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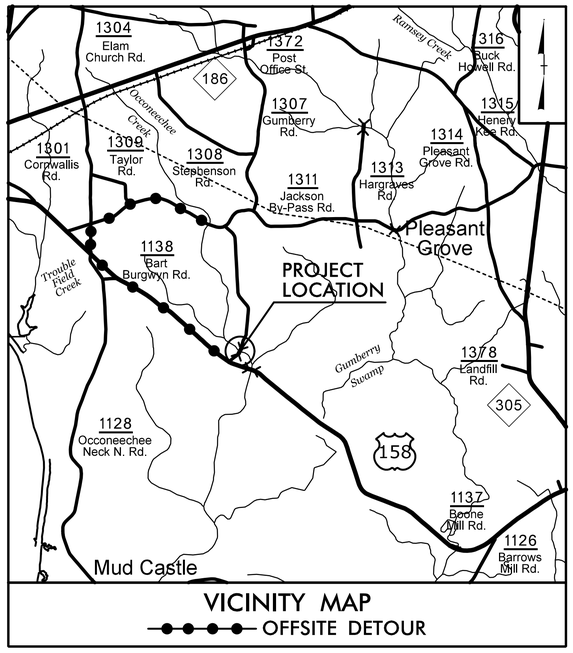
09/08/99

PROJECT: BP1.R017

CONTRACT: DA00629

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NORTHAMPTON COUNTY

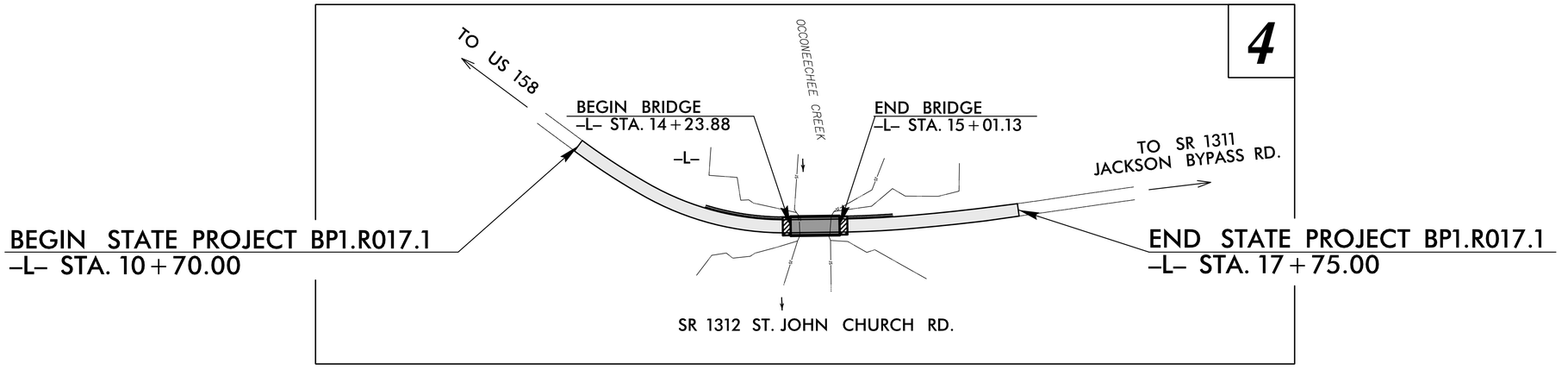
LOCATION: REPLACE BRIDGE NO. 650053 ON SR 1312 OVER OCCONEECHEE CREEK

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1.R017	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP1.R017.1		PE
BP1.R017.2		R/W, UTIL.
BP1.R017.3		CONST.

NAD 83/2011



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 100
T = 6%
V = 45 MPH

FUNCT CLASS = LOCAL

SUB-REGIONAL TIER
DESIGN STANDARDS

PROJECT LENGTH

LENGTH ROADWAY PROJECT BP1.R017	=	*0.119 mile*
LENGTH STRUCTURES PROJECT BP1.R017	=	*0.015 mile*
TOTAL LENGTH PROJECT BP1.R017	=	*0.134 mile*

Prepared For:
DIVISION OF HIGHWAYS
113 Airport Drive, Suite 100, Edenton NC, 27932

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603
By:
PH (919) 733-8887
CORP. LICENSE NO.: C-0275

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 17, 2023

LETTING DATE:

BURKE EVANS, PE
PROJECT ENGINEER

NATHAN PUERTOLLANO
PROJECT DESIGN ENGINEER

RYAN SHOOK
BRIDGE PROGRAM MANAGER NCDOT DIVISION 1

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR P.E.
Signed by: Benjamin J. Henegar 10/24/2024
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19724 ENGINEER DAVID BURKE EVANS P.E.
DocuSigned by: David Burke Evans 10/24/2024
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

10/24/2024
x:\ncdot\division 1\northampton 53\roadway\Proj\650053_RDY_TSH.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
BPI.R023	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19724 ENGINEER BURKE

9/5/2024

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TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

GENERAL NOTES

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

GRADE LINE:
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 METHOD II.

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 ENGINEER.

GUARDRAIL:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

TELECOM – BRIGHTSPEED ALONZA MITCHELL (252) 751-5746
alonza.mitchell@lumen.com

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.

STANDARD DRAWINGS

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

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit – N. C. Department of Transportation – Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	Method of Clearing – Method II
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 – MAJOR STRUCTURES	
423.01	Bridge Approach Fills – Type 1 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
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
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4 and 6)
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
BP1.R017	1B

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) — EIP
- Computed Property Corner
- Existing Concrete Monument (ECM) — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — 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 — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW CA
- Existing Easement Line — E
- 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
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge

- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

** 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 — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line (SUE – LOS B)* — ?UTL
- 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.

PROJECT REFERENCE NO.	SHEET NO.
BPI.R017	2A-1

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19724 DAVID BURKE EVANS

9/4/2024

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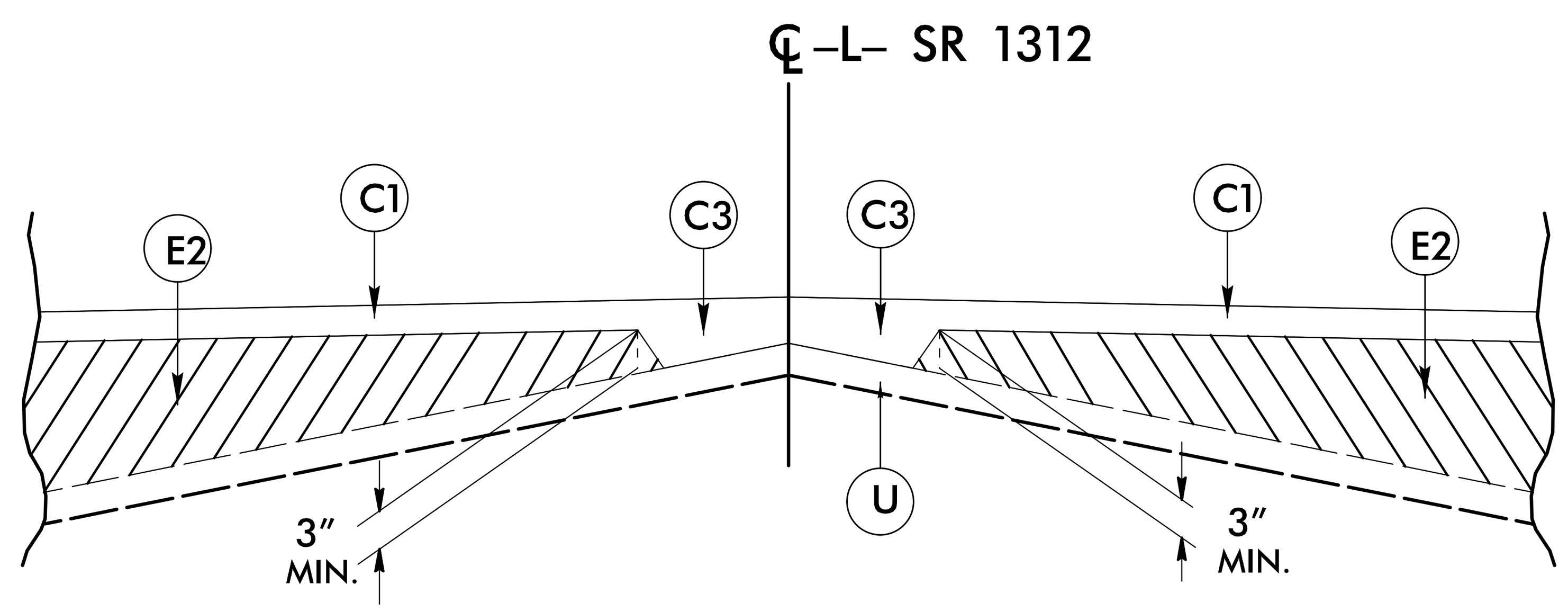
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	6" INCIDENTAL STONE
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

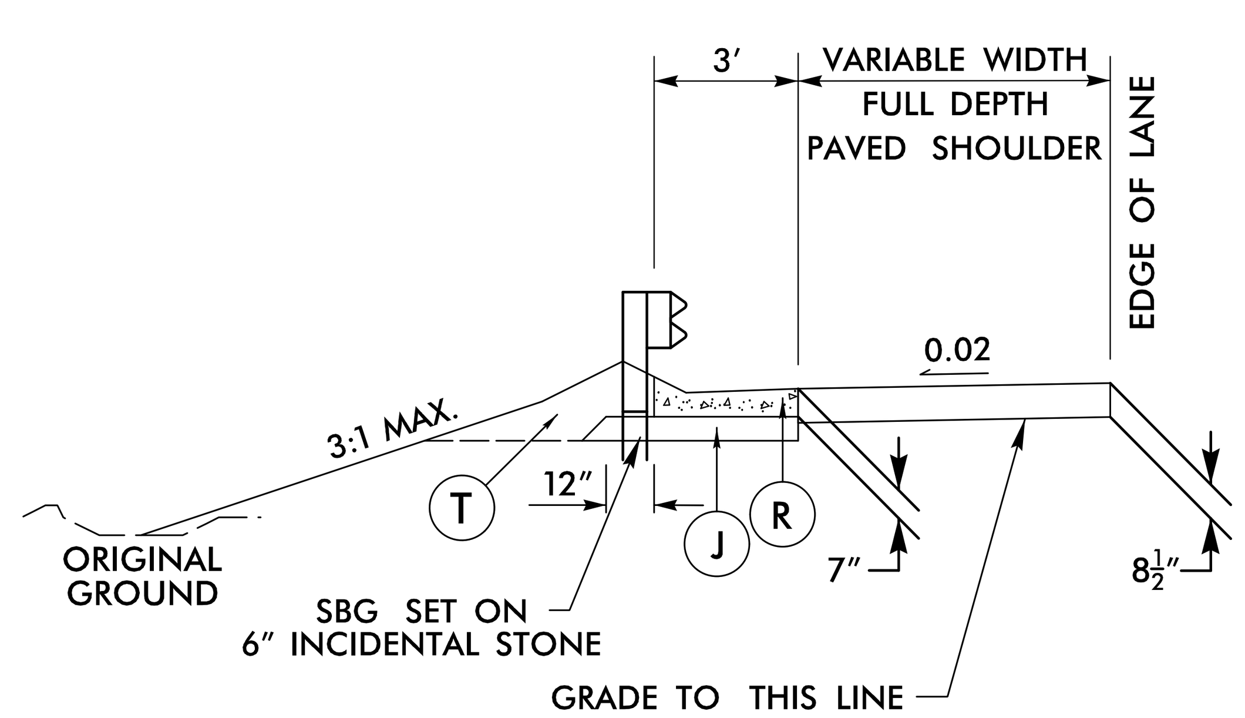
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging (W)

DETAIL FOR SHOULDER BERM GUTTER

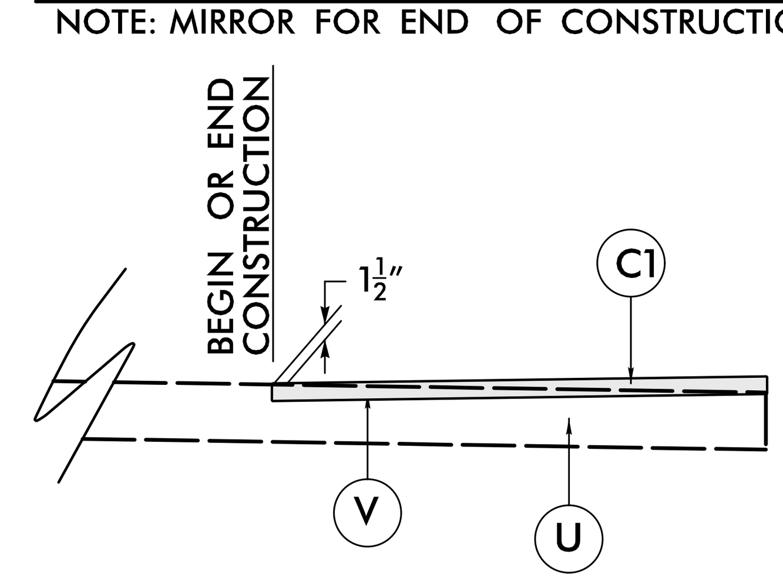
SEE CORRESPONDING TYPICAL SECTION FOR PAVEMENT DESIGN. SEE TYPICAL SECTIONS AND PLANS FOR ACTUAL DIMENSIONS.



LINE	STATIONS
-L-	12+90.00 to 14+13.00 LT
-L-	15+12.00 to 15+82.00 LT

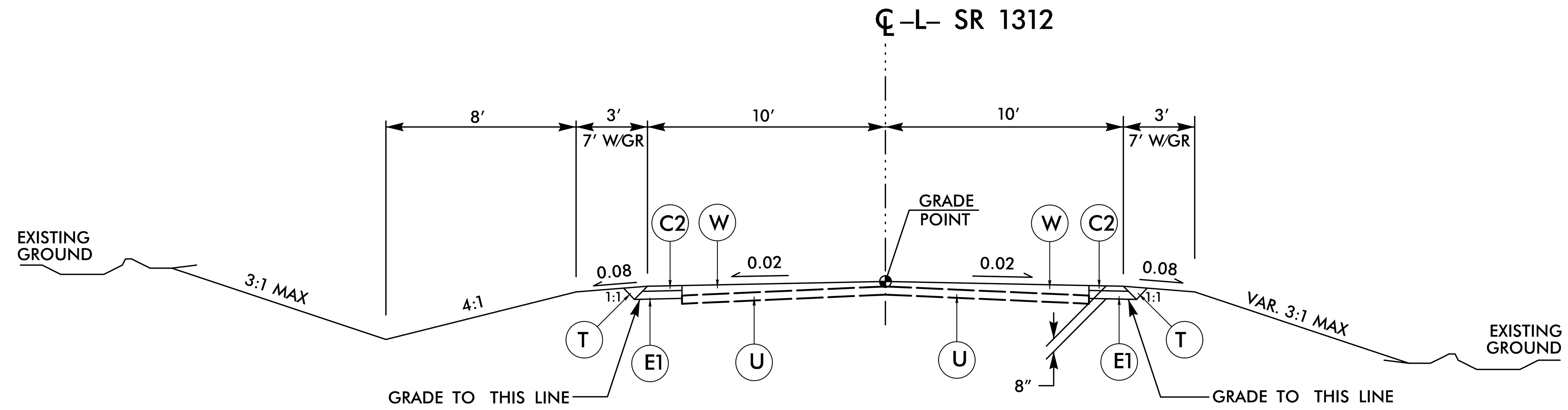
INCIDENTAL MILLING DETAIL

NOTE: MIRROR FOR END OF CONSTRUCTION



USE DETAIL AS FOLLOWS:

MILLING AND OVERLAY FOR TIE-INS:
-L- STA. 10+70.00 TO -L- STA. 11+10.00
-L- STA. 16+75.00 TO -L- STA 17+75.00

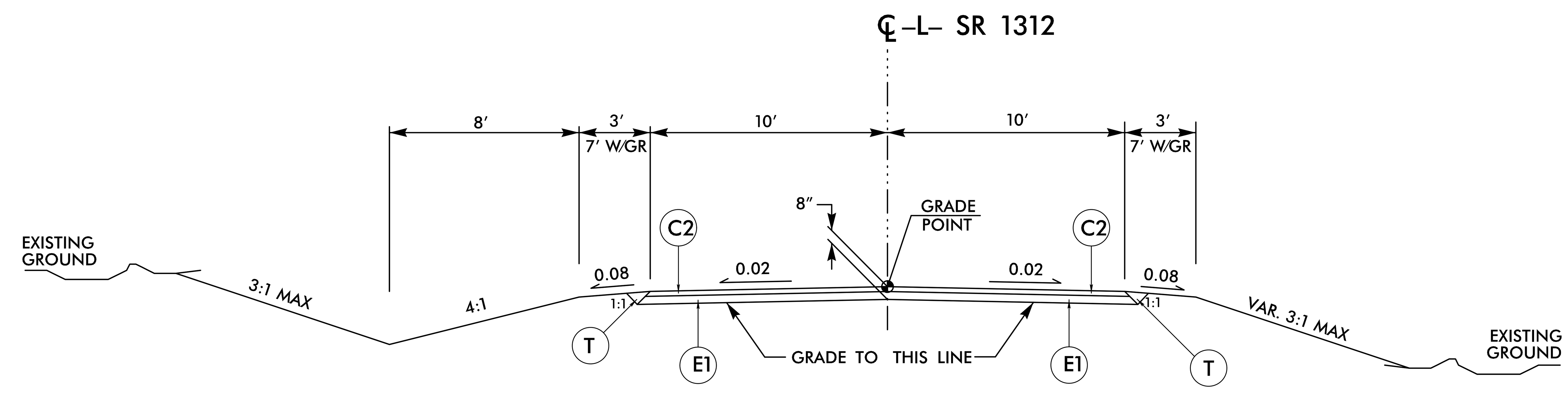


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

FROM -L- STA 10+70.00 TO STA 13+60.00
FROM -L- STA 15+65.00 TO STA 17+75.00

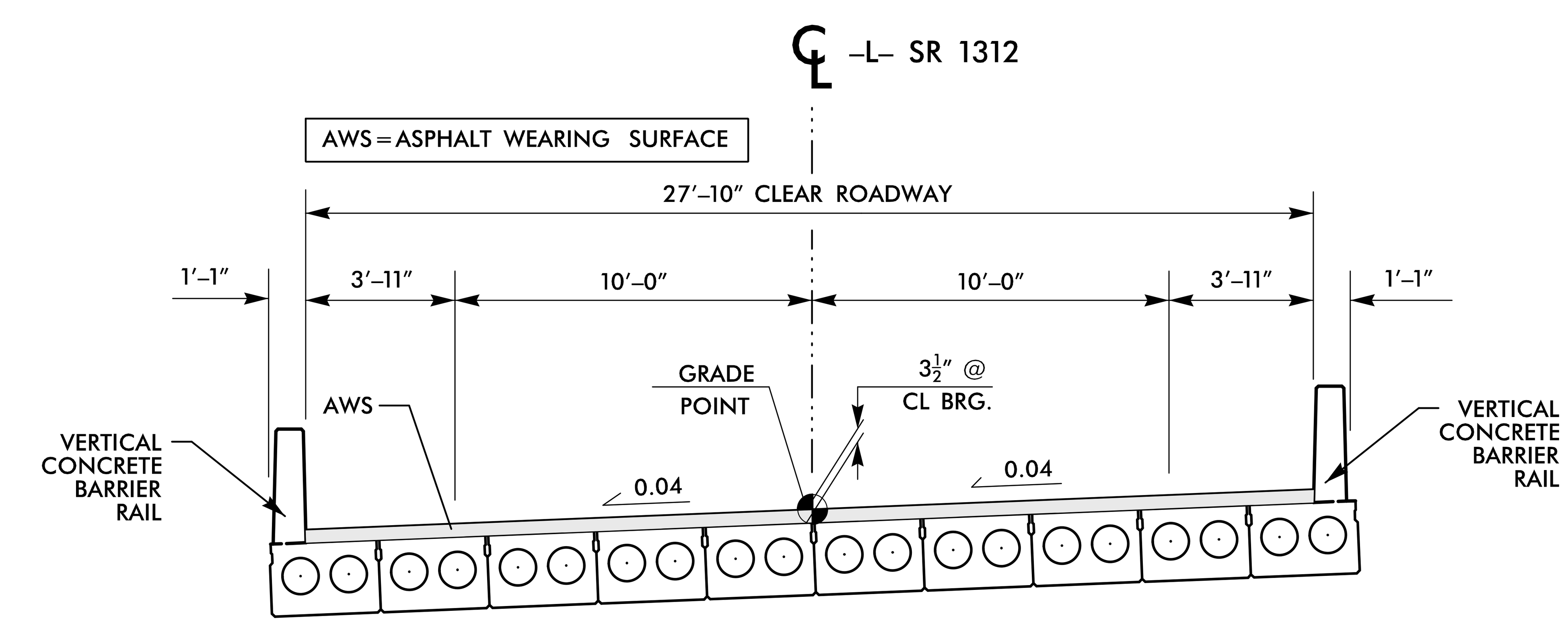
NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING PAVEMENT WIDTH -L- 17+25.00 TO STA 17+75.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

FROM -L- STA 13+60.00 TO STA 14+23.88 (BEGIN BRIDGE)
FROM -L- STA 15+01.13 (END BRIDGE) TO STA 15+65.00



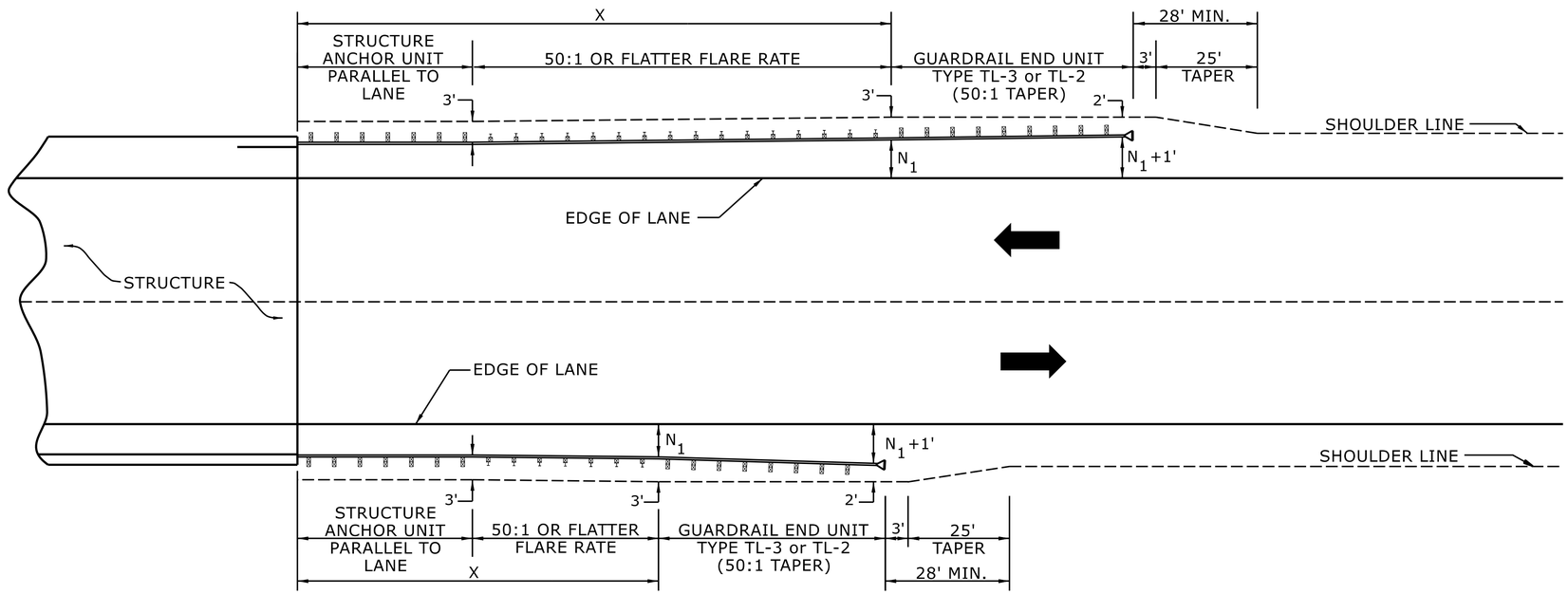
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

FROM -L- STA 14+23.88 (BEGIN BRIDGE) TO STA 15+01.13 (END BRIDGE)

NOTE: SEE STRUCTURE PLANS FOR BRIDGE CONSTRUCTION DETAILS INCLUDING BARRIER RAIL HEIGHT AND ASPHALT THICKNESS DIMENSIONS

PROJECT REFERENCE NO.	SHEET NO.
BP1.R017	2B-1



USE FLARE RATE AS THE CONTROL IF THE "N_1" DISTANCE IS NOT OBTAINED.
("N_1" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS ≥ 45MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45MPH USE GREU TYPE TL-2

GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15

862D01

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signed by:
Nicole M. Hackler
5884323D34164C5...
9/3/2024

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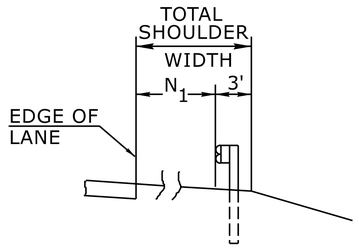
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

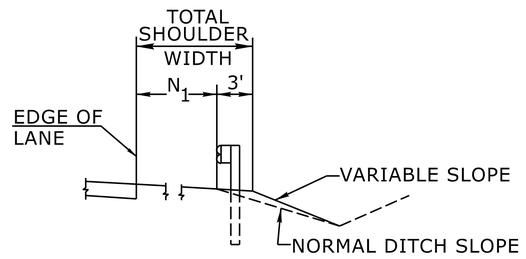
SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
BP1.R017	2B-2

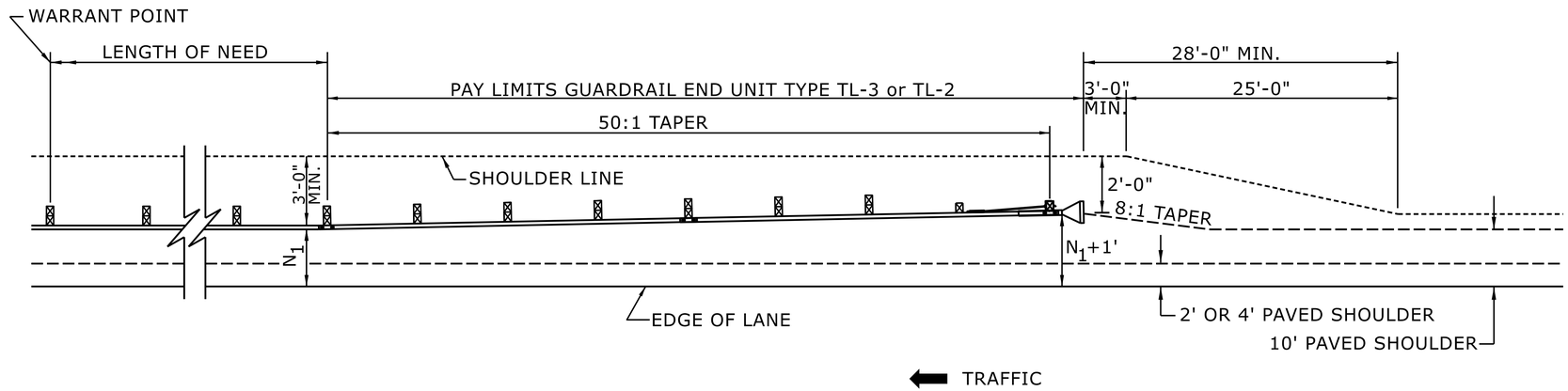


FILL SECTION



CUT SECTION

"N_1"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15

862D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE M. HACKLER

Signed by: Nicole M. Hackler
5884323D34164C5...
9/3/2024

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

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

6/21/00

COMPUTED BY: NGP DATE: 7/06/23
CHECKED BY: _____ DATE: _____

PROJECT REFERENCE NO.	SHEET NO.
BP1.R017	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
–L– 10+70.00 TO 14+23.88 (BEGIN BRIDGE)	3		671	668	
–L– 15+01.13 (END BRIDGE) TO 17+75.00	15		548	533	
SUBTOTAL	18		1,219	1,201	
TOTAL	18		1,219	1,201	
MATERIAL FOR SHOULDER CONSTRUCTION			41	41	
LOSS DUE TO CLEARING & GRUBBING					
ADDITIONAL UNDERCUT					
ROCK WASTE TO REPLACE BORROW					
ADJUST FOR ROCK WASTE					
WASTE IN LIEU OF BORROW					
PROJECT TOTAL	18		1,260	1,242	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				62	
GRAND TOTAL	18		1,260	1,304	
SAY	20			1,375	

THE FOLLOWING QUANTITIES ARE PER THE "GEOTECHNICAL REPORT – DESIGN AND CONSTRUCTION RECOMMENDATIONS" LETTER DATED MARCH 16, 2023:

UNDERCUT EXCAVATION = 300 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)
SELECT GRANULAR MATERIAL = 300 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

NOTE: APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
–L–	13+60.00	14+37.82 (EX. BRIDGE)	CL	175
–L–	14+89.04 (EX. BRIDGE)	15+65.00	CL	170
			TOTAL:	345
			SAY:	365

"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.

