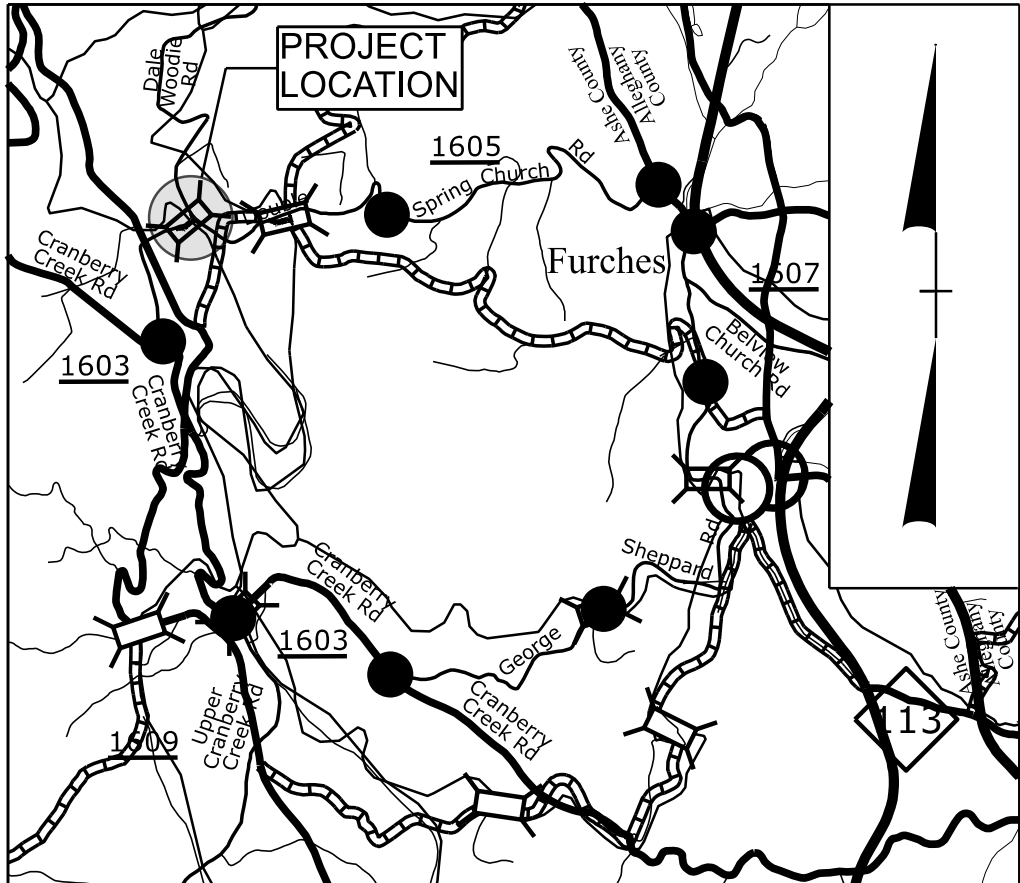


See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



OFFSITE DETOUR ROUTE ● ● ●

VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

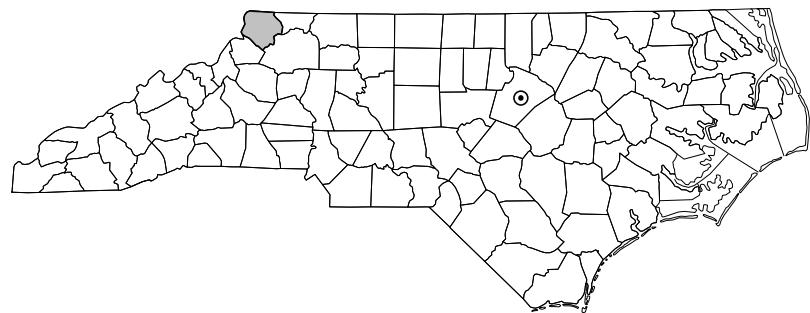
ASHE COUNTY

LOCATION: *BRIDGE 000343 ON SR 1606 (DOUBLE SPRINGS CHURCH ROAD)
OVER CRANBERRY CREEK*

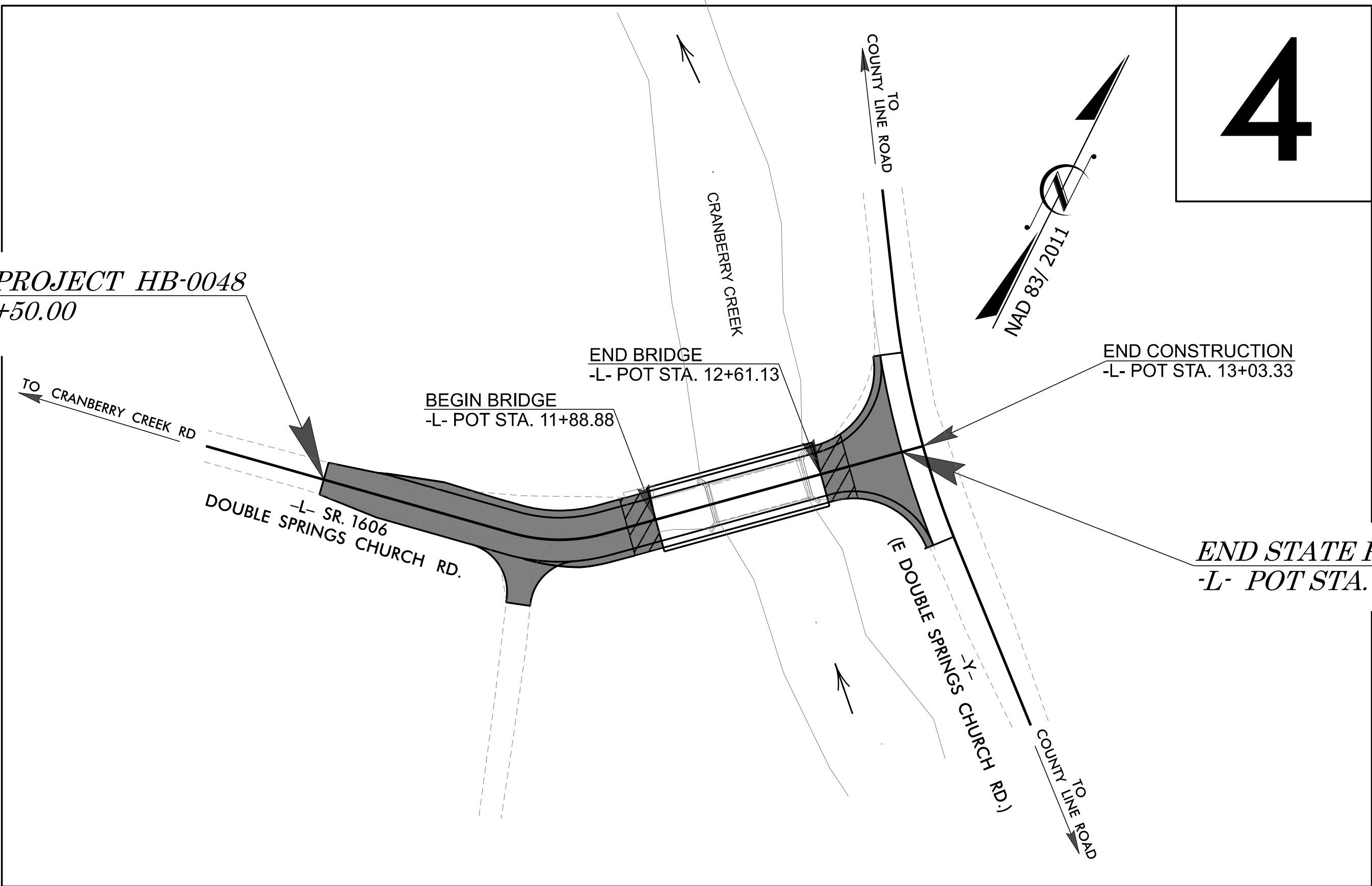
TYPE OF WORK: *GRADING, DRAINAGE, PAVING, AND STRUCTURE*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0048	1	
STATE PROJ. NO.		F. A. PROJ. NO.	DESCRIPTION
50718.1.1		FBRG111	PE
50718.2.1		FBRG111	ROW
50718.2.2		FBRG111	UTILITIES
50718.3.1		FBRG111	CONST

FINAL PLANS



BEGIN STATE PROJECT HB-0048
-L- POT STA. 10+50.00



END STATE PROJECT HB-0048
-L- POT STA. 12+94.33

DESIGN EXCEPTIONS REQUIRED FOR DESIGN SPEED.
THIS IS A NON CONTROLLED ACCESS FACILITY.

GRAPHIC SCALES



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

DESIGN DATA

ADT 2026 = 30
ADT 2045 = 60
V = 15 MPH
FUNC CLASS = LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT HB-0048 = 0.032 MILES
LENGTH OF STRUCTURE TIP PROJECT HB-0048 = 0.014 MILES
TOTAL LENGTH OF TIP PROJECT HB-0048 = 0.046 MILES

NCDOT CONTACT: RAMIE SHAW
DIVISION 11

801 STATEVILLE RD
NORTH WILKESBORO, 28659 NC
DIRECT: (336)-903-9134
rashaw@ncdot.gov



Prepared in the Office of:
STV Engineers, Inc.
900 W Trade Street, Suite 715
Charlotte, NC 28202
NC License Number F-0991

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
June 30, 2025

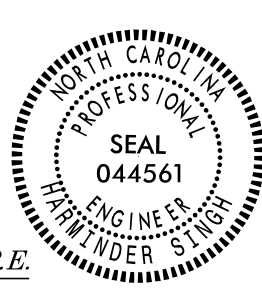
LETTING DATE:
April 16, 2026

SARA S. LOUKILI, PE
PROJECT ENGINEER

WILLIAM LUTHER, EI
PROJECT DESIGN ENGINEER

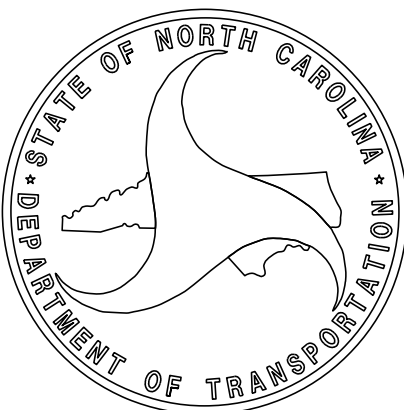
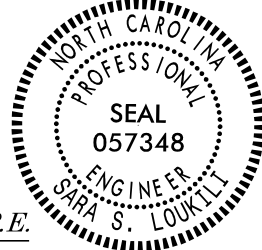
HYDRAULICS ENGINEER

Signed by:
Harinder Singh
ENGINEER
SIGNATURE: 1/16/2026
P.E.



ROADWAY DESIGN ENGINEER

Signed by:
Sara Loukili
ENGINEER
SIGNATURE: 1/16/2026
P.E.



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTION
2C-1	ROADWAY DETAIL FOR STRUCTURE ANCHOR UNITS
2C-2	ROADWAY DETAIL FOR GUARDRAIL PLACEMENT
2C-3	ROADWAY DETAIL FOR GUARDRAIL PLACEMENT AT CURB AND GUTTER
2C-4	ROADWAY DETAIL FOR PIPE INSTALLATION
3B-1	ROADWAY SUMMARIES
3G-1	GEOTECH SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 5	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-2A	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-2	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-4	CROSS SECTIONS
S-1 THRU S-2	STRUCTURE PLANS (NOT INCLUDED)

GENERAL NOTES

GENERAL NOTES:	2024 SPECIFICATIONS EFFECTIVE: 01-16-2024
GRADING AND SURFACING	THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.
CLEARING:	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY 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.
DRIVEWAYS:	DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS 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 SKYLINE/SKYBEST ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS

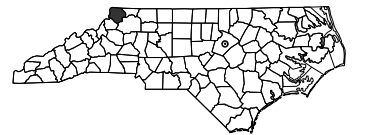
The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

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 (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
310.10	Driveway Pipe Construction
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
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.02	Driveway Turnout - Radius Type
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, & 14 of 15)
862.02	Guardrail Installation (Use Detail in Lieu of Standard for Sheet 5 of 9)
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

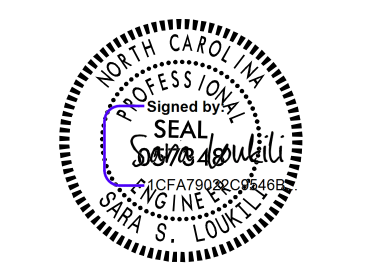
HB-0048

1A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY



ROADWAY DESIGN
ENGINEER



2/4/2026

PREPARED BY



Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
Parcel / Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	
BUILDINGS AND OTHER CULTURE:	
Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	
HYDROLOGY:	
Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	
RIGHT OF WAY & PROJECT CONTROL:	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent Easement Monument (Rebar and Cap)	
Existing C/A Monument	
Proposed C/A Monument (Rebar and Cap)	
Proposed C/A Monument (Concrete)	
Existing Right of Way Line	
Proposed Right of Way Line	
Existing Control of Access Line	
Proposed Control of Access Line	
Proposed ROW and CA Line	
Existing Easement Line	
Proposed Temporary Construction Easement	
Permanent Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage/Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	
ROADS AND RELATED FEATURES:	
Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	
VEGETATION:	
Single Tree	
Single Shrub	

Hedge	
Woods Line	
Orchard	
Vineyard	
EXISTING STRUCTURES:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	
UTILITIES:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line Test Hole (SUE - LOS A)*	
U/G Power Line (SUE - LOS B)*	
U/G Power Line (SUE - LOS C)*	
U/G Power Line (SUE - LOS D)*	
TELEPHONE:	
Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Test Hole (SUE - LOS A)*	
U/G Telephone Cable (SUE - LOS B)*	
U/G Telephone Cable (SUE - LOS C)*	
U/G Telephone Cable (SUE - LOS D)*	
U/G Telephone Conduit (SUE - LOS B)*	
U/G Telephone Conduit (SUE - LOS C)*	
U/G Telephone Conduit (SUE - LOS D)*	
U/G Fiber Optics Cable (SUE - LOS B)*	
U/G Fiber Optics Cable (SUE - LOS C)*	
U/G Fiber Optics Cable (SUE - LOS D)*	

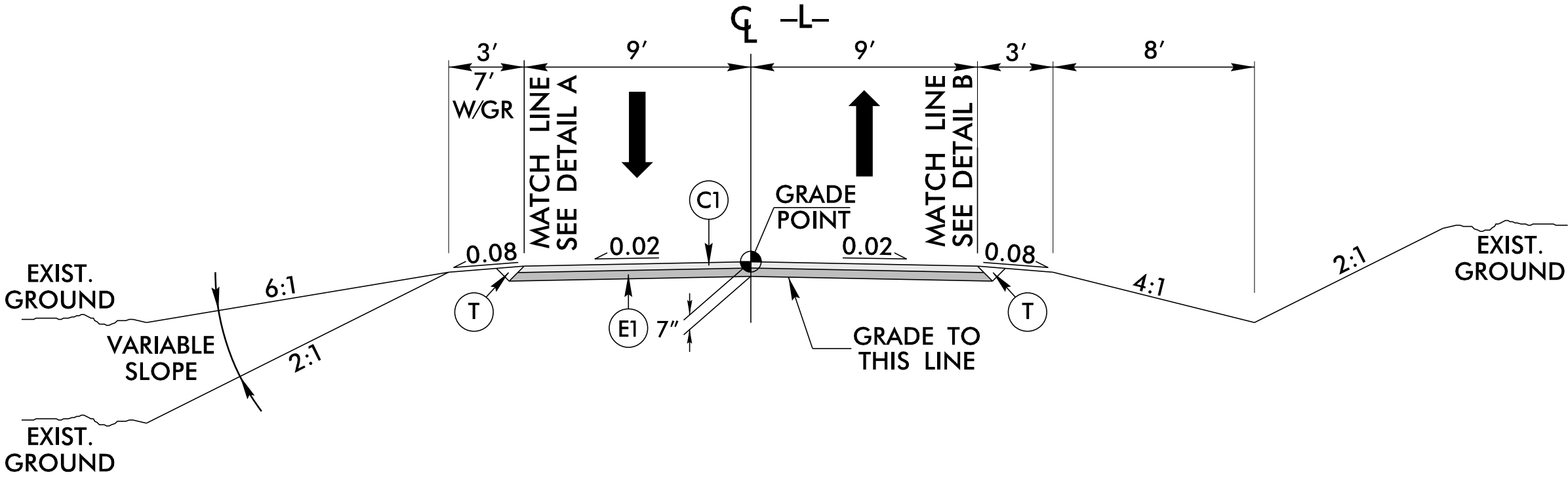
WATER:	
Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line Test Hole (SUE - LOS A)*	
U/G Water Line (SUE - LOS B)*	
U/G Water Line (SUE - LOS C)*	
U/G Water Line (SUE - LOS D)*	
Above Ground Water Line	
TV:	
TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Test Hole (SUE - LOS A)*	
U/G TV Cable (SUE - LOS B)*	
U/G TV Cable (SUE - LOS C)*	
U/G TV Cable (SUE - LOS D)*	
U/G Fiber Optic Cable (SUE - LOS B)*	
U/G Fiber Optic Cable (SUE - LOS C)*	
U/G Fiber Optic Cable (SUE - LOS D)*	
GAS:	
Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE - LOS A)*	
U/G Gas Line (SUE - LOS B)*	
U/G Gas Line (SUE - LOS C)*	
U/G Gas Line (SUE - LOS D)*	
Above Ground Gas Line	
SANITARY SEWER:	
Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Force Main Line Test Hole (SUE - LOS A)*	
SS Force Main Line (SUE - LOS B)*	
SS Force Main Line (SUE - LOS C)*	
SS Force Main Line (SUE - LOS D)*	
MISCELLANEOUS:	
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE - LOS B)*	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenviromental Boring	
Abandoned According to Utility Records	
End of Information	

PAVEMENT SCHEDULE	
(P204L-DATED 14/29/2025)	
A	PORTLAND CEMENT CONCRETE PAVEMENT.
C1	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL

ALL PAVEMENT SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED.

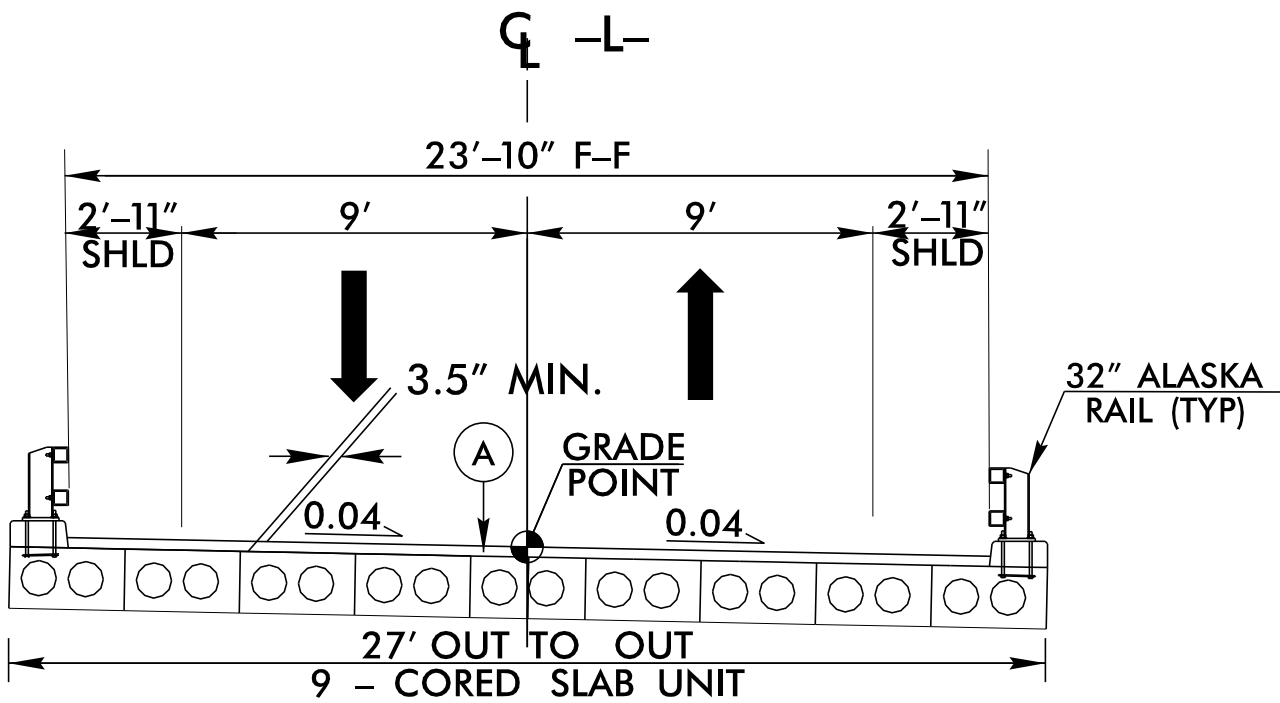
TRANSITION FROM EXISTING TO TYPICAL SECTION NO.1

-L- STA. 10+50.00 TO 10+75.00



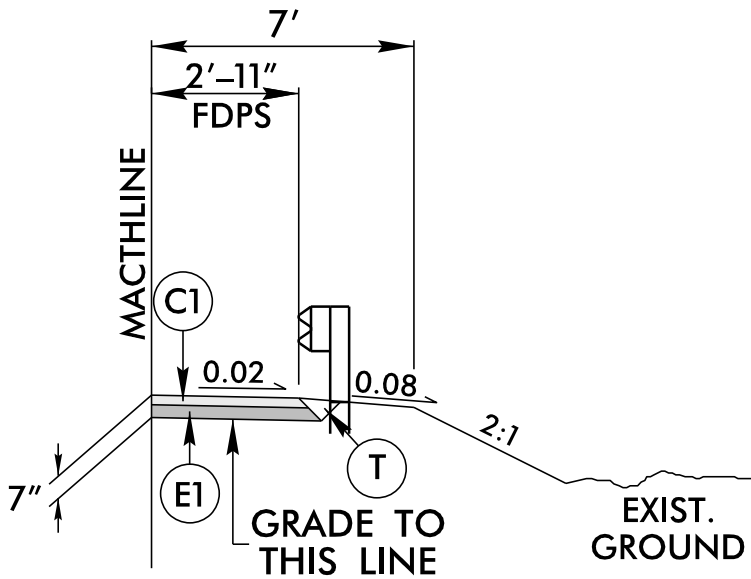
TYPICAL SECTION 1

-L- STA. 10+75.00 TO 11+88.88 (BEGIN BRIDGE)
-L- STA. 12+61.13 (END BRIDGE) TO 12+94.33



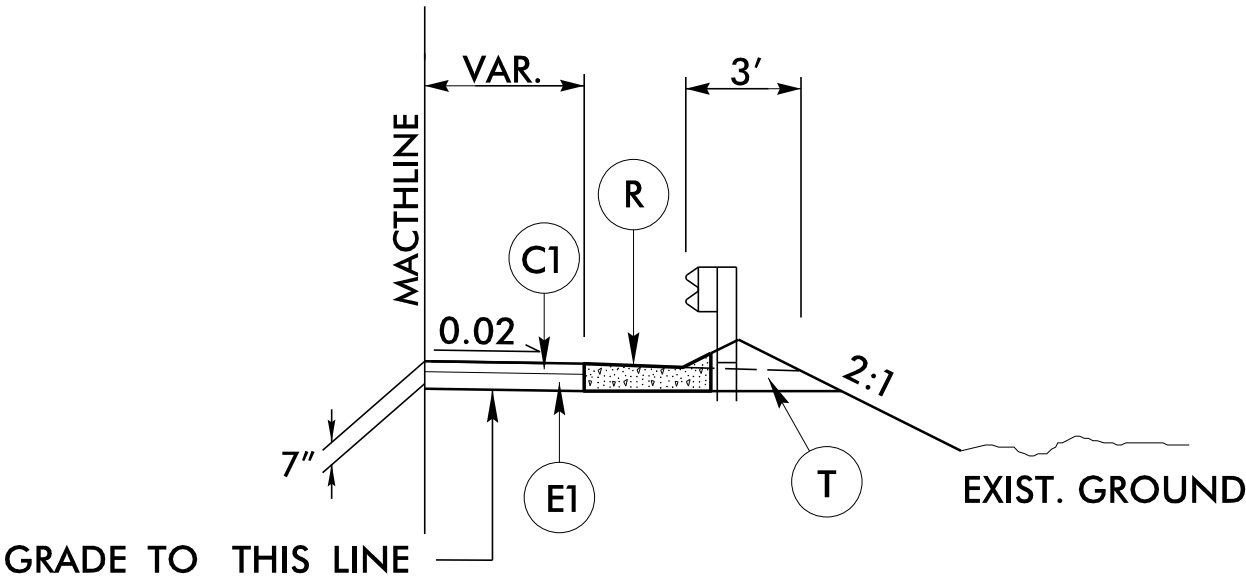
TYPICAL SECTION 2

-L- STA. 11+88.88 (BEGIN BRIDGE) TO 12+61.13 (END BRIDGE)



DETAIL A:

-L- STA. 10+70.65 TO 11+88.88 (BEGIN BRIDGE) (LT)
-L- STA. 11+36.51 TO 11+88.88 (BEGIN BRIDGE) (RT)
-L- STA. 12+61.13 (END BRIDGE) (LT) TO -Y- 10+40.89 (RT)
-L- STA. 12+61.13 (END BRIDGE) (RT) TO -Y- 11+70.49 (RT)



DETAIL B:

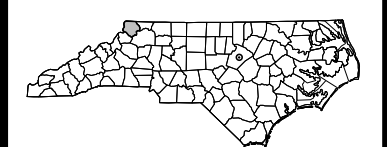
SHOULDER BERM GUTTER

-L- STA. 12+72.00 TO 12+80.00 (RT)

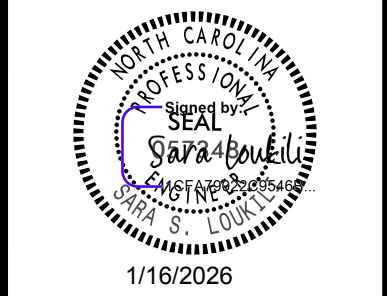
HB-0048

02A-1

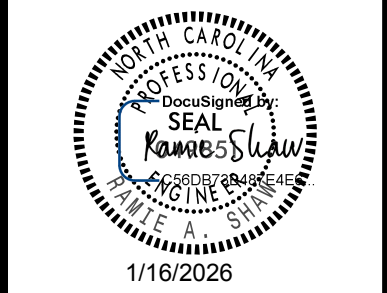
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY



ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER



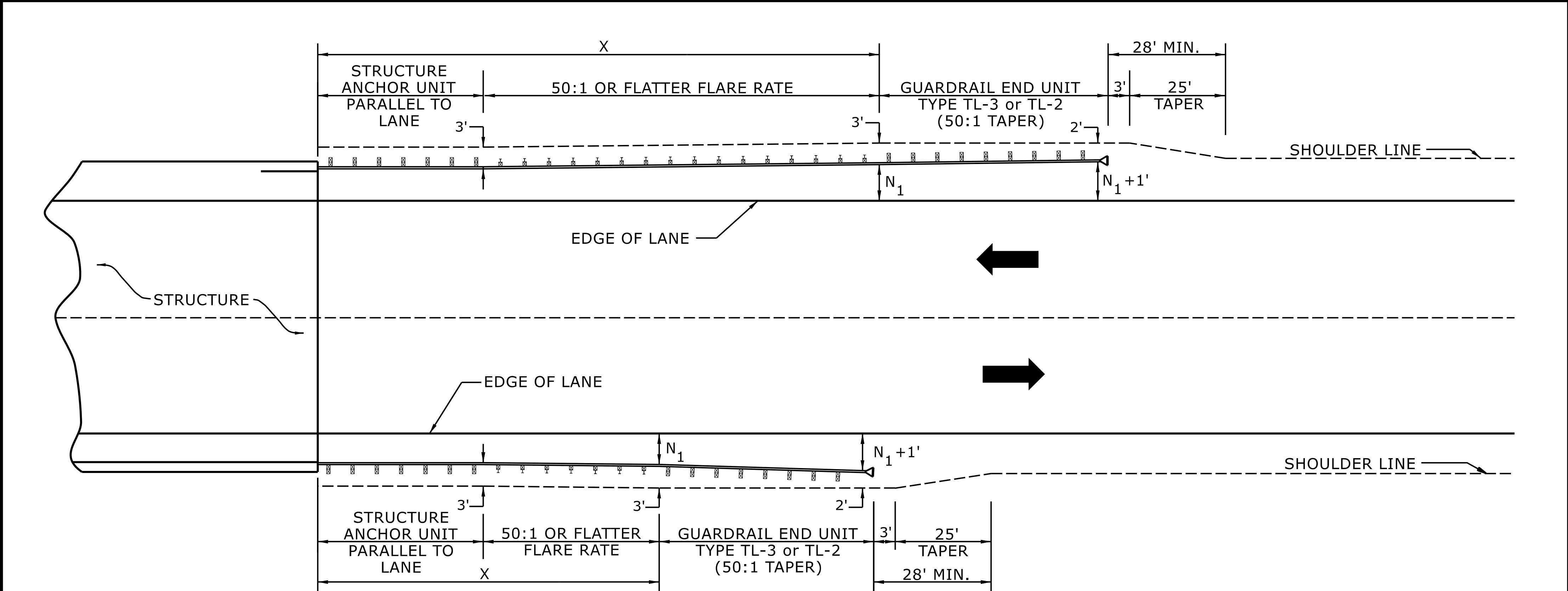
PAVEMENT DESIGN
ENGINEER



PREPARED BY
stv
STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Durham, NC 27623
NC License Number F-0991

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.



USE FLARE RATE AS THE CONTROL IF THE "N₁" DISTANCE IS NOT OBTAINED.
("N₁" 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.

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15
862D01



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

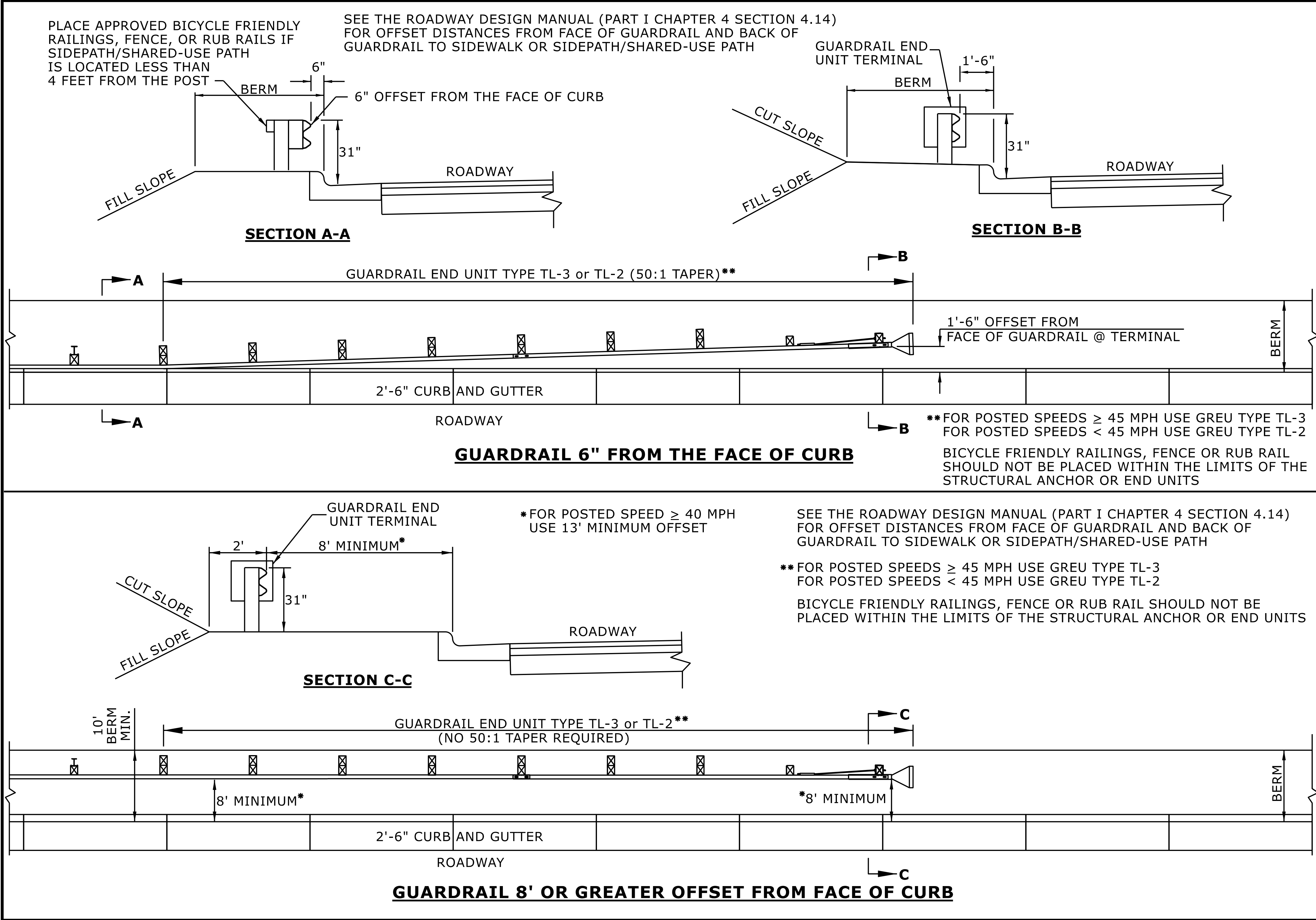
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**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.:



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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT
GUARDRAIL TREATMENT AT CURB AND GUTTER

SHEET 12 OF 15
862D01



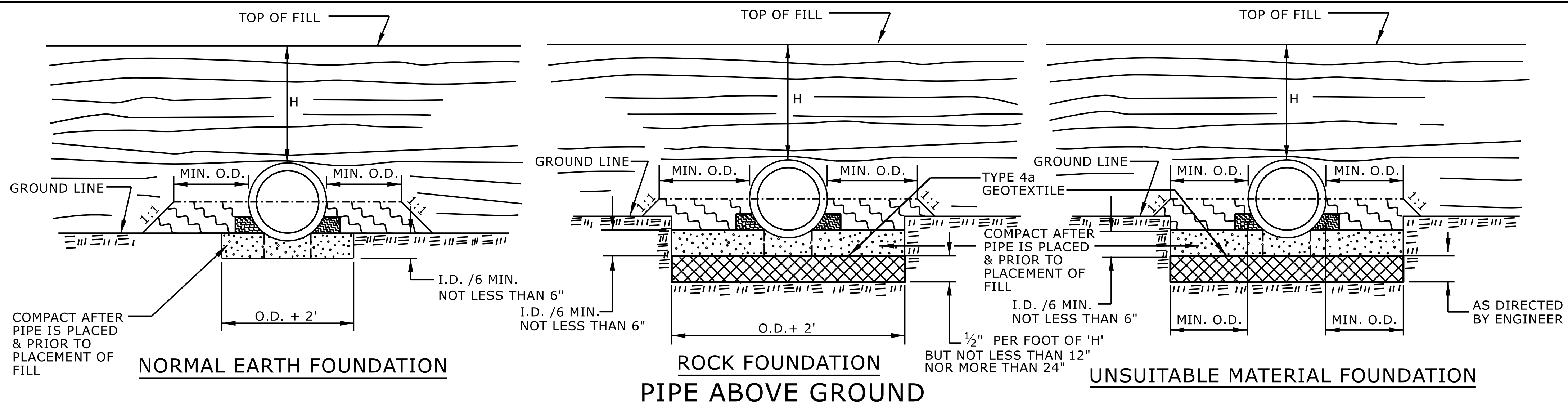
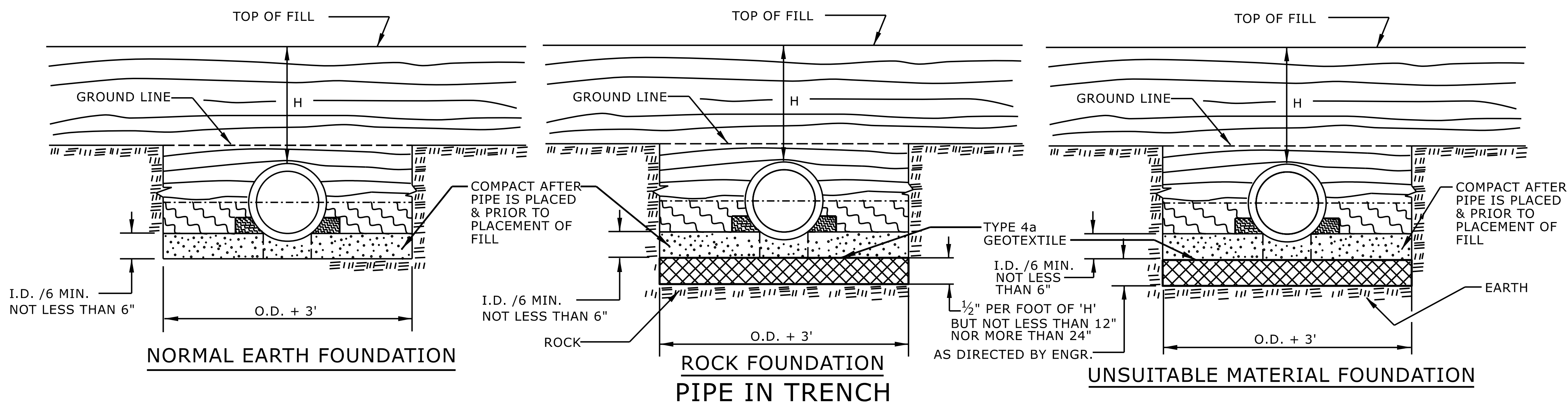
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**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.: DATE:



GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT
 ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP
 OF THE EMBANKMENT AT THAT POINT.

	APPROVED SUITABLE LOCAL MATERIAL.
	TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
	LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

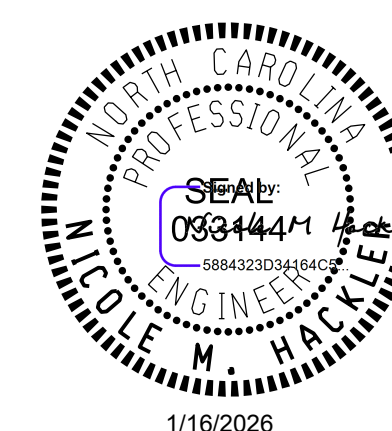
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS
FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

	SPRINGLINE OF PIPE
	SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
	UNDISTURBED EARTH MATERIAL
	SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

ROADWAY DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION RIGID PIPE	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
---	---

SHEET 2 OF 2
300.01



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
919-707-6950 FAX 919-250-4

SEE TITLE BLOCK

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

COMPUTED BY: _____ WCL _____	DATE: 3/24/25
CHECKED BY: _____ TLS _____	DATE: 3/28/25

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

EARTHWORK SUMMARY (IN CUBIC YARDS)

CHAIN	FROM STATION	TO STATION	SIDE	UNCL. EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L-	10 + 50	11 + 88.88 (BR)	LT & RT	58		299	241	
-L-	12 + 61.13 (BR)	12 + 94.33	LT & RT	8		91	83	
TOTAL				66		390	324	
LOSS DUE TO CLEARNING & GRUBBING				-50			50	
PROJECT TOTAL				16			374	
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS							19	
GRAND TOTAL				16			393	
SAY				20			400	

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, and Fine Grading will be paid for at the contract lump sum price for "Grading."

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	FROM STATION	TO STATION	LENGTH
-L- RT	12 + 72.00	12 + 80.00	8.00
TOTAL:			8.00
SAY:			10.00

CONTINGENCY ITEMS
 UNDERCUT: 100 CY
 UNDERCUT FOR SUBGRADE STABILIZATION: 100 CY
 GRAND POINT UNDERCUT: 25 CY
 GEOTEXTILE FOR SOIL STABILIZATION (UNDERCUT FOR EMBANKMENT STABILITY): 100 SY
 GEOTEXTILE FOR SOIL STABILIZATION (AGGREGATE SUBGRADE): 100 SY
 SELECT GRANULAR MATERIAL: 200 CY

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

[illegible]

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

GUARDRAIL SUMMARY

[illegible]

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

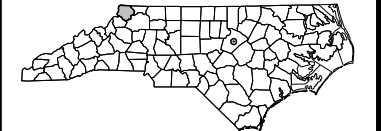
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	100
				TOTAL LF:	100

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

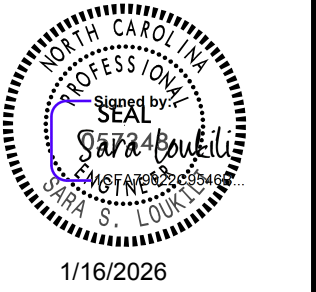
SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY					50	100	150		
			TOTAL CY/TONS/SY:		50	100**	150**	0	0

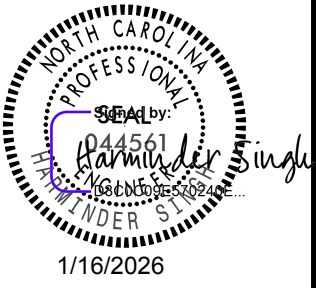
*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.



ROADWAY DESIGN UNIT
ENGINEER



HYDRAULICS
ENGINEER

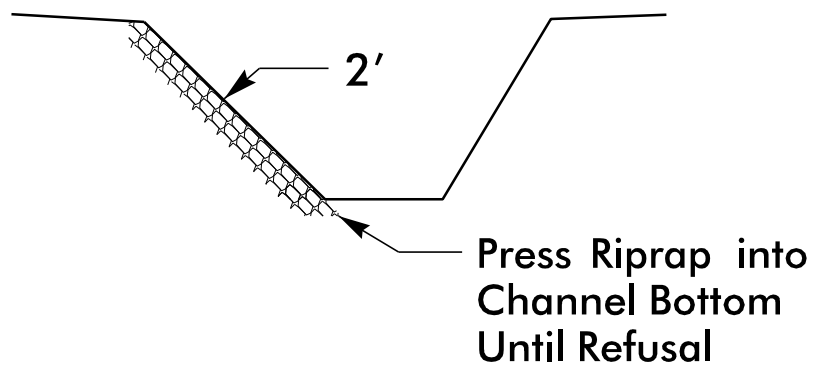


PARCEL INDEX SHEET		
PARCEL NUMBER	SHEET NUMBER	PROPERTY OWNER NAME
1	4	JOHN D. CHEESBOROUGH AND WIFE, ELEEN M. FLANAGAN
2	4	JOHN D. CHEESBOROUGH AND WIFE, ELEEN M. FLANAGAN
3	4	TIMOTHY JOHN CSOBADY
4	4	BRUCE E. DAWES
5	4	RUTH CLISSON HAND
6	4	RONALD E. WATERS AND WIFE, PAULA P. WATERS

CUR DATA -L-
P/c 11+49.82
 $\Delta c = 31^{\circ}11'58.4''$ (LT)
D = 81°51'04.0"
Lc = 38.12
Tc = 19.54
R = 70
SE = -0.040
DS <= 15 MPH
Lr = 48

CUR DATA -Y-
P/c 10+98.17
 $\Delta c = 15^{\circ}50'50.0''$ (LT)
D = 15°26'37.0"
Lc = 102.61
Tc = 51.64
R = 371
SE = EXIST.

