

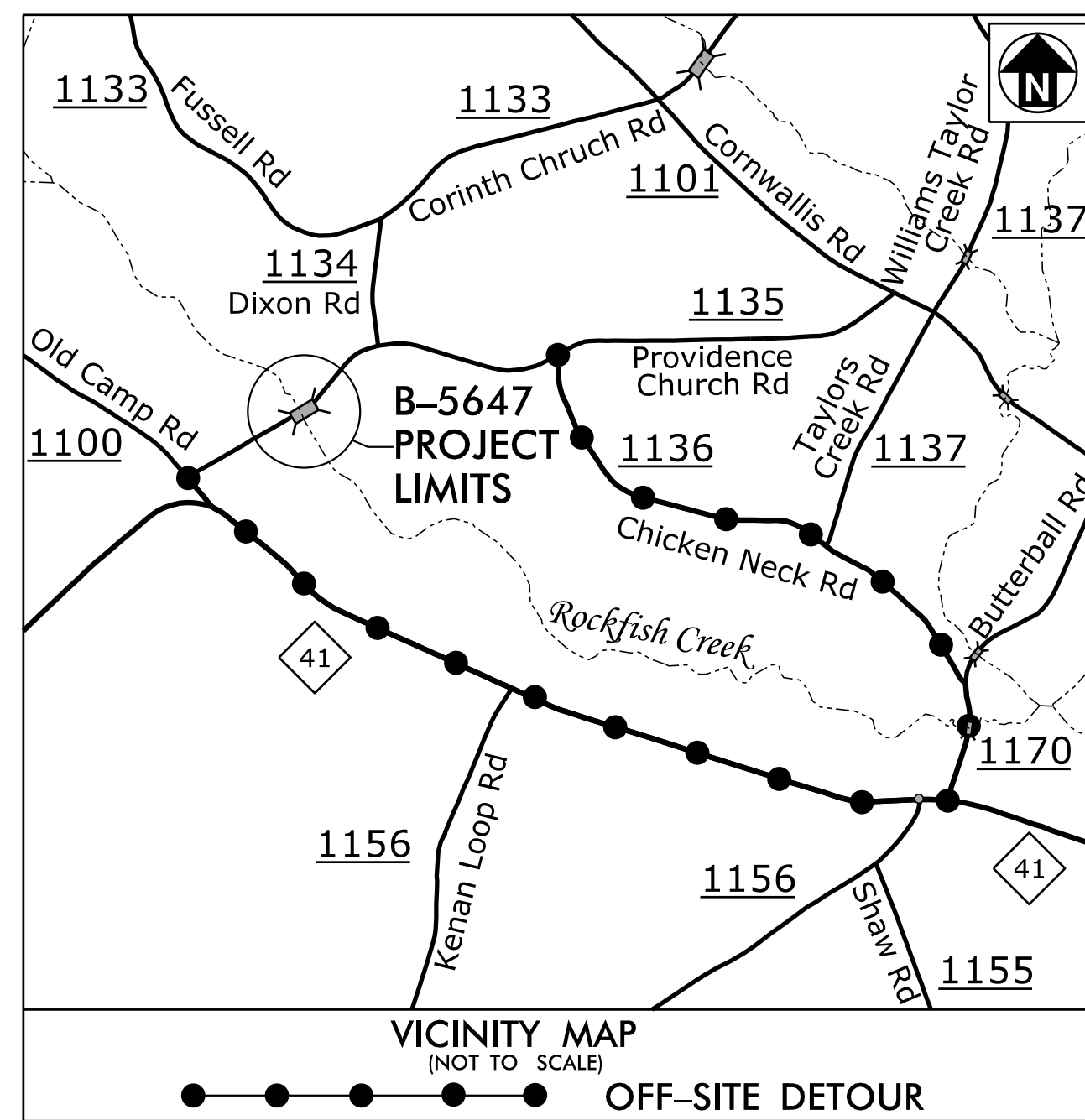
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TIP PROJECT: B-5647

CONTRACT: DC00455



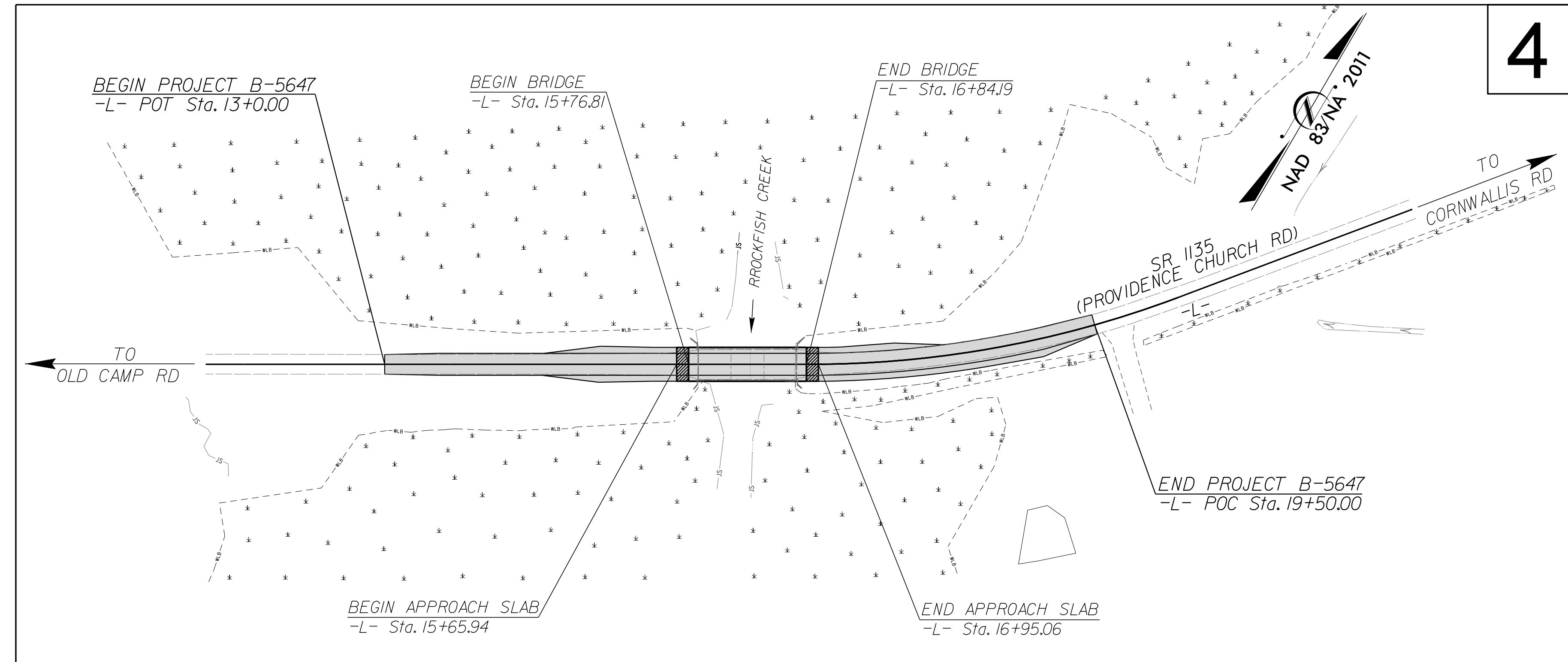
See Sheet 1A For Index of Sheets,
See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
DUPLIN COUNTY

**LOCATION: BRIDGE NO. 52 OVER ROCKFISH CREEK ON
SR 1135 (PROVIDENCE CHURCH ROAD)**

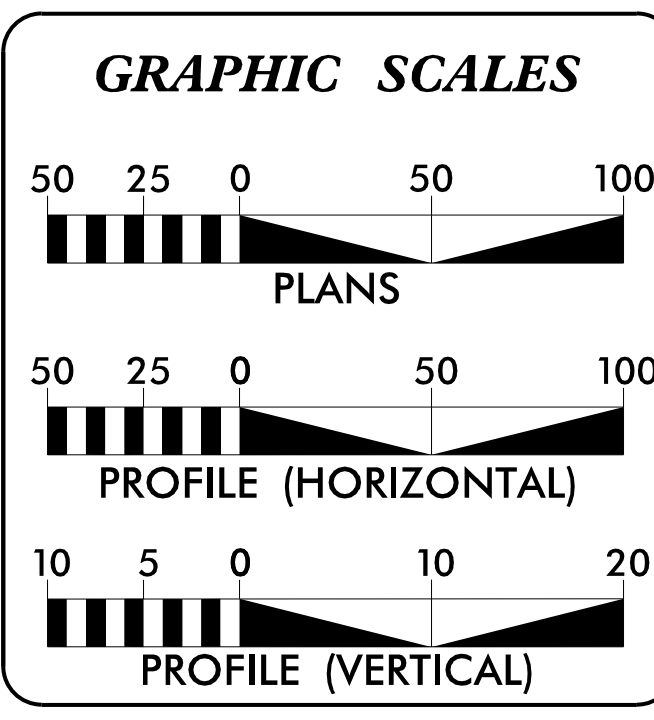
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5647	1	
STATE PROJECT NO.	F.A. PROJ. NO.	DESCRIPTION	
45602.1.1	BRZ-1135(011)	PE	
45602.2.1	BRZ-1135(011)	RW, UTL	
45602.3.1	BRZ-1135(011)	CONST	



4

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



DESIGN DATA

ADT 2023 =	452
ADT 2045 =	600
K =	TBD
D =	TBD
T =	7%*
V =	55 MPH
* TTST N/A	DUAL N/A
FUNC CLASS =	SUB REGIONAL TIER
LOCAL	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT =	0.103 MILES
LENGTH STRUCTURE TIP PROJECT =	0.020 MILES
TOTAL LENGTH TIP PROJECT =	0.123 MILES

PLANS PREPARED FOR THE NCDOT BY:

M M
MOTT
MACDONALD

930 Main Campus Drive, Suite 200
Raleigh, NC 27606
(919) 552-2253
www.mottmac.com
LICENSE NO. F-0669

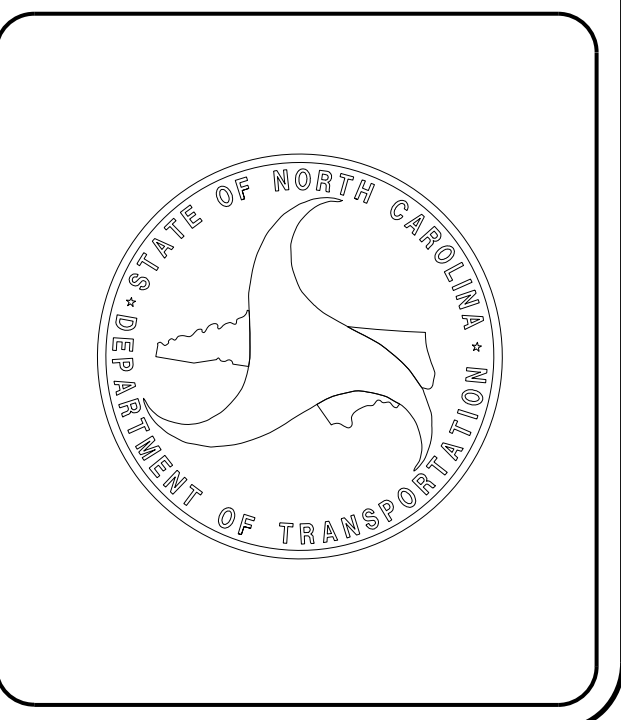
2024 STANDARD SPECIFICATIONS	TIM JORDAN, PE PROJECT ENGINEER
RIGHT OF WAY DATE: FEBRUARY 13, 2023	PADDY JORDAN PROJECT DESIGN ENGINEER
LETTING DATE: MAY 16, 2024	DEREK PIELECH, PE NCDOT CONTACT DIVISION BRIDGE PROGRAM MANAGER

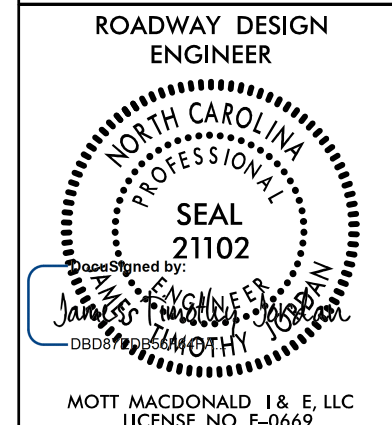


ROADWAY DESIGN ENGINEER

DocuSigned by:
James Timothy Jordan
SIGNATURE: [Signature]

HYDRAULICS ENGINEER

DocuSigned by:
Anton Cornelison
SIGNATURE: [Signature]



PROJECT REFERENCE	SHEET NO.
B-5647	1A
ROADWAY DESIGN ENGINEER	
	
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
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Prepared in the Office of:	
	
	930 Main Campus Drive, Suite 200 Raleigh, NC 27606 www.mottmac.com

GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS EFFECTIVE: 01-16-2024

GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEERS.

GUARDRAIL:

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

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE FOUR COUNTY ELECTRIC, FOCUS BROADBAND AND DUPLIN COUNTY WATER.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

LIST OF ROADWAY STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 01-16-2024

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - 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
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III (Modified)
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
275.01	Rock Plating
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type I Approach Fill for Bridge Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3B-1	GUARDRAIL, EARTHWORK, AND SHOULDER BERM GUTTER SUMMARY
3D-1	DRAINAGE SUMMARY
3G-1	GEOTECHNICAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
RW-01 THRU RW-04	SURVEY CONTROL SHEETS
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLAN
X-1 THRU X-5	CROSS-SECTIONS
S-1 THRU S-18	STRUCTURE PLANS
SN	STRUCTURE NOTES

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	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB
Existing Historic Property Boundary	HPB
Known Contamination Area: Soil	☠-s-☠-s-
Potential Contamination Area: Soil	☠-s-☠-s-
Known Contamination Area: Water	☠-w-☠-w-
Potential Contamination Area: Water	☠-w-☠-w-
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	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	WLB
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	E
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage/Utility Easement	DUE
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Aerial Utility Easement	AUE

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	C
Proposed Slope Stakes Fill	F
Proposed Curb Ramp	CR
Existing Metal Guardrail	T
Proposed Guardrail	T
Existing Cable Guiderail	□
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	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	S

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	PH
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	PH
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	A/G Water
TV:	
TV Pedestal	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	PH
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:

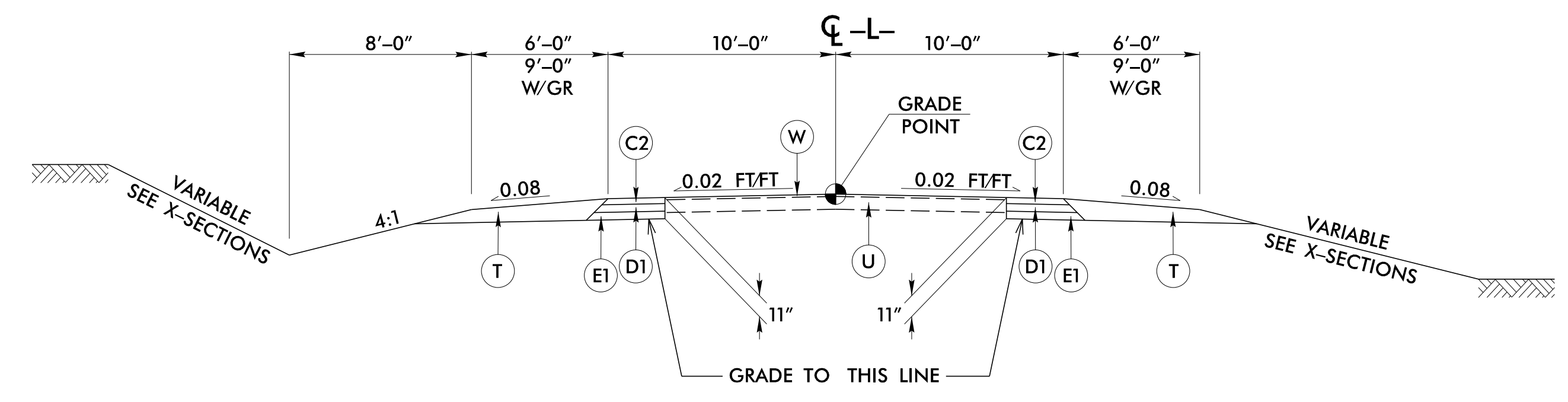
Gas Valve	◇
Gas Meter	⊕
U/G Gas Line Test Hole (SUE - LOS A)*	⊗
U/G Gas Line (SUE - LOS B)*	-----
U/G Gas Line (SUE - LOS C)*	-----
U/G Gas Line (SUE - LOS D)*	-----
Above Ground Gas Line	A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
SS 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.	UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

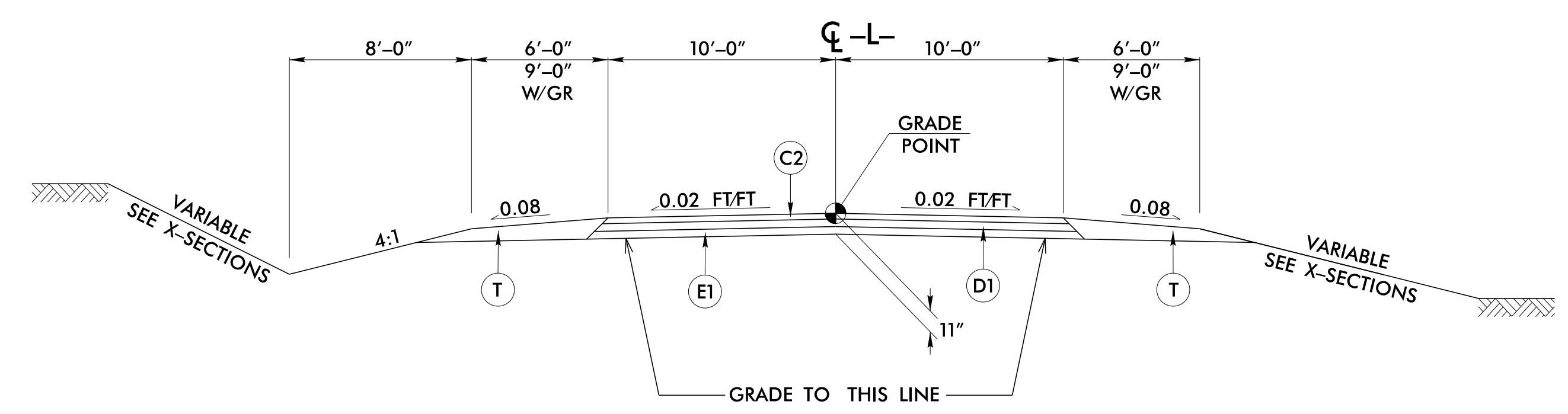


TYPICAL SECTION NO. 1

TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1:
 -L- STA 13+00.00 TO 13+50.00

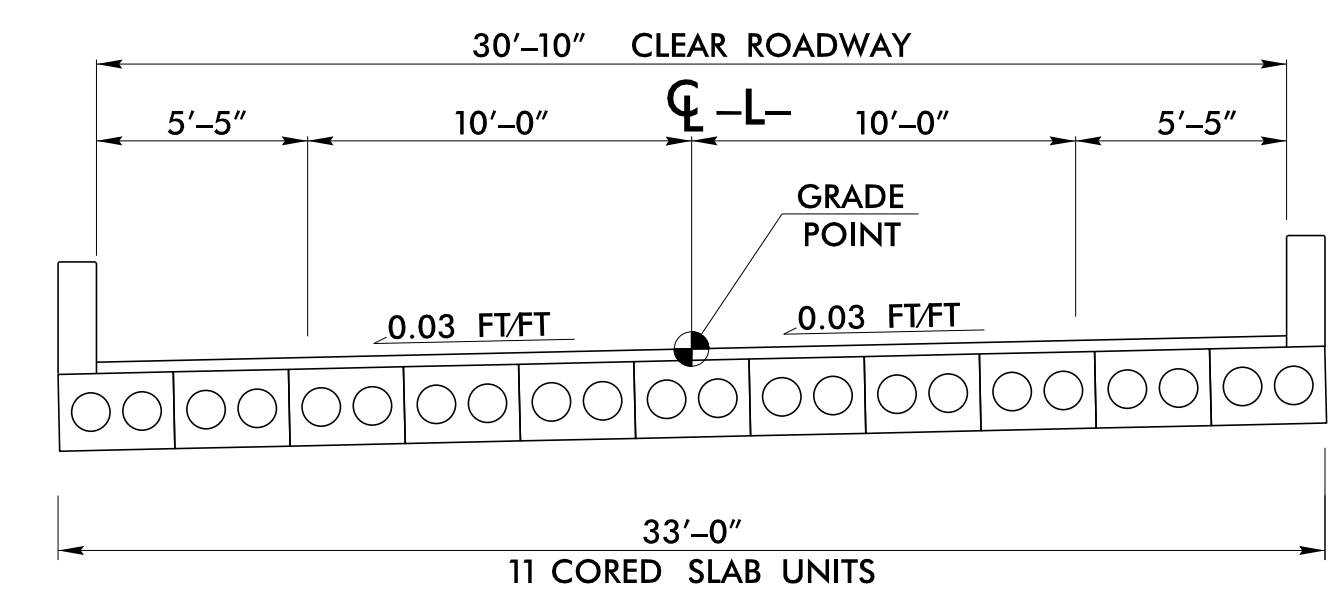
USE TYPICAL SECTION NO. 1:
 -L- STA 13+50.00 TO 15+50.00
 -L- STA 17+05.00 TO 19+00.00

TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING:
 -L- STA 19+00.00 TO 19+50.00



TYPICAL SECTION NO. 2

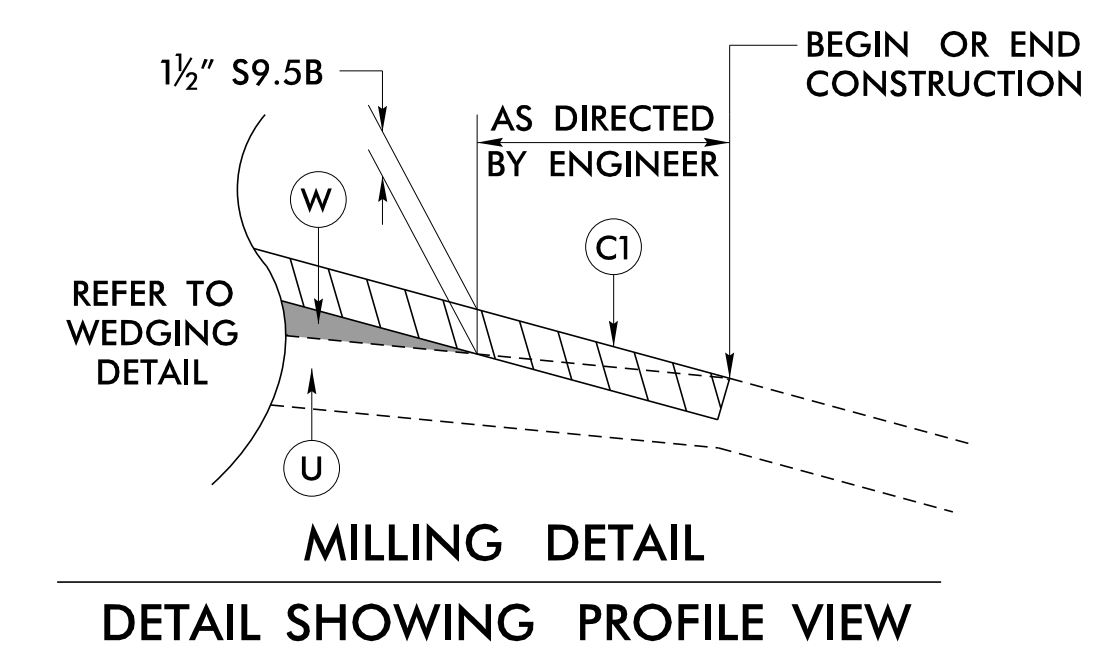
USE TYPICAL SECTION NO. 2:
 -L- STA 15+50.00 TO 15+76.81 (BEGIN BRIDGE)
 -L- STA 16+84.19 (END BRIDGE) TO 17+05.00



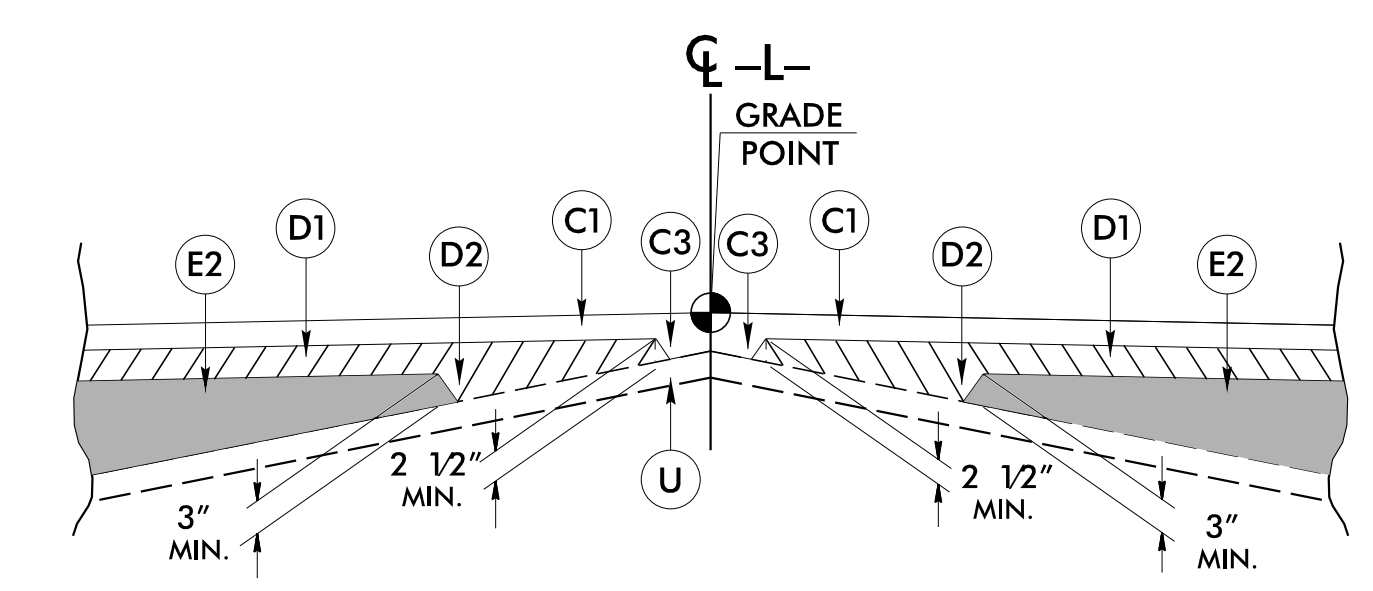
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3:
 -L- STA 15+76.81 (BEGIN BRIDGE) TO 16+84.19 (END BRIDGE)

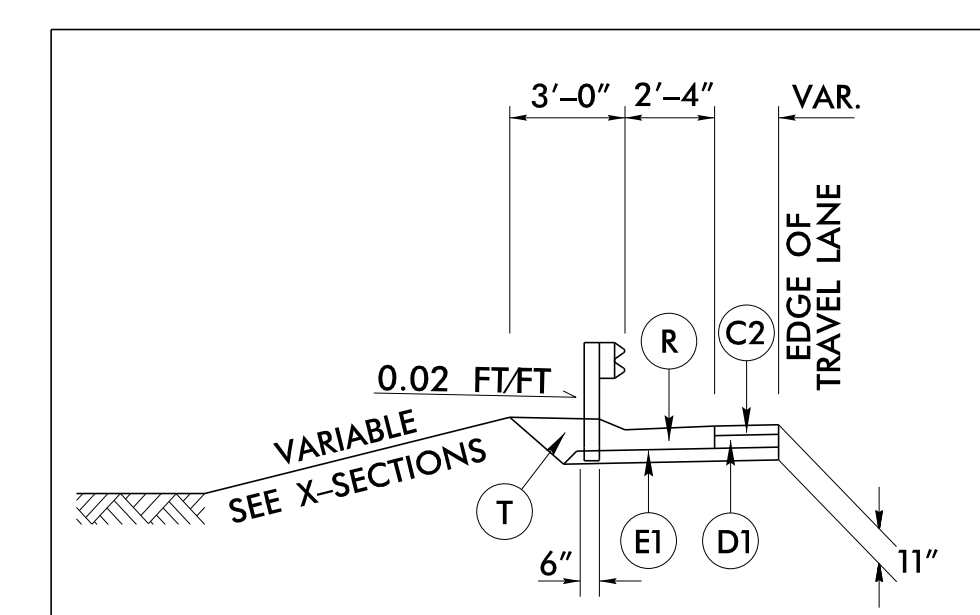
NOTE: SEE STRUCTURE PLANS FOR PAVEMENT DEPTHS ON STRUCTURE



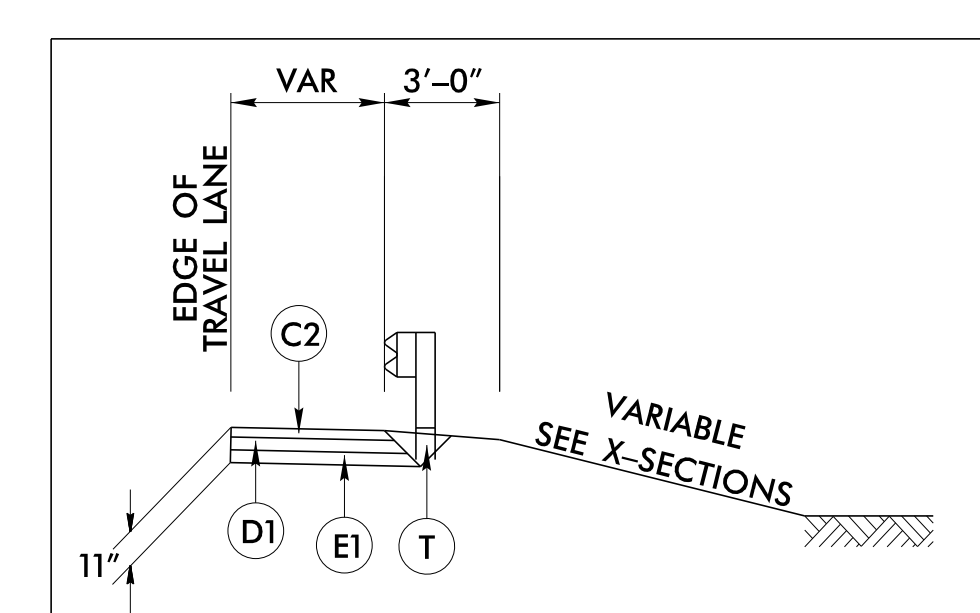
MILLING DETAIL
 DETAIL SHOWING PROFILE VIEW



DETAIL SHOWING METHOD OF WEDGING



DETAIL FOR SHOULDER BERM GUTTER IN CONJUNCTION WITH GUARDRAIL
 -L- STA 15+44.00 TO 15+65.94 LT
 -L- STA 16+95.06 TO 17+11.00 LT



DETAIL FOR FULL DEPTH PAVED SHOULDER IN CONJUNCTION WITH GUARDRAIL

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/2" 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 LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE DETAIL SHOWING METHOD OF WEDGING).

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

MOTT MACDONALD
 R:\Roadway\Proj\B5647_rdy_tup.dgn
 1/29/2024

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS							IMPACT ATTENUATOR TYPE 350			REMARKS																							
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	AT-1	GREU TL-3	TYPE III											PERMITTED																				
																							NO.	G	NG																							
-L-	14+95.56	15+76.81	RT	81.25'				15+76.81	6'	9'								1	1																													
-L-	14+95.56	15+76.81	LT	81.25'				15+76.81	6'	9'								1	1																													
-L-	16+84.19	19+02.94	RT	218.75'				16+84.19	6'	9'								1	1																													
-L-	16+84.19	17+65.44	LT	81.25'				16+84.19	6'	9'								1	1																													
SUBTOTAL				462.50'																																												
LESS ANCHOR DEDUCTIONS																																																
				GREU TL-3	4 x 50.00'	=	-200.00'																																									
				TYPE III	4 x 18.75'	=	-75.00'																																									
TOTAL				187.50'																																												
																															4	4																5 ADDITIONAL GUARDRAIL POSTS

SUMMARY OF EARTHWORK IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- 13+00.00 TO 15+76.81 (BEGIN BRIDGE)	103		69		34
-L- 16+84.19 (END BRIDGE) TO 19+50.00	95		364	269	
SUBTOTAL	198		433	269	34
WASTE IN LIEU OF BORROW				-34	-34
PROJECT TOTAL	198		433	235	0
5% TO REPLACE BORROW				12	
GRAND TOTAL	198			247	
SAY	210			260	

SUMMARY OF SHOULDER BERM GUTTER

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH
-L-	15+44.00	15+65.94	LT	21.94'
-L-	16+95.06	17+11.00	LT	15.94'
TOTAL:				37.88'
SAY:				40'

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

SUB-REGIONAL & REGIONAL LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	SIZE	LOCATION (LT, RT, OR CL)		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CAAP, HDPE, or PVC)								C.S. PIPE								R.C. PIPE (CLASS III)								R.C. PIPE (CLASS IV)								15" SIDE DRAIN PIPE	36" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES		PER EACH (0' THRU 5.0')	TYPE OF GRATE E F G	FRAME, GRATES AND HOOD STANDARD 840.03	CONCRETE TRANSITIONAL SECTION															
		THICKNESS OR GAUGE	FROM					TO																									R.C.P.	C.S.P.	CU. YDS.	PER EACH (0' THRU 5.0')		CATCH BASIN	DROP INLET				G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.22				G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS								
									DO NOT USE RCP								DO NOT USE PVC								DO NOT USE CAAP											DO NOT USE HDPE																				A	B						
									12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"				12"	15"																					18"	24"	30"	36"	42"	48"
17+06	LT	401	402	53.9	49.9	49.0		24'																																																							
15+56	LT	403	404	54.5	51.7	51.6		16'																																																							
18+50	RT	405			49.6	49.1																																																									
TOTAL								40'																																																							

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

COMPUTED BY: Tyler C. Bottoms DATE: 4/26/2023
 CHECKED BY: Thein Tun Zan DATE: 5/2/2023

(2-3-23)

PROJECT NO.
B-5647

SHEET NO.
3G-1

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

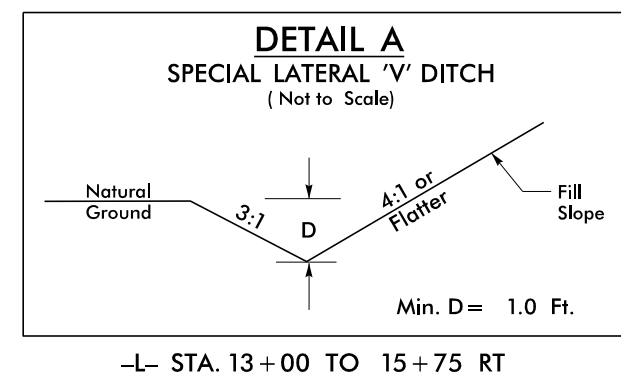
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

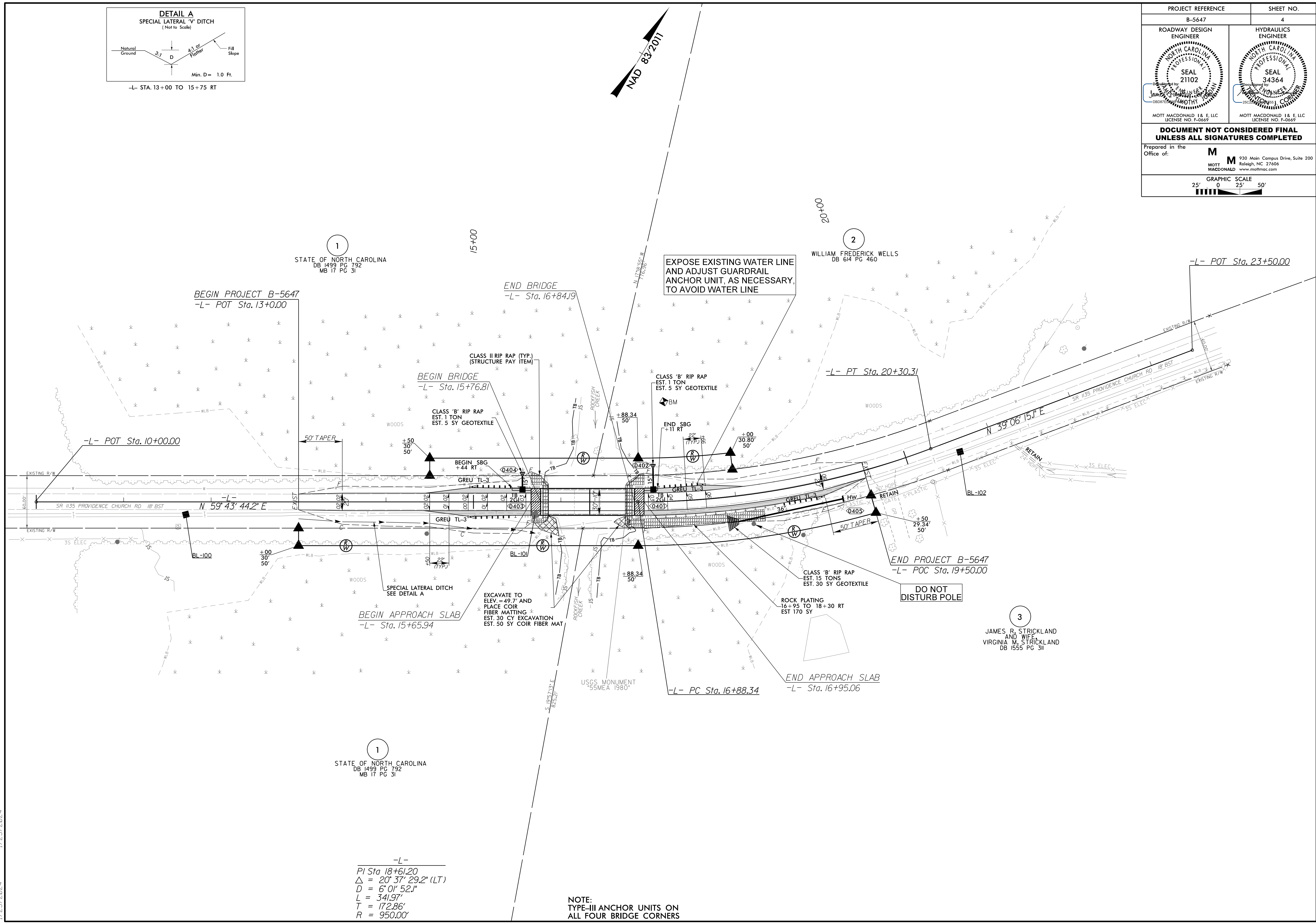
SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L-	2:1	16+95	2.5:1	18+30	RT	1	*	170
							TOTAL SY:	170

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.



PROJECT REFERENCE		SHEET NO.	
B-5647		4	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669		MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:		 930 Main Campus Drive, Suite 200 Raleigh, NC 27606 www.mottmac.com	
GRAPHIC SCALE 25' 0 25' 50'			



BEGIN PROJECT B-5647
-L- POT Sta. 13+00.00

-L- POT Sta. 10+00.00

BEGIN BRIDGE
-L- Sta. 15+76.81

END BRIDGE
-L- Sta. 16+84.19

BEGIN APPROACH SLAB
-L- Sta. 15+65.94

-L- PC Sta. 16+88.34

END APPROACH SLAB
-L- Sta. 16+95.06

-L- PT Sta. 20+30.31

END PROJECT B-5647
-L- POC Sta. 19+50.00

-L- POT Sta. 23+50.00


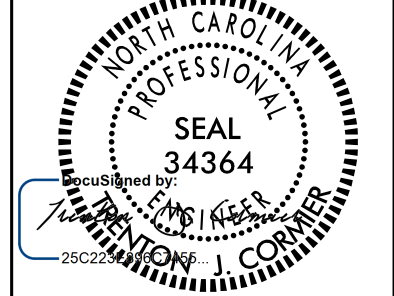
STATE OF NORTH CAROLINA
DB 1499 PG 792
MB 17 PG 31

STATE OF NORTH CAROLINA
DB 1555 PG 311

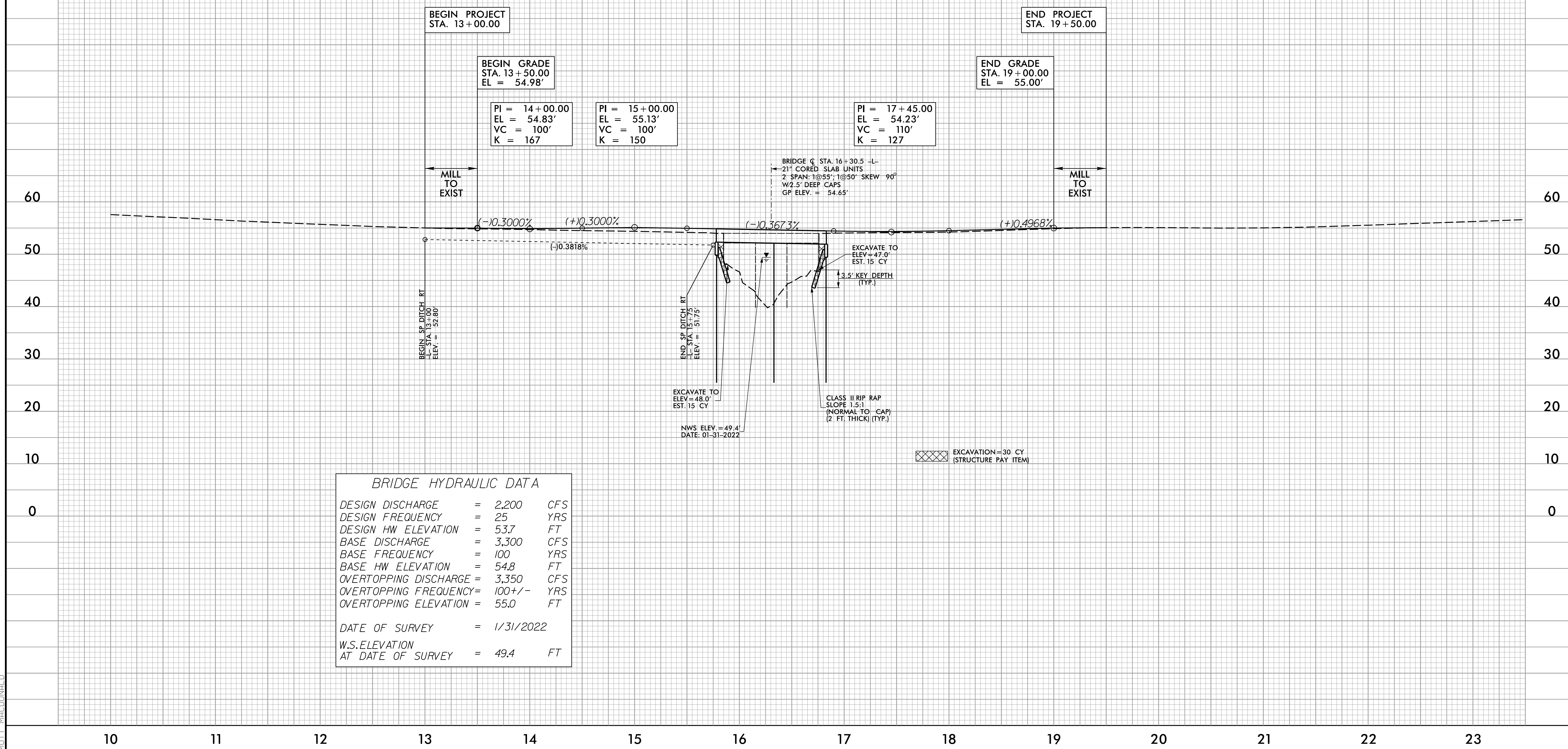
-L-
PI Sta 18+61.20
 $\Delta = 20' 37' 29.2" (LT)$
 $D = 6' 01' 52.1"$
 $L = 341.97'$
 $T = 172.86'$
 $R = 950.00'$

NOTE:
TYPE-III ANCHOR UNITS ON
ALL FOUR BRIDGE CORNERS

MOTT MACDONALD
R:\Roadway\Proj\B5647-rdy_pah.dgn
1/23/2024

PROJECT REFERENCE B-5647	SHEET NO. 5
ROADWAY DESIGN ENGINEER MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER MOTT MACDONALD I & E, LLC LICENSE NO. F-0669
 	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
<p>Prepared in the Office of: M MOTT MACDONALD</p>	
<p>930 Main Campus Drive, Suite 200 Raleigh, NC 27606 www.mottmac.com/america</p>	
VERTICAL SCALE 5' 0 5' 10'	HORIZONTAL SCALE 25' 0 25' 50'

-L-

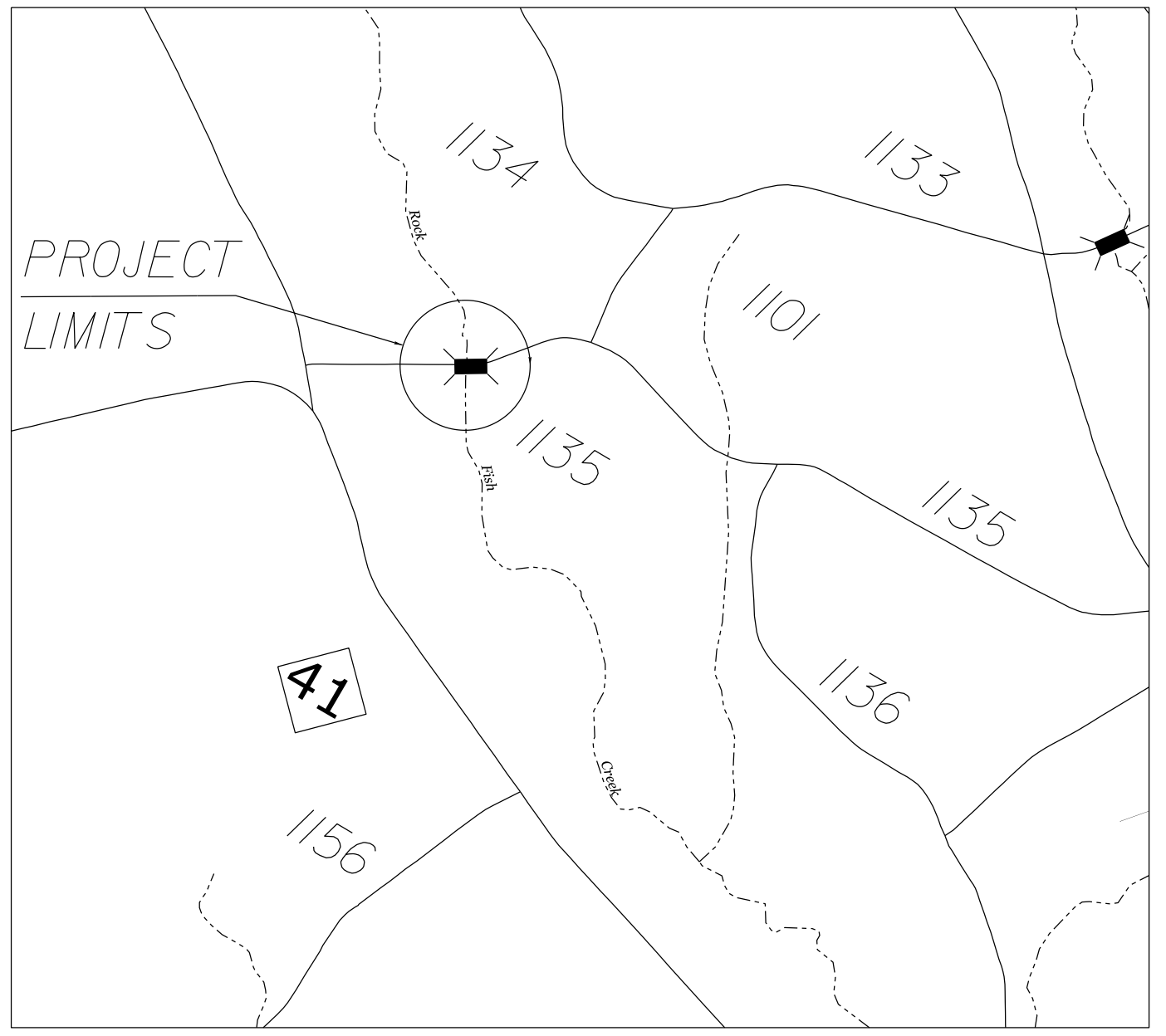


1/23/2024 1/23/2024
 R:\Roadway\Pro\B5647_rdy_psh_pfl.dgn
 MOTT MACDONALD

09/08/99

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5647	RW01	05

TIP PROJECT: B-5647



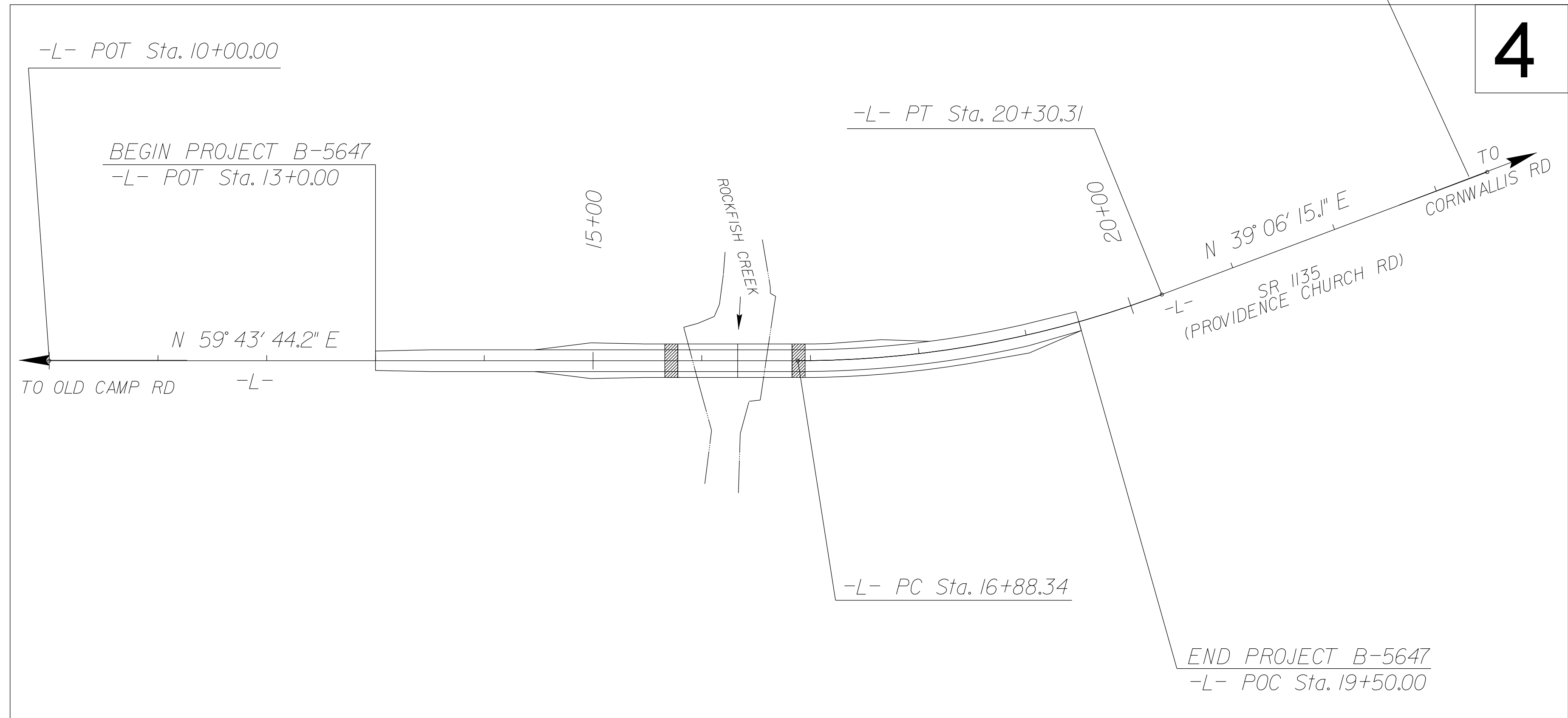
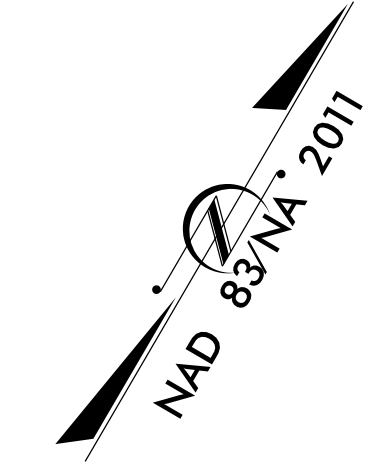
VICINITY MAP

