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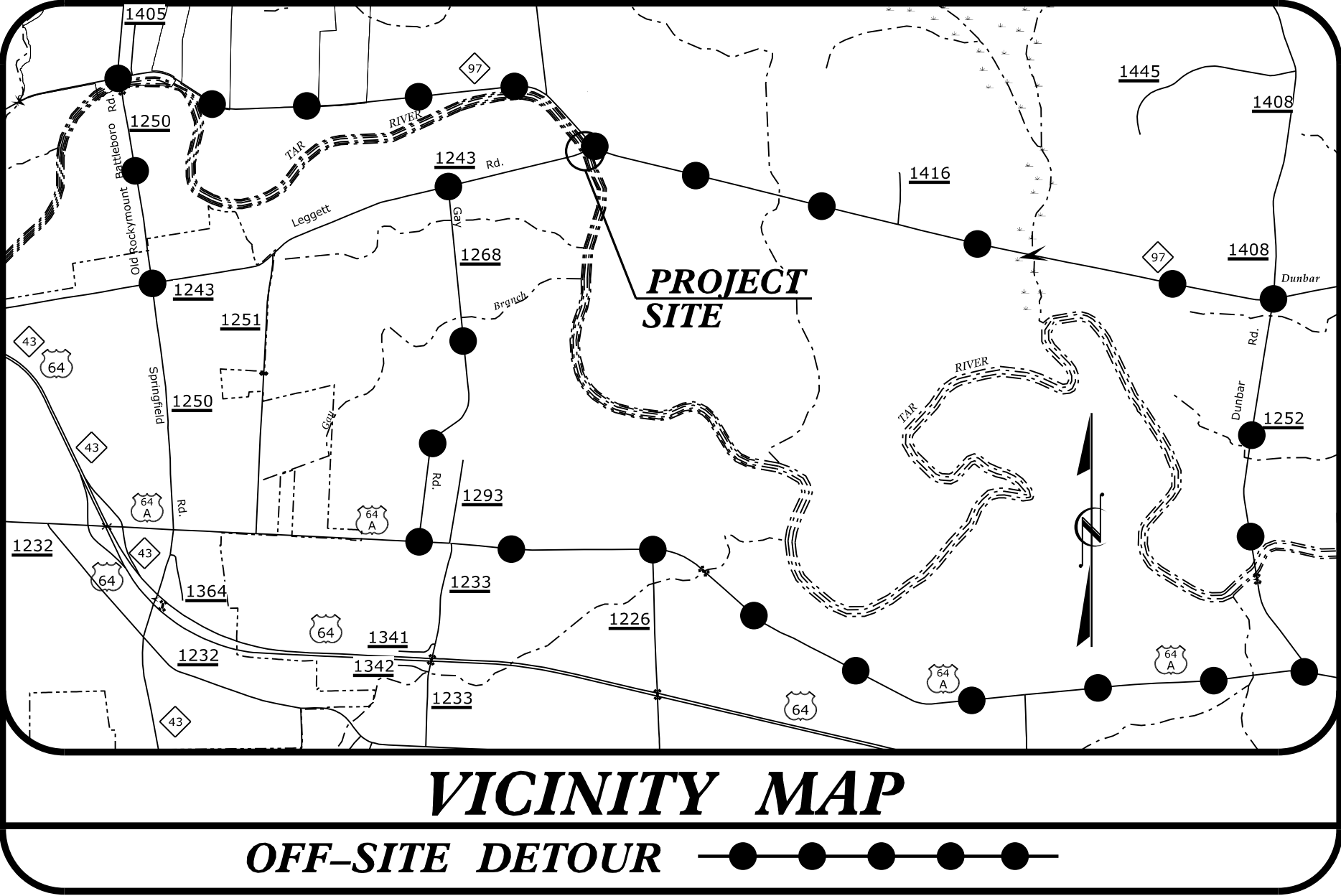
**This file or an individual page
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09.05/2019

PROJECT: BR-0241

CONTRACT: DD000327

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet RW01 TO RW03E-2 For Survey Control Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
EDGECOMBE COUNTY

LOCATION: BRIDGE NO. 54 OVER TAR RIVER
ON SR 1243 (LEGGETT RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

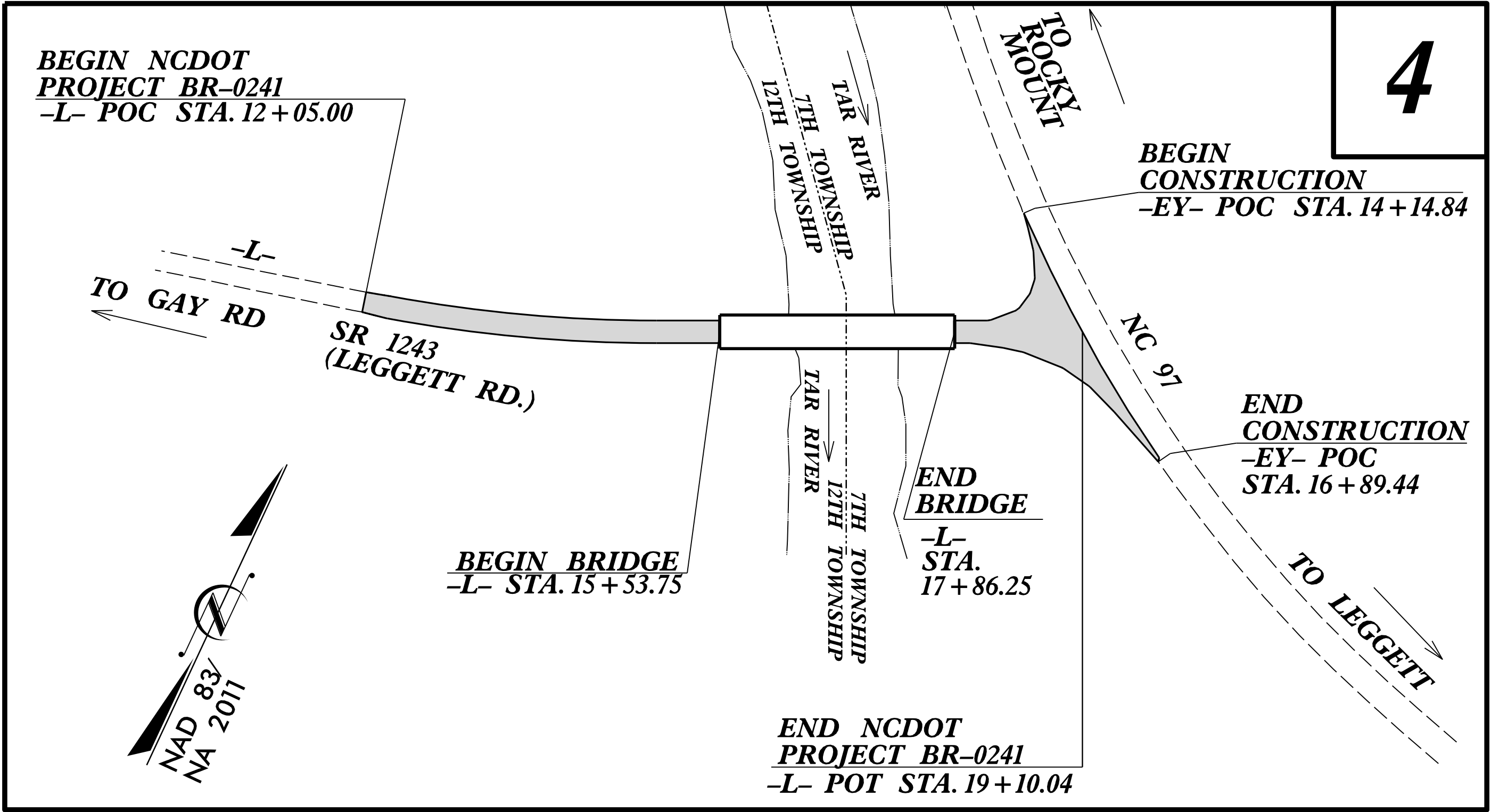
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0241	1	
STATE PROJ.NO.	F.A.PROJ.NO.	DESCRIPTION	
49213.3.1		PE, UTIL., RW	
49213.3.1		CONST.	



1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

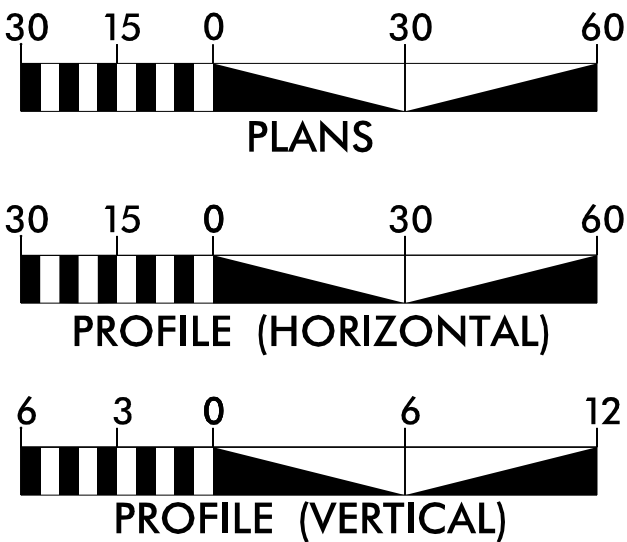
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

BRIDGE #320054



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 630
T = 7 % *
V = 55 MPH
* (TTST = 3.5% +
DUAL = 3.5%)
FUNC CLASS =
MAJOR COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT BR-0241 =	0.090 MILES
LENGTH STRUCTURE PROJECT BR-0241 =	0.044 MILES
TOTAL LENGTH PROJECT BR-0241 =	0.134 MILES

NCDOT CONTACT: RACHEL C. EVANS, PE
DIVISION 4 PROJECT ENGINEER

Prepared for:
**DIVISION OF HIGHWAYS
DIVISION FOUR**
509 Ward Boulevard, Wilson NC, 27895

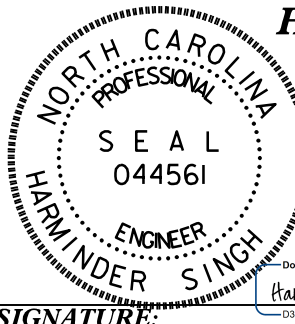
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 1, 2019

LETTING DATE:
JUNE 22, 2021

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER



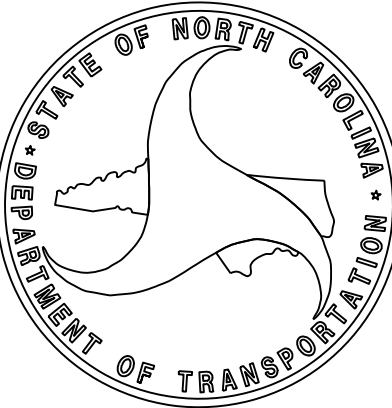
SIGNATURE: Edward G. Wetherill, P.E.



SIGNATURE: Greg S. Purvis, P.E.

HYDRAULICS ENGINEER
5/24/2021

ROADWAY DESIGN
ENGINEER
5/24/2021



5/14/99

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SHOULDER CONSTRUCTION:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

POWER - EDGEcombe-MARTIN EMC

COMMUNICATION - CENTURYLINK

WATER - EDGEcombe COUNTY

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

RIGHT-OF-WAY MARKERS:

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

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.03	Cross Pipe End Section - Precast Concrete Section for 18" to 30" Pipe
DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

INDEX OF SHEETS

SHEET NUMBER
SHEET

1

1-A

1-B

2A-1

2C-1

2C-2

3B-1

4

RW01 THRU RW02E-2

TMP-1 THRU TMP-2

EC-1 THRU EC-4

RF-1

UC-1 THRU UC-5

UO-1 THRU UO-2

X-1

X-2 THRU X-6

S-1 THRU S-25

SN

TITLE SHEET

INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS

CONVENTIONAL SYMBOLS

TYPICAL SECTIONS, PAVEMENT SCHEDULE, & MISCELLANEOUS DETAILS

TYPE III ANCHOR UNIT DETAIL

W BEAM RAIL SECTION DETAIL

SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, EARTHWORK

SUMMARY, PAVEMENT REMOVAL SUMMARY, ROW AREA DATA SUMMARY

AND SHOULDER BERM GUTTER SUMMARY

PLAN AND PROFILE SHEET

SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND

PROPERTY TIES

TRANSPORATION MANAGEMENT PLANS

EROSION CONTROL PLANS

REFORESTATION PLAN

UTILITY CONSTRUCTION PLANS

UTILITIES BY OTHERS PLANS

CROSS-SECTION SUMMARY SHEET

CROSS-SECTIONS

STRUCTURE PLANS

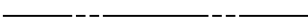
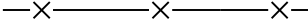
STRUCTURE NOTES

PROJECT REFERENCE NO.	SHEET NO.
BR-024I	I-A
RW SHEET NO.	
	ROADWAY DESIGN ENGINEER 10/19/2020 09:11:08 EDT
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

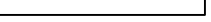
STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

PROJECT REFERENCE NO.	SHEET NO.
BR-024I	I-B

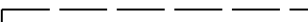
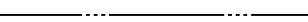
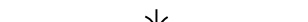
BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Computed Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

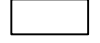
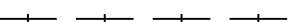
BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easment 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	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite R/W Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage /Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	

Hedge	
Woods Line	
Orchard	
Vineyard	

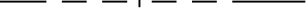
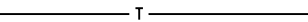
EXISTING STRUCTURES:

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

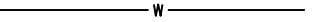
UTILITIES:

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line LOS B (S.U.E.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

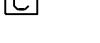
TELEPHONE:

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.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

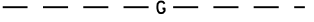
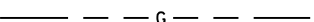
WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line LOS B (S.U.E.*)	
U/G Water Line LOS C (S.U.E.*)	
U/G Water Line LOS D (S.U.E.*)	
Above Ground Water Line	

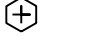
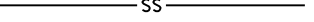
TV:

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

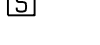
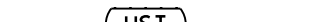
GAS:

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

SANITARY SEWER:

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

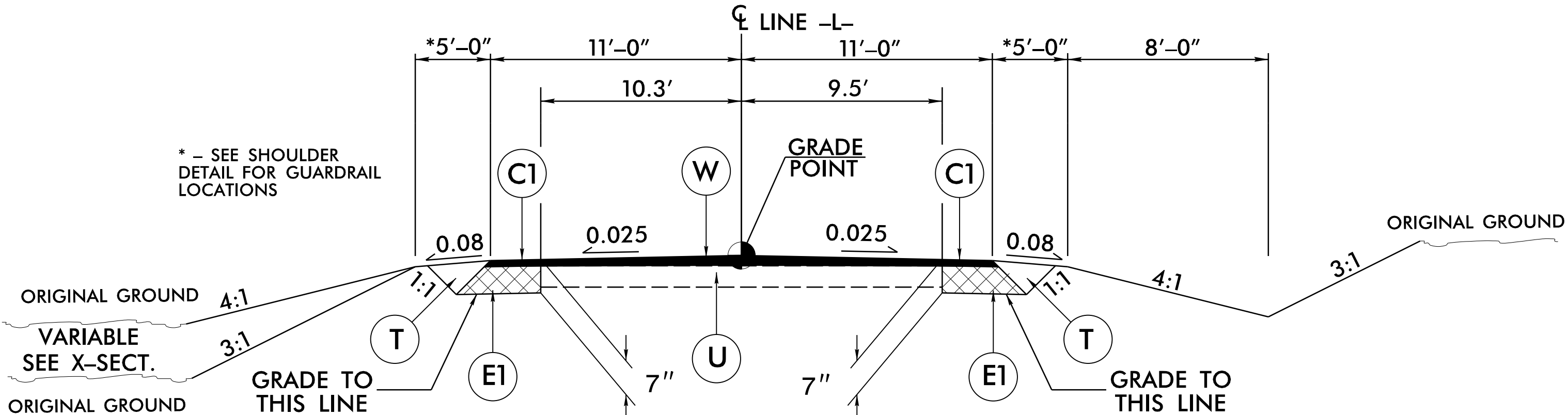
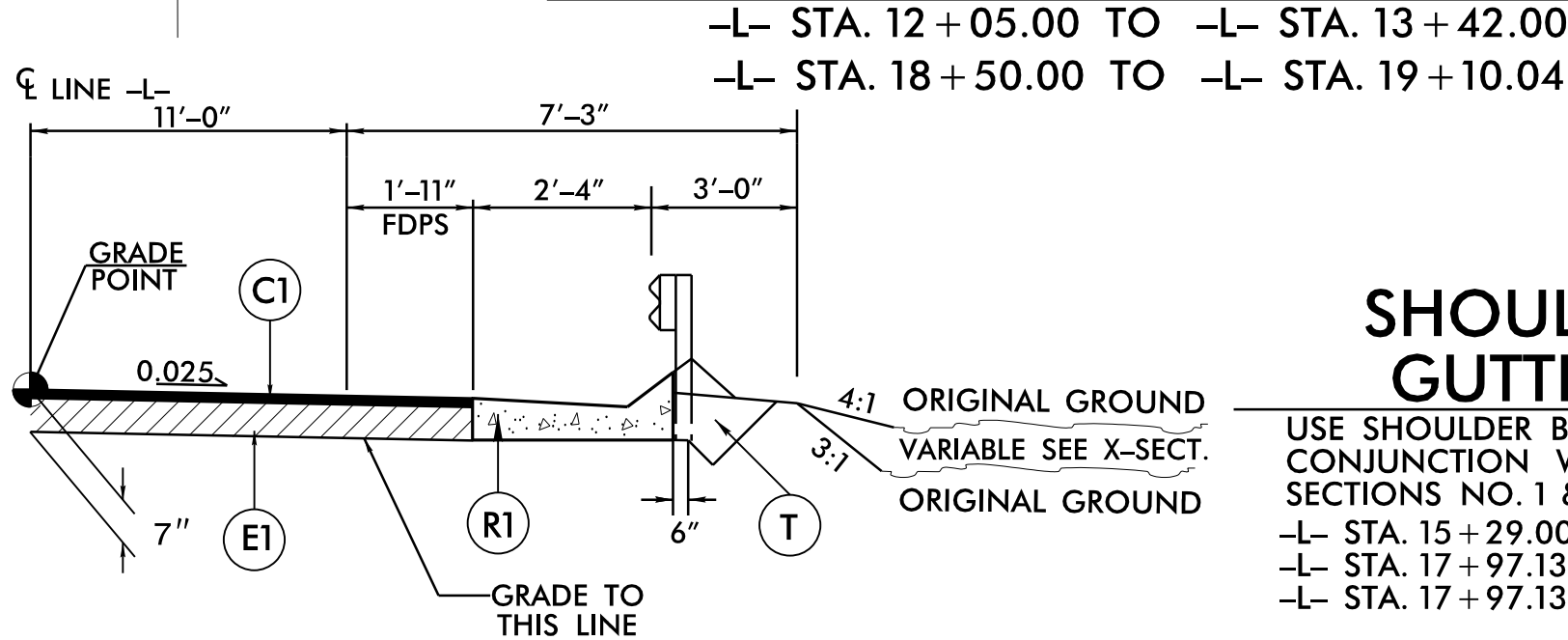
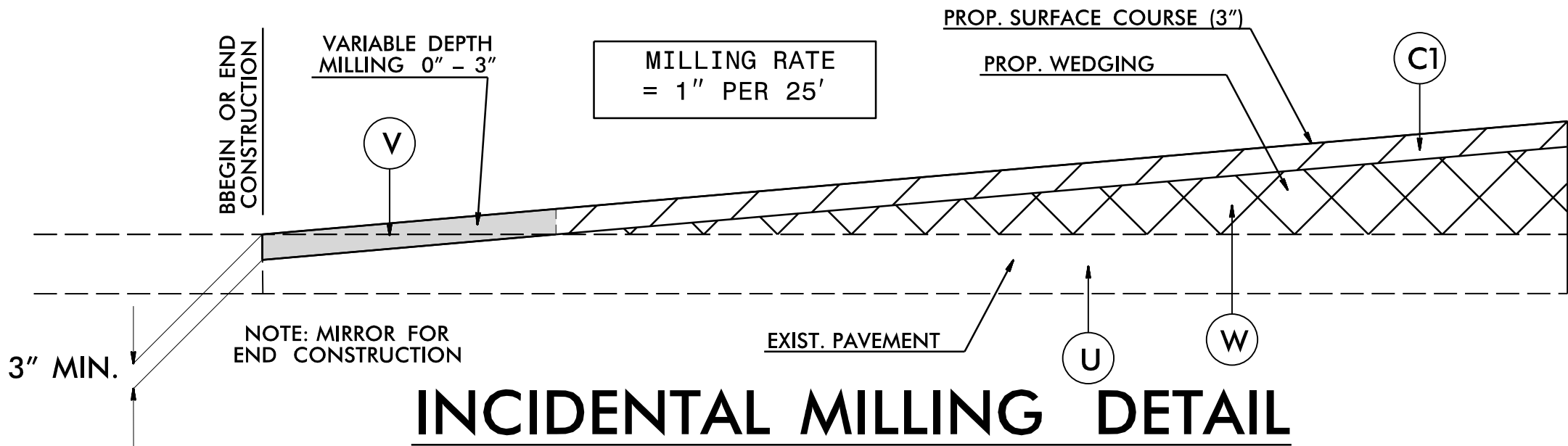
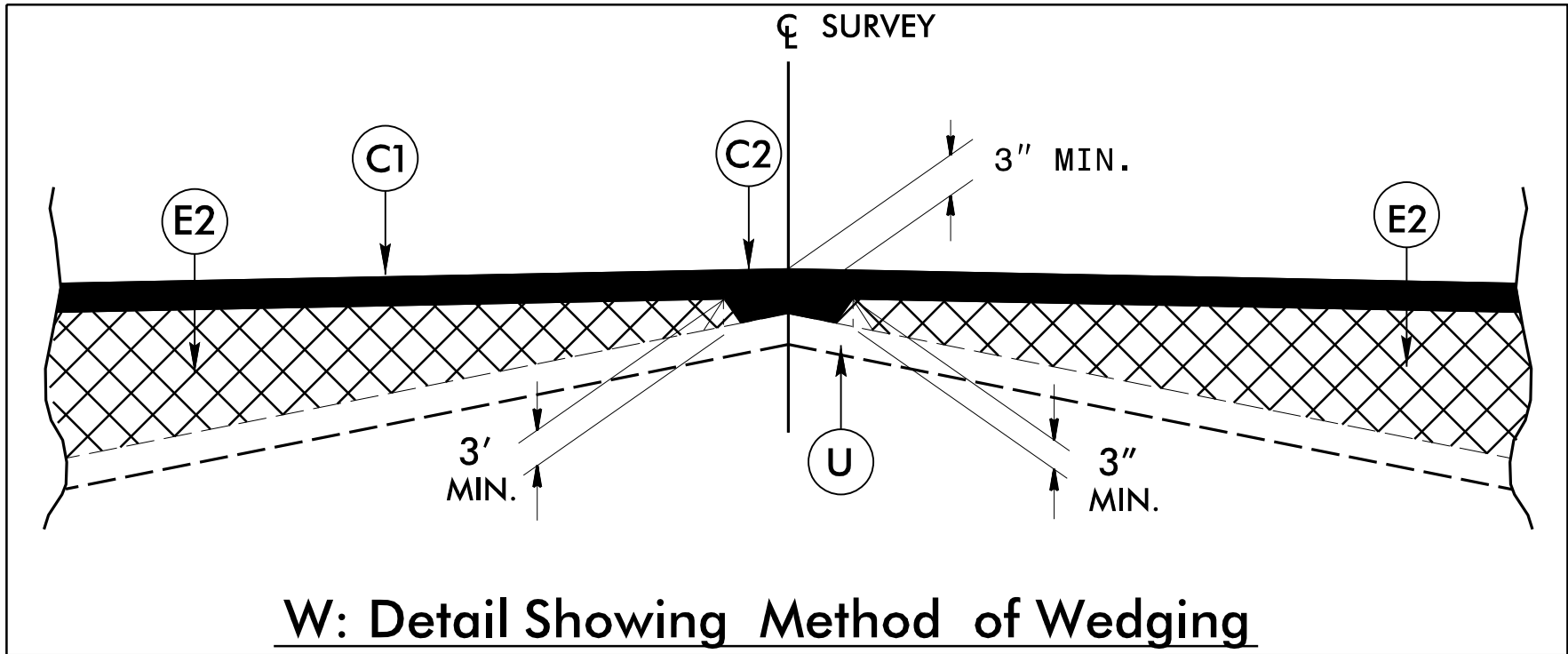
MISCELLANEOUS:

Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line LOS B (S.U.E.*)	
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	
End of Information	

6/2/99

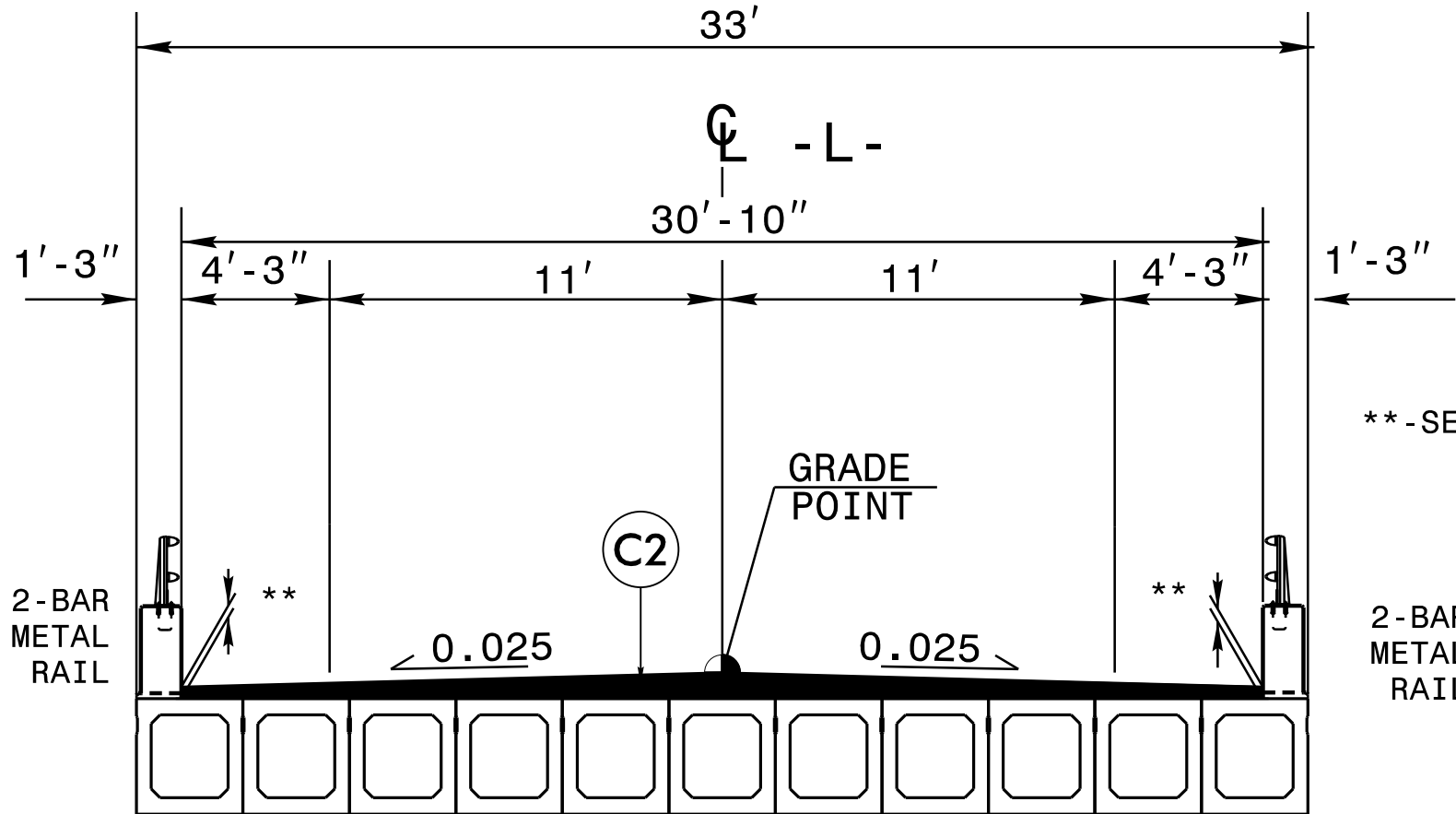
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" 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 5½" IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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



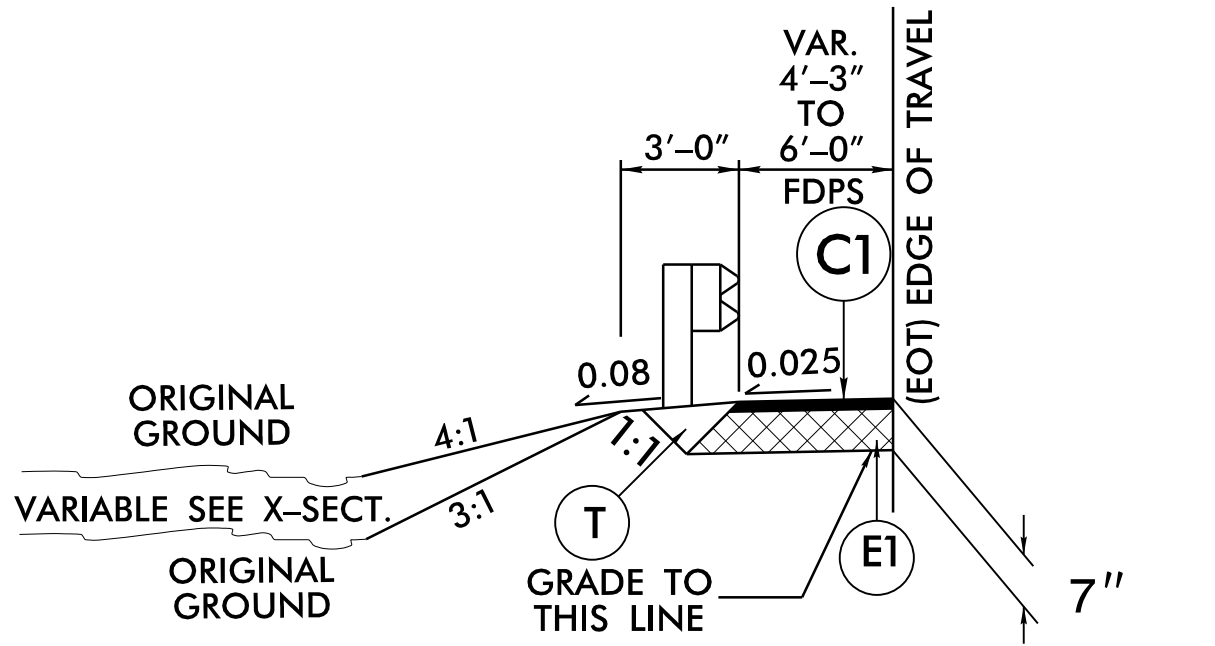
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
-L- STA. 12+05.00 TO -L- STA. 15+03.75
-L- STA. 18+36.25 TO -L- STA. 19+10.04



TYPICAL SECTION NO. 3

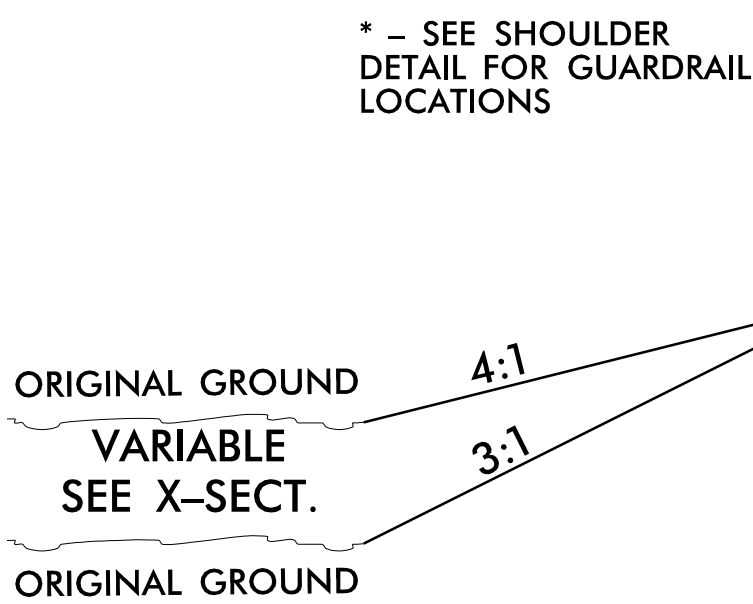
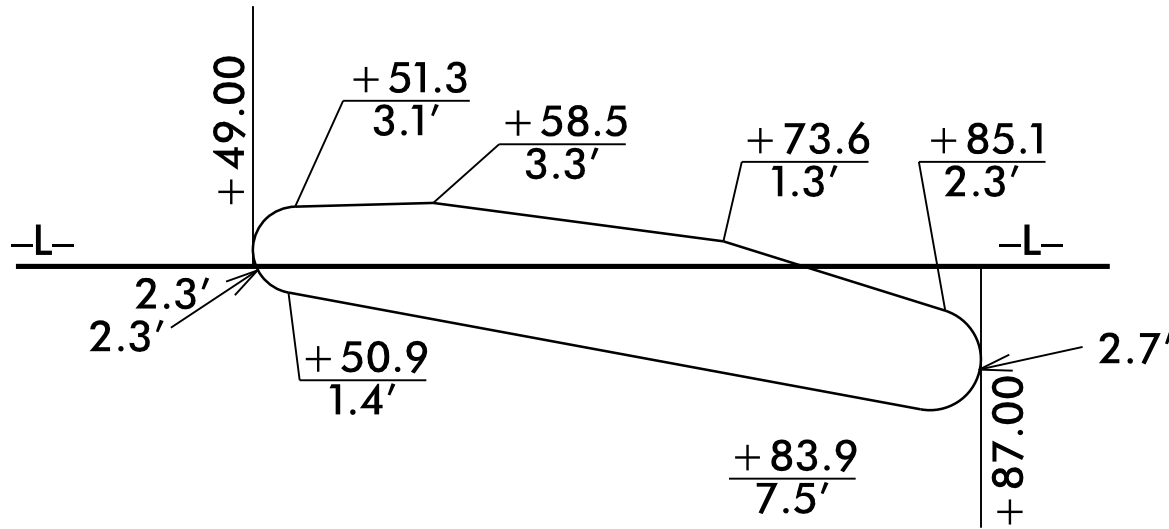
USE TYPICAL SECTION NO. 3 AS FOLLOWS:
-L- STA. 15+53.75 (BEGIN BRIDGE) TO -L- STA. 17+86.25 (END BRIDGE)



SHOULDER DETAIL

USE SHOULDER DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 2:
-L- STA. 12+72.50 TO -L- STA. 15+53.75 RT.
-L- STA. 14+47.50 TO -L- STA. 15+53.75 LT.
-L- STA. 17+86.25 TO -L- STA. 18+21.00 LT.
-L- STA. 17+86.25 TO -L- STA. 18+33.00 RT.

REMOVE & REPLACE ASPHALT MED. W/CONC. ISLAND DETAIL



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
-L- STA. 15+03.75 TO -L- STA. 15+53.75 (BEGIN BRIDGE)
-L- STA. 17+86.25 (END BRIDGE) TO -L- STA. 18+36.25

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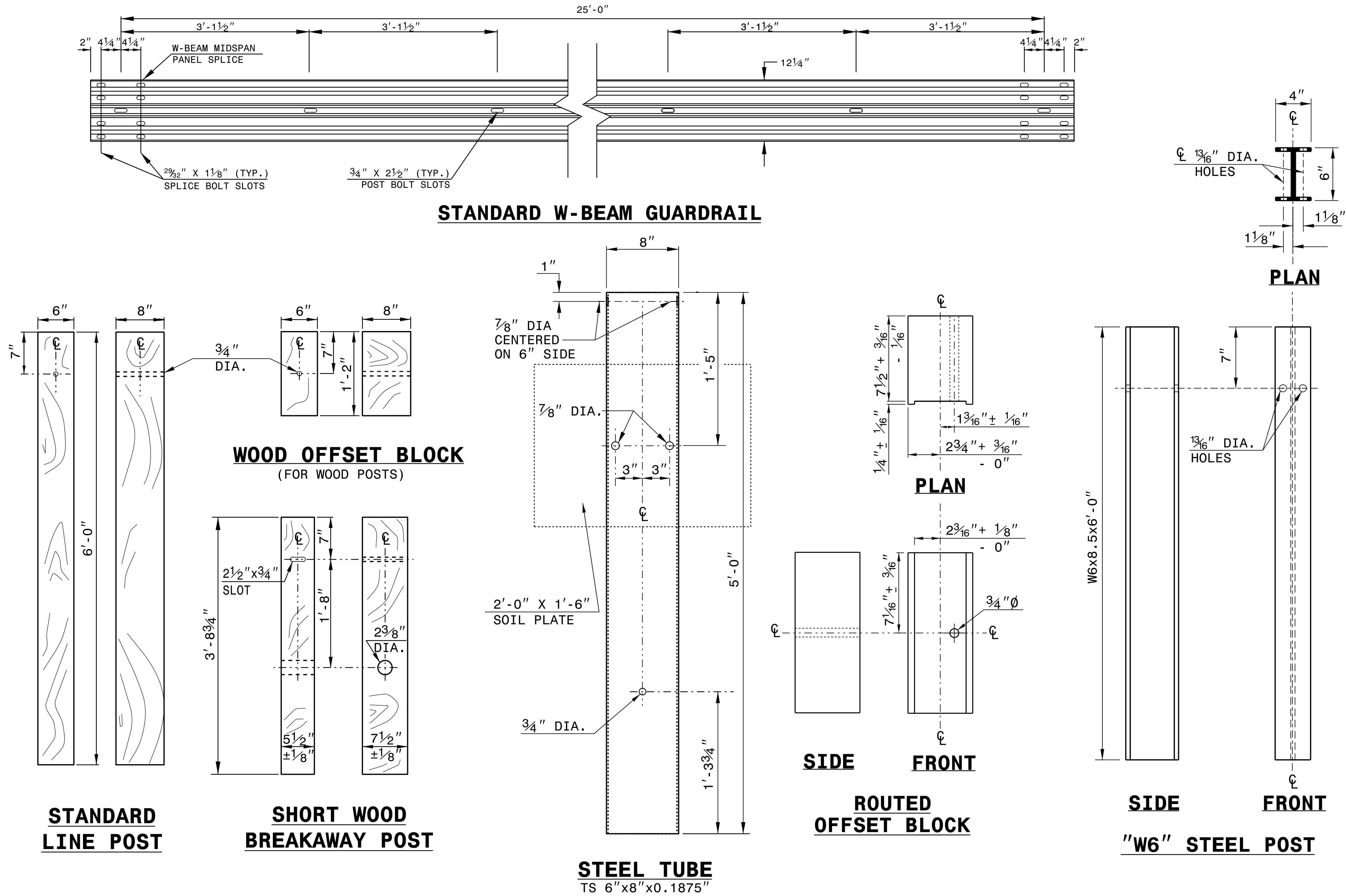
PROJECT REFERENCE NO.	SHEET NO.
BR-0241	2C-1

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR GUARDRAIL INSTALLATION

SHEET 6 OF 8

862D02



SYSTEM PARTS

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR GUARDRAIL INSTALLATION

SHEET 6 OF 8

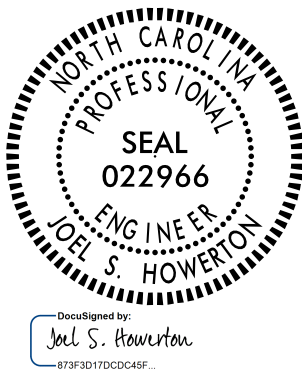
862D02

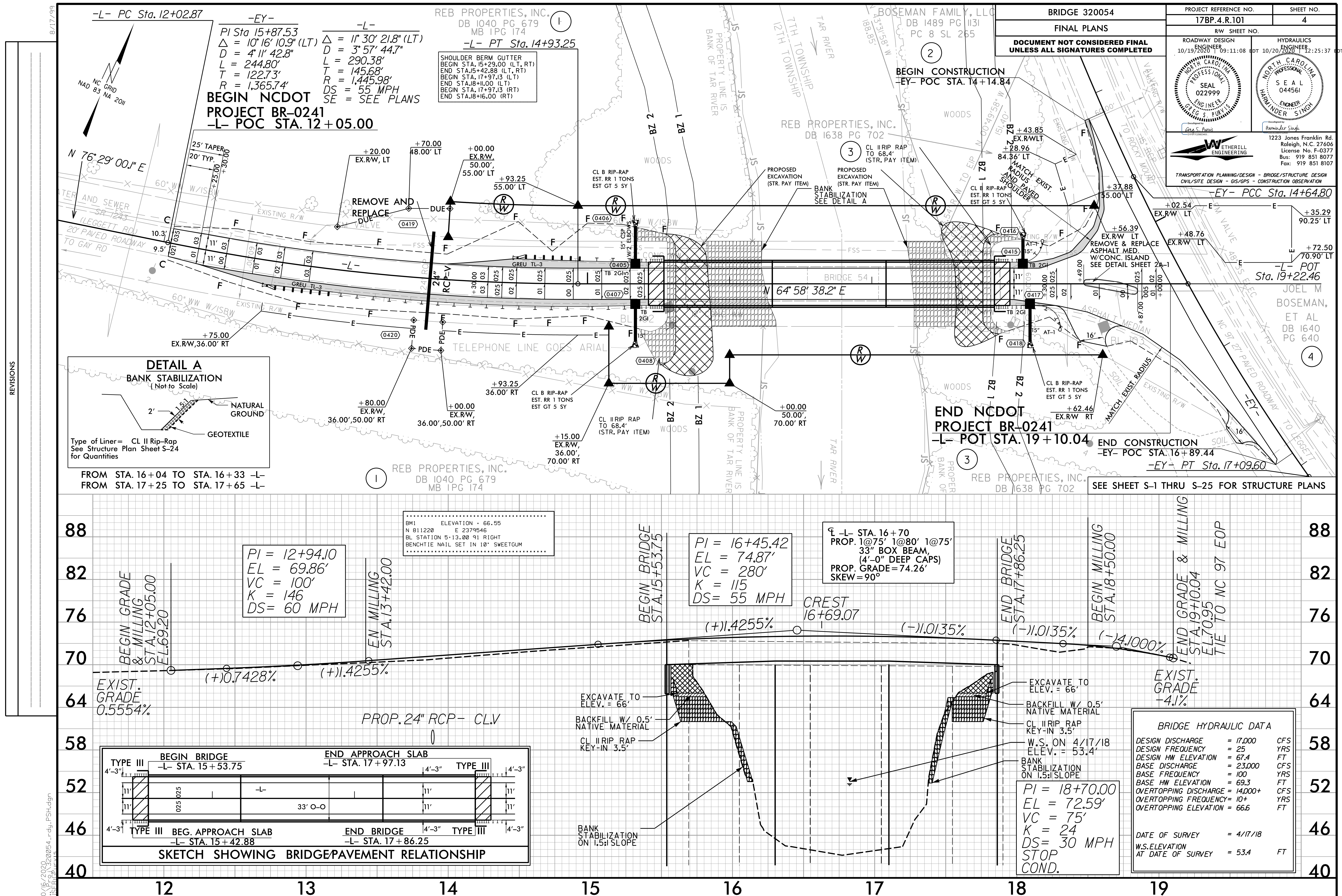
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

10/19/2020 | 09:39:50 EDT





09/06/19

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DDN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

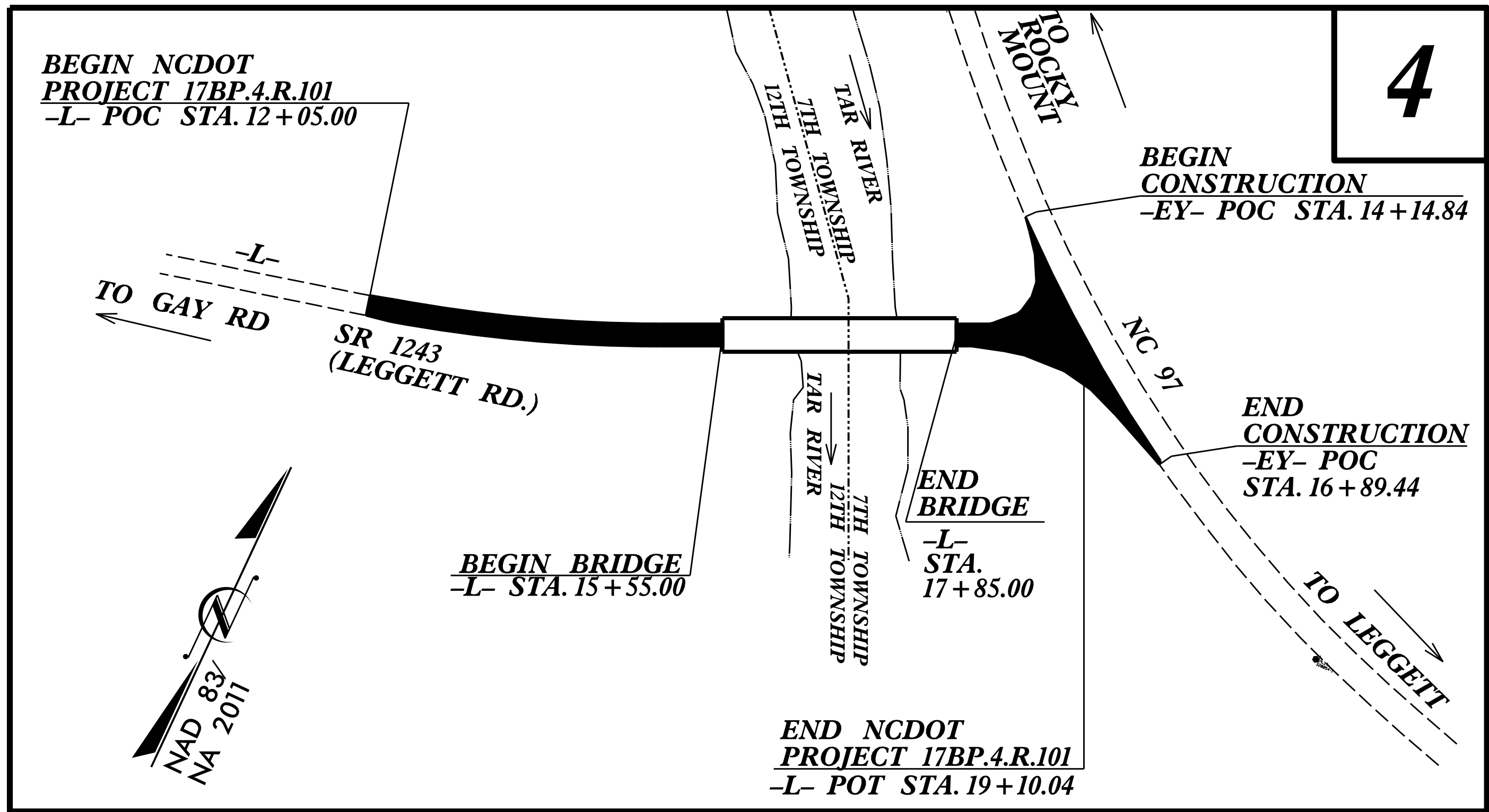
TIP PROJECT: 320054

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

EDGECOMBE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.101	RW01	



GRAPHIC SCALE



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "320054-1" WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF NORTHING: 811,429.092(ft) EASTING: 2380627.914(ft) ELEVATION: 63.39(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999953855 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "320054-1" TO -L- STATION 10+00 IS S 83°54'08" W 1196.43(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

KCI ASSOCIATES OF N.C.
4505 FALLS OF NEUSE RD
RALEIGH, NC 27609

2018 STANDARD SPECIFICATIONS

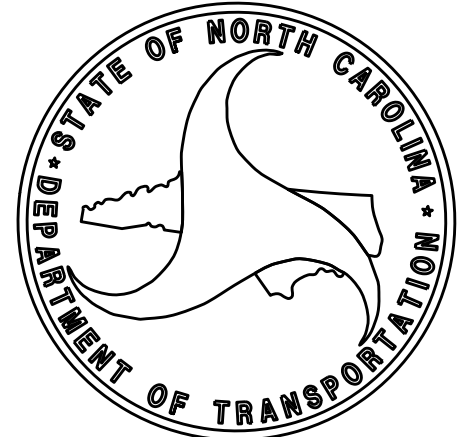
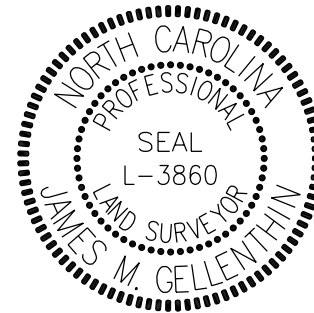
RIGHT OF WAY DATE:

LETTING DATE:

PROFESSIONAL LAND
SURVEYOR

SIGNATURE: *James M. Gellen*

3/28/2019
Date:



6/2/99

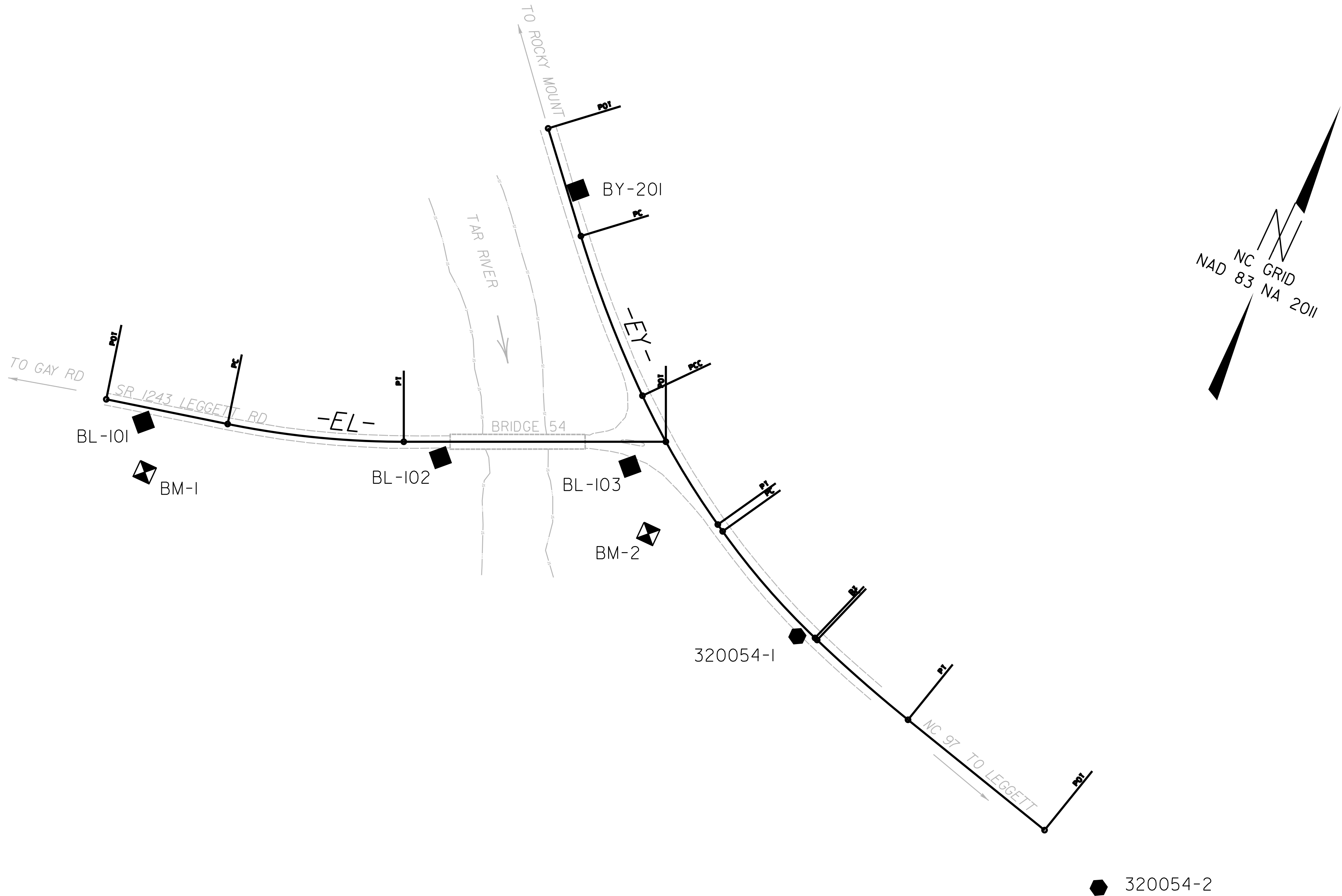
REVISIONS

Edgecombe Co\DRAWINGS\320054_ls-rw02c-1.dgn

21-MAR-2018 10:31 AM
M:\2019\361901108
matthew.koss AT 12-2XXPIG2

SURVEY CONTROL SHEET
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
320054	RW02C-1
Location and Surveys	
 KCI ASSOCIATES OF NC ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS	



- 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.

6/2/99

REVISIONS

Edgecombe Co\DRAWINGS\320054_1s-rw02c-2.dgn

18-MAR-2018 08:18
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matthew.koss AT 12-F07DFC2

PROJECT REFERENCE NO.

320054

SHEET NO.

RW02C-2

Location and Surveys

KCI

KCI ASSOCIATES OF NC

ENGINEERS | PLANNERS | SCIENTISTS | CONSTRUCTION MANAGERS

SURVEY CONTROL SHEET

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BASELINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION
	101	BL - 101	811302.9110	2379504.7080	67.69
	102	BL - 102	811457.0600	2379973.9080	72.31
	103	BL - 103	811574.3160	2380257.3400	70.62
BY	POINT	DESC.	NORTH	EAST	ELEVATION
	201	BY - 201	811938.8600	2379993.3570	68.20
	A103	BL - 103	811574.3160	2380257.3400	70.62
	1	320054 - 1	811429.0920	2380627.9140	69.39
	2	320054 - 2	811264.6170	2381249.2330	65.72

BENCHMARK DATA

BM1 ELEVATION = 66.55

N 811220 E 2379546

BENCHTIE NAIL SET IN 10" SWEETGUM

BM2 ELEVATION = 68.47

N 811478 E 2380336

BENCHTIE NAIL SET IN 11" HARDWOOD

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.

6/2/99

REVISIONS

Edgecombe Co\DRAWINGS\320054_1s_rw02c-3.dgn

18-MAR-2018 08:23
M:\2019\361901108
matthew.koss AT 12-F07DFC2

NCDOT\E-320054_RW_Staking

SURVEY CONTROL SHEET
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.
320054

SHEET NO.
RW02C-3

Location and Surveys

 KCI ASSOCIATES OF NC
ENGINEERS | PLANNERS | SCIENTISTS | CONSTRUCTION MANAGERS

ALIGNMENT DATA

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	811301.999	2379438.249							
LINE			N 76°29'00.1" E	202.87					
PC	811349.415	2379635.497							
CURVE			N 70°43'49.2" E	289.89	11°30'21.8"(LT)	03°57'44.7"	290.38	145.68	1445.98
PT	811445.084	2379909.148							
LINE			N 64°58'38.2" E	429.21					
POT	811626.632	2380298.077							

EY POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	812010.138	2379906.262							
LINE			S 41°58'08.8" E	184.39					
PC	811873.046	2380029.566							
CURVE			S 46°05'25.7" E	280.17	08°14'33.9"(LT)	02°56'22.1"	280.42	140.45	1949.19
PT	811678.739	2380231.414							
LINE			S 50°12'42.6" E	0.00					
PC	811678.739	2380231.414							
CURVE			S 55°20'48.1" E	244.47	10°16'10.9"(LT)	04°11'42.8"	244.80	122.73	1365.74
PT	811539.732	2380432.515							
LINE			S 60°28'53.5" E	13.68					
PC	811532.990	2380444.423							
CURVE			S 65°55'55.6" E	230.95	10°54'04.2"(LT)	04°42'46.8"	231.30	116.00	1215.69
PT	811438.804	2380655.296							
LINE			S 71°22'57.7" E	4.86					
PC	811437.253	2380659.899							
CURVE			S 73°43'46.3" E	198.04	04°41'37.1"(LT)	02°22'09.6"	198.10	99.10	2418.21
PT	811381.767	2380850.010							
LINE			S 76°04'34.8" E	287.49					
POT	811312.590	2381129.050							

- NOTES:
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
 - 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.

6/2/99

REVISIONS

Edgecombe Co\DRAWINGS\320054_1s.rw02c-3.dgn

18-MAR-2019 08:44
M:\2019\320054\1108 NCDOT\1E-320054 RW Staking -
12-12-2019
Matthew Koss

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.

320054

SHEET NO.

RW02D-1

Location and Surveys

 KCI ASSOCIATES OF NC

ENGINEERS | PLANNERS | SCIENTISTS | CONSTRUCTION MANAGERS

L									
POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	811301.999	2379438.249							
LINE			N 76°29'00.1" E	202.87					
PC	811349.415	2379635.497							
CURVE			N 70°43'49.2" E	289.89	11°30'21.8"(L T)	03°57'44.7"	290.38	145.68	1445.98
PT	811445.084	2379909.148							
LINE			N 64°58'38.2" E	429.21					
POT	811626.632	2380298.077							

NOTES:

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

6/2/19

REVISIONS

18-MAR-2019 14:16 NCDOTVE-320054 RW Staking - Edgecombe Co\DRAWINGS\320054_1s.rw03e-1.dgn
M:\2019\320054\1128
at 12:50 PM
matthew.koss

RIGHT OF WAY CONTROL SHEET

I, James M. Gellenthin, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 20th day of March, 2019.


Professional Land Surveyor

L-3860
PLS #

Seal

PROJECT REFERENCE NO.
320054

SHEET NO.
RW03E-1

 **KCI ASSOCIATES OF NC**
ENGINEERS | PLANNERS | SCIENTISTS | CONSTRUCTION MANAGERS

PROJECT SURVEYOR


ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	14+00.00	-30.00	811436.3386	2379812.5296
L	14+00.00	-55.00	811459.6265	2379803.4370
L	14+93.25	-55.00	811494.9214	2379885.8845
L	15+15.00	30.00	811427.1006	2379941.5489
L	15+15.00	70.00	811390.8550	2379958.4680
L	16+00.00	70.00	811426.8081	2380035.4900
L	16+00.00	50.00	811444.9309	2380027.0304
L	18+56.39	-55.00	811648.5241	2380214.9459
L	18+62.46	50.00	811555.9435	2380264.8516

- NOTES:
- I, IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

6/2/19

21-MAR-2019 09:54
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NCDOT\VE-320054 RW Staking -
01 12-2018
matthew.koss

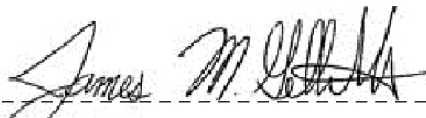
REVISIONS

PERMANENT EASEMENT CONTROL SHEET

I, James M. Gellenthin, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 20th day of March, 2019.