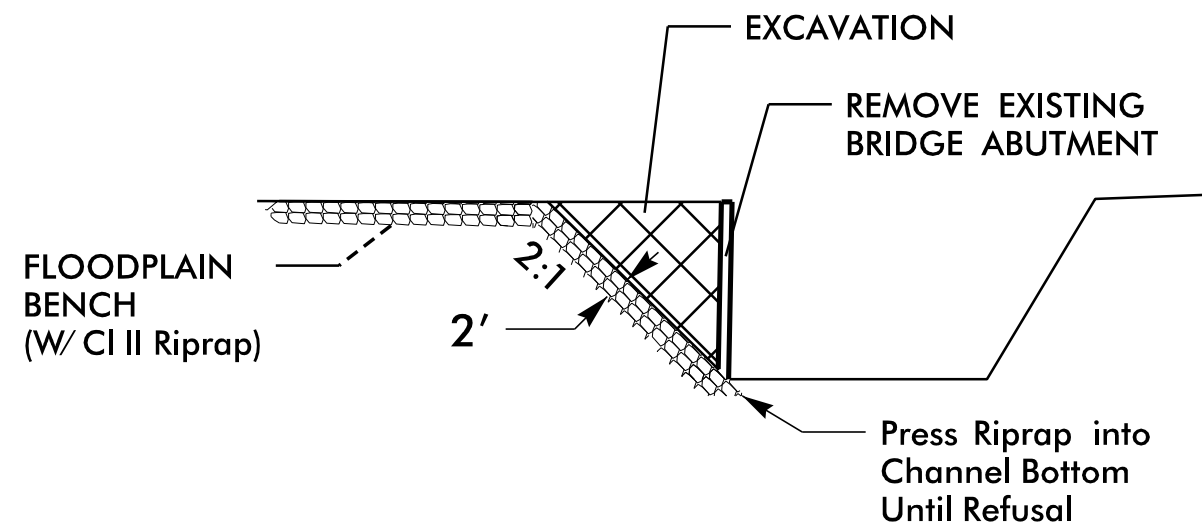
DETAIL B BANK STABILIZATION (Not to Scale)



Type of Liner=23 TONS,CL II Rip-Rap, Keyed-In

FROM STA. 12+10 TO STA. 12+22 -L- RT

DETAIL C FLOODPLAIN BENCH (Not to Scale)



Type of Liner=83 TONS,CL II Rip-Rap, Keyed-In

FROM STA. 11+95 TO STA. 12+15 -L- LT

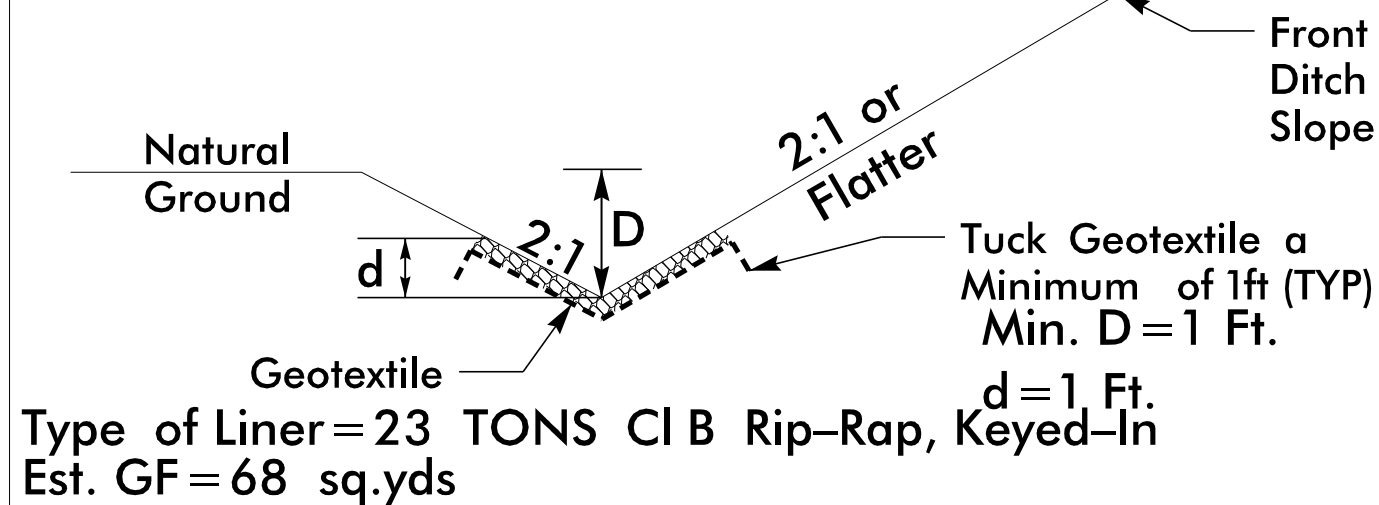
BEGIN STATE PROJECT HB-0048
-L- POT STA. 10+50.00

END STATE PROJECT HB-0048
-L- STA. 12+94.33

END CONSTRUCTION HB-0048
-L- STA. 13+03.33

END CONSTRUCTION HB-0048
-Y- STA. 11+75.00

DETAIL A SPECIAL 'V' DITCH (Not to Scale)



FROM STA. 10+60 TO STA. 11+25 -L- RT
FROM STA. 11+55 TO STA. 11+95 -L- RT

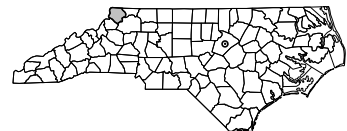
NOTE:
DESIGN EXCEPTION APPROVED TO 15 MPH
DESIGN SPEED TO MATCH EXISTING CONDION

SEE SHEET 5 FOR PROFILE VIEW

HB-0048

4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

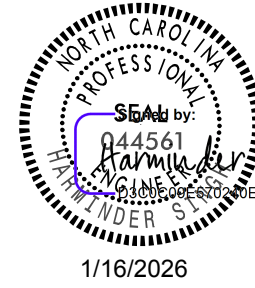


ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



HYDRAULICS
ENGINEER

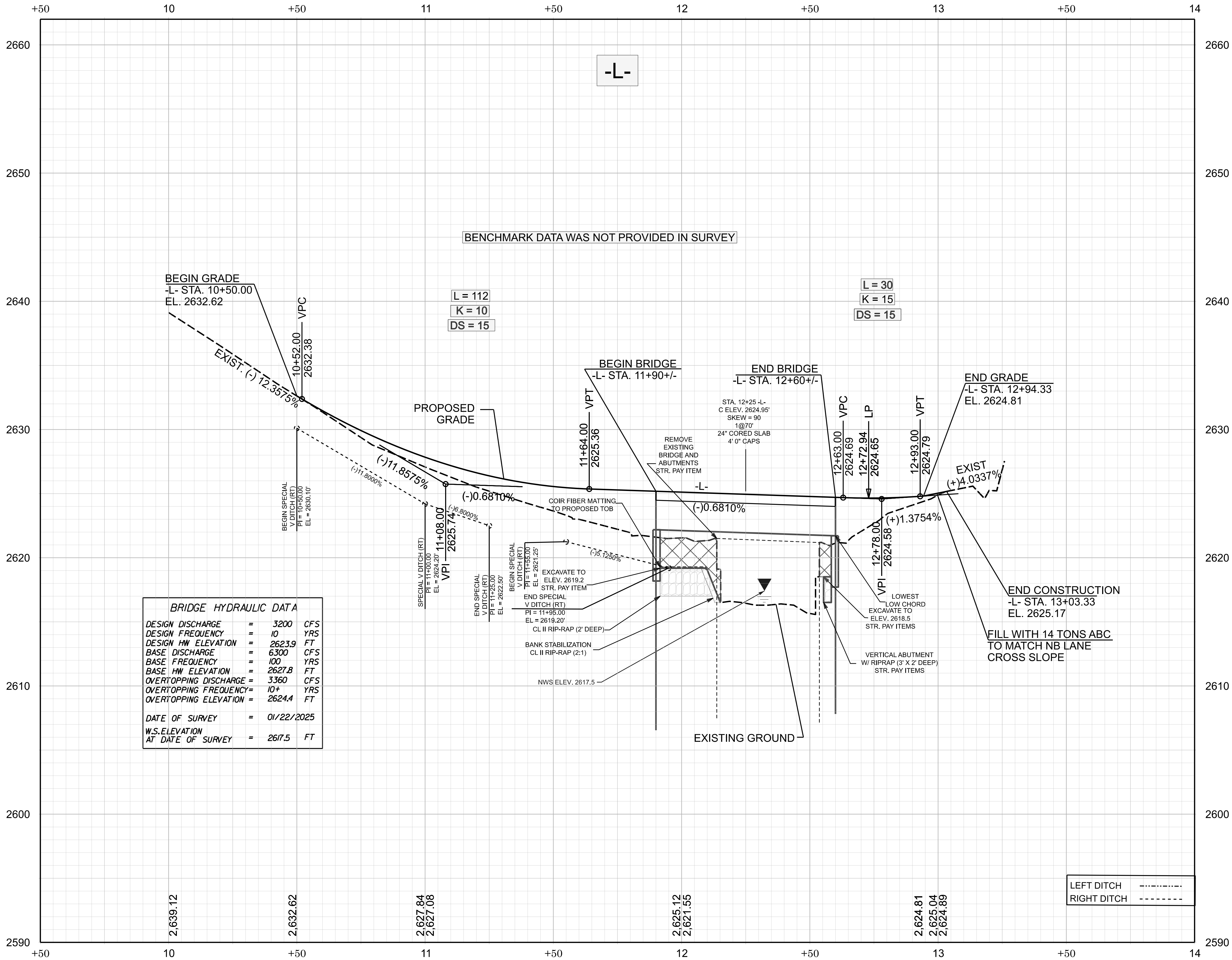


PREPARED BY

STV

STV Engineers, Inc.
213 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number: 7-0991

11/14/23

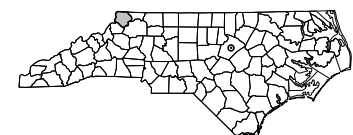


SEE SHEET 4 FOR PLAN VIEW

HB-0048

5

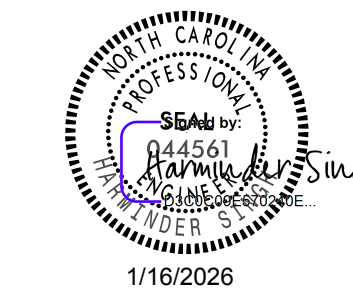
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY



ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER



HYDRAULICS
ENGINEER



PREPARED BY
stv
STV Engineers, Inc.
213 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-19991

PROPOSED ALIGNMENT CONTROL SHEET

I, MATTHEW T. CORNWELL, 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 8/15/2025

Signed by: Matthew Cornwell
EBD036F11473E475

PROFESSIONAL LAND SURVEYOR L-4775

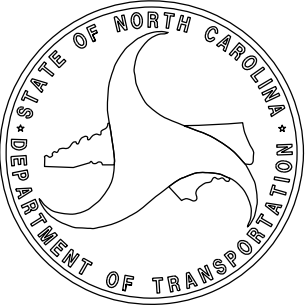
PROPOSED ALIGNMENT: L												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
START	10+00.00	991562.8145	1323186.5555	N79°20'54.5"E	130.27							
PC	11+30.27	991586.8935	1323314.5834	N63°44'55.3"E	37.65	31°11'58.4"	81°51'04.0"	38.12	19.54	70.00		
PT	11+68.39	991603.5456	1323348.3487	N48°08'56.1"E	134.94							
END	13+03.33	991693.5753	1323448.8608									

PROPOSED ALIGNMENT: Y												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
START	10+00.00	991780.0540	1323387.1815	S32°53'58.0"E	46.53							
PC	10+46.53	991740.9841	1323412.4564	S40°49'23.0"E	102.29	15°50'50.0"	15°26'37.0"	102.61	51.64	371.00		
PT	11+49.15	991663.5804	1323479.3238	S48°44'48.0"E	79.65							
END	12+28.79	991611.0625	1323539.2020									

HB-0048

R/W 02D-I

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

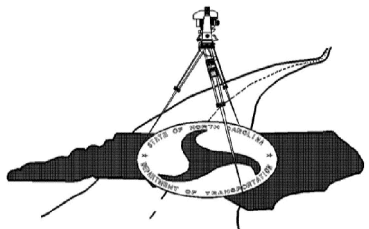


DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0048
County: Ashe

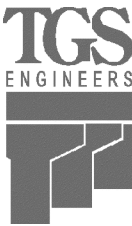
PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY

TGS ENGINEERS
201 WEST MARION ST.
SUITE 200
SHELBY, NC 28150
704-476-0003



NOTES:

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

RIGHT OF WAY & PERMANENT EASEMENT CONTROL SHEET

I, MATTHEW T. CORNWELL, PLS, 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 8/14/2025, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 8/15/2025

Signed by: Matthew Cornwell EBC089F11473E475

PROFESSIONAL LAND SURVEYOR L-4775

PERMANENT ROW MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
10+50.00	-30.0000	991601.5393	1323230.1489
10+50.00	30.0000	991542.5732	1323241.2390
10+50.00	-12.5000	991584.3409	1323233.3835
10+50.00	12.5000	991559.7716	1323238.0044
11+28.00	30.0425	991556.9486	1323317.9029
11+42.00	30.0000	991561.8685	1323336.2576
11+42.00	35.0000	991557.1776	1323337.9882
11+50.00	-30.0000	991619.9835	1323319.6792
11+68.00	35.0000	991577.0857	1323371.2638
12+50.00	-45.0000	991691.5152	1323379.1146
12+50.00	-35.0000	991684.0664	1323385.7866
12+75.02	35.0000	991648.6189	1323451.1284

NOT SET - FALLS IN TREE

NOT SET - FALLS IN RIVER

NOT SET - FALLS IN RIVER

PERMANENT ROW MARKER IRON PIN AND CAP: Y			
STATION	OFFSET	NORTH	EAST
10+35.00	15.0000	991742.5196	1323393.5979
10+35.00	30.0000	991734.3721	1323381.0036
10+70.00	30.0000	991703.8417	1323401.7093
11+75.00	15.0000	991635.2556	1323488.8700
11+75.00	30.0000	991623.9786	1323478.9792

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
11+85.00	35.0000	991588.5558	1323384.0719
11+85.00	41.0000	991584.0876	1323388.0763

PERMANENT EASEMENT MARKER IRON PIN AND CAP: Y			
STATION	OFFSET	NORTH	EAST
11+45.00	30.0000	991644.0001	1323456.1896

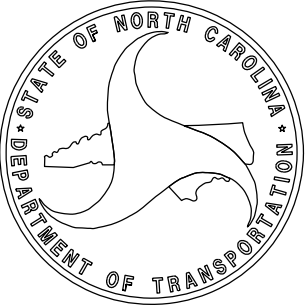
NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

HB-0048

R/W 03E-I

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



PROFESSIONAL LAND SURVEYOR

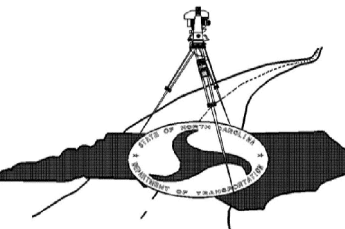


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: HB-0048
County: Ashe

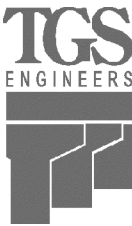
PREPARED FOR



LOCATION AND SURVEYS UNIT

PREPARED BY

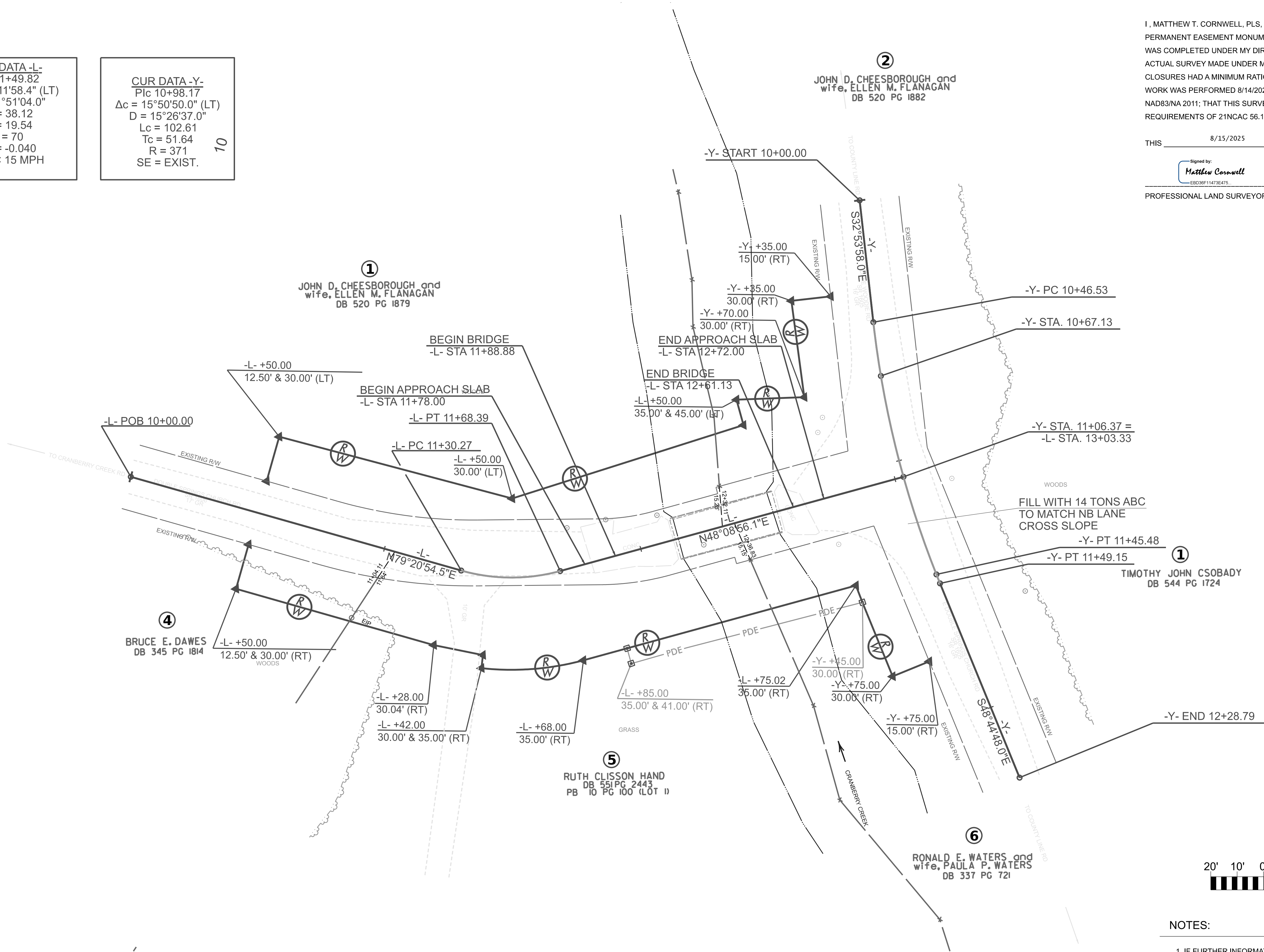
TGS ENGINEERS
201 WEST MARION ST.
SUITE 200
SHELBY, NC 28150
704-476-0003



CUR DATA -L-
P/c 11+49.82
 $\Delta c = 31^{\circ}11'58.4''$ (LT)
D = 81°51'04.0"
Lc = 38.12
Tc = 19.54
R = 70
SE = -0.040
DS =< 15 MPH

CUR DATA -Y-
P/c 10+98.17
 $\Delta c = 15^{\circ}50'50.0''$ (LT)
D = 15°26'37.0"
Lc = 102.61
Tc = 51.64
R = 371
SE = EXIST.

10



I, MATTHEW T. CORNWELL, PLS, 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 8/14/2025, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 8/15/2025
Signed by:
Matthew Cornwell
EBD09F11473E475
PROFESSIONAL LAND SURVEYOR L-4775



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

HB-0048

R/W 04

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

PROFESSIONAL LAND
SURVEYOR

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0048
County: Ashe

PREPARED FOR

LOCATION AND
SURVEYS UNIT

PREPARED BY

TGS ENGINEERS
201 WEST MARION ST.
SUITE 200
SHELBY, NC 28150
704-476-0003

09/08/99

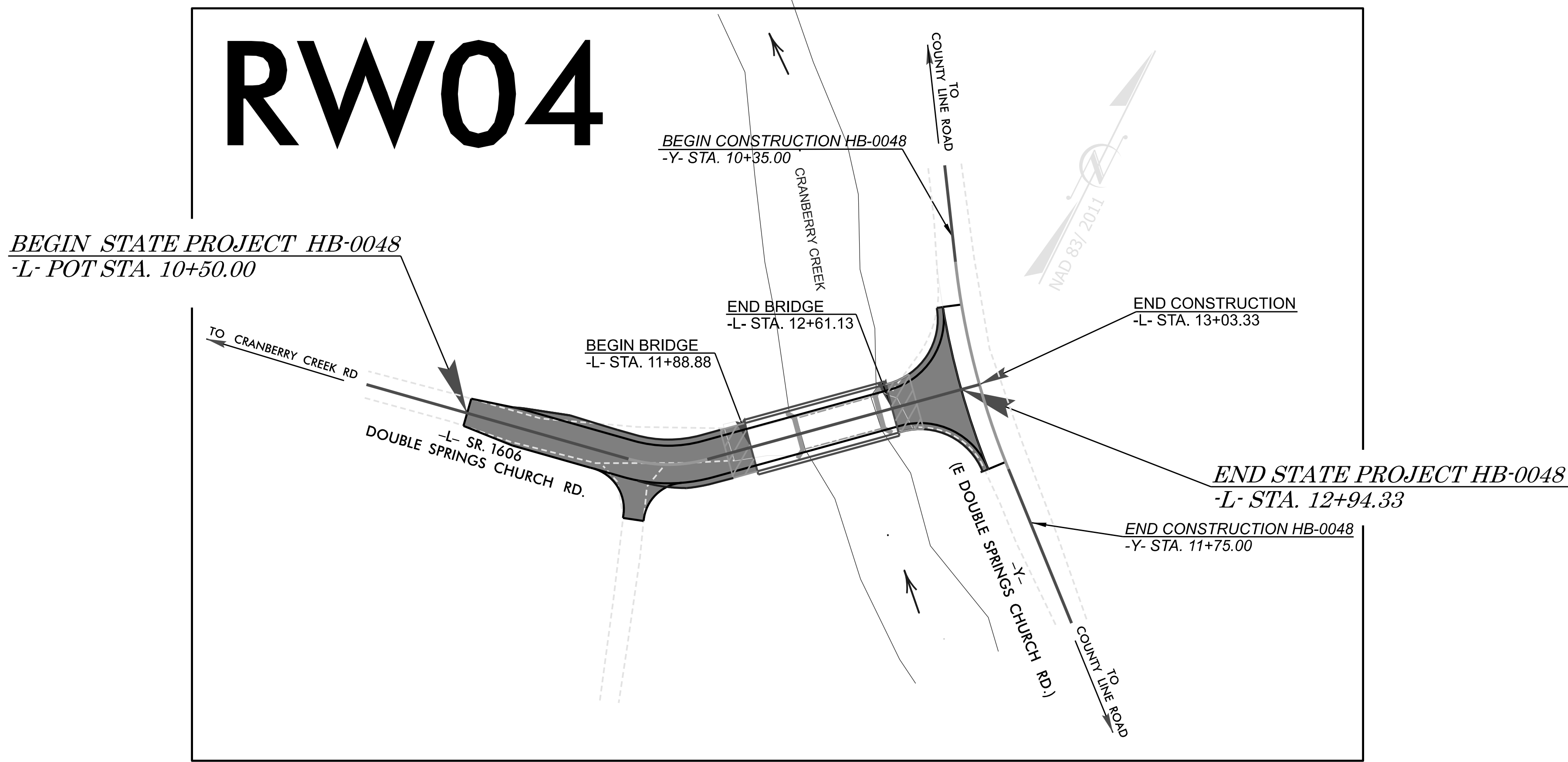
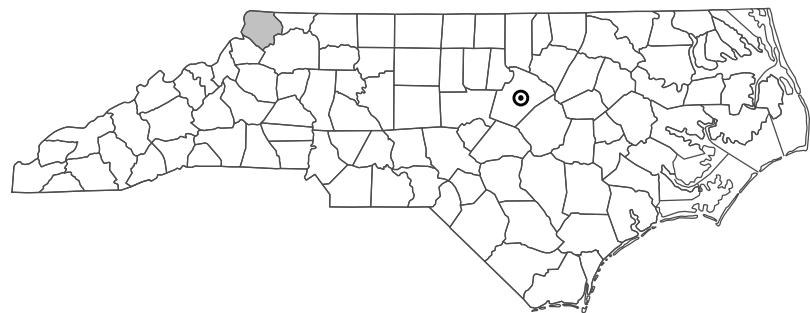
TIP PROJECT: HB-0048

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

ASHE COUNTY

STATE NO.	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0048	RW01	6



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

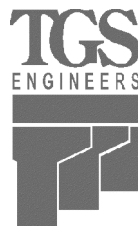
GRAPHIC SCALES



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT HB0048-2
WITH NAD83/2011 STATE PLANE GRID COORDINATES OF
NORTHING: 991536.137 EASTING: 1323602.194
ELEVATION: 2624.918
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999971797
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:



TGS ENGINEERS
201 WEST MARION STREET
SUITE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

2024 STANDARD SPECIFICATIONS

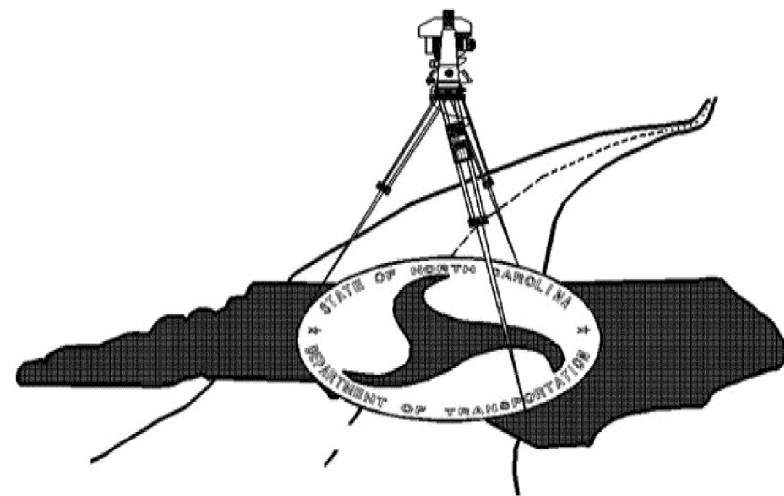
RIGHT OF WAY DATE:
June 30, 2025

LETTING DATE:
September 17, 2026

PROFESSIONAL LAND
SURVEYOR



Signed by:
Matthew Cornwell 8/15/2025
E8028P11473E475.
SIGNATURE: DATE:



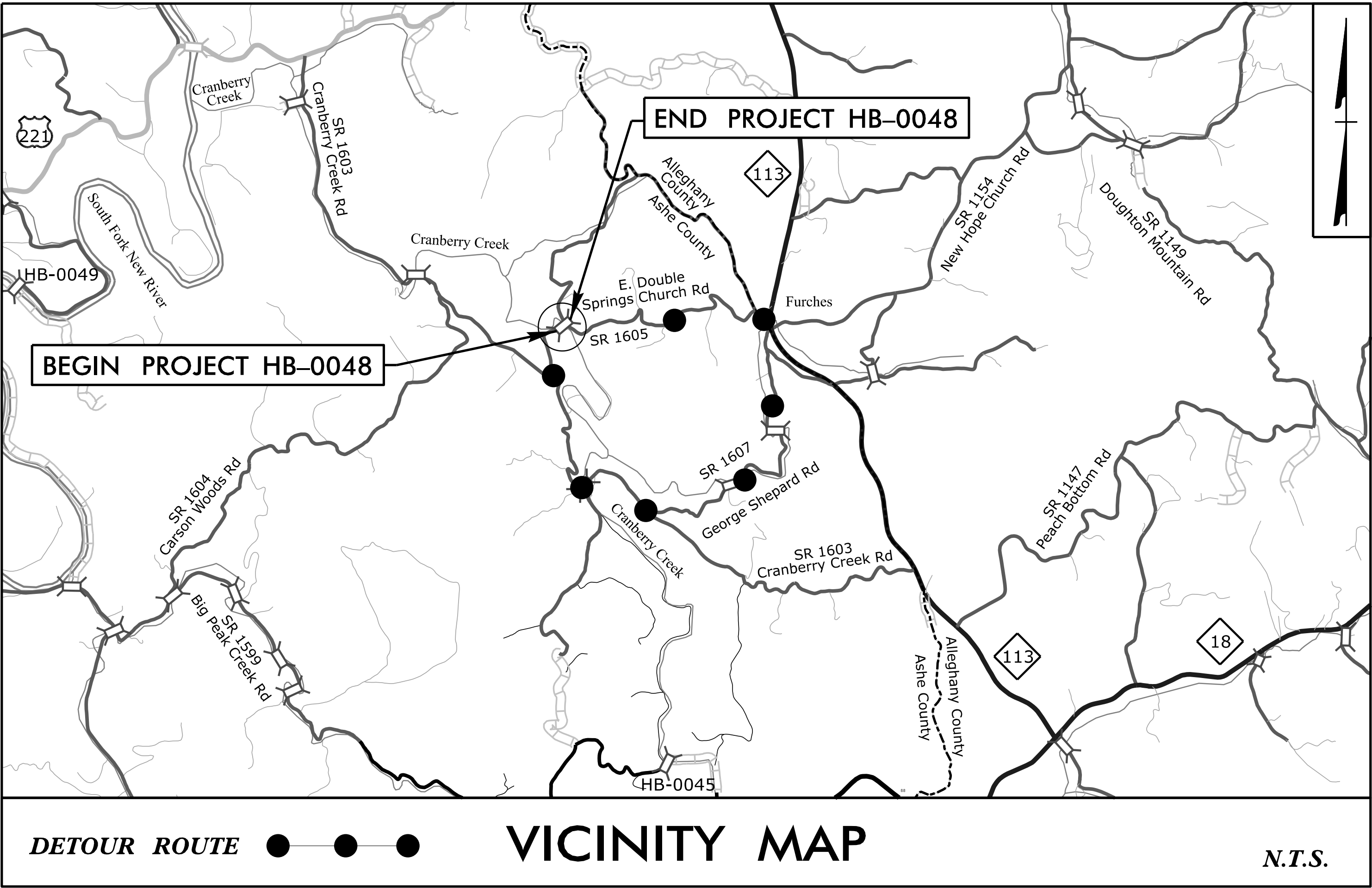
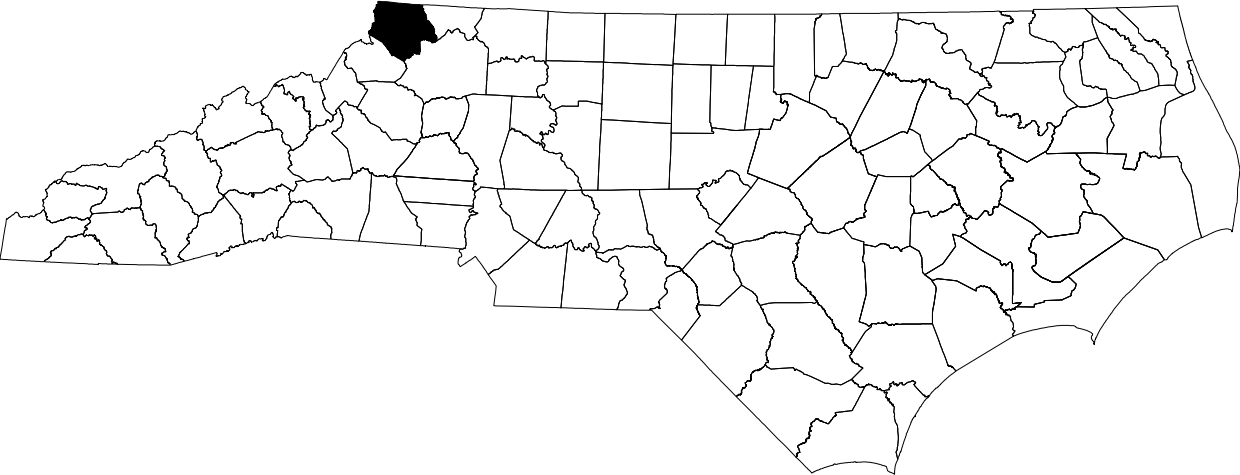
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ASHE COUNTY

LOCATION: *BRIDGE 000343 ON SR 1606 (DOUBLE SPRINGS CHURCH ROAD)
OVER CRANBERRY CREEK*

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



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	ROADWAY STANDARD DRAWINGS & LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN
TMP-2	OFF-SITE DETOUR SIGNING AND ROAD CLOSURE SIGNING
TMP-2A	SPECIAL SIGN DESIGN

6/17/2025 DATE SUBMITTED

SUBMITTAL:

☐ STAGING CONCEPT

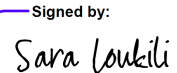
☐ MIDPOINT

☐ PRE-FINAL

☒ FINAL

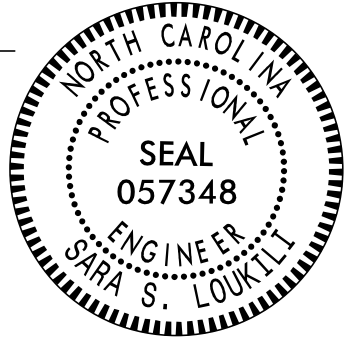
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

APPROVED: 

DATE: 2/23/2026

SEAL





PLANS PREPARED BY:

 STV Engineers, Inc.
900 W. Trade Street, Suite 715
Charlotte, NC 28202
NC License Number F-0991

SARA S. LOUKILI, P.E.
PROJECT ENGINEER

JENNIFER C. GRIMM
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

IVAN DISHMAN, PE
PROJECT MANAGER



TIP PROJECT: HB-0048

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

LEGEND

GENERAL

DIRECTION OF TRAFFIC FLOW

DIRECTION OF PEDESTRIAN TRAFFIC FLOW

EXIST. PVMT.

NORTH ARROW

PROPOSED PVMT.

TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

SIGNALS

EXISTING

PROPOSED

TEMPORARY

PAVEMENT MARKINGS

EXISTING LINES

TEMPORARY LINES

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

CONE

DRUM SKINNY DRUM TUBULAR MARKER

TEMPORARY CRASH CUSHION

FLASHING ARROW BOARD

FLAGGER

LAW ENFORCEMENT

TRUCK MOUNTED ATTENUATOR (TMA)

CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

PORTABLE SIGN

STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

CRYSTAL/CRYSTAL

CRYSTAL/RED

YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS



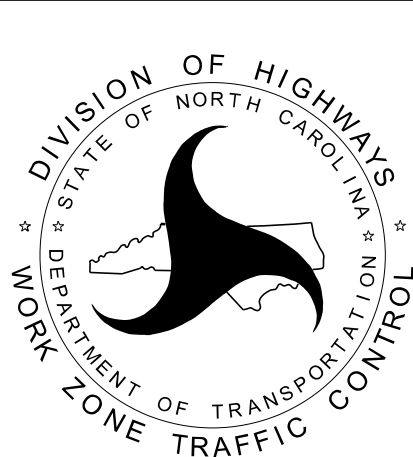
STV Engineers, Inc.
900 W. Trade Street, Suite 715
Charlotte, NC 28202
NC License Number F-0991

APPROVED:
DATE: 2/23/2026

SEAL



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



ROADWAY STANDARD
DRAWINGS & LEGEND

PROJ. REFERENCE NO.	SHEET NO.
HB-0048	TMP-1B

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

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

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

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

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

TRAFFIC CONTROL DEVICES

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

LOCAL NOTES

- G) IN ORDER TO HAVE TIME TO ADEQUATELY REROUTE SCHOOL BUSES, ASHE COUNTY SCHOOLS WILL BE CONTACTED AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.

- H) ASHE COUNTY EMERGENCY SERVICES WILL BE CONTACTED AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE TO MAKE THE NECESSARY TEMPORARY ASSIGNMENT TO PRIMARY RESPONSE UNITS.

TRAFFIC MANAGEMENT STRATEGIES

PROPOSED BRIDGE AND ROADWAY CONSTRUCTION WILL BE PERFORMED UNDER A ROAD CLOSURE, WITH TRAFFIC OPERATING ON AN OFF-SITE DETOUR (4.10 MILES).

ROADS USED FOR OFF-SITE DETOUR INCLUDE SR 1603 (CRANBERRY CREEK ROAD), SR 1605 (E. DOUBLE SPRINGS CHURCH ROAD), ROY ROSE ROAD, FLINT HILL ROAD, AND SR 1607 (GEORGE SHEPARD ROAD).

LOCAL ACCESS TO ALL RESIDENCIES AND BUSINESSES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

PHASING

STEP 1:

USING ROADWAY STANDARD DRAWINGS 1101.02 SHEET 1 AND TMP-2 INSTALL OFFSITE DETOUR SIGNS AND TRAFFIC CONTROL DEVICES AND CLOSE SR 1603 (CRANBERRY CREEK ROAD) TO THROUGH TRAFFIC.

STEP 2:

AWAY FROM TRAFFIC, COMPLETE THE FOLLOWING WITHIN THE ROAD CLOSURE:

A) REMOVE EXISTING BRIDGE.

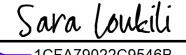
B) CONSTRUCT THE PROPOSED BRIDGE AND ROADWAY APPROACHES INCLUDING THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS.

STEP 3:

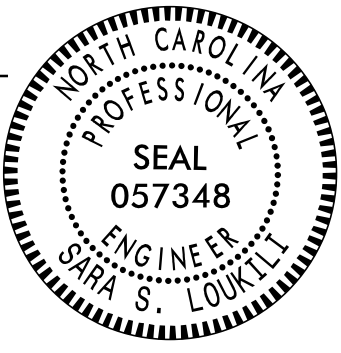
USING ROADWAY STANDARD DRAWING 1101.02 REMOVE ALL TRAFFIC CONTROL DEVICES AND DETOUR SIGNS, AND OPEN SR 1603 (CRANBERRY CREEK ROAD) TO THROUGH TRAFFIC.



STV Engineers, Inc.
900 W. Trade Street, Suite 715
Charlotte, NC 28202
NC License Number F-0991

APPROVED: 
DATE: 2/23/2026

SEAL

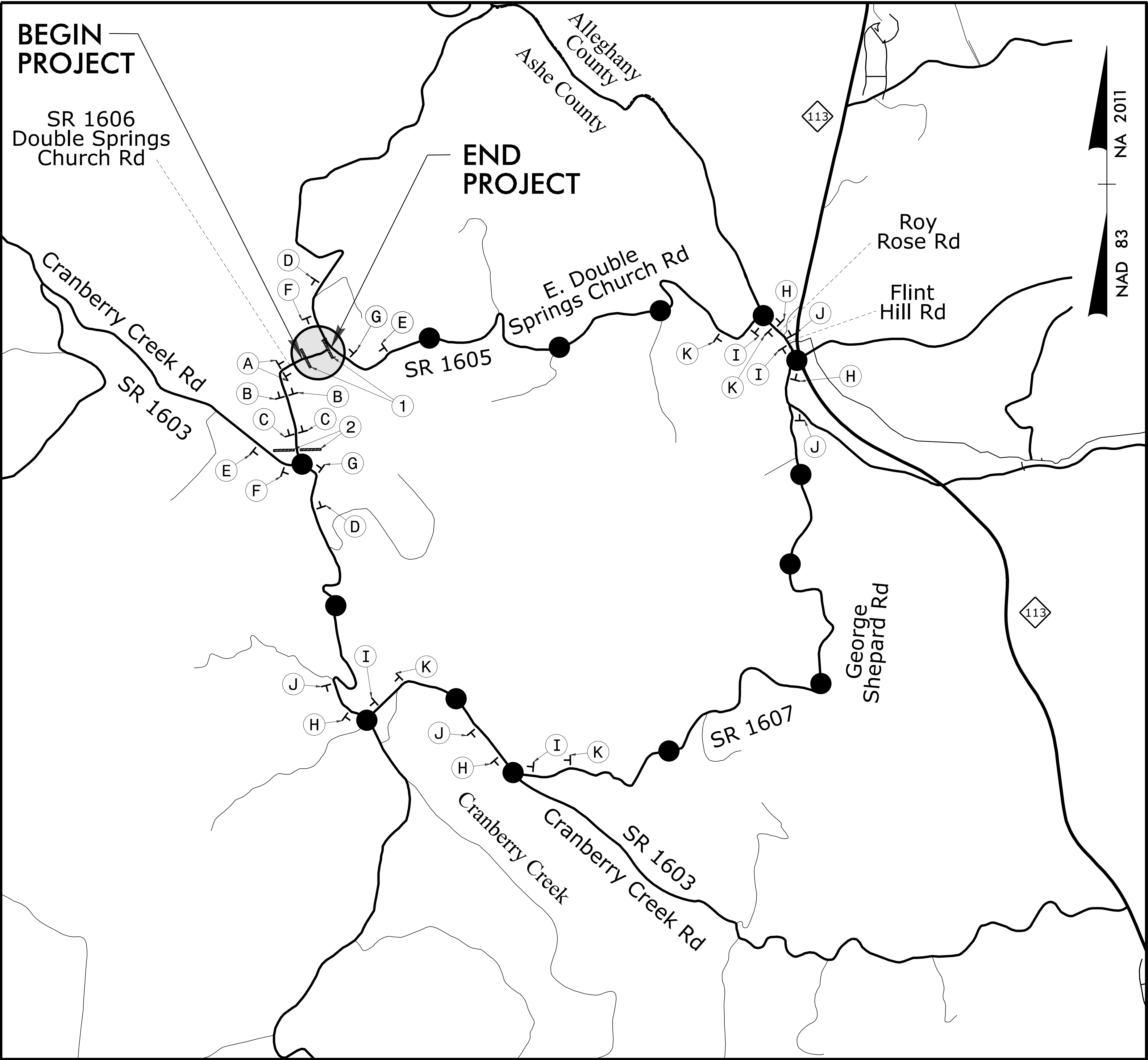


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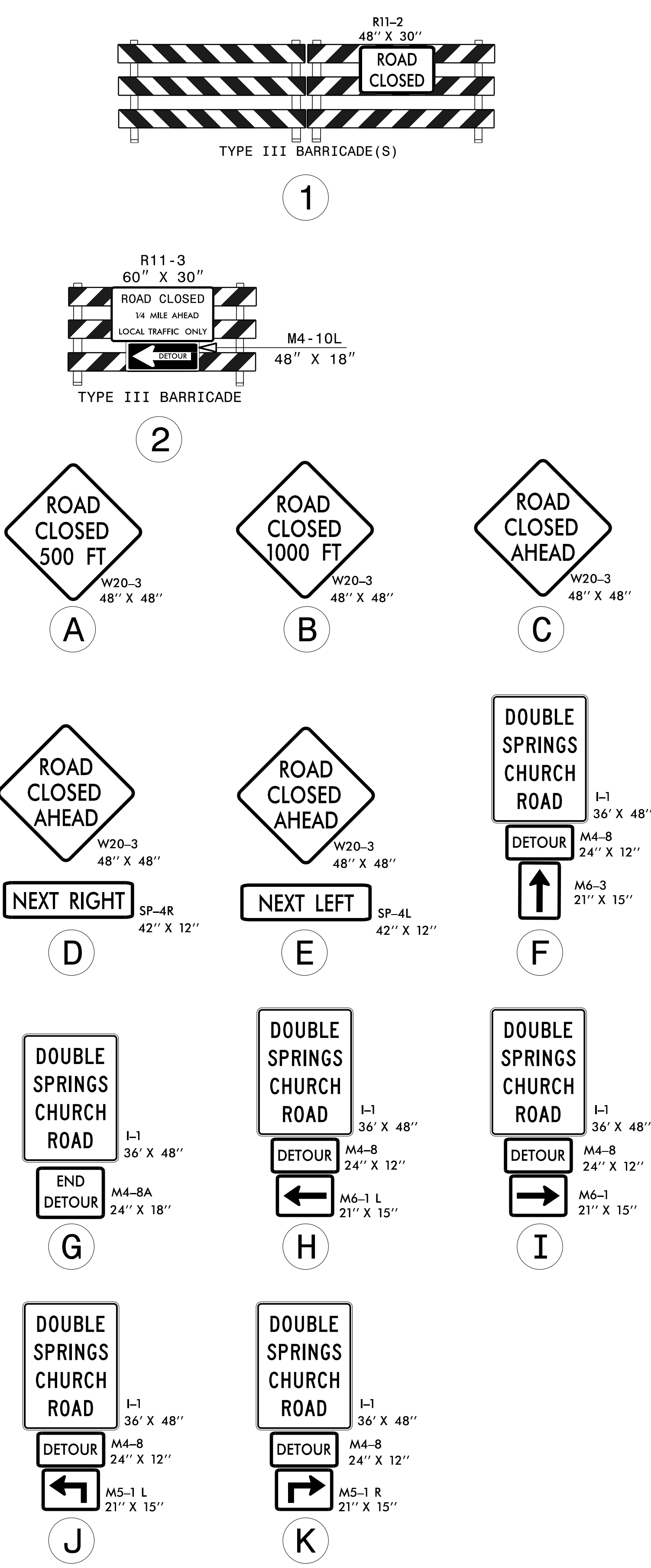
TRANSPORTATION
OPERATIONS
PLAN

OFF-SITE DETOUR SIGNING AND ROAD CLOSURE SIGNING



SEE ROADWAY STD DWG 1101.03, SHEET 1 OF 9
FOR ADVANCE WARNING AND BARRICADE PLACEMENT.

CONTRACTOR TO MAINTAIN 10' WIDE LANE
ACCESS TO ALL DRIVEWAYS AT ALL TIMES.



HB-0048

TMP | 002

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Signed by:
Sara Loukili
APPROVED: 10FAY902020548B
DATE: 2/23/2026

SEAL
PROFESSIONAL ENGINEER
SEAL
057348
SARA S. LOUKILI
STATE OF NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

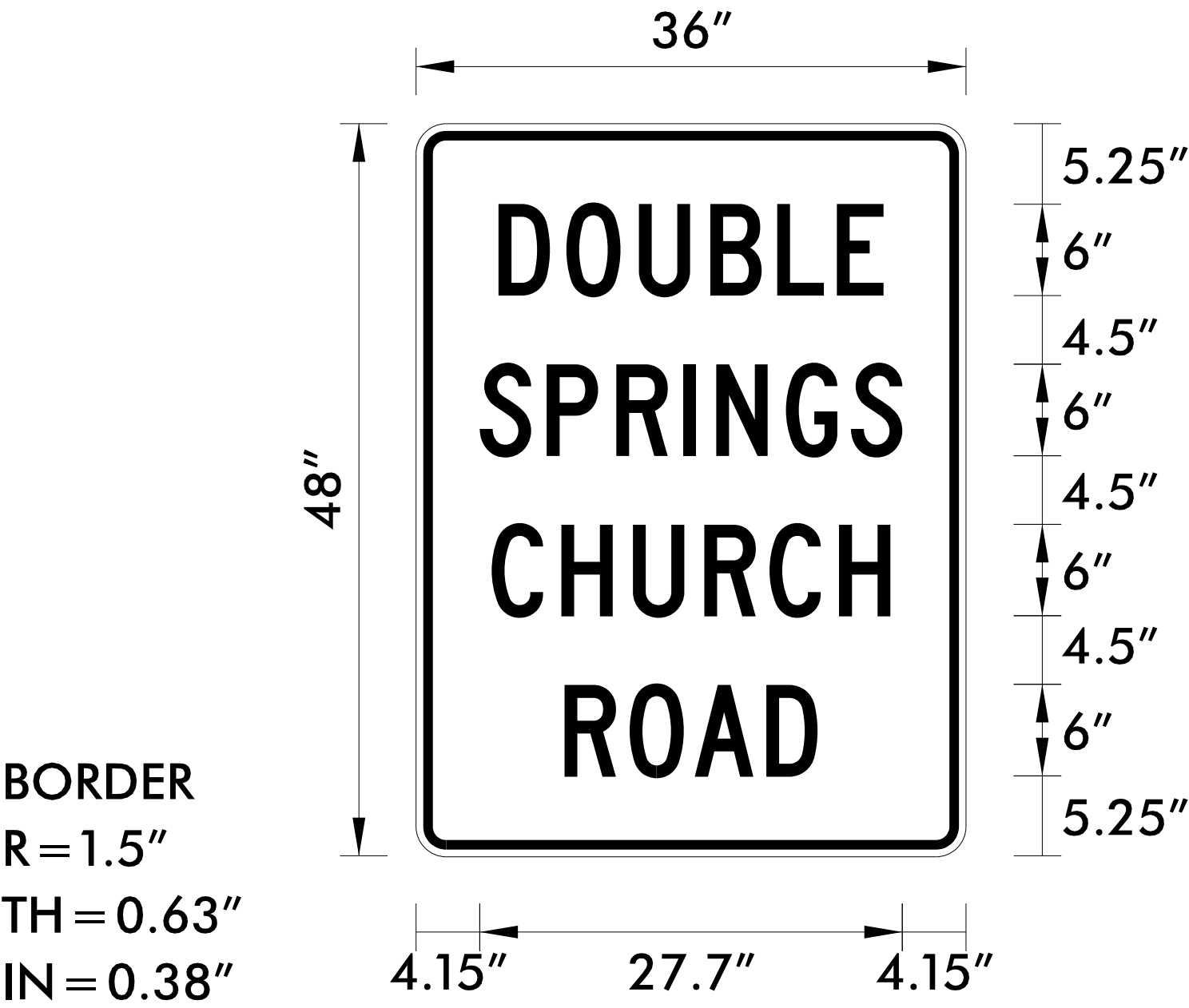
PREPARED BY:
stv
STV Engineers, Inc.
900 W. Trade Street, Suite 715
Charlotte, NC 28202
NC License Number F-0991

[illegible]

MAT'L: 0.080" (2.0 mm) ALUMINUM

1. Legend and border shall be direct applied encapsulated lens non-reflective sheeting.
2. Background shall be NC Grade B fluorescent.