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

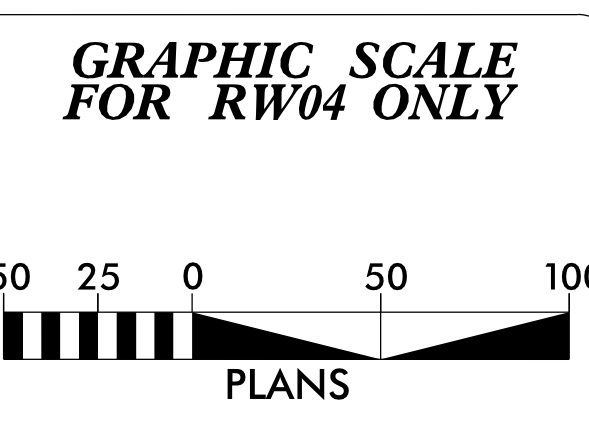
SURVEY CONTROL, EXISTING CENTERLINES,
 RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

DUPLIN COUNTY

LOCATION: BRIDGE No. 52 OVER ROCKFISH CREEK
ON SR 1135 (PROVIDENCE ROAD)



4



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B5642-2" WITH NAD 1983/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 371,086.905(ft) EASTING: 2,270,233.694(ft) ELEVATION: 61.63(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99991092

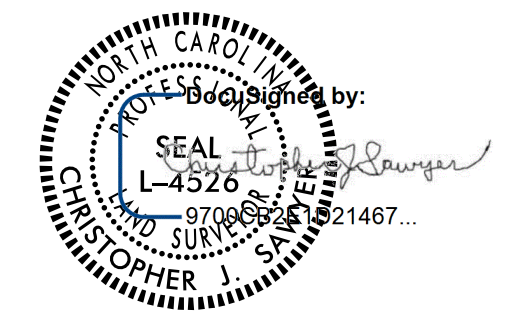
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5647-2" TO -L- STATION 10+00.00 IS S 61° 48' 38.11" W 392.46(ft)

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

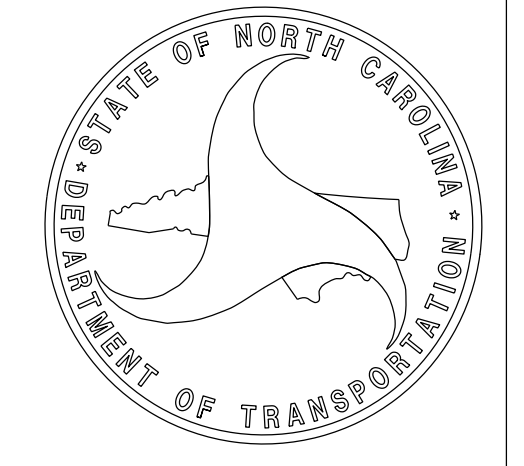
Prepared in the Office of:

LOCATION & SURVEY'S UNIT
 5310 BARBADOS BLVD., SUITE 102
 CASTLE HAYNE, N.C., 28429

PROFESSIONAL LAND SURVEYOR



CHRISTOPHER J. SAWYER
 SIGNATURE: _____ Date: 07/05/2023



2018 STANDARD SPECIFICATIONS

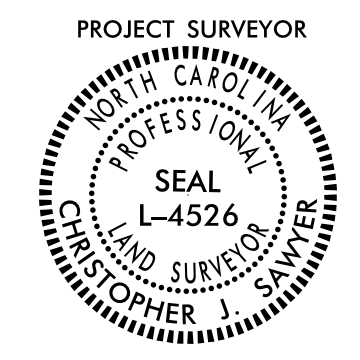
RIGHT OF WAY DATE: 01/20/2023

LETTING DATE: 05/16/24

18-APR-2024 07:22
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 mjd\atl LS-328725L

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. B5647	SHEET NO. RW02C-1
Location and Surveys	
LOCATION & SURVEYS UNIT 5310 BARBADOS BLVD., SUITE 102 CASTLE HAYNE, N.C., 28429	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

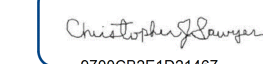
RBLREV POINT	DESC.	NORTH	EAST	ELEVATION
B56471	GPS CAP & REBAR	370445.5350	2269128.4160	71.77
B56472	GPS CAP & REBAR	371086.9050	2270233.6940	61.63
RBL100	TRV CAP & REBAR	371346.0640	2270734.6470	54.53
RBL101	TRV CAP & REBAR	371546.9630	2271079.6140	52.88
RBL102	TRV CAP & REBAR	371854.3910	2271463.1760	54.34

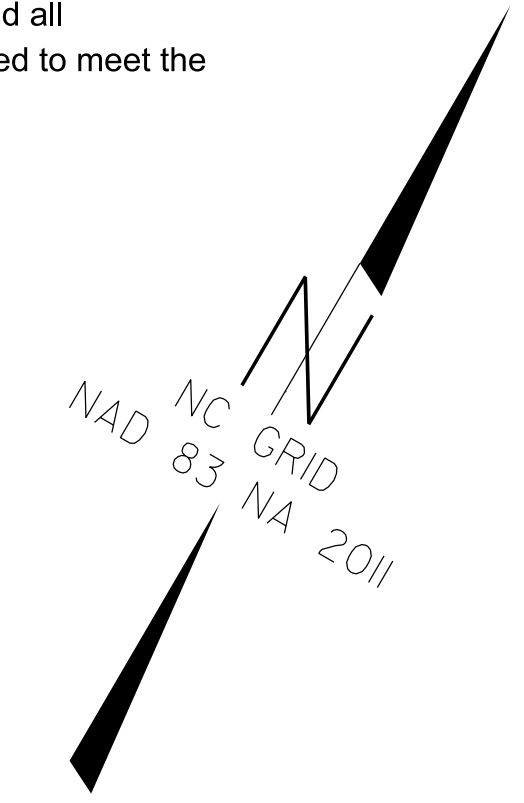
I, CHRISTOPHER J. SAWYER, PLS, certify that the Project Control was PERFORMED under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
 Type of GPS field procedure: RTN
 Dates of survey: APRIL, 2016/ APRIL, 2022
 Datum/Epoch: NAD 1983/NA 2011
 Published/Fixed-control use: N/A for RTN
 Localized around: B5647-2
 Northing: 371086.905
 Easting: 2270233.694
 Combined grid factor: 0.99991092
 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 from APRIL, 2022, 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.

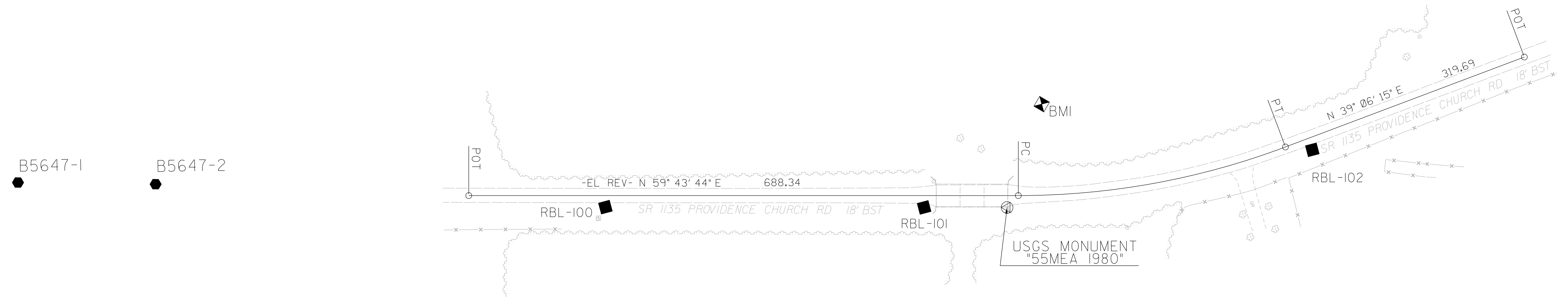
This 14th day of February, 2024.

DocuSigned by:

CHRISTOPHER J. SAWYER
 Professional Land Surveyor L-4526



 BM1 ELEVATION = 50.65
 N 371733 E 2271142
 NAIL SET IN 24" CYPRESS

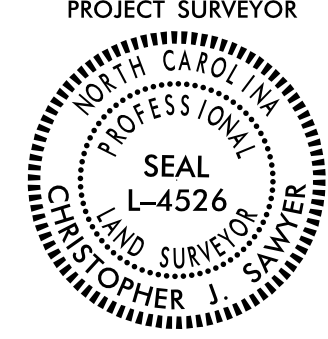
EL-REV POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT LINE	371243.724	2270530.650	N 59°43'44.2" E	735.02					
PC CURVE	371614.242	2271165.450	N 49°24'59.7" E	359.82	20°37'29.2(LT)	05°42'03.9"	361.77	182.86	1005.00
PT LINE	371848.324	2271438.719	N 39°06'15.1" E	342.24					
POT	372113.905	2271654.583							



NOTES:

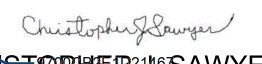
1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO. B-5647	SHEET NO. RW02D-1
Location and Surveys	
LOCATION & SURVEYS UNIT 5310 BARBADOS BLVD., SUITE 102 CASTLE HAYNE, N.C. 28429	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, CHRISTOPHER J. SAWYER, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 14th day of February, 2024.

DocuSigned by:

CHRISTOPHER J. SAWYER
Professional Land Surveyor L-4526

REVISIONS


M:\FEB-2024\1047 Projects\BridgE\Duplin\B-5647_EPB_0052\Working\150 series plans\B5647_L.S._RW02D-1.dgn
S:\Users\mjudva\OneDrive\AT\LS-328751

TYPE	STATION	NORTH	EAST
POT	10+00.00	371272.3006	2270579.6087
PC	16+88.34	371619.2864	2271174.0933
PT	20+30.31	371840.5584	2271432.4070
POT	23+50.00	372088.6372	2271634.0452

NOTES:

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

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO. B-5647	SHEET NO. RW03E-1
Location and Surveys	
LOCATION & SURVEYS UNIT 5310 BARBADOS BLVD., SUITE 102 CASTLE HAYNE, N.C. 28429	
<div style="display: flex; justify-content: center; align-items: center;"> <div style="text-align: center; margin-right: 10px;">PROJECT SURVEYOR</div>  </div>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, CHRISTOPHER J. SAWYER, 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 from APRIL 2016 & APRIL 2022, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 14th day of February, 2024.

Christopher Sawyer
CHRISTOPHER J. SAWYER
Professional Land Surveyor L-4526

ROW MARKER IRON PIN AND CAP - E


ALIGN	STATION	OFFSET	NORTH	EAST
L	13+00.00	30.00	371397.6184	2270853.8266
L	13+00.00	50.00	371380.3454	2270863.9084
L	14+50.00	-30.00	371525.0511	2270953.1287
L	14+50.00	-50.00	371542.3241	2270943.0469
L	16+88.34	50.00	371576.1039	2271199.2979
L	16+88.34	-50.00	371662.4689	2271148.8888
L	18+00.00	-30.80	371705.7014	2271248.4647
L	18+00.00	-50.00	371721.0338	2271236.9085
L	19+50.00	50.00	371745.7509	2271415.1784
L	19+50.00	29.34	371760.0906	2271400.3022

REVISIONS

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NOTES:

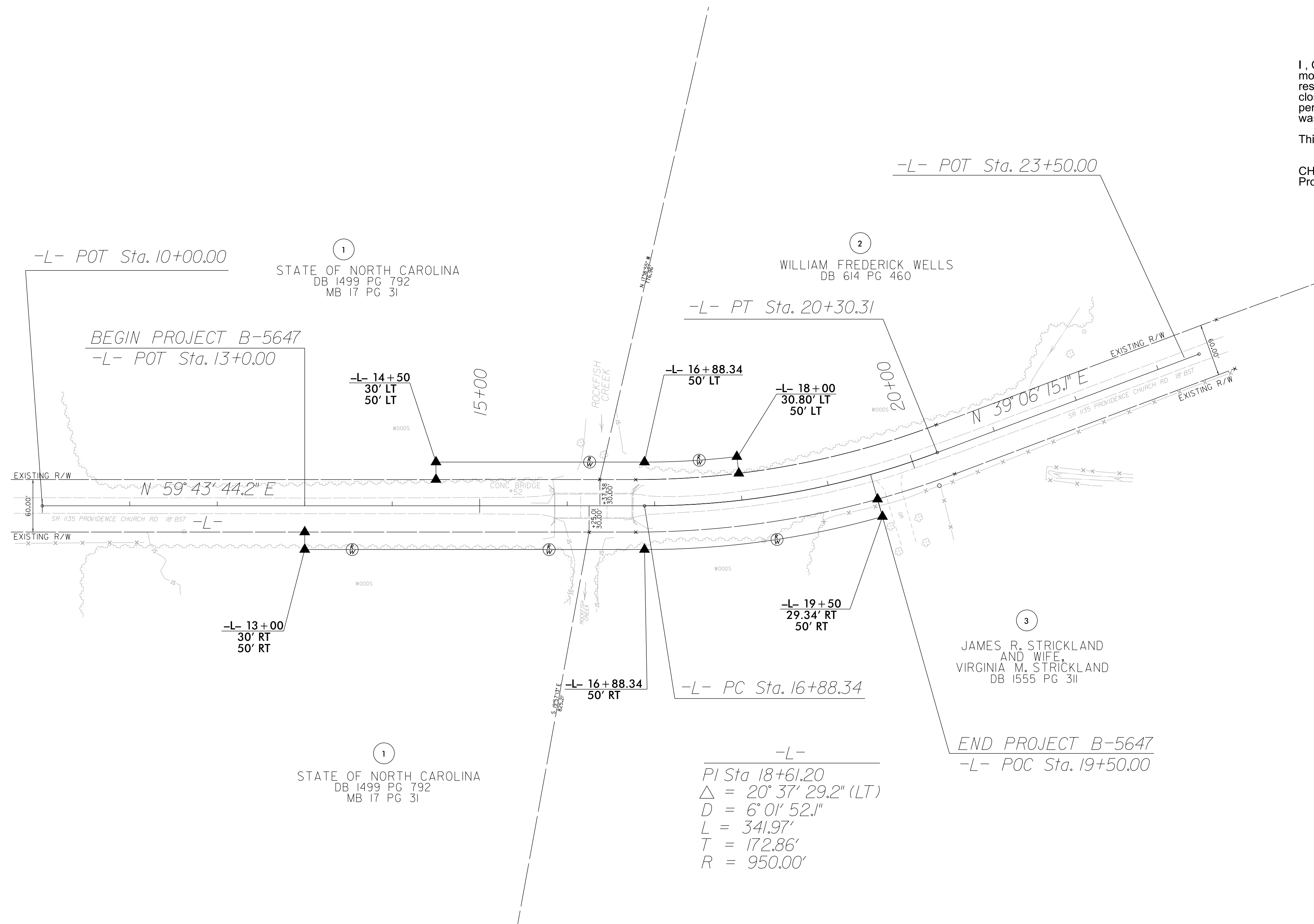
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

PROJECT REFERENCE NO.	SHEET NO.
B-5647	RW04
Location and Surveys	
LOCATION & SURVEYS UNIT 5310 BARBADOS BLVD., SUITE 102 CASTLE HAYNE, N.C. 28429	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



REVISIONS

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S:\Users\mjudva\OneDrive\Work\150 series plans\B5647.LS.RW04.dgn



I, CHRISTOPHER J. SAWYER, 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 18, 2023 and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 14th day of February, 2024.
 Christopher J. Sawyer
 CHRISTOPHER J. SAWYER
 Professional Land Surveyor L-4526

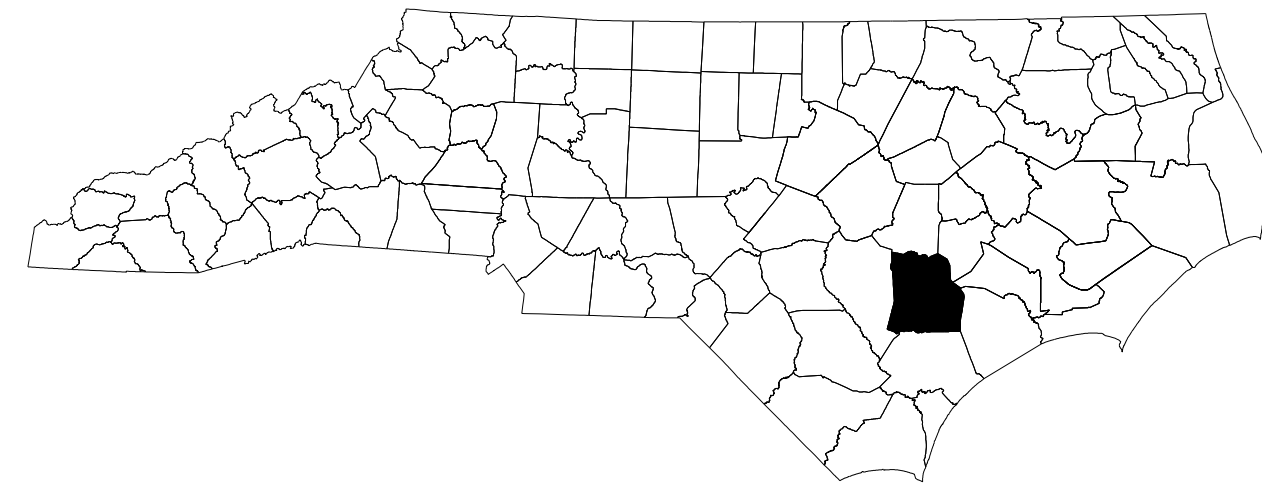
NOTES:

- 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.

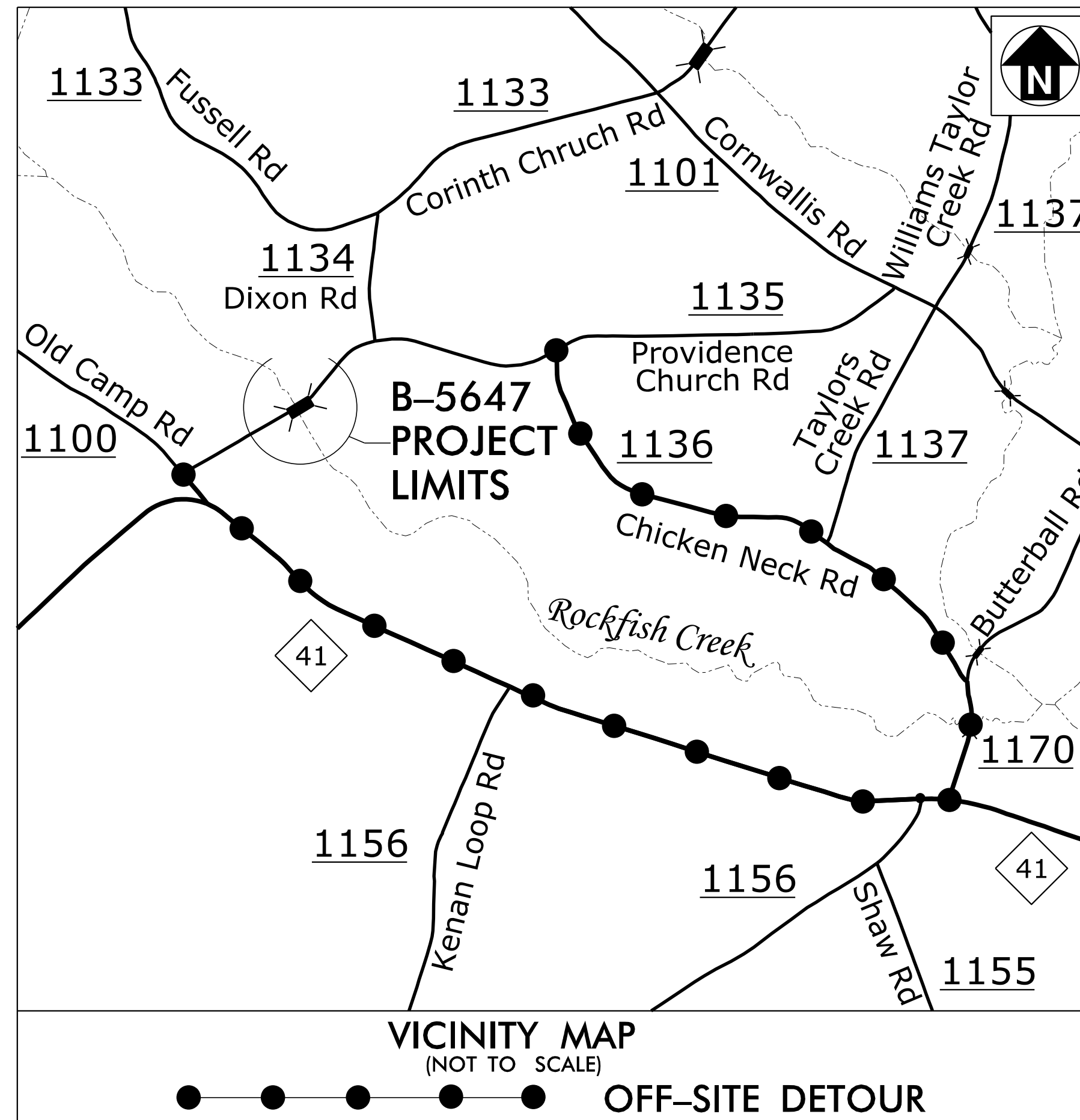
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

DUPLIN COUNTY



**LOCATION: BRIDGE NO. 52 OVER ROCKFISH CREEK
ON SR 1135 (PROVIDENCE CHURCH ROAD)**



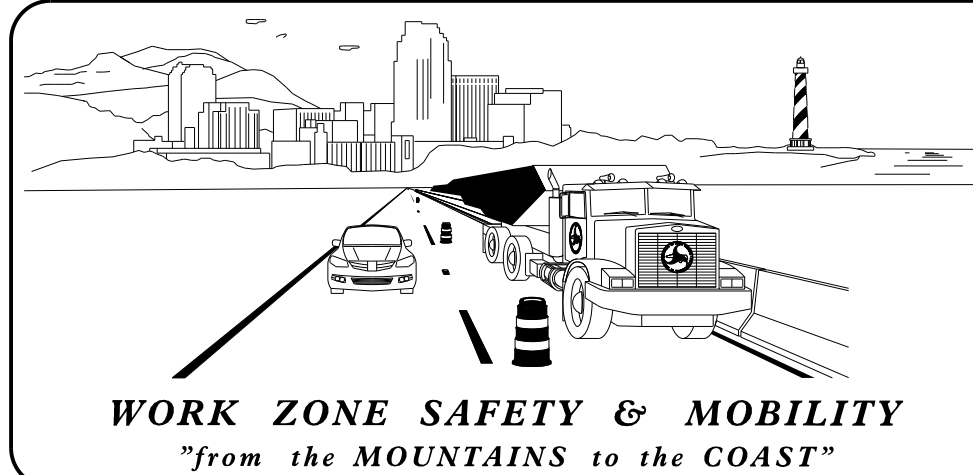
INDEX OF SHEETS	
SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: GENERAL NOTES, LOCAL NOTES, & TEMPORARY TRAFFIC CONTROL PHASING
TMP-2	SPECIAL SIGN DESIGN
TMP-3&4	TEMPORARY TRAFFIC CONTROL DETOUR

SHEET NO.
TMP-1

B-5647

TIP PROJECT:

1/29/2024 G:\386695_2017_NCDOT_BridgeDesign_LSA\Proj\B-5647\TrafficControl\Tep\200_005_B-5647_TC_TMP_01.dgn User:ST086227

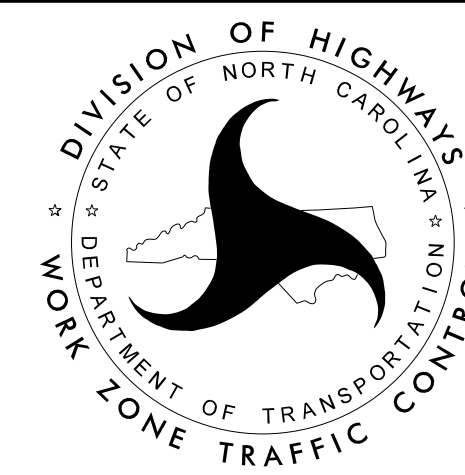


PLANS PREPARED FOR THE NCDOT BY:
M MOTT MACDONALD I & E, LLC
1101 HAYNES STREET, SUITE 101
RALEIGH, NC 27604
M MOTT MACDONALD NC LICENSE NO. F-0669

LORI D STOUCHKO, PE
Principal Project Engineer

NCDOT CONTACTS:

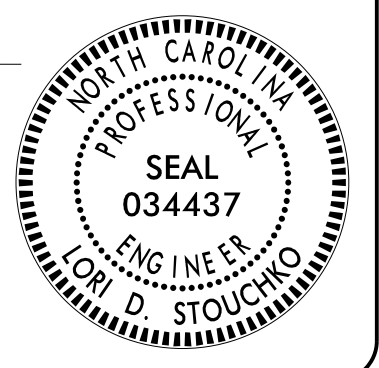
DEREK PIELECH, PE
NCDOT CONTACT
DIVISION BRIDGE
PROGRAM MANAGER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

APPROVED: 
DATE: _____

SEAL



PROJ. REFERENCE NO.	SHEET NO.
B-5647	TMB-1B

PLANS PREPARED FOR THE NCDOT BY:

M MOTT MACDONALD I & E, LLC
1101 HAYNES STREET, SUITE 101
RALEIGH, NC 27604
M MOTT MACDONALD NC LICENSE NO. F-0669

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- B) 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.

- C) 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.

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

- F) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

PHASING

STEP 1: USING RSD 1101.03, SHEET 1 OF 9, AND SHEETS TMP-2, TMP-3 AND TMP-4, PLACE TEMPORARY DETOUR SIGNS AND COVER

STEP 2: UNCOVER TEMPORARY DETOUR SIGNS AND CLOSE -L- TO TRAFFIC

STEP 3: CONSTRUCT -L- AND PROPOSED STRUCTURE


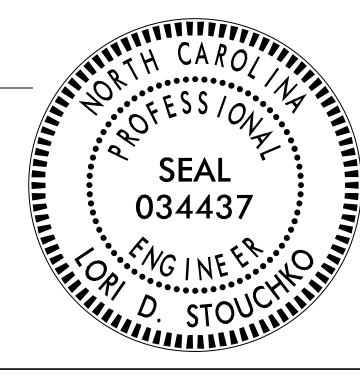

PLACE FINAL PAVEMENT MARKINGS ON -L-

STEP 4: REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND OPEN -L- TO TRAFFIC

LOCAL NOTES

DUPLIN COUNTY SCHOOL TRANSPORTATION WILL BE CONTACTED AT (910)296-0479 AND DUPLIN COUNTY EMERGENCY MANAGEMENT WILL BE CONTACTED AT (910)296-2160 AT LEAST ONE MONTH PRIOR TO BRIDGE CLOSURE TO MAKE NECESSARY TEMPORARY REASSIGNMENTS.

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User: ST086227

APPROVED:  <small>DocuSigned by: Lori Stouchko FF580C7596C645A...</small> DATE: _____			TRANSPORTATION OPERATIONS PLAN: GENERAL NOTES & TEMPORARY TRAFFIC CONTROL PHASING
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

PROJ. REFERENCE NO.	SHEET NO.
B-5647	TMP-2

PLANS PREPARED FOR THE NCDOT BY:

M MOTT MACDONALD 1 & E, LLC
 1101 HAYNES STREET, SUITE 101
 RALEIGH, NC 27604
M NC LICENSE NO. F-0669
 MOTT MACDONALD

SIGN NUMBER: SD-1 TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 3'-6" HEIGHT: 2'-6" TOTAL AREA: 8.8 Sq.Ft. BORDER TYPE: INSET RECESS: 0.38" WIDTH: 0.63" RADII: 1.5" NO. Z BARS: LENGTH:	BACKG COLOR: Fluorescent Orange COPY COLOR: Black <table border="1" style="width:100%"> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> MAT'L: 0.080" (2.0 mm) ALUMINUM	SYMBOL	X	Y	WID	HT																															DESIGN BY: S COLEMAN PROJECT ID: B-5647 CHECKED BY: D BISSETTE LOCATION: NEAR ROCKFISH CREEK Feb 22, 2023 DIV: 3	
SYMBOL	X	Y	WID	HT																																		

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

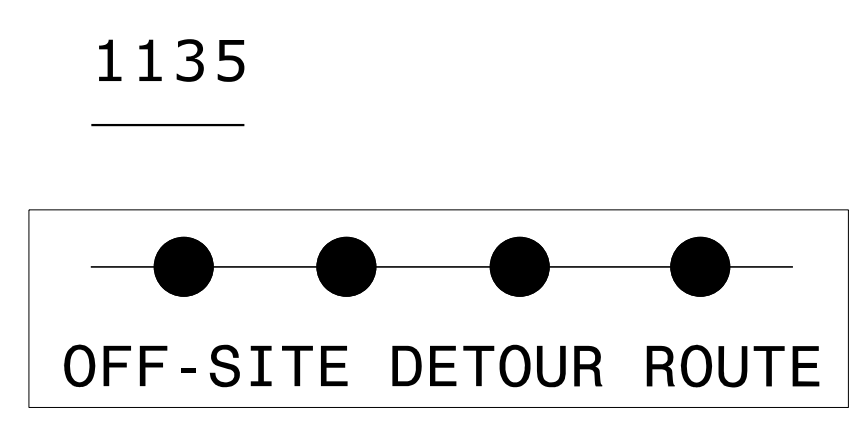
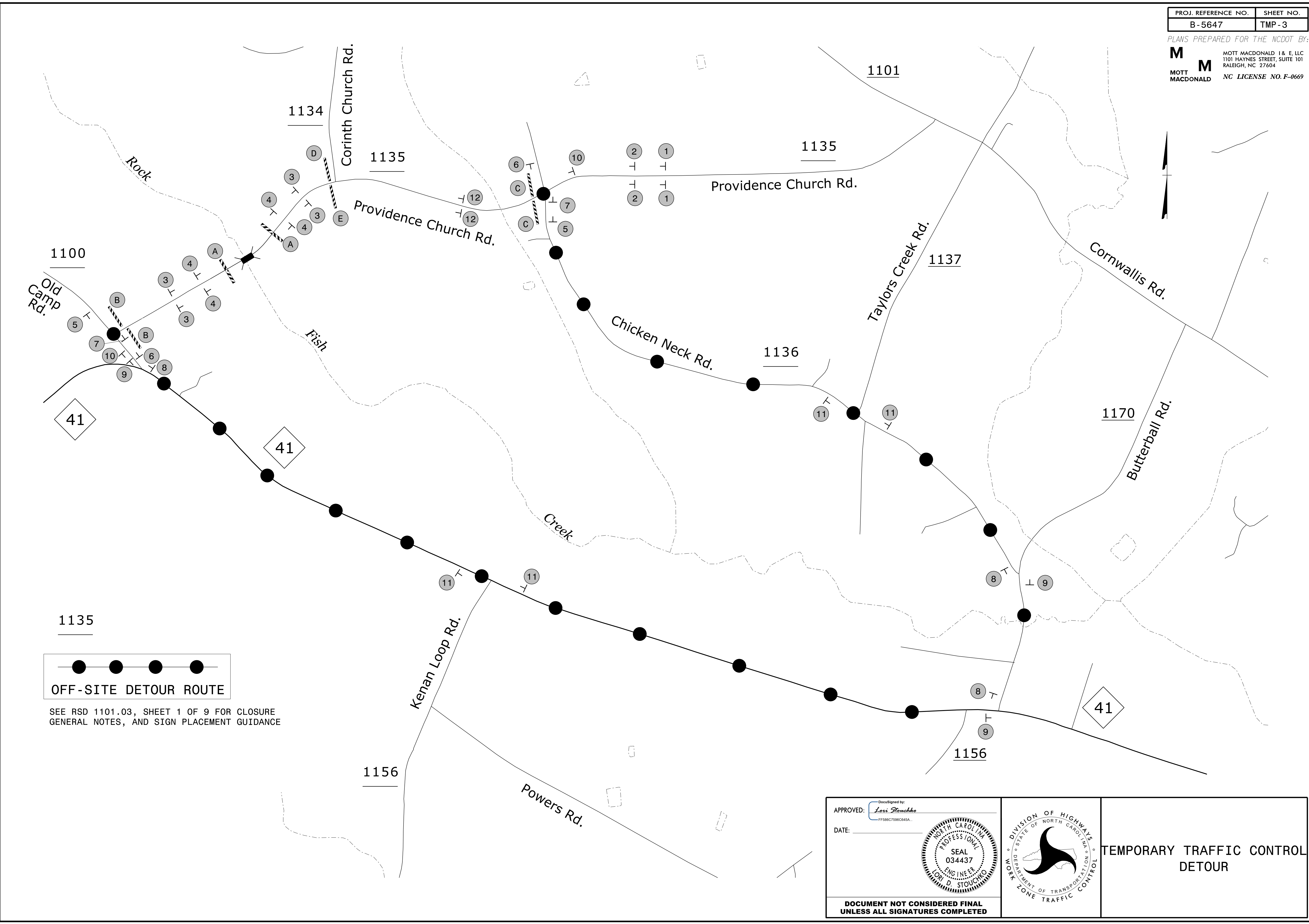
Letter spacings are to start of next letter

Letter Spacing														Series/Size
														Text Length
P	R	O	V	I	D	E	N	C	E					C 2000
4.1	3.8	3.5	3.6	3.8	1.8	3.8	3.4	3.8	3.8	2.6	4.1			33.9
C	H	U	R	C	H									C 2000
10.1	3.8	3.9	3.9	3.6	3.8	2.8	10.1							21.8
R	D										C 2000			
17.8	3.7	2.8	17.8											6.5

FILENAME: X-XXXX_TC_TMP_Sign Design NORTH CAROLINA D.O.T. SIGN DETAIL

1/29/2024
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 User: ST086227

APPROVED: DATE: _____			<h2 style="text-align: center;">SPECIAL SIGN DESIGN</h2>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



SEE RSD 1101.03, SHEET 1 OF 9 FOR CLOSURE GENERAL NOTES, AND SIGN PLACEMENT GUIDANCE

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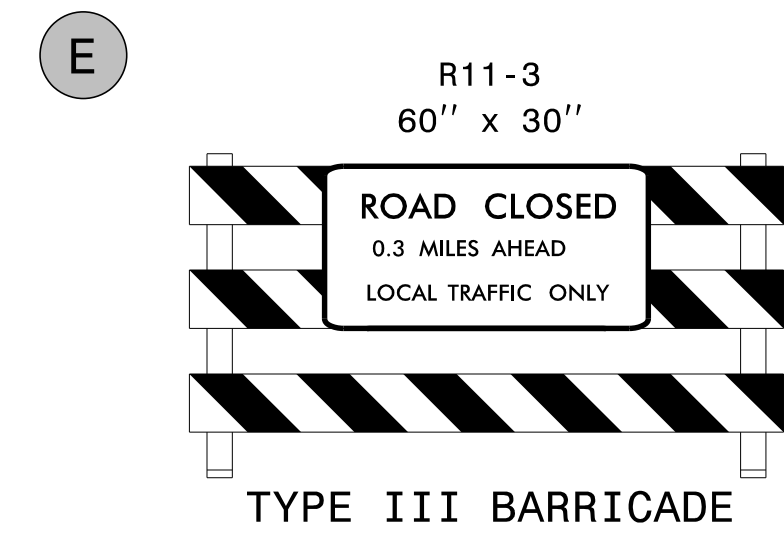
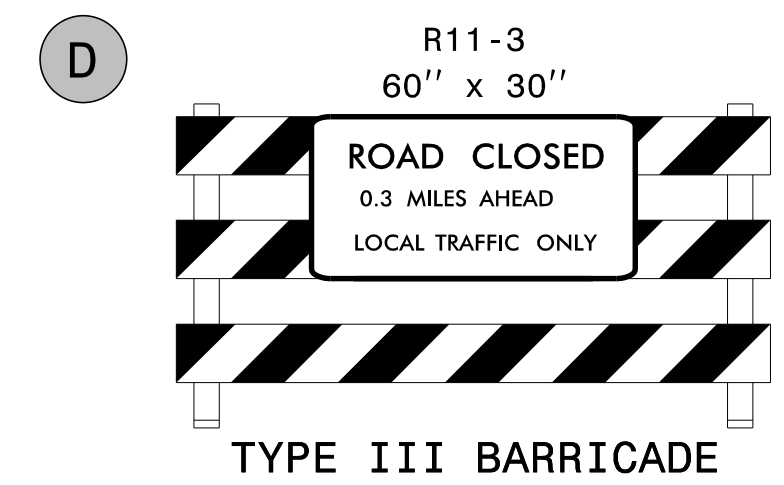
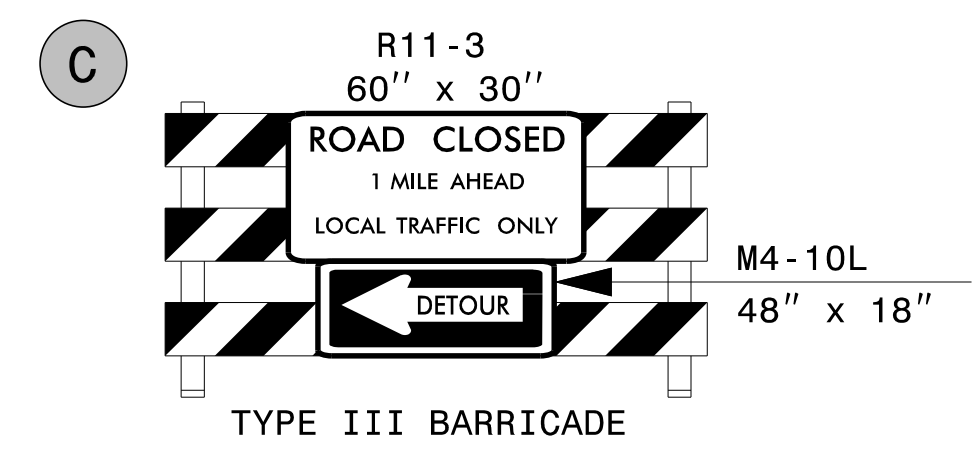
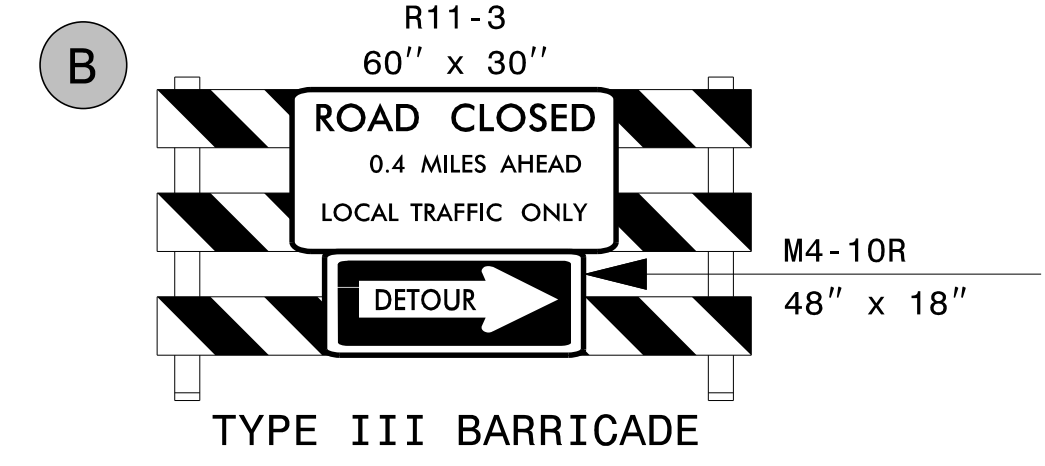
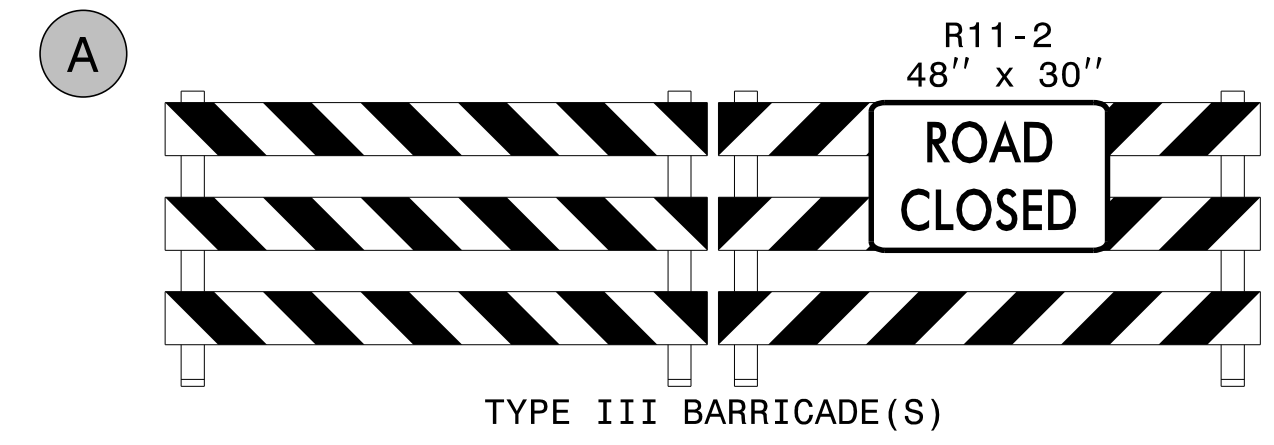
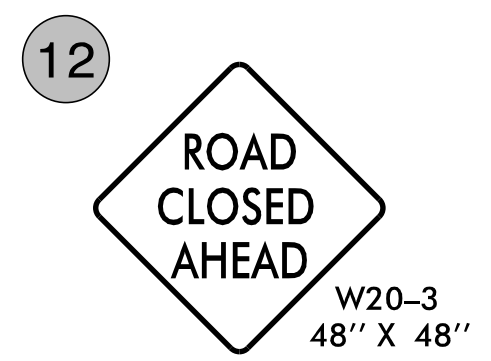
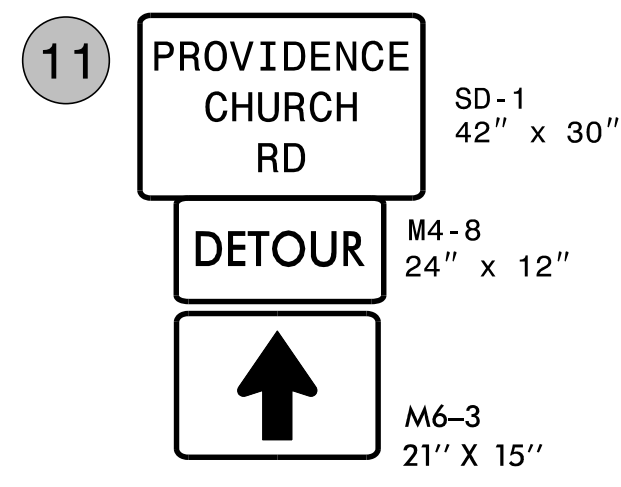
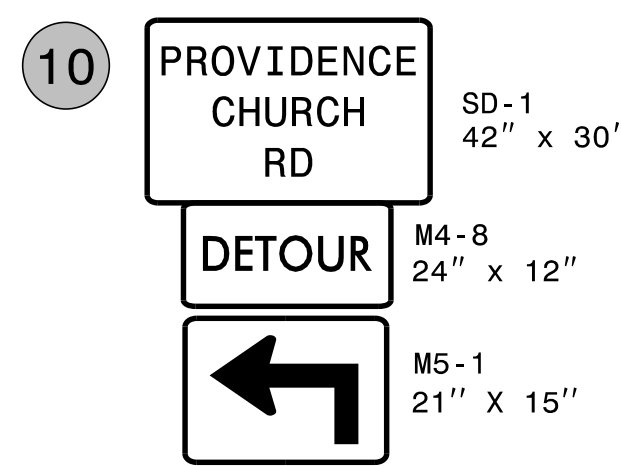
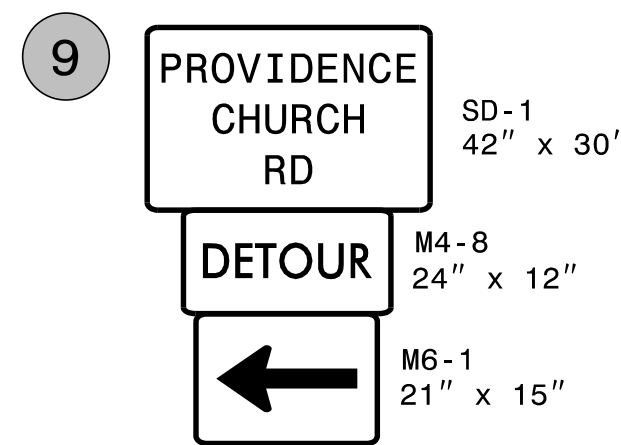
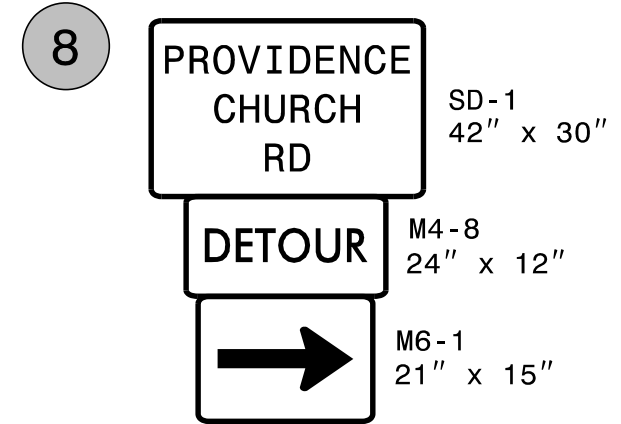
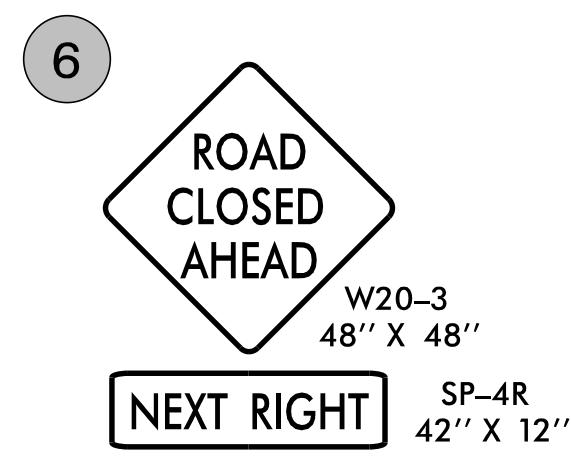
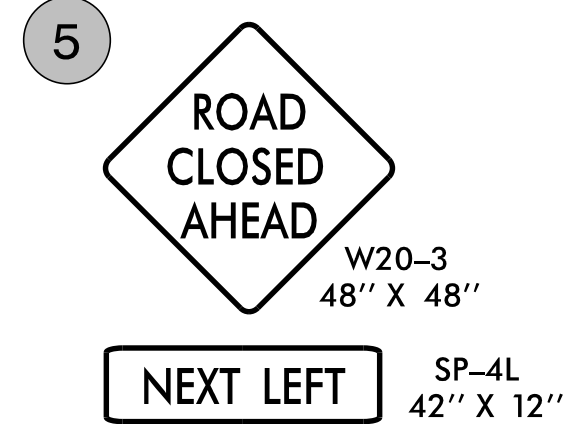
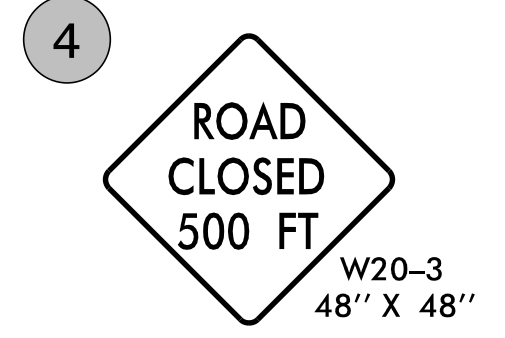
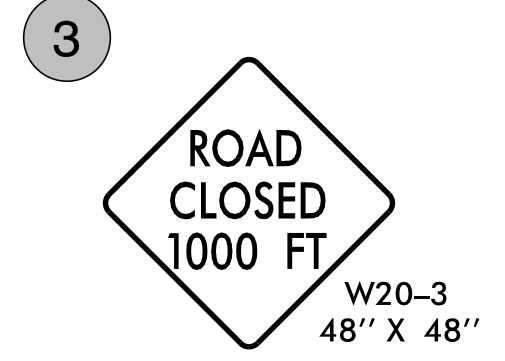
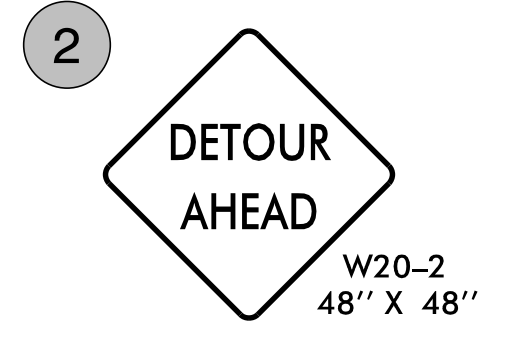
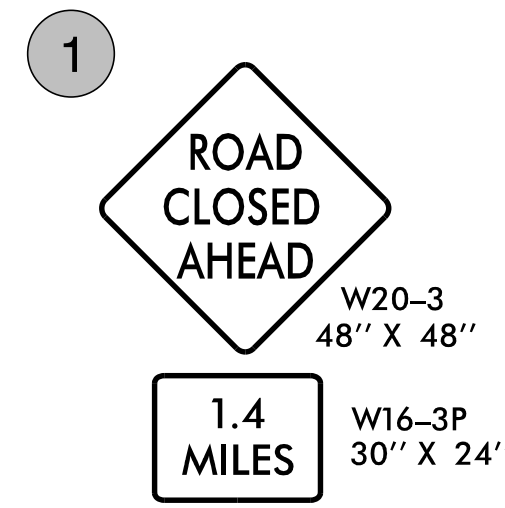
APPROVED: *Lori Stouckio*
DocuSigned by:
Lori Stouckio
FF586C759C645A...