Professional Land Surveyor

L-3860
PLS #

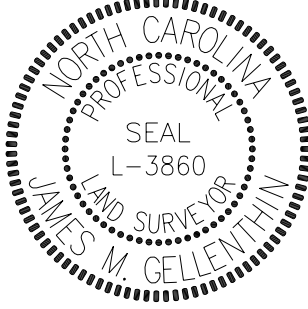
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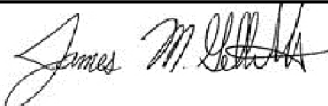
PROJECT REFERENCE NO.
320054

SHEET NO.
RW03E-2

 **KCI ASSOCIATES OF NC**
ENGINEERS | PLANNERS | SCIENTISTS | CONSTRUCTION MANAGERS

PROJECT SURVEYOR





ROW MARKER PERMANENT EASEMENT - E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+20.00	-30.00	811409.8786	2379738.8038
L	13+70.00	-48.00	811442.8380	2379778.8577
L	13+80.00	50.00	811354.4254	2379822.3000
L	13+80.00	30.00	811373.1545	2379815.2843
L	14+00.00	50.00	811361.8175	2379841.6260
L	14+00.00	30.00	811380.4477	2379834.3519
L	14+00.00	-50.00	811454.9689	2379805.2555

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1145.01	BARRICADES
1150.01	FLAGGERS
1205.01	PAVEMENT MARKINGS - LINE TYPES & 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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- D) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS A DROP-OFF AS FOLLOWS:
- BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.
- BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.
- BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

TRAFFIC PATTERN ALTERATIONS

- E) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

TRAFFIC CONTROL DEVICES

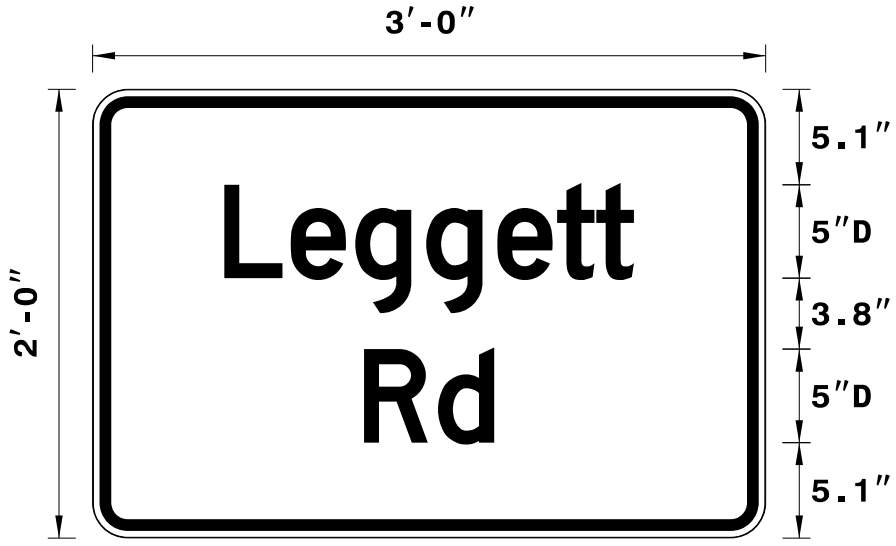
- I) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS)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

PHASING

PHASE I

- STEP 1: - USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 & 2 OF 9, DRUMS AND SHEET TMP-2 CLOSE LEGGETT ROAD (SR 1243) TO TRAFFIC.
- STEP 2: - CONSTRUCT PROPOSED BRIDGE AND PROPOSED ROADWAY, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE ROADWAY PLANS).
- PLACE THE FINAL MARKINGS (PAINT, TWO COATS) IN THE EXISTING TRAFFIC PATTERN & LANE WIDTHS AS SHOWN IN THE ROADWAY PLANS AND TIE TO EXISTING PAVEMENT MARKING LINES.
- NOTE: USE ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, FLAGGERS & DRUMS TO CONSTRUCT PROPOSED TIE-IN AND PLACE FINAL PAVEMENT MARKINGS WITH NC 97 (SEE ROADWAY PLANS).
- STEP 3: - OPEN LEGGETT ROAD (SR 1243) TO THE FINAL TRAFFIC PATTERN AND REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.

SIGN NUMBER: name	BACKG COLOR: Fluorescent Orange	DESIGN BY: SLK
TYPE: STATIONARY	COPY COLOR: Black	CHECKED BY: JWG
QUANTITY: SEE PLANS		PROJECT ID: 17BP.4.R.101
SIGN WIDTH: 3'-0"		DIV: 4
HEIGHT: 2'-0"		
TOTAL AREA: 6.0 Sq.Ft.		
BORDER TYPE: INSET		
RECESS: 0.38"		
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.		

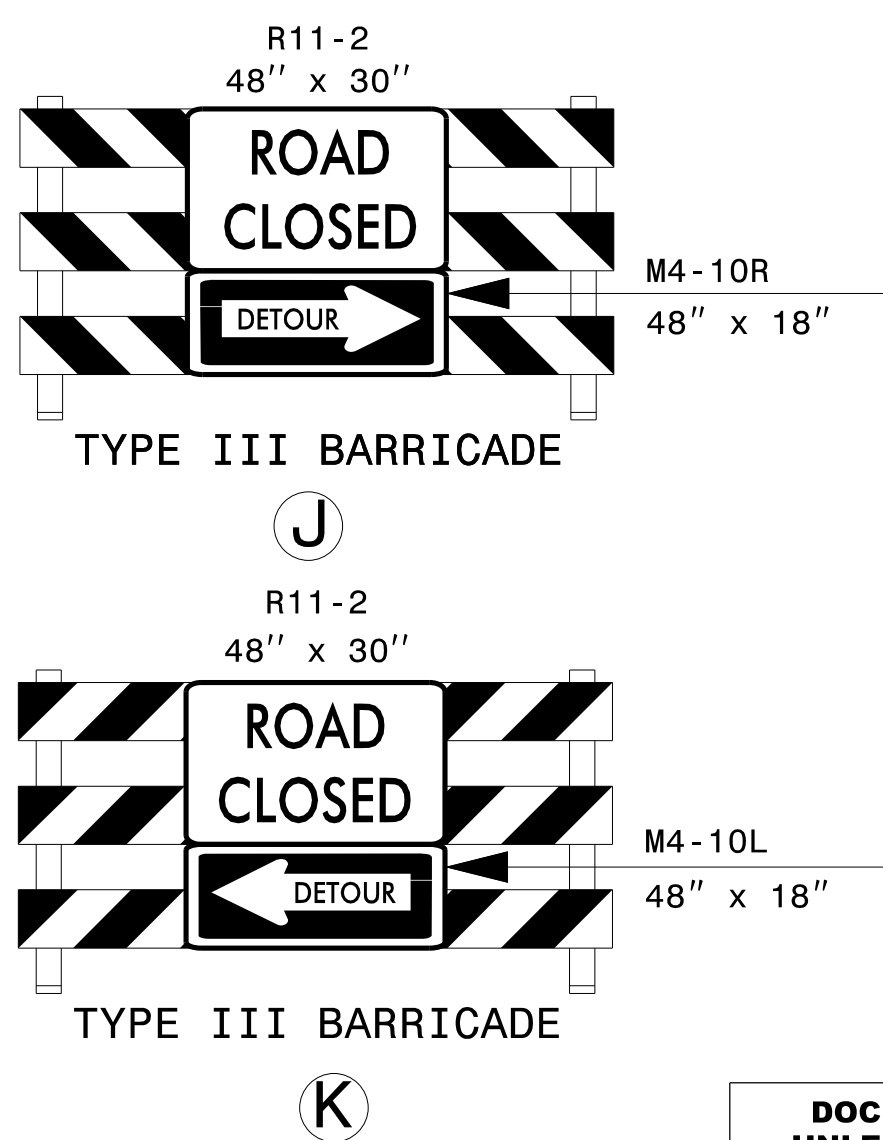
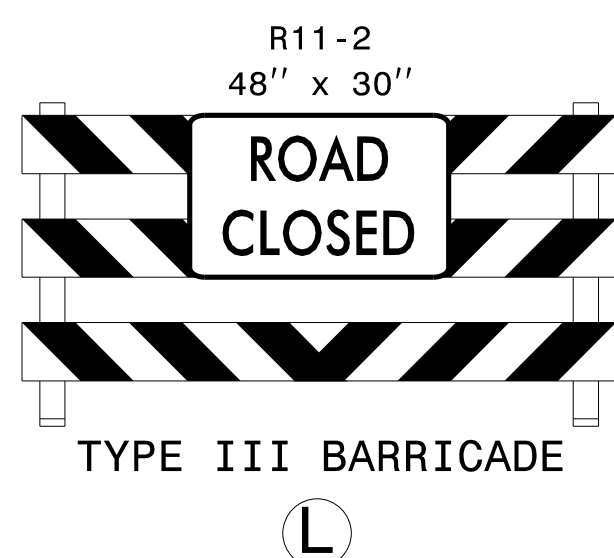
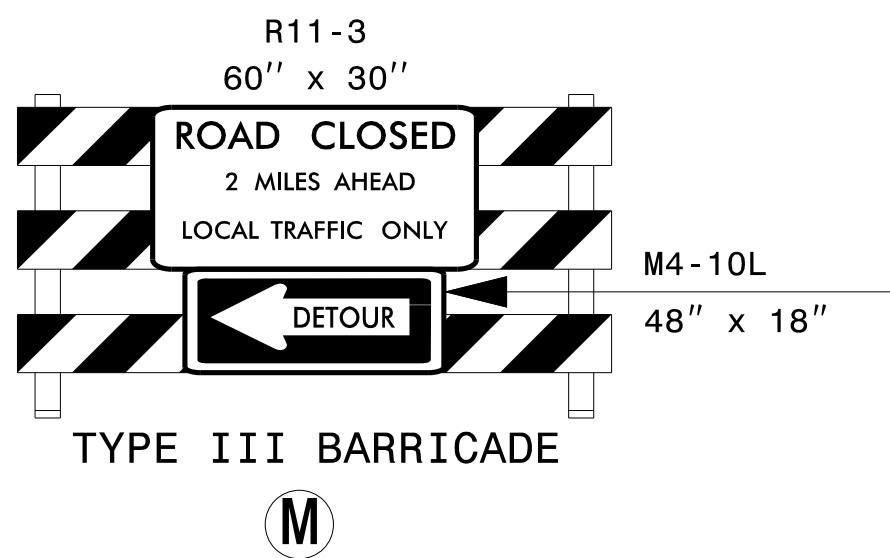
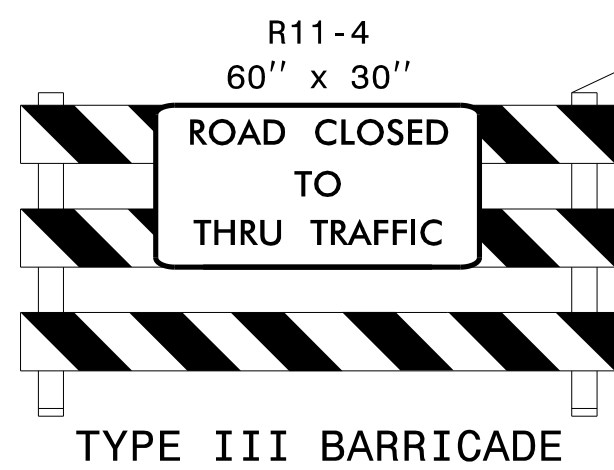


BORDER
R=1.5"
TH=0.63"
IN=0.38"

Spacing Factor is 1 unless specified otherwise

NOTE: TEMPORARY SIGNS TO BE PAID FOR AS "STATIONARY WORK ZONE SIGNS".

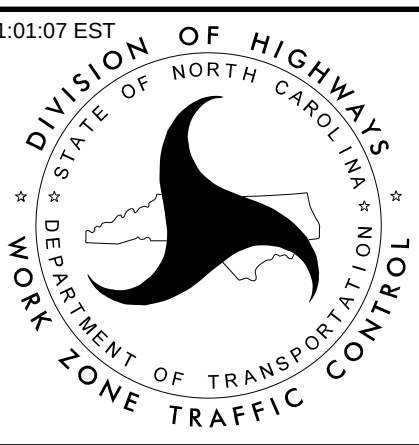
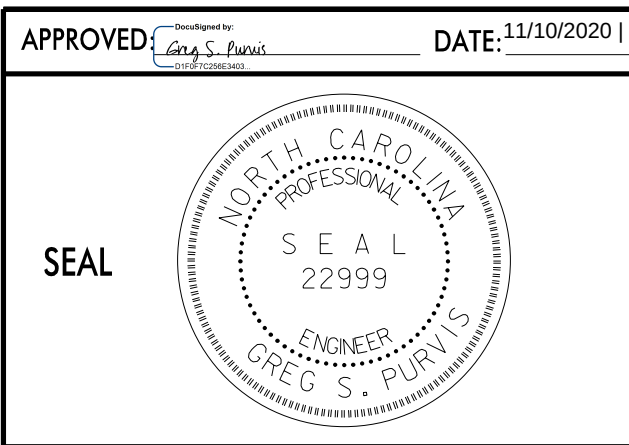
 2223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED APPROVED: <u>Greg S. Purvis</u> DATE: <u>11/10/2020</u> <u>11:01:07 EST</u>	  ROAD STANDARD DRAWINGS, PHASING, GENERAL NOTES AND SPECIAL SIGN DESIGN FOR LEGGETT ROAD (SR 1243)
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	SEAL	



DETOUR ROUTE

NOTES: SEE TMP-1 FOR "LEGGETT ROAD" SPECIAL SIGN DESIGN.
ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.

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



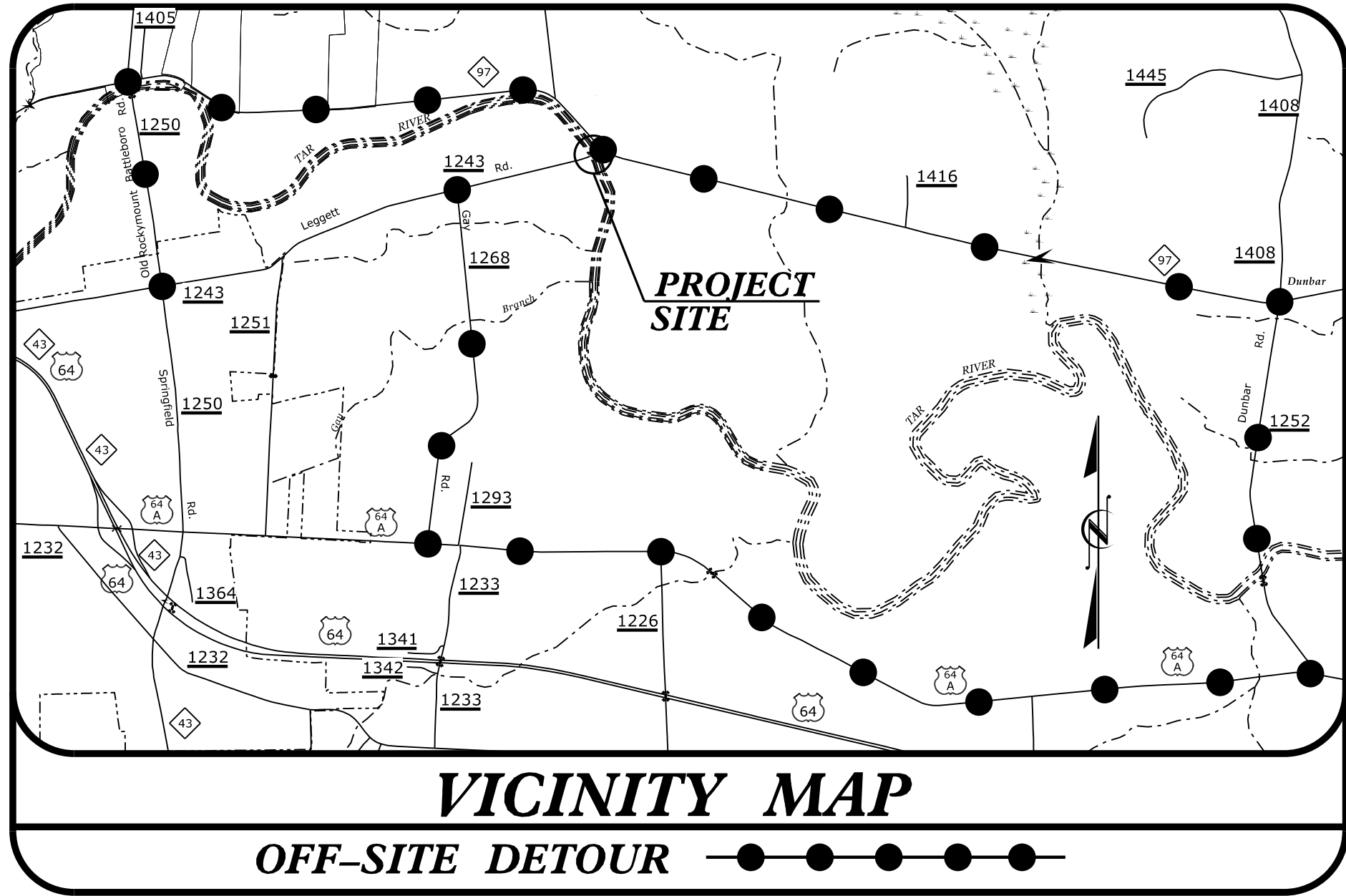
DETOUR
LEGGETT ROAD
(SR 1243)

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

10/26/2020 054_RdJ--tsb.dgn
USER:RTH01V01

TIP PROJECT: BR-0241

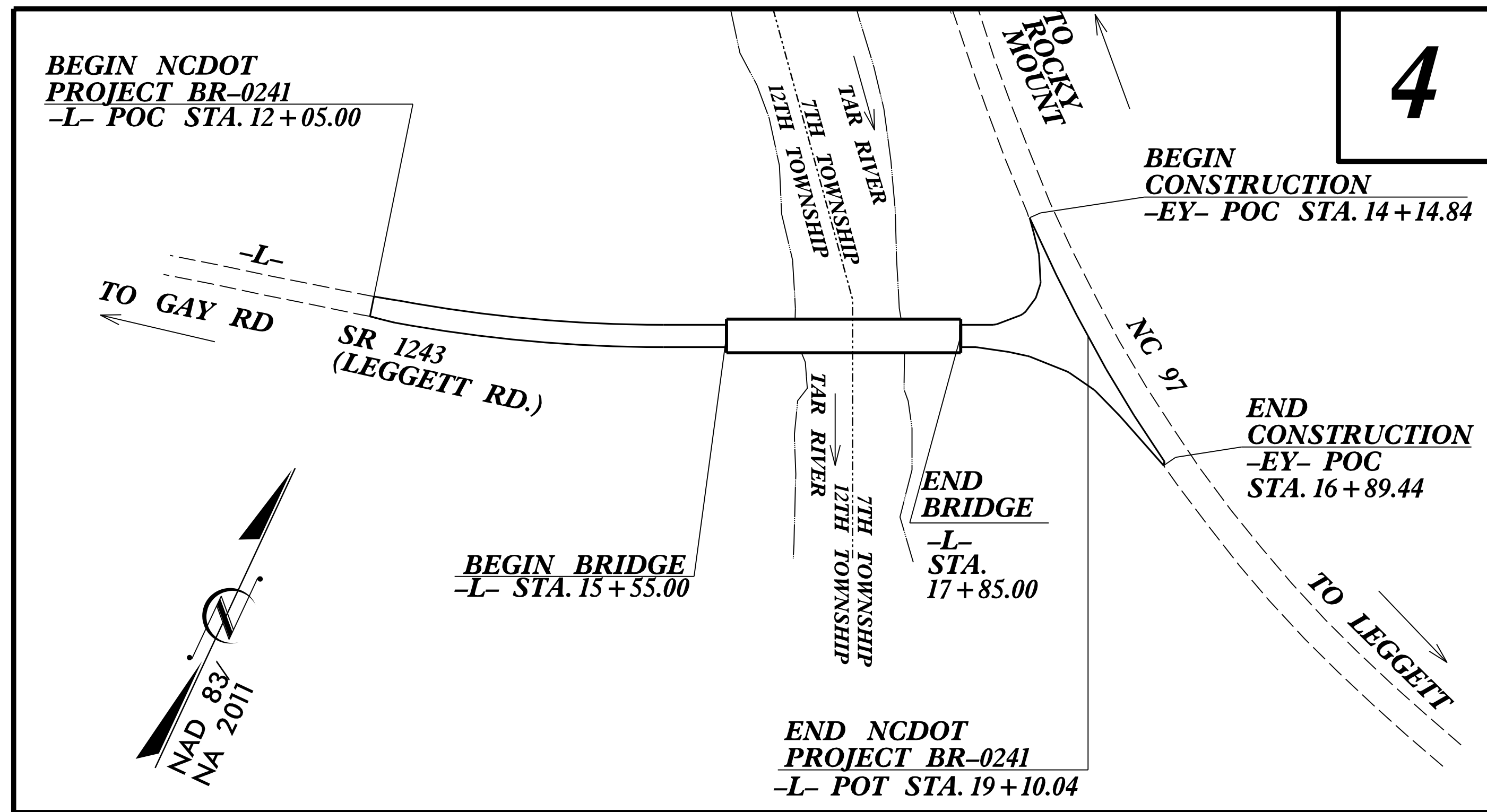


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

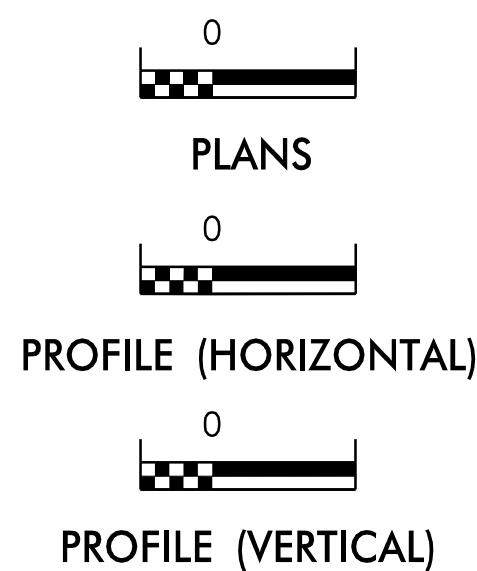
EDGECOMBE COUNTY

LOCATION: BRIDGE NO. 54 OVER TAR RIVER
ON SR 1243 (LEGGETT RD.)
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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:
WETHERILL ENGINEERING
1223 JONES FRANKLIN RD.
RALEIGH NC 27606

Designed by:
HARMINDER SINGH 3519
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:

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 2018 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		

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0241	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	no
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	III III III
1630.02	Silt Basin Type B	III III III
1633.01	Temporary Rock Silt Check Type-A	III III III
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	III III III
1633.02	Temporary Rock Silt Check Type-B	III III III
	Wattle/ Coir Fiber Wattle	III III III
	Wattle/ Coir Fiber Wattle with Polyacrylamide (PAM)	III III III
1634.01	Temporary Rock Sediment Dam Type-A	III III III
1634.02	Temporary Rock Sediment Dam Type-B	III III III
1635.01	Rock Pipe Inlet Sediment Trap Type-A	III III III
1635.02	Rock Pipe Inlet Sediment Trap Type-B	III III III
1630.04	Stilling Basin	III III III
1630.06	Special Stilling Basin	III III III
	Rock Inlet Sediment Trap:	III III III
1632.01	Type A	III III III
1632.02	Type B	III III III
1632.03	Type C	III III III
	Skimmer Basin	III III III
	Tiered Skimmer Basin	III III III
	Infiltration Basin	III III III

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

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

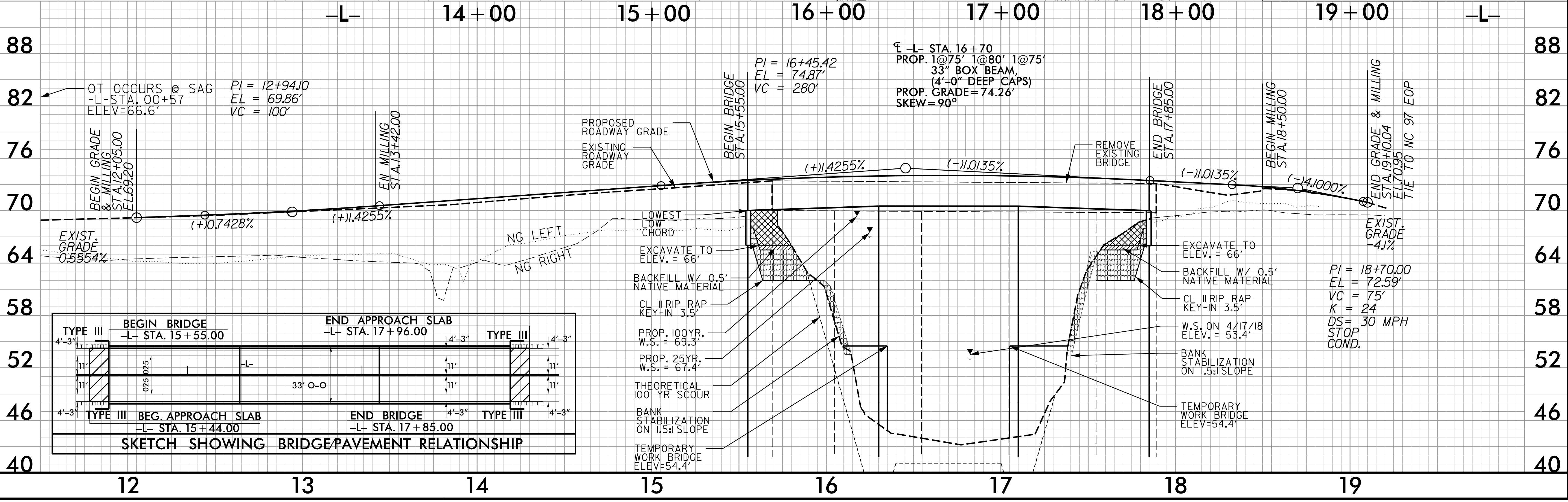
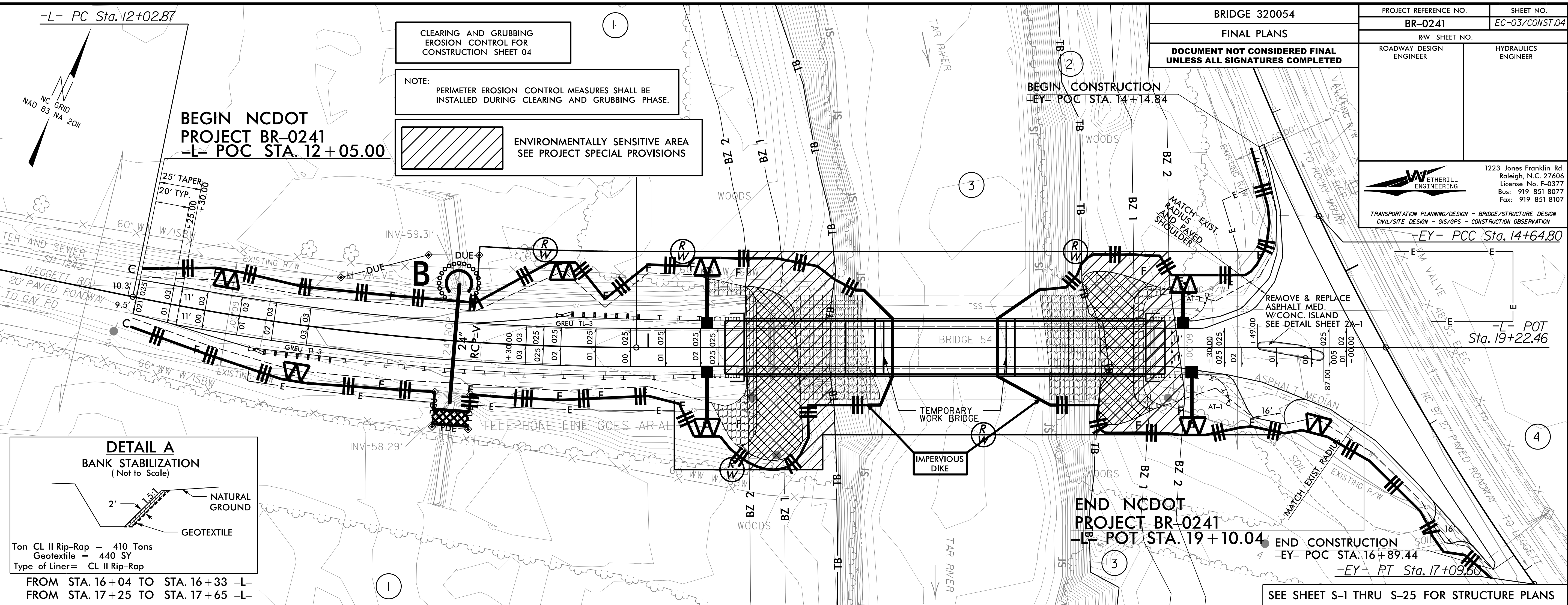
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
BR-0241	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

8/17/99
10/18/2020 ec.cg.dgn
11/28/2020



8/17/99

-L- PC Sta. 12+02.87

-L- PT Sta. 14+93.25

BRIDGE 320054

FINAL PLANS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.
BR-0241

RW SHEET NO.

ROADWAY DESIGN
ENGINEER

SHEET NO.
EC-04/CONST.04

HYDRAULICS
ENGINEER

WETHERELL
ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

BEGIN NCDOT
PROJECT BR-0241
-L- POC STA. 12+05.00

BEGIN CONSTRUCTION
-EY- POC STA. 14+14.84

-EY- PCC Sta. 14+64.80

-L- POT
Sta. 19+22.46

END NCDOT
PROJECT BR-0241
-L- POT STA. 19+10.04

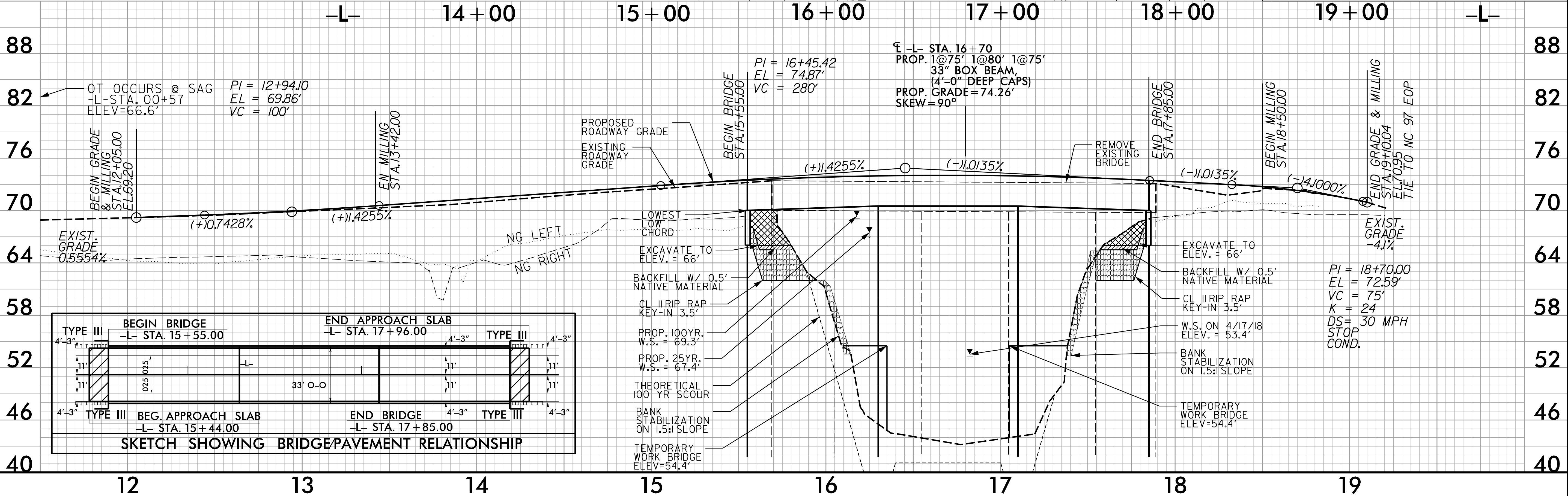
END CONSTRUCTION
-EY- POC STA. 16+89.44
-EY- PT Sta. 17+09.60

SEE SHEET S-1 THRU S-25 FOR STRUCTURE PLANS

DETAIL A
BANK STABILIZATION
(Not to Scale)

Ton CL II Rip-Rap = 410 Tons
Geotextile = 440 SY
Type of Liner = CL II Rip-Rap

FROM STA. 16+04 TO STA. 16+33 -L-
FROM STA. 17+25 TO STA. 17+65 -L-

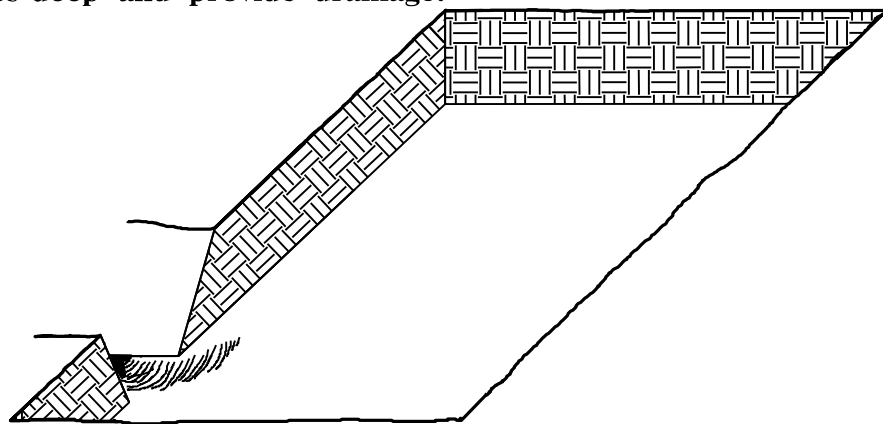


10/12/2020 ec_final.dgn

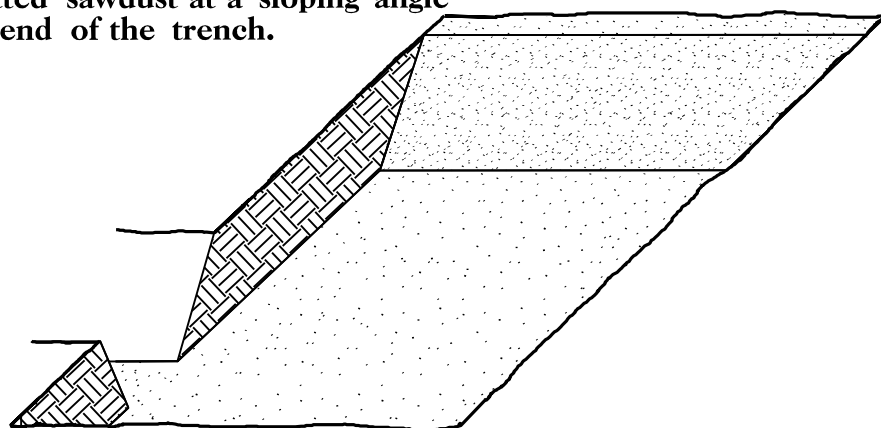
PLANTING DETAILS
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

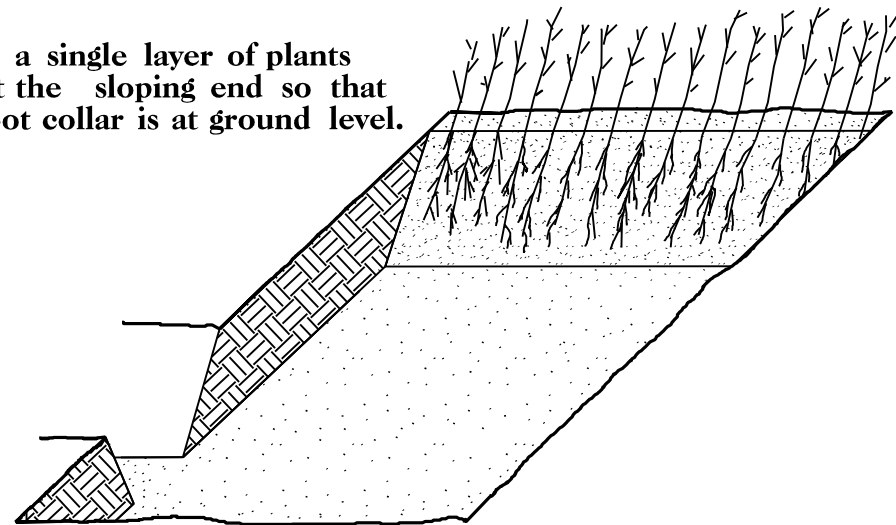
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



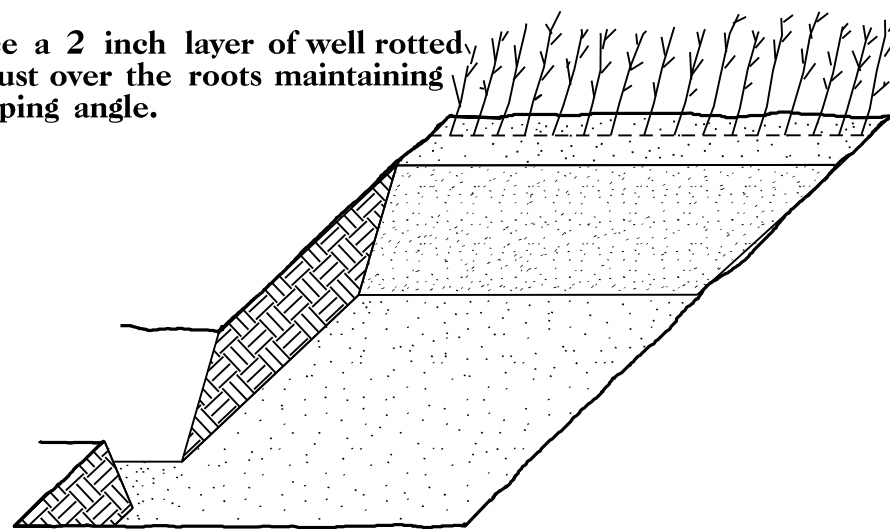
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

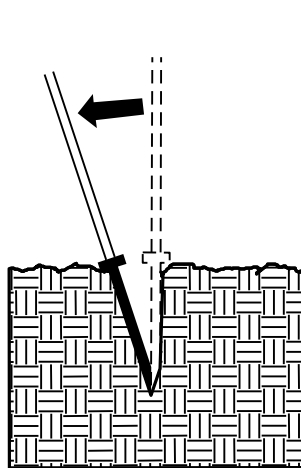


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

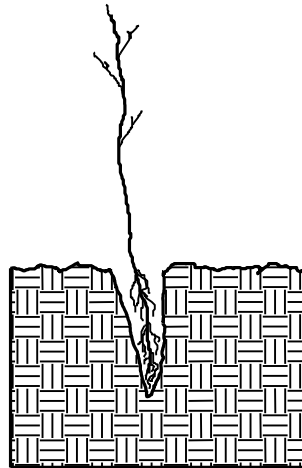


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

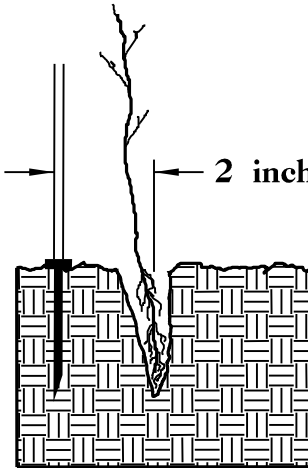
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



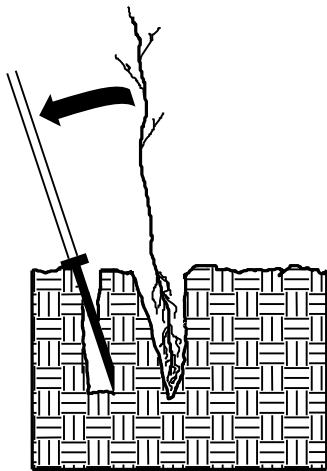
1. Insert planting bar as shown and pull handle toward planter.



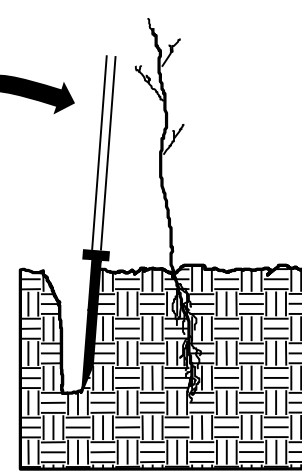
2. Remove planting bar and place seedling at correct depth.



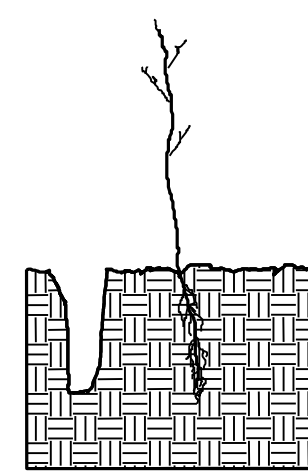
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



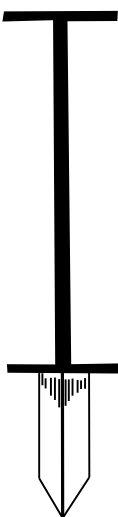
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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



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



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

REFORESTATION

- ☐ 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

CONTRACT: DD00327

A detailed vicinity map centered on a "PROJECT SITE" indicated by a star. The map shows a network of roads including Highway 64, Highway A, and various local roads like Loggert, Progress, and Dasher Rd. Numerous numbered points are marked along these routes, such as 1250, 1243, 1268, 1293, 1233, 1226, 1232, 1341, 1342, 1364, 1416, 1445, 1408, and 1252. Geographic features include the "RIVER" and "Loggert". A north arrow is located in the lower right quadrant of the map area. Below the map, the title "VICINITY MAP" is written in large, bold, serif capital letters. Underneath the title, the phrase "OFF-SITE DETOUR" is followed by a horizontal line with five solid black circles spaced evenly along it.

UTILITY CONSTRUCTION PLANS

EDGECOMBE COUNTY

TYPE OF WORK: RELOCATION OF WATER LINE AND SEWER FORCE MAIN

FINAL DESIGN
RELEASE
FOR CONSTRUCTION

T.I.P. NO.	SHEET NO.
BR-0241	UC-1

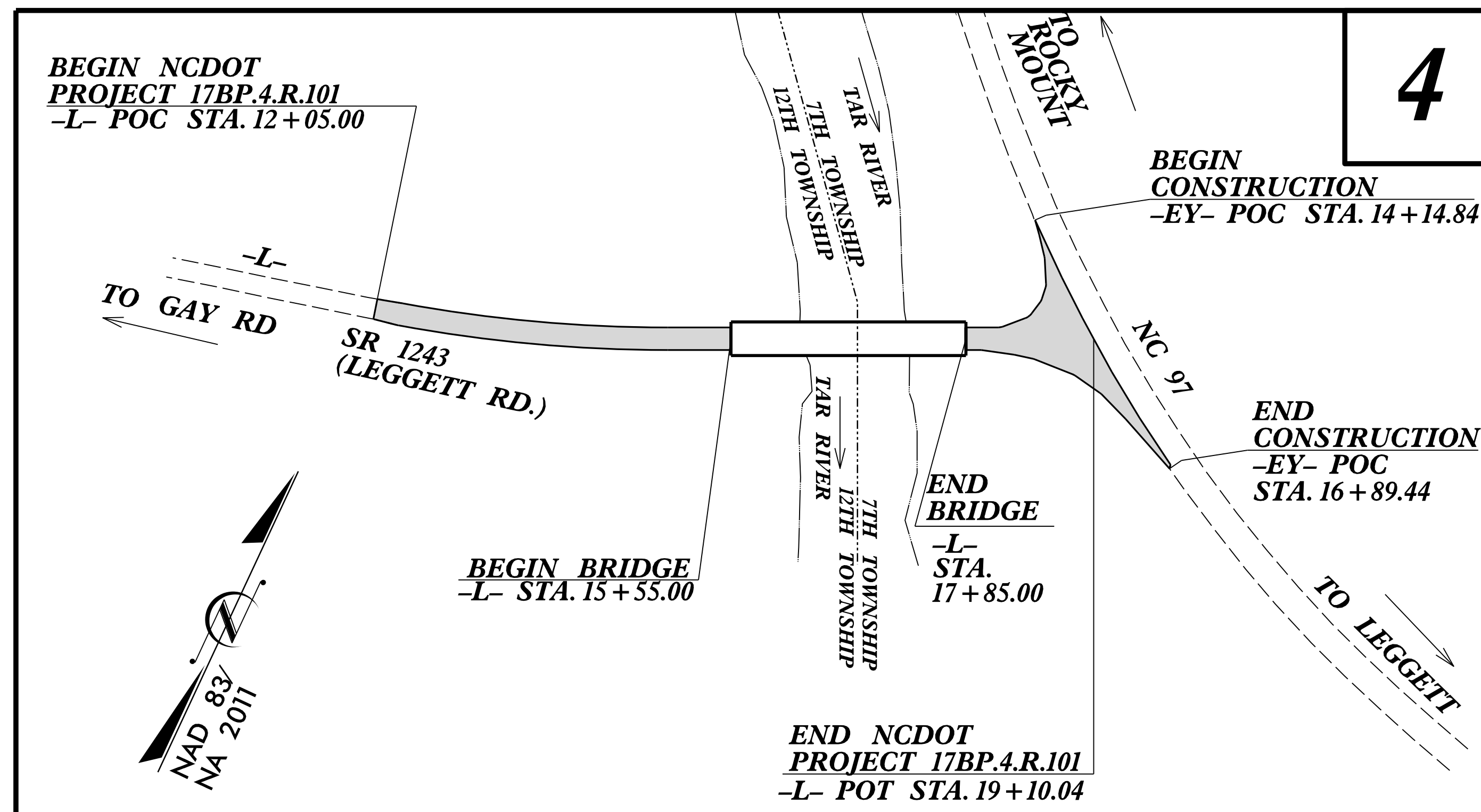


**WETHERILL
ENGINEERING**

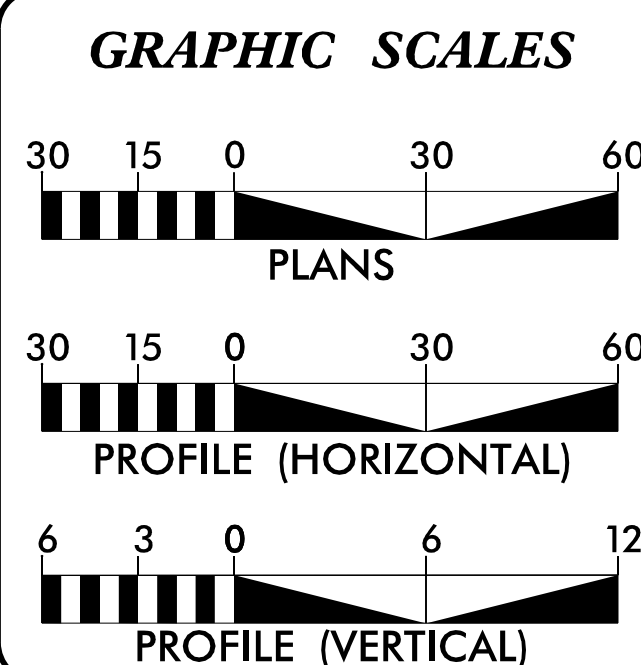
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN

CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



**DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED**



<i>INDEX OF SHEETS</i>	
<u><i>SHEET NO.</i></u>	<u><i>DESCRIPTION</i></u>
<i>UC-1</i>	<i>TITLE SHEET</i>
<i>UC-2</i>	<i>SYMBOLLOGY SHEET</i>
<i>UC-3 THRU UC-3A</i>	<i>GENERAL NOTES SHEET</i>
<i>UC-3B THRU UC-3C</i>	<i>DETAIL SHEETS</i>
<i>UC-4</i>	<i>PLAN & PROFILE SHEET</i>
<i>UC-5</i>	<i>PLAN & PROFILE SHEET</i>

**WATER AND SEWER
OWNERS ON PROJECT**

(1) **EDGECOMBE COUNTY (WATER)**
(SEWER)

PREPARED IN THE OFFICE OF:



TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

1223 Jones Franklin Rd
Raleigh, N.C. 27606
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Fax: 919 851 8107

<u>EDWARD G. WETHERILL, PE</u>	UTILITY ENGINEER
<u>SCOTT L. KENNEDY</u>	UTILITY DESIGN ENGINEER
<u>JOHN D. SCHRINER, PLS</u>	PROJECT UTILITY COORDINATOR

SEAL



UTILITY CONSTRUCTION
PLANS ONLY



HIGHWAY DIVISION 4

509 WARD BLVD.
PO BOX 3165
WILSON, 27895

KIM MOORE DIVISION UTILITIES ENGINEER
FRANK ZDELAR DIVISION UTILITIES COORDINATOR

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 ¹ / ₄ Degree Bend	
22 ¹ / ₂ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line 12" SS
(Sized as Shown)
Force Main Sewer Line 12" FSS
(Sized as Shown)
Manhole
(Sized per Note)
Sewer Pump Station [PS(SS)]

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	 PROP. O/H. POW. LINES
Trenchless Installation	 12" TL. INSTALL
Encasement by Open Cut	 24" ENCAS. BY OC
Encasement	 24" ENCASEMENT

Thrust Block		
Air Release Valve		
Utility Vault		
Concrete Pier		
Steel Pier		
Plan Note		NOTE
Pay Item Note		

EXISTING UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	AATU
End of Information	E.O.

Underground Power Line	P
*Underground Telephone Cable	T
*Underground Telephone Conduit	TC
*Underground Fiber Optics Telephone Cable	T FO
*Underground TV Cable	TV
*Underground Fiber Optics TV Cable	TV FO
*Underground Gas Pipeline	G
Aboveground Gas Pipeline	A/G Gas
*Underground Water Line	W
Aboveground Water Line	A/G Water
*Underground Gravity Sanitary Sewer Line	SS
Aboveground Gravity Sanitary Sewer Line	A/G Sanitary Sewer
*Underground SS Forced Main Line	FSS
Underground Unknown Utility Line	UUL
SUE Test Hole	⦿
Water Meter	⦿
Water Valve	⊗
Fire Hydrant	⦿
Sanitary Sewer Cleanout	⦿

*For Existing Utilities

Utility Line Drawn from Record

(Type as Shown)

Designated Utility Line

(Type as Shown)

PROJ.

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS

2. THE EXISTING UTILITIES BELONG TO
EDGECOMBE COUNTY .

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

2. PROPOSED SEWER LINE FROM -SL- LINE STATION 11+74 +/- TO 12+50 +/- SHALL BE 12" RJ DIP, INSTALLED BY OPEN CUT METHOD,
AND FROM -SL- LINE STATION 12+50 +/- TO 16+79 +/- SHALL BE 12" DR9 DIPS HDPE, INSTALLED BY DIRECTIONAL DRILL METHOD, AND FROM -SL- LINE STATION 16+79 +/- TO 17+60 +/- SHALL BE 12" RJ DIP AND 24" ENCASMENT PIPE (0.250") , INSTALLED BY BORE AND JACK METHOD.
AND FROM -SL- LINE STATION 17+60 +/- TO 17+86 +/- SHALL BE 12" RJ DIP, INSTALLED BY OPEN CUT METHOD.

4. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL, IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION.

UTILITY CONSTRUCTION

FINAL DESIGN
RELEASE
FOR CONSTRUCTION

5/14/99

11/9/2020 3:00:54 ut_rdy4_UC3_psh.dgn
1556466666

UTILITY CONSTRUCTION

WATER INSTALLATION NOTES:

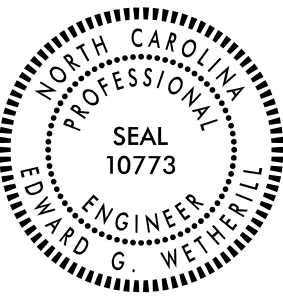
- 1) CONTRACTOR SHALL COORDINATE ALL PROPOSED WORK WITH EDGECOMBE COUNTY UTILITIES COORDINATOR MR. STEVE COBB AT 252-823-3848 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
- 2) CONTRACTOR SHALL FULLY INSTALL, PRESSURE & LEAKAGE TEST, AND CHLORINATE NEW WATER MAIN PRIOR TO CONNECTION TO EXISTING SYSTEM.
- 3) CONTRACTOR SHALL PERFORM THE CONNECTION DURING OFF PEAK HOURS WITH A MAXIMUM SHUT DOWN TIME OF FIVE HOURS. (12 PM MIDNIGHT TO 5 AM)
- 4) ANY WORK OR TEST PERFORMED WITHOUT NOTIFICATION AND CONTACT WITH EDGECOMBE COUNTY FIELD INSPECTORS SHALL BE PERFORMED AT THE CONTRACTOR'S RISK. TESTING SHALL BE PERFORMED IN THE PRESENCE OF EDGECOMBE COUNTY PERSONNEL. CONTACT MR. STEVE COBB, UTILITIES COORDINATOR.
- 5) OPERATION OF EXISTING GATE VALVES SHALL BE DONE BY EDGECOMBE COUNTY OPERATIONS STAFF. CONTACT MR. STEVE COBB, EDGECOMBE COUNTY UTILITIES COORDINATOR.
- 6) TIE NEW WATER MAIN INTO EXISTING. INSTALL THRUST BLOCKS AND RODDING AS REQUIRED.
- 7) NEW WATER MAIN SHALL NOT BE CONNECTED TO EXISTING MAIN WITHOUT PRIOR APPROVAL AND COORDINATION WITH EDGECOMBE COUNTY.
- 8) CONTRACTOR SHALL ALLOW HDPE PIPE 24 HOURS TO RELAX AFTER PULLING IS COMPLETE AND BEFORE IT IS CONNECTED VIA TRANSITION COUPLINGS TO THE OTHER D.I. PIPE.
- 9) HDPE SIZING - THE INSIDE DIAMETER OF HDPE WATER PIPE SHALL BE EQUAL TO OR GREATER THAN THE INSIDE DIAMETER OF THE WATER PIPE IT IS CONNECTED TO.

SEWER INSTALLATION NOTES:

- 1) CONTRACTOR SHALL COORDINATE ALL PROPOSED WORK WITH EDGECOMBE COUNTY UTILITIES COORDINATOR MR. STEVE COBB AT 252-823-3848 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
- 2) CONTRACTOR SHALL FULLY INSTALL, PRESSURE & LEAKAGE TEST NEW SEWER MAIN PRIOR TO CONNECTION TO EXISTING SYSTEM.
- 3) CONTRACTOR SHALL PERFORM THE CONNECTION DURING OFF PEAK HOURS WITH A MAXIMUM SHUT DOWN TIME OF TWO AND A HALF HOURS. (12 PM MIDNIGHT TO 2:30 AM)
- 4) ANY WORK OR TEST PERFORMED WITHOUT NOTIFICATION TO TOWN SHALL BE PERFORMED AT THE CONTRACTOR'S RISK. TESTING SHALL BE PERFORMED IN THE PRESENCE OF EDGECOMBE COUNTY UTILITIES PERSONNEL. CONTACT MR. STEVE COBB, UTILITIES COORDINATOR.
- 5) OPERATION OF EXISTING ISOLATION VALVES SHALL BE DONE BY EDGECOMBE COUNTY UTILITIES. OPERATIONS STAFF. CONTACT MR. STEVE COBB AT 252-823-3848.
- 6) NEW SEWER MAIN SHALL NOT BE CONNECTED TO EXISTING MAIN WITHOUT PRIOR APPROVAL AND COORDINATION WITH EDGECOMBE COUNTY UTILITIES
- 7) CONTRACTOR SHALL ALLOW HDPE PIPE 1 WEEK TO RELAX AFTER PULLING IS COMPLETE AND BEFORE IT IS CONNECTED TO EXISTING HDPE SANITARY SEWER FORCE MAIN.
- 8) HDPE SIZING - THE INSIDE DIAMETER OF HDPE WATER PIPE SHALL BE EQUAL TO OR GREATER THAN THE INSIDE DIAMETER OF THE WATER PIPE IT IS CONNECTED TO.
- 9) 12" R.J. DIP FORCEMAIN SHALL BE PROTECTO 401 CERAMIC LINED PIPE.

WATER AND SEWER INSTALLATION AND CONNECTION:

DUE TO THE NUMBER OF PUBLIC SCHOOLS AND BUSINESSES CONNECTED TO THE EXISTING LINES, CONTRACTOR SHALL MINIMIZE THE SERVICE DOWNTIME TO MAKE THE NEW CONNECTIONS FOR THE WATER AND SEWER LINES. MAXIMUM SHUT DOWN IS 5 HOURS. (12 PM MIDNIGHT TO 5 AM).

