

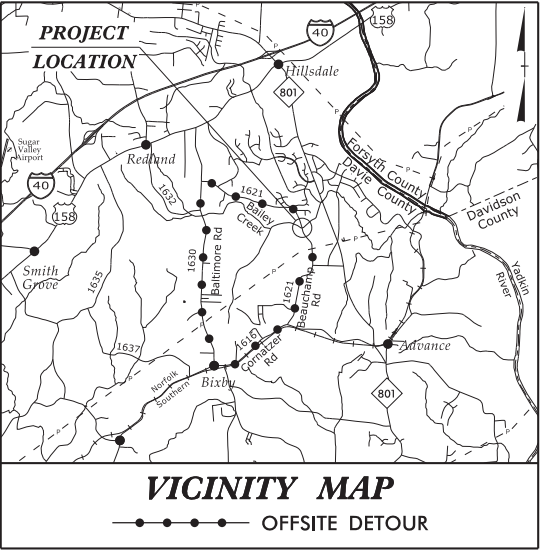
09.08/2025

05-MAY-2025 11:03
S:\Projects\009025_2020_SMU_0n-Call\BP9.R007\Project\Roadway\Proj\17BP9R93.Rdy_+tsh.dgn
sterill

TIP PROJECT: BP9.R007

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Plan Sheet Symbols



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

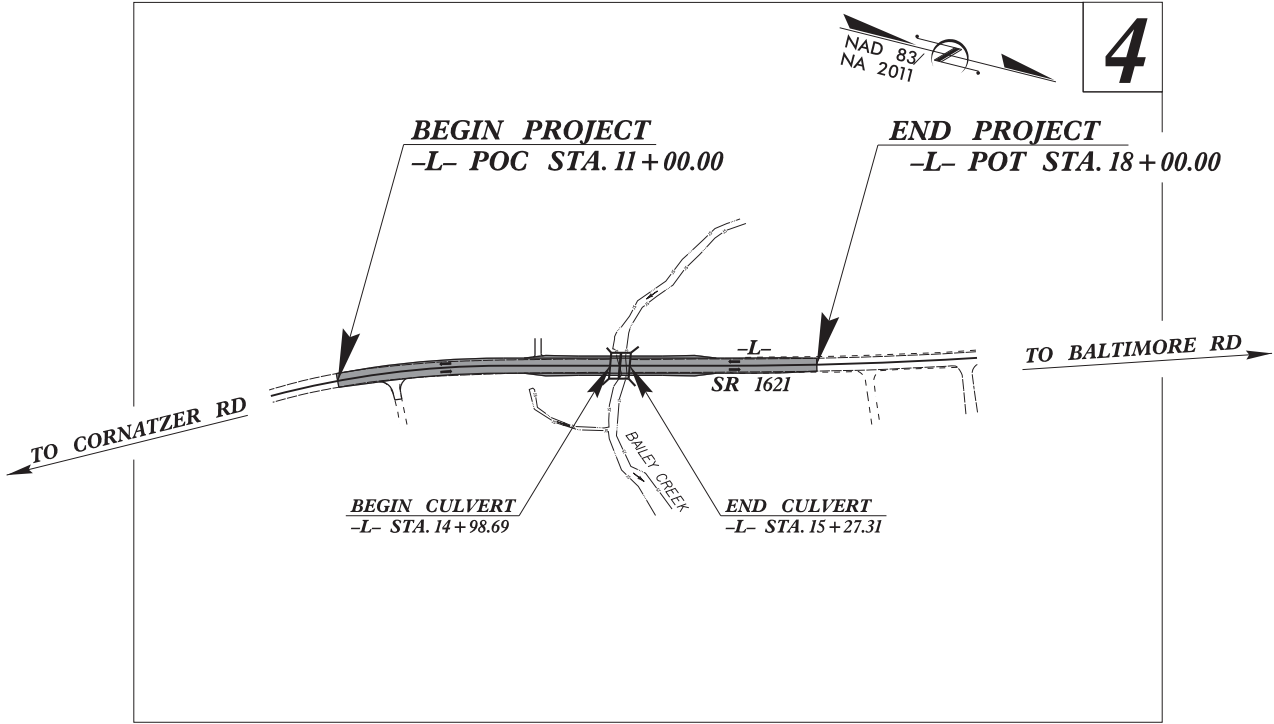
DAVIE COUNTY

LOCATION: BRIDGE NO.25 OVER BAILEY CREEK ON
SR 1621 (BEAUCHAMP RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP9.R007	1	
STATE PROJ.NO.	F.A.PROJ.NO.	DESCRIPTION	
BP9.R007.1	N/A	P.E.	
BP9.R007.2	N/A	ROW	
BP9.R007.3	N/A	CONST.	

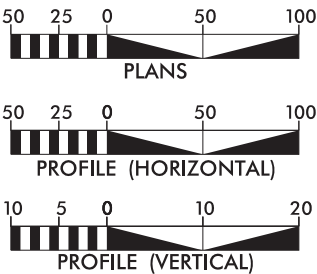
100 % PLANS



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2025 = 900
ADT 2045 = 1200
T = 7 % *
V = 60 MPH
FUNC CLASS =
LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY = 0.128 MILES
LENGTH STRUCTURE = 0.005 MILES
TOTAL LENGTH = 0.133 MILES

Prepared for NCDOT in the Office of:
ATCS
100 REGENCY FOREST DR., SUITE 130
CARY, NORTH CAROLINA 27518
919-341-9418 <http://www.atcsplc.com/>
NC LICENSE NO. P-0192
ENGINEERING | PLANNING | SURVEYING | ENVIRONMENTAL

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 16, 2023

LETTING DATE:
JUNE 25, 2025

BRIAN POST, PE
PROJECT ENGINEER

SAMANTHA TERRILL, PE
PROJECT DESIGN ENGINEER

JEREMY L. KEATON, PE, PLS
NCDOT CONTACT

HYDRAULICS
ENGINEER

Signed by:
Brian Post
B789C00519C0305

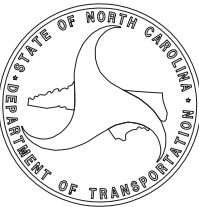
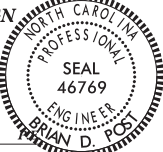
SIGNATURE:

ROADWAY DESIGN
ENGINEER

Brian
Post

Digitally signed
by Brian Post
Date: 2025.05.09
11:02:42 -04'00'

SIGNATURE:



INDEX OF SHEET

STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS

STD.NO.	TITLE
---------	-------

GENERAL NOTES

GRADING AND SURFACING OR RESURFACING AND WIDENING:

CLEARING:

SUPERELEVATION:

SHOULDER CONSTRUCTION:

SIDE ROADS:

SUBSURFACE DRAINS:

DRIVEWAYS:

GUARDRAIL:

SUBSURFACE PLANS:

UTILITIES:

RIGHT-OF-WAY MARKERS:

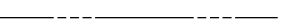
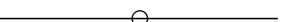
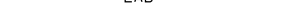
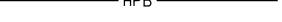
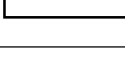
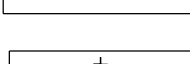
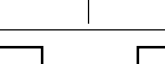
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

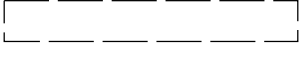
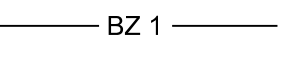
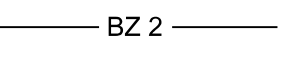
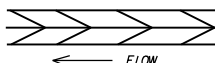
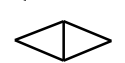
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

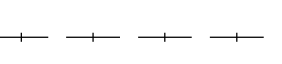
BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
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	

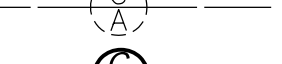
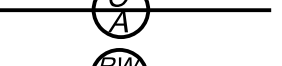
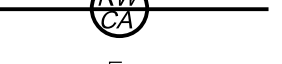
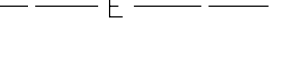
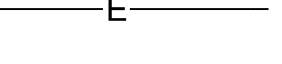
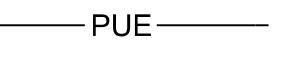
HYDROLOGY:

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	

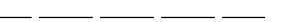
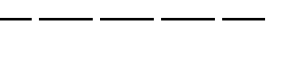
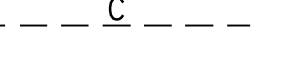
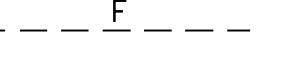
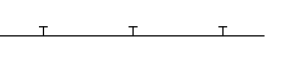
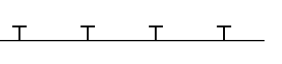
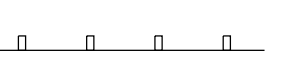
RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

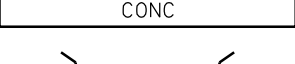
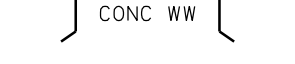
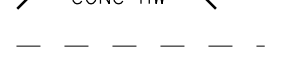
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent Easement Monument (Rebar and Cap)	
Existing C/A Monument	
Proposed C/A Monument (Rebar and Cap)	
Proposed C/A Monument (Concrete)	
Existing Right of Way Line	
Proposed Right of Way Line	
Existing Control of Access Line	
Proposed Control of Access Line	
Proposed ROW and CA Line	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage/Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	

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	

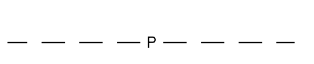
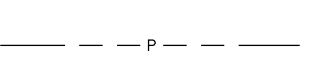
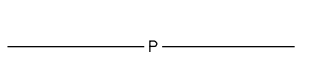
Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

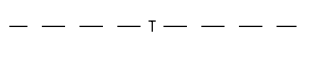
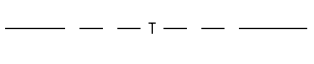
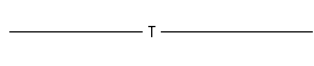
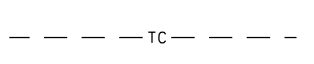
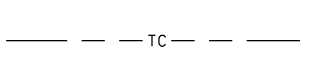
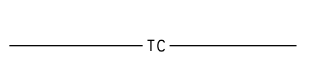
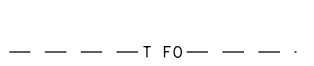
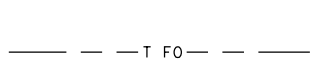
MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

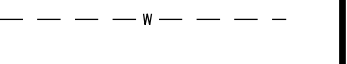
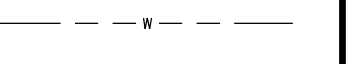
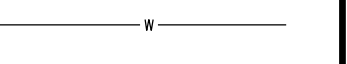
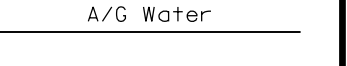
* SUE - Subsurface Utility Engineering
LOS - Level of Service - A,B,C or D (Accuracy)

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 Test Hole (SUE - LOS A)*	
U/G Power Line (SUE - LOS B)*	
U/G Power Line (SUE - LOS C)*	
U/G Power Line (SUE - LOS D)*	

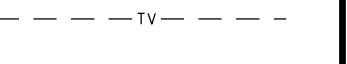
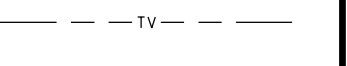
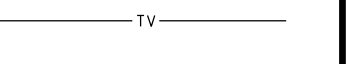
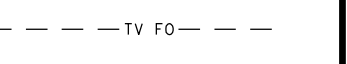
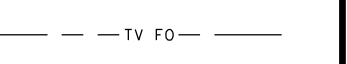
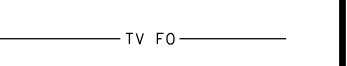
TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Test Hole (SUE - LOS A)*	
U/G Telephone Cable (SUE - LOS B)*	
U/G Telephone Cable (SUE - LOS C)*	
U/G Telephone Cable (SUE - LOS D)*	
U/G Telephone Conduit (SUE - LOS B)*	
U/G Telephone Conduit (SUE - LOS C)*	
U/G Telephone Conduit (SUE - LOS D)*	
U/G Fiber Optics Cable (SUE - LOS B)*	
U/G Fiber Optics Cable (SUE - LOS C)*	
U/G Fiber Optics Cable (SUE - LOS D)*	

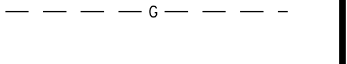
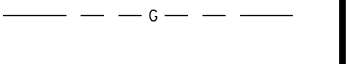
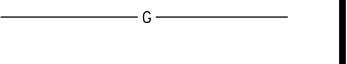
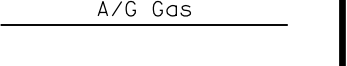
WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line Test Hole (SUE - LOS A)*	
U/G Water Line (SUE - LOS B)*	
U/G Water Line (SUE - LOS C)*	
U/G Water Line (SUE - LOS D)*	
Above Ground Water Line	

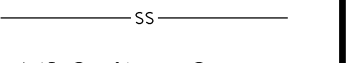
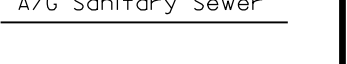
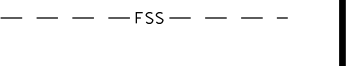
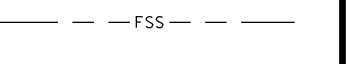
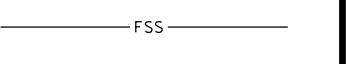
TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Test Hole (SUE - LOS A)*	
U/G TV Cable (SUE - LOS B)*	
U/G TV Cable (SUE - LOS C)*	
U/G TV Cable (SUE - LOS D)*	
U/G Fiber Optic Cable (SUE - LOS B)*	
U/G Fiber Optic Cable (SUE - LOS C)*	
U/G Fiber Optic Cable (SUE - LOS D)*	

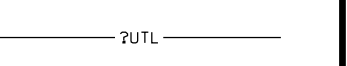
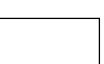
GAS:

Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE - LOS A)*	
U/G Gas Line (SUE - LOS B)*	
U/G Gas Line (SUE - LOS C)*	
U/G Gas Line (SUE - LOS D)*	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Force Main Line Test Hole (SUE - LOS A)*	
SS Force Main Line (SUE - LOS B)*	
SS Force Main Line (SUE - LOS C)*	
SS Force Main Line (SUE - LOS D)*	

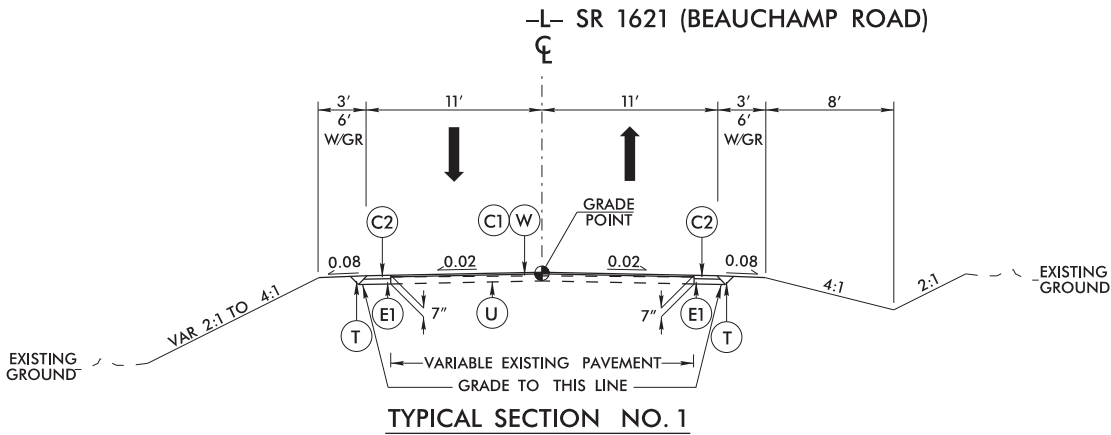
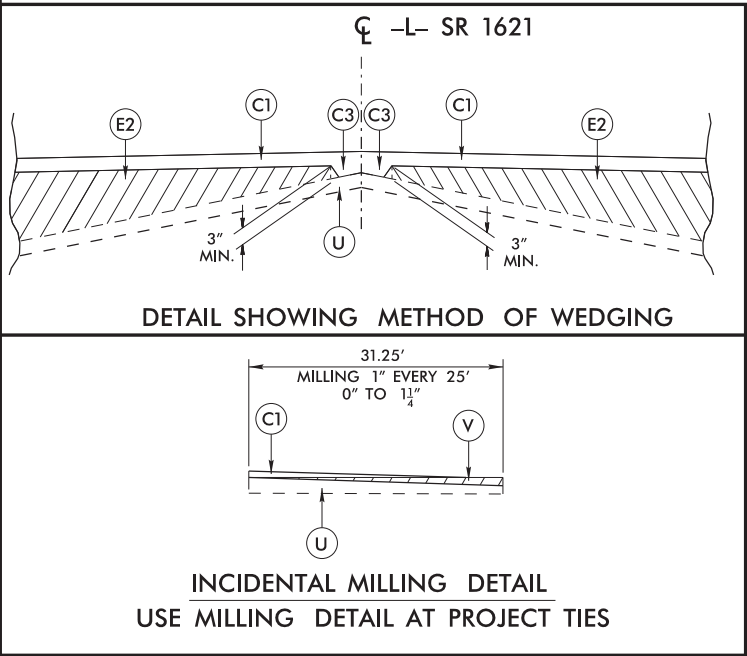
MISCELLANEOUS:

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

6/2/99
OC-MAY-2025 17:58
S:\Projects\065025-2020-SMUL-On-Ca11\BP9.R007\Project\Roadway\Proj\17BP9R93_Rdu_tup.dgn
sterlin

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	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.
C3	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.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

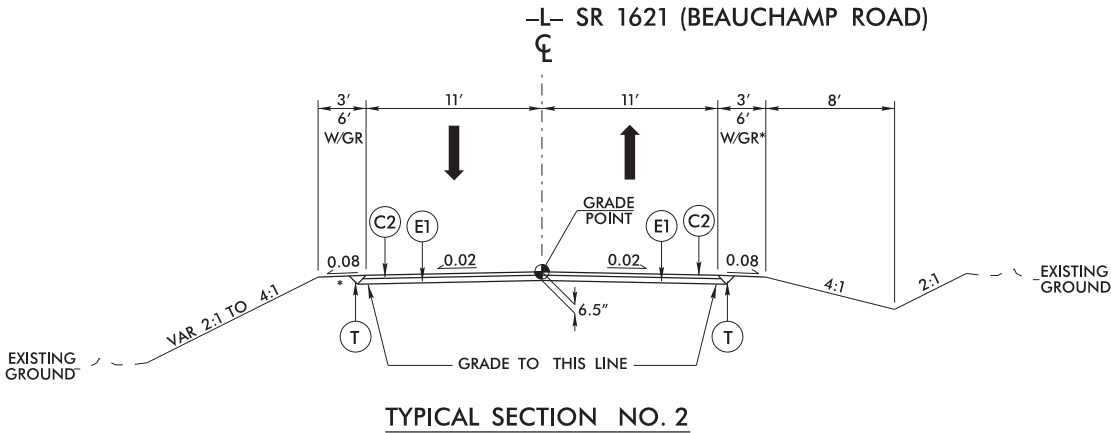
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



USE TYPICAL SECTION NO. 1

-L- STA. 11+00.00 TO STA. 13+00.00

-L- STA. 16+00.00 TO STA. 18+00.00



USE TYPICAL SECTION NO. 2

-L- STA. 13+00.00 TO STA. 16+00.00

* PAVE TO FACE OF GUARDRAIL

PROJECT REFERENCE NO. BP9.R007		SHEET NO. 2A
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER
		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
ATCS		100 REGENCY FOREST DR., SUITE 130 CARY, NORTH CAROLINA 27518 919-341-9418 http://www.atcsplc.com/ NC LICENSE NO. P-0182 ENGINEERING PLANNING SURVEYING ENVIRONMENTAL

COMPUTED BY: PG	DATE: 04/23/2025		PROJECT NO.	SHEET NO.
CHECKED BY: ST	DATE: 04/23/2025		BP9.R007	3B-1

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

[illegible]

SUMMARY OF EARTHWORK							
(In Cubic Yards)							
Station	Station	Uncl. Excav.	Embank. +15%	Borrow	Undercut Excav.	Select Granular Material	Shallow Undercut
SUMMARY NO. 1							
-L- STA. 11+00	-L- STA. 18+00	266	823	557			
CONTINGENCY					450	400	100
PROJECT TOTALS:		266	823	557			
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT				28			
GRAND TOTALS:		266		585			
SAY:		300		600	450	400	100
Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, Removal of Existing Asphalt Pavement, and Breaking of Existing Asphalt Pavement will be paid for at the contract lump sum price for grading.				Note: These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.			

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION								
			Aggregate Type*	Aggregate	CLASS IV	Geotextile for	Stabilizer	Class IV
SURVEY	Station	Station	ASU(1/2)/AST	Thickness	Subgrade	Subgrade	Aggregate	Aggregate
LINE			AST	Inches [8" for ASU(2)]	Stabilization Tons	Stabilization SY	Tons	Stabilization Tons
	CONTINGENCY		ASU		650	1310		
		TOTAL:	CY/TON/SY		650**	1310**		
*ASU (1/2) = Aggregate Subgrade (Type 1 or 2)								
AST = Aggregate Stabilization								
** Total tons of " Class IV Subgrade Stabilization" and total square yards of " Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the item sheets of the proposal.								

[illegible]

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

INCIDENTAL STONE BASE			
		IN TONS	
			Incidental
SURVEY LINE	Station	Station	Stone Base
-L-			
	Contingency		60
		TOTAL:	60.00
		SAY:	60

SUMMARY OF SURFACE DRAINAGE						
LINE	Station	Station	LOCATION LT/RT/CL	Drain Type* UD/BD/SD		UNIT
-L-						
	CONTINGENCY			SD	200	LF
	SUBDRAIN EXCAVATION				45	CY
	GEOTEXTILE FOR SUBSURFACE DRAINS				200	SY
	SUBDRAIN COARSE AGGREGATE				35	CY
	6" PERFORATED SUBDRAIN PIPE				200	LF
	SUBDRAIN PIPE OUTLET				1	EA
	6" OUTLET PIPE				6	LF
			TOTAL:			
			SAY:			
*UD=Underdrain						
*BD=Blind Drain						
*SD=Subsurface Drain						

GEOTEXTILE FOR SOILS STABILIZATION			
		IN SY	
			Geotextile
SURVEY LINE	Station	Station	for soil Stabilization
-L-			
	Contingency		300
		TOTAL:	300.00
		SAY:	300

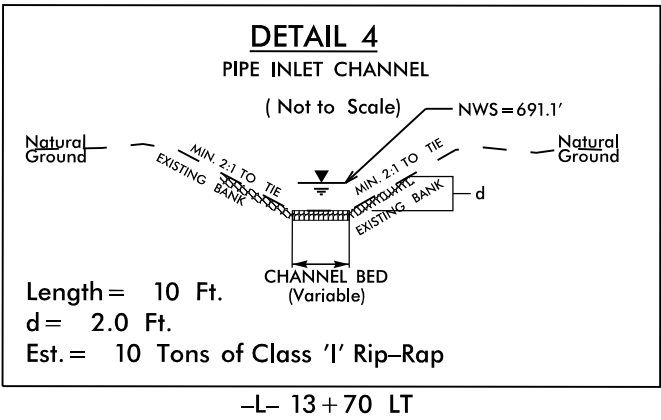
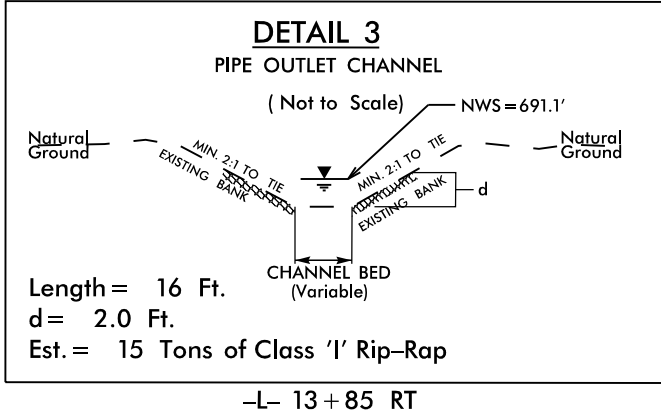
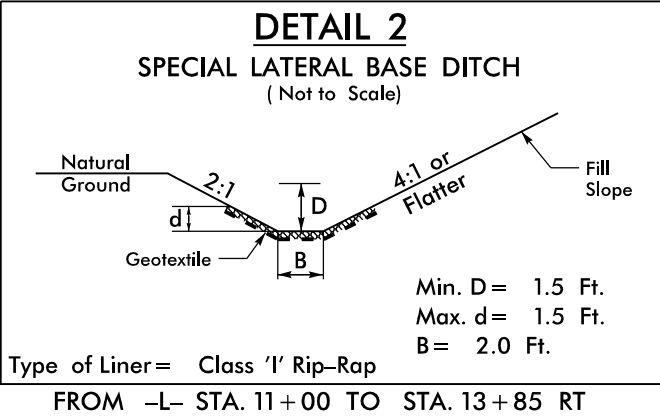
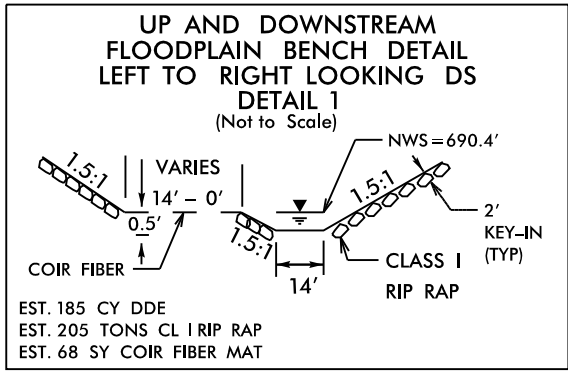
PAVEMENT REMOVAL SUMMARY				
		IN SQUARE YARDS		
SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL
-L-	12+00	16+00	CL	660.00
		TOTAL:		660.00
		SAY:		660

DRAINAGE DITCH EXCAVATION				
LINE	SIDE	STATION	STATION	VOLUME
-L-	RT	15+00	15+30	CY
				185.00
			TOTAL	185.00
			SAY	190

8/17/99

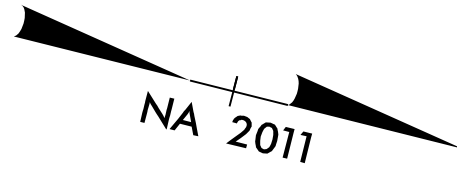
REVISIONS

06-MAY-2025 17:35
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-L- CURVE DATA

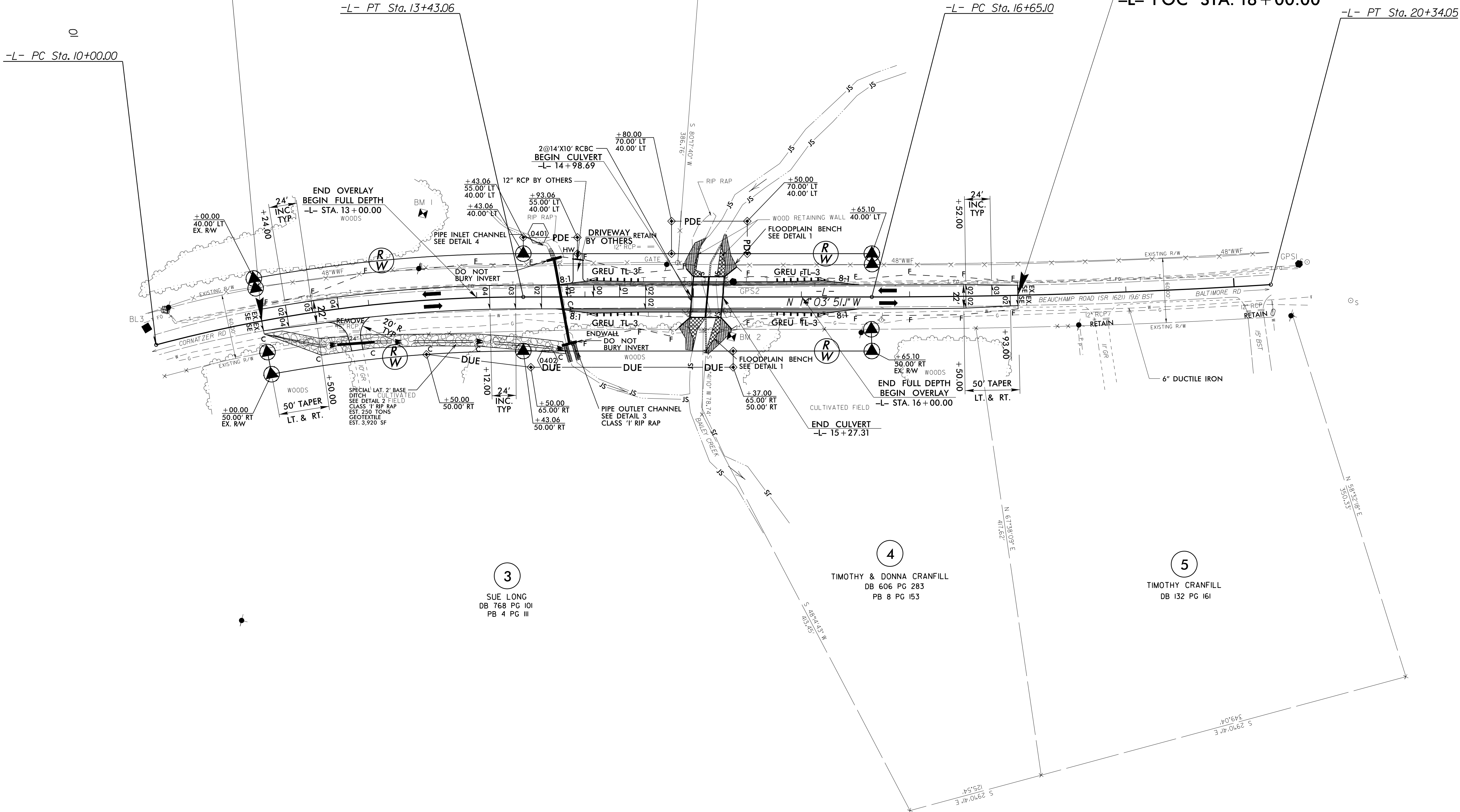
$PI\ Sta\ 11+72.50$	$PI\ Sta\ 18+49.63$
$\Delta = 14^{\circ}52'05.5" (RT)$	$\Delta = 3^{\circ}31'33.9" (LT)$
$D = 4^{\circ}20'02.5"$	$D = 0^{\circ}57'20.6"$
$L = 343.06'$	$L = 368.94'$
$T = 172.50'$	$T = 184.53'$
$R = 1,322.00'$	$R = 5,995.00'$
$SE = .04$	$SE = SEE\ PLAN$



PROJECT REFERENCE NO.	SHEET NO.
BP9.R007	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
ATCS 100 REGENCY FOREST DRIVE, SUITE 130 CARY, NORTH CAROLINA 27518 919-341-9418 http://www.atcsapl.com/ ENGINEERING PLANNING SURVEYING ENVIRONMENTAL	