GUARDRAIL SUMMARY

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350					REMOVE EXISTING GUARDRAIL (LF)	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END				TYPE III		GREU TL-2				EA	G	NG				
–L–	12+59.59	14+25.00	LT	156.25′				12+98.00	VAR.	VAR.		25′		0.5′				1		1									
–L–	13+67.20	14+25.00	RT	56.25′			14+25.00		VAR.	VAR.	25′		0.5′					1		1									
–L–	15+00.00	16+11.22	LT	106.25′			15+79.00		VAR.	VAR.	25′		0.5′					1		1									
–L–	15+00.00	15+59.15	RT	56.25′				15+00.00	VAR.	VAR.		25′		0.5′				1		1									
SUBTOTAL (LF)				375′									TOTAL ANCHORS (EA)					4		4									
LESS ANCHORS (LF)				175′									ANCHOR UNIT LENGTH (LF)					18.75′		25′									
TOTAL (LF)				200′									DEDUCTION PER TYPE (LF)					75′		100′									
SAY (LF)				200′			ADDITIONAL GUARDRAIL POSTS: SAY 5 EA						TOTAL DEDUCTION (LF)		175′															

TGSLTW1014

COMPUTED BY: BJH **DATE:** 6-15-23

CHECKED BY: REL **DATE:** 6-15-23

PROJECT NO.	SHEET NO.
BP1.R017	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)												
		FROM	TO	FT.	FT.	FT.	%	12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC
L 15+79	12 LT	0401		79.9																
		0401	0402		76.7	75.9			16											
L 12+98	12 LT	0403		81.0																
		0403	0404		77.8	77.5			16											
L 13+55	12 LT	0405		81.3																
		0405	0403		78.0	77.8														
SHEET TOTALS									32											
PROJECT TOTALS									32											

LINE & STATION	FROM	TO	R. C. PIPE CLASS III								R. C. PIPE CLASS IV								ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5'	A 5' THRU 10'	B 10' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE			
			12	15	18	24	30	36	42	48	12	15	18	24	30	36	42	48	CY	EACH	LIN. FT.	LIN. FT.		E	F	G	
L 15+79	0401																			1							
	0401	0402																									
L 12+98	0403																			1							
	0403	0404																									
L 13+55	0405																			1							
	0405	0403										52															
SHEET TOTALS												52								3							
PROJECT TOTALS												52								3							

LINE & STATION	FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 15+79	0401																		1						1																						TB 2GI
	0401	0402																																													
L 12+98	0403																		1						1																						TB 2GI
	0403	0404																																													
L 13+55	0405																		1						1																						TB 2GI
	0405	0403																																													
SHEET TOTALS																			3						3																						
PROJECT TOTALS																			3						3																						

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

COMPUTED BY: Tyler C. Bottoms DATE: 4/15/2024
CHECKED BY: Jinyoung Park DATE: 4/15/2024

(2-3-23)

PROJECT NO.	SHEET NO.
SF-650053	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 BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS
Bridge No. 53	EB 1	1
Bridge No. 53	EB 2	1

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP1.R017	4

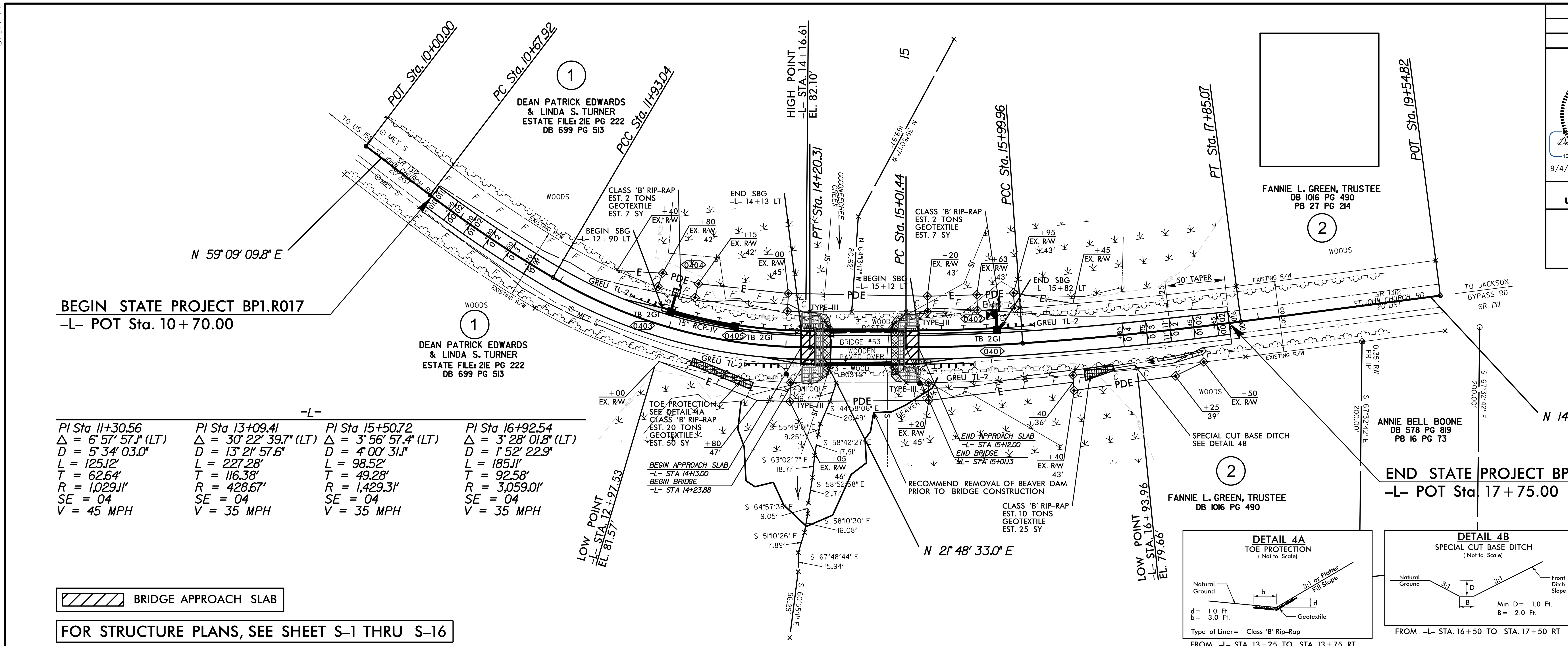
R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 19724 — 9/4/2024

HYDRAULICS ENGINEER — SEAL 044158 — 9/3/2024

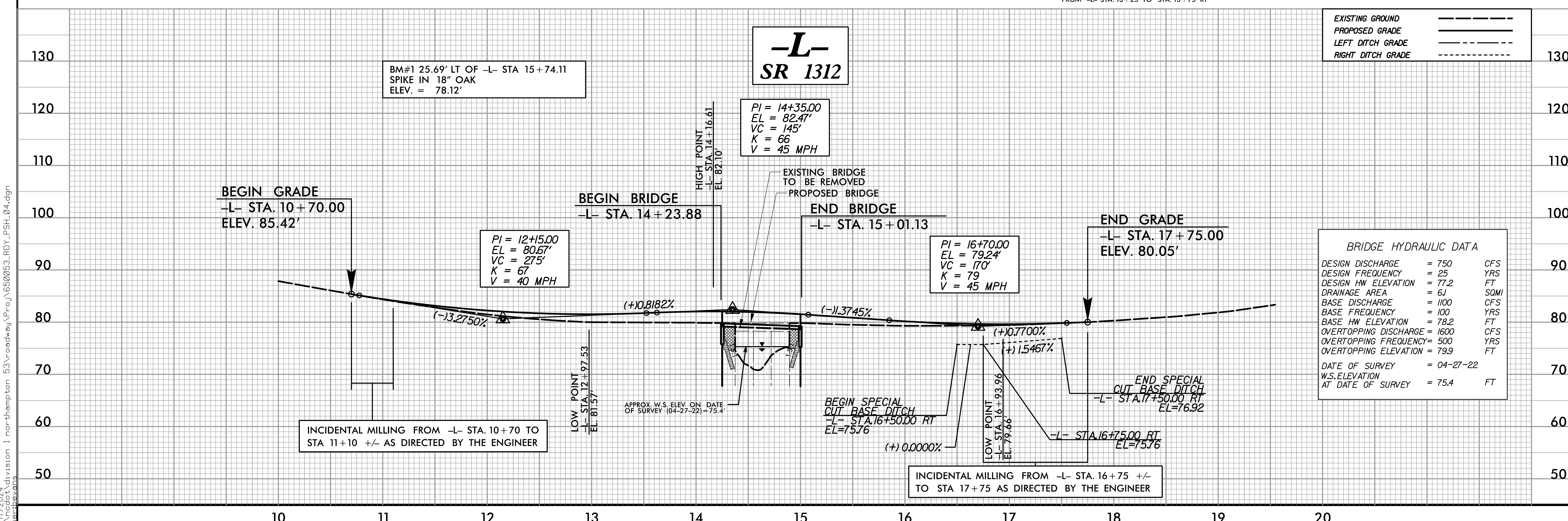
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



-L-

PI Sta 11+30.56	PI Sta 13+09.41	PI Sta 15+50.72	PI Sta 16+92.54
Δ = 6° 57' 57.1" (LT)	Δ = 30° 22' 39.7" (LT)	Δ = 3° 56' 57.4" (LT)	Δ = 3° 28' 01.8" (LT)
D = 5° 34' 03.0"	D = 13° 21' 57.6"	D = 4° 00' 31.1"	D = 1° 52' 22.9"
L = 125.12'	L = 227.28'	L = 98.52'	L = 185.11'
T = 62.64'	T = 116.38'	T = 49.28'	T = 92.58'
R = 1,029.11'	R = 428.67'	R = 1,429.31'	R = 3,059.01'
SE = .04	SE = .04	SE = .04	SE = .04
V = 45 MPH	V = 35 MPH	V = 35 MPH	V = 35 MPH



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 750	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 77.2	FT
DRAINAGE AREA	= 6.1	SQMI
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 78.2	FT
OVERTOPPING DISCHARGE	= 1600	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 79.9	FT
DATE OF SURVEY	= 04-27-22	
W.S. ELEVATION AT DATE OF SURVEY	= 75.4	FT

7/17/2024
x:\ncdot\division 1 northampton 53\roadway\Proj\650053_RDY_PSH_04.dgn

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1-R017	RW01	6

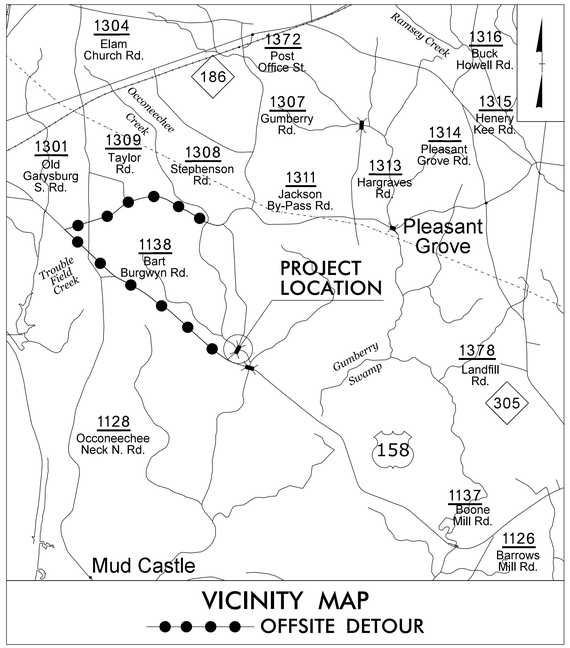
TIP PROJECT: BP1–R017

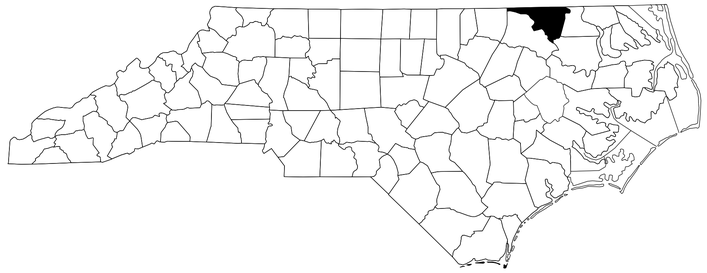
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

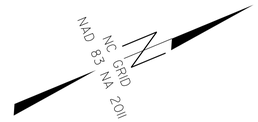
NORTHAMPTON COUNTY

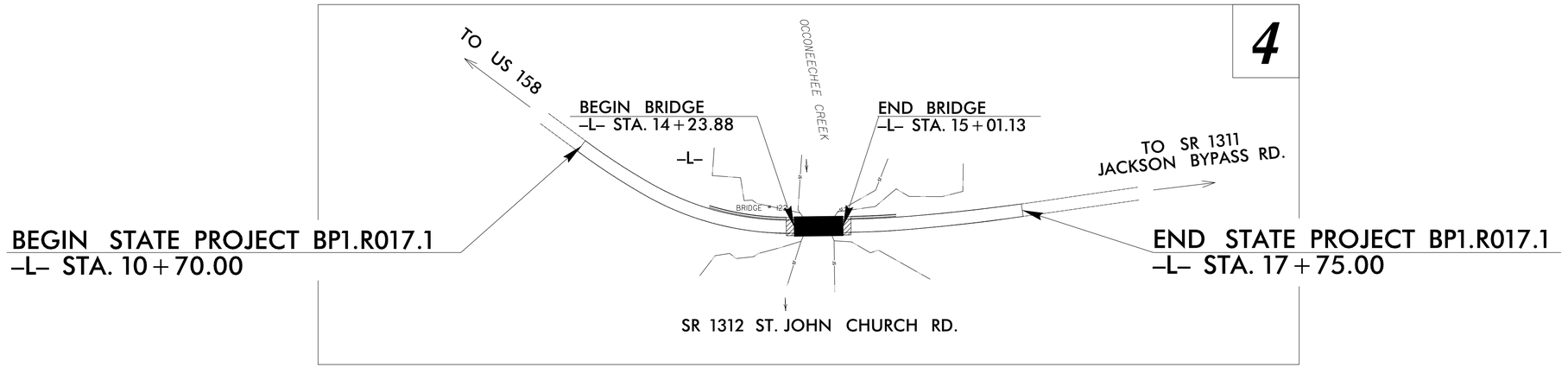
LOCATION: REPLACE BRIDGE NO. 650053 ON SR 1312 OVER OCCONEECHEE CREEK

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING









GRAPHIC SCALE

50 25 0 50 100
PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
JMT FOR MONUMENT "CENTROID"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 972,745.000(ft) EASTING: 2,441,300.000(ft)
ELEVATION: 80.00(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 1.0000794361
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"CENTROID" TO -L- STATION 10+70 IS
S 40°24'53.78" W 377.15(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

Location & Surveys
Division 1
1300 US 64 West
Plymouth, NC 27962

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	*LETTING DATE:*
12/7/2023	*3/19/2026*

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by:
Linwood T. Downs III
SIGNATURE:
03/18/2024
Date:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BPI-R017	RW02C-1

Location and Surveys

Johnson, Mirmiran & Thompson, Inc.
9201 Arboretum Parkway, Suite 310
Richmond, VA 23236

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5205 LAND SURVEYOR MICHAEL W. ZMUDA

DocuSigned by:
Michael W. Zmuda
015CC338971543A...

I, Michael W. Zmuda , PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

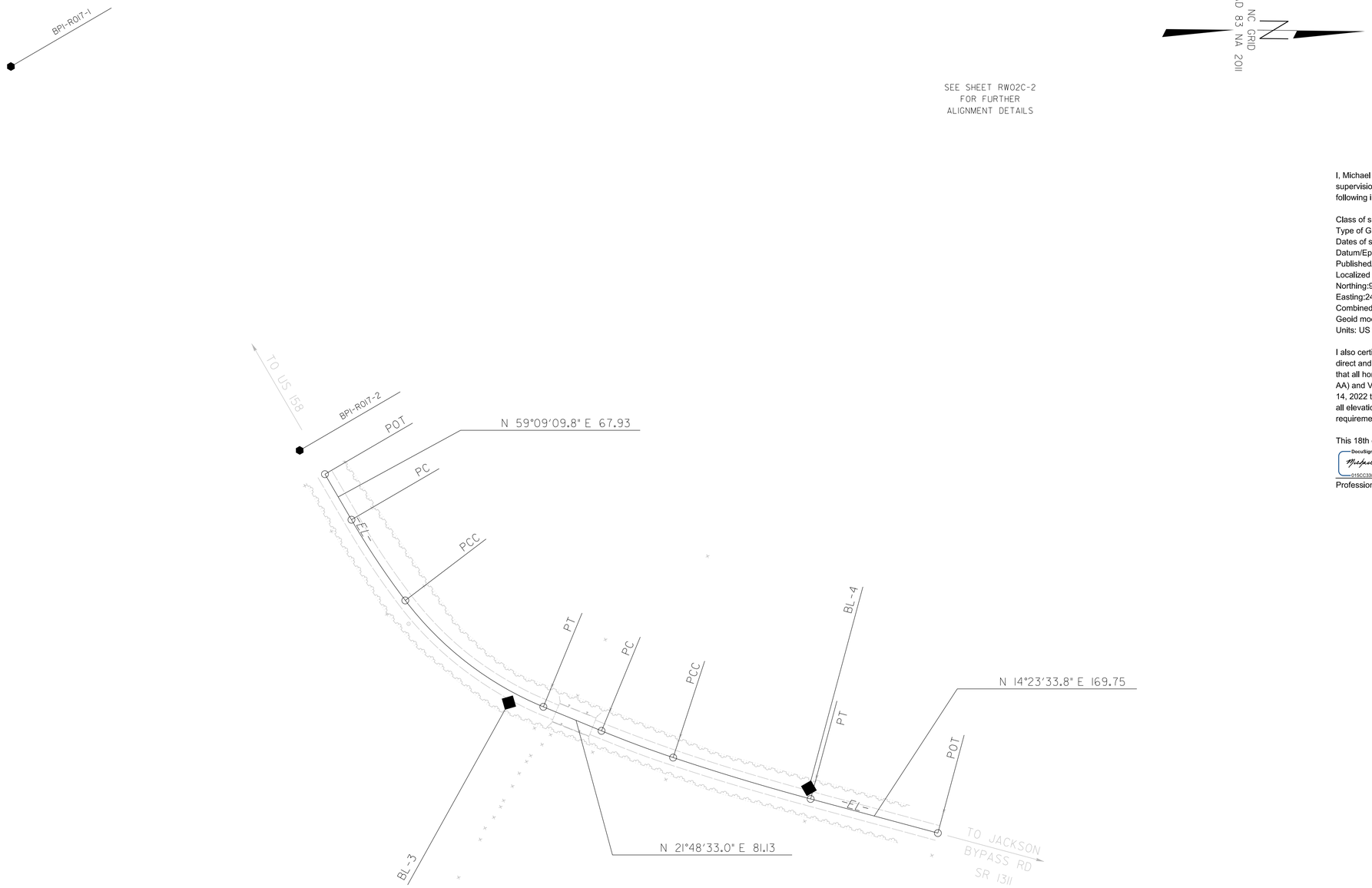
Class of survey: AA
Type of GPS field procedure: RTN
Dates of survey: February 14, 2022
Datum/Epoch: NAD83/2011
Published/Fixed-control use: N/A
Localized around: CENTROID
Northing:972745.000
Easting:2441300.000
Combined grid factor:1.0000794361
Geoid model: 18
Units: US Survey Feet

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 February 14, 2022 to March 11, 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 18th day of March, 2022.

DocuSigned by:
Michael W. Zmuda
015CC338971543A...

Professional Land Surveyor L-5205



NOTES:

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

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/99

25-MAR-2022 07:10
C:\2018\18038894.007\BPIR-con-JMT\Six_B\CADD\Surveys\FIELD\Deliverables\2022-03-25\bpi-017_ls-rw02c-1.dgn
tflemmons AT RVA1910TL

PROJECT REFERENCE NO.	SHEET NO.
BP1-R017	RW02C-2

Location and Surveys

Johnson, Mirmiran & Thompson, Inc.
9201 Arboretum Parkway, Suite 310
Richmond, VA 23236

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5205 LAND SURVEYOR MICHAEL W. ZMUDA

DocuSigned by: Michael W. Zmuda 015CC338971543A...

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

I, Michael W. Zmuda , PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: AA
Type of GPS field procedure: RTN
Dates of survey: February 14, 2022
Datum/Epoch: NAD83/2011
Published/Fixed-control use: N/A
Localized around: CENTROID
Northing:972745.000
Easting:2441300.000
Combined grid factor:1.0000794361
Geoid model: 18
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 February 14, 2022 to March 11, 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 18th day of March, 2022.

DocuSigned by: Michael W. Zmuda 015CC338971543A...

Professional Land Surveyor L-5205

BL

POINT	DESC.	NORTH	EAST	ELEVATION
R0171	BP1-R017-1	972011.5080	2440474.4540	96.96
R0172	BP1-R017-2	972389.0660	2440965.1010	88.31
BL3	BL-3	972662.2280	2441287.2330	79.44
BL4	BL-4	973050.0290	2441393.2740	79.33

****

BM1 ELEVATION = 78.12
N 972858 E 2441323
BL STATION 17+40.00 17 LEFT
8" SPIKE IN 18" OAK

****

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	972421.950	2440995.382							
LINE			N 59°09'09.8" E	67.93					
PC	972456.780	2441053.701							
CURVE			N 55°40'11.3" E	125.04	06°57'57.1"(LT)	05°34'03.0"	125.12	62.64	1029.11
PCC	972527.298	2441156.959							
CURVE			N 36°59'52.9" E	224.62	30°22'39.7"(LT)	13°21'57.6"	227.28	116.38	428.67
PT	972706.695	2441292.135							
LINE			N 21°48'33.0" E	81.13					
PC	972782.015	2441322.275							
CURVE			N 19°50'04.3" E	98.50	03°56'57.4"(LT)	04°00'31.1"	98.52	49.28	1429.31
PCC	972874.671	2441355.696							
CURVE			N 16°07'34.7" E	185.08	03°28'01.8"(LT)	01°52'22.9"	185.11	92.58	3059.01
PT	973052.471	2441407.104							
LINE			N 14°23'33.8" E	169.75					
POT	973216.896	2441449.299							

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.

REVISIONS

6/2/99

18-MAR-2022 09:31
C:\2018\18038999_007_(BP1R-con-JMT)_Six_B\CADD\Surveys\FIELD\Bridge 53\DGN\bp1_r017_ls_rw02c-2.dgn
tflemmons AT RVA19107L

PROPOSED ALIGNMENT CONTROL SHEET

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
BP1-R017	RW02D-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 1
1300 US 64 WEST
PLYMOUTH, NC 27962

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by:
Linwood T. Downs III
8A592110243248...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Linwood T. Downs III, 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 18th day of March, 2024.

DocuSigned by:
Linwood T. Downs III
8A592110243248...
Professional Land Surveyor L-5327

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	972421.954	2440995.389							
LINE			N 59°09'09.8" E	67.92					
PC	972456.780	2441053.701							
CURVE			N 55°40'11.3" E	125.04	06°57'57.1"(LT)	05°34'03.0"	125.12	62.64	1029.11
PCC	972527.298	2441156.959							
CURVE			N 36°59'52.9" E	224.62	30°22'39.7"(LT)	13°21'57.6"	227.28	116.38	428.67
PT	972706.695	2441292.135							
LINE			N 21°48'33.0" E	81.13					
PC	972782.015	2441322.275							
CURVE			N 19°50'04.3" E	98.50	03°56'57.4"(LT)	04°00'31.1"	98.52	49.28	1429.31
PCC	972874.671	2441355.696							
CURVE			N 16°07'34.7" E	185.08	03°28'01.8"(LT)	01°52'22.9"	185.11	92.58	3059.01
PT	973052.471	2441407.104							
LINE			N 14°23'33.8" E	169.75					
POT	973216.896	2441449.299							

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.

PROJECT REFERENCE NO.	SHEET NO.
BP1-R017	RW03E-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 1
1300 US 64 WEST
PLYMOUTH, NC 27962

PROJECT SURVEYOR

SEAL L-5327 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by:
Linwood T. Downs III
8A59211D2432489...

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

RIGHT OF WAY CONTROL SHEET

I , Linwood T. Downs III, 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 ON January 8, 2024, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 12th day of January, 2024.

DocuSigned by:
Linwood T. Downs III
8A59211D2432489...
Professional Land Surveyor L-5327

SEAL L-5327 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR LINWOOD T. DOWNS III

ROW MARKER PERMANENT EASEMENT-E

	ALIGN	STATION	OFFSET	NORTH	EAST
	L	12+80.00	-30.00	972606.7021	2441197.0107
	L	12+80.00	-42.00	972614.5056	2441187.8945
	L	13+15.00	-42.00	972639.3005	2441207.4232
	L	13+15.00	-30.00	972632.2666	2441217.1455
	L	14+00.00	-30.00	972700.4735	2441256.8505
*	L	14+00.00	-45.00	972706.6996	2441243.2037
*	L	14+05.00	46.00	972673.9779	2441328.2629
	L	14+05.00	30.00	972680.4489	2441313.6298
*	L	15+20.00	-43.00	972814.7462	2441288.9315
*	L	15+20.00	-30.00	972810.0736	2441301.0627
	L	15+20.00	30.00	972788.5079	2441357.0530
	L	15+20.00	45.00	972783.1164	2441371.0506
	L	15+63.00	-43.00	972853.8851	2441303.3343
	L	15+63.00	-30.00	972849.5795	2441315.6006
	L	15+95.00	-43.00	972883.2833	2441313.2851
	L	15+95.00	-30.00	972879.2534	2441325.6447
	L	16+40.00	30.00	972904.0356	2441396.3986
	L	16+40.00	43.00	972900.2109	2441408.8233
	L	17+25.00	39.00	972984.0028	2441429.1804
	L	17+50.00	30.00	973010.7629	2441427.1630

*=MONUMENT NOT SET DUE TO INACCESSIBILITY

REVISIONS

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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED ON JANUARY 8, 2024.

PROJECT REFERENCE NO.	SHEET NO.
BP1-R017	RW04

Location and Surveys

LOCATION & SURVEYS
DIVISION 1
1300 US 64 WEST
PLYMOUTH, NC 27962

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by: Linwood T. Downs III
BA592110243248...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

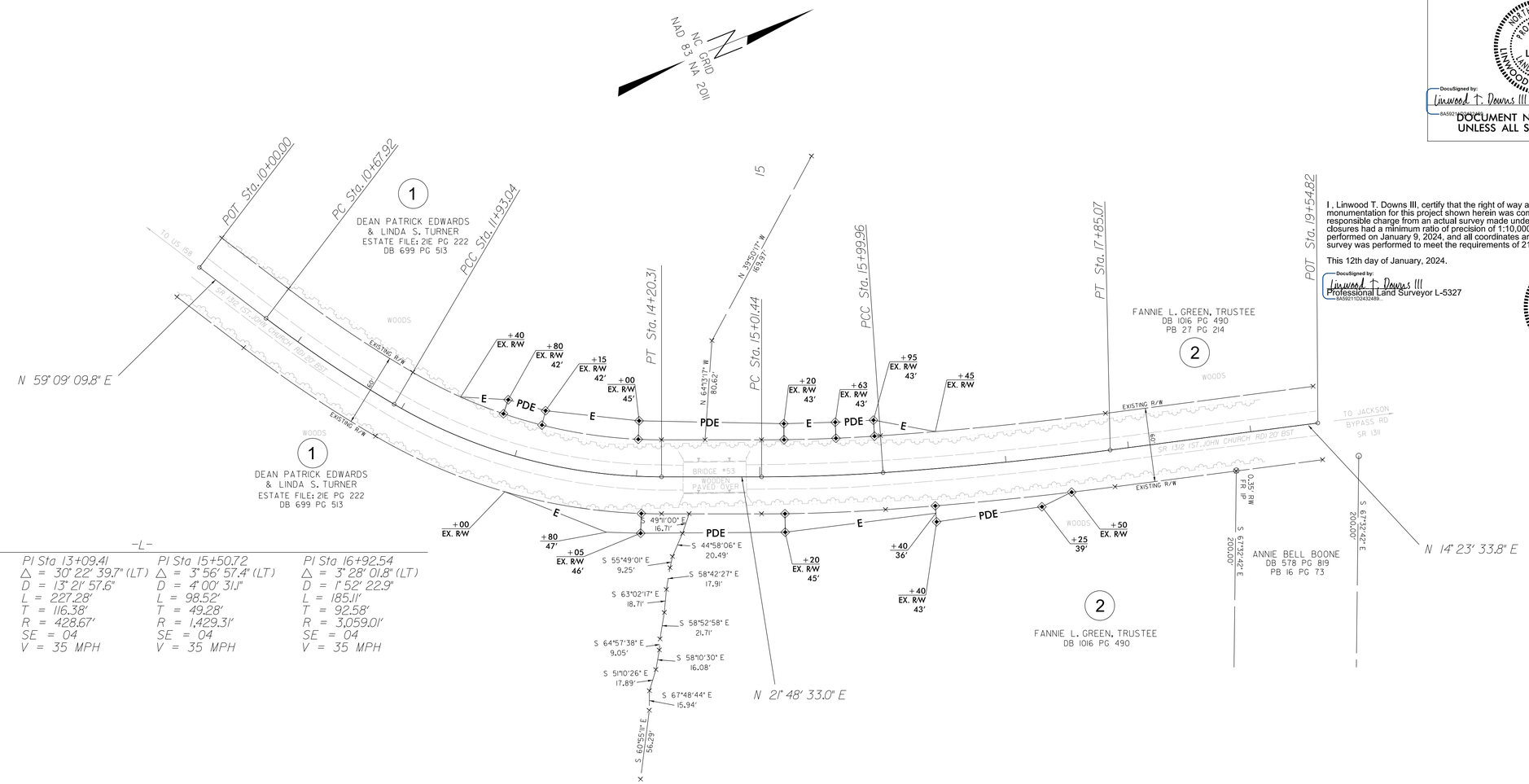
I, Linwood T. Downs III, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A); Field work was performed on January 9, 2024, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 12th day of January, 2024.

DocuSigned by: Linwood T. Downs III
Professional Land Surveyor L-5327
BA592110243248...

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

REVISIONS



-L-

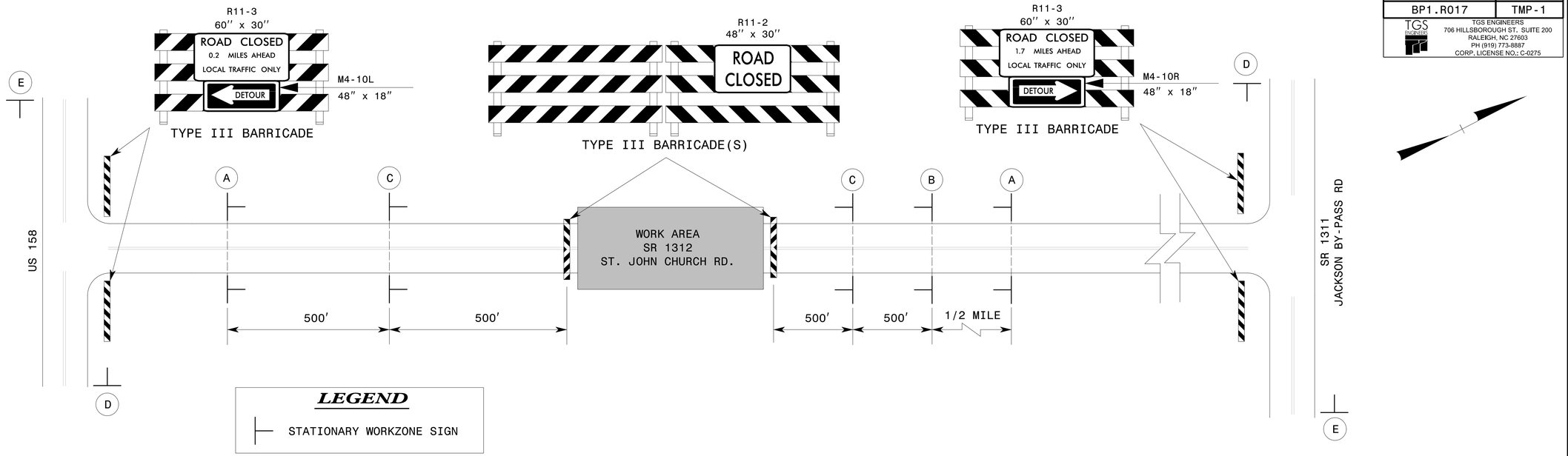
PI Sta 11+30.56	PI Sta 13+09.41	PI Sta 15+50.72	PI Sta 16+92.54
△ = 6° 57' 57.1" (LT)	△ = 30° 22' 39.7" (LT)	△ = 3° 56' 57.4" (LT)	△ = 3° 28' 01.8" (LT)
D = 5° 34' 03.0"	D = 13° 21' 57.6"	D = 4° 00' 31.1"	D = 1° 52' 22.9"
L = 125.12'	L = 227.28'	L = 98.52'	L = 185.11'
T = 62.64'	T = 116.38'	T = 49.28'	T = 92.58'
R = 1,029.11'	R = 428.67'	R = 1,429.31'	R = 3,059.01'
SE = 04	SE = 04	SE = 04	SE = 04
V = 45 MPH	V = 35 MPH	V = 35 MPH	V = 35 MPH

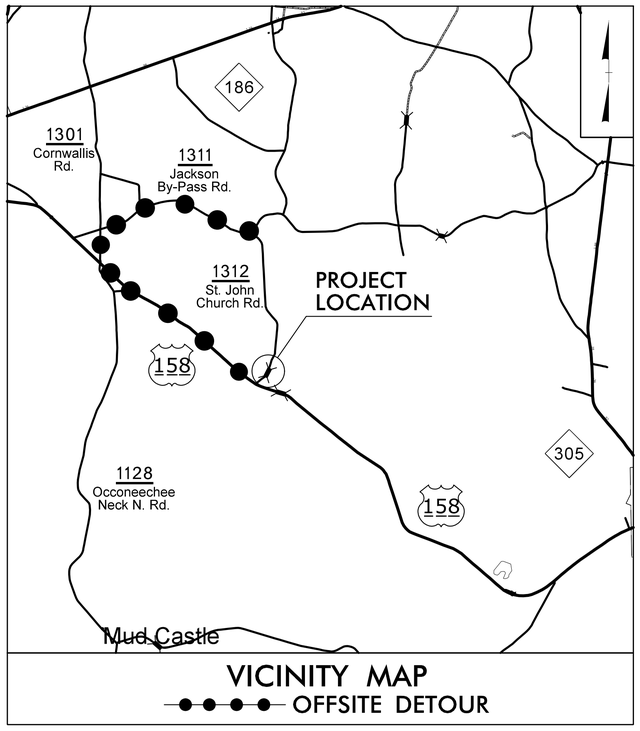
NOTES:

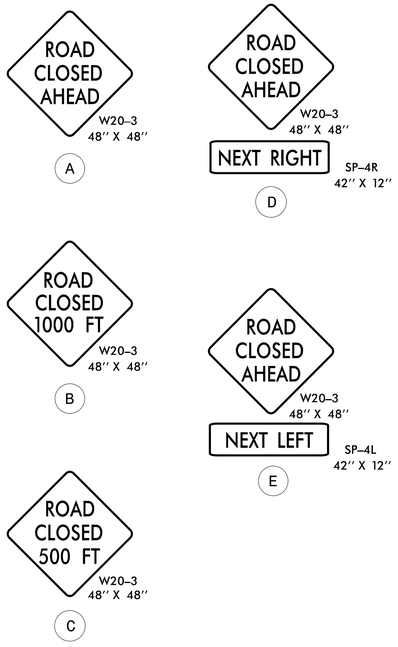
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED ON JANUARY 9, 2024.

PROJ. REFERENCE NO.	SHEET NO.
BP1.R017	TMP-1

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275







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 AT LEAST ONE MONTH PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWING AND TRAFFIC CONTROL PLANS.

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

D) INSTALLATION OF DETOUR ROUTING PANELS, TEMPORARY ROUTE MARKERS, DESTINATION SIGNS, AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY OTHERS (STATE OR CITY FORCES) UNLESS OTHERWISE DESIGNATED IN THE PLANS. PROVIDE A MINIMUM 30 CALENDAR DAY NOTICE TO STATE FORCES BEFORE A ROADWAY IS CLOSED TO TRAFFIC SUCH THAT THE NECESSARY PROVISIONS CAN BE MADE TO INSTALL DETOUR ROUTE SIGNS, INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS, OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.

E) INSTALL SIGNS BEFORE THE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL/REMOVE SIGNS AND BARRICADES WITHIN THE SAME CALENDAR DAY.

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS

H) INSTALL THERMOPLASTIC ON THE FINAL SURFACE.

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

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

APPROVED: Signed by: Don A. Parker 75DB9E90ADEF440...