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	PROJECT REFERENCE NO. BR-0241		SHEET NO. UC-3A	
	DESIGNED BY: SLK			
	DRAWN BY: SLK			
	CHECKED BY: MVZ			
	APPROVED BY: MVZ			
	REVISED:		UTILITY CONSTRUCTION PLANS ONLY	
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION			
	UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151			
			1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
	TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION			

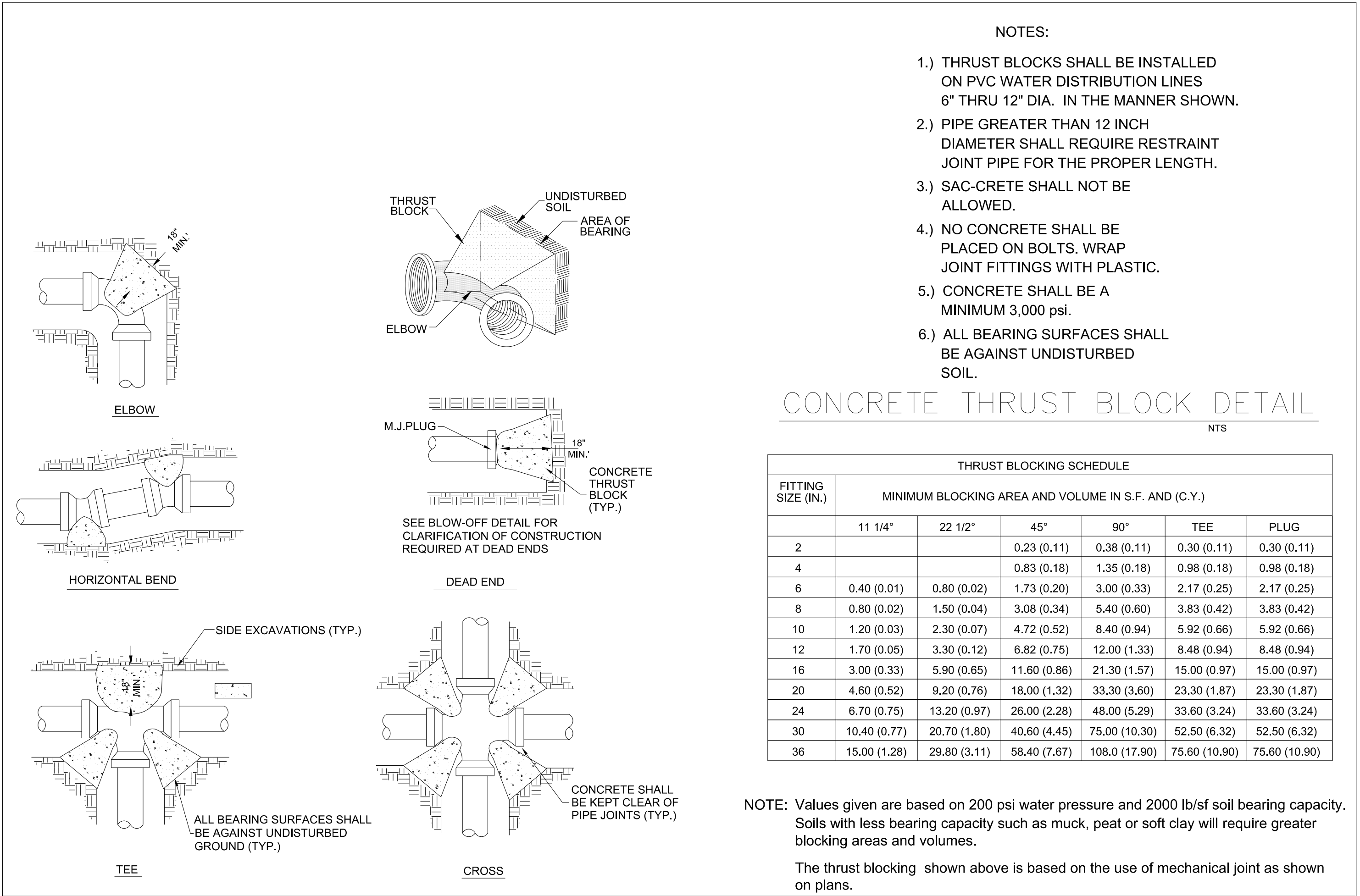
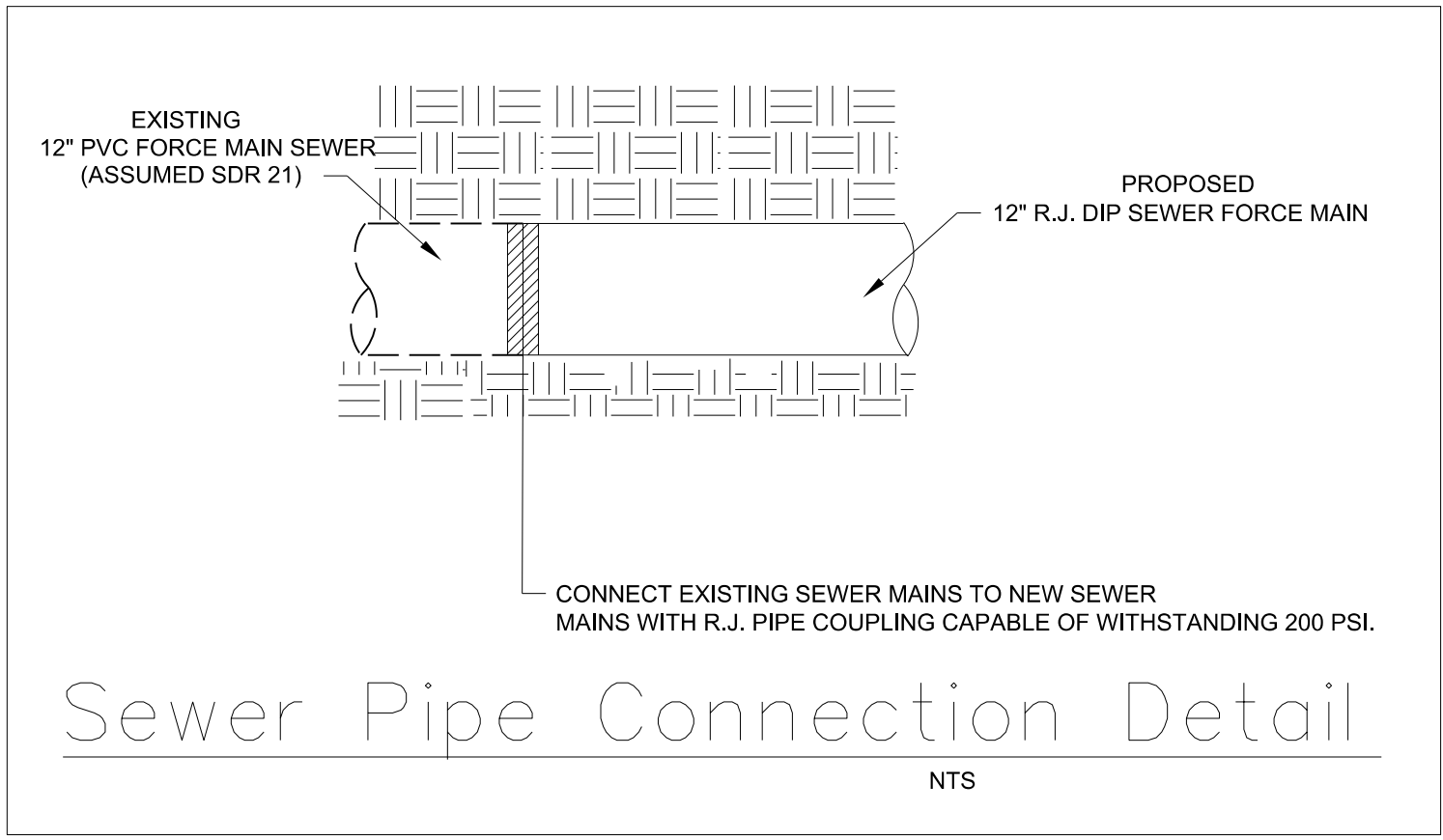
UTILITY CONSTRUCTION

FINAL DESIGN

RELEASE
FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

FINAL DESIGN
RELEASE
FOR CONSTRUCTION



THRUST BLOCKING SCHEDULE						
FITTING SIZE (IN.)	MINIMUM BLOCKING AREA AND VOLUME IN S.F. AND (C.Y.)					
	11 1/4"	22 1/2"	45"	90"	TEE	PLUG
2			0.23 (0.11)	0.38 (0.11)	0.30 (0.11)	0.30 (0.11)
4			0.83 (0.18)	1.35 (0.18)	0.98 (0.18)	0.98 (0.18)
6	0.40 (0.01)	0.80 (0.02)	1.73 (0.20)	3.00 (0.33)	2.17 (0.25)	2.17 (0.25)
8	0.80 (0.02)	1.50 (0.04)	3.08 (0.34)	5.40 (0.60)	3.83 (0.42)	3.83 (0.42)
10	1.20 (0.03)	2.30 (0.07)	4.72 (0.52)	8.40 (0.94)	5.92 (0.66)	5.92 (0.66)
12	1.70 (0.05)	3.30 (0.12)	6.82 (0.75)	12.00 (1.33)	8.48 (0.94)	8.48 (0.94)
16	3.00 (0.33)	5.90 (0.65)	11.60 (0.86)	21.30 (1.57)	15.00 (0.97)	15.00 (0.97)
20	4.60 (0.52)	9.20 (0.76)	18.00 (1.32)	33.30 (3.60)	23.30 (1.87)	23.30 (1.87)
24	6.70 (0.75)	13.20 (0.97)	26.00 (2.28)	48.00 (5.29)	33.60 (3.24)	33.60 (3.24)
30	10.40 (0.77)	20.70 (1.80)	40.40 (4.45)	75.00 (10.30)	52.50 (6.32)	52.50 (6.32)
36	15.00 (1.28)	29.80 (3.11)	58.40 (7.67)	108.0 (17.90)	75.60 (10.90)	75.60 (10.90)

NOTE: Values given are based on 200 psi water pressure and 2000 lb/sf soil bearing capacity. Soils with less bearing capacity such as muck, peat or soft clay will require greater blocking areas and volumes.

The thrust blocking shown above is based on the use of mechanical joint as shown on plans.

PROJECT REFERENCE NO.		SHEET NO.	
BR - 0241		UC - 3C	
DESIGNED BY: SLK			
DRAWN BY: SLK			
CHECKED BY: MVZ			
APPROVED BY: MVZ			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY	
UTILITIES ENGINEERING SEC.			
PHONE: (919) 707-6690 FAX: (919) 250-4151			

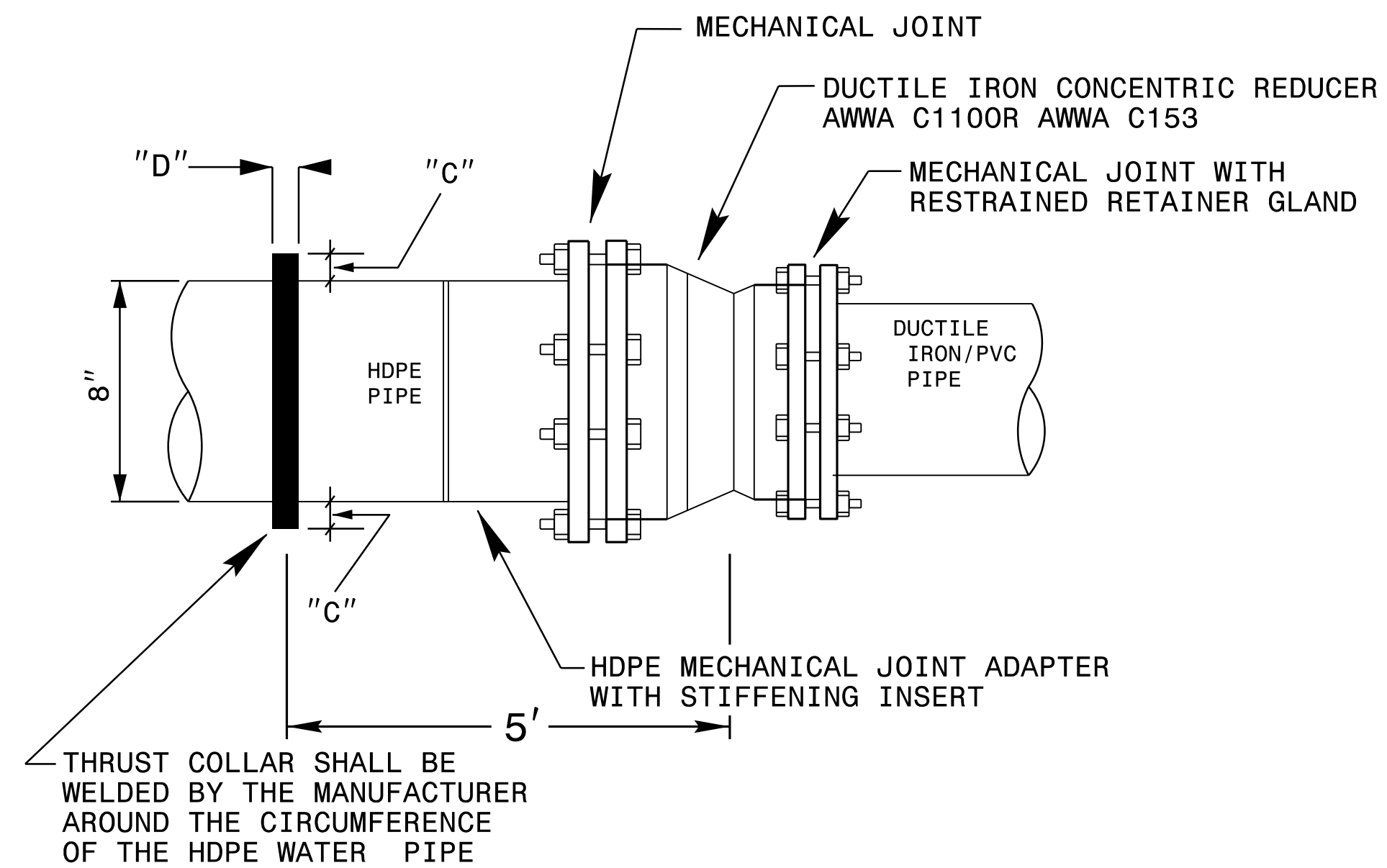
UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

FINAL DESIGN

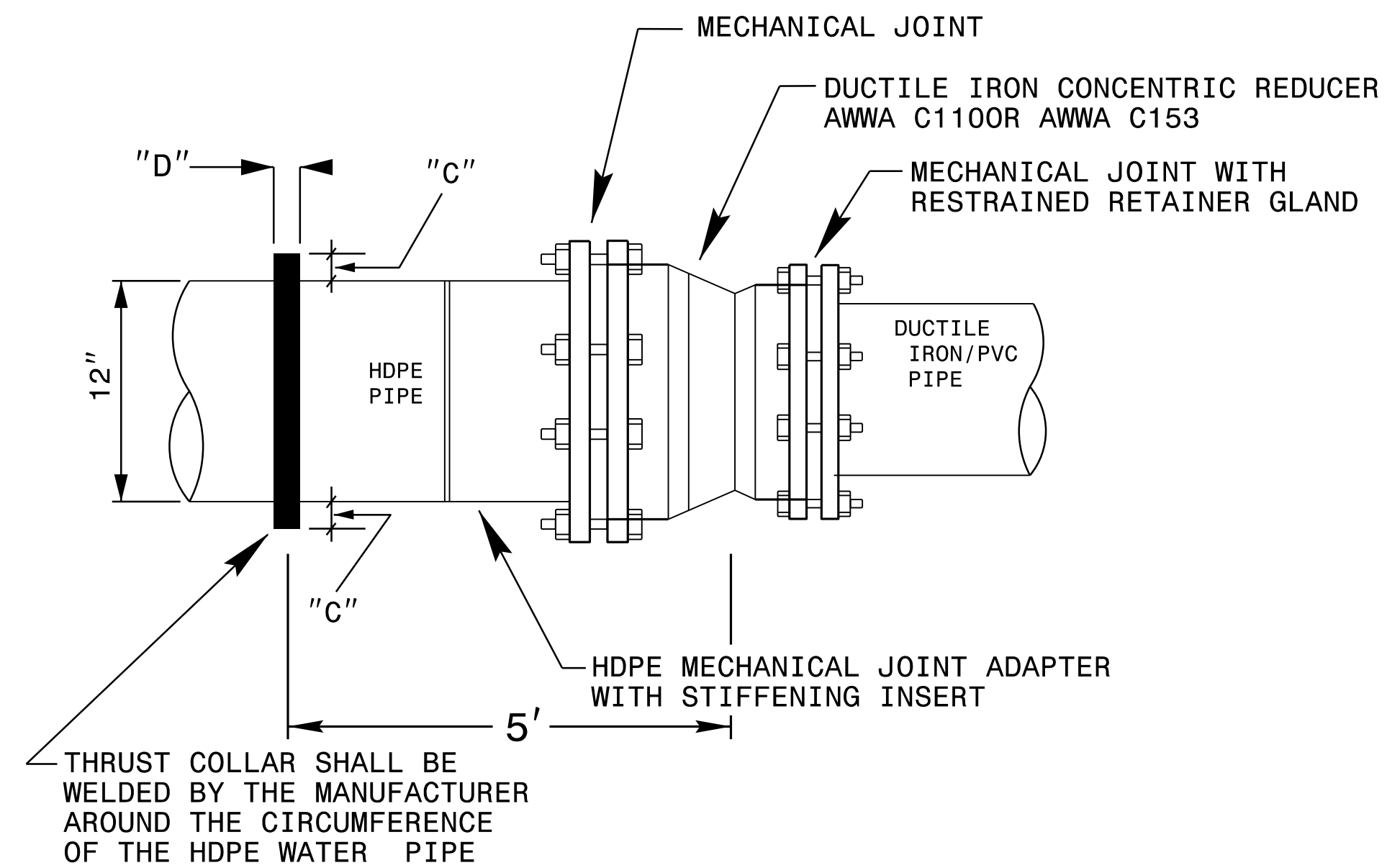
RELEASE
FOR CONSTRUCTION

NOTE:
CONTRACTOR TO PROVIDE
P.E. SEALED DESIGNED SHOP
DRAWINGS FOR THRUST
COLLARS BASED UPON ACTUAL
ON-SITE EXISTING SOILS IN
ACCORDANCE WITH THE
LATEST NCDOT STANDARDS
AND SPECIFICATIONS.



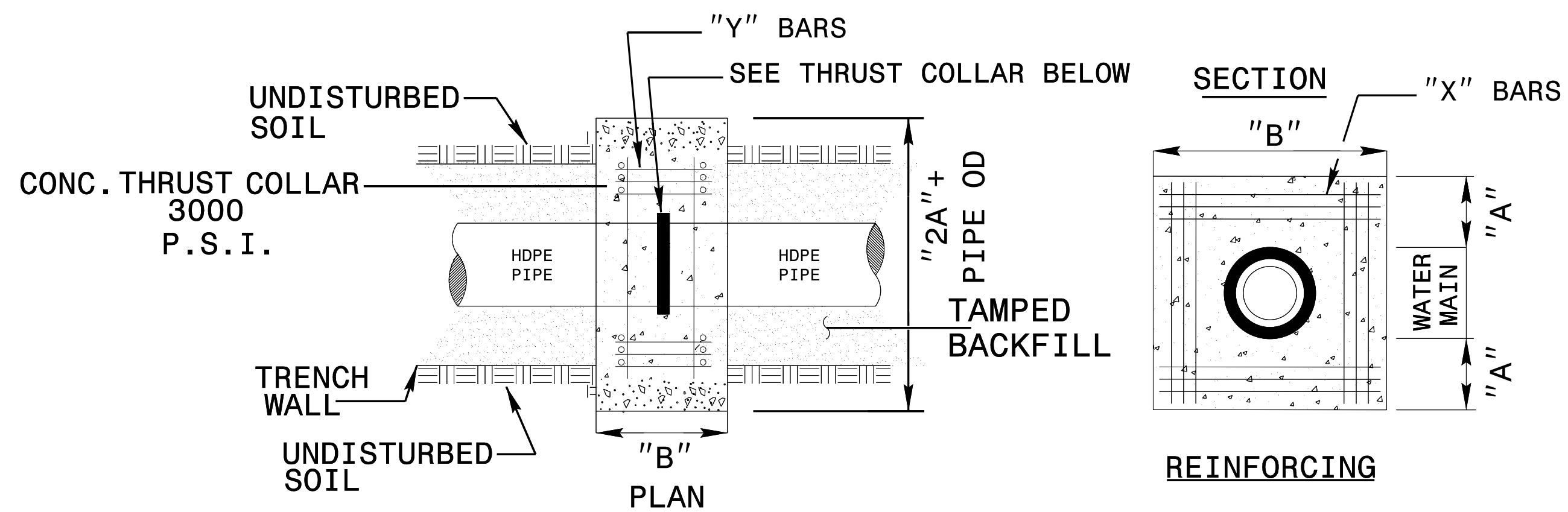
NOTE: SEE SEPARATE DETAIL FOR CONCRETE THRUST COLLAR

TRANSITION DETAIL FROM HDPE TO DI/PVC WATER PIPE



NOTE: SEE SEPARATE DETAIL FOR CONCRETE THRUST COLLAR

TRANSITION DETAIL FROM HDPE TO DI/PVC SEWER FORCE MAIN

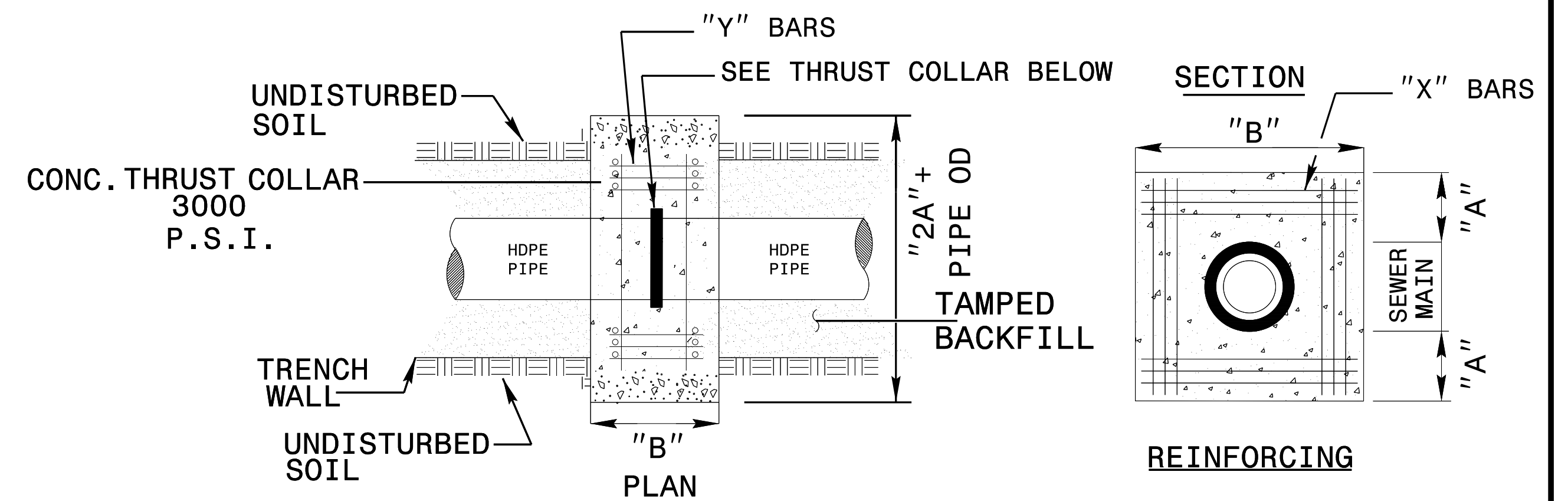


POSSIBLE STEEL REINFORCEMENT TO
BE VERIFIED BY CONTRACTOR'S ENGINEER

8" WATER MAIN= 12-NO. 5 BARS
BARS PLACED AS SHOWN
IN EACH FACE (X BARS) +
6 - NO.5 BARS IN EACH FACE (Y BARS)
TOTAL 24 "X" BARS & 12 "Y" BARS
PER THRUST COLLAR.

DIMENSIONS "A, B, C, D, & X/Y"
SHALL BE DETERMINED BY
CONTRACTOR'S DESIGN ENGINEER.

CONCRETE THRUST COLLAR DETAIL - 8" WATER LINE



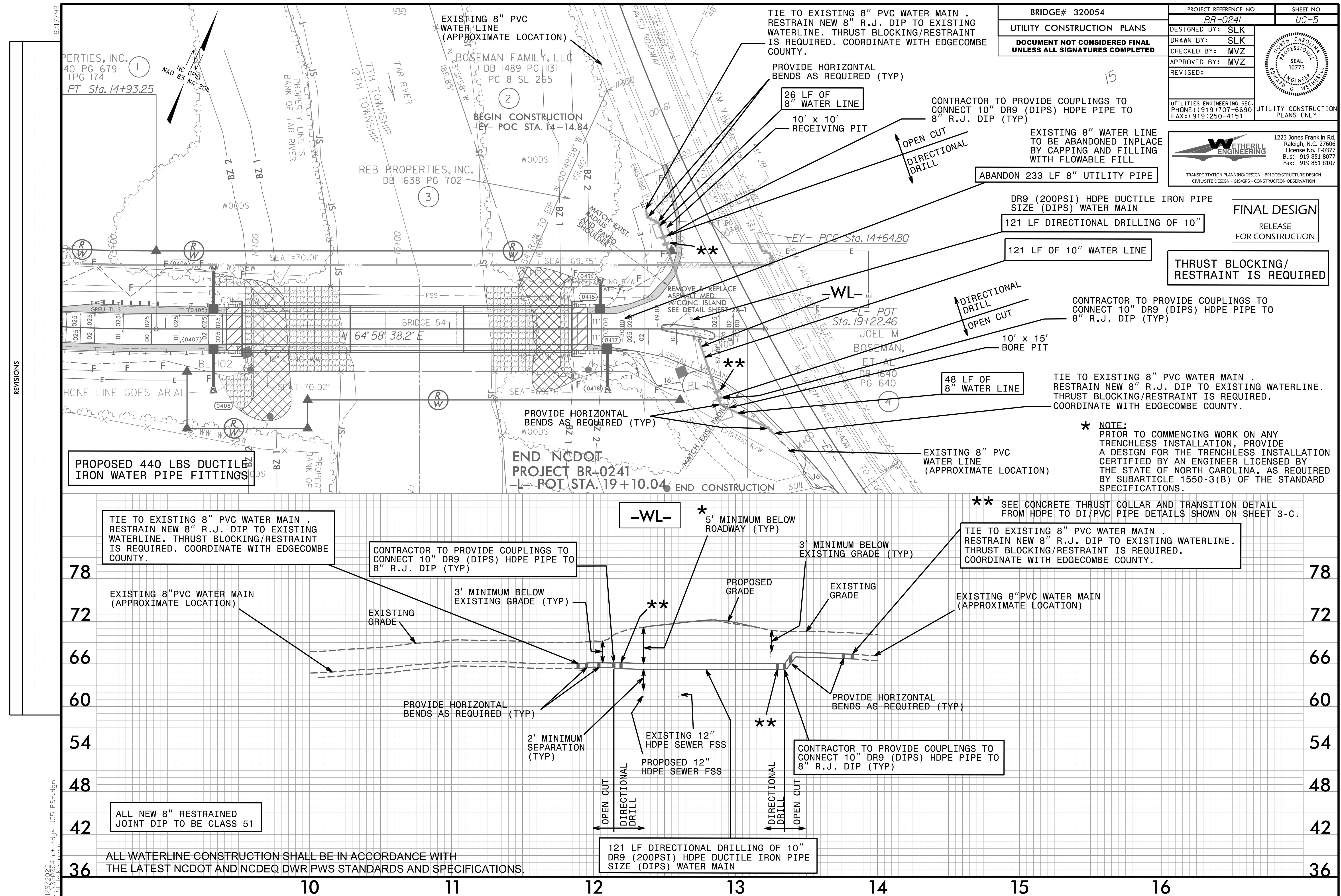
POSSIBLE STEEL REINFORCEMENT TO
BE VERIFIED BY CONTRACTOR'S ENGINEER

12" SEWER FORCE MAIN= 12-NO. 5 BARS
BARS PLACED AS SHOWN
IN EACH FACE (X BARS) +
6 - NO.5 BARS IN EACH FACE (Y BARS)
TOTAL 24 "X" BARS & 12 "Y" BARS
PER THRUST COLLAR.

DIMENSIONS "A, B, C, D, & X/Y"
SHALL BE DETERMINED BY
CONTRACTOR'S DESIGN ENGINEER.

CONCRETE THRUST COLLAR DETAIL - 12" SEWER FORCE MAIN





[illegible]

\$\$\$\$SYTIME\$\$\$\$
 \$\$\$\$DGN\$\$\$\$
 \$\$\$\$USERNAME\$\$\$



UTILITIES BY OTHERS PLANS

EDGECOMBE COUNTY

TYPE OF WORK: COMMUNICATION RELOCATION



GRAPHIC SCALES

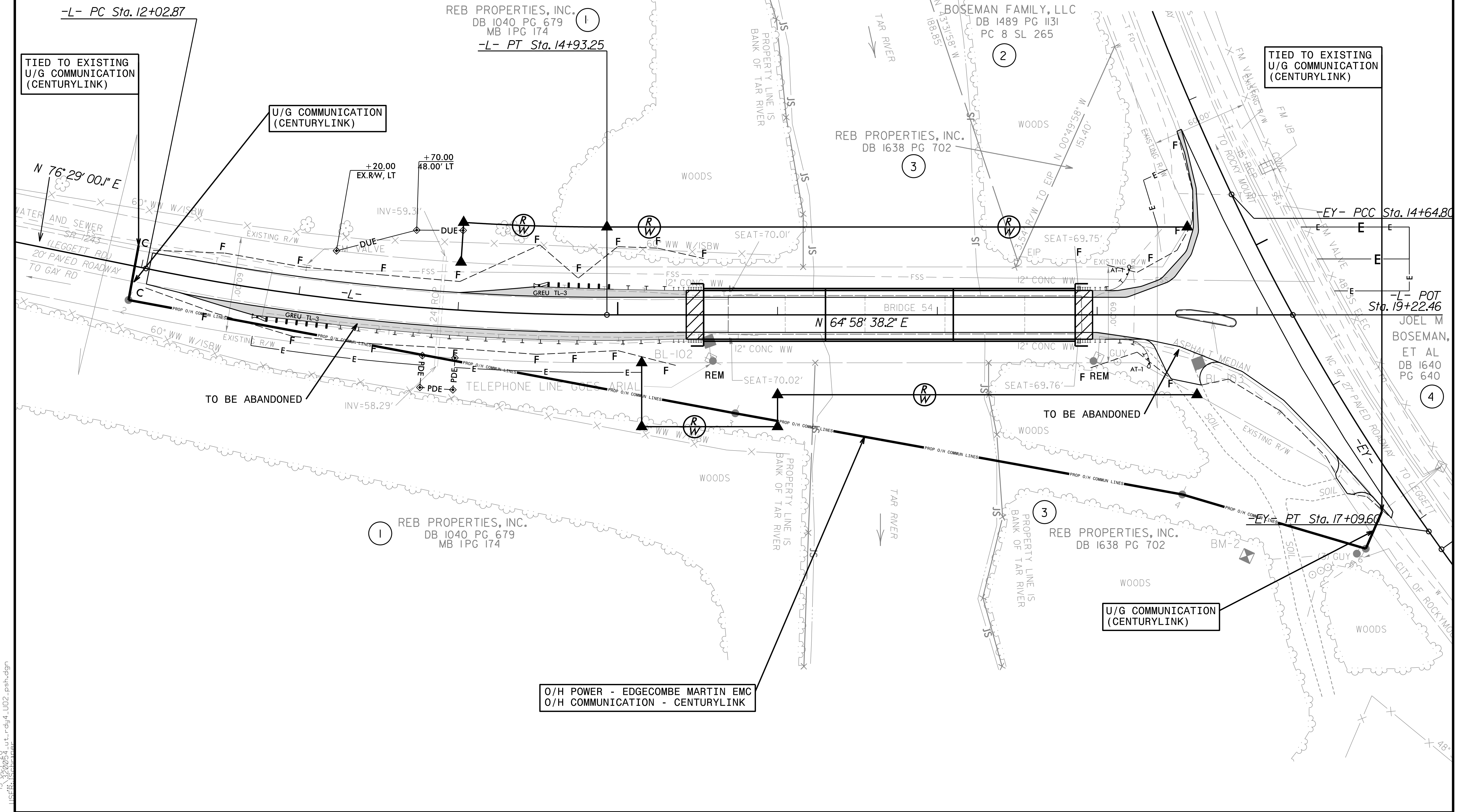
The image displays four graphic scales used in engineering drawing. The top scale, labeled 'PLANS', has a horizontal axis with markings at 50, 25, 0, 50, and 100. The left side of the scale (from 50 to 0) is represented by a series of vertical black bars of varying heights, while the right side (from 0 to 100) is a solid black bar. The second scale, labeled 'PROFILE (HORIZONTAL)', has a horizontal axis with markings at 50, 25, 0, 50, and 100. The left side (from 50 to 0) is a series of vertical black bars, and the right side (from 0 to 100) is a solid black bar. The third scale, labeled 'PROFILE (VERTICAL)', has a horizontal axis with markings at 10, 5, 0, 10, and 20. The left side (from 10 to 0) is a series of vertical black bars, and the right side (from 0 to 20) is a solid black bar. All scales are shown with a central zero point and symmetrical markings on either side.

(A) COMMUNICATION – CENTURYLINK

Kim Moore *Division Utility Engineer*

UTILITIES BY OTHERS

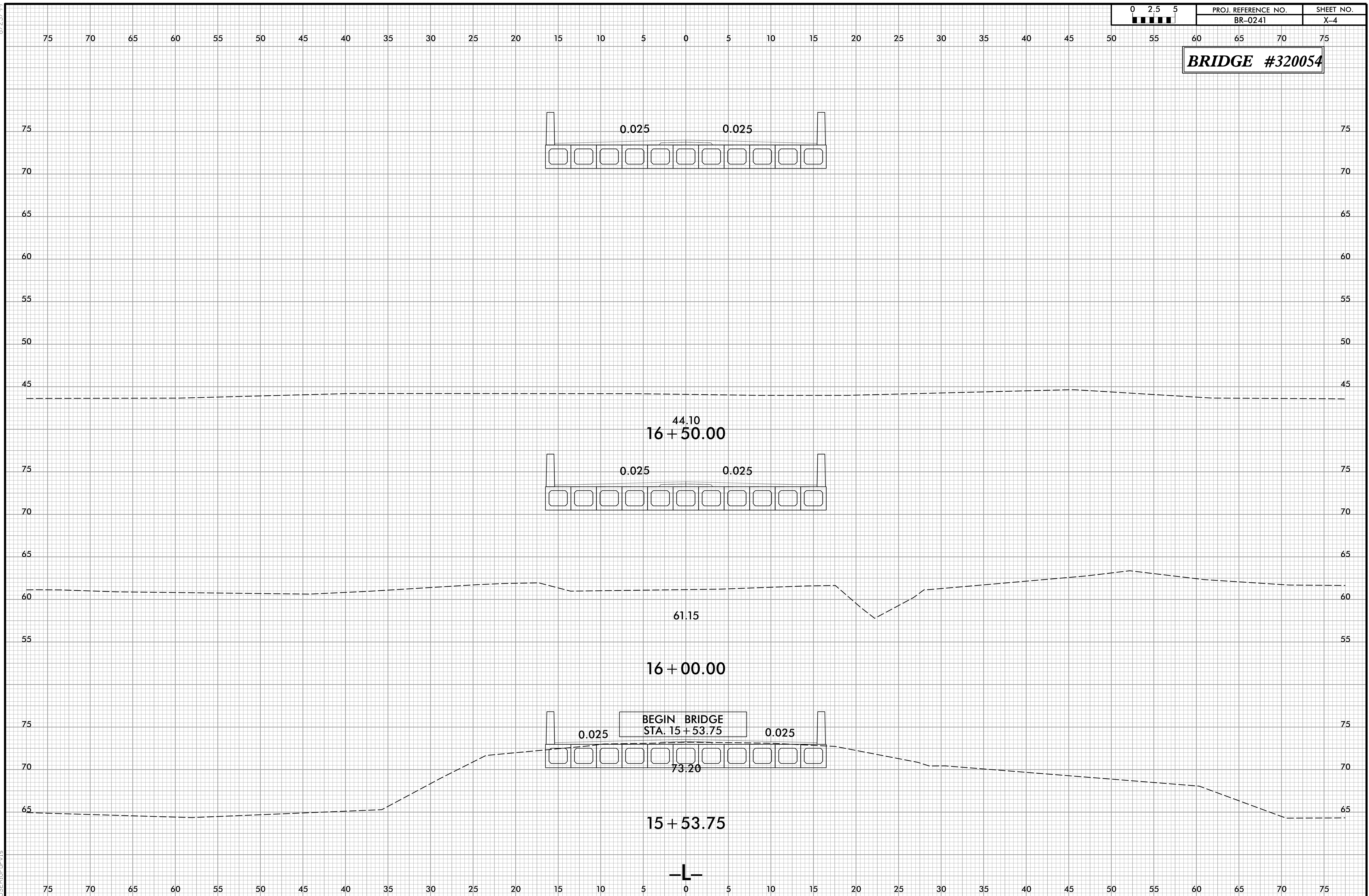
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

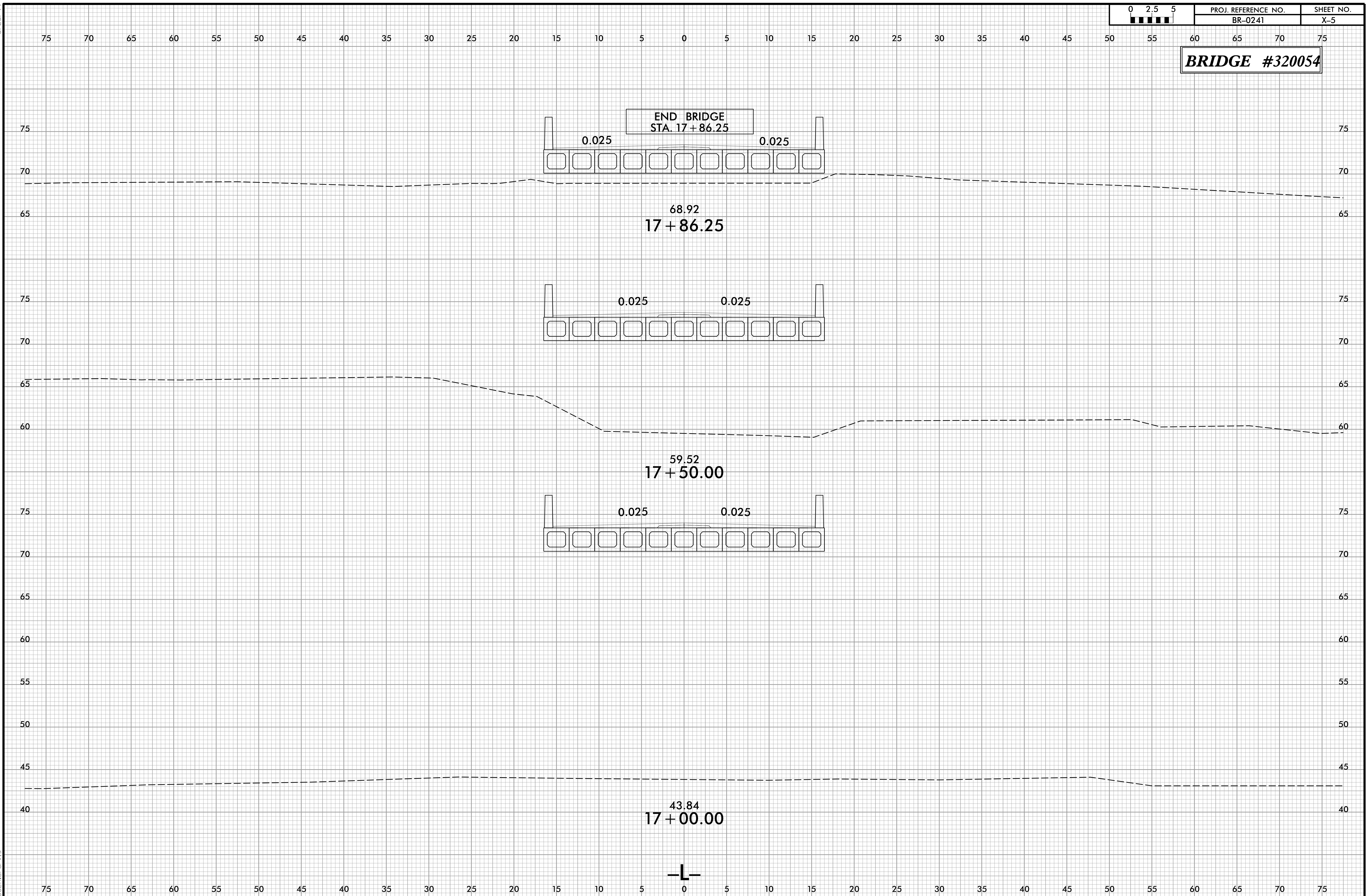


Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing and removal of existing pavement will be paid for at the lump sum price for "Grading".









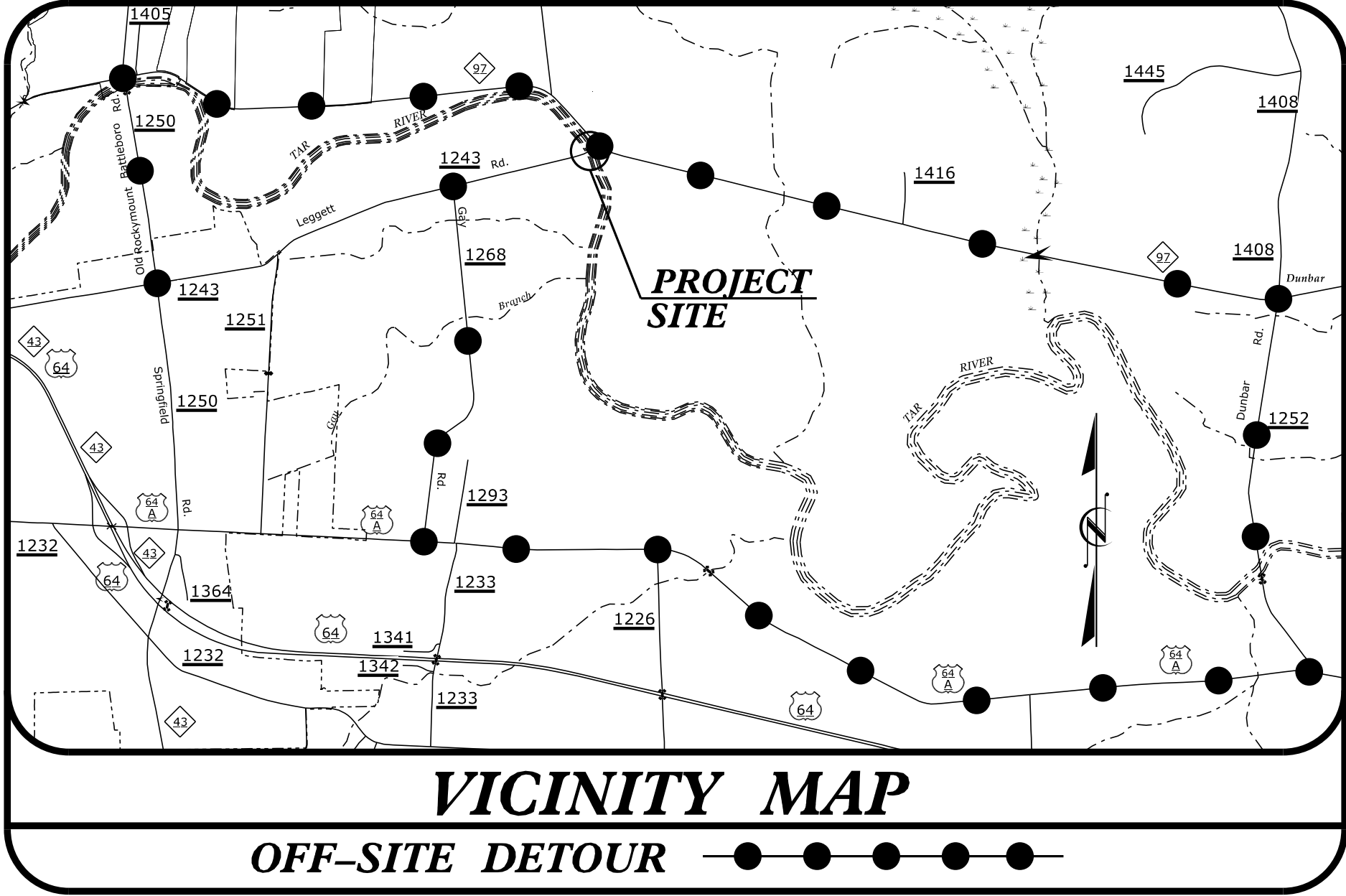


09.08/20

11/24/2020 9:50:31 AM P:\2018\1832.01.EDGEcombe-54\Structures\DCN\EDGEcombe-54-SMU-TSH.dgn

PROJECT: BR-0241

CONTRACT: DD00327

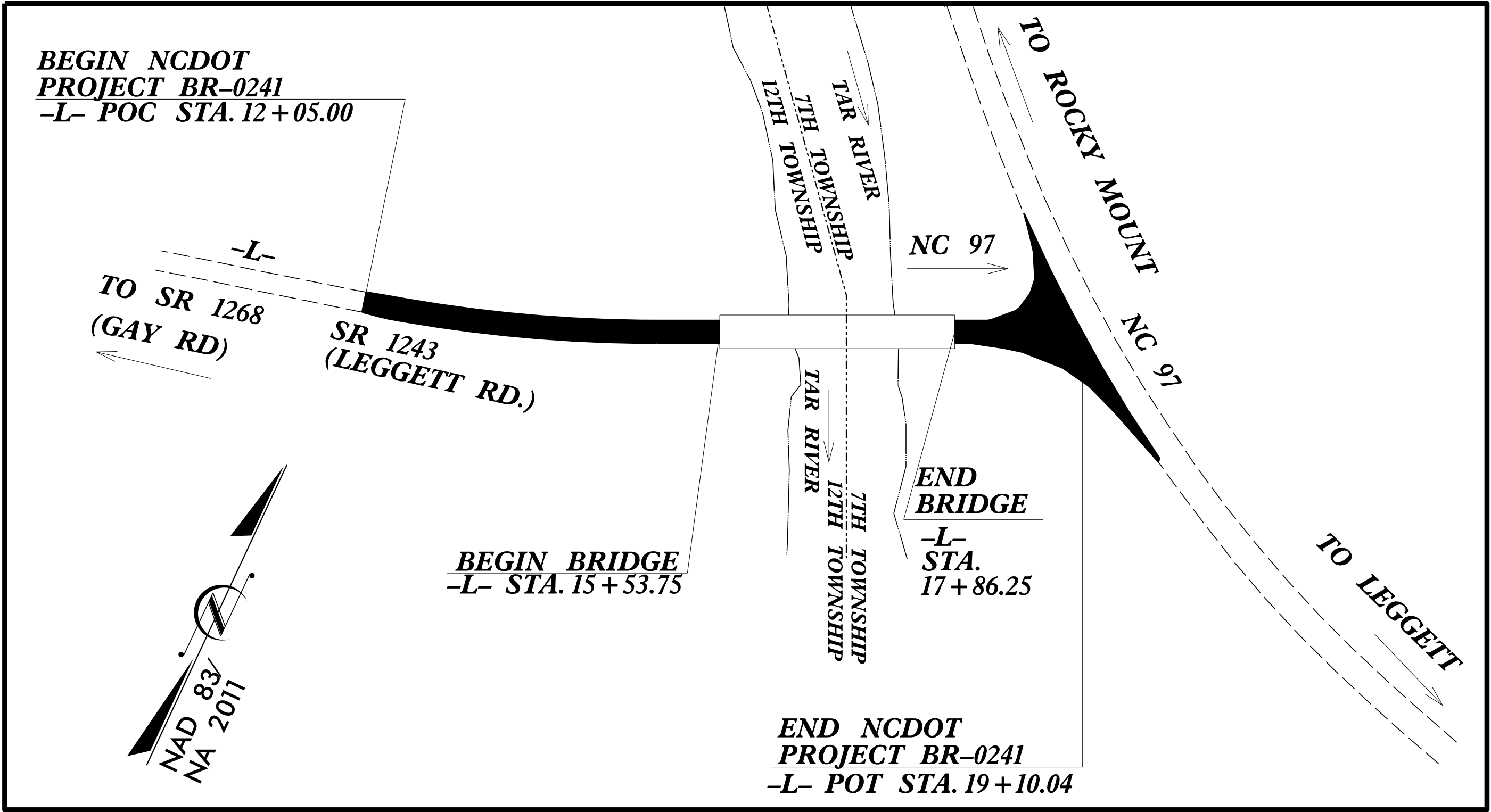


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
EDGECOMBE COUNTY

LOCATION: BRIDGE NO. 54 OVER TAR RIVER
ON SR 1243 (LEGGETT RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STRUCTURE PLANS



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0241		
STATE PROJ.NO.		F.A.PROJ.NO.	DESCRIPTION
49213.3.1			PE, UTIL., R/W
49213.3.1			CONST.

BRIDGE #320054

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2018 = 630

T = 7 % *

V = 55 MPH

*(TTST = 3.5% +
DUAL = 3.5%)

FUNC CLASS =
MAJOR COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT BR-0241 = 0.090 MILES
LENGTH STRUCTURE PROJECT BR-0241 = 0.044 MILES

TOTAL LENGTH PROJECT BR-0241 = 0.134 MILES

NCDOT CONTACT: RACHEL C. EVANS, PE
DIVISION 4 PROJECT ENGINEER

Prepared for:
DIVISION OF HIGHWAYS
DIVISION FOUR

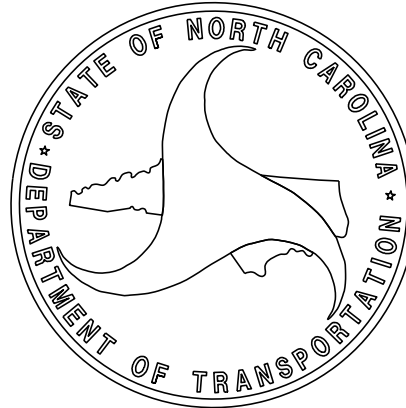
509 Ward Boulevard, Wilson NC, 27895

2018 STANDARD SPECIFICATIONS

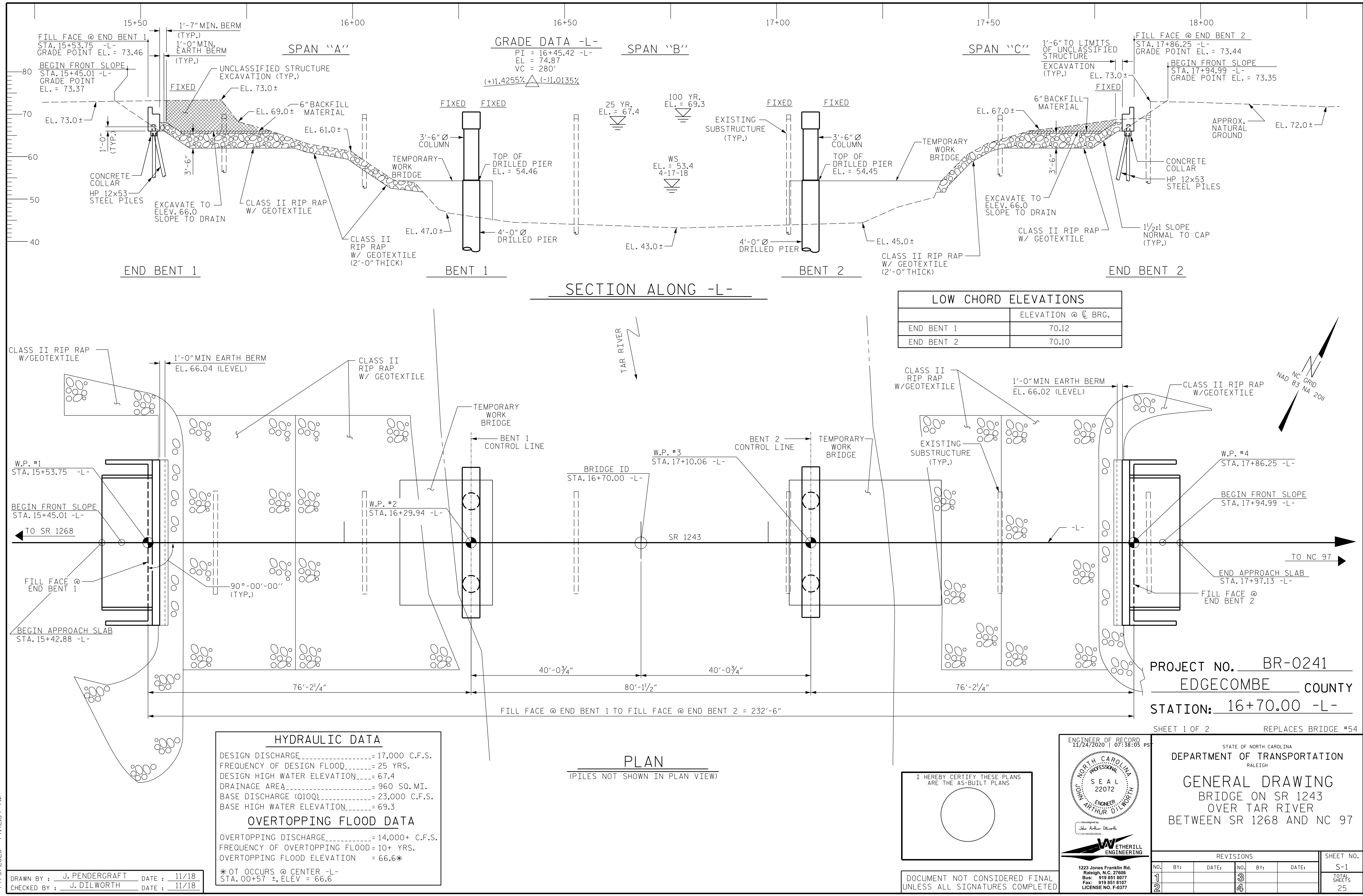
EDWARD G. WETHERILL, PE
PROJECT ENGINEER

LETTING DATE:
MAY 25, 2021

JOHN A. DILWORTH, PE
PROJECT DESIGN ENGINEER



P:\2018\1813201_EDGECOMBE_54\Structures\DWG\EDGECOMBE_54_SMU_GD.dgn
11/29/2020 11:42:51 AM



LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.
2.
3.
4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

ENGINEER OF RECORD
11/24/2020 07:38:05 PM
NORTH CAROLINA PROFESSIONAL SEAL
22072
ENGINEER ARTHUR DILWORTH
Designed by:
John Arthur Dilworth
ETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
75' BOX BEAM UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

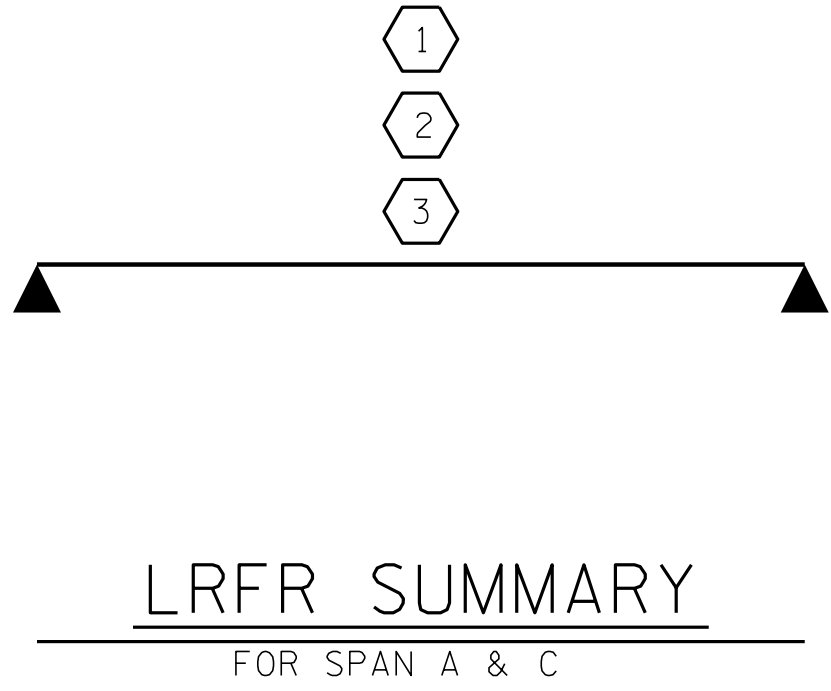
REVISIONS

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

SHEET NO.
S-3
TOTAL SHEETS
25

STD. NO. 33LRFR1_90S_75L

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	1.484	--	1.75	0.273	2.04	75'	EL	36.75	0.507	1.56	75'	EL	7.35	0.80	0.273	1.48	75'	EL	36.75		
	HL-93(0pr)	N/A	--	2.028	--	1.35	0.273	2.64	75'	EL	36.75	0.507	2.03	75'	EL	7.35	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.947	70.08	1.75	0.273	2.67	75'	EL	36.75	0.507	1.98	75'	EL	7.35	0.80	0.273	1.95	75'	EL	36.75		
	HS-20(0pr)	36.000	--	2.561	92.205	1.35	0.273	3.46	75'	EL	36.75	0.507	2.56	75'	EL	7.35	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	4.403	59.442	1.4	0.273	7.55	75'	EL	36.75	0.507	5.89	75'	EL	7.35	0.80	0.273	4.40	75'	EL	36.75	
		SNGARBS2	20.000	--	3.277	65.549	1.4	0.273	5.62	75'	EL	36.75	0.507	4.18	75'	EL	7.35	0.80	0.273	3.28	75'	EL	36.75	
		SNAGRIS2	22.000	--	3.102	68.248	1.4	0.273	5.32	75'	EL	36.75	0.507	3.88	75'	EL	7.35	0.80	0.273	3.10	75'	EL	36.75	
		SNCOTTS3	27.250	--	2.191	59.705	1.4	0.273	3.76	75'	EL	36.75	0.507	2.94	75'	EL	7.35	0.80	0.273	2.19	75'	EL	36.75	
		SNAGGRS4	34.925	--	1.83	63.896	1.4	0.273	3.14	75'	EL	36.75	0.507	2.44	75'	EL	7.35	0.80	0.273	1.83	75'	EL	36.75	
		SNS5A	35.550	--	1.789	63.605	1.4	0.273	3.07	75'	EL	36.75	0.507	2.47	75'	EL	7.35	0.80	0.273	1.79	75'	EL	36.75	
		SNS6A	39.950	--	1.641	65.556	1.4	0.273	2.81	75'	EL	36.75	0.507	2.25	75'	EL	7.35	0.80	0.273	1.64	75'	EL	36.75	
		SNS7B	42.000	--	1.563	65.632	1.4	0.273	2.68	75'	EL	36.75	0.507	2.21	75'	EL	7.35	0.80	0.273	1.56	75'	EL	36.75	
	TTST	TNAGRIT3	33.000	--	2.001	66.029	1.4	0.273	3.43	75'	EL	36.75	0.507	2.68	75'	EL	7.35	0.80	0.273	2.00	75'	EL	36.75	
		TNT4A	33.075	--	2.01	66.465	1.4	0.273	3.45	75'	EL	36.75	0.507	2.61	75'	EL	7.35	0.80	0.273	2.01	75'	EL	36.75	
		TNT6A	41.600	--	1.642	68.325	1.4	0.273	2.82	75'	EL	36.75	0.507	2.35	75'	EL	7.35	0.80	0.273	1.64	75'	EL	36.75	
		TNT7A	42.000	--	1.65	69.313	1.4	0.273	2.83	75'	EL	36.75	0.507	2.3	75'	EL	7.35	0.80	0.273	1.65	75'	EL	36.75	
		TNT7B	42.000	--	1.706	71.672	1.4	0.273	2.93	75'	EL	36.75	0.507	2.16	75'	EL	7.35	0.80	0.273	1.71	75'	EL	36.75	
		TNAGRIT4	43.000	--	1.624	69.831	1.4	0.273	2.78	75'	EL	36.75	0.507	2.09	75'	EL	7.35	0.80	0.273	1.62	75'	EL	36.75	
		TNAGT5A	45.000	--	1.531	68.917	1.4	0.273	2.63	75'	EL	36.75	0.507	2.08	75'	EL	7.35	0.80	0.273	1.53	75'	EL	36.75	
		TNAGT5B	45.000	3	1.513	68.095	1.4	0.273	2.59	75'	EL	36.75	0.507	1.99	75'	EL	7.35	0.80	0.273	1.51	75'	EL	36.75	



ASSEMBLED BY : J. PENDERGRAFT	DATE : 1-19
CHECKED BY : J. DILWORTH	DATE : 1-19
DRAWN BY : TMG	11/11
CHECKED BY : AAC	11/11

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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1/19/2020 11:47:22 AM

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	1.155	--	1.75	0.273	1.72	80'	EL	39.25	0.502	1.51	80'	EL	7.85	0.80	0.273	1.15	80'	EL	39.25		
	HL-93(0pr)	N/A	--	1.958	--	1.35	0.273	2.23	80'	EL	39.25	0.502	1.96	80'	EL	7.85	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.533	55.181	1.75	0.273	2.28	80'	EL	39.25	0.502	1.91	80'	EL	7.85	0.80	0.273	1.53	80'	EL	39.25		
	HS-20(0pr)	36.000	--	2.473	89.021	1.35	0.273	2.96	80'	EL	39.25	0.502	2.47	80'	EL	7.85	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.509	47.376	1.4	0.273	6.53	80'	EL	39.25	0.502	5.73	80'	EL	7.85	0.80	0.273	3.51	80'	EL	39.25	
		SNGARBS2	20.000	--	2.594	51.88	1.4	0.273	4.82	80'	EL	39.25	0.502	4.06	80'	EL	7.85	0.80	0.273	2.59	80'	EL	39.25	
		SNAGRIS2	22.000	--	2.448	53.85	1.4	0.273	4.55	80'	EL	39.25	0.502	3.76	80'	EL	7.85	0.80	0.273	2.45	80'	EL	39.25	
		SNCOTTS3	27.250	--	1.746	47.571	1.4	0.273	3.25	80'	EL	39.25	0.502	2.86	80'	EL	7.85	0.80	0.273	1.75	80'	EL	39.25	
		SNAGGRS4	34.925	--	1.451	50.667	1.4	0.273	2.7	80'	EL	39.25	0.502	2.36	80'	EL	7.85	0.80	0.273	1.45	80'	EL	39.25	
		SNS5A	35.550	--	1.419	50.453	1.4	0.273	2.64	80'	EL	39.25	0.502	2.38	80'	EL	7.85	0.80	0.273	1.42	80'	EL	39.25	
		SNS6A	39.950	--	1.299	51.885	1.4	0.273	2.42	80'	EL	39.25	0.502	2.17	80'	EL	7.85	0.80	0.273	1.30	80'	EL	39.25	
		SNS7B	42.000	--	1.237	51.941	1.4	0.273	2.3	80'	EL	39.25	0.502	2.13	80'	EL	7.85	0.80	0.273	1.24	80'	EL	39.25	
	TTST	TNAGRIT3	33.000	--	1.583	52.231	1.4	0.273	2.94	80'	EL	39.25	0.502	2.59	80'	EL	7.85	0.80	0.273	1.58	80'	EL	39.25	
		TNT4A	33.075	--	1.589	52.55	1.4	0.273	2.96	80'	EL	39.25	0.502	2.53	80'	EL	7.85	0.80	0.273	1.59	80'	EL	39.25	
		TNT6A	41.600	--	1.296	53.907	1.4	0.273	2.41	80'	EL	39.25	0.502	2.25	80'	EL	7.85	0.80	0.273	1.30	80'	EL	39.25	
		TNT7A	42.000	--	1.301	54.625	1.4	0.273	2.42	80'	EL	39.25	0.502	2.21	80'	EL	7.85	0.80	0.273	1.30	80'	EL	39.25	
		TNT7B	42.000	--	1.341	56.333	1.4	0.273	2.49	80'	EL	39.25	0.502	2.08	80'	EL	7.85	0.80	0.273	1.34	80'	EL	39.25	
		TNAGRIT4	43.000	--	1.279	55.001	1.4	0.273	2.38	80'	EL	39.25	0.502	2.02	80'	EL	7.85	0.80	0.273	1.28	80'	EL	39.25	
TNAGT5A		45.000	--	1.207	54.337	1.4	0.273	2.25	80'	EL	39.25	0.502	2	80'	EL	7.85	0.80	0.273	1.21	80'	EL	39.25		
TNAGT5B		45.000	3	1.194	53.739	1.4	0.273	2.22	80'	EL	39.25	0.502	1.92	80'	EL	7.85	0.80	0.273	1.19	80'	EL	39.25		

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.
2.
3.
4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

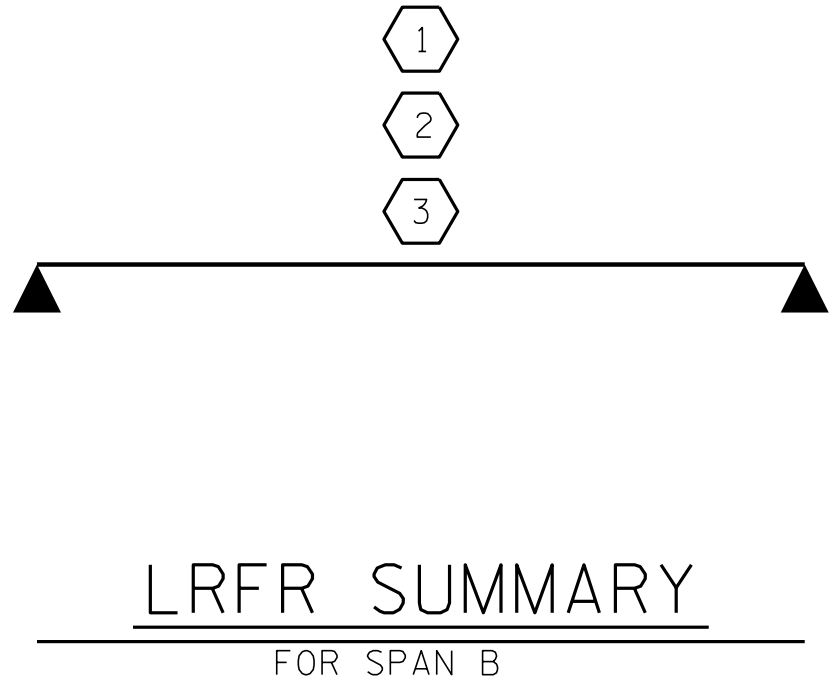
3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-



ENGINEER OF RECORD
11/24/2020 07:38:05 PM
NORTH CAROLINA PROFESSIONAL SEAL
22072
ENGINEER ARTHUR DILWORTH
Designed by:
John Arthur Dilworth
ETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
80' BOX BEAM UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-4
2			4			TOTAL SHEETS 25

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STD. NO. 33LRFR1_90S_80L

ASSEMBLED BY : J. PENDERGRAFT	DATE : 1-19
CHECKED BY : J. DILWORTH	DATE : 1-19
DRAWN BY : TMG	11/11
CHECKED BY : AAC	11/11

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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

ALL REINFORCING STEEL IN CONCRETE PARAPET SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

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

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

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.