DATE: Mar 10, 2025



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

[illegible]

NORTH CAROLINA D.O.T. SIGN DETAIL

09/08/99

TIP PROJECT: HB-0048

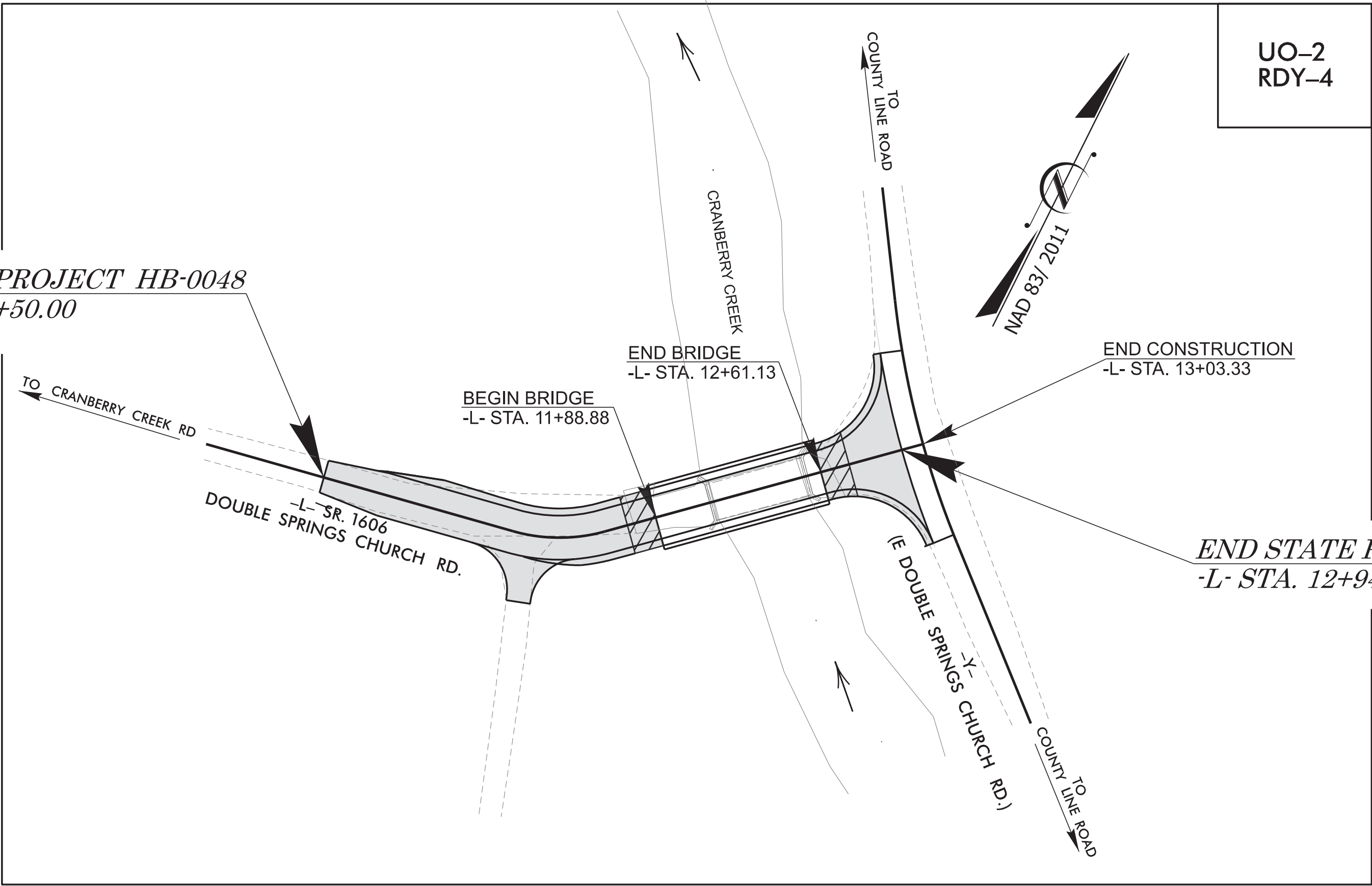
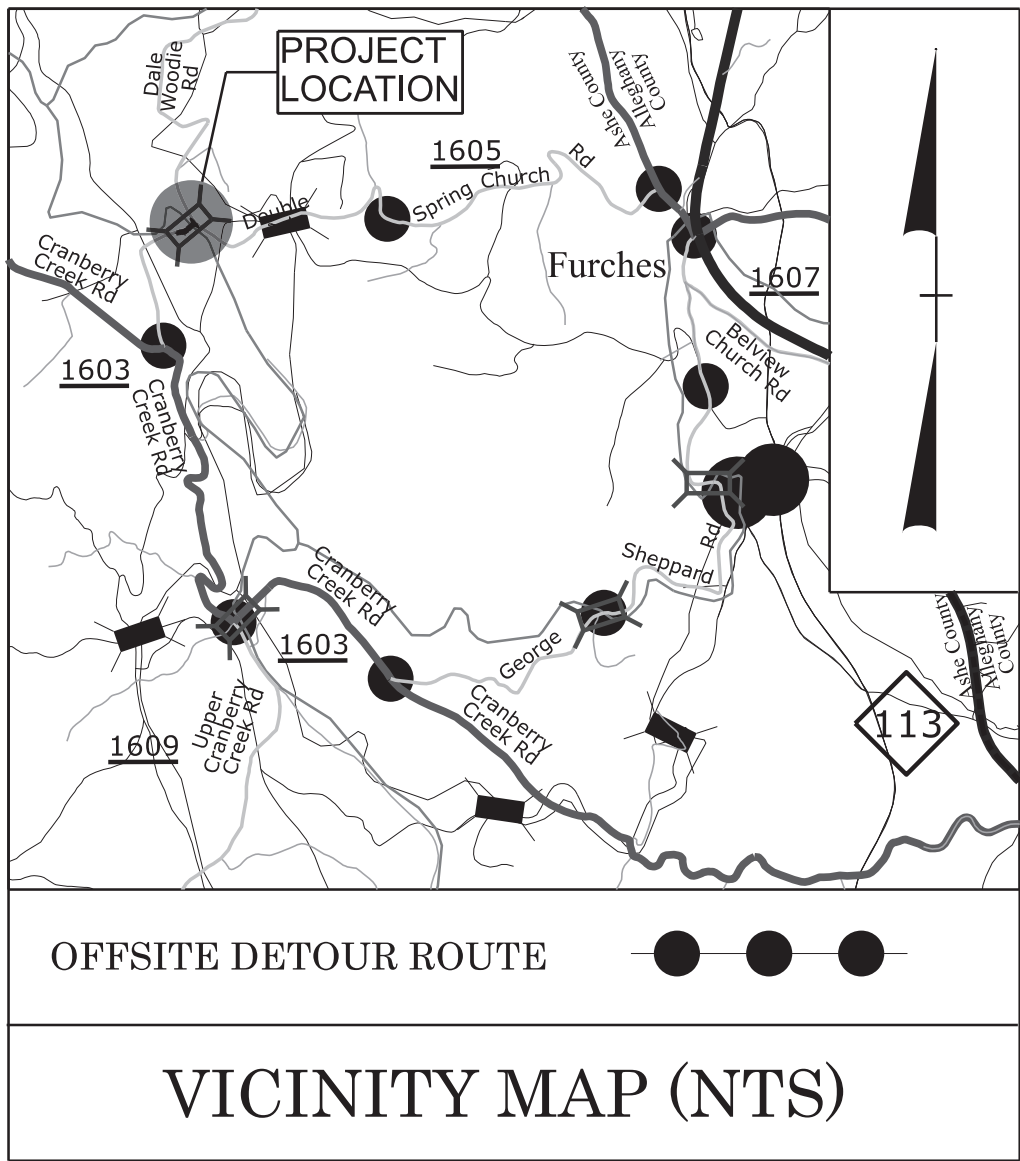
CONTRACT: 7000021267

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

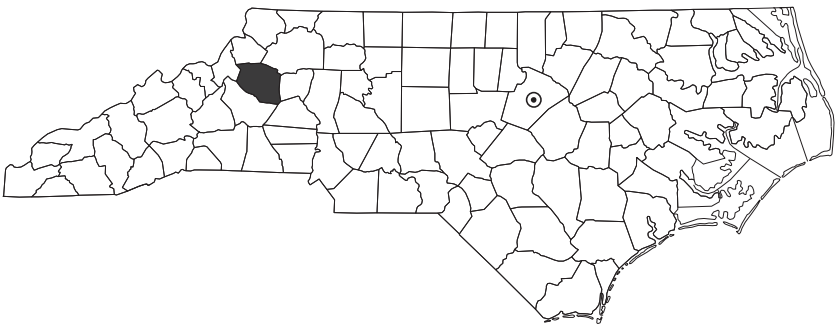
UTILITIES BY OTHERS PLANS
ASHE COUNTY

LOCATION: BRIDGE 000343 ON SR 1606 (DOUBLE SPRINGS CHURCH ROAD)
OVER CRANBERRY CREEK

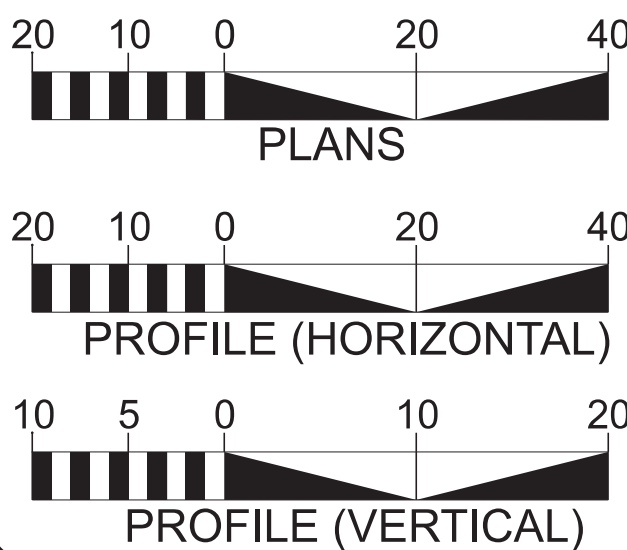
TYPE OF WORK: COMMUNICATIONS



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



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) COMMUNICATIONS - SKYLINE / SKYBEST

Prepared in the Office of:

stv STV Engineers, Inc.
2151 Hawkins St.
Charlotte, NC 28203
NC License Number F-0991

Laura Khin UTILITIES PROJECT MANAGER
Alex Smith UTILITIES COORDINATOR
David Trantham UTILITIES QC/QA



HIGHWAY DIVISION II

1710 E. MARION ST.
SHELBY NC 28151-0047
PHONE (980) 552-4200

Michael Poe, PE DIVISION ENGINEER
Brandon Greer UTILITIES ENGINEER
Alex Winebarger UTILITIES COORDINATOR

HB-0048

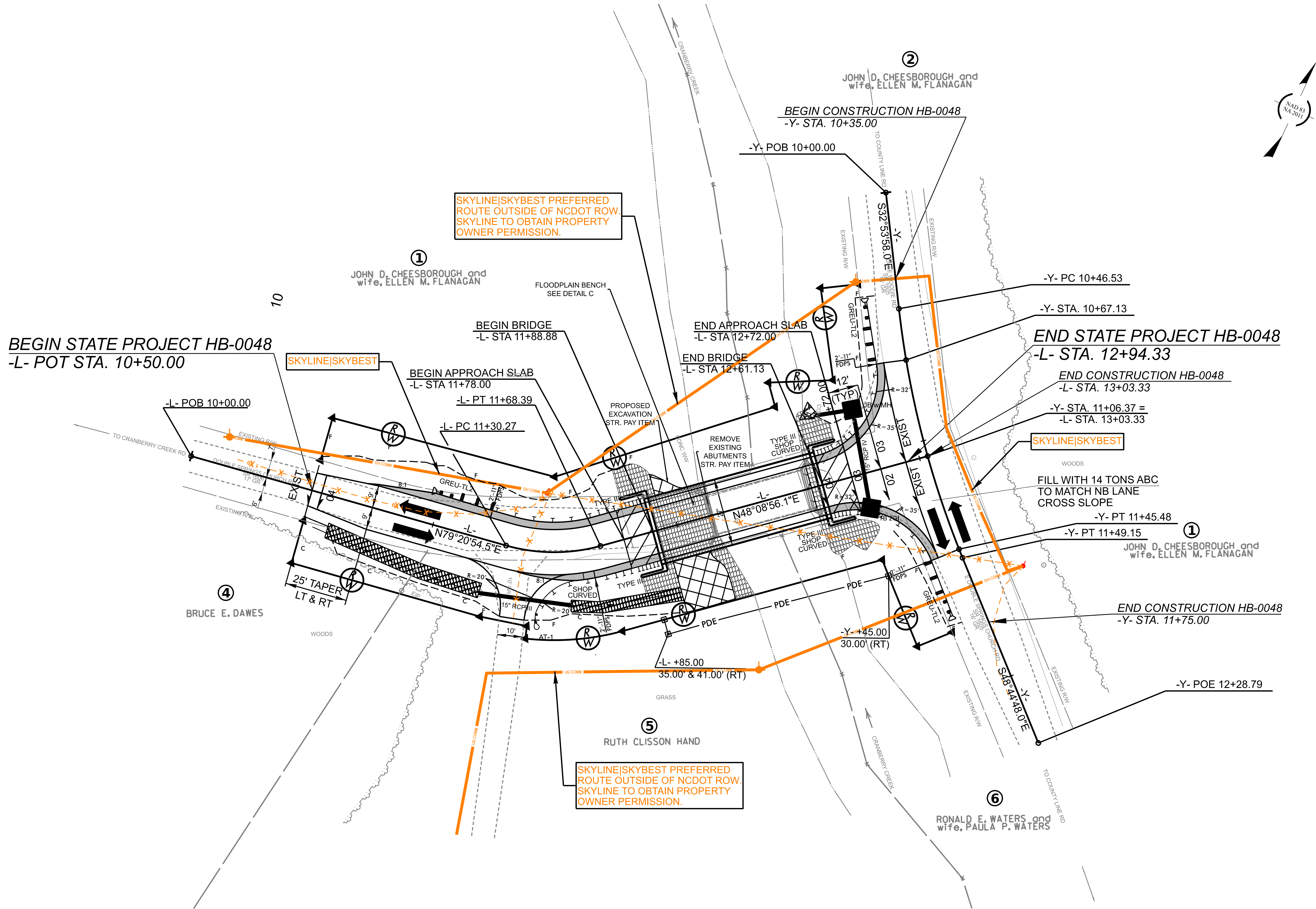
UO-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

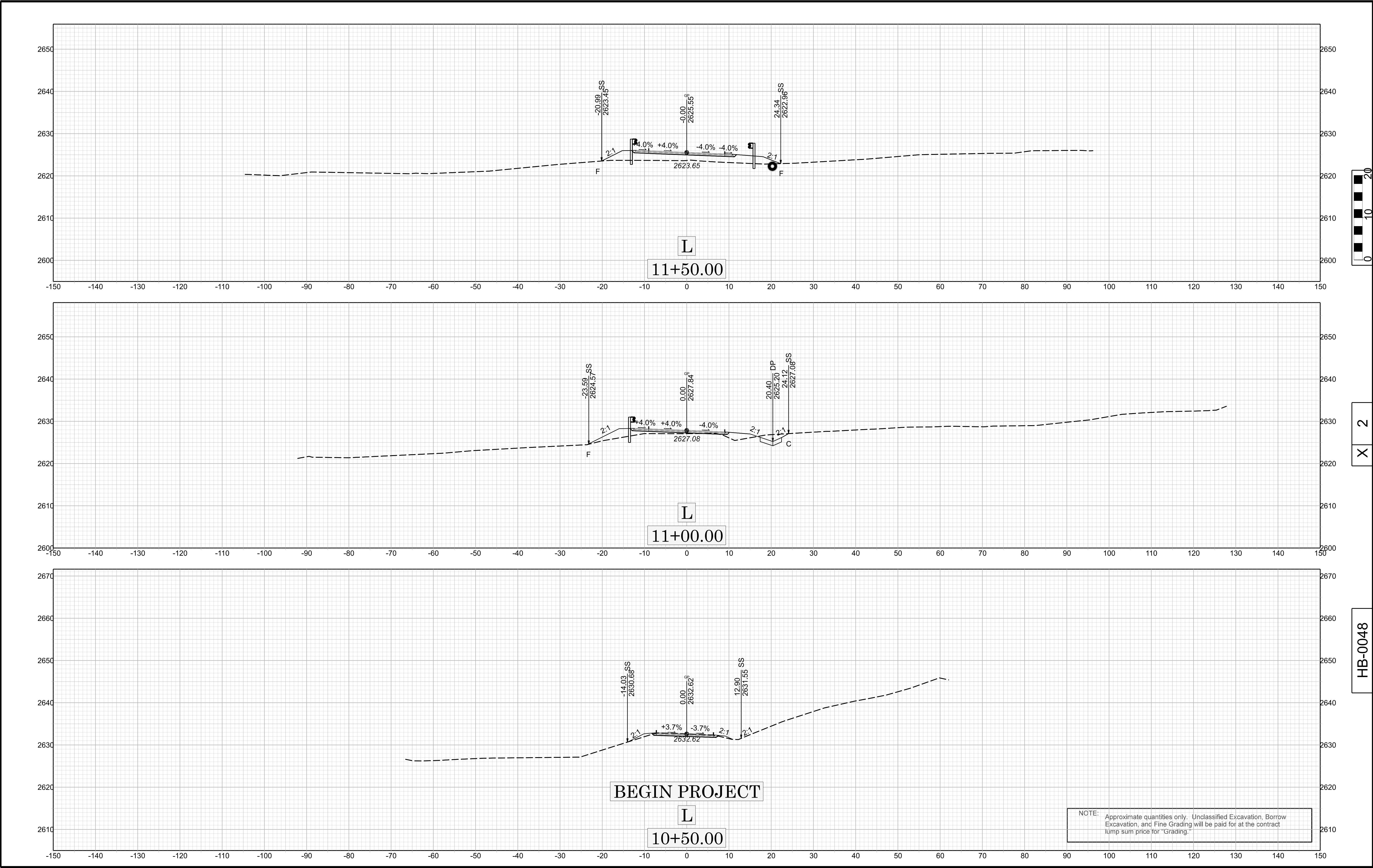
UTILITY DESIGN UNIT
UTILITIES BY OTHERS
PLANS ONLY

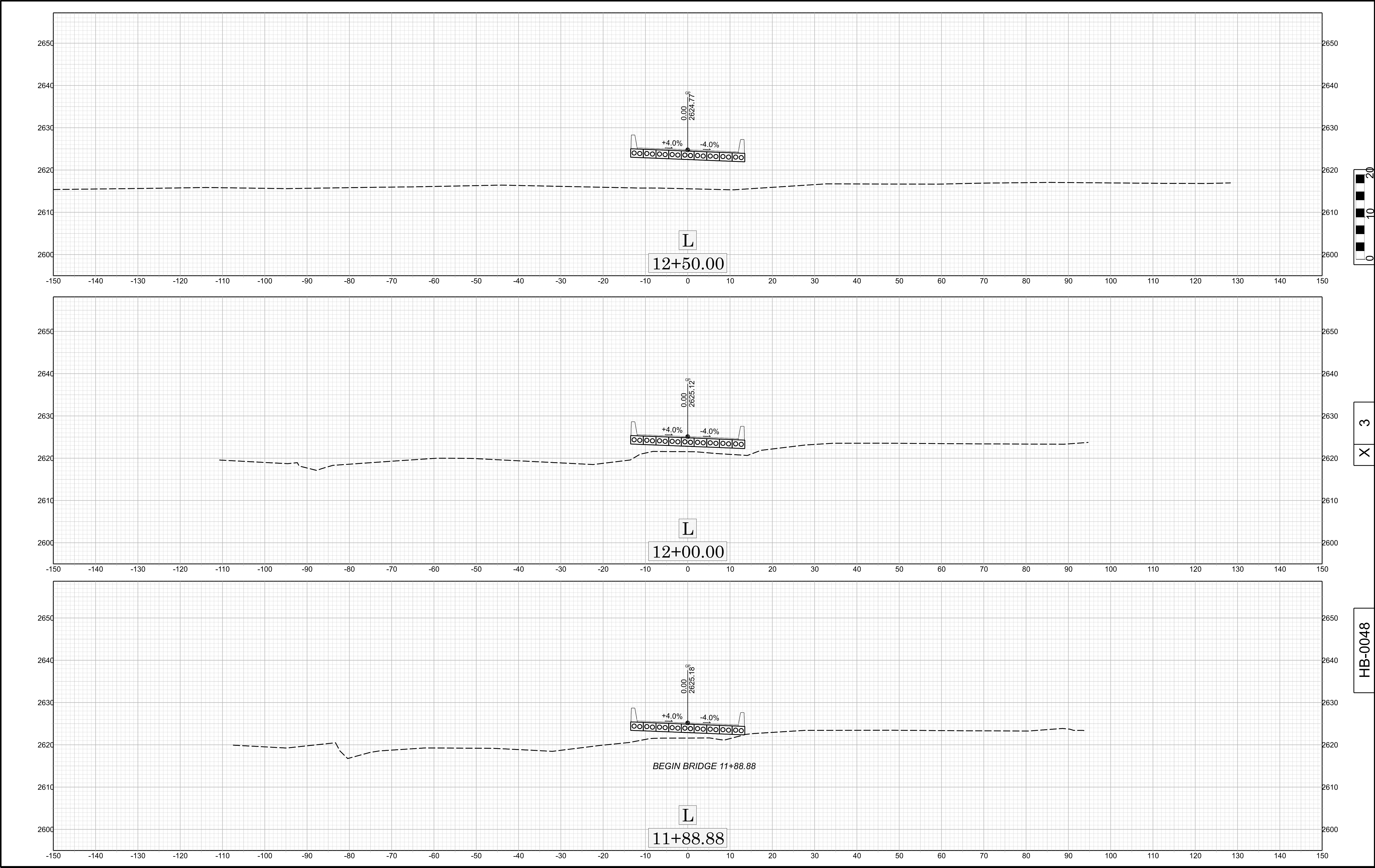
ALL PROPOSED UTILITY
WORK SHOWN ON THIS
SHEET WILL BE DONE
BY OTHERS. NO PAYMENT
WILL BE MADE TO THE
CONTRACTOR FOR
UTILITY WORK SHOWN ON
THIS SHEET.

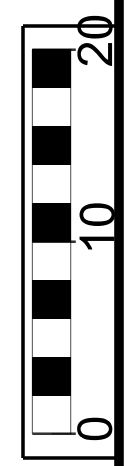
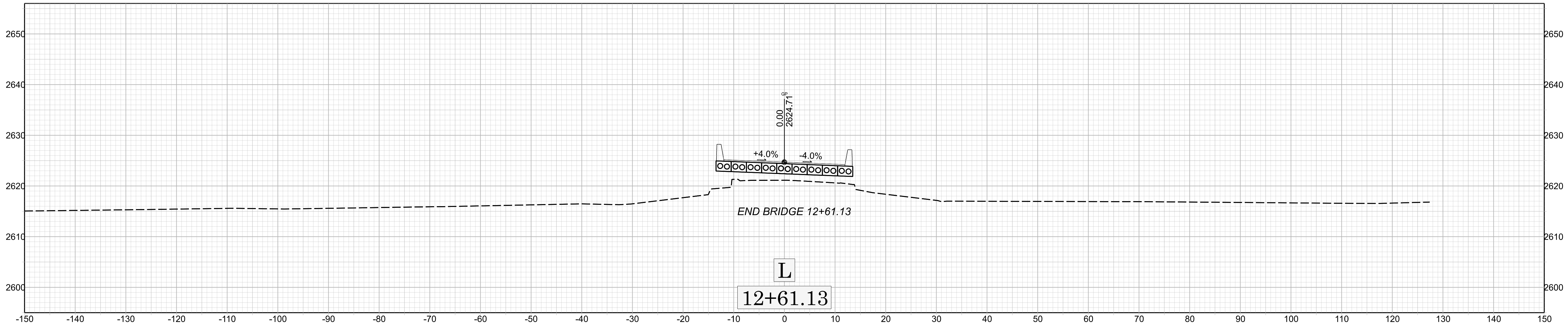
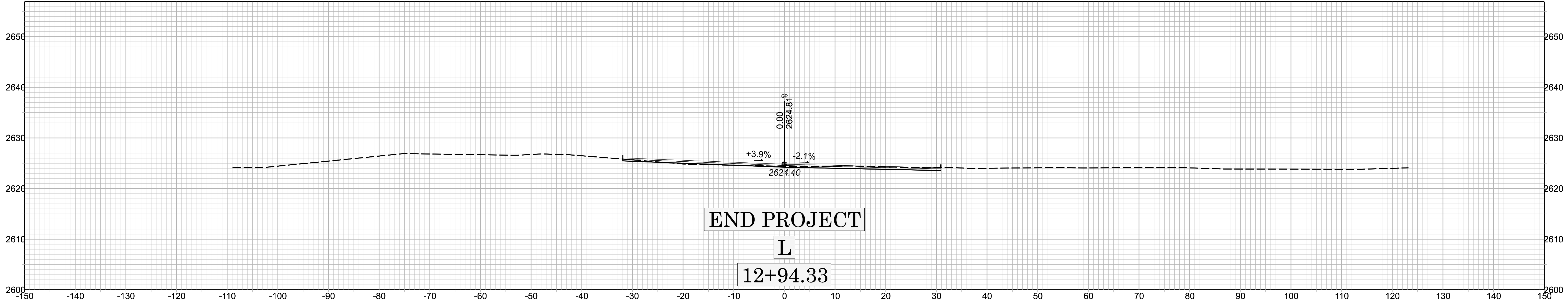
DESIGNED BY: OTHERS
DRAWN BY: ALEX SMITH
CHECKED BY: DAVID TRANHAM
APPROVED BY: LAURA KHIN
REVISED:
STV ENGINEERS, INC.
PHONE: (469) 799-7031



REVISIONS





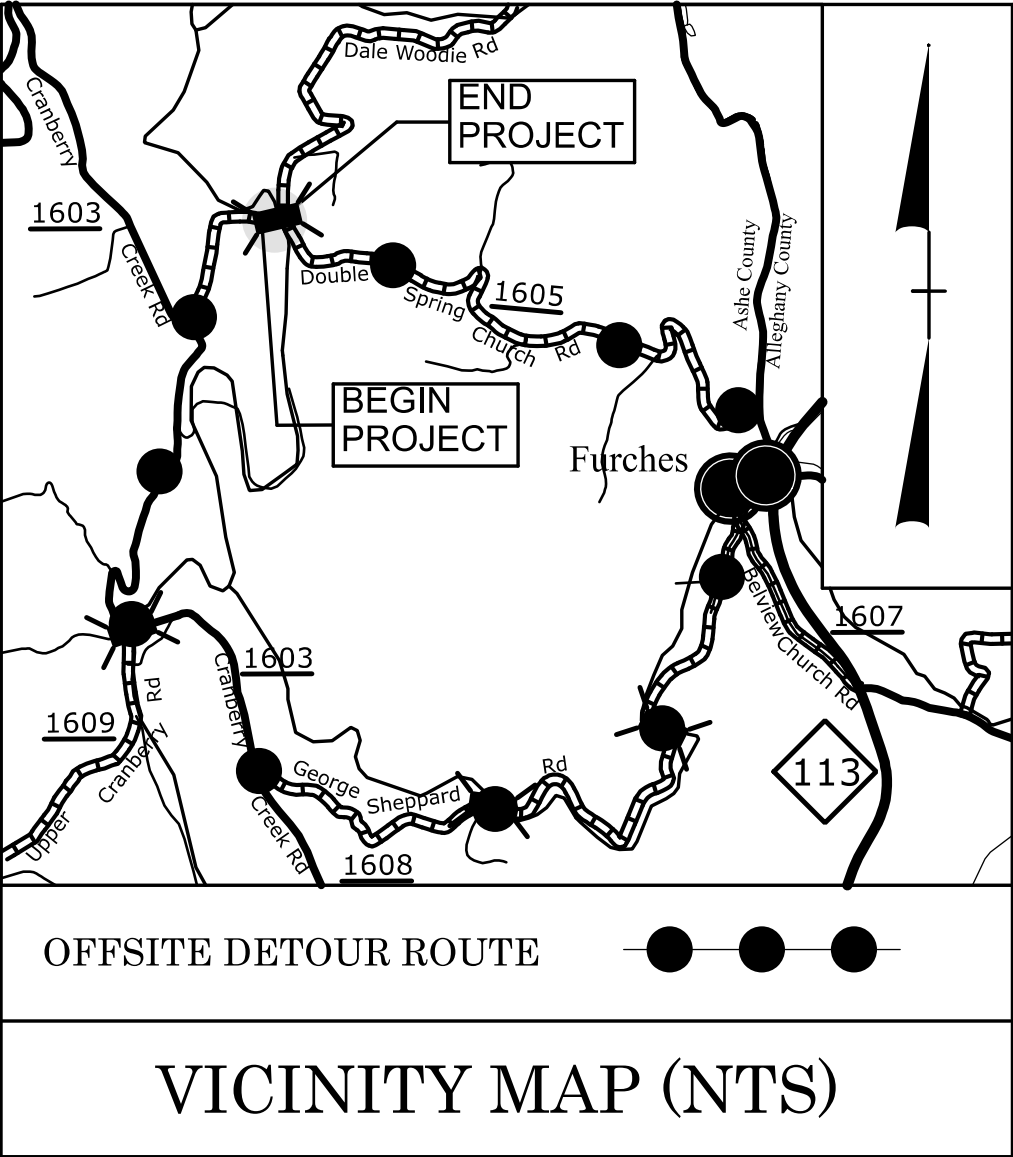


X 4

HB-0048

TIP PROJECT: HB-0048

CONTRACT: DK00430

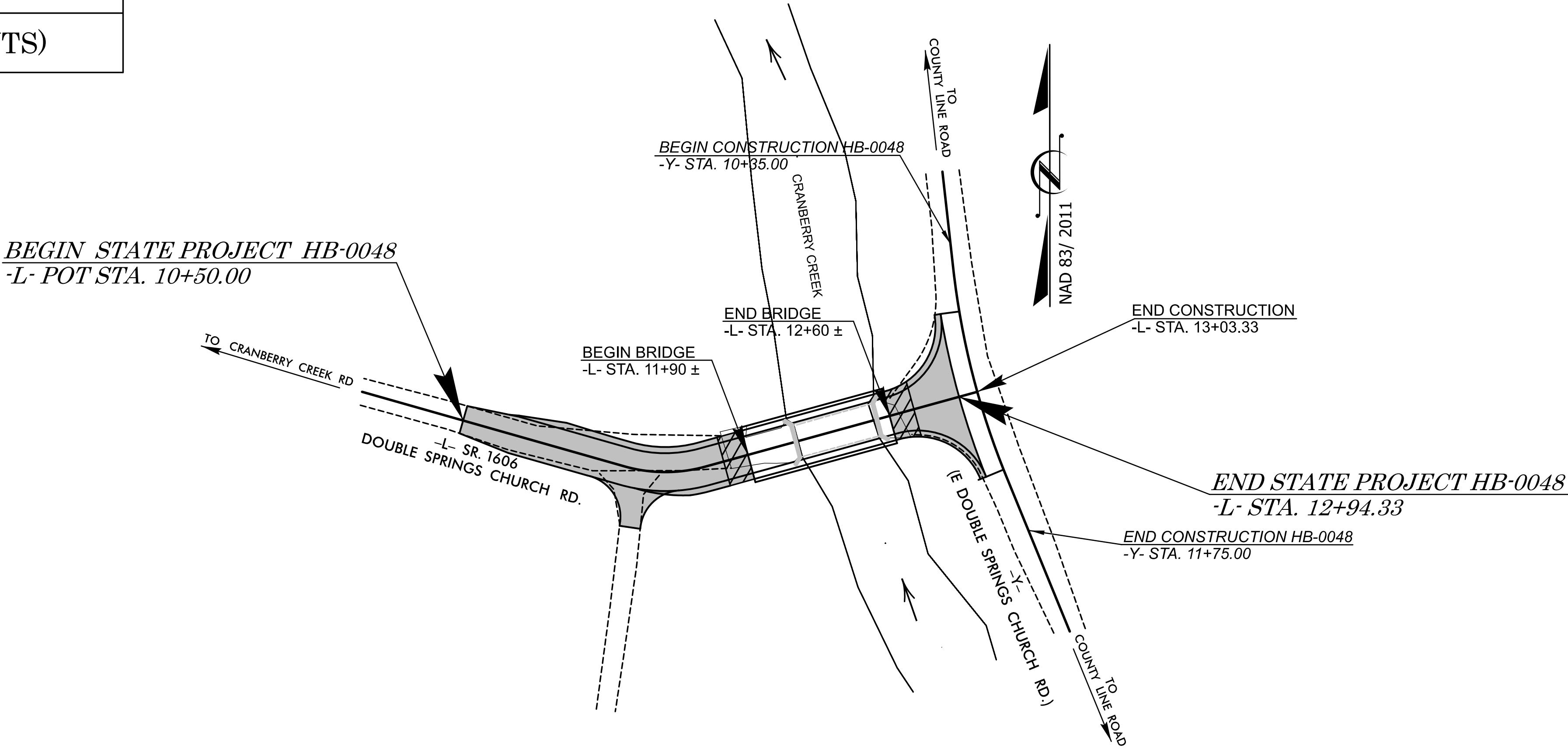


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

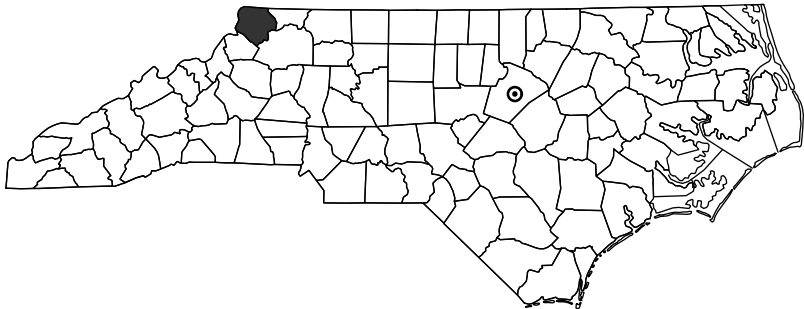
LOCATION: *BRIDGE 040343 ON SR 1606 (DOUBLE SPRINGS CHURCH ROAD)
OVER CRANBERRY CREEK*

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0048	1	
STATE PROJ. NO.		F. A. PROJ. NO.	DESCRIPTION
50718.1.1		FBRG111	PE
50718.2.1		FBRG111	ROW
50718.2.2		FBRG111	UTILITIES
50718.3.1		FBRG111	CONST

FINAL PLANS



STRUCTURE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2026 = 30
ADT 2045 = 60
V = 15 MPH
FUNC CLASS = LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT HB-0048 = 0.032 MILES
LENGTH OF STRUCTURE TIP PROJECT HB-0048 = 0.014 MILES
TOTAL LENGTH OF TIP PROJECT HB-0048 = 0.046 MILES

NCDOT CONTACT: RAMIE SHAW
DIVISION 11

801 STATEVILLE RD
NORTH WILKESBORO, 28659 NC
DIRECT: (336)-903-9134
rashaw@ncdot.gov



Prepared in the Office of:
STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

2024 STANDARD SPECIFICATIONS

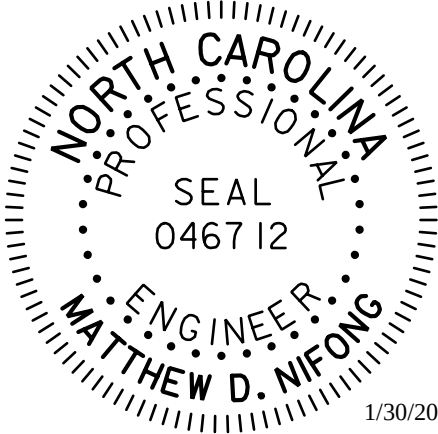
RIGHT OF WAY DATE:
June 30, 2025

LETTING DATE:
April 16, 2026

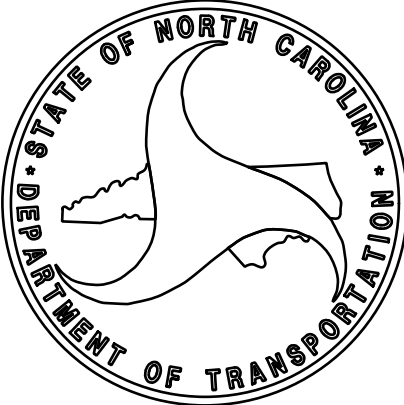
MATTHEW D. NIFONG, PE
PROJECT ENGINEER

SPENCER G. HENSLEY, PE
PROJECT DESIGN ENGINEER

STRUCTURES ENGINEER



Signed by: Matthew D. Nifong
09P202168FOC410
SIGNATURE: P.E.



VERTICAL CURVE
DATA -L-

(-)11.8575% (-)0.6810%

PI = 11+08.00
EL = 2625.74
VC = 112'

VERTICAL CURVE
DATA -L-

(-)0.6810% (+)1.3754%

PI = 12+78.00
EL = 2624.58
VC = 30'

I HEREBY CERTIFY THESE PLANS
ARE THE AS-BUILT PLANS

HYDRAULIC DATA

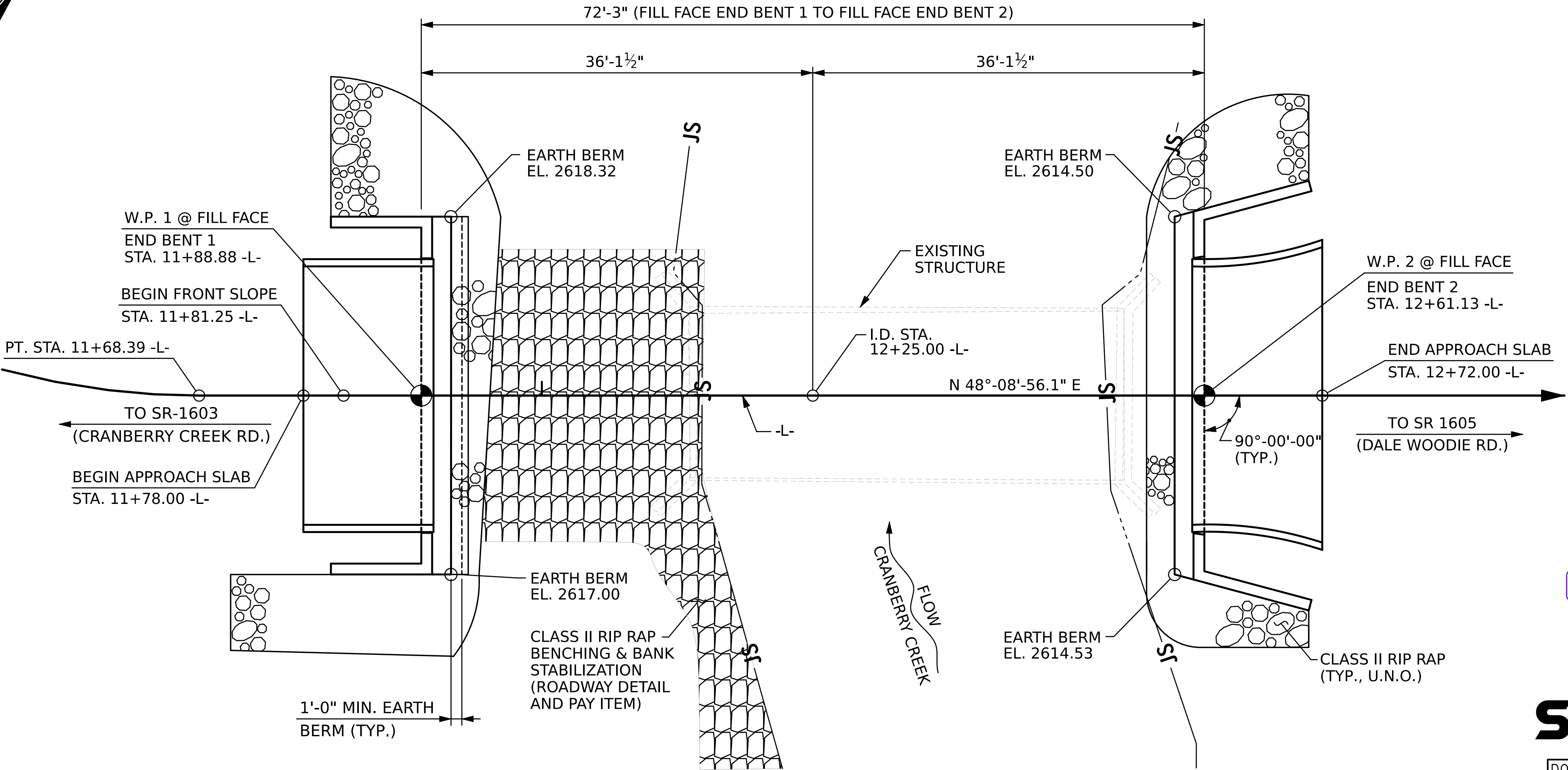
DESIGN DISCHARGE: 3200 CFS
FREQUENCY OF DESIGN FLOOD: 10 YRS.
DESIGN HIGH WATER ELEVATION: 2623.7'
DRAINAGE AREA: 32.8 SQ.MI.
BASE DISCHARGE (Q100): 6300 CFS
BASE HIGH WATER ELEVATION: 2627.7'

OVERTOPPING DATA

OVERTOPPING DISCHARGE: 3450 CFS
FREQUENCY OF OVERTOPPING: 10+ YRS.
OVERTOPPING FLOOD ELEVATION: 2624.4*

*LOW SIDE OF THE ROAD AT STA. 12+73.00 -L-
WS EL. TAKEN @ RIVER STATION 19857

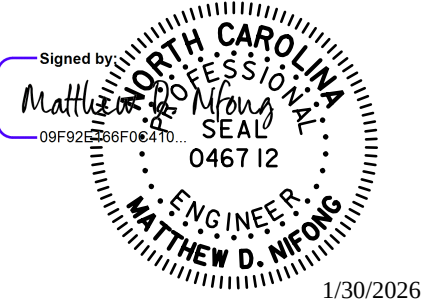
SECTION ALONG -L-



PLAN

(STEEL PILES NOT SHOWN FOR CLARITY)

DRAWN BY : BLM DATE : 6/25
CHECKED BY : MDN DATE : 6/25
DESIGN ENGINEER OF RECORD: MDN DATE : 1/26



STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

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SIGNATURES COMPLETED

PROJECT NO. HB-0048
ASHE COUNTY
STATION: 12+25.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 040343

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE ON SR-1606
(DOUBLE SPRINGS CHURCH
RD.) OVER CRANBERRY CREEK
RD. AND DALE WOODIE RD.

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		5-1
2			4		TOTAL SHEETS 19

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")	Number of Piles per Line	Factored Resistance per Pile KIPS	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		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent 1 (Piles 1 - 5)	5	184	See Structure Plans	15								2611.00	5	2.5
End Bent 2 (Piles 1 - 2)	2	184	See Structure Plans	15								2610.00	5	1
End Bent 2 (Piles 3 - 5)	3	184	See Structure Plans	15								2605.00	5	6
TOTAL QUANTITY:													50	32.5

* $RDR = \frac{Factored\ Resistance + Factored\ Drag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Drag\ Load\ Resistance + Nominal\ Resistance\ from\ Scourable\ Material$

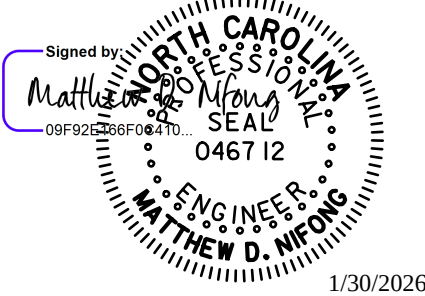
** Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Daniel P. Gallo, #052028) on 10-07-2025.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.
4. For piles, see section 450 of the standard specifications.
5. Fill holes for pile excavation at end bent 2 No. 1 and 2 with concrete.

