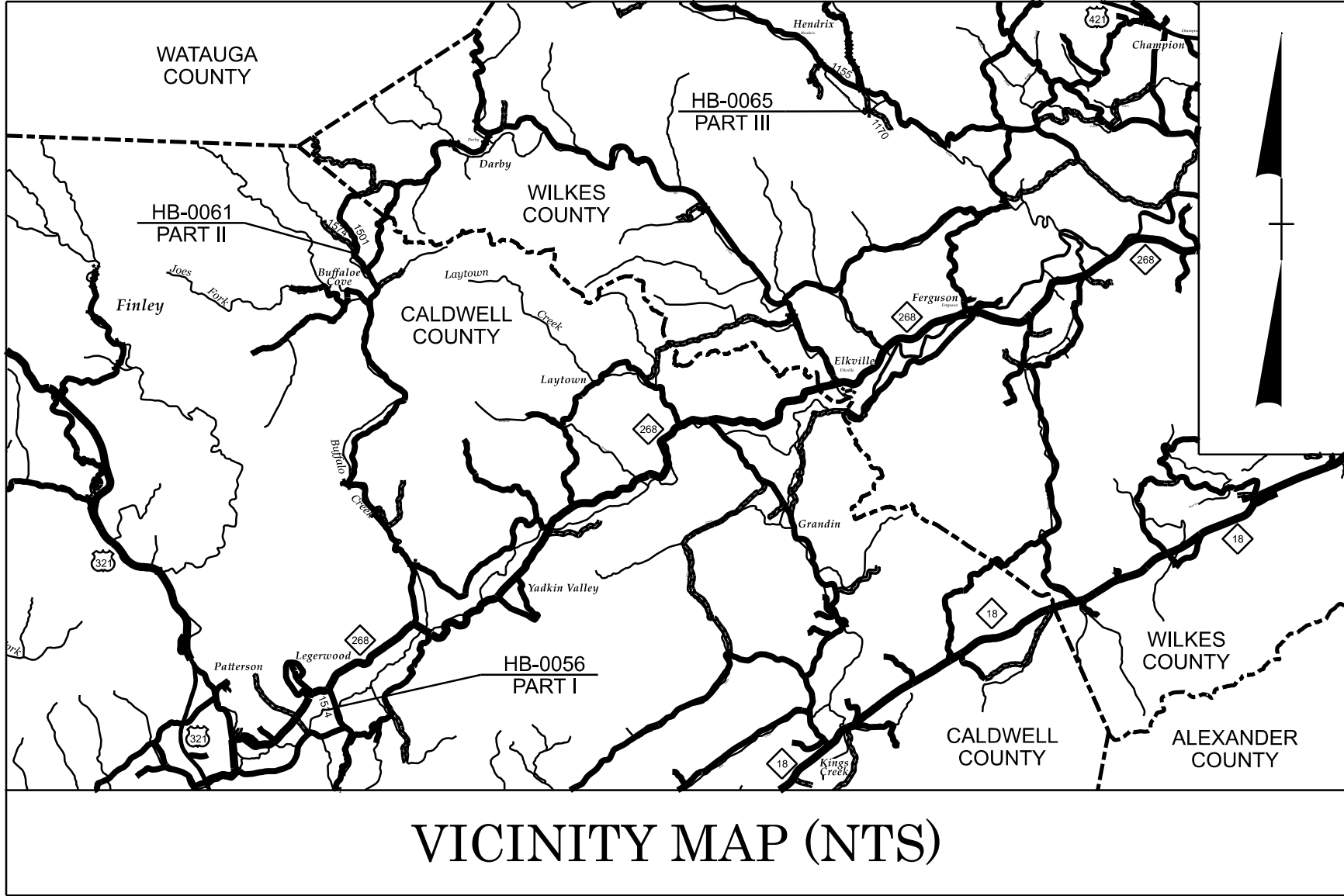


CONTRACT: DK00483 TIP PROJECT: HB-0056, HB-0061, HB-0065

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



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CALDWELL COUNTY WILKES COUNTY

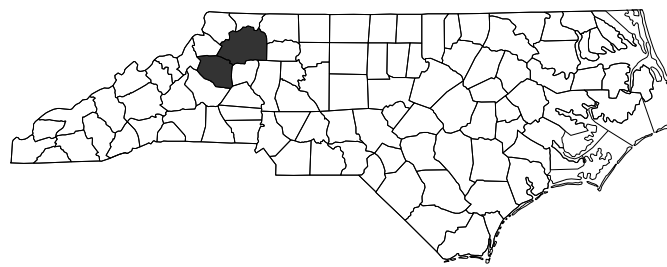
LOCATION: *SR 1514 (INDIAN GRAVE ROAD) REPLACE BRIDGE NO. 130 OVER YADKIN RIVER*

SR 1574 (CC CAMP ROAD) REPLACE BRIDGE NO. 349 OVER JOE'S CREEK

SR 1170 (CASPER HAWKINS ROAD) REPLACE BRIDGE NO. 691 OVER STONY FORK

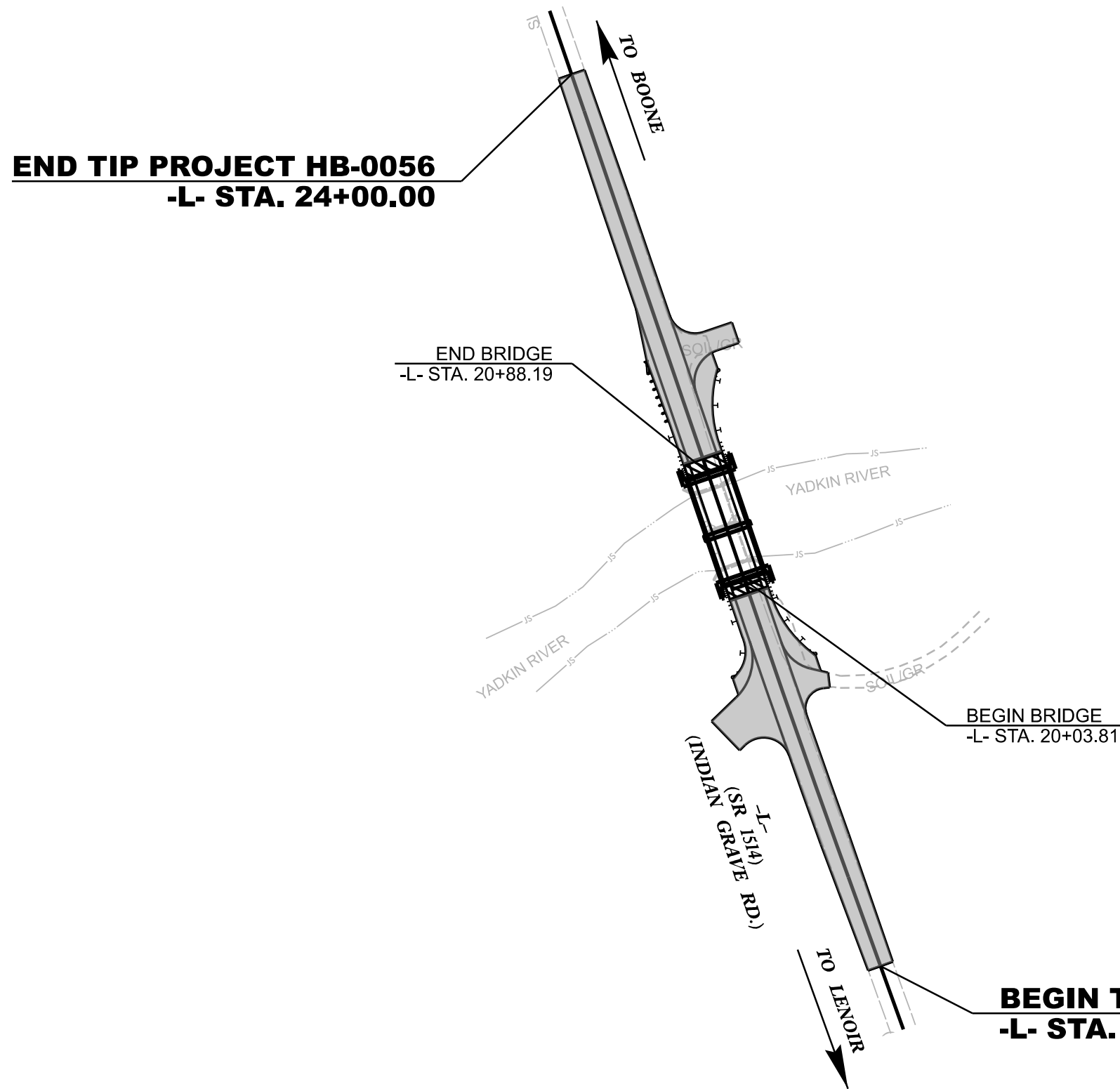
TYPE OF WORK: *GRADING, DRAINAGE, PAVING, & STRUCTURE*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0056, HB-0061, HB-0065	11	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50726.1.1	FBRG111	P.E.	
50726.2.1	FBRG111	ROW	
50726.2.2	FBRG111	UTIL.	
50726.3.1	FBRG111	CONST.	
50731.1.1	FBRG111	P.E.	
50731.2.1	FBRG111	ROW	
50731.2.2	FBRG111	UTIL.	
50731.3.1	FBRG111	CONST.	
50735.1.1	FBRG111	P.E.	
50735.2.1	FBRG111	ROW	
50735.2.2	FBRG111	UTIL.	
50735.3.1	FBRG111	CONST.	

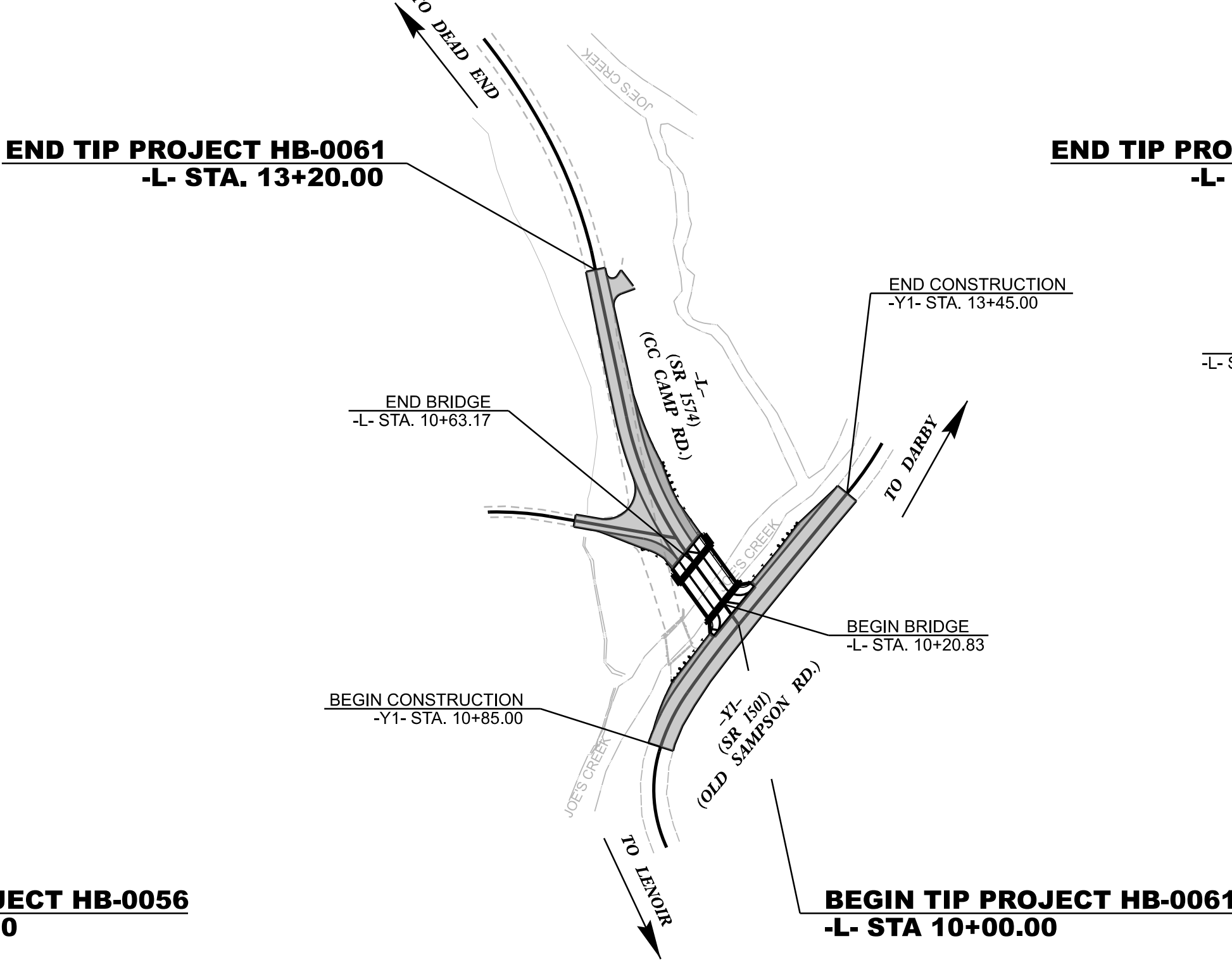


FINAL PLANS

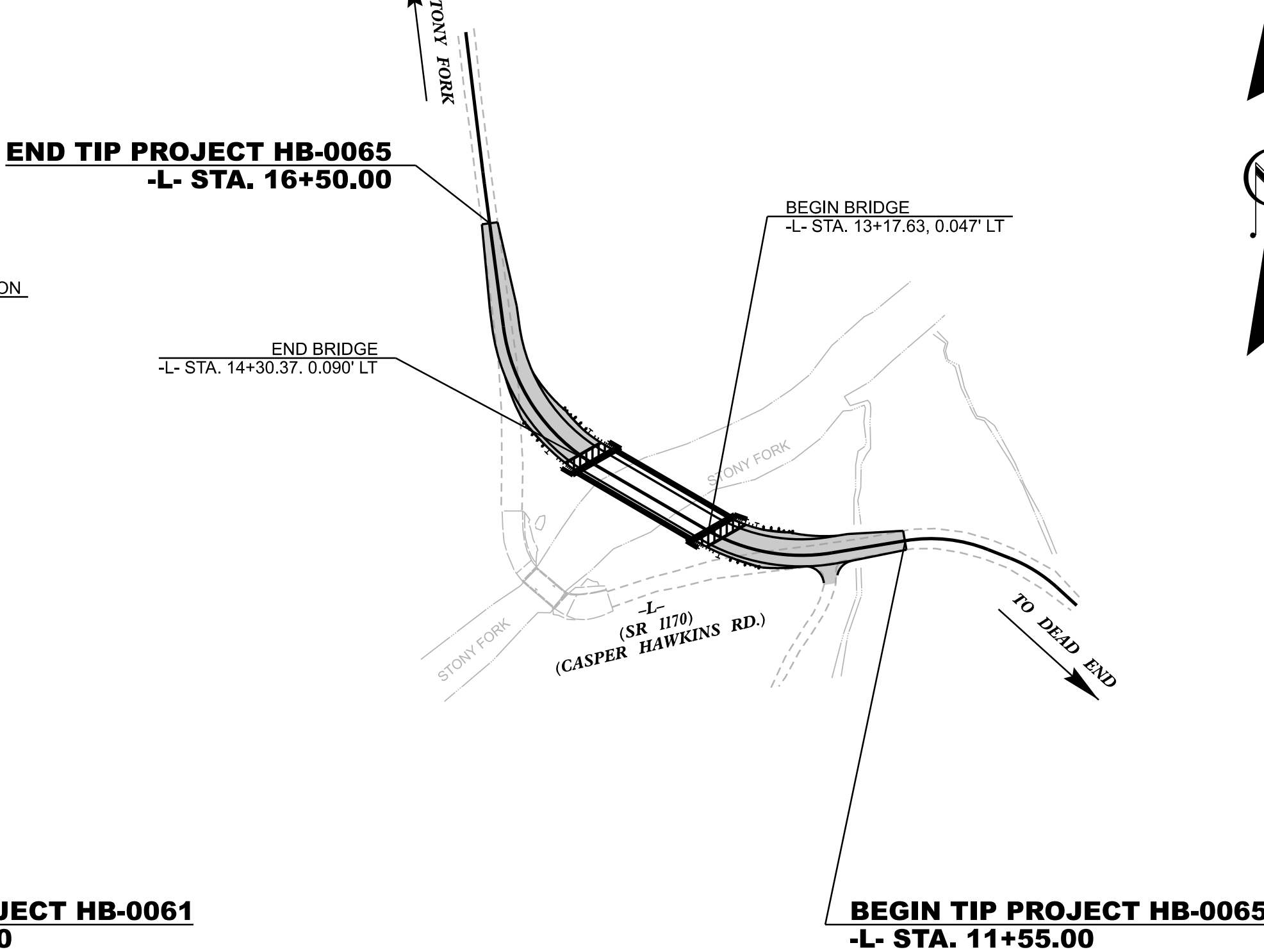
HB-0056 PART I



HB-0061 PART II



HB-0065 PART III



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECTS
HB-0056, HB-0061, HB-0065: 0.177 + 0.053 + 0.083 = 0.253 MILES

LENGTH OF STRUCTURE TIP PROJECTS
HB-0056, HB-0061, HB-0065: 0.016 + 0.008 + 0.011 = 0.035 MILES

TOTAL LENGTH OF TIP PROJECTS
HB-0056, HB-0061, HB-0065: 0.133 + 0.061 + 0.094 = 0.288 MILES

Prepared in the Office of:



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

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 15, 2025

LETTING DATE:
SEPTEMBER 17, 2026

Prepared for:

DIVISION OF HIGHWAYS
DIVISION 11

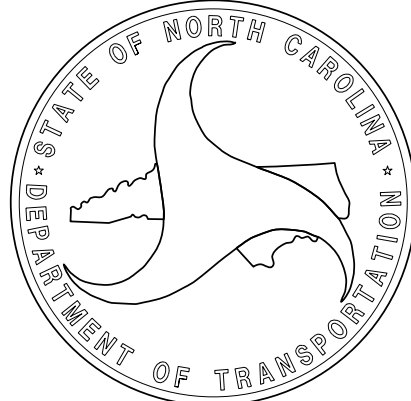
801 Statesville Rd North Wilkesboro, 28659

NCDOT CONTACT:

RAMIE A. SHAW, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

CHRIS D. ANDERSON, PE
PROJECT ENGINEER

JOSE A. ROSADO JR.
PROJECT DESIGN ENGINEER



PART I HB-0056: INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	MODIFIED CONCRETE FLUME
2C-2	DETAIL IN LIEU OF STANDARD 300.01
2C-3	METHOD OF PIPE INSTALLATION (SHEET 1 OF 2)
	DETAIL IN LIEU OF STANDARD 300.01
2C-4	METHOD OF PIPE INSTALLATION (SHEET 2 OF 2)
	DETAIL IN LIEU OF STANDARD 862.01
2C-5	GUARDRAIL PLACEMENT (SHEET 4 OF 15)
	DETAIL IN LIEU OF STANDARD 862.01
3B-1	GUARDRAIL PLACEMENT (SHEET 6 OF 15)
	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 5	PLAN AND PROFILE SHEET
RW-1THRU RW-4	SURVEY CONTROL, EXISTING CENTERLINES,
	RIGHT OF WAY, EASEMENT AND PROPERTY TIES
TMP-1 THRU TMP-4	TRANSPORTATION MANAGEMENT PLANS
	PAVEMENT MARKING PLANS
PMP-1 THRU PMP-2	EROSION CONTROL PLANS
EC-1 THRU EC-5	REFORESTATION DETAIL SHEET
RF-1	UTILITIES BY OTHERS PLANS
UO-1 THRU UO-4	CROSS-SECTION SUMMARY SHEET
X-1	CROSS-SECTIONS
X-2 THRU X-13	CROSS-SECTIONS
S-1 THRU S-26	STRUCTURE PLANS

PART II HB-0061: INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	DETAIL IN LIEU OF STANDARD 300.01
2C-2	METHOD OF PIPE INSTALLATION (SHEET 1 OF 2)
	DETAIL IN LIEU OF STANDARD 300.01
2C-3	METHOD OF PIPE INSTALLATION (SHEET 2 OF 2)
	DETAIL IN LIEU OF STANDARD 862.01
2C-4	GUARDRAIL PLACEMENT (SHEET 4 OF 15)
	DETAIL IN LIEU OF STANDARD 862.01
2C-5	GUARDRAIL PLACEMENT (SHEET 6 OF 15)
	DETAIL IN LIEU OF STANDARD 862.01
3B-1	GUARDRAIL PLACEMENT (SHEET 11 OF 15)
	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 7	PLAN AND PROFILE SHEET
RW-1THRU RW-4	SURVEY CONTROL, EXISTING CENTERLINES,
	RIGHT OF WAY, EASEMENT AND PROPERTY TIES
TMP-1 THRU TMP-6	TRANSPORTATION MANAGEMENT PLANS
	EROSION CONTROL PLANS
EC-1 THRU EC-5	UTILITIES BY OTHERS PLANS
UO-1 THRU UO-4	CROSS-SECTION SUMMARY SHEET
X-1	CROSS-SECTIONS
X-2 THRU X-17	CROSS-SECTIONS
S-1 THRU S-21	STRUCTURE PLANS

PART III HB-0065: INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	DETAIL IN LIEU OF STANDARD 300.01
2C-2	METHOD OF PIPE INSTALLATION (SHEET 1 OF 2)
	DETAIL IN LIEU OF STANDARD 300.01
2C-3	METHOD OF PIPE INSTALLATION (SHEET 2 OF 2)
	DETAIL IN LIEU OF STANDARD 862.01
2C-4	GUARDRAIL PLACEMENT (SHEET 4 OF 15)
	DETAIL IN LIEU OF STANDARD 862.01
3B-1	GUARDRAIL PLACEMENT (SHEET 6 OF 15)
	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 5	PLAN AND PROFILE SHEET
RW-1THRU RW-4	SURVEY CONTROL, EXISTING CENTERLINES,
	RIGHT OF WAY, EASEMENT AND PROPERTY TIES
TMP-1 THRU TMP-7	TRANSPORTATION MANAGEMENT PLANS
	EROSION CONTROL PLANS
EC-1 THRU EC-5	UTILITIES BY OTHERS PLANS
UO-1 THRU UO-4	CROSS-SECTION SUMMARY SHEET
X-1	CROSS-SECTIONS
X-2 THRU X-6	CROSS-SECTIONS
S-1 THRU S-25	STRUCTURE PLANS

GENERAL NOTES:

2024 SPECIFICATIONS
EFFECTIVE: 08-11-2025
REVISED: 11-26-2025

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

TEMPORARY SHORING:

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

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

HB-0056 - BLUE RIDGE ENERGY
HB-0061 - AT&T
HB-0065 - RIVERSTREET

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

2024 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 08-11-2025
REV. 11-26-2025

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
200.03 Method of Clearing - Method III
225.02 Guide for Grading Subgrade - Secondary and Local
225.04 Method of Obtaining Superelevation - Two Lane Pavement

DIVISION 3 - PIPE CULVERTS
300.01 Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
310.02 Parallel Pipe End Section - Precast Concrete Section for 15" to 24" Pipe
310.04 Parallel Pipe End Section - Prefabricated Steel Section for 15" to 24" Pipe
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
838.01 Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11 Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.00 Concrete Base Pad for Drainage Structures
840.35 Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36 Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37 Steel Grate and Frame
840.46 Traffic Bearing Precast Drainage Structure
840.66 Drainage Structure Steps
846.01 Concrete Curb, Gutter and Curb & Gutter
848.02 Driveway Turnout - Radius Type
862.01 Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, and 11 of 15)
862.02 Guardrail Installation (Use Details in Lieu of Standards for Sheet 5 of 9)
862.03 Structure Anchor Units (Use Details in Lieu of Standards for Sheets 6 and 8 of 9)
876.01 Rip Rap in Channels and Ditches
876.02 Guide for Rip Rap at Pipe Outlets

HB-0056 / HB-0061 / HB-0065

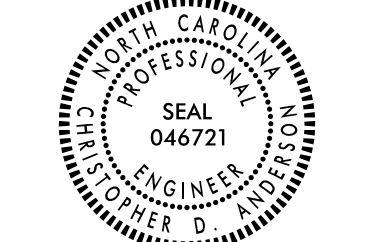
RDY | 001A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY



ROADWAY DESIGN UNIT
ENGINEER

7/30/2026



Signed by:
Christopher D. Anderson
ASFBT649984AFA



PREPARED BY



WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-9077

NC LICENSE F-0377

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

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:

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

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

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

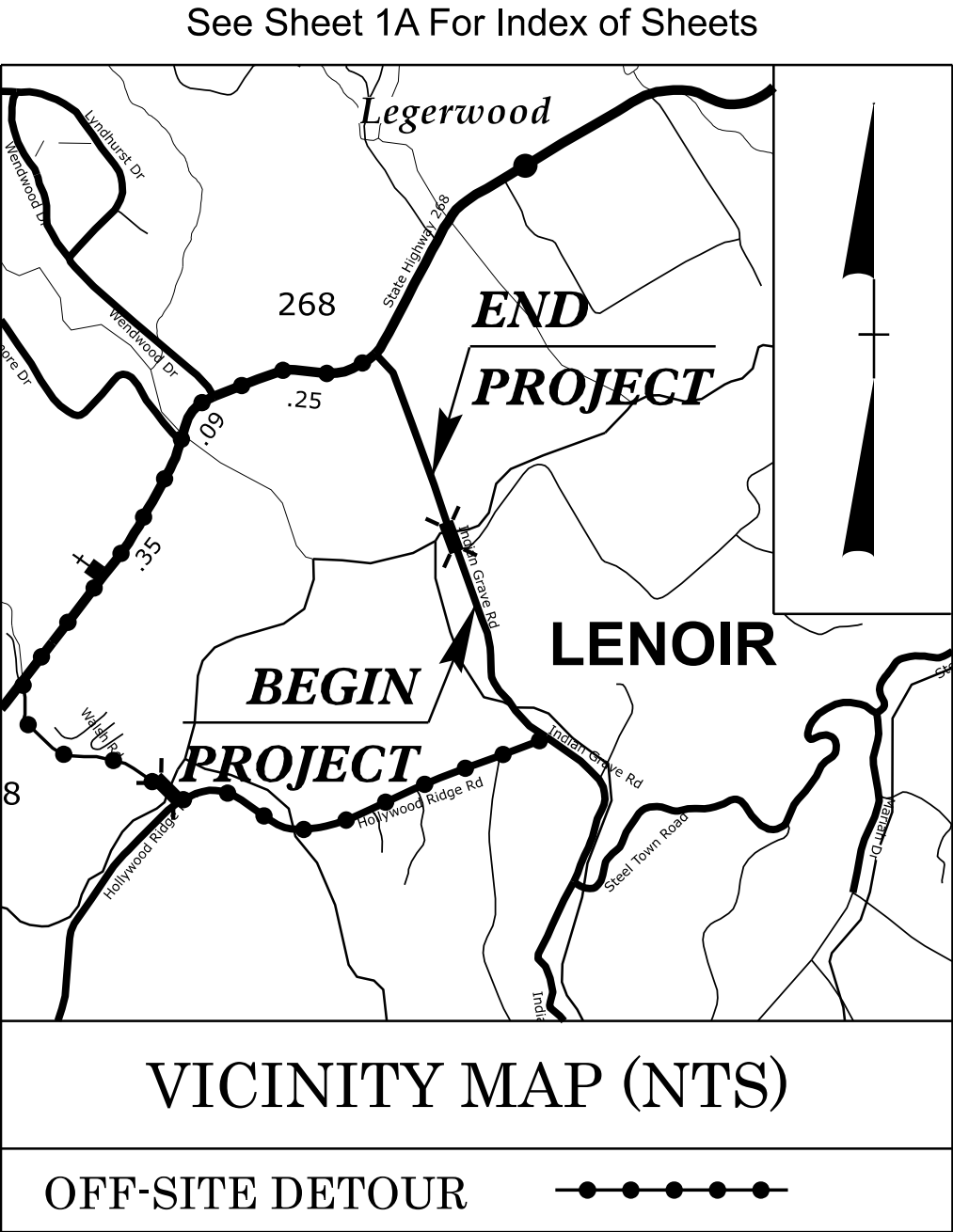
Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Force Main Line Test Hole (SUE - LOS A)*	
SS Force Main Line (SUE - LOS B)*	
SS Force Main Line (SUE - LOS C)*	
SS Force Main Line (SUE - LOS D)*	

MISCELLANEOUS:

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

TIP PROJECT: HB-0056

CONTRACT: DK00483



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

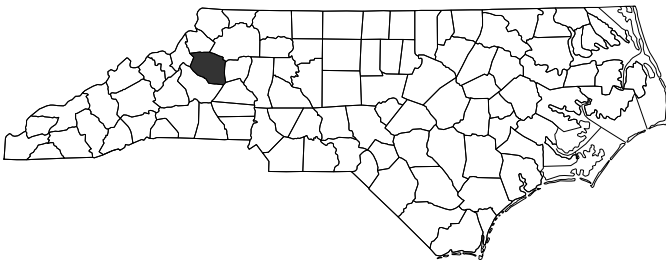
CALDWELL COUNTY

LOCATION: *SR 1514 (INDIAN GRAVE RD.)*
REPLACE BRIDGE NO. 130 OVER YADKIN RIVER

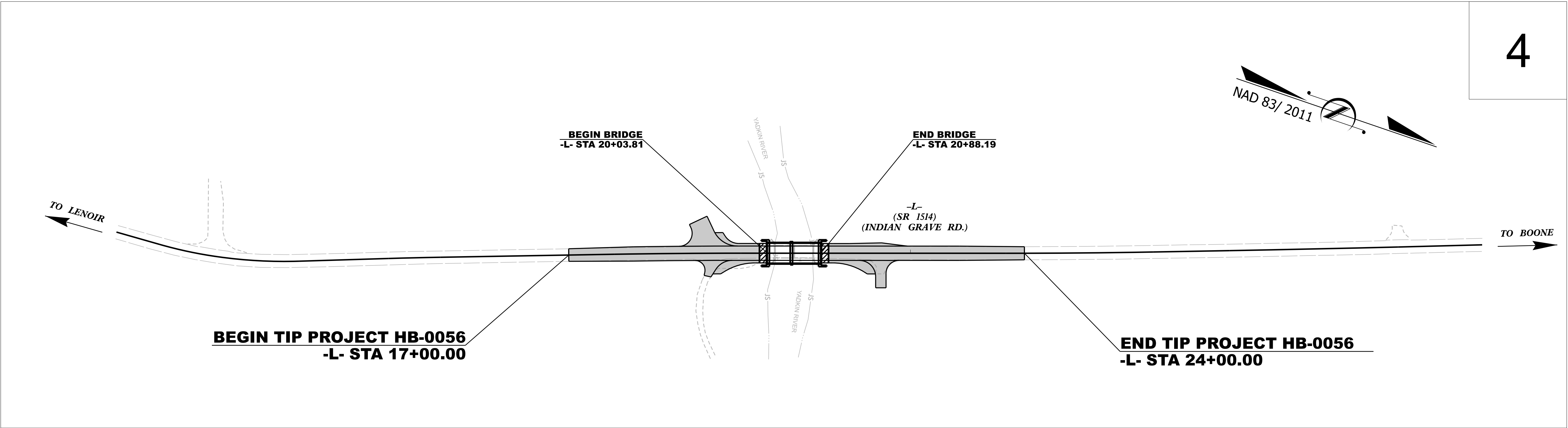
TYPE OF WORK: *GRADING, DRAINAGE, PAVING
& STRUCTURE*

PART I

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0056	11	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50726.1.1	FBRG111	P.E.	
50726.2.1	FBRG111	ROW	
50726.2.2	FBRG111	UTIL.	
50726.3.1	FBRG111	CONST.	

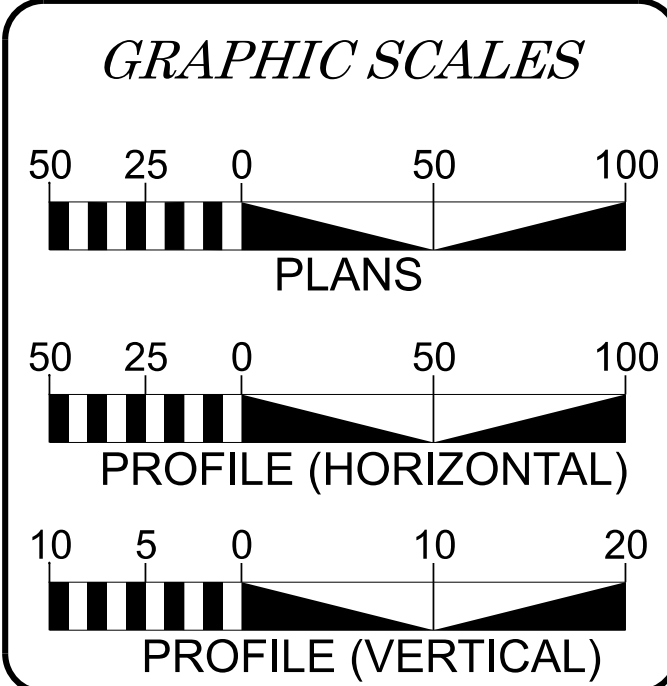


FINAL PLANS



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2025 =	360
ADT 2045 =	440
K =	N/A
D =	N/A
T =	N/A
V =	60 MPH
FUNC CLASS = LOCAL SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT HB-0056 =	0.117 MILES
LENGTH OF STRUCTURE TIP PROJECT HB-0056 =	0.016 MILES
TOTAL LENGTH OF TIP PROJECT HB-0056 =	0.133 MILES

Prepared in the Office of:

 WETHERILL
ENGINEERING

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

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 15, 2025

LETTING DATE:
SEPTEMBER 17, 2026

Prepared for:

DIVISION OF HIGHWAYS
DIVISION 11

801 Statesville Rd North Wilkesboro, 28659

NCDOT CONTACT:

RAMIE A. SHAW, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

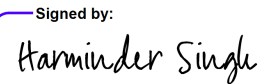
CHRIS D. ANDERSON, PE
PROJECT ENGINEER

JOSE A. ROSADO JR.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

7/31/2026

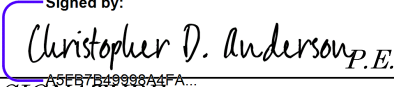


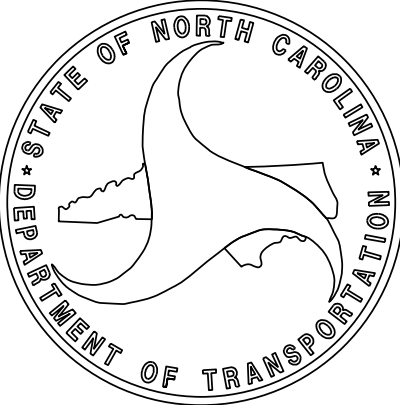
Signed by:  **RAMINDER SINGH** P.E.
SIGNATURE

ROADWAY DESIGN ENGINEER

7/30/2026



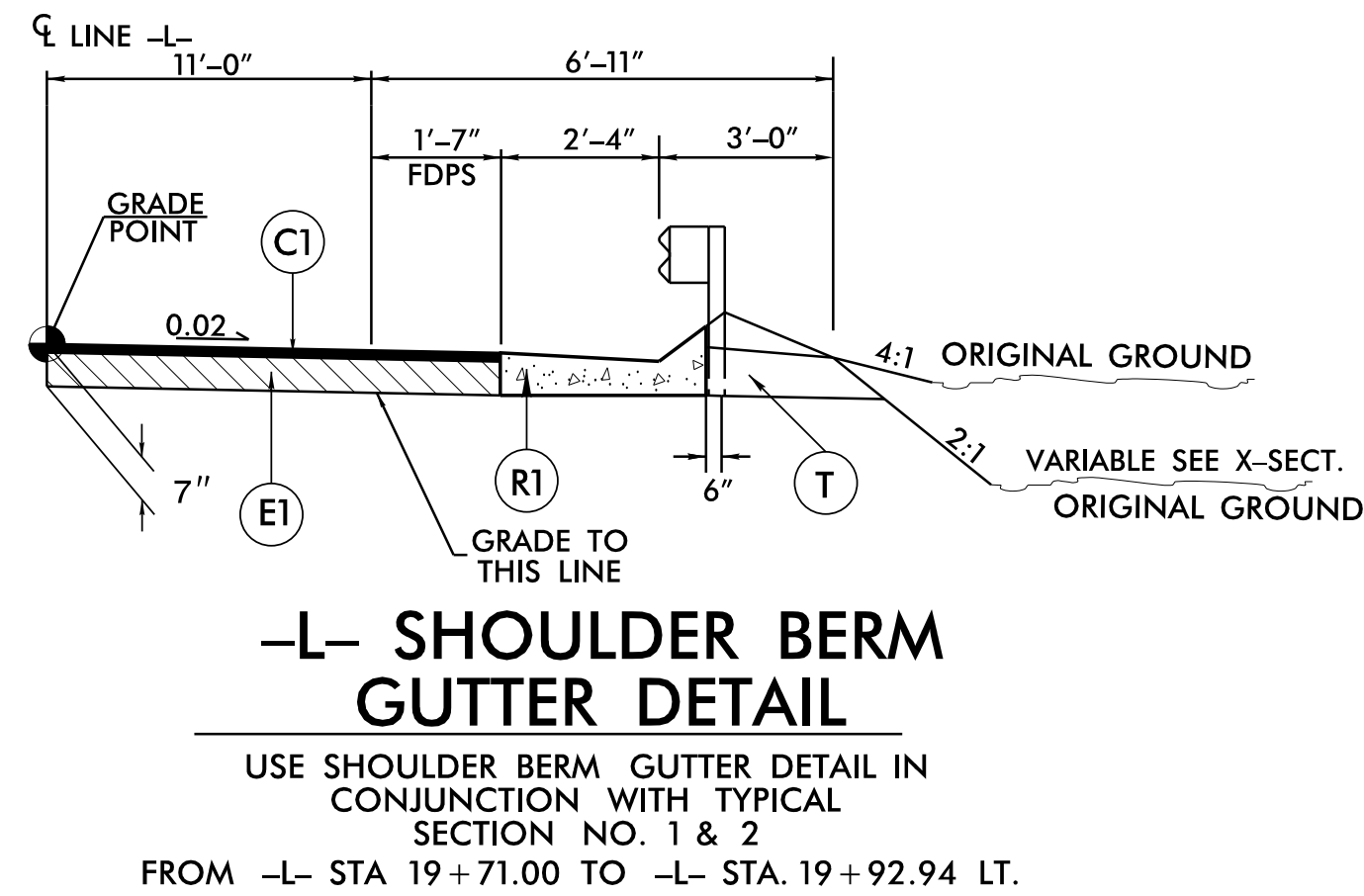
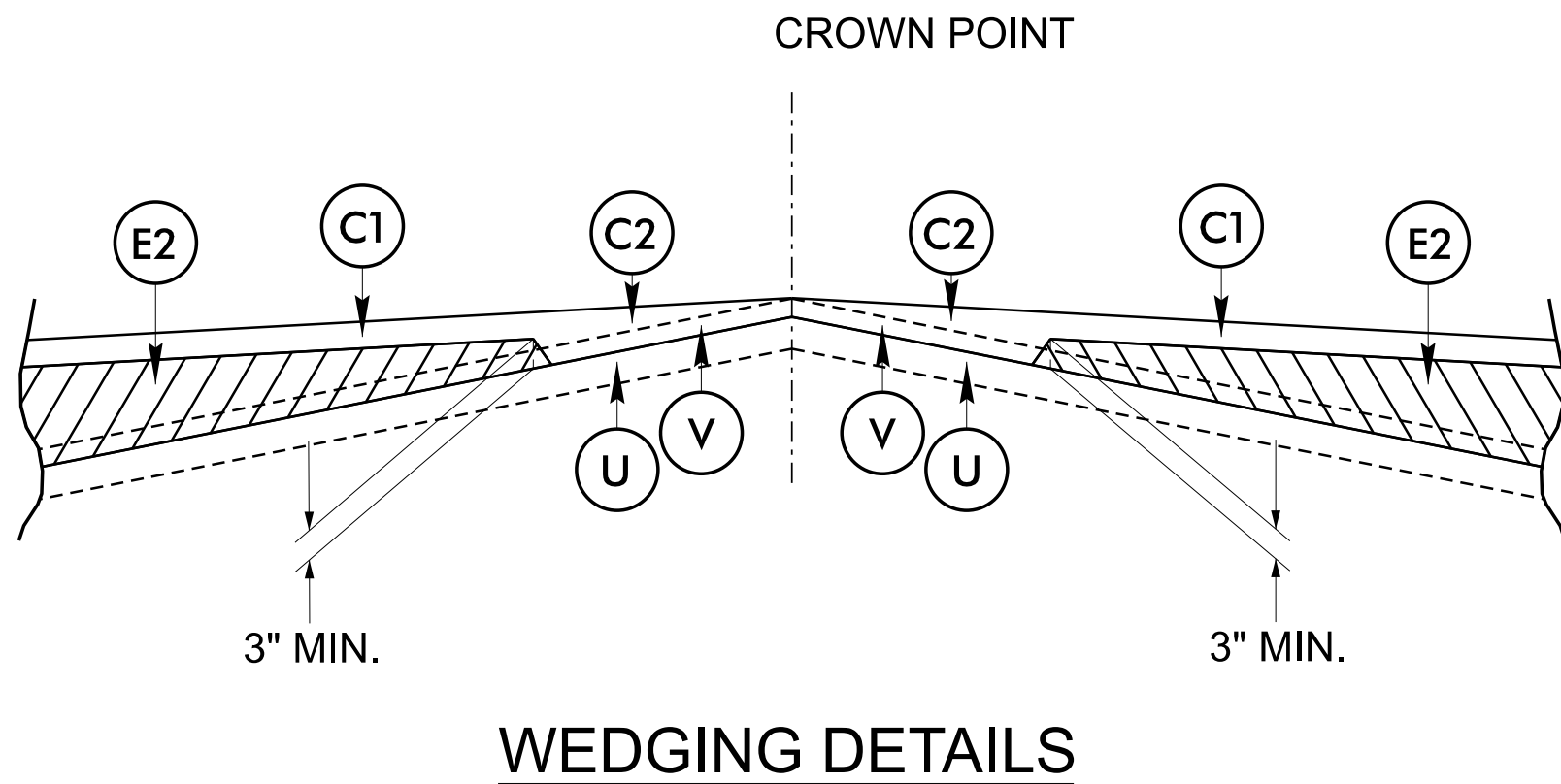
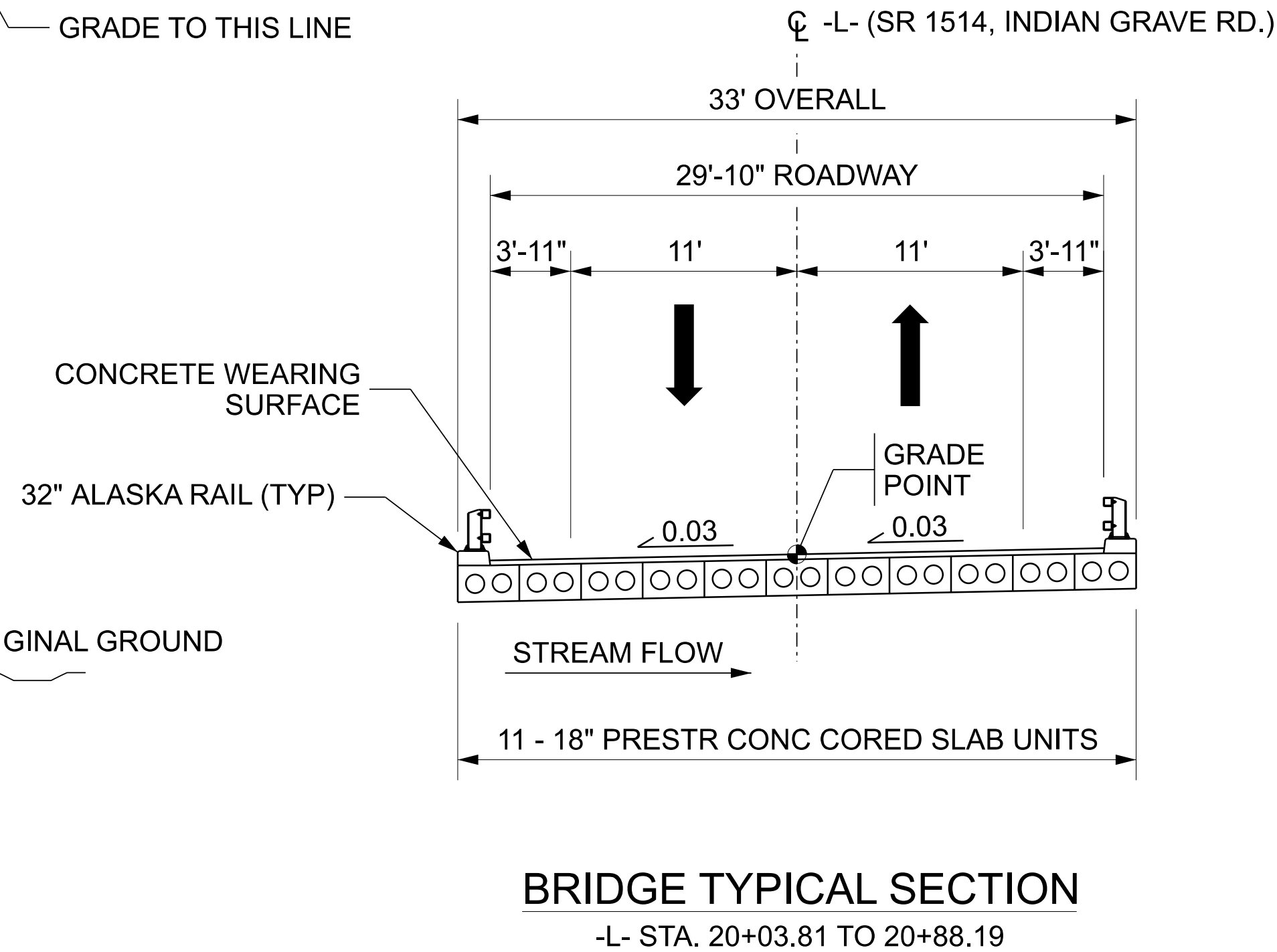
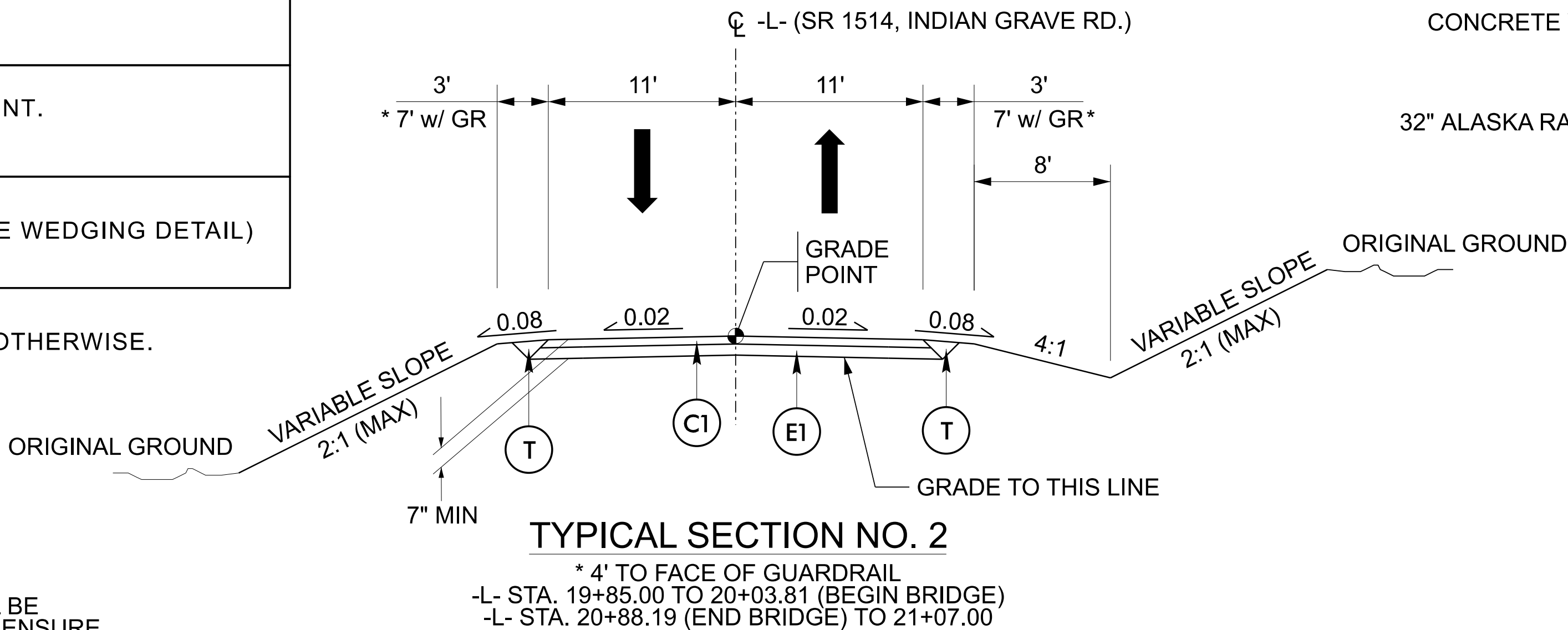
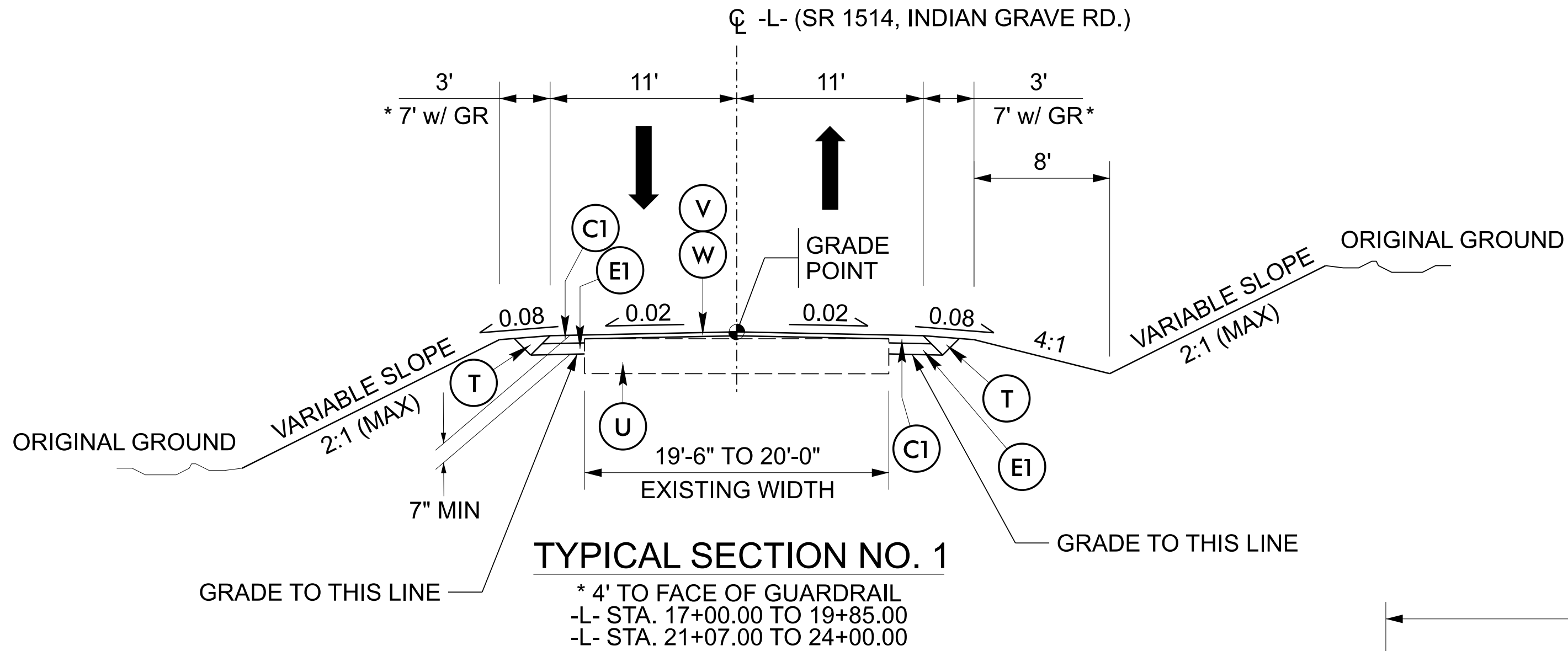
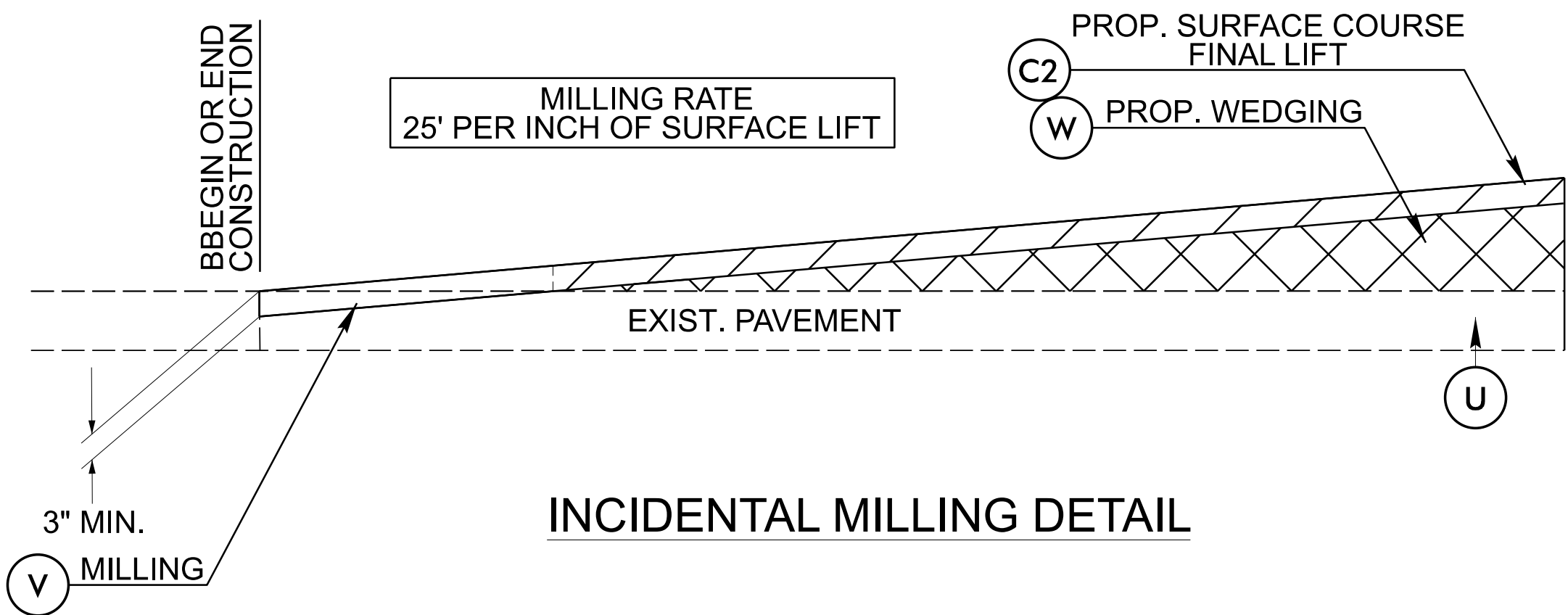
Signed by:  **CHRISTOPHER D. ANDERSON** P.E.
SIGNATURE



PAVEMENT SCHEDULE	
PAVEMENT DESIGN DATED 8/14/2024	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	INCIDENTAL MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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

NOTE: A TEMPORARY ASPHALT WEDGE WILL BE
REQUIRED IMMEDIATELY AFTER MILLING TO ENSURE
SMOOTH TRAVEL IF THE FINAL LAYER OF SURFACE
COURSE IS NOT PLACED ON THE SAME DAY AS
MILLING.



HB-0056

RDY | 2A-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

7/30/2026

SEAL
046721

ENGINEER
CHRISTOPHER D. ANDERSON

Signed by:
Christopher D. Anderson

PAVEMENT DESIGN
ENGINEER

7/30/2026

SEAL
049851

ENGINEER
RAMIE A. SHAW

DocuSigned by:
Ramie A. Shaw

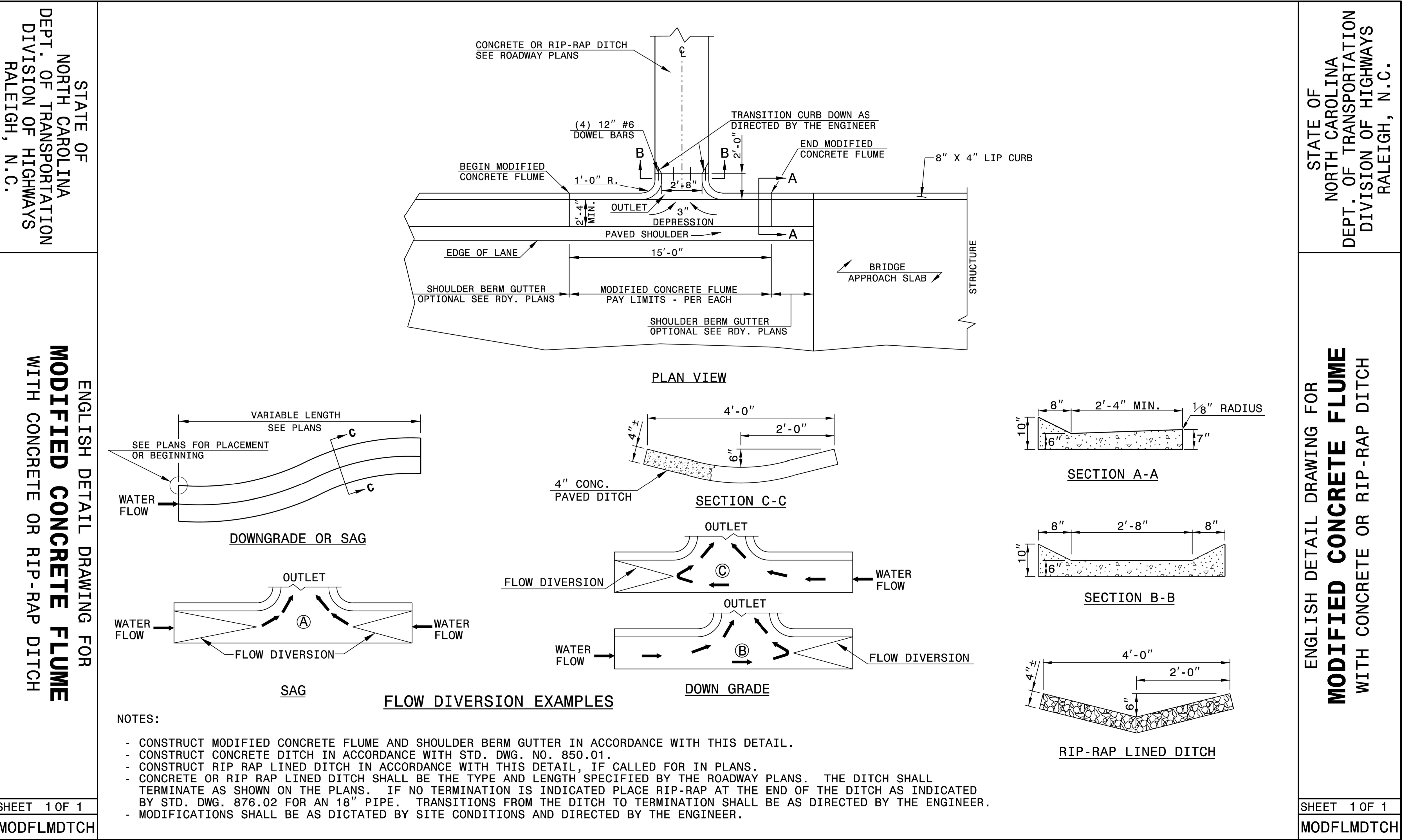
PREPARED BY

WETHERILL
ENGINEERING

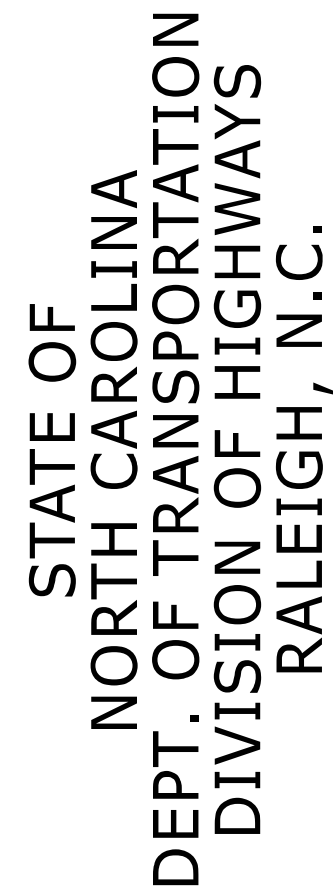
WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-9077
NC LICENSE P-0377

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UNLESS ALL SIGNATURES COMPLETED

REVISIONS



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
SEE PLATE FOR TITLE	
ORIGINAL BY: E.E. Ward	DATE: Apr. 2002
MODIFIED BY: J.S. Howerton	DATE: October 2017
CHECKED BY:	DATE:
FILE SPEC.: w:\details\stand\modifiedflume.dgn	



	SPRINGLINE OF PIPE
	SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
	UNDISTURBED EARTH MATERIAL
	SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

7/30/2026



Signed by:
Nicole M. Hackler
5884323D34164C5...

ORIGINAL BY:	<u>S.CALHOUN</u>	DATE:	<u>7-25-2024</u>
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
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 2
300.01

TOP OF FILL

GROUND LINE

H

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 3'

NORMAL EARTH FOUNDATION

TOP OF FILL

GROUND LINE

H

I.D. /6 MIN.
NOT LESS THAN 6"

ROCK

O.D. + 3'

**ROCK FOUNDATION
PIPE IN TRENCH**

TOP OF FILL

GROUND LINE

H

TYPE 4a
GEOTEXTILE

I.D. /6 MIN.
NOT LESS
THAN 6"

1½" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGR.

O.D. + 3'

UNSUITABLE MATERIAL FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

MIN. O.D.

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 2'

NORMAL EARTH FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

MIN. O.D.

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 2'

**ROCK FOUNDATION
PIPE ABOVE GROUND**

TOP OF FILL

GROUND LINE

H

MIN. O.D.

MIN. O.D.

I.D. /6 MIN.
NOT LESS THAN 6"

1½" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGINEER

MIN. O.D.

MIN. O.D.

UNSUITABLE MATERIAL FOUNDATION

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.

7/30/2026

Signed by:
Nicole M. Hacker
3884323034184C5...

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

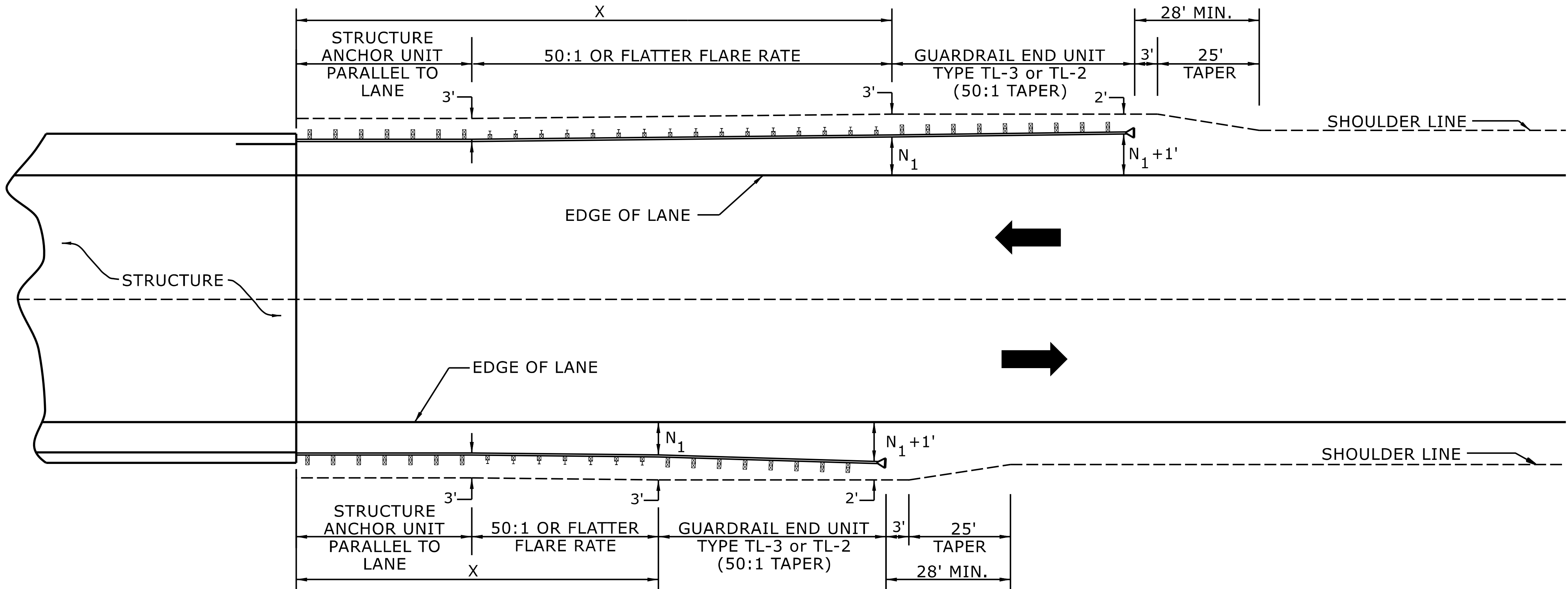
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT

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.:			

PROJECT REFERENCE NO.	SHEET NO.
HB-0056	2C-4



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

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS $\geq$ 45MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS $<$ 45MPH USE GREU TYPE TL-2

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

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

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15
862D01



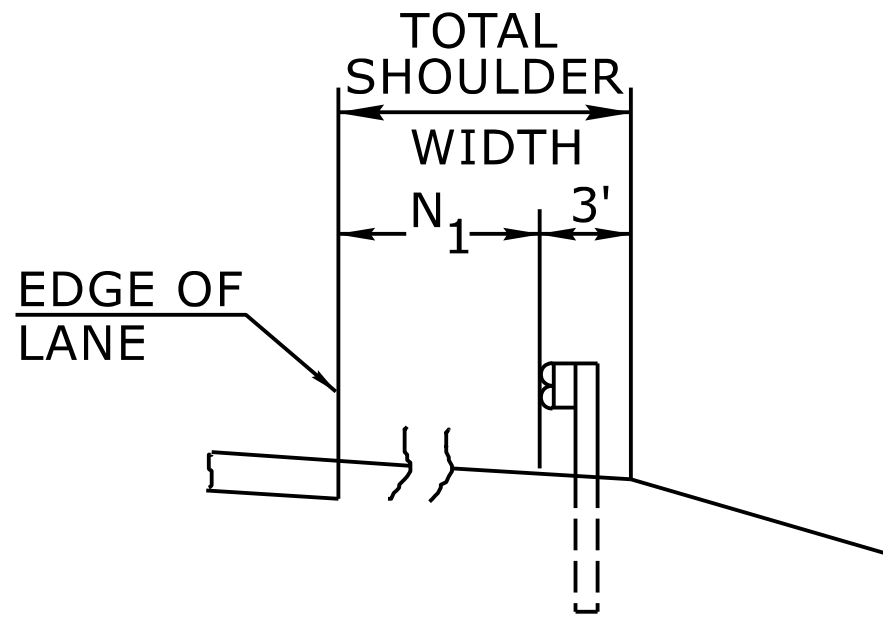
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UNLESS ALL SIGNATURES COMPLETED

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

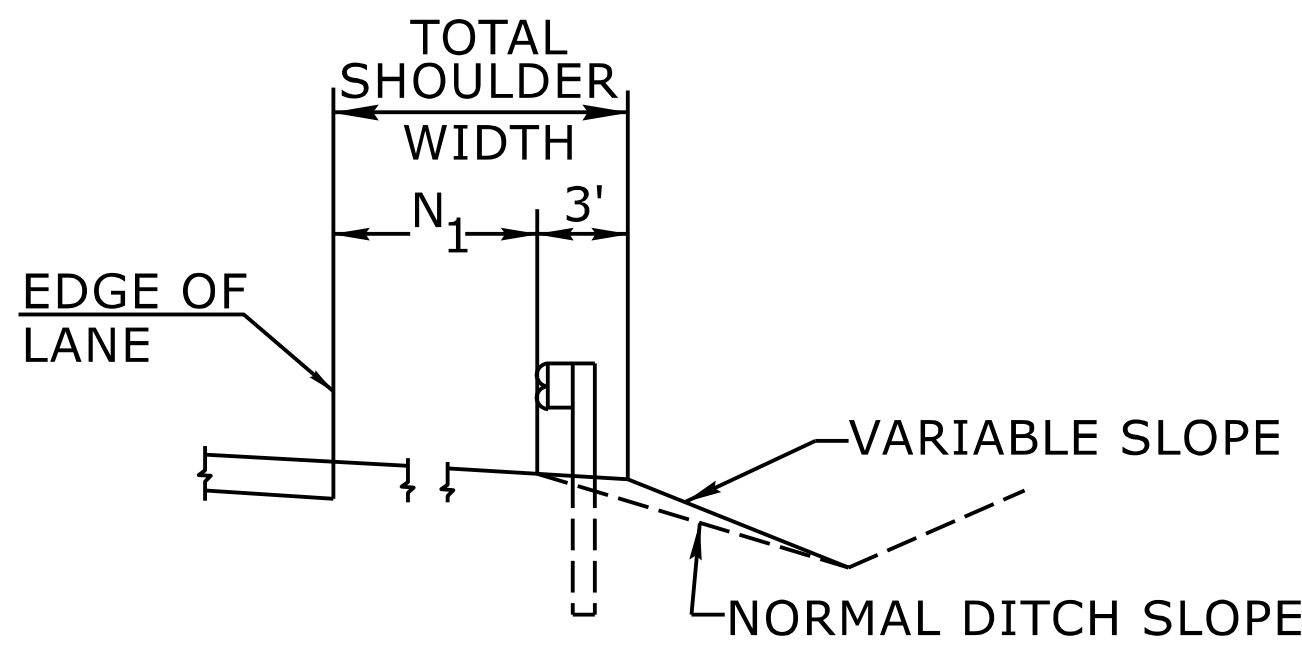
SEE TITLE BLOCK

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MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
HB-0056	2C-5

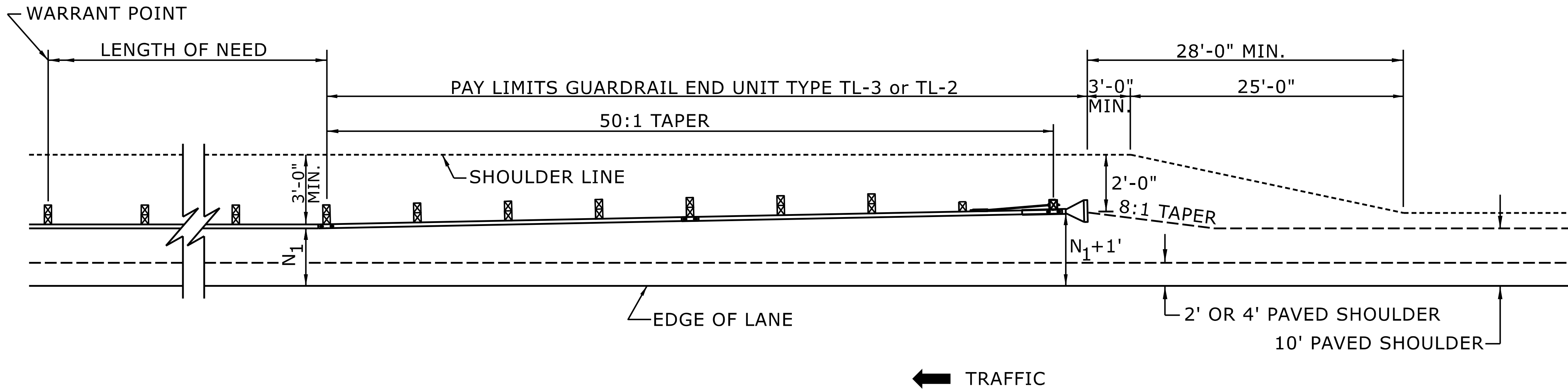


FILL SECTION



CUT SECTION

"N₁"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



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

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01

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



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**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

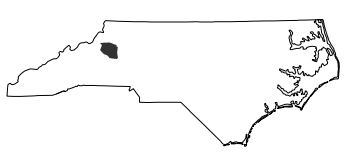
11/14/23	COMPUTED BY: JAR	DATE: 3/18/2025
	CHECKED BY: CA	DATE: 7/13/2026

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HB-0056

RDY38-I

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY



ROADWAY DESIGN UNIT

SUMMARY OF EARTHWORK					
STATION	STATION	UNCL. EXCAV.	EMBANK. +15%	BORROW	WASTE
-L-					
17+00.00	20+03.81 (Begin Bridge)	654	137	0	517
20+88.19 (End Bridge)	24+00.00	319	179	0	140
TOTALS:		973	316	0	657
PROJECT TOTALS:		973	316	0	657
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
				0	
GRAND TOTALS:		973	316	0	657
SAY:		1000			
Note: Earthwork quantities are calculated by the Roadway Design Engineer. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineer.					
Note: Approximate quantities only. Unclassified Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for grading.					

PAVEMENT REMOVAL SUMMARY							
IN SQUARE YARDS							
SURVEY LINE	STATION	STATION	LOCATION	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
L	19+93.00	20+16.00	CL	49.33			
L	20+77.00	20+99.00	CL	47.67			
		TOTAL:		97.00			
		SAY:		100			

SHOULDER BERM GUTTER SUMMARY			
LINE	STATION	STATION *	LENGTH
L (LT)	19+71.00	19+92.94	21.94
		TOTAL:	21.94
		SAY:	30.00
* END AT APPROACH SLAB, STATION IS FRONT OF CURB			

"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

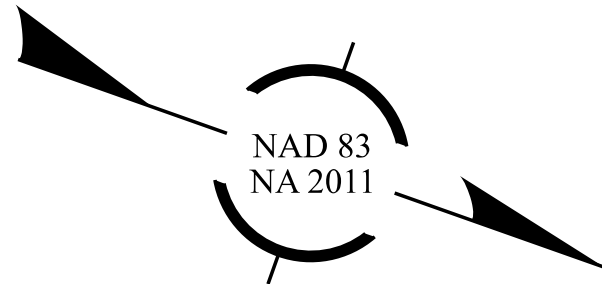
GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	B-77 SC			G	NG				
L	19+36.86	20+04.96	LT	50.00'	25.00'			BEGIN BRIDGE	3.9167'	6.9167'					1				1											SHOP CURVE RADIUS = 25' SHOULDER BERM GUTTER
L	19+33.33	20+04.96	RT	25.00'	50.00'			BEGIN BRIDGE	3.9167'	6.9167'					1				1											SHOP CURVE RADIUS = 90'
L	20+87.07	21+80.82	LT	93.75'			END BRIDGE		3.9167'	6.9167'	50.00'		1.00'		1		1													
L	20+87.07	21+58.60	RT	25.00'	50.00'		END BRIDGE		3.9167'	6.9167'					1				1											SHOP CURVE RADIUS = 90'
		SUBTOTAL		193.75'	125.00'																									
	LESS ANCHOR DEDUCTIONS																													
	GREU, TL-3	1 AT 50.00'	=	50.00'																										
	TYPE III	4 AT 18.75'	=	75.00'																										
	CAT-1	3 AT 6.25'	=	18.75'																										
		TOTAL		50.00'	125.00'										4		1		3											
		5 ADDITIONAL GUARDRAIL POSTS																												

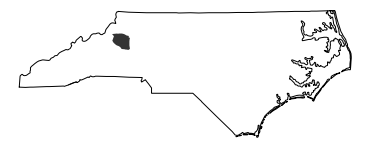
REVISIONS

COMPUTED BY: A. A. NASH DATE: JULY 21, 2026 CHECKED BY: A. F. RIGGS, JR DATE: JULY 21, 2026				(9-17-24)				PROJECT NO. HB-0056		SHEET NO. 3G-1					
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS															
SUMMARY OF SUBSURFACE DRAINAGE						SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION									
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF	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				SD	600										
				TOTAL LF:	600										
*UD = Underdrain *BD = Blind Drain *SD = Subsurface Drain						*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.									



RDY	4
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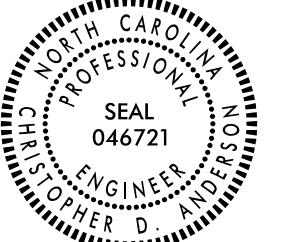
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER

7/30/2026

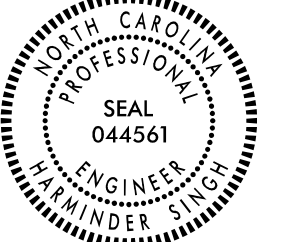


Signed by

Christopher D. Anderson

**HYDRAULICS
ENGINEER**

7/31/2026



Signed by:

Harmandir Singh
D3C0C09E570240E

PREPARED BY



DESIGN YOUR TOMORROW...

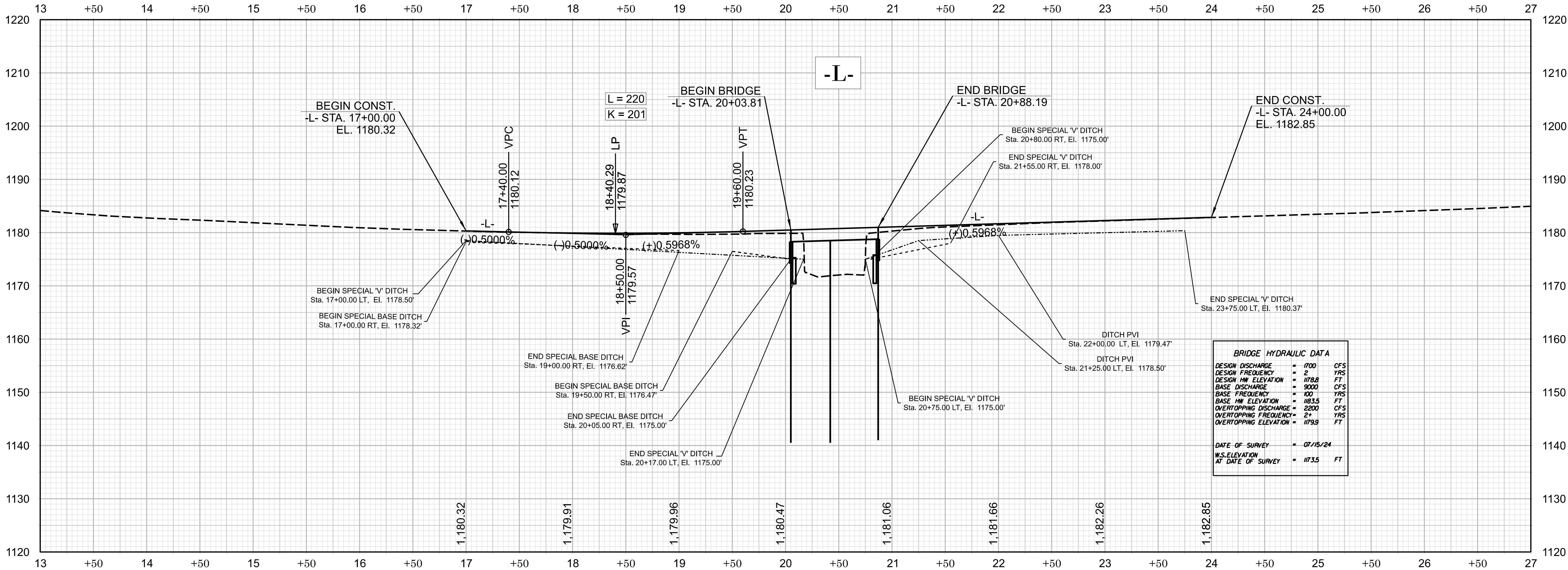
223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-8077

NC LICENSE F-0377

REVISIONS

\$\$\$-USER NAME-\$\$\$ - \$\$\$-DATE-\$\$\$

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-26 FOR STRUCTURE PLANS
SEE SHEETS TMP-1 THRU TMP-4 FOR TRANSPORTATION MANAGEMENT PLANS
SHOP CURVED GUARDRAIL RADIUS IS 25' UNLESS NOTED
ALL STRUCTURE ANCHOR UNITS ARE TYPE II
ALL GUARDRAIL END UNITS ARE TL-3 UNLESS NOTED



SEE SHEET 4 FOR -L- PLAN

HB-0056

RDY | 5

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY

ROADWAY DESIGN UNIT
ENGINEER

7/30/2026

Signed by:
Christopher D. Anderson
PREPARED BY
HYDRAULICS
ENGINEER

7/31/2026

Signed by:
Hamninder Singh
PREPARED BY

WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-8077
NC LICENSE F-0377

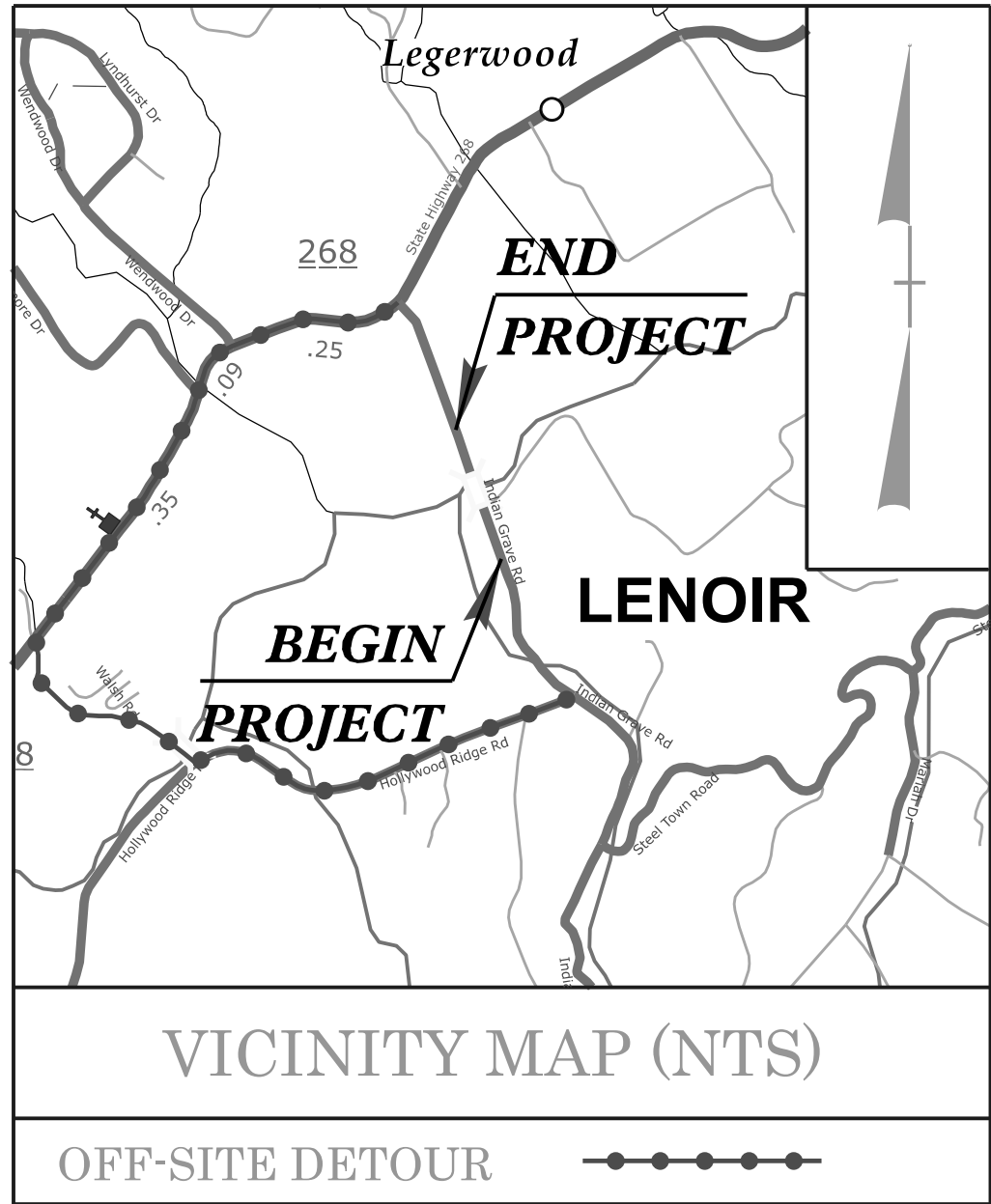
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REVISIONS

09/08/99

TIP PROJECT: HB-0056

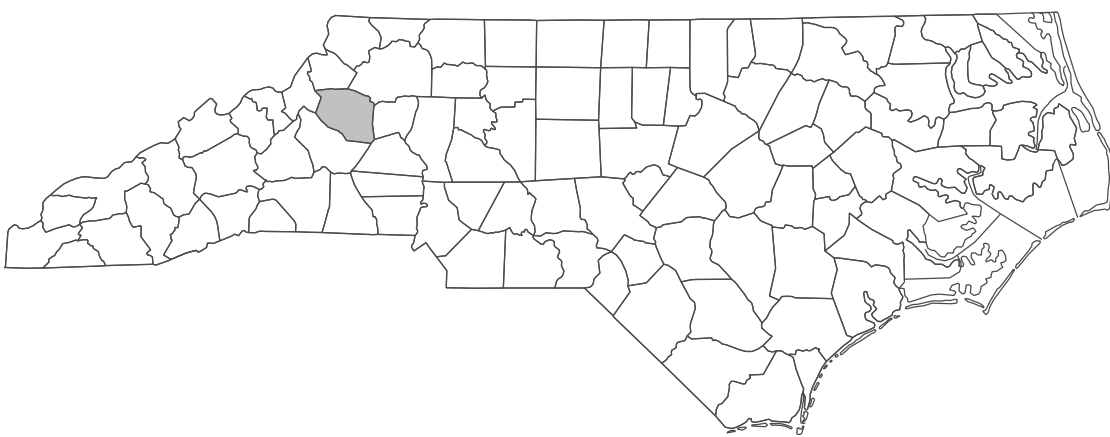
STATE NO.	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0056	RW01	7



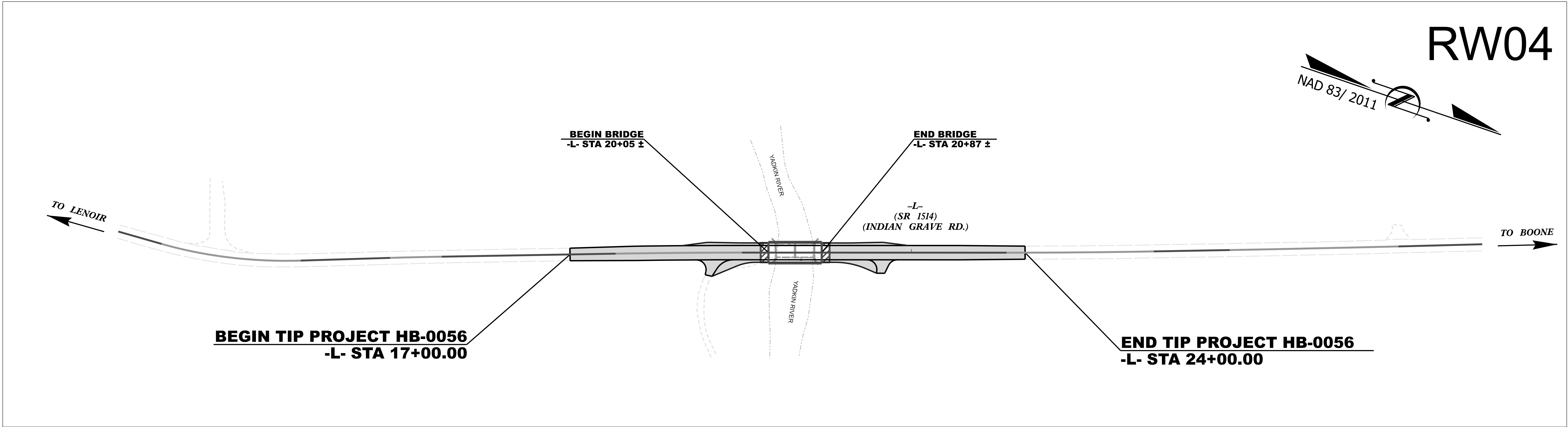
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

CALDWELL COUNTY



RW04



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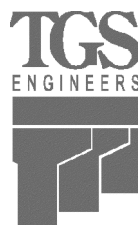
GRAPHIC SCALES



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT 1301302
WITH NAD83/2011 STATE PLANE GRID COORDINATES OF
NORTHING: 828185.1136 EASTING: 1250978.3835
ELEVATION: 1183.61
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999906048
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:
8/15/2025

LETTING DATE:
9/17/2026

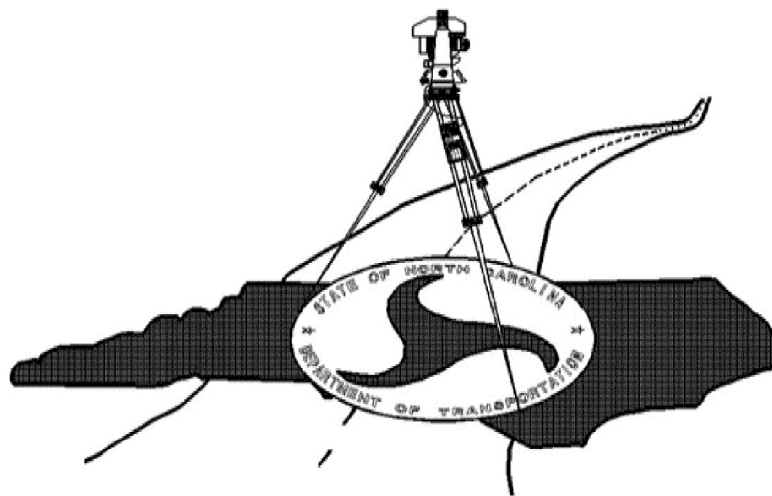
PROFESSIONAL LAND
SURVEYOR



Signed by:
Matthew Cornwell
E8039PF11473E475 10/3/2025

SIGNATURE:

DATE:



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 10/3/2025

Signed by: Matthew Cornwell
EBC038F11473E475
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	826652.2729	1251484.2195	N02°57'06.6"W	69.15							
PC	10+69.15	826721.3341	1251480.6583	N06°55'05.5"W	91.26	07°55'57.9"	08°41'06.9"	91.34	45.74	659.69		
PCC	11+60.49	826811.9326	1251469.6655	N15°45'01.8"W	125.02	09°43'55.0"	07°46'29.2"	125.17	62.74	736.94		
PT	12+85.66	826932.2612	1251435.7282	N20°36'59.3"W	137.57							
PC	14+23.23	827061.0231	1251387.2875	N20°14'24.9"W	79.29	00°45'08.8"	00°56'56.3"	79.29	39.65	6037.66		
PT	15+02.53	827135.4178	1251359.8562	N19°51'50.5"W	267.67							
PC	17+70.19	827387.1596	1251268.9057	N19°21'45.6"W	194.26	01°00'09.8"	00°30'58.2"	194.26	97.13	11100.00		
PT	19+64.45	827570.4292	1251204.5005	N18°51'40.7"W	407.05							
PC	23+71.50	827955.6229	1251072.9099	N19°22'58.5"W	226.36	01°02'35.7"	00°27'39.2"	226.36	113.18	12431.69		
PT	25+97.86	828169.1506	1250997.7864	N19°54'16.4"W	117.15							
PC	27+15.01	828279.2981	1250957.9037	N20°06'48.2"W	259.14	00°25'03.6"	00°09'40.2"	259.14	129.57	35549.29		
PT	29+74.15	828522.6337	1250868.7910	N20°19'20.0"W	129.16							
END	31+03.31	828643.7560	1250823.9331									

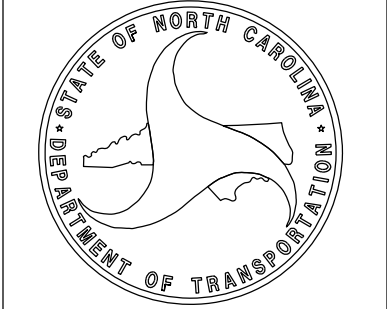
NOTES:

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.

HB-0056

R/W020-I

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

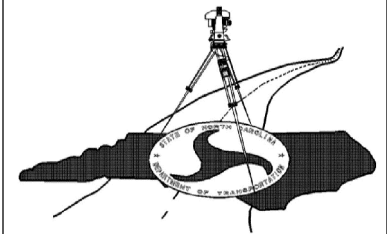


DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0056
County: Caldwell

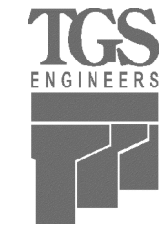
PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY

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



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 9/29/2025, 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 10/3/2025

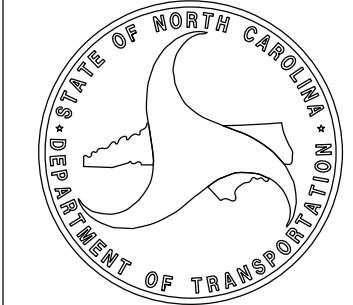
Signed by: Matthew Cornwell
EB0286F11473E475

PROFESSIONAL LAND SURVEYOR L-4775

HB-0056

R/W03E-1

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

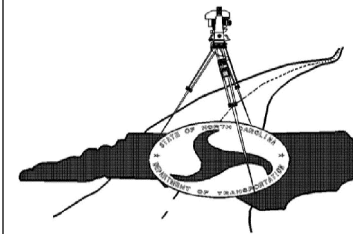
PERMANENT ROW MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
17+00.00	17.5000	827327.0889	1251309.2155
17+00.00	-35.0000	827309.2499	1251259.8391
17+00.00	-25.0000	827312.6478	1251269.2441
17+00.00	50.0000	827338.1320	1251339.7818
19+50.00	-53.0000	827539.5564	1251159.0500
21+56.00	63.0000	827772.0575	1251202.1947
22+26.00	63.0000	827838.2988	1251179.5652
22+26.00	24.6033	827825.8860	1251143.2302
22+96.00	-53.0000	827867.0398	1251047.1645
24+00.00	-25.0000	827974.4424	1251040.0277

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
19+21.61	-387.9027	827403.0963	1250851.8421
19+81.24	-418.2028	827451.1157	1250803.3279
21+24.00	-53.0000	827704.2755	1251102.7683
22+05.00	-53.0000	827780.9261	1251076.5828
22+11.23	354.2540	827918.4793	1251459.9543
22+76.88	335.4019	827974.5087	1251420.8917

NOT SET - FALLS IN WATER

TIP PROJECT: HB-0056
County: Caldwell

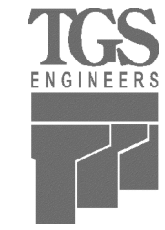
PREPARED FOR



LOCATION AND
SURVEYS UNIT

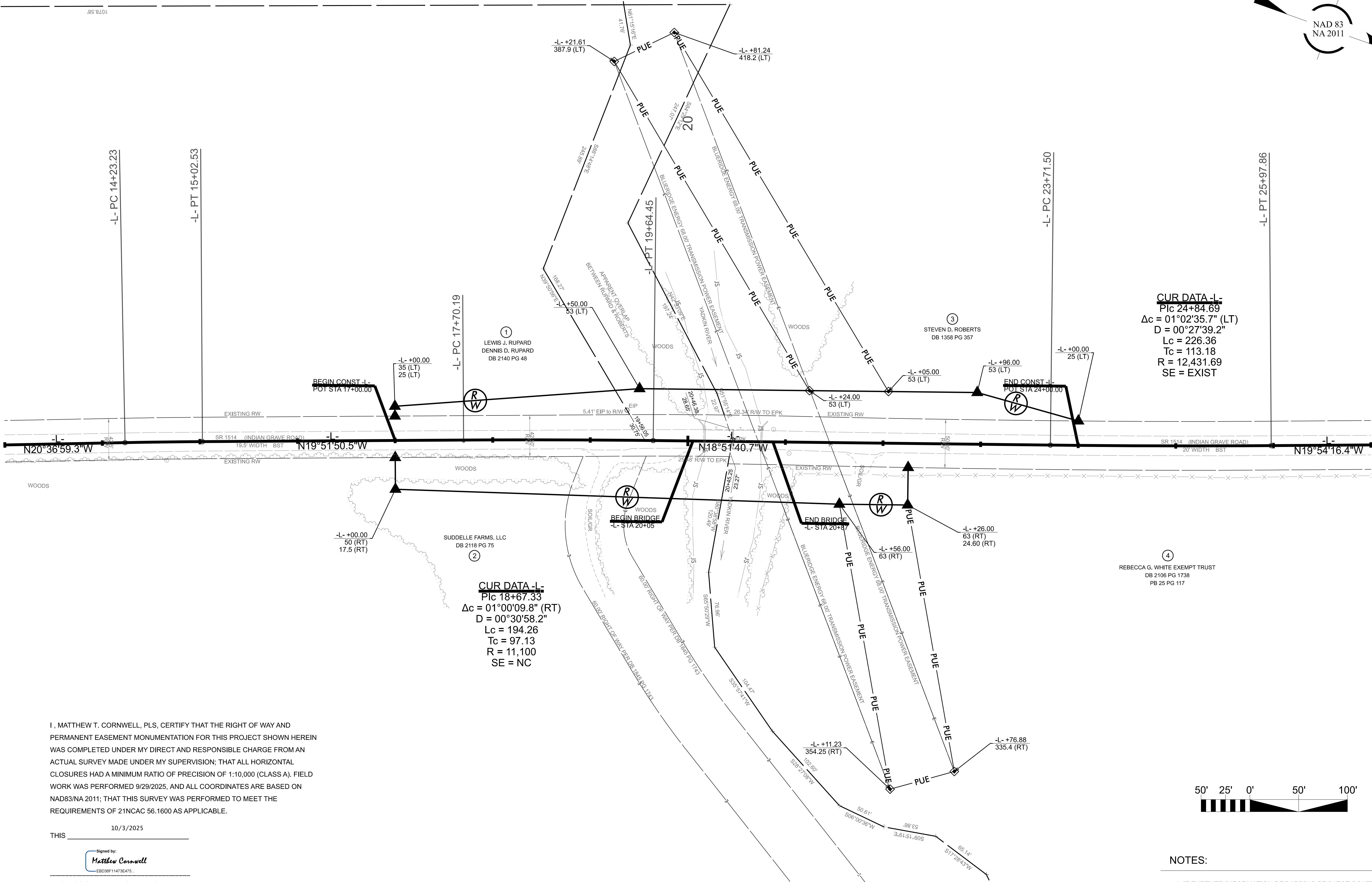
PREPARED BY

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



NOTES:

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



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 9/29/2025, 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 10/3/2025

Signed by:
Matthew Cornwell
EBC028F11473E475

PROFESSIONAL LAND SURVEYOR L-4775

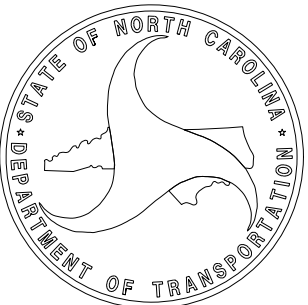
NOTES:

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

HB-0056

R/W 04

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

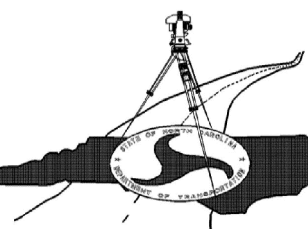


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ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0056
County: Caldwell

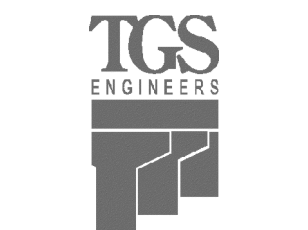
PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY

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

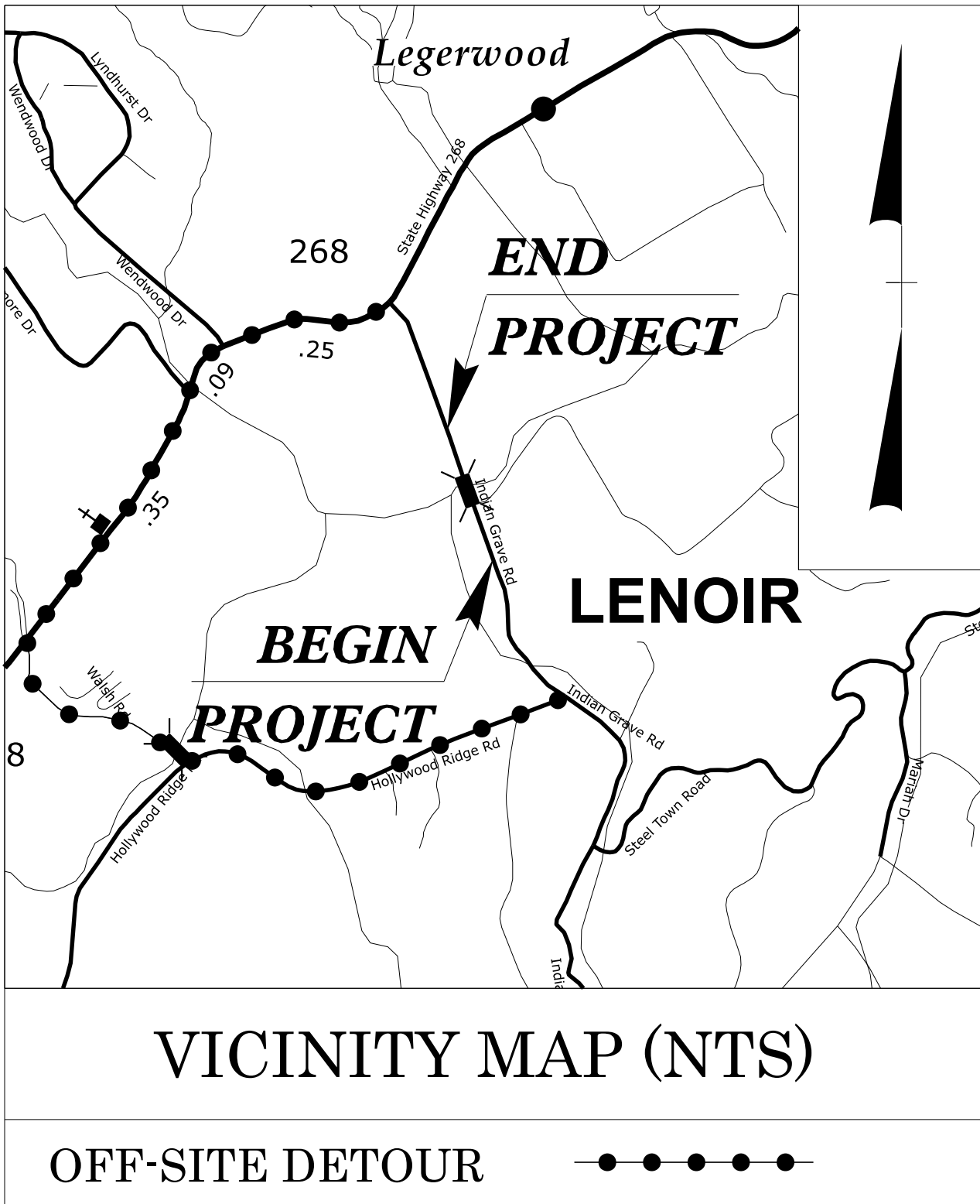
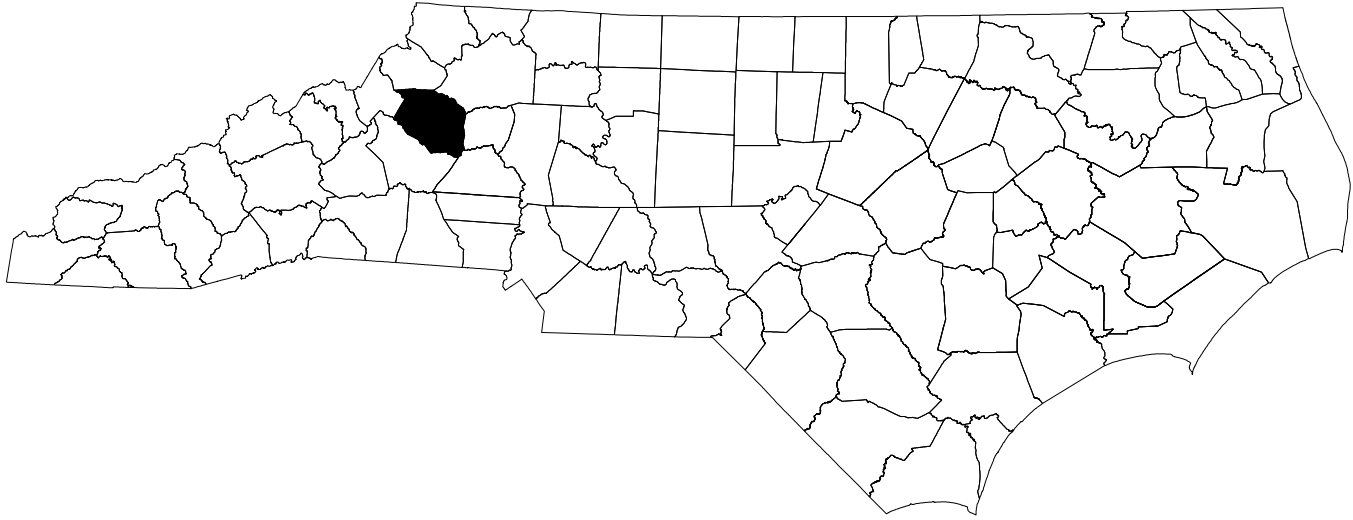


STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CALDWELL COUNTY



LOCATION: *SR 1514 (INDIAN GRAVE RD.)*
REPLACE BRIDGE NO. 130 OVER YADKIN RIVER

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

INDEX OF SHEETS

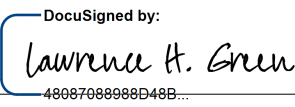
SHEET NO.	TITLE
TMP-01	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-01A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-01B	SIGN AND DEVICE LEGEND
TMP-02	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES) AND PHASING
TMP-03	SPECIAL SIGN DESIGN
TMP-04 & 05	OFFSITE DETOUR

SHEET NO.
TMP-01

HB-0056

TIP PROJECT:

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

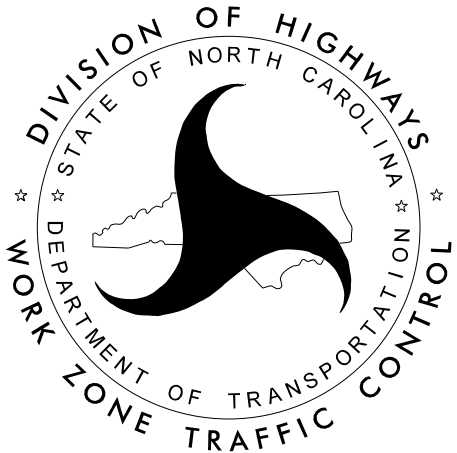
APPROVED: 

DATE: 7/16/2026

SEAL



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



PLANS PREPARED BY:

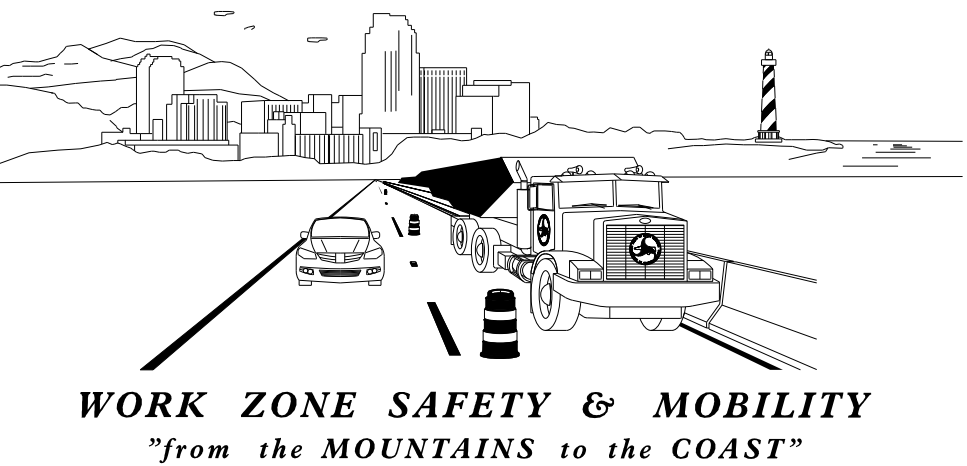
LARRY GREEN, P.E.

D. ALLEN HAYES, E.I.

NCDOT CONTACTS:

RAMIE SHAW, P.E.

PROJECT ENGINEER



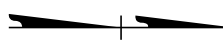
ROADWAY STANDARD DRAWINGS

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
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

LEGEND

GENERAL

 NORTH ARROW

TRAFFIC CONTROL DEVICES

 BARRICADE (TYPE III)

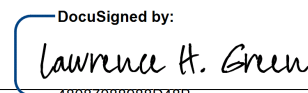
TEMPORARY SIGNING

 STATIONARY SIGN



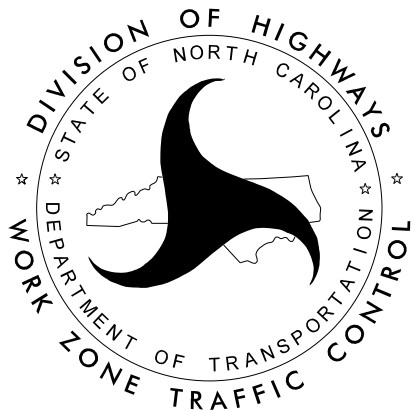
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

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

APPROVED: 
DATE: 7/16/2026



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



LIST OF APPLICABLE
ROADWAY STANDARD
DRAWINGS, AND LEGEND

R11-248" X 30"ROAD CLOSED TYPE III BARRICADE A		R11-360" X 30"ROAD CLOSED 0.3 MILES AHEAD LOCAL TRAFFIC ONLY M4-10L48" X 18"←DETOUR TYPE III BARRICADE B		R11-360" X 30"ROAD CLOSED 0.2 MILES AHEAD LOCAL TRAFFIC ONLY M4-10R48" X 18"DETOUR→ TYPE III BARRICADE C		SSD00136" X 42"INDIAN GRAVE ROAD DETOUR← M4-824" X 12" M6-1 L21" X 15" G		SSD00136" X 42"INDIAN GRAVE ROAD DETOUR→ M4-824" X 12" M6-121" X 15" H		M4-8A24" X 18"END DETOUR I
ROAD CLOSED 500 FT W20-348" X 48" A	ROAD CLOSED 1000 FT W20-348" X 48" B	ROAD CLOSED AHEAD W20-348" X 48" SP-4L42" X 12"NEXT LEFT C	ROAD CLOSED AHEAD W20-348" X 48" W16-3P30" X 24"0.7 MILES D	ROAD CLOSED AHEAD W20-348" X 48" SP-4R42" X 12"NEXT RIGHT E	DETOUR AHEAD W20-248" X 48" F					

X

BARRICADES

-WITH MOUNTED SIGNING

X

SIGNING

-STATIONARY MOUNTED



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

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

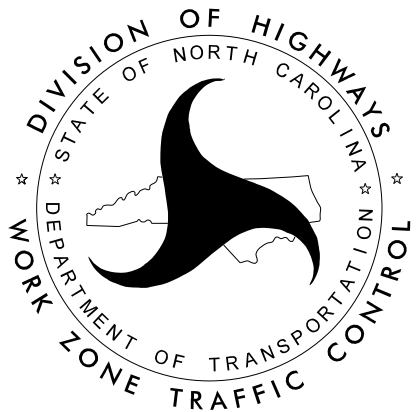
APPROVED:

DocuSigned by:
Lawrence H. Green

DATE: 7/16/2026

SEAL
028137
NORTH CAROLINA
PROFESSIONAL
ENGINEER
LAWRENCE H. GREEN

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



SIGN AND DEVICE LEGEND

TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES) AND PHASING

PROJ. REFERENCE NO.	SHEET NO.
HB - 0056	TMP - 03

SIGN NUMBER: SSD001

TYPE: STATIONARY

QUANTITY: SEE PLANS

SIGN WIDTH: 3'-0"

HEIGHT: 3'-6"

TOTAL AREA: 10.5 Sq.Ft.

BORDER TYPE: INSET

RECESS: 0.38"

WIDTH: 0.63"

RADII: 1.5"

NO. Z BARS:

LENGTH:

BACKG COLOR: Fluorescent Orange

COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: DAH

PROJECT ID: HB-0056

CHECKED BY: WEI

LOCATION: OFFSITE DETOUR

Apr 25, 2025

DIV: 11

INDIAN GRAVE ROAD

3'-0"

3'-6"

7.5"

6"C

4.5"

6"C

4.5"

6"C

7.5"

7.45"

21.1"

7.45"

BORDER R=1.5"

TH=0.63"

IN=0.38"

Panel Style: Traffic Control.ssi

M.U.T.C.D.: 2009 Edition

Spacing Factor is 1 unless specified otherwise

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.

2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

LETTER POSITIONS

Letter locations are panel edge to lower left corner																												Series/Size Text Length	
	I	N	D	I	A	N																						C 2000	
	7.44	9.6	14.28	18.84	20.52	25.2																						21.12	
	G	R	A	V	E																							C 2000	
	7.86	12.42	16.32	20.52	25.08																							20.28	
	R	O	A	D																								C 2000	
	9.72	13.98	18.24	22.92																								16.56	

FILENAME: HB-0056_REF_BSSD

NORTH CAROLINA D.O.T. SIGN DETAIL

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

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

APPROVED:

DocuSigned by:
Lawrence H. Green
18005708059001408...

DATE: 7/16/2026

SEAL
028137
NORTH CAROLINA
PROFESSIONAL
ENGINEER
LAWRENCE H. GREEN

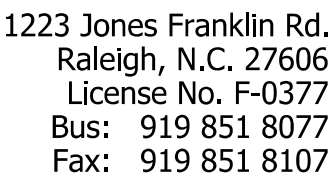
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SPECIAL SIGN DESIGN

7/16/2026
P:\2024\24133.01_HB0056\Traffic\TrafficDesign\2 Project\4 Design Files\4 WZTC\HB-0056_TMP_03 SSD_2023 ORD.dgn
User:AHayes

The map illustrates the Legerwood area with a proposed offsite detour route. The route is marked by a solid line with black dots at key locations. The route starts near road 1593, passes through road 1592, and then follows a path through road 1515 (Walsh Rd.), road 1519 (Hollywood Ridge Rd.), and road 1514. A dashed box labeled 'INSET A' highlights a specific area near the Yadkin River and Indian Grave Rd. The map also shows other roads like 1513, 1577, and 1606. A legend at the bottom indicates that the line with dots represents the 'OFFSITE DETOUR ROUTE'. A north arrow is located in the top right corner.

1) REFER TO SHEET TMP-01B FOR SIGN AND DEVICE LEGEND.
2) FOR INSET "A", REFER TO ROADWAY STANDARD DRAWINGS 1101.03, SHEETS 1 AND/OR 2 OF 9 FOR APPLICABLE NOTES.



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

DocuSigned by:
Lawrence H. Green
APPROVED: _____
a0087098000488

DATE: _____ 7/16/2026



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



7/16/2026
P:\2024\241331_01_HB0056\Traffic\TrafficDesign\2 Project\4 Design Files\Pavement Markings\HB-0056_PMP_01 Title.dgn
User:AHayes

T.I.P.: HB-0056

N/A

CONTRACT:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
CALDWELL COUNTY

INDEX

SHEET NO.	DESCRIPTION
PMP-01	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP-02	PAVEMENT MARKING DETAIL

ROADWAY STANDARD DRAWING

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

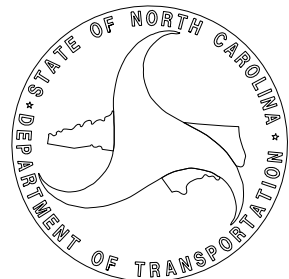
STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.01	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM
T1	WHITE SOLID EDGE LINE	THERMOPLASTIC (4", 90 MIL)
T13	YELLOW DOUBLE CENTER	THERMOPLASTIC (4", 90 MIL)

PLAN SUBMITTED TO:

RAMIE SHAW, P.E.



GENERAL NOTES

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

- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:
- | | | |
|-----------|---------------|--------|
| ROAD NAME | MARKING | MARKER |
| SR 1514 | THERMOPLASTIC | NONE |
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.
- E) ALL STATION ARE CONSIDERED +/- UNLESS OTHERWISE SHOWN ON THE PLANS.

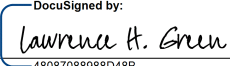
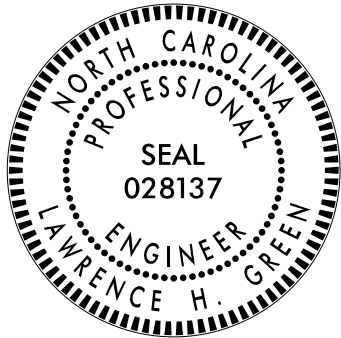
PLAN PREPARED BY: Wetherill Engineering, Inc.

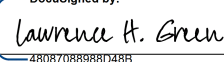
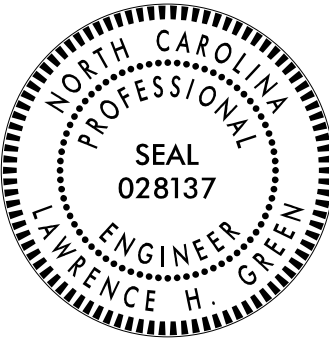
LARRY GREEN, P.E.	PROJECT MANAGER
D. ALLEN HAYES, E.I.	TRAFFIC DESIGN ENGINEERING INTERN

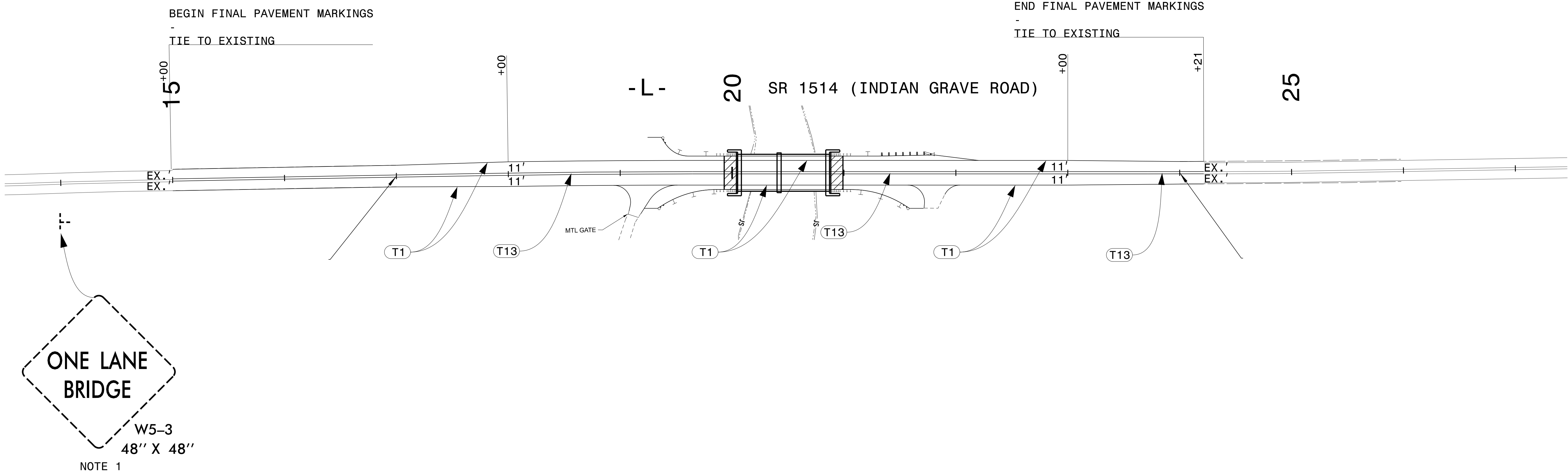


TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

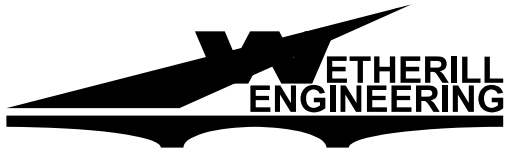
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TIP NO.	SHEET NO.
HB-0056	PMP-01
APPROVED:  DESIGNED BY: LAWRENCE H. GREEN 4887388800348	
DATE: 7/16/2026	
SEAL 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

TIP NO. HB-0056	SHEET NO. PMP-02
APPROVED:  DESIGNED BY: LAWRENCE H. GREEN	
DATE: 7/16/2026	
SEAL 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



NOTES:
1) REMOVE EXISTING SIGN W5-3.

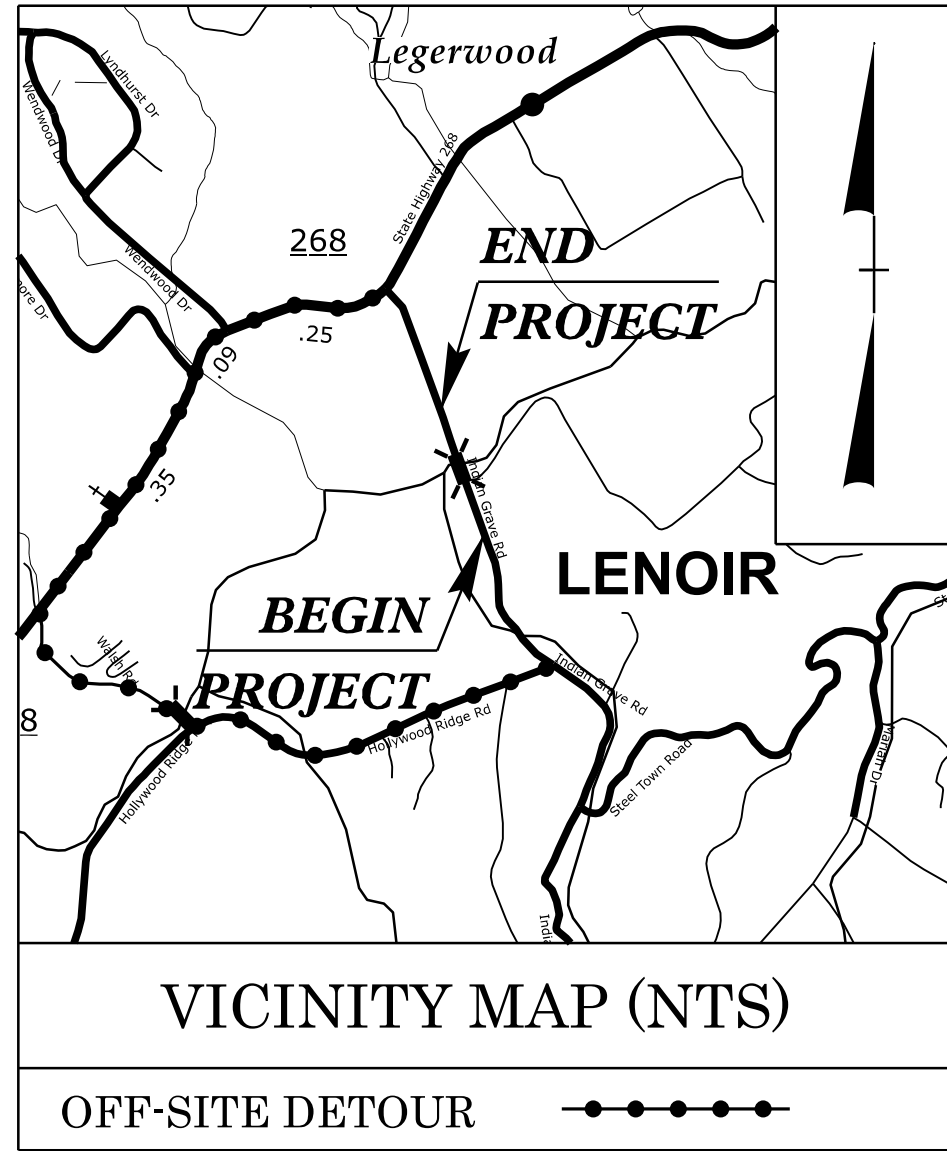


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Raleigh, N.C. 27606
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PAVEMENT MARKING DETAIL

TIP PROJECT: HB-0056



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

LOCATION: SR 1514 (INDIAN GRAVE RD.)
REPLACE BRIDGE NO. 130 OVER YADKIN RIVER

TYPE OF WORK: GRADING, DRAINAGE, PAVING
& STRUCTURE

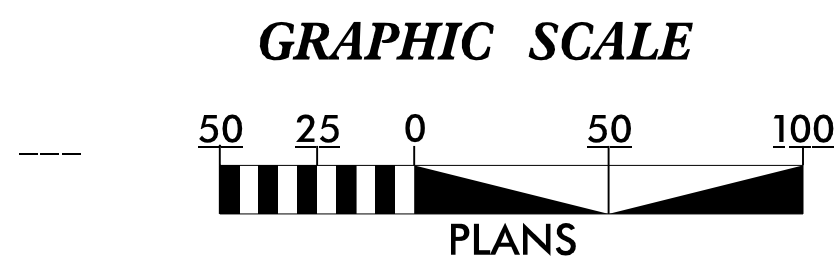
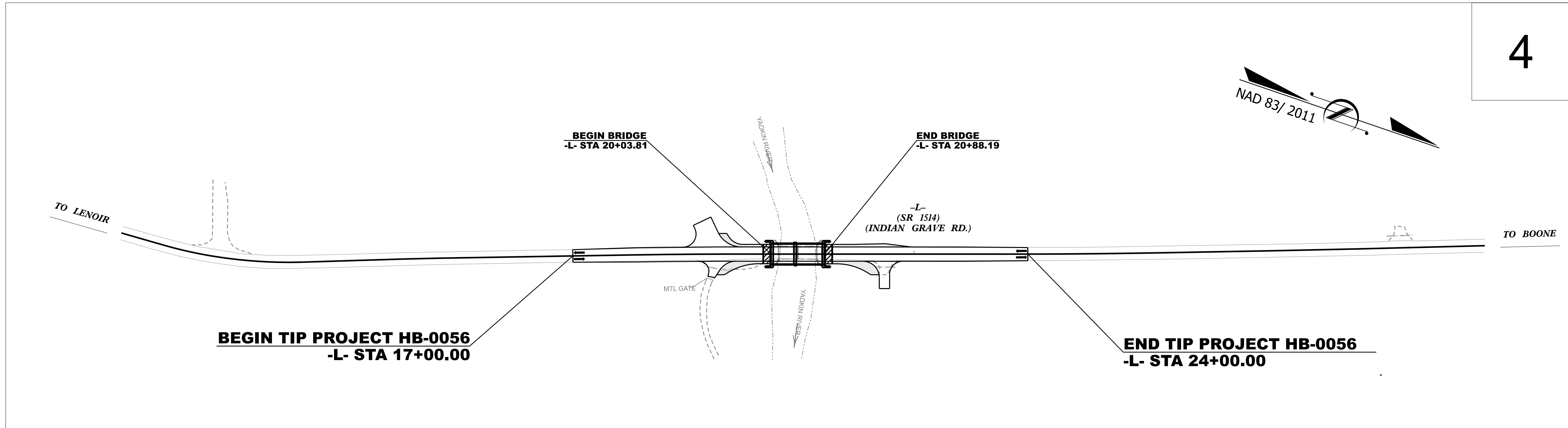
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0056	EC-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50726.1.1	FBRG111	P.E.	
50726.2.1	FBRG111	ROW	
50726.2.2	FBRG111	UTIL.	
50726.3.1	FBRG111	CONST.	

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

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

THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.

ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT
Refer To E. C. Special Provisions
for Special Considerations.



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



1223 JONES FRANKLIN ROAD
RALEIGH, N.C. 27606
Phone: 919 851 8077
Fax: 919 851 8107

Prepared In the Office of:
WETHERILL ENGINEERING, INC.
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606

Designed by:
Katie Estep **4485**
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

PROJECT REFERENCE NO.	SHEET NO.
HB-0056	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

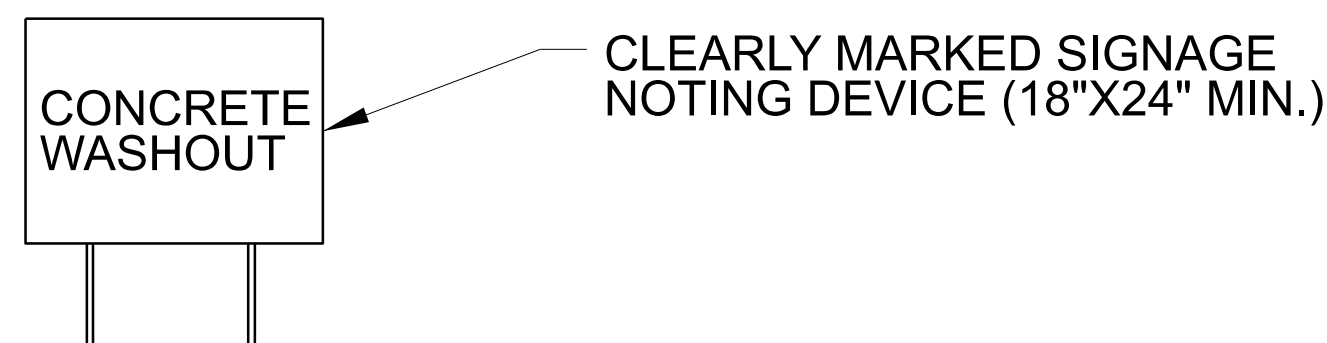
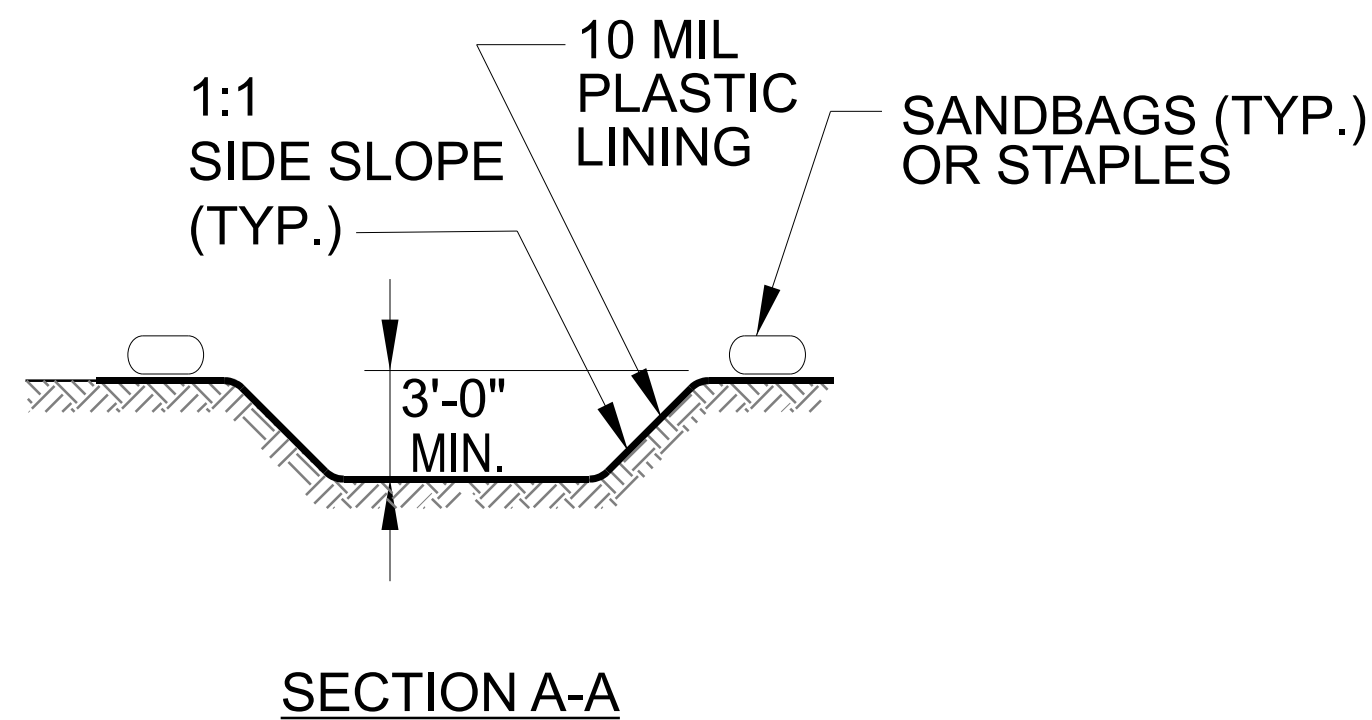
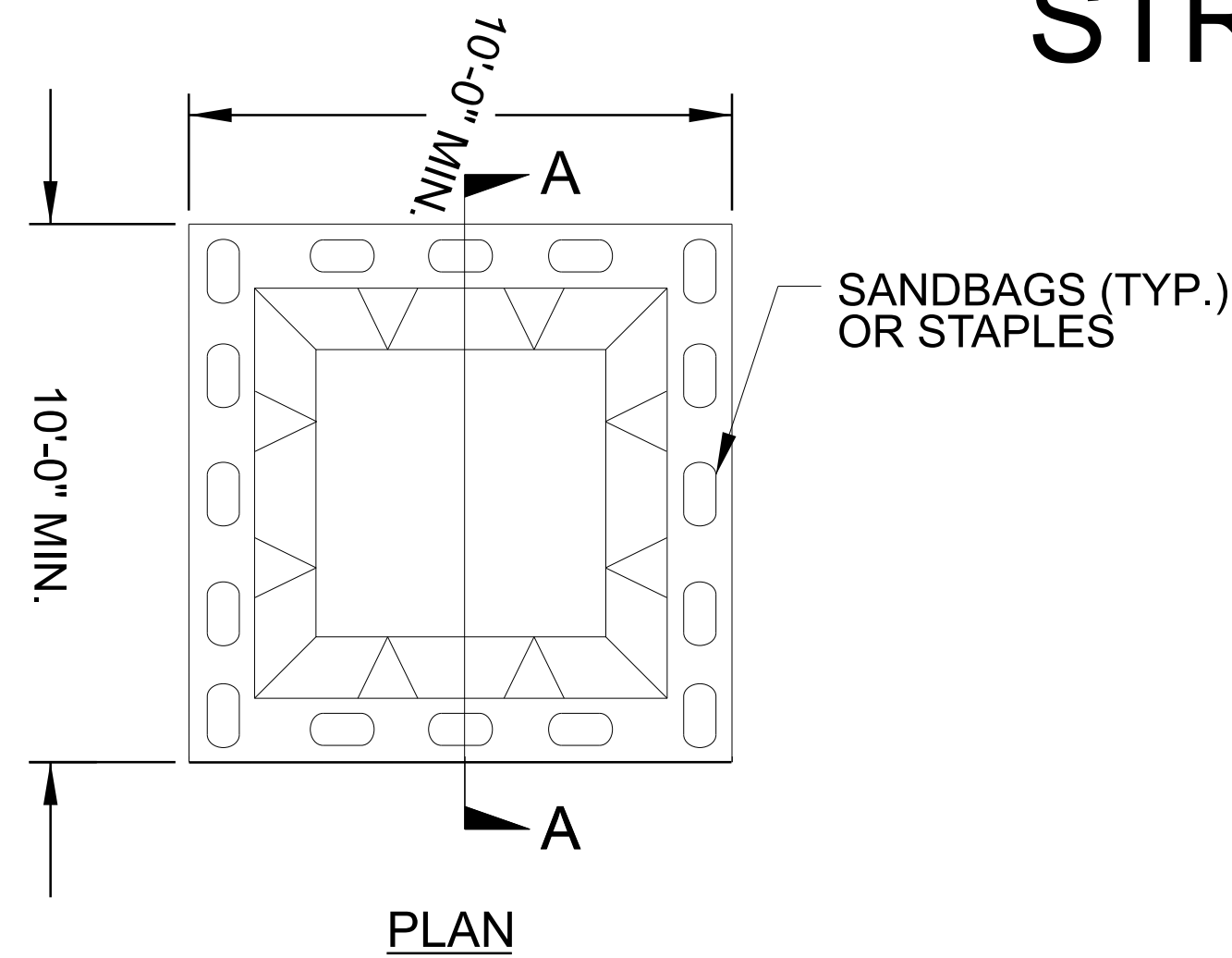
EROSION & SEDIMENT CONTROL LEGEND

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

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

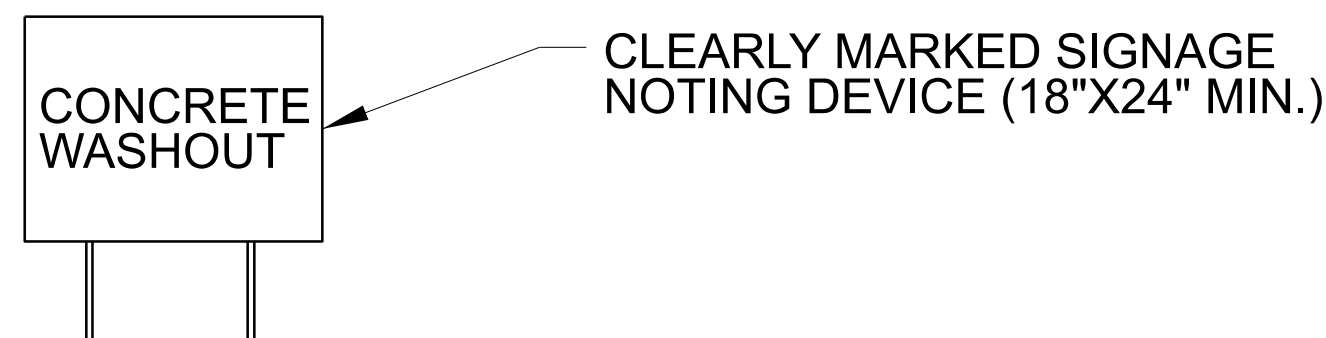
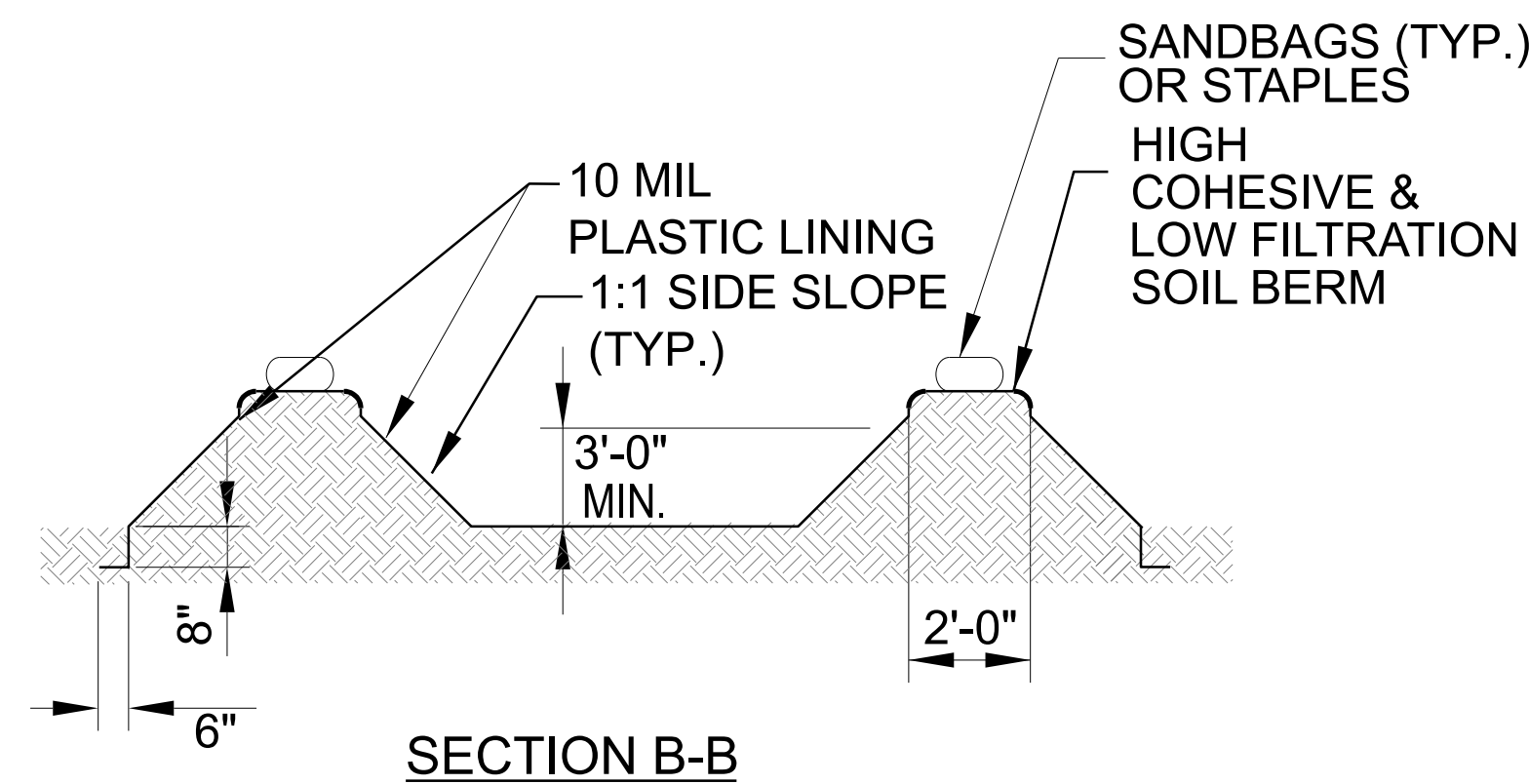
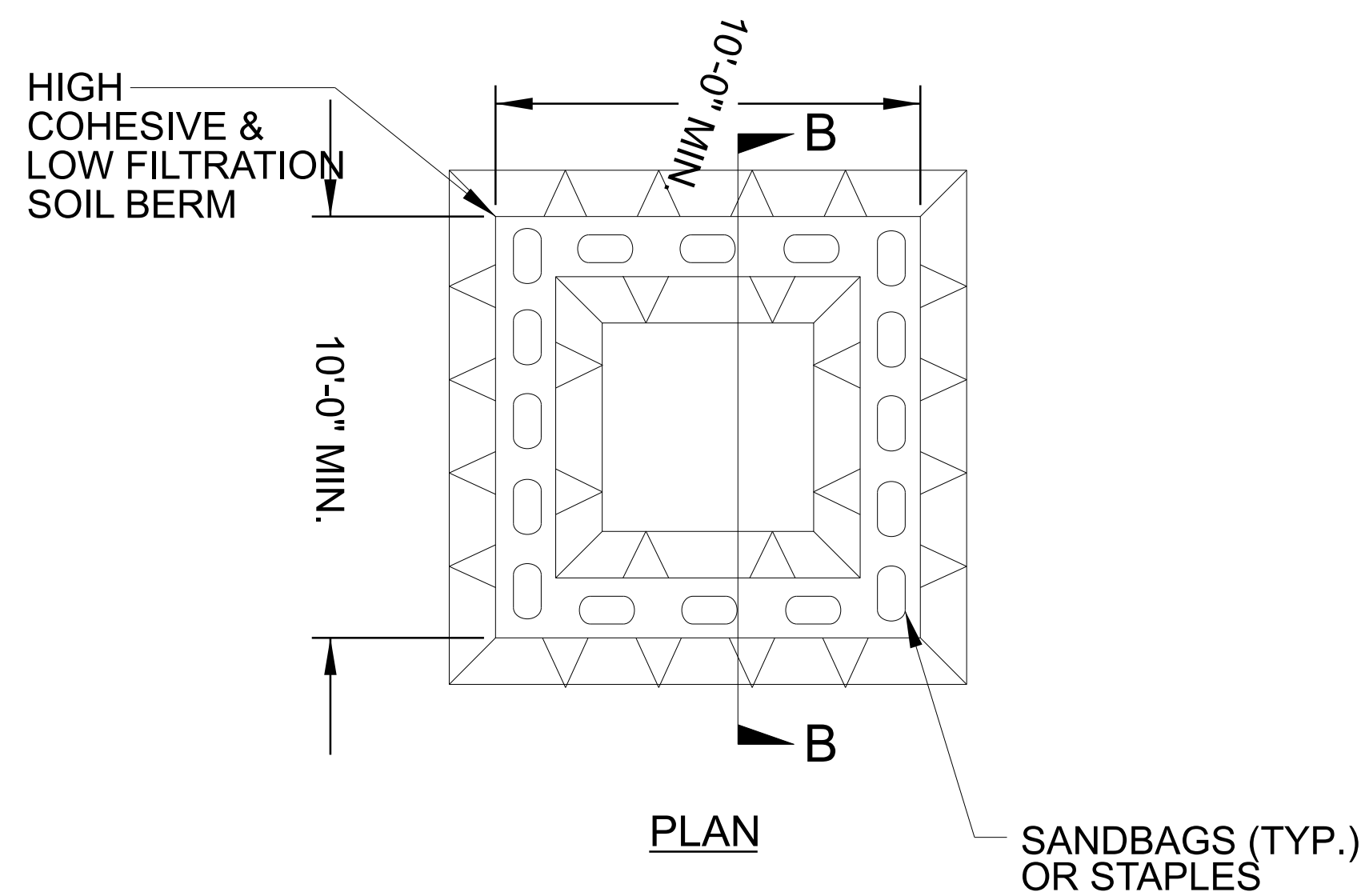
RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

PROJECT REFERENCE NO.	SHEET NO.
HB-0056	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

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



ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

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

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

PROJECT REFERENCE NO.		SHEET NO.	
HB-0056		EC-3	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

SOIL STABILIZATION SUMMARY SHEET

STRAW MATTING FOR EROSION CONTROL

[illegible]

MATTING FOR EROSION CONTROL

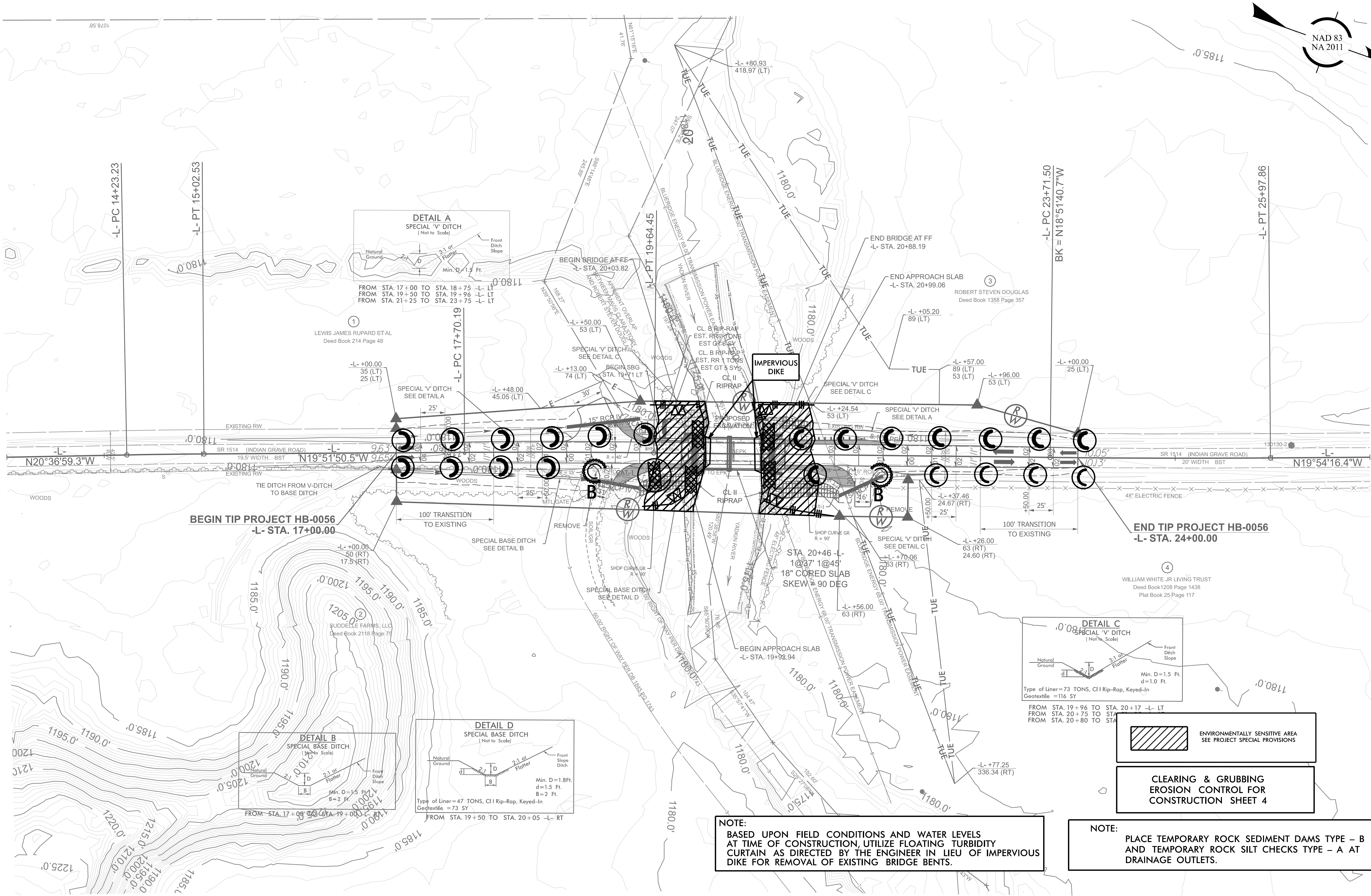
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RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

PROJECT REFERENCE NO. HB-0056	SHEET NO. EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

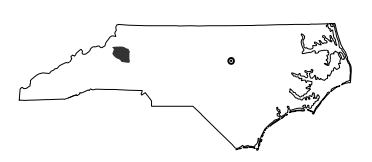
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 TO 4:1	14 DAYS	7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



HB-0056

EC-4 CONST.4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY



ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PREPARED BY



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RALEIGH, NC 27606
(919)851-8077
NC LICENSE F-0877

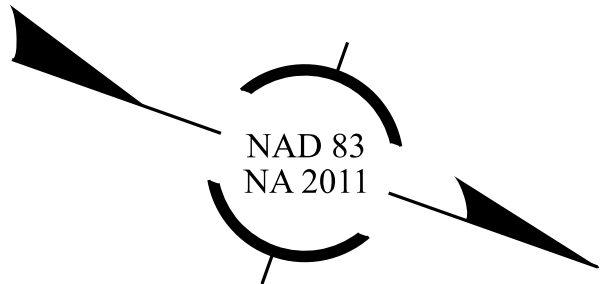
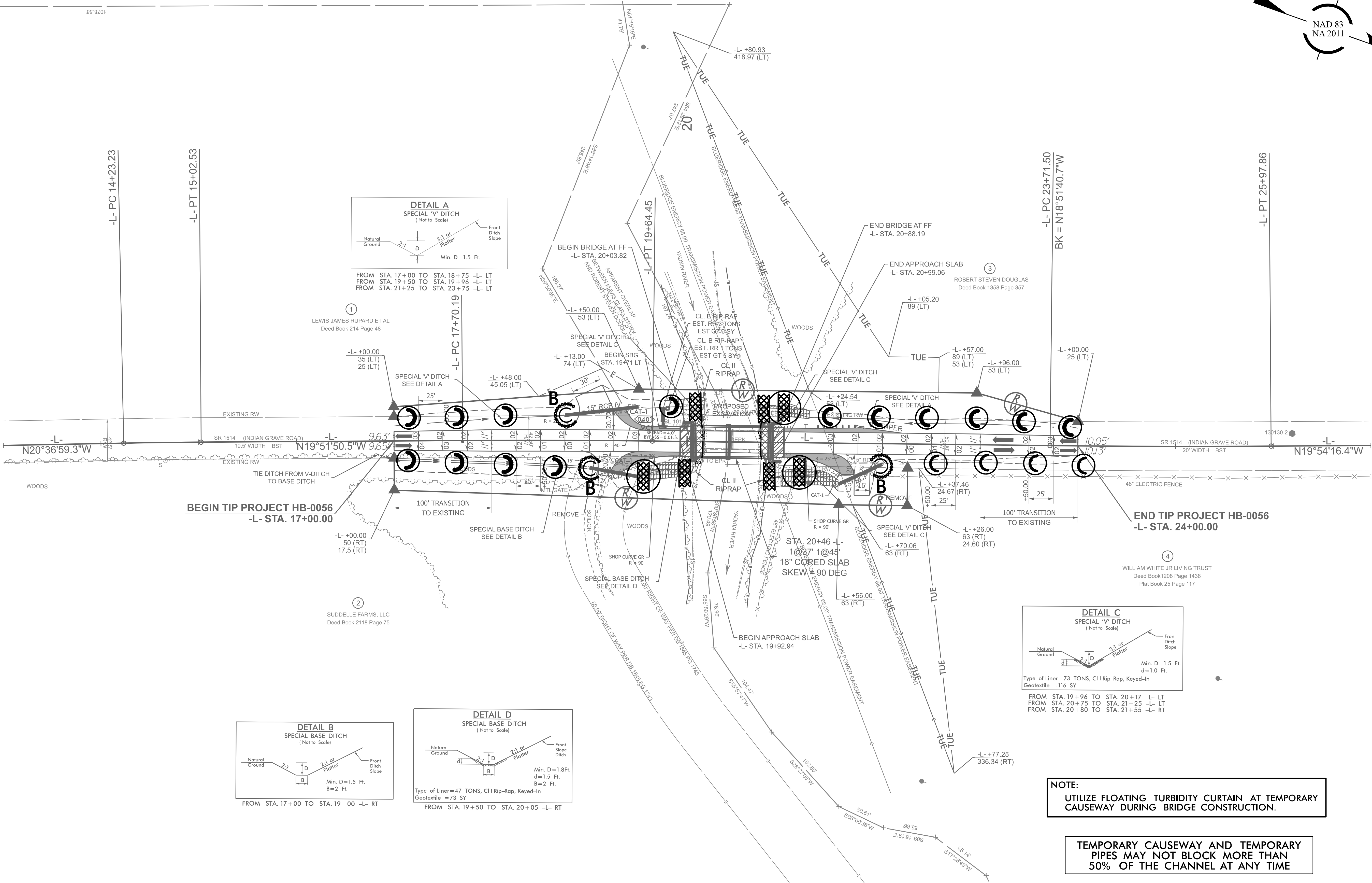
RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

REVISIONS

NOTE:
BASED UPON FIELD CONDITIONS AND WATER LEVELS
AT TIME OF CONSTRUCTION, UTILIZE FLOATING TURBIDITY
CURTAIN AS DIRECTED BY THE ENGINEER IN LIEU OF IMPERVIOUS
DIKE FOR REMOVAL OF EXISTING BRIDGE BENTS.

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

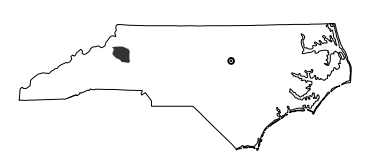
SEE SHEET 5 FOR L PROFILE
ALL STRUCTURE ANCHOR UNITS ARE TYPE III
ALL GUARDRAIL END UNITS ARE TL-3 UNLESS NOTED OTHERWISE



HB-0056

EC-5 CONST.4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY



ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

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RALEIGH, NC 27606
(919)951-8077
NC LICENSE F-0877

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

REVISIONS

NOTE:
UTILIZE FLOATING TURBIDITY CURTAIN AT TEMPORARY
CAUSEWAY DURING BRIDGE CONSTRUCTION.

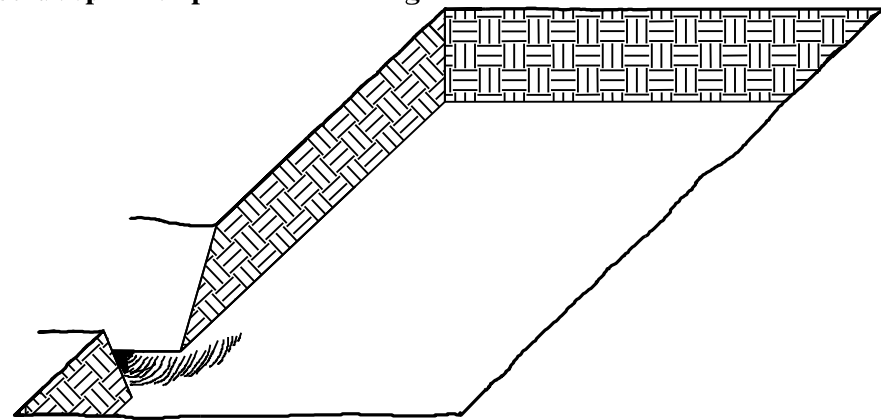
TEMPORARY CAUSEWAY AND TEMPORARY
PIPES MAY NOT BLOCK MORE THAN
50% OF THE CHANNEL AT ANY TIME

SEE SHEET 5 FOR L PROFILE
ALL STRUCTURE ANCHOR UNITS ARE TYPE III
ALL GUARDRAIL END UNITS ARE TL-3 UNLESS NOTED OTHERWISE

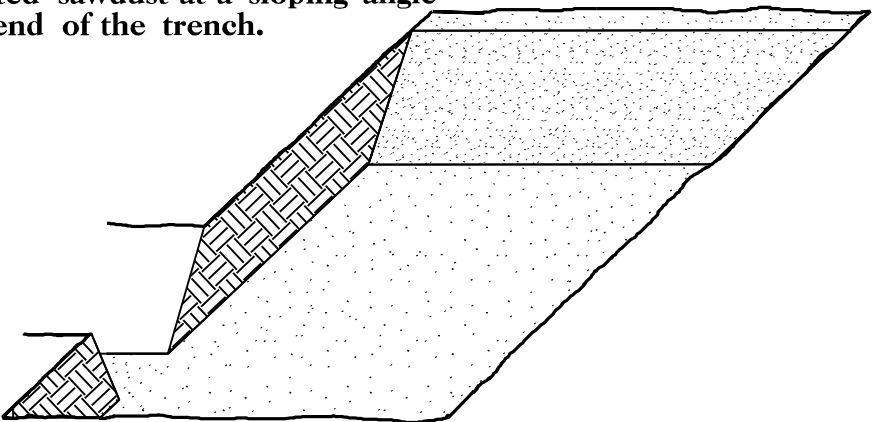
PLANTING DETAILS
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

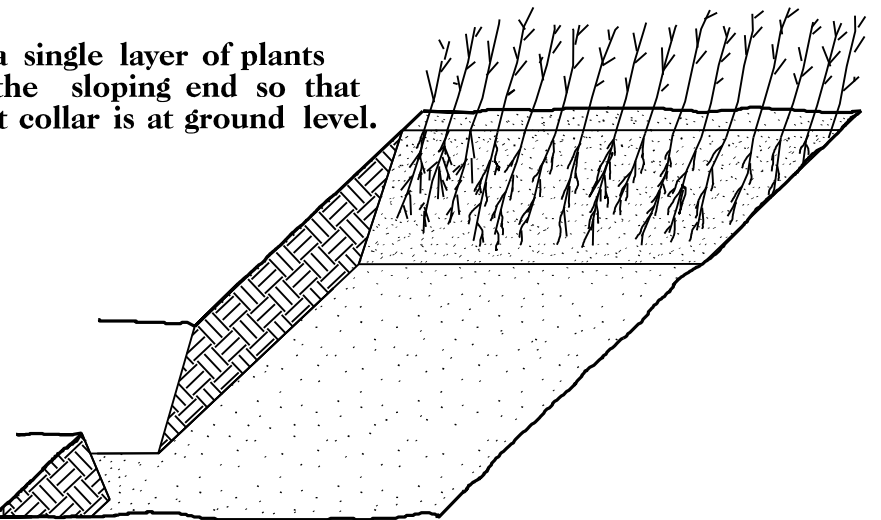
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



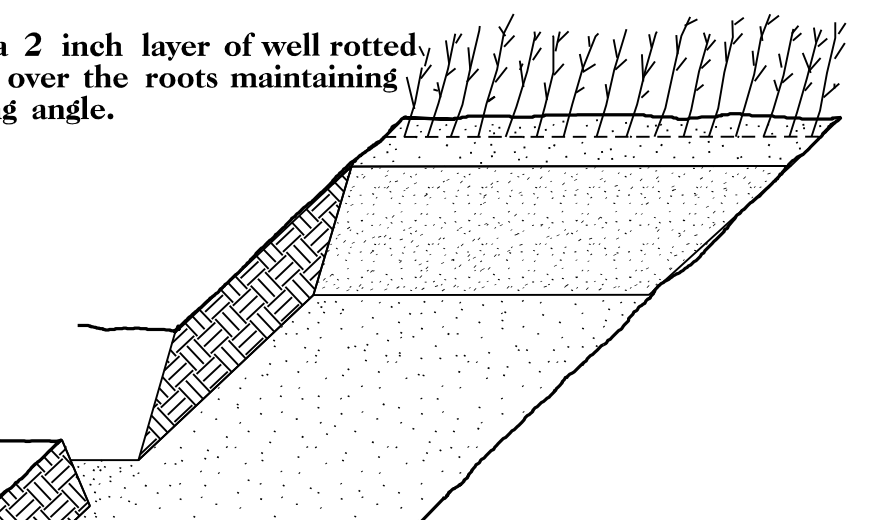
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

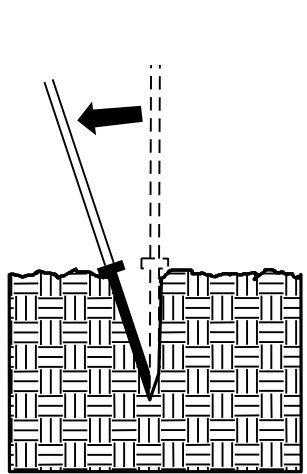


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

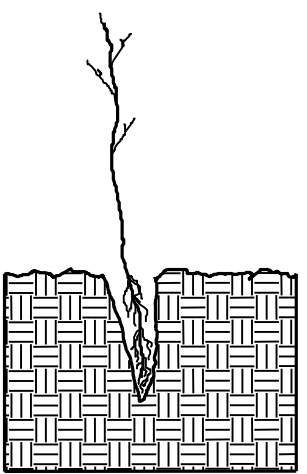


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

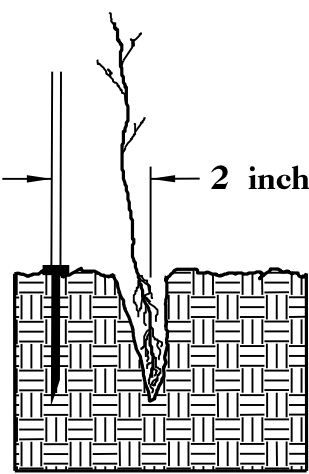
DOUBLE PLANTING METHOD
USING THE K3C PLANTING BAR



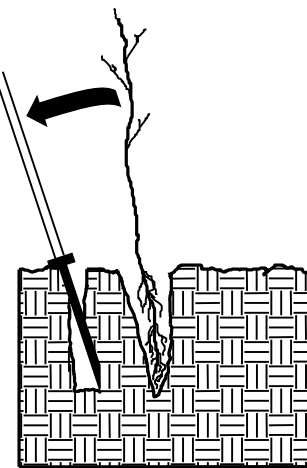
1. Insert planting bar as shown and pull handle toward planter.



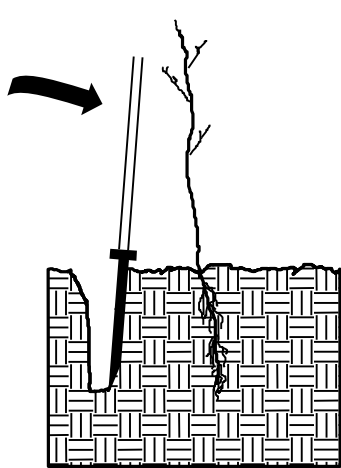
2. Remove planting bar and place seedling at correct depth.



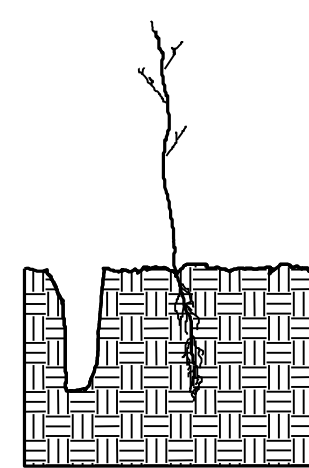
3. Insert planting bar 2 inches toward planter from seedling.



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



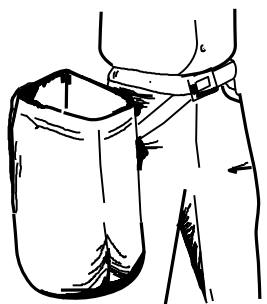
5. Push handle forward firming soil at top.