DATE: _____



**TEMPORARY TRAFFIC CONTROL
 DETOUR**

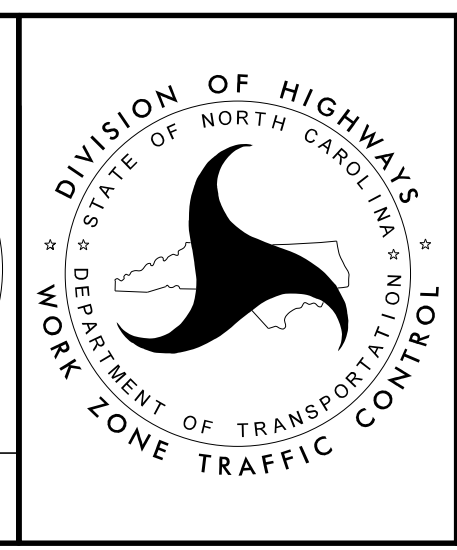
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 UNLESS ALL SIGNATURES COMPLETED**



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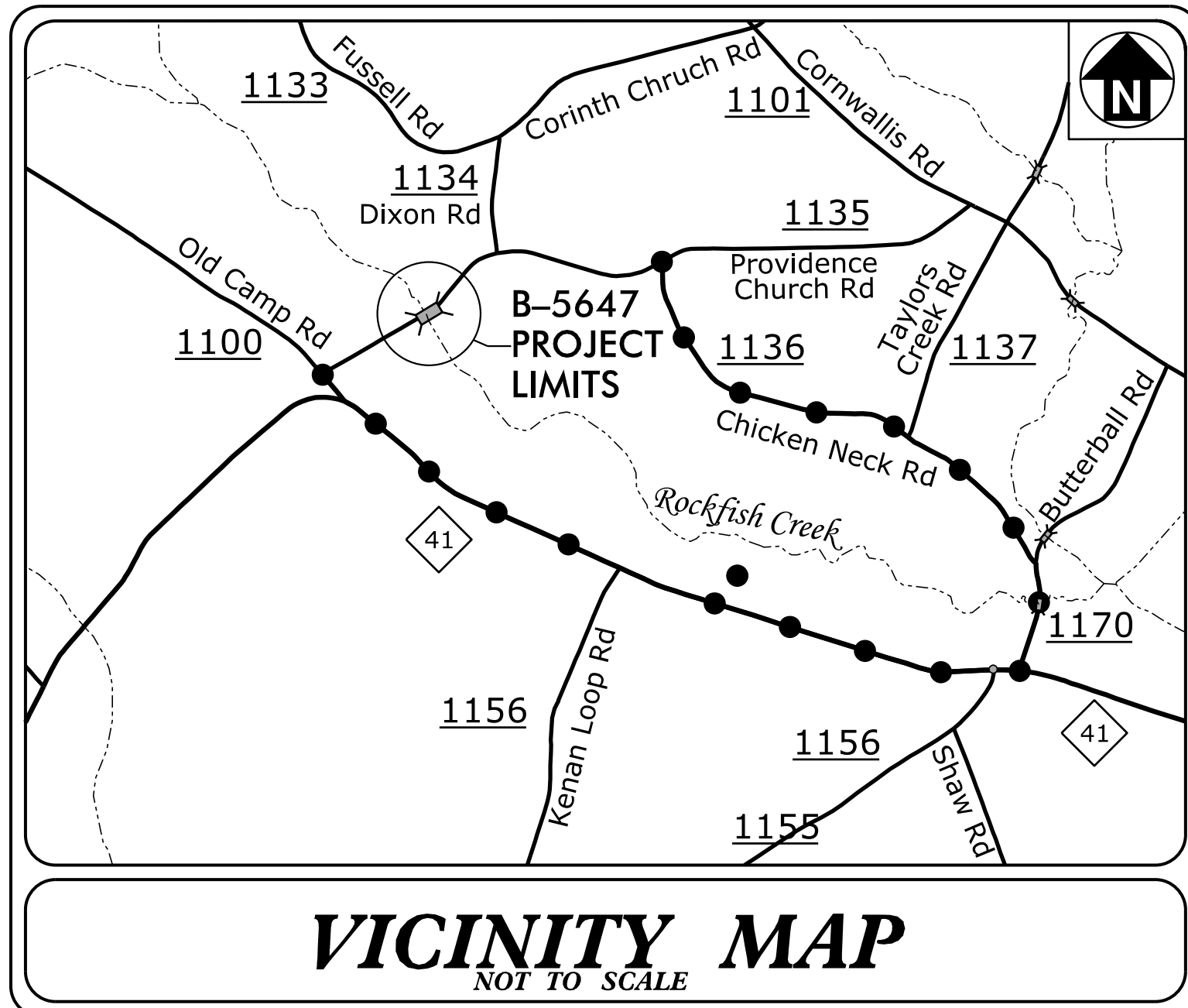
APPROVED: *Lori Stouchko*
 DATE: _____

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



TEMPORARY TRAFFIC CONTROL
 DETOUR

TIP PROJECT: B-5647



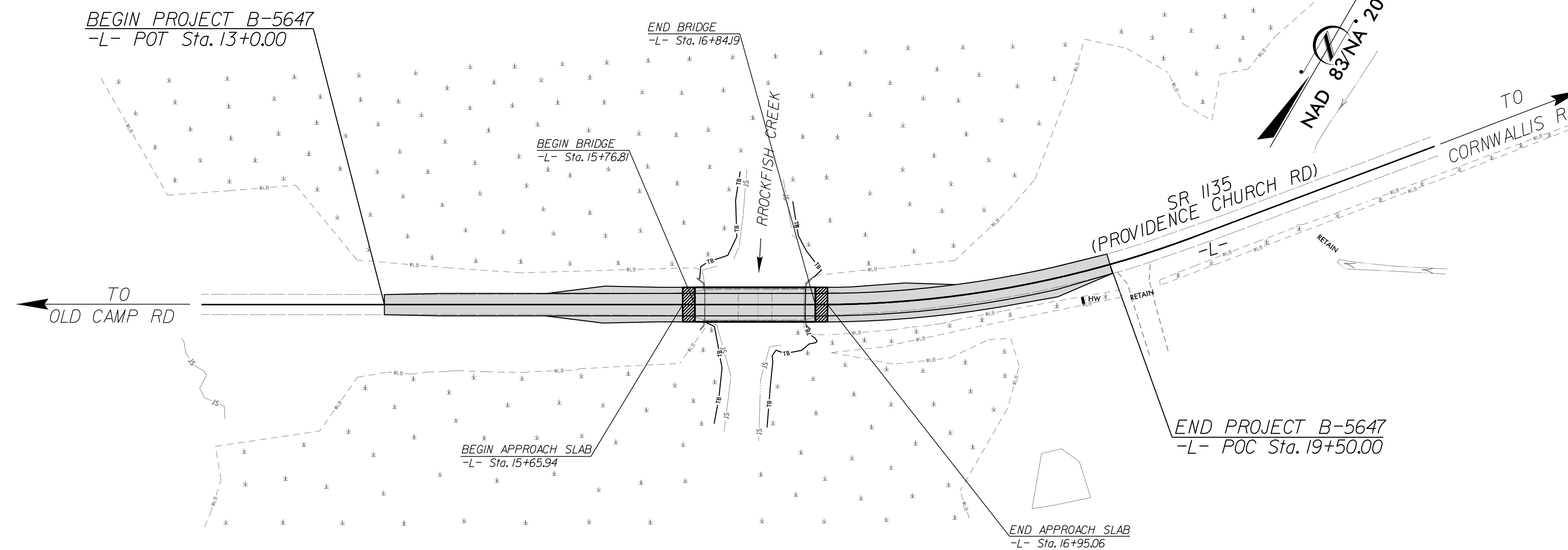
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

DUPLIN COUNTY

LOCATION: BRIDGE NO. 52 OVER ROCKFISH CREEK ON
SR 1135 (PROVIDENCE CHURCH ROAD)

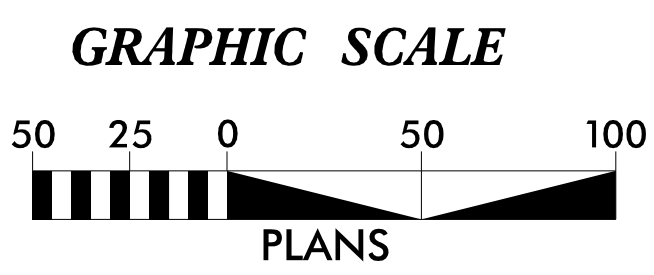
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5647	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45602.1.1	BRZ-1135(011)	PE	
45602.2.1	BRZ-1135(011)	R/W, UTL	
45602.3.1	BRZ-1135(011)	CONST	



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

THE OUTSIDE BUFFER, WETLAND OR WATER BOUNDARY SHALL BE CLEARLY MARKED BY HIGHLY VISIBLE FENCING (ORANGE SAFETY FENCE).



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:
MOTT MACDONALD
930 Main Campus Drive, Suite 200
Raleigh, NC 27606
NC License No. F-0669
2024 STANDARD SPECIFICATIONS

Designed by:
TRENT CORMIER 3377
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

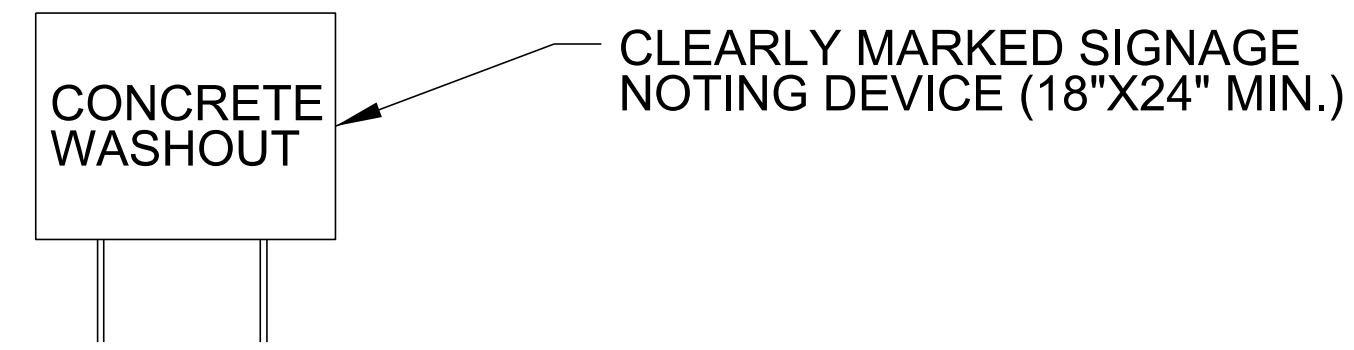
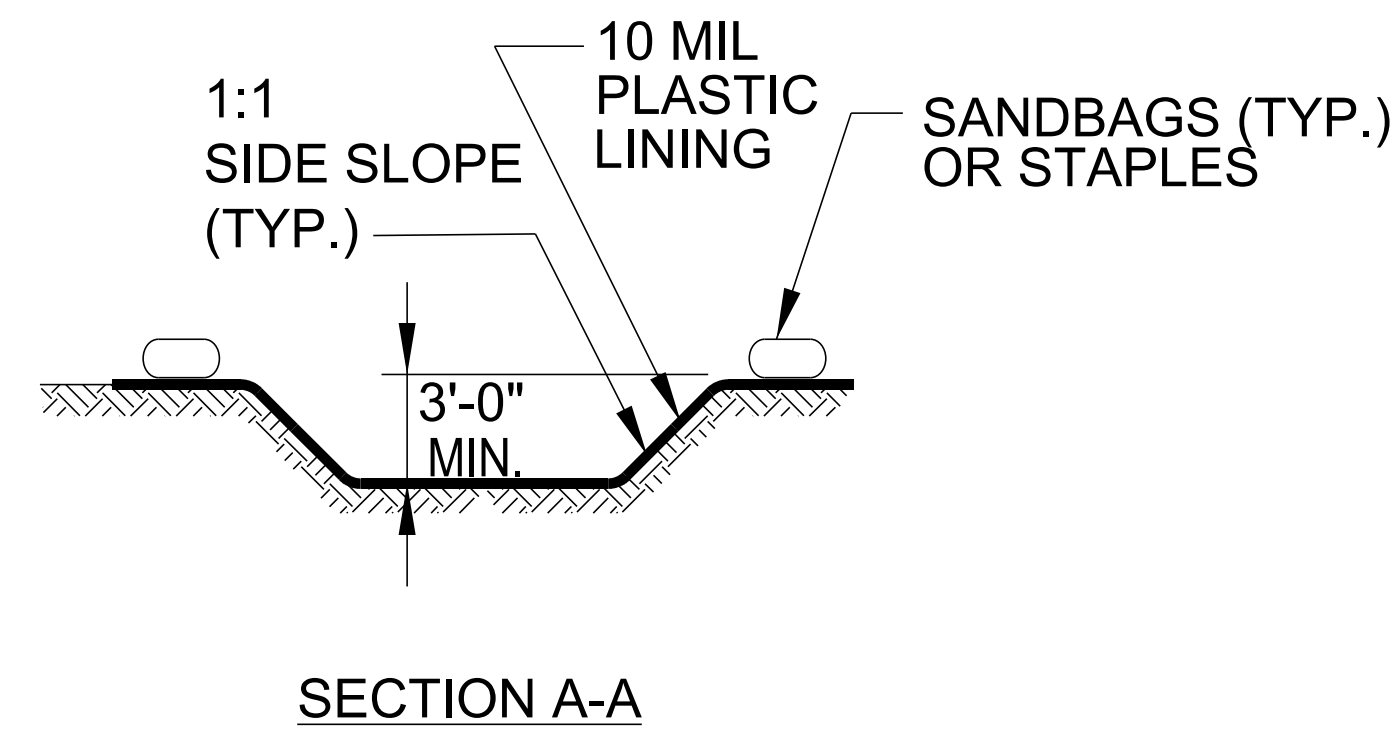
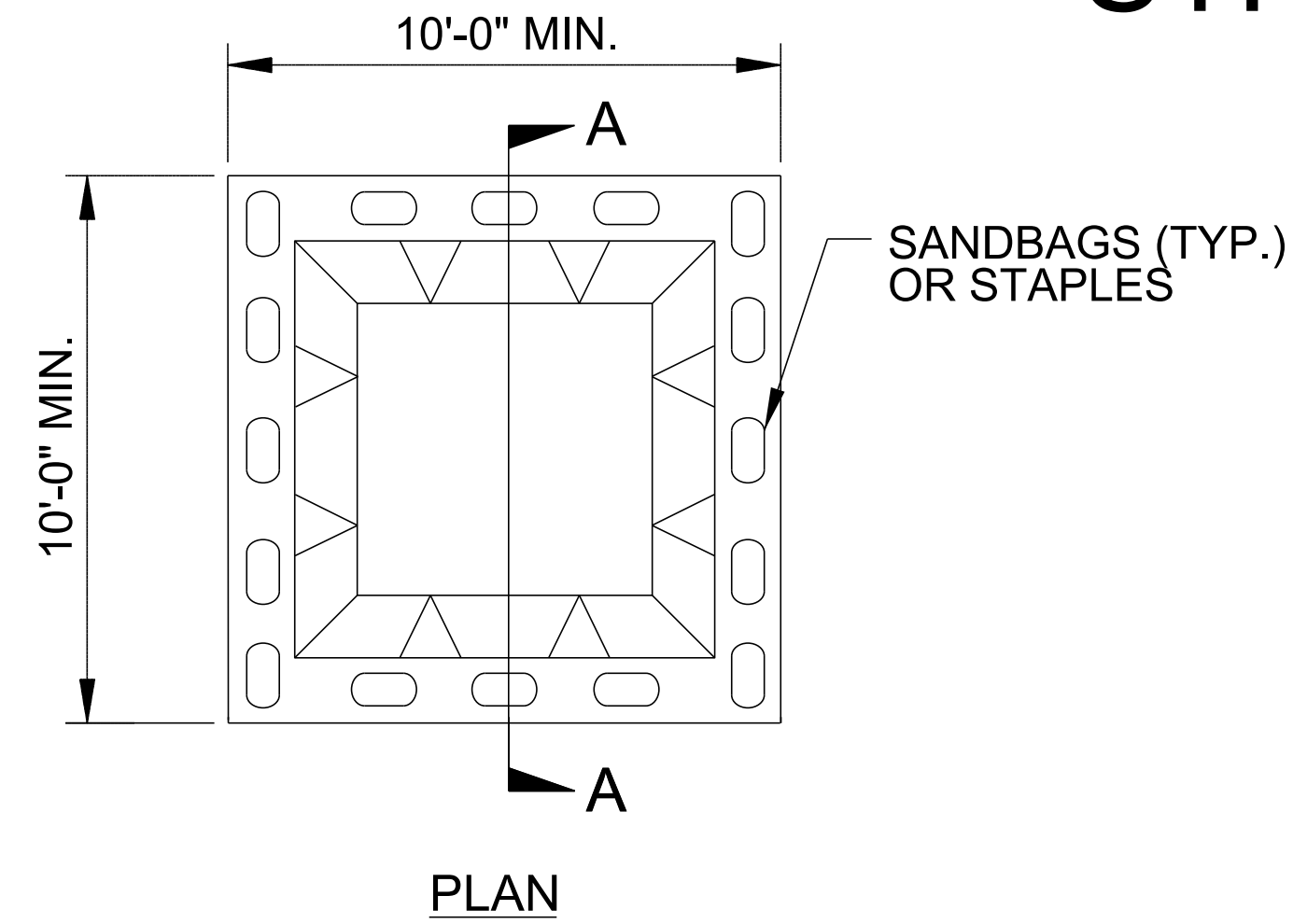
The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

EROSION & SEDIMENT CONTROL LEGEND

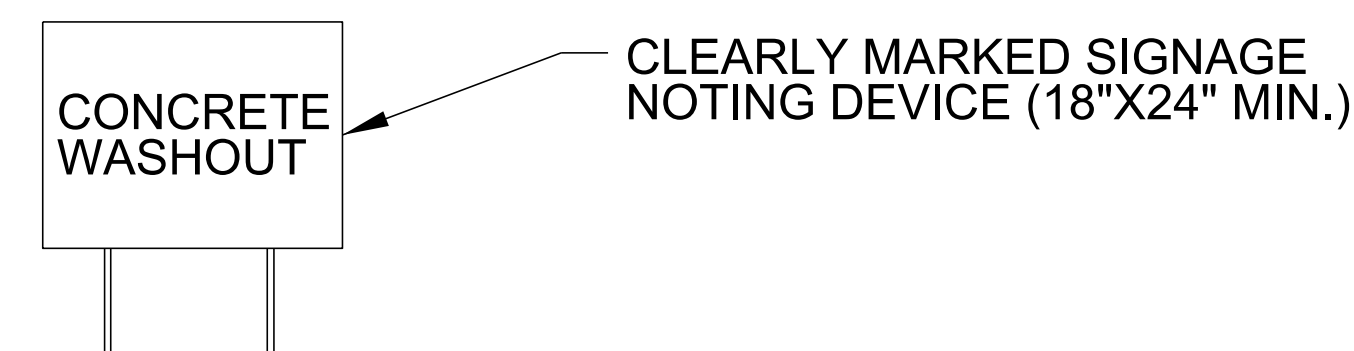
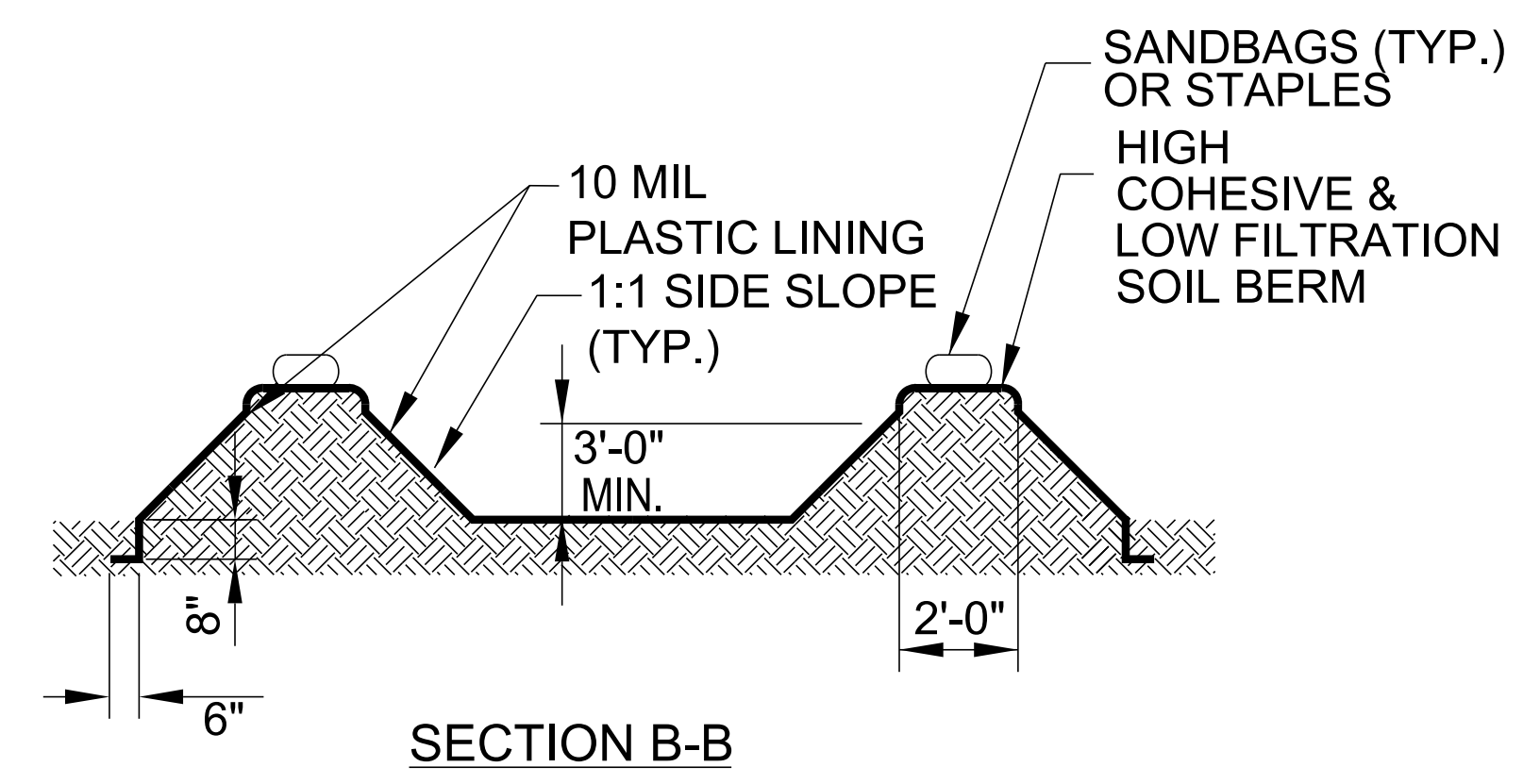
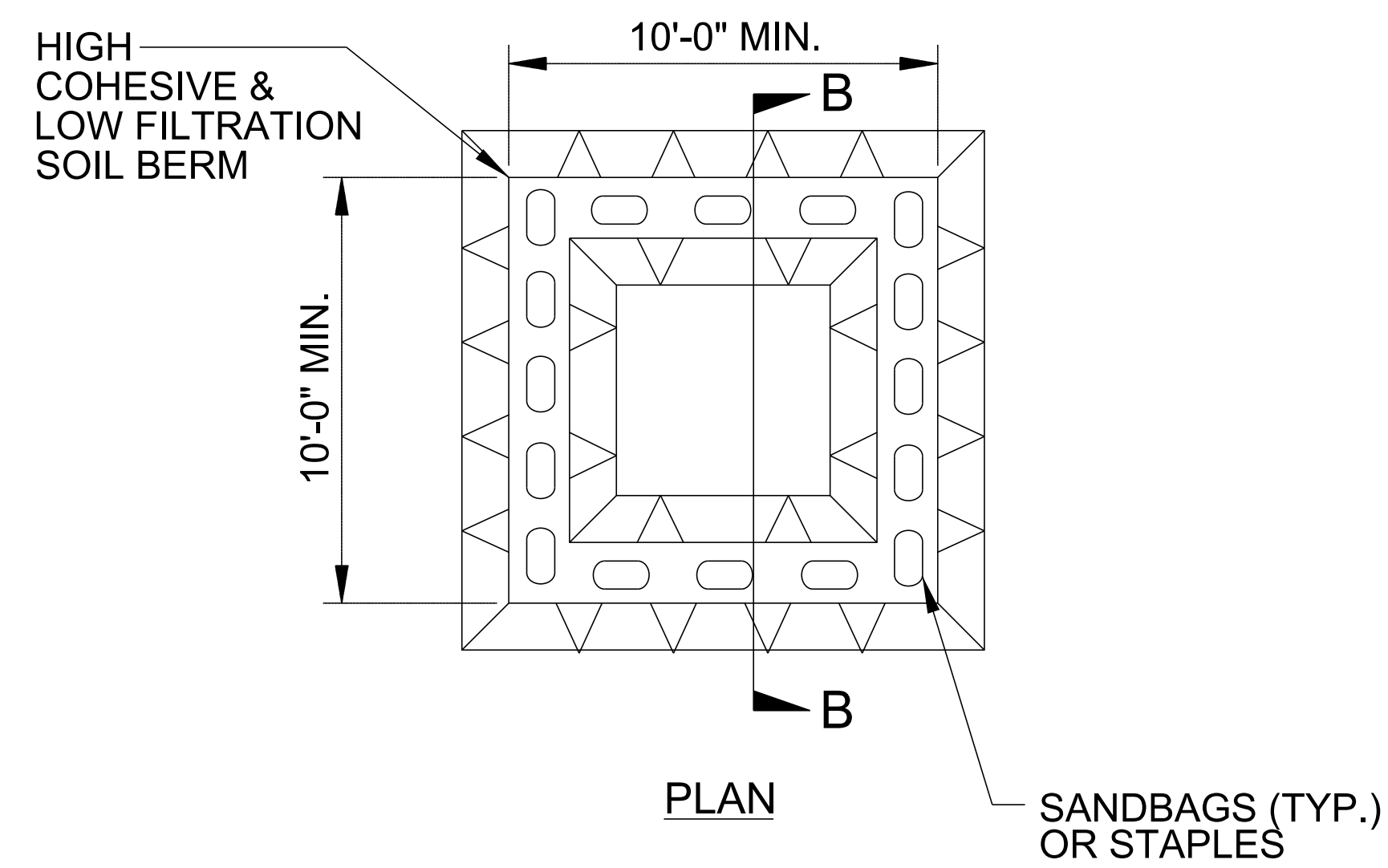
Std. #	Description	Symbol	Std. #	Description	Symbol
1605.01	Temporary Silt Fence		1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		1633.03	Temporary Rock Silt Check Type A with Excelsior 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



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.



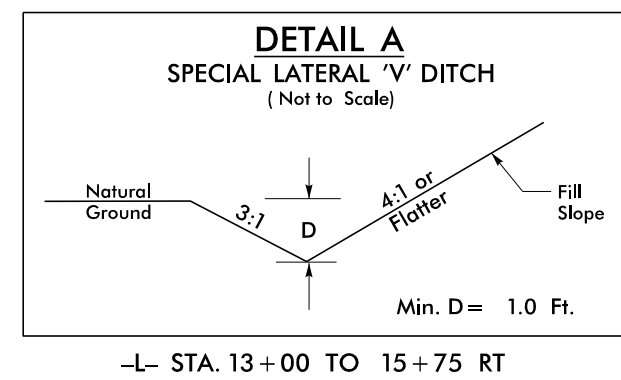
ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

- 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

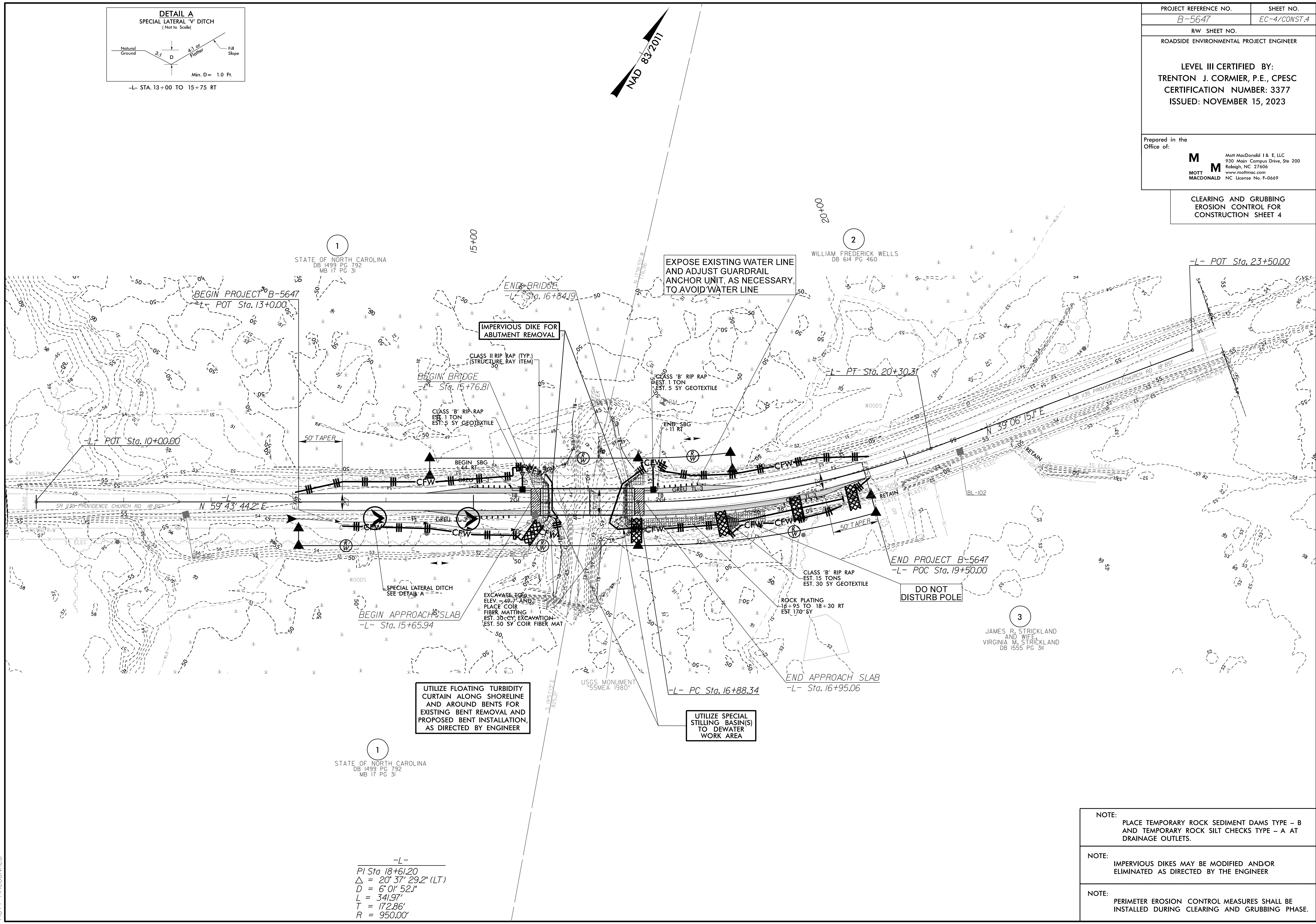
SOIL STABILIZATION TIMEFRAMES

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



PROJECT REFERENCE NO.	SHEET NO.
B-5647	EC-4/CONST.4
RW SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	
LEVEL III CERTIFIED BY: TRENTON J. CORMIER, P.E., CPESC CERTIFICATION NUMBER: 3377 ISSUED: NOVEMBER 15, 2023	
Prepared in the Office of:	
M MOTT MACDONALD	Mott MacDonald I & E, LLC 930 Main Campus Drive, Ste 200 Raleigh, NC 27606 www.mottmac.com NC License No. F-0669

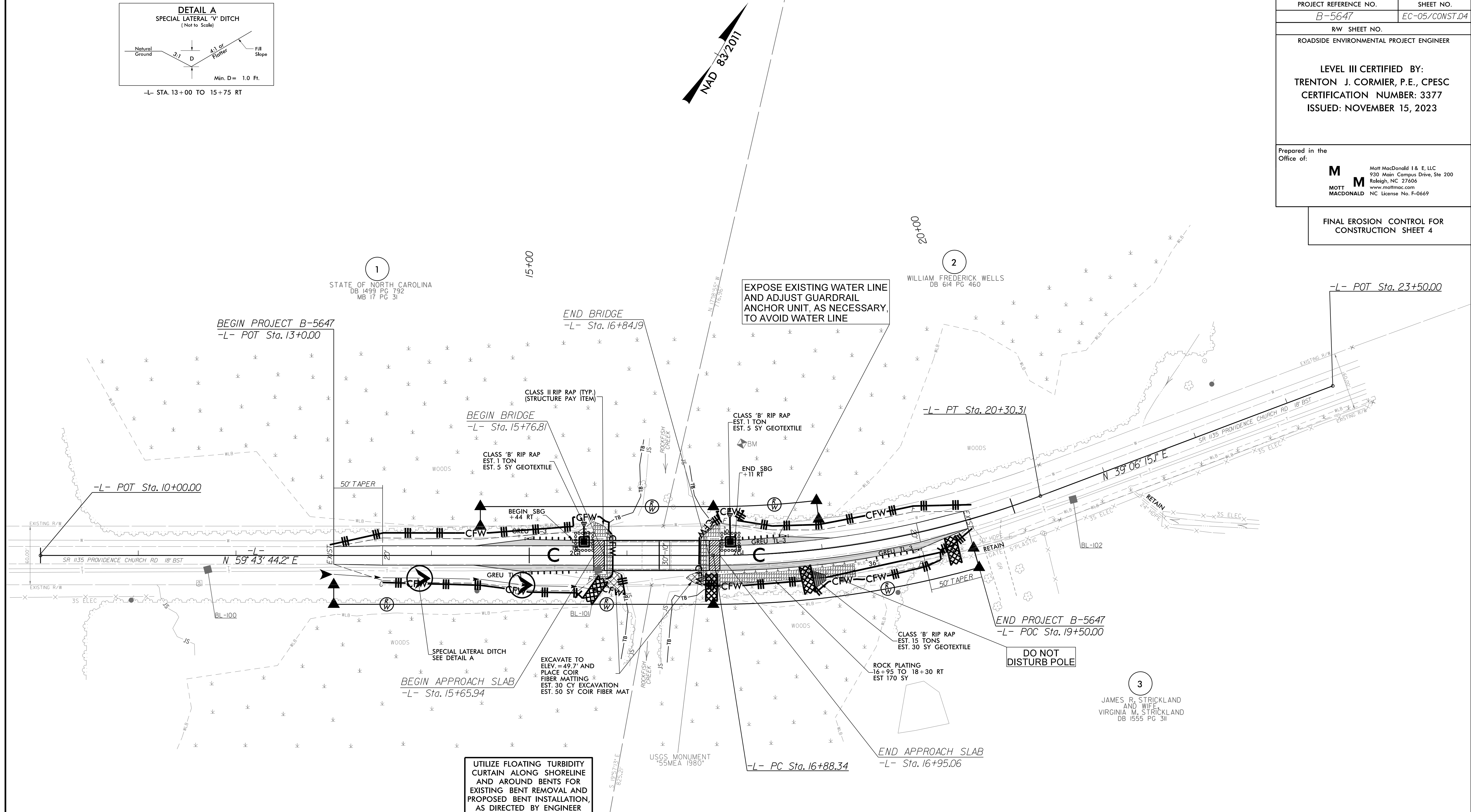
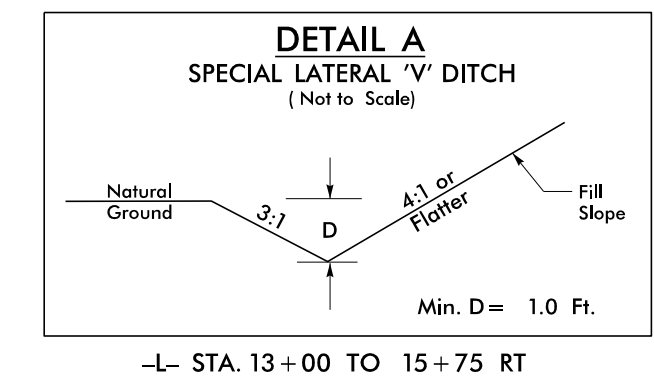
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



-L-
 PI Sta 18+61.20
 $\Delta = 20' 37' 29.2''$ (LT)
 $D = 6' 01' 52.1''$
 $L = 341.97'$
 $T = 172.86'$
 $R = 950.00'$

- NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.
- NOTE:
IMPERVIOUS DIKES MAY BE MODIFIED AND/OR ELIMINATED AS DIRECTED BY THE ENGINEER
- NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

1/24/2024
 R:\Erosion_Control\230_020_B-5647_EC-4_C&G.dgn
 MOTT MACDONALD



UTILIZE FLOATING TURBIDITY CURTAIN ALONG SHORELINE AND AROUND BENTS FOR EXISTING BENT REMOVAL AND PROPOSED BENT INSTALLATION, AS DIRECTED BY ENGINEER

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	13+00	15+75	RT	245
				TOTAL	245

-L-
PI Sta 18+61.20
Δ = 20° 37' 29.2" (LT)
D = 6' 01" 52.1"
L = 341.97'
T = 172.86'
R = 950.00'

NOTE:
TYPE-III ANCHOR UNITS ON ALL FOUR BRIDGE CORNERS

- NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS AND JURISDICTIONAL AREAS AS DIRECTED BY THE ENGINEER
- NOTE: ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN EXISTING RW OR EASEMENT.
- NOTE: INSTALL MATTING FOR EROSION CONTROL IN ALL PROPOSED DITCH LINES EXCEPT WHERE PERMANENT LINERS ARE SPECIFIED ON THE PLANS OR DIRECTED OTHERWISE BY THE ENGINEER.
- NOTE: UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK INLET SEDIMENT TRAPS TYPE-C, AS DIRECTED, TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC.

K:\2024\01-26-2024\BridgesDesign\LSA\Proj\B-5647\Signing\CADD\Signing Layout Plans\B-5647_Sgn_SGN_01.dgn User: BJS82185

T.I.P.: B-5647

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**SIGNING AND PAVEMENT MARKING PLAN
DUPLIN COUNTY**

TIP NO. B-5647	SHEET NO. SIGN-1
APPROVED: <small>DocuSigned by: David W. Bisette 01F5041E47884D1</small>	
DATE: _____	
<small>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</small>	

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	SIGNING AND PAVEMENT MARKING PLAN TITLE SHEET, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, GENERAL NOTES, PAVEMENT MARKING SCHEDULE, AND SUMMARY OF QUANTITIES
SIGN-2	PAVEMENT MARKING DETAIL
SIGN-3	EXISTING SIGNING DETAIL

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

SUMMARY OF QUANTITIES

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO. SECT. NO.			
4155000000 907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	6	EA.

GENERAL NOTES

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.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1135 (PROVIDENCE CHURCH RD)	THERMOPLASTIC	RAISED

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

E) ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.

F) SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

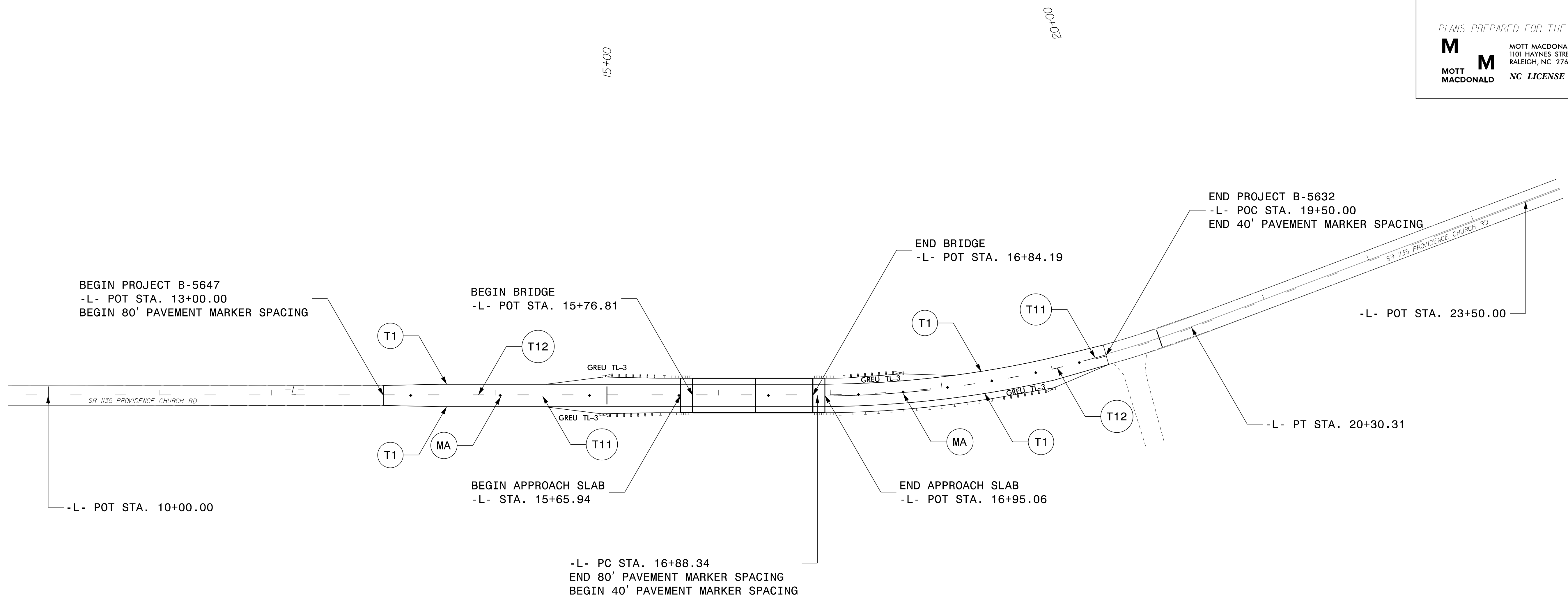
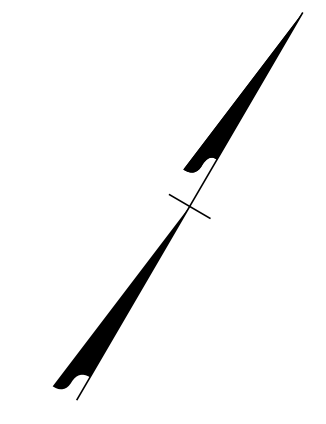
PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
T1	WHITE EDGELINE (4", 90 MILS) THERMOPLASTIC
T11	YELLOW SINGLE CENTER (4", 90 MILS) THERMOPLASTIC
T12	10 FT. YELLOW SKIP (4", 90 MILS) THERMOPLASTIC
MA	YELLOW/YELLOW PERMANENT RASIED MARKER

NCDOT CONTACT:	
DEREK PIELECH DIVISION BRIDGE PROGRAM MANAGER	

PLAN PREPARED BY: MOTT MACDONALD	PLANS PREPARED FOR THE NCDOT BY:
DAVID W BISSETTE, PE PRINCIPAL PROJECT MANAGER	M MOTT MACDONALD I & E, LLC 1101 HAYNES STREET, SUITE 101 RALEIGH, NC 27604
SAM COLEMAN, PE PROJECT ENGINEER	M NC LICENSE NO. F-0669

TIP NO.	SHEET NO.
B-5647	SIGN-2
APPROVED: <i>David W. Bisette</i>	
DATE:	
SEAL	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PLANS PREPARED FOR THE NCDOT BY: M MOTT MACDONALD I & E, LLC 1101 HAYNES STREET, SUITE 101 RALEIGH, NC 27604 M MOTT MACDONALD NC LICENSE NO. F-0669	



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 User: B562185

PAVEMENT MARKING DETAIL

TIP NO. SHEET NO.

B-5647 SIGN-3

APPROVED: *David W. Bisette*

DATE:

SEAL



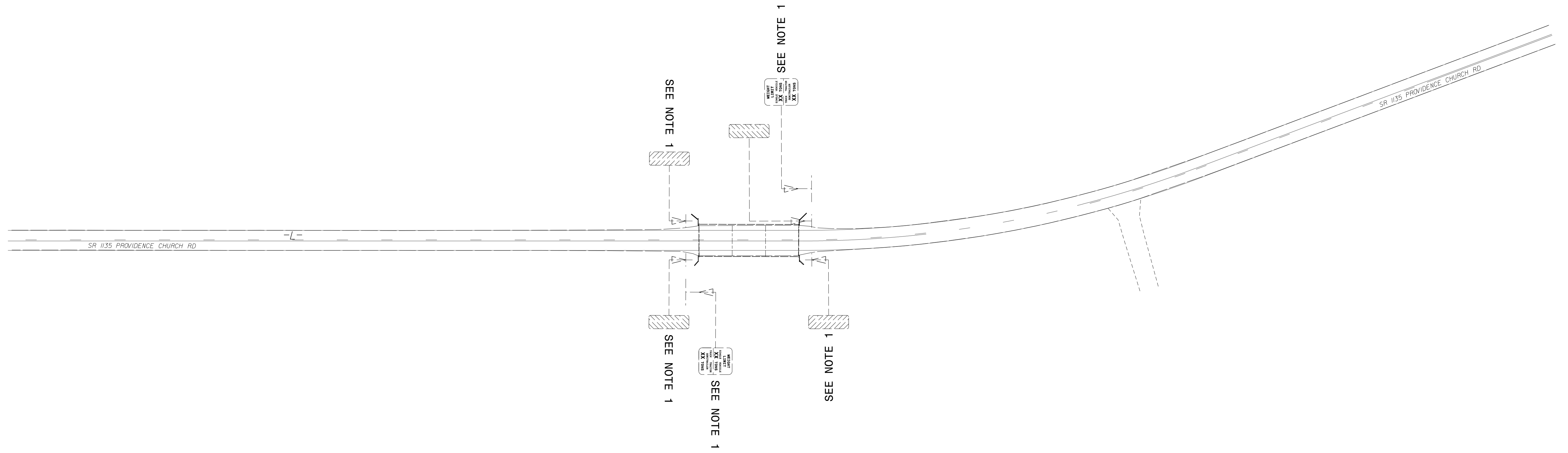
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED FOR THE NCDOT BY:

M MOTT MACDONALD 1 & E, LLC
1101 HAYNES STREET, SUITE 101
RALEIGH, NC 27604
M MOTT MACDONALD NC LICENSE NO. F-0669

PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL



EXISTING SIGN DETAIL

09.08/99

TIP PROJECT: B-5647

CONTRACT: DC00455

4/22/2024 R:\Utilities\Engineering\UB0\Pro\B5647_ut_tsh_UB001.dgn MOTT MACDONALD

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

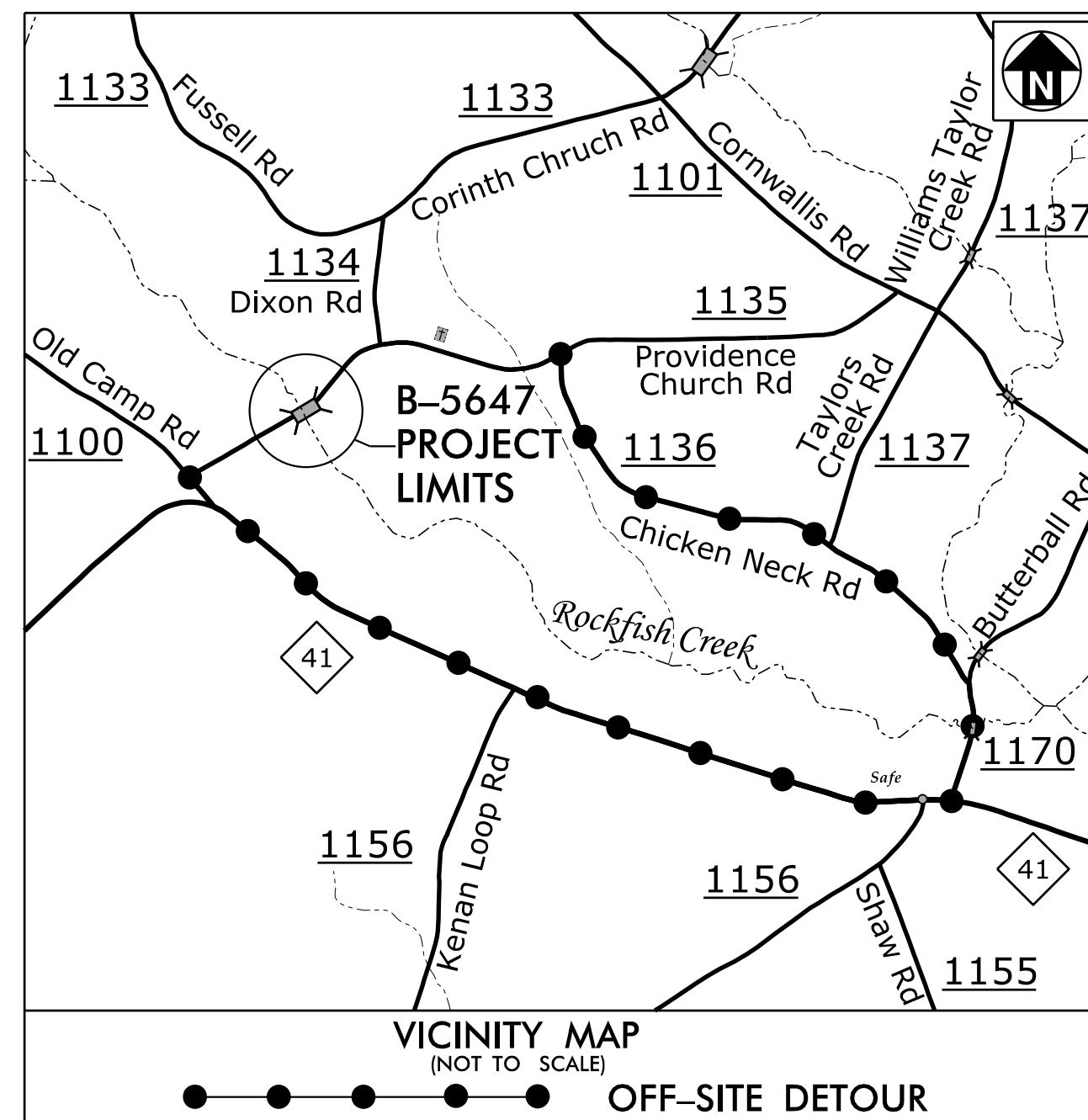
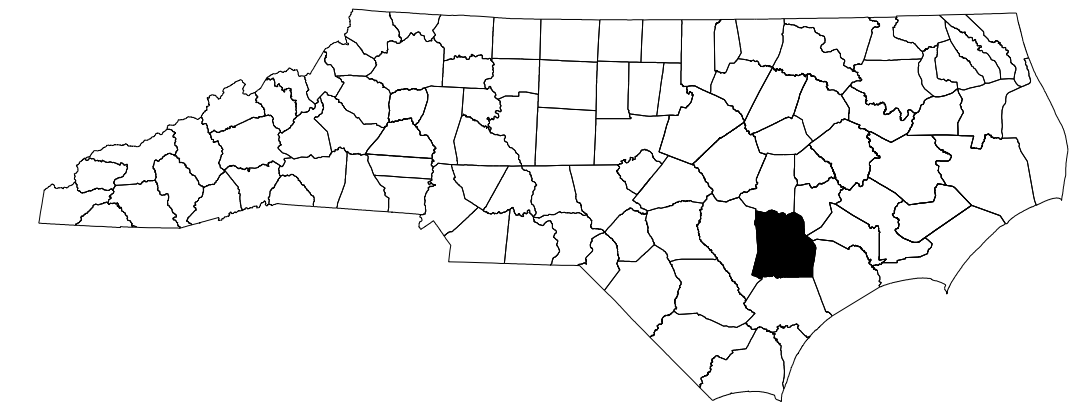
UTILITIES BY OTHERS PLANS
DUPLIN COUNTY

LOCATION: BRIDGE NO. 52 OVER ROCKFISH CREEK ON
SR 1135 (PROVIDENCE CHRUCH ROAD)

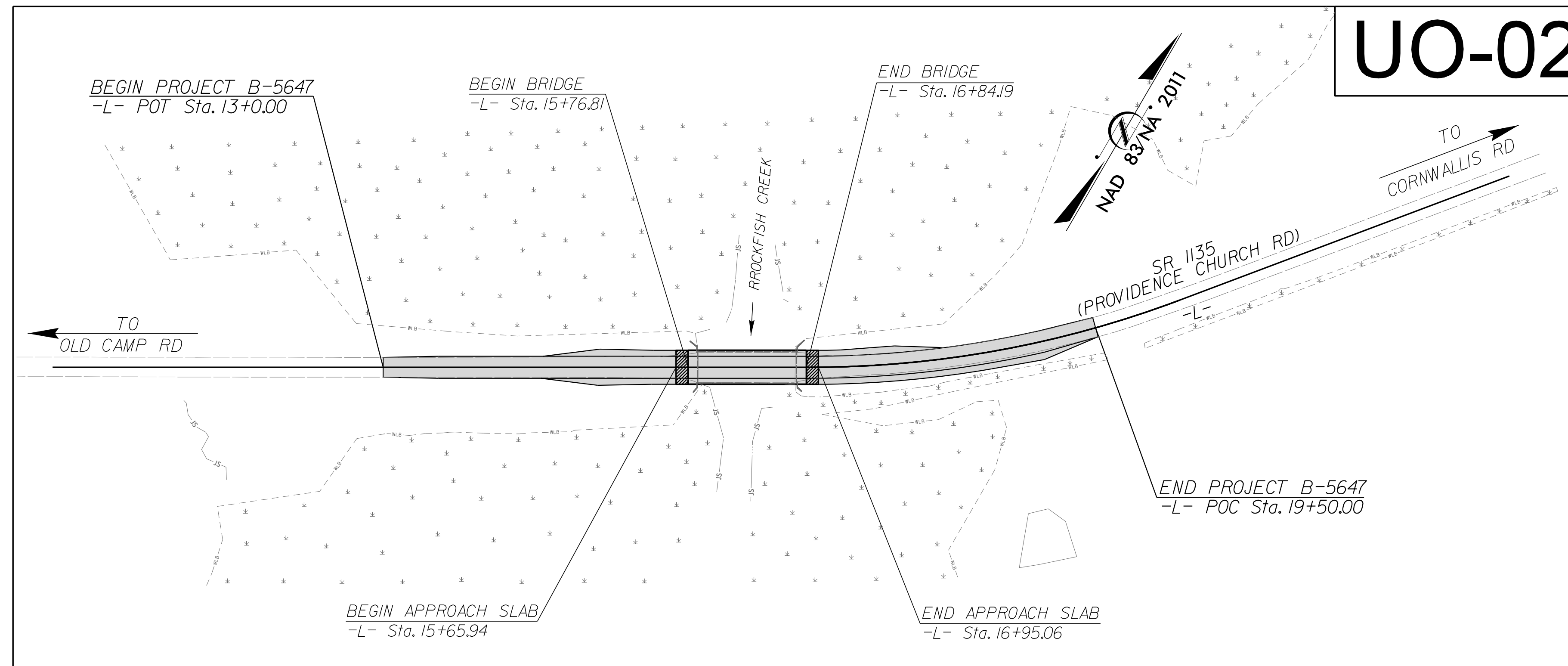
TYPE OF WORK: UTILITIES BY OTHERS

T.I.P. NO.	SHEET NO.
B-5647	UO-01

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.