PROJECT NO. HB-0048
ASHE COUNTY
STATION: 12+25.00 -L-

SHEET 2 OF 3

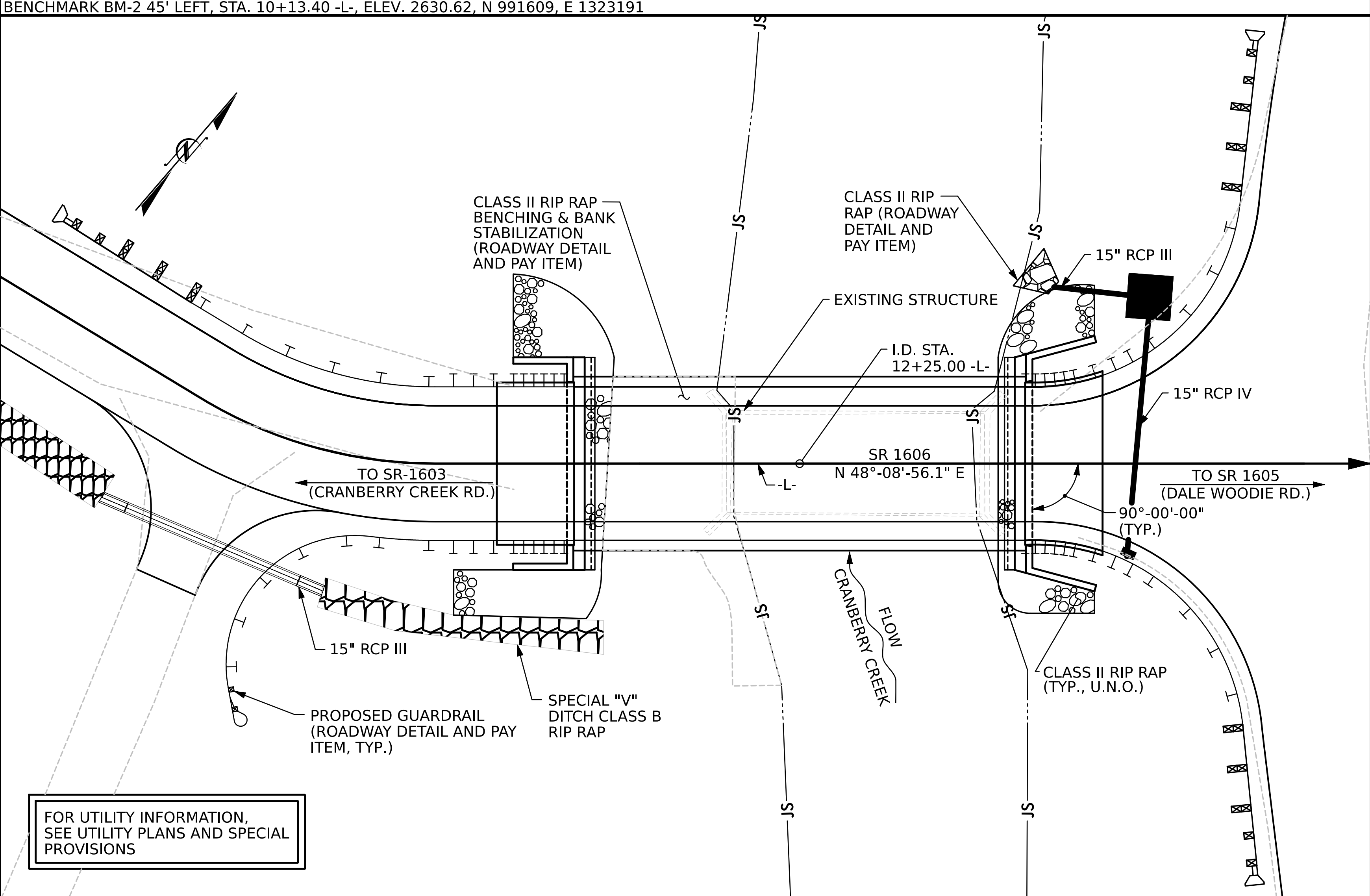


stv STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH GENERAL DRAWING FOUNDATION TABLES					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					19

DRAWN BY :	BLM	DATE :	6/25
CHECKED BY :	MDN	DATE :	6/25
DESIGN ENGINEER OF RECORD:	MDN	DATE :	1/26



LOCATION SKETCH

NOTES

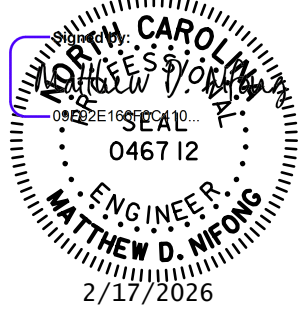
- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE "STANDARD NOTES" SHEET.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- THE EXISTING STRUCTURE CONSISTING OF (1) 40' SPAN WITH STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 15'-2" SUPPORTED BY CAST-IN-PLACE VERTICAL WALL ABUTMENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR A SINGLE VEHICLE LIMTI OF 14 TONS AND A TRACTOR TRAILER LIMIT OF 18 TONS. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA (ON SHEET 1 OF 3) SHALL BE EXCAVATED FOR A DISTANCE FROM THE CENTERLINE OF ROADWAY OF 14'± (LEFT) AND 35'± (RIGHT) AT THE END BENT 1 TO EL. 2619.20 AND 14'± (LEFT) AND 14'± (RIGHT) AT END BENT 2 TO EL. 2616.50±, 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 SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVEIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAISNT 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.
- AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT AND BENT CAPS MAY BE SUBSTITUTED INPLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECIEVE 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.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES".
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.
- THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE WEARING SURFACE.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 12+25.00 -L-	ASBESTOS ASSESSMENT	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOOR	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP12X53 STEEL PILES	HP 12X53 STEEL PILES		32" ALASKA 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	LIN. FT.	LIN. FT.	LUMP SUM	SQ. FT.	SQ. FT.	CU. YD.	LUMP SUM	LBS.	EA.	NO.	LIN. FT.	LIN FT.	TONS	SQ. TDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE						1668	1933							125.0				9	630'-0"
END BENT 1			12.5	25				19.2		2,427	5	5	75		59	65			
END BENT 2			20	25				28.0		3,462	5	5	75		41	45			
TOTAL	LUMP SUM	LUMP SUM	32.5	50	LUMP SUM	1668	1933	47.2	LUMP SUM	5,889	10	10	150	125.0	100	110	LUMP SUM	9	630'-0"

PROJECT NO. HB-0048
ASHE COUNTY
STATION: 12+25.00 -L-

SHEET 3 OF 3



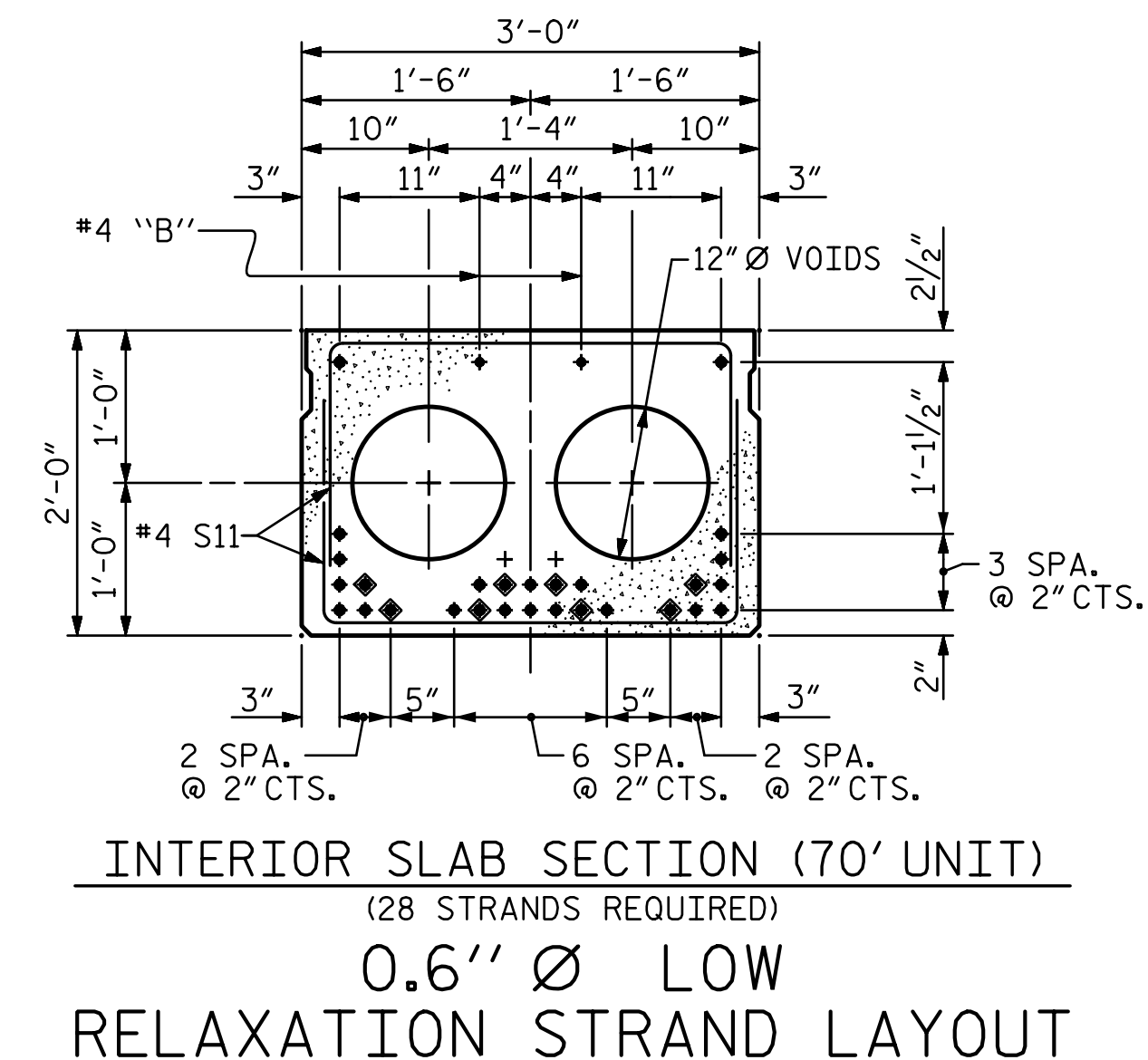
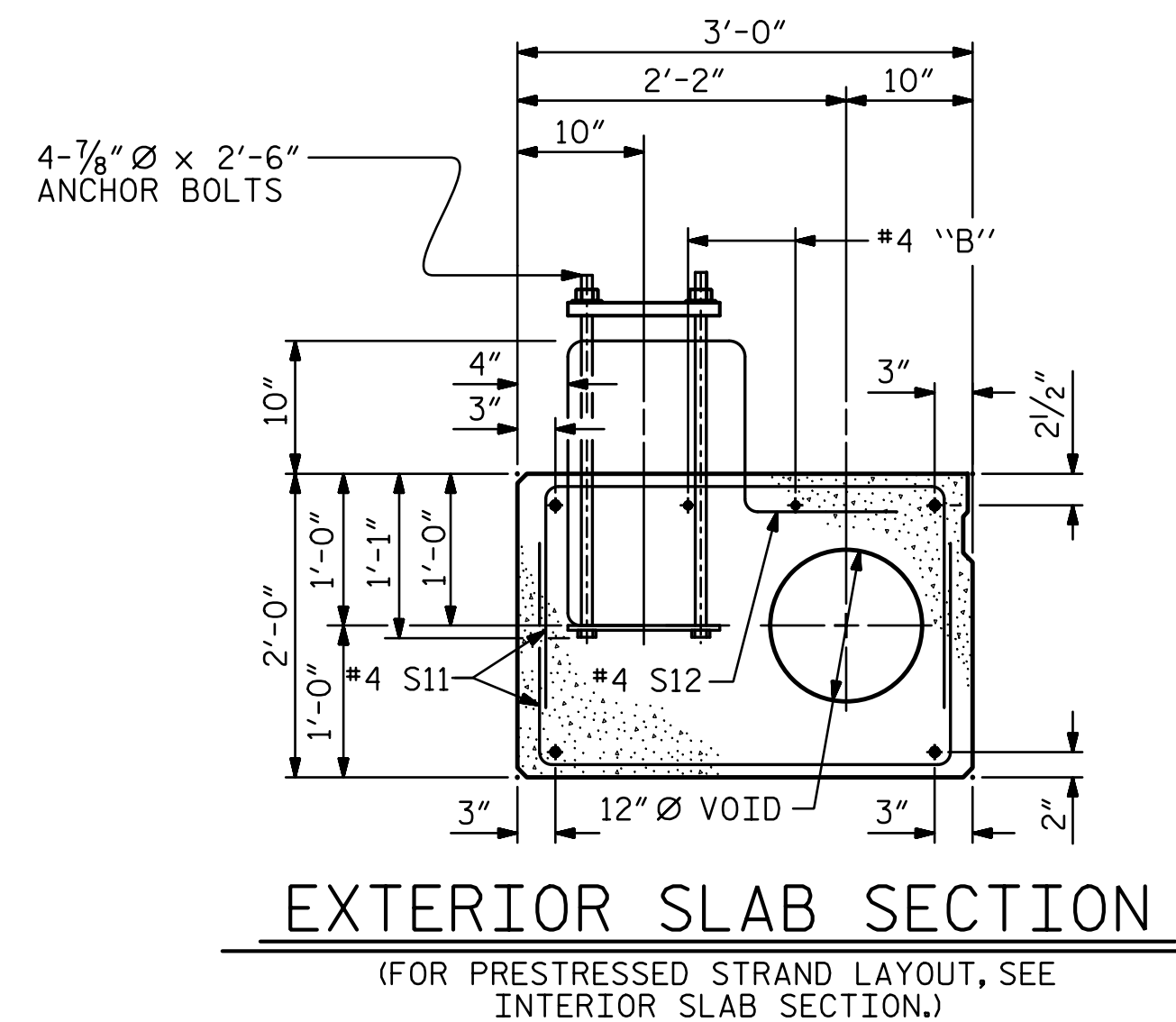
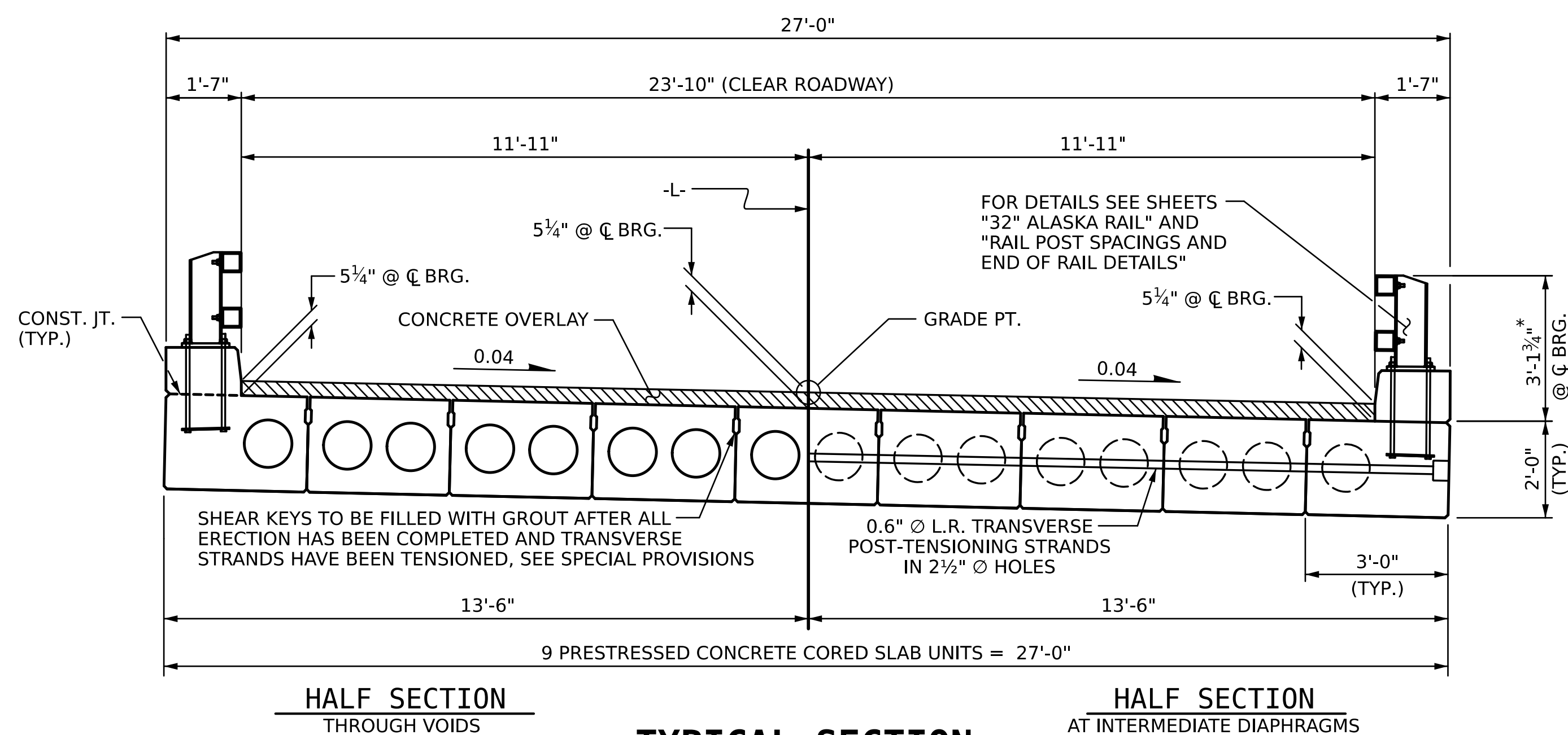
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NC License Number F-0991

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE ON SR-1606
(DOUBLE SPRINGS CHURCH
RD.) OVER CRANBERRY CREEK
RD. AND DALE WOODIE RD.

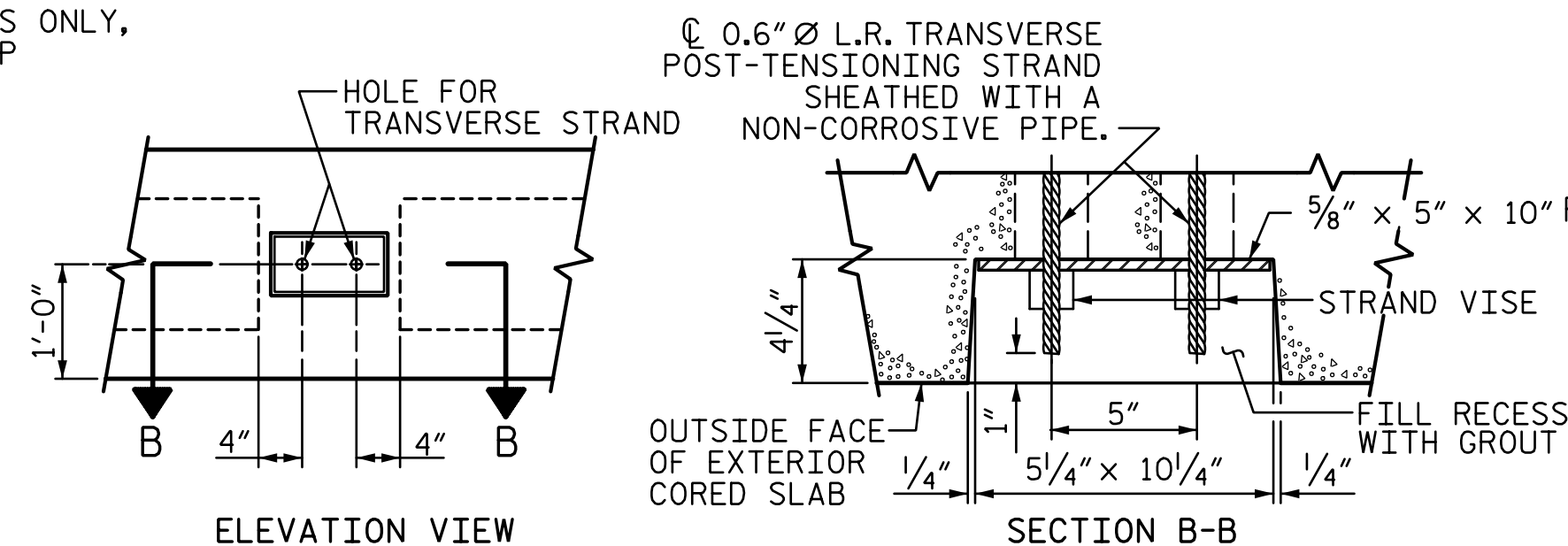
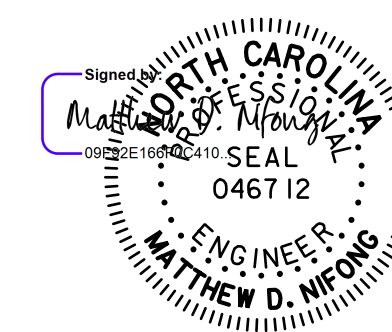
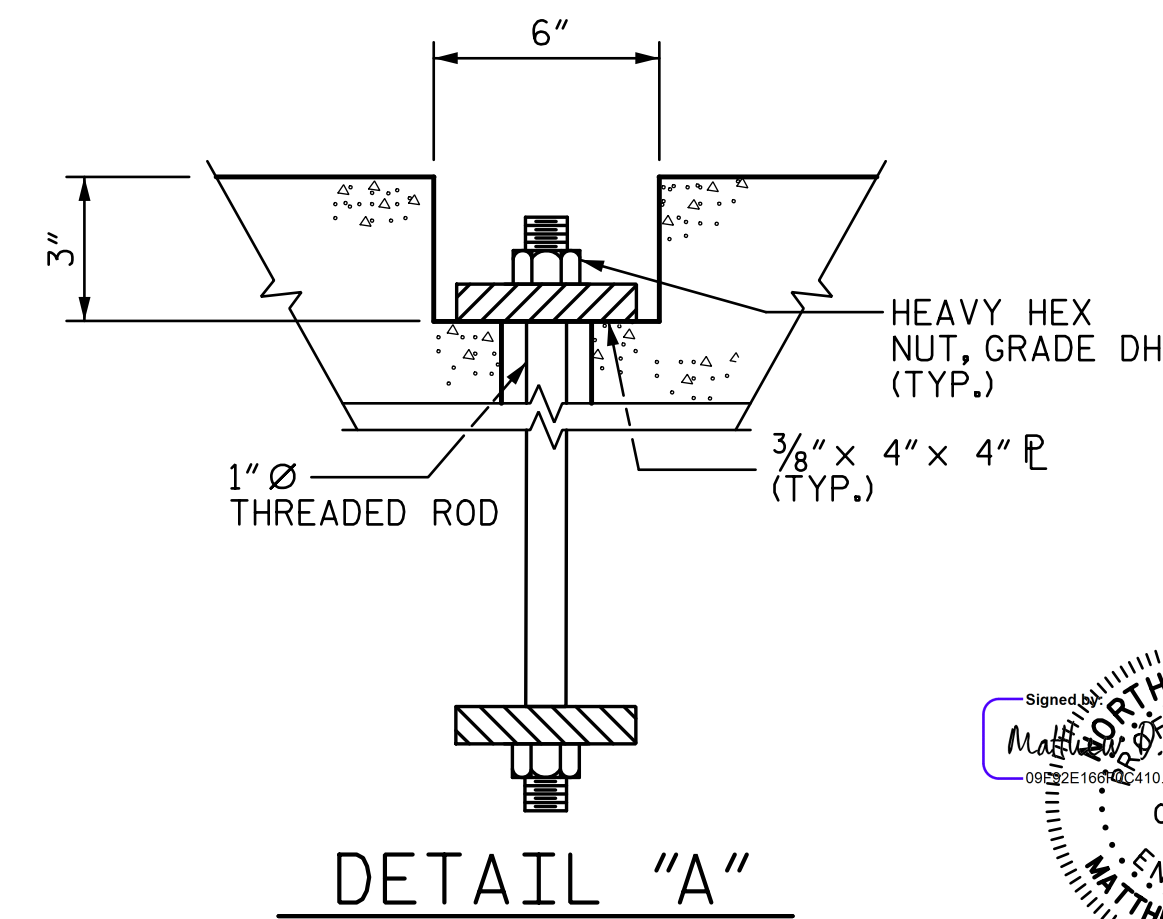
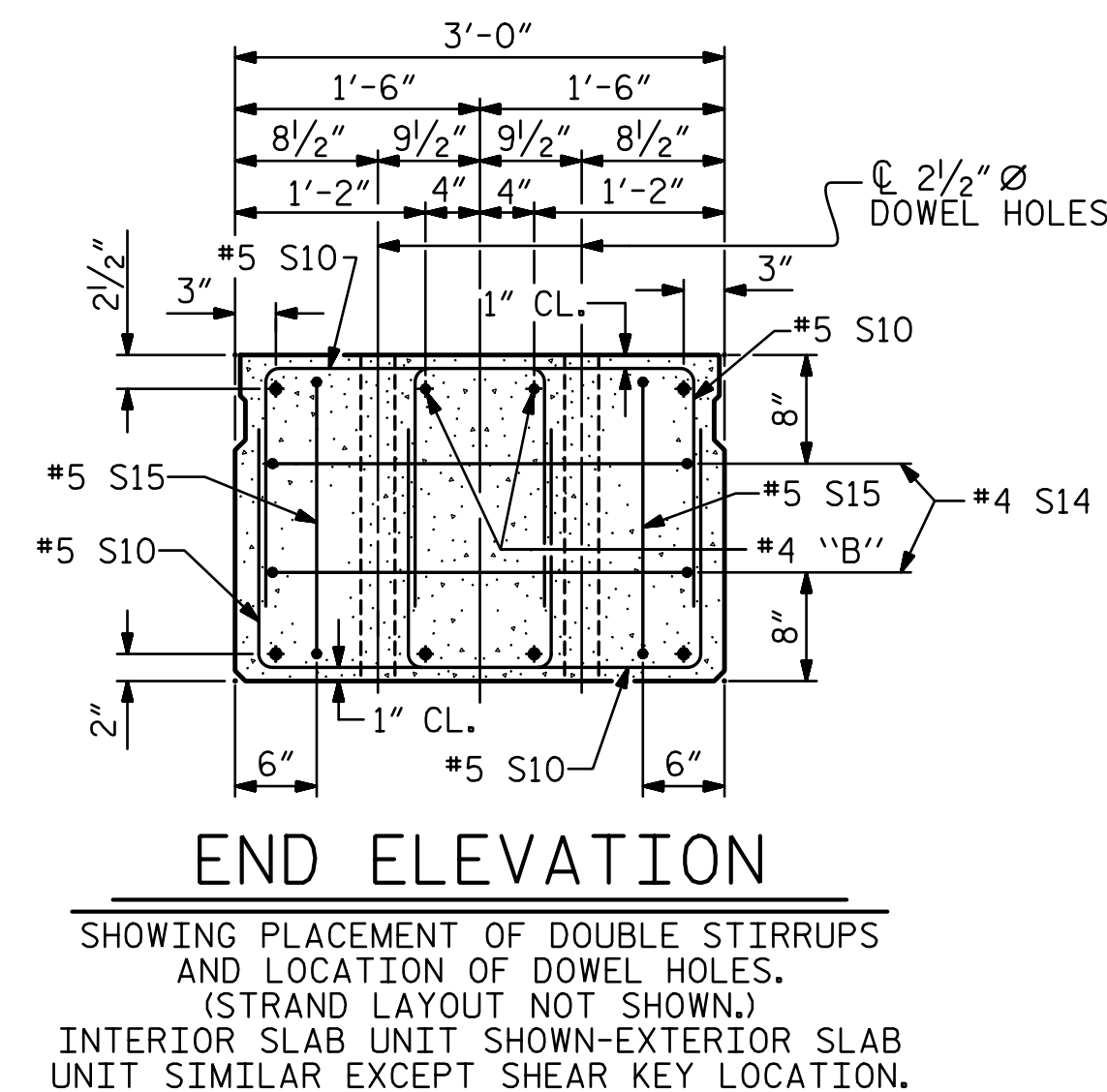
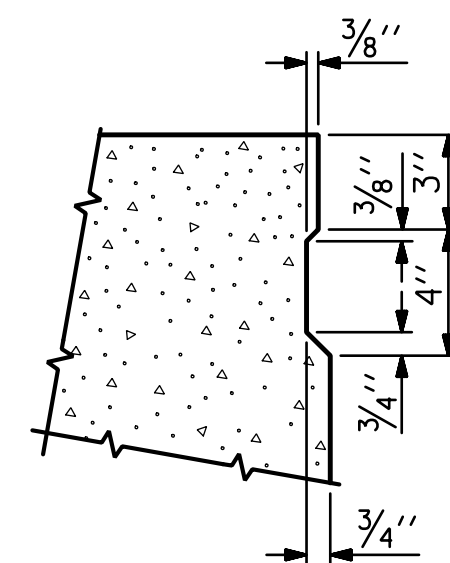
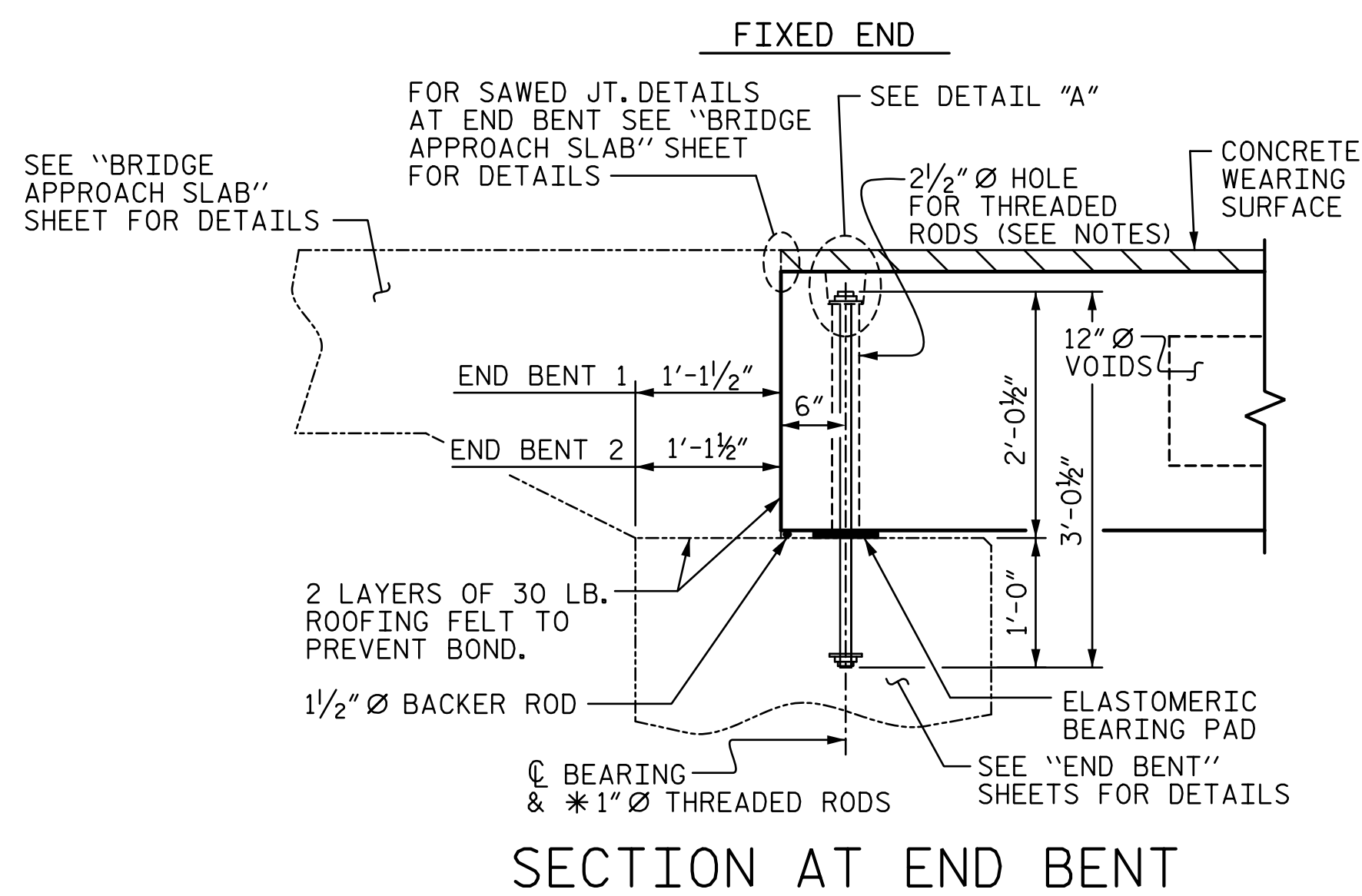
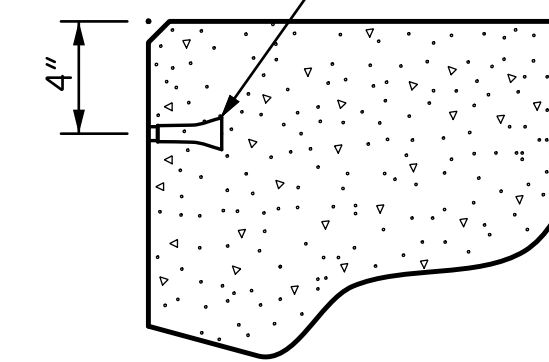
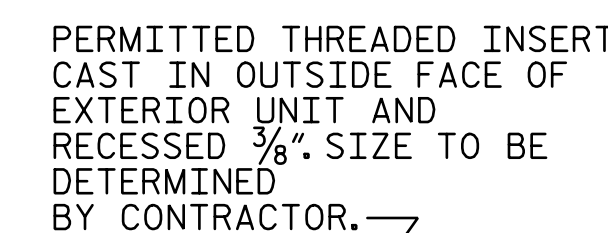
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			19

DRAWN BY : SGH DATE : 6-25
CHECKED BY : MDN DATE : 6-25
DESIGN ENGINEER OF RECORD: MDN DATE : 1-26



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

DEBONDING LEGEND



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CHECKED BY :	MDN	DATE :	6/25
DESIGN ENGINEER OF RECORD :	MDN	DATE :	1/26

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PROJECT NO. HB-0048
ASHE COUNTY
 STATION: 12+25.00 -L-

SHEET 1 OF 4

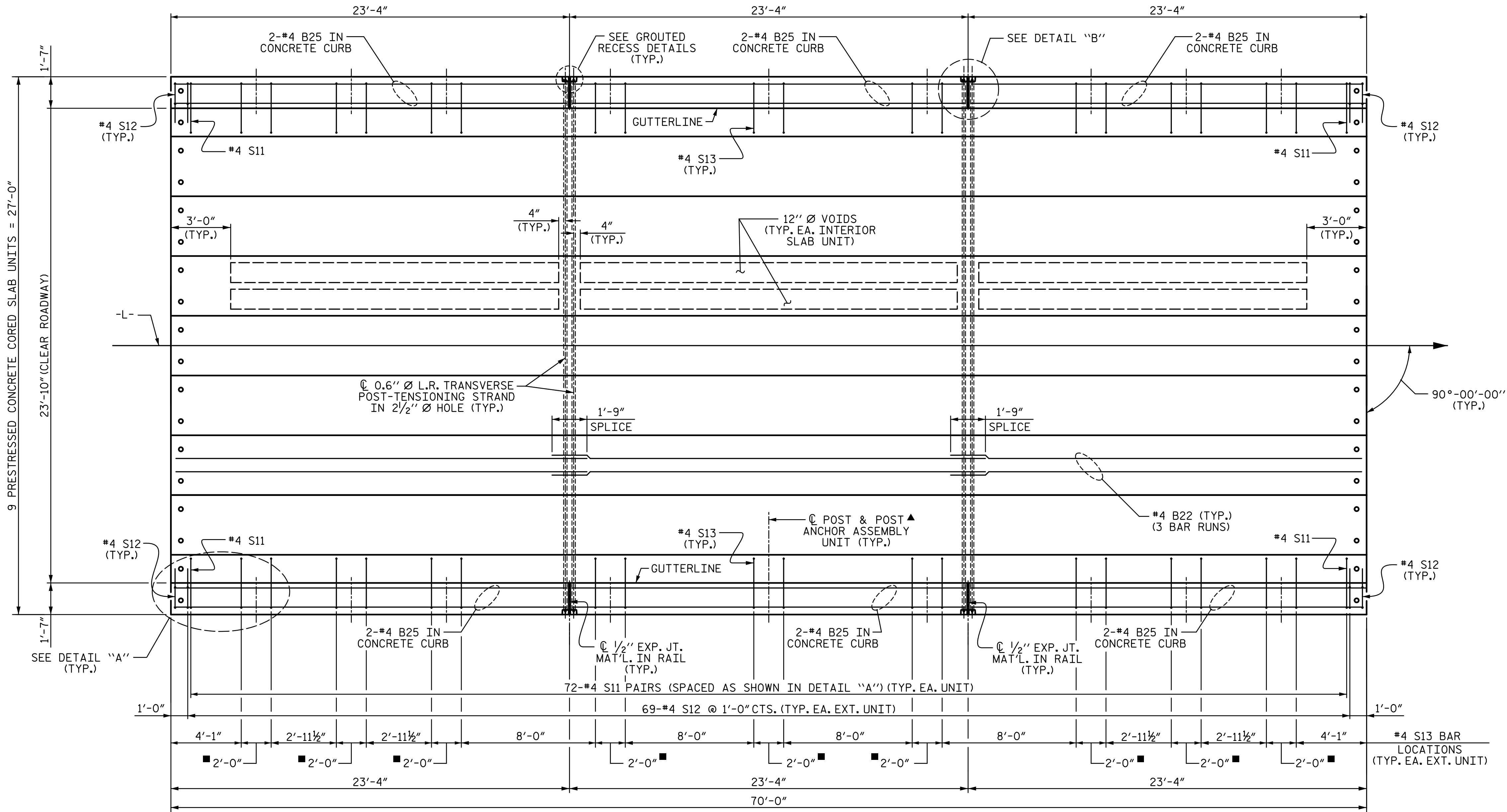
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

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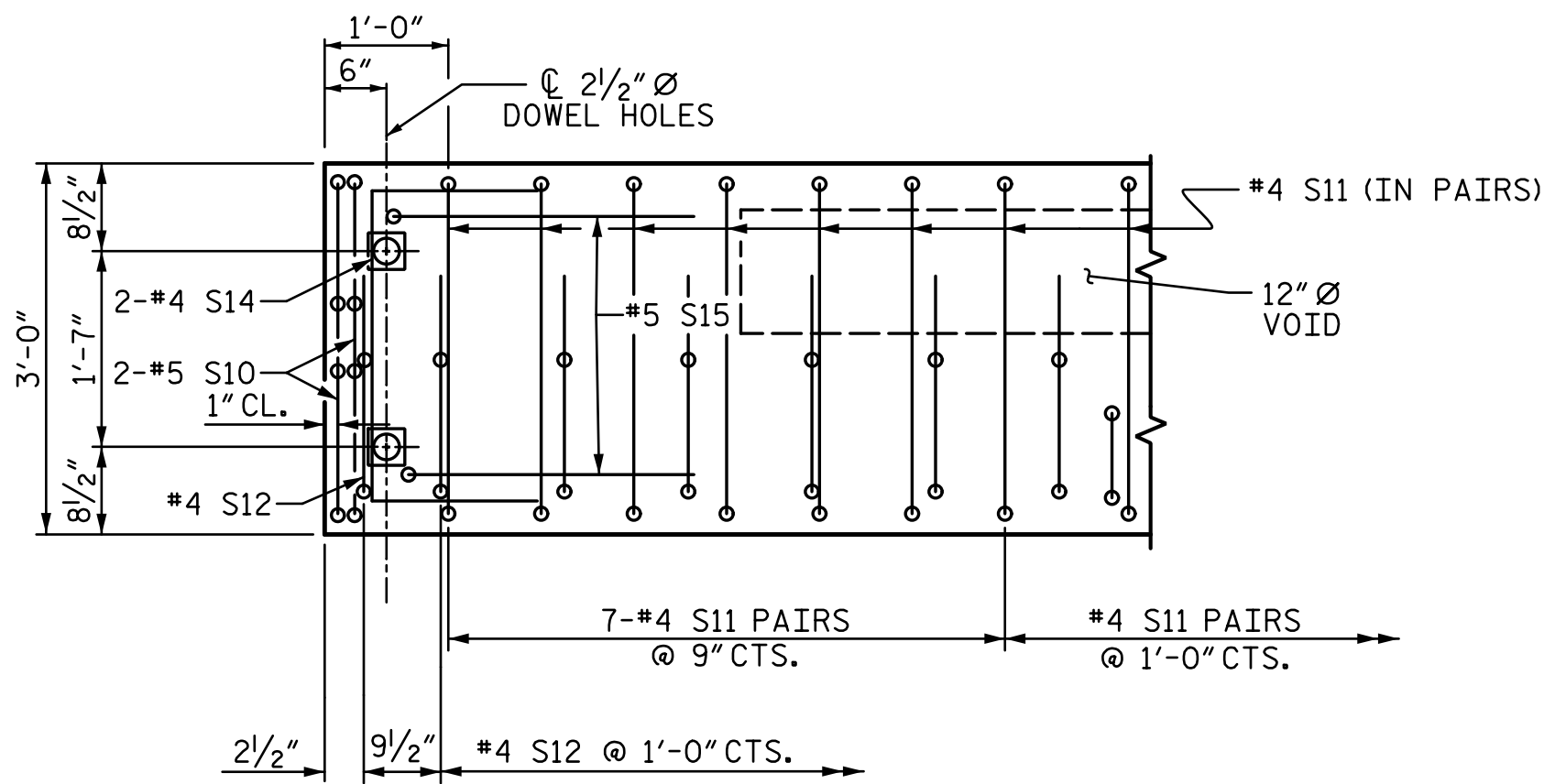
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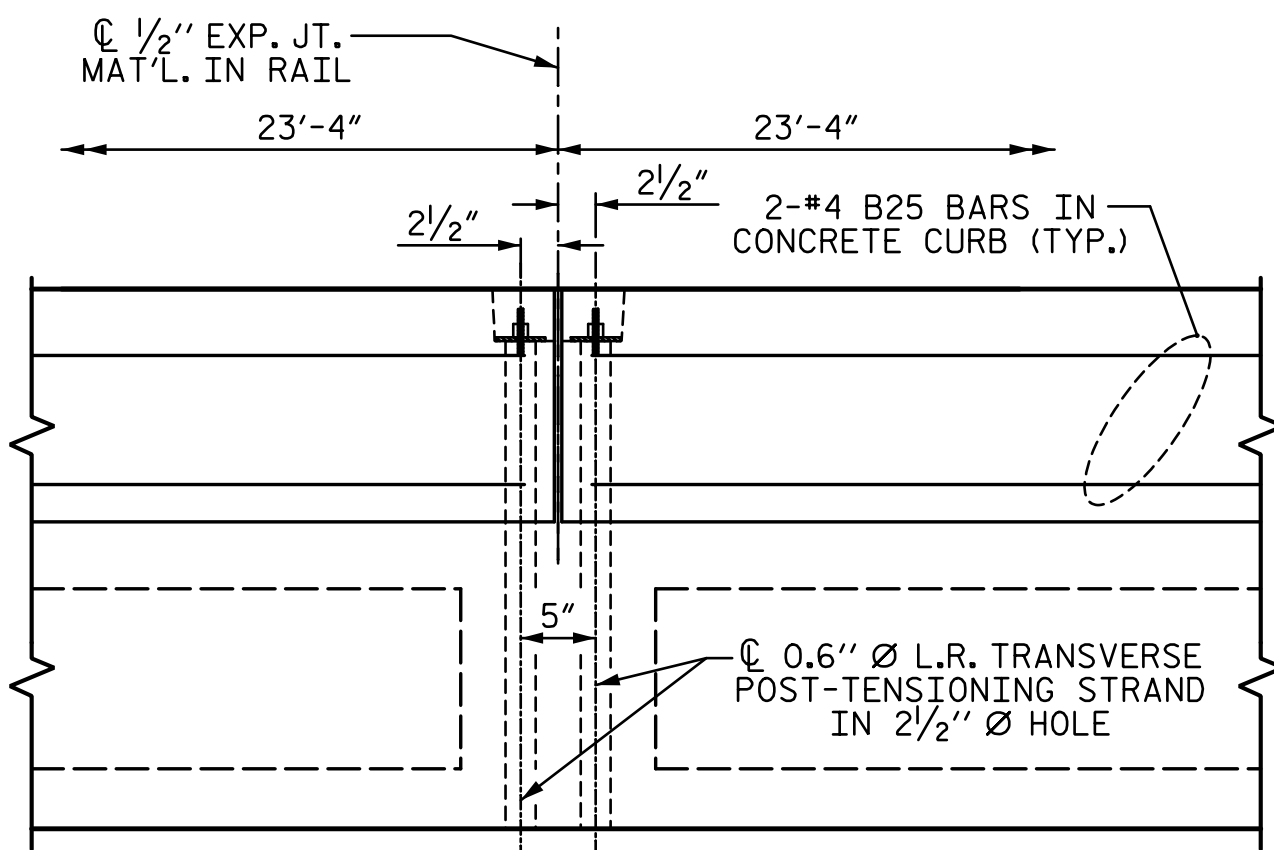
PLAN OF UNIT

■ SEE SIDE VIEW AT POST LOCATION FOR SPACING OF #4 S13 BARS.



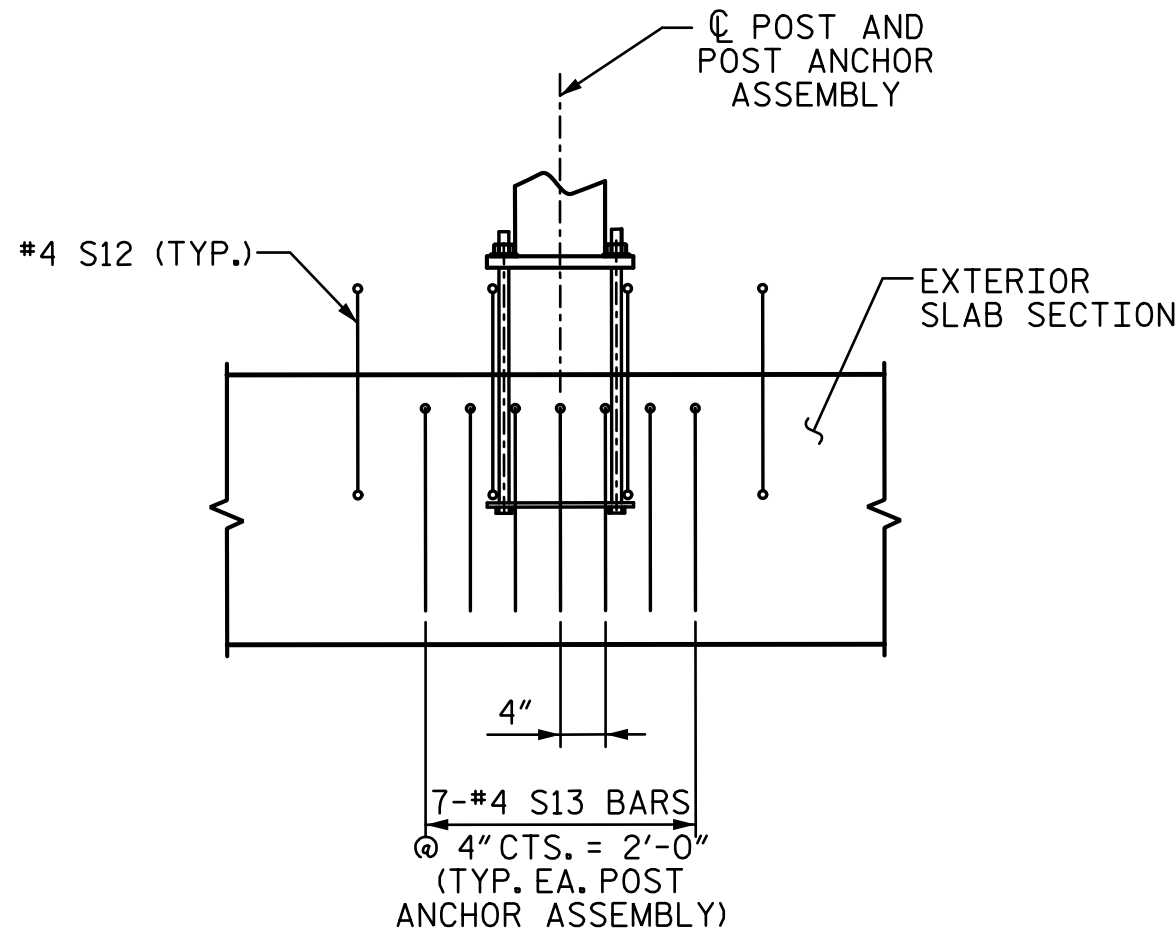
DETAIL "A"

(SIMILAR EACH END OF UNIT)
#4 S13 IN EXTERIOR UNIT NOT SHOWN, SEE SIDE VIEW AT POST LOCATION AND PLAN OF UNIT FOR DETAILS.
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #4 S12 & #4 S13 AND PROVIDE 2-12" Ø VOIDS.



DETAIL "B"

▲ FOR POST AND POST ANCHOR ASSEMBLY SPACING, SEE "RAIL POST AND SPACINGS AND END OF RAIL DETAILS" SHEET.



SIDE VIEW AT POST LOCATION

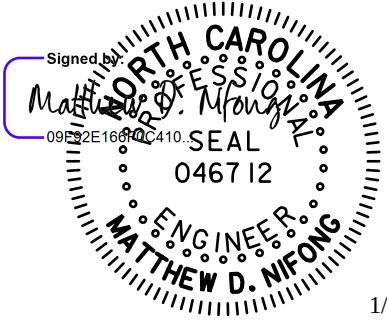
(SHOWING ADDITIONAL S13 BARS AT EACH POST ANCHOR ASSEMBLY)
#4 S11 NOT SHOWN FOR CLARITY.
#4 S11 & #4 S12 MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS IN POST ANCHOR ASSEMBLY.

PROJECT NO. HB-0048

ASHE COUNTY

STATION: 12+25.00 -L-

SHEET 2 OF 4



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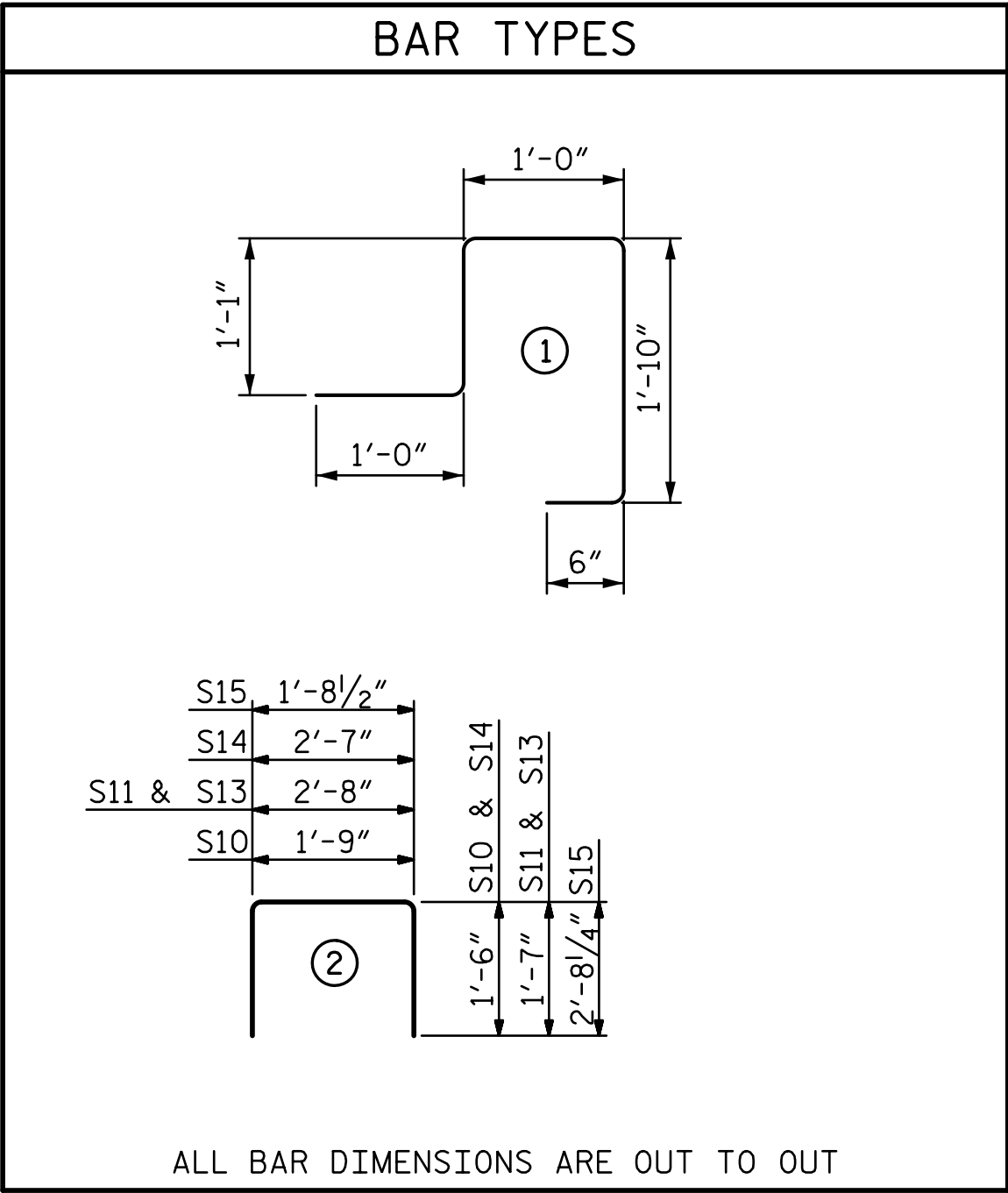
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 70' UNIT
23'-10" CLEAR ROADWAY
90° SKEW

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		S-6
2			4		
TOTAL SHEETS					19

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	2	4'-9"	40	4'-9"	40
S11	144	#4	2	5'-10"	561	5'-10"	561
*S12	71	#4	1	5'-5"	257		
S13	63	#4	2	5'-10"	245		
S14	4	#4	2	5'-7"	15	5'-7"	15
S15	4	#5	2	7'-1"	30	7'-1"	30
REINFORCING STEEL				LBS.	989		744
* EPOXY COATED REINFORCING STEEL				LBS.	257		
7500 P.S.I. CONCRETE				CU. YDS.	13.5		11.8
0.6" Ø L.R. STRANDS				No.	28		28



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 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 SIDWAYS. 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 CONCRETE CURB SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE CONCRETE CURB AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN CONCRETE CURB EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF CONCRETE CURB 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 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

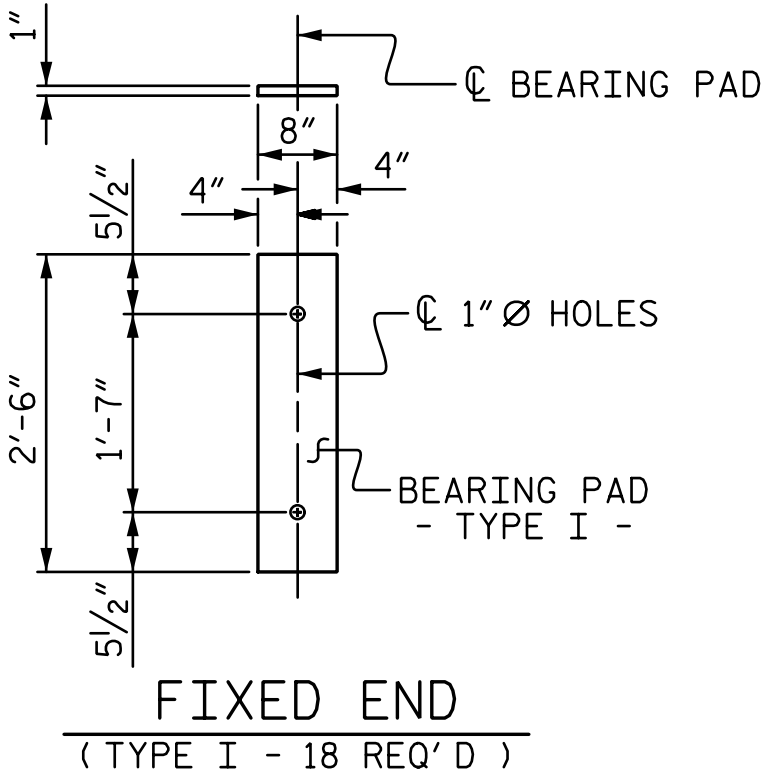
THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

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.