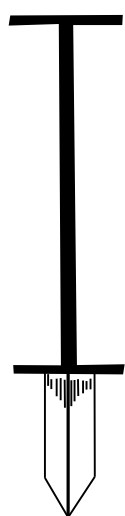
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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



K3C PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



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

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0056	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

REFORESTATION

- ☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

34%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in 3R
33%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in 3R
33%	BETULA NIGRA	RIVER BIRCH	12 in - 18 in 3R

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

09/08/09

TIP PROJECT: HB-0056

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

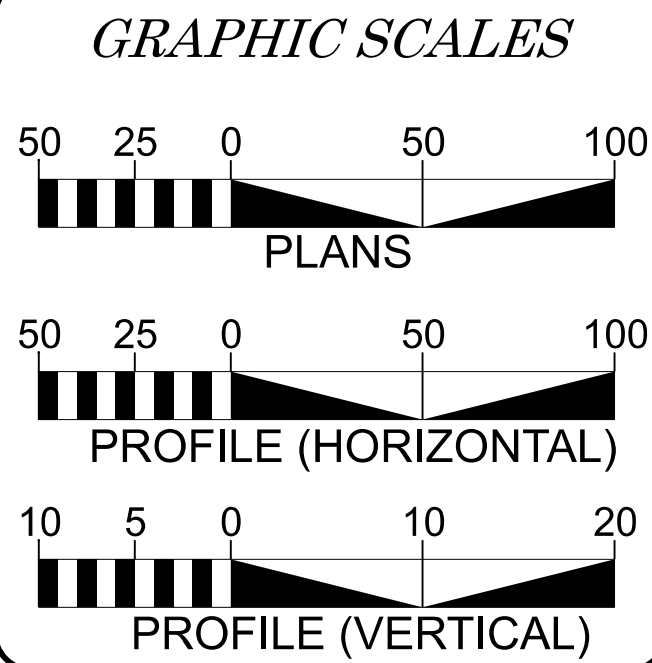
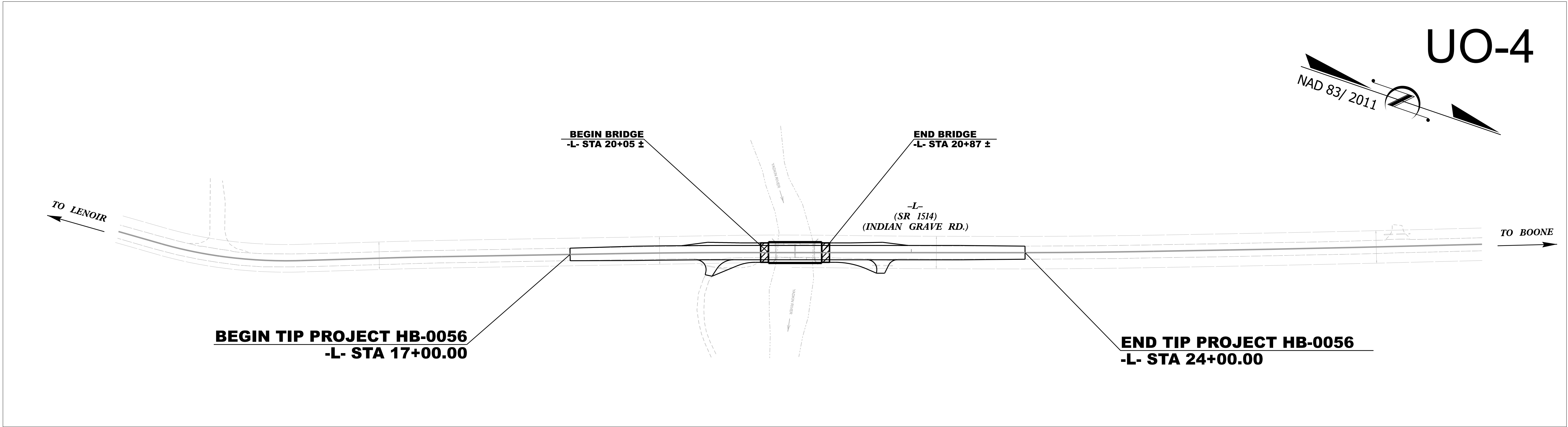
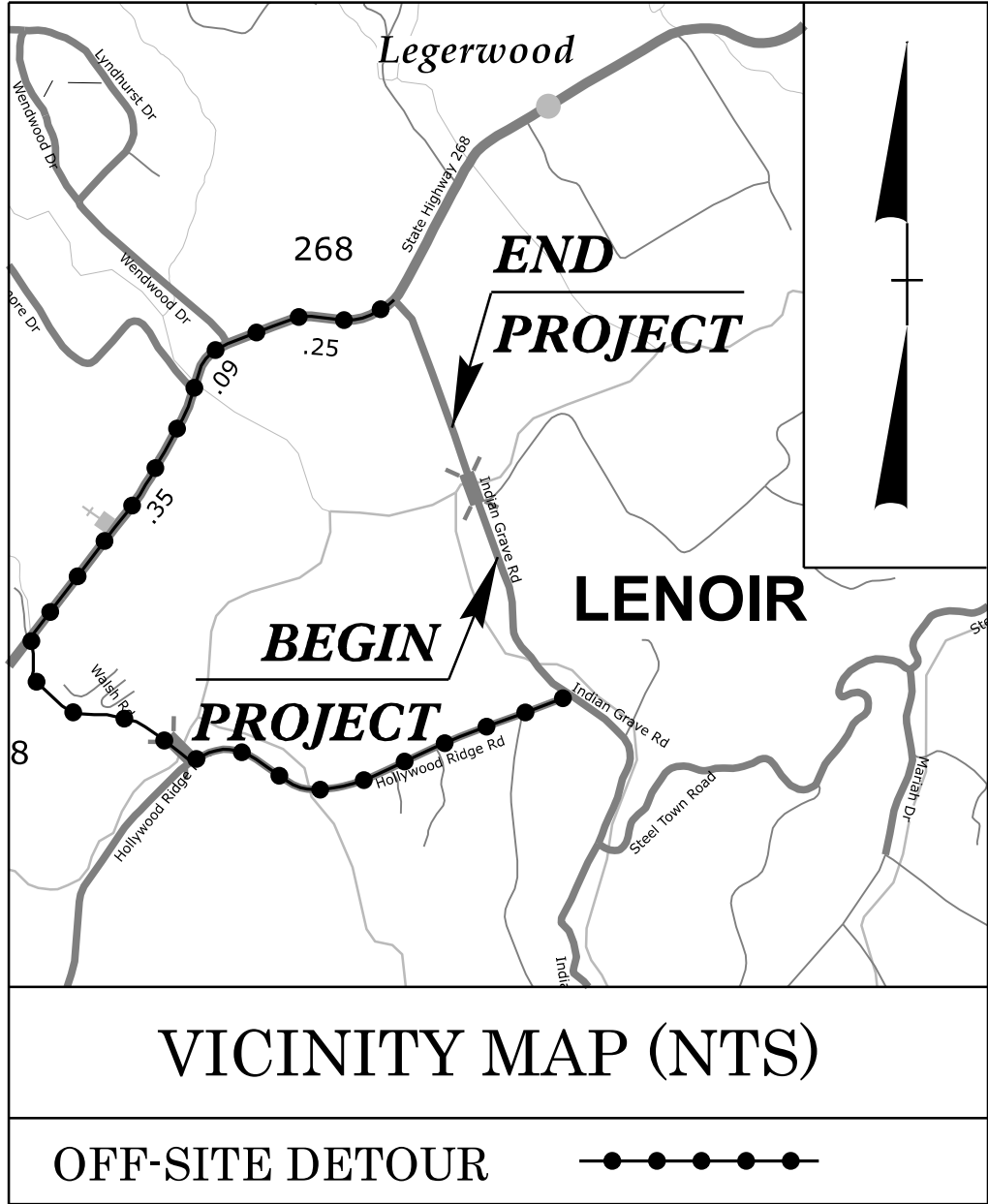
UTILITIES BY OTHERS PLANS
CALDWELL COUNTY

LOCATION: SR 1514 (INDIAN GRAVE RD.)
REPLACE BRIDGE NO.130 OVER YADKIN RIVER

TYPE OF WORK: UTILITY RELOCATION BY OTHERS

T.I.P. NO.	SHEET NO.
HB-0056	UO-1

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



SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2	UTILITY SYMBOLOGY
UO-3	SHEET OMITTED
UO-4	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

(A) POWER – BLUE RIDGE ENERGY

PREPARED IN THE OFFICE OF:

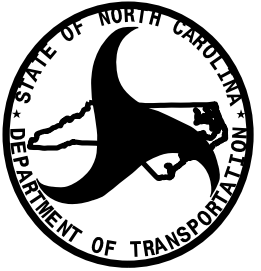
WETHERILL ENGINEERING

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

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

PANKIL PATEL UTILITY PROJECT MANAGER

STEVE MARTIN PROJECT UTILITY COORDINATOR



DIVISION OF HIGHWAYS
DIVISION II
801 STATESVILLE RD
NORTH WILKESBORO NC 28659
PHONE (336) 667-9101
FAX (336) 250-4959

RAMIE A. SHAW, PE DIVISION PROJECT DEVELOPEMENT ENGINEER

BRANDON GREER DIVISION UTILITY ENGINEER

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	
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:

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

POWER:

Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line Test Hole (SUE - LOS A)*	
U/G Power Line (SUE - LOS B)*	
U/G Power Line (SUE - LOS C)*	
U/G Power Line (SUE - LOS D)*	

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

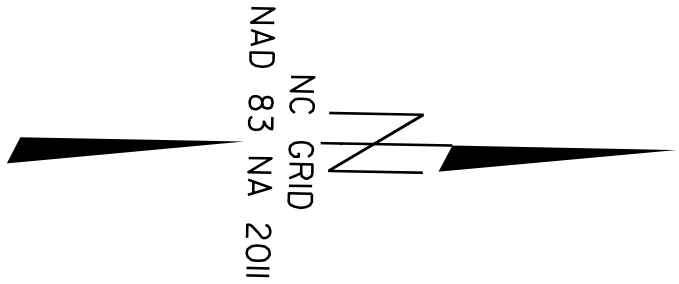
MISCELLANEOUS:

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

NOTES:

1. A MINIMUM 50' SWING RADIUS IS REQUIRED FOR A CRANE FROM ALL BLUE RIDGE ENERGY FACILITIES.

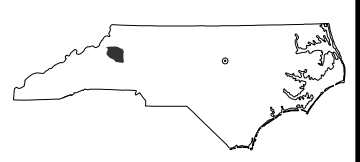
UTILITIES BY OTHERS



HB-0056

UTL 4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL 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: HSM

DRAWN BY: HSM

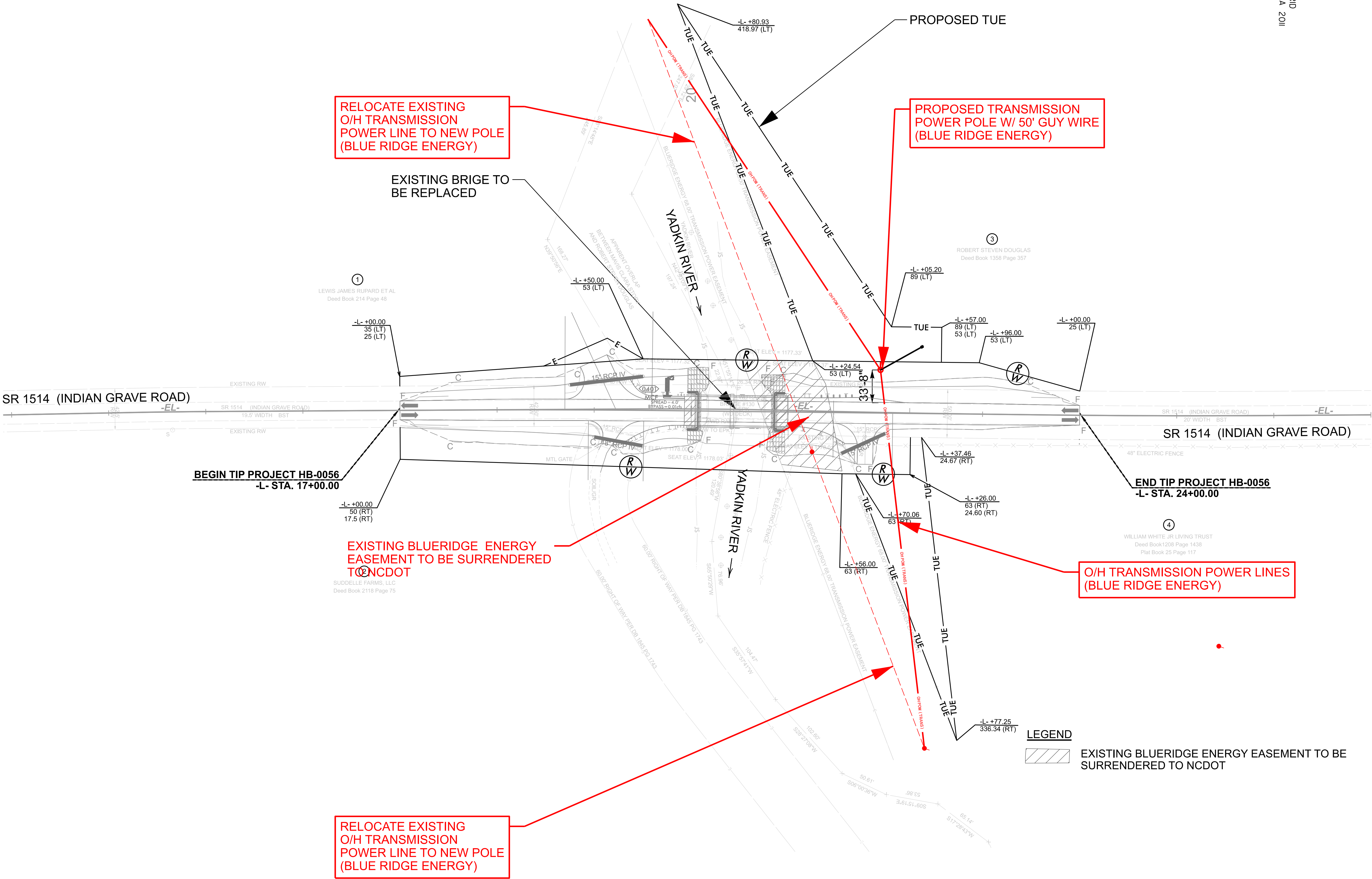
CHECKED BY: PKP

APPROVED BY:

REVISED:



REVISIONS



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJ. REFERENCE NO.	SHEET NO.
HB-0056	X-1

CROSS-SECTION SUMMARY

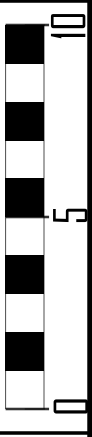
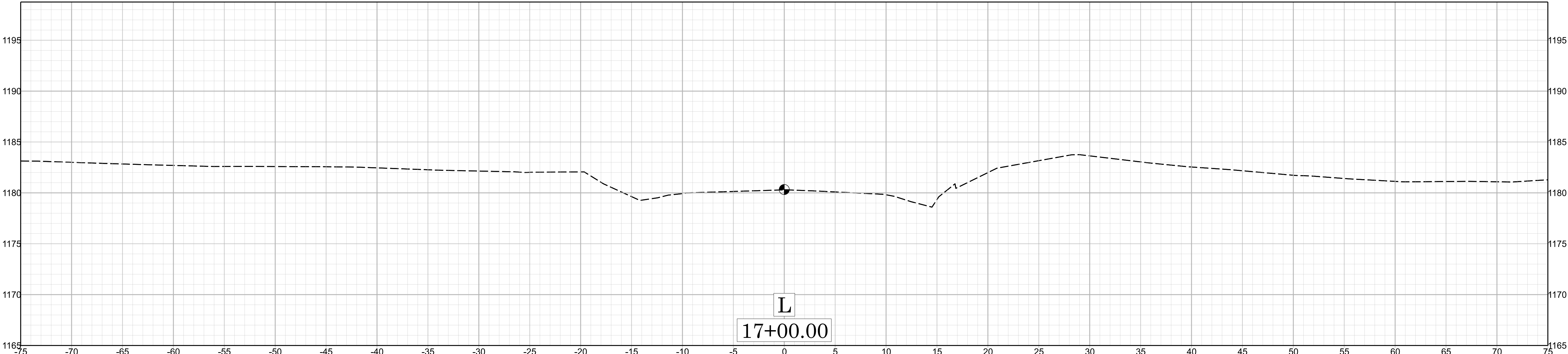
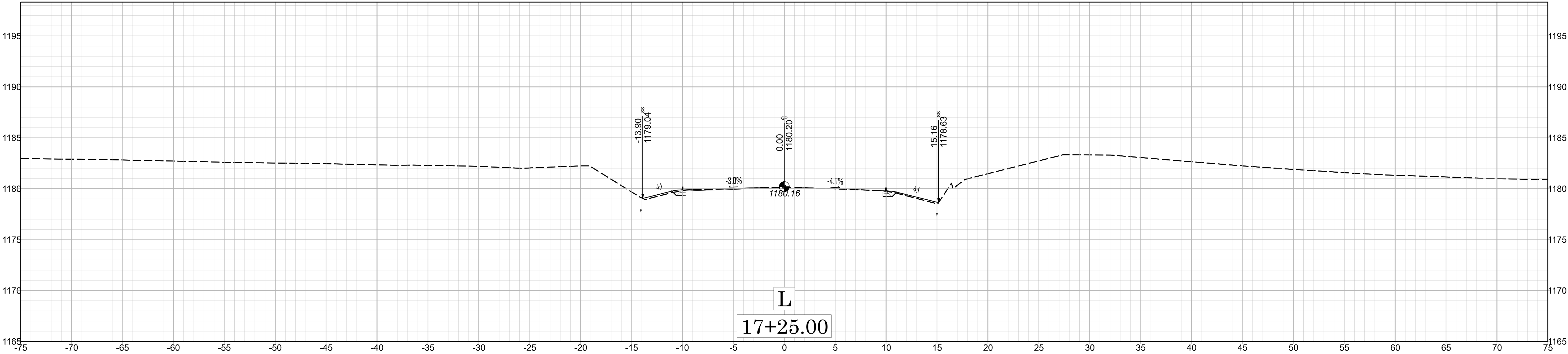
Approximate quantities only. Unclassified excavation, shoulder borrow, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

STATION	UNCL. EXC.	EMBT.
-L-	(CY)	(CY)
17+00.00	0	0
17+25.00	1	0
17+50.00	1	1
17+75.00	66	4
18+00.00	76	5
18+25.00	87	5
18+50.00	95	5
18+75.00	90	7
18+99.00	58	6
19+14.00	21	3
19+50.00	32	19
19+75.00	54	28
20+03.82	73	36

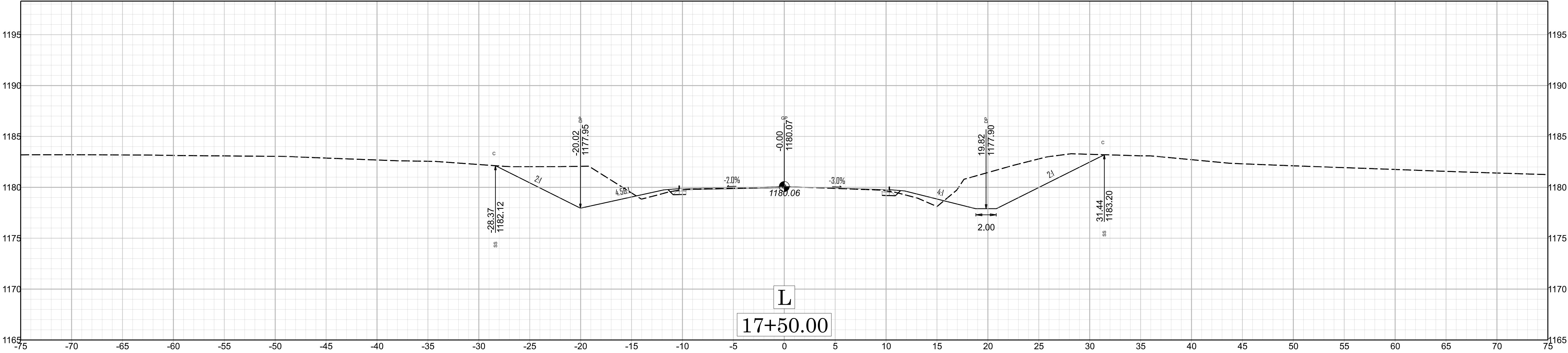
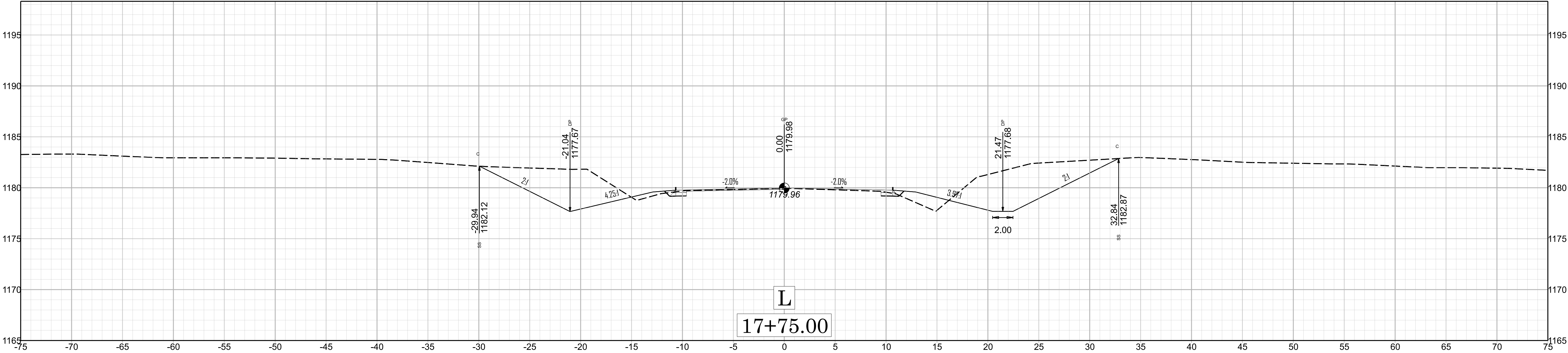
CROSS-SECTION INDEX			
CHAIN	STATION	STATION	SHEET NUMBER
-L-	17+00.00	24+00.00	X-2 THRU X-13

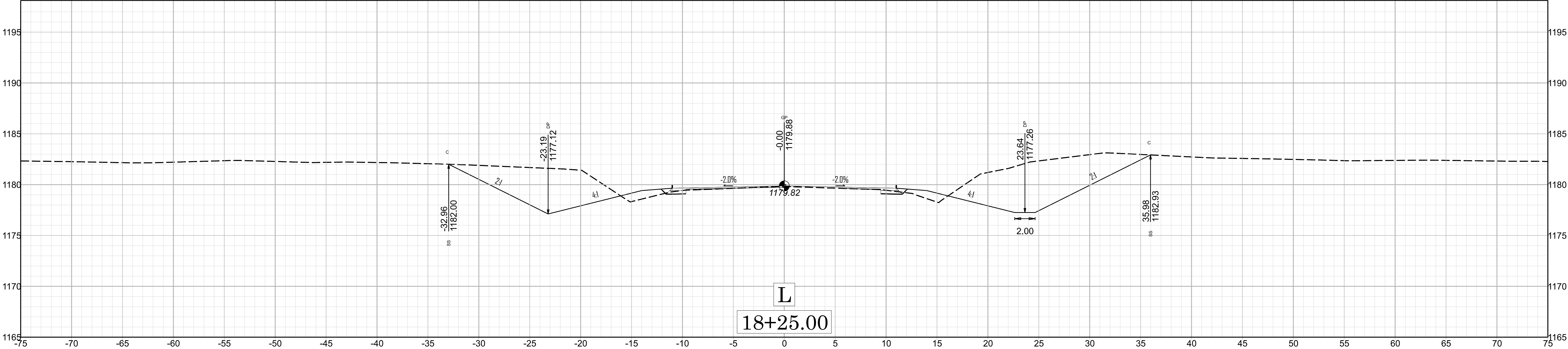
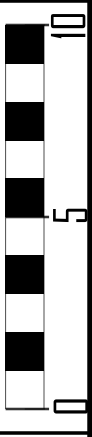
STATION	UNCL. EXC.	EMBT.
-L-	(CY)	(CY)
20+88.20	0	0
21+25.00	117	44
21+50.00	46	29
21+80.00	15	29
22+25.00	25	20
22+50.00	17	7
22+75.00	22	7
23+00.00	28	7
23+25.00	28	6
23+50.00	19	5
23+75.00	1	2
24+00.00	1	0



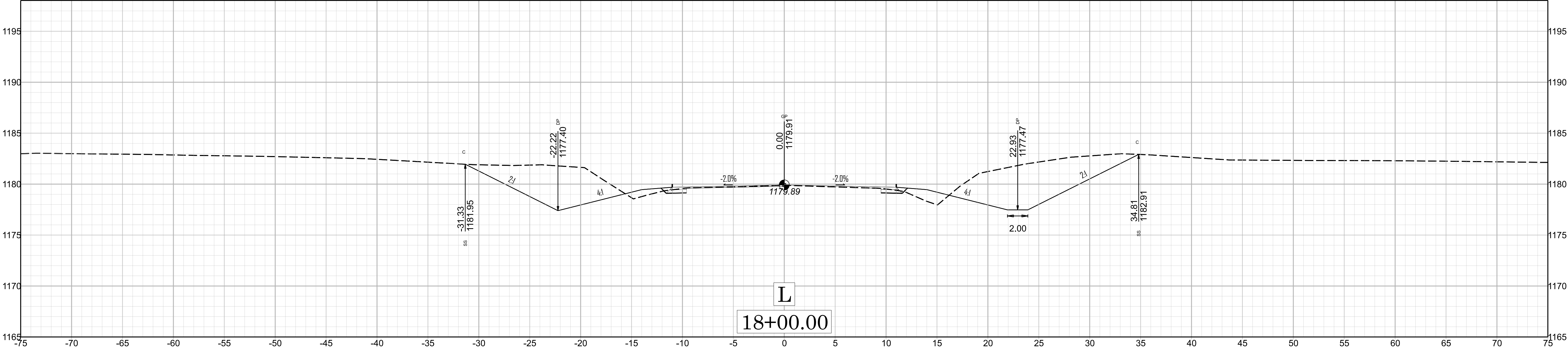
X 002

HB-0056

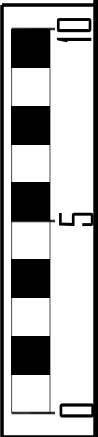
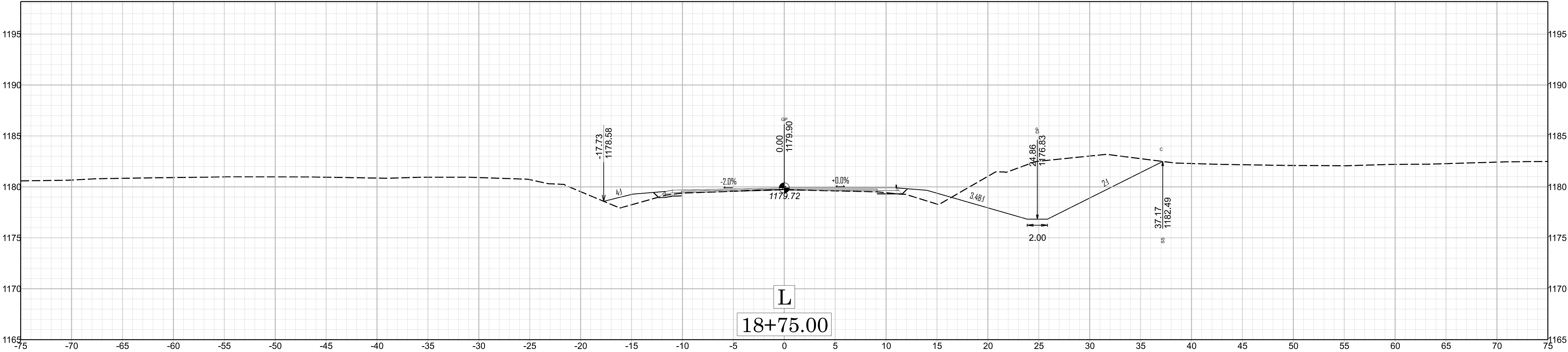




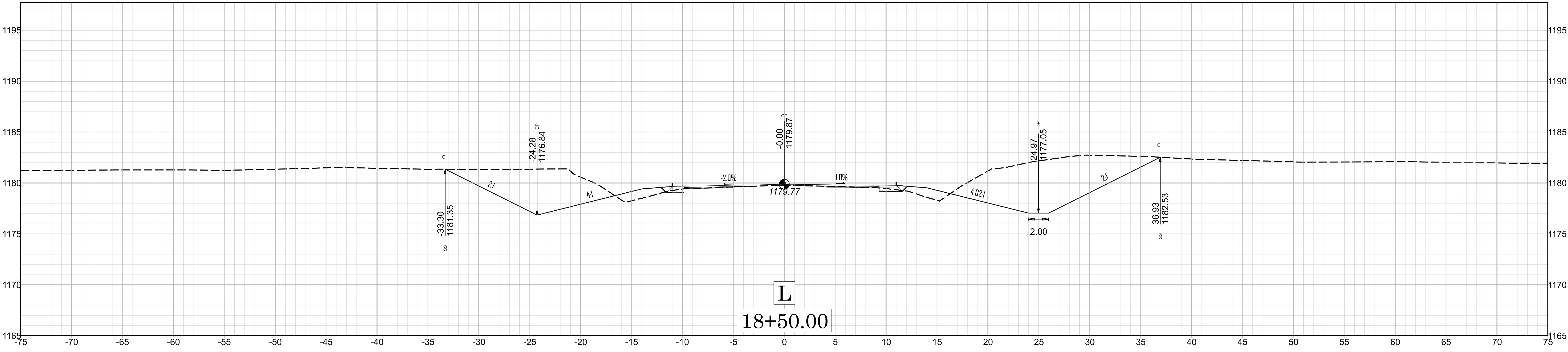
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HB-0056

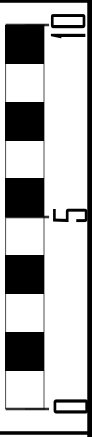
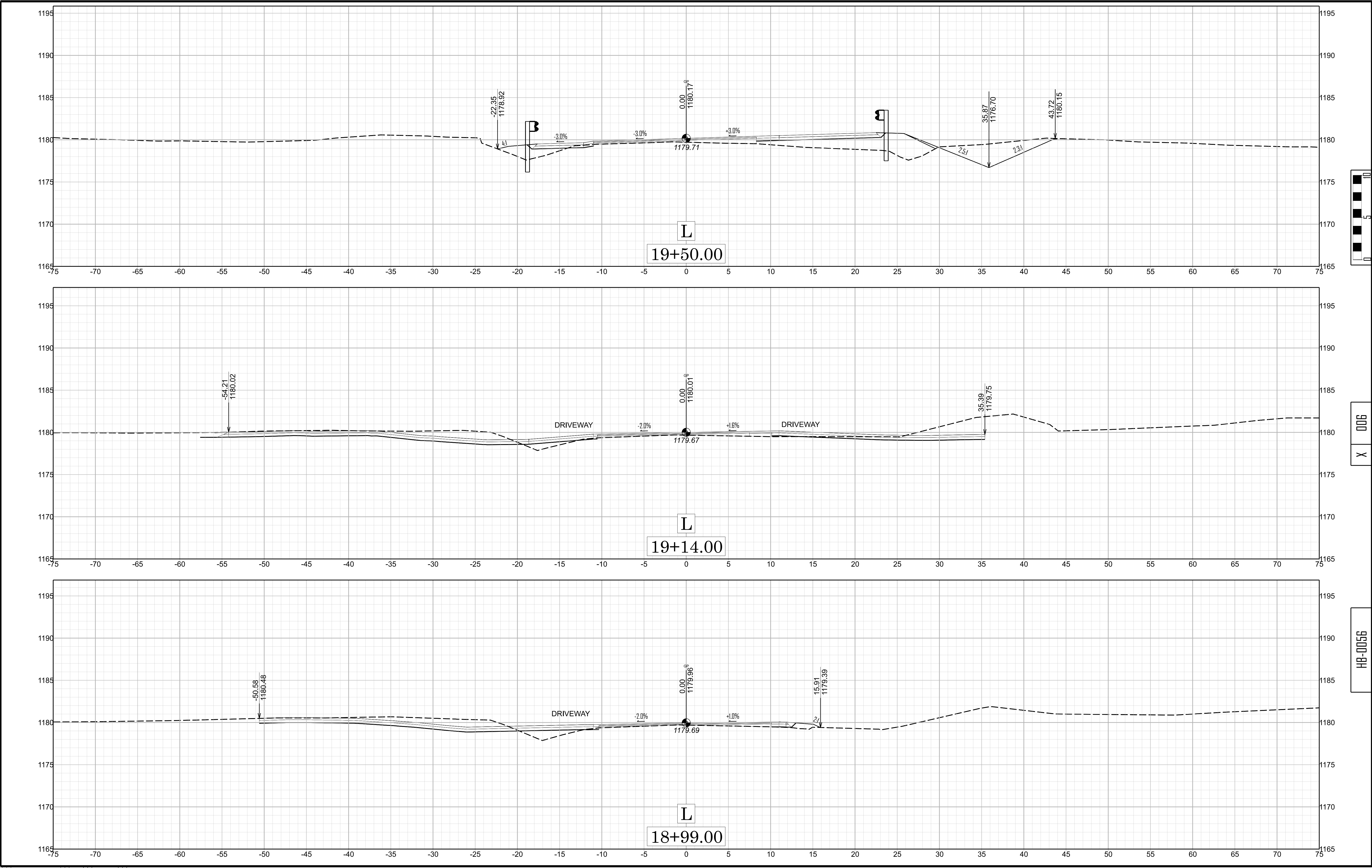


X 005



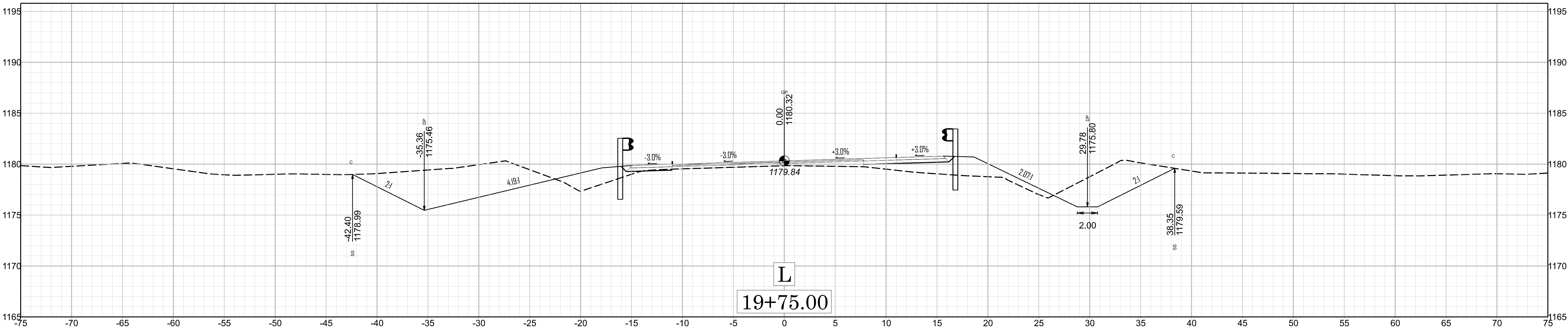
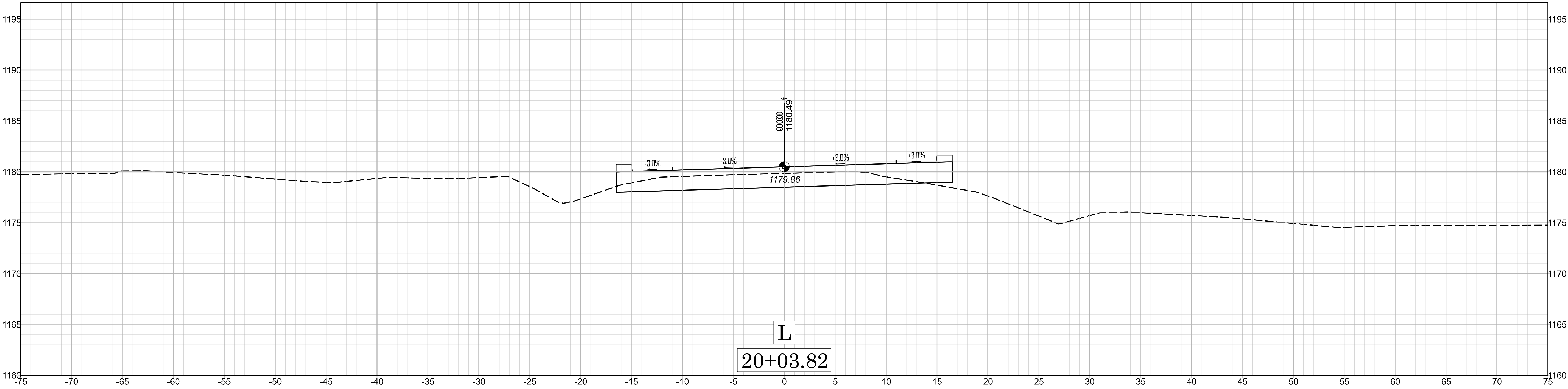
HB-0056

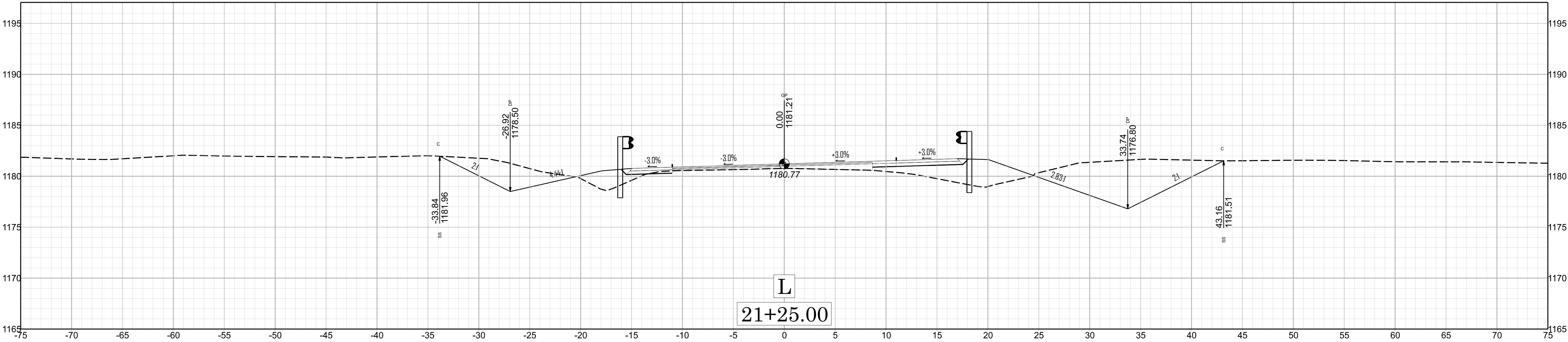
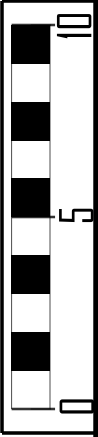
11/14/23



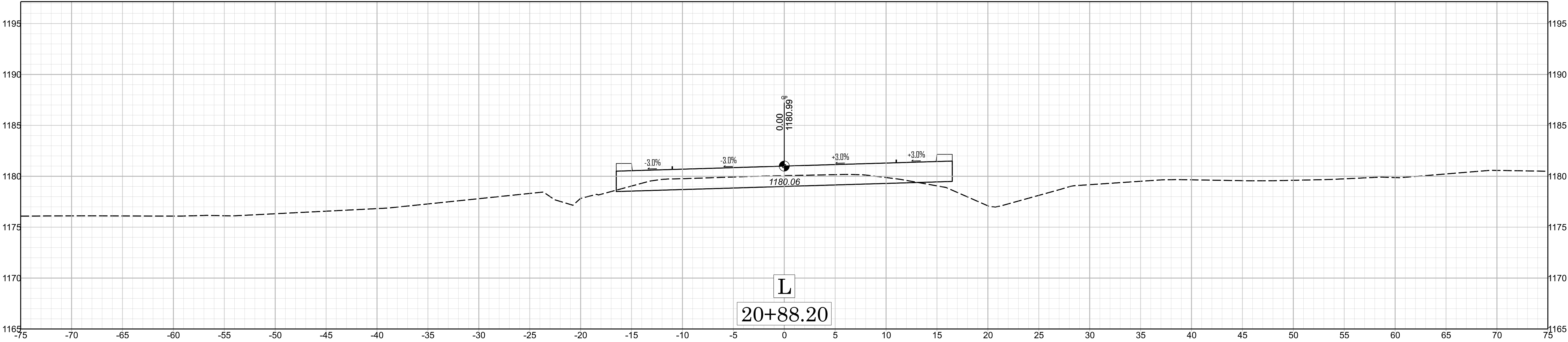
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HB-0056

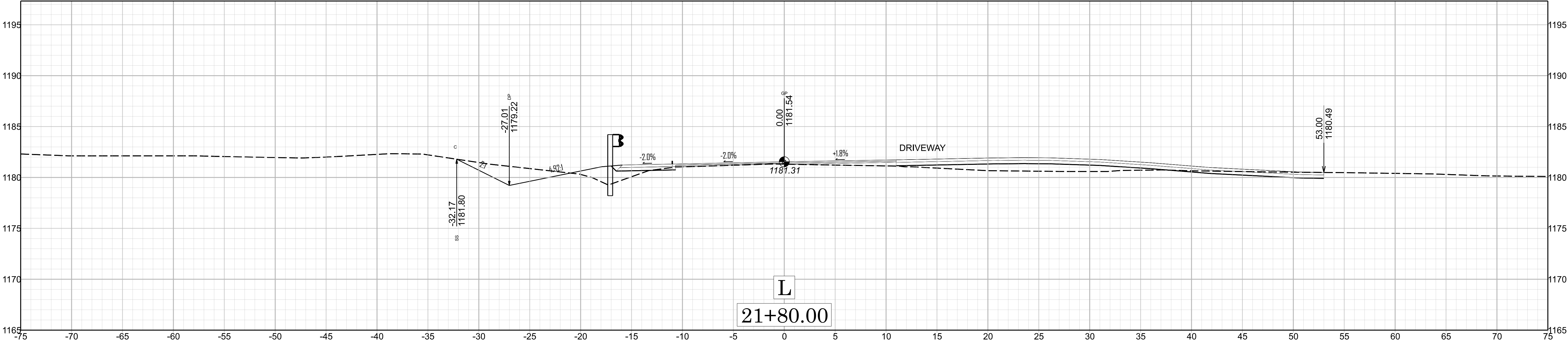
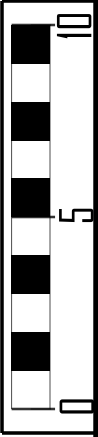




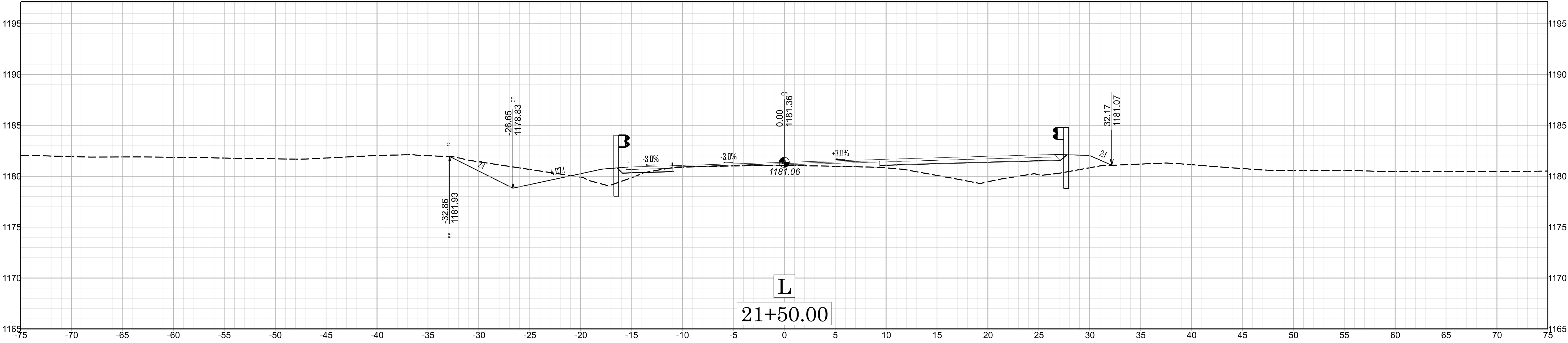
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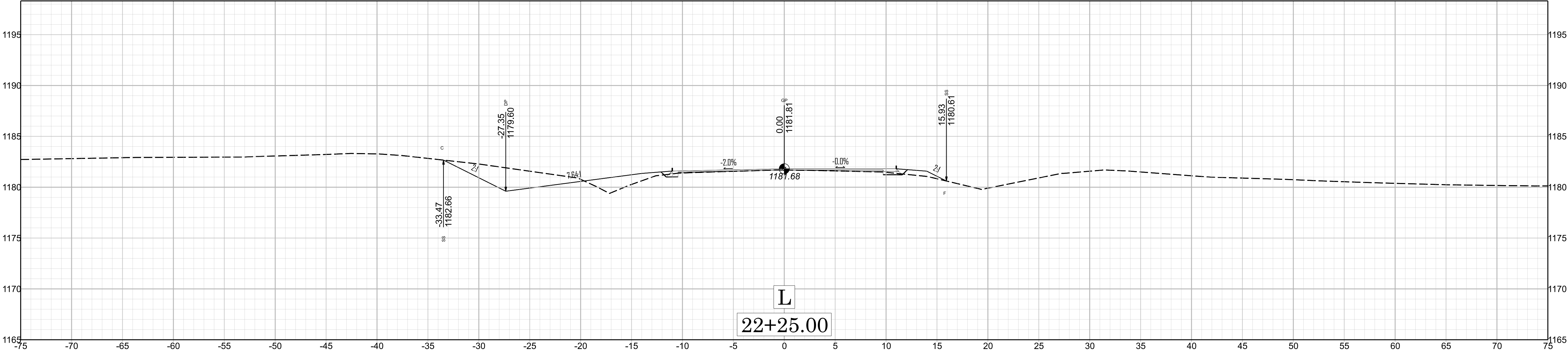
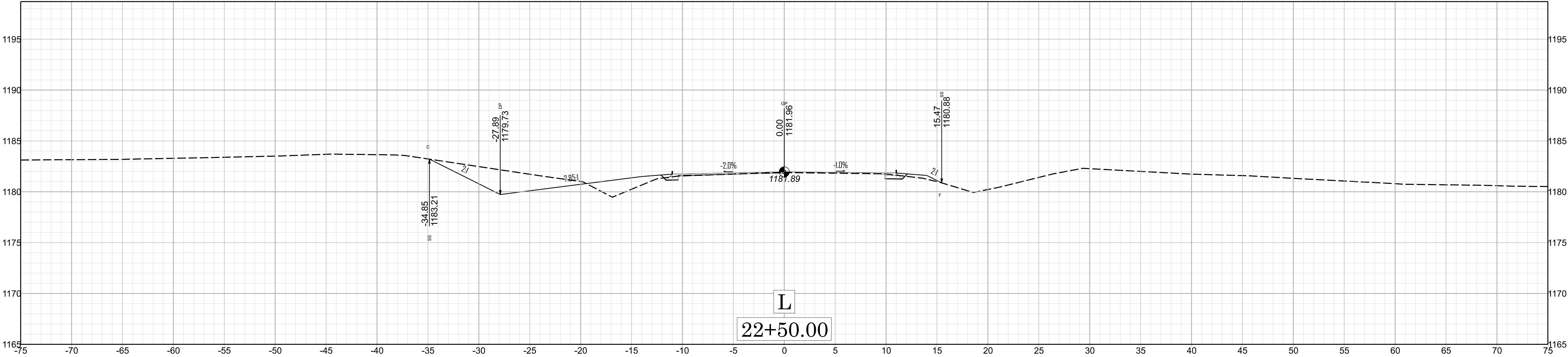
HB-0056

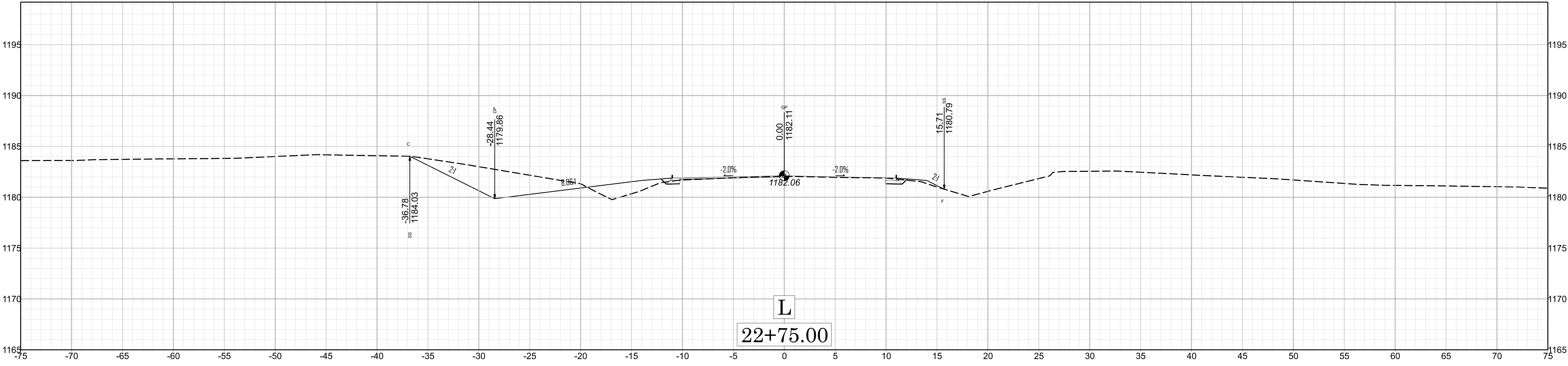
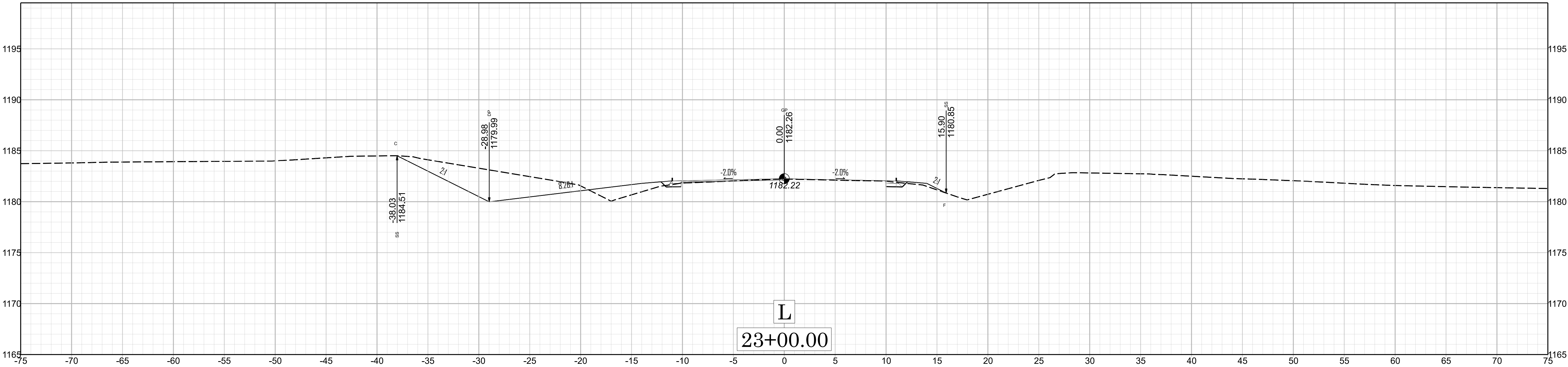


009
X



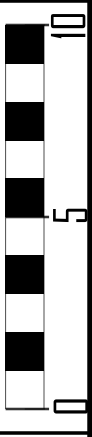
HB-0056





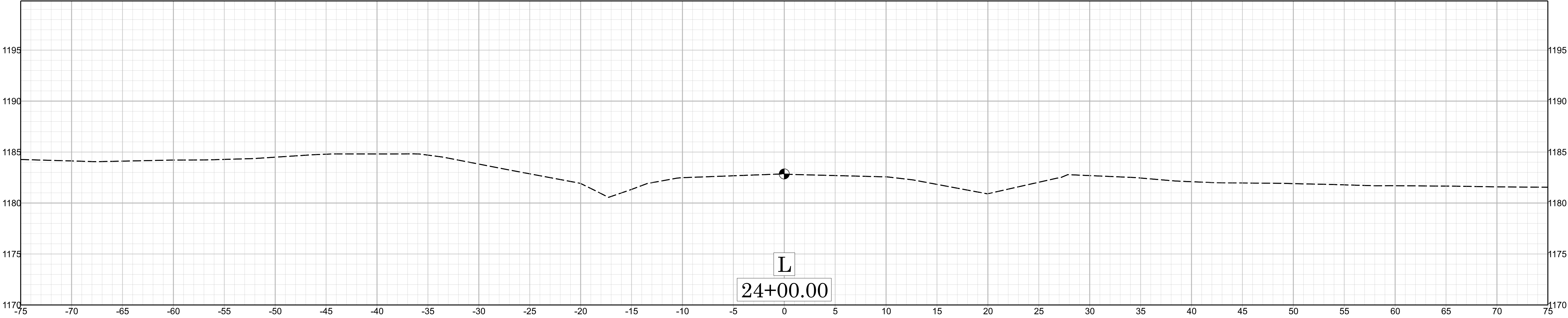


11/14/23



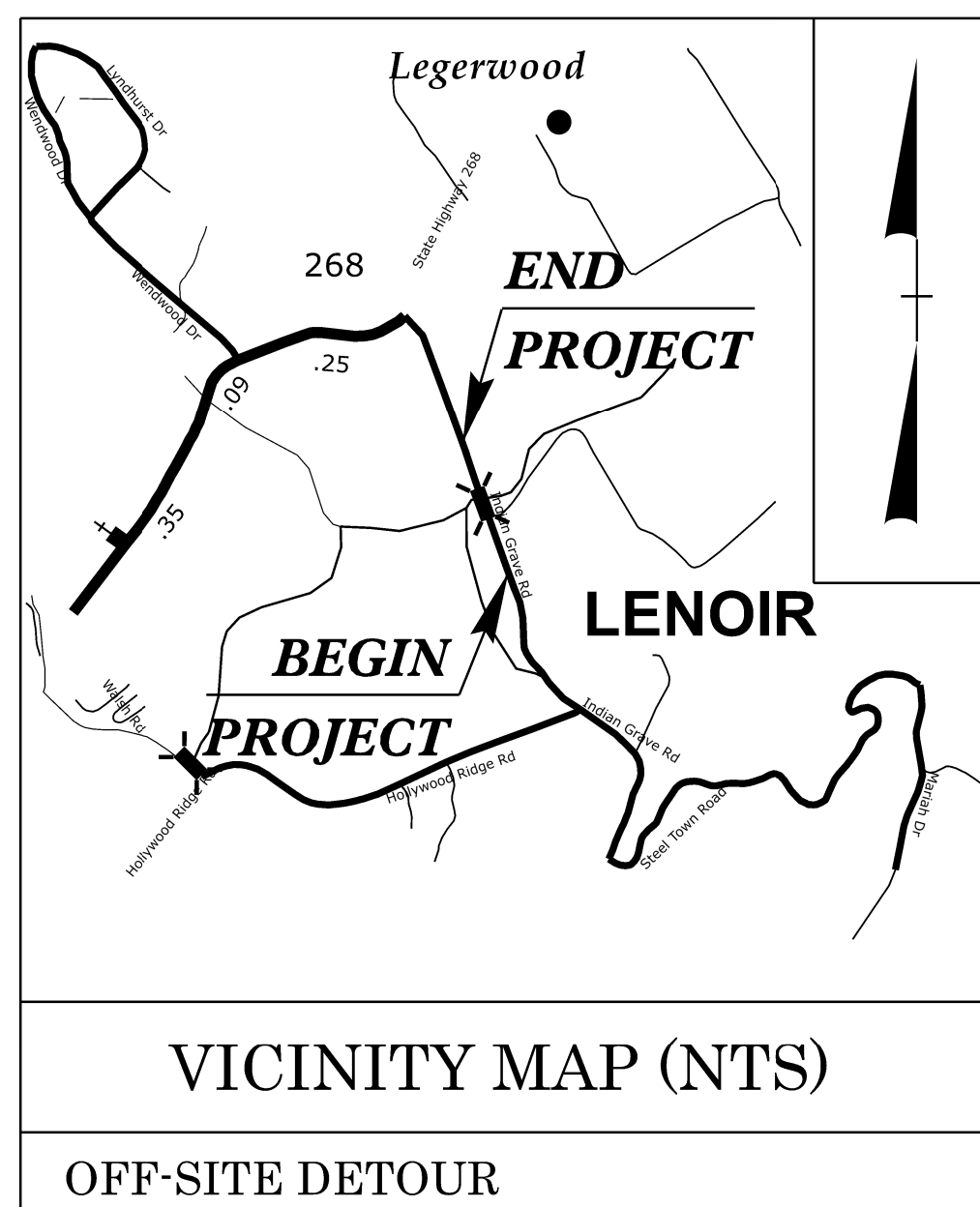
X 013

HB-0056



TIP PROJECT: HB-0056

CONTRACT: DK00483

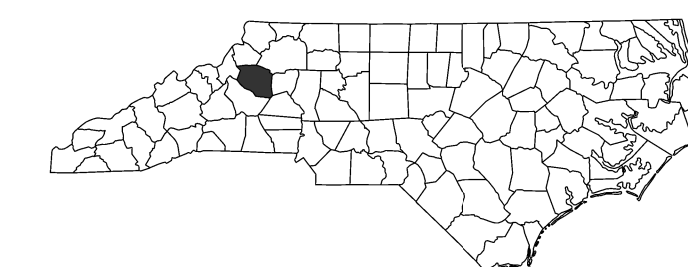


CALDWELL COUNTY

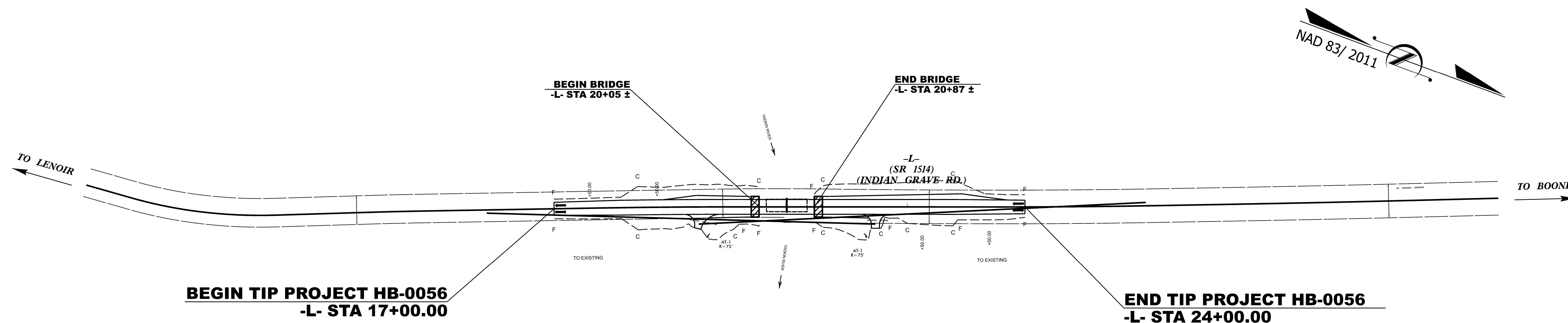
LOCATION: *SR 1514 (INDIAN GRAVE RD.)*
REPLACE BRIDGE NO. 130 OVER YADKIN RIVER

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0056		
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50726.1.1	FBRG111	P.E.	
50726.2.1	FBRG111	ROW	
50726.2.2	FBRG111	UTIL.	
50726.3.1	FBRG111	CONST.	



STRUCTURE PLANS



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2025 = 360
ADT 2045 = 440
K = N/A
D = N/A
T = N/A
V = 60 MPH

FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT HB-0056 = 0.117 MILES
 LENGTH OF STRUCTURE TIP PROJECT HB-0056 = 0.016 MILES
 TOTAL LENGTH OF TIP PROJECT HB-0056 = 0.133 MILES

Prepared in the Office of:



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

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 15, 2025

LETTING DATE:
SEPTEMBER 17, 2026

Prepared for:	
---------------	--

DIVISION OF HIGHWAYS DIVISION 11

801 Statesville Rd North Wilkesboro, 28659

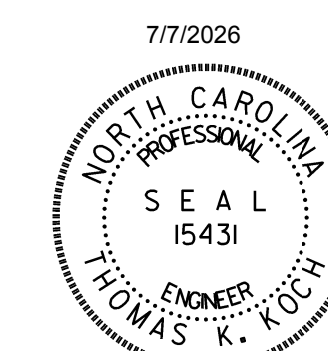
NCDOT CONTACT:

RAMIE A. SHAW, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

CHRIS D. ANDERSON, PE
PROJECT ENGINEER

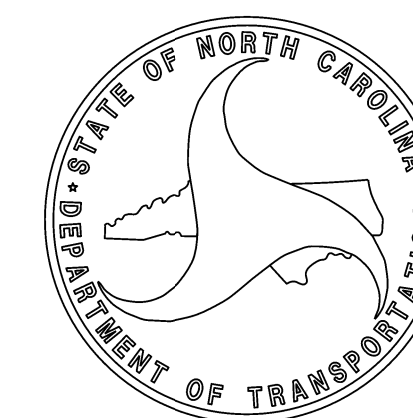
JOSE A. ROSADO JR.
PROJECT DESIGN ENGINEER

STRUCTURES DESIGN ENGINEER



 Signed

THOMAS K. KOCH, PE
SIGNATURE:



Docusign Envelope ID: 1FEA9ED6-4A08-83E8-83C2-A1FB699EF30C

F.A. PROJ. NO: FBRG111

SECTION ALONG -L-

GRADE DATA -L-

END BENT 1

BENT 1

END BENT 2

SECTION ALONG -L-

PLAN

(HP PILES NOT SHOWN FOR CLARITY)

HYDRAULIC DATA

OVERTOPPING FLOOD DATA

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. HB-0056

CALDWELL COUNTY

STATION: 20+46.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE 130130

DEPARTMENT OF TRANSPORTATION

GENERAL DRAWING

FOR BRIDGE OVER YADKIN RIVER ON SR 1514 BETWEEN SR 1519 AND NC 268

REVISIONS

SHEET NO.

NO. BY: DATE:

1 2 3 4

DESIGN ENGINEER OF RECORD: T. KOCH

DATE: 1-26

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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F.A. PROJ. NO: FBRG111

SECTION ALONG -L-

GRADE DATA -L-

END BENT 1

BENT 1

END BENT 2

SECTION ALONG -L-

PLAN

(HP PILES NOT SHOWN FOR CLARITY)

HYDRAULIC DATA

OVERTOPPING FLOOD DATA

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. HB-0056

CALDWELL COUNTY

STATION: 20+46.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE 130130

DEPARTMENT OF TRANSPORTATION

GENERAL DRAWING

FOR BRIDGE OVER YADKIN RIVER ON SR 1514 BETWEEN SR 1519 AND NC 268

REVISIONS

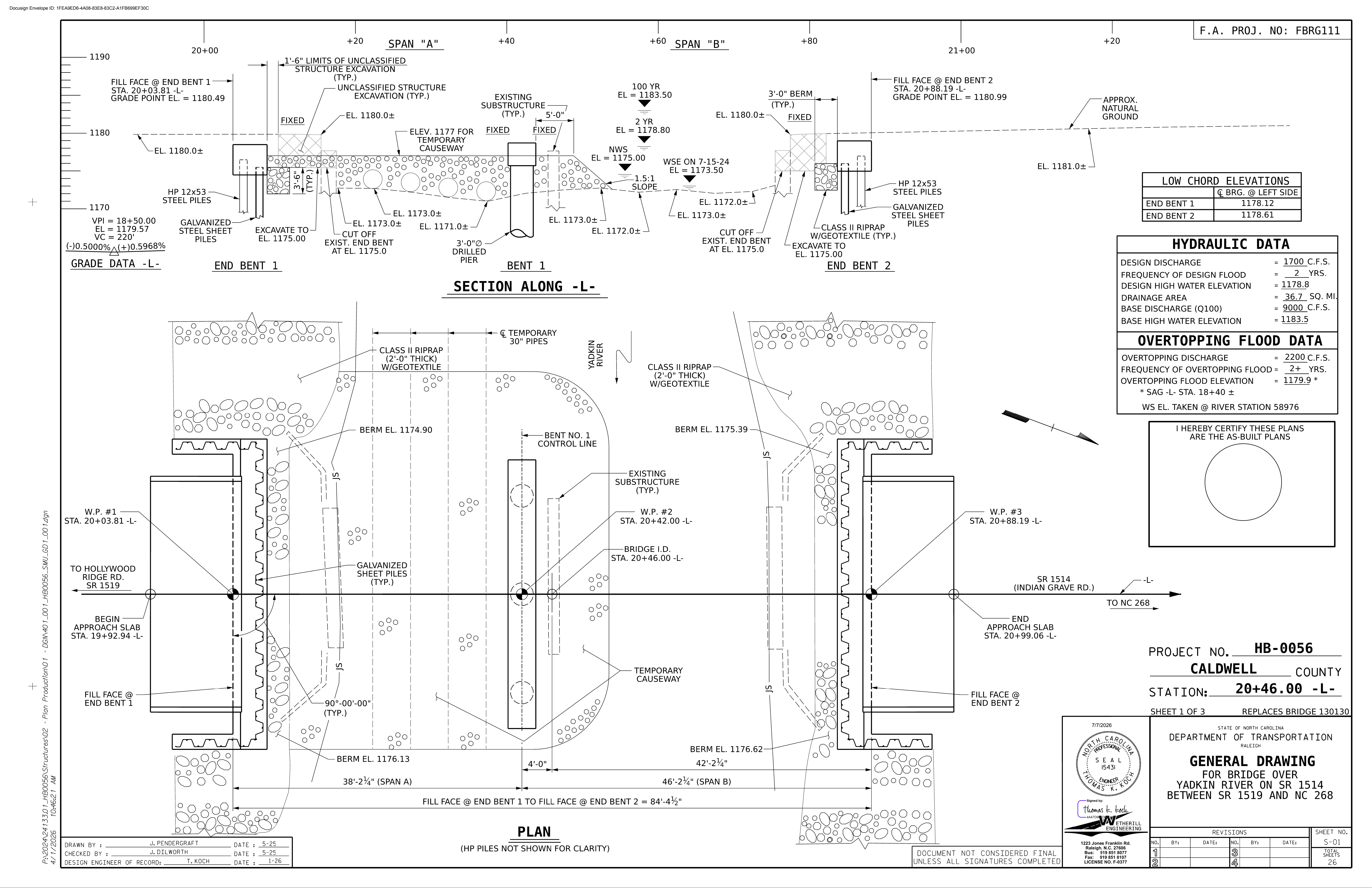
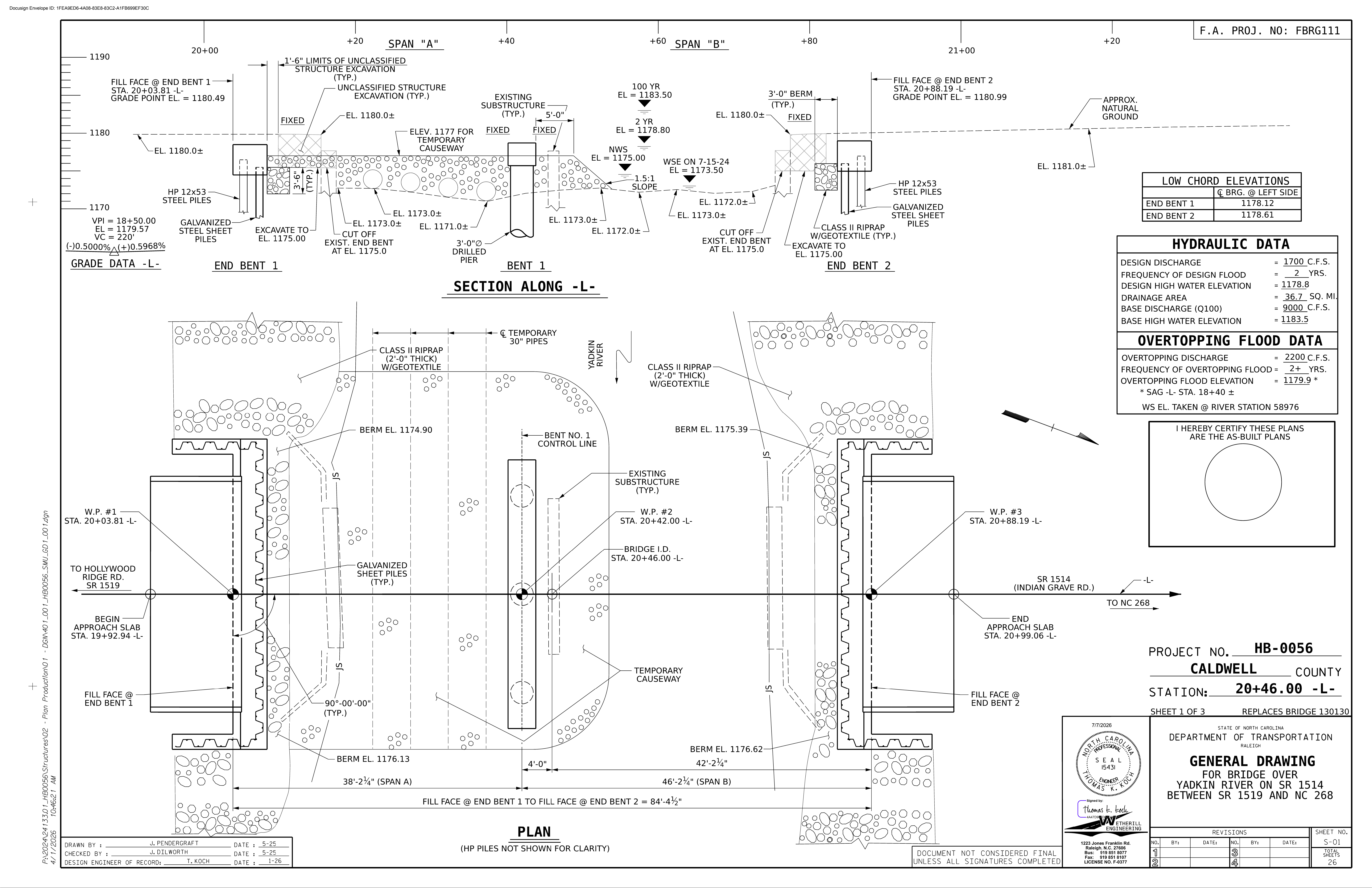
SHEET NO.

NO. BY: DATE:

1 2 3 4

THOMAS K. KOCH ENGINEER

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

[illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible]

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 No 1, Piles 1 - 4	4	118	See Structural Drawings	25			200							
End Bent No 1, Piles 5 - 7	3	118	See Structural Drawings	15			200							
End Bent No 2, Piles 1 - 3	3	118	See Structural Drawings	20			200							
End Bent No 2, Piles 4 - 7	4	118	See Structural Drawings	30			200							
TOTAL QUANTITY:														

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

** 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.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent No 1, Piles 1 - 4	118	0	118	0.6	0	0
End Bent No 1, Piles 5 - 7	118	0	118	0.6	0	0
End Bent No 2, Piles 1 - 3	118	0	118	0.6	0	0
End Bent No 2, Piles 4 - 7	118	0	118	0.6	0	0

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

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent No 1, Piles 1 - 4				4
End Bent No 1, Piles 5 - 7				3
End Bent No 2, Piles 1 - 3				3
End Bent No 2, Piles 4 - 7				4
TOTAL QUANTITY:				14

SUMMARY OF DRILLED PIER INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3")	Number of Piers per Line	Factored Resistance per Pier KIPS	Required Drilled Pier Tip Elevation FT	Required Tip Resistance per Pier KSF	Scour Critical Elevation FT	Minimum Drilled Pier Penetration Into Weathered Rock/Rock per Pier LIN FT	Drilled Pier Length* per Pier LIN FT	Drilled Pier Length Not In Soil* per Pier LIN FT	Drilled Pier Length In Soil* per Pier LIN FT	Permanent Steel Casing Required? YES	Permanent Steel Casing Tip Elevation (Elevation Not To Extend Casing Below) FT	Permanent Steel Casing Length** per Pier LIN FT
Bent No 1, Piers 1-2	2	720	1137.00	20	1164.00	19.2		19.2	19.35	yes	1156.20	19.35
Bent No 1, Pier 3	1	720	1142.00	20	1164.00	23.6		23.6	10.5	yes	1163.60	12.5
TOTAL QUANTITY:								62	49.2			51.2

* Drilled Pier Length, Drilled Pier Length Not in Soil and Drilled Pier Length in Soil represent estimated drilled pier quantities and are measured and paid for as either "36-in Dia. Drilled Piers" or "36-in Dia. Drilled Piers Not in Soil" and " 36-in Dia. Drilled Piers in Soil" in accordance with Article 411-7 of the NCDOT Standard Specifications. For bents with a not in soil pay item, drilled piers through air or water will be paid at the contract unit price for "36-in Dia. Drilled Piers in Soil."

** Permanent Steel Casing Length equals the difference between the ground line or top of drilled pier elevation, whichever is higher, and the permanent casing tip elevation and is measured and paid for as "Permanent Steel Casing for 36-in Dia. Drilled Pier" in accordance with Article 411-7 of the NCDOT Standard Specifications.

SUMMARY OF DRILLED PIER TESTING

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3")	Standard Penetration Test (SPT) EACH	Crosshole Sonic Logging (CSL) EACH	Thermal Integrity Profiler (TIP) EACH	Shaft Inspection Device (SID) EACH	Pile Integrity Test (PIT) EACH
Bent No 1, Piers 1-3		1			
TOTAL QUANTITY:		3			

PROJECT NO. **HB-0056**
CALDWELL COUNTY
STATION: **20+46.00 - L -**

NOTES:

- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Hugo Santana, #047922) on 06-24-2026.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
- The Engineer may adjust the quantity for DPT Testing, Pipe Pile Plates, Permanent Steel Casing, SPTs, TIPs, CSL Testing, SID Inspections and PITs when necessary.

DRAWN BY :	J. PENDERGRAFT	DATE :	12-25
CHECKED BY :	J. DILWORTH	DATE :	12-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	1-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

7/7/2026

NORTH CAROLINA
PROFESSIONAL
SEAL
15431

ENGINEER
THOMAS K. KOCH

Signed by:

Thomas K. Koch

4447066

ETHERILL
ENGINEERING

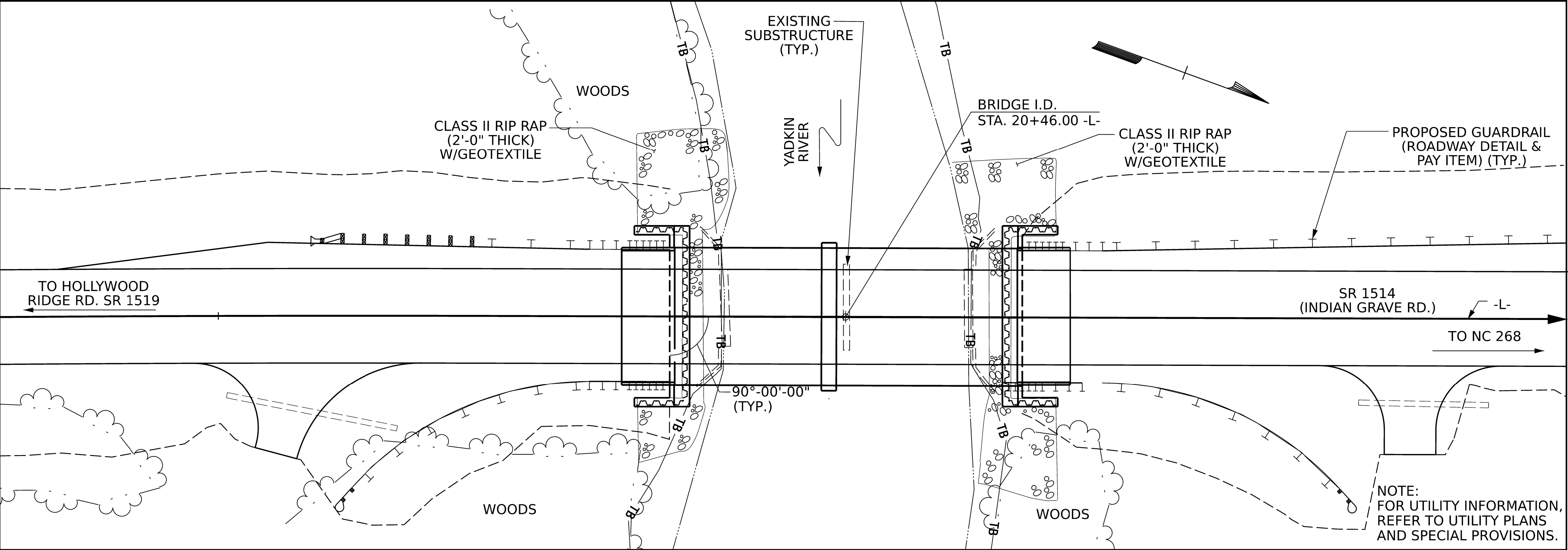
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**PILE AND DRILLED PIER
FOUNDATION
TABLE**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-02
1			3			TOTAL SHEETS
2			4			26

BM-1 (BENCH-TIE NAIL SET IN 13" OAK) 145' RIGHT -L- STA. 34+95 ELEV. 1197.54, N829089, E1250759



LOCATION SKETCH

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

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

INSTALL PERMANENT STEEL CASINGS AT BENT NO. 1 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 1,156.2 FEET FOR PIERS 1-2 AND 1,163.6 FEET FOR PIER 3.

FOR THE ABUTMENT WALLS AT END BENTS NO. 1 AND NO. 2 INSTALL GALVANIZED STEEL PZ-27 SHEETING TO A TIP ELEVATION NO HIGHER THAN 1,166 FEET.

FOR GALVANIZED STEEL SHEET PILES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE @ STA. 20+46	ASBESTOS ASSESSMENT	3'-0" DIA. DRILLED PIERS IN SOIL	3'-0" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	CONCRETE WATERPROOFING MEMBRANE- CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EA.	LUMP SUM	SQ. FT.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM
SUPERSTRUCTURE									2450	2450	2822		
END BENT 1												29.3	
BENT 1				49.2	62.0	51.2	3					14.5	
END BENT 2												29.3	
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	49.2	62.0	51.2	3	LUMP SUM	2450	2450	2822	73.1	LUMP SUM

	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES		STEEL PILE POINTS	32" ALASKA RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"x1'-6" PRESTRESSED CONCRETE CORED SLABS		GALVANIZED STEEL SHEET PILES
	LBS.	LBS.	EA.	NO.	LIN. FT.	EA.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	SQ. FT.
SUPERSTRUCTURE							149.25				22	902	
END BENT 1	3479		7	7	145	7		95	105				717
BENT 1	9354	1985											
END BENT 2	3479		7	7	180	7		115	128				749
TOTAL	16312	1985	14	14	325	14	149.25	210	233	LUMP SUM	22	902	1466

DRAWN BY :	J. PENDERGRAFT	DATE :	12-25
CHECKED BY :	J. DILWORTH	DATE :	12-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	1-26

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

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

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UNLESS ALL SIGNATURES COMPLETED

NOTES :

ASSUMED LIVE LOAD = HL93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 18' AT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTS OF 2 SPANS @ 31'-0" WITH A TIMBER FLOOR ON STEEL I-BEAM SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 19.0' ON A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE ABUTMENTS ON SPREAD FOOTING AND REINFORCED CONCRETE PIER AND WALL BENT ON SPREAD FOOTING LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING STRUCTURE IS PRESENTLY POSTED FOR LOAD LIMIT.

REMOVAL OF THE EXISTING STRUCTURE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 20+46.00 -L-."

THE CLASS AA CONCRETE IN THE CONCRETE WEARING SURFACE SHOULD CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFICATION 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 CONCRETE WEARING SURFACE.

AT THE CONTRACTORS OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 20+46.00 -L-.

FOR CONCRETE WATERPROOFING MEMBRANE- CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

PROJECT NO. **HB-0056**

CALDWELL COUNTY

STATION: **20+46.00 -L-**

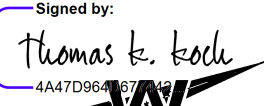
SHEET 3 OF 3

7/7/2026

NORTH CAROLINA PROFESSIONAL SEAL 15431

ENGINEER

THOMAS K. KOCH

Signed by:

THOMAS K. KOCH
REGISTERED PROFESSIONAL ENGINEER

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
YADKIN RIVER ON SR 1514
BETWEEN SR 1519 AND NC 268

REVISIONS

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

SHEET NO.
S-03
TOTAL SHEETS
26

PA\2024\24133\01_HB0056\Structures\02 - Plan Production\01 - Down\401_007_HB0056_SMU_LR 1_004.dgn
4/11/2026 11:00:54 AM

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING ⬡#	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ LL)	MOMENT				SHEAR				LIVE-LOAD FACTORS (γ LL)	MOMENT								
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	⬡1	1.33	--	1.75	0.278	1.60	37'	I	18.00	0.542	1.60	37'	I	1.26	0.80	0.278	1.33	37'	I	18.00		
	HL-93 (OPERATING)	N/A		2.08	--	1.35	0.278	2.08	37'	I	18.00	0.542	2.11	37'	I	1.26	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	⬡2	1.72	61.920	1.75	0.278	2.08	37'	I	18.00	0.542	1.88	37'	I	1.26	0.80	0.278	1.72	37'	I	18.00		
	HS-20 (OPERATING)	36.000		2.47	88.920	1.35	0.278	2.70	37'	I	18.00	0.542	2.47	37'	I	1.26	N/A	--	--	--	--	--		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.05	41.175	1.4	0.278	4.60	37'	I	18.00	0.542	5.14	37'	I	1.26	0.80	0.278	3.05	37'	I	18.00	
		SNGARBS2	20.000		2.59	51.800	1.4	0.278	3.86	37'	I	14.30	0.542	3.82	37'	I	1.26	0.80	0.278	2.59	37'	I	18.00	
		SNAGRIS2	22.000		2.56	56.320	1.4	0.278	3.81	37'	I	14.30	0.542	3.62	37'	I	1.26	0.80	0.278	2.56	37'	I	14.30	
		SNCOTTS3	27.250		1.52	41.42	1.4	0.278	2.30	37'	I	18.00	0.542	2.51	37'	I	1.26	0.80	0.278	1.52	37'	I	18.00	
		SNAGGRS4	34.925		1.39	48.546	1.4	0.278	2.10	37'	I	18.00	0.542	2.20	37'	I	34.74	0.80	0.278	1.39	37'	I	18.00	
		SNS5A	35.550		1.35	47.993	1.4	0.278	2.04	37'	I	18.00	0.542	2.32	37'	I	1.26	0.80	0.278	1.35	37'	I	18.00	
		SNS6A	39.950		1.30	51.935	1.4	0.278	1.96	37'	I	18.00	0.542	2.17	37'	I	1.26	0.80	0.278	1.30	37'	I	18.00	
		SNS7B	42.000	⬡3	1.24	52.080	1.4	0.278	1.87	37'	I	18.00	0.542	2.22	37'	I	1.26	0.80	0.278	1.24	37'	I	18.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.60	52.800	1.4	0.278	2.42	37'	I	18.00	0.542	2.57	37'	I	34.74	0.80	0.278	1.60	37'	I	18.00	
		TNT4A	33.075		1.62	53.582	1.4	0.278	2.45	37'	I	18.00	0.542	2.41	37'	I	1.26	0.80	0.278	1.62	37'	I	18.00	
		TNT6A	41.600		1.39	57.824	1.4	0.278	2.10	37'	I	18.00	0.542	2.37	37'	I	1.26	0.80	0.278	1.39	37'	I	18.00	
		TNT7A	42.000		1.43	60.060	1.4	0.278	2.16	37'	I	18.00	0.542	2.17	37'	I	1.26	0.80	0.278	1.43	37'	I	18.00	
		TNT7B	42.000		1.43	60.060	1.4	0.278	2.16	37'	I	18.00	0.542	2.10	37'	I	1.26	0.80	0.278	1.43	37'	I	18.00	
		TNAGRIT4	43.000		1.43	61.490	1.4	0.278	2.14	37'	I	14.30	0.542	2.01	37'	I	1.26	0.80	0.278	1.43	37'	I	18.00	
TNAGT5A		45.000		1.31	58.950	1.4	0.278	1.99	37'	I	18.00	0.542	2.10	37'	I	1.26	0.80	0.278	1.31	37'	I	18.00		
TNAGT5B		45.000		1.27	57.150	1.4	0.278	1.92	37'	I	18.00	0.542	1.89	37'	I	1.26	0.80	0.278	1.27	37'	I	18.00		
EMERGENCY VEHICLE (EV)	EV2	28.750		1.86	53.475	1.3	0.278	2.99	37'	I	14.30	0.542	2.88	37'	I	1.26	0.80	0.278	1.86	37'	I	14.30		
	EV3	43.000	⬡4	1.19	51.170	1.3	0.278	1.94	37'	I	18.00	0.542	1.91	37'	I	34.74	0.80	0.278	1.19	37'	I	18.00		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γDC	γDW
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

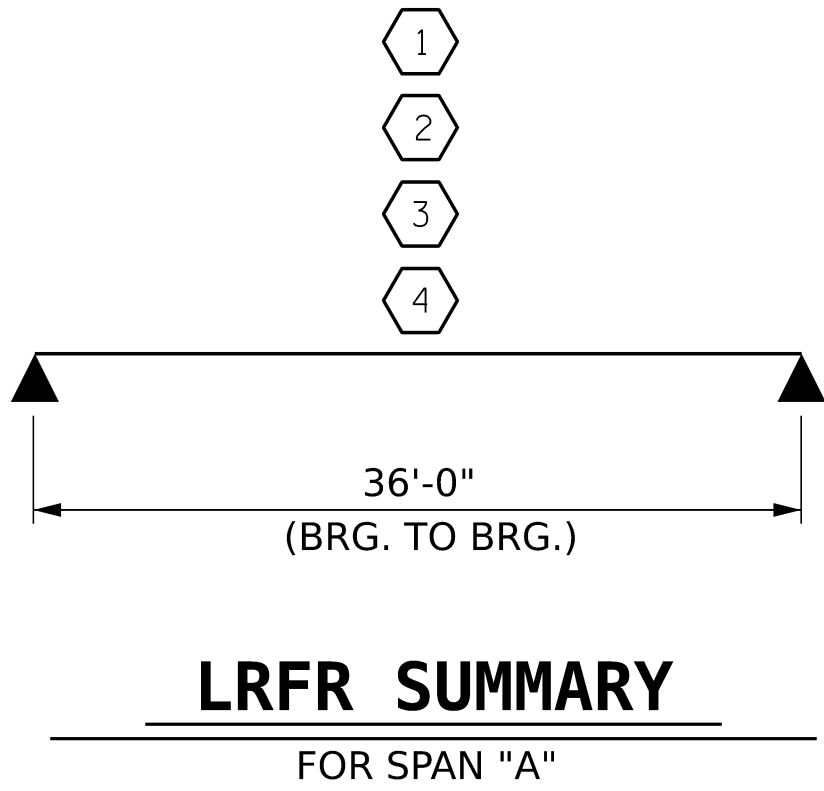
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

-
-
-
-

⬡#	CONTROLLING LOAD RATING
⬡1	DESIGN LOAD RATING (HL-93)
⬡2	DESIGN LOAD RATING (HS-20)
⬡3	LEGAL LOAD RATING * *
⬡4	EMERGENCY VEHICLE LOAD RATING **
* * SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



PROJECT NO. **HB-0056**
CALDWELL COUNTY
STATION: **20+46.00 - L -**

DRAWN BY :	J. PENDERGRAFT	DATE :	4-25
CHECKED BY :	J. DILWORTH	DATE :	4-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	1-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

7/7/2026

NORTH CAROLINA
PROFESSIONAL
SEAL
15431

ENGINEER
THOMAS K. KOCH

Signed by:

Thomas K. Koch

444709640774

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET NO. S-04
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 26
2			4			

PA\2024\24133\01_HB0056\Structures\02 - Plan Production\01 - DOW\401_009_HB0056_SMU_LR2_005.dgn 4/11/2026 1:04:14 AM

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																							
LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING Ⓢ	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER	
						LIVE-LOAD FACTORS (γ LL)	MOMENT				SHEAR				LIVE-LOAD FACTORS (γ LL)	MOMENT							
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD	HL-93 (INVENTORY)	N/A	Ⓢ1	1.250	--	1.75	0.277	1.32	45'	I	22.00	0.526	1.48	45'	I	42.78	0.80	0.277	1.25	45'	I	22.00	
	HL-93 (OPERATING)	N/A		1.720	--	1.35	0.277	1.72	45'	I	22.00	0.526	1.96	45'	I	42.78	N/A	--	--	--	--	--	
	HS-20 (INVENTORY)	36.000	Ⓢ2	1.530	55.080	1.75	0.277	1.62	45'	I	22.00	0.526	1.78	45'	I	42.78	0.80	0.277	1.53	45'	I	22.00	
	HS-20 (OPERATING)	36.000		2.110	75.960	1.35	0.277	2.11	45'	I	22.00	0.526	2.34	45'	I	42.78	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH		3.000	40.500	1.40	0.277	3.97	45'	I	22.00	0.526	5.16	45'	I	42.78	0.80	0.277	3.00	45'	I	22.00	
		SNGARBS2		2.420	48.400	1.40	0.277	3.20	45'	I	26.40	0.526	3.75	45'	I	42.78	0.80	0.277	2.42	45'	I	22.00	
		SNAGRIS2		2.380	52.360	1.40	0.277	3.09	45'	I	26.40	0.526	3.52	45'	I	42.78	0.80	0.277	2.38	45'	I	22.00	
		SNCOTTS3		1.500	40.875	1.40	0.277	1.98	45'	I	22.00	0.526	2.52	45'	I	42.78	0.80	0.277	1.50	45'	I	22.00	
		SNAGGRS4		1.320	46.101	1.40	0.277	1.75	45'	I	22.00	0.526	2.15	45'	I	42.78	0.80	0.277	1.32	45'	I	22.00	
		SNS5A		1.290	45.860	1.40	0.277	1.70	45'	I	22.00	0.526	2.23	45'	I	42.78	0.80	0.277	1.29	45'	I	22.00	
		SNS6A		1.210	48.340	1.40	0.277	1.60	45'	I	22.00	0.526	2.06	45'	I	42.78	0.80	0.277	1.21	45'	I	22.00	
		SNS7B	Ⓢ3	1.160	48.720	1.40	0.277	1.53	45'	I	22.00	0.526	2.07	45'	I	42.78	0.80	0.277	1.16	45'	I	22.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3		1.490	49.170	1.40	0.277	1.97	45'	I	22.00	0.526	2.43	45'	I	42.78	0.80	0.277	1.49	45'	I	22.00	
		TNT4A		1.500	49.613	1.40	0.277	1.99	45'	I	22.00	0.526	2.34	45'	I	42.78	0.80	0.277	1.50	45'	I	22.00	
		TNT6A		1.260	52.416	1.40	0.277	1.67	45'	I	22.00	0.526	2.27	45'	I	42.78	0.80	0.277	1.26	45'	I	22.00	
		TNT7A		1.290	54.180	1.40	0.277	1.70	45'	I	22.00	0.526	2.08	45'	I	42.78	0.80	0.277	1.29	45'	I	22.00	
		TNT7B		1.340	56.280	1.40	0.277	1.77	45'	I	22.00	0.526	1.98	45'	I	42.78	0.80	0.277	1.34	45'	I	22.00	
		TNAGRIT4		1.280	55.040	1.40	0.277	1.69	45'	I	22.00	0.526	1.90	45'	I	42.78	0.80	0.277	1.28	45'	I	22.00	
TNAGT5A			1.190	53.550	1.40	0.277	1.57	45'	I	22.00	0.526	1.94	45'	I	42.78	0.80	0.277	1.19	45'	I	22.00		
TNAGT5B			1.160	52.200	1.40	0.277	1.53	45'	I	22.00	0.526	1.80	45'	I	42.78	0.80	0.277	1.16	45'	I	22.00		
EMERGENCY VEHICLE (EV)	EV2	28.750		1.740	50.025	1.30	0.277	2.46	45'	I	17.50	0.526	2.81	45'	I	42.78	0.80	0.277	1.74	45'	I	22.00	
	EV3	43.000	Ⓢ4	1.120	48.160	1.30	0.277	1.59	45'	I	22.00	0.526	1.86	45'	I	42.78	0.80	0.277	1.12	45'	I	22.00	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.
2.
3.
4.

#

 CONTROLLING LOAD RATING

1

 DESIGN LOAD RATING (HL-93)

2

 DESIGN LOAD RATING (HS-20)

3

 LEGAL LOAD RATING * *

4

 EMERGENCY VEHICLE LOAD RATING **

* * SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

PROJECT NO. **HB-0056**
CALDWELL COUNTY
STATION: **20+46.00 - L -**

DRAWN BY :	J. PENDERGRAFT	DATE :	5-25
CHECKED BY :	J. DILWORTH	DATE :	5-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	1-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

7/7/2026

NORTH CAROLINA

PROFESSIONAL

SEAL

15431

ENGINEER

THOMAS K. KOCH

Signed by:

thomas k. koch

ANTHONY W. ETHERILL

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
45' CORED SLAB UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

NO. BY: DATE:

NO. BY: DATE:

NO. BY: DATE:

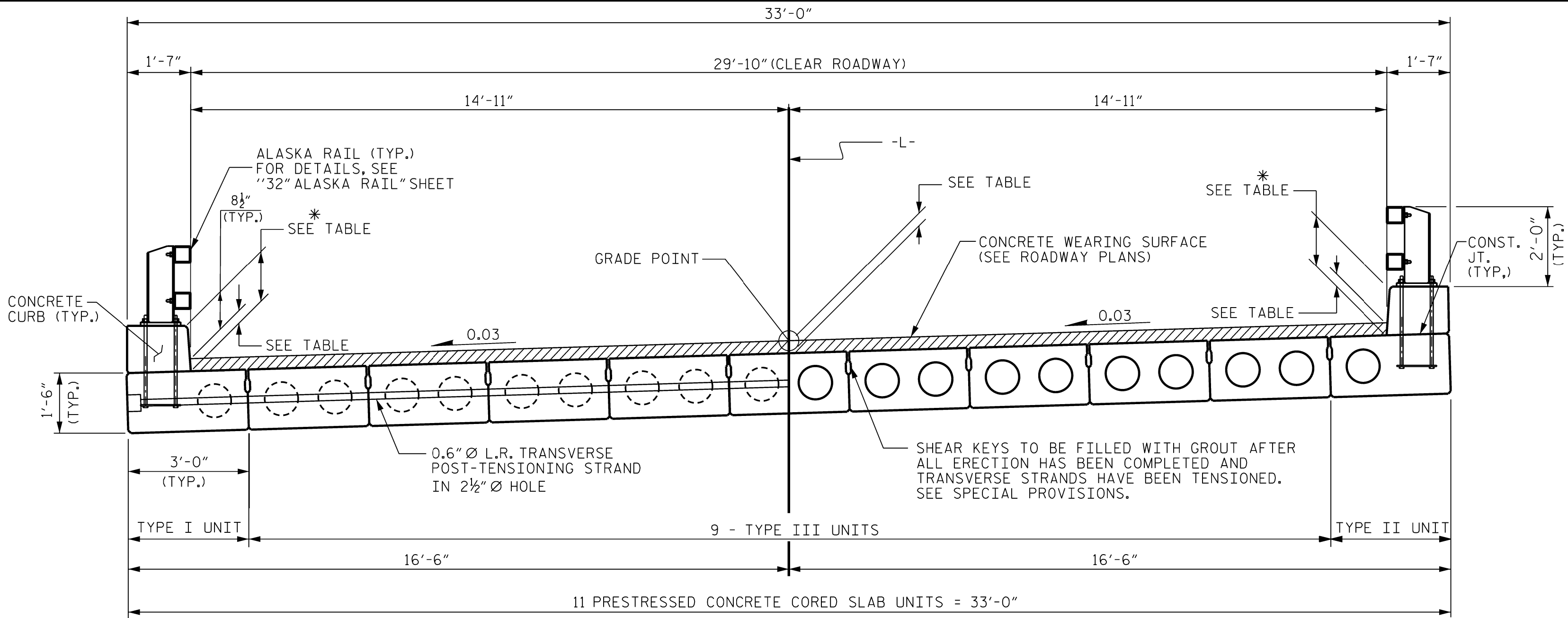
1

2

3

4

SHEET NO.
S-05
TOTAL SHEETS
26



HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

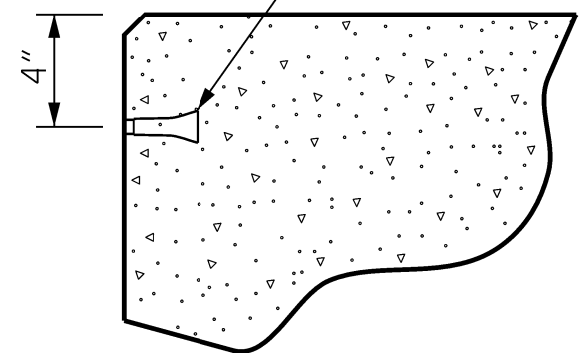
TYPICAL SECTION

HALF SECTION
THROUGH VOIDS

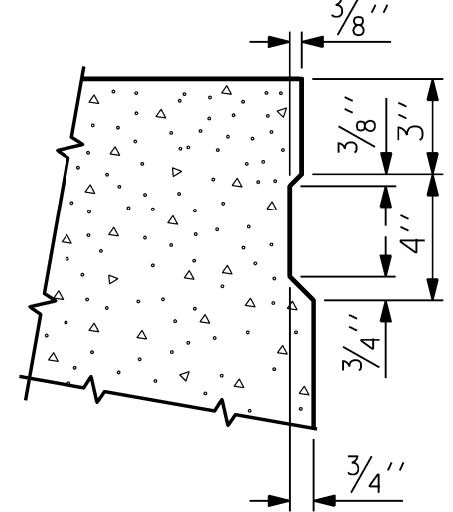
* THE MAXIMUM CURB HEIGHT AND CONCRETE WEARING SURFACE THICKNESS IS SHOWN. THE HEIGHT OF THE CURB AND CONCRETE WEARING SURFACE THICKNESS VARIES WHILE THE TOP OF THE CURB FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR CURB HEIGHT DETAILS AND CONCRETE WEARING SURFACE THICKNESS SEE THE "CONCRETE CURB AND END POSTS FOR ALASKA RAIL" SHEET.

TABLE CONCRETE OVERLAY THICKNESS AT CENTERLINE BEARING				* MAXIMUM CURB HEIGHTS (INSIDE FACE) AT CENTERLINE BEARING		
	LEFT GUTTERLINE	-L- LINE	RIGHT GUTTERLINE		LEFT GUTTERLINE	RIGHT GUTTERLINE
END BENT 1	4 3/4"	4 3/4"	4 3/4"	END BENT 1	1'-1 1/4"	1'-1 1/4"
BENT 1	4 3/4"	4 3/4"	4 3/4"	BENT 1	1'-1 1/4"	1'-1 1/4"
END BENT 2	4 3/4"	4 3/4"	4 3/4"	END BENT 2	1'-1 1/4"	1'-1 1/4"

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

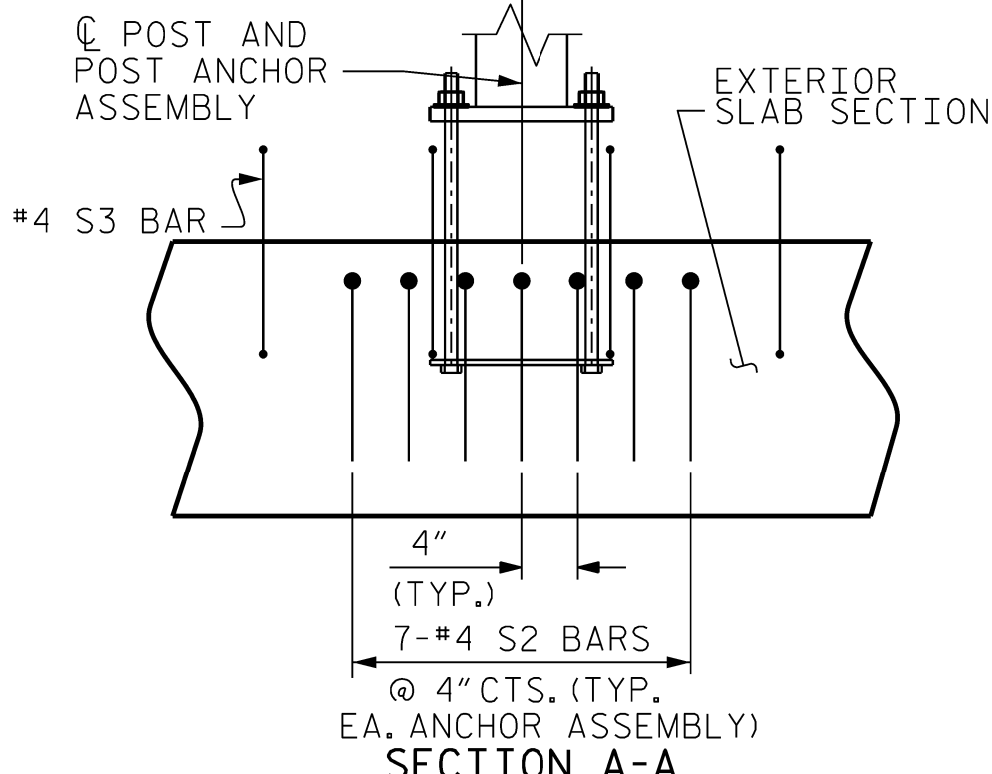


THREADED INSERT DETAIL



SHEAR KEY DETAIL

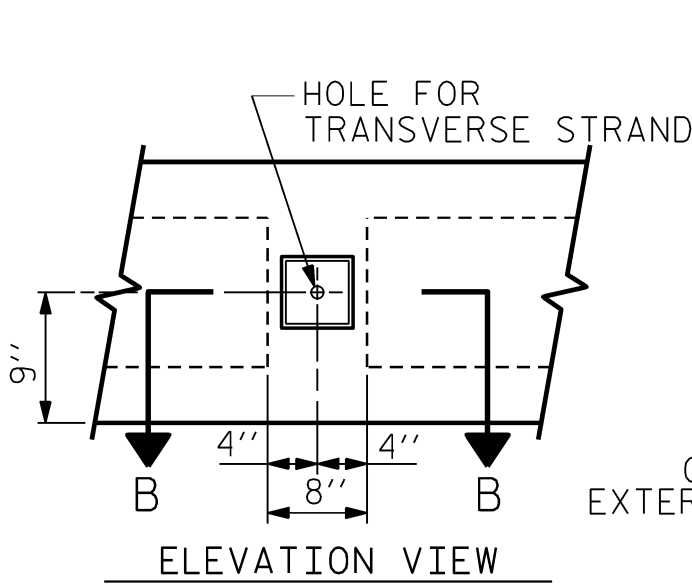
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE
OF EXTERIOR CORED SLABS.



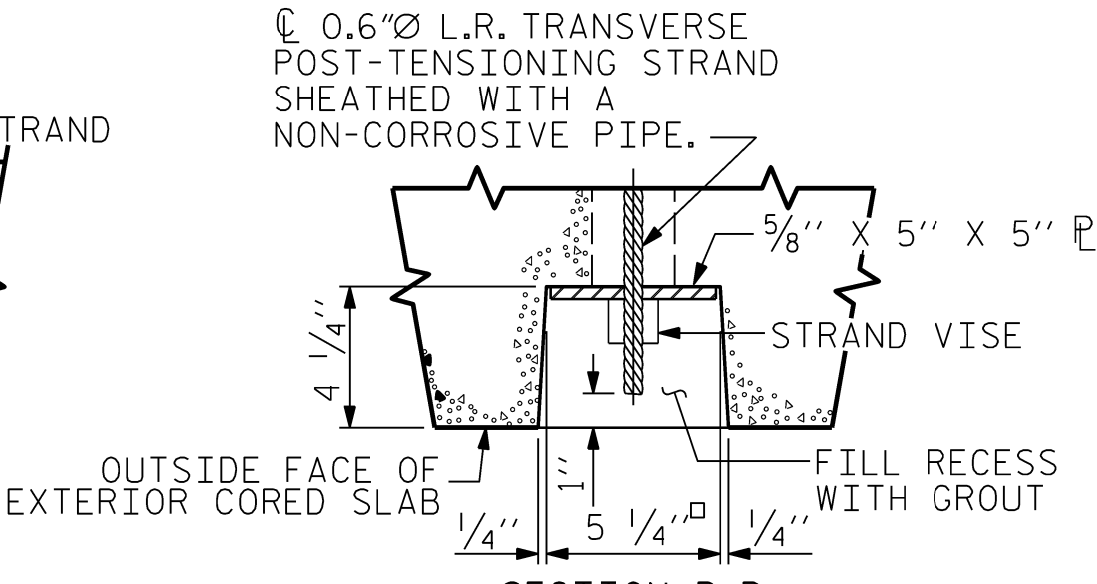
SECTION A-A

SIDE VIEW AT POST LOCATION

(SHOWING ADDITIONAL S2 BARS AT EACH POST ASSEMBLY)
FOR LOCATIONS OF ADDITIONAL S2 BARS, SEE "PLAN OF
EXTERIOR UNIT REINFORCEMENT LAYOUT FOR ALASKA RAIL
POST ANCHOR ASSEMBLY" SHEET



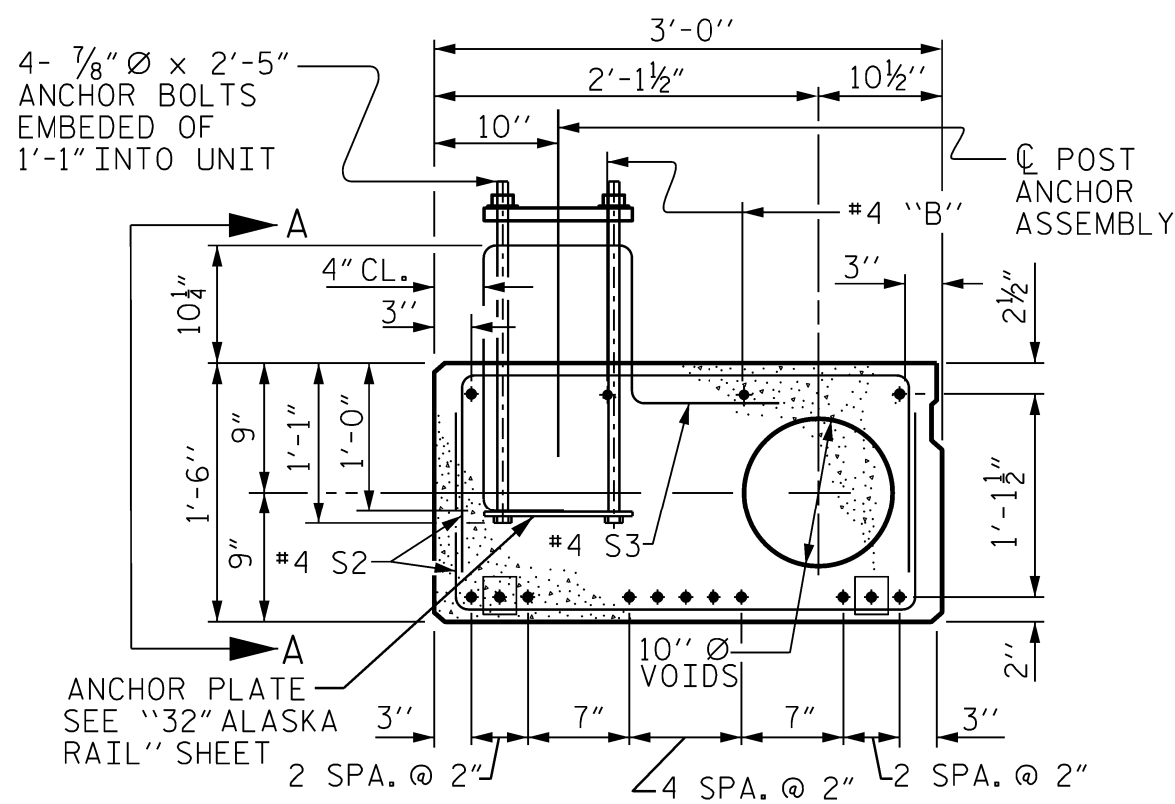
ELEVATION VIEW



SECTION B-B

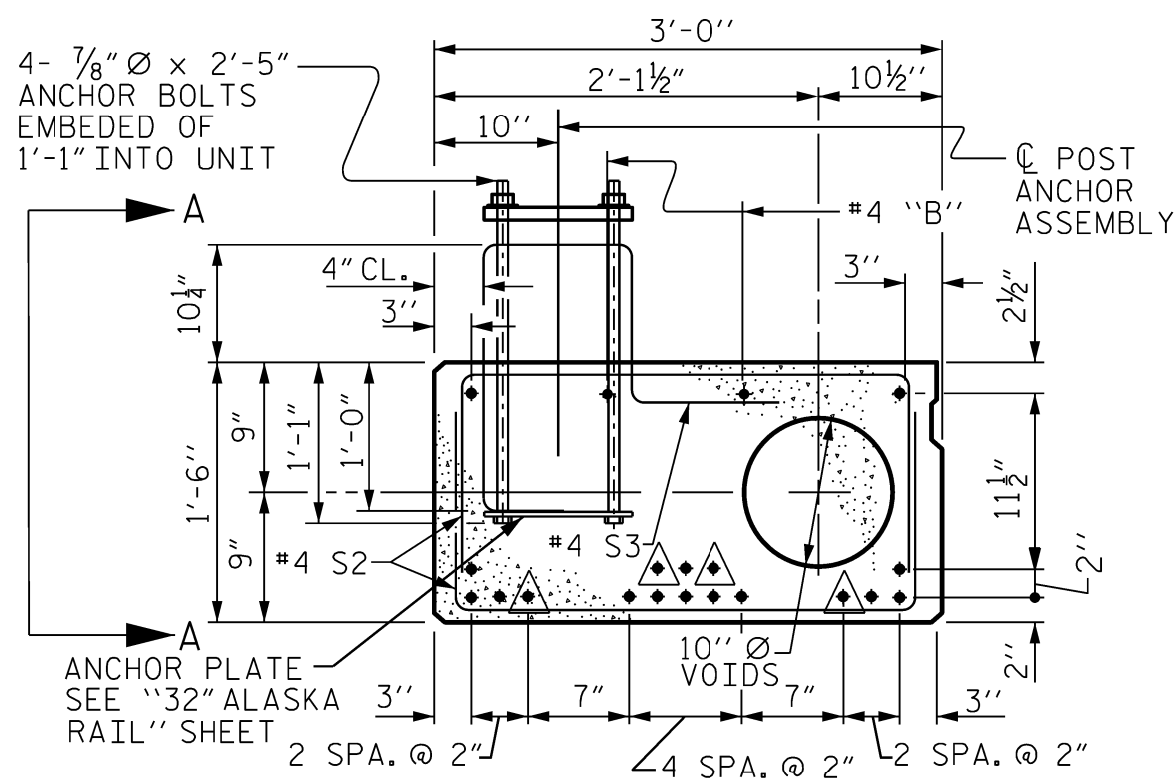
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

DRAWN BY : J. PENDERGRAFT DATE : 3-25
CHECKED BY : J. DILWORTH DATE : 3-25
DESIGN ENGINEER OF RECORD : T. KOCH DATE : 1-26



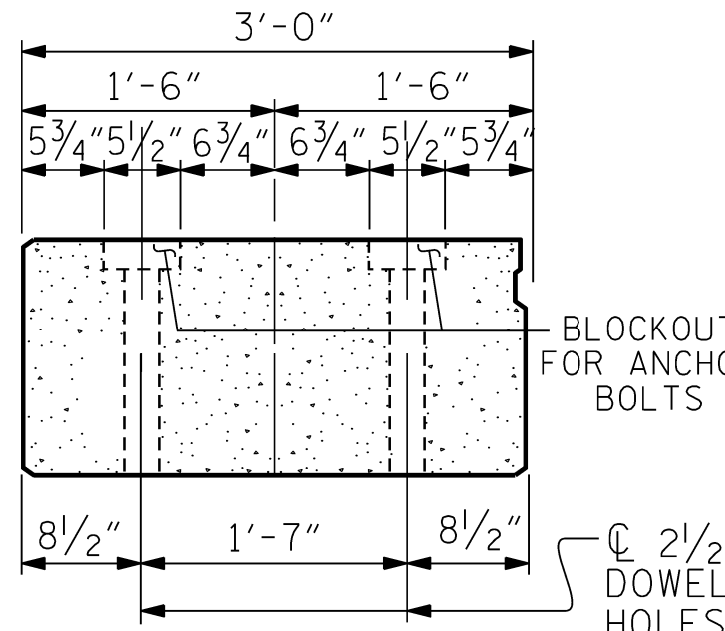
EXTERIOR SLAB SECTION
37'-0" TYPE I UNIT
(TYPE II UNIT SIMILAR BY ROTATION)

(13 STRANDS REQUIRED)
FOR #4 "B" BAR LAYOUT,
SEE INTERIOR SLAB SECTION



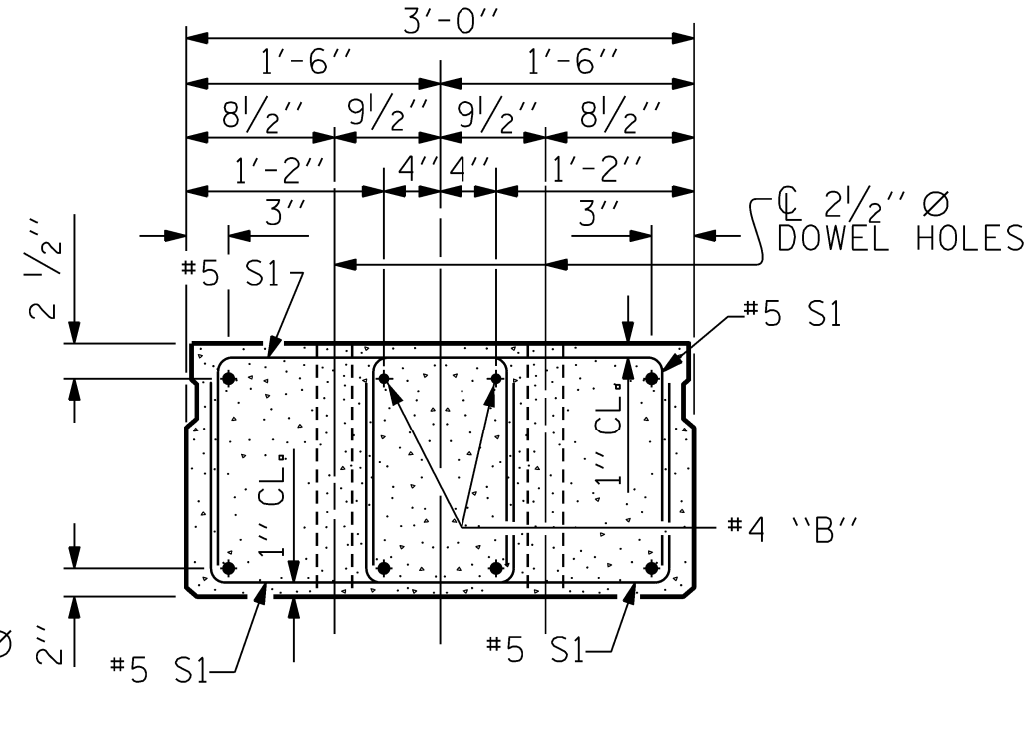
EXTERIOR SLAB SECTION
45'-0" TYPE I UNIT
(TYPE II UNIT SIMILAR)

(18 STRANDS REQUIRED) FOR #4 "B" BAR LAYOUT,
SEE INTERIOR SLAB SECTION



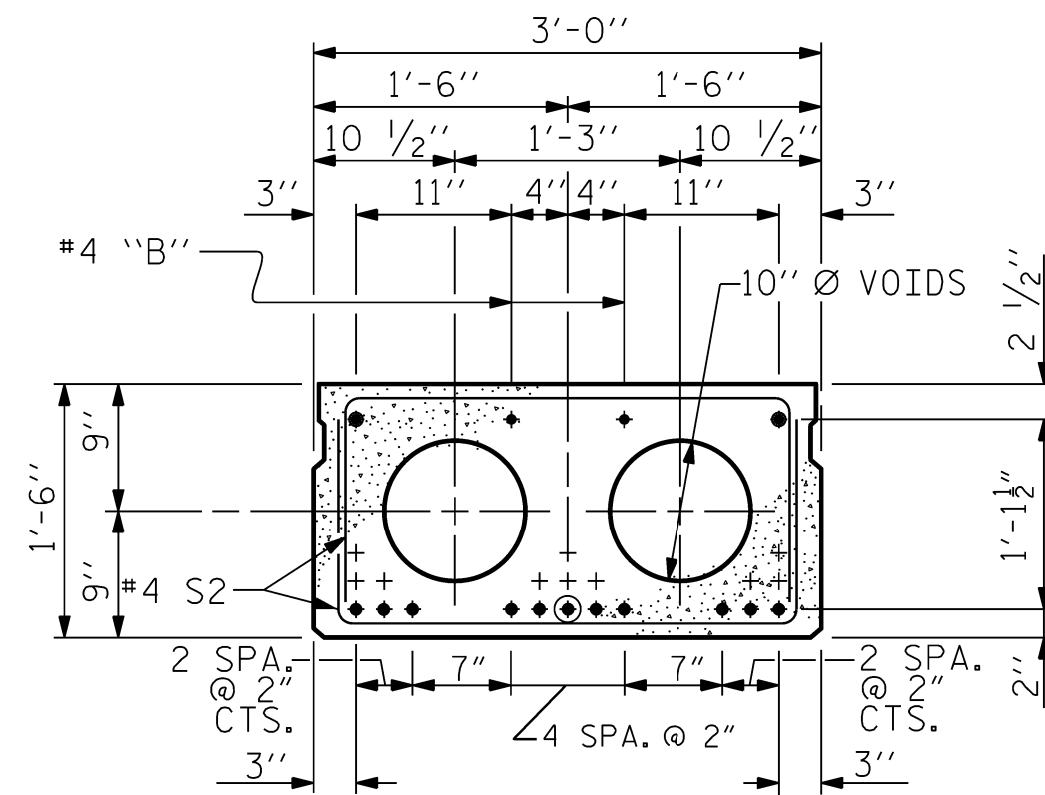
END ELEVATION

SHOWING LOCATION OF BLOCKOUT FOR
ANCHOR BOLTS AND DOWEL HOLES.
EXTERIOR SLAB UNITS ONLY.

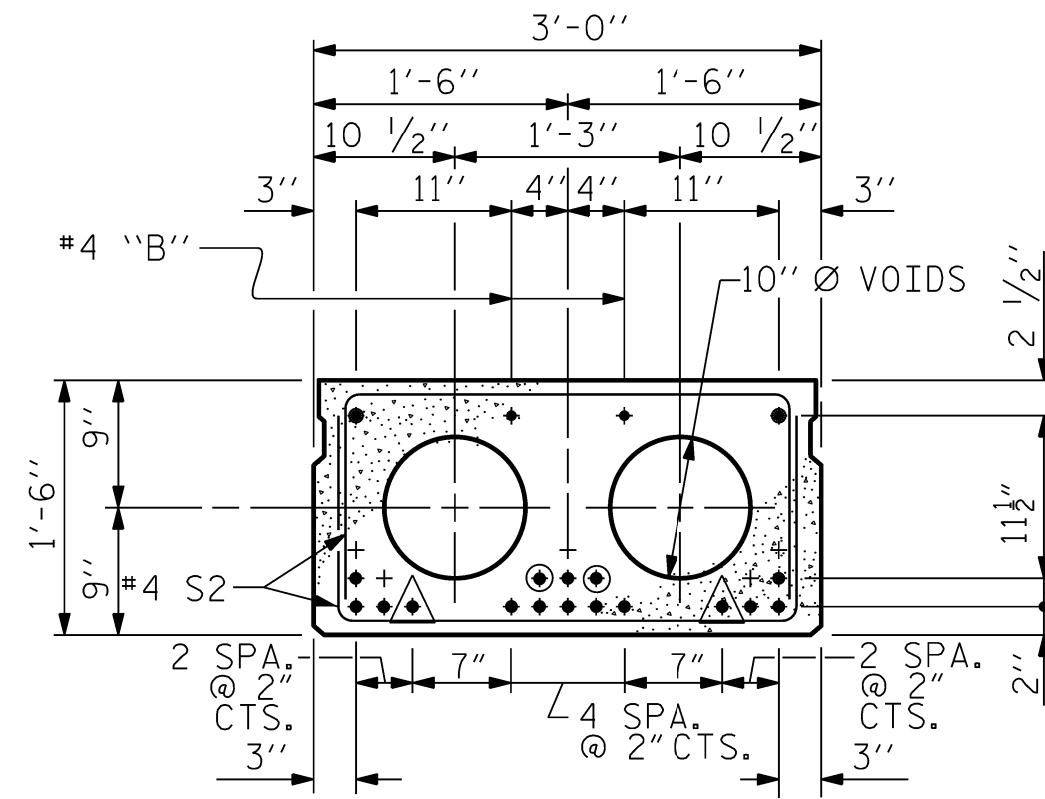


END ELEVATION

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



INTERIOR SLAB SECTION
37'-0" TYPE III UNIT
(12 STRANDS REQUIRED)



INTERIOR SLAB SECTION
45'-0" TYPE III UNIT
(16 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

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

BOND SHALL BE BROKEN ON THESE STRANDS FOR A
DISTANCE OF 2'-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.

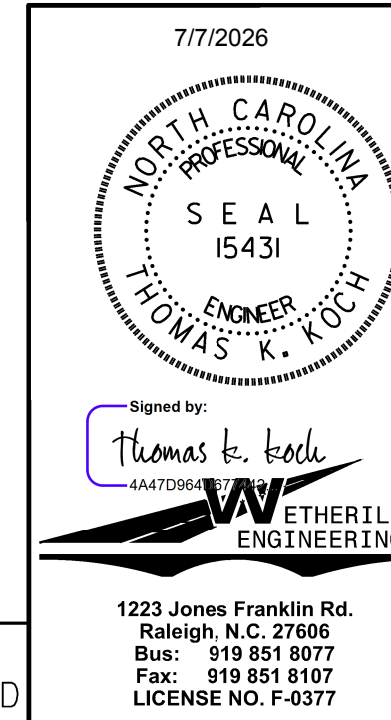
DEBONDING LEGEND

PROJECT NO. **HB-0056**

CALDWELL COUNTY

STATION: **20+46.00 -L-**

SHEET 1 OF 6



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-06
TOTAL SHEETS					26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

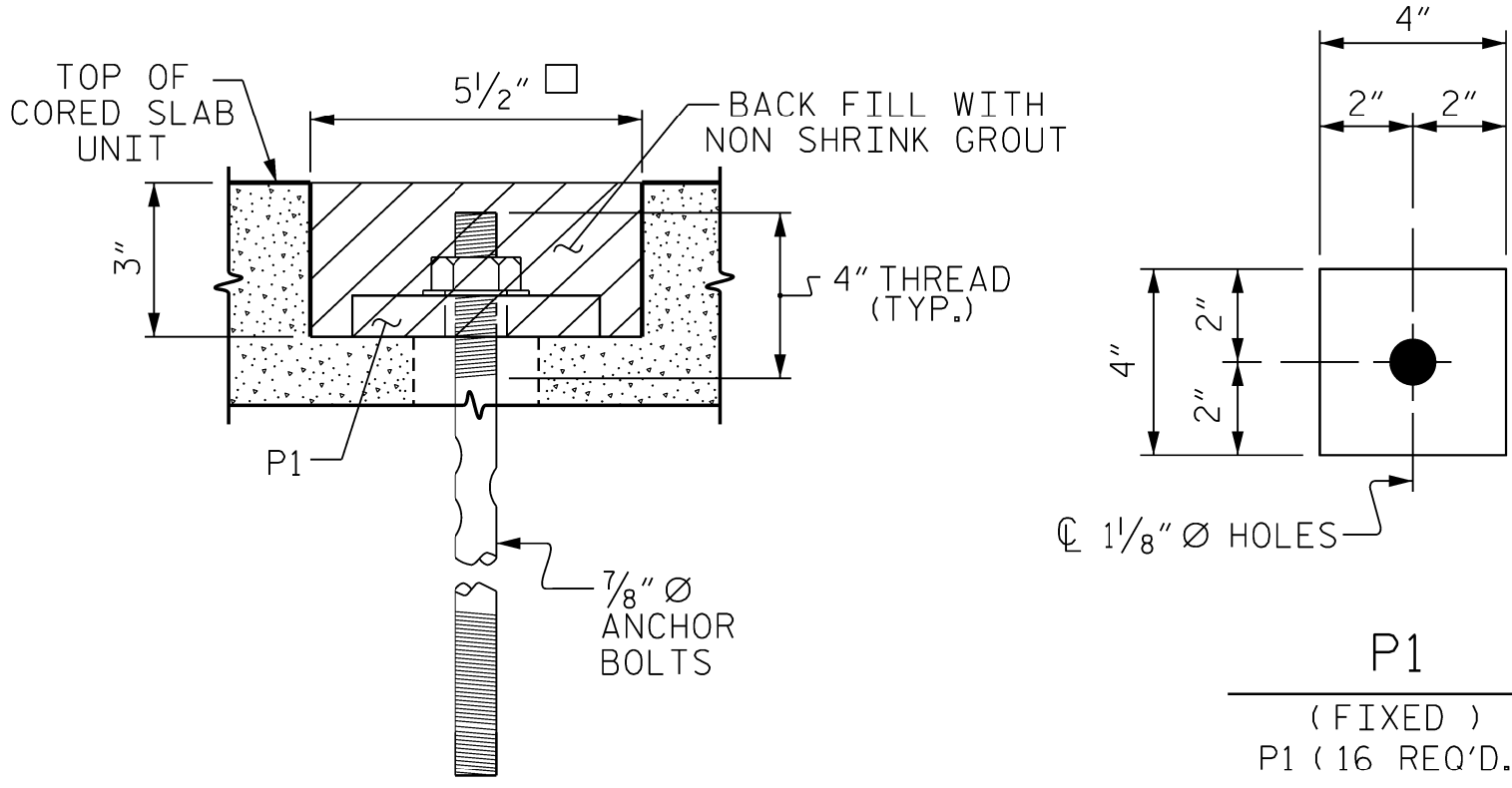
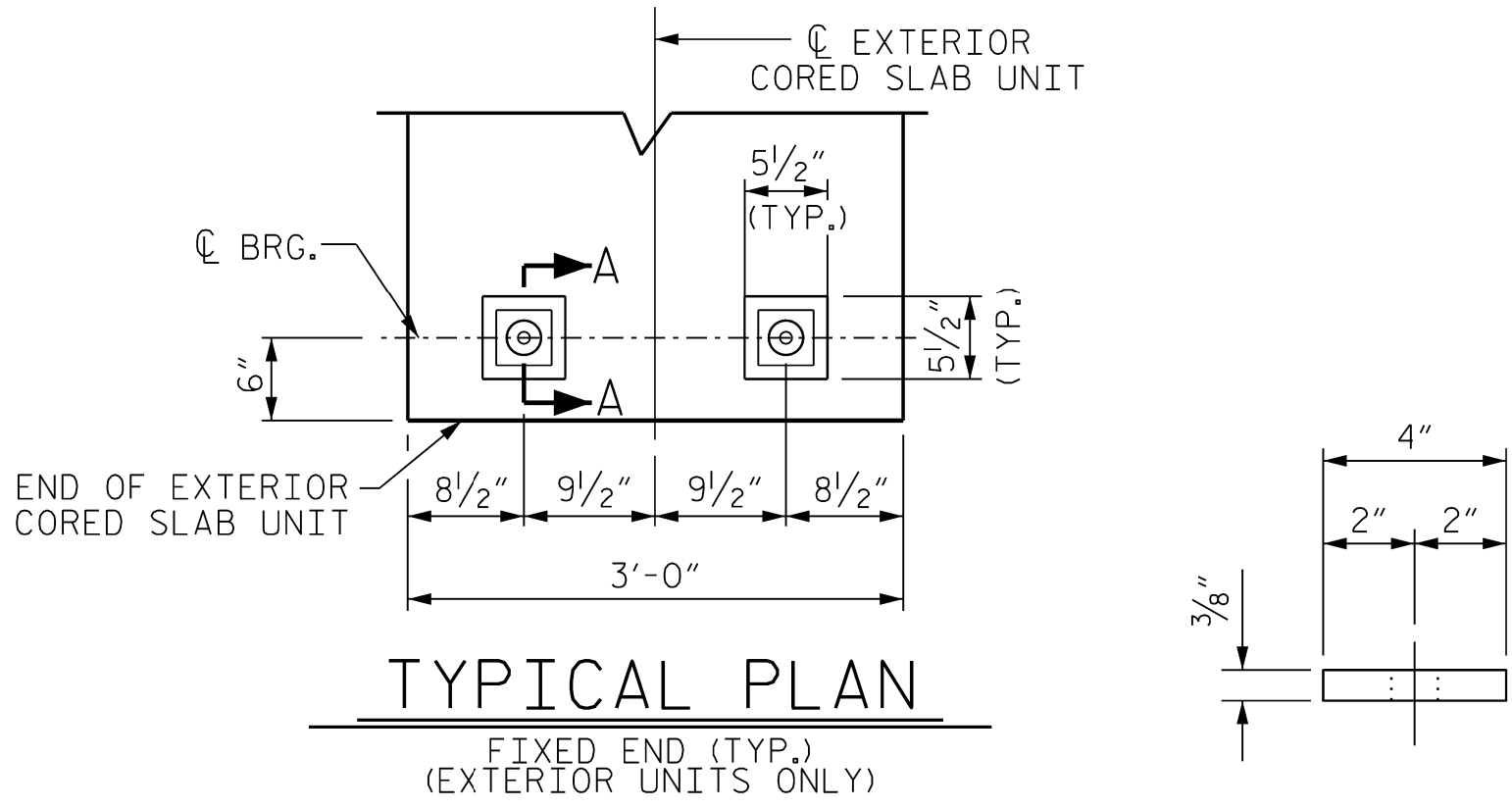
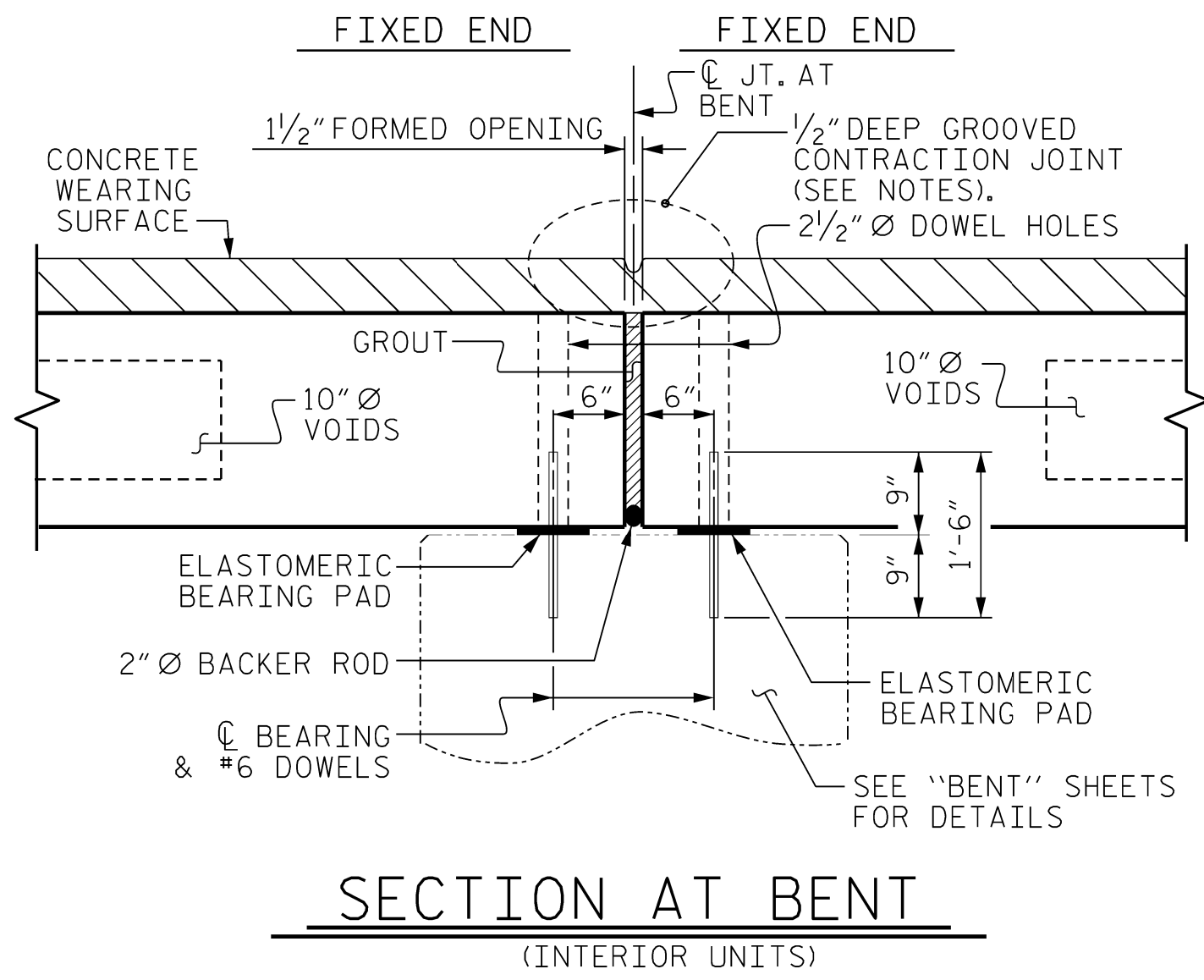
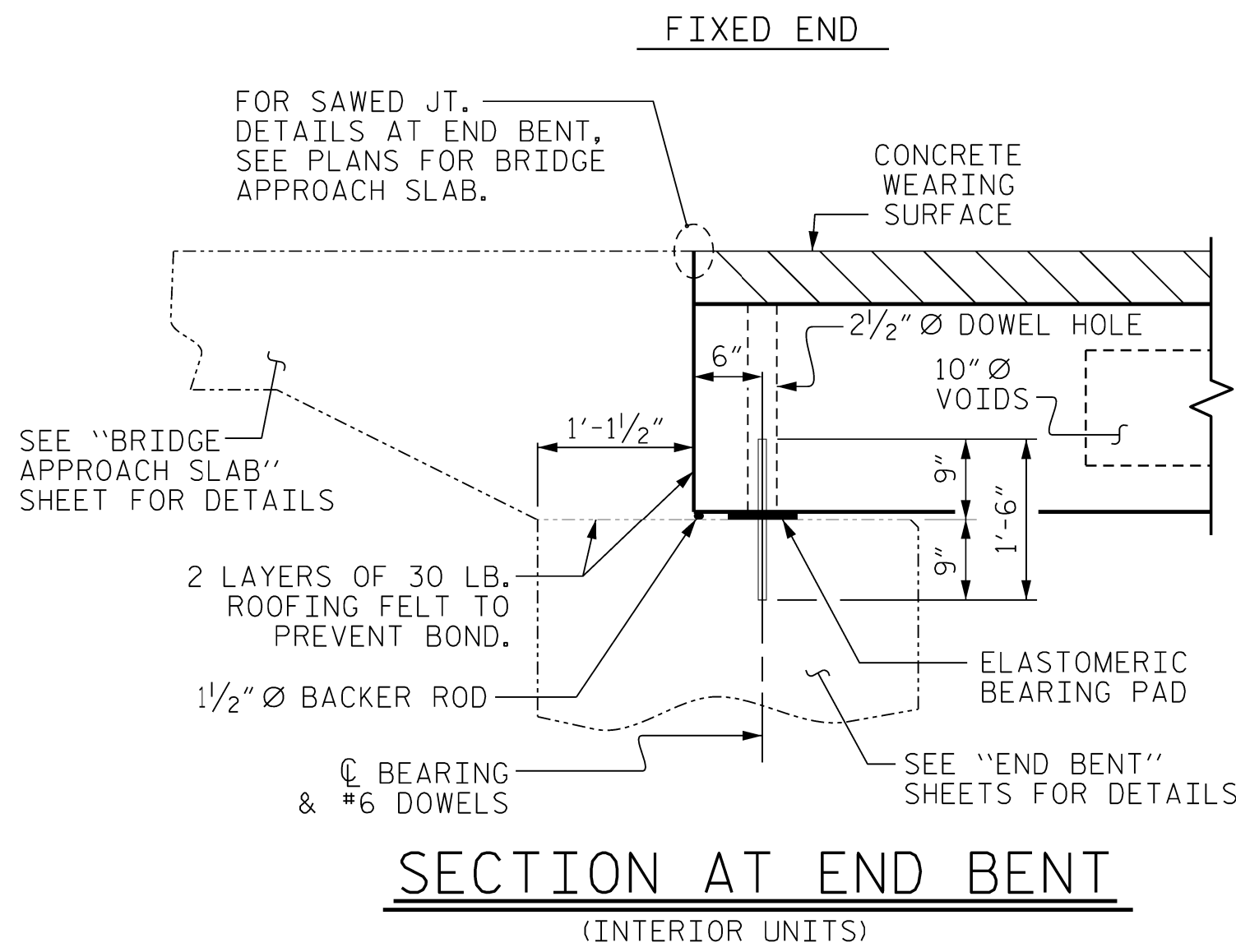
NOTES:

AT ALL FIXED ENDS OF EXTERIOR CORED SLAB SECTIONS WITH HOLD-DOWN ANCHOR BOLTS, NUTS FOR ANCHOR BOLTS SHALL BE FINGER-TIGHTENED AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF EXTERIOR CORED SLAB SECTIONS WITH HOLD-DOWN ANCHOR BOLTS SHALL BE FILLED WITH NON-SHRINK GROUT TO THE BOTTOM OF THE ANCHOR BOLT BLOCKOUT PRIOR TO INSTALLING THE ANCHOR PLATES, WASHERS, AND NUTS.

THE ANCHOR BOLT BLOCKOUTS IN EXTERIOR CORED SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT PRIOR TO PLACEMENT OF THE WEARING SURFACE.

GROOVED CONTRACTION JOINTS, 1/4" IN DEPTH, SHALL BE TOOLED IN THE TOP OF WEARING SURFACE AT INTERIOR BENT WITH CONTINUOUS CONCRETE WEARING SURFACE IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARRD SPECIFICATIONS.



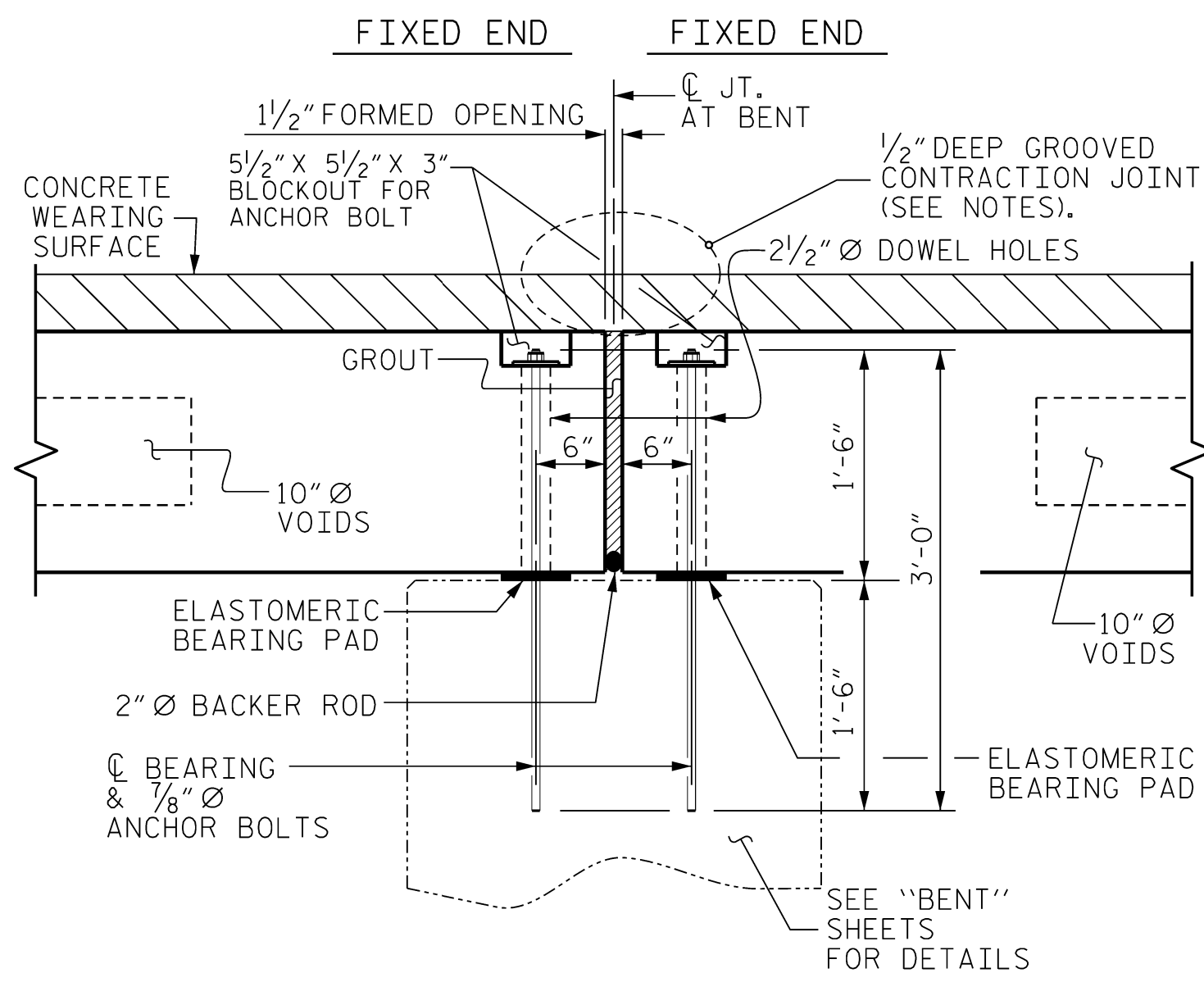
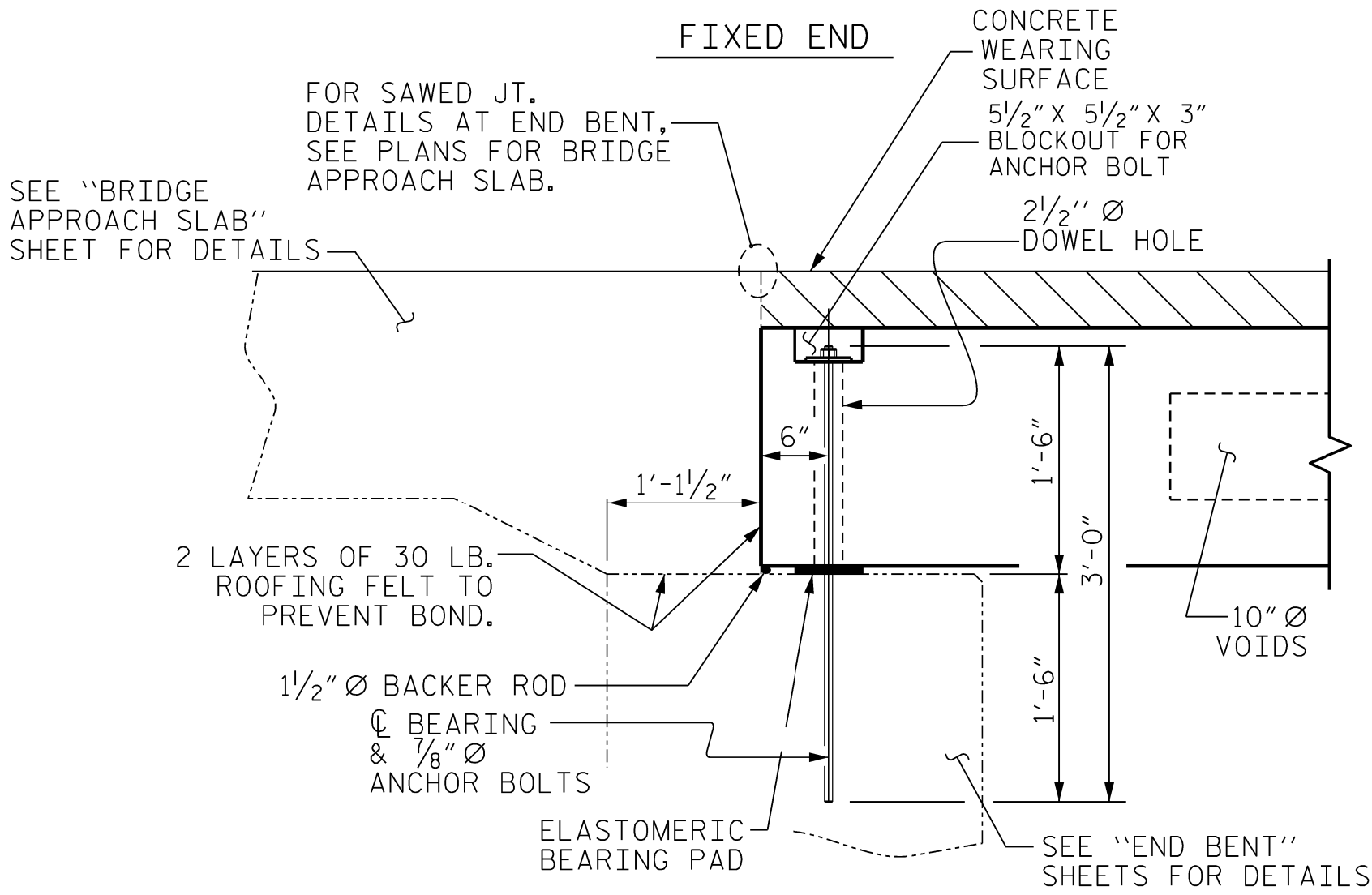
SECTION A-A

(FIXED)

PLATE DETAILS

BLOCKOUT DETAIL FOR ANCHOR BOLTS

(EXTERIOR UNITS ONLY)



PROJECT NO. **HB-0056**

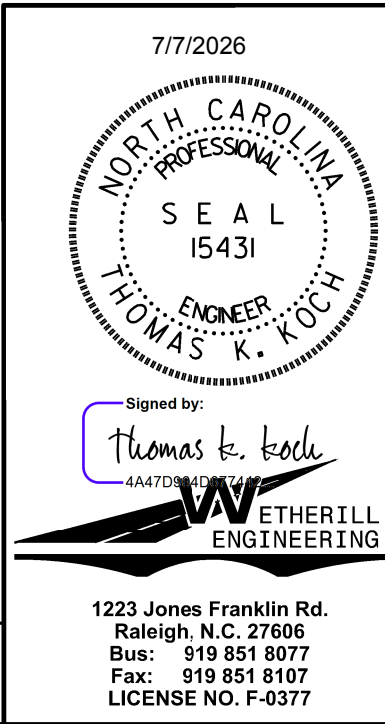
CALDWELL COUNTY

STATION: **20+46.00 -L-**

SHEET 2 OF 6

DRAWN BY : J. PENDERGRAFT DATE : 1-25
CHECKED BY : J. DILWORTH DATE : 3-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

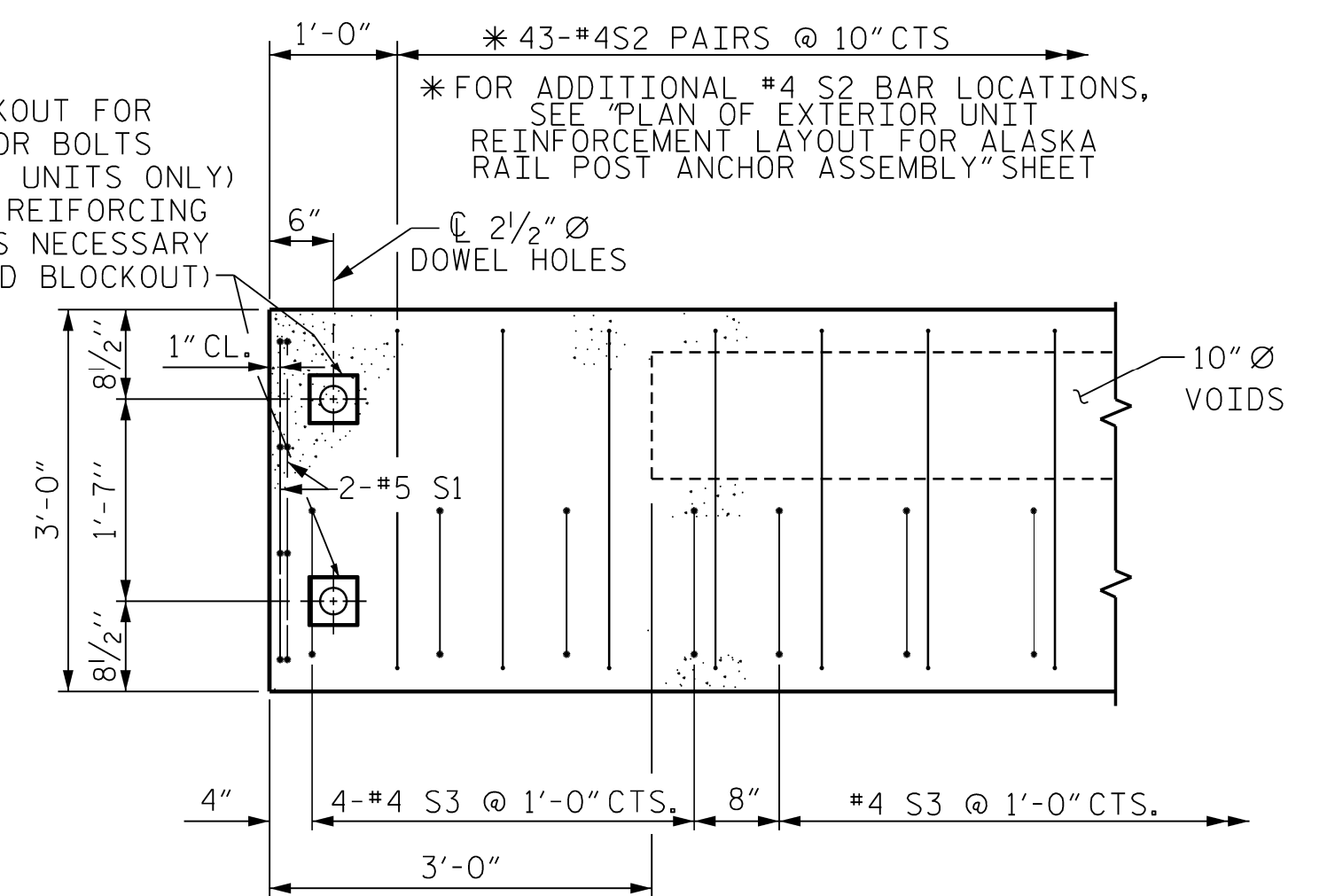
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



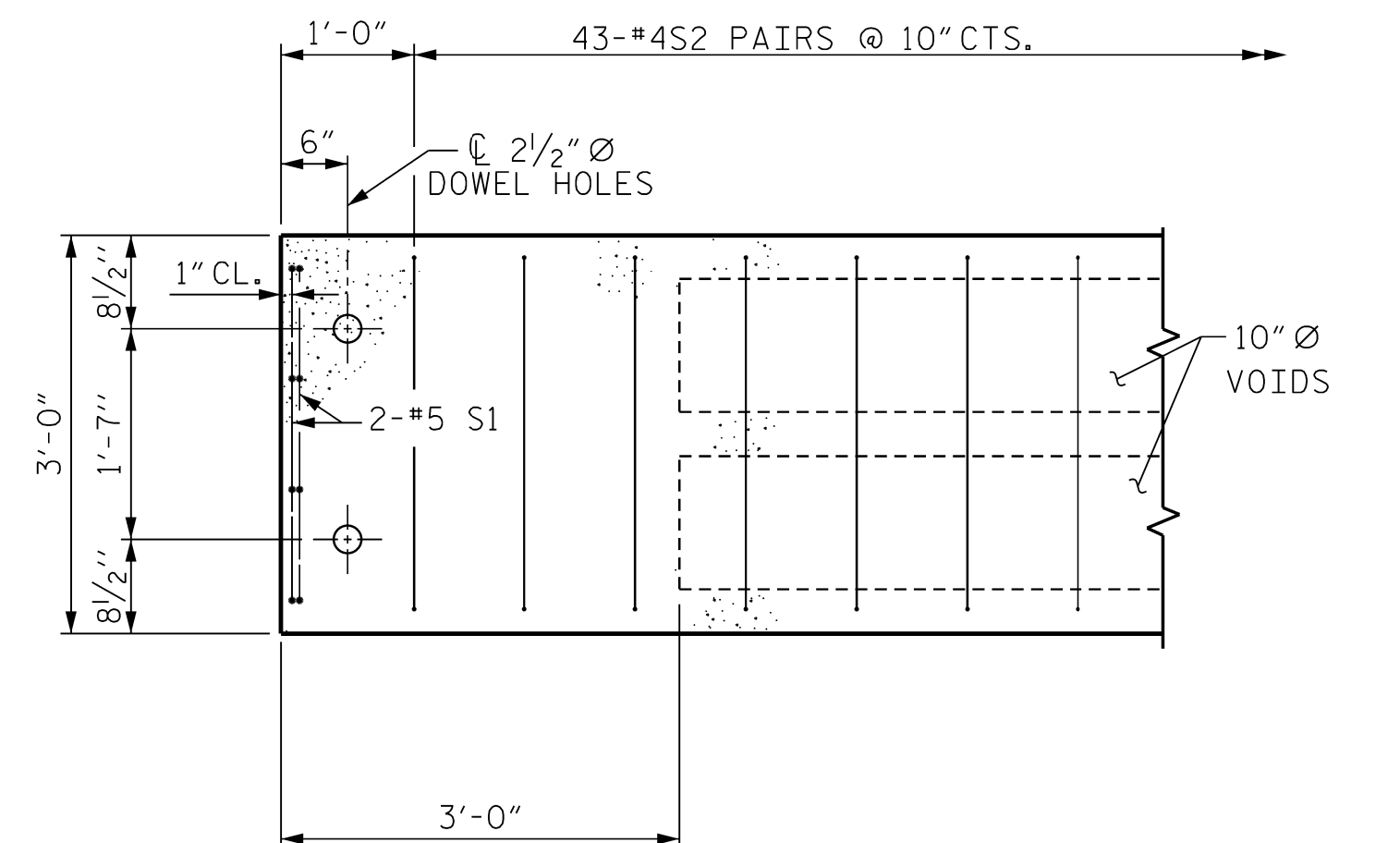
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-07
1			3			TOTAL SHEETS
2			4			26



(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNITS ONLY



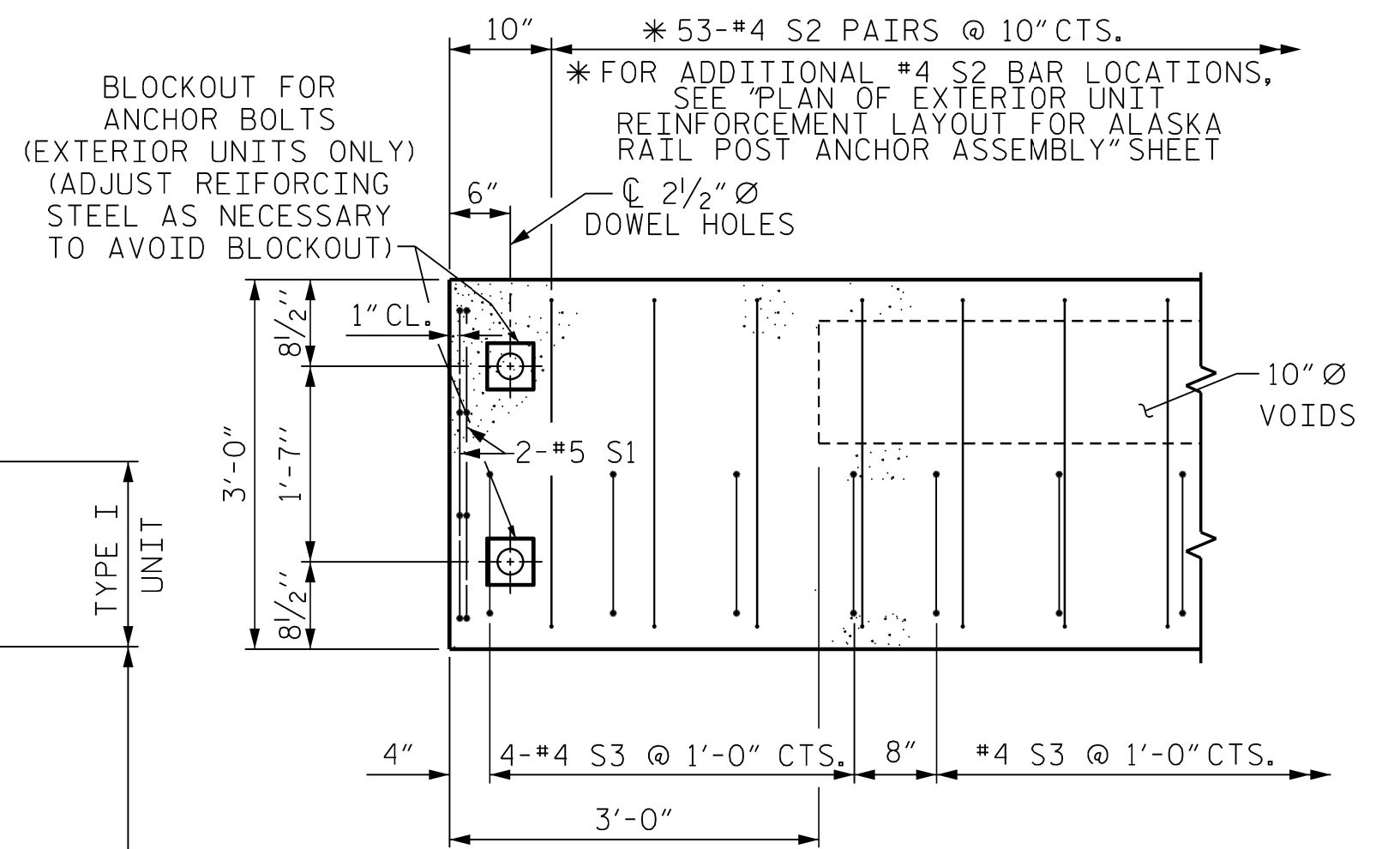
(TYPICAL EACH END OF UNIT)
NOTE: INTERIOR UNITS ONLY

SHEET 3 OF 6

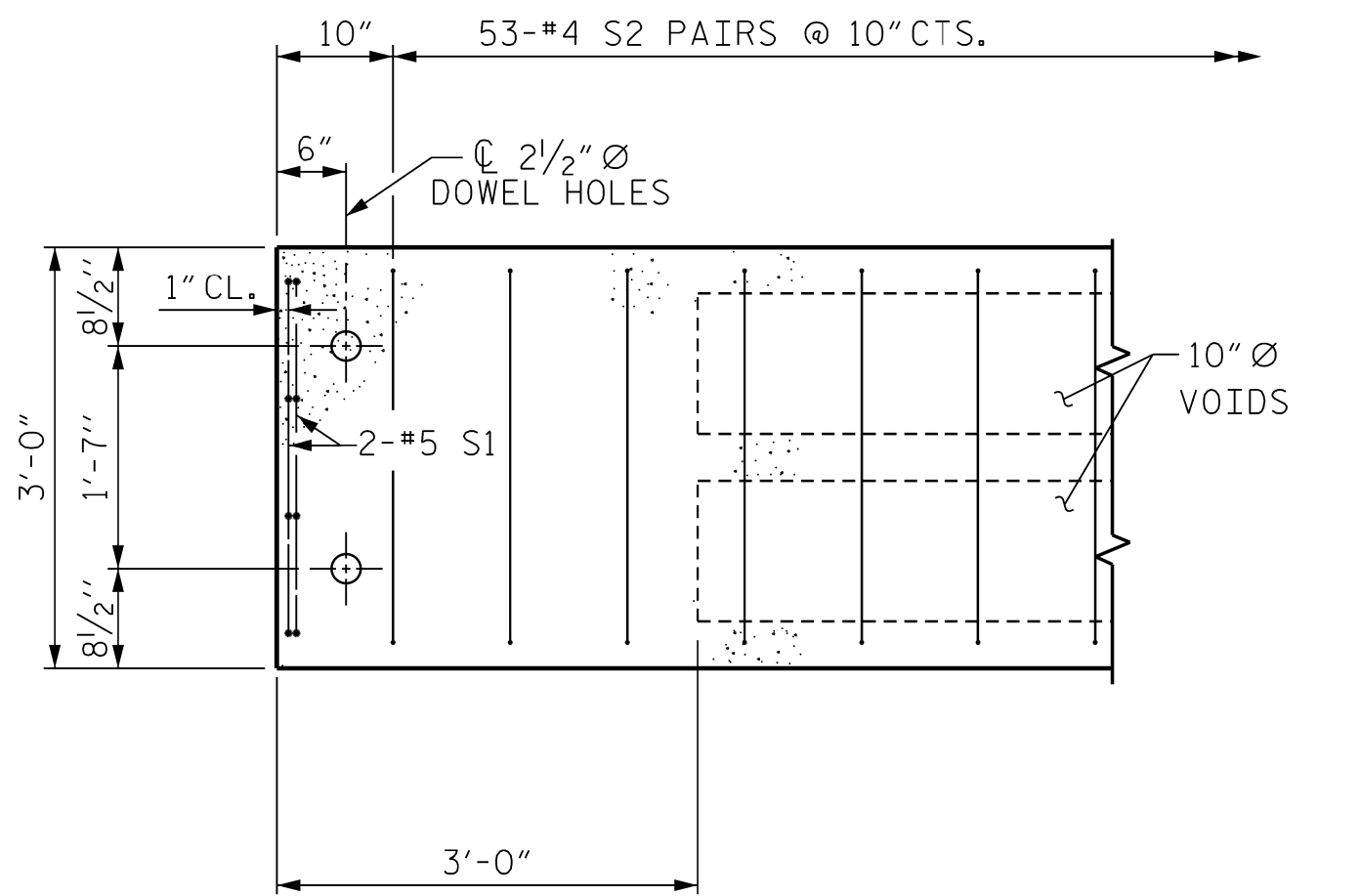


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-08
1			3			TOTAL SHEETS
2			4			26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

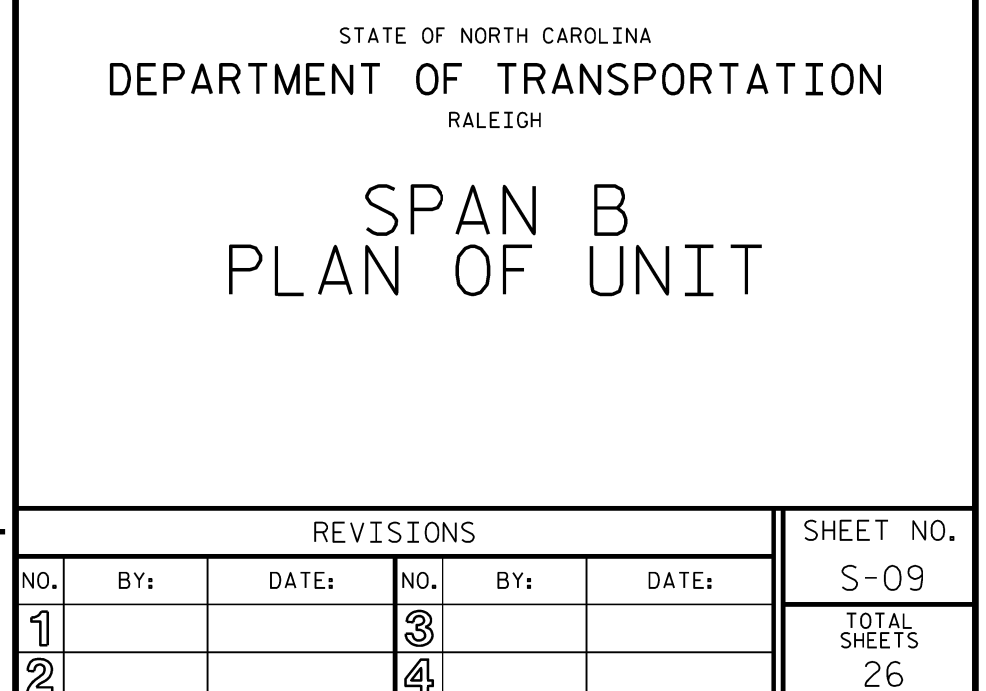


(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNITS ONLY



(TYPICAL EACH END OF UNIT)
NOTE: INTERIOR UNITS ONLY

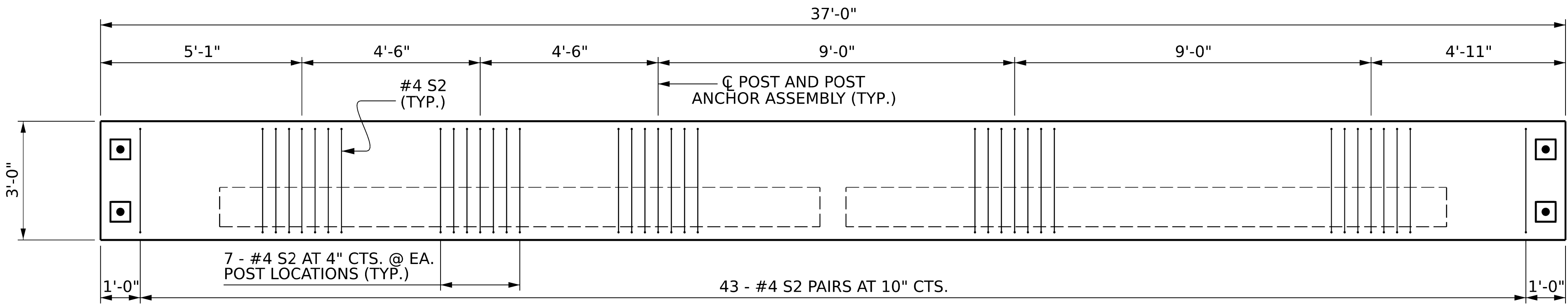
SHEET 4 OF 6



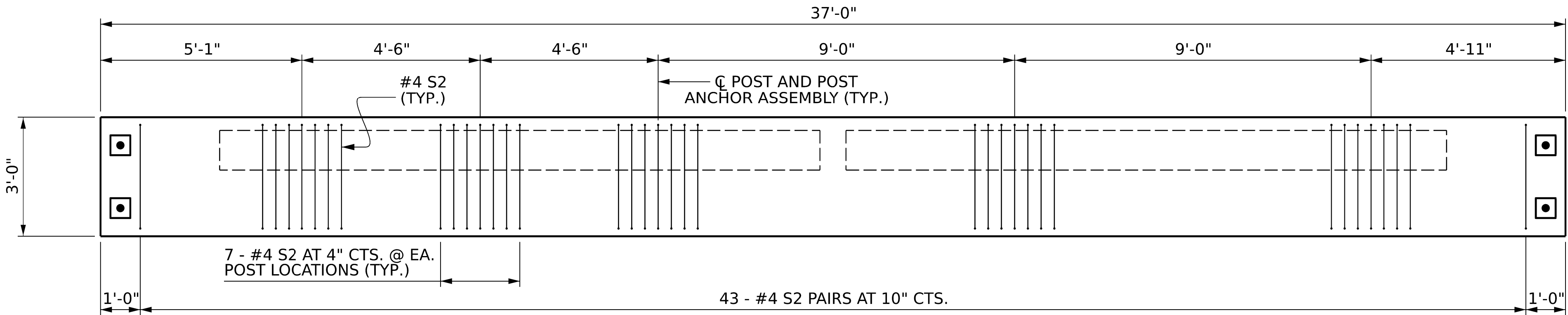
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SPAN B - PLAN OF UNIT

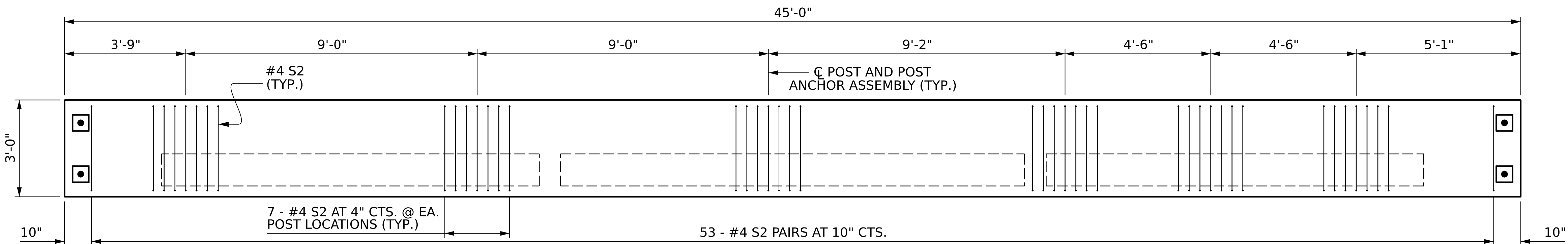
P:\2024\24133\01_HB0056\Structures\02 - Plan Production\01 - DGN\401_019_HB0056_SMU_PS3_010.dgn
4/11/2026 11:14:51 AM



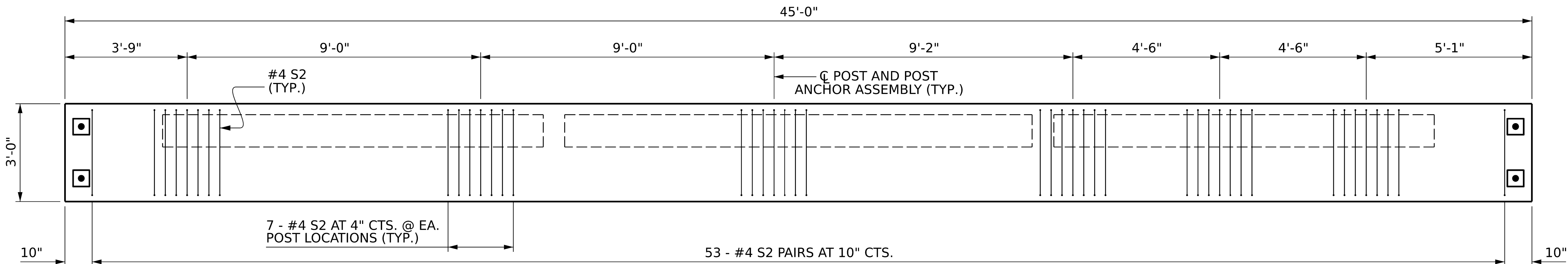
PLAN TYPE I UNIT - SPAN A



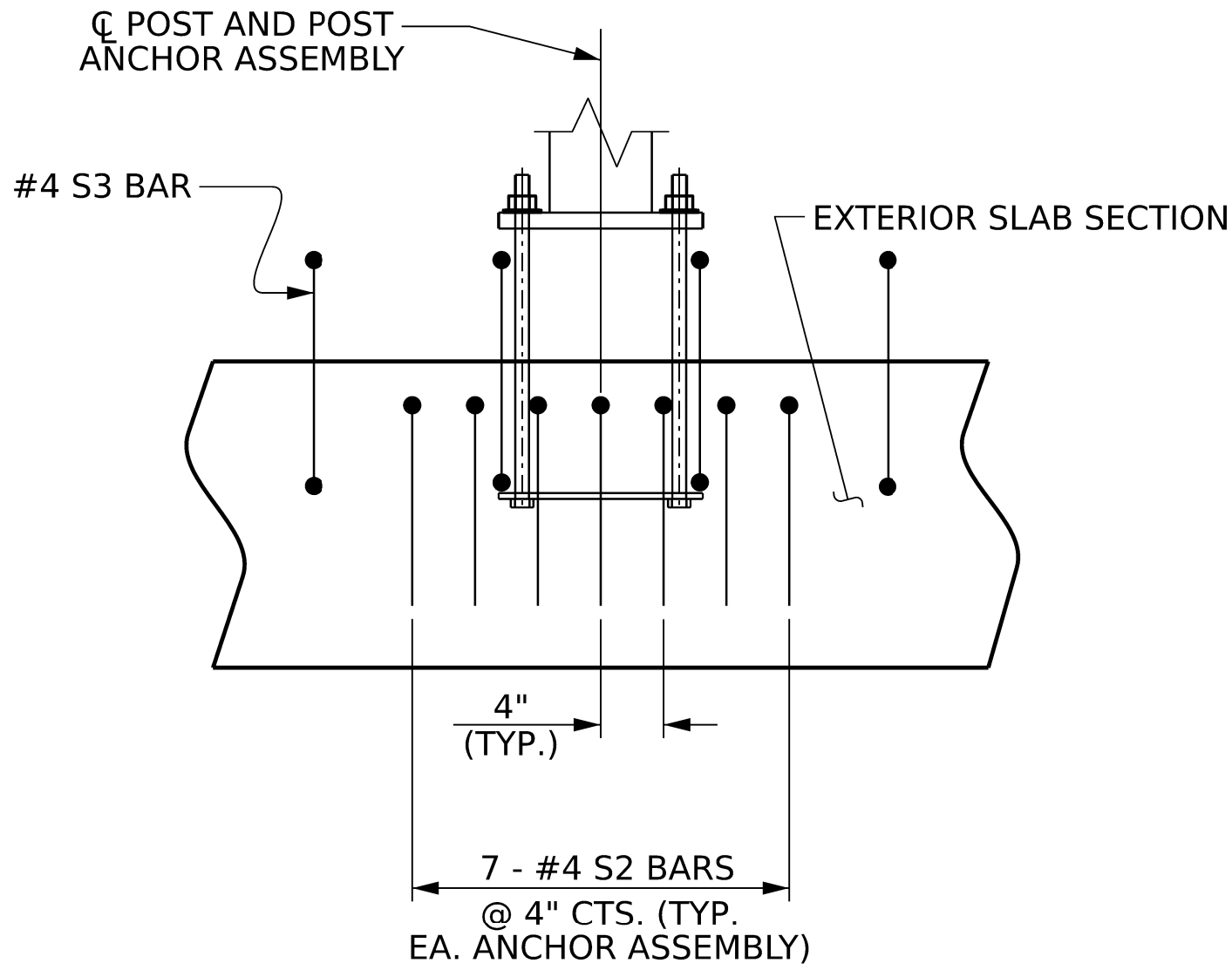
PLAN OF TYPE II UNIT - SPAN A



PLAN OF TYPE I UNIT - SPAN B



PLAN OF TYPE II UNIT - SPAN B



SIDE VIEW AT POST LOCATION

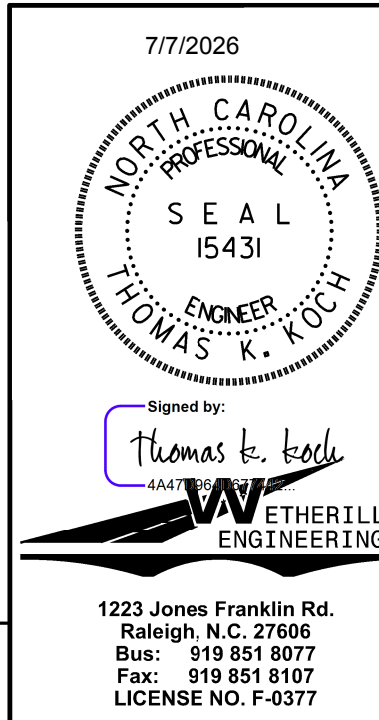
(SHOWING ADDITIONAL S2 BARS AT EACH POST ASSEMBLY)

PROJECT NO. **HB-0056**

CALDWELL COUNTY

STATION: **20+46.00 - L -**

SHEET 5 OF 6



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**PLAN OF EXTERIOR UNIT
REINFORCEMENT LAYOUT
FOR ALASKA RAIL POST
ANCHOR ASSEMBLY**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-10 TOTAL SHEETS 26
2			4			

DRAWN BY : J. PENDERGRAFT DATE : 3-25
CHECKED BY : J. DILWORTH DATE : 3-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

BILL OF MATERIAL FOR ONE
37' CORED SLAB UNIT - SPAN A

			TYPE I UNIT			TYPE II UNIT			TYPE III UNIT		
BAR	SIZE	TYPE	NUMBER	LENGTH	WEIGHT	NUMBER	LENGTH	WEIGHT	NUMBER	LENGTH	WEIGHT
B4	#4	STR	2	36'-8"	49	2	36'-8"	49	2	36'-8"	49
S1	#5	3	8	3'-9"	31	8	3'-9"	31	8	3'-9"	31
S2	#4	3	121	4'-10"	391	121	4'-10"	391	86	4'-10"	278
* S3	#4	1	38	5'-6"	140	38	5'-6"	140			
REINFORCING STEEL			LBS.			471			358		
* EPOXY COATED REINFORCING STEEL			LBS.			140					
5000 P.S.I. CONCRETE			CU. YDS.			5.5			4.9		
0.6" Ø L.R. STRANDS			No.			13			12		

BILL OF MATERIAL FOR ONE
45' CORED SLAB UNIT - SPAN B

			TYPE I UNIT			TYPE II UNIT			TYPE III UNIT		
BAR	SIZE	TYPE	NUMBER	LENGTH	WEIGHT	NUMBER	LENGTH	WEIGHT	NUMBER	LENGTH	WEIGHT
B5	#4	STR	4	23'-3"	62	4	23'-3"	62	4	23'-3"	62
S1	#5	3	8	3'-9"	31	8	3'-9"	31	8	3'-9"	31
S2	#4	3	148	4'-10"	478	148	4'-10"	478	106	4'-10"	342
* S3	#4	1	46	5'-6"	169	46	5'-6"	169			
REINFORCING STEEL			LBS.			571			435		
* EPOXY COATED REINFORCING STEEL			LBS.			169					
6000 P.S.I. CONCRETE			CU. YDS.			6.7			5.9		
0.6" Ø L.R. STRANDS			No.			18			16		

NOTES

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

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

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

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.

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

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

WHEN A CONCRETE WEARING SURFACE IS DETAILED ON THE CORED SLAB BRIDGE TYPICAL SECTION, THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A ⅜" RAKED FINISH.

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 4000 PSI SPAN A AND 4500 PSI SPAN B.

ALL REINFORCING STEEL IN 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, ½" 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.

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

FOR GROUT FOR STRUCTURES, SEE SPECIFIC PROVISIONS.

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

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

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

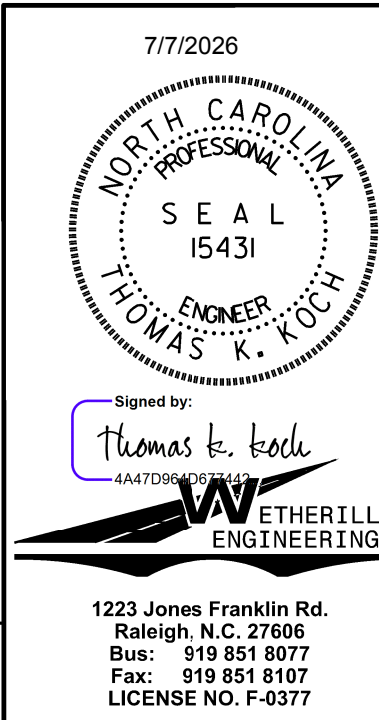
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

THE COST OF THE METAL RAIL ANCHOR ASSEMBLY CAST WITH THE CORED SLAB SECTIONS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

FOR CORED SLAB POST-TENSIONING, SEE SPECIAL PROVISIONS.

PROJECT NO. **HB-0056**
CALDWELL COUNTY
STATION: **20+46.00 - L -**

SHEET 6 OF 6



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-11 TOTAL SHEETS 26
2			4			

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-6377

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

			TYPE I UNIT			TYPE II UNIT			TYPE III UNIT		
BAR	SIZE	TYPE	NUMBER	LENGTH	WEIGHT	NUMBER	LENGTH	WEIGHT	NUMBER	LENGTH	WEIGHT
B4	#4	STR	2	36'-8"	49	2	36'-8"	49	2	36'-8"	49
S1	#5	3	8	3'-9"	31	8	3'-9"	31	8	3'-9"	31
S2	#4	3	121	4'-10"	391	121	4'-10"	391	86	4'-10"	278
* S3	#4	1	38	5'-6"	140	38	5'-6"	140			
REINFORCING STEEL			LBS.			471			358		
* EPOXY COATED REINFORCING STEEL			LBS.			140					
5000 P.S.I. CONCRETE			CU. YDS.			5.5			4.9		
0.6" Ø L.R. STRANDS			No.			13			12		

CORED SLABS REQUIRED

NUMBER LENGTH TOTAL LENGTH			
37' UNIT			
EXTERIOR C.S. TYPE I	1	37'-0"	37'-0"
EXTERIOR C.S. TYPE II	1	37'-0"	37'-0"
INTERIOR C.S. TYPE III	9	37'-0"	333'-0"
TOTAL	11		407'-0"

DEAD LOAD DEFLECTION AND CAMBER

EXTERIOR UNITS	3'-0" x 1'-6"
37' CORED SLAB TYPE I & II UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1⅜" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	⅛" ↓
FINAL CAMBER	1⅜" ↑

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER

INTERIOR UNITS	3'-0" x 1'-6"
37' CORED SLAB TYPE III UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1⅜" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	⅛" ↓
FINAL CAMBER	1⅜" ↑

** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED

NUMBER LENGTH TOTAL LENGTH			
45' UNIT			
EXTERIOR C.S. TYPE I	1	45'-0"	45'-0"
EXTERIOR C.S. TYPE II	1	45'-0"	45'-0"
INTERIOR C.S. TYPE III	9	45'-0"	405'-0"
TOTAL	11		495'-0"

DEAD LOAD DEFLECTION AND CAMBER

EXTERIOR UNITS	3'-0" x 1'-6"
45' CORED SLAB TYPE I & II UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1⅜" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	⅝" ↓
FINAL CAMBER	1" ↑

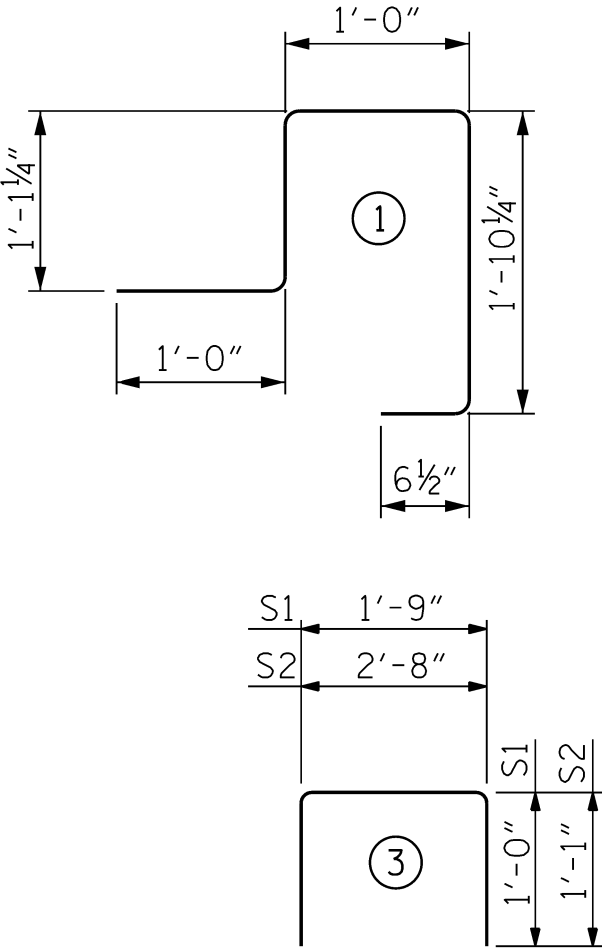
** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER

INTERIOR UNITS	3'-0" x 1'-6"
45' CORED SLAB TYPE III UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1⅜" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	⅝" ↓
FINAL CAMBER	1" ↑

** INCLUDES FUTURE WEARING SURFACE

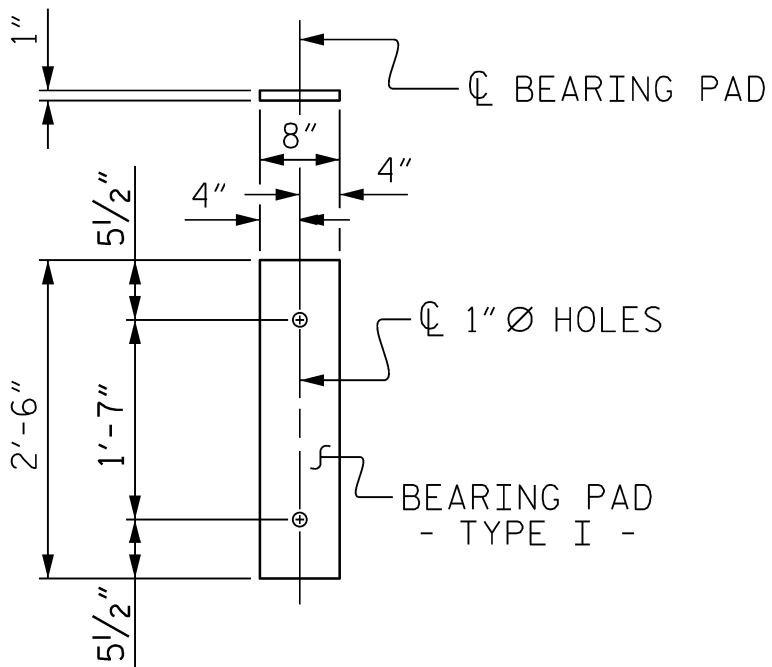
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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

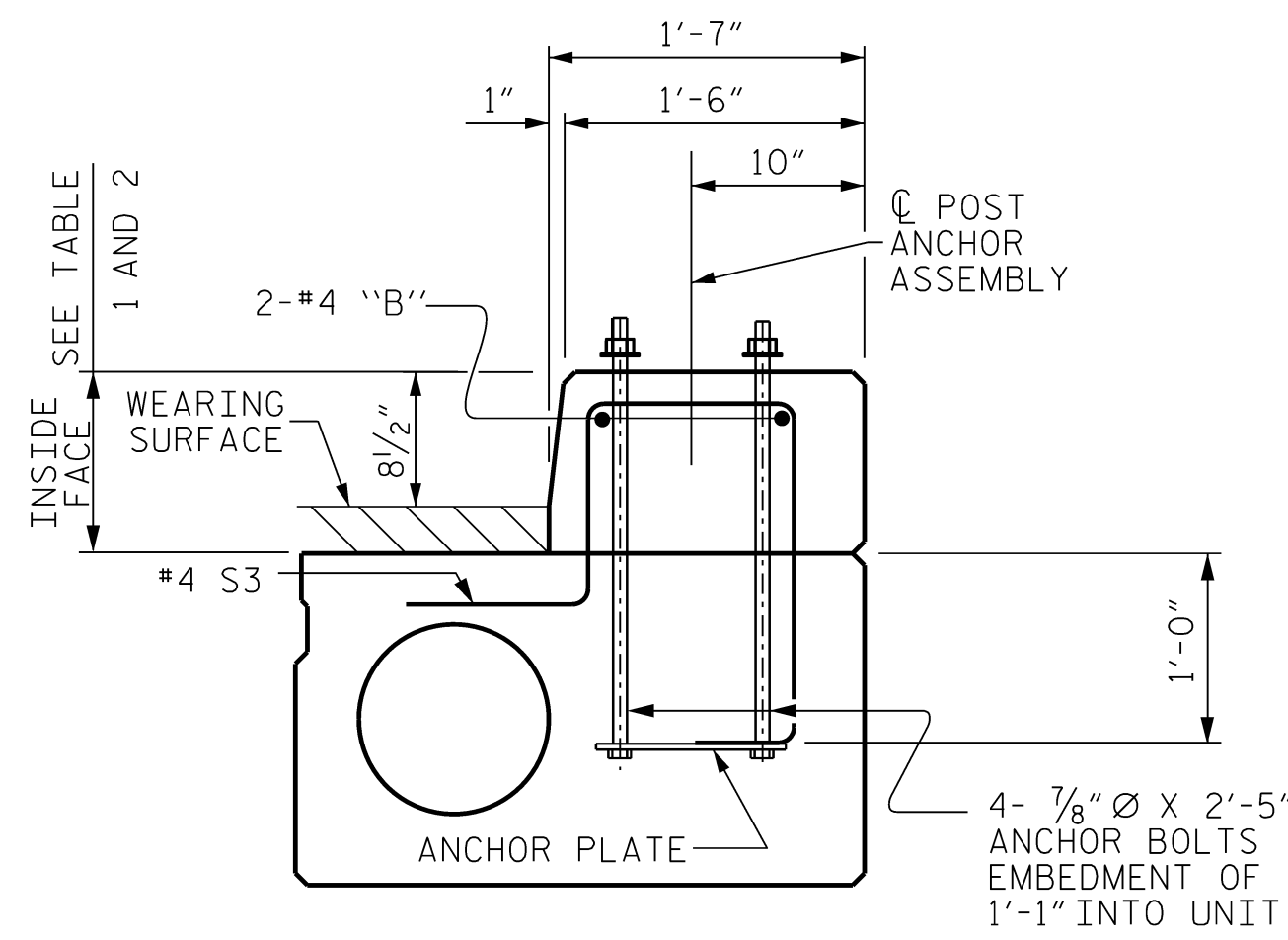


FIXED END

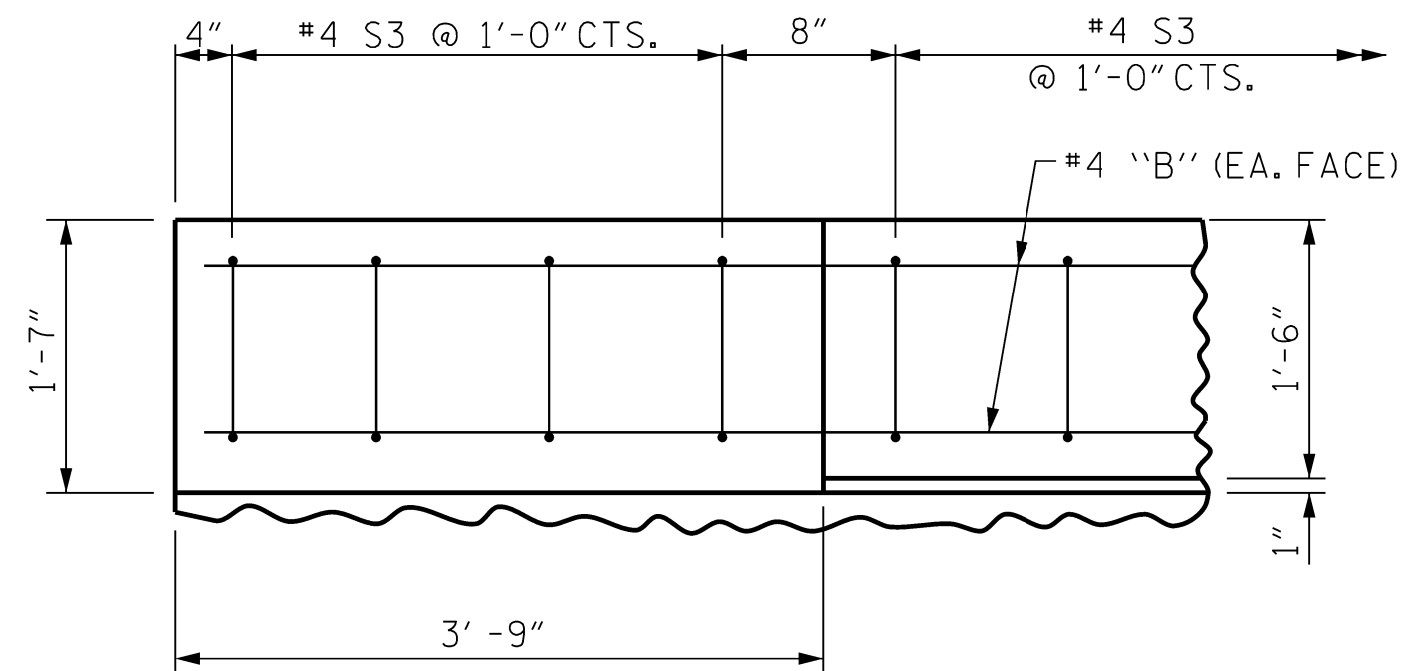
(TYPE I - 44 REQ'D)

ELASTOMERIC BEARING DETAILS

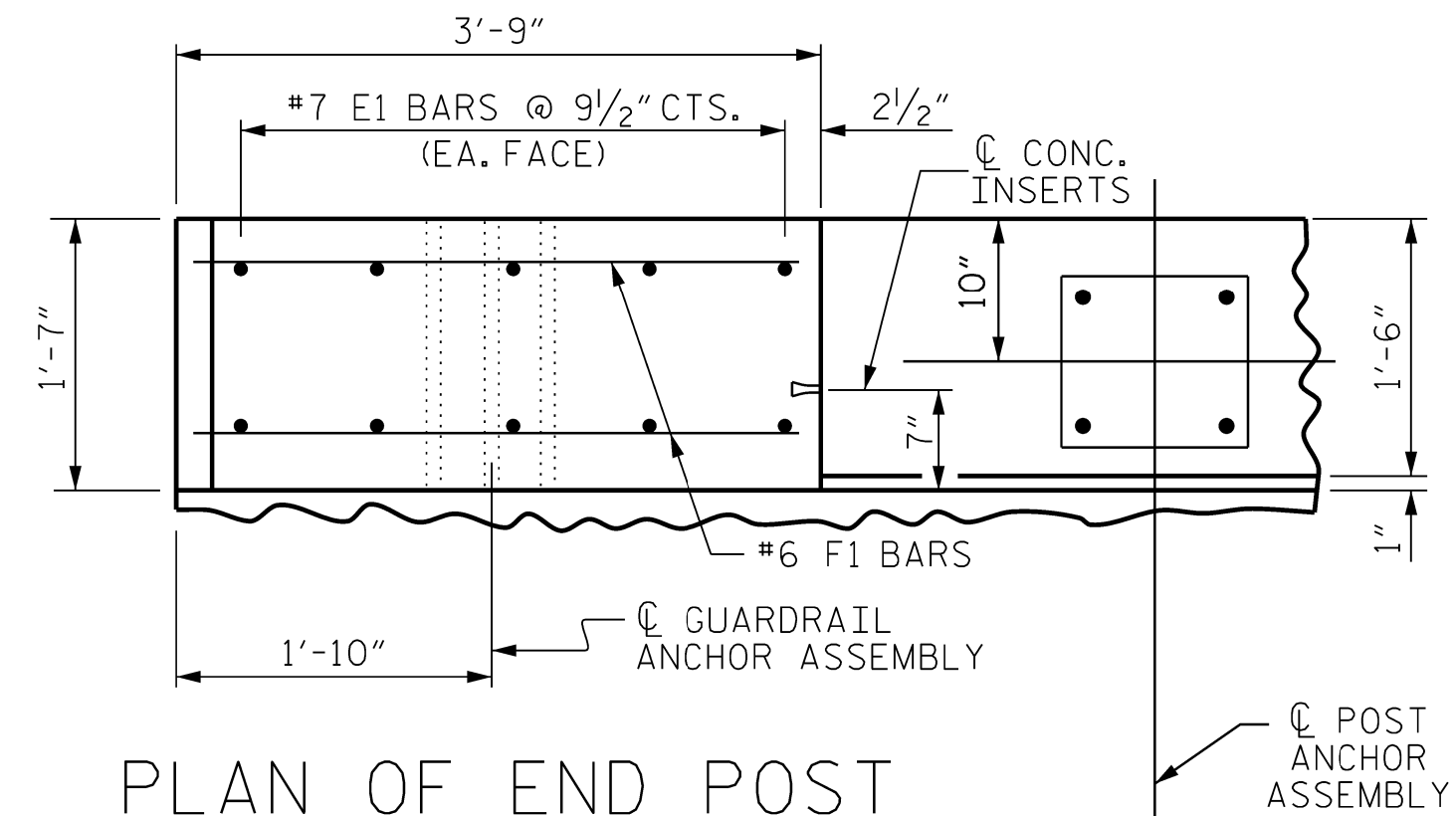
ELASTOMER IN BEARINGS FOR 18" CSU SHALL BE 50 DUROMETER HARDNESS.



ALASKA RAIL CURB SECTION



PLAN OF CURB

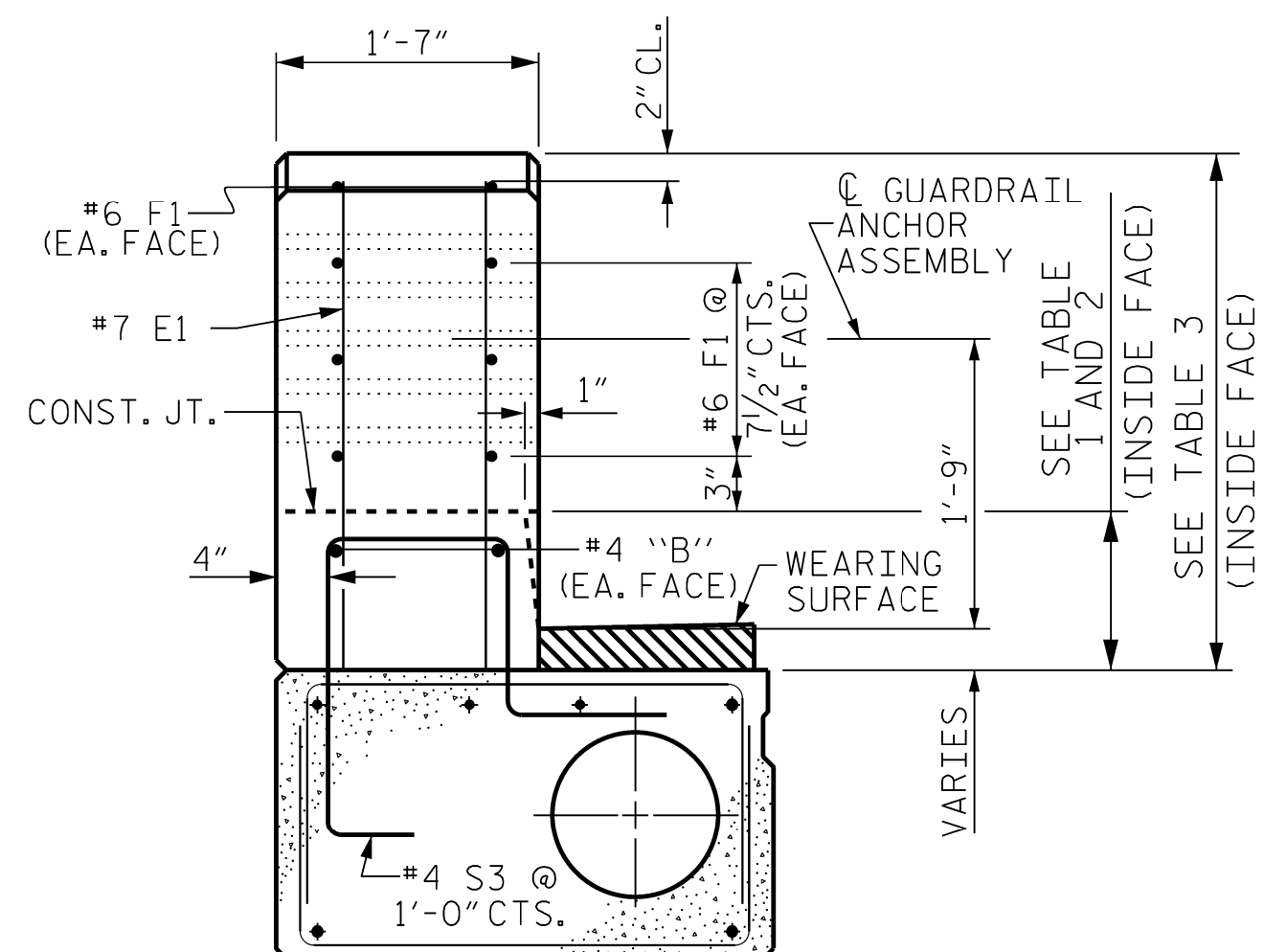


PLAN OF END POST

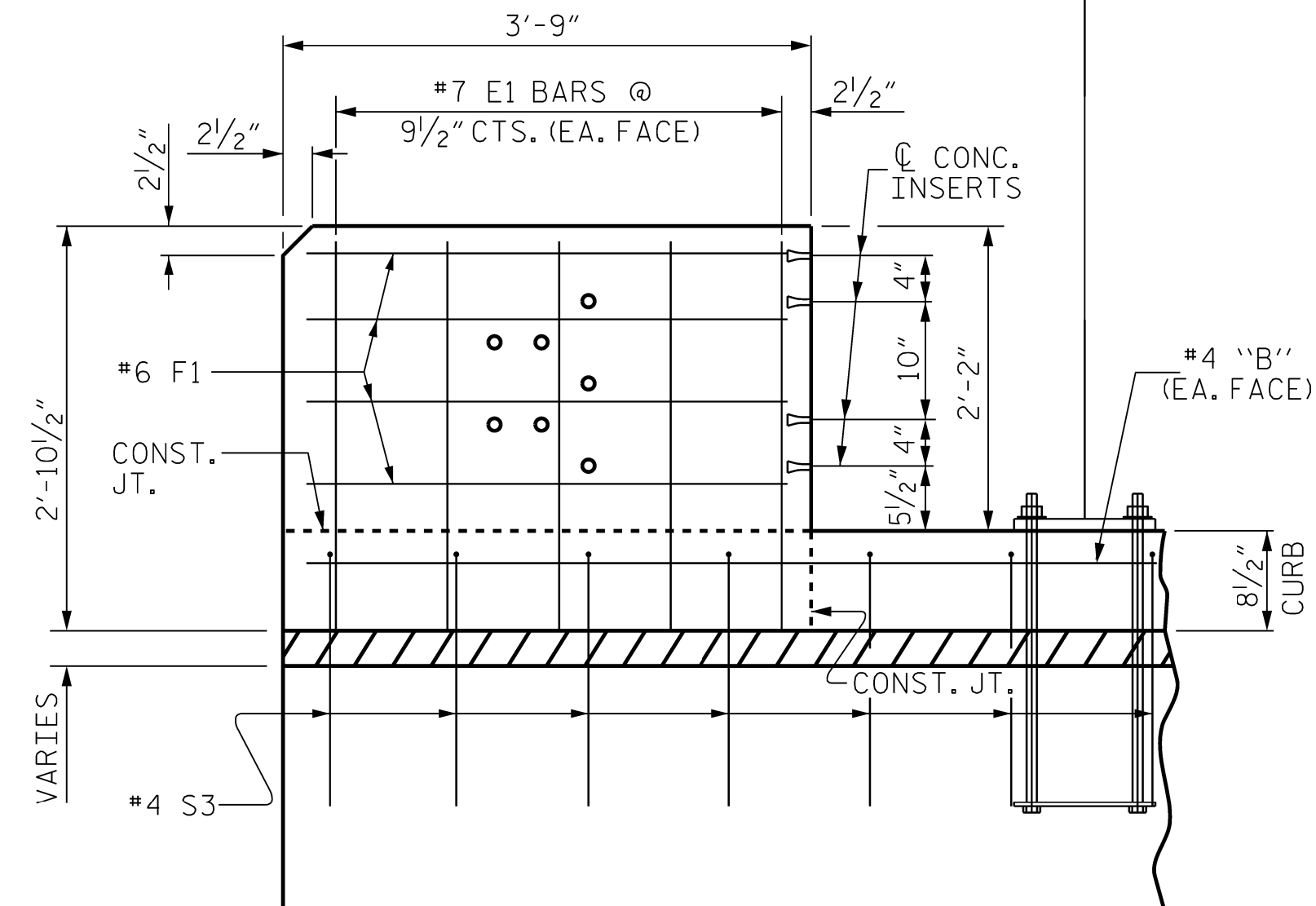
TABLE 1 CONCRETE OVERLAY THICKNESS AT CENTERLINE BEARING				MAXIMUM CURB HEIGHTS (INSIDE FACE) AT CENTERLINE BEARING		
	LEFT GUTTERLINE	-L- LINE	RIGHT GUTTERLINE		LEFT GUTTERLINE	RIGHT GUTTERLINE
END BENT 1	4¾"	4¾"	4¾"	END BENT 1	1'-1¼"	1'-1¼"
BENT 1	4¾"	4¾"	4¾"	BENT 1	1'-1¼"	1'-1¼"
END BENT 2	4¾"	4¾"	4¾"	END BENT 2	1'-1¼"	1'-1¼"

TABLE 2 CONCRETE OVERLAY THICKNESS & CURB HEIGHT AT MID-SPAN				
	OVERLAY THICKNESS @ MID-SPAN		CURB HEIGHT (INSIDE FACE) @ MID-SPAN	
	LEFT GUTTERLINE	RIGHT GUTTERLINE	LEFT GUTTERLINE	RIGHT GUTTERLINE
SPAN A	4½"	4½"	1'-0¾"	1'-0¾"
SPAN B	3¾"	3¾"	1'-0¼"	1'-0¼"

TABLE 3 END POST HEIGHTS (INSIDE FACE) AT CENTERLINE OF BEARING		
	LEFT GUTTERLINE	RIGHT GUTTERLINE
END BENT 1	3'-3¼"	3'-3¼"
END BENT 2	3'-3¼"	3'-3¼"

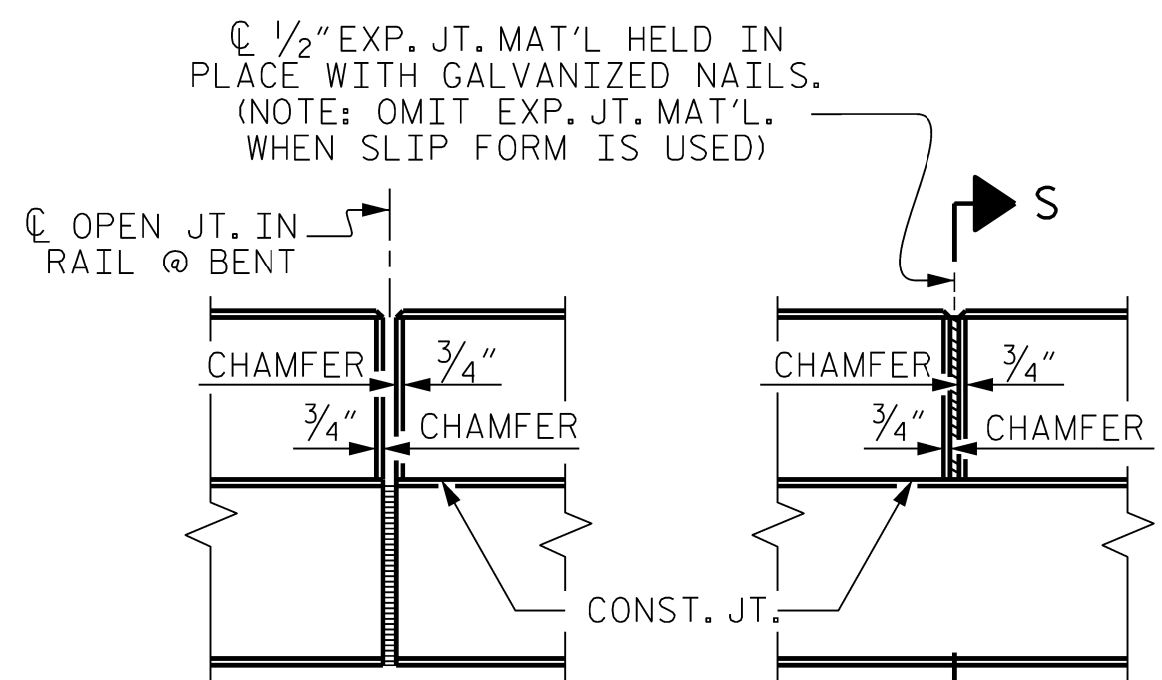


END VIEW

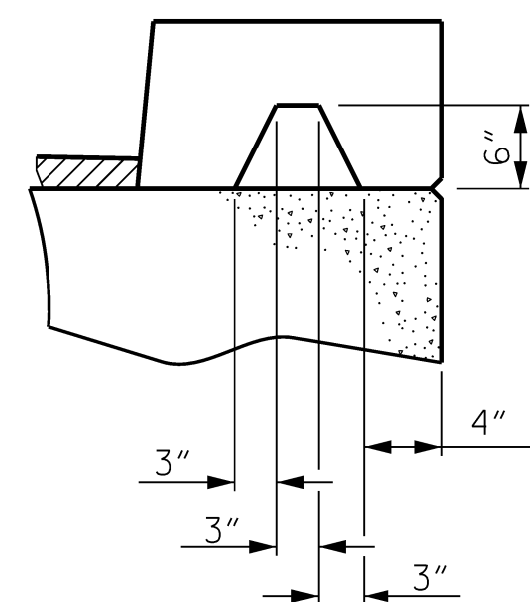


ELEVATION

CURB AND END POST FOR 32" ALASKA RAIL



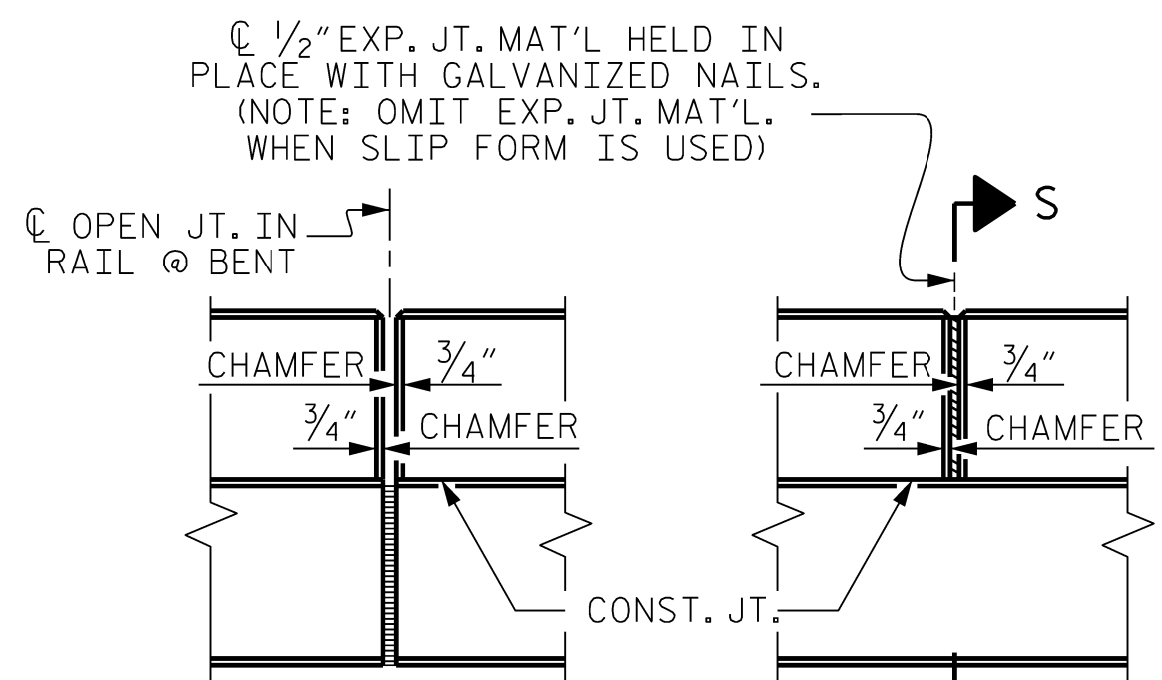
ELEVATION AT EXPANSION JOINTS



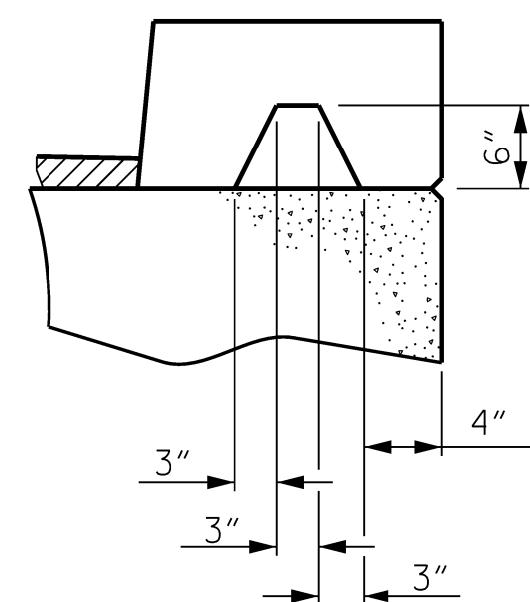
SECTION S-S

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

BILL OF MATERIAL FOR 2 CURBS & 4 END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B11	8	#4	STR	18'-1"	97
*B12	8	#4	STR	22'-1"	118
*E1	40	#7	STR	3'-1"	252
*F1	32	#6	STR	3'-5"	164
*EPOXY COATED REINFORCING STEEL 631 LBS.					
CLASS AA CONCRETE				11.9 CU.YDS.	
1'-7" x 1'-1 1/4" CONCRETE CURB				164.25 LIN.FT.	