BEGIN TIP PROJECT BP9.R007
-L- POC STA. 11+00.00

END TIP PROJECT BP9.R007
-L- POC STA. 18+00.00



1
CARL & CHARLOTTE TULLOCK
DB 191 PG 635

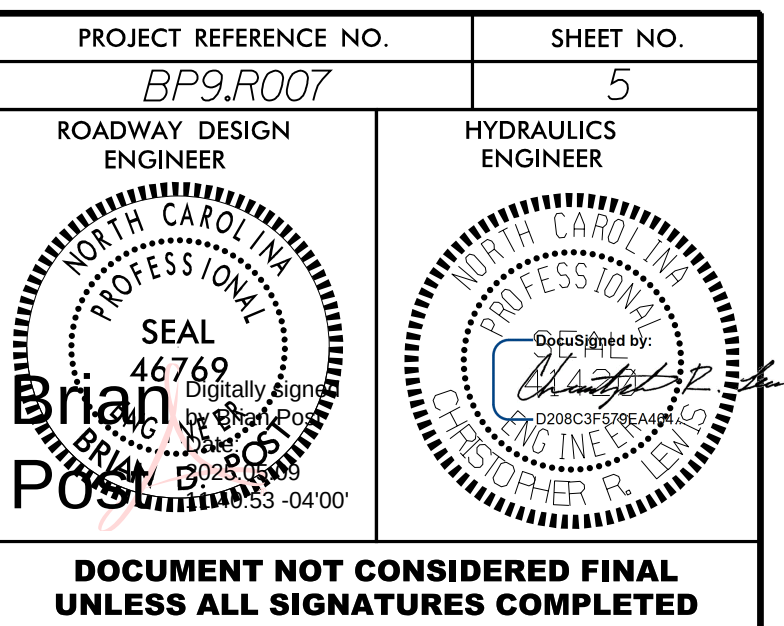
2
EARL MYERS
DB 112 PG 440

3
SUE LONG
DB 768 PG 101
PB 4 PG III

4
TIMOTHY & DONNA CRANFILL
DB 606 PG 283
PB 8 PG 153

5
TIMOTHY CRANFILL
DB 132 PG 161

SEE SHEET 5 FOR -L- PROFILE



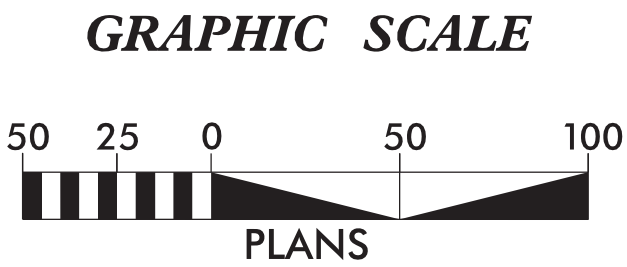
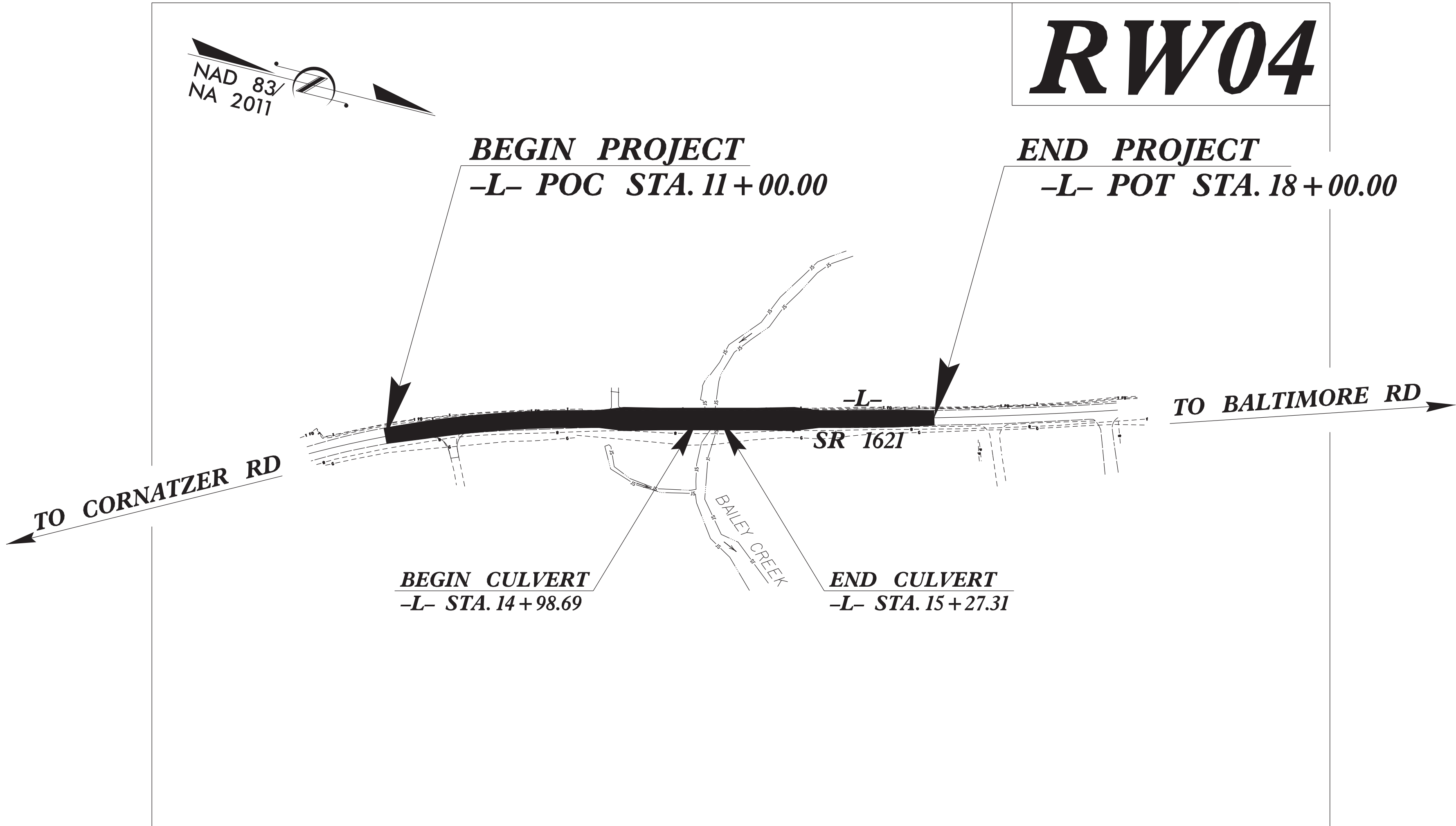
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP9.R007	RW01	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

DAVIE COUNTY

TIP PROJECT: BP9.R007



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 811,067.3854(ft) EASTING: 1,576.136.0368(ft) ELEVATION: 699.80(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999922676 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-2" TO -L- STATION 15+37.04 IS S 75-56'43" W 13.88(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

LOCATION AND SURVEYS
DIVISION 9
403 POLO ROAD
WINSTON-SALEM, NC
27105

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
11/16/2023

LETTING DATE:
06/25/2025

PROFESSIONAL LAND
SURVEYOR

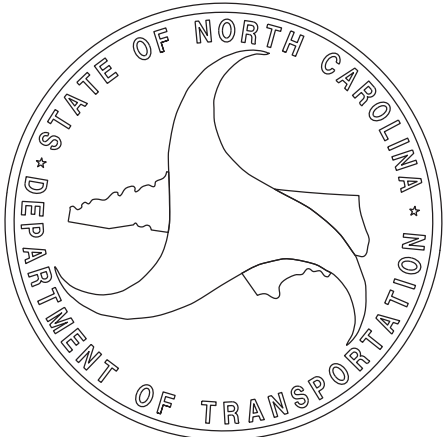


DocuSigned by:
Michael L. Motinger
FOR BETTER BUSINESS

05/12/2025

SIGNATURE:

Date:



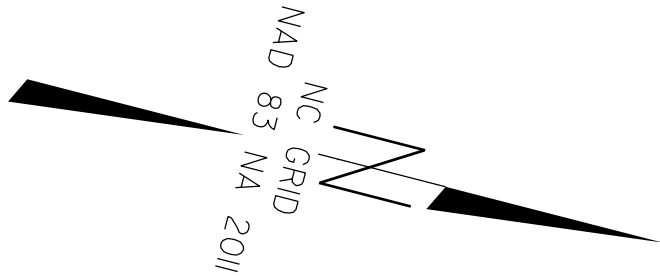
SURVEY CONTROL SHEET
W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BL	POINT	DESC.	NORTH	EAST	ELEVATION
	GPS1	1	811570.3688	1575992.9103	708.86
	GPS2	2	811067.3854	1576136.0368	699.80
	BL3	3	810552.0847	1576308.9579	714.09

.....
BM1 ELEVATION = 700.58
N 810774 E 1576144
RR SPIKE IN 12 OAK
.....

.....
BM2 ELEVATION = 700.29
N 811078 E 1576185
RR SPIKE IN 18 OAK
.....

EL	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	810564.292	1576322.015							
LINE			N 28°55'56.7" W	20.77					
PC	810582.466	1576311.969							
CURVE			N 22°33'24.1" W	233.20	12°45'05.1"(RT)	05°27'24.3"	233.68	117.33	1050.00
PT	810797.827	1576222.514							
LINE			N 16°10'51.5" W	18.99					
PC	810816.067	1576217.222							
CURVE			N 15°07'21.3" W	205.40	02°07'00.4"(RT)	01°01'49.8"	205.41	102.72	5560.00
PT	811014.355	1576163.635							
LINE			N 14°03'51.1" W	142.22					
PC	811152.308	1576129.076							
CURVE			N 14°49'14.7" W	224.46	01°30'47.0"(LT)	00°40'26.6"	224.47	112.24	8500.00
PCC	811369.302	1576071.659							
CURVE			N 16°35'01.6" W	182.69	02°00'46.8"(LT)	01°06'06.6"	182.69	91.36	5200.00
PT	811544.389	1576019.518							
LINE			N 17°35'25.0" W	5.56					
POT	811549.691	1576017.837							

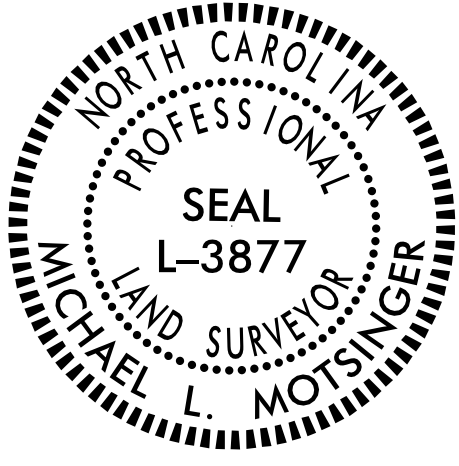


PROJECT REFERENCE NO.
BP9.R007

SHEET NO.
RW02C-1

Location and Surveys

PROJECT SURVEYOR



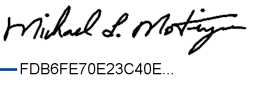
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

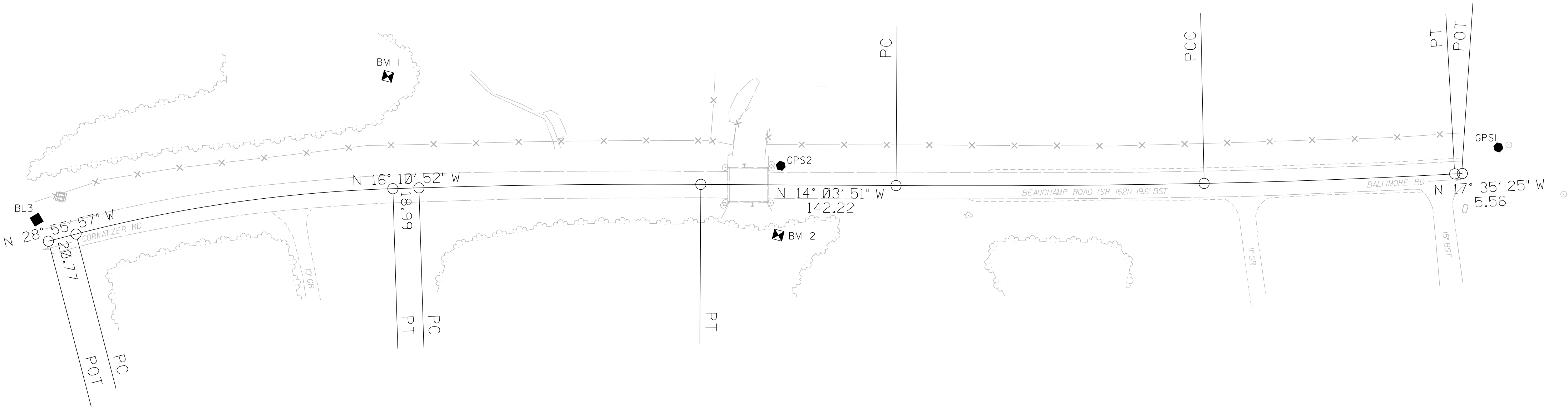
I, Michael L. Motsinger, PLS, certify that the Project Control was [performed/verified] under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
Type of GPS field procedure: [Static, OPUS, RTN]
Dates of survey: November 2017
Datum/Epoch:NAD 1983 / NA 2011
Published/Fixed-control use: [Project Control if applicable, N/A for RTN]
Localized around: GPS-2
Northing:811067.3854
Easting:1576136.0368
Combined grid factor:0.999922676
Geoid model:G12NC
Units:US Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed November 2017, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 12th day of May, 2025.

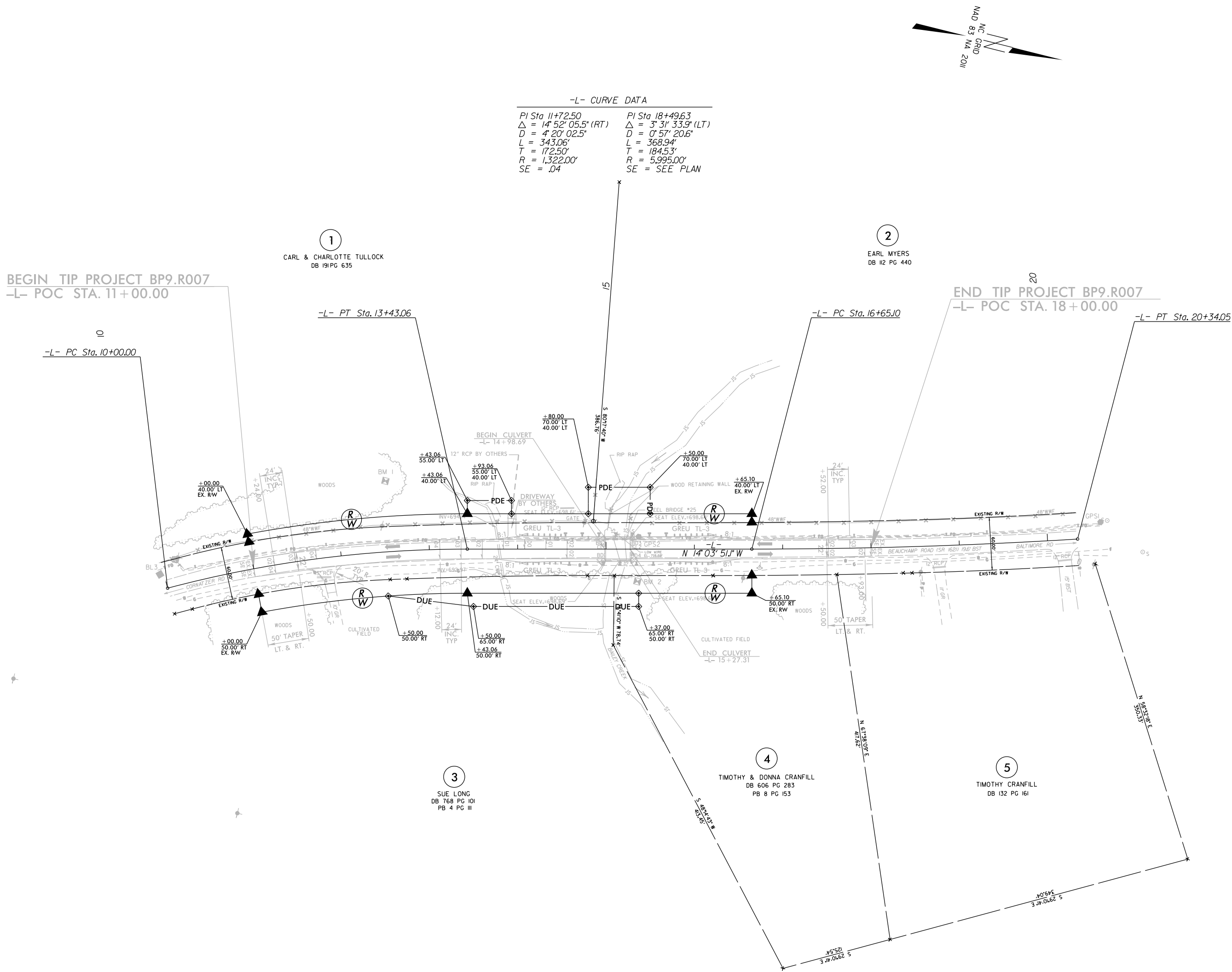
DocuSigned by:

F0B8F670E2304E
Professional Land Surveyor L-3877



- 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.

REVISIONS

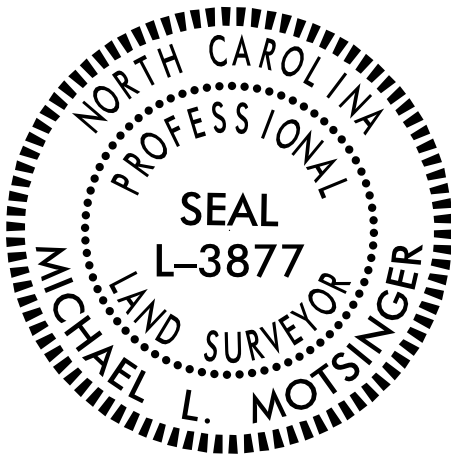
L	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC		810564.294	1576322.014							
CURVE				N 21°29'53.9" W	342.10	14°52'05.5"(RT)	04°20'02.5"	343.06	172.50	1322.00
PT		810882.590	1576196.645							
LINE				N 14°03'51.1" W	322.05					
PC		811194.982	1576118.385							
CURVE				N 15°49'38.1" W	368.88	03°31'33.9"(LT)	00°57'20.6"	368.94	184.53	5995.00
PT		811549.881	1576017.776							



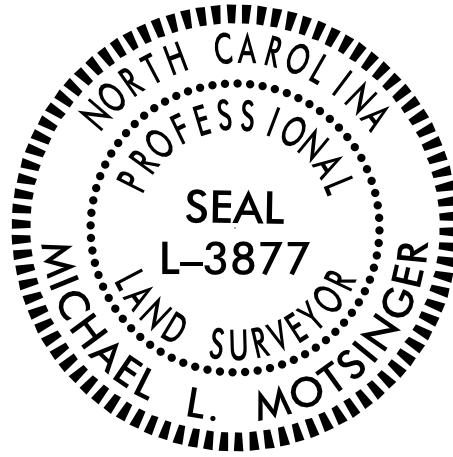
I, Michael L. Motsinger, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed May 2025, and all coordinates are based on NAD83/2011. That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 12th day of May, 2025.

DocuSigned by:
Michael L. Motsinger
FD66FE70E23C40E
Professional Land Surveyor L-3877



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	11+00.00	50.00	810674.3712	1576322.4535
L	11+00.00	29.21	810665.7167	1576303.5491
L	11+00.00	-30.79	810640.7414	1576248.9942
L	11+00.00	-40.00	810636.9083	1576240.6212
L	13+43.06	50.00	810894.7403	1576245.1462
L	13+43.06	-40.00	810872.8695	1576157.8441
L	16+65.10	50.00	811207.1329	1576166.8861
L	16+65.10	29.64	811202.1853	1576147.1369
L	16+65.10	-30.37	811187.6029	1576088.9280
L	16+65.10	-40.00	811185.2620	1576079.5839

ROW MARKER PERMANENT EASEMENT-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	12+50.00	50.00	810808.7233	1576269.9425
L	13+43.06	-55.00	810869.2244	1576143.2937
L	13+50.00	65.00	810905.1195	1576258.0096
L	13+93.06	-55.00	810917.7256	1576131.1433
L	13+93.06	-40.00	810921.3707	1576145.6936
L	14+80.00	-70.00	810998.4164	1576095.4652
L	14+80.00	-40.00	811005.7067	1576124.5659
L	15+37.00	65.00	811086.5140	1576212.5669
L	15+37.00	50.00	811082.8731	1576198.0155
L	15+50.00	-40.00	811073.6084	1576107.5552
L	15+50.00	-70.00	811066.3181	1576078.4545

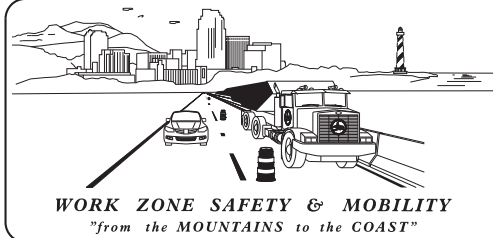
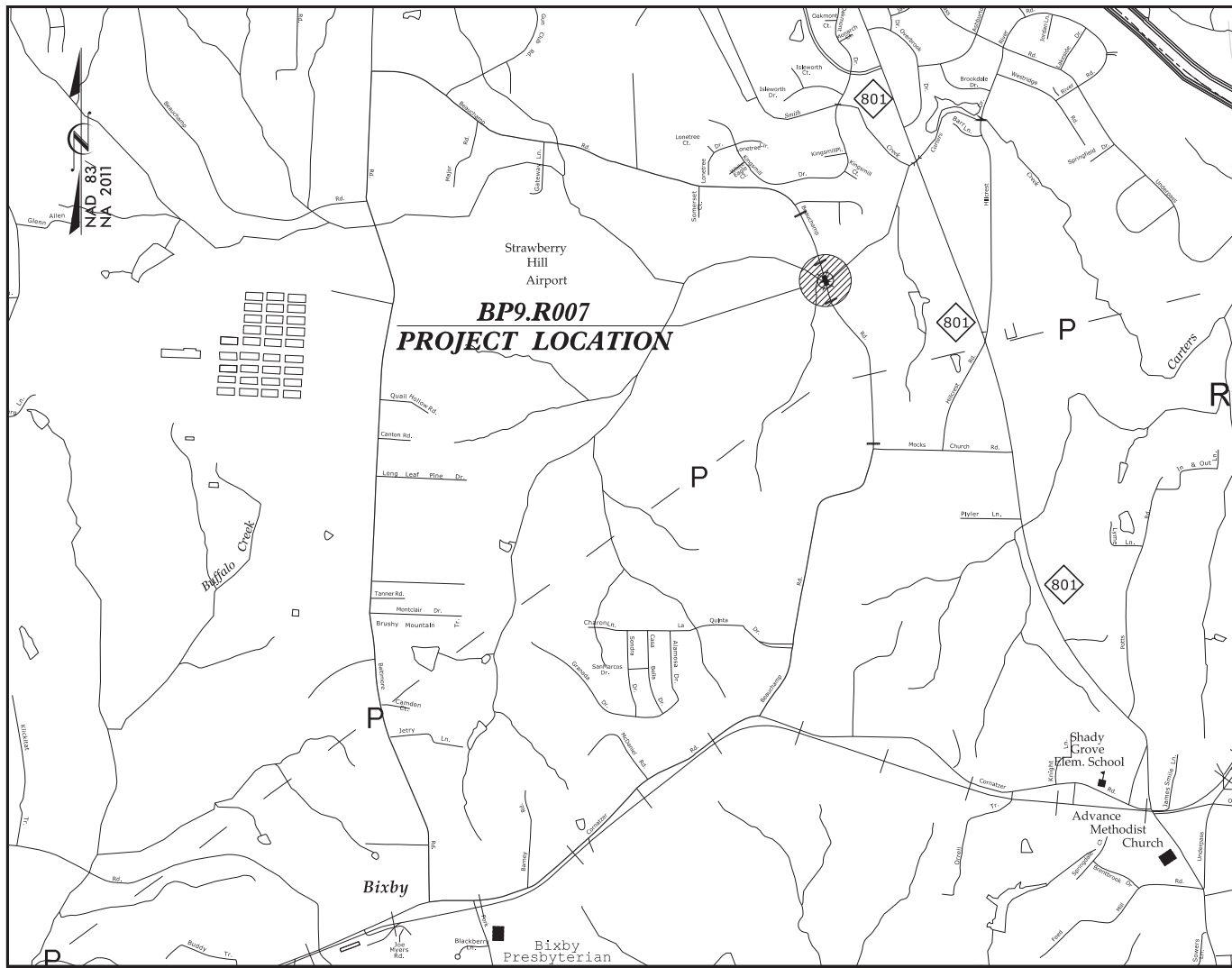
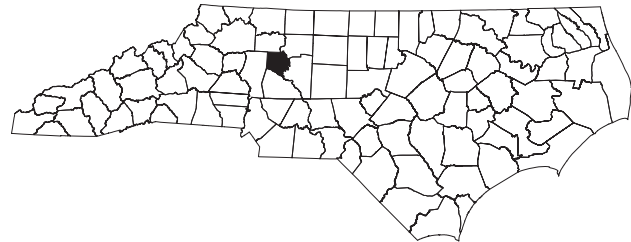
NOTES:

- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- RIGHT OF WAY MONUMENTATION ESTABLISHED ____ TO ____ .

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

DAVIE COUNTY
DIVISION 9



PLANS PREPARED BY: ATCS, INC.

BRIAN D. POST, PE
PROJECT ENGINEER

SAMANTHA TERRILL, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

JEREMY L. KEATON, PE, PLS
PROJECT ENGINEER

MEZAK TUCKER
DIVISION CONSTRUCTION ENGINEER



ATCS®

100 REGENCY FOREST DR., SUITE 130
CARY, NORTH CAROLINA 27518
919-341-9418 <http://www.atcsplc.com/>
NC LICENSE NO. P-0192
ENGINEERING | PLANNING
SURVEYING | ENVIRONMENTAL

APPROVED: _____

DATE: _____

SEAL



SHEET NO.
TMP-1

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LEGEND AND LIST OF ROADWAY STANDARD DRAWINGS
TMP-1B	TRANSPORTATION OPERATIONS PLAN: GENERAL NOTES
TMP-2	DETOUR PLANS

TIP PROJECT: BP9.R007

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS

LEGEND

GENERAL

 NORTH ARROW

TRAFFIC CONTROL DEVICES

 BARRICADE (TYPE III)

 CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

 SINGLE POST STATIONARY SIGN

PAVEMENT MARKINGS

SYMBOL	DESCRIPTION
	THERMOPLASTIC (4", 90 MIL)
TE	WHITE EDGELINE
TI	YELLOW DOUBLE CENTER LINE

I6-APR-2025 14:30
S:\Projects\009025.2020.SMU_On-Call\BP9.R007\Project\Traffic Control\TCP\7BP9R93.TMP_psh01A_test.dgn
sterfil

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 UNDESIRE

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 TEH 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 AN EDGE OF PAVEMENT 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.
- E) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 200 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

- F) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.
- G) NOTIFY DAVIE COUNTY SCHOOLS AT LEAST ONE (1) MONTH PRIOR TO ROAD CLOSURE TO ADEQUATELY REROUTE SCHOOL BUSSES.
- H) DAVIE COUNTY EMERGENCY SERVICES WILL BE CONTACTED AT LEAST ONE (1) MONTH PRIOR TO ROAD CLOSURE TO MAKE NECESSARY TEMPORARY REASSIGNMENTS TO PRIMARY RESPONSE UNITS.

SIGNING

- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J) 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.

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

TRAFFIC CONTROL DEVICES

- M) 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), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- N) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

- O) INSTALL PROPOSED PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON FINAL LAYER OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- SR 1621(BEAUCHAMP ROAD)	THERMO	N/A

- P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

- R) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.
- S) NOTIFY THE OVERSIZE/OVERWEIGHT PERMIT GROUP TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

PHASING

NOTES:

REPLACE MARKINGS AND RETURN TO THE CURRENT TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

MAINTAIN VEHICULAR ACCESS TO ALL RESIDENCES AND BUSINESSES DURING THE LIFE OF THE CONTRACT UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

COMPLETE ANY PROPOSED WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANE. THIS MAY REQUIRE A COMBINATION OF INSTALLATION OF PROPOSED PIPES, TEMPORARY PIPES, STEEL PLATES, TEMPORARY MEDIAN, AND OUTSIDE DITCHES.

PAVE PROPOSED CONSTRUCTION UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE IN ALL PHASES NTIL STATED TO INSTALL FINAL LAYER IN THE PHASING.

THE TERM RSD DENOTES "ROADWAY STANDARD DRAWINGS"

PHASE I

PRIOR TO ANY CONSTRUCTION OPERATIONS, PLACE AND COVER OFF-SITE DETOUR SIGNS AS SHOWN ON TMP-2 AND IN ACCORDANCE WITH RSD 1101.03 (SHEET 1 OF 9).

PHASE II

UNCOVER DETOUR SIGNS ON TMP-2, CLOSE -L- (SR 1621/BEAUCHAMP ROAD) TO TRAFFIC. USING FLAGGERS AS NEEDED TO MAINTAIN ACCESS TO DRIVEWAYS CONSTRUCT PROPOSED CULVERT, AND ROADWAY UP TO AND INCLUDING FINAL LAYER OF SURFACE COURSE.

PHASE III

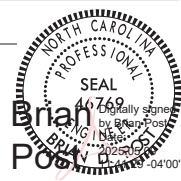
UPON COMPLETION OF CULVERT AND ROADWAY, PLACE FINAL PAVEMENT MARKING IN ACCORDANCE WITH RSD 1205.01. REMOVE BARRICADES AND DETOUR SIGNS AND OPEN -L- (SR 1621/BEAUCHAMP ROAD) TO TRAFFIC.

