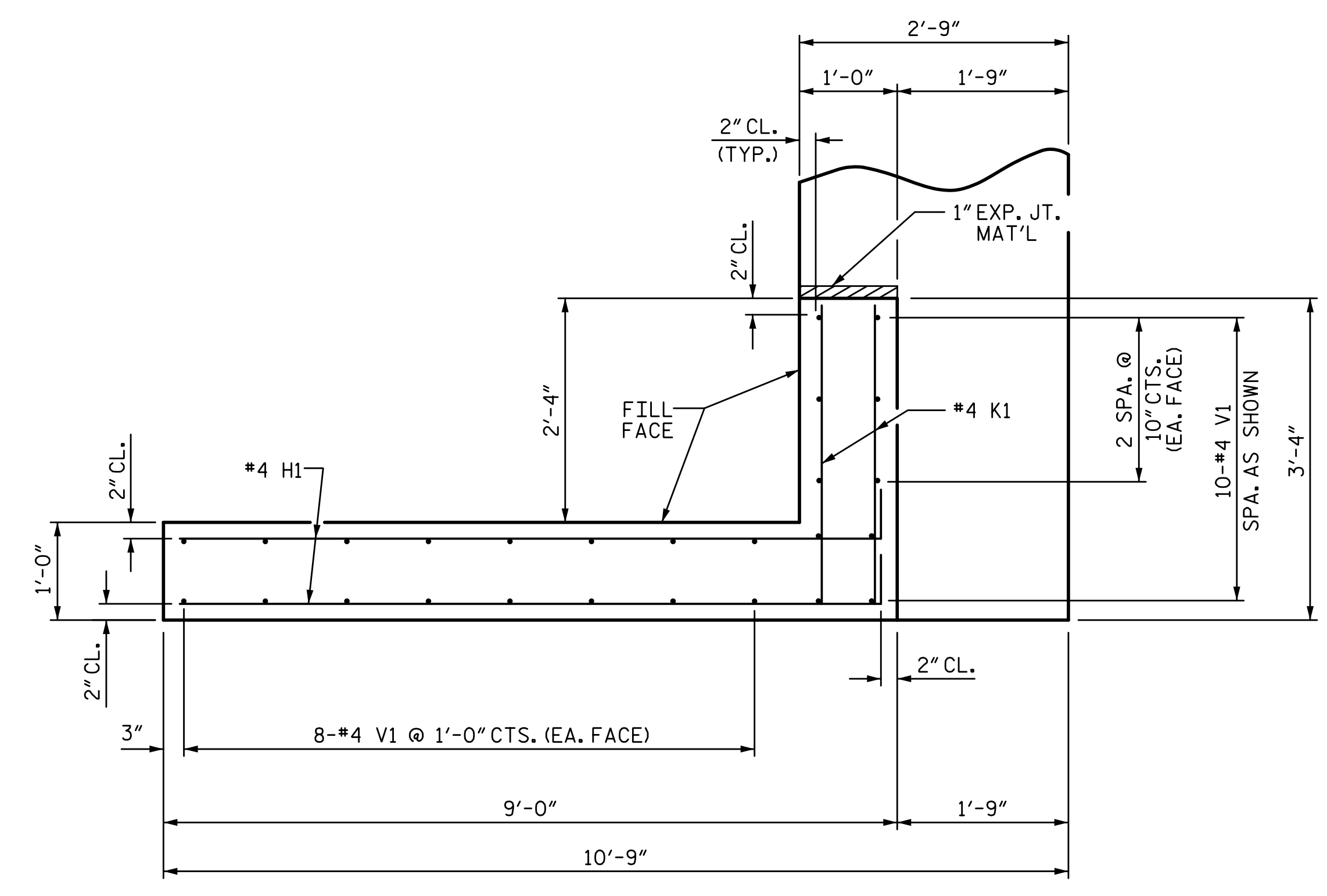
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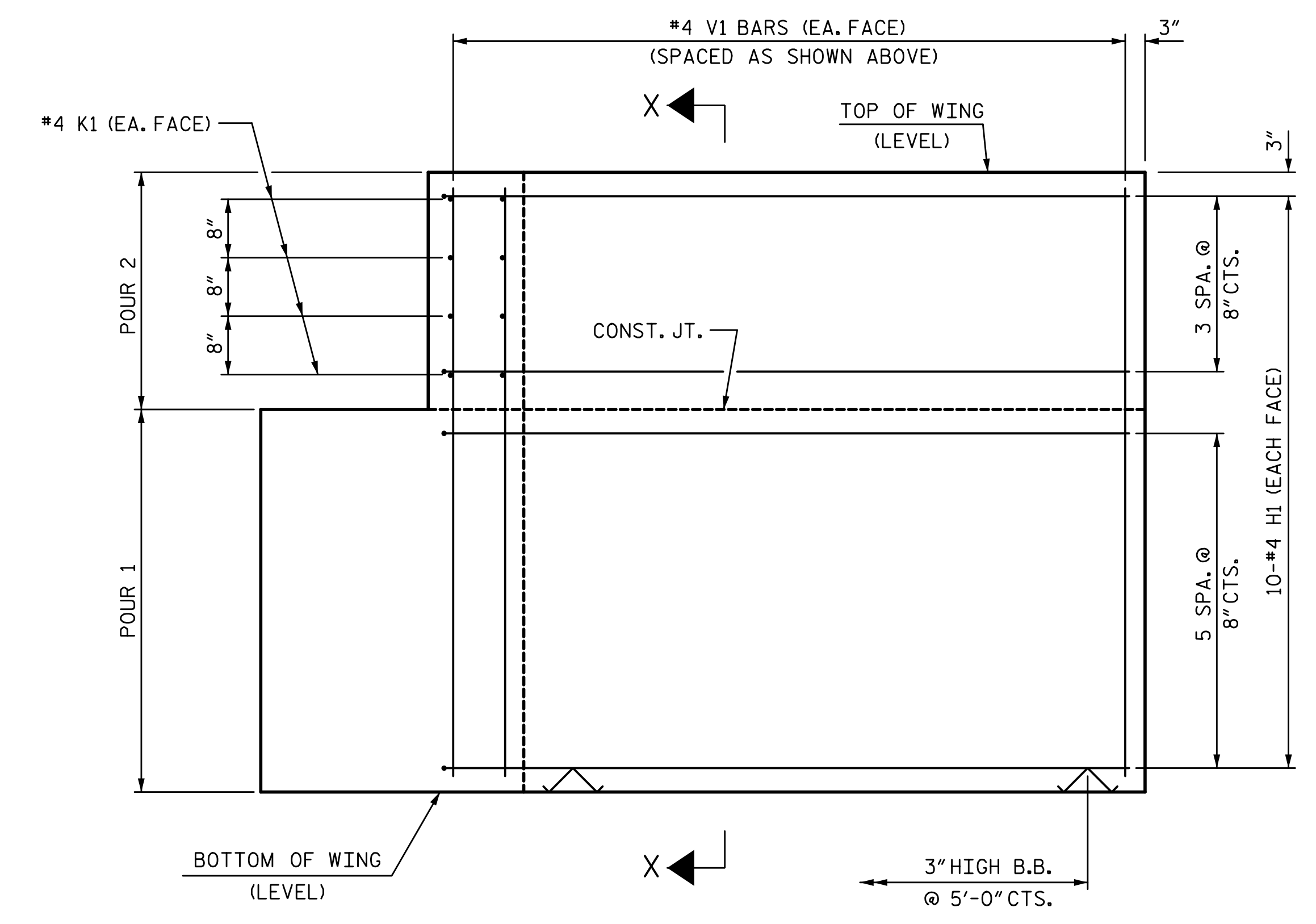
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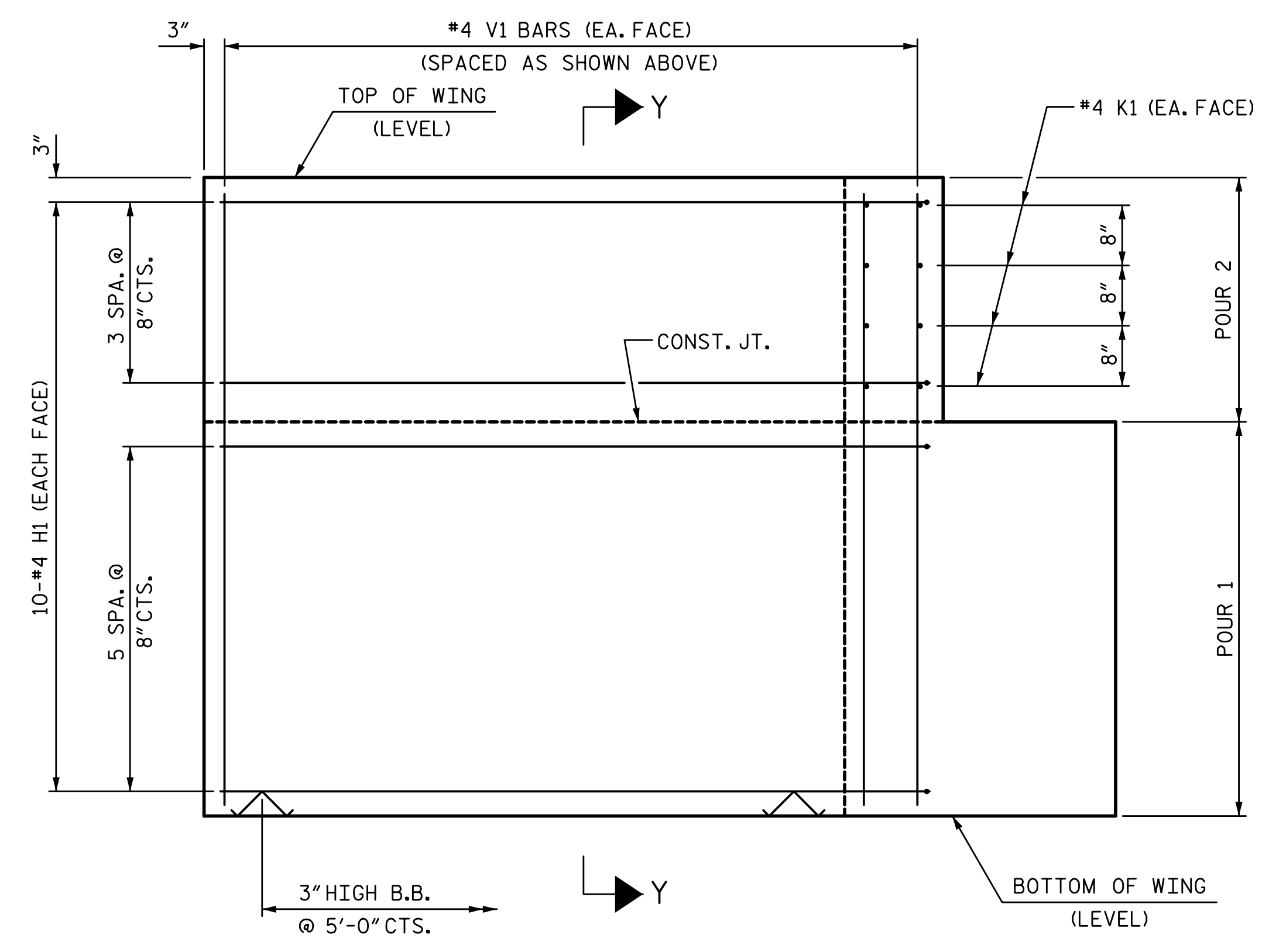
PLAN OF WING (W1)



PLAN OF WING (W2)

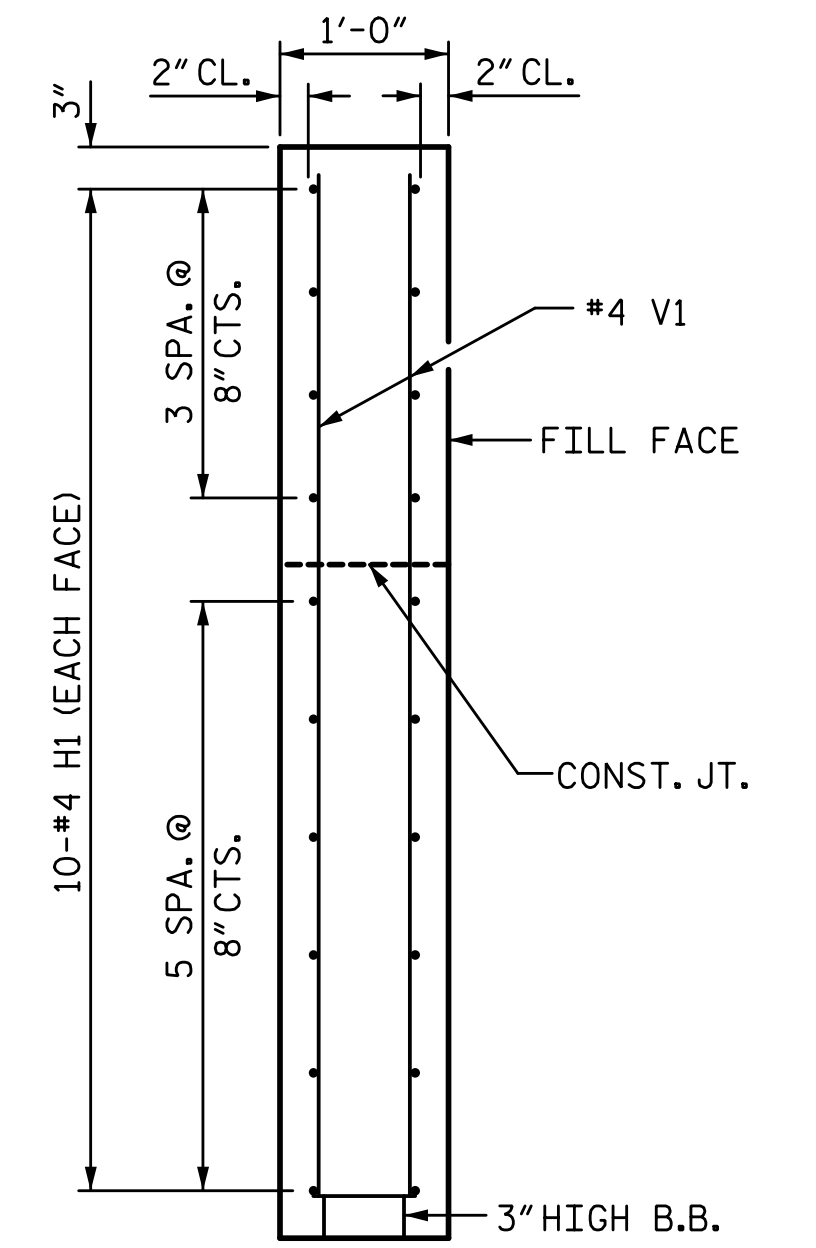


ELEVATION OF WING (W1)

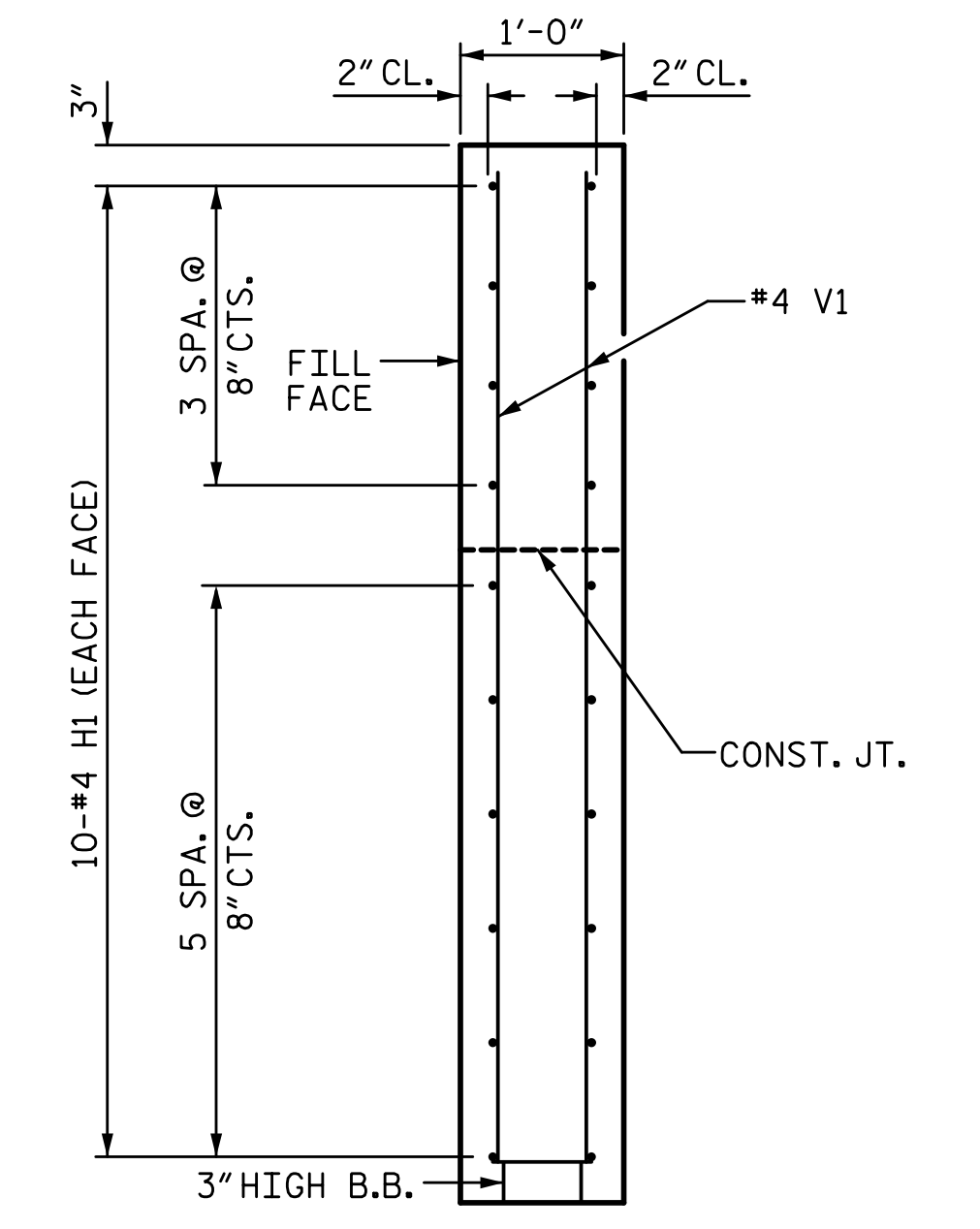


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X



SECTION Y-Y

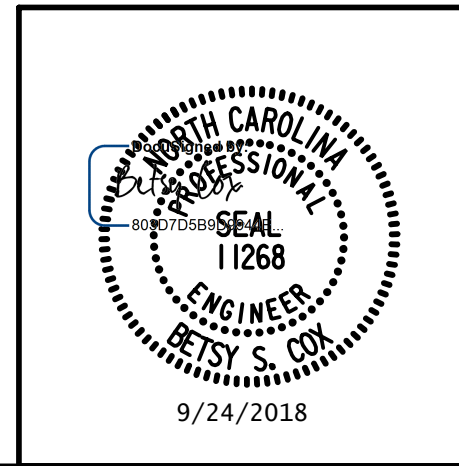
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 DAVIDSON COUNTY
 STATION: 15+99.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT
 WING DETAILS