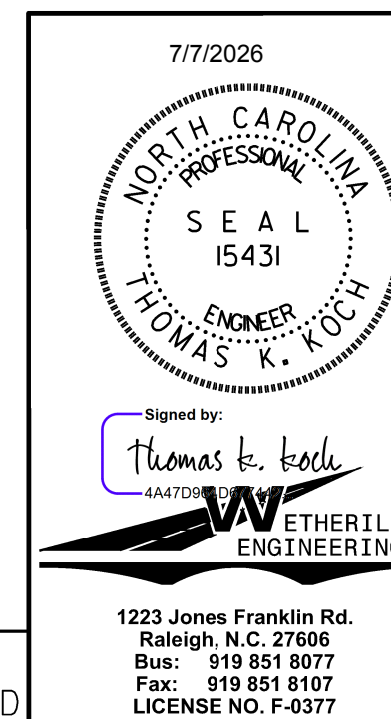
ELEVATION AT EXPANSION JOINTS



SECTION S-S

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

PROJECT NO. HB-0056
CALDWELL COUNTY
 STATION: 20+46.00 - L -



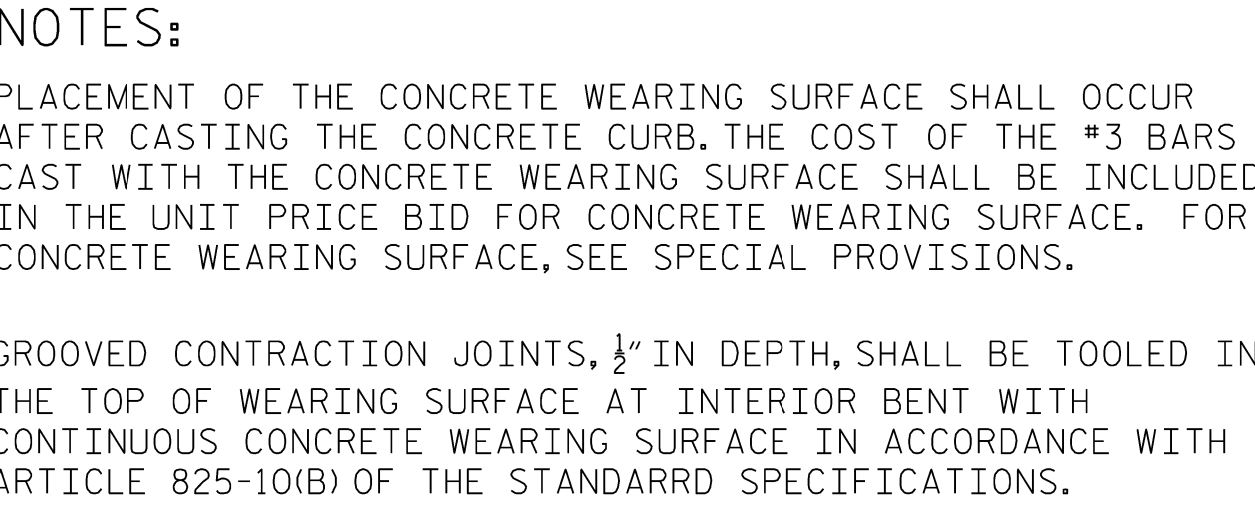
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CURB AND END POST DETAILS FOR 32" ALASKA RAIL

DRAWN BY :	J. PENDERGRAFT	DATE :	1-25
CHECKED BY :	J. DILWORTH	DATE :	3-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	1-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

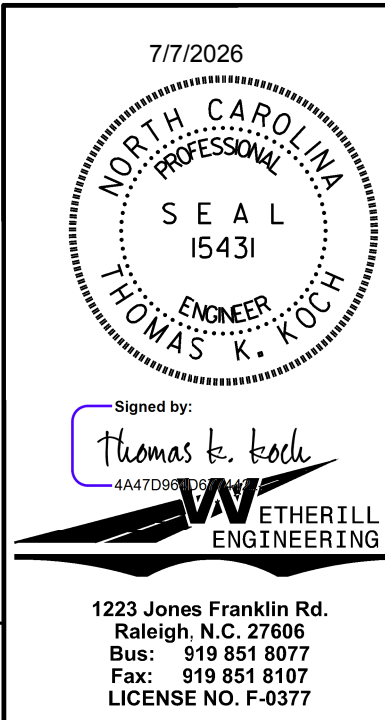
REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 26
2			4			



SPlice LENGTH CHART	
BAR SIZE	EPOXY COATED
#3	1'-8"

	LEFT GUTTERLINE	-L- LINE	RIGHT GUTTERLINE
END BENT 1	4 3/4"	4 3/4"	4 3/4"
BENT 1	4 3/4"	4 3/4"	4 3/4"
END BENT 2	4 3/4"	4 3/4"	4 3/4"

PROJECT NO. HB-0056
CALDWELL COUNTY
 STATION: 20+46.00 - L -



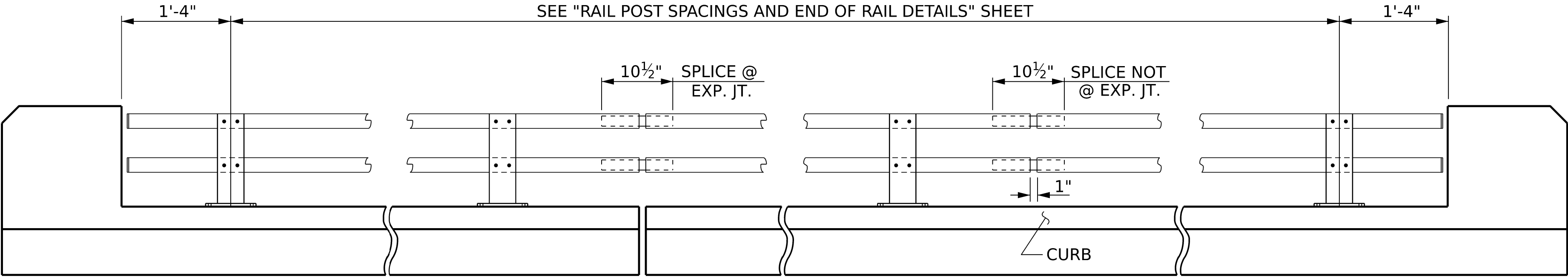
CONCRETE WEARING SURFACE DETAILS

DRAWN BY : J. PENDERGRAFT DATE : 1-25
 CHECKED BY : J. DILWORTH DATE : 1-25
 DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

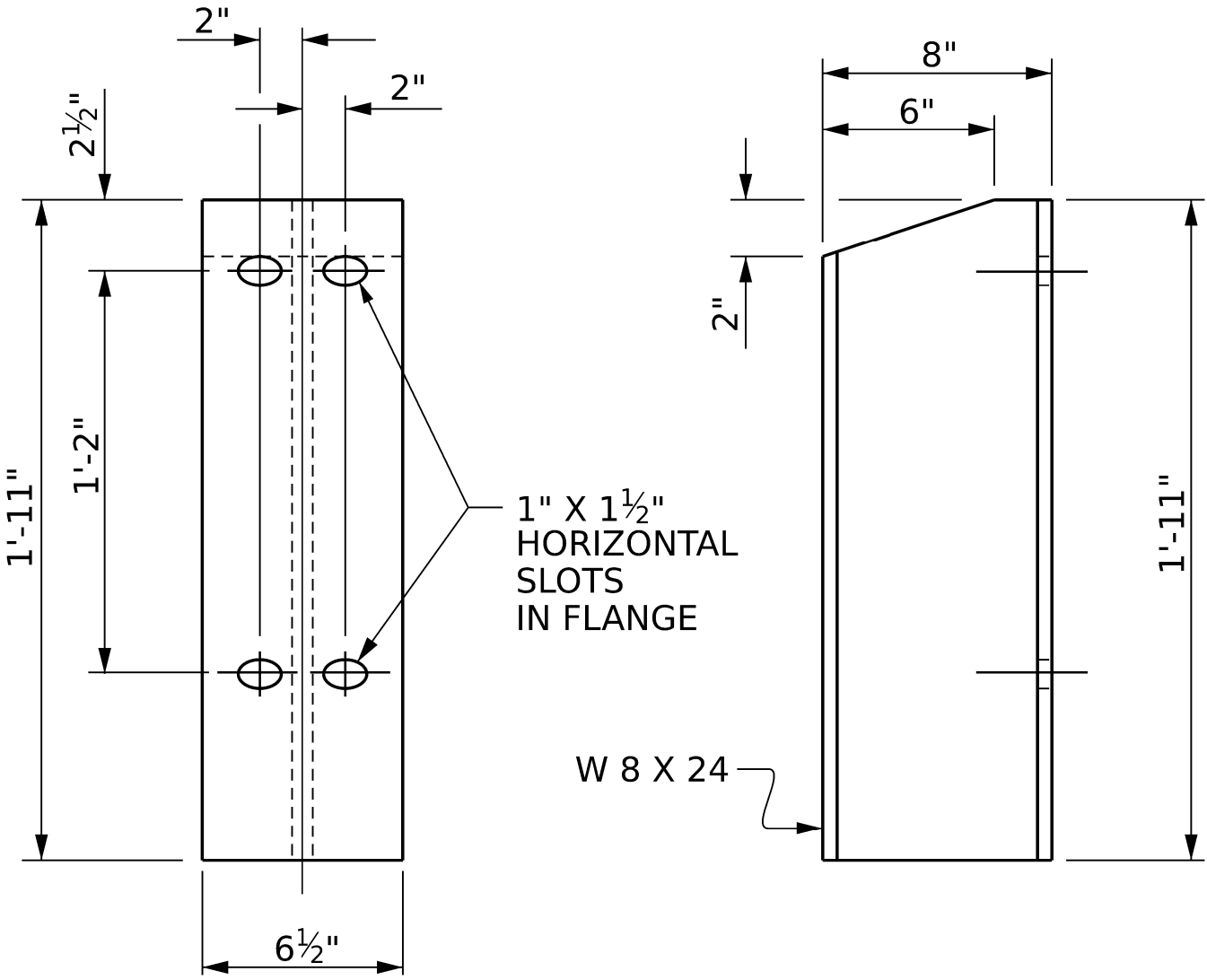
REINFORCING FOR CONCRETE WEARING SURFACE
 **BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

PA\2024\24133\01_HB0056Structures\02 - Plan Production\01 - DGN\401_027_HB0056_SMU_BR_1_014.dgn
4/11/2026 11:23:53 AM



ELEVATION

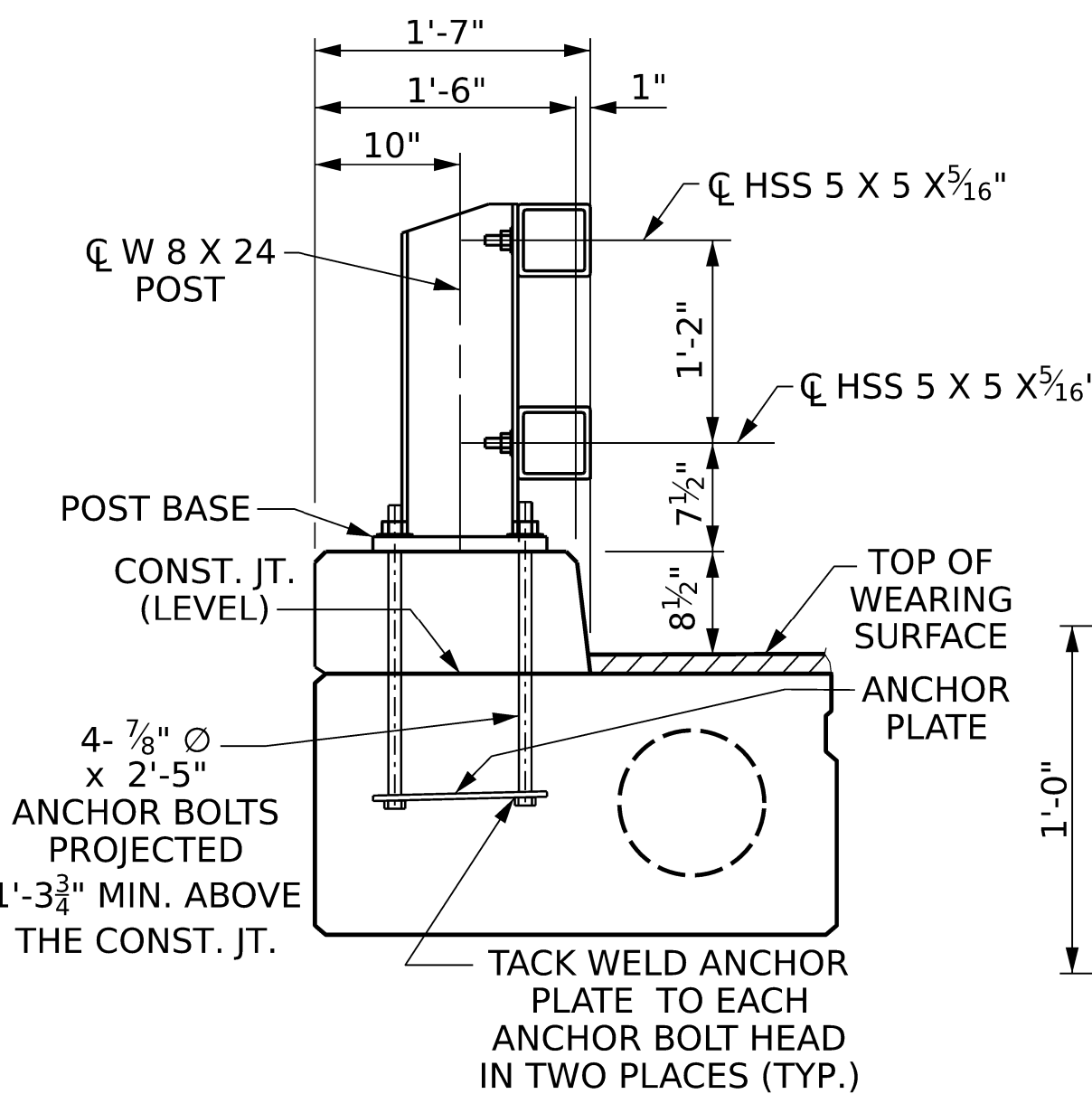
NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR9.



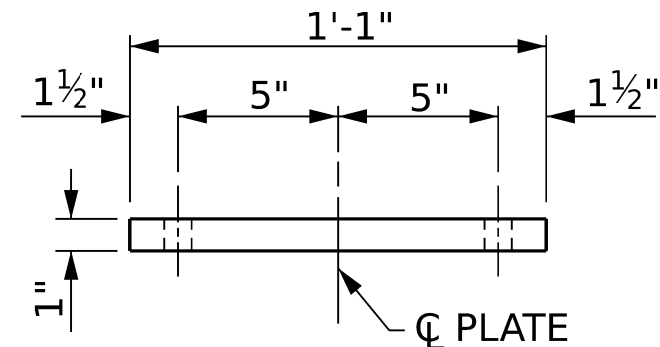
FRONT ELEVATION

SIDE ELEVATION

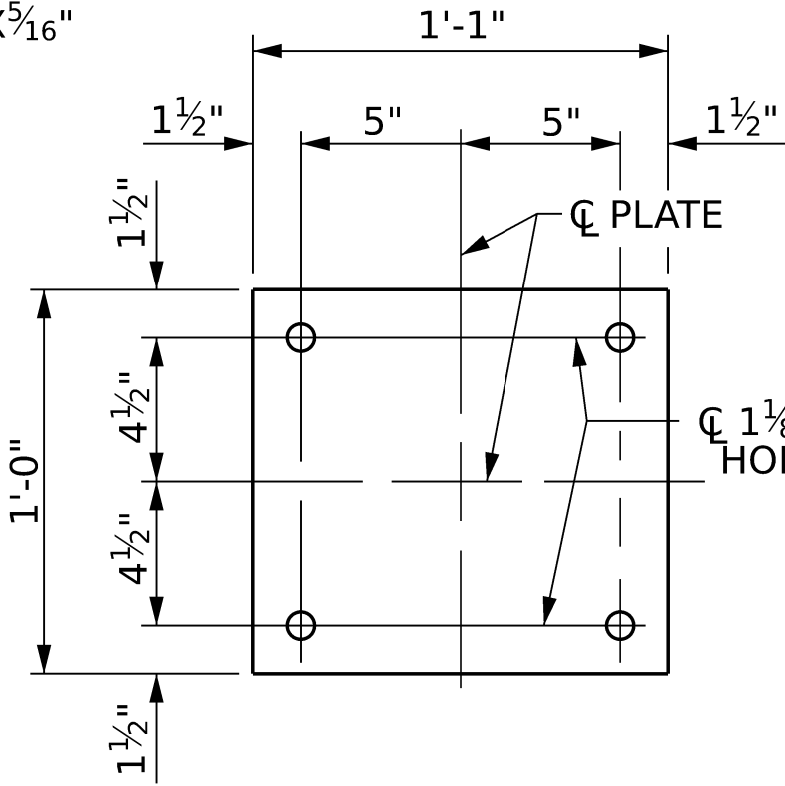
DETAILS OF POST



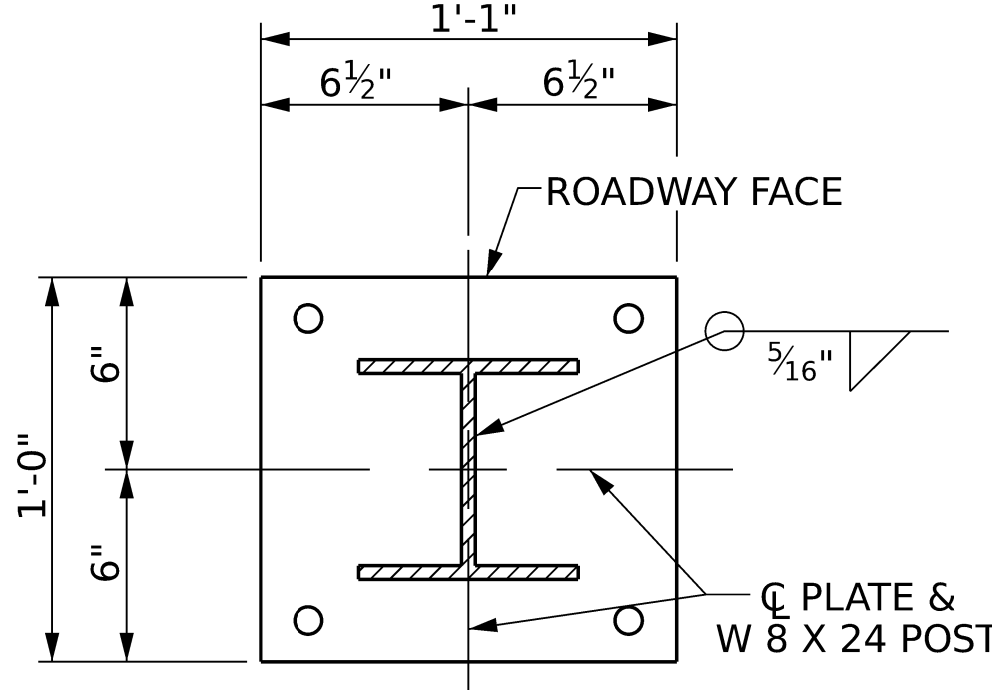
SECTION THRU RAIL



FRONT ELEVATION

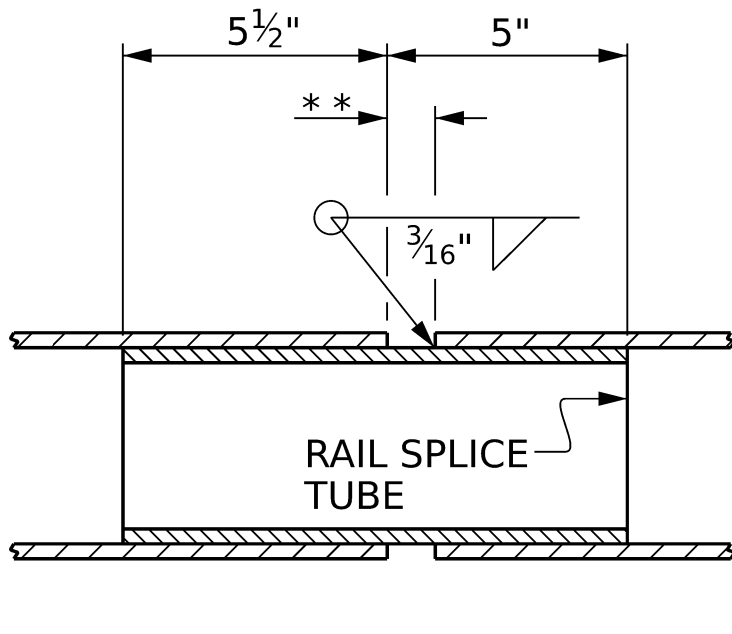


PLAN



POST ATTACHMENT DETAIL

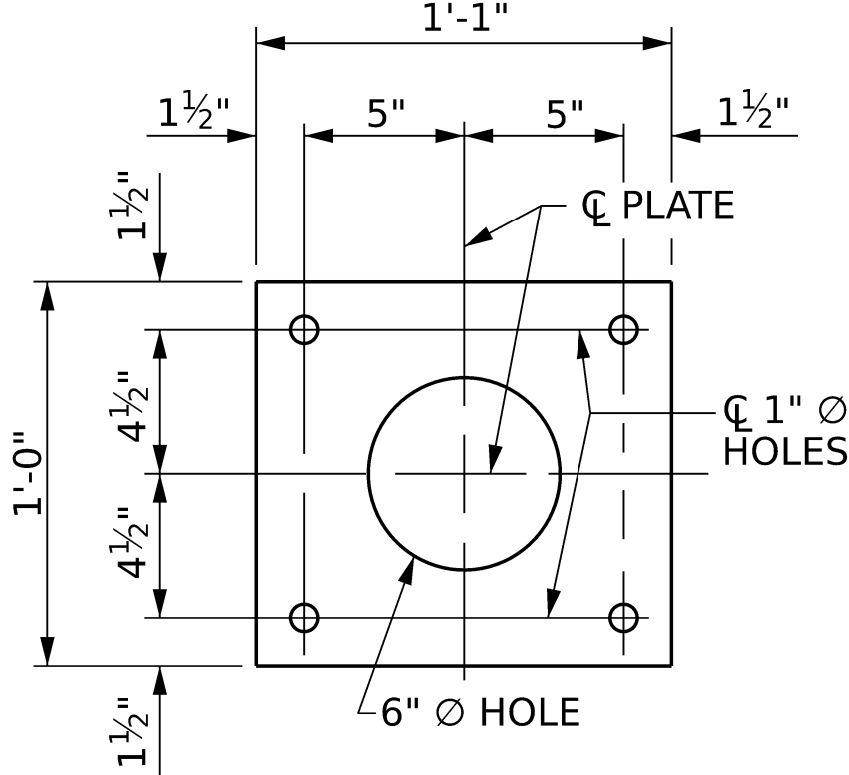
POST BASE DETAILS



RAIL SPLICE DETAILS

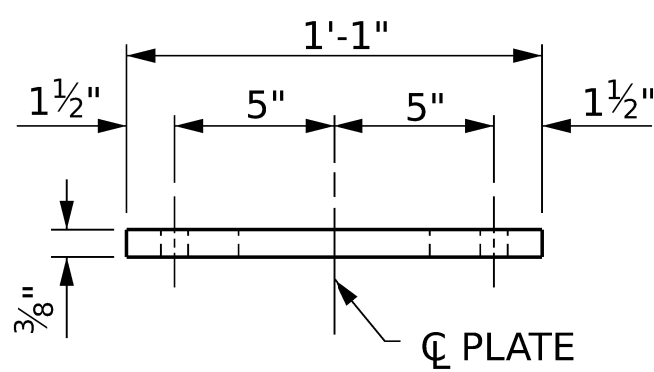
* - DIMENSION AFTER GRINDING RADIUS ON CORNERS TO MATCH INSIDE OF METAL RAIL. GRIND ALL EDGES PRIOR TO GALVANIZING TO ASSURE FIT.

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



PLAN

ANCHOR PLATE DETAILS



ELEVATION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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.

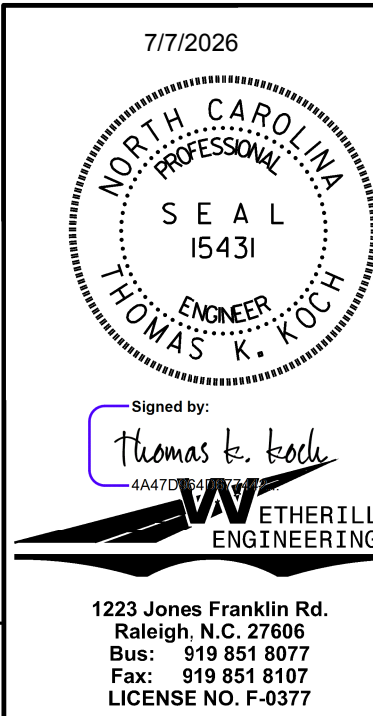
THE RAIL SECTIONS SHALL BE ATTACHED TO THE POSTS BY TWO THREADED 3/4" Ø WELDED STUDS, PLATE WASHERS, LOCKWASHERS, AND NUTS.

FOR 32" ALASKA RAIL, SEE THE STANDARD SPECIFICATIONS.

METAL RAIL LENGTH 149.25 LIN. FT.

PROJECT NO. **HB-0056**
CALDWELL COUNTY
STATION: **20+46.00 -L-**

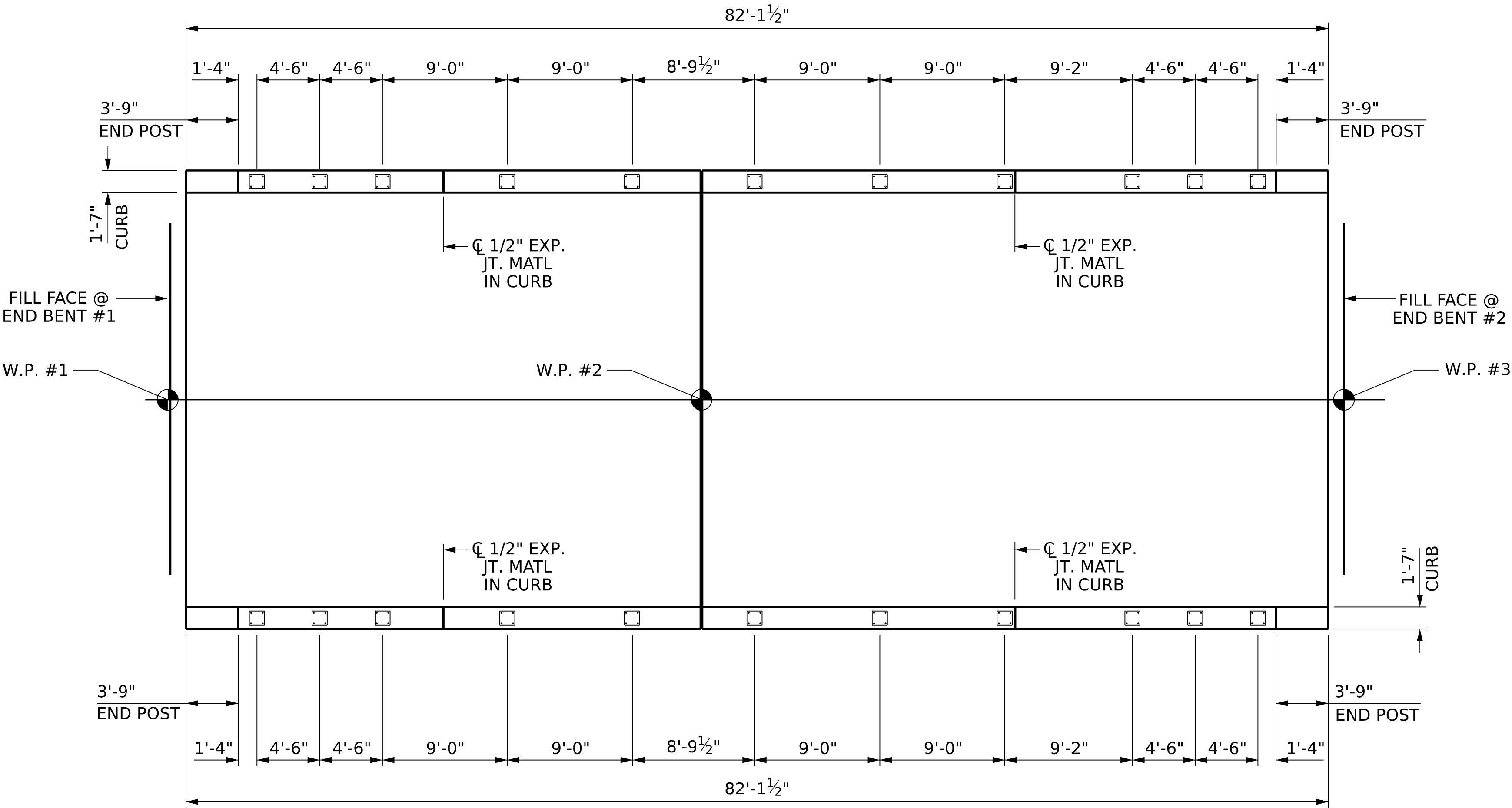
SHEET 1 OF 2



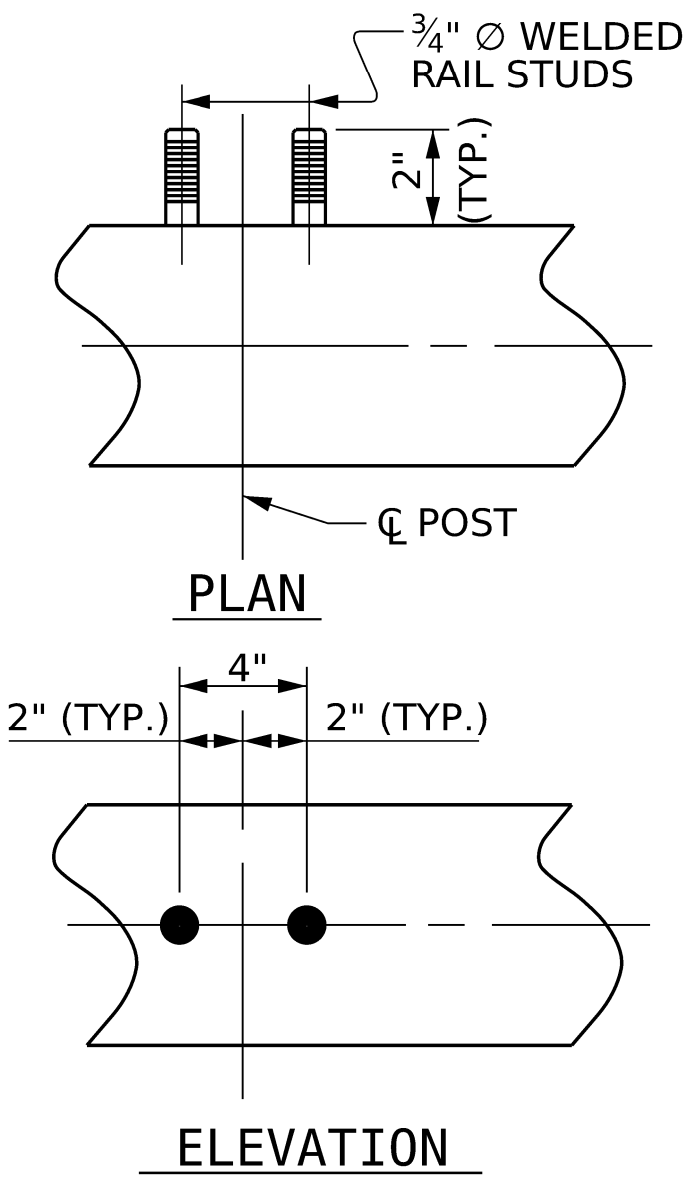
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS	
2			4			26	

STD. NO. BMR8

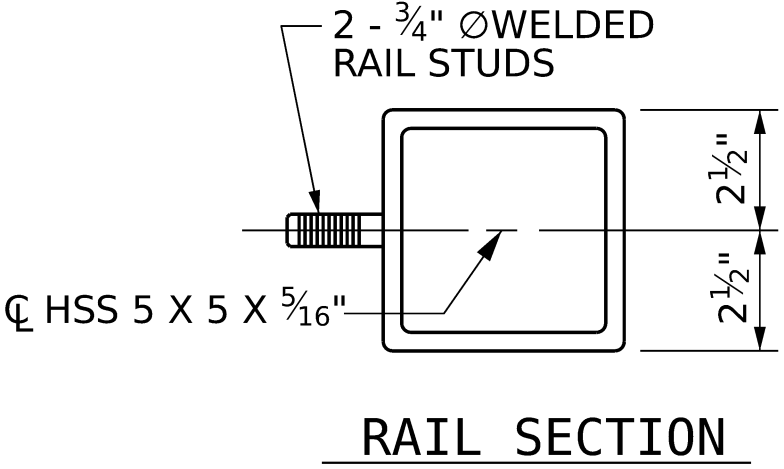
PA:2024\24133\01_HB0056\Structures\02 - Plan Production\01 - DGN\401_029_HB0056_SMU_BR2_015.dgn 4/11/2026 11:24:58 AM



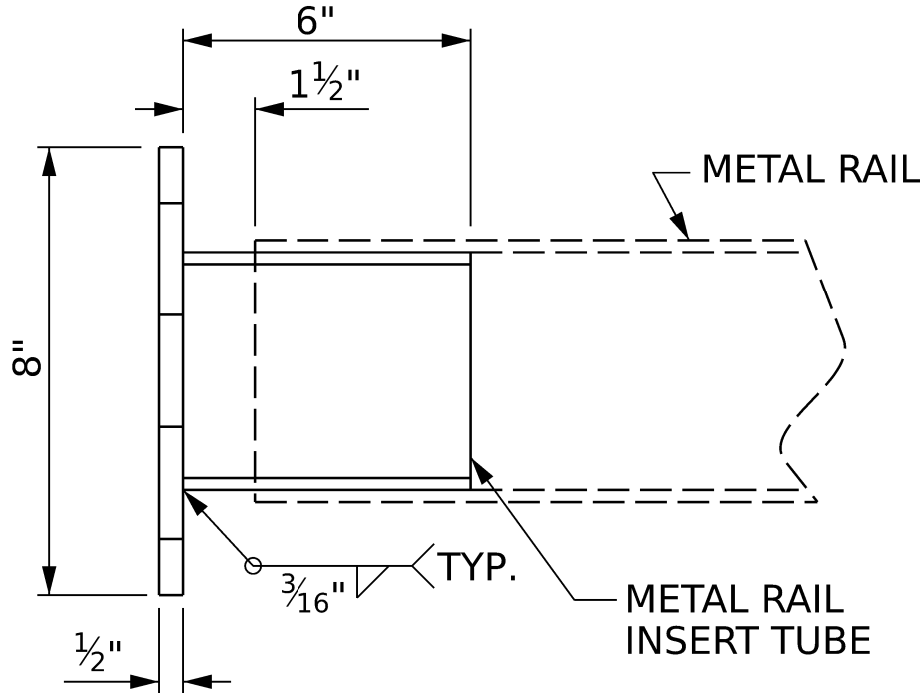
PLAN OF RAIL POST SPACINGS



RAIL STUD DETAILS

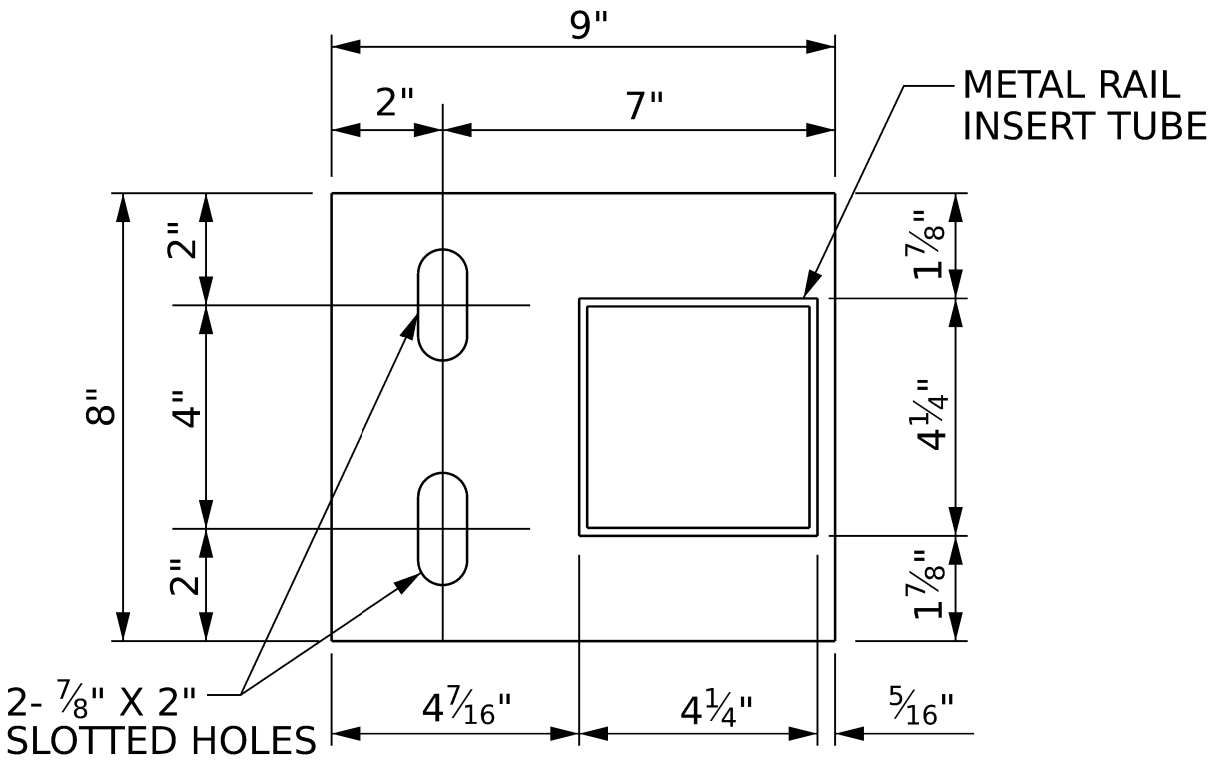


RAIL SECTION

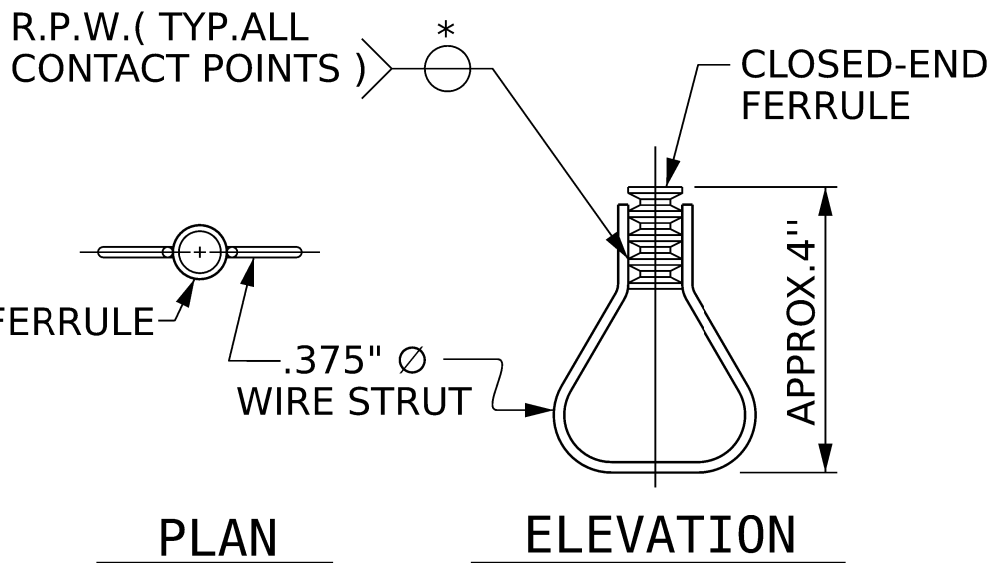
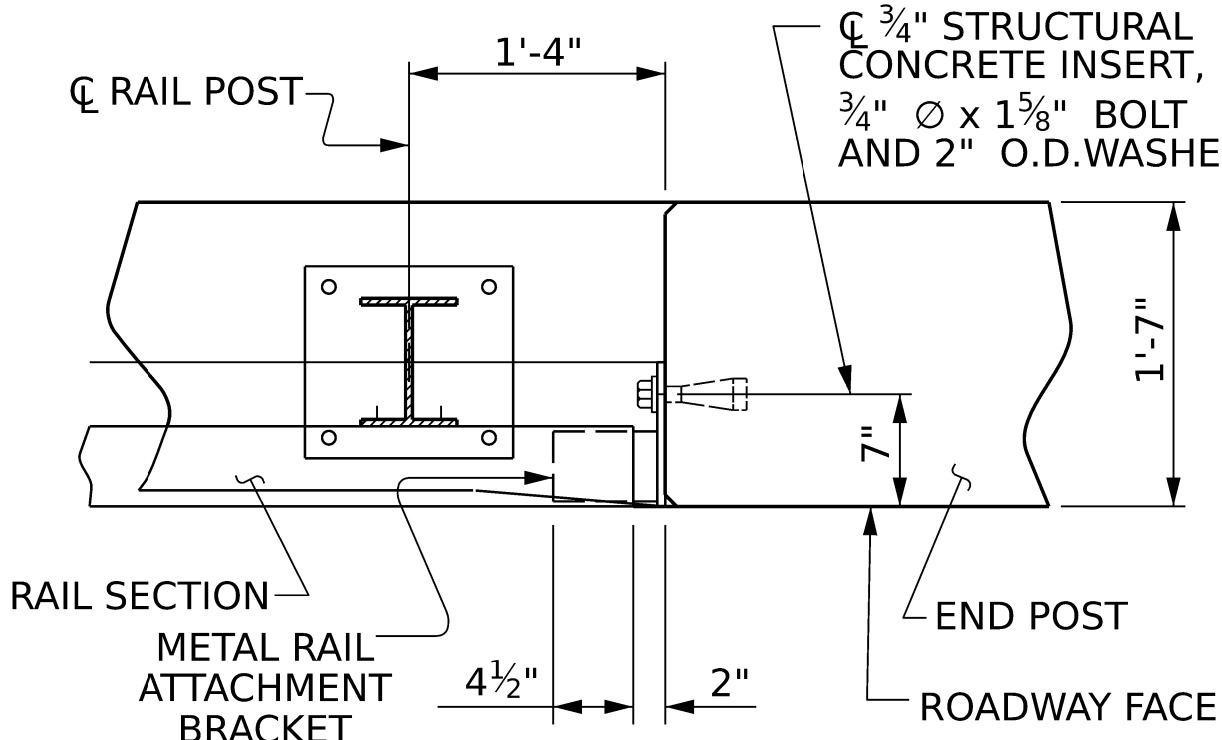


METAL RAIL ATTACHMENT BRACKET

THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM 1/4" PLATES.



PLAN - RAILS AND END POST

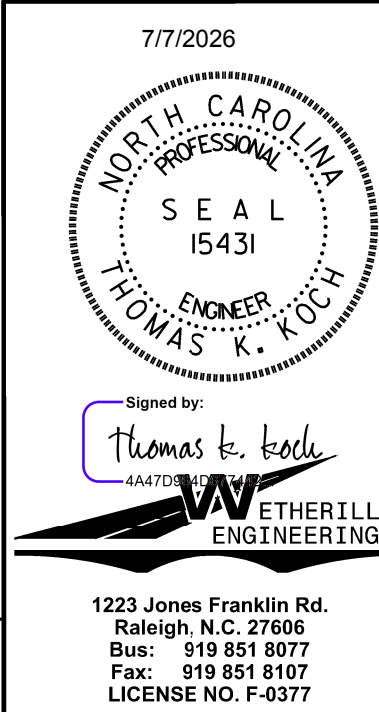


STRUCTURAL CONCRETE INSERT

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

PROJECT NO. **HB-0056**
CALDWELL COUNTY
STATION: **20+46.00 - L -**

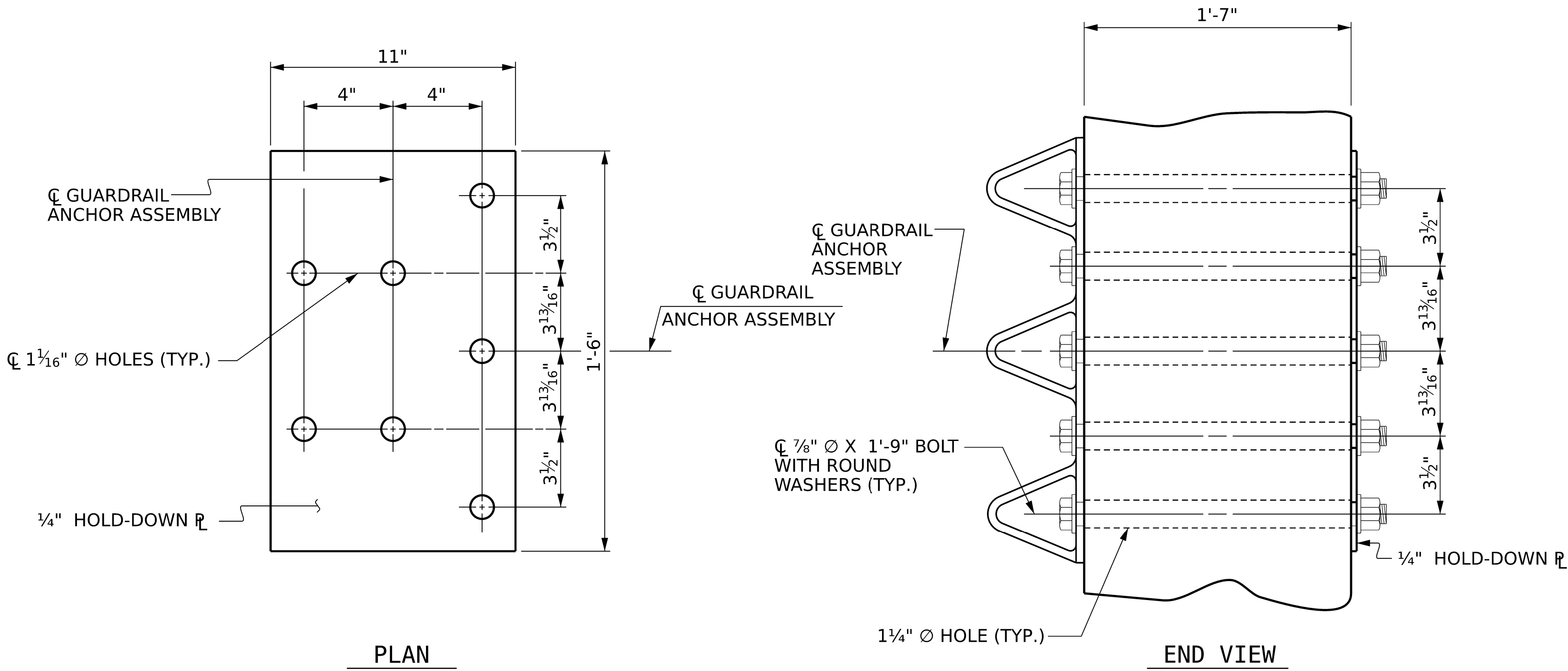
SHEET 2 OF 2



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-15
2			4			
TOTAL SHEETS						26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STD. NO. BMR9



GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A ¼" HOLD DOWN PLATE AND 7 - ⅞" Ø BOLTS WITH NUTS AND WASHERS.

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE ⅞" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

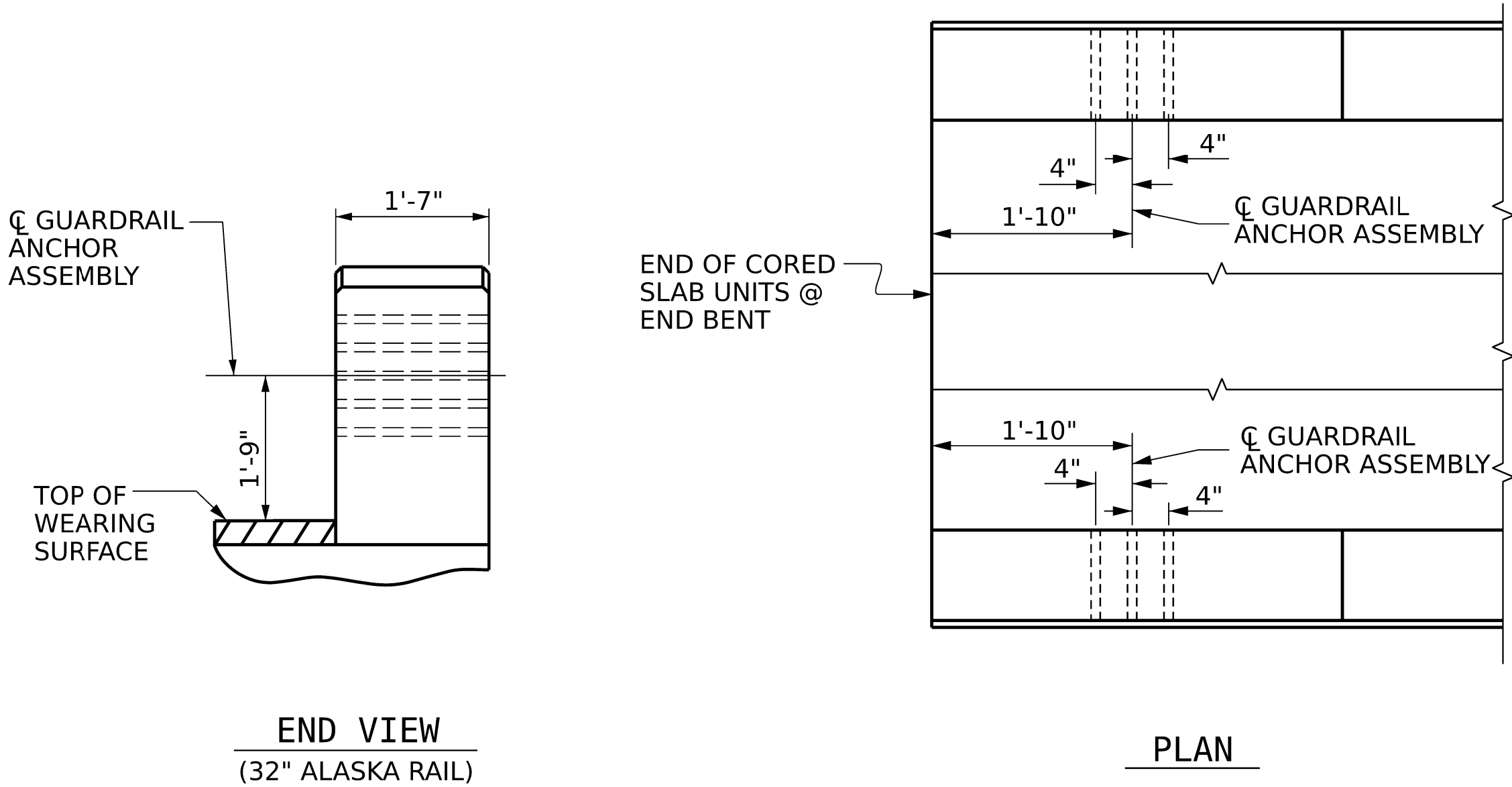
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

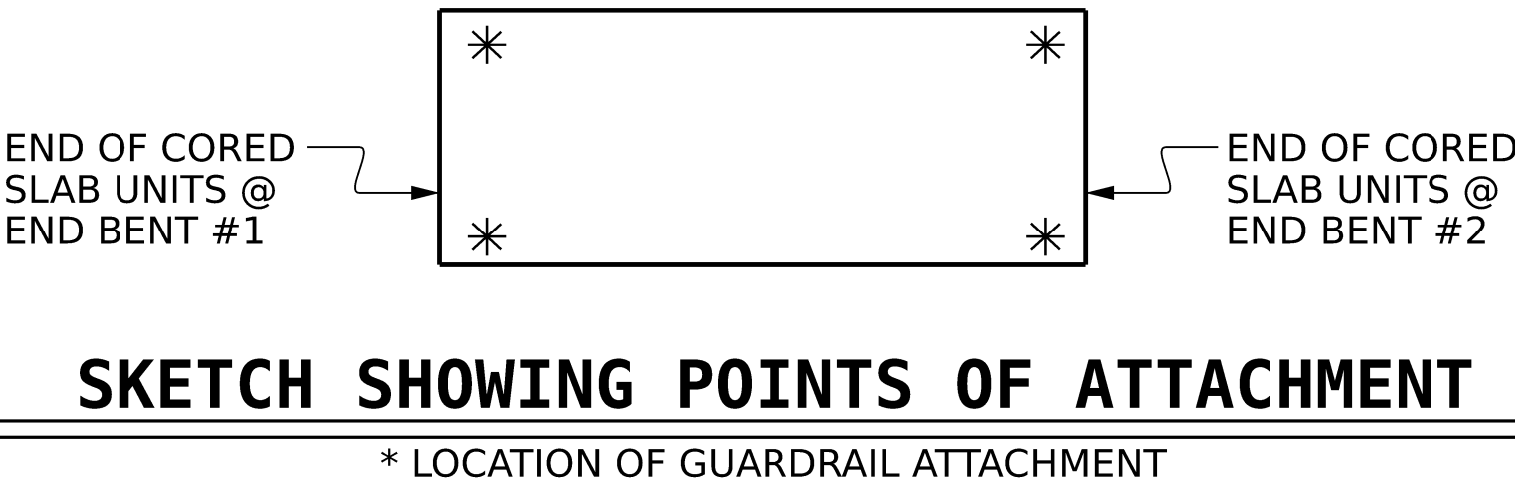
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1 ¼" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



LOCATION OF GUARDRAIL ANCHOR AT END POST



PROJECT NO. **HB-0056**
COUNTY **CALDWELL**
STATION: **20+46.00 - L -**

DRAWN BY :	J. PENDERGRAFT	DATE :	1-25
CHECKED BY :	J. DILWORTH	DATE :	3-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	1-26

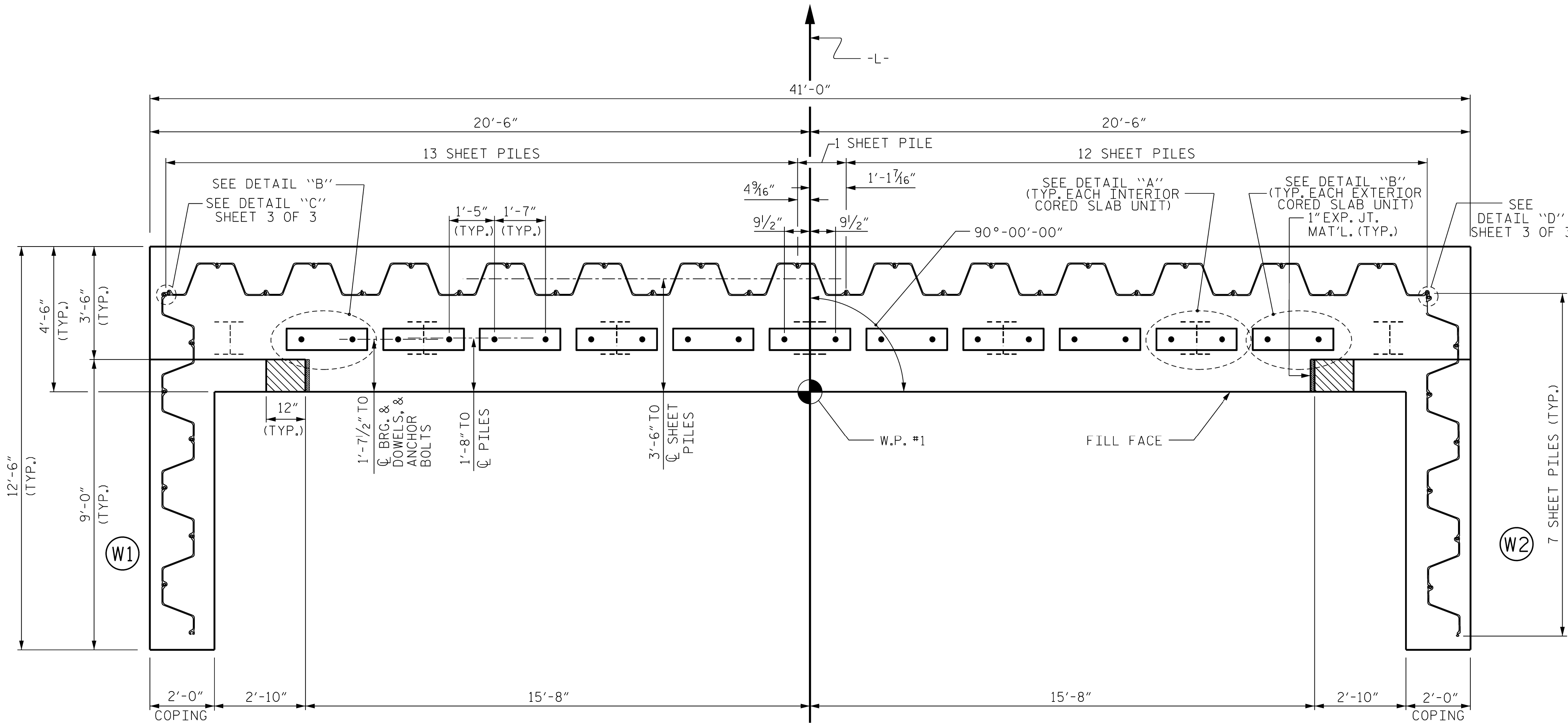
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

7/7/2026
NORTH CAROLINA
PROFESSIONAL
SEAL
15431
ENGINEER
THOMAS K. KOCH
Signed by:
Thomas K. Koch
ETHERILL
ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

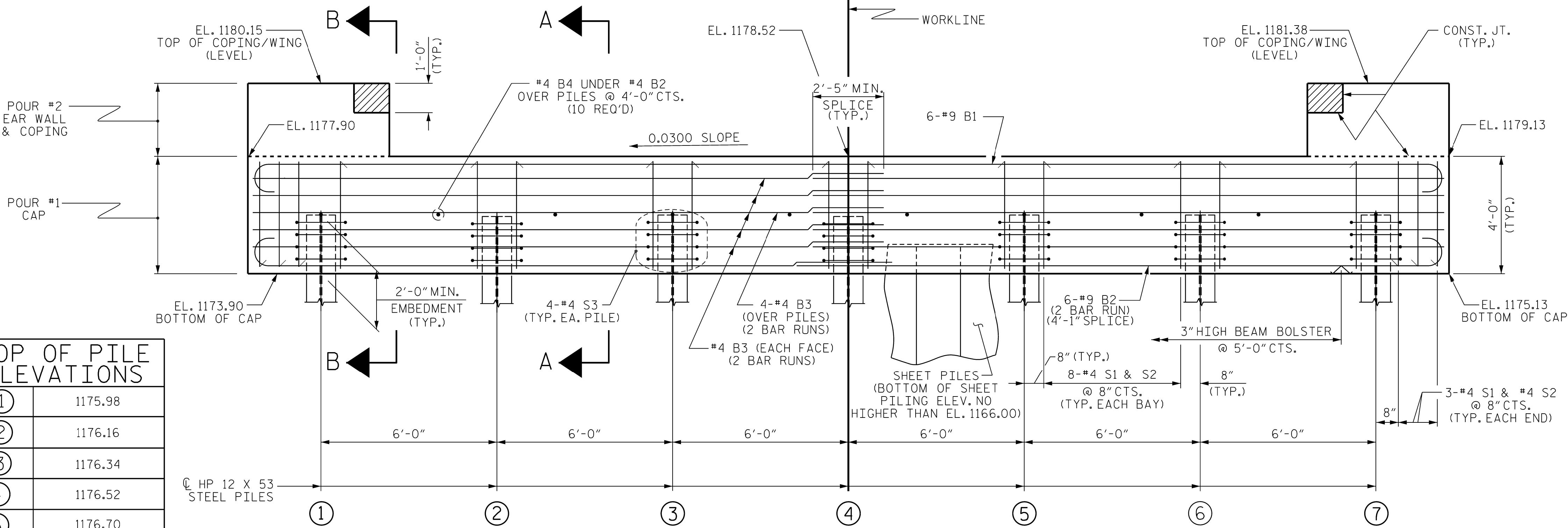
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
DETAILS
FOR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-16
2			4			TOTAL SHEETS 26

PA\2024\2413301-HB0056Structures02 - Plan Production01 - D0M401_033_HB0056_SMU_EB1-1_01T.dgn
4/2/2026 7:30:11 AM



PLAN



ELEVATION

(SHEET PILE PARTIALLY OMITTED IN ELEVATION VIEW FOR CLARITY)

TOP OF PILE ELEVATIONS	
①	1175.98
②	1176.16
③	1176.34
④	1176.52
⑤	1176.70
⑥	1176.88
⑦	1177.06

DRAWN BY : J. PENDERGRAFT DATE : 5-25
CHECKED BY : J. DILWORTH DATE : 5-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

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UNLESS ALL SIGNATURES COMPLETED

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 BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

PZ-27 STEEL SHEET PILES SHALL BE GALVANIZED. FOR GALVANIZED STEEL SHEET PILES, SEE SPECIAL PROVISIONS.

THE STEEL SHEET PILES SHALL HAVE A MINIMUM SECTION MODULUS OF 30 IN ⁴/FT.

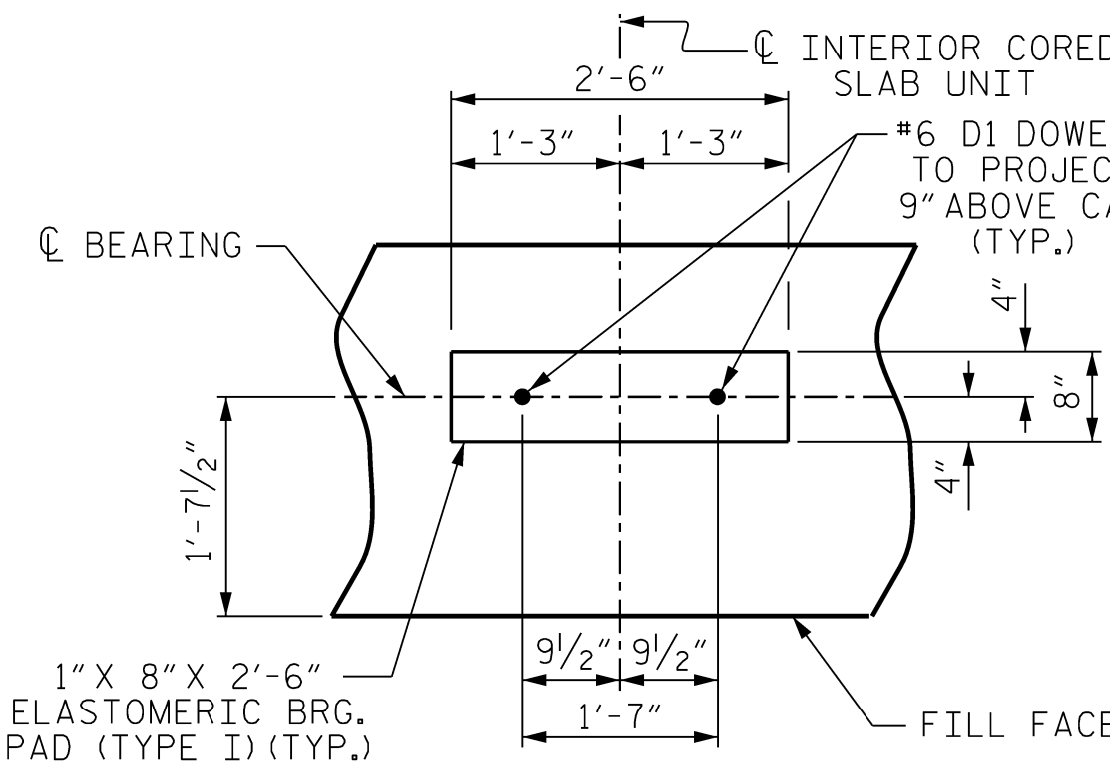
FOR COPING-WING DETAILS, SEE SHEET 2 OF 3.

FOR SECTION A-A AND B-B, SEE SHEET 3 OF 3.

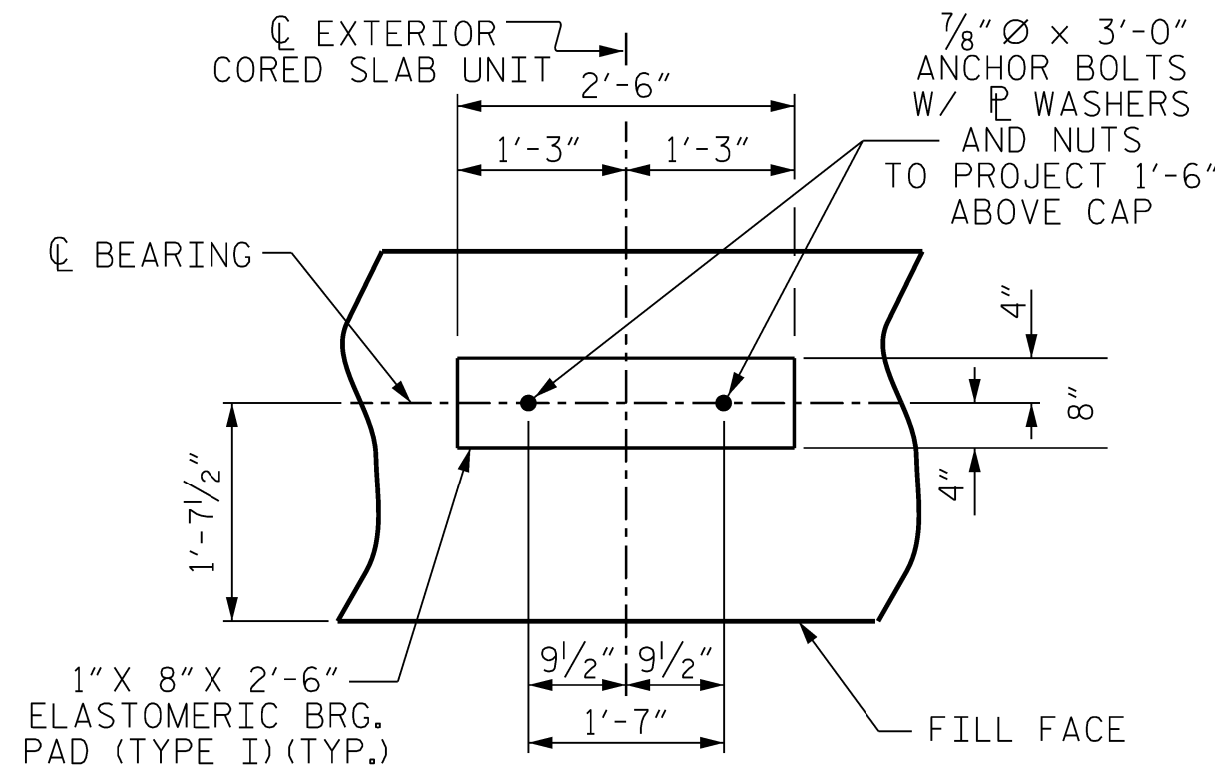
DRILL OR CUT 2" Ø MAX. HOLE IN SHEET PILES FOR #9B2, #4K1 AND #4S5 BARS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. ANCHOR PLATES, WASHERS, AND NUTS SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

NO SEPARATE PAYMENT SHALL BE MADE FOR THE ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS. THE COST OF THE MATERIAL AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.



DETAIL "A"



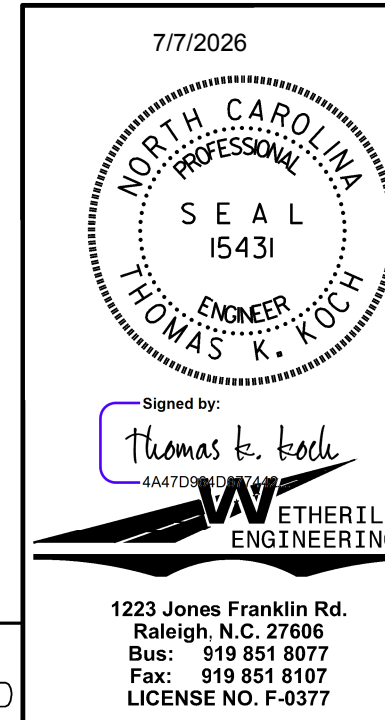
DETAIL "B"

PROJECT NO. **HB-0056**

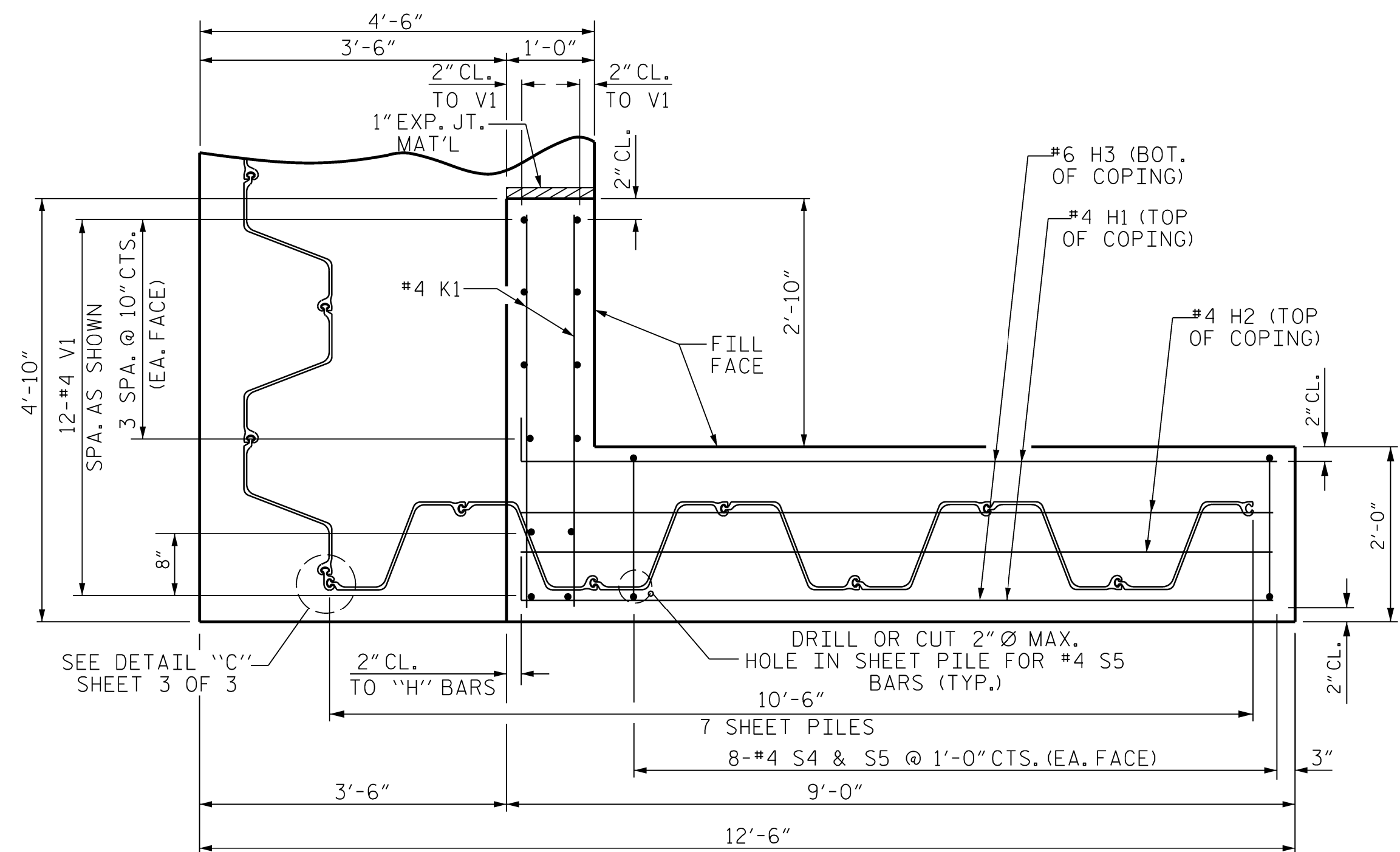
CALDWELL COUNTY

STATION: **20+46.00 -L-**

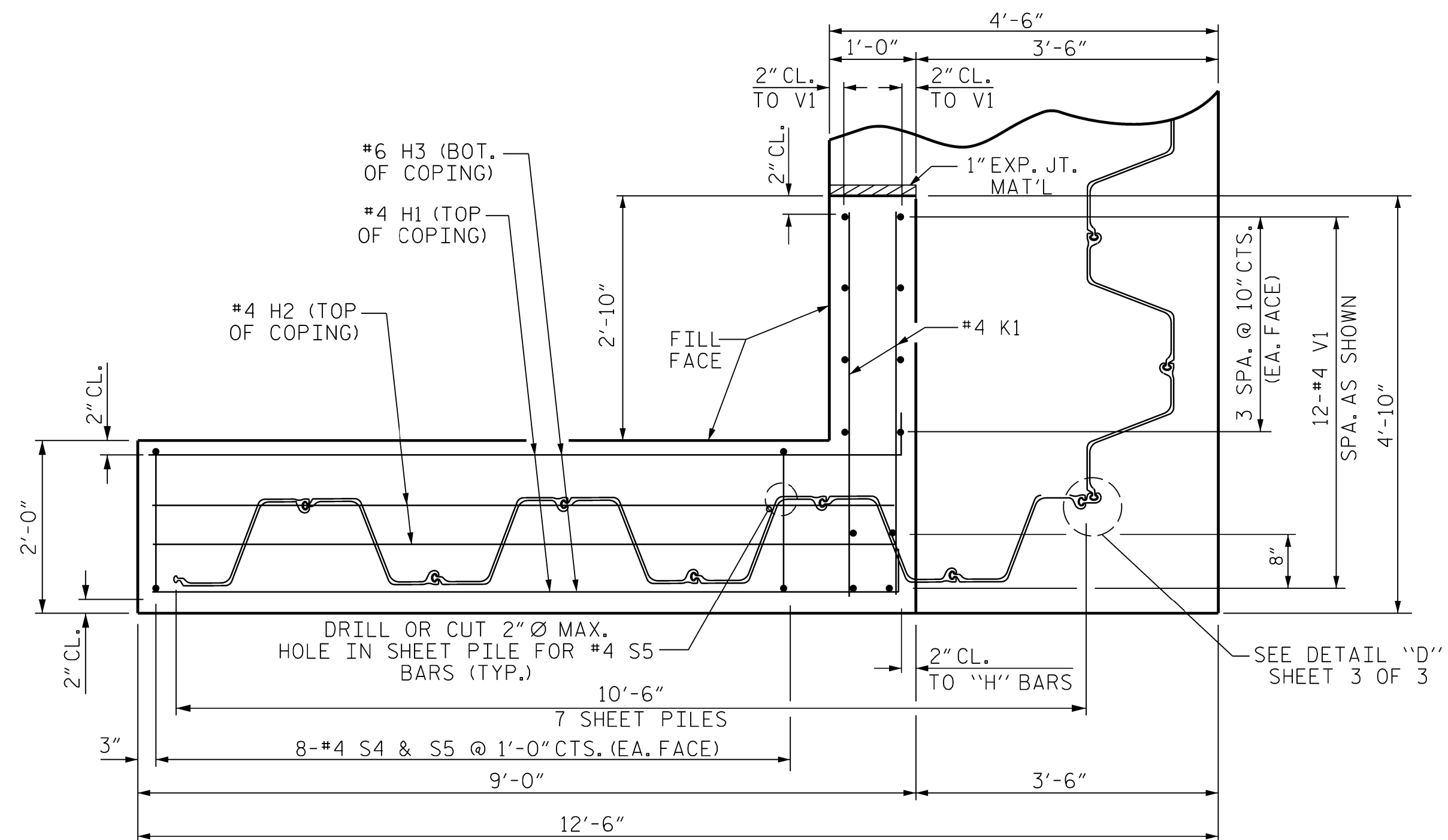
SHEET 1 OF 3



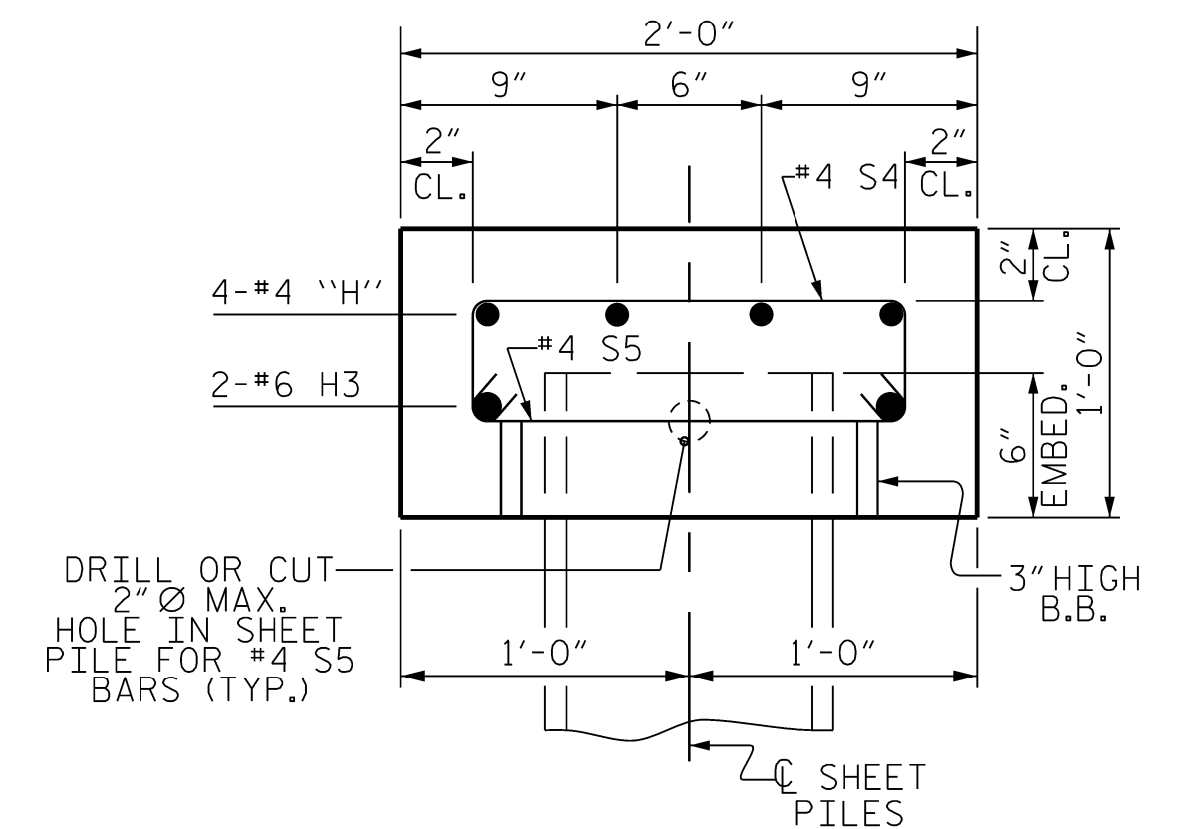
REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 26
2			4			



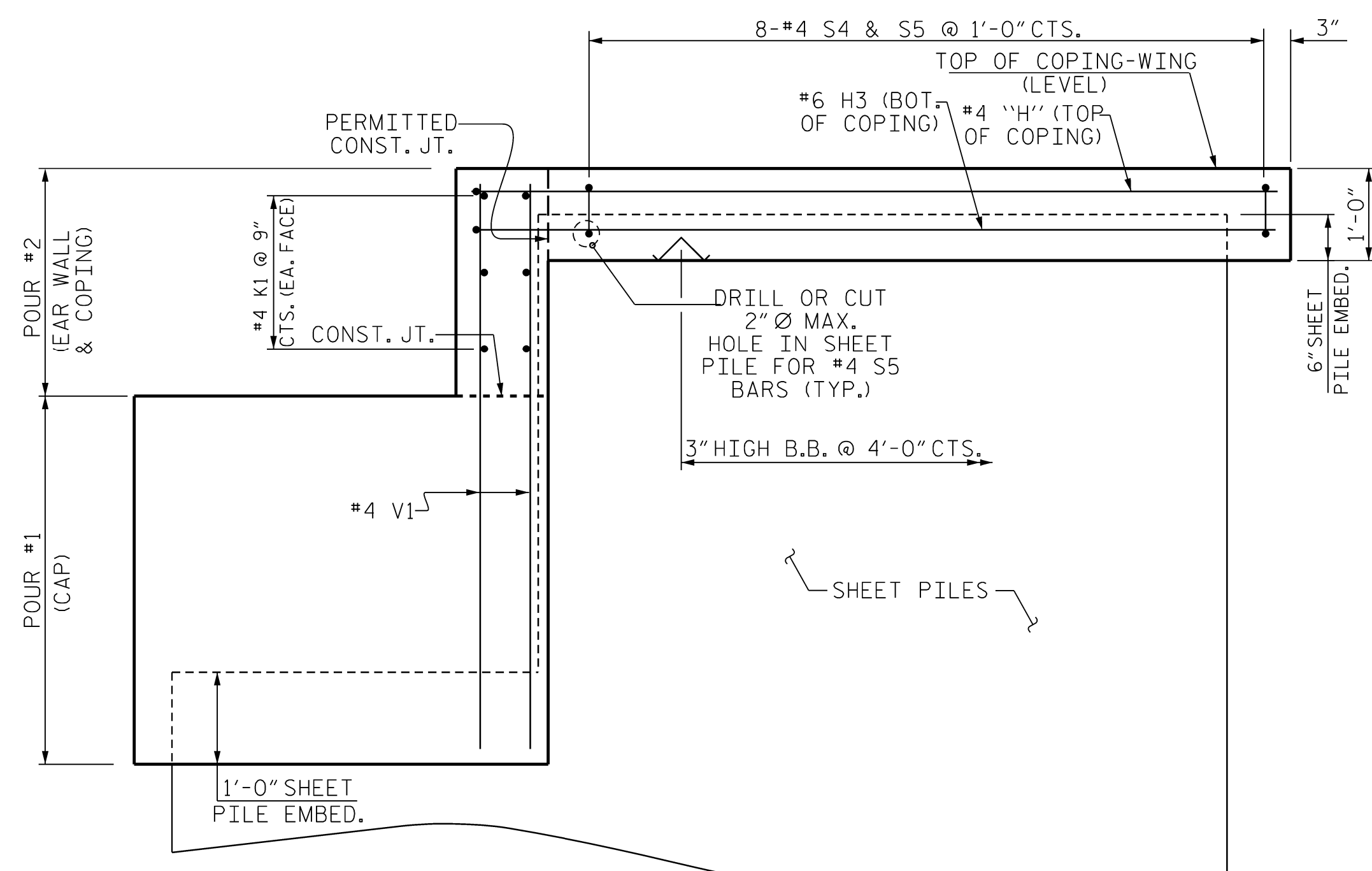
PLAN OF WING (W1)



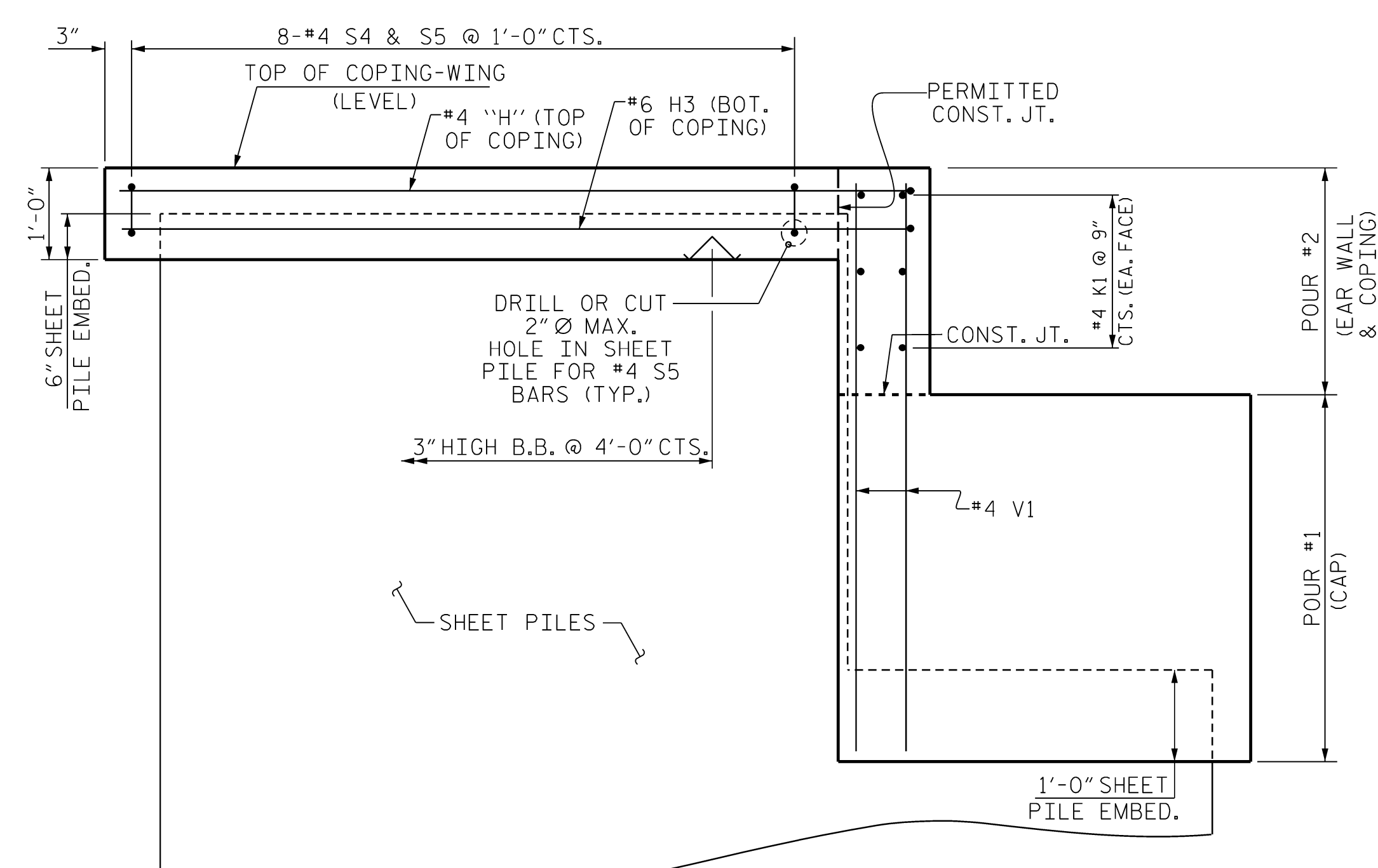
PLAN OF WING (W2)



SECTION THROUGH COPING



ELEVATION OF COPING-WING (W1)



ELEVATION OF COPING-WING (W2)

WING DETAILS

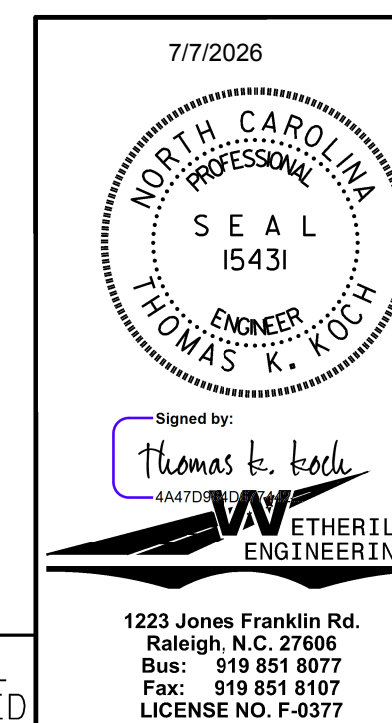
DRILL OR CUT 2"Ø MAX. HOLE IN
SHEET PILES FOR #9B2, #4K1 AND #4S5 BARS.

DRAWN BY : J. PENDERGRAFT DATE : 5-25
 CHECKED BY : J. DILWORTH DATE : 5-25
 DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

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PROJECT NO. HB-0056
CALDWELL COUNTY
 STATION: 20+46.00 - L -

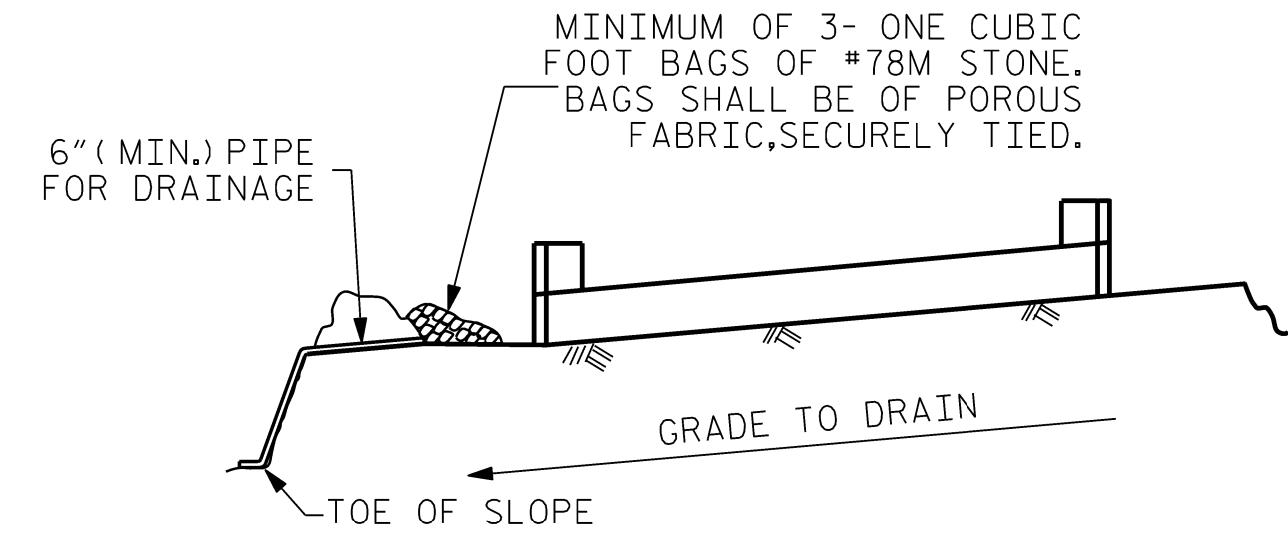
SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No.1
WING DETAILS

REVISONS						SHEET NO. S-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 26
2			4			

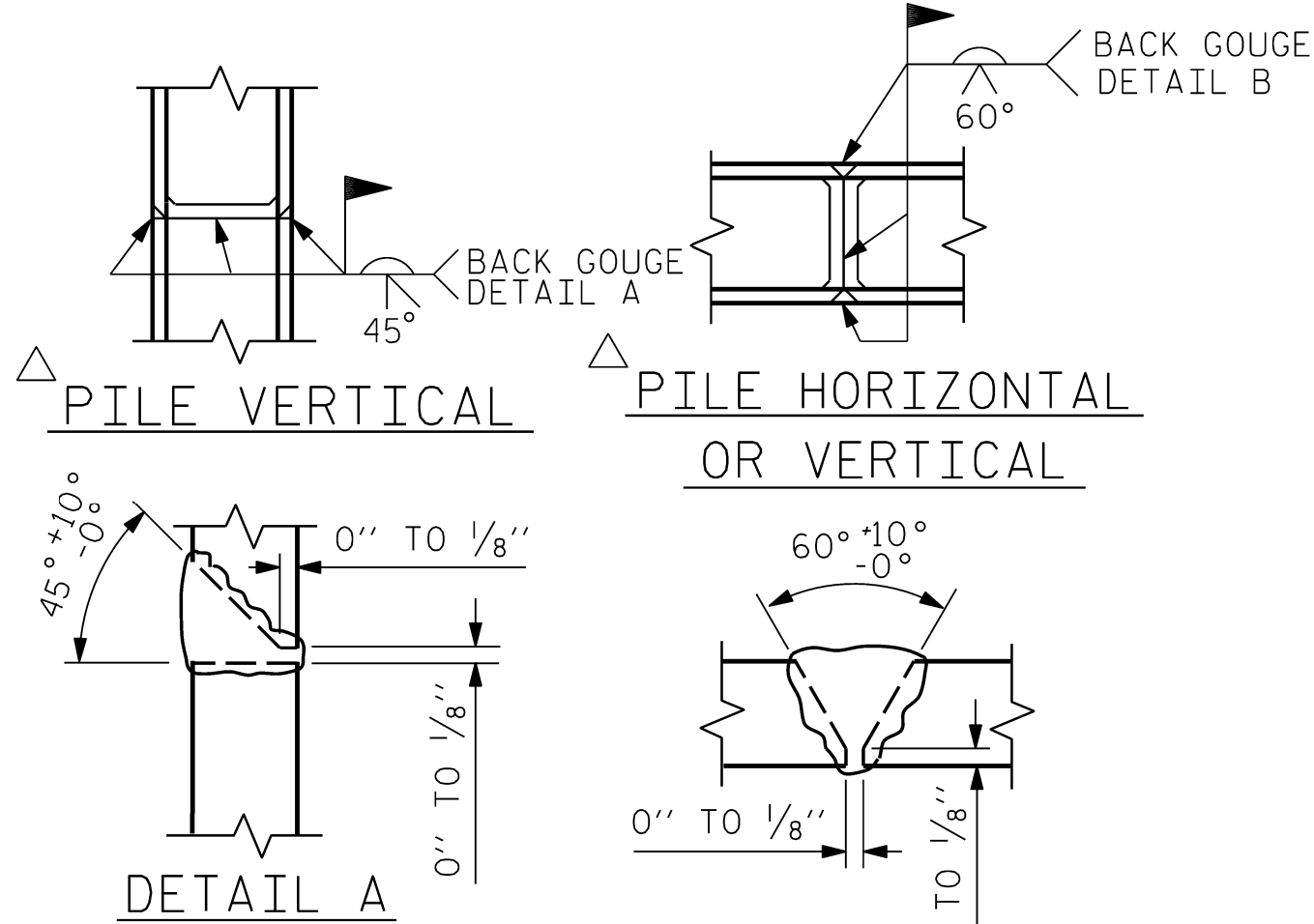


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

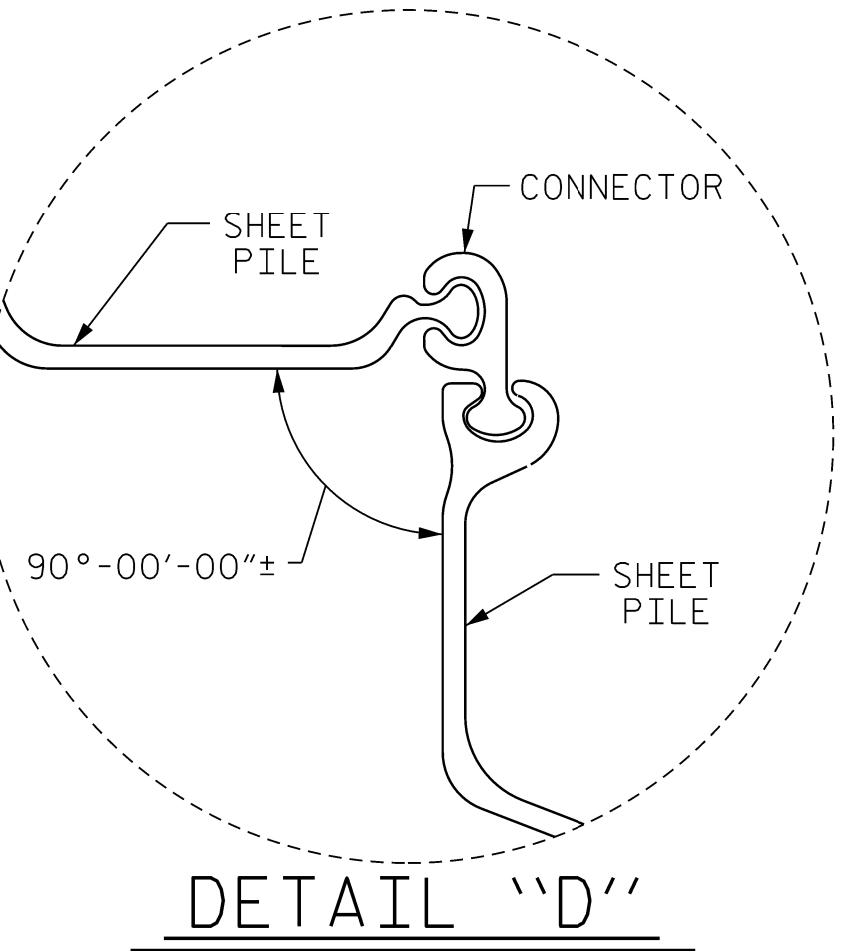
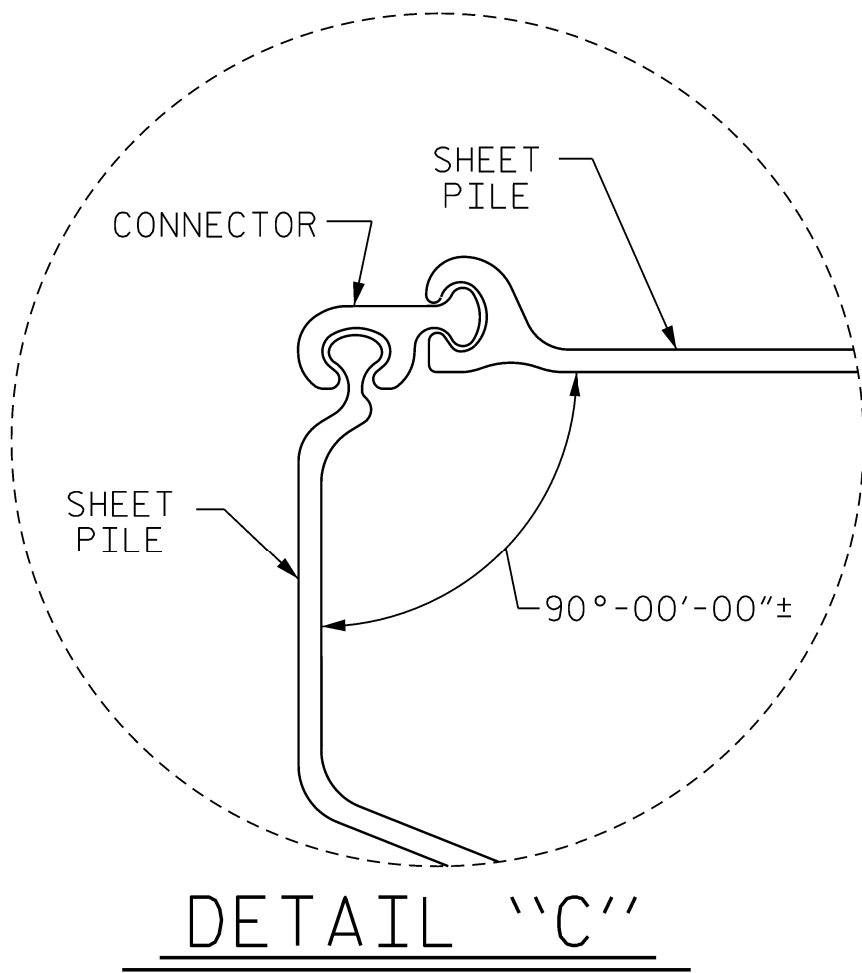
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

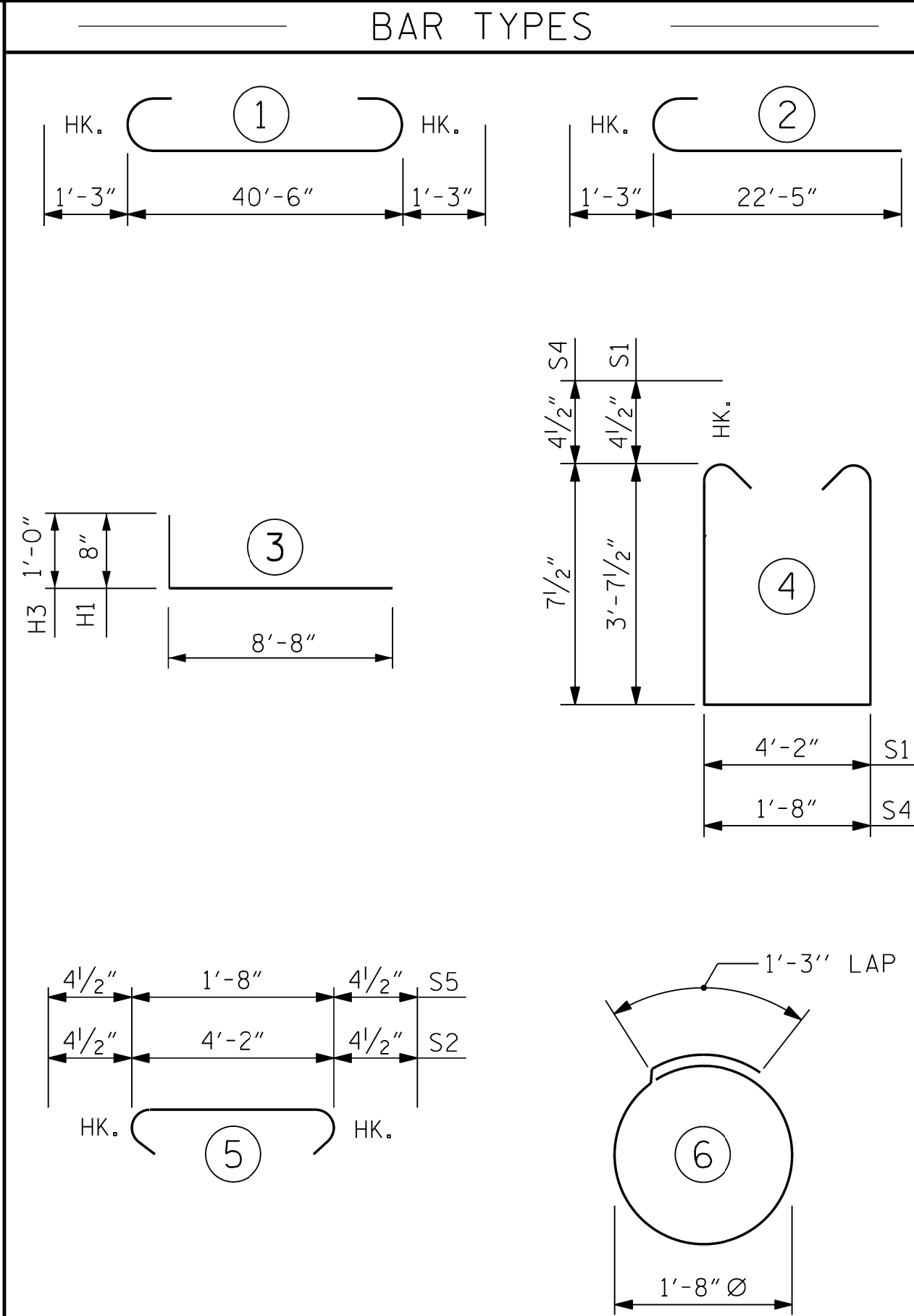


POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

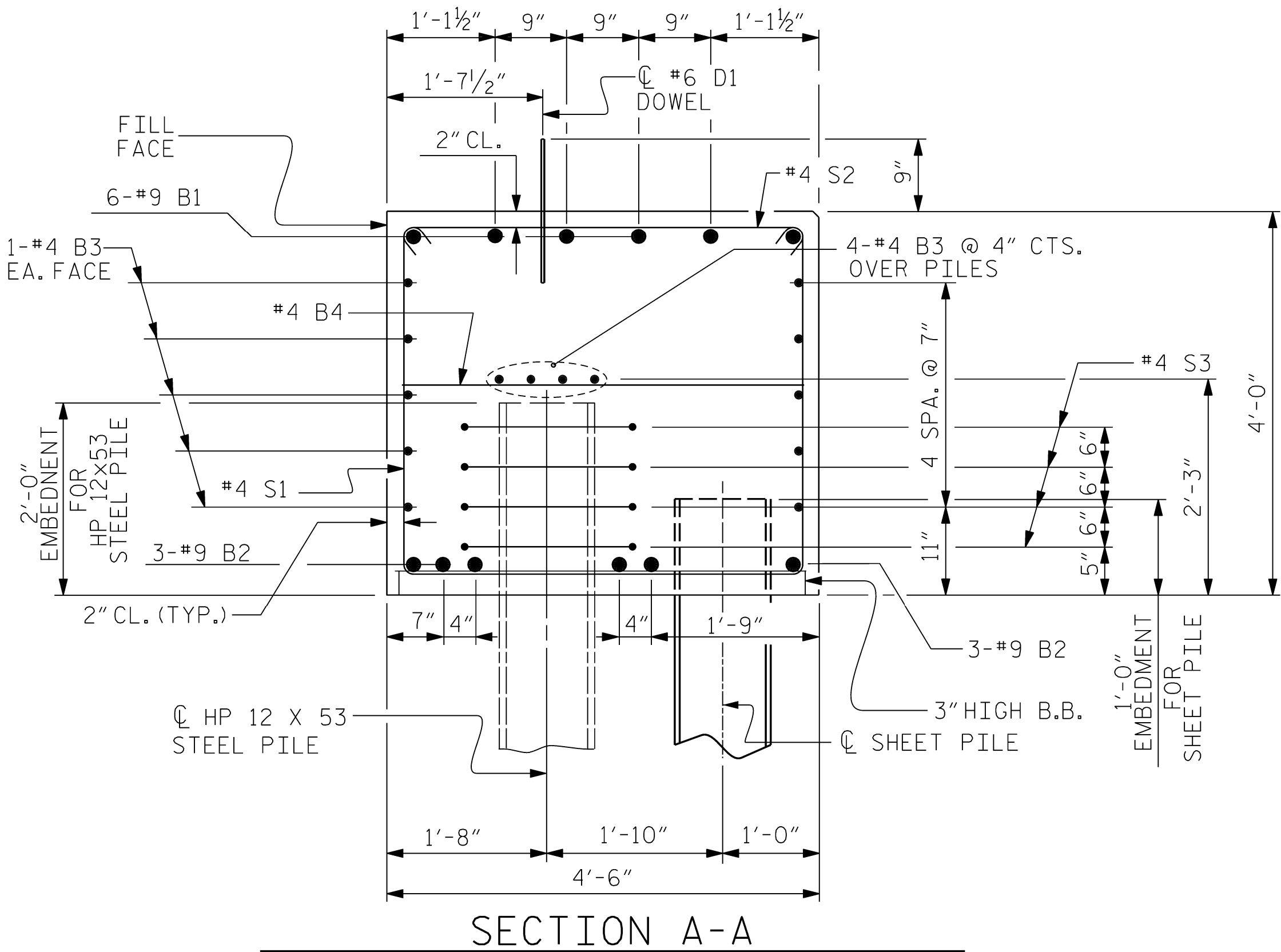


DETAIL "D"

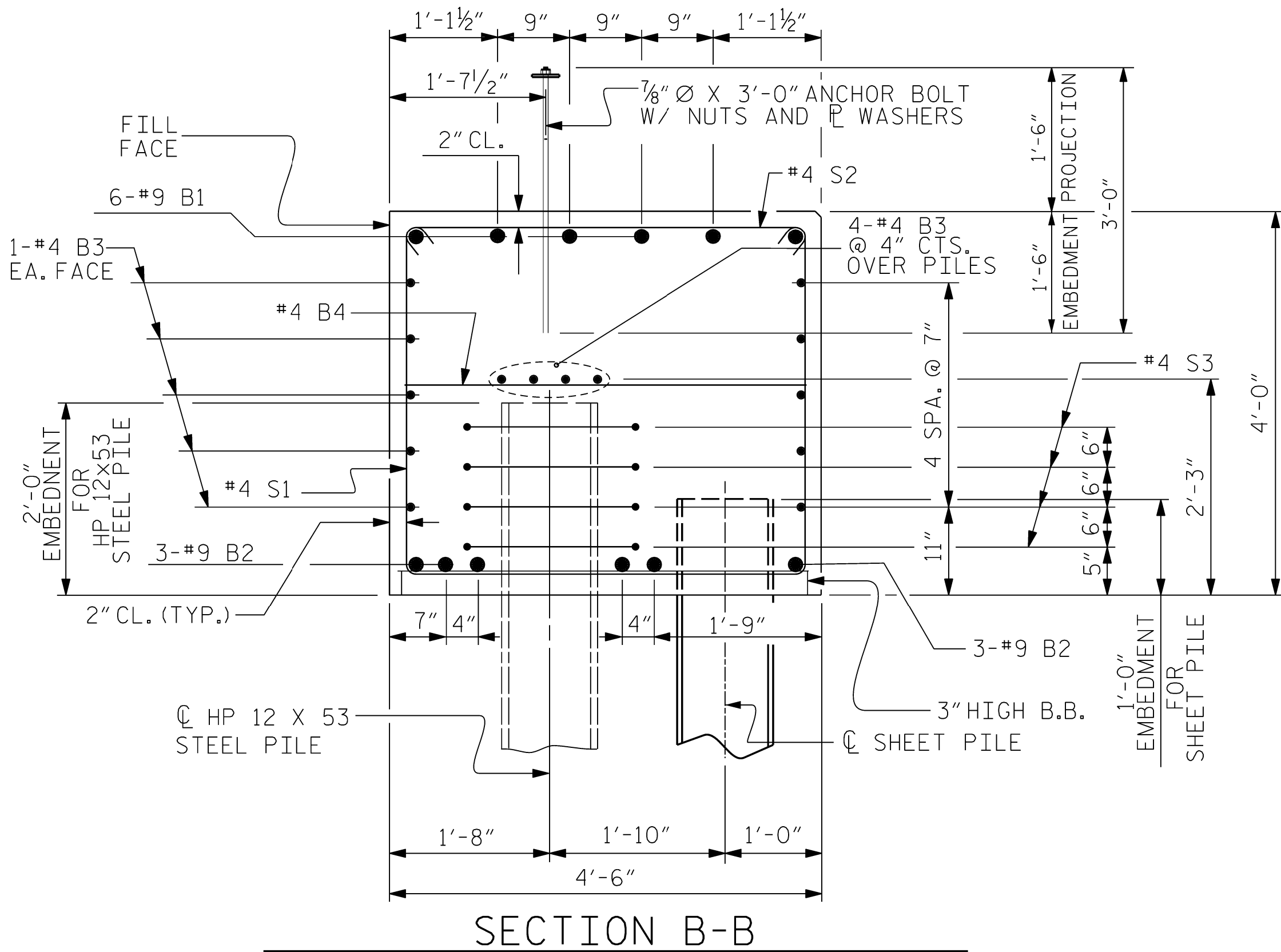


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	43'-0"	877
B2	12	#9	2	23'-8"	966
B3	28	#4	STR	21'-7"	404
B4	10	#4	STR	4'-2"	28
D1	18	#6	STR	1'-6"	41
H1	4	#4	3	9'-4"	25
H2	4	#4	STR	8'-8"	23
H3	4	#6	3	9'-8"	58
K1	12	#4	STR	4'-6"	36
S1	54	#4	4	12'-2"	439
S2	54	#4	5	4'-11"	177
S3	28	#4	6	6'-6"	122
S4	16	#4	4	3'-8"	39
S5	16	#4	5	2'-5"	26
V1	56	#4	STR	5'-10"	218
REINFORCING STEEL				LBS	3,479
CLASS AA CONCRETE:					
POUR #1: CAP					27.3 C.Y.
POUR #2: EAR WALLS & COPING					2.0 C.Y.
TOTAL					29.3 C.Y.
HP 12x53 STEEL PILES					
NO: 7				LIN. FT. = 145	
STEEL PILE POINTS				NO: 7	
GALVANIZED STEEL SHEET PILES					
NO.		= 40	SQ. FT.		711
NO. CONNECTOR		= 2	SQ. FT.		6
TOTAL NO.		= 42	SQ. FT.		717
PILE DRIVING EQUIPMENT					
SETUP FOR HP 12x53					
STEEL PILES				EACH: 7	
7/8" Ø X 3'-0" ANCHOR BOLTS					
W/ NUTS AND WASHERS				EACH: 4	



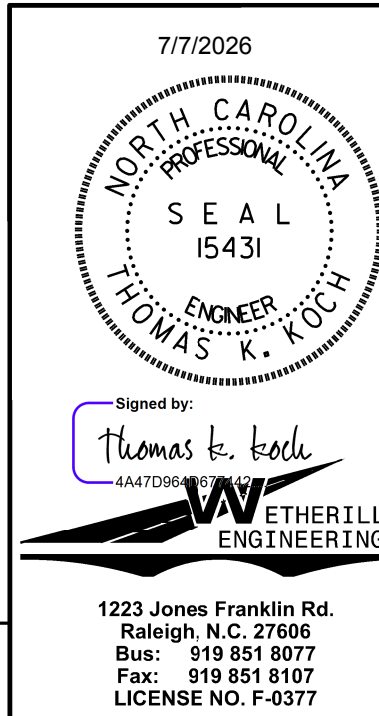
SECTION A-A



SECTION B-B

DRAWN BY : J. PENDERGRAFT DATE : 5-25
CHECKED BY : J. DILWORTH DATE : 5-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

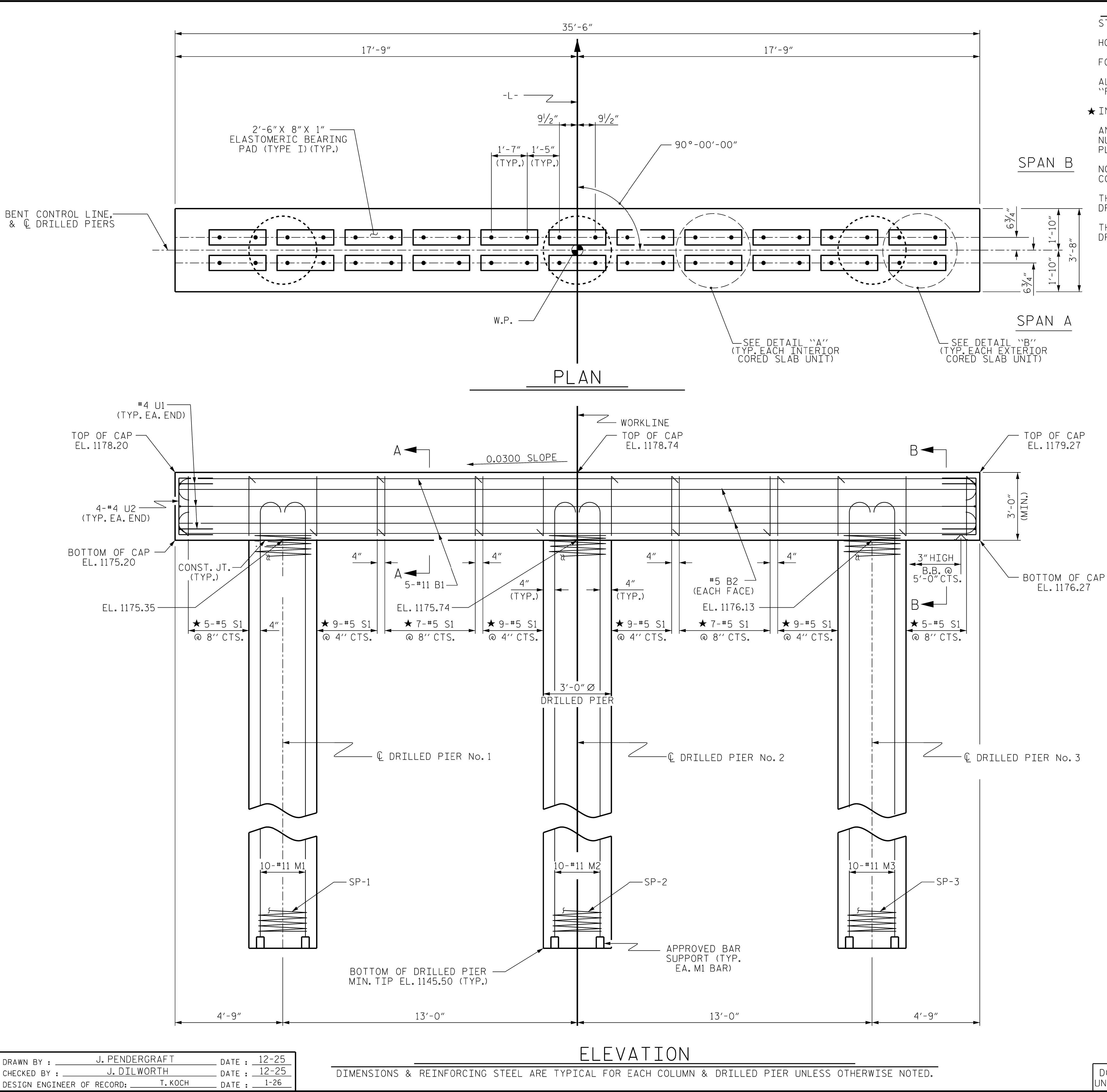
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



PROJECT NO. **HB-0056**
CALDWELL COUNTY
STATION: **20+46.00 - L -**
SHEET 3 OF 3

DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
END BENT No. 1					
DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-19
TOTAL SHEETS					26

PA\2024\24133\01_HB0056\Structures\02 - Plan Production\01 - DGN\401_039_HB-0056_SD_BT 1_020.dgn
4/11/2026 12:23:22 PM



NOTES

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

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

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

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

★ INVERT ALTERNATE STIRRUPS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ATSM A449. ANCHOR PLATES, WASHERS, AND NUTS SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

NO SEPARATE PAYMENT SHALL BE MADE FOR THE ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS. THE COST OF THE MATERIAL AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

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

THE CONTRACTOR SHALL CONFIRM THE “M” BAR DEVELOPEMENT INTO THE CAP PRIOR TO PLACING DRILLED PIER CONCRETE.

DETAIL “A”

(DIMENSIONS ARE TYPICAL EACH BEARING)

DETAIL “B”

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. **HB-0056**

CALDWELL COUNTY

STATION: **20+46.00 -L-**

SHEET 1 OF 2

7/7/2026

NORTH CAROLINA PROFESSIONAL SEAL

ENGINEER

THOMAS K. KOCH

Signed by: *Thomas K. Koch*

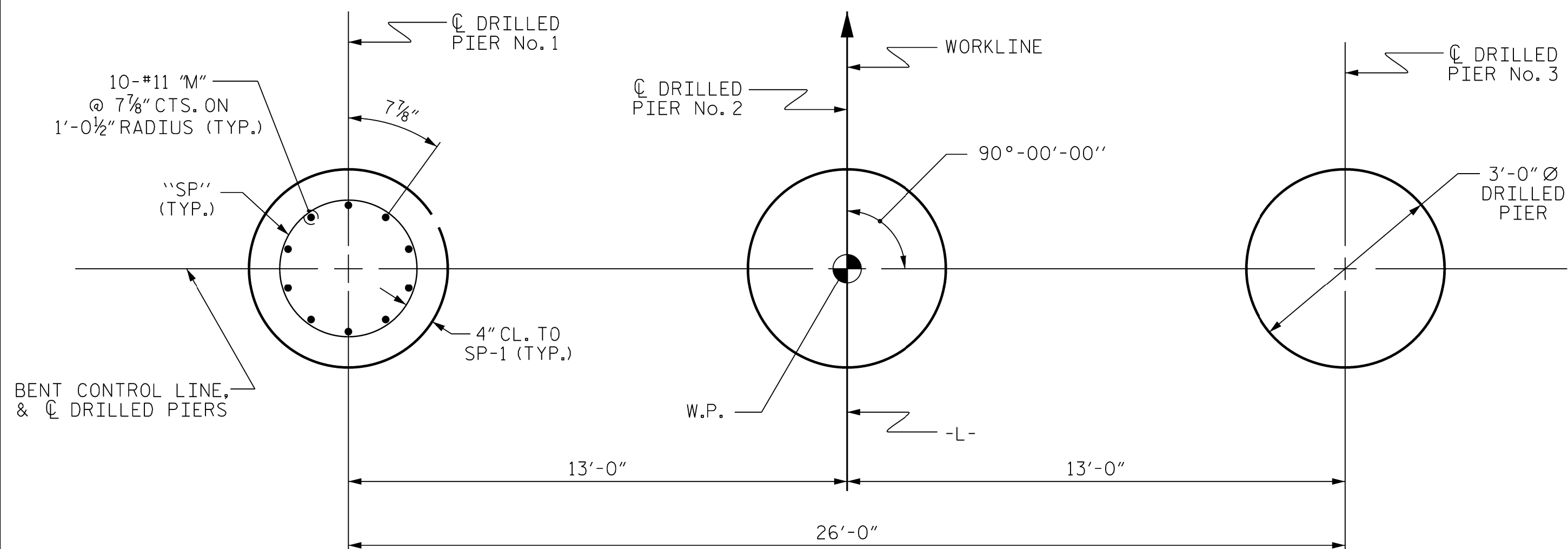
WETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-6377

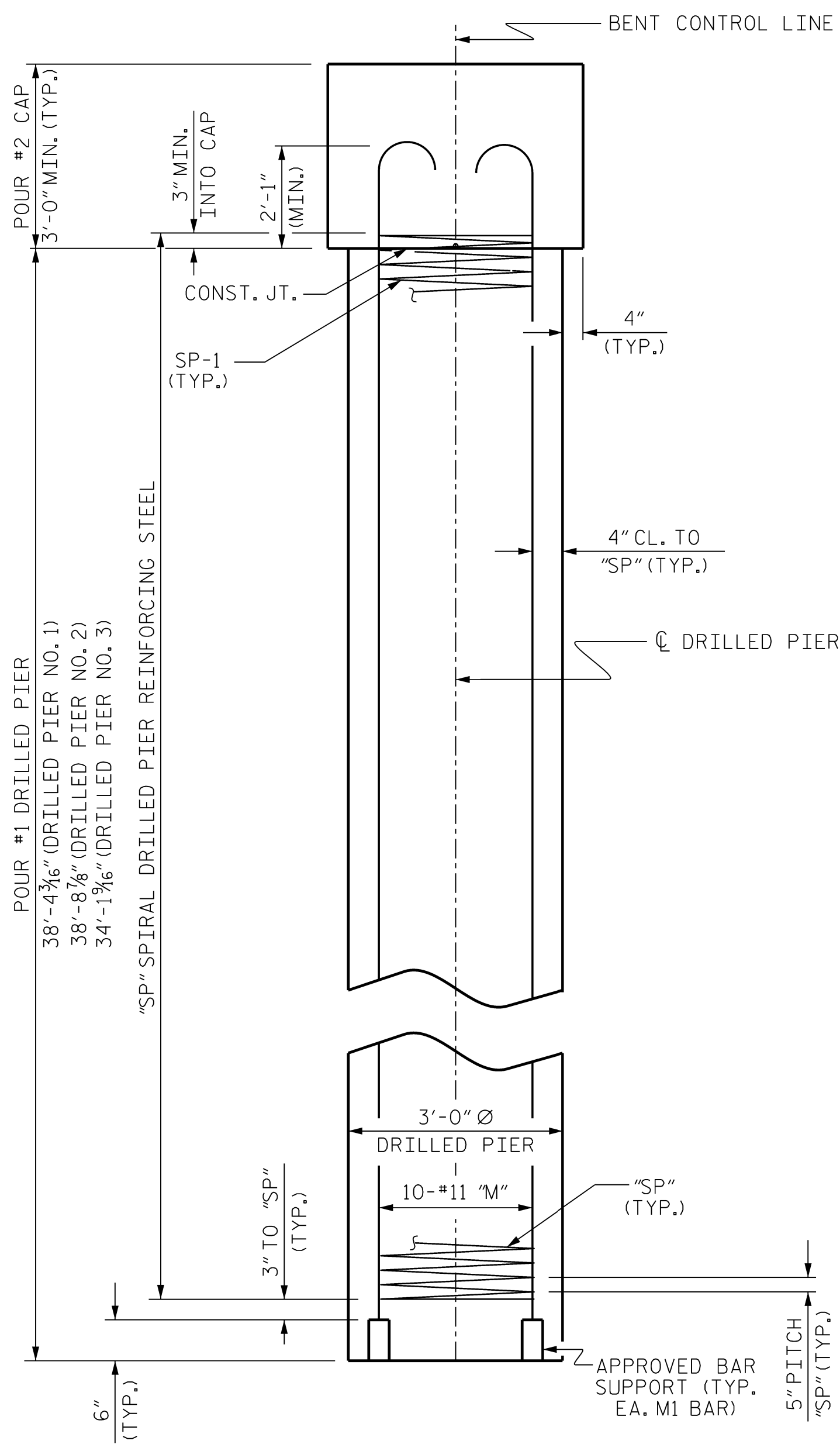
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

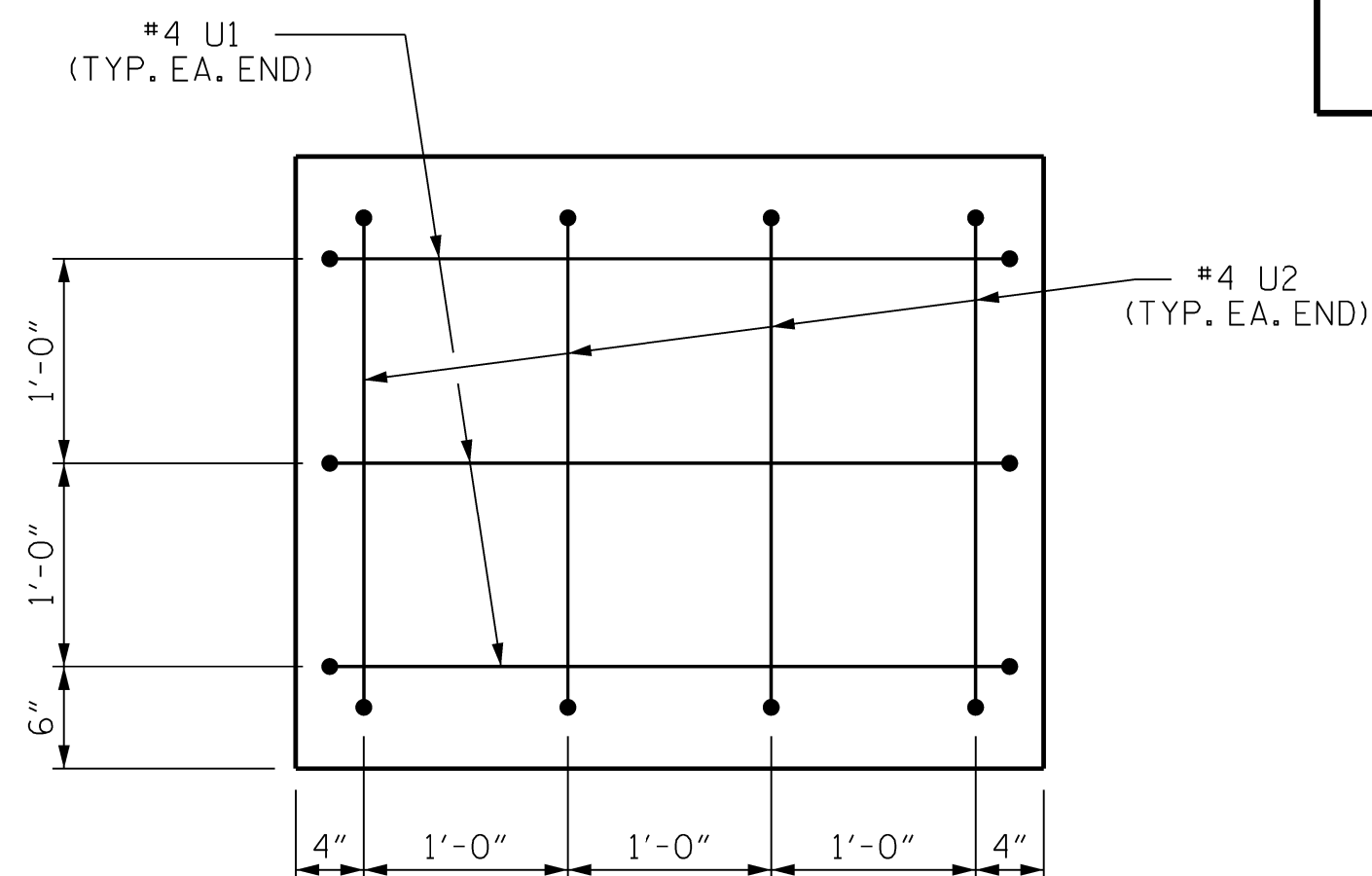
STD. NO. DP_BT_33_90S->50'



PLAN OF DRILLED PIERS

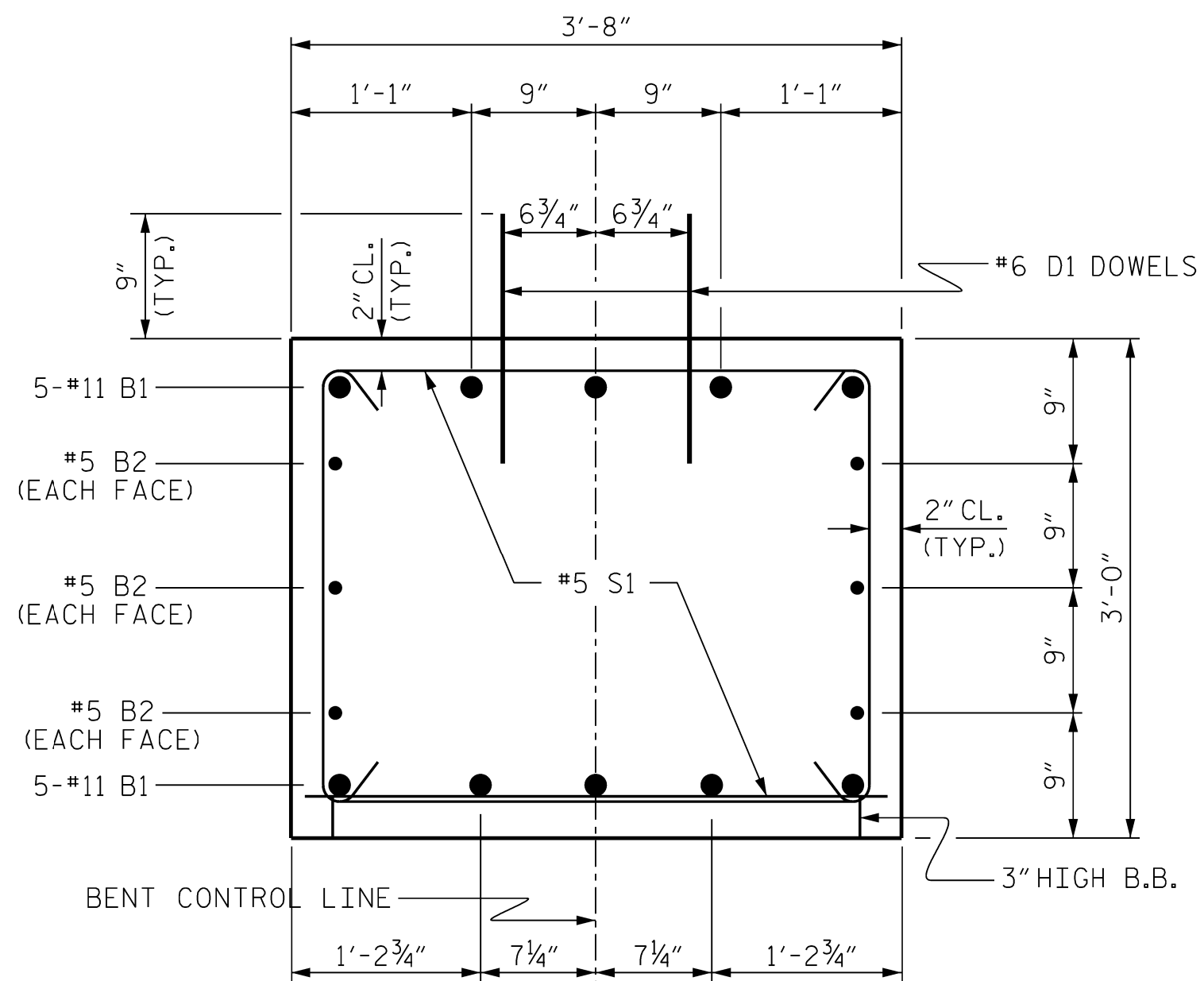


END ELEVATION

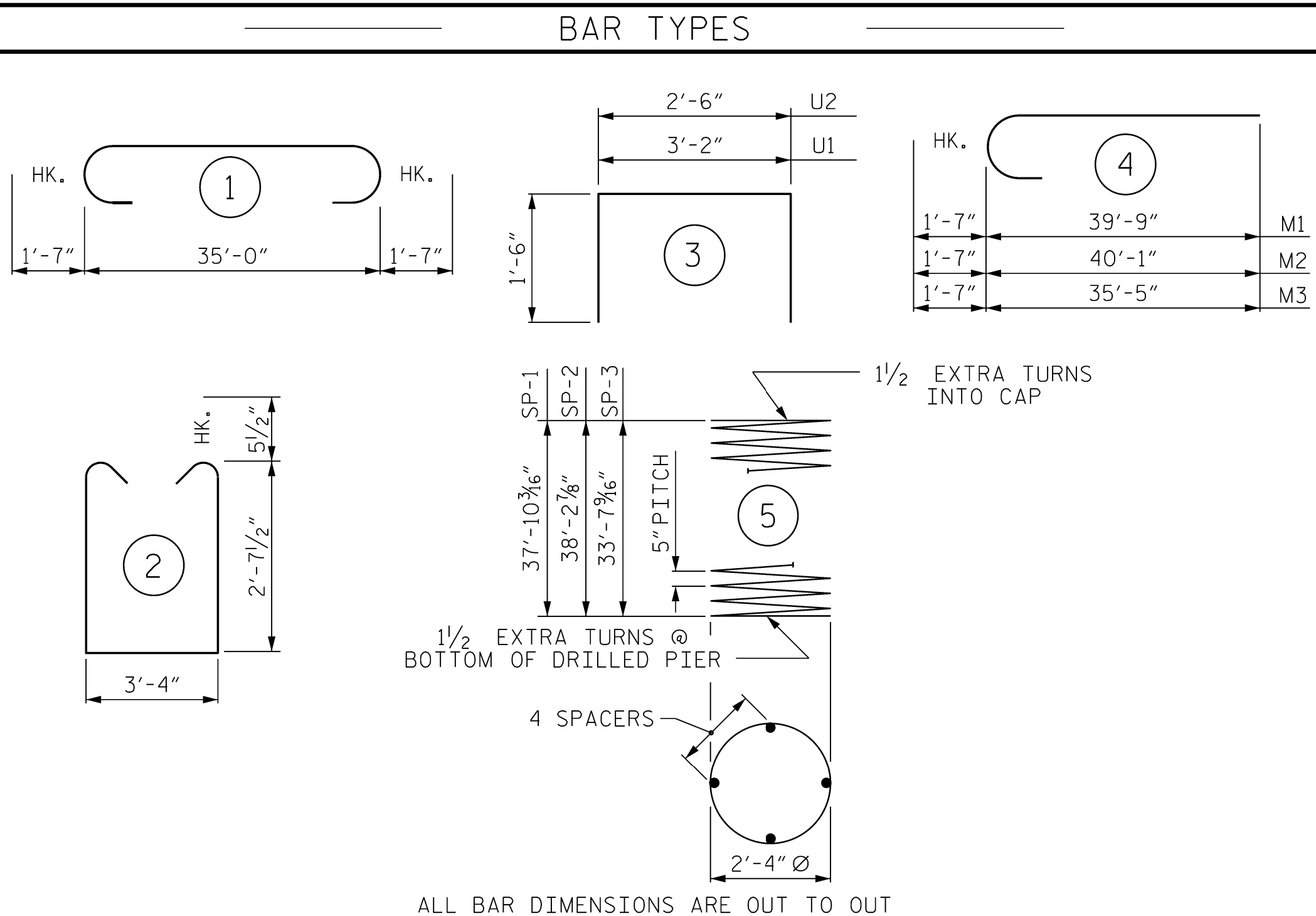


END OF CAP VIEW

(TYPICAL BOTH ENDS)



SECTION A-A THRU CAP

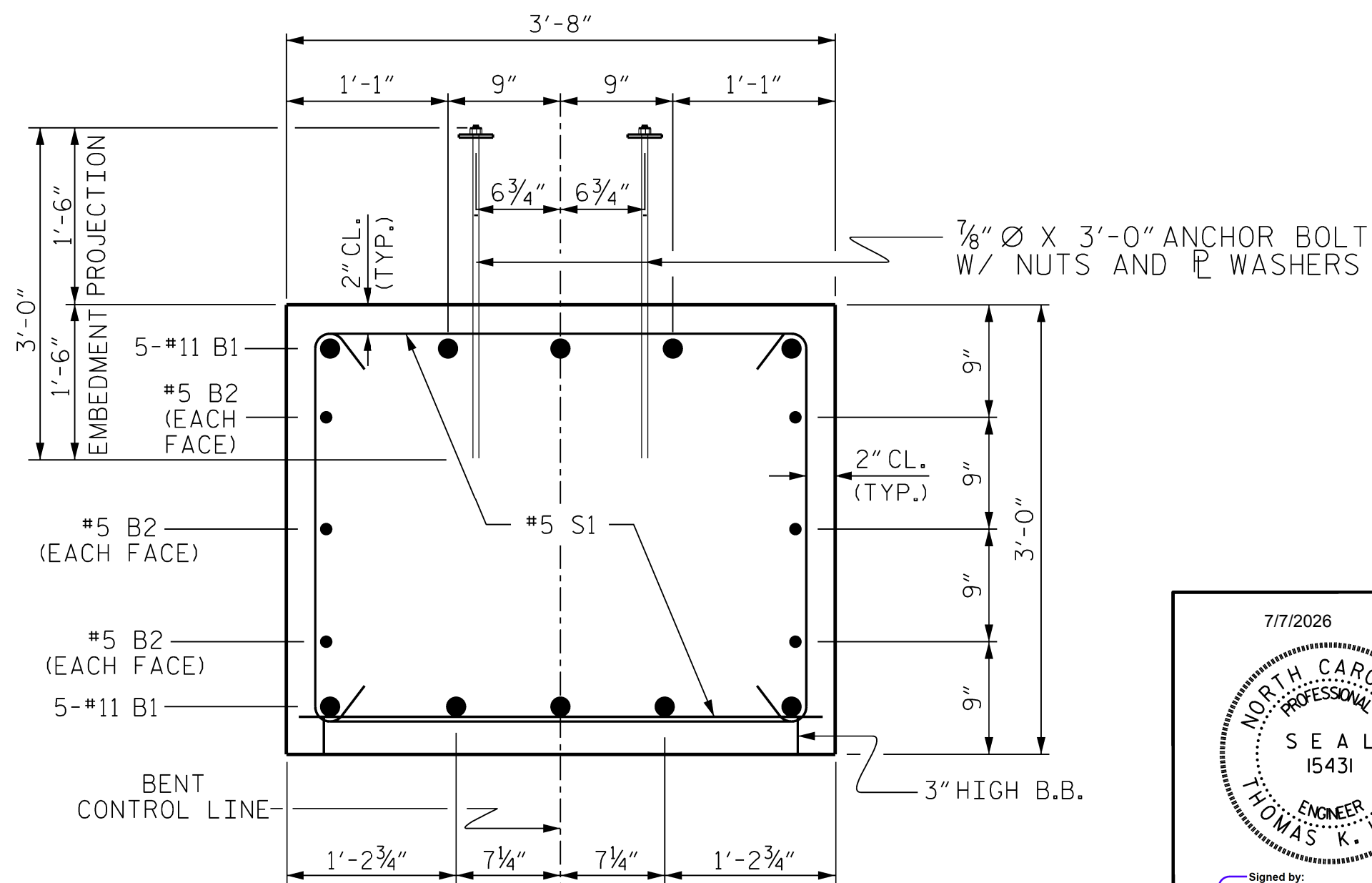


ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
FOR BENT No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	38'-2"	2028
B2	6	#5	STR	35'-2"	220
D1	36	#6	STR	1'-6"	81
M1	10	#11	4	41'-4"	2196
M2	10	#11	4	41'-8"	2214
M3	10	#11	4	37'-0"	1966
S1	60	#5	2	9'-6"	595
U1	6	#4	3	6'-2"	25
U2	8	#4	3	5'-6"	29
REINFORCING STEEL (FOR ONE BENT)					9354
SP-1	1	*	5	656'-3"	684
SP-2	1	*	5	663'-6"	692
SP-3	1	*	5	584'-2"	609
SPIRAL COLUMN REINFORCING STEEL					1985
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					

CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)	
POUR #2 (CAP)	14.5 C.Y.
TOTAL CLASS A CONCRETE	14.5 C.Y.

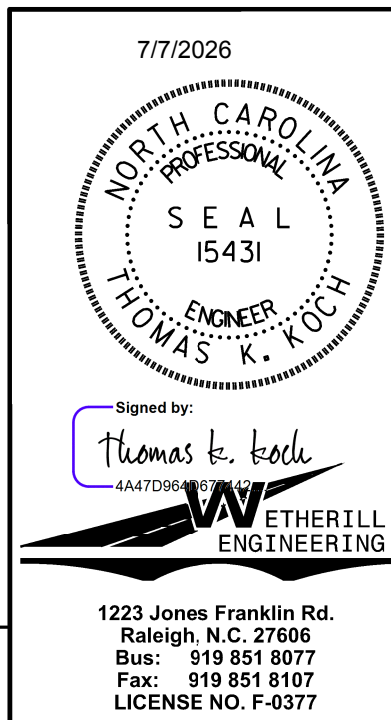
DRILLED PIERS: (FOR ONE BENT)	
DRILLED PIER CONCRETE POUR #1 (DRILLED PIERS)	29.1 C.Y.
3'-0" Ø DRILLED PIER NOT IN SOIL	62.0 LIN. FT.
3'-0" Ø DRILLED PIER IN SOIL	49.2 LIN. FT.
PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	51.2 LIN. FT.
CSL TUBES	444.9 LIN. FT.
7/8" Ø x 3'-0" ANCHOR BOLTS W/ NUTS AND P WASHERS	EACH: 8



SECTION B-B THRU CAP

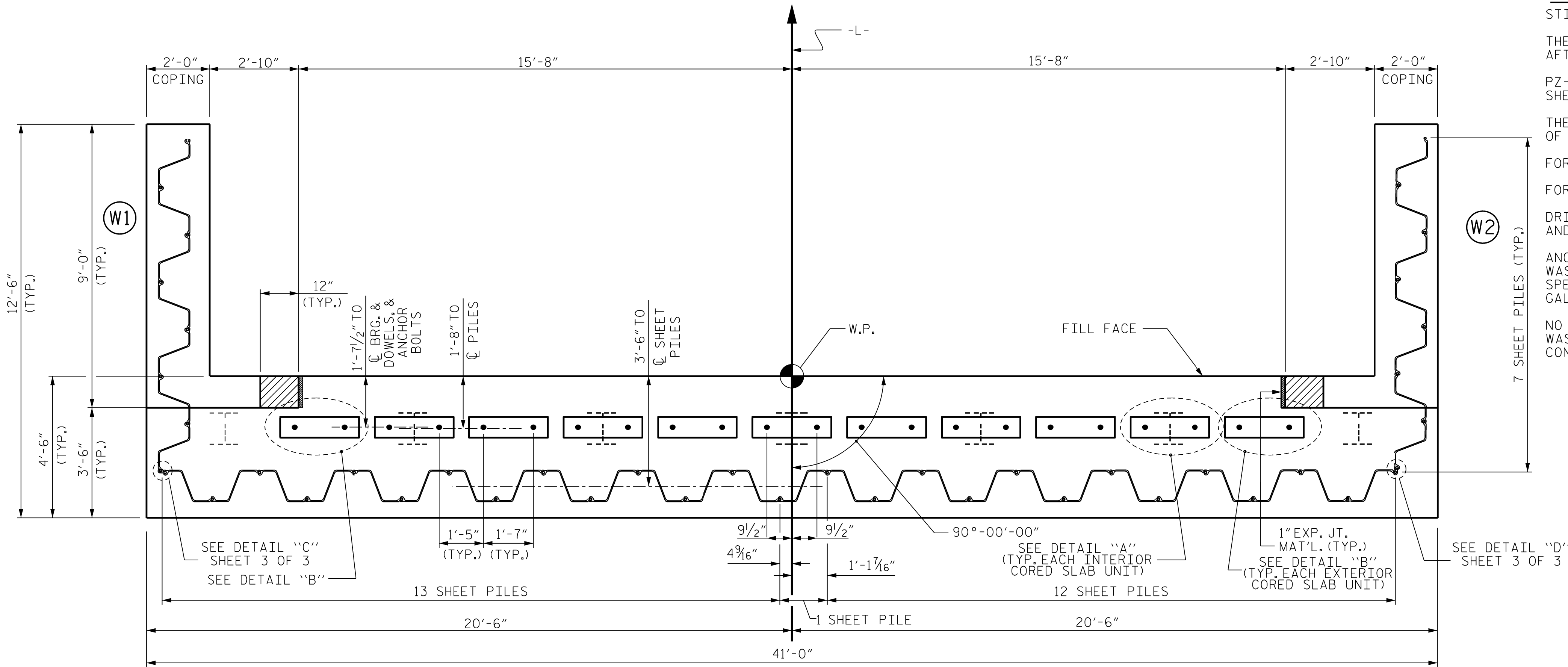
DRAWN BY : J. PENDERGRAFT DATE : 12-25
 CHECKED BY : J. DILWORTH DATE : 12-25
 DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

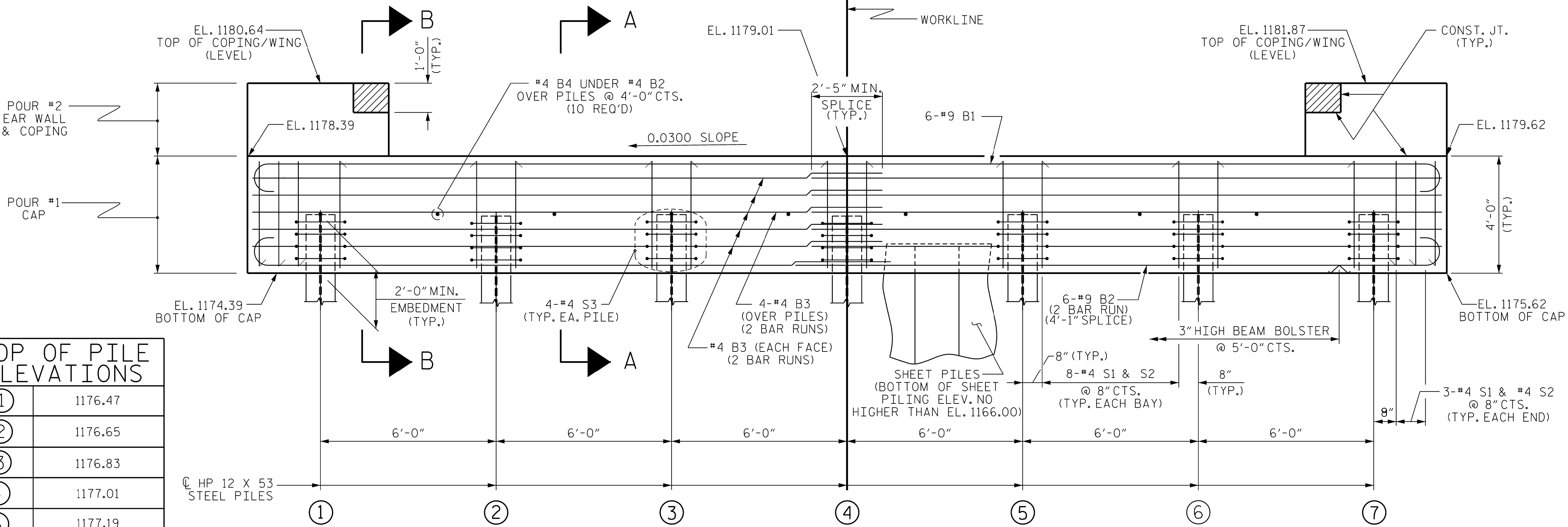


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT No. 1



PLAN



ELEVATION

(SHEET PILE PARTIALLY OMITTED IN ELEVATION VIEW FOR CLARITY)

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 BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

PZ-27 STEEL SHEET PILES SHALL BE GALVANIZED. FOR GALVANIZED STEEL SHEET PILES, SEE SPECIAL PROVISIONS.

THE STEEL SHEET PILES SHALL HAVE A MINIMUM SECTION MODULUS OF 30 IN ³/FT.

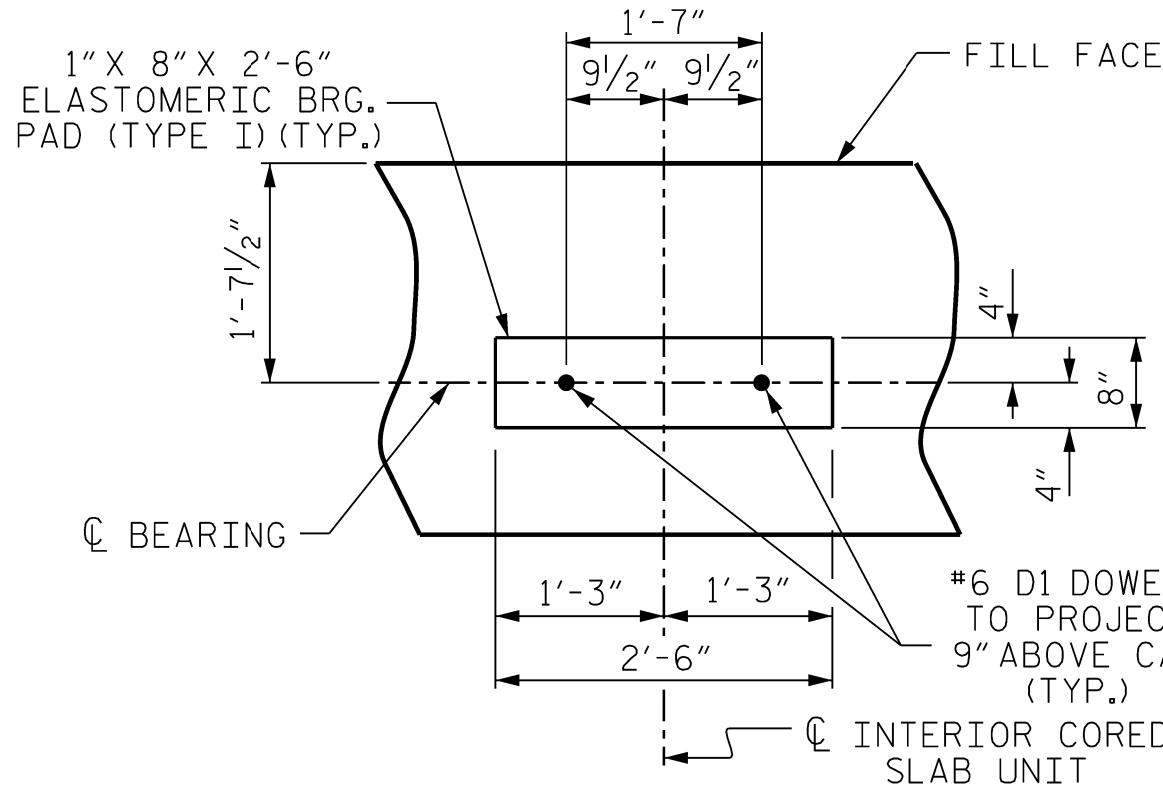
FOR COPING-WING DETAILS, SEE SHEET 2 OF 3.

FOR SECTION A-A AND B-B, SEE SHEET 3 OF 3.

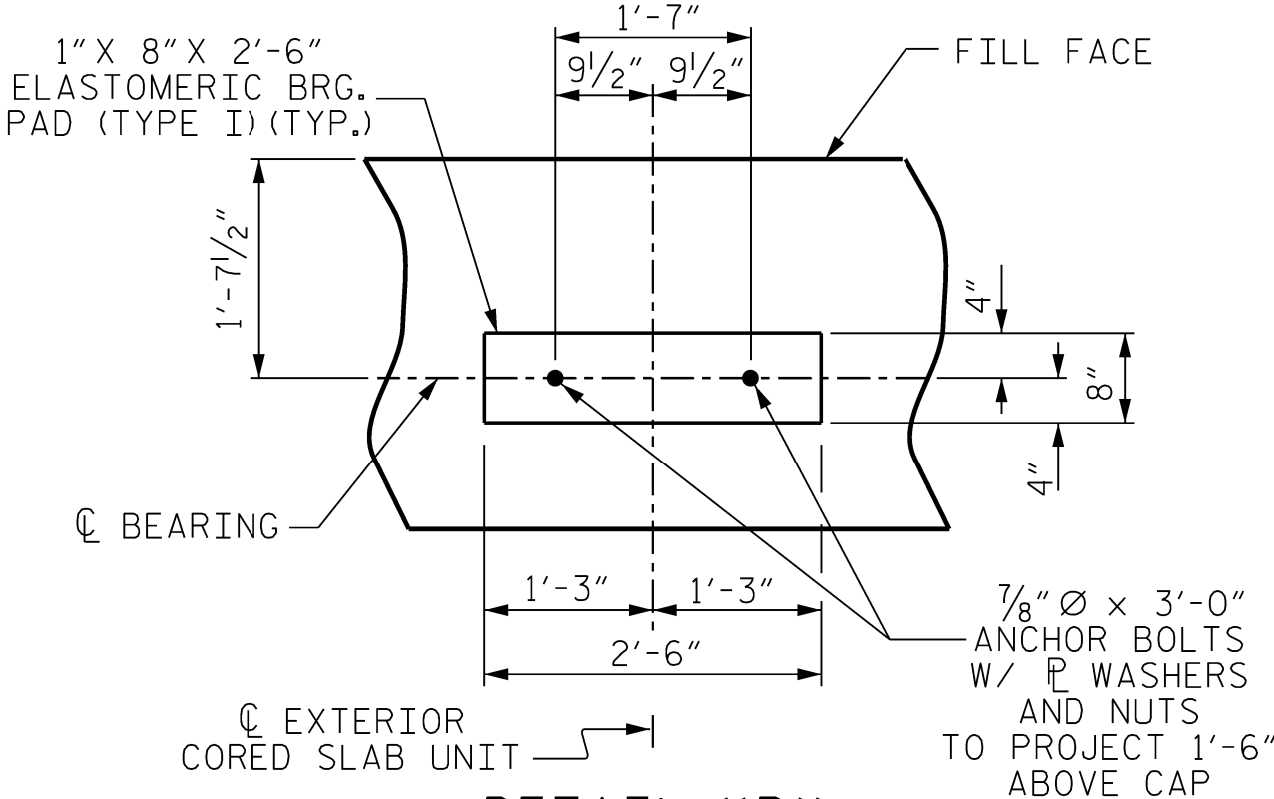
DRILL OR CUT 2" Ø MAX. HOLE IN SHEET PILES FOR #9B2, #4K1 AND #4S5 BARS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449, ANCHOR PLATES, WASHERS, AND NUTS SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

NO SEPARATE PAYMENT SHALL BE MADE FOR THE ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS. THE COST OF THE MATERIAL AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.



DETAIL "A"



DETAIL "B"

PROJECT NO. **HB-0056**

CALDWELL COUNTY

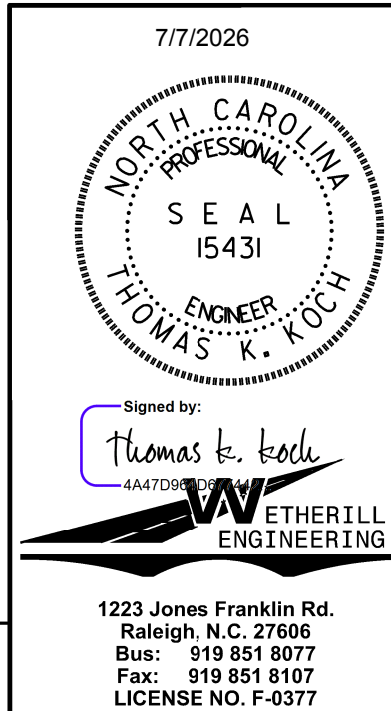
STATION: **20+46.00 -L-**

SHEET 1 OF 3

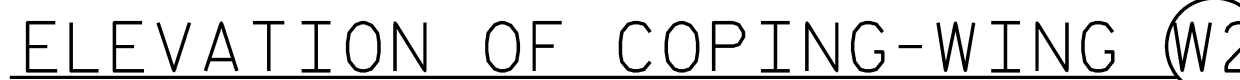
TOP OF PILE ELEVATIONS	
①	1176.47
②	1176.65
③	1176.83
④	1177.01
⑤	1177.19
⑥	1177.37
⑦	1177.55

DRAWN BY : J. PENDERGRAFT DATE : 5-25
CHECKED BY : J. DILWORTH DATE : 5-25
DESIGN ENGINEER OF RECORD : T. KOCH DATE : 1-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-22
2			4			TOTAL SHEETS 26

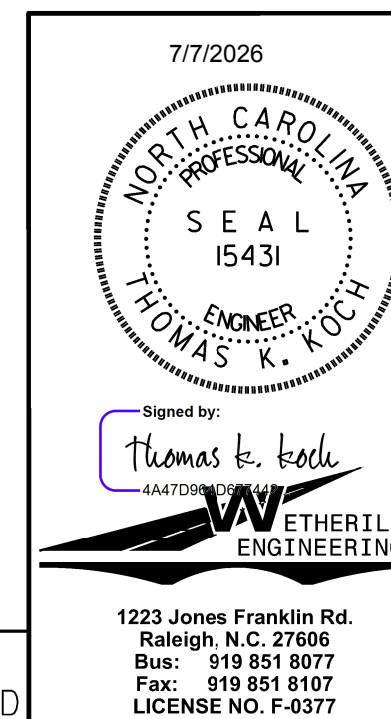


WING DETAILS

DRILL OR CUT 2"Ø MAX. HOLE IN
SHEET PILES FOR #9B2, #4K1 AND #4S5 BARS.

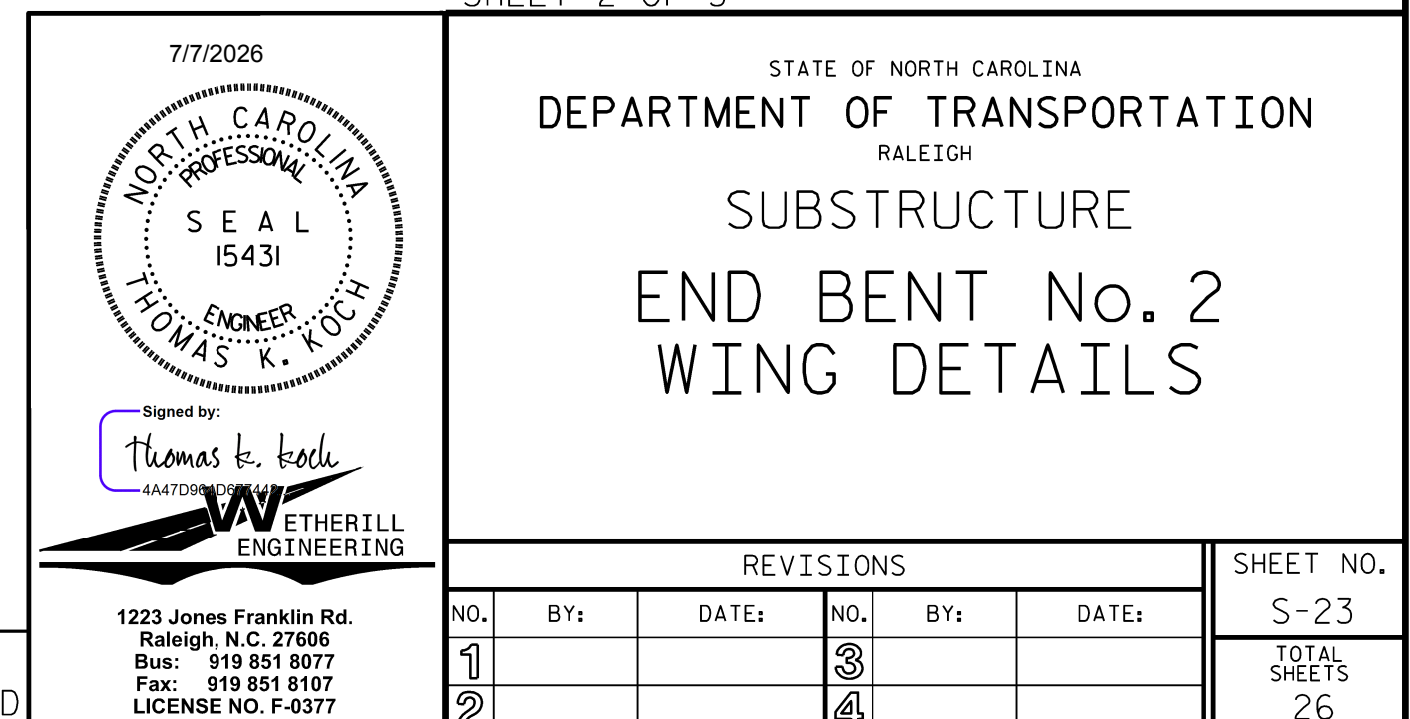
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CHECKED BY : J. DILWORTH DATE : 5-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

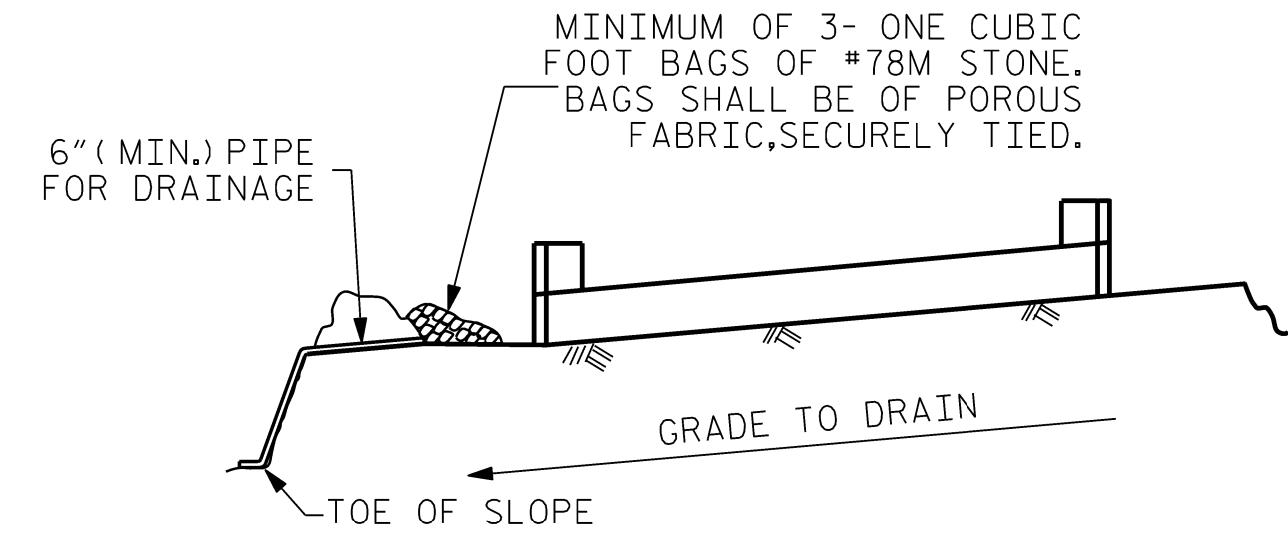
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PROJECT NO. **HB-0056**
CALDWELL COUNTY
 STATION: **20+46.00 -L-**

SHEET 2 OF 3



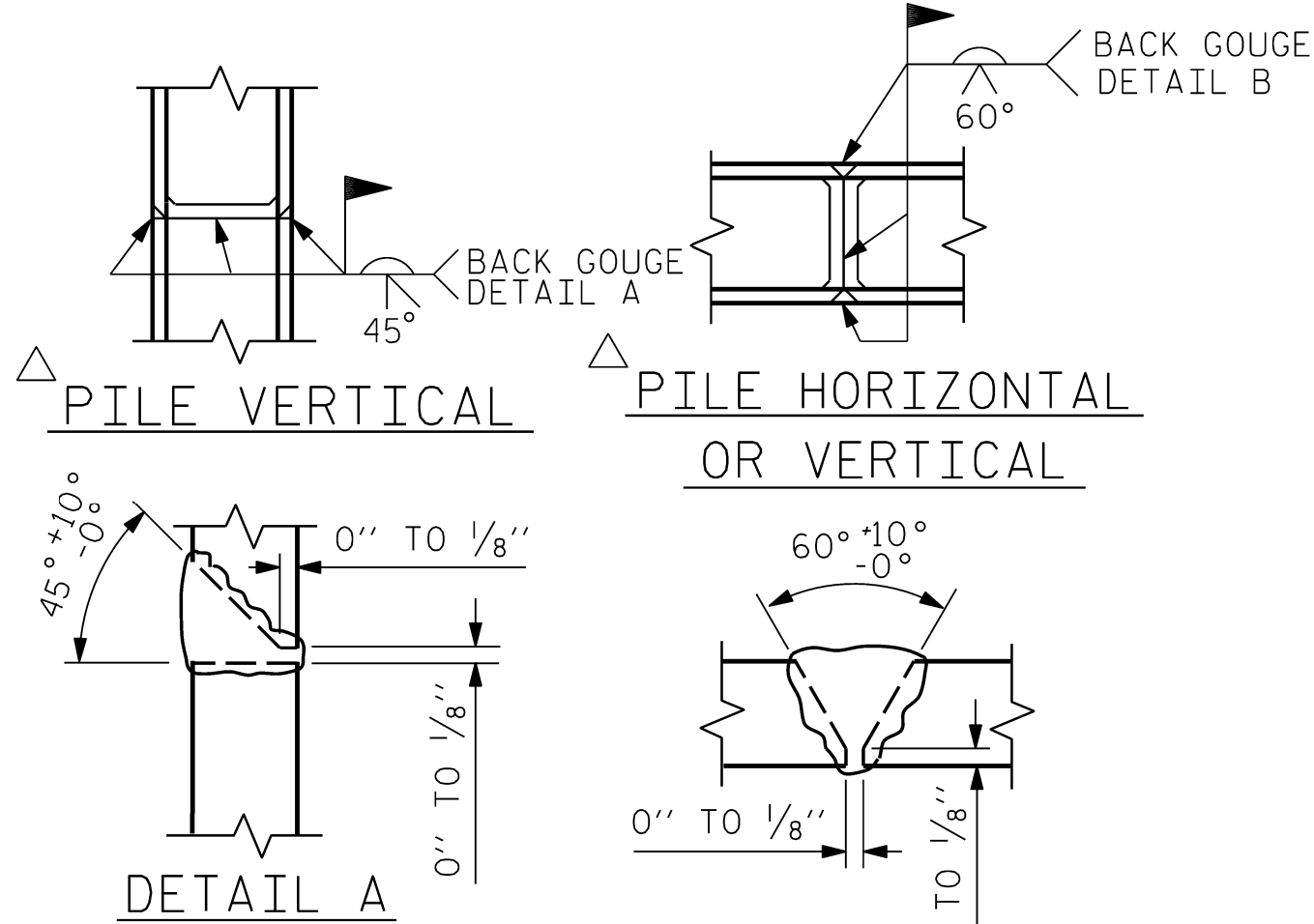


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

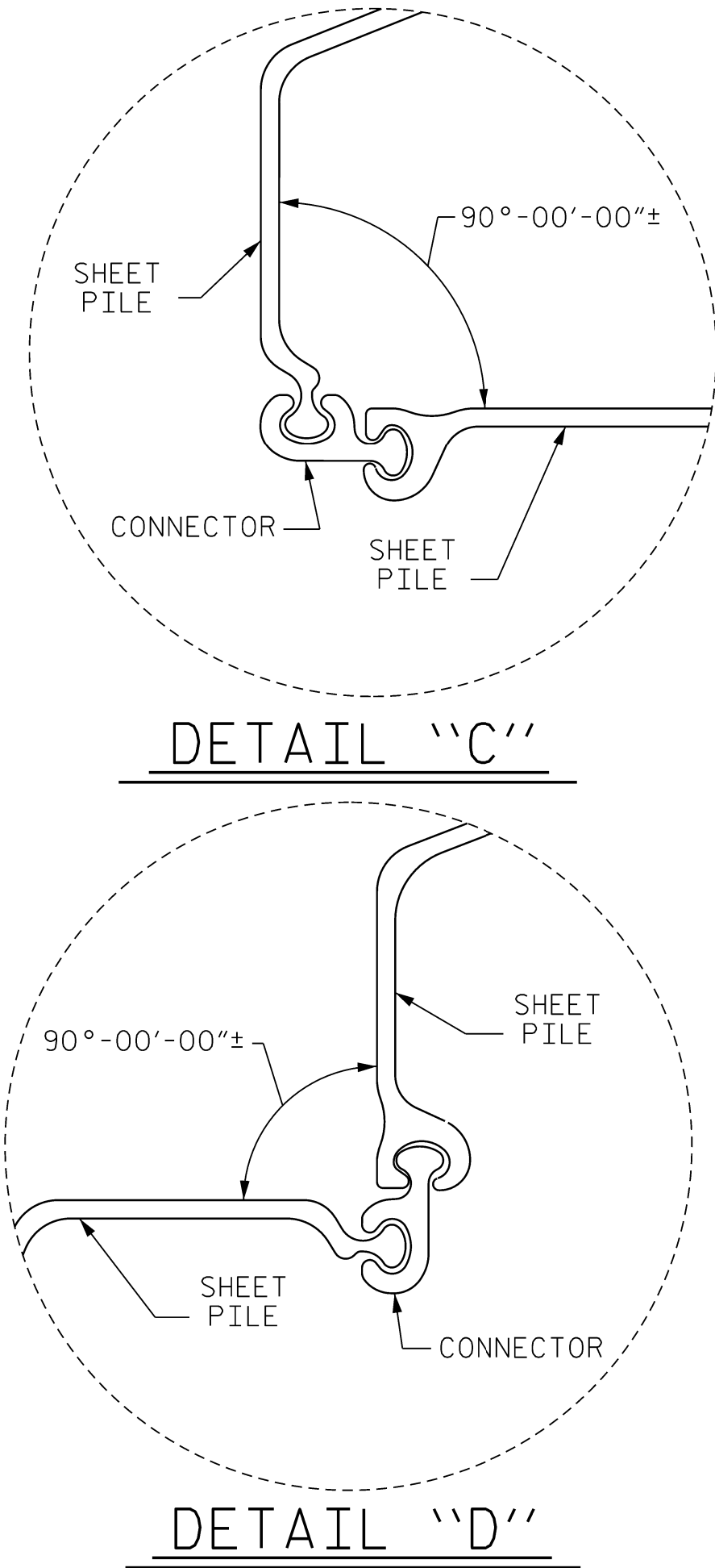
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

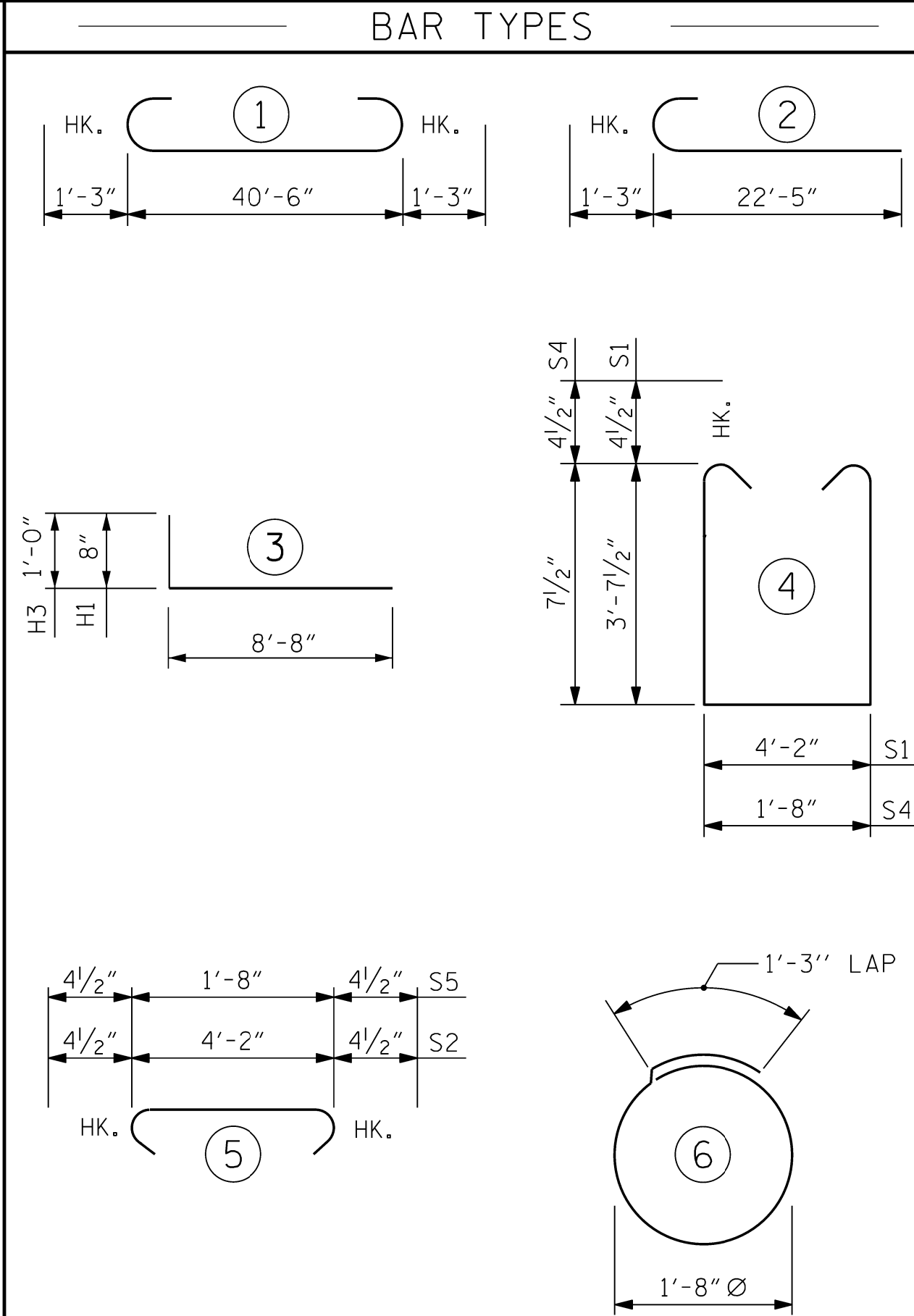


POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

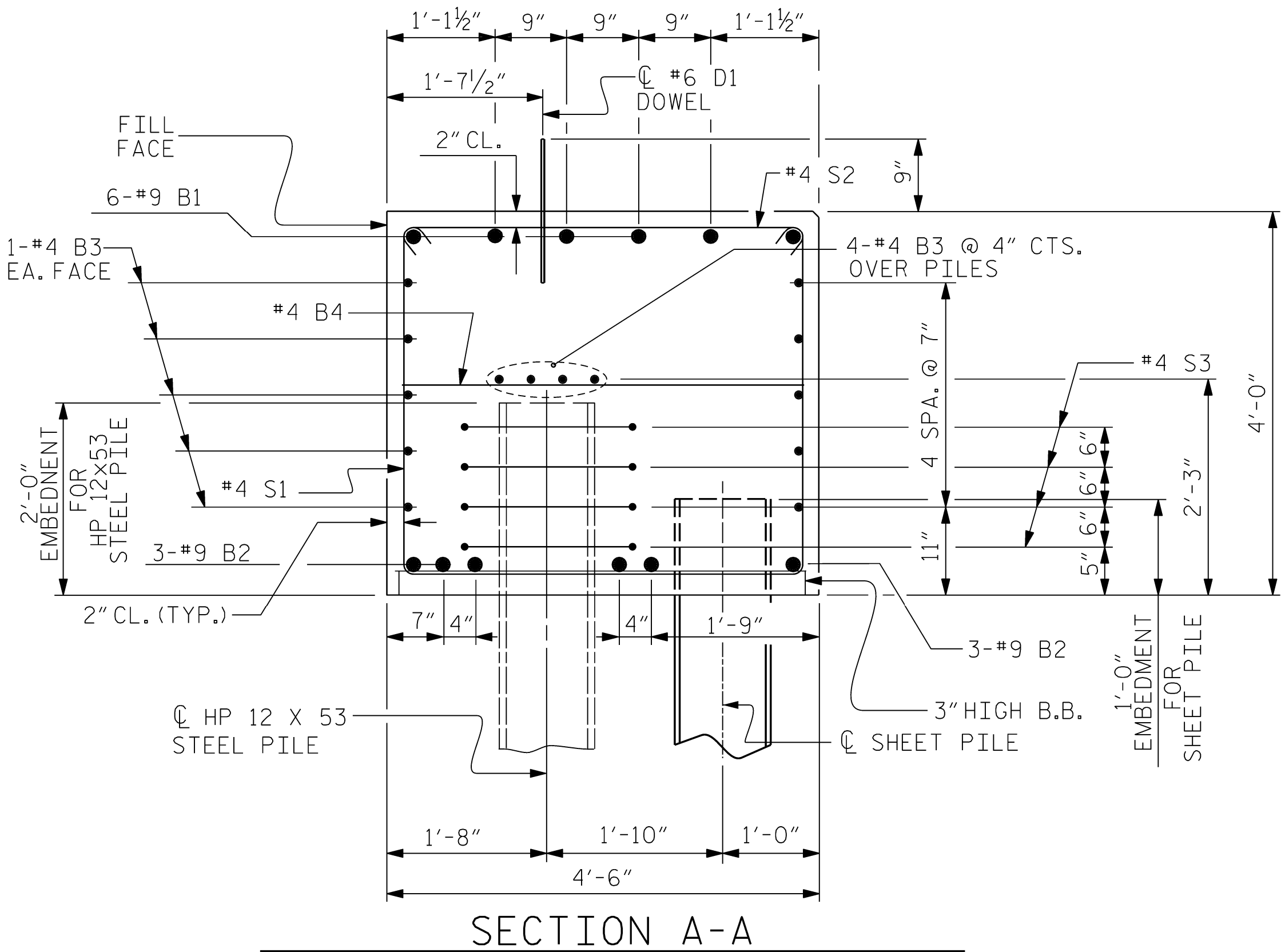


DETAIL "D"

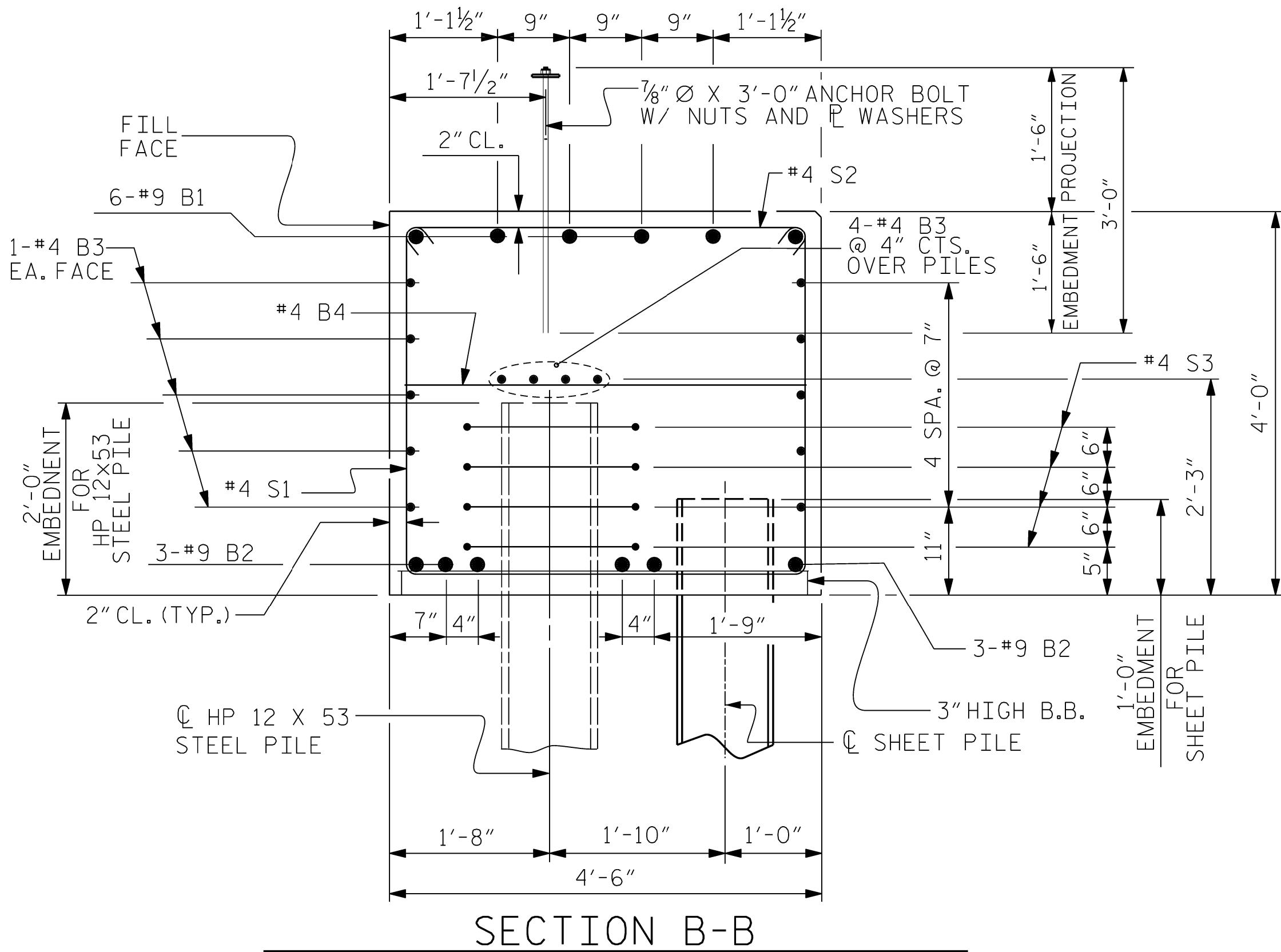


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT No. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	43'-0"	877
B2	12	#9	2	23'-8"	966
B3	28	#4	STR	21'-7"	404
B4	10	#4	STR	4'-2"	28
D1	18	#6	STR	1'-6"	41
H1	4	#4	3	9'-4"	25
H2	4	#4	STR	8'-8"	23
H3	4	#6	3	9'-8"	58
K1	12	#4	STR	4'-6"	36
S1	54	#4	4	12'-2"	439
S2	54	#4	5	4'-11"	177
S3	28	#4	6	6'-6"	122
S4	16	#4	4	3'-8"	39
S5	16	#4	5	2'-5"	26
V1	56	#4	STR	5'-10"	218
REINFORCING STEEL				LBS	3,479
CLASS AA CONCRETE:					
POUR #1: CAP					27.3 C.Y.
POUR #2: EAR WALLS & COPING					2.0 C.Y.
TOTAL					29.3 C.Y.
HP 12x53 STEEL PILES					
NO: 7				LIN. FT. = 180	
STEEL PILE POINTS					NO: 7
GALVANIZED STEEL SHEET PILES					
NO.			= 40	SQ. FT.	741
NO. CONNECTOR			= 2	SQ. FT.	8
TOTAL NO.			= 42	SQ. FT.	749
PILE DRIVING EQUIPMENT					
SETUP FOR HP 12x53 STEEL PILES					EACH: 7
7/8" Ø X 3'-0" ANCHOR BOLTS					
W/ NUTS AND WASHERS					EACH: 4



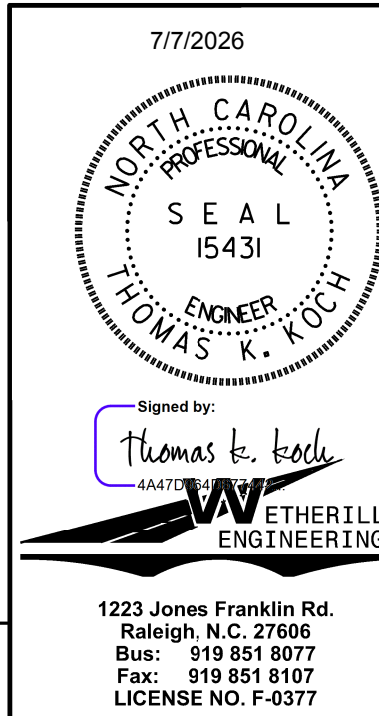
SECTION A-A



SECTION B-B

PROJECT NO. **HB-0056**
CALDWELL COUNTY
STATION: **20+46.00 -L-**

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2
DETAILS

REVISIONS

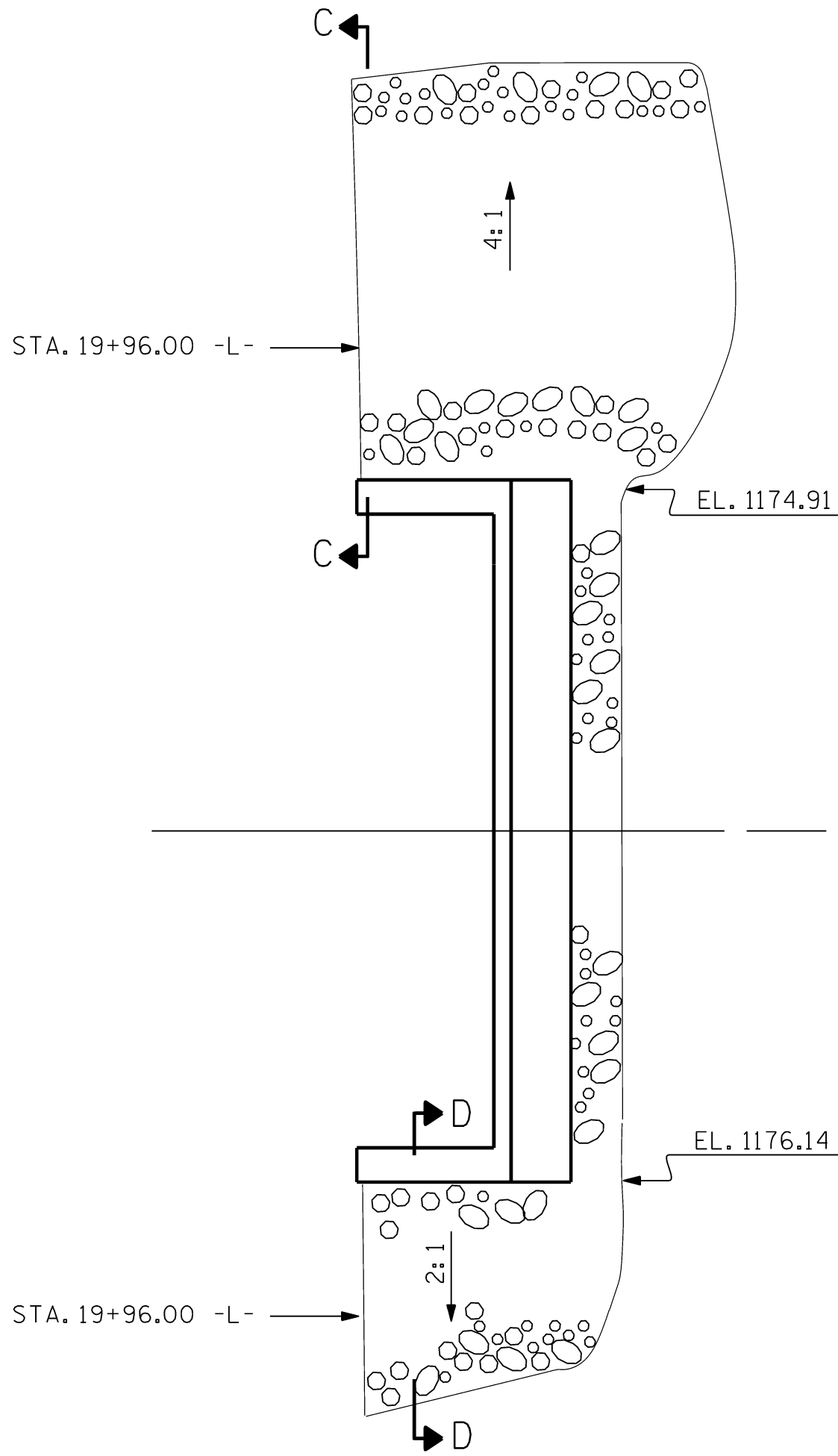
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2			4			TOTAL SHEETS 26

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UNLESS ALL SIGNATURES COMPLETED

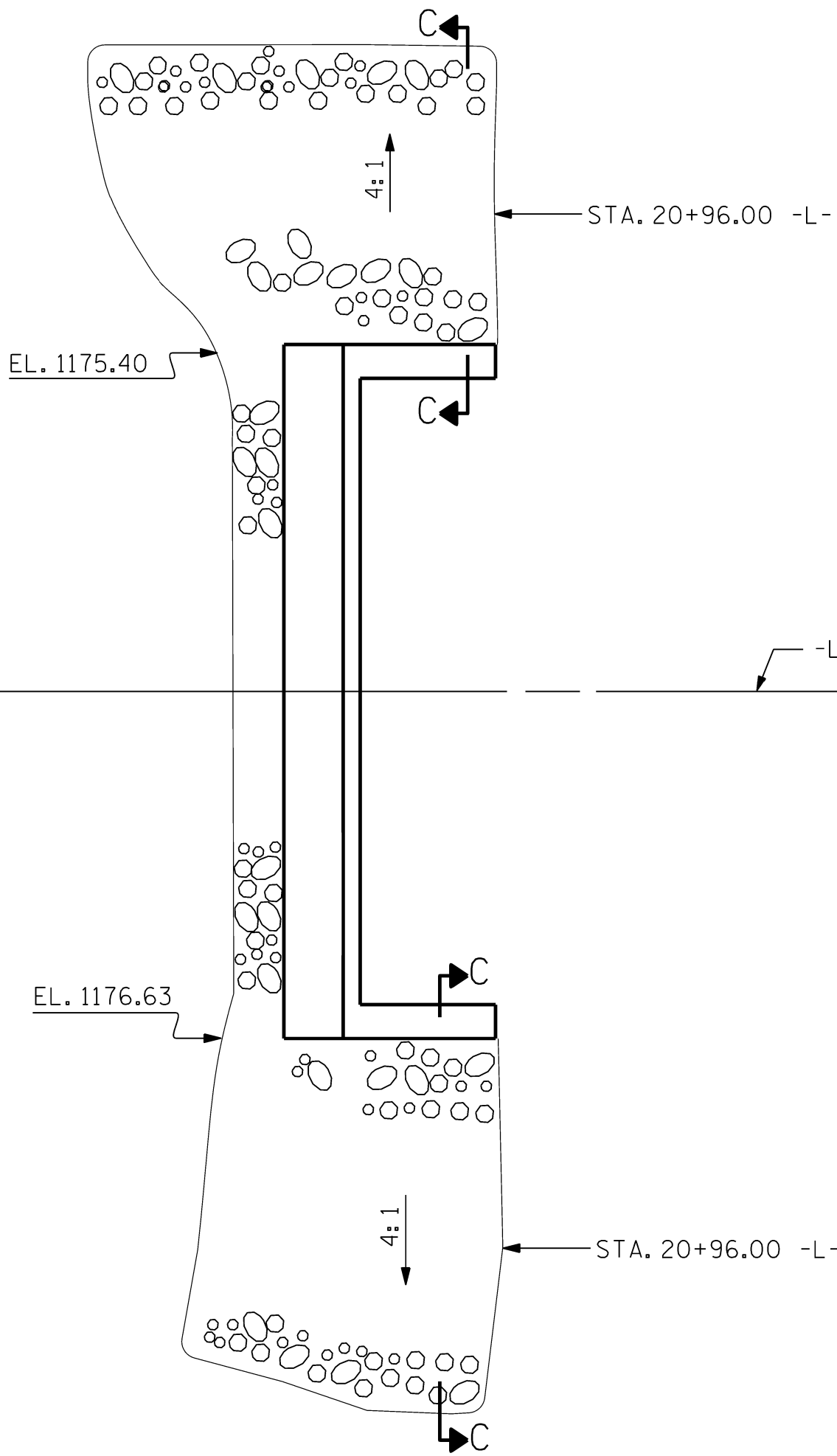
DRAWN BY : J. PENDERGRAFT DATE : 5-25
CHECKED BY : J. DILWORTH DATE : 5-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

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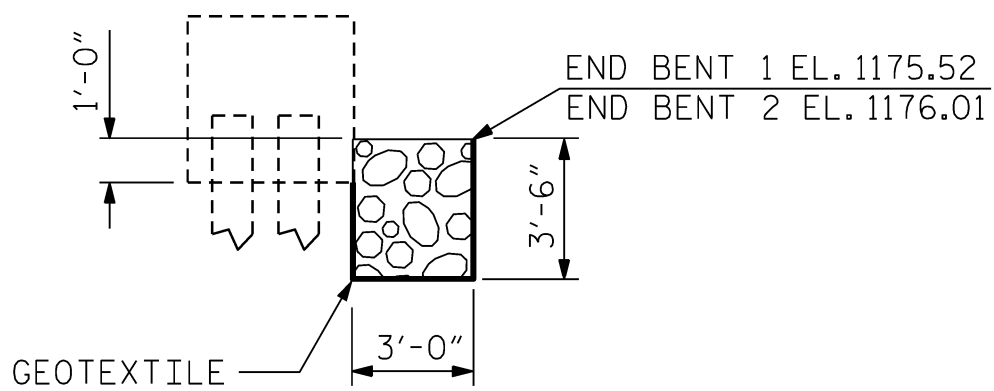


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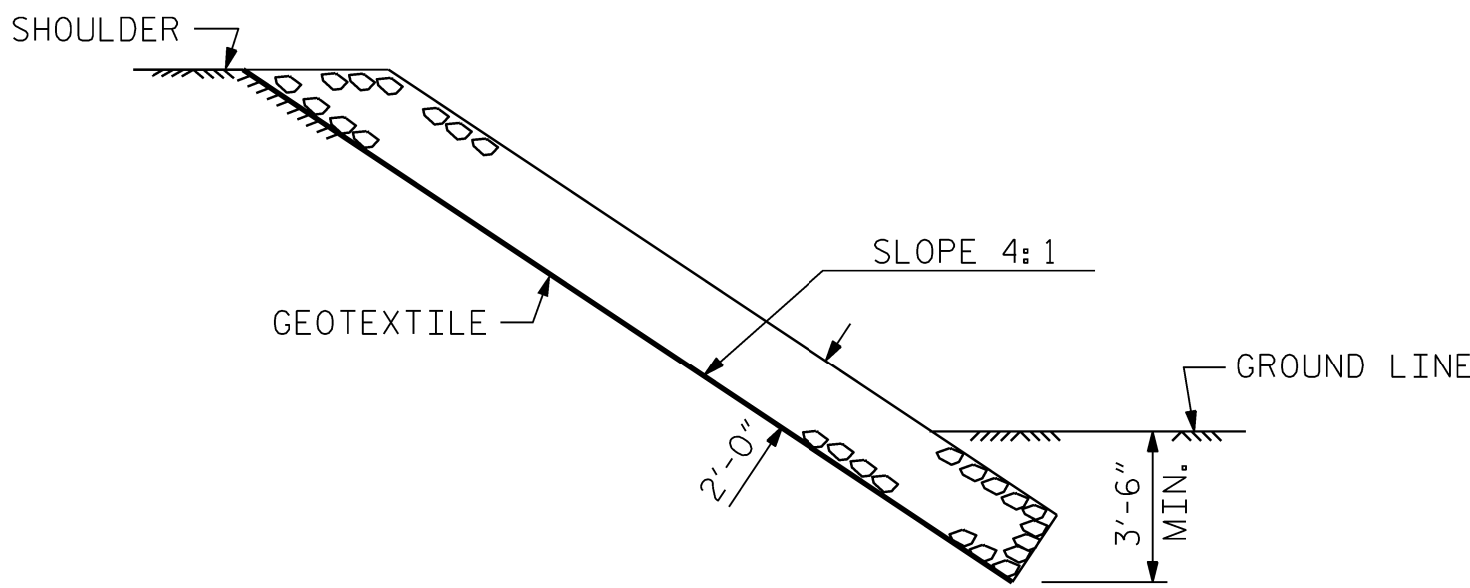


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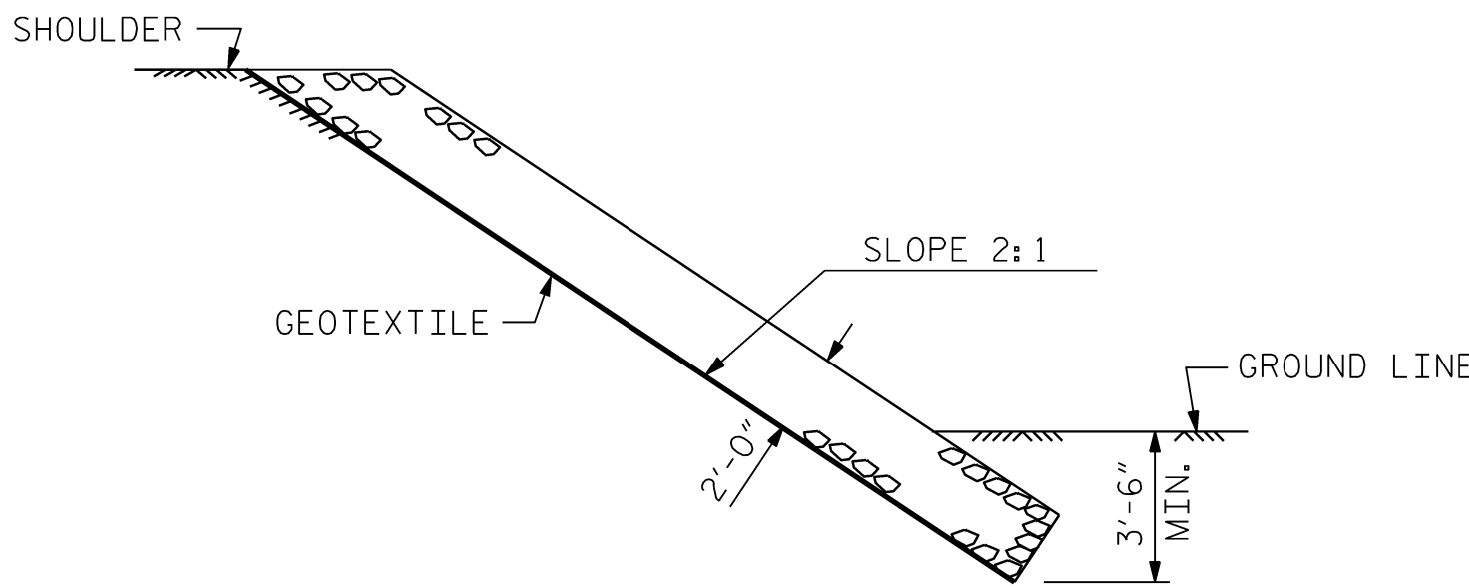
PLAN OF RIP RAP



SECTION
BERM RIP RAPPED



SECTION C-C

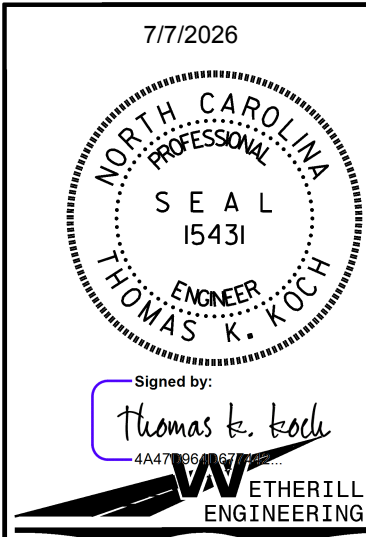


SECTION D-D

ESTIMATED QUANTITIES

BRIDGE @ STA. 20+46.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	95	105
END BENT 2	115	128

PROJECT NO. **HB-0056**
CALDWELL COUNTY
STATION: **20+46.00 -L-**



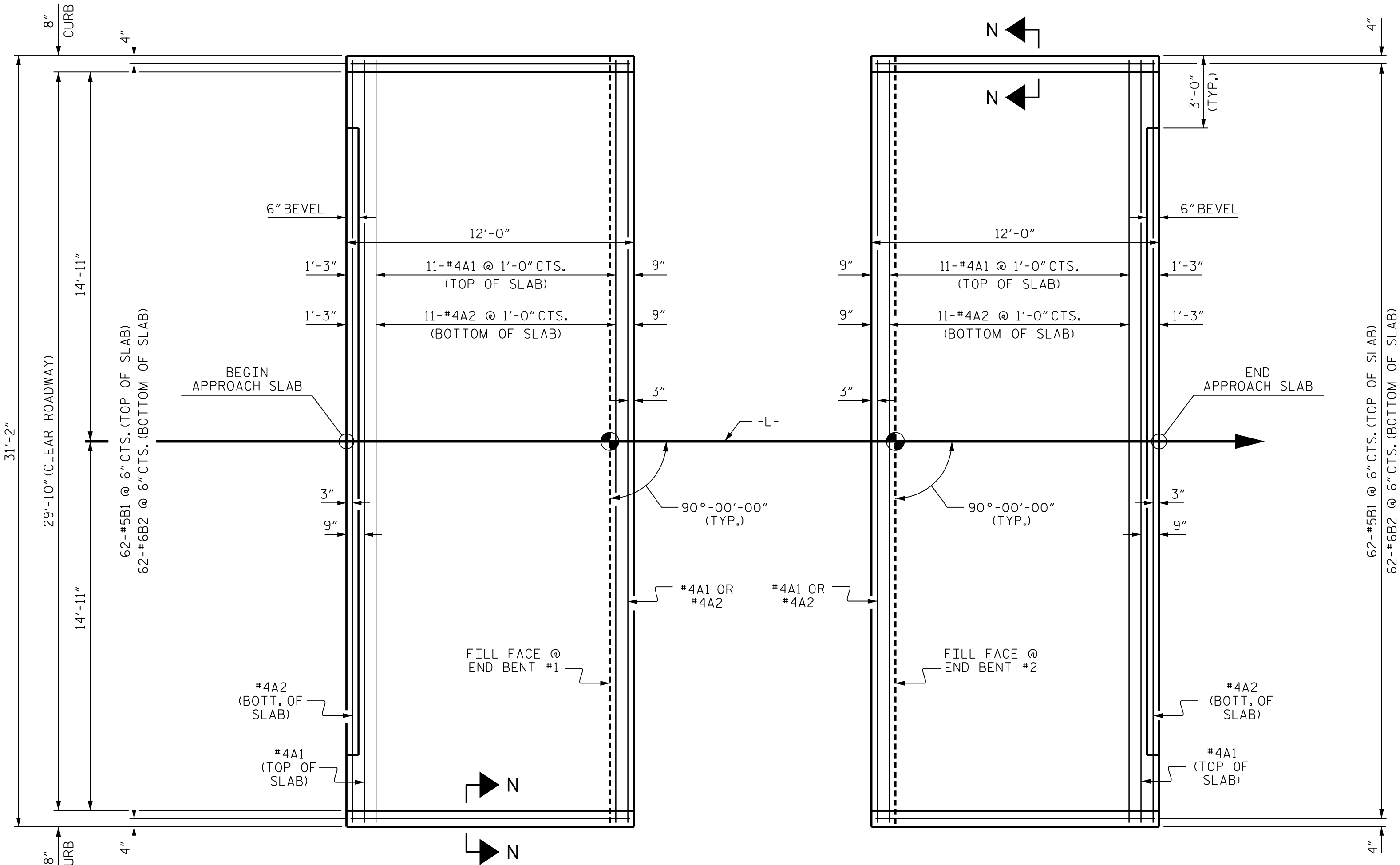
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 6107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-25
2			4			TOTAL SHEETS 26

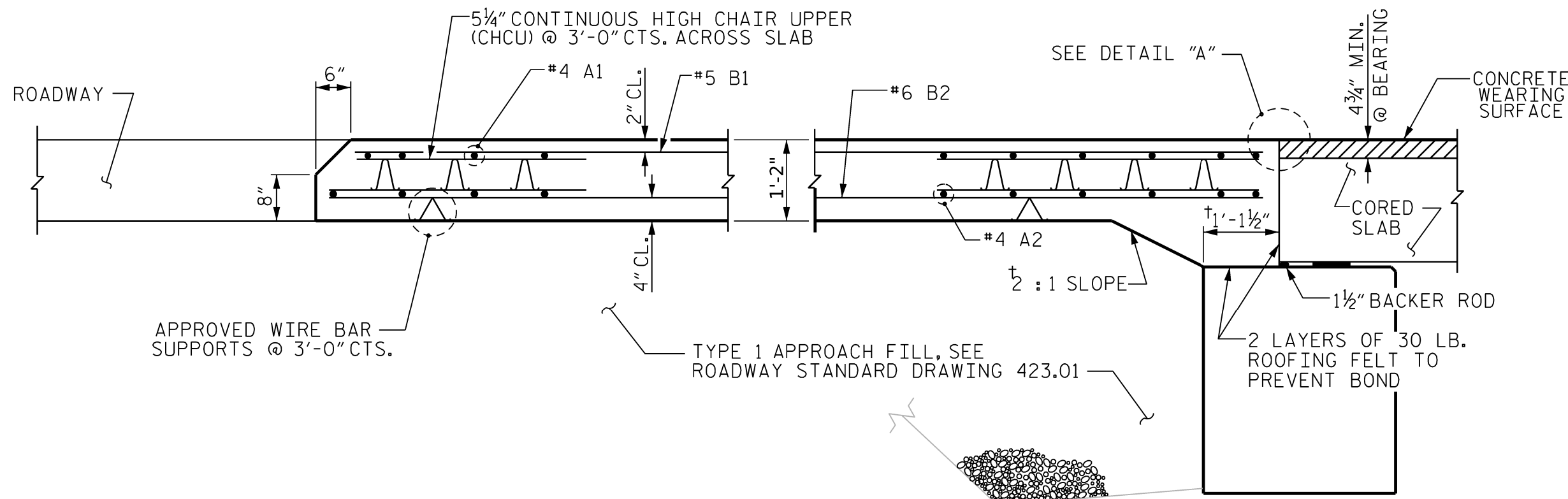
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UNLESS ALL SIGNATURES COMPLETED



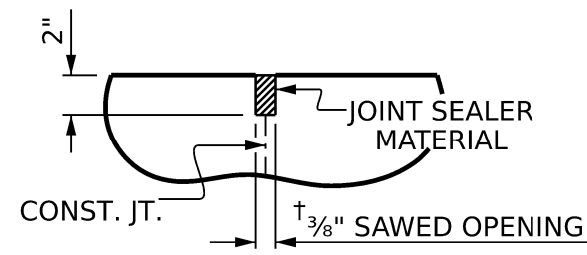
PLAN @ END BENT #1

PLAN @ END BENT #2

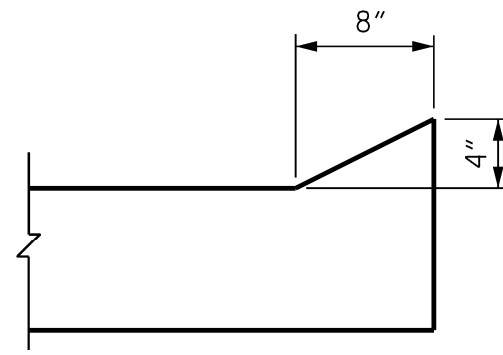
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



DETAIL "A"



SECTION N-N

CURB DETAILS

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

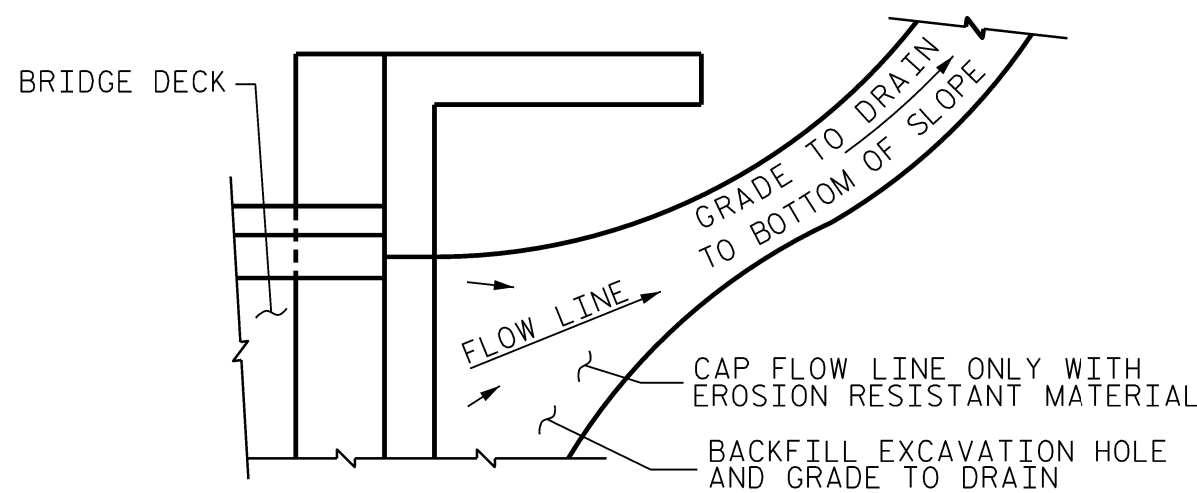
NOTES

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.