THREADED RODS AT FIXED ENDS SHALL CONFORM TO ASTM A449. EACH THREADED ROD SHALL HAVE A PLATE WASHER AND NUT INSTALLED.



ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

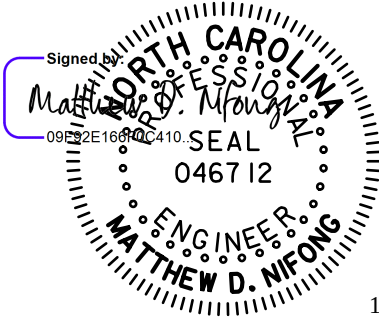
DEAD LOAD DEFLECTION AND CAMBER		
	3'-0" x 2'-0" INTERIOR UNIT	3'-0" x 2'-0" EXTERIOR UNIT
70' CORED SLAB UNIT	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2" ↑	1 5/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/4" ↓	3/4" ↓
FINAL CAMBER	1 1/4" ↑	7/8" ↑

** INCLUDES FUTURE WEARING SURFACE

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

CORED SLABS REQUIRED			
70' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	7	70'-0"	490'-0"
TOTAL	9	70'-0"	630'-0"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
70' UNITS	6300



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ASHE COUNTY
STATION: 12+25.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

DRAWN BY :	SGH	DATE :	6/25
CHECKED BY :	MDN	DATE :	6/25
DESIGN ENGINEER OF RECORD :	MDN	DATE :	1/26

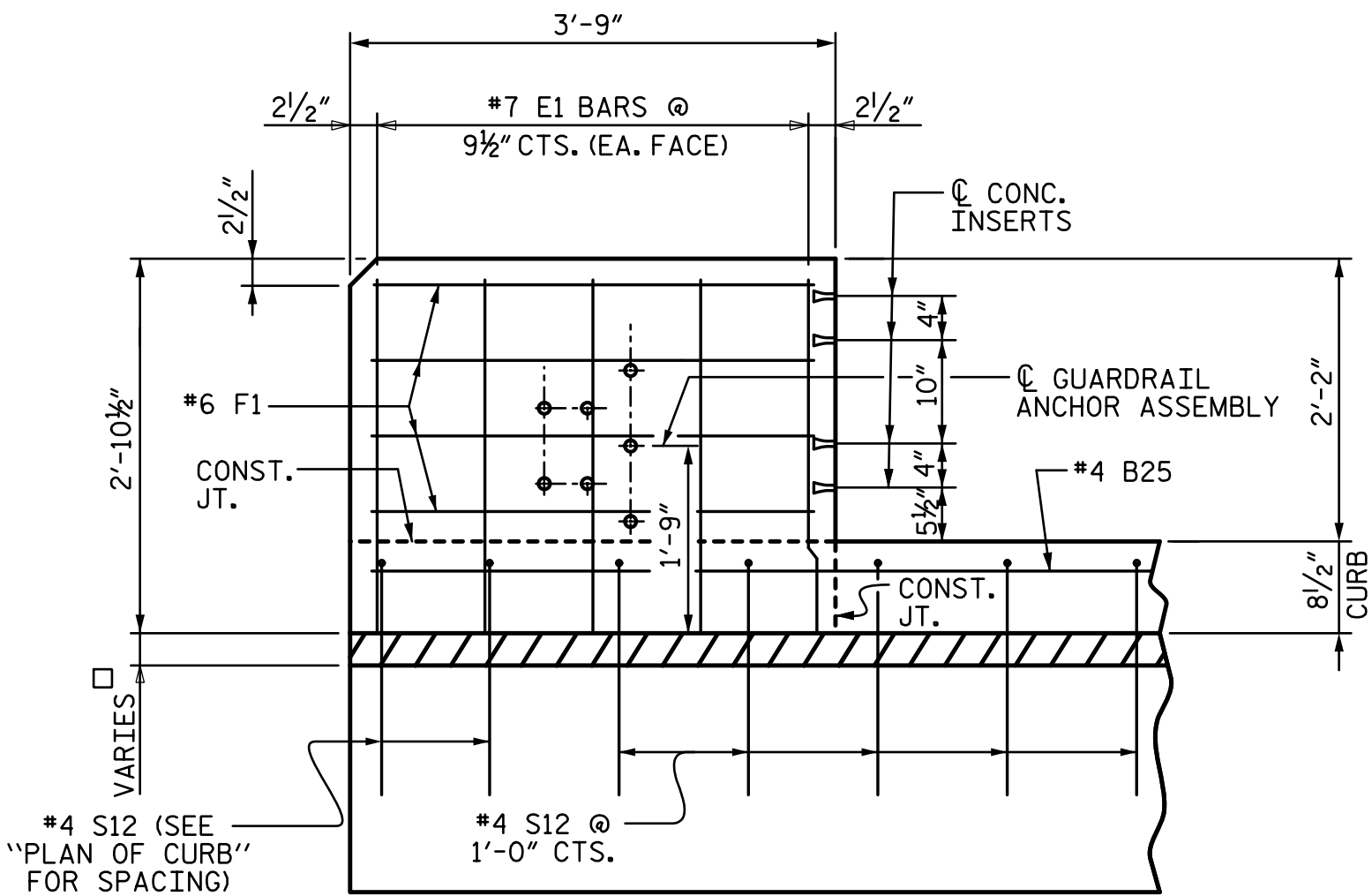
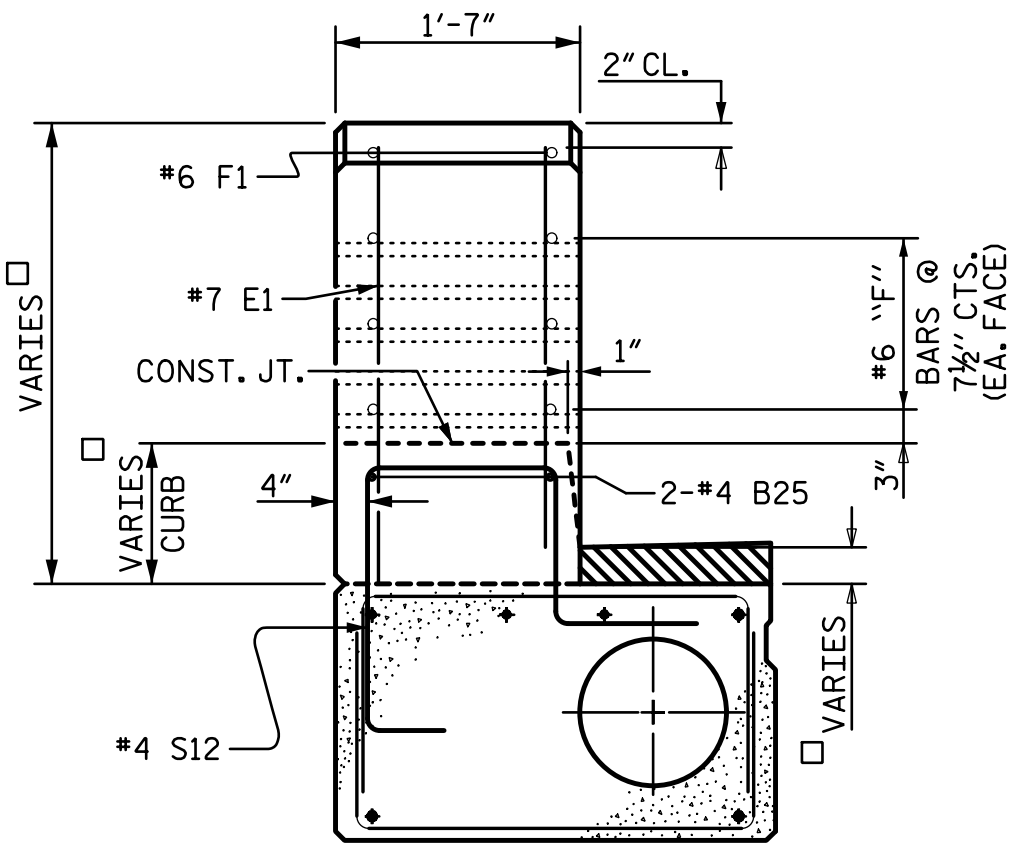
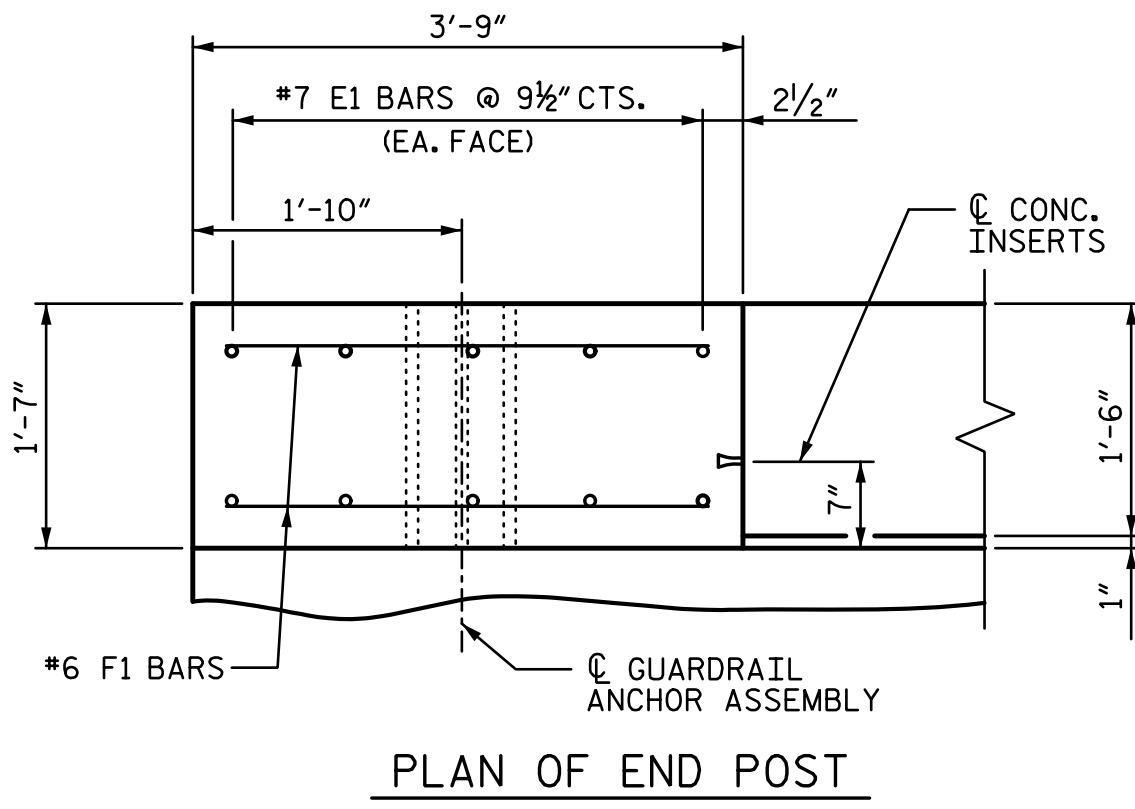
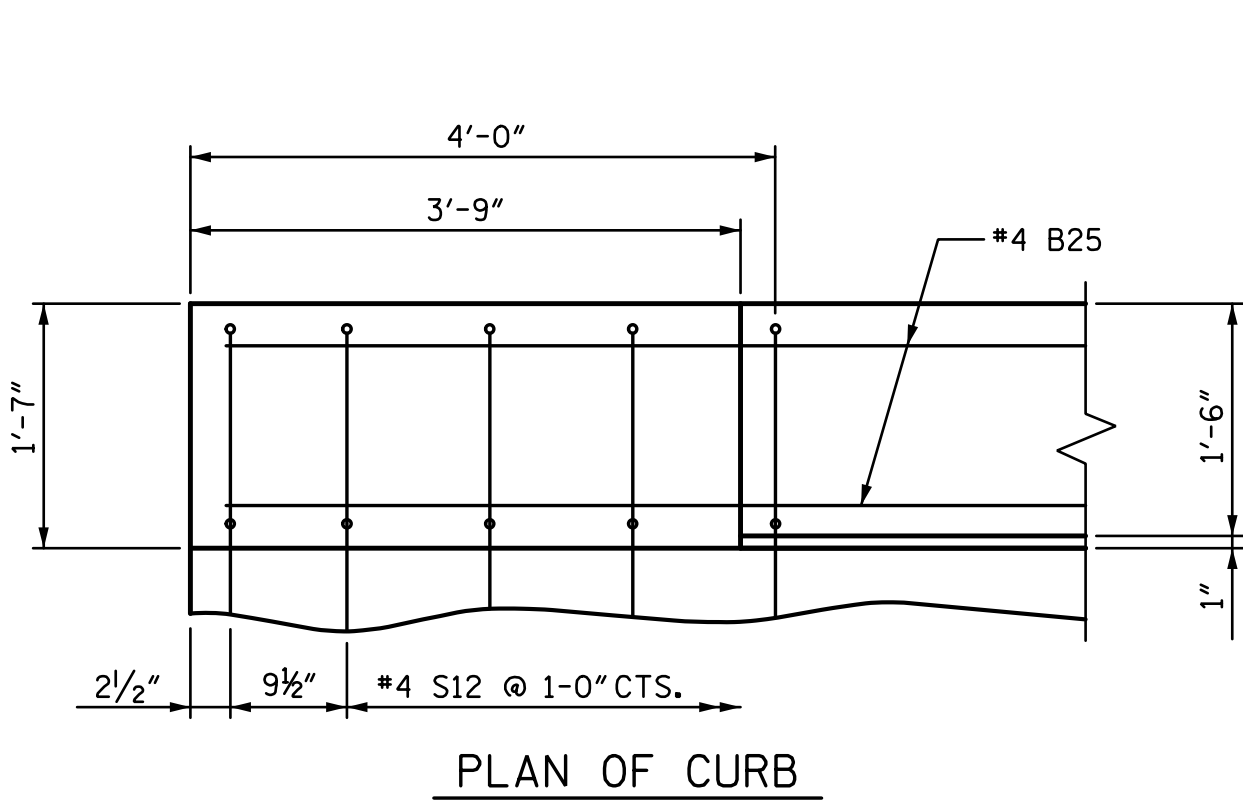
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BILL OF MATERIAL FOR CONCRETE CURB & END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B25	12	*4	STR	22'-11"	184
* E1	40	*7	STR	2'-7"	211
* F1	32	*6	STR	3'-5"	164
* EPOXY COATED REINFORCING STEEL				LBS.	559
CLASS AA CONCRETE				CU.YDS.	13.15
TOTAL LIN. FT. OF CONCRETE CURB					140.0

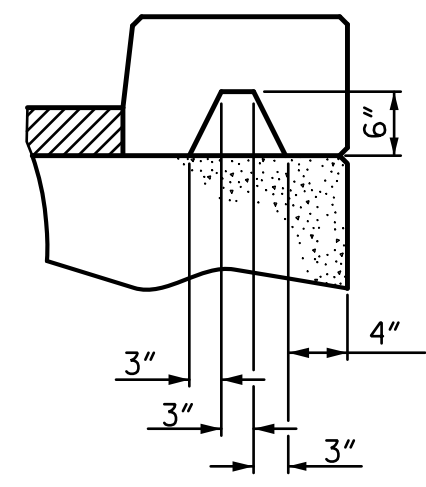
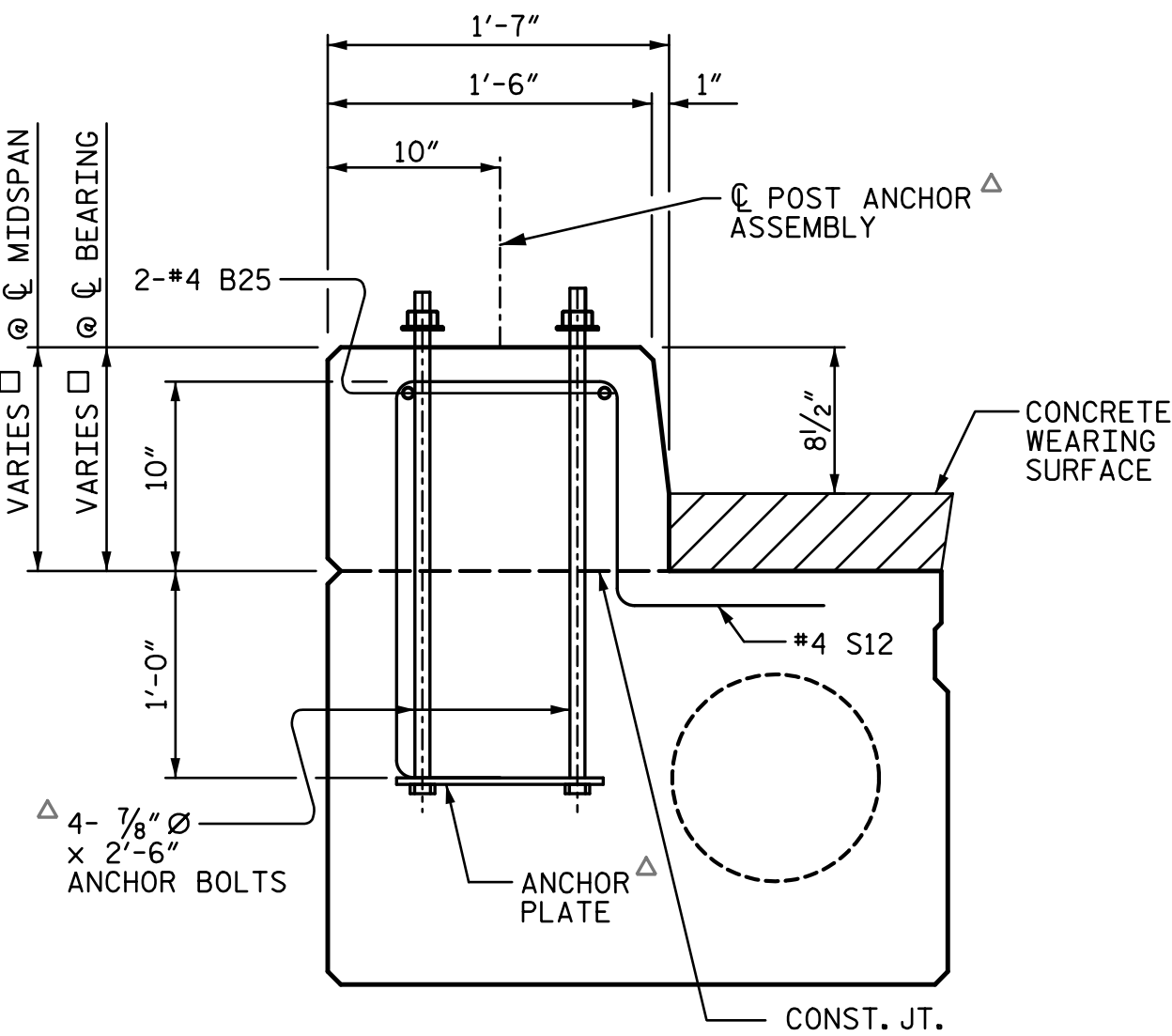


CURB AND END POST FOR POWDER COATED 32" ALASKA RAIL

(POST ANCHOR ASSEMBLY NOT SHOWN FOR CLARITY.)

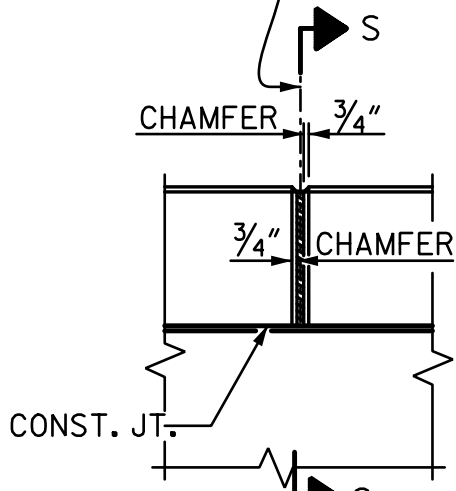
GUTTERLINE	CONCRETE OVERLAY THICKNESS			CURB HEIGHT			END POST HEIGHT	
	@ C. BRG. EB1	@ MID. -SPAN	@ C. BRG. EB2	@ C. BRG. EB1	@ MID. -SPAN	@ C. BRG. EB2	@ EB 1	@ EB 2
LEFT	5 1/4"	4 3/8"	5 1/4"	1'-1 3/4"	1'-0 7/8"	1'-1 3/4"	3'-3 3/4"	3'-3 3/4"
RIGHT	5 1/4"	4 3/8"	5 1/4"	1'-1 3/4"	1'-0 7/8"	1'-1 3/4"	3'-3 3/4"	3'-3 3/4"

* EXTERIOR UNITS CAMBER UP 1/2" LESS THAN INTERIOR UNITS DUE TO ONE LESS VOID



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

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

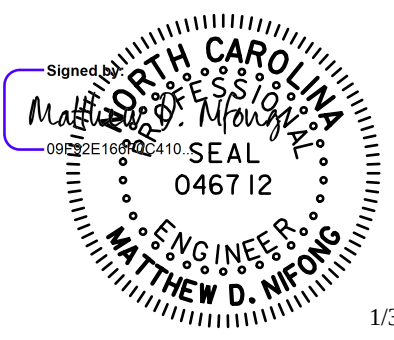


ELEVATION AT EXPANSION JOINTS

ALASKA RAIL CONCRETE CURB SECTION

CONCRETE CURB DETAILS

FOR ADDITIONAL DETAILS AND NOTES, SEE "32" ALASKA RAIL" SHEETS.



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ASHE COUNTY
STATION: 12+25.00 -L-

SHEET 4 OF 4

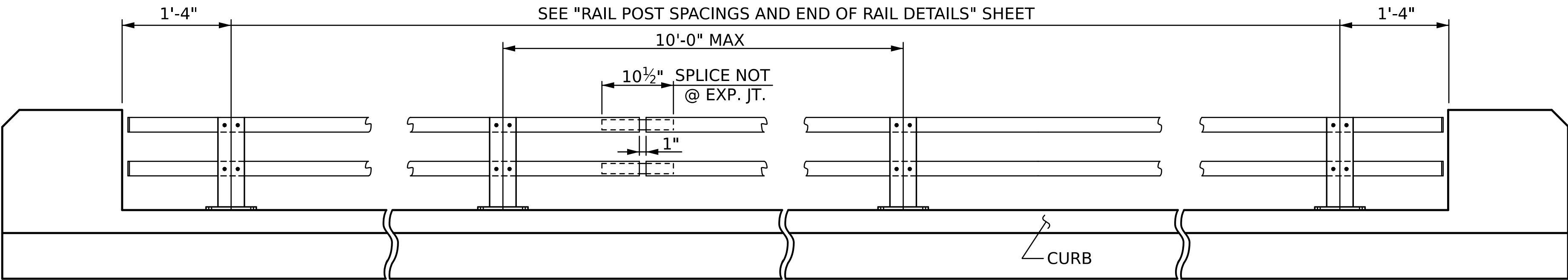
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

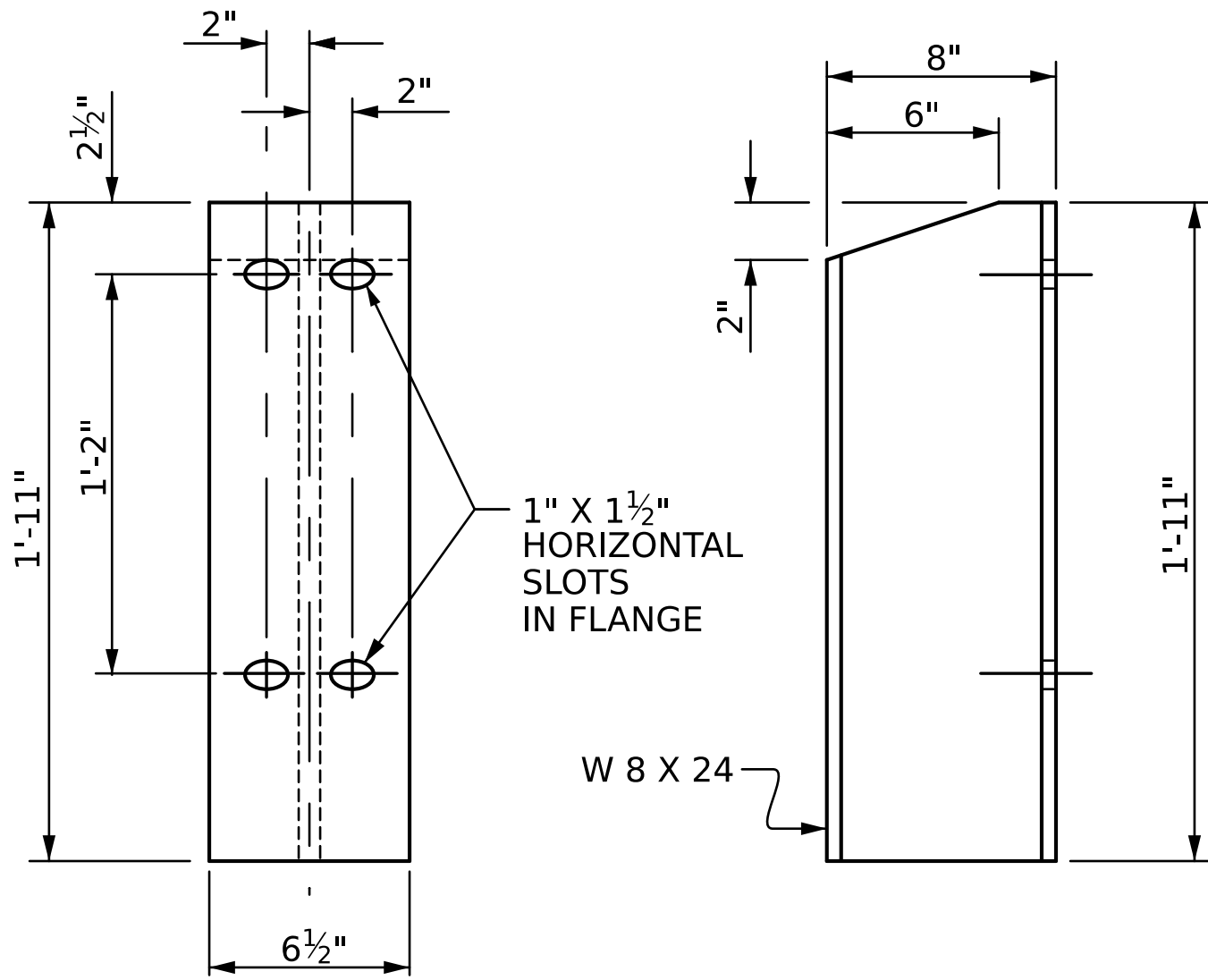
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CHECKED BY :	MDN	DATE :	6/25
DESIGN ENGINEER OF RECORD :	MDN	DATE :	1/26

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ELEVATION

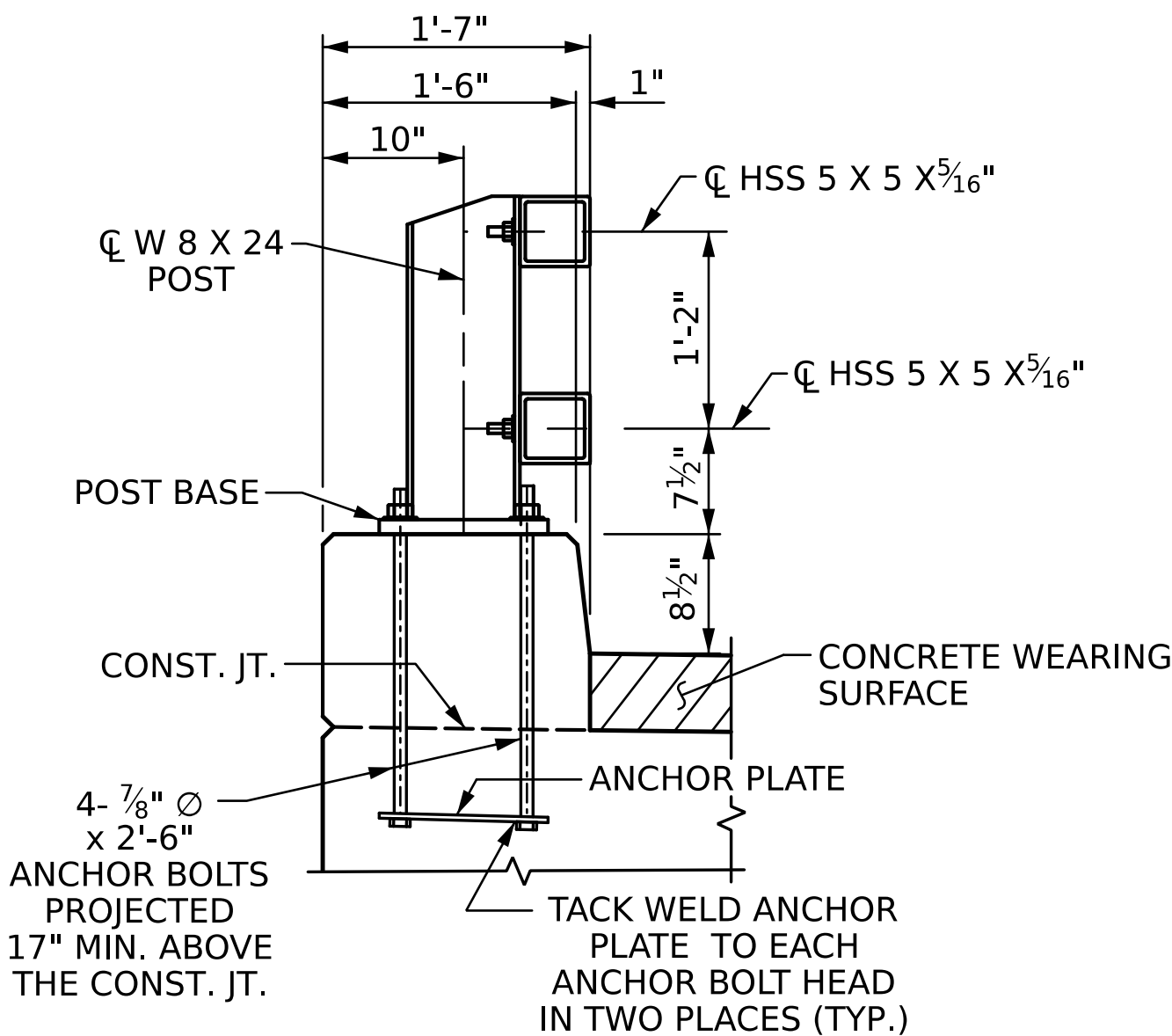
NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET.



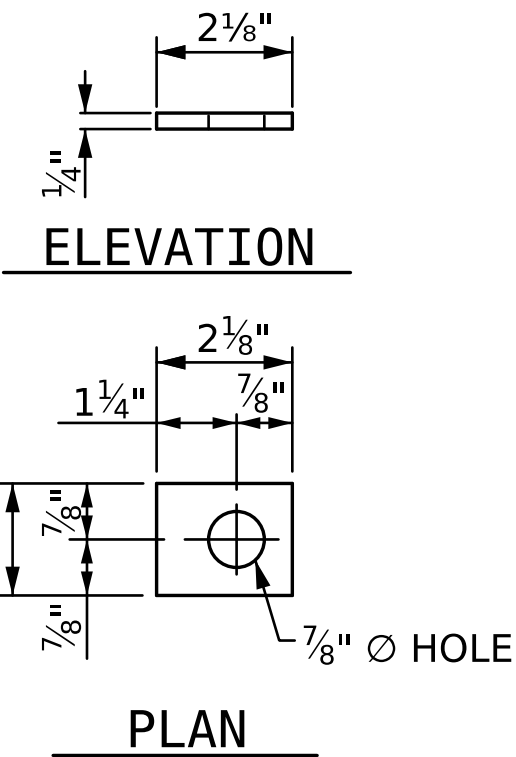
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST



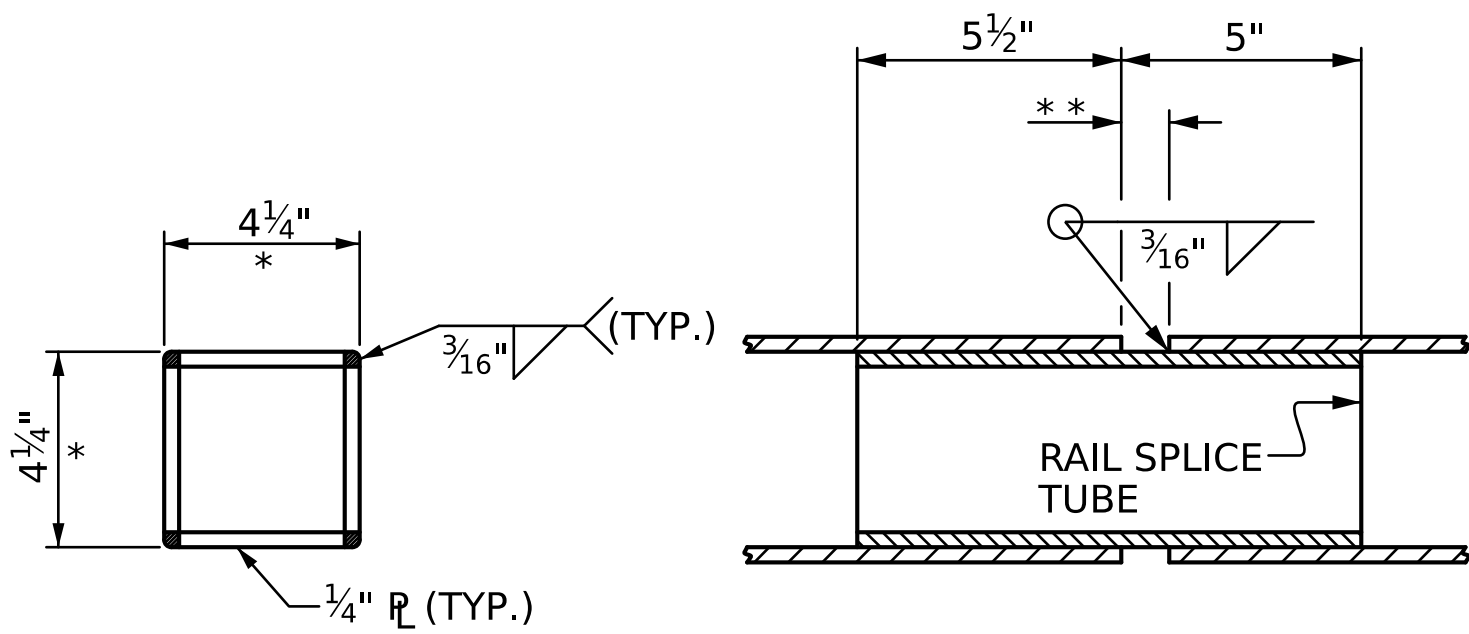
SECTION THRU RAIL



ELEVATION

PLAN

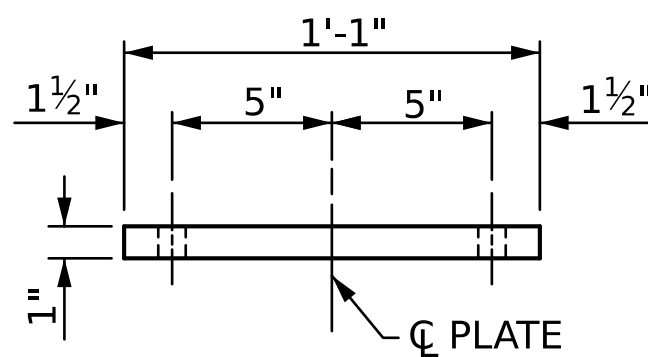
PLATE WASHER



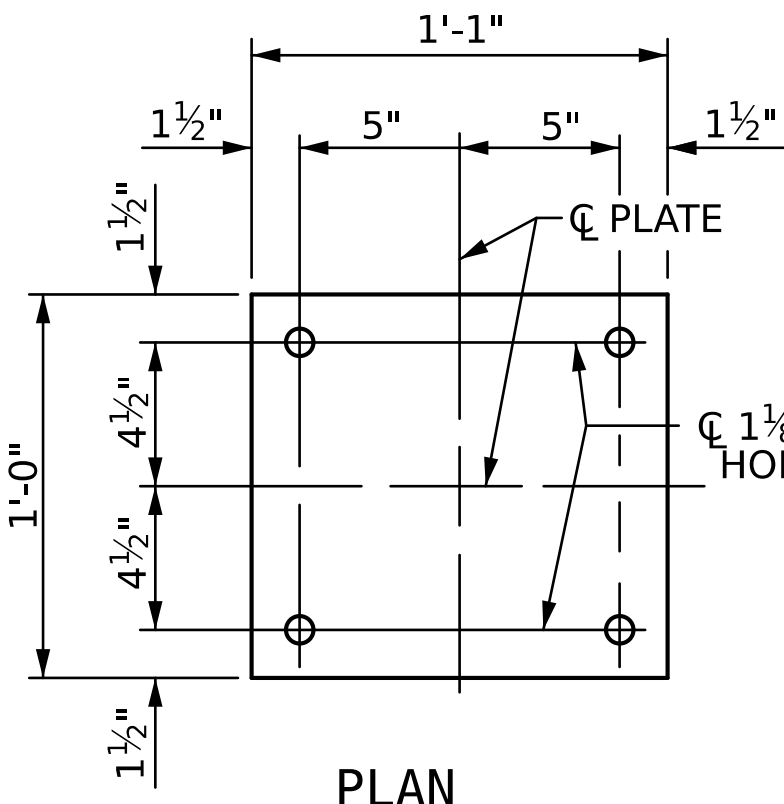
RAIL SPLICE DETAILS

* - DIMENSION AFTER GRINDING RADIUS ON CORNERS TO MATCH INSIDE OF METAL RAIL. GRIND ALL EDGES PRIOR TO GALVANIZING TO ASSURE FIT.

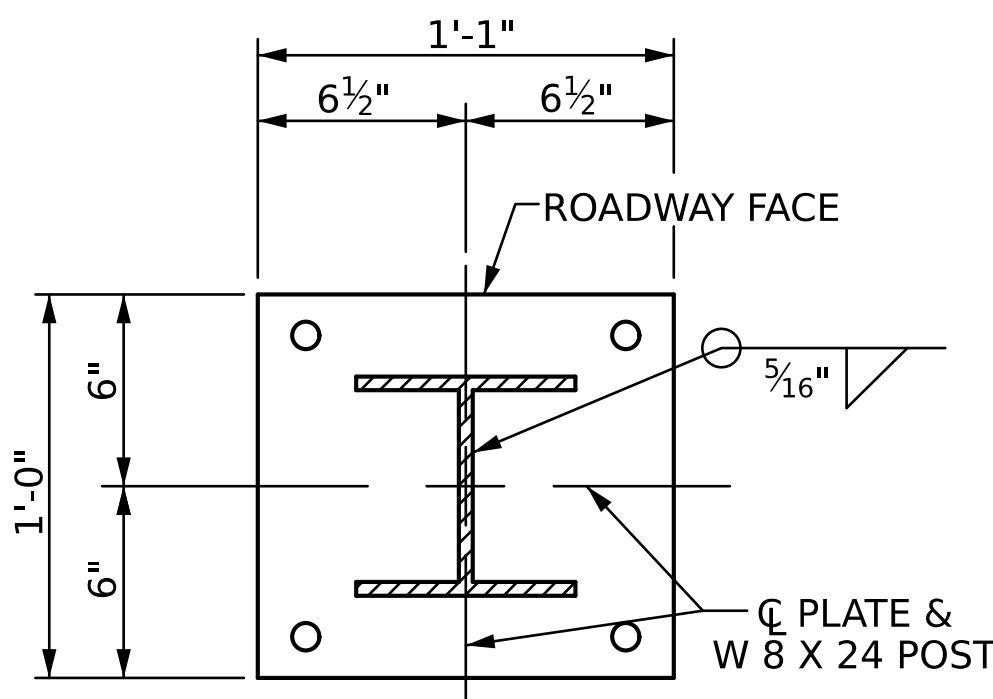
** -1" FOR SPLICE NOT AT EXPANSION JOINT; SEE TABLE 1 FOR OPENING FOR SPLICES AT EXPANSION JOINTS.



FRONT ELEVATION

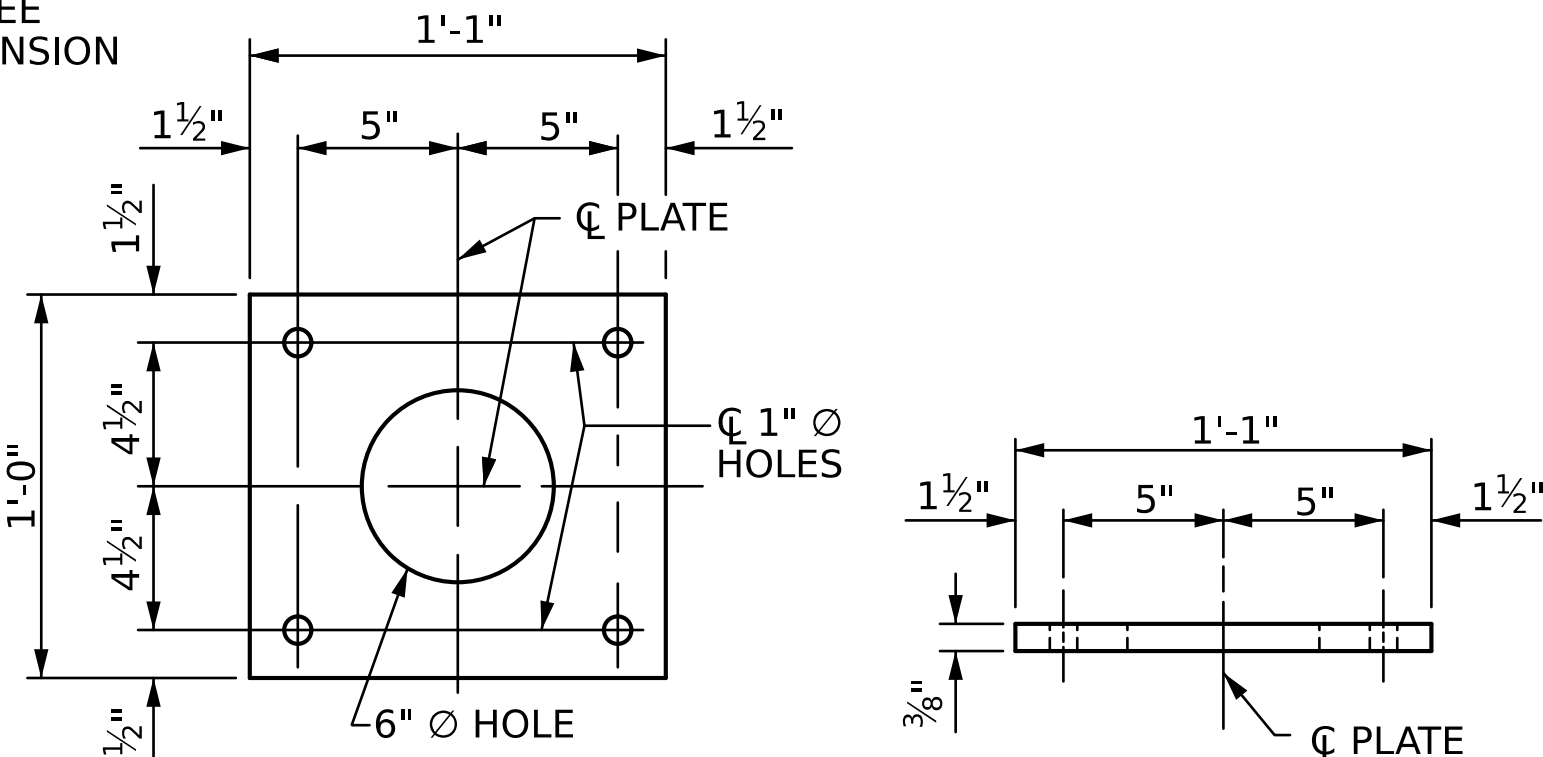


PLAN



POST ATTACHMENT DETAIL

POST BASE DETAILS



PLAN

ELEVATION

ANCHOR PLATE DETAILS

METAL RAIL LENGTH 125.0 LIN. FT.

NOTES

METAL RAIL SHALL BE GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS. ALUMINUM RAIL WILL NOT BE AN OPTION.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, ANCHOR PLATES AND RAIL SPLICE TUBES: ASTM A36 GRADE 36 STRUCTURAL STEEL-GALVANIZED TO ASTM A123.

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

RAILS: ASTM A500 GRADE B - GALVANIZED TO ASTM A123.

WELDED RAIL STUDS: ASTM A108-GALVANIZED TO ASTM A123.

HIGH STRENGTH ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 105. HEAVY HEX NUTS SHALL CONFORM TO ASTM A563 DH, AND WASHERS TO ASTM F436,TYPE 1. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED TO ASTM A123.