I6-APR-2025 14:32
S:\Projects\009025_2020_SMU_On-Call\BP9.R007\Project\Traffic Control\TCP\7BP9R93_TMP_psh0B_test.dgn
sterfil

APPROVED: _____

DATE: _____

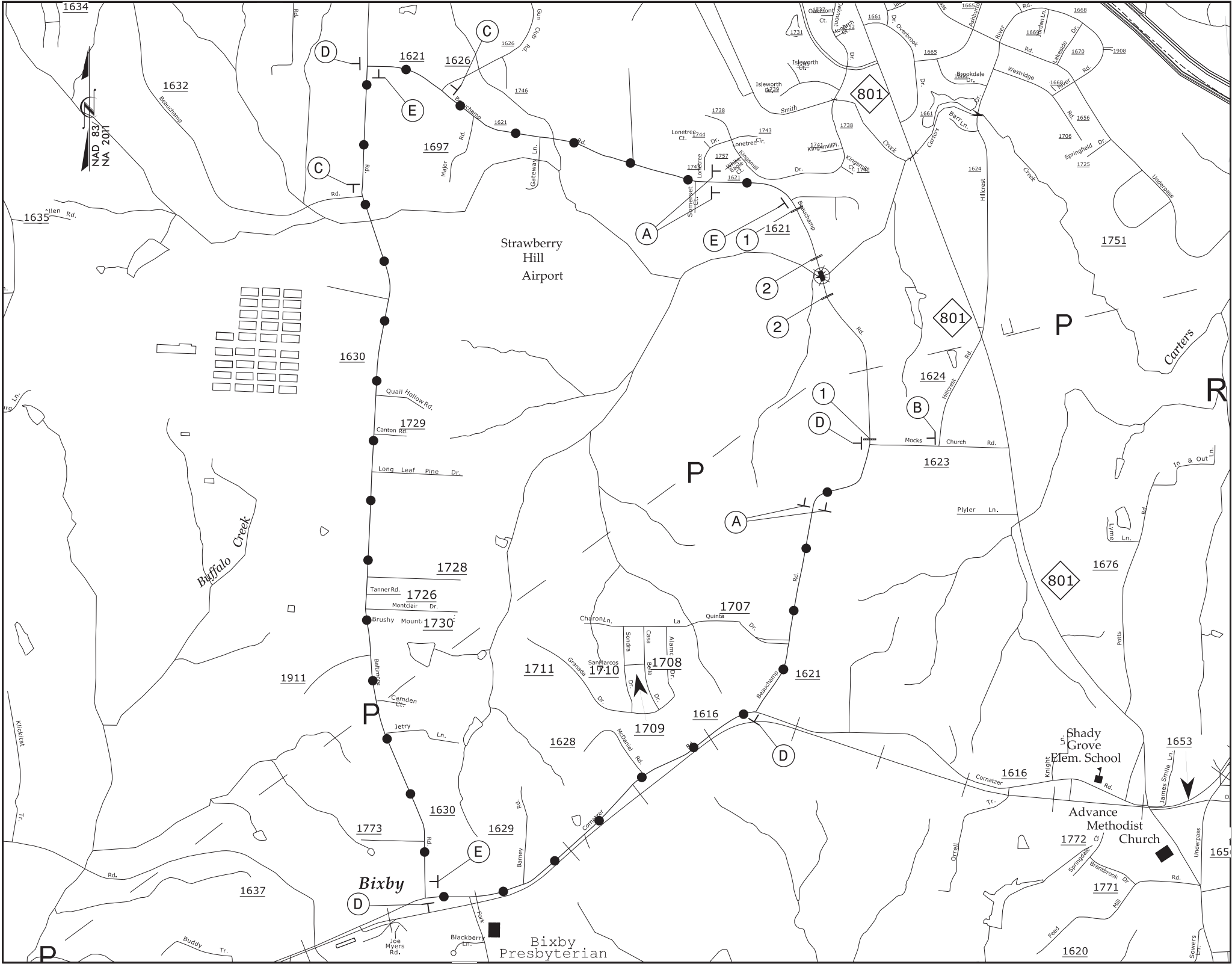
SEAL





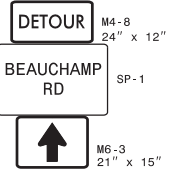
TRANSPORTATION
OPERATIONS
PLAN

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

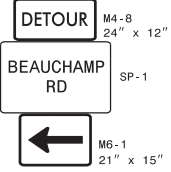


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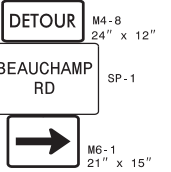
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C



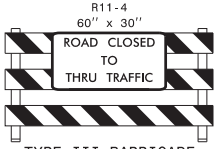
D



E

PROPOSED DETOUR

DETOUR ROUTE ● ● ● ●
DETOUR LENGTH 6.6 MILES



1



2

DETOUR ROUTE ● ● ● ●

APPROVED: _____
DATE: _____
SEAL
Brian P. [Signature]
Professional Engineer
No. 1749
Exp. 12/31/2025
04/00'

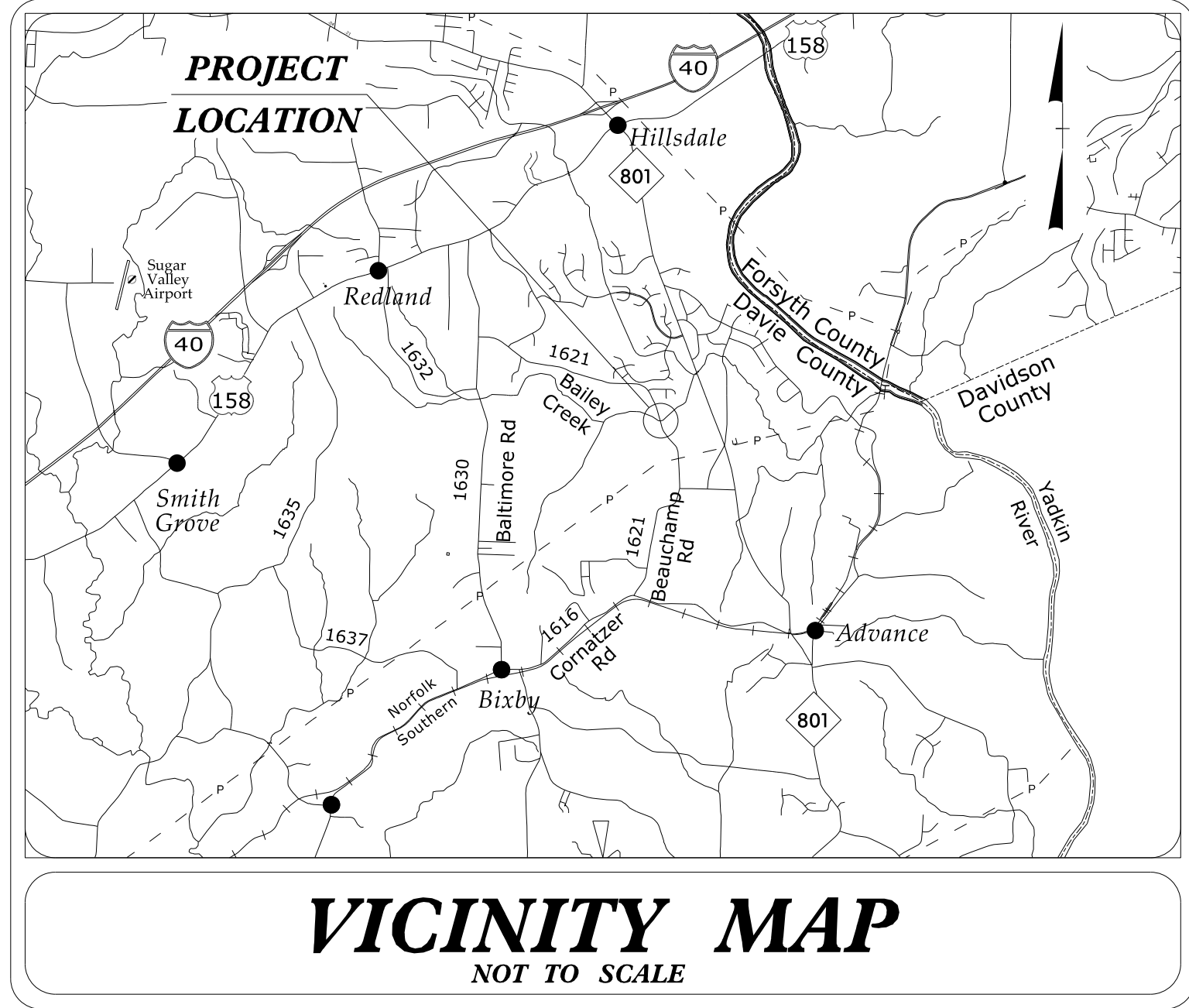


DETOUR ROUTE
-L- (BEAUCHAMP RD)
CLOSURE

ATCS® 100 REGENCY FOREST DRIVE, SUITE 100
CARY, NORTH CAROLINA 27518
919-541-0418 <https://www.atcsnc.com/>
ENGINEERING | PLANNING | SURVEYING | ENVIRONMENTAL

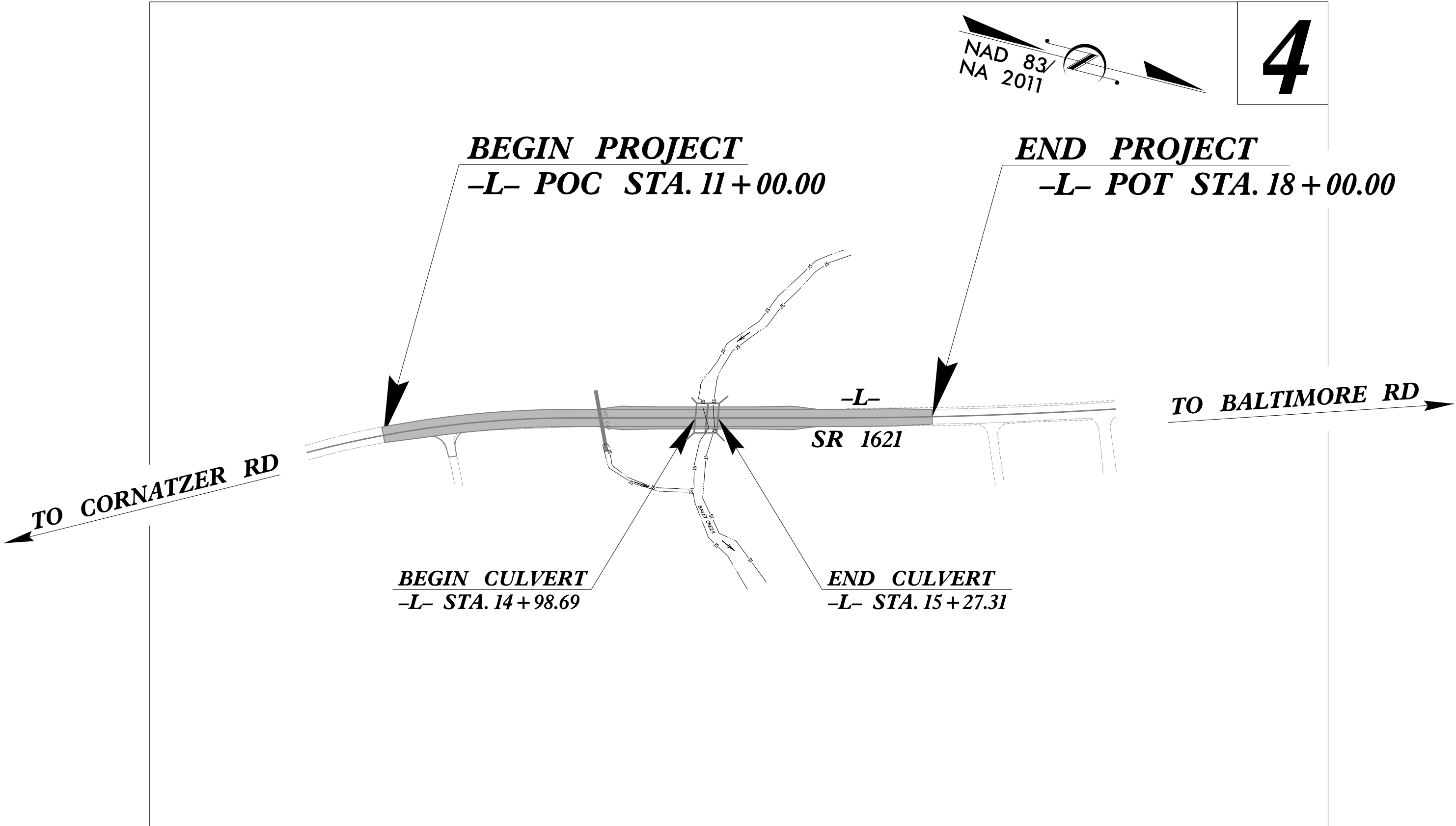
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TIP PROJECT: BP9.R007

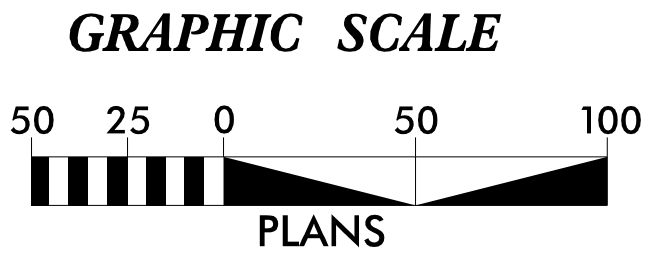


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
DAVIE COUNTY
**LOCATION: BRIDGE NO. 25 OVER BAILEY CREEK
ON SR 1621 (BEAUCHAMP ROAD)**
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

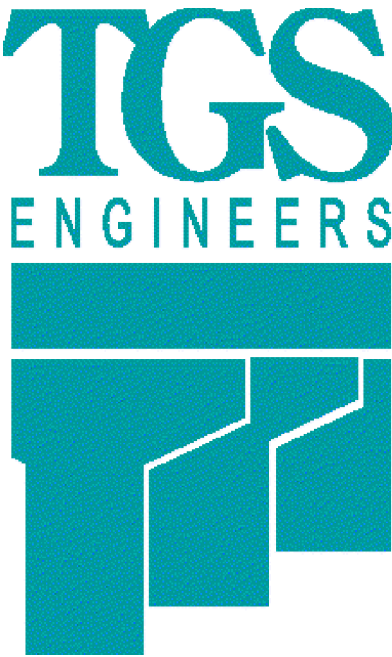
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP9.R007	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	



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



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH
THE REGULATIONS SET FORTH BY THE NCG 010000 GENERAL
STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH
CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION
OF ENERGY, MINERAL, AND LAND RESOURCES.



Prepared in the Office of:
TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603

Designed by:
Ben Henegar, PE 3564
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C.
Department of Transportation - Raleigh, N. C., dated January 2024
and the latest revision thereto are applicable to this project and by
reference hereby are considered a part of these plans.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

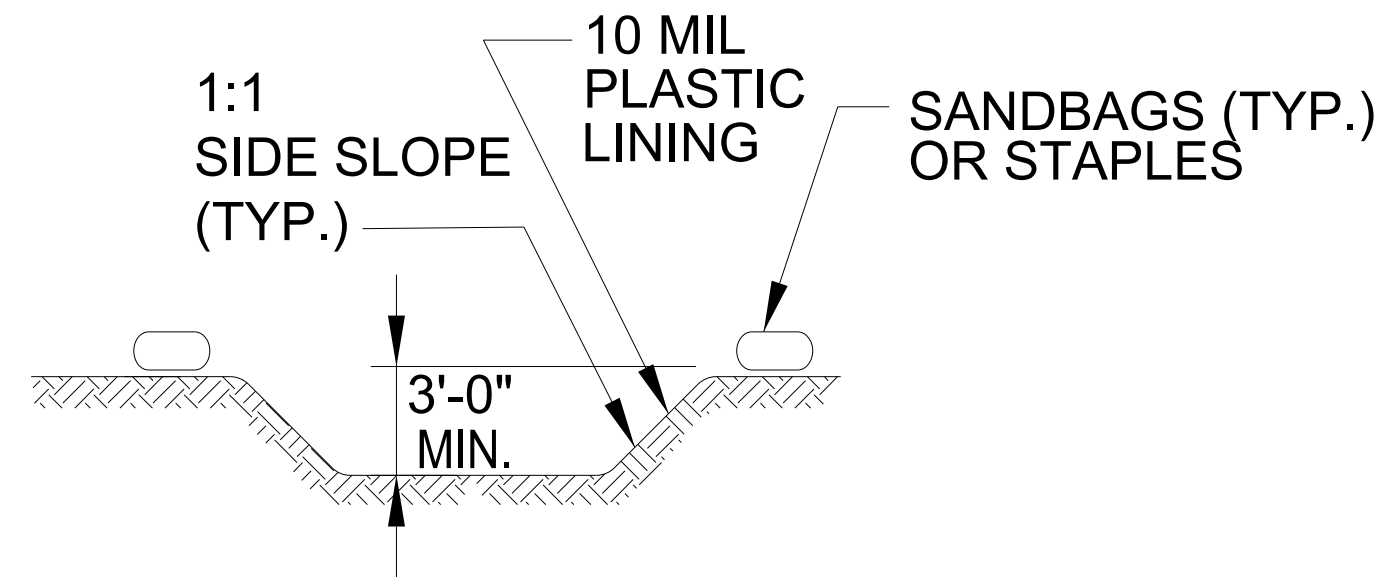
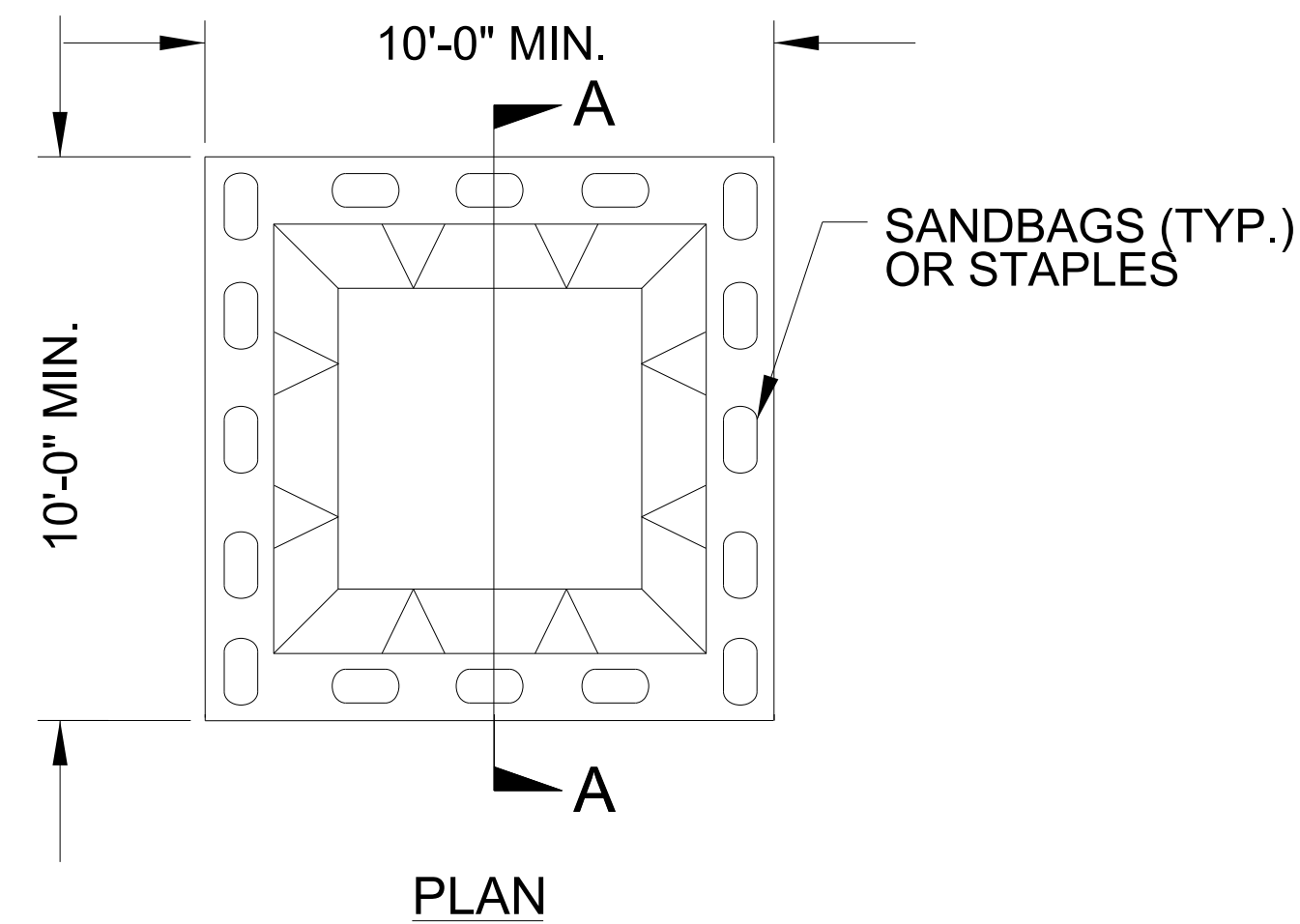
PROJECT REFERENCE NO.	SHEET NO.
BP9.R007	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol	Std. #	Description	Symbol
1605.01	Temporary Silt Fence		1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1630.02	Silt Basin Type B		1634.01	Temporary Rock Sediment Dam Type A	
1630.03	Temporary Silt Ditch		1634.02	Temporary Rock Sediment Dam Type B	
1630.04	Stilling Basin		1635.01	Rock Pipe Inlet Sediment Trap Type A	
1630.05	Temporary Diversion		1635.02	Rock Pipe Inlet Sediment Trap Type B	
1630.06	Special Stilling Basin		1636.01	Excelsior Wattle Check	
1630.07	Skimmer Basin		1636.01	Excelsior Wattle Check with Flocculant	
1630.08	Tiered Skimmer Basin		1636.01	Coir Fiber Wattle Check	
1630.09	Earthen Dam with Skimmer		1636.01	Coir Fiber Wattle Check with Flocculant	
	Infiltration Basin		1636.02	Silt Fence Excelsior Wattle Break	
	Rock Inlet Sediment Trap:			Silt Fence Coir Fiber Wattle Break	
1632.01	Type A		1636.03	Excelsior Wattle Barrier	
1632.02	Type B		1636.03	Coir Fiber Wattle Barrier	
1632.03	Type C				

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

PROJECT REFERENCE NO.	SHEET NO.
BP9.R007	EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

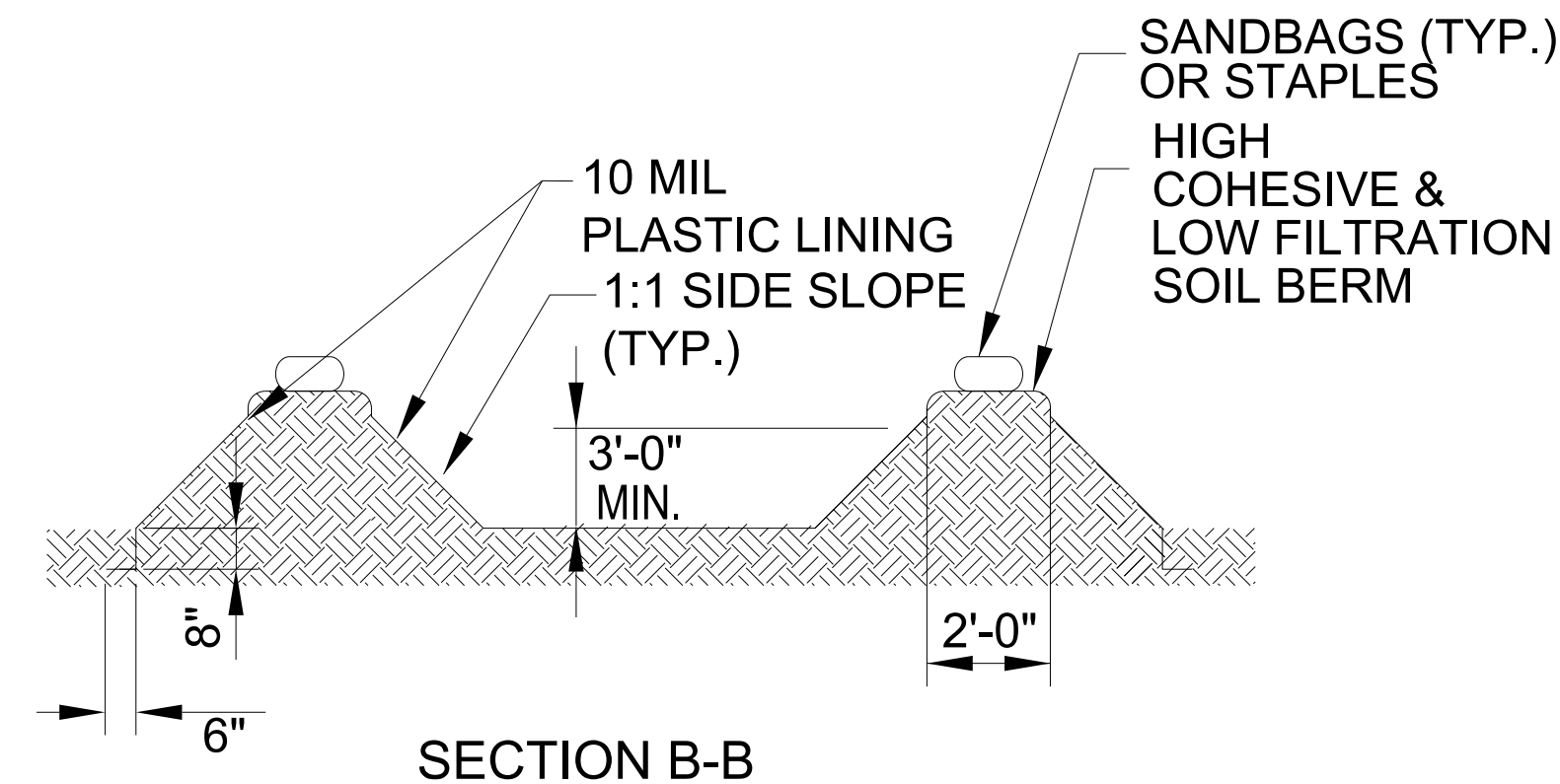
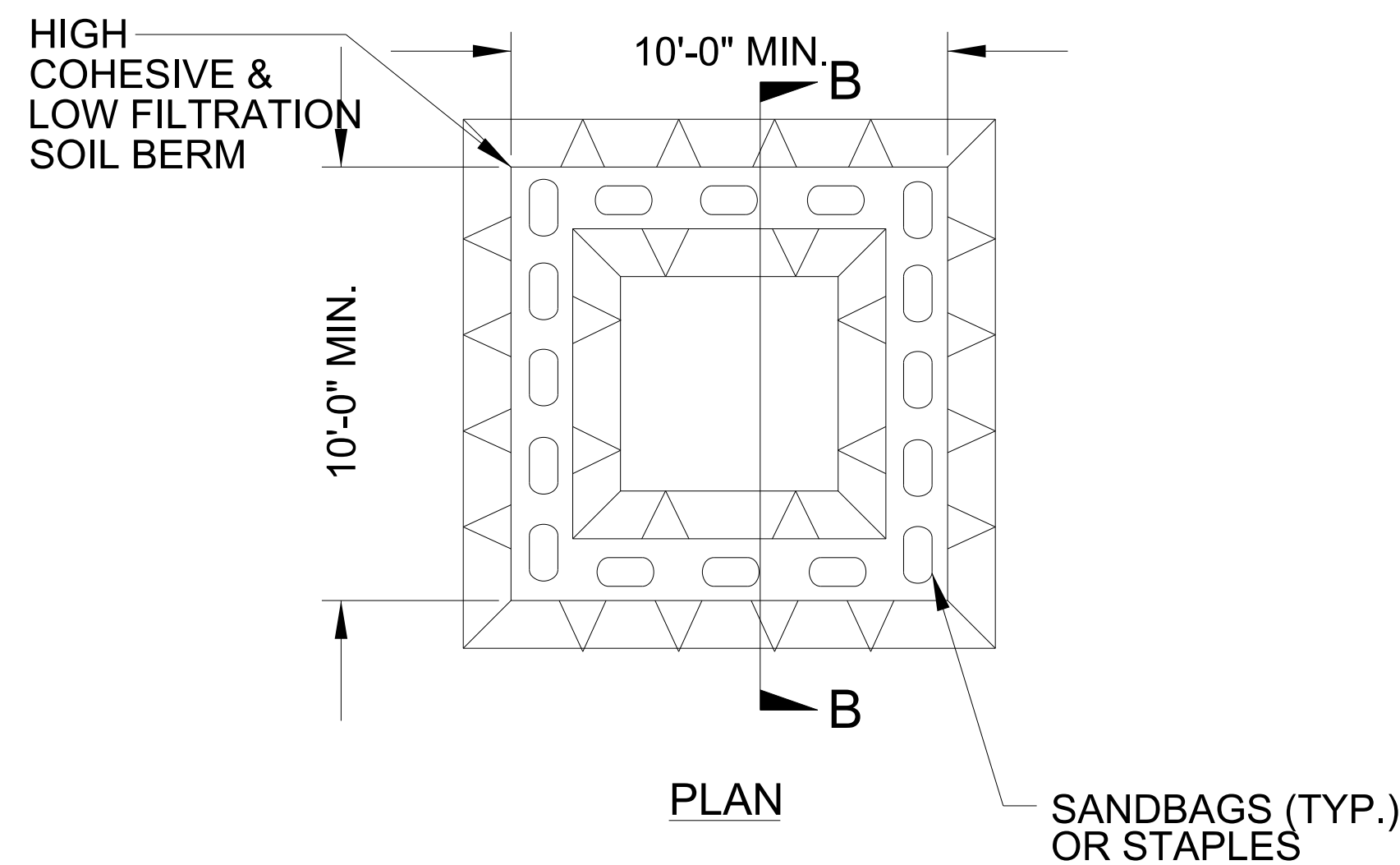


SECTION A-A

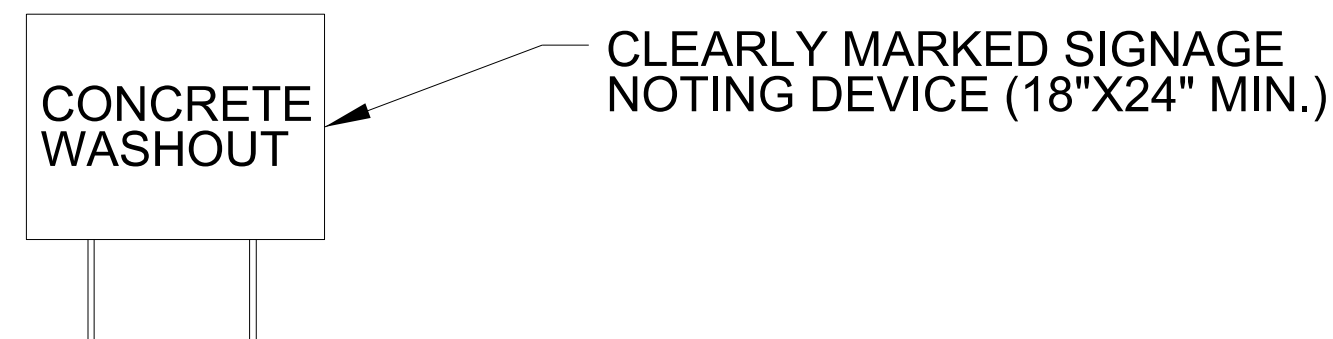


BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.