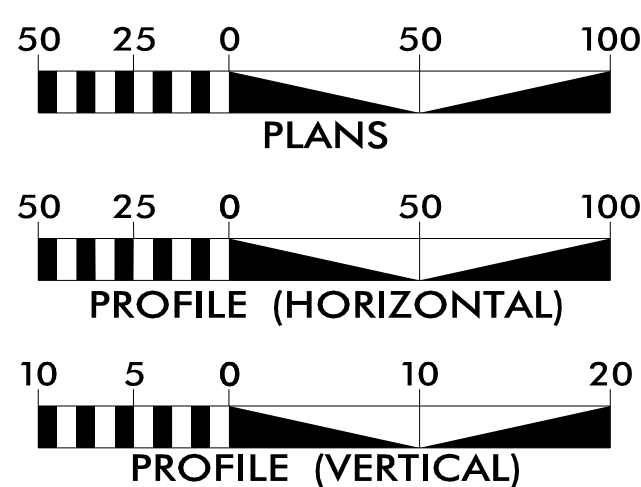
See Sheet 1A For Index of Sheets,
See Sheet 1B For Conventional Symbols



UO-02

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

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-01	TITLE SHEET
UO-02	UBO PLAN SHEET
UO-03	UBO PROFILE SHEET

UTILITY OWNERS WITH CONFLICTS

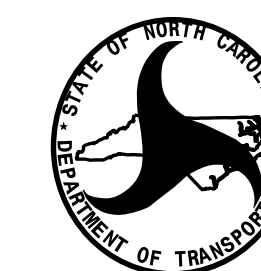
- (A) POWER DISTRIBUTION - FOUR COUNTY ELECTRIC MEMBERSHIP CORP.
- (B) TELECOMMUNICATIONS- BRIGHTSPEED
- (C) WATER - DUPLIN COUNTY WATER

PREPARED IN THE OFFICE OF:

M M
MOTT
MACDONALD

930 Main Campus Drive, Suite 200
Raleigh, NC 27606
(919) 552-2253
www.mottmac.com
LICENSE NO. F-0669

FELTON PERRY
PROJECT UTILITY COORDINATOR



DIVISION OF HIGHWAYS
UTILITIES UNIT - DIV. 3
5501 BARBADOS BLVD.
CASTLE HAYNE, NC 28429
PHONE (919) 341-2000
FAX (910) 675-0143

TIMOTHY G. GODWIN
DIVISION UTILITY ENGINEER

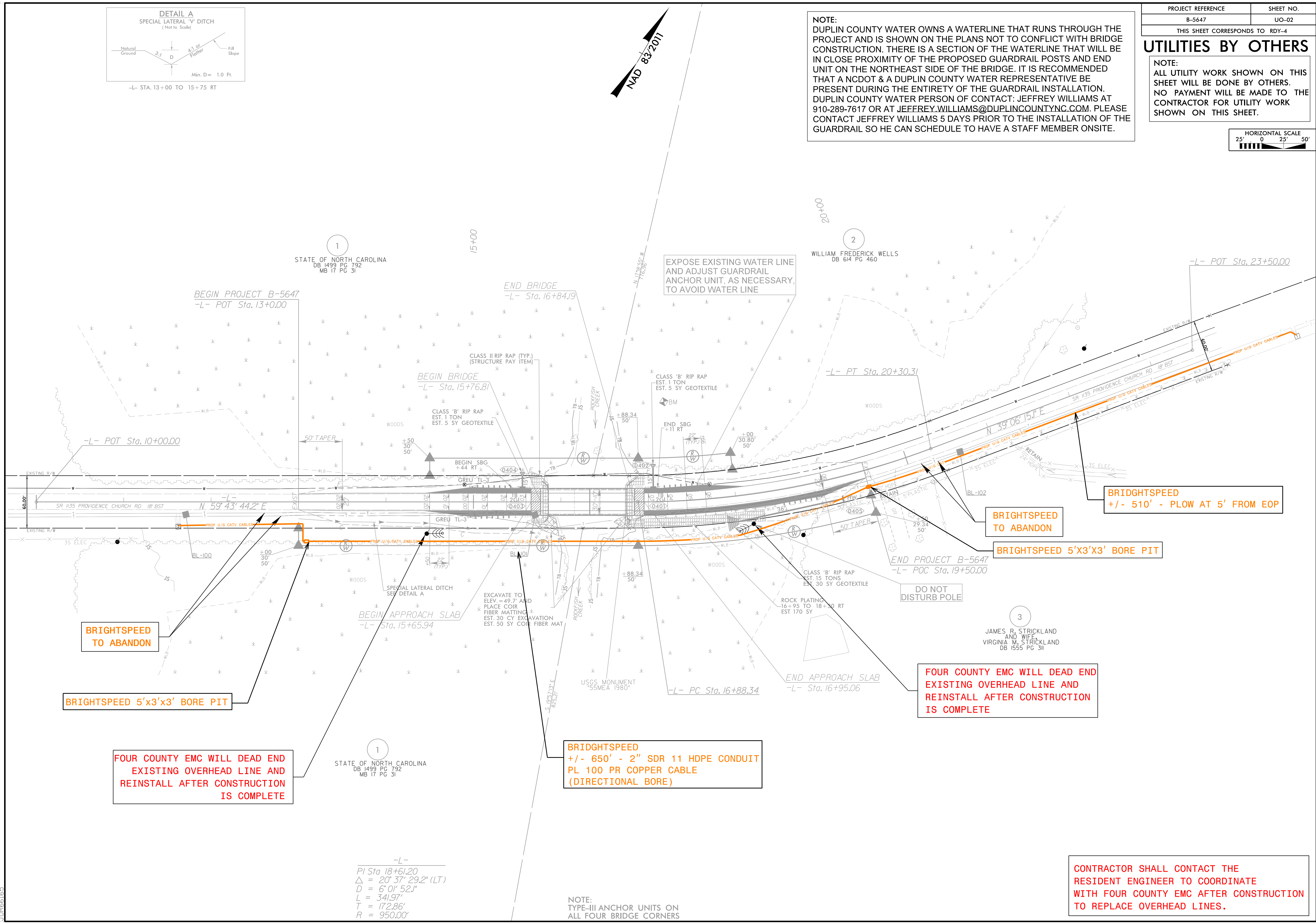
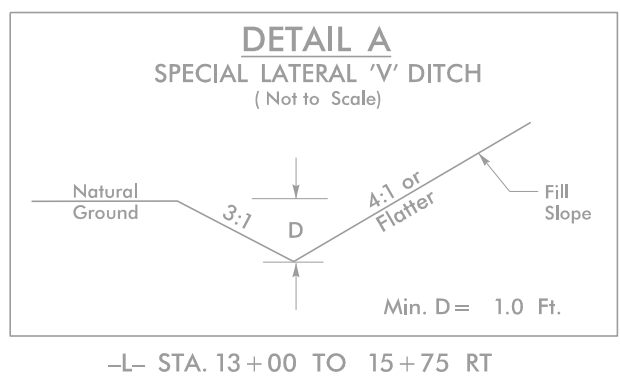
ERIC MATUSZEWSKI
DIVISION UTILITY COORDINATOR

UTILITIES BY OTHERS

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.



NOTE:
DUPLIN COUNTY WATER OWNS A WATERLINE THAT RUNS THROUGH THE PROJECT AND IS SHOWN ON THE PLANS NOT TO CONFLICT WITH BRIDGE CONSTRUCTION. THERE IS A SECTION OF THE WATERLINE THAT WILL BE IN CLOSE PROXIMITY OF THE PROPOSED GUARDRAIL POSTS AND END UNIT ON THE NORTHEAST SIDE OF THE BRIDGE. IT IS RECOMMENDED THAT A NCDOT & A DUPLIN COUNTY WATER REPRESENTATIVE BE PRESENT DURING THE ENTIRETY OF THE GUARDRAIL INSTALLATION. DUPLIN COUNTY WATER PERSON OF CONTACT: JEFFREY WILLIAMS AT 910-289-7617 OR AT JEFFREY.WILLIAMS@DUPLINCOUNTYNC.COM. PLEASE CONTACT JEFFREY WILLIAMS 5 DAYS PRIOR TO THE INSTALLATION OF THE GUARDRAIL SO HE CAN SCHEDULE TO HAVE A STAFF MEMBER ONSITE.



BRIGHTSPEED TO ABANDON

BRIGHTSPEED 5'x3'x3' BORE PIT

FOUR COUNTY EMC WILL DEAD END EXISTING OVERHEAD LINE AND REINSTALL AFTER CONSTRUCTION IS COMPLETE

BRIGHTSPEED +/- 650' - 2" SDR 11 HDPE CONDUIT PL 100 PR COPPER CABLE (DIRECTIONAL BORE)

BRIGHTSPEED TO ABANDON

BRIGHTSPEED 5'x3'x3' BORE PIT

FOUR COUNTY EMC WILL DEAD END EXISTING OVERHEAD LINE AND REINSTALL AFTER CONSTRUCTION IS COMPLETE

BRIGHTSPEED +/- 510' - PLOW AT 5' FROM EOP

CONTRACTOR SHALL CONTACT THE RESIDENT ENGINEER TO COORDINATE WITH FOUR COUNTY EMC AFTER CONSTRUCTION TO REPLACE OVERHEAD LINES.

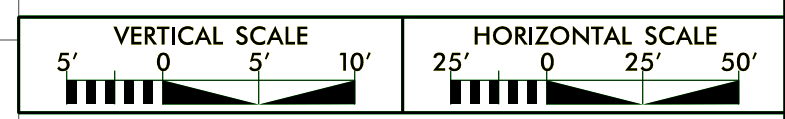
-L-
PI Sta 18+61.20
Δ = 20° 37' 29.2" (LT)
D = 6' 01" 52.1"
L = 341.97'
T = 172.86'
R = 950.00'

NOTE:
TYPE-III ANCHOR UNITS ON ALL FOUR BRIDGE CORNERS

4/22/2024 3:48:15 PM
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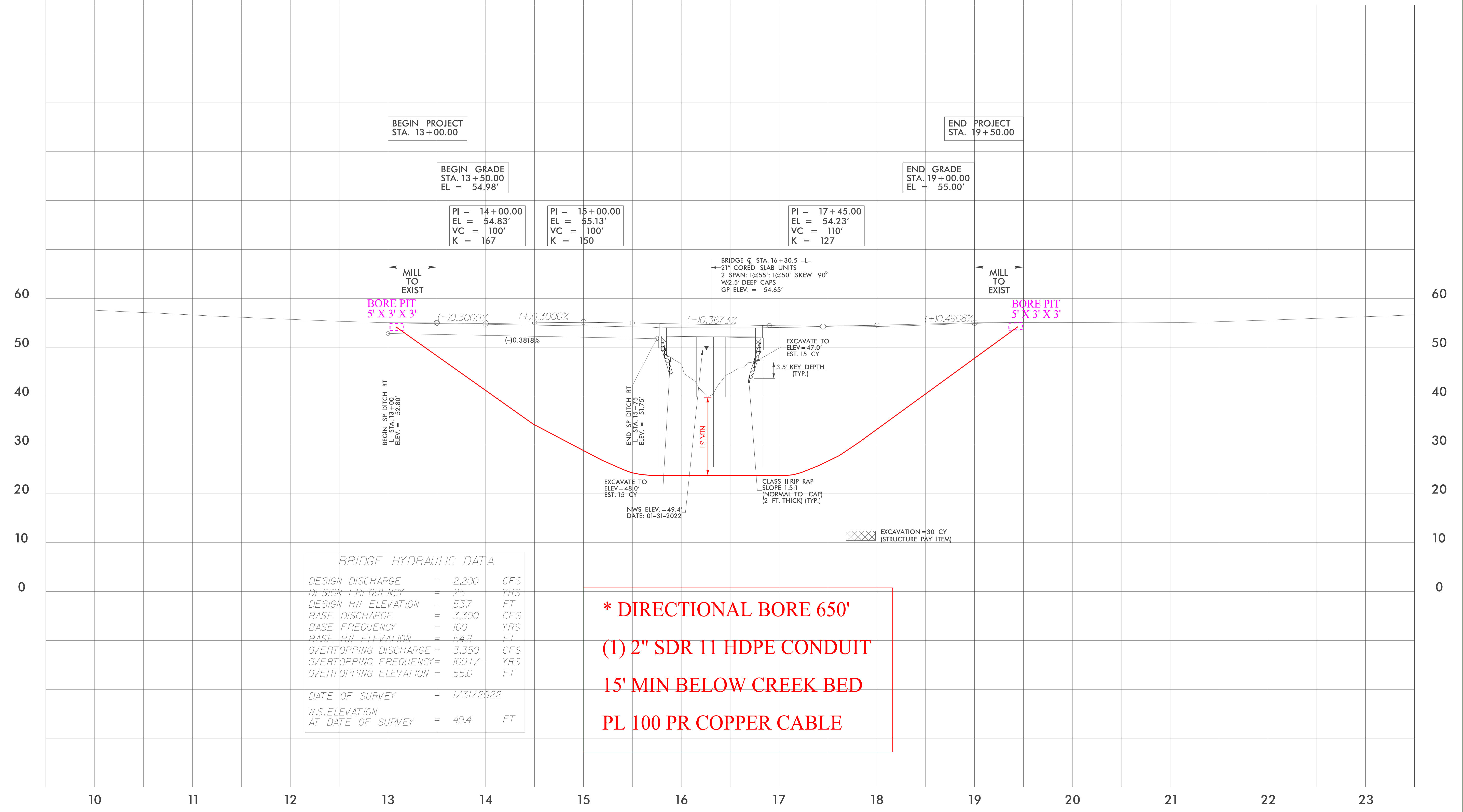
UTILITIES BY OTHERS

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.



-L-

BRIGHTSPEED



BEGIN PROJECT
 STA. 13+00.00

END PROJECT
 STA. 19+50.00

BEGIN GRADE
 STA. 13+50.00
 EL = 54.98'

END GRADE
 STA. 19+00.00
 EL = 55.00'

PI = 14+00.00
 EL = 54.83'
 VC = 100'
 K = 167

PI = 15+00.00
 EL = 55.13'
 VC = 100'
 K = 150

PI = 17+45.00
 EL = 54.23'
 VC = 110'
 K = 127

MILL TO EXIST

MILL TO EXIST

BORE PIT
 5' X 3' X 3'

BORE PIT
 5' X 3' X 3'

BRIDGE @ STA. 16+30.5 -L-
 21" CORED SLAB UNITS
 2 SPAN: 1@55'; 1@50' SKEW 90°
 W/2.5' DEEP CAPS
 GP ELEV. = 54.65'

EXCAVATE TO
 ELEV. = 47.0'
 EST. 15 CY

EXCAVATE TO
 ELEV. = 48.0'
 EST. 15 CY

CLASS II RIP RAP
 SLOPE 1.5:1
 (NORMAL TO CAP)
 (2 FT. THICK) (TYP.)

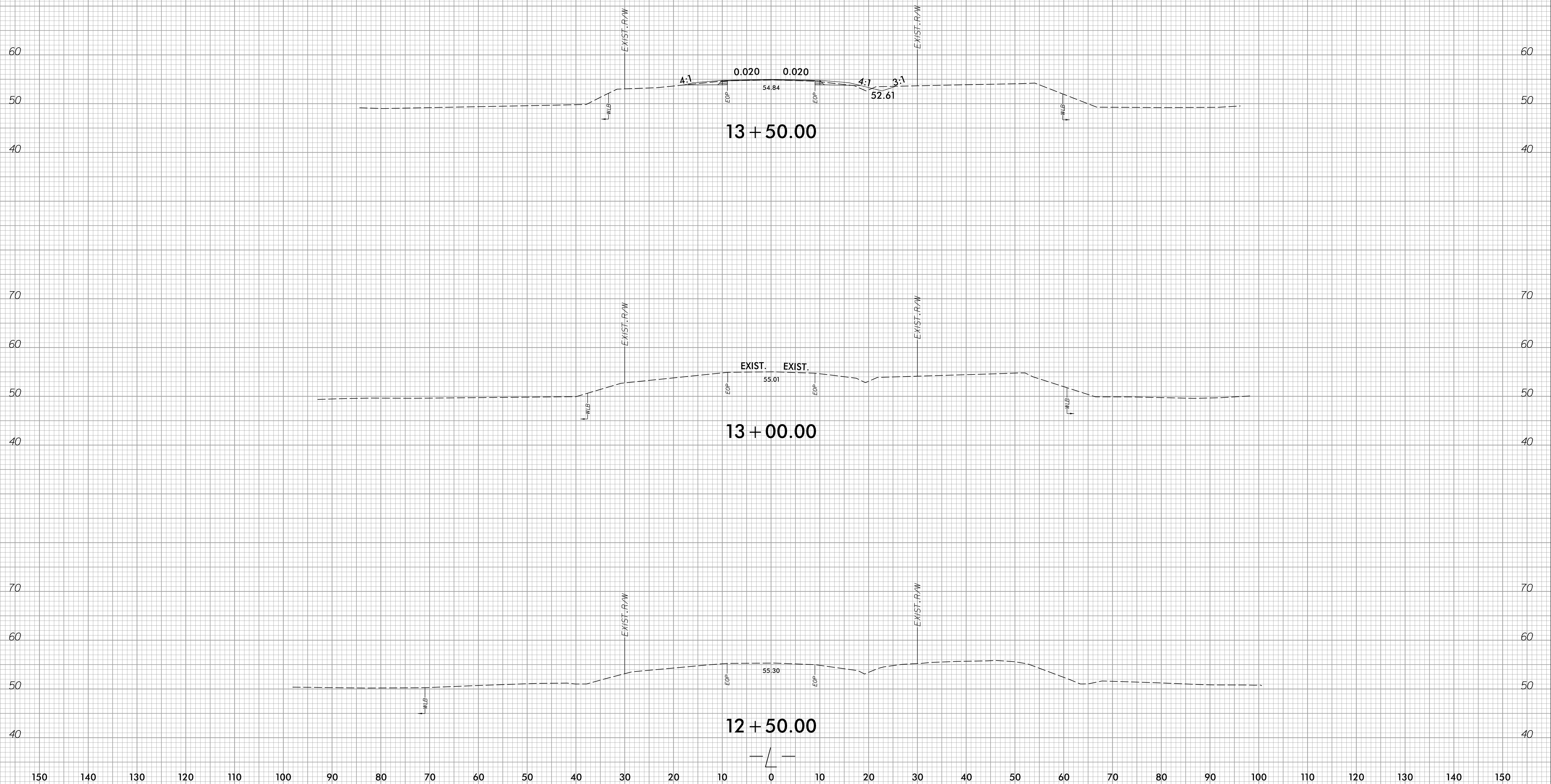
NWS ELEV. = 49.4'
 DATE: 01-31-2022

EXCAVATION = 30 CY
 (STRUCTURE PAY ITEM)

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	=	2,200 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	53.7 FT
BASE DISCHARGE	=	3,300 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	54.8 FT
OVERTOPPING DISCHARGE	=	3,350 CFS
OVERTOPPING FREQUENCY	=	100+/- YRS
OVERTOPPING ELEVATION	=	55.0 FT
DATE OF SURVEY	=	1/31/2022
W.S. ELEVATION AT DATE OF SURVEY	=	49.4 FT

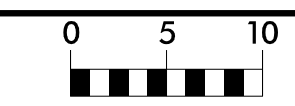
*** DIRECTIONAL BORE 650'**
(1) 2" SDR 11 HDPE CONDUIT
15' MIN BELOW CREEK BED
PL 100 PR COPPER CABLE

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

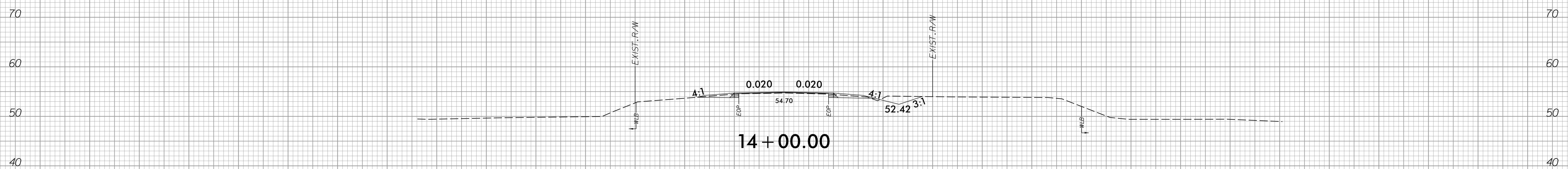
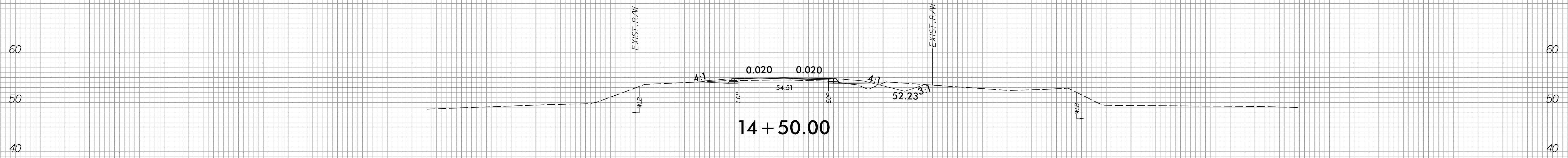
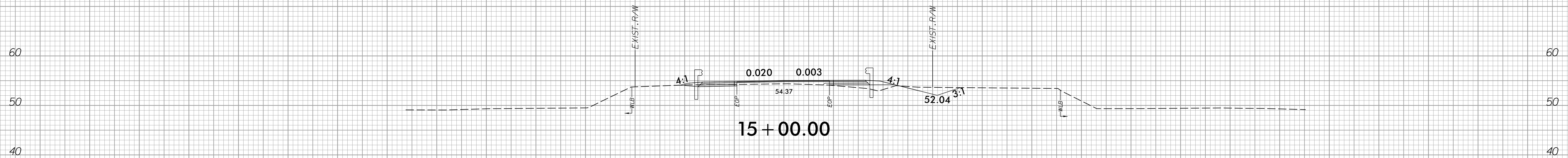


1/23/2024
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 M011 - MCDONALD

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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

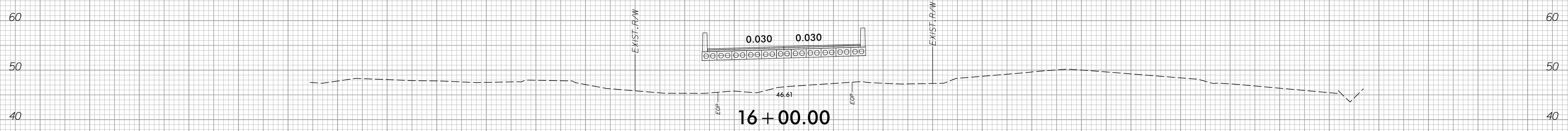
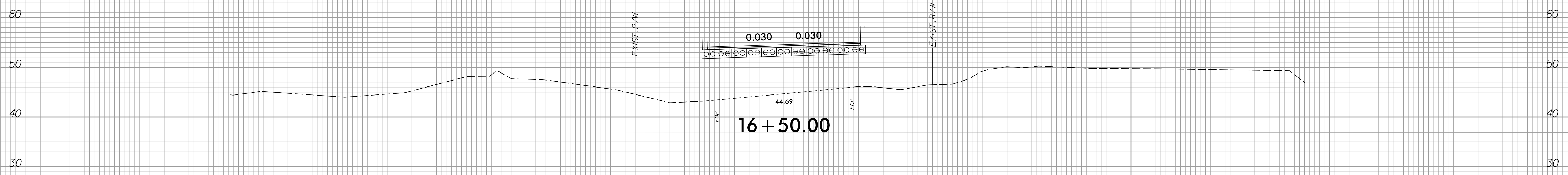


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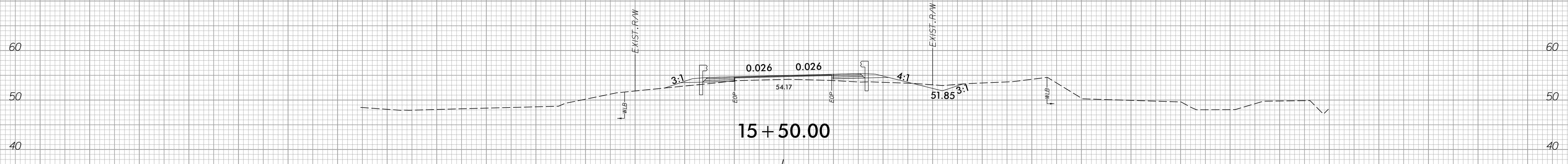
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MOT - MCDONALD

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END BRIDGE 16 + 84.19

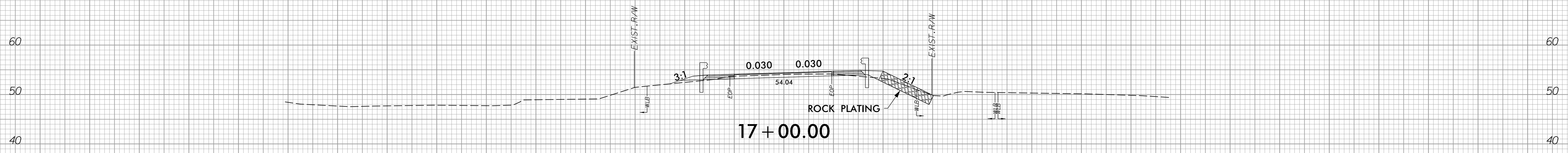
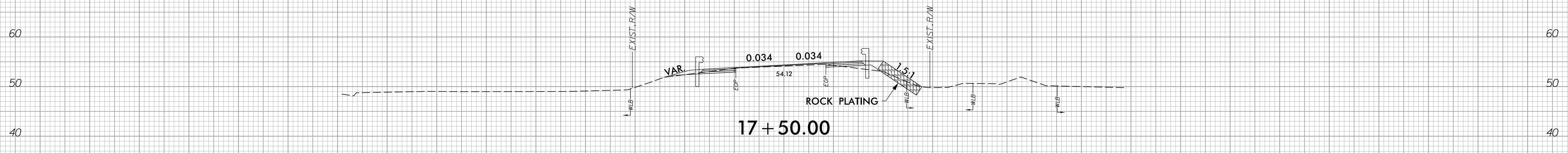
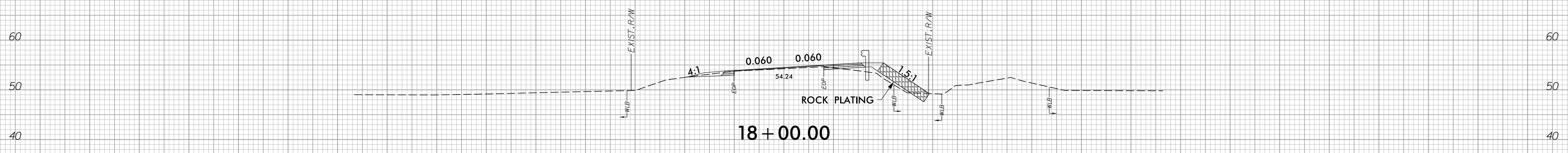
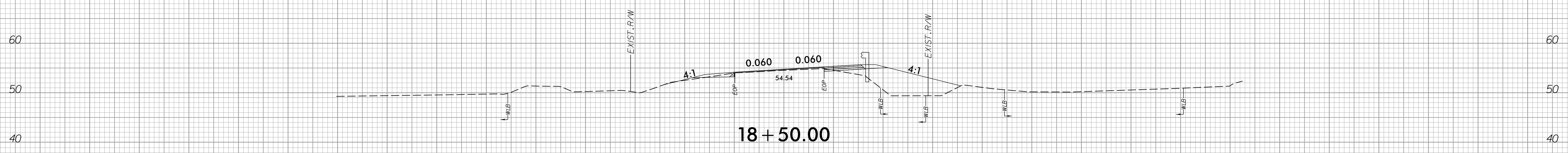


BEGIN BRIDGE 15 + 76.81



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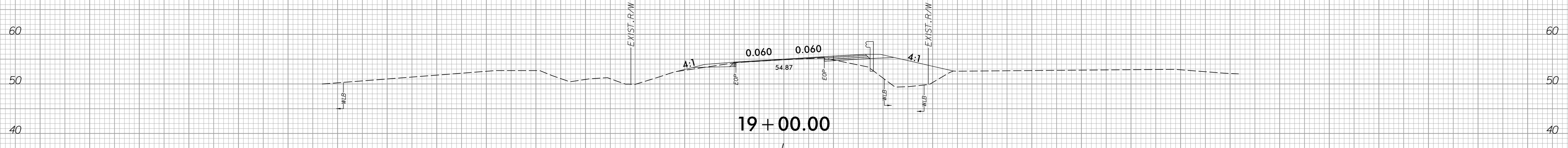
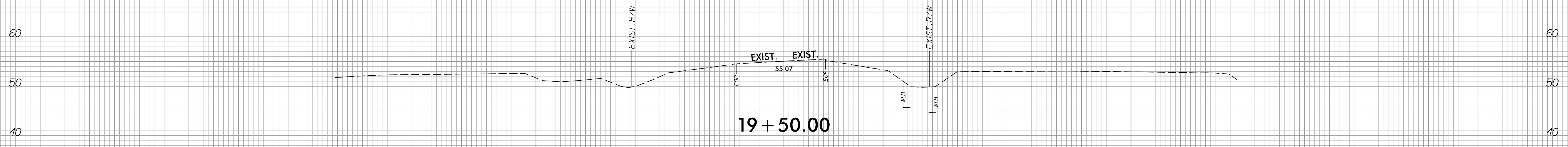
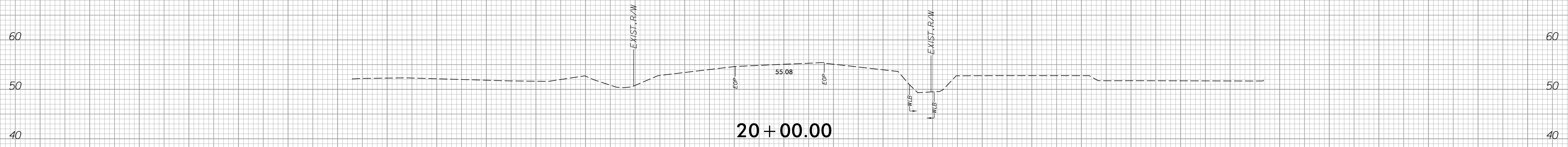
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1/23/2024
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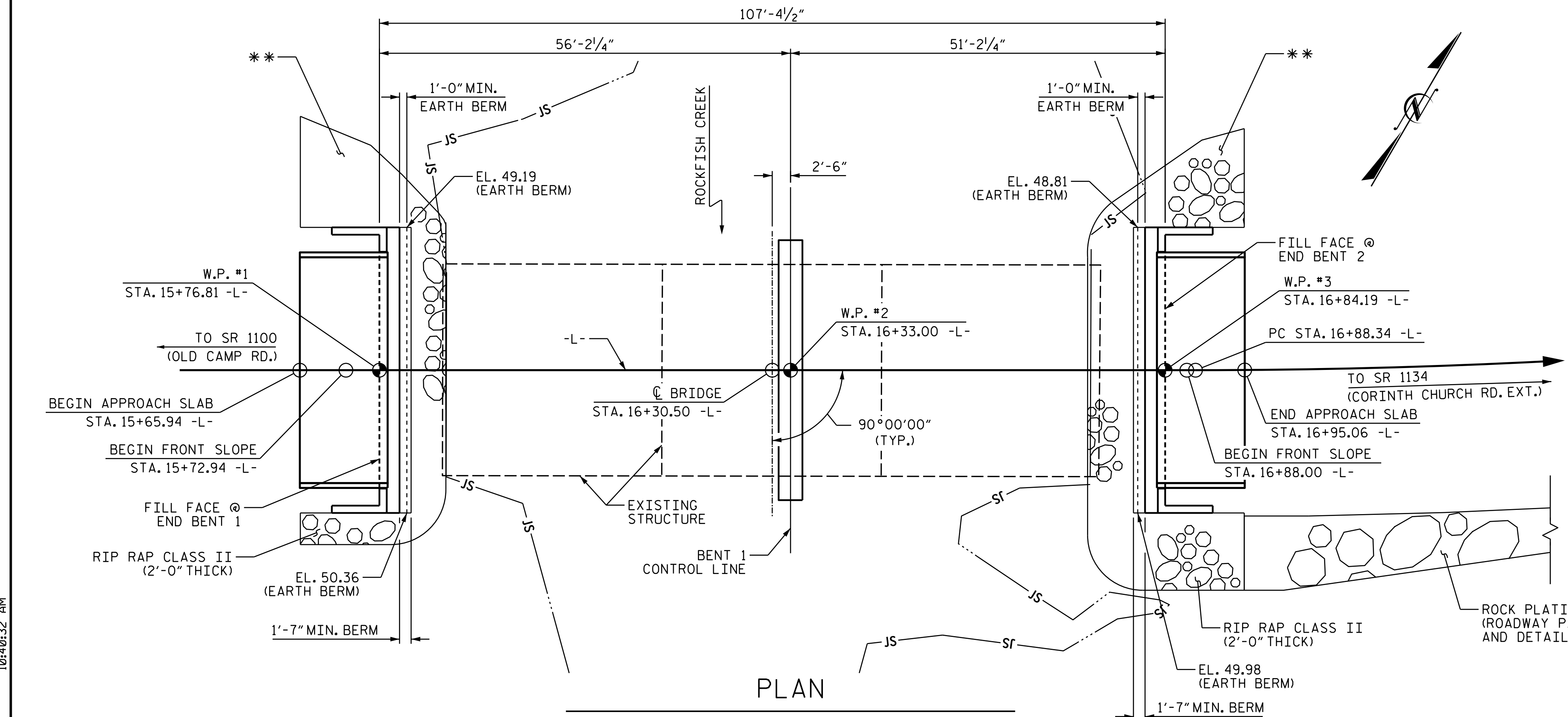
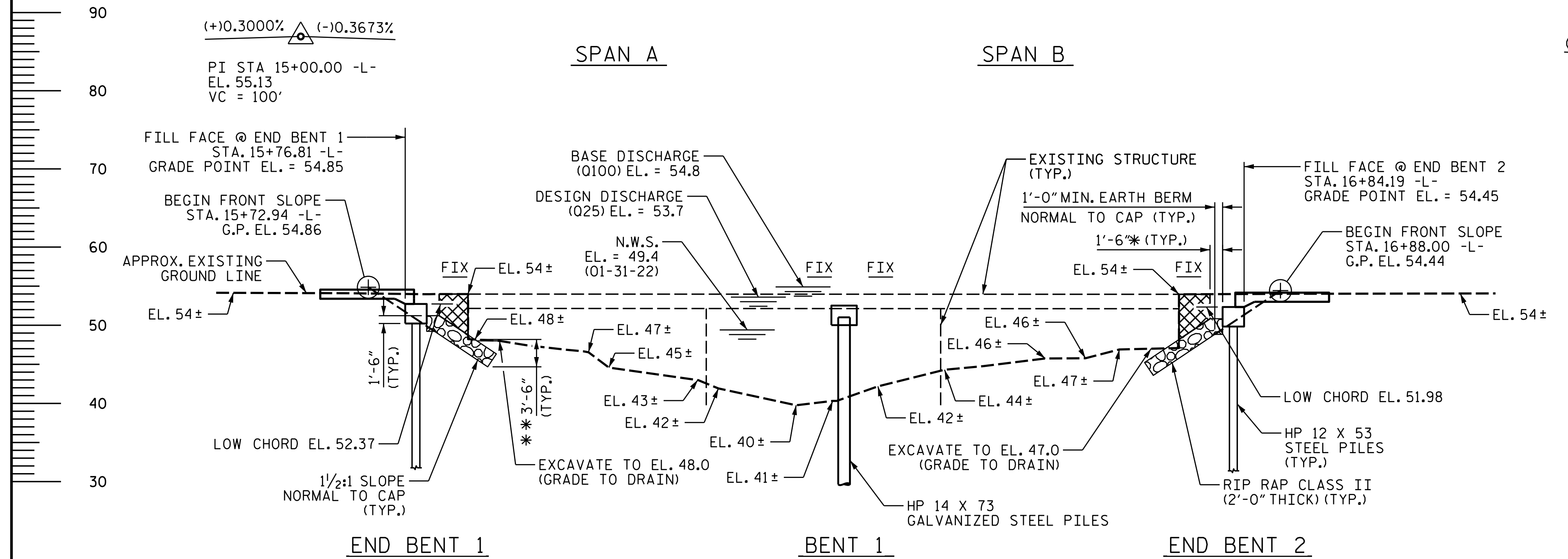
15+50 16+00 16+50 17+00 17+50

GRADE DATA

GRADE DATA

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

- UNCLASSIFIED STRUCTURE EXCAVATION
- * TO LIMIT OF UNCLASSIFIED STRUCTURE EXCAVATION (TYP.) (NORMAL TO CAP)
- ** DO NOT KEY-IN RIP RAP SLOPE PROTECTION ON SIDE SLOPE TO AVOID CONFLICT WITH EXISTING WATER LINE.



HORIZONTAL CURVE DATA -L-

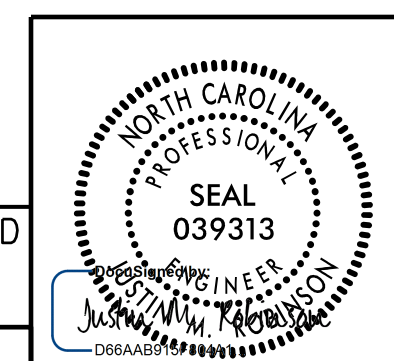
PI STA 18+61.20 -L-
 $\Delta = 20^\circ 37' 29.2''$ (LT)
 D = 6°01' 52.1"
 L = 341.97'
 T = 172.86'
 R = 950.00'

PROJECT NO. B-5647
DUPLIN COUNTY
STATION: 16+30.50 -L-

SHEET 1 OF 3 REPLACE BRIDGE #300052

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE ON SR 1135
(PROVIDENCE CHURCH RD.)
OVER ROCKFISH CREEK
BETWEEN SR 1100 AND SR 1134



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY: MOTT MACDONALD
938 Main Campus Drive, Suite 200, Raleigh, NC 27606
(919) 552-2253
www.mottmac.com
LICENSE NO. F-0669

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

S-1
TOTAL SHEETS 18

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10/20/23
2/2/2024

DRAWN BY: N. K. KAVANI DATE: 10-2023
CHECKED BY: J. M. ROBINSON DATE: 11-2023
DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Exc Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1 (Piles 1-7)	75	See Substructure Plans	45	31		125							
Bent 1 (Piles 1-8)	120		45		205	10							
End Bent 2 (Piles 1-7)	70		45		120								

*Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

$$**RDR = \frac{\text{Factored Resistance} + \text{Factored Downdrag Load} + \text{Factored Dead Load}}{\text{Dynamic Resistance Factor}} + \frac{\text{Nominal Downdrag Resistance}}{\text{Nominal Scour Resistance}} + \frac{\text{Nominal Scour Resistance}}{\text{Scour Resistance Factor}}$$

SUMMARY OF PDA/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
End Bent 1	MAYBE	45	1		
Bent 1	MAYBE	45			
End Bent 2	MAYBE	45			

*EST = Pile order lengths from estimated pile lengths; PDA = Pile order lengths based on PDA testing. For groups of end bents/bents with pile order lengths based on PDA testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the PDA.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1 (Piles 1-7)	71			0.60			
Bent 1 (Piles 1-8)	118			0.60		3	1.00
End Bent 2 (Piles 1-7)	67			0.60			

*Factored Dead Load is factored weight of pile above the ground line.

NOTES:

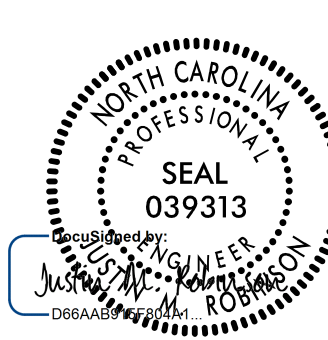
- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Thein Tun Zan, PE Seal #030943) on 05-01-2023.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
- The Engineer will determine the need for PDA Testing when PDAs may be required.
- For piles, see piles provision and section 450 of the Standard Specifications.

PROJECT NO. B-5647

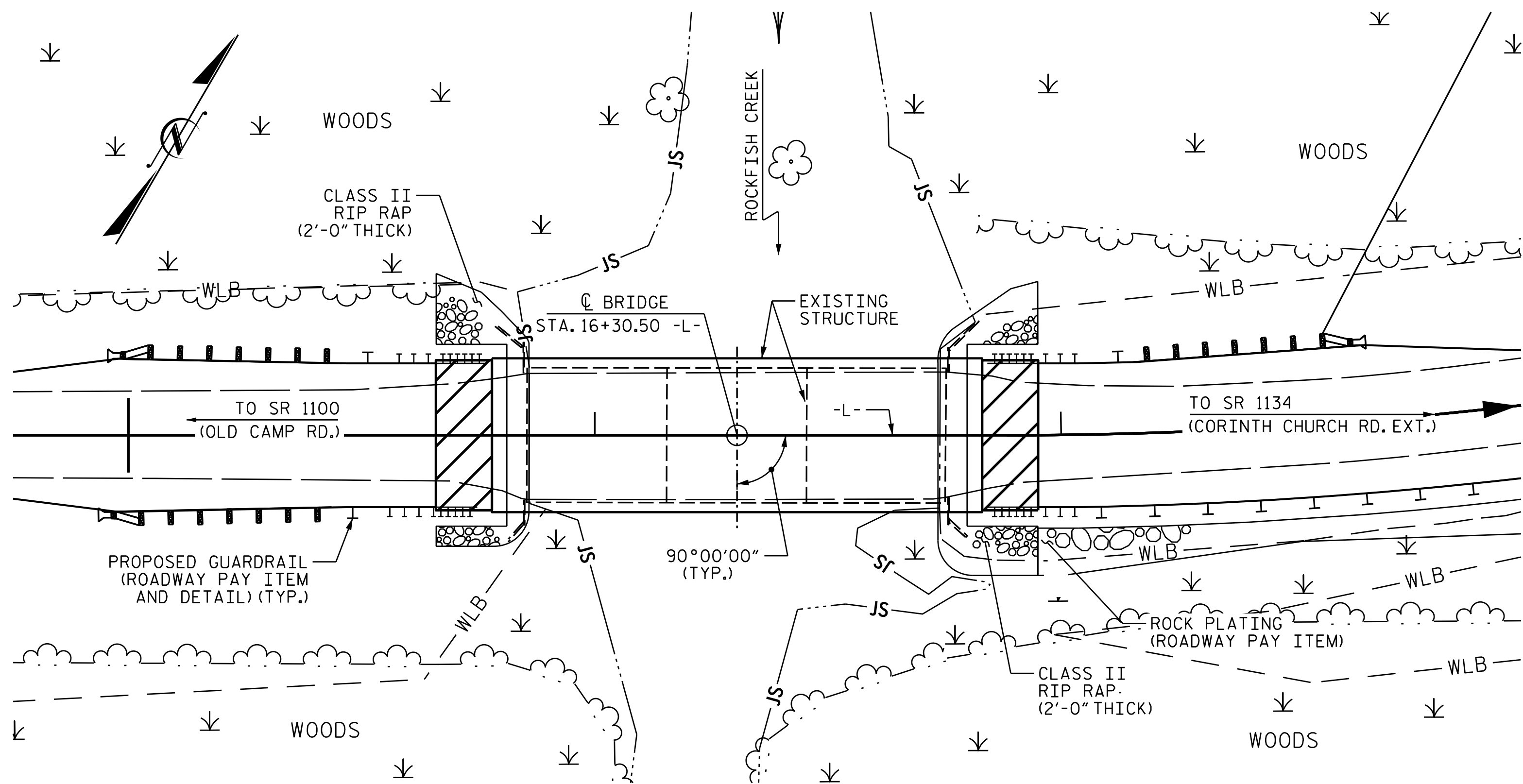
DUPLIN COUNTY

STATION: 16+30.50 -L-

SHEET 2 OF 3

	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						<h2>PILE FOUNDATION TABLES</h2>
	SIGNATURE _____ DATE _____						
REVISIONS							TOTAL SHEETS 18
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	NO.	BY:	DATE:	NO.	BY:	DATE:	
	1			3			
	2			4			

BM: "BENCHTIE" NAIL SET IN 24" CYPRESS TREE; 113.96' LT. STA. 17+21.69 -L-, ELEV. 50.65



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES:

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED. TOP DOWN CONSTRUCTION SHALL NOT BE ALLOWED FROM ANY SPAN.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
- THE EXISTING STRUCTURE CONSISTING OF 3 SPANS (30'-6", 30'-0", 30'-6") CONCRETE DECK ON PRESTRESSED CONCRETE CHANNEL BEAMS; CLEAR ROADWAY WIDTH OF 29'-1" ON TIMBER ABUTMENTS WITH PRESTRESSED CONCRETE CAPS ON TIMBER PILES WITH STEEL CRUNCH BENTS AND PRESTRESSED CONCRETE INTERIOR BENT CAPS ON TIMBER PILES WITH CONCRETE ENCASEMENTS, LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT.
- THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COSTS INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
- FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES."
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET 1 OF 3 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT ± LEFT AND 25 ± FT RIGHT OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
- THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 34.0 SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STATION 16+30.50 -L-	ASBESTOS ASSESSMENT	DYNAMIC PILE TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 16+30.50 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 GALVANIZED STEEL PILES	HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONC. CORED SLABS		
										NO.	LIN. FT.	NO.	LIN. FT.						EA.	LIN. FT.	TON
SUPERSTRUCTURE	LUMP SUM	LUMP SUM	EA.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EA.	EA.	NO.	LIN. FT.	NO.	LIN. FT.	EA.	LIN. FT.	TON	S.Y.	LUMP SUM	NO.	LIN. FT.	
END BENT 1					14.2		2115	7		7	315					59	65				
BENT 1					10.7		2136		8			8	360								
END BENT 2					14.2		2115	7		7	315					80	88				
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	39.1	LUMP SUM	6366	14	8	14	630	8	360	10	210.5	139	153	LUMP SUM	22	1155	

HYDRAULIC DATA:

DESIGN DISCHARGE	= 2,200 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YEAR
DESIGN HIGH WATER ELEVATION	= 53.7
DRAINAGE AREA	= 38.5 SQ. MI.
BASE DISCHARGE (Q 100)	= 3,300 CFS
BASE HIGH WATER ELEVATION	= 54.8

OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE	= 3,350 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 100+/- YRS.
OVERTOPPING FLOOD ELEVATION	= 55.0 *
* SAG AT APPROX. -L- STA. 17+37 RT.	
WS EL. TAKEN AT RIVER STATION 109028.0	

SAMPLE BAR REPLACEMENT

SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE: SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60ksi.