DATE: 10/24/2024

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

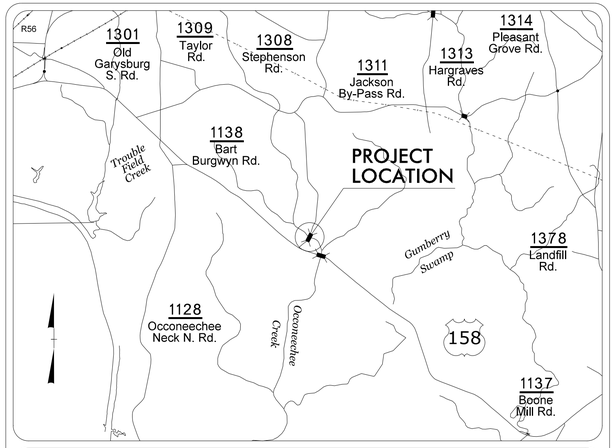
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

10/24/2024
X:\NCDOT\Division 1\Northampton 53\Traffic\TrafficControl\TCP\650053_TC_TMP-1.dgn
User:rcbrannon

TIP PROJECT: BP1.R017



VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
NORTHAMPTON COUNTY

LOCATION: REPLACE BRIDGE NO. 650053 ON SR 1312 OVER OCCONEECHEE CREEK

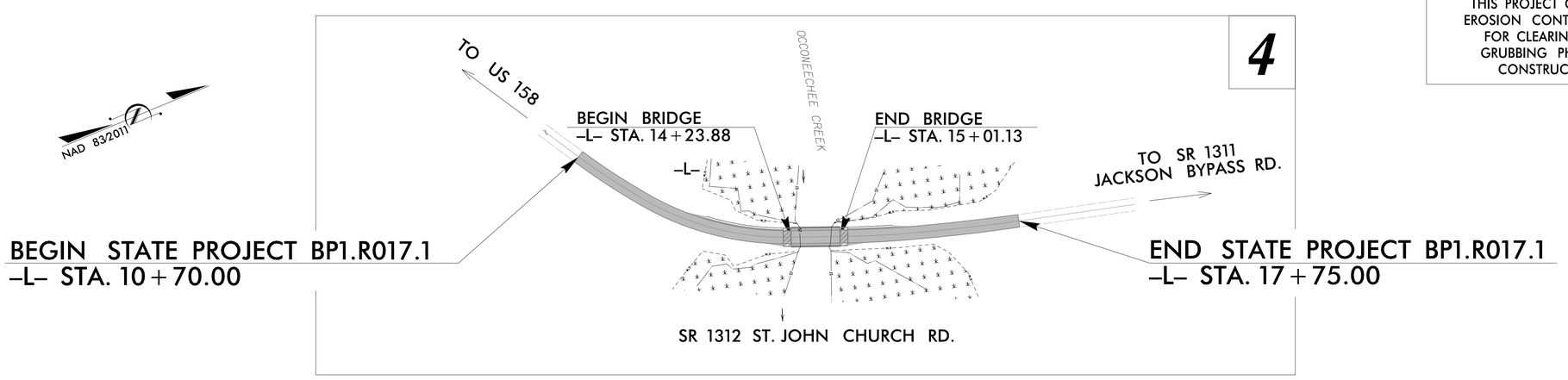
TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE, AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1.R017	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

EROSION AND SEDIMENT CONTROL MEASURES

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



GRAPHIC SCALE

50 25 0 50 100
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

TGS ENGINEERS

Prepared in the Office of:

TGS ENGINEERS
706 HILLSBOROUGH ST. - SUITE 200
RALEIGH, NC 27603

Designed by:

Ben Henegar, PE — *3564*
NAME — *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

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

PROJECT REFERENCE NO.	SHEET NO.
BP1.R017	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

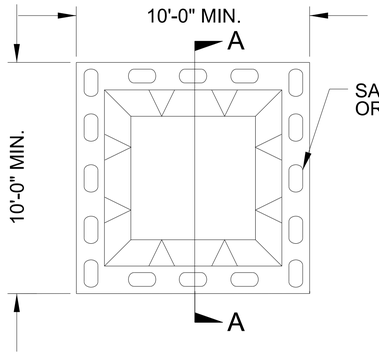
EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

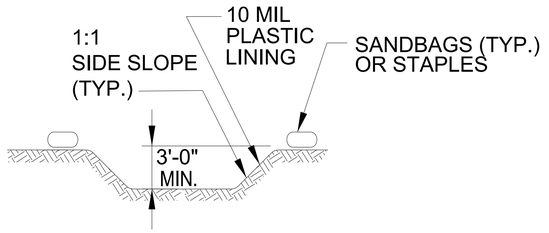
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet Sediment Trap Type A	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	EW EW EW
1636.03	Coir Fiber Wattle Barrier	CFW CFW CFW

PROJECT REFERENCE NO.	SHEET NO.
BPI.R017	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A

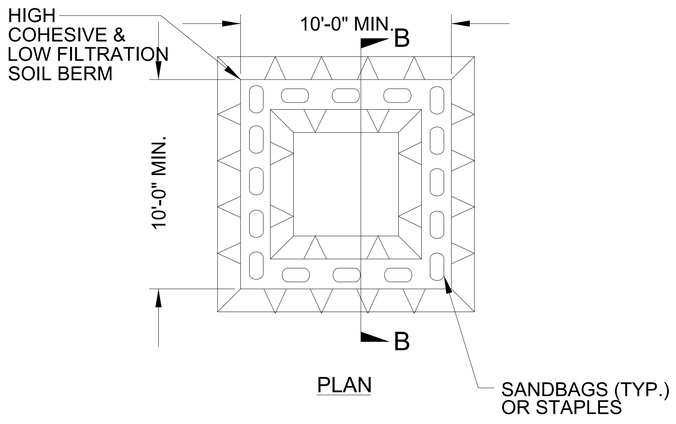
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

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.

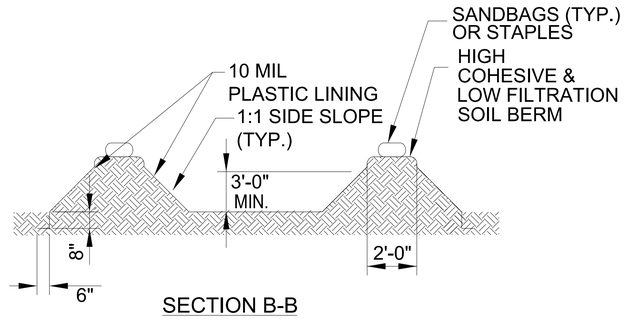
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



PLAN



SECTION B-B

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.

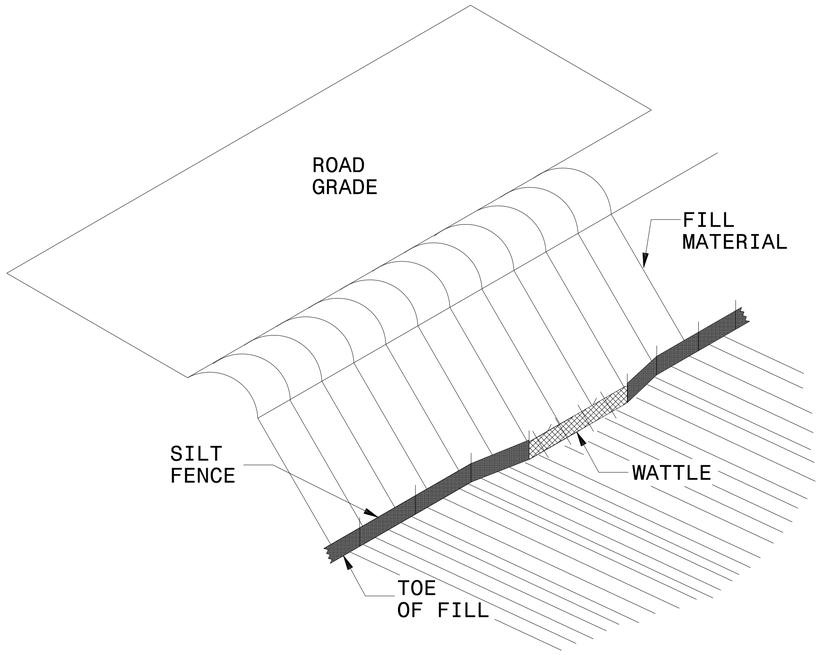
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

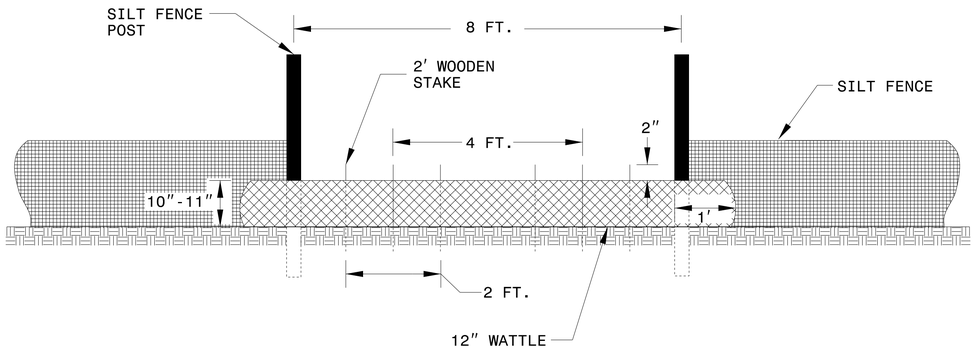
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
BPI.R017	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

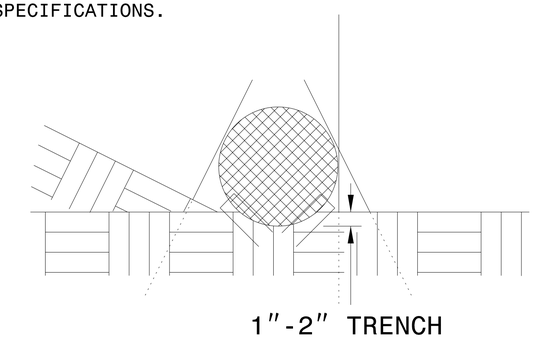
PROVIDE STAPLES MADE OF 11 GUAGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6" IN LENGTH.

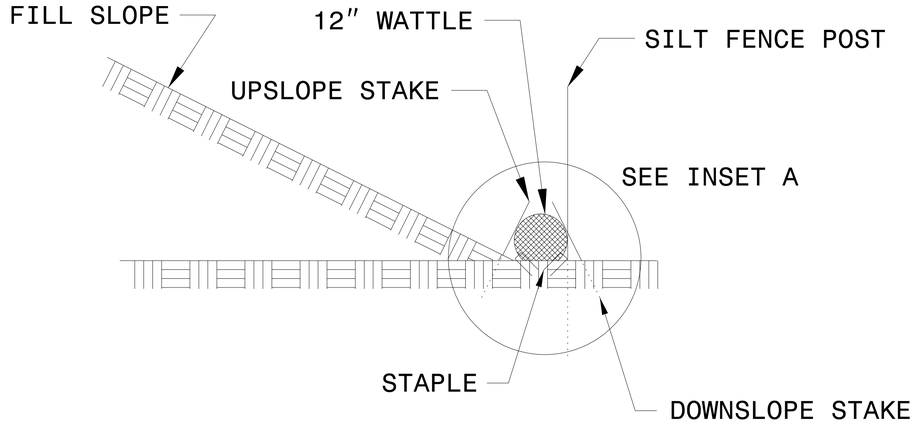
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
BPI.R017	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE & TYPE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	–L– DITCH	11+75	12+25	RT	35
4	–L– SLOPE	13+00	14+13	LT	215
4	–L– SLOPE	13+25	14+13	RT	200
4	–L– SLOPE	15+12	15+80	LT	120
4	–L– SLOPE	15+12	15+80	RT	185
4	–L– DITCH	16+50	17+50	RT	70
				SUBTOTAL	825
				MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER	175
				TOTAL	1,000
				SAY	1,000

Northampton County
Bridge# 650053

PROJECT REFERENCE NO.	SHEET NO.
BP1.R017	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

MATTING WITH NYLON MESH IS NOT ALLOWED WITHIN 25 FT OF THE TOP OF THE STREAM BANK OR WATERS EDGE

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

NAD 83/2011

BEGIN STATE PROJECT BP1.R017
–L– POT Sta. 10+70.00

END STATE PROJECT BP1.R017
–L– POT Sta. 17+75.00

N 59° 09' 09.8" E

N 21° 48' 33.0" E

N 14° 23' 33.8" E

POT Sta. 10+00.00

PC Sta. 10+67.92

PI Sta. 11+93.04

PC Sta. 14+20.31

POT Sta. 15+01.44

PCC Sta. 15+99.96

PI Sta. 17+85.07

POT Sta. 19+54.82

DEAN PATRICK EDWARDS & LINDA S. TURNER
ESTATE FILE: 21E PG 222
DB 699 PG 513

FANNIE L. GREEN, TRUSTEE
DB 1016 PG 490
PB 27 PG 214

ANNIE BELL BOONE
DB 578 PG 819
PB 16 PG 73

FANNIE L. GREEN, TRUSTEE
DB 1016 PG 490

FLOATING TURBIDITY CURTAIN

CLASS 'B' RIP-RAP
EST. 2 TONS
GEOTEXTILE
EST. 7 SY

BEGIN SBG
–L– 12+90 LT

END SBG
–L– 14+13 LT

BEGIN SBG
–L– 15+12 LT

END SBG
–L– 15+82 LT

TOE PROTECTION
SEE DETAIL 4A
CLASS 'B' RIP-RAP
EST. 20 TONS
GEOTEXTILE
EST. 50 SY

BEGIN APPROACH SLAB
–L– STA 14+13.00
BEGIN BRIDGE
–L– STA 14+23.88

END APPROACH SLAB
–L– STA 15+12.00
END BRIDGE
–L– STA 15+00.3

RECOMMEND REMOVAL OF BEAVER DAM PRIOR TO BRIDGE CONSTRUCTION

COIR FIBER WATTLE BARRIER

CLASS 'B' RIP-RAP
EST. 10 TONS
GEOTEXTILE
EST. 25 SY

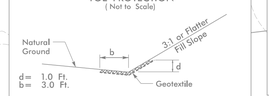
SPECIAL CUT BASE DITCH
SEE DETAIL 4B

50' TAPER

TO JACKSON BYPASS RD SR 1314

PI Sta 11+30.56	PI Sta 13+09.41	PI Sta 15+50.72	PI Sta 16+92.54
Δ = 6° 57' 57.1" (LT)	Δ = 30° 22' 39.7" (LT)	Δ = 3° 56' 57.4" (LT)	Δ = 3° 28' 01.8" (LT)
D = 5° 34' 03.0"	D = 13° 21' 57.6"	D = 4° 00' 31.1"	D = 1° 52' 22.9"
L = 125.12'	L = 227.28'	L = 98.52'	L = 185.11'
T = 62.64'	T = 116.38'	T = 49.28'	T = 92.58'
R = 1,029.11'	R = 428.67'	R = 1,429.31'	R = 3,059.01'
SE = 04	SE = 04	SE = 04	SE = 04
V = 45 MPH	V = 35 MPH	V = 35 MPH	V = 35 MPH

DETAIL 4A
TOE PROTECTION
(Not to Scale)



Type of Liner = Class 'B' Rip-Rap

FROM –L– STA. 13+25 TO STA. 13+75 RT

DETAIL 4B
SPECIAL CUT BASE DITCH
(Not to Scale)

FROM –L– STA. 16+50 TO STA. 17+50 RT

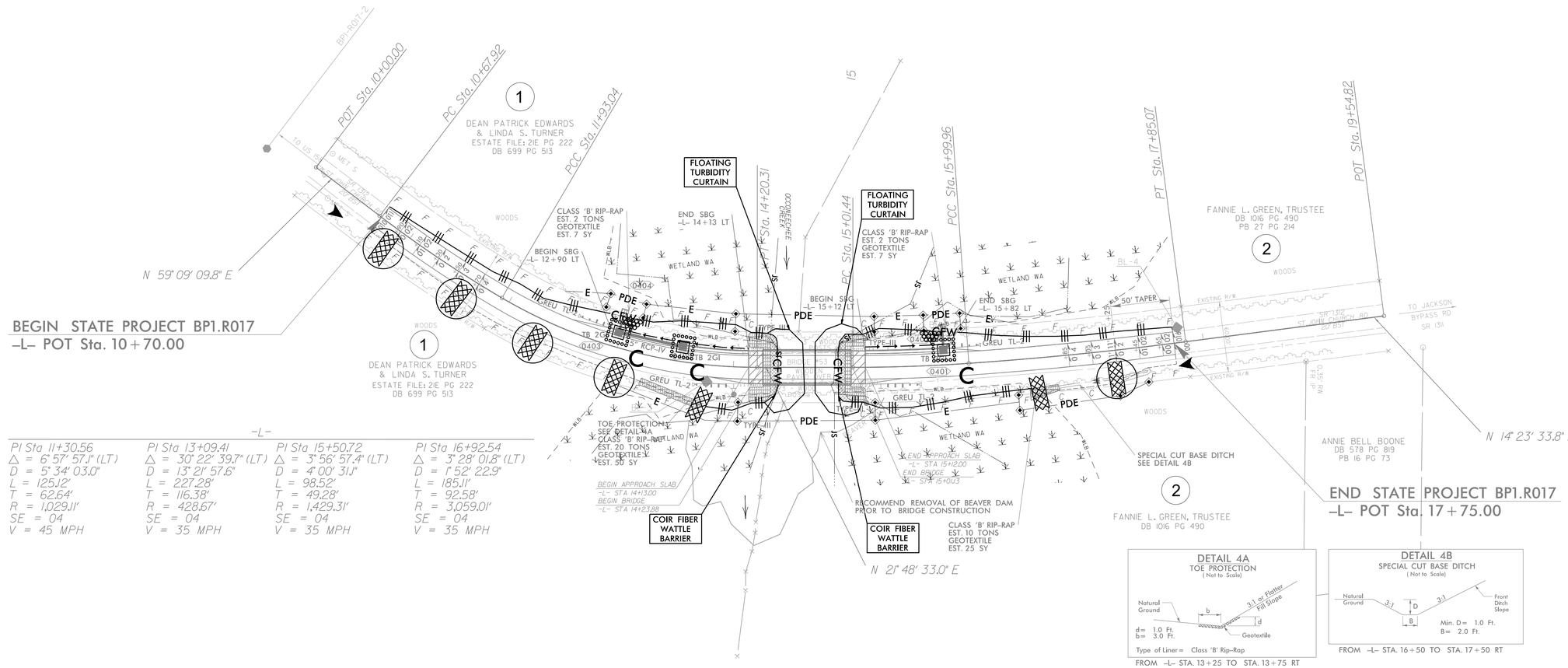
MATTING WITH NYLON MESH IS NOT ALLOWED WITHIN 25 FT OF THE TOP OF THE STREAM BANK OR WATERS EDGE

Northampton County
Bridge# 650053

PROJECT REFERENCE NO.	SHEET NO.
BP1.R017	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

NAD 83/2011



DETAIL 4A
TOE PROTECTION
(Not to Scale)

d= 1.0 Ft.
b= 3.0 Ft.
Type of Liner = Class 'B' Rip-Rap
FROM -L- STA. 13+25 TO STA. 13+75 RT

DETAIL 4B
SPECIAL CUT BASE DITCH
(Not to Scale)

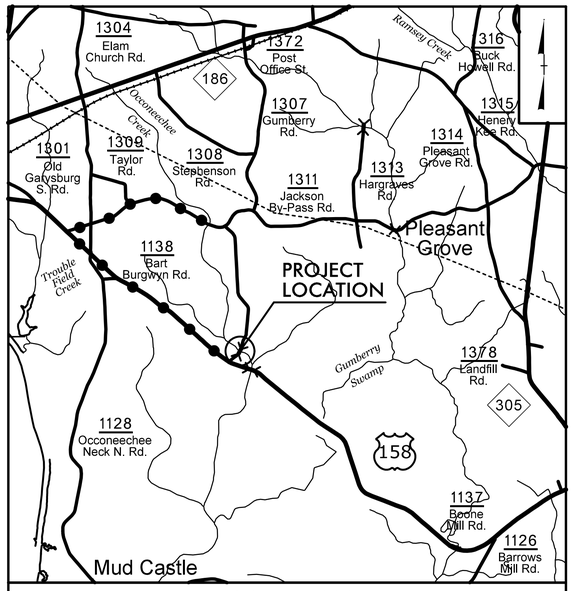
Min. D = 1.0 Ft.
B = 2.0 Ft.
FROM -L- STA. 16+50 TO STA. 17+50 RT

09/08/99

PROJECT: BP1.R017

CONTRACT:

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
NORTHAMPTON COUNTY

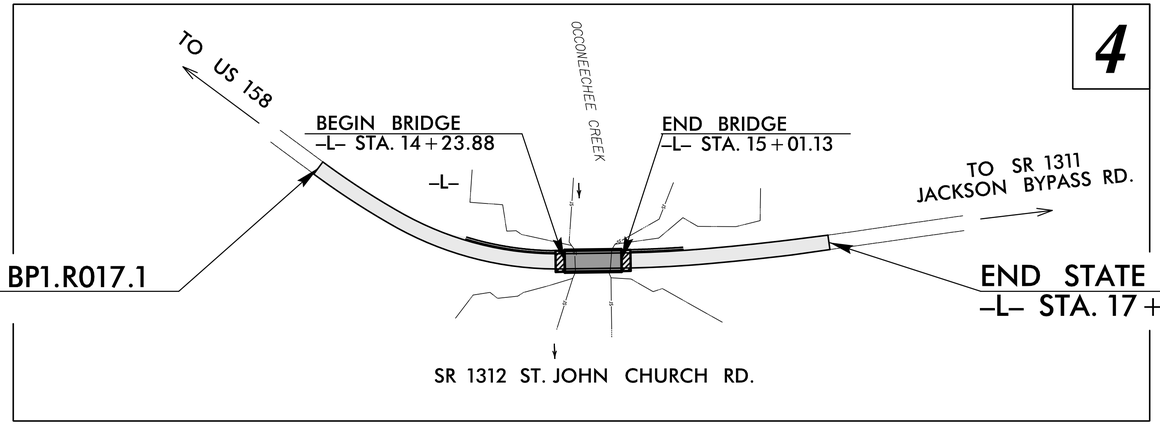
T.I.P. NO.	SHEET NO.
BP1.R017	UO–1

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

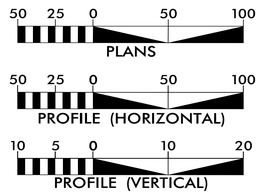
NAD 83/2011

LOCATION: REPLACE BRIDGE NO. 650053 ON SR 1312 OVER OCCONEECHEE CREEK

TYPE OF WORK: TELECOM RELOCATIONS



GRAPHIC SCALES



INDEX OF SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) TELECOM – BRIGHTSPEED

Prepared For:
DIVISION OF HIGHWAYS
113 Airport Drive, Suite 100, Edenton NC, 27932

By:

TGS ENGINEERS
TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603
PH (919) 733–8887
CORP. LICENSE NO.: C–0275

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

DANIEL MERRITT *DIVISION UTILITIES COORDINATOR*

9/4/2024
X:\NCDOT\Division 1\Northampton 53\Utilities\Coordination\650053_UT_PSH_01.dgn
User:bevans

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BPI.R017	U0-2
R/W SHEET NO.	

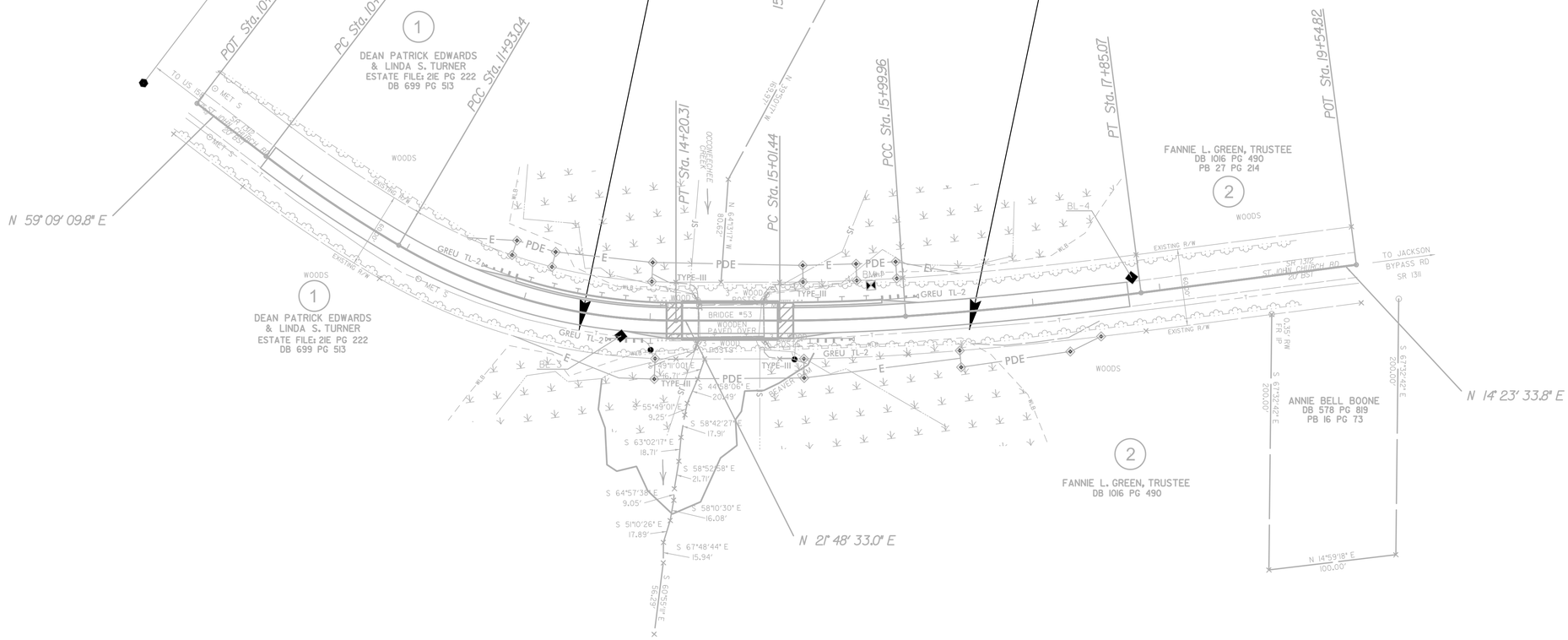
UTILITIES BY OTHERS

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

NAD 83/2011

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

BRIGHTSPEED - EXISTING LINE TO BE DROPPED DURING CONSTRUCTION.



1
DEAN PATRICK EDWARDS
& LINDA S. TURNER
ESTATE FILE: 21E PG 222
DB 699 PG 513
2
FANNIE L. GREEN, TRUSTEE
DB 1016 PG 490

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJ. REFERENCE NO.	SHEET NO.
BP1.R017	X-1

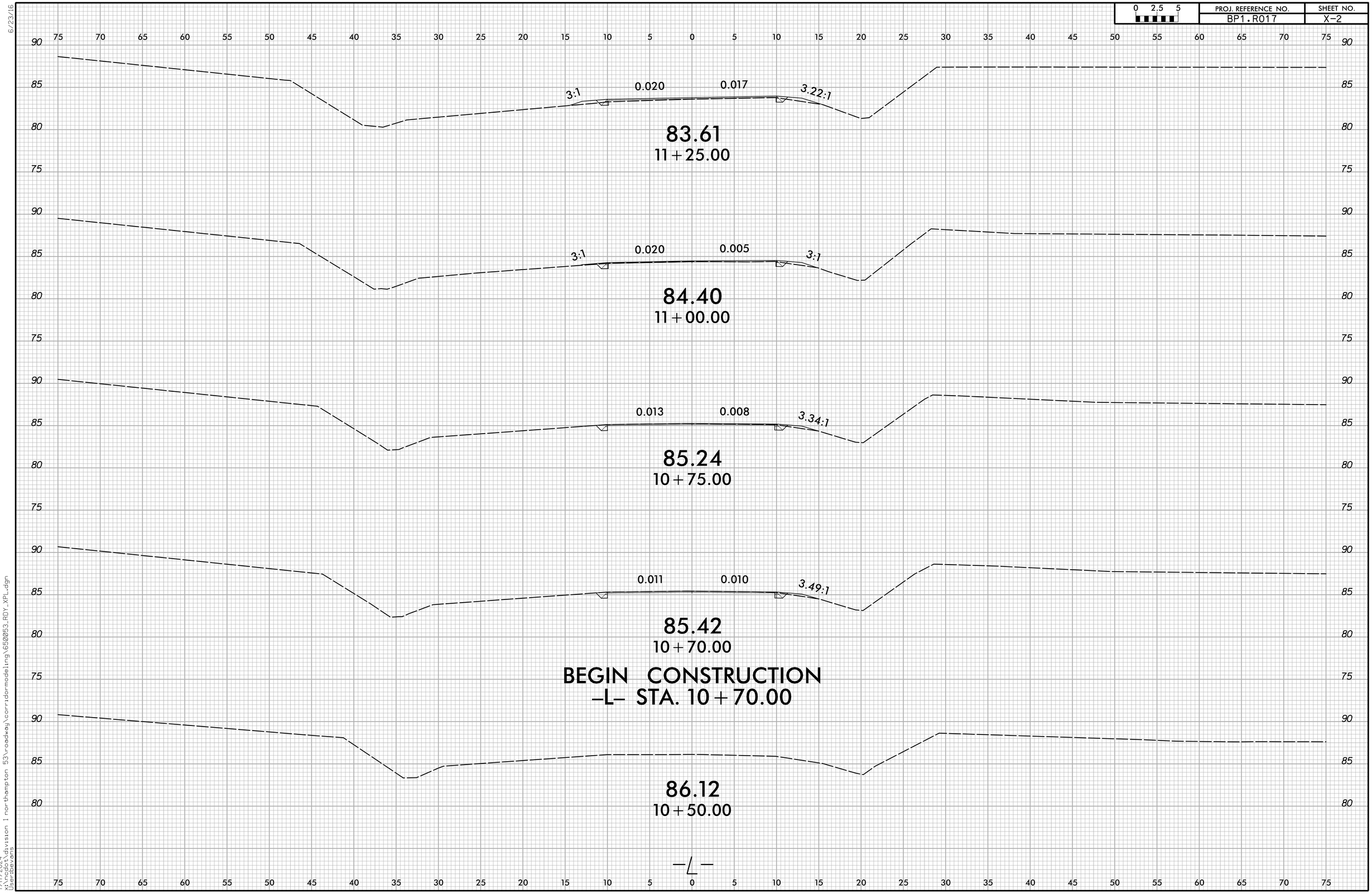
CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+70.00	0	0
10+75.00	0	0
11+00.00	1	1
11+25.00	1	1
11+50.00	1	2
11+75.00	0	5
12+00.00	0	9
12+25.00	0	10
12+50.00	0	13
12+75.00	0	20
13+00.00	0	27
13+25.00	0	36
13+50.00	0	54
13+75.00	0	90
14+00.00	0	126
14+23.88	0	141

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+01.13	0	0
15+25.00	0	119
15+50.00	0	106
15+75.00	0	76
16+00.00	0	48
16+25.00	0	33
16+50.00	0	21
16+75.00	2	14
17+00.00	4	9
17+25.00	5	6
17+50.00	3	4
17+75.00	1	1

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP1.R017	X-2



0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP1.R017	X-3

6/23/16

7/17/2024
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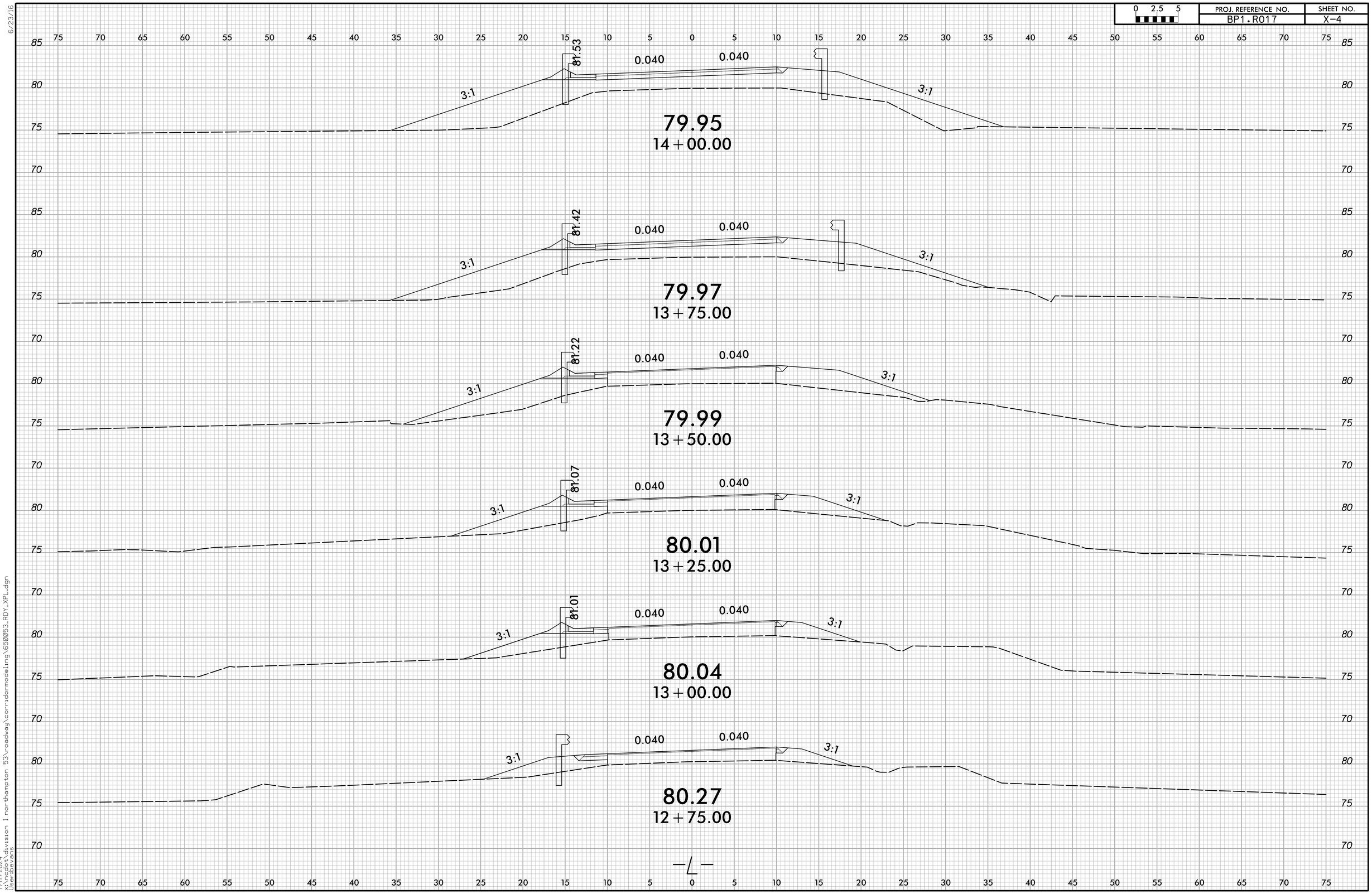
User:bevans