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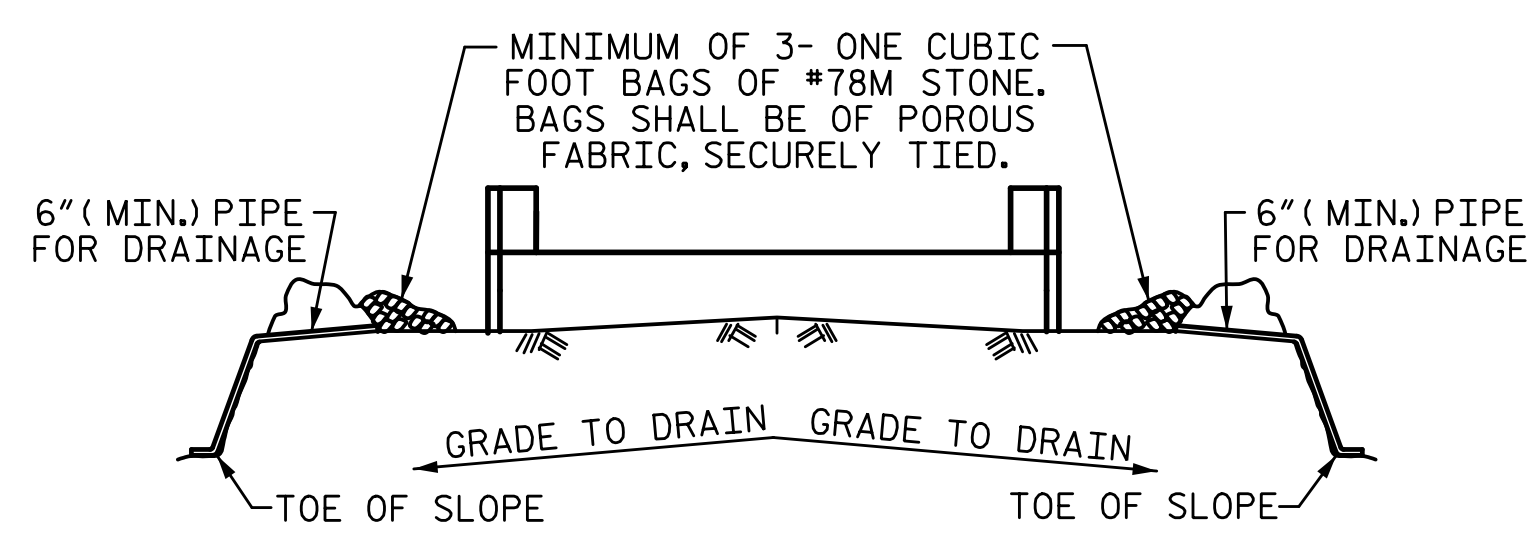
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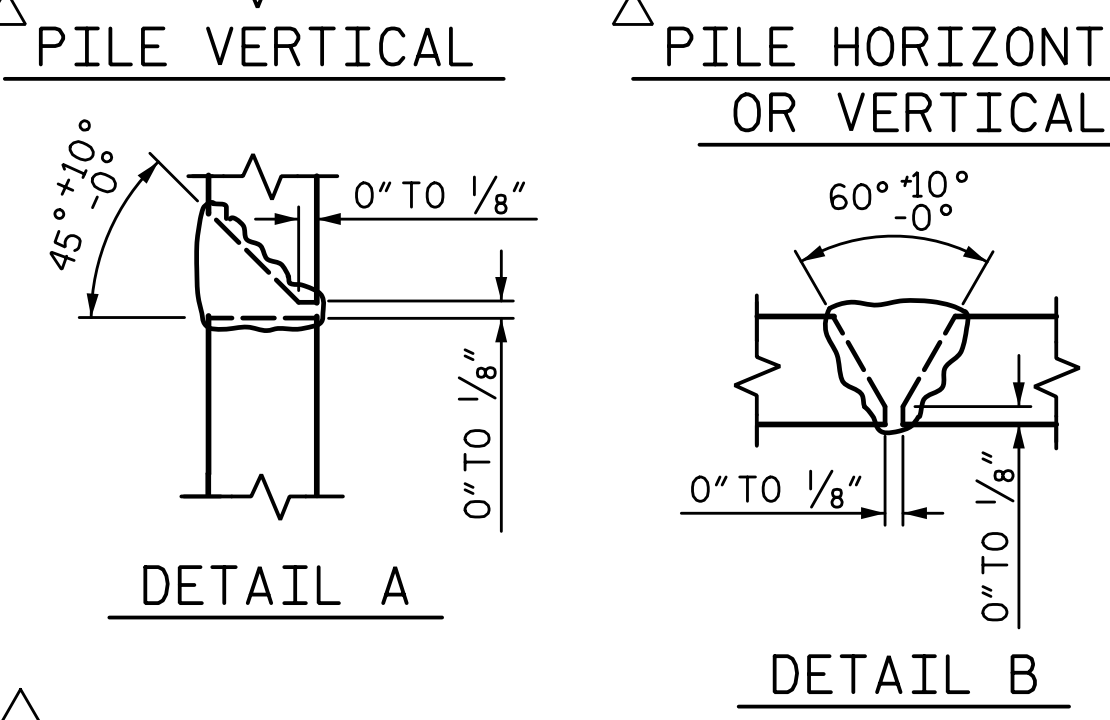
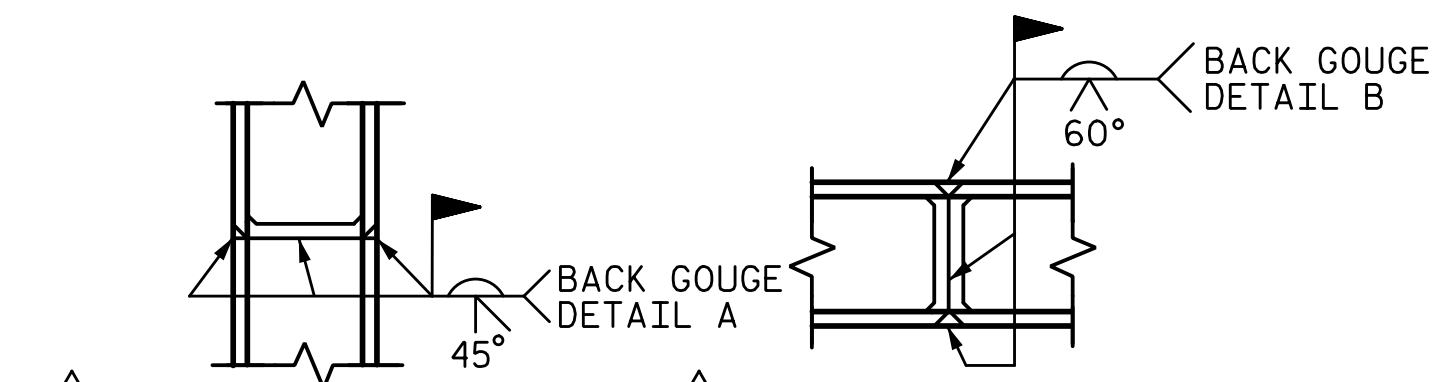


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

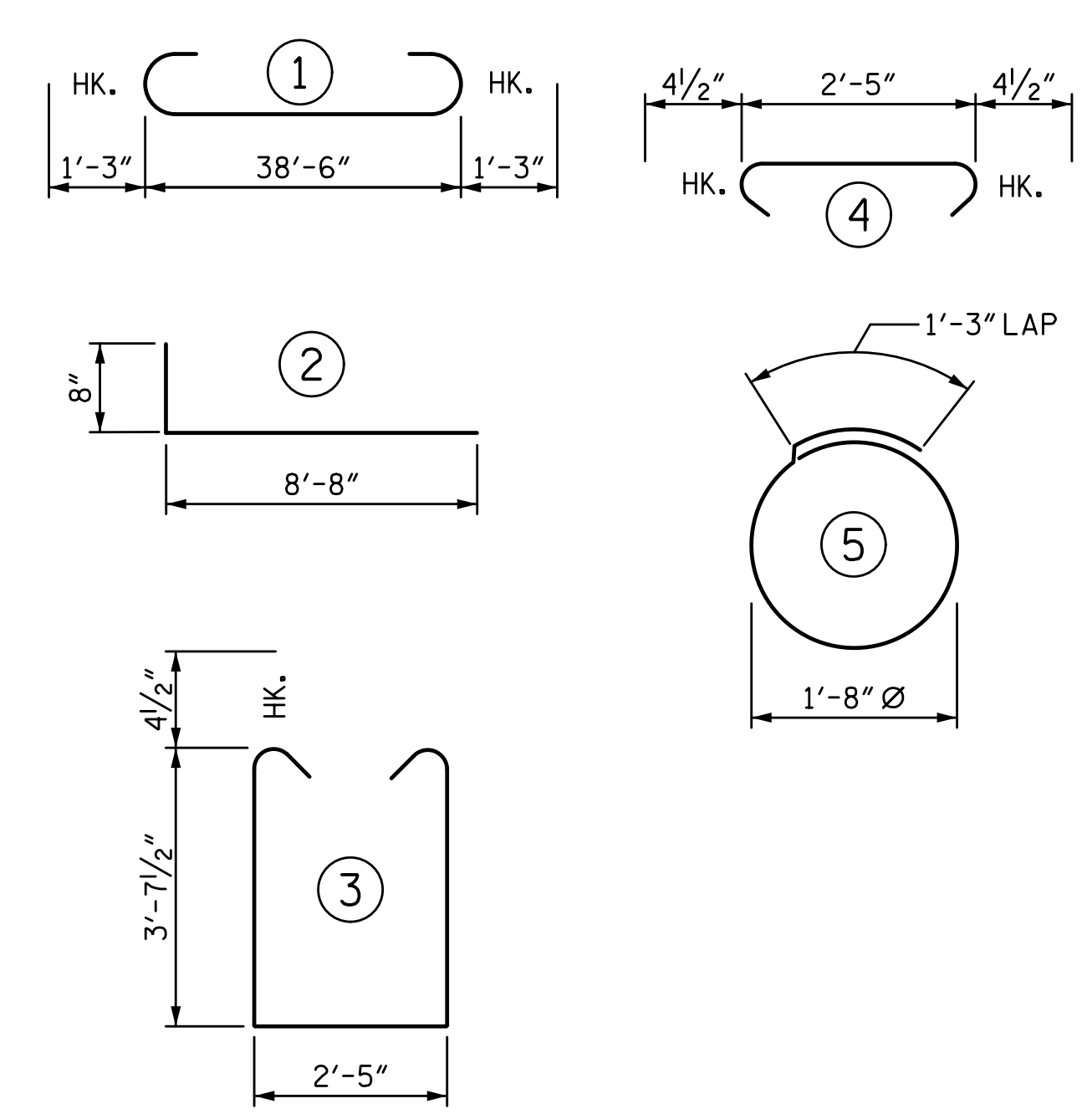
TEMPORARY DRAINAGE AT END BENT



POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT 1		END BENT 2	
HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES
NO: 7	LF = 105	NO: 7	LF = 140
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7		PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7	

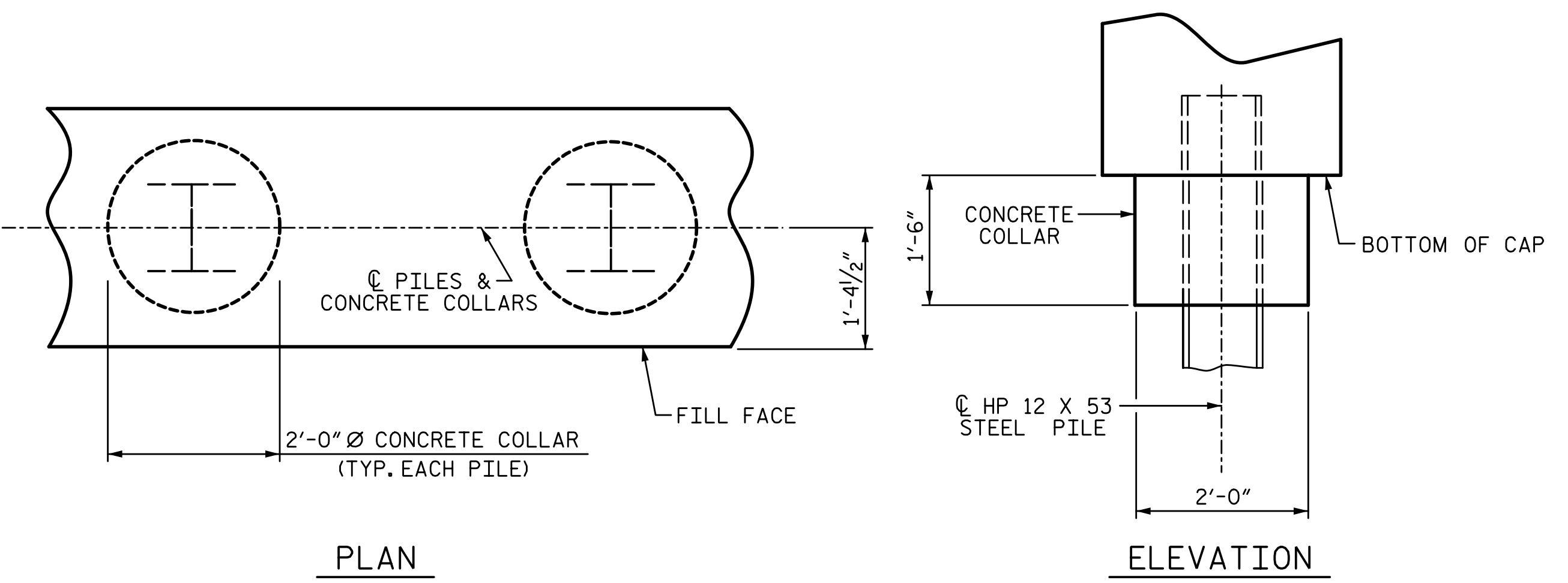
BILL OF MATERIAL FOR ONE END BENT

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	28	#4	STR	20'-7"	385
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	50	#4	3	10'-5"	348
S2	50	#4	4	3'-2"	106
S3	28	#4	5	6'-6"	122
V1	52	#4	STR	6'-2"	214