FOUNDATION RECOMENDATION NOTES:

FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

BRIDGE ON SR 1135
 (PROVIDENCE CHURCH RD.)
 OVER ROCKFISH CREEK
 BETWEEN SR 1100 AND SR 1134



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:
M MOTT MACDONALD
 936 Main Campus Drive, Suite 200
 Raleigh, NC 27606
 (919) 552-2253
 www.mottmac.com
 LICENSE NO. F-0669

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

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DRAWN BY: N. K. KAVANI DATE: 10-2023
 CHECKED BY: J. M. ROBINSON DATE: 11-2023
 DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	①	1.055	--	1.75	0.275	1.23	55'	EL	27	0.523	1.23	55'	EL	5.4	0.80	0.275	1.05	55'	EL	27		
	HL-93 (OPERATING)	N/A		1.591	--	1.35	0.275	1.59	55'	EL	27	0.523	1.59	55'	EL	5.4	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.322	47.585	1.75	0.275	1.54	55'	EL	27	0.523	1.47	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27		
	HS-20 (OPERATING)	36.000		1.900	68.396	1.35	0.275	1.99	55'	EL	27	0.523	1.90	55'	EL	5.4	N/A	--	--	--	--	--		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		2.776	37.476	1.4	0.275	4.04	55'	EL	27	0.523	4.17	55'	EL	5.4	0.80	0.275	2.78	55'	EL	27	
		SNGARBS2	20.000		2.155	43.095	1.4	0.275	3.14	55'	EL	27	0.523	3.02	55'	EL	5.4	0.80	0.275	2.15	55'	EL	27	
		SNAGRIS2	22.000		2.079	45.734	1.4	0.275	3.03	55'	EL	27	0.523	2.83	55'	EL	5.4	0.80	0.275	2.08	55'	EL	27	
		SNCOTTS3	27.250		1.384	37.708	1.4	0.275	2.01	55'	EL	27	0.523	2.09	55'	EL	5.4	0.80	0.275	1.38	55'	EL	27	
		SNAGGRS4	34.925		1.189	41.527	1.4	0.275	1.73	55'	EL	27	0.523	1.77	55'	EL	5.4	0.80	0.275	1.19	55'	EL	27	
		SNS5A	35.550		1.160	41.255	1.4	0.275	1.69	55'	EL	27	0.523	1.82	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		SNS6A	39.950		1.079	43.102	1.4	0.275	1.57	55'	EL	27	0.523	1.68	55'	EL	5.4	0.80	0.275	1.08	55'	EL	27	
	SNS7B	42.000		1.028	43.175	1.4	0.275	1.50	55'	EL	27	0.523	1.67	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.320	43.556	1.4	0.275	1.92	55'	EL	27	0.523	1.98	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27	
		TNT4A	33.075		1.330	43.979	1.4	0.275	1.94	55'	EL	27	0.523	1.91	55'	EL	5.4	0.80	0.275	1.33	55'	EL	27	
		TNT6A	41.600		1.101	45.811	1.4	0.275	1.60	55'	EL	27	0.523	1.83	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
		TNT7A	42.000		1.114	46.804	1.4	0.275	1.62	55'	EL	27	0.523	1.71	55'	EL	5.4	0.80	0.275	1.11	55'	EL	27	
		TNT7B	42.000		1.163	48.848	1.4	0.275	1.69	55'	EL	27	0.523	1.62	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		TNAGRIT4	43.000		1.101	47.330	1.4	0.275	1.60	55'	EL	27	0.523	1.56	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
TNAGT5A		45.000		1.031	46.405	1.4	0.275	1.50	55'	EL	27	0.523	1.58	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27		
TNAGT5B	45.000	③	1.013	45.582	1.4	0.275	1.47	55'	EL	27	0.523	1.48	55'	EL	5.4	0.80	0.275	1.01	55'	EL	27			
EMERGENCY VEHICLE (EV)	EV2	28.750		1.617	46.483	1.3	0.275	2.37	55'	EL	27	0.523	2.27	55'	EL	5.4	0.80	0.275	1.62	55'	EL	27		
	EV3	43.000	④	1.049	45.107	1.3	0.275	1.54	55'	EL	27	0.523	1.53	55'	EL	5.4	0.80	0.275	1.05	55'	EL	27		

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

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

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

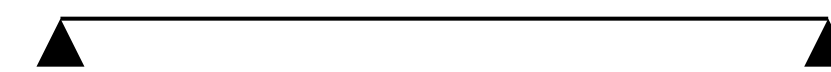
④ EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

- ①
- ②
- ③
- ④



LRFR SUMMARY
FOR SPAN "A"

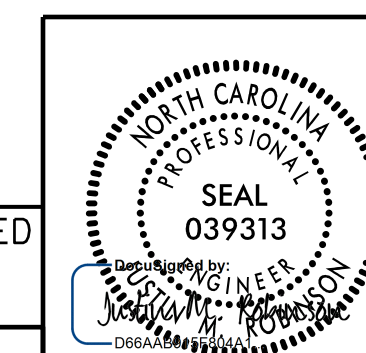
PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

K:\0574\KAVI\0574\HV\FPS01\Proc\386695_2017_NCDOT_BridgeDesign\LSA\Proc\B-5647\Structures\Plans\B-5647_SMU_LRFR_300052.dgn 10/22/2024 10:42:33 AM

DRAWN BY: N. K. KAVANI DATE: 10-2023
 CHECKED BY: J. M. ROBINSON DATE: 11-2023
 DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

PLANS PREPARED BY:
M MOTT MACDONALD
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 (919) 552-2253
 www.mottmac.com
 LICENSE NO. F-0669



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
**LRFR SUMMARY FOR
 55' CORED SLAB UNIT
 90° SKEW**
 (NON-INTERSTATE TRAFFIC)

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	①	1.394	-	1.75	0.276	1.57	50'	EL	24.5	0.531	1.39	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5		
	HL-93 (OPERATING)	N/A		1.807	-	1.35	0.276	2.03	50'	EL	24.5	0.531	1.81	50'	EL	2.45	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.667	60.007	1.75	0.276	1.95	50'	EL	24.5	0.531	1.67	50'	EL	2.45	0.80	0.276	1.79	50'	EL	24.5		
	HS-20 (OPERATING)	36.000		2.161	77.787	1.35	0.276	2.52	50'	EL	24.5	0.531	2.16	50'	EL	2.45	N/A	--	--	--	--	--		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.635	49.079	1.4	0.276	4.95	50'	EL	24.5	0.531	4.70	50'	EL	2.45	0.80	0.276	3.64	50'	EL	24.5	
		SNGARBS2	20.000		2.871	57.420	1.4	0.276	3.91	50'	EL	24.5	0.531	3.42	50'	EL	2.45	0.80	0.276	2.87	50'	EL	24.5	
		SNAGRIS2	22.000		2.778	61.109	1.4	0.276	3.78	50'	EL	19.6	0.531	3.21	50'	EL	2.45	0.80	0.276	2.78	50'	EL	24.5	
		SNCOTTS3	27.250		1.814	49.418	1.4	0.276	2.47	50'	EL	24.5	0.531	2.36	50'	EL	2.45	0.80	0.276	1.81	50'	EL	24.5	
		SNAGGRS4	34.925		1.577	55.063	1.4	0.276	2.15	50'	EL	24.5	0.531	2.01	50'	EL	2.45	0.80	0.276	1.58	50'	EL	24.5	
		SNS5A	35.550		1.537	54.657	1.4	0.276	2.09	50'	EL	24.5	0.531	2.07	50'	EL	2.45	0.80	0.276	1.54	50'	EL	24.5	
		SNS6A	39.950		1.438	57.430	1.4	0.276	1.96	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5	
	SNS7B	42.000		1.370	57.540	1.4	0.276	1.87	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.37	50'	EL	24.5		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.761	58.118	1.4	0.276	2.40	50'	EL	24.5	0.531	2.25	50'	EL	2.45	0.80	0.276	1.76	50'	EL	24.5	
		TNT4A	33.075		1.777	58.759	1.4	0.276	2.42	50'	EL	24.5	0.531	2.17	50'	EL	2.45	0.80	0.276	1.78	50'	EL	24.5	
		TNT6A	41.600		1.480	61.558	1.4	0.276	2.01	50'	EL	24.5	0.531	2.08	50'	EL	2.45	0.80	0.276	1.48	50'	EL	24.5	
		TNT7A	42.000		1.502	63.087	1.4	0.276	2.05	50'	EL	24.5	0.531	1.94	50'	EL	2.45	0.80	0.276	1.50	50'	EL	24.5	
		TNT7B	42.000		1.566	65.773	1.4	0.276	2.13	50'	EL	24.5	0.531	1.84	50'	EL	2.45	0.80	0.276	1.57	50'	EL	24.5	
		TNAGRIT4	43.000		1.486	63.902	1.4	0.276	2.02	50'	EL	24.5	0.531	1.77	50'	EL	2.45	0.80	0.276	1.49	50'	EL	24.5	
TNAGT5A		45.000		1.388	62.470	1.4	0.276	1.89	50'	EL	24.5	0.531	1.80	50'	EL	2.45	0.80	0.276	1.39	50'	EL	24.5		
TNAGT5B	45.000		③	1.360	61.206	1.4	0.276	1.85	50'	EL	24.5	0.531	1.68	50'	EL	2.45	0.80	0.276	1.36	50'	EL	24.5		
EMERGENCY VEHICLE (EV)	EV2	28.750		2.154	61.929	1.3	0.276	2.97	50'	EL	24.5	0.531	2.50	50'	EL	5.50	0.80	0.276	2.15	50'	EL	24.5		
	EV3	43.000		④	1.392	59.852	1.3	0.276	1.92	50'	EL	24.5	0.531	1.69	50'	EL	5.50	0.80	0.276	1.39	50'	EL	24.5	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

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

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

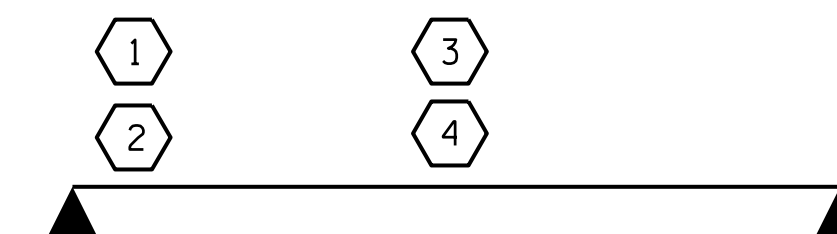
③ LEGAL LOAD RATING **

④ EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY
FOR SPAN "B"

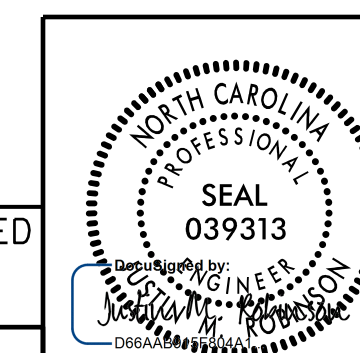
PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

K:\0574\AV\FPS01\p\c\386695_2017_NCDOT_BridgeDesign_LSA\p\c\B-5647\Structures\Plans\B-5647_SMU_LRFR_300052.dgn 10/22/2024 10:42:40 AM

DRAWN BY: N. K. KAVANI DATE: 10-2023
 CHECKED BY: J. M. ROBINSON DATE: 11-2023
 DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

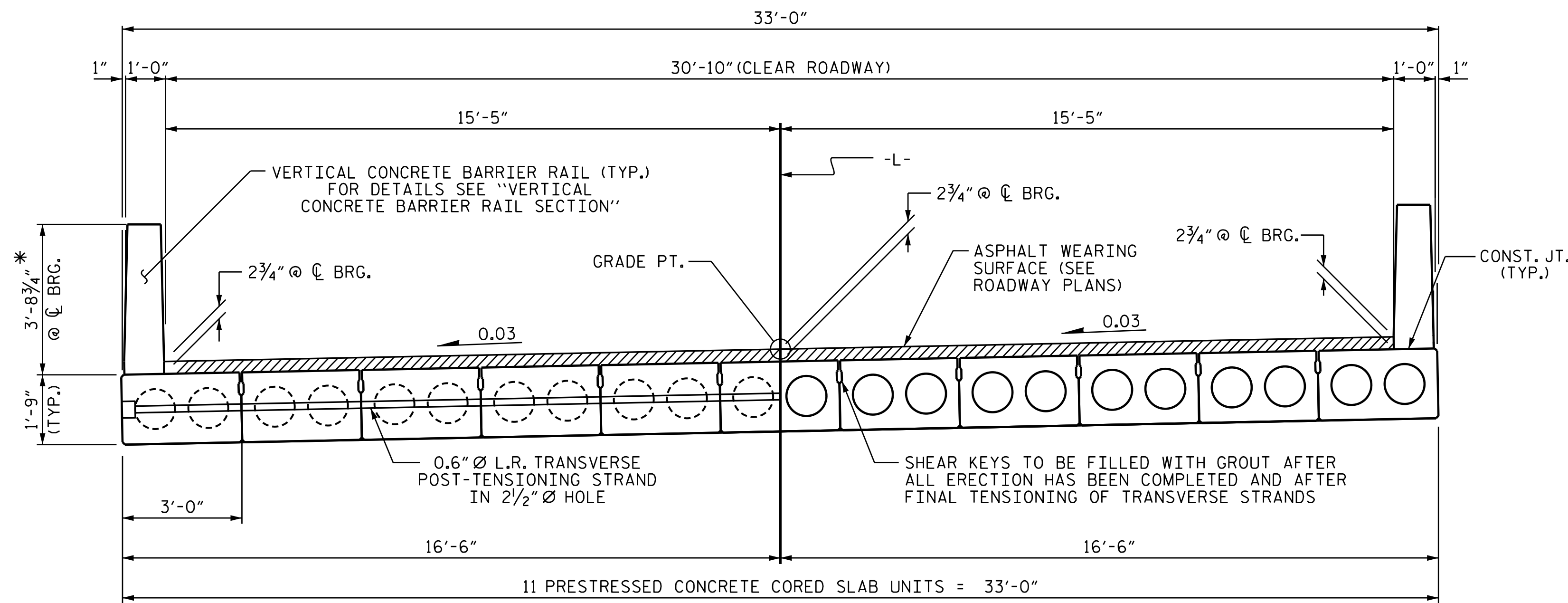
PLANS PREPARED BY:
M 930 Main Campus Drive,
 Suite 200
 Raleigh, NC 27606
 (919) 552-2253
 www.mottmac.com
M MOTT
 MACDONALD LICENSE NO. F-0669



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

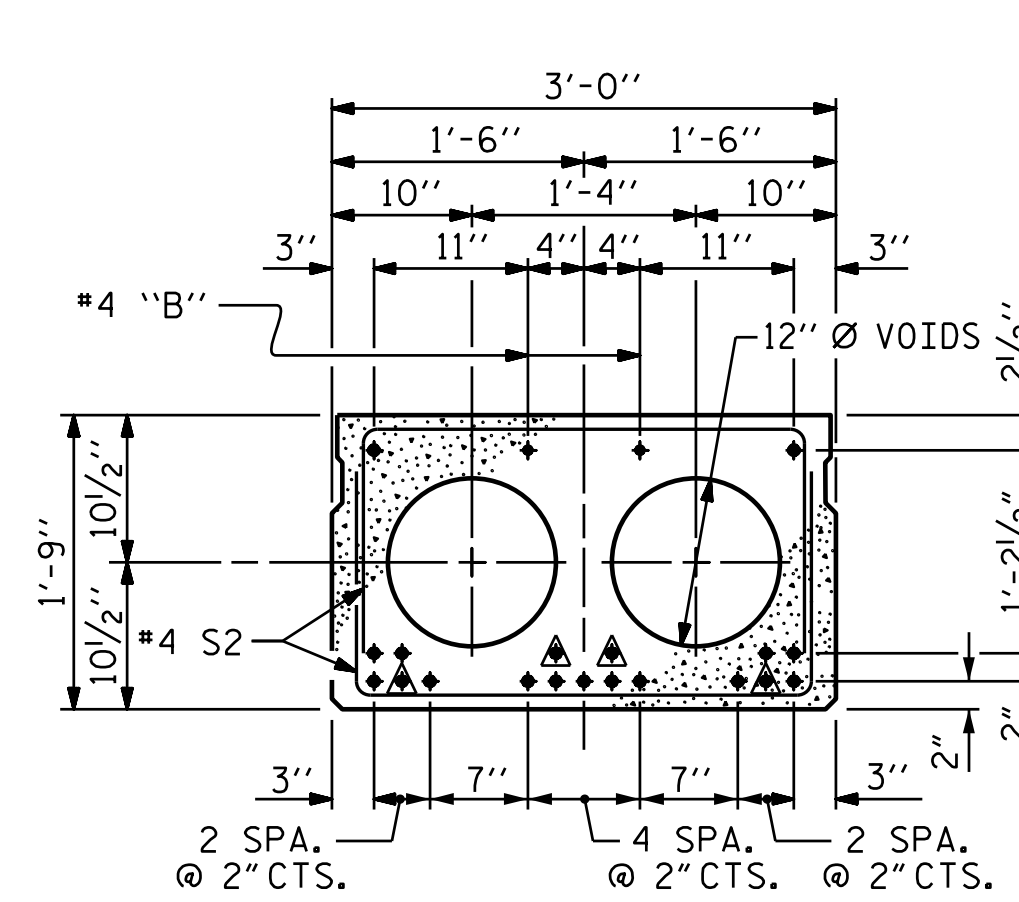
STANDARD
**LRFR SUMMARY FOR
 50' CORED SLAB UNIT
 90° SKEW**
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			18

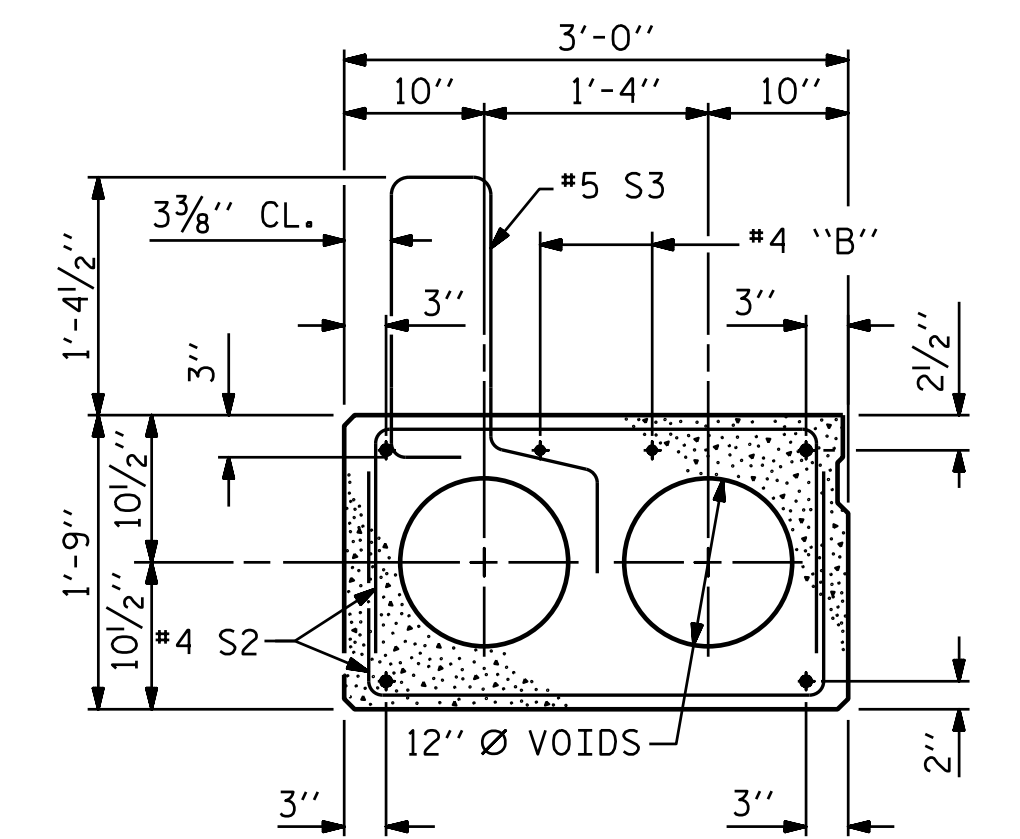


TYPICAL SECTION

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



INTERIOR SLAB SECTION
(50' & 55' UNIT)
(19 STRANDS REQUIRED)



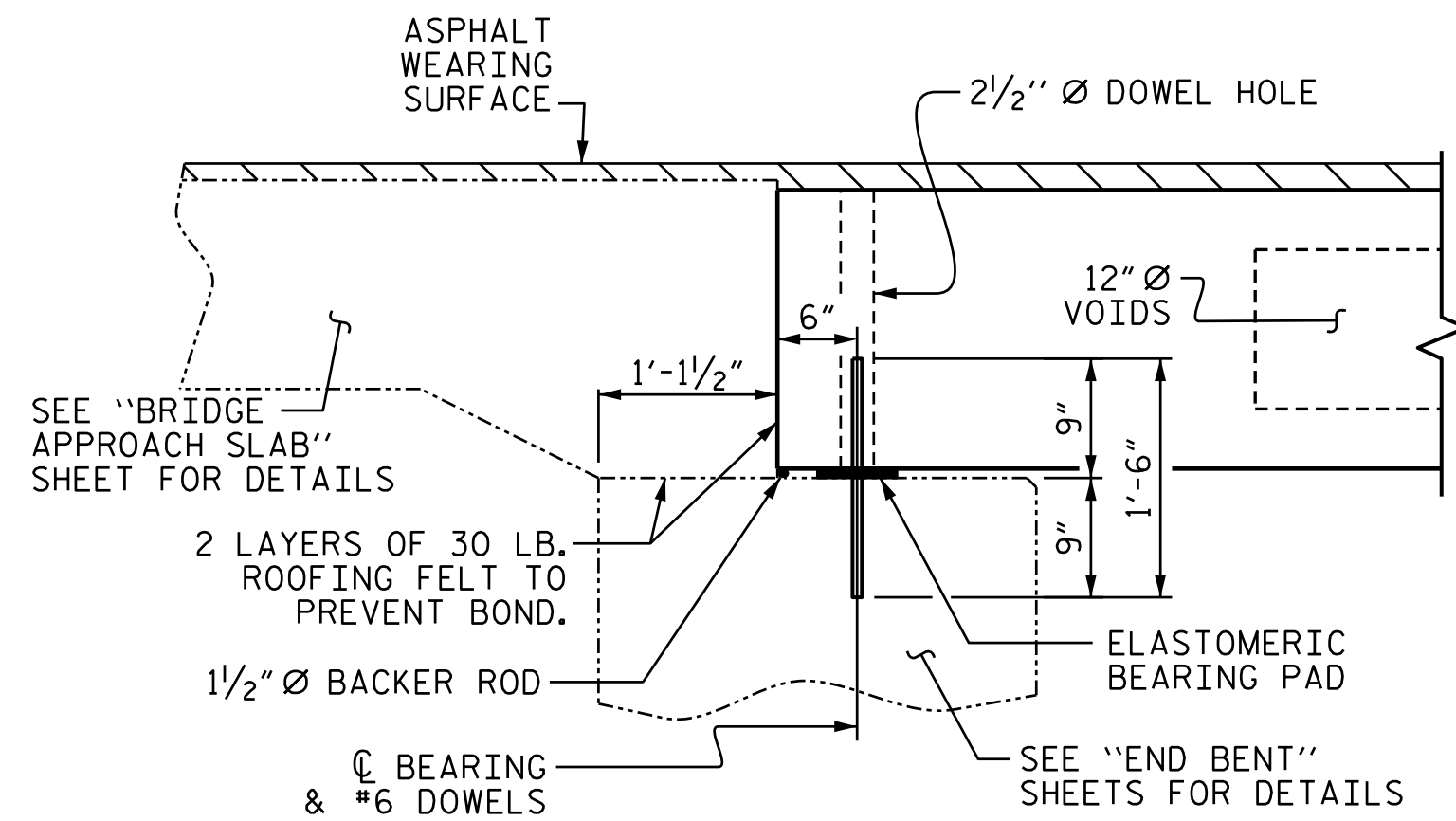
EXT. SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE
INTERIOR SLAB SECTION.)

0.6" Ø LOW
RELAXATION STRAND LAYOUT

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

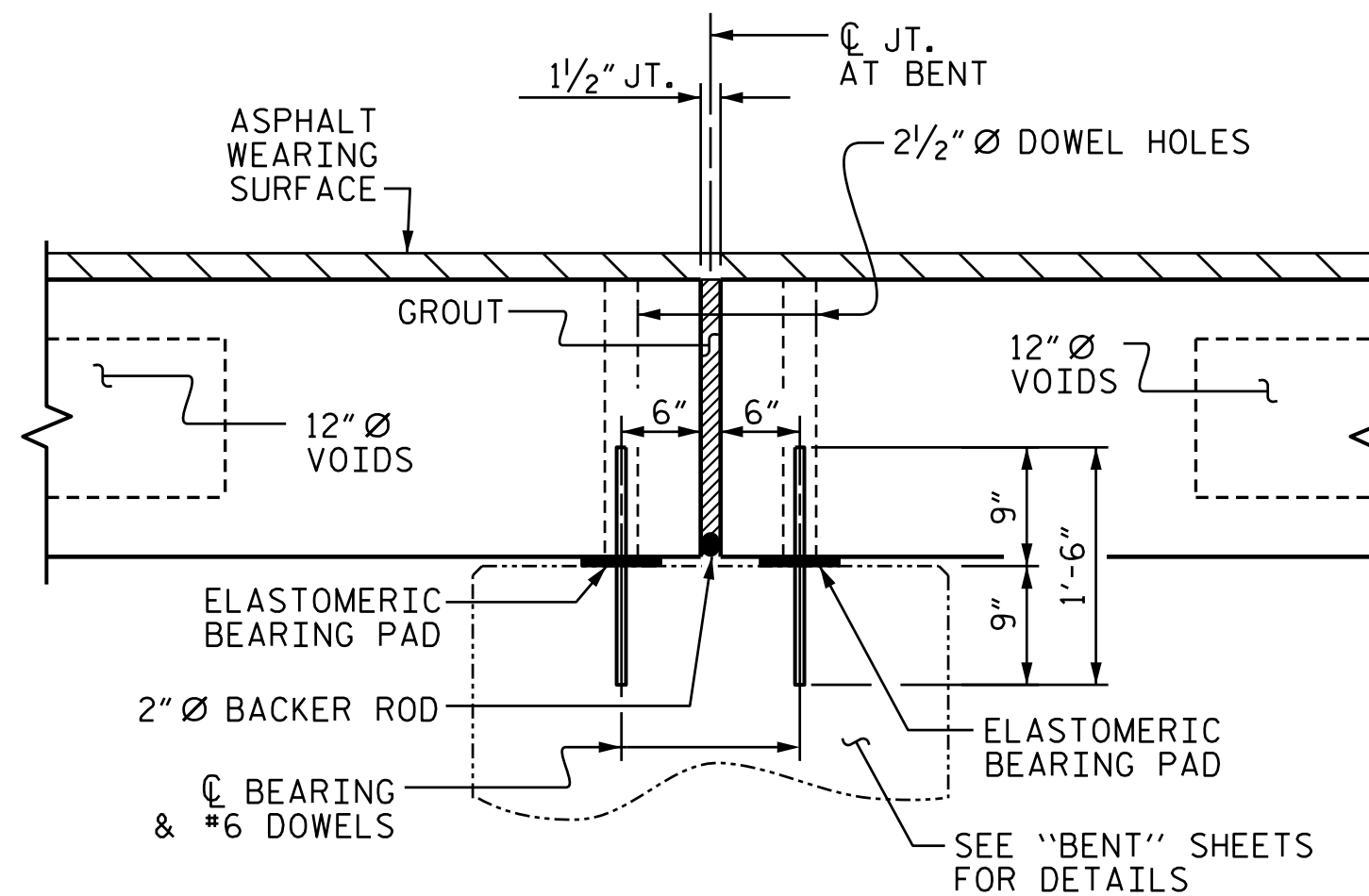
DEBONDING LEGEND

FIXED END



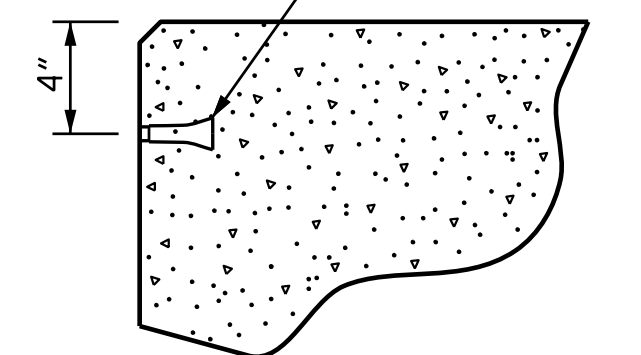
SECTION AT END BENT

FIXED END

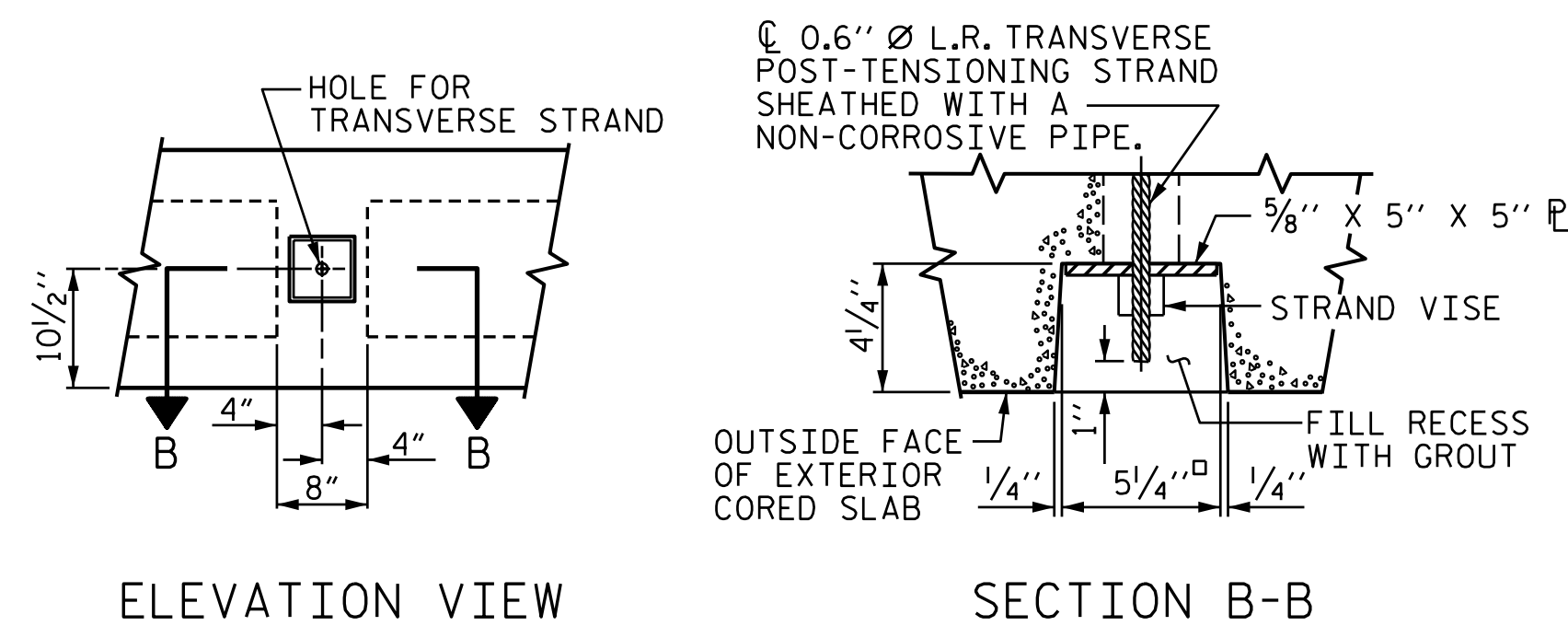


SECTION AT BENT

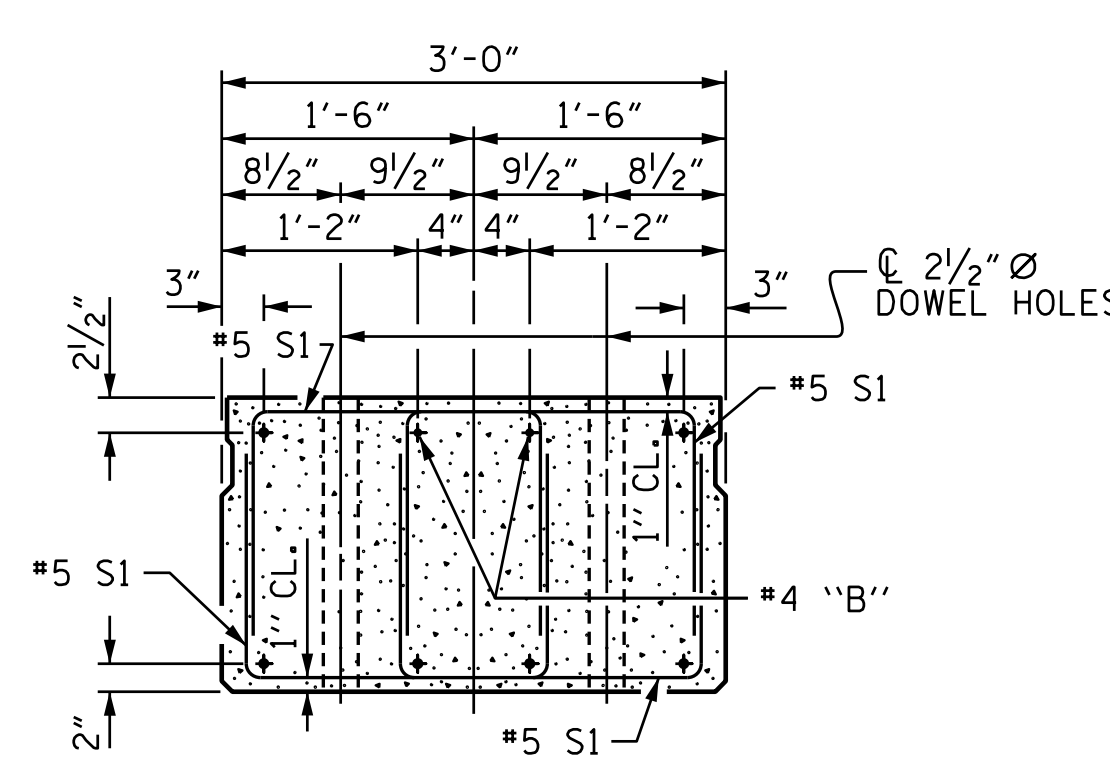
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL

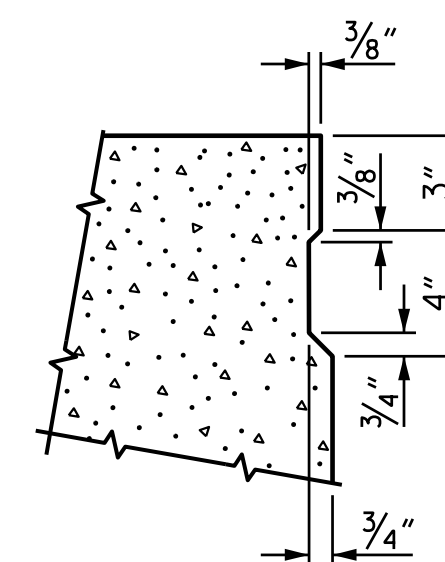


GROUTED RECESS AT END OF
POST-TENSIONED STRAND OF CORED SLABS



END ELEVATION

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

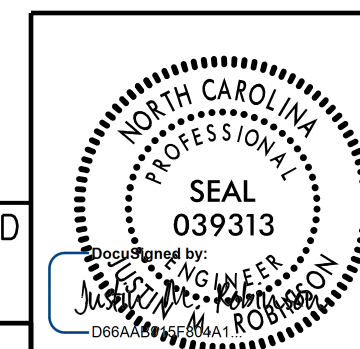


SHEAR KEY DETAIL

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

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Raleigh, NC 27606
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PROJECT NO. B-5647
DUPLIN COUNTY
STATION: 16+30.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

REVISIONS

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

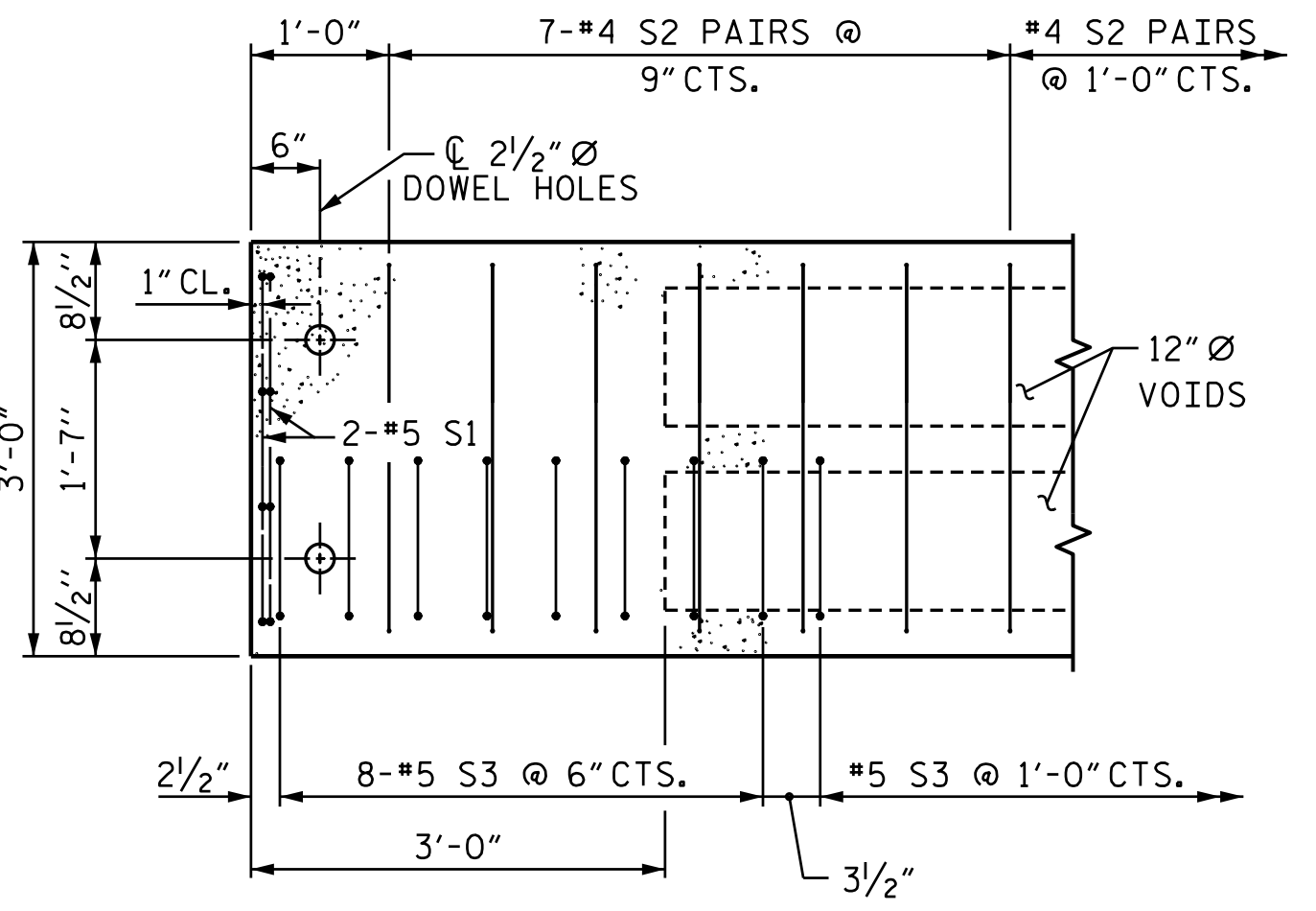
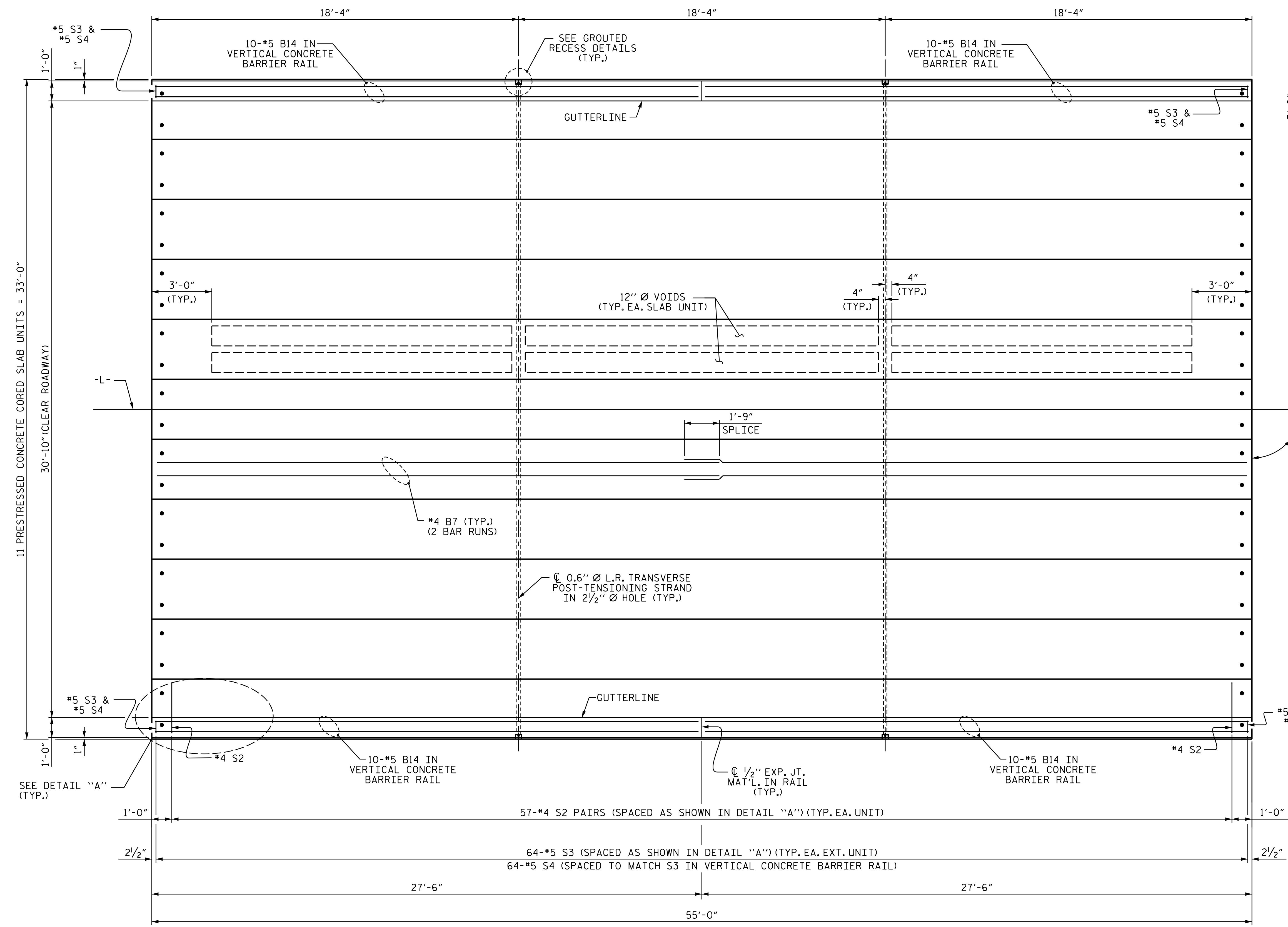
SHEET NO.
S-6
TOTAL SHEETS
18

STD. NO. 21" PCS2-33-90S

K:\06574\14\FPS01\p\cs\386695_2017_NCDOT_BridgeDesign_LSA\p\c\B-5647\Structures\Plans\B-5647_SMU.LCS_300052.dgn 10/22/2017 10:42:57 AM

DRAWN BY: N. K. KAVANI DATE: 10-2023
CHECKED BY: J. M. ROBINSON DATE: 11-2023
DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

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10/2/2024

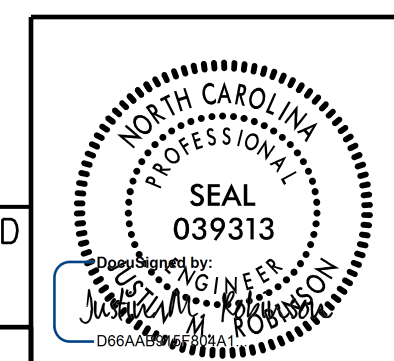


DETAIL "A"
(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT

PROJECT NO. B-5647
DUPLIN COUNTY
STATION: 16+30.50 -L-

SHEET 2 OF 4



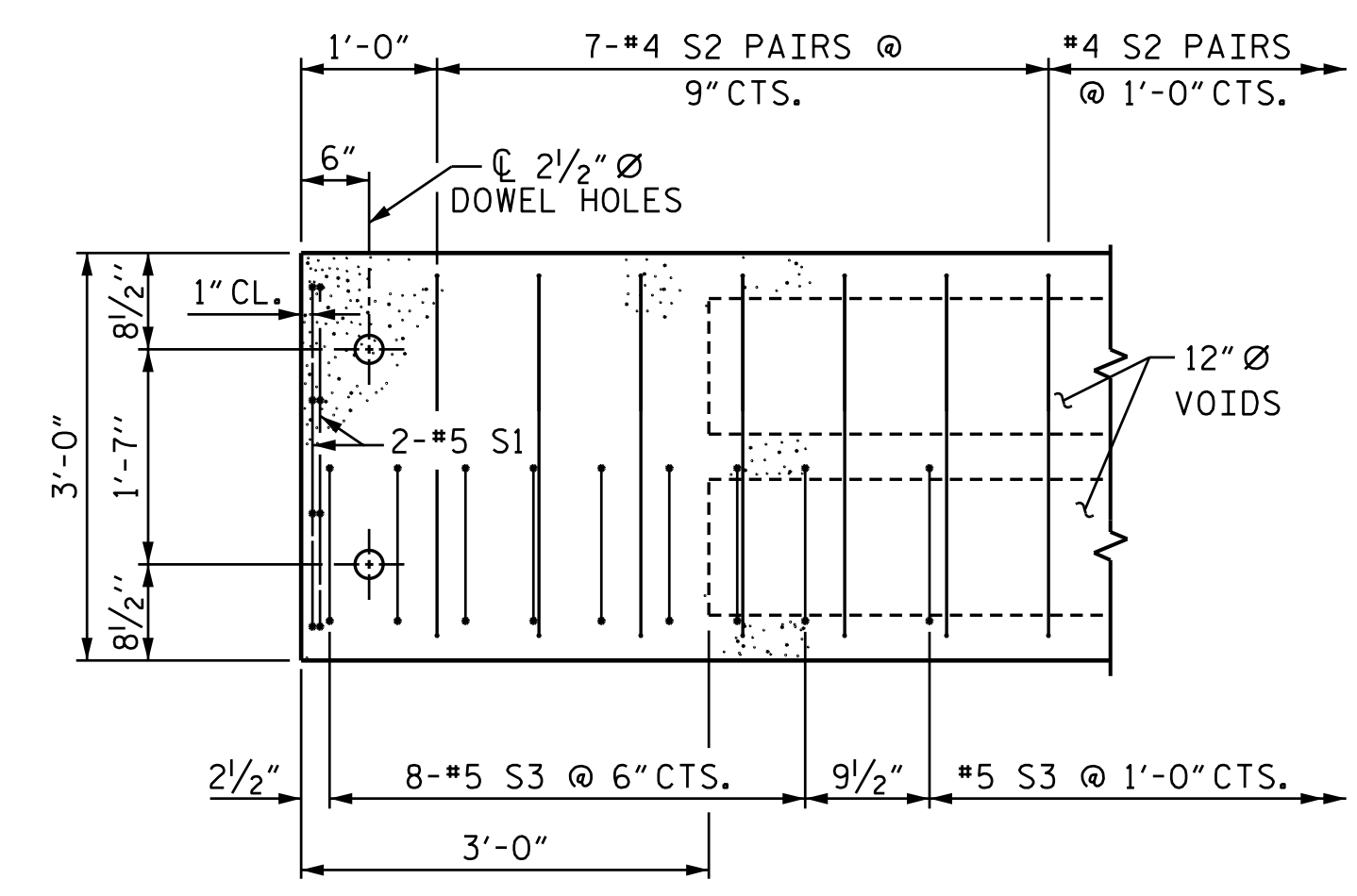
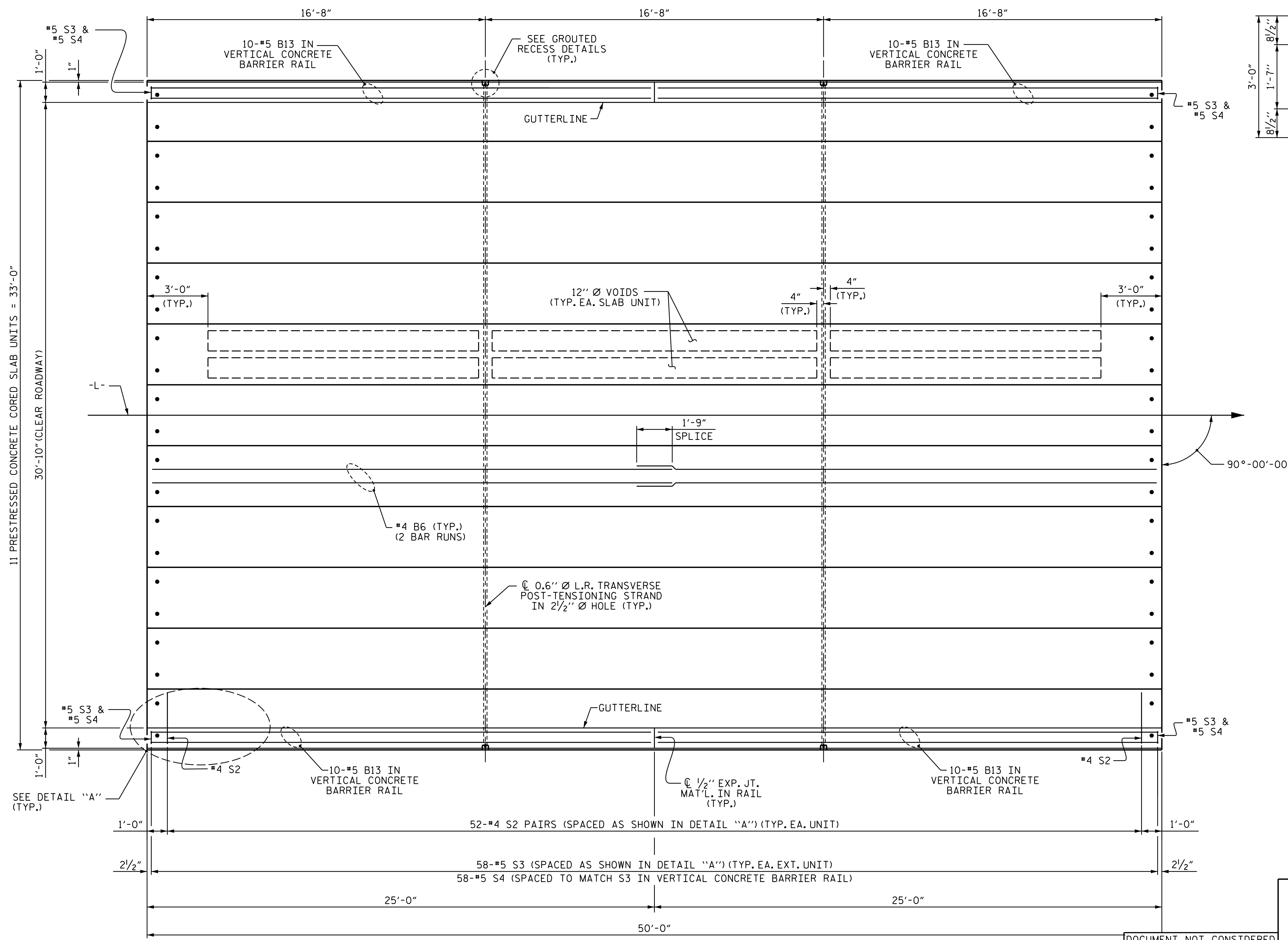
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**PLAN OF 55' UNIT
30'-10" CLEAR ROADWAY
90° SKEW**