SECTION B-B



ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
BP9.R007	EC-3
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 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND HQW ZONES.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND HQW ZONES.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
BP9.R007	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

SLOPE MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12 + 50	14 + 50	RT	540
4	-L-	15 + 50	16 + 50	RT	160
4	-L-	13 + 35	16 + 25	LT	425
SUBTOTAL					1,125

MATTING FOR EROSION CONTROL TOTALS

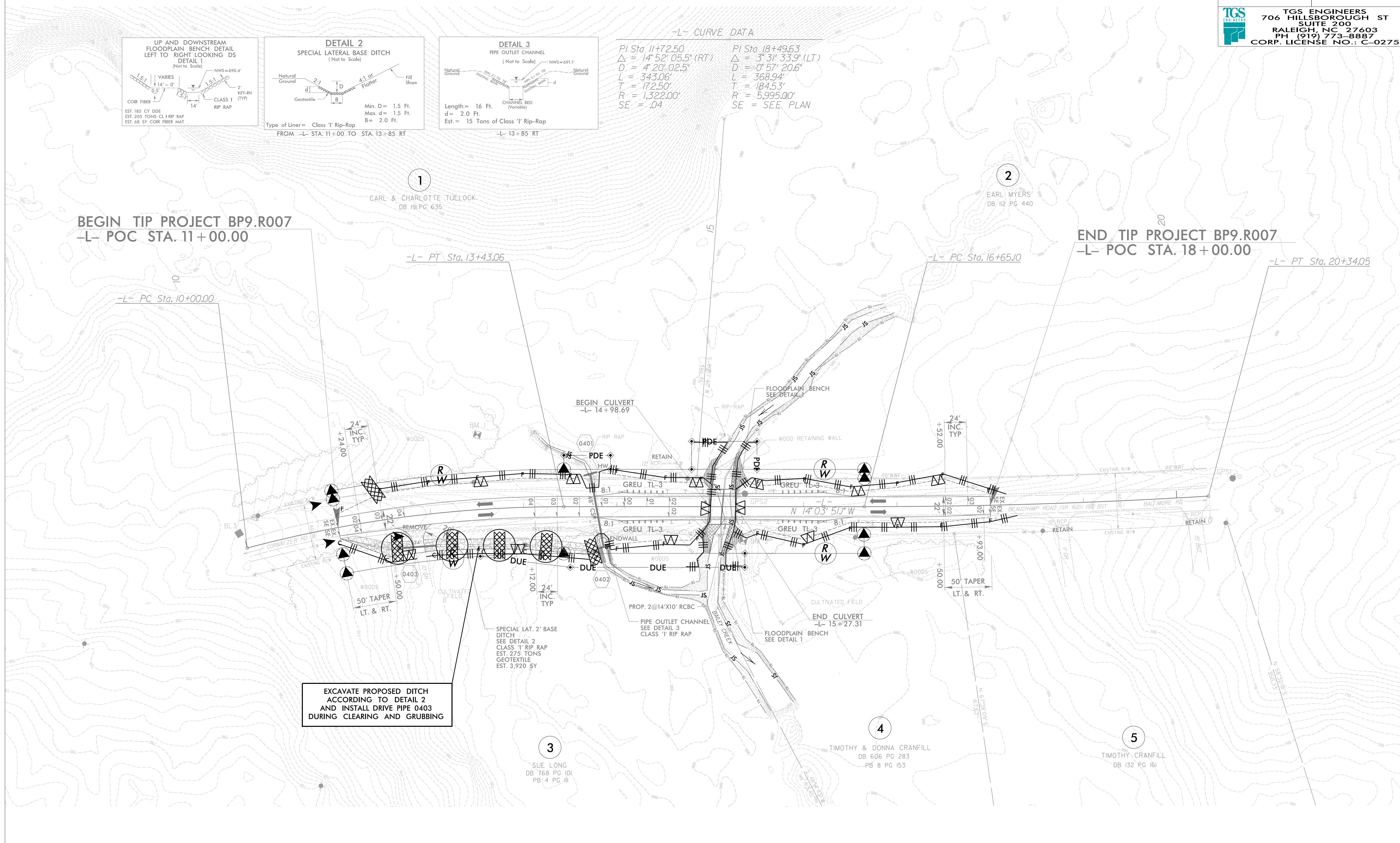
	ESTIMATE (SY)
DITCHLINE STRAW MATTING SUBTOTAL	N/A
DITCHLINE EXCELSIOR MATTING SUBTOTAL	N/A
SLOPE MATTING SUBTOTAL	1,125
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER	155
TOTAL	1,280
SAY	1,300

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL
AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT
PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
<i>BP9.R007</i>	<i>EC-4/CONST.4</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 TGS ENGINEERS 706 HILLSBOROUGH ST SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



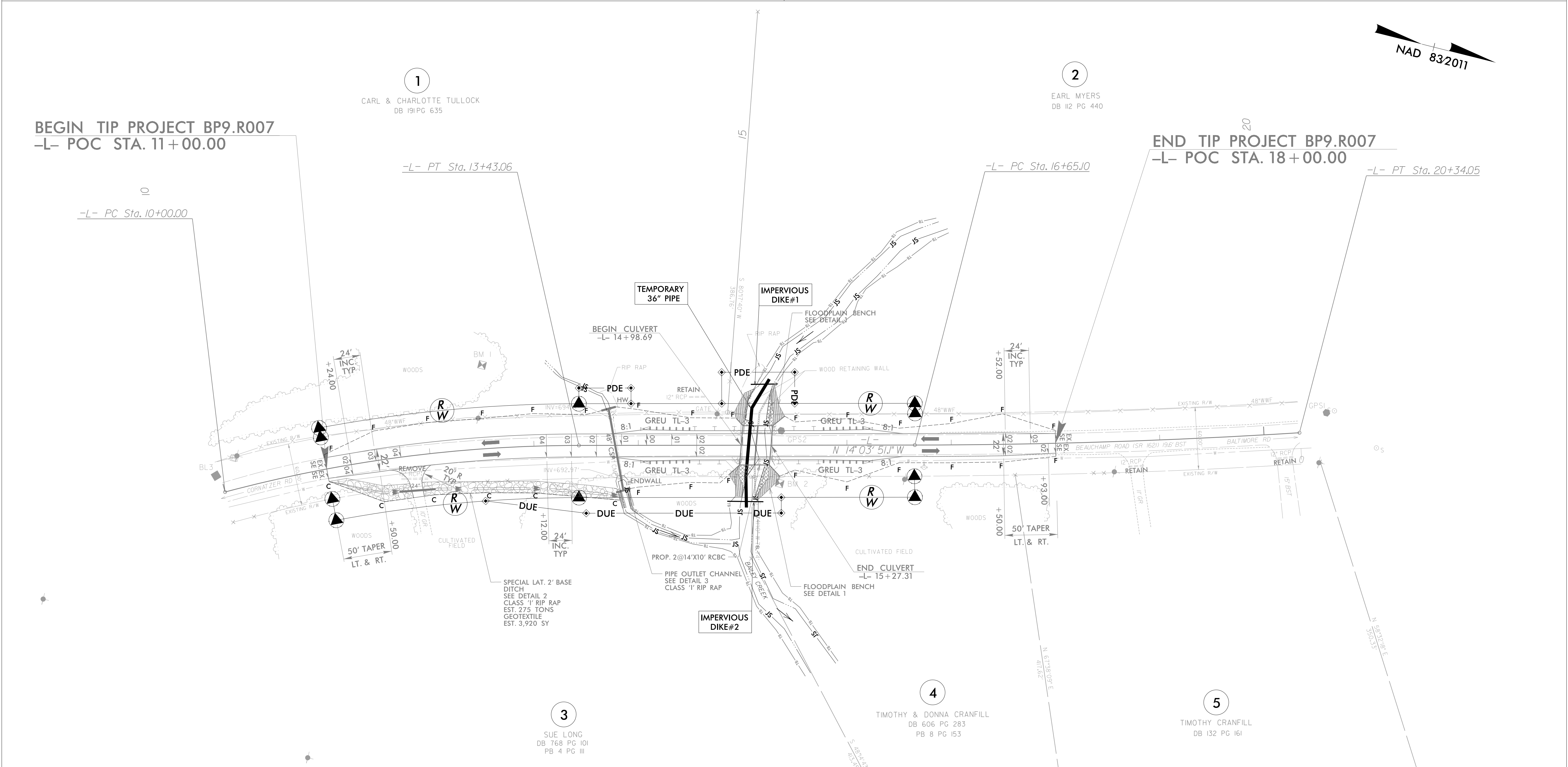
CULVERT CONSTRUCTION SEQUENCE STA. 15+13 -L-

PHASE I

1. INSTALL IMPERVIOUS DIKES #1 & #2.
2. INSTALL TEMPORARY 36" PIPE.
3. INSTALL SPECIAL STILLING BASIN(S). DEWATER CONSTRUCTION AREA INTO SPECIAL STILLING BASINS(S) AS REQUIRED.
4. REMOVE EXISTING BRIDGE AND ABUTMENTS.

PHASE II

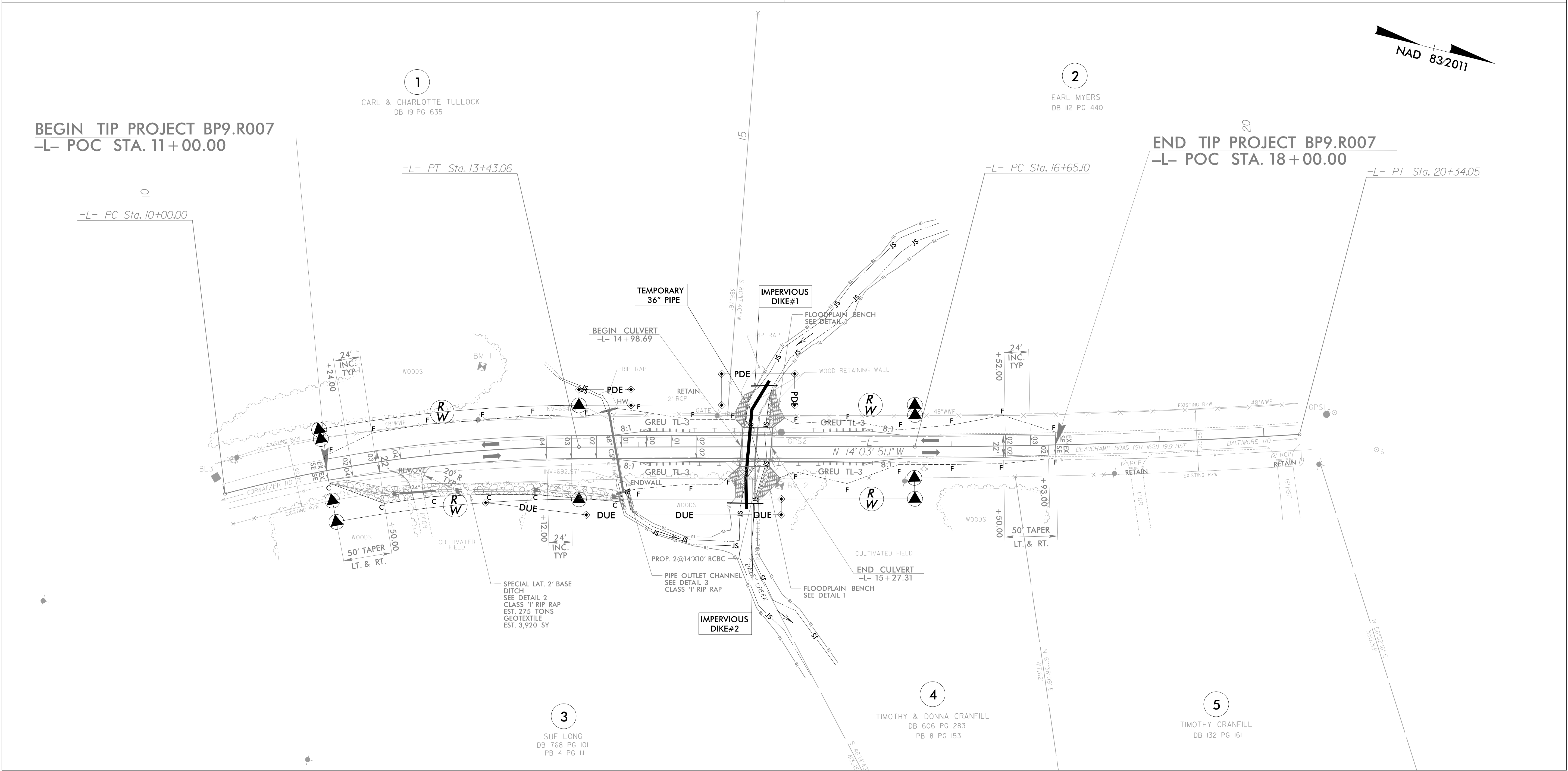
1. CONSTRUCT PROPOSED 2 @ 14' X 10' RCBC.
2. CONSTRUCT PROPOSED UPSTREAM FLOODPLAIN BENCH.
3. CONSTRUCT PROPOSED DOWNSTREAM FLOODPLAIN BENCH.
4. DEWATER CONSTRUCTION AREA INTO SPECIAL STILLING BASINS(S) AS REQUIRED.



CULVERT CONSTRUCTION SEQUENCE STA. 15+13 -L-

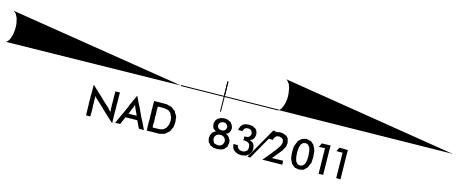
PHASE III

1. REMOVE TEMPORARY 36" PIPE.
2. REMOVE IMPERVIOUS DIKES #1 & #2.
3. REMOVE SPECIAL STILLING BASIN(S).
4. ALLOW FLOW THROUGH NEWLY CONSTRUCTED CULVERT.
5. CONSTRUCT REMAINDER OF PROPOSED ROADWAY AND DRAINAGE IMPROVEMENTS.

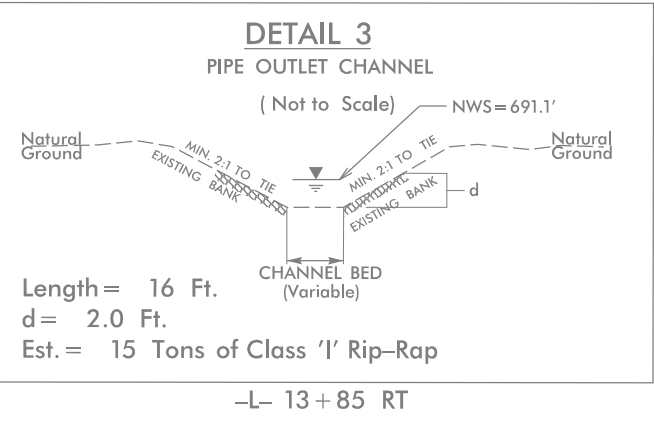
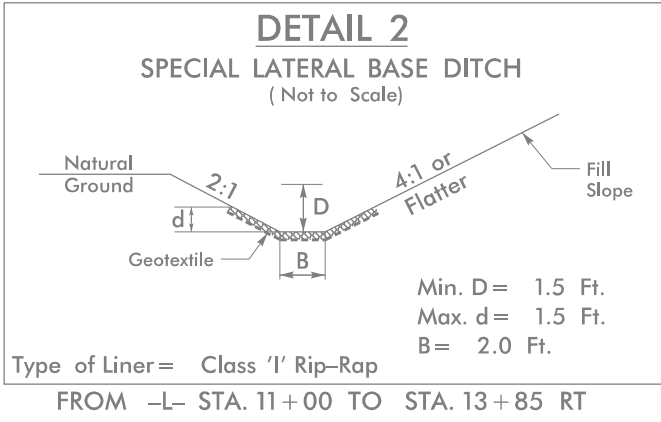
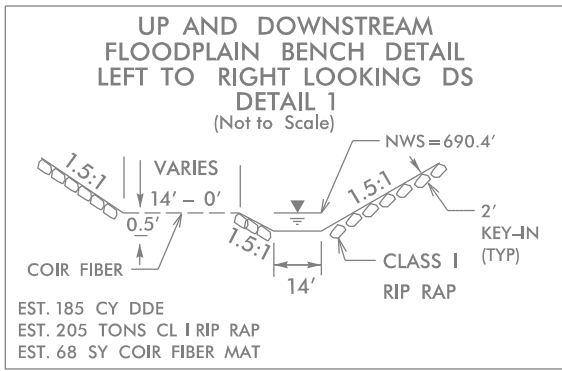


NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS
STILLING BASIN WHERE APPLICABLE.

Davie County
Bridge #290025



PROJECT REFERENCE NO.		SHEET NO.
BP9.R007		EC-5/CONST.4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
</		

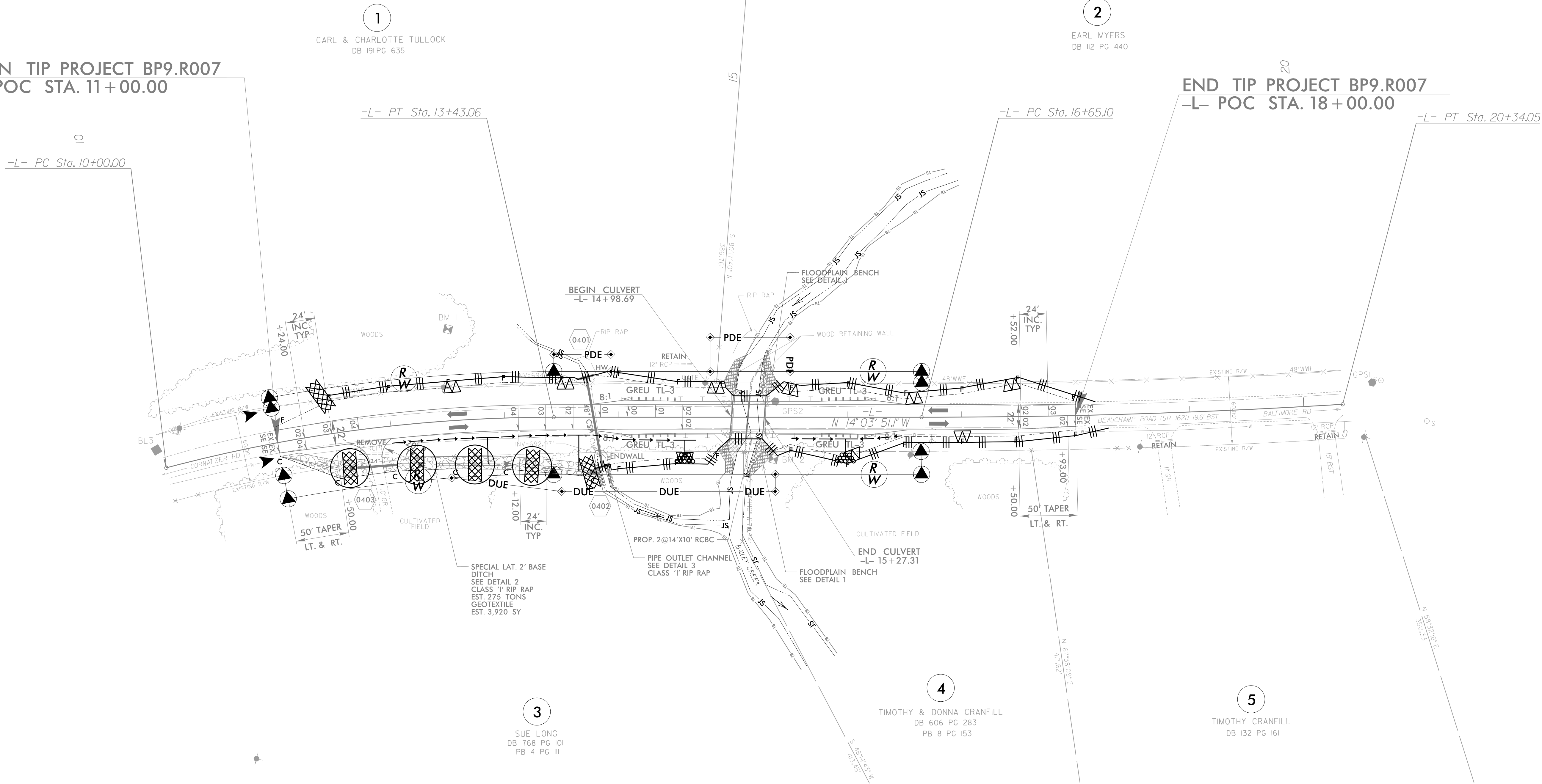


-L- CURVE DATA

PI Sta 11+72.50 $\Delta = 14^\circ 52' 05.5''$ (RT) $D = 4' 20' 02.5''$ $L = 343.06'$ $T = 172.50'$ $R = 1,322.00'$ $SE = .04$	PI Sta 18+49.63 $\Delta = 3^\circ 31' 33.9''$ (LT) $D = 0' 57' 20.6''$ $L = 368.94'$ $T = 184.53'$ $R = 5,995.00'$ $SE = \text{SEE PLAN}$
--	---

BEGIN TIP PROJECT BP9.R007
-L- POC STA. 11+00.00

END TIP PROJECT BP9.R007
-L- POC STA. 18+00.00



07/13/23
C:\cod_200\202152 Bchomp DOT Wtr\17BP9R93 UC-1 Title 23_08
USER: GRULLARD

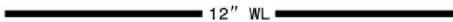
<u>Daniel R. Dagenhart</u>	DIV. BRIDGE PROGRAM MANGER
<u>Fred D. Haith</u>	DIV. PLANNING ENGINEER
<u>Josh McMahon</u>	DIV. SENIOR UTILITY COORDINATOR

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ 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 (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

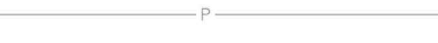
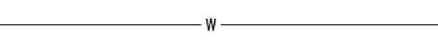
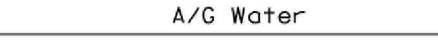
PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan 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	
End of Information	

*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	
*Underground Water Line	
Aboveground Water Line	
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	
*Underground SS Forced Main Line	
Underground Unknown Utility Line	
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	

*For Existing Utilities

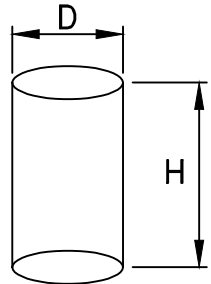
Utility Line Drawn from Record (Type as Shown)

Designated Utility Line (Type as Shown)

UTILITY CONSTRUCTION

WATER MAIN GENERAL NOTES:

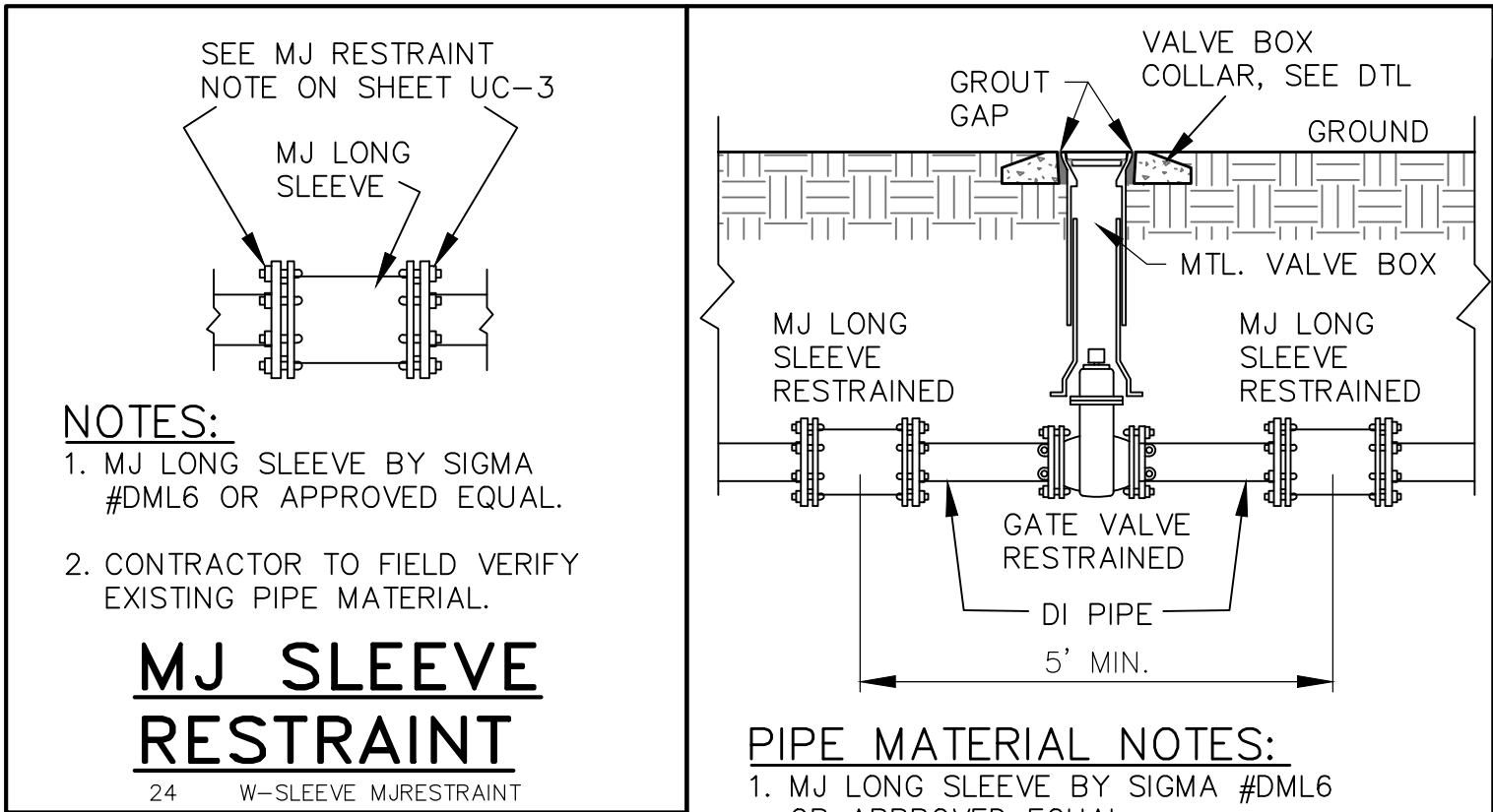
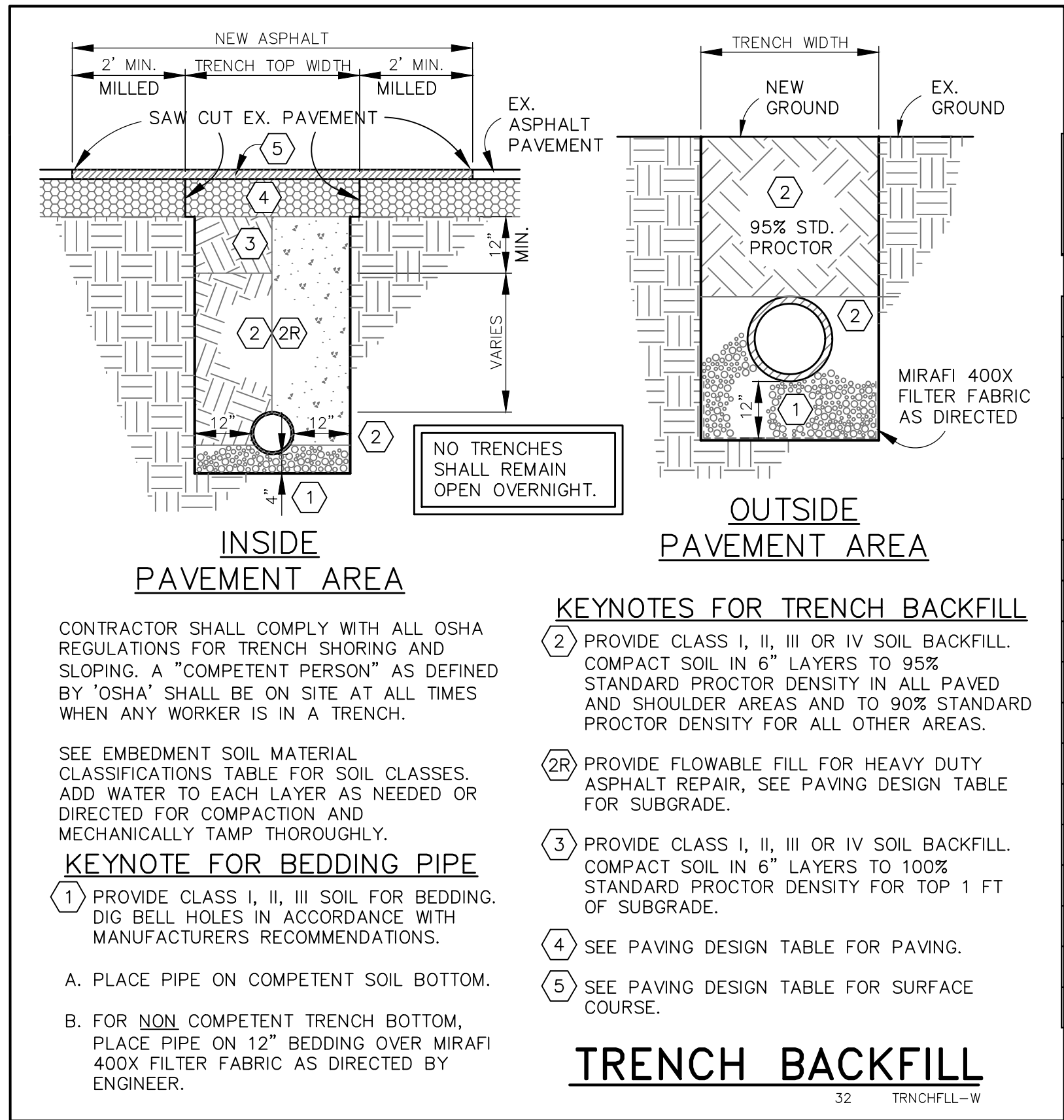
- STANDARD WATER MAIN SHALL BE DR14 305 PSI C900 PVC WITH DUCTILE IRON FITTINGS OR CEMENT LINED ASPHALTIC COATED DUCTILE IRON FOR PUSH CLASS 50 AND MJ CLASS 51.
- NC DENR PER SECTION .0904 REQUIRES PVC WATER MAIN TO HAVE 30" MINIMUM GROUND COVER.
- NC DOT REQUIRES 36" MINIMUM COVER IN ROADWAY AREA.
- DUCTILE IRON PIPE SHALL BE USED IF WATER MAIN DOES NOT MEET OR EXCEED THE FOLLOWING SEPARATION:
 - 18" VERTICAL ABOVE CROSSING STORM OR SANITARY SEWER PIPE.
 - 10" HORIZONTAL SEPARATION FROM PARALLEL SEWER PIPE.
 - 10" HORIZONTAL FROM STREAM, LAKE OR WATER IMPOUNDMENTS.
- CENTER ONE 20' SECTION OF DUCTILE IRON PIPE AT ALL CULVERT PIPE CROSSINGS. MAINTAIN 18" VERTICAL CLEARANCE BETWEEN NEW WATER LINE AND EXISTING PIPES.
- PROVIDE A TRACER WIRE ABOVE THE PIPE. THE TRACER WIRE SHALL
 - BE SOLID NO.12 COPPER WITH 30 MILS BLUE HDPE INSULATION.
 - BE FASTENED AT 10 FT INTERVALS TO THE PIPE WITH ZIP TIES.
 - HAVE CONTINUOUS ELECTRICAL CONNECTION.
- PROVIDE A CONTINUOUS WARNING TAPE 12" ABOVE THE PIPE.
- DISINFECT, FLUSH AND PRESSURE TEST WATER MAIN UNDER UTILITY INSPECTION AS FOLLOWS:
 - DISINFECT SYSTEM BY MAINTAINING DISINFECTANT AT 50 PPM IN SYSTEMS FOR 24 HOURS.
 - FLUSH SYSTEM THOROUGHLY TO 0 PPM, TAKE SAMPLE FROM FLUSHED SYSTEM AND SEND TO LAB FOR BACTERIOLOGICAL TEST.
 - PRESSURE TEST THE SYSTEM AT 175 PSI OR GREATER. MAINTAIN FOR AT LEAST 3 HOURS. ADD SUFFICIENT WATER TO BRING BACK TO STARTING PRESSURE. WATER ADDED SHALL NOT EXCEED THE GPH/1000 FT OF LINE TESTED PER THE TABLE. PRESSURE TESTING MUST BE OBSERVED BY THE A UTILITY REPRESENTATIVE AND DOCUMENTED IN THE CONSTRUCTION RECORDS BY THE CONTRACTOR.