REINFORCING STEEL (FOR ONE END BENT) 2636 LB

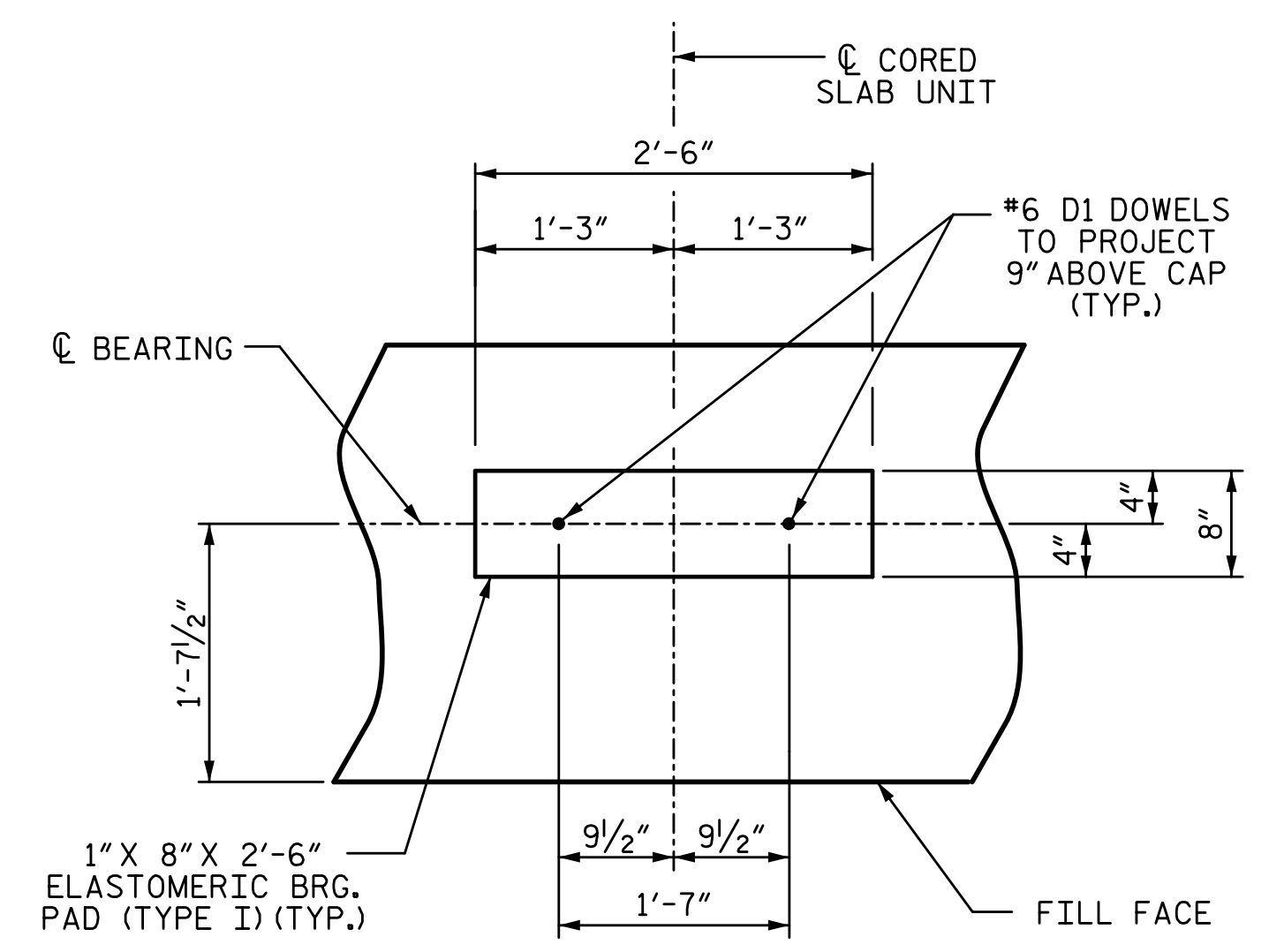
CLASS A CONCRETE BREAKDOWN FOR END BENT 1		
POUR 1	CAP, LOWER PART OF WINGS & COLLARS	19.5 CY
POUR 2	UPPER PART OF WINGS	2.1 CY
TOTAL CLASS A CONCRETE		21.6 CY

CLASS A CONCRETE BREAKDOWN FOR END BENT 2		
POUR 1	CAP, LOWER PART OF WINGS & COLLARS	19.5 CY
POUR 2	UPPER PART OF WINGS	2.3 CY
TOTAL CLASS A CONCRETE		21.8 CY



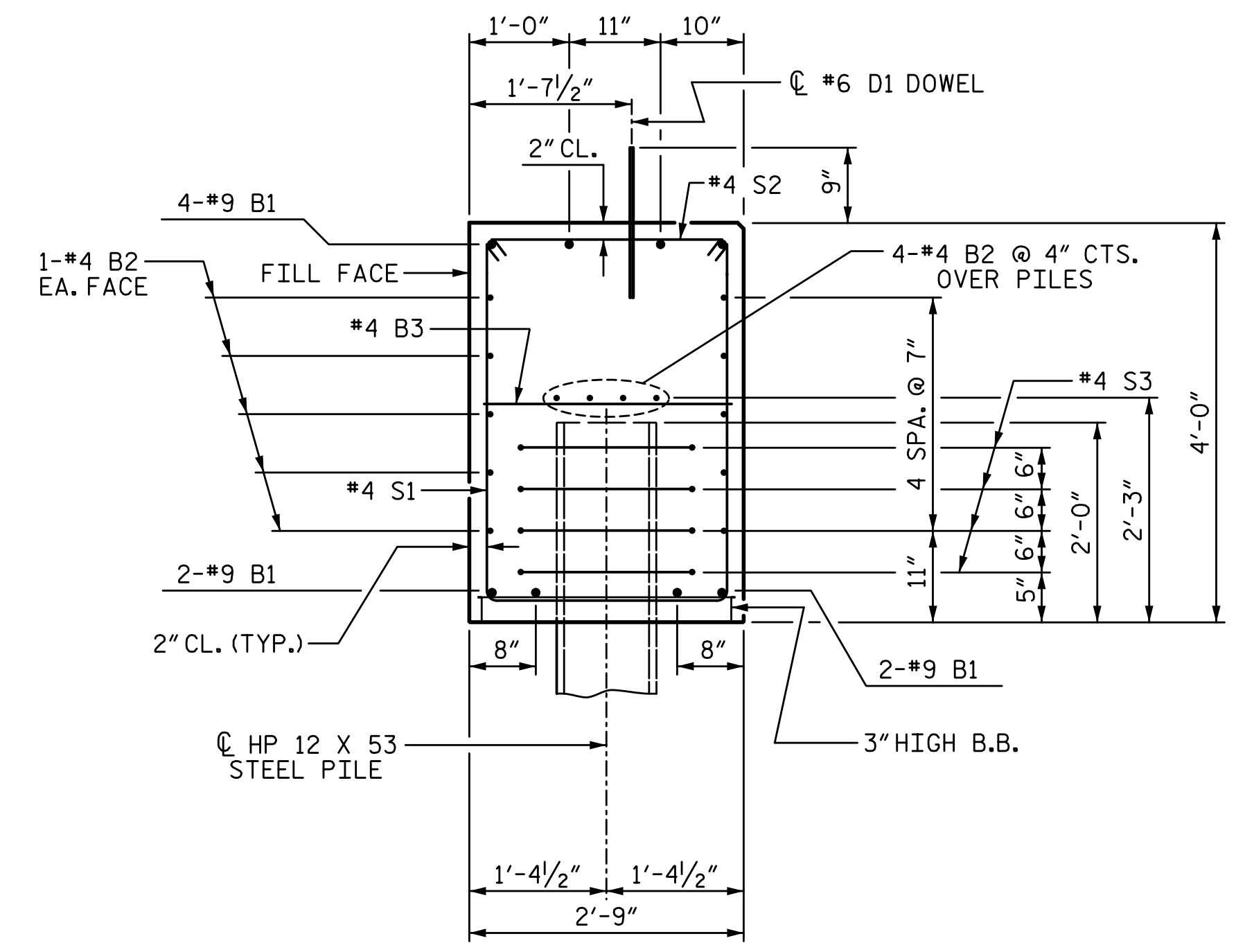
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



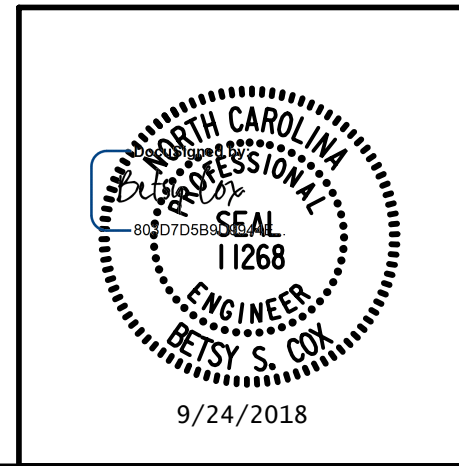
DETAIL "A"

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



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

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 STATION: 15+99.50 -L-
 SHEET 4 OF 4

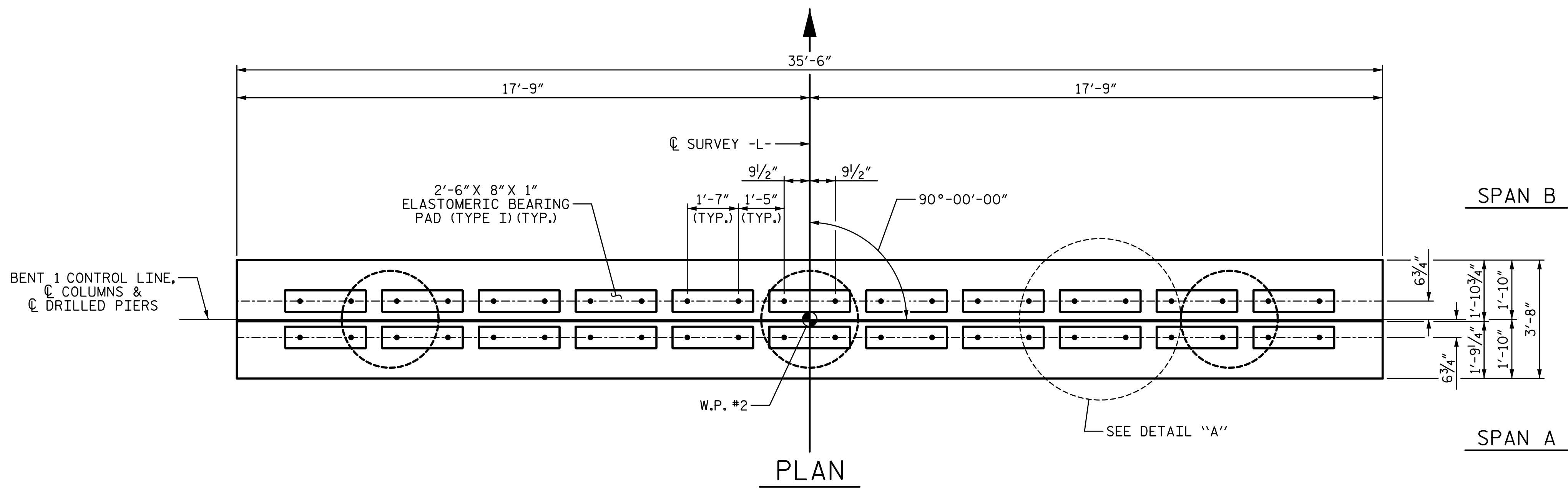
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE					
END BENT 1 & 2 DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-17				
TOTAL SHEETS 24				

DRAWN BY: S.D. COOPER	DATE: 9-18
CHECKED BY: B.S. COX	DATE: 9-18
DESIGN ENGINEER OF RECORD: B.S. COX	DATE: 9-18

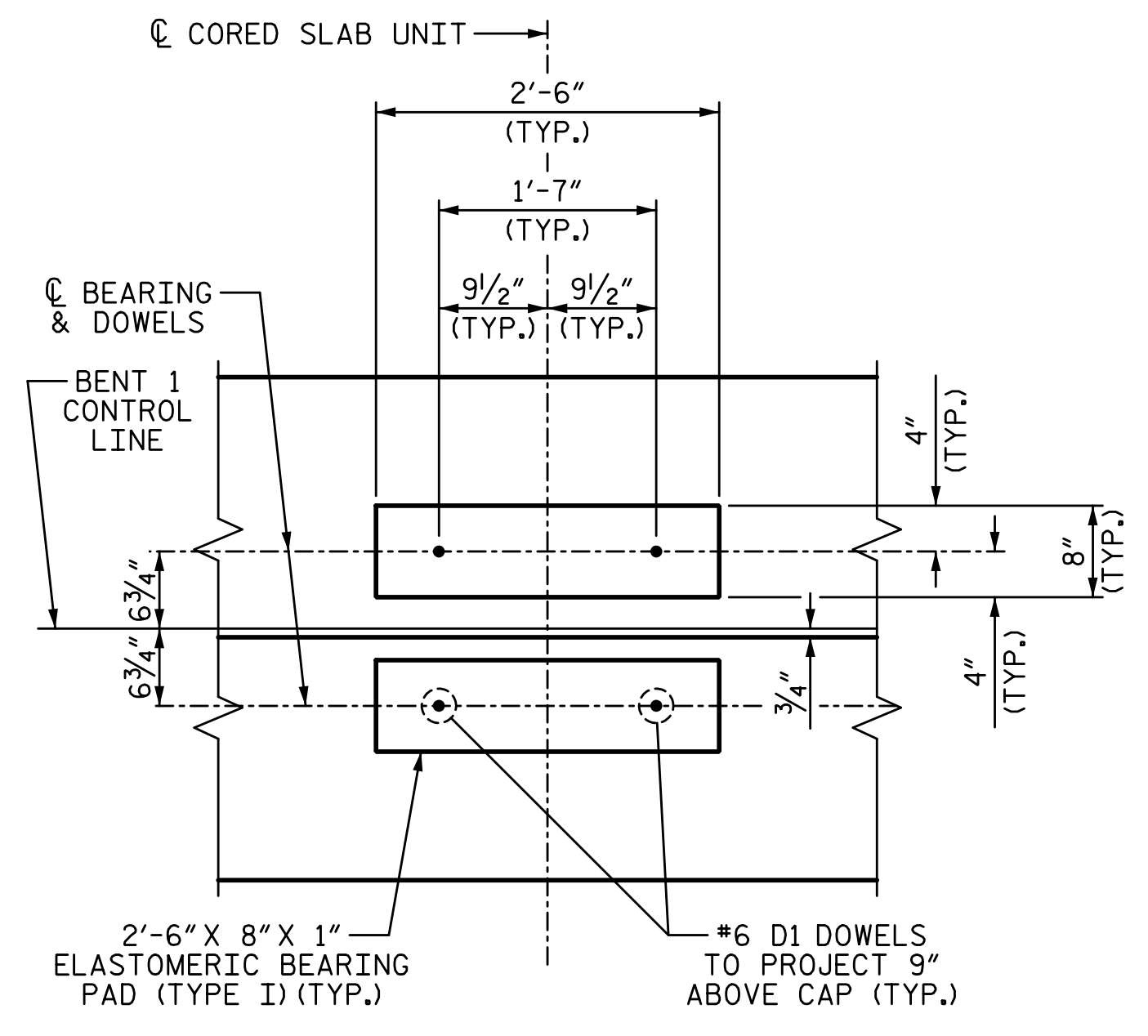
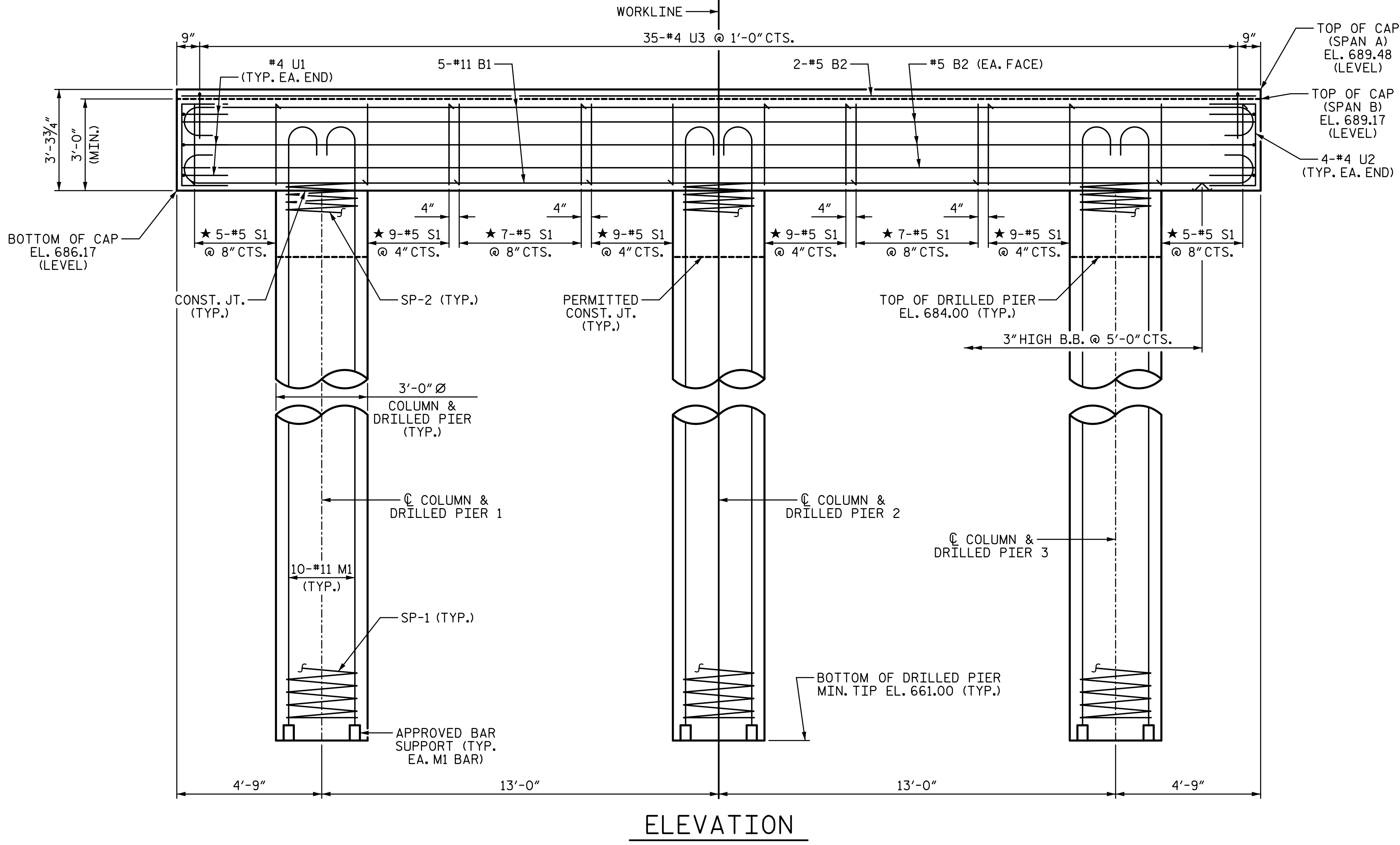
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NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."
- ★ INVERT ALTERNATE STIRRUPS.
- THE LOCATION OF THE PERMITTED CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE PERMITTED CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE PERMITTED CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
- SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.