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP1.R017	X-4



7/17/2024
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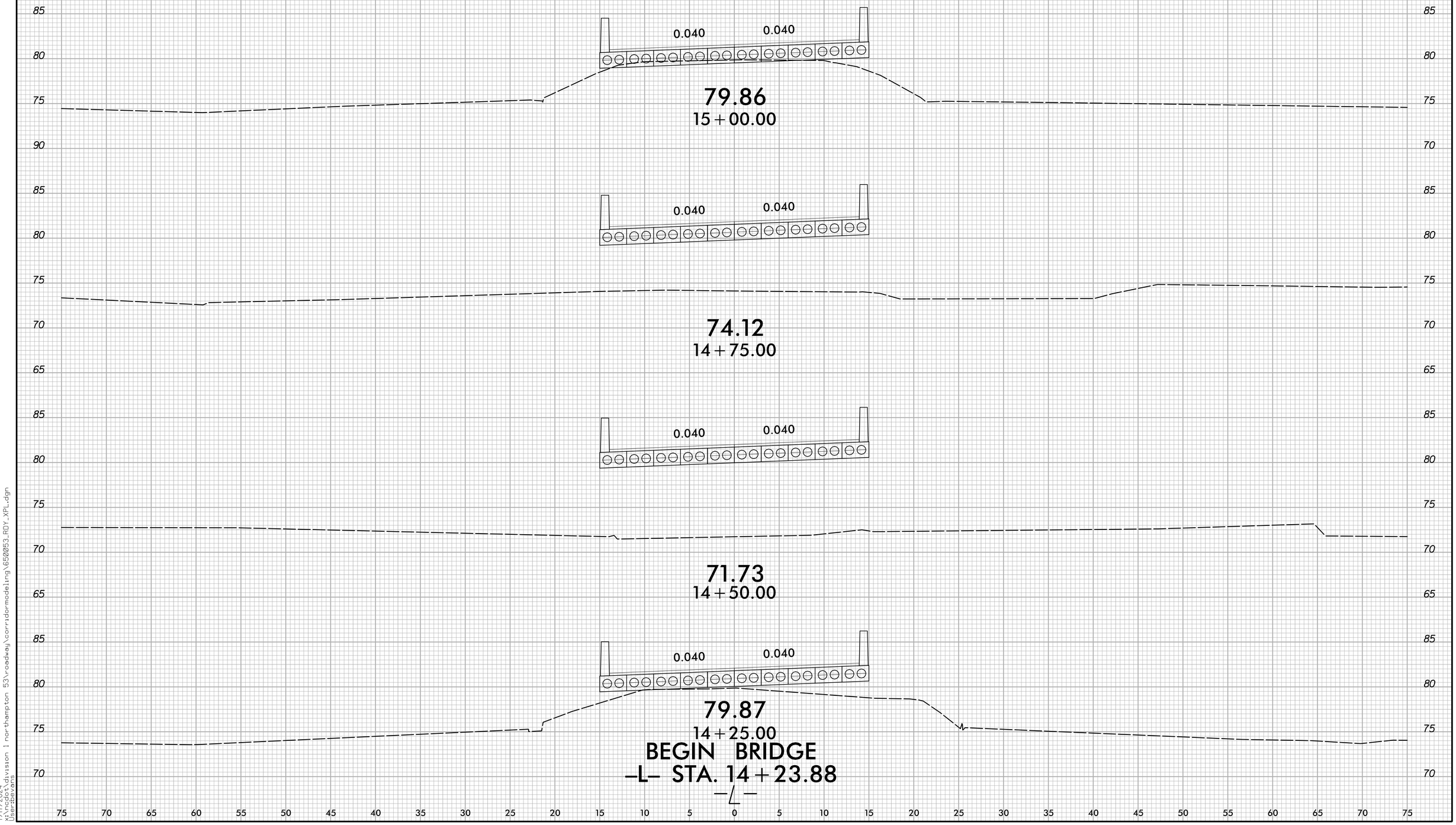
User:bevans

END BRIDGE
–L– STA. 15+01.13



6/23/16

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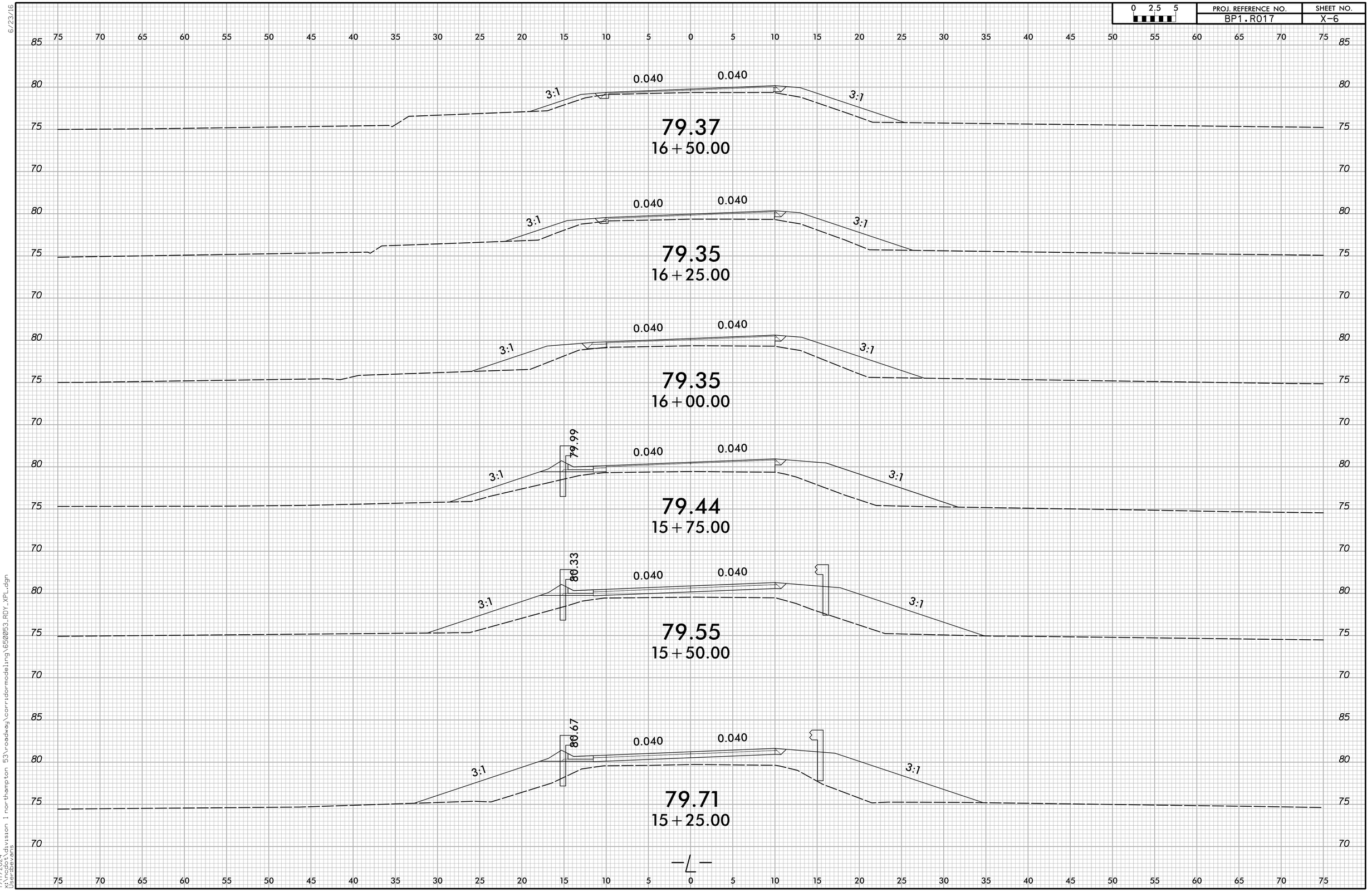
	BP1.R017	X-6



7/17/2024
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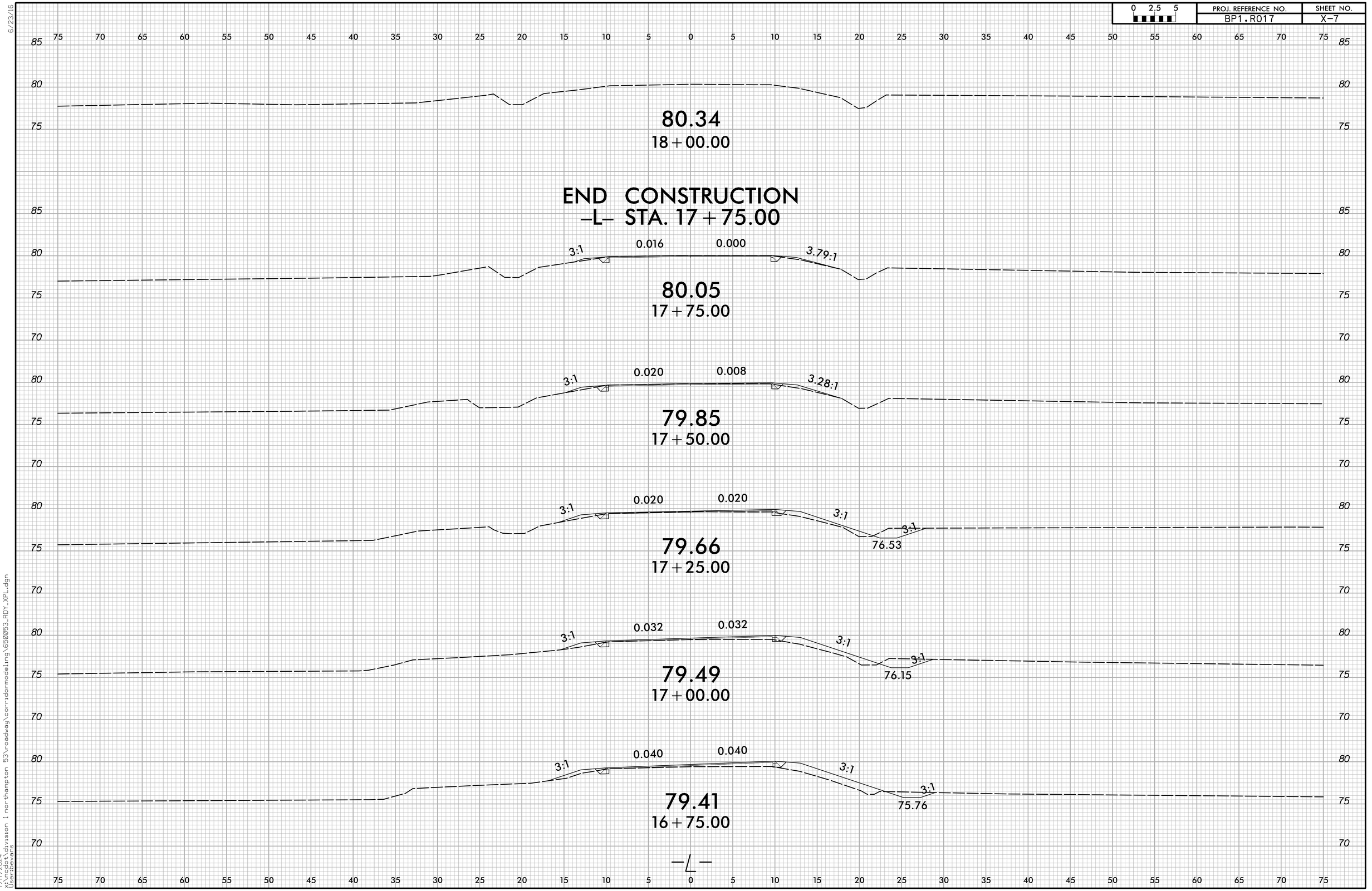
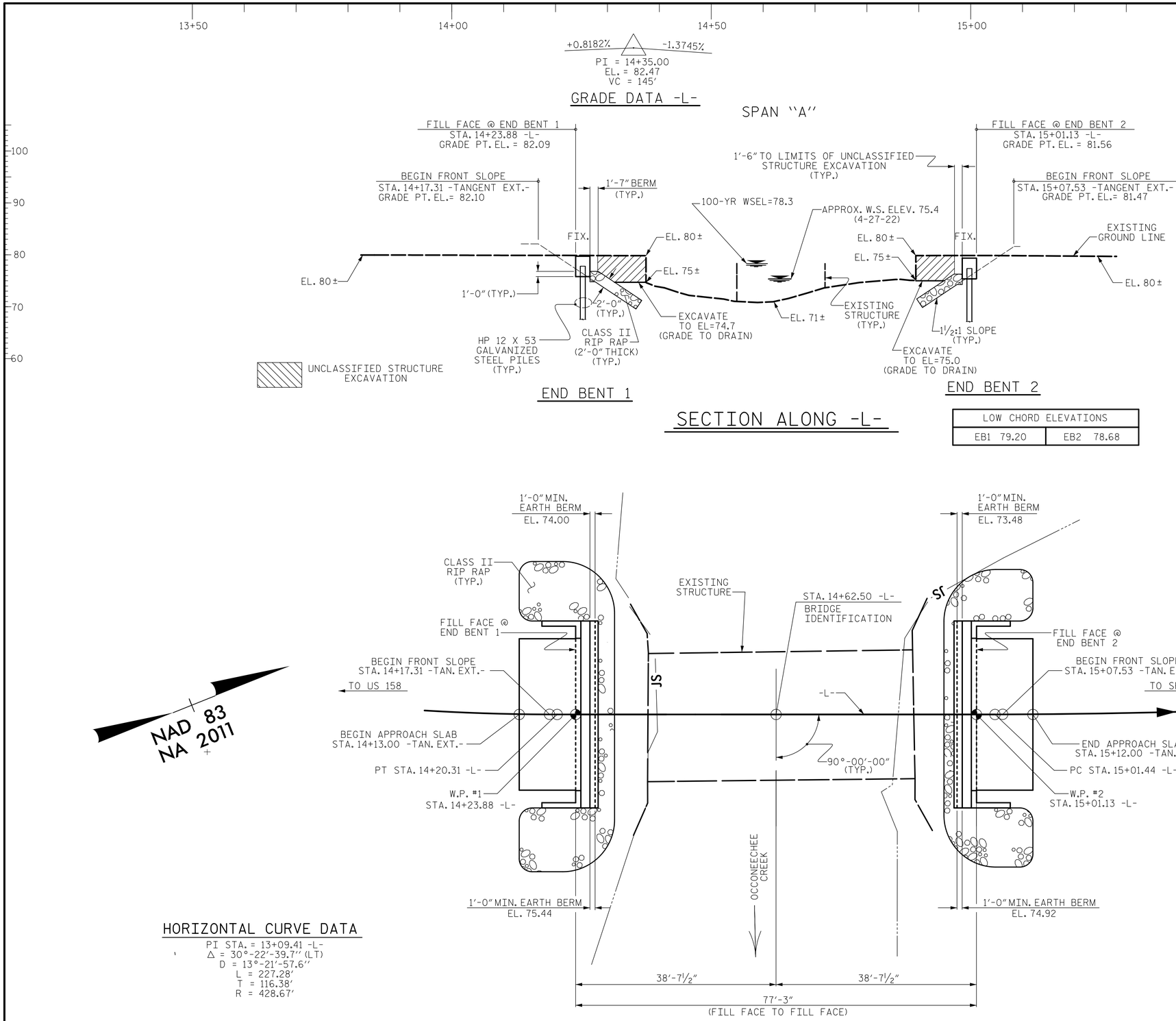
User:bevans

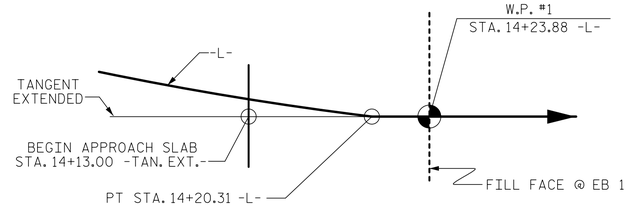
0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BP1.R017	X-7





LOW CHORD ELEVATIONS	
EB1 79.20	EB2 78.68

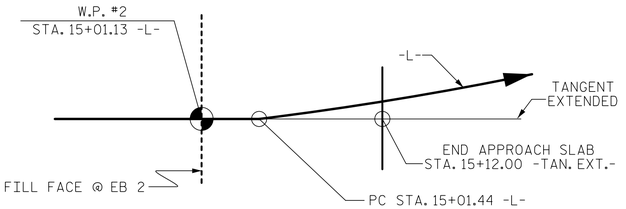


WORKPOINT #1 DETAIL

THE CONTRACTOR SHALL USE THE TANGENT EXTENDED @ END BENT 1 FOR THE LAYOUT OF THE FOLLOWING.

1. LAYOUT OF APPROACH SLAB AT END BENT 1
2. COMPUTATIONS OF APPROACH SLAB ELEVATIONS

IN ADDITION, THE CONTRACTOR SHALL ASSUME THAT ALL STATIONING OCCURS ALONG THE TANGENT EXTENDED.



WORKPOINT #2 DETAIL

THE CONTRACTOR SHALL USE THE TANGENT EXTENDED @ END BENT 2 FOR THE LAYOUT OF THE FOLLOWING.

1. LAYOUT OF APPROACH SLAB AT END BENT 2
2. COMPUTATIONS OF APPROACH SLAB ELEVATIONS

IN ADDITION, THE CONTRACTOR SHALL ASSUME THAT ALL STATIONING OCCURS ALONG THE TANGENT EXTENDED.

HORIZONTAL CURVE DATA

PI STA. = 13+09.41 -L-
Δ = 30°-22'-39.7'' (LT)
D = 13°-21'-57.6''
L = 227.28'
T = 116.38'
R = 428.67'

HORIZONTAL CURVE DATA

PI STA. = 15+50.72 -L-
Δ = 3°-56'-57.4'' (LT)
D = 4°-00'-31.1''
L = 98.52'
T = 49.28'
R = 1,429.31'

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. BP1.R017

NORTHAMPTON COUNTY

STATION: 14+62.50 -L-

SHEET 1 OF 5 REPLACES BRIDGE NO. 650053

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
Marshall G. Cheek, Jr.
5FBCC2F3A4DC413...
9/27/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
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CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR
BRIDGE OVER OCCONEECHEE CREEK ON SR 1312
BETWEEN US 158 AND SR 1311

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			16

DRAWN BY : S. B. WILLIAMS DATE : 4-23
CHECKED BY : M. G. CHEEK DATE : 4-23

9/27/2024
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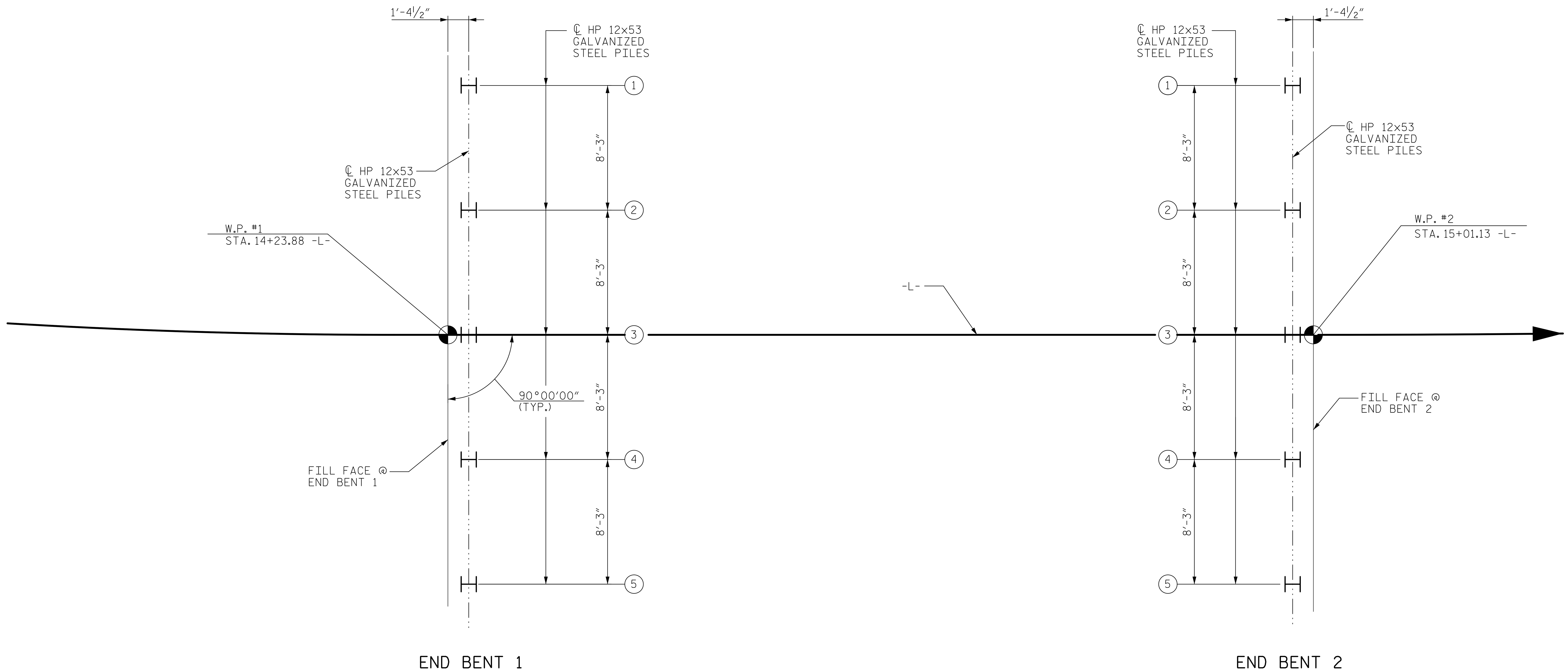
User:ZSmith



FOUNDATION LAYOUT PLAN

ALL END BENT PILES ARE HP12x53 GALVANIZED STEEL PILES. DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES. ORIENT PILES AS SHOWN.

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

OBSERVE A 1 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT, END BENT AND REINFORCED BRIDGE APPROACH FILL, IF APPLICABLE, BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENT No. 1 AND END BENT No. 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 35000 FT-LBS TO 55000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT No. 1 AND END BENT No. 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

PROJECT NO. BP1.R017
NORTHAMPTON COUNTY
STATION: 14+62.50 -L-

SHEET 2 OF 5

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20125
Marshall G. Cheek, Jr.
9/27/2024

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CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR
BRIDGE OVER OCCONEECHEE CREEK ON SR 1312
BETWEEN US 158 AND SR 1311

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			16

DRAWN BY :	ZCS	DATE :	6/23
CHECKED BY :	MGC	DATE :	4/24

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 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 1-5	100	SEE END BENT SHEETS	90			170	5						
End Bent 2, Piles 1-5	100		90			170							

✳ 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.

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

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 1-5	100			0.60			
End Bent 2, Piles 1-5	100			0.60			

✳ Factored Dead Load is factored weight of pile above the groundline.

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Yinhui Liu, 034020) on 04/15/2024.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, ie., the number of piles with a Required Driving Resistance.
3. The Engineer will determine the need for dynamic pile testing when DPTs may be required.

SUMMARY OF DPT / PILE ORDER LENGTHS

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

Dynamic Pile Testing (DPT)				Pile Order Lengths	
End Bent/ Bent No.	DPT Required? YES or MAYBE	DPT Pile Length FT	Total DPT Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis ✳ EST or DPT
End Bent 1	MAYBE	95	1		
End Bent 2	MAYBE	95			

✳ EST = Pile Order Lengths from estimated pile lengths: DPT = Pile order lengths based on dynamic pile testing. For groups of end bents/bents with pile order lengths based on DPT, the first end bent/bent no. listed for each group is the representive end bent/bent with the DPT.

PROJECT NO. BP1.R017

NORTHAMPTON COUNTY

STATION: 14+62.50 -L-

SHEET 3 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARGARET G. CREECH, JR.

DocuSigned by: Margaret G. Creech, Jr. SFBCC3...

9/4/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
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PH (919) 773-8887
CORP. LICENSE NO.: C-0275

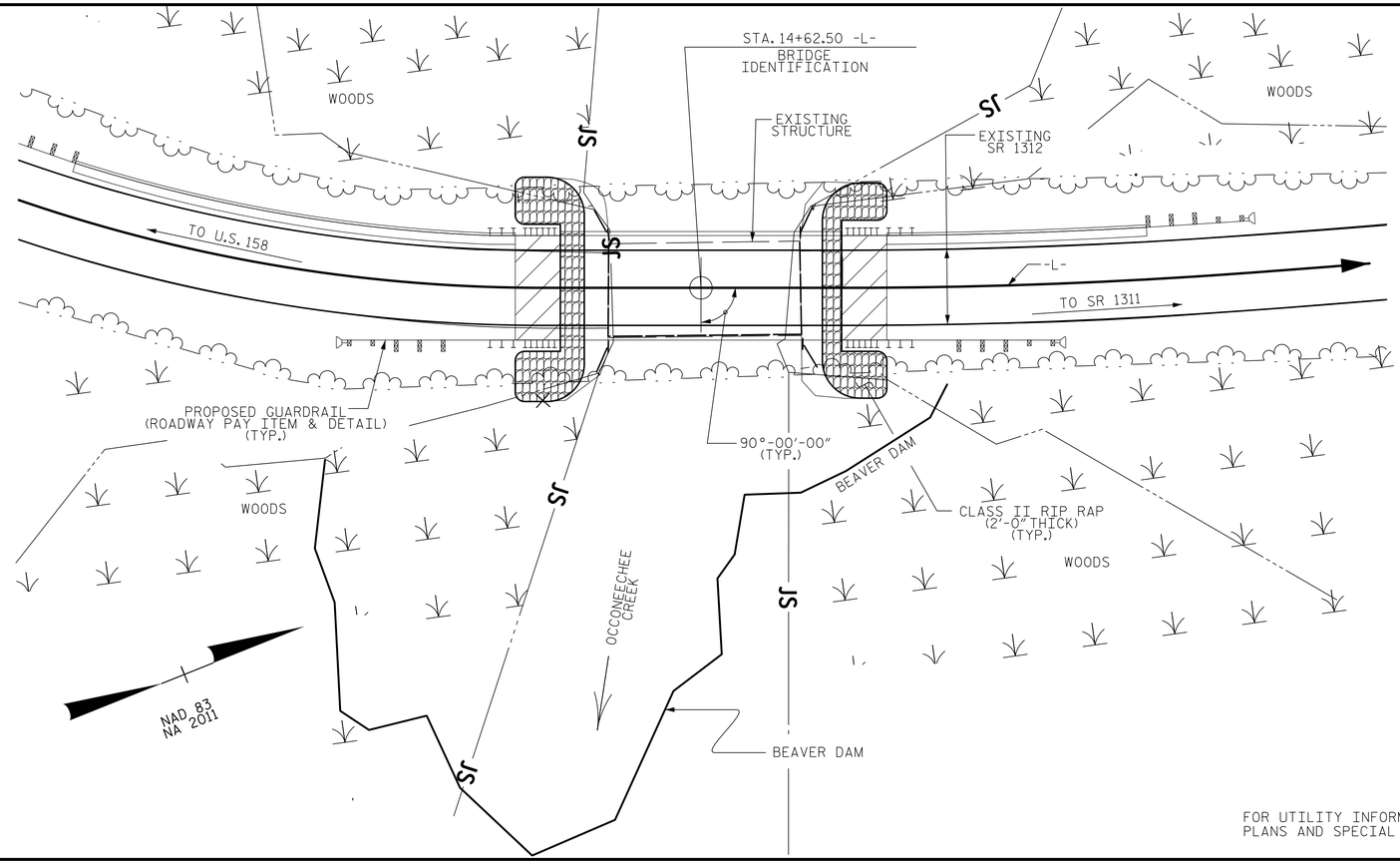
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			16

DRAWN BY :	ZCS	DATE :	4/24
CHECKED BY :	MGC	DATE :	4/24

BENCHMARK BM1: 8" SPIKE IN 18" OAK TREE; STA. 15+74.11 -L- ; 25.69' LT.; EL. 78.12



LOCATION SKETCH

FOR UTILITY INFORMATION SEE UTILITY PLANS AND SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 750 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YRS
DESIGN HIGH WATER ELEVATION	= 77.2'
DRAINAGE AREA	= 6.1 SQ. MI.
BASIC DISCHARGE	= 1100 CFS
FREQUENCY OF BASIC DISCHARGE	= 100 YRS.
BASIC HIGH WATER ELEVATION	= 78.2'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1600 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500 YRS
OVERTOPPING FLOOD ELEVATION	= 79.9'

* OVERTOPPING OCCURS AT 17+32.00 -L-, RIGHT EDGE OF PAVEMENT W.S. EL. TAKEN AT RIVER STATION 58890

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.

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR THE DISTANCE OF 30 FT. EACH SIDE OF THE CENTERLINE OF THE BRIDGE AT END BENT 1 & END BENT 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING THREE SPAN STRUCTURE (1 @ 17'-6", 1 @ 17'-0", AND 1 @ 17'-6") WITH A SUPERSTRUCTURE CONSISTING OF A TIMBER DECK ON TIMBER BEAMS WITH A 4½" ASPHALT WEARING SURFACE AND A CLEAR ROADWAY WIDTH OF 24'-7" AND A SUBSTRUCTURE CONSISTING OF TIMBER POST AND SILL ABUTMENTS AND TIMBER POST AND BEAM BENTS, AND LOCATED AT THE SITE OF THE PROPOSED BRIDGE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THIS LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

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

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

DRAWN BY : ZCS DATE : 6/23
CHECKED BY : MGC DATE : 7/23

5/20/2024
X:\NCDOT\Division 1 Northampton 53\Structures\Final plans\DGNs\401_007_BP1.R017.1_SMU_GD04_650053.dgn
User:ZSmith

PROJECT NO. BP1.R017
NORTHAMPTON COUNTY
STATION: 14+62.50 -L-

SHEET 4 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARY G. CHECK, JR.
Docusigned by: Mary G. Check, Jr. SFBCC2...
9/4/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
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SUITE 200
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PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR
BRIDGE OVER OCCONEECHEE CREEK ON SR 1312 BETWEEN US 158 AND SR 1311

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			16

TOTAL BILL OF MATERIAL

ITEM	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS "A" CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 x 53 GALVANIZED STEEL PILES	HP 12x53 GALVANIZED STEEL PILES		PILE REDRIVES	DYNAMIC PILE TESTING	VERTICAL CONCRETE BARRIER RAIL	RIP RAP, CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	C.Y.	LUMP SUM	LBS.	EA.	NO.	LIN. FT.	EA.	EA.	LIN. FT.	TONS	S.Y.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE											150.00				10	750.00
END BENT 1		LUMP SUM	19.3		2458	5	5	450				120	135			
END BENT 2		LUMP SUM	19.3		2458	5	5	450				105	115			
TOTALS	LUMP SUM	LUMP SUM	38.6	LUMP SUM	4916	10	10	900	5	1	150.00	225	250	LUMP SUM	10	750.00

PROJECT NO. BP1.R017

NORTHAMPTON COUNTY

STATION: 14+62.50 -L-

SHEET 5 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Signed by: Marshall G. Cheek, Jr.

5FBCC2F3A4DC413...