Pipe Dia. In.	Allowable Leakage Gal/1000 ft			Gals of Water Added for D & H
	20'L pipe gal/hr	2 hrs	3 hrs	
4	0.33	0.66	0.99	inches
6	0.5	1.00	1.50	.0034 x D*(H)
8	0.67	1.34	2.01	feet
12	1	2.00	3.00	5.875 x D*(H)

SUPPLEMENTAL SPECIFICATIONS

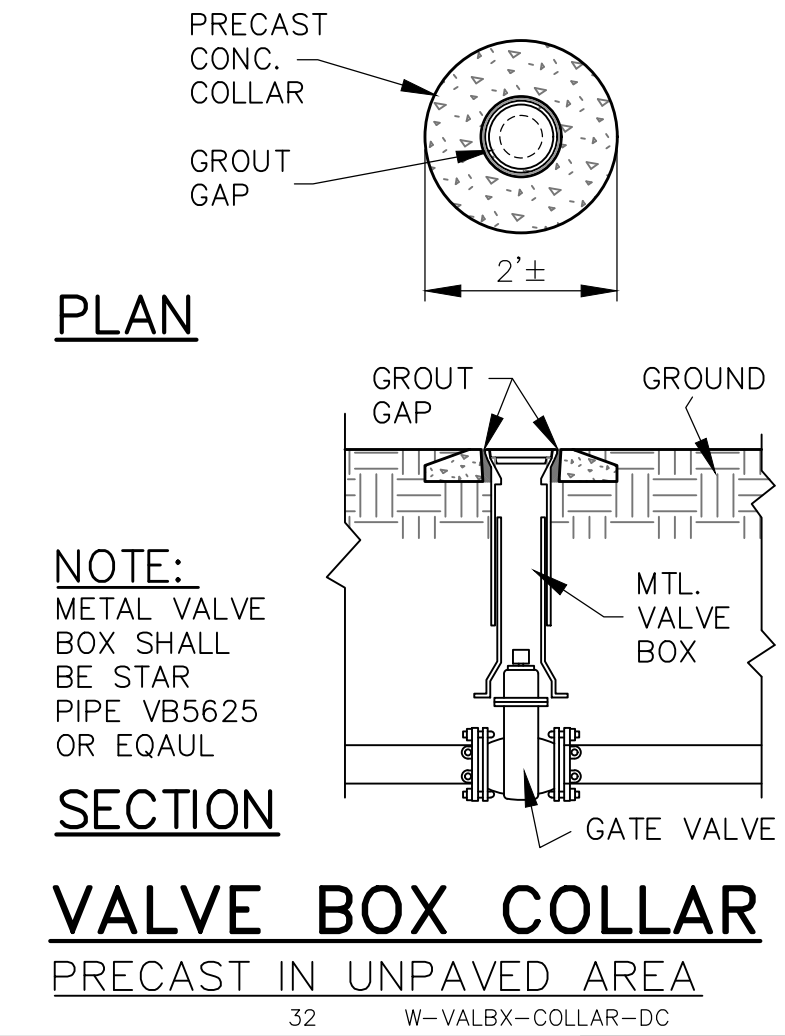
- THE FOLLOWING SPECIFICATIONS SHALL APPLY TO THE DETAILS PROVIDED BY DAVIE COUNTY.
- WATER DISTRIBUTION MATERIALS MUST BE MANUFACTURED TO AND MEET THE APPROPRIATE AWWA STANDARDS, SECTION C OR ANSI/NSF STANDARD 61, DRINKING WATER SYSTEM COMPONENTS.
 - PVC PIPES AND FITTINGS SHALL MEET THE LATEST AWWA C900 STANDARDS.
 - DUCTILE IRON PIPE & APPURTENANCES SHALL MEET, BASED ON DEVICE, THE LATEST AWWA C100 SERIES STANDARDS.
 - FIRE HYDRANTS SHALL MEET THE LATEST AWWA C502 STANDARDS.
 - GATE VALVES SHALL MEET THE LATEST AWWA C509 STANDARDS.
 - METERS MUST SHALL THE LATEST AWWA C700 STANDARDS.
 - SERVICE CONNECTIONS SHALL MEET THE LATEST AWWA C800 STANDARDS.
 - INSTALLATION OF PVC PIPES AND FITTINGS SHALL MEET THE LATEST AWWA C605 STANDARDS.
 - INSTALLATION OF DUCTILE IRON PIPE AND APPURTENANCES SHALL MEET THE LATEST AWWA C600 STANDARDS.
 - NEW WATER MAINS SHALL BE DISINFECTED AS OUTLINED IN RULE .1001 AND RULE .1003.
 - HYDROSTATIC PRESSURE TESTING SHALL BE COMPLETED ON ANY PRESSURE PIPES CARRYING LIQUIDS AND BE COMPLETED PER THE LATEST AWWA C600 OR AWWA C605 STANDARDS.
 - AFTER DISINFECTION, WATER STORAGE OR DISTRIBUTION FACILITIES SHALL NOT BE PLACED INTO SERVICE UNTIL BACTERIOLOGICAL TEST RESULTS OF REPRESENTATIVE WATER SAMPLES SHALL BE ANALYZED BY A STATE CERTIFIED LABORATORY PER RULE .1001.



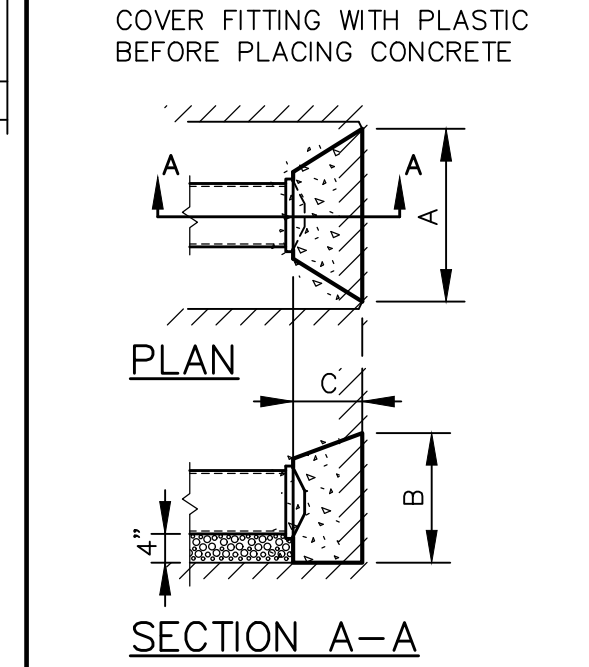
PIPE MATERIAL NOTES:

- MJ LONG SLEEVE BY SIGMA #DML6 OR APPROVED EQUAL.
- CONTRACTOR TO FIELD VERIFY EXISTING PIPE MATERIAL.

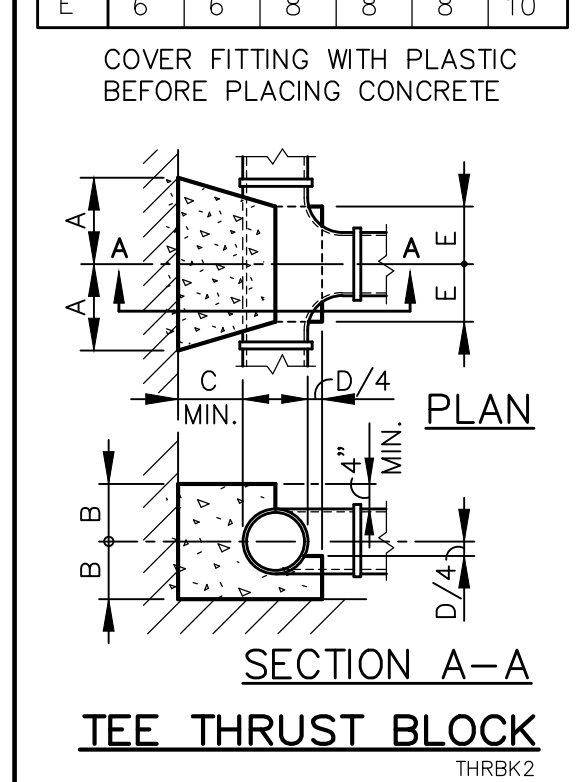
GATE VALVE CUT-IN



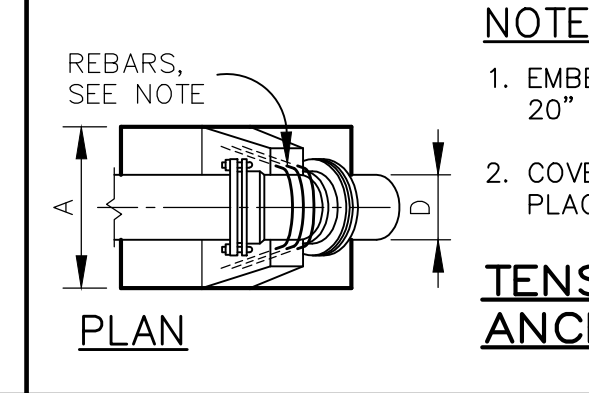
DIM	MIN DIM FOR PIPE DIA(D)Ø					
	2-4"	6"	8"	10"	12"	16"
A	19"	19"	24"	28"	35"	44"
B	15"	15"	18"	21"	25"	33"
C	6"	6"	8"	8"	10"	12"



DIM	MIN DIM FOR PIPE DIA(D)Ø					
	2-4"	6"	8"	10"	12"	16"
A	6"	6"	8"	12"	12"	16"
B	8"	8"	10"	12"	15"	20"
C	8"	8"	9"	10"	12"	14"
E	6"	6"	8"	8"	8"	10"



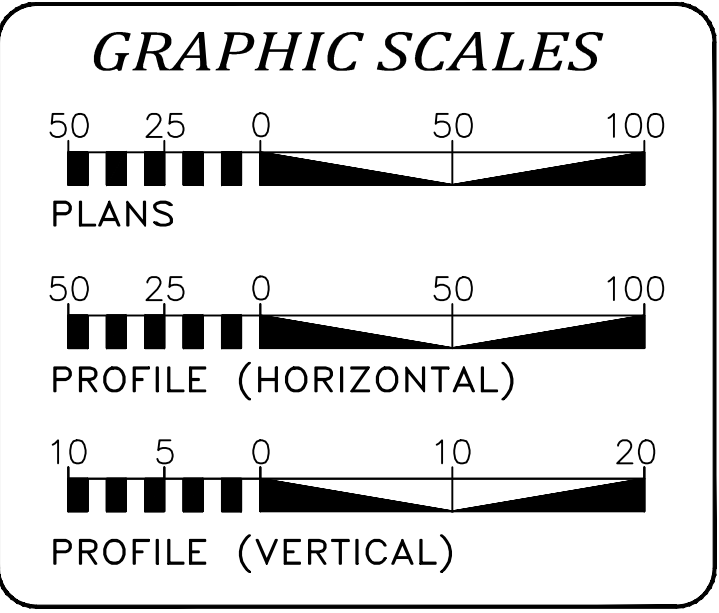
BEND DEG	DIM	MIN DIM FOR PIPE DIA(D)Ø					
		2-4"	6"	8"	10"	12"	16"
1/32	A	16"	18"	18"	17"	36"	42"
11 1/4	B	15"	15"	21"	15"	24"	24"
	C	21"	24"	30"	33"	36"	48"
1/16	A	20"	24"	40"	44"	48"	52"
22 1/2	B	21"	21"	27"	30"	30"	30"
	C	27"	30"	32"	46"	48"	66"
1/8	A	24"	30"	36"	48"	54"	62"
45	B	30"	30"	33"	36"	42"	48"
	C	30"	36"	48"	54"	57"	78"



BEND DEG	DIM	MIN DIM FOR PIPE DIA(D)Ø					
		2-4"	6"	8"	10"	12"	16"
1/32	A	6"	6"	8"	10"	12"	16"
11 1/4	B	7"	7"	8"	9"	10"	12"
	C	7"	7"	7"	8"	8"	9"
1/16	A	9"	9"	12"	18"	21"	27"
22 1/2	B	7"	7"	7"	8"	10"	12"
	C	8"	8"	9"	10"	11"	14"
1/8	A	15"	15"	20"	25"	30"	40"
45	B	7"	7"	8"	9"	11"	15"
	C	8"	8"	9"	10"	11"	15"
1/4	A	18"	18"	24"	31"	36"	49"
90	B	8"	8"	12"	14"	16"	21"
	C	9"	9"	10"	11"	12"	16"

COMPRESSION THRUST BLOCKS AT BENDS

THRKBK3



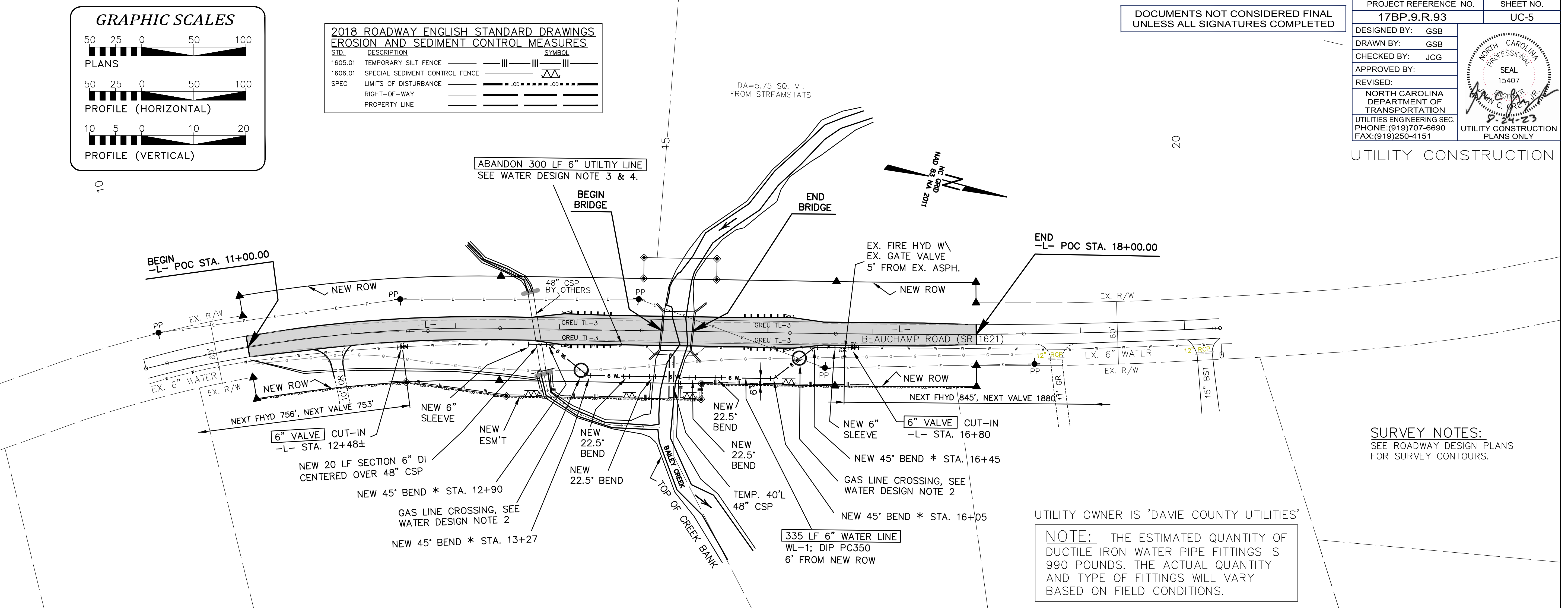
2018 ROADWAY ENGLISH STANDARD DRAWINGS
EROSION AND SEDIMENT CONTROL MEASURES

STD.	DESCRIPTION	SYMBOL
1605.01	TEMPORARY SILT FENCE	
1606.01	SPECIAL SEDIMENT CONTROL FENCE	Δ Δ Δ
SPEC	LIMITS OF DISTURBANCE	--- L&D --- L&D ---
	RIGHT-OF-WAY	---
	PROPERTY LINE	---

DOCUMENTS NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO. 17BP.9.R.93		SHEET NO. UC-5
DESIGNED BY:	GSB	
DRAWN BY:	GSB	
CHECKED BY:	JCG	
APPROVED BY:		
REVISED:		
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		
UTILITY CONSTRUCTION PLANS ONLY		

9-24-23



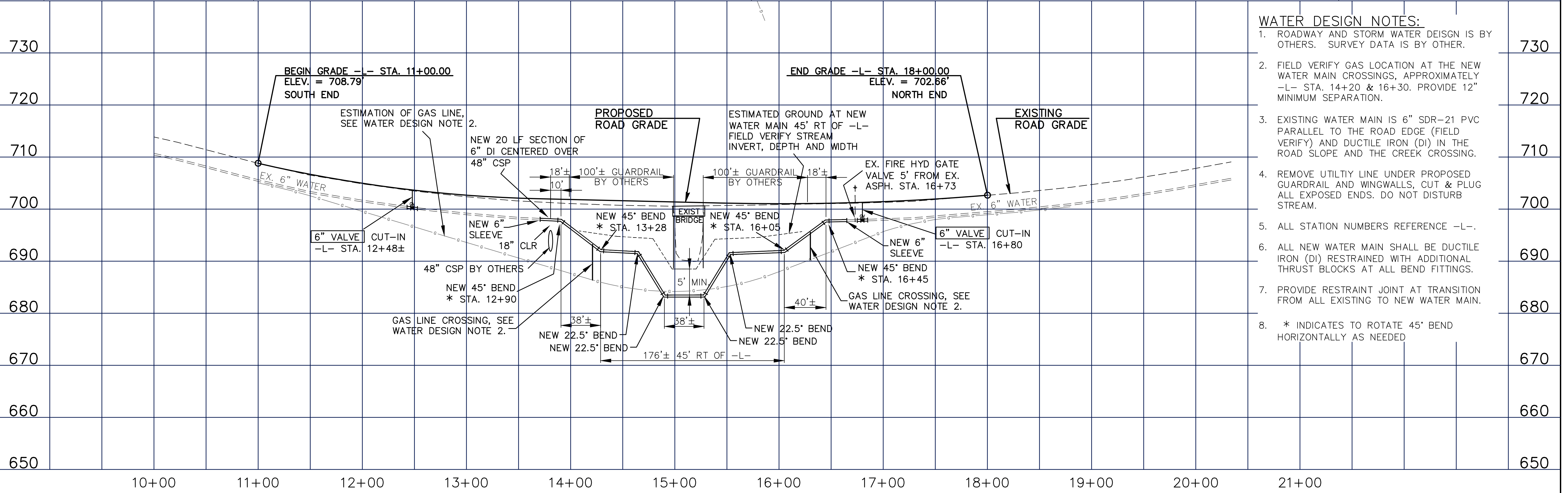
SURVEY NOTES:
SEE ROADWAY DESIGN PLANS
FOR SURVEY CONTOURS.

UTILITY OWNER IS 'DAVIE COUNTY UTILITIES'

NOTE: THE ESTIMATED QUANTITY OF
DUCTILE IRON WATER PIPE FITTINGS IS
990 POUNDS. THE ACTUAL QUANTITY
AND TYPE OF FITTINGS WILL VARY
BASED ON FIELD CONDITIONS.

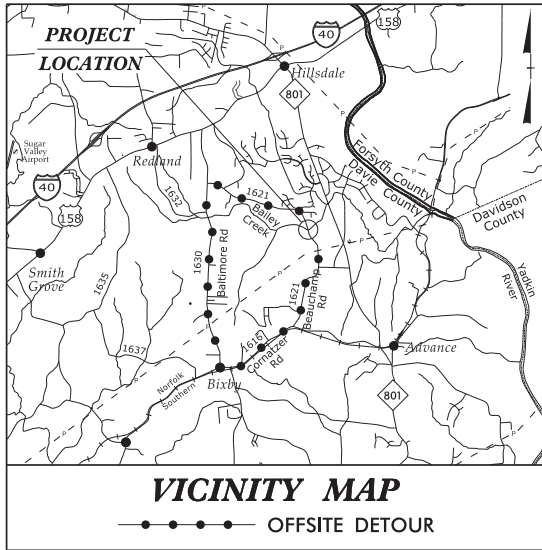
WATER DESIGN NOTES:

- ROADWAY AND STORM WATER DESIGN IS BY OTHERS. SURVEY DATA IS BY OTHER.
- FIELD VERIFY GAS LOCATION AT THE NEW WATER MAIN CROSSINGS, APPROXIMATELY -L- STA. 14+20 & 16+30. PROVIDE 12" MINIMUM SEPARATION.
- EXISTING WATER MAIN IS 6" SDR-21 PVC PARALLEL TO THE ROAD EDGE (FIELD VERIFY) AND DUCTILE IRON (DI) IN THE ROAD SLOPE AND THE CREEK CROSSING.
- REMOVE UTILITY LINE UNDER PROPOSED GUARDRAIL AND WINGWALLS, CUT & PLUG ALL EXPOSED ENDS. DO NOT DISTURB STREAM.
- ALL STATION NUMBERS REFERENCE -L-.
- ALL NEW WATER MAIN SHALL BE DUCTILE IRON (DI) RESTRAINED WITH ADDITIONAL THRUST BLOCKS AT ALL BEND FITTINGS.
- PROVIDE RESTRAINT JOINT AT TRANSITION FROM ALL EXISTING TO NEW WATER MAIN.
- * INDICATES TO ROTATE 45° BEND HORIZONTALLY AS NEEDED



08/24/23
C:\road\200\202152 Bchamp DOT Wtr\17BP9R93 UC-5 PP 23_08\1
USER: GULLARD

TIP PROJECT: BP9.R007



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

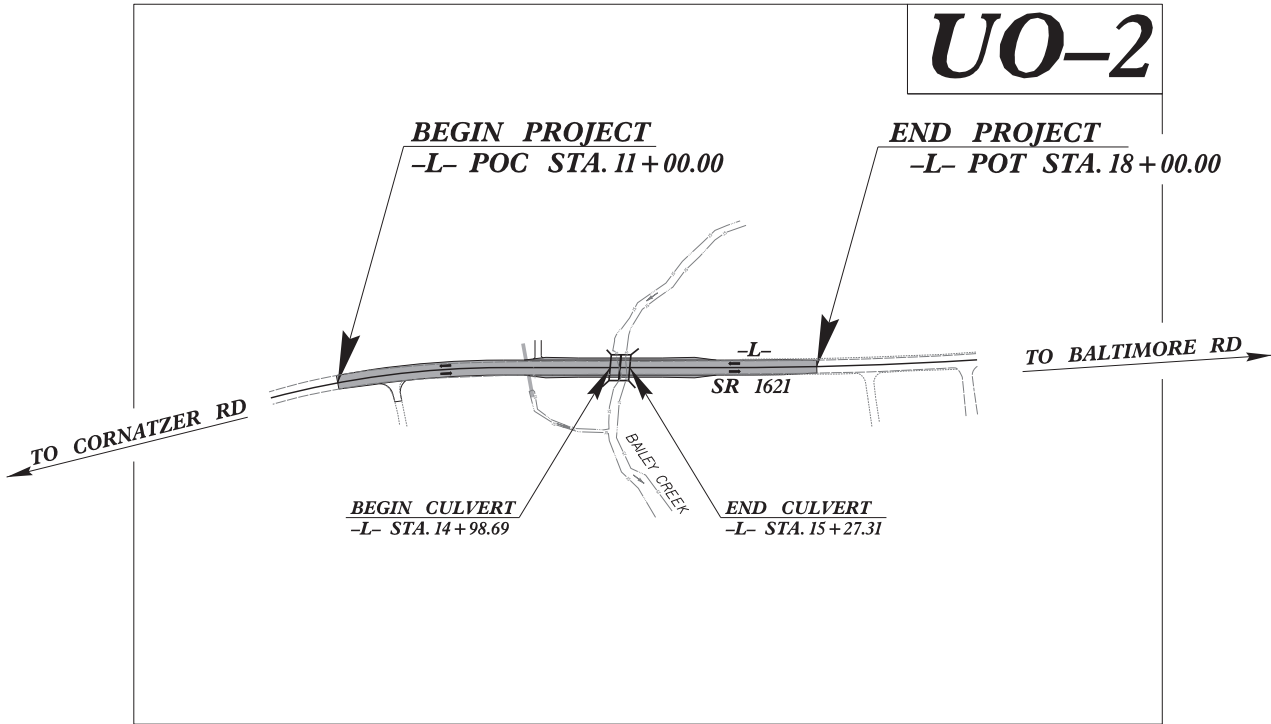
UTILITIES BY OTHERS PLANS
DAVIE COUNTY

LOCATION: BRIDGE #290025 ON SR 1671 (BEAUCHAMP RD.)
OVER BAILEY CREEK

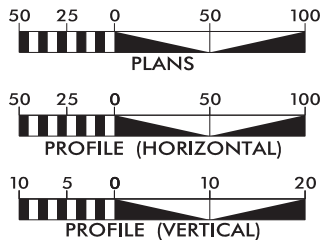
TYPE OF WORK: COMMUNICATIONS & POWER

T.I.P. NO.	SHEET NO.
BP9.R007	UO-1

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



GRAPHIC SCALES



INDEX OF SHEETS

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

UTILITY OWNERS WITH CONFLICTS

- (A) COMMUNICATIONS - SPECTRUM
(B) POWER - DUKE ENERGY

PREPARED IN THE OFFICE OF:



TELICS
1598 WESTBROOK PLAZA DR.
SUITE 202
WINSTON-SALEM, NC 27103
(336) 705-8844

CORY WOOD UTILITY PROJECT MANAGER
CORY WOOD PROJECT UTILITY COORDINATOR



DIVISION OF HIGHWAYS
DIVISION 9

375 SILAS CREEK PARKWAY
WINSTON SALEM, NC 27127

JOSHUA A. MCMAHAN DIVISION UTILITY ENGINEER
LOU PORTER ASST. DIVISION UTILITY ENGINEER

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
BP9.R007	U0-2
THIS SHEET CORRESPONDS TO RDY-4	

UTILITIES BY OTHERS

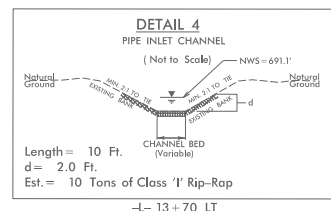
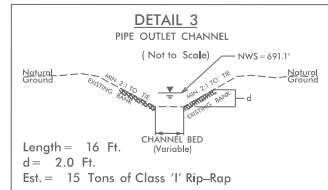
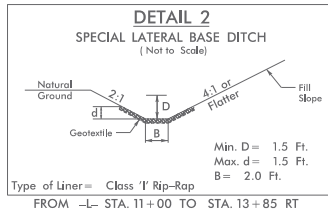
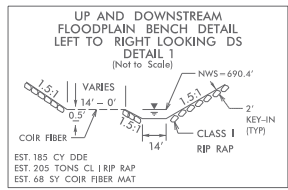
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

-L- CURVE DATA

PI Sta 11+72.50
 $\Delta = 14^{\circ} 52' 05.5''$ (RT)
 $D = 4^{\circ} 20' 02.5''$
 $L = 343.06'$
 $T = 172.50'$
 $R = 1,322.00'$
 $SE = .04$

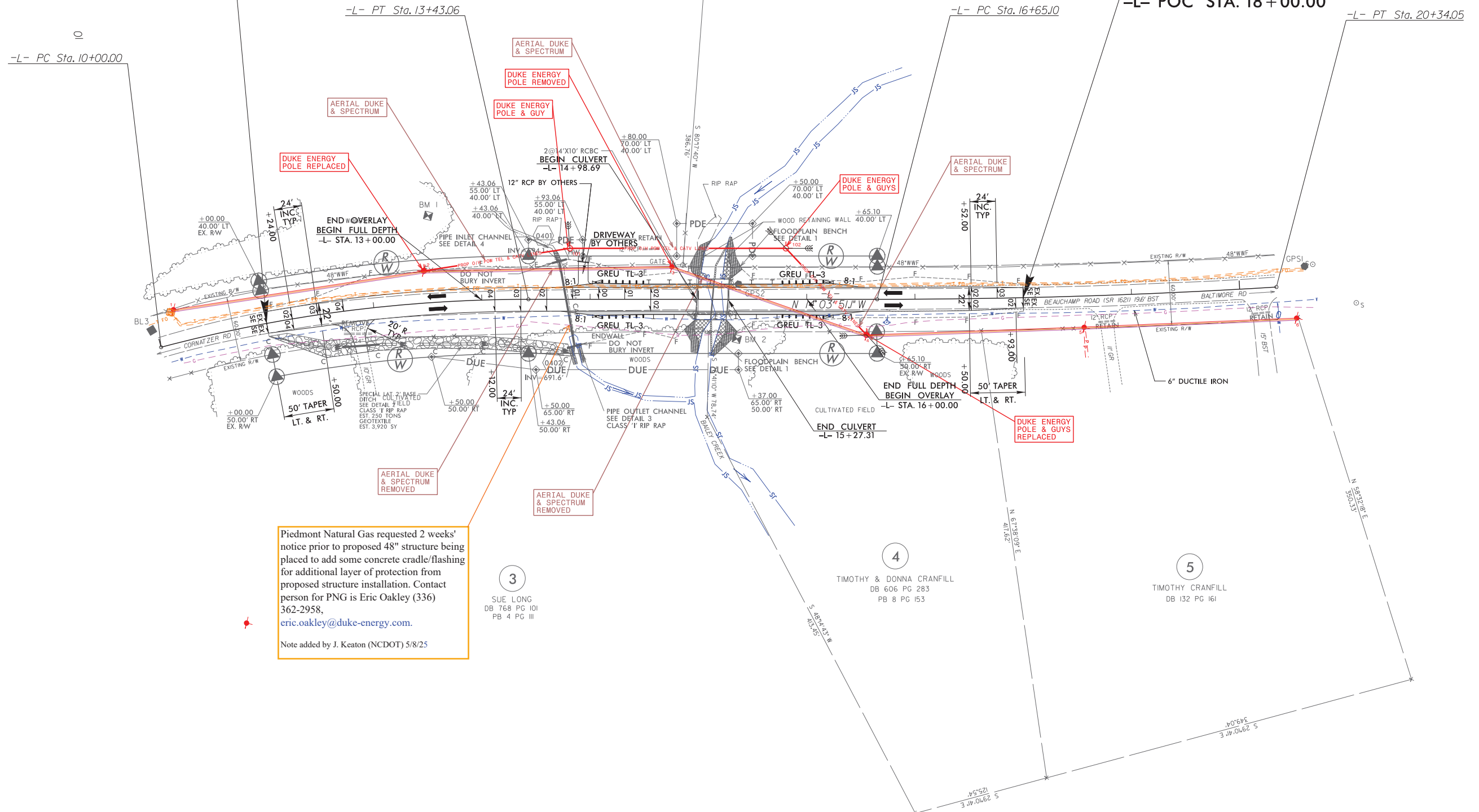
PI Sta 18+49.63
 $\Delta = 3^{\circ} 31' 33.9''$ (LT)
 $D = 0^{\circ} 57' 20.6''$
 $L = 368.94'$
 $T = 184.53'$
 $R = 5,995.00'$
 $SE = SEE PLAN$

NAD 83 2011



BEGIN TIP PROJECT BP9.R007
-L- POC STA. 11+00.00

END TIP PROJECT BP9.R007
-L- POC STA. 18+00.00



Piedmont Natural Gas requested 2 weeks' notice prior to proposed 48" structure being placed to add some concrete cradle/flashing for additional layer of protection from proposed structure installation. Contact person for PNG is Eric Oakley (336) 362-2958, eric.oakley@duke-energy.com.