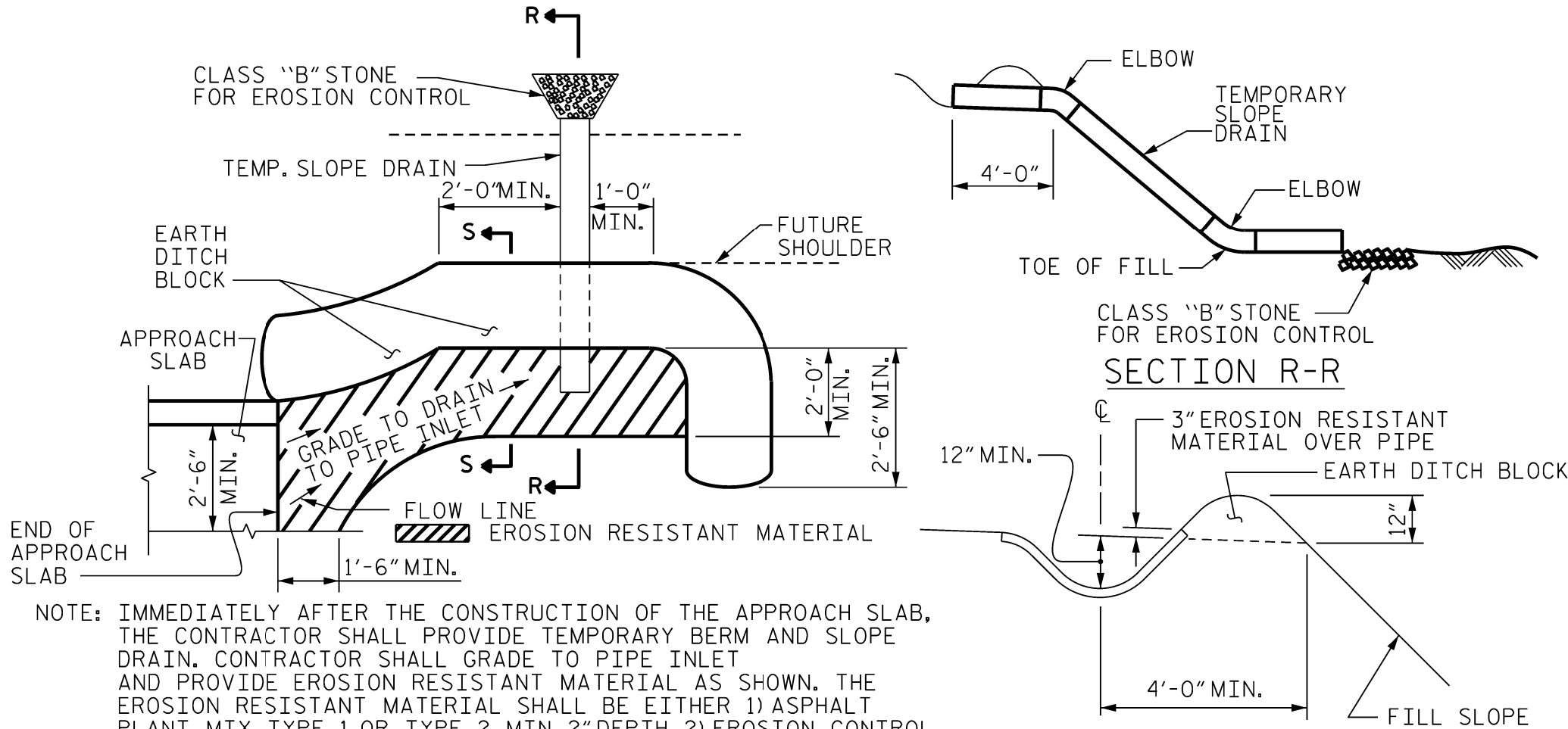
APPROACH SLABS SHALL BE POURED AFTER CONCRETE WEARING SURFACE IS POURED.

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 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

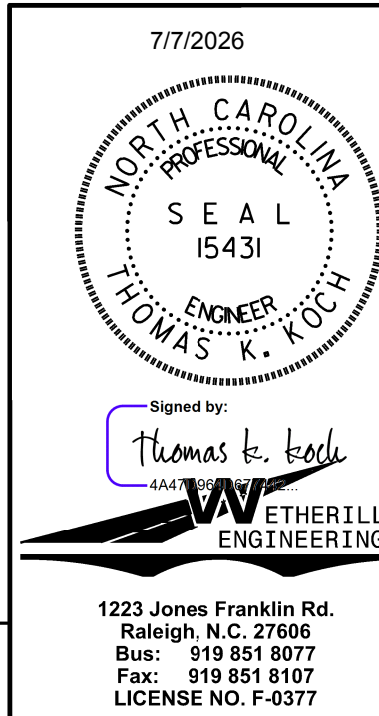


PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. **HB-0056**
COUNTY **CALDWELL**
STATION: **20+46.00 - L -**



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 90° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					26

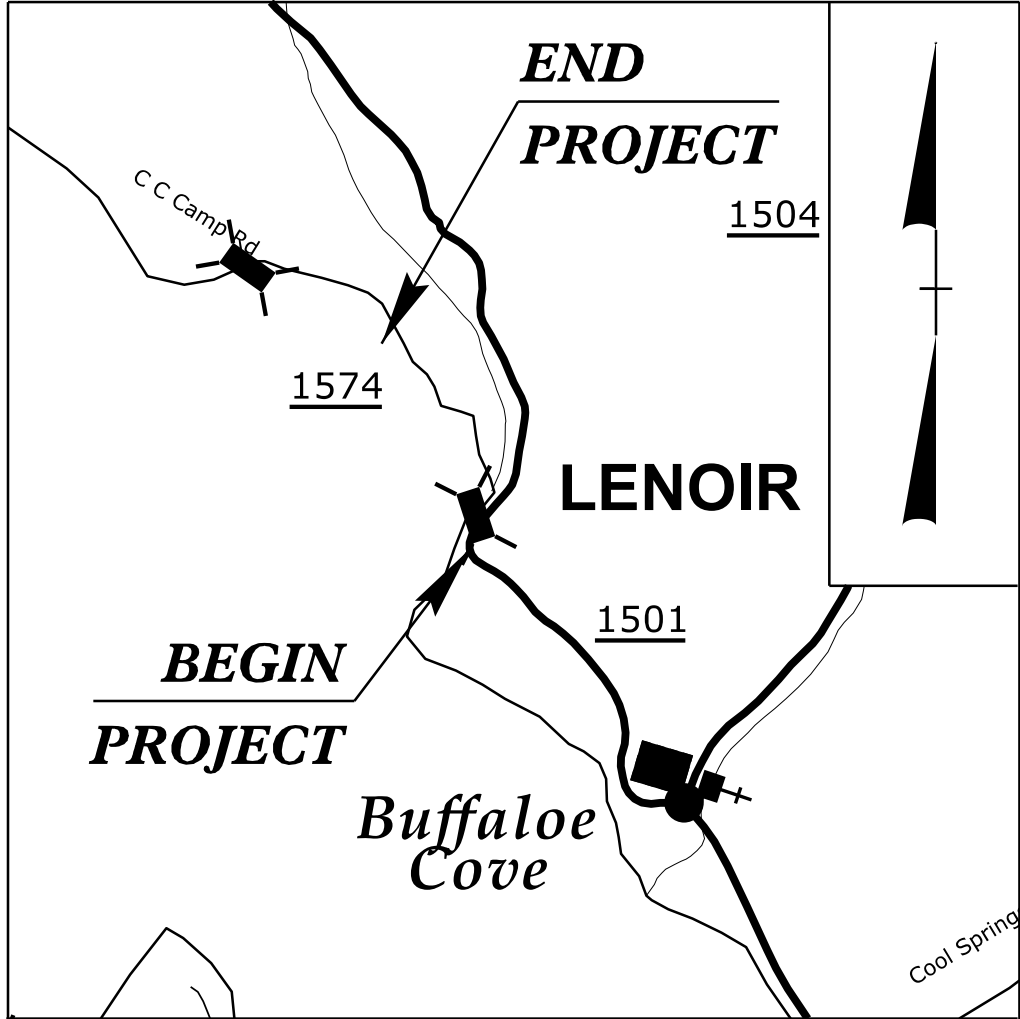
STD. NO. BAS.33.90S

DRAWN BY : J. PENDERGRAFT DATE : 1-25
CHECKED BY : J. DILWORTH DATE : 1-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 1-26

TIP PROJECT: HB-0061

CONTRACT: DK00483

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CALDWELL COUNTY

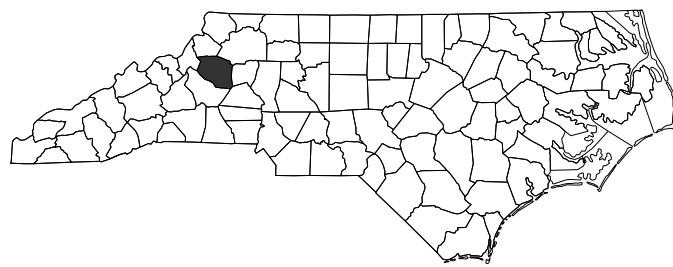
LOCATION: *SR 1574 (CC CAMP RD.)*

REPLACE BRIDGE NO. 349 OVER JOE'S CREEK

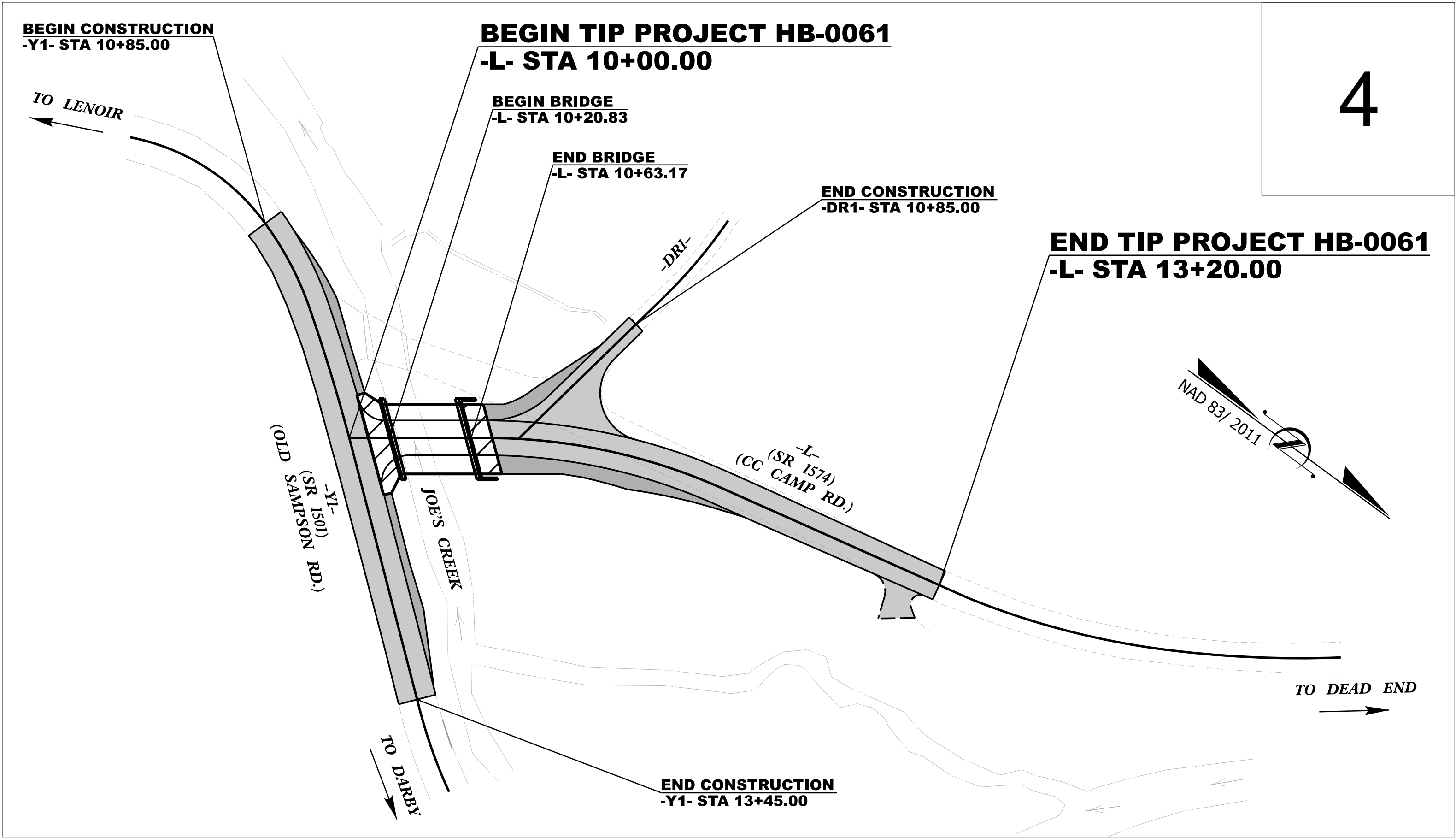
TYPE OF WORK: *GRADING, DRAINAGE, PAVING, & STRUCTURE*

PART II

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0061	11	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50731.1.1	FBRG111	P.E.	
50731.2.1	FBRG111	ROW	
50731.2.2	FBRG111	UTIL.	
50731.3.1	FBRG111	CONST.	



FINAL PLANS



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

DESIGN DATA

ADT 2025 = 110

ADT 2045 = 140

K = N/A

D = N/A

T = N/A

V = 30 MPH

FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT HB-0061 = 0.053 MILES

LENGTH OF STRUCTURE TIP PROJECT HB-0061 = 0.008 MILES

TOTAL LENGTH OF TIP PROJECT HB-0061 = 0.061 MILES

Prepared in the Office of:



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

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 15, 2025

LETTING DATE:
SEPTEMBER 17, 2026

Prepared for:

DIVISION OF HIGHWAYS
DIVISION 11

801 Statesville Rd North Wilkesboro, 28659

NCDOT CONTACT:

RAMIE A. SHAW, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

CHRIS D. ANDERSON, PE
PROJECT ENGINEER

JOSE A. ROSADO JR.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

7/31/2026



Signed by:
Raminder Singh
SIGNATURE

P.E.

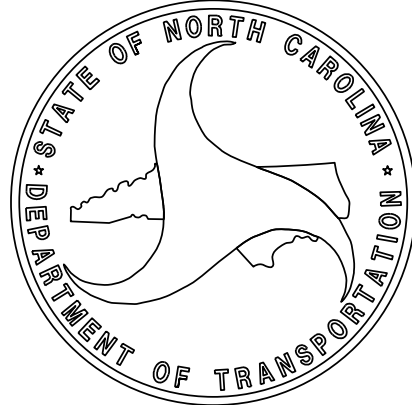
ROADWAY DESIGN ENGINEER

7/30/2026



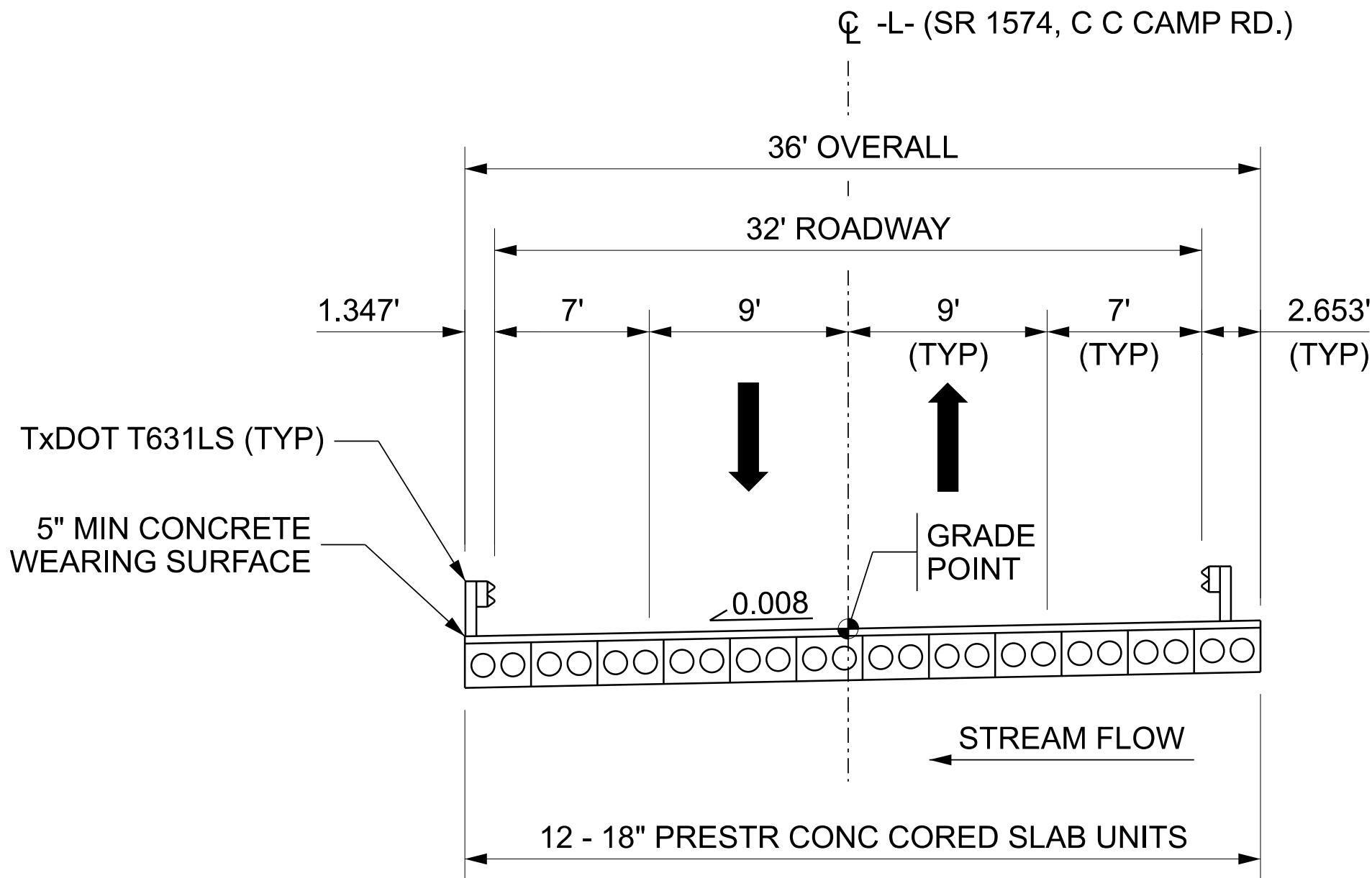
Signed by:
Christopher D. Anderson
SIGNATURE

P.E.

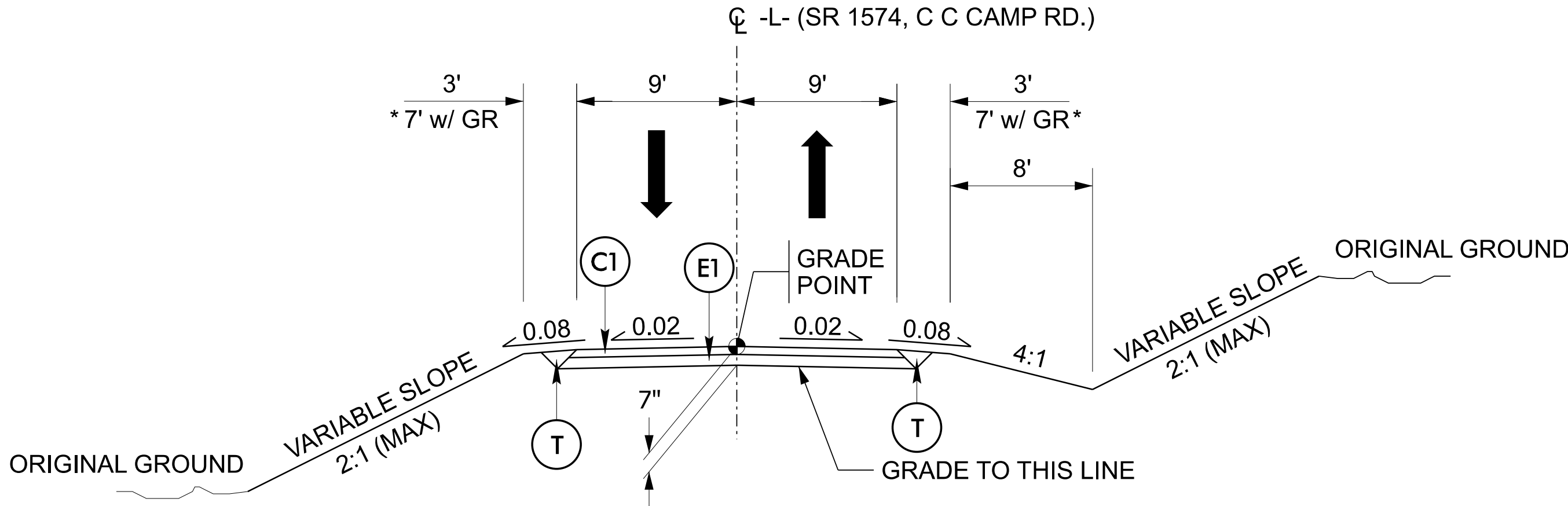


FINAL PAVEMENT SCHEDULE	
PAVEMENT DESIGN DATED 8/14/2024	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL
V	1.5" MILLING
U	EXISTING PAVEMENT

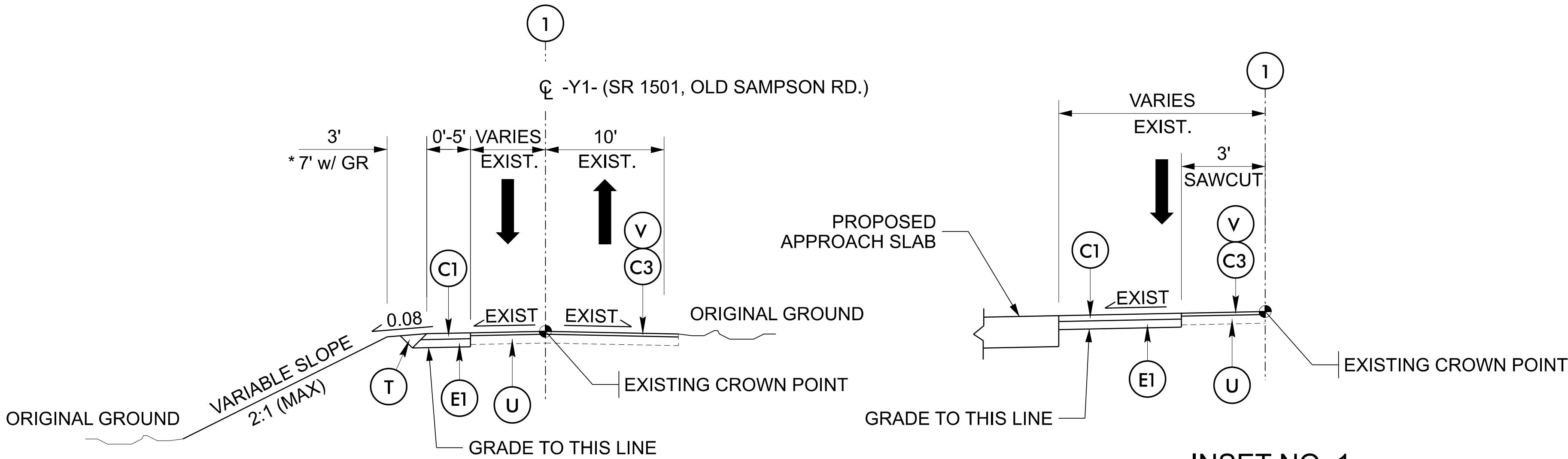
NOTE:
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



BRIDGE TYPICAL SECTION
-L- STA. 10+20.83 TO 10+63.17

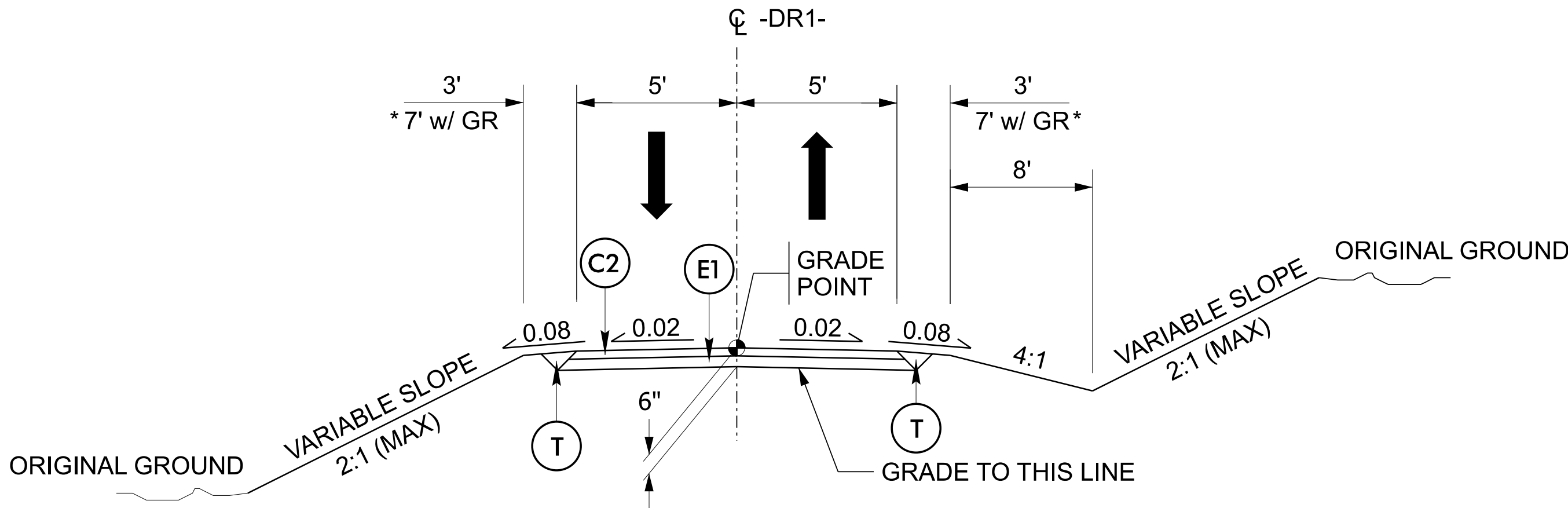


TYPICAL SECTION NO. 1
* 4' TO FACE OF GUARDRAIL
-L- STA. 10+63.17 (END BRIDGE) TO 13+20.00



TYPICAL SECTION NO. 2
* 4' TO FACE OF GUARDRAIL
-Y1- STA. 10+85.00 TO 13+45.00

INSET NO. 1
TO BE USED WITH TYPICAL SECTION NO. 2
-Y1- STA. 11+84.93 TO 12+38.09 (LIMITS OF APPROACH SLAB)



TYPICAL SECTION NO. 3
* 4' TO FACE OF GUARDRAIL
-DR1- STA. 10+12.06 TO 10+85.00

HB-0061

RDY2A-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

7/30/2026

SEAL
046721
ENGINEER
CHRISTOPHER D. ANDERSON

Signed by
Christopher D. Anderson
PAVEMENT DESIGN
ENGINEER

7/30/2026

SEAL
049851
ENGINEER
RAMIE A. SHAW

Decalsigned by
Ramie A. Shaw
PREPARED BY

WETHERILL
ENGINEERING

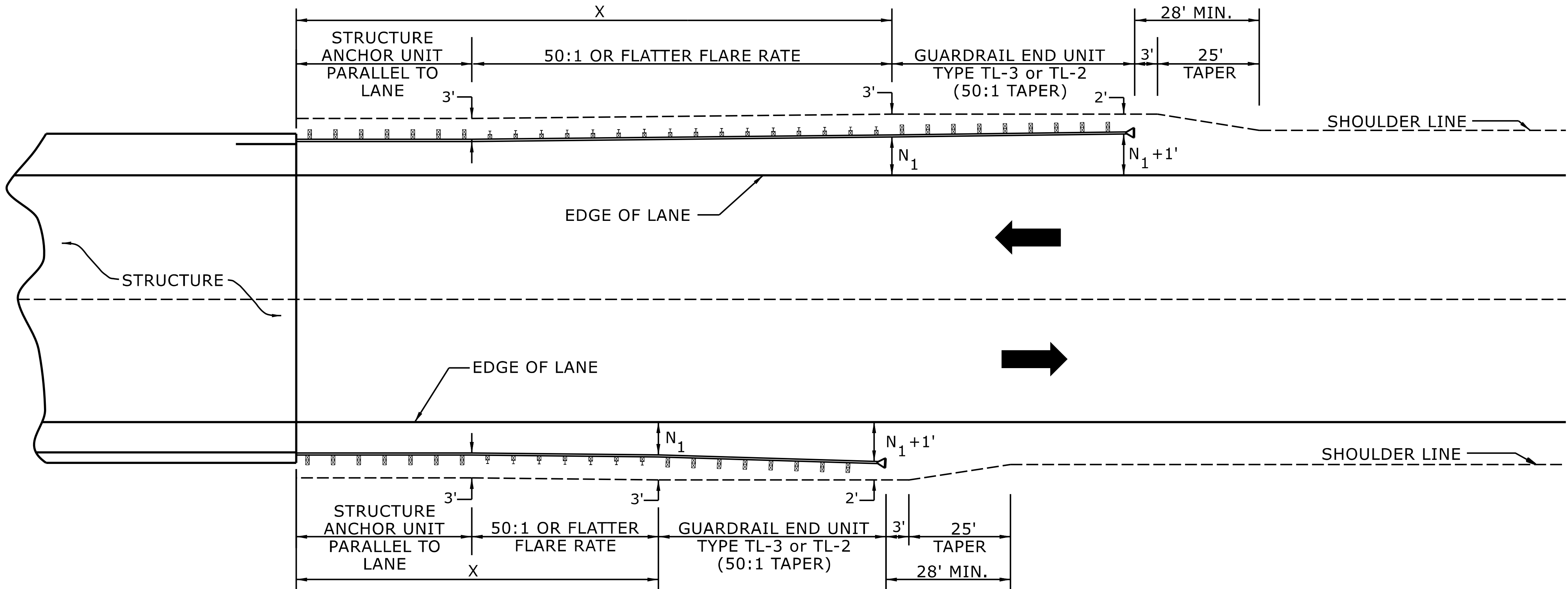
WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-8077
NC LICENSE P-6377

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

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

PROJECT REFERENCE NO.	SHEET NO.
HB-0061	2C-3



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

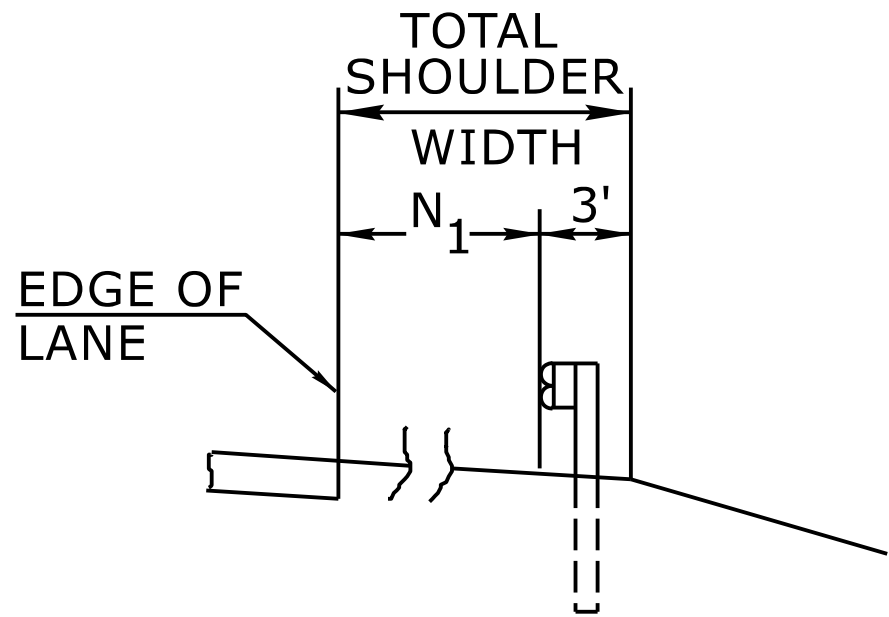
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

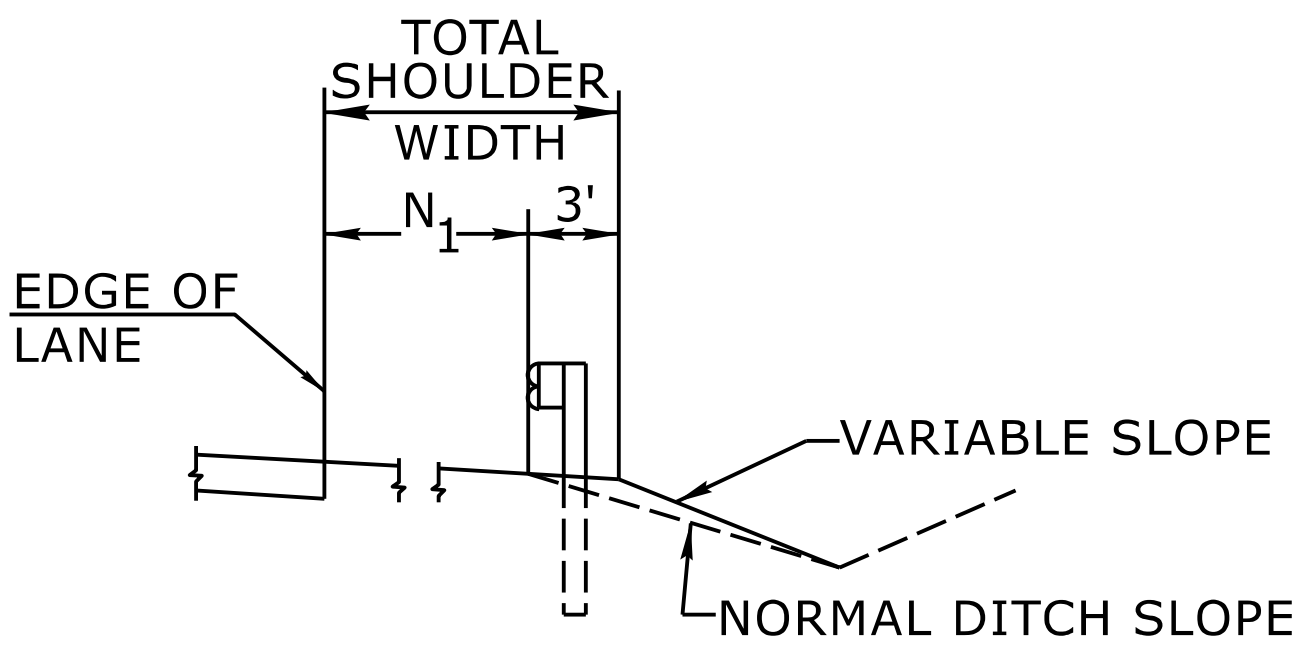
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

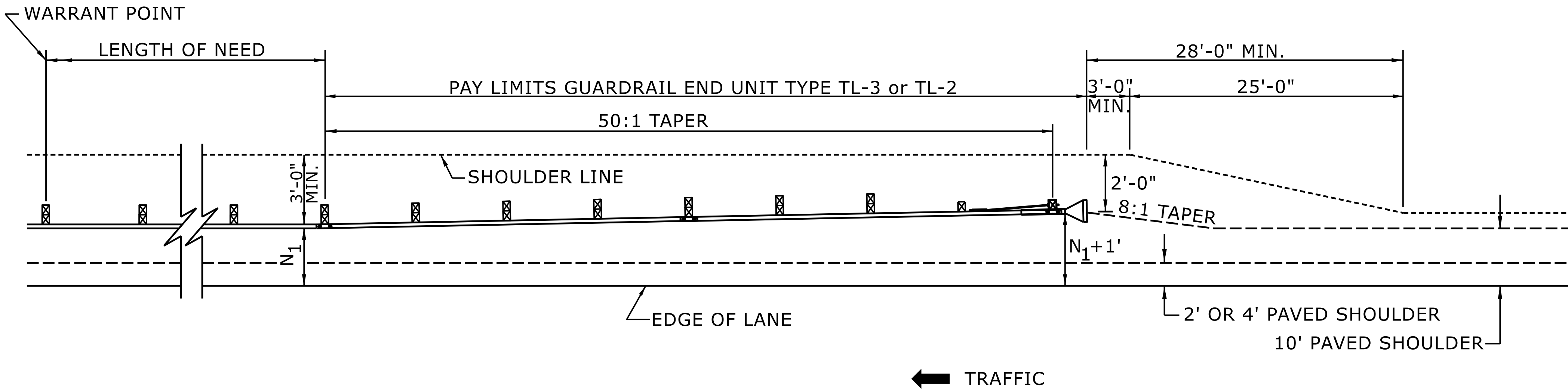


FILL SECTION



CUT SECTION

"N₁"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



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

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01



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.:			

11/14/23

COMPUTED BY: JAR

DATE: 7/21/2025

CHECKED BY: CA

DATE: 7/14/2026

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HB-0061

RDY38-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY



ROADWAY DESIGN UNIT

SUMMARY OF EARTHWORK					
STATION	STATION	UNCL. EXCAV.	EMBANK. +15%	BORROW	WASTE
-L-					
10+10.00	13+20.00	182	190	8	0
-Y1-					
10+85.00	13+45.00	41	12	0	29
-DR1-					
10+12.00	10+85.00	6	5	0	1
TOTALS:		229	207	8	30
WASTE IN LIEU OF BORROW				-8	-8
PROJECT TOTALS:		229	207	0	22
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				0	
GRAND TOTALS:		229	207	0	22
SAY:		240			
Note: Earthwork quantities are calculated by the Roadway Design Engineer. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineer.					
Note: Approximate quantities only. Unclassified Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for grading.					

PAVEMENT REMOVAL SUMMARY							
IN SQUARE YARDS							
SURVEY LINE	STATION	STATION	LOCATION	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
Y1	11+21.97	11+77.33	LT	48.44			
Y1	11+84.93	12+38.09	LT	40.56			
		TOTAL:		89.00			
		SAY:		100			

"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

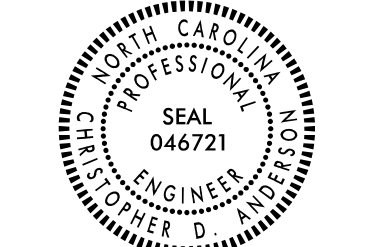
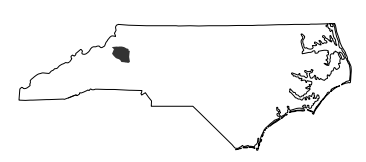
GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	B-77 SC	G	NG				
L	10+57.21	10+95.82	LT	18.75'	25.00'			END BRIDGE	7.0000'	10.0000'									1									SHOP CURVE RADIUS = 40'
L	10+74.32	11+49.32	RT	75.00'				END BRIDGE	7.0000'	10.0000'		25.00'		1.00'				1										
Y1	11+34.91	11+94.34	LT	37.50'	25.00'			BEGIN BRIDGE	4.0000'	7.0000'	25.00'		1.00'					1										SHOP CURVE RADIUS = 10' 8' GR POSTS
Y1	12+28.41	13+00.59	LT	50.00'	25.00'			BEGIN BRIDGE	4.0000'	7.0000'		25.00'		1.00'				1										SHOP CURVE RADIUS = 10' 8' GR POSTS
		SUBTOTAL		181.25'	75.00'																							
		LESS ANCHOR DEDUCTIONS																										
	GREU, TL-2	3 AT 25.00'	=	75.00'																								
	CAT-1	1 AT 6.25'	=	6.25'																								
		TOTAL		100.00'	75.00'													3	1									
		5 ADDITIONAL GUARDRAIL POSTS																										

REVISIONS

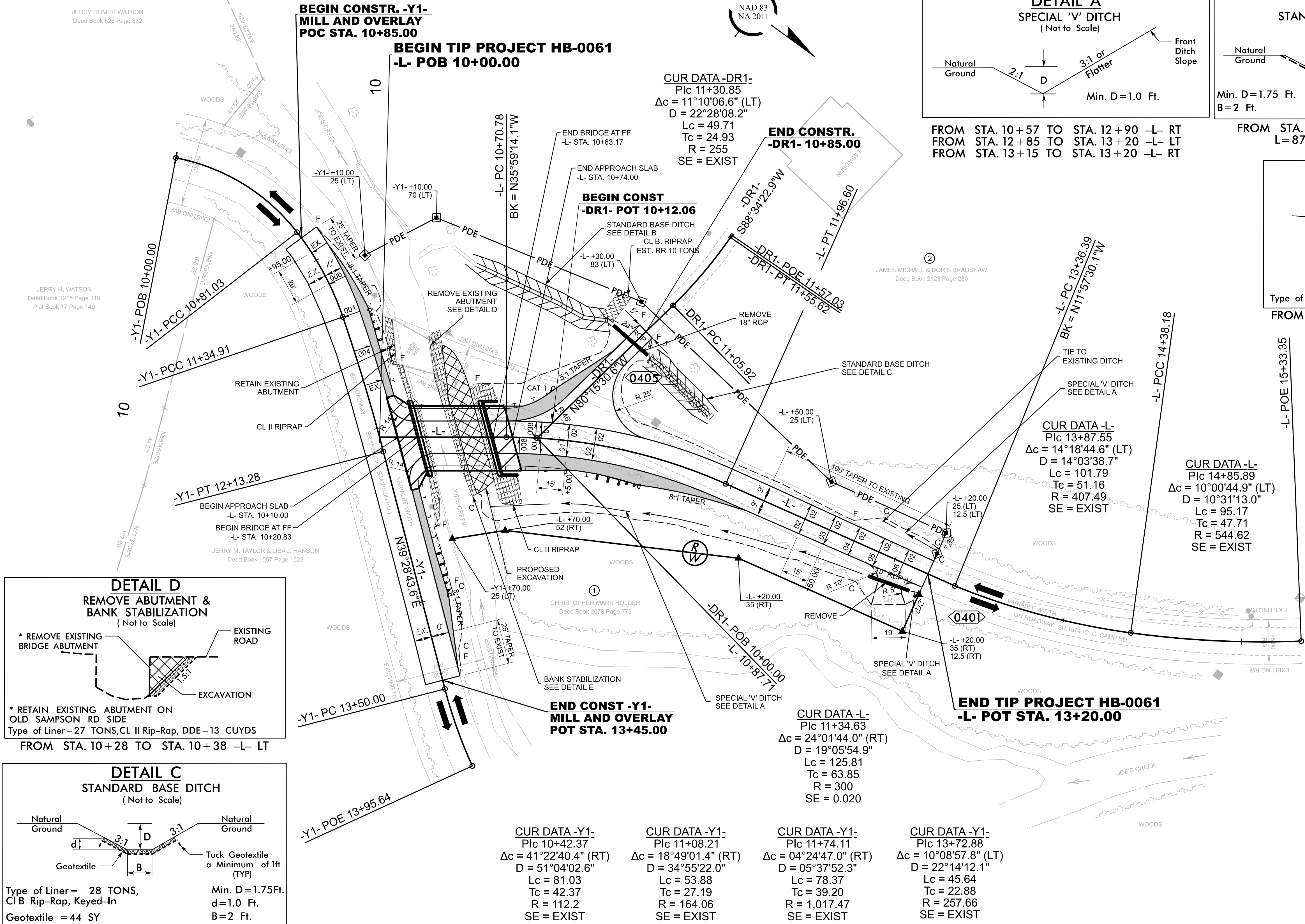
COMPUTED BY: A. A. NASH DATE: JULY 21, 2026 CHECKED BY: A. F. RIGGS, JR DATE: JULY 21, 2026				(9-17-24)				PROJECT NO. HB-0061		SHEET NO. 3G-1							
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS																	
SUMMARY OF SUBSURFACE DRAINAGE						SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION											
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF	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				SD	300												
				TOTAL LF:	300												
*UD = Underdrain						*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)											
*BD = Blind Drain						*AST = Aggregate Stabilization											
*SD = Subsurface Drain						**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.											

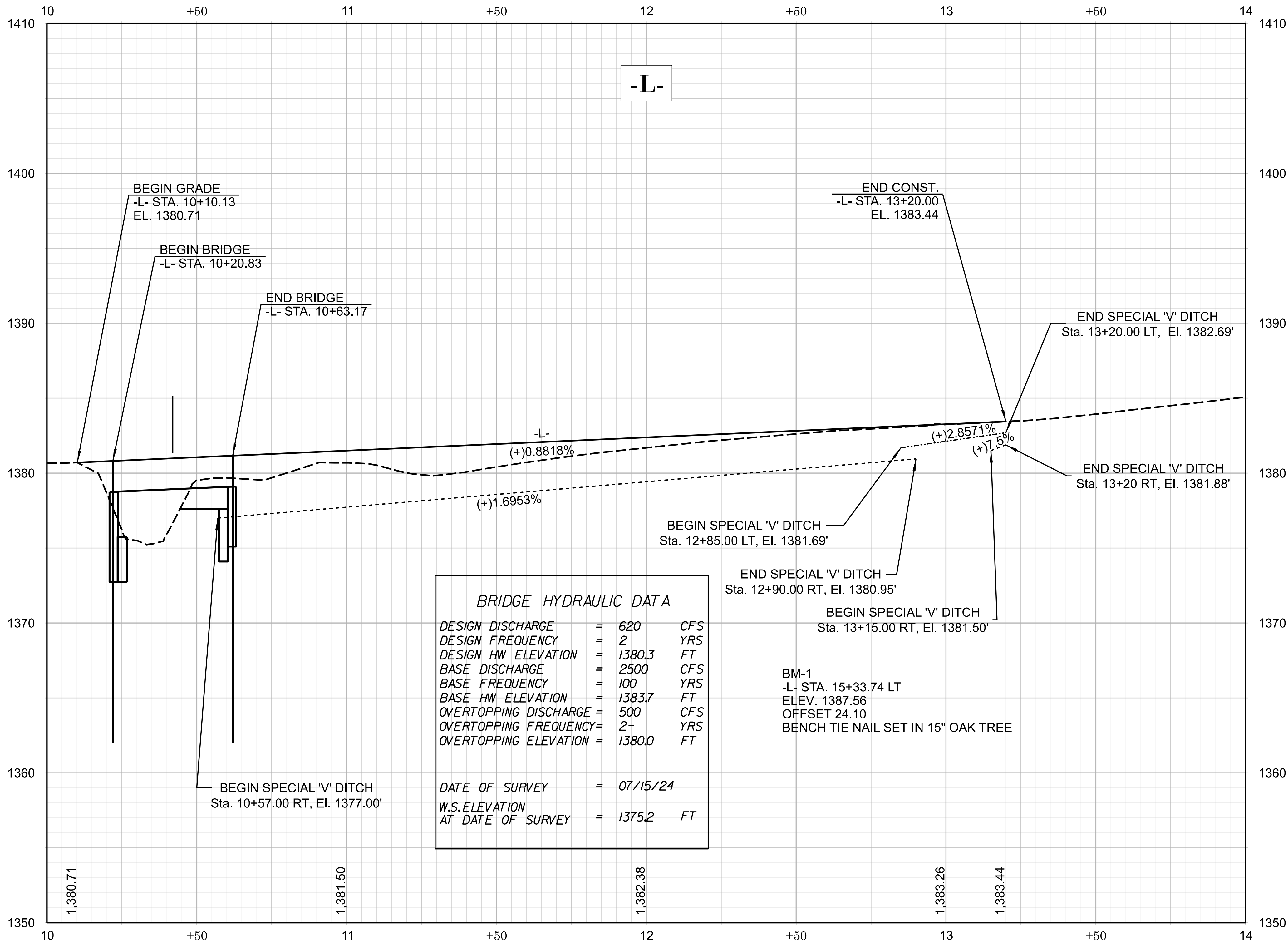


Signed by:
Christopher D. Anderson



Signed by:
Christopher D. Anderson





HB-0061

RDY5

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER
7/30/2026

SEAL
046721
ENGINEER
CHRISTOPHER D. ANDERSON

Signed by:
Christopher D. Anderson
HYDRAULICS ENGINEER
7/31/2026

SEAL
044561
ENGINEER
HAMMINDER SINGH

Signed by:
Hamminder Singh
0300000670240E
PREPARED BY

WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27806
(919)851-8077
NC LICENSE F-0377

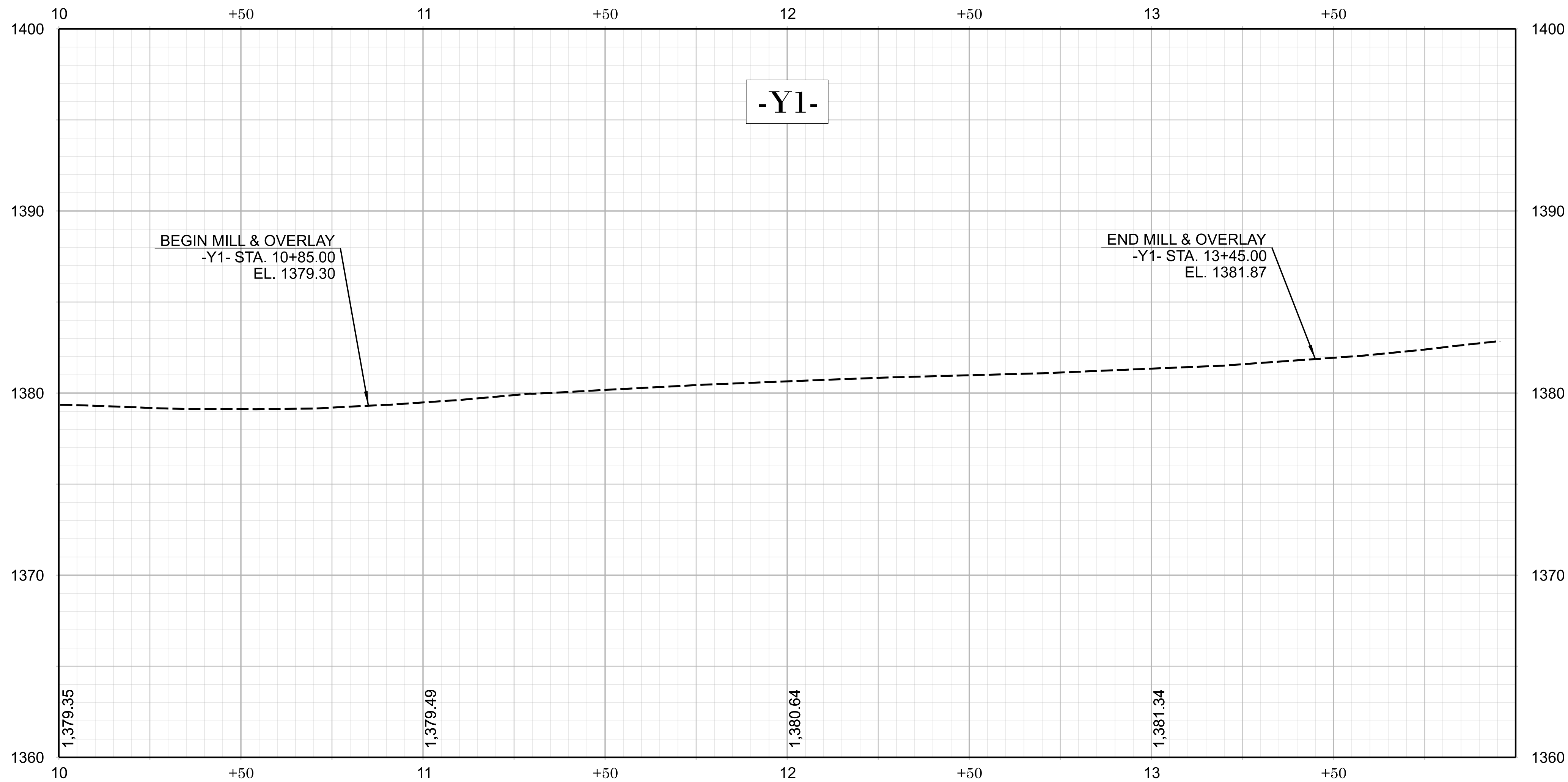
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

SEE SHEET 4 FOR -L- PLAN

\$\$\$-USER NAME-\$\$\$ - \$\$\$-DATE-\$\$\$

11/14/23



SEE SHEET 4 FOR -Y1- PLAN

HB-0061

RDY6

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

7/30/2026

Signed by:
Christopher D. Anderson
HYDRAULICS
ENGINEER
7/31/2026

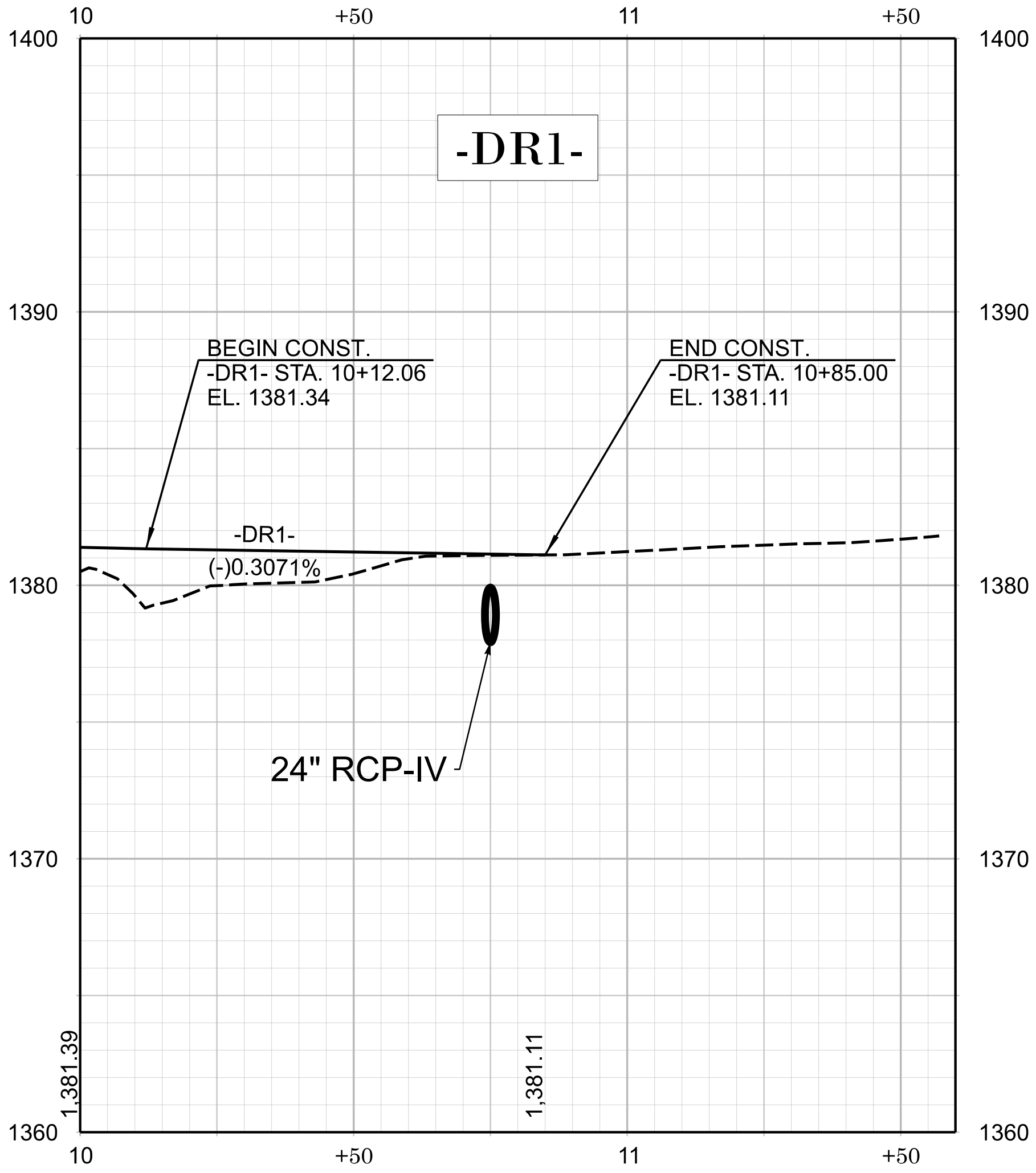
Signed by:
Haminder Singh
PREPARED BY

WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-8077
NC LICENSE F-0377

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

11/14/23



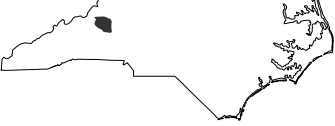
24" PIPE HYDRAULIC DATA		
DESIGN DISCHARGE	=	14 CFS
DESIGN FREQUENCY	=	10 YRS
DESIGN HW ELEVATION	=	1380.3 FT
BASE DISCHARGE	=	19 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1380.8 FT
OVERTOPPING DISCHARGE	=	21 CFS
OVERTOPPING FREQUENCY	=	100+ YRS
OVERTOPPING ELEVATION	=	1381.0 FT

SEE SHEET 4 FOR -DR1- PLAN

HB-0061

RDY7

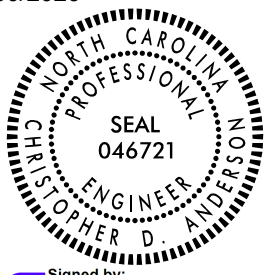
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER

7/30/2026



Signed by:

Christopher D. Andersen
HYDRAULICS
ENGINEER

7/31/2026



Signed by:

Haminder Singh
PREPARED BY


WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-8077
NC LICENSE F-0377

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UNLESS ALL SIGNATURES COMPLETED

REVISIONS

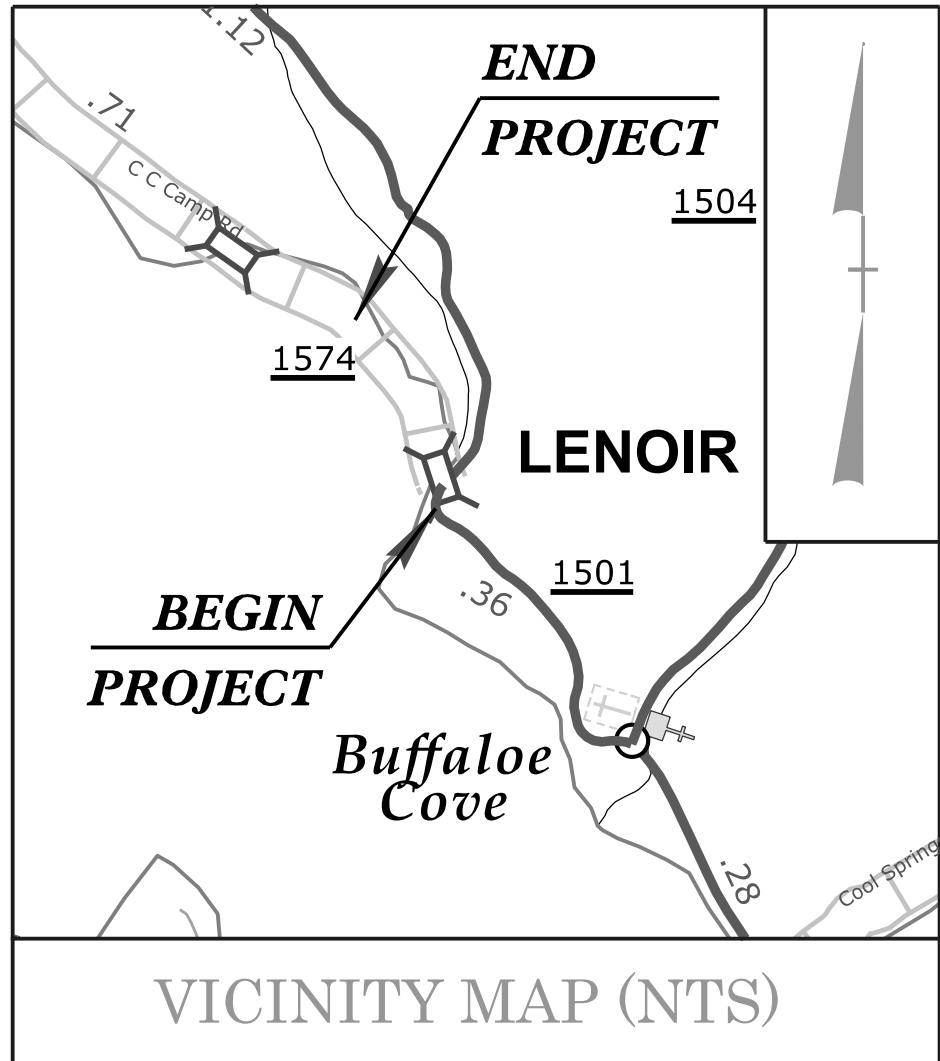
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

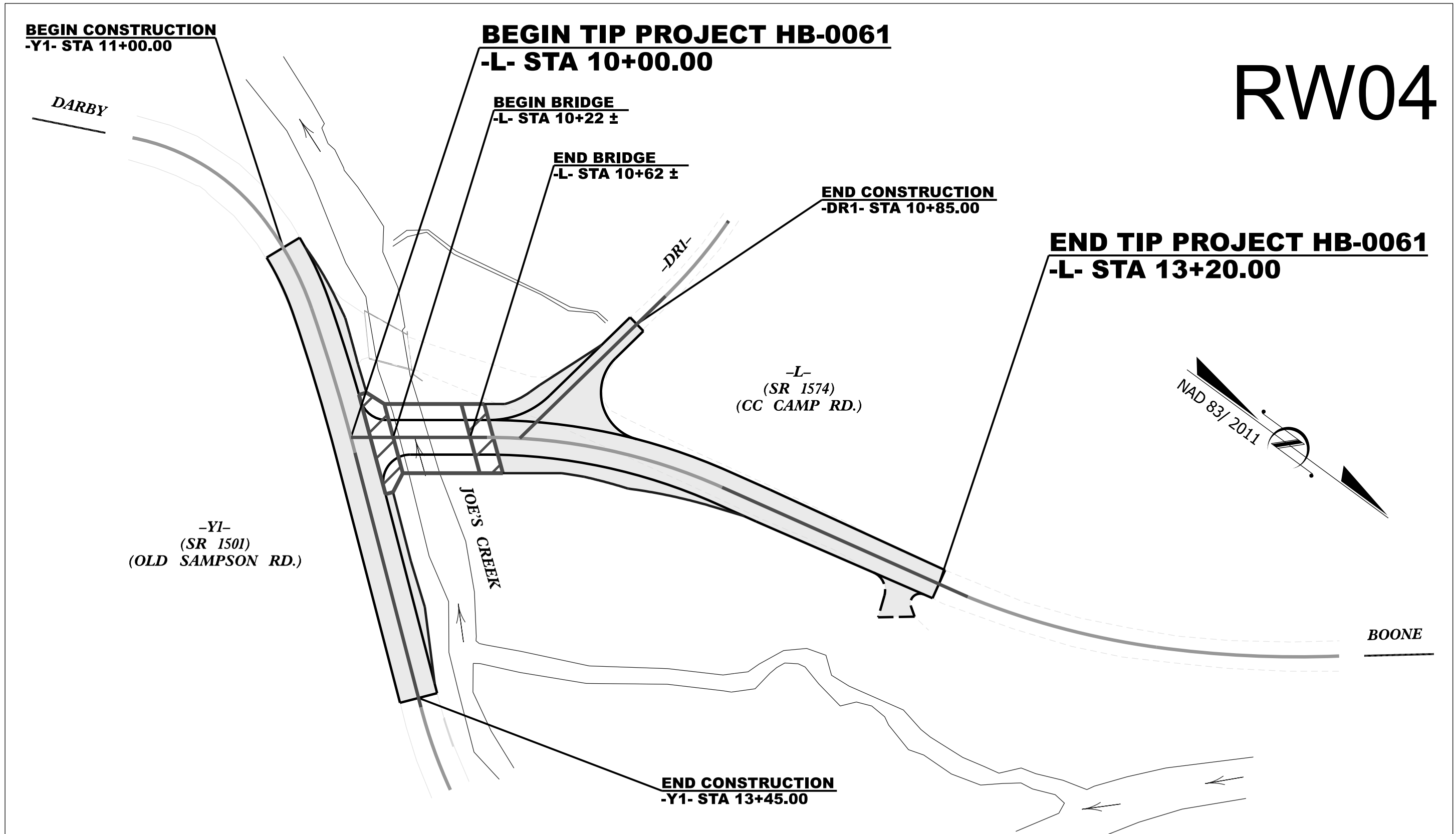
SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

CALDWELL COUNTY

STATE NO.	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0061	RW01	6



VICINITY MAP (NTS)



RW04

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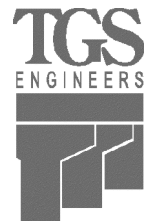
GRAPHIC SCALES



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT 1303492
WITH NAD83/2011 STATE PLANE GRID COORDINATES OF
NORTHING: 862688.5574 EASTING: 1252694.3387
ELEVATION: 1381.76
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999919529
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

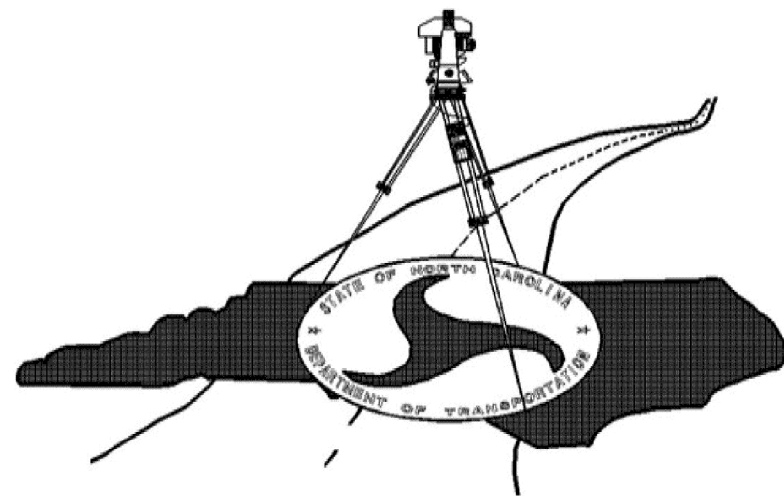
RIGHT OF WAY DATE:
AUGUST 15, 2025

LETTING DATE:
SEPTEMBER 17, 2026

PROFESSIONAL LAND
SURVEYOR



Signed by:
Matthew Cornwell
EB030611473E475...
10/1/2025
SIGNATURE: DATE:



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 10/1/2025

Signed by: Matthew Cornwell
680385114726475
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	862971.7097	1252662.7423	N35°59'14.1"W	70.78							
PC	10+70.78	863028.9839	1252621.1496	N23°58'22.1"W	124.89	24°01'44.0"	19°05'54.9"	125.81	63.85	300.00		
PT	11+96.60	863143.1052	1252570.4044	N11°57'30.1"W	139.79							
PC	13+36.39	863279.8653	1252541.4390	N21°02'42.5"W	101.53	14°18'44.6"	14°03'38.7"	101.79	51.16	407.49		
PCC	14+38.18	863374.6186	1252504.9809	N33°12'27.3"W	95.05	10°00'44.9"	10°31'13.0"	95.17	47.71	544.62		
END	15+33.35	863454.1478	1252452.9235									

PROPOSED ALIGNMENT: Y1												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
PC	10+00.00	862788.3817	1252603.4421	N04°28'25.0"W	79.28	41°22'40.4"	51°04'02.6"	81.03	42.37	112.20		
PCC	10+81.03	862867.4204	1252597.3045	N25°39'25.9"E	53.64	18°49'01.4"	34°55'22.0"	53.88	27.19	164.06		
PCC	11+34.91	862915.7716	1252620.5299	N37°16'20.1"E	78.35	04°24'47.0"	05°37'52.3"	78.37	39.20	1017.47		
PT	12+13.28	862978.1190	1252667.9781	N39°28'43.6"E	136.72							
PC	13+50.00	863083.6478	1252754.9038	N34°24'14.7"E	45.58	10°08'57.8"	22°14'12.1"	45.64	22.88	257.66		
END	13+95.64	863121.2570	1252780.6593									

PROPOSED ALIGNMENT: DR1												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
START	10+00.00	863042.9519	1252611.5959	N80°15'30.6"W	105.92							
PC	11+05.92	863060.8736	1252507.2053	N85°50'33.9"W	49.63	11°10'06.6"	22°28'08.2"	49.71	24.93	255.00		
PT	11+55.62	863064.4713	1252457.7081	S88°34'22.9"W	1.40							
END	11+57.03	863064.4364	1252456.3070									

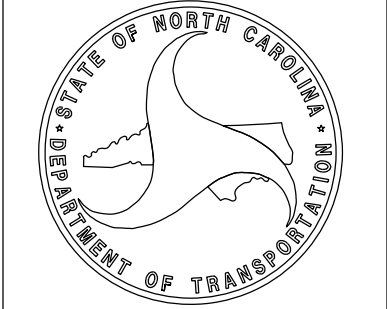
NOTES:

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.

HB-0061

R/W020-I

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

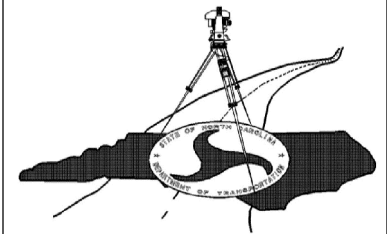


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2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0061
County: Caldwell

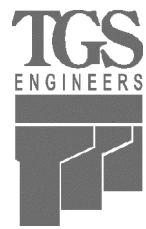
PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY

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



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 9/25/2025, 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 10/1/2025

Signed by:
Matthew Cornwell
EB026F11473E475

PROFESSIONAL LAND SURVEYOR L-4775

PERMANENT ROW MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
10+70.00	52.0000	863058.9055	1252663.6856
12+20.00	35.0000	863173.2510	1252599.7960
13+20.00	35.0000	863271.0809	1252579.0759
13+20.00	12.5000	863266.4189	1252557.0642

PERMANENT ROW MARKER IRON PIN AND CAP: Y1			
STATION	OFFSET	NORTH	EAST
12+70.00	-25.0000	863037.7967	1252684.7463

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L: L			
STATION	OFFSET	NORTH	EAST
11+30.00	-83.0000	863045.3577	1252515.8731
12+50.00	-25.0000	863190.1679	1252534.8821
13+20.00	-12.5000	863261.2388	1252532.6067
13+20.00	-25.0000	863258.6488	1252520.3780

PERMANENT EASEMENT MARKER IRON PIN AND CAP: Y1			
STATION	OFFSET	NORTH	EAST
11+10.00	-25.0000	862905.4817	1252585.4202
11+10.00	-70.0000	862925.4672	1252545.1017

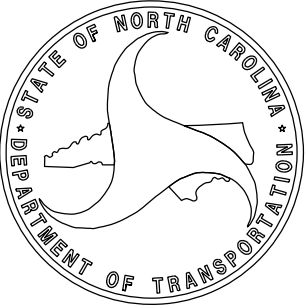
NOTES:

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

HB-0061

R/W 03E-I

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

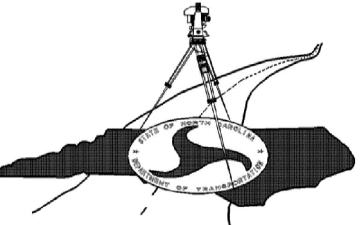


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2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0061
County: Caldwell

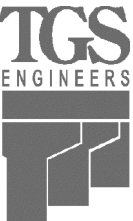
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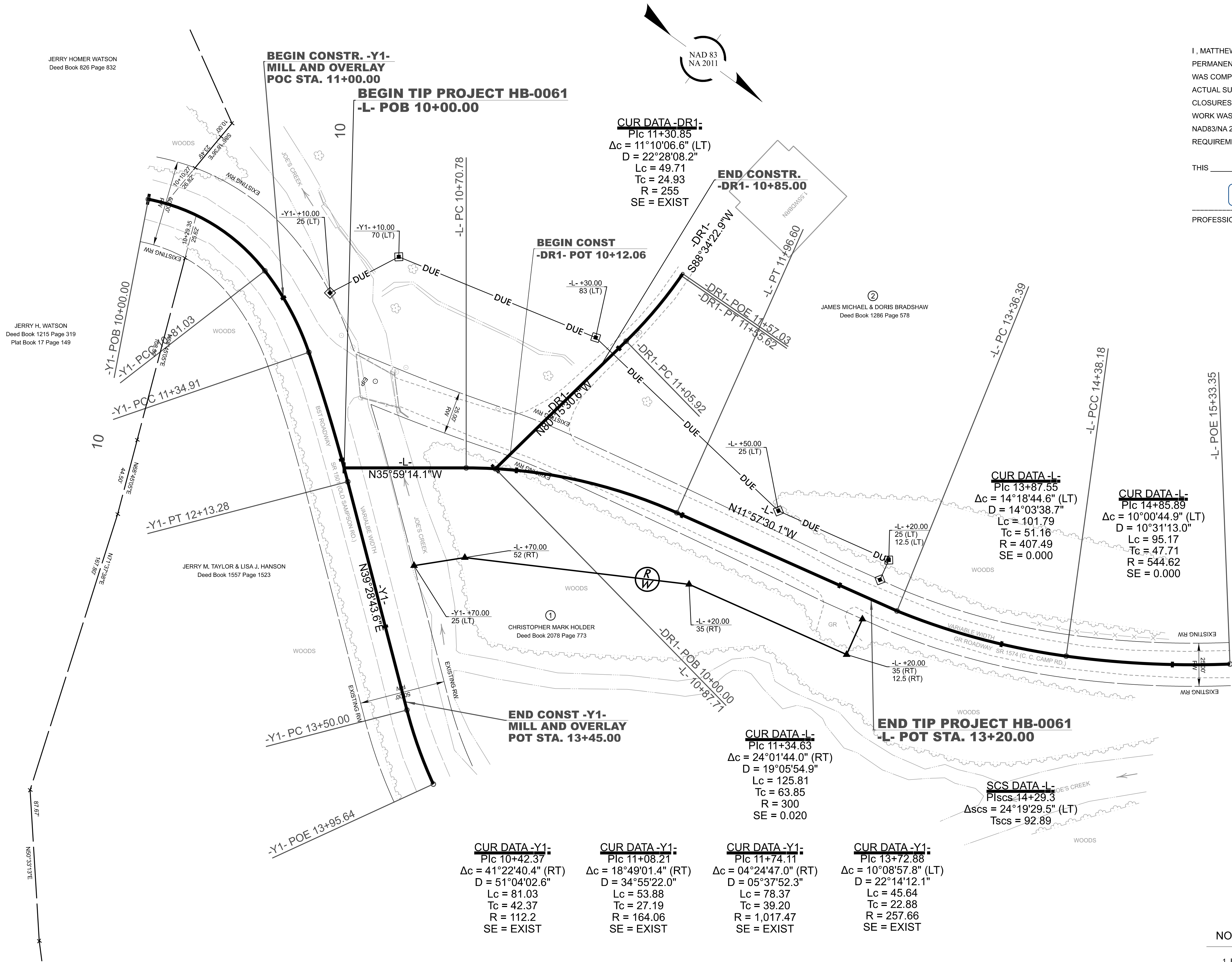


LOCATION AND
SURVEYS UNIT

PREPARED BY

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





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THIS 10/1/2025
Signed by:
Matthew Cornwell
E2023P11473E475
PROFESSIONAL LAND SURVEYOR L-4775

NOTES:
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HB-0061

R/W04

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

PROFESSIONAL LAND
SURVEYOR

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2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0061

County: Caldwell

PREPARED FOR

LOCATION AND SURVEYS UNIT

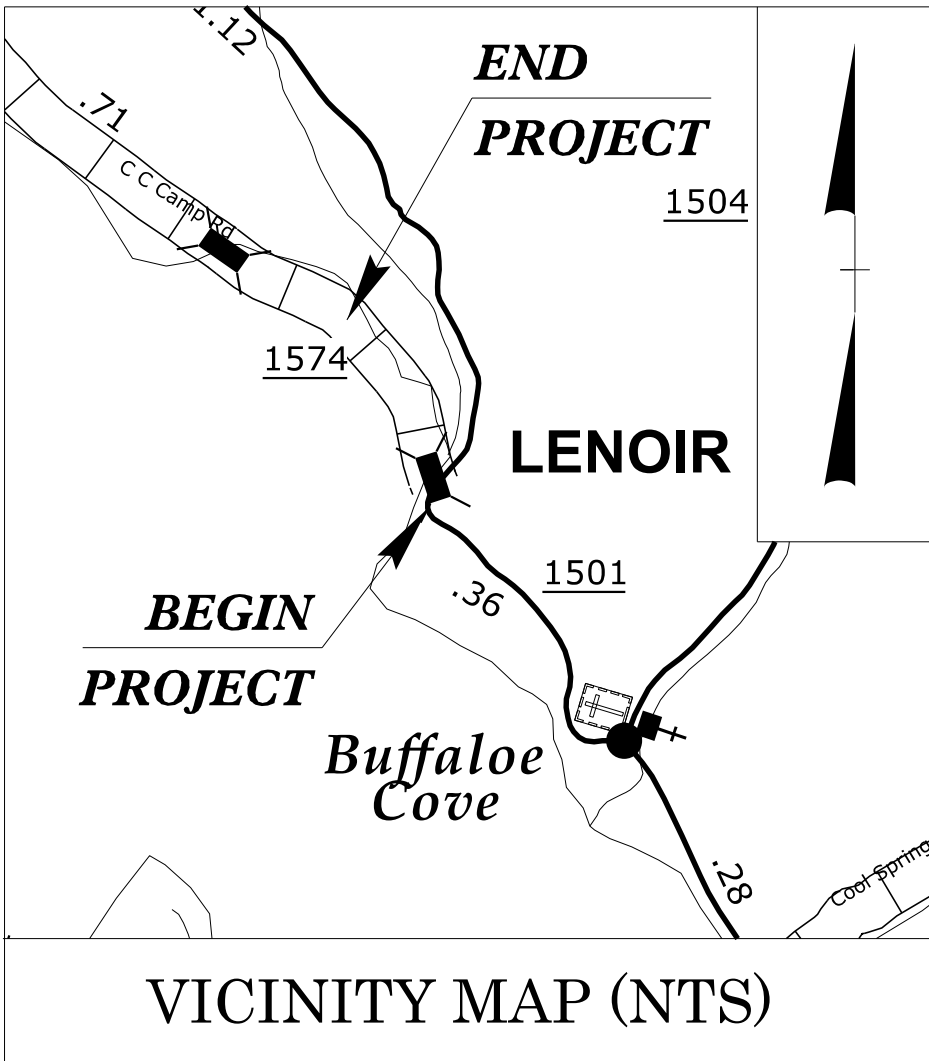
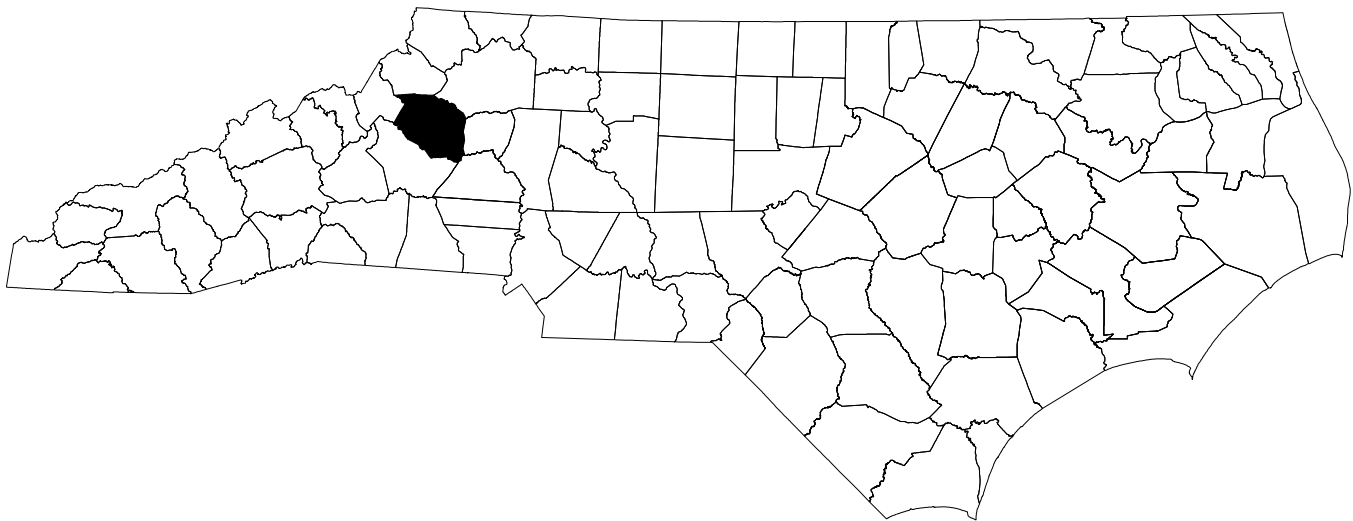
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SUITE 200
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704-476-0003

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CALDWELL COUNTY



LOCATION: *SR 1574 (CC CAMP RD.)*
REPLACE BRIDGE NO. 349 OVER JOE'S CREEK

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

INDEX OF SHEETS

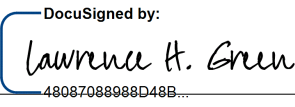
SHEET NO.	TITLE
TMP-01	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-01A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-02	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-03	PHASING
TMP-04	PHASE I DETAIL
TMP-05	PHASE II DETAIL
TMP-06 THRU 07	TEMPORARY CUT SECTIONS

SHEET NO.
TMP-01

HB-0061

TIP PROJECT:

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APPROVED: 

DATE: 7/22/2026

SEAL



**WETHERILL
ENGINEERING**

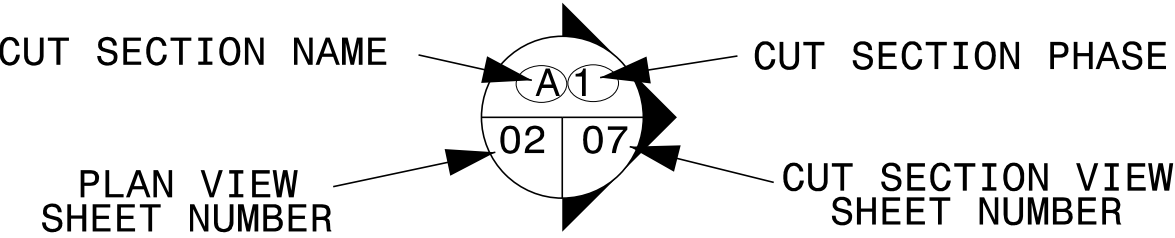
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Raleigh, N.C. 27606
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Fax: 919 851 8107

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

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 WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1150.01	FLAGGERS
1180.01	SKINNY - DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1262.01	GUARDRAIL END DELINEATION



LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL
- AGGREGATE BASE COURSE
- WEDGING

TRAFFIC CONTROL DEVICES

- DRUM
- PORTABLE SIGNAL

SIGNALS

- P O R T
- PORTABLE
- DS
- DRIVEWAY SIGNAL

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES
- EXISTING PAVEMENT MARKINGS

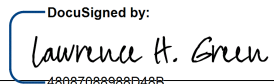
TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION	PAY ITEM
C1	WHITE SOLID EDGE LINE	COLD APPLIED (4"), TYPE IV
C5	2 FT. - 6 FT./SP WHITE MINISKIP	COLD APPLIED (4"), TYPE IV
C61	WHITE STOPBAR	COLD APPLIED (24"), TYPE IV



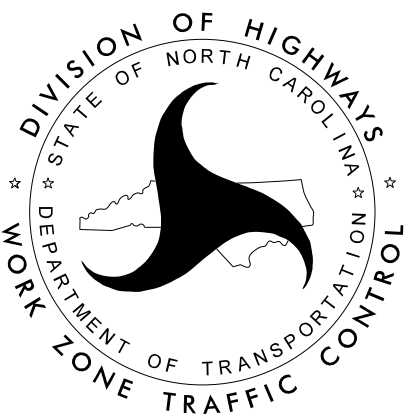
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APPROVED: 
DATE: 7/22/2026



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LIST OF APPLICABLE
ROADWAY STANDARD
DRAWINGS, AND LEGEND

PROJ. REFERENCE NO.	SHEET NO.
HB - 0061	TMP - 03

PHASE I

STEP 1) USING ROADWAY STANDARD DRAWING (RSD) 1101.01, SHEET 3 OF 3, INSTALL ALL ADVANCE WARNING SIGNS.

STEP 2) USING RSD 1101.02, SHEET 17 OF 19, INSTALL PORTABLE SIGNALS, TEMPORARY WIDENING, TEMPORARY GUARDRAIL, AND TEMPORARY MARKINGS. THEN, CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE:

- -L- FROM -Y1- TO STA. 11+48 -L-
- -L- RIGHT FROM STA. 11+48 -L- TO STA. 13+20 -L-
- -Y1- LEFT WIDENING FROM -L- TO STA. 13+75 -Y1-

PHASE II

STEP 1) USING RSD 1101.02, SHEET 17 OF 19, INSTALL PHASE II TEMPORARY MARKINGS ON -Y1-, REMOVE TEMPORARY GUARDRAIL AND SHIFT -L- ONTO -L- 'RIGHT'.

STEP 2) BEHIND DRUMS CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE:

- -L- 'LEFT' FROM STA. 11+48 -L- TO STA. 13+20 -L-
- -Y1- FROM STA. 10+85 -Y1- TO -L-
- -DR1-

PHASE III

STEP 1) USING RSD 1101.02, SHEET 1 OF 19, INSTALL THE FINAL LIFT OF SURFACE COURSE ON THE ENTIRE PROJECT, INSTALL FINAL PAVEMENT MARKINGS, REMOVE ALL TRANSPORATION MANAGEMENT DEVICES AND SIGNING, AND PLACE TRAFFIC ONTO THE FINAL PATTERN.

NOTES:

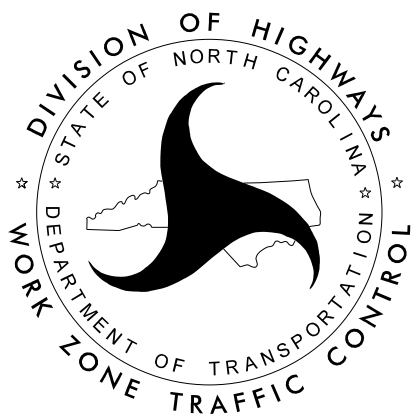
- 1) REFER TO RSD 1101.02, SHEET 17 OF 19 FOR PORTABLE SIGNAL LOCATIONS, SIGNING, DIMENSIONS, AND GENERAL NOTES.



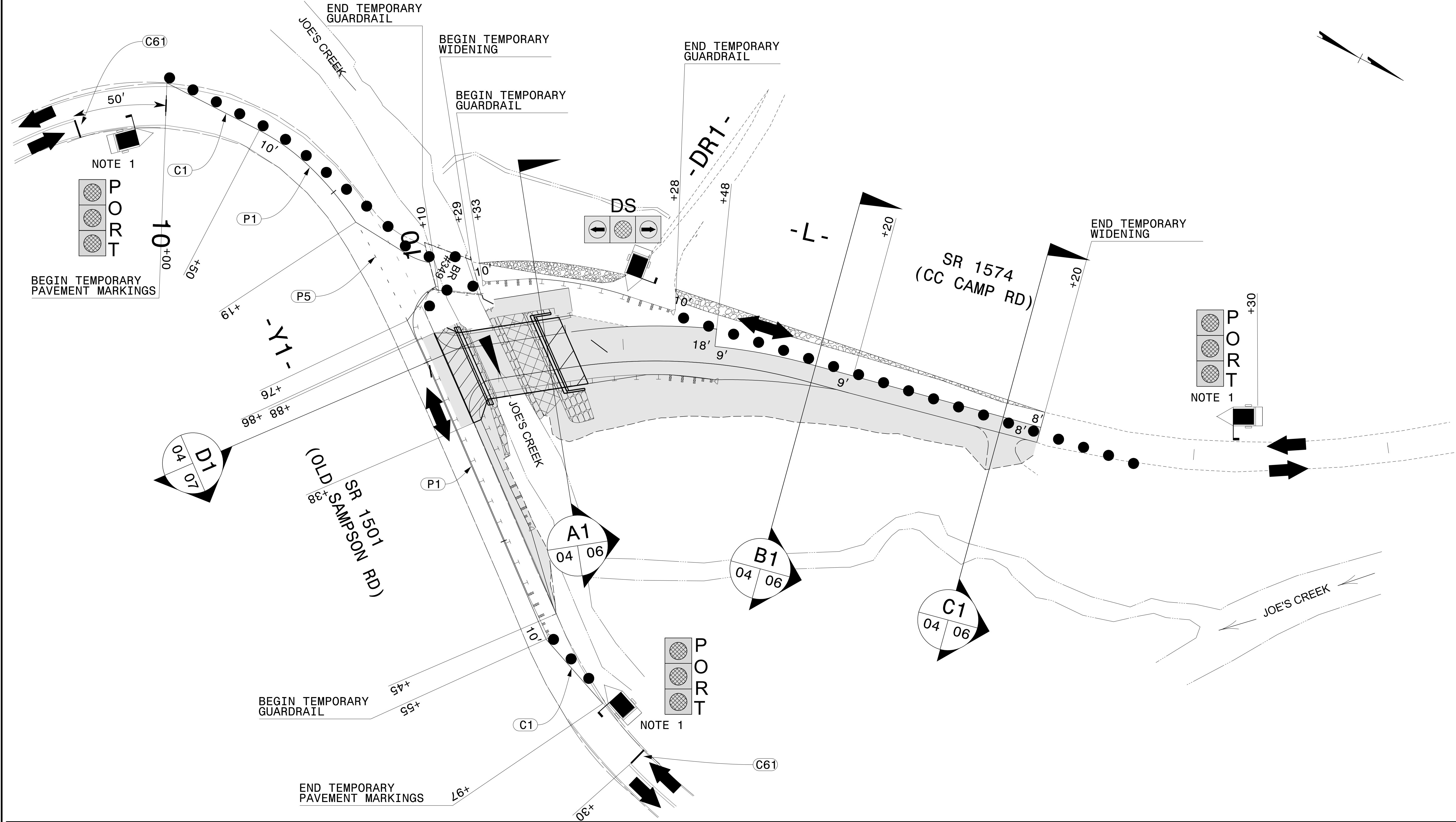
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: DocuSigned by: <i>Lawrence H. Green</i> 36087088980C408
DATE: 7/22/2026
 SEAL 028137 ENGINEER LAWRENCE H. GREEN NORTH CAROLINA PROFESSIONAL
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PHASING



NOTES:
1) REFER TO RSD 1101.02, SHEET 17 OF 19 FOR PORTABLE SIGNAL LOCATIONS, SIGNING, DIMENSIONS, AND GENERAL NOTES.

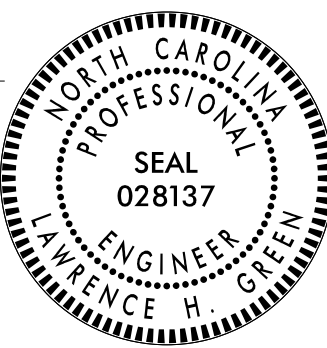


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APPROVED: *Lawrence H. Green*

DATE: 7/22/2026

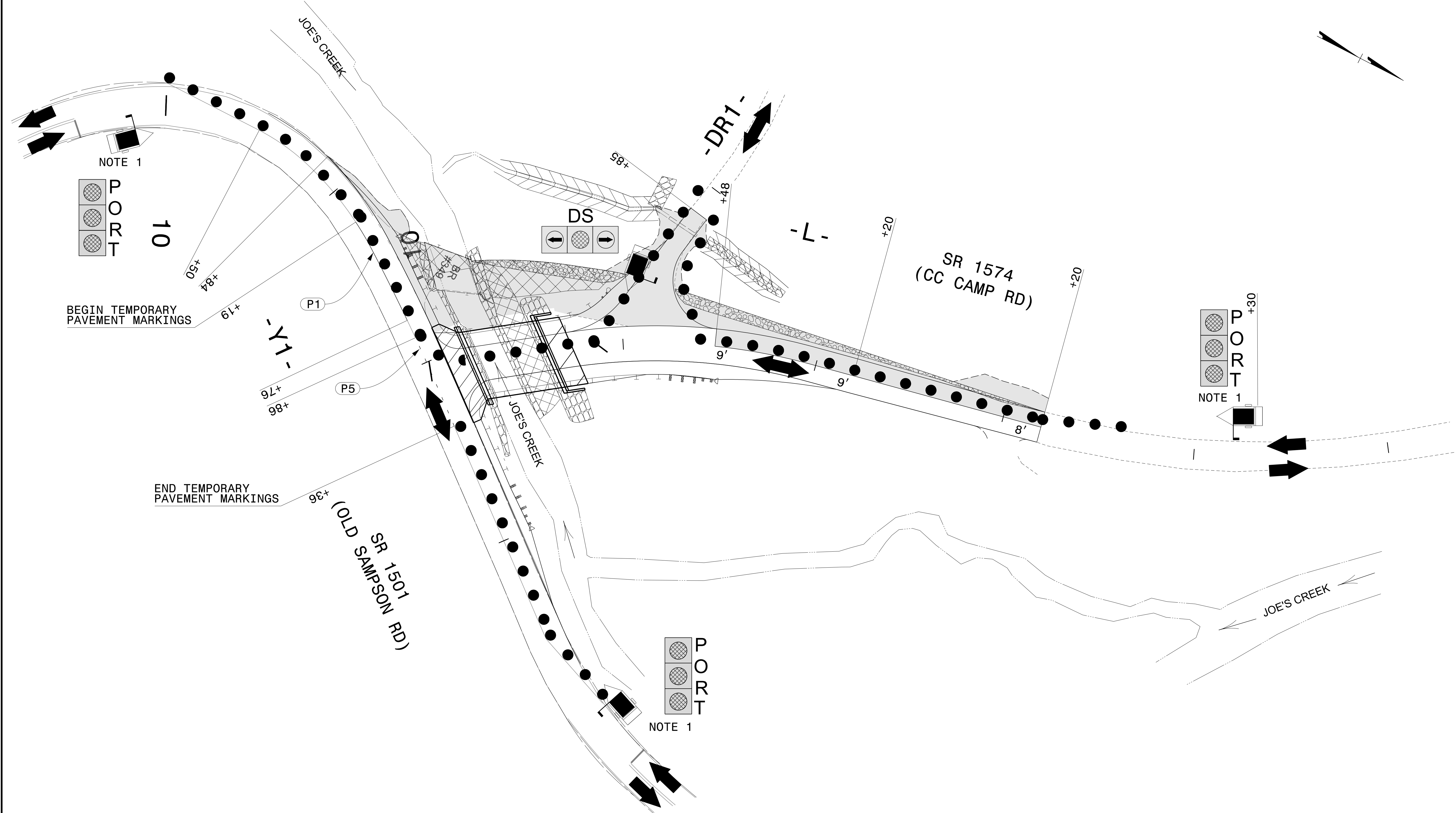


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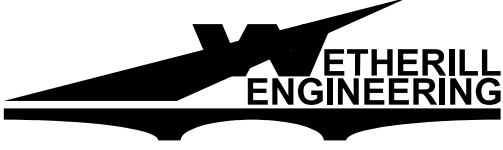


PHASE I DETAIL

PROJ. REFERENCE NO.	SHEET NO.
HB - 0061	TMP - 05



NOTES:
1) REFER TO RSD 1101.02, SHEET 17 OF 19 FOR PORTABLE SIGNAL LOCATIONS, SIGNING, DIMENSIONS, AND GENERAL NOTES.



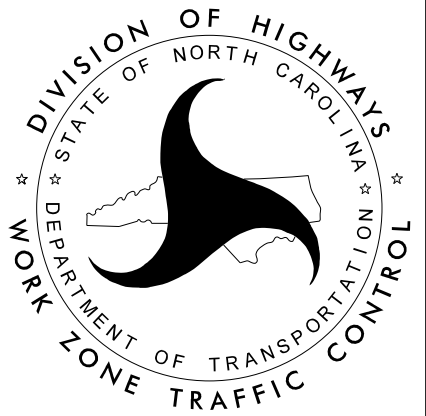
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APPROVED: *Lawrence H. Green*
DATE: 7/22/2026

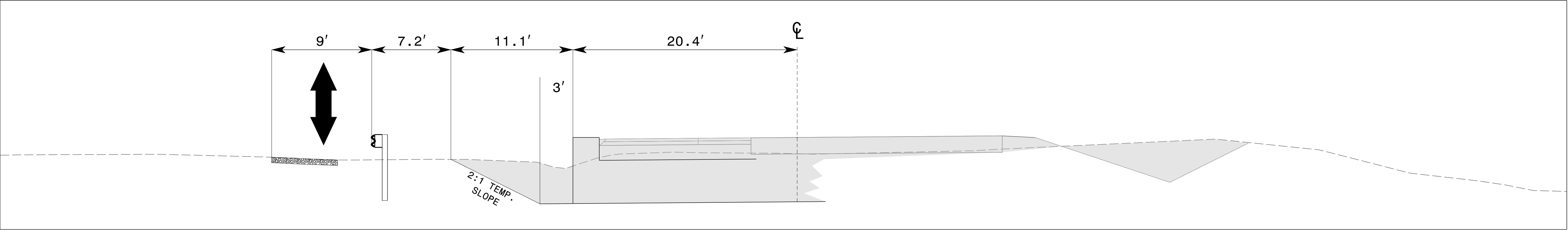
SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
LAURENCE H. GREEN
028137

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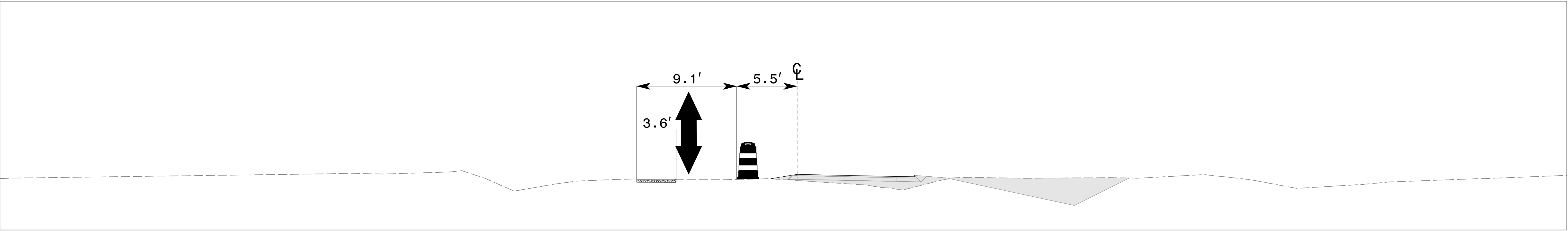


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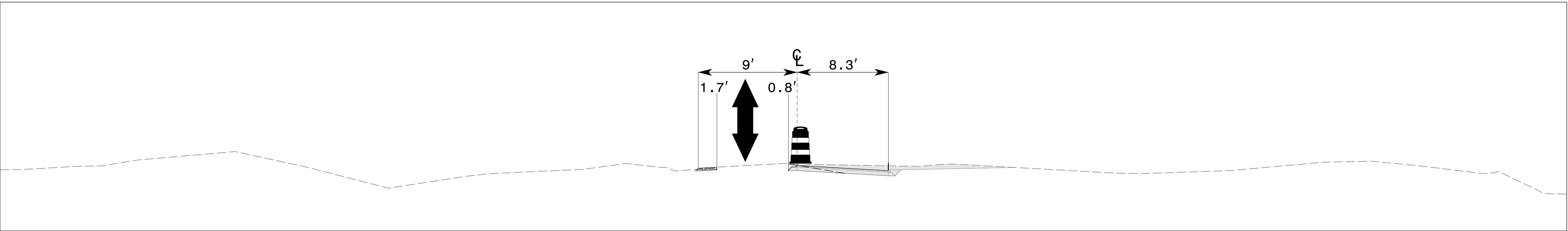
PROJ. REFERENCE NO.	SHEET NO.
HB - 0061	TMP - 06



A1
04 06 STA. 10+61 -L-
CUT SECTION



B1
04 06 STA. 12+00 -L-
CUT SECTION



C1
04 06 STA. 13+00 -L-
CUT SECTION

7/22/2026
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User:AHayes



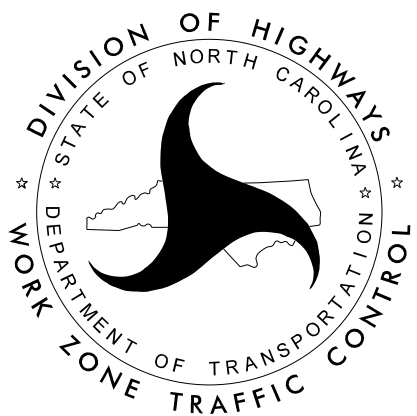
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
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APPROVED: *Lawrence H. Green*
DATE: 7/22/2026

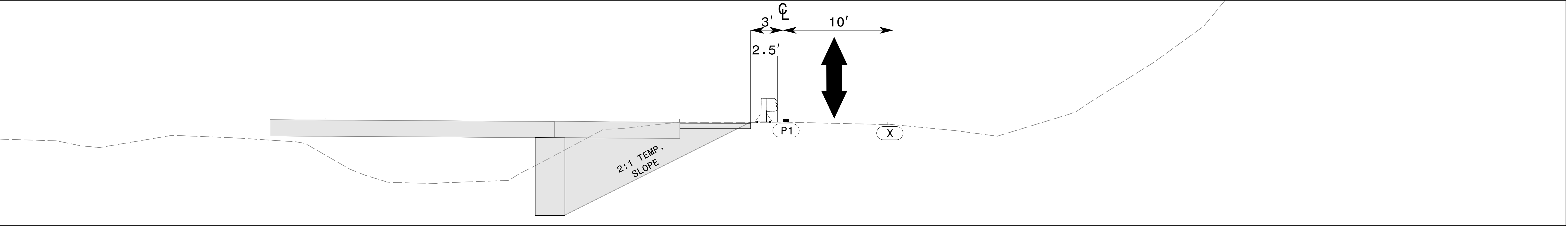
Seal: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028137 LAWRENCE H. GREEN

DOCUMENT NOT CONSIDERED FINAL
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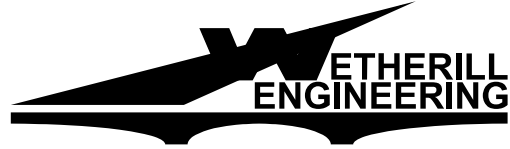
TEMPORARY
CUT SECTIONS

PROJ. REFERENCE NO.	SHEET NO.
HB - 0061	TMP - 07



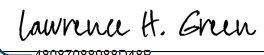
D1
04 07 STA. 12+00 -Y1-
CUT SECTION

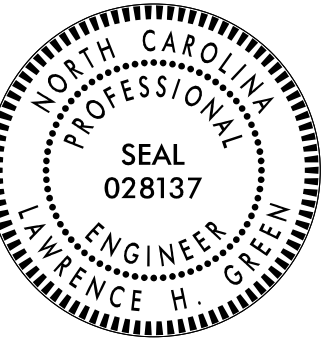
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User:AHayes



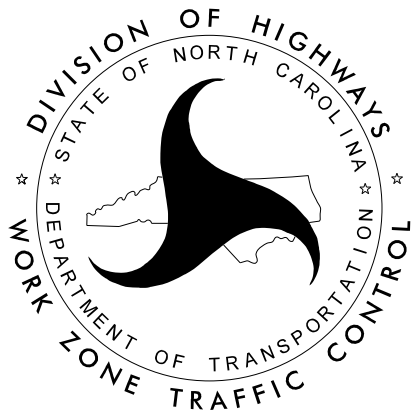
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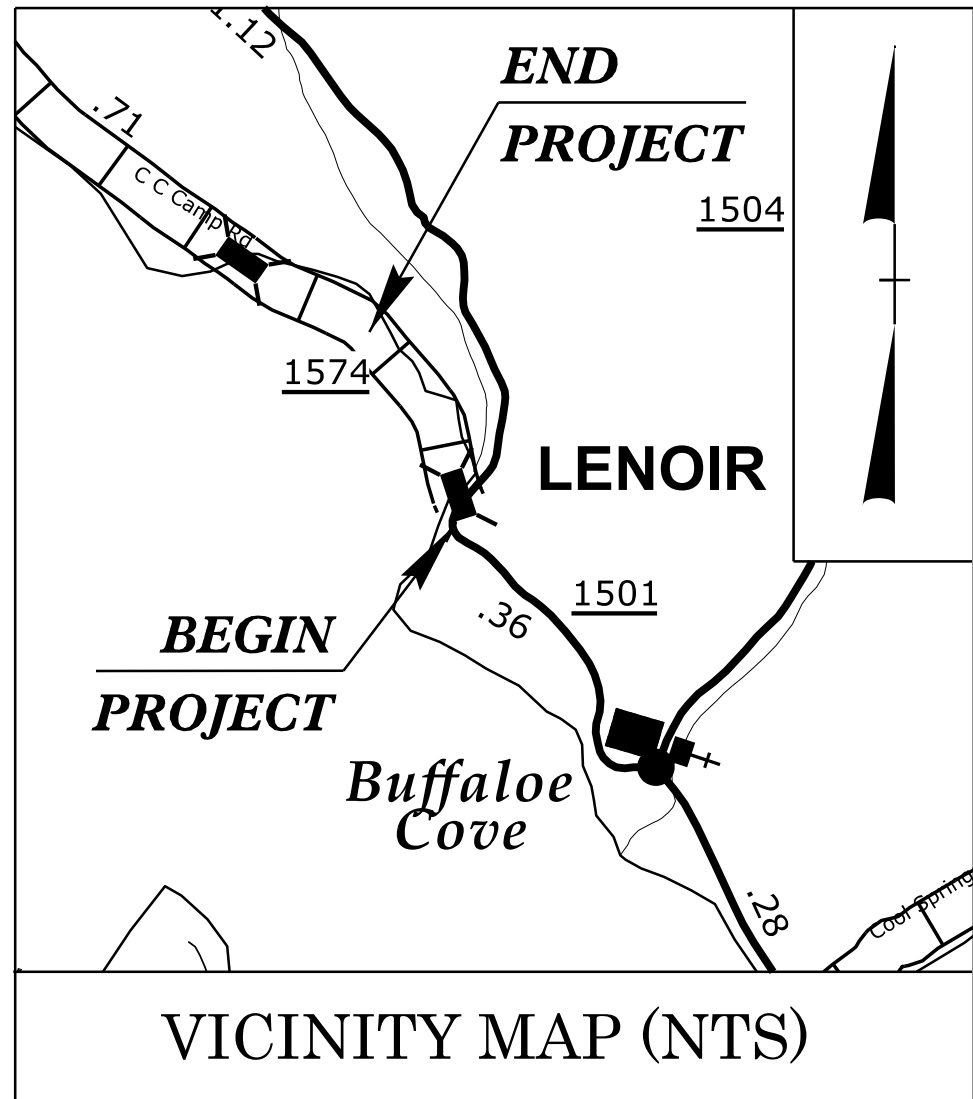


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TEMPORARY
CUT SECTIONS

TIP PROJECT: HB-0061

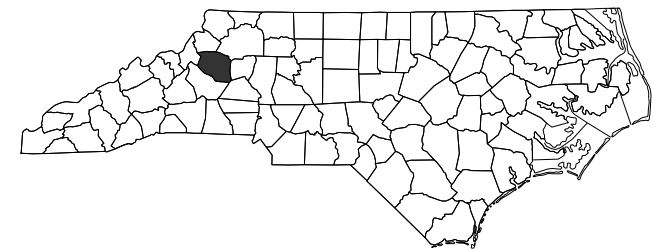


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
CALDWELL COUNTY

LOCATION: SR 1574 (CC CAMP RD.)
REPLACE BRIDGE NO. 349 OVER JONES CREEK
TYPE OF WORK: GRADING, DRAINAGE, PAVING
& STRUCTURE

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0061	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50731.1.1	FBRG111	P.E.	
50731.2.1	FBRG111	ROW	
50731.2.2	FBRG111	UTIL.	
50731.3.1	FBRG111	CONST.	

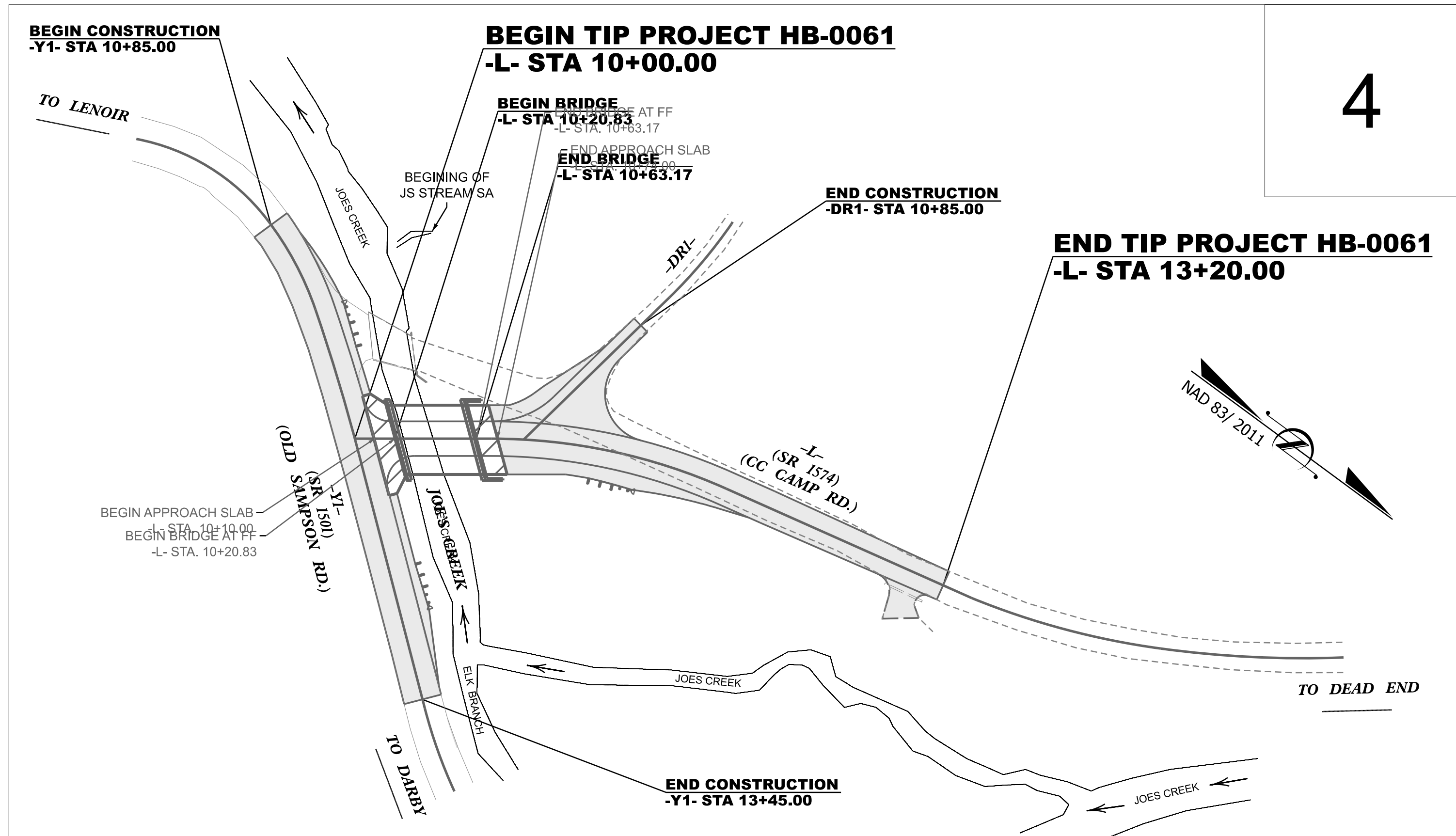


THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

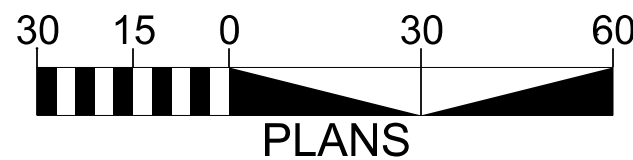
THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.

ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT

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



GRAPHIC SCALE



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



1223 JONES FRANKLIN ROAD
RALEIGH, N.C. 27606
Phone: 919 851 8077
Fax: 919 851 8077

Prepared in the Office of:

WETHERILL ENGINEERING, INC.
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606

Designed by:

KATIE ESTEP
NAME

4485

LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

PROJECT REFERENCE NO.	SHEET NO.
HB-0061	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

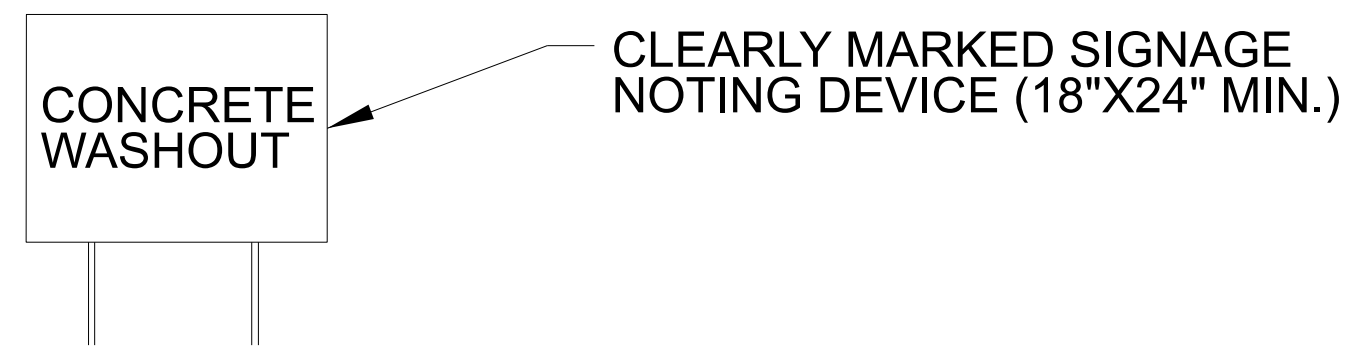
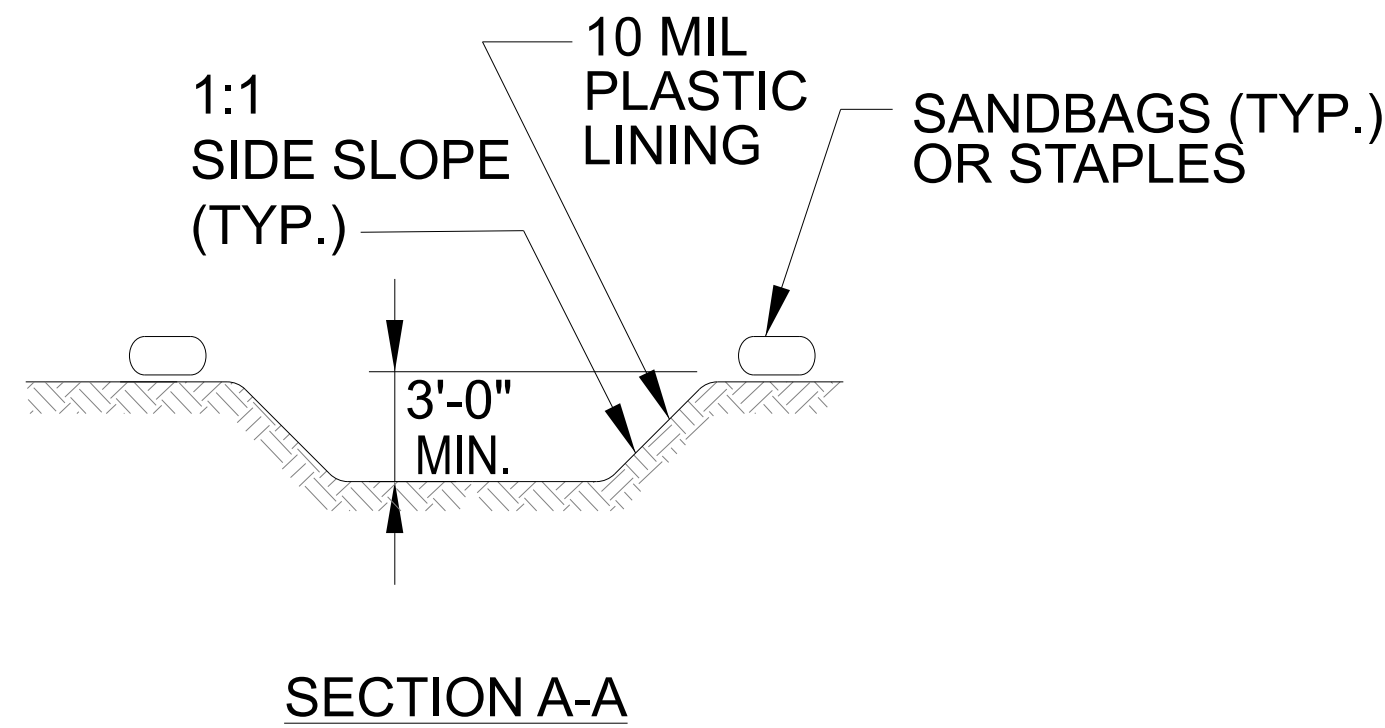
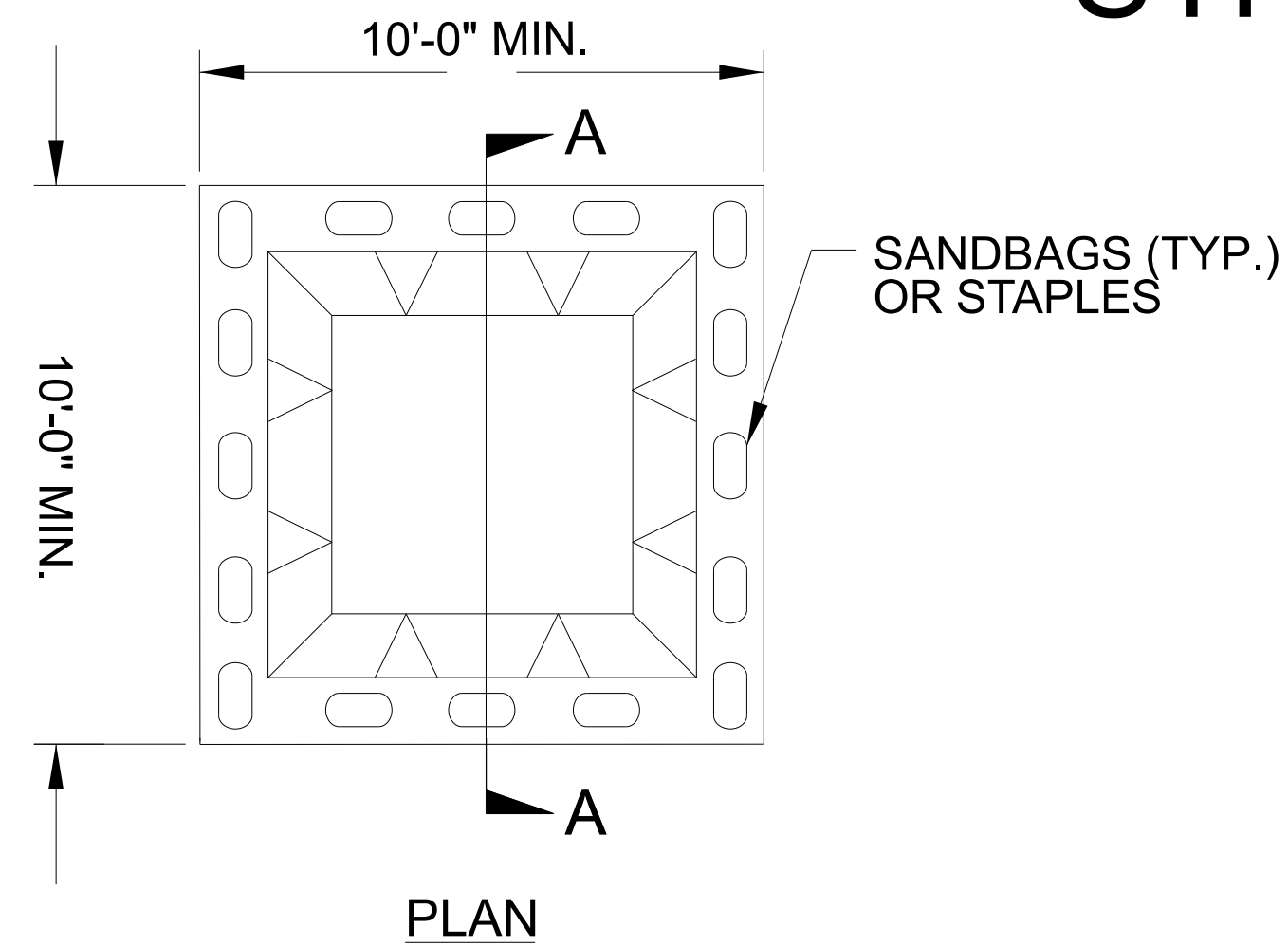
EROSION & SEDIMENT CONTROL LEGEND

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

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

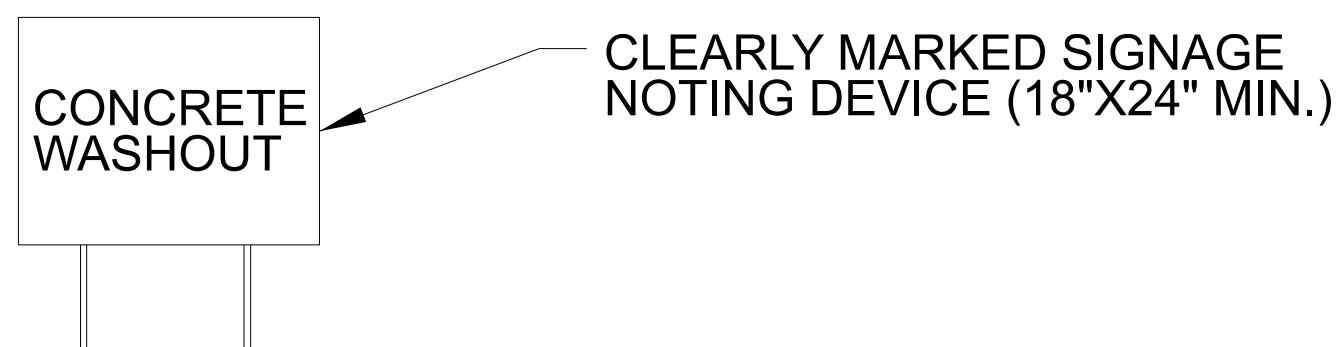
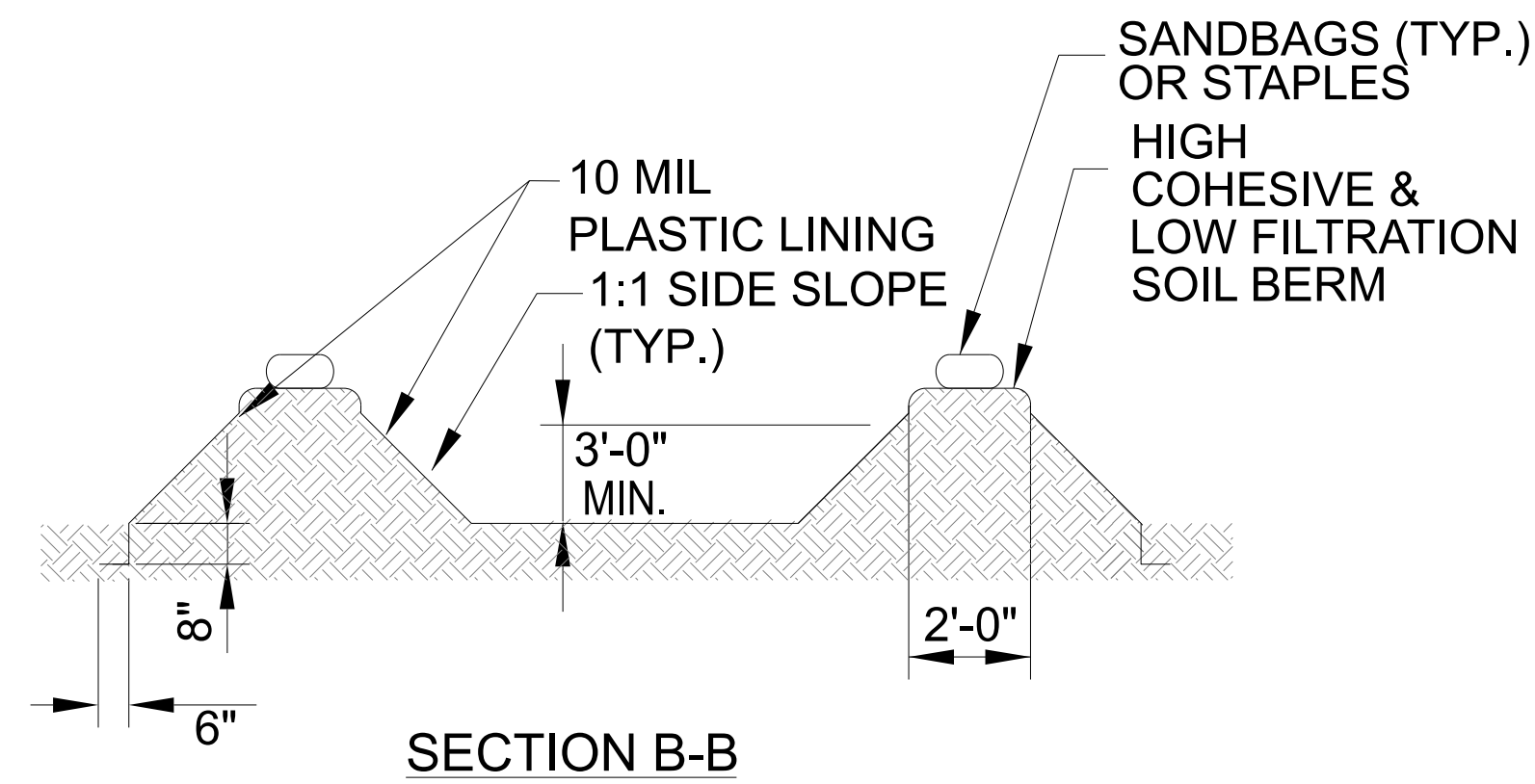
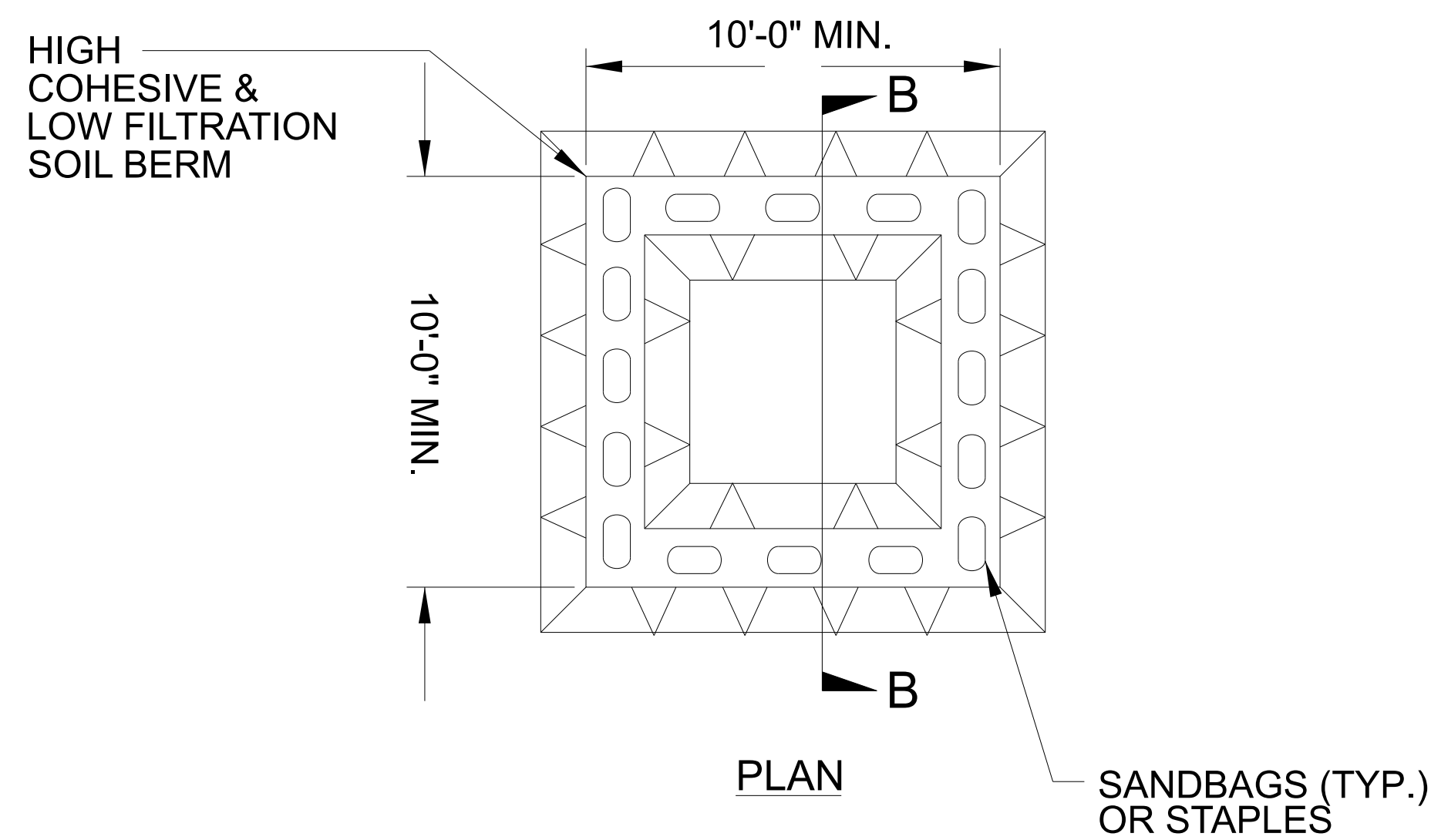
RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

PROJECT REFERENCE NO.	SHEET NO.
HB-0061	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

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



ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

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

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

PROJECT REFERENCE NO.		SHEET NO.	
HB-0061		EC-3	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

[illegible]

MATTING FOR EROSION CONTROL

[illegible]

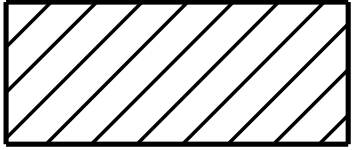
PROJECT REFERENCE NO.	SHEET NO.
HB-006I	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

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

CLEARING & GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

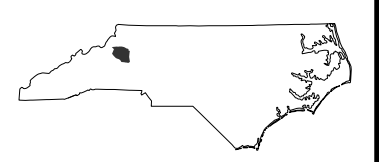


ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

HB-0061

EC-4 CONST. 4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY



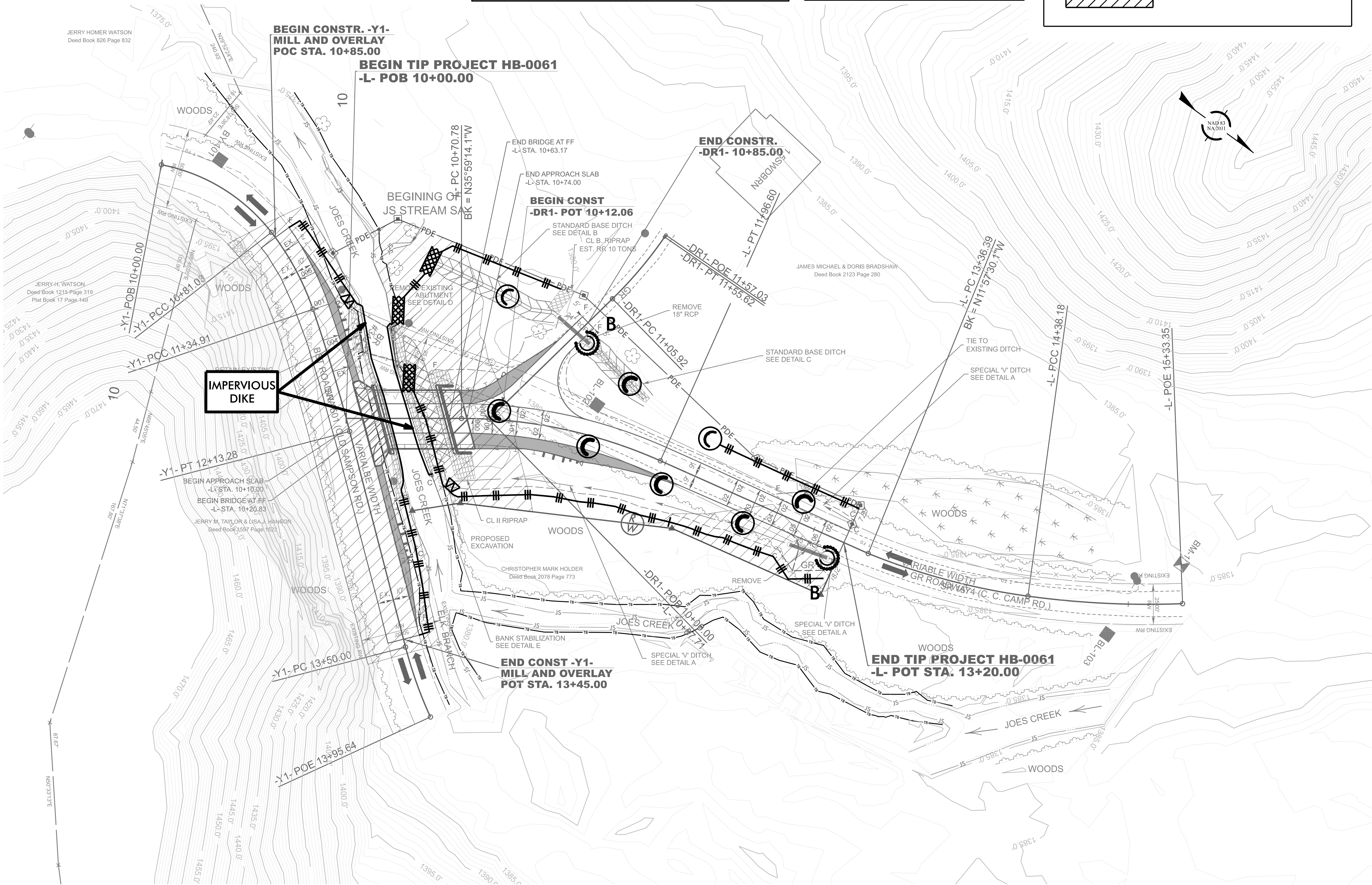
ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PREPARED BY
WETHERILL
ENGINEERING
WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-8077
NC LICENSE F-0877

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

REVISIONS



JERRY HOMER WATSON
Deed Book 826 Page 832

JERRY H. WATSON
Deed Book 1215 Page 319
Plat Book 17 Page 149

RETAIN EXISTING
IMPERVIOUS
DIKE

BEGIN CONSTR. -Y1-
MILL AND OVERLAY
POC STA. 10+85.00

BEGIN TIP PROJECT HB-0061
-L- POB 10+00.00

BEGIN CONST
-DR1- POT 10+12.06

END CONSTR.
-DR1- 10+85.00

END CONST -Y1-
MILL AND OVERLAY
POT STA. 13+45.00

PLACE COIR FIBER MATTING AS WORK
ALLOWS IN THE FOLLOWING AREAS:

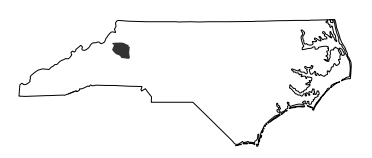
- GRADED FLOODPLAIN AREAS ALONG JOES CREEK.
- DITCH MATTING AS DIRECTED BY DITCH DETAIL B.
- ANY DISTURBED JURISDICTIONAL STREAM BANKS.

NAD 83
NA 2011

HB-0061

EC-5 CONST. 4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL COUNTY



ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PREPARED BY



WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-8077
NC LICENSE F-0877

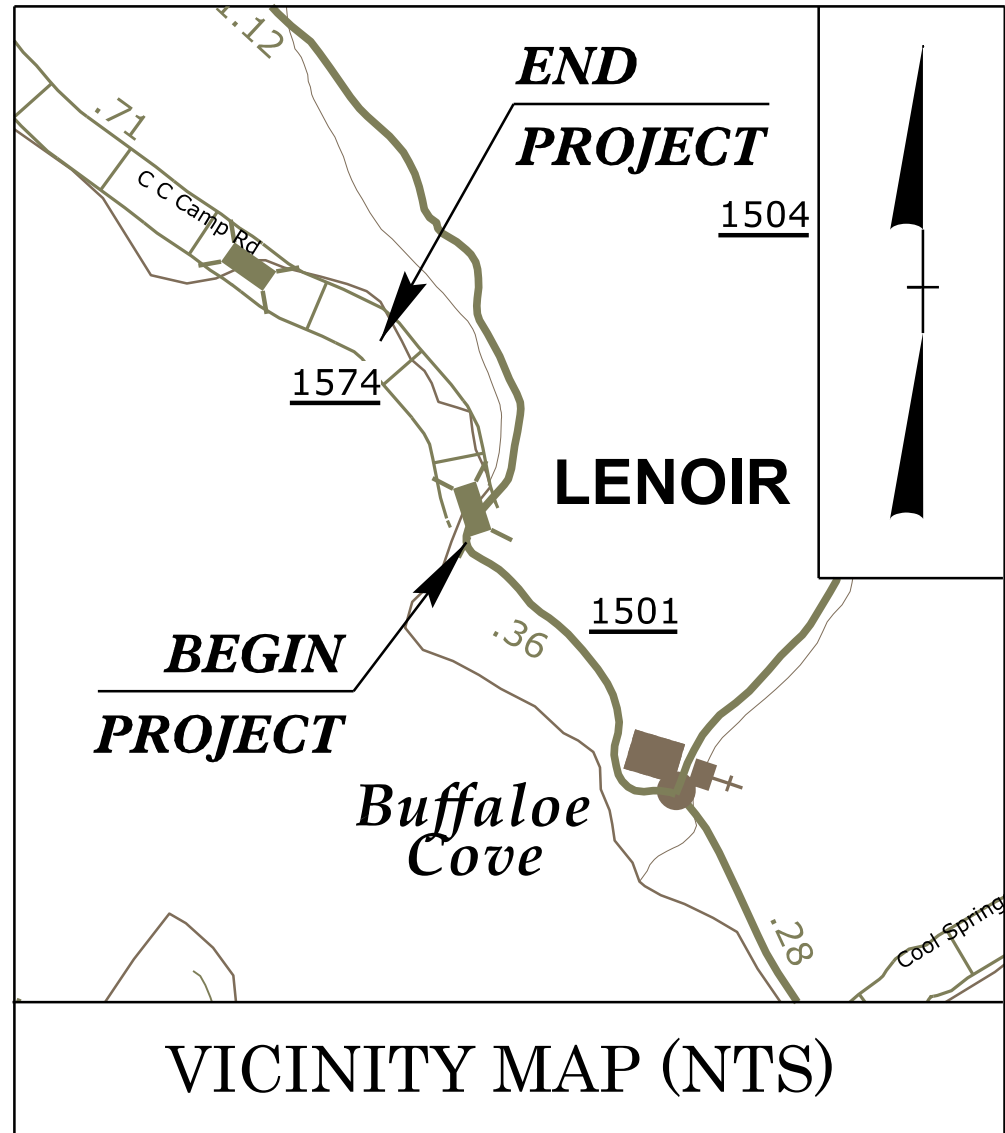
RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

REVISIONS

06/16/22

TIP PROJECT: HB-0061

CONTRACT:



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

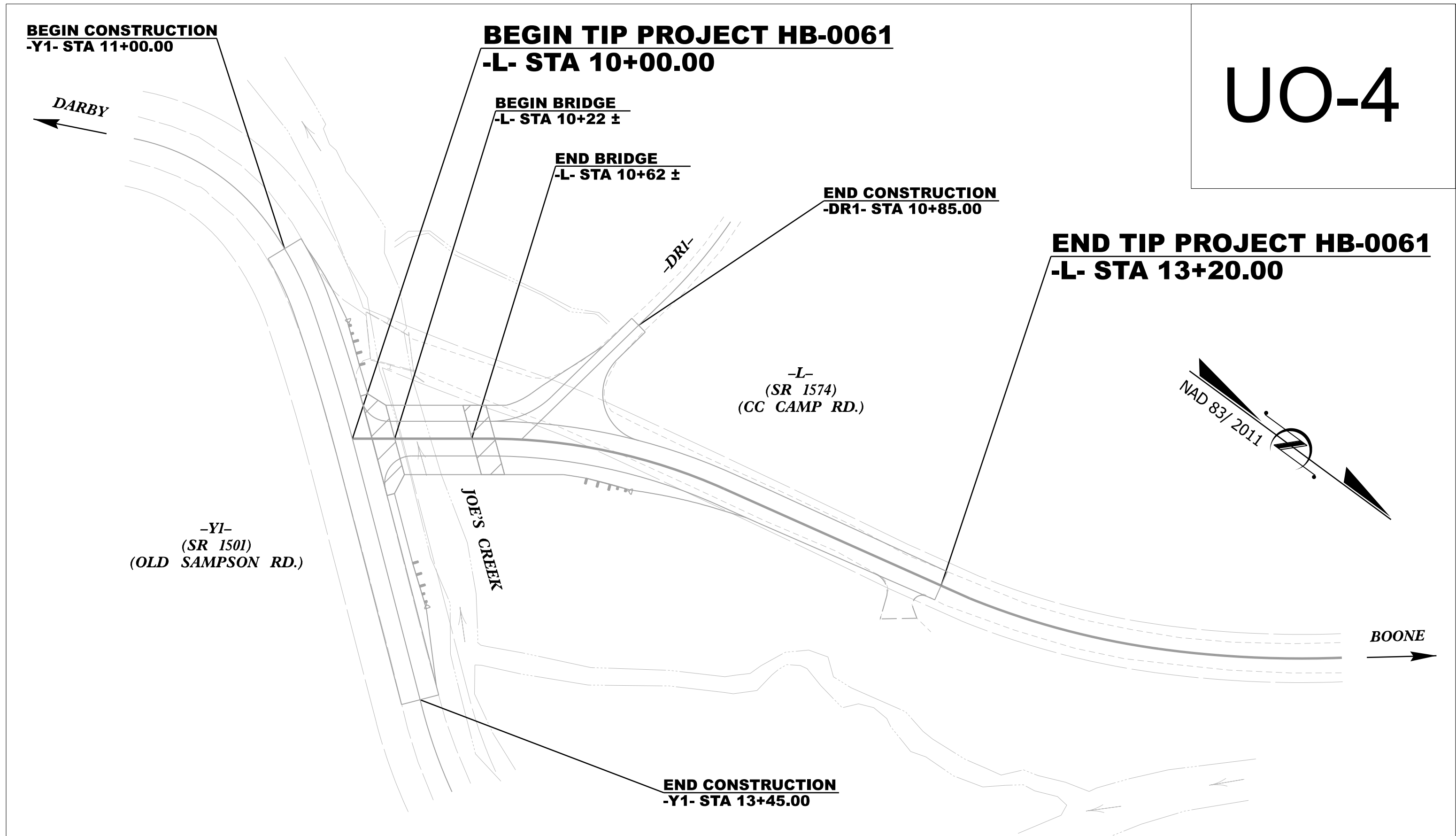
UTILITIES BY OTHERS PLANS
CALDWELL COUNTY

LOCATION: SR 1574 (CC CAMP RD) REPLACE
BRIDGE NO. 349 OVER JOE'S CREEK

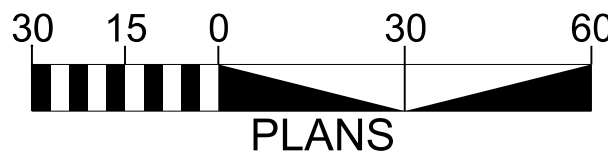
TYPE OF WORK: UTILITY RELOCATION BY OTHERS

T.I.P. NO.	SHEET NO.
HB-0061	UO-1

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



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:

UO-1
UO-2
UO-3
UO-4

DESCRIPTION:

TITLE SHEET
UTILITY SYMBOLOGY
SHEET OMITTED
UTILITIES BY OTHERS PLANSHEETS

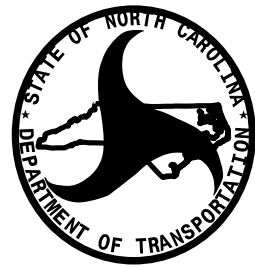
UTILITY OWNERS WITH CONFLICTS

(A) COMMUNICATIONS - AT&T

PREPARED IN THE OFFICE OF
WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN - UTILITIES
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION - SURVEY/SUE

PANKIL PATEL UTILITIES PROJECT MANAGER

STEVE MARTIN PROJECT UTILITY COORDINATOR



DIVISION OF HIGHWAYS
DIVISION II
80 STATESVILLE RD
NORTH WILKSBORO NC 28659
PHONE (336) 903-9101
FAX (336) 667-4549

RAMIE A. SHAW, PE DIVISION PROJECT
DEVELOPMENT ENGINEER

BRANDON GREER DIVISION UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

UTILITIES BY OTHERS

HB-0061

UD2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
CALDWELL 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: HSM

DRAWN BY: HSM

CHECKED BY: PKP

REVISED:

WETHERELL
ENGINEERING

1223 JAMES FROBERG RD.
RAVENNA, NC 27646
PHONE: 919.851.8277
FAX: 919.851.8100

TRANSPORTATION PLANNING DESIGN - BRIDGE/STRUCTURE DESIGN - UTILITIES
EVALUATE DESIGN - DESIGN - CONSTRUCTION OBSERVATION - SUPERVISOR

PROPOSED WATER SYMBOLS

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

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

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

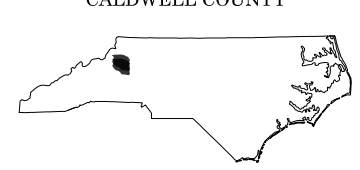
Encasement Method	
Encasement	
Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

EXISTING UTILITIES SYMBOLS

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

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

*For Existing Utilities	
Utility Line Drawn from Record (Type as Shown)	
Designated Utility Line (Type as Shown)	



UTILITY 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: HSM

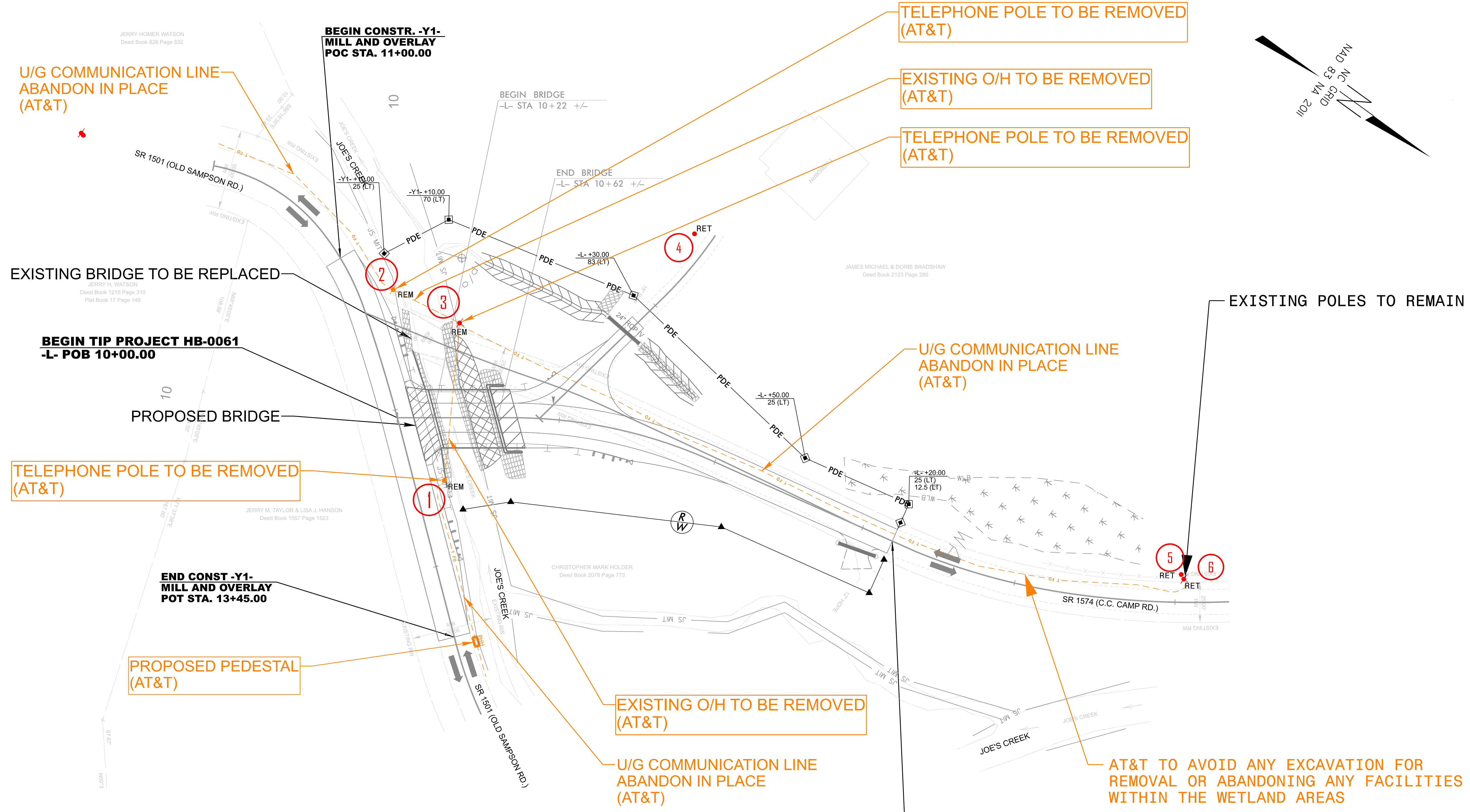
DRAWN BY: HSM

CHECKED BY: PKP

REVISED:

1225 JAMES H. WATSON
RURAL, N.C. 27066
Phone: 919.851.8077
Fax: 919.851.8077
TRANSPORTATION PLANNING DESIGN - BRIDGE/STRUCTURE DESIGN - UTILITIES
CONSULTING ENGINEER - LICENSED - CONSTRUCTION SUPERVISOR - LICENSED

REVISIONS



LEGEND

- REM = REMOVAL
- RET = RETAIN
- ⓧ = POLE NUMBER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJ. REFERENCE NO.	SHEET NO.
HB-0061	X-1

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

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

STATION	UNCL. EXC.	EMBT.
-L-	(CY)	(CY)
10+10.00	0	0
10+50.00	0	0
11+00.00	28	83
11+50.00	31	53
12+00.00	28	20
12+50.00	42	7
13+00.00	40	2
13+20.00	13	0

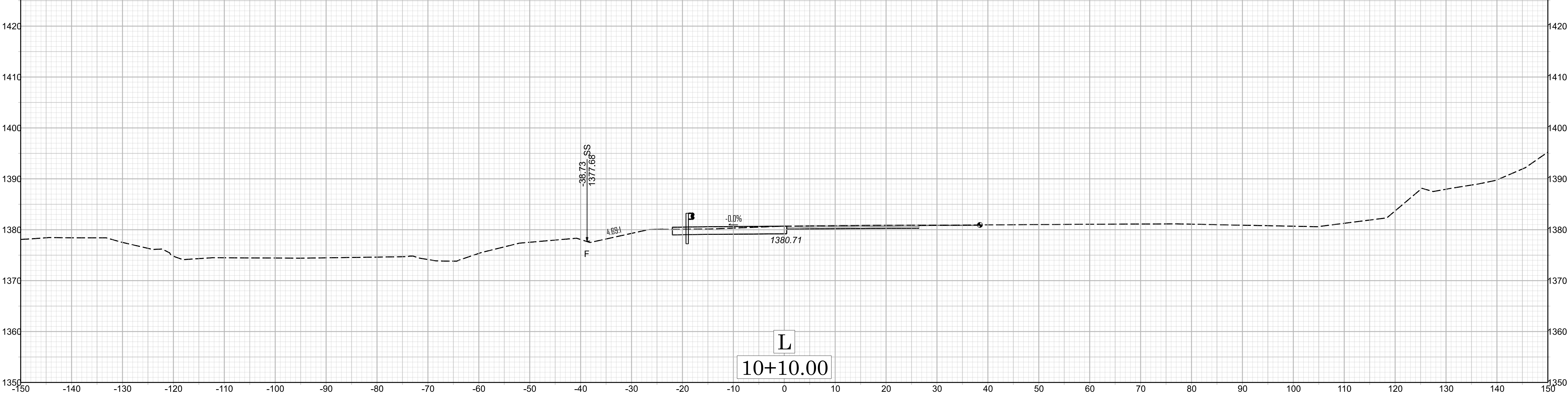
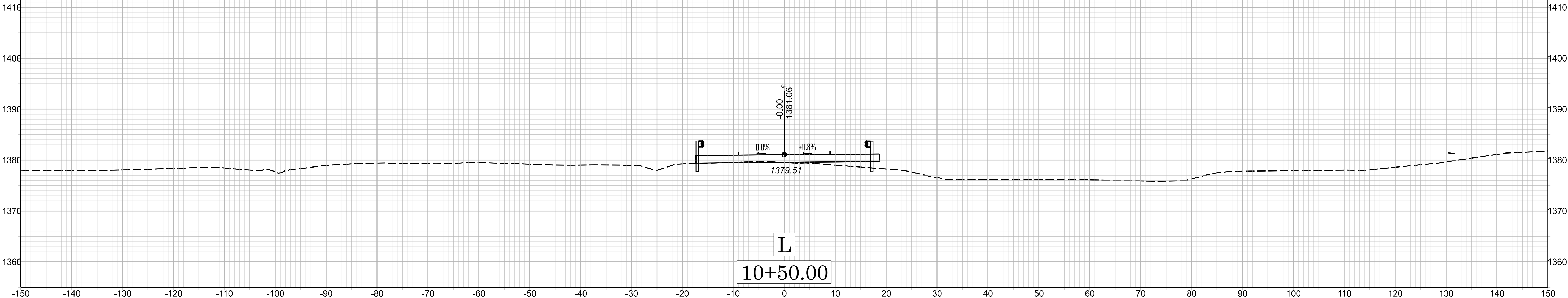
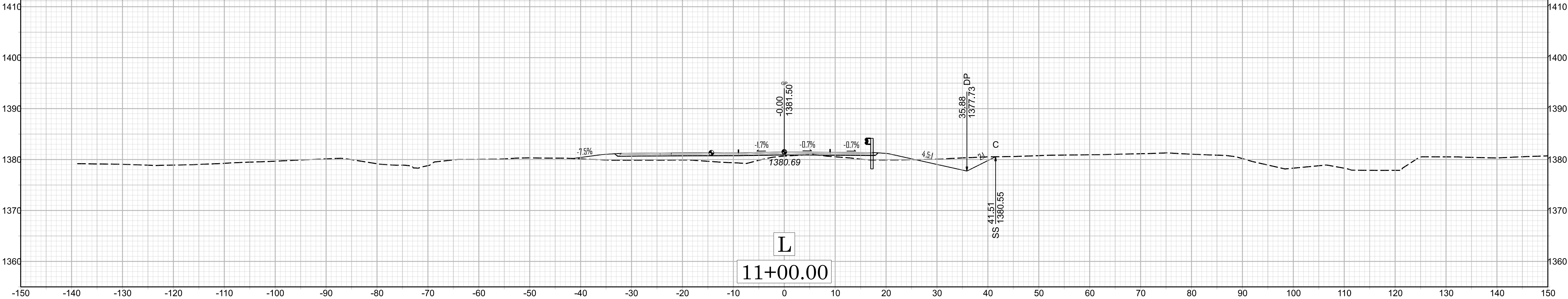
STATION	UNCL. EXC.	EMBT.
-Y1-	(CY)	(CY)
10+85.00	0	0
11+00.00	0	0
11+25.00	1	0
11+50.00	1	3
11+75.00	0	3
12+00.00	8	1
12+25.00	11	2
12+50.00	7	1
12+75.00	2	0
13+00.00	2	0
13+25.00	4	0
13+45.00	5	0

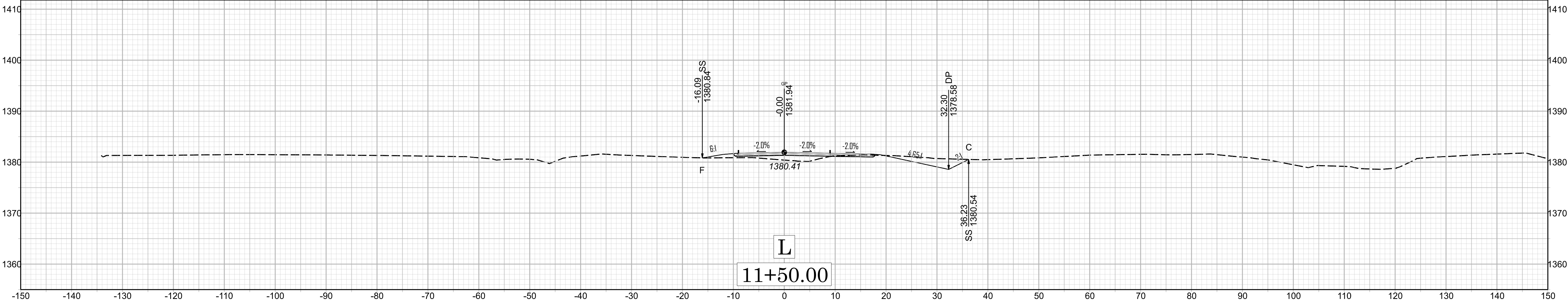
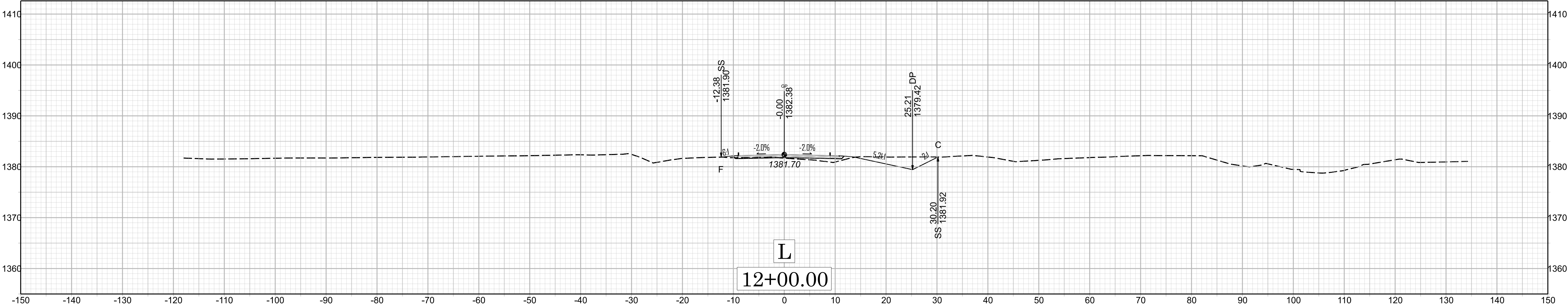
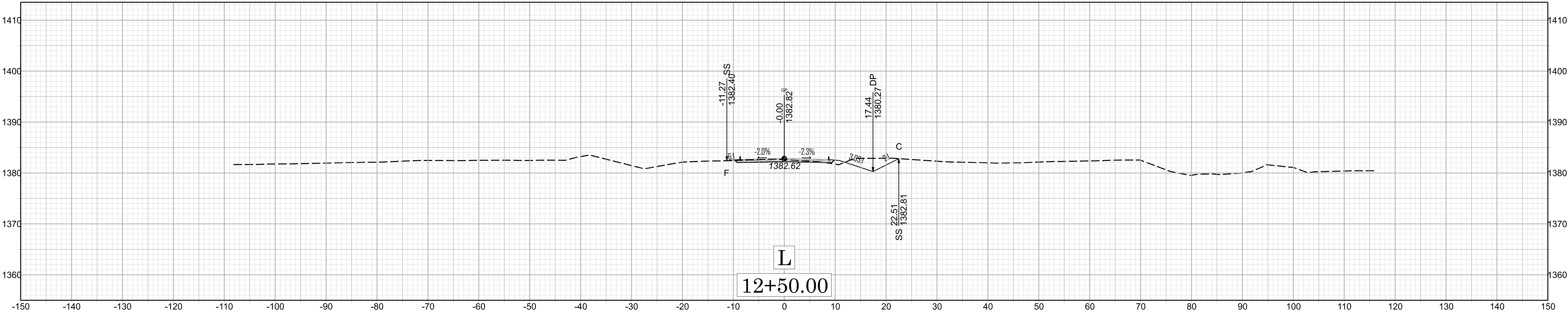
STATION	UNCL. EXC.	EMBT.
-DR1-	(CY)	(CY)
10+12.00	0	0
10+50.00	0	0
10+85.00	6	4

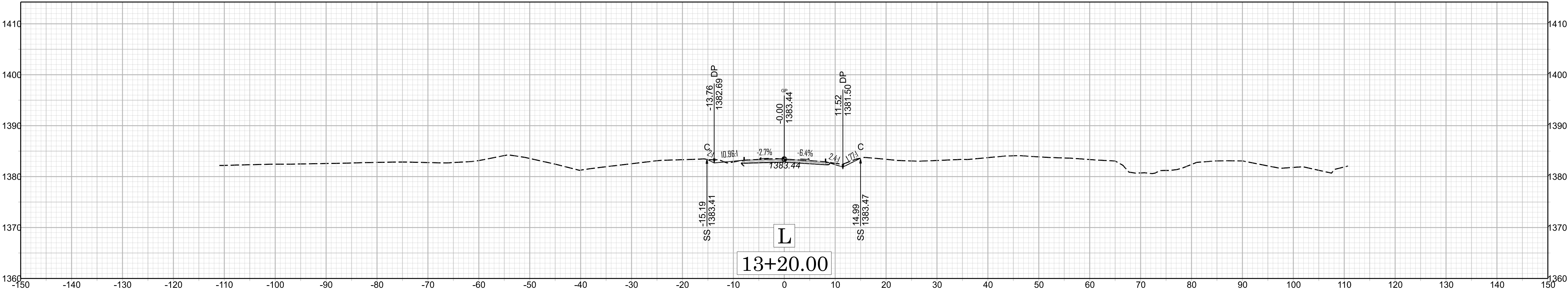
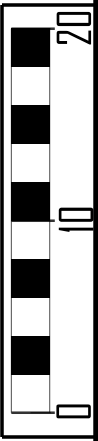
*INCLUDED WITH -L-
*INCLUDED WITH -L-

CROSS-SECTION INDEX			
CHAIN	STATION	STATION	SHEET NUMBER
-L-	10+10.00	13+20.00	X-2 THRU X-4
-Y1-	10+85.00	13+45.00	X-5 THRU X-16
-DR1-	10+12.00	10+85.00	X-17