9/27/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR
BRIDGE OVER OCCONEECHEE CREEK ON SR 1312
BETWEEN US 158 AND SR 1311

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			16

DRAWN BY : ZCS DATE : 6/23
CHECKED BY : MGC DATE : 7/23

8/26/21

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	1.05	--	1.75	0.280	1.05	75'	EL	37.00	0.51	2.17	75'	EL	7.00	0.80	0.28	1.37	75'	EL	37.00	
		HL-93 (OPERATING)	N/A		1.36	--	1.35	0.280	1.36	75'	EL	37.00	0.51	2.88	75'	EL	7.00	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.38	49.680	1.75	0.280	1.38	75'	EL	37.00	0.51	2.79	75'	EL	7.00	0.80	0.28	1.80	75'	EL	37.00	
		HS-20 (OPERATING)	36.000		1.79	64.440	1.35	0.280	1.79	75'	EL	37.00	0.51	3.68	75'	EL	7.00	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.91	52.785	1.4	0.280	3.91	75'	EL	37.00	0.51	8.76	75'	EL	7.00	0.80	0.28	4.09	75'	EL	37.00	
		SNGARBS2	20.000		2.90	58.000	1.4	0.280	2.90	75'	EL	37.00	0.51	6.16	75'	EL	7.00	0.80	0.28	3.04	75'	EL	37.00	
		SNAGRIS2	22.000		2.75	60.500	1.4	0.280	2.75	75'	EL	37.00	0.51	5.70	75'	EL	7.00	0.80	0.28	2.88	75'	EL	37.00	
		SNCOTTS3	27.250		1.94	52.865	1.4	0.280	1.94	75'	EL	37.00	0.51	4.25	75'	EL	7.00	0.80	0.28	2.03	75'	EL	37.00	
		SNAGGRS4	34.925		1.62	56.579	1.4	0.280	1.62	75'	EL	37.00	0.51	3.50	75'	EL	7.00	0.80	0.28	1.70	75'	EL	37.00	
		SNS5A	35.550		1.59	56.525	1.4	0.280	1.59	75'	EL	37.00	0.51	3.54	75'	EL	7.00	0.80	0.28	1.66	75'	EL	37.00	
		SNS6A	39.950		1.45	57.928	1.4	0.280	1.45	75'	EL	37.00	0.51	3.21	75'	EL	7.00	0.80	0.28	1.52	75'	EL	37.00	
		SNS7B	42.000		1.38	57.960	1.4	0.280	1.38	75'	EL	37.00	0.51	3.15	75'	EL	7.00	0.80	0.28	1.45	75'	EL	37.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.77	58.410	1.4	0.280	1.77	75'	EL	37.00	0.51	3.86	75'	EL	7.00	0.80	0.28	1.86	75'	EL	37.00	
		TNT4A	33.075		1.78	58.874	1.4	0.280	1.78	75'	EL	37.00	0.51	3.76	75'	EL	7.00	0.80	0.28	1.86	75'	EL	37.00	
		TNT6A	41.600		1.46	60.736	1.4	0.280	1.46	75'	EL	37.00	0.51	3.33	75'	EL	7.00	0.80	0.28	1.52	75'	EL	37.00	
		TNT7A	42.000		1.46	61.320	1.4	0.280	1.46	75'	EL	37.00	0.51	3.29	75'	EL	7.00	0.80	0.28	1.53	75'	EL	37.00	
		TNT7B	42.000		1.51	63.420	1.4	0.280	1.51	75'	EL	37.00	0.51	3.07	75'	EL	7.00	0.80	0.28	1.58	75'	EL	37.00	
		TNAGRIT4	43.000		1.44	61.920	1.4	0.280	1.44	75'	EL	37.00	0.51	2.97	75'	EL	7.00	0.80	0.28	1.51	75'	EL	37.00	
		TNAGT5A	45.000		1.36	61.200	1.4	0.280	1.36	75'	EL	37.00	0.51	2.94	75'	EL	7.00	0.80	0.28	1.42	75'	EL	37.00	
		TNAGT5B	45.000	3	1.34	60.300	1.4	0.280	1.34	75'	EL	37.00	0.51	2.81	75'	EL	7.00	0.80	0.28	1.40	75'	EL	37.00	
EMERGENCY VEHICLE (EV)		EV2	28.750		2.15	61.813	1.3	0.280	2.21	75'	EL	37.00	0.51	4.58	75'	EL	7.00	0.80	0.28	2.15	75'	EL	37.00	
		EV3	43.000	4	1.41	60.630	1.3	0.280	1.45	75'	EL	37.00	0.51	3.03	75'	EL	7.00	0.80	0.28	1.41	75'	EL	37.00	

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

SPAN A

PROJECT NO. BP1.R017

NORTHAMPTON COUNTY

STATION: 14+62.50 -L-

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

DocuSigned by: Marshall Cheek SFBCC2F3A...

9/4/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR 75' CORED SLAB UNIT 105° SKEW

(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			16

ASSEMBLED BY:	ZCS	DATE :	6/23
CHECKED BY :	MGC	DATE :	7/23
DESIGN ENGINEER OF RECORD:	ZCS	DATE :	7/23

5/20/2024
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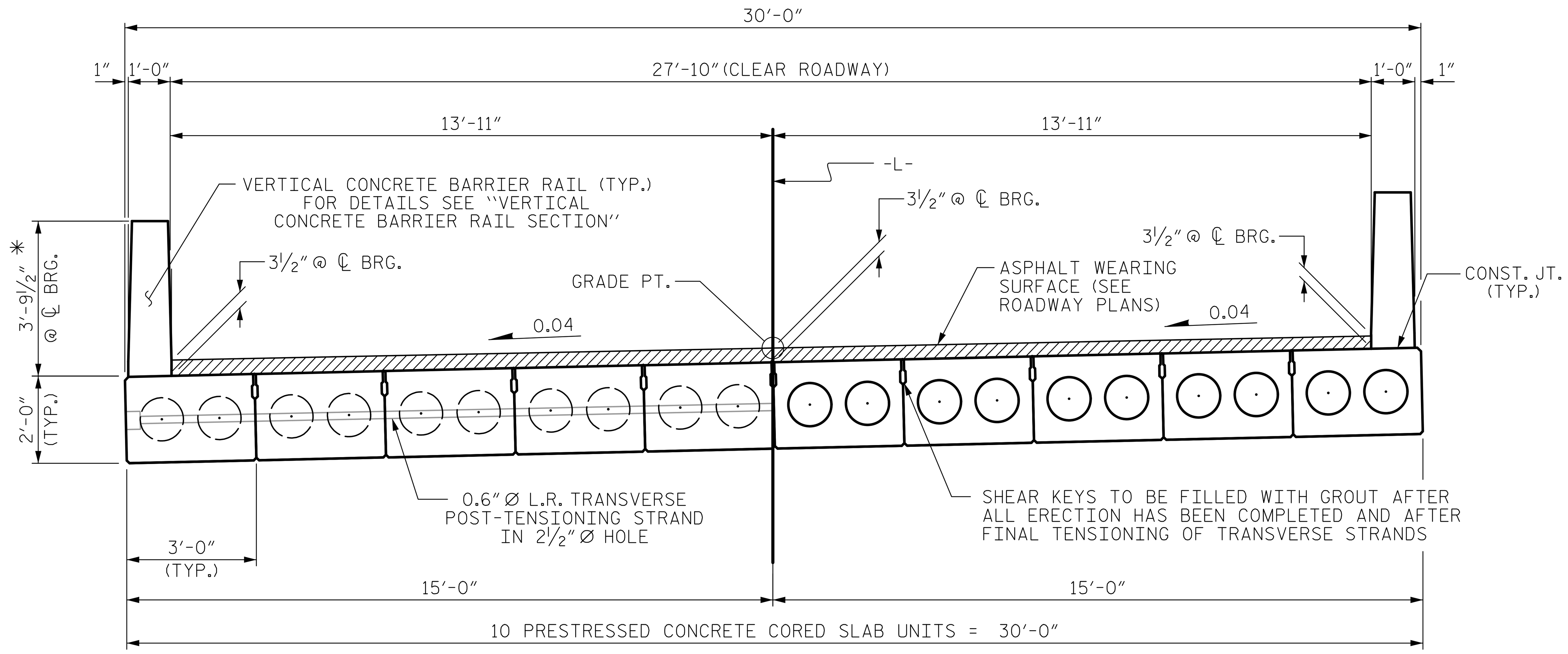
User:ZSmith

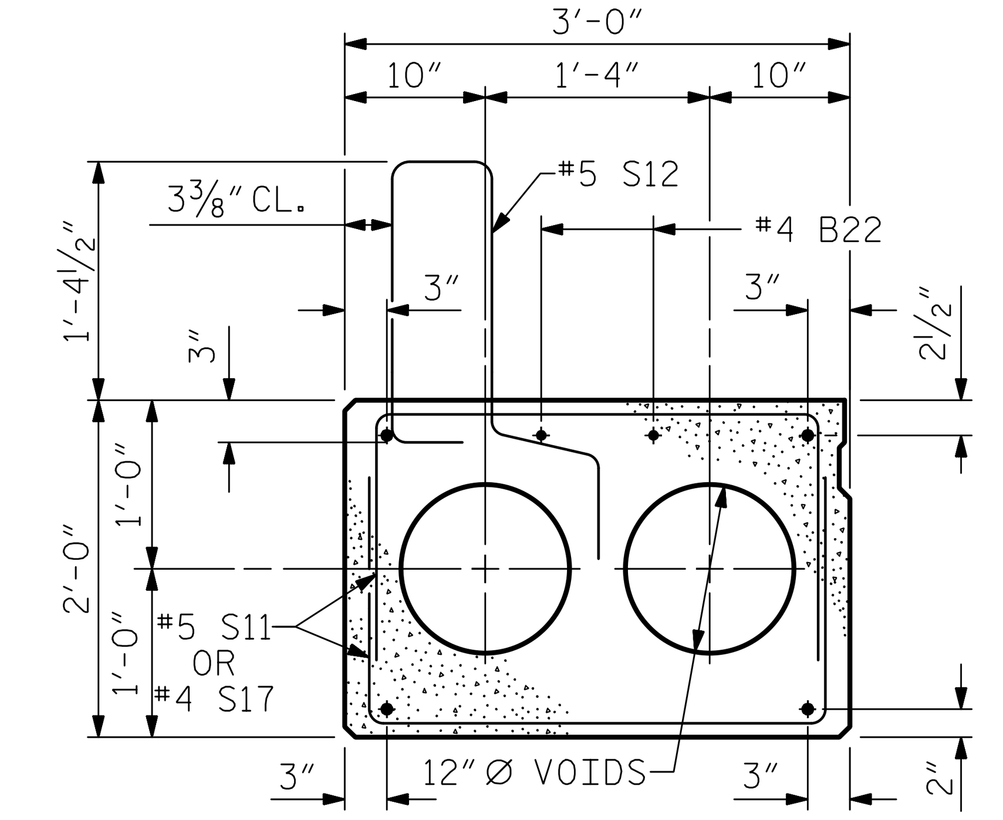


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION

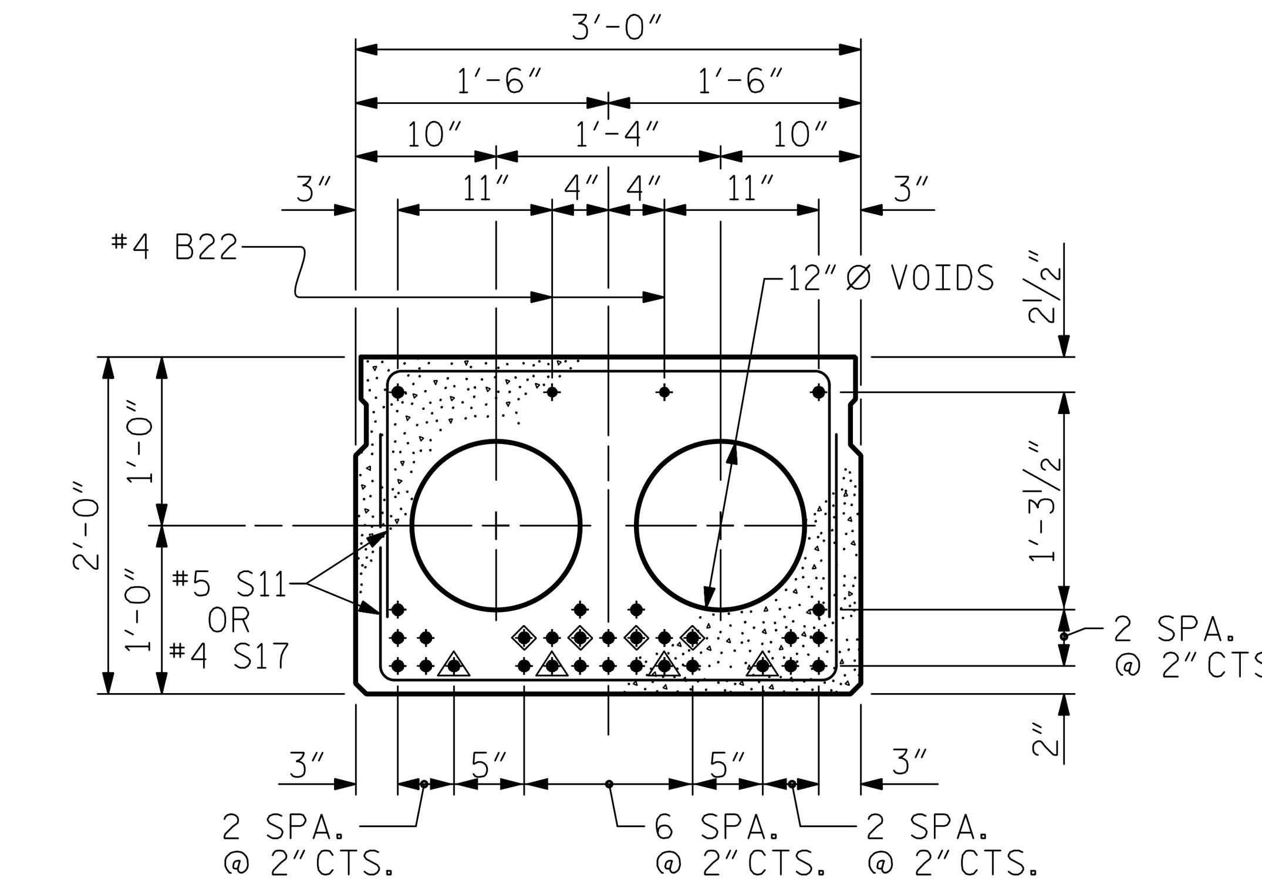
HALF SECTION
THROUGH VOIDS

* - 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.



EXTERIOR SLAB SECTION

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



INTERIOR SLAB SECTION (70' UNIT)

(30 STRANDS REQUIRED)

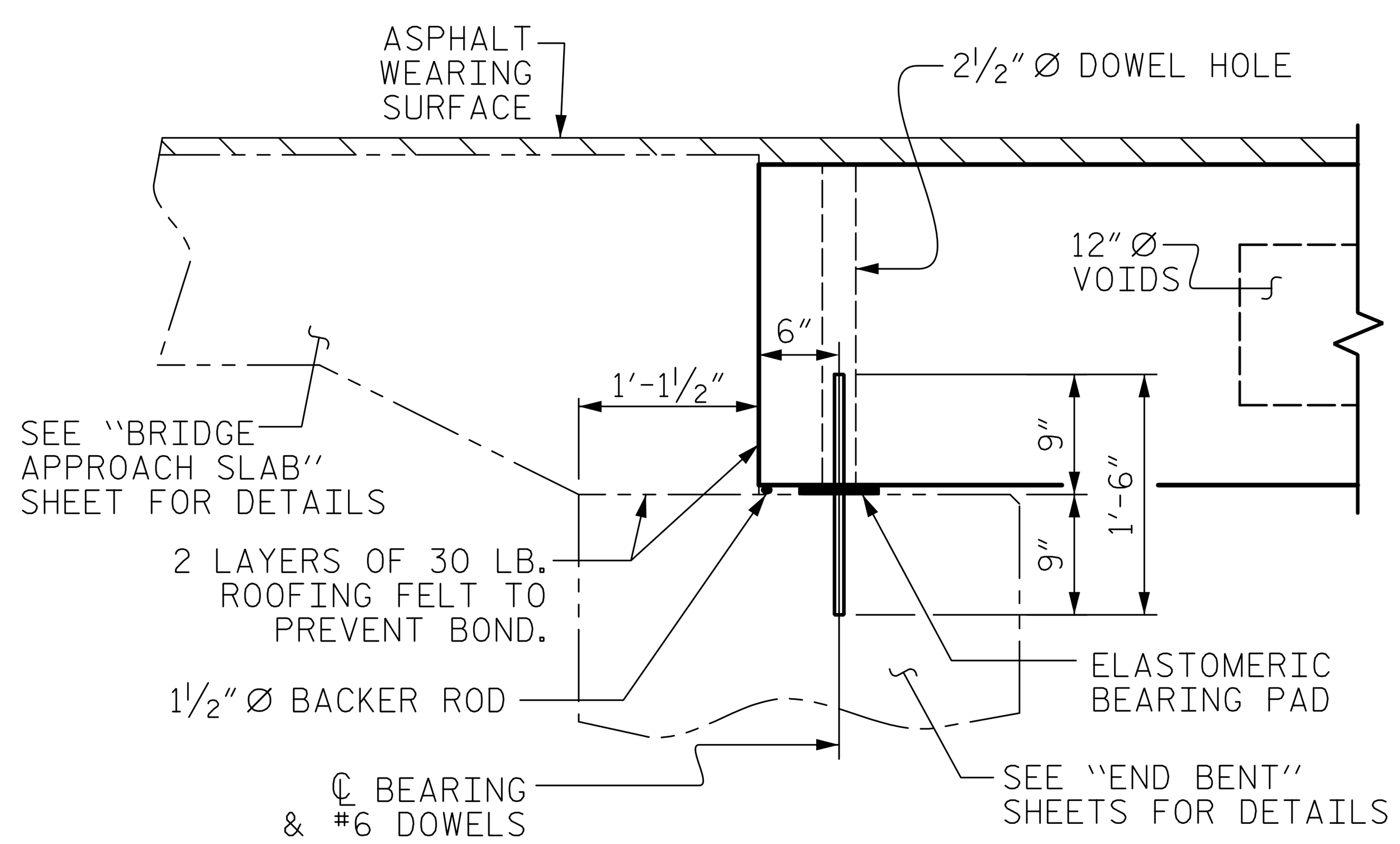
0.6" Ø LOW RELAXATION STRAND LAYOUT

◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 14'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

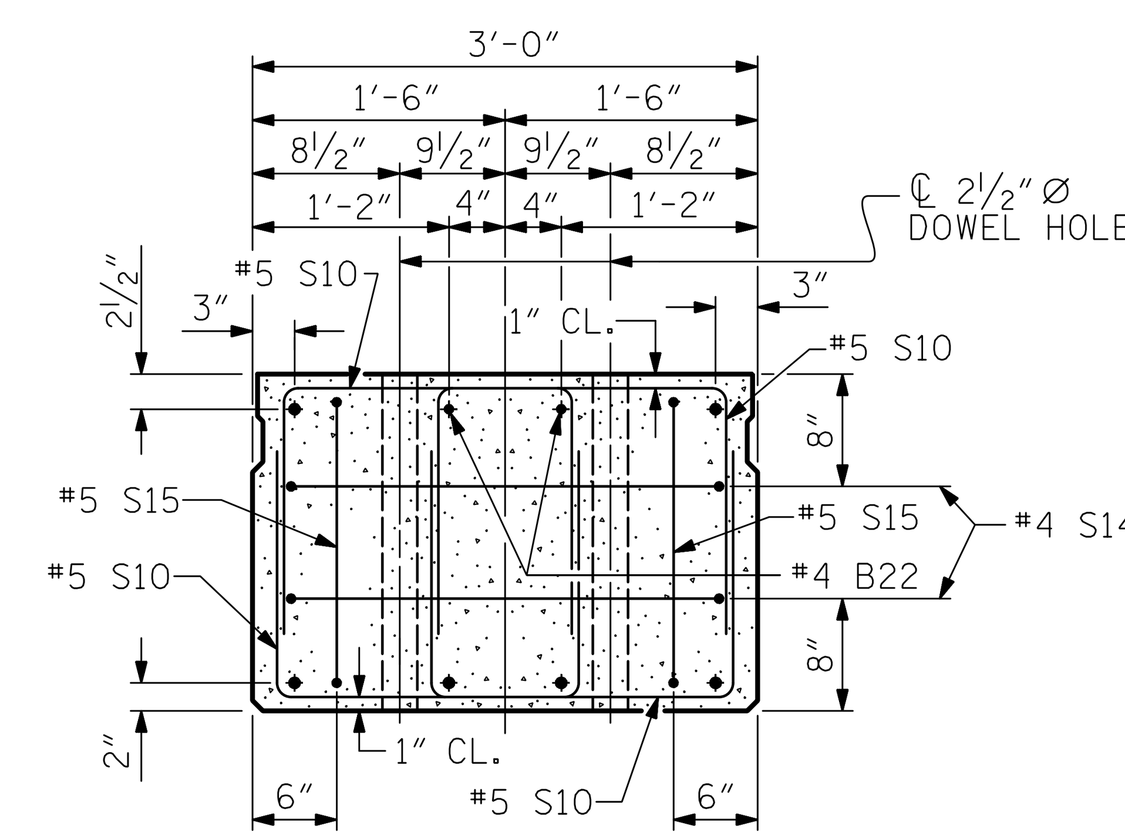
◬ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

FIXED END

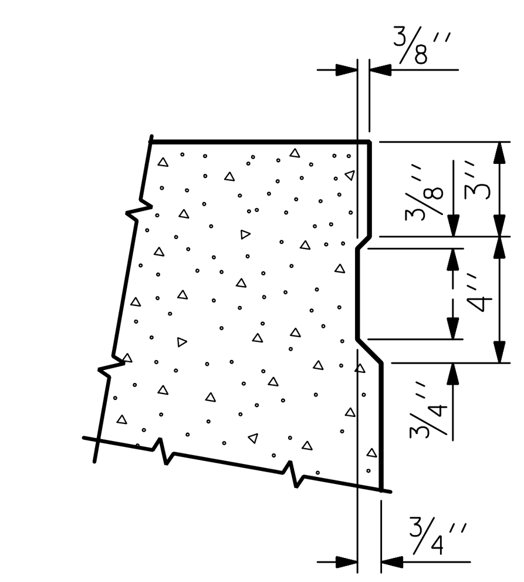


SECTION AT END BENT



END ELEVATION

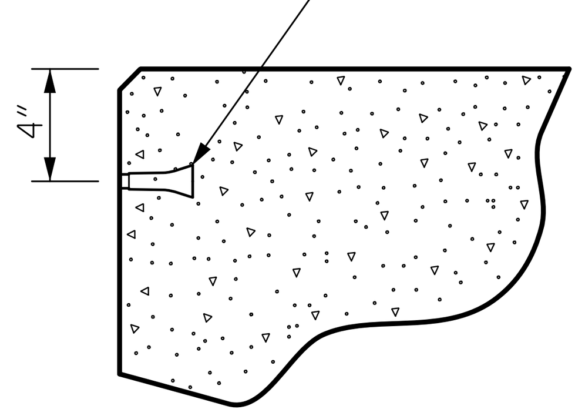
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



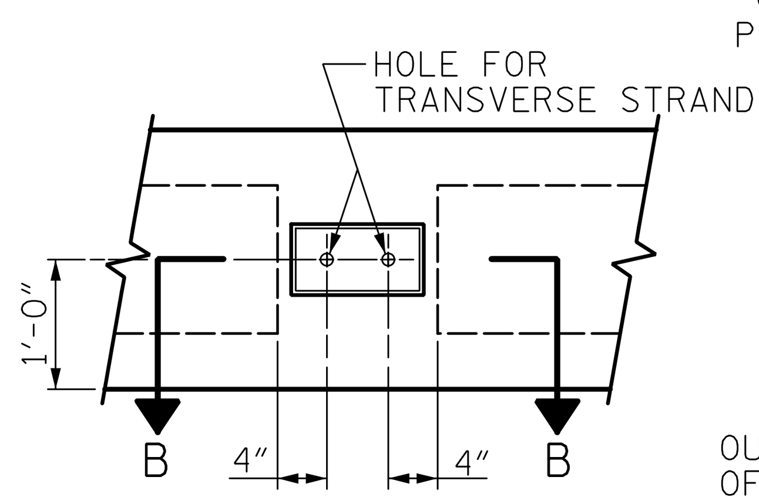
SHEAR KEY DETAIL

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

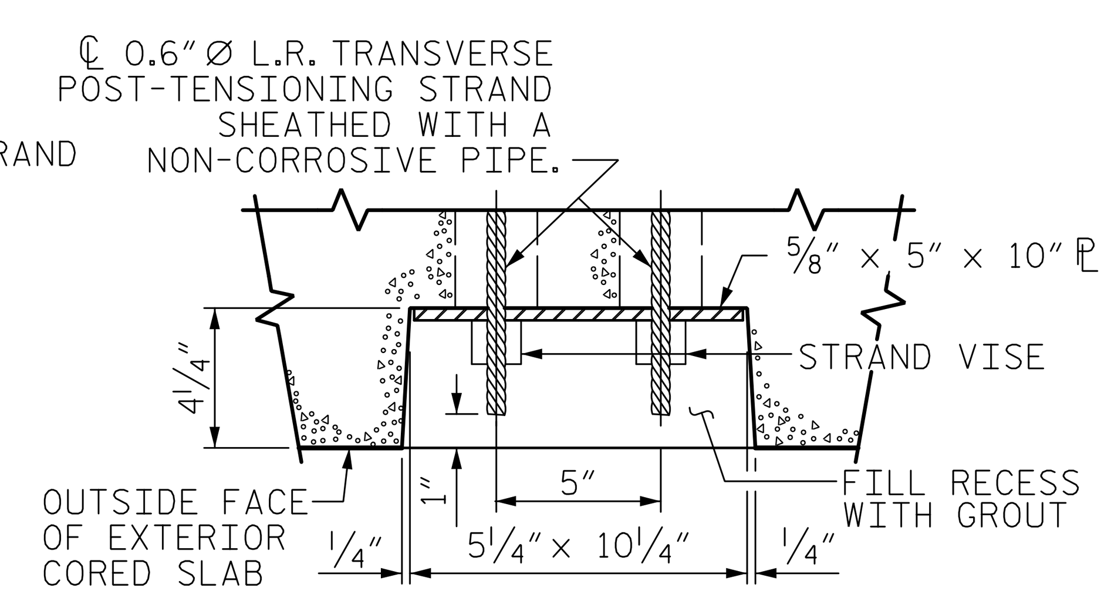
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED ⅜". SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL



ELEVATION VIEW

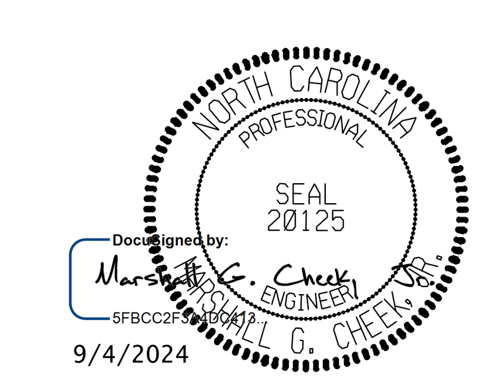


SECTION B-B

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

PROJECT NO. BP1.R017
NORTHAMPTON COUNTY
STATION: 14+62.50 -L-

SHEET 1 OF 3



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

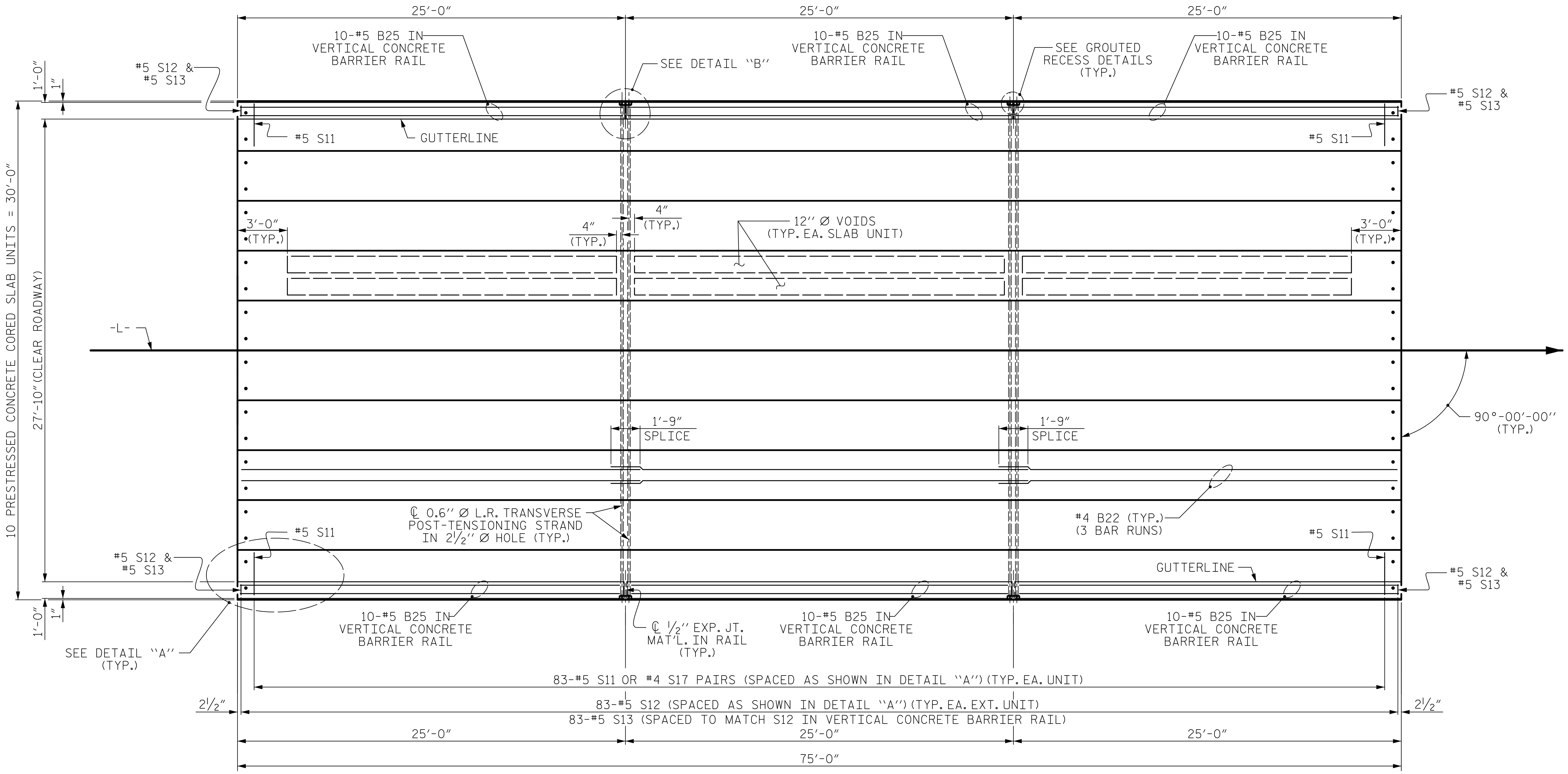
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

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

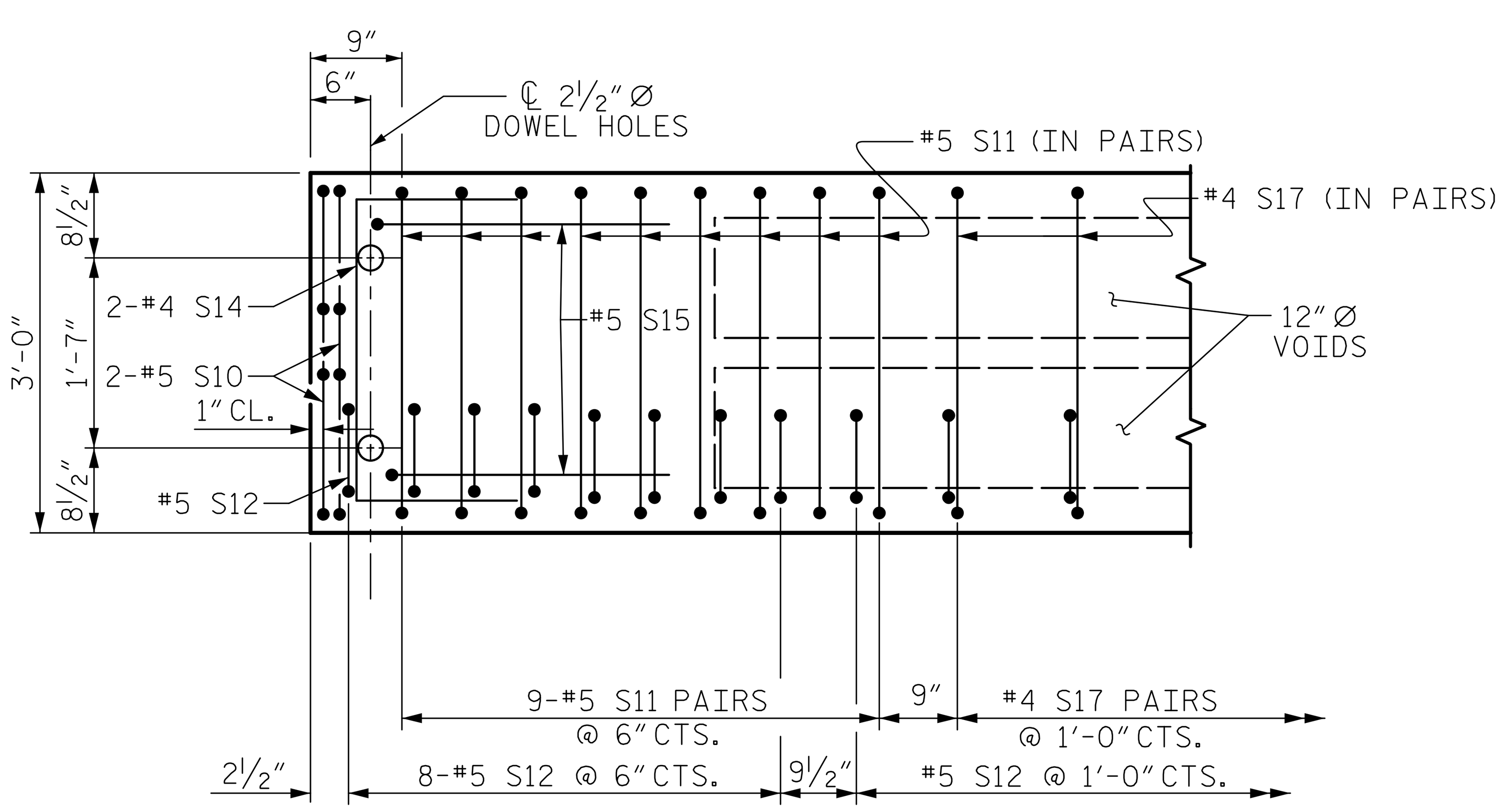
SHEET NO. S-7
TOTAL SHEETS 16

ASSEMBLED BY :	ZCS	DATE :	6/23
CHECKED BY :	MGC	DATE :	7/23
DESIGN ENGINEER OF RECORD :	ZCS	DATE :	10/23

5/20/2024
X:\NCDOT\Division 1 Northampton 53\Structures\Final plans\DGNs\401_013-17_BP1.R017.1_SMU_CS01_650053.dgn
User:ZSmith