THE JOINTS AT BENTS 1 & 2 SHALL BE FILLED WITH NON-SHRINK GROUT.

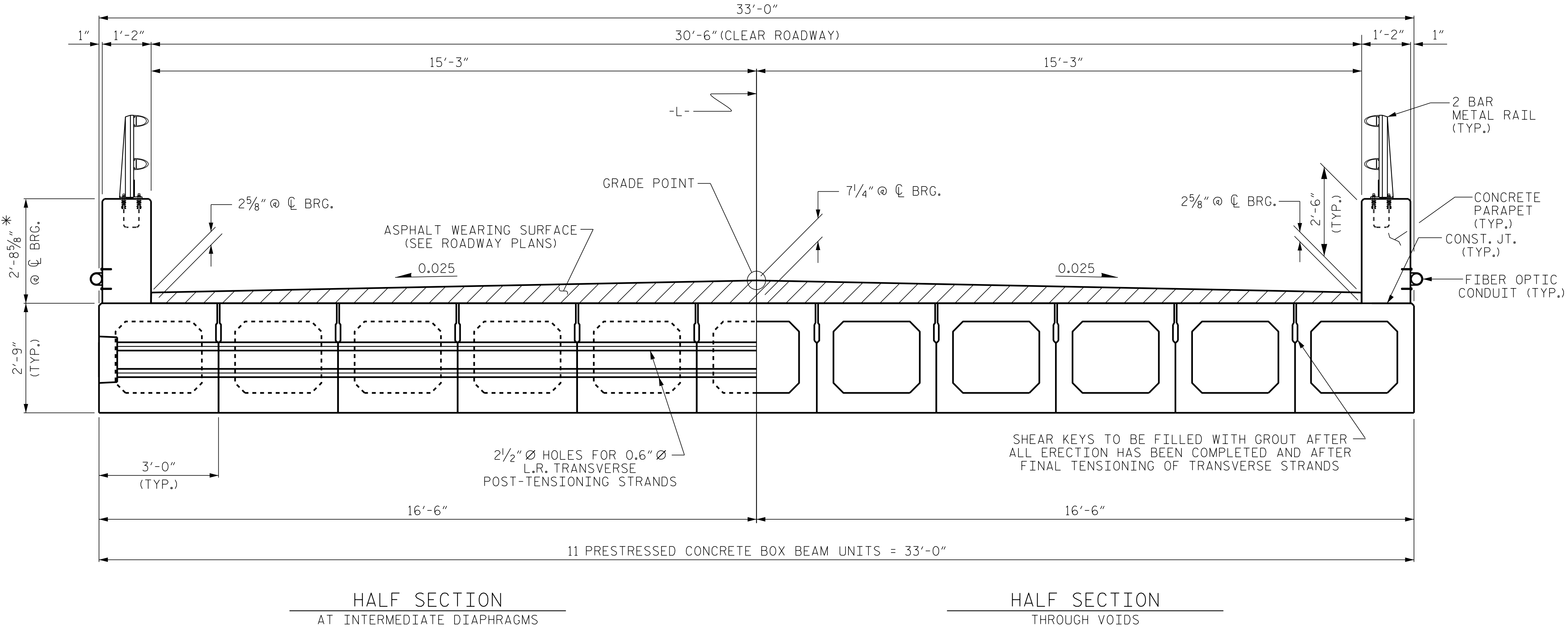
PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

SHEET 1 OF 6

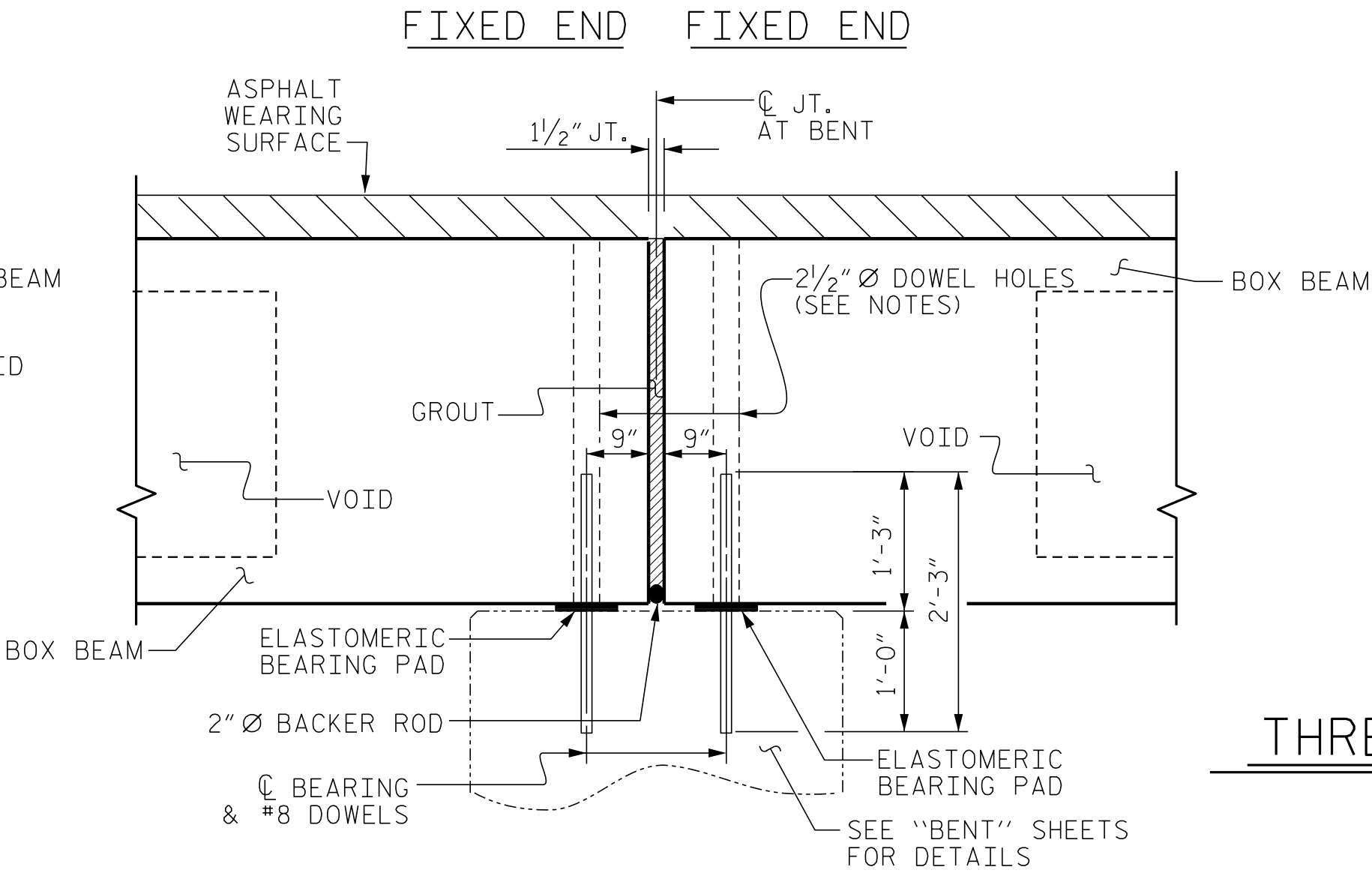
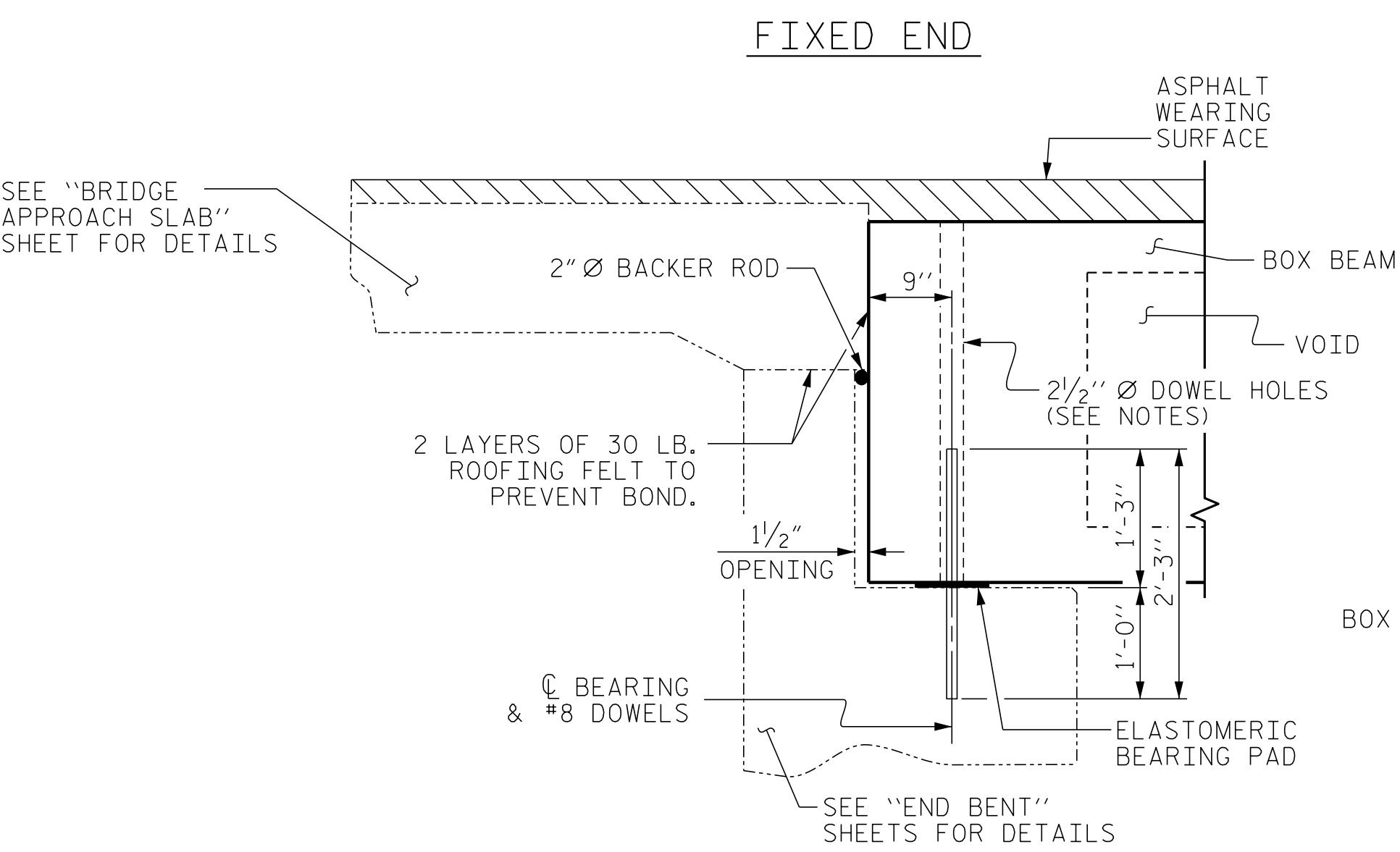
ENGINEER OF RECORD
11/24/2020 07:38:05 PM
NORTH CAROLINA PROFESSIONAL SEAL
22072
ENGINEER
ARTHUR DILWORTH
Designed by
John Arthur Dilworth
ETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

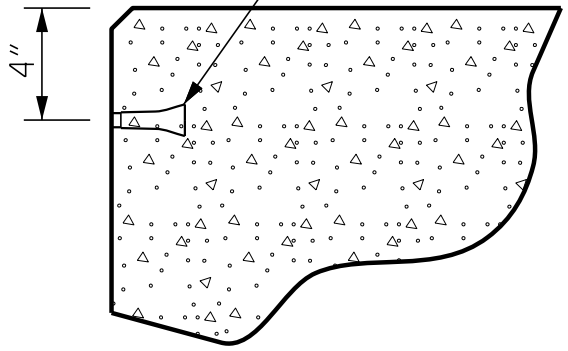
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			25



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

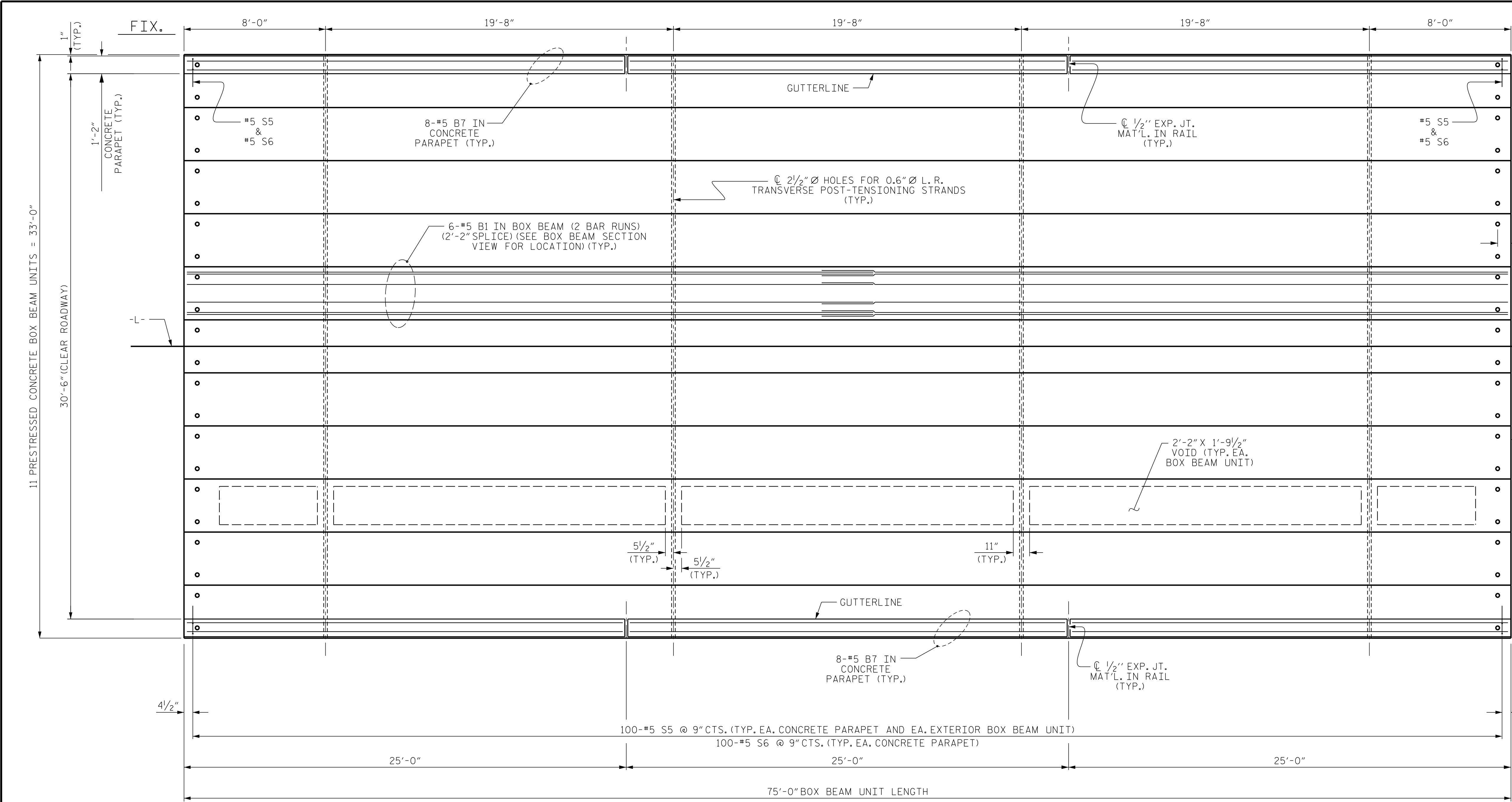


PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.

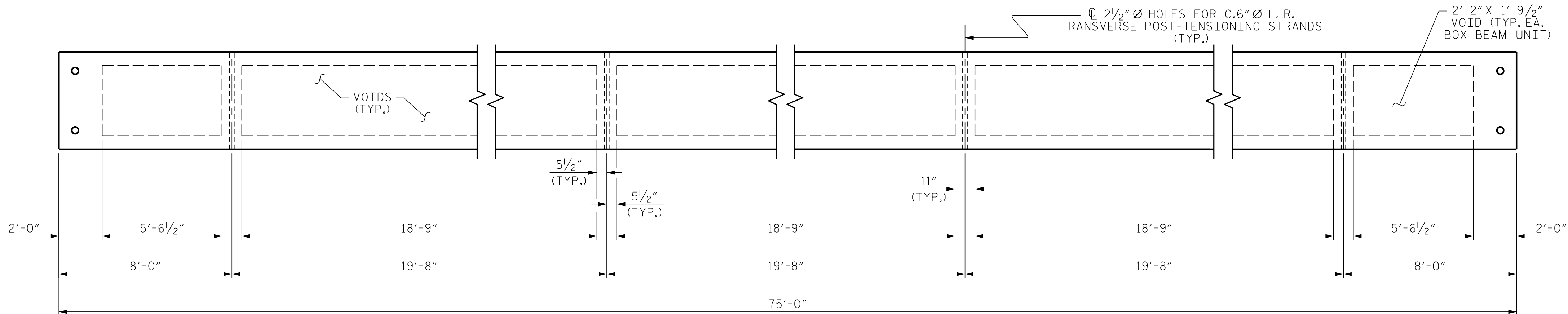


THREADED INSERT DETAIL

PA2018\1813201_EDGECOMBE_54\Structures\DWG\EDGECOMBE_54_SMU_BB.dgn
11/29/2020 11:53:20 AM



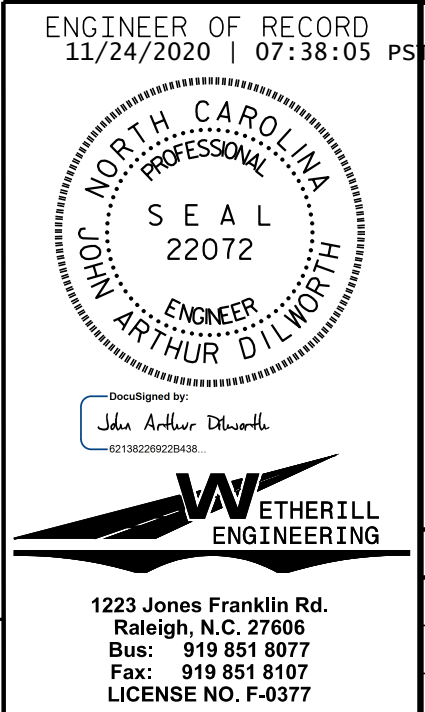
PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

SHEET 2 OF 6



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

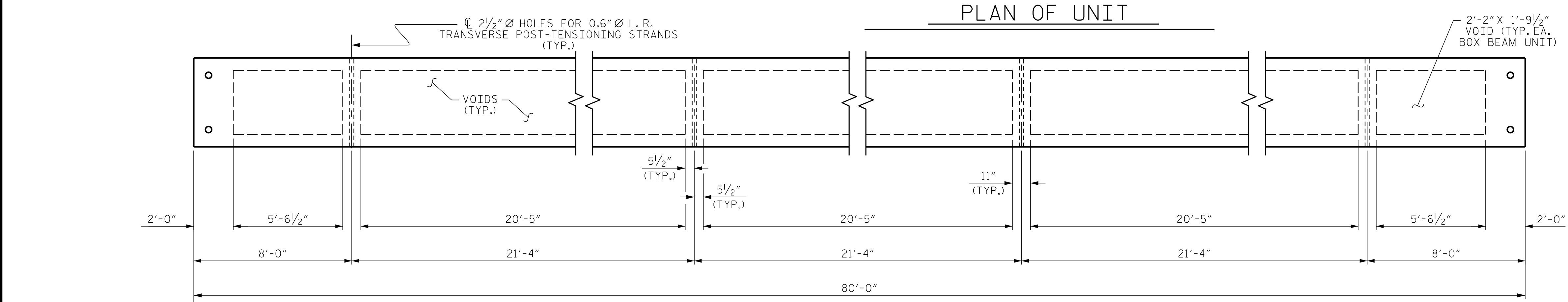
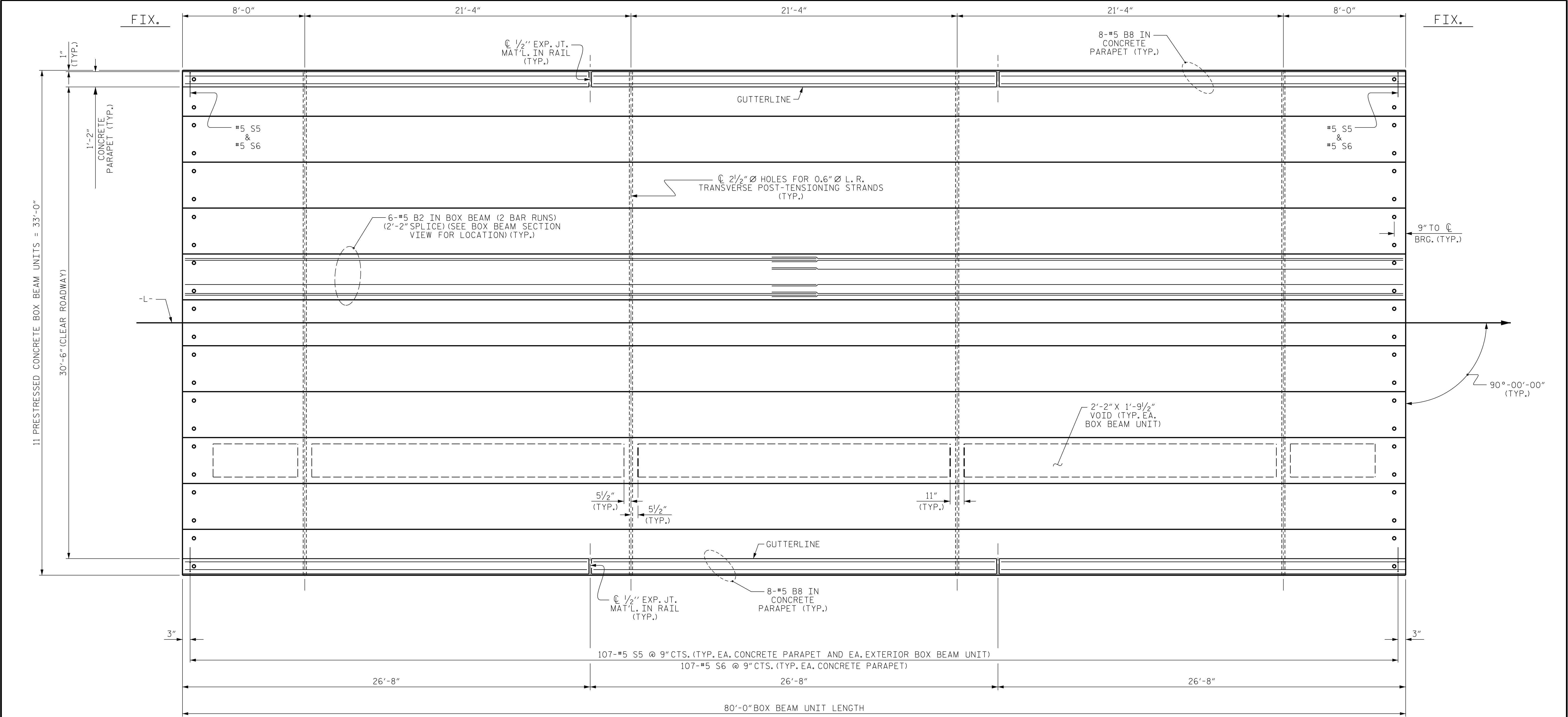
PLAN OF 75' UNIT
30'-6" CLEAR ROADWAY
90° SKEW
(SPANS A & C)

REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			25

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : J. PENDERGRAFT DATE : 11-18
CHECKED BY : J. DILWORTH DATE : 11-18

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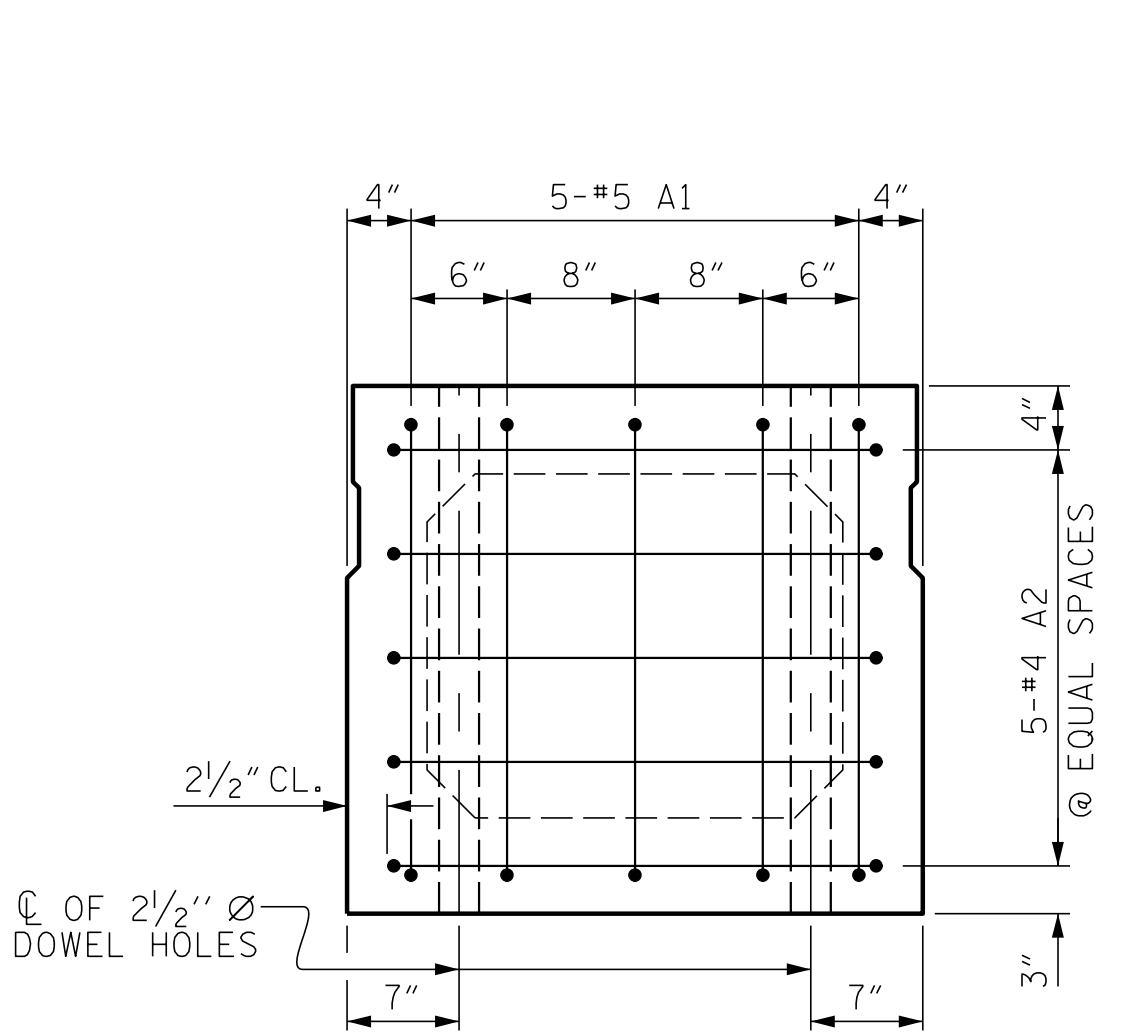


DRAWN BY : J. PENDERGRAFT DATE : 11-18
CHECKED BY : J. DILWORTH DATE : 11-18

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

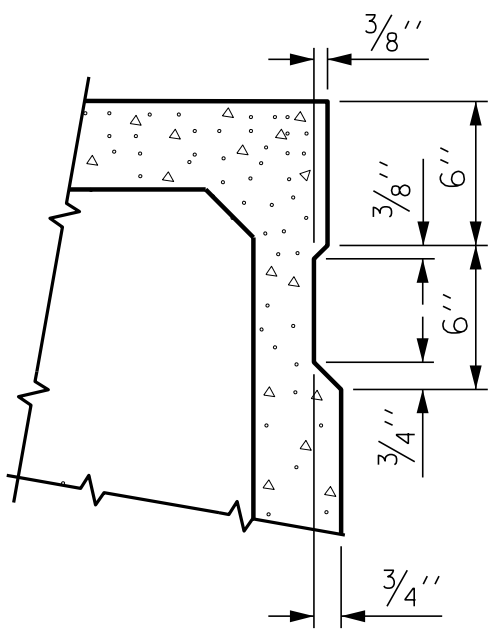
ENGINEER OF RECORD
11/24/2020 | 07:38:05 PST
NORTH CAROLINA
PROFESSIONAL
SEAL
22072
ENGINEER
ARTHUR DILWORTH
DocuSign by:
John Arthur Dilworth
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-6377

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-
SHEET 3 OF 6
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PLAN OF 80' UNIT
30'-6" CLEAR ROADWAY
90° SKEW
(SPAN B)
REVISIONS
NO. BY: DATE: NO. BY: DATE:
1 2 3 4
SHEET NO.
S-7
TOTAL SHEETS
25



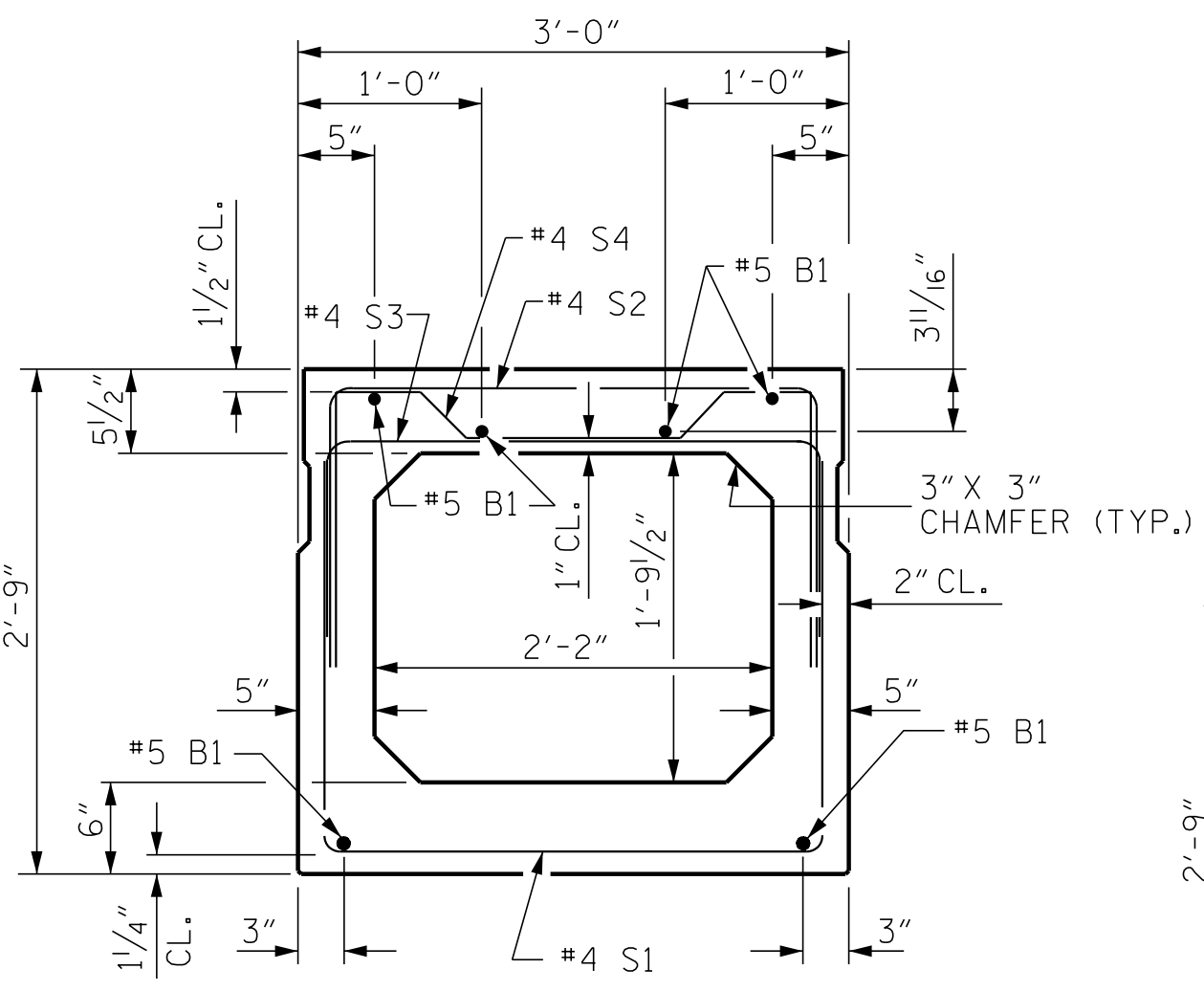
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



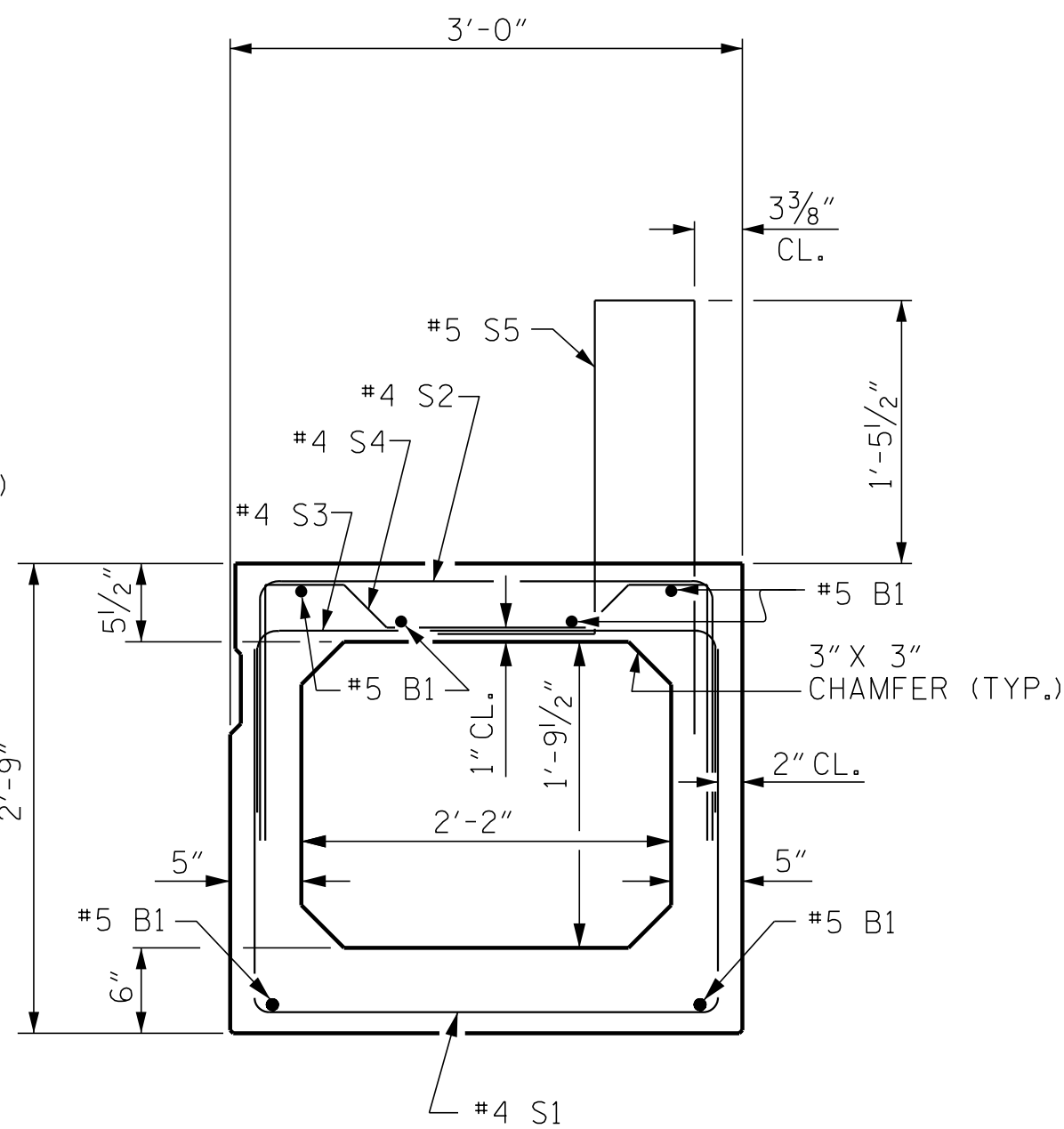
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



INTERIOR BOX BEAM SECTION

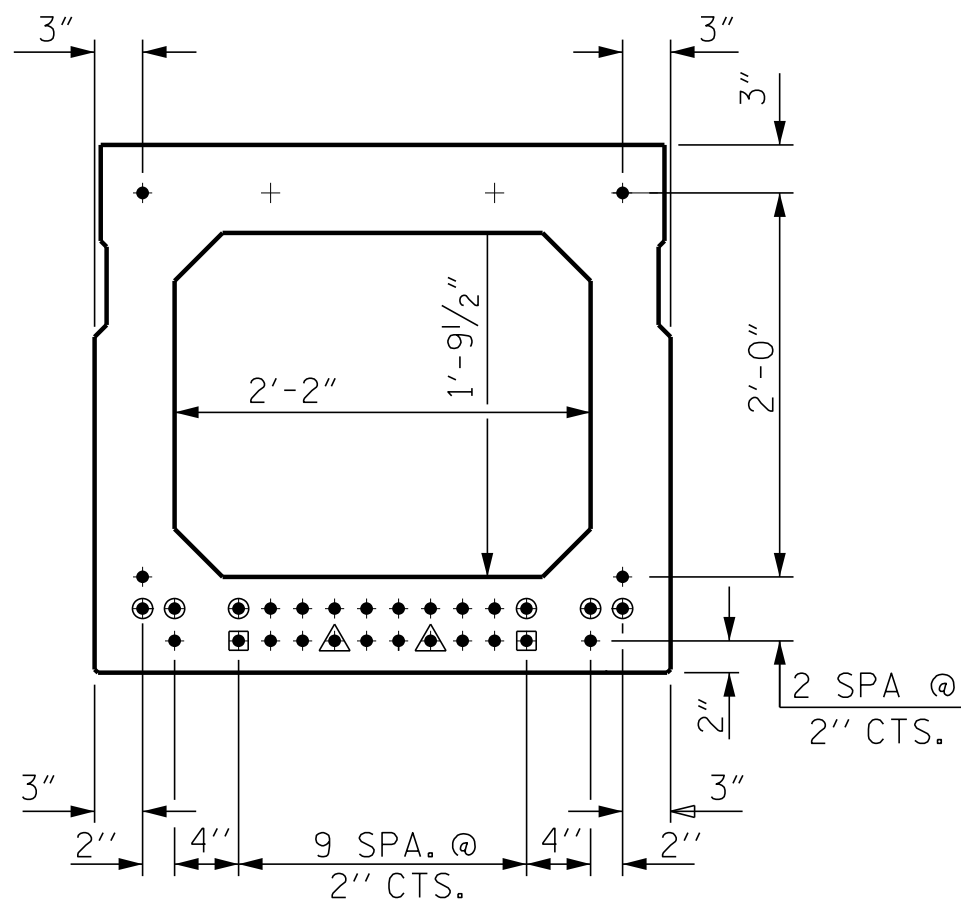
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

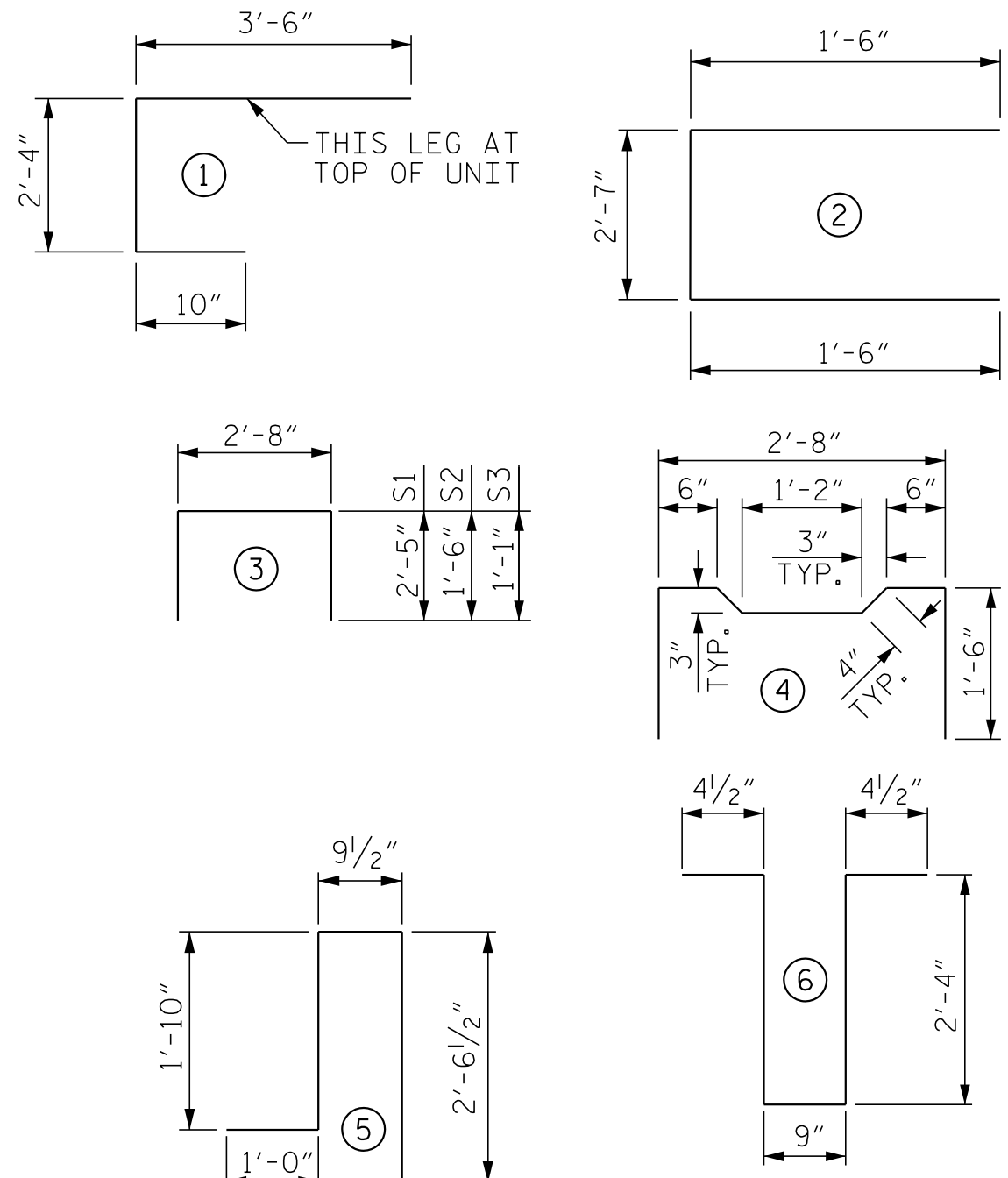
(24 STRANDS REQUIRED)

DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE BOX BEAM UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST.

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

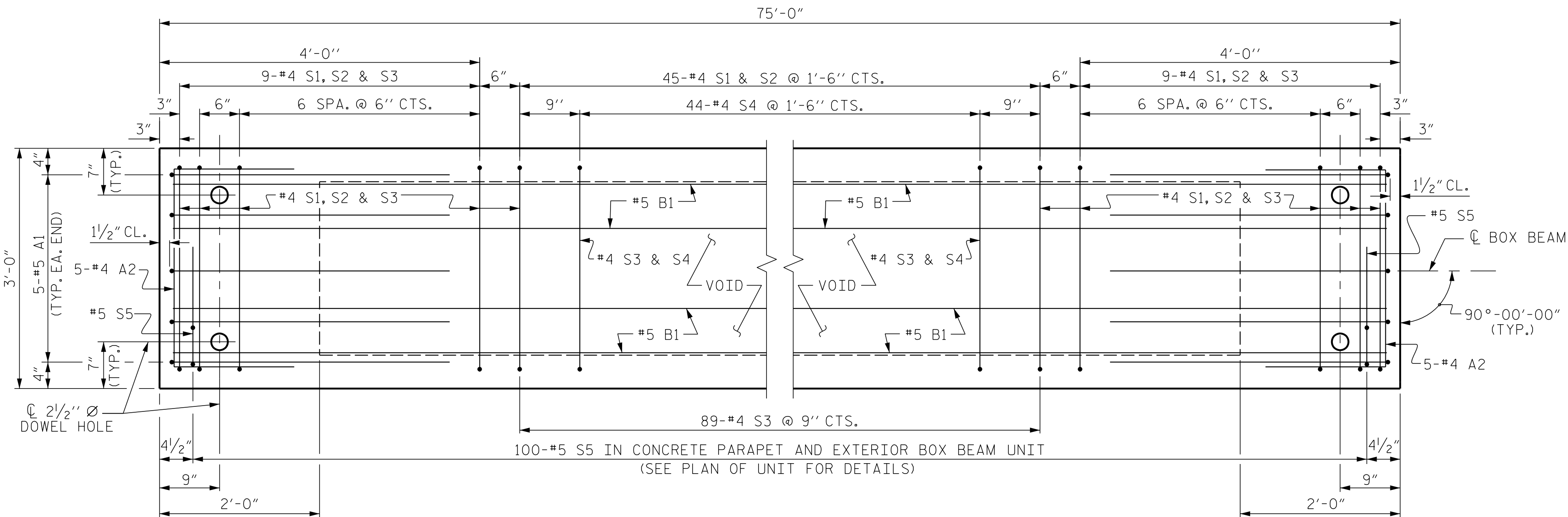
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	34	#4	2	5'-7"	127	5'-7"	127
B1	12	#5	STR	38'-5"	481	38'-5"	481
K1	12	#4	6	6'-2"	49	6'-2"	49
K2	8	#4	STR	2'-7"	14	2'-7"	14
S1	63	#4	3	7'-6"	316	7'-6"	316
S2	63	#4	3	5'-8"	238	5'-8"	238
S3	107	#4	3	4'-10"	345	4'-10"	345
S4	44	#4	4	5'-10"	171	5'-10"	171
* S5	100	#5	5	6'-2"	643	--	--
REINFORCING STEEL				1811	LBS.	1811	LBS.
* EPOXY COATED REINF. STEEL				643	LBS.		
8000 P.S.I. CONCRETE				13.4	CU. YDS.	13.3	CU. YDS.
0.6" Ø L.R. STRANDS				No. 24		No. 24	



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE "PLAN OF UNIT". FOR THREADED INSERTS, SEE "THREADED INSERT DETAIL". FOR REINFORCING STEEL IN DIAPHRAGMS, SEE "DOUBLE DIAPHRAGM DETAILS".

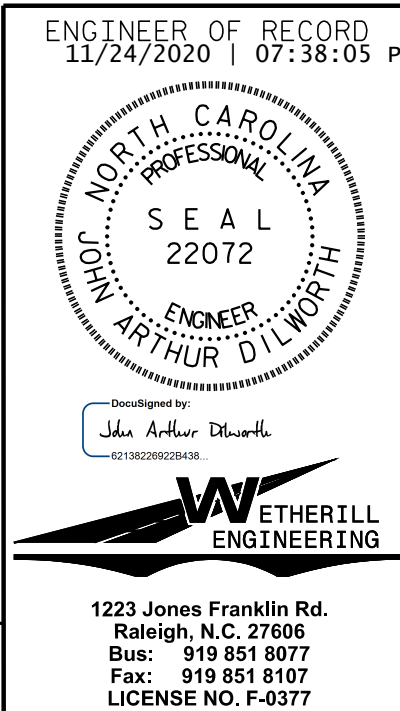
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. BR-0241

EDGEcombe COUNTY

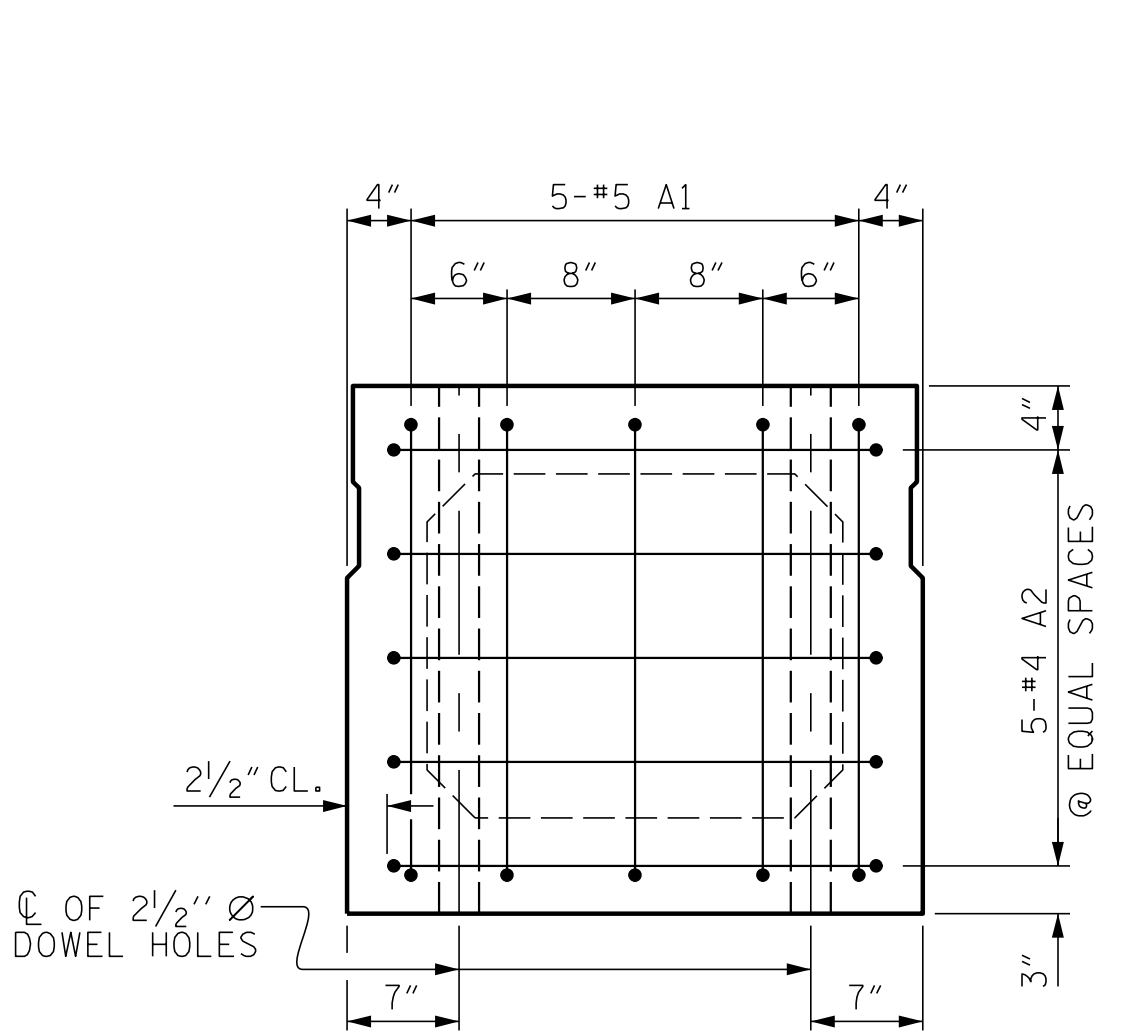
STATION: 16+70.00 -L-

SHEET 4 OF 6



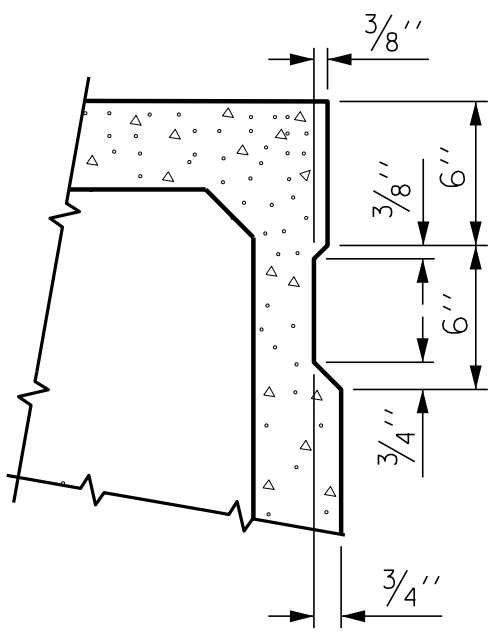
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			

DRAWN BY : J. PENDERGRAFT DATE : 11-18
CHECKED BY : J. DILWORTH DATE : 11-18



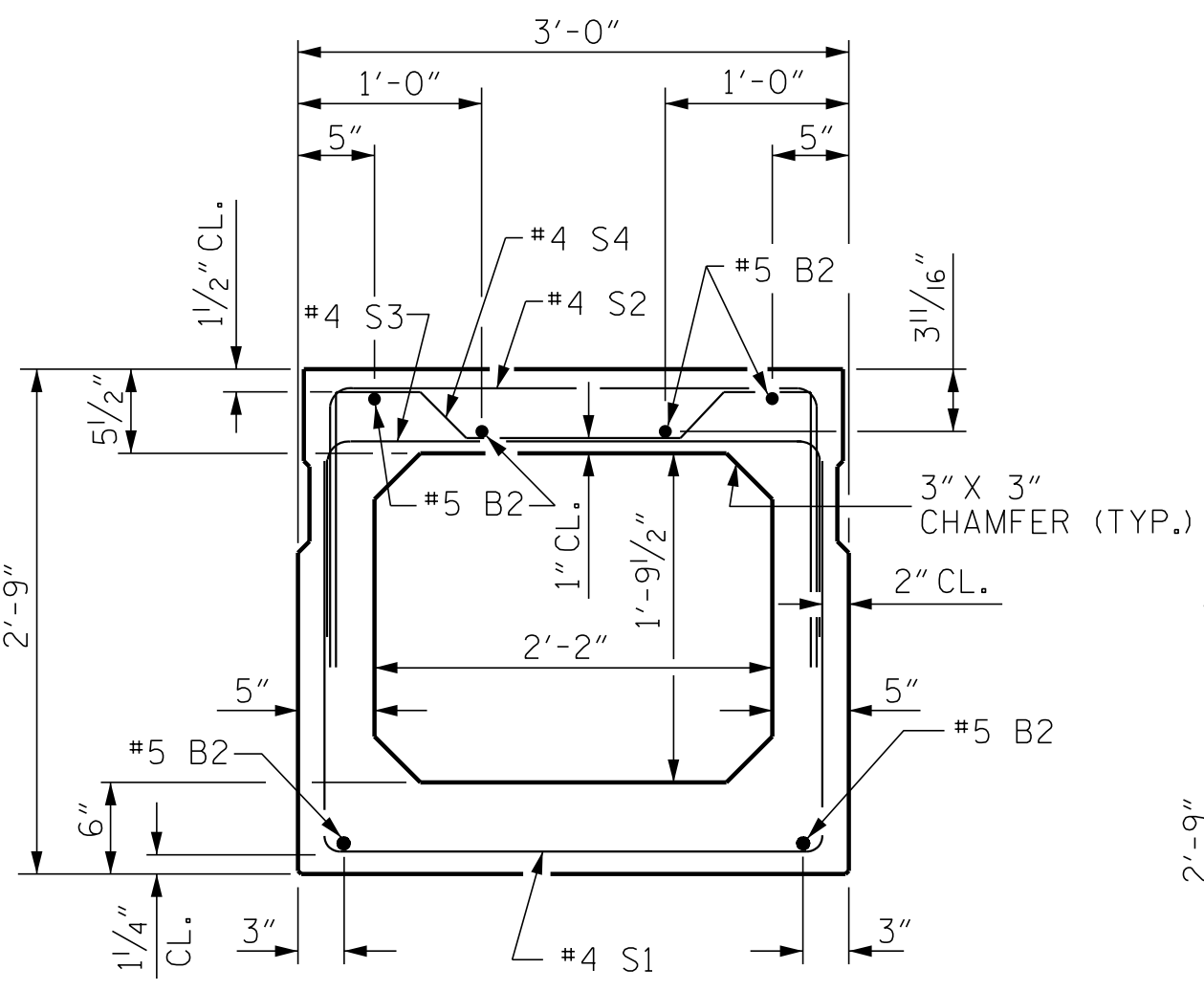
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