11/14/23

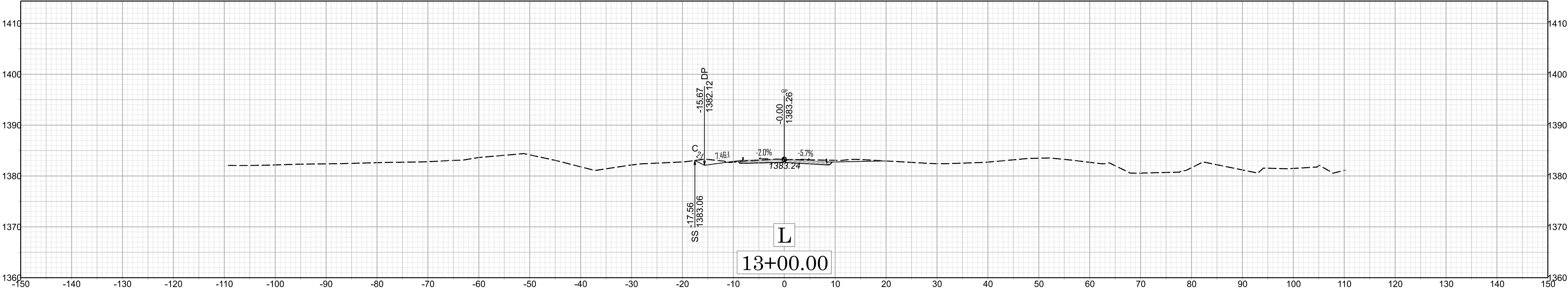




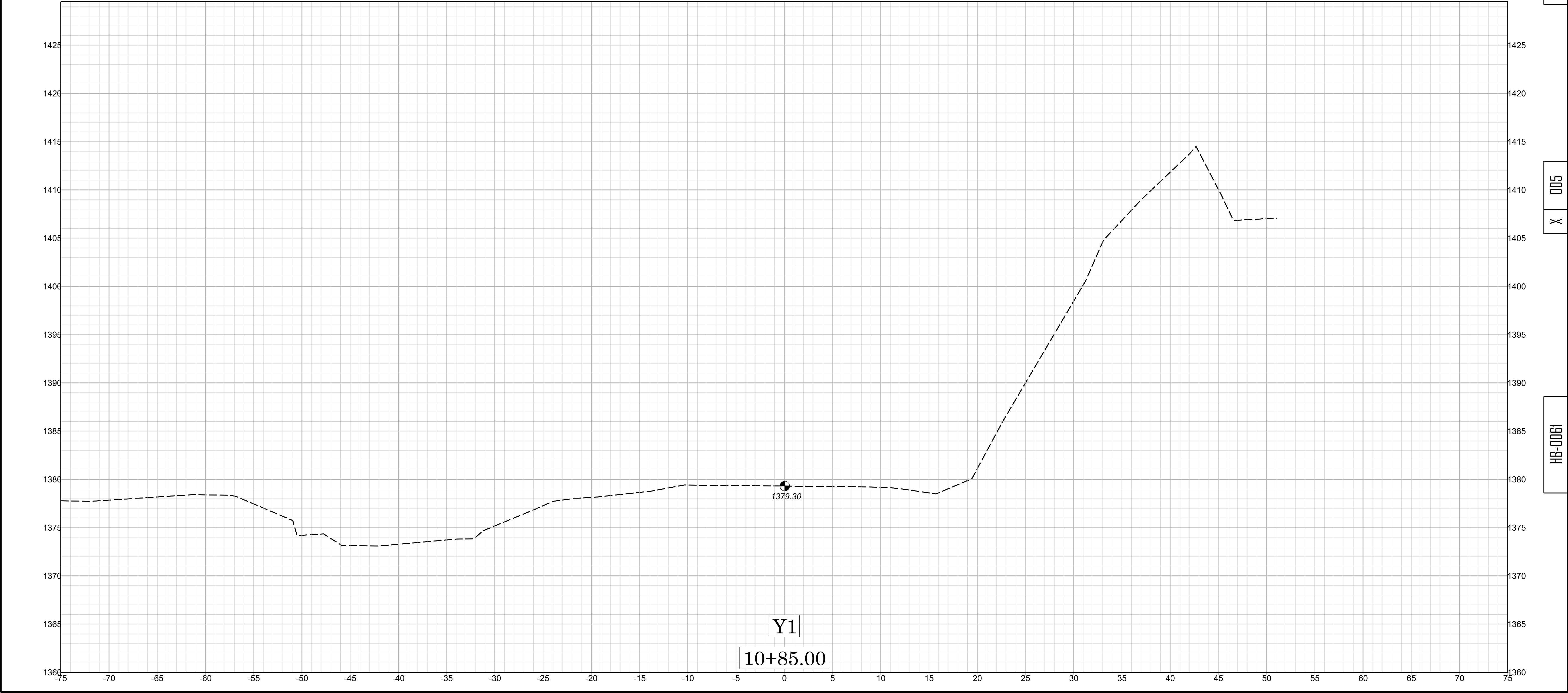


X 004

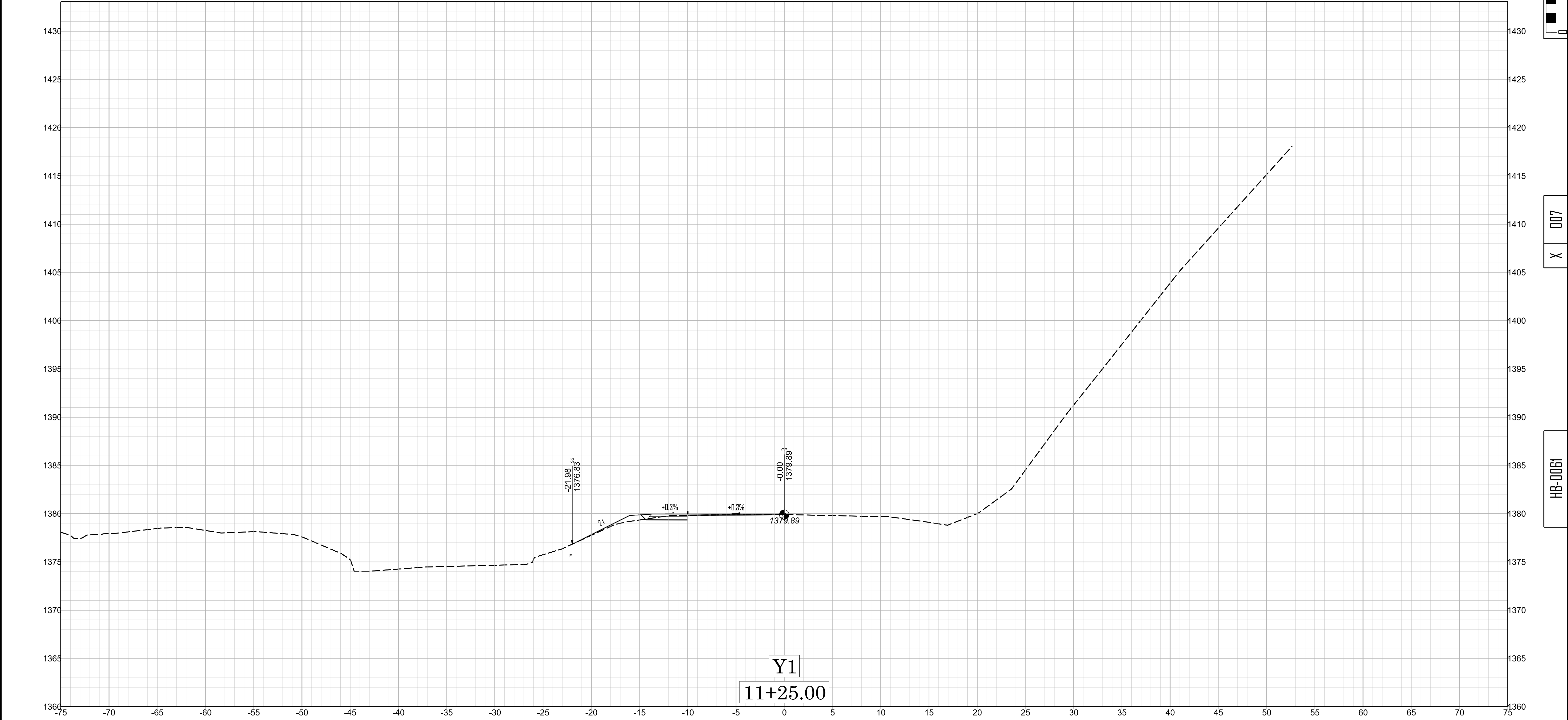
HB-0061

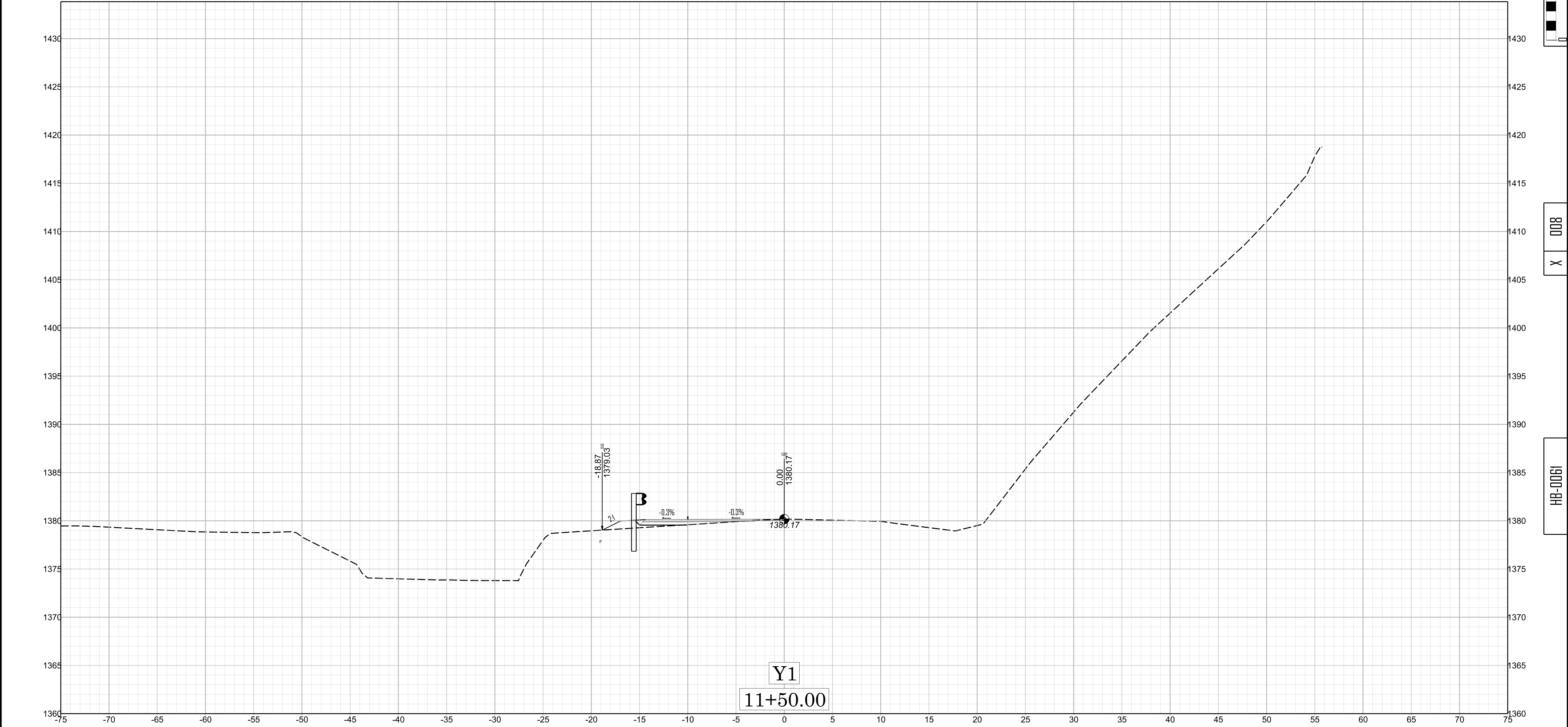


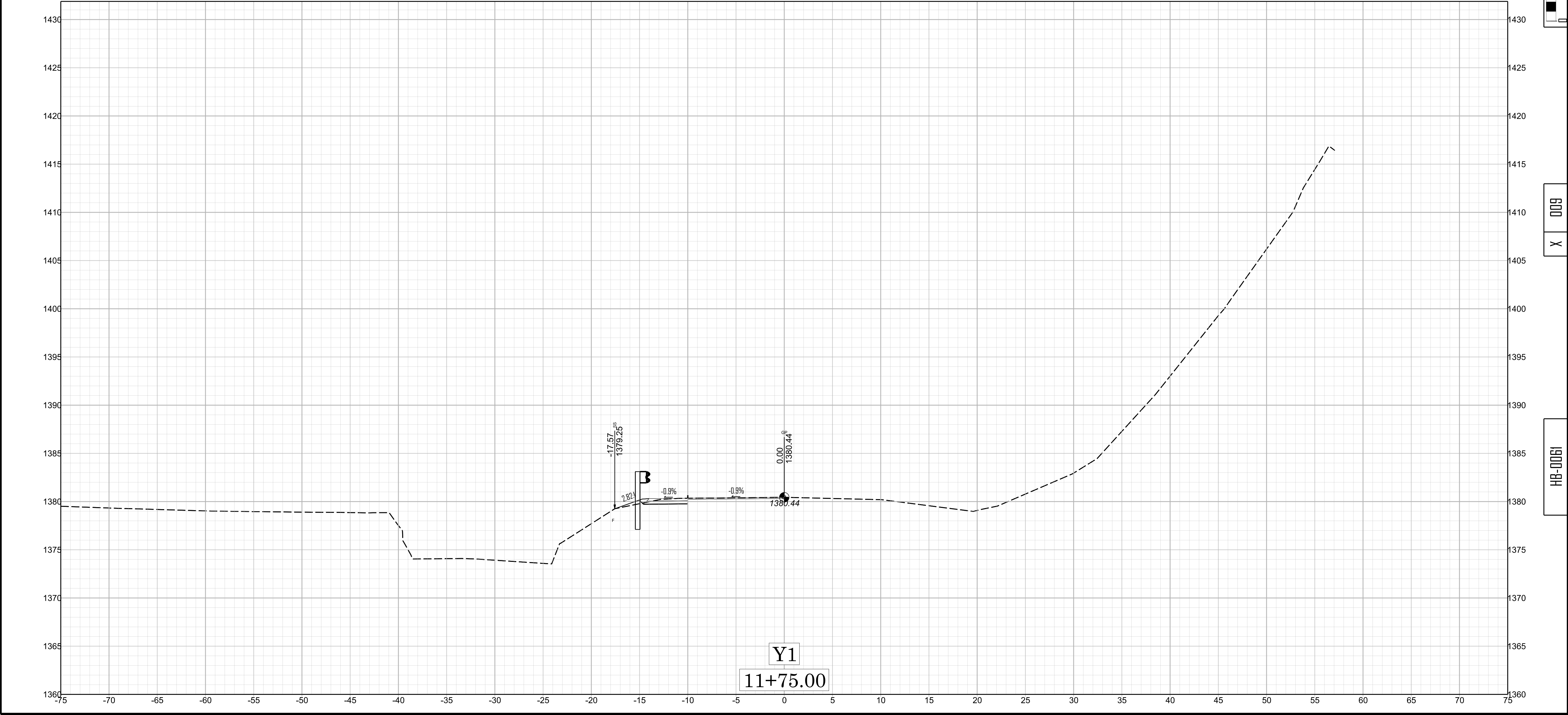
11/14/23

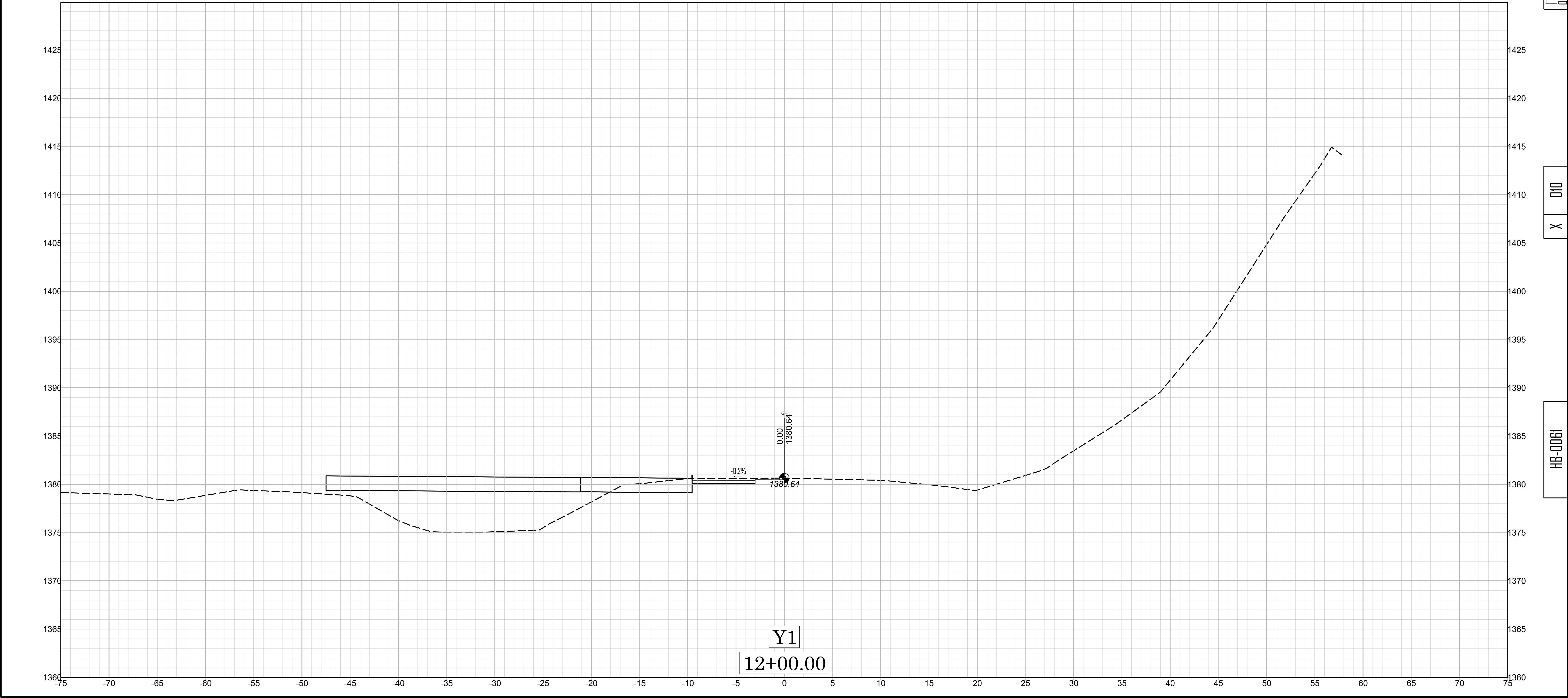


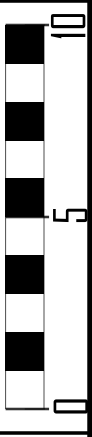






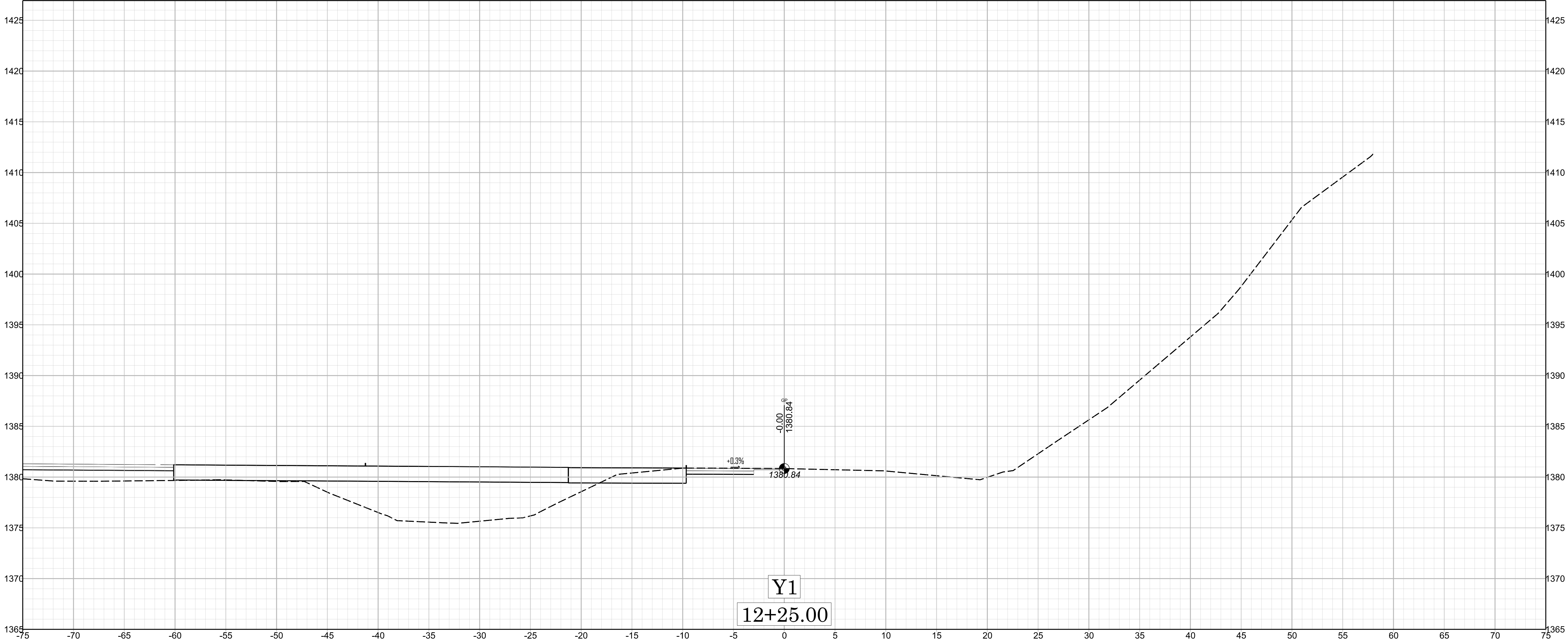


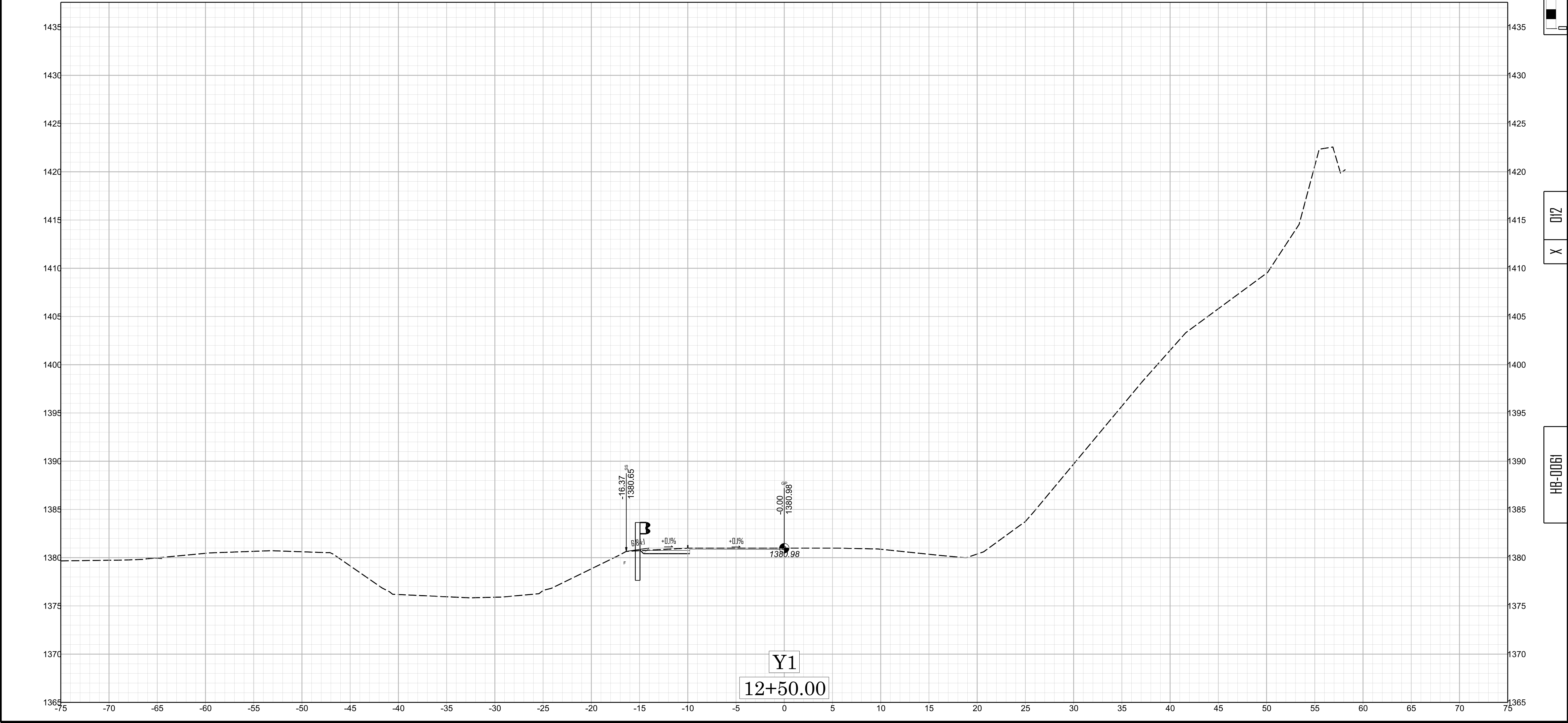




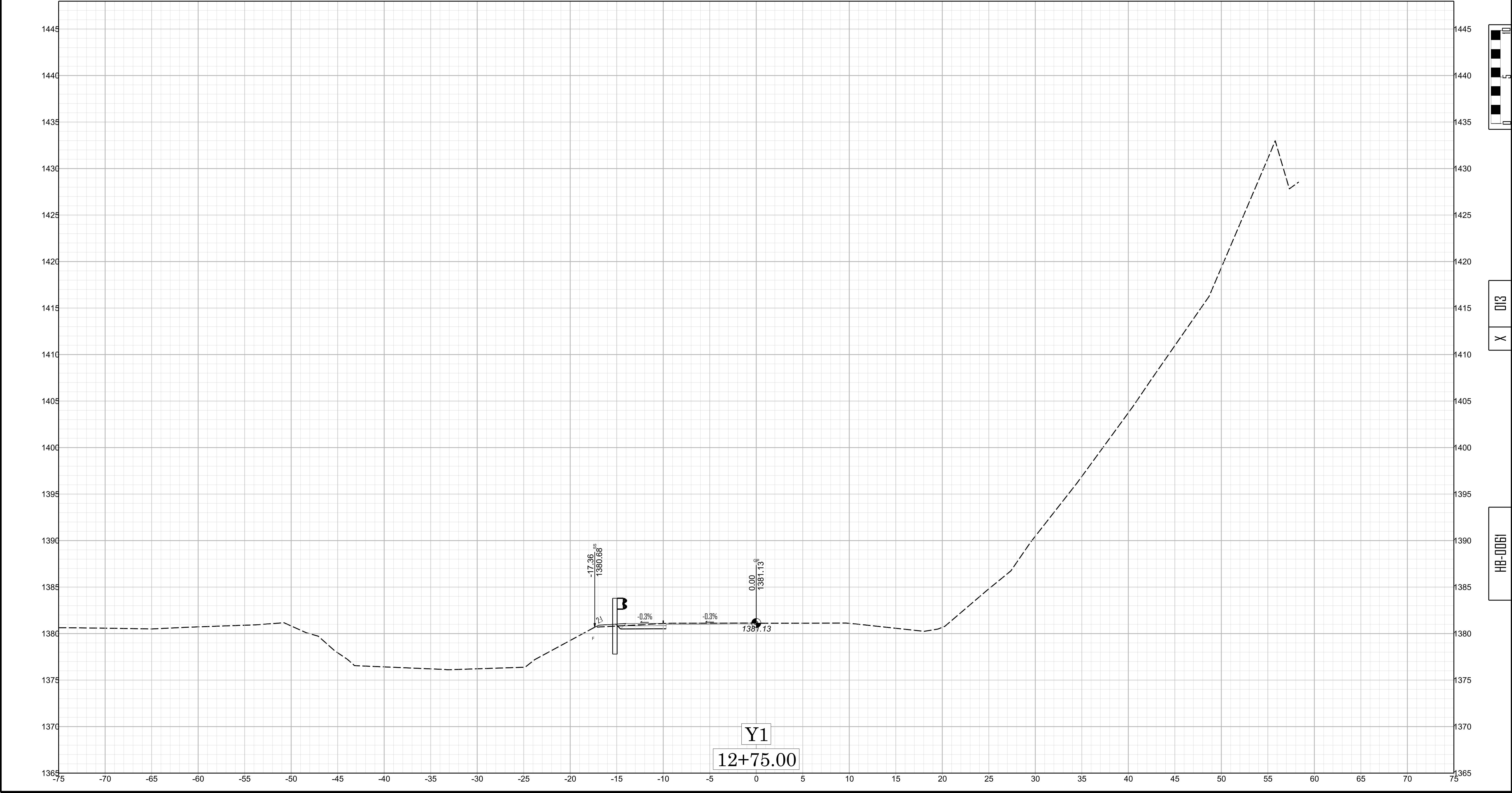
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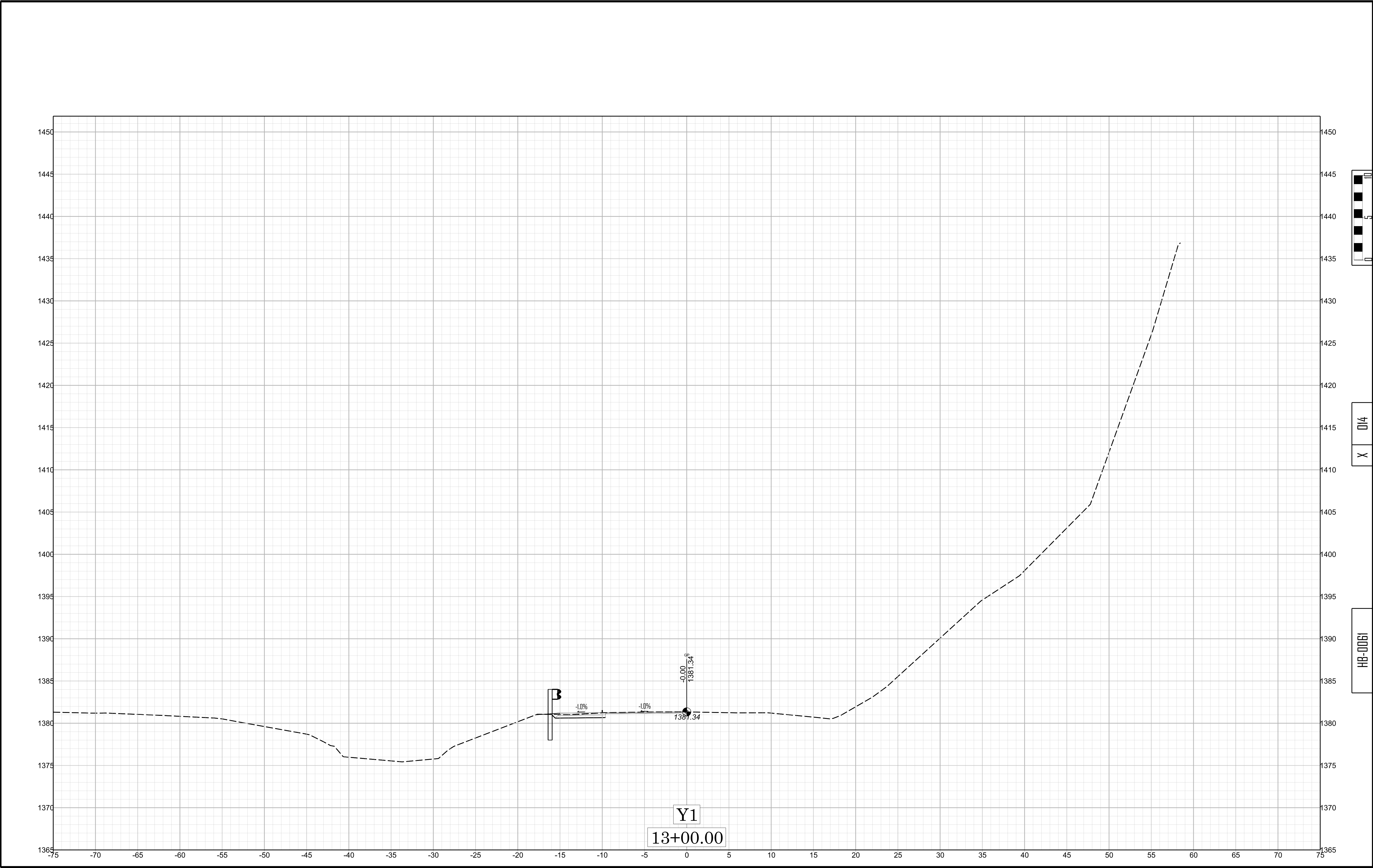
HB-0061



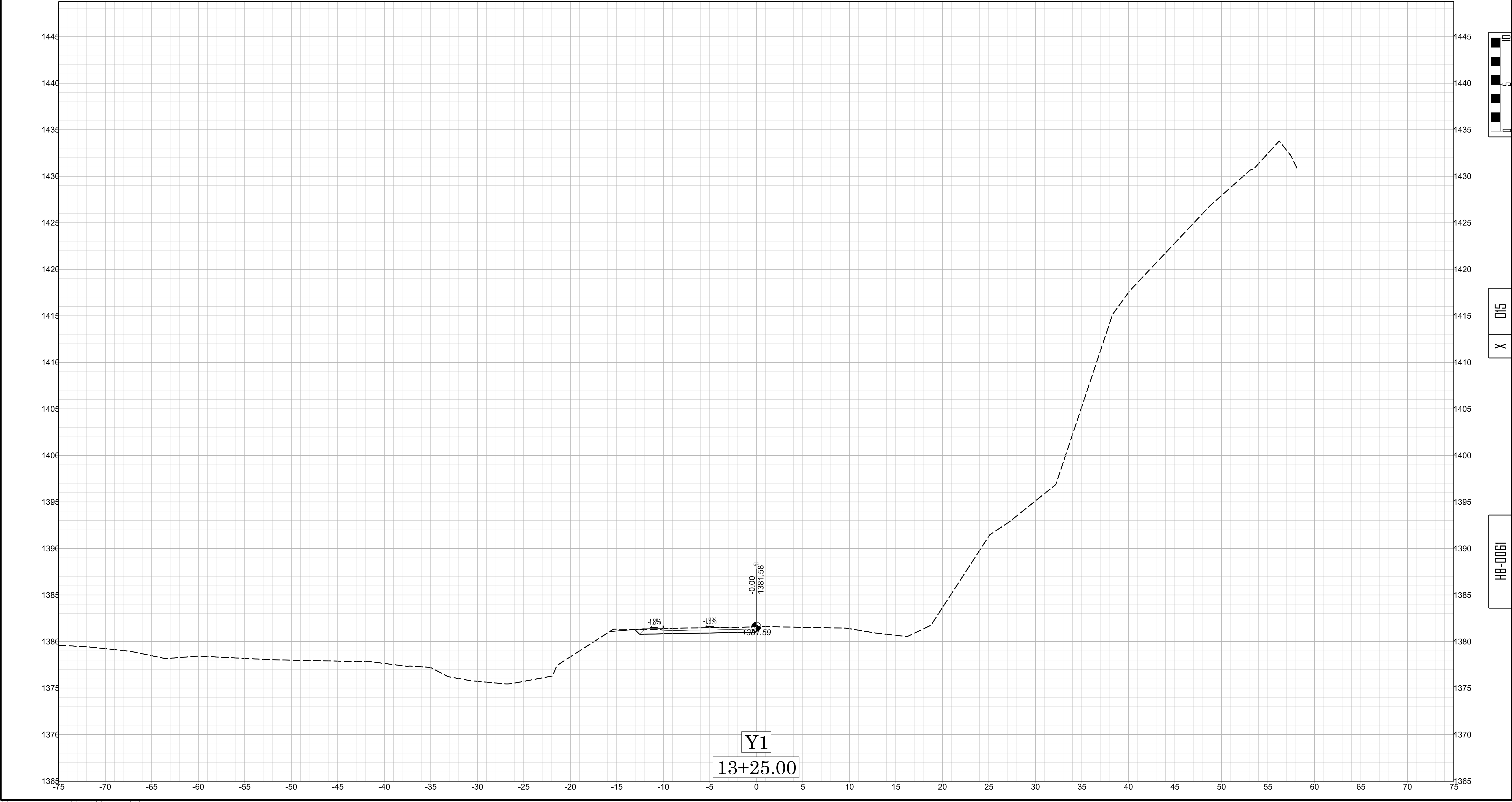


11/14/23

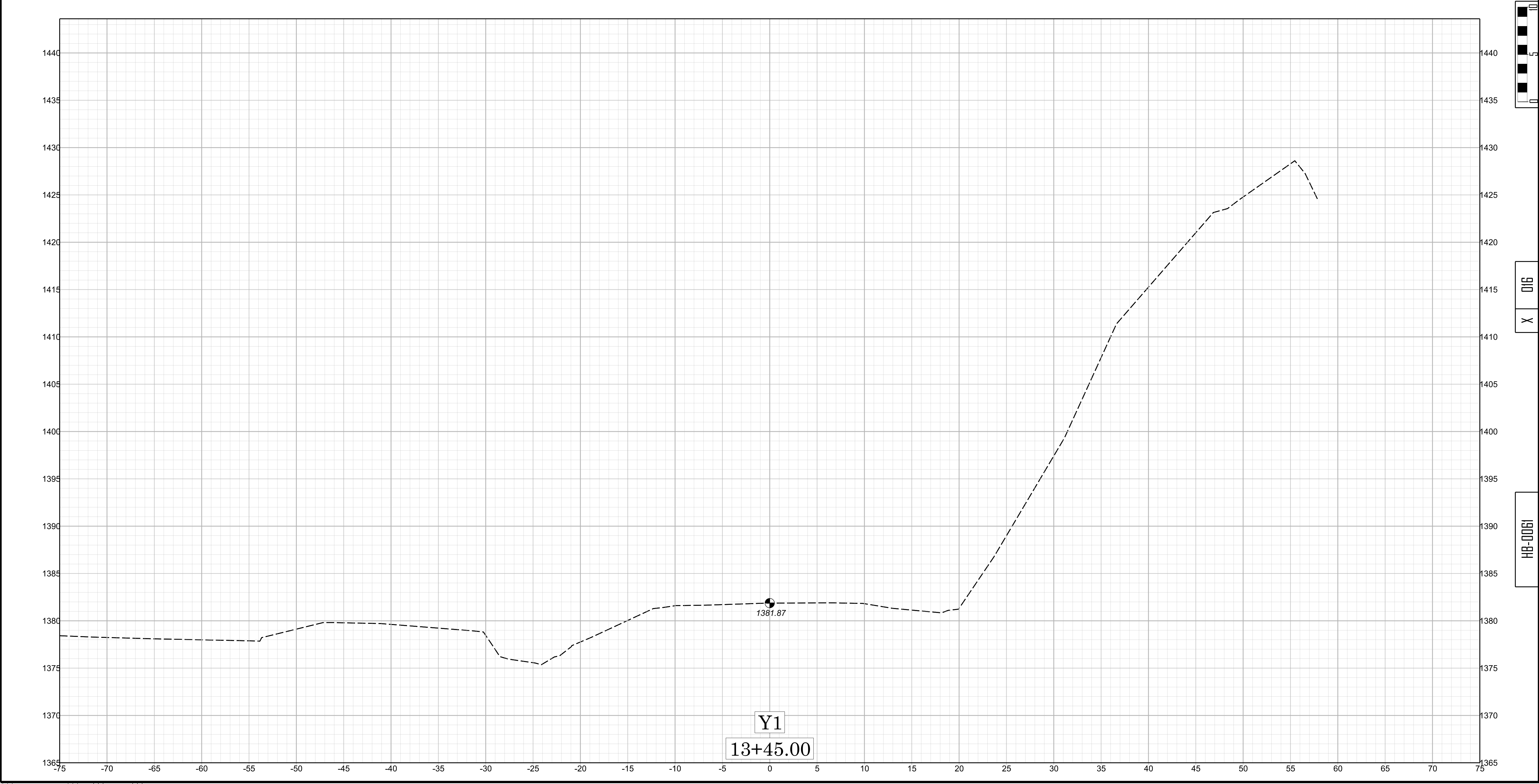


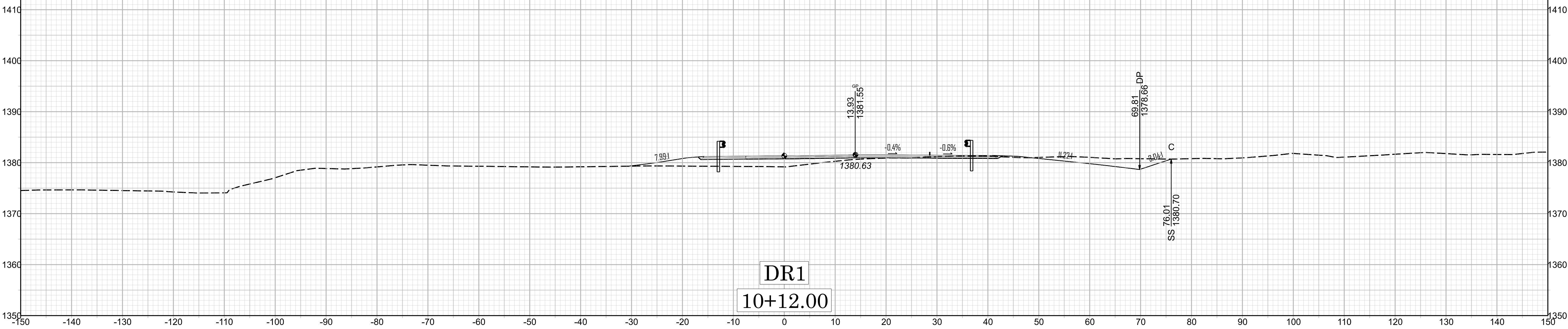
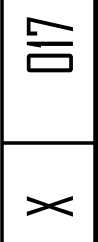
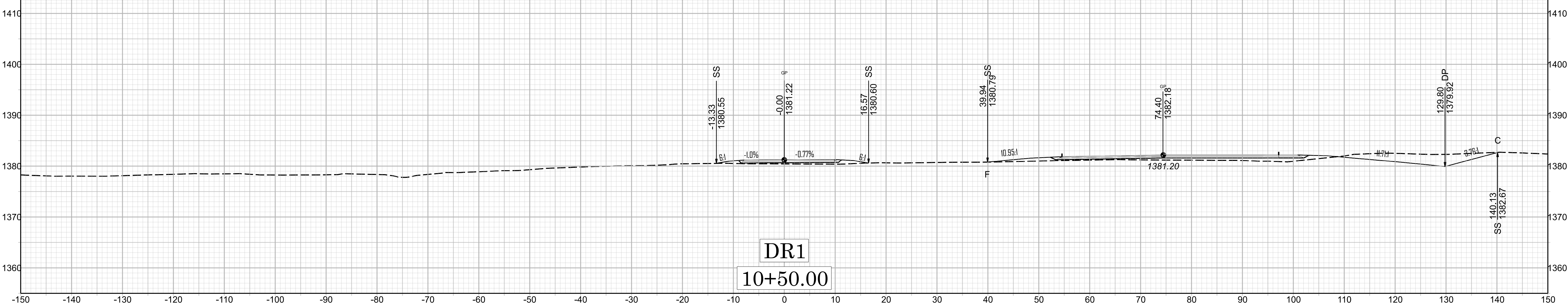
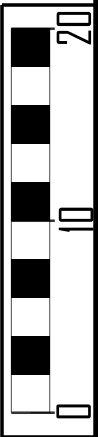
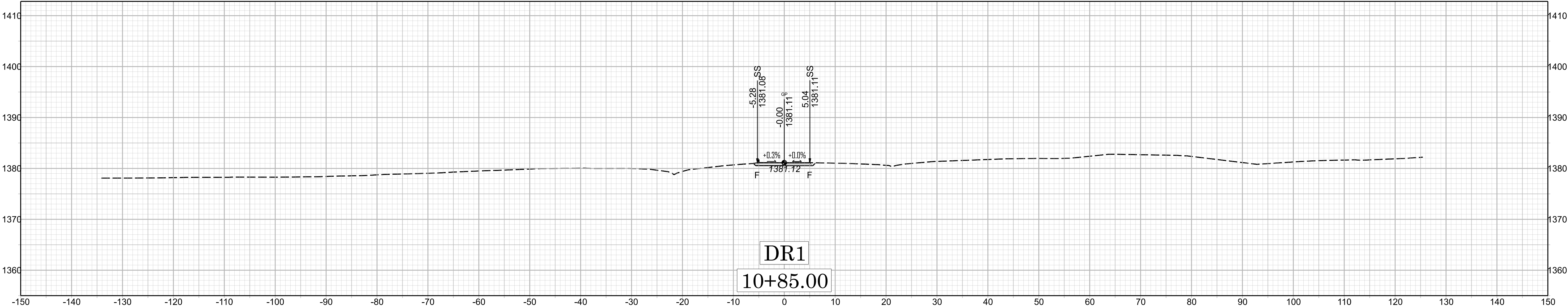


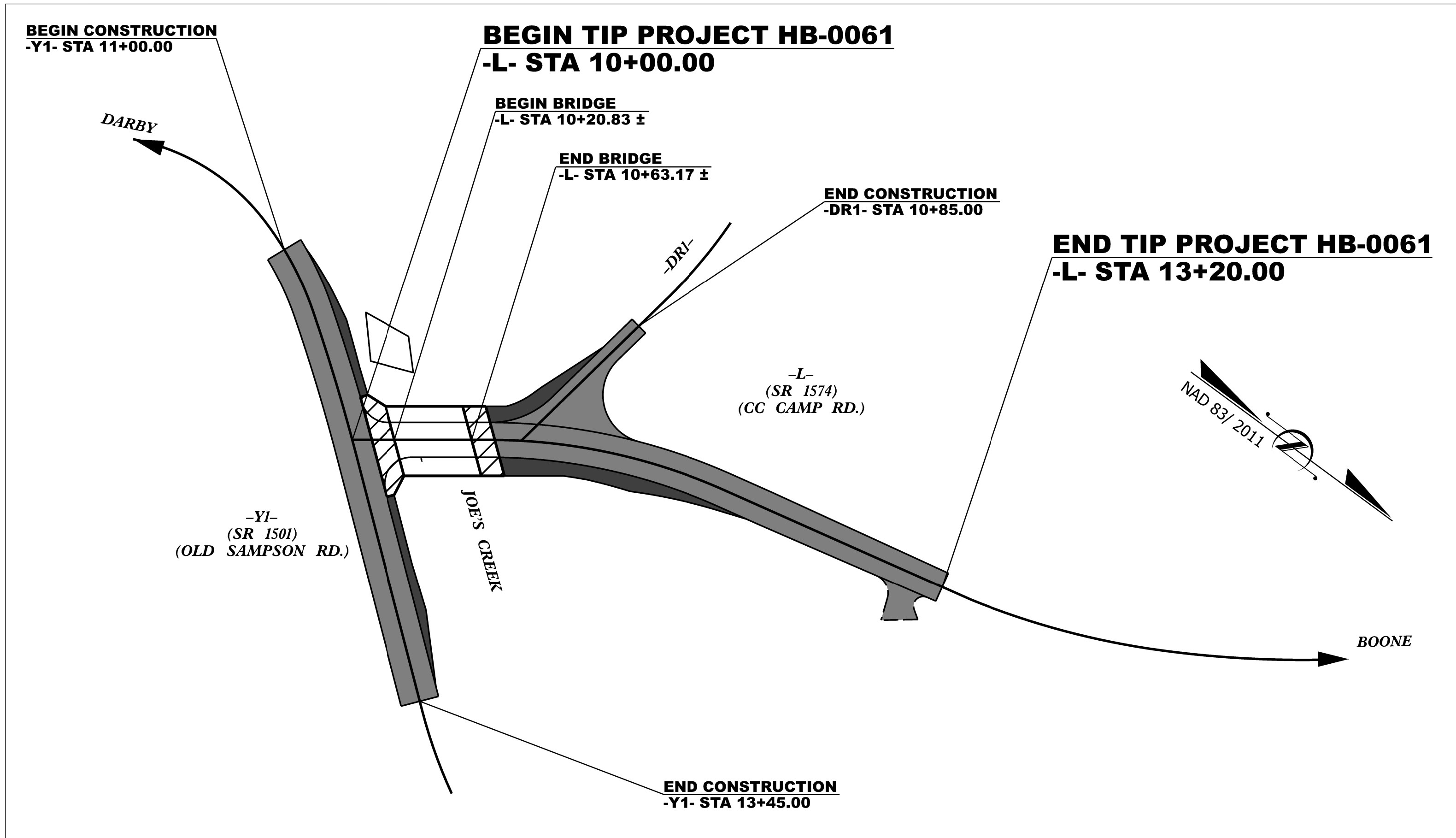
11/14/23



11/14/23







STRUCTURE PLANS

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

LENGTH OF ROADWAY TIP PROJECT HB-0061 = 0.053 MILES
LENGTH OF STRUCTURE TIP PROJECT HB-0061 = 0.008 MILES
TOTAL LENGTH OF TIP PROJECT HB-0061 = 0.061 MILES

Prepared for:

DIVISION OF HIGHWAYS
DIVISION II

801 Statesville Rd North Wilkesboro, 28659

NCDOT CONTACT:
RAMIE A. SHAW, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

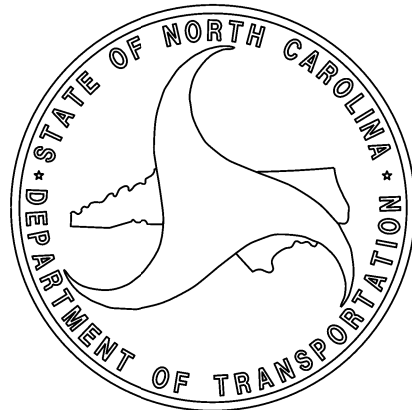
CHRIS D. ANDERSON, PE
PROJECT ENGINEER

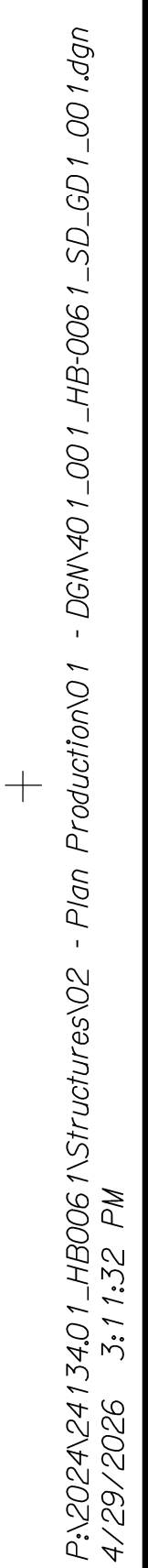
JOSE A. ROSADO JR.
PROJECT DESIGN ENGINEER

Signed by: *Thomas K. Koch*
4A47D964D677442



4/29/2026





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, Pile 1	1		SEE SUBSTRUCTURE PLANS	15								1362.50	2	8
End Bent 1, Pile 2	1		SEE SUBSTRUCTURE PLANS	15								1362.50	3	7
End Bent 1, Pile 3	1		SEE SUBSTRUCTURE PLANS	15								1362.50	4	6
End Bent 1, Pile 4	1		SEE SUBSTRUCTURE PLANS	15								1363.00	5	4.5
End Bent 1, Pile 5	1		SEE SUBSTRUCTURE PLANS	15								1364.00	5	3.5
End Bent 1, Pile 6	1		SEE SUBSTRUCTURE PLANS	15								1365.50	5	2
End Bent 1, Pile 7	1		SEE SUBSTRUCTURE PLANS	15								1366.50	5	1
End Bent 2, Piles 1-2	2		SEE SUBSTRUCTURE PLANS	15								1365.00	3	7
End Bent 2, Piles 3-5	3		SEE SUBSTRUCTURE PLANS	15								1365.00	2.5	7.5
End Bent 2, Piles 6-7	2		SEE SUBSTRUCTURE PLANS	15								1365.00	2	8
TOTAL QUANTITY:													46.5	84.5

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

** 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.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1, Piles 1-7	140			0.60		
End Bent 2, Piles 1-7	140			0.60		

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

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent 1, Piles 1-7				
End Bent 2, Piles 1-7				
TOTAL QUANTITY:				

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
End Bent 1		
End Bent 2		
TOTAL QUANTITY:		

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT

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

NOTES:

- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Abner F. Riggs, Jr., #014155) on 12-26-2025.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
- The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 - L -**

DRAWN BY :	J. PENDERGRAFT	DATE :	2-26
CHECKED BY :	T. KOCH	DATE :	2-26
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

4/29/2026

NORTH CAROLINA

PROFESSIONAL

SEAL

15431

ENGINEER

THOMAS K. KOCH

Signed by:

Thomas K. Koch

AA47D984D677442...

ETHERILL

ENGINEERING

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Raleigh, N.C. 27606
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Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA

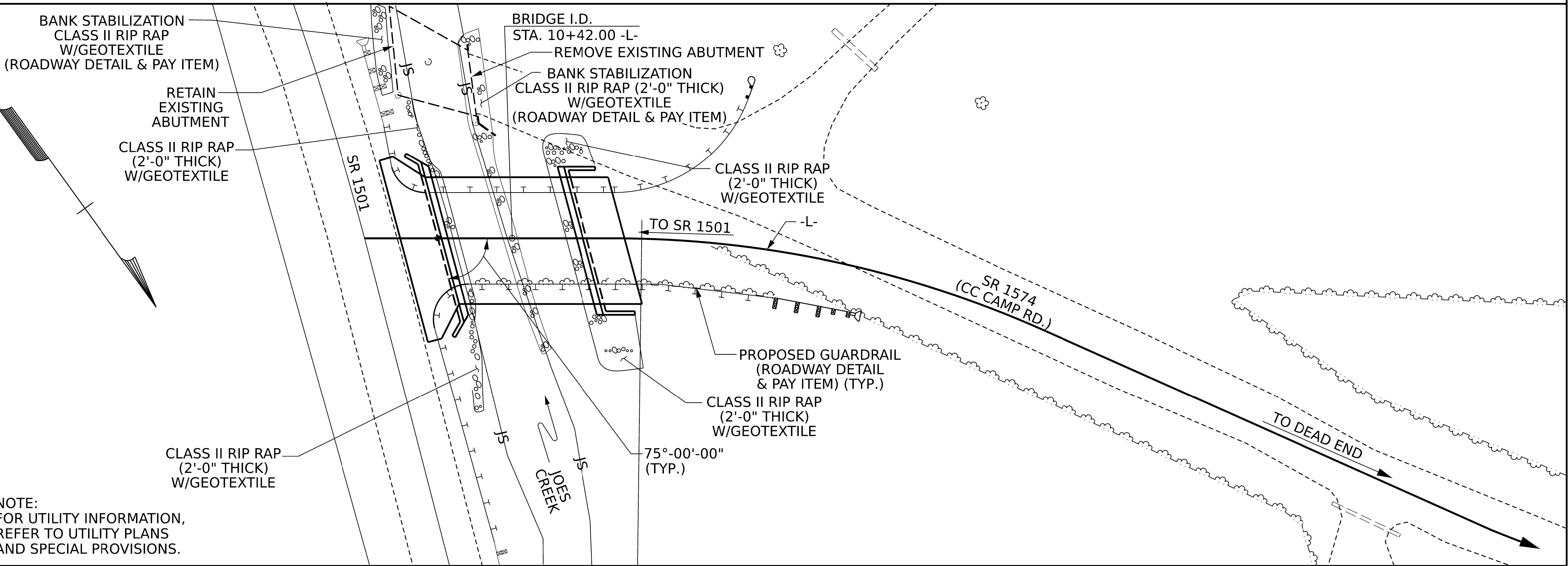
DEPARTMENT OF TRANSPORTATION

RALEIGH

PILE FOUNDATION TABLE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-02
1			3			TOTAL SHEETS
2			4			21

BM-1: BENCH-TIE NAIL SET IN 15" OAK 24' LEFT -L- STA. 15+34, EL. 1387.56; N 863440, E 1252434



LOCATION SKETCH

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FILL HOLES FOR PILE EXCAVATION AT END BENT No. 1 AND END BENT No. 2 WITH CONCRETE.

SAMPLE BAR REPLACEMENT

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

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

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE @ STA. 10+42	ASBESTOS ASSESSMENT	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	CONCRETE WATERPROOFING MEMBRANE- CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LUMP SUM	SQ. FT.	SQ. FT.	SQ. FT.
SUPERSTRUCTURE						1440	1440	1826
END BENT 1			32.0	29.0				
END BENT 2			52.5	17.5				
TOTAL	LUMP SUM	LUMP SUM	84.5	46.5	LUMP SUM	1440	1440	1826

	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 x 53 STEEL PILES	HP 12 x 53 STEEL PILES		T631LS TRAFFIC RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-6" PRESTRESSED CONCRETE CORED SLABS	
	CU. YDS.	LUMP SUM	LBS.	EA.	No.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	No.	LIN. FT.
SUPERSTRUCTURE		LUMP SUM					84.1			LUMP SUM	12	480.00
END BENT 1	29.9		3641	7	7	105		48	53			
END BENT 2	23.0		2757	7	7	105		66	72			
TOTAL	52.9	LUMP SUM	6398	14	14	210	84.1	114	125	LUMP SUM	12	480.00

DRAWN BY : J. PENDERGRAFT DATE : 2-26
CHECKED BY : J. DILWORTH DATE : 2-26
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE CONSISTS OF 1 SPAN @ 27.0' WITH A CLEAR ROADWAY WIDTH OF 15.92' WITH TIMBER DECK ON STEEL I-BEAMS, ON CONCRETE ABUTMENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED, EXCEPT FOR CONCRETE ABUTMENT TO BE RETAINED AS SHOWN ON THE PLANS.

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

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO 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 SHALL BE EXCAVATED FOR A DISTANCE OF 50 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH ``HEC 18-EVALUATING SCOUR AT BRIDGES.''

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR ``REMOVAL OF EXISTING STRUCTURE AT STATION 10+42.00 -L-.''

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 360,000 kg OF REINFORCING STEEL, ONE 30" SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 360,000 kg OF REINFORCING STEEL, TWO 30" SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

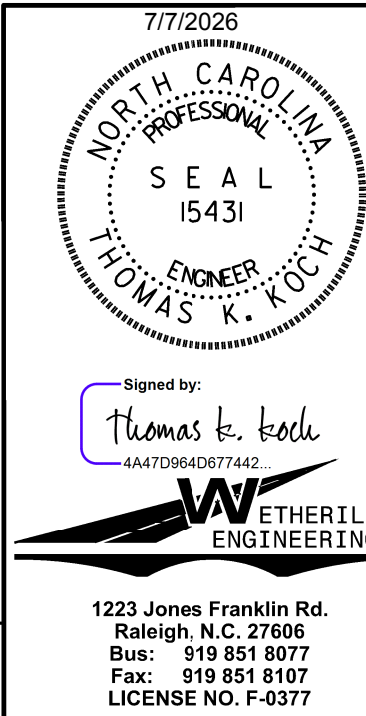
FOR CONCRETE WATERPROOFING MEMBRANE- CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

PROJECT NO. HB-0061

CALDWELL COUNTY

STATION: 10+42.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER
JOES CREEK ON SR 1574
BETWEEN SR 1501 AND DEAD END

REVISIONS

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

SHEET NO.

S-03

TOTAL SHEETS
21

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.
2.
3.
4.

CONTROLLING LOAD RATING

1

DESIGN LOAD RATING (HL-93)

2

DESIGN LOAD RATING (HS-20)

3

LEGAL LOAD RATING * *

4

EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 - L -**

4/29/2026

NORTH CAROLINA
PROFESSIONAL
SEAL
15431
ENGINEER
THOMAS K. KOCH

Signed by:

Thomas K. Koch

444708640677442

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Fax: 919 851 8107
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
40' CORED SLAB UNIT
75° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS

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

SHEET NO.
S-04

TOTAL SHEETS
21

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STD. NO. 21LRFR1_75&105S_40L

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																							
LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING Ⓝ	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER	
						LIVE-LOAD FACTORS (γ LL)	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ LL)	MOMENT					
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	Ⓜ1	1.26	--	1.75	0.280	1.57	A	1	19.480	0.630	1.360	A	1	1.270	0.80	0.280	1.260	A	1	19.480	
	HL-93 (OPERATING)	N/A		1.80	--	1.35	0.280	2.030	A	1	19.480	0.630	1.800	A	1	1.270	N/A	--	--	--	--	--	
	HS-20 (INVENTORY)	36.000	Ⓜ2	1.58	56.880	1.75	0.280	1.960	A	1	19.480	0.630	1.610	A	1	1.270	0.80	0.280	1.580	A	1	19.480	
	HS-20 (OPERATING)	36.000		2.13	76.680	1.35	0.280	2.540	A	1	19.480	0.630	2.130	A	1	1.270	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH		2.93	39.555	1.4	0.280	4.530	A	1	19.480	0.630	4.550	A	1	1.270	0.80	0.280	2.930	A	1	19.480	
		SNGARBS2		2.43	48.600	1.4	0.280	3.760	A	1	19.480	0.630	3.350	A	1	1.270	0.80	0.280	2.430	A	1	19.480	
		SNAGRIS2		2.41	53.020	1.4	0.280	3.670	A	1	19.480	0.630	3.160	A	1	1.270	0.80	0.280	2.410	A	1	19.480	
		SNCOTTS3		1.46	39.785	1.4	0.280	2.270	A	1	19.480	0.630	2.220	A	1	1.270	0.80	0.280	1.460	A	1	19.480	
		SNAGGRS4		1.32	46.101	1.4	0.280	2.040	A	1	19.480	0.630	1.920	A	1	1.270	0.80	0.280	1.320	A	1	19.480	
		SNS5A		1.28	45.504	1.4	0.280	1.980	A	1	19.480	0.630	2.010	A	1	1.270	0.80	0.280	1.280	A	1	19.480	
		SNS6A		1.22	48.739	1.4	0.280	1.890	A	1	19.480	0.630	1.870	A	1	1.270	0.80	0.280	1.220	A	1	19.480	
		SNS7B	Ⓜ3	1.16	48.720	1.4	0.280	1.800	A	1	19.480	0.630	1.900	A	1	1.270	0.80	0.280	1.160	A	1	19.480	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3		1.50	49.500	1.4	0.280	2.320	A	1	19.480	0.630	2.220	A	1	1.270	0.80	0.280	1.500	A	1	19.480	
		TNT4A		1.52	50.274	1.4	0.280	2.350	A	1	19.480	0.630	2.100	A	1	1.270	0.80	0.280	1.520	A	1	19.480	
		TNT6A		1.29	53.664	1.4	0.280	2.000	A	1	19.480	0.630	2.050	A	1	1.270	0.80	0.280	1.290	A	1	19.480	
		TNT7A		1.32	55.440	1.4	0.280	2.050	A	1	19.480	0.630	1.890	A	1	1.270	0.80	0.280	1.320	A	1	19.480	
		TNT7B		1.35	56.700	1.4	0.280	2.090	A	1	19.480	0.630	1.800	A	1	1.270	0.80	0.280	1.350	A	1	19.480	
		TNAGRIT4		1.31	56.330	1.4	0.280	2.040	A	1	19.480	0.630	1.730	A	1	1.270	0.80	0.280	1.310	A	1	19.480	
		TNAGT5A		1.22	54.900	1.4	0.280	1.880	A	1	19.480	0.630	1.800	A	1	1.270	0.80	0.280	1.220	A	1	19.480	
		TNAGT5B		1.18	53.100	1.4	0.280	1.830	A	1	19.480	0.630	1.630	A	1	1.270	0.80	0.280	1.180	A	1	19.480	
EMERGENCY VEHICLE (EV)	EV2	28.750		1.76	50.600	1.3	0.280	2.900	A	1	19.480	0.630	2.520	A	1	1.270	0.80	0.280	1.760	A	1	19.480	
	EV3	43.000	Ⓜ4	1.12	48.160	1.3	0.280	1.870	A	1	19.480	0.630	1.670	A	1	1.270	0.80	0.280	1.120	A	1	19.480	

1

2

3

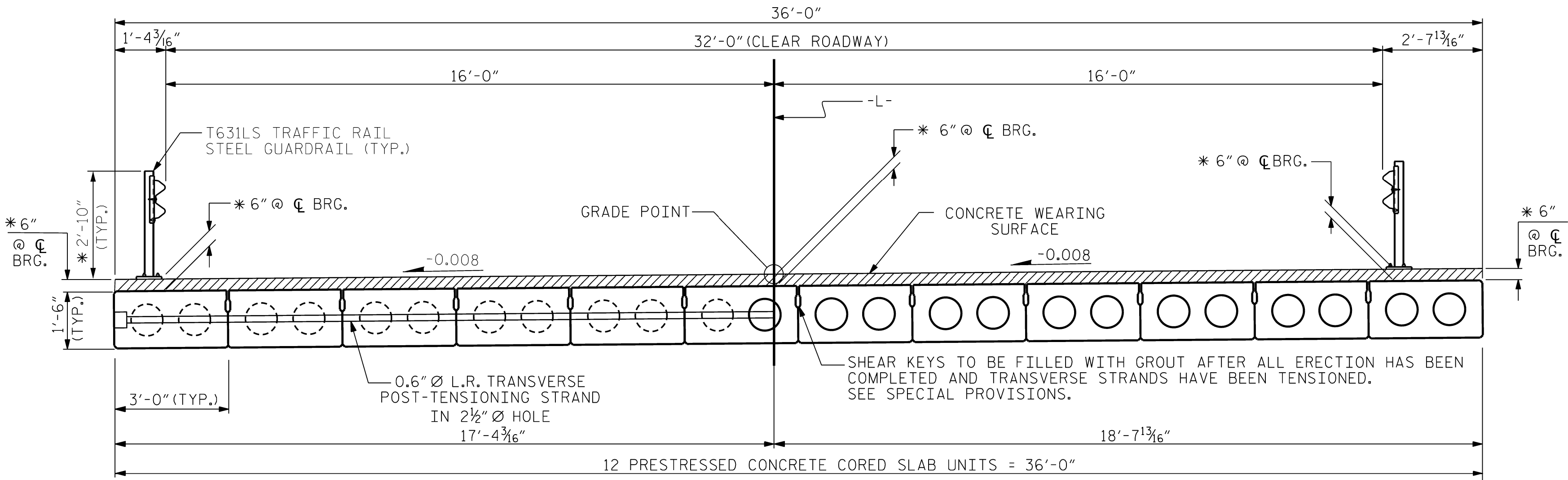
4

LRFR SUMMARY

FOR SPAN " A "

DRAWN BY :	J. PENDERGRAFT	DATE :	2-26
CHECKED BY :	T. KOCH	DATE :	2-26
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

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4/29/2026 3:17:51 PM



HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

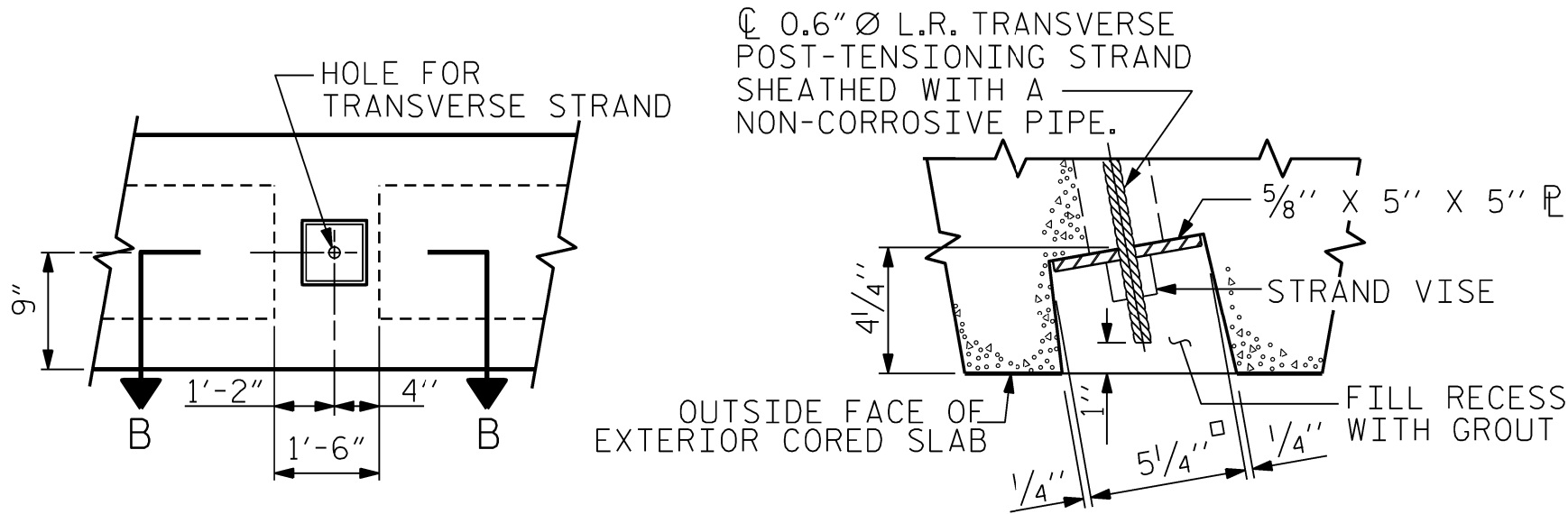
TYPICAL SECTION

HALF SECTION
THROUGH VOIDS

* THE STEEL GUARDRAIL HEIGHT AND MAXIMUM CONCRETE WEARING SURFACE THICKNESS IS SHOWN. THE CONCRETE WEARING SURFACE THICKNESS VARIES WHILE THE TOP OF THE STEEL GUARDRAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. (SEE TABLE)

EXTERIOR CORED SLAB UNITS WILL BE ANCHORED TO THE SUBSTRUCTURE WITH HOLD-DOWN ANCHOR BOLTS. (SEE DETAILS SHEET 2 OF 4)

CONCRETE WEARING SURFACE THICKNESS AT CENTERLINE BEARING			
	LEFT EDGE OF DECK	-L- LINE	RIGHT EDGE OF DECK
END BENT 1	6"	6"	6"
END BENT 2	6"	6"	6"
CONCRETE WEARING SURFACE THICKNESS AT MID-SPAN			
	LEFT EDGE OF DECK	-L- LINE	RIGHT EDGE OF DECK
SPAN A	5 1/4"	5 1/4"	5 1/4"

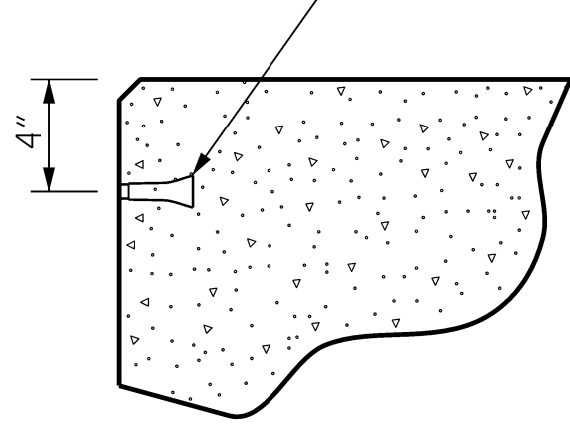


ELEVATION VIEW

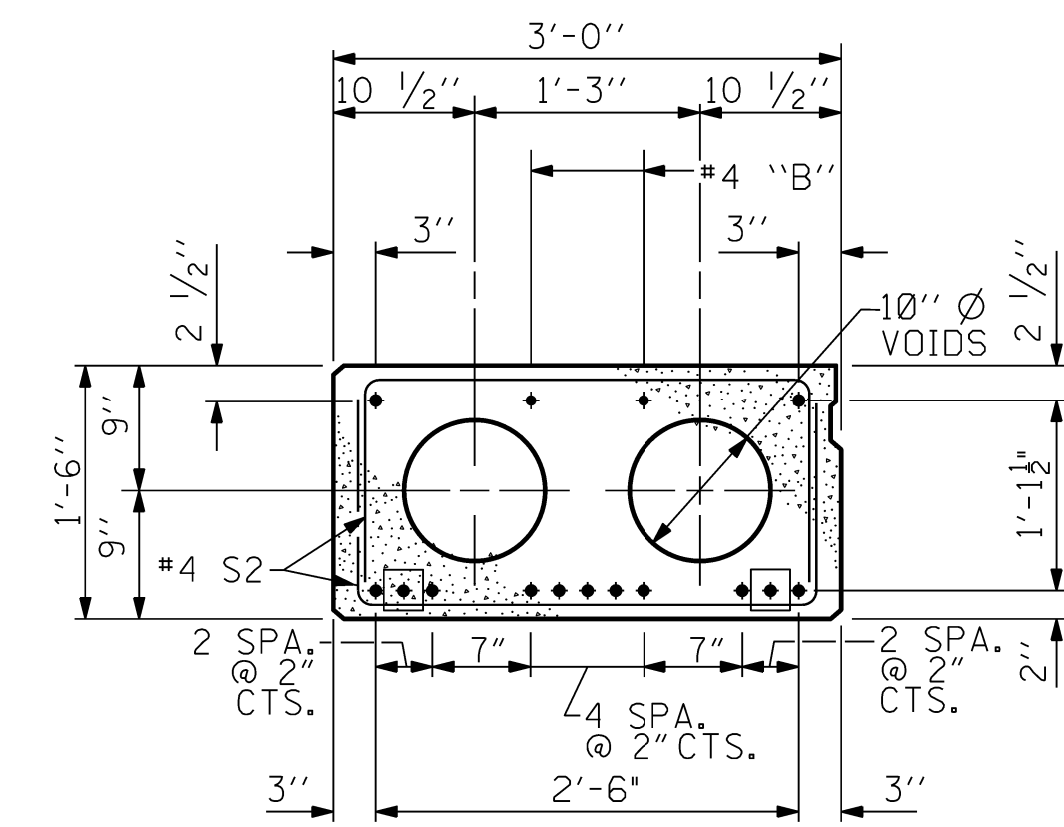
SECTION B-B

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

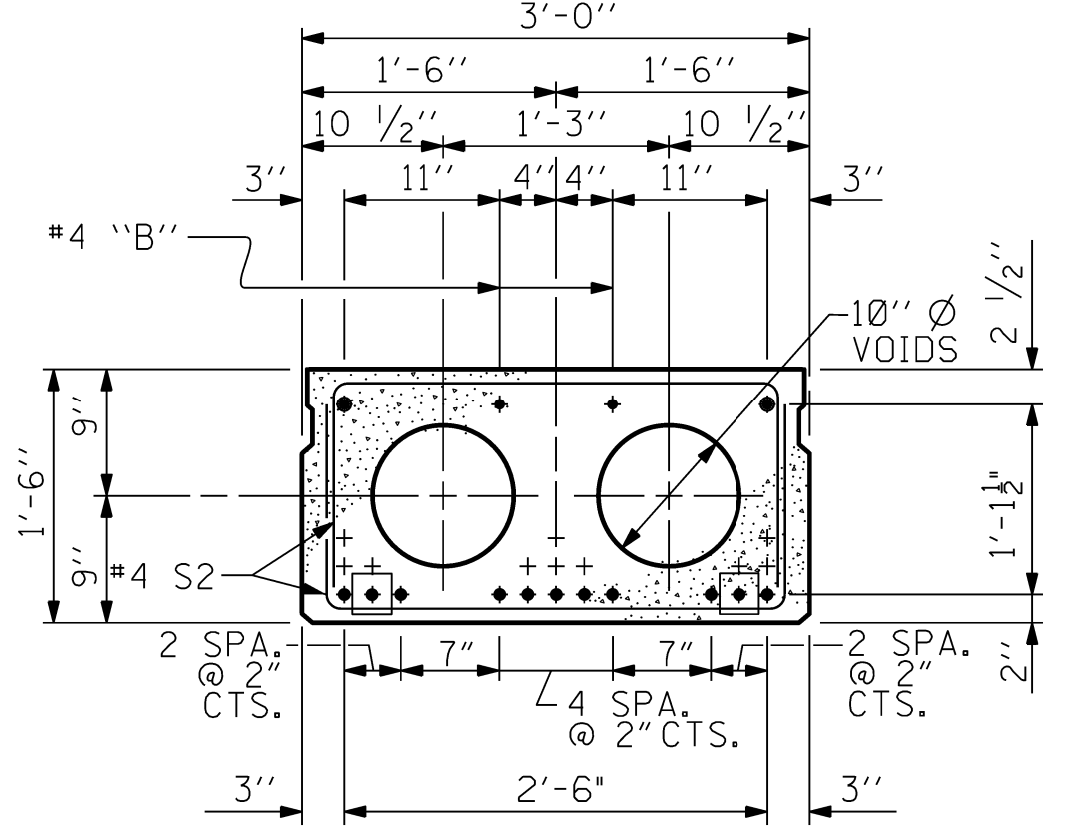
PERMITTED THREADED INSERT
CAST IN OUTSIDE FACE OF
EXTERIOR UNIT AND
RECESSED 3/8" SIZE TO BE
DETERMINED BY
CONTRACTOR.



THREADED INSERT DETAIL



EXTERIOR SLAB SECTION
40'-0" UNIT



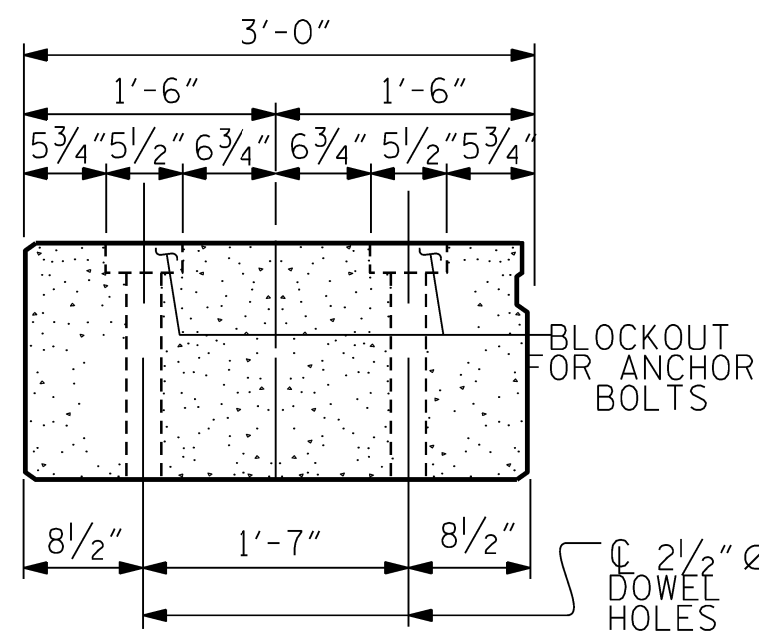
INTERIOR SLAB SECTION
40'-0" UNIT

(13 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION
STRAND LAYOUT

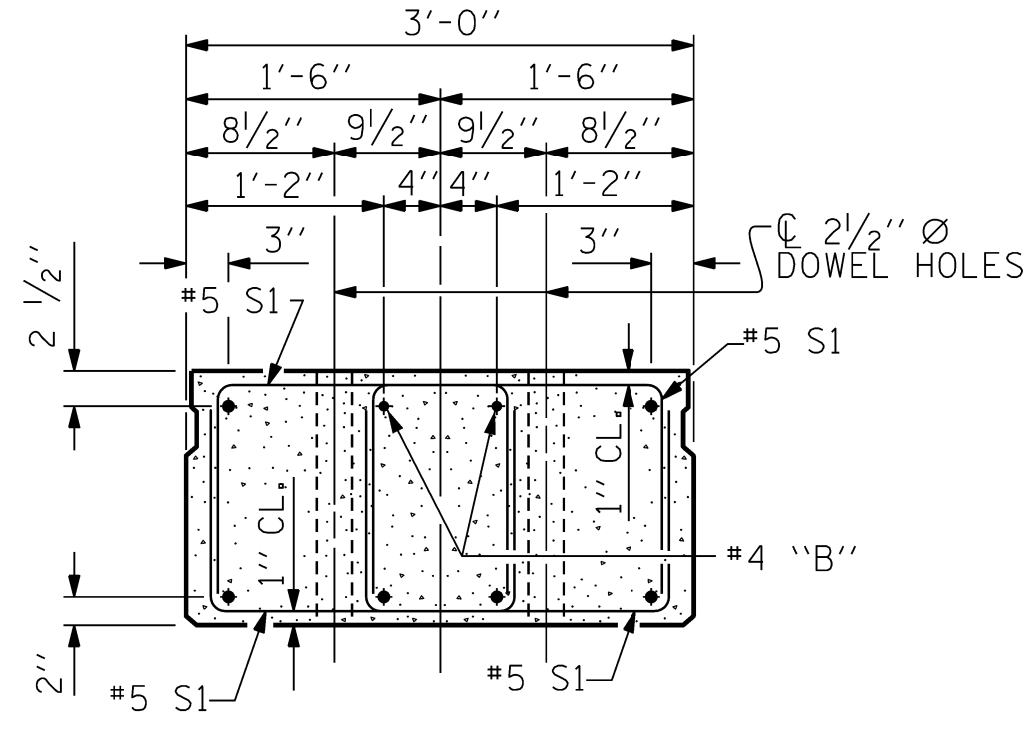
BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



END ELEVATION

SHOWING LOCATION OF BLOCKOUT FOR ANCHOR BOLTS AND DOWEL HOLES. EXTERIOR SLAB UNITS ONLY.



END ELEVATION

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

PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 -L-**

SHEET 1 OF 4

DRAWN BY : J. PENDERGRAFT DATE : 6-25
CHECKED BY : J. DILWORTH DATE : 6-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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4/29/2026

NORTH CAROLINA
PROFESSIONAL
SEAL
15431
ENGINEER
THOMAS K. KOCH

Signed by:
Thomas K. Koch
4AAT0964D877442

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1223 Jones Franklin Rd.
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT

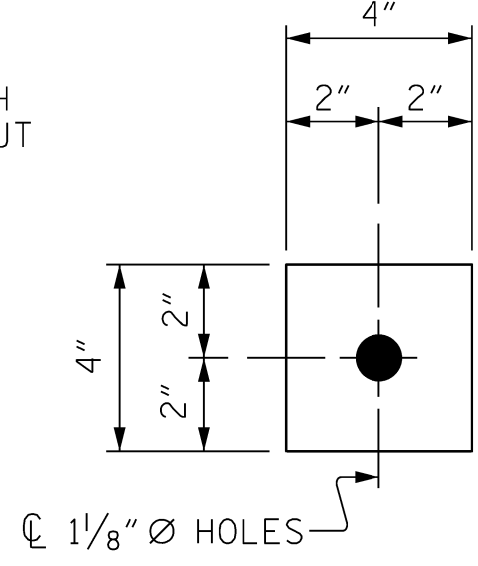
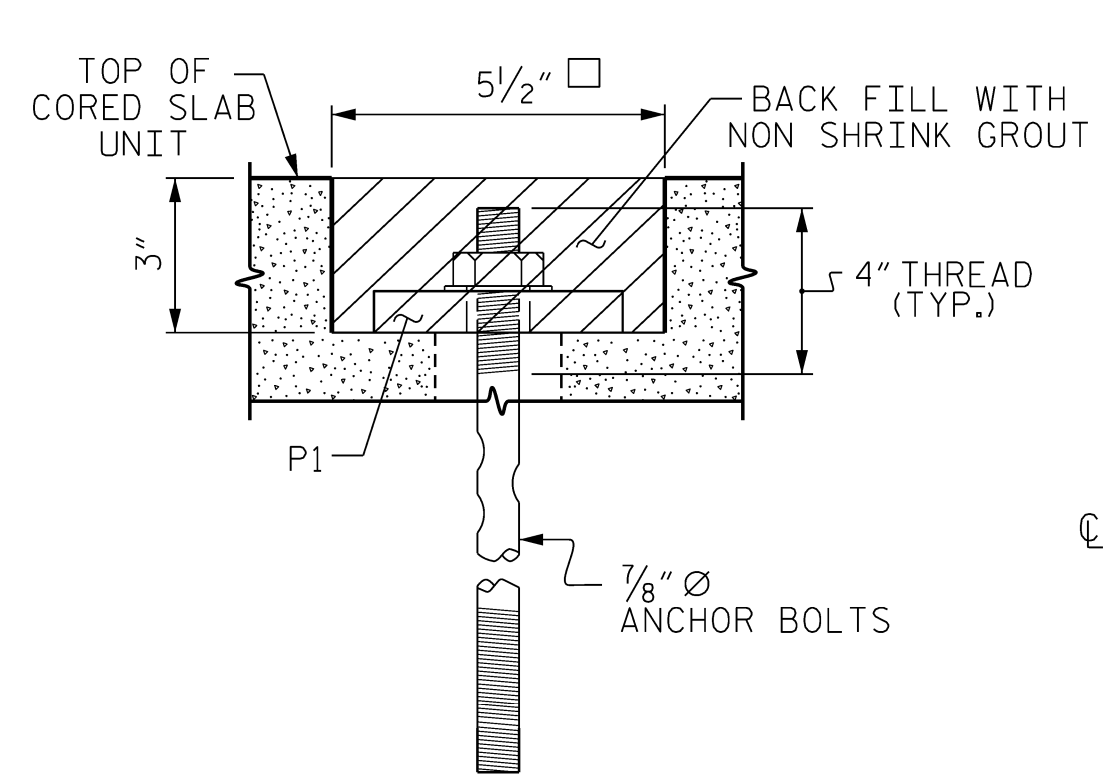
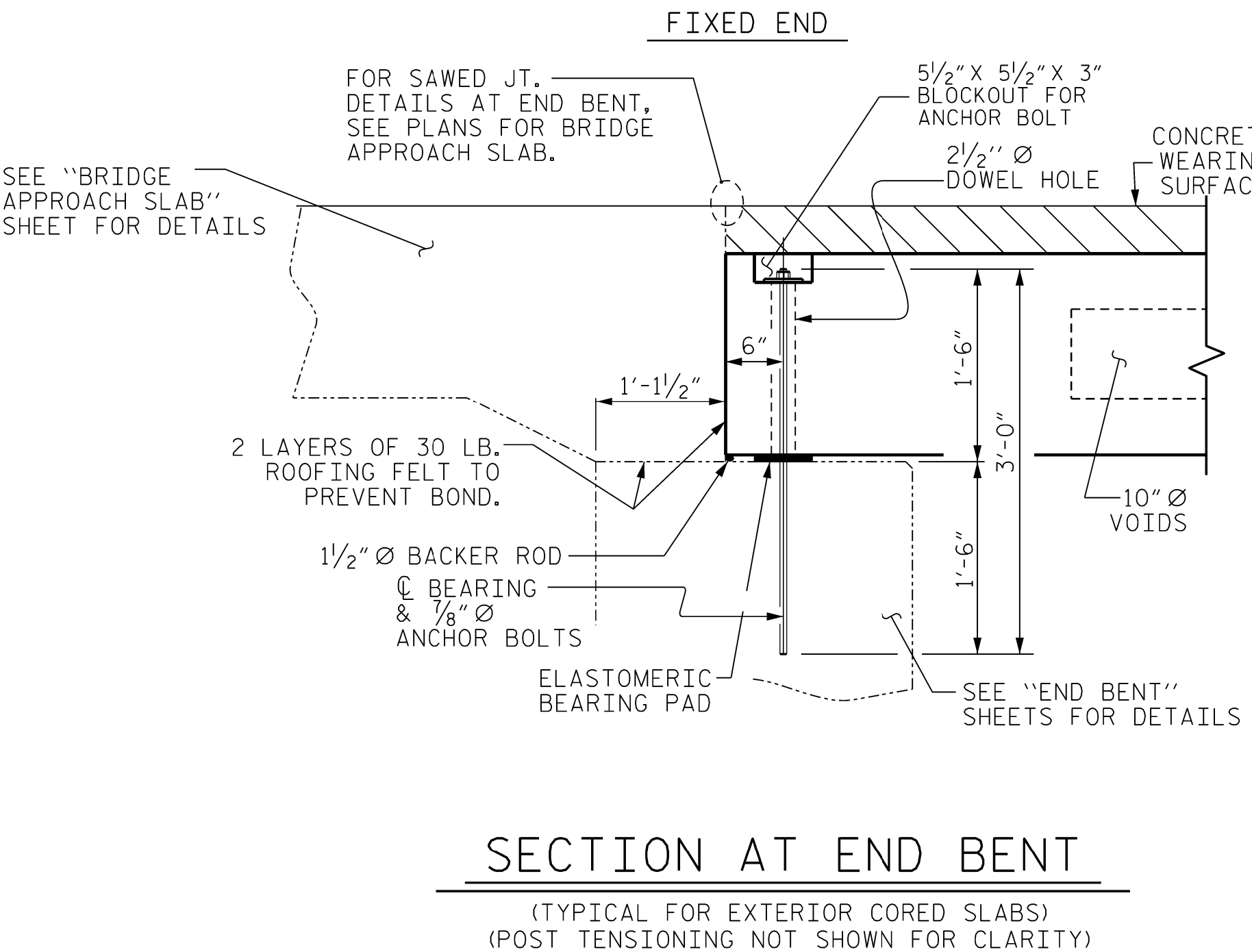
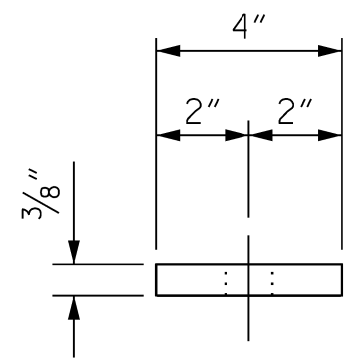
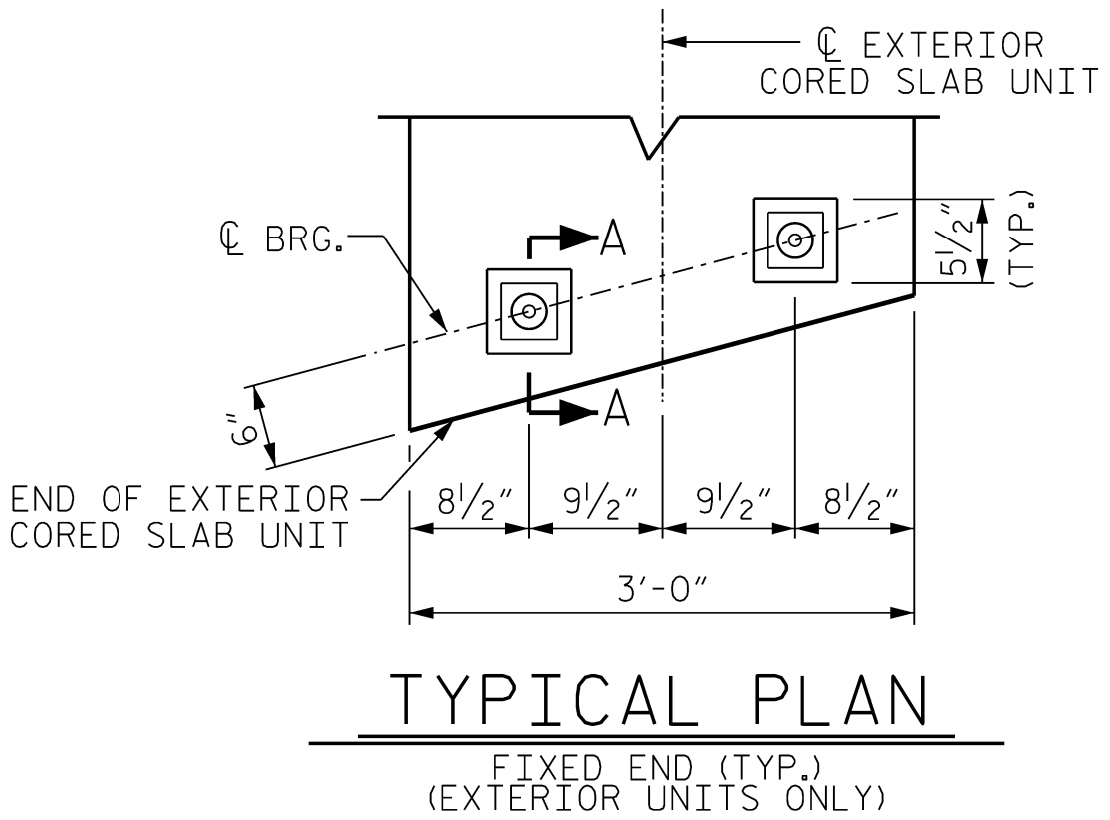
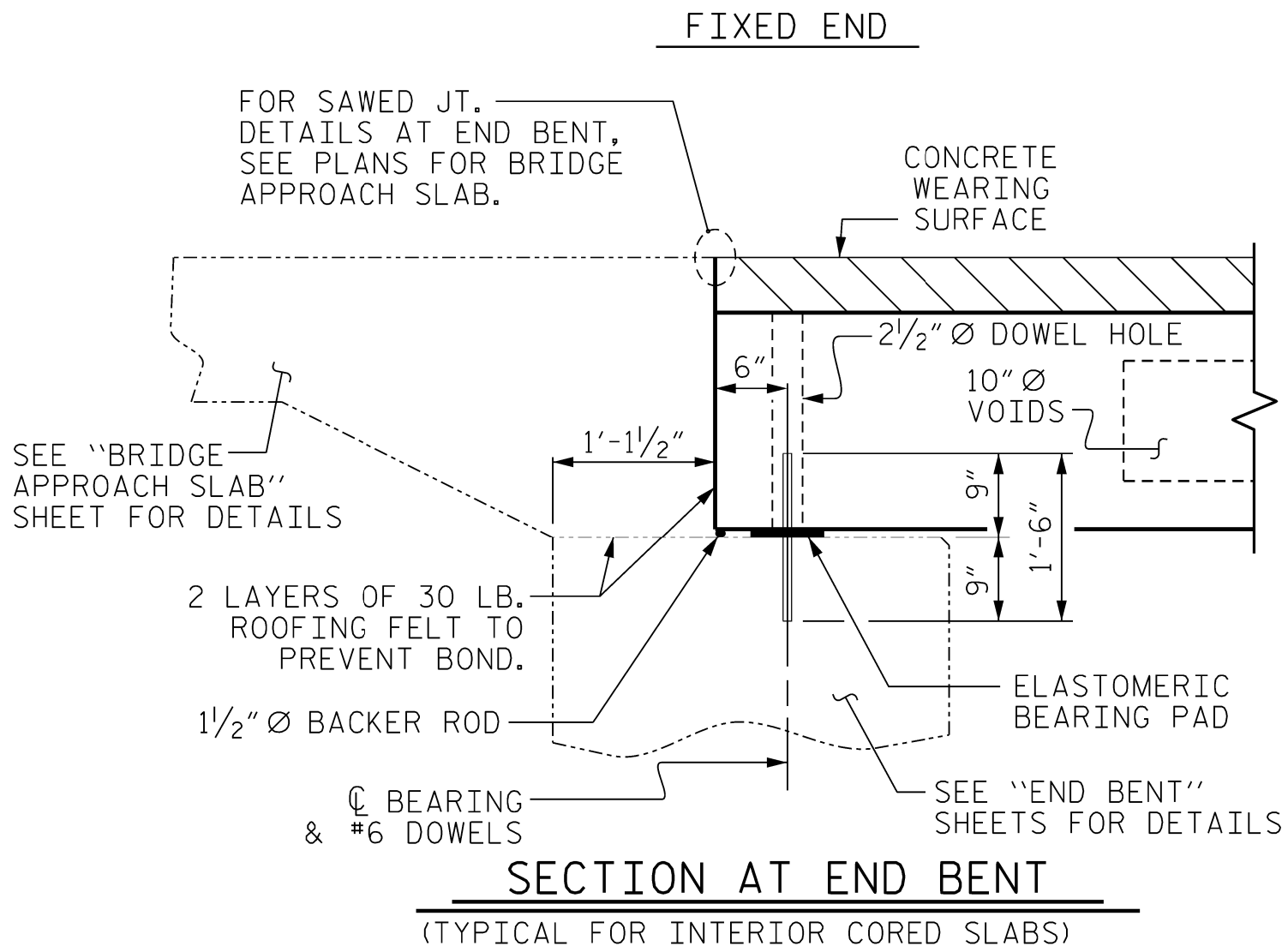
REVISIONS						SHEET NO. S-05
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			

NOTES:

AT ALL FIXED ENDS OF EXTERIOR CORED SLAB SECTIONS WITH HOLD-DOWN ANCHOR BOLTS, NUTS FOR ANCHOR BOLTS SHALL BE FINGER-TIGHTENED AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF EXTERIOR CORED SLAB SECTIONS WITH HOLD-DOWN ANCHOR BOLTS SHALL BE FILLED WITH NON-SHRINK GROUT TO THE BOTTOM OF THE ANCHOR BOLT BLOCKOUT PRIOR TO INSTALLING THE ANCHOR PLATES, WASHERS, AND NUTS.

THE ANCHOR BOLT BLOCKOUTS IN EXTERIOR CORED SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT PRIOR TO PLACEMENT OF THE WEARING SURFACE.



BLOCKOUT DETAIL FOR ANCHOR BOLTS
(TYPICAL FOR EXTERIOR CORED SLABS)
(POST TENSIONING NOT SHOWN FOR CLARITY)

PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 -L-**

SHEET 2 OF 4

DRAWN BY :	J. PENDERGRAFT	DATE :	6-25
CHECKED BY :	J. DILWORTH	DATE :	6-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

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4/29/2026

NORTH CAROLINA
PROFESSIONAL
SEAL
15431
ENGINEER
THOMAS K. KOCH

Signed by:
Thomas K. Koch
4A47D984D677442

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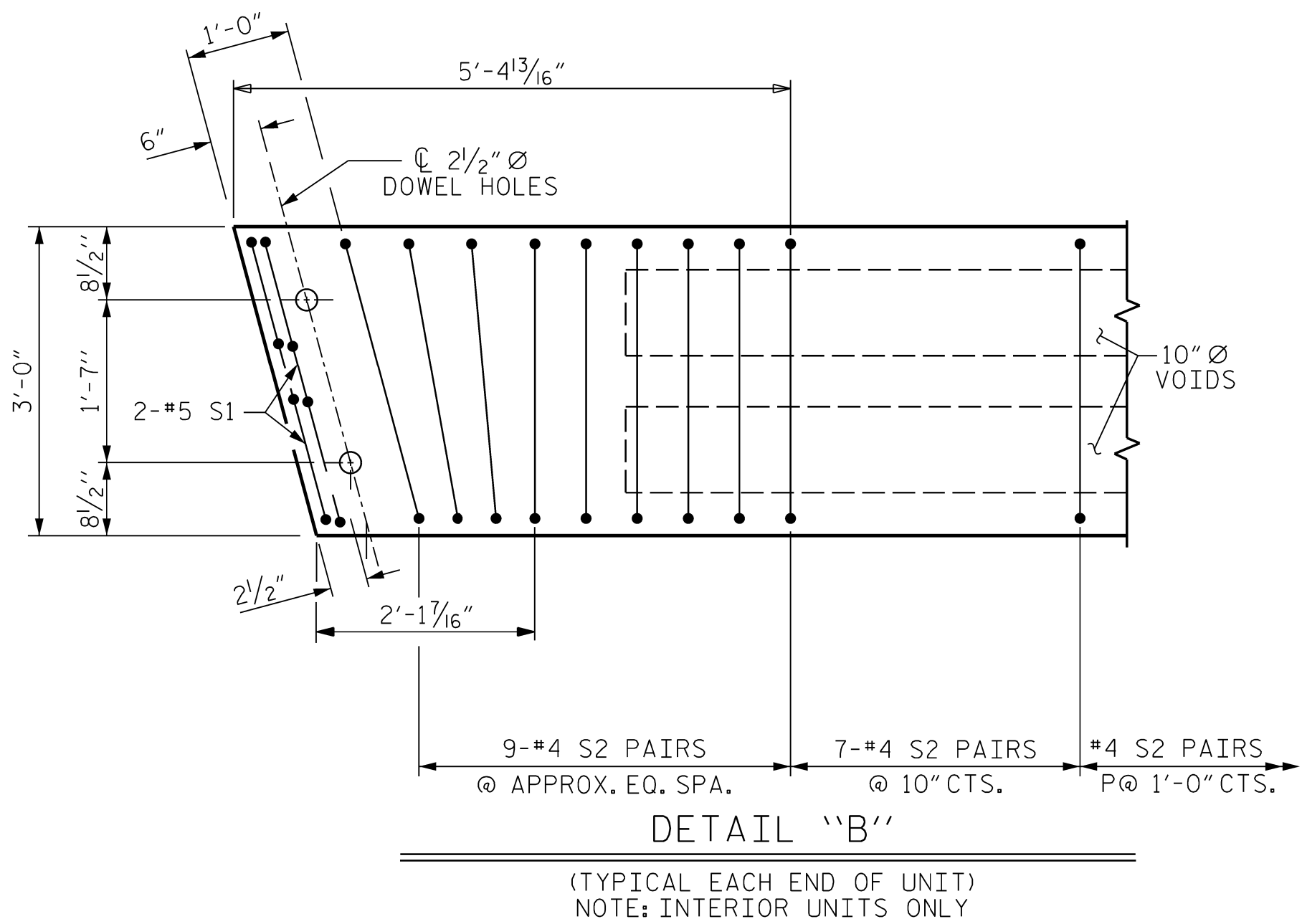
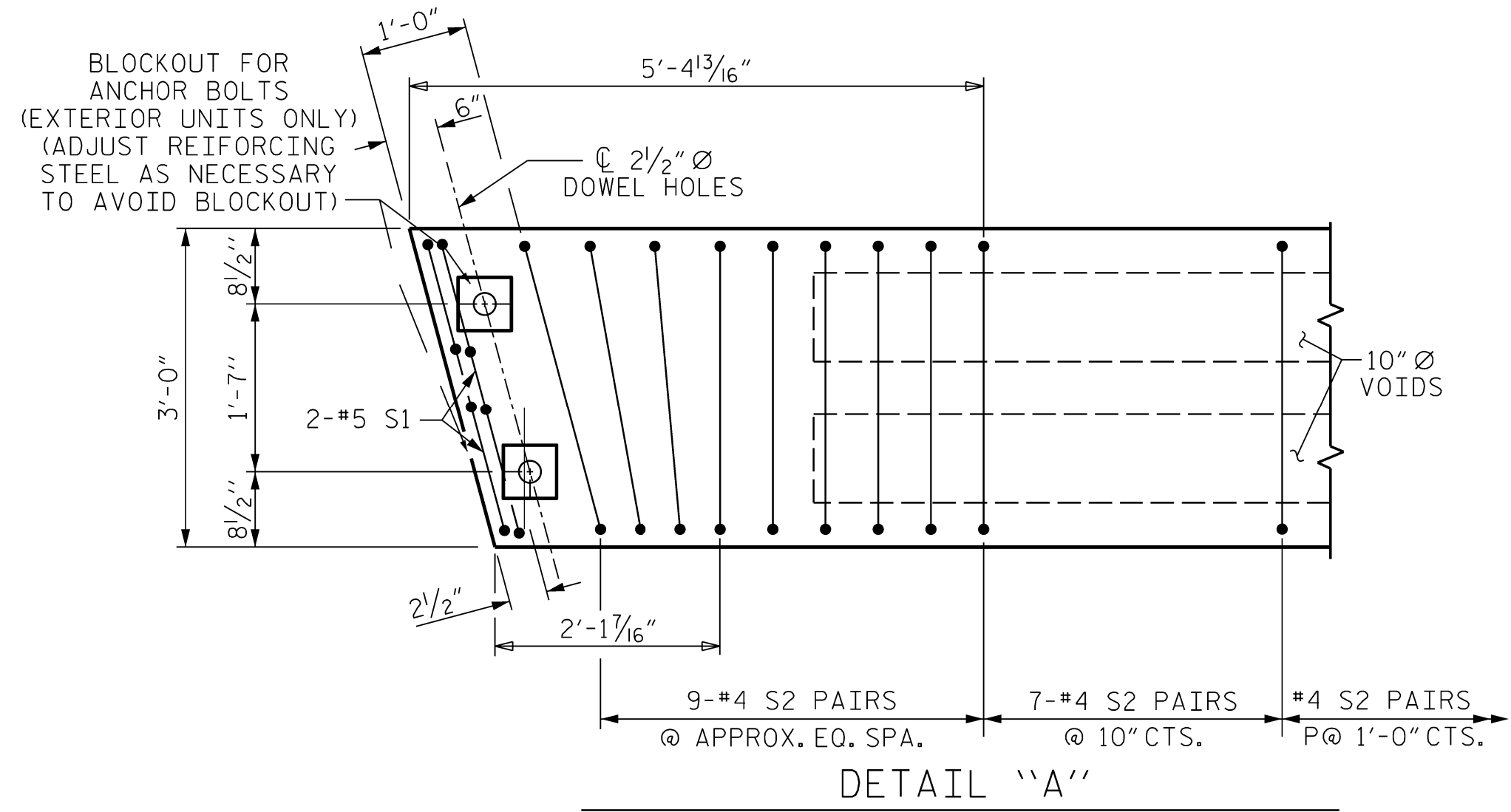
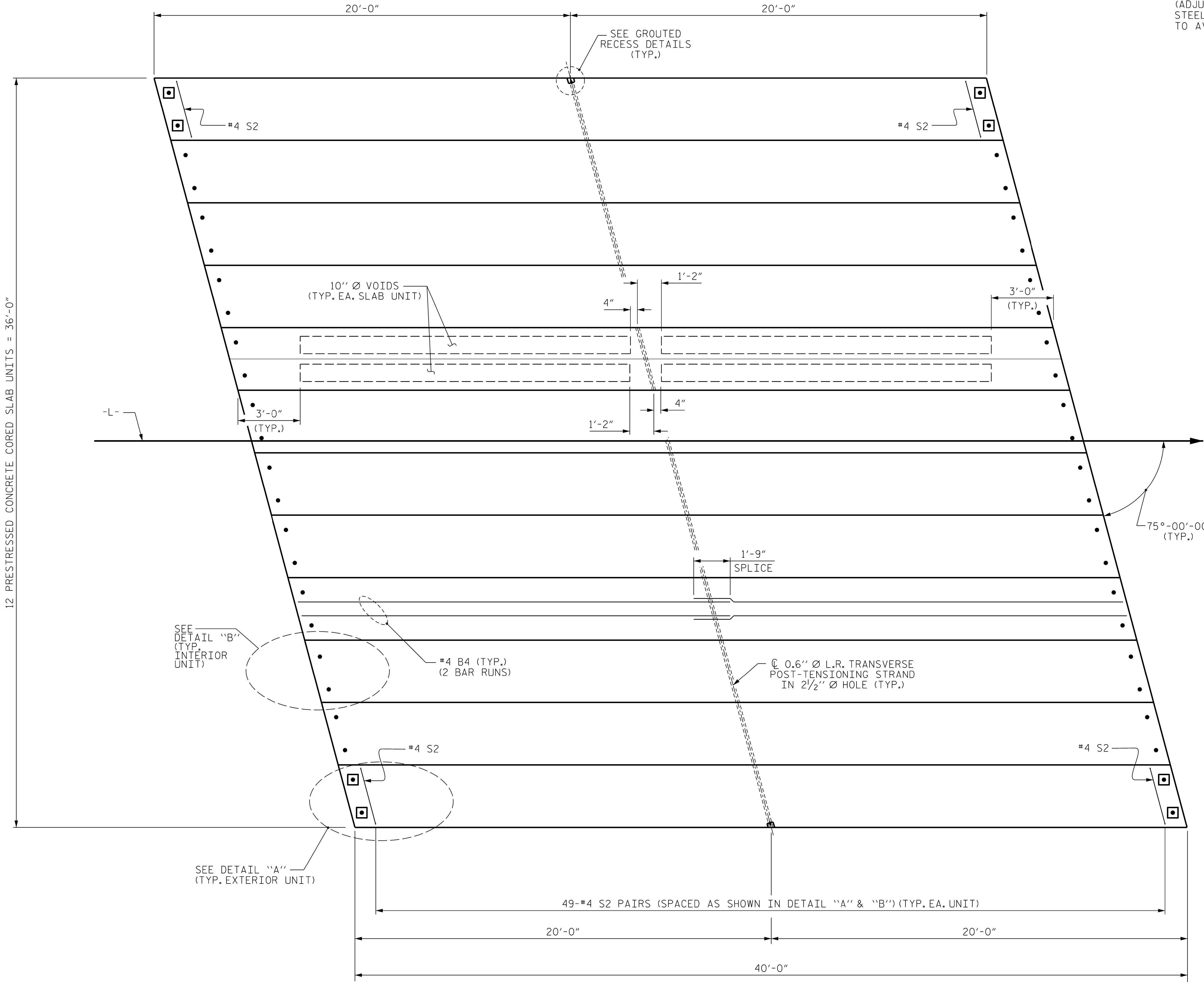
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-06
1			3			TOTAL SHEETS
2			4			21

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PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 -L-**
SHEET 3 OF 4

DRAWN BY : J. PENDERGRAFT DATE : 6-25
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DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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NORTH CAROLINA
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THOMAS K. KOCH

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SPAN A
PLAN OF UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-07
1			3			TOTAL SHEETS
2			4			21

BILL OF MATERIAL FOR ONE 40' CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B4	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	3'-9"	31	3'-9"	31
S2	98	#4	3	4'-10"	316	4'-10"	316
REINFORCING STEEL				LBS.		402	
6000 P.S.I. CONCRETE				CU. YDS.		5.3	
0.6" Ø L.R. STRANDS				No.		13	

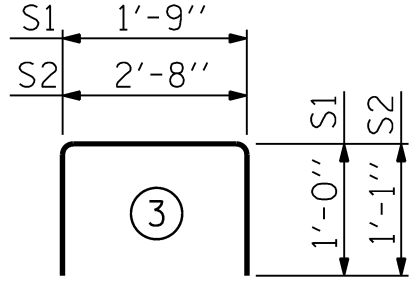
CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
40' UNIT			
EXTERIOR C.S.	2	40'-0"	80'-0"
INTERIOR C.S.	10	40'-0"	400'-0"
TOTAL	12		480'-0"

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-6"
40' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	15⁄16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	3⁄16" ↓
FINAL CAMBER	3⁄4" ↑

** 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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

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

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

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

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.

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

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

WHEN A CONCRETE WEARING SURFACE IS DETAILED ON THE CORED SLAB BRIDGE TYPICAL SECTION, THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A ⅜" RAKED FINISH.

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 4500 PSI.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

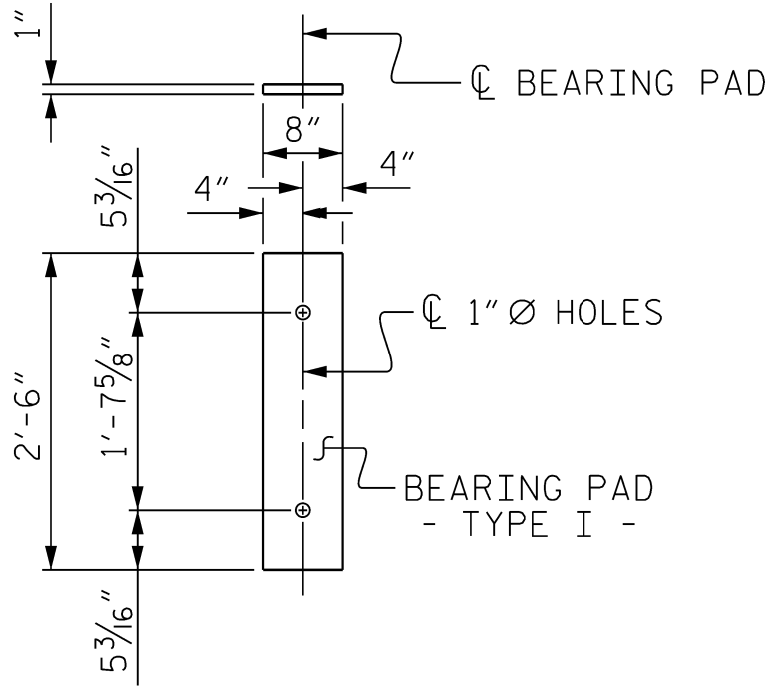
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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.



FIXED END
(TYPE I - 24 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

PROJECT NO. **HB-0061**

CALDWELL COUNTY

STATION: **10+42.00 - L -**

SHEET 4 OF 4

4/29/2026 Signed by: 4A47D984D877442 1223 Jones Franklin Rd. Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107 LICENSE NO. F-0377	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD 3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLAB UNIT 75° SKEW						
	REVISIONS						SHEET NO.
	NO.	BY:	DATE:	NO.	BY:	DATE:	S-08
	1			3			TOTAL SHEETS 21

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STD. NO. 21" PCS3_39_75S

ASSEMBLED BY : J. PENDERGRAFT	DATE : 6-25
CHECKED BY : J. DILWORTH	DATE : 6-25
DESIGN ENGINEER OF RECORD: T. KOCH	DATE : 2-26
DRAWN BY : DGE 5/09	REV. 5/18
CHECKED BY : BCH 6/09	REV. 5/23
	MAA/THC
	BNB/AAI



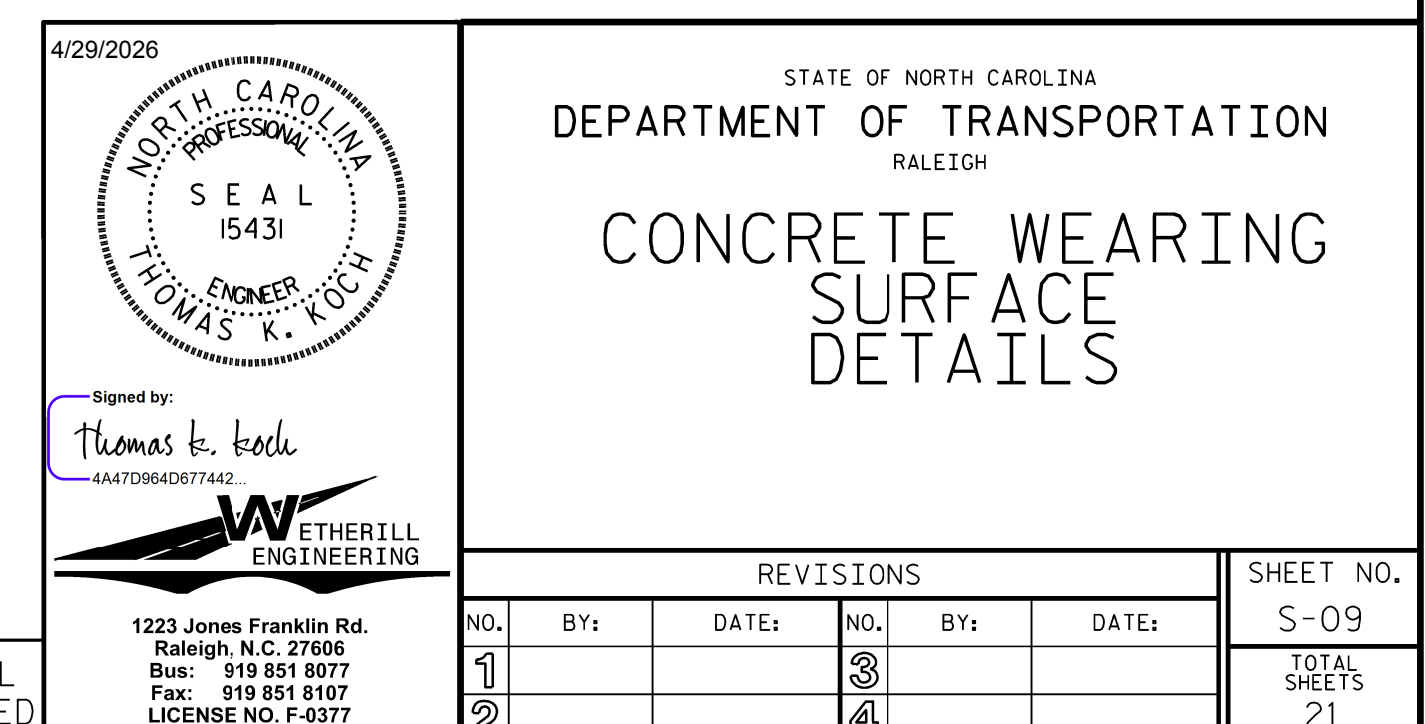
* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

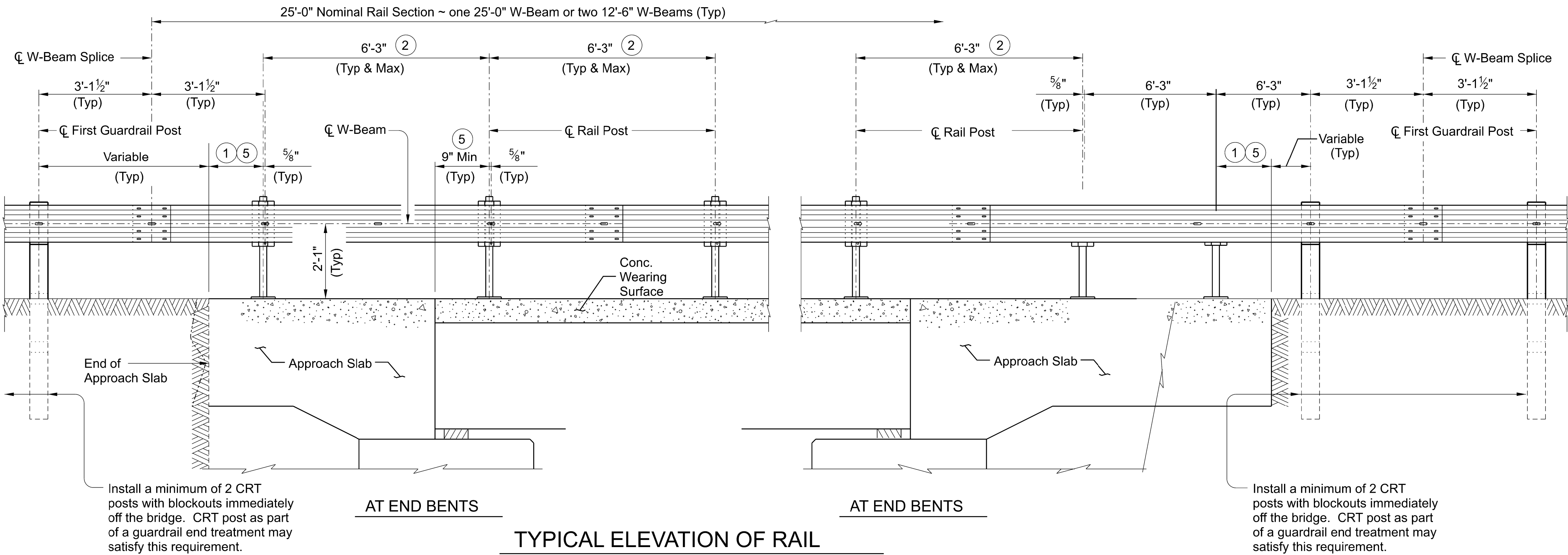
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 DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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GROOVING BRIDGE FLOORS	
APPROACH SLABS	676 SQ.FT.
BRIDGE WEARING SURFACE	1150 SQ.FT.
TOTAL	1826 SQ.FT.

PROJECT NO. HB-0061
CALDWELL COUNTY
 STATION: 10+42.00 - L -



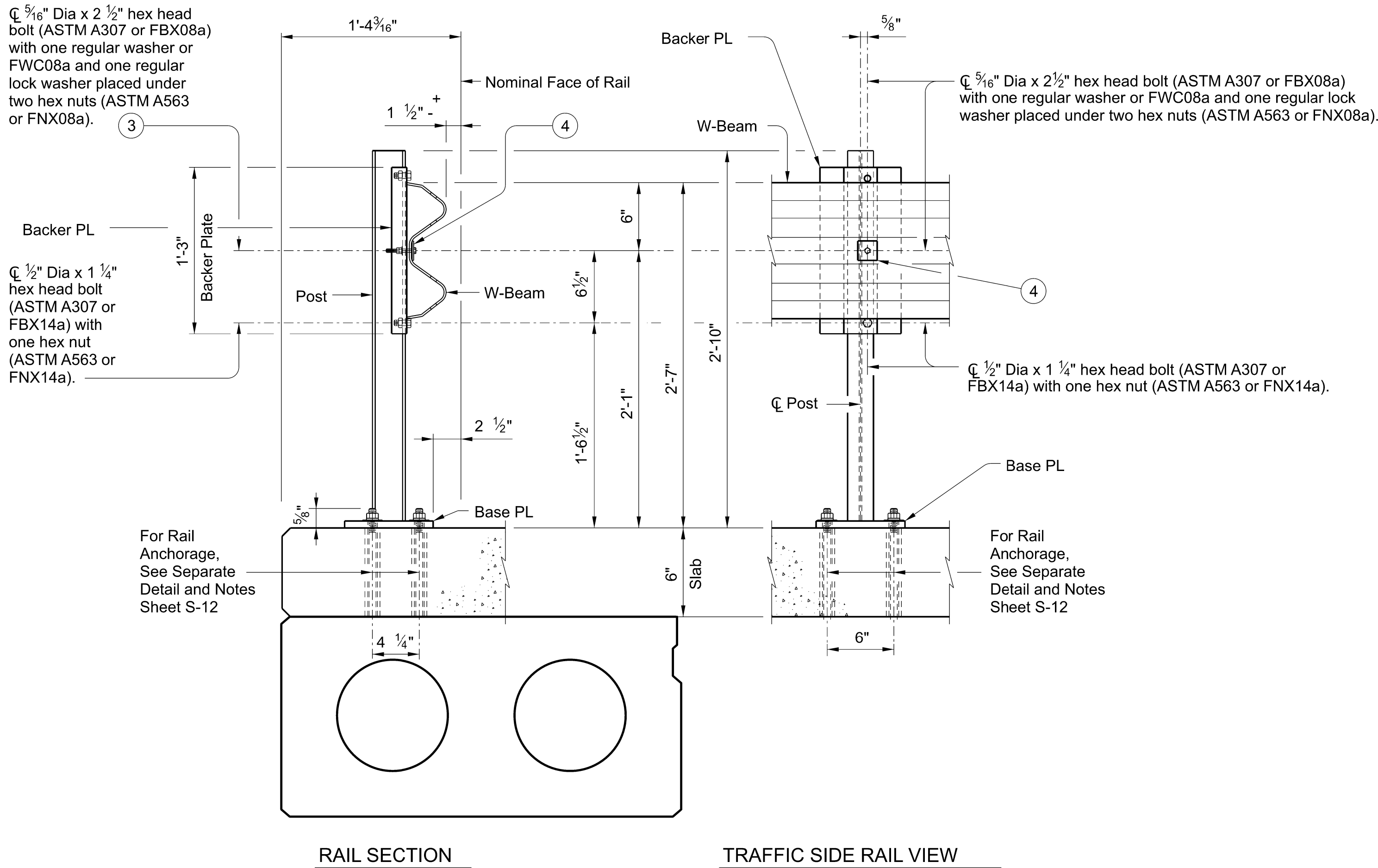


- 1 9" Min, 5'-9" Max
- 2 Maintain 6'-3" Rail Post spacing wherever possible for use with nominal 25'-0" or 12'-6" W-Beam sections. Symmetry of post spacing on both sides and along the structure is not necessary.
- 3 Tighten the first hex nut by hand until the top and bottom edges of the W-Beam engage the Backer Plate (Backer Plate should be snug against the post). Then tighten hex nut one revolution with wrench and secure with the second hex nut.
- 4 PL $\frac{1}{8}$ x 1 $\frac{3}{4}$ x 1 $\frac{3}{4}$ with $\frac{3}{8}$ Dia Hole centered in PL (ASTM A36). Square Guardrail Washer (FWR01).
- 5 The post nearest to a slab joint or end of structure may be shifted up to 9" in order to satisfy the minimum offset dimension. Drill a new $\frac{3}{4}$ " Dia hole on the centerline of W-beam for shifted post. Paint hole with two coats of zinc-rich paint. All other posts must remain on the typical spacing.

The use of this railing is restricted to speeds of 45 mph or less.

T631LS TRAFFIC RAIL = 84.1 LF

NOTE: The structure pay limit for the t631LS traffic rail is limited to the straight length of rail on each side of the deck and approach slabs. Curved lengths, and all lengths not on the bridge or approach slabs, are roadway pay items.



RAIL DETAILS ON BRIDGE SLAB

DRAWN BY : J. PENDERGRAFT DATE : 2-26
CHECKED BY : T. KOCH DATE : 2-26
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 - L -**
SHEET 1 OF 3

4/29/2026

NORTH CAROLINA
PROFESSIONAL
SEAL
15431
ENGINEER
THOMAS K. KOCH

Signed by:
Thomas K. Koch
44470964D877442

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ENGINEERING

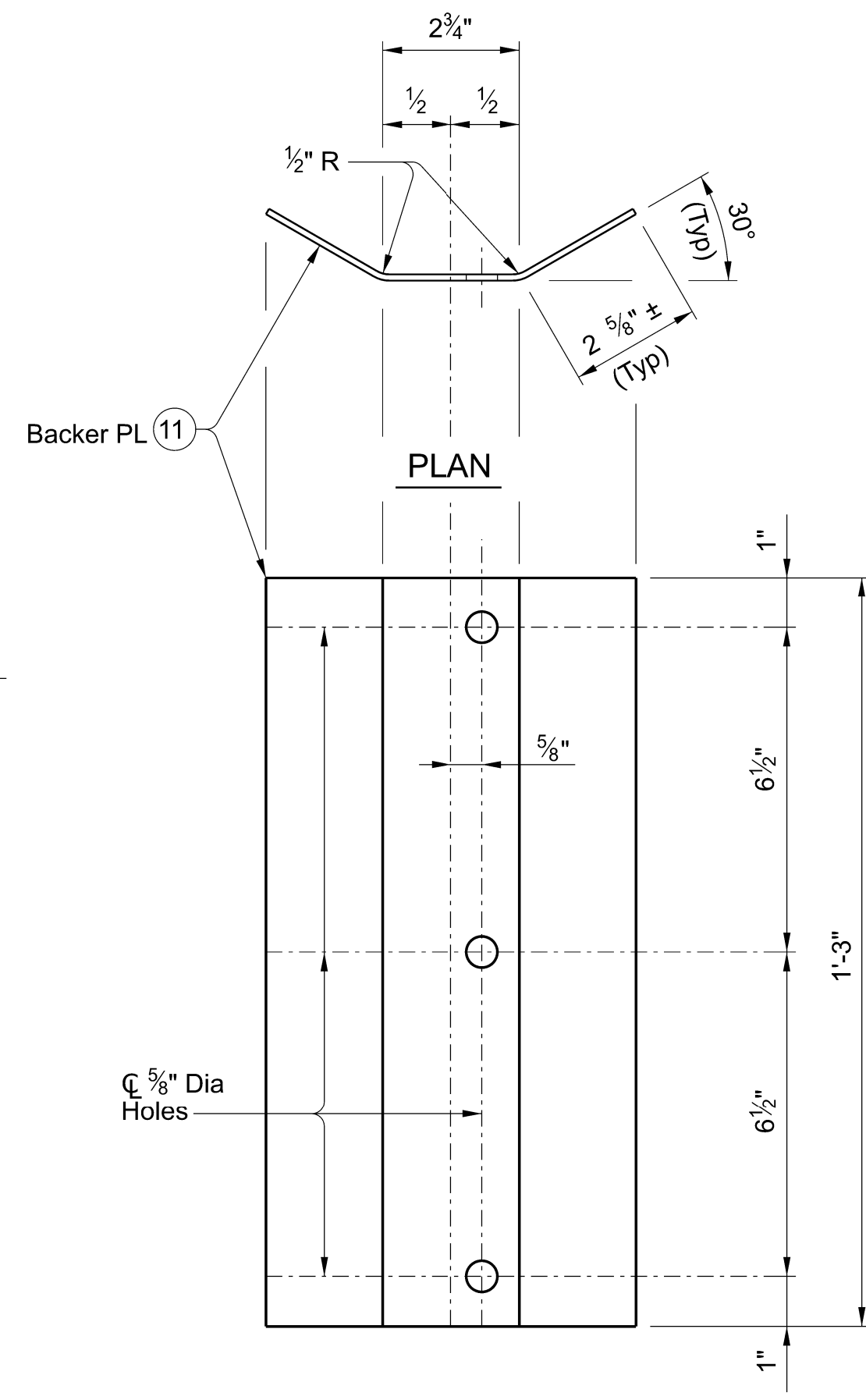
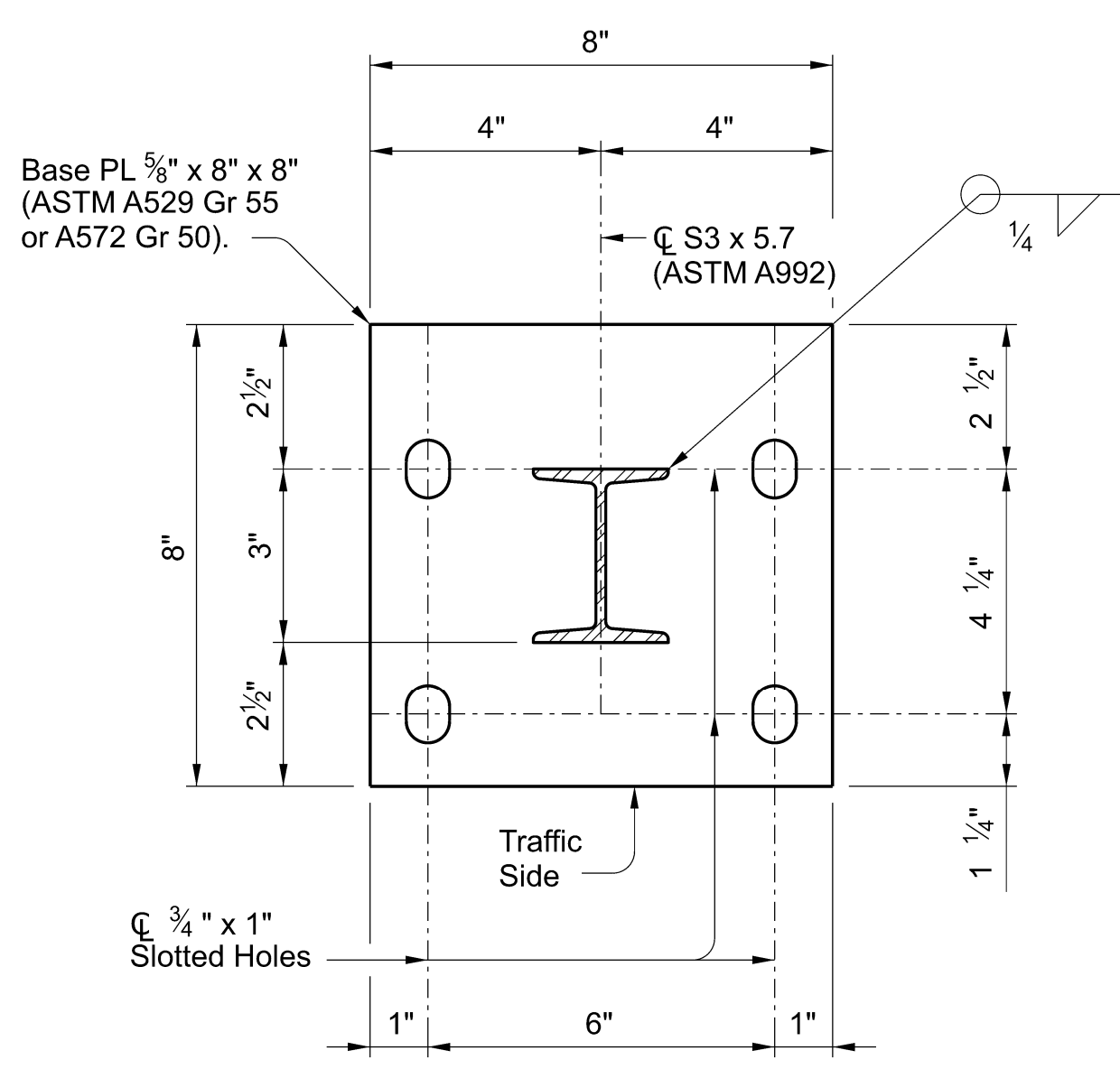
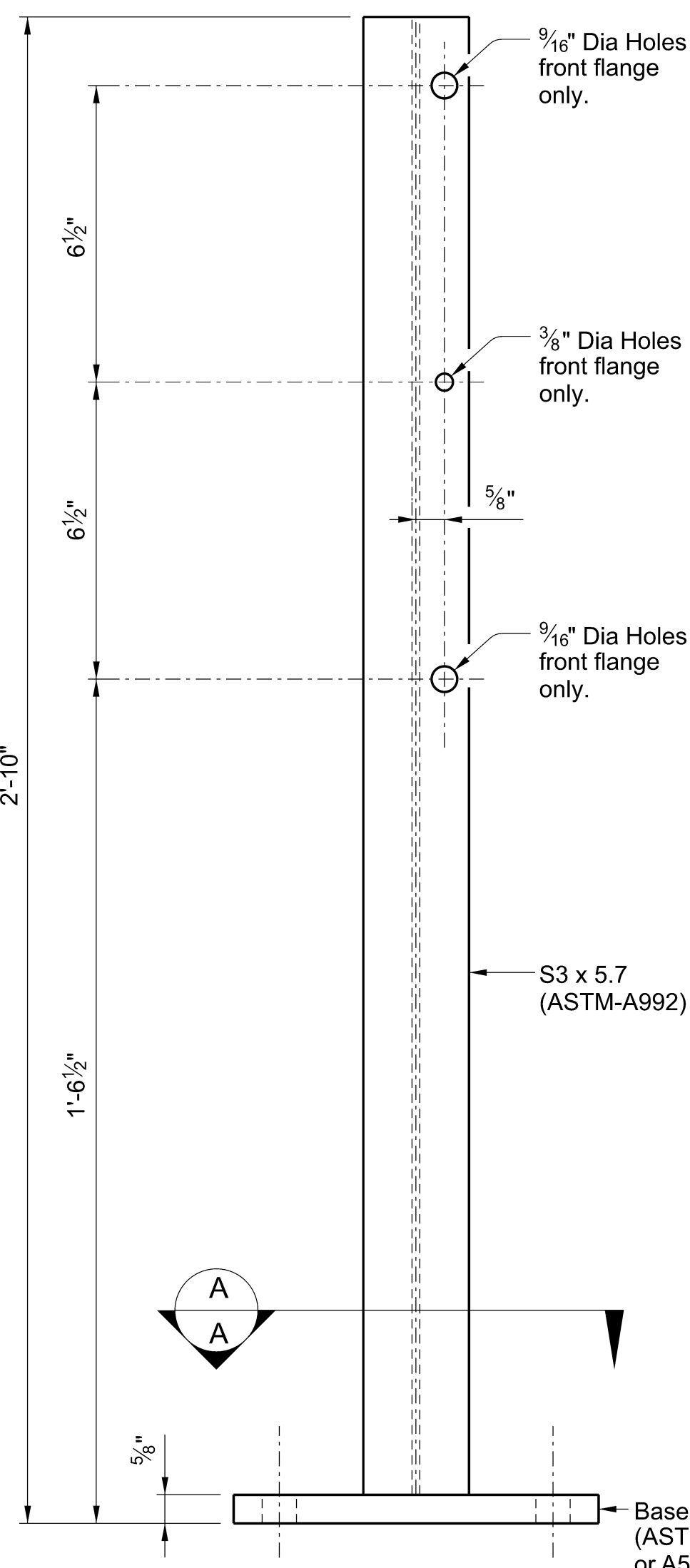
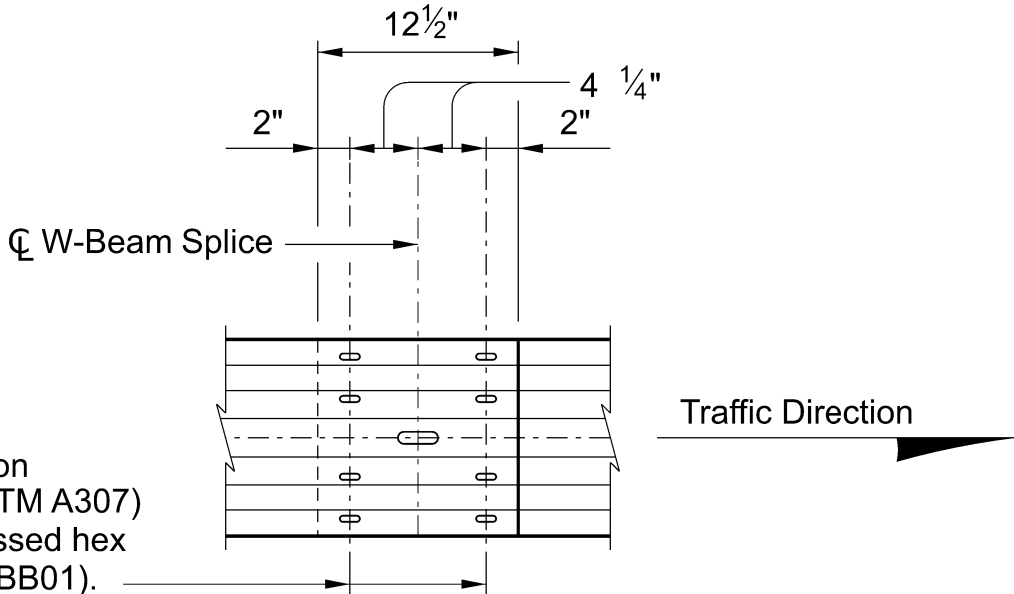
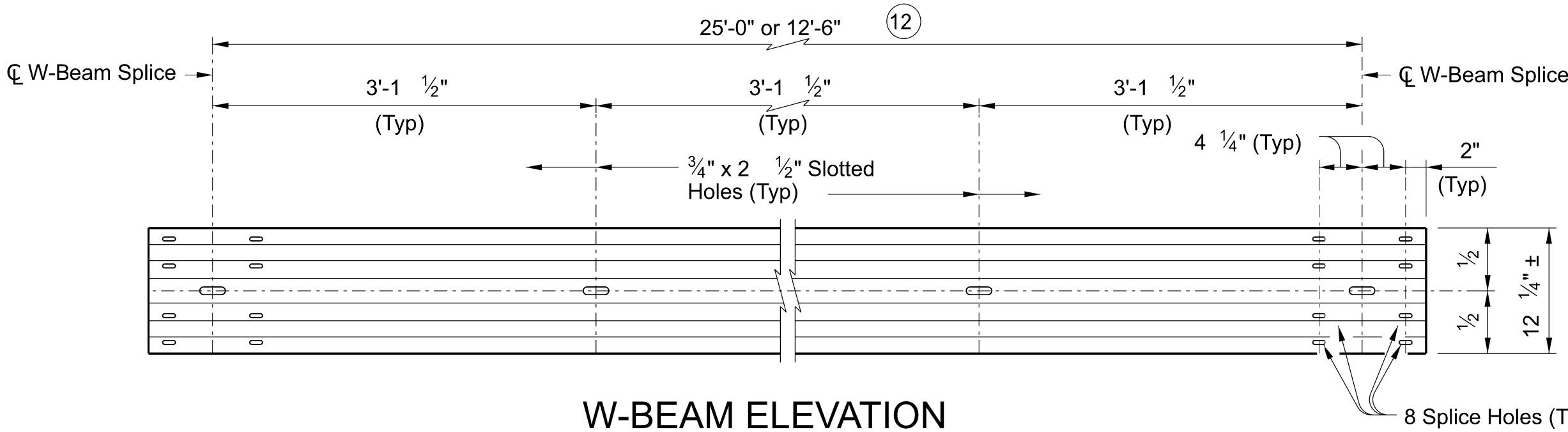
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Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**TRAFFIC RAIL
TYPE T631LS**

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

SHEET NO. S-10	
TOTAL SHEETS 21	



7 8 9 10 Not Used

- (11) Backer PL 1/8 x 8 x 1'-3" (ASTM A1011 CS or SS Gr 33, or A1008 CS or SS Gr 33 (11 Gage acceptable)).
- (12) At the nominal end of the bridge rail for payment, one 9'-4 1/2" or 6'-3" W-beam section is permitted in order to achieve the required W-Beam splice location on the MBGF.

MBGF AND END TREATMENT NOTES:

This traffic railing must be anchored by metal beam guard fence (MBGF) and/or guard fence end treatments. Determine MBGF length of need in accordance with the Roadway Design Manual, unless otherwise specified. The minimum MBGF length of need required for anchoring the railing is: SGT; or DAT plus 12.5' of MBGF, as applicable. Provide CRT posts as shown in "Typical Elevation of Rail." The SGT and DAT plus 12.5' MBGF must be installed tangent to primary roadway.

CONSTRUCTION NOTES:

Face of rail post must be plumb unless otherwise approved by the Engineer. Post must be perpendicular to adjacent roadway grade. Use epoxy mortar under post base plates if gaps larger than 1/16" exist. Fully anchored guardrail must be attached to each end of rail. A metal beam guard fence transition is not used with this rail. At the Contractor's option anchor bolts may be an adhesive anchor system. See "Material Notes". The Contractor Shall Use Adhesively Anchored Bolts as Shown on Sheet 3 of 3. Level 2 Field Testing is Required and the Yield Load of the Bolt is 23.7 Kips. It is recommended to show a Rail Layout with rail posts and W-beam splices. Fabricator must submit erection drawings to the Engineer for approval. Round or chamfer exposed edges of rail post and backer plate to approximately 1/16" by grinding. Shop drawings are not required for this rail.

MATERIAL NOTES:

Galvanize all steel components.

Anchor bolts for base plate must be 5/8" Dia ASTM F3125 Gr A325 or A449 bolts (or ASTM A193 Gr B7 or F1554 Gr 105 threaded rods with one tack welded heavy hex nut each) with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM A563 requirements.

Adhesive anchorage system must be 5/8" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM A563 requirements. Embed fully threaded rod into slab and/or abutment wingwall using an NCDOT approved product.. Minimum adhesive anchor embedment depth is 4 3/4".

W-beam must meet the requirements of the Standard Specifications except as modified in the plans. The Contractor may furnish rail elements of 25'-0" or 12'-6" (Nominal) lengths and a single rail element of 9'-4 1/2" or 6'-3" (Nominal) length. W-Beam must have slotted holes at 3'-1 1/2". Some part numbers from the "Task Force 13" Guide to Standardized Highway Barrier Hardware have been furnished for quick reference.

GENERAL NOTES:

This railing has been successfully evaluated by full-scale crash test to meet MASH TL-2 criteria. This railing can be used for speeds of 45 mph and less. This rail is designed to deflect approximately 2' to 2'-6" as it contains and redirects the errant vehicle. This rail may not be installed on top of or behind curbs that project above finished grade, on bridges with expansion joints providing more than 5" movement, on retaining walls, or on grade separations and interchanges. Repairs to impact-damaged post and base plate unit are not permitted. Replace all impact-damaged posts with a new post and base plate unit.

PROJECT NO. **HB-0061**

CALDWELL COUNTY

STATION: **10+42.00 - L -**

SHEET 2 OF 3

4/29/2026

NORTH CAROLINA

PROFESSIONAL

SEAL

15431

ENGINEER

THOMAS K. KOCH

Signed by:
Thomas K. Koch
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LICENSE NO. F-0377

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

TRAFFIC RAIL

TYPE T631LS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : J. PENDERGRAFT DATE : 2-26

CHECKED BY : T. KOCH DATE : 2-26

DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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CONSTRUCTION NOTES:

Rail anchorage bars may be field bent as required to clear rail reinforcing or provide minimum cover shown on standard rail detail sheets.

Test adhesive anchors in accordance with The Standard Specifications. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

Level 2 Field Testing is Required. For Yield Load of The Bolt, See Sheet 2 of 3.

MATERIAL NOTES:

Galvanize all steel components of steel rail system.

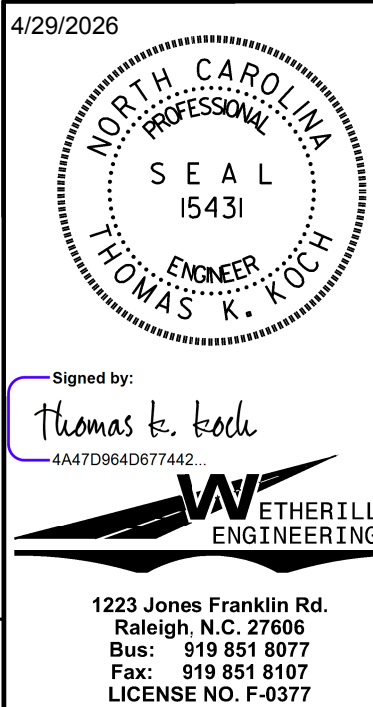
Cast-in-place anchorage system for T631LS and T631 Rail must be 5/8" Dia heavy hex head anchor bolts (ASTM F3125 Gr 325 or A449) with one hardened steel washer (ASTM A436) and one regular lock washer placed under heavy hex nut. Nuts must conform to ASTM A563 requirements. Embed anchor bolts 4 1/2" minimum.

Adhesive anchors for T631LS and T631 Rail must be 5/8" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM A436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM A563 requirements. Embed fully threaded rod into slab using an NCDOT Approved product anchor adhesive. Minimum adhesive anchor embedment depth is 4 3/4".

Cover dimensions are clear dimensions, unless noted otherwise.

PROJECT NO. **HB-0061**
CALDWELL COUNTY
 STATION: **10+42.00 - L -**

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAIL ANCHORAGE DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS 21
2			4			

DRAWN BY : J. PENDERGRAFT DATE : 2-26
 CHECKED BY : T. KOCH DATE : 2-26
 DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NOTES

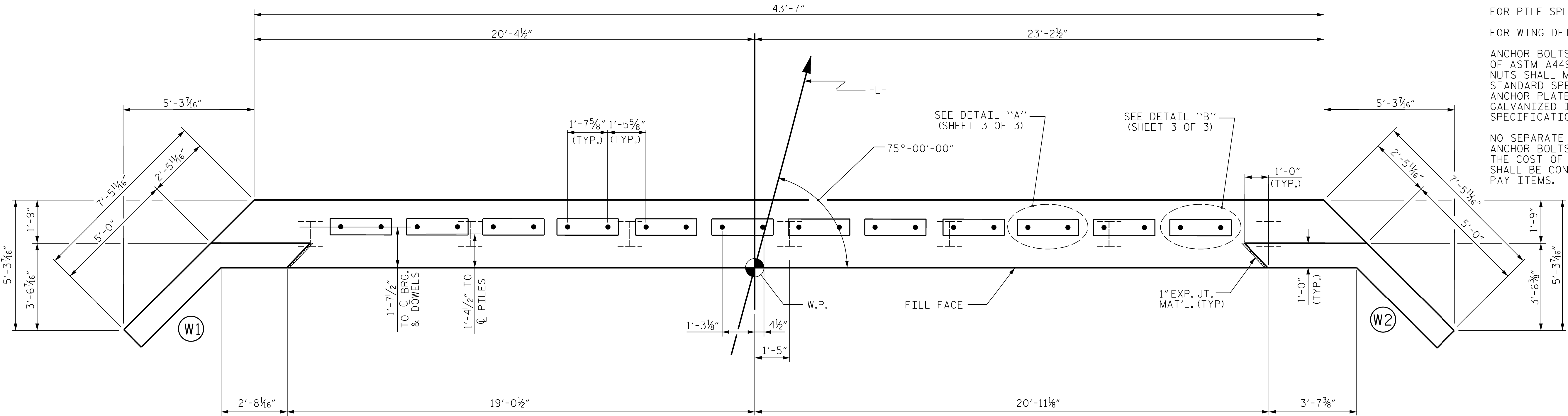
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

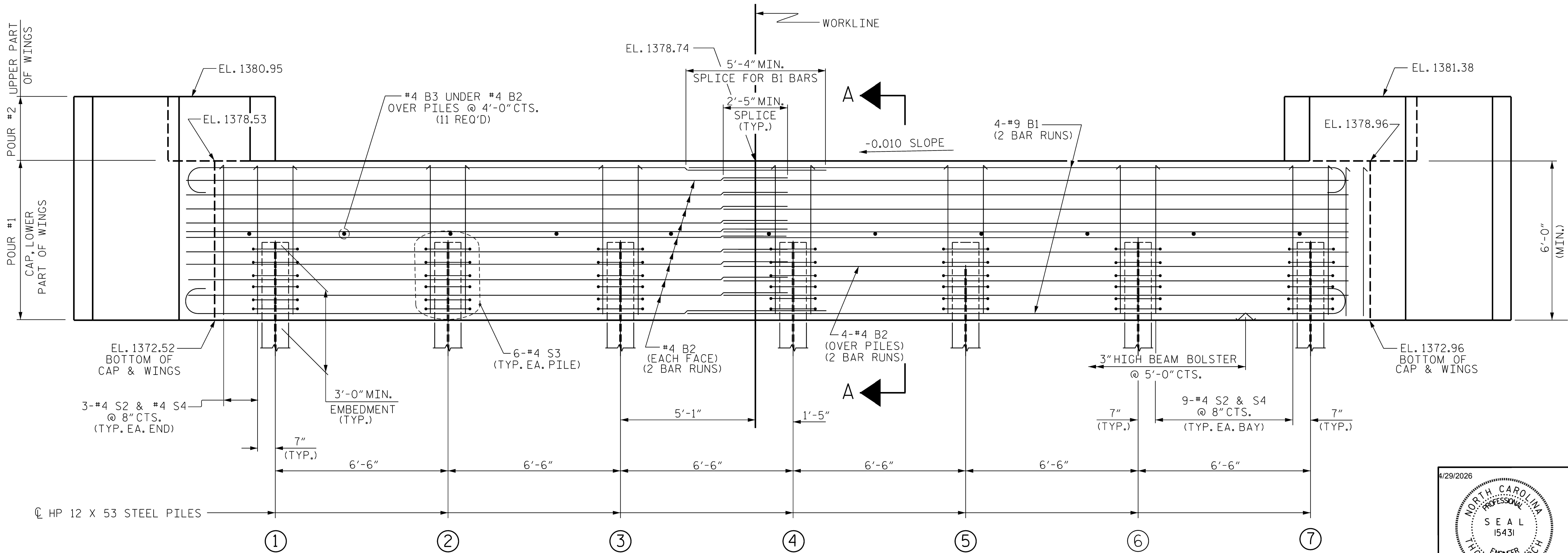
FOR WING DETAILS, SEE SHEET 2 OF 3.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. ANCHOR PLATES, WASHERS, AND NUTS SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

NO SEPARATE PAYMENT SHALL BE MADE FOR THE ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS. THE COST OF THE MATERIAL AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

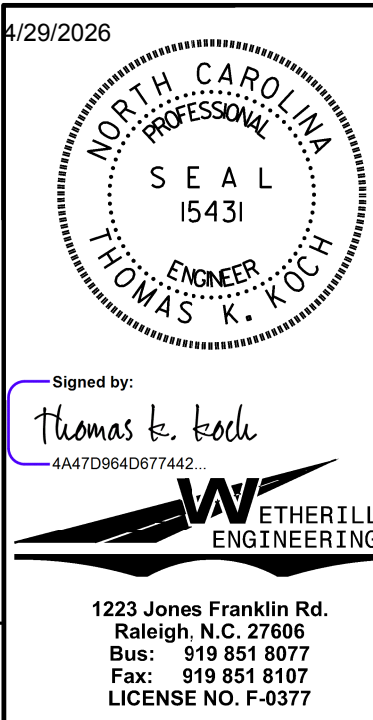
TOP OF PILE ELEVATIONS	
①	1375.55
②	1375.62
③	1375.68
④	1375.75
⑤	1375.81
⑥	1375.88
⑦	1375.94

PROJECT NO. **HB-0061**

CALDWELL COUNTY

STATION: **10+42.00 -L-**

SHEET 1 OF 3



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

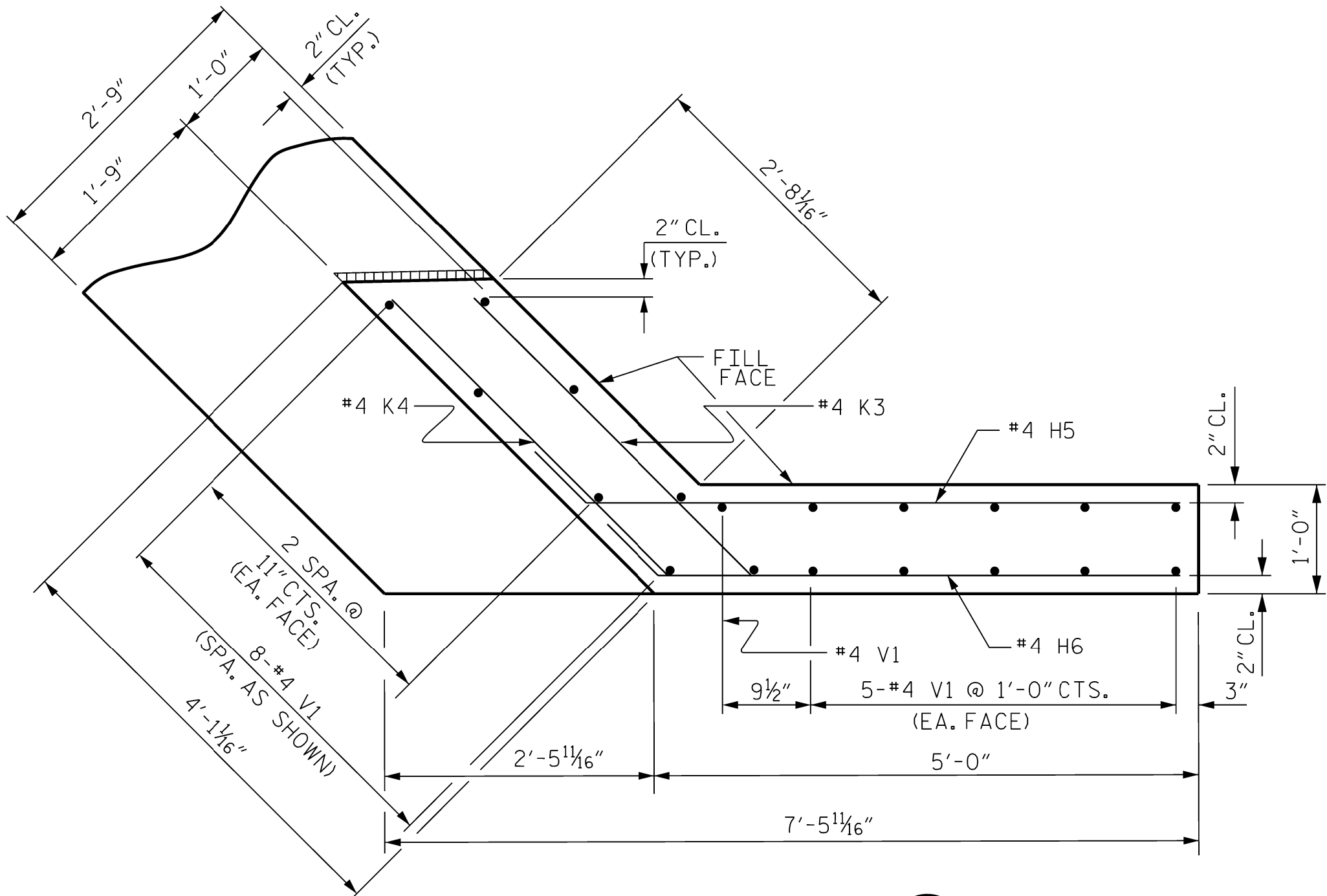
DRAWN BY :	J. PENDERGRAFT	DATE :	2-26
CHECKED BY :	T. KOCH	DATE :	2-26
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

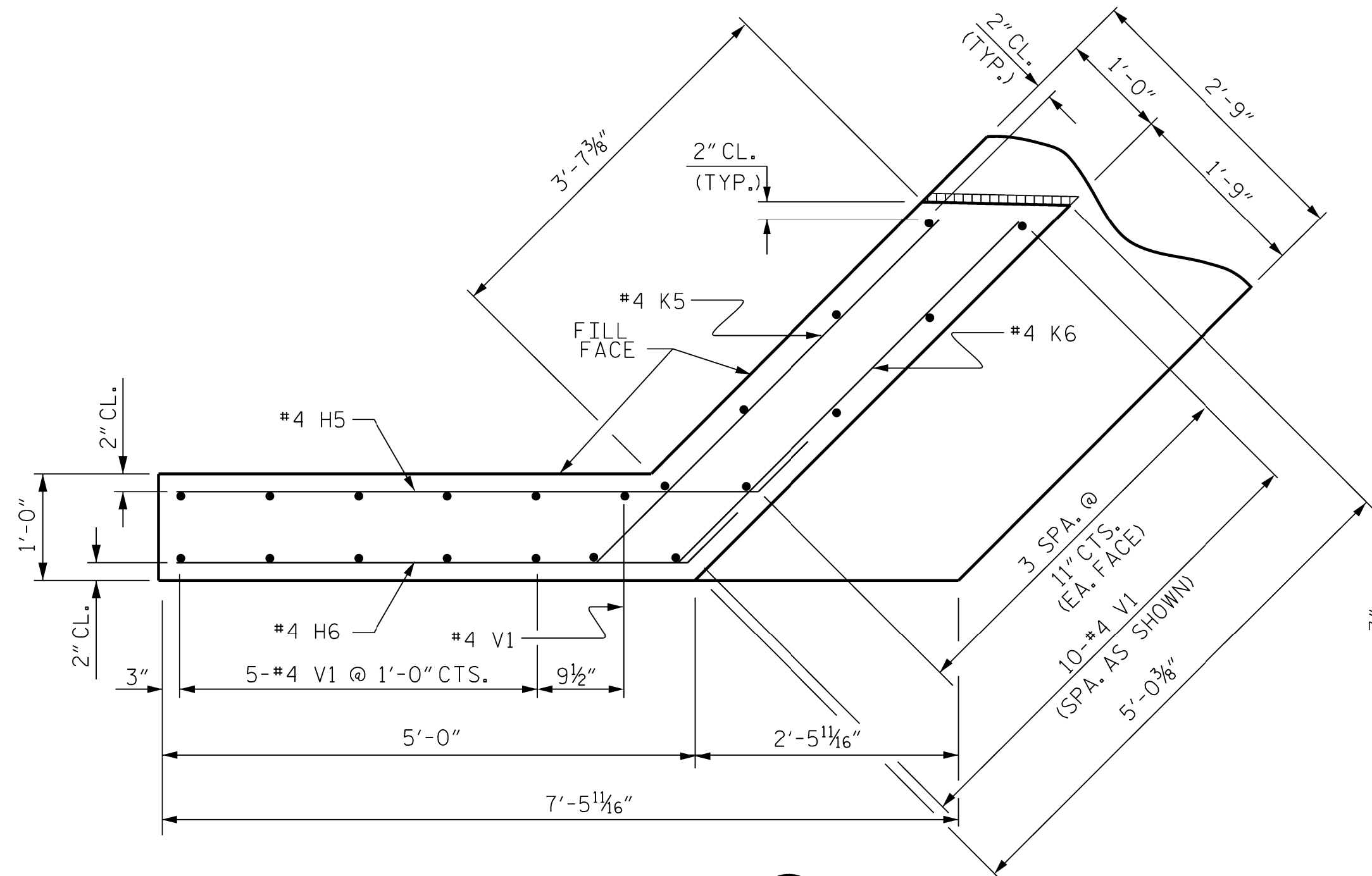
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STD. NO. EB_36_75S4

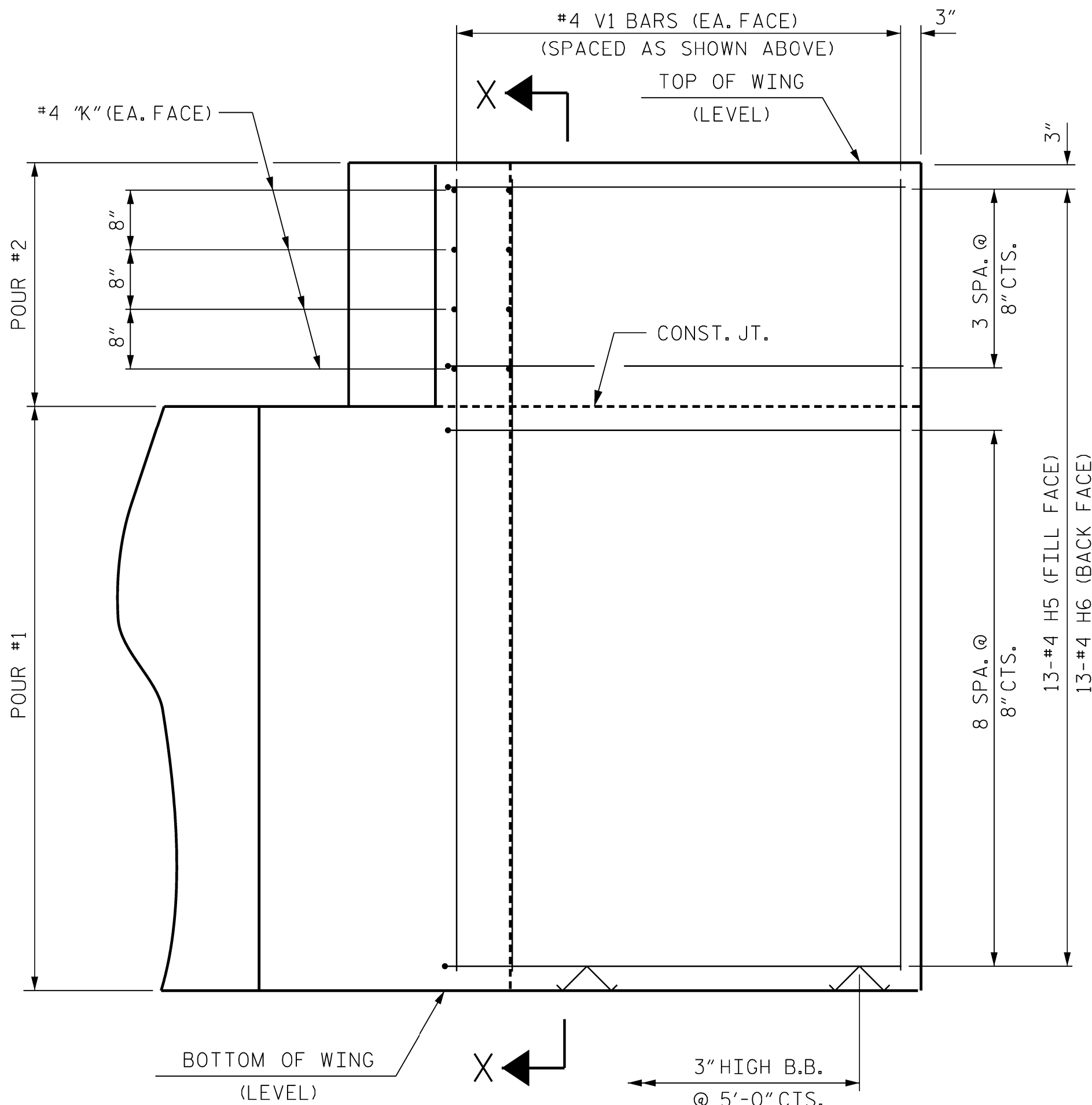
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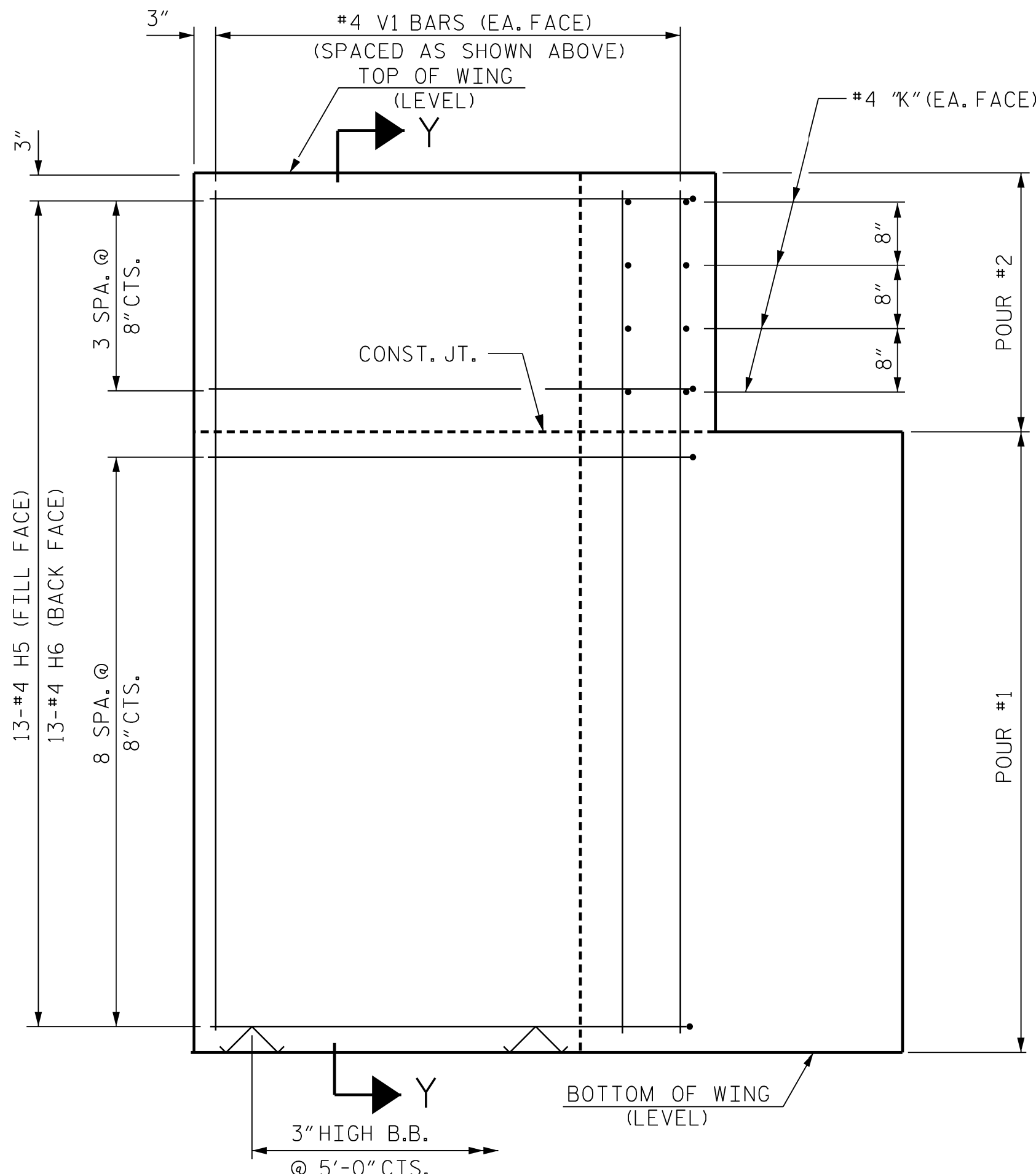
PLAN OF WING (W1)



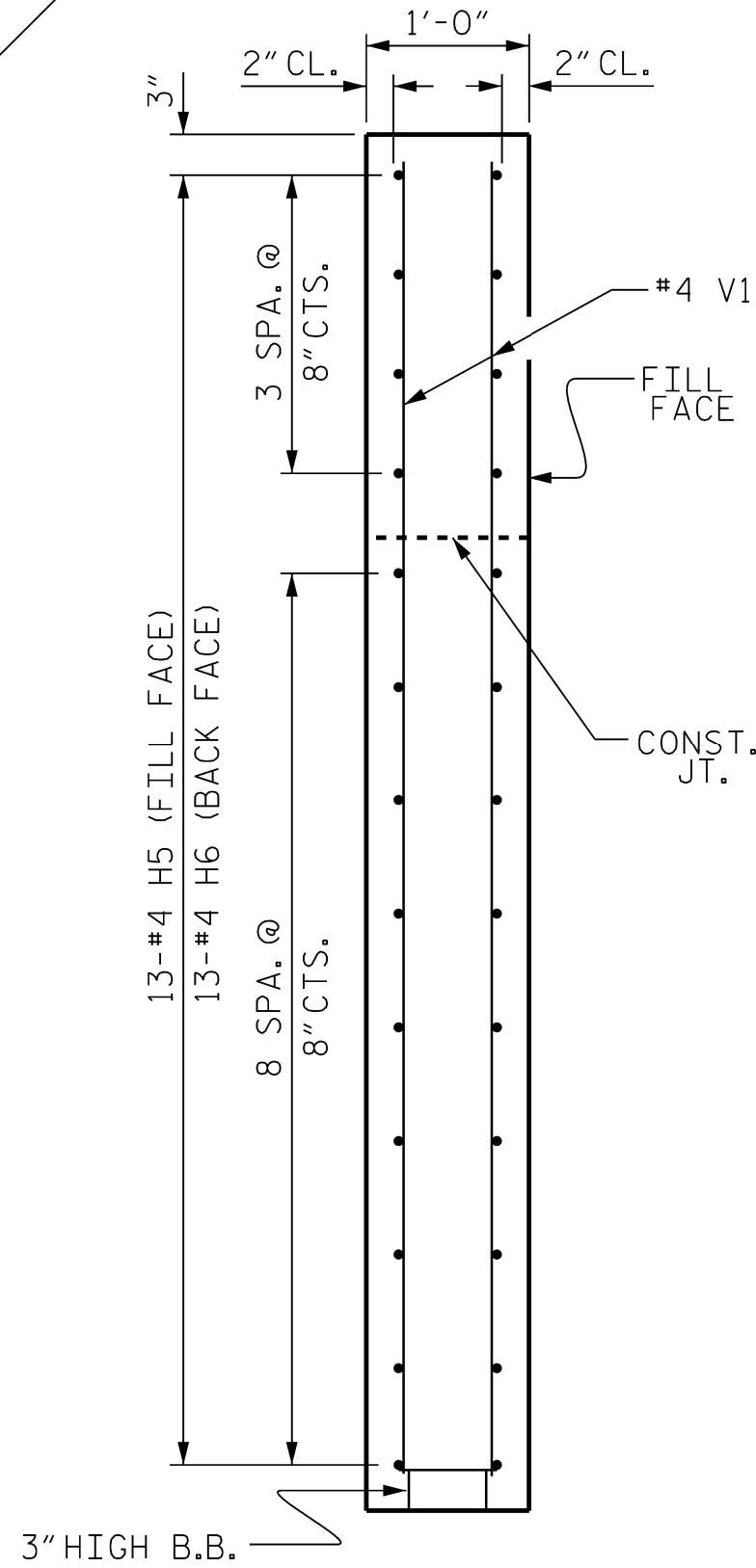
PLAN OF WING (W2)



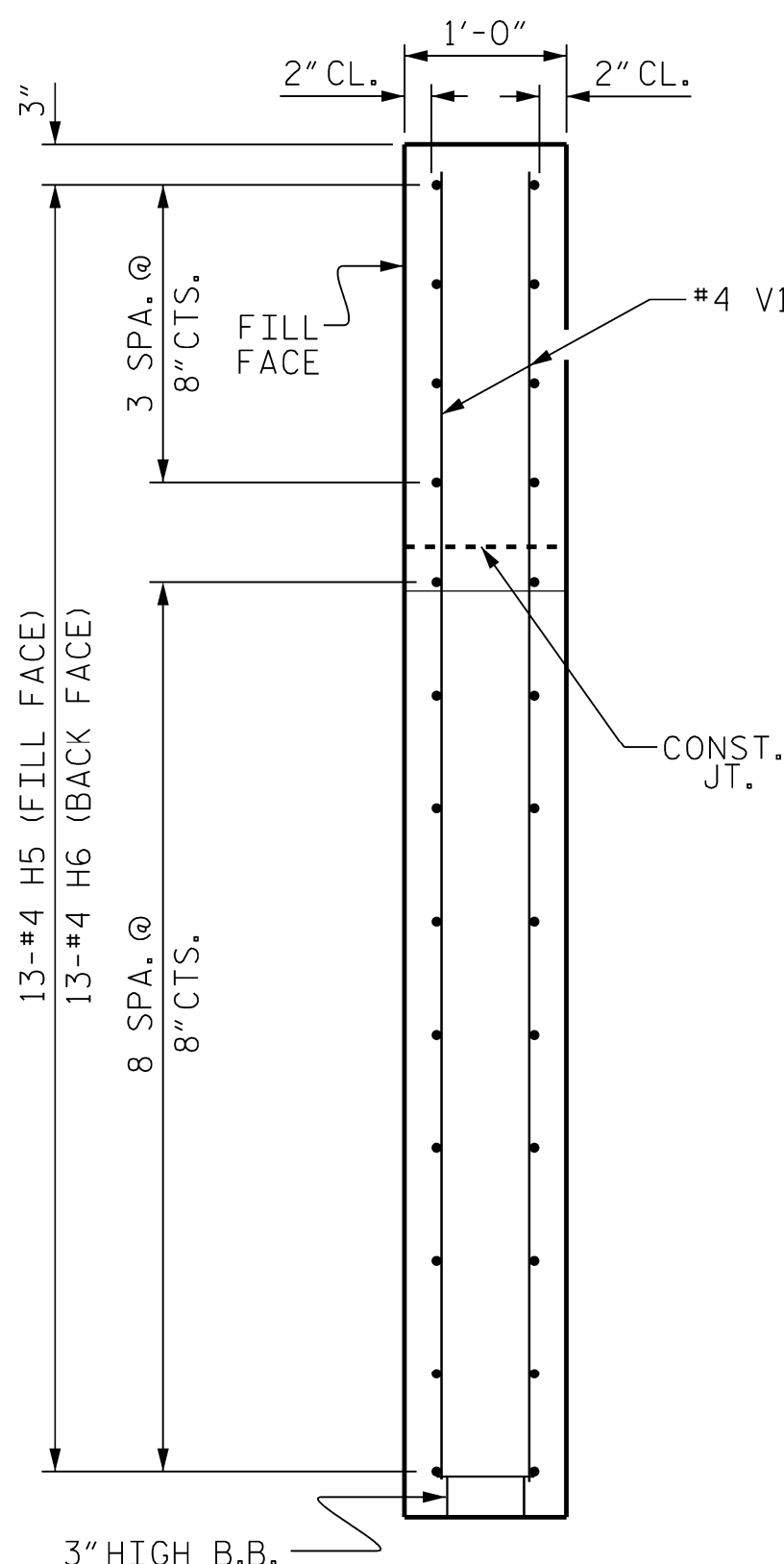
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

PROJECT NO. **HB-0061**
COUNTY **CALDWELL**
STATION: **10+42.00 -L-**

SHEET 2 OF 3

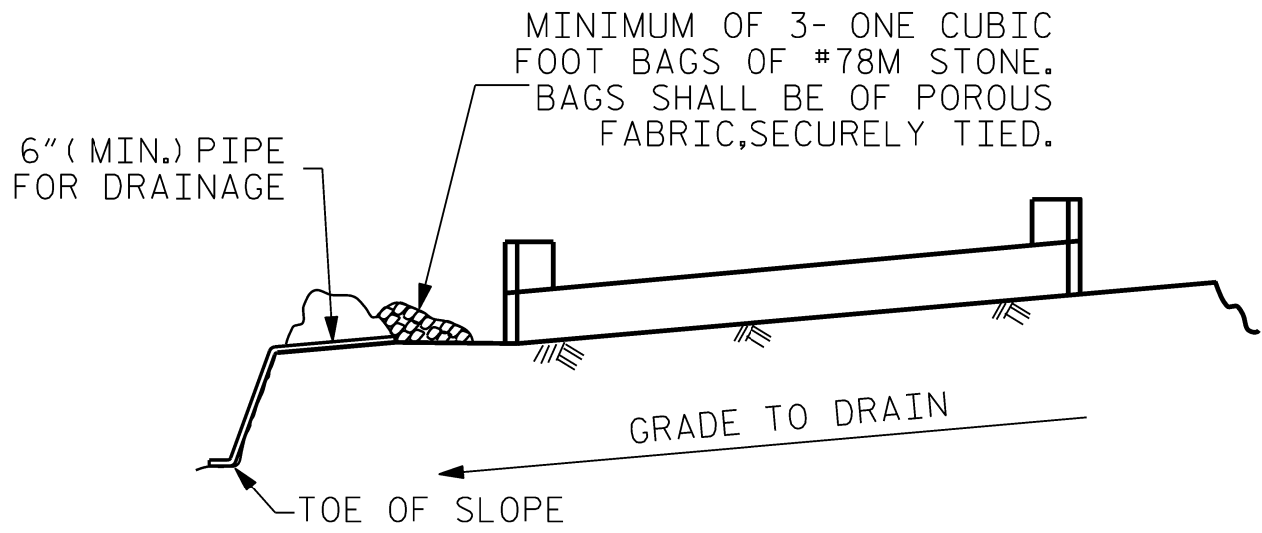
DRAWN BY : J. PENDERGRAFT DATE : 2-26
CHECKED BY : T. KOCH DATE : 2-26
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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UNLESS ALL SIGNATURES COMPLETED

4/29/2026
NORTH CAROLINA
PROFESSIONAL
SEAL
15431
ENGINEER
THOMAS K. KOCH
Signed by:
Thomas K. Koch
4A47D964D677442
WETHERILL
ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			

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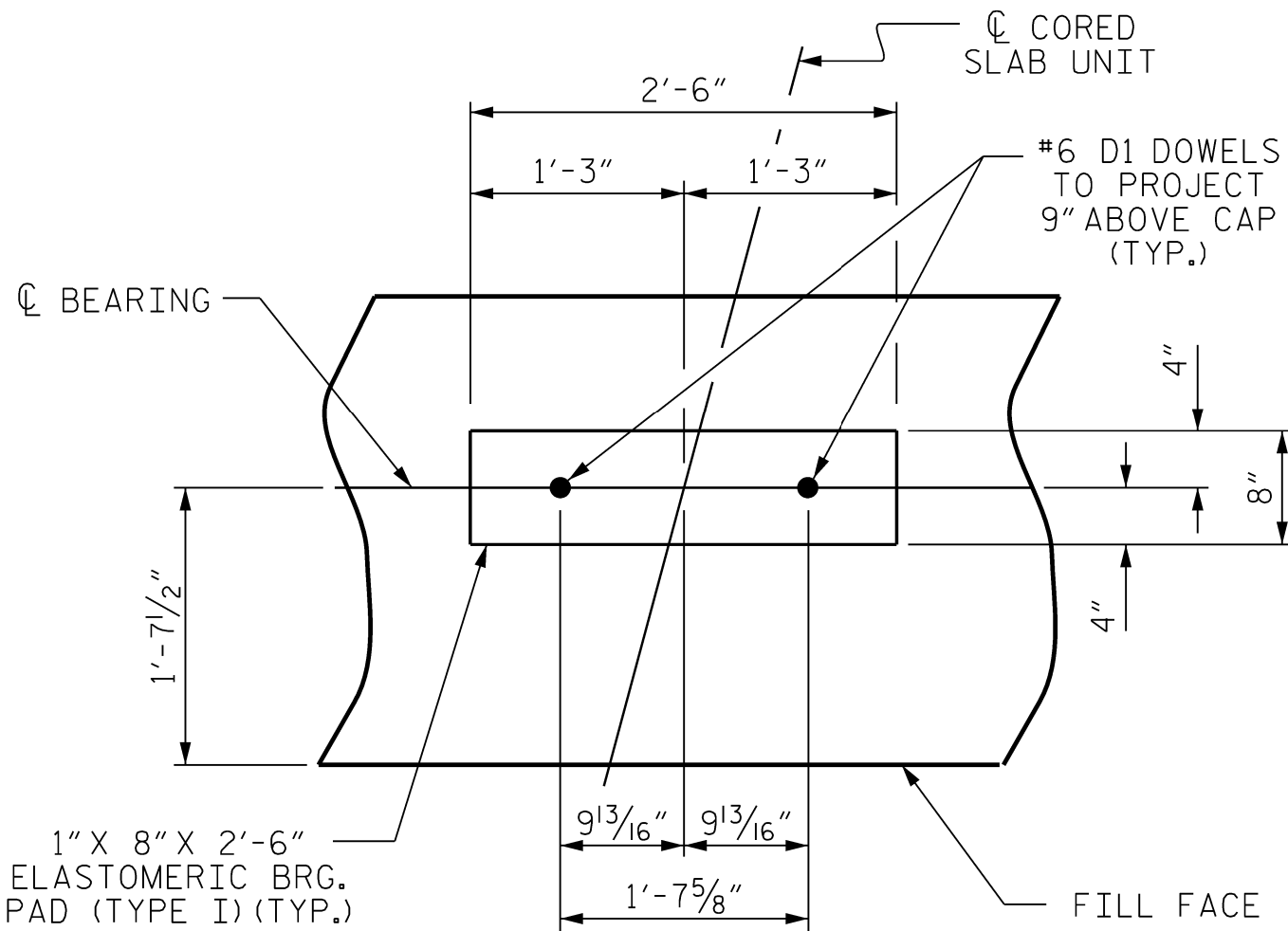


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

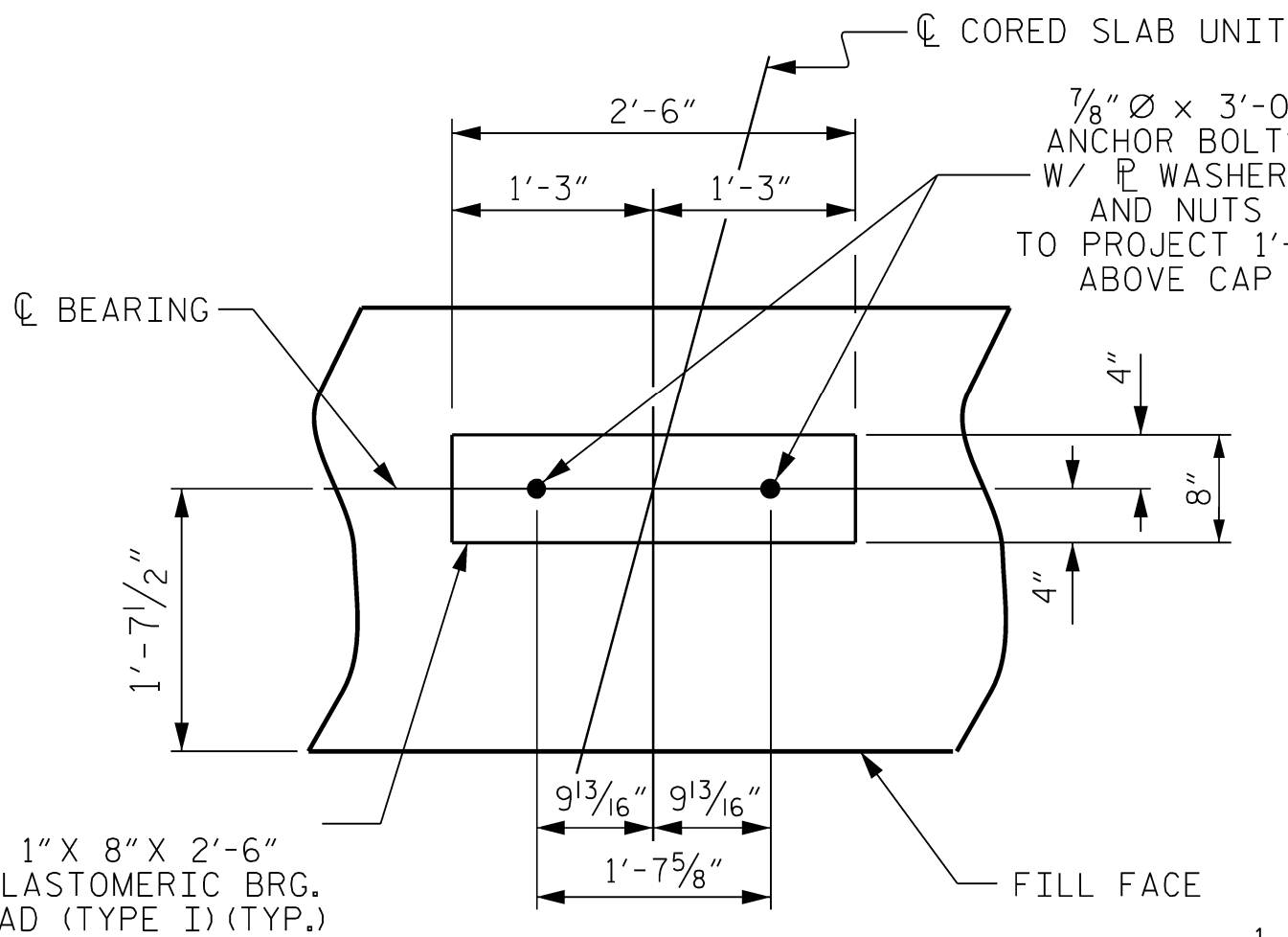
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

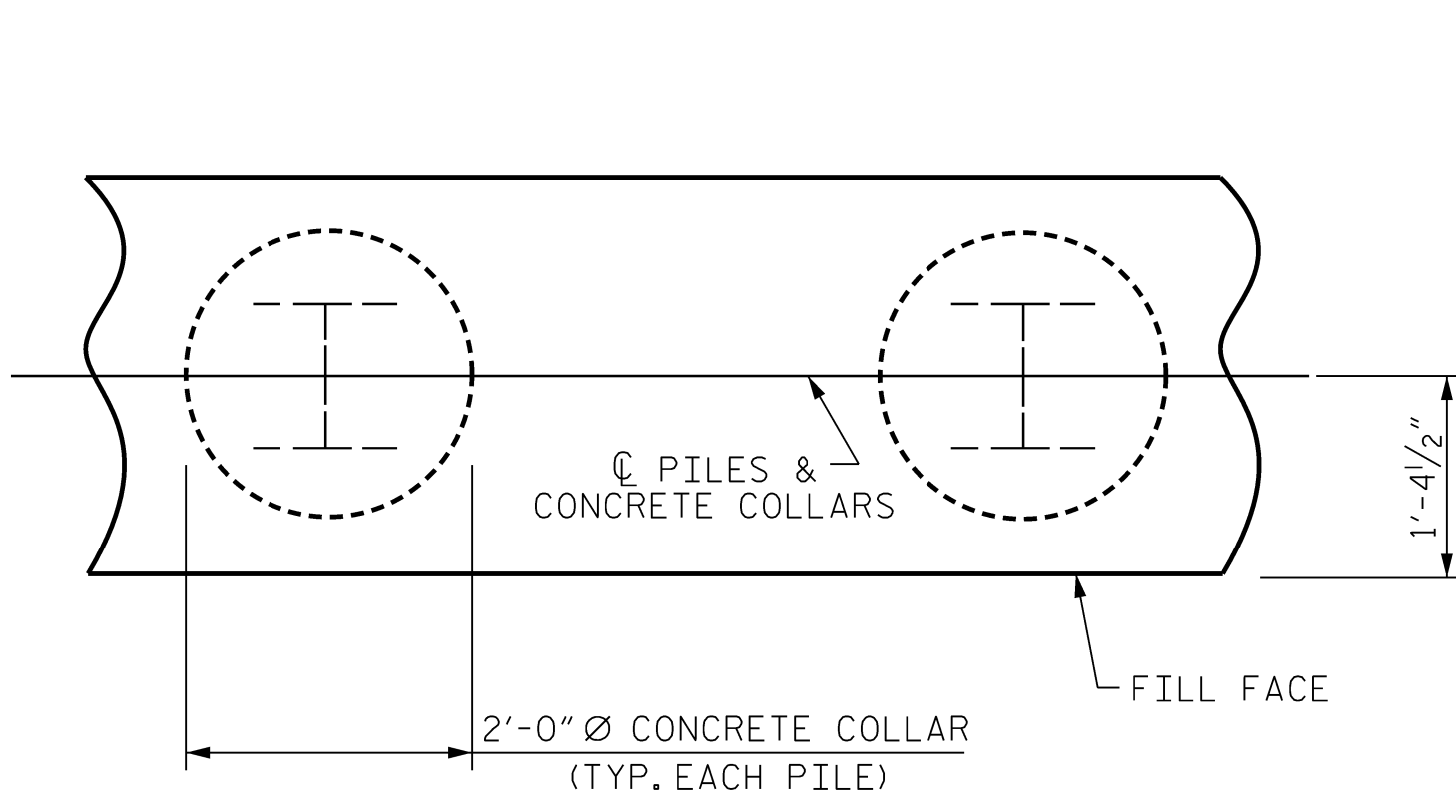
TEMPORARY DRAINAGE AT END BENT



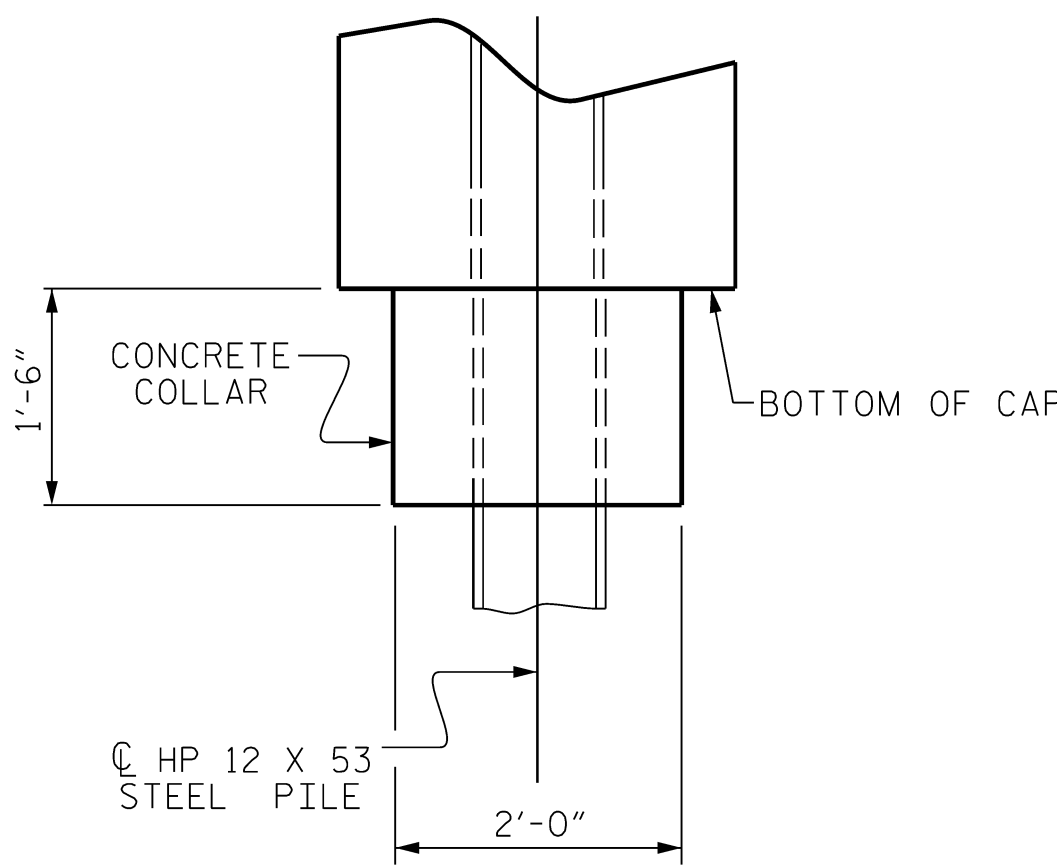
DETAIL "A"



DETAIL "B"

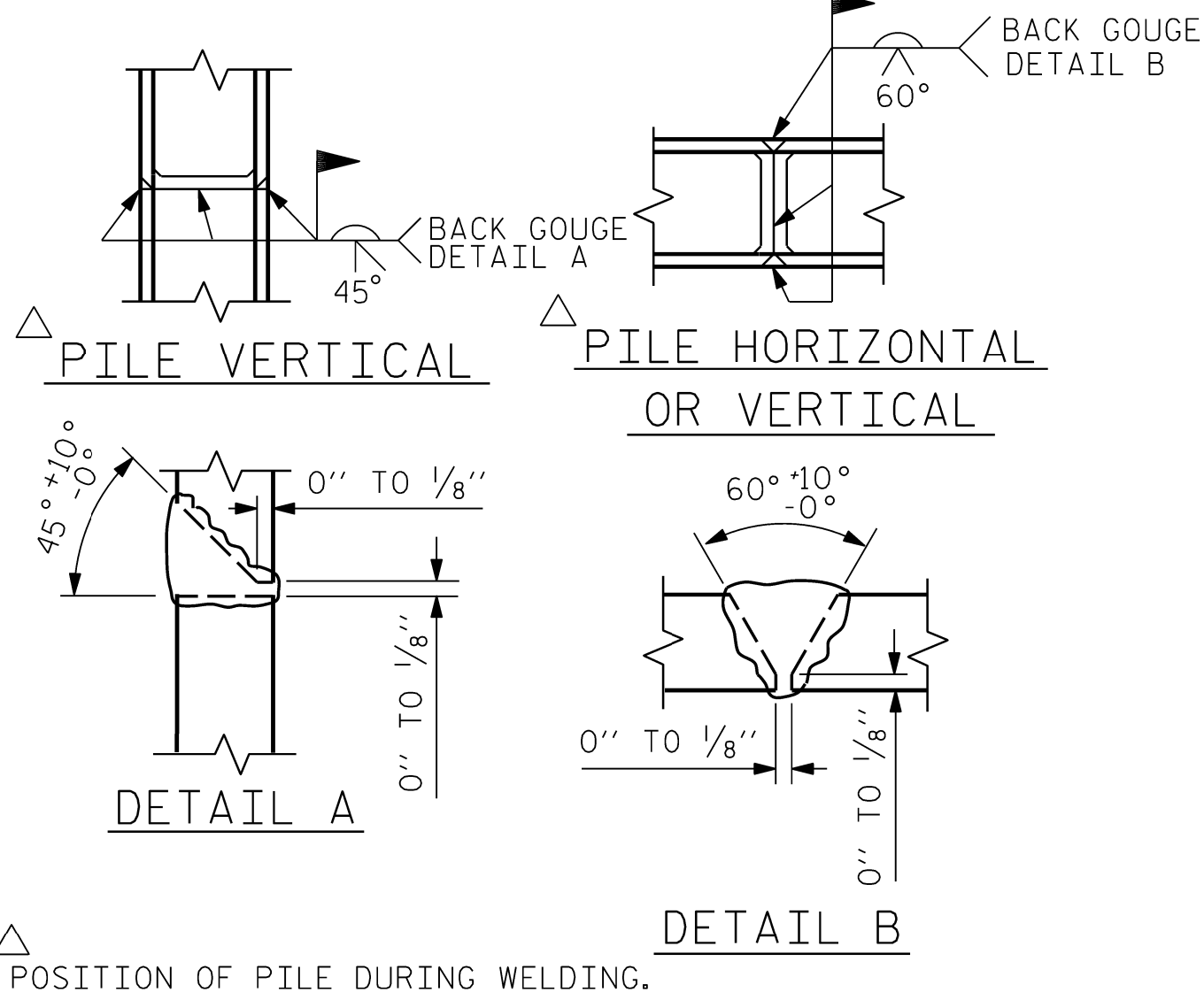


PLAN

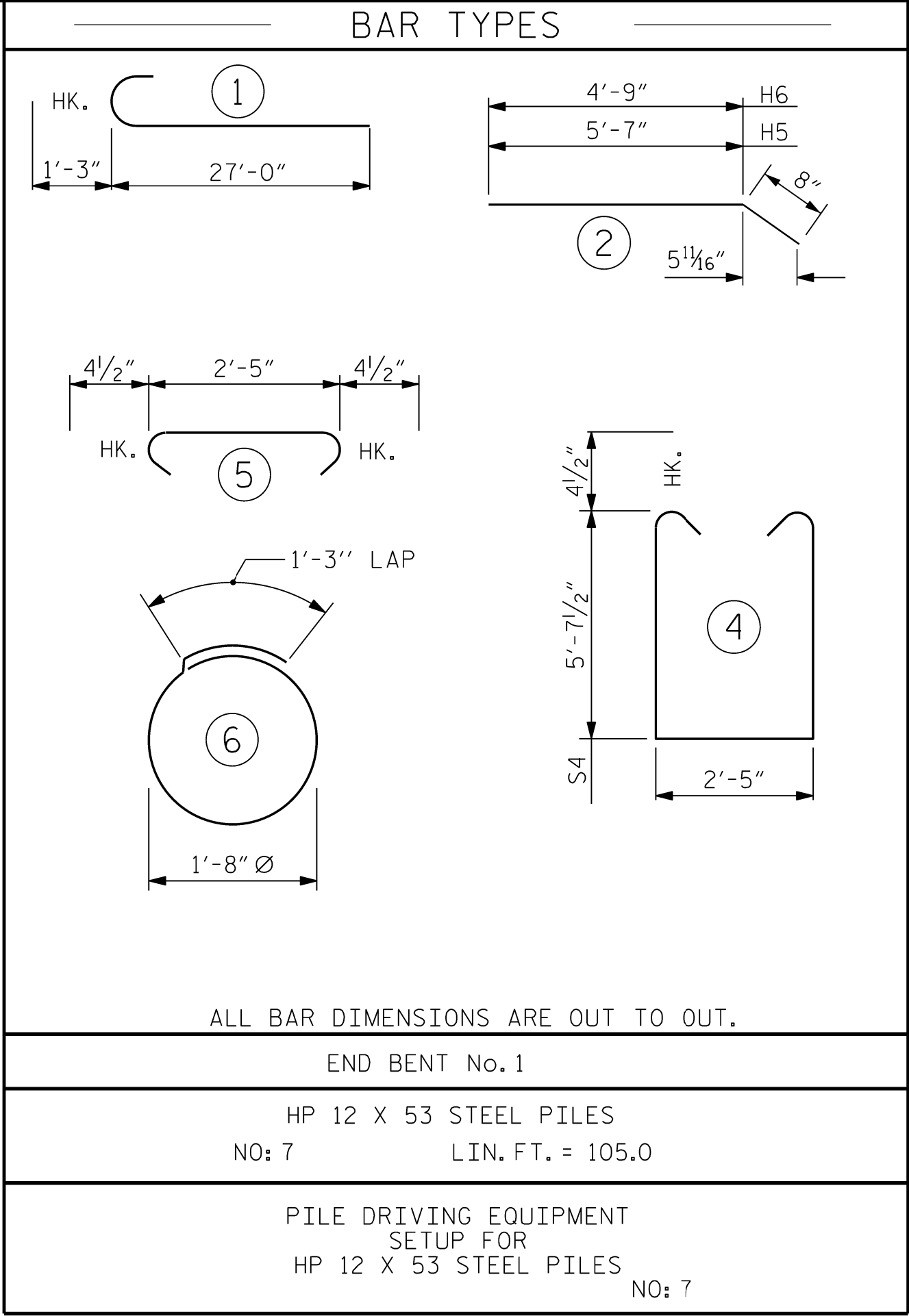


ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL



PILE SPLICE DETAILS

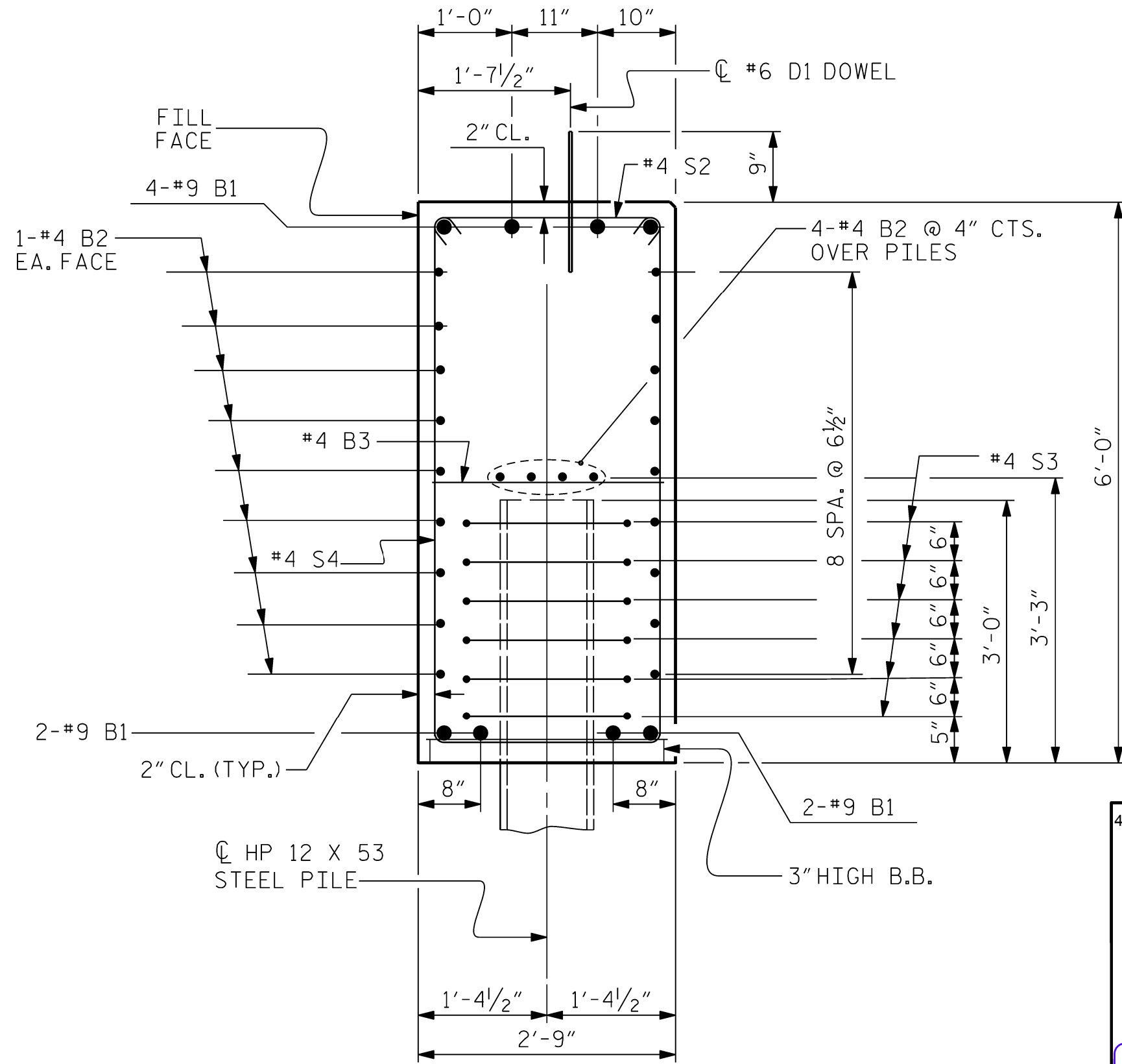


BILL OF MATERIAL

FOR END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#9	1	28'-3"	1537
B2	44	#4	STR	25'-7"	752
B3	11	#4	STR	2'-5"	18
D1	20	#6	STR	1'-6"	45
H5	26	#4	2	6'-3"	109
H6	26	#4	2	5'-5"	94
K3	4	#4	STR	2'-4"	6
K4	4	#4	STR	3'-7"	10
K5	4	#4	STR	3'-3"	9
K6	4	#4	STR	4'-6"	12
S2	60	#4	5	3'-2"	127
S3	42	#4	6	6'-6"	182
S4	60	#4	4	14'-5"	578
V1	40	#4	STR	6'-1"	163

REINFORCING STEEL (FOR END BENT 1)	3641 LBS.
CLASS A CONCRETE BREAKDOWN (FOR END BENT 1)	
POUR #1 CAP, LOWER PART OF WINGS & COLLARS	28.3 C.Y.
POUR #2 UPPER PART OF WINGS	1.6 C.Y.
TOTAL CLASS A CONCRETE	29.9 C.Y.