GENERAL NOTES

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

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR9.

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

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

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

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

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

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

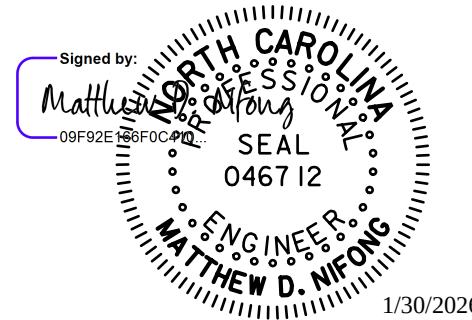
THE RAIL SECTIONS SHALL BE ATTACHED TO THE POSTS BY TWO THREADED 3/4" Ø WELDED STUDS, PLATE WASHERS, LOCKWASHERS, AND NUTS.

FOR 32" ALASKA RAIL, SEE THE STANDARD SPECIFICATIONS.

PROJECT NO. HB-0048
ASHE COUNTY
STATION: 12+25.00 -L-

SHEET 1 OF 2

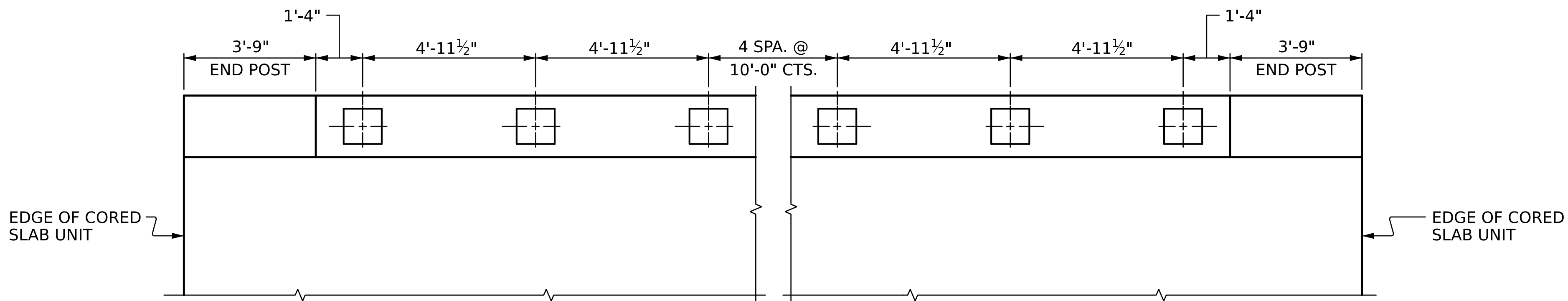
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
32" ALASKA RAIL					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					19



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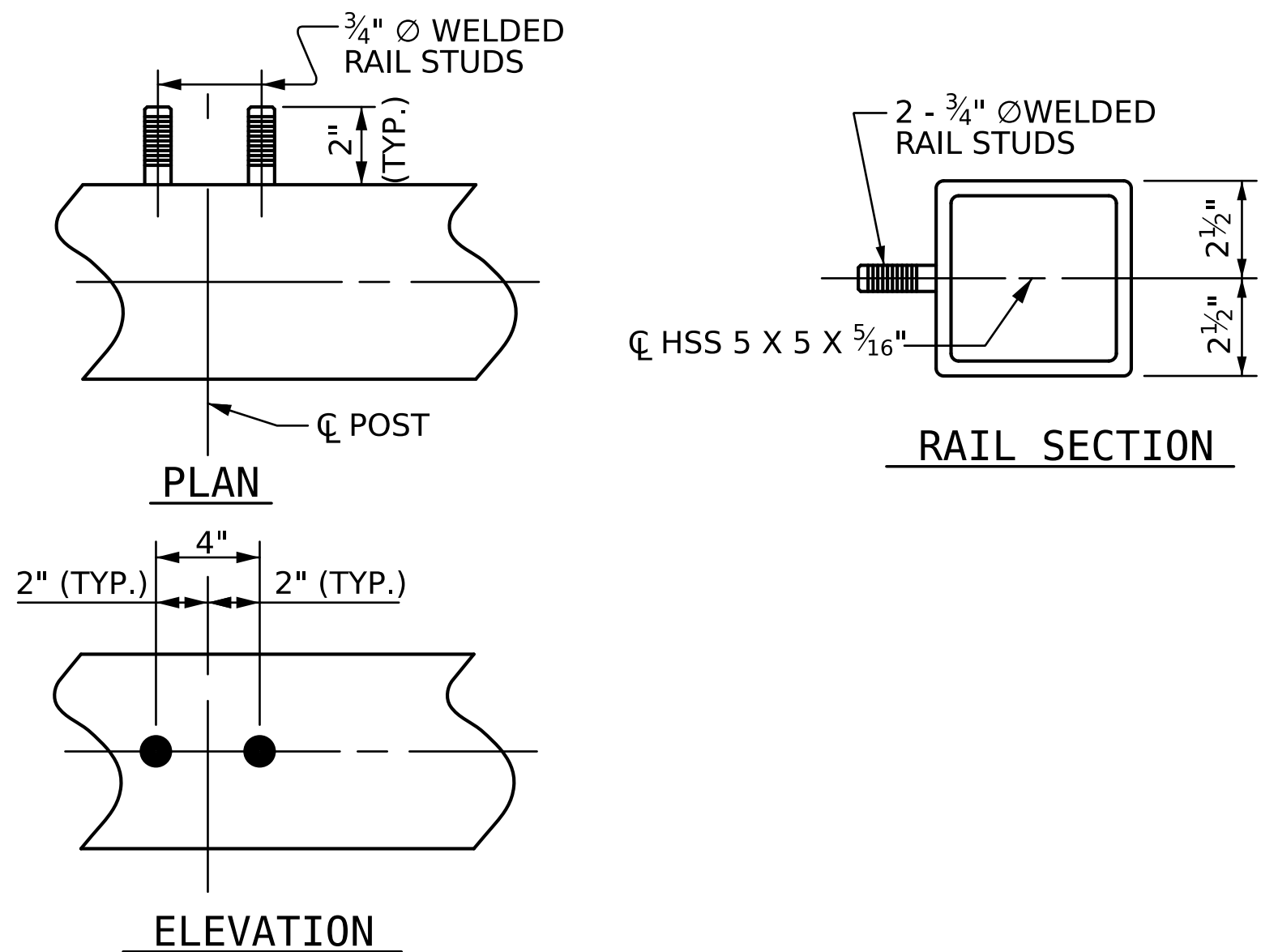
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FINAL UNLESS ALL
SIGNATURES COMPLETED

STD. NO. BMR8

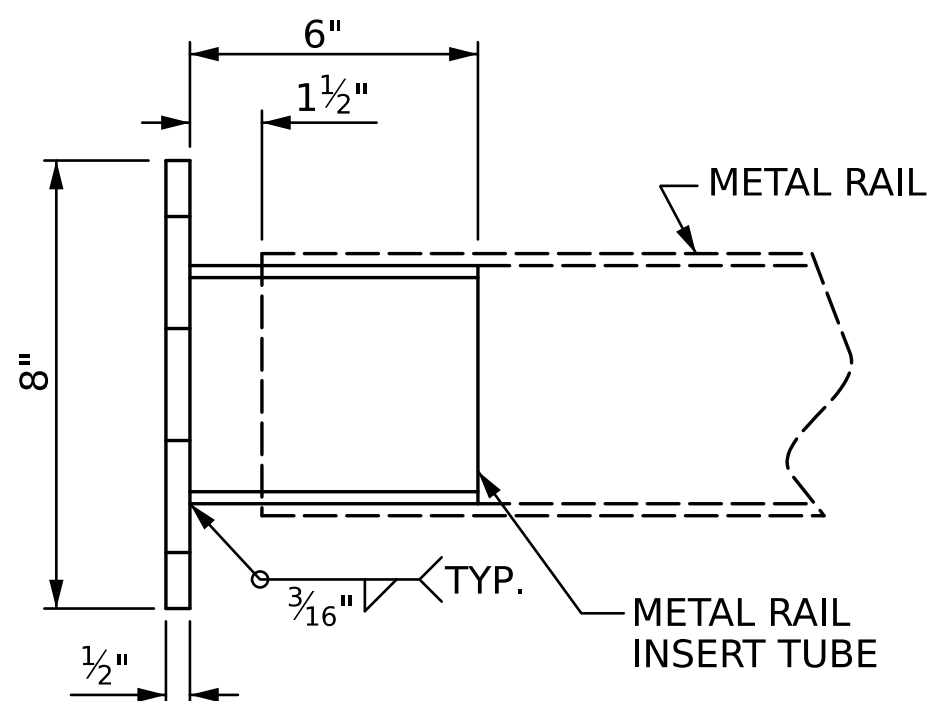


PLAN OF RAIL POST SPACINGS

(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

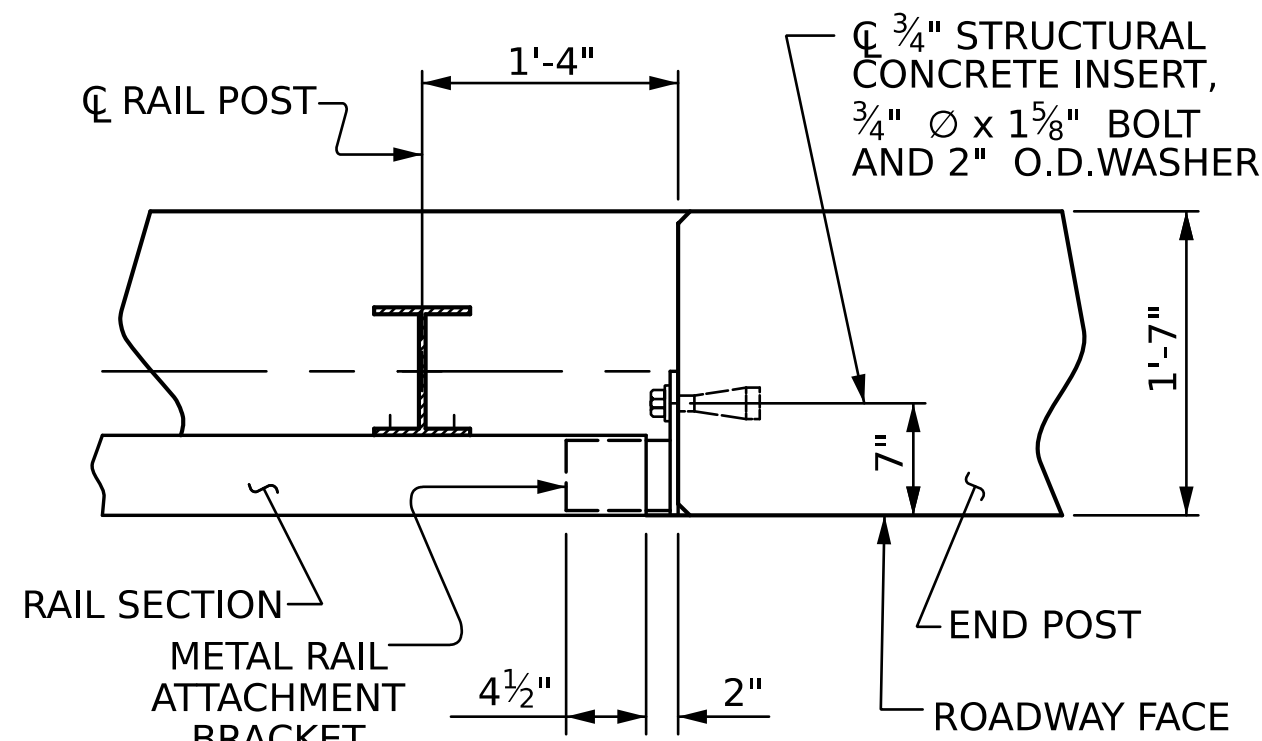
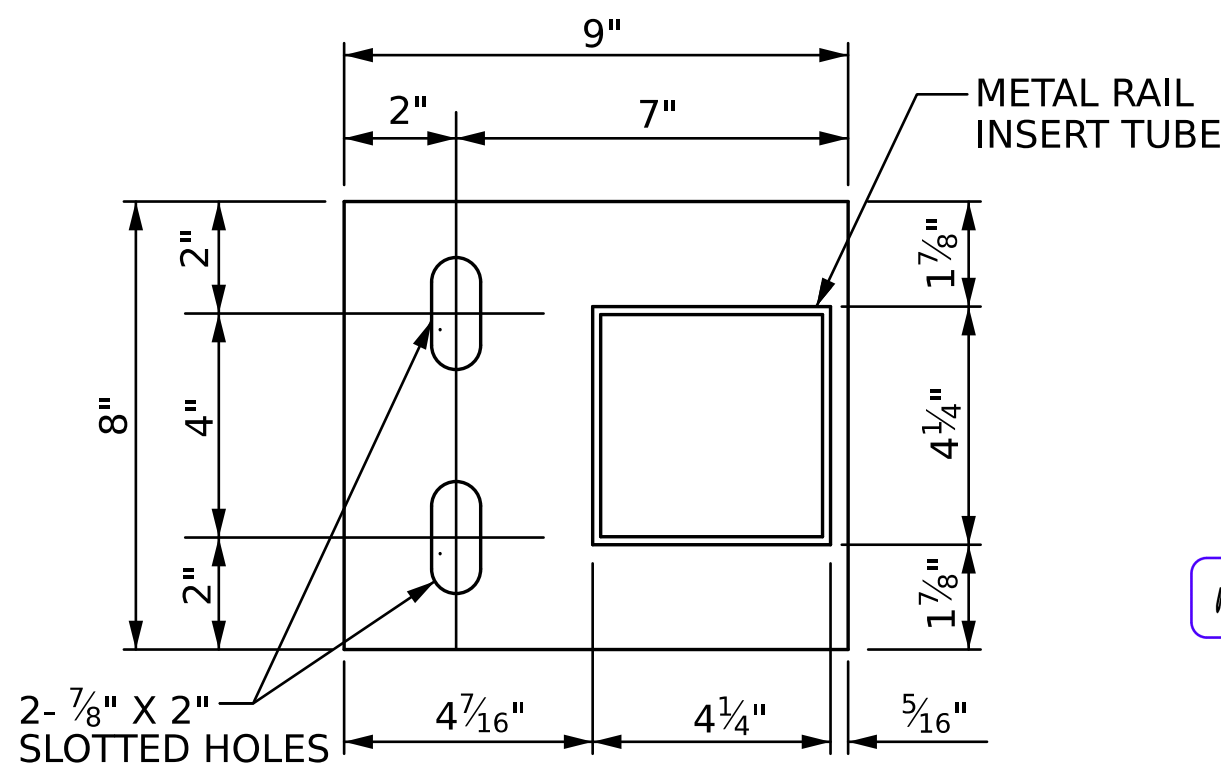


RAIL STUD DETAILS

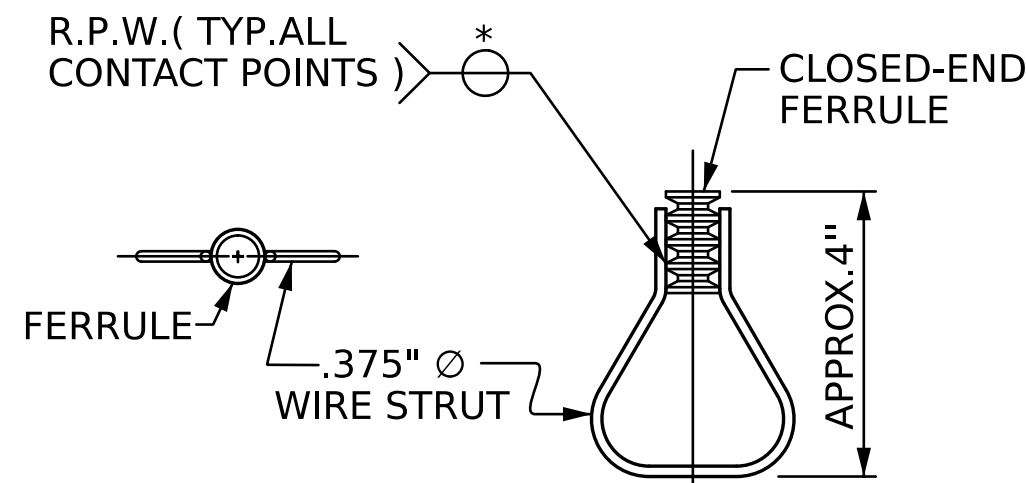


METAL RAIL ATTACHMENT BRACKET

THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM $\frac{1}{4}$ " PLATES.



PLAN - RAILS AND END POST



PLAN

ELEVATION

STRUCTURAL CONCRETE INSERT

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

PROJECT NO. HB-0048

ASHE COUNTY

STATION: 12+25.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

**RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS**

FOR 32" ALASKA RAIL

STD. NO. BMR9

NOTES

STRUCTURAL CONCRETE INSERT

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

- A. FERRULE SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1½".
- B. 1 - ¾" Ø x 1⅝" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE ¾" Ø x 1⅝" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE STRUCTURAL CONCRETE INSERT DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A ⅞" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

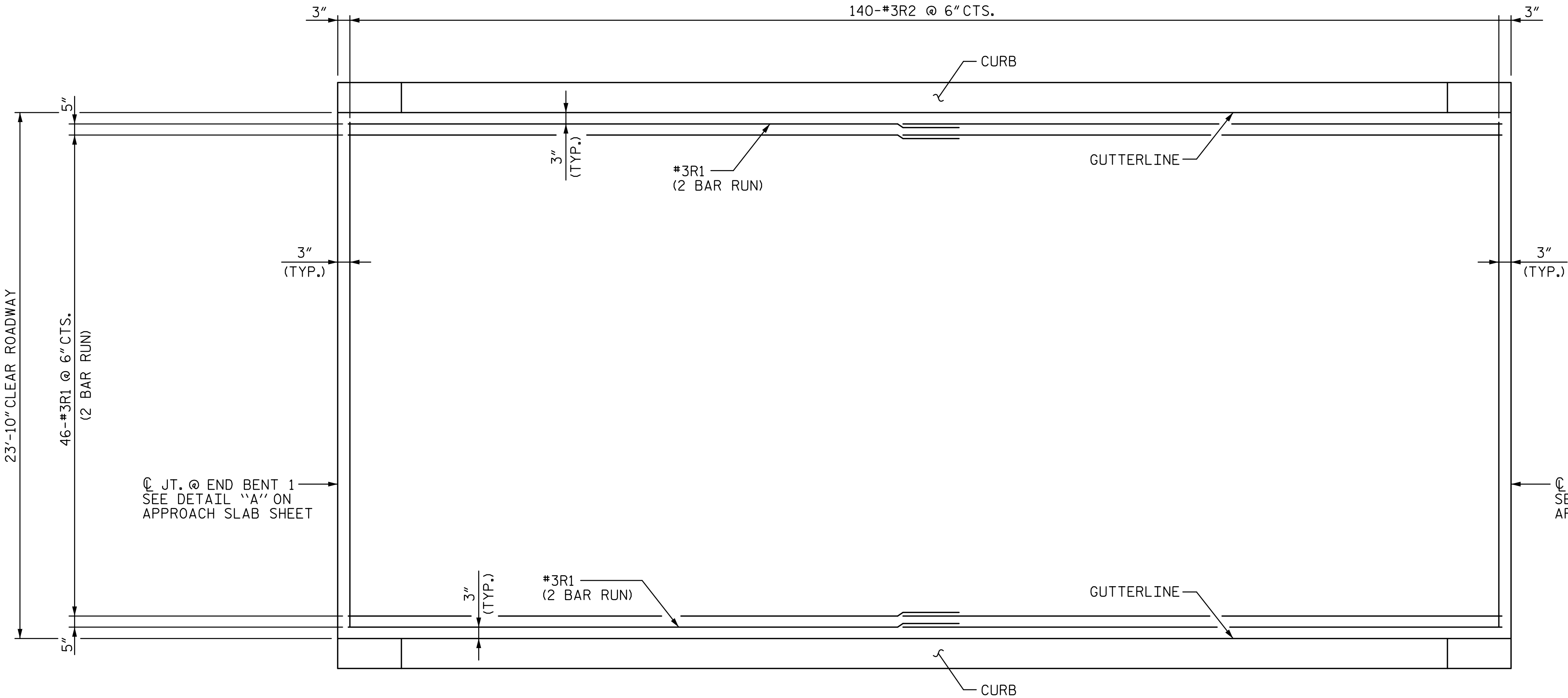
EACH METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. 1/2" METAL BRACKET PLATE AND 1/4" METAL RAIL INSERT TUBE SHALL CONFORM TO AASHTO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION TO ASTM A123.
- B. 3/4" STRUCTURAL CONCRETE INSERTS SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø x 1 1/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø x 1 1/8" BOLT SHALL HAVE N. C. THREADS.

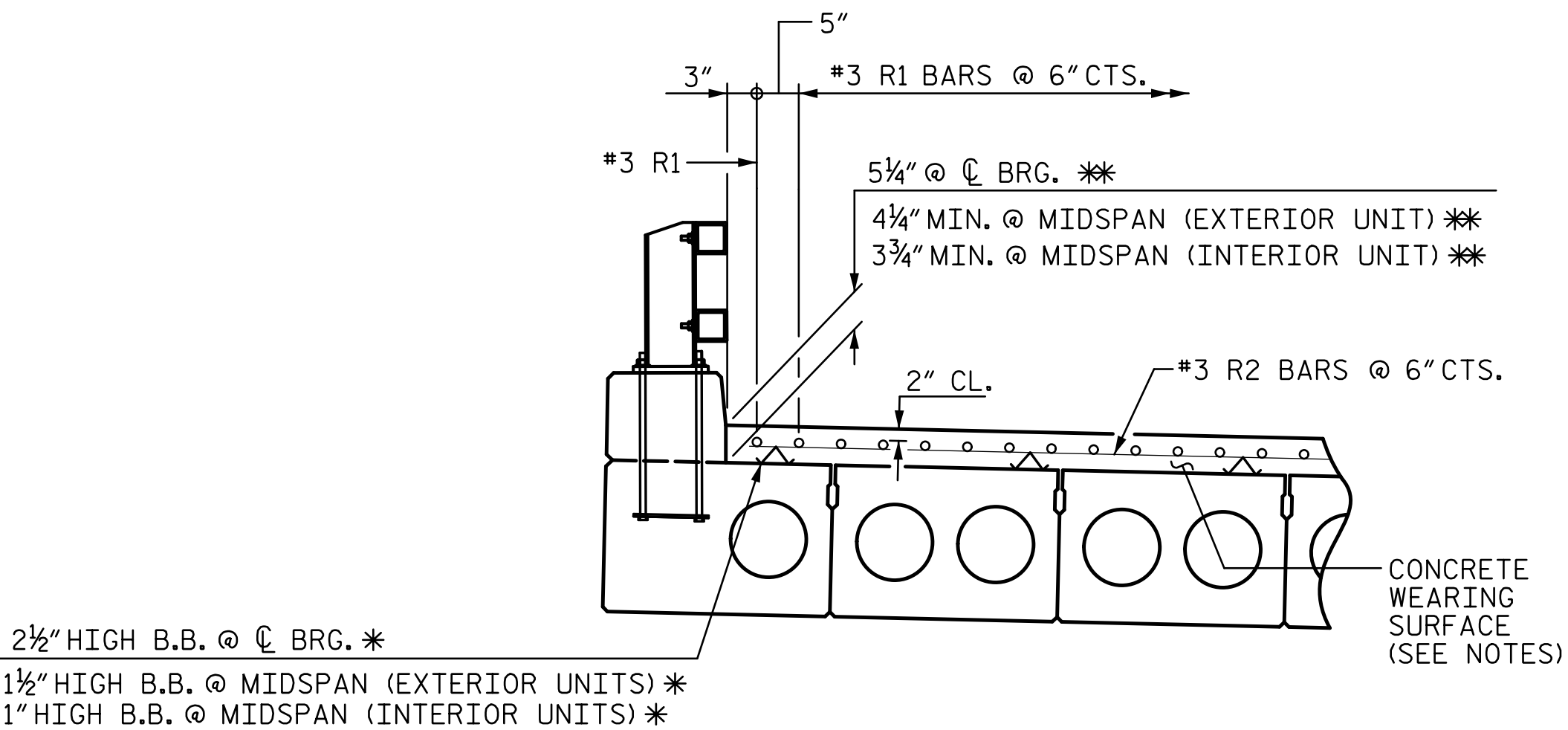
THE 3/4" STRUCTURAL CONCRETE INSERTS WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT, THE 1/2" BRACKET PLATES, AND THE RAIL INSERT TUBES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE $\frac{3}{4}$ " $\times$ $1\frac{1}{8}$ " BOLTS WITH WASHERS SHALL BE REPLACED WITH $\frac{3}{4}$ " $\times$ $6\frac{1}{2}$ " BOLTS AND 2" O.D. WASHERS. ALL SPECIFICATIONS THAT APPLY TO THE $\frac{3}{4}$ " $\times$ $1\frac{1}{8}$ " BOLTS SHALL APPLY TO THE $\frac{3}{4}$ " $\times$ $6\frac{1}{2}$ " BOLTS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL



REINFORCING FOR CONCRETE WEARING SURFACE

* BEAM BOLSTERS (B.B.) SHALL BE PLACED AT 2'-0" CENTERS.

* MINIMUM VALUES ARE SHOWN BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS. FOR THICKNESSES SEE "3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT" SHEET 4 OF 4.

NOTES:

ALL REINFORCING STEEL IN CONCRETE WEARING SURFACE SHALL BE EPOXY COATED

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE #3 BARS AND CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*R1	96	#3	STR	35'-7"	1,284
*R2	140	#3	STR	23'-6"	1,237
* EPOXY COATED REINFORCING STEEL				LBS.	2,521
CONCRETE WEARING SURFACE				SQ. FT.	1,668

SPLICE LENGTH CHART

BAR SIZE	EPOXY COATED
#3	1'-6"

GROOVING BRIDGE FLOORS

APPROACH SLABS:	481 SQ.FT.
BRIDGE DECK:	1,458 SQ.FT.
TOTAL:	1,933 SQ.FT.

PROJECT NO. HB-0048
ASHE COUNTY
STATION: 12+25.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE WEARING SURFACE

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE WEARING SURFACE

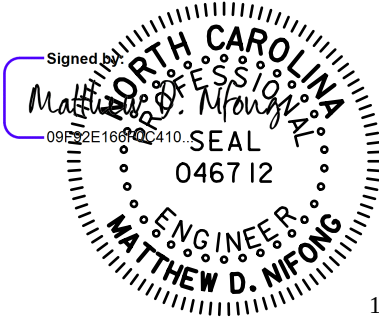
REVISIONS

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

SHEET NO.

S-11

TOTAL SHEETS
19



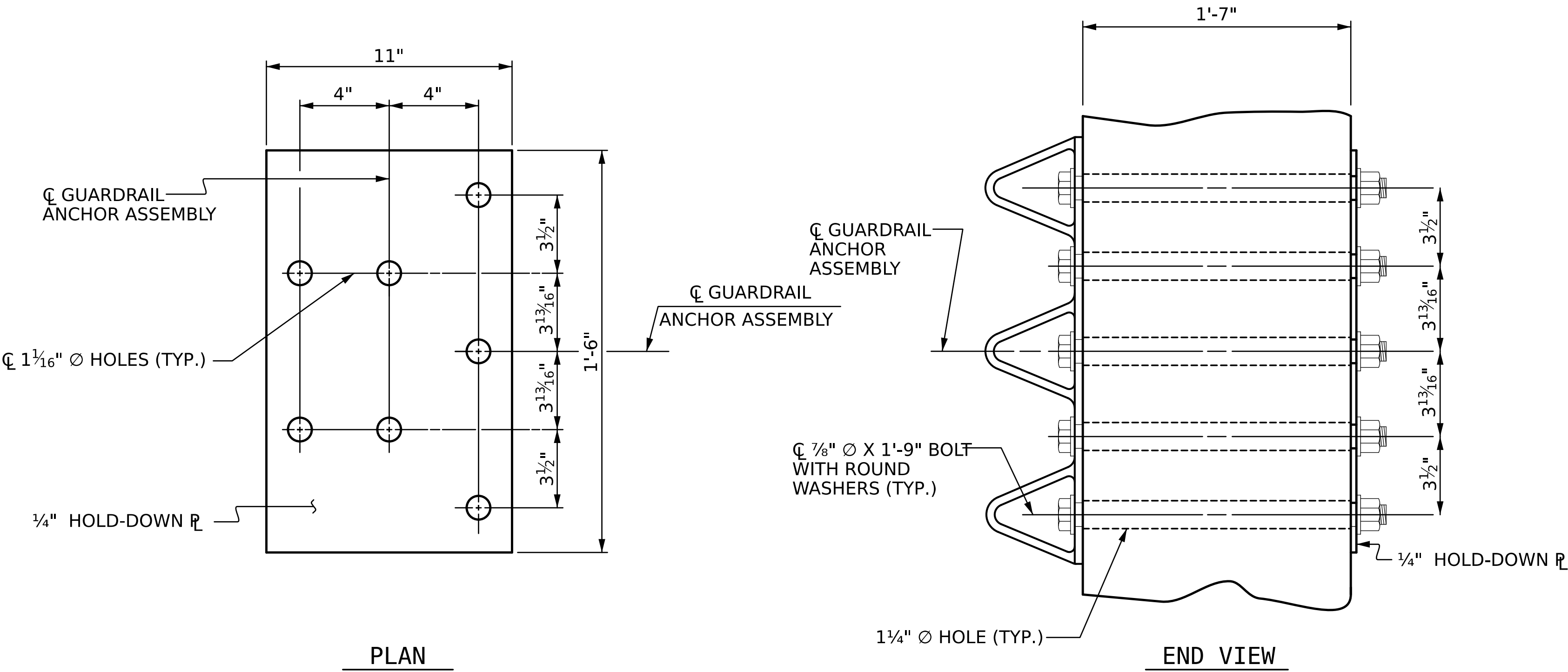
1/30/2026



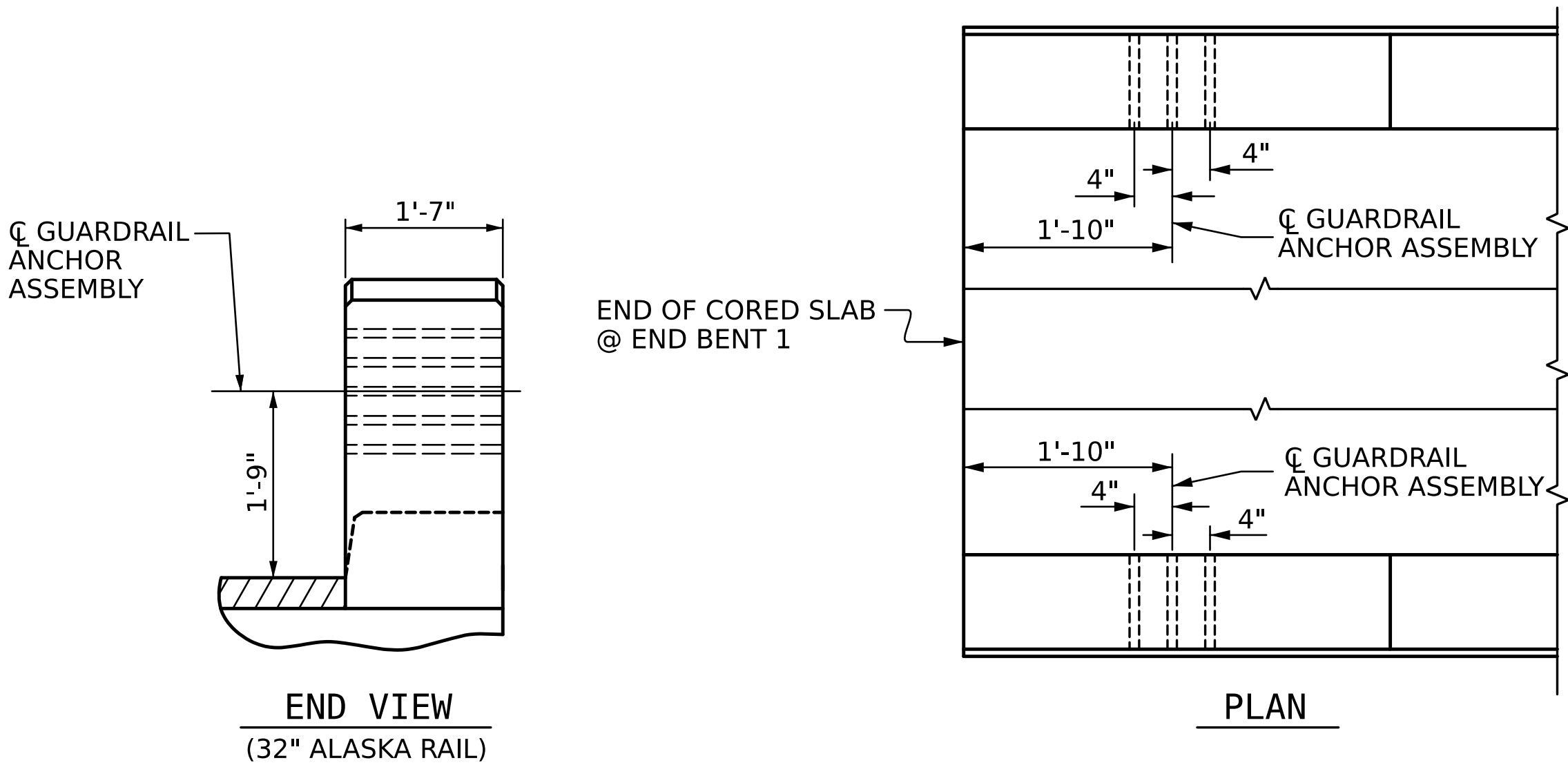
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DRAWN BY :	SGH	DATE :	6/25
CHECKED BY :	MDN	DATE :	6/25
DESIGN ENGINEER OF RECORD :	MDN	DATE :	1/26



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF GUARDRAIL ANCHOR AT END POST

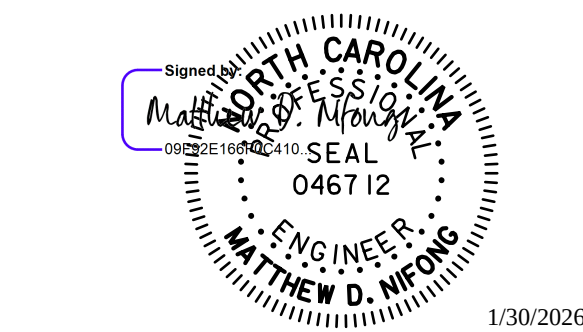
END BENT 1 SHOWN, END BENT 2 SIMILAR



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT

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STATION: 12+25.00 -L-



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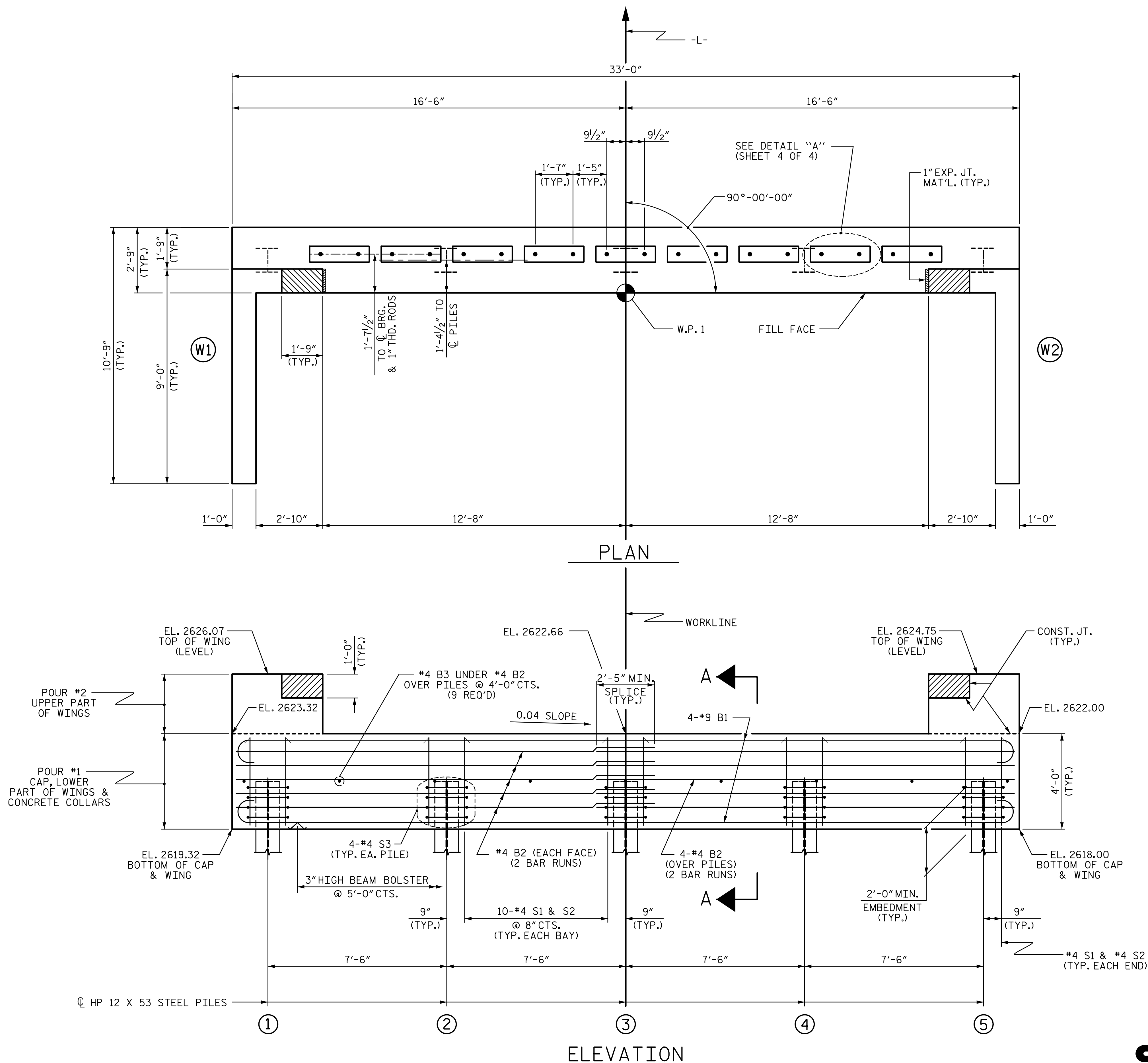
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
**GUARDRAIL ANCHORAGE
DETAILS FOR METAL
RAILS & VERTICAL
CONCRETE BARRIER RAIL**

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

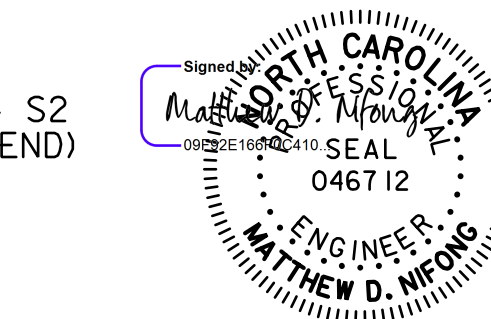
STD. GRA3

DRAWN BY :	SGH	DATE :	6-25
CHECKED BY :	MDN	DATE :	6-25
DESIGN ENGINEER OF RECORD:	MDN	DATE :	1-26



WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 5 OF 5.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 5 OF 5.

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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 CONCRETE CURB IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 5 OF 5.

FOR WING DETAILS, SEE SHEET 2 OF 5.

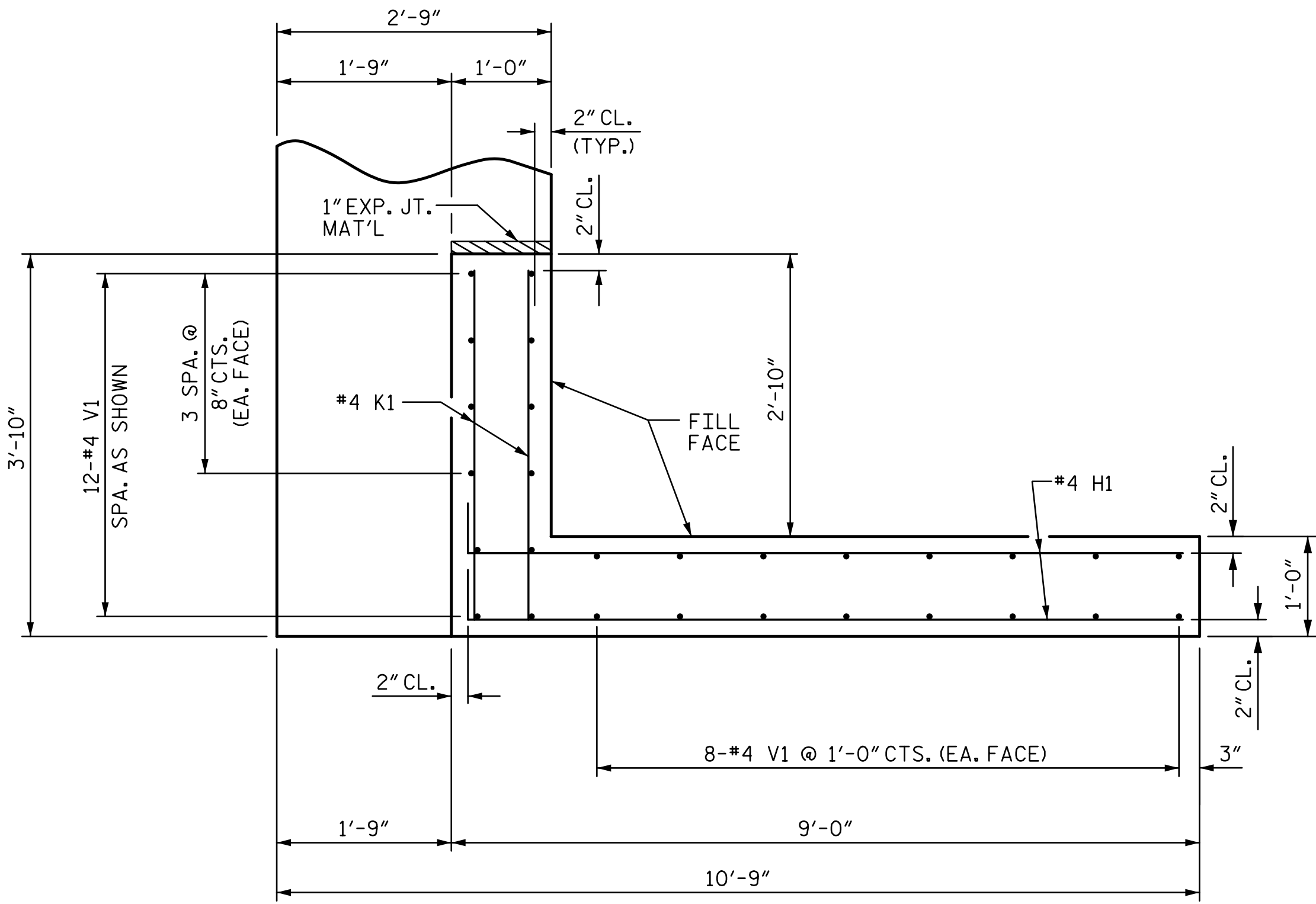
TOP OF PILE ELEVATIONS	
①	2621.28
②	2620.98
③	2620.68
④	2620.38
⑤	2620.08

PROJECT NO. HB-0048
ASHE COUNTY
 STATION: 12+25.00 -L-

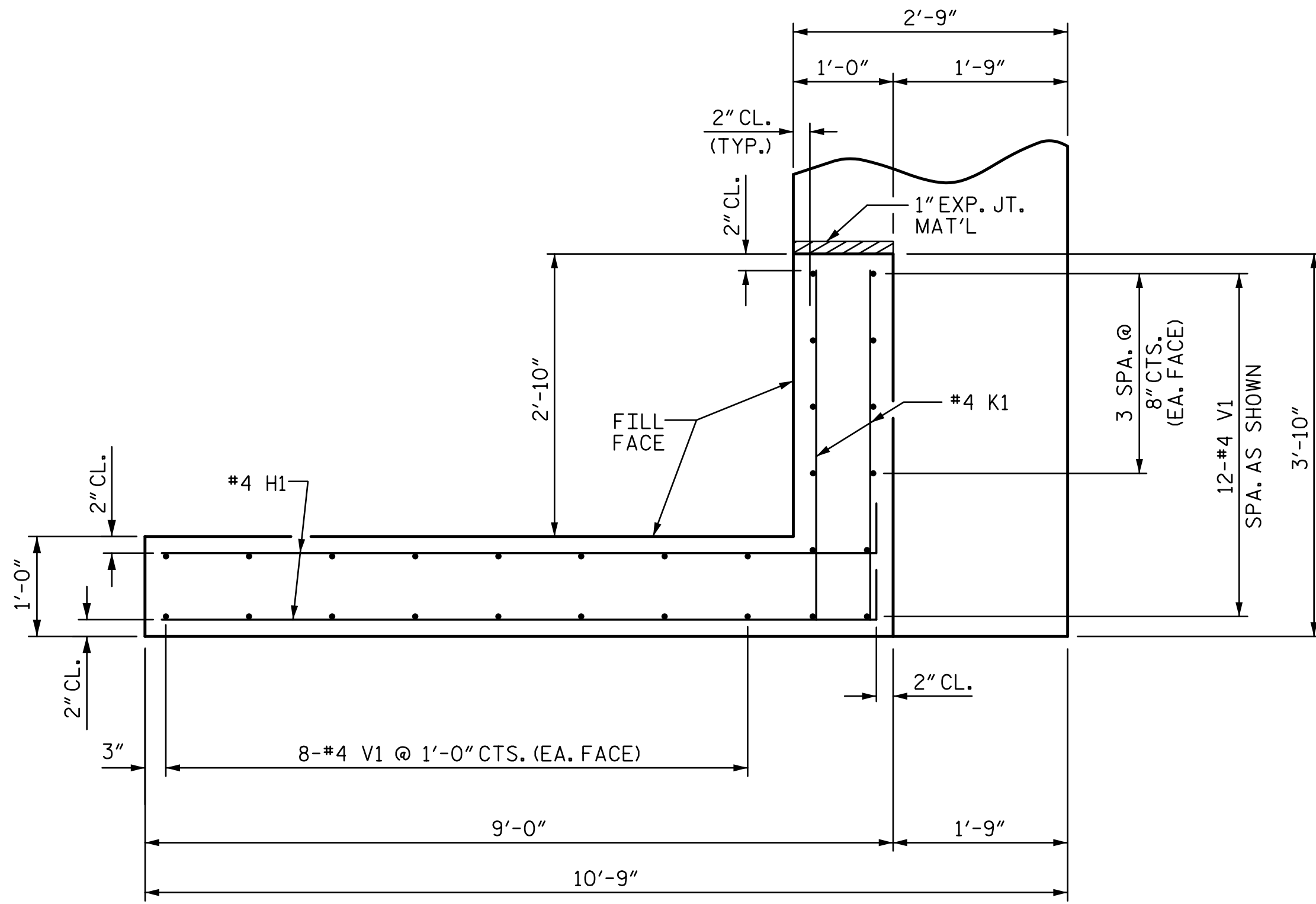
SHEET 1 OF 5

SHEET 1 OF 3						
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
SUBSTRUCTURE END BENT No. 1						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO. S-13 TOTAL SHEETS 19
1			3			
2			4			