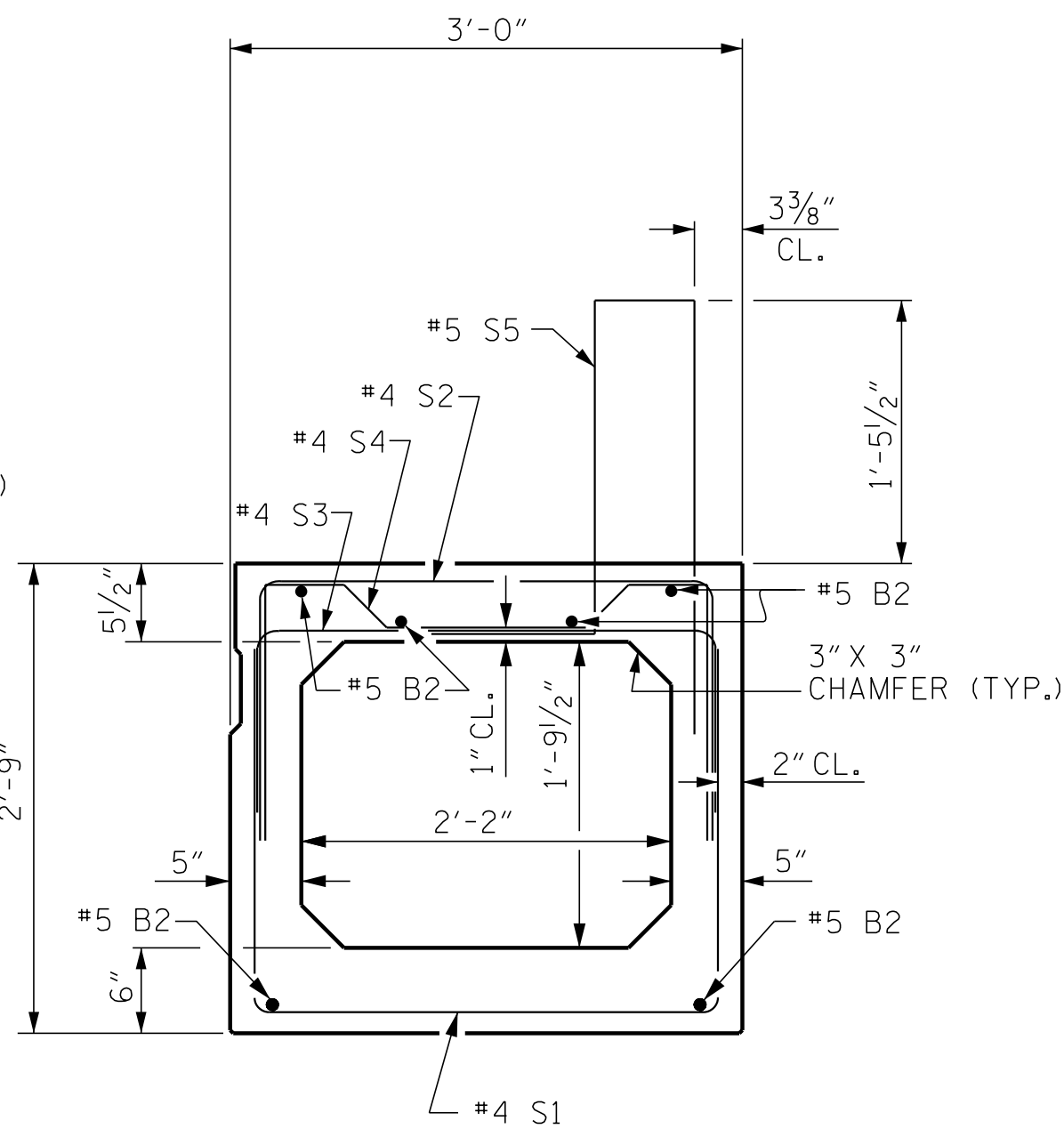
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



INTERIOR BOX BEAM SECTION

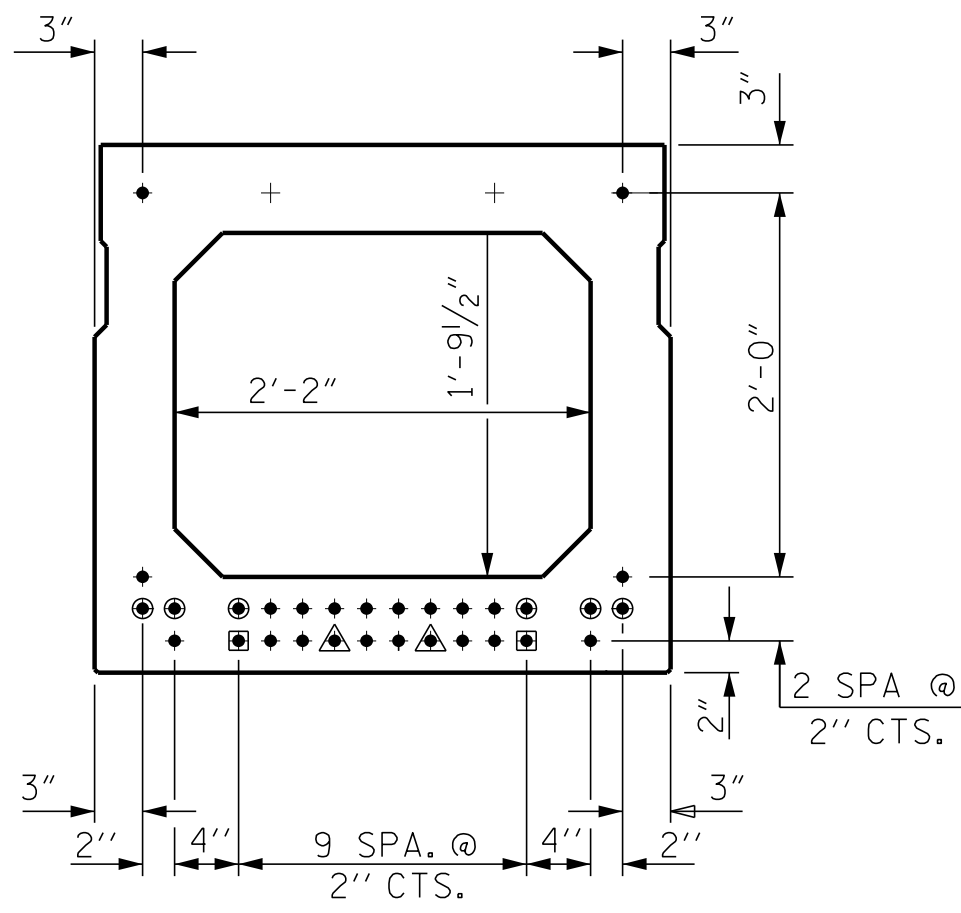
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

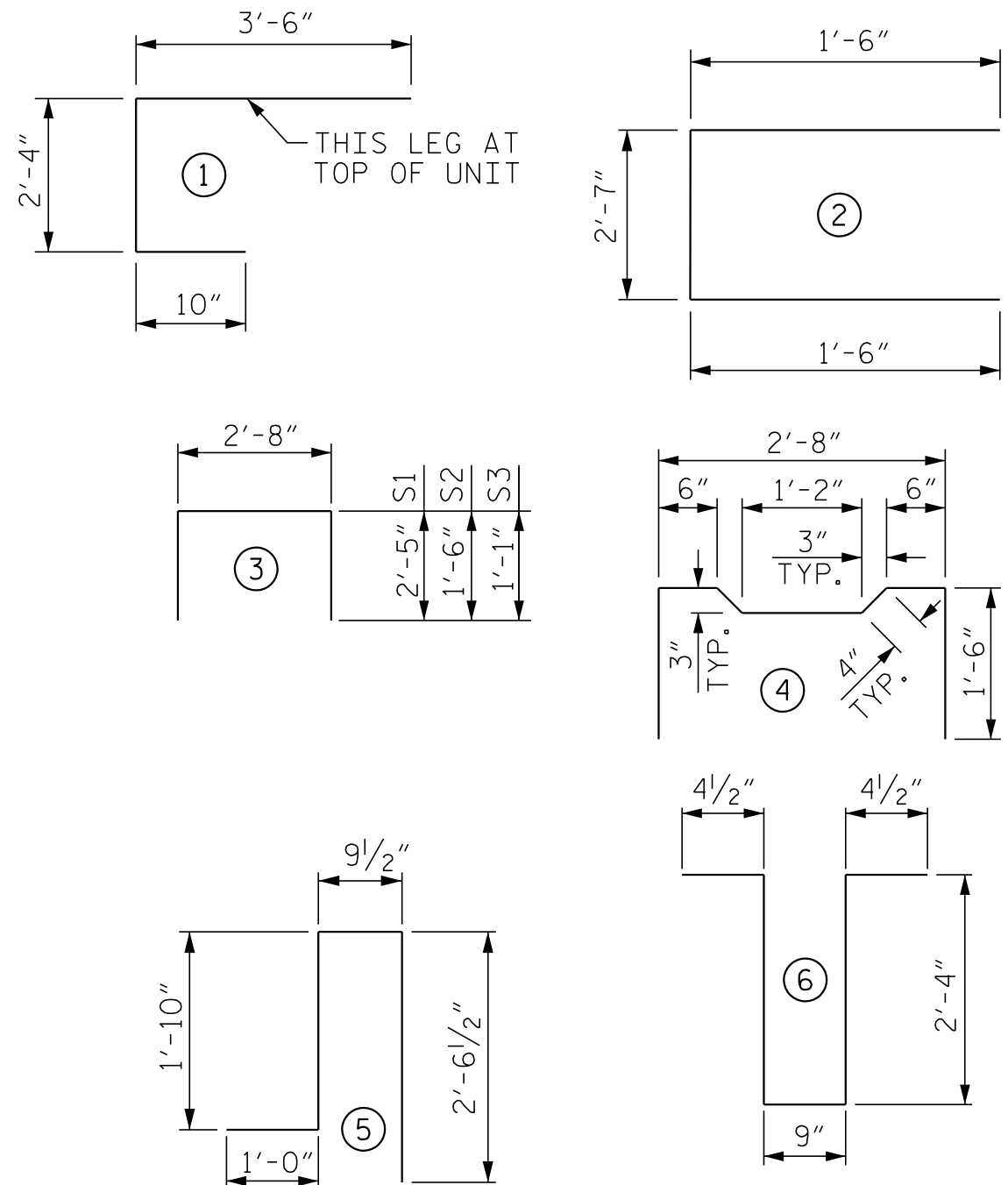
(24 STRANDS REQUIRED)

DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE BOX BEAM UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST.

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

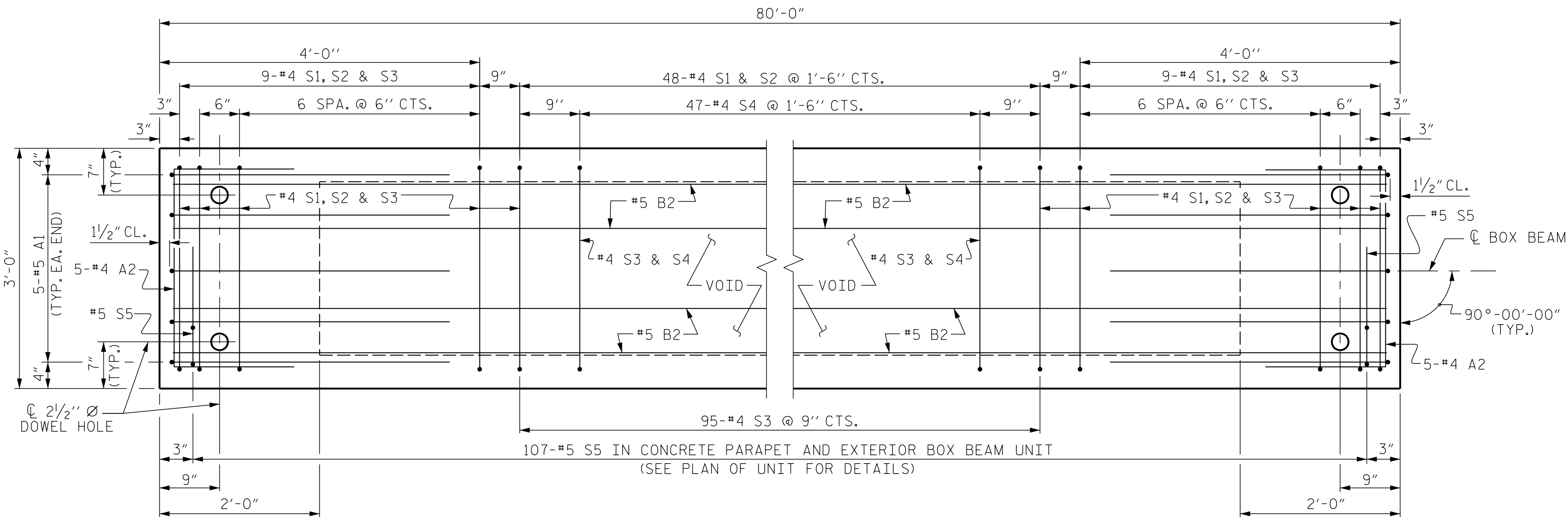
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	34	#4	2	5'-7"	127	5'-7"	127
B2	12	#5	STR	40'-11"	512	40'-11"	512
K1	12	#4	6	6'-2"	49	6'-2"	49
K2	8	#4	STR	2'-7"	14	2'-7"	14
S1	66	#4	3	7'-6"	331	7'-6"	331
S2	66	#4	3	5'-8"	250	5'-8"	250
S3	113	#4	3	4'-10"	365	4'-10"	365
S4	47	#4	4	5'-10"	183	5'-10"	183
* S5	107	#5	5	6'-2"	688	--	--
REINFORCING STEEL				1901	LBS.	1901	LBS.
* EPOXY COATED REINF. STEEL				688	LBS.		
8000 P.S.I. CONCRETE				14.2	CU. YDS.	14.1	CU. YDS.
0.6" Ø L.R. STRANDS				No. 24		No. 24	



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE "PLAN OF UNIT". FOR THREADED INSERTS, SEE "THREADED INSERT DETAIL". FOR REINFORCING STEEL IN DIAPHRAGMS, SEE "DOUBLE DIAPHRAGM DETAILS".

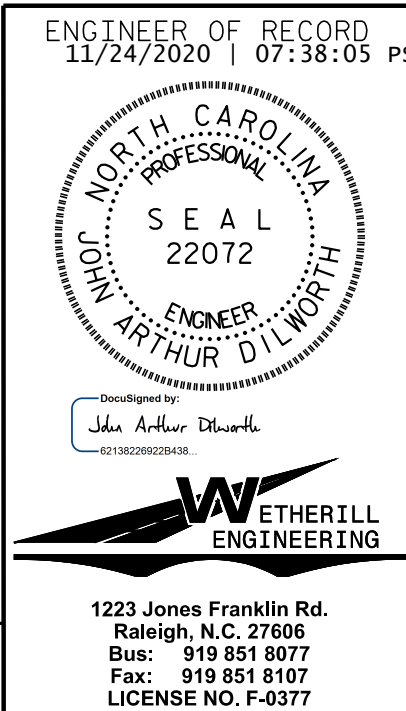
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PROJECT NO. BR-0241

EDGEcombe COUNTY

STATION: 16+70.00 -L-

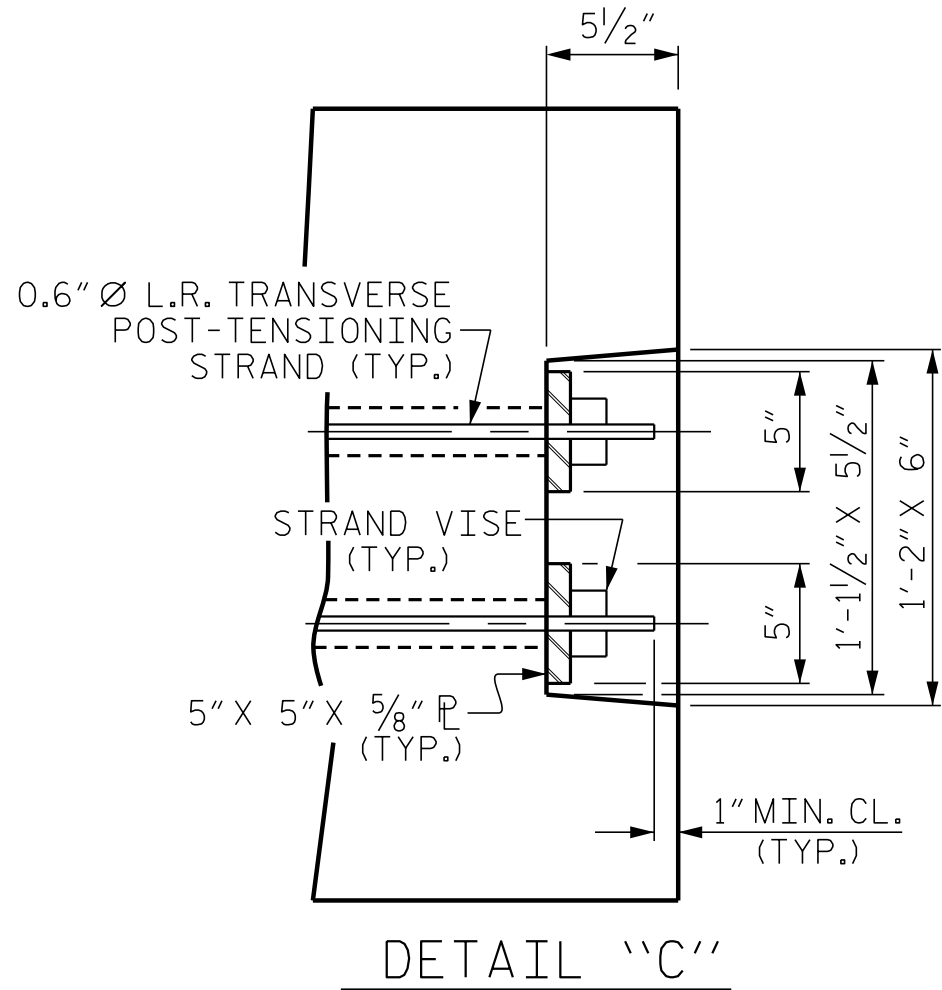
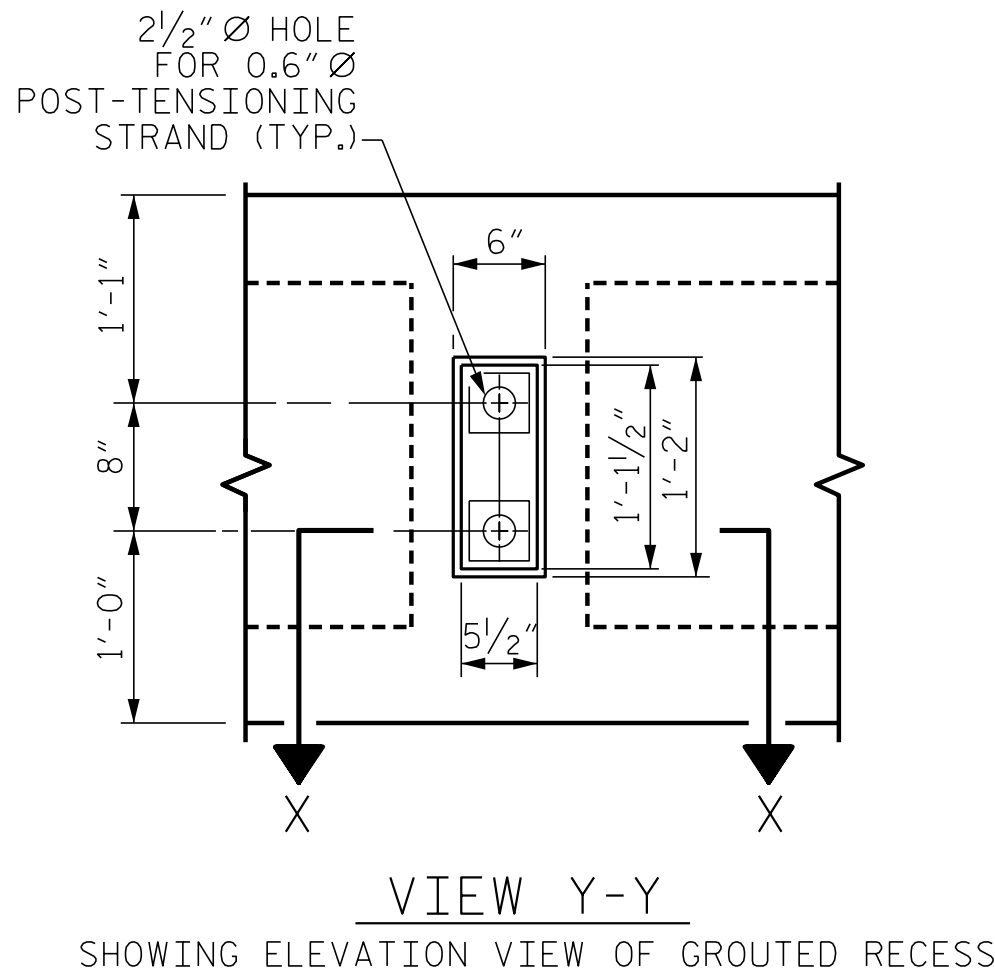
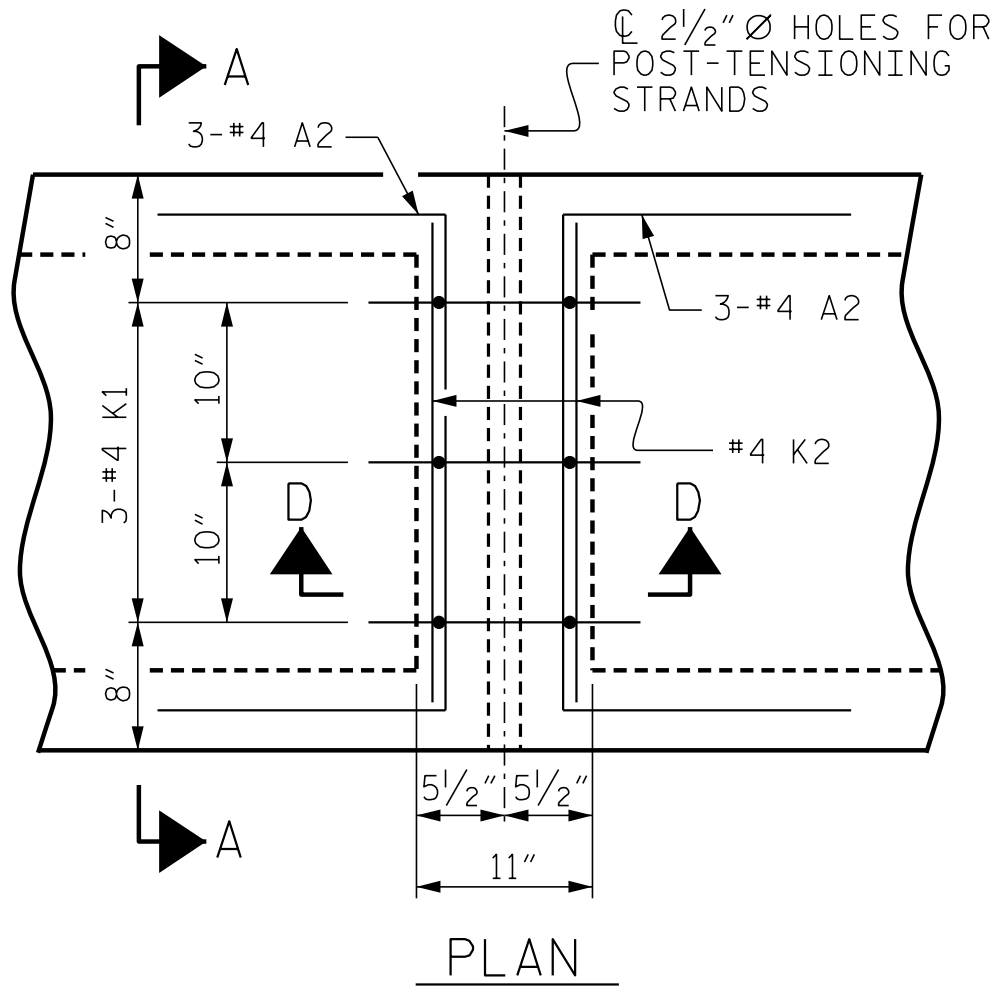
SHEET 5 OF 6



DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT
(SPAN B)

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

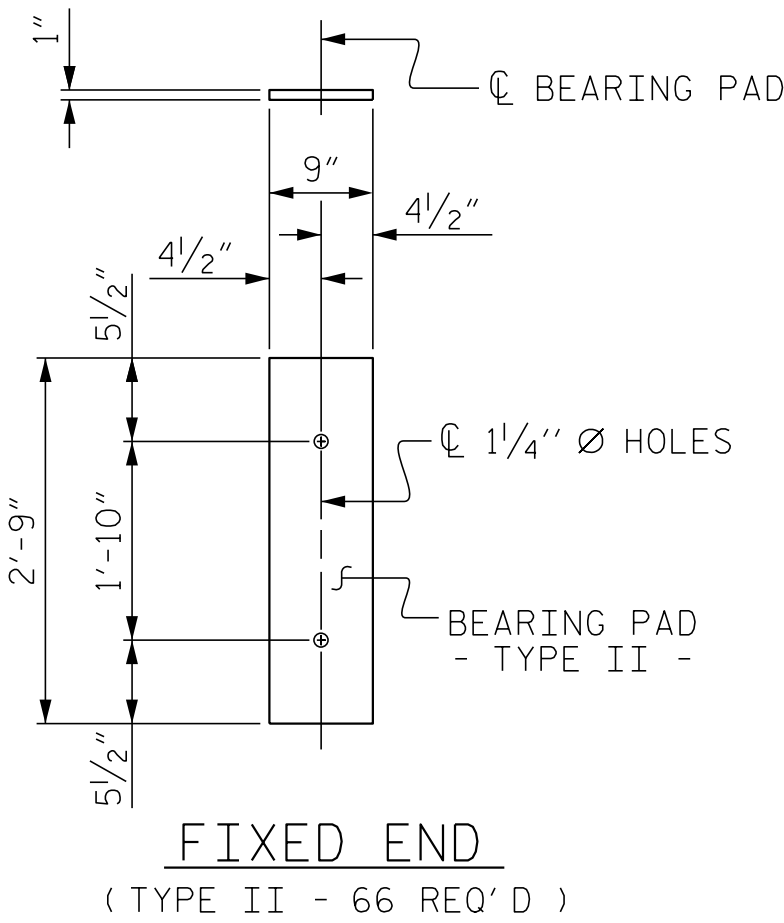
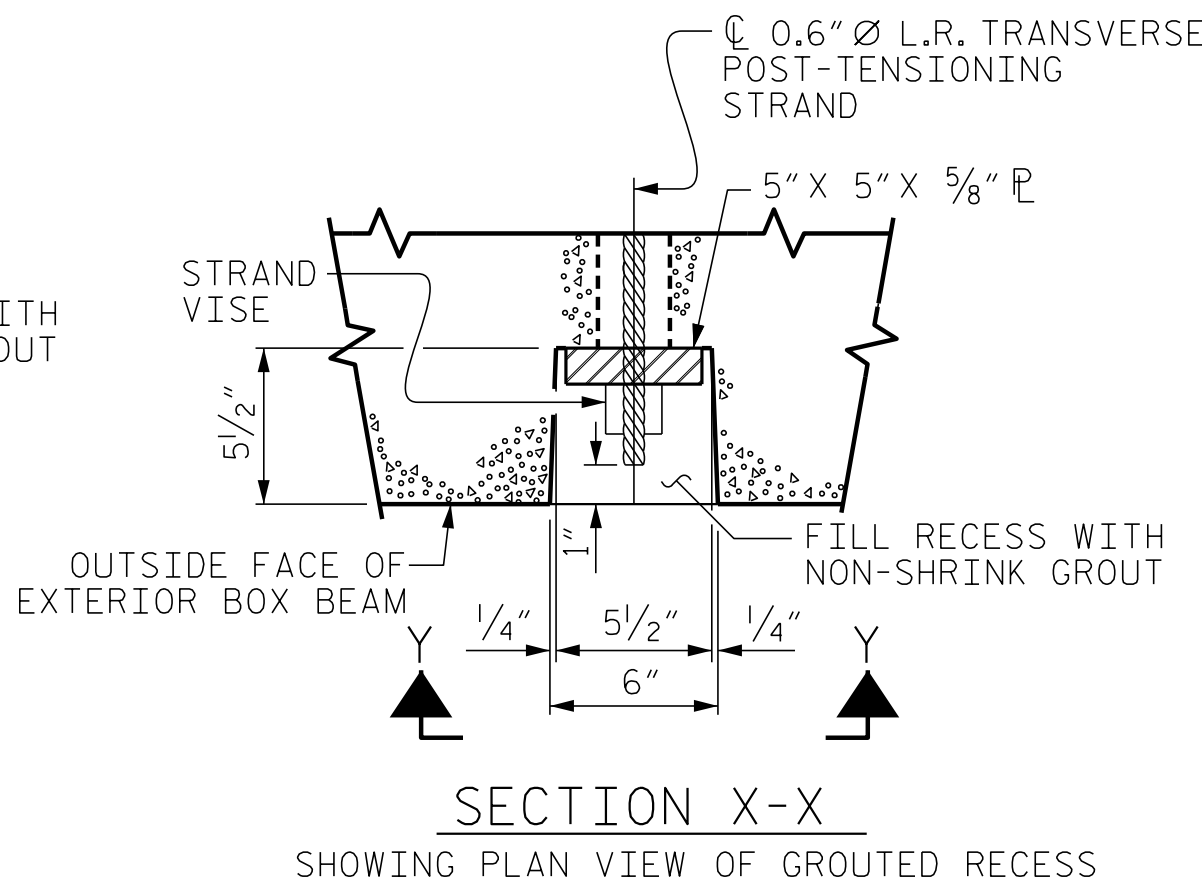
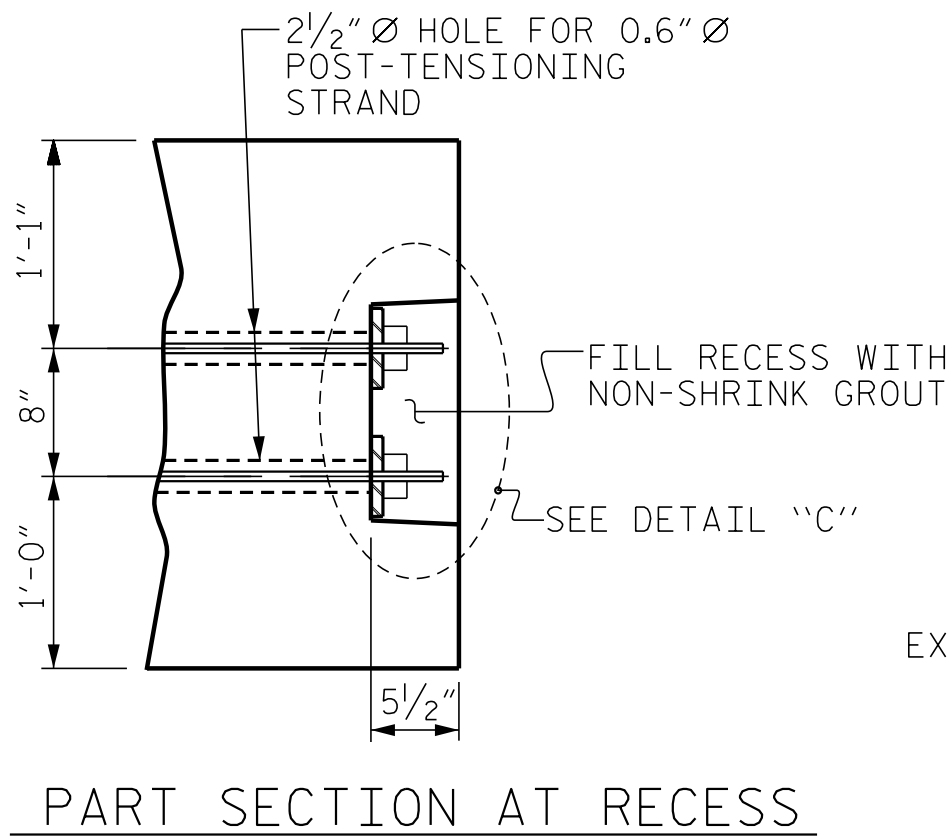
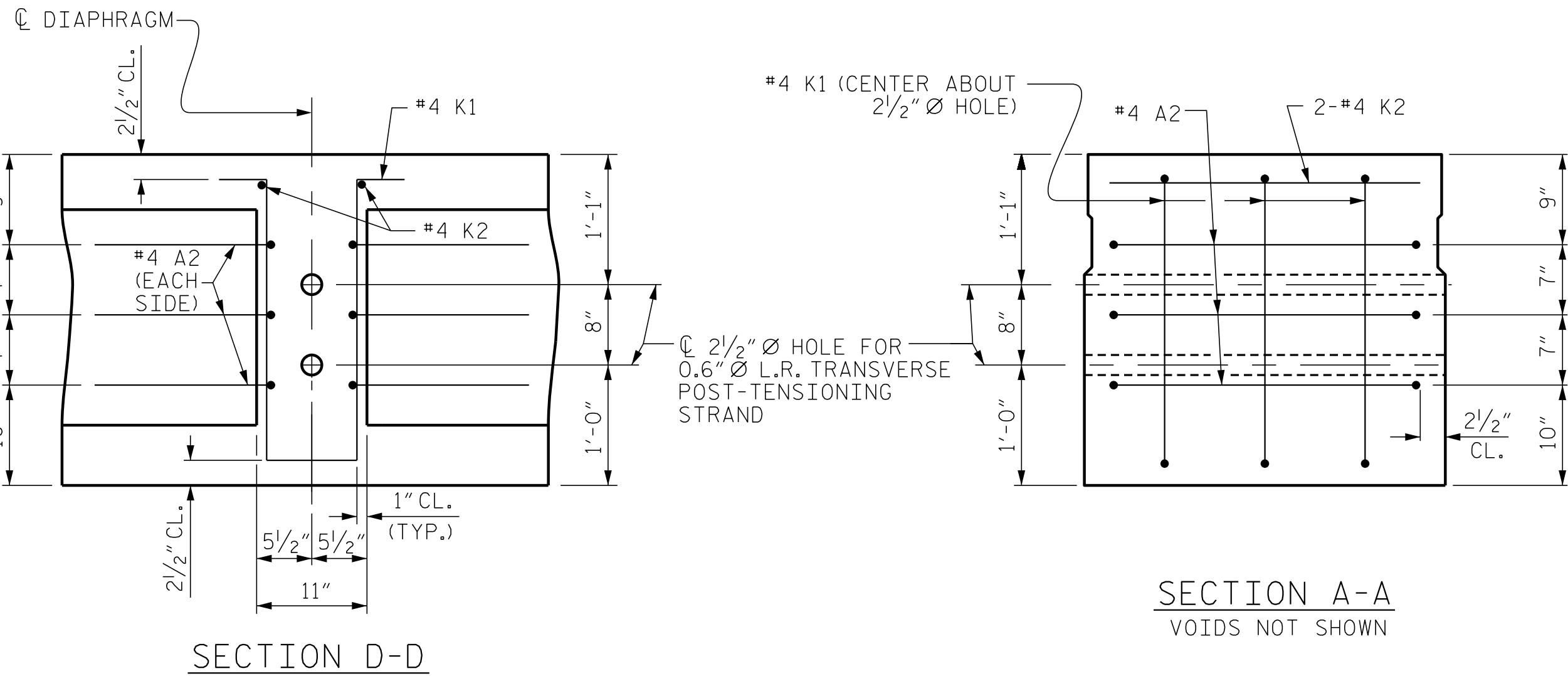
DRAWN BY: J. PENDERGRAFT DATE: 11-18
CHECKED BY: J. DILWORTH DATE: 11-18



BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	4	75'-0"	300'-0"
INTERIOR B.B.	18	75'-0"	1350'-0"
TOTAL	22	—	1650'-0"

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	80'-0"	160'-0"
INTERIOR B.B.	9	80'-0"	720'-0"
TOTAL	11	—	880'-0"

DEAD LOAD DEFLECTION AND CAMBER	
75' & 80' BOX BEAM UNIT (NC)	3'-0" x 2'-9"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1 3/4" ↑
FINAL CAMBER	1/2" ↓
** INCLUDES FUTURE WEARING SURFACE	
	1/4" ↑



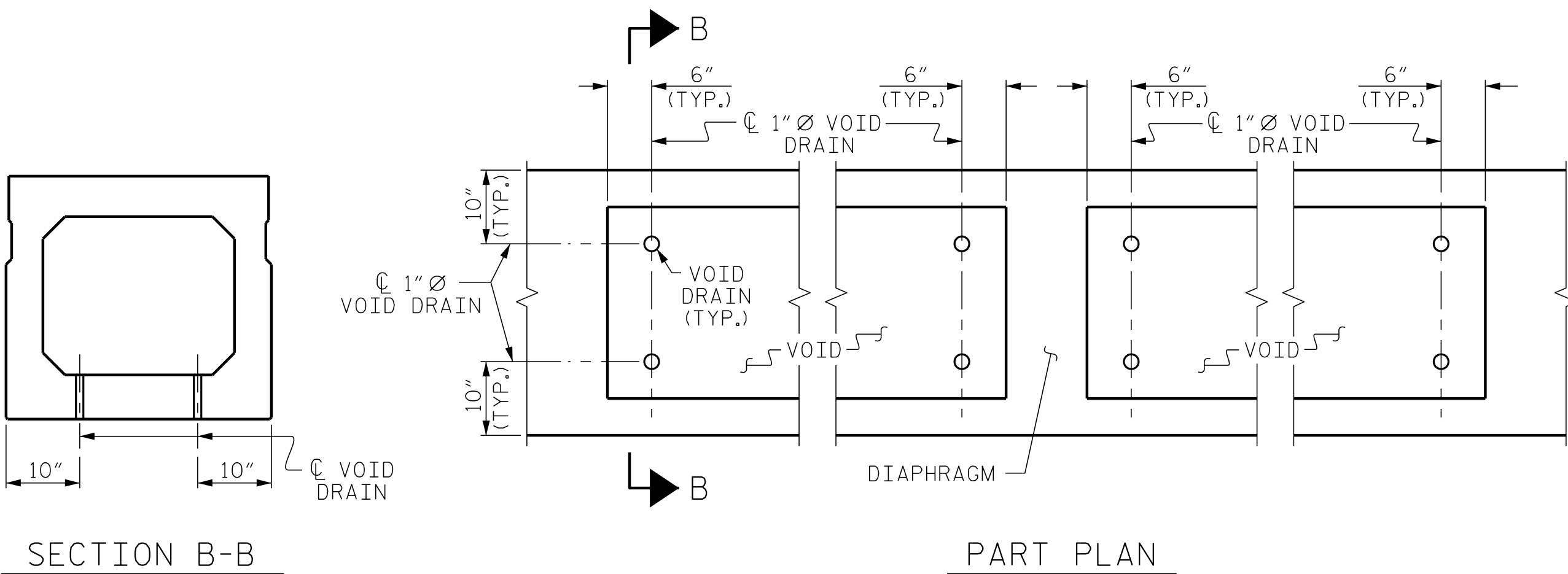
GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.



VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

ASSEMBLED BY : J. PENDERGRAFT	DATE : 11-18
CHECKED BY : -	DATE : -
DRAWN BY : DGE 10/11	REV. 8/14
CHECKED BY : TMG 11/11	MAA/TMG

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
11/24/2020 10:38:05 PST

NORTH CAROLINA
PROFESSIONAL
SEAL
22072
ENGINEER
ARTHUR D'ILIO

DocuSign by
John Arthur D'Illo
919.851.8077

ETHERILL
ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919.851.8077
Fax: 919.851.8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

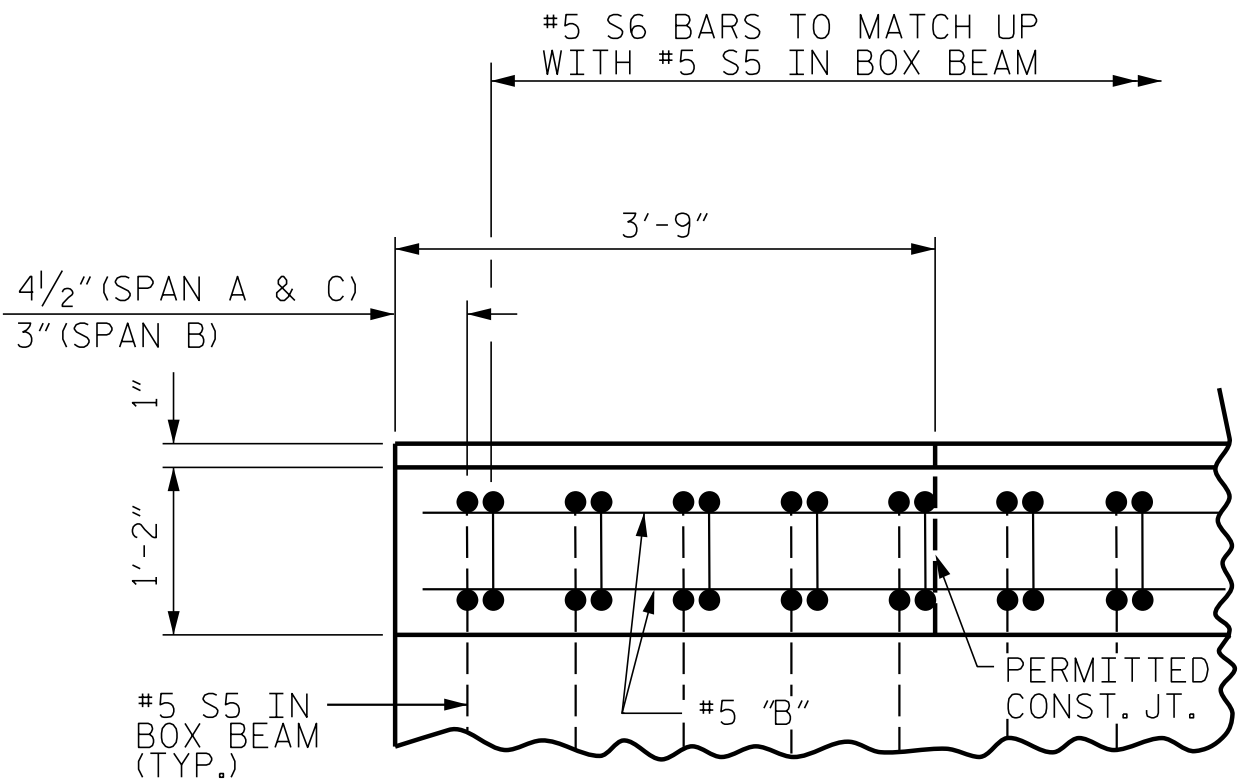
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

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

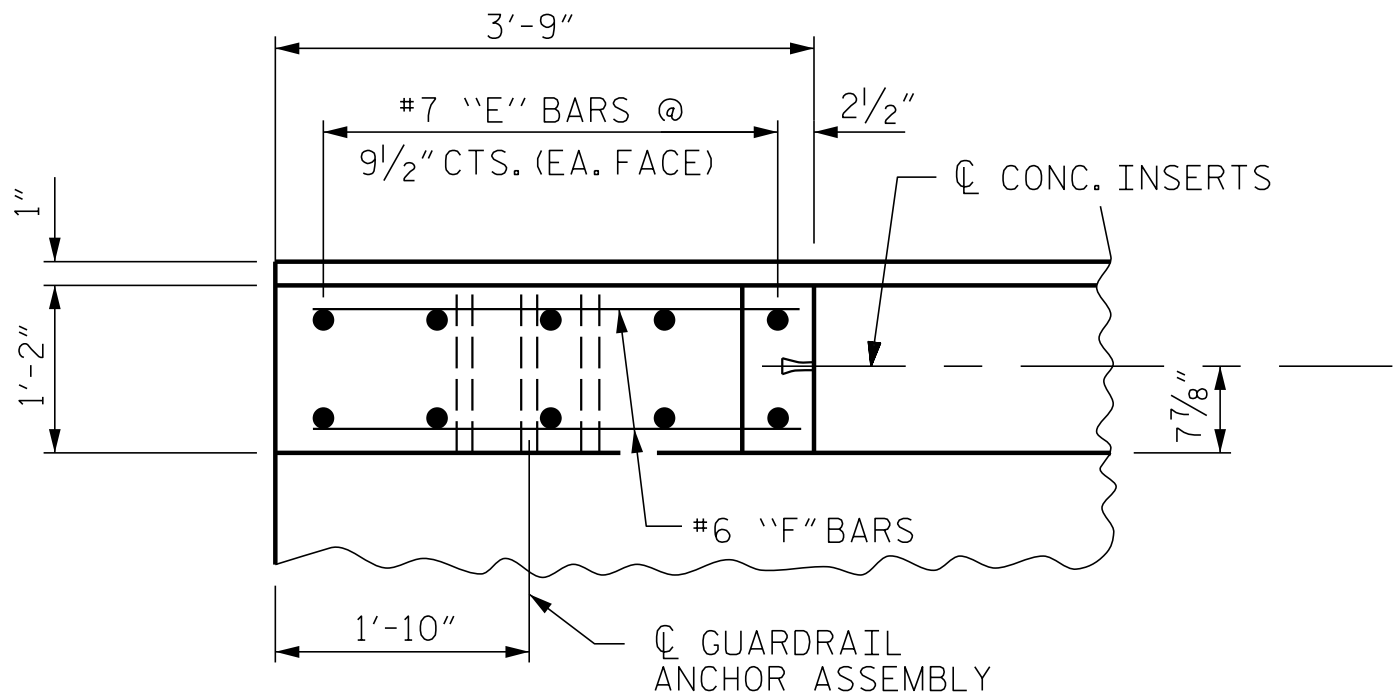
SHEET NO.
S-10
TOTAL SHEETS
25

STD.NO.33PCBB5-90S

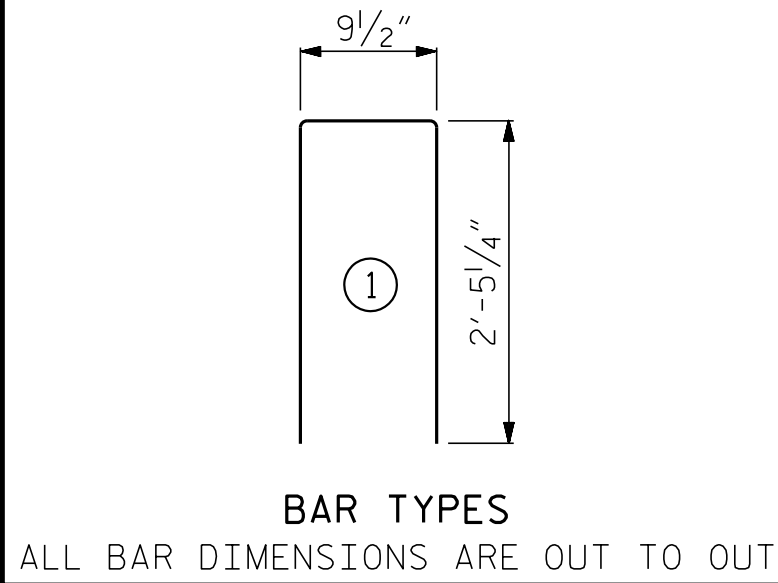
P:\2018\113201_EDGECOMBE_54\Structures\DWG\EDGECOMBE_54_SMU_BB.dgn 11/29/2020 12:34:52 PM



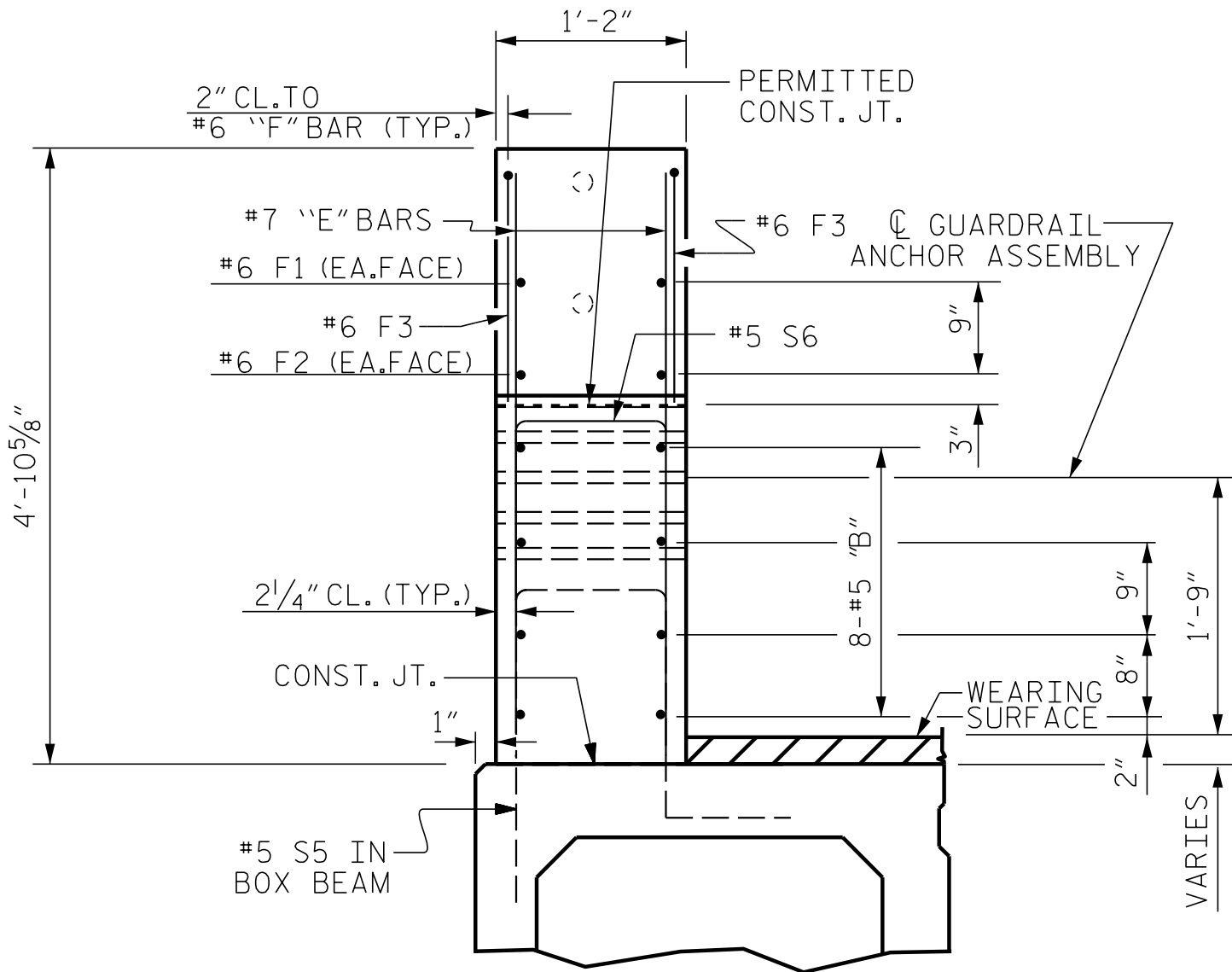
PLAN OF PARAPET



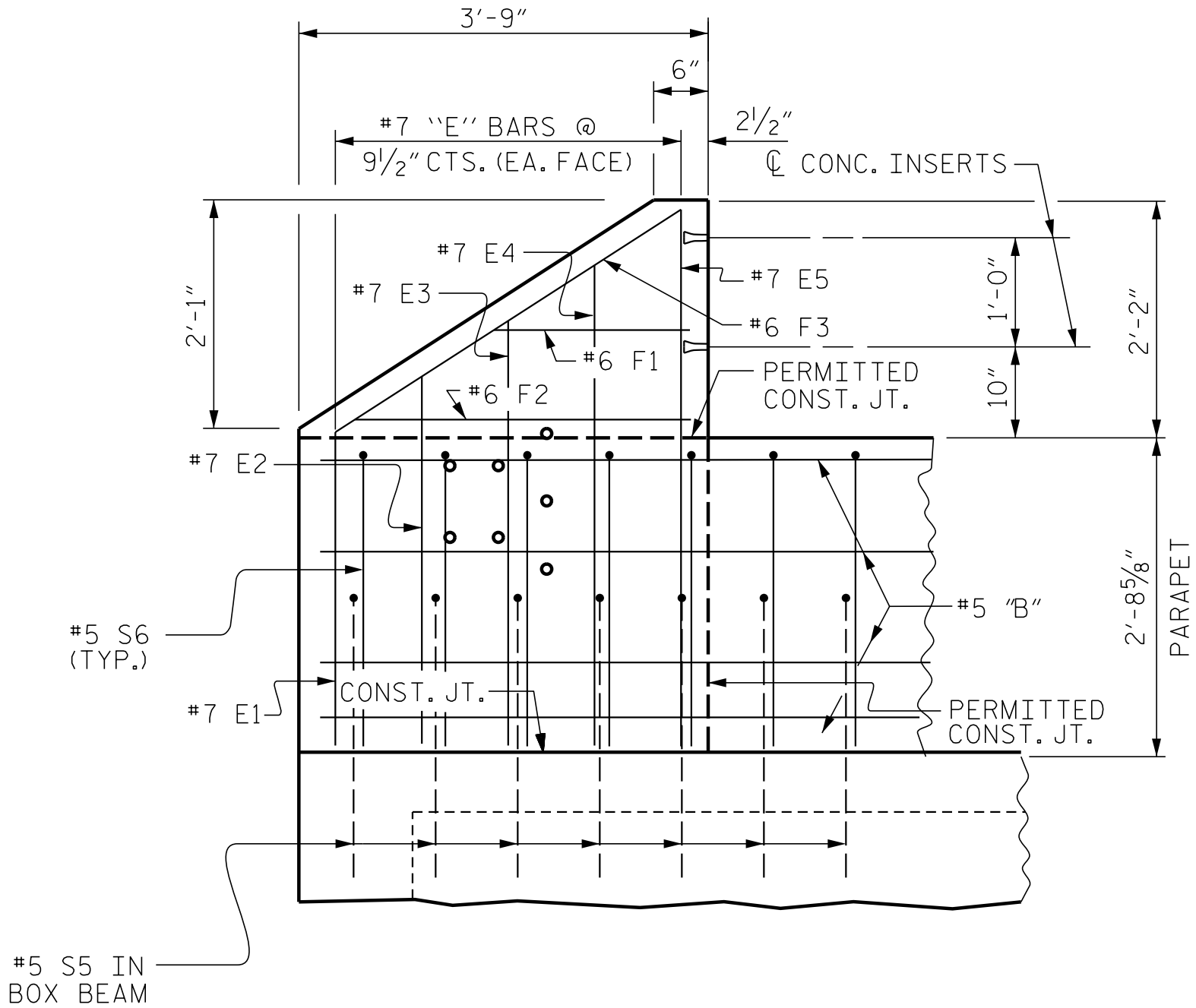
PLAN OF END POST



BILL OF MATERIAL FOR 2 PARAPETS & 4 END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B7	96	#5	STR	24'-7"	2461
* B8	48	#5	STR	26'-3"	1314
* E1	8	#7	STR	2'-9"	45
* E2	8	#7	STR	3'-3"	53
* E3	8	#7	STR	3'-9"	61
* E4	8	#7	STR	4'-3"	69
* E5	8	#7	STR	4'-8"	76
* F1	8	#6	STR	1'-9"	21
* F2	8	#6	STR	3'-0"	36
* F3	8	#6	STR	3'-9"	45
* S6	614	#5	1	5'-8"	3629
* EPOXY COATED REINFORCING STEEL					
				LBS.	7810
CLASS AA CONCRETE				CU.YDS.	54.4
1'-2" x 2'-8 5/8" CONCRETE PARAPET					460.50 LIN. FT.
FIBER OPTIC CONDUIT SYSTEM					456.50 LIN. FT.



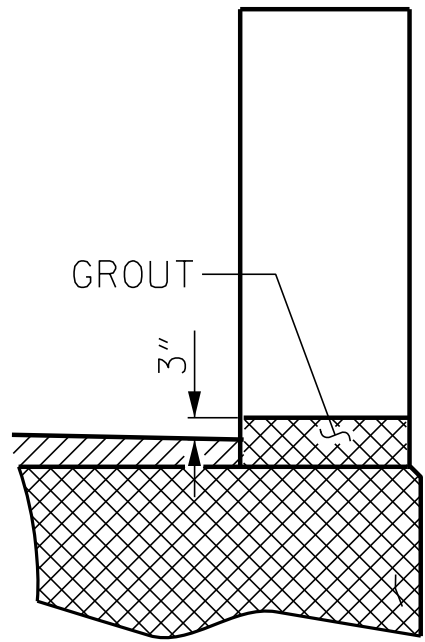
END VIEW



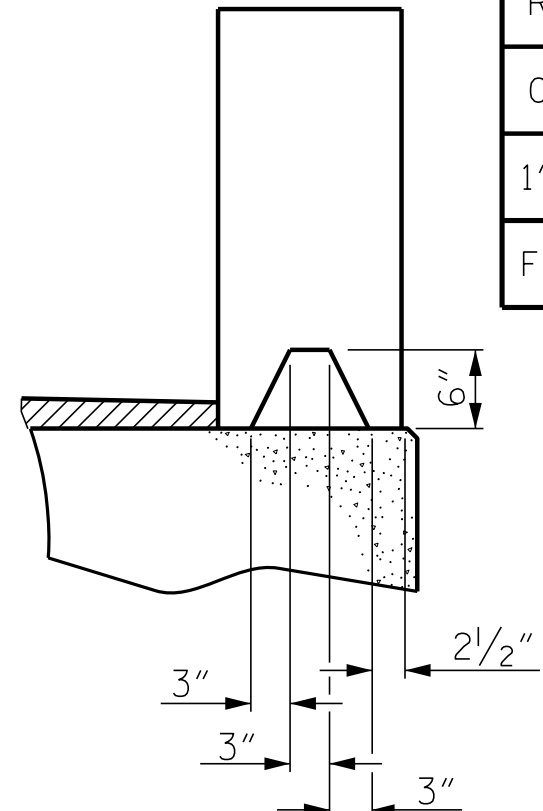
ELEVATION

PARAPET AND END POST FOR TWO BAR RAIL

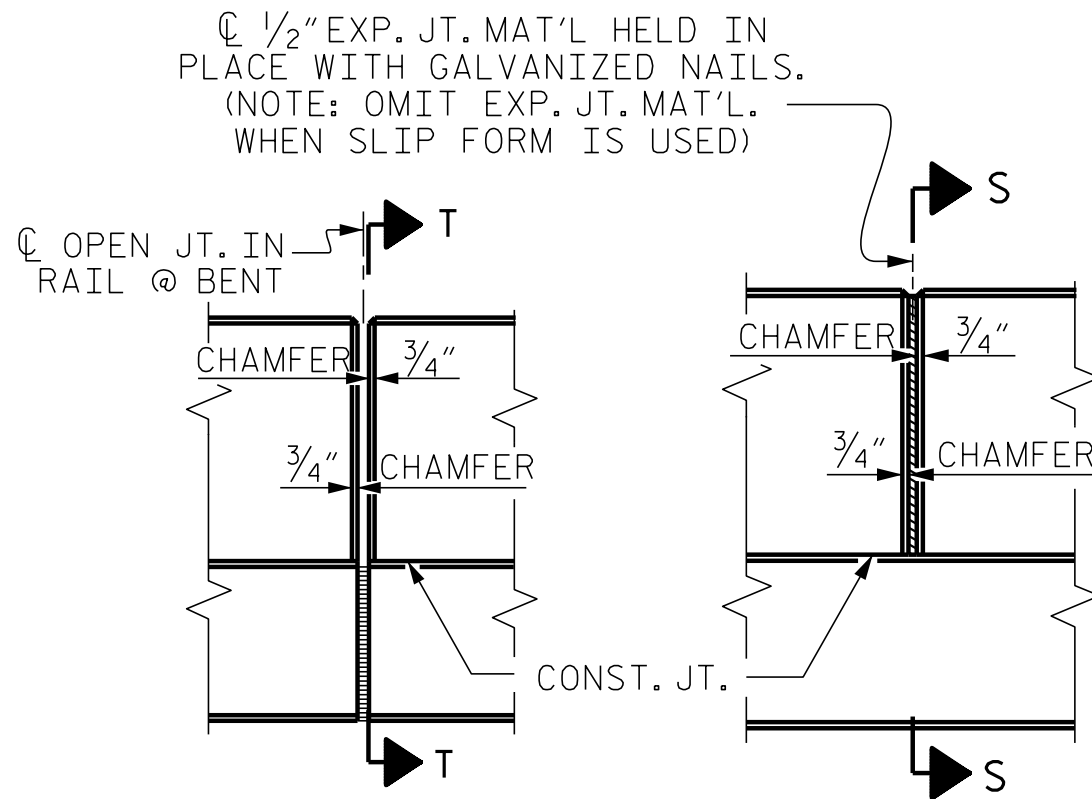
SEE "GUARDRAIL ANCHOR DETAILS FOR METAL RAIL SHEET FOR LOCATION OF GUARDRAIL ATTACHMENT.