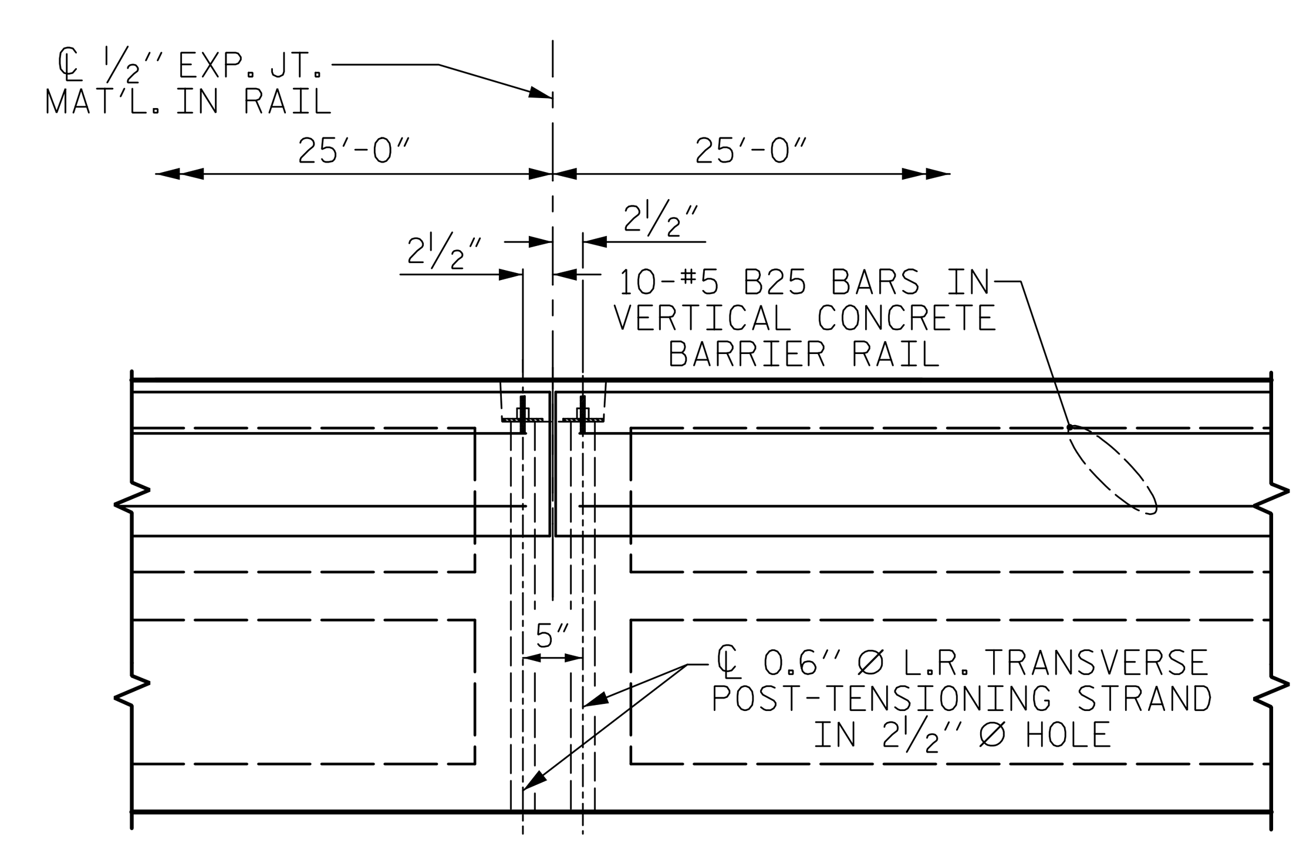


PLAN OF UNIT



DETAIL "A"

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

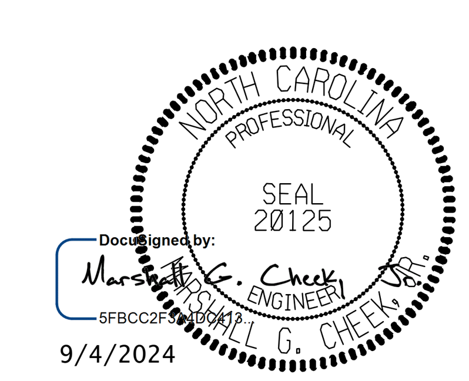


DETAIL "B"

#4 S17 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2½" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. BP1.R017
NORTHAMPTON COUNTY
STATION: 14+62.50 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 75' UNIT
27'-10" CLEAR ROADWAY
90° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			16

ASSEMBLED BY :	ZCS	DATE :	6/23
CHECKED BY :	MGC	DATE :	7/23
DESIGN ENGINEER OF RECORD :	ZCS	DATE :	10/23

5/20/2024
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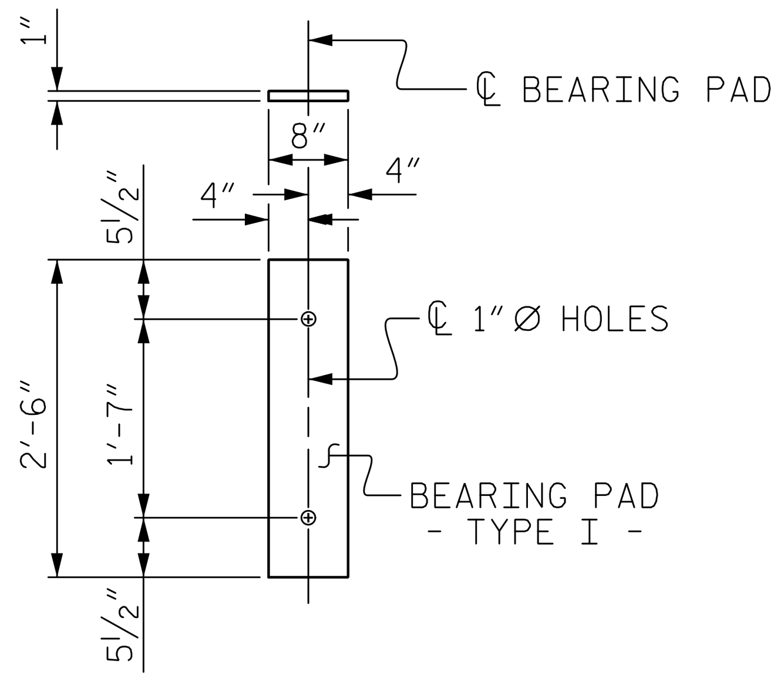


FIXED END
(TYPE I - 20 REQ'D)

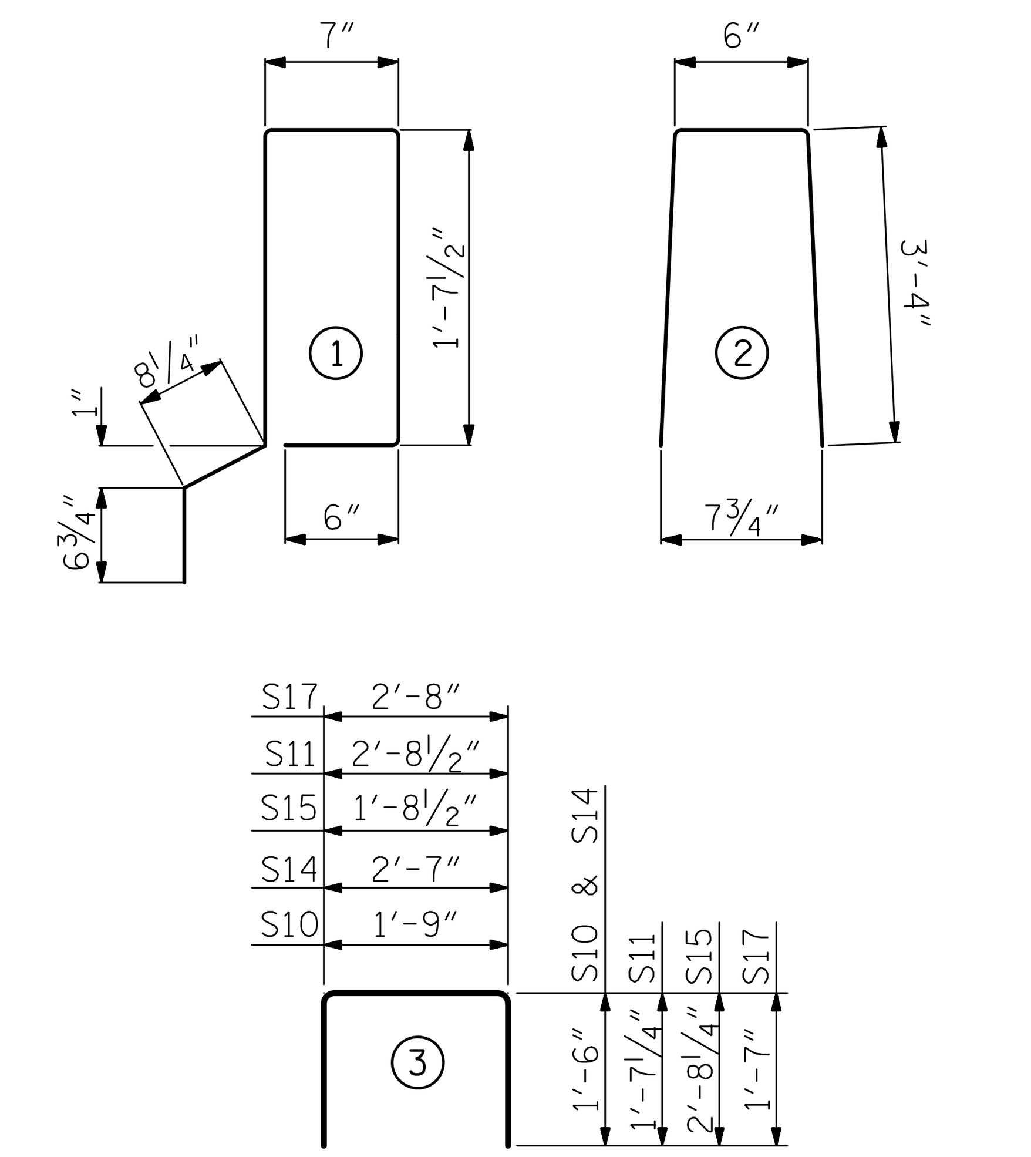
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

CORED SLABS REQUIRED	NUMBER	LENGTH	TOTAL LENGTH
75' UNIT			
EXTERIOR C.S.	2	75'-0"	150'-0"
INTERIOR C.S.	8	75'-0"	600'-0"
TOTAL	10		750'-0"

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 75' CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B22	6	#4	STR	26'-2"	105	26'-2"	105
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	36	#5	3	5'-11"	222	5'-11"	222
*S12	83	#5	1	5'-7"	483		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
S17	130	#4	3	5'-10"	507	5'-10"	507
REINFORCING STEEL			LBS.		919		919
* EPOXY COATED REINFORCING STEEL			LBS.		483		
8000 P.S.I. CONCRETE			CU. YDS.		12.7		12.7
0.6" Ø L.R. STRANDS			No.		30		30

DEAD LOAD DEFLECTION AND CAMBER	3'-0" × 2'-0"
75' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2 7/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	7/8" ↓
FINAL CAMBER	1 9/16" ↑

** INCLUDES FUTURE WEARING SURFACE

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN LEFT GUTTER	ASPHALT OVERLAY THICKNESS @ MID-SPAN RIGHT GUTTER	RAIL HEIGHT @ MID-SPAN LEFT GUTTER	RAIL HEIGHT @ MID-SPAN RIGHT GUTTER
75' UNITS	1 15/16"	1 15/16"	3'-7 15/16"	3'-7 15/16"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 75' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B25	60	60	#5	STR	24'-7"	1538
*S13	166	166	#5	2	7'-2"	1241
* EPOXY COATED REINFORCING STEEL			LBS.			2779
CLASS AA CONCRETE			CU.YDS.			19.3
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.			150.00

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 2½" 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.

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

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

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S17 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

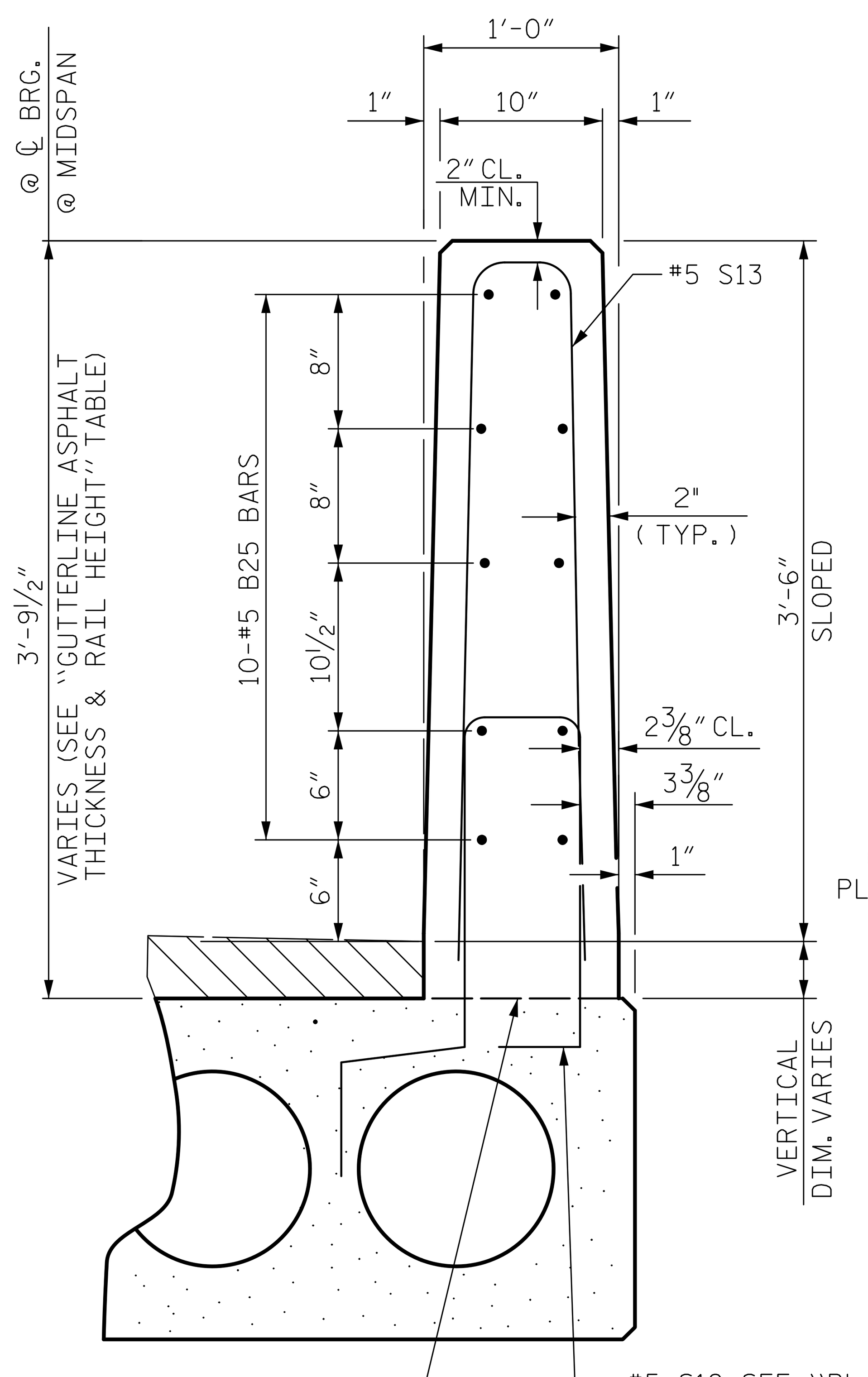
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

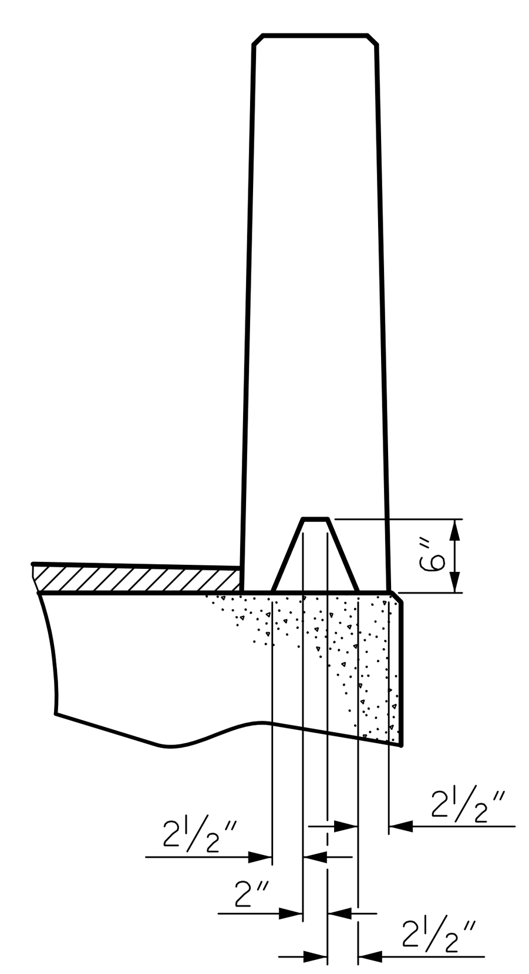
THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

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

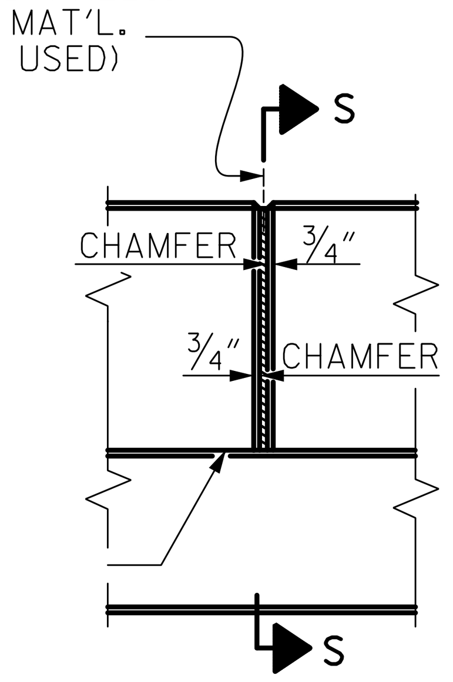
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.



SECTION THRU RAIL

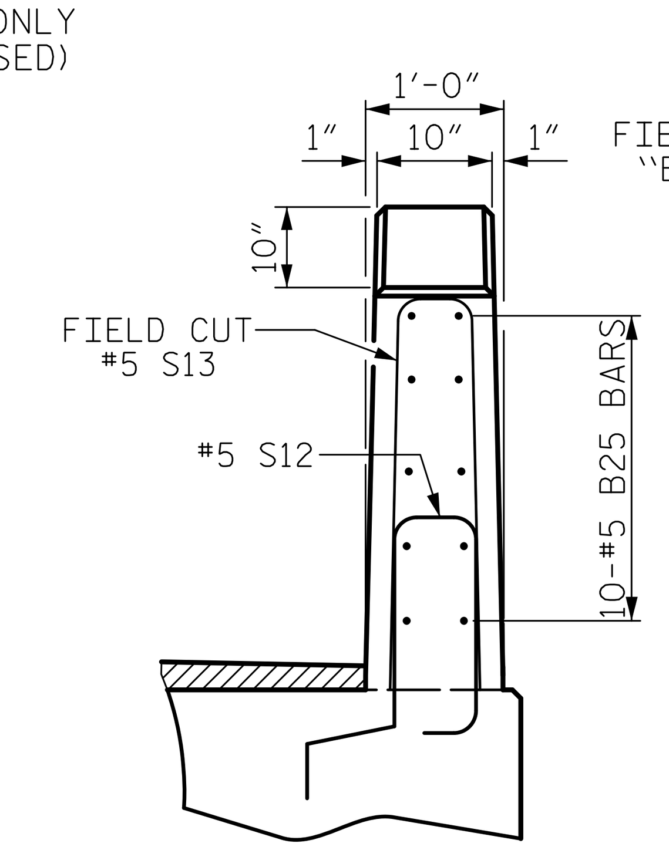


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

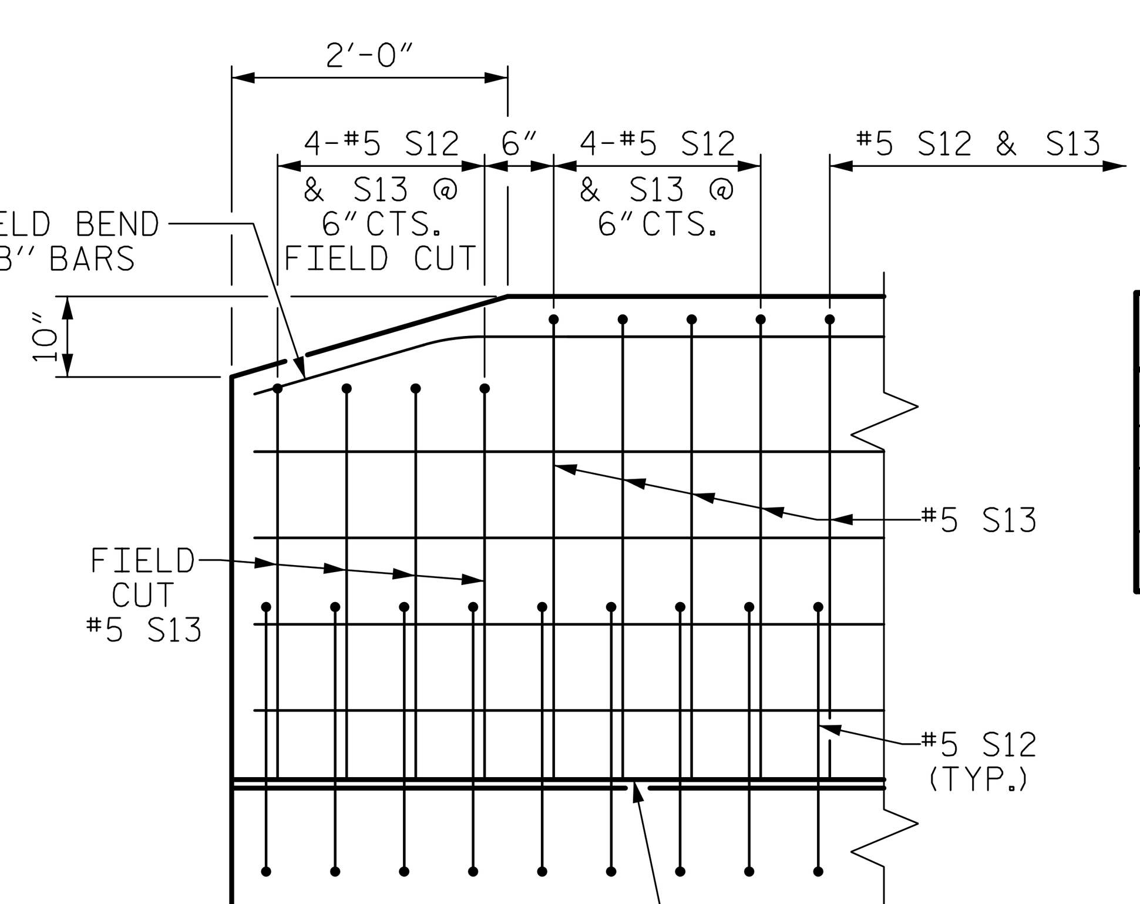


ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS



END VIEW



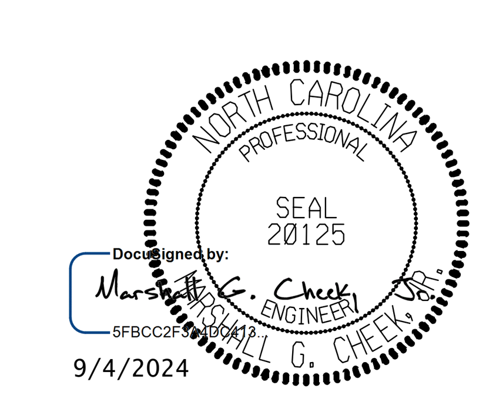
SIDE VIEW

END OF RAIL DETAILS

CONCRETE RELEASE STRENGTH	
UNIT	PSI
75' UNIT	6000

PROJECT NO. BP1.R017
NORTHAMPTON COUNTY
STATION: 14+62.50 -L-

SHEET 3 OF 3



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3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT

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1			3		
2			4		

SHEET NO. S-9
TOTAL SHEETS 16

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DESIGN ENGINEER OF RECORD :	ZCS	DATE :	10/23

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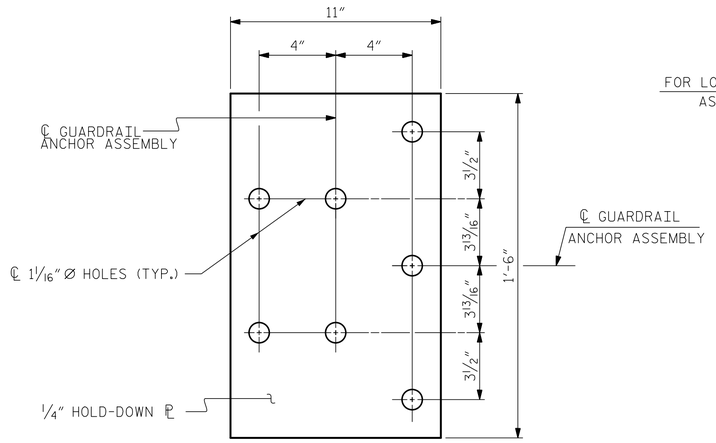
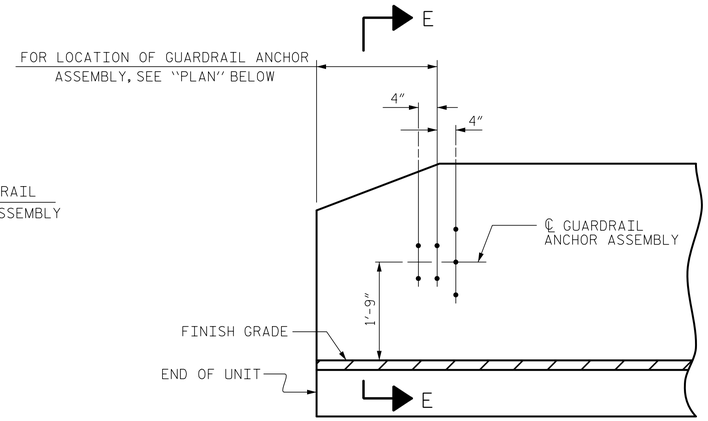


PLAN



ELEVATION

NOTES

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

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

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

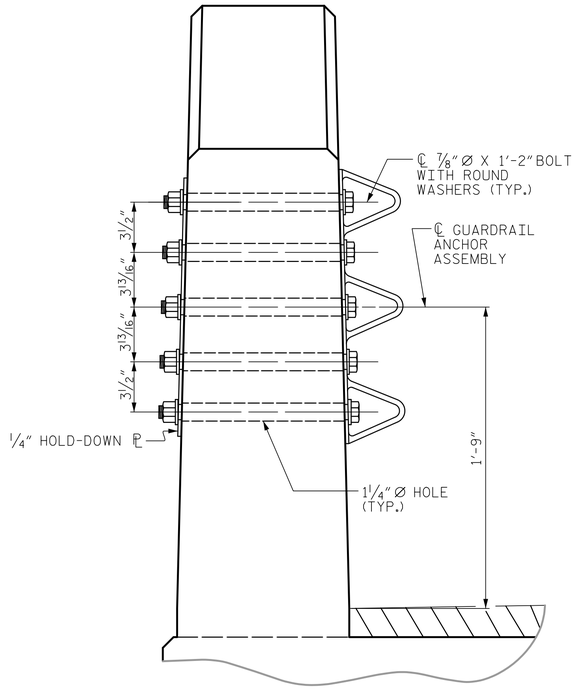
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

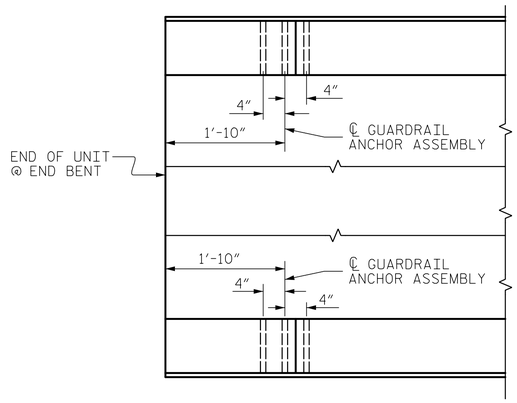
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



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. BP1.R017

NORTHAMPTON COUNTY

STATION: 14+62.50 -L-

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CHECKED BY :	MGC	DATE :	7/23
DRAWN BY : MAA	5/10	REV. 1/15	MAA/TMG
CHECKED BY : GM	5/10	REV. 12/17	MAA/THC
		REV. 5/18	MAA/THC

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Docusigned by: Marshall Cheek SFBCC2F3A...

9/4/2024

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STANDARD
GUARDRAIL ANCHORAGE DETAILS
FOR VERTICAL CONCRETE BARRIER RAIL

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

SHEET NO. S-10

TOTAL SHEETS 16

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(SHT 1) STD. NO. GRA3

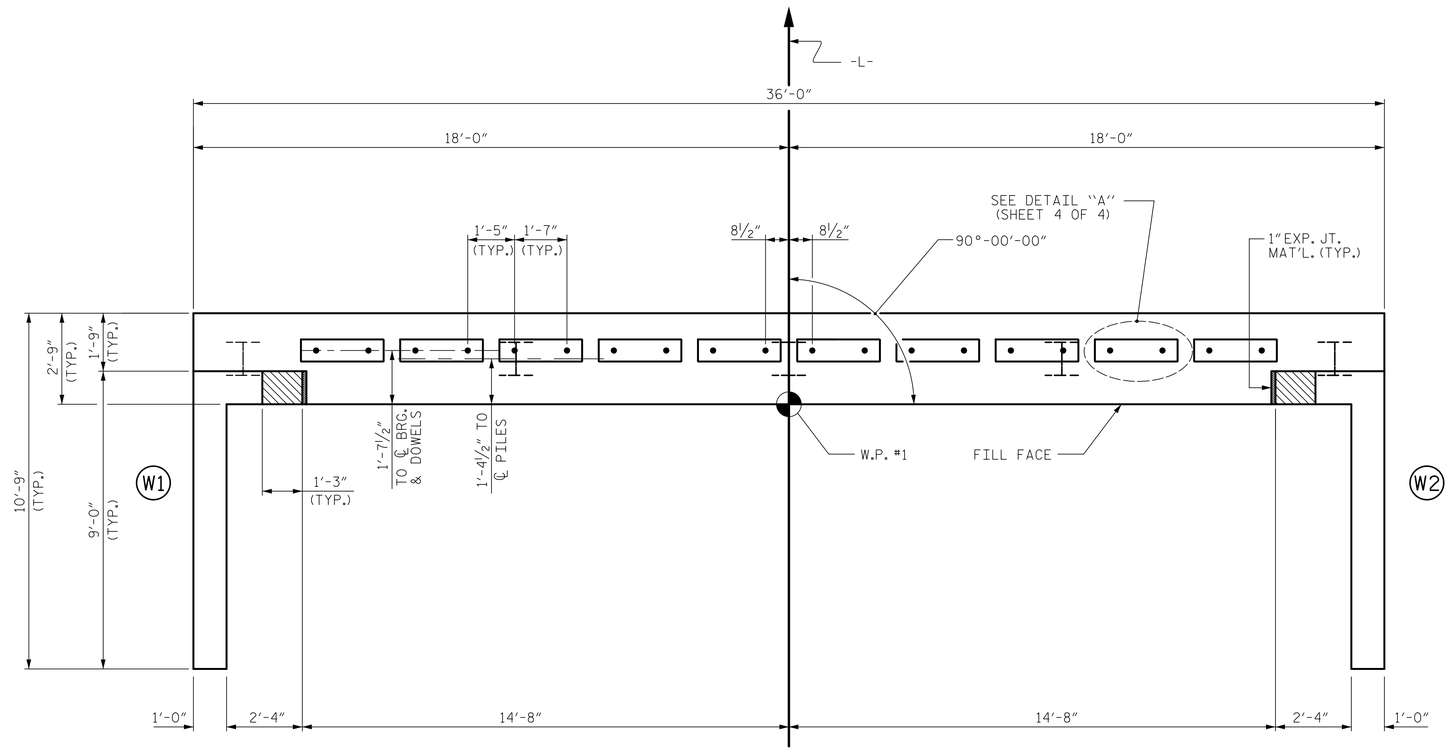
NOTES

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

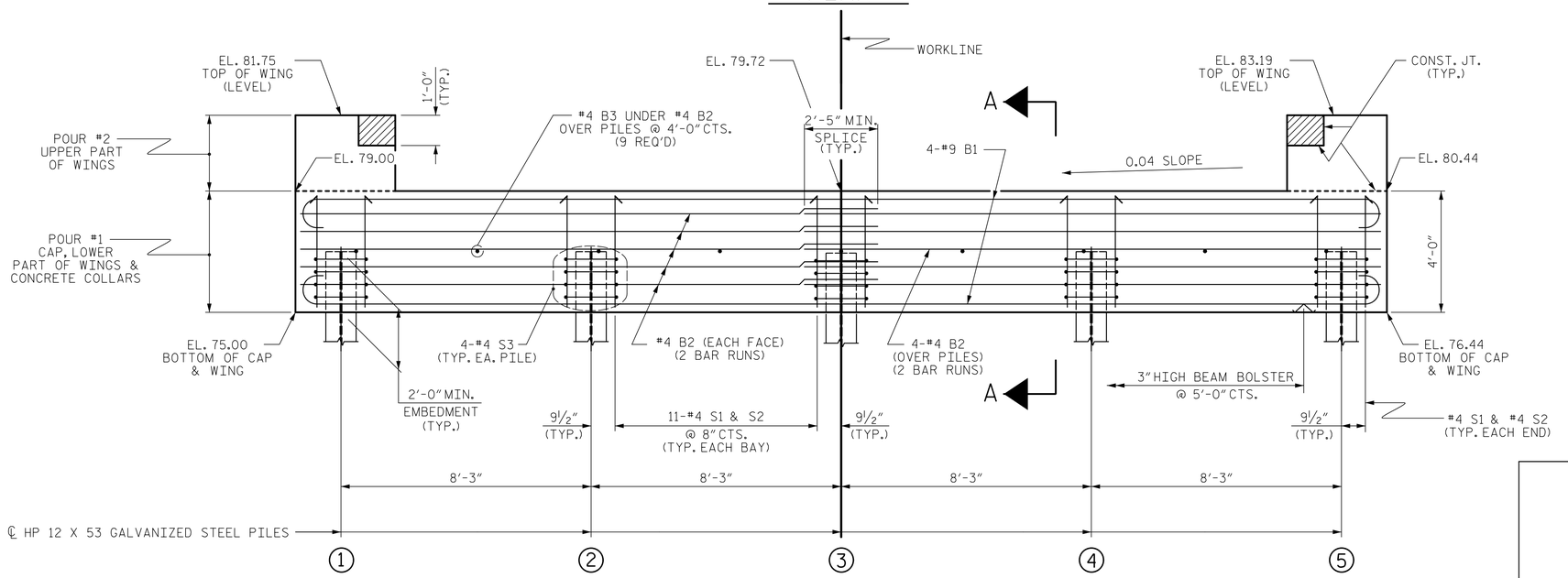
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

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.