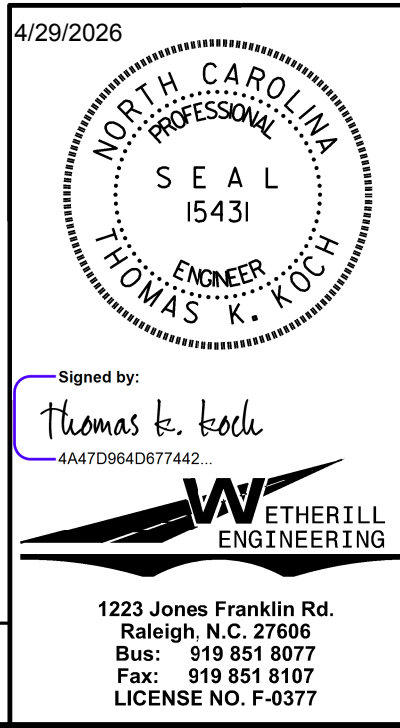
SECTION A-A

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

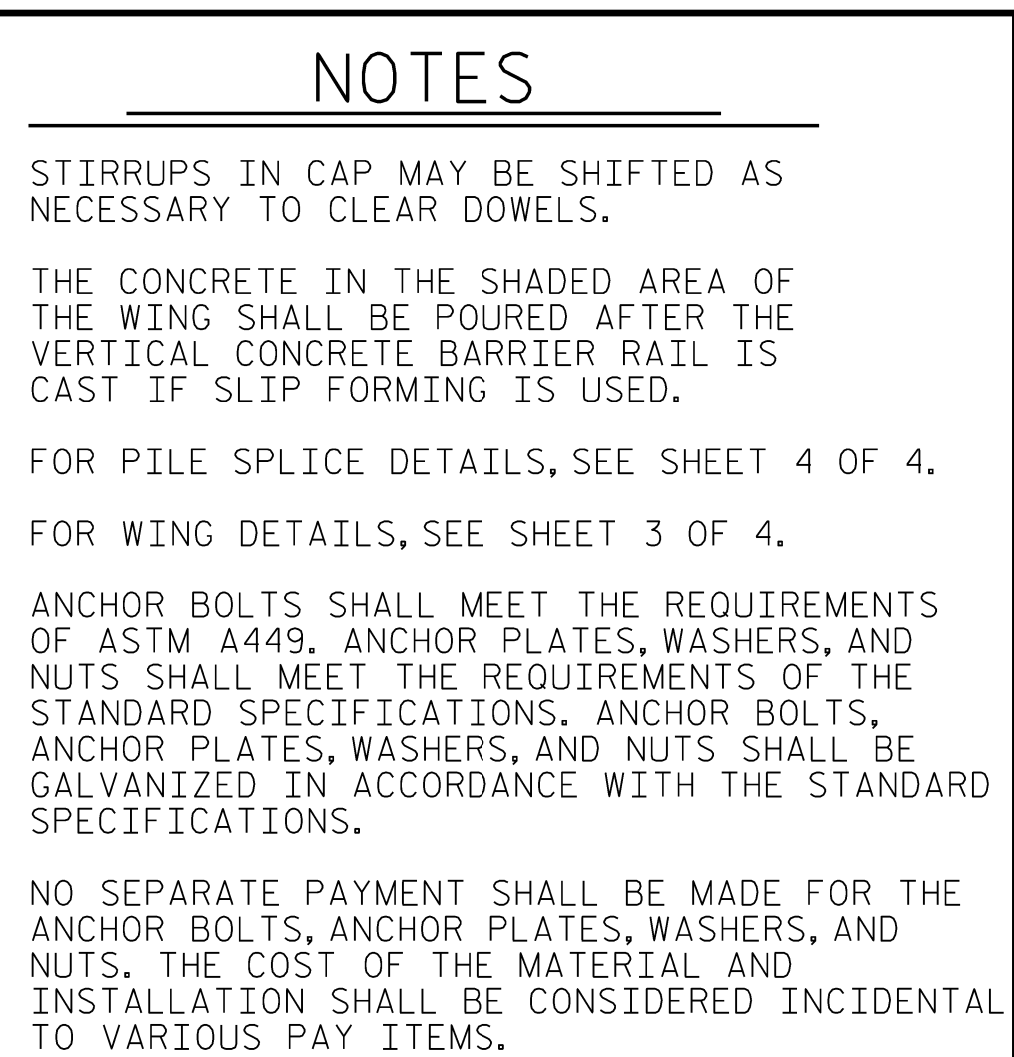
PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 -L-**

SHEET 3 OF 3

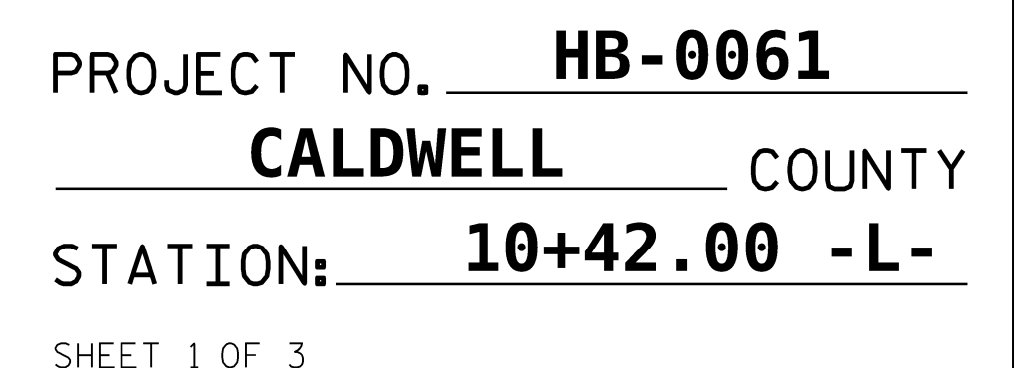


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	
2			4			21	

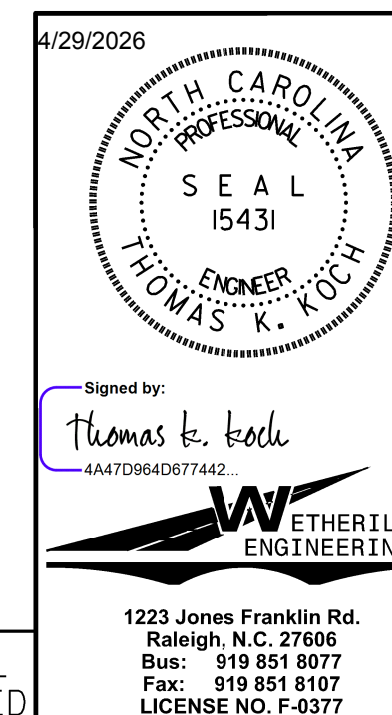
STD. NO. EB-36-75S4



TOP OF PILE ELEVATIONS	
①	1376.89
②	1376.96
③	1377.02
④	1377.09
⑤	1377.15
⑥	1377.22
⑦	1377.28



SHEET 1 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

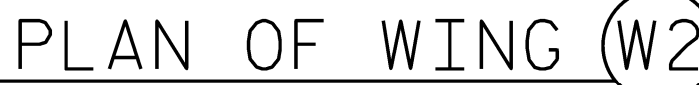
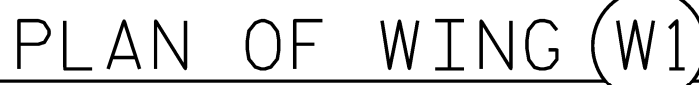
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	NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
	1			3			TOTAL SHEETS
	2			4			21

STD. NO. EB_36_75S4

DRAWN BY :	J. PENDERGRAFT	DATE :	6-25
CHECKED BY :	J. DILWORTH	DATE :	6-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

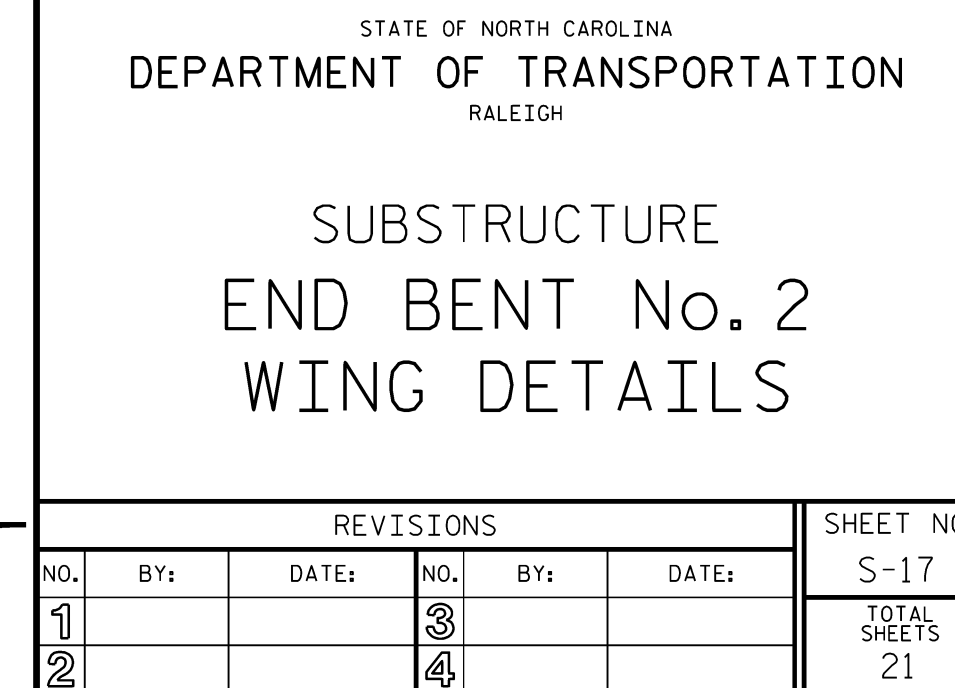


WING DETAILS



PROJECT NO. **HB-0061**
CALDWELL COUNTY
 STATION: **10+42.00 -L-**

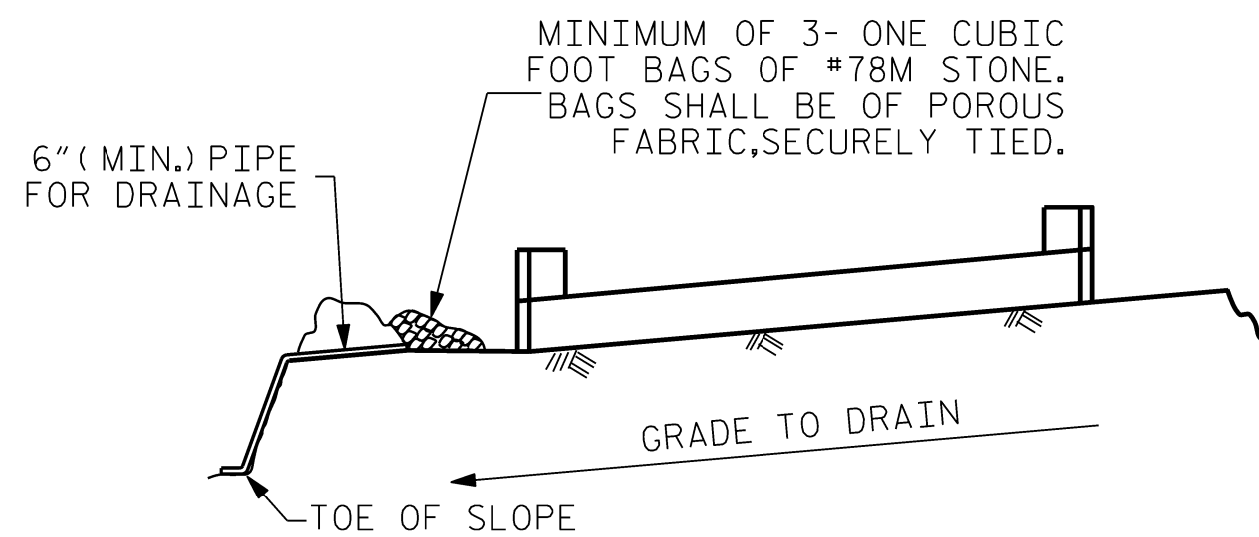
SHEET 2 OF 3



STD. NO. EB_36_75S4

DRAWN BY : J. PENDERGRAFT DATE : 6-25
 CHECKED BY : T. KOCH DATE : 2-26
 DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

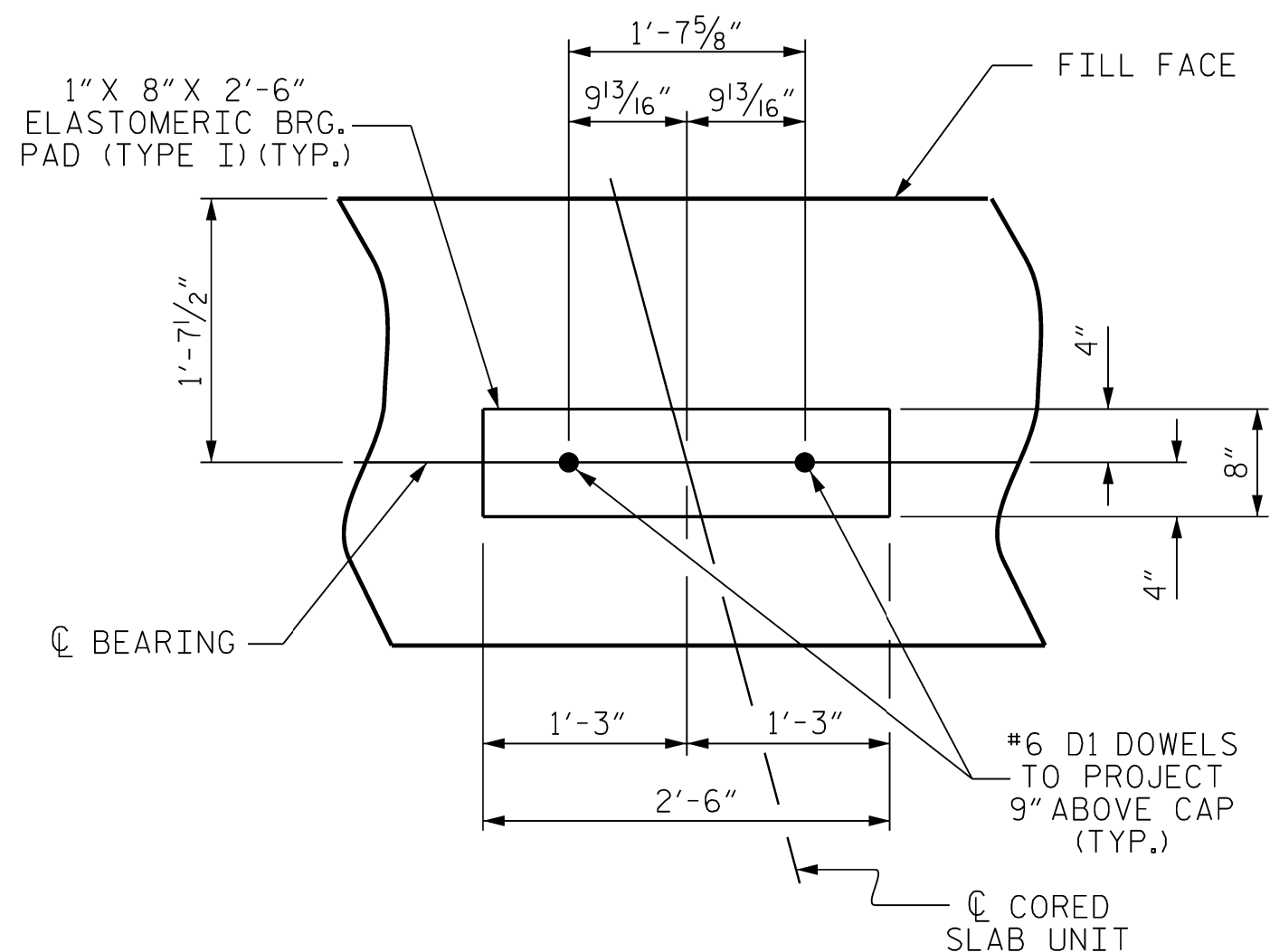


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

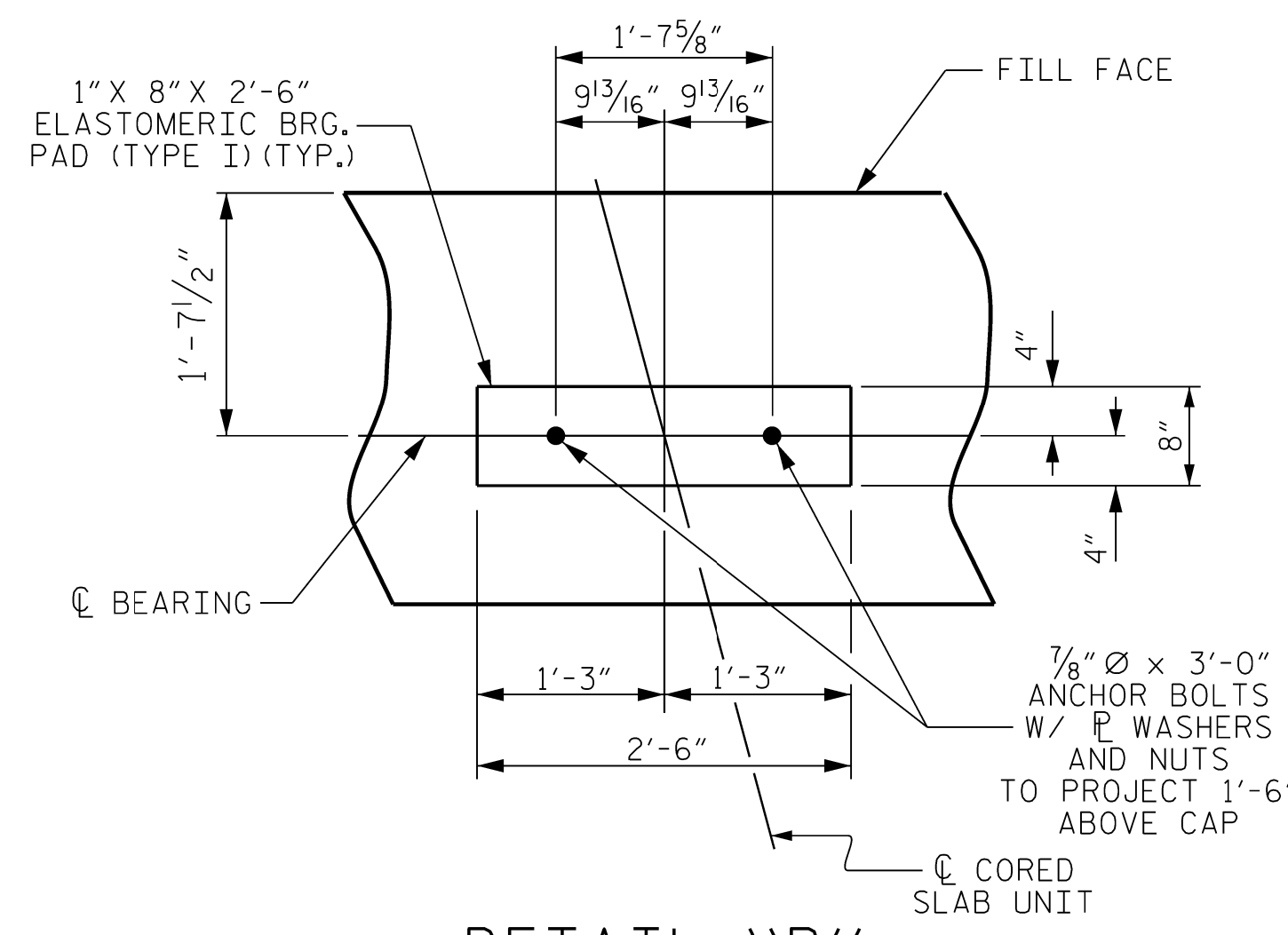
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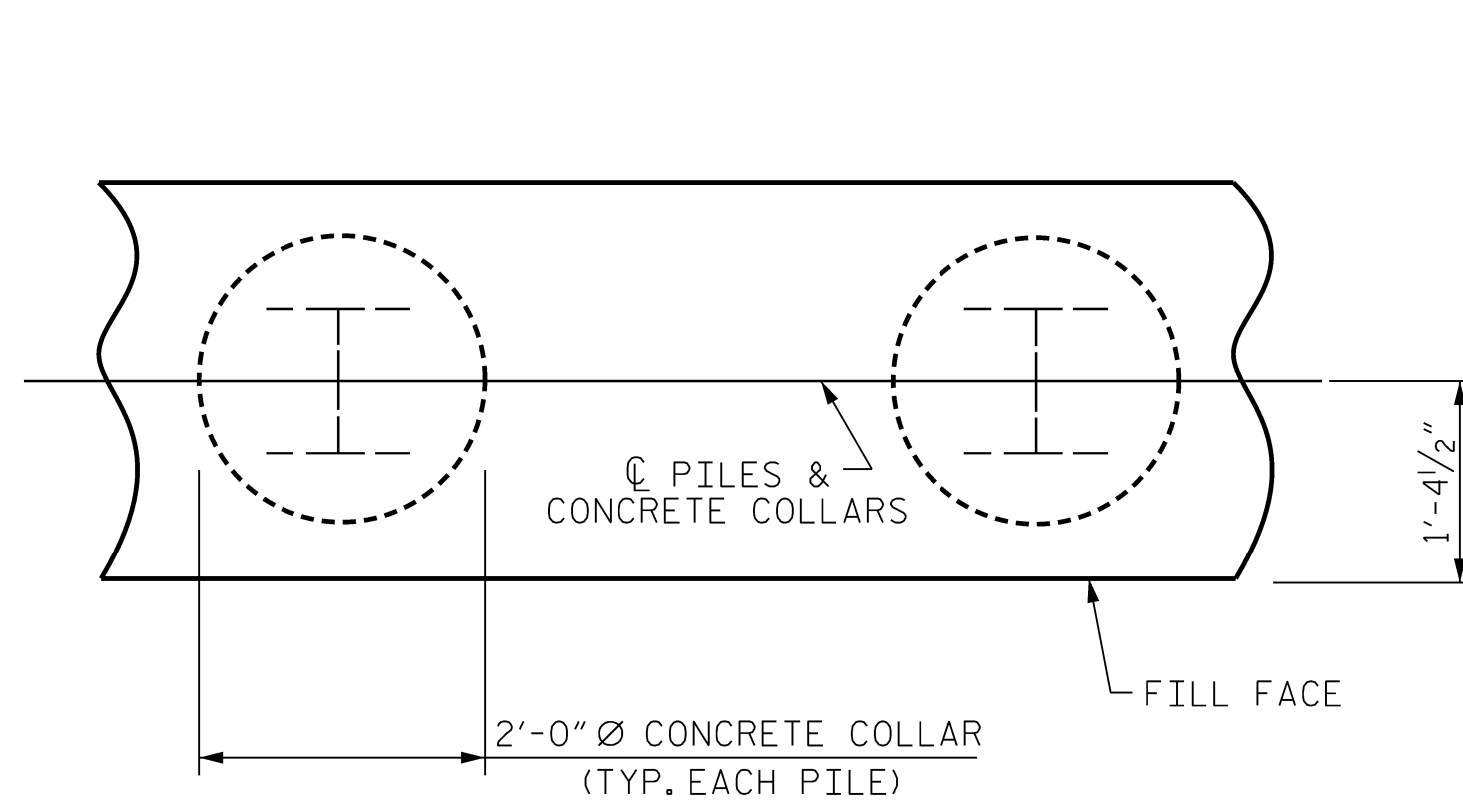
TEMPORARY DRAINAGE AT END BENT



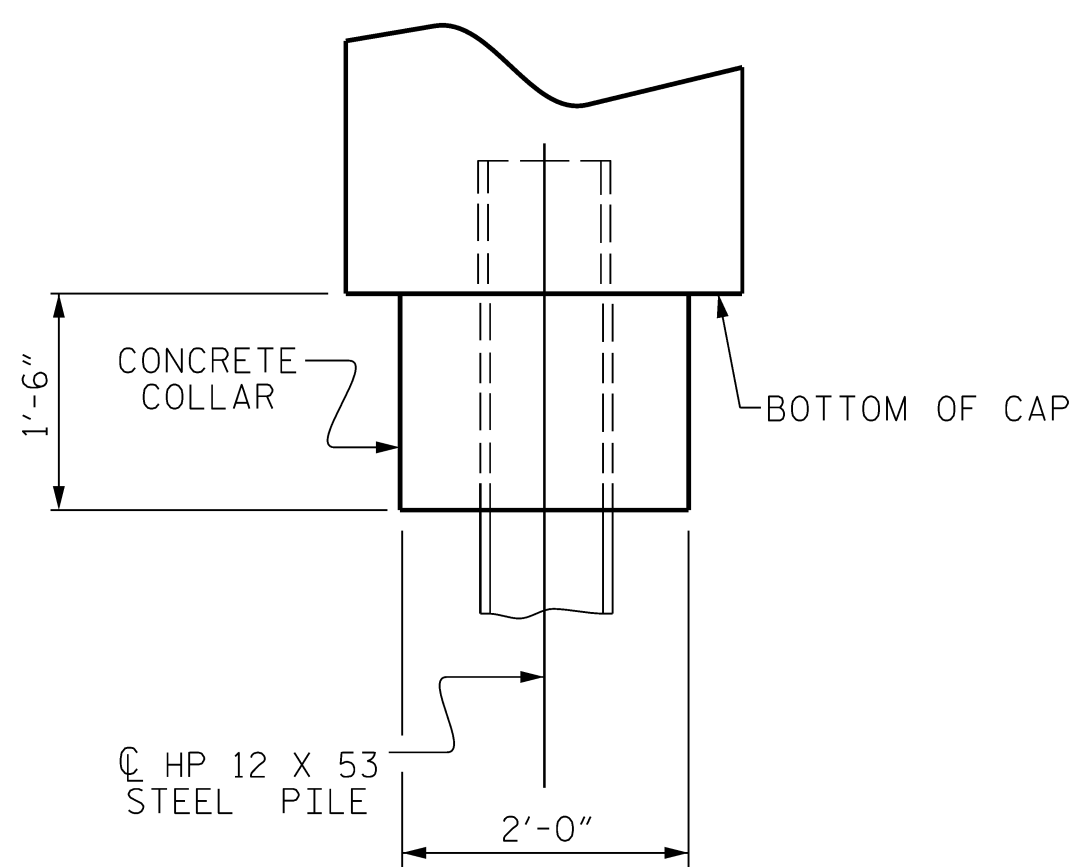
DETAIL ``A''



DETAIL ``B''

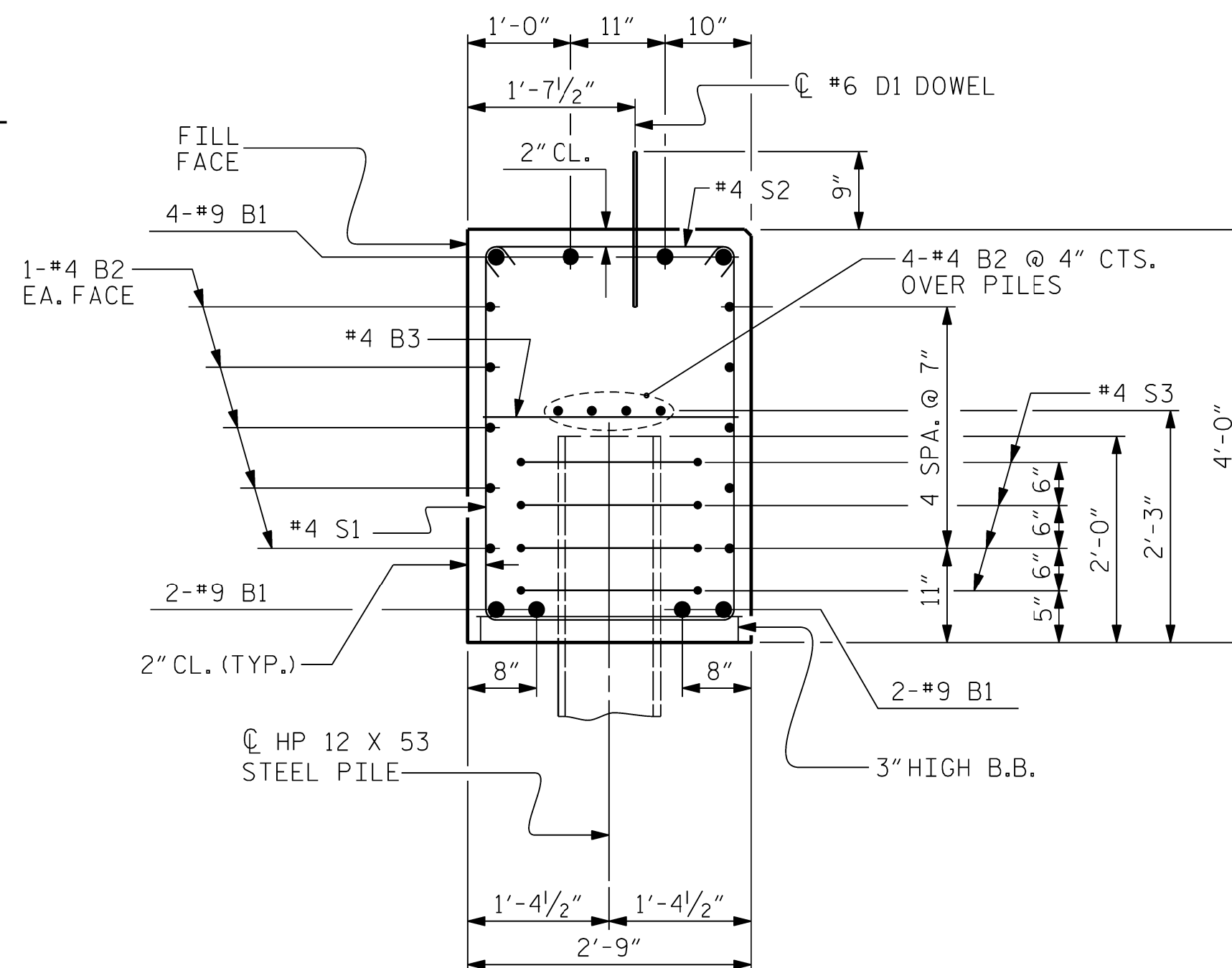
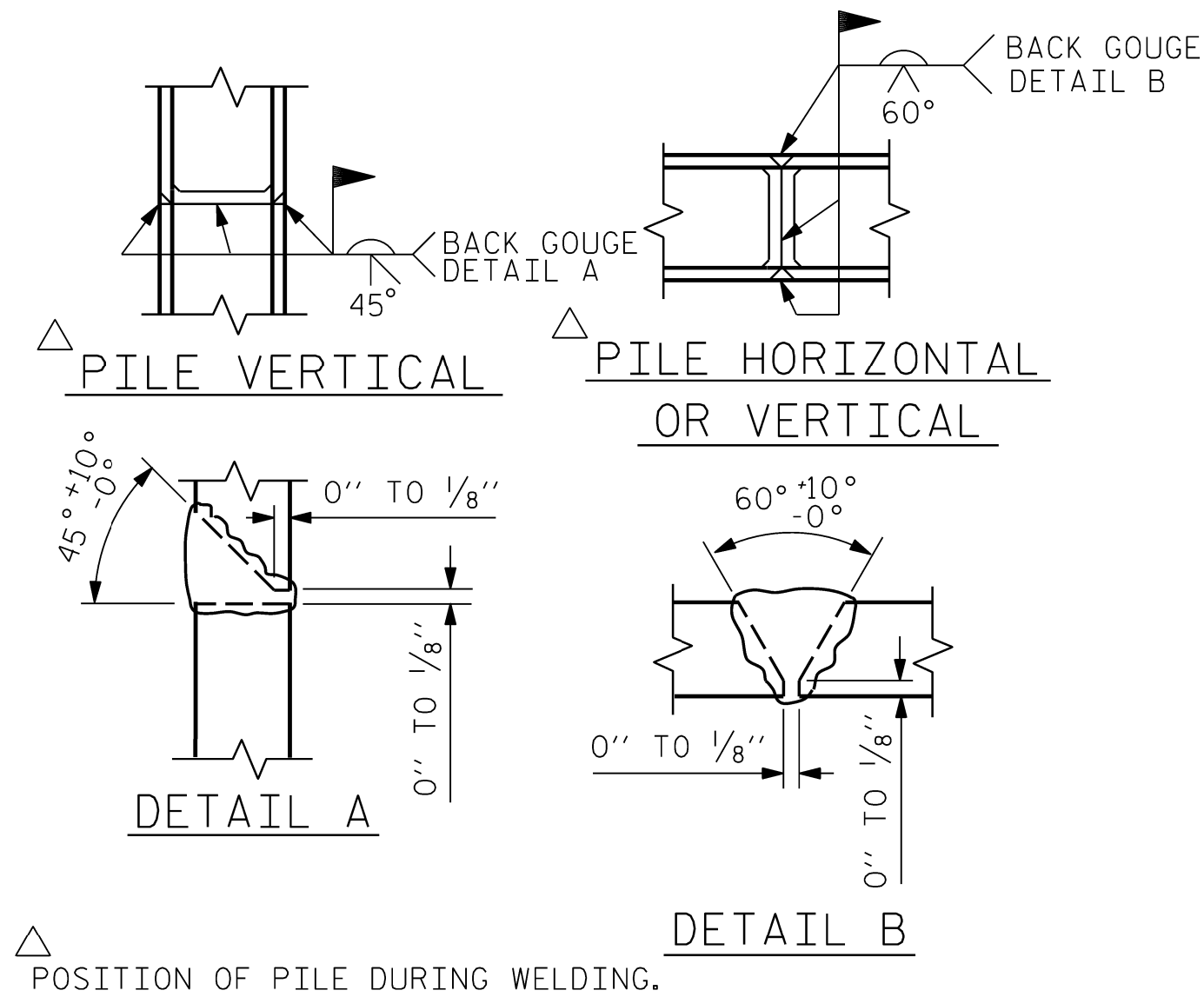


PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL



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

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 2

HP 12 X 53 STEEL PILES

NO: 7 LIN. FT. = 105

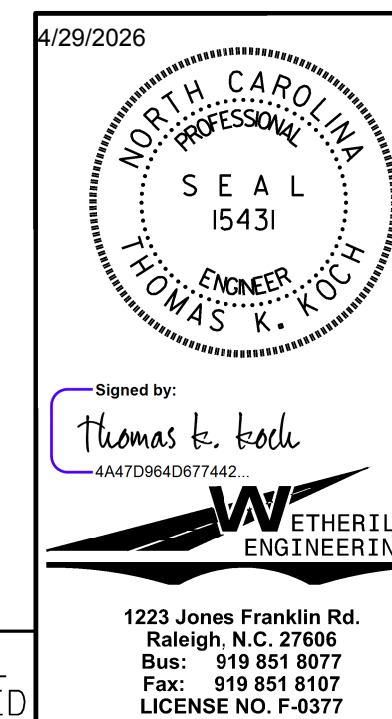
PILE DRIVING EQUIPMENT
SETUP FOR
HP 12 X 53 STEEL PILES

NO: 7

BILL OF MATERIAL					
FOR END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	45'-7"	1240
B2	28	#4	STR	22'-10"	427
B3	11	#4	STR	2'-5"	18
D1	20	#6	STR	1'-6"	45
H1	10	#4	2	6'-3"	42
H2	10	#4	2	6'-5"	43
H3	10	#4	3	6'-11"	46
H4	10	#4	3	6'-9"	45
K1	16	#4	STR	2'-8"	28
S1	58	#4	4	10'-5"	404
S2	58	#4	5	3'-2"	123
S3	28	#4	6	6'-6"	122
V1	43	#4	STR	6'-1"	175
REINFORCING STEEL (FOR END BENT 2)					2757 LBS.
CLASS A CONCRETE BREAKDOWN (FOR END BENT 2)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS				21.5 C.Y.
POUR #2	UPPER PART OF WINGS				1.5 C.Y.
TOTAL CLASS A CONCRETE					23.0 C.Y.

PROJECT NO. HB-0061
CALDWELL COUNTY
 STATION: 10+42.00 - L -

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

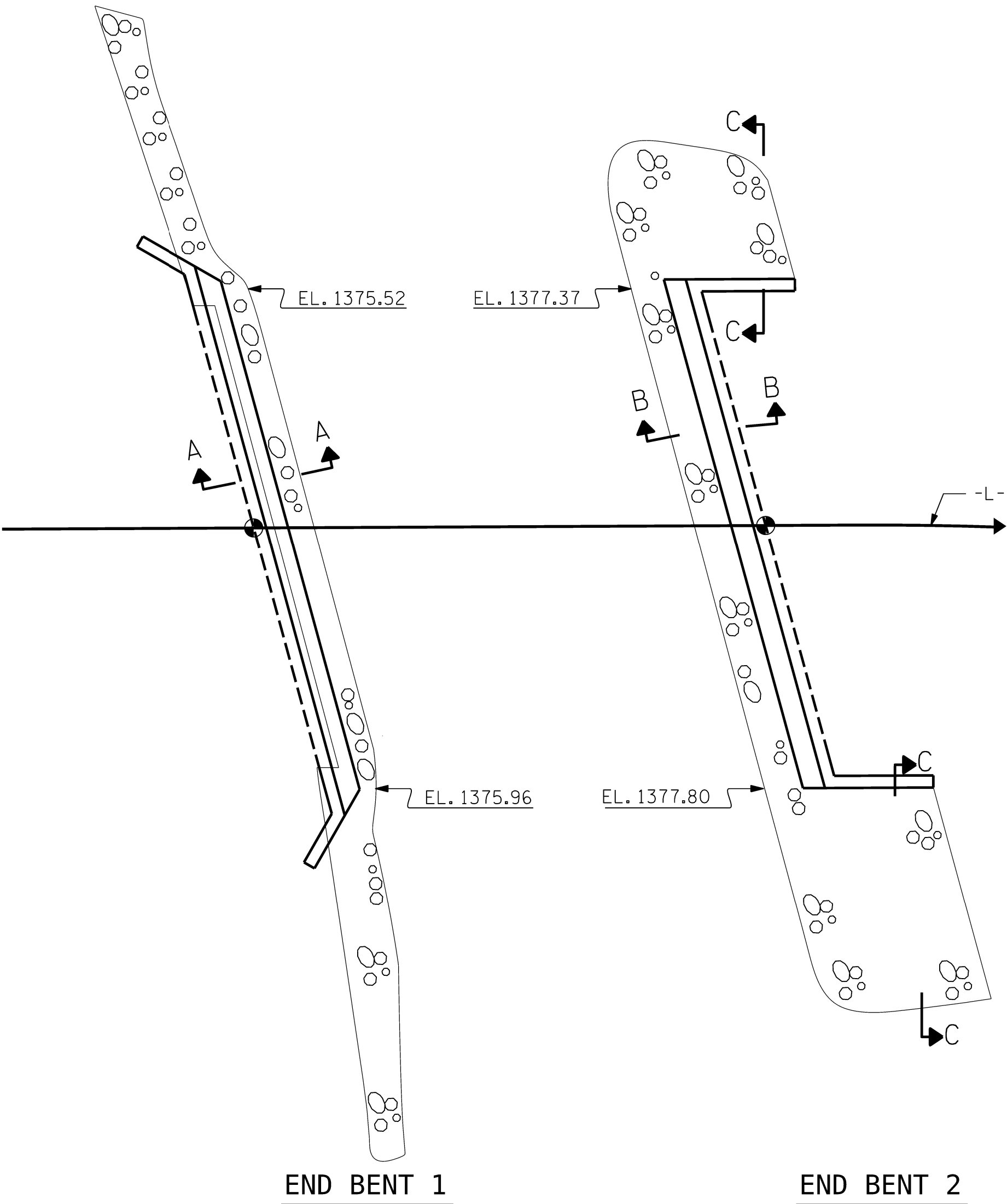
SUBSTRUCTURE

END BENT No. 2
DETAILS

REVISIONS						SHEET NO. S-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			

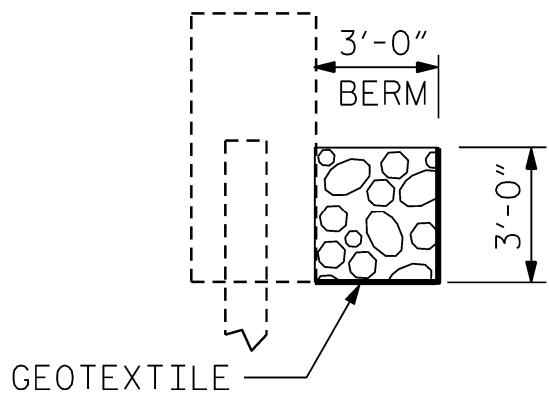
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UNLESS ALL SIGNATURES COMPLETED

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

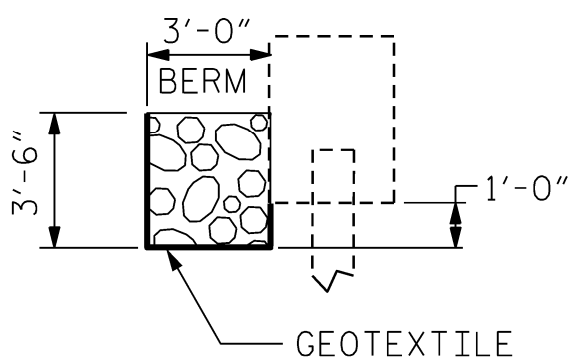


PLAN OF RIP RAP

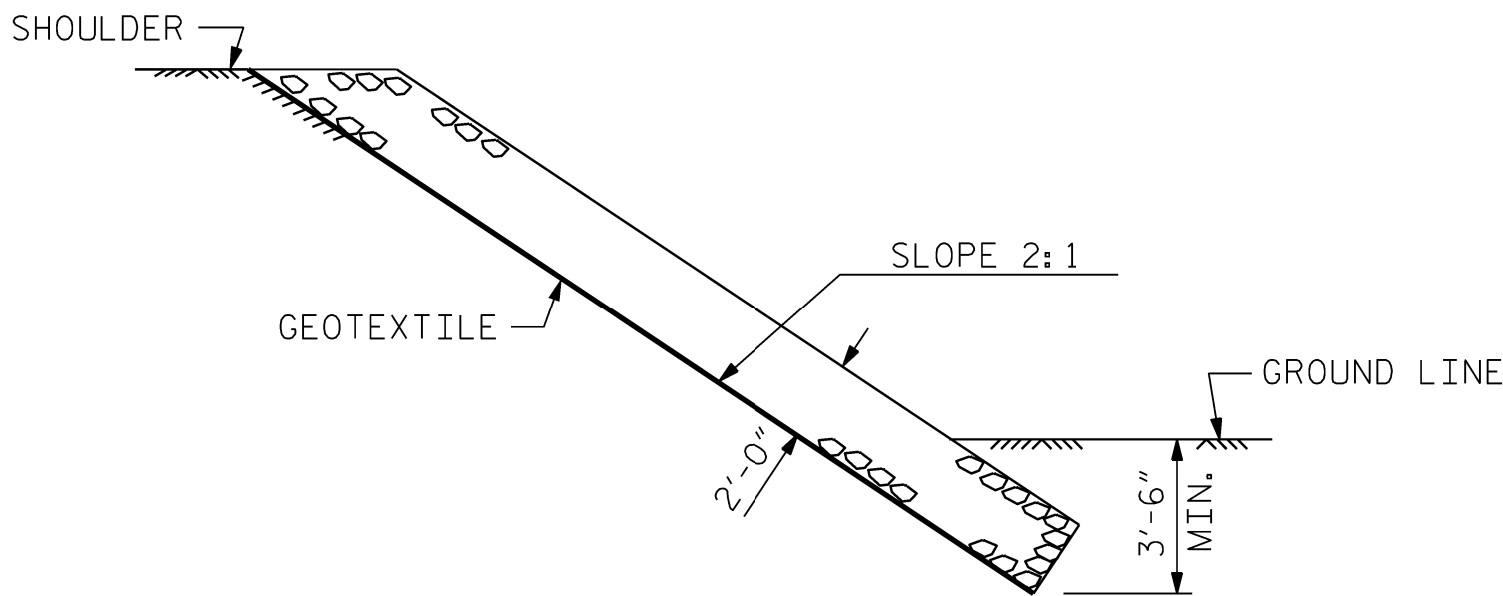
ESTIMATED QUANTITIES		
BRIDGE @ STA. 10+42.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	48	53
END BENT 2	66	72



END BENT 1
SECTION A-A



END BENT 2
SECTION B-B



SECTION C-C

PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 -L-**

4/29/2026

NORTH CAROLINA

PROFESSIONAL

SEAL

15431

ENGINEER

THOMAS K. KOCH

Signed by:

Thomas K. Koch

4A47D864D677442

WETHERILL

ENGINEERING

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

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD

RIP RAP DETAILS

REVISIONS

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

SHEET NO.

S-19

TOTAL SHEETS

21

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STD. NO. RR1

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Technical drawing of a bridge bent showing plan and elevation views with reinforcement details.

Plan View (Top):

- Overall width: 36'-0" (CLEAR ROADWAY).
- Slab width: 16'-8 3/16" (TOP OF SLAB) and 17'-11 13/16" (BOTTOM OF SLAB).
- Reinforcement: 11-#4A3 @ 1'-0" CTS. (TOP OF SLAB) and 11-#4A4 @ 1'-0" CTS. (BOTTOM OF SLAB).
- Dimensions: 12'-0" (slab width), 3'-0" (TYP.) (slab thickness), 1'-3" (slab offset).
- Orientation: North arrow pointing up.
- Labels: "END APPROACH SLAB STA. 10+74.00 -L- OFFSET 0.017' LT." and "FILL FACE @ END BENT #2".

Elevation View (Bottom):

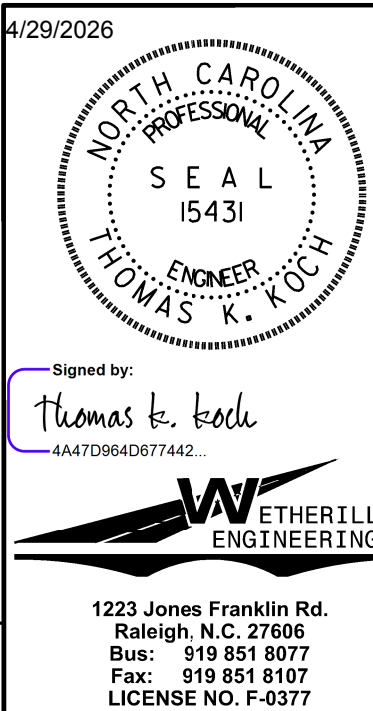
- Overall height: 34'-8" (CLEAR ROADWAY).
- Slab thickness: 6" (TYP.).
- Reinforcement: #4A4 (BOTT. OF SLAB) and #4A3 (TOP OF SLAB).
- Dimensions: 3'-0" (slab thickness), 3'-0" (slab offset).
- Orientation: North arrow pointing up.
- Labels: "END APPROACH SLAB STA. 10+74.00 -L- OFFSET 0.017' LT." and "FILL FACE @ END BENT #2".

PROJECT NO. **HB-0061**

CALDWELL COUNTY

STATION: 10+42.00 -L-

SHEET 1 OF 2



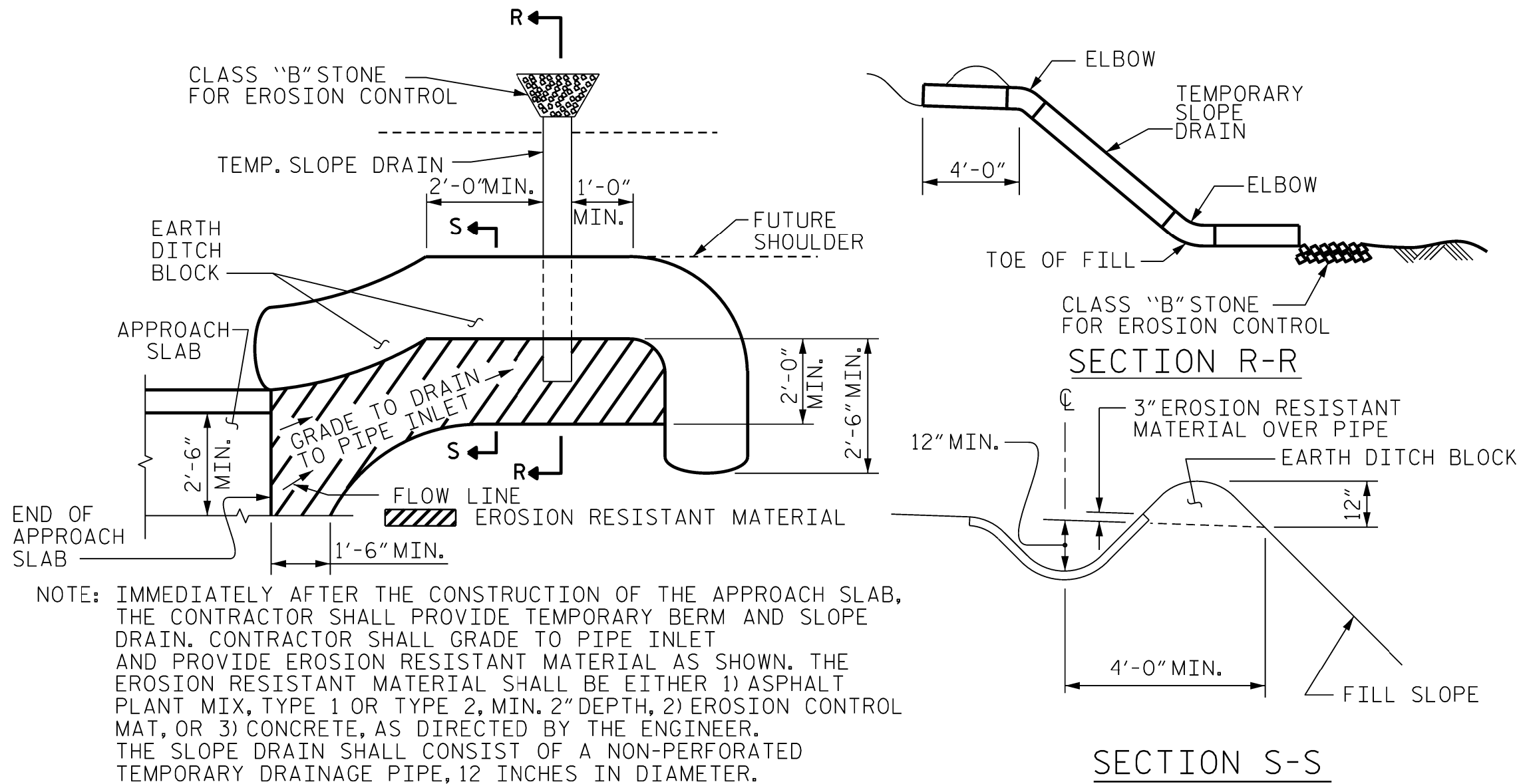
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)
75° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			

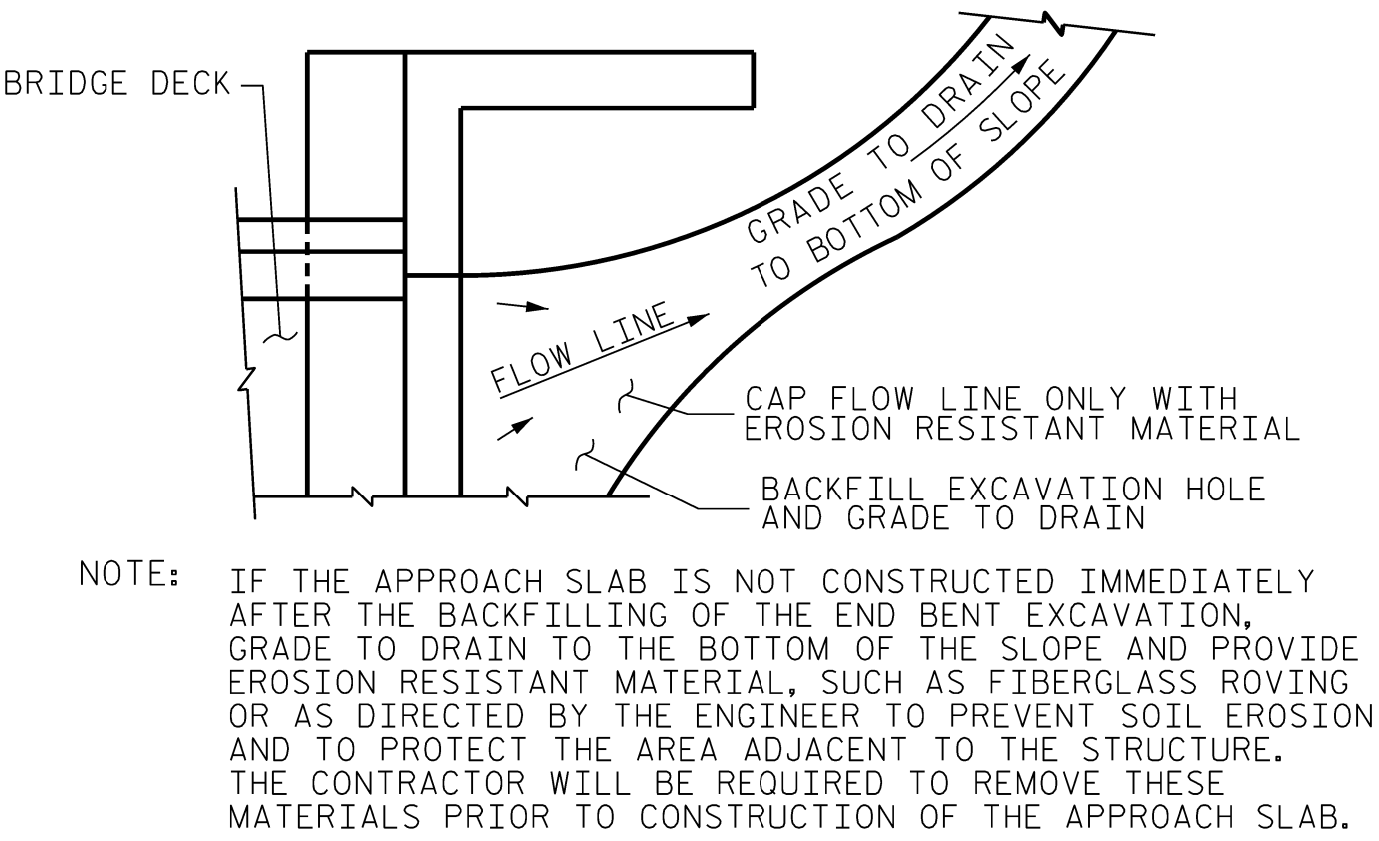
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UNLESS ALL SIGNATURES COMPLETED

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4/29/2026 3:04:44 PM



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

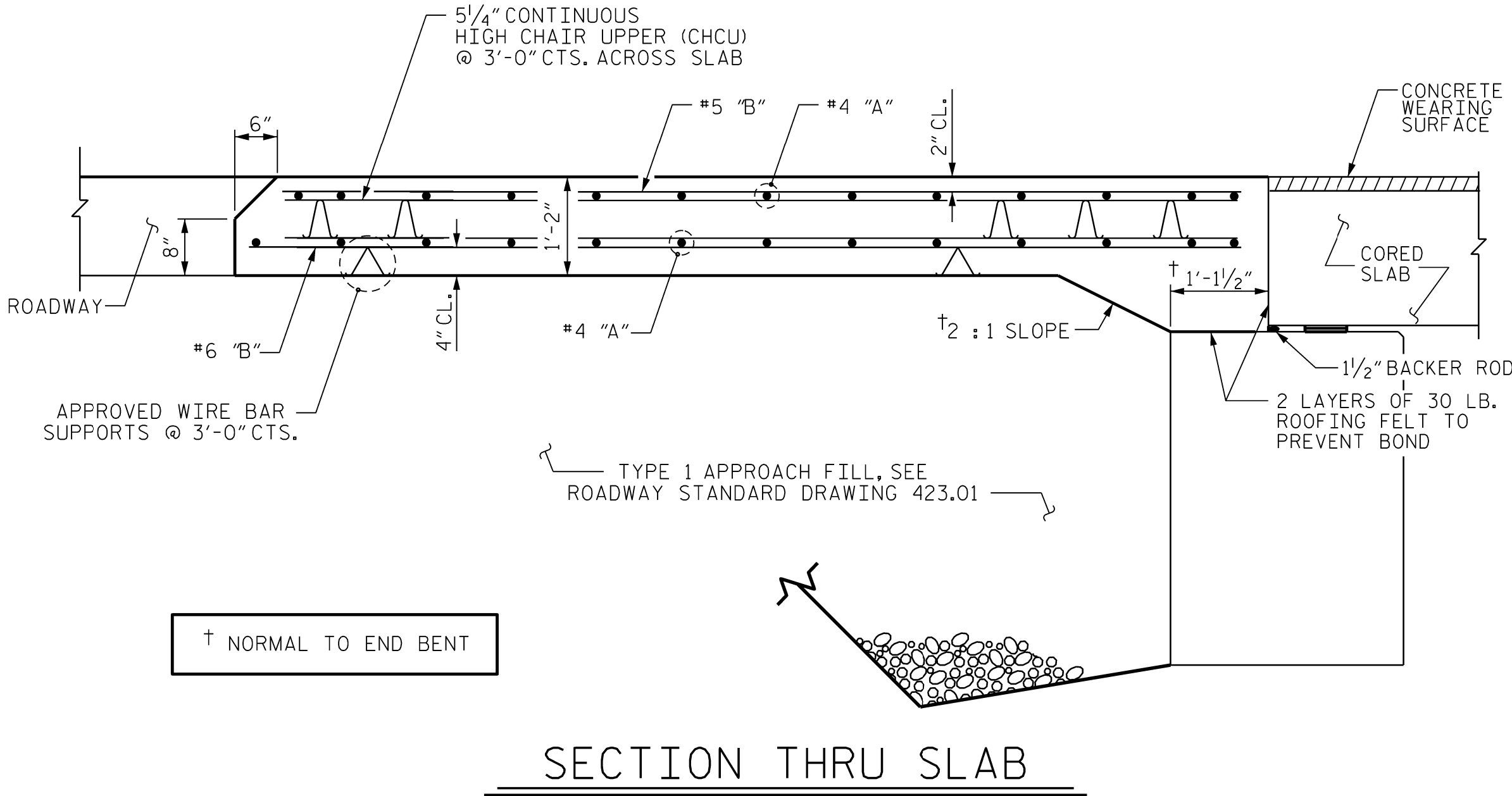
NOTES
FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED, SEE ROADWAY PLANS.



TEMPORARY DRAINAGE DETAIL

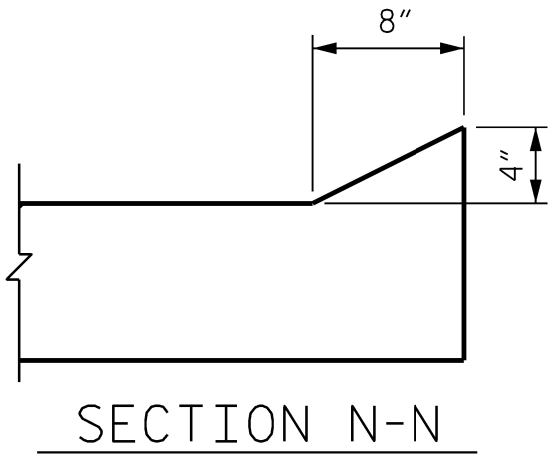
BILL OF MATERIAL											
APPROACH SLAB AT EB #1											
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	27'-4"	474	*B31	1	#5	STR	10'-5"	11
A2	26	#4	STR	27'-2"	472	*B32	1	#5	STR	9'-9"	10
						*B33	1	#5	STR	9'-1"	9
*B1	76	#5	STR	11'-1"	879	*B34	1	#5	STR	8'-5"	9
B2	76	#6	STR	11'-7"	1322	*B35	1	#5	STR	7'-9"	8
*B3	2	#6	STR	10'-6"	32	*B36	1	#5	STR	7'-1"	7
*B4	2	#6	STR	9'-9"	29	*B37	1	#5	STR	6'-5"	7
*B5	2	#6	STR	8'-11"	27	*B38	1	#5	STR	5'-9"	6
*B6	2	#6	STR	8'-2"	25	*B39	1	#5	STR	5'-1"	5
*B7	2	#6	STR	7'-4"	22	B40	1	#6	STR	10'-11"	16
*B8	2	#6	STR	6'-7"	20	B41	1	#6	STR	10'-3"	15
*B9	2	#6	STR	5'-10"	18	B42	1	#6	STR	9'-7"	14
*B10	2	#6	STR	5'-0"	15	B43	1	#6	STR	8'-11"	13
*B11	2	#6	STR	4'-9"	13	B44	1	#6	STR	8'-3"	12
*B12	2	#6	STR	3'-6"	11	B45	1	#6	STR	7'-7"	11
*B13	2	#6	STR	3'-5"	10	B46	1	#6	STR	6'-11"	10
*B14	2	#6	STR	3'-1"	9	B47	1	#6	STR	6'-3"	9
B15	2	#5	STR	11'-0"	23	B48	1	#6	STR	5'-7"	8
B16	2	#5	STR	10'-3"	21						
B17	2	#5	STR	9'-5"	20						
B18	2	#5	STR	8'-8"	18						
B19	2	#5	STR	7'-10"	16						
B20	2	#5	STR	7'-1"	15						
B21	2	#5	STR	6'-4"	13						
B22	2	#5	STR	5'-6"	11						
B23	2	#5	STR	4'-9"	10						
B24	2	#5	STR	4'-0"	8						
B25	2	#5	STR	3'-11"	8						
B26	2	#5	STR	3'-7"	7						

REINFORCING STEEL		LBS.	2077
*EPOXY COATED REINFORCING STEEL		LBS.	1655
CLASS AA CONCRETE		C. Y.	26.5
APPROACH SLAB AT EB #2			
BAR	NO.	SIZE	TYPE
*A3	13	#4	STR
A4	13	#4	STR
*B100	72	#5	STR
B200	72	#6	STR
REINFORCING STEEL		LBS.	1573
*EPOXY COATED REINFORCING STEEL		LBS.	1152
CLASS AA CONCRETE		C. Y.	20.6



SECTION THRU SLAB

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



CURB DETAILS

PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 -L-**

SHEET 2 OF 2

DRAWN BY : J. PENDERGRAFT DATE : 2-26
CHECKED BY : T. KOCH DATE : 2-26
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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UNLESS ALL SIGNATURES COMPLETED

4/29/2026
NORTH CAROLINA PROFESSIONAL SEAL 15431
ENGINEER THOMAS K. KOCH
Signed by: Thomas K. Koch
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377
ETHERILL ENGINEERING

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) DETAILS 75° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-21
					TOTAL SHEETS 21

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

PROJECT NO. **HB-0061**
CALDWELL COUNTY
STATION: **10+42.00 -L-**

4/29/2026

NORTH CAROLINA

PROFESSIONAL

SEAL

15431

ENGINEER

THOMAS K. KOCH

Signed by:

Thomas K. Koch

44470964D677442

WETHERILL

ENGINEERING

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

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD NOTES

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

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UNLESS ALL SIGNATURES COMPLETED

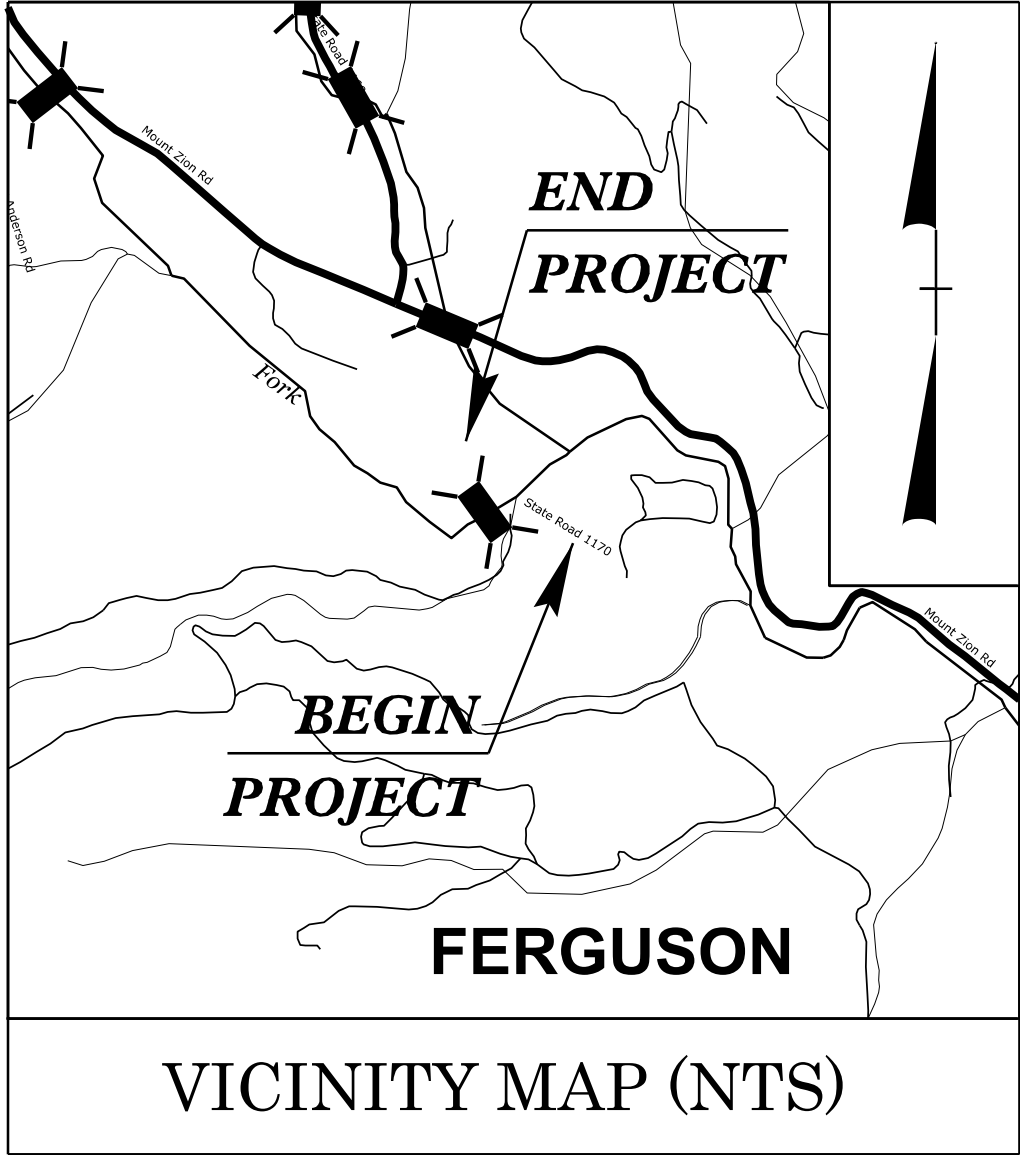
DRAWN BY :	J. PENDERGRAFT	DATE :	1-25
CHECKED BY :		DATE :	
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

P:\2024\241340\1-HB006\Structures\02 - Plan Production\01 - Down\99_001-HB006_1-SMU-SN_001.dgn
4/29/2026 3:42:04 PM

TIP PROJECT: HB-0065

CONTRACT: DK00483

See Sheet 1A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

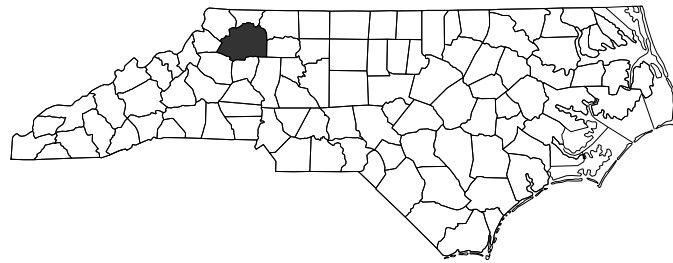
WILKES COUNTY

LOCATION: *REPLACE BRIDGE 960691 OVER STONY FORK
ON SR 1170 (CASPER HAWKINS ROAD)*

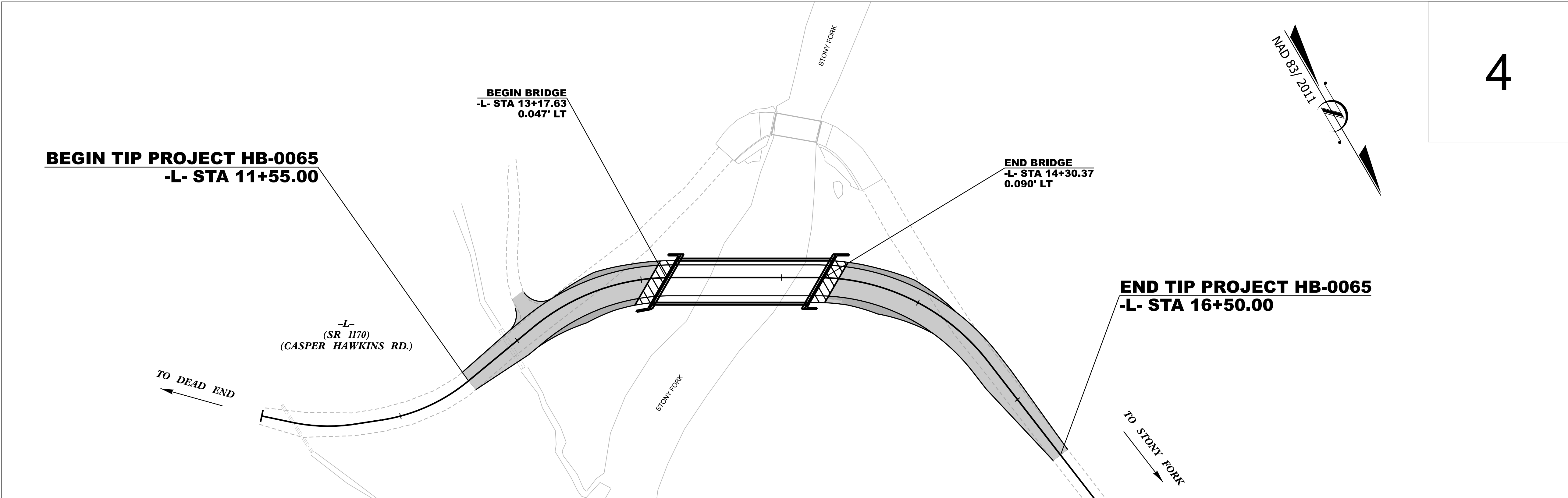
TYPE OF WORK: *GRADING, DRAINAGE, PAVING,
& STRUCTURE*

PART III

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0065	11	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50735.1.1	FBRG111	P.E.	
50735.2.1	FBRG111	ROW	
50735.2.2	FBRG111	UTIL.	
50735.3.1	FBRG111	CONST.	



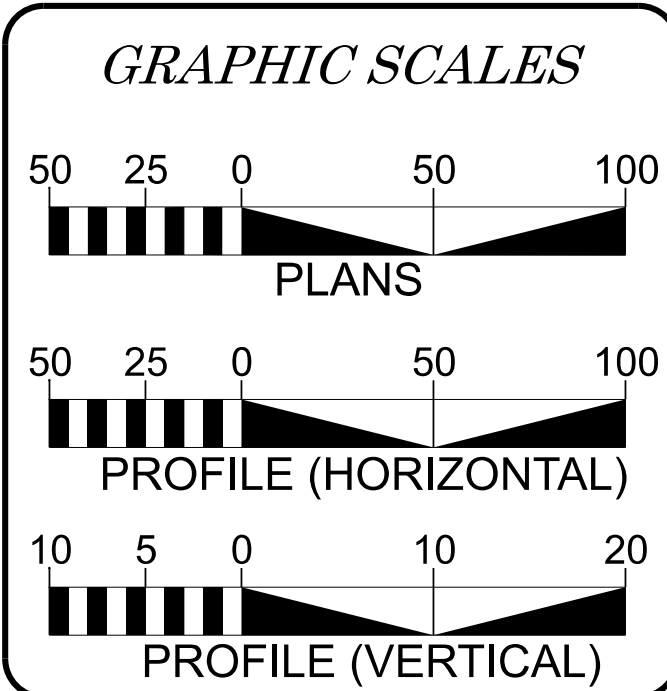
FINAL PLANS



4

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA	
ADT 2025 =	90
ADT 2045 =	110
K =	N/A
D =	N/A
T =	N/A
V =	25 MPH
FUNC CLASS =	
LOCAL	
SUBREGIONAL TIER	

PROJECT LENGTH
LENGTH OF ROADWAY TIP PROJECT HB-0065 = 0.073 MILES
LENGTH OF STRUCTURE TIP PROJECT HB-0065 = 0.021 MILE
TOTAL LENGTH OF TIP PROJECT HB-0065 = 0.094 MILES

Prepared in the Office of:

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

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 15 , 2025

LETTING DATE:
SEPTEMBER 17, 2026

Prepared for:
DIVISION OF HIGHWAYS
DIVISION 11
801 Statesville Rd North Wilkesboro, 28659

NCDOT CONTACT:
RAMIE A. SHAW, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

CHRIS D. ANDERSON, PE
PROJECT ENGINEER

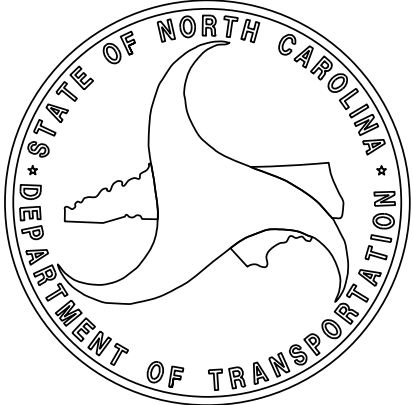
JOSE A. ROSADO JR.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
7/31/2026

Signed by: Harinder Singh P.E.
SIGNATURE

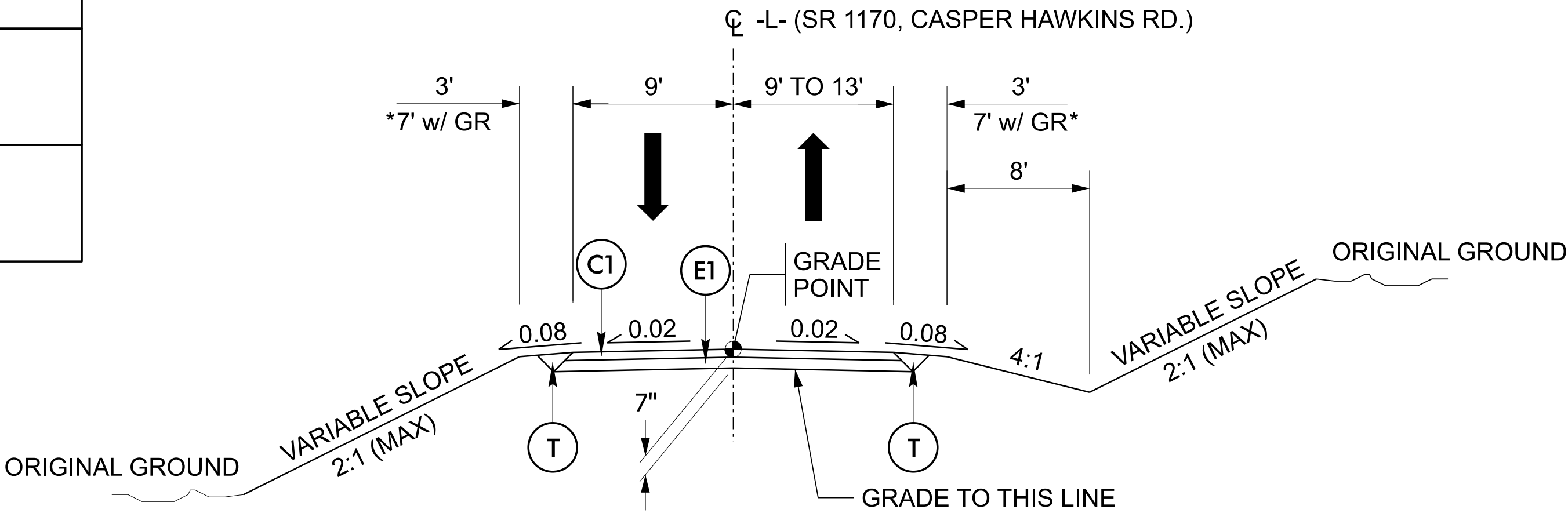
ROADWAY DESIGN ENGINEER
7/30/2026

Signed by: Christopher D. Anderson P.E.
SIGNATURE



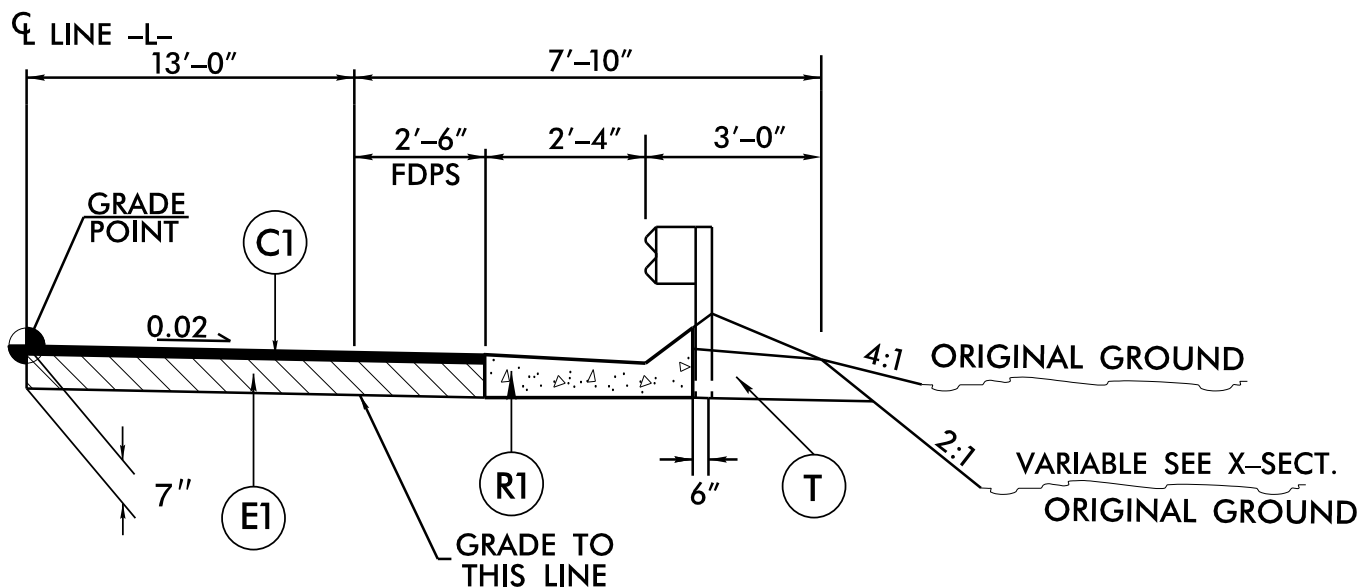
PAVEMENT SCHEDULE	
PAVEMENT DESIGN DATED 8/14/2024	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.

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



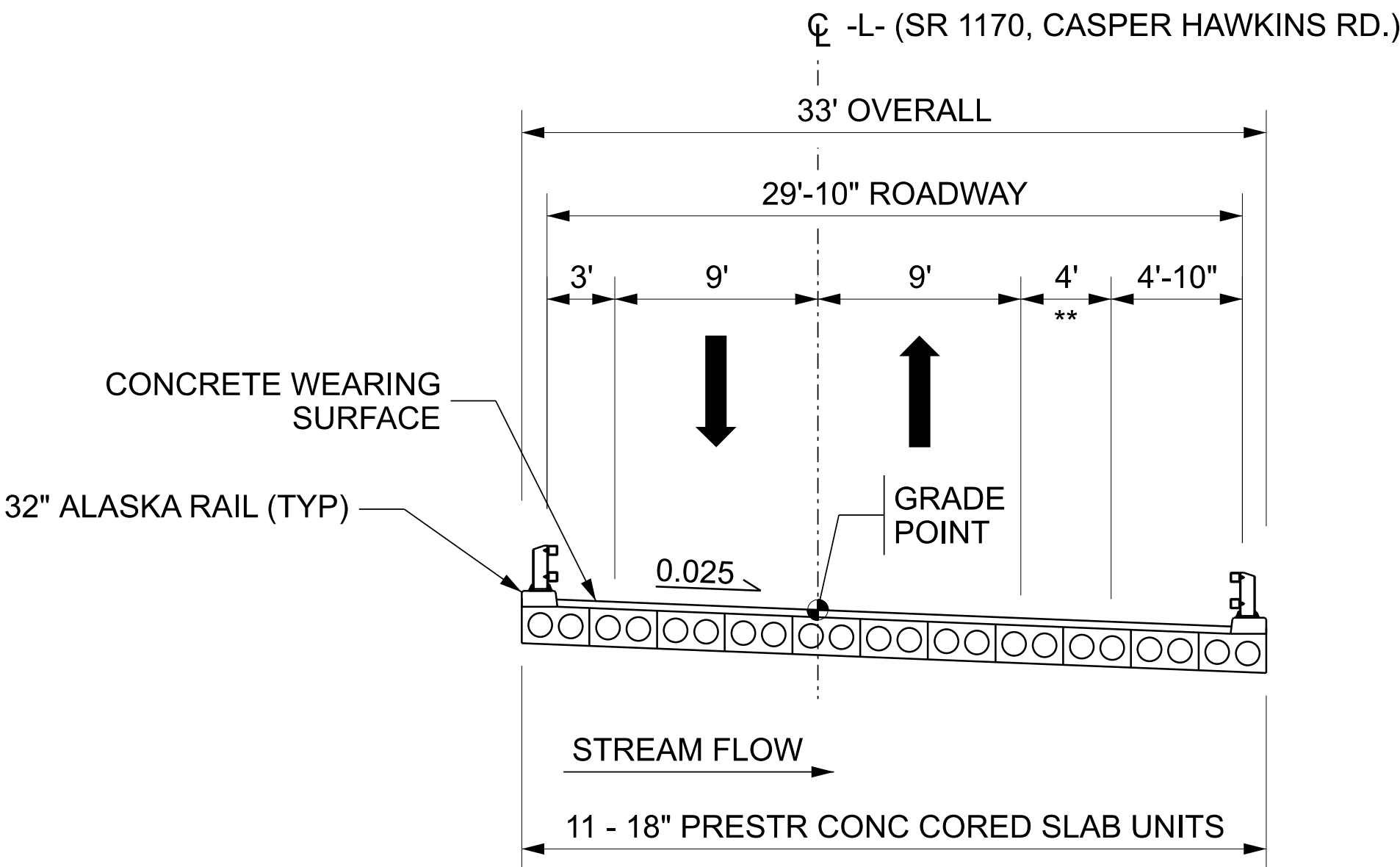
TYPICAL SECTION NO. 1

* 4' TO FACE OF GUARDRAIL
-L- STA. 11+55.00 TO 13+17.60 (BEGIN BRIDGE)
-L- STA. 14+30.32 (END BRIDGE) TO 16+50.00



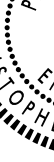
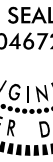
**-L- SHOULDER BERM
GUTTER DETAIL**

USE SHOULDER BERM GUTTER DETAIL IN
CONJUNCTION WITH TYPICAL
SECTION NO. 1
FROM -L- STA 14+33.21 TO -L- STA. 14+45.00 RT.



BRIDGE TYPICAL SECTION

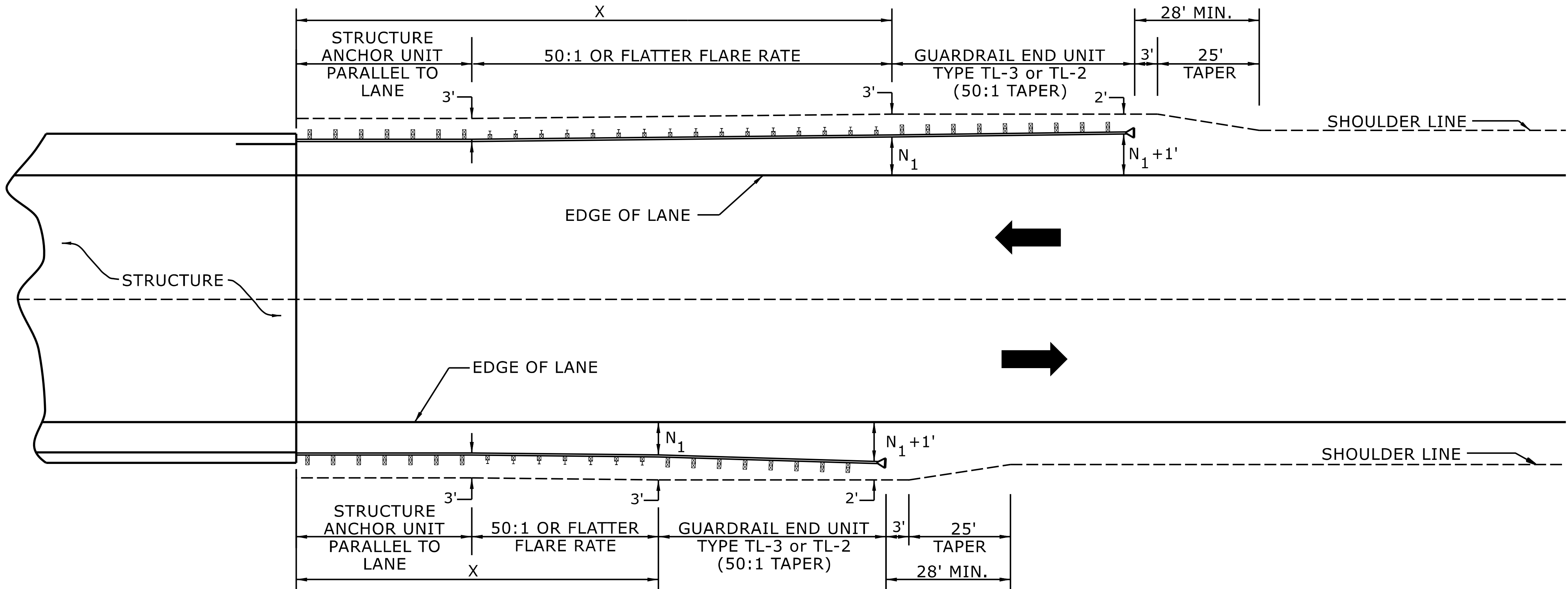
**** 4' PROVIDED FOR WIDENING OF TRAVELED WAY ON CURVE
-L- STA. 13+17.60 TO 14+30.32**

HB-0065	
RDY	2A-1
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WILKES COUNTY	
	
ROADWAY DESIGN UNIT	
ROADWAY DESIGN ENGINEER	
7/31/2026	
	
Signed by: <u>Harinder Singh</u>	
PAVEMENT DESIGN ENGINEER	
7/30/2026	
	
Decommissioned by: <u>Kamal H. Shaw</u>	
049851-049851	
PREPARED BY	
	
WE DESIGN YOUR TOMORROW...	
1228 JONES FRANKLIN ROAD RALEIGH, NC 27606 919-885-1877 NC LICENSE PG077	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS

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

PROJECT REFERENCE NO.	SHEET NO.
HB-0065	2C-3



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



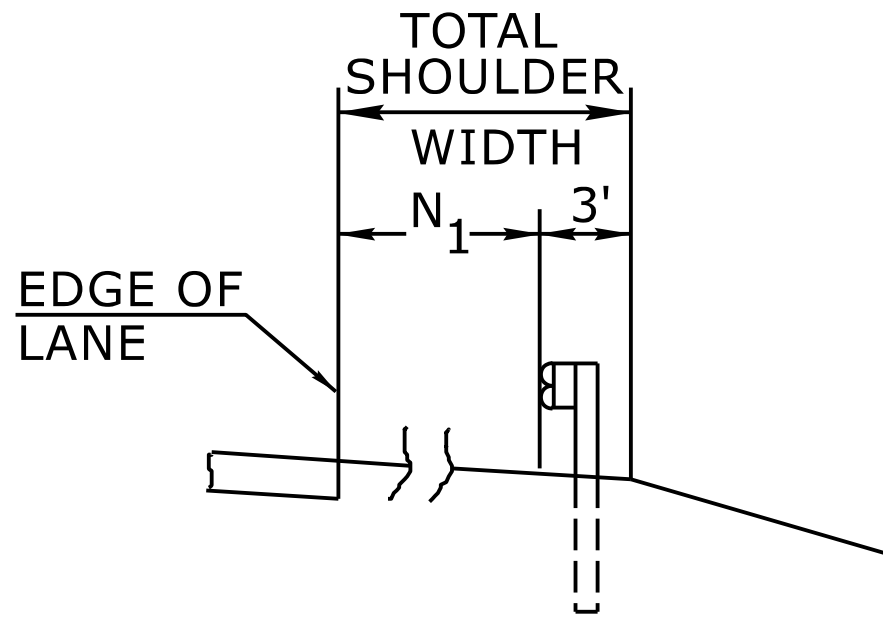
LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

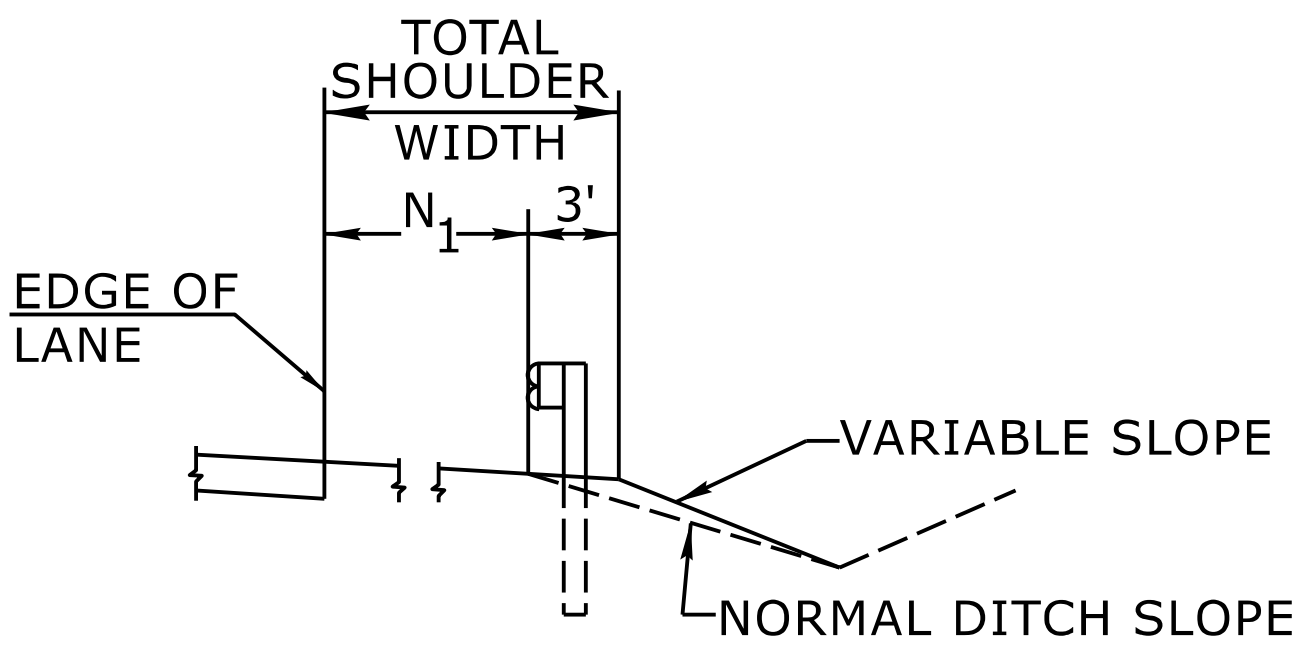
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

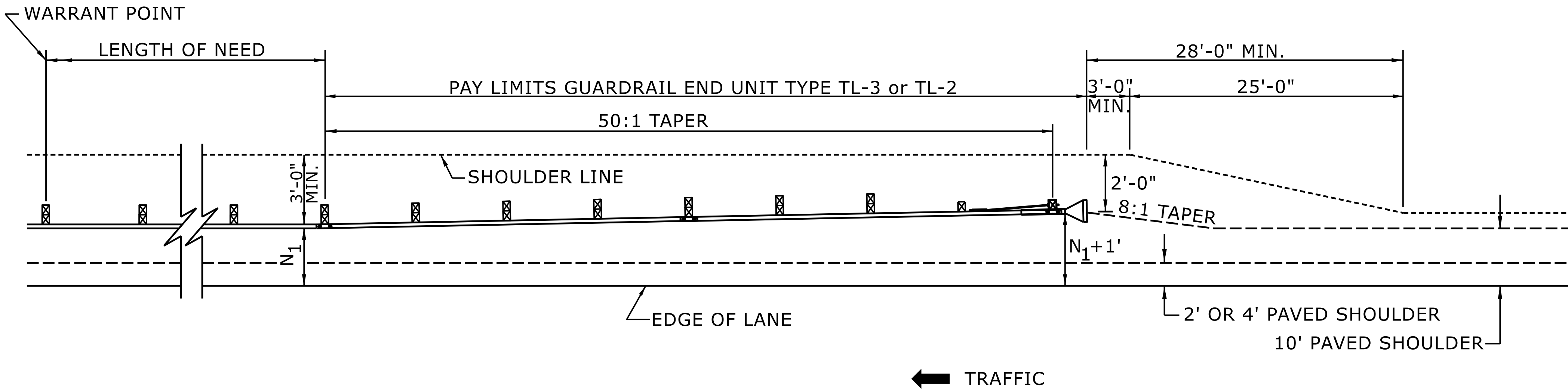


FILL SECTION



CUT SECTION

"N₁"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



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

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01



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.:			

11/14/23	COMPUTED BY: JAR	DATE: 3/19/2023
	CHECKED BY: CA	DATE: 7/15/2026

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK					
STATION	STATION	UNCL. EXCAV.	EMBANK. +15%	BORROW	WASTE
-L-					
11+55.00	13+17.60 (Begin Bridge)	63	415	352	0
14+30.32 (End Bridge)	16+50.00	140	500	360	0
TOTALS:		203	915	712	0
PROJECT TOTALS:		203	915	712	0
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				36	
GRAND TOTALS:		203	915	748	0
SAY:		210		780	
Note: Earthwork quantities are calculated by the Roadway Design Engineer. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineer.					
Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for grading.					

PAVEMENT REMOVAL SUMMARY							
IN SQUARE YARDS							
SURVEY LINE	STATION	STATION	LOCATION	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
L	13+53.00	14+00.00	LT			109.22	
L	14+25.00	14+57.00	LT			126.67	
		TOTAL:				235.89	
		SAY:				250	

SHOULDER BERM GUTTER SUMMARY			
LINE	STATION *	STATION	LENGTH
L (RT)	14+33.21	14+45.00	11.79
		TOTAL:	11.79
		SAY:	15.00
* BEGIN AT APPROACH SLAB, STATION IS FRONT OF CURB			

"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

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	B-77 SC		G	NG			
L	12+69.61	13+25.86	LT	56.25'			BEGIN BRIDGE		3.0000'	6.0000'	25.00'		1.00'		1			1										
L	12+50.75	13+07.00	RT	56.25'			BEGIN BRIDGE		4.2323'	7.2323'	25.00'		1.00'		1			1										
L	14+35.20	14+91.45	LT	56.25'				END BRIDGE	3.3569'	6.3569'		25.00'		1.00'	1			1										
L	14+18.78	14+75.03	LT	56.25'				END BRIDGE	4.8333'	7.8333'		25.00'		1.00'	1			1										SHOULDER BERM GUTTER
		SUBTOTAL		225.00'																								
		LESS ANCHOR DEDUCTIONS																										
	GREU, TL-2	4 AT 25.00'	=	100.00'																								
	TYPE III	4 AT 18.75'	=	75.00'																								
		TOTAL		50.00'											4			4										
	5 ADDITIONAL GUARDRAIL POSTS																											

REVISIONS

HB-0065

RDY38-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WILKES COUNTY



ROADWAY DESIGN UNIT

PREPARED BY



WE DESIGN YOUR TOMORROW...

1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919)851-8077
NC LICENSE F-6377

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT NO.	SHEET NO.
HB-0065	3D-1

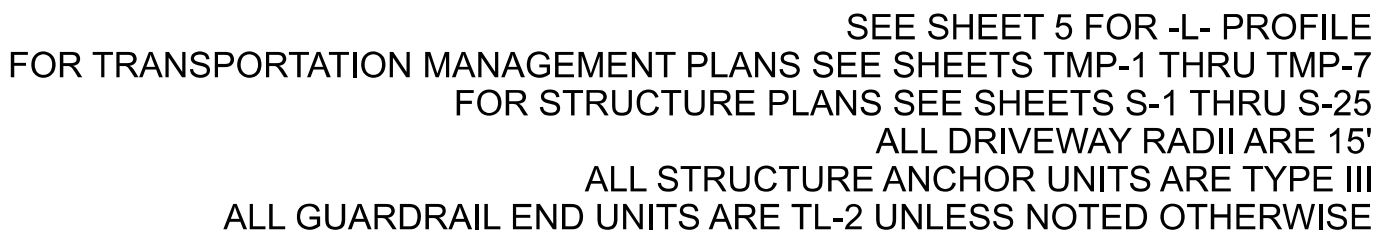
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

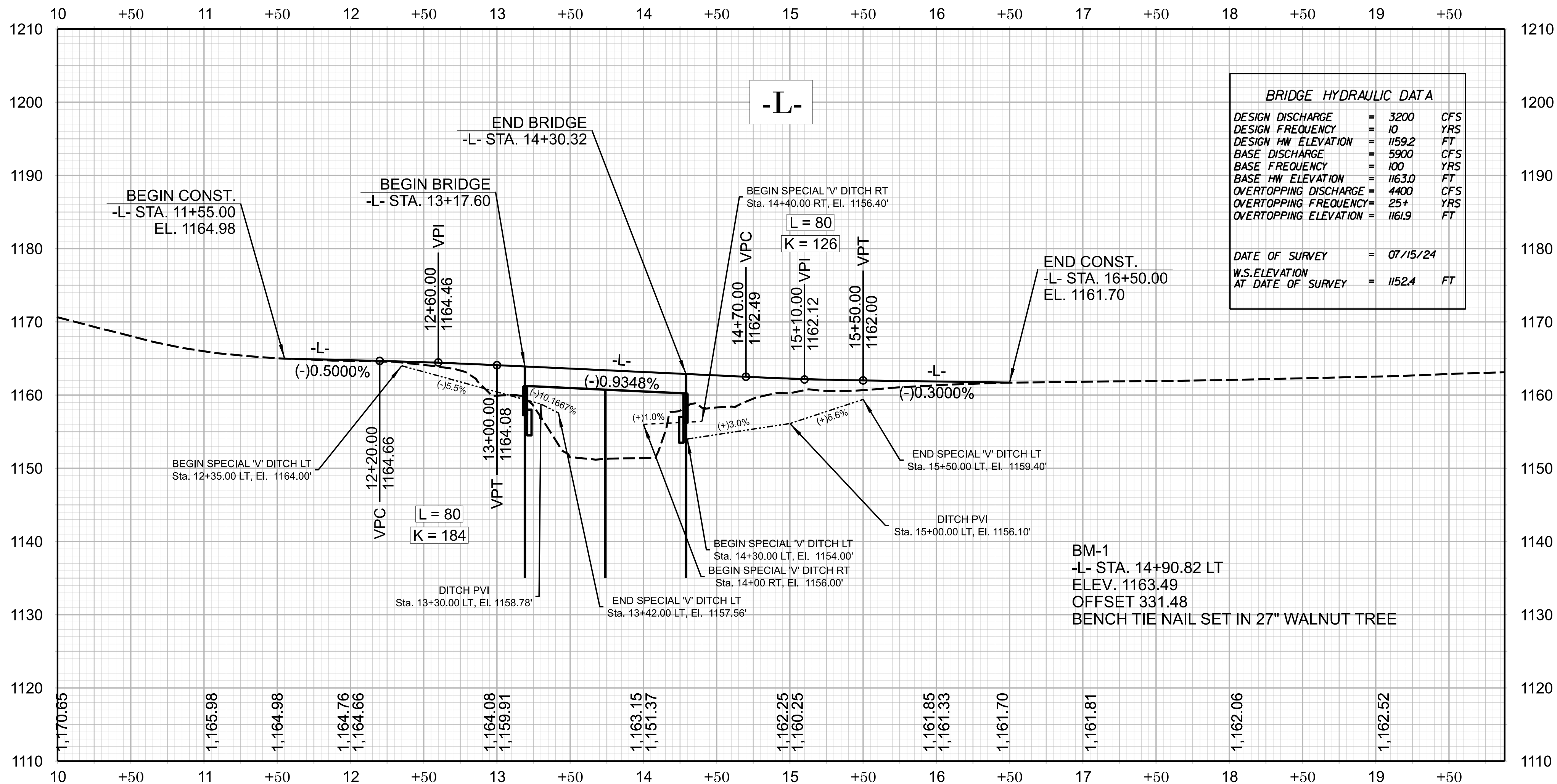
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COMPUTED BY: A. A. NASH DATE: JULY 21, 2026 CHECKED BY: A. F. RIGGS, JR DATE: JULY 21, 2026				(9-17-24)				PROJECT NO. HB-0065		SHEET NO. 3G-1							
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS																	
SUMMARY OF SUBSURFACE DRAINAGE						SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION											
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF	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				SD	200												
				TOTAL LF:	200												

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

*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.





HB-0065

RDY | 5

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WILKES COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER
7/30/2026

Signed by:
Christopher D. Anderson
HYDRAULICS ENGINEER
7/31/2026

Signed by:
Haminder Singh
PREPARED BY

WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27806
(919)851-8077
NC LICENSE F-0377

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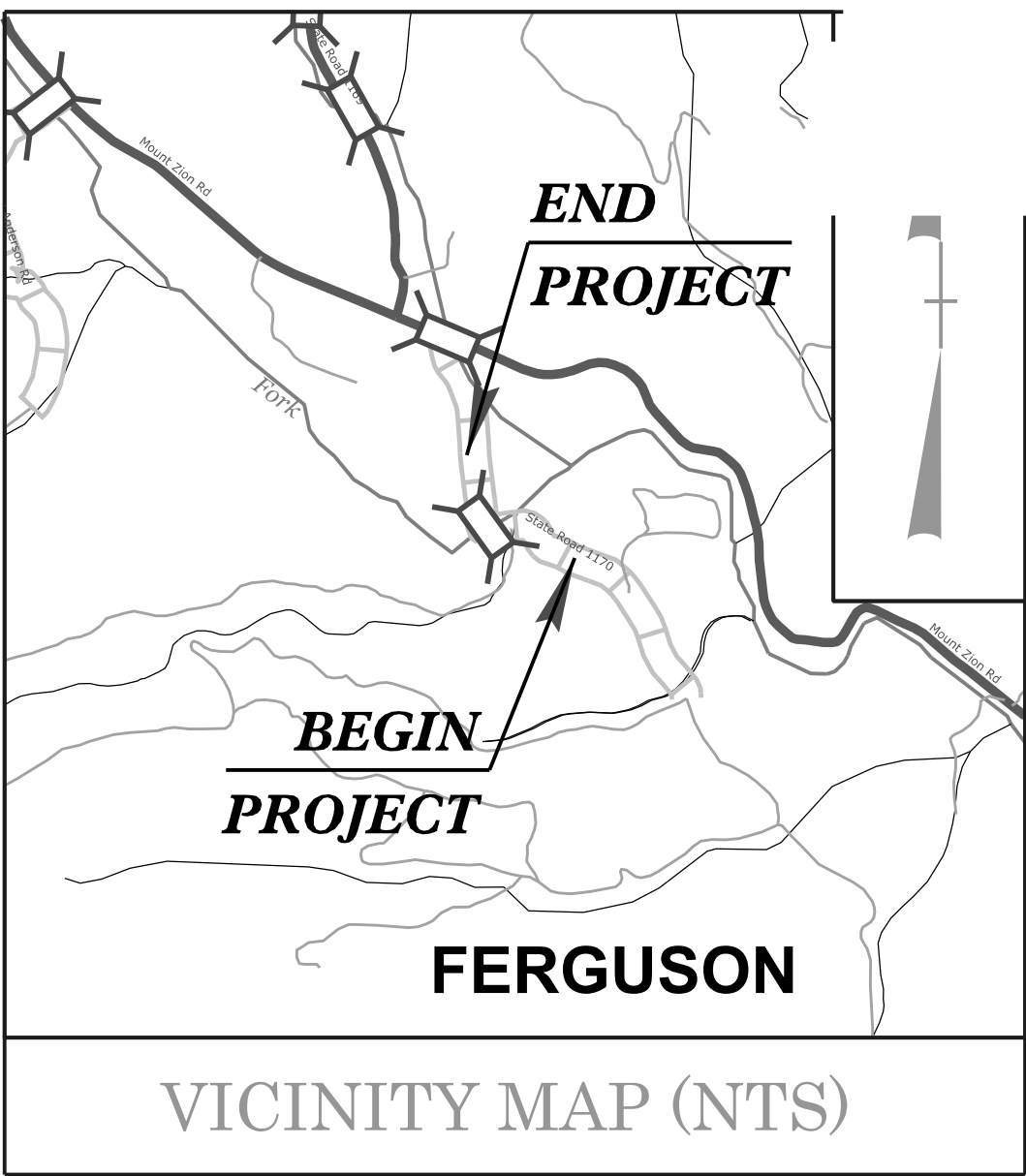
REVISIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

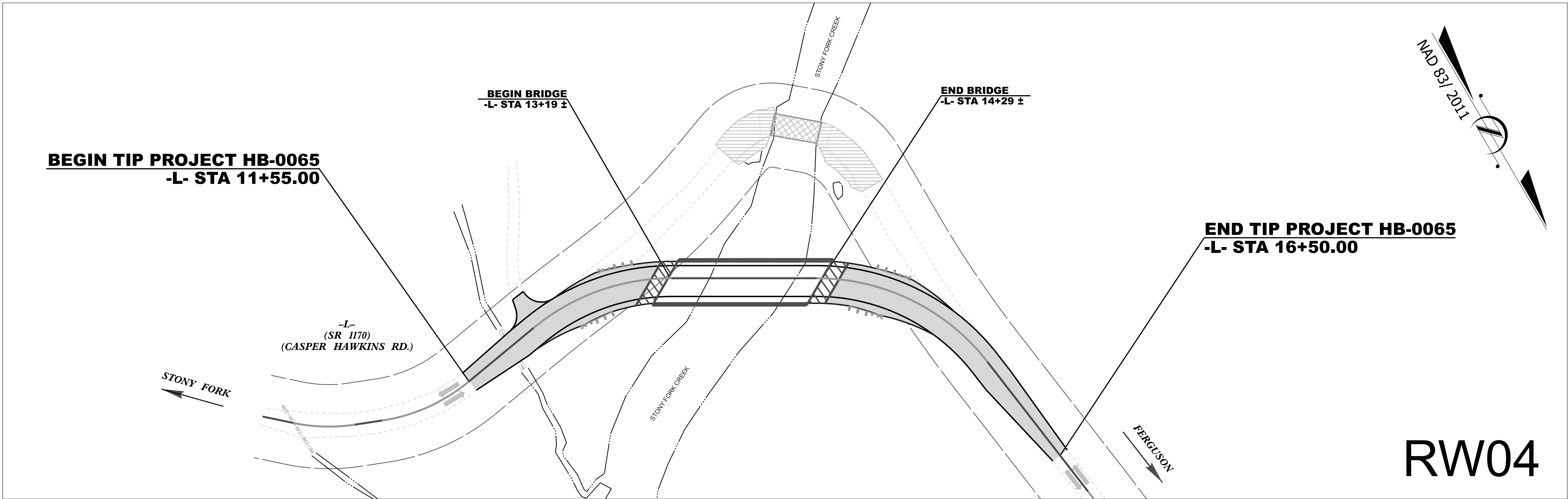
SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

WILKES COUNTY

STATE NO.	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0065	RW01	6



VICINITY MAP (NTS)



RW04

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 GPS 960691-2 (**POINT DESTROYED)
WITH NAD83/2011 STATE PLANE GRID COORDINATES OF
NORTHING: 874108.965 EASTING: 1292588.766
ELEVATION: 1159.45

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999939252
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:
AUGUST 15, 2025

LETTING DATE:
SEPTEMBER 17, 2026

PROFESSIONAL LAND
SURVEYOR

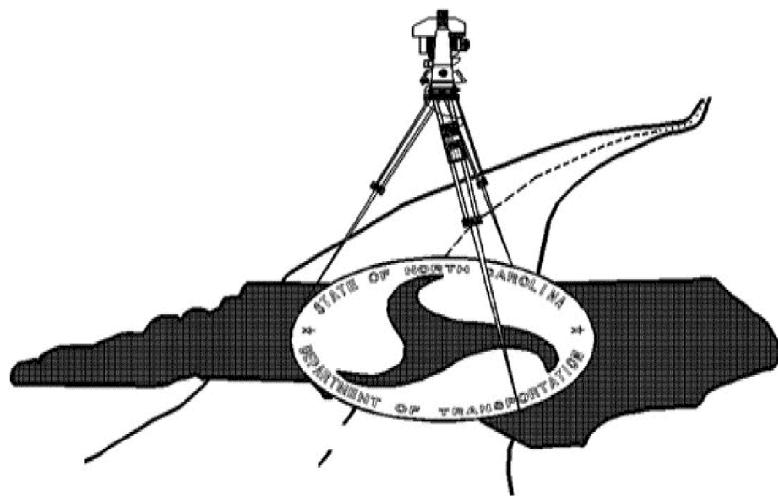


Signed by:
Matthew Cornwell
EB030F11473E475

10/17/2025

SIGNATURE:

DATE:



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.

10/17/2025

THIS

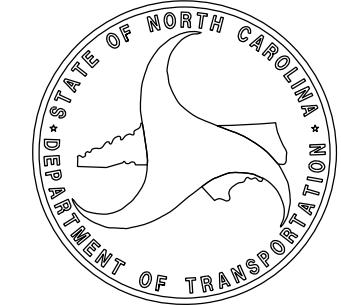
Signed by: Matthew Cornwell EBO09F11473E475

PROFESSIONAL LAND SURVEYOR L-4775

HB-0065

R/W 020-I

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



PROFESSIONAL LAND SURVEYOR



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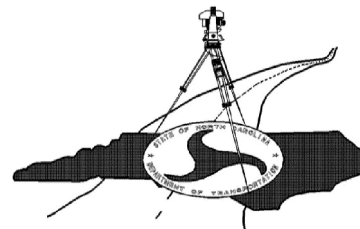
2024 STANDARD SPECIFICATIONS

PROPOSED ALIGNMENT: L												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
START	10+00.00	873972.4397	1293060.5302	N47°52'08.9"W	22.19							
PC	10+22.19	873987.3271	1293044.0718	N58°08'30.5"W	44.30	20°32'43.2"	46°08'04.9"	44.53	22.51	124.19		
PT	10+66.73	874010.7069	1293006.4495	N68°24'52.1"W	19.46							
PC	10+86.18	874017.8646	1292988.3577	N83°53'48.3"W	67.57	30°57'52.4"	45°16'08.3"	68.40	35.06	126.57		
PT	11+54.58	874025.0489	1292921.1688	S80°37'15.5"W	60.33							
PC	12+14.92	874015.2167	1292861.6421	N79°33'46.2"W	104.41	39°37'56.6"	37°12'18.2"	106.52	55.49	154.00		
PT	13+21.44	874034.1319	1292758.9565	N59°44'47.9"W	103.67							
PC	14+25.11	874086.3626	1292669.4070	N33°39'05.4"W	135.48	52°11'25.2"	37°12'18.2"	140.28	75.43	154.00		
PT	15+65.39	874199.1376	1292594.3333	N07°33'22.8"W	117.07							
PC	16+82.46	874315.1927	1292578.9383	N07°16'51.7"W	9.61	00°33'02.2"	05°43'46.5"	9.61	4.81	1000.00		
PT	16+92.07	874324.7253	1292577.7203	N07°00'20.5"W	226.29							
PC	19+18.36	874549.3292	1292550.1197	N06°10'01.0"W	69.64	01°40'39.2"	02°24'31.9"	69.64	34.82	2378.53		
PT	19+88.00	874618.5641	1292542.6388	N05°19'41.4"W	10.69							
END	19+98.69	874629.2095	1292541.6460									

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.

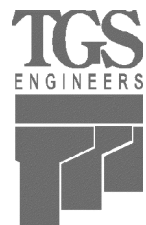
PREPARED FOR



LOCATION AND SURVEYS UNIT

PREPARED BY

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



TIP PROJECT: HB-0065
County: Wilkes

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 10/16/2025, 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 10/17/2025

Signed by: Matthew Cornwell
EBD36F11473E475

PROFESSIONAL LAND SURVEYOR L-4775

PERMANENT ROW MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
11+54.58	-30.0000	873995.4500	1292926.0577
12+30.00	29.5556	874042.9826	1292844.7221
12+72.51	-41.3187	873976.1407	1292795.7806
13+22.24	-90.9720	873955.9528	1292712.4314
13+41.99	-114.7709	873945.3448	1292683.3824
14+04.48	-138.2684	873956.5304	1292617.5665
14+23.93	-134.7832	873969.3419	1292602.5187
14+61.44	-99.5276	874036.3115	1292571.6136
14+87.34	-64.3679	874089.2012	1292571.6549
15+30.00	26.1936	874174.1663	1292627.4577
15+64.09	-30.0066	874193.6523	1292564.7981

NOT SET - FALLS IN WOOD STEPS

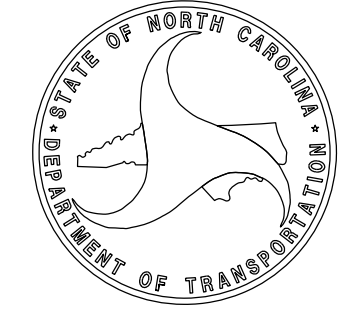
NOT SET - FALLS IN CREEK

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
11+55.00	-50.0000	873975.6495	1292928.9061
11+55.00	30.0000	874054.5800	1292915.8689
11+55.00	58.0000	874082.2057	1292911.3059
12+00.00	-50.0000	873968.3160	1292884.5077
12+00.00	-30.0000	873988.0487	1292881.2484
12+82.12	48.0731	874065.1451	1292808.0168

HB-0065

R/W03E-1

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

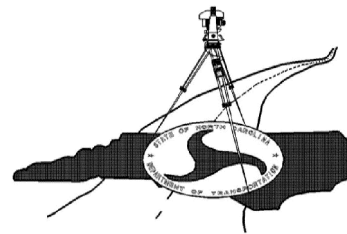


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ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0065
County: Wilkes

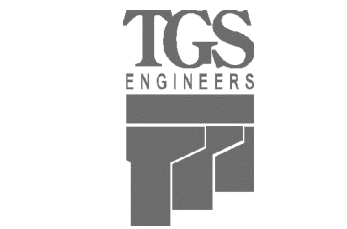
PREPARED FOR



LOCATION AND
SURVEYS UNIT

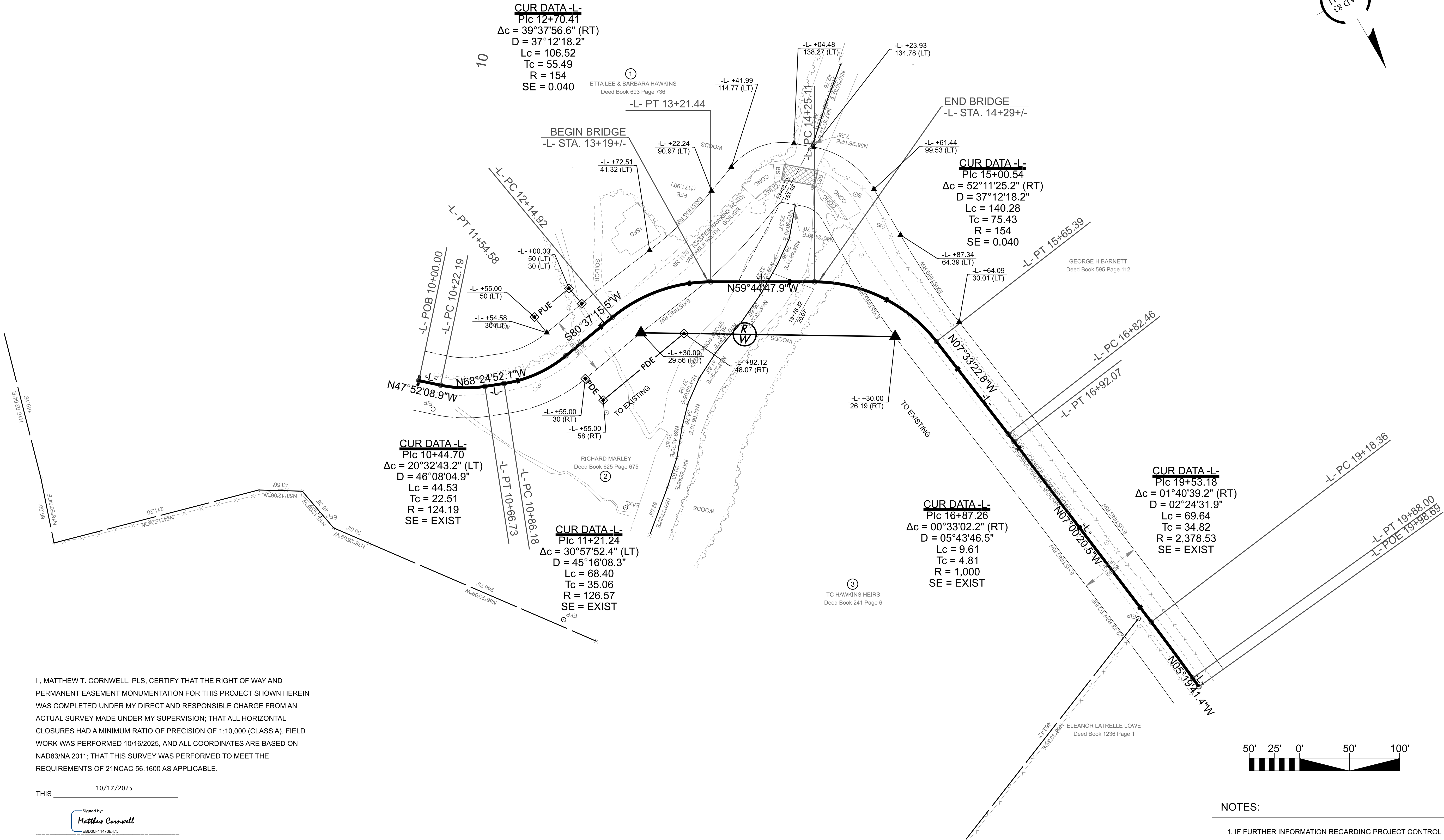
PREPARED BY

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



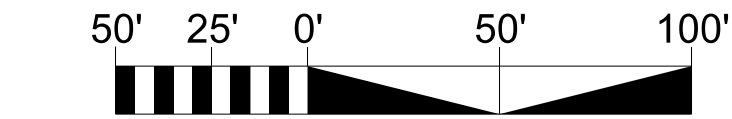
NOTES:

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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 10/16/2025, 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 10/17/2025
Signed by: Matthew Cornwell
E80206F11473E475
PROFESSIONAL LAND SURVEYOR L-4775



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

HB-0065

R/W04

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

PROFESSIONAL LAND
SURVEYOR

SEAL
L-4775

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ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0065

County: Wilkes

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

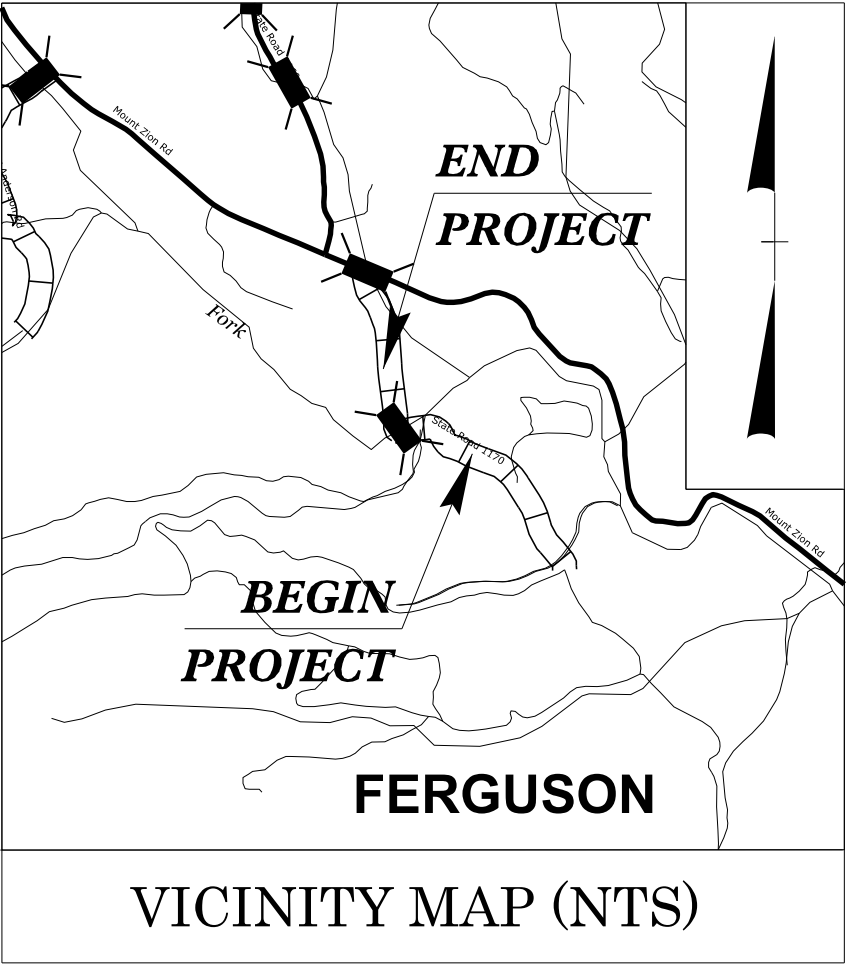
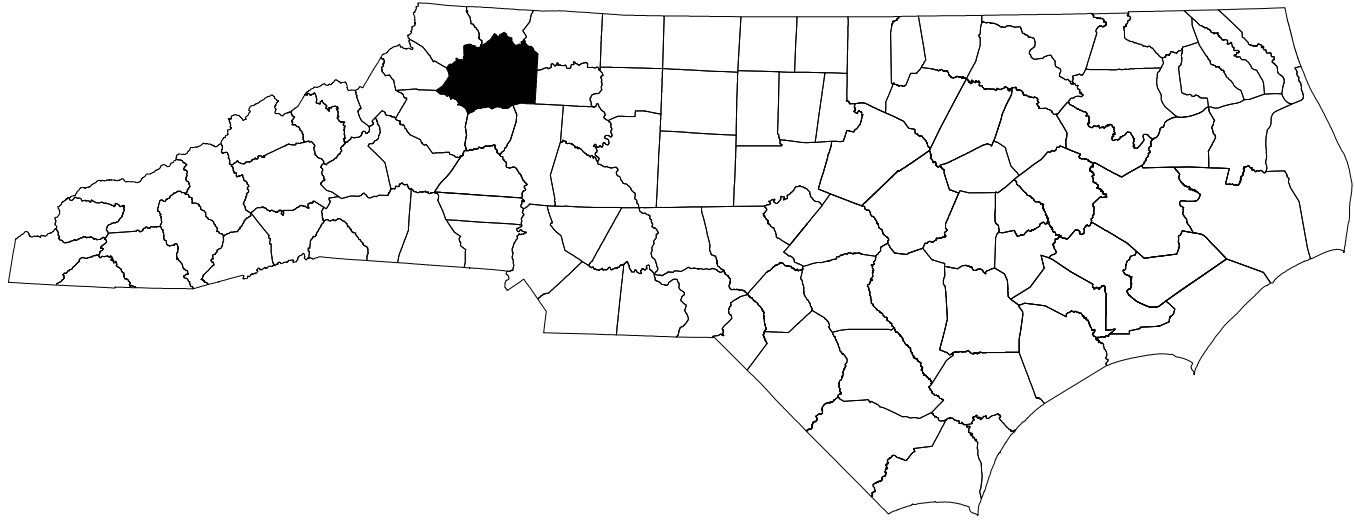
TGS ENGINEERS
201 WEST MARION ST.
SUITE 200
SHELBY, NC 28150
704-476-0003

TGS
ENGINEERS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

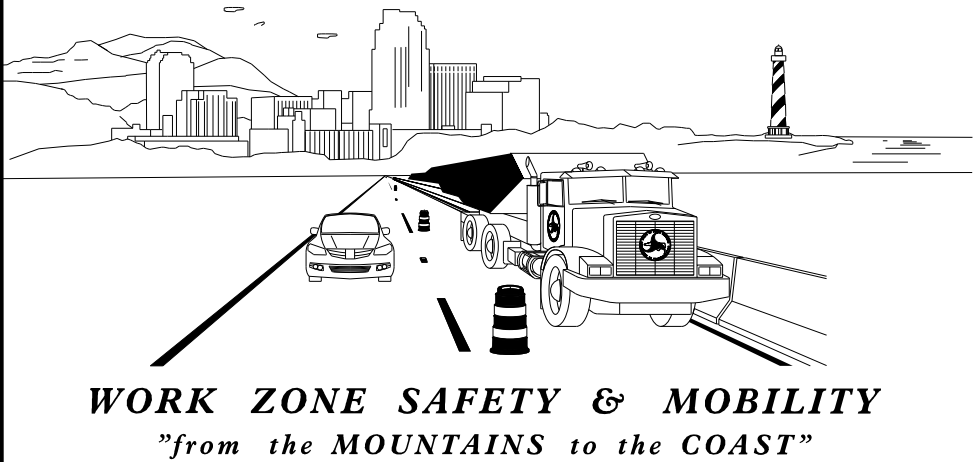
TRANSPORTATION MANAGEMENT PLAN

WILKES COUNTY



LOCATION: *REPLACE BRIDGE 960691 OVER STONY FORK
ON SR 1170 (CASPER HAWKINS ROAD)*

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



PLANS PREPARED BY:

LARRY H. GREEN, P.E.
TRAFFIC DEPARTMENT MANAGER

D. ALLEN HAYES, E.I.
TRAFFIC ENGINEERING
DESIGN SPECIALIST

NCDOT CONTACTS:

RAMIE A. SHAW, P.E.
PROJECT ENGINEER

PROJECT DESIGN ENGINEER

SHEET NO.	TITLE
TMP-01	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-01A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-02	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-03	PHASING
TMP-04	PHASE I DETAIL
TMP-05	PHASE II DETAIL
TMP-06 THRU 07 TEMPORARY CUT SECTIONS	



1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-20377
Bus: 919 851 8077
Fax: 919 851 8107

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

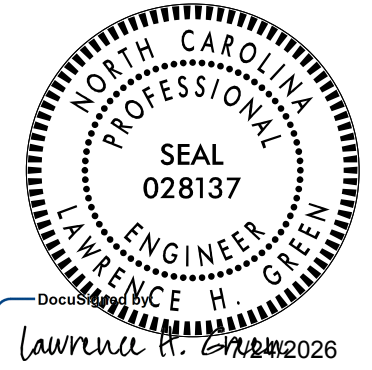
HB-0065

TMP01

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

APPROVED: _____

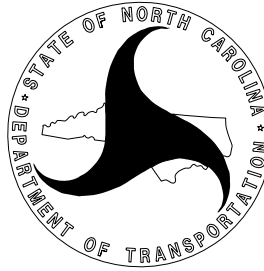
DATE: _____

SEAL: 

DocuSign Envelope ID: 4A004040-4040-4040-4040-404040404040
Lawrence H. Green 9/15/2026

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION

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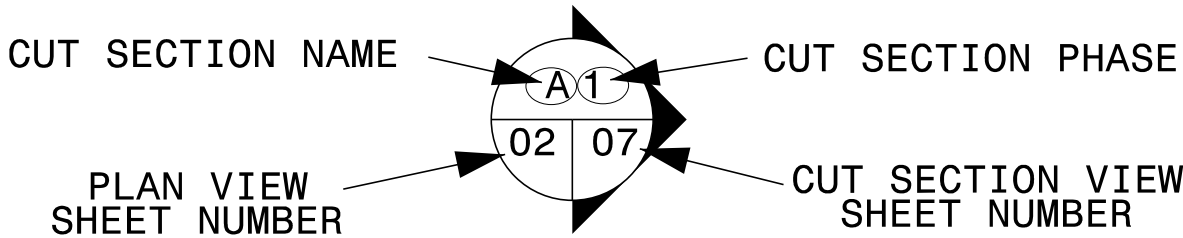


TIP PROJECT: HB-0065

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 WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION



LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.

WORK AREA

REMOVAL

ABC WEDGING

WEDGING

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- DRUM

PAVEMENT MARKINGS

- TEMPORARY LINES

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION	PAY ITEM
P1	WHITE SOLID EDGE LINE	PAINT (4")

HB-0065

TMP OIA

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

APPROVED: _____

DATE: _____

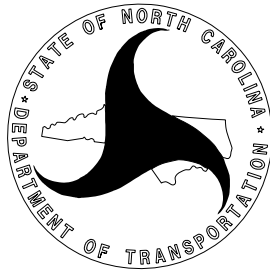
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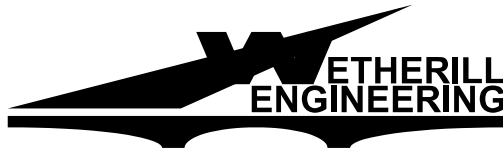
Documented by
Lawrence H. Green 2026

INCOMPLETE PLANS
DO NOT USE FOR BIDDING

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LIST OF APPLICABLE
ROADWAY STANDARD
DRAWINGS, AND LEGEND



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

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

GENERAL NOTES

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

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

TIME RESTRICTIONS

A) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. SR 1170	6:00 A.M.-9:00 A.M. 4:00 P.M.-6:00 P.M. MONDAY-FRIDAY

B) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
1. SR 1170	6:00 A.M.-9:00 A.M. 4:00 P.M.-6:00 P.M. MONDAY-FRIDAY	30 MINUTES FOR PAVING, GRADING, AND WEDGING

PAVEMENT EDGE DROP OFF REQUIREMENTS

C) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

F) 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.

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

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

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

J) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 200 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

K) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS)FOR ADDITIONAL REQUIREMENTS.

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

PAVEMENT MARKINGS AND MARKERS

M) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
1. SR 1170	PAINT	NONE

N) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

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

P) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

Q) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 200 FT AND 200 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

R) ALL STATIONS ARE CONSIDERED +/- UNLESS OTHERWISE SHOWN ON THE PLANS.

S) THE CONTRACTOR SHALL COORDINATE WITH AND MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES DURING CONSTRUCTION.

T) THE CONTRACTOR SHALL RE-OPEN THE CLOSED ROADWAY AS SOON AS POSSIBLE TO ALLOW FOR THE INGRESS OF EMERGENCY RESPONSE VEHICLES AND SHALL NOT CLOSE THE ROAD AGAIN UNTIL ALL EMERGENCY RESPONSE VEHICLES HAVE DEPARTED ACROSS THE WORK AREA.

MANAGEMENT STRATEGIES

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:
FULL ROADWAY CLOSURES
WEEKEND WORK

HB-0065

TMP 02

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

APPROVED: _____

DATE: _____

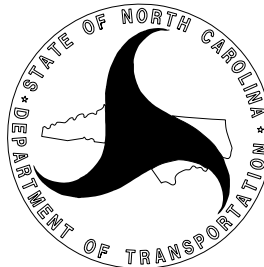
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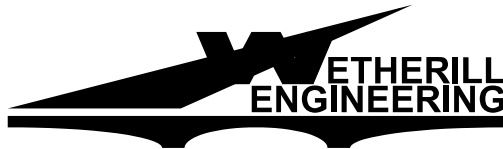
Decommissioned
Lawrence H. Green 2026

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TRANSPORTATION OPERATIONS PLAN:
(MANAGEMENT STRATEGIES AND GENERAL NOTES)



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

STEP 1) USING ROADWAY STANDARD DRAWING (RSD) 1101.01, SHEET 3 OF 3,
INSTALL ALL ADVANCE WORK ZONE SIGNING.

STEP 2) USING RSD 1101.03, SHEET 8 OF 9, CLOSE THE ROAD TO TRAFFIC
AND INSTALL TEMPORARY ABC AND APPROXIMATELY THE RIGHT HALF
OF THE 48" PROPOSED PIPE LOCATED AT STA. 12+00 -L- AS SHOWN
ON SHEET TMP-04, DETAIL A.

STEP 3) UPON COMPLETION OF STEP 2, SHIFT TRAFFIC ONTO THE TEMPORARY
ABC AND COMPLETE INSTALLATION OF THE 48" PIPE AS SHOWN ON
SHEET TMP-04, DETAIL B.

STEP 4) USING RSD 1101.03, SHEET 8 OF 9 AS NEEDED, CLOSE THE ROAD TO
TRAFFIC AND COMPLETE THE FOLLOWING:
[REFER TO SHEETS TMP-04, 06, & 07]
- WEDGE ABC ON EXISTING UP TO THE SURFACE OF THE FINAL
SUBGRADE AS SHOWN ON SHEET TMP-04
- REMOVE THE TEMPORARY ABC INSTALLED IN STEP 2.

STEP 5) USING RSD 1101.03, SHEETS 3 AND 8 OF 9, AND CLOSING THE ROAD
AS NEEDED, CONSTRUCT -L- UP TO EXISTING EDGE AND ELEVATION
AT THE FOLLOWING LOCATIONS:
- STA. 11+55 -L- TO STA. 12+75 -L-
- STA. 15+10 -L- TO STA. 16+50 -L-
- -L- 'LEFT' FROM STA. 12+75 -L- TO STA. 13+00 -L-
- -L- 'LEFT' FROM STA. 14+90 -L- TO STA. 15+10 -L-

AWAY FROM TRAFFIC CONSTRUCT -L- UP TO BUT NOT INCLUDING THE
FINAL LIFT OF SURFACE COURSE AT THE FOLLOWING LOCATIONS:
- -L- FROM STA. 13+00 -L- TO STA. 14+90 -L- INCLUDING
BRIDGE STRUCTURE
- -L- 'RIGHT' FROM STA. 12+75 -L- TO STA. 13+00 -L-
- -L- 'RIGHT' FROM STA. 14+90 -L- TO STA. 15+10 -L-

STEP 1) USING RSI 1101.03, SHEETS 3 AND 8 OF 9, CLOSE THE ROADWAY, WEDGE THE -L- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE AT THE FOLLOWING LOCATIONS:

- STA. 11+55 -L- TO STA. 12+75 -L-
- STA. 15+10 -L- TO STA. 16+50 -L-
- -L- 'LEFT' FROM STA. 12+75 -L- TO STA. 13+00 -L-
- -L- 'LEFT' FROM STA. 14+90 -L- TO STA. 15+10 -L-

INSTALL TEMPORARY MARKINGS ON THE ENTIRE PROJECT, INSTALL DRUMS AND BARRICADES AND PLACE TRAFFIC ONTO THE PHASE II PATTERN.

STEP 2) AWAY FROM TRAFFIC, REMOVE THE EXISTING ROADWAY, BRIDGE STRUCTURE, AND CONSTRUCT THE REMAINING PORTIONS OF SHOULDER ALONG -L-.

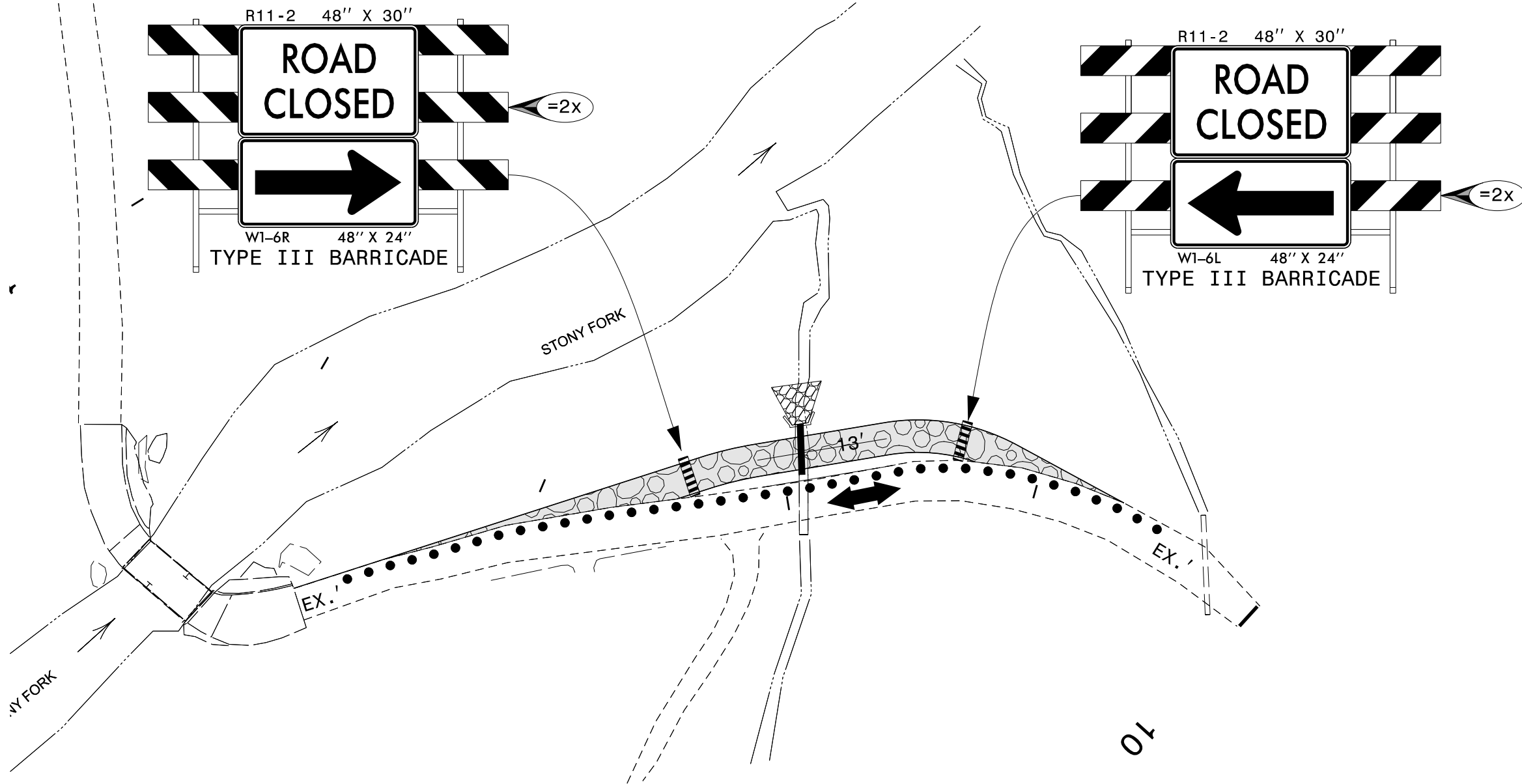
STEP 1) USING RSD 1101.03, SHEET 8 OF 9, CLOSE THE ROADWAY AND COMPLETE THE FOLLOWING:

- INSTALL THE FINAL LIFT OF SURFACE COURSE
- INSTALL THE FINAL PAVEMENT MARKINGS

UPON COMPLETION OPEN THE ROADWAY AND PLACE TRAFFIC ON THE FINAL PATTERN.

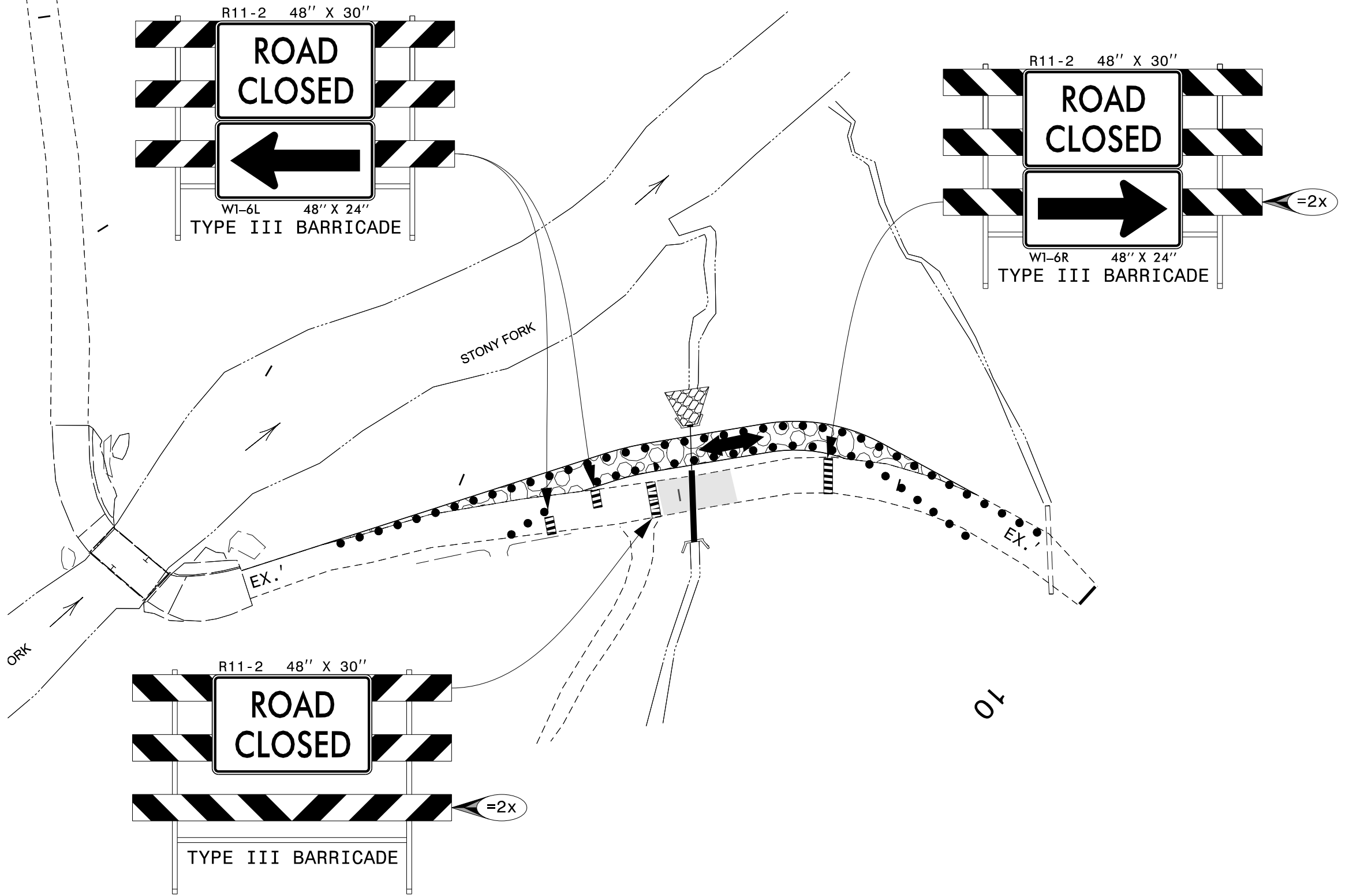
STEP 2) REMOVE ALL TEMPORARY TRANSPORTATION MANAGEMENT DEVICES AND SIGNING.

PHASING



NOTE: TEMPORARY PAVEMENT LIMITS AND OFFSET FROM THE CENTERLINE ARE TO BE DETERMINED BY THE ENGINEER.

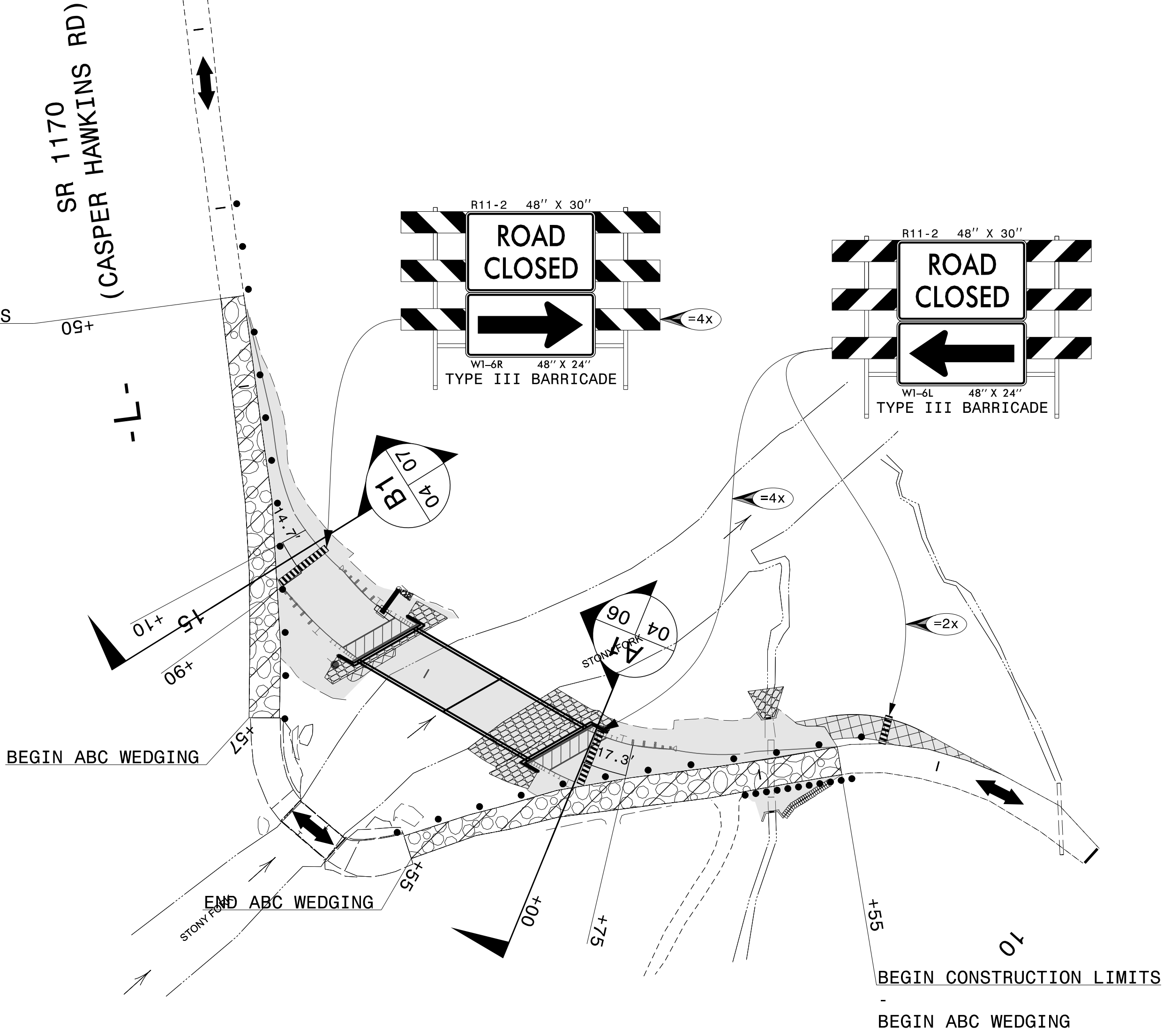
DETAIL A



DETAIL B

END CONSTRUCTION LIMITS

END ABC WEDGING



HB-0065

TMP 04

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

APPROVED: _____

DATE: _____

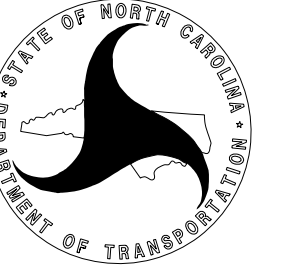
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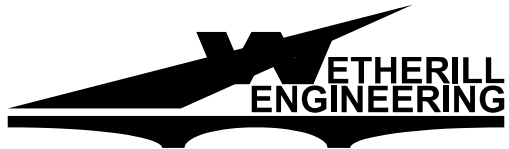
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INCOMPLETE PLANS
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PHASE I DETAIL



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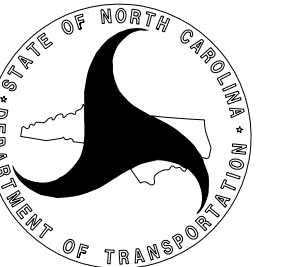


René A. Green 2026

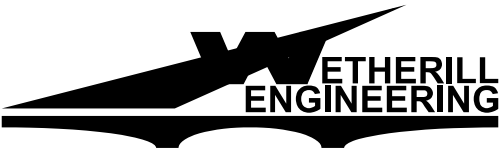
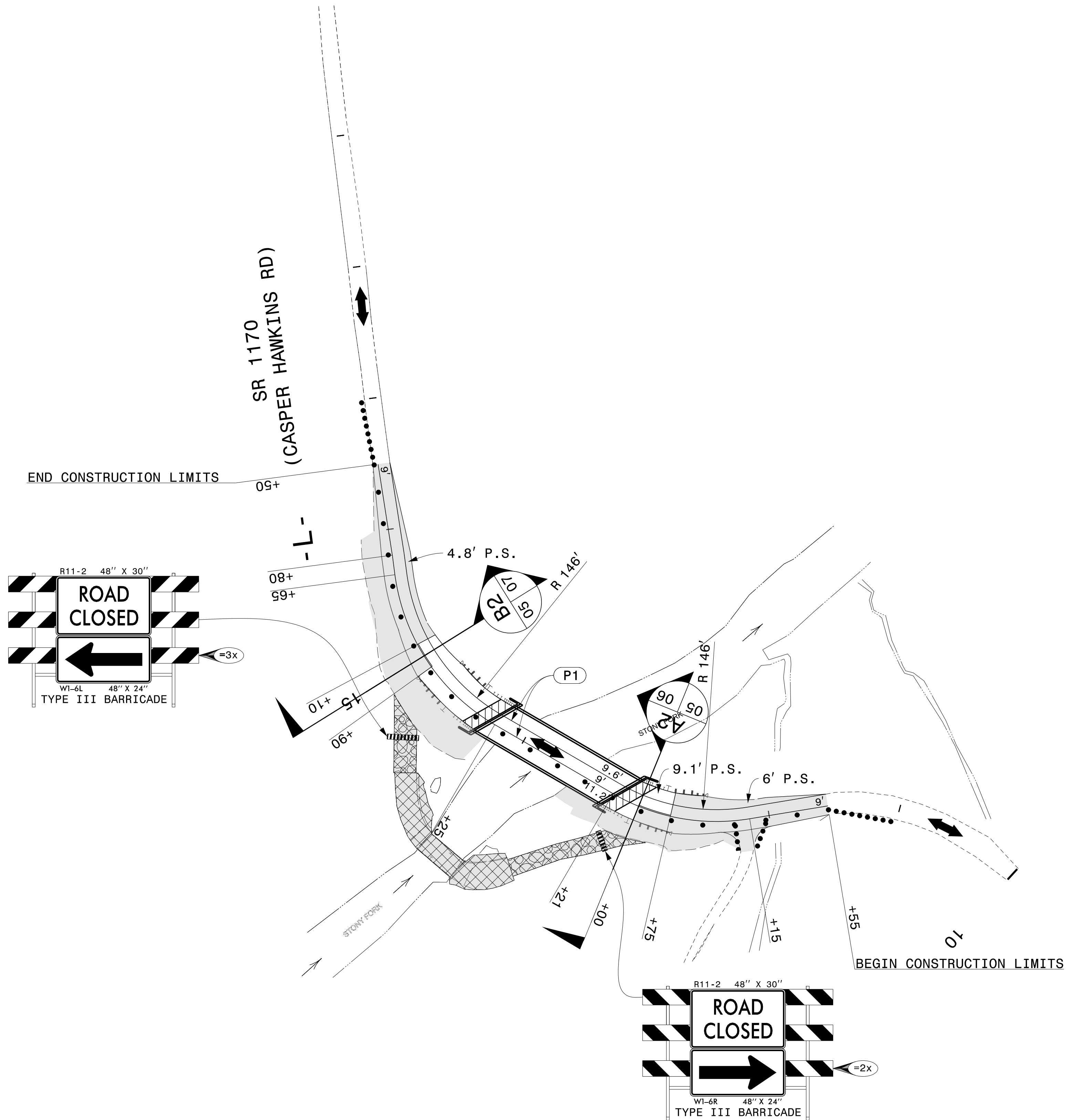
INCOMPLETE PLANS

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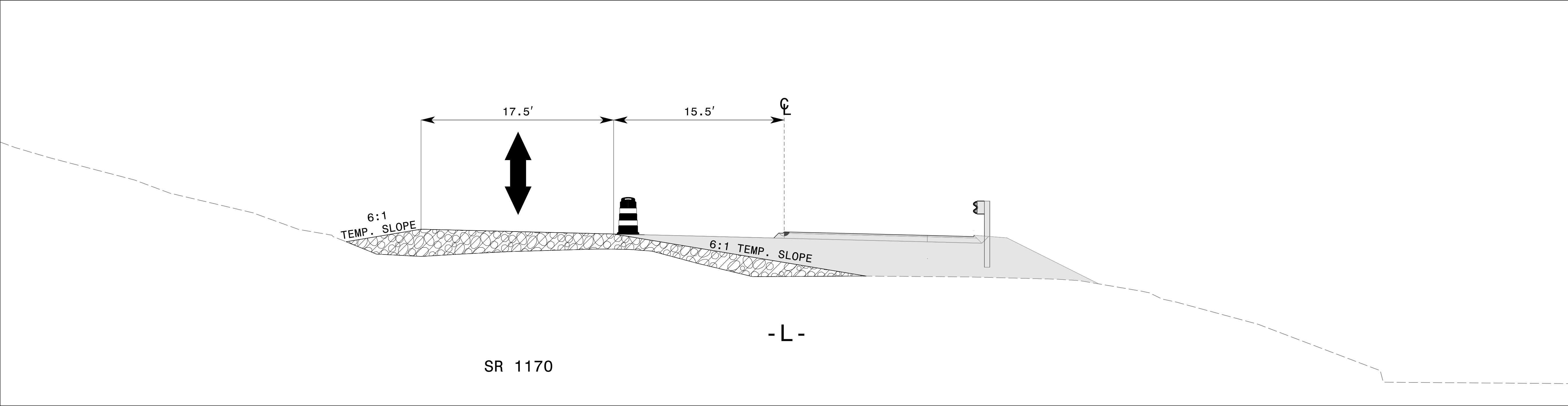


PHASE II DETAIL

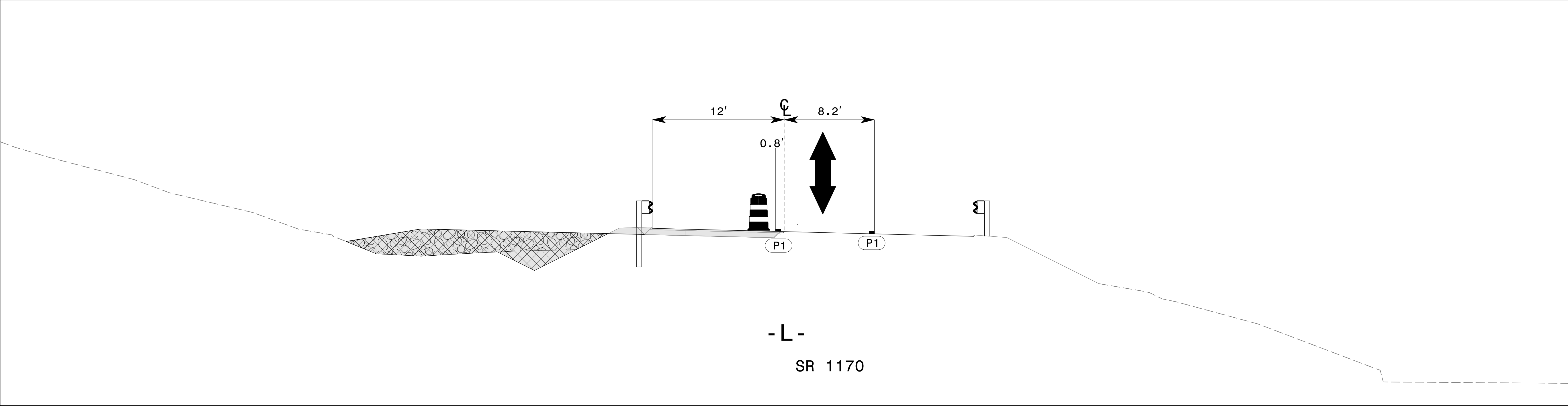


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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



A1
04 | 06
STA. 13+00 -L-
CUT SECTION



A2
05 | 06
STA. 13+00 -L-
CUT SECTION

HB-0065

TMP | 06

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

APPROVED: _____

DATE: _____

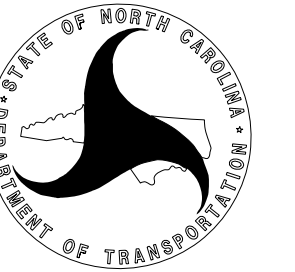
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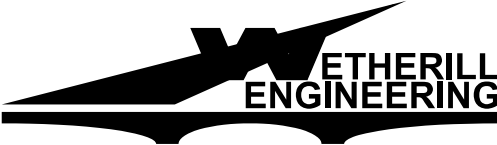
DESIGNED BY: *Lawrence H. Green* 02/24/2026

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TEMPORARY CUT SECTIONS



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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

HB-0065

TMP

07

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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DATE: _____

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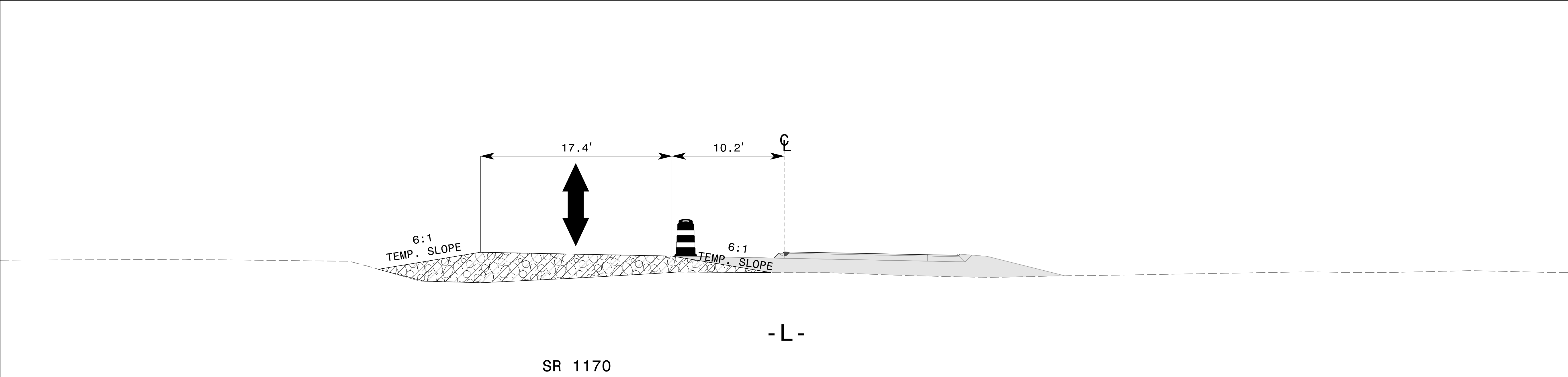
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SEAL
028137
ENGINEER
LAWRENCE H. GREEN

Dec 15 2025

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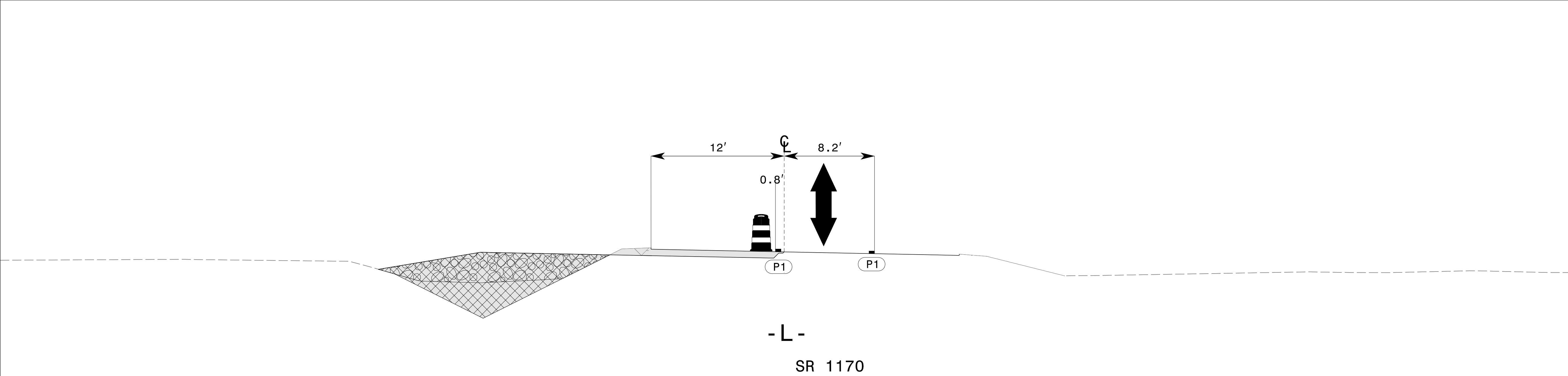
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION



B1

0407

STA. 15+00 -L-
CUT SECTION

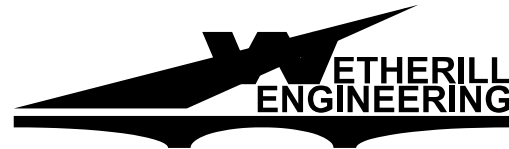


B2

0507

STA. 15+00 -L-
CUT SECTION

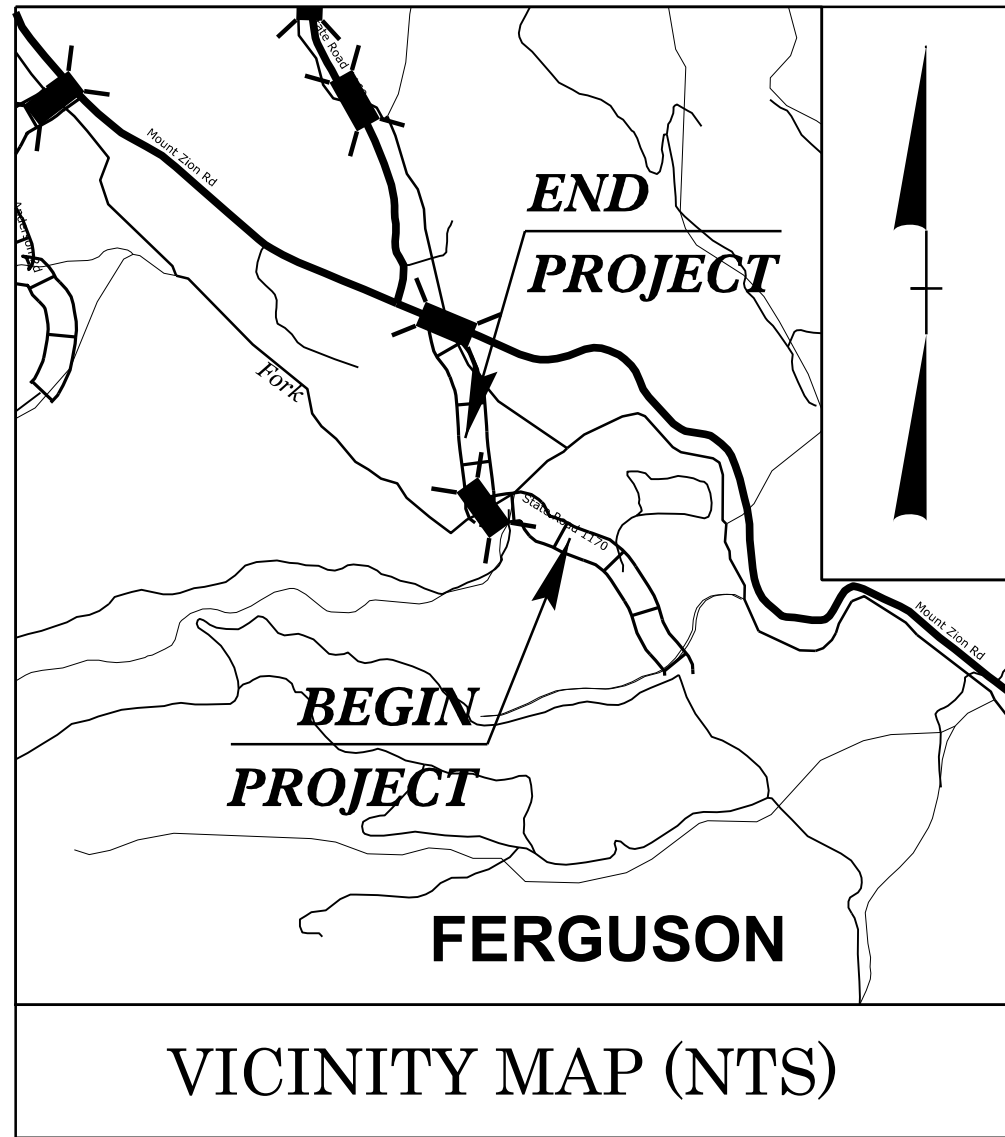
TEMPORARY CUT SECTIONS



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TIP PROJECT: HB-0065



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

WILKES COUNTY

LOCATION: SR 1170 (CASPER HAWKINS RD.)
REPLACE BRIDGE NO. 691 OVER STONY FORK RIVER

TYPE OF WORK: GRADING, DRAINAGE, PAVING
& STRUCTURE

RELEASE FOR
CONSTRUCTION

DATE: 07/30/2026

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

THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.

BEGIN TIP PROJECT HB-0065
-L- STA 11+55.00

TO DEAD END

-L-
(SR 1170)
(CASPER HAWKINS RD.)

BEGIN BRIDGE AT FF
-L- STA. 13+17.60
BEGIN APPROACH SLAB
BEGIN BRIDGE
-L- STA 13+17.63
0.047' LT

STONY FORK

END BRIDGE AT FF
-L- STA. 14+30.32
END APPROACH SLAB
-L- STA. 14+40.65

END BRIDGE
-L- STA 14+30.37
0.090' LT

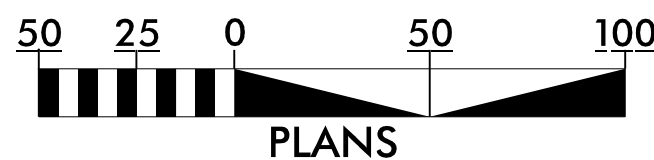
END TIP PROJECT HB-0065
-L- STA 16+50.00

TO STONY FORK

ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT

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

GRAPHIC SCALE



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



1223 JONES FRANKLIN ROAD
RALEIGH, N.C. 27606
License No. E-4377
Bus: 919 851 8077
Fax: 919 851 8107

Prepared in the Office of:

WETHERILL ENGINEERING, INC.

1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606

Designed by:

KATIE ESTEP

NAME

4485

LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

PROJECT REFERENCE NO.	SHEET NO.
HB-0065	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

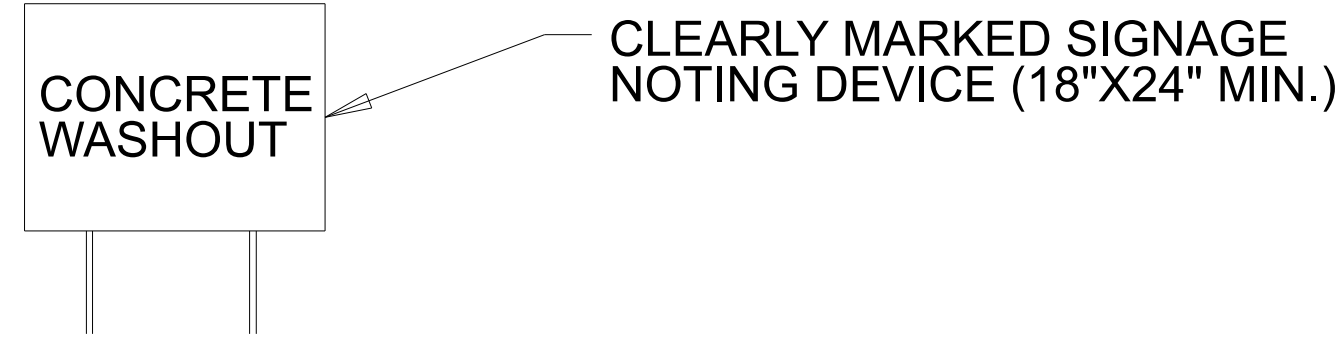
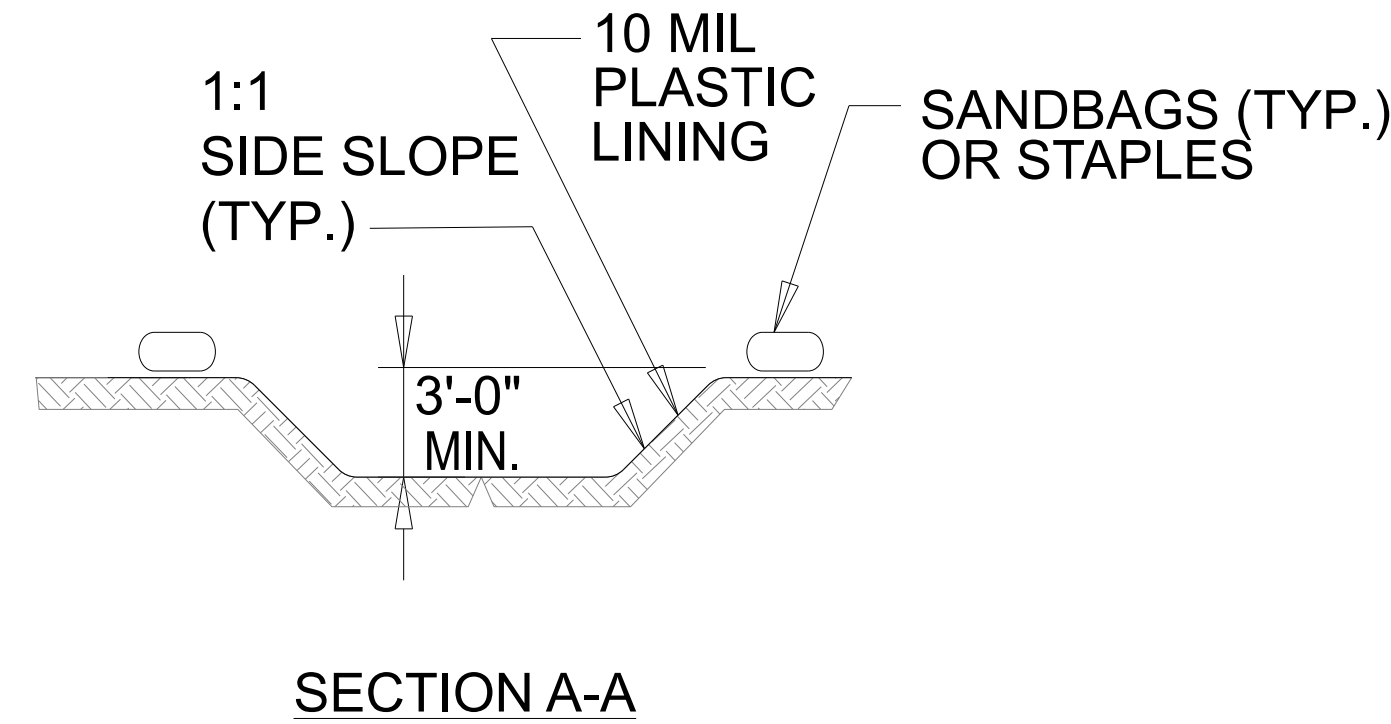
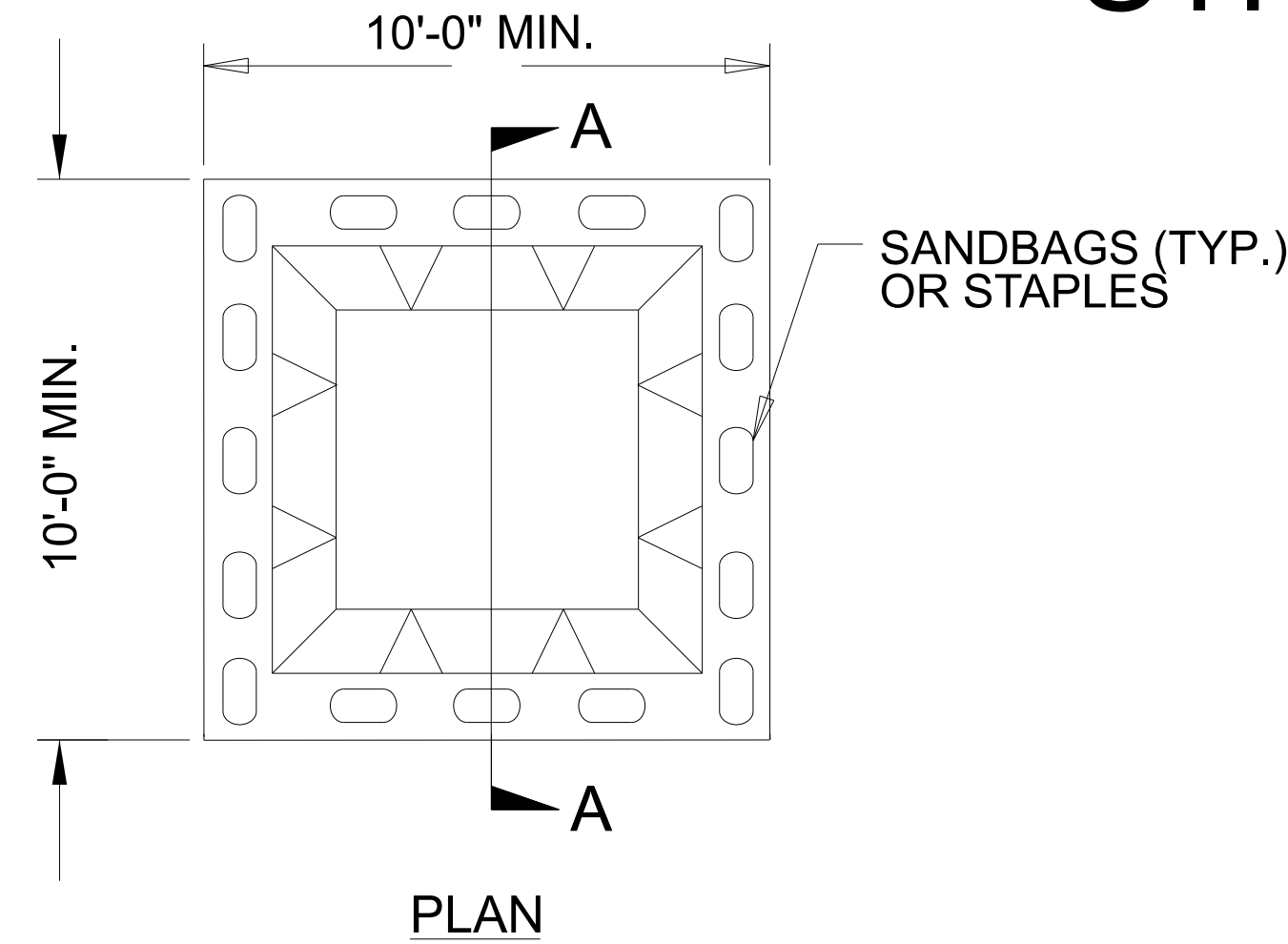
EROSION & SEDIMENT CONTROL LEGEND

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

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

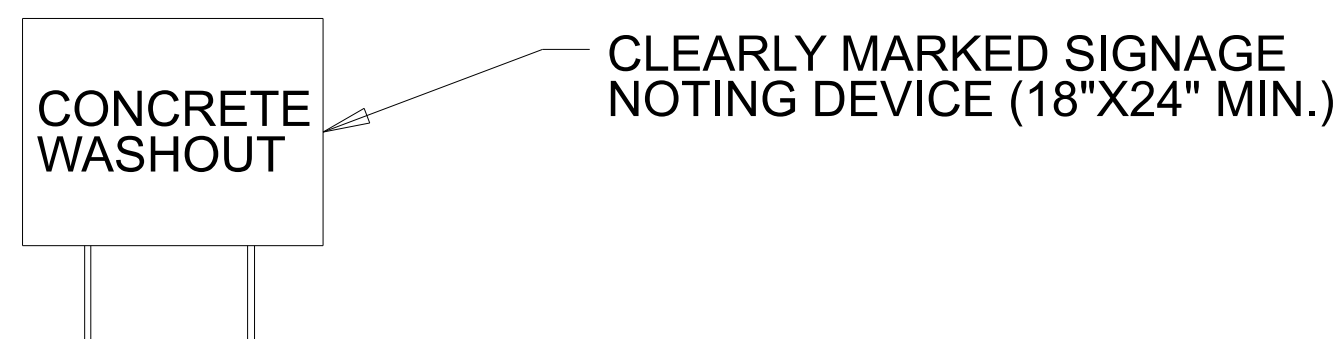
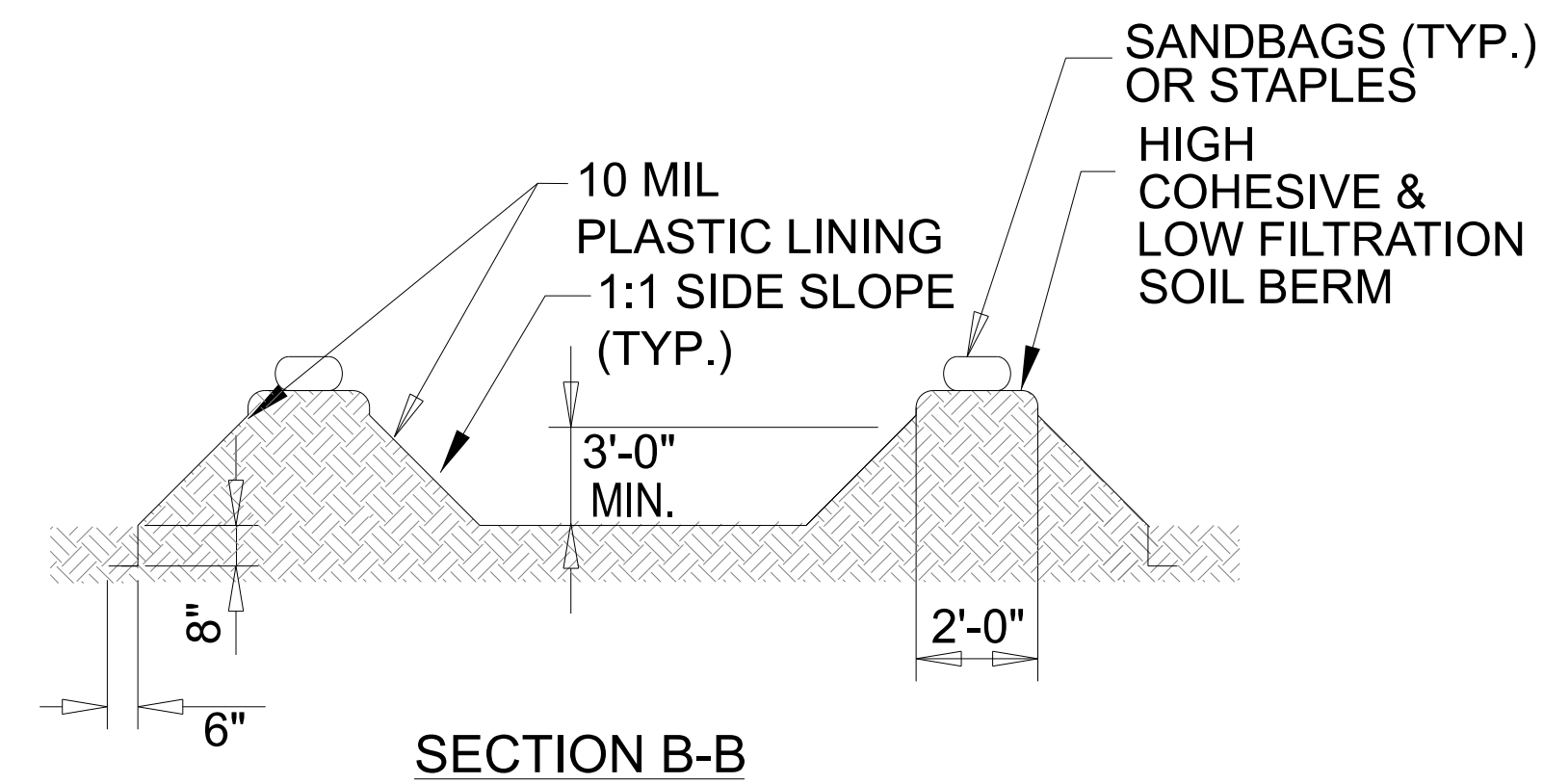
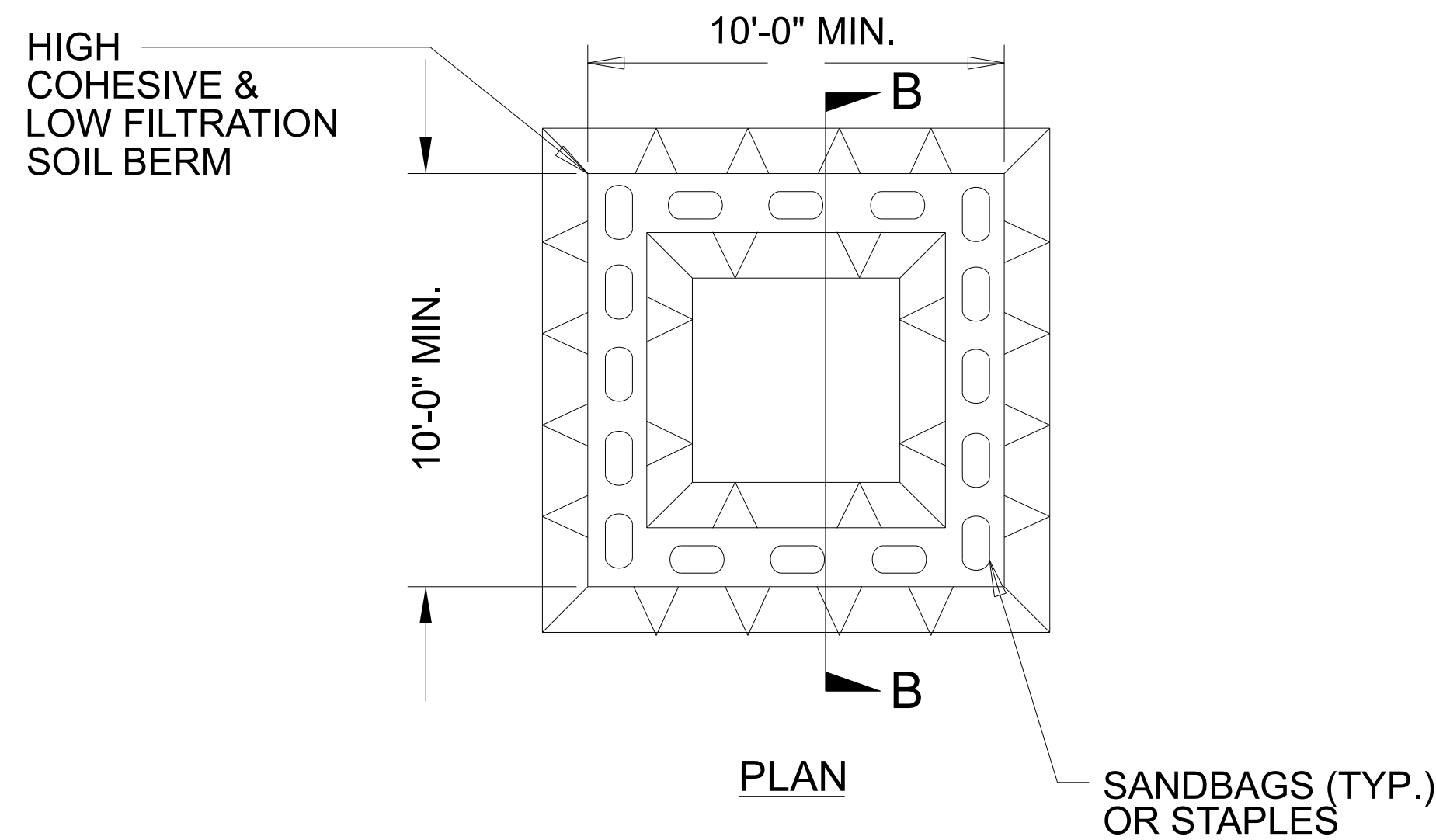
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DATE: 07/30/2026

PROJECT REFERENCE NO.	SHEET NO.
HB-0065	EC-2A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

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



ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

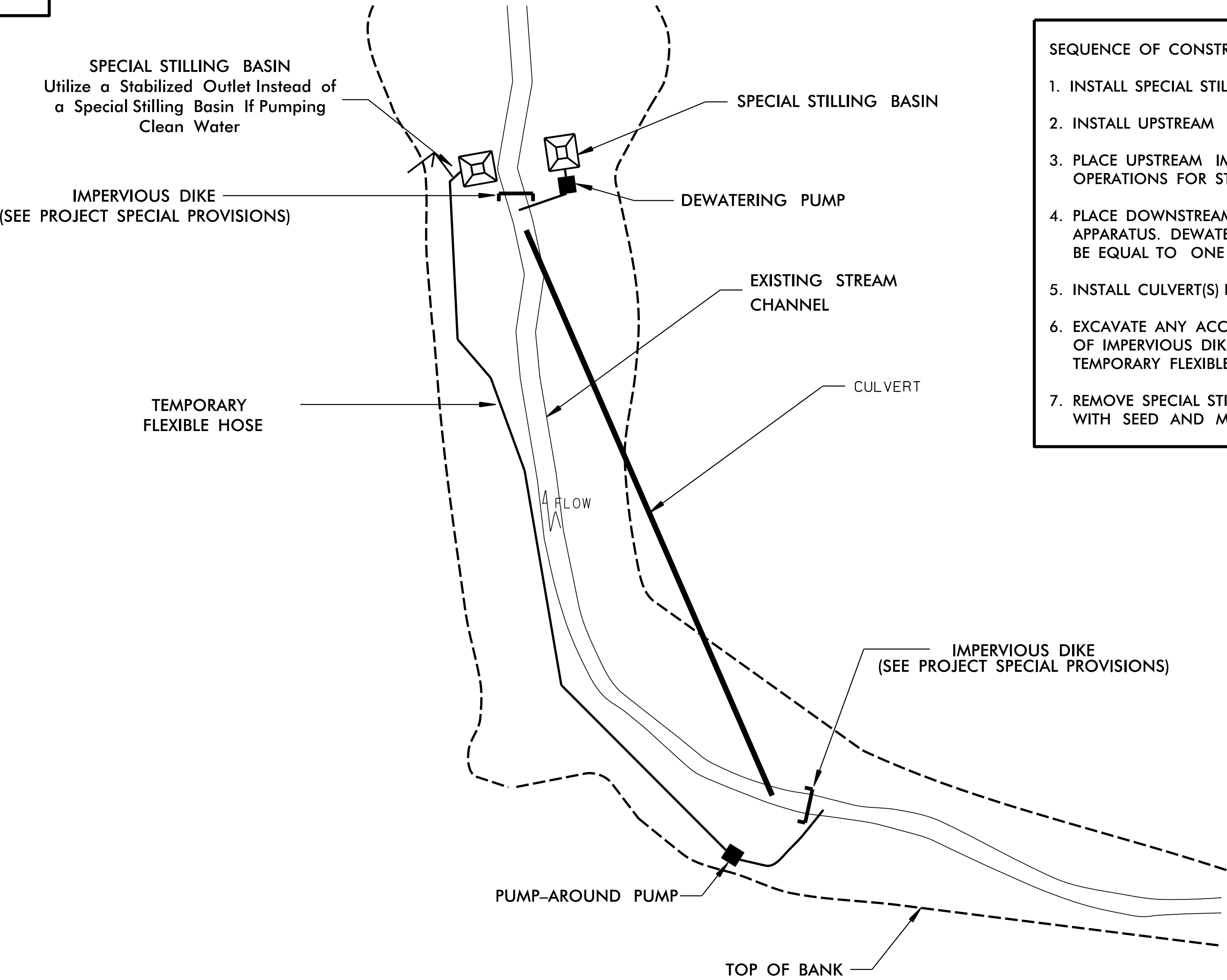
- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED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

EXAMPLE OF PUMP-AROUND OPERATION

PROJECT REFERENCE NO.	SHEET NO.
HB-0065	EC-2B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

- NOTES:
- 1) All excavation shall be performed in only dry or isolated areas of the work zone.
 - 2) Impervious dikes are to be used to isolate work from stream flow when necessary.
 - 3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
 - 4) Pumps and hoses shall be of sufficient size and quantity to dewater the work area and maintain stream bypass flow.



- SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA
1. INSTALL SPECIAL STILLING BASIN(S).
 2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
 4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
 5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
 6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
 7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

RELEASE FOR
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DATE: 07/30/2026

PROJECT REFERENCE NO.	SHEET NO.
<i>HB-0065</i>	<i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

EXCELSIOR MATTING FOR EROSION CONTROL

[illegible]

STRAW MATTING FOR EROSION CONTROL

[illegible]

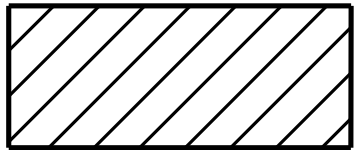
PROJECT REFERENCE NO.	SHEET NO.
HB-0065	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

TEMPORARY CAUSEWAY AND TEMPORARY
PIPES MAY NOT BLOCK MORE THAN
50% OF THE CHANNEL AT ANY TIME

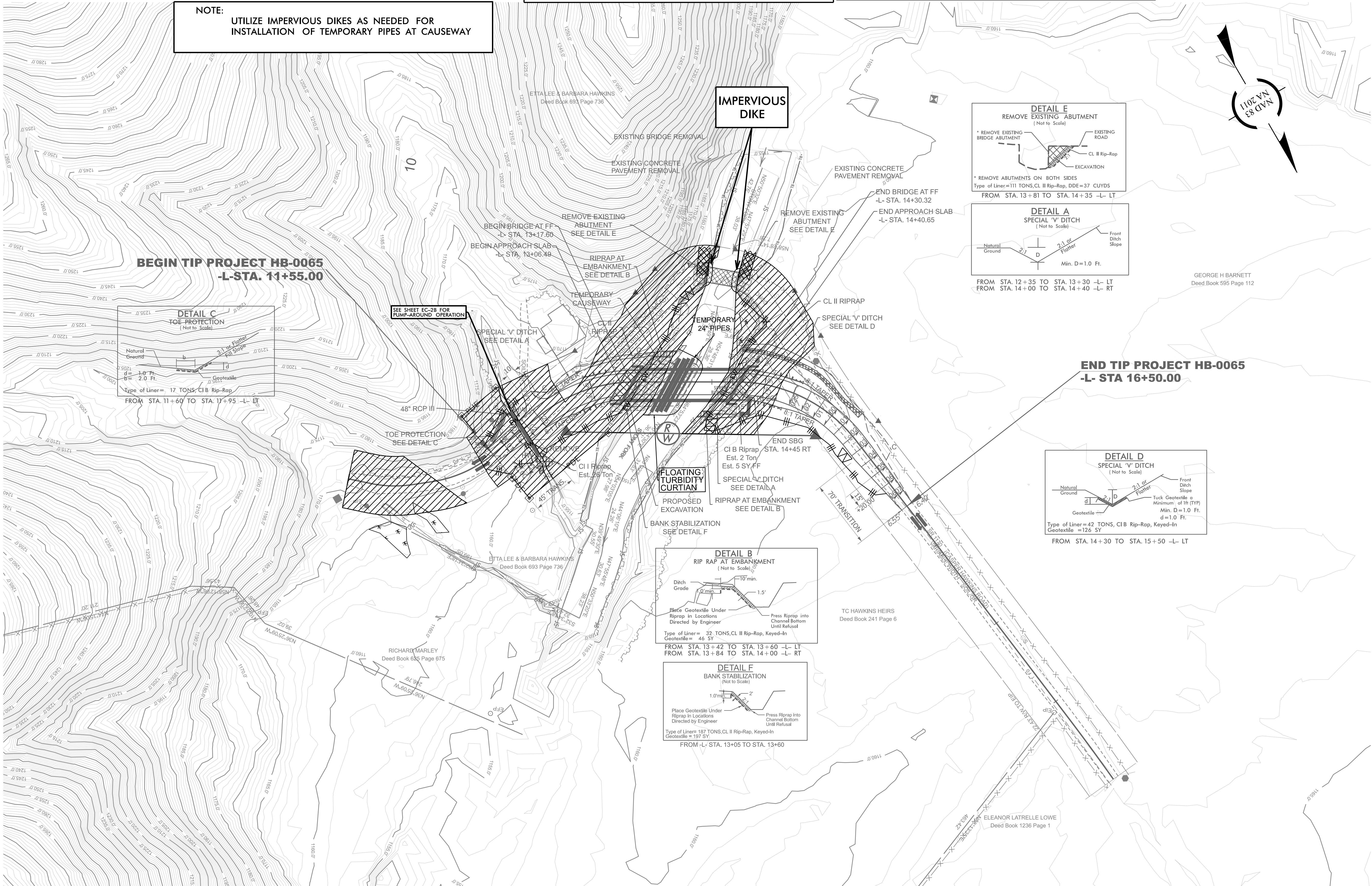
NOTE:
UTILIZE IMPERVIOUS DIKES AS NEEDED FOR
INSTALLATION OF TEMPORARY PIPES AT CAUSEWAY



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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

CLEARING & GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



GEORGE H BARNETT
Deed Book 595 Page 112

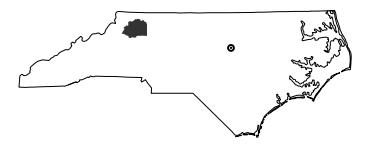
TC HAWKINS HEIRS
Deed Book 241 Page 6

ELEANOR LATRELLE LOWE
Deed Book 1236 Page 1

HB-0065

EC-4 CONST. 4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WILKES COUNTY



ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PREPARED BY



WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27806
(919)851-8077
NC LICENSE F-0877

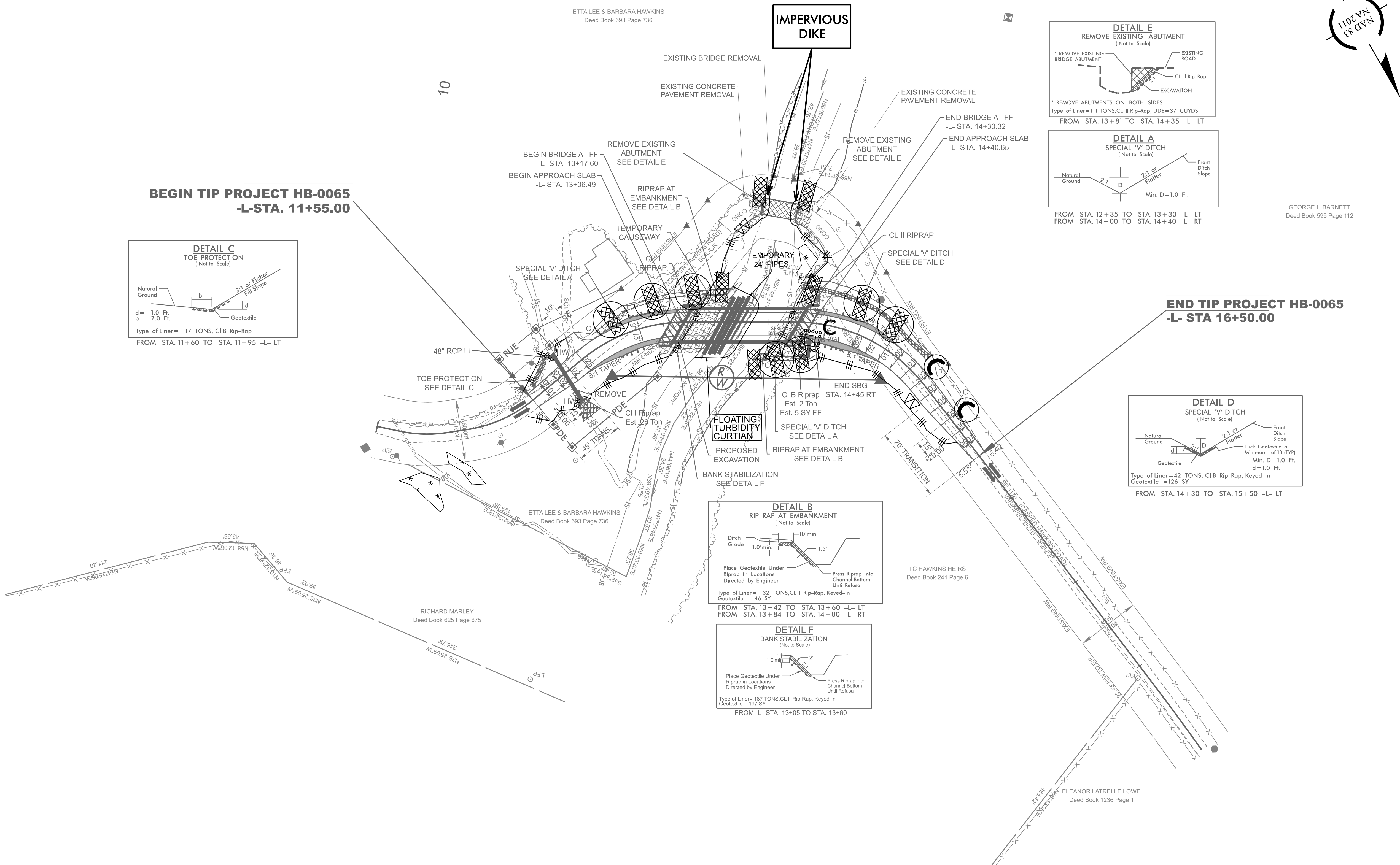
RELEASE FOR
CONSTRUCTION

DATE: 07/30/2026

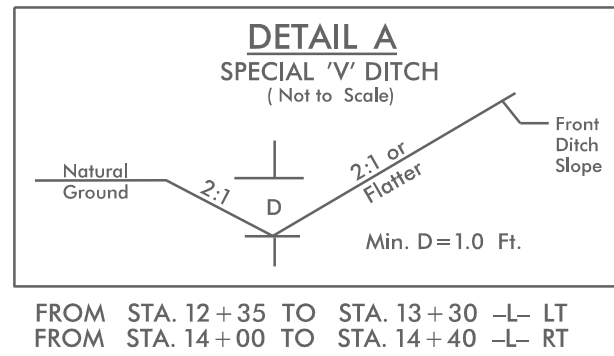
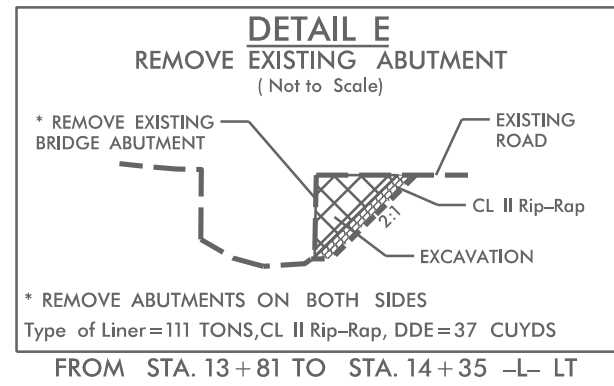
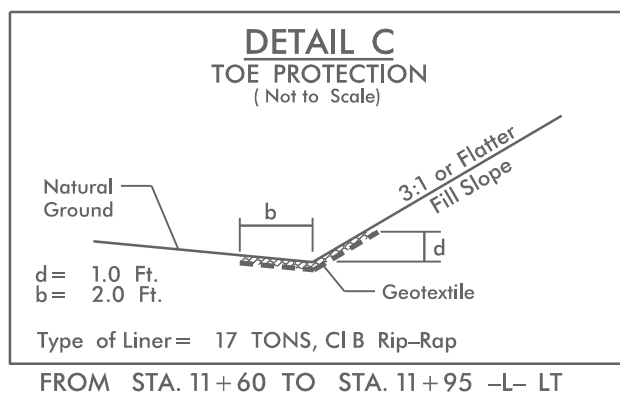
REVISIONS

SEE SHEET 5 FOR L PROFILE
ALL STRUCTURE ANCHOR UNITS ARE B-77
ALL GUARDRAIL END UNITS ARE TL-2 UNLESS NOTED OTHERWISE

TEMPORARY CAUSEWAY AND TEMPORARY
PIPES MAY NOT BLOCK MORE THAN
50% OF THE CHANNEL AT ANY TIME

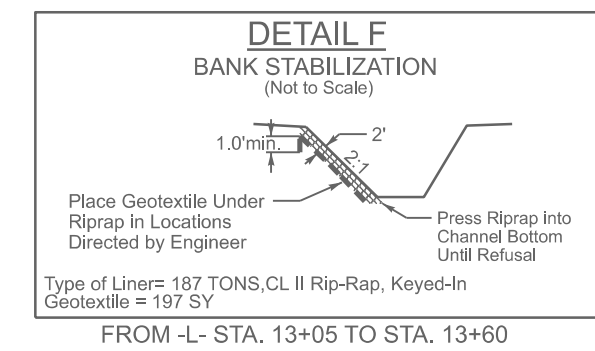
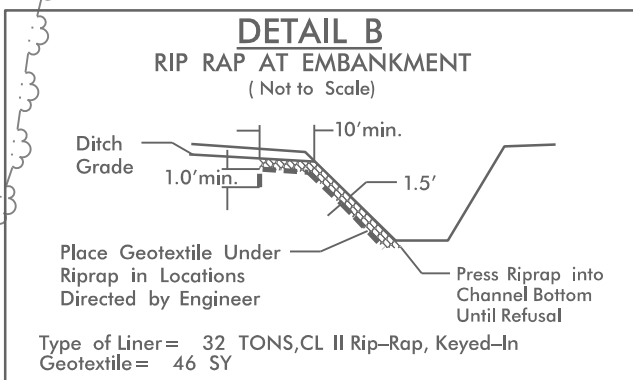
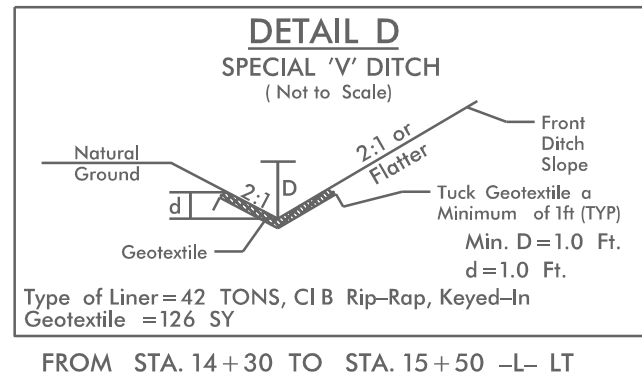


BEGIN TIP PROJECT HB-0065
-L- STA. 11+55.00



GEORGE H BARNETT
Deed Book 595 Page 112

END TIP PROJECT HB-0065
-L- STA 16+50.00

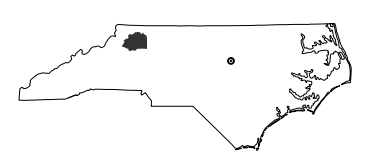


SEE SHEET 5 FOR L PROFILE
ALL STRUCTURE ANCHOR UNITS ARE B-77
ALL GUARDRAIL END UNITS ARE TL-2 UNLESS NOTED OTHERWISE

HB-0065

EC-5 CONST. 4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WILKES COUNTY



ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PREPARED BY



WE DESIGN YOUR TOMORROW...
1223 JONES FRANKLIN ROAD
RALEIGH, NC 27606
(919) 851-8077
NC LICENSE F-0877

RELEASE FOR
CONSTRUCTION
DATE: 07/30/2026

REVISIONS

TIP PROJECT: HB-0065

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

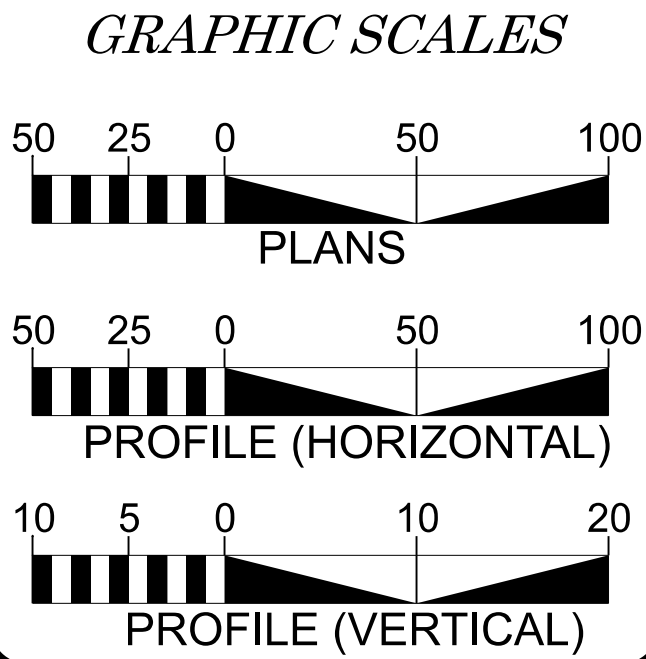
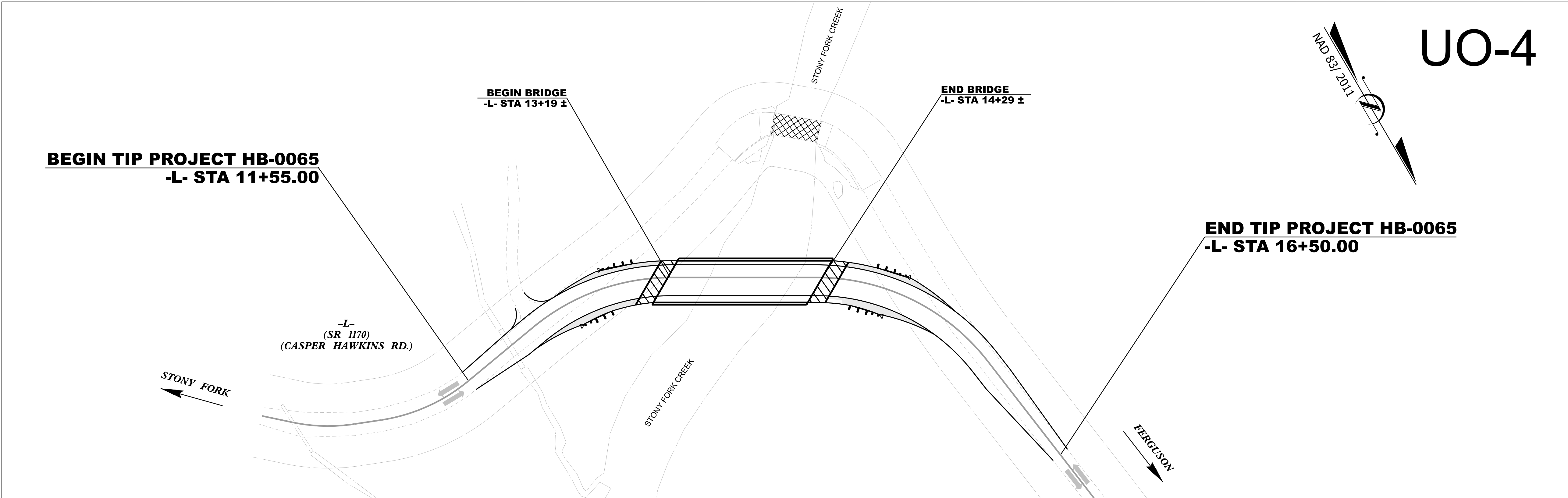
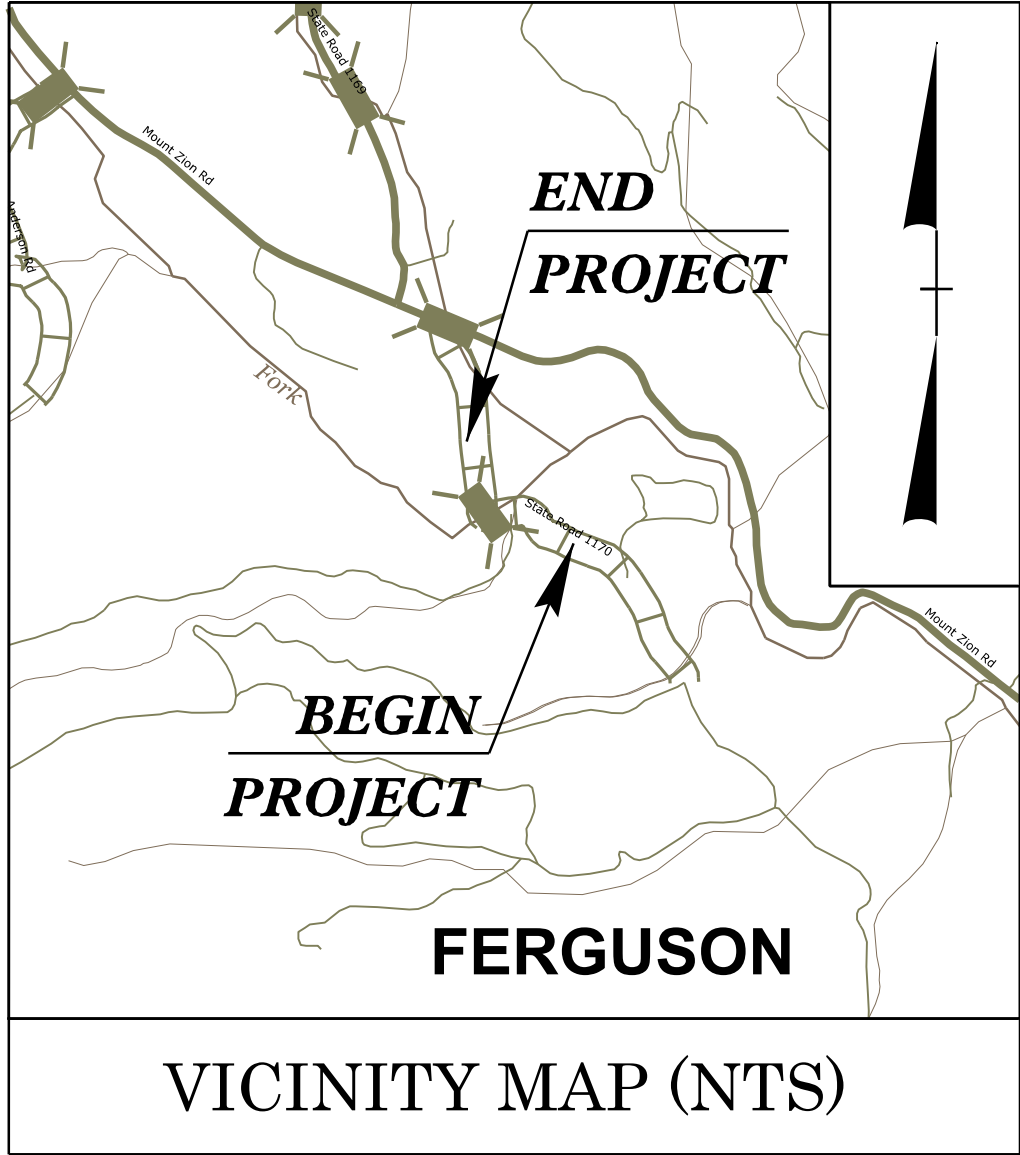
UTILITIES BY OTHERS PLANS
WILKES COUNTY

LOCATION: SR 1170 (CASPER HAWKINS RD.)
REPLACE BRIDGE NO. 691 OVER STONY FORK RIVER

TYPE OF WORK: UTILITY RELOCATION BY OTHERS

T.I.P. NO.	SHEET NO.
HB-0065	UO-1

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



INDEX OF SHEETS	
SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2	UTILITY SYMBOLOGY
UO-3	SHEET OMITTED
UO-4	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

(A) COMMUNICATIONS - RIVERSTREET

PREPARED IN THE OFFICE OF:

WETHERILL ENGINEERING

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

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

PANKIL PATEL UTILITY PROJECT MANAGER

STEVE MARTIN PROJECT UTILITY COORDINATOR



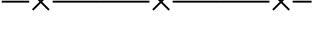
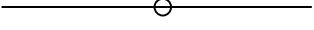
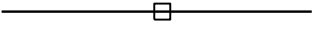
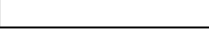
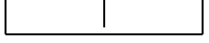
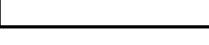
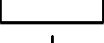
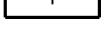
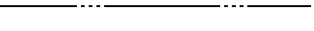
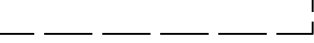
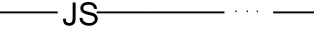
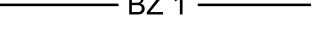
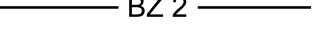
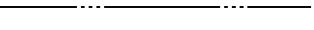
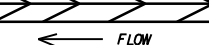
DIVISION OF HIGHWAYS
DIVISION II
801 STATESVILLE RD
NORTH WILKESBORO NC 28659
PHONE (336) 667-9101
FAX (336) 250-4959

RAMIE A. SHAW, PE DIVISION PROJECT DEVELOPEMENT ENGINEER

BRANDON GREER DIVISION UTILITY ENGINEER

Note: Not to Scale

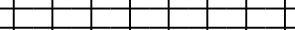
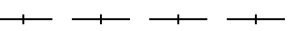
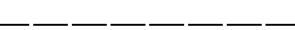
BOUNDARIES AND PROPERTY:

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	

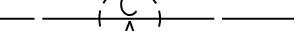
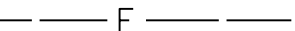
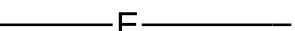
STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

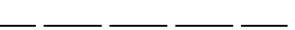
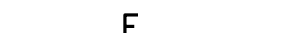
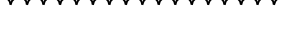
RAILROADS:

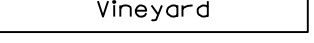
Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

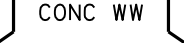
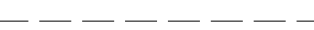
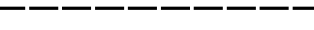
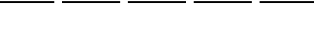
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent 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	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage/Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	
VEGETATION:	
Single Tree	
Single Shrub	
Hedge	

Woods Line	
Orchard	
Vineyard	

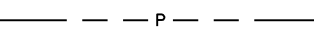
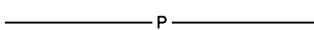
EXISTING STRUCTURES:

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

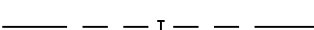
UTILITIES:

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

POWER:

Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line Test Hole (SUE - LOS A)*	
U/G Power Line (SUE - LOS B)*	
U/G Power Line (SUE - LOS C)*	
U/G Power Line (SUE - LOS D)*	

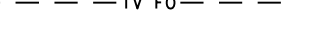
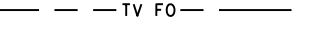
TELEPHONE:

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

WATER:

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

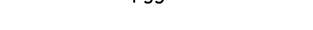
TV:

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

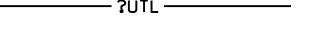
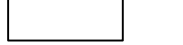
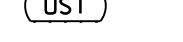
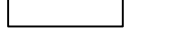
GAS:

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

SANITARY SEWER:

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

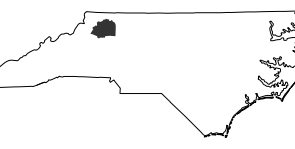
MISCELLANEOUS:

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

HB-0065

UTL | UO-4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WILKES 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.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DESIGNED BY: HSM

DRAWN BY: HSM

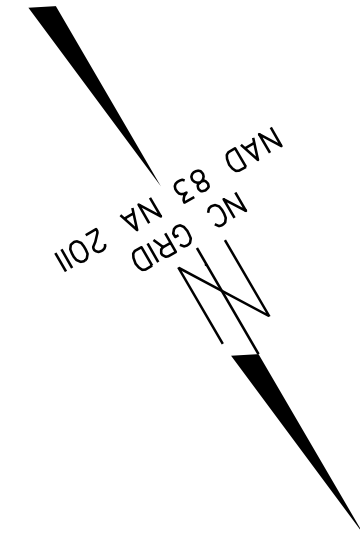
CHECKED BY: PKP

APPROVED BY:

REVISED:

1223 Jones Franklin Rd.
Raleigh, NC 27604
Phone No. 919.851.8177
Fax: 919.851.8177
E-MAIL: JONES@JONES-ENGINEERING.COM

CONSTRUCTION MANAGEMENT - SUPERVISOR



EXISTING BRIDGE TO BE DEMOLISHED

REMOVE EXISTING
AERIAL COMMUNICATIONS
(RIVERSTREET)

PROPOSED AERIAL
COMMUNICATION SERVICE LINE
(RIVERSTREET)

ABANDON U/G
COMMUNICATIONS LINE
(RIVERSTREET)

NEW GUY WIRE 8' FEET
TO EXISTING POLE
(RIVERSTREET)

PROPOSED HANDHOLE
(RIVERSTREET)

POWER POLES AND O/H POWER TO REMAIN
(BLUE RIDGE ENERGY)

PROPOSED UTILITY POLE
(RIVERSTREET)

PROPOSED U/G
COMMUNICATION CABLES
INSTALL A MINIMUM OF 5
FEET BELOW STREAM BED
3 FEET FROM PROPOSED ROW

PROPOSED
COMMUNICATION CABLES
(RIVERSTREET)

PROPOSED UTILITY POLE
(RIVERSTREET)

PROPOSED AERIAL TO
EXISTING PEDESTAL
(RIVERSTREET)

ABANDON TELEPHONE POLE
AND PEDESTAL
(RIVERSTREET)

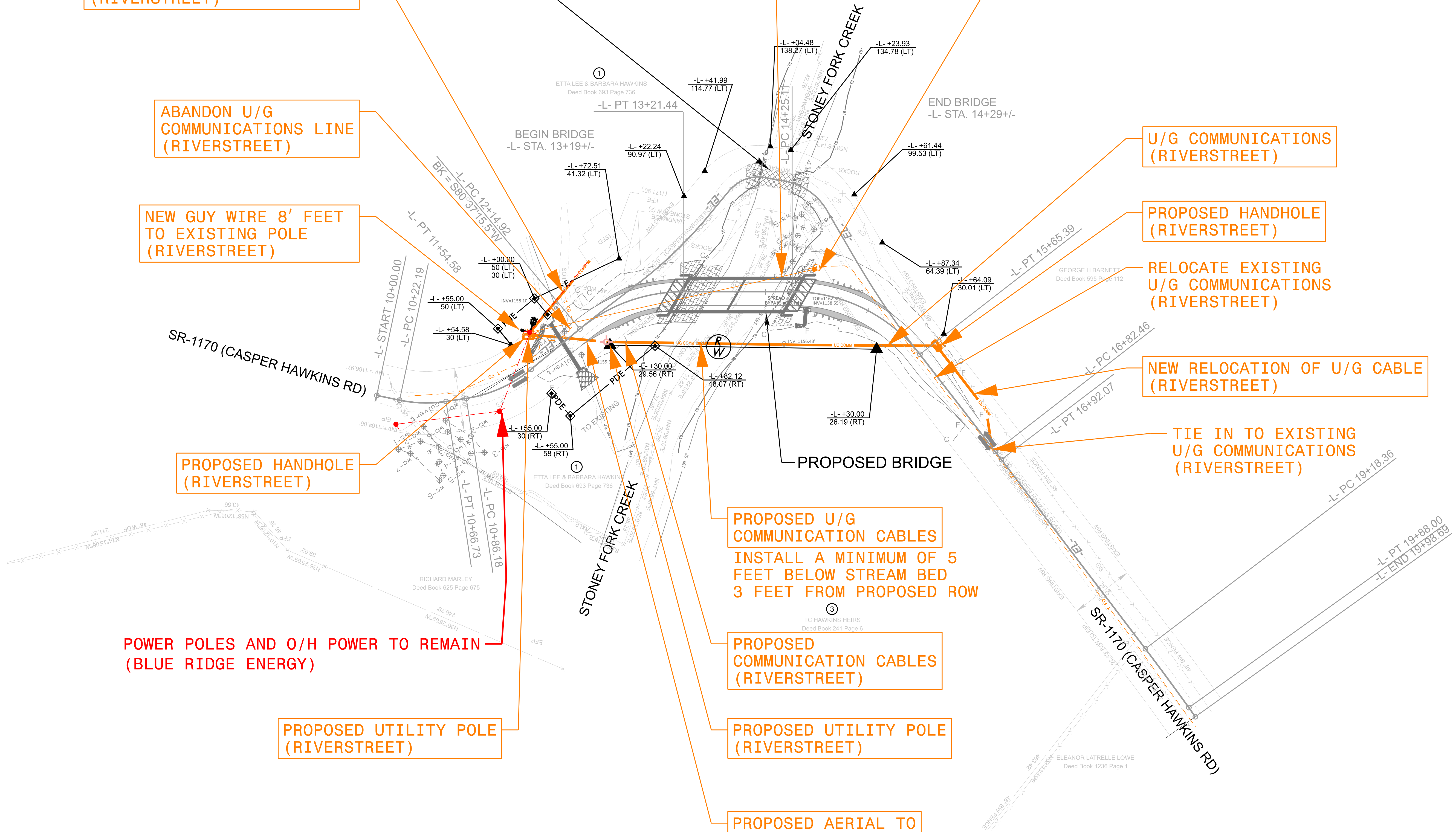
U/G COMMUNICATIONS
(RIVERSTREET)

PROPOSED HANDHOLE
(RIVERSTREET)

RELOCATE EXISTING
U/G COMMUNICATIONS
(RIVERSTREET)

NEW RELOCATION OF U/G CABLE
(RIVERSTREET)

TIE IN TO EXISTING
U/G COMMUNICATIONS
(RIVERSTREET)



REVISIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CROSS-SECTION SUMMARY

PROJ. REFERENCE NO.	SHEET NO.
HB-0065	X-1

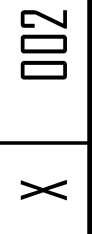
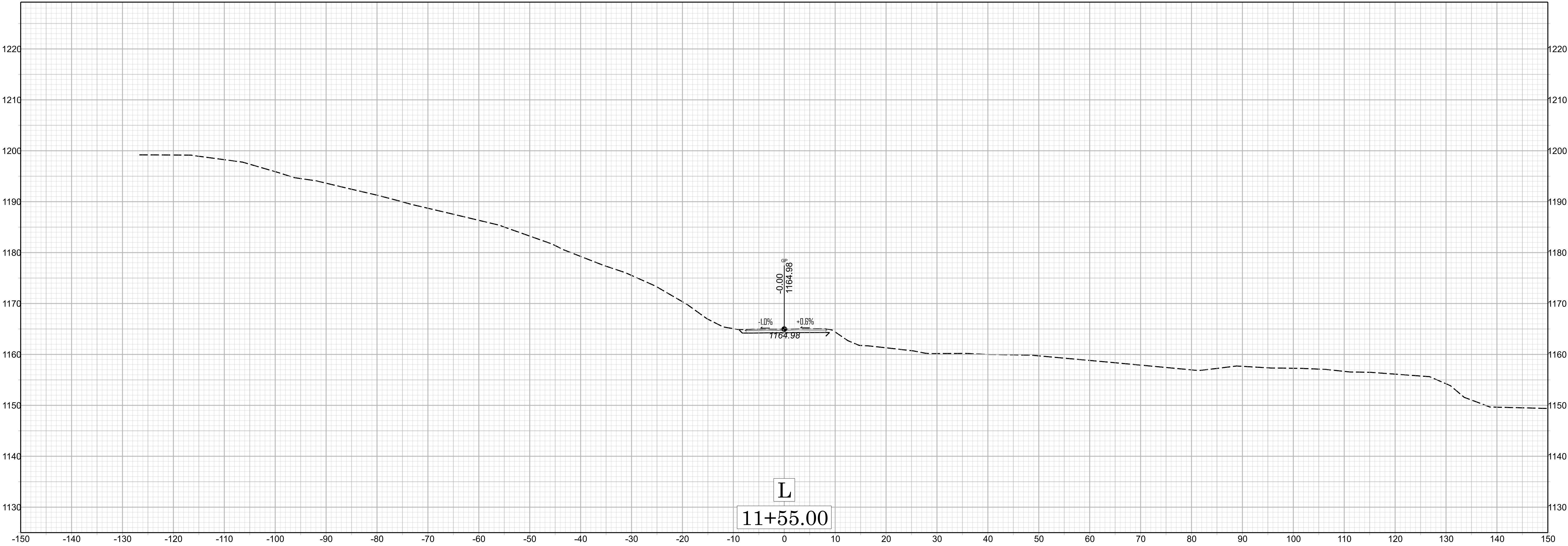
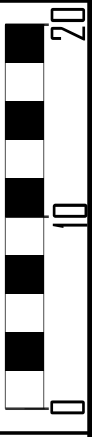
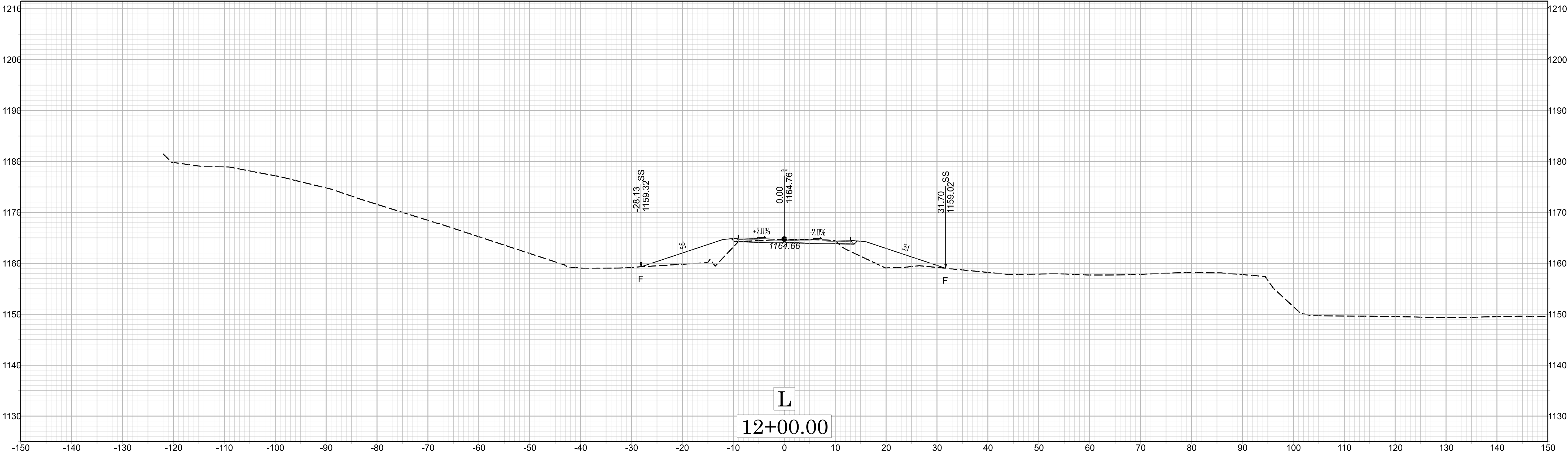
Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

STATION	UNCL. EXC.	EMBT.
-L-	(CY)	(CY)
11+55.00	0	0
12+00.00	19	97
12+50.00	23	57
13+00.00	15	117
13+50.00	6	90
14+00.00	0	0
14+50.00	22	150
15+00.00	65	192
15+50.00	26	71
16+00.00	13	21
16+50.00	14	1

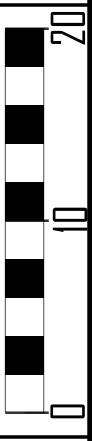
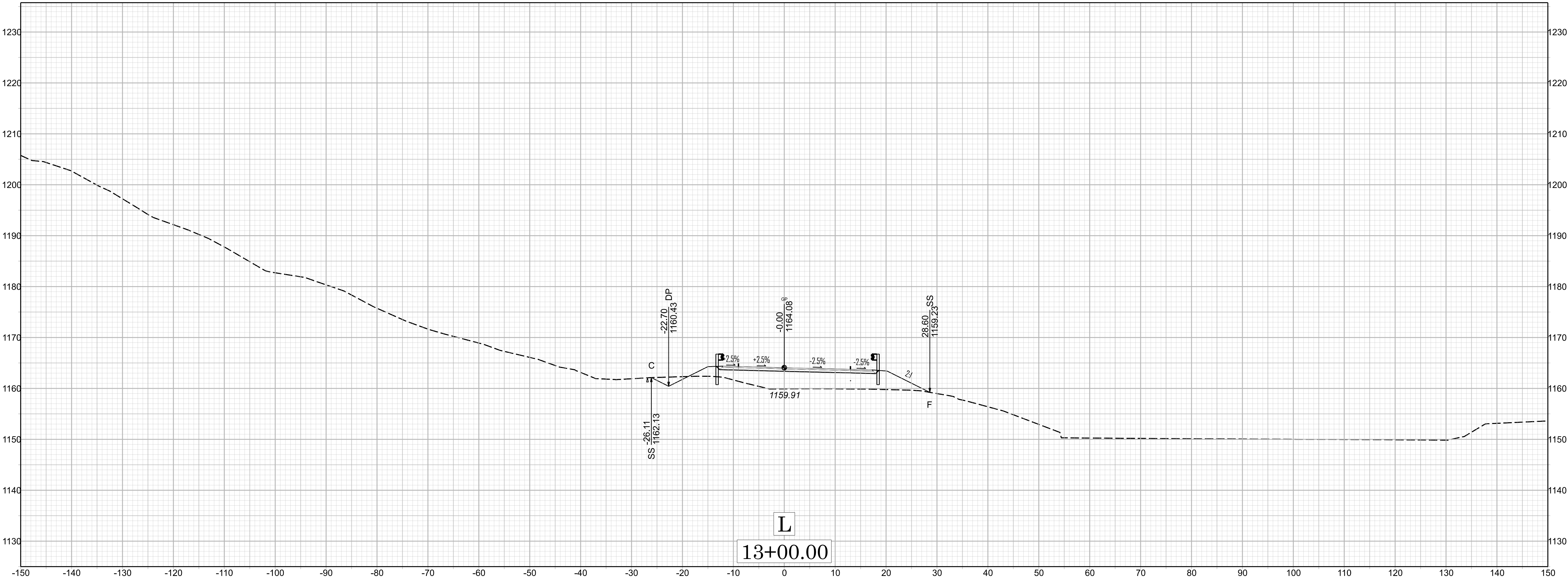
CROSS-SECTION INDEX			
CHAIN	STATION	STATION	SHEET NUMBER
-L-	11+55.00	16+50.00	X-2 THRU X-6

11/14/23

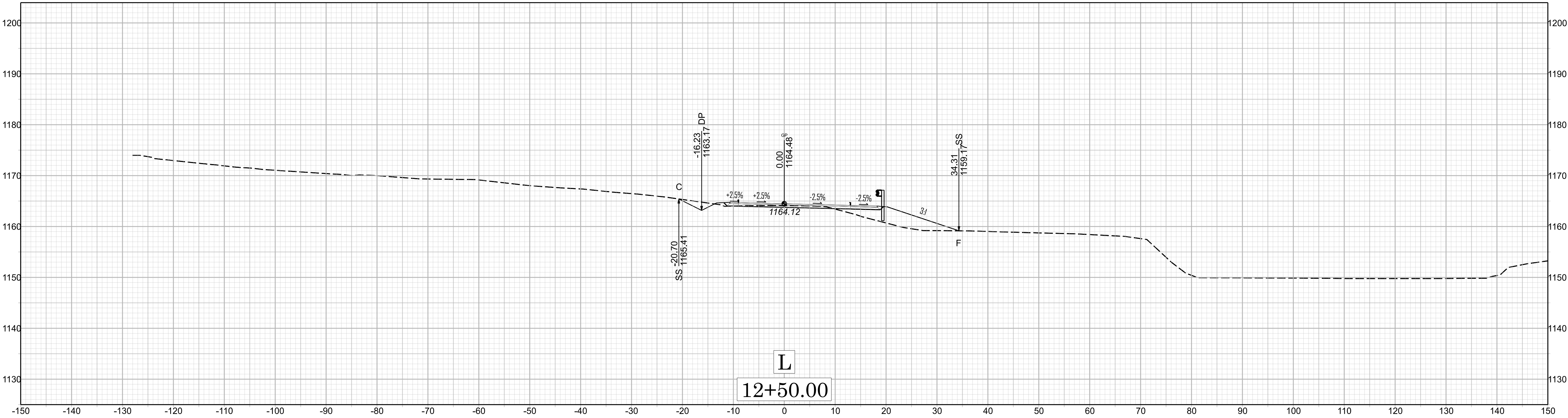


HB-0065

11/14/23

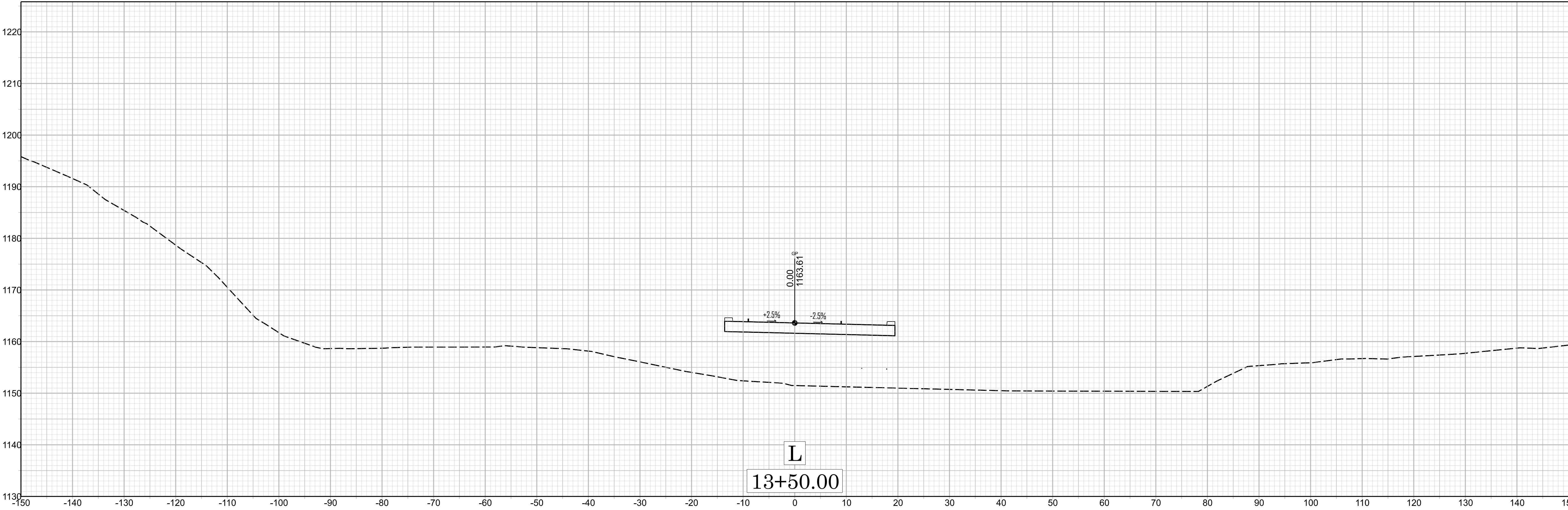
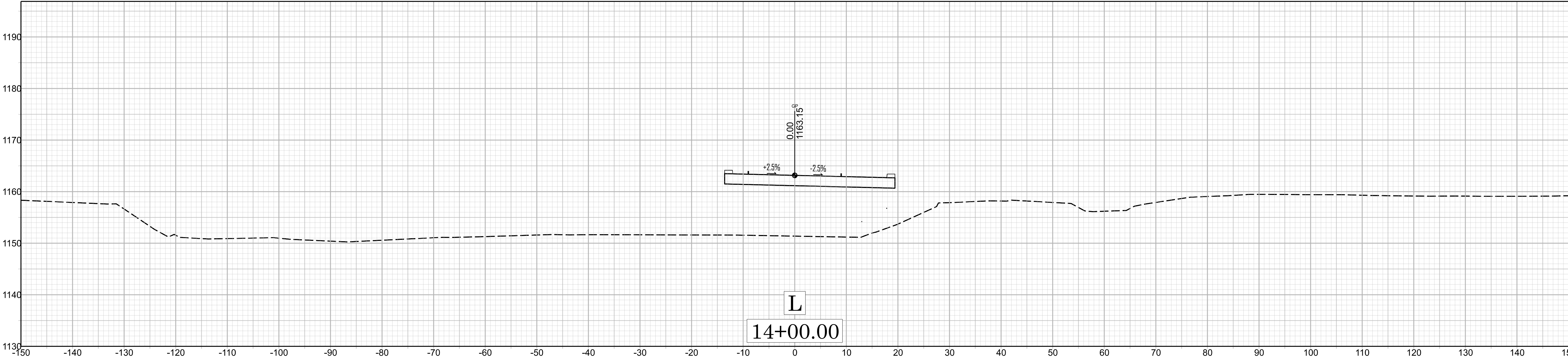


X 003

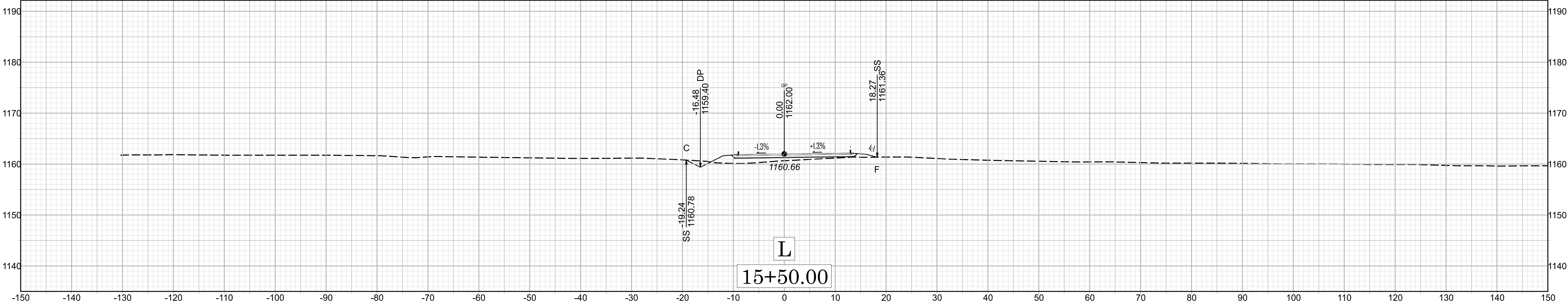
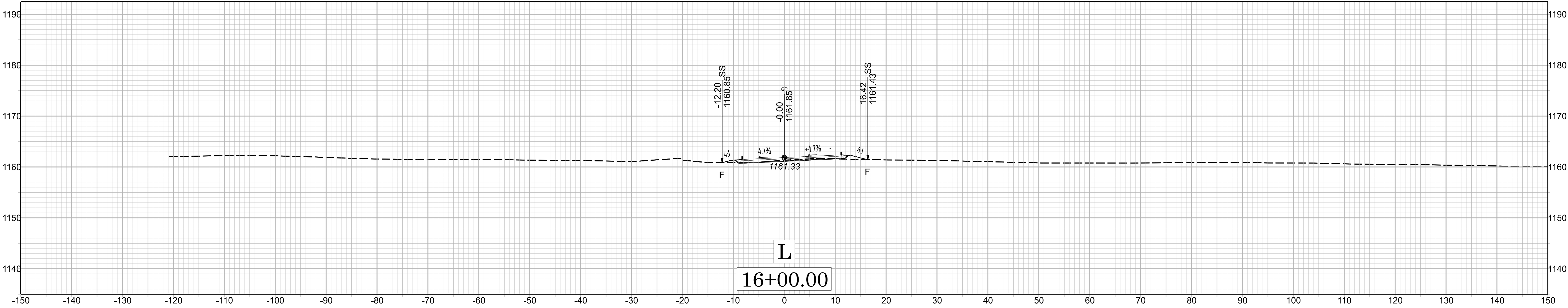
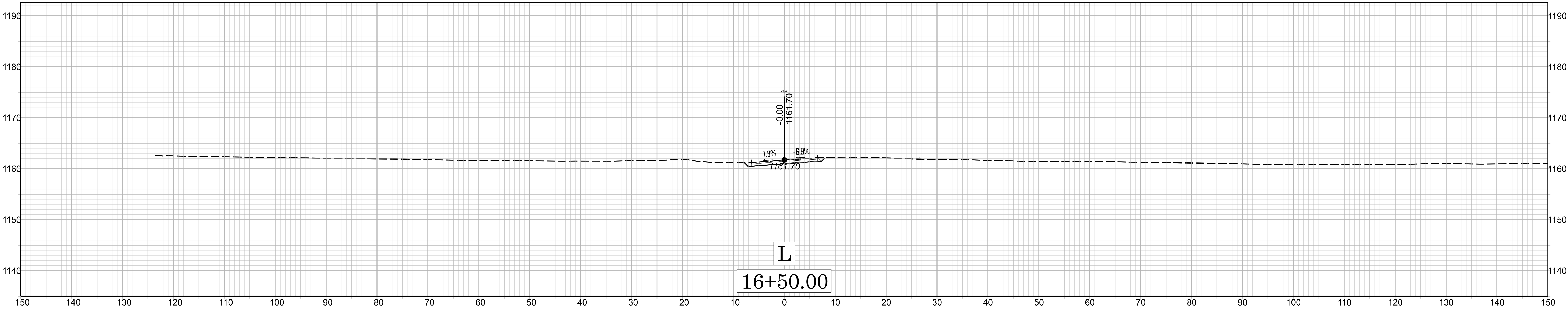


HB-0065

11/14/23

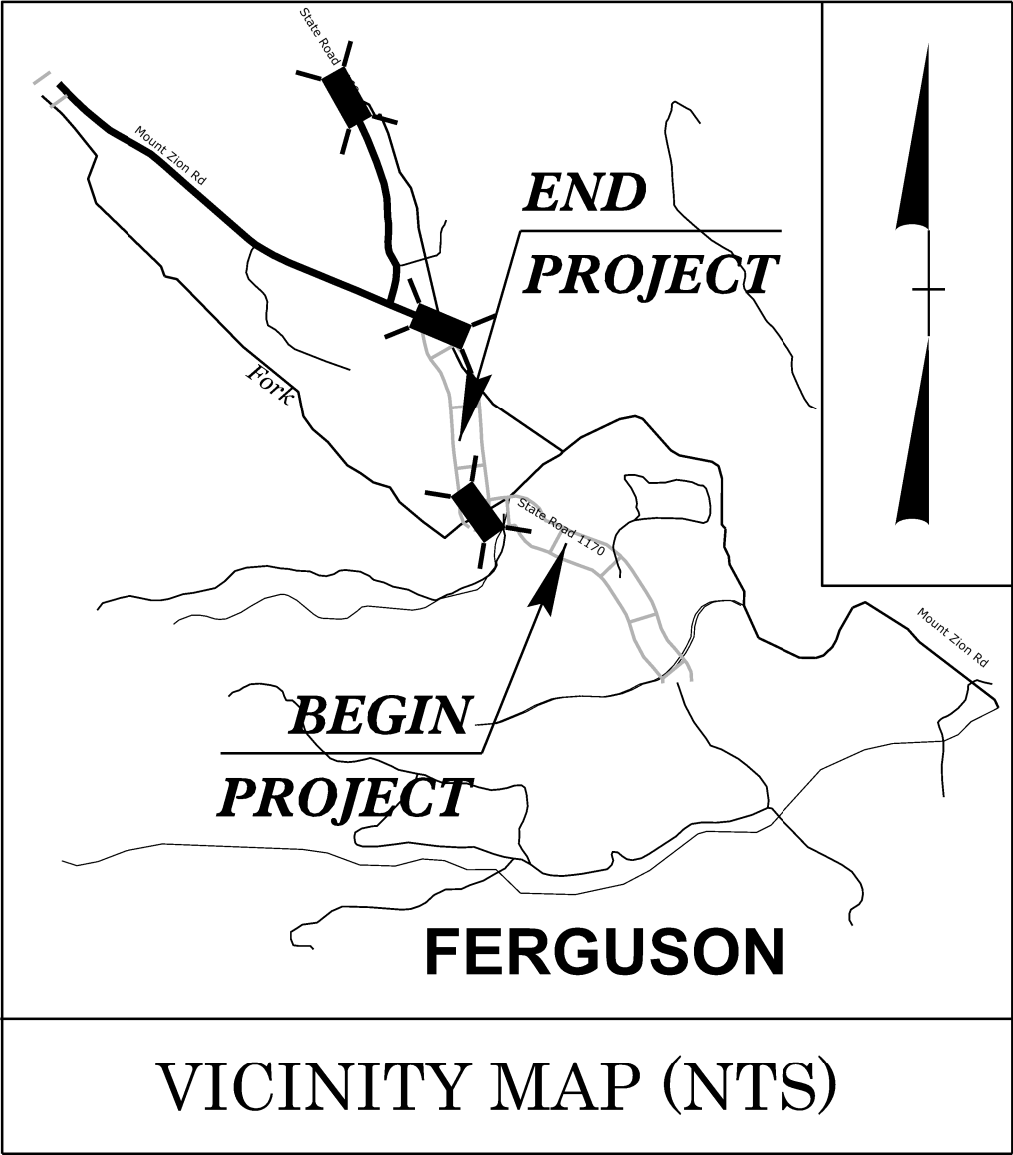






TIP PROJECT: HB-0065

CONTRACT: DK00483



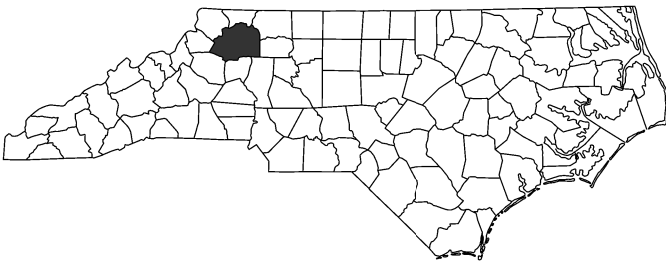
VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
WILKES COUNTY

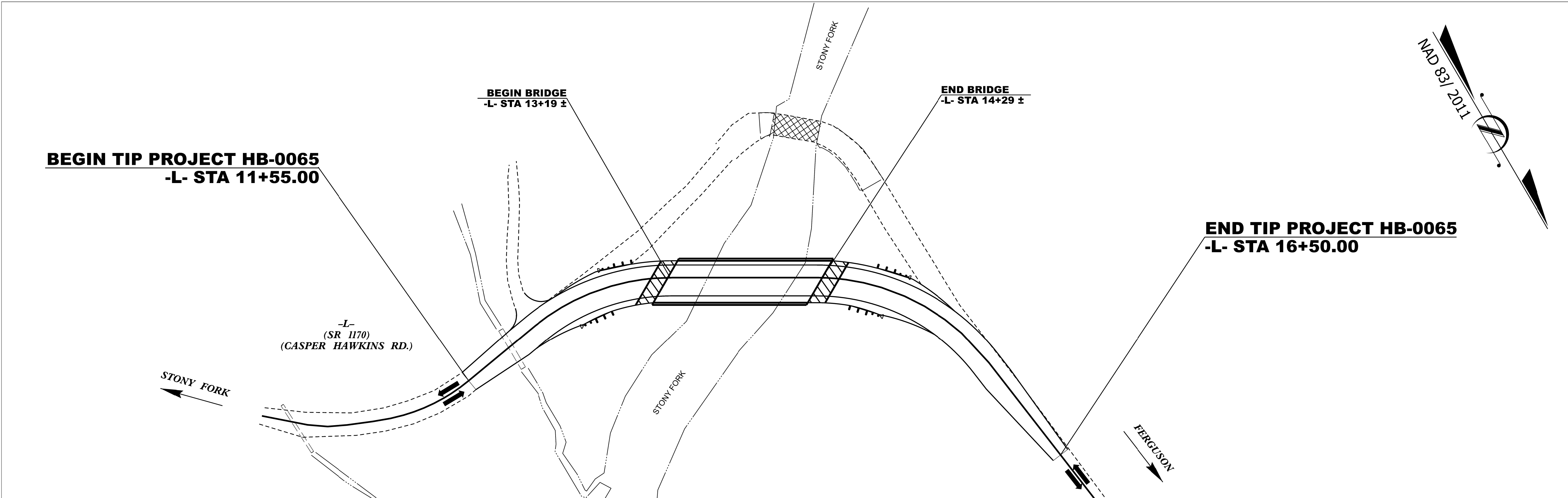
LOCATION: *REPLACE BRIDGE 960691 OVER STONY FORK
ON SR 1170 (CASPER HAWKINS ROAD)*

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0065		
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50735.1.1	FBRG111	P.E.	
50735.2.1	FBRG111	ROW	
50735.2.2	FBRG111	UTIL.	
50735.3.1	FBRG111	CONST.	



STRUCTURE PLANS



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2025 = 90
ADT 2045 = 110
K = N/A
D = N/A
T = N/A
V = 25 MPH

FUNC CLASS =
LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT HB-0065 = 0.073 MILES
LENGTH OF STRUCTURE TIP PROJECT HB-0065 = 0.021 MILE
TOTAL LENGTH OF TIP PROJECT HB-0065 = 0.094 MILES

Prepared in the Office of:



2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 15 , 2025

LETTING DATE:
SEPTEMBER 17, 2026

Prepared for:

DIVISION OF HIGHWAYS
DIVISION 11

801 Statesville Rd North Wilkesboro, 28659

NCDOT CONTACT:

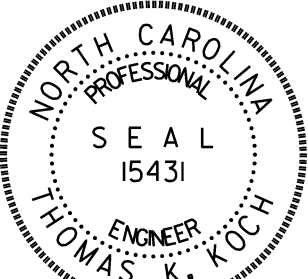
RAMIE A. SHAW, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

CHRIS D. ANDERSON, PE
PROJECT ENGINEER

JOSE A. ROSADO JR.
PROJECT DESIGN ENGINEER

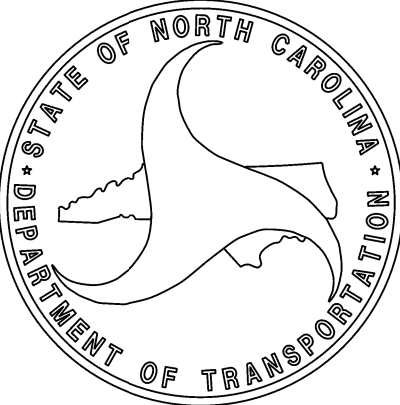
STRUCTURES DESIGN ENGINEER

6/10/2026



Signed by:
Thomas K. Koch

THOMAS K. KOCH, PE
SIGNATURE:





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, Pile 1 - Pile 3	3	142	See Substructure Plans	20			240		16	1143	14			
End Bent 1, Pile 4 - Pile 7	4	142	See Substructure Plans	20			240		16	1141	14			
End Bent No 2, Piles 1 - 7	7	142	See Substructure Plans	10			240		10	1146	14			
TOTAL QUANTITY:				50					182					

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

** 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.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent No 1, Piles 1 - 7	142			0.6		
End Bent No 2, Piles 1 - 7	142			0.6		

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

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent No 1, Piles 1 - 7				7
End Bent No 2, Piles 1 - 7				7
TOTAL QUANTITY:				14

SUMMARY OF DRILLED PIER INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3")	Number of Piers per Line	Factored Resistance per Pier KIPS	Required Drilled Pier Tip Elevation FT	Required Tip Resistance per Pier KSF	Scour Critical Elevation FT	Minimum Drilled Pier Penetration Into Rock per Pier LIN FT	Drilled Pier Length* per Pier LIN FT	Drilled Pier Length Not In Soil* per Pier LIN FT	Drilled Pier Length In Soil* per Pier LIN FT	Permanent Steel Casing Required? YES	Permanent Steel Casing Tip Elevation (Elevation Not To Extend Casing Below) FT	Permanent Steel Casing Length** per Pier LIN FT
Bent No 1, Piers 1	1	850	1123.0	30	1142.0		31			yes	1147.20	7
Bent No 1, Piers 2-3	2	850	1123.0	30	1142.0		31			yes	1146.80	7
TOTAL QUANTITY:							93					21

* Drilled Pier Length, Drilled Pier Length Not in Soil and Drilled Pier Length in Soil represent estimated drilled pier quantities and are measured and paid for as either "36-in Dia. Drilled Piers" or "36-in Dia. Drilled Piers Not in Soil" and " 36-in Dia. Drilled Piers in Soil" in accordance with Article 411-7 of the NCDOT Standard Specifications. For bents with a not in soil pay item, drilled piers through air or water will be paid at the contract unit price for "36-in Dia. Drilled Piers in Soil."

** Permanent Steel Casing Length equals the difference between the ground line or top of drilled pier elevation, whichever is higher, and the permanent casing tip elevation and is measured and paid for as "Permanent Steel Casing for 36-in Dia. Drilled Pier" in accordance with Article 411-7 of the NCDOT Standard Specifications.

SUMMARY OF DRILLED PIER TESTING

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3")	Standard Penetration Test (SPT) EACH	Crosshole Sonic Logging (CSL) EACH	Thermal Integrity Profiler (TIP) EACH	Shaft Inspection Device (SID) EACH	Pile Integrity Test (PIT) EACH
Bent No 1, Piers 1-3	3	3			
TOTAL QUANTITY:	3	3			

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Pramila Adhikari, #054118) on 01-16-2026.
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, Pipe Pile Plates, Permanent Steel Casing, SPTs, TIPs, CSL Testing, SID Inspections and PITs when necessary.

PROJECT NO. **HB-0065**

WILKES COUNTY

STATION: **13+74.00 - L -**

SHEET 2 OF 3

DRAWN BY :	J. PENDERGRAFT	DATE :	1-26
CHECKED BY :	T. KOCH	DATE :	1-26
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

6/10/2026

NORTH CAROLINA

PROFESSIONAL

SEAL

15431

ENGINEER

THOMAS K. KOCH

Signed by:

Thomas K. Koch

4247D864D807410

WETHERILL

ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-6377

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

PILE AND DRILLED PIER FOUNDATION TABLES

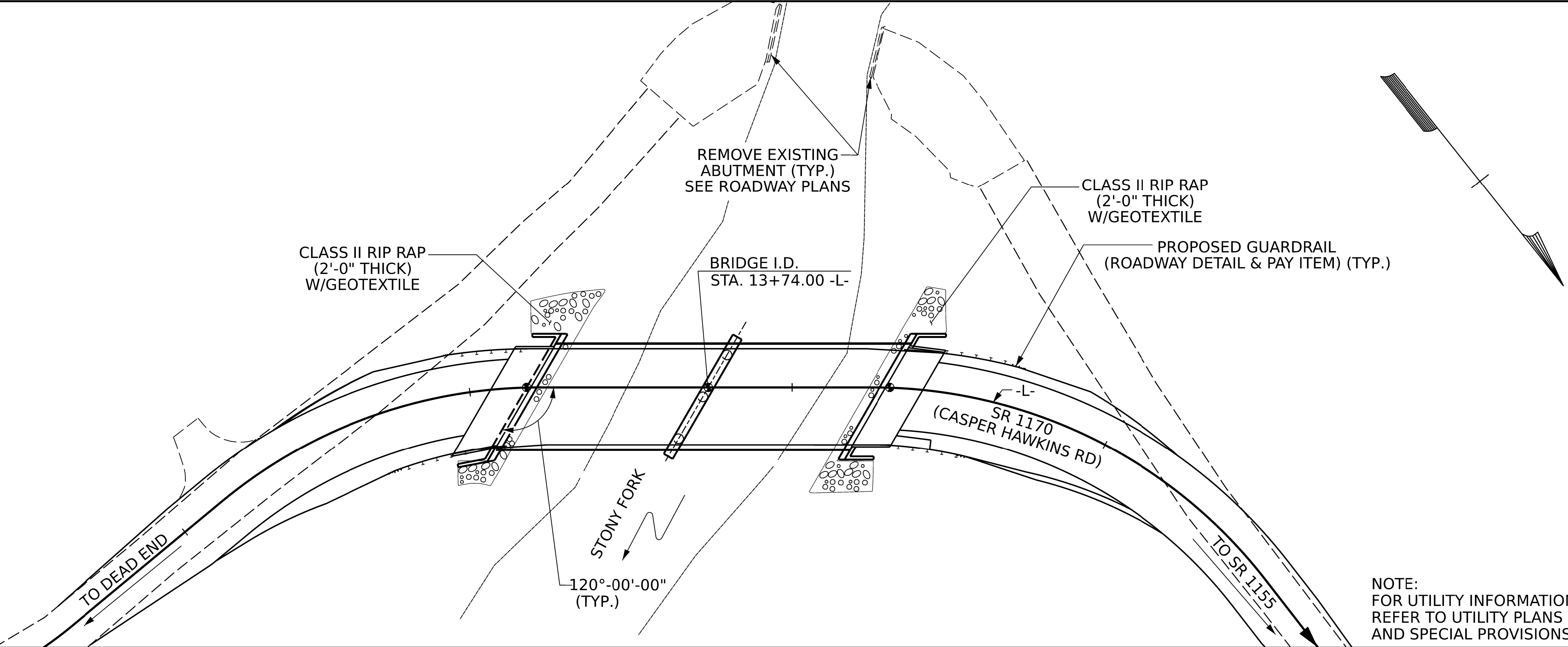
REVISIONS

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

SHEET NO.
S-02

TOTAL SHEETS
25

BM-1: (BENCH-TIE NAIL SET IN 27" WALNUT) 332' LEFT -L- STA. 14+91; NORTHING 873939, EASTING 1292351; ELEVATION 1163.49



LOCATION SKETCH

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

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

INSTALL PERMANENT STEEL CASINGS AT BENT NO. 1 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATIONS 1,147 FEET.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE @ STA. 13+74	ASBESTOS ASSESSMENT	PREDRILLING FOR PILES	3'-0" DIA. DRILLED PIER	PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	SPT TESTING	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	CONCRETE WATERPROOFING MEMBRANE- CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EA.	EA.	LUMP SUM	SQ. FT.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM
SUPERSTRUCTURE										3286	3286	3569		
END BENT 1				112.0									24.1	
BENT 1					93.0	21.0	3	3					17.3	
END BENT 2				70.0									24.1	
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	182.0	93.0	21.0	3	3	LUMP SUM	3286	3286	3569	65.5	LUMP SUM

	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES		STEEL PILE POINTS	32" ALASKA RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"x1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LBS.	LBS.	EA.	NO.	LIN. FT.	EA.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE							203.46				22	1210.0
END BENT 1	2917		7	7	140.0	7		44.0	59.0			
BENT 1	10,092	1797.0										
END BENT 2	2914		7	7	70.0	7		48.0	53.0			
TOTAL	15,923	1797.0	14	14	210.0	14	203.46	92.0	112.0	LUMP SUM	22	1210.0

DRAWN BY :	J. PENDERGRAFT	DATE :	4-25
CHECKED BY :	J. DILWORTH	DATE :	4-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

NOTES :

ASSUMED LIVE LOAD = HL93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 17' AT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTS OF 2 SPANS @ 31'-0" EACH WITH A TIMBER FLOOR ON STEEL I-BEAM SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 19.0' ON A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE ABUTMENTS ON SPREAD FOOTING AND REINFORCED CONCRETE PIER AND WALL BENT ON SPREAD FOOTING LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING STRUCTURE IS PRESENTLY POSTED FOR LOAD LIMIT.

REMOVAL OF THE EXISTING STRUCTURE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 20+46.00 -L-."

THE CLASS AA CONCRETE IN THE CONCRETE WEARING SURFACE SHOULD CONTAIN GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFICATION 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 CONCRETE WEARING SURFACE.

FOR CONCRETE WATERPROOFING MEMBRANE- CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

PROJECT NO. **HB-0065**

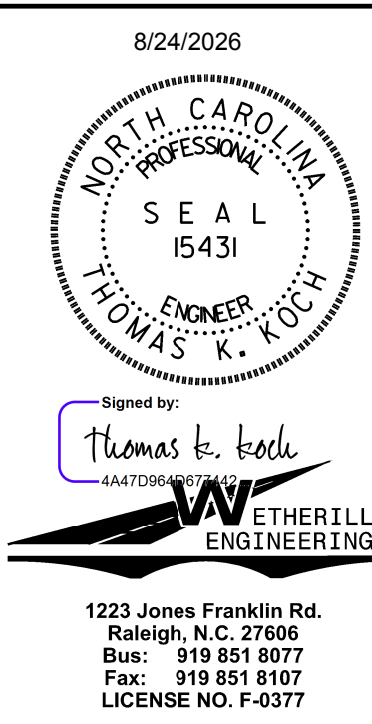
WILKES COUNTY

STATION: **13+74.00 -L-**

SHEET 3 OF 3

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

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



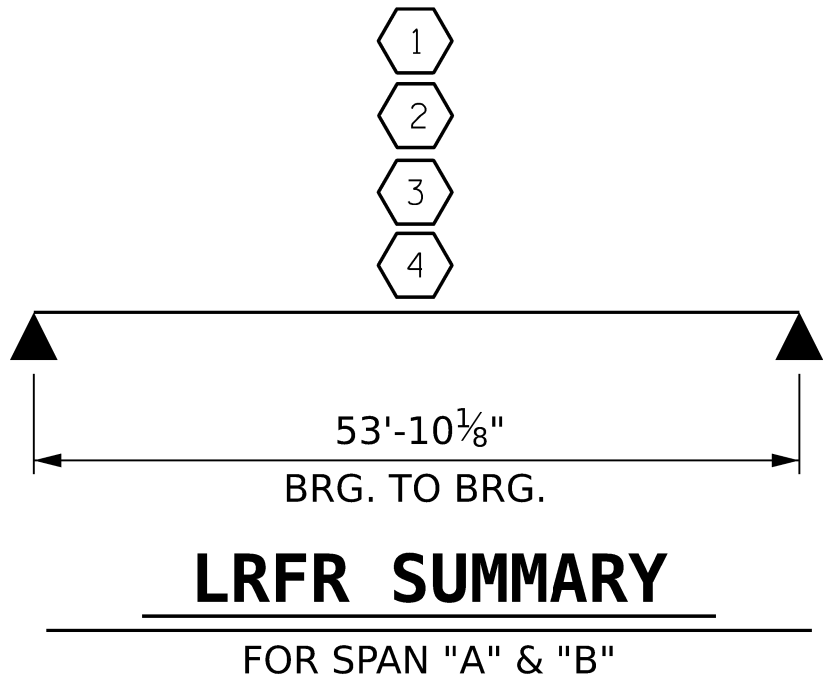
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER
STONY FORK ON SR 1170
BETWEEN DEAD END AND SR 1155

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-03
1			3			TOTAL SHEETS
2			4			25

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING ⬡	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ LL)	MOMENT				SHEAR					LIVE-LOAD FACTORS (γ LL)	MOMENT							
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	⬡1	1.220	--	1.75	0.250	1.53	55'	EL	26.920	0.645	1.38	55'	I	43.420	0.80	0.250	1.22	55'	EL	26.920		
	HL-93 (OPERATING)	N/A		1.850	--	1.35	0.250	1.98	55'	EL	26.920	0.645	1.85	55'	I	43.420	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	⬡2	1.520	54.720	1.75	0.250	1.91	55'	EL	26.920	0.645	1.67	55'	I	43.420	0.80	0.250	1.52	55'	EL	26.920		
	HS-20 (OPERATING)	36.000		2.230	80.280	1.35	0.250	2.48	55'	EL	26.920	0.645	2.23	55'	I	43.420	N/A	--	--	--	--	--		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.200	43.200	1.4	0.250	5.02	55'	EL	26.920	0.645	5.04	55'	I	43.420	0.80	0.250	3.20	55'	EL	26.920	
		SNGARBS2	20.000		2.480	49.600	1.4	0.250	3.89	55'	EL	26.920	0.645	3.63	55'	I	43.420	0.80	0.250	2.48	55'	EL	26.920	
		SNAGRIS2	22.000		2.390	52.580	1.4	0.250	3.76	55'	EL	26.920	0.645	3.40	55'	I	43.420	0.80	0.250	2.39	55'	EL	26.920	
		SNCOTTS3	27.250		1.590	43.328	1.4	0.250	2.50	55'	EL	26.920	0.645	2.41	55'	I	43.420	0.80	0.250	1.59	55'	EL	26.920	
		SNAGGRS4	34.925		1.370	47.874	1.4	0.250	2.15	55'	EL	26.920	0.645	2.04	55'	I	43.420	0.80	0.250	1.37	55'	EL	26.920	
		SNS5A	35.550		1.340	47.637	1.4	0.250	2.10	55'	EL	26.920	0.645	2.12	55'	I	43.420	0.80	0.250	1.34	55'	EL	26.920	
		SNS6A	39.950		1.240	49.538	1.4	0.250	1.95	55'	EL	26.920	0.645	1.95	55'	I	43.420	0.80	0.250	1.24	55'	EL	26.920	
		SNS7B	42.000		1.180	49.560	1.4	0.250	1.86	55'	EL	26.920	0.645	1.96	55'	I	43.420	0.80	0.250	1.18	55'	EL	26.920	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.520	50.160	1.4	0.250	2.39	55'	EL	26.920	0.645	2.33	55'	I	43.420	0.80	0.250	1.52	55'	EL	26.920	
		TNT4A	33.075		1.530	50.605	1.4	0.250	2.40	55'	EL	26.920	0.645	2.23	55'	I	43.420	0.80	0.250	1.53	55'	EL	26.920	
		TNT6A	41.600		1.270	52.832	1.4	0.250	1.99	55'	EL	26.920	0.645	2.16	55'	I	43.420	0.80	0.250	1.27	55'	EL	26.920	
		TNT7A	42.000		1.280	53.760	1.4	0.250	2.01	55'	EL	26.920	0.645	1.98	55'	I	43.420	0.80	0.250	1.28	55'	EL	26.920	
		TNT7B	42.000		1.340	56.280	1.4	0.250	2.10	55'	EL	26.920	0.645	1.87	55'	I	43.420	0.80	0.250	1.34	55'	EL	26.920	
		TNAGRIT4	43.000		1.270	54.610	1.4	0.250	1.99	55'	EL	26.920	0.645	1.79	55'	I	43.420	0.80	0.250	1.27	55'	EL	26.920	
TNAGT5A		45.000		1.190	53.550	1.4	0.250	1.86	55'	EL	26.920	0.645	1.84	55'	I	43.420	0.80	0.250	1.19	55'	EL	26.920		
TNAGT5B		45.000	⬡3	1.170	52.650	1.4	0.250	1.83	55'	EL	26.920	0.645	1.69	55'	I	43.420	0.80	0.250	1.17	55'	EL	26.920		
EMERGENCY VEHICLE (EV)	EV2	28.750		1.770	50.888	1.3	0.250	2.99	55'	EL	26.920	0.645	2.70	55'	I	43.420	0.80	0.250	1.77	55'	EL	26.920		
	EV3	43.000	⬡4	1.150	49.450	1.3	0.250	1.94	55'	EL	26.920	0.645	1.76	55'	I	43.420	0.80	0.250	1.15	55'	EL	26.920		



LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.

2.

3.

4.

⬡#

CONTROLLING LOAD RATING

⬡1

DESIGN LOAD RATING (HL-93)

⬡2

DESIGN LOAD RATING (HS-20)

⬡3

LEGAL LOAD RATING **

⬡4

EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

PROJECT NO. **HB-0065**

WILKES COUNTY

STATION: **13+74.00 - L -**

DRAWN BY :	J. PENDERGRAFT	DATE :	5-25
CHECKED BY :	J. DILWORTH	DATE :	5-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

6/10/2026

NORTH CAROLINA
PROFESSIONAL
ENGINEER
THOMAS K. KOCH

S E A L
15431

Signed by:

Thomas K. Koch

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
55' CORED SLAB UNIT
120° SKEW
(NON-INTERSTATE TRAFFIC)

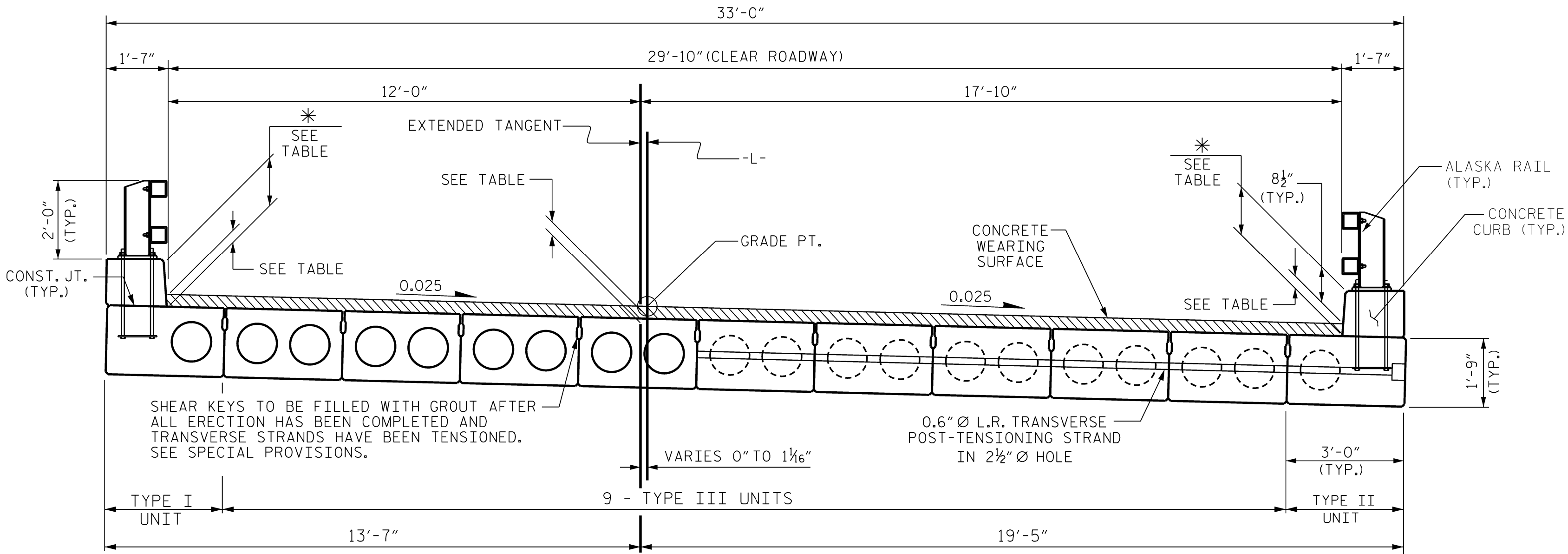
REVISIONS

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

SHEET NO.
S-04

TOTAL
SHEETS
25

STD. NO. 21LRFR1_60&120S_55L



HALF SECTION
THROUGH VOIDS

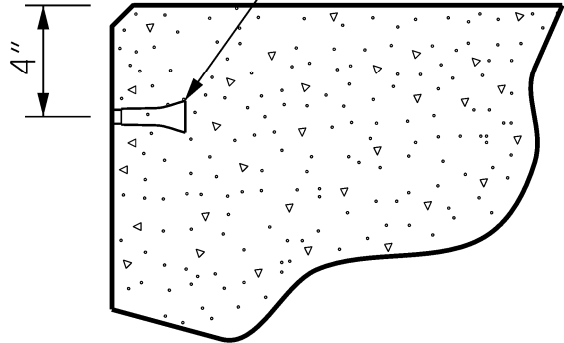
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION

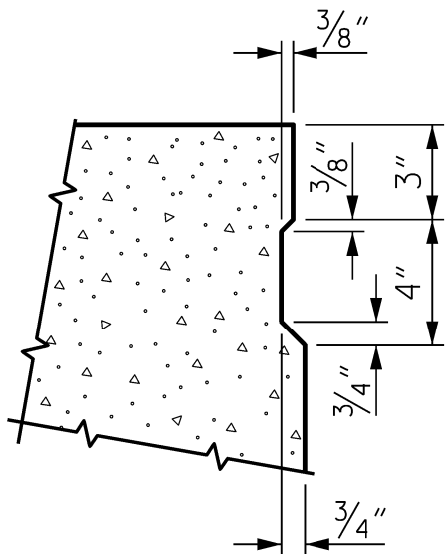
* THE MAXIMUM CURB HEIGHT AND CONCRETE WEARING SURFACE THICKNESS IS SHOWN. THE HEIGHT OF THE CURB AND CONCRETE WEARING SURFACE THICKNESS VARIES WHILE THE TOP OF THE CURB FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR CURB HEIGHT, SEE "CONCRETE CURB AND END POST DETAILS FOR 32" ALASKA RAIL" SHEET.

TABLE CONCRETE OVERLAY THICKNESS AT CENTERLINE BEARING				* MAXIMUM CURB HEIGHTS (INSIDE FACE) AT CENTERLINE BEARING		
	LEFT GUTTERLINE	EXTENDED TANGENT LINE	RIGHT GUTTERLINE		LEFT GUTTERLINE	RIGHT GUTTERLINE
END BENT 1	4 3/4"	4 1/8"	5"	END BENT 1	1'-1 1/4"	1'-1 1/2"
BENT 1	4 13/16"	4 13/16"	4 3/4"	BENT 1	1'-1 5/16"	1'-1 1/4"
END BENT 2	5"	4 7/8"	4 3/4"	END BENT 2	1'-1 1/2"	1'-1 1/4"

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

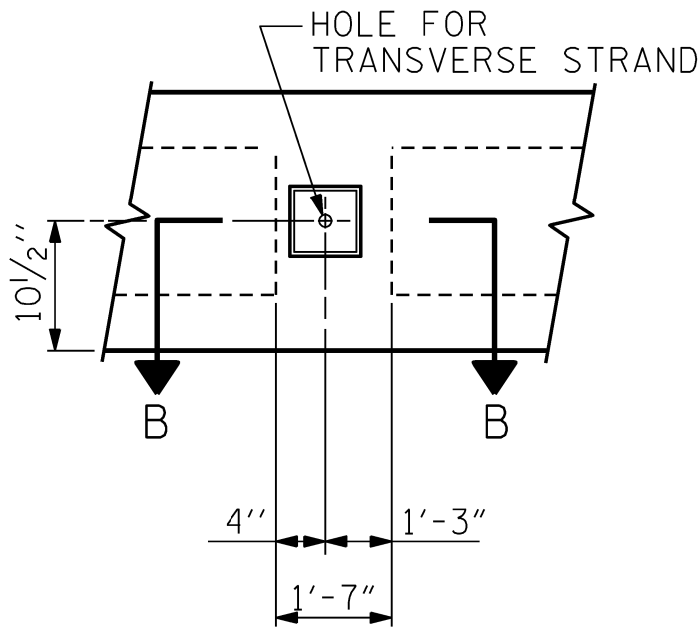


THREADED INSERT DETAIL

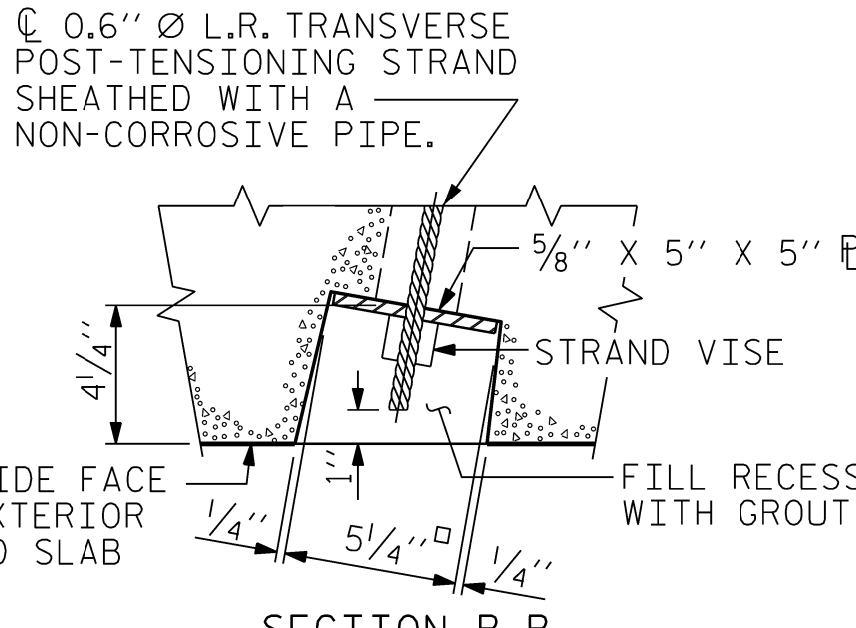


SHEAR KEY DETAIL

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

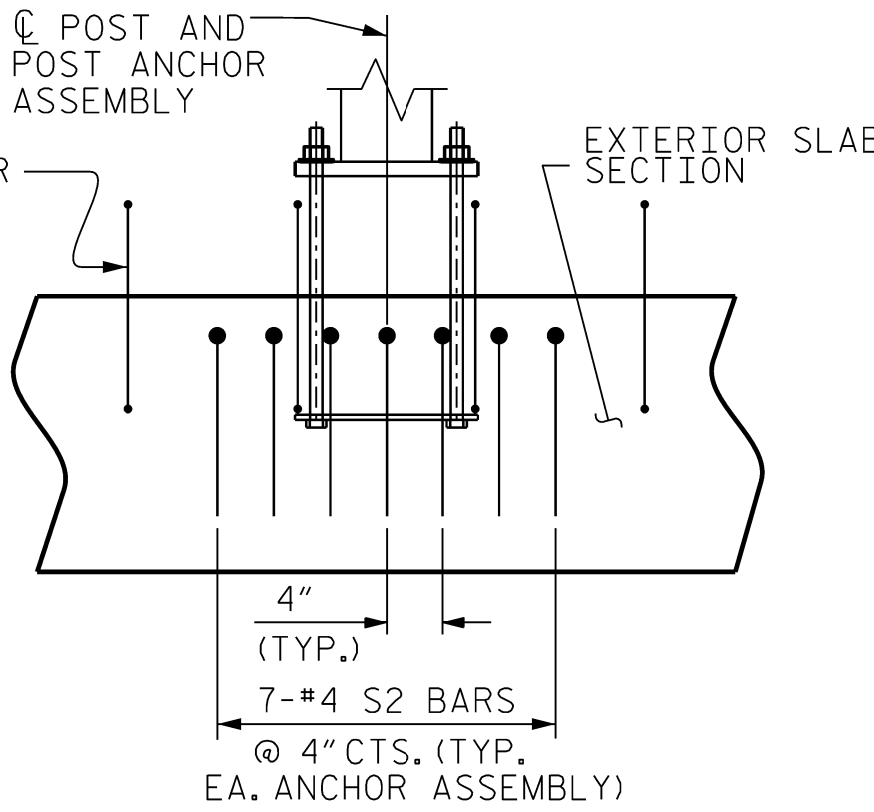


ELEVATION VIEW



SECTION B-B

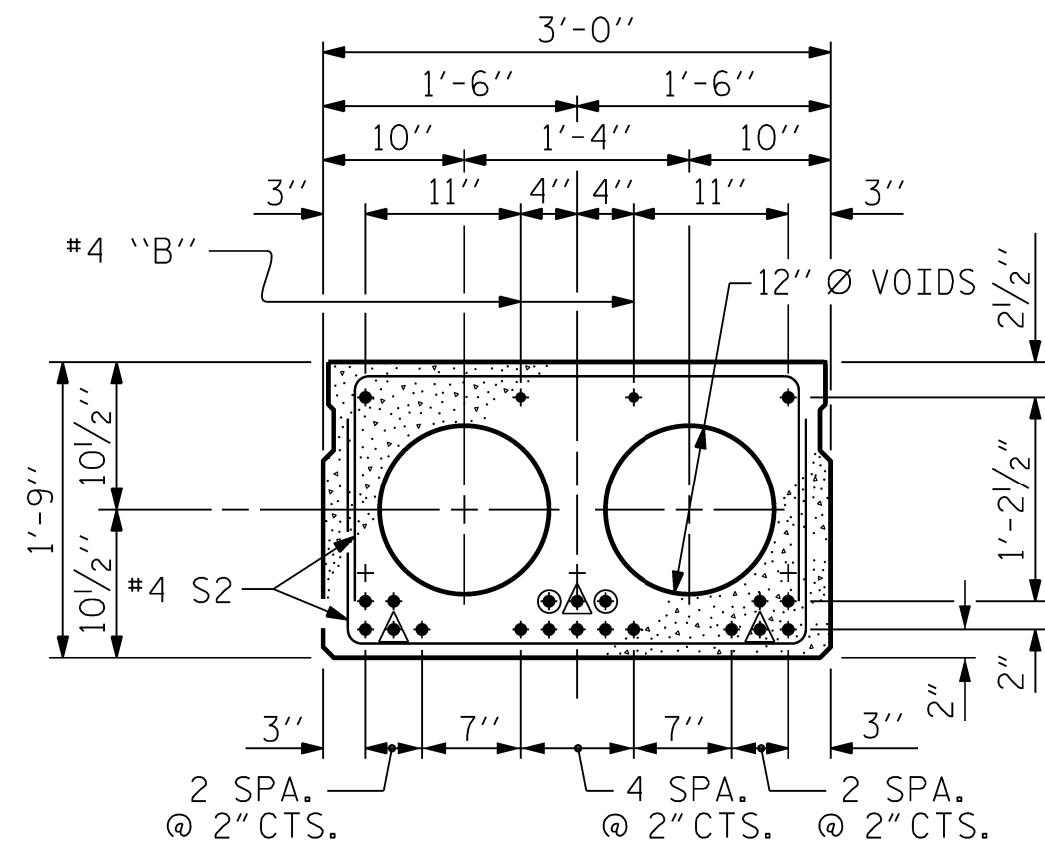
GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



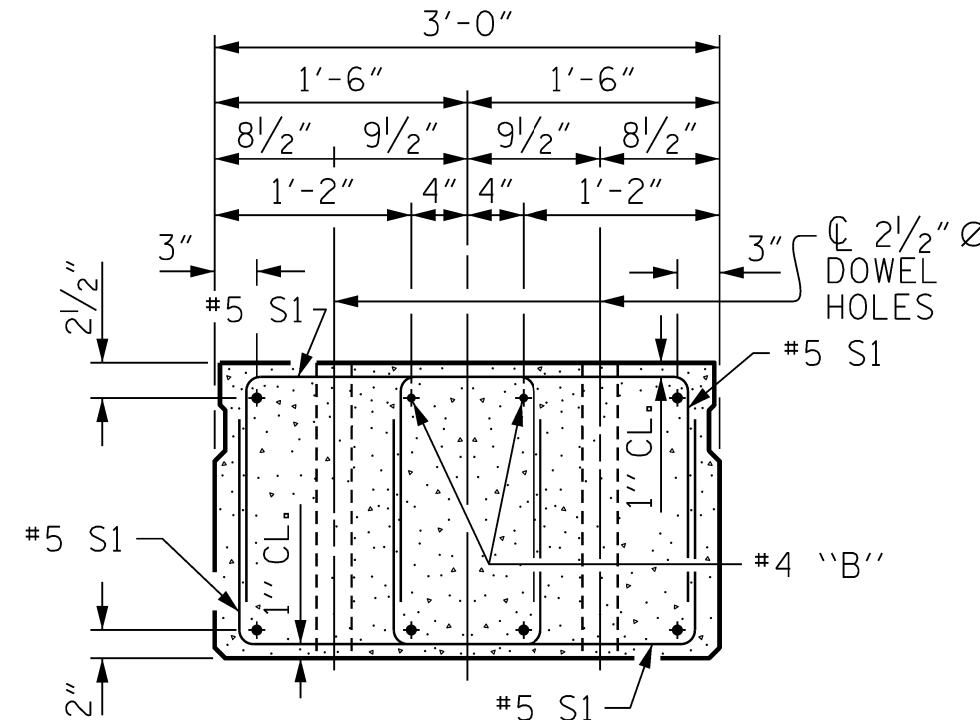
SECTION A-A

SIDE VIEW AT POST LOCATION

(SHOWING ADDITIONAL S2 BARS AT EACH POST ASSEMBLY)
FOR LOCATIONS OF ADDITIONAL S2 BARS, SEE "PLAN OF
EXTERIOR UNIT REINFORCEMENT LAYOUT FOR ALASKA RAIL
POST ANCHOR ASSEMBLY" SHEET

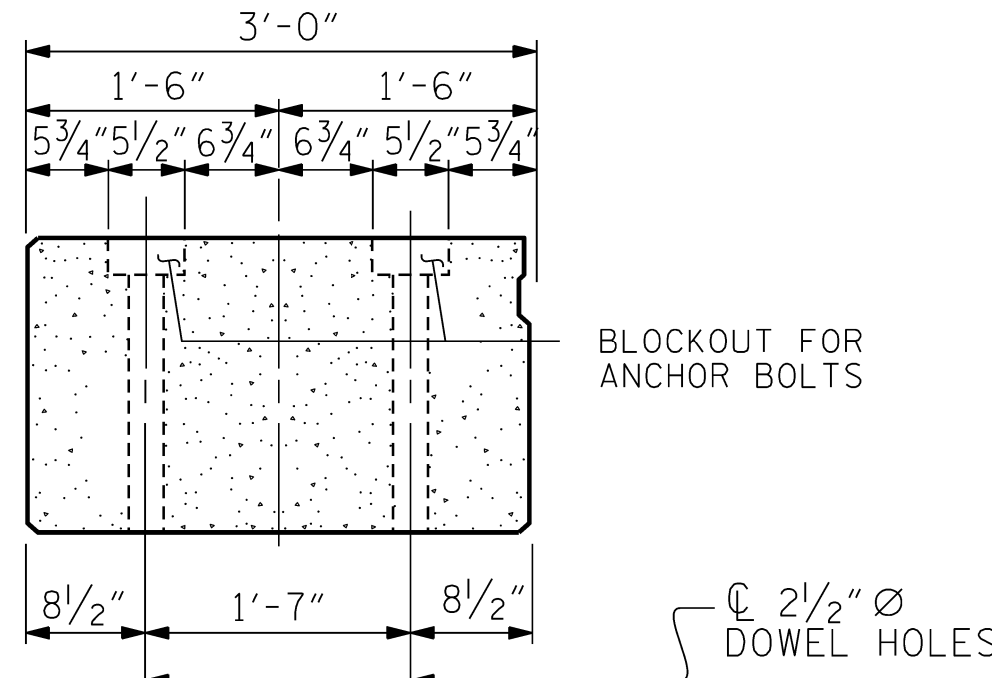


INTERIOR SLAB SECTION
55' UNIT TYPE III
(20 STRANDS REQUIRED)



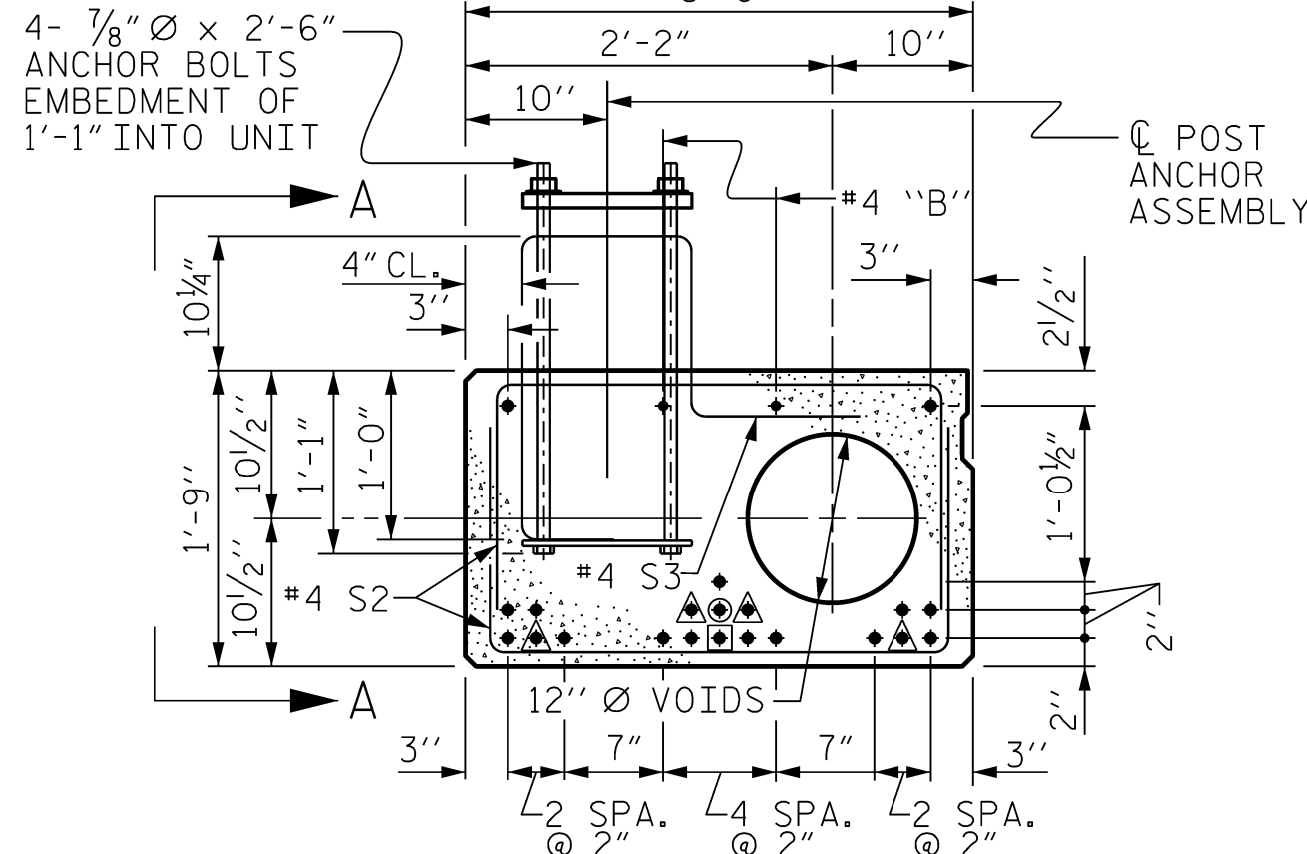
END ELEVATION

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



END ELEVATION

SHOWING LOCATION OF BLOCKOUT FOR
ANCHOR BOLTS AND DOWEL HOLES.
EXTERIOR SLAB UNITS ONLY.



EXTERIOR SLAB SECTION
55' UNIT TYPE I UNIT
(TYPE II UNIT SIMILAR)

(20 STRANDS REQUIRED)
FOR #4 "B" BARS LAYOUT
SEE INTERIOR SLAB SECTION

0.6" Ø LOW RELAXATION STRAND LAYOUT

- ▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A
DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT.
SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A
DISTANCE OF 2'-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

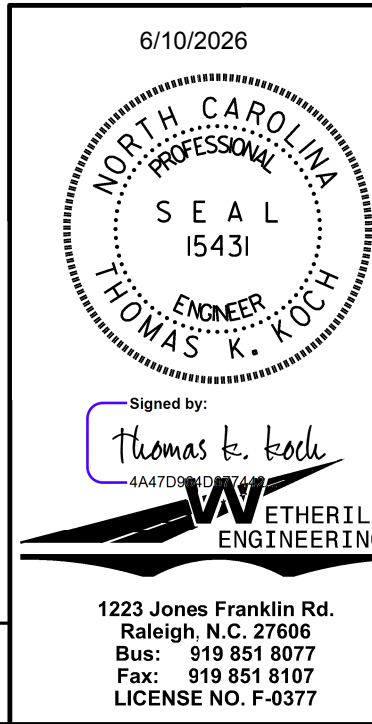
FOR SECTION THRU RAIL & ANCHOR
PLATE DETAILS FOR ALASKA RAIL,
SEE SHEET S-13.

PROJECT NO. **HB-0065**

WILKES COUNTY

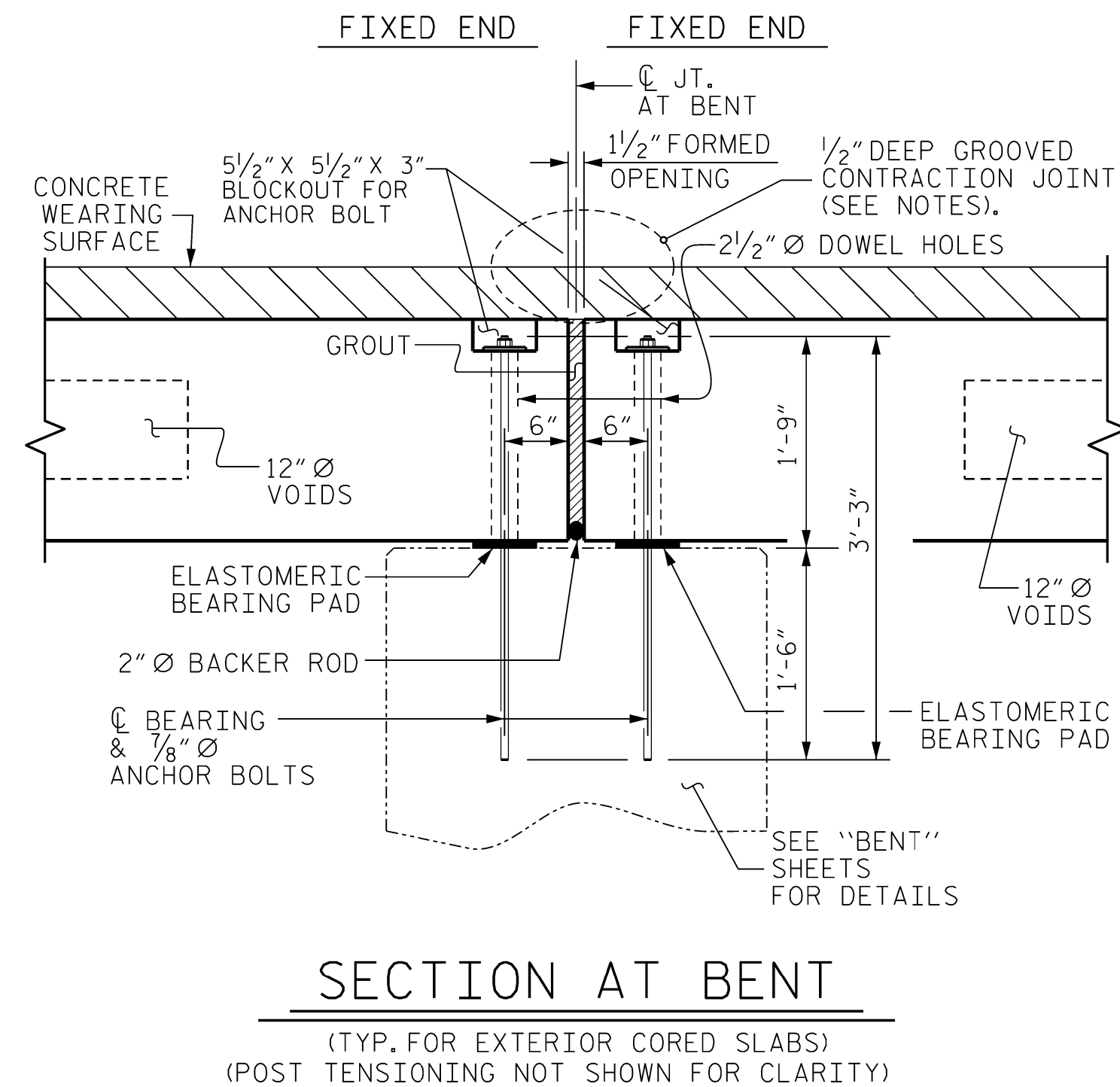
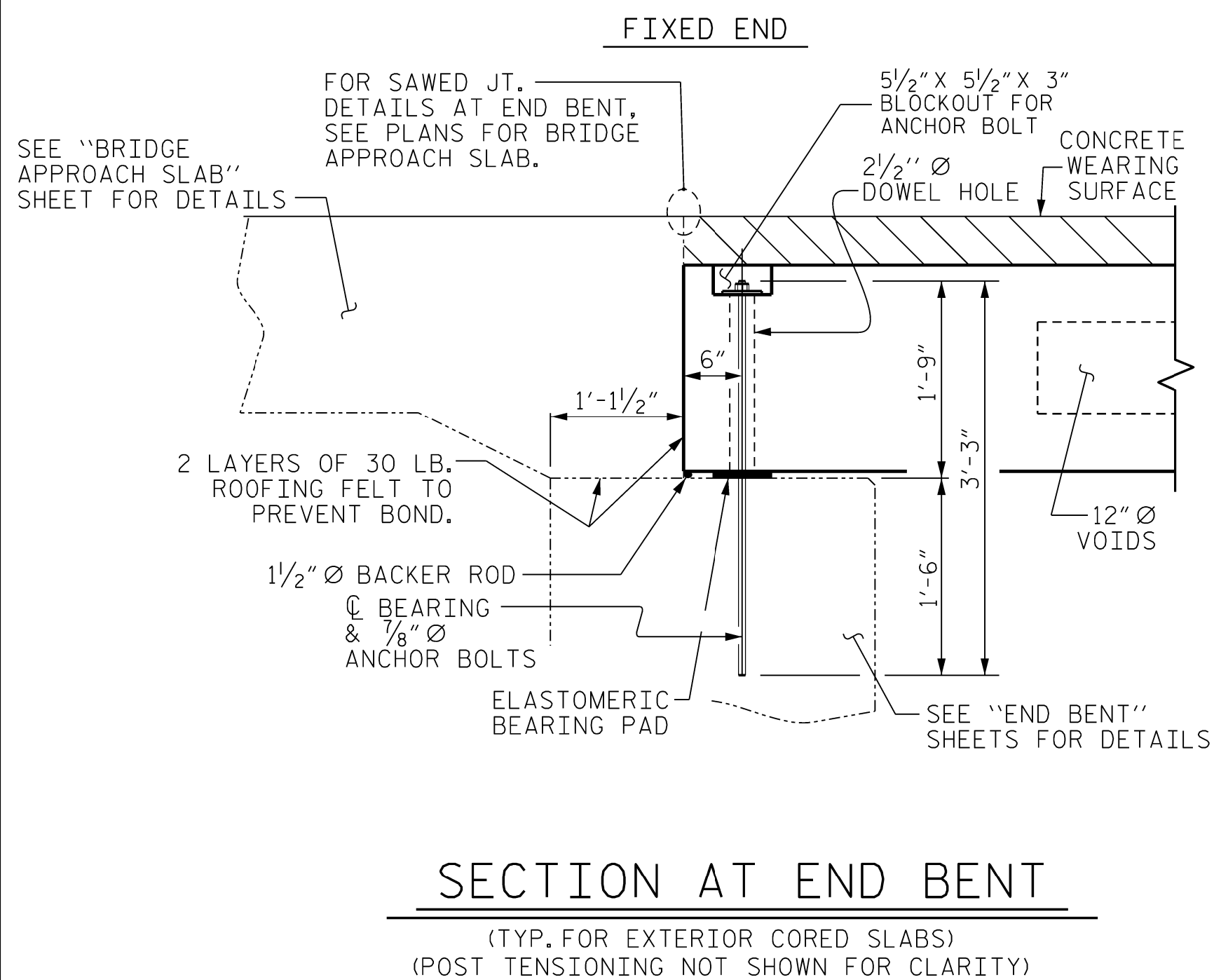
STATION: **13+74.00 -L-**

SHEET 1 OF 6

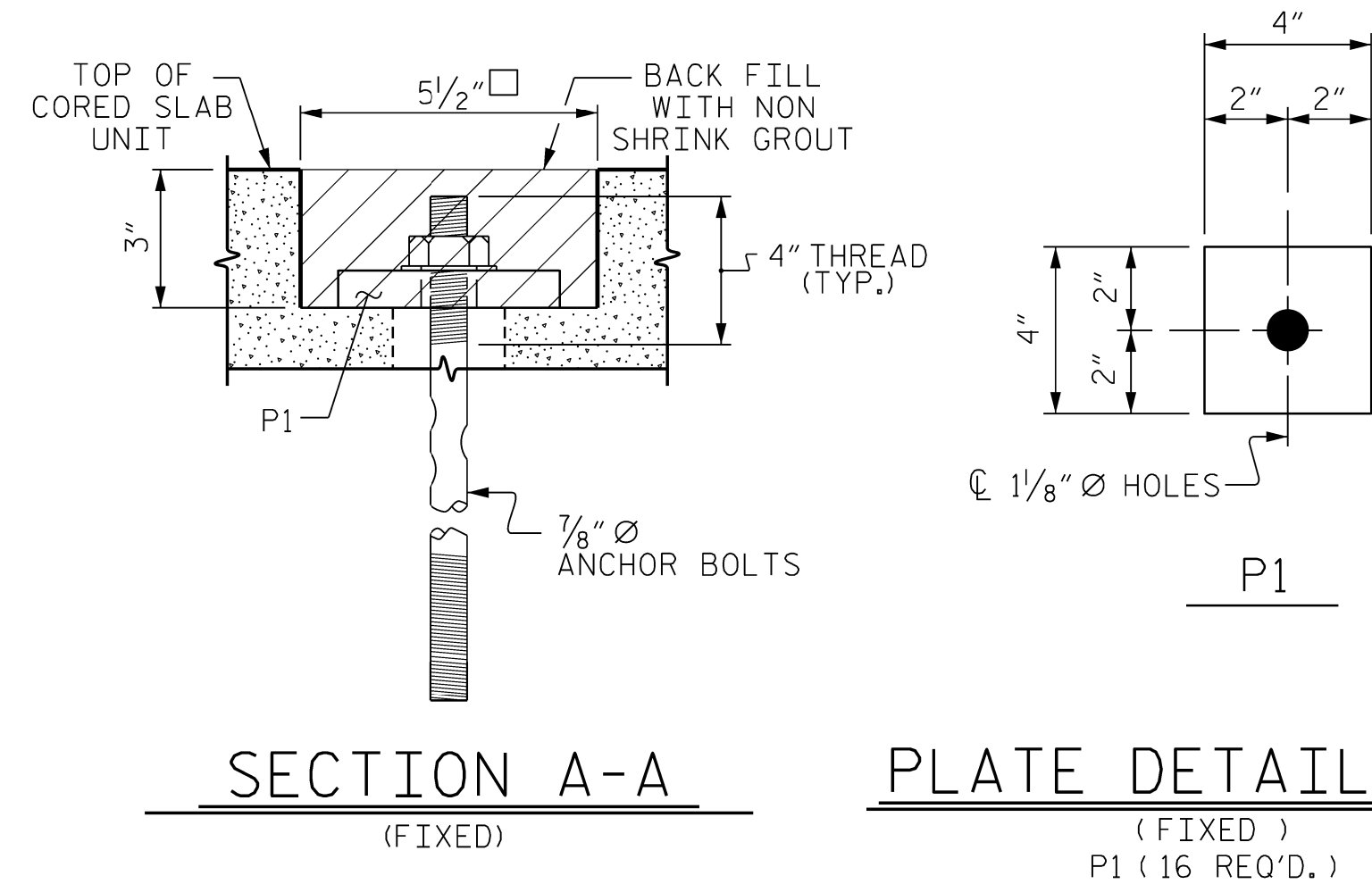


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-05 TOTAL SHEETS 25					

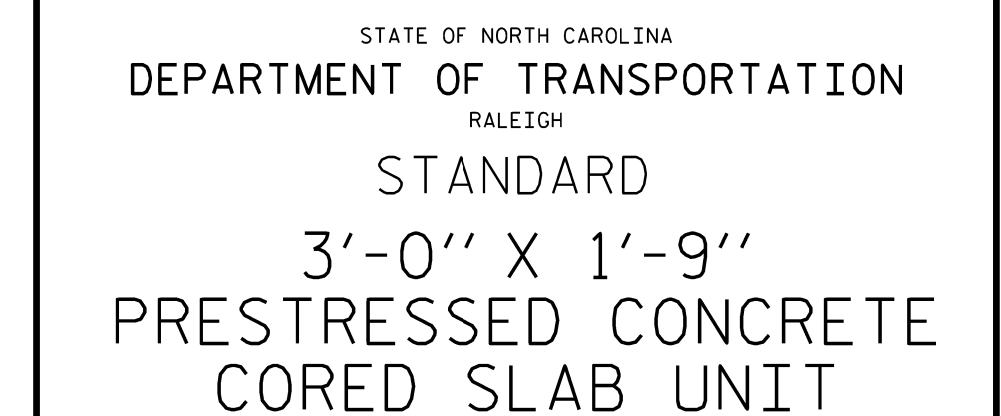
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



GROOVED CONTRACTION JOINTS, $\frac{1}{2}$ " IN DEPTH, SHALL BE TOOLED IN THE TOP OF WEARING SURFACE AT INTERIOR BENT WITH CONTINUOUS CONCRETE WEARING SURFACE IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS.

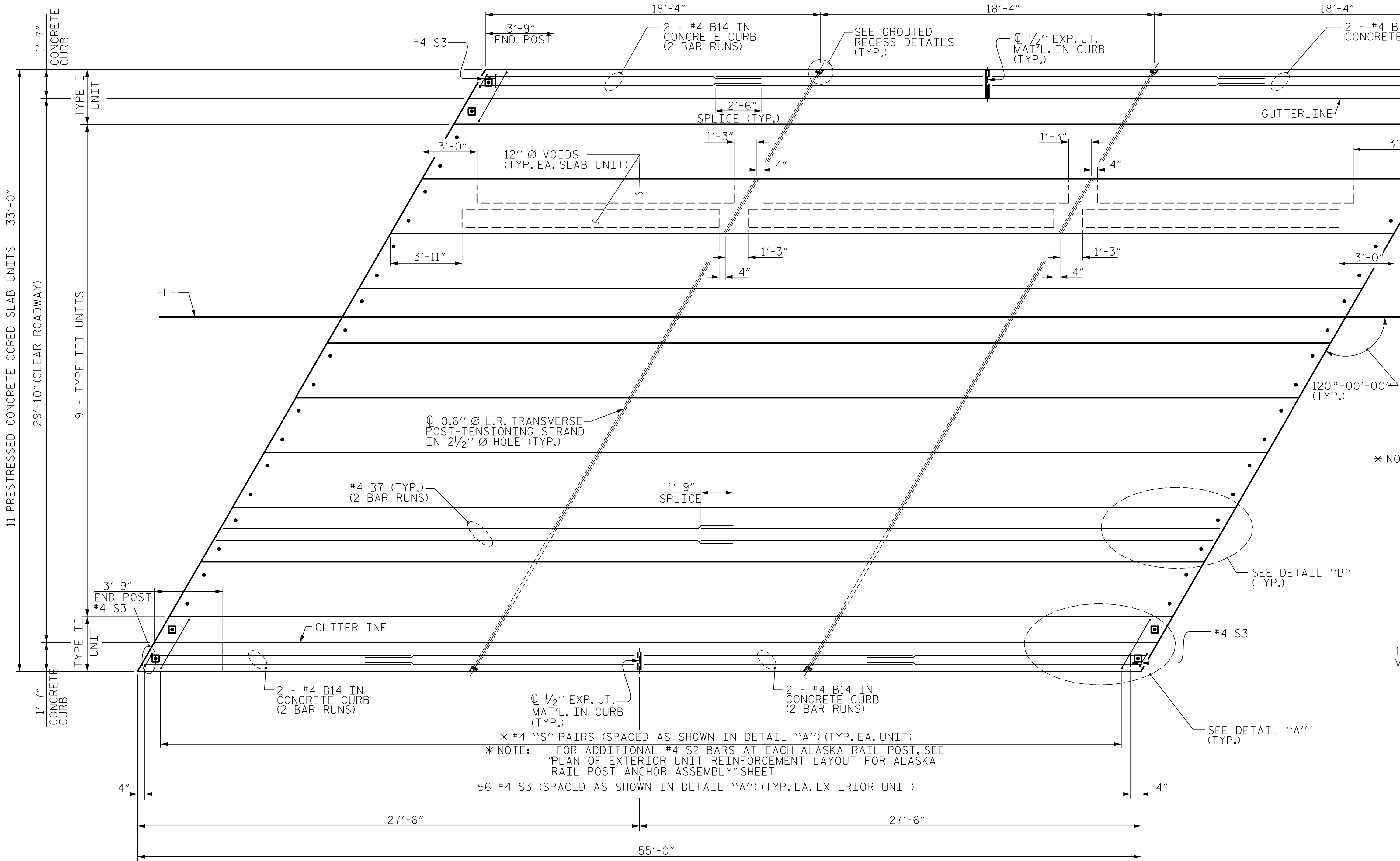


SHEET 2 OF 6

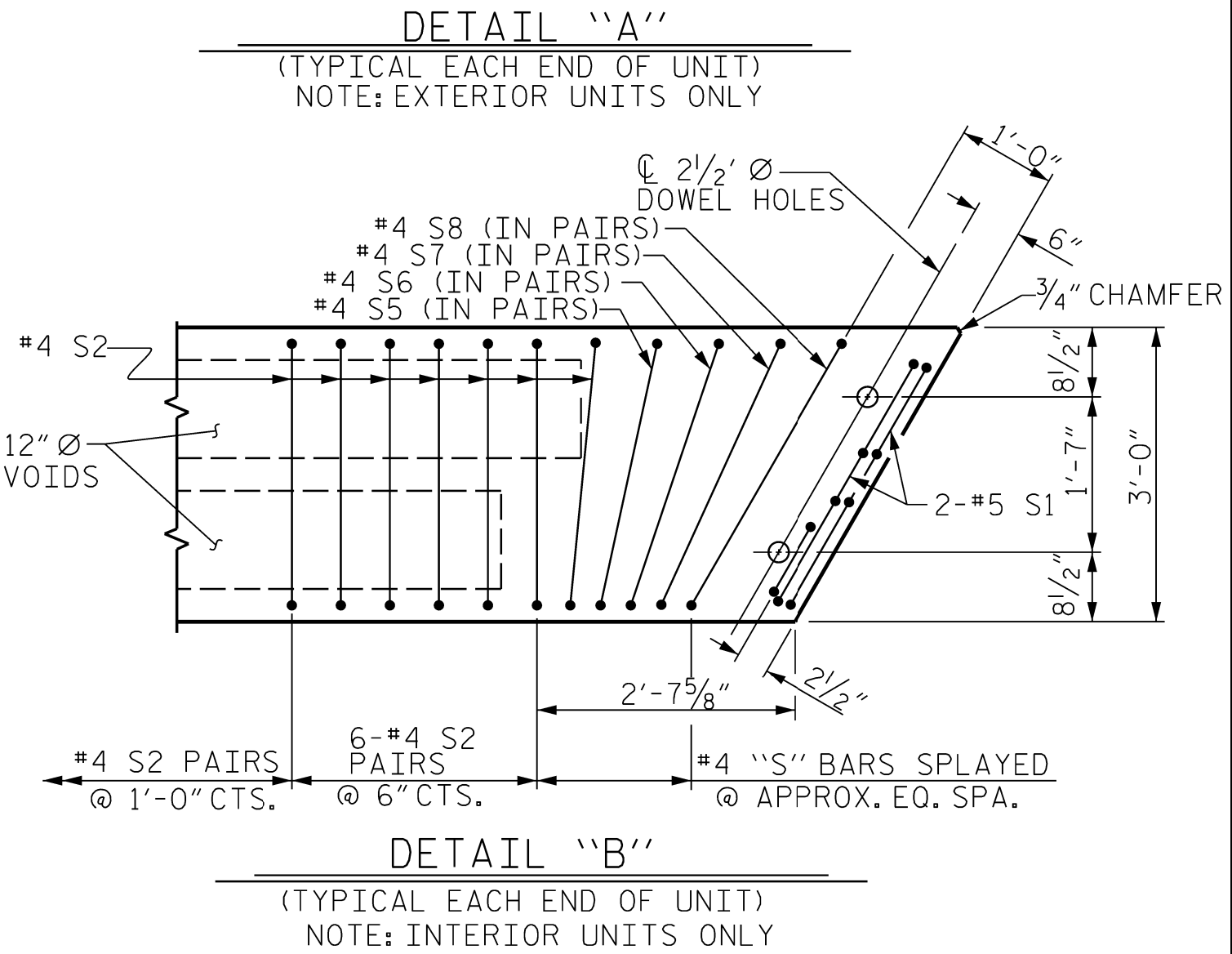
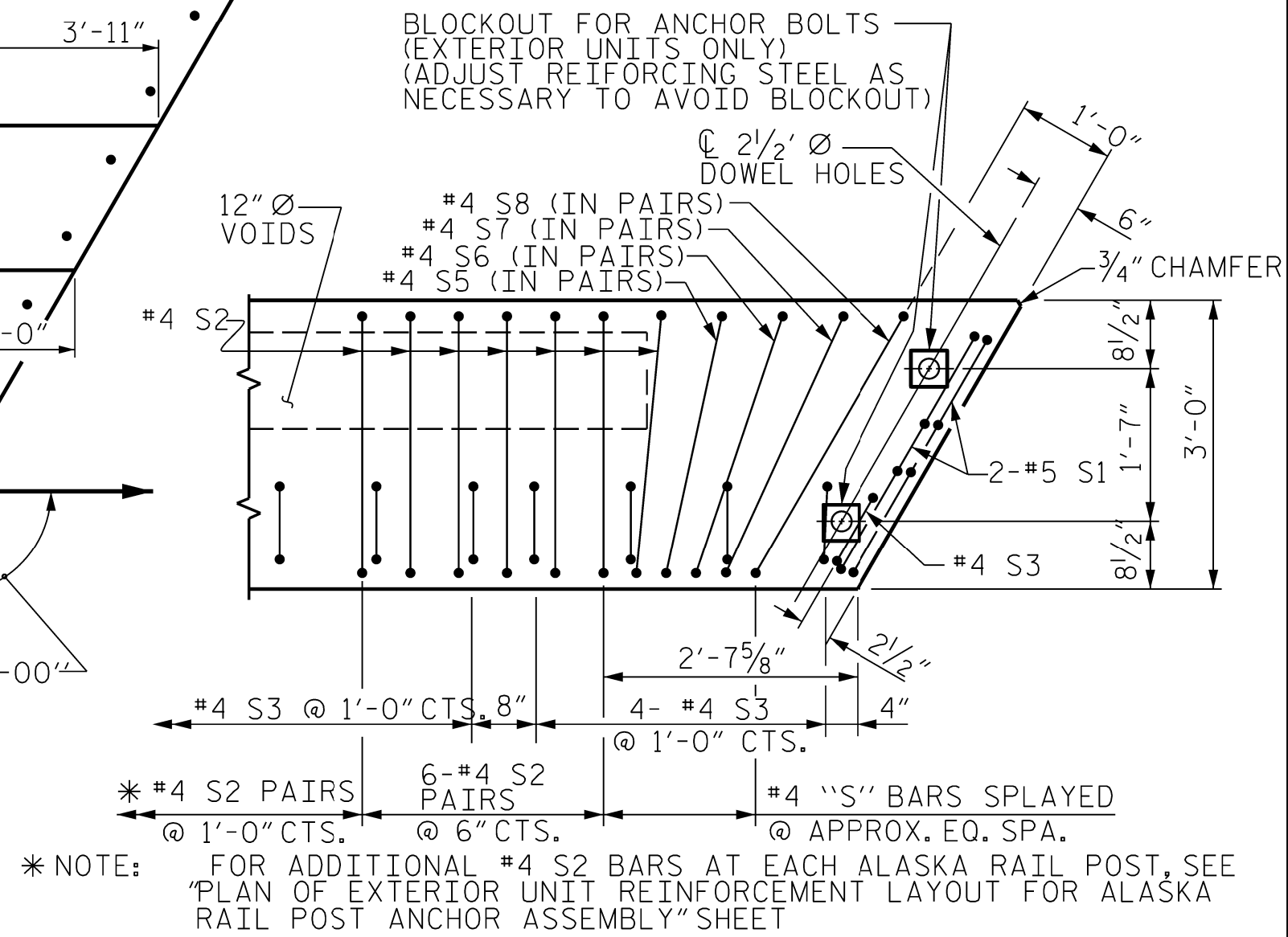


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UNLESS ALL SIGNATURES COMPLETED

PA\2024\24135\01-HB0065\Structures\02 - Plan Production\01 - DGN\401_013_HB-0065_SD_PS1_007.dgn
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PLAN OF UNIT

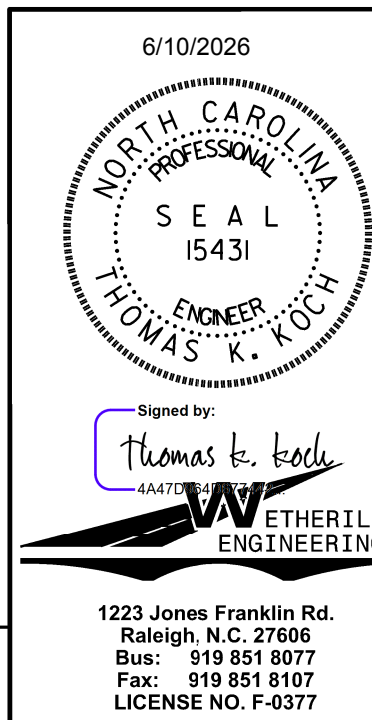


PROJECT NO. **HB-0065**
WILKES COUNTY
STATION: **13+74.00 -L-**

SHEET 3 OF 6

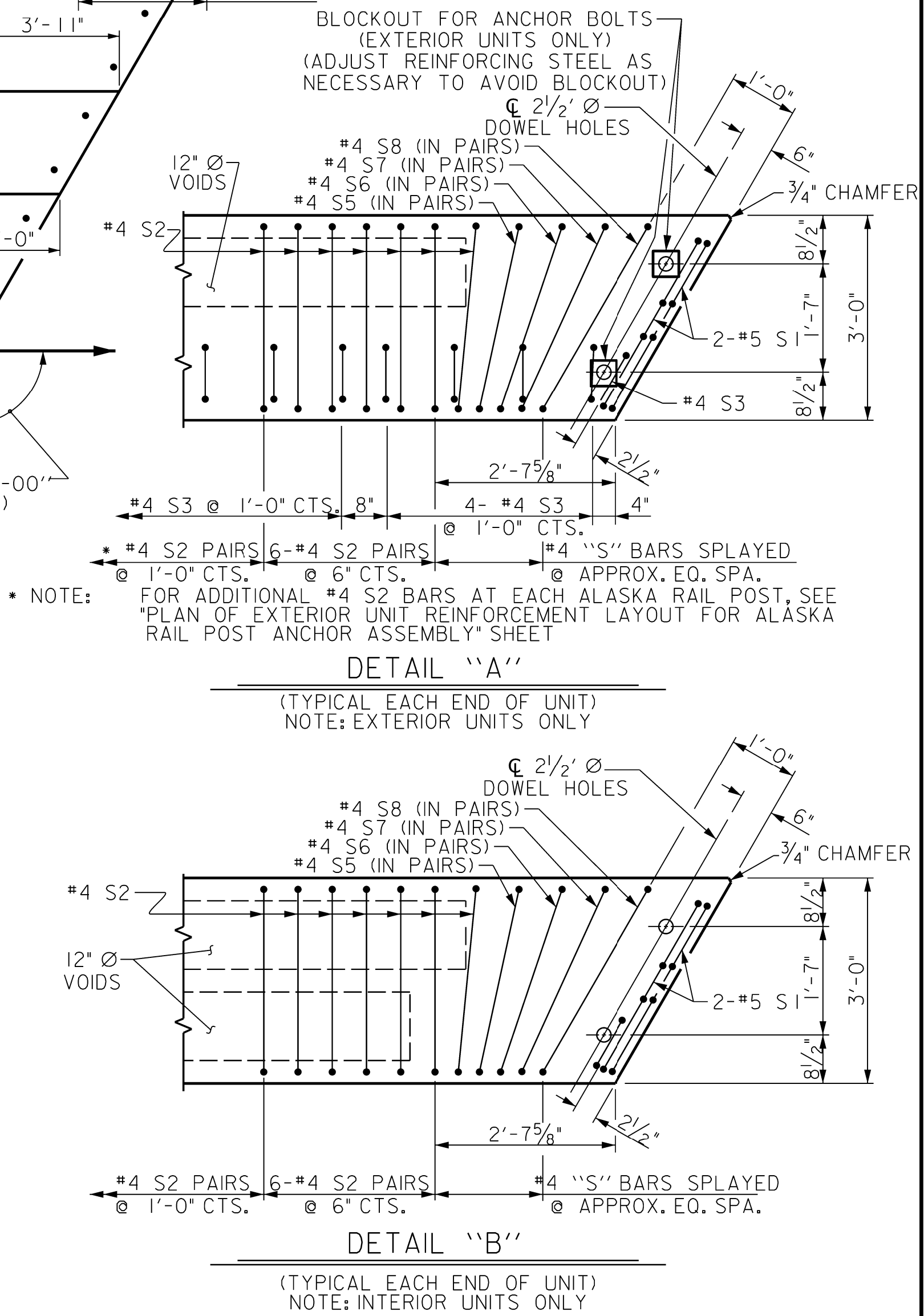
DRAWN BY : J. PENDERGRAFT DATE : 4-25
CHECKED BY : J. DILWORTH DATE : 4-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-07
2			4			
TOTAL SHEETS						25

STD. NO. 21" PCS_33_120S_55L



PROJECT NO. **HB-0065**
WILKES COUNTY
 STATION: **13+74.00 -L-**

6/10/2026

NORTH CAROLINA
PROFESSIONAL
SEAL
15431
ENGINEER
THOMAS K. KOCH

Signed by:
Thomas K. Koch
LASTED 11/1/2026

W ETHERILL
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1223 Jones Franklin Rd.
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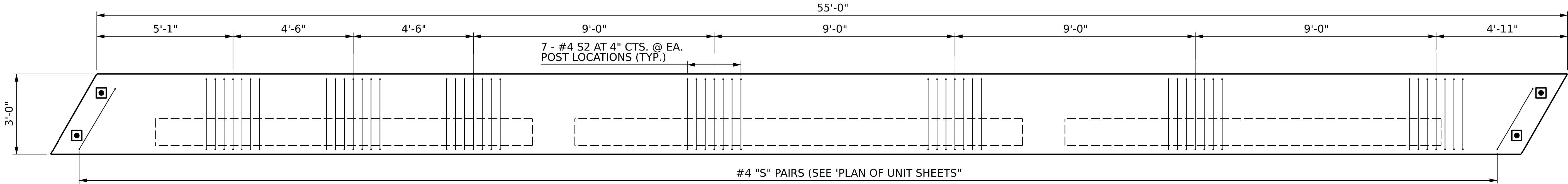
SPAN B
PLAN OF 55' UNIT
120° SKEW

DRAWN BY : J. PENDERGRAFT DATE : 4-25
 CHECKED BY : J. DILWORTH DATE : 4-25
 DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

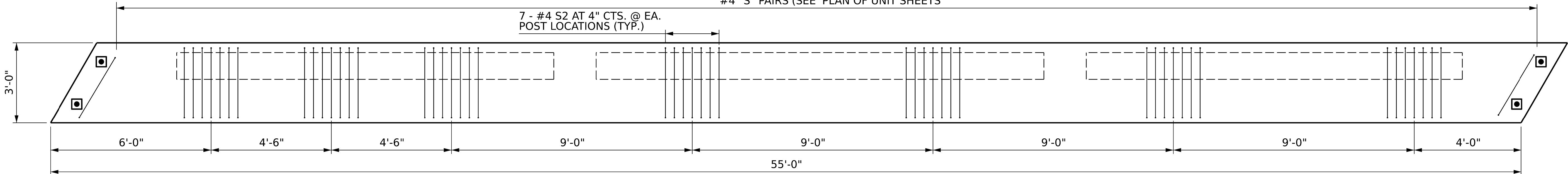
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UNLESS ALL SIGNATURES COMPLETED

STD. NO. 21" PCS_33_120S_55L

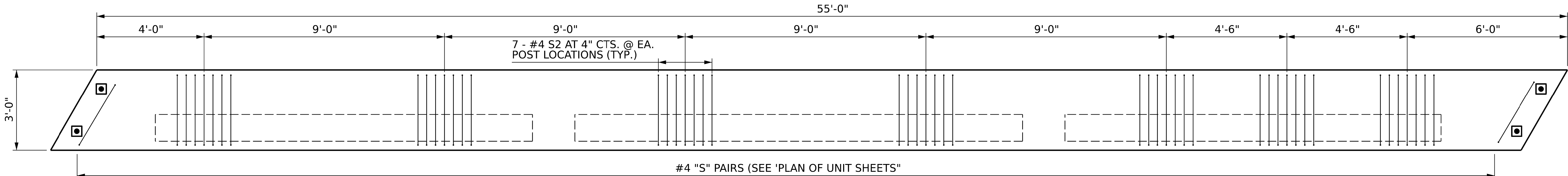
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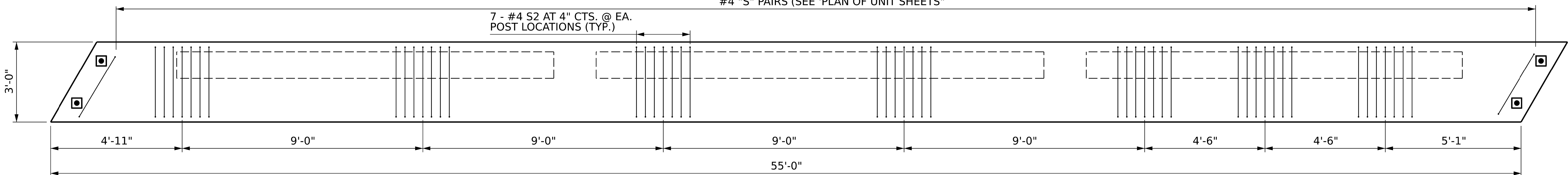
PLAN TYPE I UNIT - SPAN A



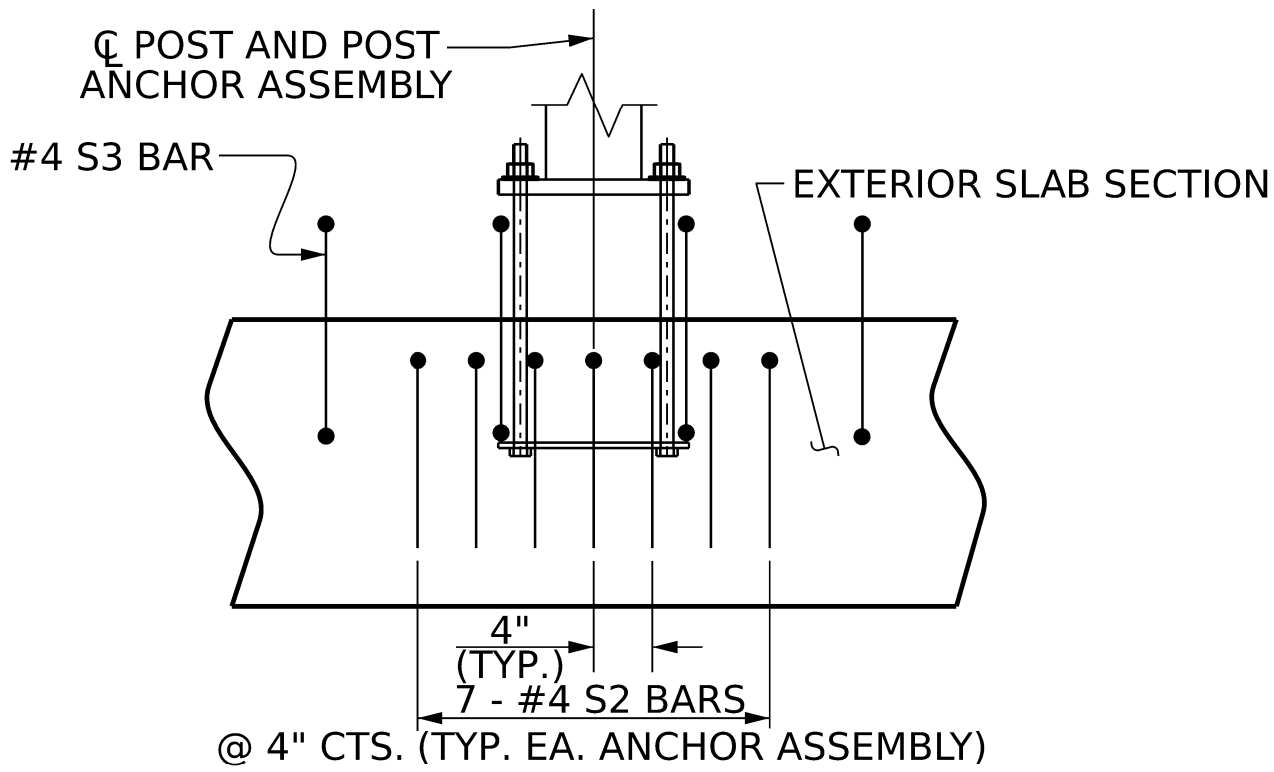
PLAN TYPE II UNIT - SPAN A



PLAN TYPE I UNIT - SPAN B



PLAN TYPE II UNIT - SPAN B



SIDE VIEW AT POST LOCATION

(SHOWING ADDITIONAL S2 BARS AT EACH POST ASSEMBLY)
FOR #4 S3 BAR LOCATIONS SEE "PLAN OF UNITS" SHEETS.

PROJECT NO. **HB-0065**

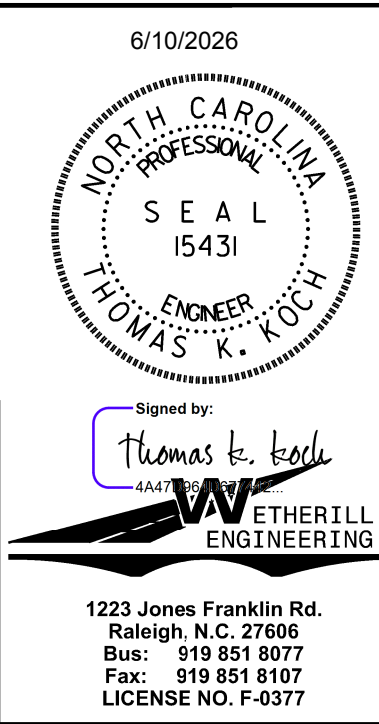
WILKES COUNTY

STATION: **13+74.00 -L-**

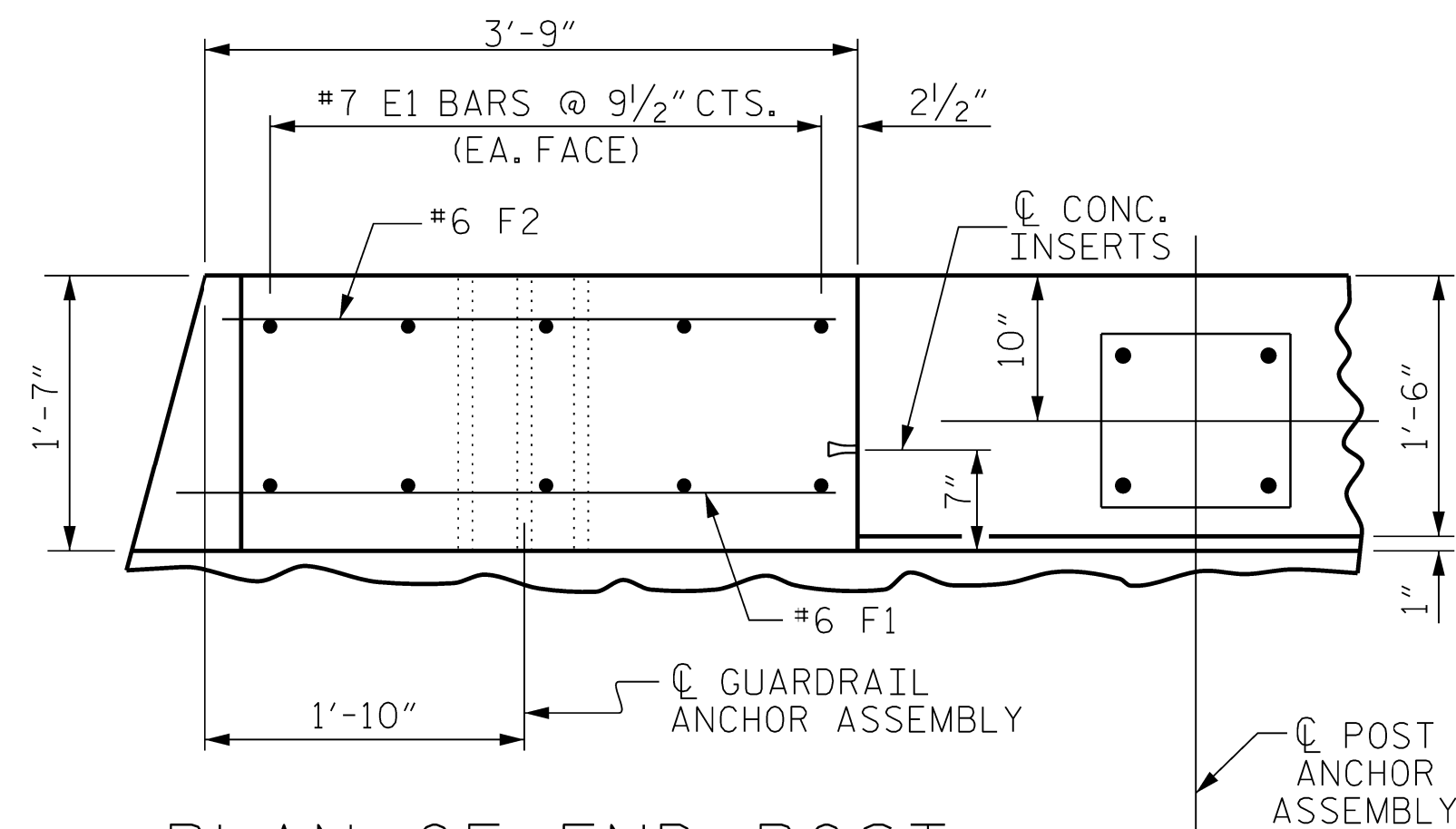
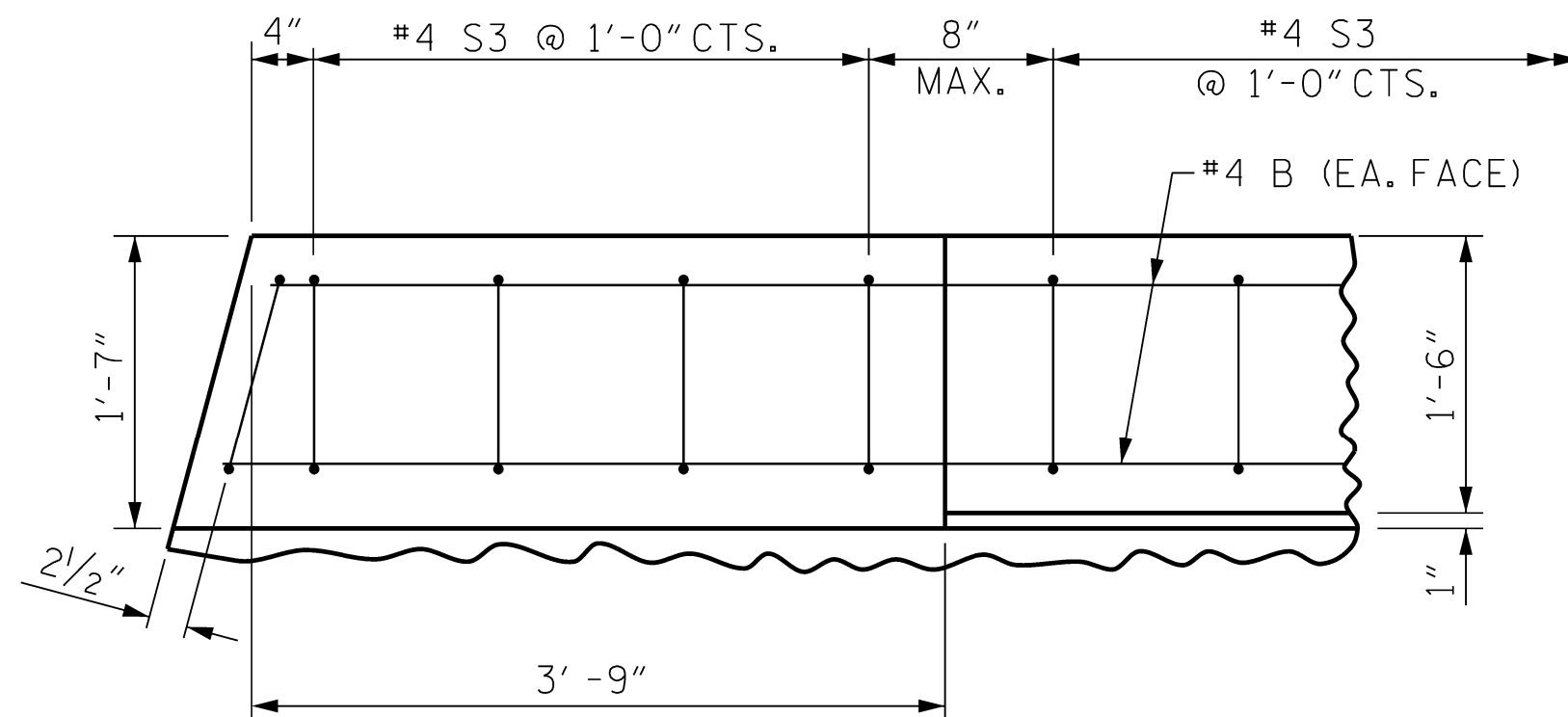
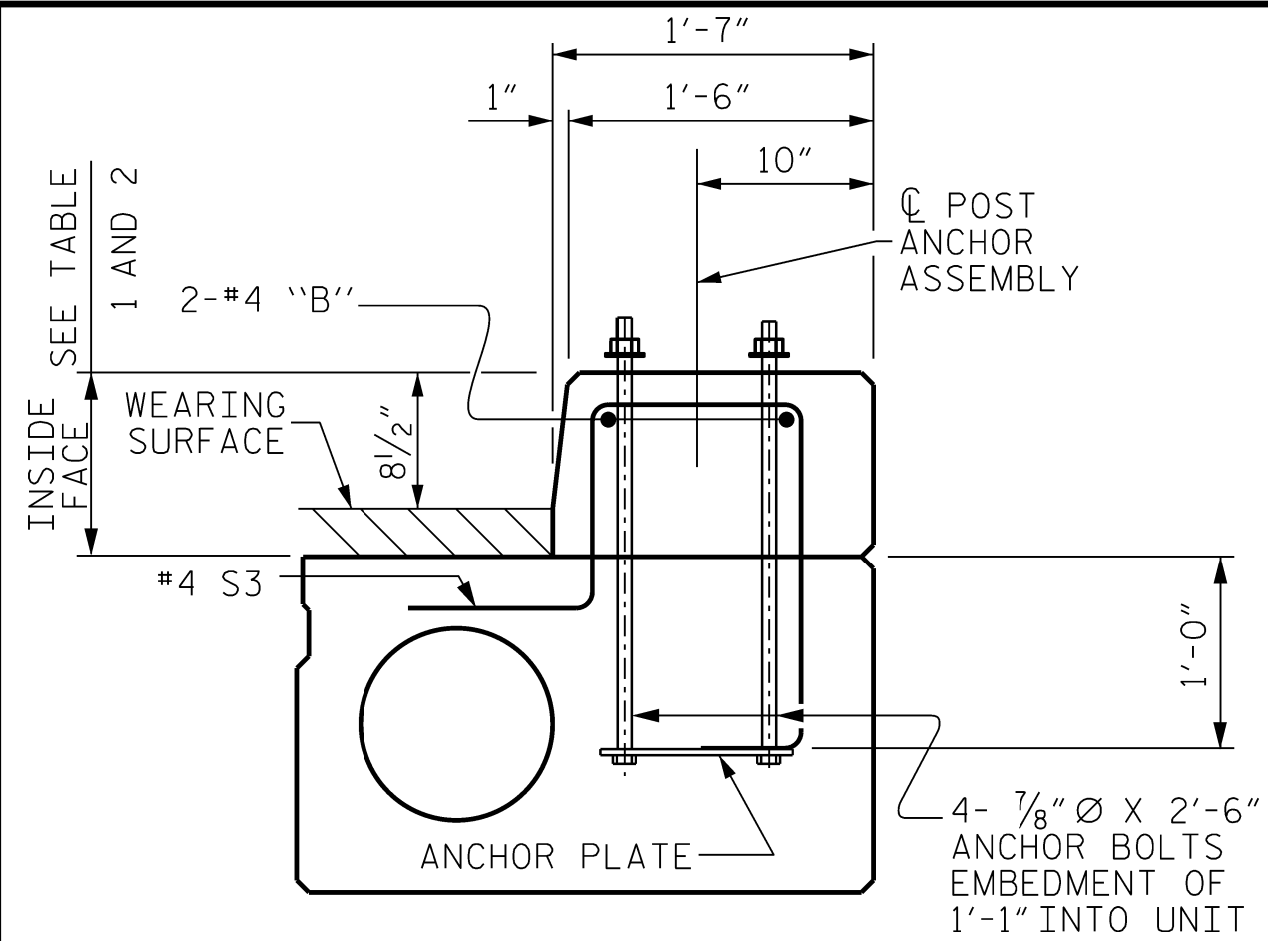
SHEET 5 OF 6

DRAWN BY : J. PENDERGRAFT DATE : 5-25
CHECKED BY : J. DILWORTH DATE : 5-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-09	
1			3			TOTAL SHEETS	
2			4			25	

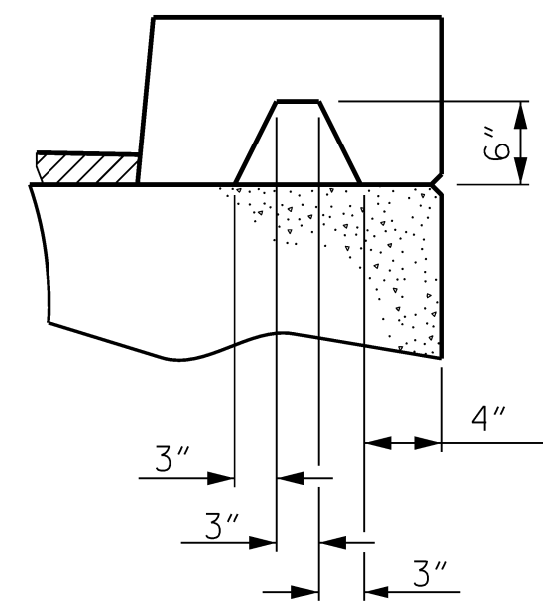
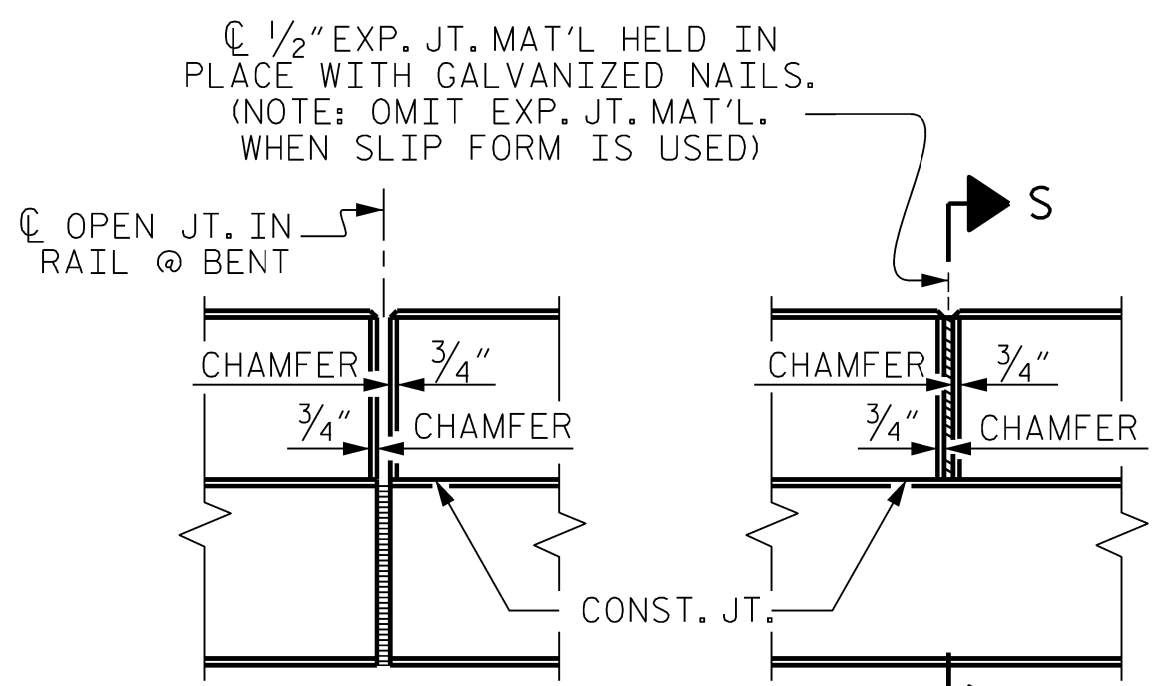
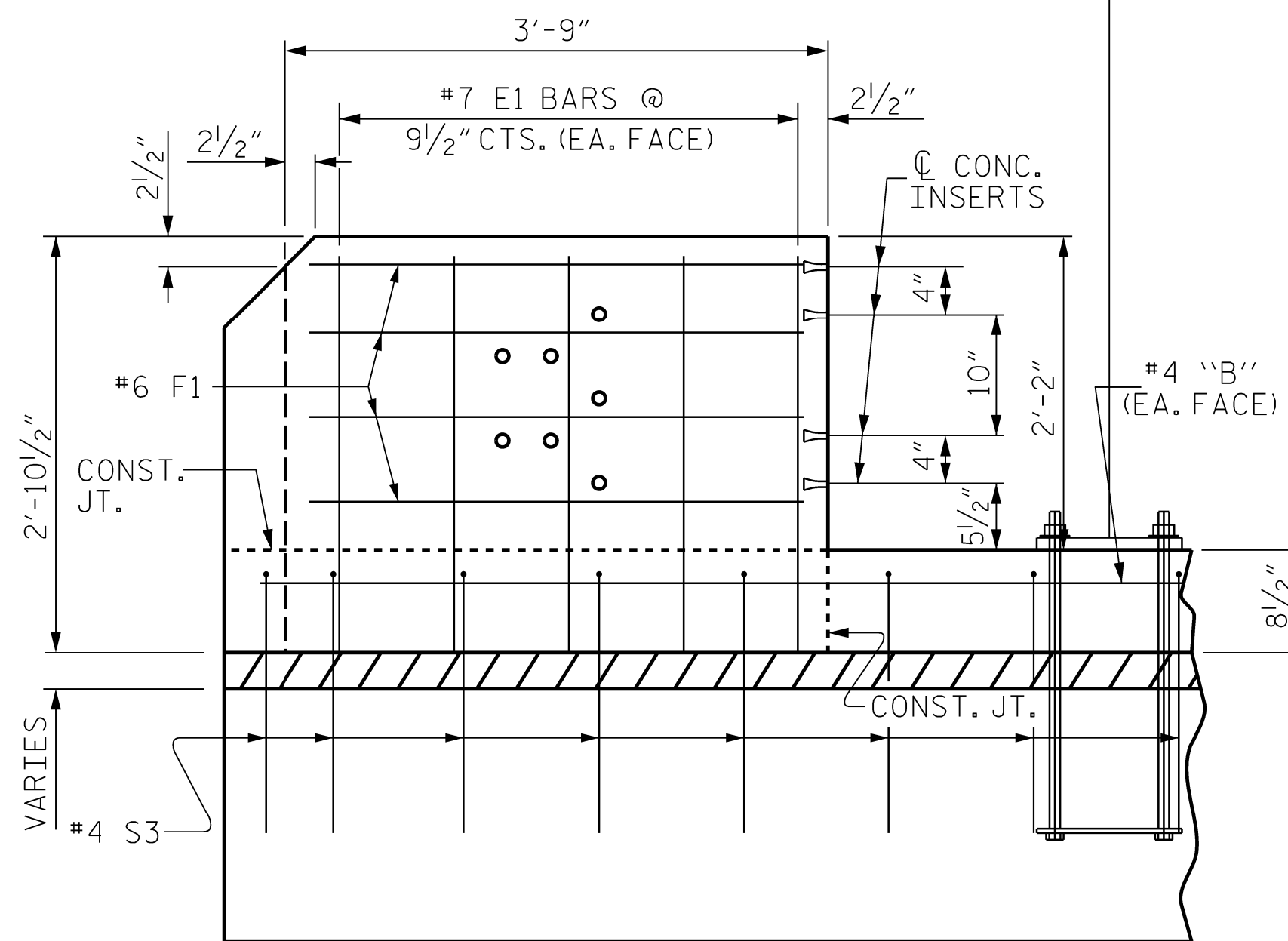
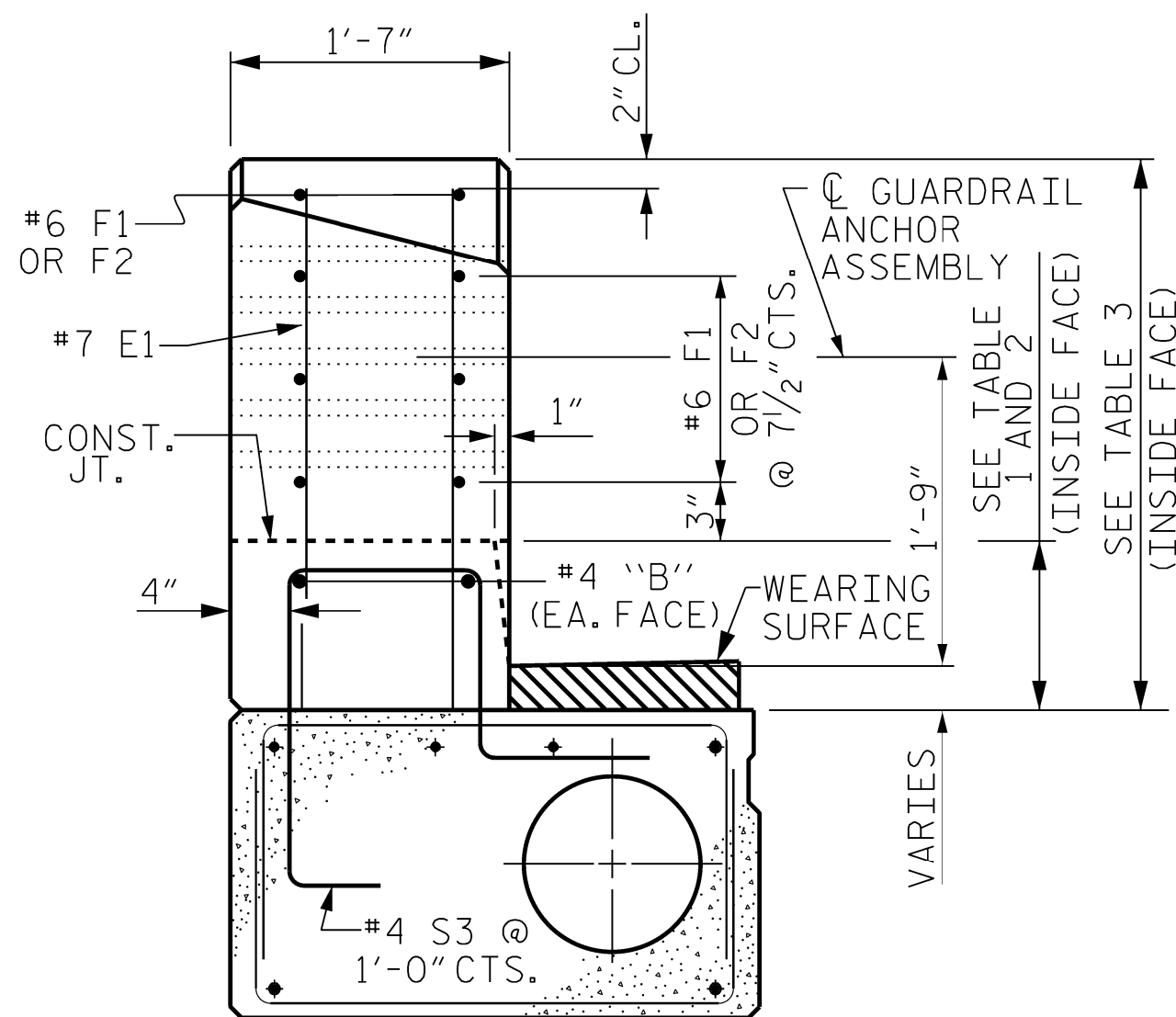


BILL OF MATERIAL FOR 2 CURBS & 4 END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B14	16	#4	STR	14'-10"	159
* E1	40	#7	STR	3'-1"	252
* F1	16	#6	STR	3'-11"	94
* F2	16	#6	STR	3'-5"	82
* EPOXY COATED REINFORCING STEEL					587 LBS.
CLASS AA CONCRETE					15.6 CU.YDS.
1'-7" x 1'-1¼" CONCRETE CURB					220.29 LIN.FT.

TABLE 1 CONCRETE OVERLAY THICKNESS AT CENTERLINE BEARING				MAXIMUM CURB HEIGHTS (INSIDE FACE) AT CENTERLINE BEARING		
	LEFT GUTTERLINE	EXTENDED TANGENT LINE	RIGHT GUTTERLINE		LEFT GUTTERLINE	RIGHT GUTTERLINE
END BENT 1	4¾"	4⅞"	5"	END BENT 1	1'-1½"	1'-1½"
BENT 1	4¹³⁄₁₆"	4¹³⁄₁₆"	4¾"	BENT 1	1'-1⁵⁄₁₆"	1'-1¼"
END BENT 2	5"	4⅞"	4¾"	END BENT 2	1'-1½"	1'-1¼"

TABLE 2 CONCRETE OVERLAY THICKNESS & CURB HEIGHT AT MID-SPAN				
	OVERLAY THICKNESS @ MID-SPAN		CURB HEIGHT (INSIDE FACE) @ MID-SPAN	
	LEFT GUTTERLINE	RIGHT GUTTERLINE	LEFT GUTTERLINE	RIGHT GUTTERLINE
SPAN A	3¾"	3⅓⅞"	1'-0¼"	1'-0⅝⅞"
SPAN B	3⅞"	3⅓⅞"	1'-0⅝⅞"	1'-0⅜⅞"

TABLE 3 END POST HEIGHTS (INSIDE FACE) AT CENTERLINE OF BEARING		
	LEFT GUTTERLINE	RIGHT GUTTERLINE
END BENT 1	3'-3¼"	3'-3½"
END BENT 2	3'-3½"	3'-3¼"



SECTION S-S

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

CURB AND END POST FOR 32" ALASKA RAIL

PROJECT NO. **HB-0065**
WILKES COUNTY
STATION: **13+74.00 - L -**

6/10/2026

NORTH CAROLINA
PROFESSIONAL
SEAL
15431
ENGINEER
THOMAS K. KOCH

Signed by:
Thomas K. Koch
SAINTON

WV ETHERIL
ENGINEERING

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

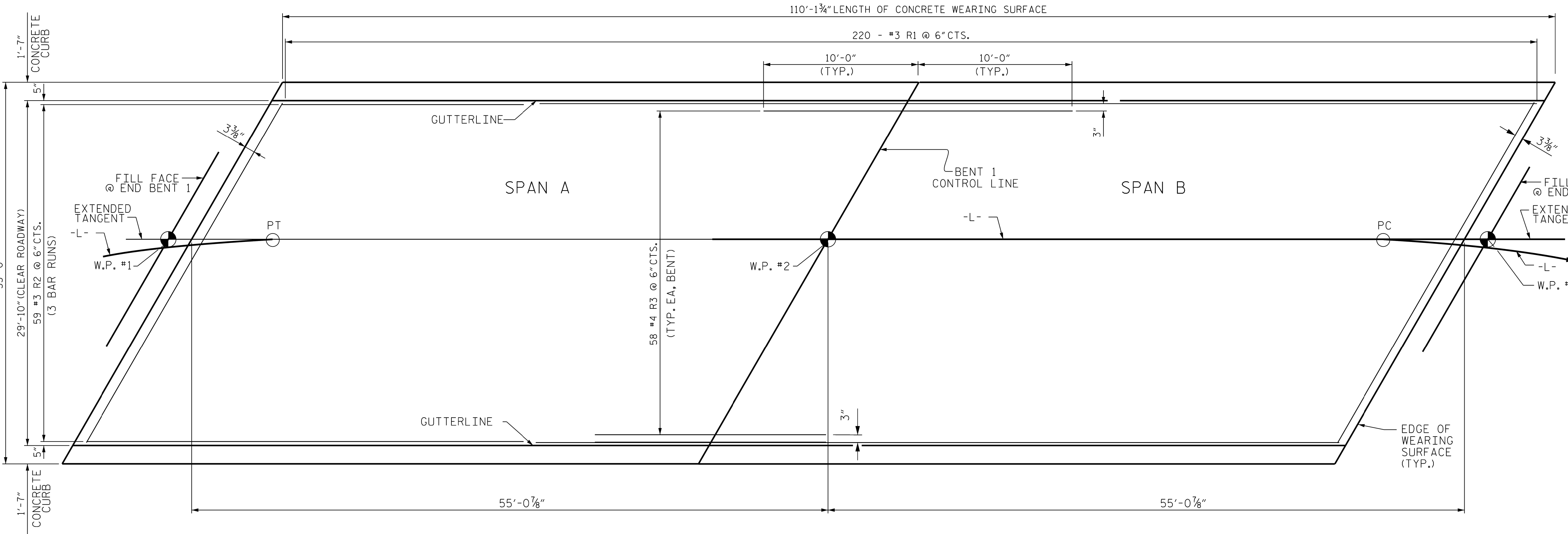
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CURB AND
END POST DETAILS
FOR 32" ALASKA RAIL

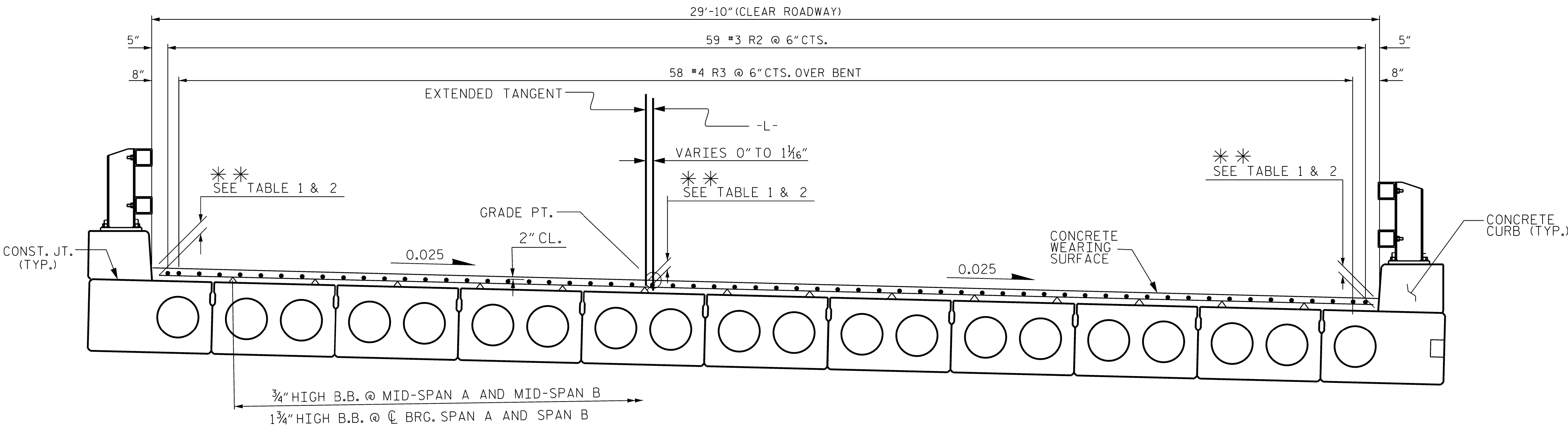
DRAWN BY : J. PENDERGRAFT DATE : 4-25
 CHECKED BY : J. DILWORTH DATE : 4-25
 DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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REVISIONS						SHEET NO. S-11 TOTAL SHEETS 25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL



NOTE: MAXIMUM SPACING OF BEAM BOLSTERS IS 2'-0"

REINFORCING FOR CONCRETE WEARING SURFACE

** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

NOTES:

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE CURB. THE COST OF THE #3 BARS 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.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN THE TOP OF WEARING SURFACE AT INTERIOR BENT WITH CONTINUOUS CONCRETE WEARING SURFACE IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARRD SPECIFICATIONS.

ALL REINFORCING FOR CONCRETE WEARING SURFACE SHALL BE EPOXY COATED.

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* R1	220	#3	STR	34'-0"	2812
* R2	177	#3	STR	37'-9"	2512
* R3	58	#4	STR	20'-0"	775
* EPOXY COATED REINFORCING STEEL				6099 LBS.	
CONCRETE WEARING SURFACE				3286 SQ. FT.	

SPLICE LENGTH CHART

BAR SIZE	EPOXY COATED
#3	1'-8"

GROOVING BRIDGE FLOORS

APPROACH SLABS	613 SQ.FT.
BRIDGE WEARING SURFACE	2956 SQ.FT.
TOTAL	3569 SQ.FT.

TABLE 1 CONCRETE OVERLAY THICKNESS AT CENTERLINE BEARING

	LEFT GUTTERLINE	EXTENDED TANGENT LINE	RIGHT GUTTERLINE
END BENT 1	4 3/4"	4 7/8"	5"
BENT 1	4 1 1/16"	4 6"	4 3/4"
END BENT 2	5"	4 7/8"	4 3/4"

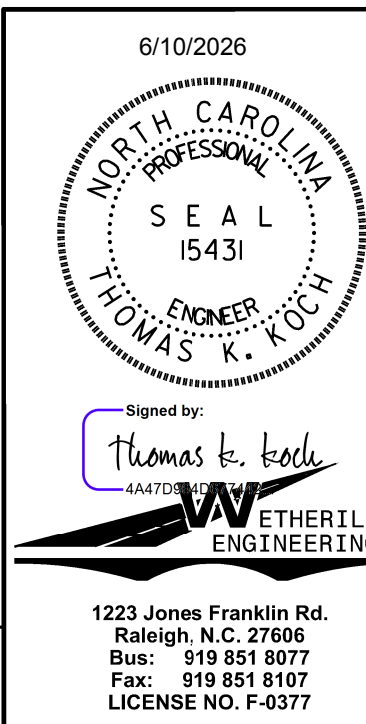
TABLE 2 CONCRETE OVERLAY THICKNESS AT MID-SPAN

	OVERLAY THICKNESS @ MID-SPAN		
	LEFT GUTTERLINE	EXTENDED TANGENT LINE	RIGHT GUTTERLINE
SPAN A	3 3/4"	3 11/16"	3 13/16"
SPAN B	3 7/8"	3 11/16"	3 11/16"

PROJECT NO. **HB-0065**

WILKES COUNTY

STATION: **13+74.00 -L-**



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DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE WEARING SURFACE DETAILS

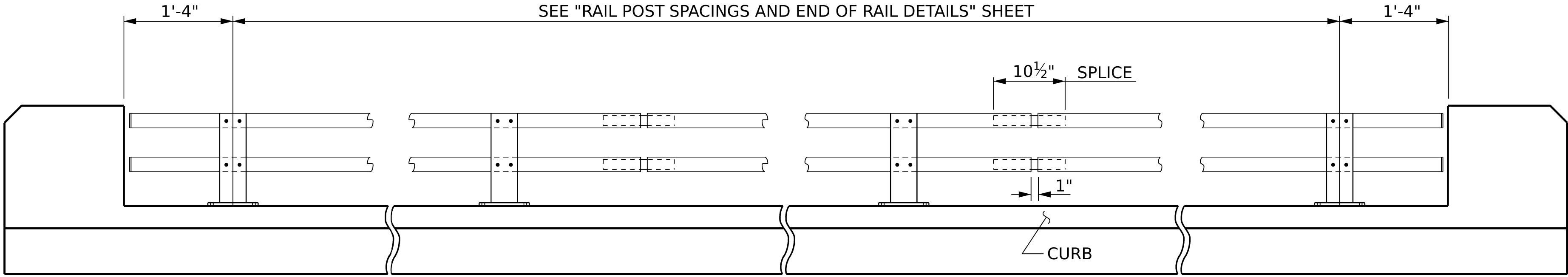
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S-12
TOTAL SHEETS
25

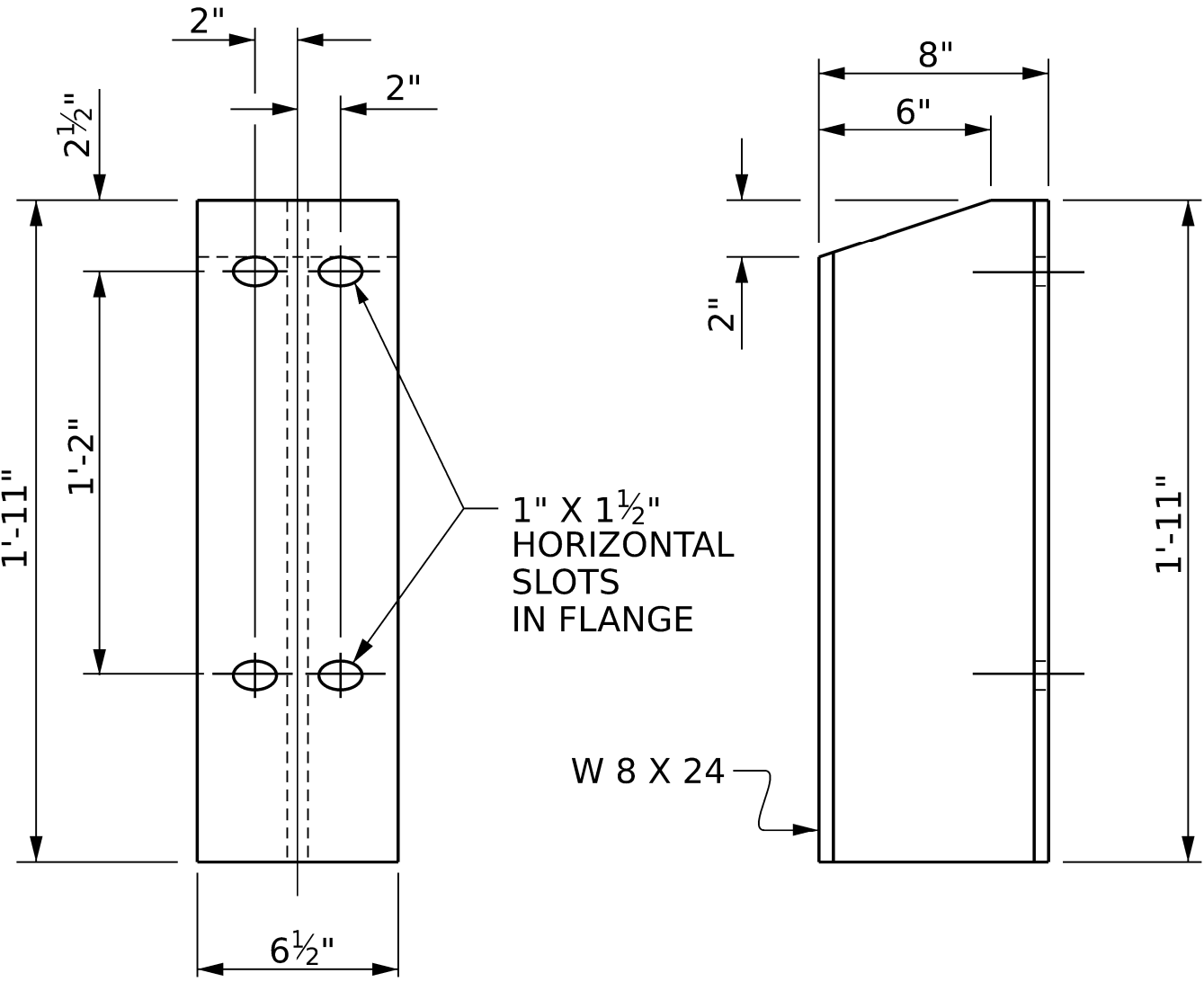
DRAWN BY : J. PENDERGRAFT DATE : 5-25
CHECKED BY : J. DILWORTH DATE : 5-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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ELEVATION

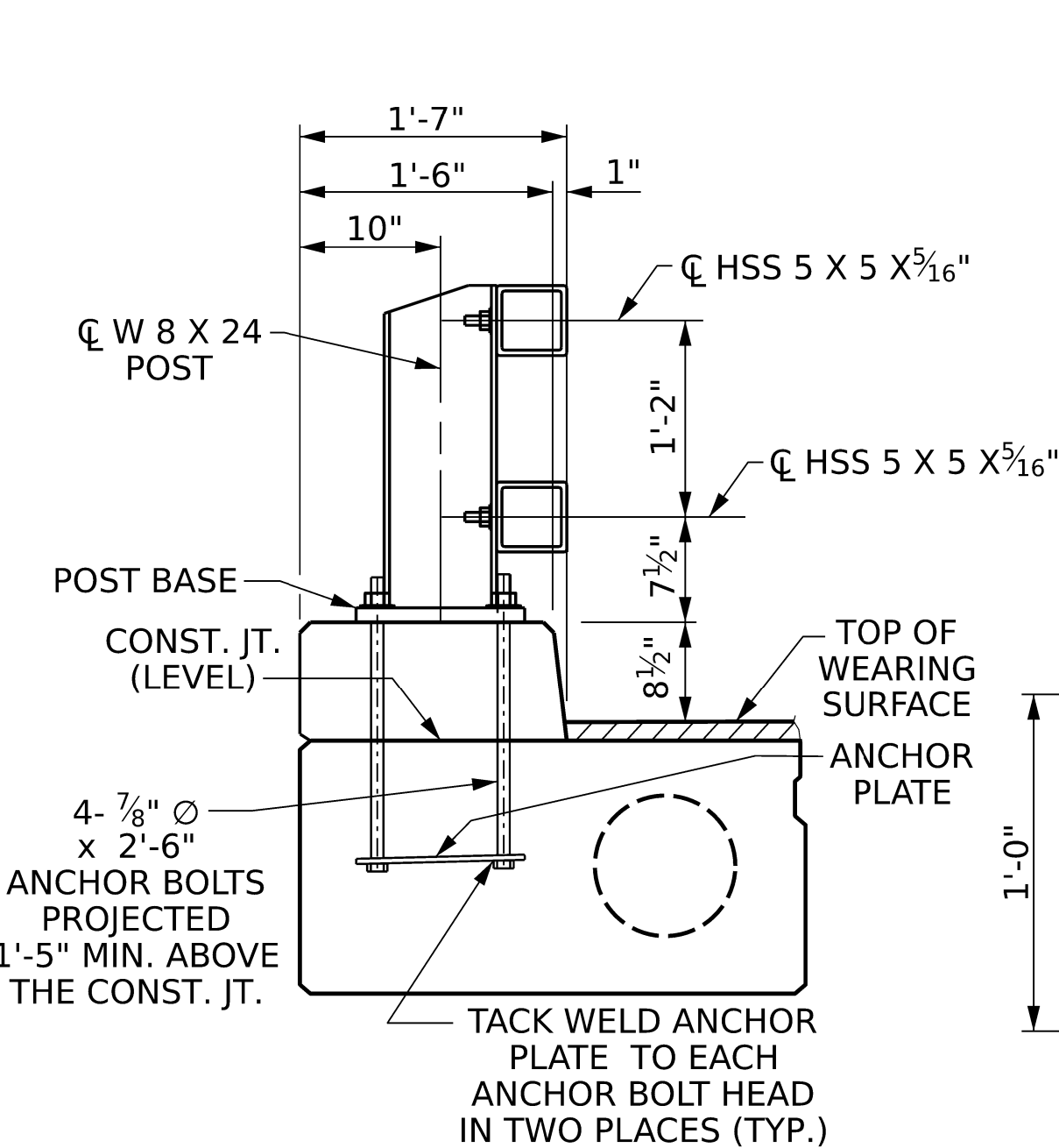
NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR9.