DRAWN BY: N. K. KAVANI DATE: 10-2023
CHECKED BY: J. M. ROBINSON DATE: 11-2023
DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			18

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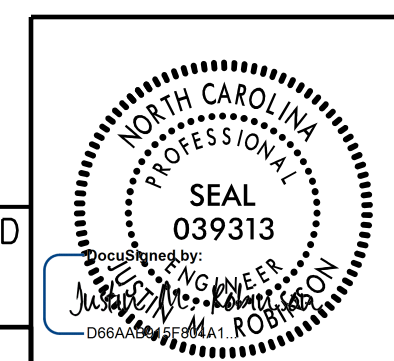
DETAIL "A"
(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT

PROJECT NO. B-5647
DUPLIN COUNTY
STATION: 16+30.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**PLAN OF 50' UNIT
30'-10" CLEAR ROADWAY
90° SKEW**



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NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			18

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DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

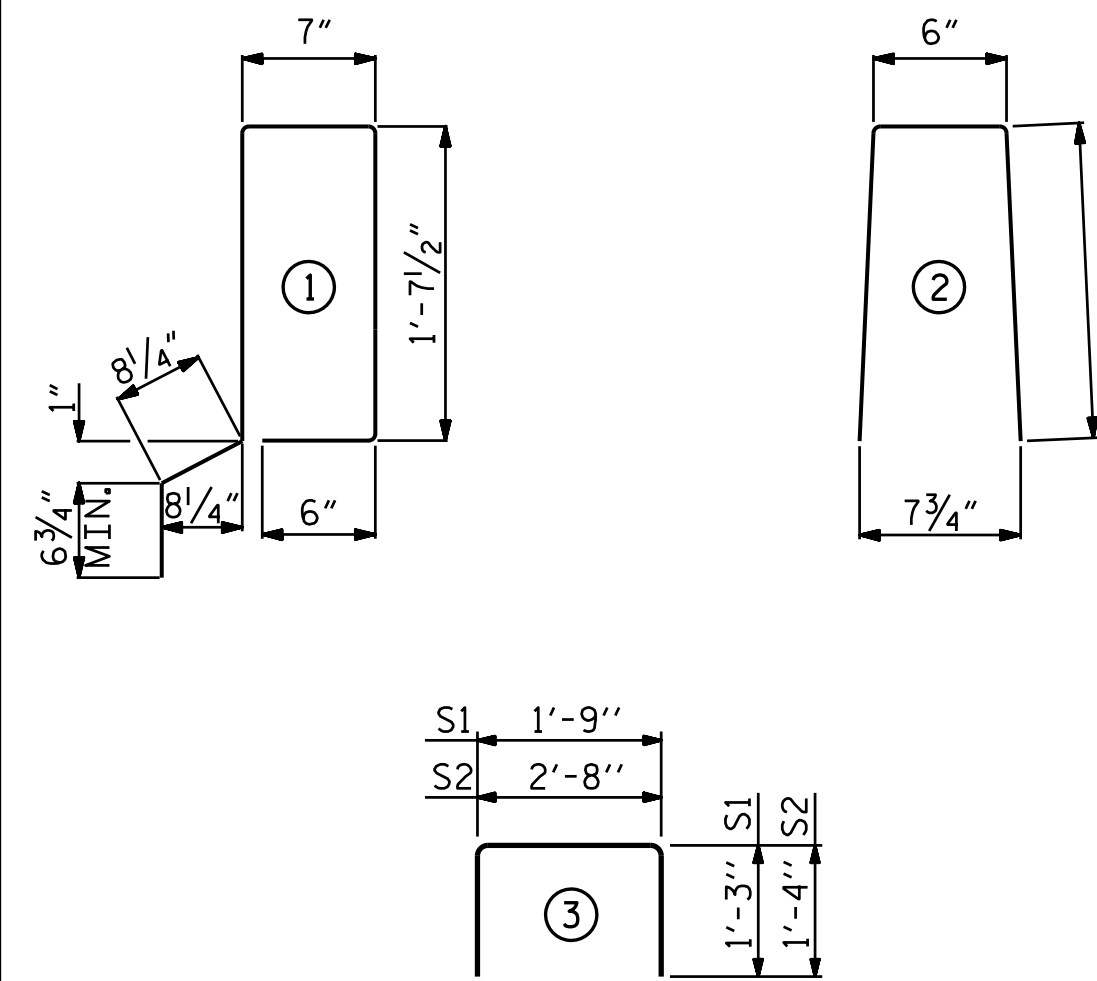
BILL OF MATERIAL FOR ONE 50' CORED SLAB UNIT

		EXTERIOR UNIT			INTERIOR UNIT		
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B6	4	#4	STR	25'-9"	69	25'-9"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	104	#4	3	5'-4"	371	5'-4"	371
*S3	58	#5	1	5'-7"	338		
REINFORCING STEEL				LBS.	475	475	
*EPOXY COATED REINFORCING STEEL				LBS.	338		
6500 P.S.I. CONCRETE				CU. YDS.	7.1	7.1	
0.6" Ø L.R. STRANDS				No.	19	19	

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT

		EXTERIOR UNIT			INTERIOR UNIT		
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-3"	75	28'-3"	75
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	114	#4	3	5'-4"	406	5'-4"	406
*S3	64	#5	1	5'-7"	373		
REINFORCING STEEL				LBS.	516	516	
*EPOXY COATED REINFORCING STEEL				LBS.	373		
6500 P.S.I. CONCRETE				CU. YDS.	7.8	7.8	
0.6" Ø L.R. STRANDS				No.	19	19	

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

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

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

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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

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

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
50' & 55' UNITS	1 5/8"	3'-7 5/8"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
50' UNIT						
*B13	40	40	#5	STR	24'-7"	1026
*S4	116	116	#5	2	7'-2"	867
*EPOXY COATED REINFORCING STEEL				LBS.		1893
CLASS AA CONCRETE				CU. YDS.		12.8
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		100.25

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
55' UNIT						
*B14	40	40	#5	STR	27'-1"	1130
*S4	128	128	#5	2	7'-2"	957
*EPOXY COATED REINFORCING STEEL				LBS.		2087
CLASS AA CONCRETE				CU. YDS.		14.1
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		110.25

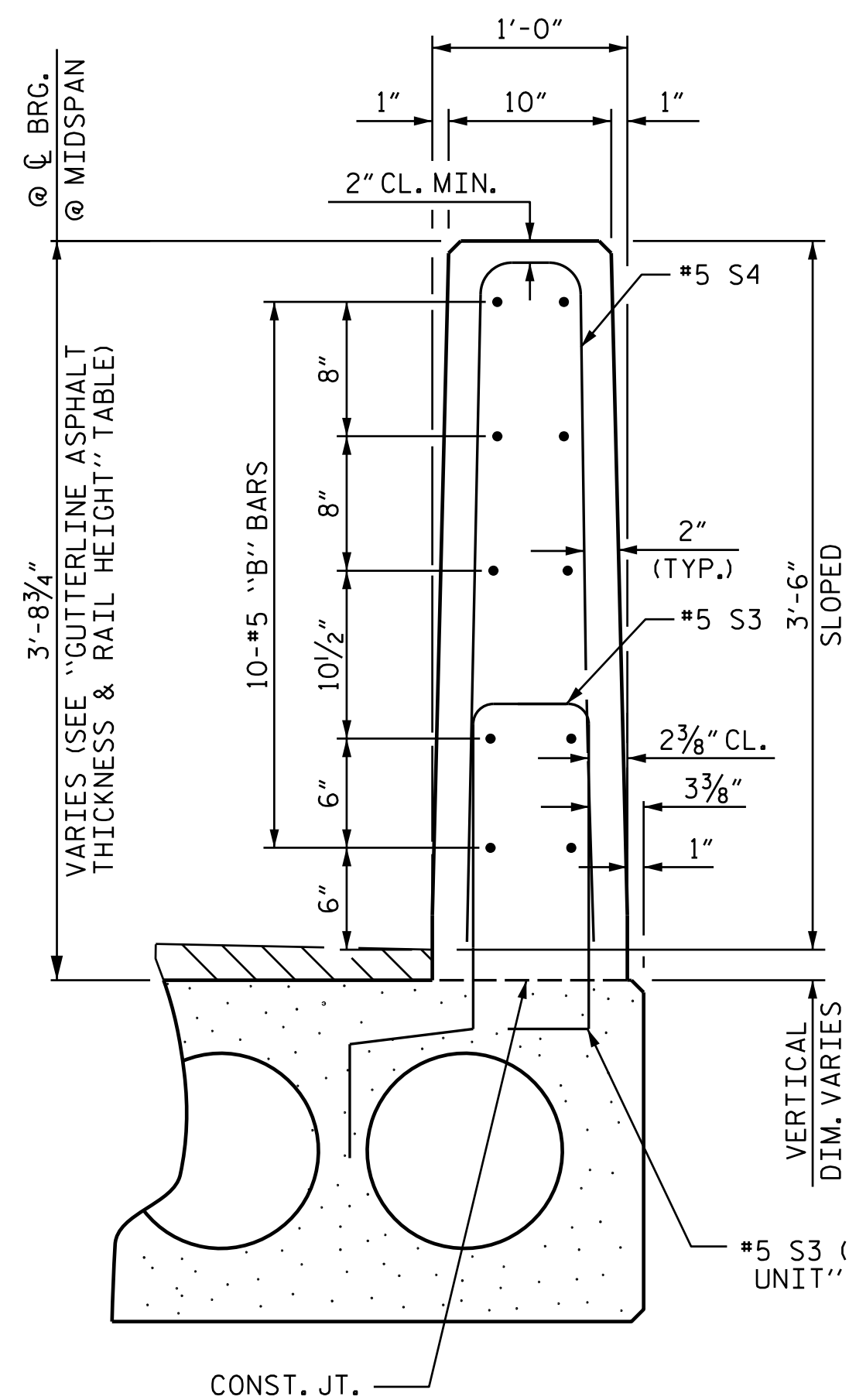
DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
50' & 55' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/8" ↓
FINAL CAMBER	1 1/8" ↑

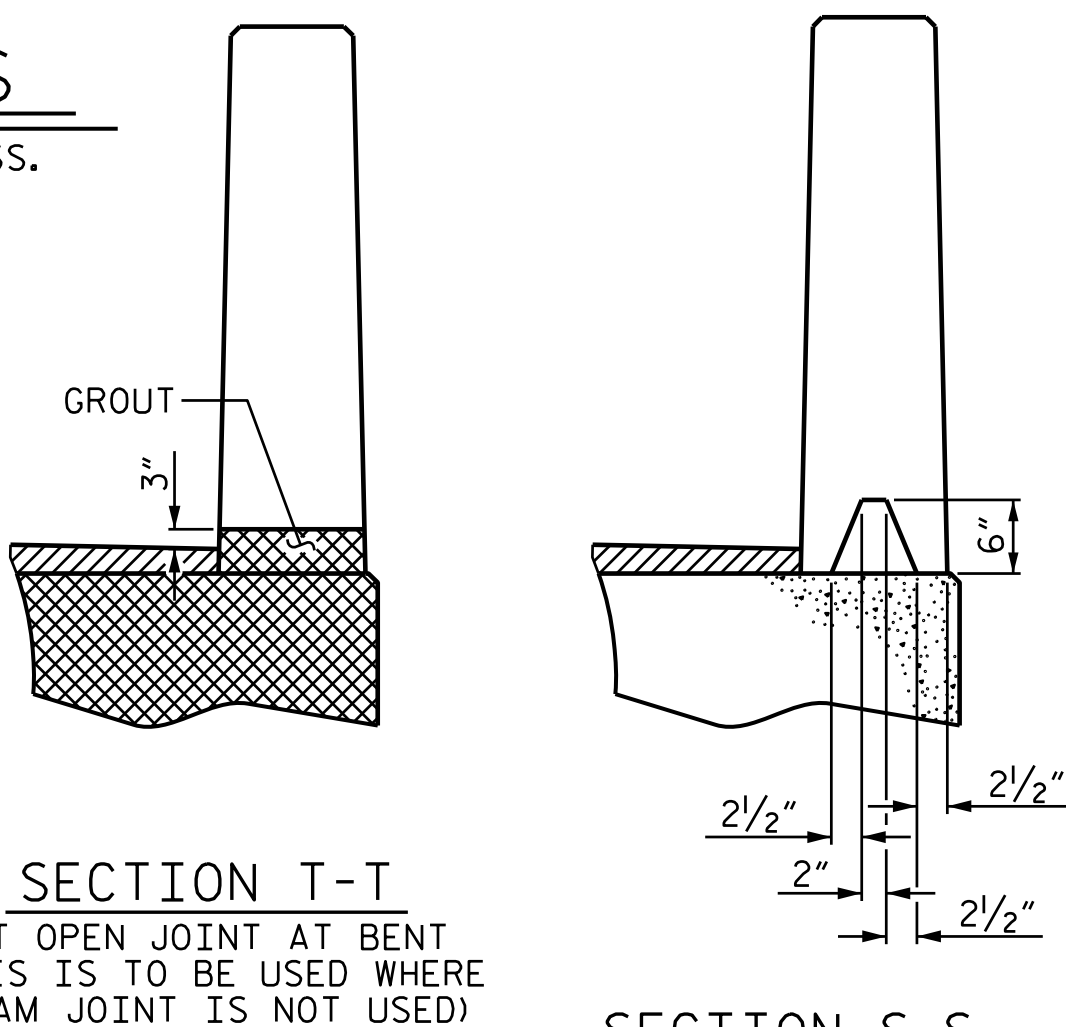
** INCLUDES FUTURE WEARING SURFACE

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.



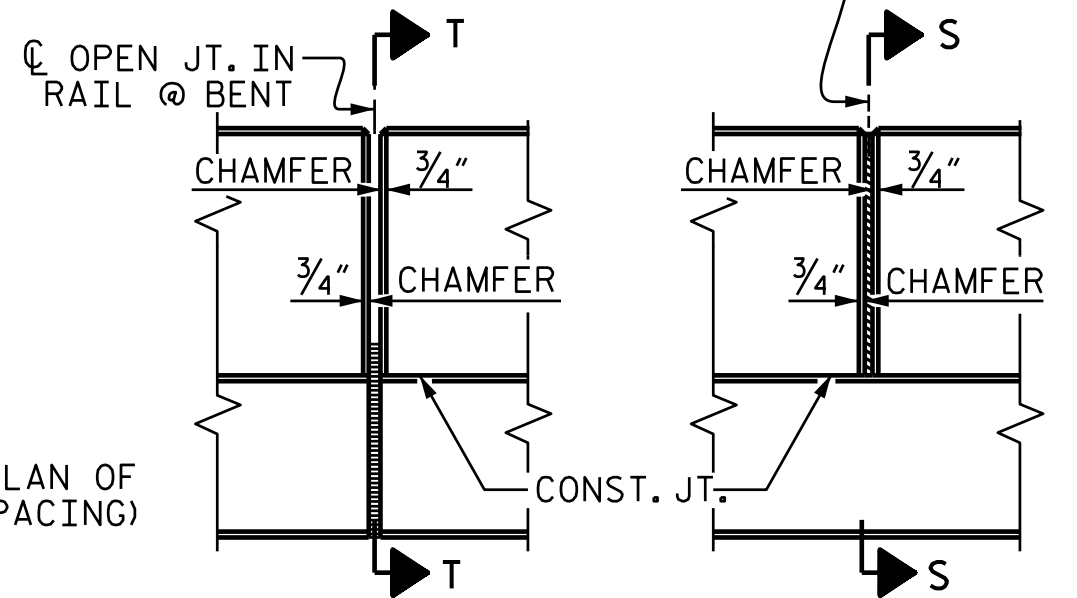
FIXED END (TYPE I - 44 REQ'D)



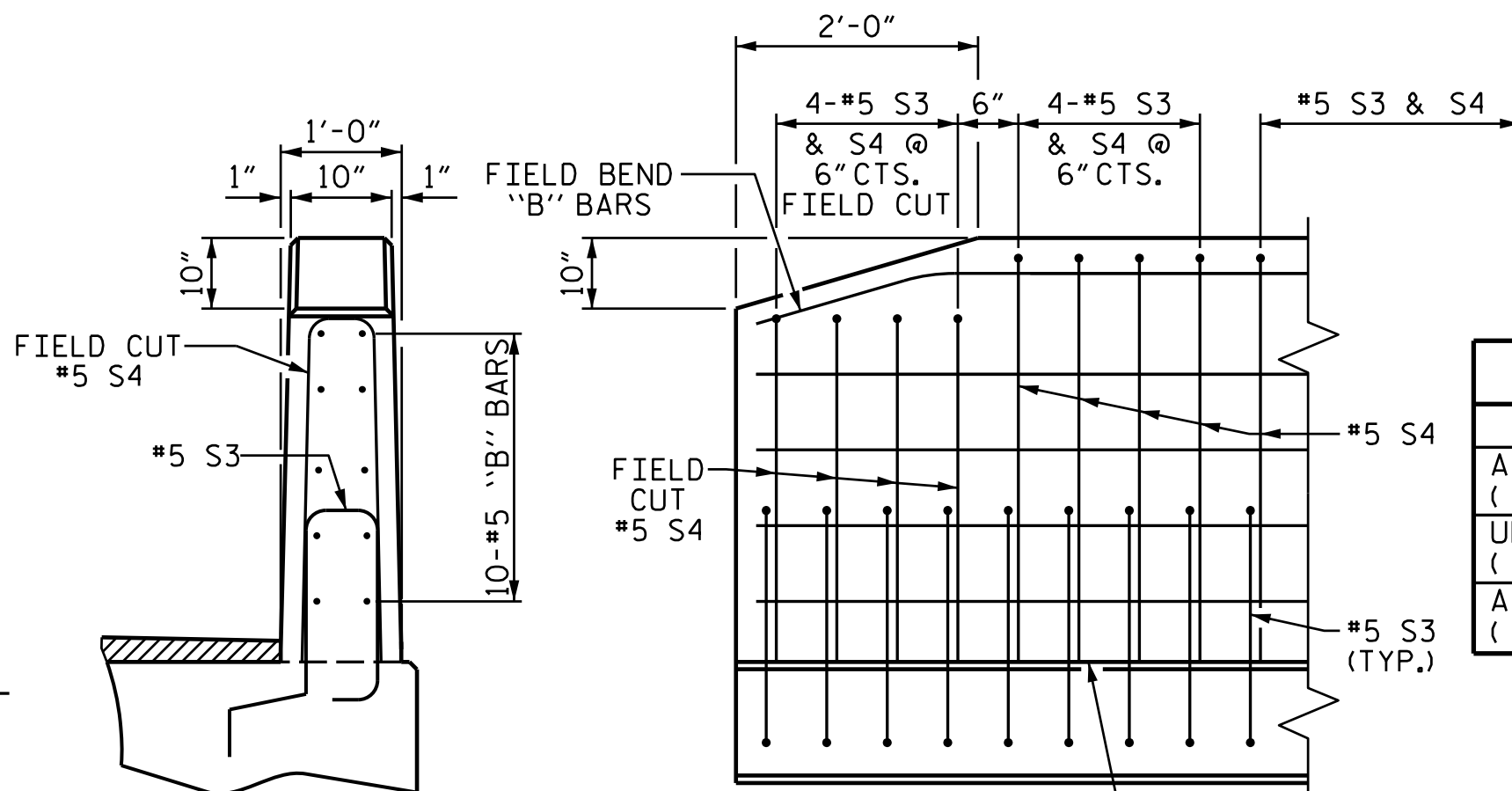
SECTION T-T AT OPEN JOINT AT BENT (THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)

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

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW

SIDE VIEW

END OF RAIL DETAILS

CORED SLABS REQUIRED

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

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	2	55'-0"	110
INTERIOR C.S.	9	55'-0"	495
TOTAL	11		605

CONCRETE RELEASE STRENGTH

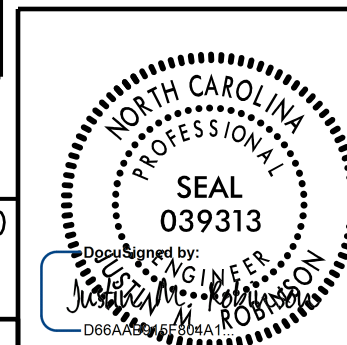
UNIT	PSI
50' & 55' UNITS	4900

GRADE 270 STRANDS

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

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PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

REVISIONS

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

SHEET NO. S-9
 TOTAL SHEETS 18

STD. NO. 21" PCS3-33-90S

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 10/3/2017 10:33:20 AM

DRAWN BY: N. K. KAVANI DATE: 10-2023
 CHECKED BY: J. M. ROBINSON DATE: 11-2023
 DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

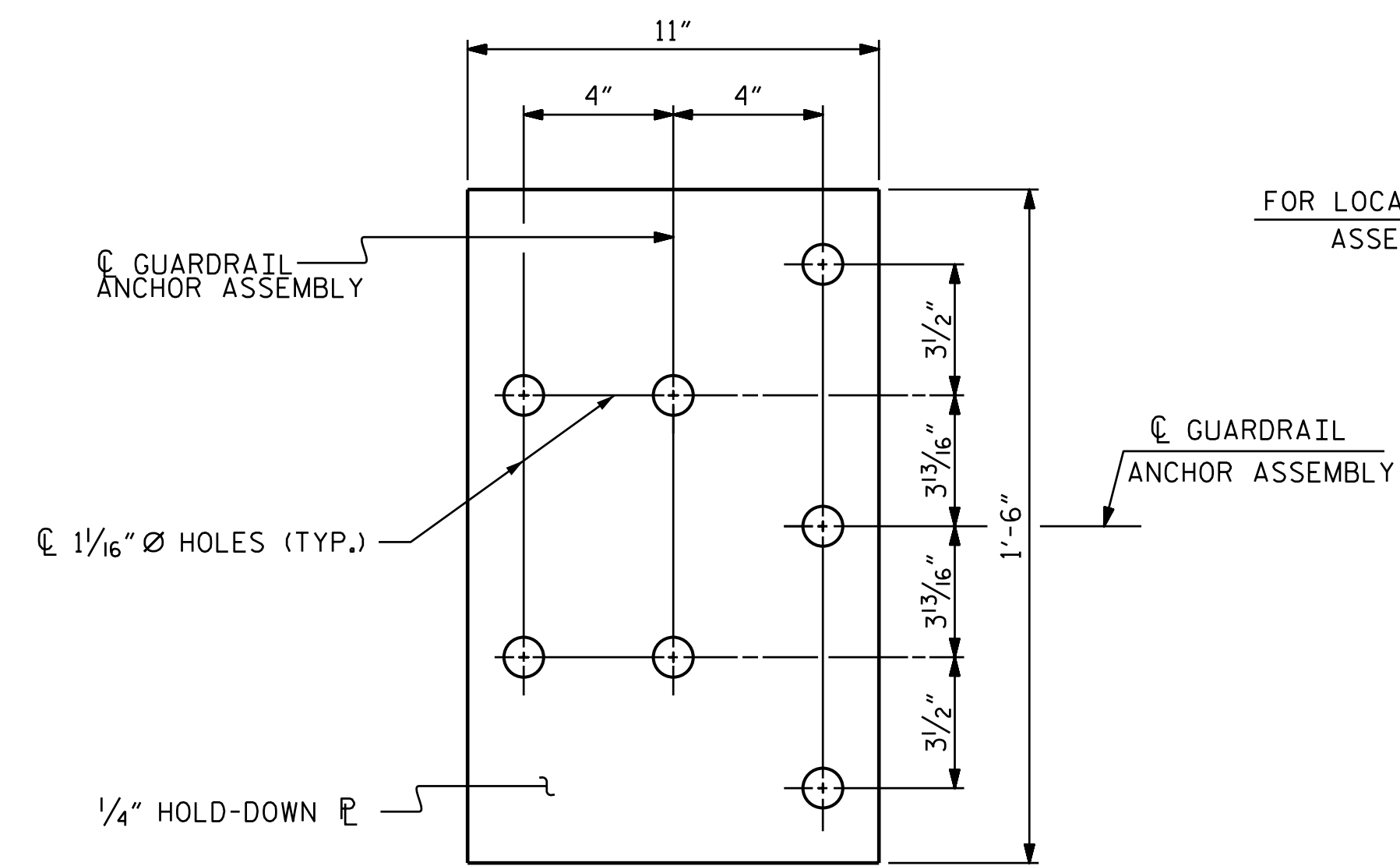
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

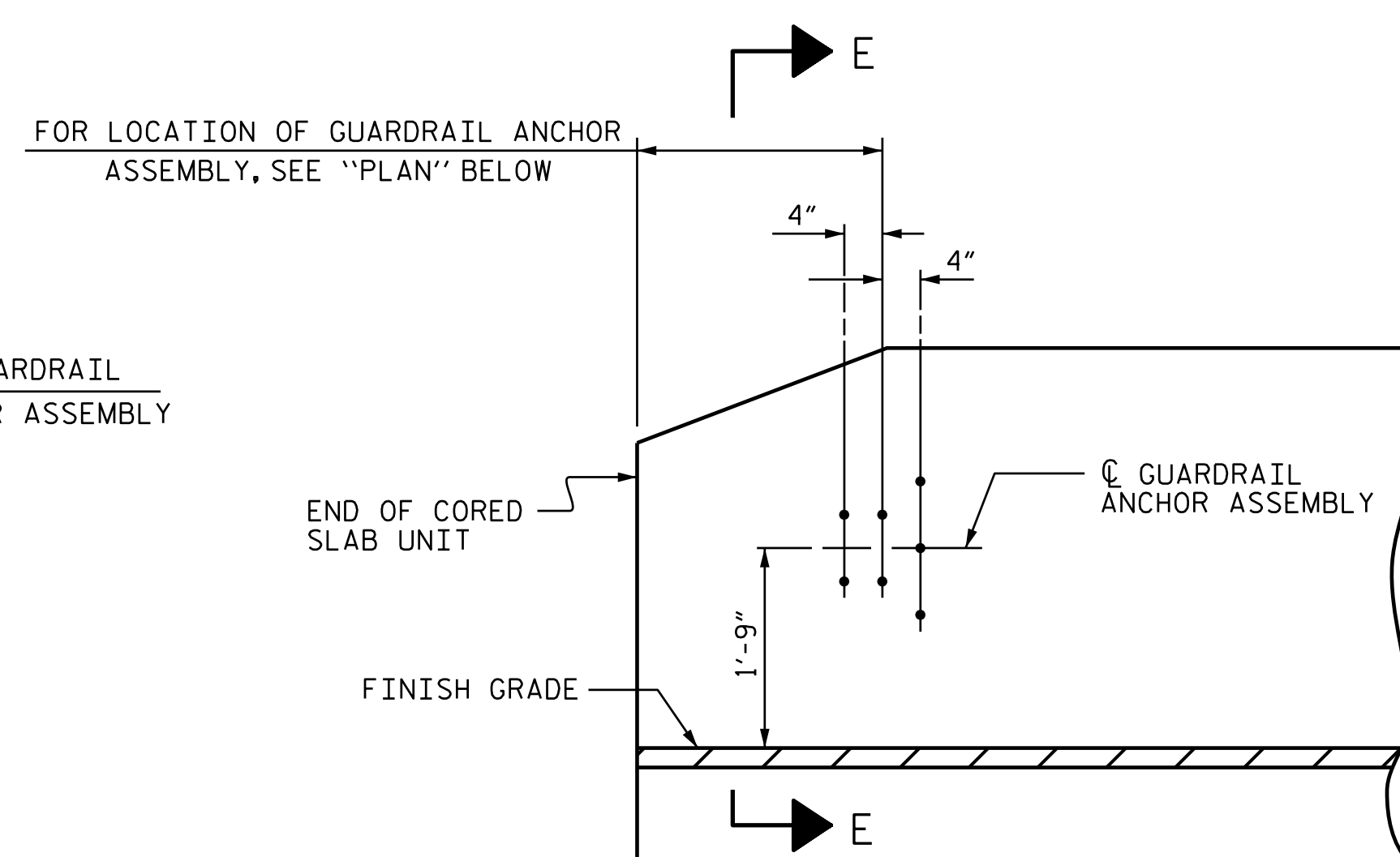
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

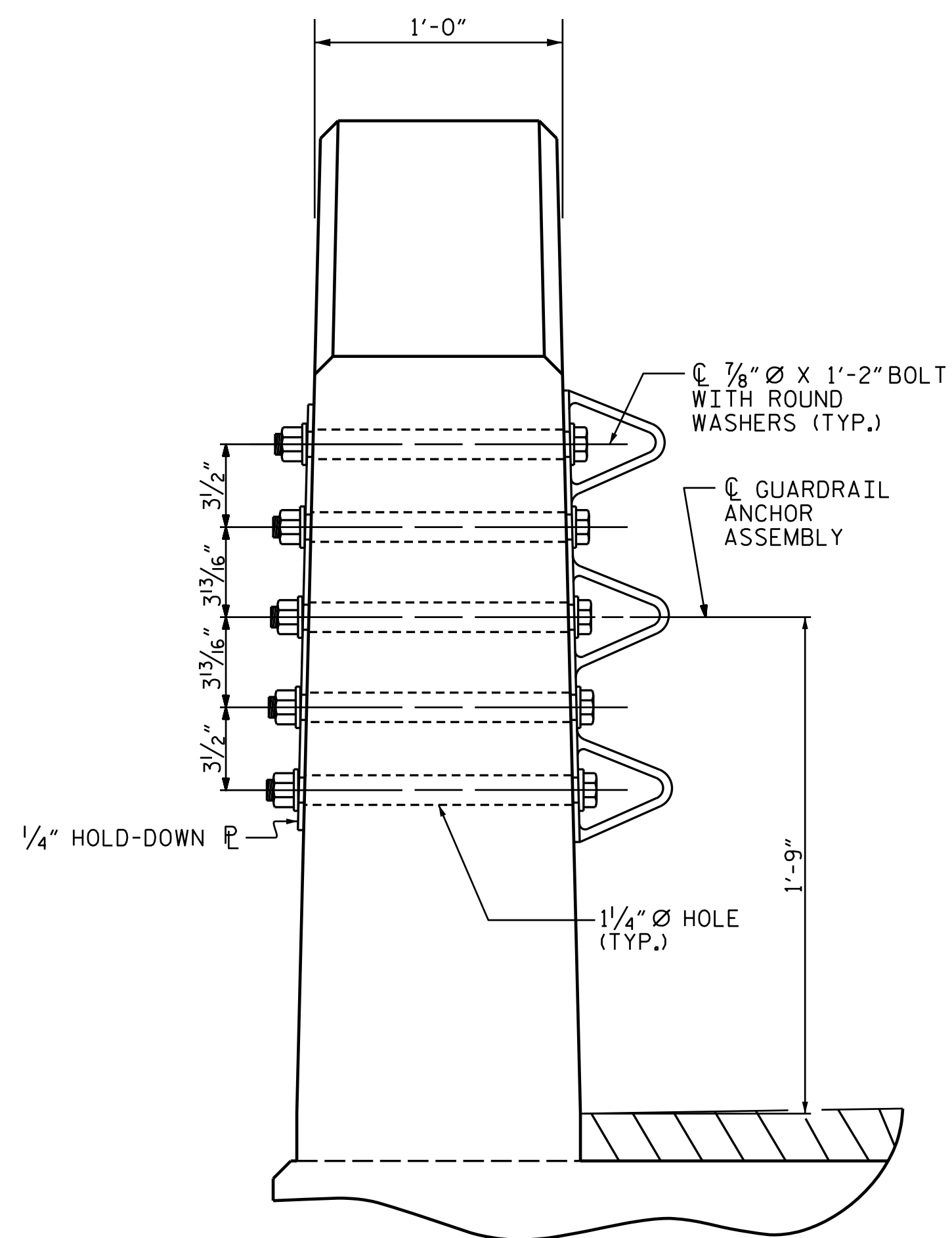
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



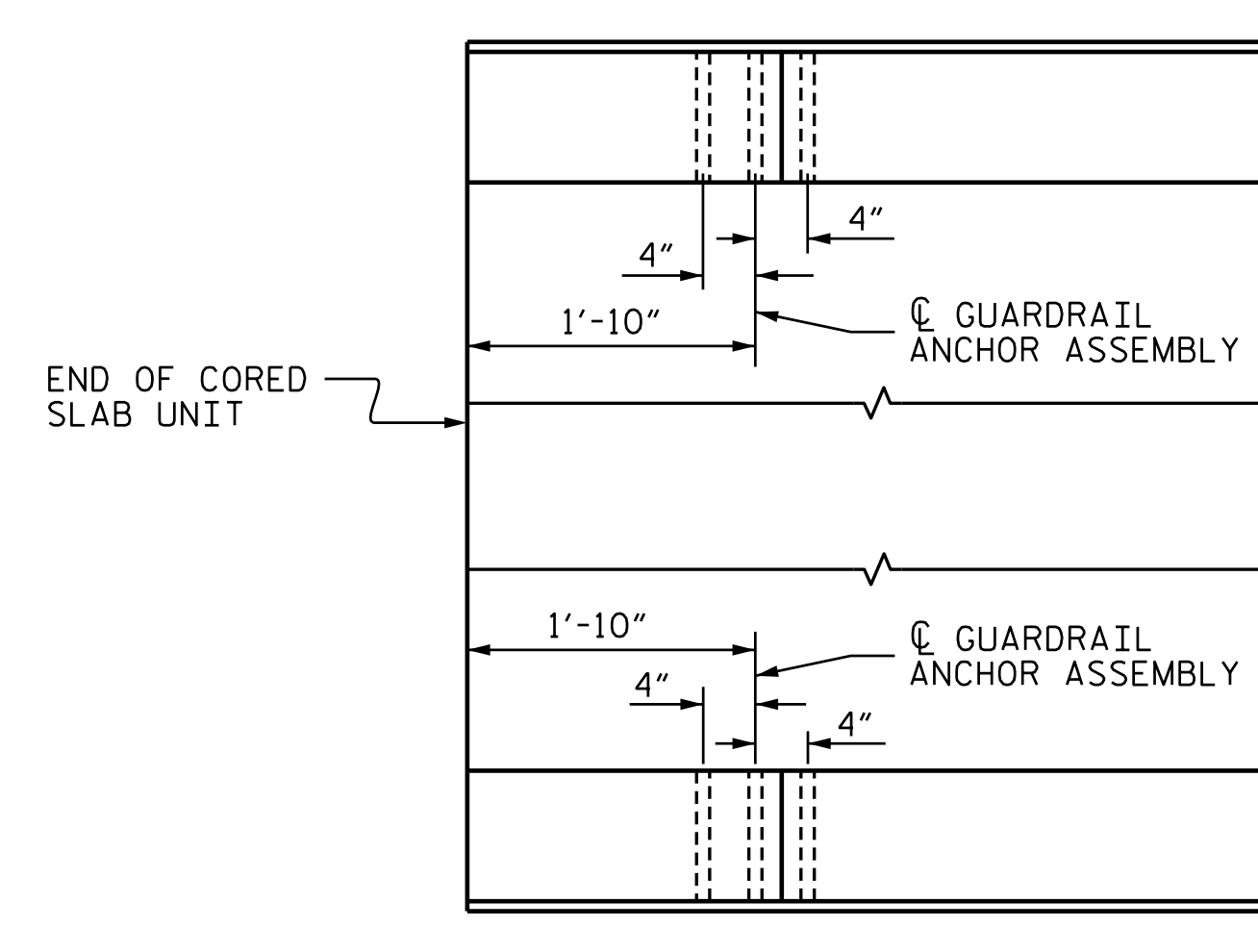
PLAN



ELEVATION



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

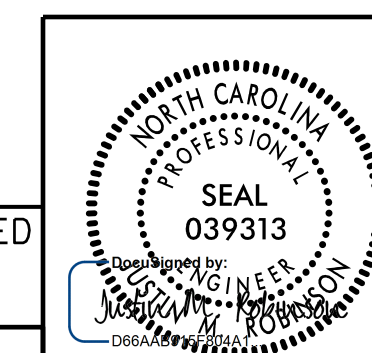
PROJECT NO. B-5647
DUPLIN COUNTY
STATION: 16+30.50 -L-

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			18

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K:\0574\KAVI\0574\HV\FPS01\p.c\386695-2017_NCDOT_BridgeDesign_LSA\p.c\B-5647\Structures\Plans\B-5647_SMU_CR_300052.dgn 10/3/2024 10:33:33 AM

DRAWN BY: N. K. KAVANI DATE: 10-2023
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DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

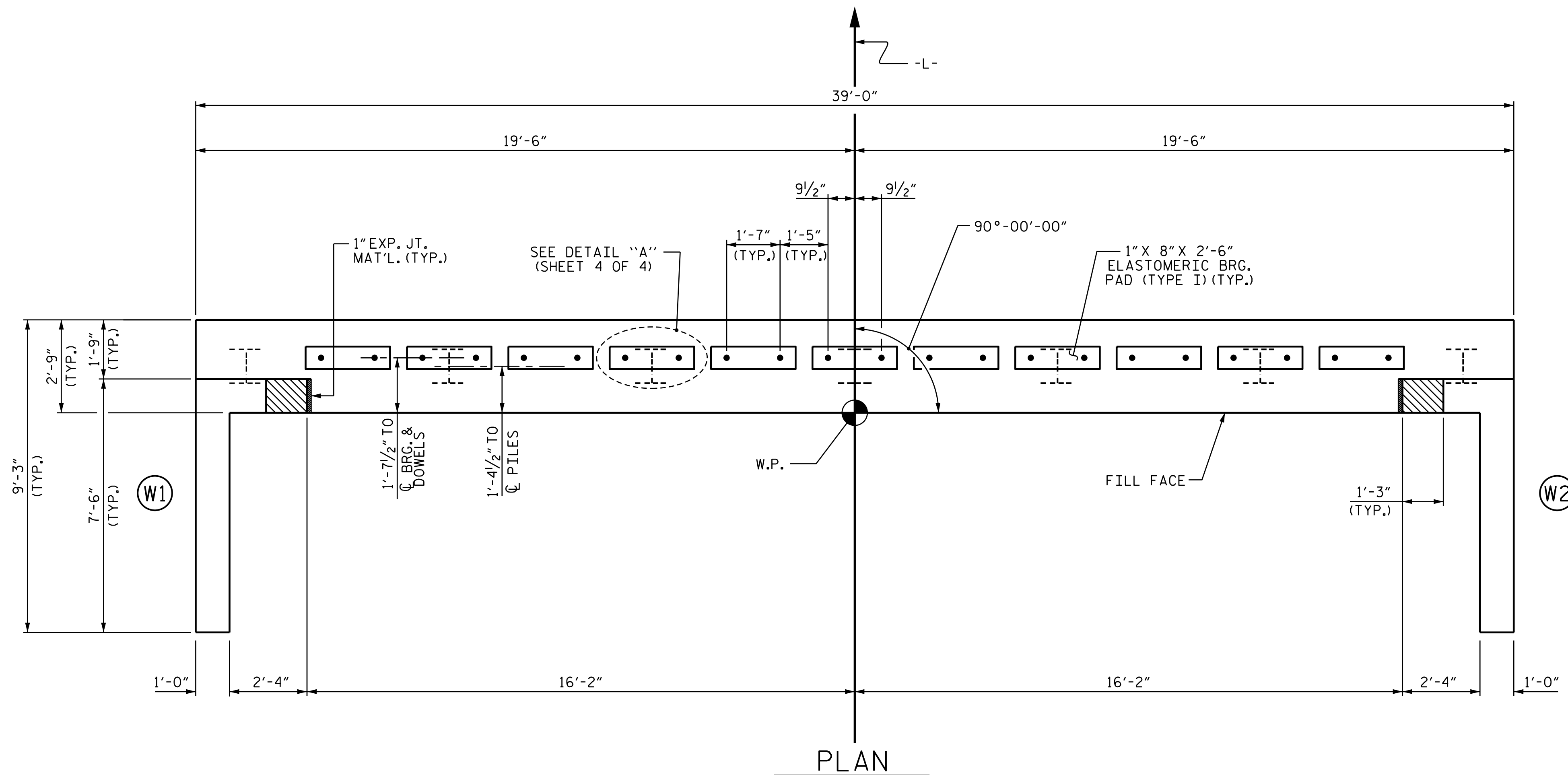
NOTES

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

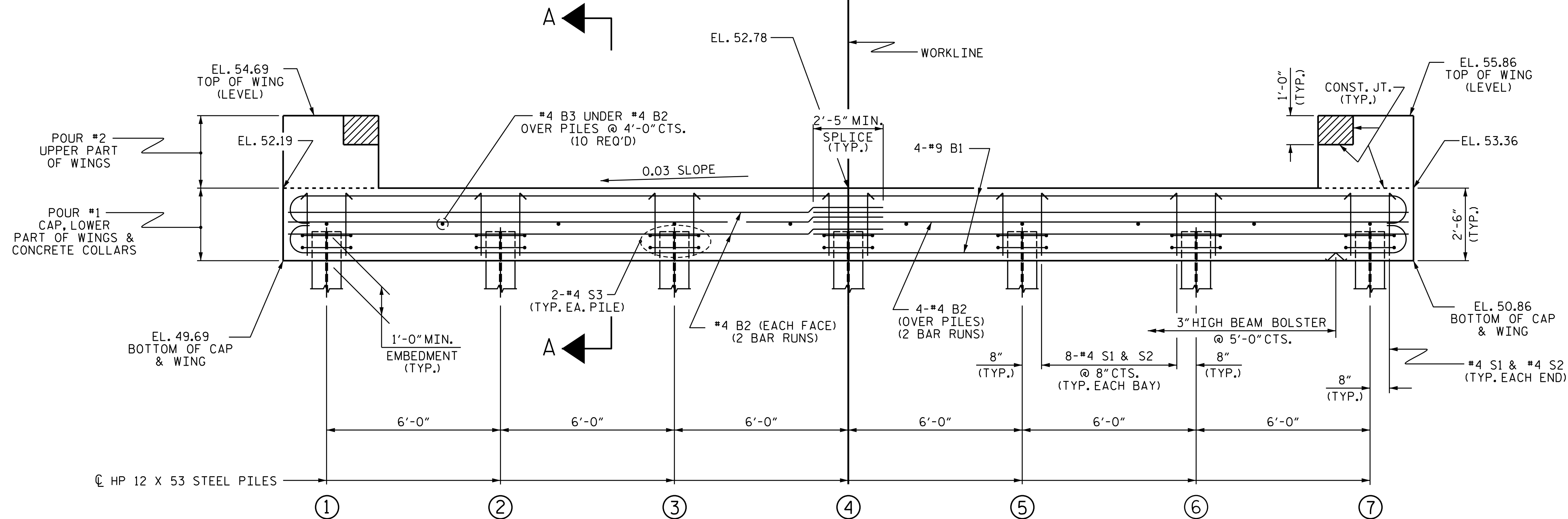
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

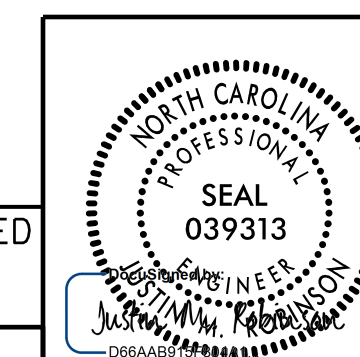
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

TOP OF PILE ELEVATIONS	
①	50.74
②	50.92
③	51.10
④	51.28
⑤	51.46
⑥	51.64
⑦	51.82

PROJECT NO. B-5647
DUPLIN COUNTY
STATION: 16+30.50 -L-

SHEET 1 OF 4

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



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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			18

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DRAWN BY: N. K. KAVANI DATE: 10-2023
CHECKED BY: J. M. ROBINSON DATE: 11-2023
DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

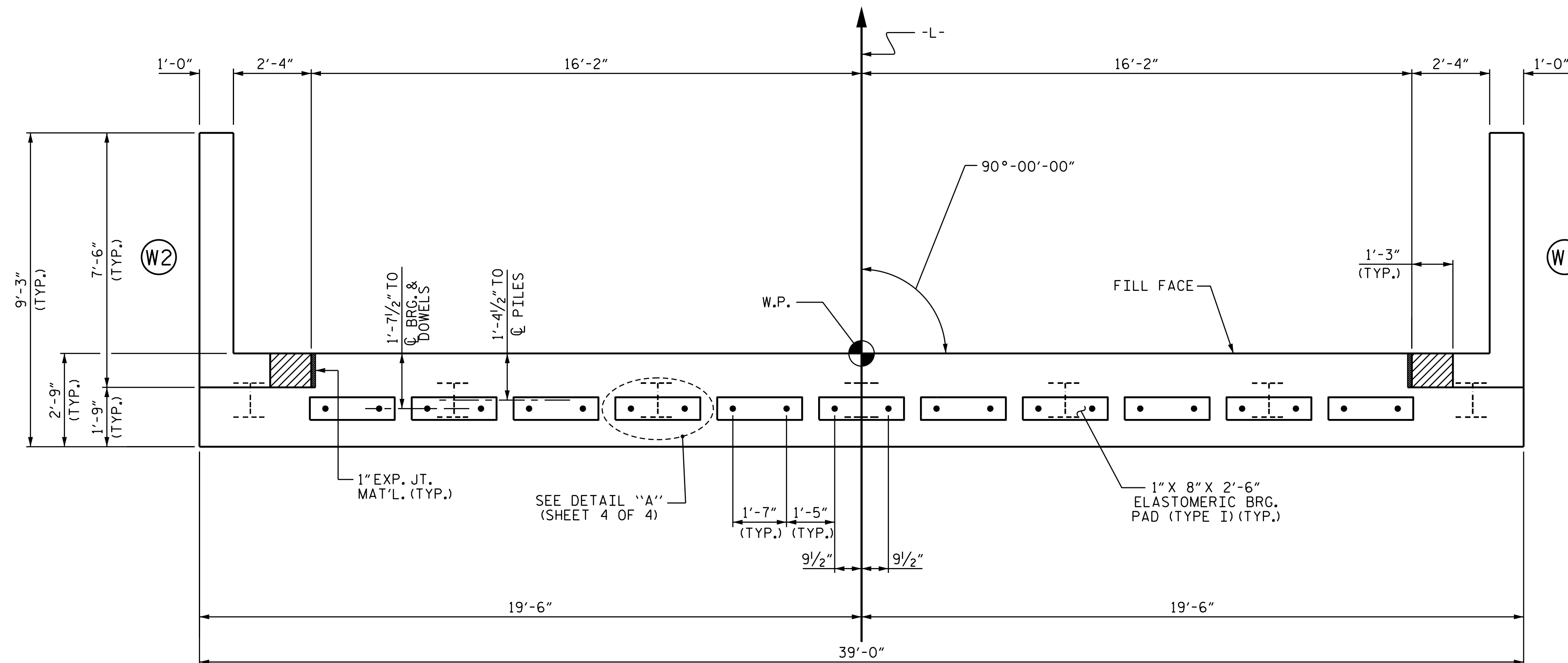
NOTES

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

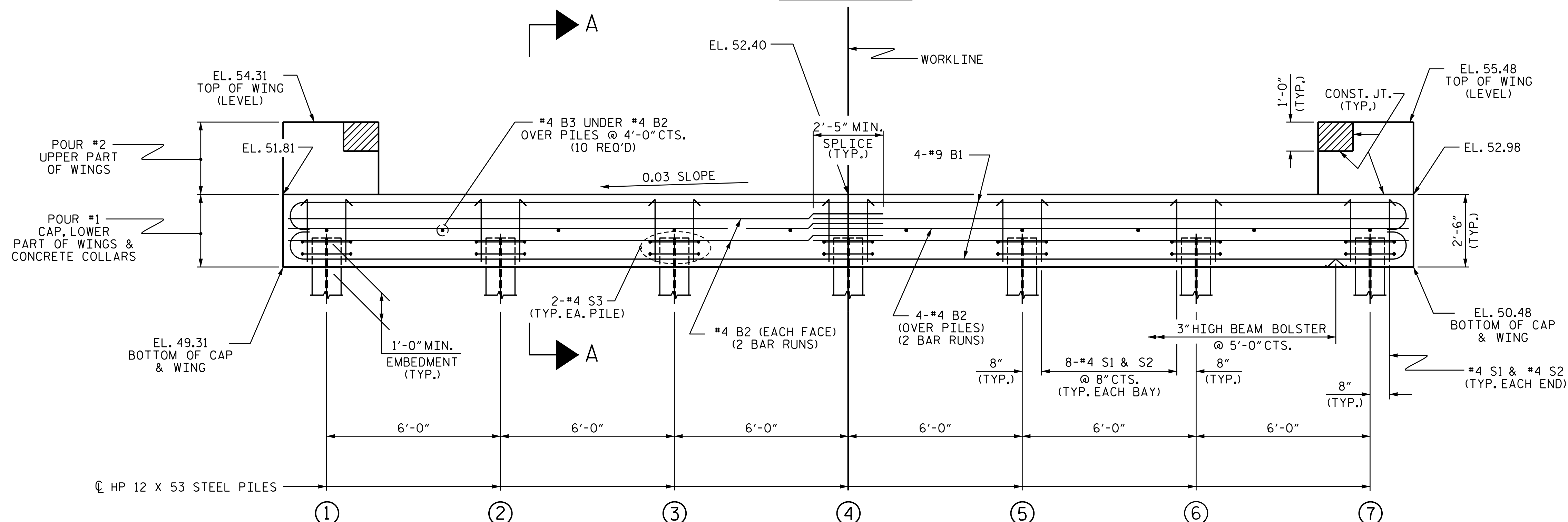
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