Note added by J. Keaton (NCDOT) 5/8/25

PROJ. REFERENCE NO.	SHEET NO.
BP9.R007	X-1A

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

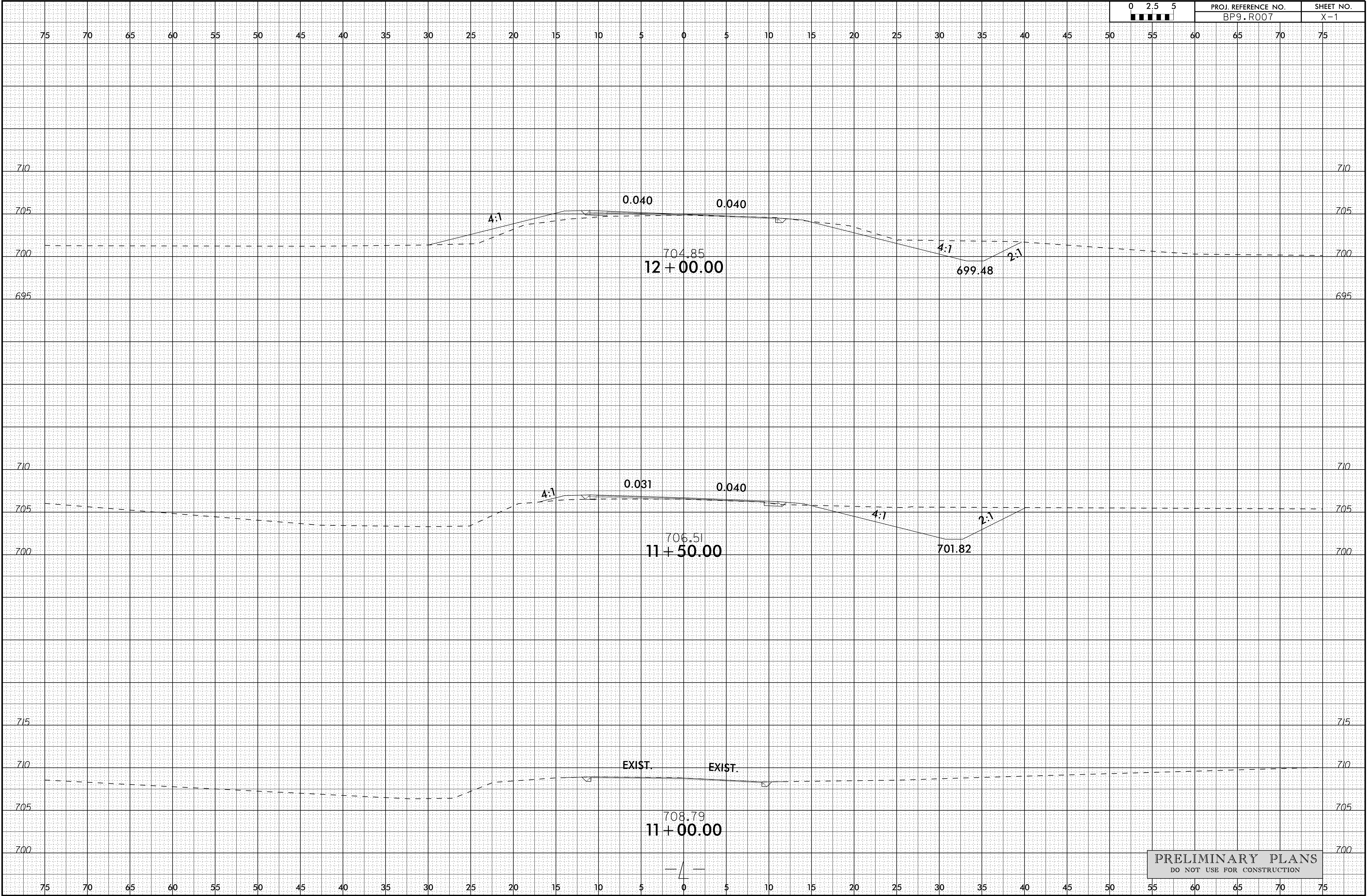
CROSS-SECTION SUMMARY

Station	Uncl. Exc.	Embt
L1	(cu. yd.)	(cu. yd.)
11+00.00	1307	61
11+50.00	1948	428
12+00.00	1116	1009
12+50.00	946	1626
13+00.00	926	1985
13+50.00	431	2625
14+00.00	0	2387
14+50.00	0	4526
15+00.00	64	3965
15+50.00	115	284
16+00	92	125
16+50.00	72	109.5
17+00.00	65	126
17+50.00	55	60.75
18+00.00	21	0
Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the lump sum price for "Grading".		

6/23/16

01-JAN-2024 13:33
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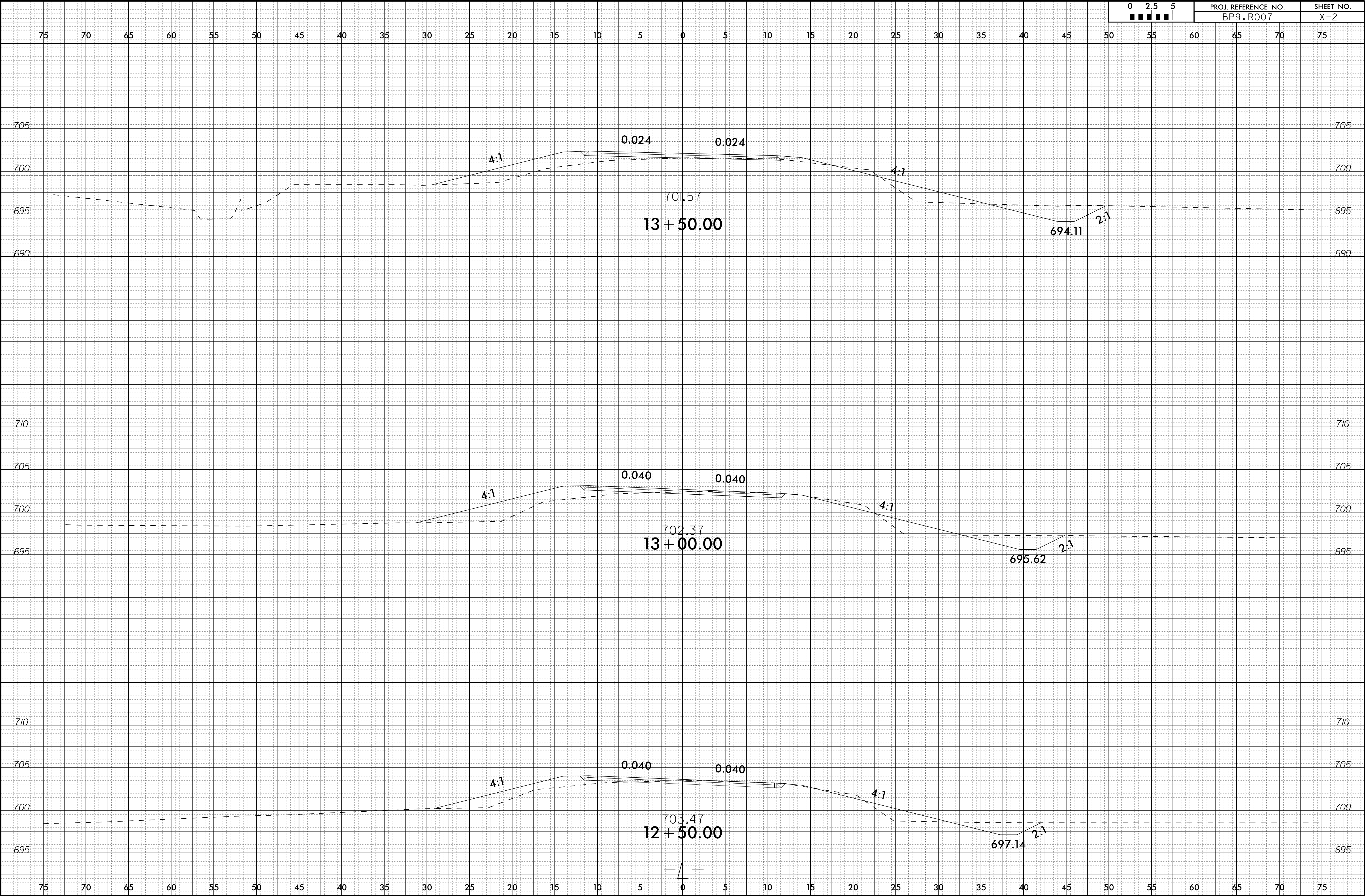
0	2.5	5	PROJ. REFERENCE NO.		SHEET NO.	
■	■	■	BP9.R007		X-1	



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

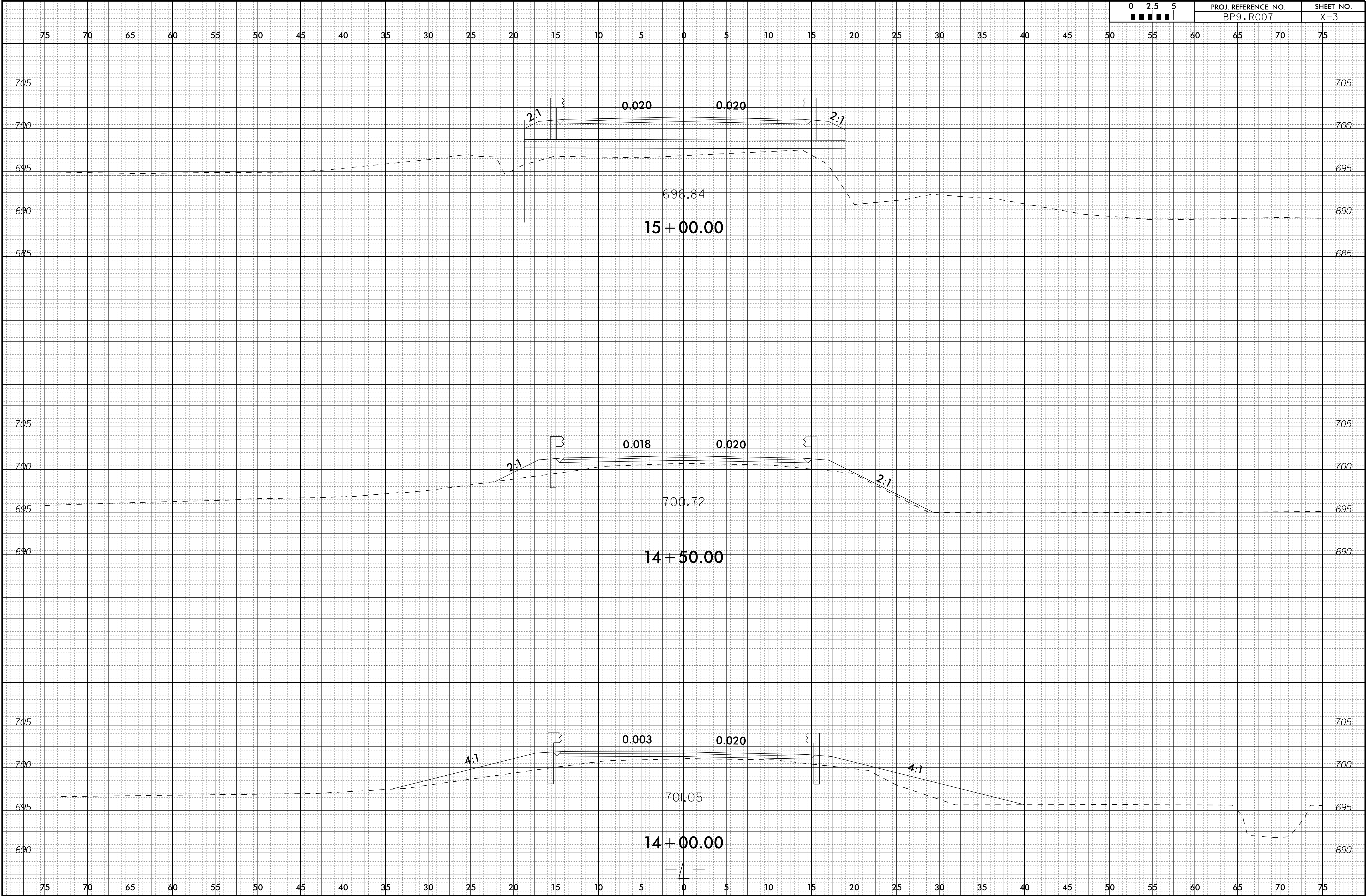
6/23/16

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6/23/16

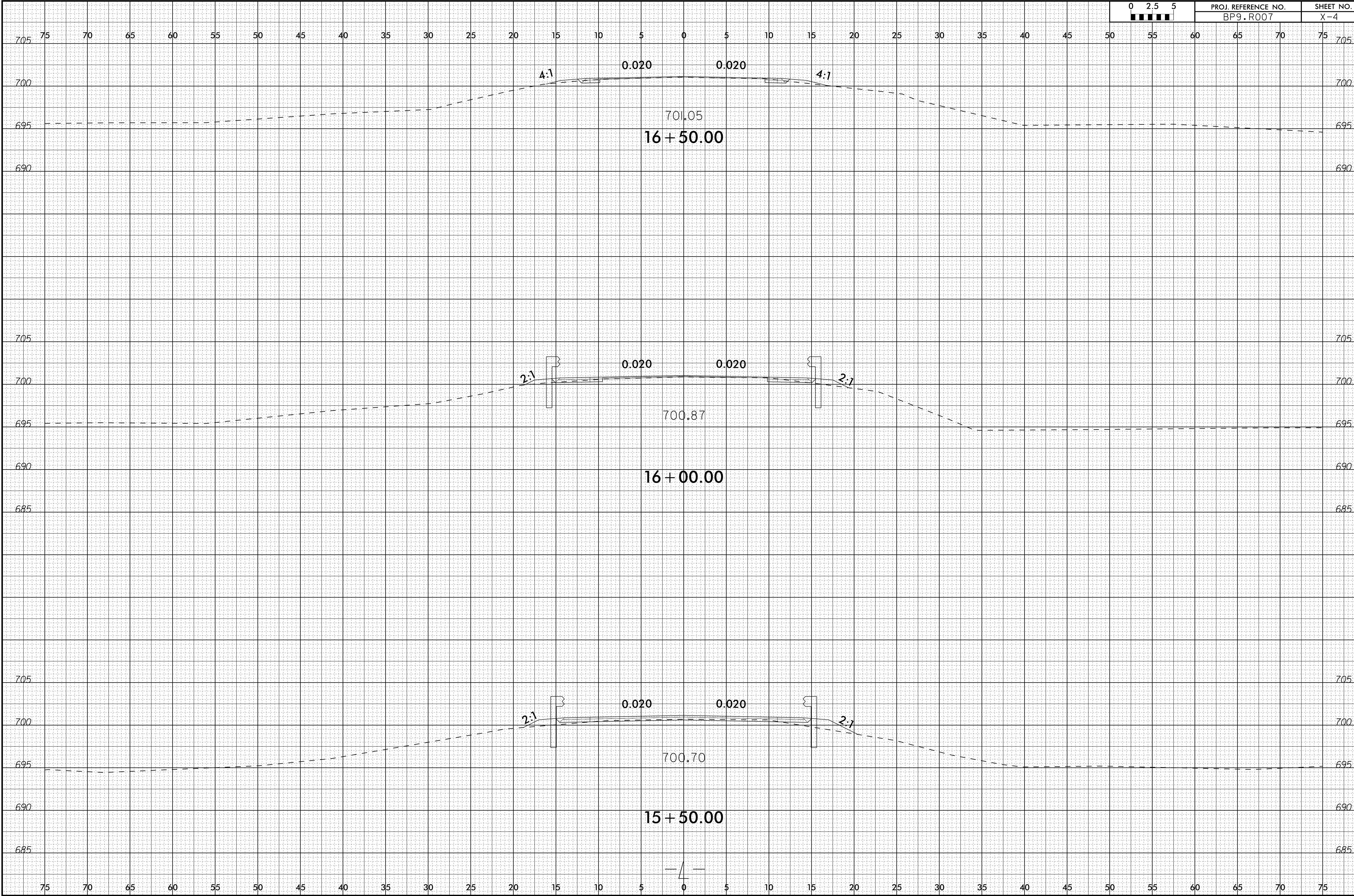
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6/23/16

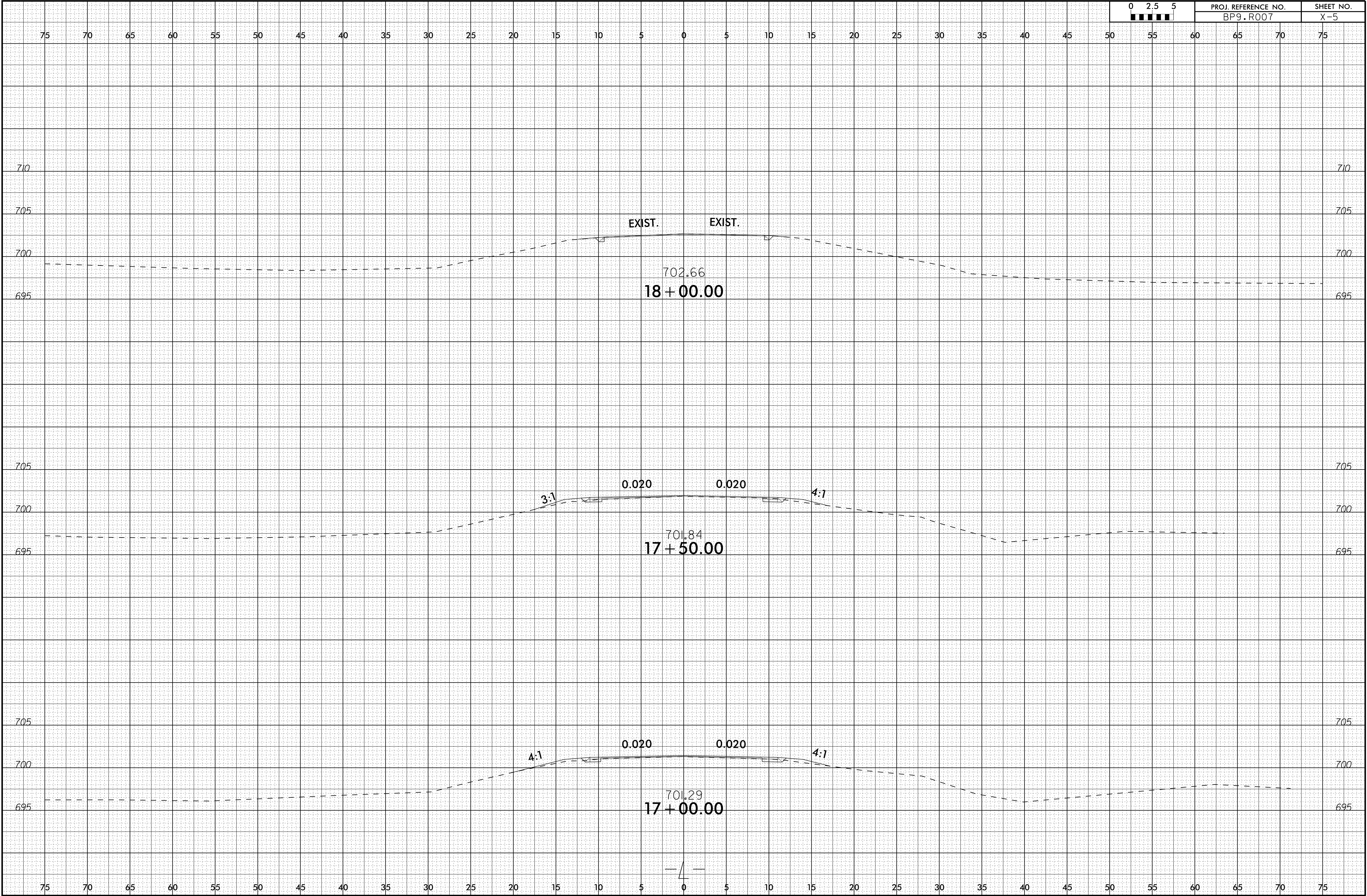
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0	2.5	5	PROJ. REFERENCE NO.	SHEET NO.
■	■	■	BP9.R007	X-4

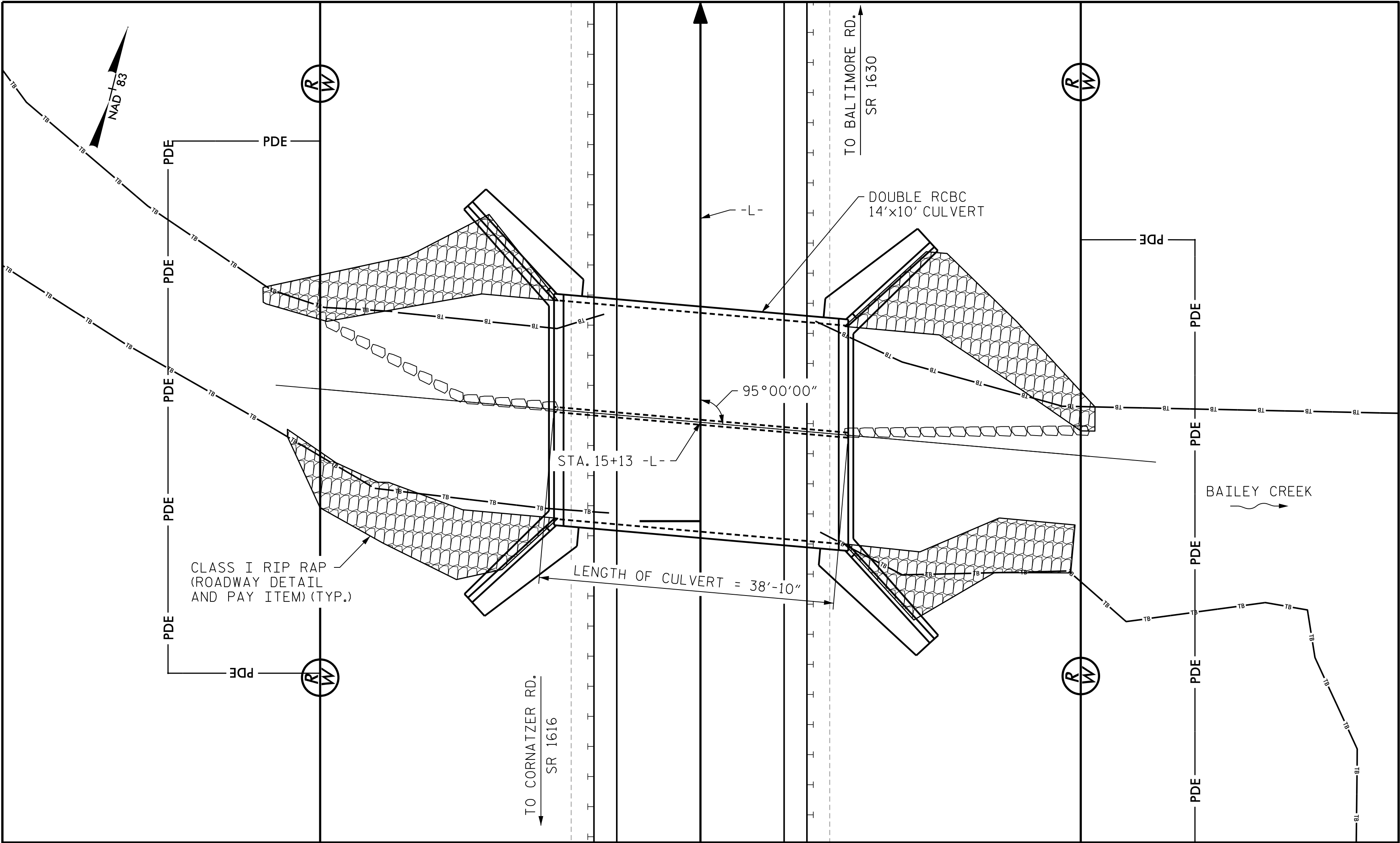


6/23/16

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BENCHMARK BM-2: RAILROAD SPIKE SET IN 18" OAK. STA. 15+35.48 -L-, 36.60' RT., N 811078, E1576185, EL. 700.29



LOCATION SKETCH

ROADWAY DATA

GRADE POINT ELEV. @ STATION 15+13 -L- = 701.32
BED ELEV. @ STATION 15+13 -L- = 688.7
ROADWAY SLOPES 2:1

HYDRAULIC DATA

DESIGN DISCHARGE = 1600 CFS
FREQUENCY OF DESIGN FLOOD = 25 YRS
DESIGN HIGH WATER ELEVATION = 698.3
DRAINAGE AREA = 5.7 SQ. MI.
BASIC DISCHARGE (Q100) = 2300 CFS
BASIC HIGH WATER ELEVATION = 701.7

OVERTOPPING FLOOD DATA

OVERTOPPING FLOOD DATA
OVERTOPPING DISCHARGE = 2300 CFS
FREQUENCY OF OVERTOPPING FLOOD = 100 YRS
OVERTOPPING FLOOD ELEVATION = 701.0

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE	
BARREL @ 3.48 - CY/FT	135.0 - C.Y.
WINGS ETC.	45.4 - C.Y.
TOTAL	180.4 - C.Y.

REINFORCING STEEL	
BARREL	24,929 - LBS.
WINGS ETC.	3,748 - LBS.
TOTAL	28,677 - LBS.

CULVERT EXCAVATION	LUMP SUM
FOUNDATION COND. MATERIAL	94.5 - TONS
REMOVAL OF EXISTING STRUCTURE	LUMP SUM

NOTES:

ASSUMED LIVE LOAD --- HL-93 OR ALTERNATE LOADING.

DESIGN FILL ----- 2.69' MAX. AND 2.15' MIN.

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.

2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR. FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR BOX CULVERT EXCAVATION, SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.

UNDERCUT SOFT / VERY LOOSE SOILS THAT MAY BE ENCOUNTERED BENEATH THE BOTTOM OF THE FOUNDATION CONDITIONING MATERIAL. BACKFILL UNDERCUT AREAS WITH FOUNDATION CONDITIONING MATERIAL. IF MORE THAN 1 FT UNDERCUT IS REQUIRED, CONTACT THE OPERATIONS ENGINEER FOR APPROVAL.

NATIVE BED MATERIALS SHALL BE PLACED BETWEEN THE SILLS IN THE LOW FLOW CULVERT. NATIVE BED MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. RIP RAP MAY BE USED TO SUPPLEMENT NATIVE MATERIAL IN THE BARREL. IF RIP RAP IS USED TO LINE THE BARREL NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FACILITATE ANIMAL PASSAGE. THE TOP SURFACE OF THE NATURAL STREAM BED MATERIAL SHALL BE PLACED AND LEVELED TO A FLAT SURFACE TO ALLOW FOR ANIMAL PASSAGE. THE HIGH FLOW BARRELS SHALL BE BACK FILLED WITH NATIVE MATERIAL AND/OR RIP RAP. NATIVE MATERIAL AND RIP RAP ARE SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS. THE COST OF PLACEMENT OF THE NATIVE BED MATERIAL SHALL BE INCLUDED IN THE LUMP SUM BID FOR CULVERT EXCAVATION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR BOX CULVERT EXCAVATION, SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.

THE REINFORCED CONCRETE BOX CULVERT SHALL BE PLACED ON THE STANDARD 1.0 FOOT BLANKET OF FOUNDATION CONDITIONING MATERIAL. SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.

F. A. PROJECT NO.

PROJECT NO. BP9.R.007

DAVIE COUNTY

STATION: 15+13 -L-

SHEET 1 OF 6 REPLACES BRIDGE NO. 290025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 14 FT. X 10 FT.
CONCRETE BOX CULVERT

REVISIONS

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

SHEET NO.

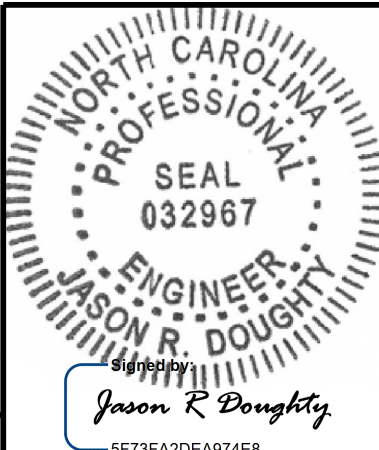
C-1

TOTAL SHEETS
6



333 FAYETTEVILLE STREET, SUITE 500
RALEIGH, NC 27601
NC LICENSE NO. C-2979

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

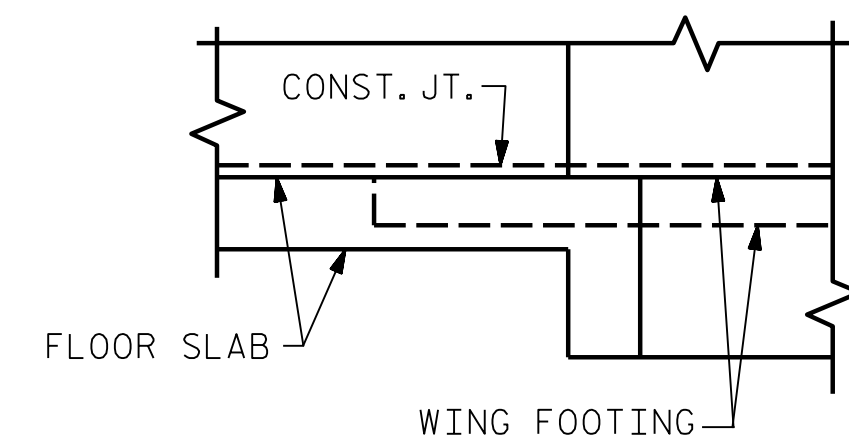




CULVERT SECTION NORMAL TO ROADWAY



(INLET END SHOWN, OUTLET END SIMILAR)



DETAIL
CONNECTION OF WING FOOTING
AND FLOOR SLAB WHEN SLAB
IS THICKER THAN FOOTING

PROJECT NO. BP9.R.007
DAVIE COUNTY
 STATION: 15+13 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD
DOUBLE 14 FT. X 10 FT.
CONCRETE BOX CULVERT

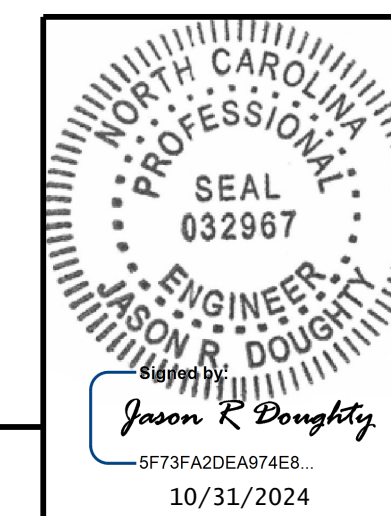
REVISIONS						SHEET NO. C-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