DETAIL "A"
(DIMENSIONS ARE TYPICAL EACH BEARING)

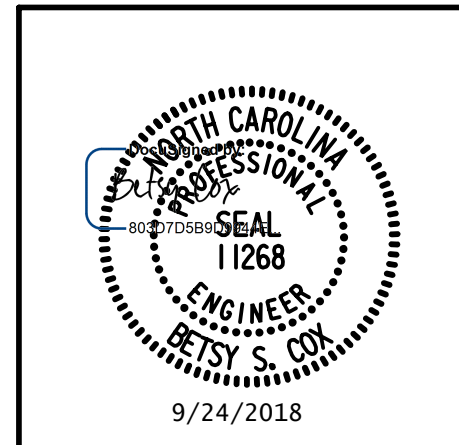
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DAVIDSON COUNTY
 STATION: 15+99.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENT 1

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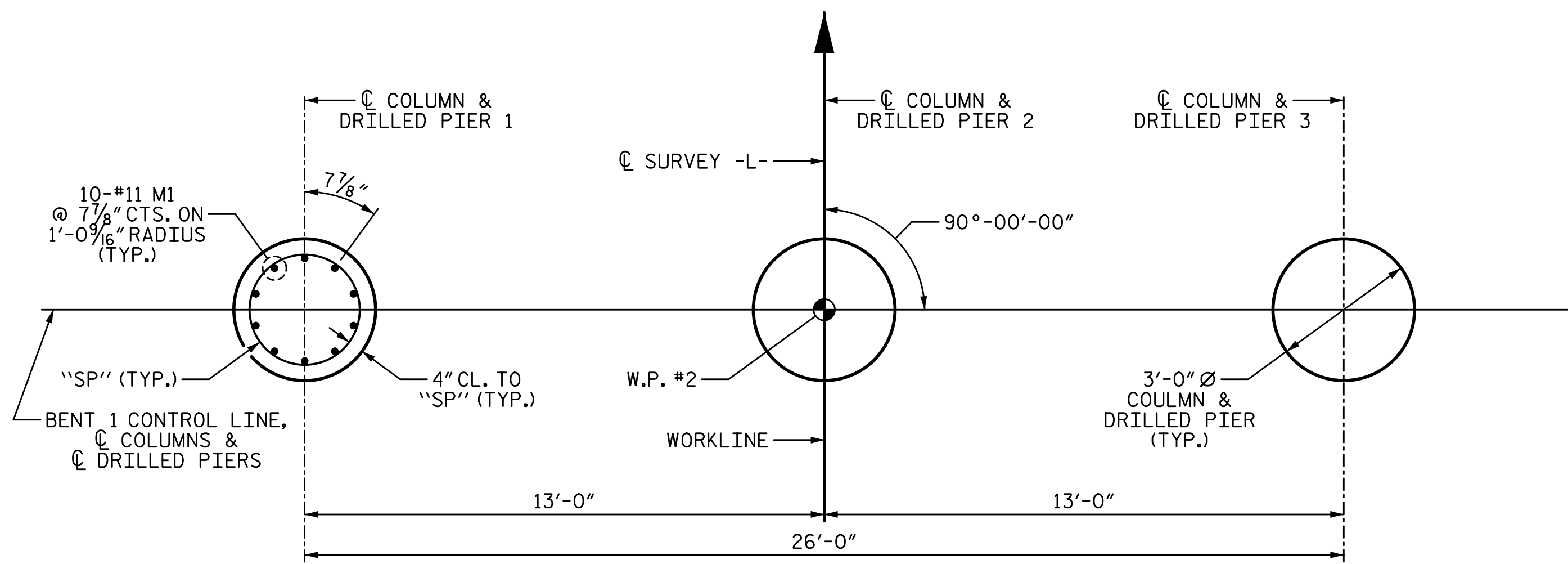
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			24

DRAWN BY: S.D. COOPER DATE: 9-18
 CHECKED BY: B.S. COX DATE: 9-18
 DESIGN ENGINEER OF RECORD: B.S. COX DATE: 9-18

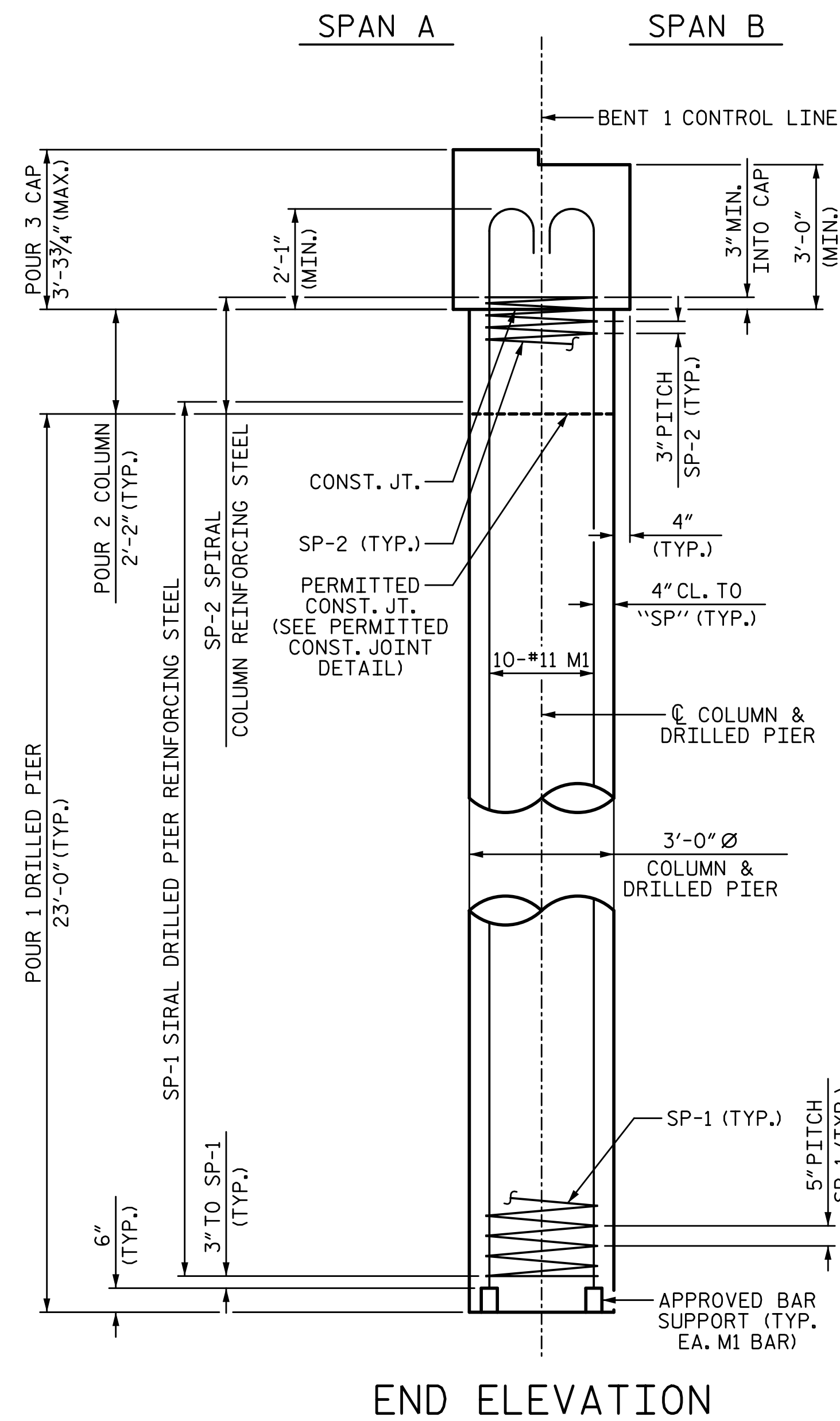
DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.

**DOCUMENT NOT CONSIDERED FINAL
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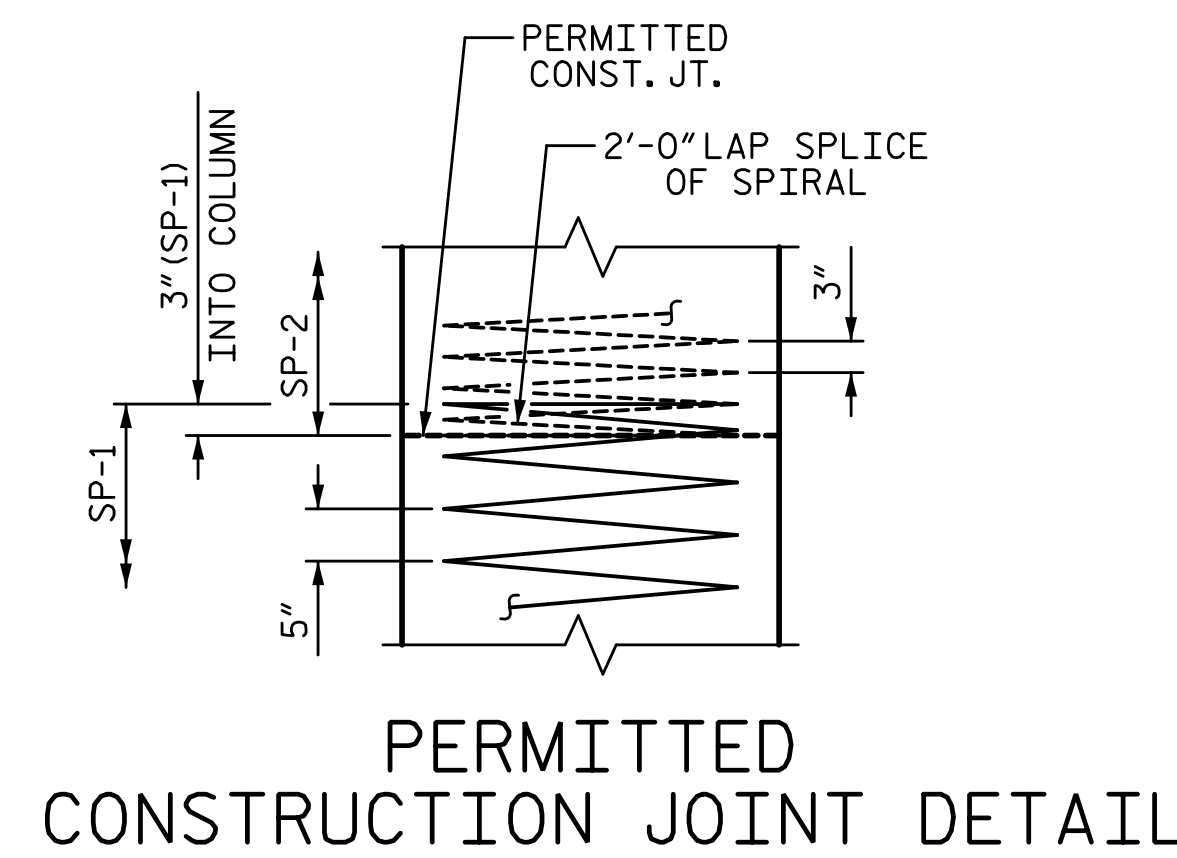
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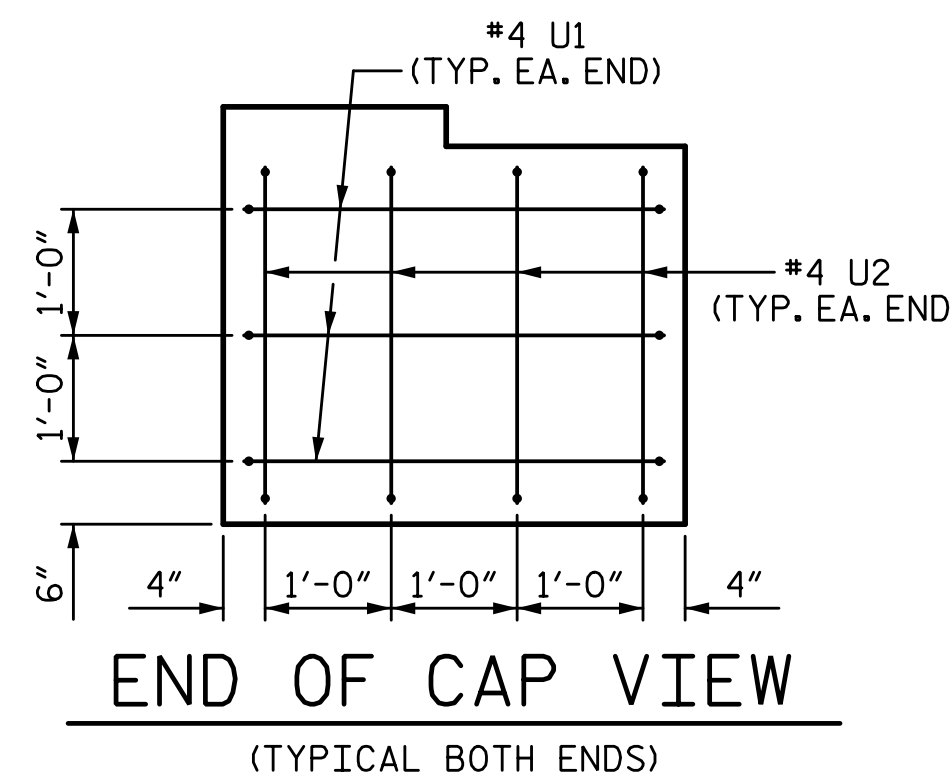
PLAN OF DRILLED PIERS & COLUMNS



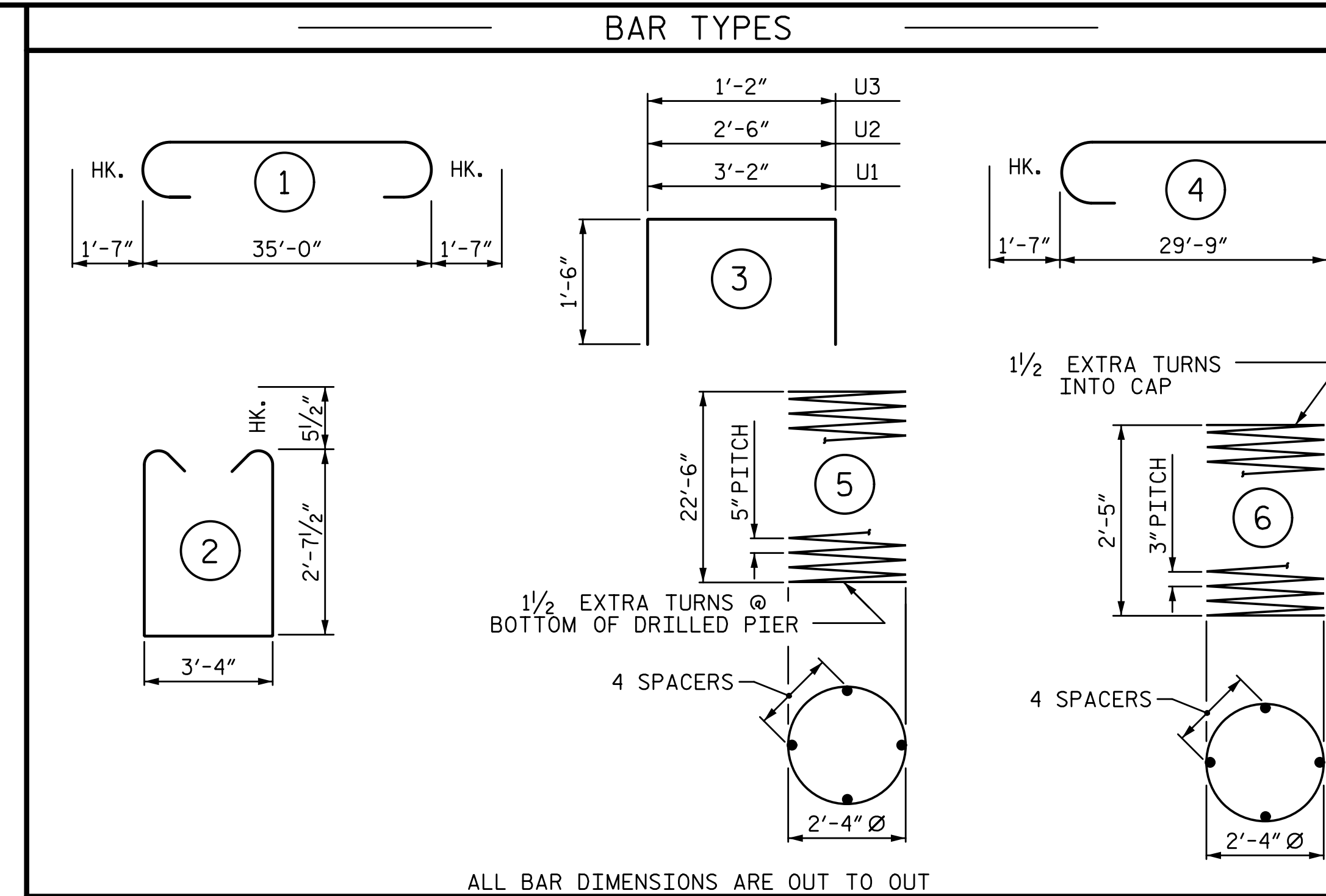
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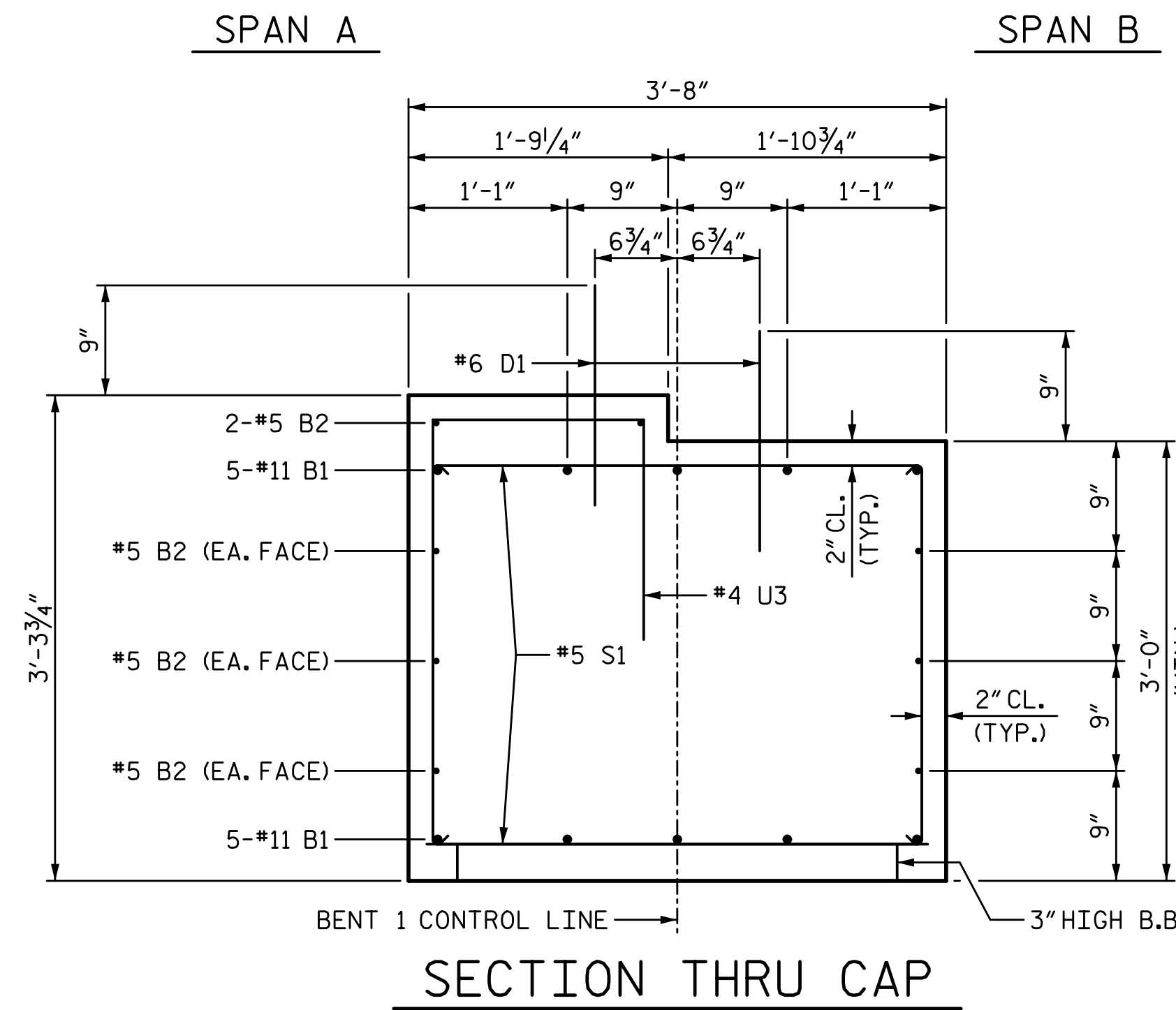
PERMITTED CONSTRUCTION JOINT DETAIL