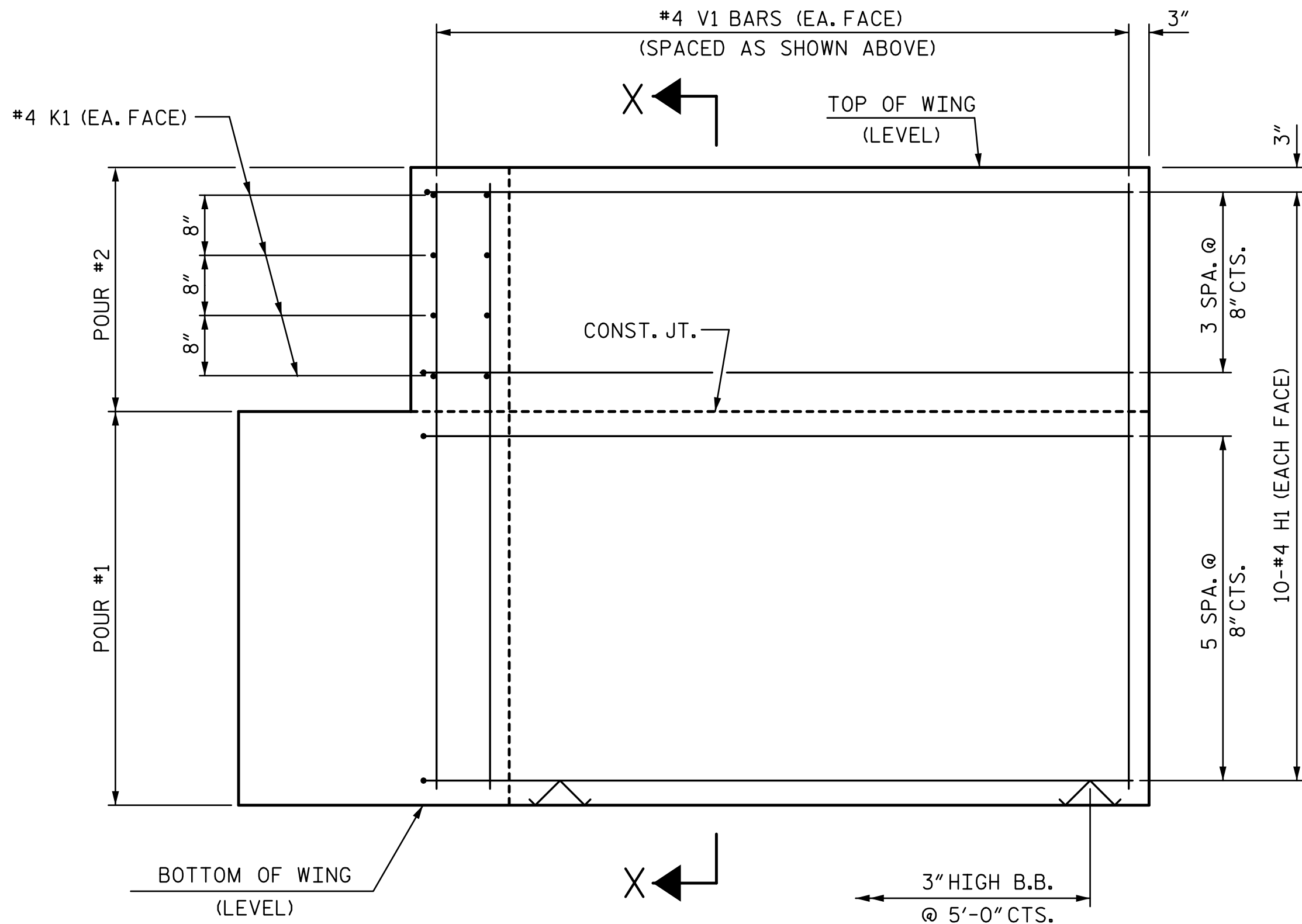
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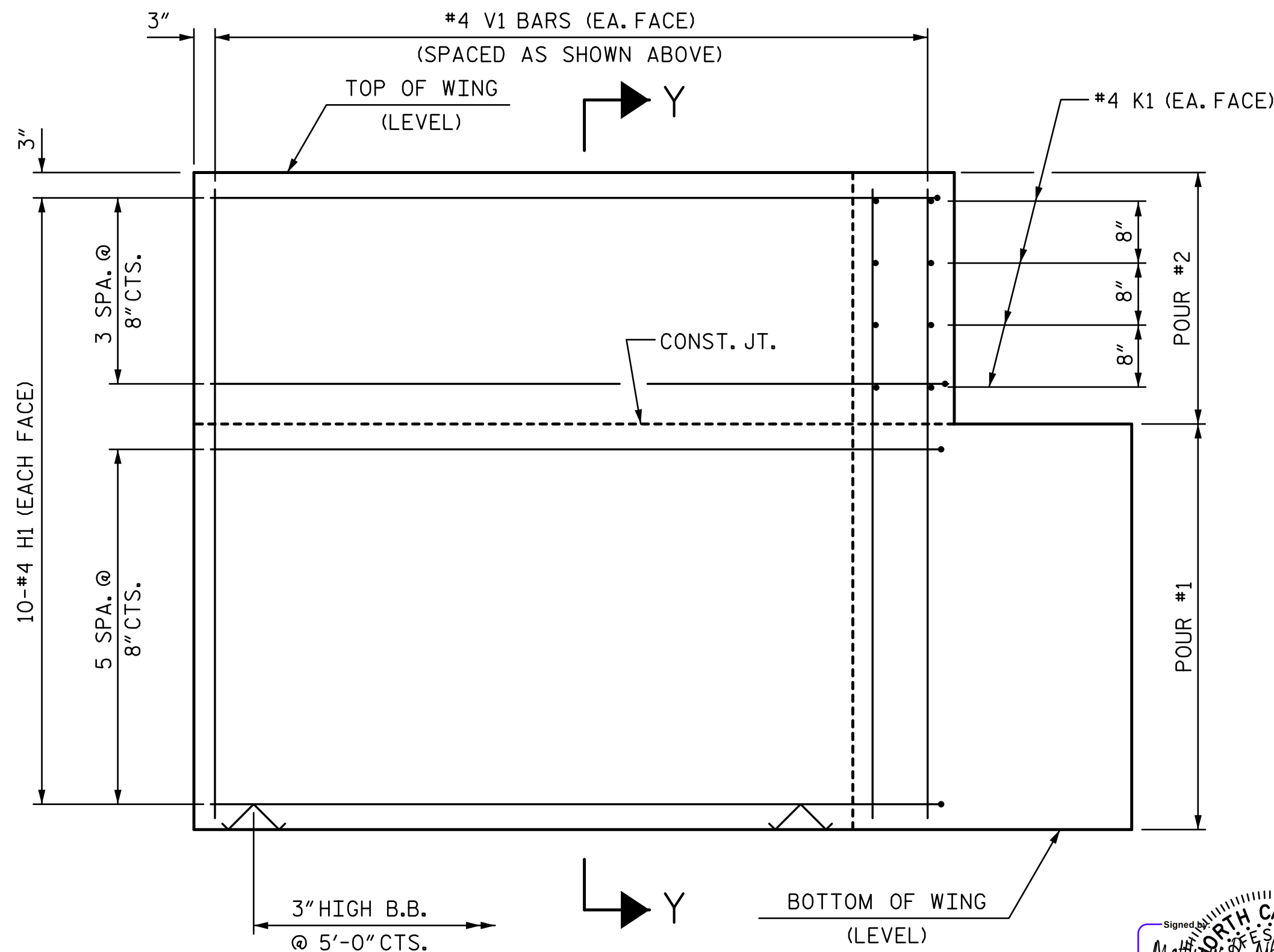
PLAN OF WING (W1)



PLAN OF WING (W2)

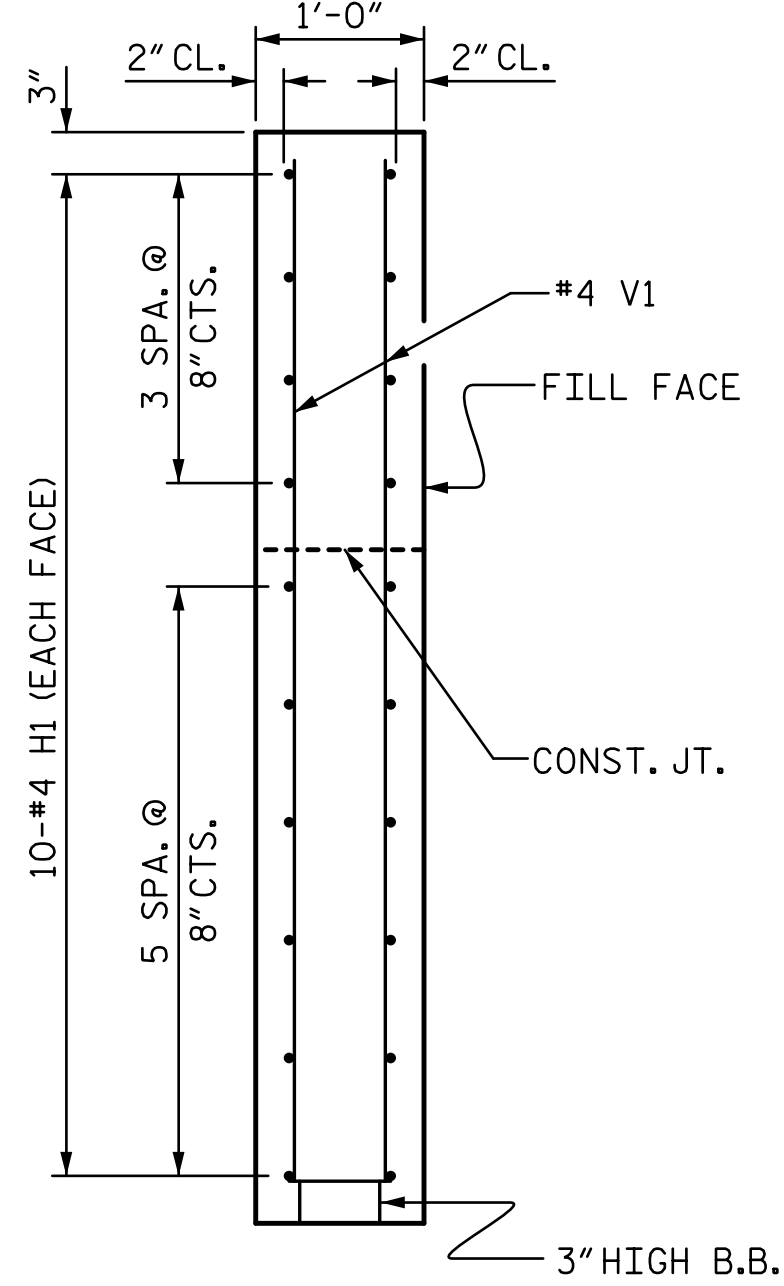


ELEVATION OF WING (W1)

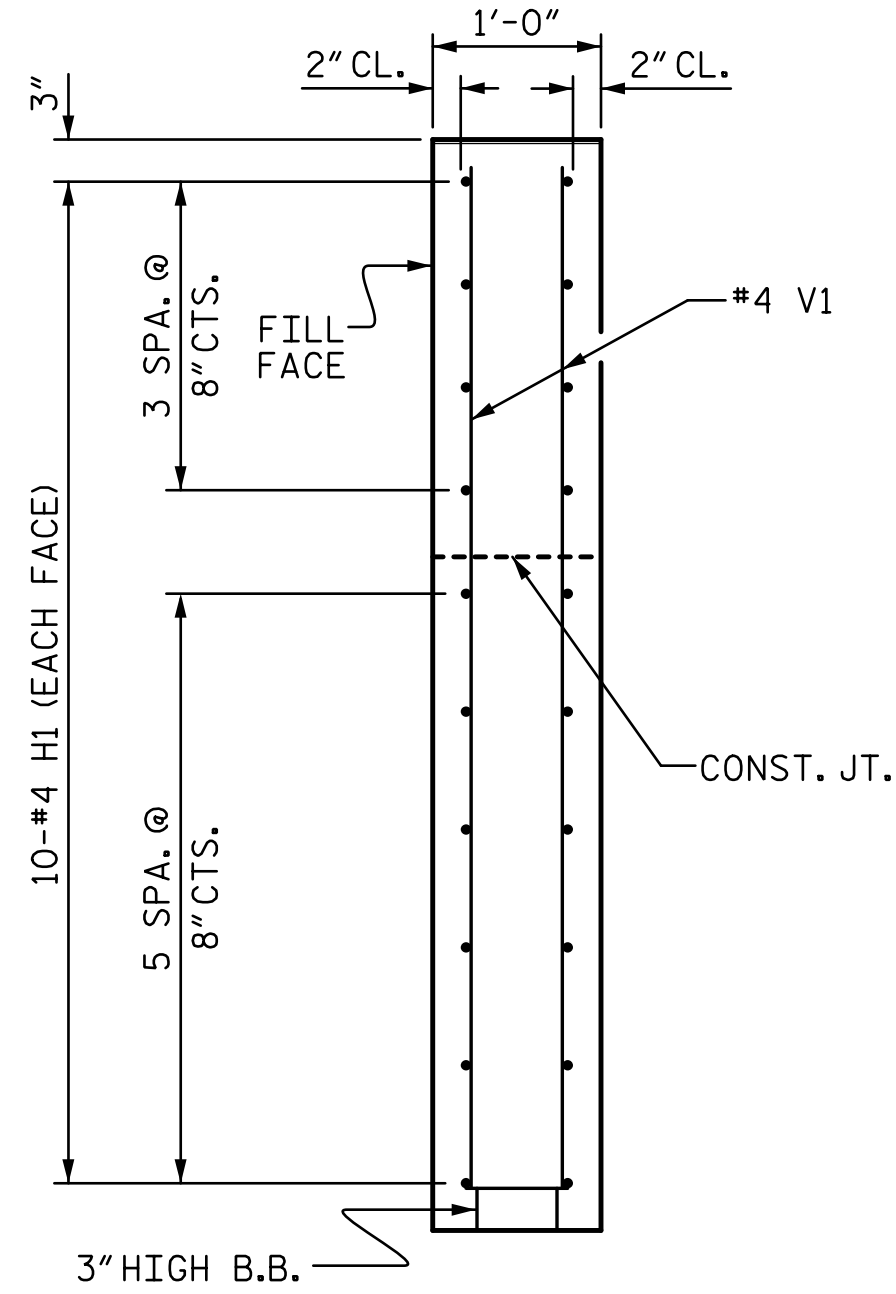


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X



SECTION Y-Y

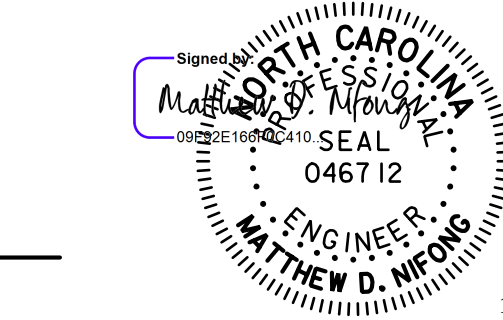
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ASHE COUNTY
STATION: 12+25.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

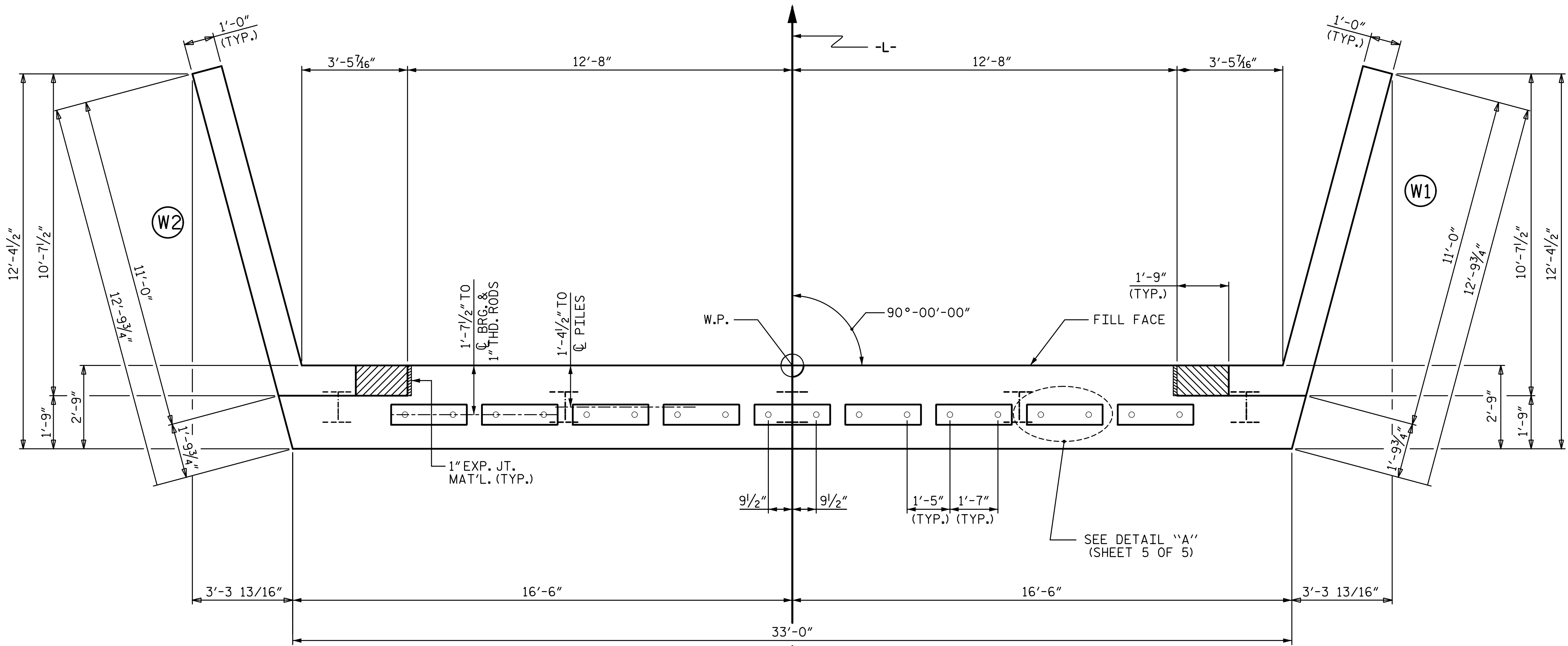
REVISIONS					SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			19



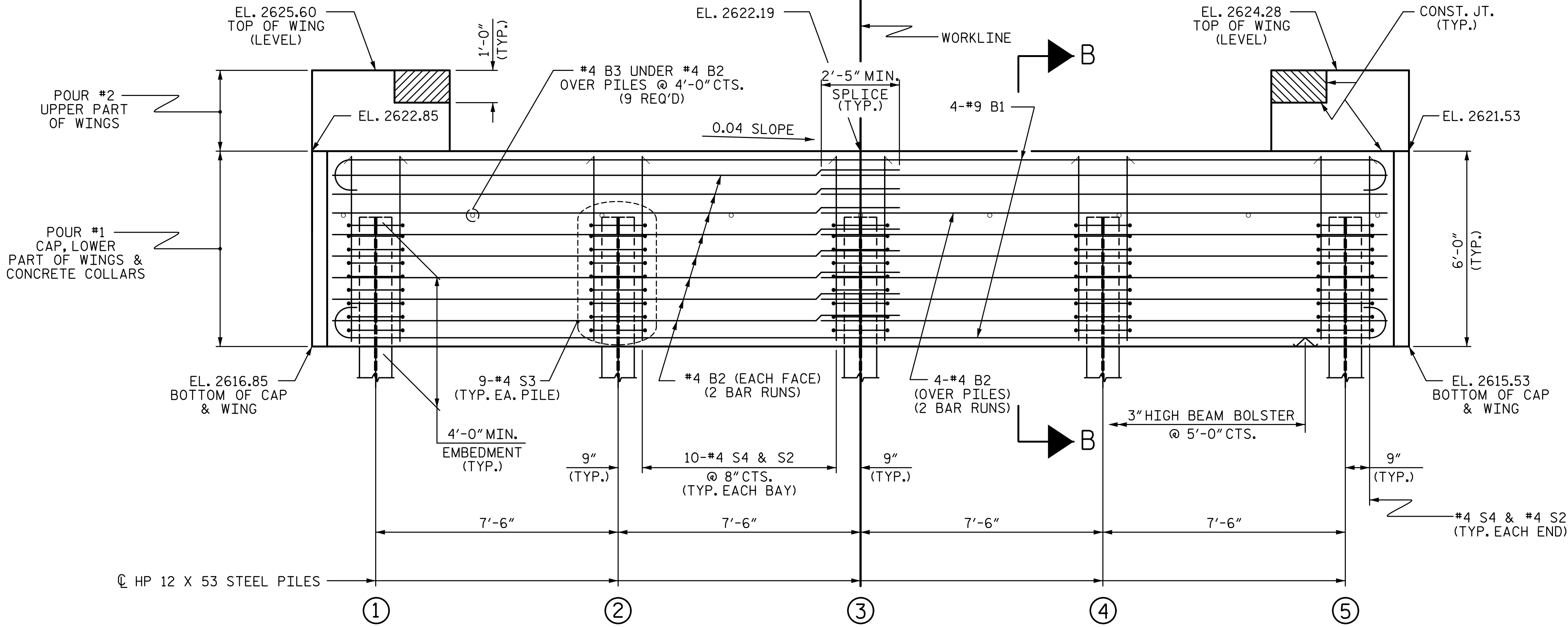
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PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION B-B, SEE SHEET 5 OF 5.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 5 OF 5.

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 5 OF 5.

FOR WING DETAILS, SEE SHEET 4 OF 5.

TOP OF PILE ELEVATIONS

①	2620.79
②	2620.49
③	2620.19
④	2619.89
⑤	2619.59

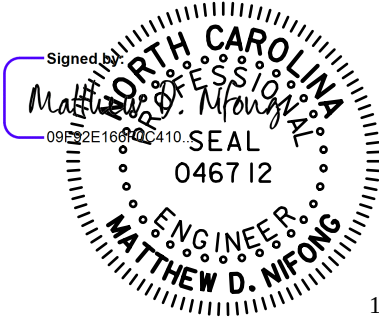
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ASHE COUNTY
STATION: 12+25.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
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RALEIGH

SUBSTRUCTURE
END BENT No. 2

1/30/2026



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DESIGN ENGINEER OF RECORD : MDN DATE : 1/26

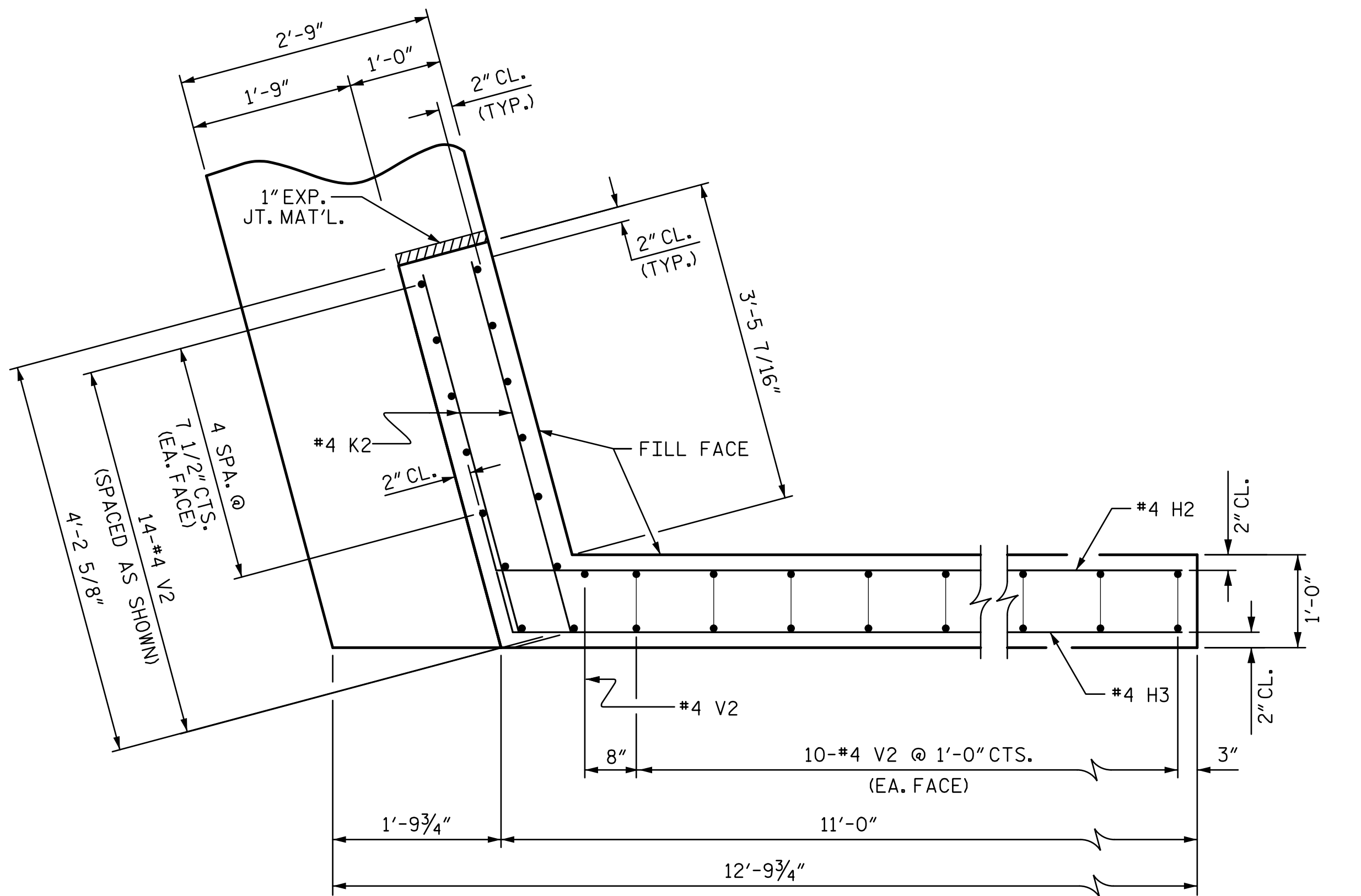
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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					S-15
					TOTAL SHEETS 19

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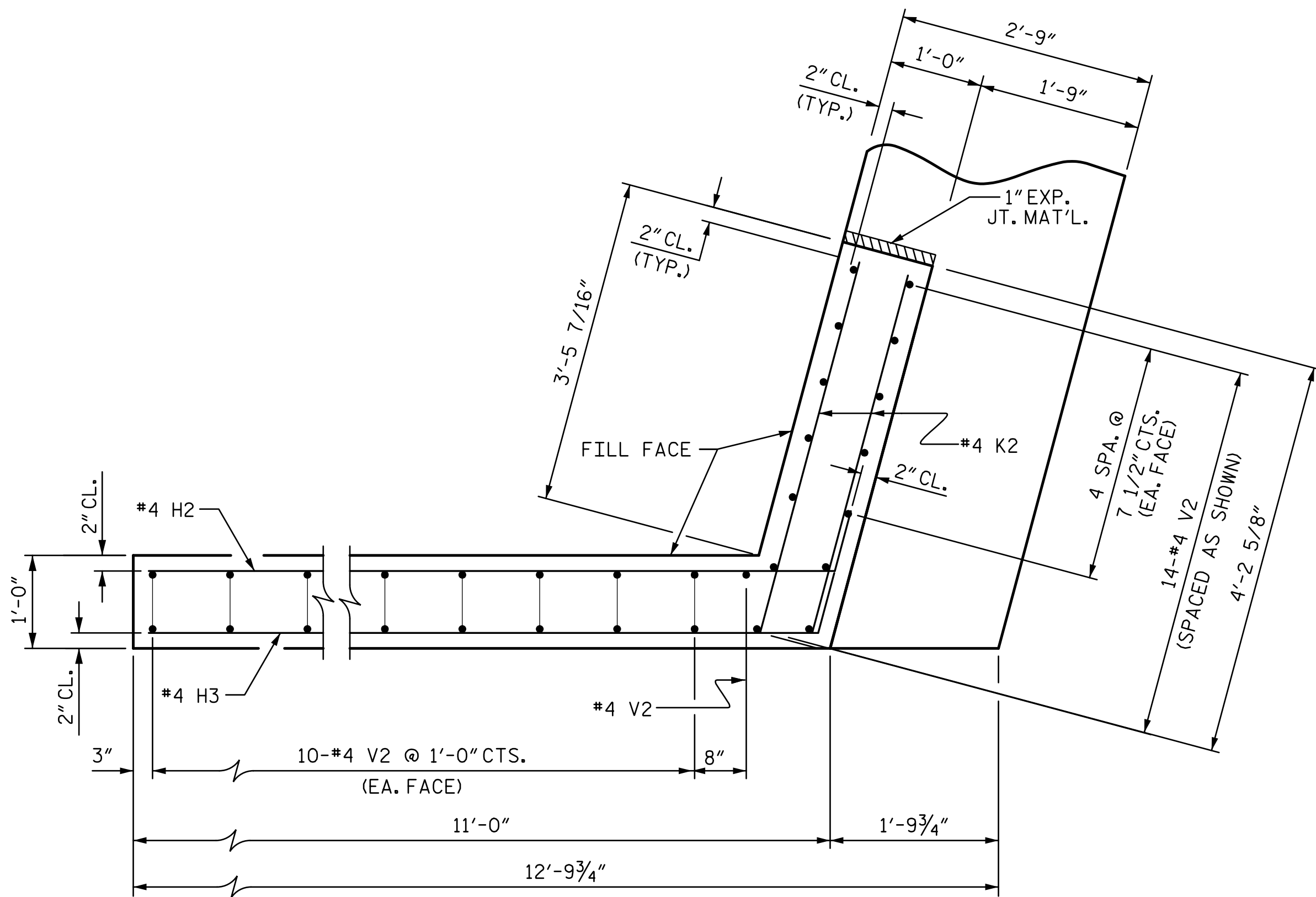
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1/27/2026

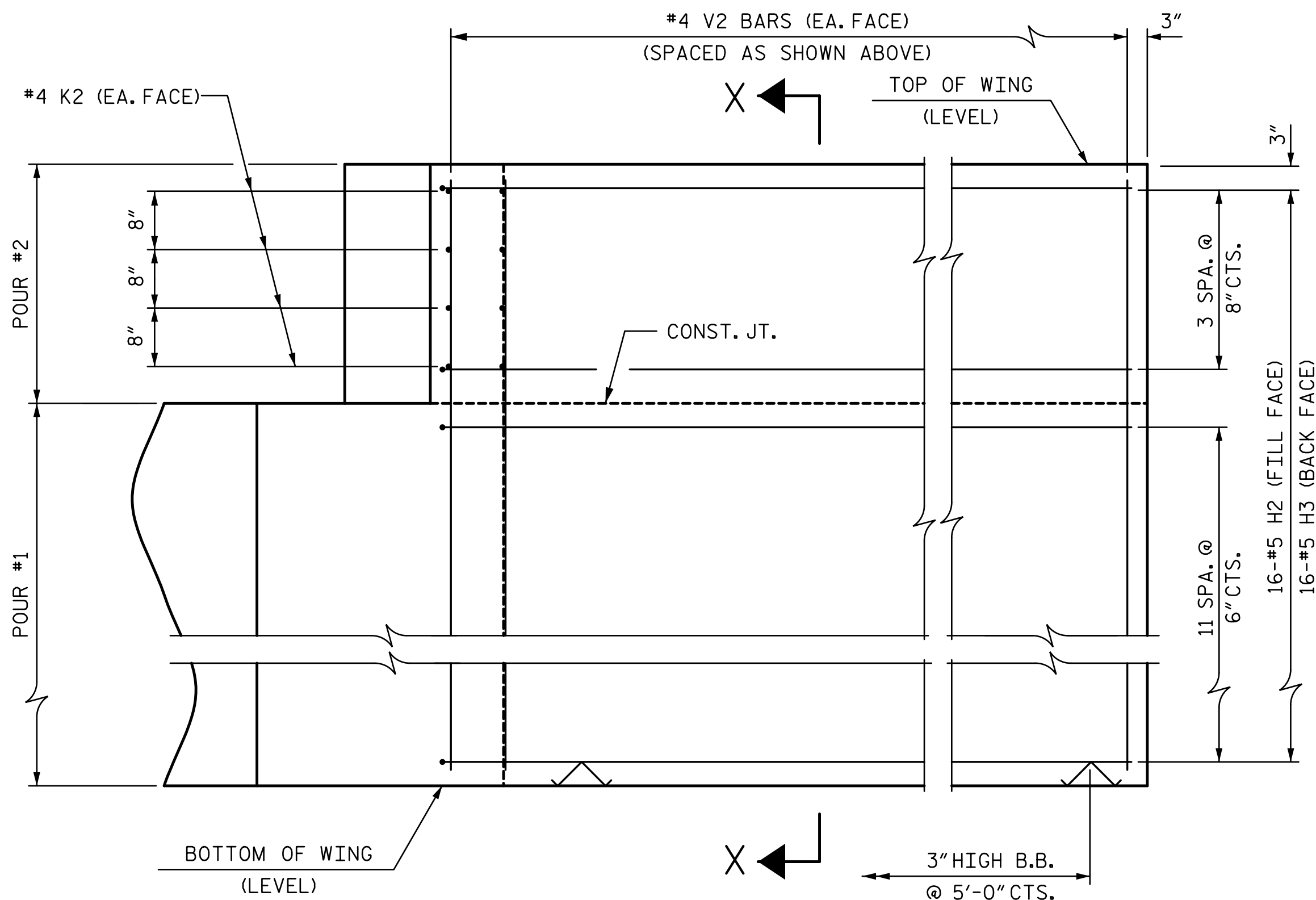
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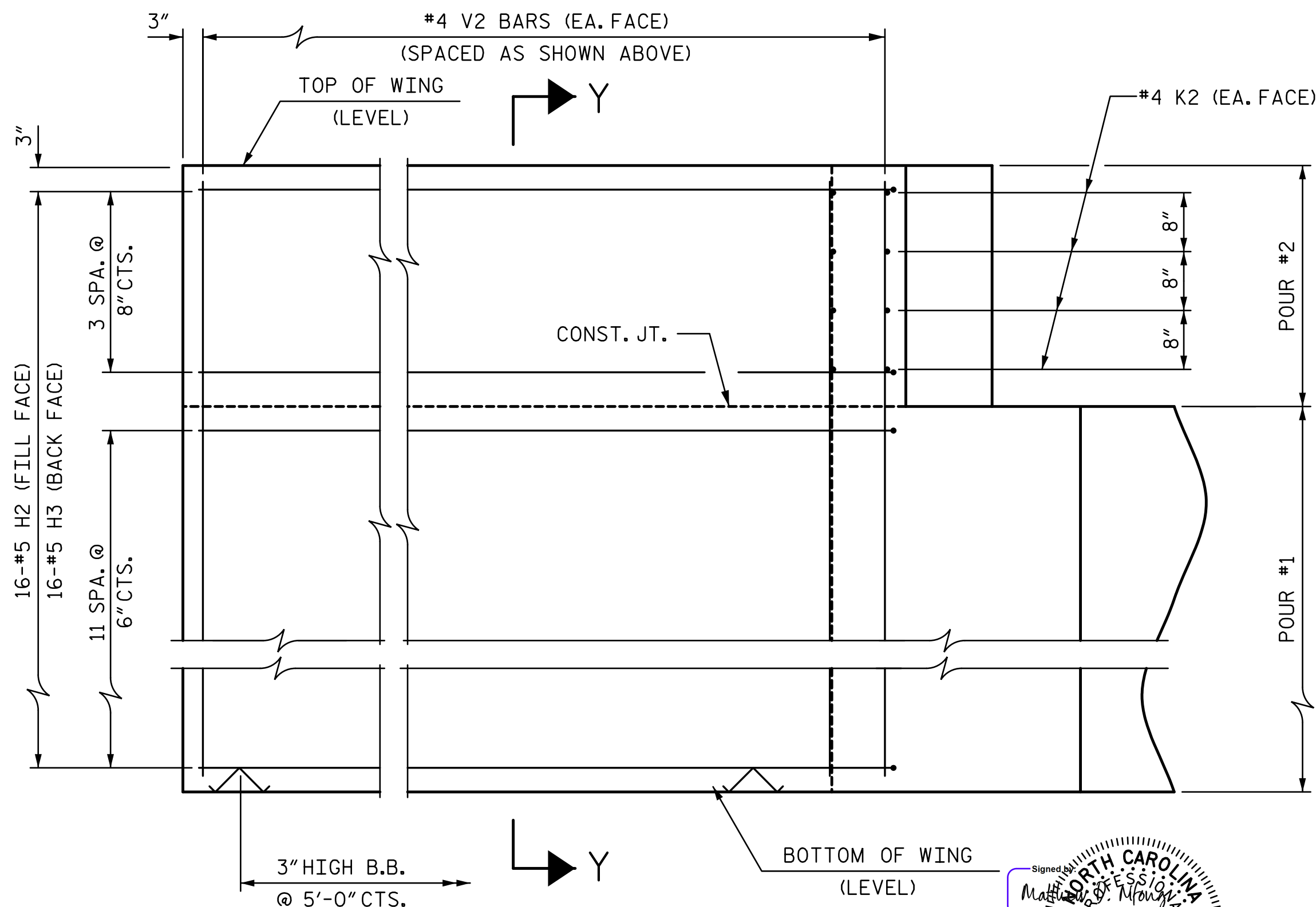
PLAN OF WING (W1)



PLAN OF WING (W2)

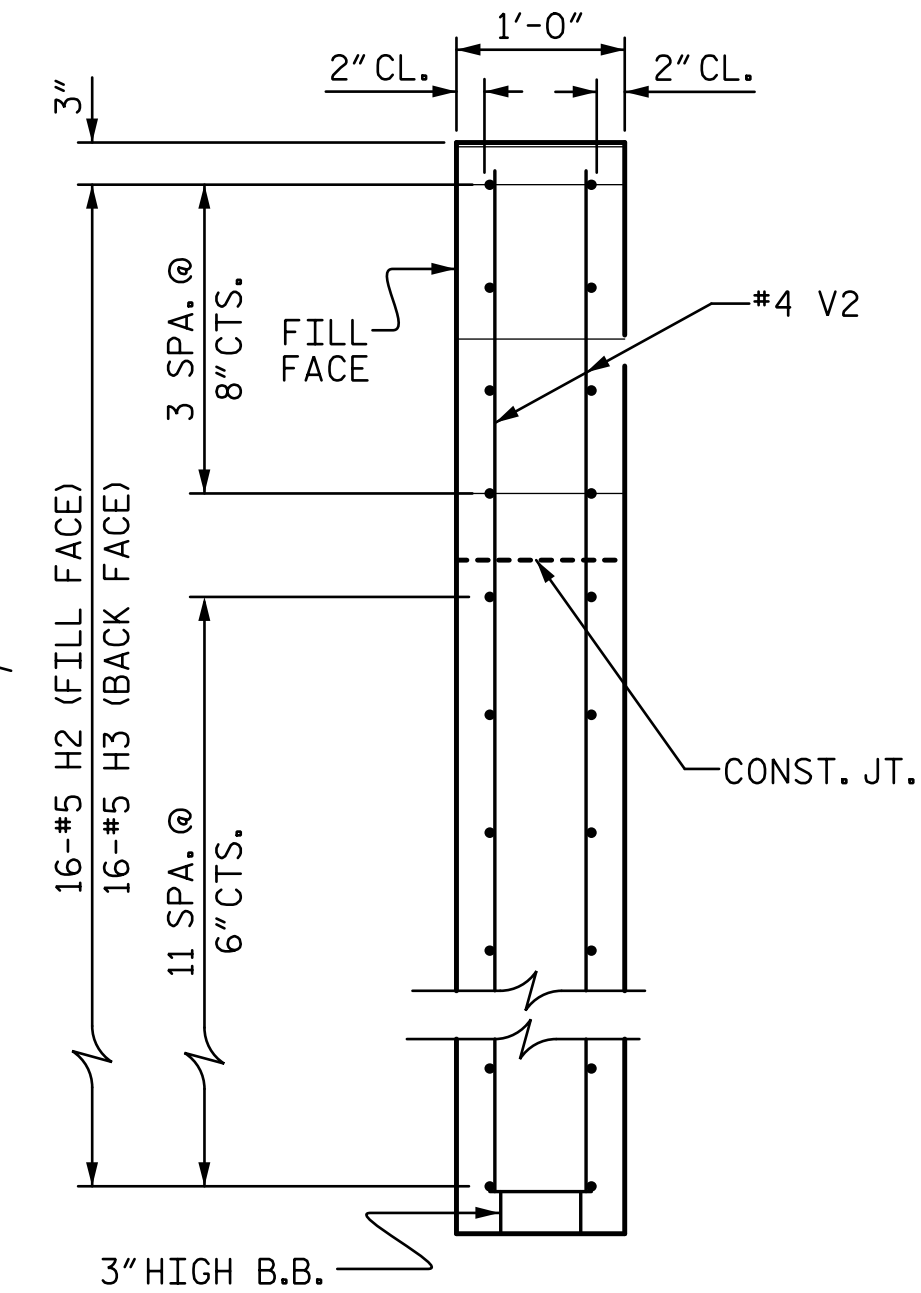


ELEVATION OF WING (W1)

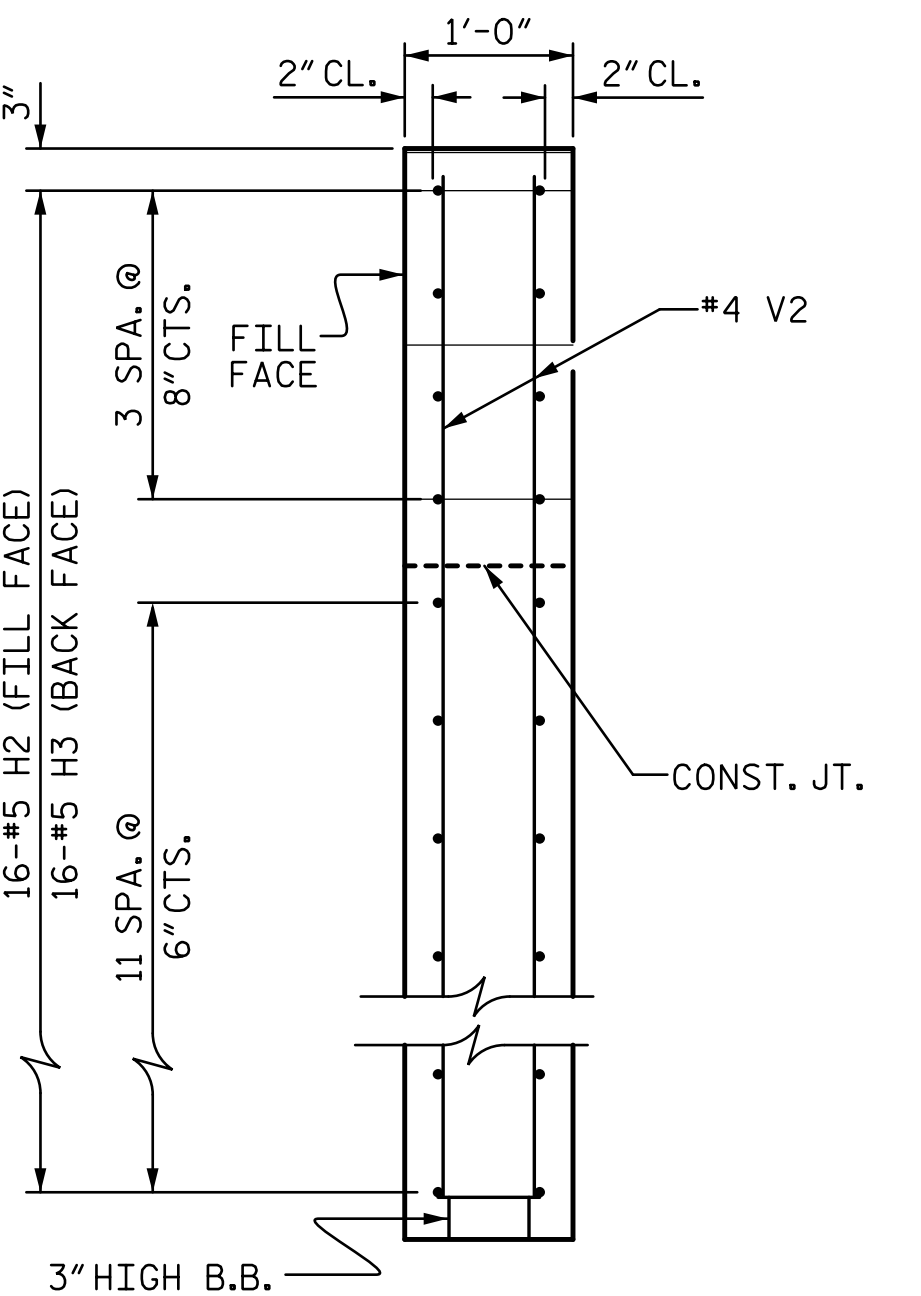


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X



SECTION Y-Y

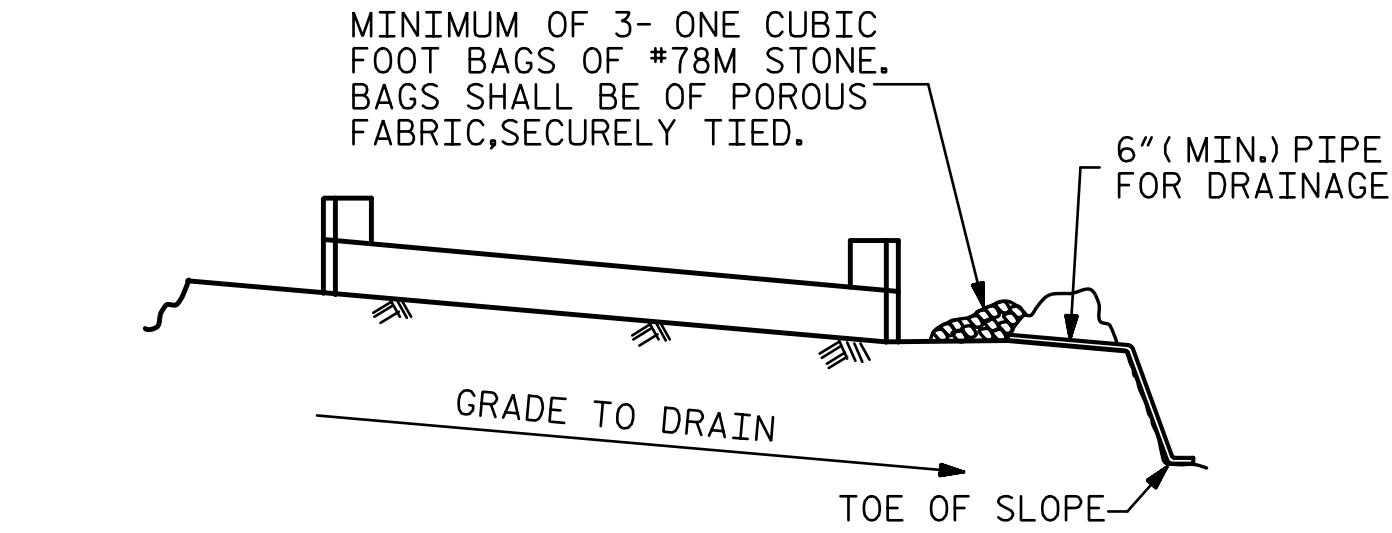
PROJECT NO. HB-0048
ASHE COUNTY
STATION: 12+25.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 19