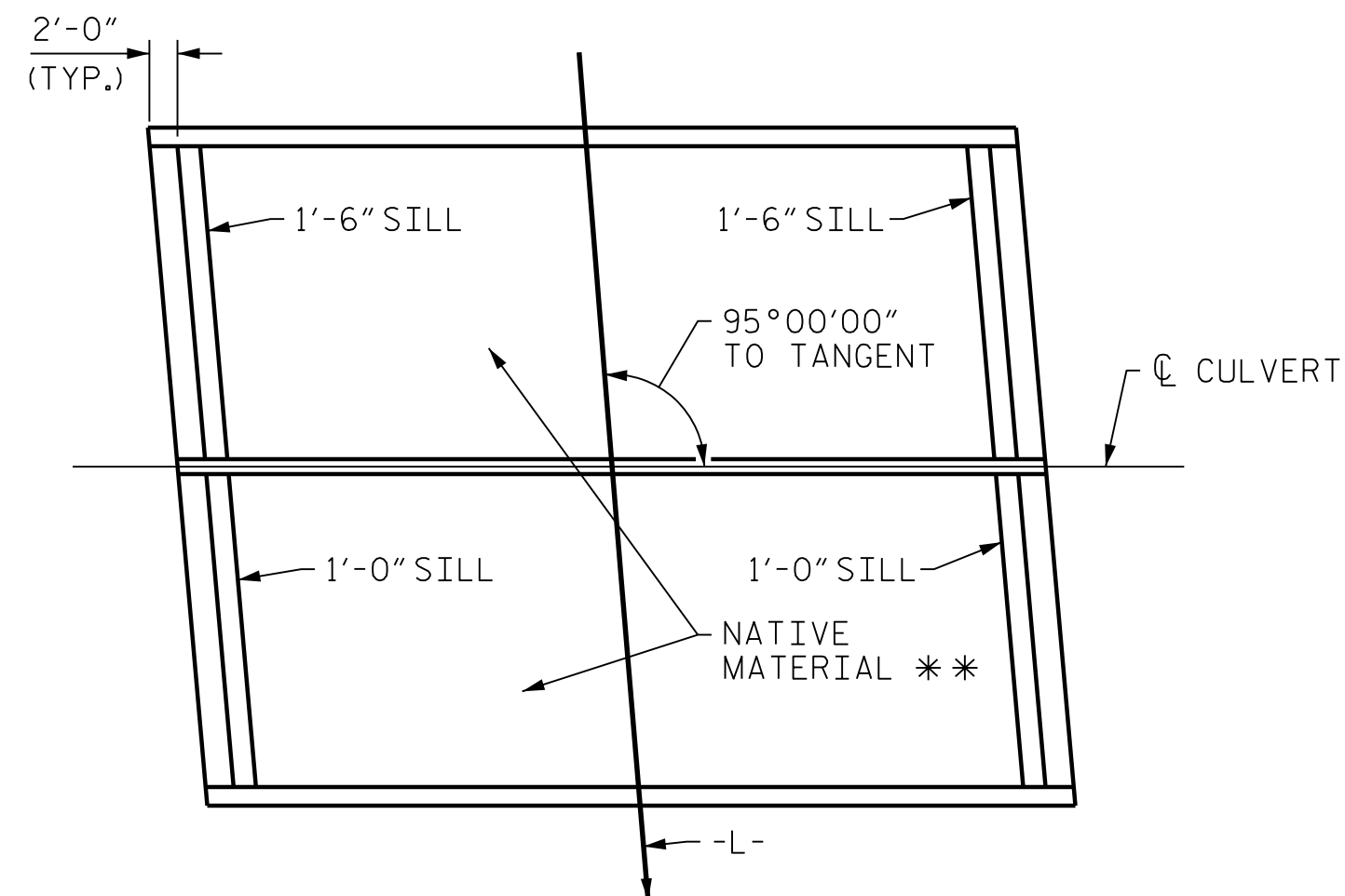
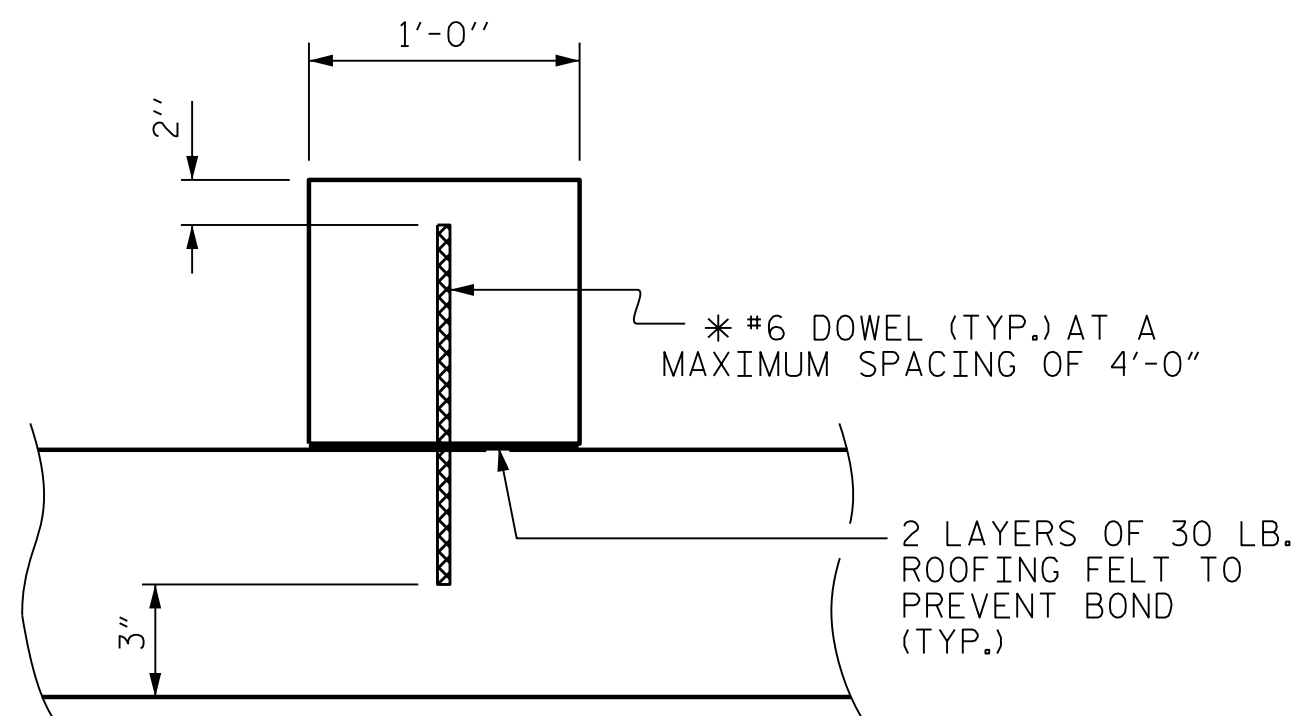
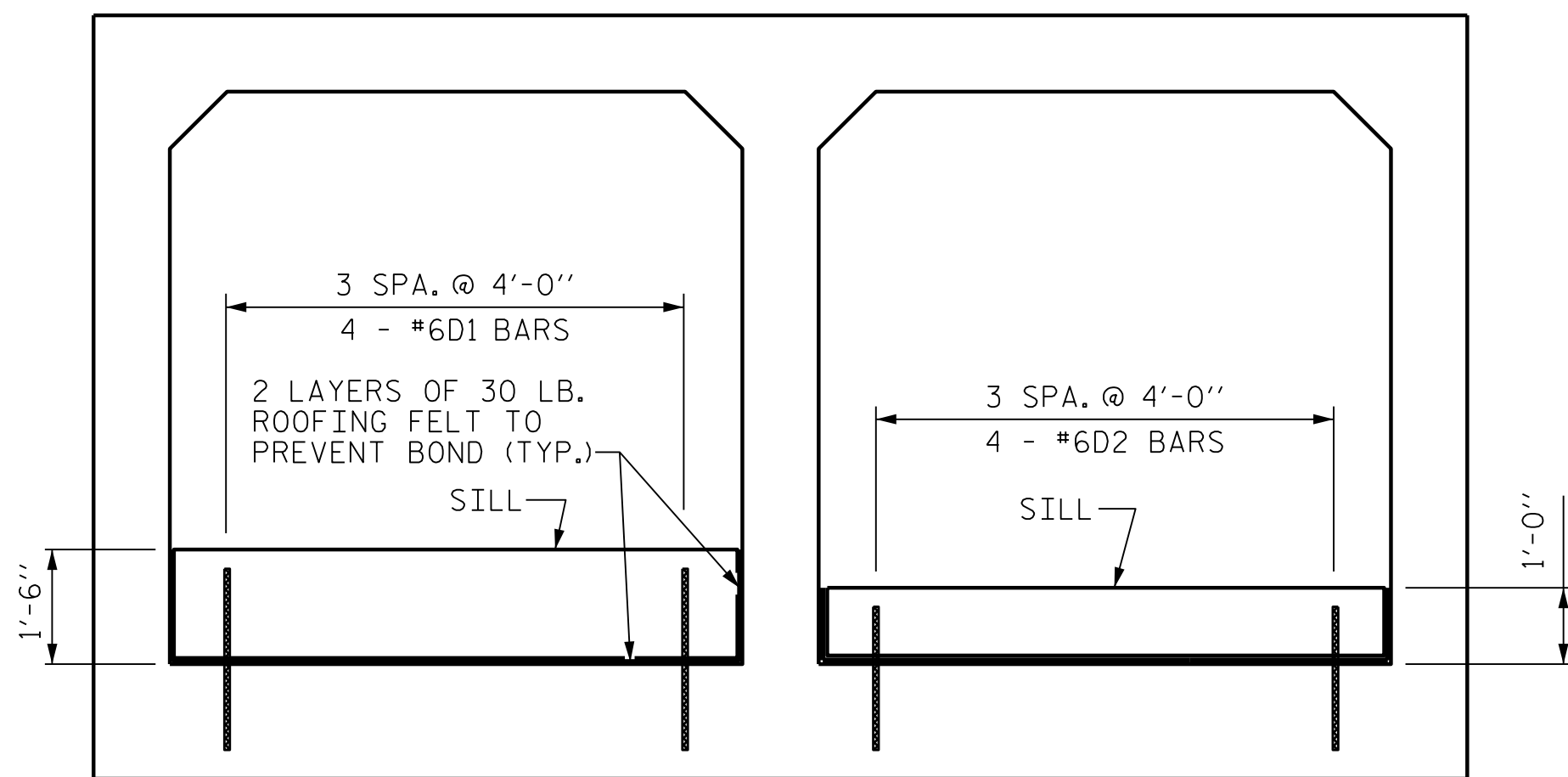
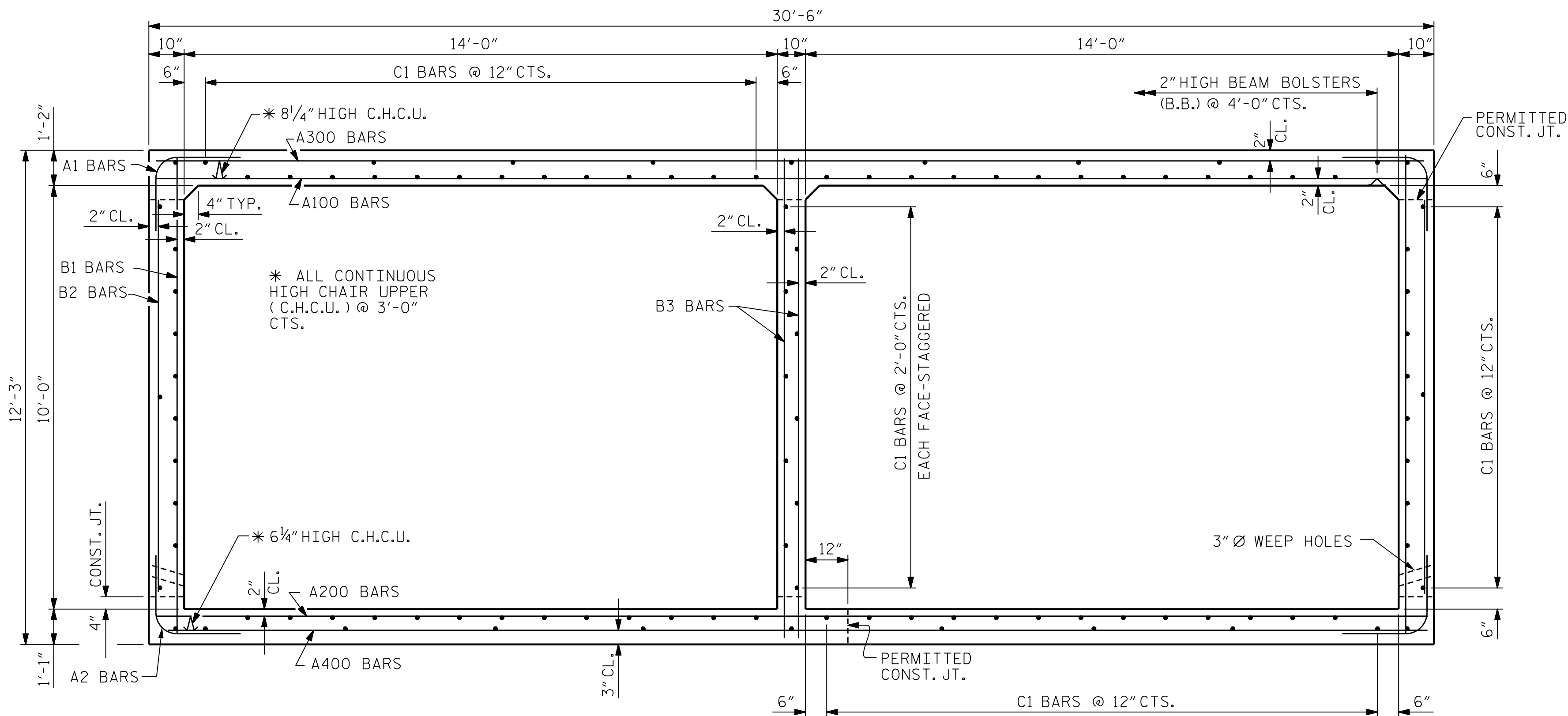
STD. NO. CB90_2



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BAR TYPES

The diagram shows a U-shaped reinforcing bar with the following dimensions and labels:

- VERTICAL LEG:** Points to the vertical section of the bar.
- 6" RAD.:** Indicates the radius of the 90-degree bend.
- 9 1/2":** The length of the horizontal section at the bottom of the U-shape.
- A1:** Dimension for the vertical leg height from the top to the bend.
- A2:** Dimension for the vertical leg height from the bottom to the bend.
- 4'-4":** Dimension for the horizontal section from the left end to the bend.
- 3'-5 1/2":** Dimension for the vertical leg from the top to the bottom of the U-shape.
- 3'-6":** Dimension for the horizontal section from the left end to the right end.
- 1:** A circled number indicating the bar type.

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	156	#6	1	8'-7"	2001
A2	156	#6	1	7'-9"	1806
A100	73	#6	STR	30'-0"	3289
A101	2	#6	STR	24'-5"	73
A102	2	#6	STR	18'-8"	56
A103	2	#6	STR	13'-0"	39
A104	2	#6	STR	7'-3"	22
A105	2	#6	STR	1'-7"	5
A200	73	#6	STR	30'-0"	3289
A201	2	#6	STR	24'-5"	73
A202	2	#6	STR	18'-8"	56
A203	2	#6	STR	13'-0"	39
A204	2	#6	STR	7'-3"	22
A205	2	#6	STR	1'-7"	5
A300	73	#6	STR	30'-0"	3289
A301	2	#6	STR	24'-5"	73
A302	2	#6	STR	18'-8"	56
A303	2	#6	STR	13'-0"	39
A304	2	#6	STR	7'-3"	22
A305	2	#6	STR	1'-7"	5
A400	73	#6	STR	30'-0"	3289
A401	2	#6	STR	24'-5"	73
A402	2	#6	STR	18'-8"	56
A403	2	#6	STR	13'-0"	39
A404	2	#6	STR	7'-3"	22
A405	2	#6	STR	1'-7"	5
B1	156	#4	STR	11'-9"	1224
B2	156	#5	STR	9'-4"	1519
B3	117	#5	STR	11'-9"	1434
C1	106	#4	STR	38'-3"	2708
D1	8	#6	STR	2'-3"	27
D2	8	#6	STR	1'-10"	22
G1	8	#5	STR	30'-2"	252

REINFORCING STEEL

24,929 LBS

PROJECT NO. BP9.R.007
DAVIE COUNTY
 STATION: 15+13 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

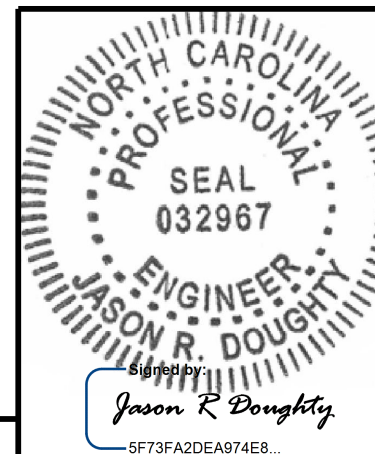
DOUBLE 14 FT. X 10 FT.
CONCRETE BOX CULVERT
95°00'00" SKEW

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

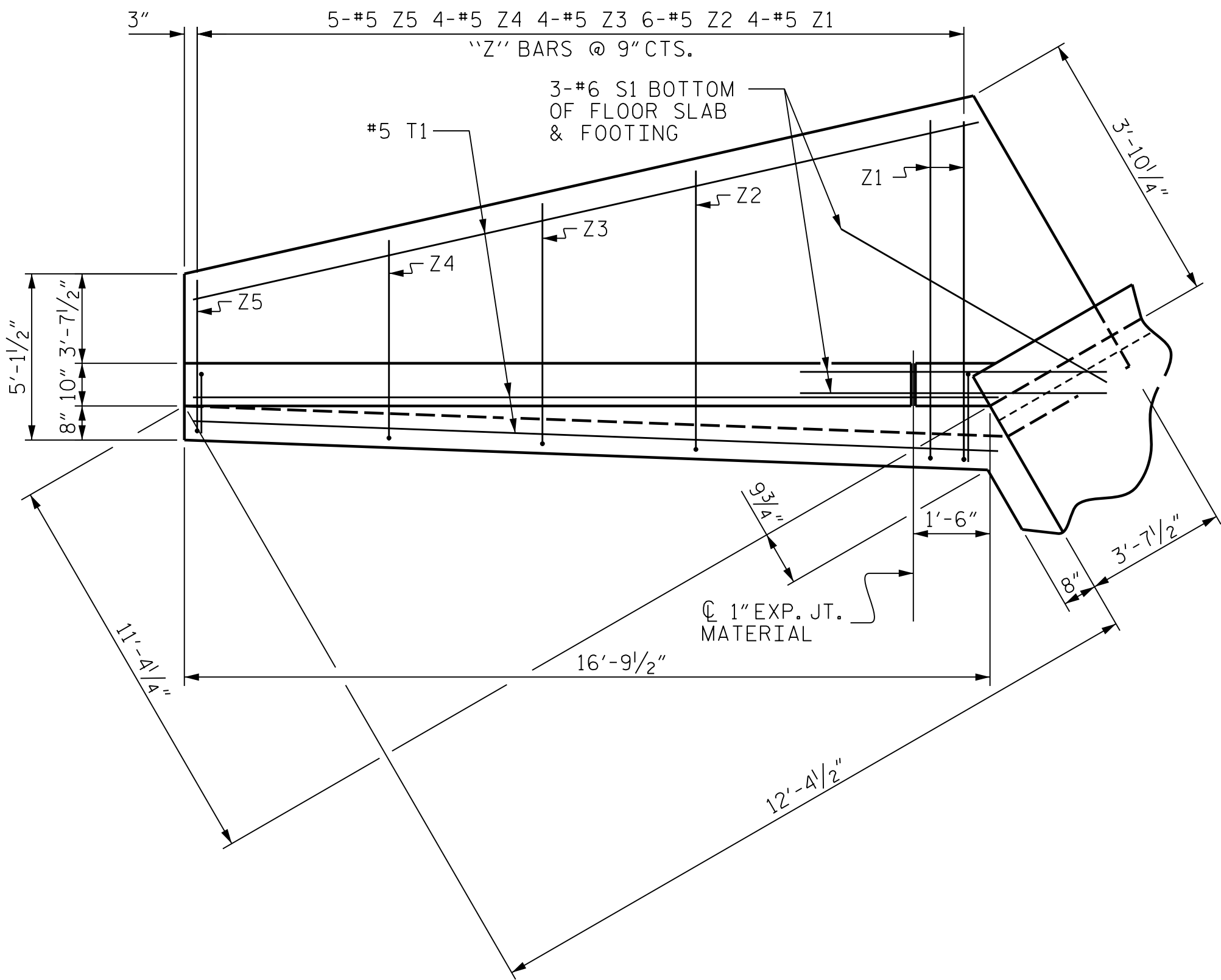


333 FAYETTEVILLE STREET, SUITE 500
RALEIGH, NC 27601
NC LICENSE NO. C-2979

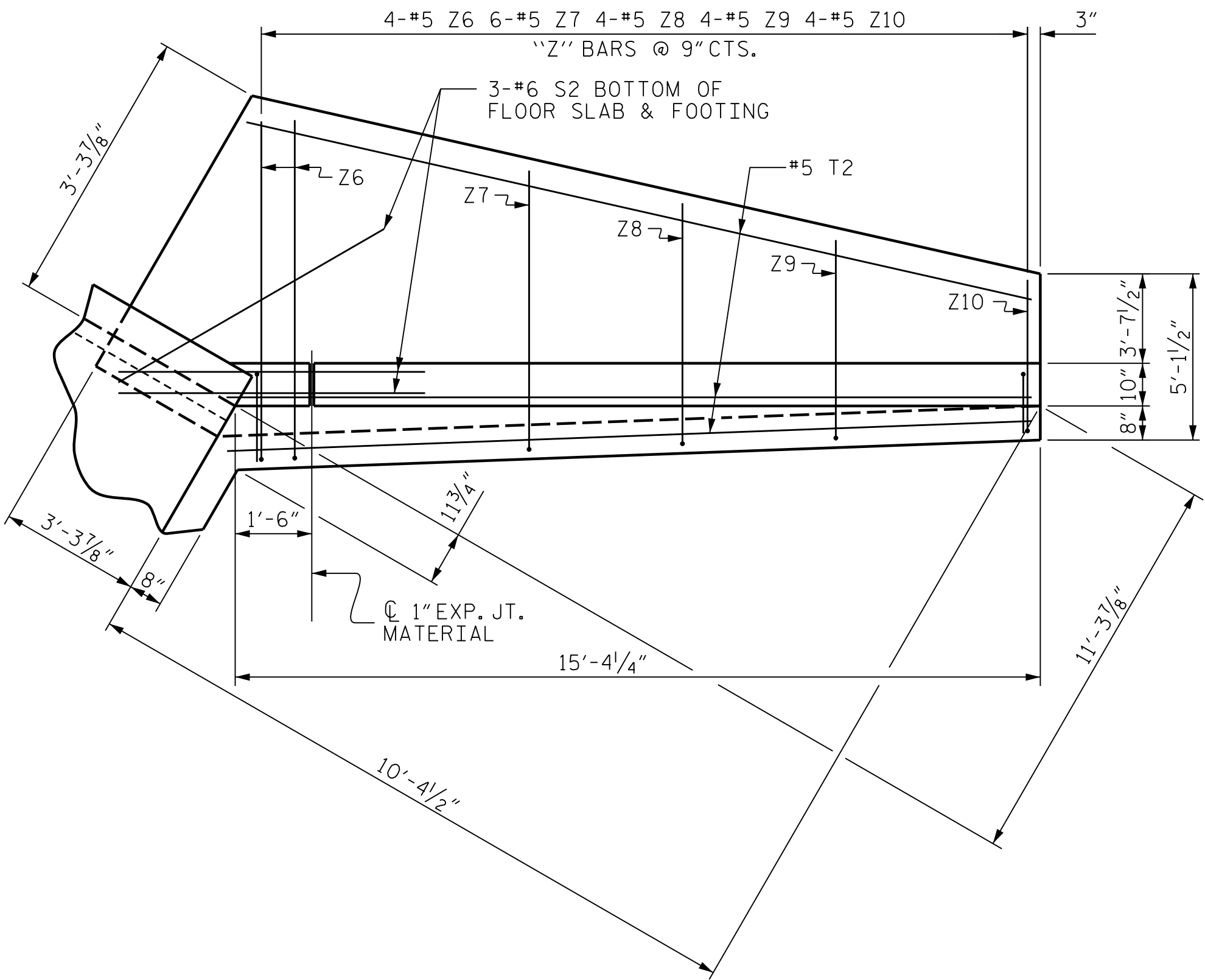
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UNLESS ALL SIGNATURES COMPLETED**



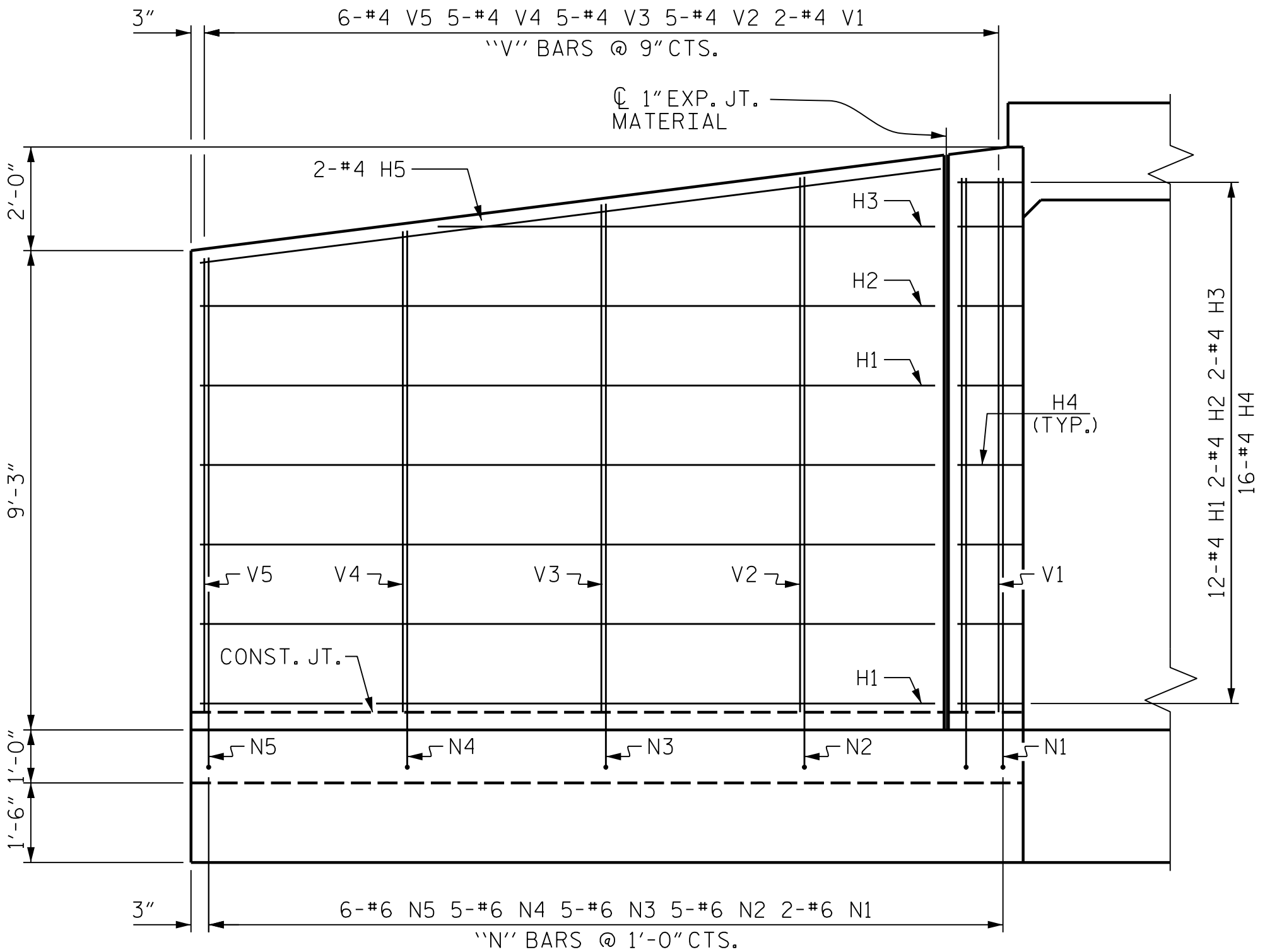
DESIGNED BY: C. CORMAN DATE : JAN 2023
 DRAWN BY: K. WHITE DATE : MAR 2020
 CHECKED BY: M. NIFONG DATE : JAN 2023
 DESIGN ENGINEER
 OF RECORD: J. DOUGHTY DATE : OCT 2024