TOP OF PILE ELEVATIONS	
①	77.08
②	77.41
③	77.74
④	78.07
⑤	78.40

PROJECT NO. BP1.R017

NORTHAMPTON COUNTY

STATION: 14+62.50 -L-

SHEET 1 OF 4

ASSEMBLED BY :	ZCS	DATE :	6/23
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CHECKED BY :	AAC	12/11	
REV. 4/15		MAA/TMG	

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
Marshall G. Check, Jr.
SFBCC2F3A4DC413...
9/27/2024

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SUBSTRUCTURE

END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			16

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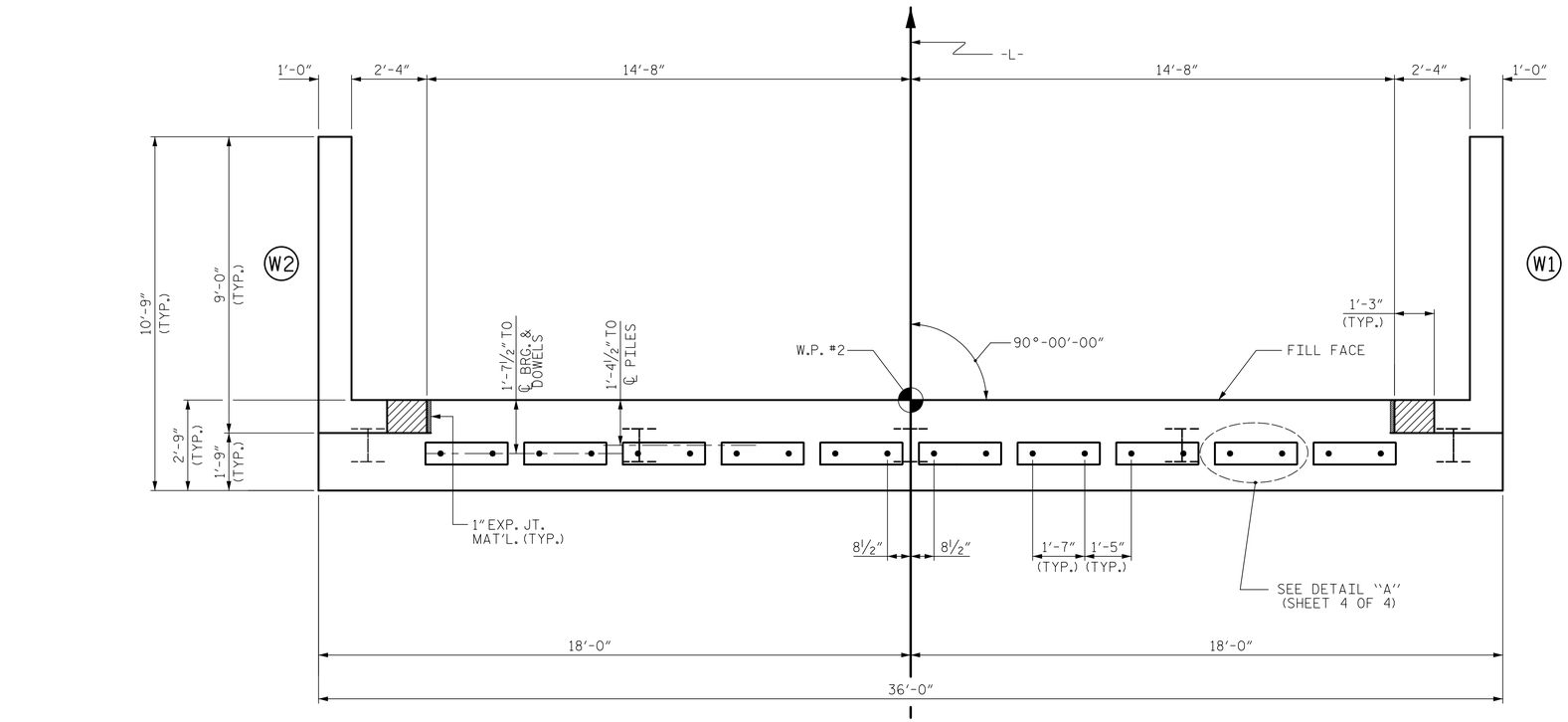
NOTES

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

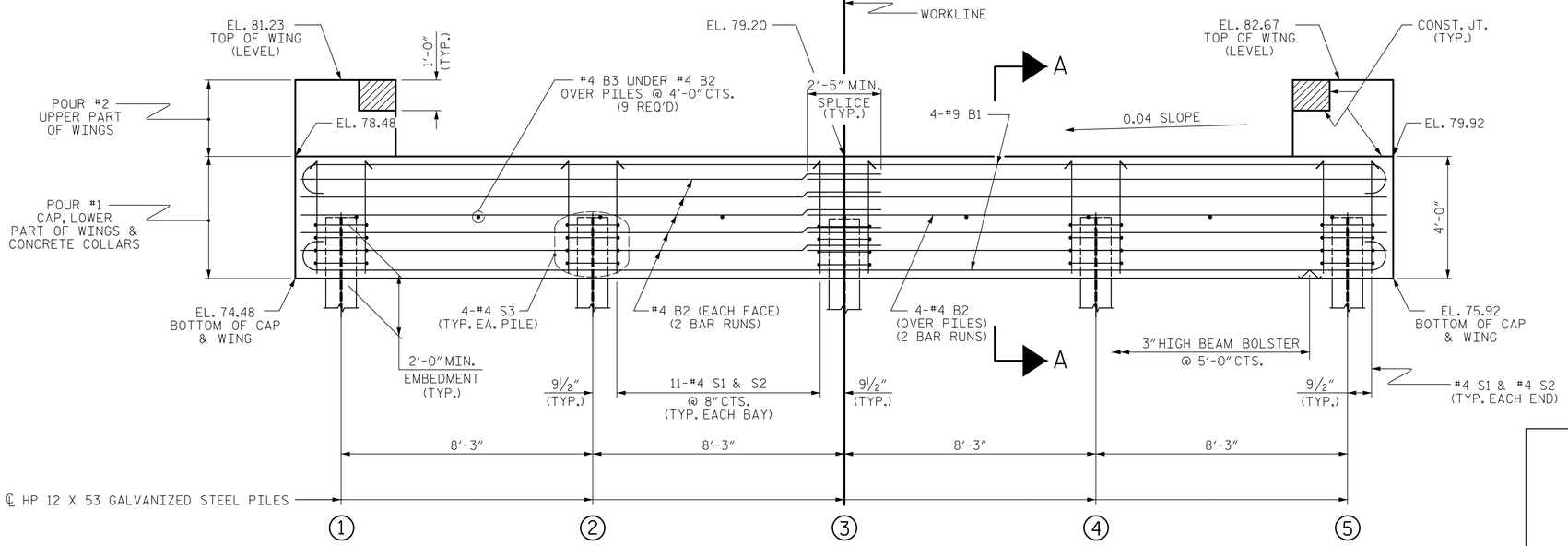
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

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.

TOP OF PILE ELEVATIONS	
①	76.56
②	76.89
③	77.22
④	77.55
⑤	77.88

PROJECT NO. BP1.R017

NORTHAMPTON COUNTY

STATION: 14+62.50 -L-

SHEET 2 OF 4

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SUBSTRUCTURE

END BENT 2

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1			3			TOTAL SHEETS
2			4			16

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CHECKED BY :	AAC	12/11	
REV. 4/15		MAA/TMG	

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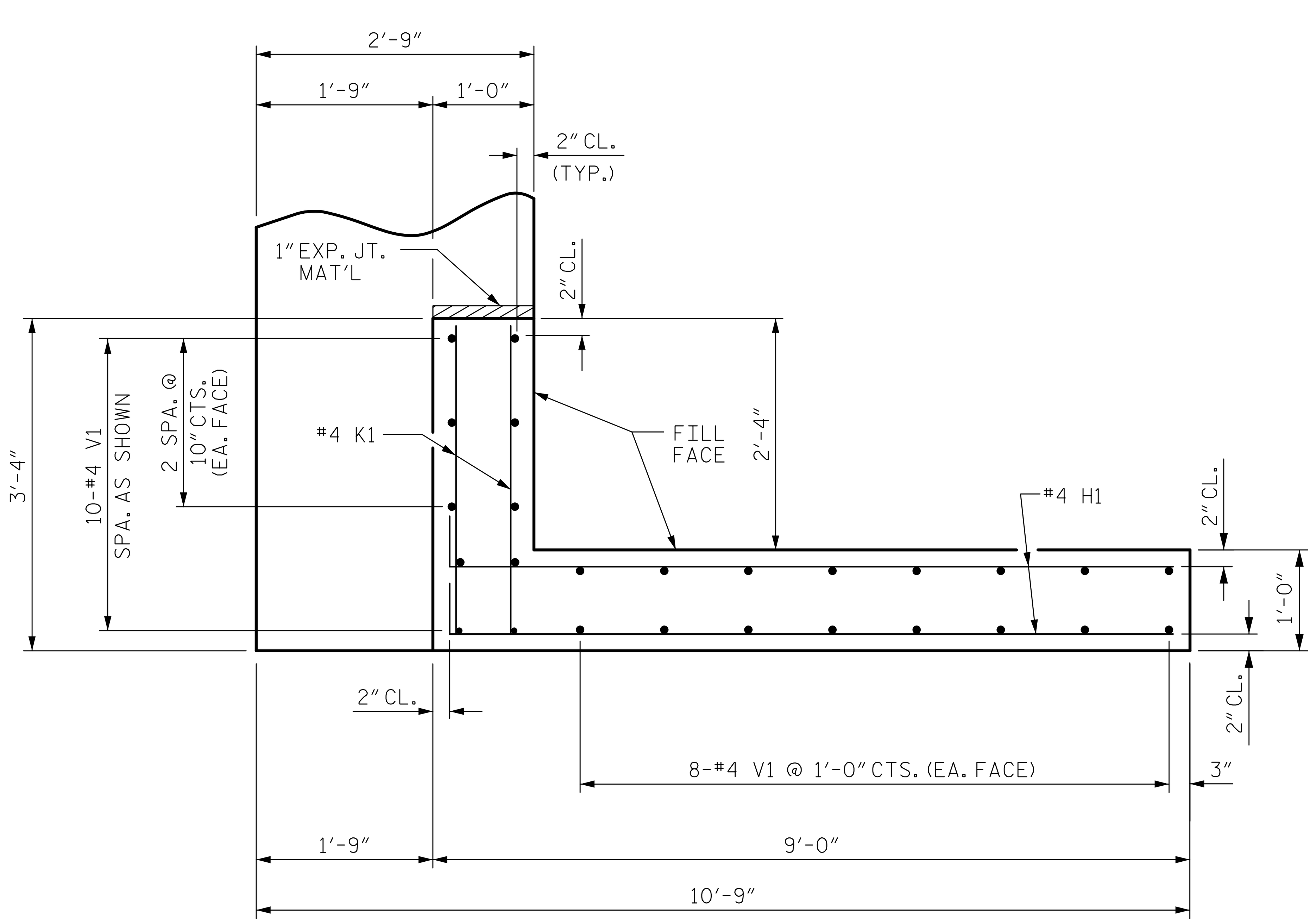
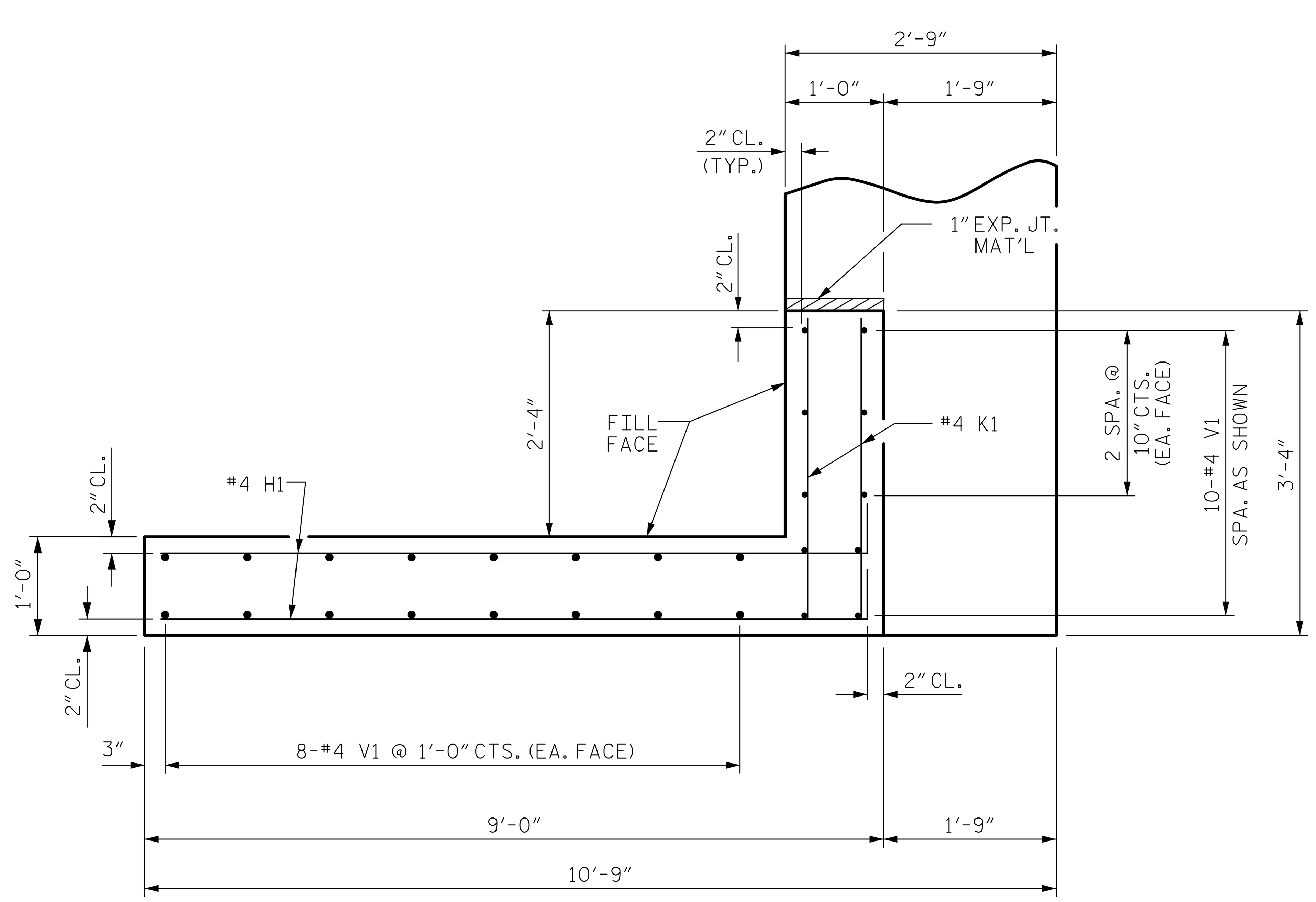
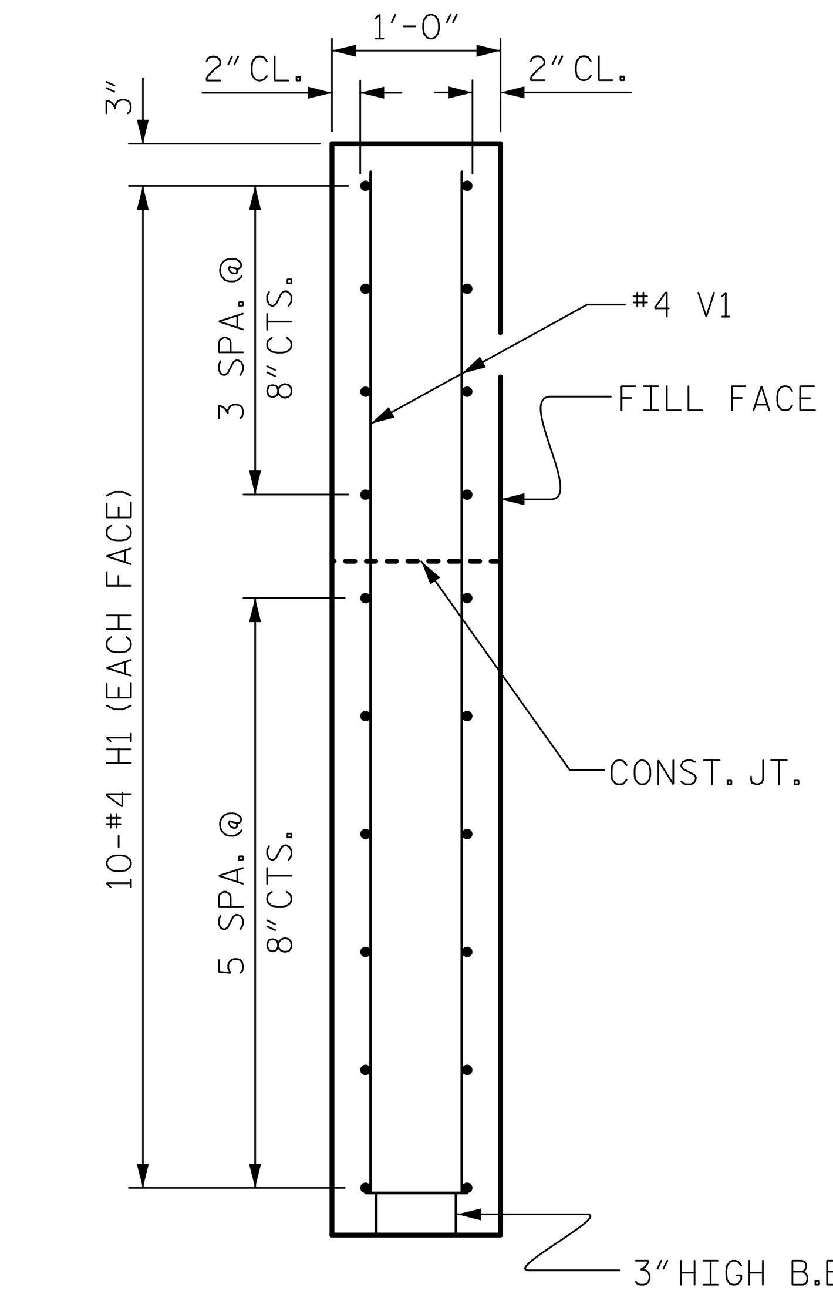


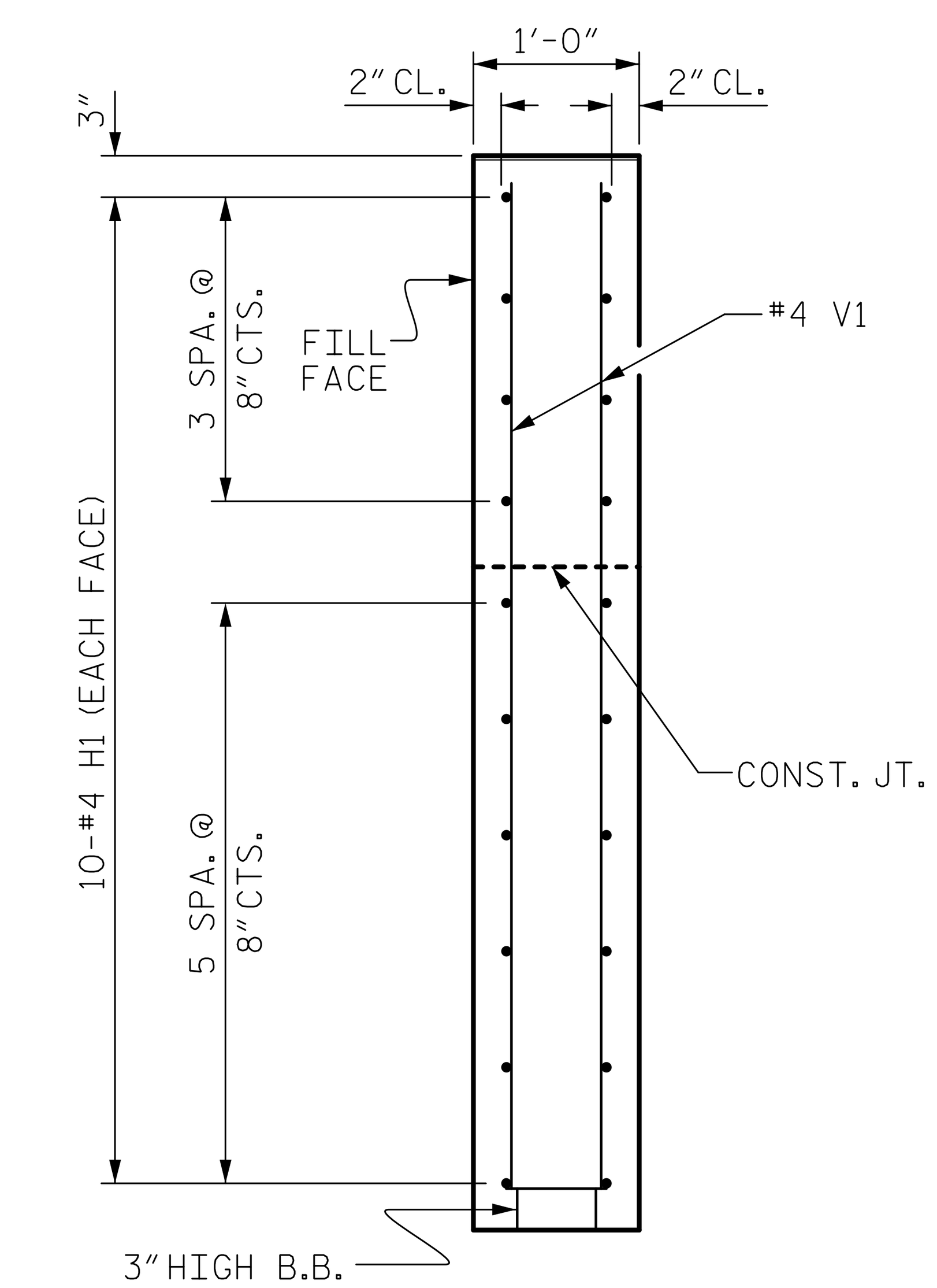
PLAN OF WING (W1)



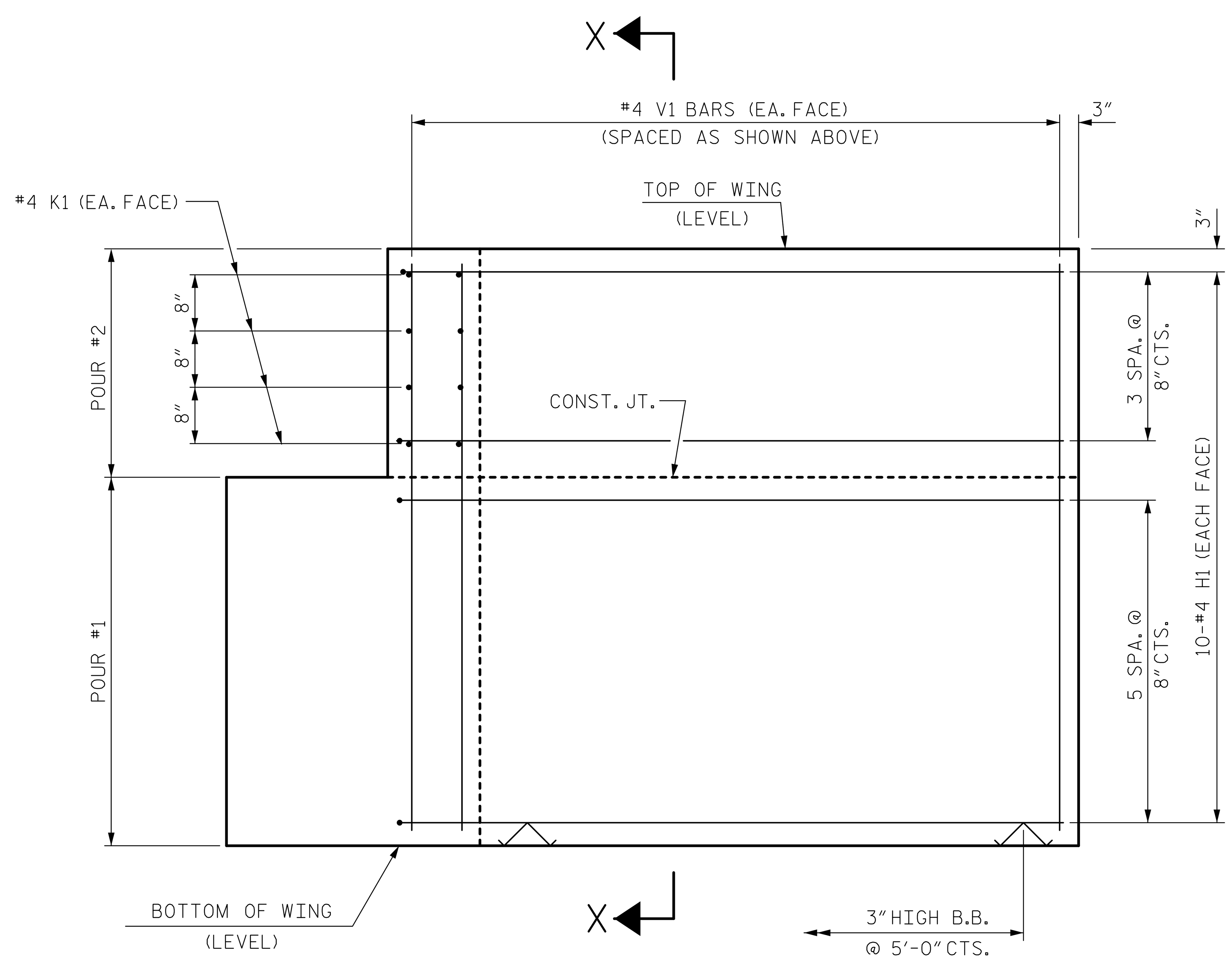
PLAN OF WING (W2)



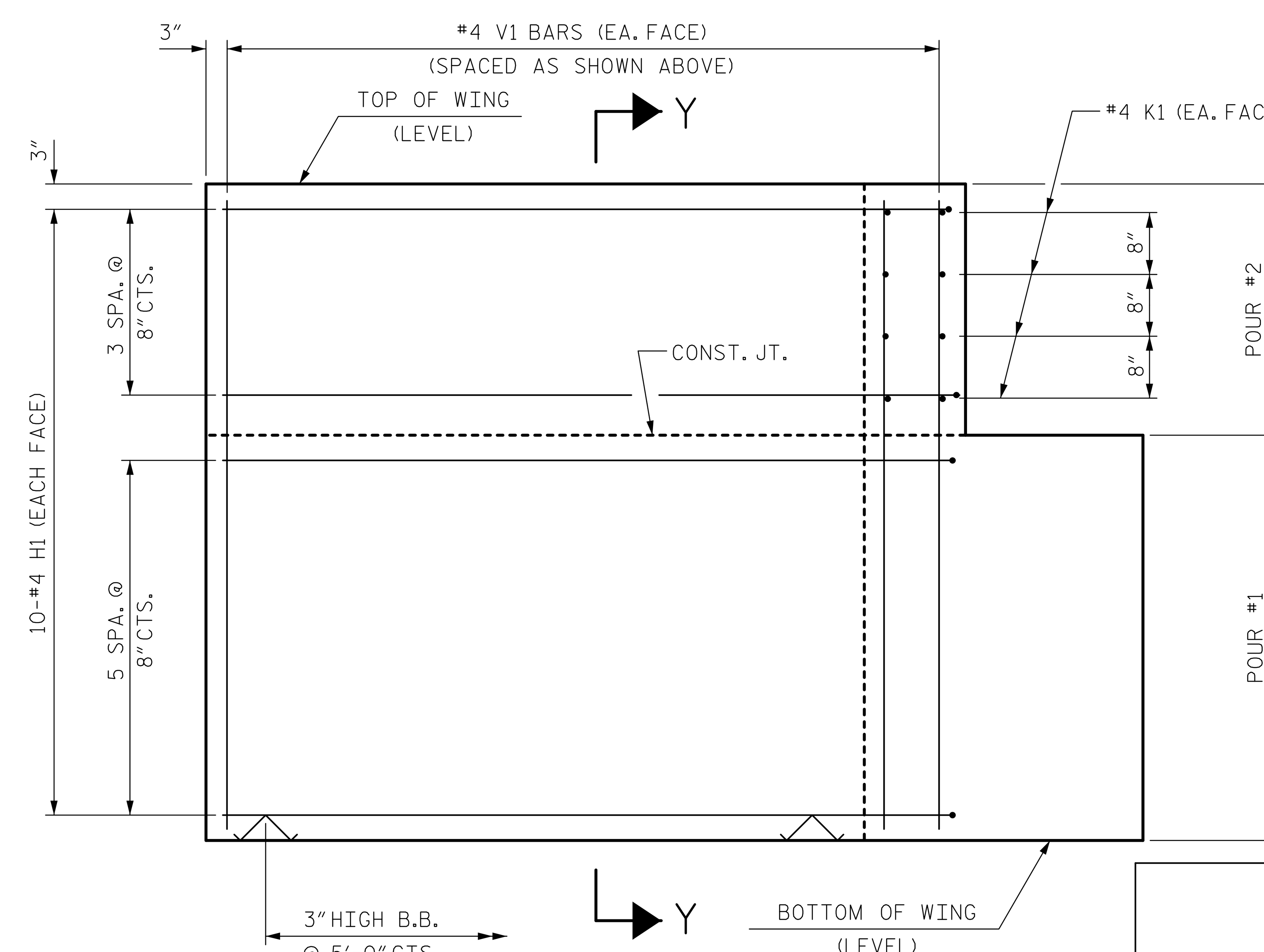
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)

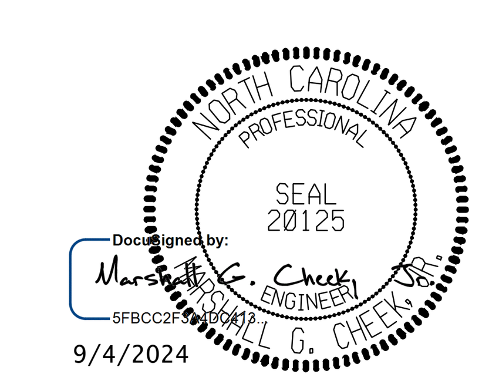


ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. BP1.R017
NORTHAMPTON COUNTY
STATION: 14+62.50 -L-

SHEET 3 OF 4



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SUBSTRUCTURE

END BENT
WING DETAILS

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1				3				TOTAL SHEETS
2				4				16

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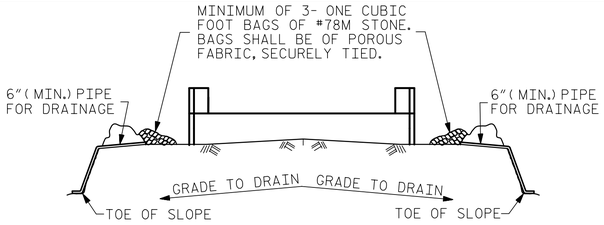
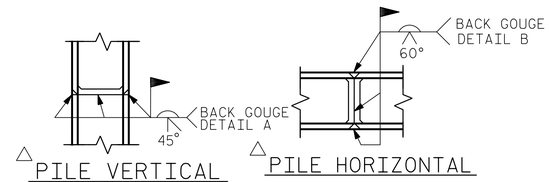


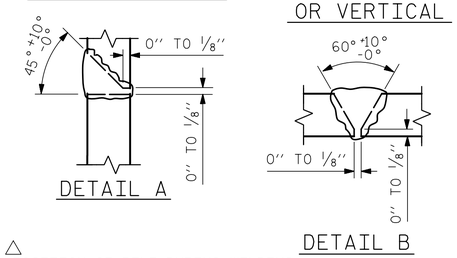
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

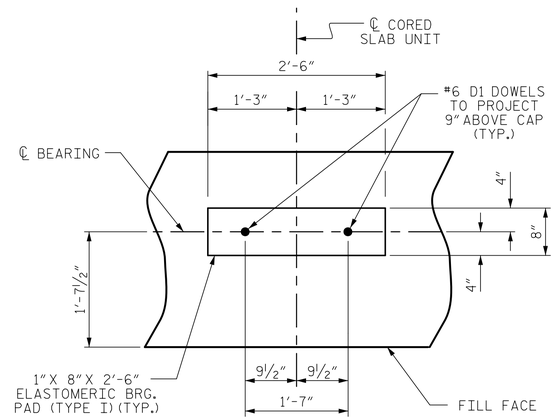
TEMPORARY DRAINAGE AT END BENT





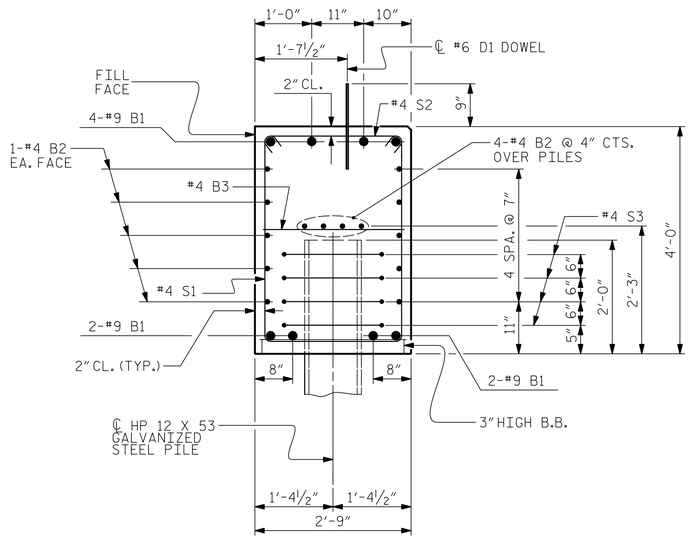
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



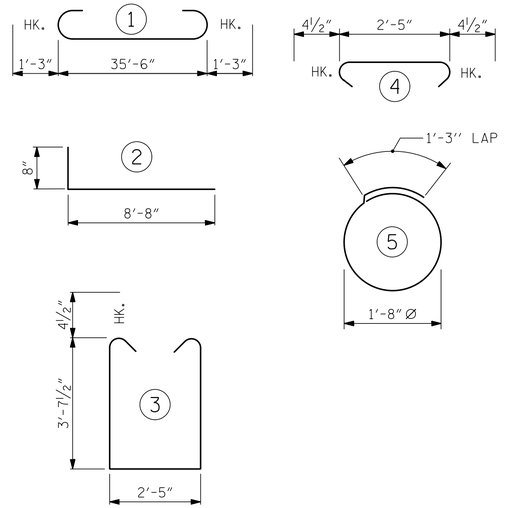
DETAIL "A"

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



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	28	#4	STR	19'-1"	357
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	46	#4	3	10'-5"	320
S2	46	#4	4	3'-2"	97
S3	20	#4	5	6'-6"	87
V1	52	#4	STR	6'-5"	223

REINFORCING STEEL (FOR ONE END BENT) 2458 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1	CAP, LOWER PART OF WINGS	17.0 C.Y.
POUR #2	UPPER PART OF WINGS	2.3 C.Y.
	TOTAL CLASS A CONCRETE	19.3 C.Y.