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

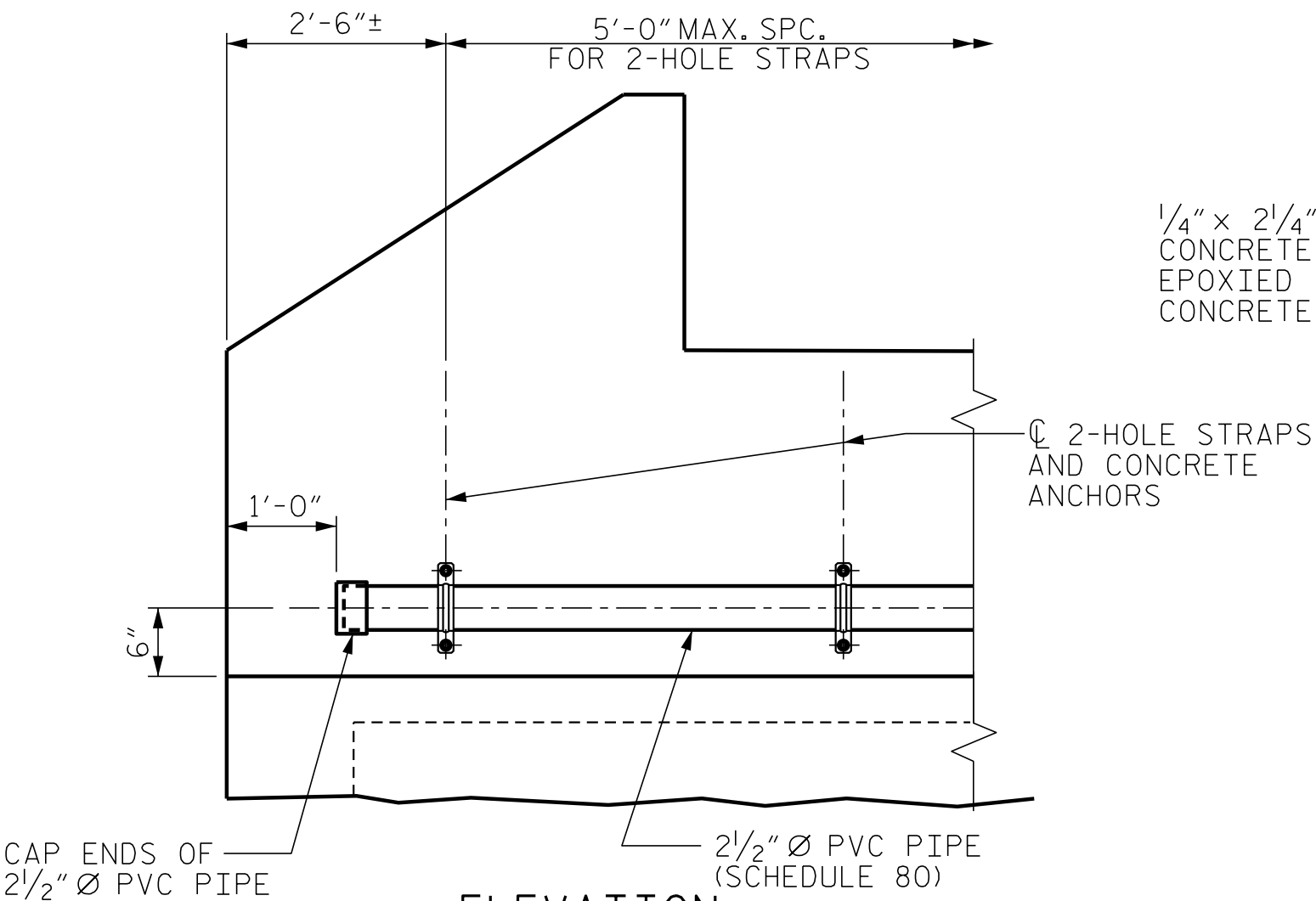


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)

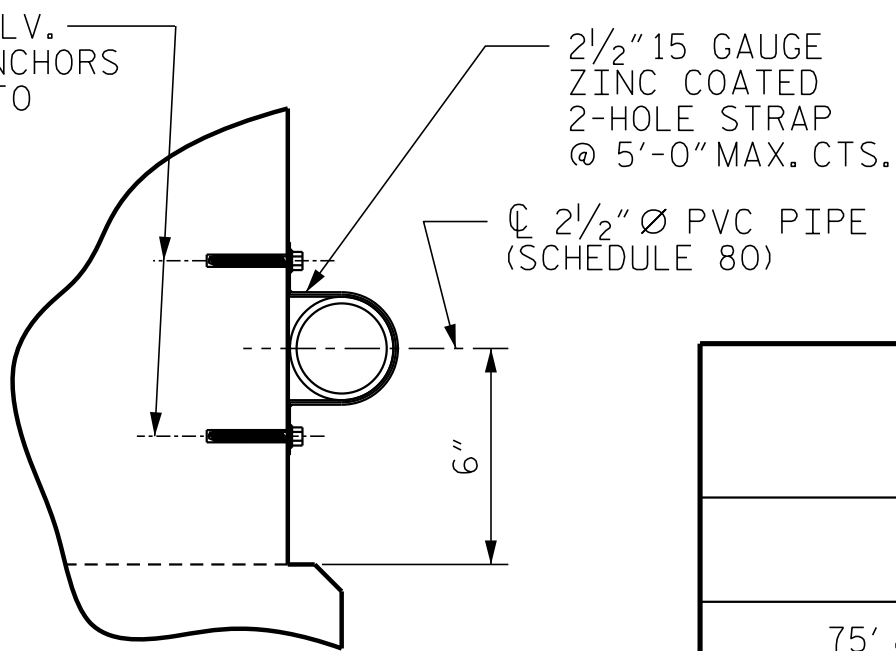


ELEVATION AT EXPANSION JOINTS

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-



ELEVATION



SECTION

FIBER OPTIC CONDUIT SYSTEM DETAILS

GUTTERLINE ASPHALT THICKNESS & HEIGHT OF CONCRETE PARAPET		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	HEIGHT OF CONCRETE PARAPET @ MID-SPAN
75' & 80' BOX BEAM UNITS	2 1/4"	2'-8 1/4"

DRAWN BY : J. PENDERGRAFT DATE : 11-17
CHECKED BY : J. DILWORTH DATE : 1-18

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

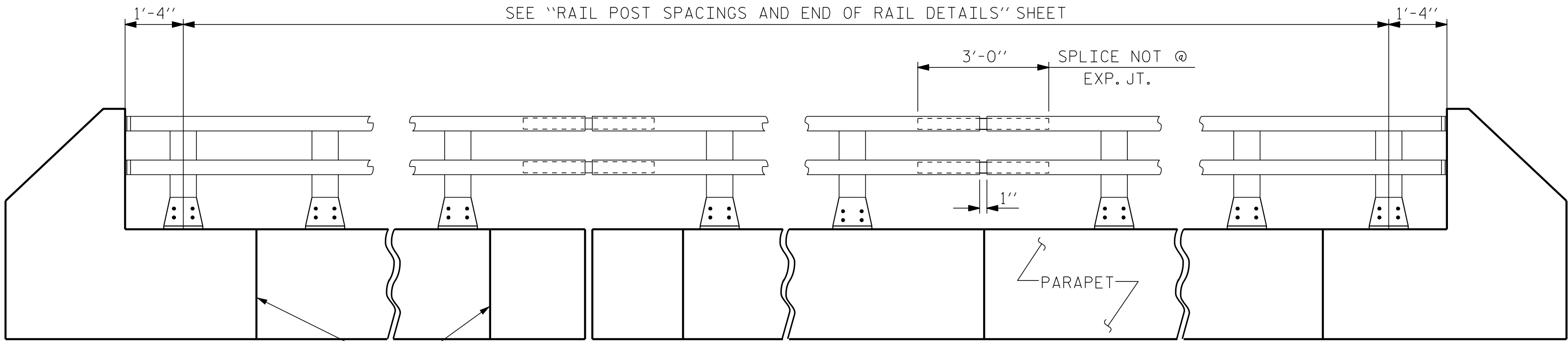
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
11/24/2020 | 07:38:05 PST

Designed by:
John Arthur Dilworth
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

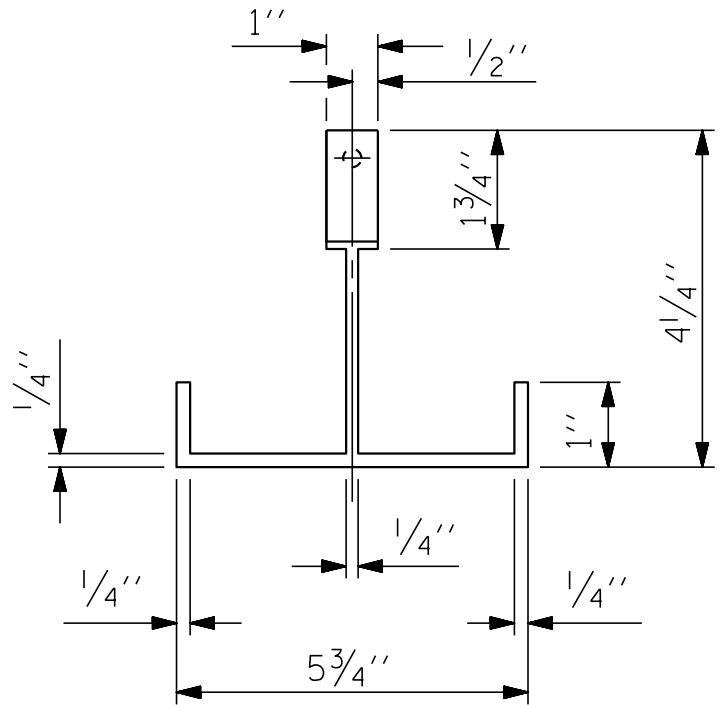
ETHERILL
ENGINEERING

REVISIONS						SHEET NO. S-II
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			25

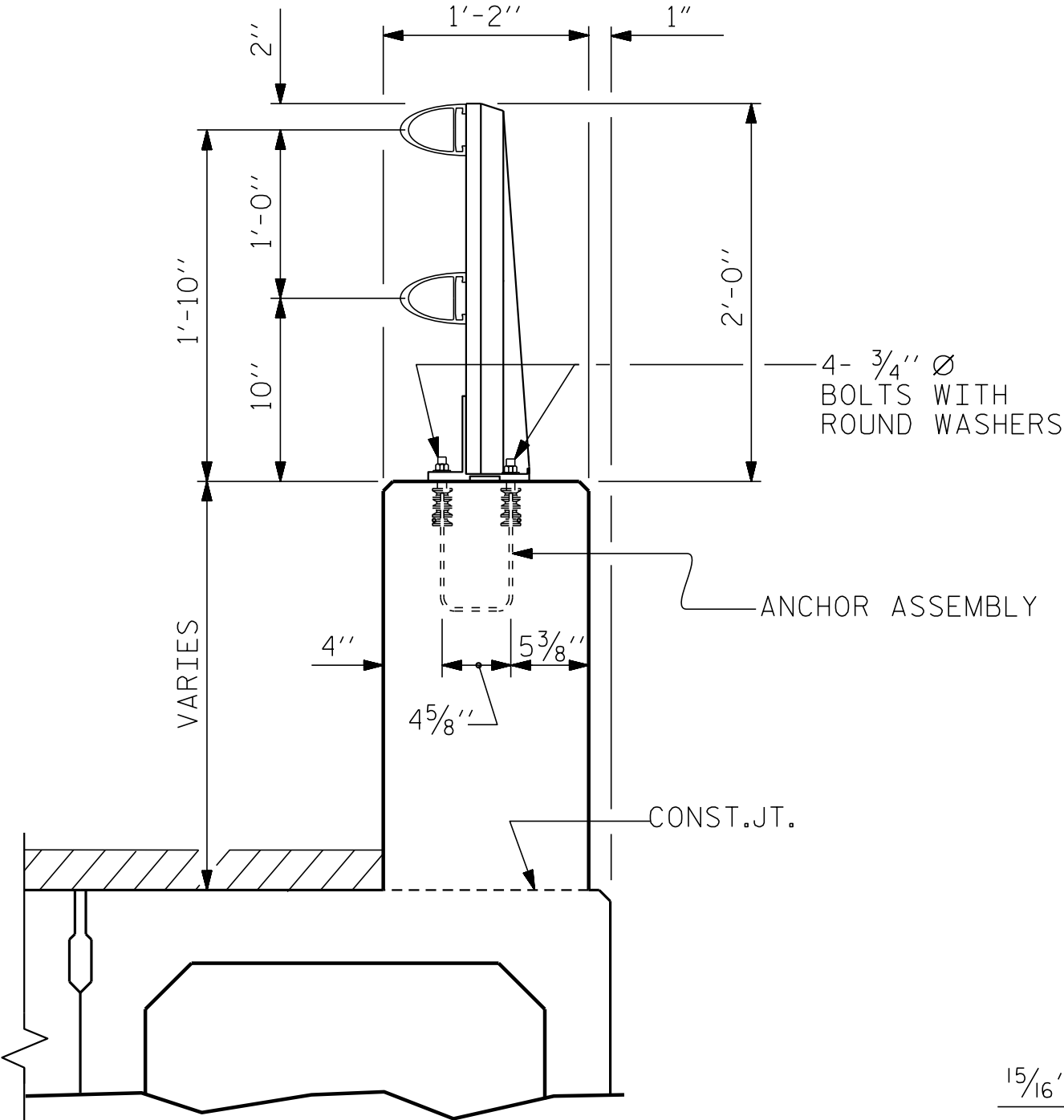


ELEVATION

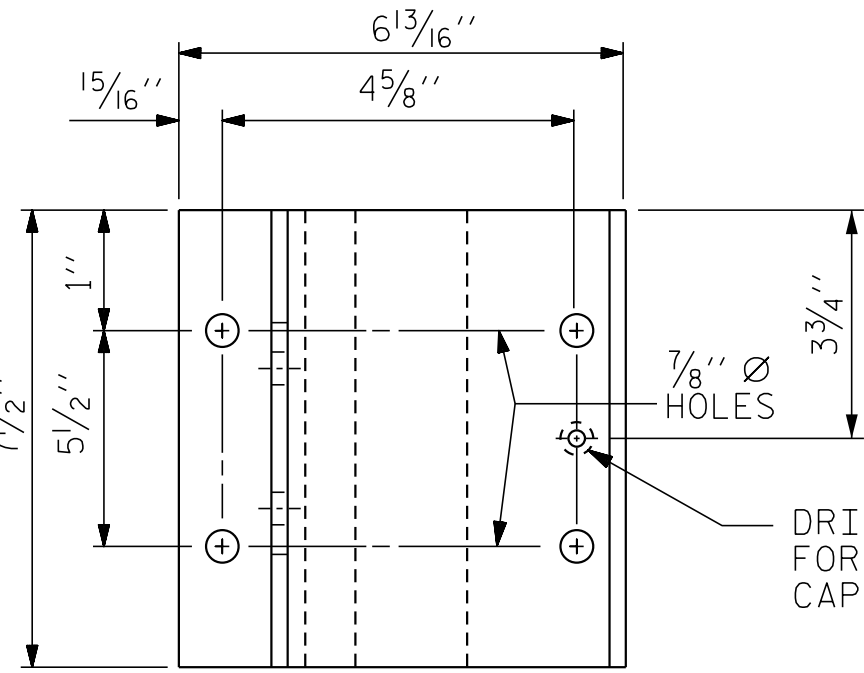
NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.



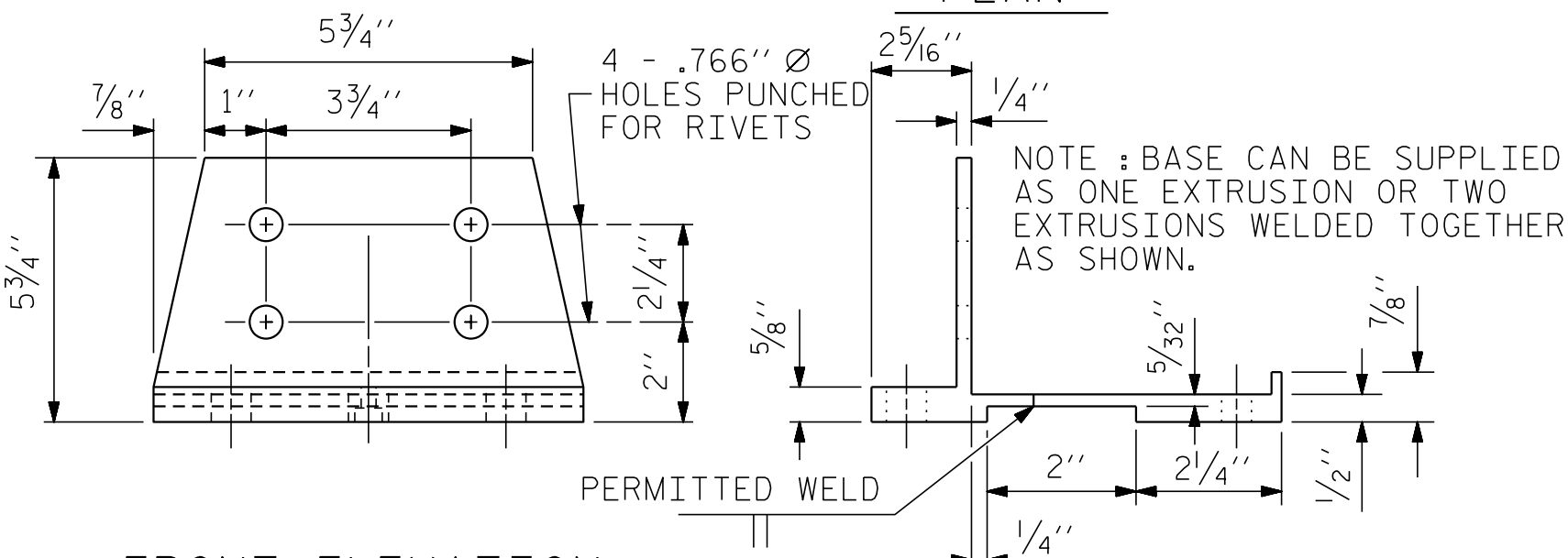
PLAN



SECTION THRU PARAPET AND RAIL



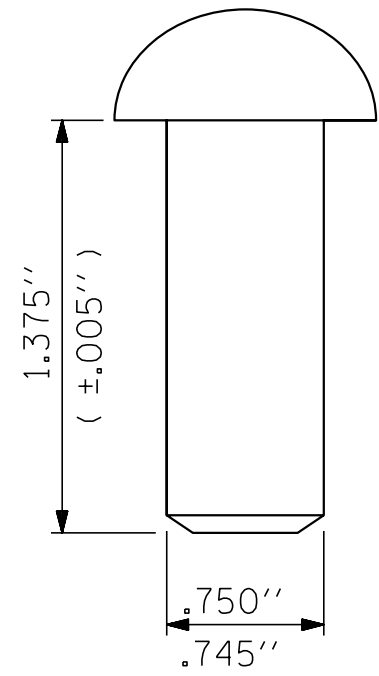
PLAN



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFB BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6.

MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

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

PAY LENGTH = 445.50 LIN. FT.

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

SHEET 1 OF 3

ENGINEER OF RECORD 11/24/2020 07:38:05 PM NORTH CAROLINA PROFESSIONAL SEAL 22072 JOHN ARTHUR DILLON ENGINEER Designed by: John Arthur Dillworth ETHERILL ENGINEERING 1223 Jones Franklin Rd. Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107 LICENSE NO. F-0377		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD 2 BAR METAL RAIL			
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-12 TOTAL SHEETS 25					

STD. NO. BMR3

ASSEMBLED BY : J. PENDERGRAFT	DATE : 12-18
CHECKED BY : J. DILWORTH	DATE : 12-18
DRAWN BY : EEM 6/94	REV. 10/1/11 MAA/GM
CHECKED BY : RGW 6/94	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

+

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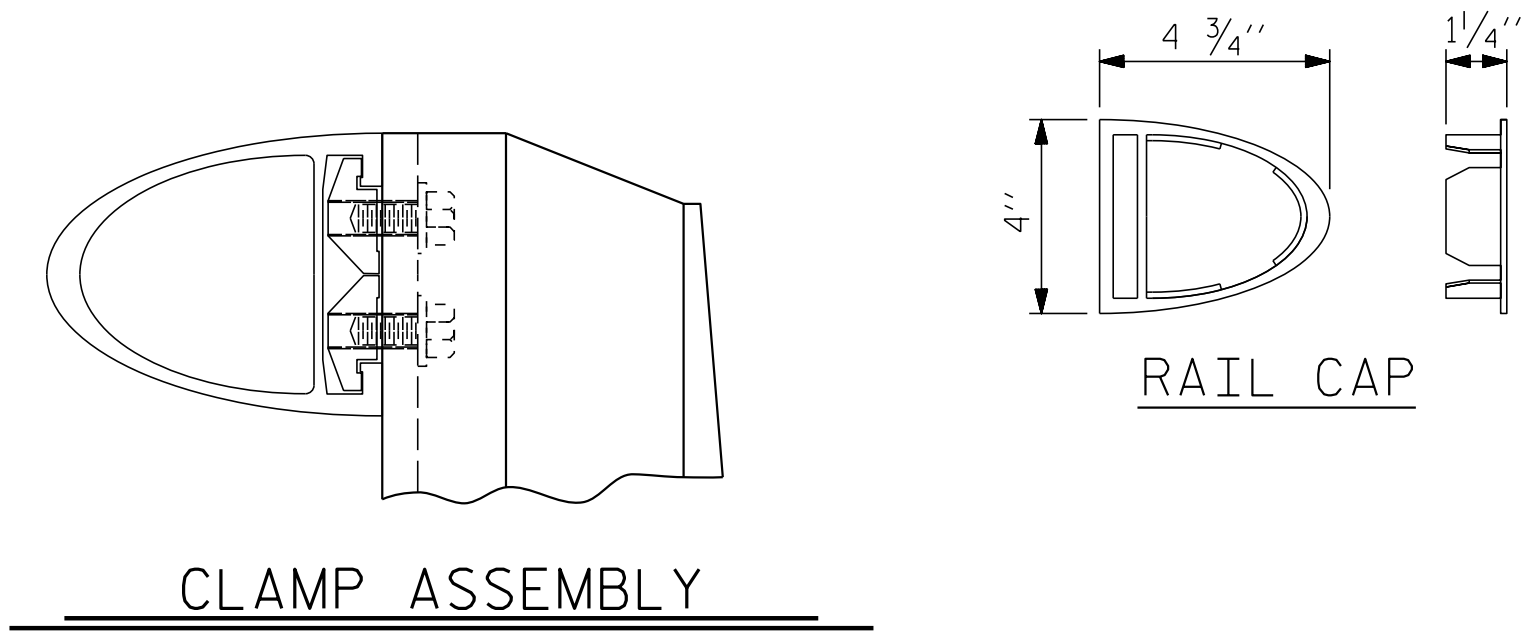
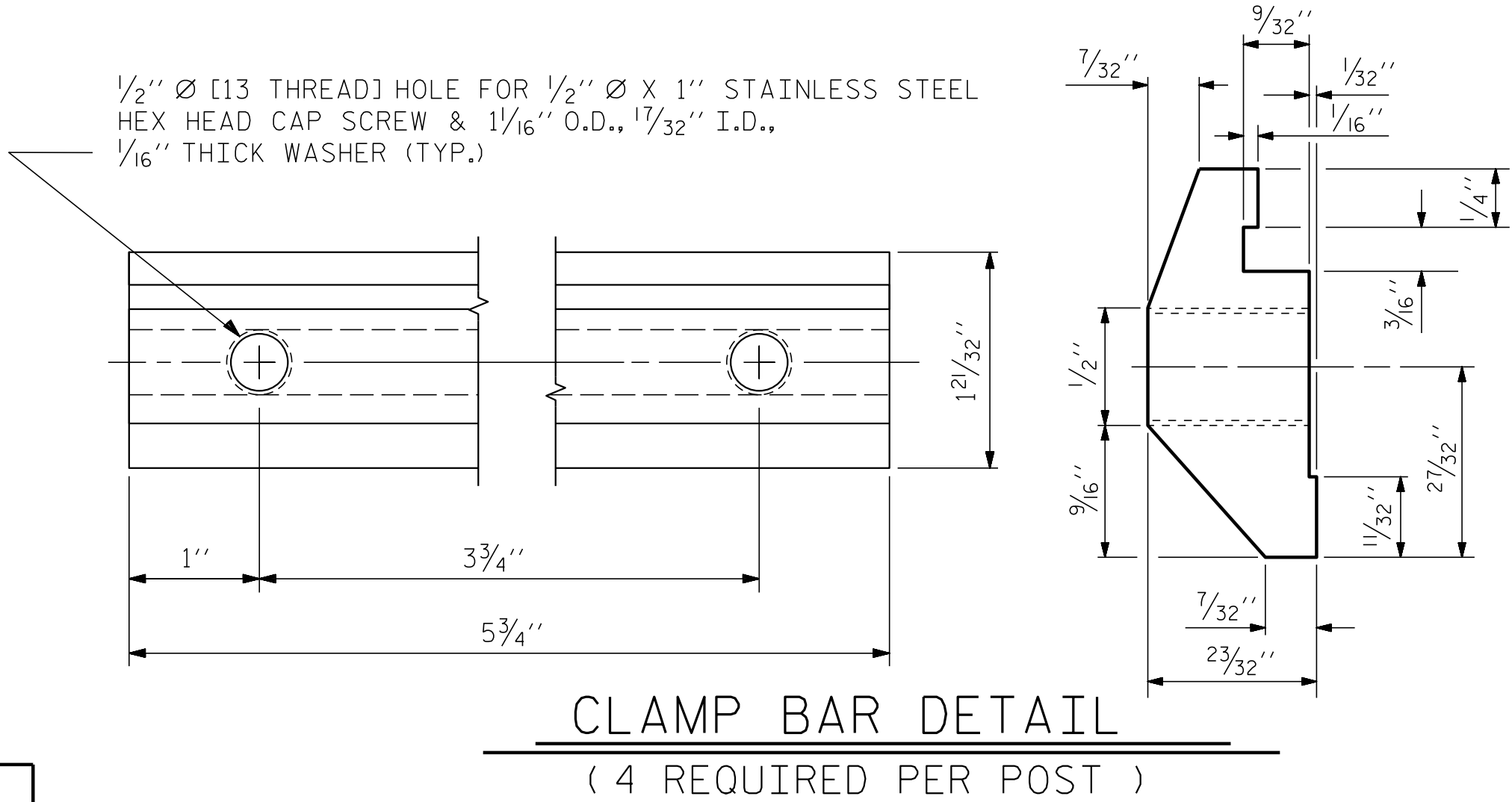
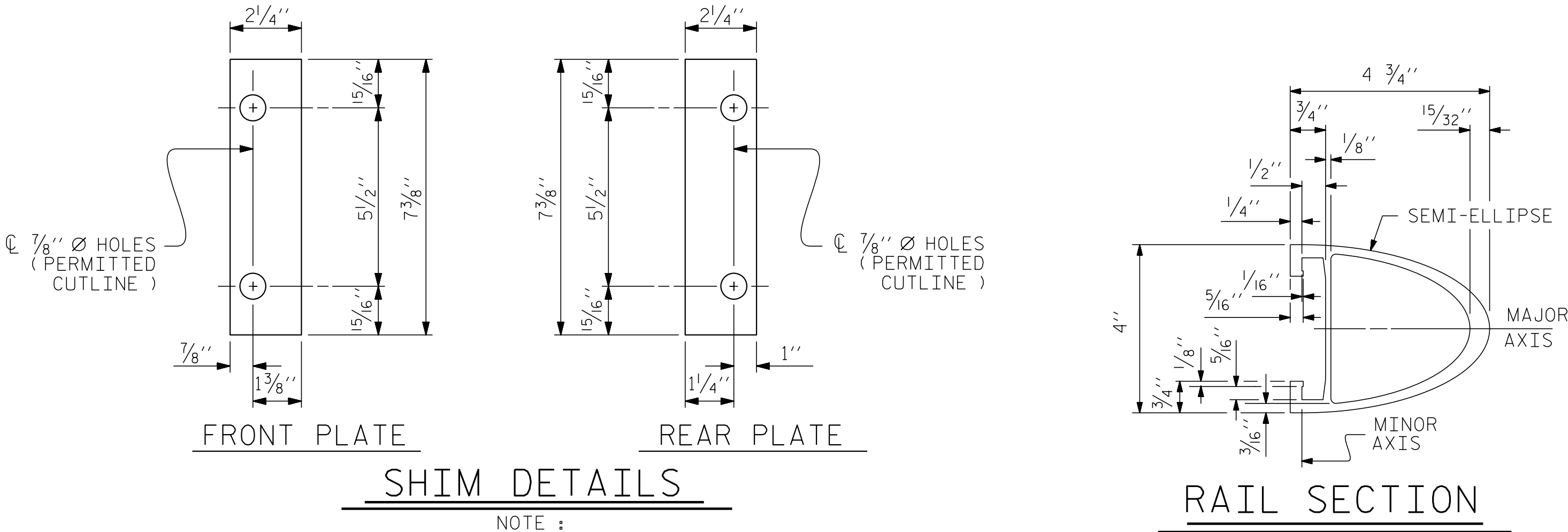
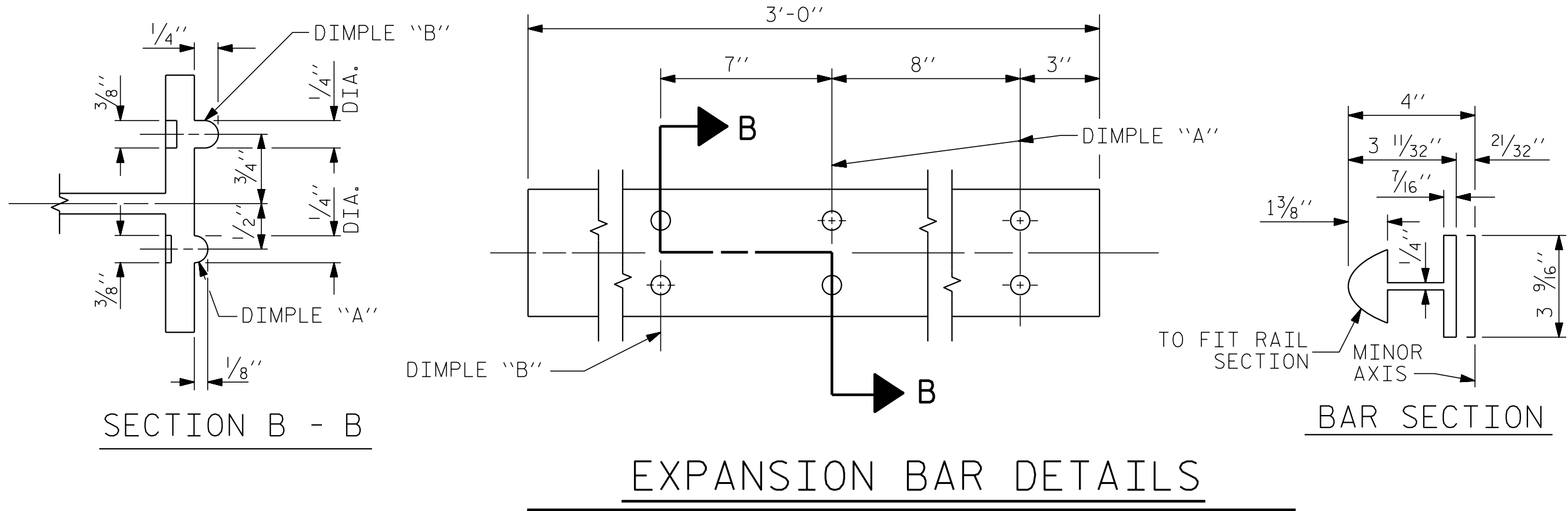
4-BOLT METAL RAIL ANCHOR ASSEMBLY

(76 ASSEMBLIES REQUIRED)

- NOTES
- STRUCTURAL CONCRETE ANCHOR ASSEMBLY
- THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
 - 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
 - WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
 - THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
 - THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
 - BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

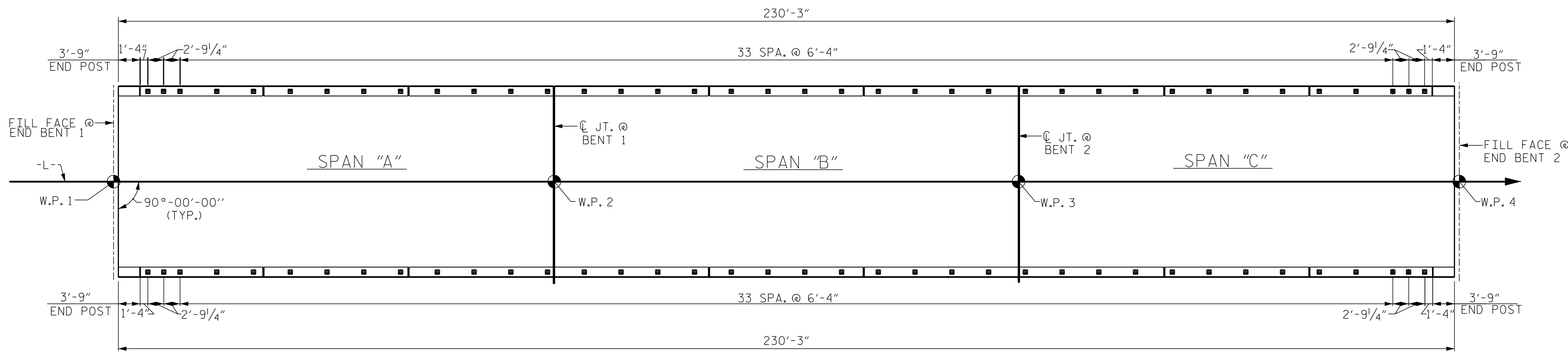
SHEET 2 OF 3

ASSEMBLED BY : J. PENDERGRAFT	DATE : 12-18
CHECKED BY : J. DILWORTH	DATE : 12-18
DRAWN BY : EEM 6/94	REV. 5/1/06R KMM/GM
CHECKED BY : RGW 6/94	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

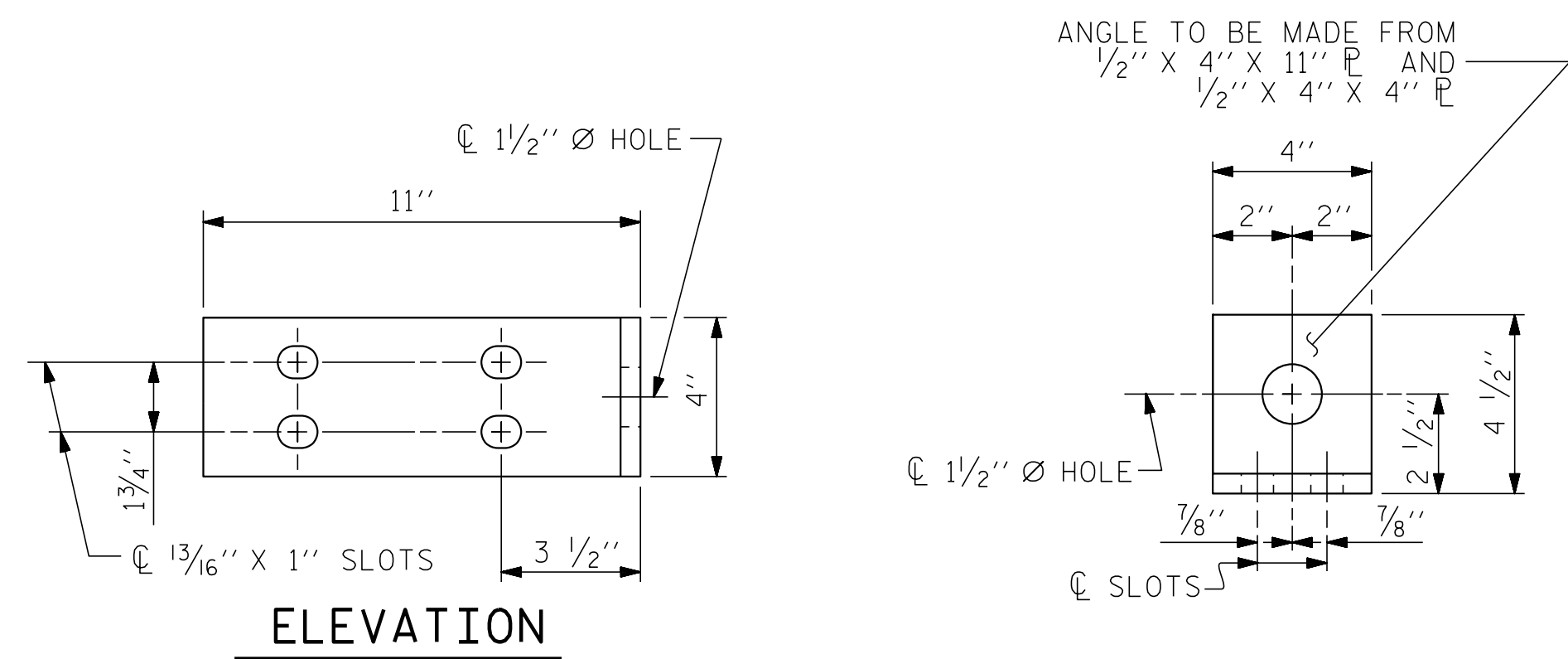
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD 11/24/2020 10:38:05 PM NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER ARTHUR DILWORTH Designed by: John Arthur Dilworth 01/02/2003/0046 ETHERILL ENGINEERING 1223 Jones Franklin Rd. Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107 LICENSE NO. F-0377		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD 2 BAR METAL RAIL		REVISIONS		SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			25
2			4			

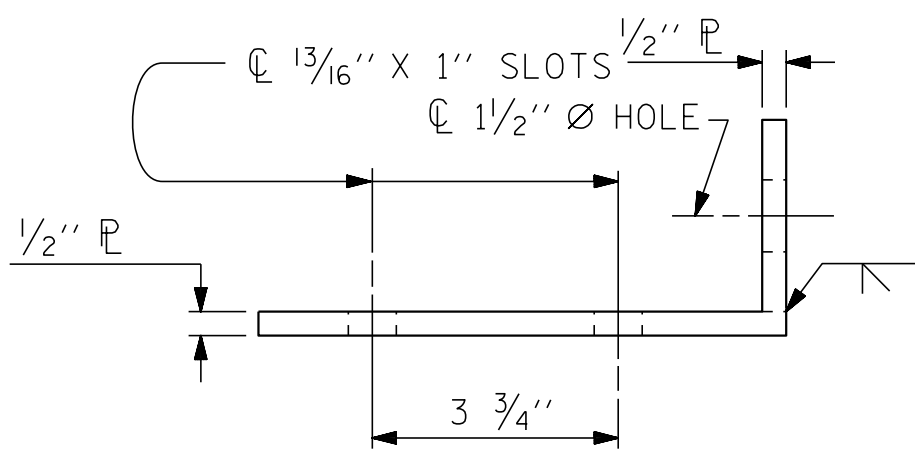
STD. NO. BMR4



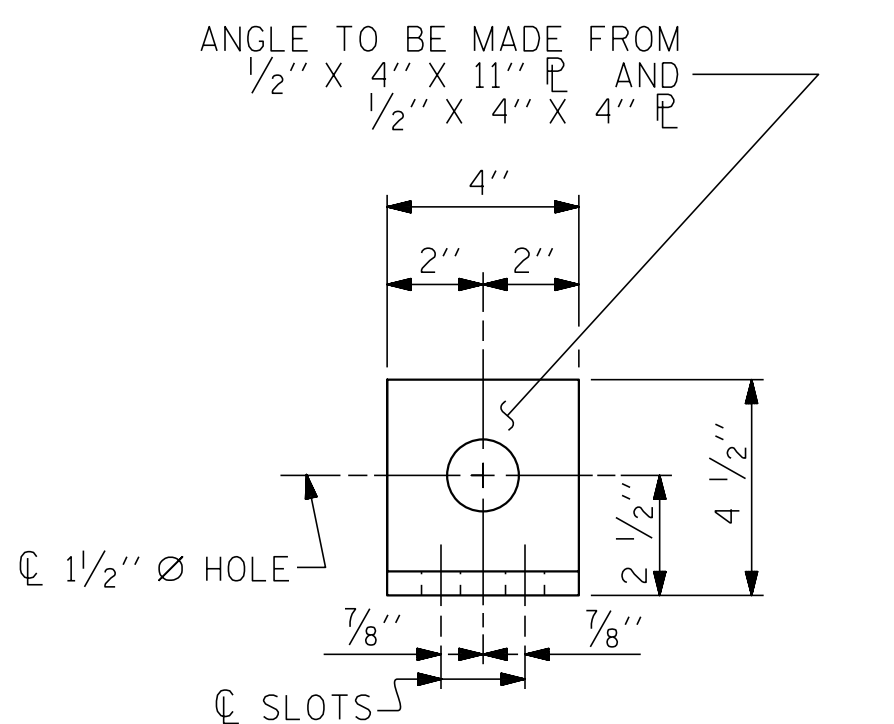
PLAN OF RAIL POST SPACINGS



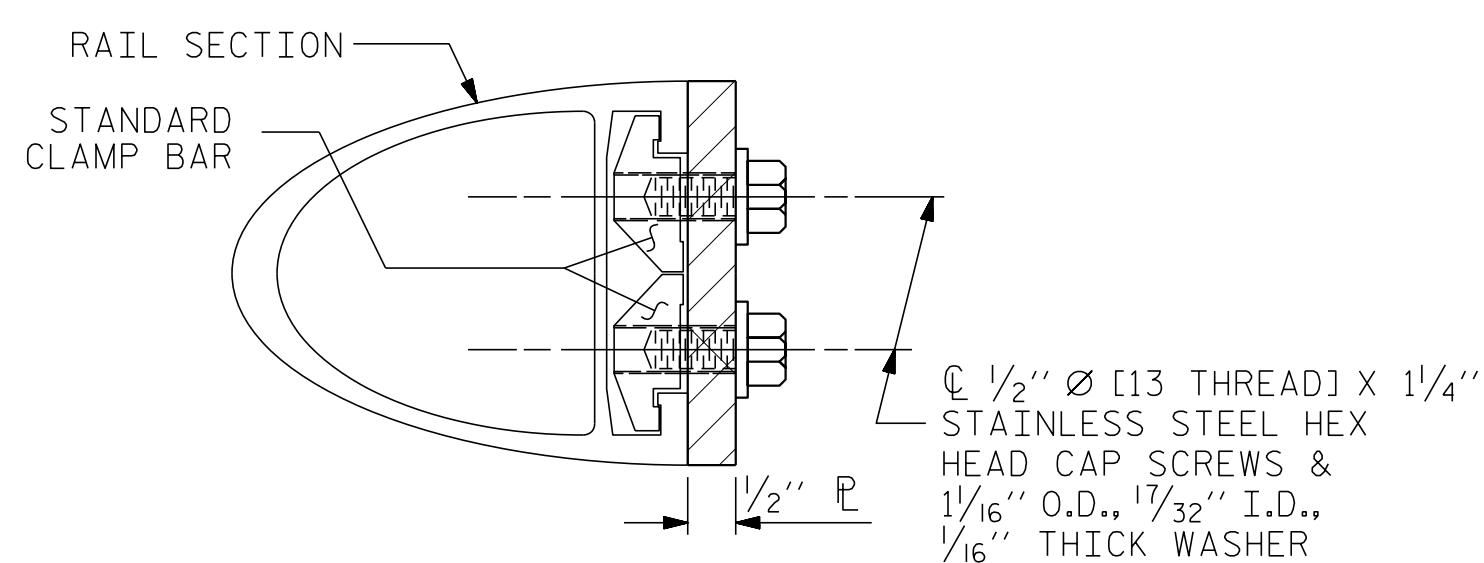
ELEVATION



TOP VIEW

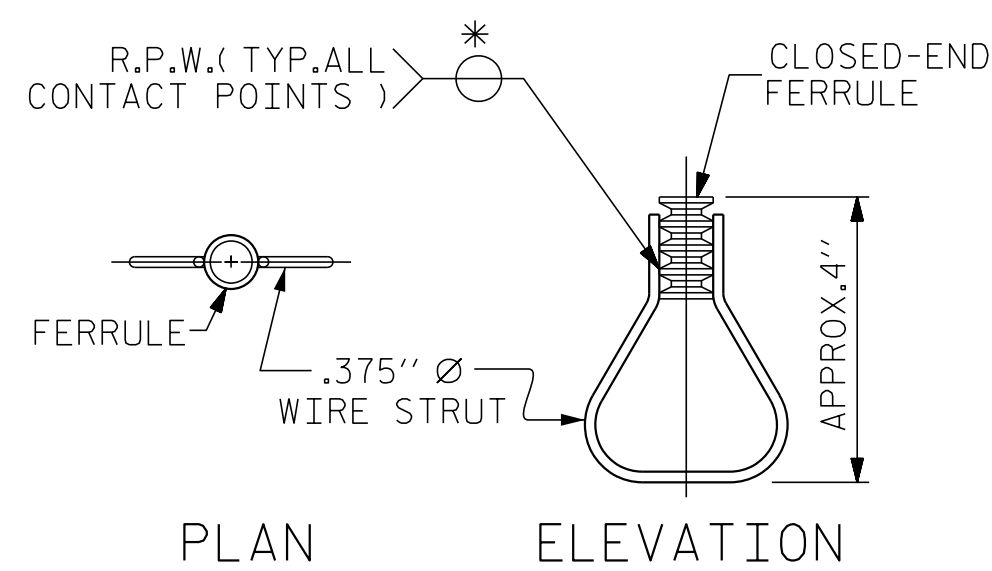


END VIEW (FIX AND EXP.)



SECTION H-H (FIX)

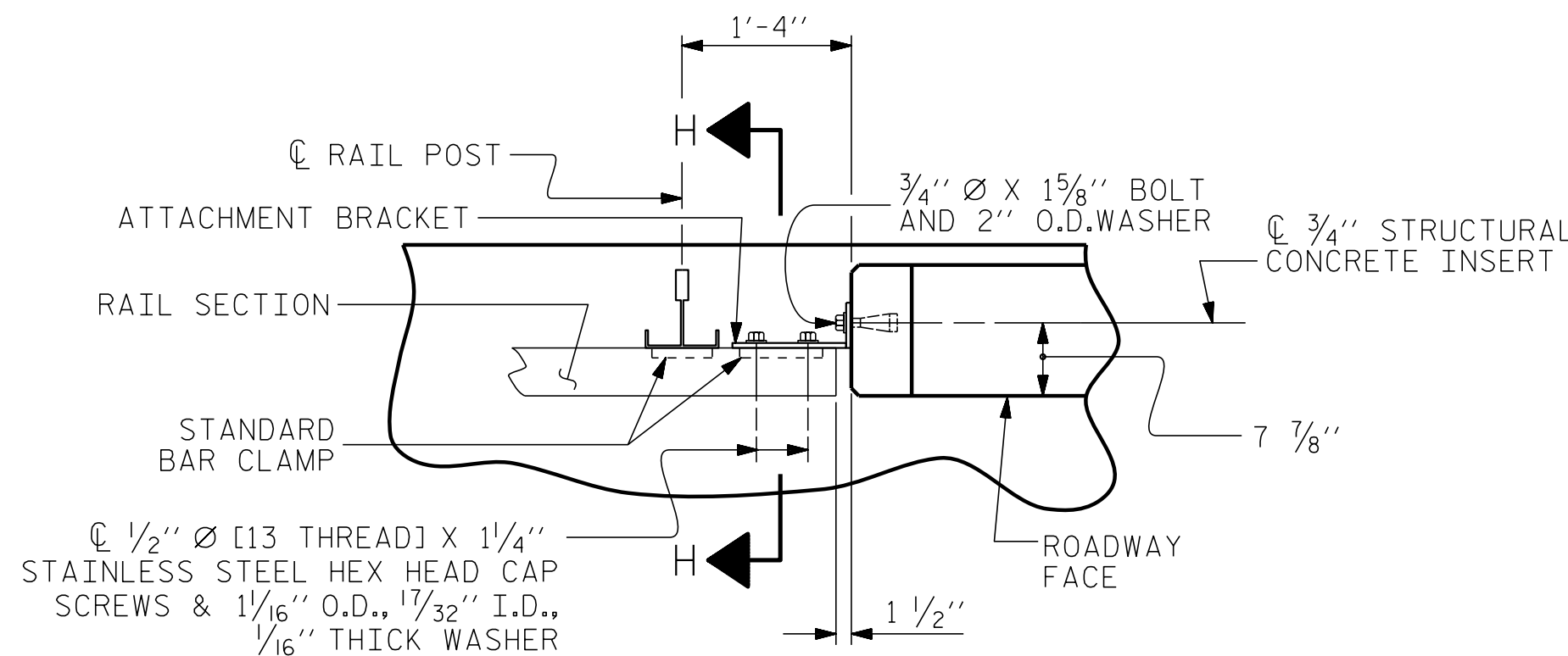
FIXED



STRUCTURAL CONCRETE

INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



PLAN - RAIL AND END POST

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL
CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1½".
- B. 1 - ¾" Ø X 1½" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE ¾" Ø X 1½" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL
CONSIST OF THE FOLLOWING COMPONENTS:

- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4"Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4"Ø X 1 5/8" BOLT SHALL HAVE N.C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED
IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED
IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR
METAL RAILS.

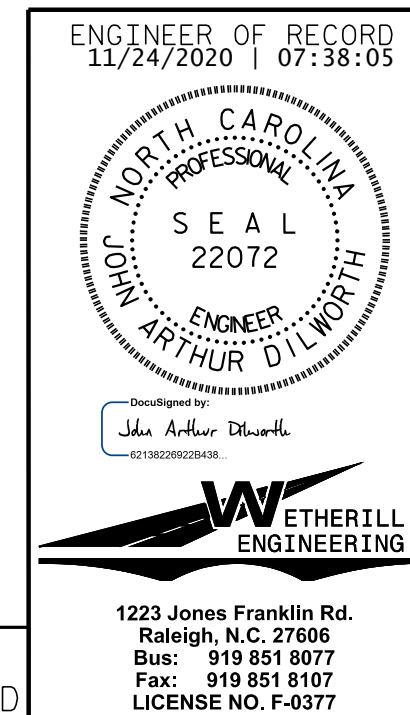
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE $\frac{3}{4}$ ' STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE $\frac{1}{2}$ " PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT THIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE $\frac{3}{4}" \times \frac{1}{8}"$ BOLT WITH WASHER SHALL BE REPLACED WITH A $\frac{3}{4}" \times \frac{1}{2}"$ BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE $\frac{3}{4}" \times \frac{1}{8}"$ BOLT SHALL APPLY TO THE $\frac{3}{4}" \times \frac{1}{2}"$ BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PROJECT NO. BR-0241
EDGEcombe COUNTY
 STATION: 16+70.00 -L-

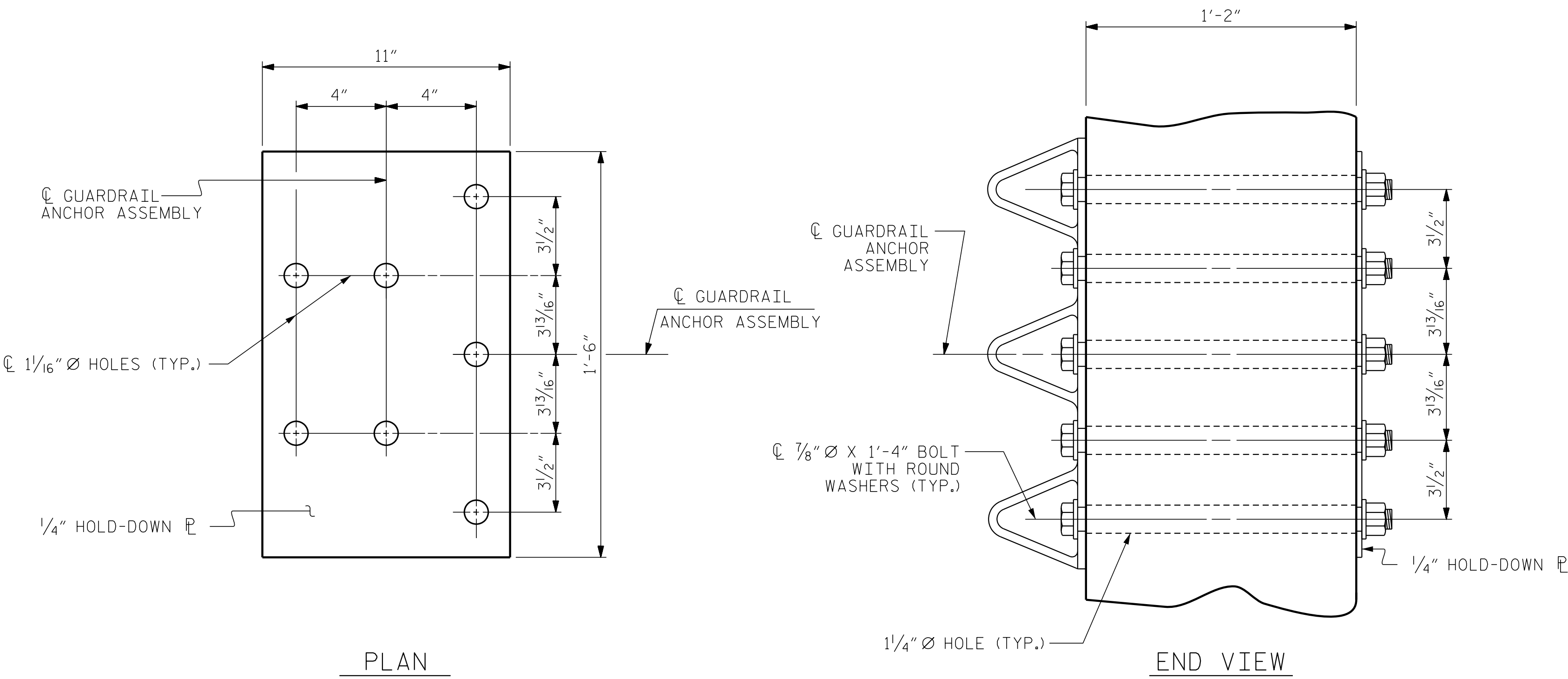
SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR ONE OR TWO BAR METAL RAILS

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

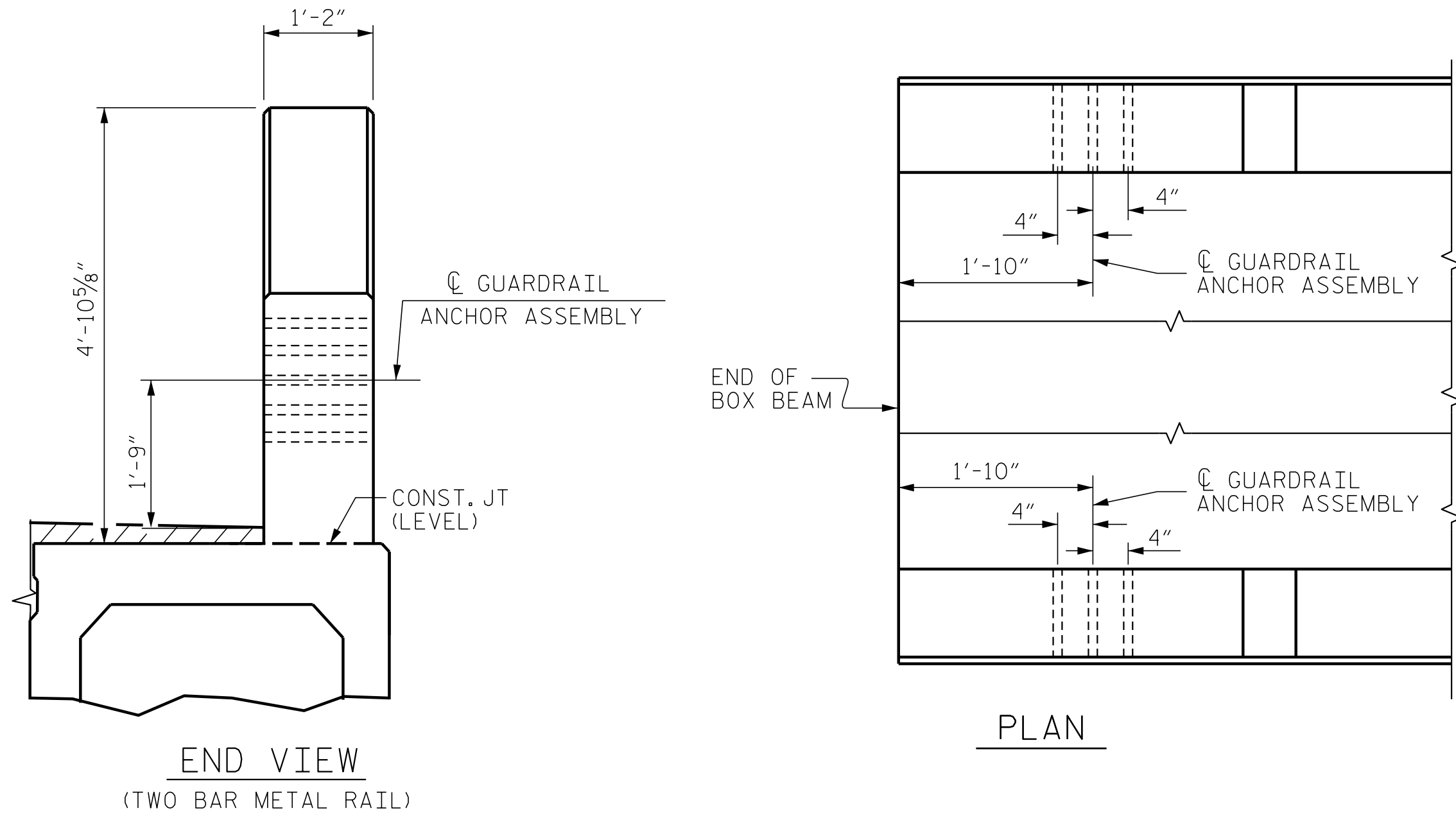


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

ENGINEER OF RECORD
11/24/2020 | 07:38:05 PS

NORTH CAROLINA
PROFESSIONAL
SEAL
22072
JOHN ARTHUR DILWORTH
ENGINEER

DocuSigned by
John Arthur Dilworth
18126220200000000000000000000000

ETHERILL
ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
DETAILS
FOR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			25

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UNLESS ALL SIGNATURES COMPLETED

(SHT 2) STD. NO. GRA3

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UNLESS ALL SIGNATURES COMPLETED

FOR WING DETAILS, SEE SHEET 3 OF 4.