END OF CAP VIEW
(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT



SECTION THRU CAP

BILL OF MATERIAL

BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	38'-2"	2028
B2	8	#5	STR	35'-2"	293
D1	44	#6	STR	1'-6"	99
M1	30	#11	4	31'-4"	4994
S1	60	#5	2	9'-6"	595
U1	6	#4	3	6'-2"	25
U2	8	#4	3	5'-6"	29
U3	35	#4	3	4'-2"	97

REINFORCING STEEL 8160 LB

SP-1 3 * 5 402'-1" 1258

SP-2 3 * 6 86'-6" 173

SPIRAL COLUMN REINFORCING STEEL 1431 LB

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR

* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR

CLASS A CONCRETE BREAKDOWN

POUR 2 (COLUMNS)	1.7 CY
POUR 3 (CAP)	15.2 CY

TOTAL CLASS A CONCRETE 16.9 CY

DRILLED PIERS:

DRILLED PIER CONCRETE	
POUR 1 (DRILLED PIERS)	18.1 CY
3'-0" Ø DRILLED PIER NOT IN SOIL	29.0 LF
3'-0" Ø DRILLED PIER IN SOIL	40.0 LF
PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	33.0 LF
CSL TUBES	294 LF

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DAVIDSON COUNTY
STATION: 15+99.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

BENT 1

REVISIONS

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

SHEET NO.

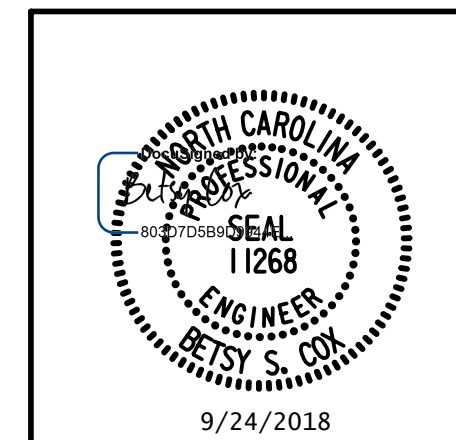
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TOTAL SHEETS

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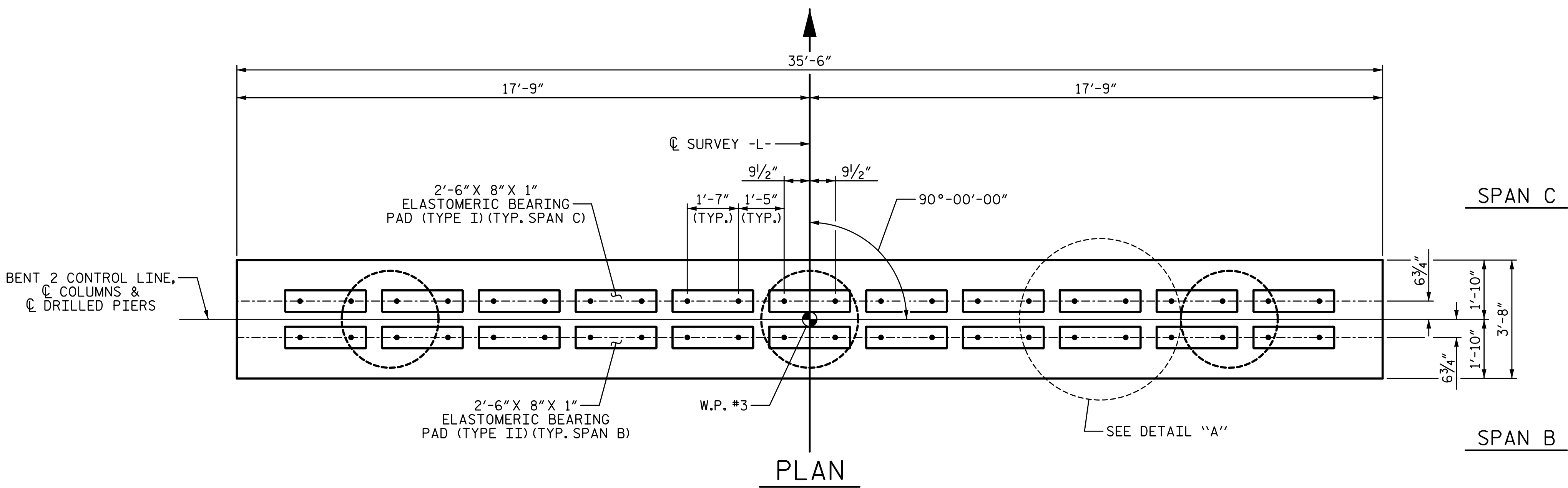
PLANS PREPARED BY:

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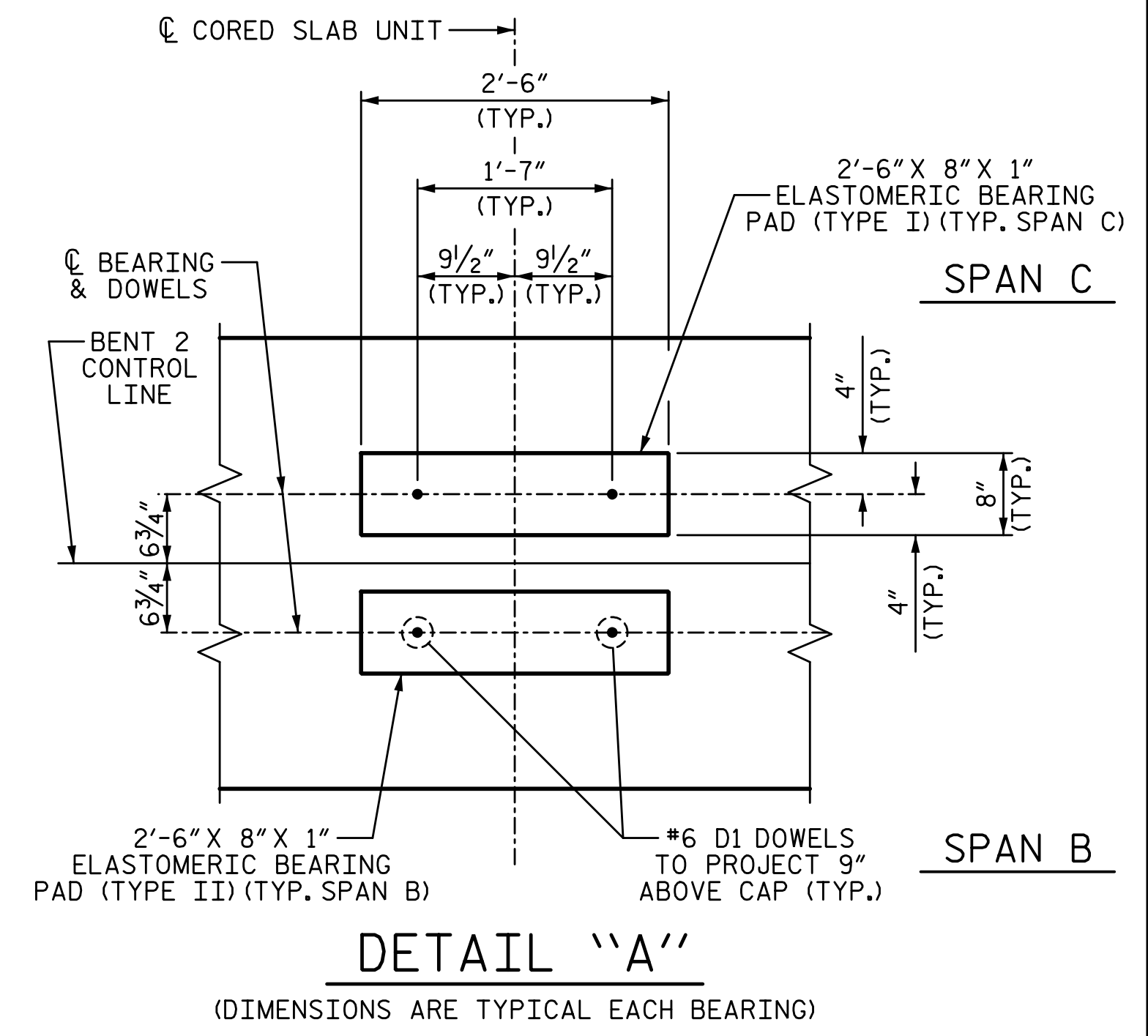
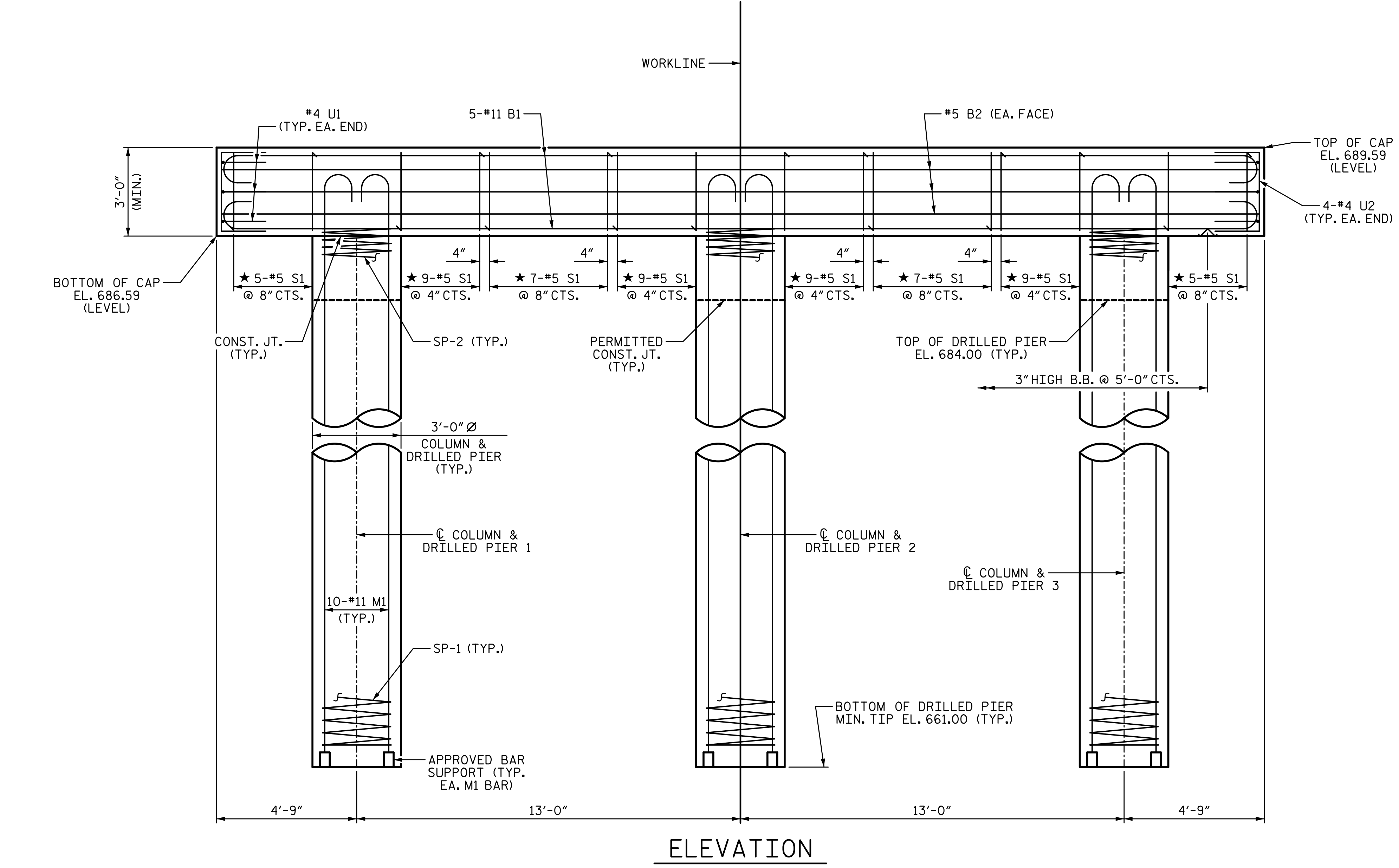
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NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
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- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
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DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.