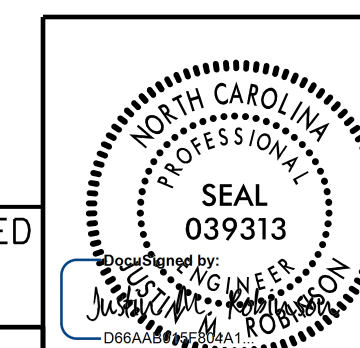
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

TOP OF PILE ELEVATIONS	
①	50.36
②	50.54
③	50.72
④	50.90
⑤	51.08
⑥	51.26
⑦	51.44

PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

SHEET 2 OF 4

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



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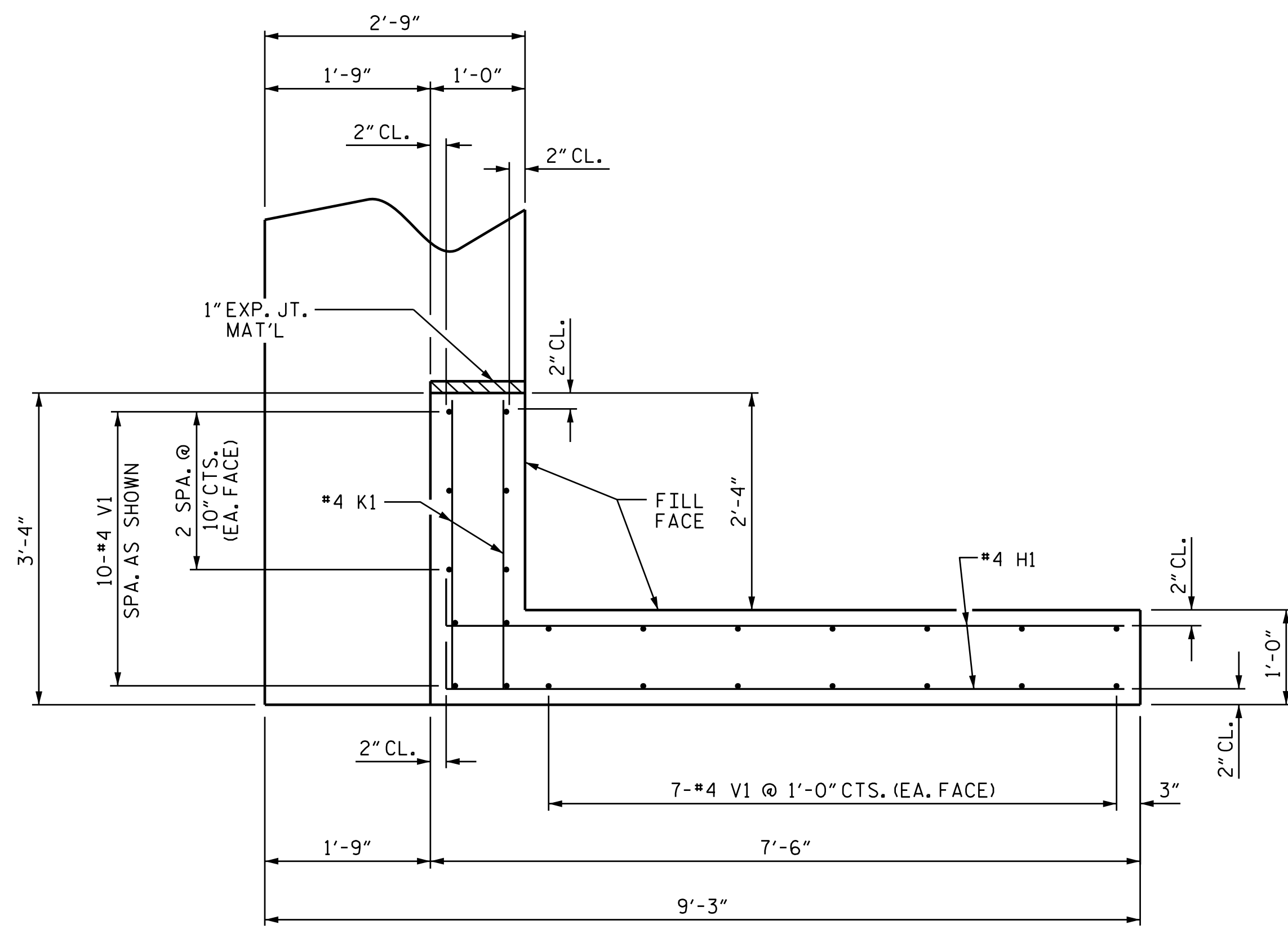
PLANS PREPARED BY:
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 Suite 200
 Raleigh, NC 27606
 (919) 552-2253
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			18

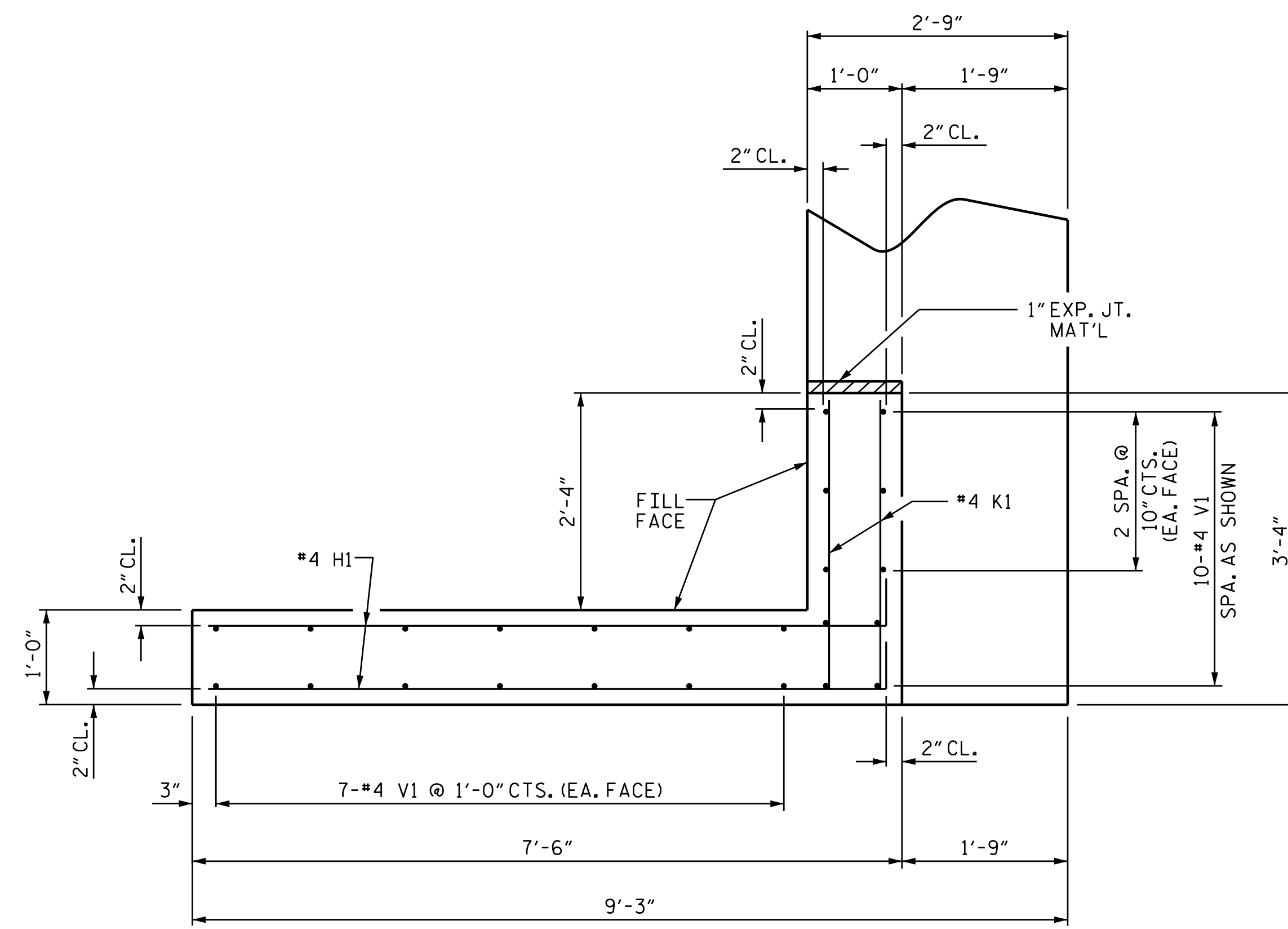
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DRAWN BY: N. K. KAVANI DATE: 10-2023
 CHECKED BY: J. M. ROBINSON DATE: 11-2023
 DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

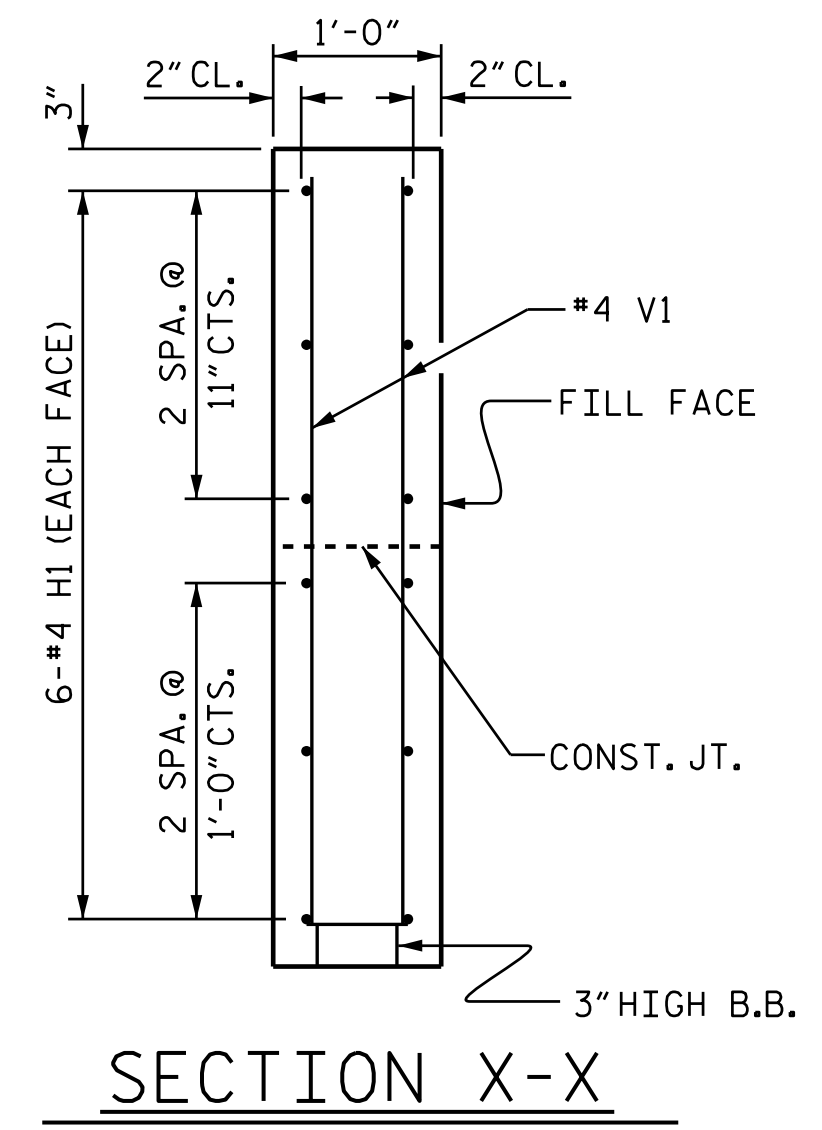
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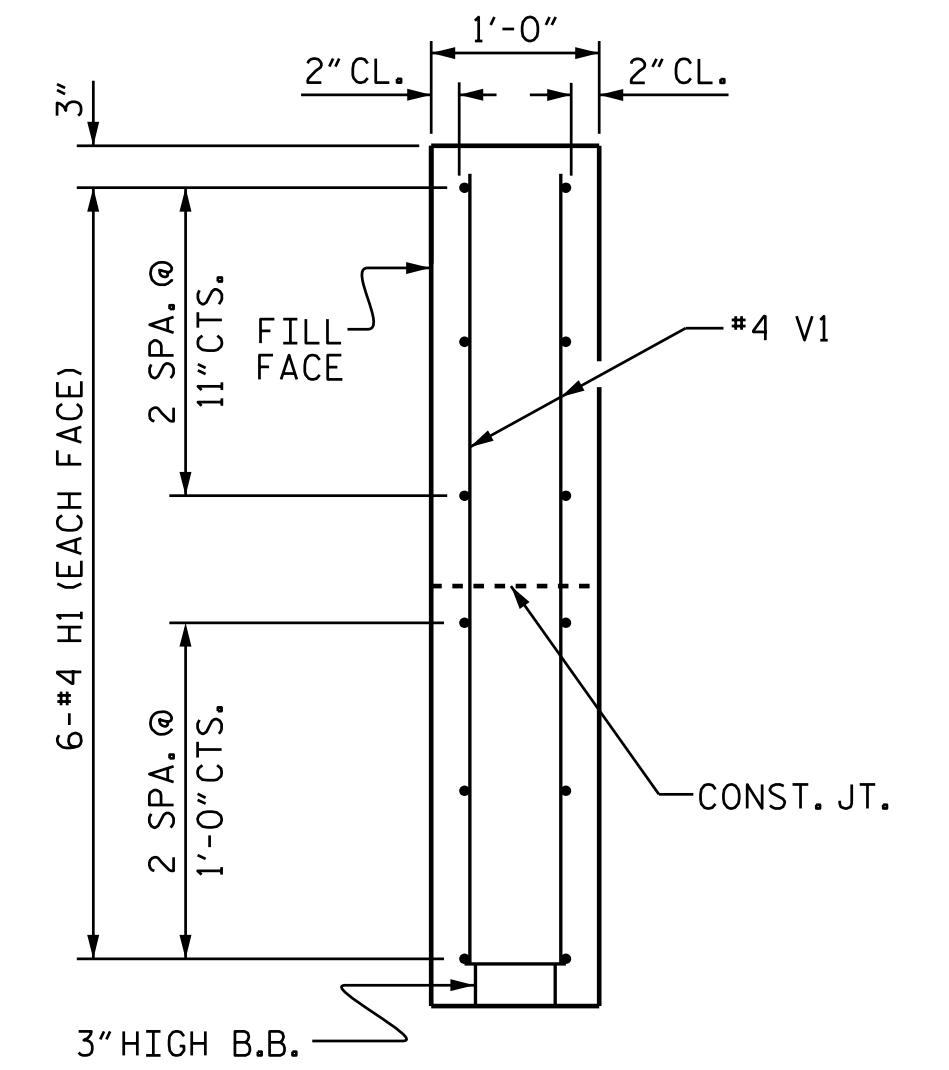
PLAN OF WING (W1)



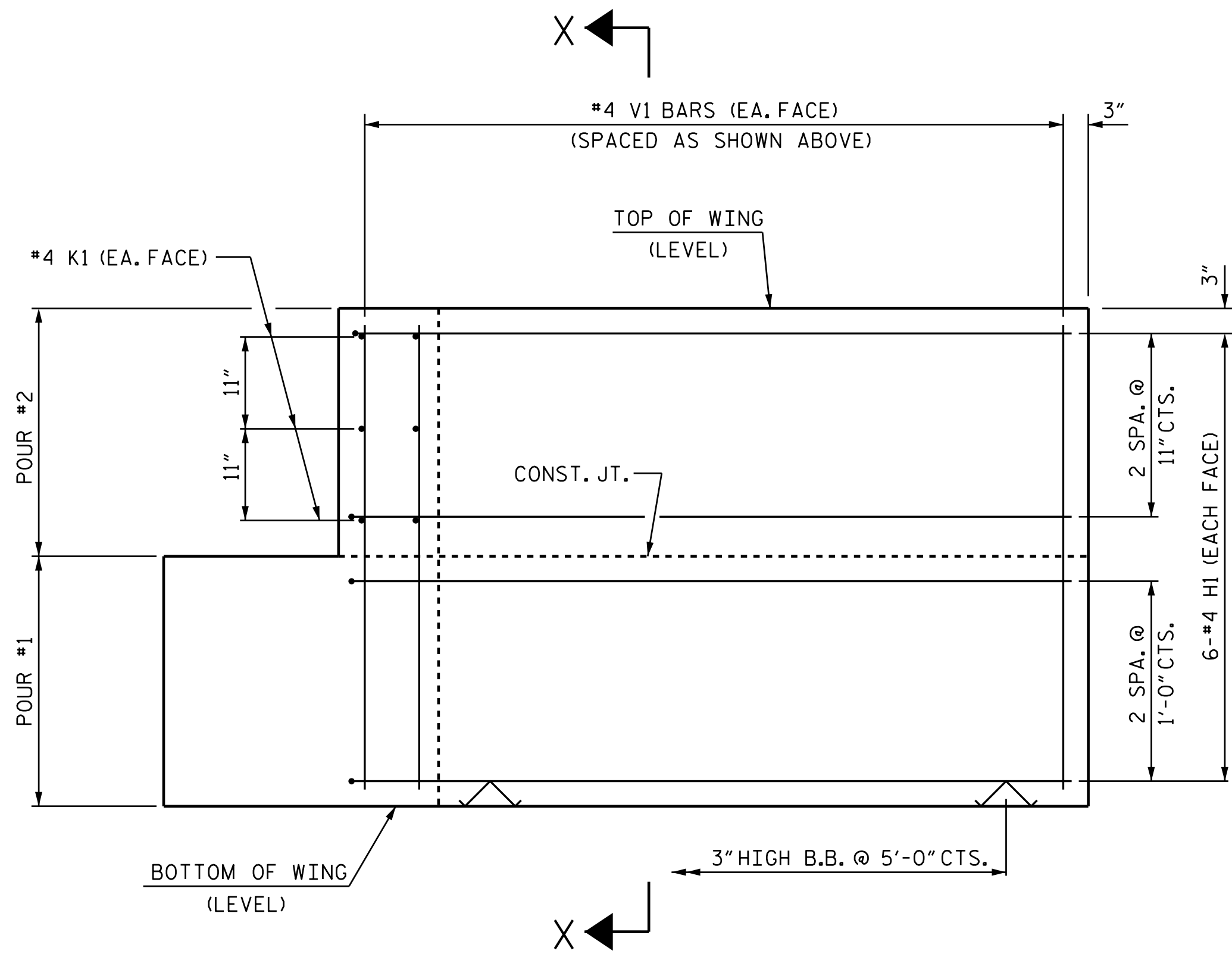
PLAN OF WING (W2)



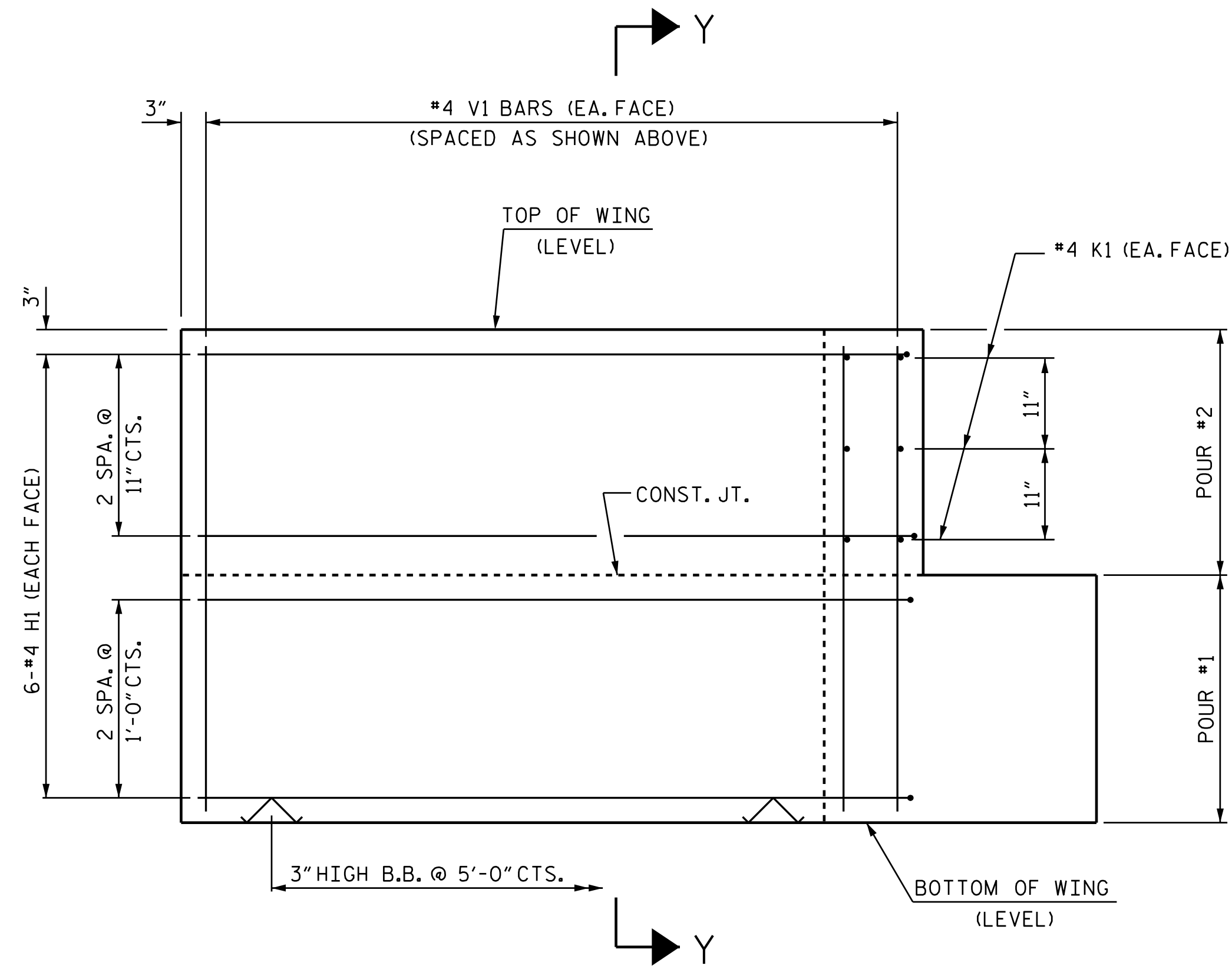
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



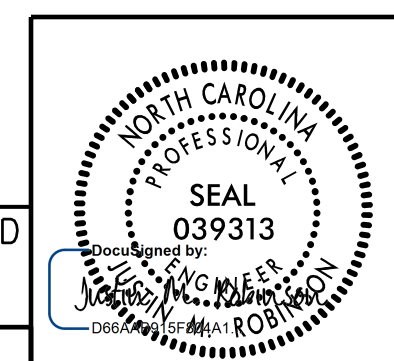
ELEVATION OF WING (W2)

WING DETAILS

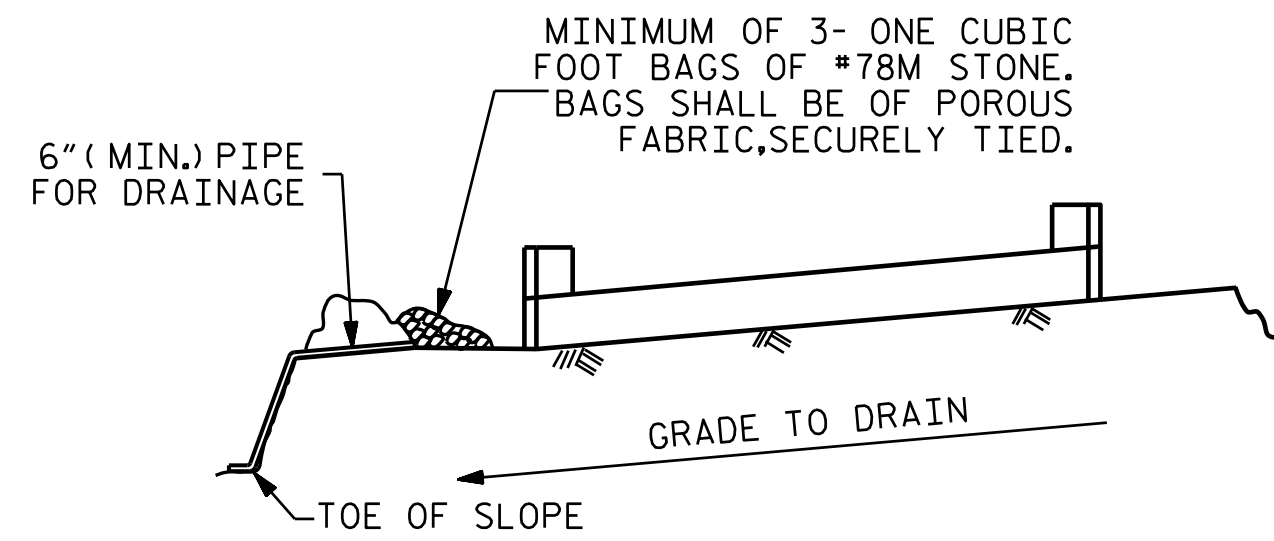
PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

SHEET 3 OF 4

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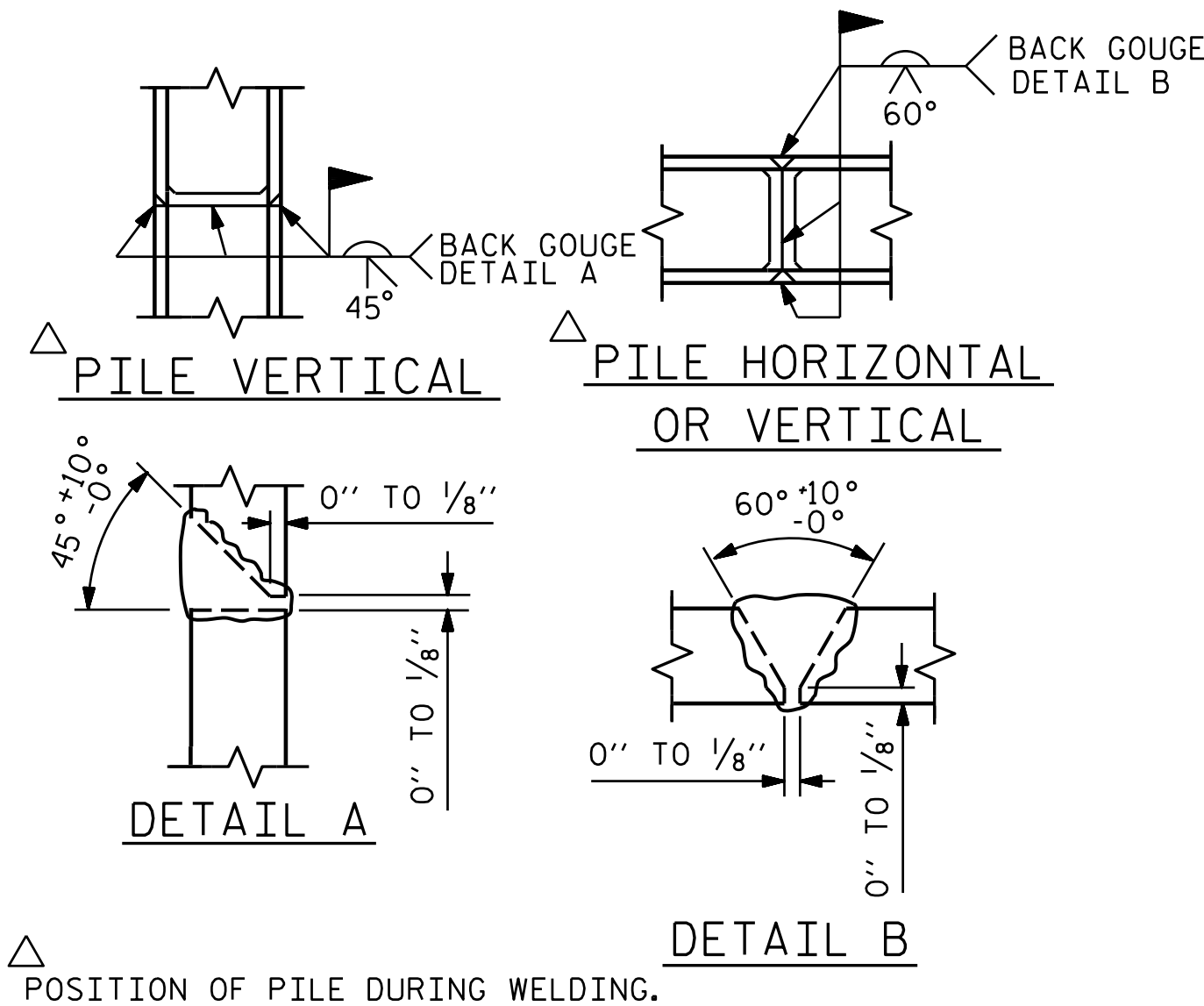


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

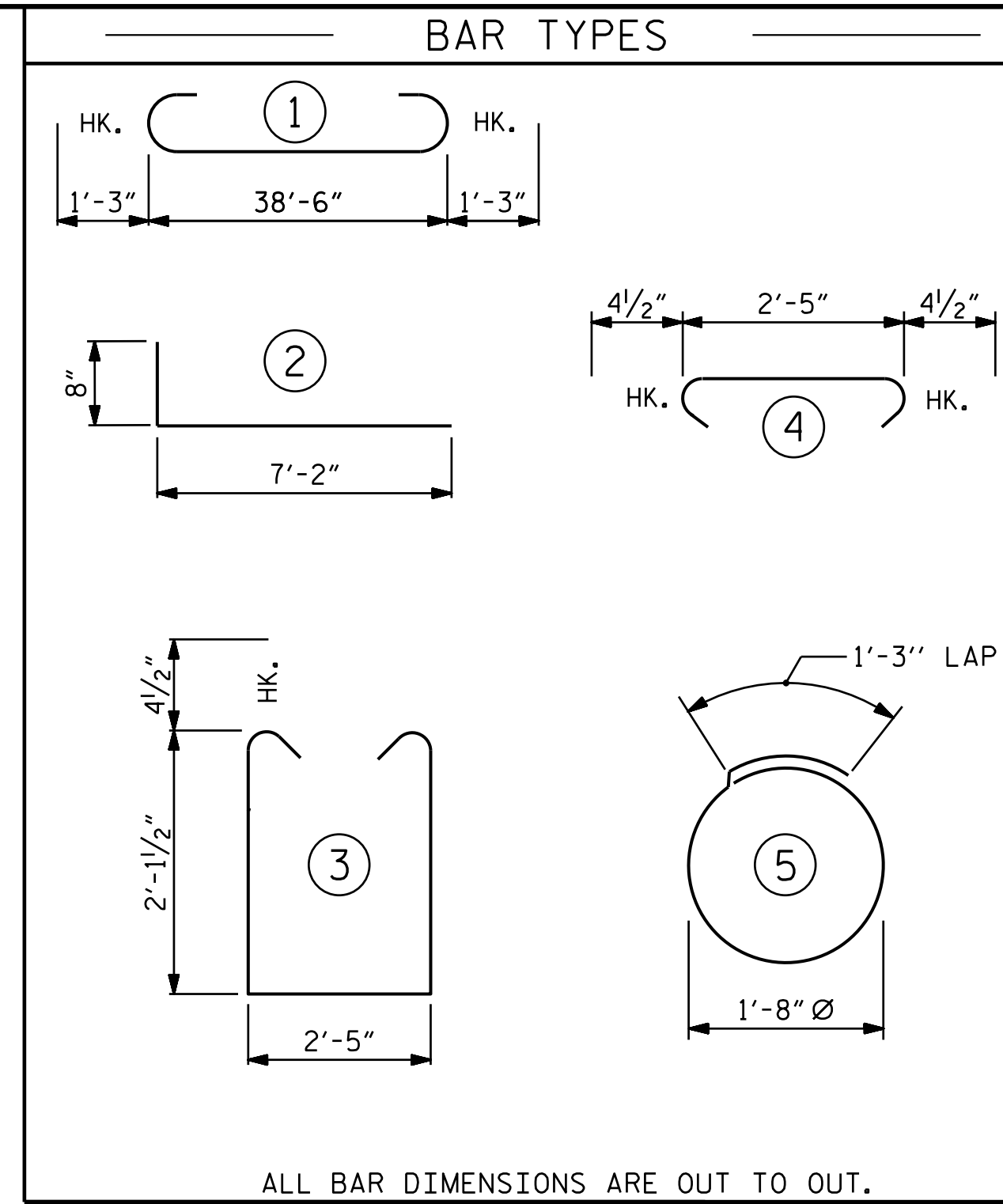
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

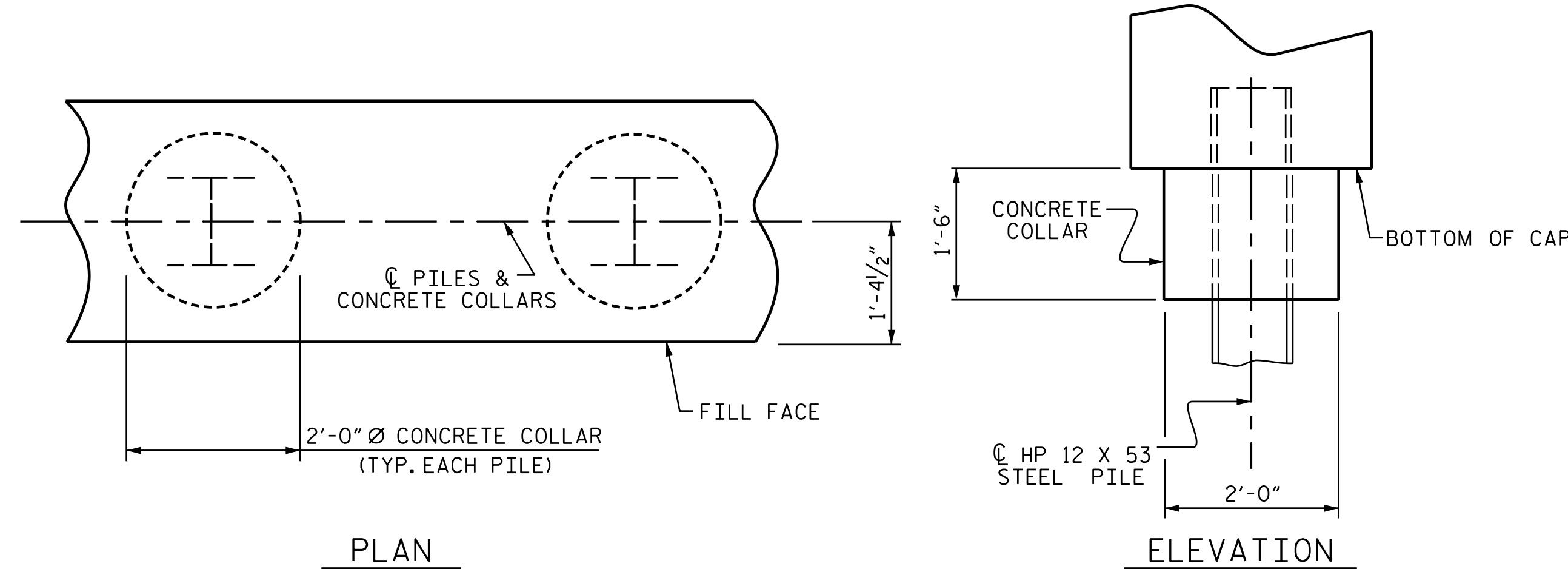
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

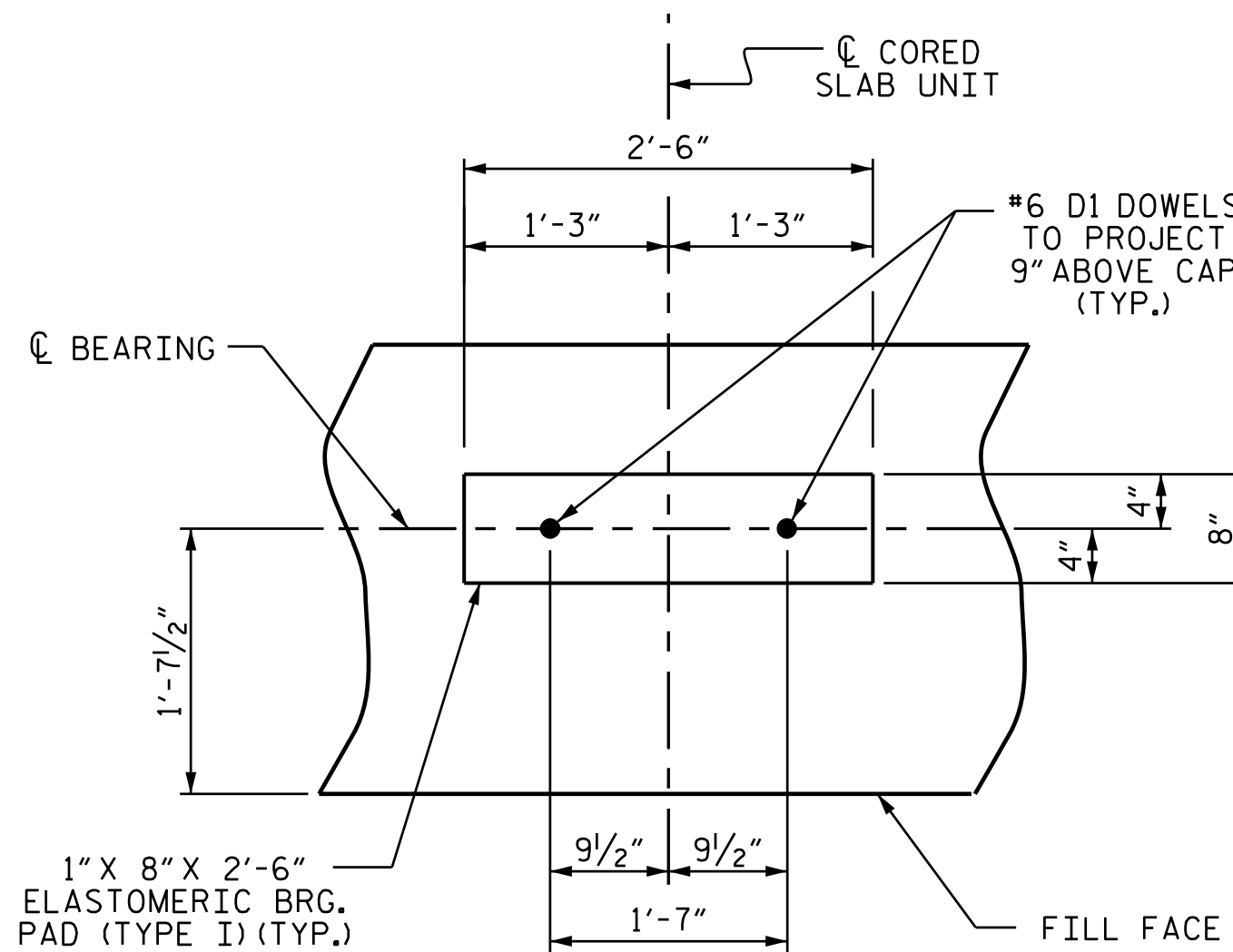


BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	16	#4	STR	20'-7"	220
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	50	#4	3	7'-5"	248
S2	50	#4	4	3'-2"	106
S3	14	#4	5	6'-6"	61
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT)					2115 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					12.4 C.Y.
POUR #2 UPPER PART OF WINGS					1.8 C.Y.
TOTAL CLASS A CONCRETE					14.2 C.Y.



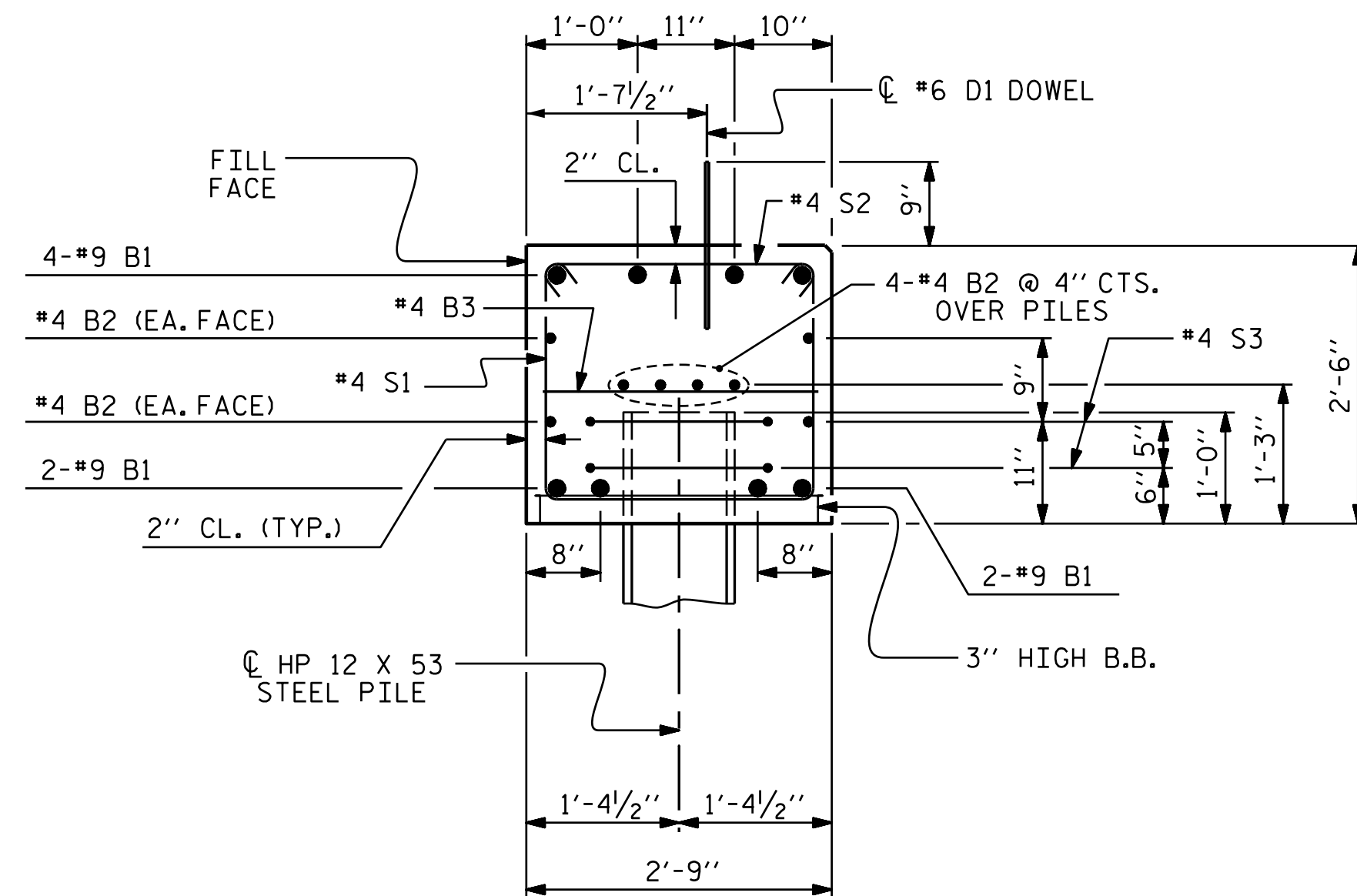
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



DETAIL "A"

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



SECTION A-A

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

PROJECT NO. B-5647
DUPLIN COUNTY
STATION: 16+30.50 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

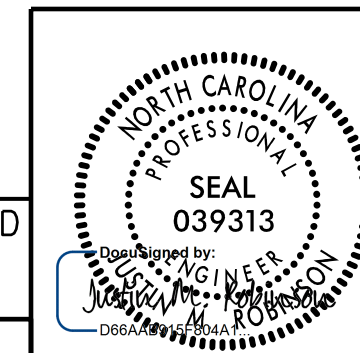
END BENT No. 1 & 2
DETAILS

REVISIONS

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1			3			5-14
2			4			TOTAL SHEETS 18

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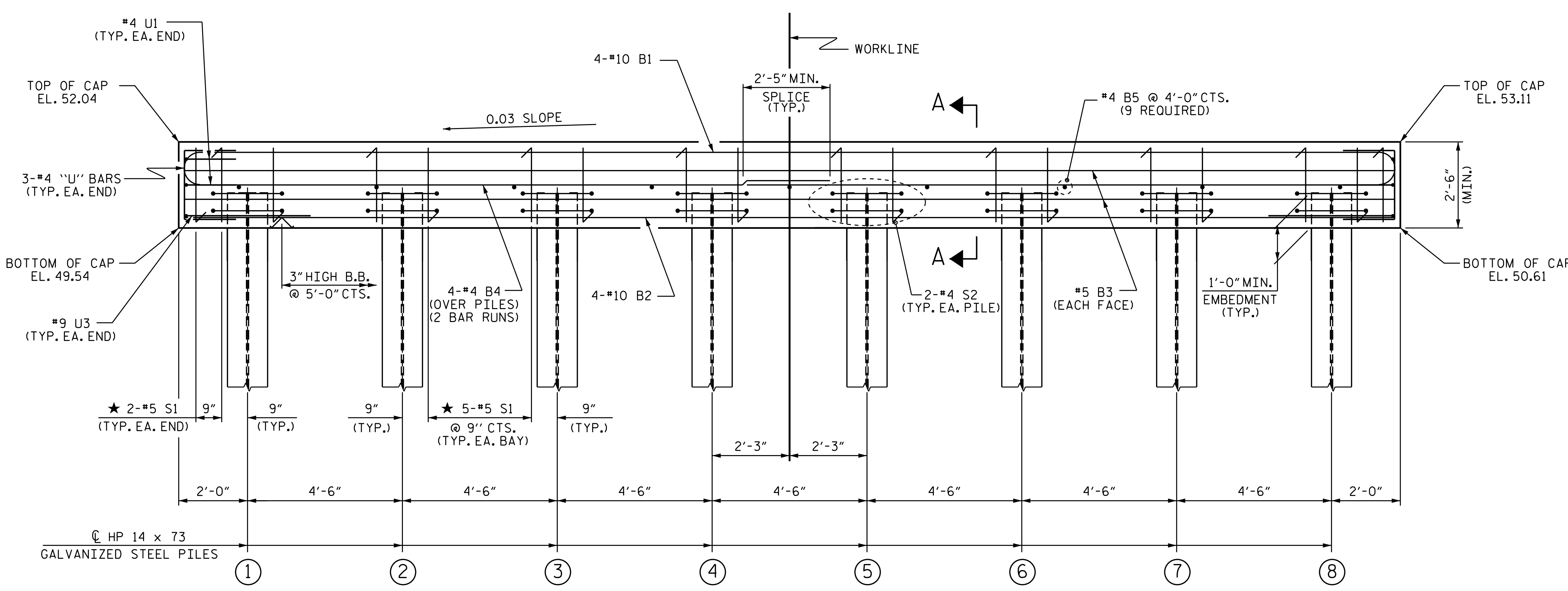
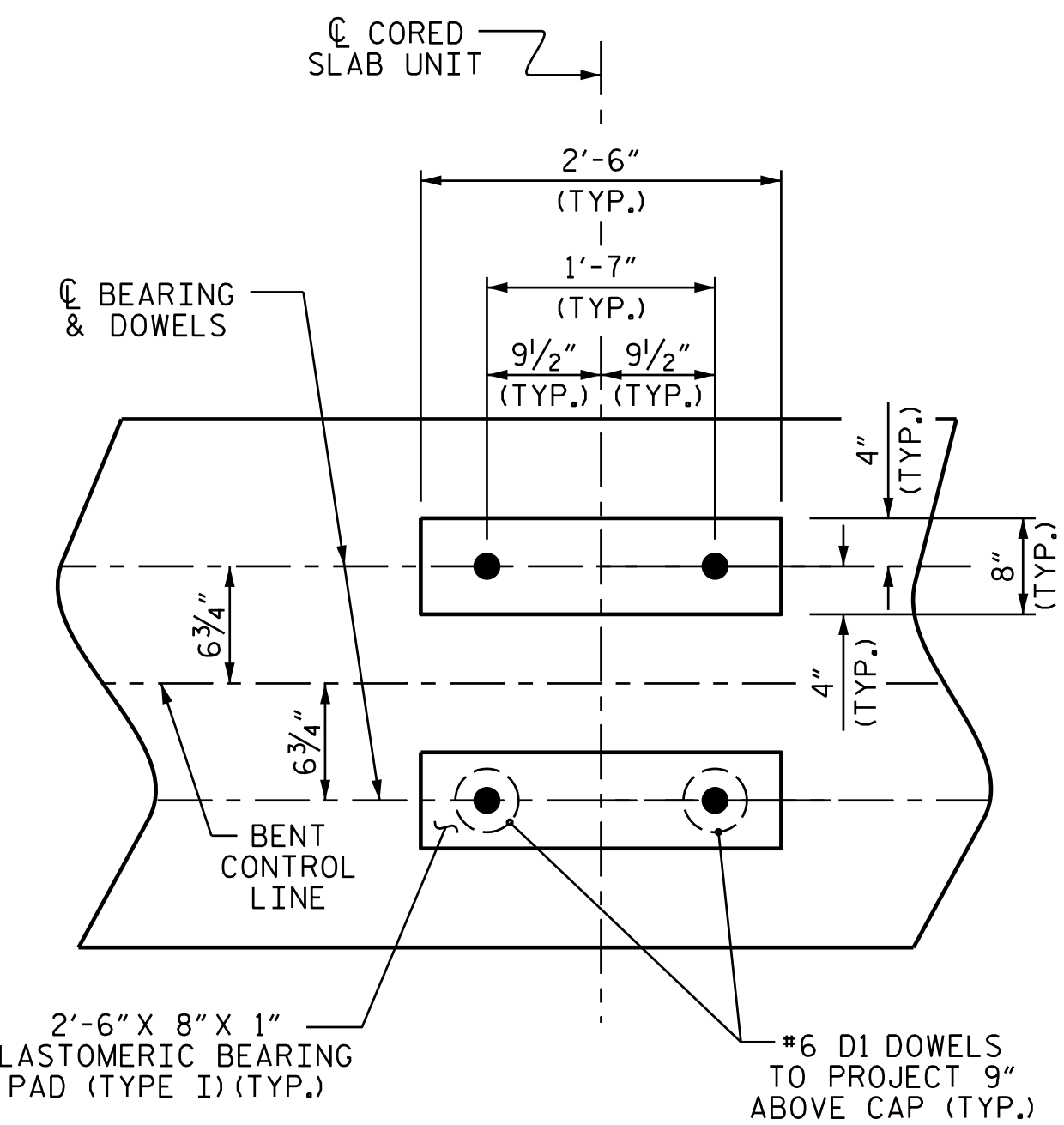
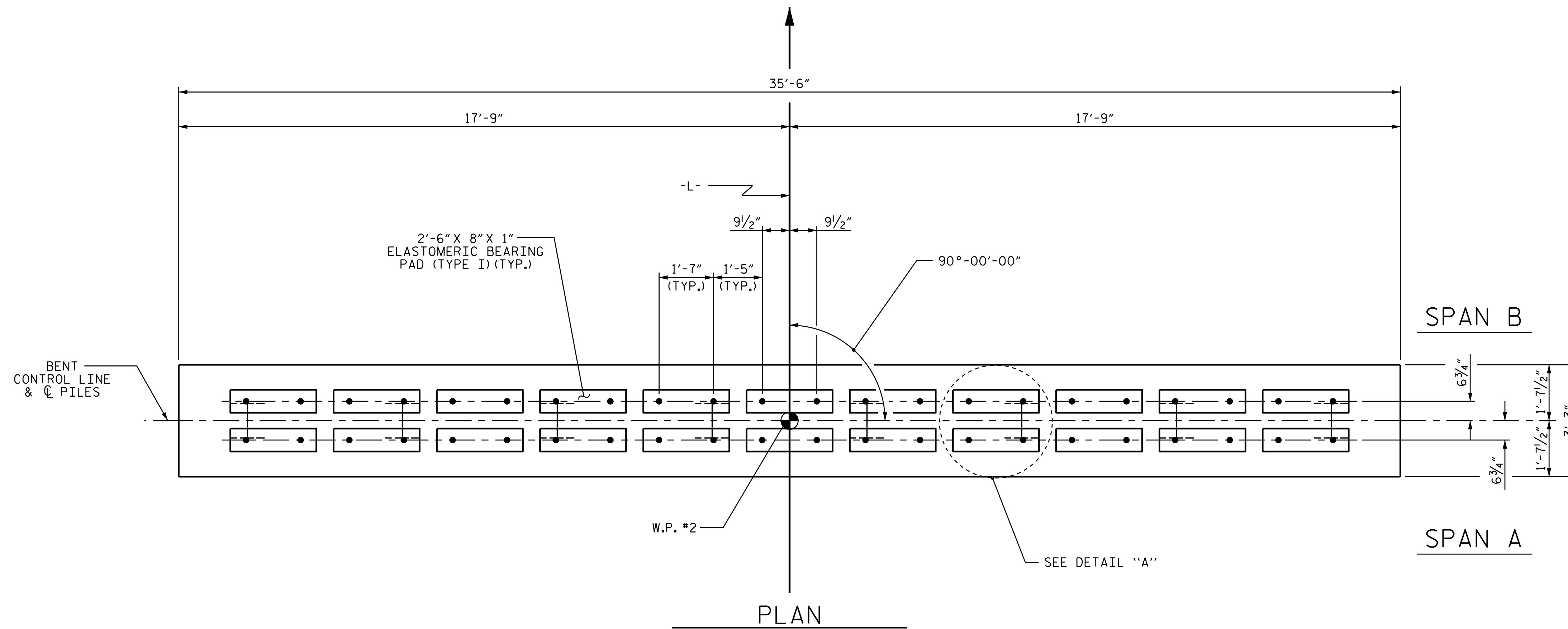