STD. NO. EB_33_90S4_33BB



ASSEMBLED BY : J. PENDERGRAFT DATE : 8-18	
CHECKED BY : J. DILWORTH DATE : 12-18	
DRAWN BY : WJH 12/11	REV. 4/15 MAA/TMG
CHECKED BY : AAC 12/11	

ENGINEER OF RECORD
11/24/2020 10:07:38:05 PM

NORTH CAROLINA
PROFESSIONAL
SEAL
22072
JOHN ARTHUR DILWORTH
ENGINEER

Designated by
John Arthur Dilworth
021108200205043

WETHERILL
ENGINEERING

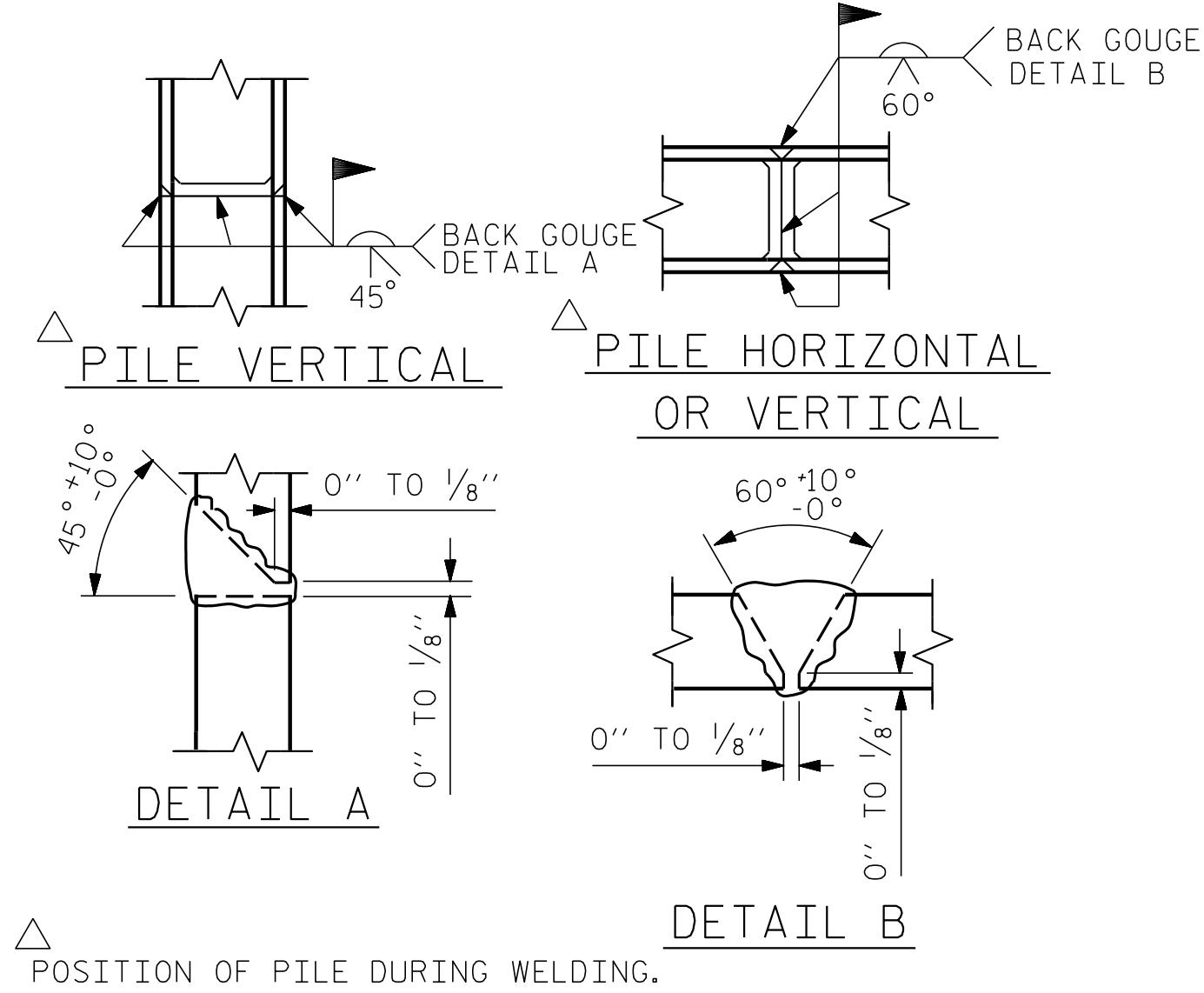
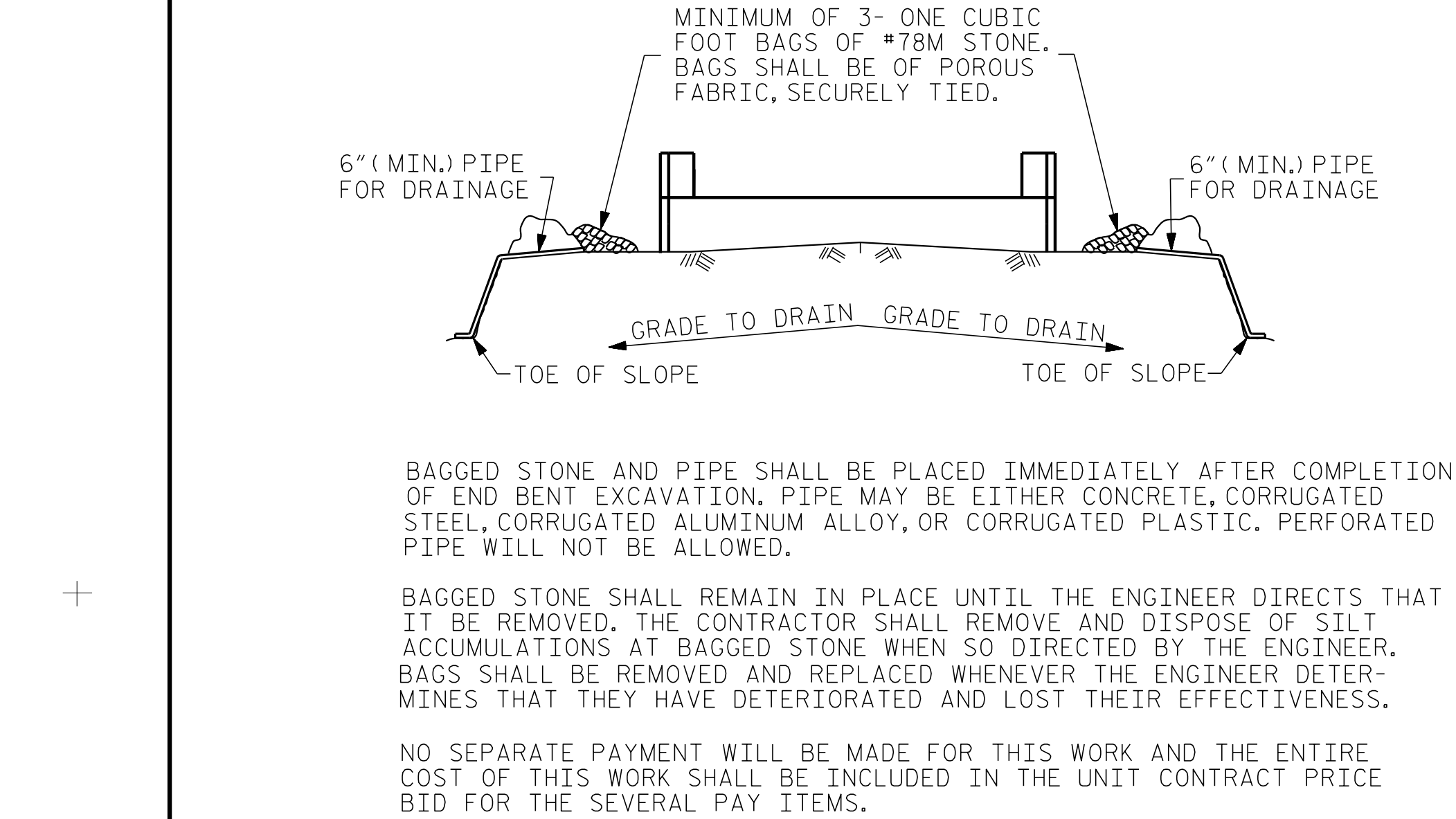
1226 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. 4377

REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

STD. NO. EB_33_90S4_33BB

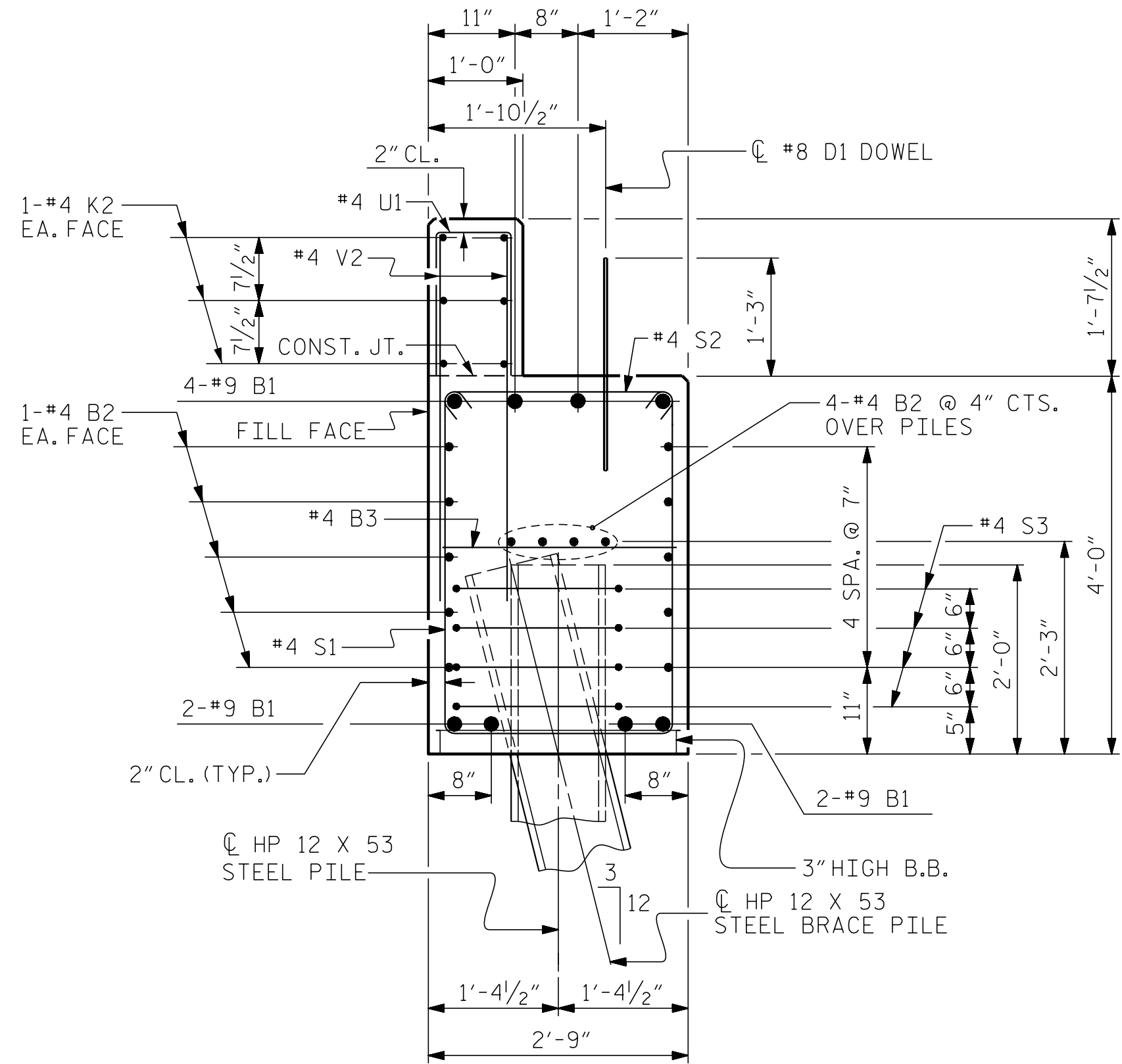
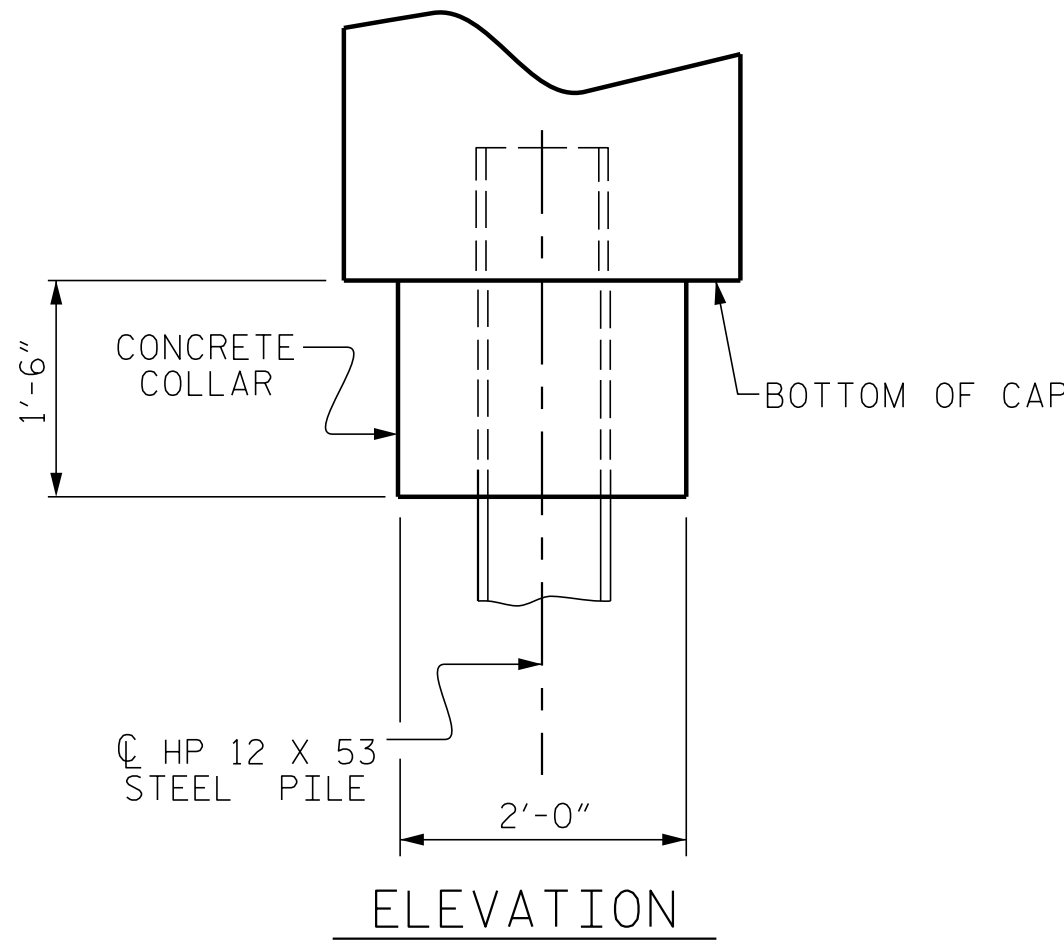
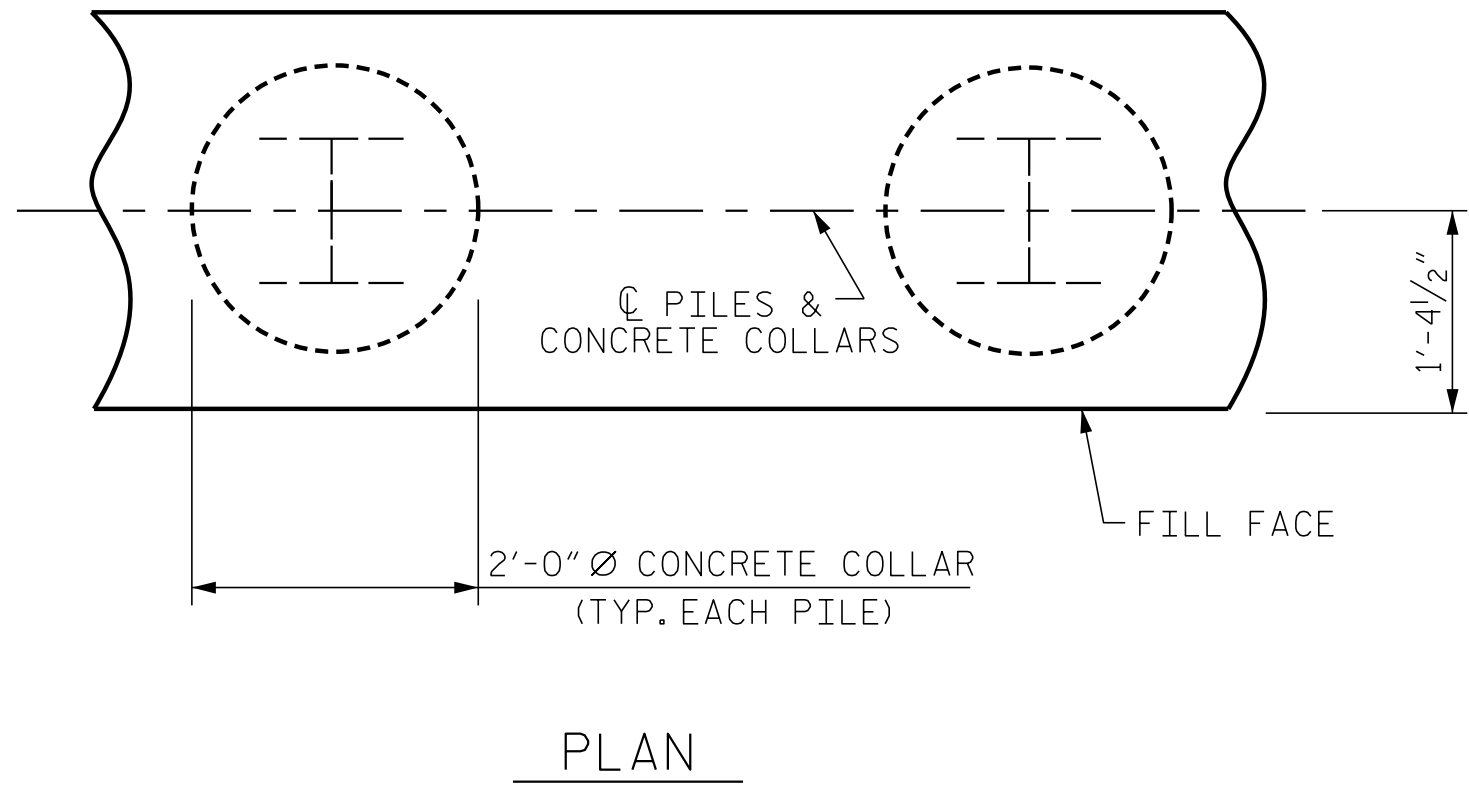
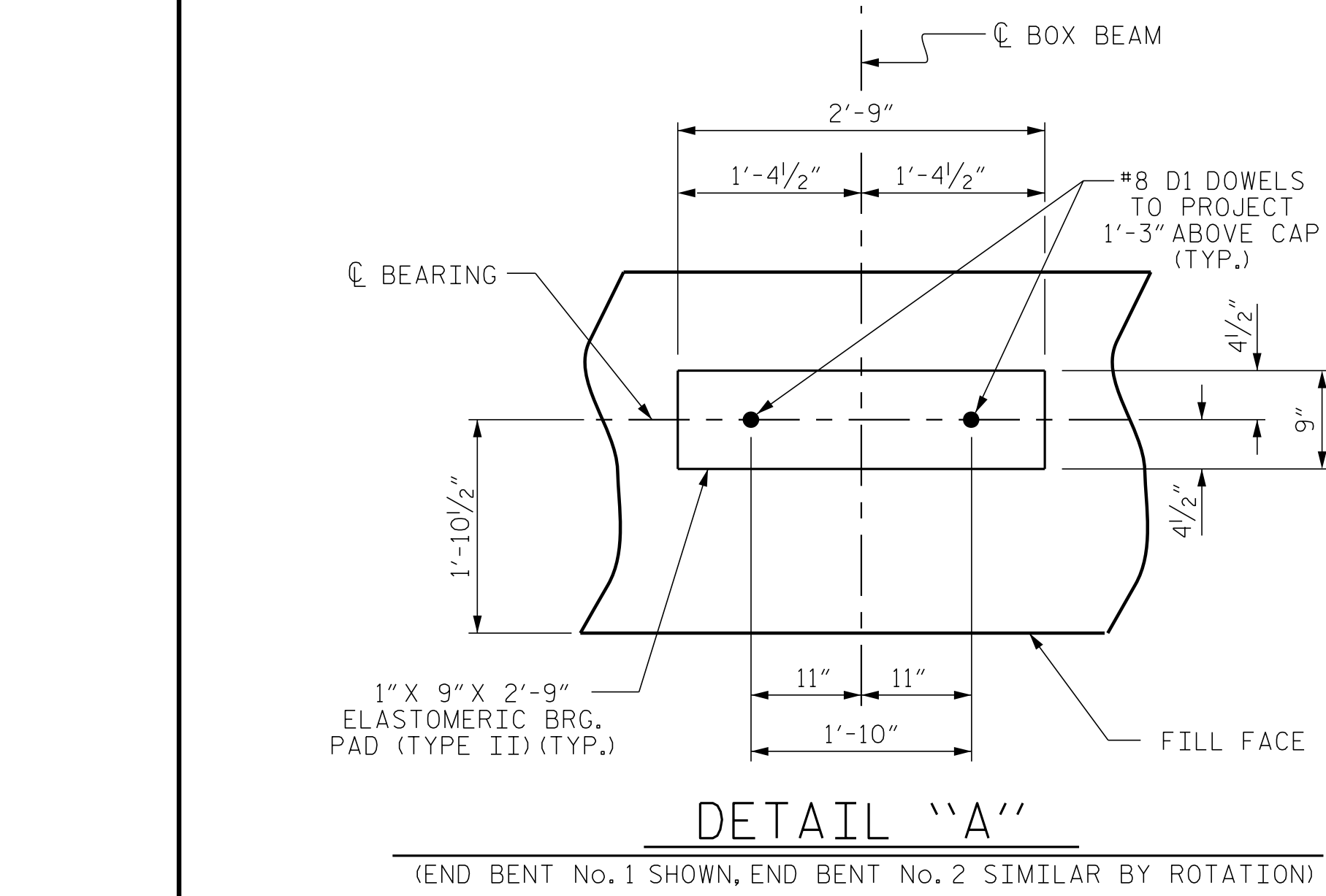
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TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

BAR TYPES				BILL OF MATERIAL					
				FOR ONE END BENT					
				BAR	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	#8	STR	2'-3"	132
				H1	48	#5	2	11'-4"	567
				K1	12	#4	STR	3'-2"	25
				K2	12	#4	STR	20'-7"	165
				S1	50	#4	3	10'-5"	348
				S2	50	#4	4	3'-2"	106
				S3	28	#4	5	6'-6"	122
				U1	33	#4	6	3'-7"	79
				V1	60	#4	STR	7'-2"	287
				V2	66	#4	STR	5'-3"	231
				REINFORCING STEEL (FOR ONE END BENT)					
				3578 LBS.					
				CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
				POUR #1		CAP, LOWER PART OF WINGS & COLLARS			20.1 C.Y.
				POUR #2		BACKWALL & UPPER PART OF WINGS			5.4 C.Y.
				TOTAL CLASS A CONCRETE					
				25.6 C.Y.					
END BENT No. 1 HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 329				END BENT No. 2 HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 364					
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					
PILE REDRIVES NO: 4				PILE REDRIVES NO: 4					



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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

SHEET 4 OF 4

ENGINEER OF RECORD
11/24/2020 10:38:05 PM

SEAL
22072
NORTH CAROLINA
PROFESSIONAL ENGINEER
ARTHUR DILWORTH

Designed by:
John Arthur Dilworth
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1 & 2
DETAILS

REVISIONS						SHEET NO. S-19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

STD. NO. EB-33-90S4-33BB

NOTES

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

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

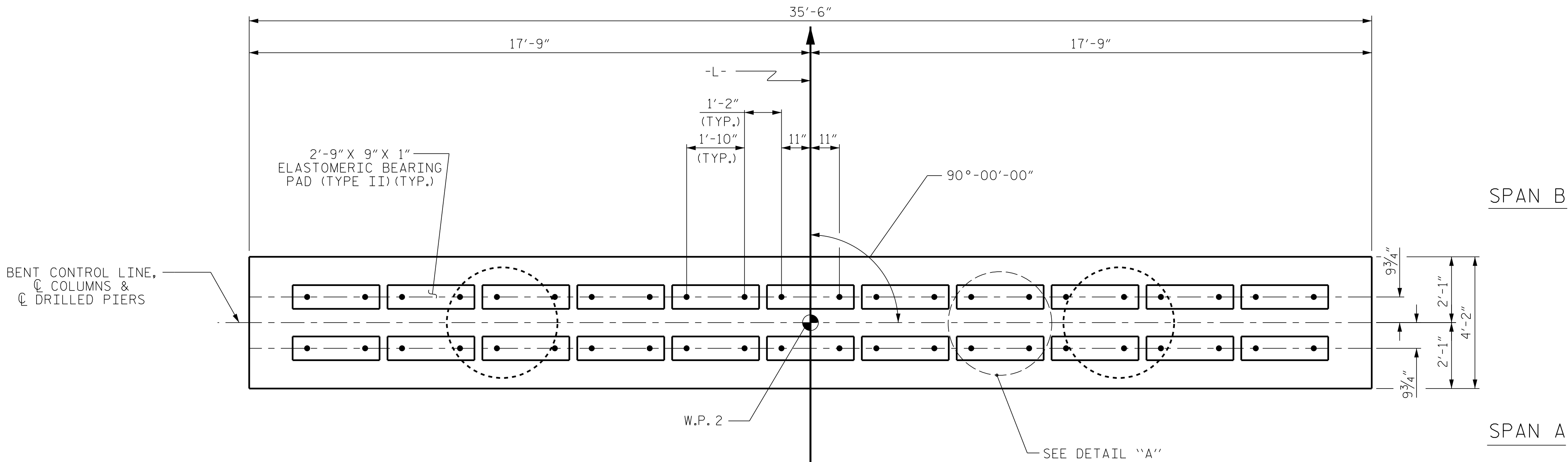
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

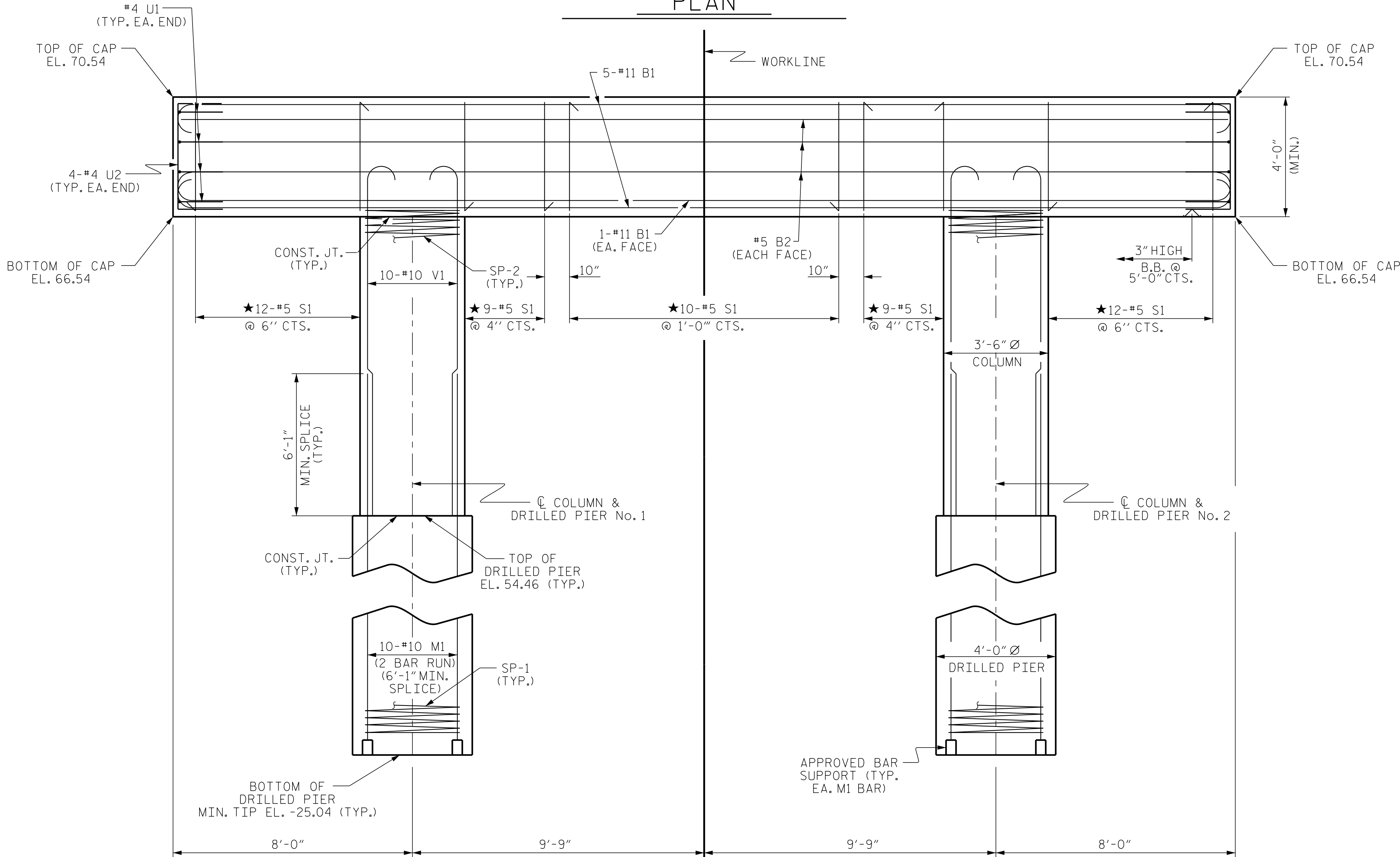
★ INVERT ALTERNATE STIRRUPS.

DRILLED PIERS SHALL BE TERMINATED ONE FOOT ± ABOVE NORMAL WATER SURFACE ELEVATION FOR SHAFTS LOCATED IN WATER.

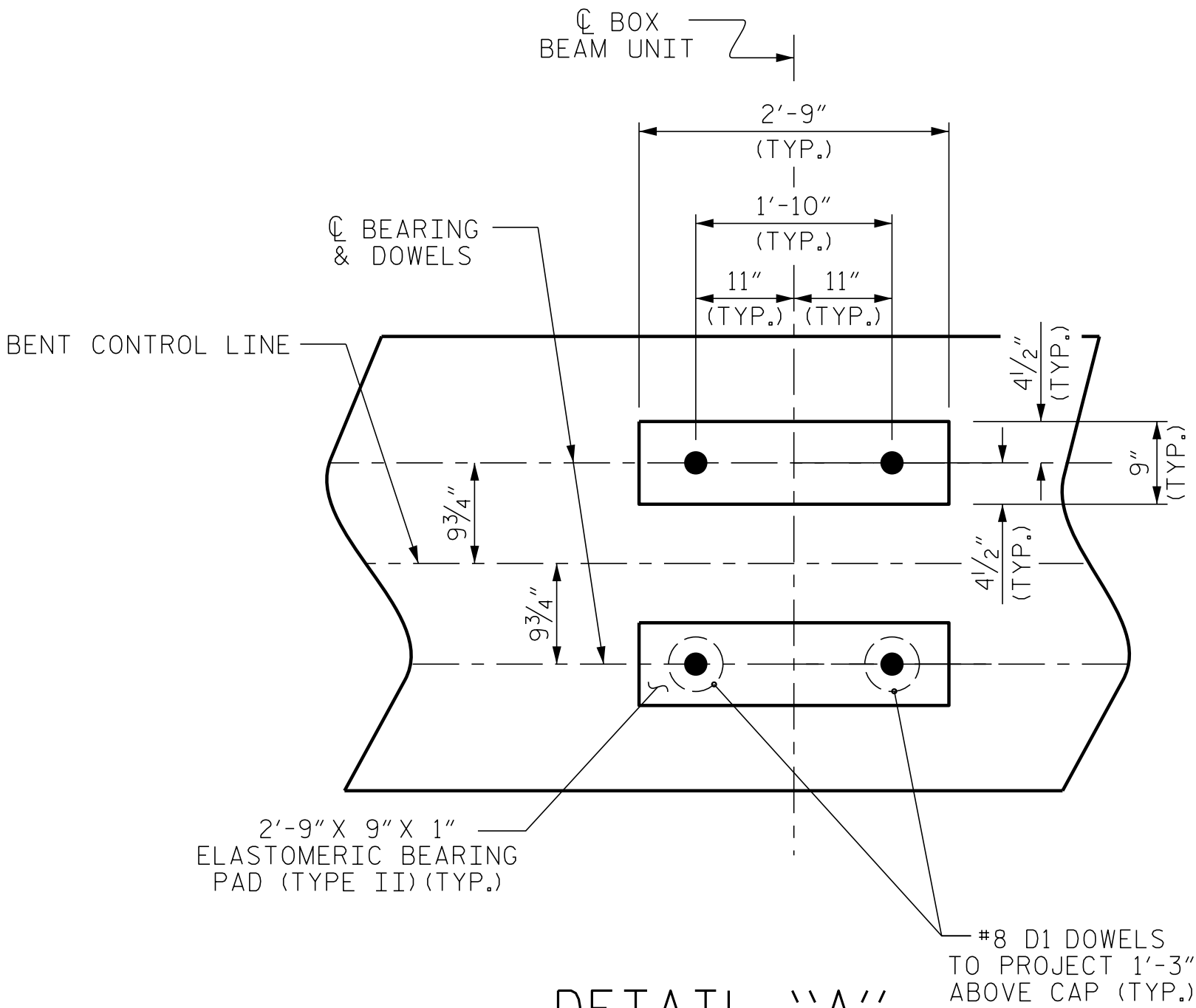
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



PLAN



ELEVATION



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

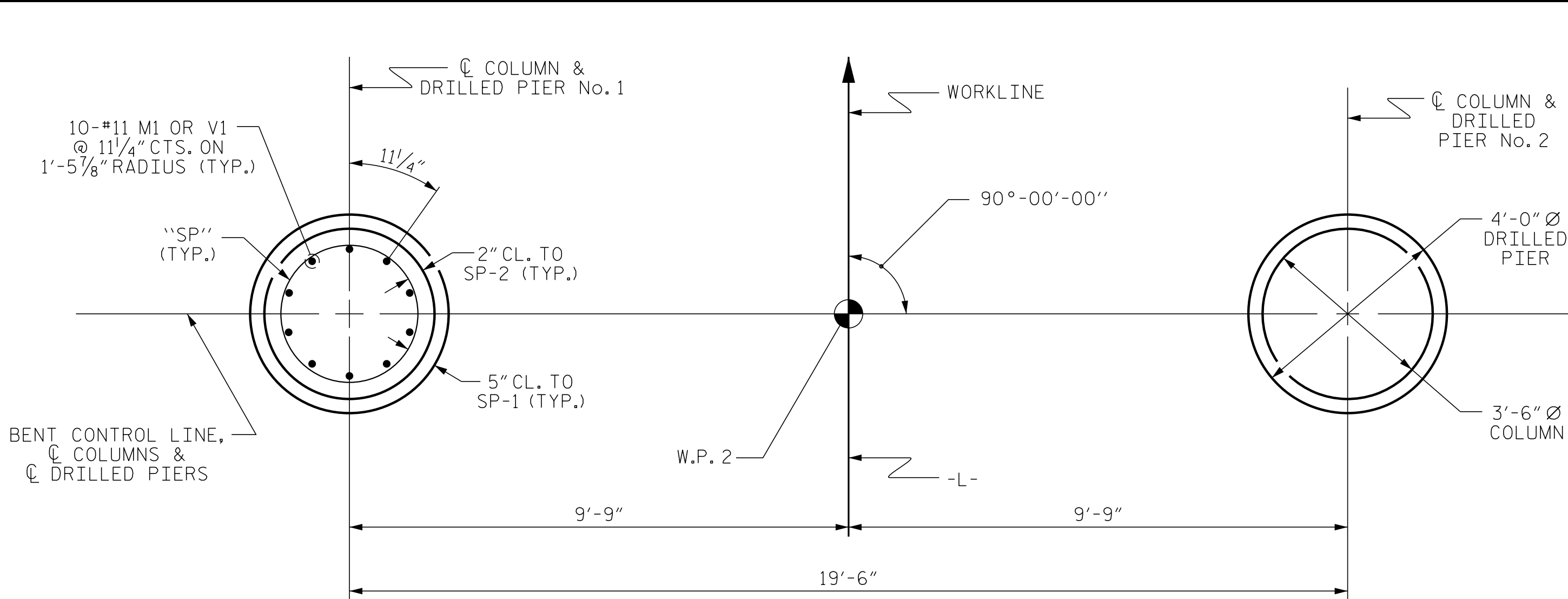
SHEET 1 OF 2

ENGINEER OF RECORD 11/24/2020 07:38:05 PST NORTH CAROLINA PROFESSIONAL SEAL 22072 ARTHUR DILWORTH DocuSigned by: John Arthur Dilworth 01/26/2020 09:45 ETHERILL ENGINEERING 1223 Jones Franklin Rd. Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107 LICENSE NO. F-0377		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH BENT No. 1				
REVISIONS				SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			25

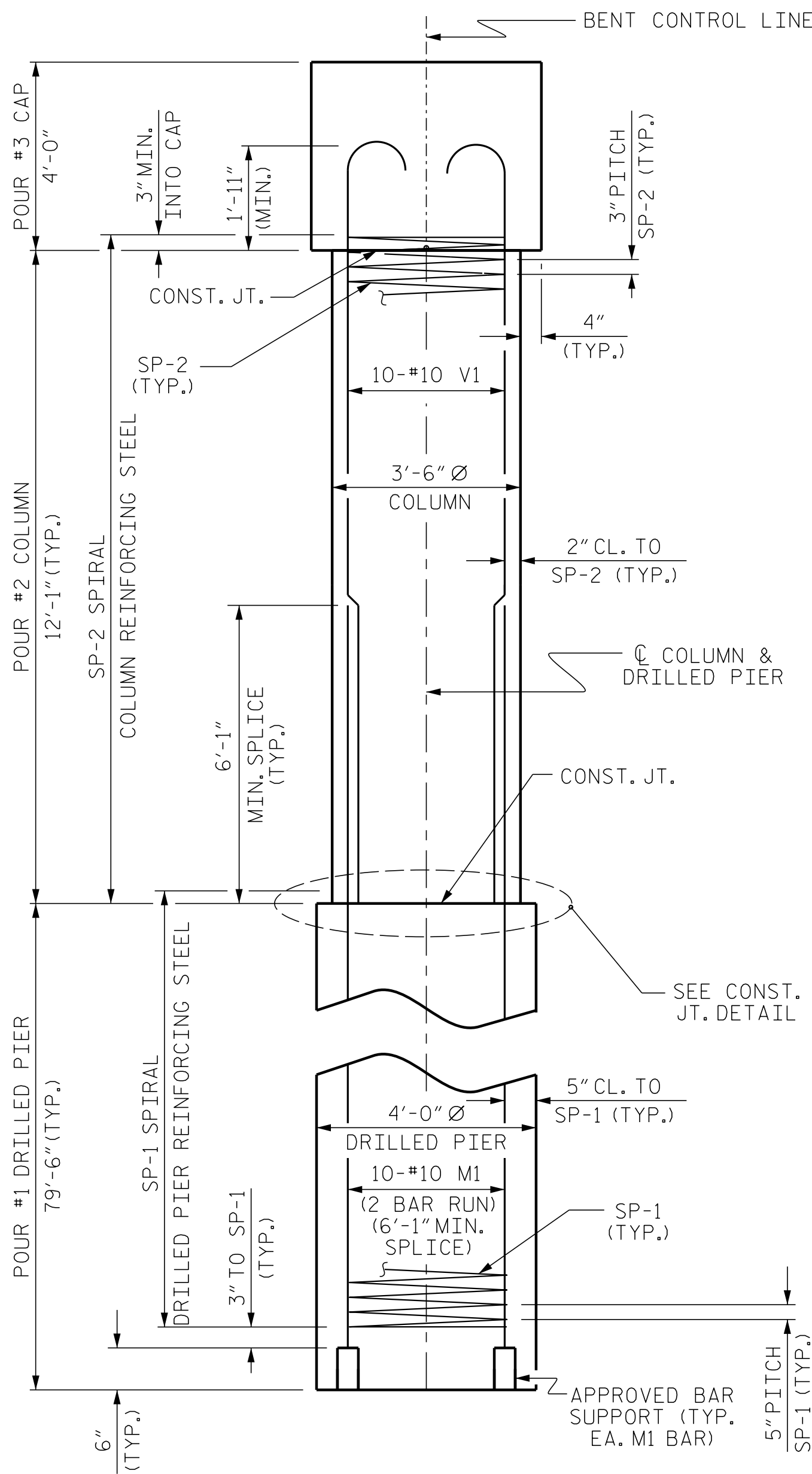
DRAWN BY : B.C. HUNT DATE : 12-18
CHECKED BY : J.A. DILWORTH DATE : 1-19

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

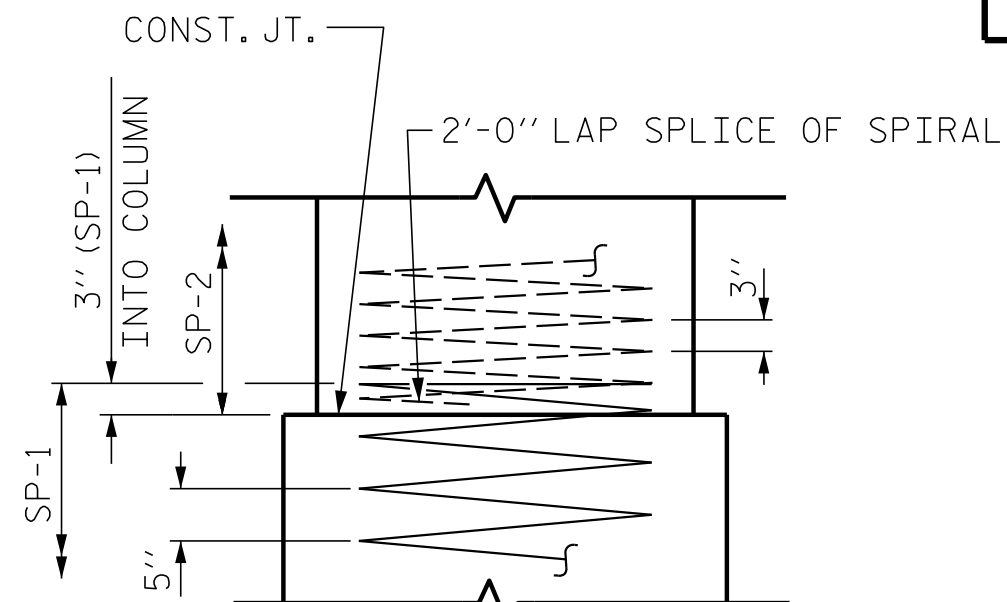
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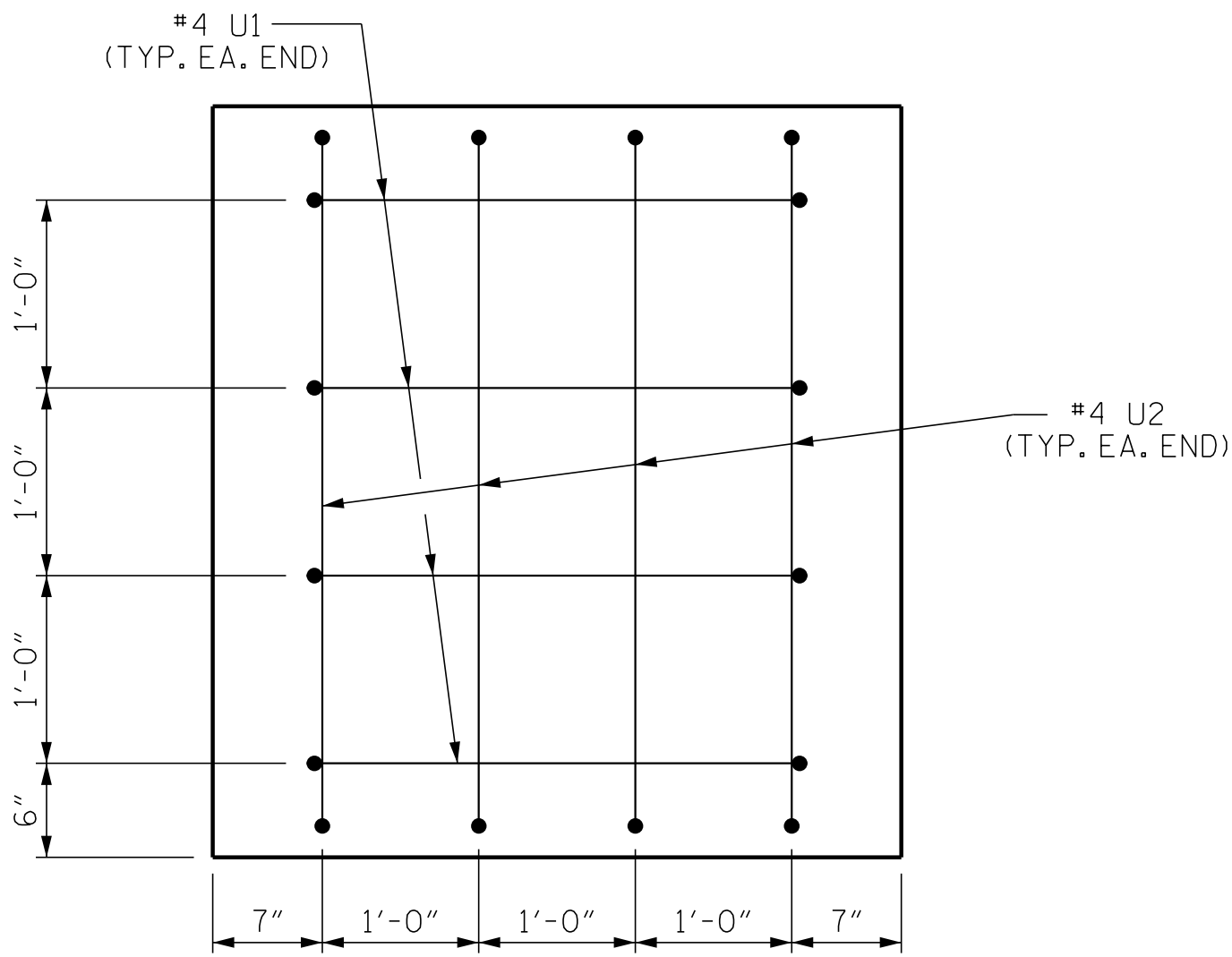
PLAN OF DRILLED PIERS & COLUMNS



END ELEVATION

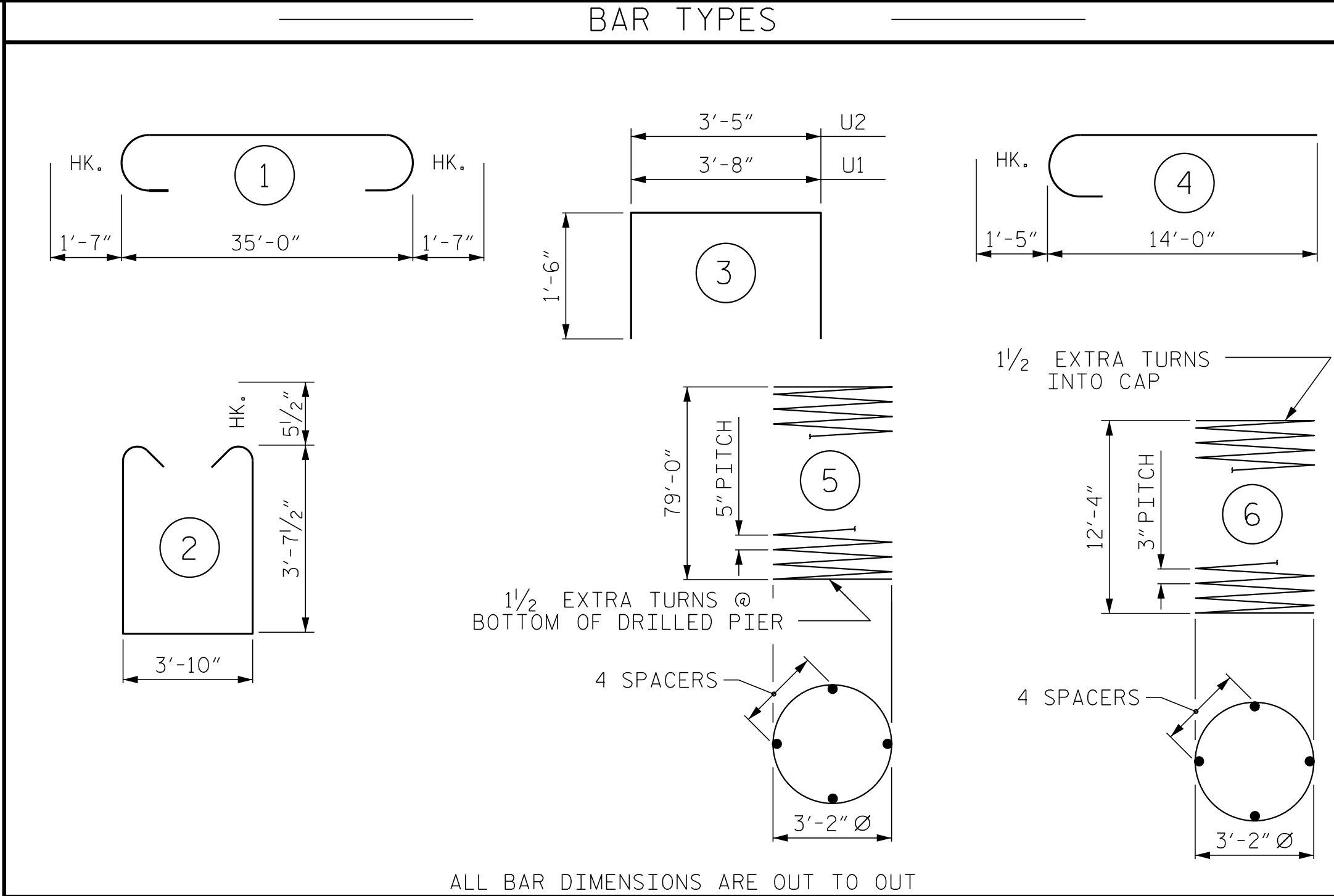


CONSTRUCTION JOINT DETAIL

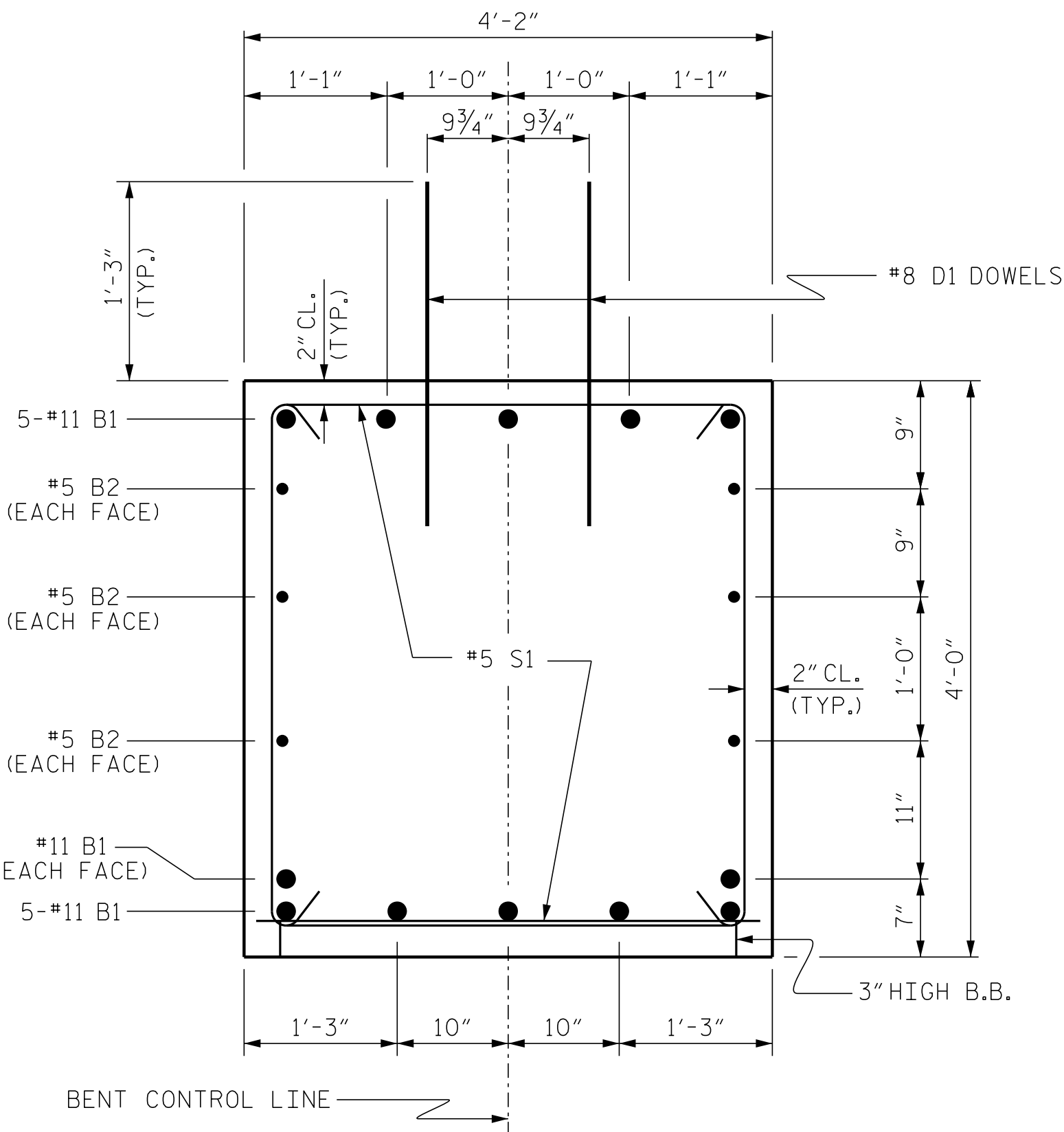


END OF CAP VIEW

(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT



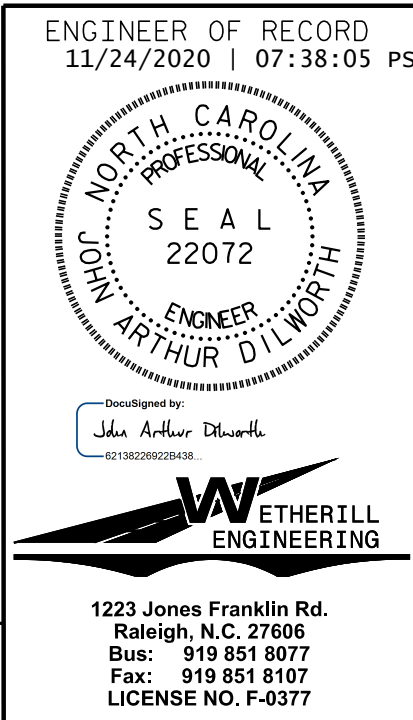
SECTION THRU CAP

BILL OF MATERIAL					
BENT No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#11	1	38'-2"	2433
B2	6	#5	STR	35'-2"	220
D1	44	#8	STR	2'-3"	264
M1	40	#10	STR	47'-2"	8118
S1	52	#5	2	12'-0"	651
U1	8	#4	3	6'-8"	36
U2	8	#4	3	6'-5"	34
V1	20	#10	4	15'-5"	1327
REINFORCING STEEL					13,083 LBS.
SP-1	2	*	5	1869'-10"	3900
SP-2	2	**	6	500'-1"	668
SPIRAL COLUMN REINFORCING STEEL					4,568 LBS.
* 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)	8.6 C.Y.
POUR #3 (CAP)	21.9 C.Y.
TOTAL CLASS A CONCRETE	30.5 C.Y.
DRILLED PIER QUANTITIES	
DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	74.0 C.Y.
4'-0"Ø DRILLED PIERS	159.0 LIN.FT.
PERMANENT STEEL CASING FOR	
4'-0"Ø DRILLED PIER	48.92 LIN.FT.
SID TESTING	2 EA.
SPT TESTING	2 EA.
CSL TUBES	648.0 LIN.FT.
CSL TESTING	2 EA.