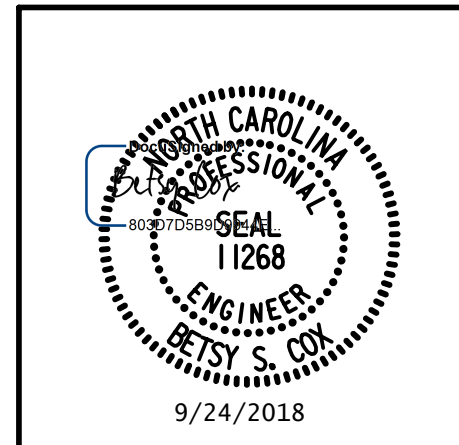
PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
 STATION: 15+99.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENT 2

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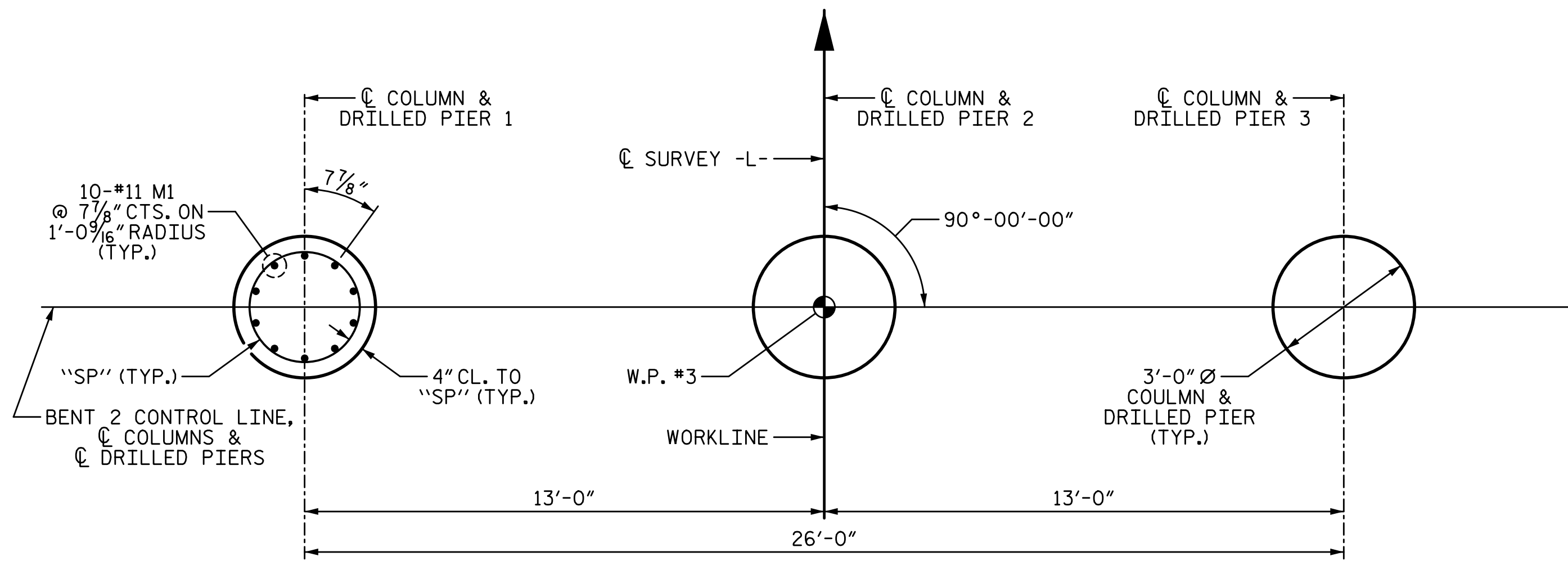


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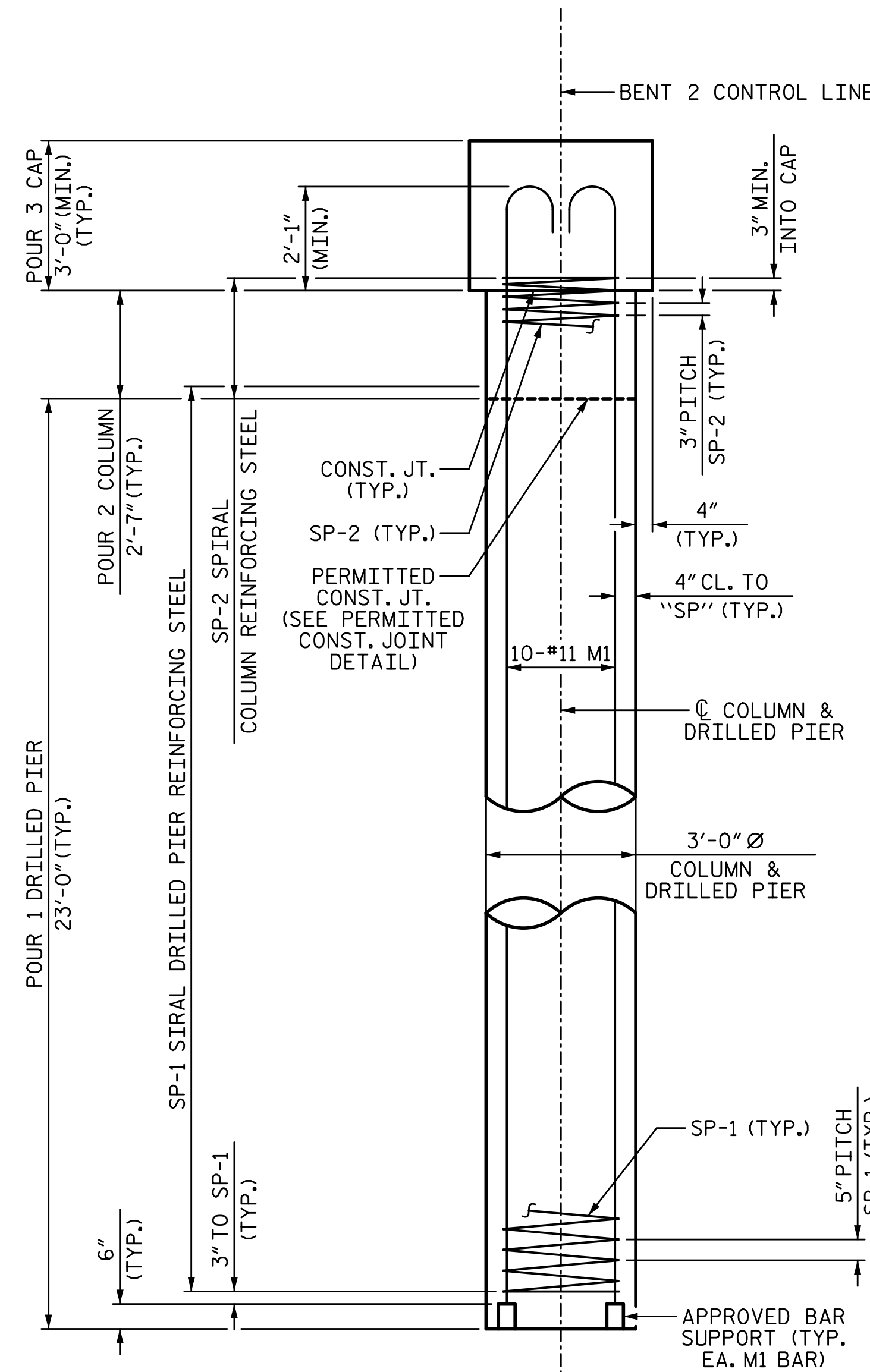
DRAWN BY: <u>S.D. COOPER</u>	DATE: <u>9-18</u>
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DESIGN ENGINEER OF RECORD: <u>B.S. COX</u>	DATE: <u>9-18</u>

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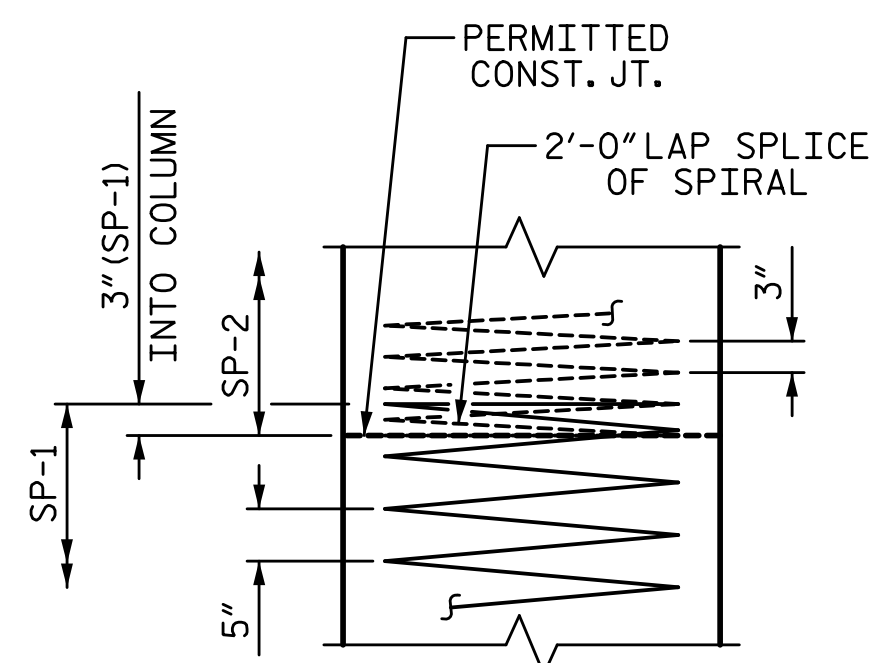
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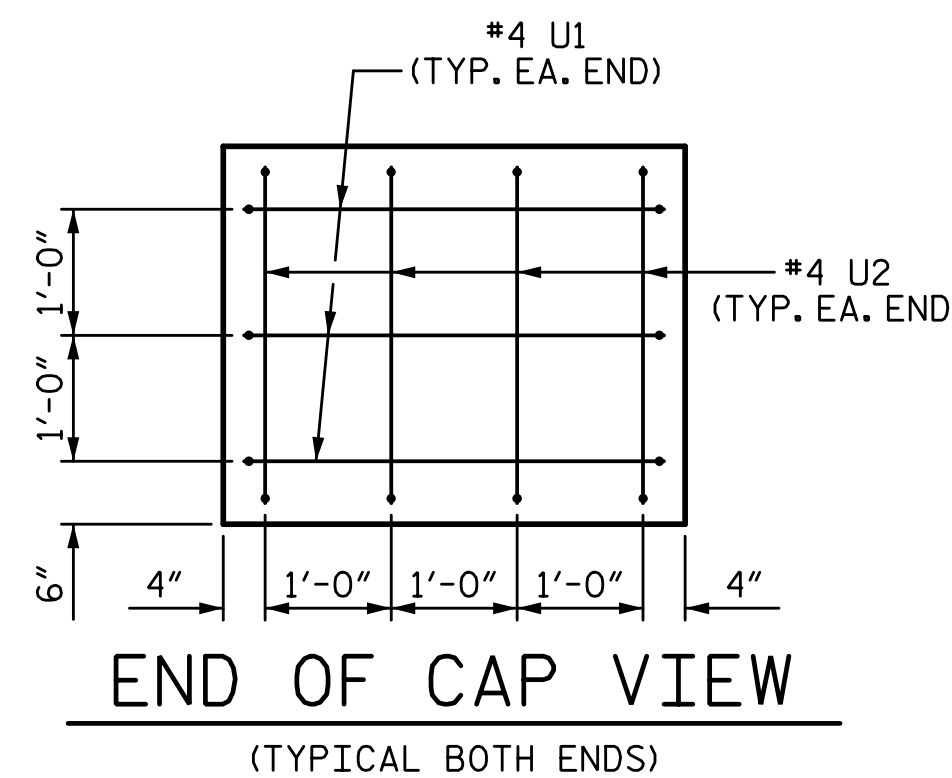
PLAN OF DRILLED PIERS & COLUMNS



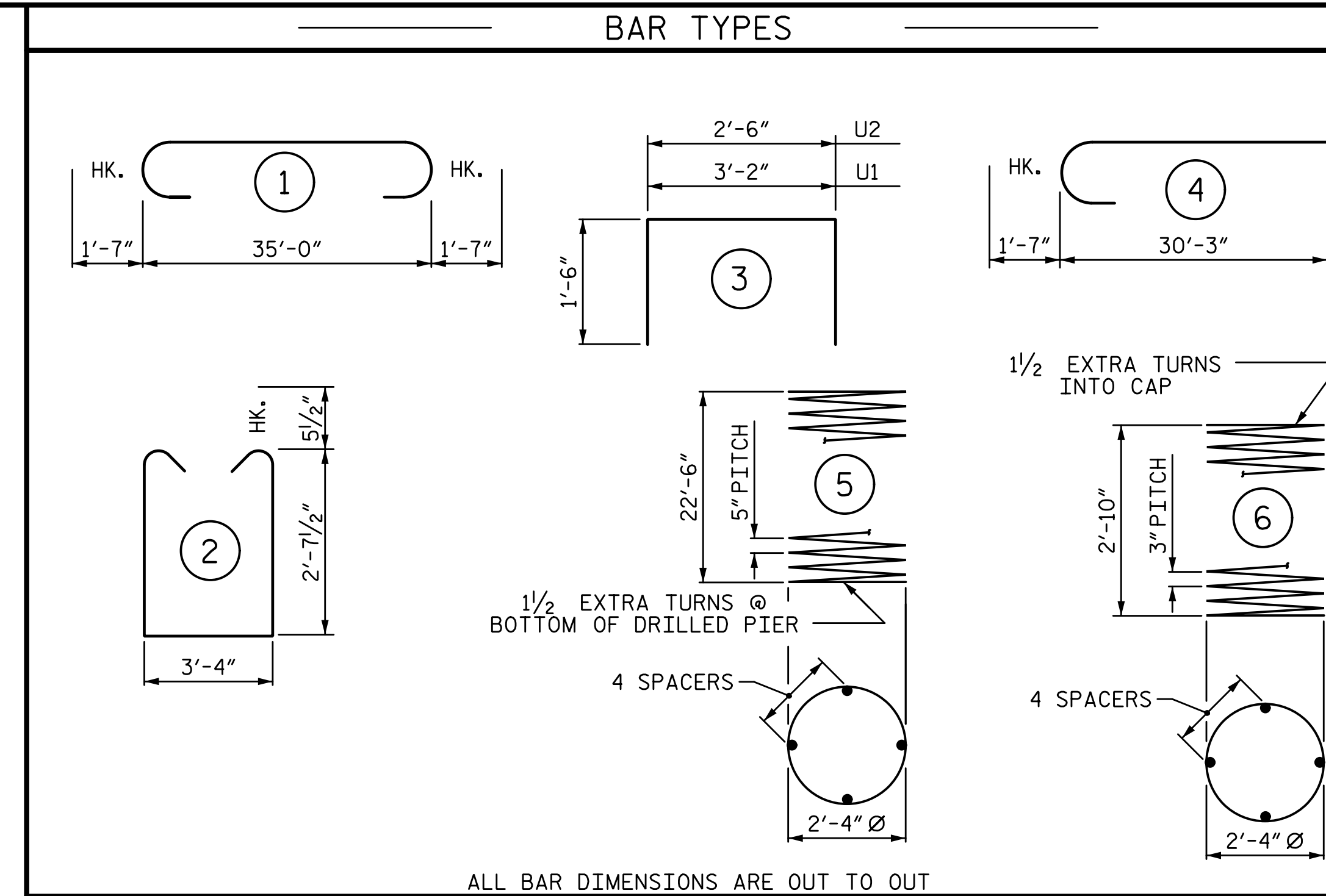
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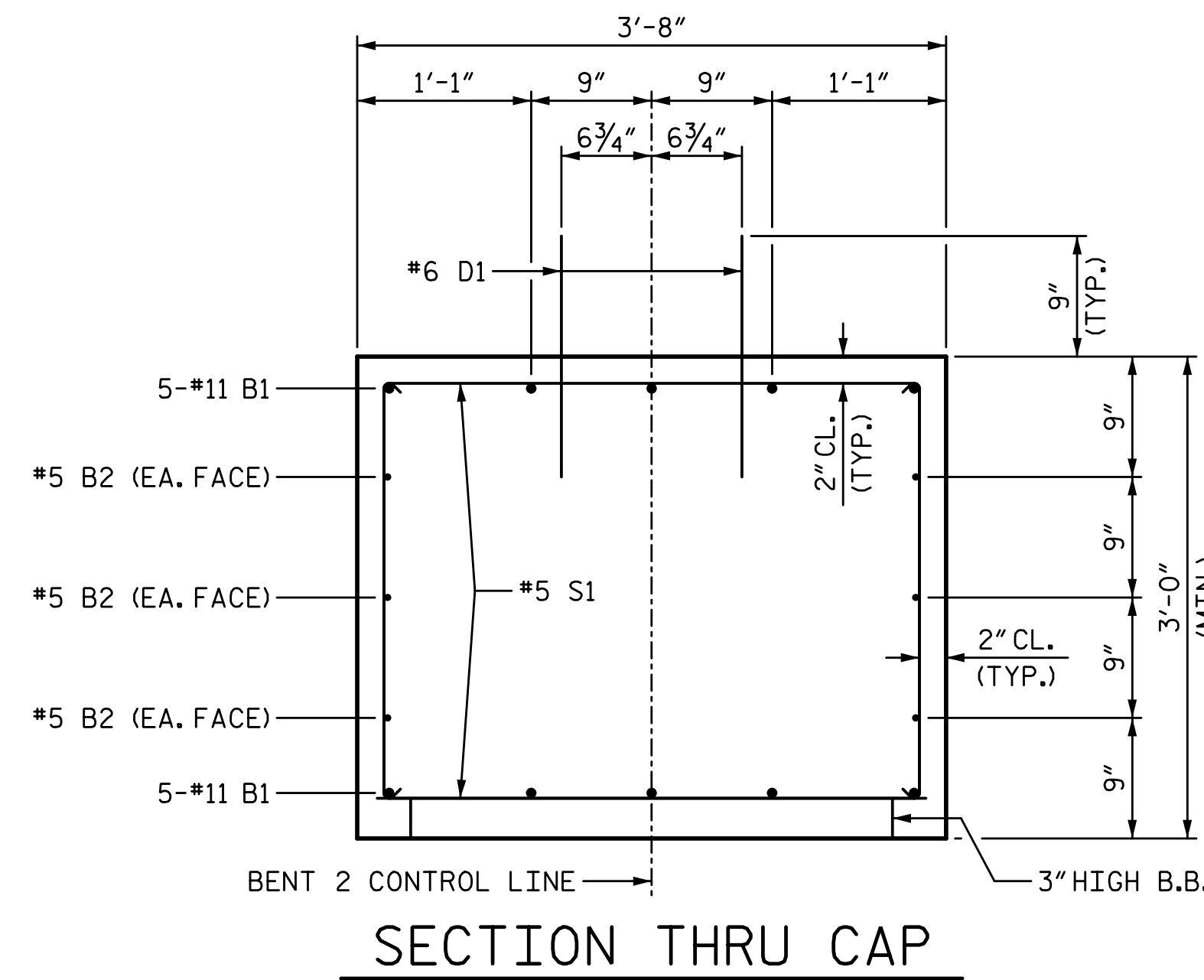
PERMITTED CONSTRUCTION JOINT DETAIL



END OF CAP VIEW
(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT



SECTION THRU CAP

BILL OF MATERIAL

BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	38'-2"	2028
B2	6	#5	STR	35'-2"	220
D1	44	#6	STR	1'-6"	99
M1	30	#11	4	31'-10"	5074
S1	60	#5	2	9'-6"	595
U1	6	#4	3	6'-2"	25
U2	8	#4	3	5'-6"	29

REINFORCING STEEL 8070 LB

SP-1 3 * 5 402'-1" 1258

SP-2 3 * 6 93'-8" 188

SPIRAL COLUMN REINFORCING STEEL 1446 LB

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR

* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR

CLASS A CONCRETE BREAKDOWN

POUR 2 (COLUMNS)	2.0 CY
POUR 3 (CAP)	14.5 CY
TOTAL CLASS A CONCRETE	16.5 CY

DRILLED PIERS:

DRILLED PIER CONCRETE	
POUR 1 (DRILLED PIERS)	18.1 CY
3'-0" Ø DRILLED PIER NOT IN SOIL	30.0 LF
3'-0" Ø DRILLED PIER IN SOIL	39.0 LF
PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	30.0 LF
CSL TUBES	294 LF

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
 STATION: 15+99.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENT 2

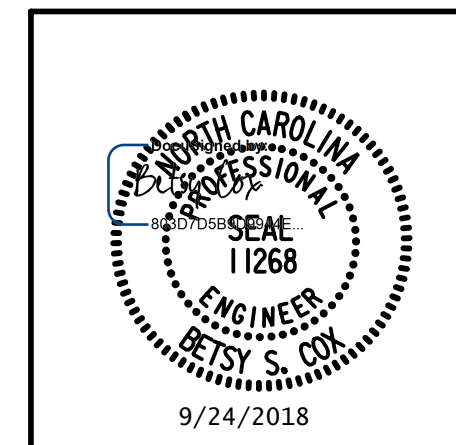
REVISIONS

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2			4		

SHEET NO.
 S-21
 TOTAL SHEETS
 24

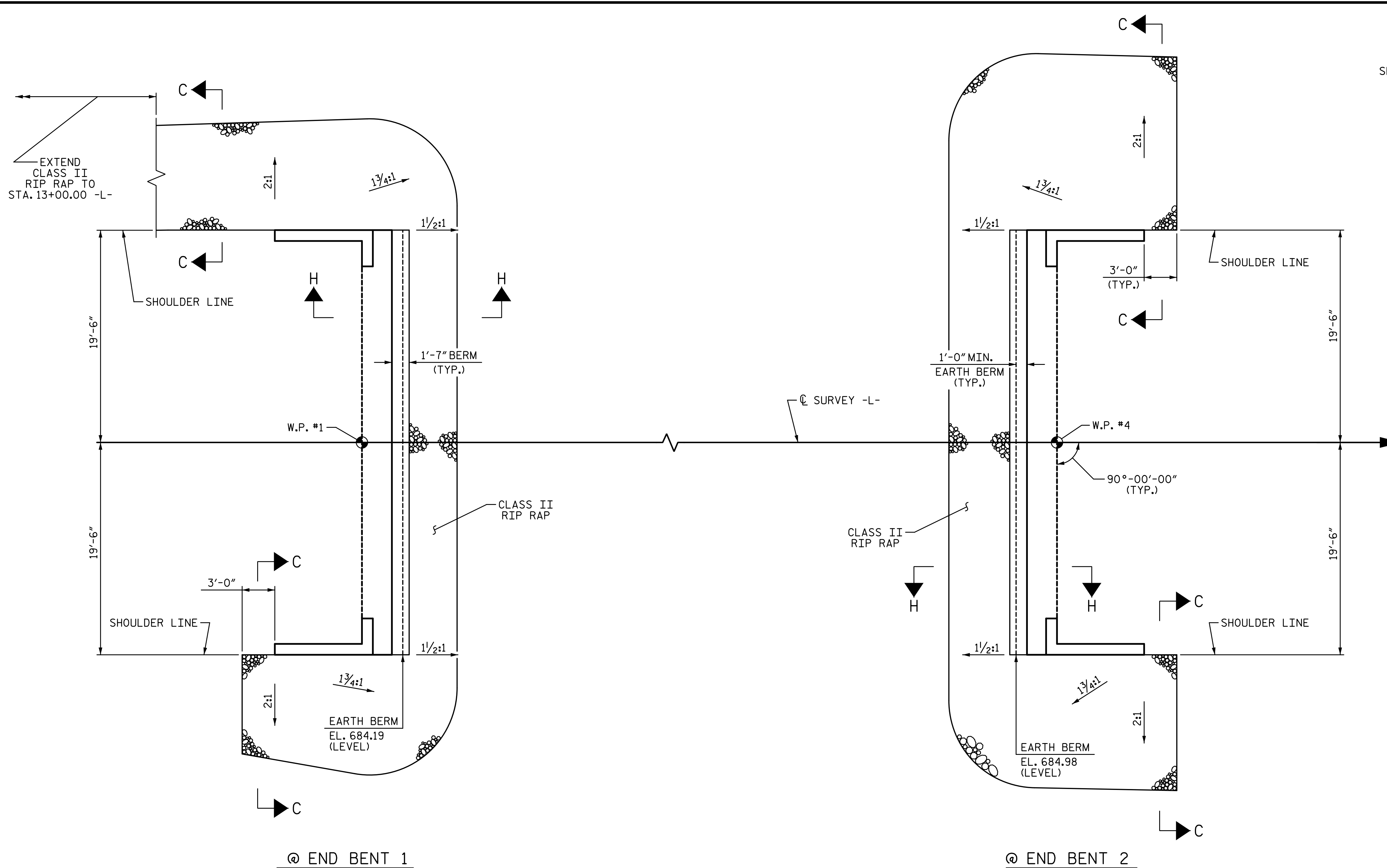
PLANS PREPARED BY:

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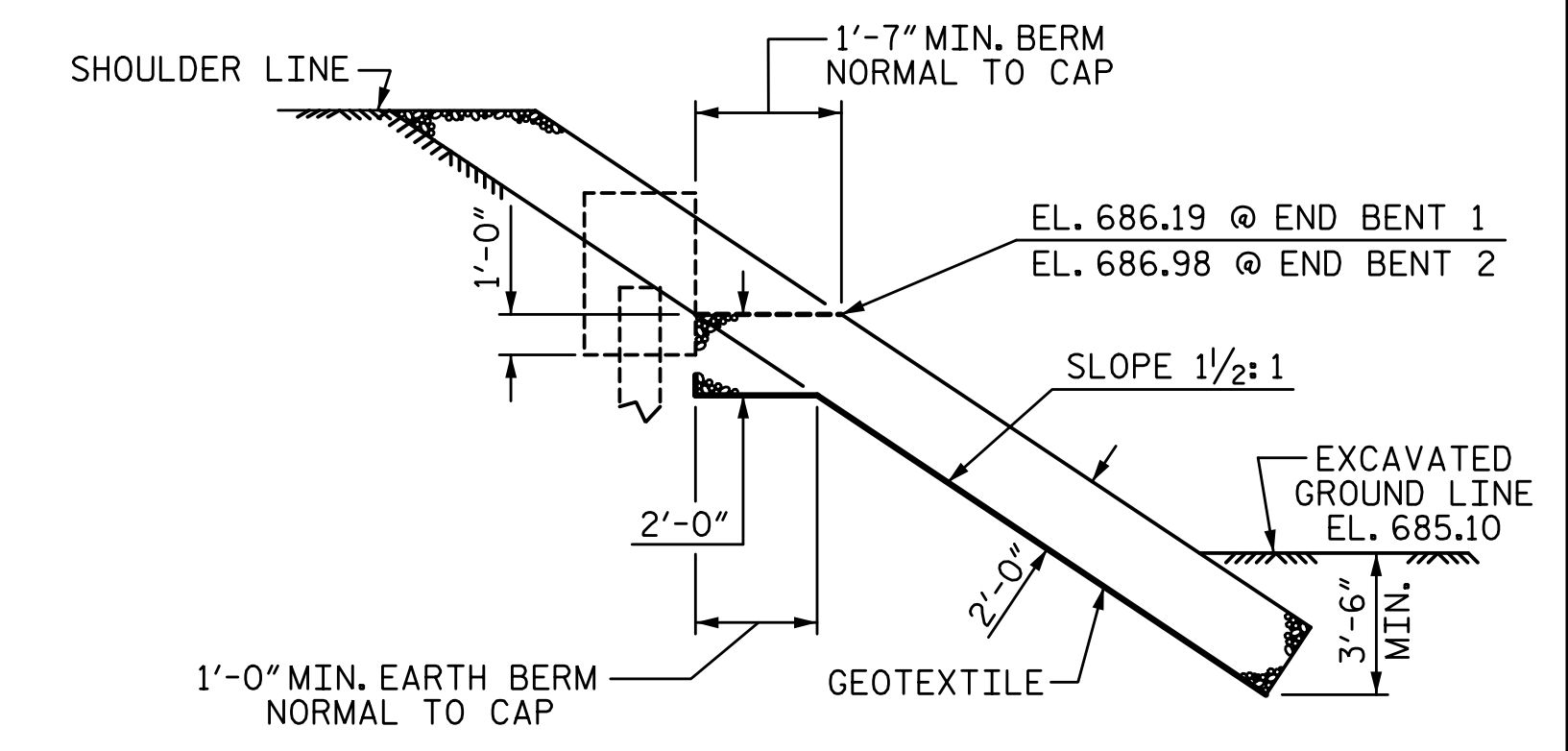


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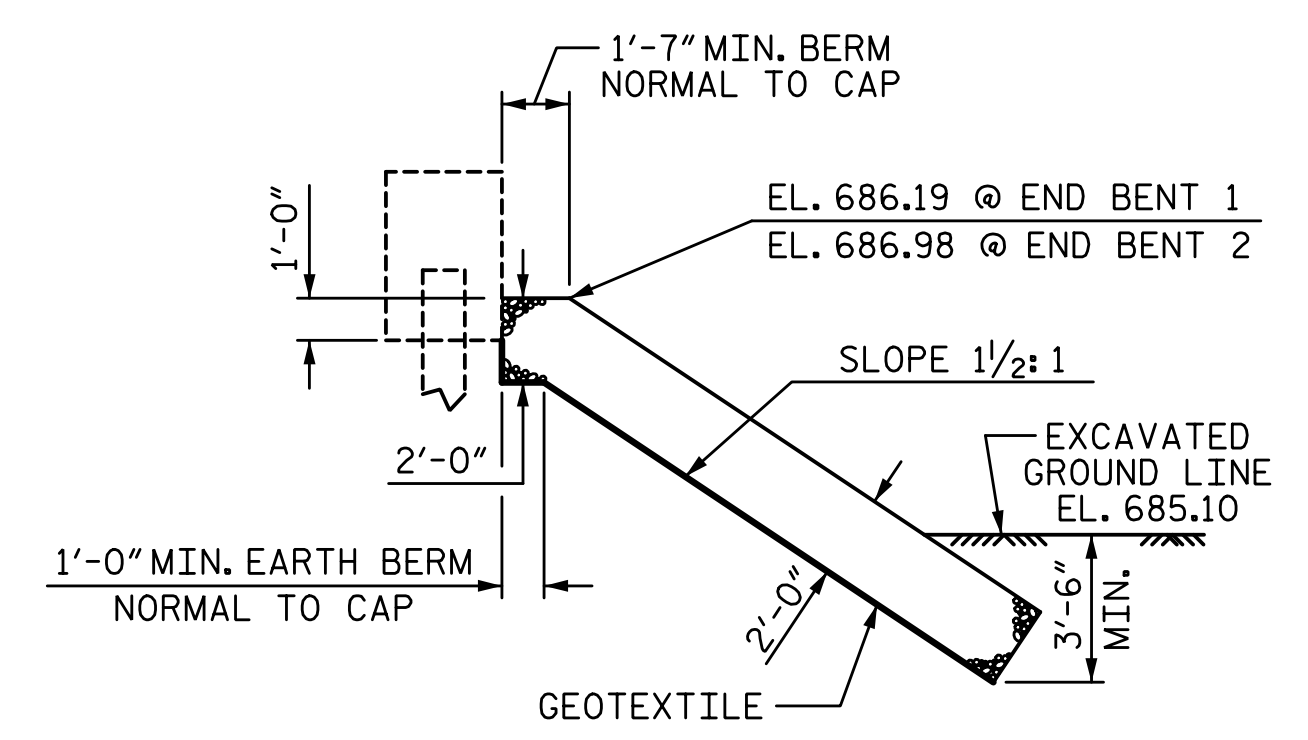
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PLAN OF RIP RAP



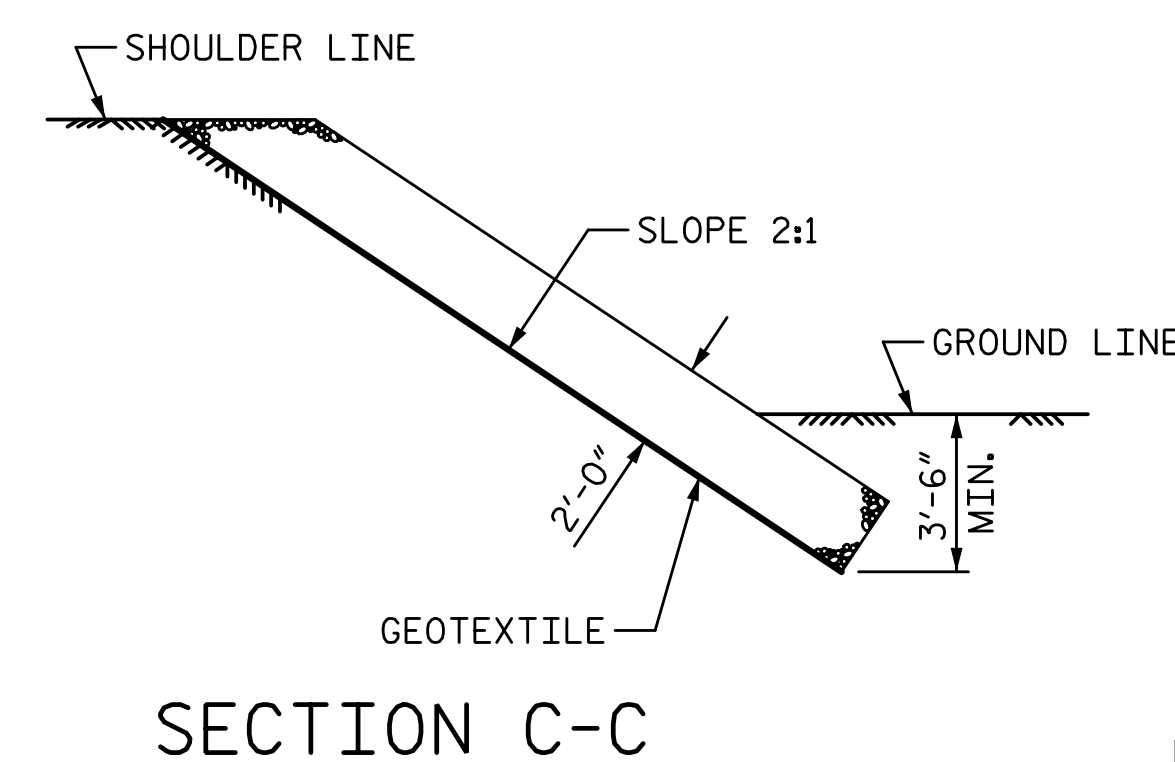
SECTION H-H



SECTION C-C
BERM RIP RAPPED

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+99.50 -L-	RIp RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	400	445
END BENT 2	95	105

DRAWN BY: S.D. COOPER DATE: 9-18
 CHECKED BY: B.S. COX DATE: 9-18
 DESIGN ENGINEER OF RECORD: B.S. COX DATE: 9-18



SECTION C-C

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DAVIDSON COUNTY
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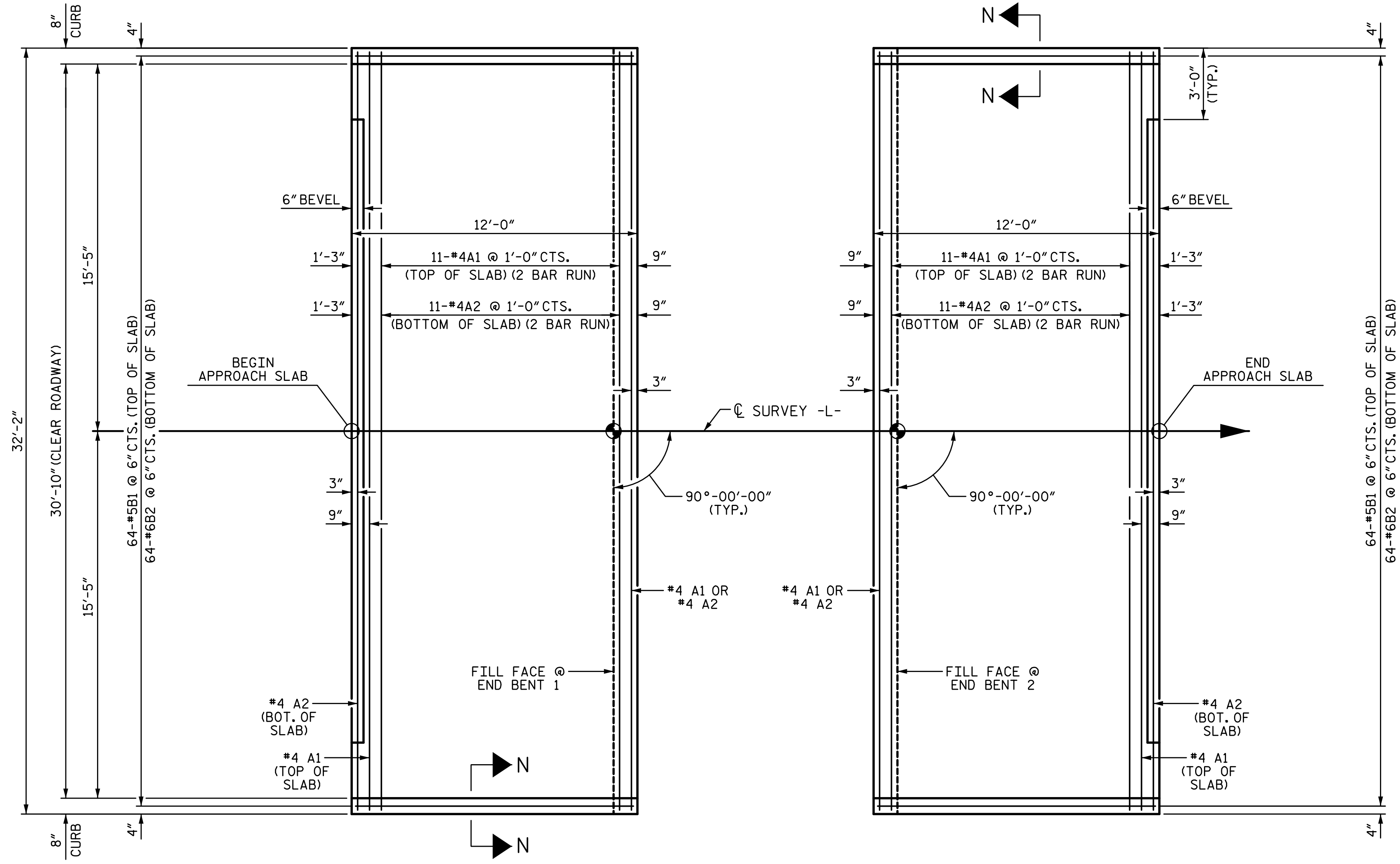