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DRAWN BY: N. K. KAVANI DATE: 10-2023
CHECKED BY: J. M. ROBINSON DATE: 11-2023
DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 ★ INVERT ALTERNATE STIRRUPS.
 GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



TOP OF PILE ELEVATIONS

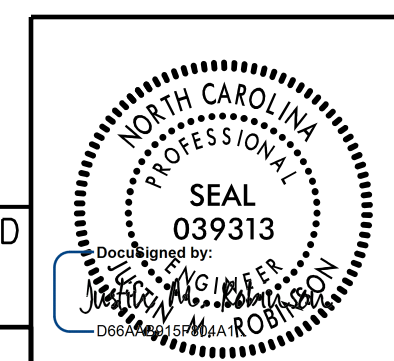
①	50.60
②	50.74
③	50.87
④	51.01
⑤	51.14
⑥	51.28
⑦	51.41
⑧	51.55

PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 1



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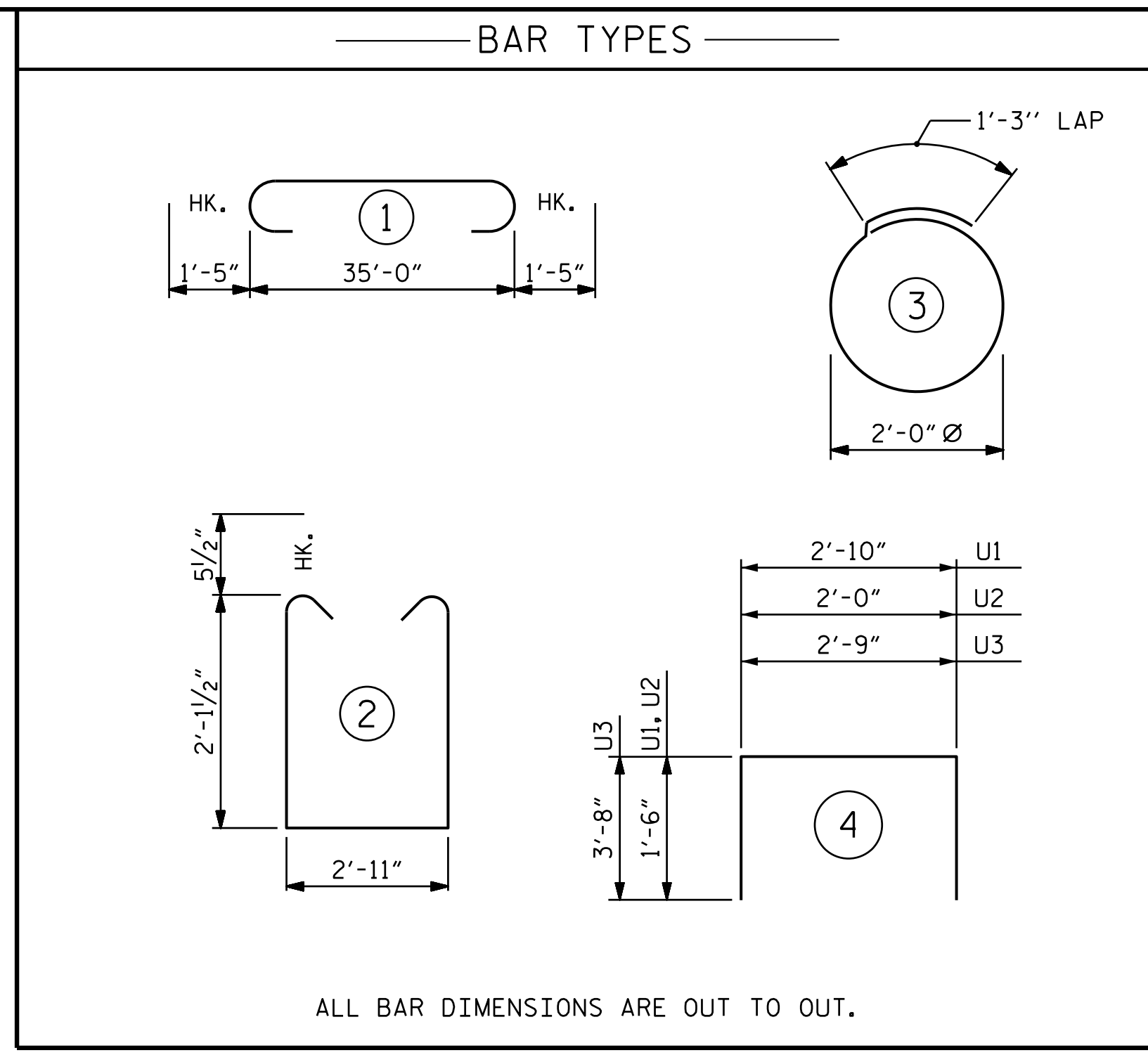
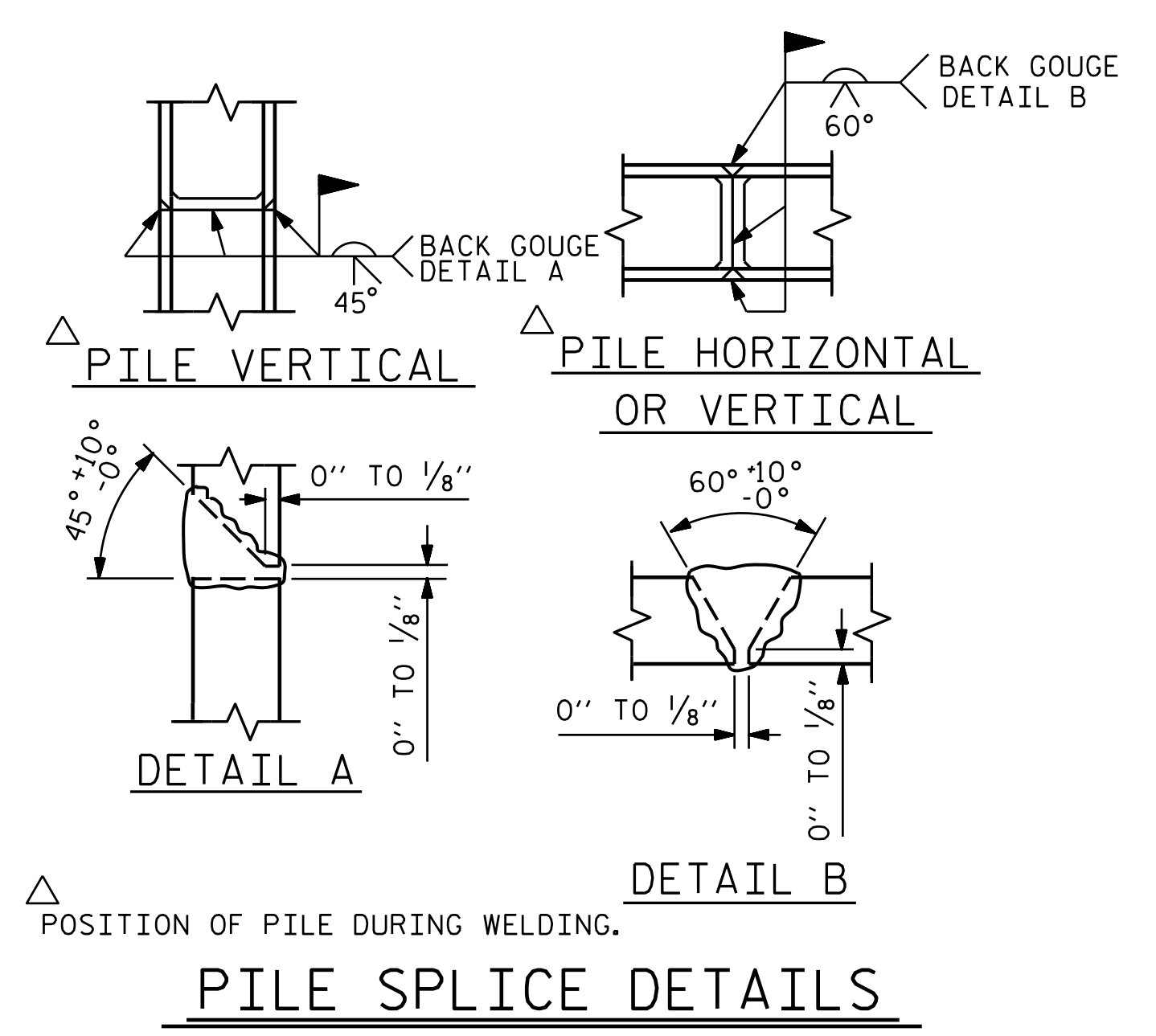
REVISIONS

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

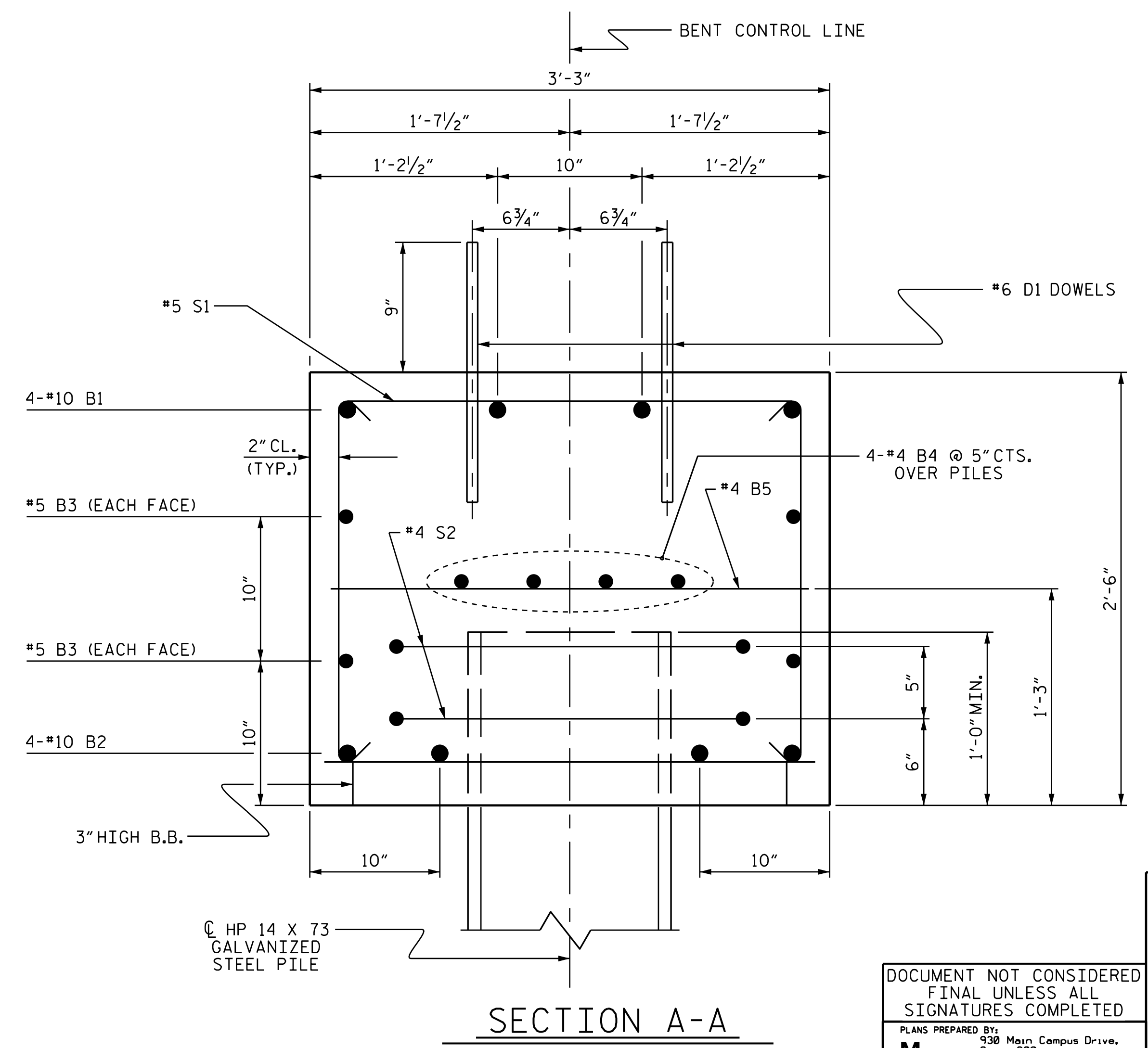
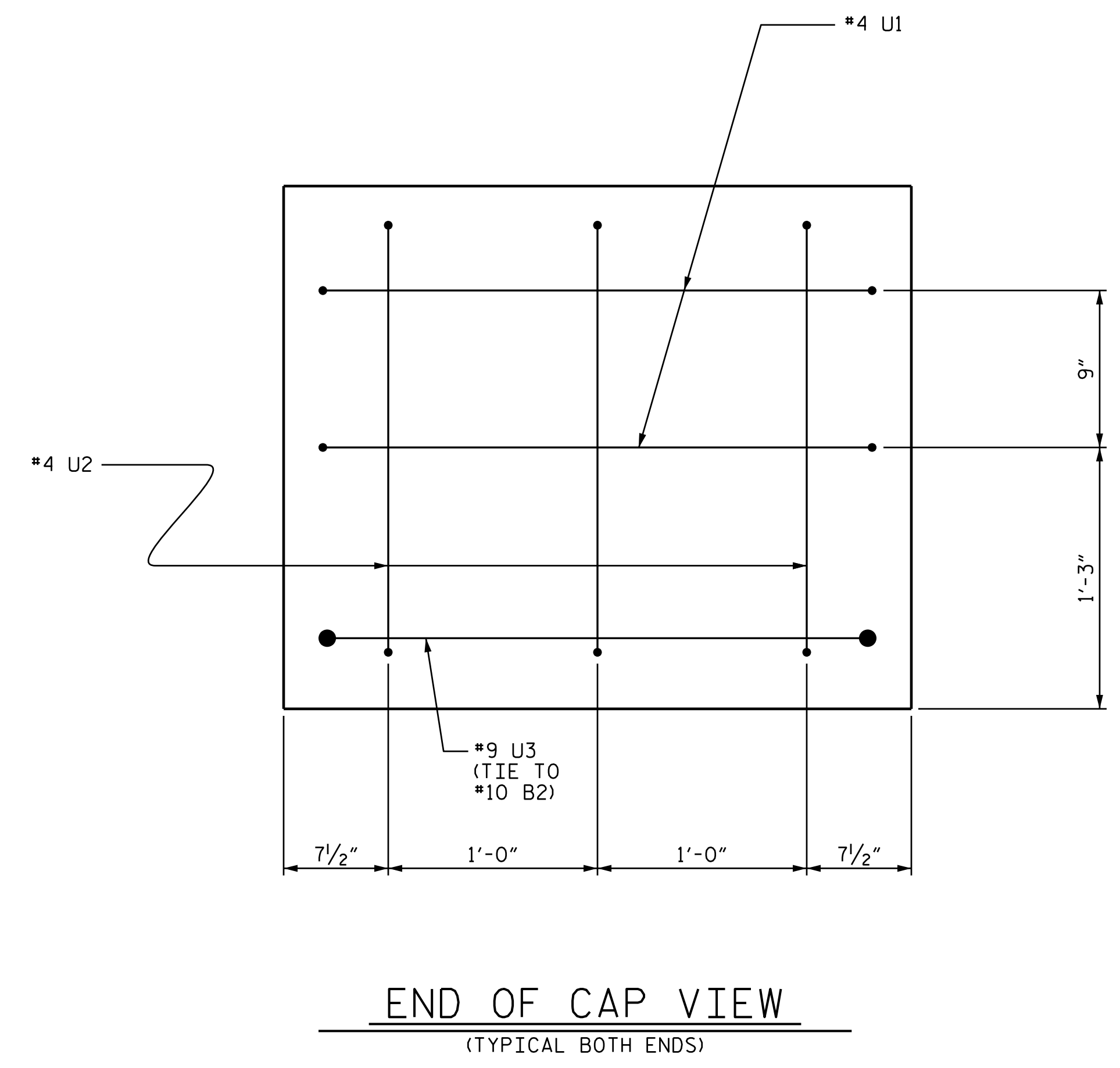
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 TOTAL SHEETS 18

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 CHECKED BY: J. M. ROBINSON DATE: 11-2023
 DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	37'-10"	651
B2	4	#10	STR	35'-2"	605
B3	4	#5	STR	35'-2"	147
B4	8	#4	STR	18'-10"	101
B5	9	#4	STR	2'-11"	18
D1	44	#6	STR	1'-6"	99
S1	39	#5	2	8'-1"	329
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
REINFORCING STEEL					2136 LBS
CLASS A CONCRETE BREAKDOWN					
TOTAL CLASS A CONCRETE					10.7 C.Y.



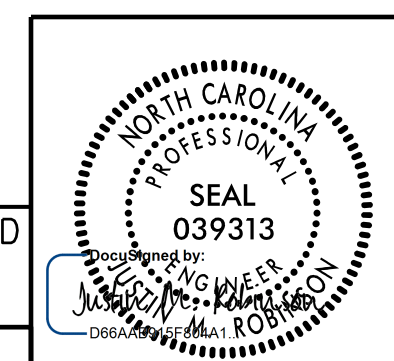
PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT No. 1 DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 18

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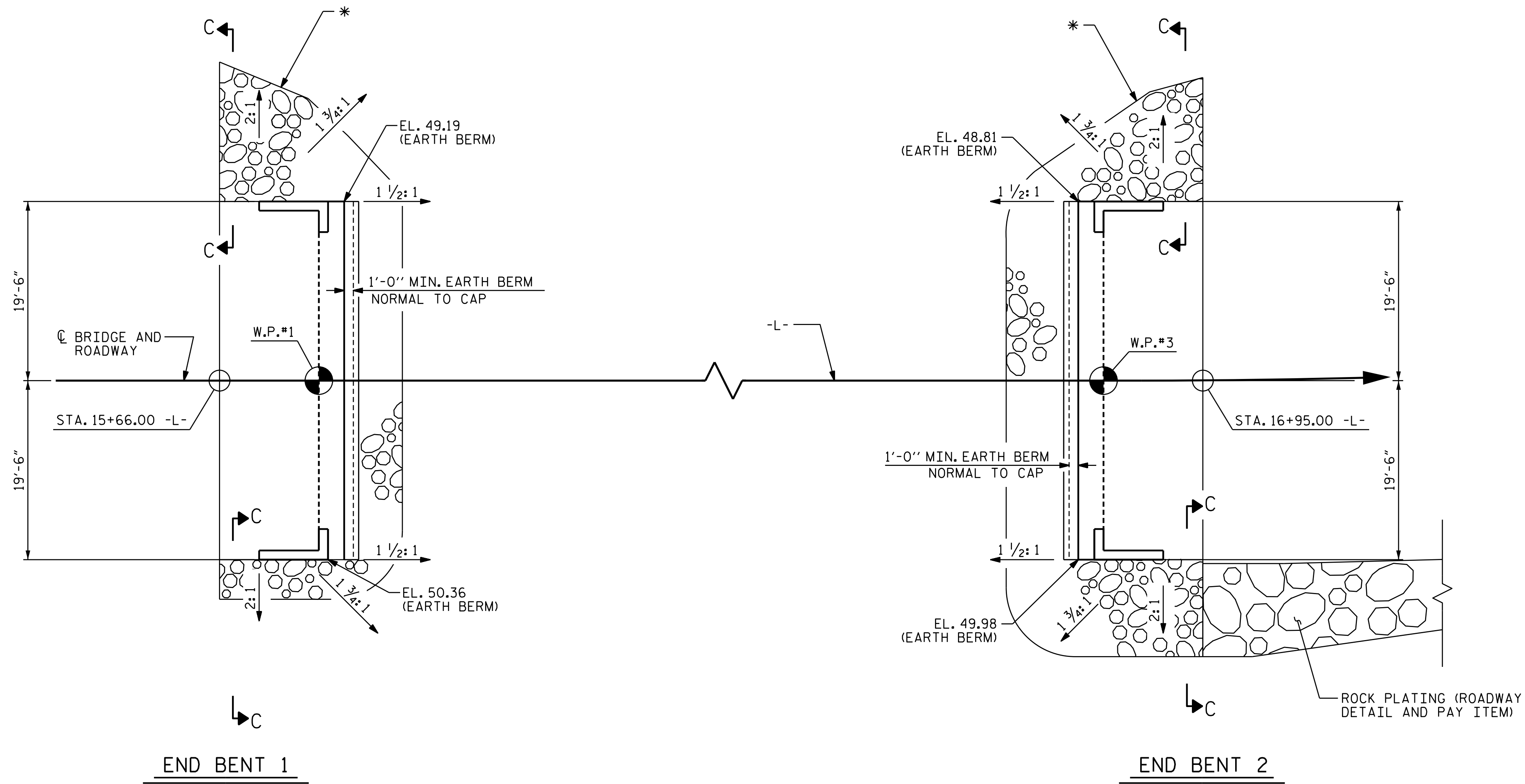


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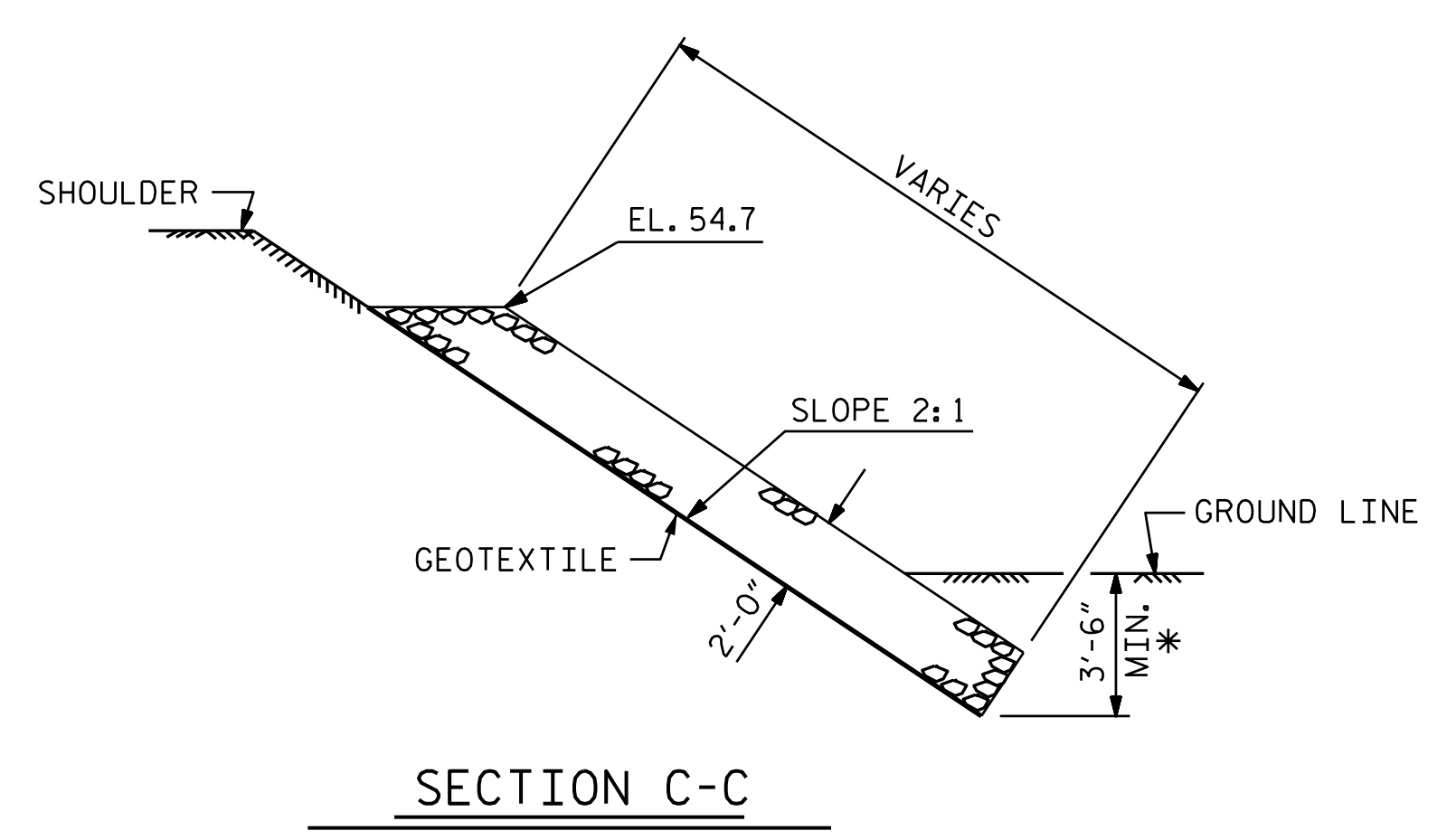
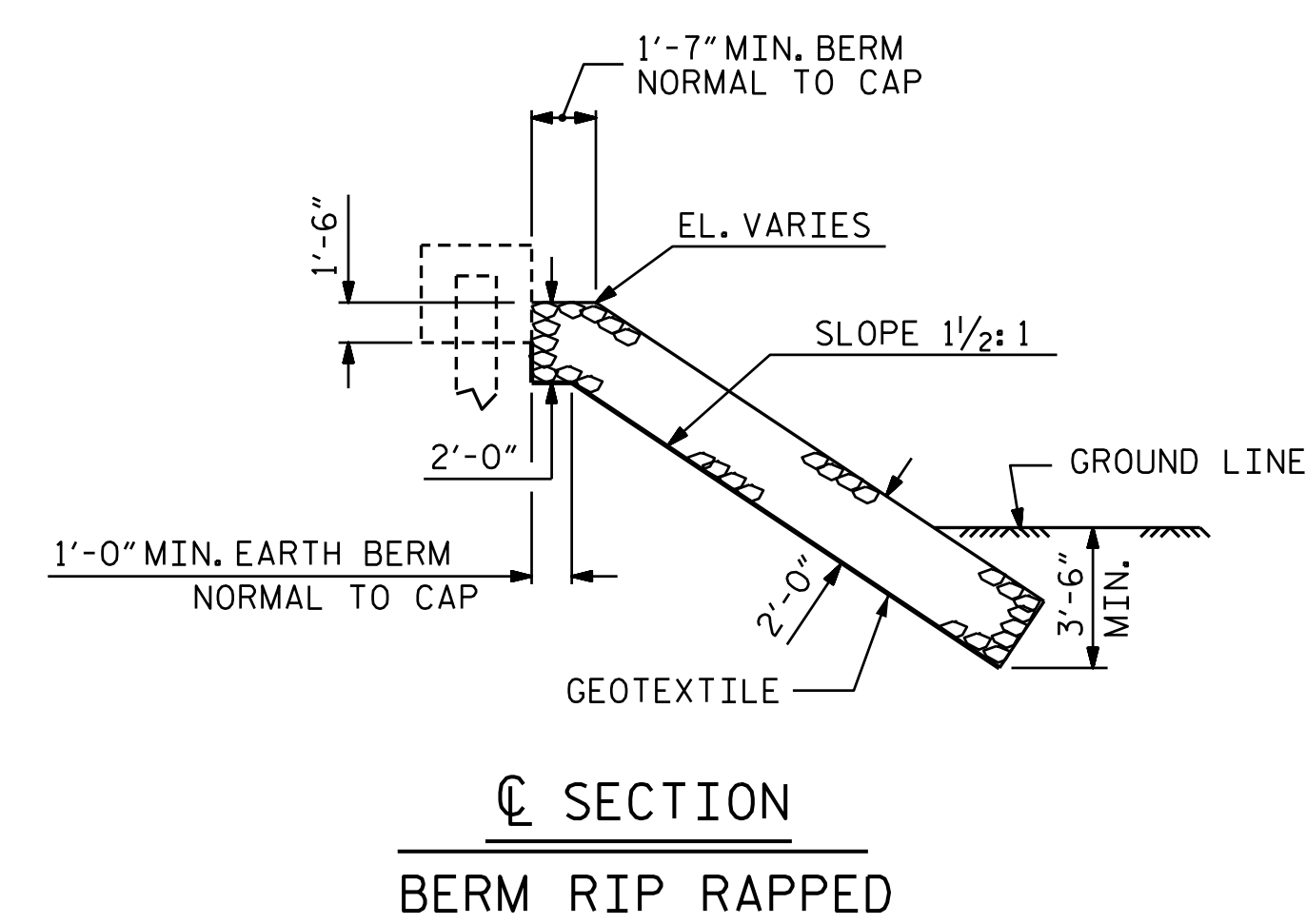
DRAWN BY: N. K. KAVANI DATE: 10-2023
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 DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

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 10/4/21 AM 2/9/2024

NOTES :
 FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.
 * DO NOT KEY-IN RIP RAP SLOPE PROTECTION ON SIDE SLOPE TO AVOID CONFLICT WITH THE EXISTING WATER LINE.



ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+30.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	59	65
END BENT 2	80	88

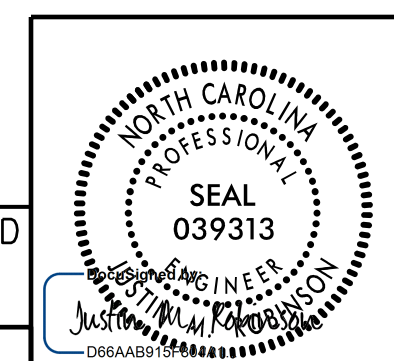


PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			18

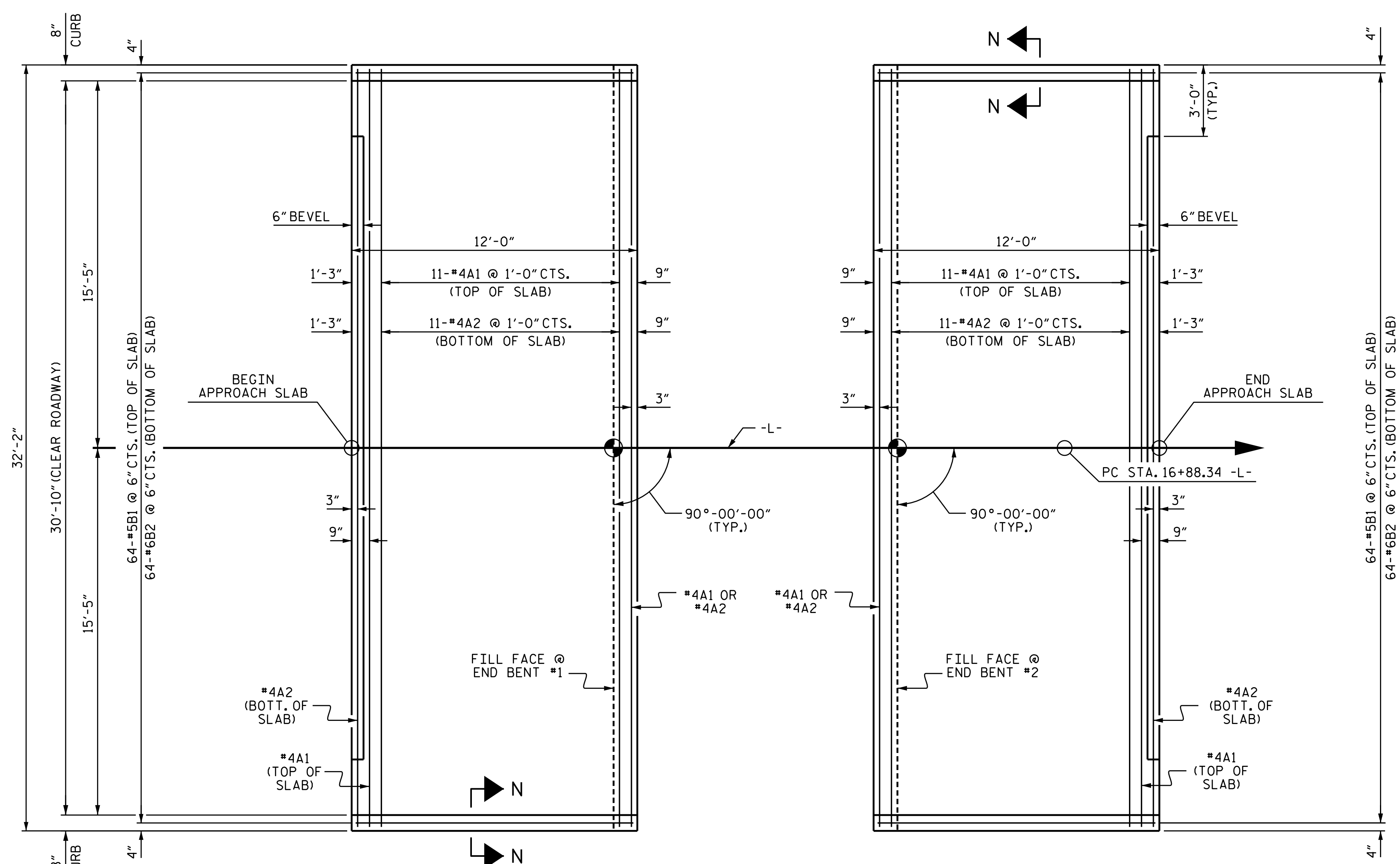


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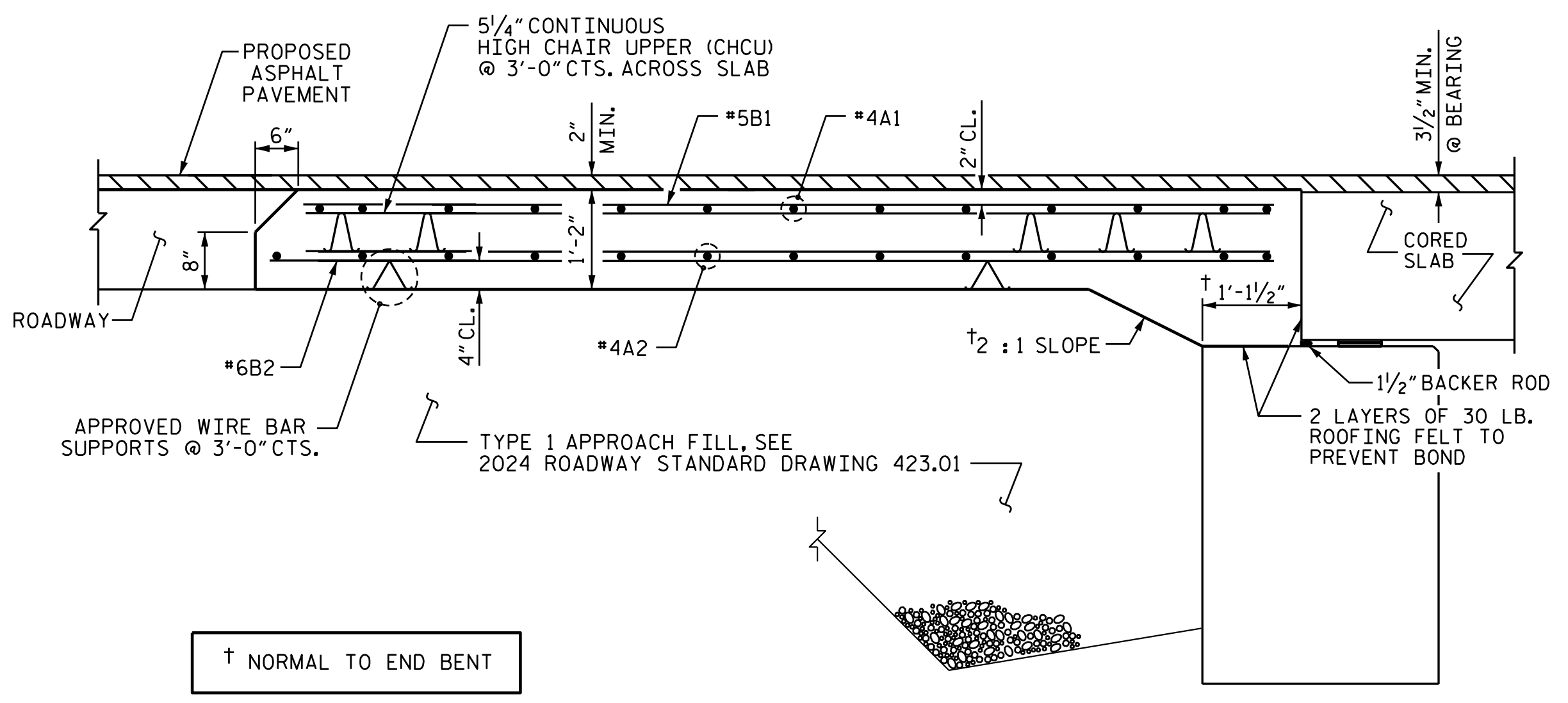
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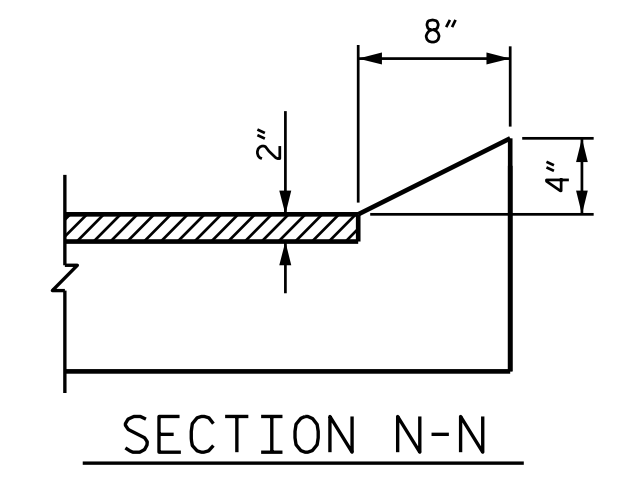
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PLAN @ END BENT #1 **PLAN @ END BENT #2**
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB
 (TYPE I (2024) APPROACH FILL)



CURB DETAILS

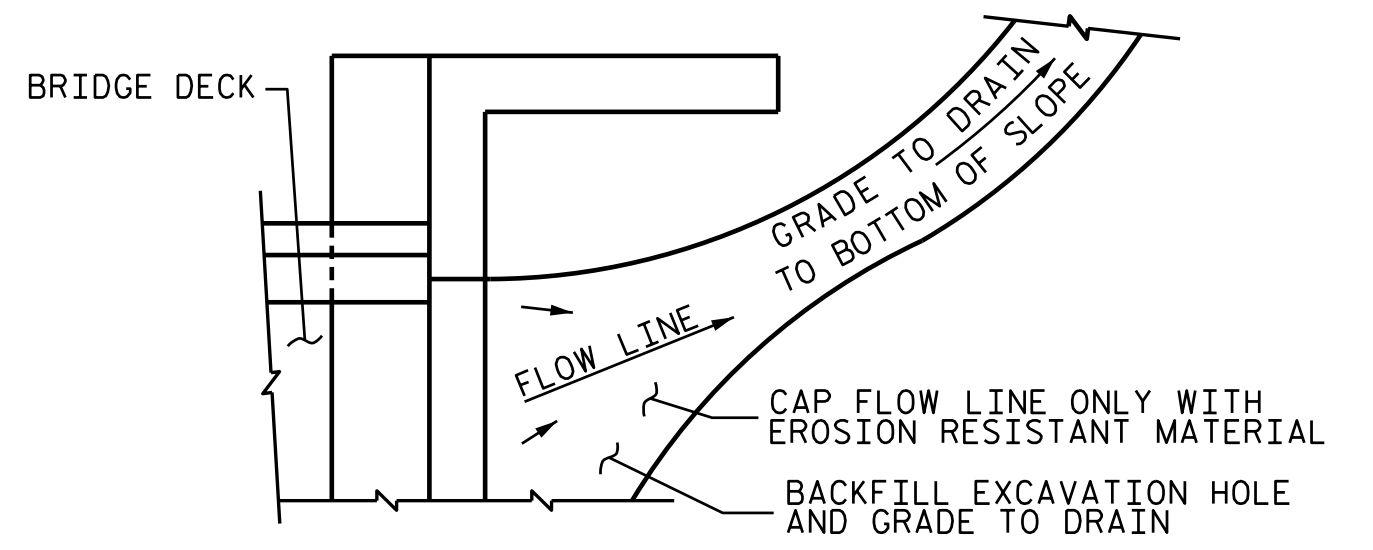
NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

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

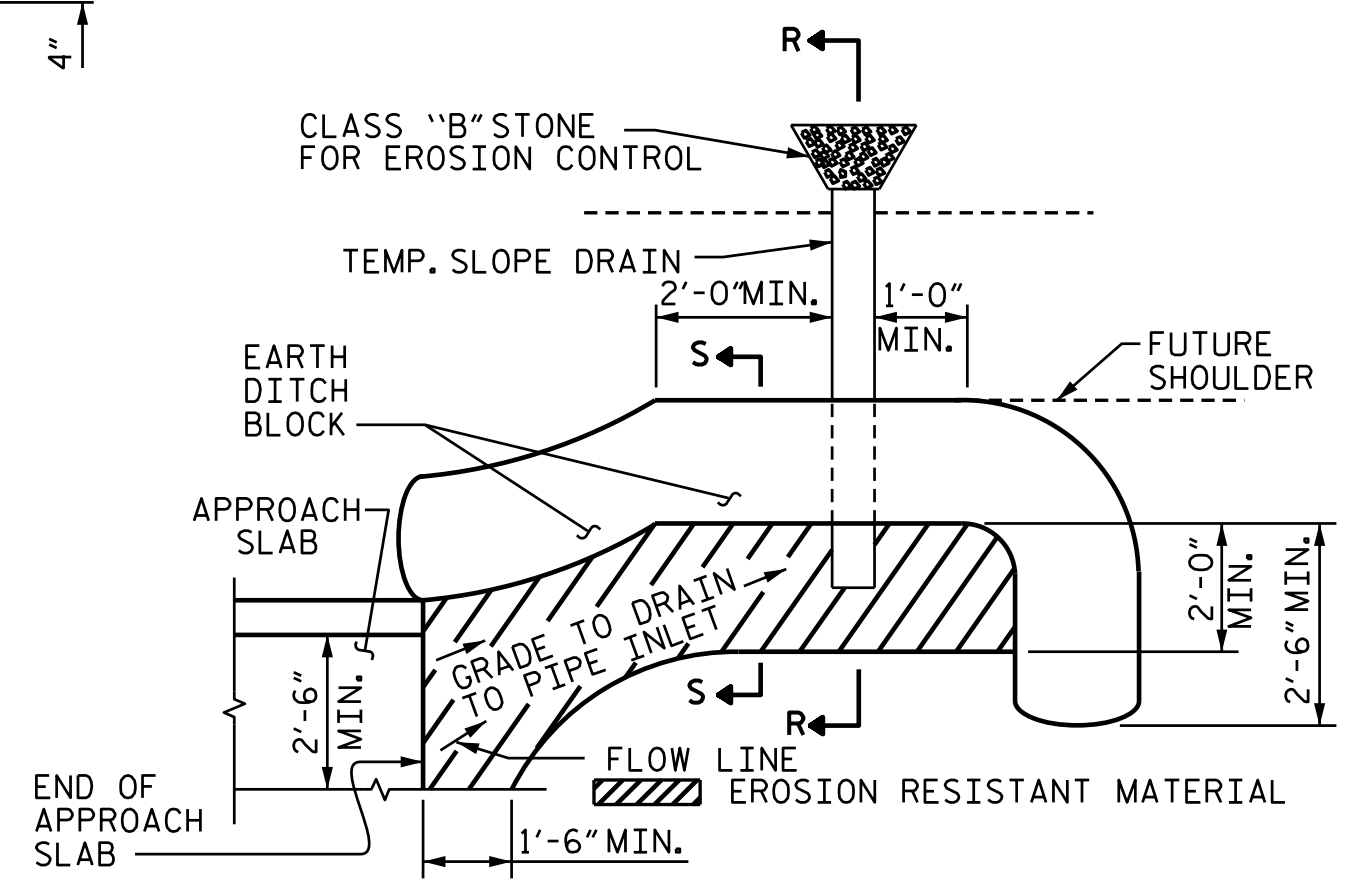
APPROACH SLAB GROOVING IS NOT REQUIRED.

WHEN LAYING OUT AND CONSTRUCTING APPROACH SLAB, IGNORE CURVE IN ALIGNMENT AT END BENT 2.



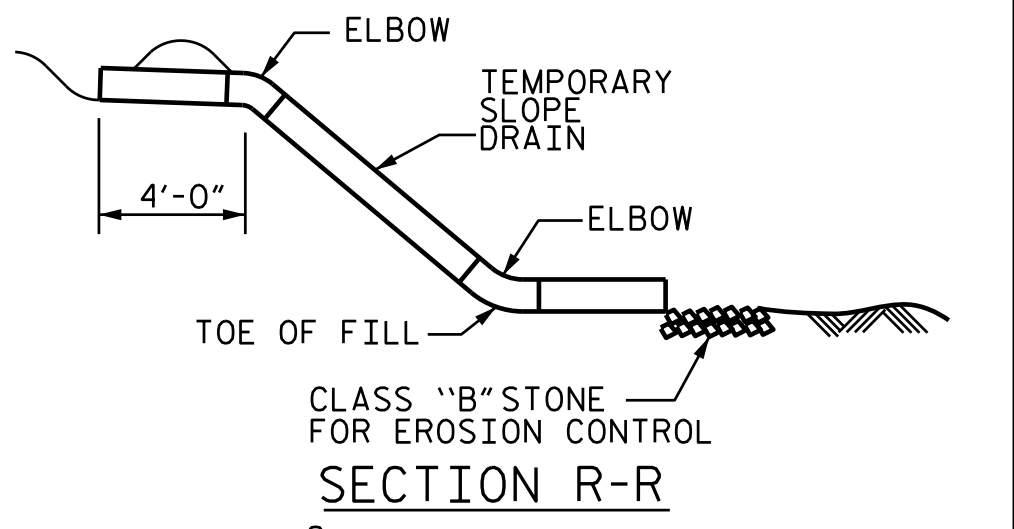
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

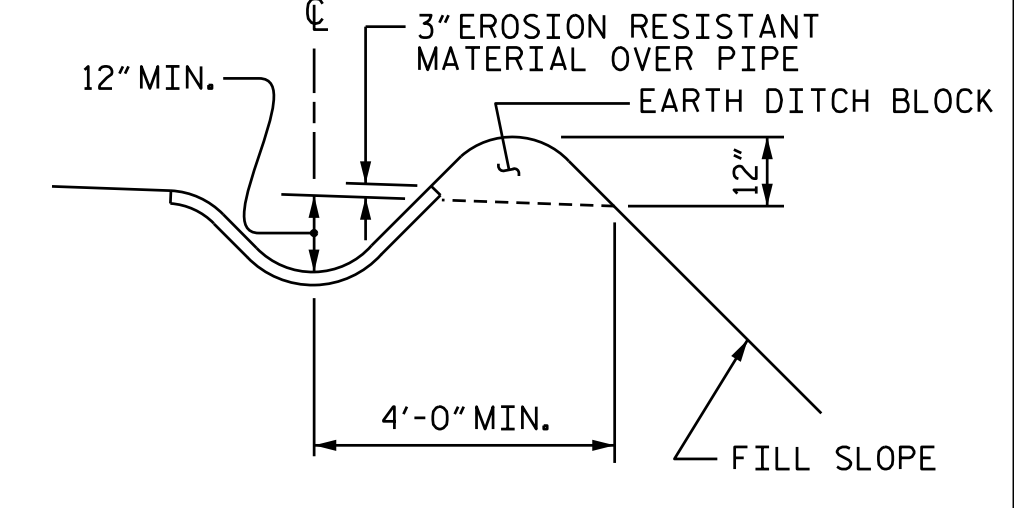


TEMPORARY BERM AND SLOPE DRAIN DETAILS
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	#4	STR	31'-10"	276
A2	13	#4	STR	31'-10"	276
*B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1397
* EPOXY COATED REINFORCING STEEL				LBS.	1021
CLASS AA CONCRETE				C. Y.	18.4
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	#4	STR	31'-10"	276
A2	13	#4	STR	31'-10"	276
*B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1397
* EPOXY COATED REINFORCING STEEL				LBS.	1021
CLASS AA CONCRETE				C. Y.	18.4



SECTION R-R



SECTION S-S

PROJECT NO. B-5647
DUPLIN COUNTY
 STATION: 16+30.50 -L-

SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"

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

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			18

DRAWN BY: N. K. KAVANI DATE: 10-2023
 CHECKED BY: J. M. ROBINSON DATE: 11-2023
 DESIGN ENGINEER OF RECORD: J. M. ROBINSON DATE: 11-2023

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	--	20,000 LBS. PER SQ. IN.
	--	27,000 LBS. PER SQ. IN.
	--	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	----	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset 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 $\frac{3}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY $\frac{1}{16}$ " INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

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