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

SHEET 2 OF 2



DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT No. 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-21
TOTAL SHEETS					25

DRAWN BY: B.C. HUNT DATE: 12-18
CHECKED BY: J.A. DILWORTH DATE: 1-19

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UNLESS ALL SIGNATURES COMPLETED

NOTES

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

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

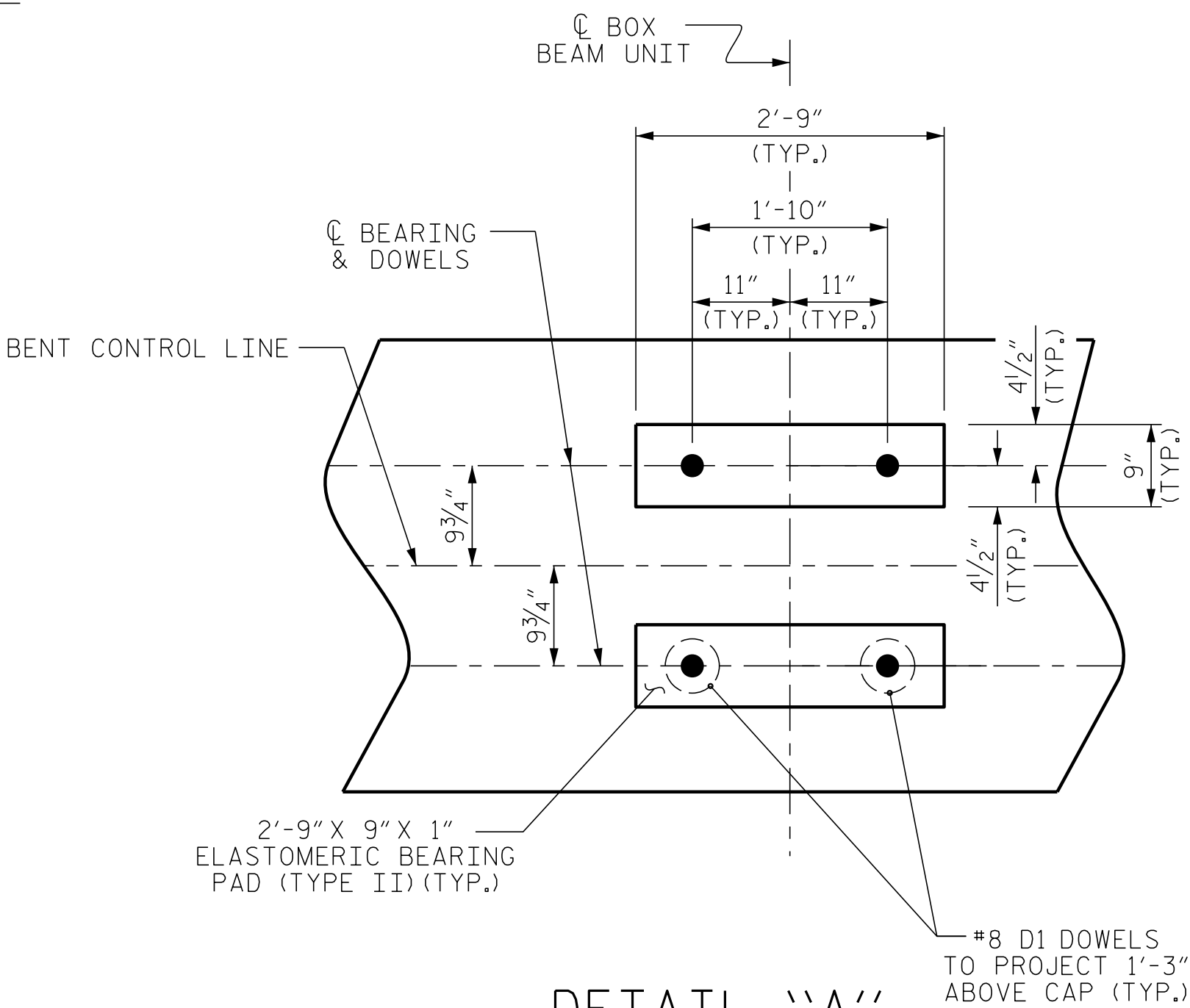
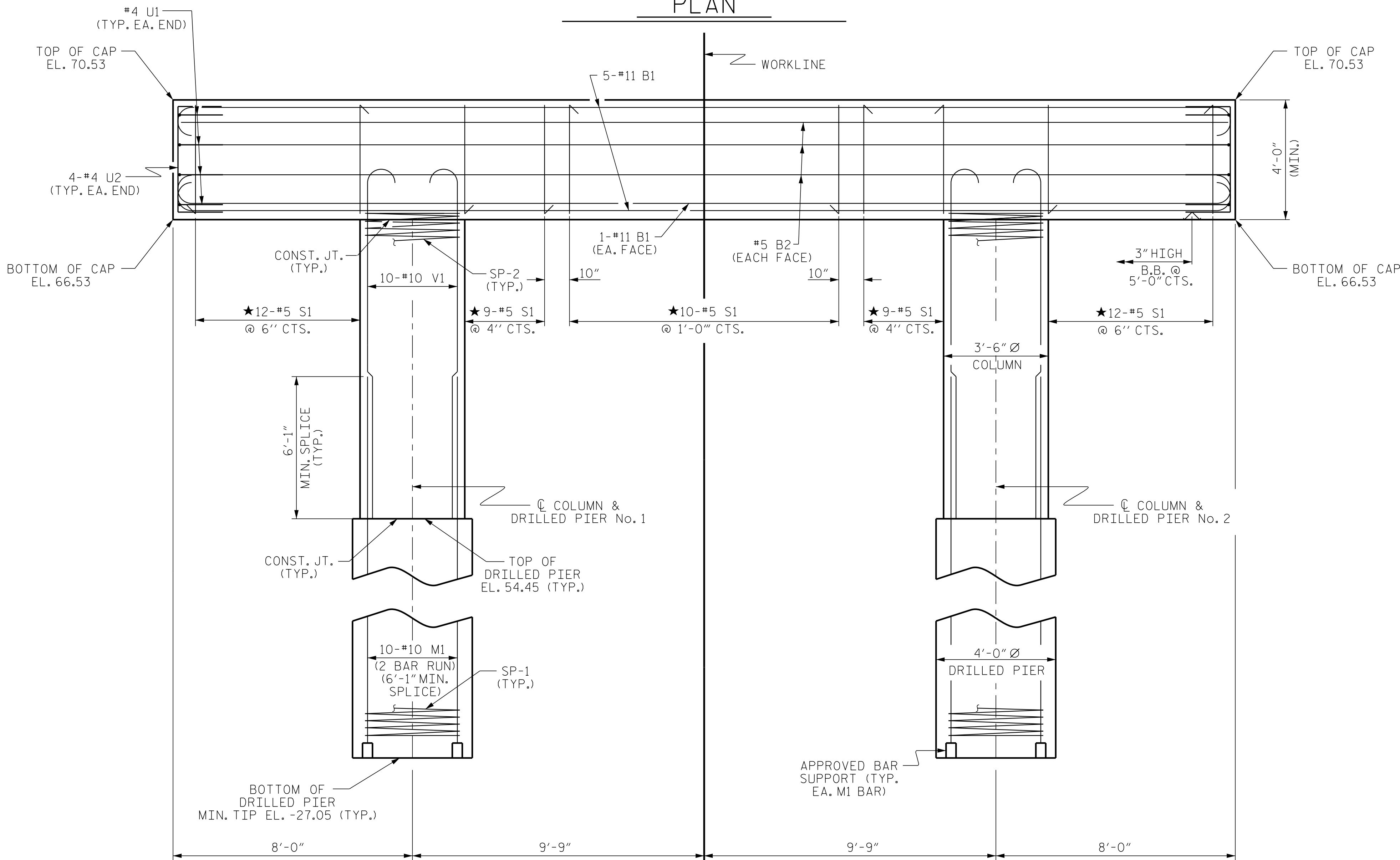
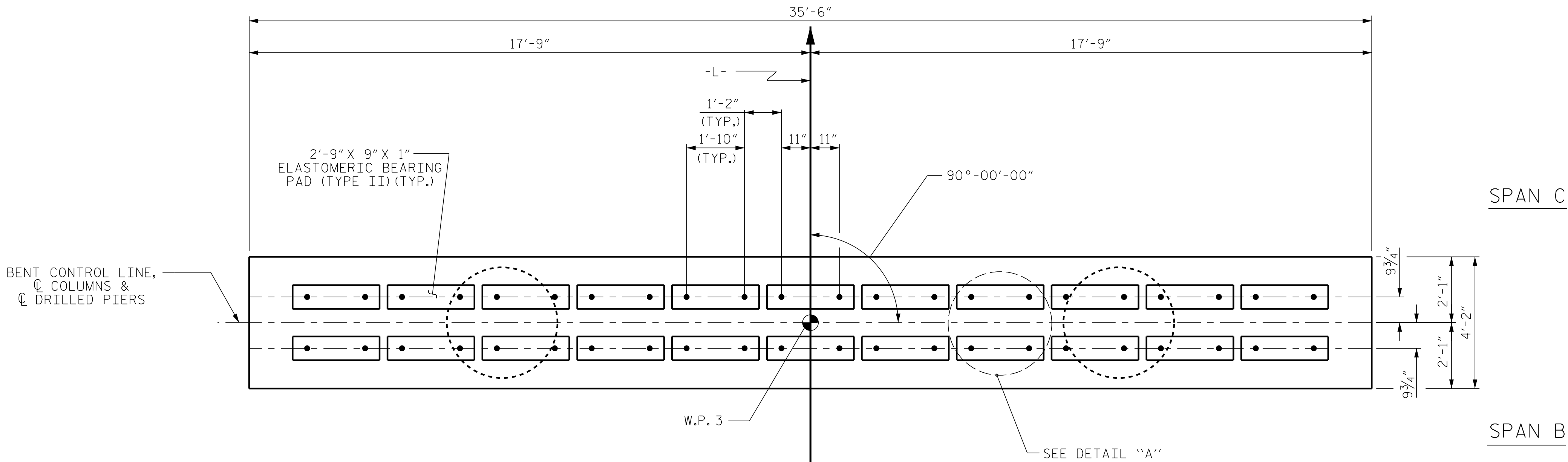
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

★ INVERT ALTERNATE STIRRUPS.

DRILLED PIERS SHALL BE TERMINATED ONE FOOT ± ABOVE NORMAL WATER SURFACE ELEVATION FOR SHAFTS LOCATED IN WATER.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

SHEET 1 OF 2

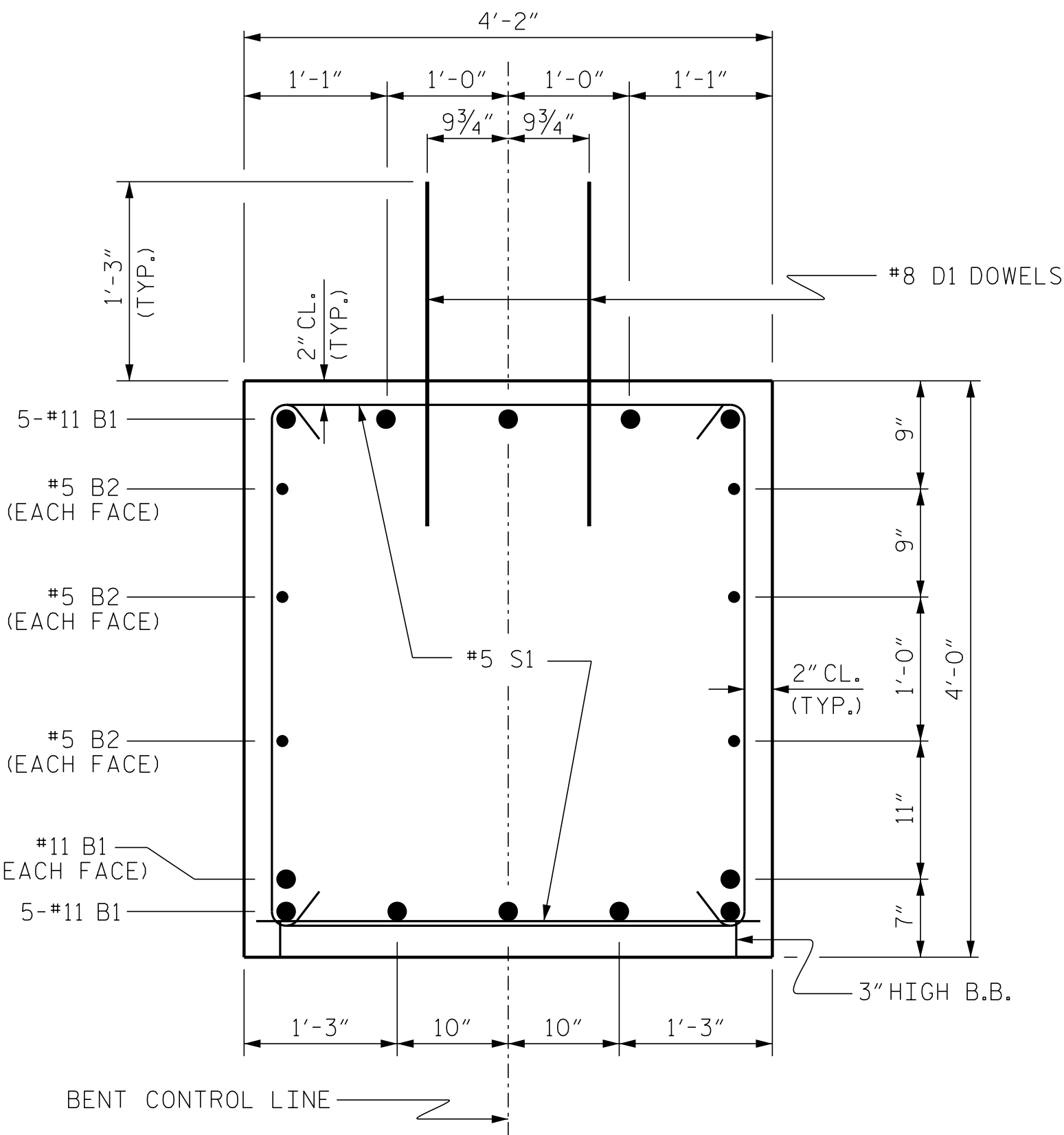
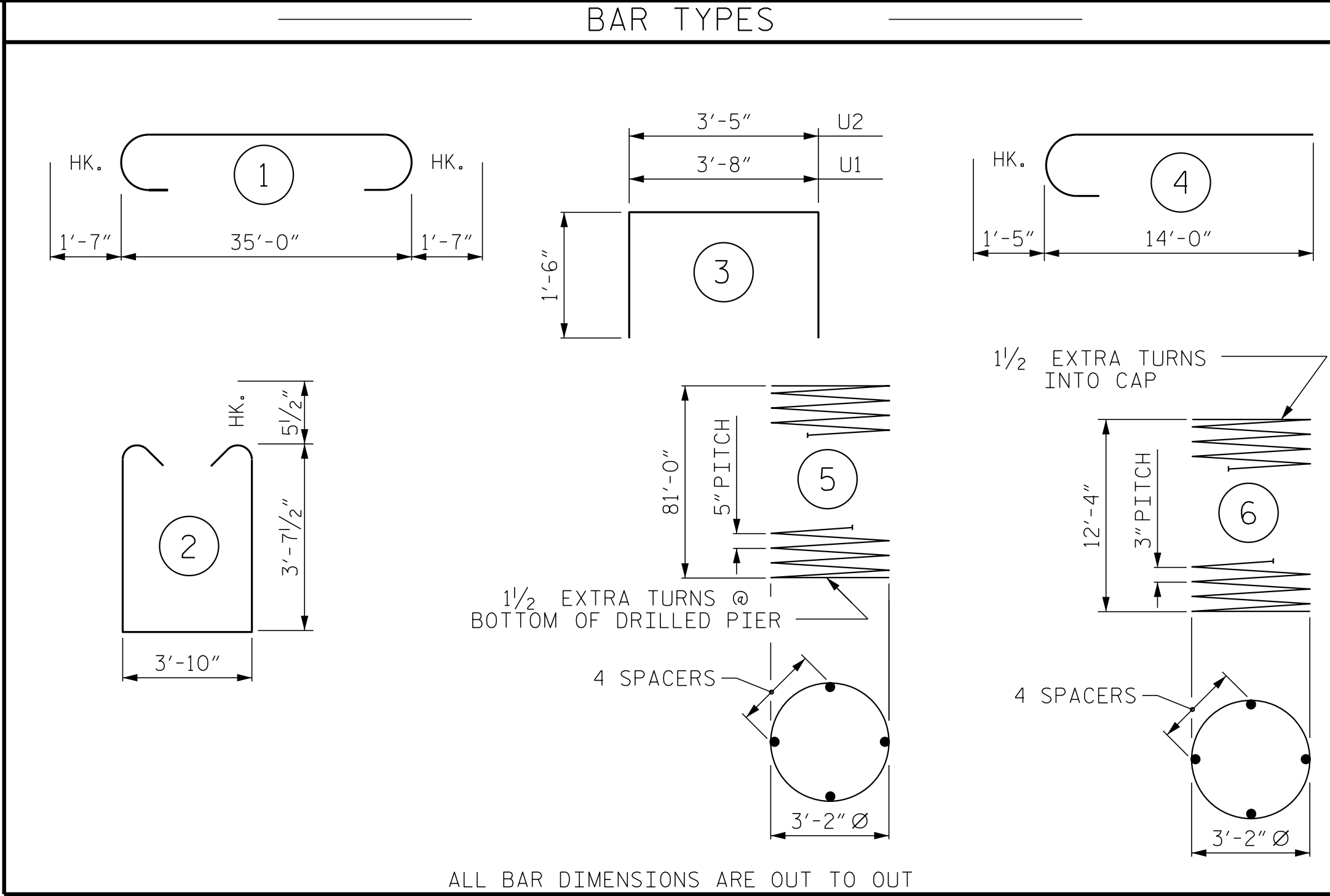
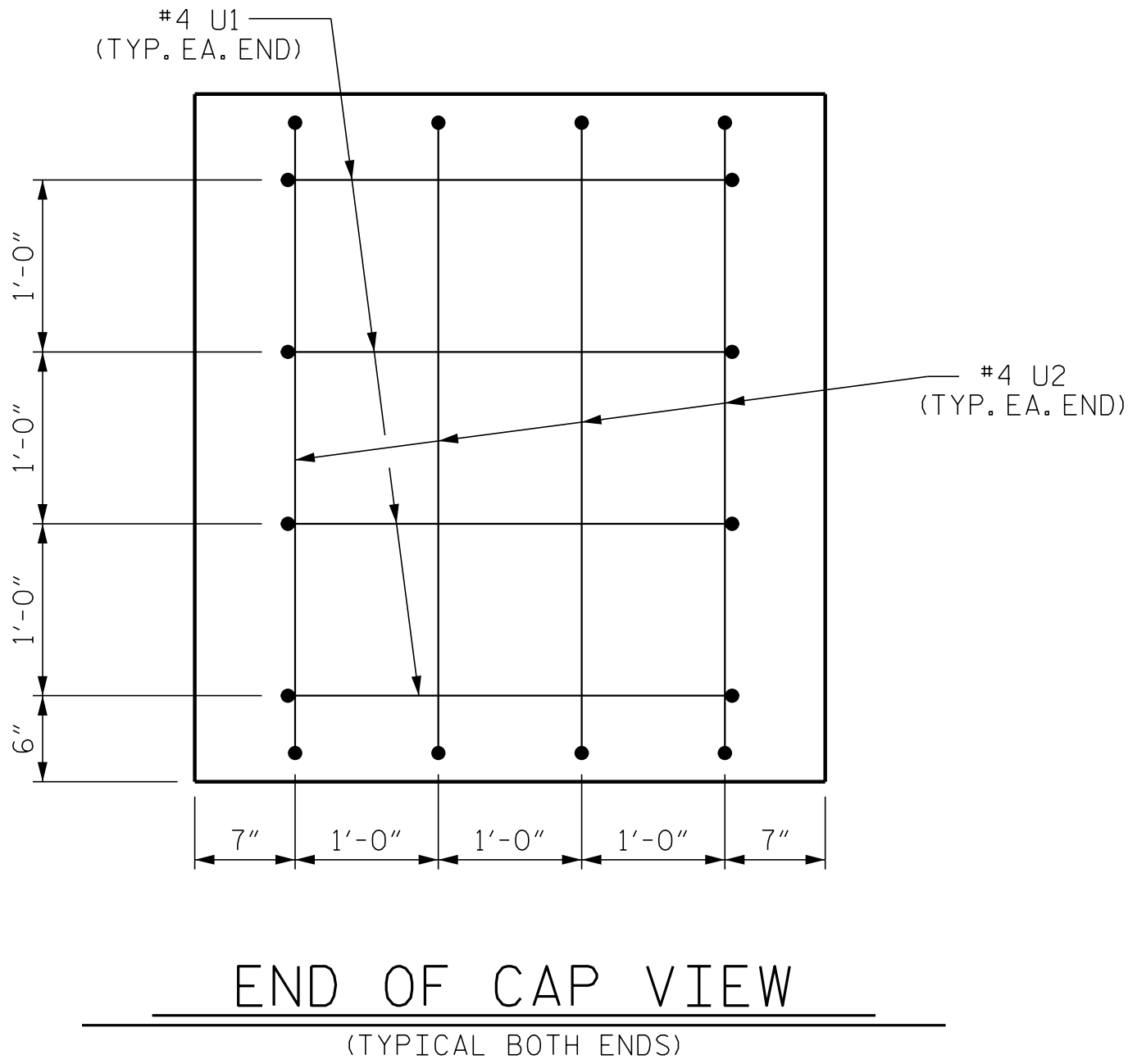
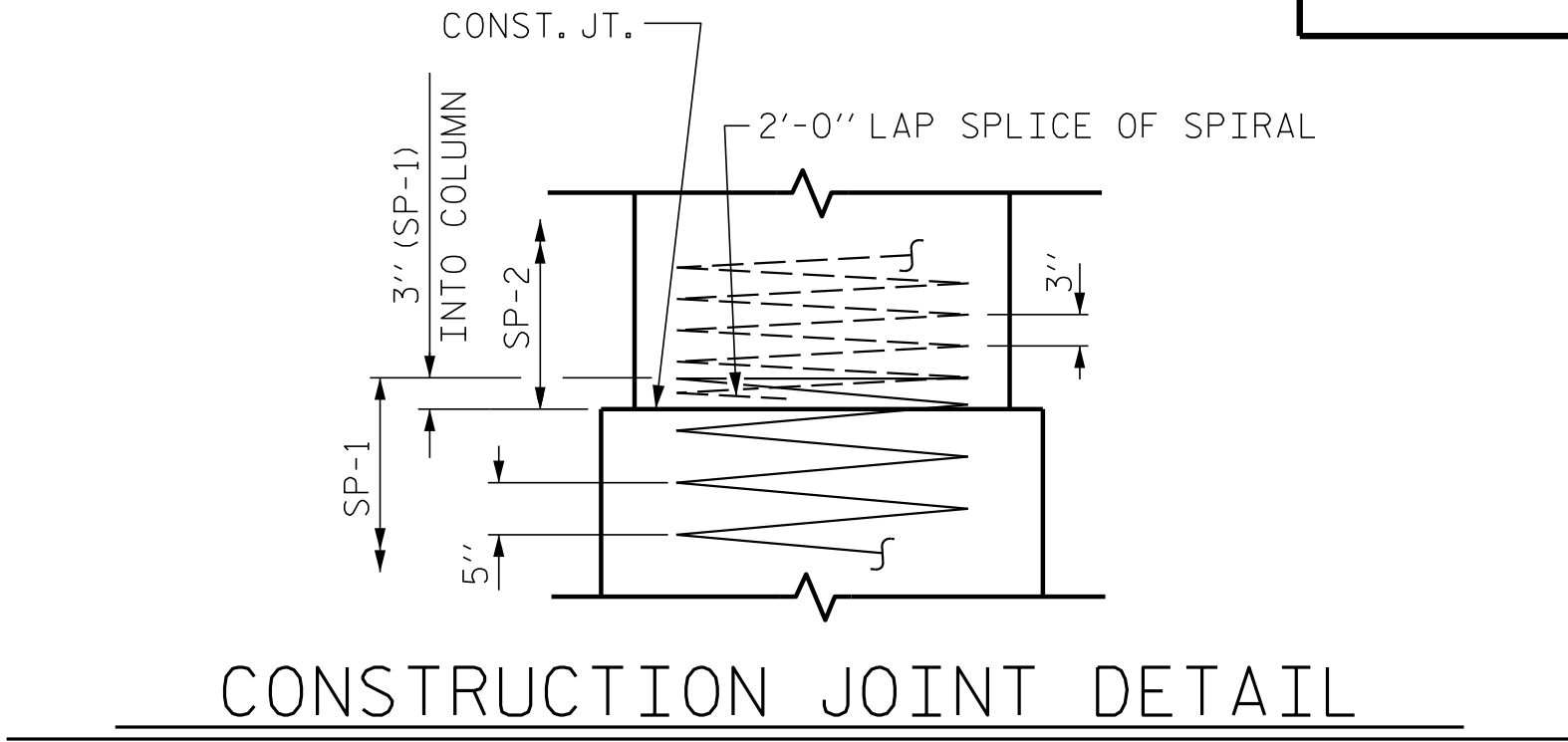
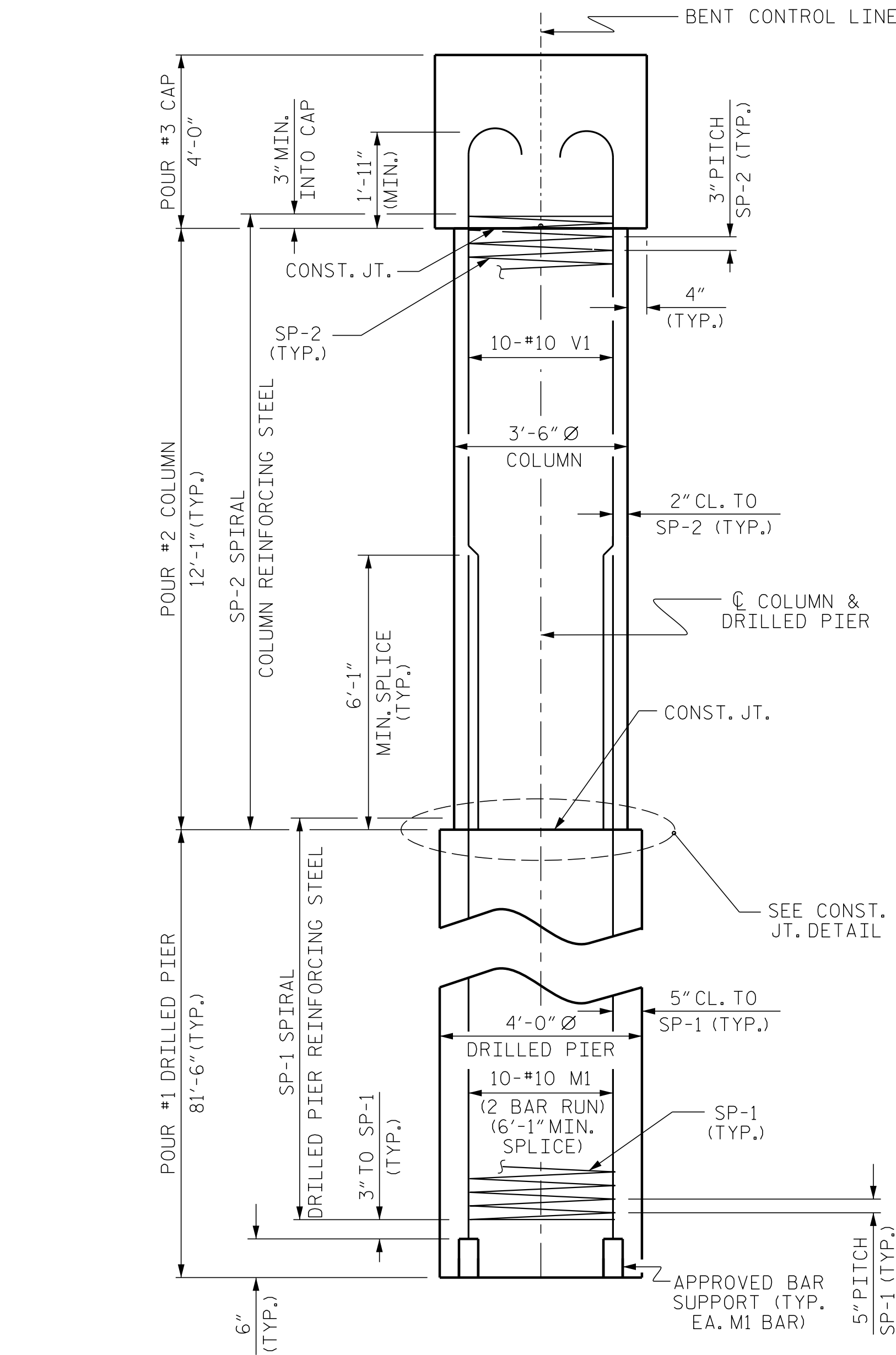
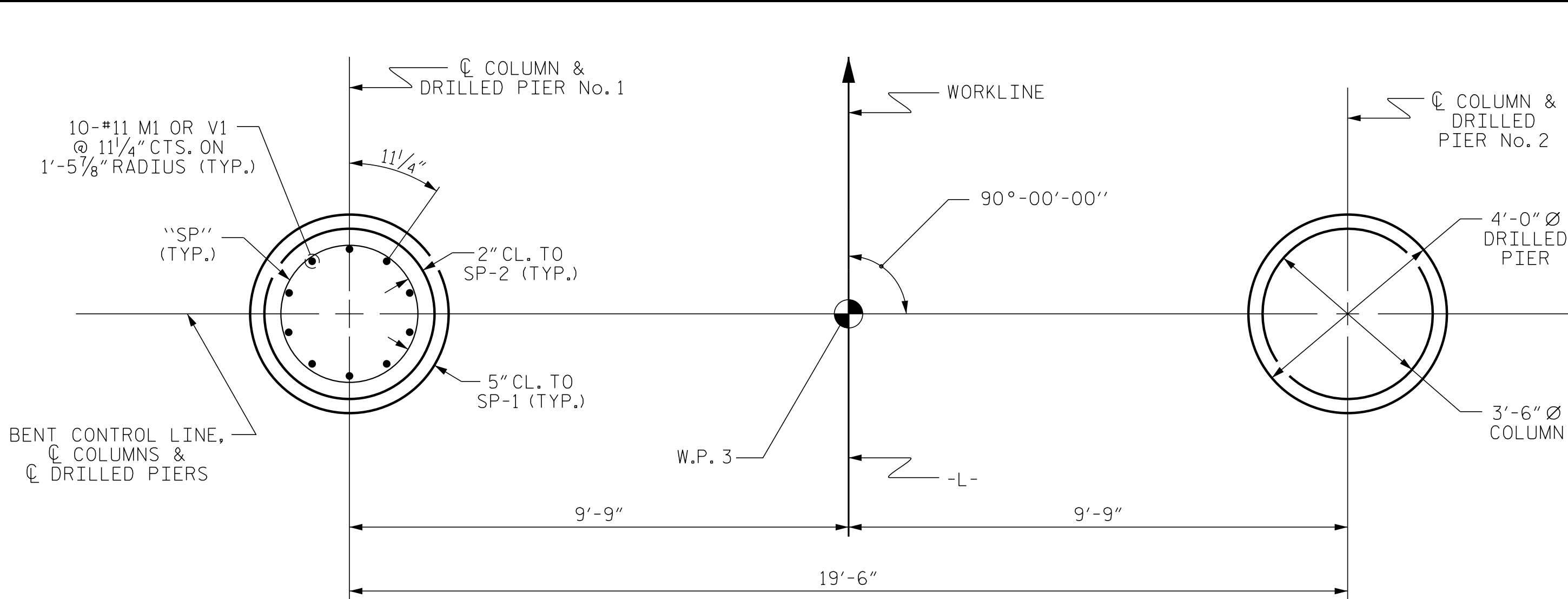
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REVISIONS				SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			25

DRAWN BY : B.C. HUNT DATE : 12-18
CHECKED BY : J.A. DILWORTH DATE : 1-19

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

DOCUMENT NOT CONSIDERED FINAL
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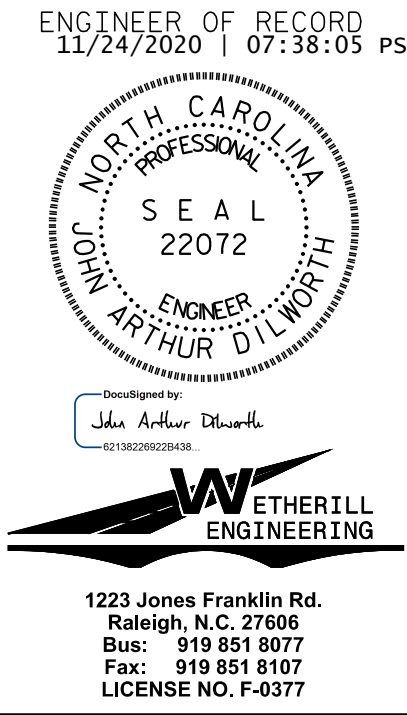


BILL OF MATERIAL					
BENT No. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#11	1	38'-2"	2433
B2	6	#5	STR	35'-2"	220
D1	44	#8	STR	2'-3"	264
M1	40	#10	STR	48'-1"	8276
S1	52	#5	2	12'-0"	651
U1	8	#4	3	6'-8"	36
U2	8	#4	3	6'-5"	34
V1	20	#10	4	15'-5"	1327
REINFORCING STEEL					13,241 LBS.
SP-1	2	*	5	1916'-3"	3997
SP-2	2	**	6	500'-1"	668
SPIRAL COLUMN REINFORCING STEEL					4,665 LBS.
* 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)	8.6 C.Y.
POUR #3 (CAP)	21.9 C.Y.
TOTAL CLASS A CONCRETE	
30.5 C.Y.	
DRILLED PIER QUANTITIES	
DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	75.9 C.Y.
4'-0" Ø DRILLED PIERS	163.0 LIN. FT.
PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIER	
48.90 LIN. FT.	
SID TESTING	2 EA.
SPT TESTING	2 EA.
CSL TUBES	664.0 LIN. FT.
CSL TESTING	2 EA.

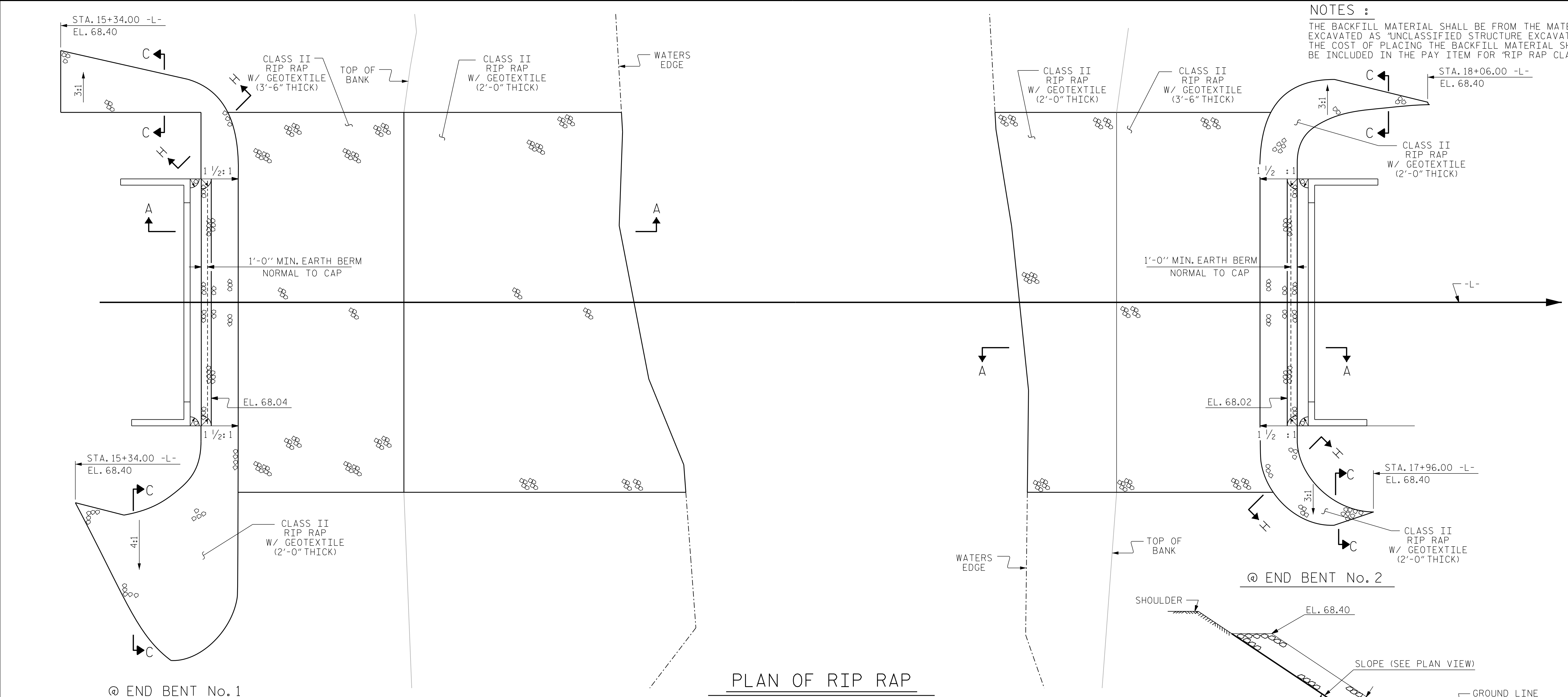
PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-

SHEET 2 OF 2



DEPARTMENT OF TRANSPORTATION					
RALEIGH					
BENT No. 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-23
TOTAL SHEETS					25

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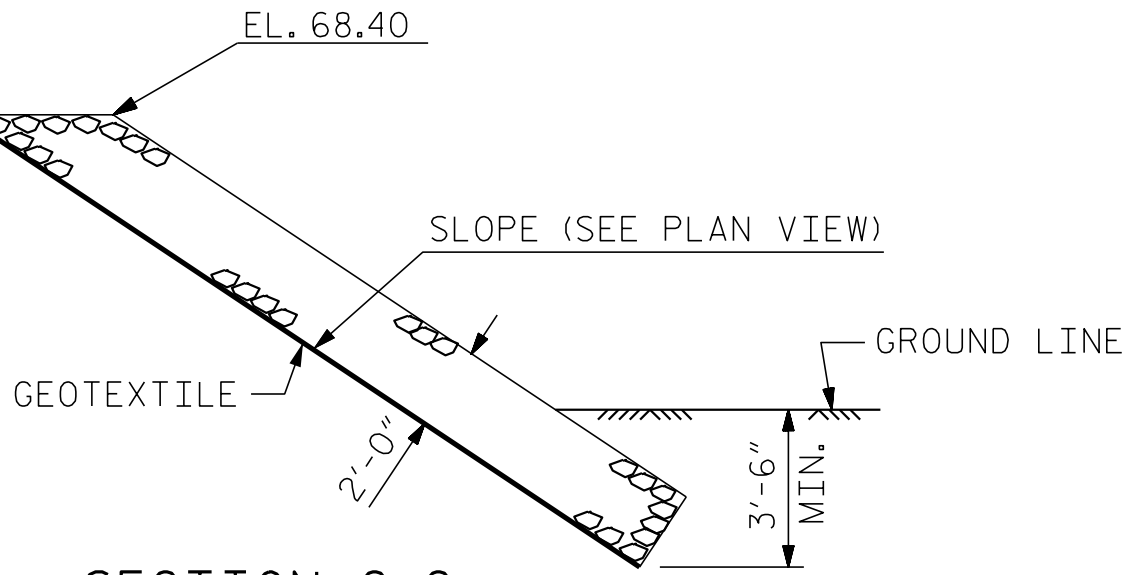
NOTES :
THE BACKFILL MATERIAL SHALL BE FROM THE MATERIAL EXCAVATED AS 'UNCLASSIFIED STRUCTURE EXCAVATION'. THE COST OF PLACING THE BACKFILL MATERIAL SHALL BE INCLUDED IN THE PAY ITEM FOR 'RIP RAP CLASS II'.

PLAN OF RIP RAP

@ END BENT No. 2

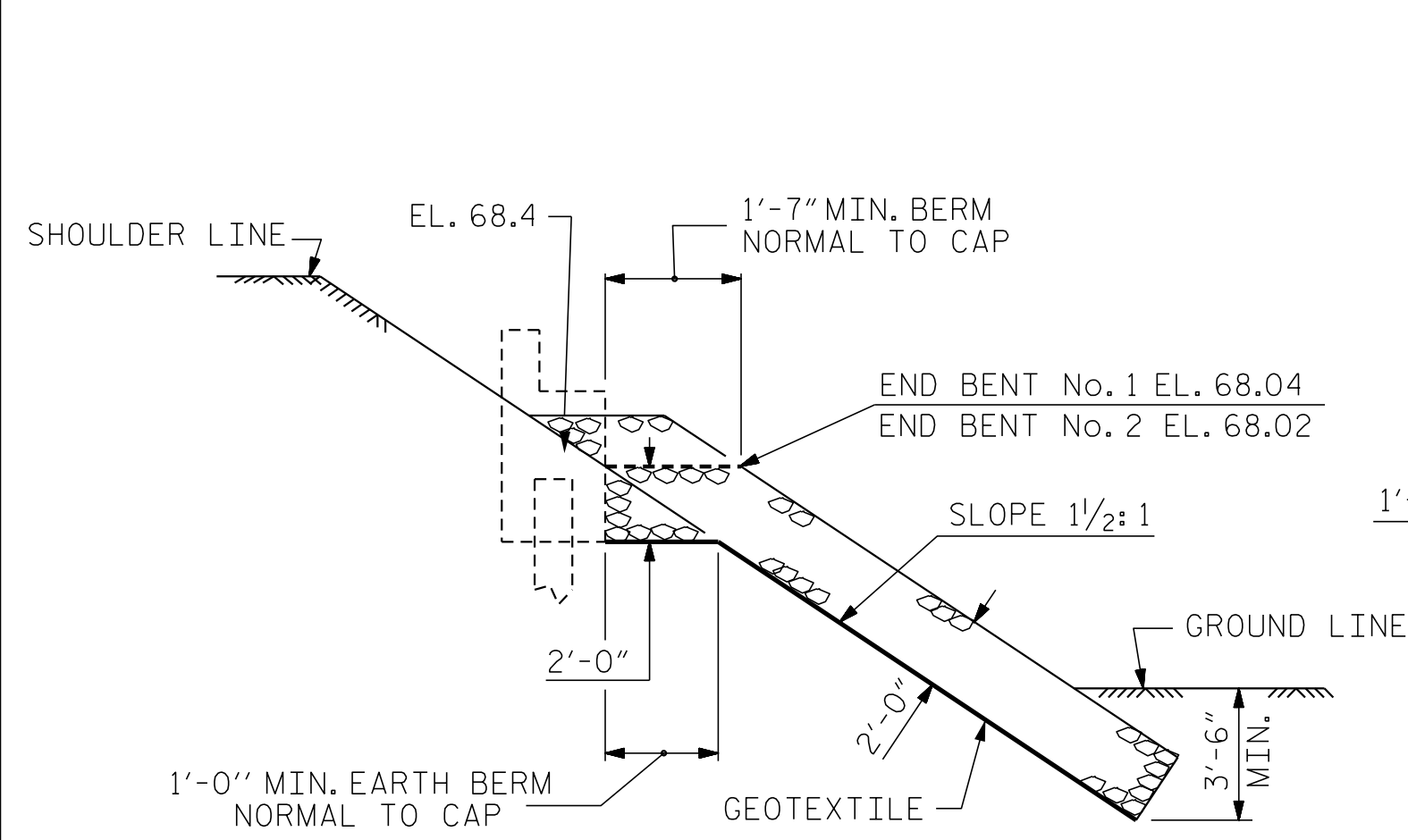
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SECTION C-C

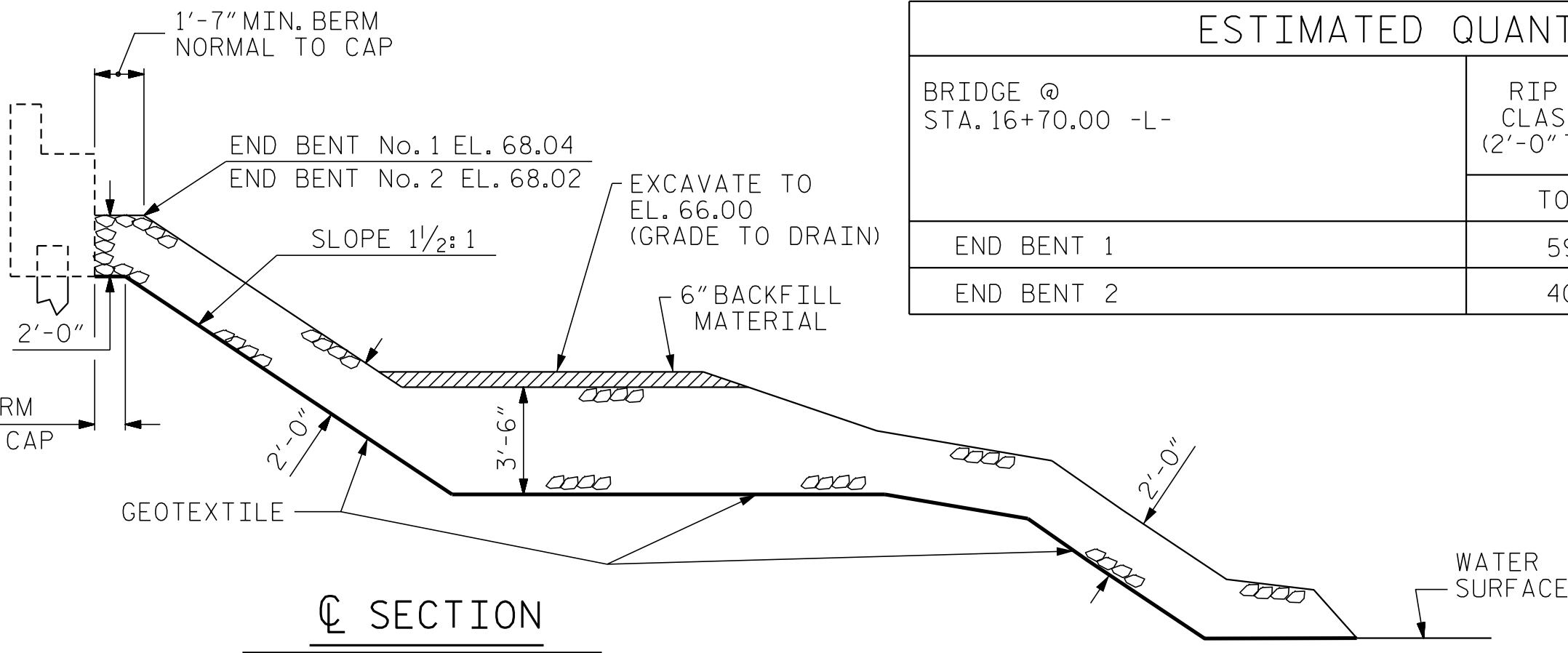


ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+70.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	595	530
END BENT 2	405	335

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-



SECTION H-H



SECTION
BERM RIP RAPPED

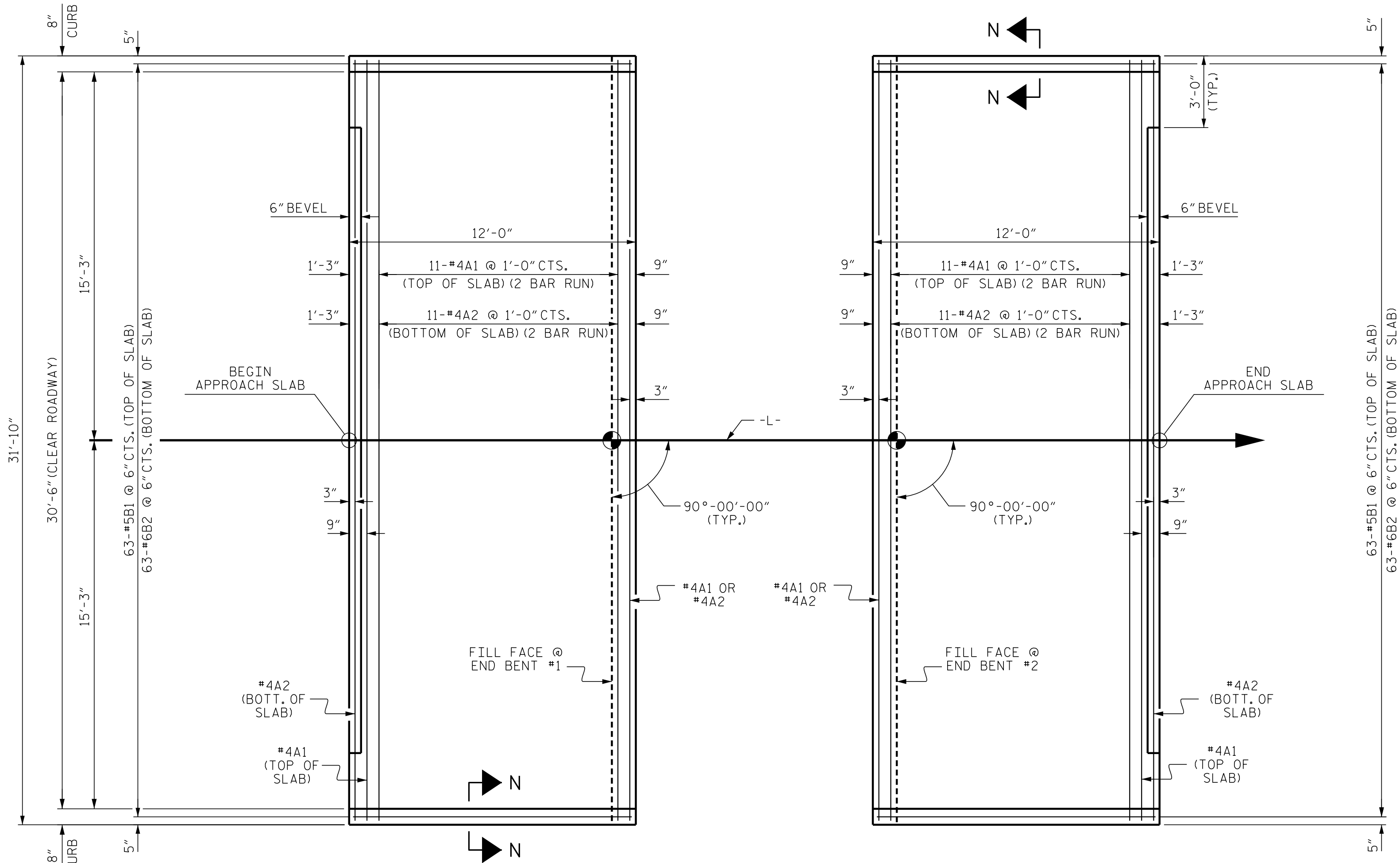
ASSEMBLED BY : J. PENDERGRAFT	DATE : 12-18
CHECKED BY : J. DILWORTH	DATE : 12-18
DRAWN BY : REK 1/84	REV. 10/1/11 MAA/GM
CHECKED BY : RDU 1/84	REV. 12/21/11 MAA/GM
	REV. 12/17 MAA/THC

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UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
11/24/2020 | 07:38:05 PM
NORTH CAROLINA PROFESSIONAL SEAL
22072
ENGINEER
ARTHUR D'ILIO
Documented by:
John Arthur Dilworth
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

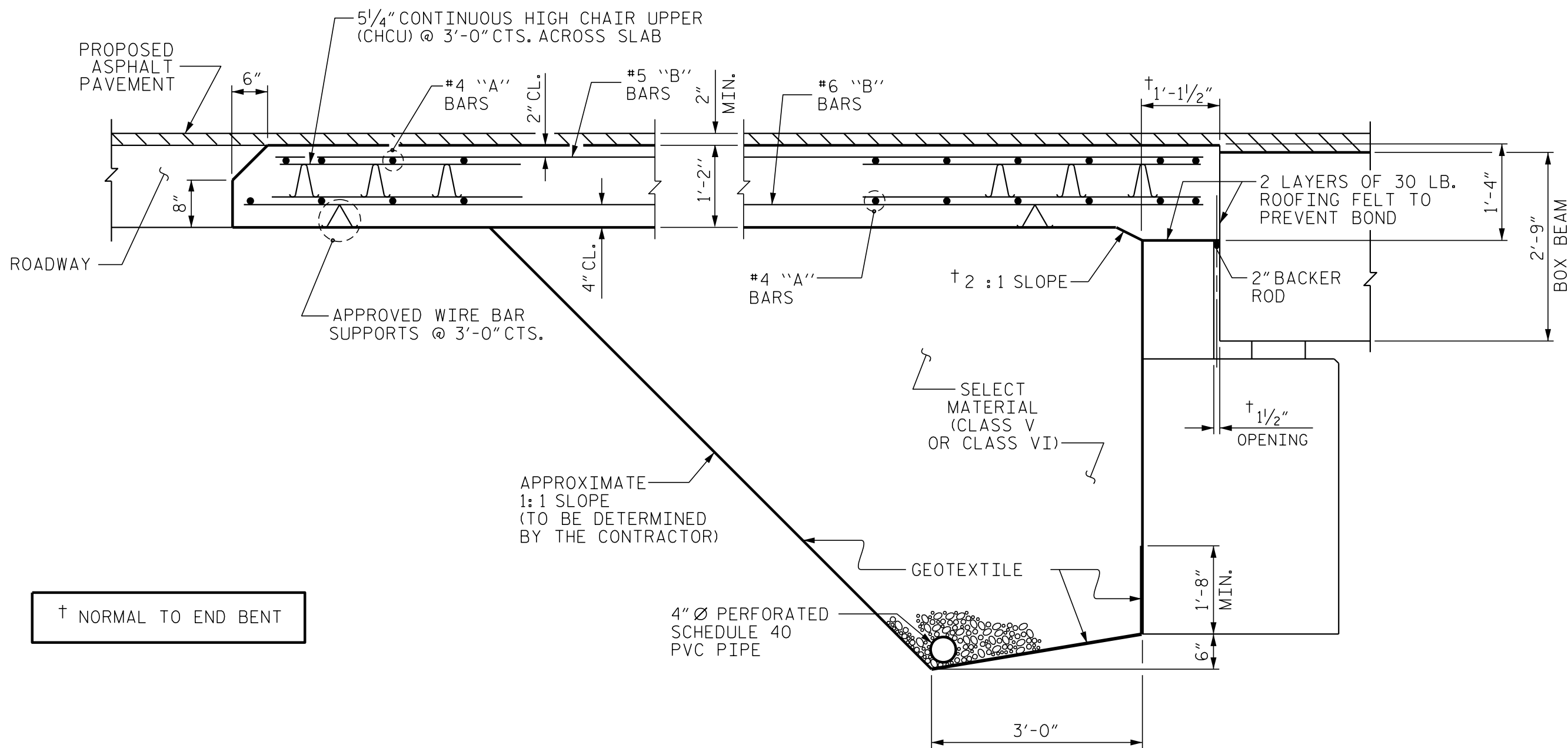
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-24
2			4			TOTAL SHEETS 25

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11/29/2020 12:57:36 PM



PLAN @ END BENT #1
PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4"Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

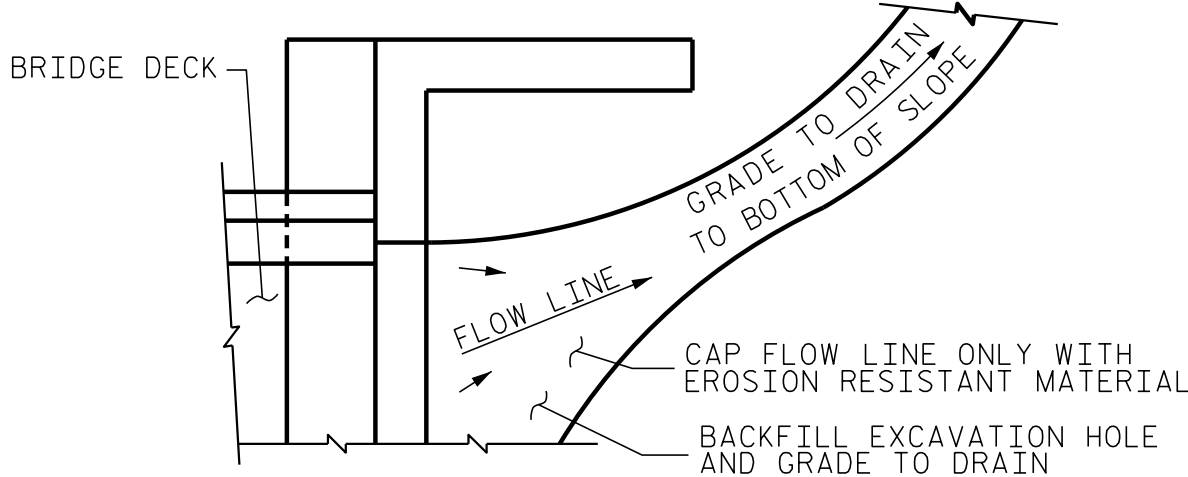
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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.

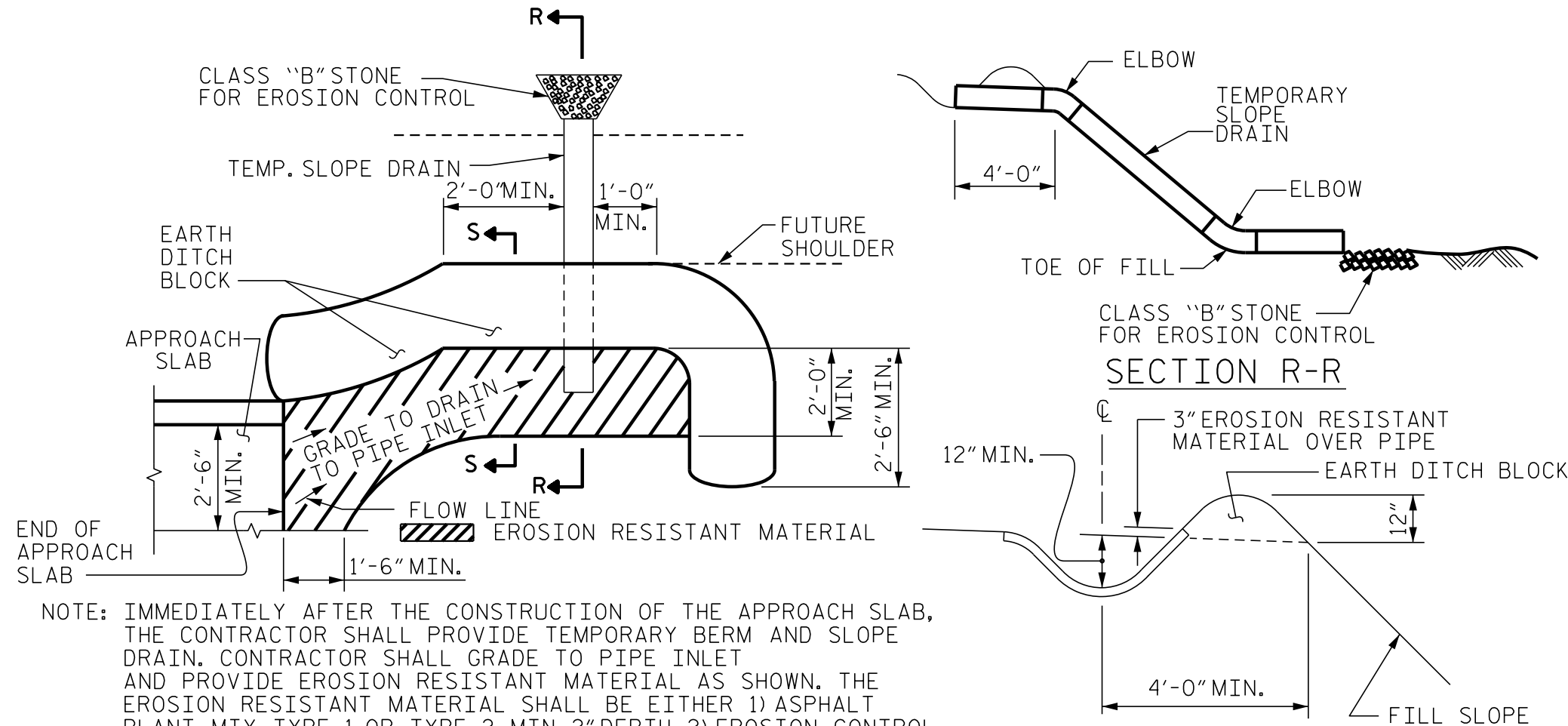
FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



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

TEMPORARY DRAINAGE DETAIL

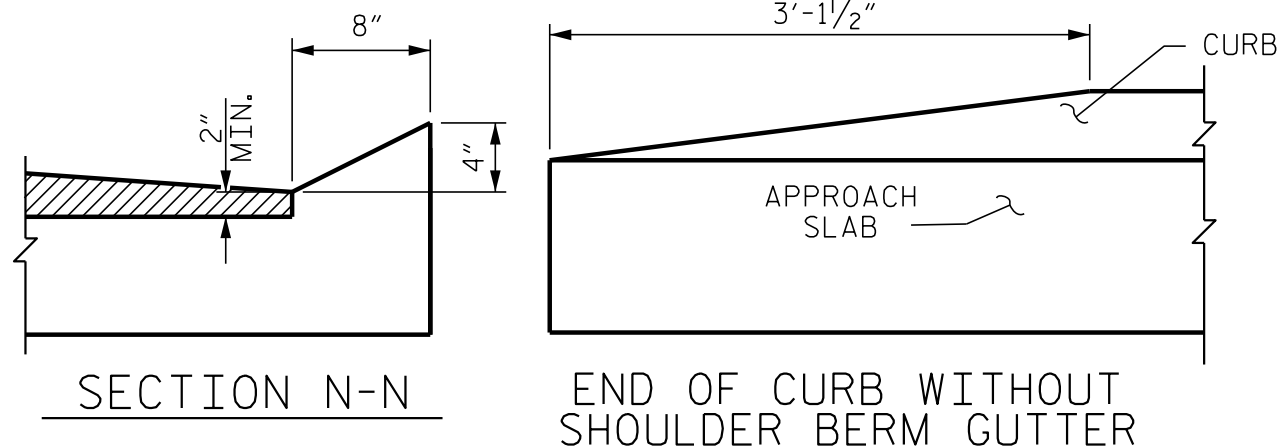


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



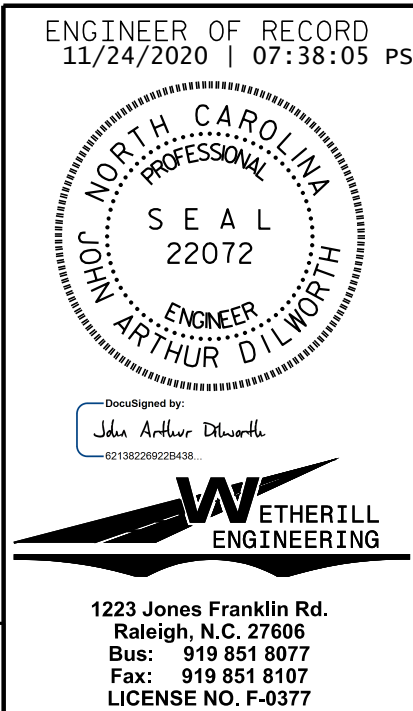
CURB DETAILS

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-10"	292
A2	26	#4	STR	16'-8"	289
*B1	63	#5	STR	11'-2"	734
B2	63	#6	STR	11'-8"	1104
REINFORCING STEEL				LBS.	1393
*EPOXY COATED REINFORCING STEEL				LBS.	1026
CLASS AA CONCRETE				C. Y.	16.8
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-10"	292
A2	26	#4	STR	16'-8"	289
*B1	63	#5	STR	11'-2"	734
B2	63	#6	STR	11'-8"	1104
REINFORCING STEEL				LBS.	1393
*EPOXY COATED REINFORCING STEEL				LBS.	1026
CLASS AA CONCRETE				C. Y.	16.8

PROJECT NO. BR-0241
EDGEcombe COUNTY
STATION: 16+70.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE BOX BEAM UNIT (SUB-REGIONAL TIER) 90° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-25					TOTAL SHEETS 25

STD. NO. BAS-BB.33.90S

ASSEMBLED BY : J. PENDERGRAFT DATE : 11-18
CHECKED BY : J. DILWORTH DATE : 11-18

DRAWN BY : MAA 11/11
CHECKED BY : AAC 11/11

REV. 12-17 MAA/THC

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

STD. NO. SN