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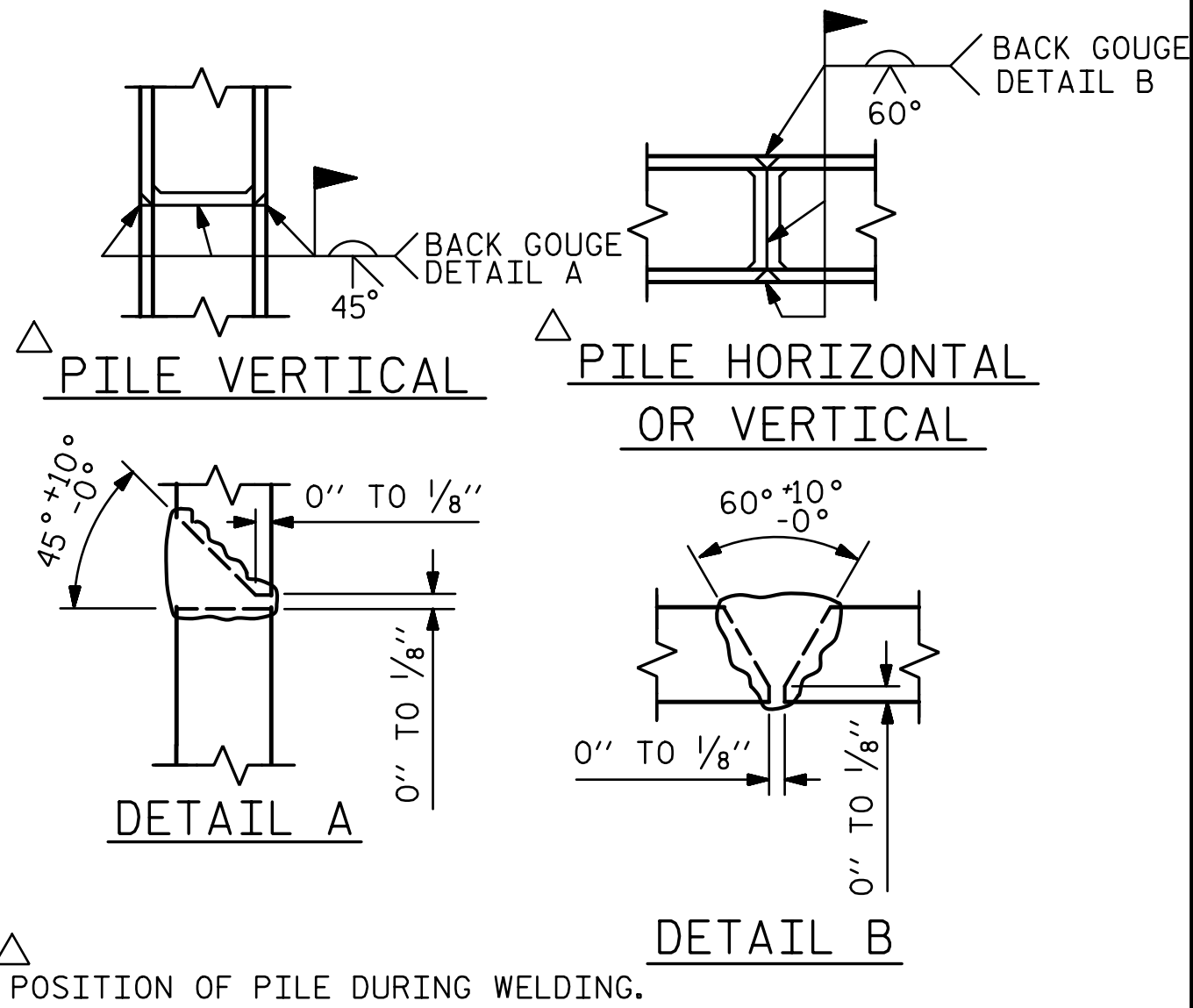


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

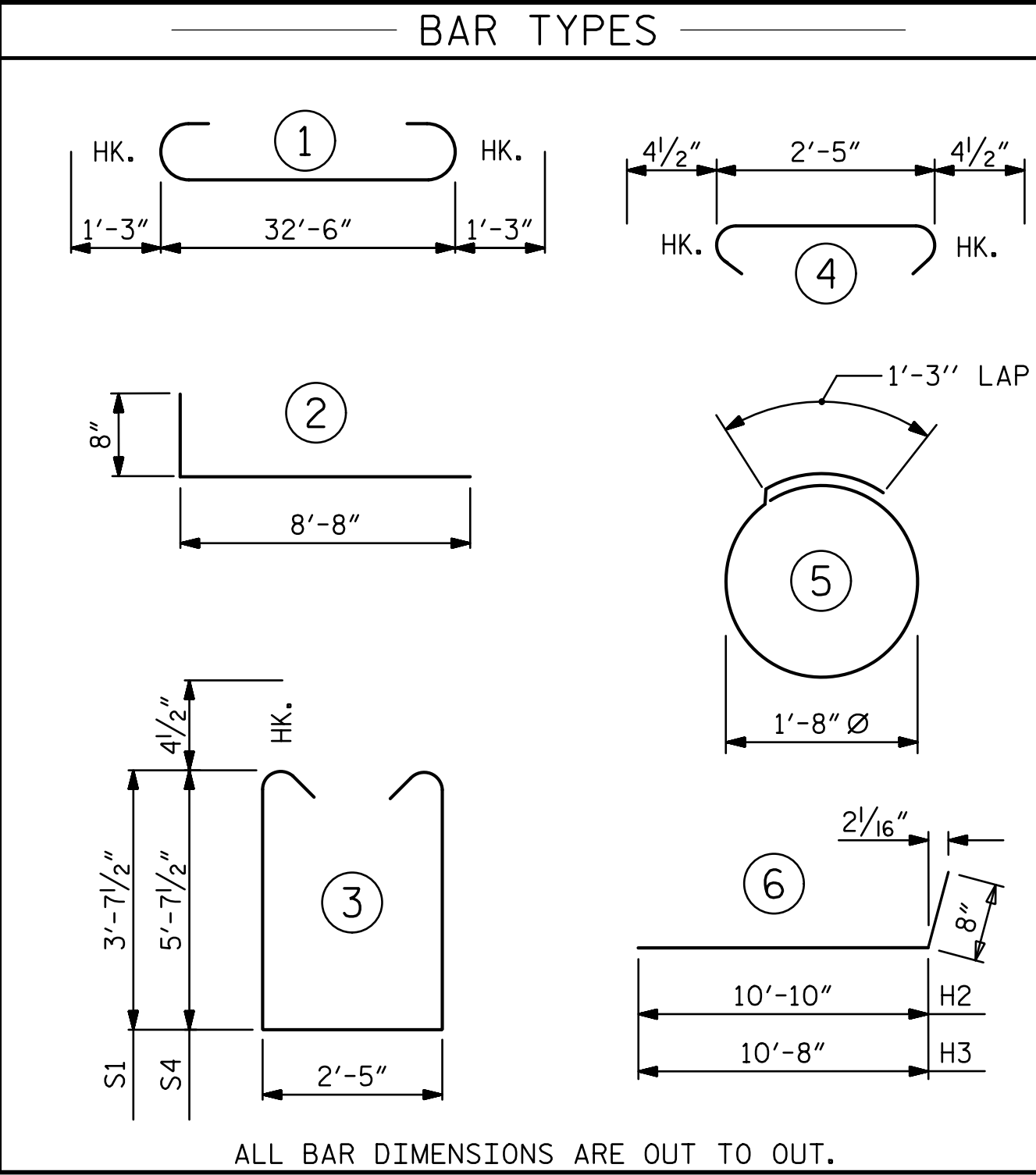
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

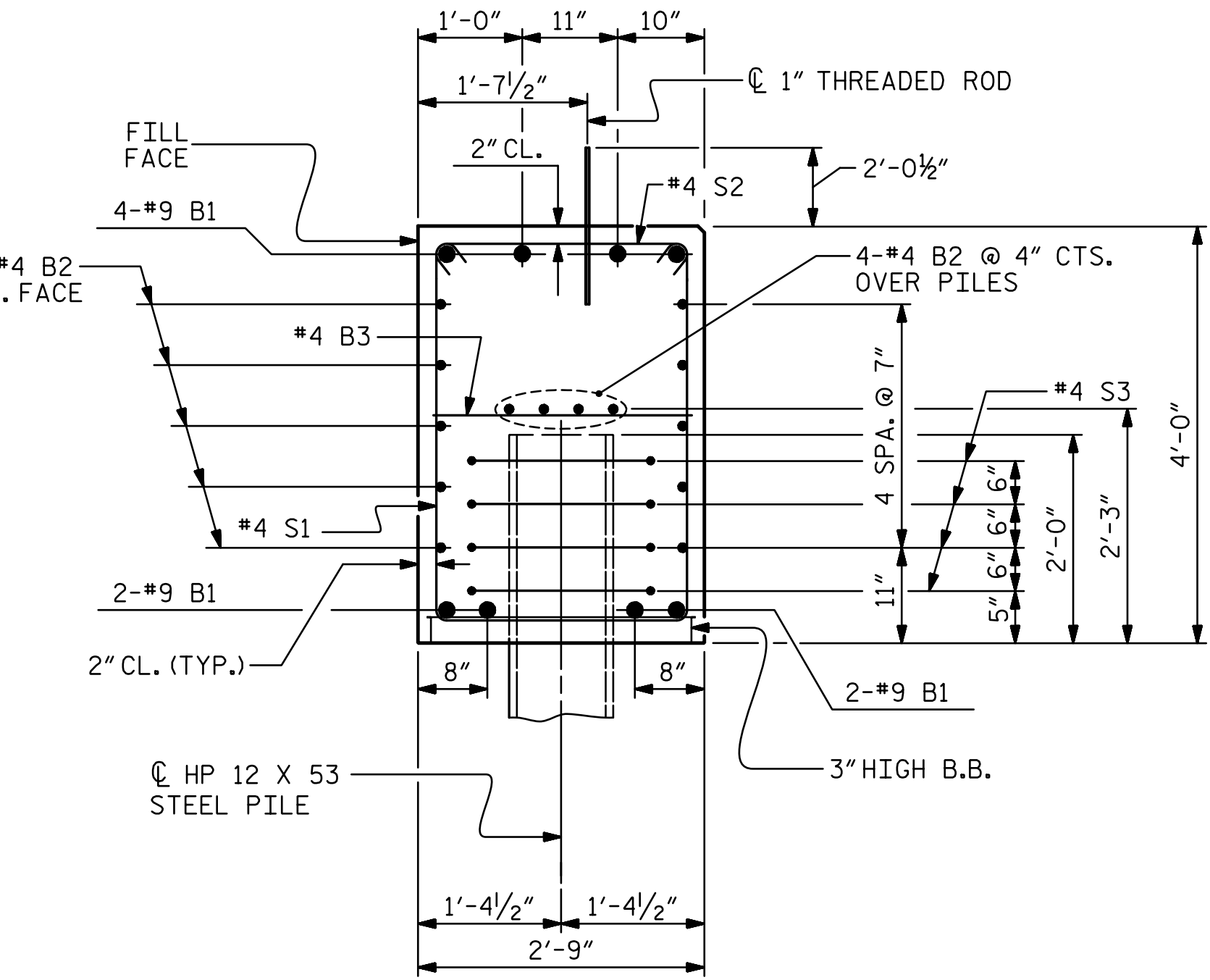


BILL OF MATERIAL FOR END BENT No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	35'-0"	952
B2	28	#4	STR	17'-7"	329
B3	9	#4	STR	2'-5"	15
*	18		STR	3'-0 1/2"	146
H1	40	#4	2	9'-4"	249
H2	32	#5	6	11'-6"	384
H3	32	#5	6	11'-4"	378
K1	16	#4	STR	3'-5"	37
S1	42	#4	3	10'-5"	292
S2	42	#4	4	3'-2"	89
S3	20	#4	5	6'-6"	87
V1	56	#4	STR	6'-2"	231
REINFORCING STEEL (FOR END BENT No. 1) ** 2,427 LBS.					
CLASS A CONCRETE BREAKDOWN (FOR END BENT No. 1)					
CAP, LOWER PART OF WINGS & COLLARS				16.7 C.Y.	
POUR #2 UPPER PART OF WINGS				2.5 C.Y.	
TOTAL CLASS A CONCRETE				19.2 C.Y.	

BILL OF MATERIAL FOR END BENT No. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	35'-0"	952
B2	40	#4	STR	17'-7"	470
B3	9	#4	STR	2'-5"	15
*	18		STR	3'-0 1/2"	146
H2	32	#5	6	11'-6"	384
H3	32	#5	6	11'-4"	378
K2	16	#4	STR	4'-1"	47
S4	42	#4	3	14'-5"	404
S2	42	#4	4	3'-2"	89
S3	45	#4	5	6'-6"	195
V2	70	#4	STR	8'-2"	382
REINFORCING STEEL (FOR END BENT No. 2) ** 3,462 LBS.					
CLASS A CONCRETE BREAKDOWN (FOR END BENT No. 2)					
CAP, LOWER PART OF WINGS & COLLARS				25.1 C.Y.	
POUR #2 UPPER PART OF WINGS				2.9 C.Y.	
TOTAL CLASS A CONCRETE				28.0 C.Y.	

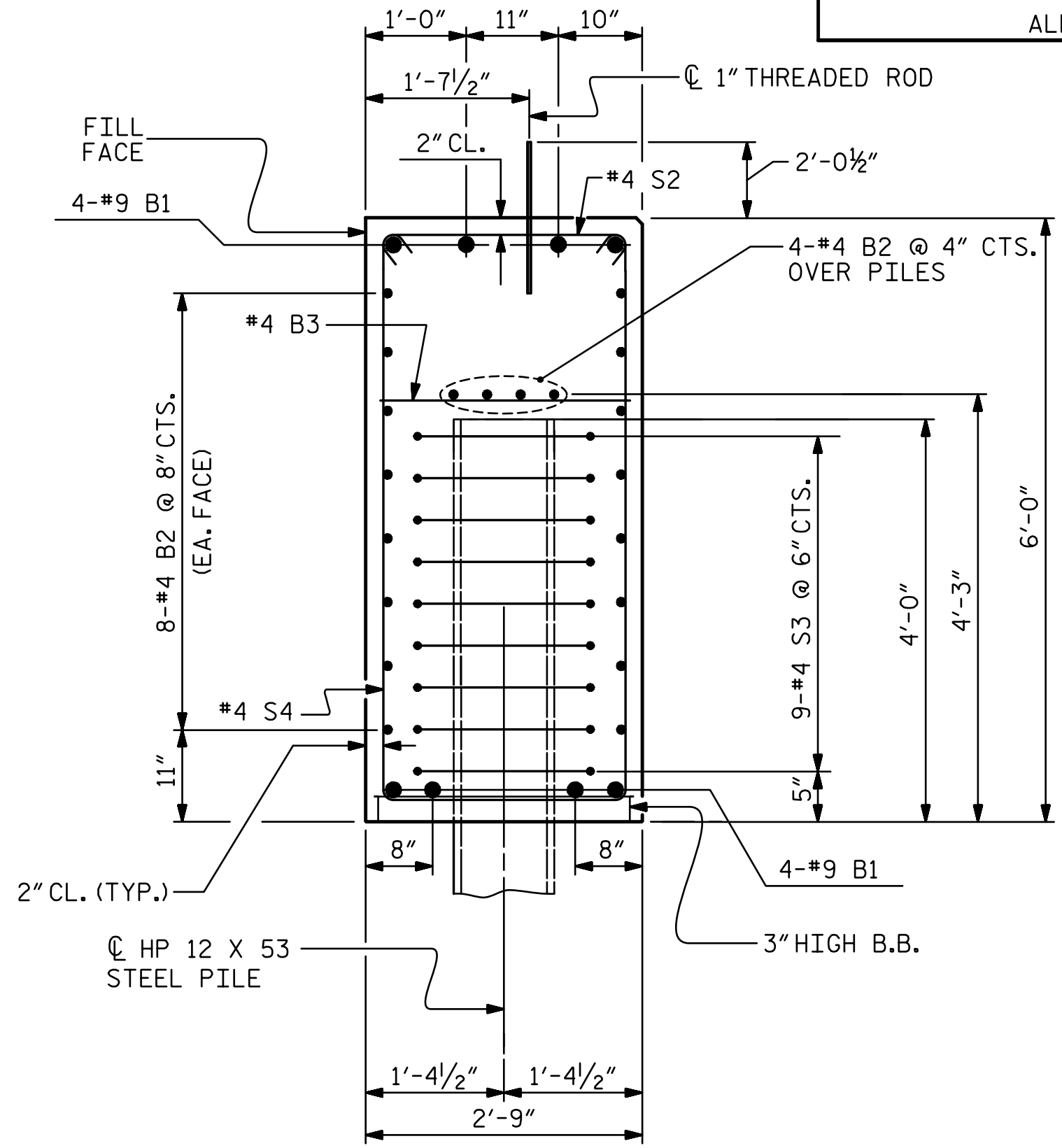
* 1" THREADED ROD
** INCLUDES 146 LBS. OF THREADED ROD

* 1" THREADED ROD
** INCLUDES 146 LBS. OF THREADED ROD



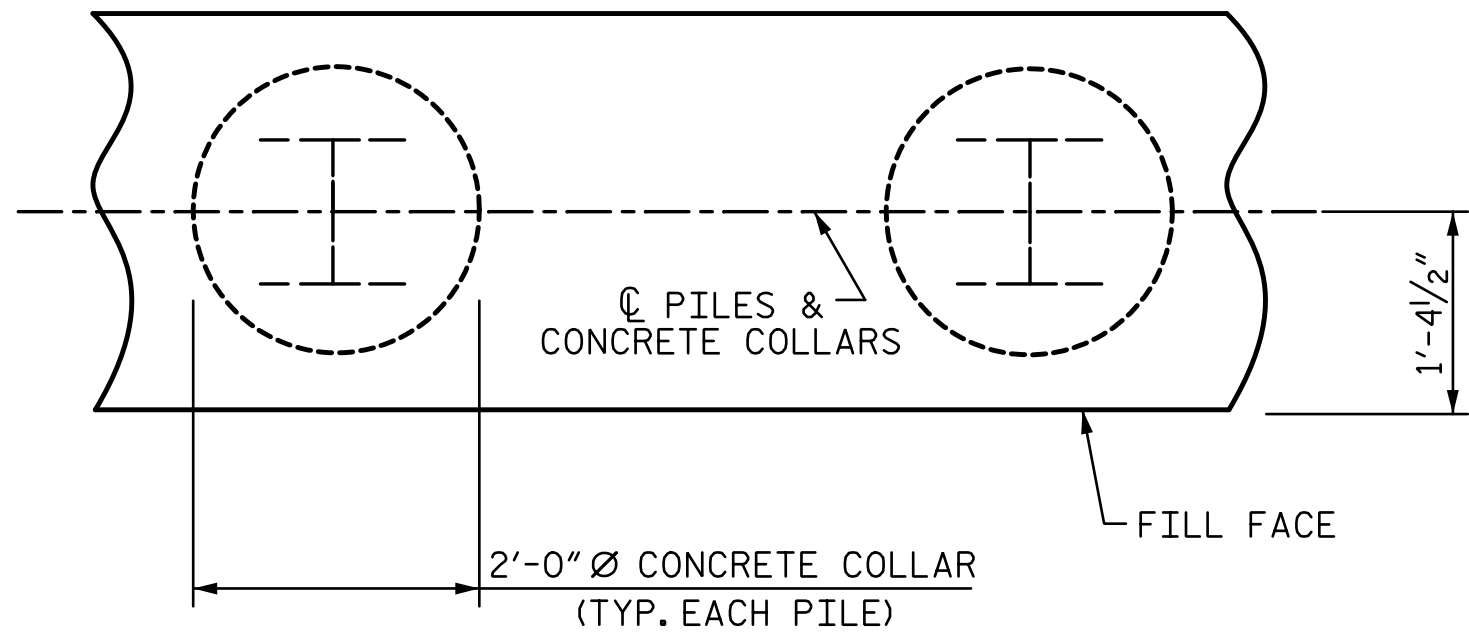
SECTION A-A

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



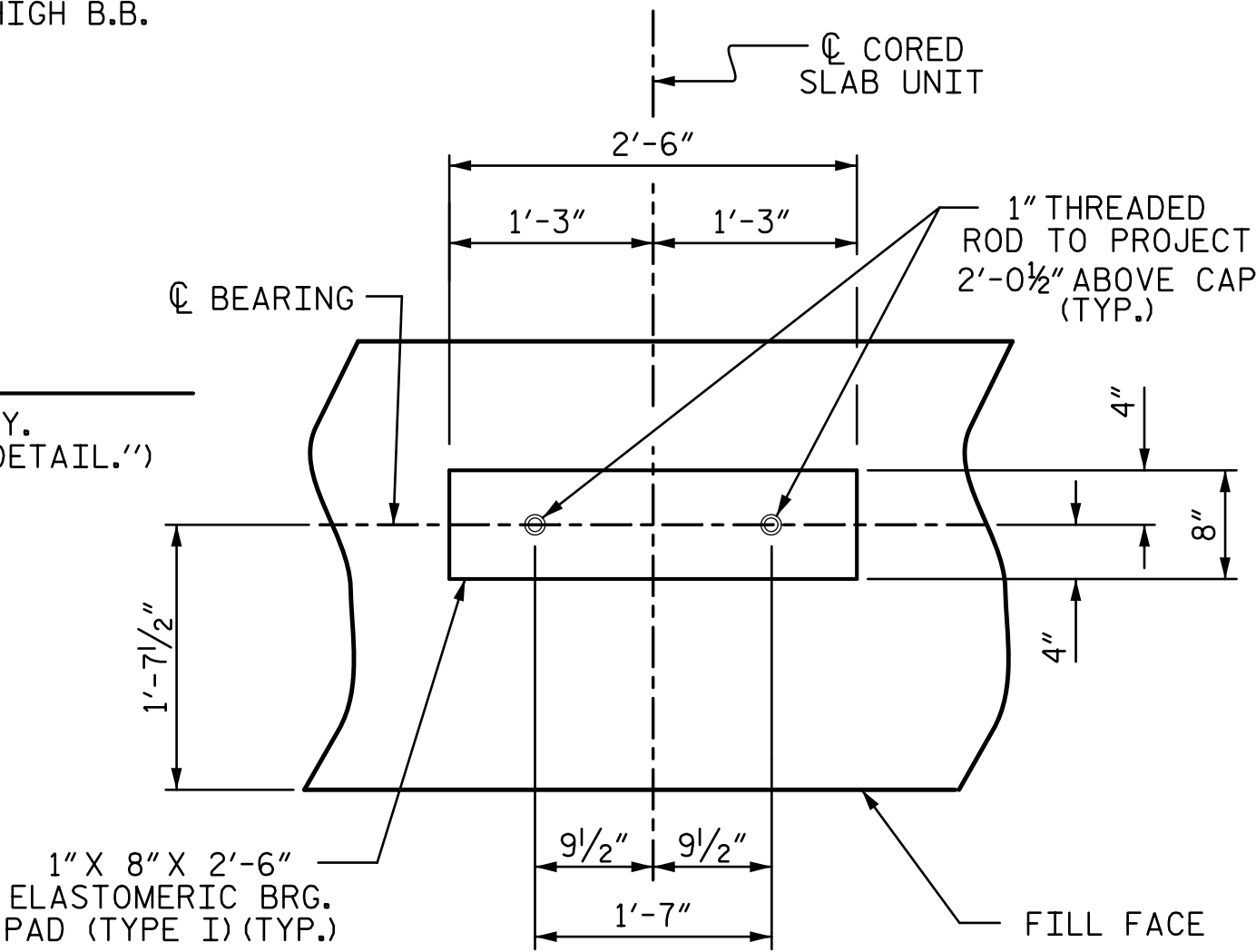
SECTION B-B

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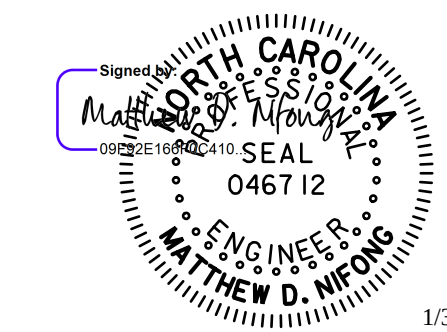


CORROSION PROTECTION FOR STEEL PILES DETAIL

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



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



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Charlotte, NC 28203
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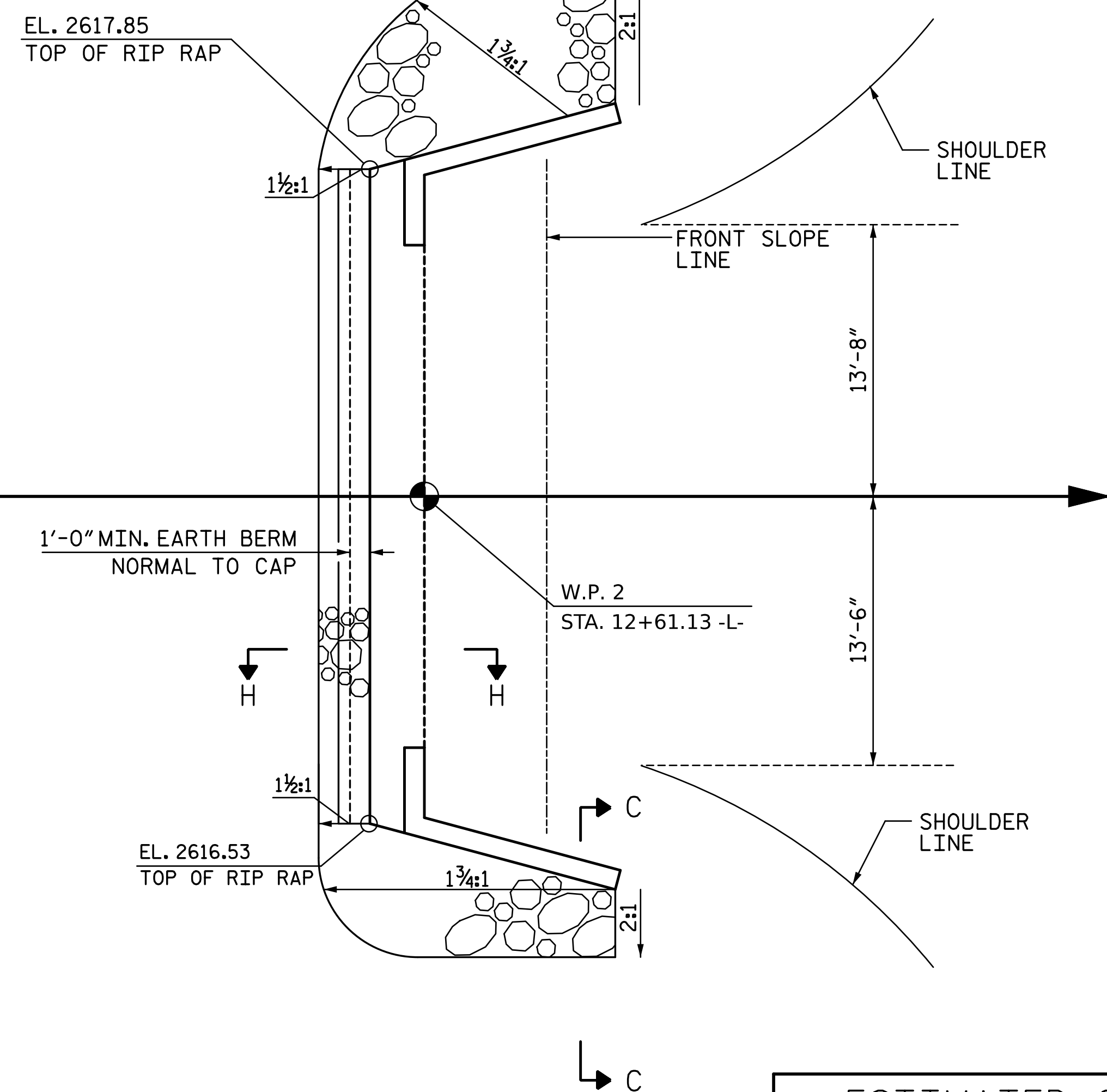
PROJECT NO. HB-0048

ASHE COUNTY

STATION: 12+25.00 -L-

SHEET 5 OF 5

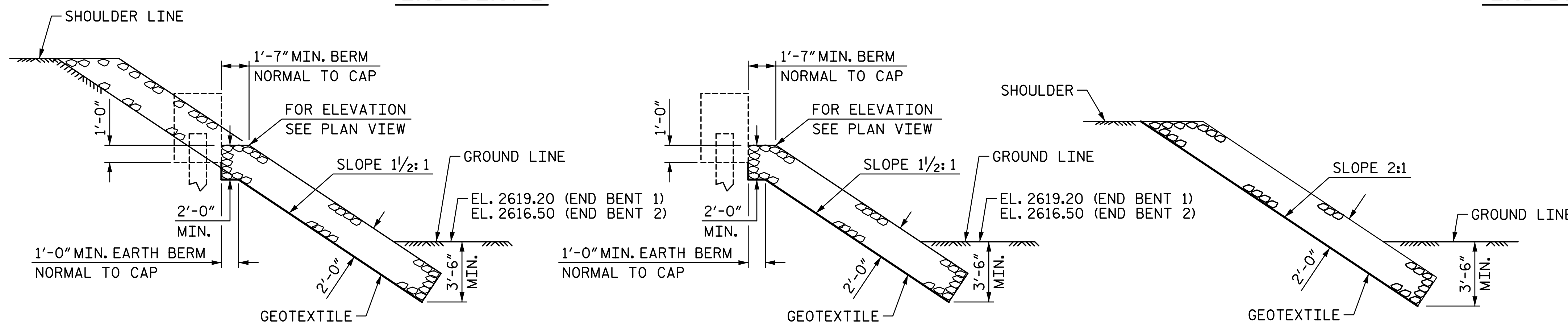
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					SHEET NO. S-17	
SUBSTRUCTURE END BENT No. 1 & 2 DETAILS					TOTAL SHEETS 19	
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



END BENT 2

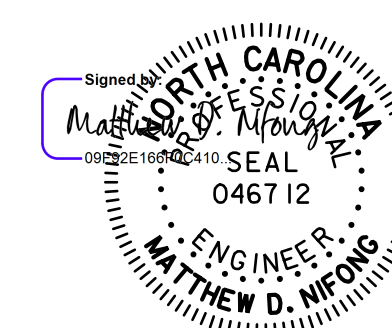
ESTIMATED QUANTITIES		
BRIDGE @ STA. 12+25.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	59	65
END BENT 2	41	45

PROJECT NO. HB-0048
ASHE COUNTY
 STATION: 12+25.00 -L-



SECTION
BERM RIP RAPPED
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

SECTION C-C



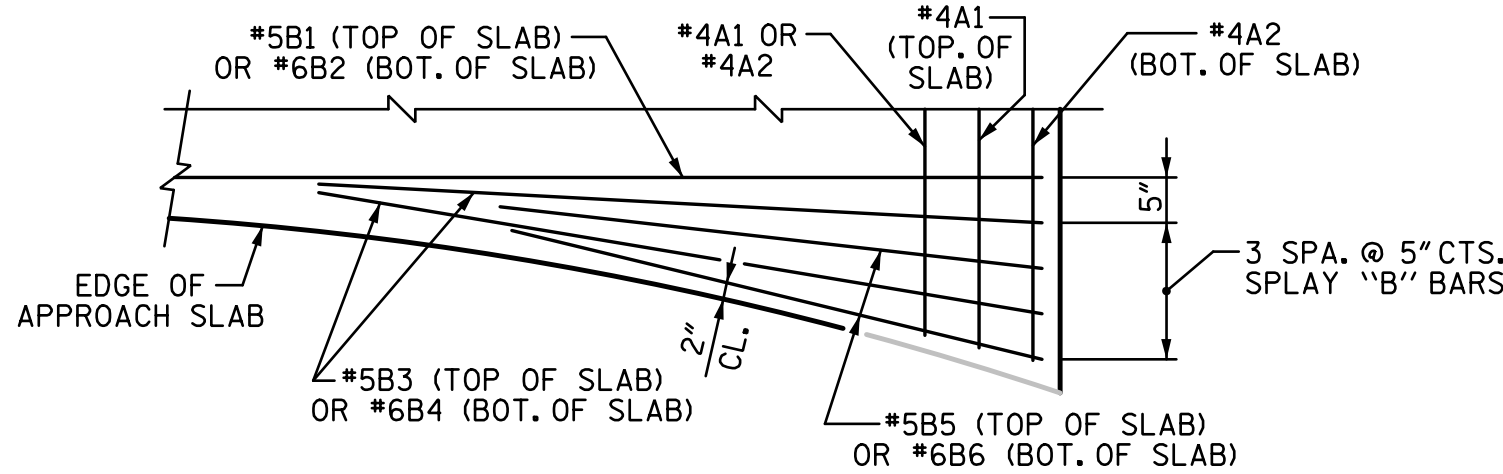
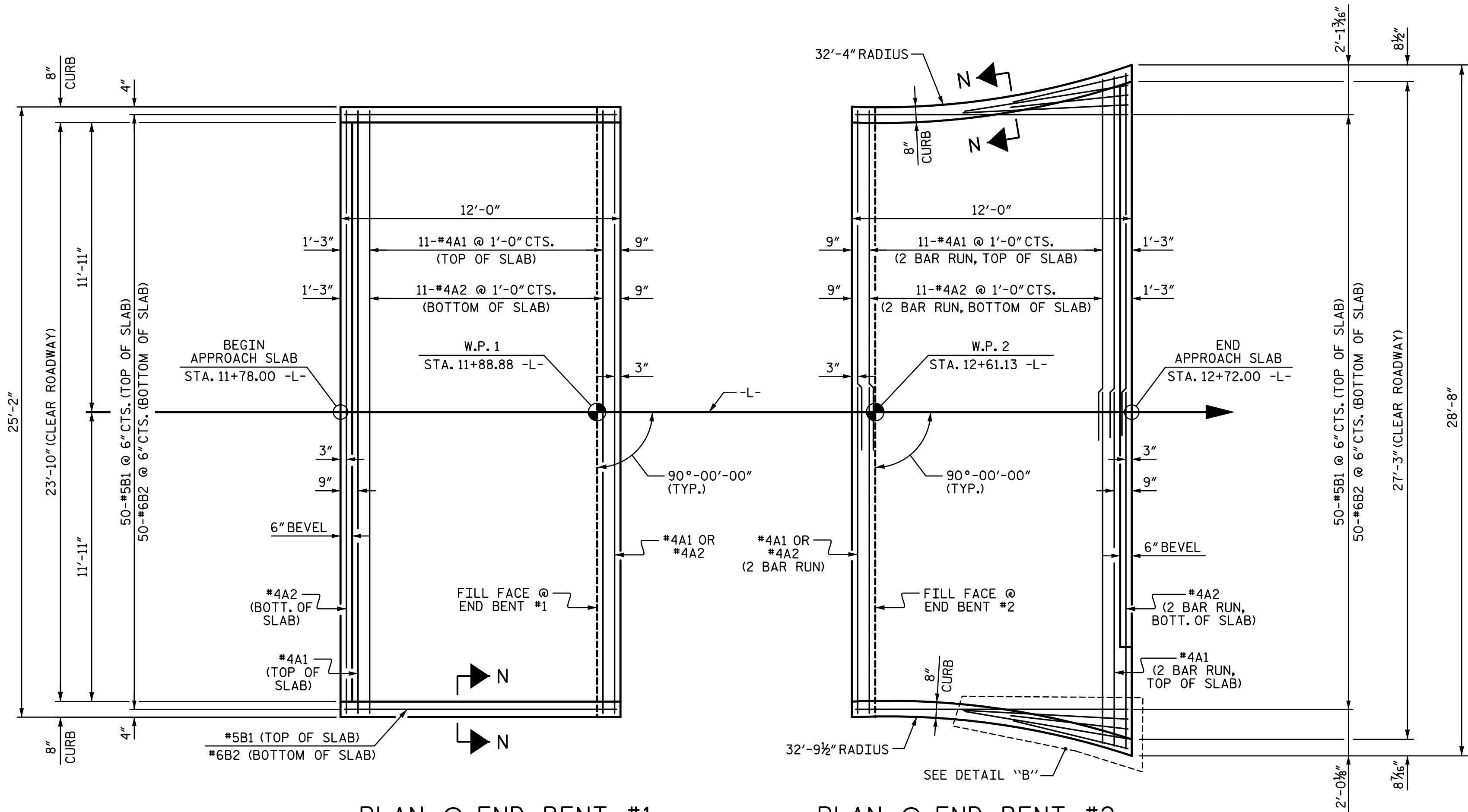
1/30/202

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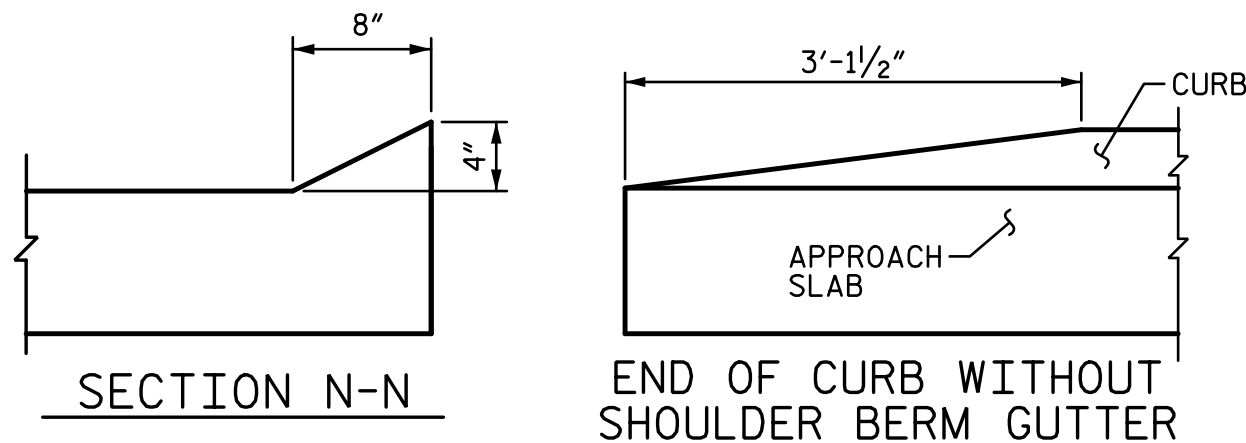
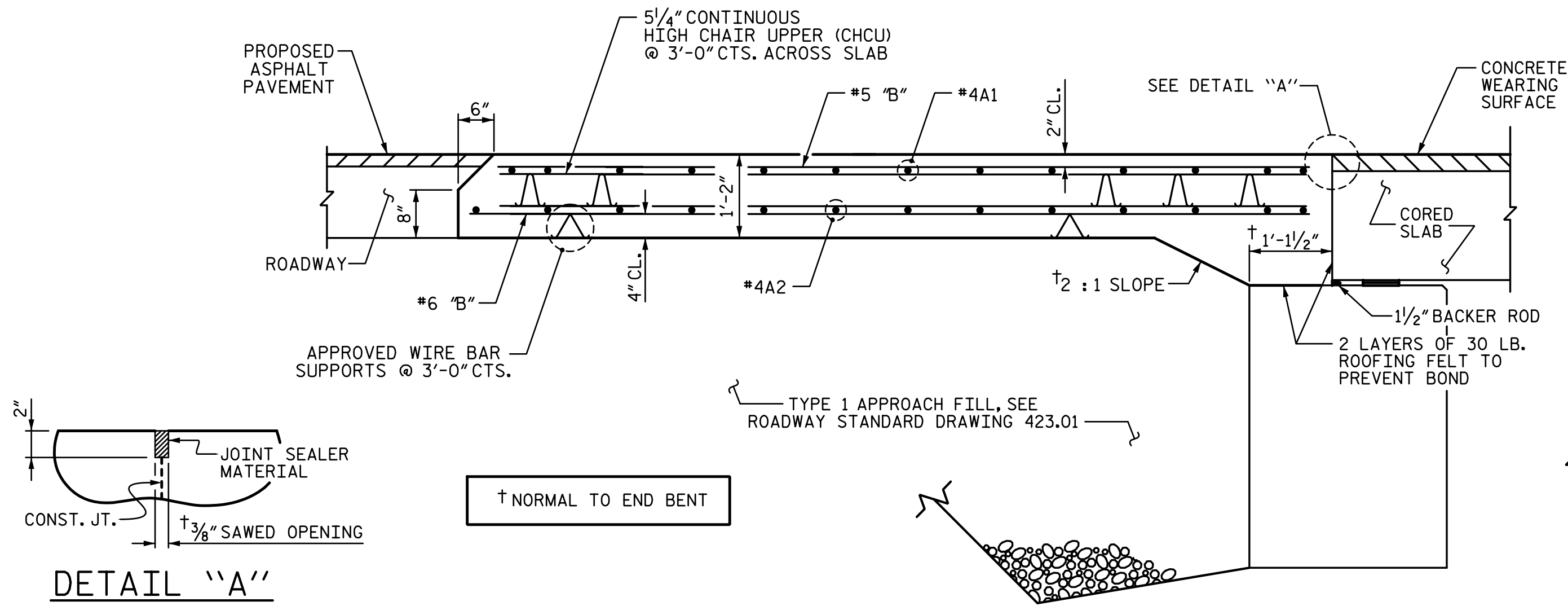
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SIGNATURES COMPLETED

RIP RAP DETAILS

REVISIONS						SHEET NO. 5-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			



RIGHT SIDE OF APPROACH SLAB @ END BENT 2 SHOWN,
LEFT SIDE OF APPROACH SLAB AT END BENT 2 SIMILAR



NOTES

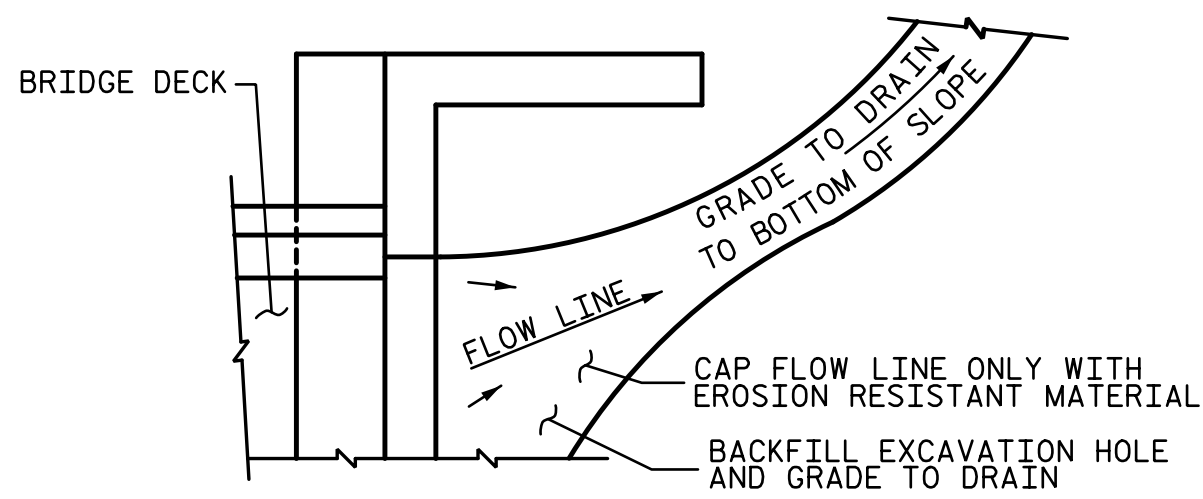
FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

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

APPROACH SLAB SHALL BE POURED AFTER CONCRETE WEARING SURFACE ON BRIDGE IS POURED.

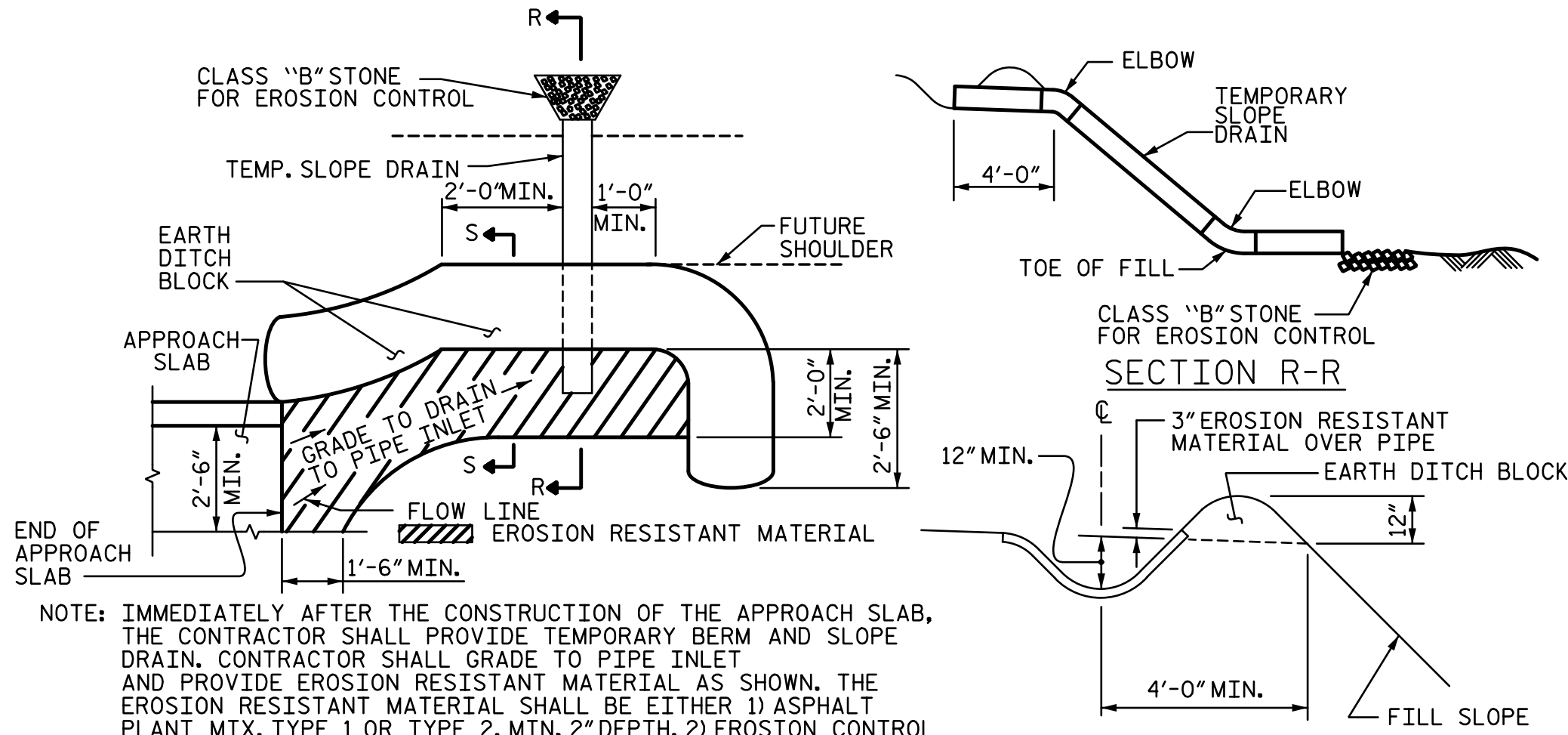
THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL

A 2" DEEP CONTRACTION JOINT AT EACH END BENT SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



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

TEMPORARY DRAINAGE DETAIL



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

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

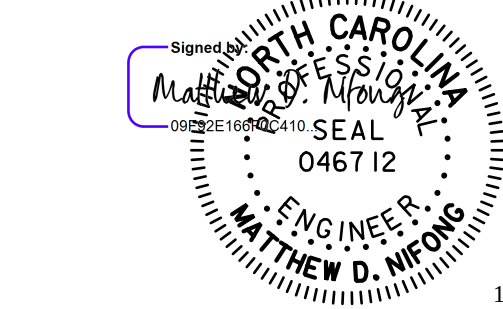
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. **HB-0048**
ASHE COUNTY
STATION: **12+25.00 -L-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)
90° SKEW

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



1/30/2026

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Charlotte, NC 28203
NC License Number F-0991

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FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY : BLM DATE : 6/25
CHECKED BY : MDN DATE : 6/25
DESIGN ENGINEER OF RECORD : MDN DATE : 1/26

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 7⁄8" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7⁄8" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7⁄8" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - 7⁄8"Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 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. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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