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
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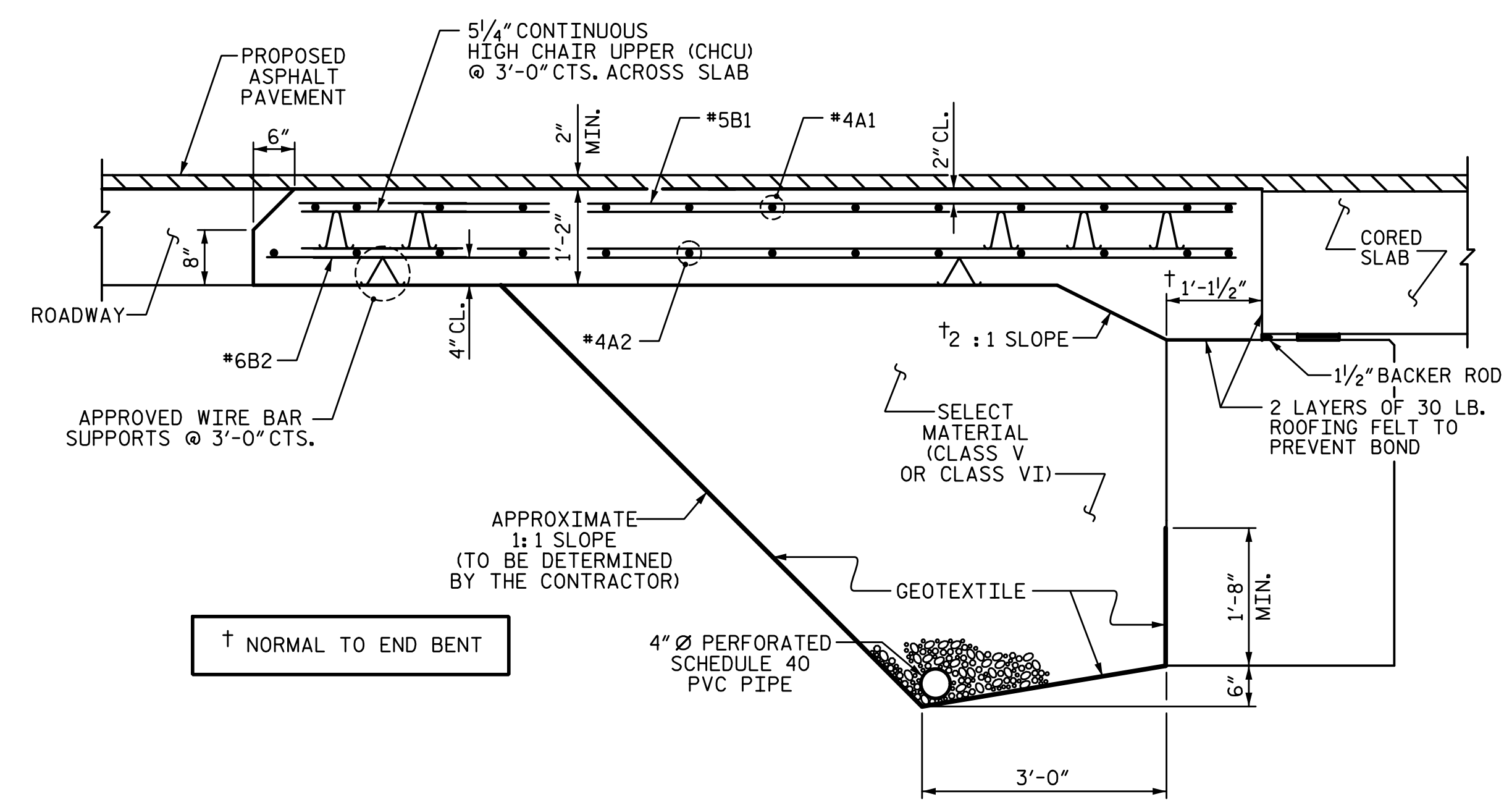
PLAN @ END BENT 1 PLAN @ END BENT 2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES:

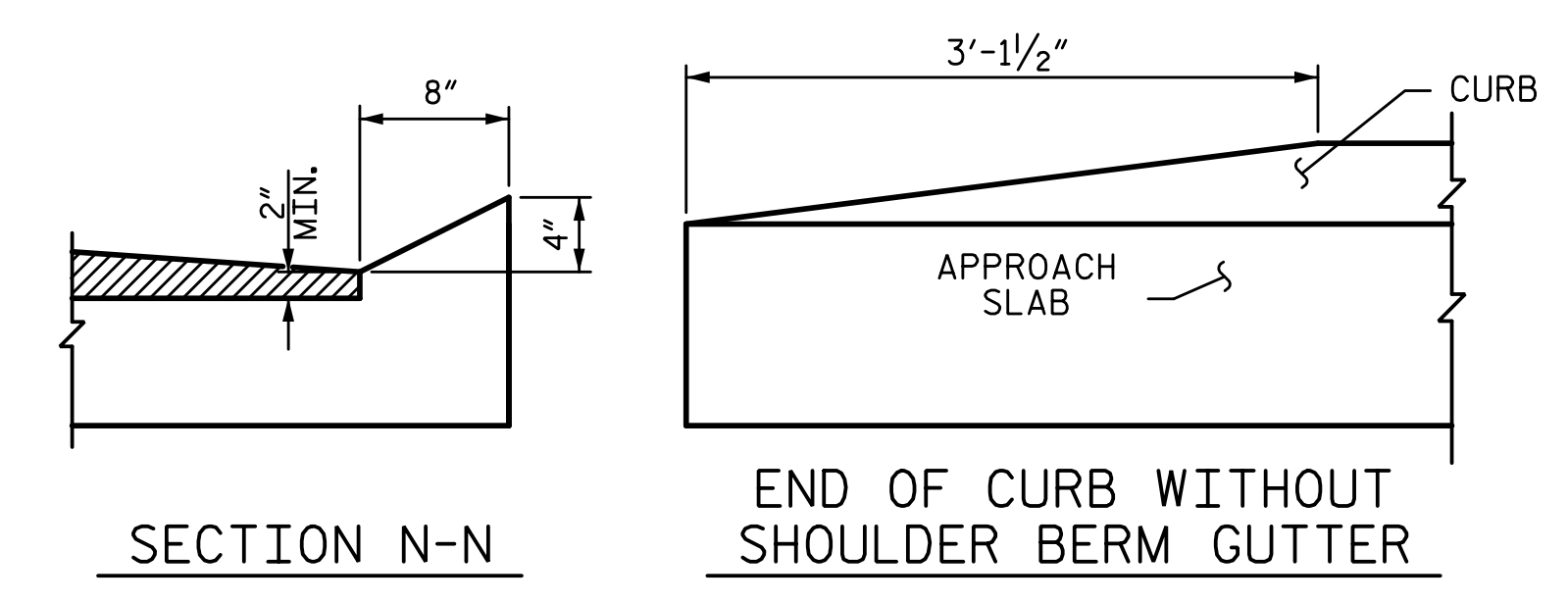
FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.
GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.
FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL						
APPROACH SLAB AT EB 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	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					LB	1412
* EPOXY COATED REINFORCING STEEL					LB	1039
CLASS AA CONCRETE					CY	18.4
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					LB	1412
* EPOXY COATED REINFORCING STEEL					LB	1039
CLASS AA CONCRETE					CY	19.5

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



SECTION THRU SLAB
(TYPE II - MODIFIED APPROACH FILL)



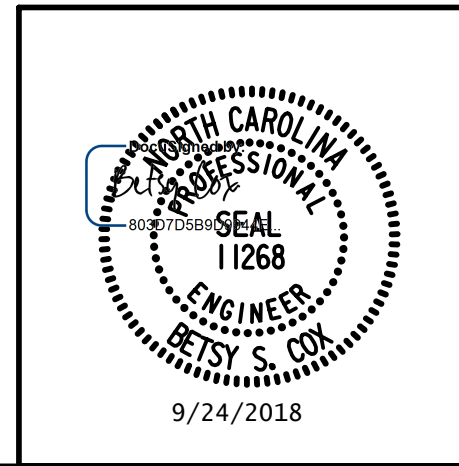
CURB DETAILS

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
STATION: 15+99.50 -L-

SHEET 1 OF 2

DRAWN BY: S.D. COOPER DATE: 9-18
CHECKED BY: B.S. COX DATE: 9-18
DESIGN ENGINEER OF RECORD: B.S. COX DATE: 9-18

PLANS PREPARED BY:
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LICENSURE NO. C-2521

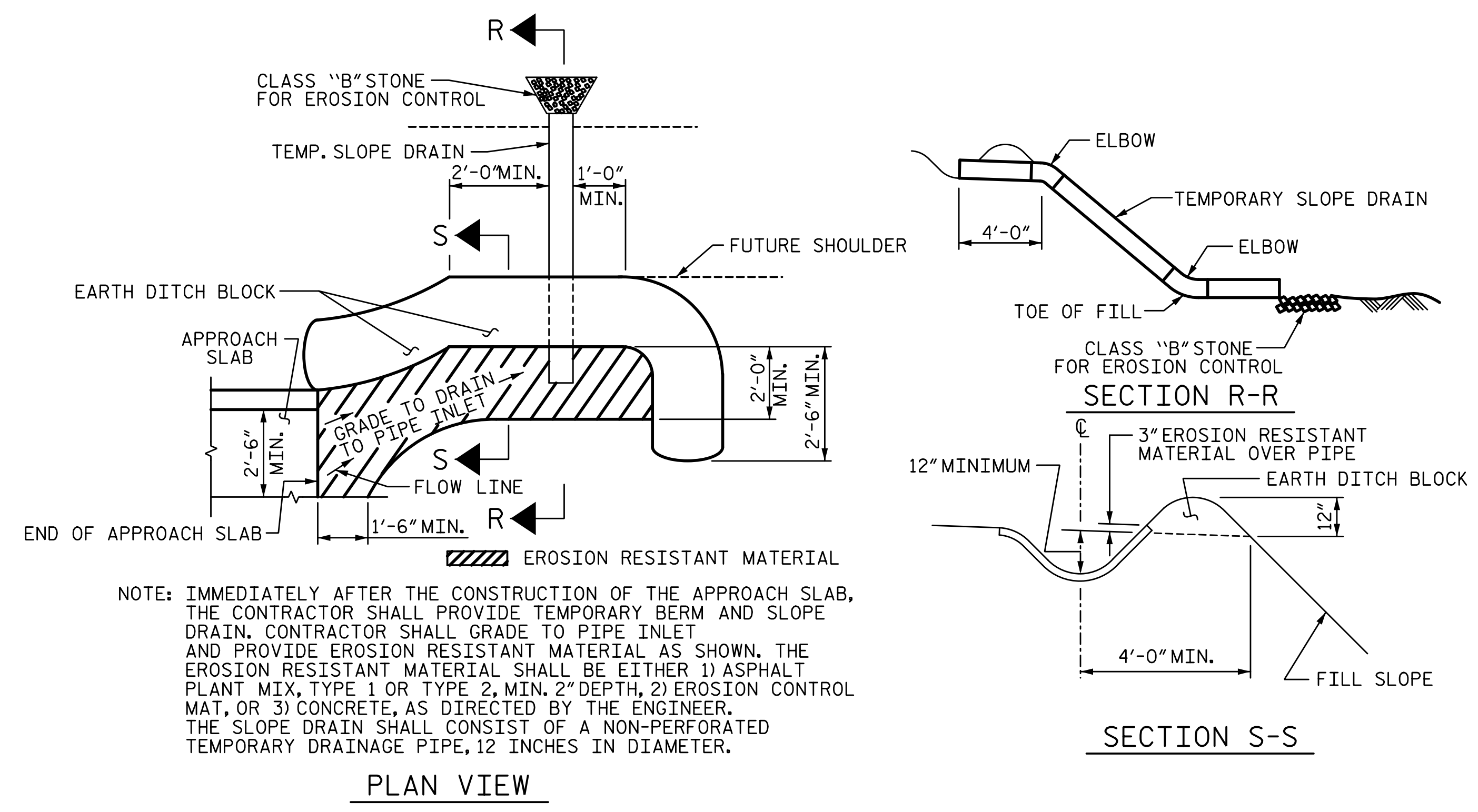


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT
(SUB-REGIONAL TIER - 90° SKEW)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			24

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

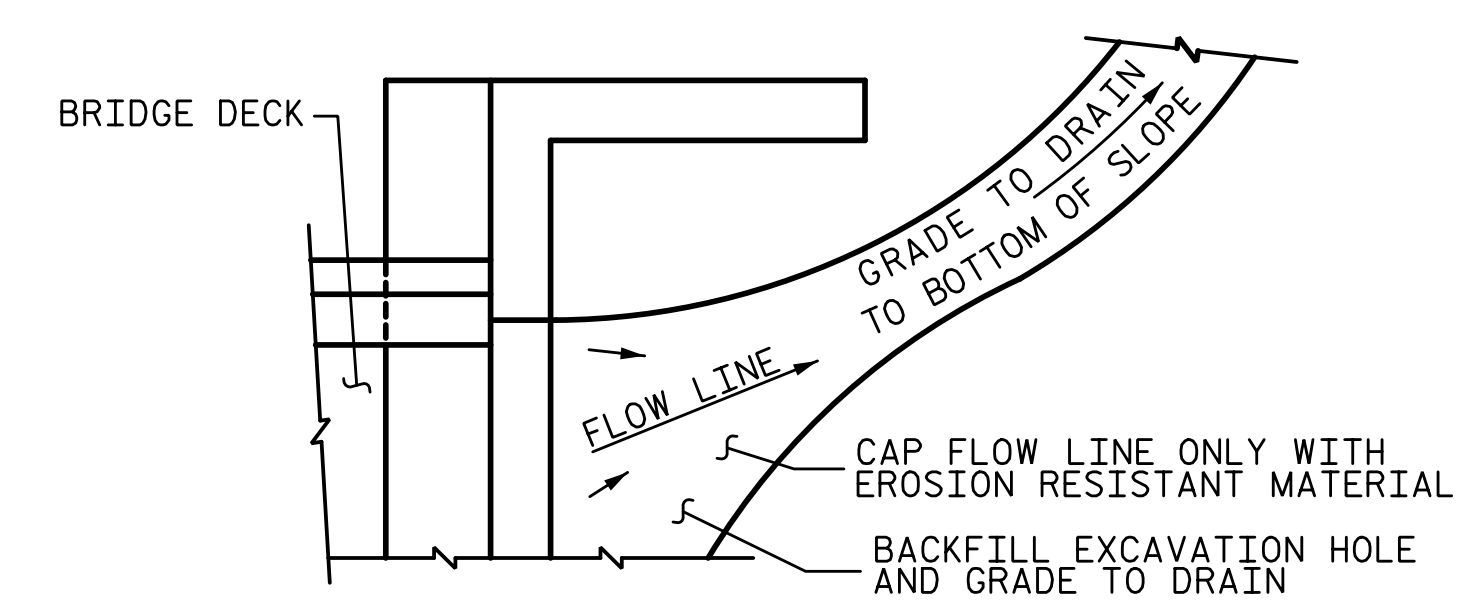
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NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE 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)



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

PROJECT NO. 17BP.9.R.101
DAVIDSON COUNTY
 STATION: 15+99.50 -L-

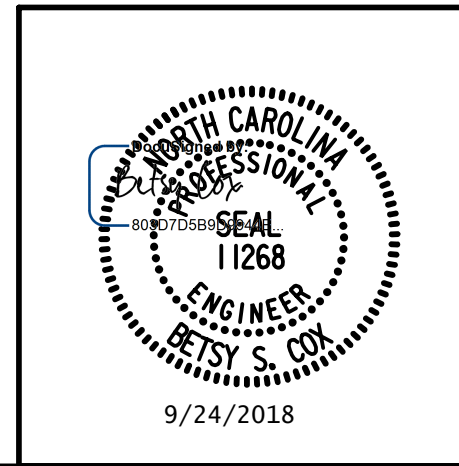
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB DETAILS

PLANS PREPARED BY:

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 LICENSURE NO. C-2521



REVISIONS

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

SHEET NO.
 S-24
 TOTAL SHEETS
 24

DRAWN BY: <u>S.D. COOPER</u>	DATE: <u>9-18</u>
CHECKED BY: <u>B.S. COX</u>	DATE: <u>9-18</u>
DESIGN ENGINEER OF RECORD: <u>B.S. COX</u>	DATE: <u>9-18</u>

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

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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