PROJECT NO. BP1.R017

NORTHAMPTON COUNTY

STATION: 14+62.50 -L-

SHEET 4 OF 4

ASSEMBLED BY :	ZCS	DATE :	6/23
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DRAWN BY : WJH	12/11	REV. 4/17	MAA/THC
CHECKED BY : AAC	12/11		

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL A. CHEEK, JR.
Marshall A. Cheek, Jr.
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END BENT 1 & 2 DETAILS

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2			4			16

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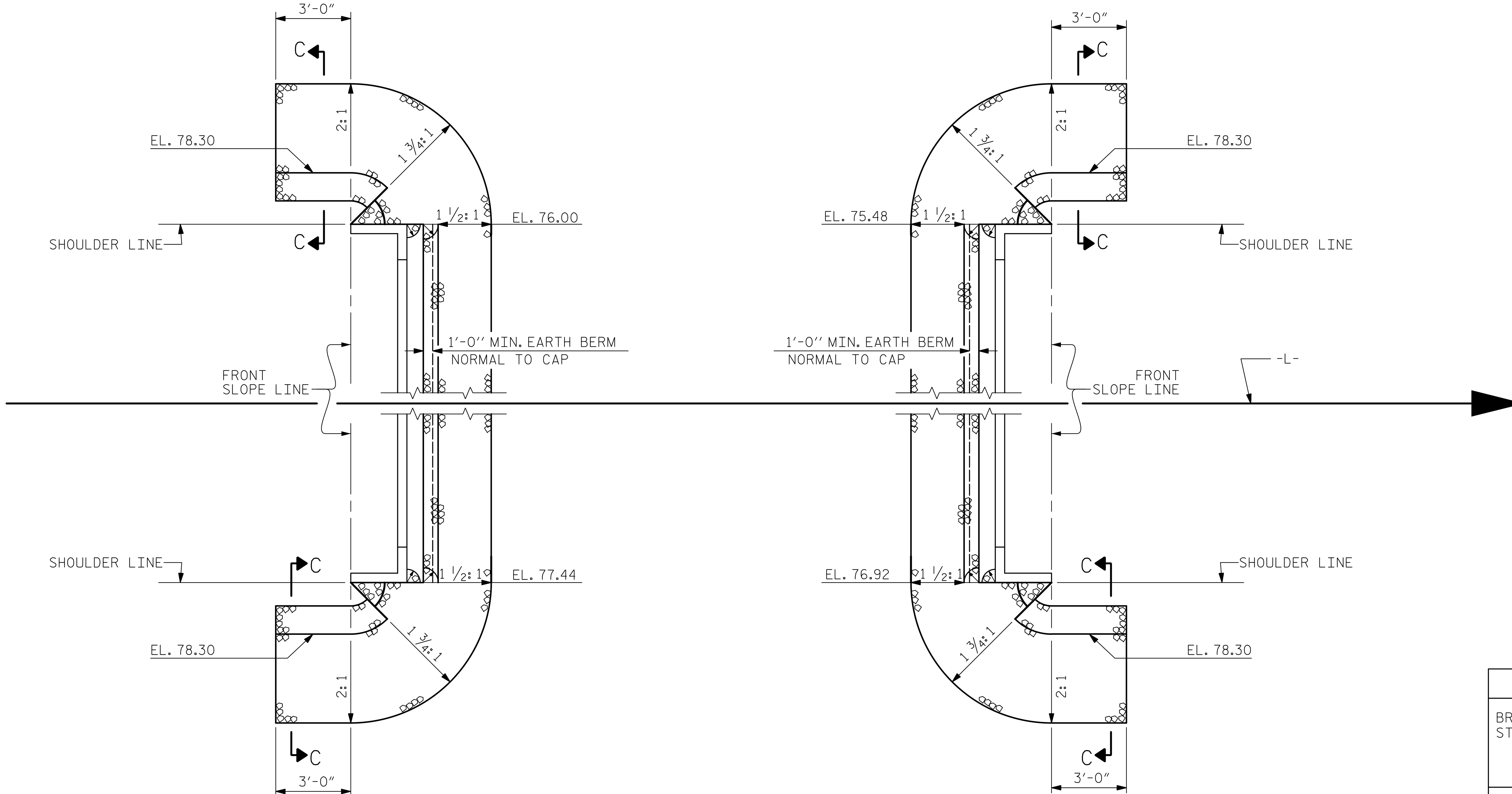
NOTES :

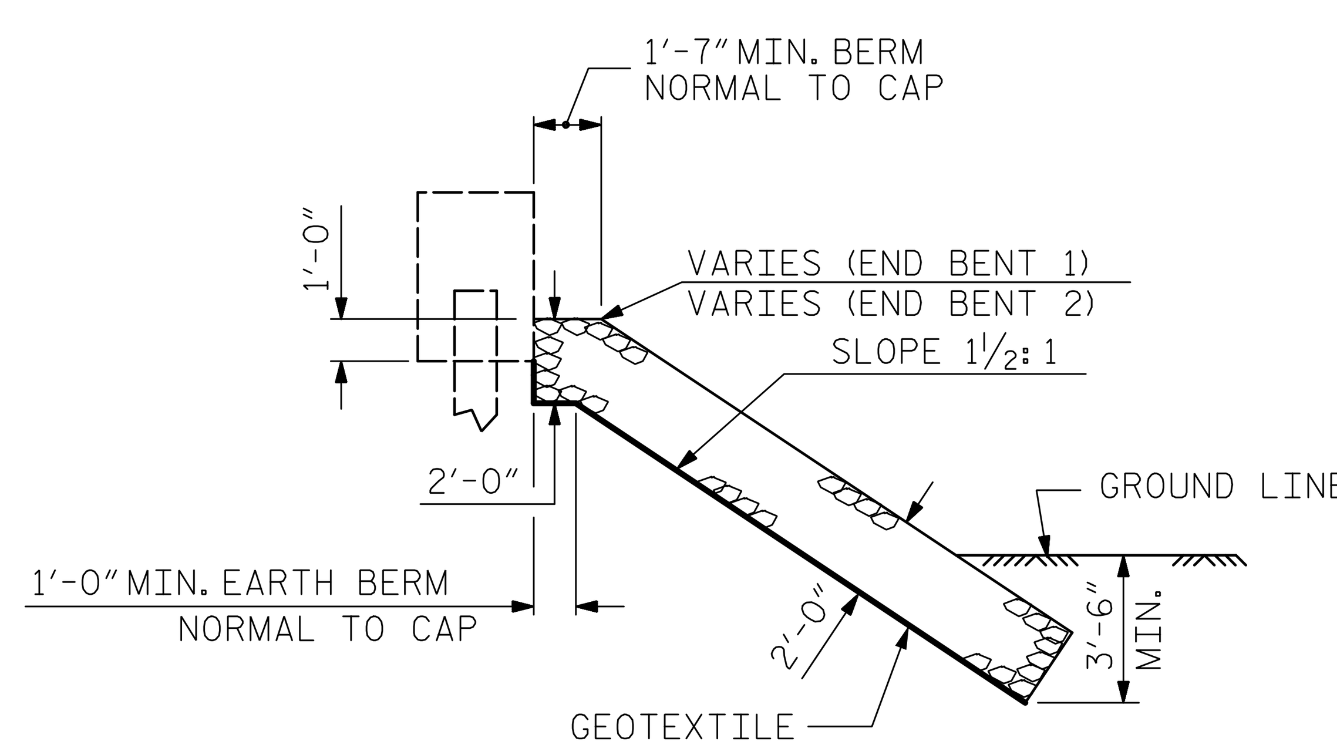
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



END BENT 1

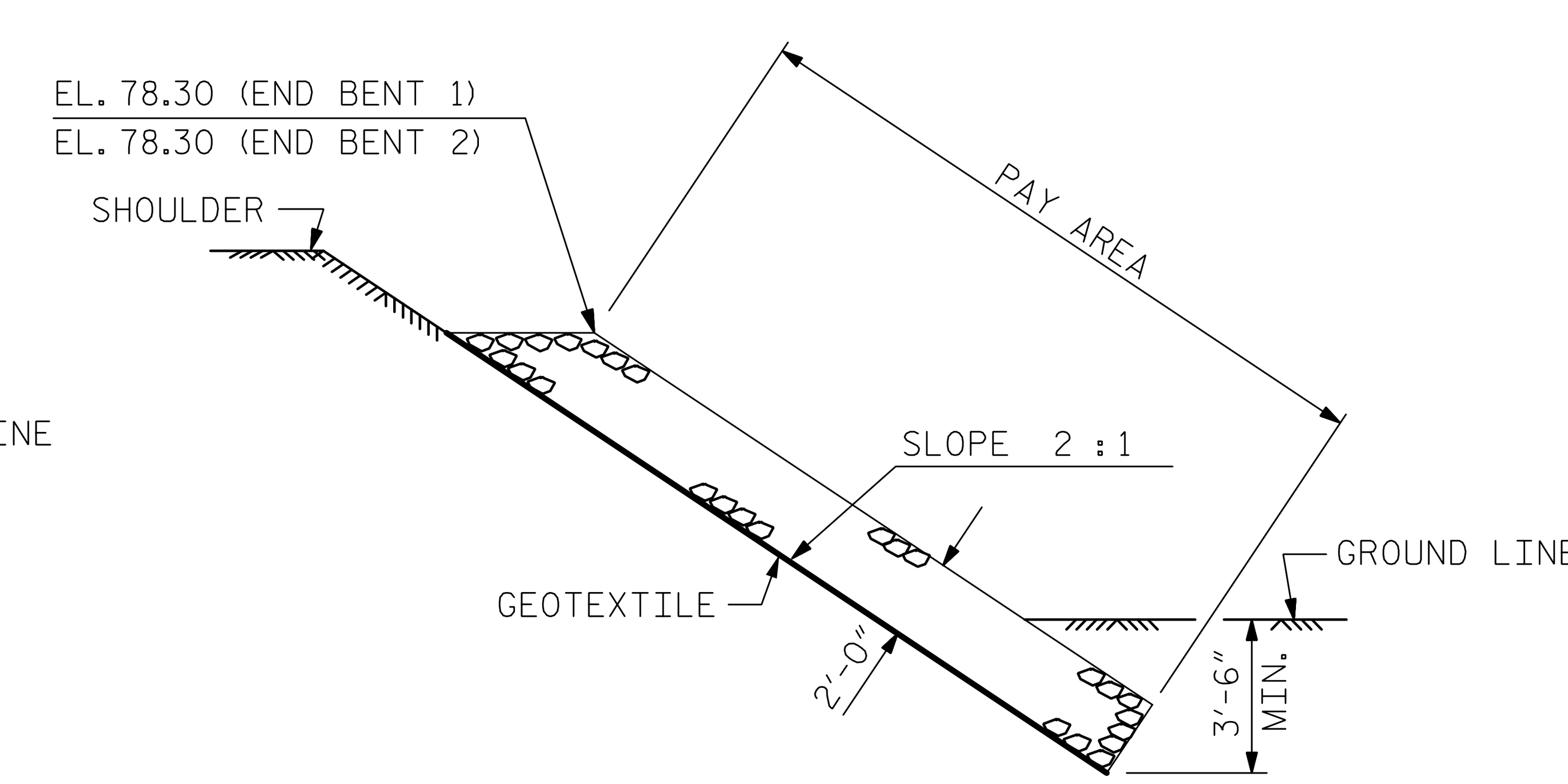
END BENT 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+62.50 -L-	RIP RAP CLASS II (2′-0″ THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	120	135
END BENT 2	105	115



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. BP1.R017

NORTHAMPTON COUNTY

STATION: 14+62.50 -L-

SEAL 20125 NORTH CAROLINA PROFESSIONAL ENGINEER

9/4/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			16

ASSEMBLED BY : ZCS	DATE : 6/23		
CHECKED BY : MGC	DATE : 7/23		
DRAWN BY : REK 1/84	REV. 10/1/11	MAA/GM	
CHECKED BY : RDU 1/84	REV. 12/21/11	MAA/GM	
	REV. 12/17	MAA/THC	

5/20/2024
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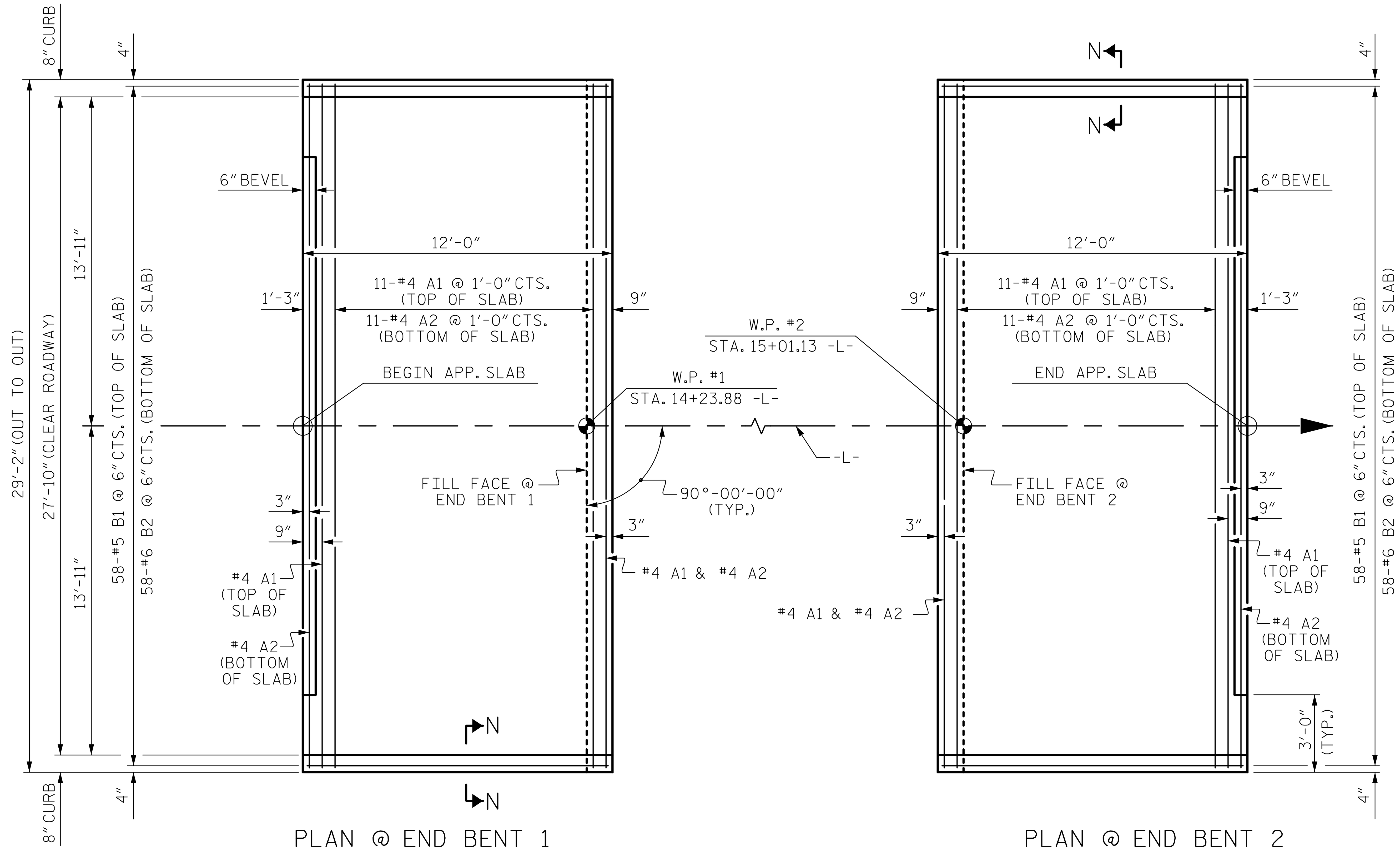
User:ZSmith

STD. NO. RR1 (Sht 2)



NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

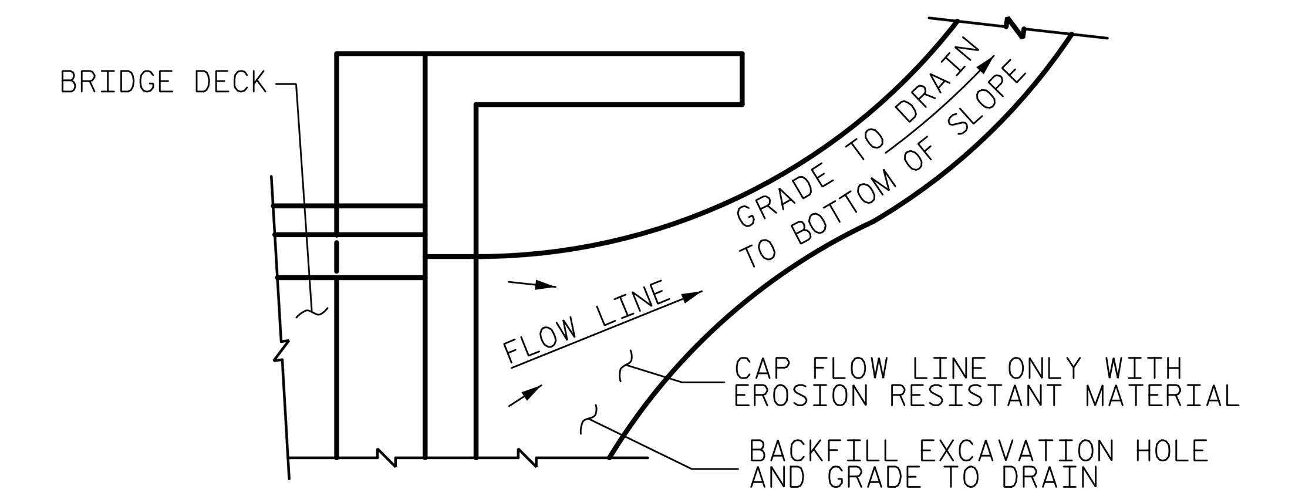
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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.

BILL OF MATERIAL

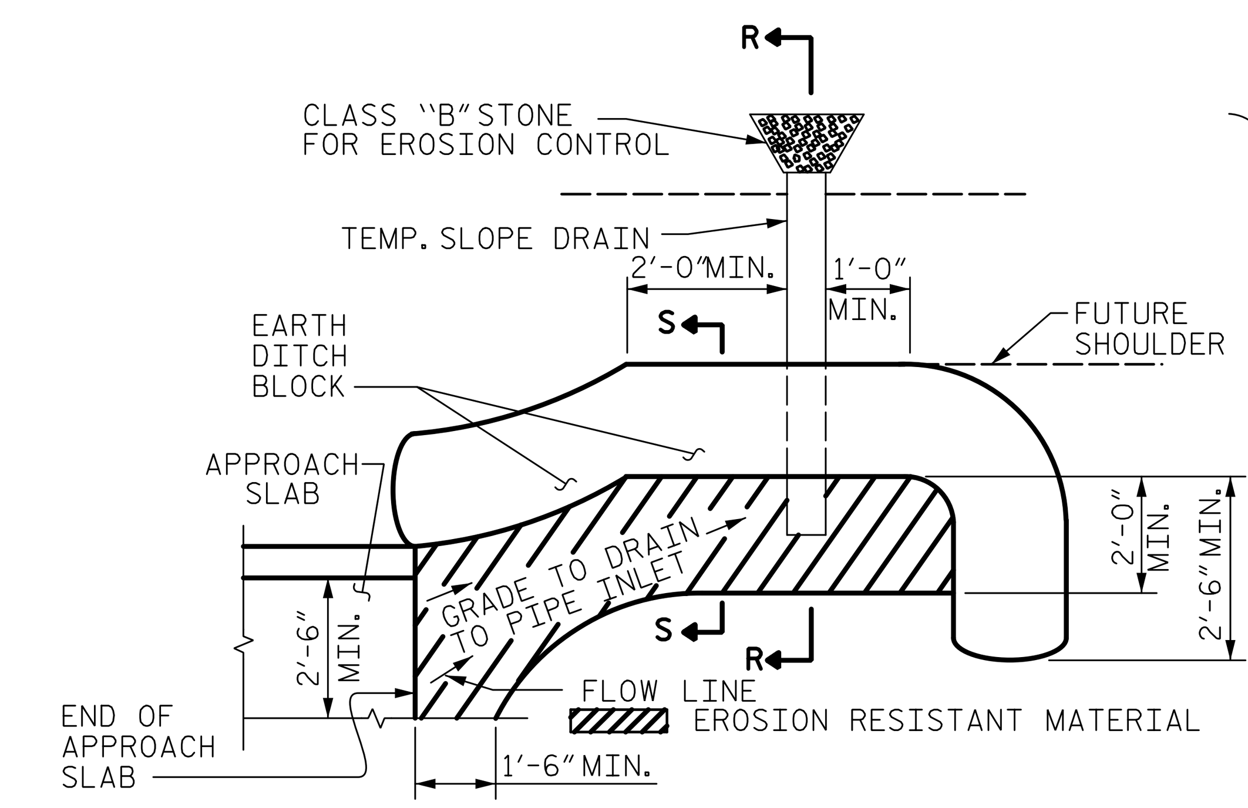
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C.Y.	17.7

APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C.Y.	17.7



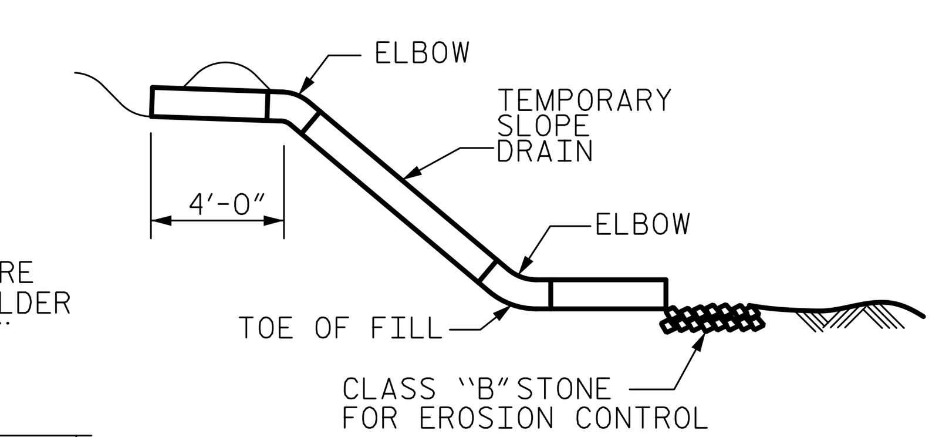
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

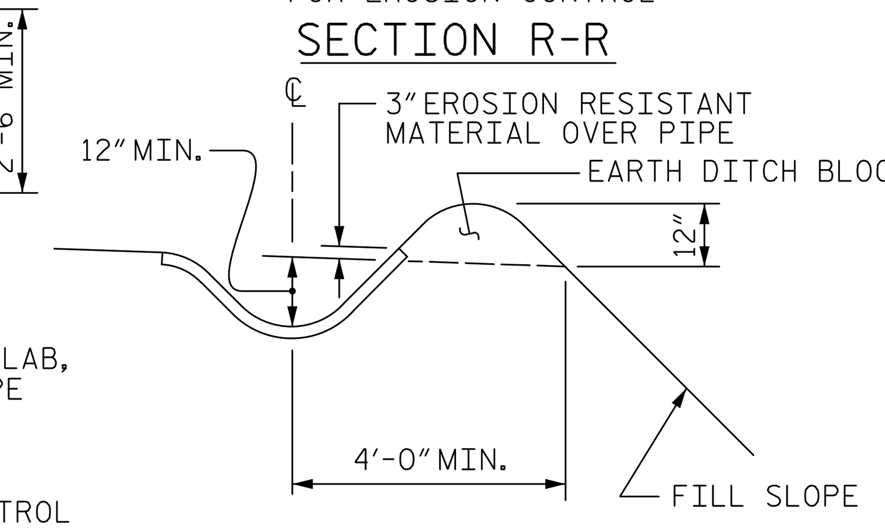


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



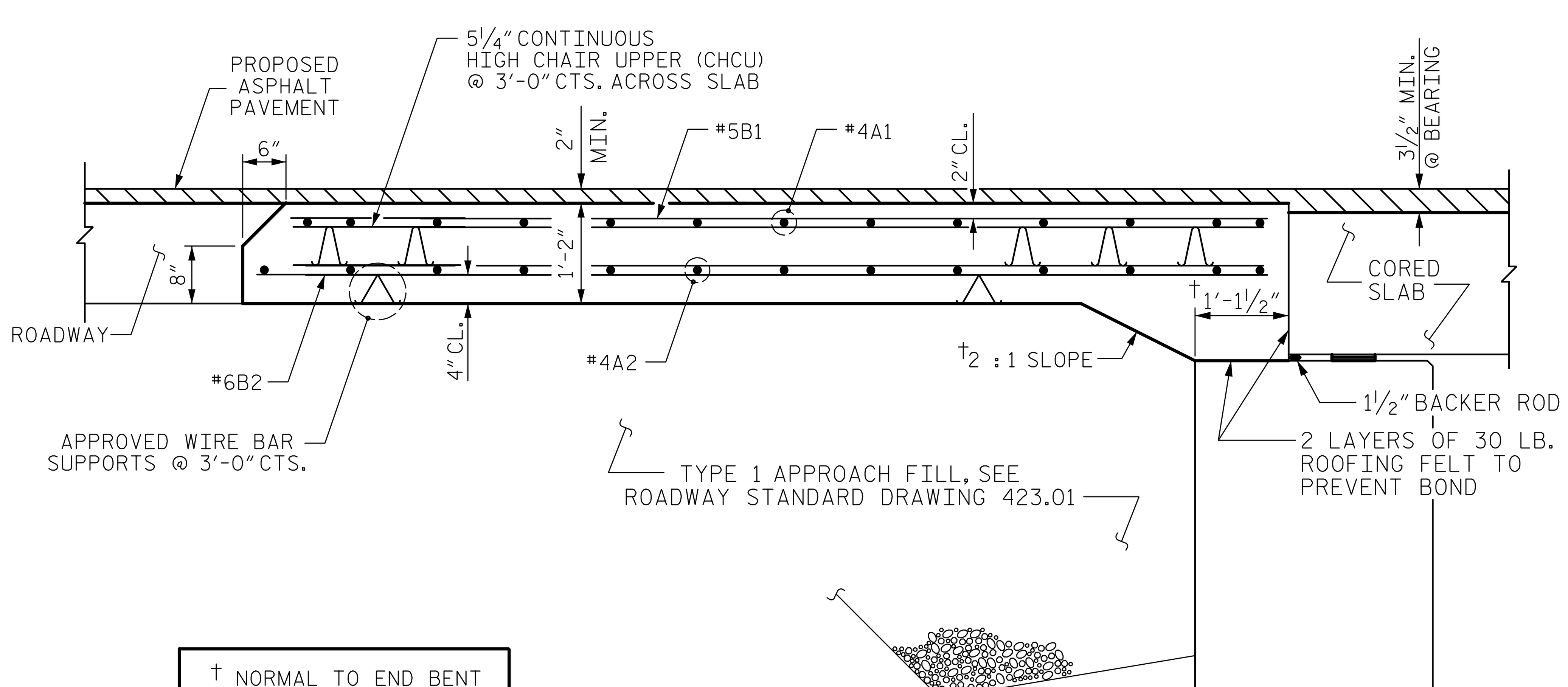
SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

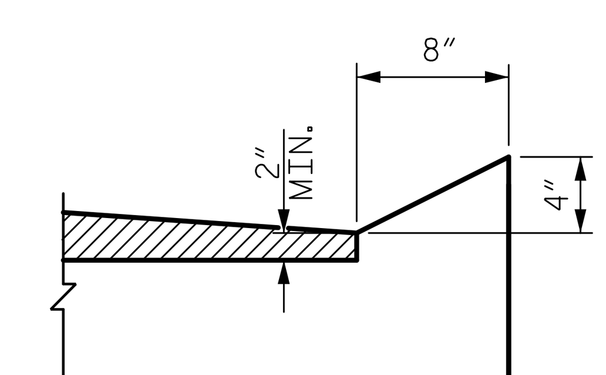


† NORMAL TO END BENT

SECTION THRU SLAB

SPLICE LENGTHS

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



SECTION N-N

PROJECT NO. BP1.R017
NORTHAMPTON COUNTY
STATION: 14+62.50 -L-

SEAL 20125
9/4/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER)

REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	S-16
1			3			TOTAL SHEETS	16
2			4				

ASSEMBLED BY :	ZCS	DATE :	6/23
CHECKED BY :	MGC	DATE :	7/23
DRAWN BY : KMM	3-08	REV. 6/13	MAA/GM
CHECKED BY : GM	3-08	REV. 12/17	MAA/THC
		REV. 06/19	BNB/THC

(SHT 1) STD. NO. BAS6

5/20/2024
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User:ZSmith

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" ∅ SHEAR STUDS FOR THE ¾" ∅ STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" ∅ STUDS FOR 4 - ¾" ∅ STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" ∅ STUDS ALONG THE BEAM AS SHOWN FOR ¾" ∅ STUDS BASED ON THE RATIO OF 3 - ⅞"∅ STUDS FOR 4 - ¾" ∅ STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" 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. FINS 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.