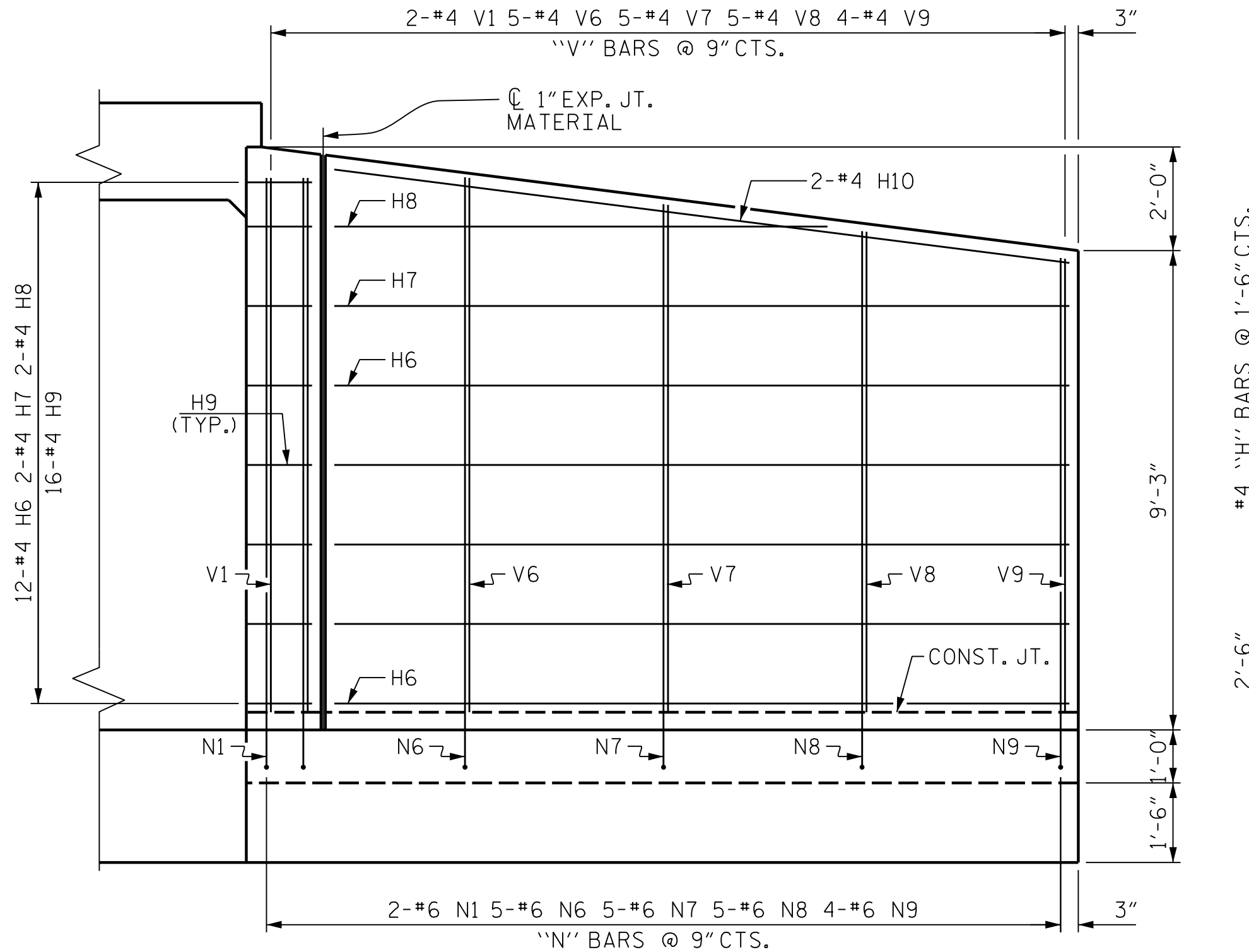
PLAN - W1



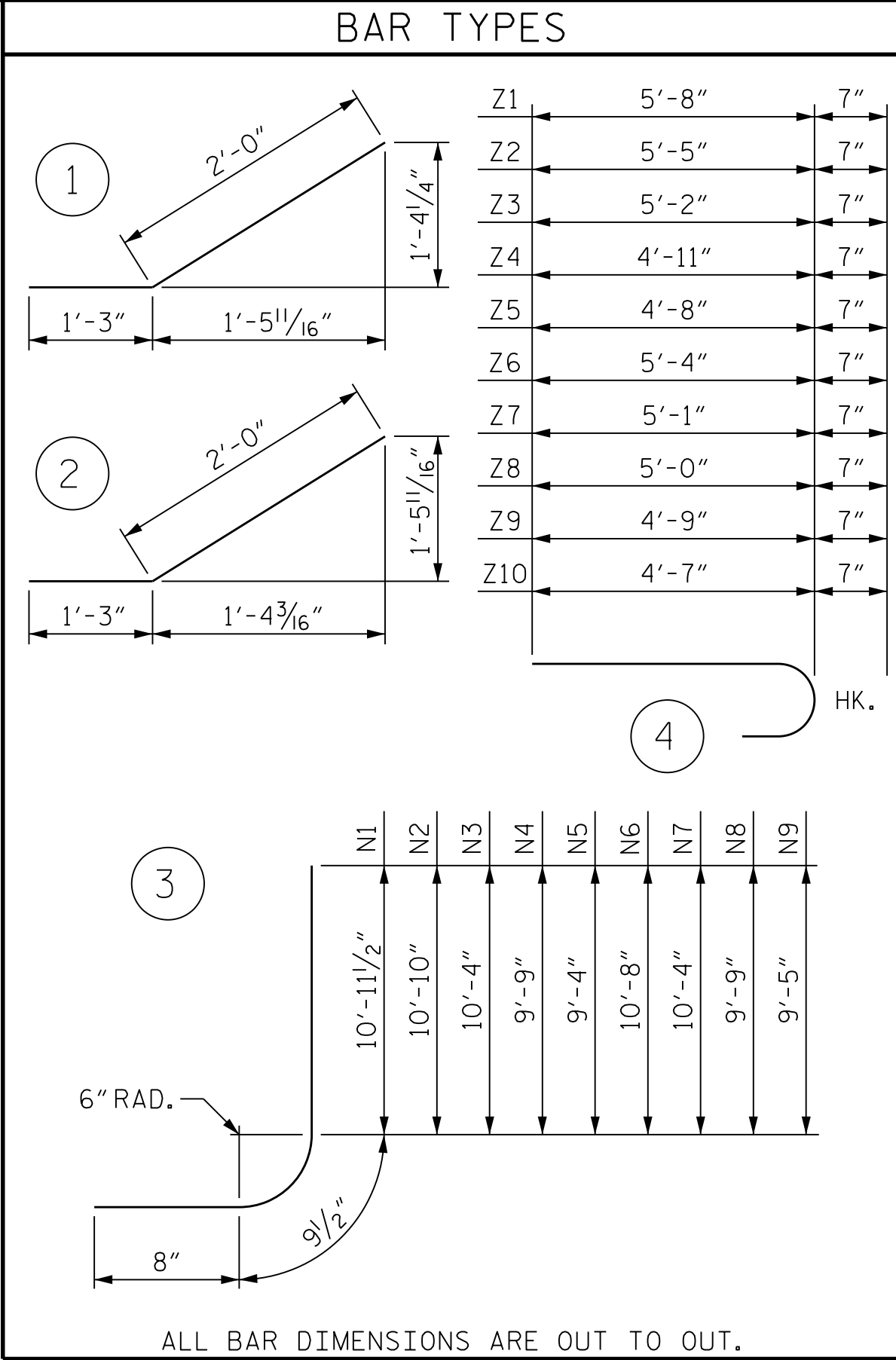
PLAN - W2



ELEVATION - W1

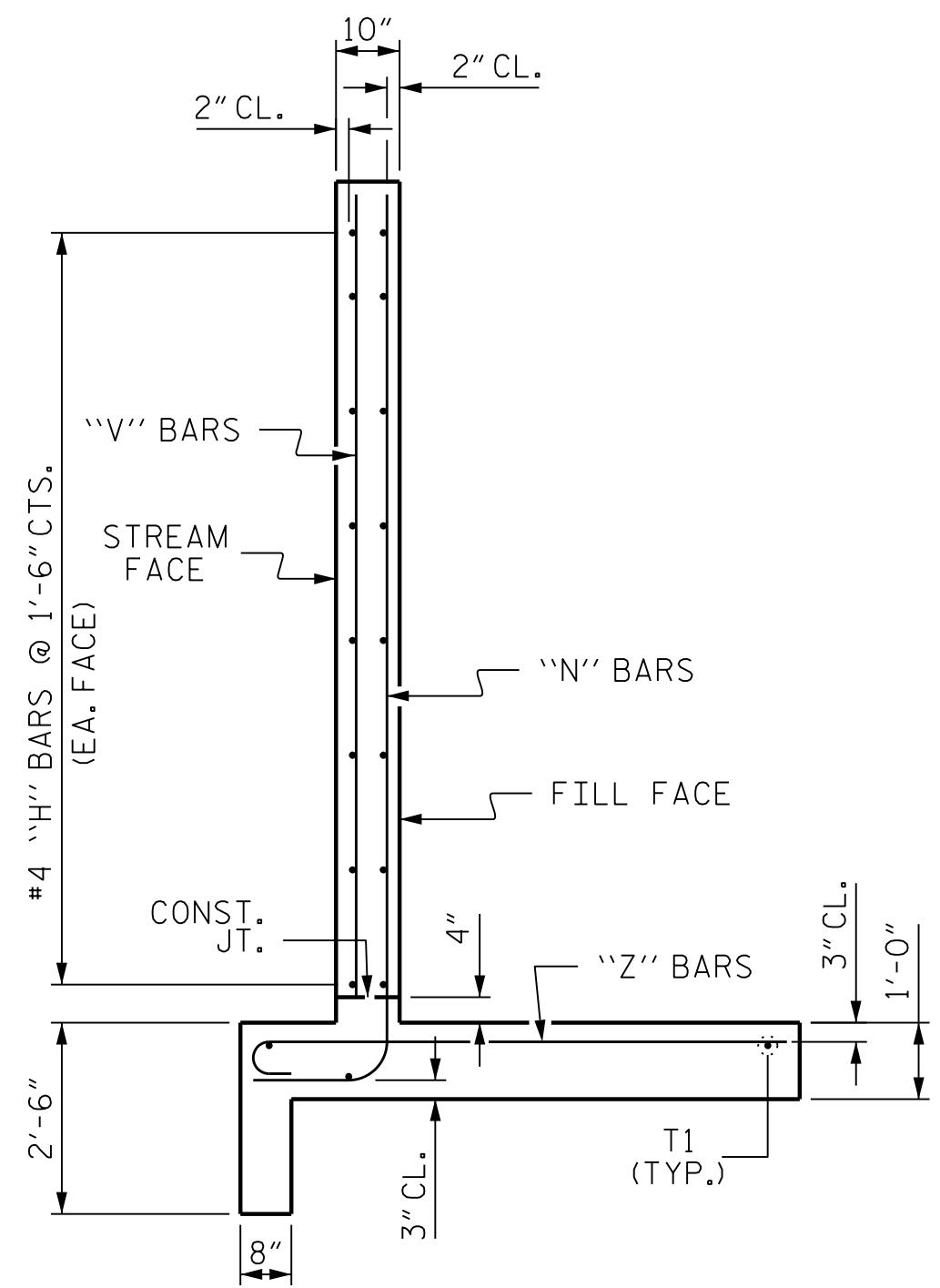


ELEVATION - W2



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	24	#4	STR	14'-9"	236
H2	4	#4	STR	11'-5"	31
H3	4	#4	STR	1'-0"	3
H4	32	#4	1	3'-3"	69
H5	4	#4	STR	14'-10"	40
H6	24	#4	STR	13'-4"	214
H7	4	#4	STR	10'-3"	27
H8	4	#4	STR	0'-9"	2
H9	32	#4	2	3'-3"	69
H10	4	#4	STR	13'-0"	35
V1	8	#4	STR	10'-4"	55
V2	10	#4	STR	10'-2"	68
V3	10	#4	STR	9'-8"	65
V4	10	#4	STR	9'-1"	61
V5	12	#4	STR	8'-8"	69
V6	10	#4	STR	10'-0"	67
V7	10	#4	STR	9'-8"	65
V8	10	#4	STR	9'-1"	61
V9	8	#4	STR	8'-9"	47
N1	8	#6	3	12'-5"	149
N2	10	#6	3	12'-3"	185
N3	10	#6	3	11'-9"	177
N4	10	#6	3	11'-2"	168
N5	12	#6	3	10'-9"	195
N6	10	#6	3	12'-1"	182
N7	10	#6	3	11'-9"	177
N8	10	#6	3	11'-2"	168
N9	8	#6	3	10'-10"	131
Z1	8	#5	4	6'-10"	57
Z2	12	#5	4	6'-7"	82
Z3	8	#5	4	6'-4"	53
Z4	8	#5	4	6'-1"	51
Z5	10	#5	4	5'-10"	61
Z6	8	#5	4	6'-6"	54
Z7	12	#5	4	6'-3"	78
Z8	8	#5	4	6'-2"	51
Z9	8	#5	4	5'-11"	49
Z10	8	#5	4	5'-9"	48
T1	6	#5	STR	16'-5"	103
T2	6	#5	STR	14'-8"	92
S1	12	#6	STR	4'-0"	72
S2	12	#6	STR	4'-6"	81

REINFORCING STEEL FOR 4 WINGS		3,748 LBS
CLASS A CONCRETE		
4 WINGS	36.7	CY
2 HEADWALLS	2.8	CY
END CURTAIN WALLS	3.3	CY
4 SILLS	2.6	CY
TOTAL	45.4	CY



TYPICAL WING SECTION

PROJECT NO. BP9.R.007
DAVIE COUNTY
STATION: 15+13 -L-

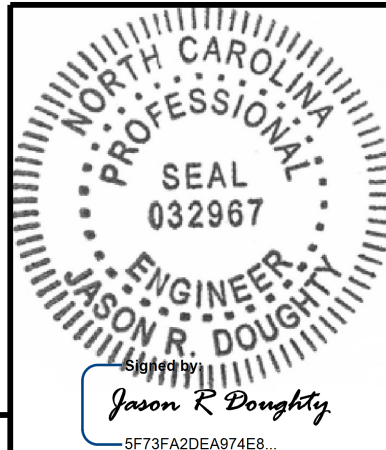
SHEET 4 OF 6

DEPARTMENT OF TRANSPORTATION					
RALEIGH					
DOUBLE 14 FT. X 10 FT. CONCRETE BOX CULVERT					
H = 10'-0" SLOPE = 2:1					
95 DEG. SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. C-4					TOTAL SHEETS 6



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NC LICENSE NO. C-2979

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2024-10-30
400_007_17BP9R33_SWL_WING1_250025.dgn

DESIGNED BY:	C. CORMAN	DATE :	JAN 2023
DRAWN BY:	K. WHITE	DATE :	MAR 2020
CHECKED BY:	M. NIFONG	DATE :	JAN 2023
DESIGN ENGINEER OF RECORD:	J. DOUGHTY	DATE :	OCT 2024

NOTES

- THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS 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 2 1/2".
- B. 4 - 1" Ø X 2 1/4" 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 1" Ø X 2 1/4" 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.)
- C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CLASS "A" CONCRETE.

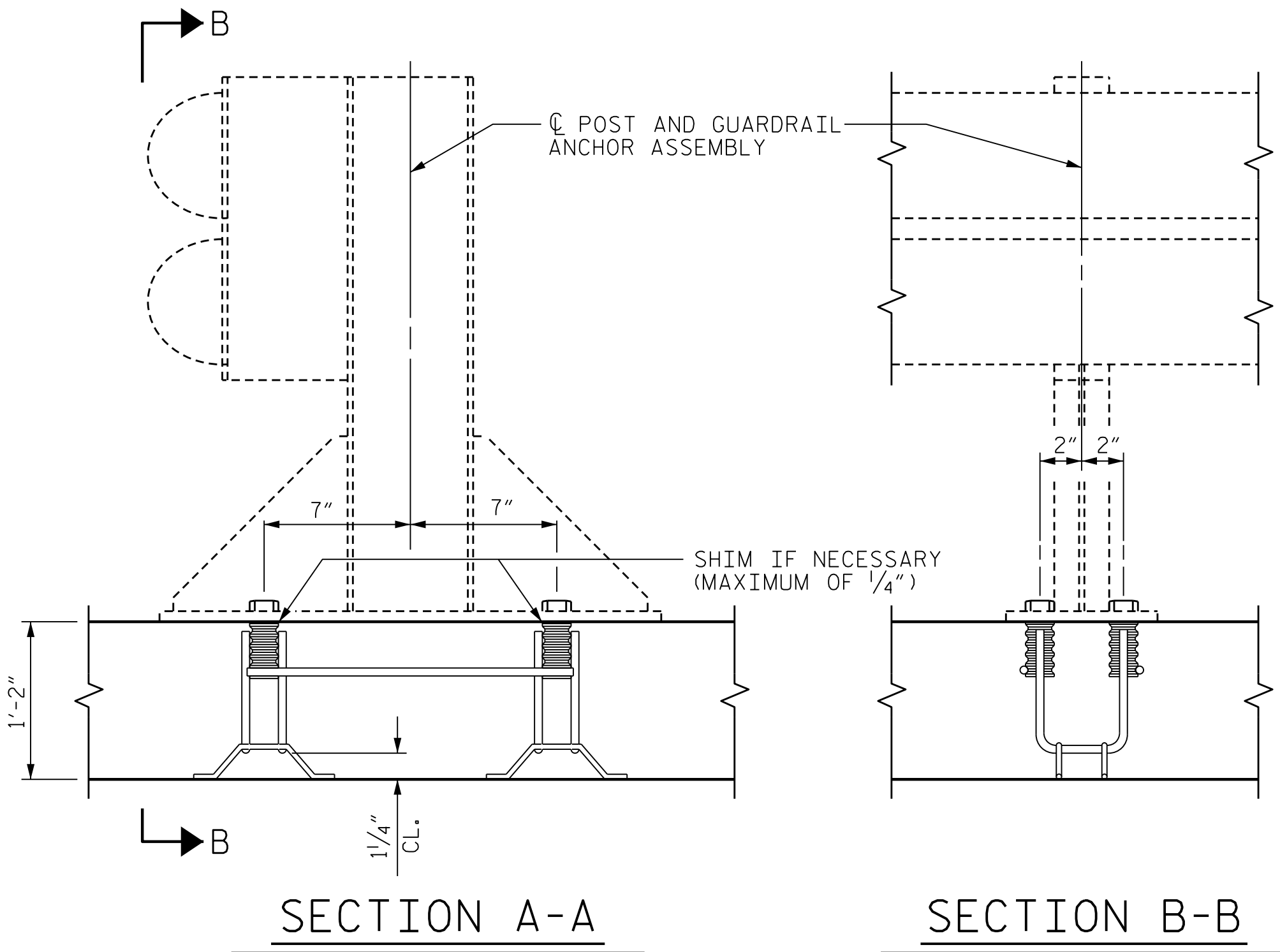
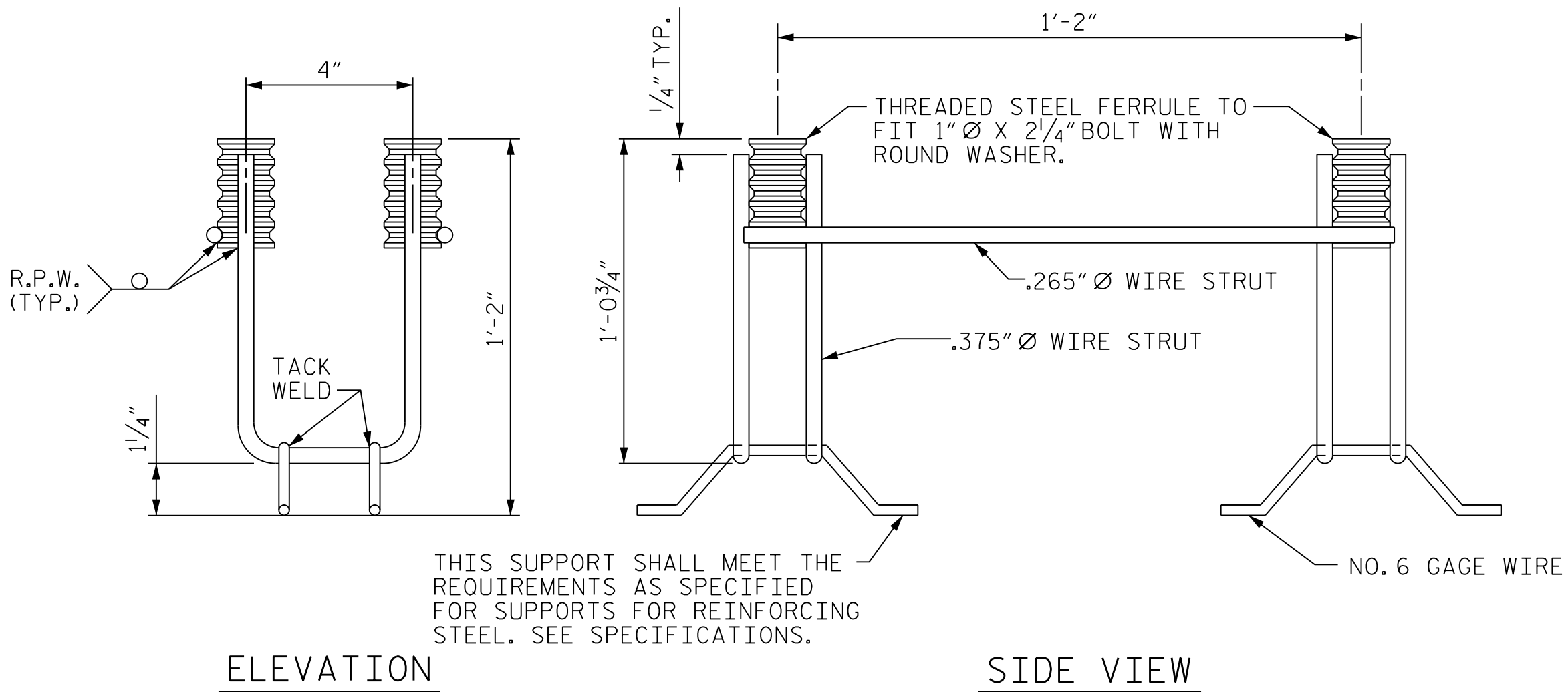
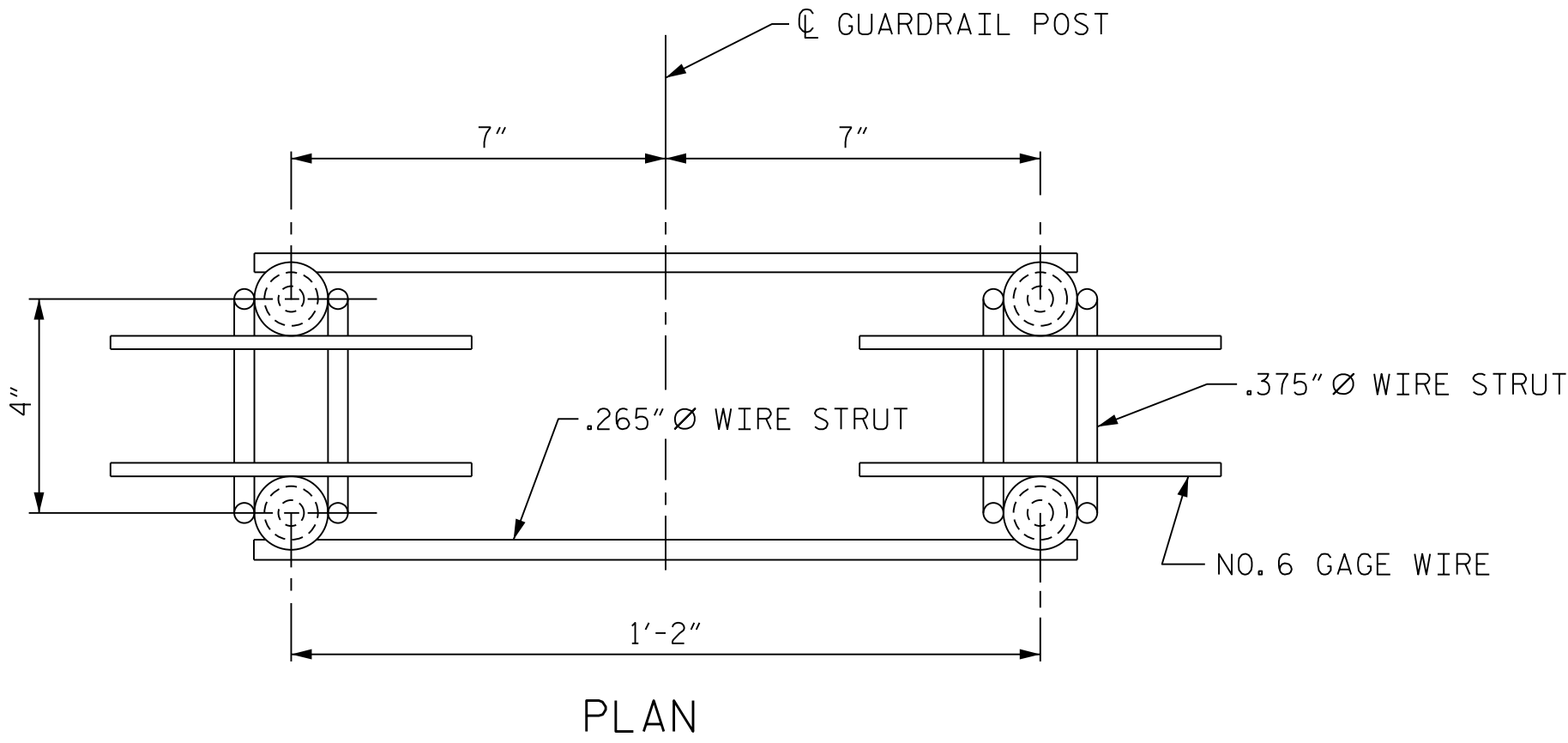
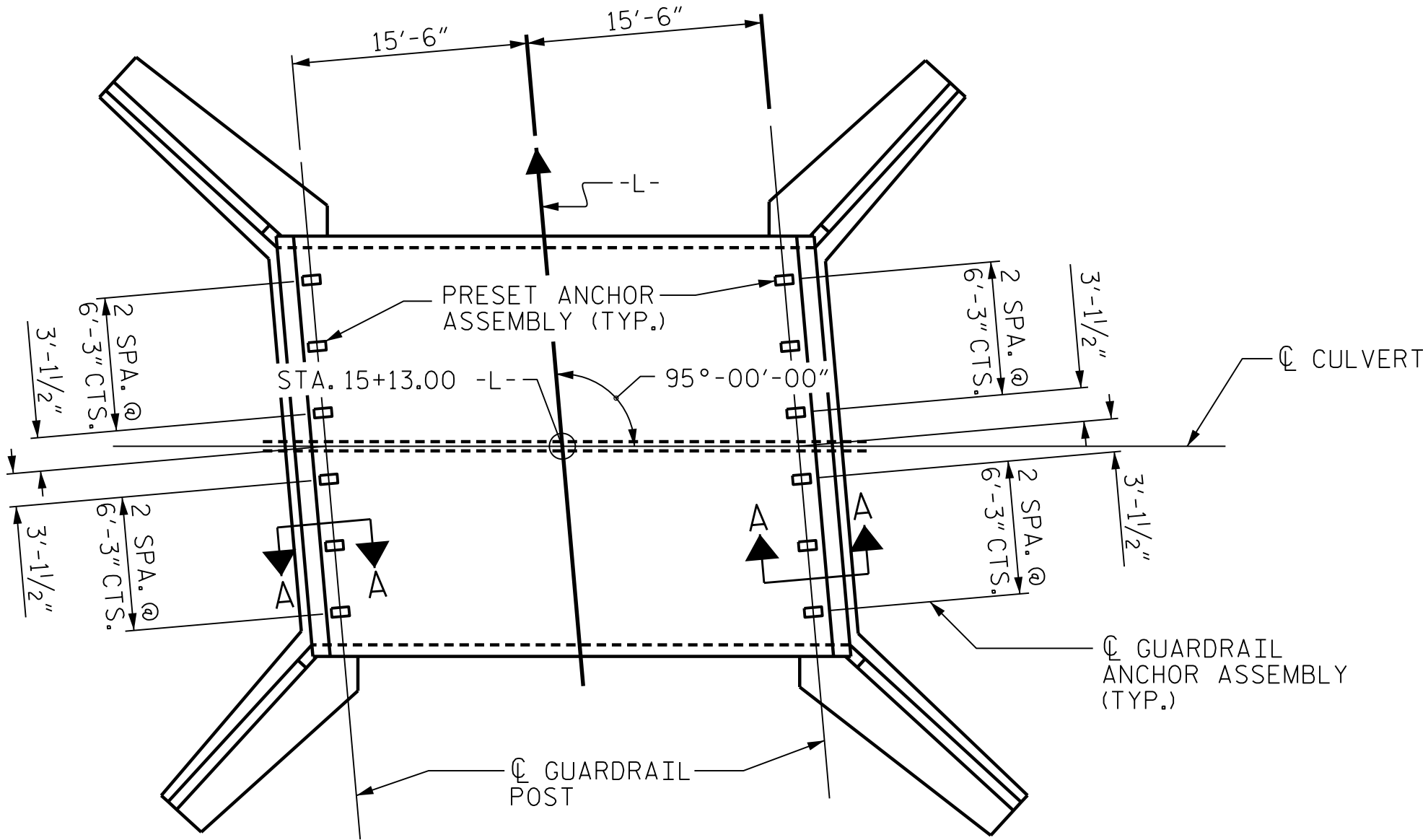
FERRULES TO BE PLUGGED DURING POURING OF SLAB AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

SLAB REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL ANCHOR ASSEMBLY. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO A MINIMUM.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.



PROJECT NO. BP9.R.007
DAVIE COUNTY
STATION: 15+13 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

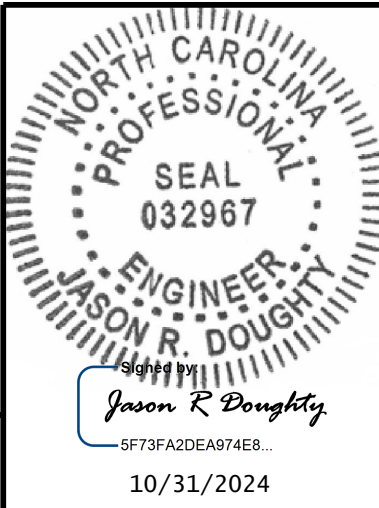
ANCHORAGE DETAILS FOR
GUARDRAIL ANCHOR ASSEMBLY
FOR CULVERTS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-5
2			4			TOTAL SHEETS 6

MODJESKI and MASTERS

333 FAYETTEVILLE STREET, SUITE 500
RALEIGH, NC 27601
NC LICENSE NO. C-2979

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UNLESS ALL SIGNATURES COMPLETED**



DESIGNED BY: C. CORMAN DATE : JAN 2023
DRAWN BY: K. WHITE DATE : MAR 2020
CHECKED BY: M. NIFONG DATE : JAN 2023
DESIGN ENGINEER OF RECORD: J. DOUGHTY DATE : OCT 2024

DRAWN BY: FCJ 6/88 REV. 10/1/11 MAA/GM
CHECKED BY: ARB 6/88 REV. 12/17 MAA/THC
REV. 6/19 MAA/THC

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

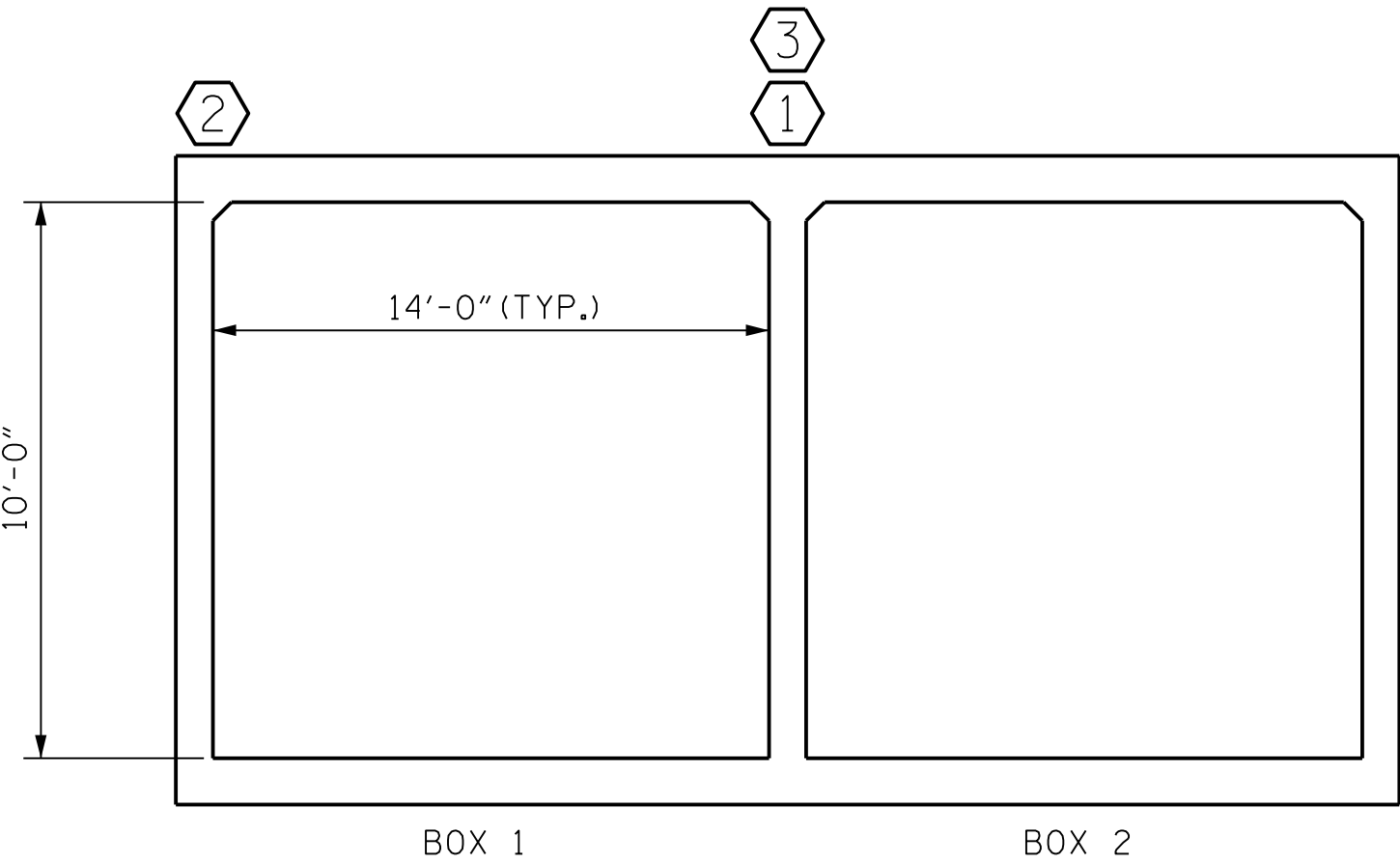
LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	γ	--

NOTE:
RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

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	



BOX 1 BOX 2

LRFR SUMMARY
(LOOKING DOWNSTREAM)

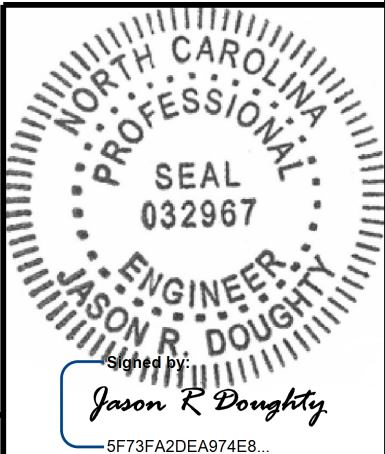
PROJECT NO. BP9.R.007
DAVIE COUNTY
STATION: 15+13 -L-

SHEET 6 OF 6



333 FAYETTEVILLE STREET, SUITE 500
RALEIGH, NC 27601
NC LICENSE NO. C-2979

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
LRFR SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS (NON-INTERSTATE TRAFFIC)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. C-6					TOTAL SHEETS 6

DESIGNED BY:	C. CORMAN	DATE :	JAN 2023
DRAWN BY:	K. WHITE	DATE :	MAR 2020
CHECKED BY:	M. NIFONG	DATE :	JAN 2023
DESIGN ENGINEER OF RECORD:	J. DOUGHTY	DATE :	OCT 2024

DRAWN BY :	WMC	7/II
CHECKED BY :	GM	7/II

REV. 10/1/II	MAA/GM
REV. 12/17	MAA/THC

STANDARD NOTES

DESIGN DATA:	
SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
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 AASHTO
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 2024 "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 ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" 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 ¼" 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 ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞"Ø STUDS FOR 4 - ¾" 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 ⅝" 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 ⅛" 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.