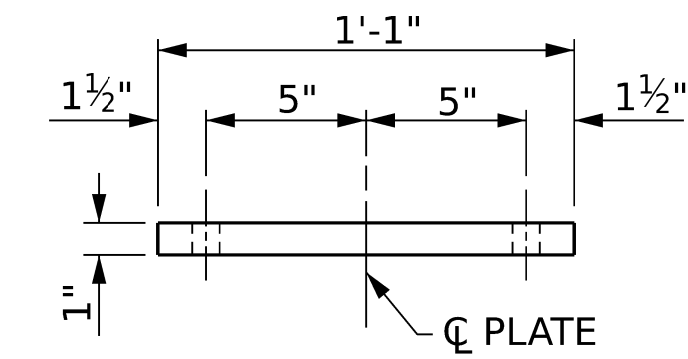
FRONT ELEVATION

SIDE ELEVATION

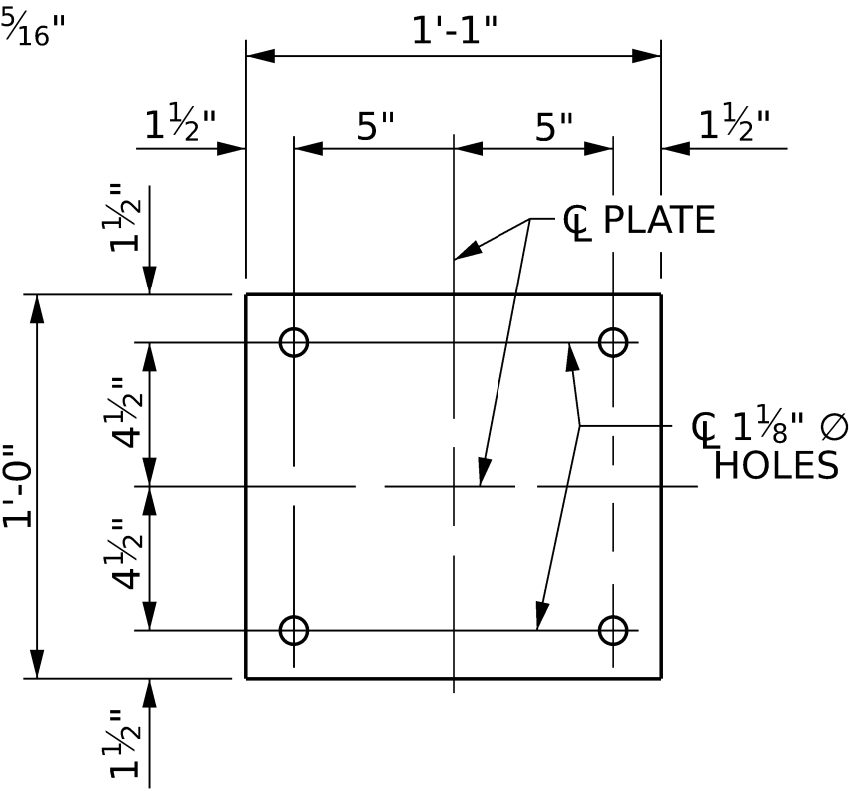
DETAILS OF POST



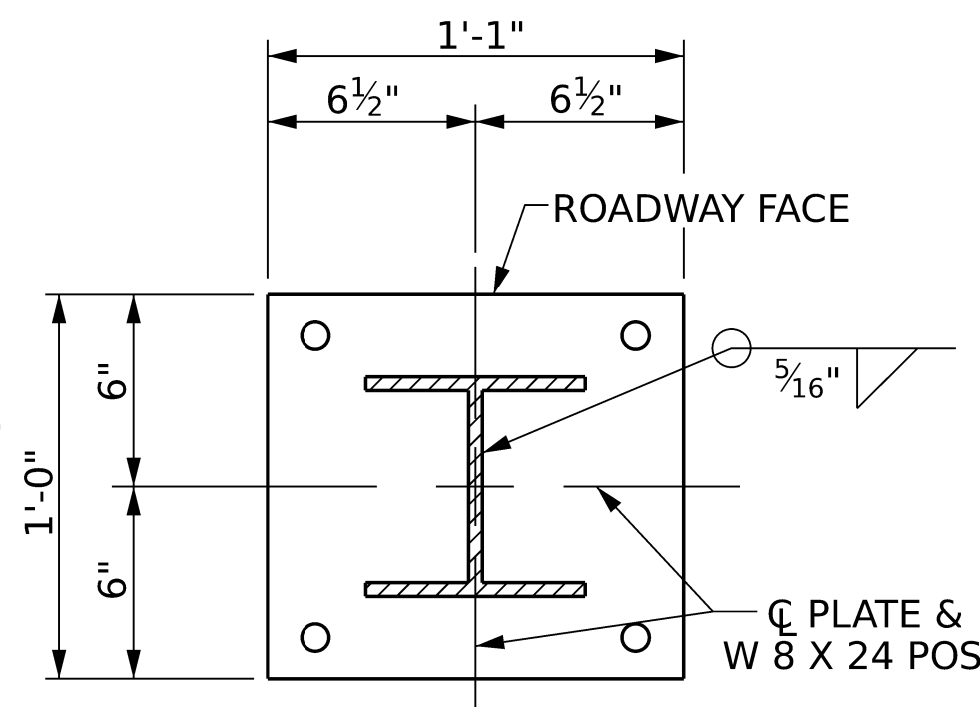
SECTION THRU RAIL



FRONT ELEVATION

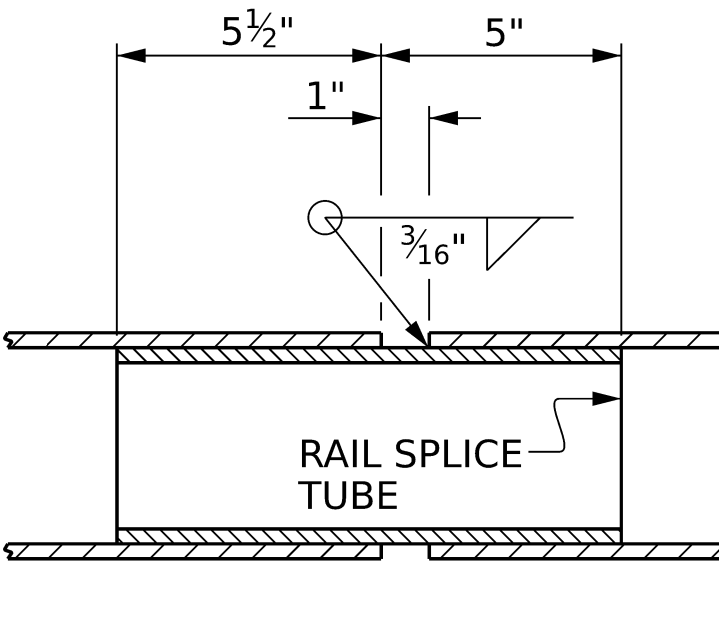


PLAN



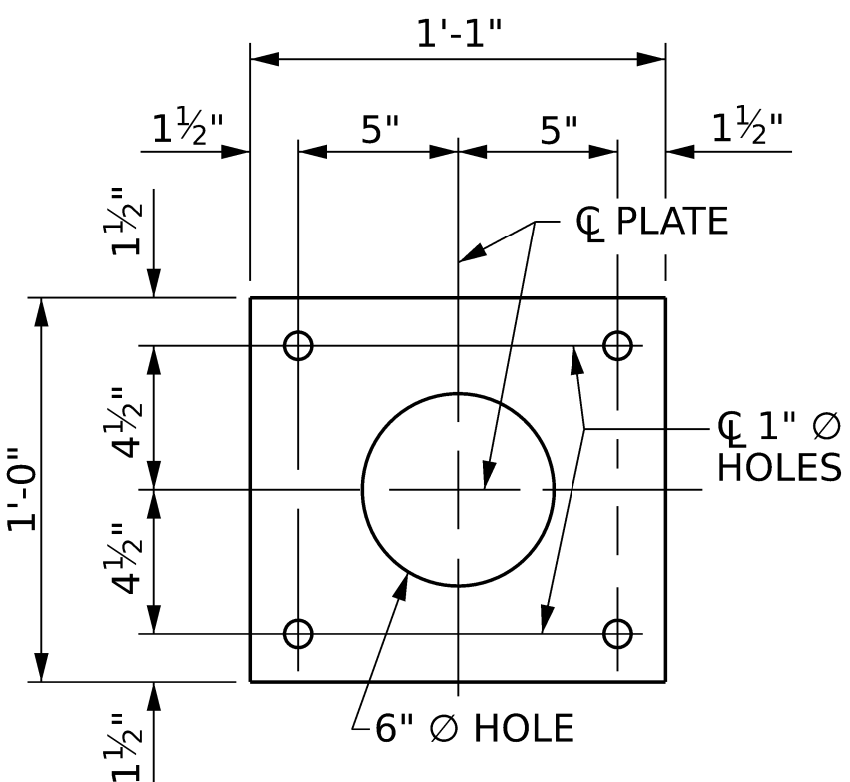
POST ATTACHMENT DETAIL

POST BASE DETAILS



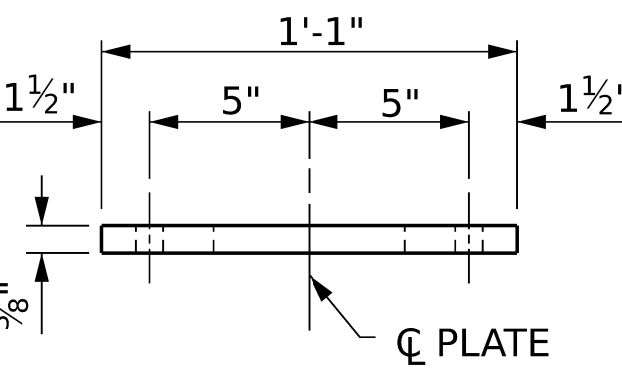
RAIL SPLICE DETAILS

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



PLAN

ANCHOR PLATE DETAILS



ELEVATION

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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.

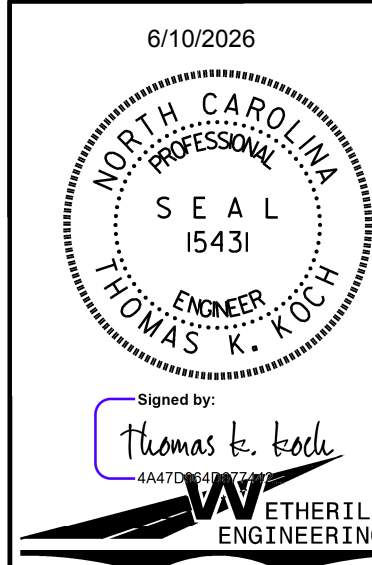
THE RAIL SECTIONS SHALL BE ATTACHED TO THE POSTS BY TWO THREADED 3/4" Ø WELDED STUDS, PLATE WASHERS, LOCKWASHERS, AND NUTS.

FOR 32" ALASKA RAIL, SEE THE STANDARD SPECIFICATIONS.

METAL RAIL LENGTH 203.46 LIN. FT.

PROJECT NO. **HB-0065**
WILKES COUNTY
STATION: **13+74.00 -L-**

SHEET 1 OF 2



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

32" ALASKA RAIL

REVISIONS

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

SHEET NO.
S-13
TOTAL SHEETS
25

STD. NO. BMR8

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:

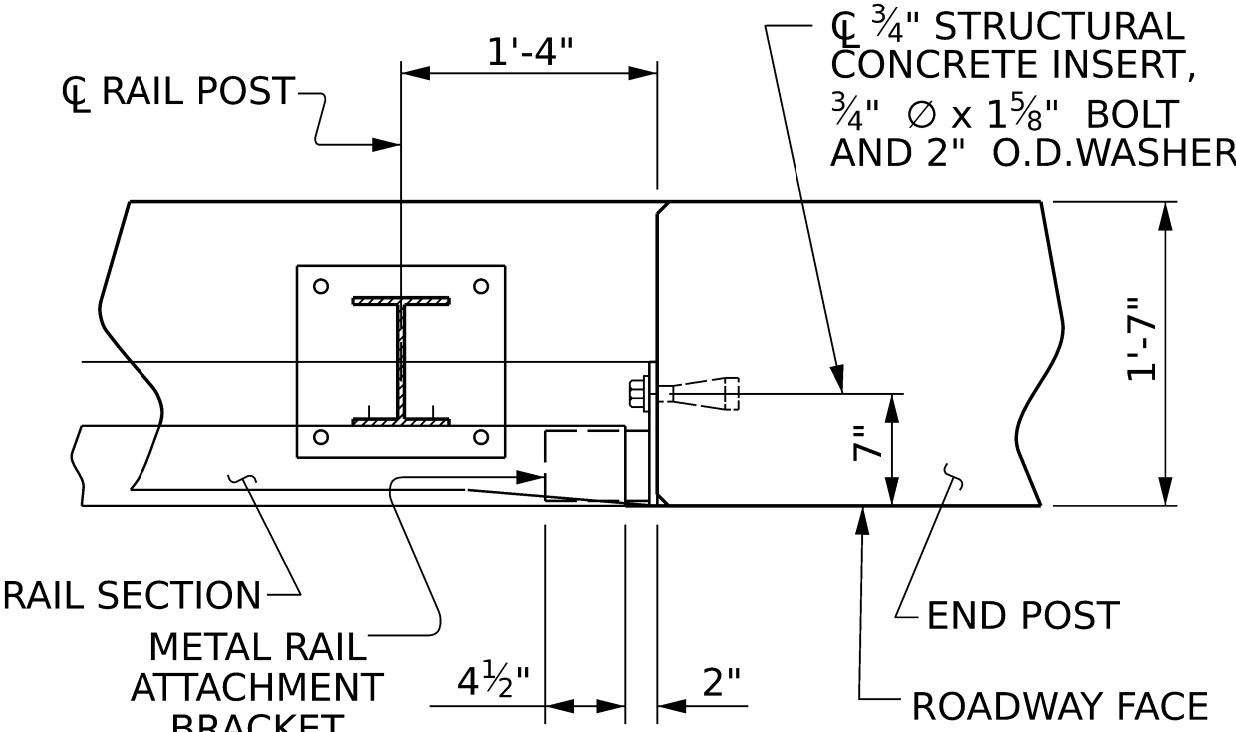
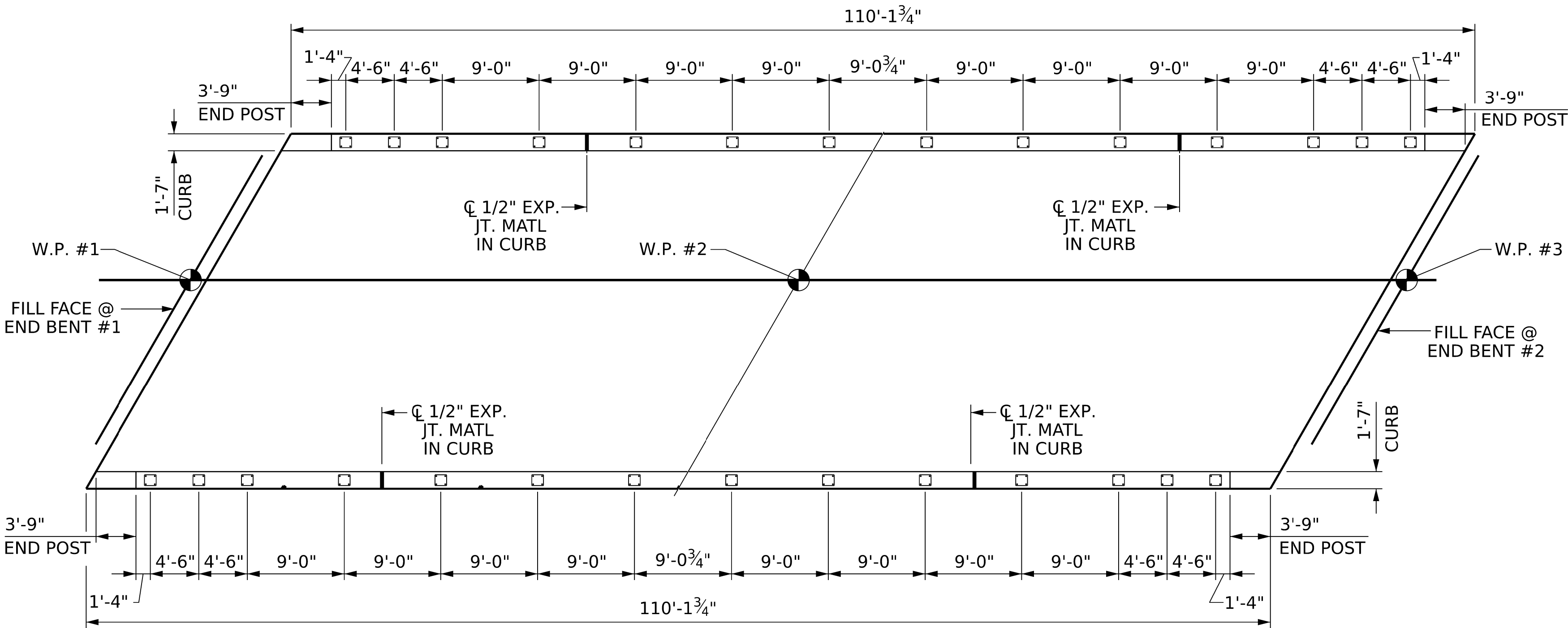
- A. ½" METAL BRACKET PLATE AND ¼" METAL RAIL INSERT TUBE SHALL CONFORM TO AASHTO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION TO ASTM A123.
- B. ¾" STRUCTURAL CONCRETE INSERTS SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A ¾" Ø x 1⅝" BOLT WITH 2" O.D. WASHER IN PLACE. THE ¾" Ø x 1⅝" BOLT SHALL HAVE N. C. THREADS.

THE ¾" STRUCTURAL CONCRETE INSERTS WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP.

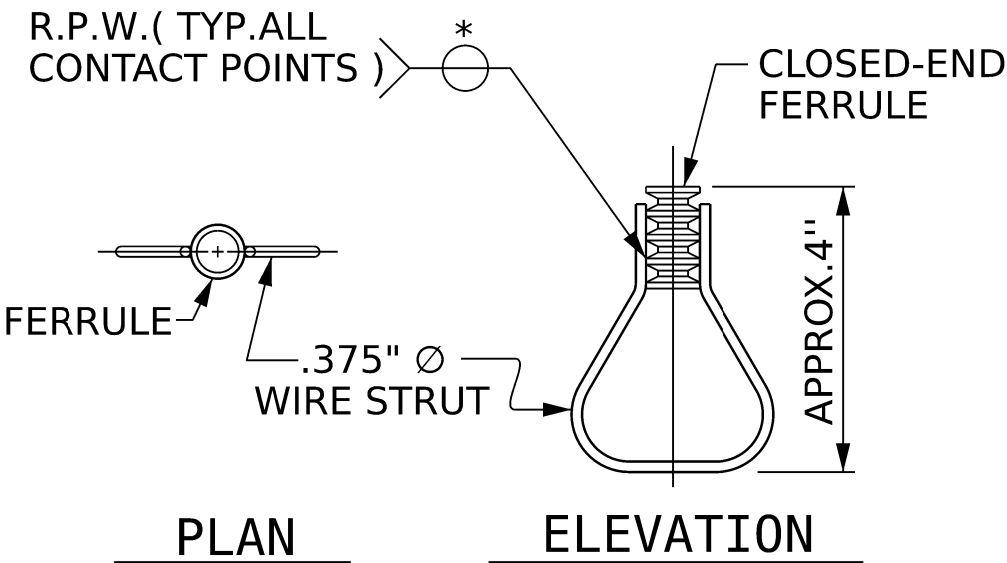
THE COST OF THE ¾" STRUCTURAL CONCRETE INSERT, THE ½" BRACKET PLATES, AND THE RAIL INSERT TUBES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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 ¾" Ø x 1⅝" BOLTS WITH WASHERS SHALL BE REPLACED WITH ¾" Ø x 6½" BOLTS AND 2" O.D. WASHERS. ALL SPECIFICATIONS THAT APPLY TO THE ¾" Ø x 1⅝" BOLTS SHALL APPLY TO THE ¾" Ø x 6½" BOLTS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PLAN OF RAIL POST SPACINGS

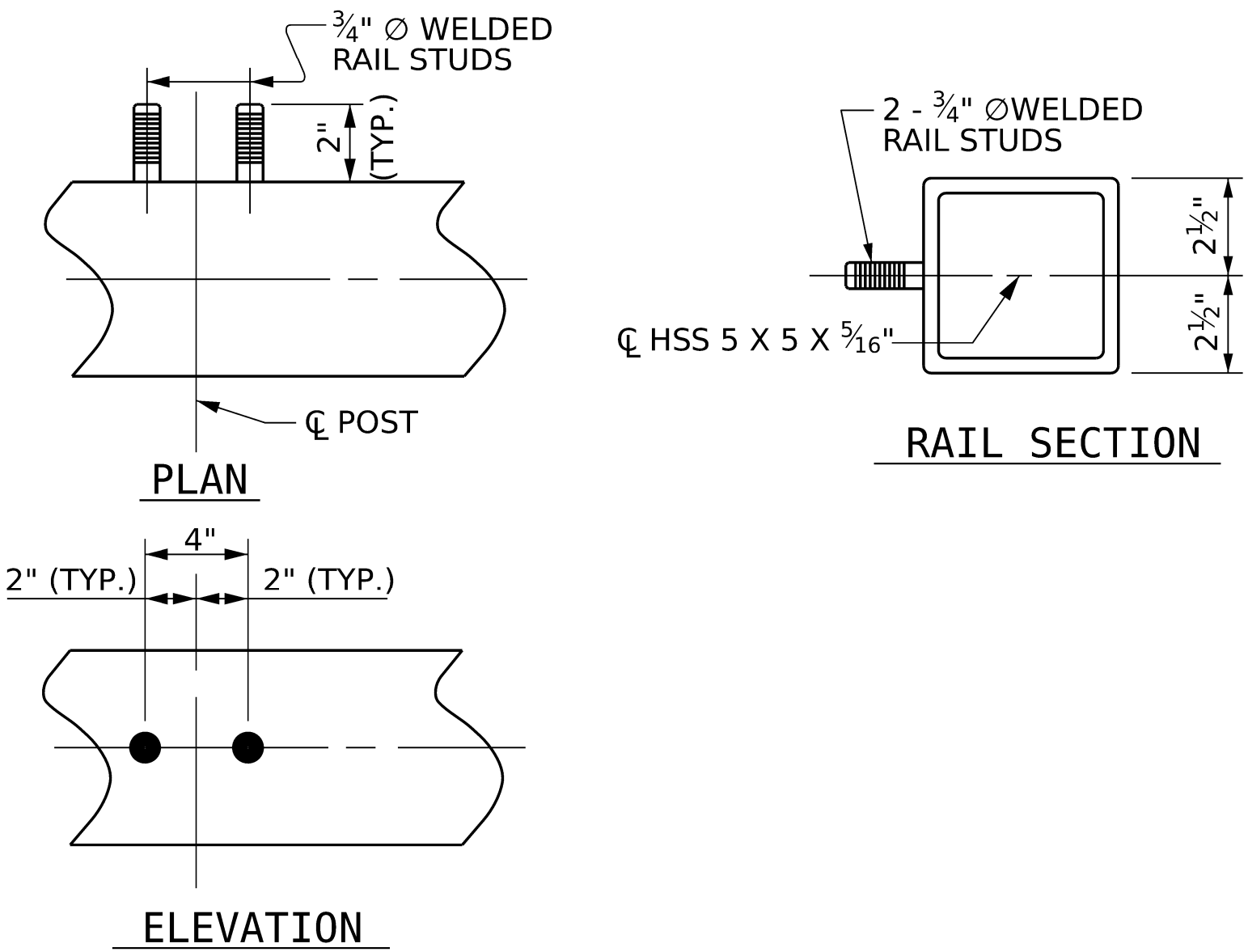


PLAN - RAILS AND END POST

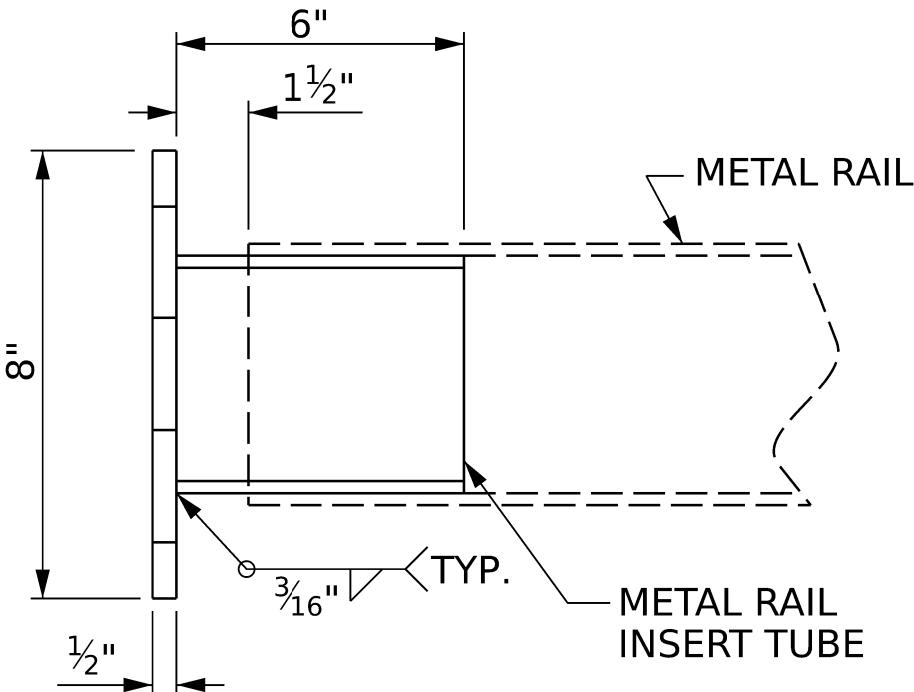


STRUCTURAL CONCRETE INSERT

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

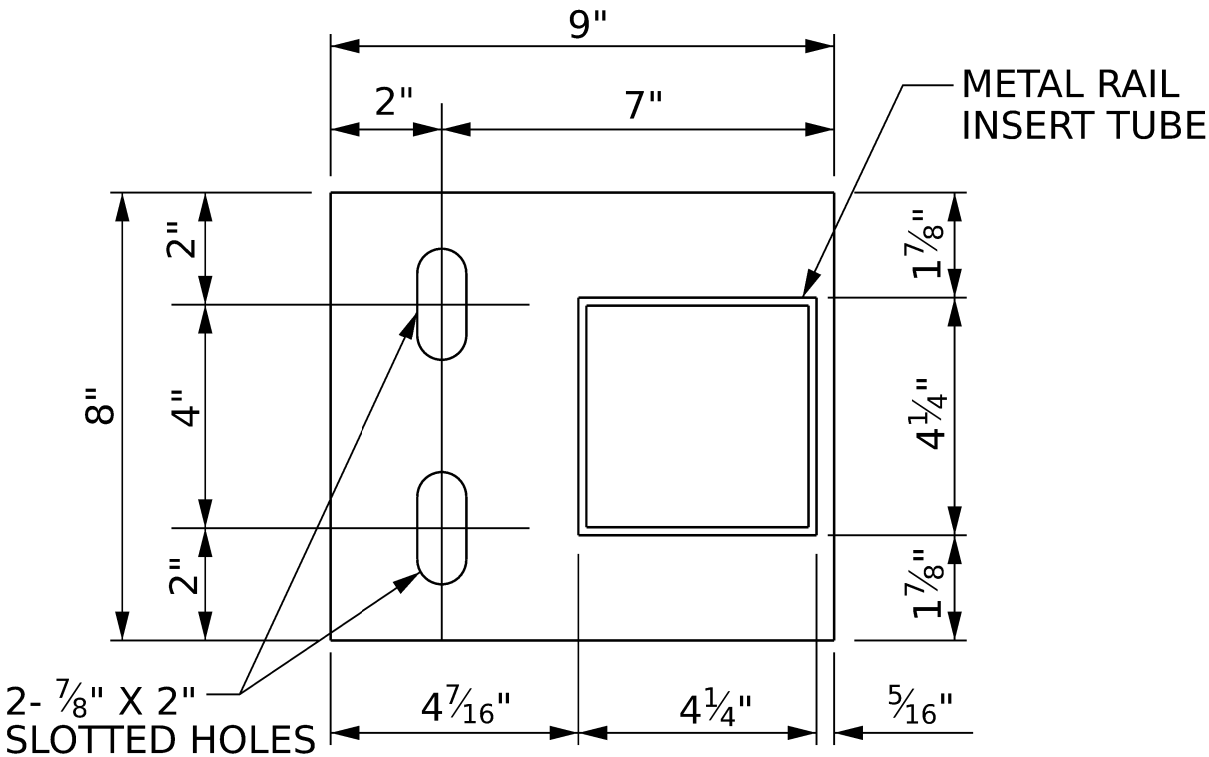


RAIL STUD DETAILS



METAL RAIL ATTACHMENT BRACKET

THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM ¼" PLATES.



PROJECT NO. **HB-0065**
WILKES COUNTY
STATION: **13+74.00 -L-**

SHEET 2 OF 2

6/10/2026

SEAL

15431

ENGINEER

THOMAS K. KOCH

Signed by:

Thomas K. Koch

40470001000000000000

ETHERILL

ENGINEERING

1223 Jones Franklin Rd.

Raleigh, N.C. 27606

Bus: 919 851 8077

Fax: 919 851 8107

LICENSE NO. F-6377

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD

RAIL POST SPACINGS

AND

END OF RAIL DETAILS

FOR 32" ALASKA RAIL

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

TOTAL SHEETS

25

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STD. NO. BMR9

PA-2024-241735-01-HB0065Structures02 - Plan Production01 - D6M401_027_HB-0065_SD_BR2_014.dgn 4/11/2026 9:32:07 AM

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A ¼" HOLD DOWN PLATE AND 7 - ⅞" Ø BOLTS WITH NUTS AND WASHERS.

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE ⅞" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

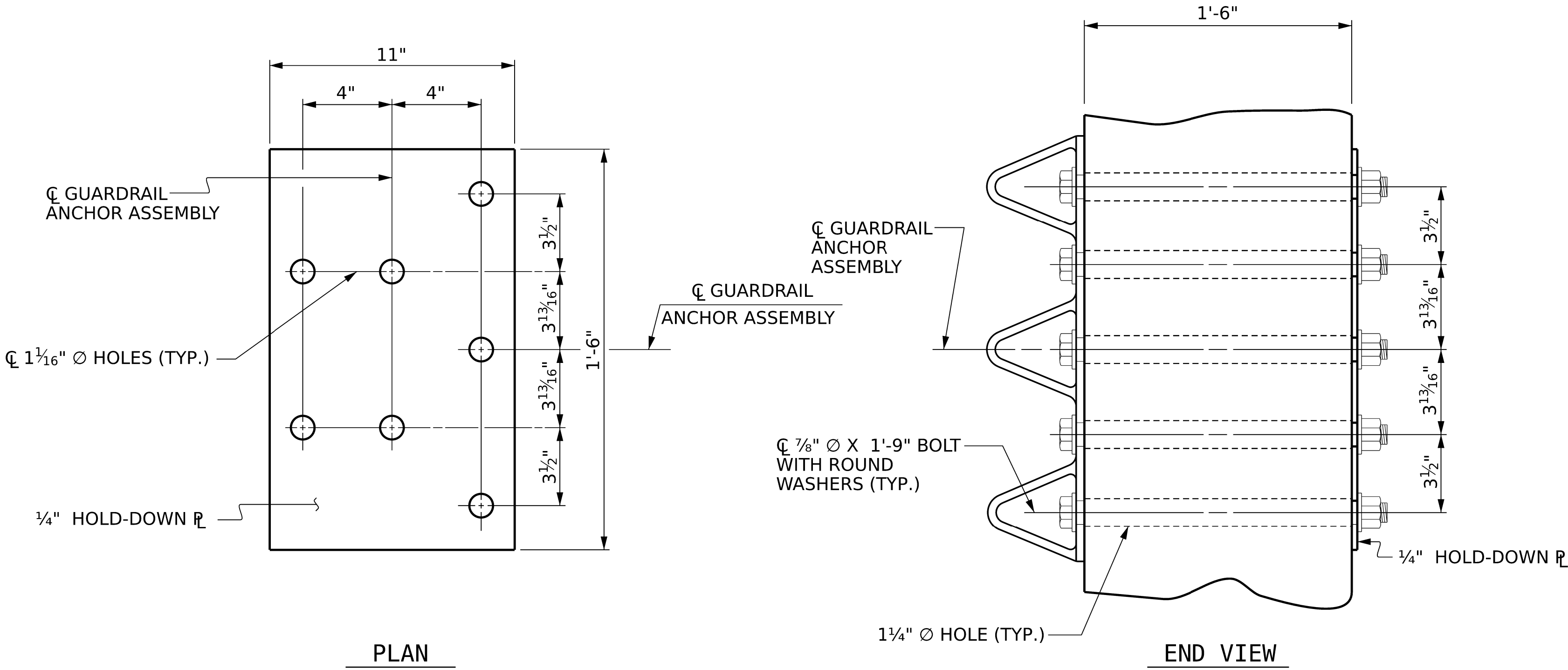
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1 ¼" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

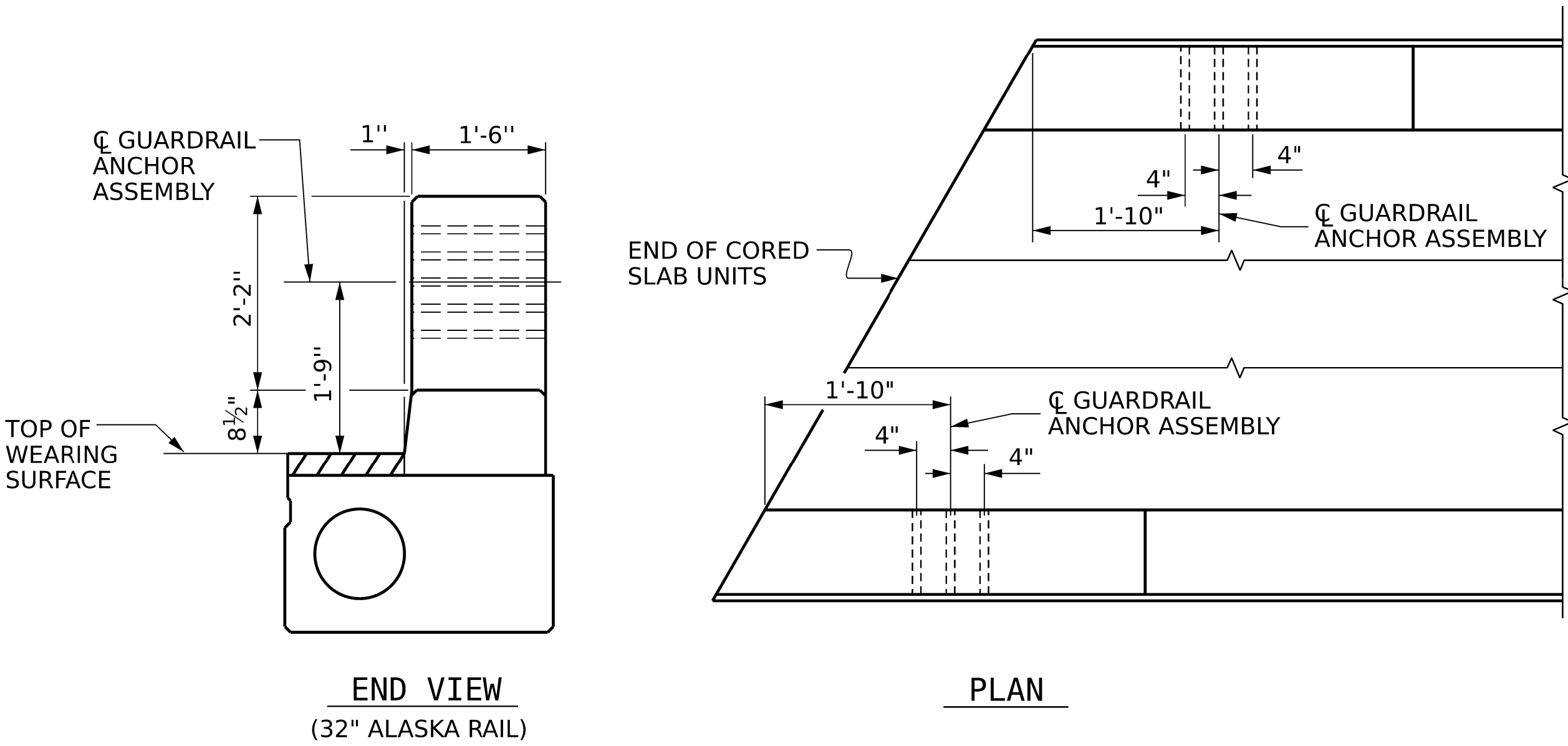


GUARDRAIL ANCHOR ASSEMBLY DETAILS



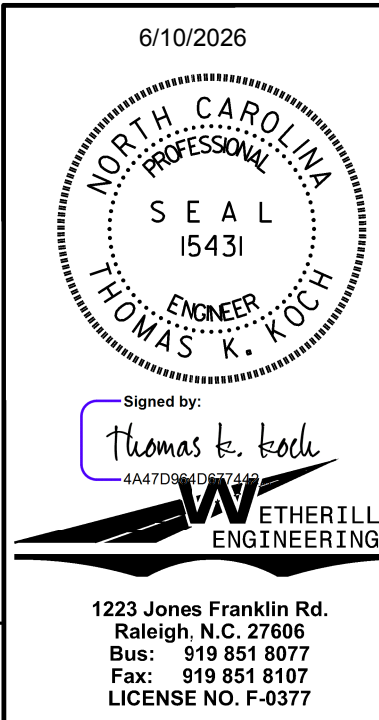
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. **HB-0065**
WILKES COUNTY
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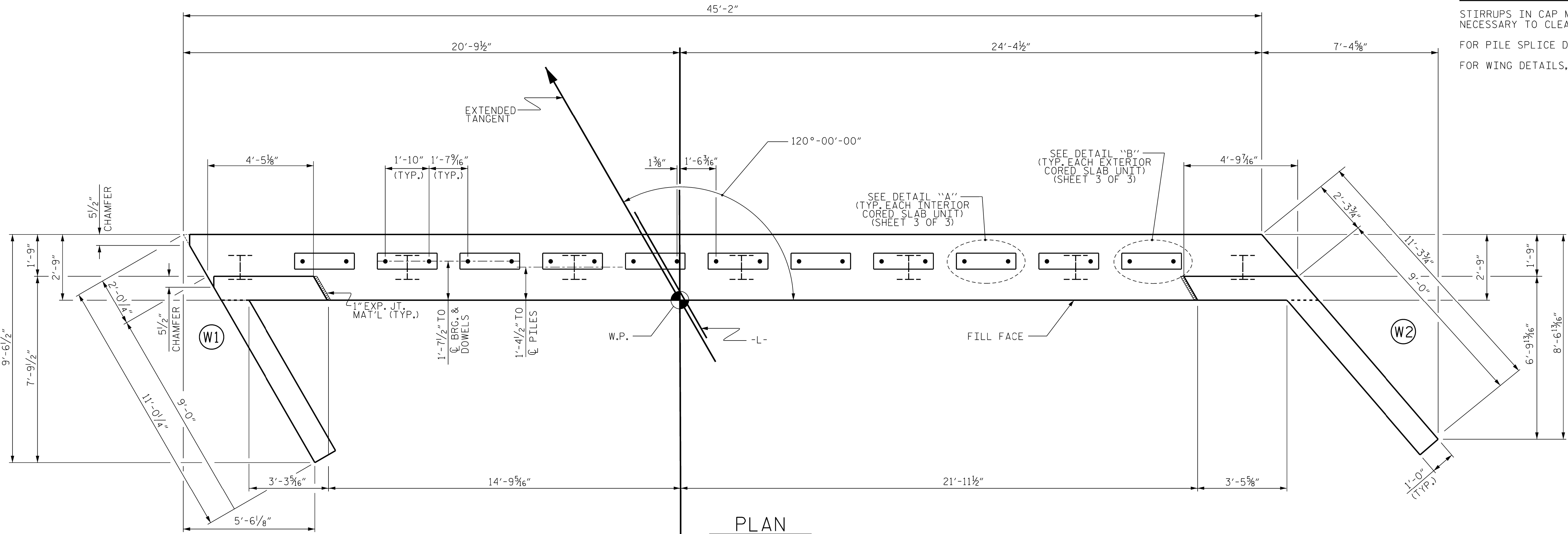
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-15
2			4			
TOTAL SHEETS						25

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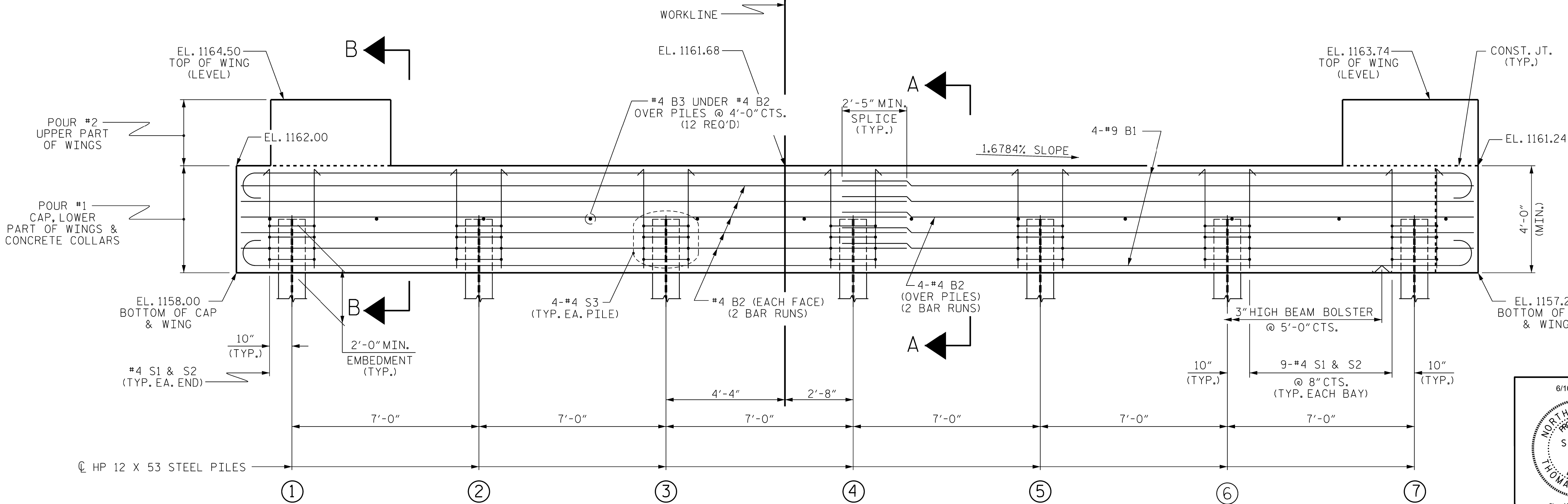
DRAWN BY :	J. PENDERGRAFT	DATE :	4-25
CHECKED BY :	J. DILWORTH	DATE :	4-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
FOR PILE SPlice DETAILS, SEE SHEET 3 OF 3.
FOR WING DETAILS, SEE SHEET 2 OF 3.



PLAN



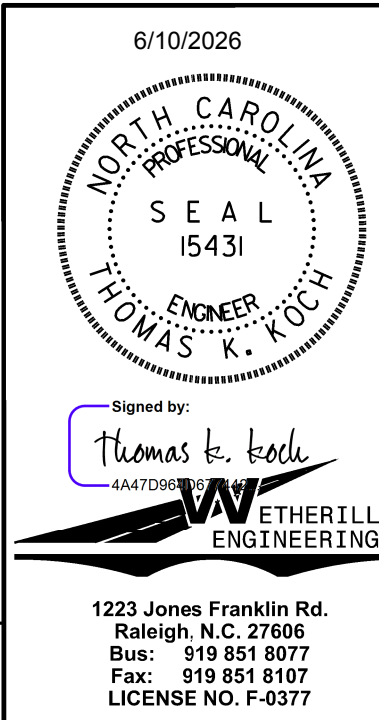
ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

TOP OF PILE ELEVATIONS	
①	1159.98
②	1159.86
③	1159.74
④	1159.63
⑤	1159.51
⑥	1159.39
⑦	1159.27

PROJECT NO. **HB-0065**
WILKES COUNTY
STATION: **13+74.00 -L-**

SHEET 1 OF 3



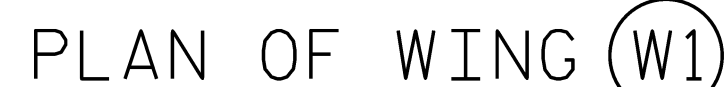
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-16
2			4			

TOTAL SHEETS 25

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CHECKED BY :	J. DILWORTH	DATE :	5-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

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PROJECT NO. HB-0065
WILKES COUNTY
 STATION: 13+74.00 - L -

SHEET 2 OF 3



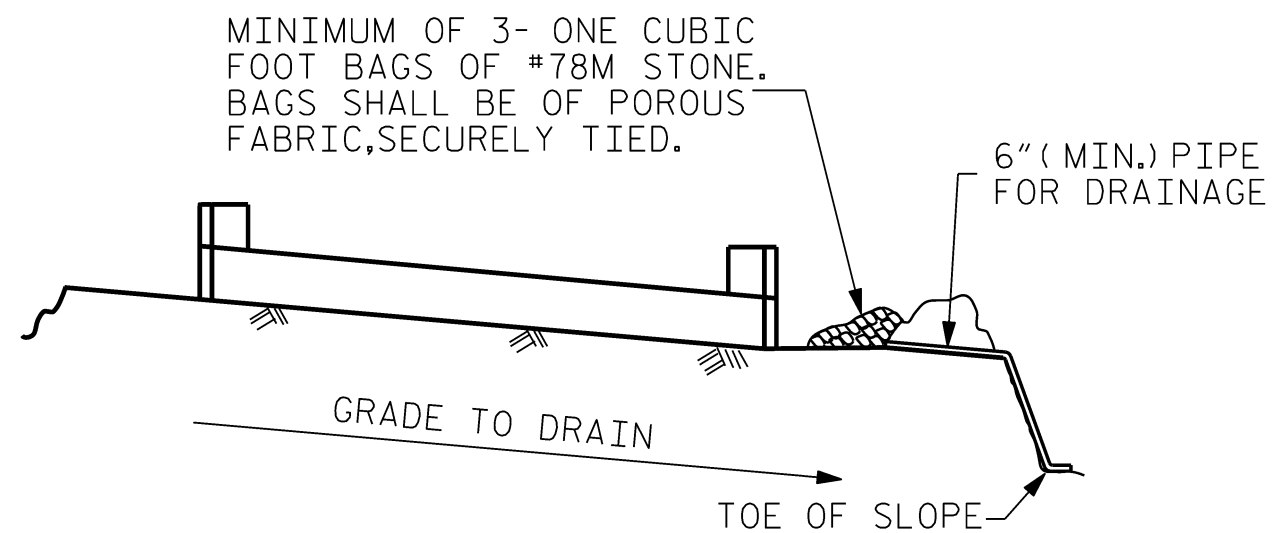
SUBSTRUCTURE
END BENT No. 1
WING DETAILS

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

DRAWN BY : J. PENDERGRAFT DATE : 5-25
 CHECKED BY : J. DILWORTH DATE : 5-25
 DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

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WING DETAILS

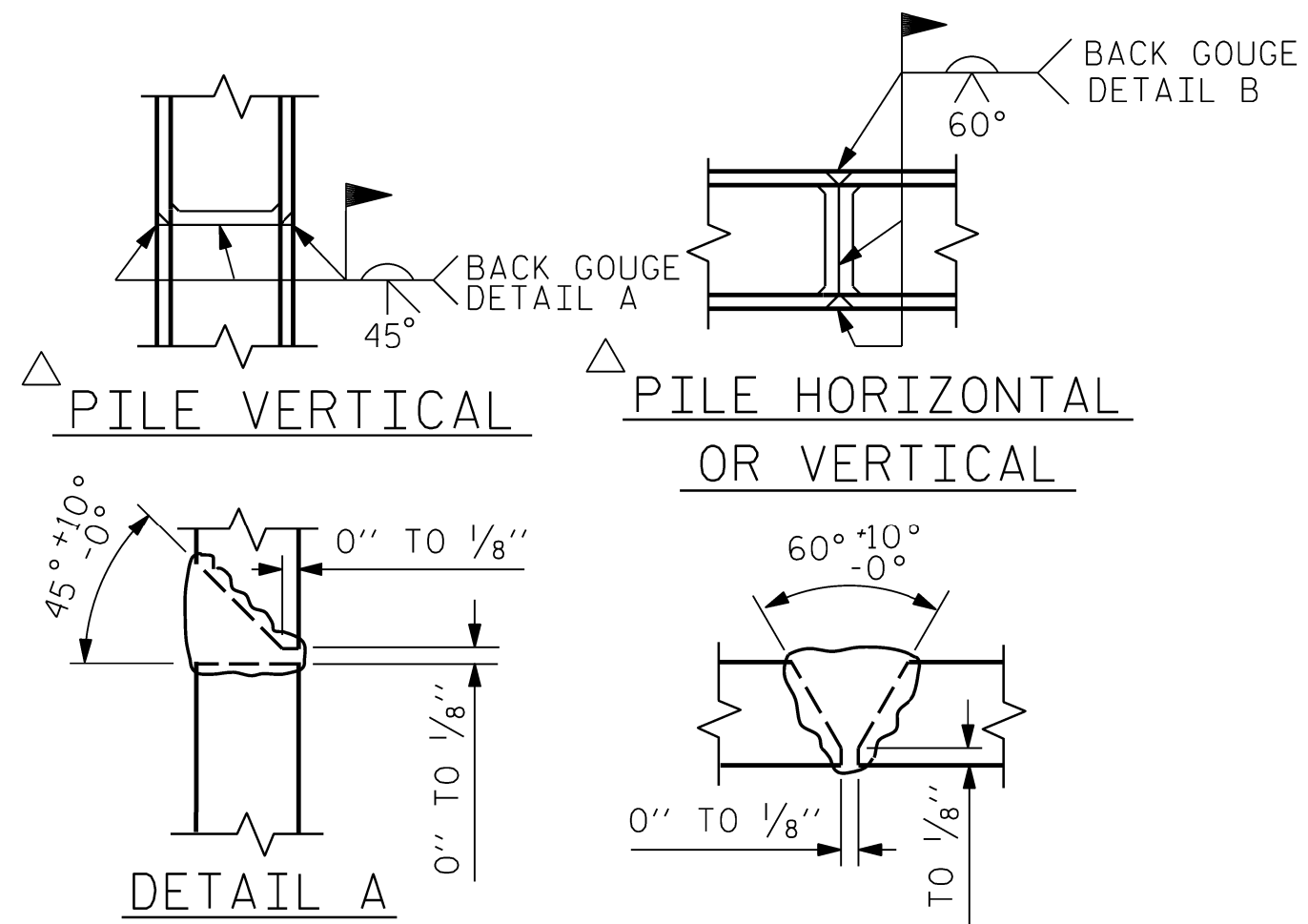


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

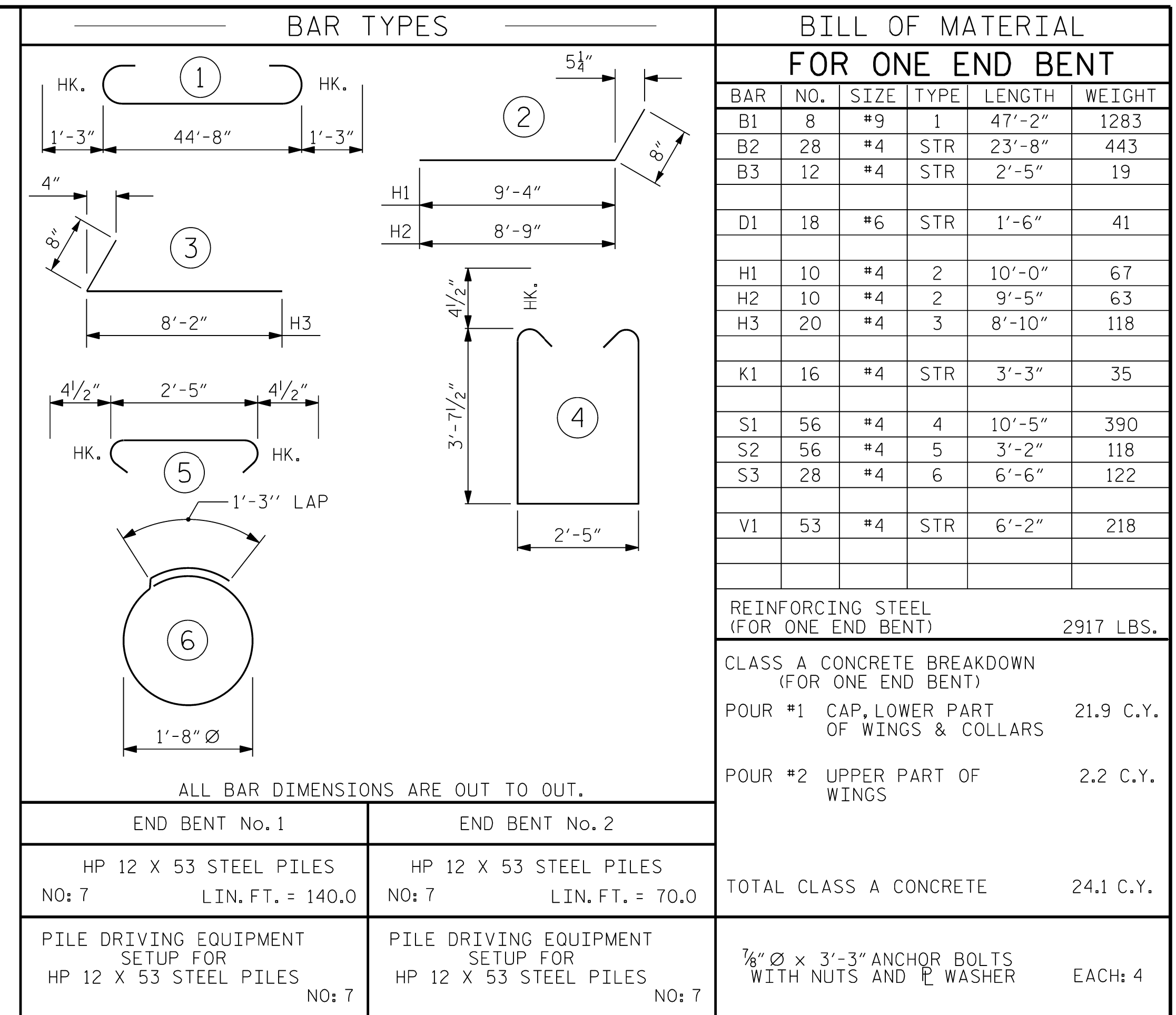
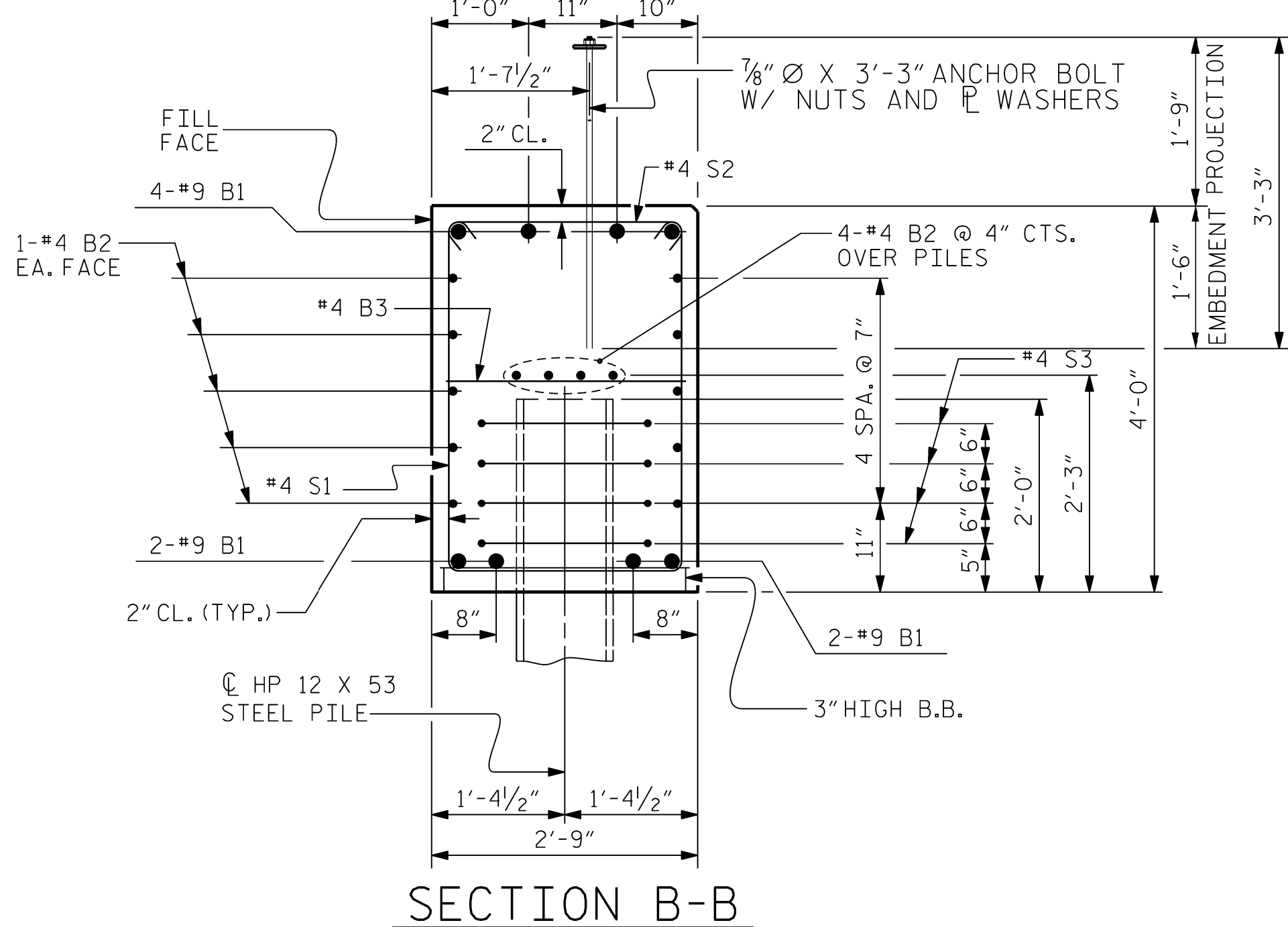
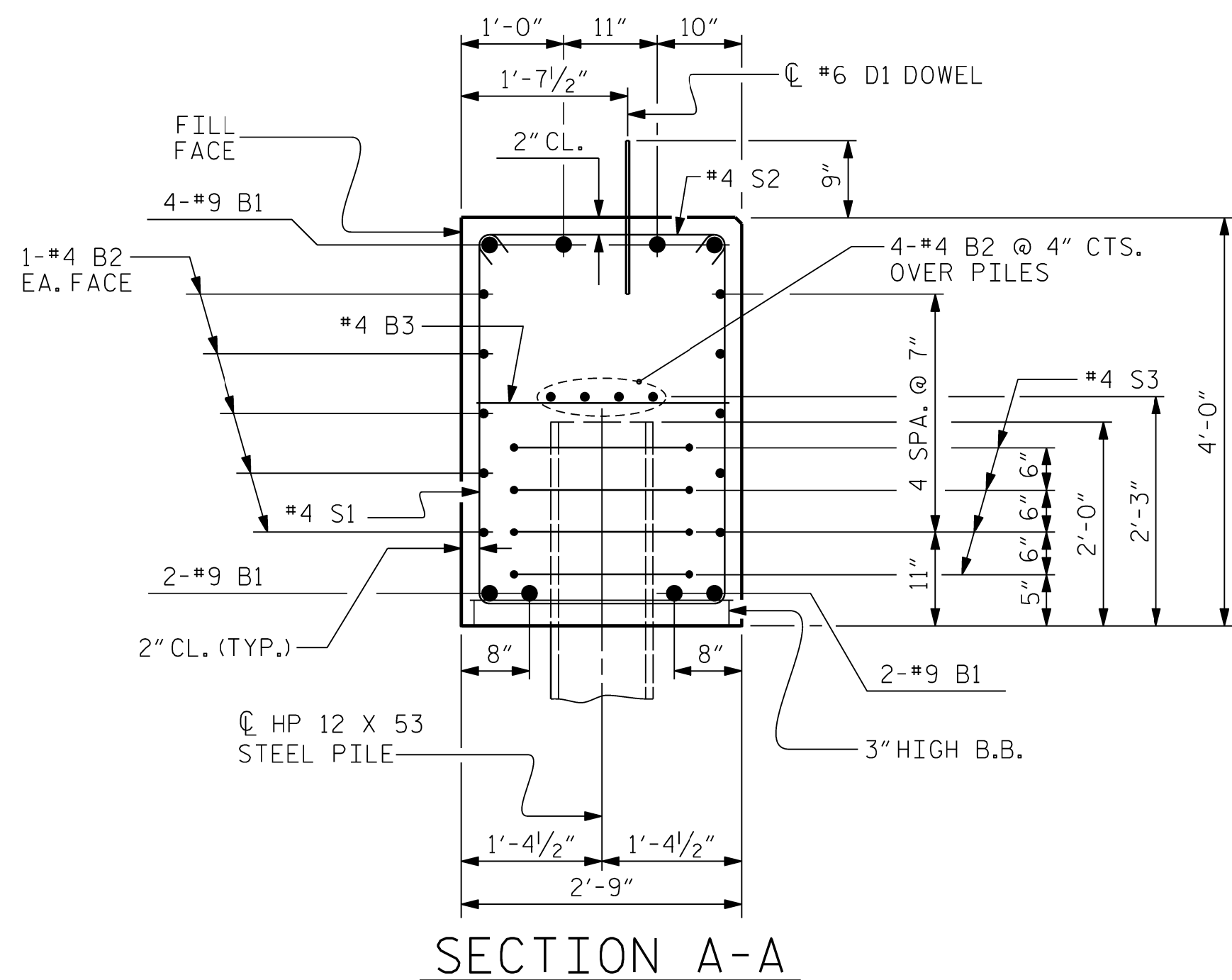
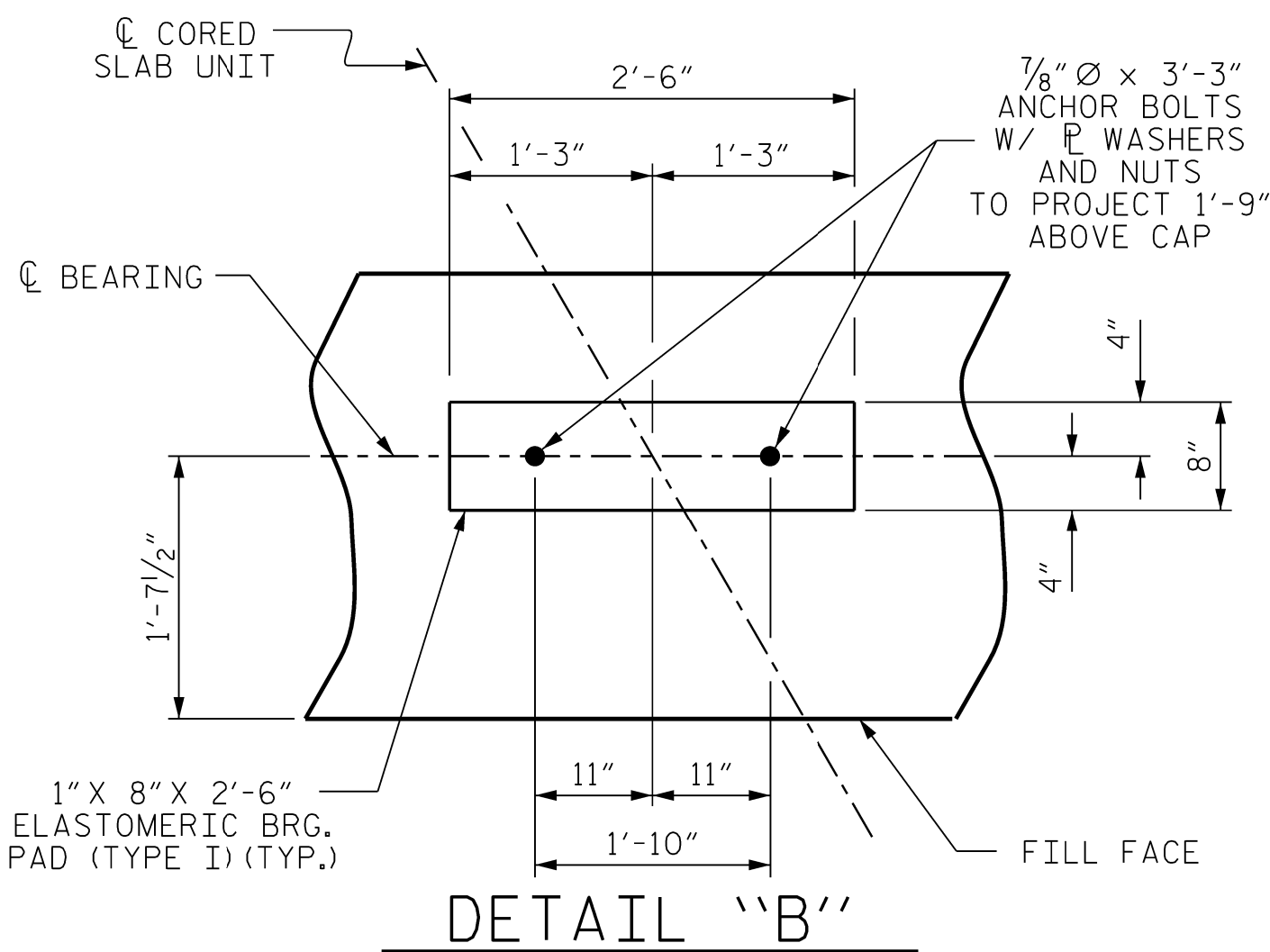
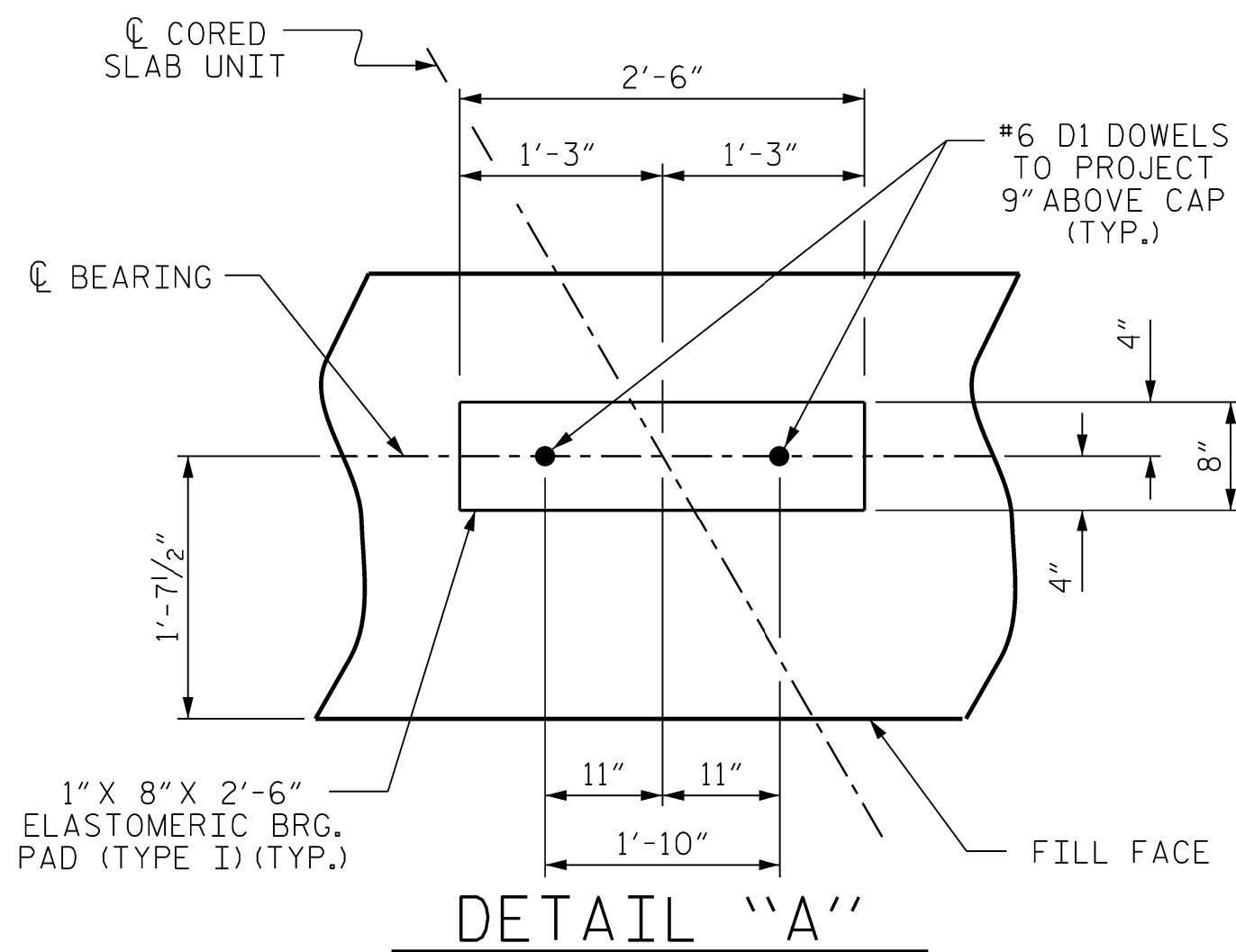
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

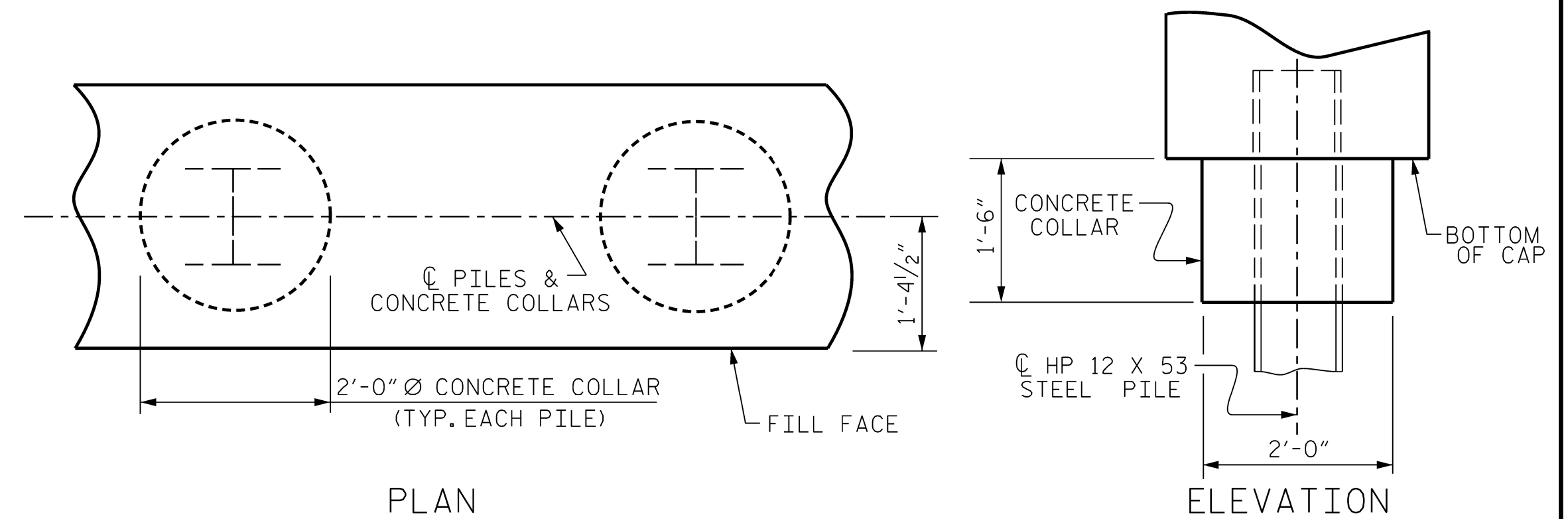


△ POSITION OF PILE DURING WELDING. DETAIL B

PILE SPLICE DETAILS



BILL OF MATERIAL					
FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	47'-2"	1283
B2	28	#4	STR	23'-8"	443
B3	12	#4	STR	2'-5"	19
D1	18	#6	STR	1'-6"	41
H1	10	#4	2	10'-0"	67
H2	10	#4	2	9'-5"	63
H3	20	#4	3	8'-10"	118
K1	16	#4	STR	3'-3"	35
S1	56	#4	4	10'-5"	390
S2	56	#4	5	3'-2"	118
S3	28	#4	6	6'-6"	122
V1	53	#4	STR	6'-2"	218
REINFORCING STEEL (FOR ONE END BENT)					2917 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1		CAP, LOWER PART OF WINGS & COLLARS			21.9 C.Y.
POUR #2		UPPER PART OF WINGS			2.2 C.Y.
TOTAL CLASS A CONCRETE					24.1 C.Y.
$\frac{1}{8}$ " $\varnothing$ x 3'-3" ANCHOR BOLTS WITH NUTS AND WASHER					EACH: 4

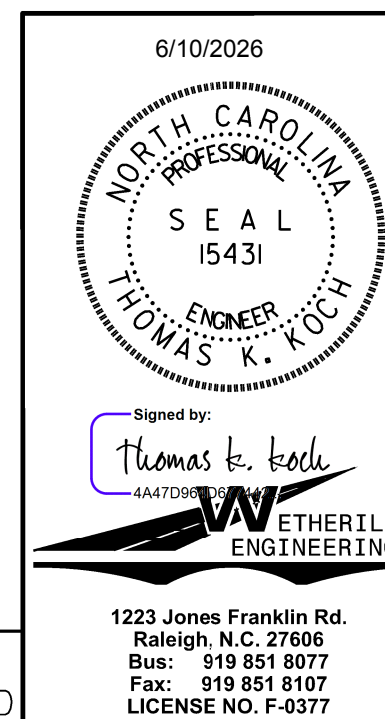


CORROSION PROTECTION FOR STEEL PILES DETAIL

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

PROJECT NO. **HB-0065**
WILKES COUNTY
 STATION: **13+74.00 - L -**

SHEET 3 OF 3



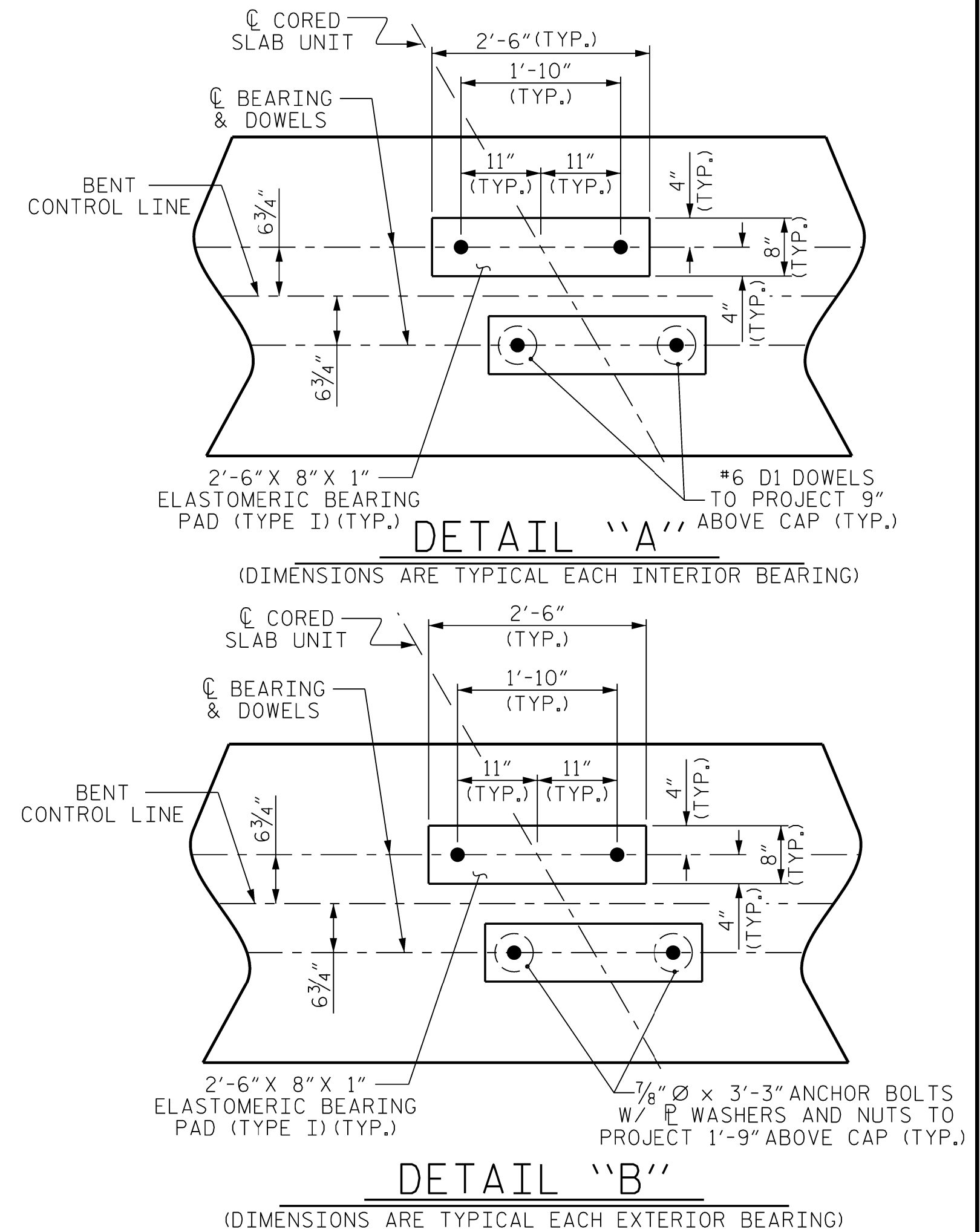
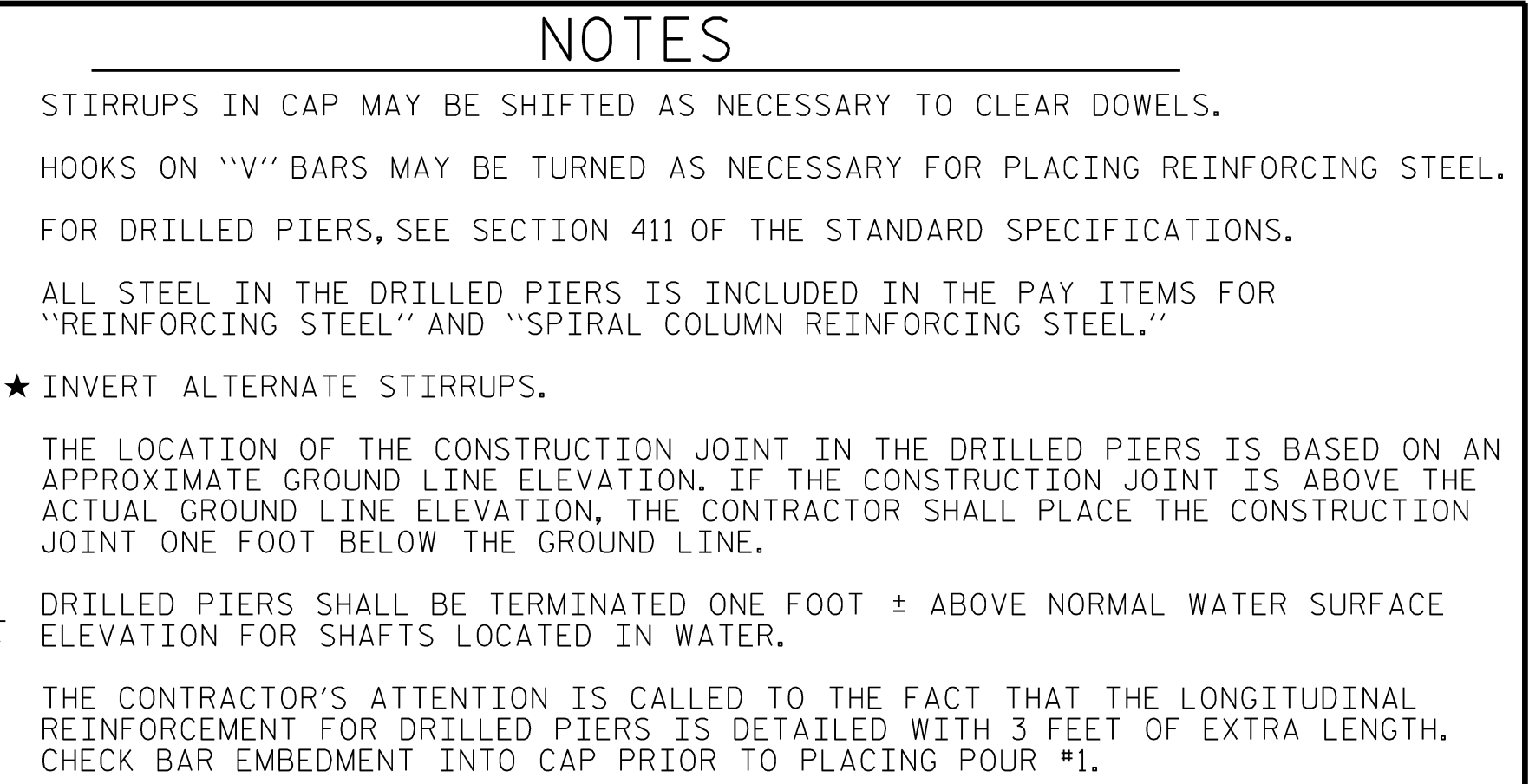
**1223 Jones Franklin Rd
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1
DETAILS

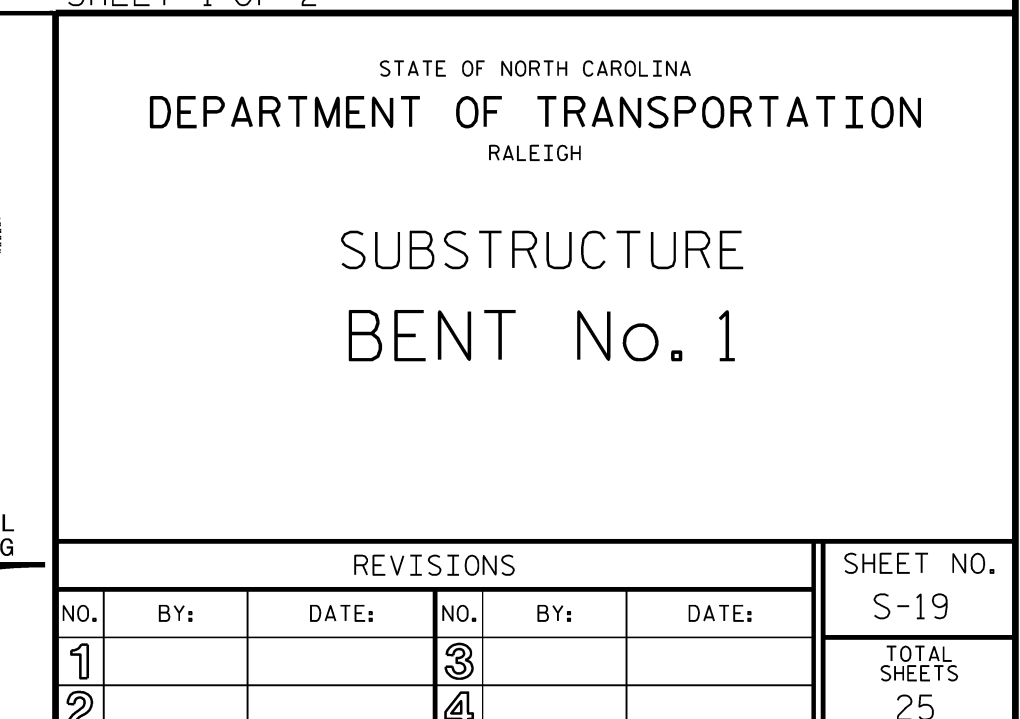
REVISIONS						SHEET NO. S-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

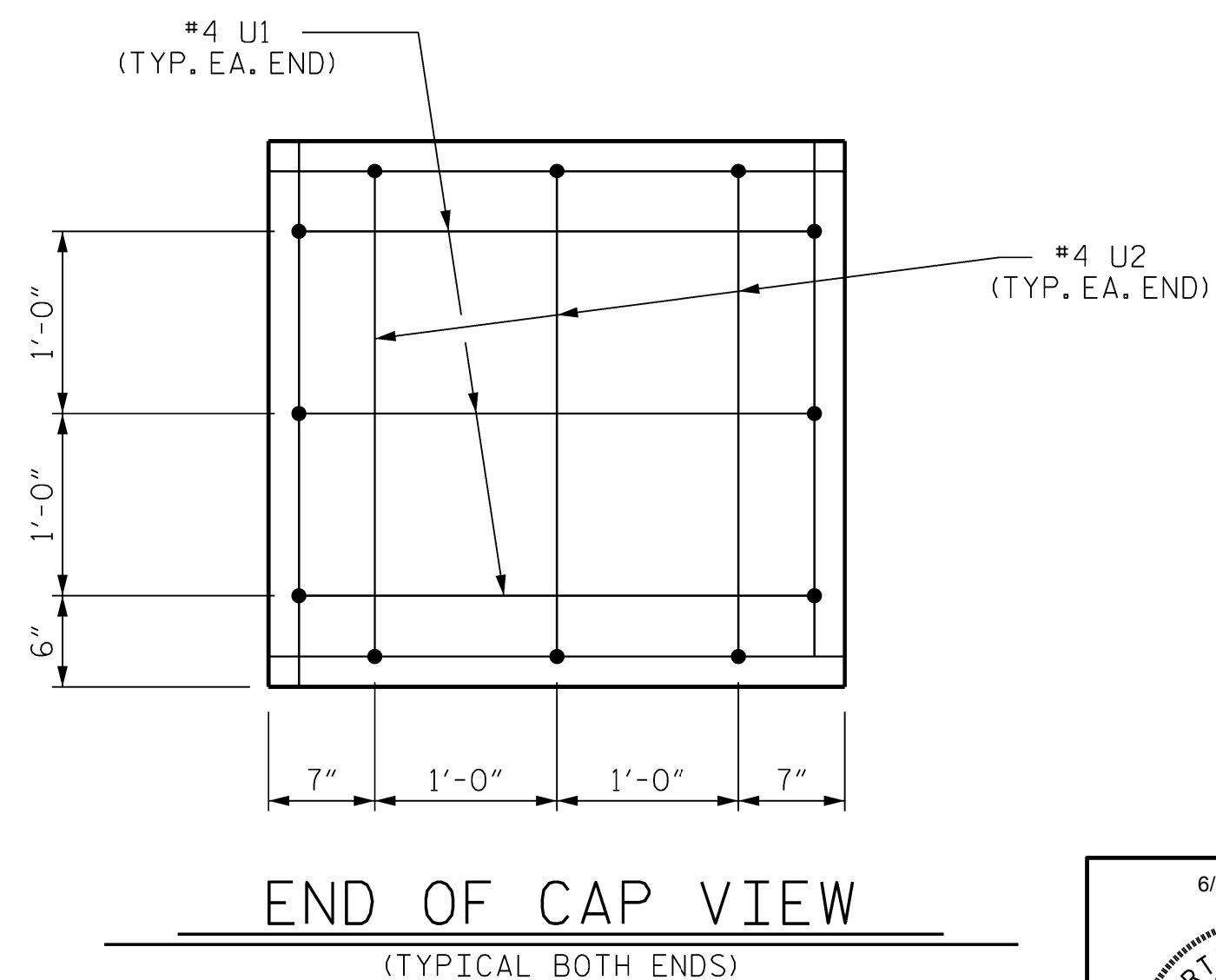
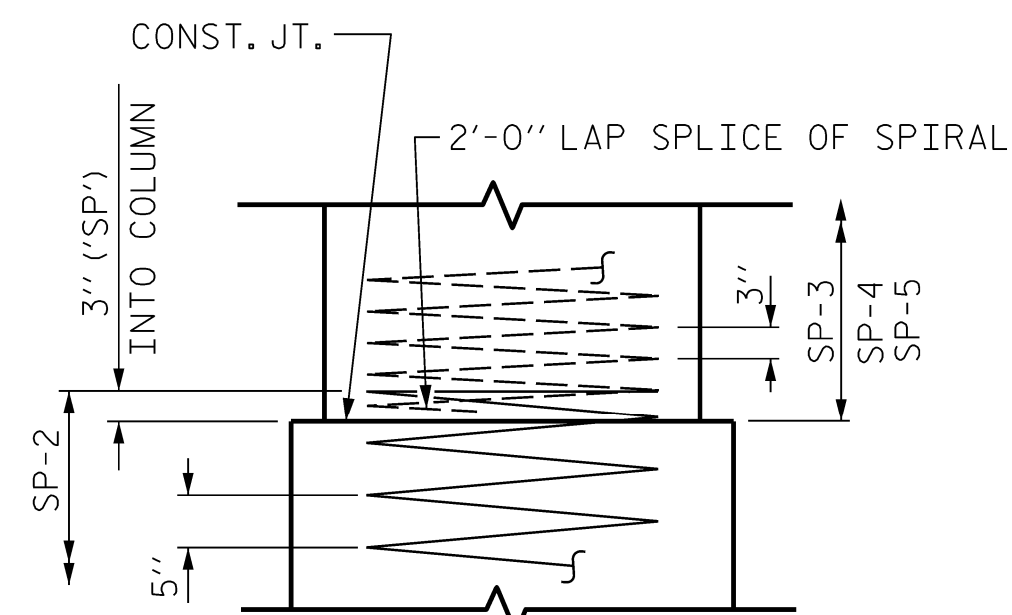
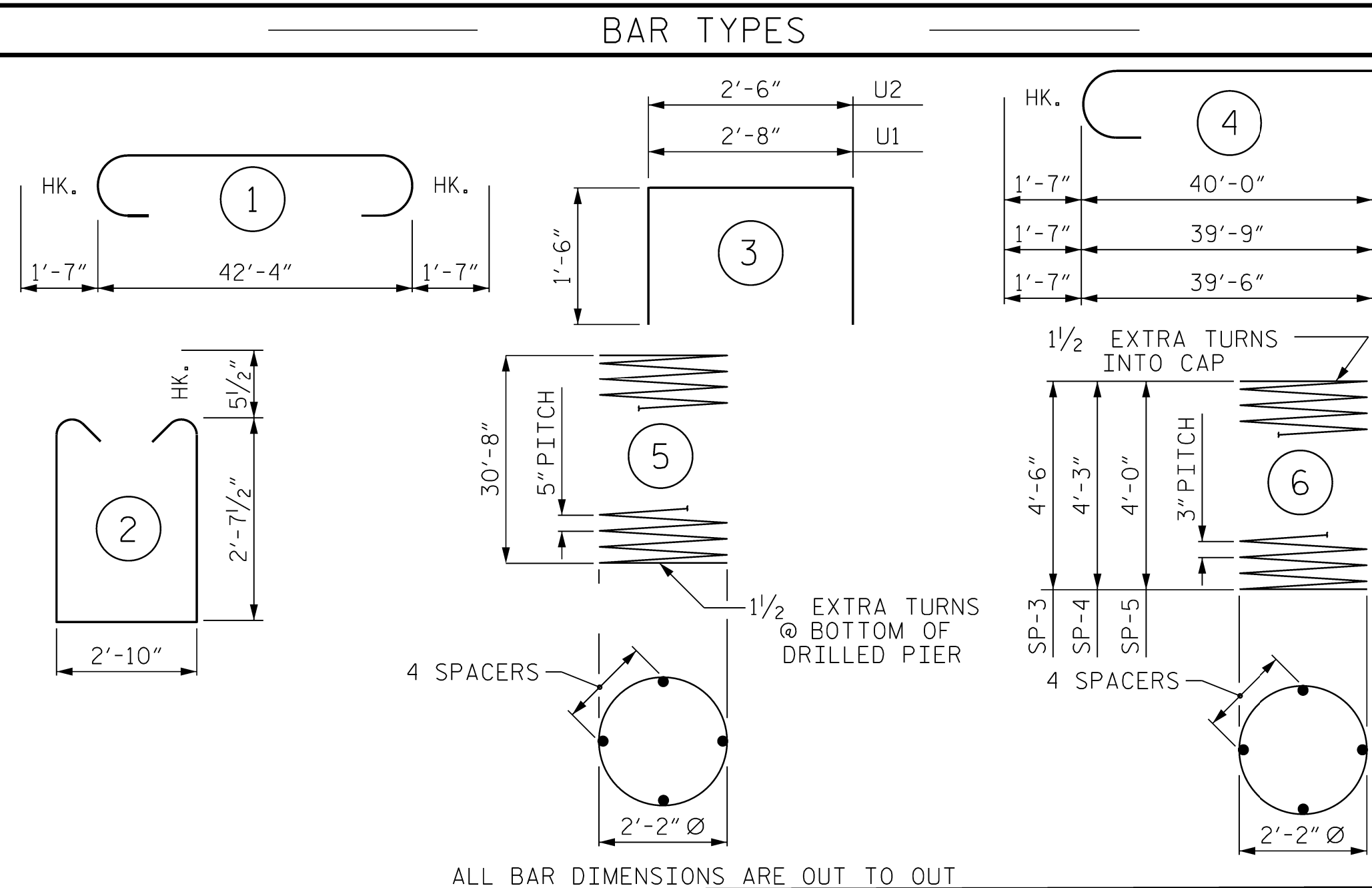
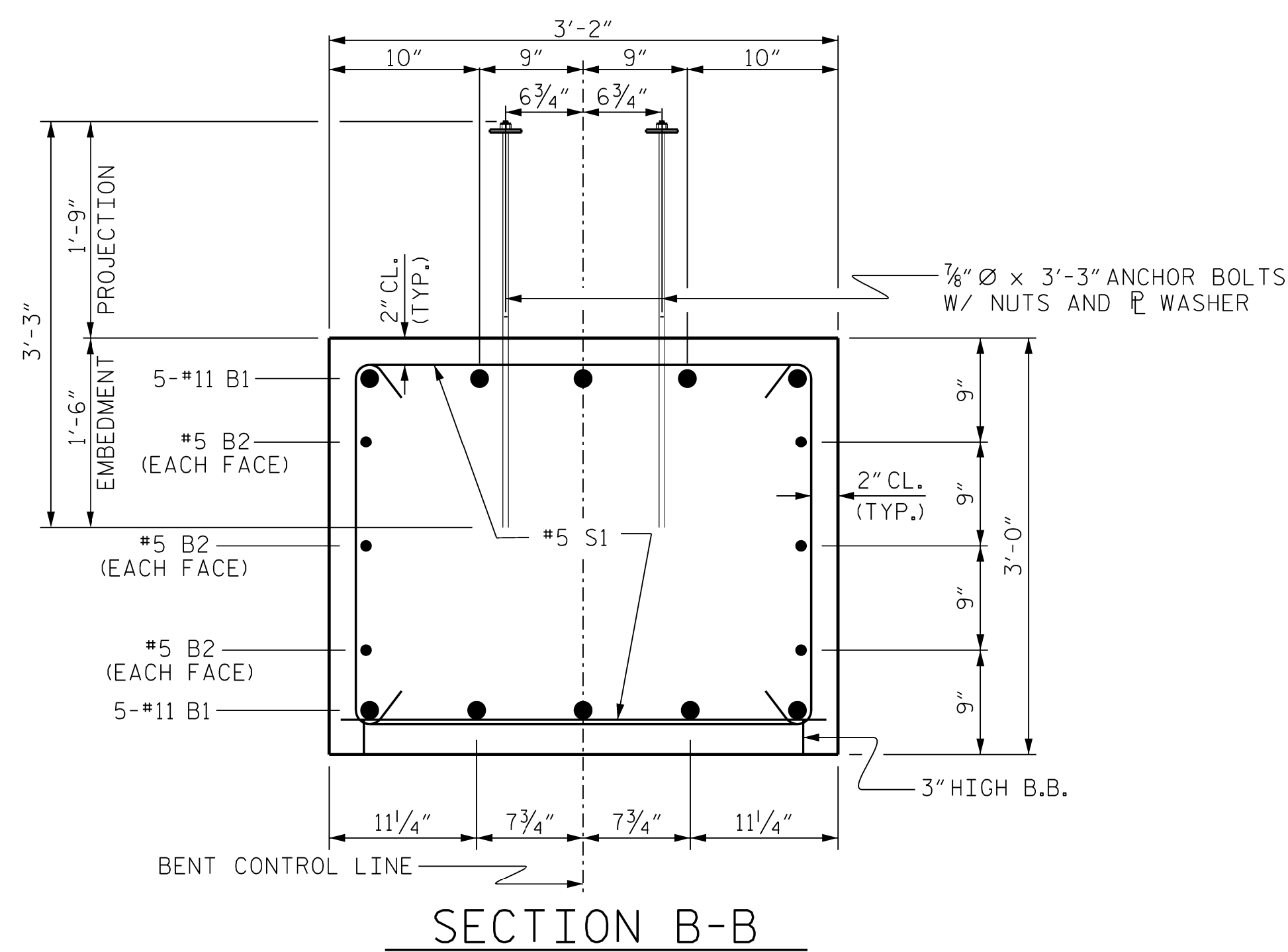
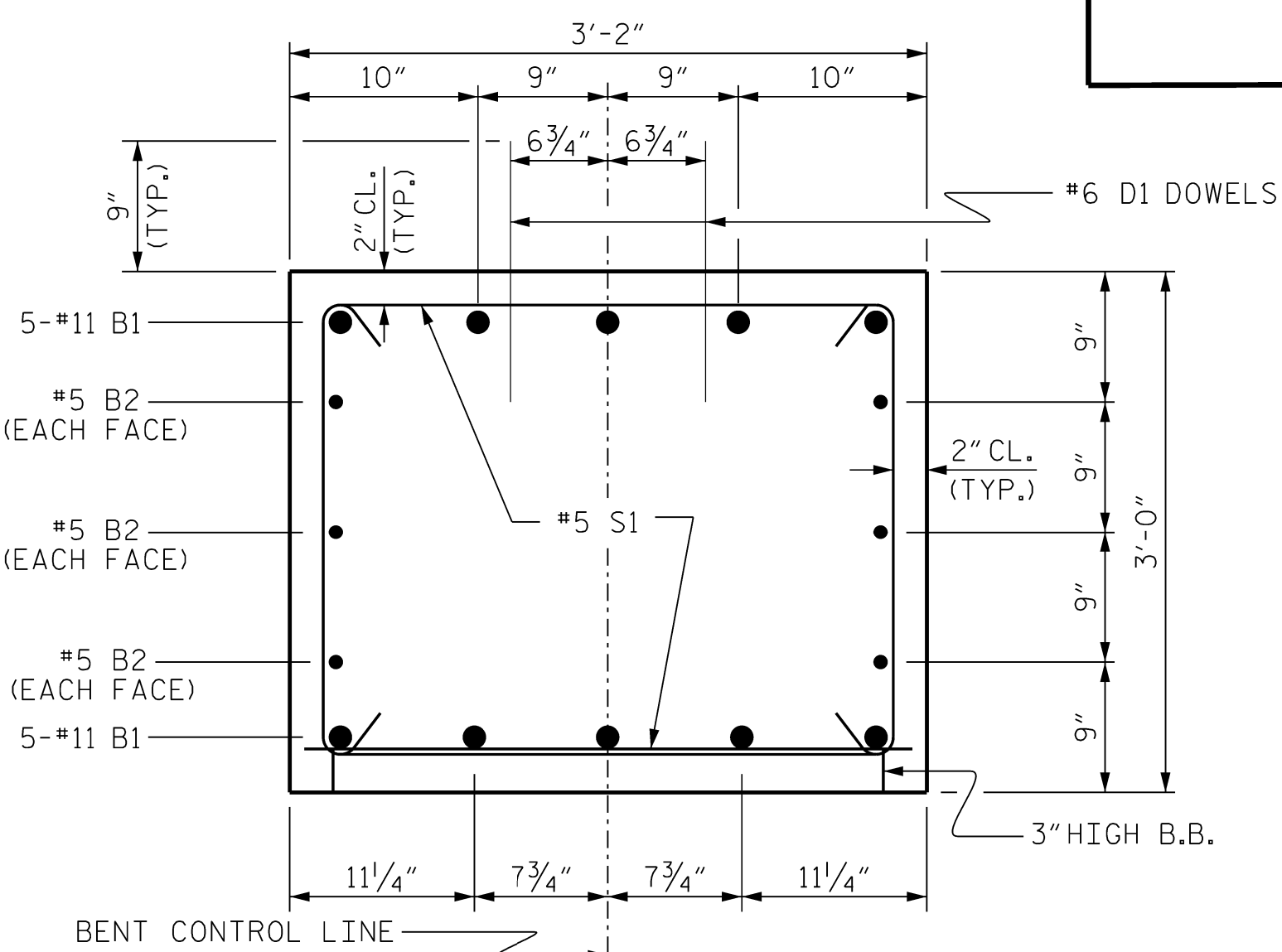
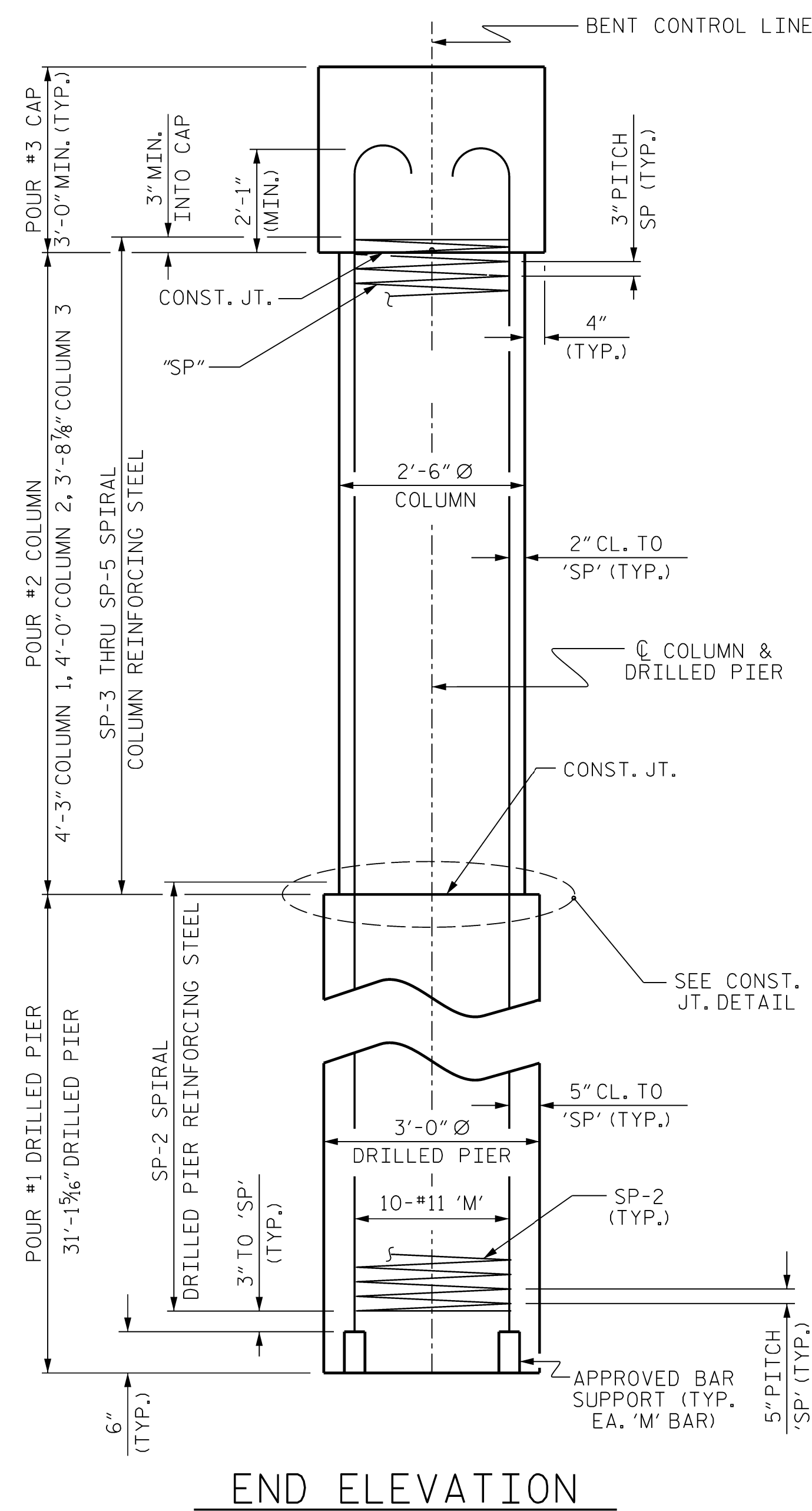
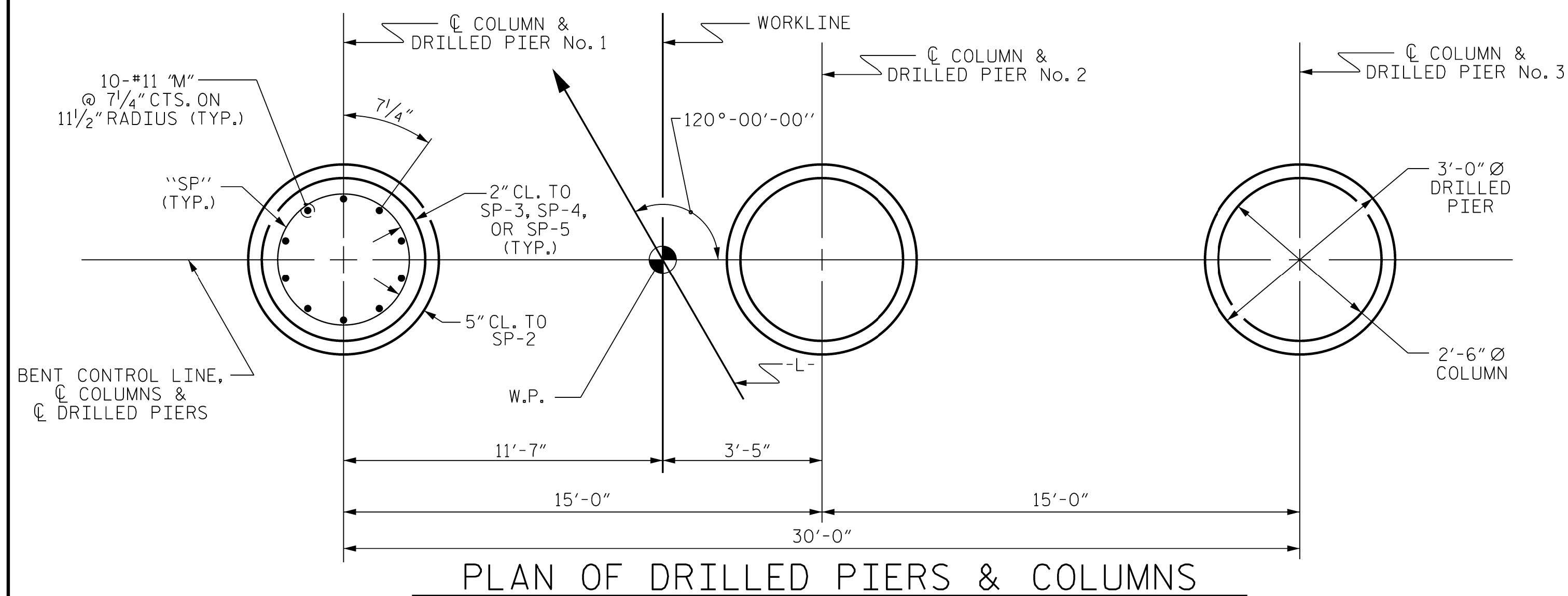


PROJECT NO. **HB-0065**
WILKES COUNTY
STATION: **13+74.00 -L-**

SHEET 1 OF 2



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



BILL OF MATERIAL					
FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	45'-6"	2417
B2	6	#5	STR	42'-6"	266
D1	36	#6	STR	1'-6"	81
M1	10	#11	4	41'-7"	2209
M2	10	#11	4	41'-4"	2196
M3	10	#11	4	41'-1"	2183
S1	74	#5	2	9'-0"	695
U1	6	#4	3	5'-8"	23
U2	6	#4	3	5'-6"	22
REINFORCING STEEL (FOR ONE BENT)					10,092 LBS.
SP-2	3	*	6	495'-2"	1549
SP-3	1	**	6	130'-4"	87
SP-4	1	**	6	123'-8"	83
SP-5	1	**	6	116'-8"	78
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					1797 LBS.
* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
** THE SP-3, 4, & 5 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #2 (COLUMNS)					2.2 C.Y.
POUR #3 (CAP)					15.1 C.Y.
TOTAL CLASS A CONCRETE					17.3 C.Y.
DRILLED PIERS: (FOR ONE BENT)					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)					24.4 C.Y.

PROJECT NO. HB-0065
WILKES COUNTY
STATION: 13+74.00 -L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			25

REVISIONS						SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

		3			TOTAL SHEETS 25
		4			

		3			TOTAL SHEETS 25
		4			

		3			TOTAL SHEETS 25
		4			

6/10/2026



Signed by:


#447D9061

 **ETHERELL**
ENGINEERING

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

6/10/2026



Signed by:


#447D9061

 **ETHERELL**
ENGINEERING

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Raleigh, N.C. 27606
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6/10/2026

NORTH CAROLINA
PROFESSIONAL
S E A L
15431
ENGINEER
THOMAS K. KOCH

Signed by:
Thomas K. Koch
#A47D9810-00000000

W ETHERRL
ENGINEERING

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Raleigh, N.C. 27606
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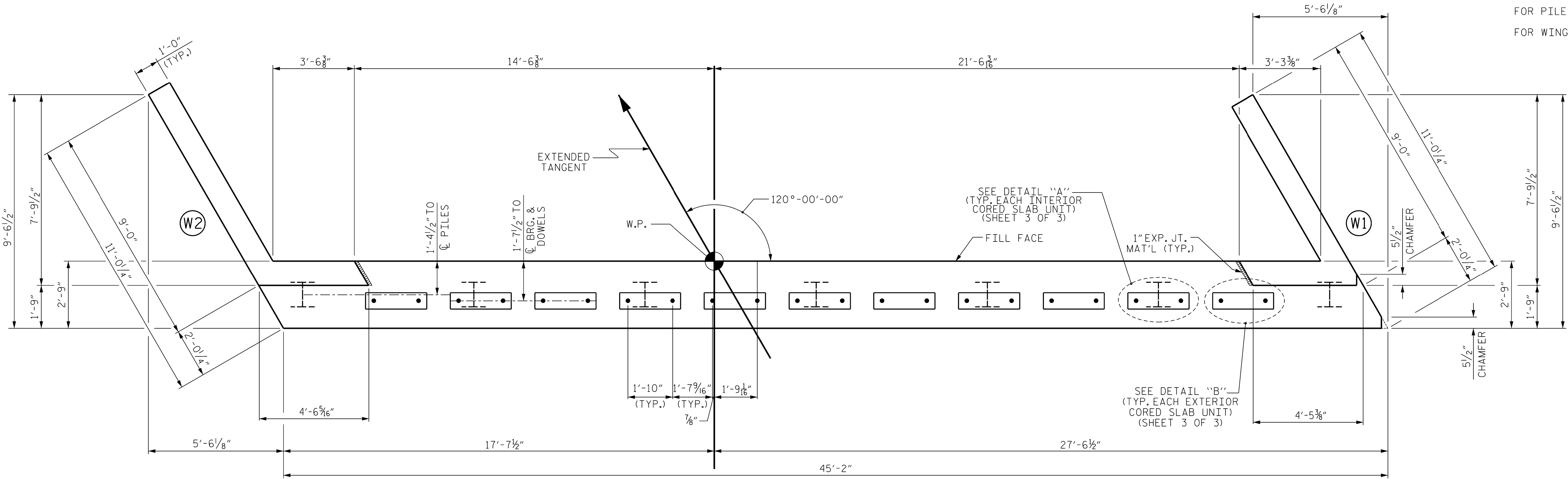
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NOTES

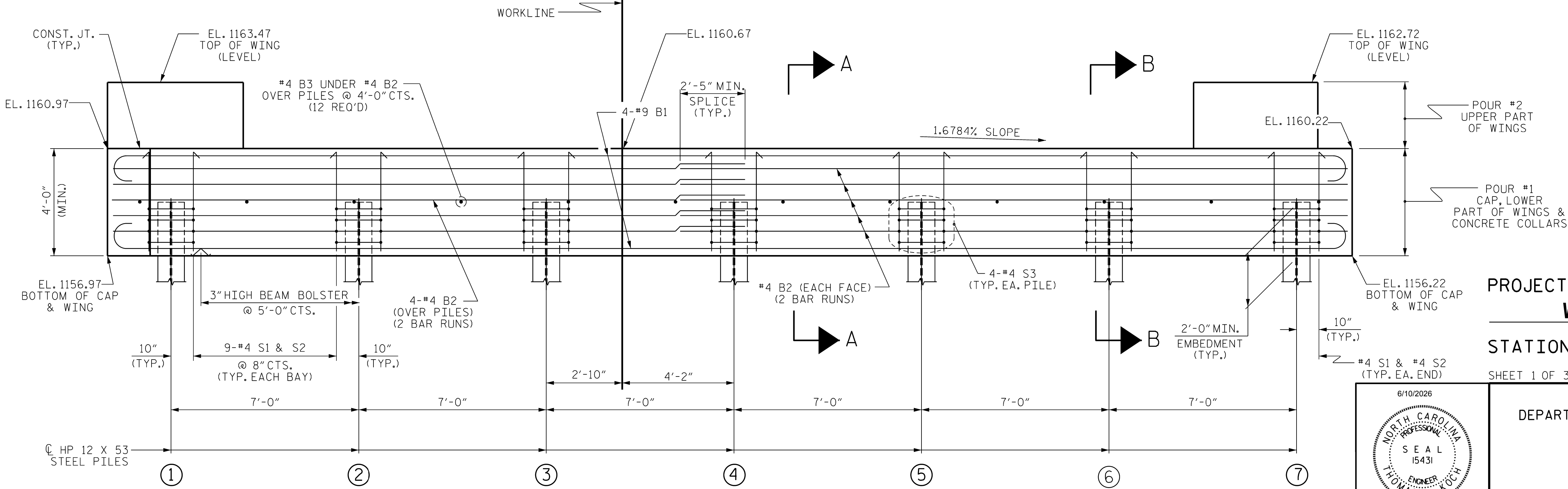
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

FOR PILE SPlice DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.



PLAN



ELEVATION

TOP OF PILE ELEVATIONS

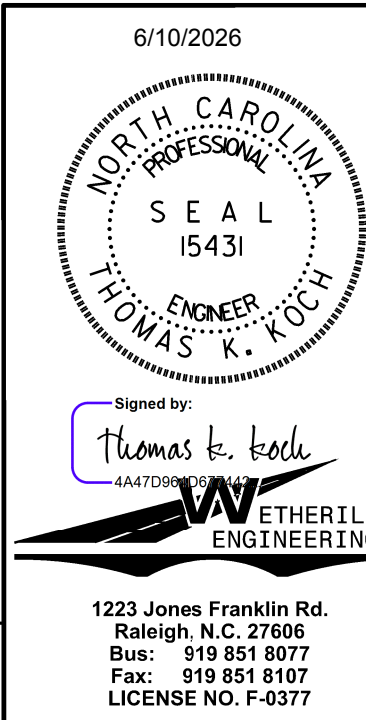
①	1158.96
②	1158.84
③	1158.72
④	1158.61
⑤	1158.49
⑥	1158.37
⑦	1158.25

PROJECT NO. **HB-0065**

WILKES COUNTY

STATION: **13+74.00 -L-**

SHEET 1 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

REVISIONS

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

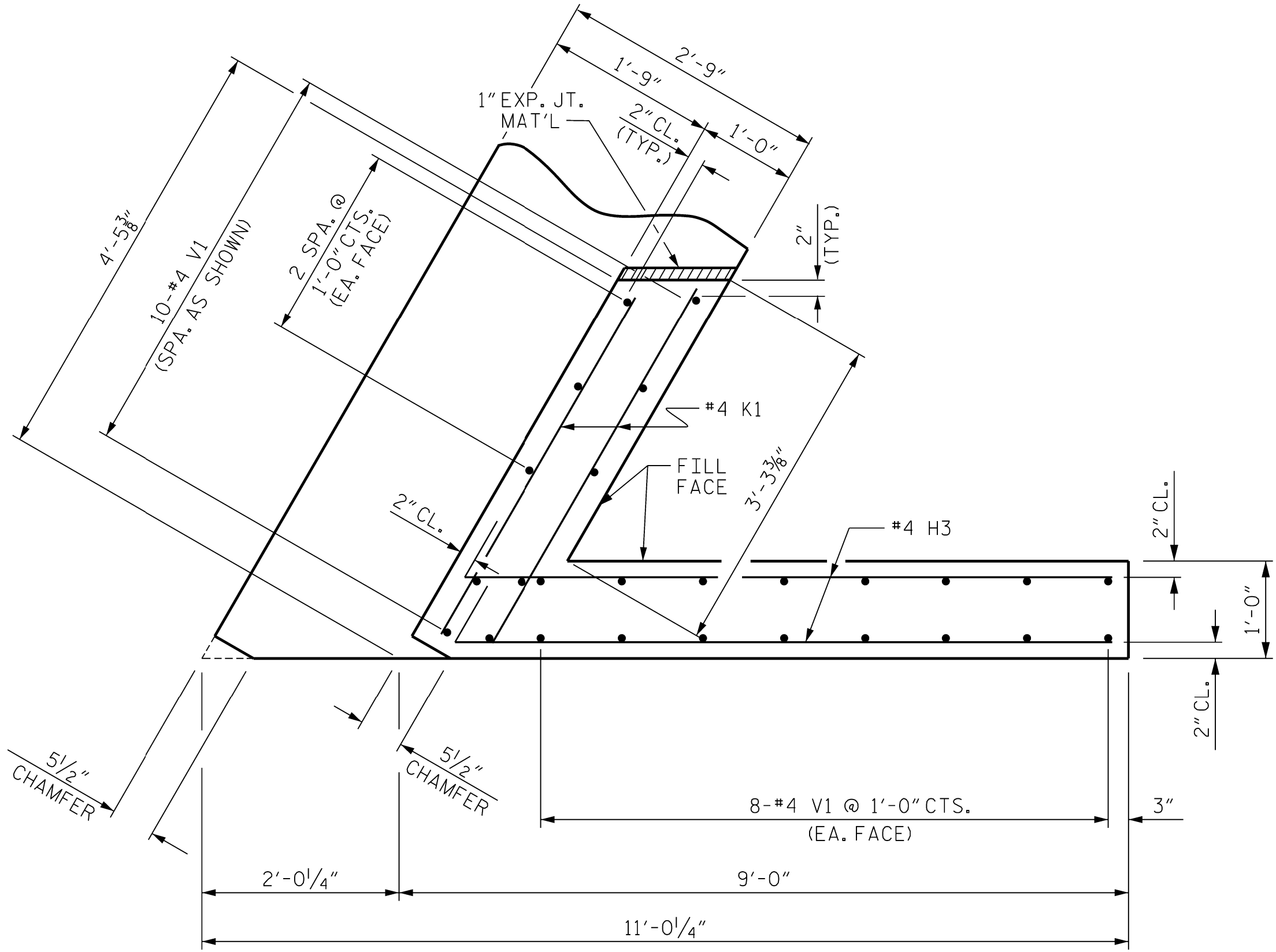
SHEET NO.
S-21
TOTAL SHEETS
25

DRAWN BY : J. PENDERGRAFT DATE : 6-25
CHECKED BY : T. KOCH DATE : 2-26
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

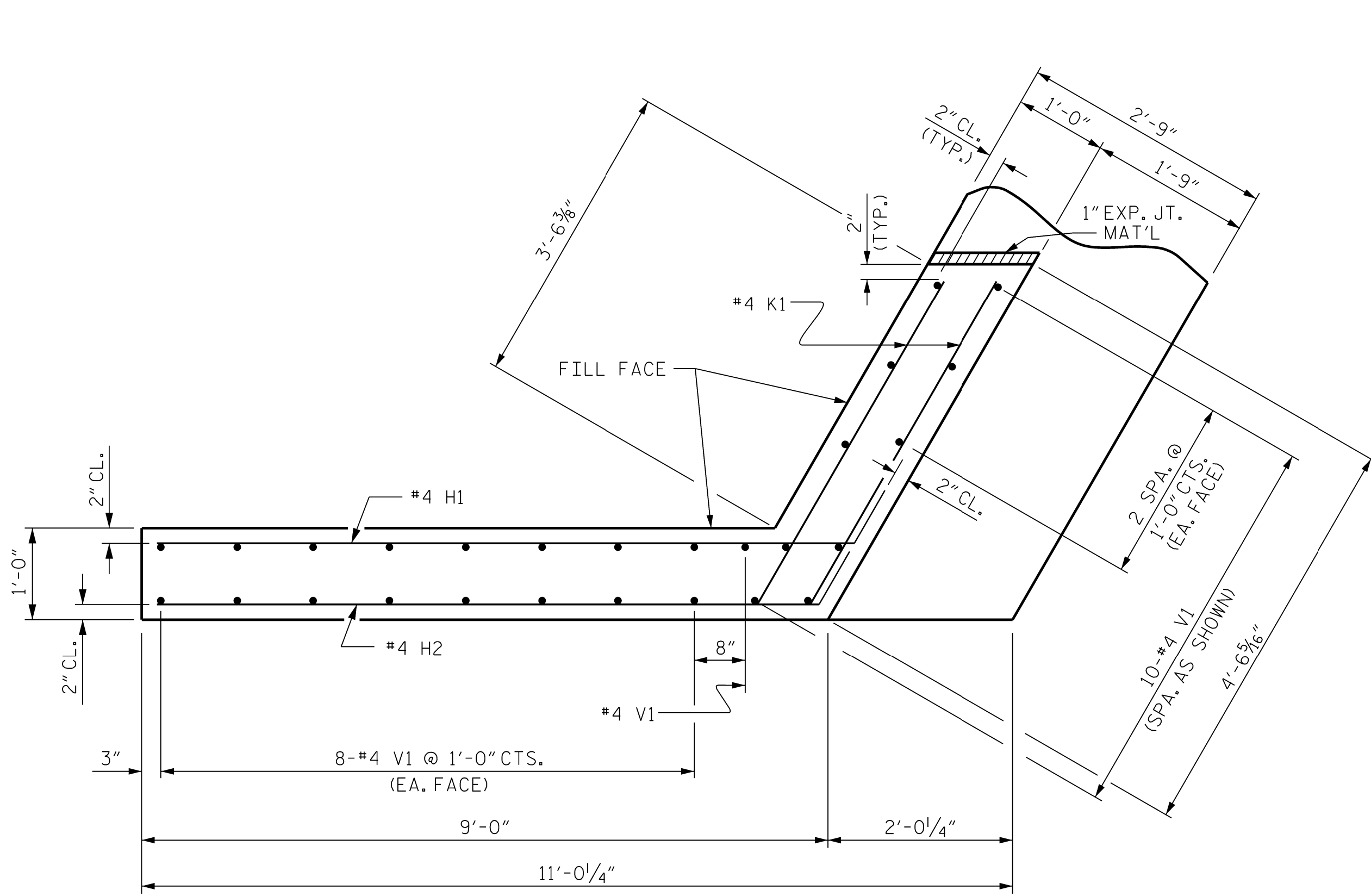
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

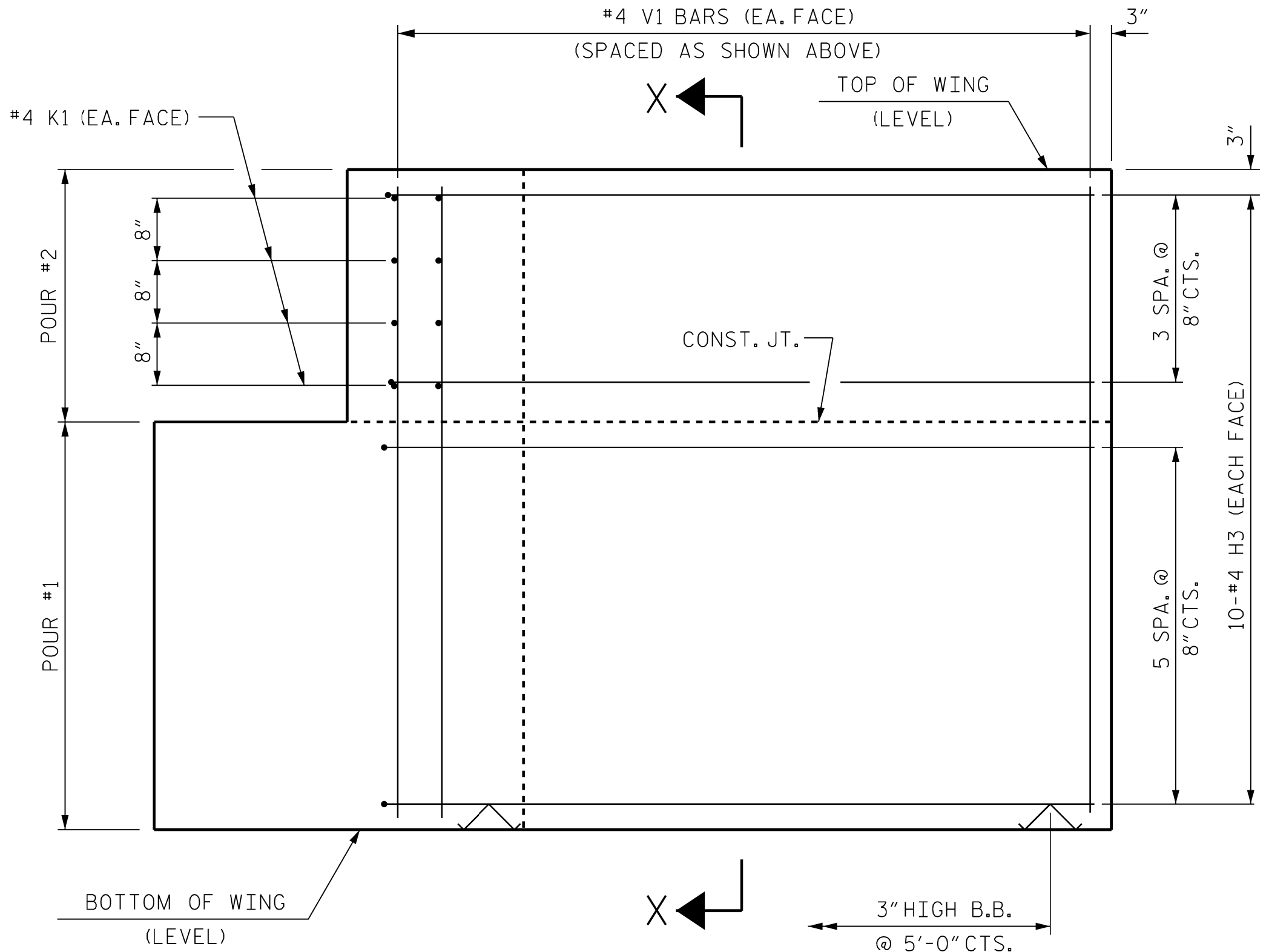
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-6377



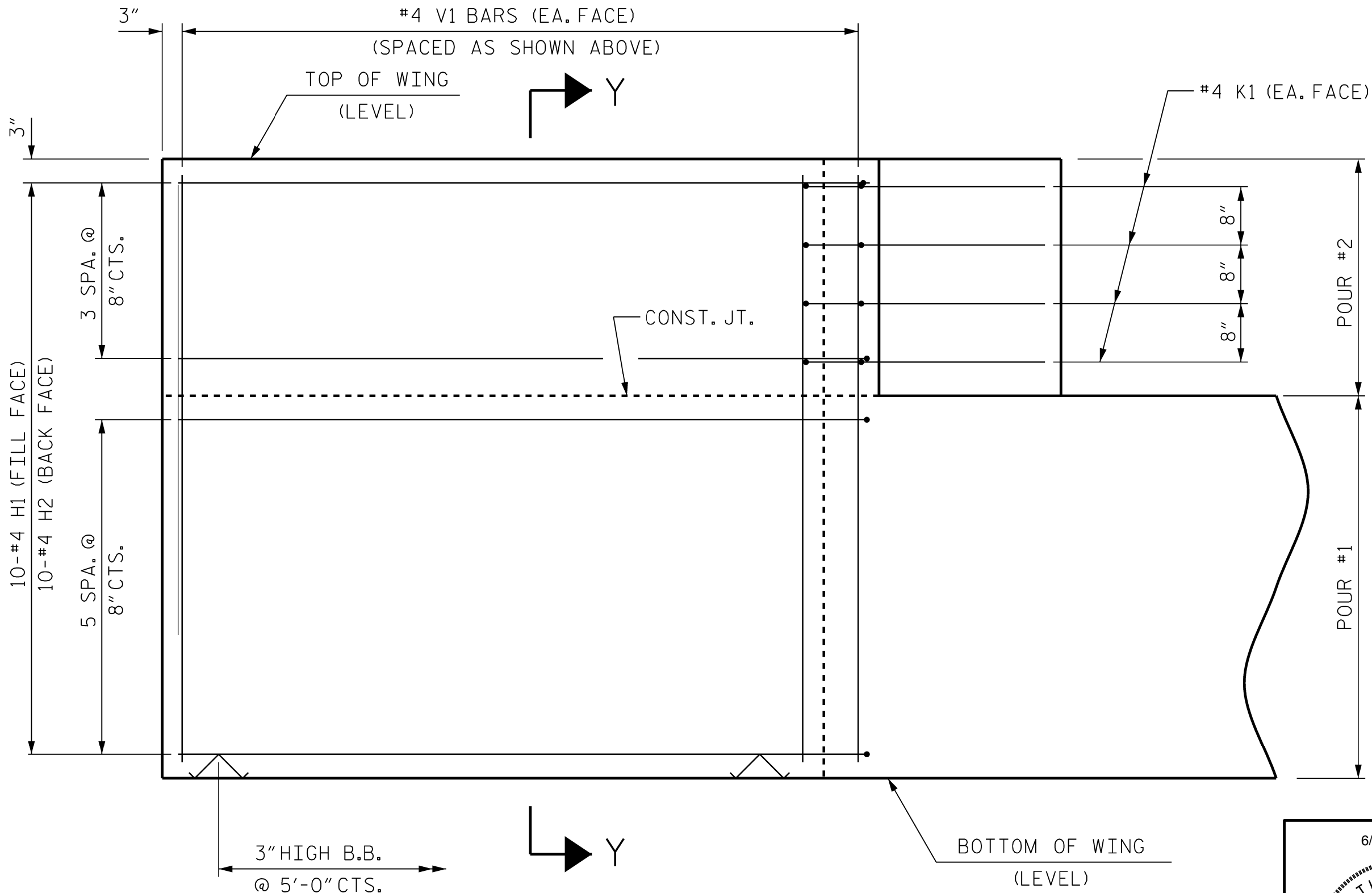
PLAN OF WING (W1)



PLAN OF WING (W2)

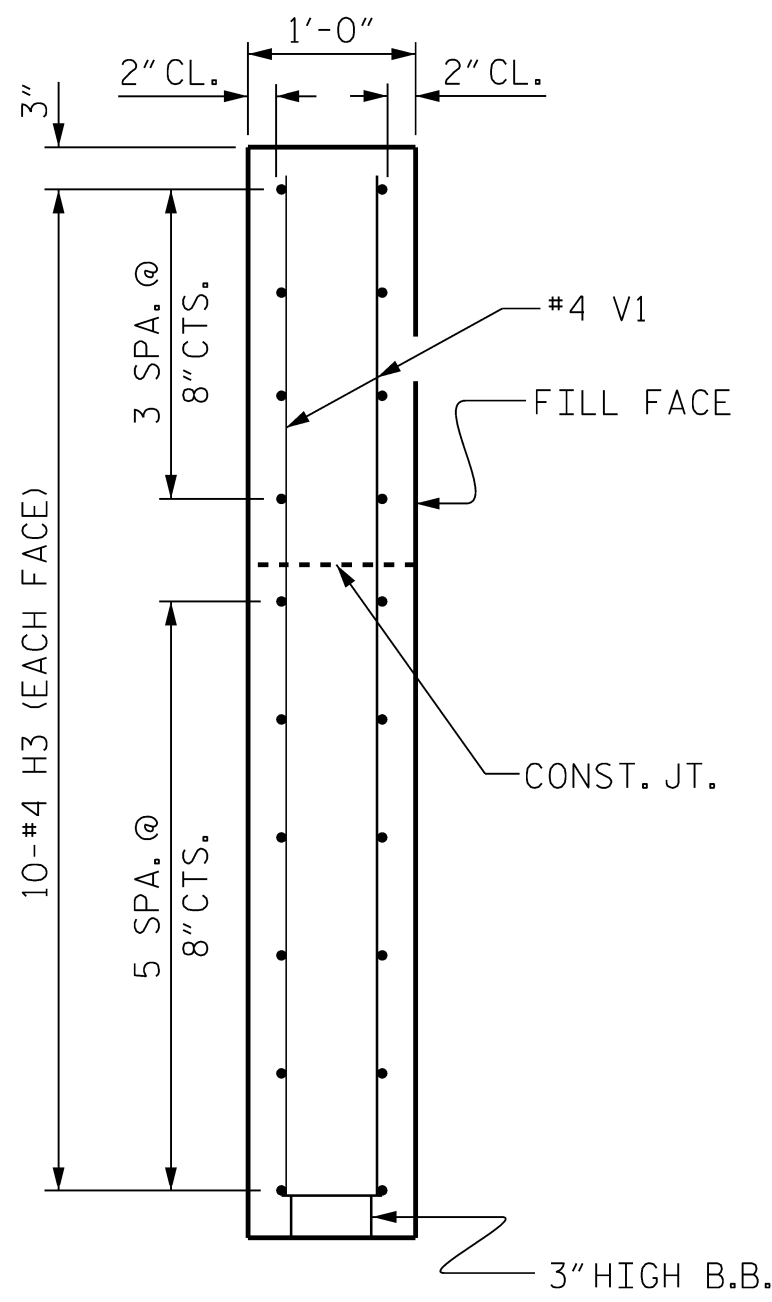


ELEVATION OF WING (W1)

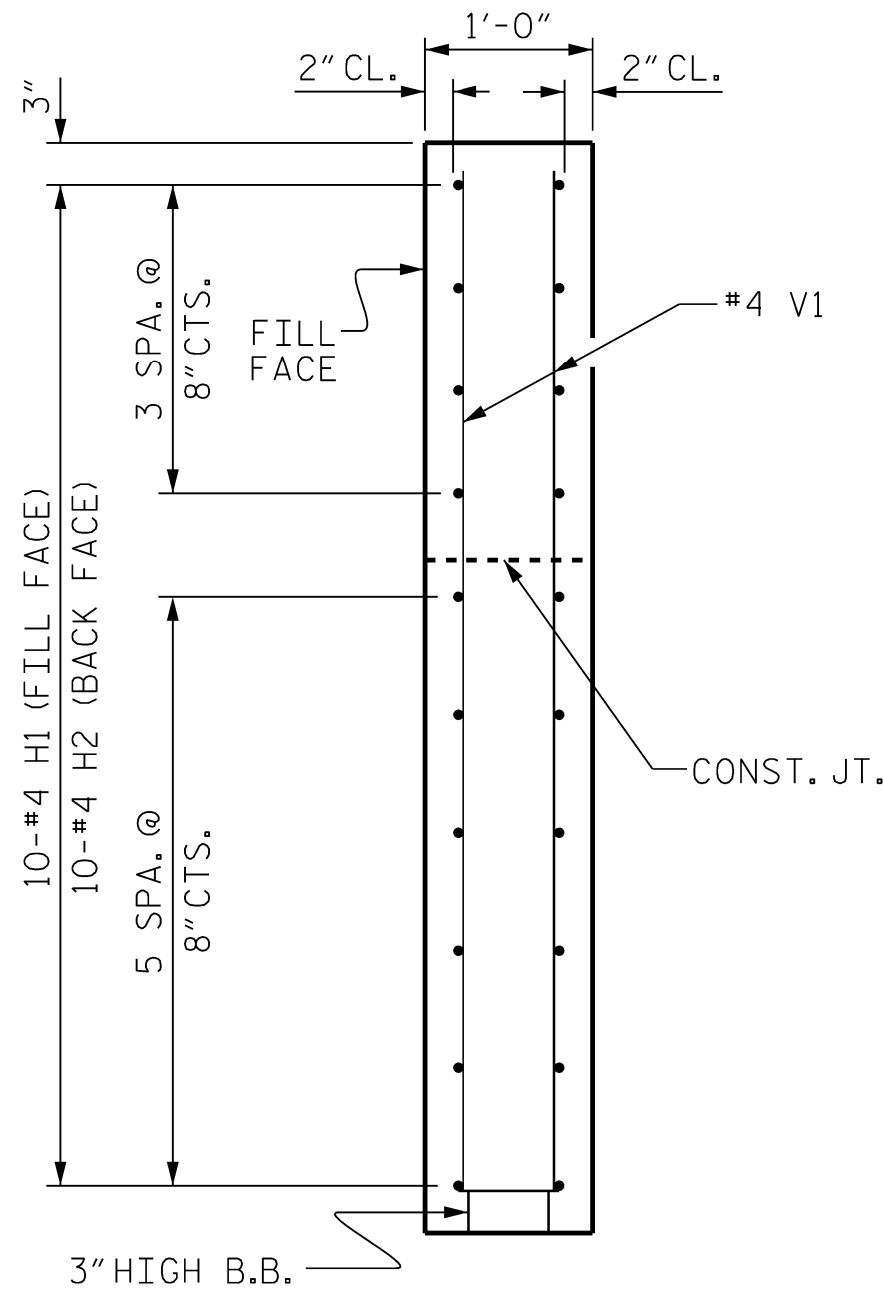


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X



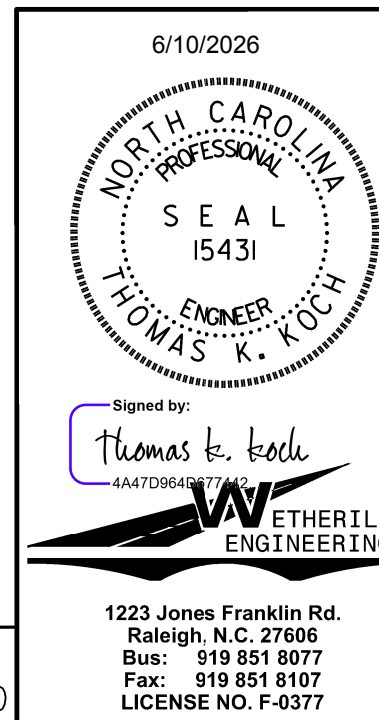
SECTION Y-Y

PROJECT NO. **HB-0065**
WILKES COUNTY
STATION: **13+74.00 -L-**

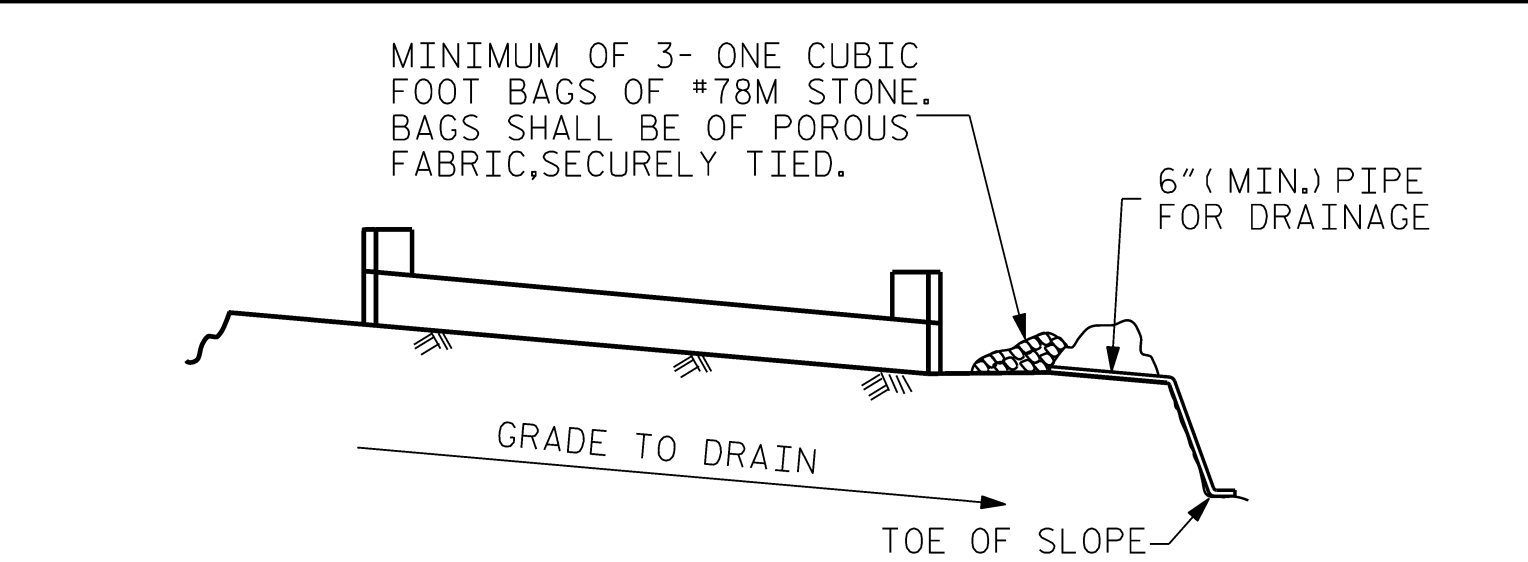
SHEET 2 OF 3

DRAWN BY : J. PENDERGRAFT DATE : 5-25
CHECKED BY : J. DILWORTH DATE : 5-25
DESIGN ENGINEER OF RECORD: T. KOCH DATE : 2-26

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



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

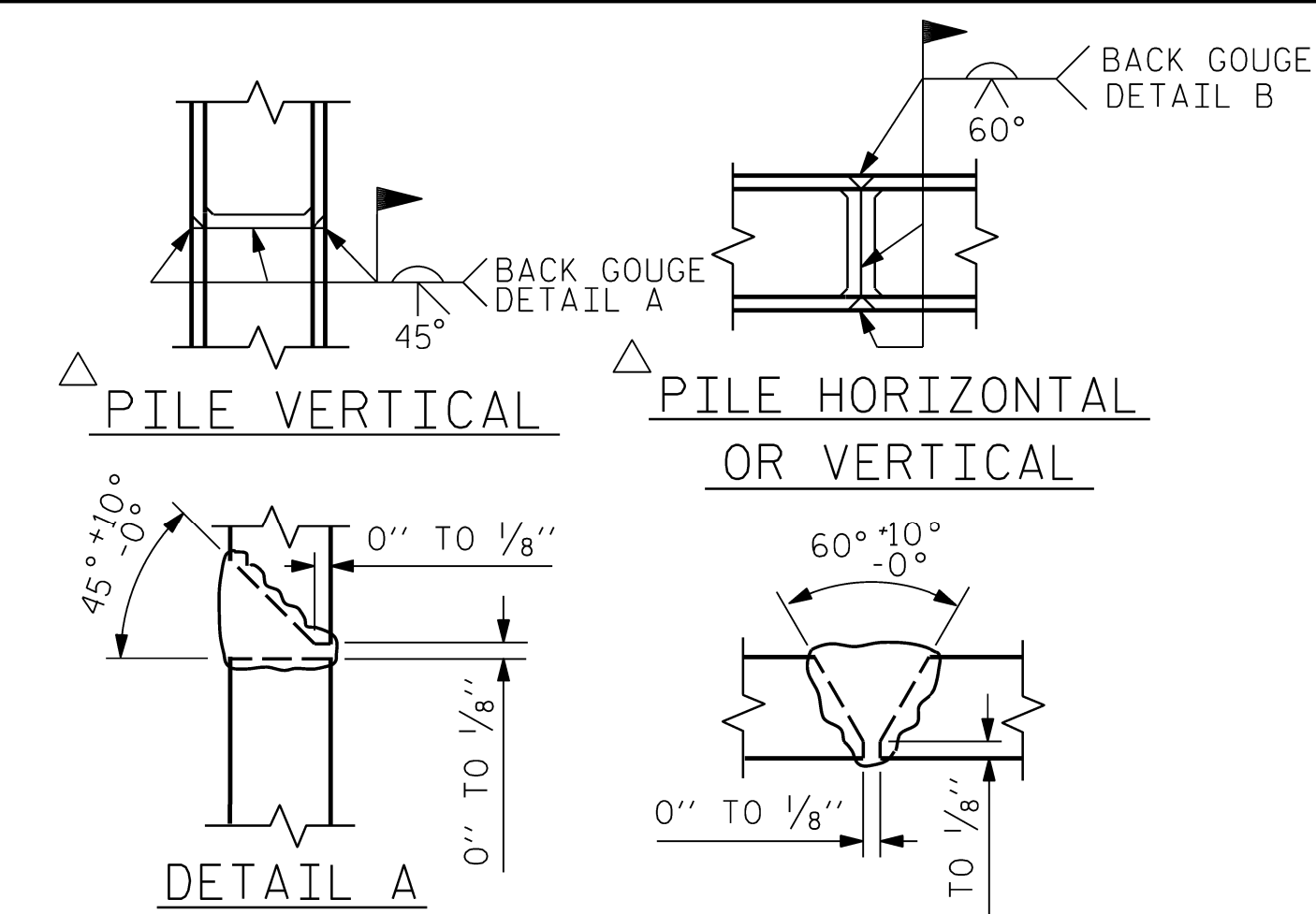


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

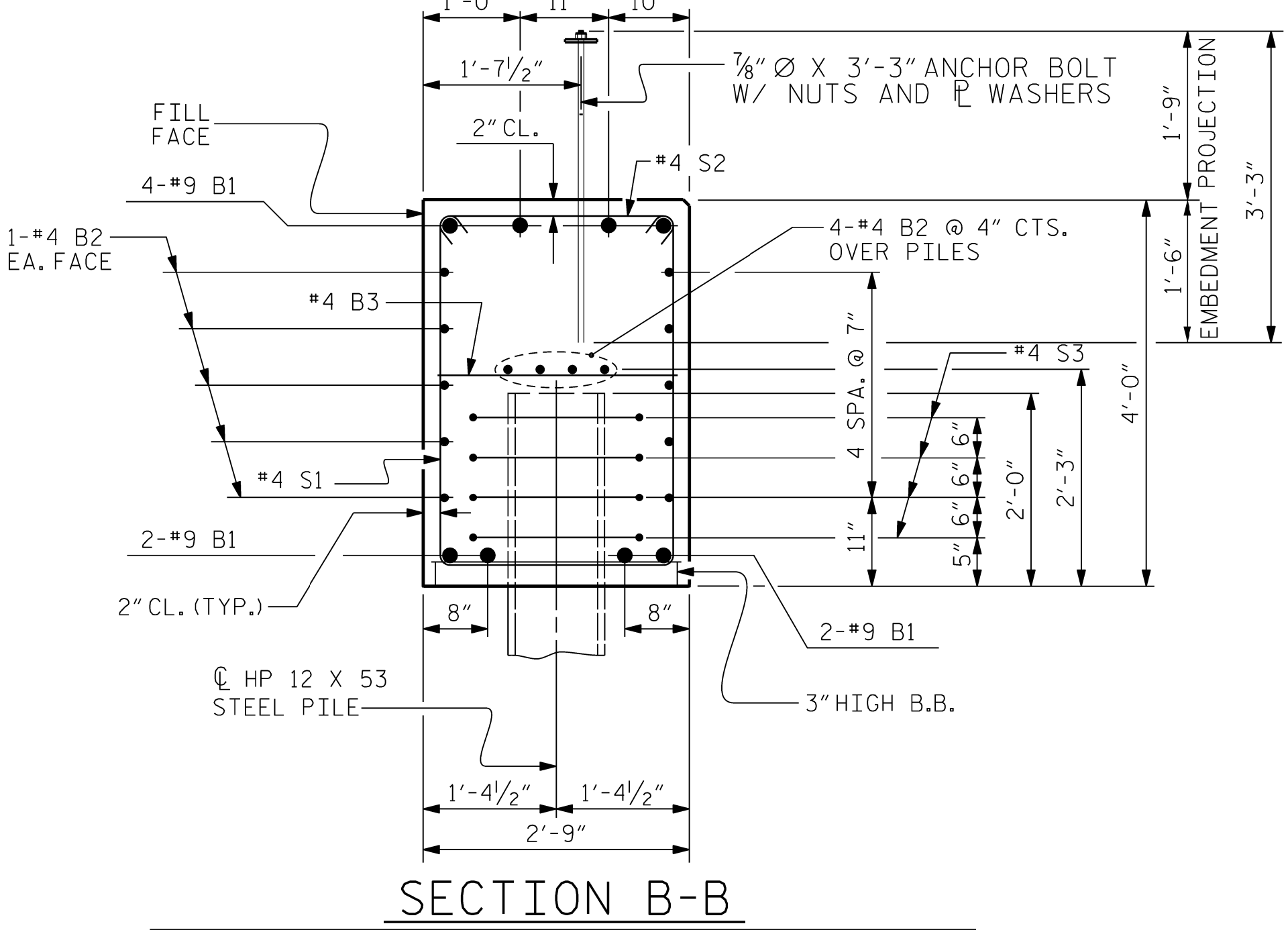
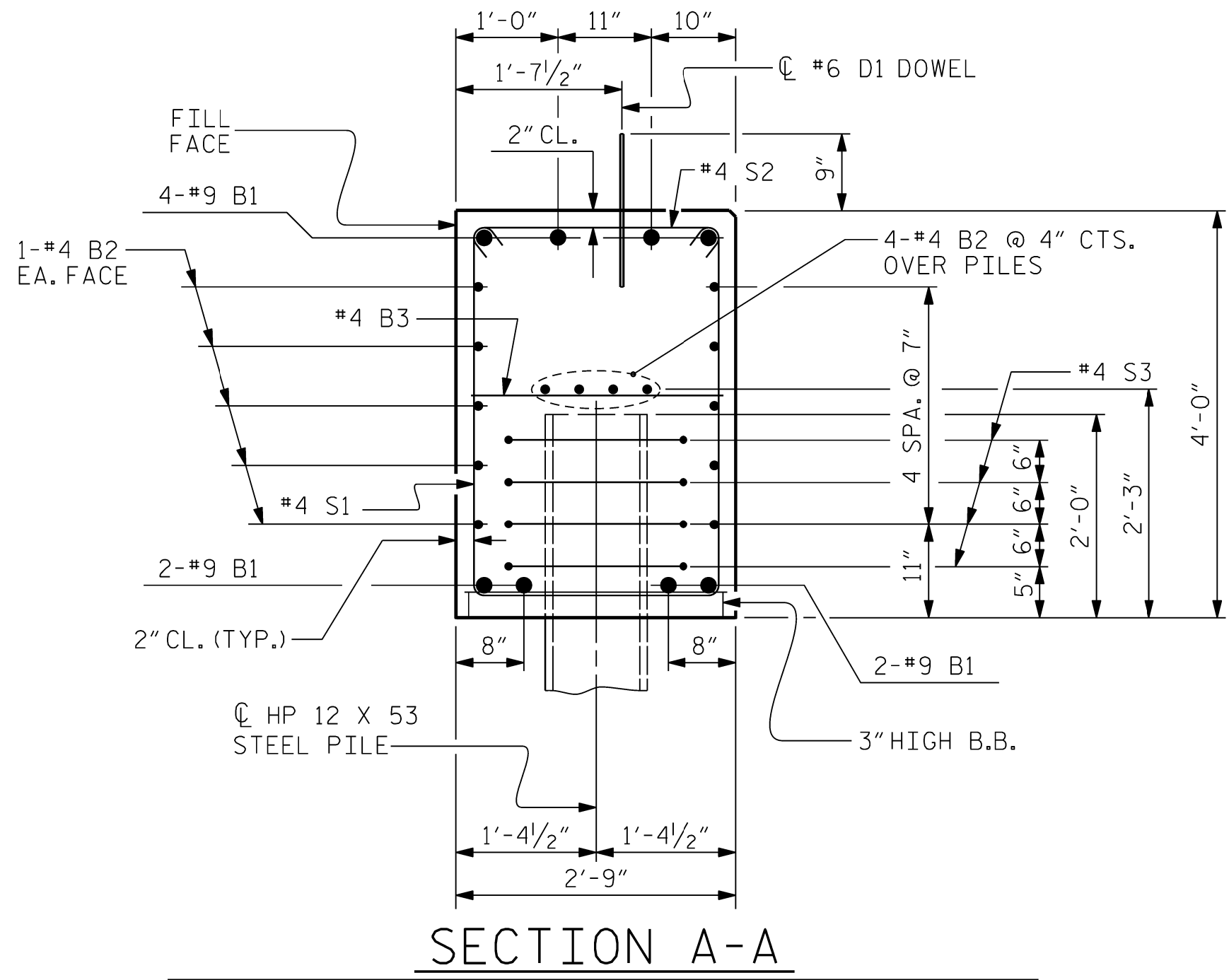
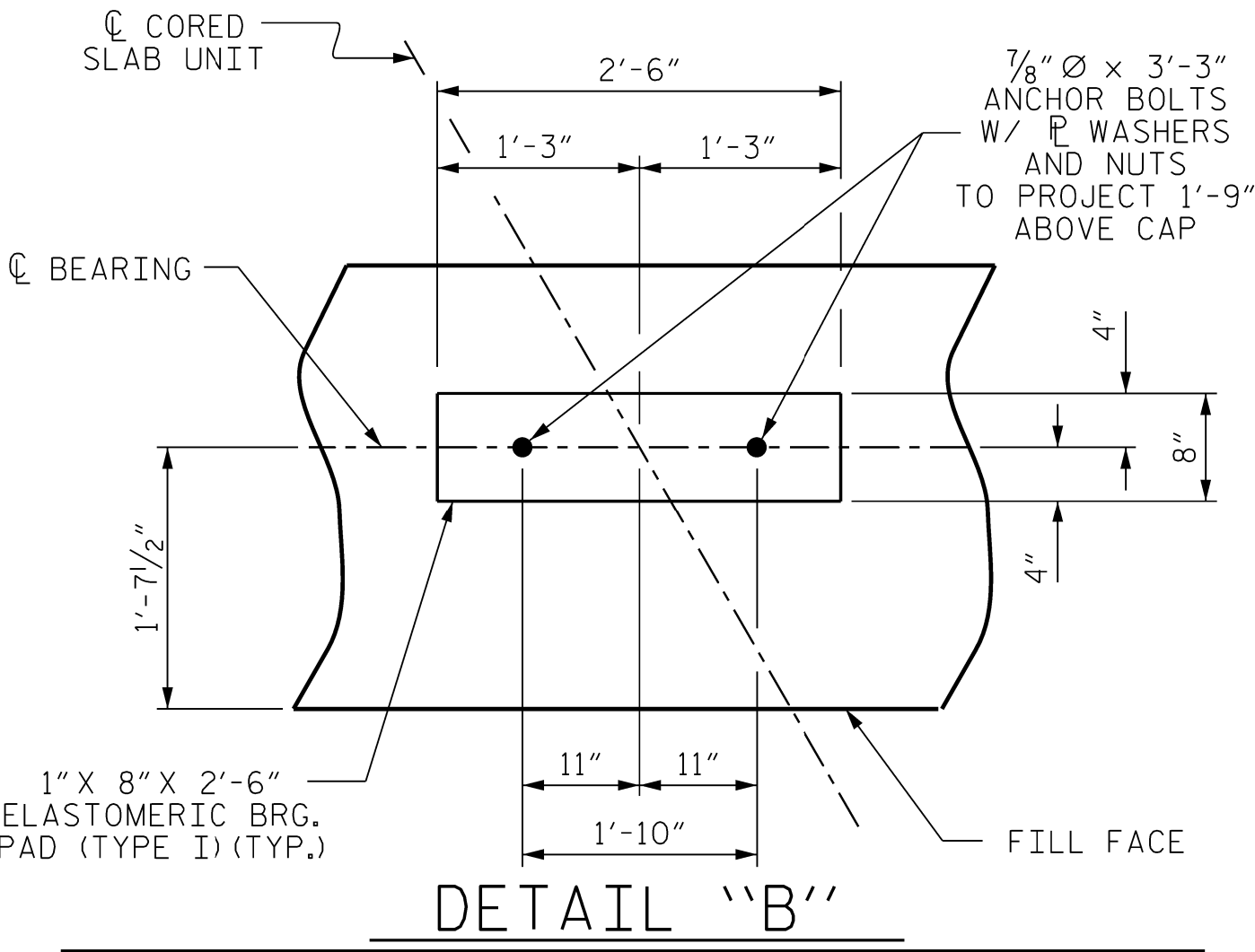
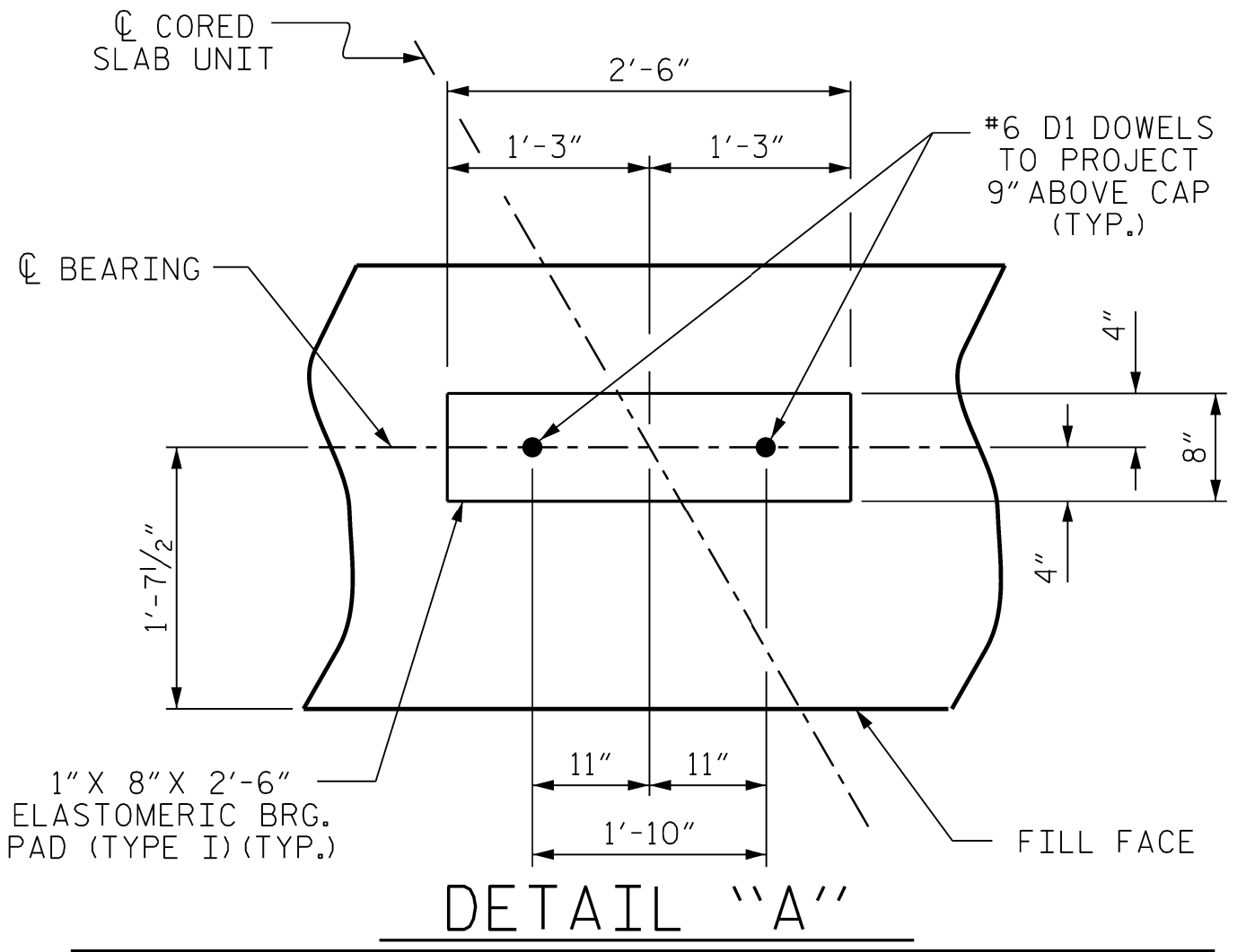
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

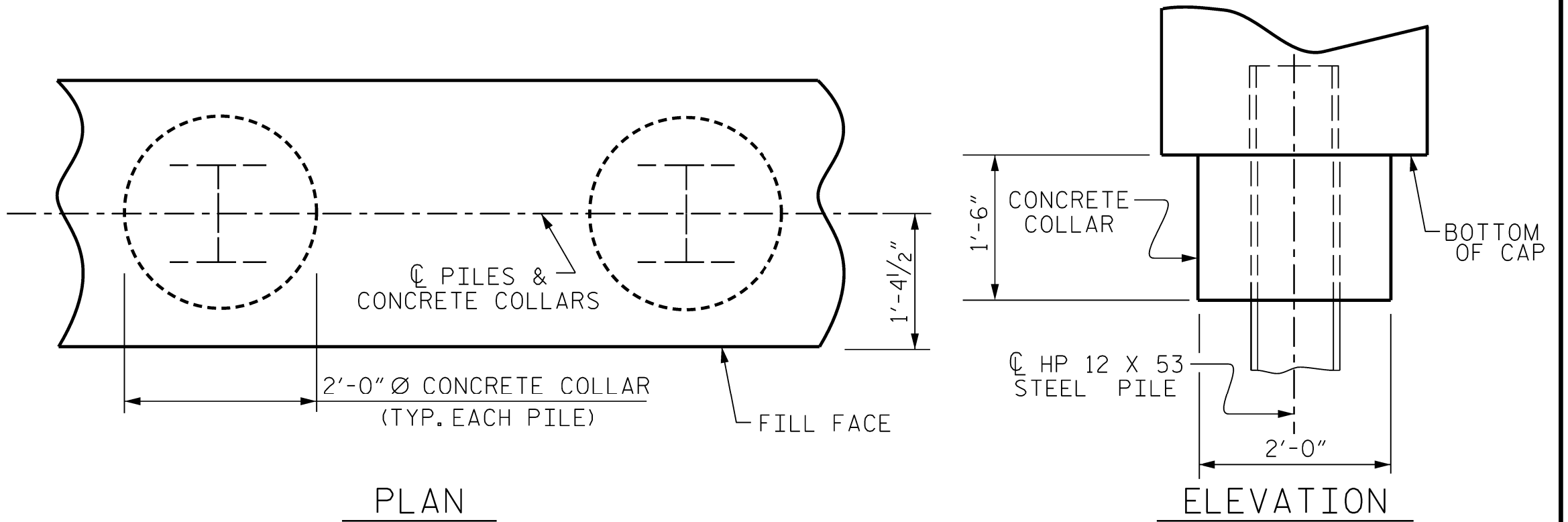


PILE SPLICE DETAILS



BAR TYPES	
ALL BAR DIMENSIONS ARE OUT TO OUT.	
END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 7 LIN. FT. = 140.0	HP 12 X 53 STEEL PILES NO: 7 LIN. FT. = 70.0
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7

BILL OF MATERIAL					
FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	47'-2"	1283
B2	28	#4	STR	23'-8"	443
B3	12	#4	STR	2'-5"	19
D1	18	#6	STR	1'-6"	41
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
H3	20	#4	3	8'-10"	118
K1	16	#4	STR	3'-3"	35
S1	56	#4	4	10'-5"	390
S2	56	#4	5	3'-2"	118
S3	28	#4	6	6'-6"	122
V1	53	#4	STR	6'-2"	218
REINFORCING STEEL (FOR ONE END BENT) 2914 LBS.					
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					21.9 C.Y.
POUR #2 UPPER PART OF WINGS					2.2 C.Y.
TOTAL CLASS A CONCRETE					24.1 C.Y.
7/8" Ø x 3'-3" ANCHOR BOLTS WITH NUTS AND 1/2" WASHER					EACH: 4

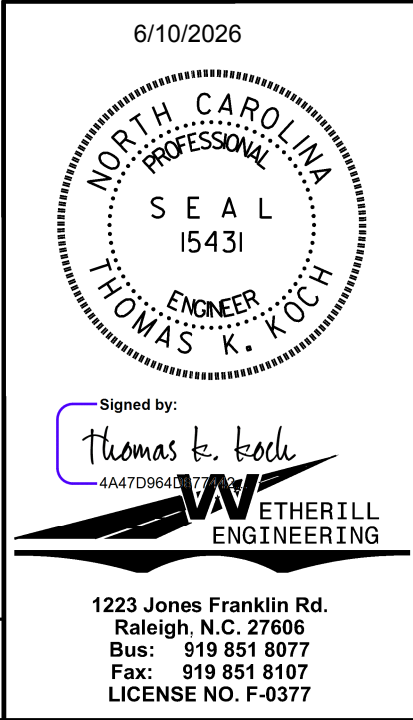


CORROSION PROTECTION FOR STEEL PILES DETAIL

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

PROJECT NO. **HB-0065**
COUNTY **WILKES**
STATION: **13+74.00 - L -**

SHEET 3 OF 3



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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

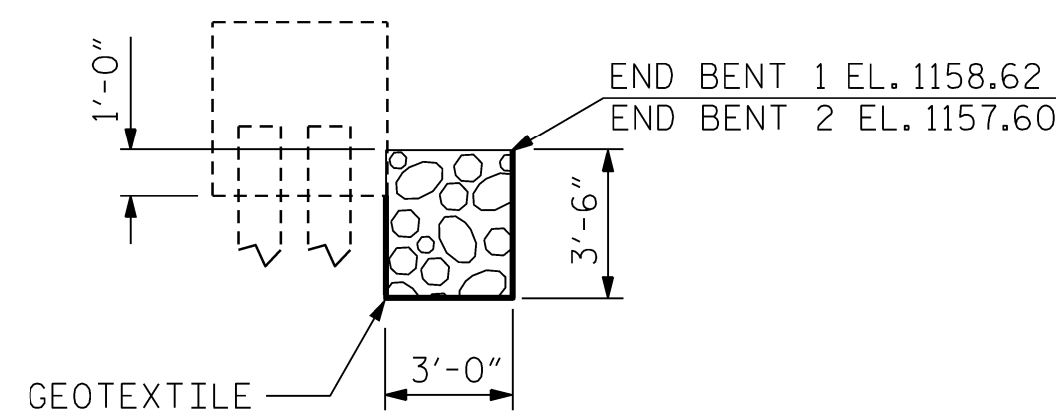
1223 Jones Franklin Rd.
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LICENSE NO. F-6377



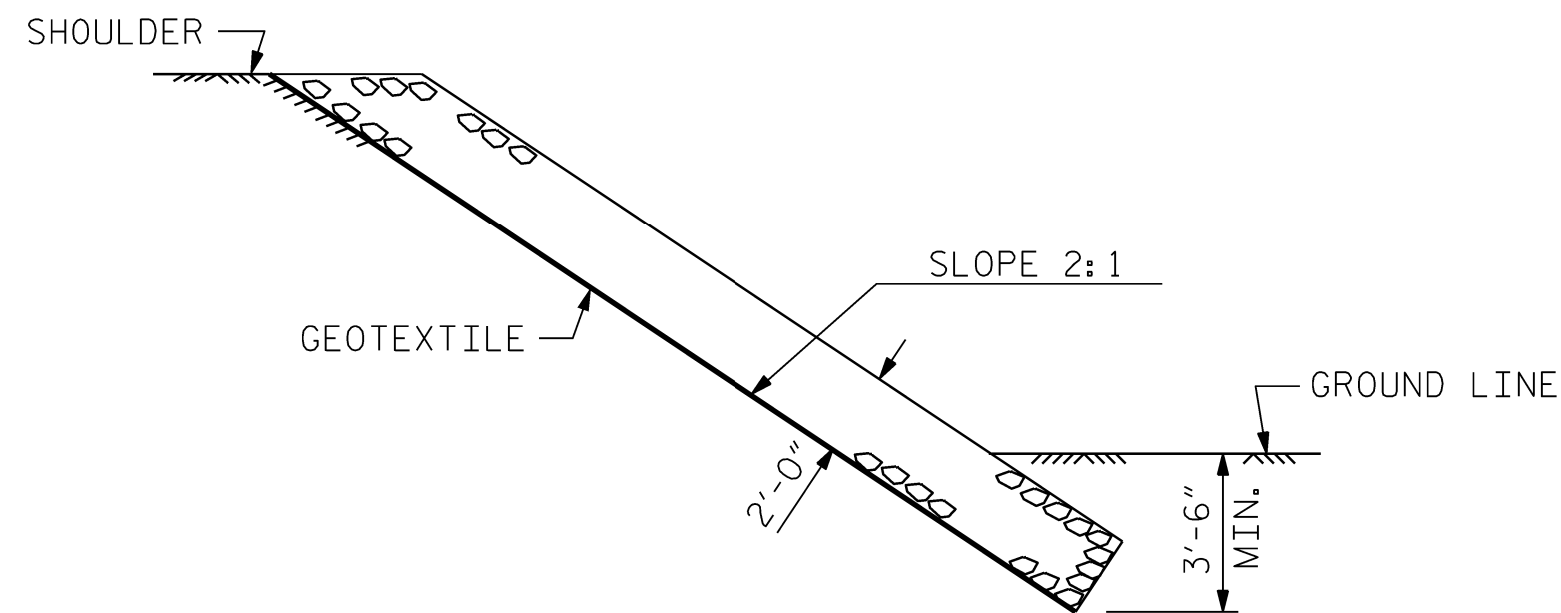
PLAN OF RIP RAP



ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+74.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	44	59
END BENT 2	48	53



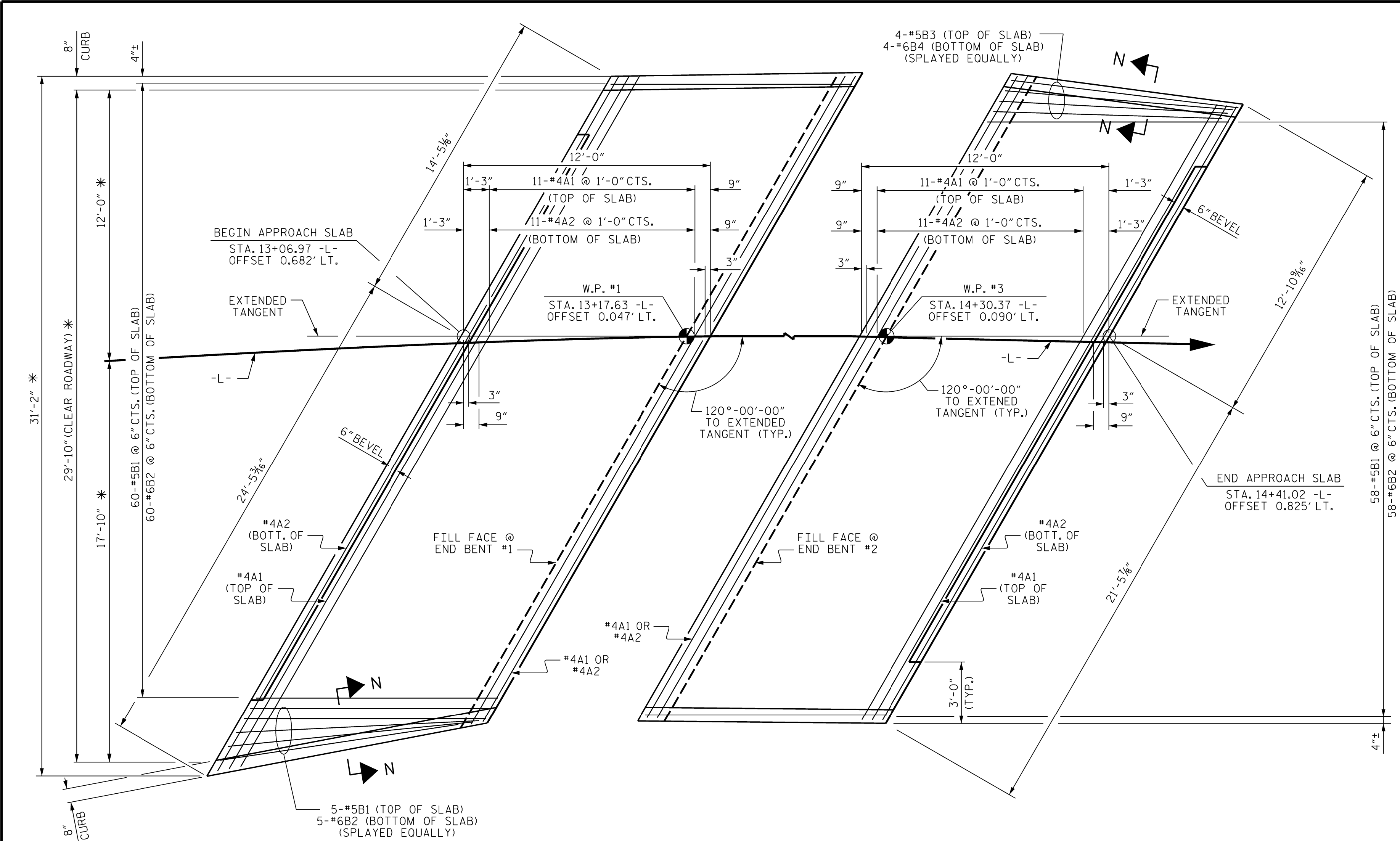
SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. **HB-0065**
WILKES COUNTY
 STATION: **13+74.00 -L-**

[illegible]

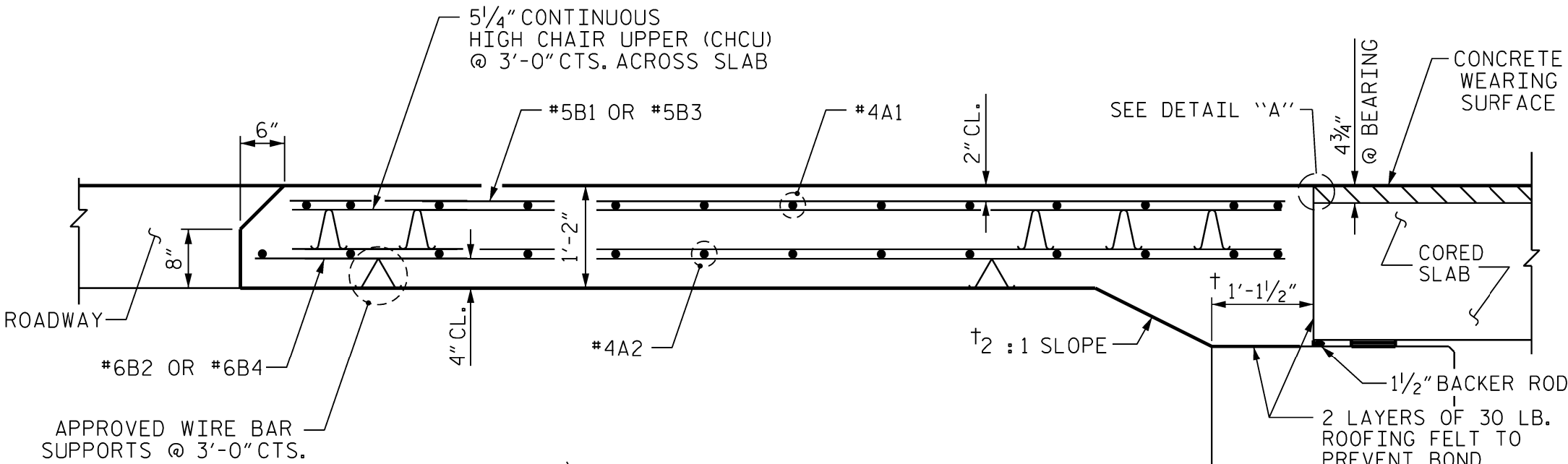


PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS
"B" BARS TO BE PLACED PARALLEL TO EXTENDED TANGENT

* DENOTES RADIAL DIMENSIONS



TYPE 1 APPROACH FILL, SEE
ROADWAY STANDARD DRAWING 423.01

† NORMAL TO END BENT

SECTION THRU SLAB

DRAWN BY :	J. PENDERGRAFT	DATE :	4-25
CHECKED BY :	J. DILWORTH	DATE :	4-25
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

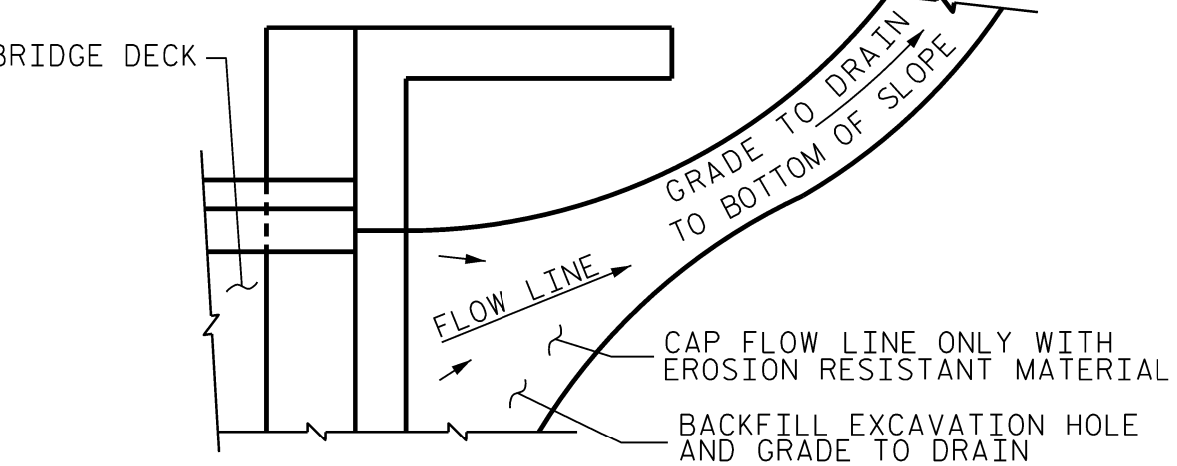
NOTES

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.

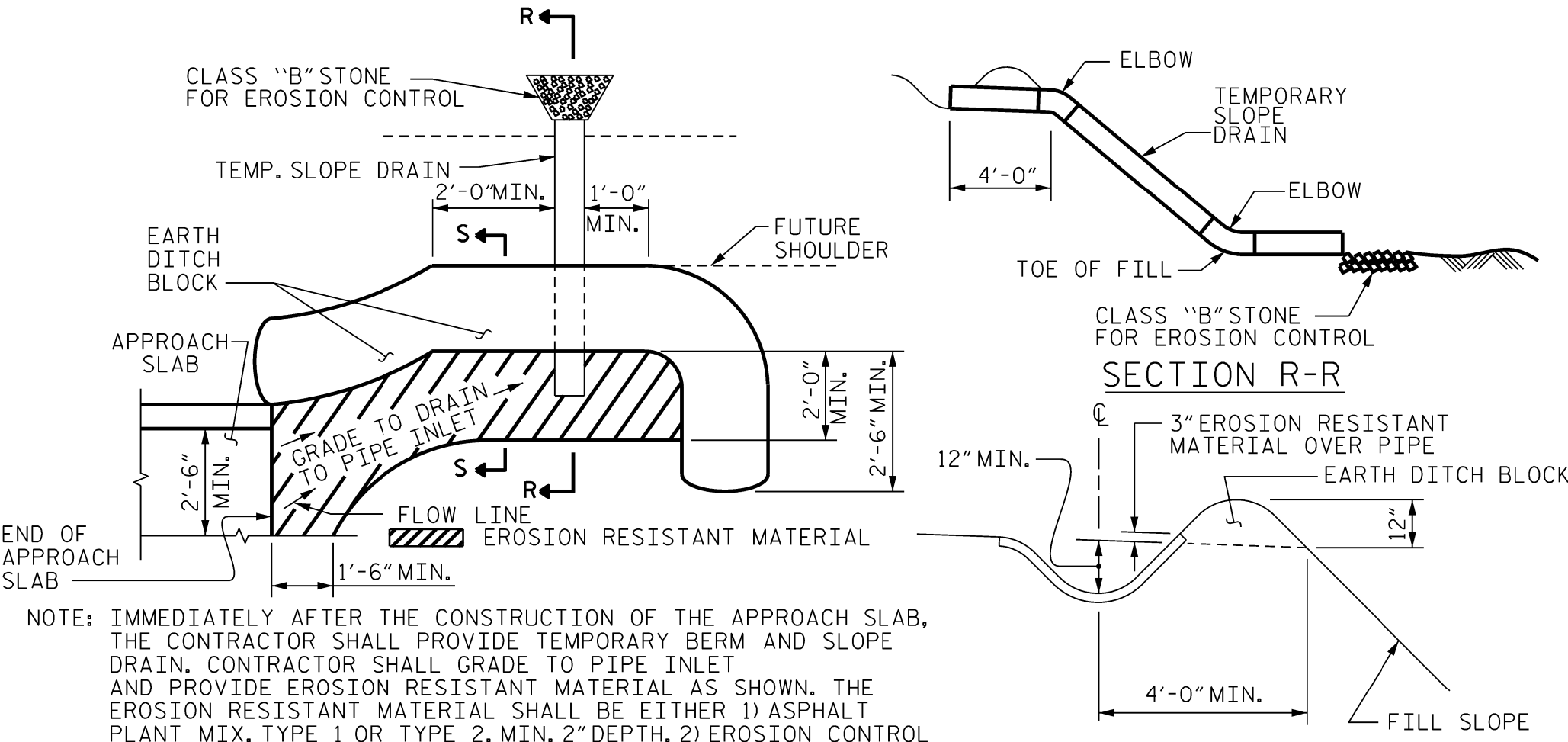
APPROACH SLABS SHALL BE POURED AFTER CONCRETE WEARING SURFACE IS POURED.

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 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

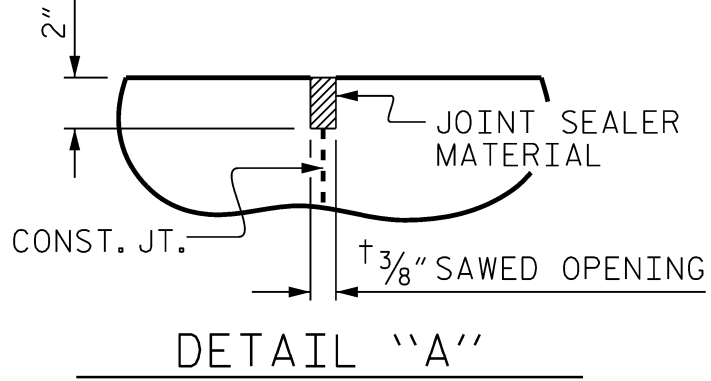


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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.

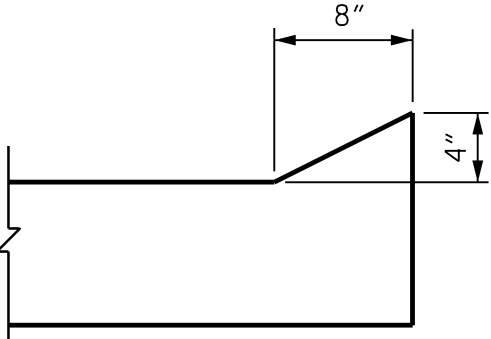
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



DETAIL "A"



SECTION N-N

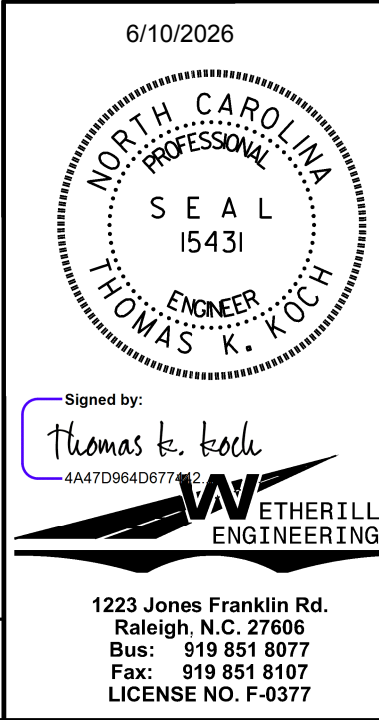
CURB DETAIL

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	20'-2"	350
A2	26	#4	STR	20'-0"	347
* B1	65	#5	STR	11'-1"	751
B2	65	#6	STR	11'-7"	1131
REINFORCING STEEL				LBS.	1478
* EPOXY COATED REINFORCING STEEL				LBS.	1101
CLASS AA CONCRETE				C. Y.	19.9
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	18'-9"	326
A2	26	#4	STR	18'-7"	323
* B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
* B3	4	#5	STR	10'-6"	44
B4	4	#6	STR	11'-0"	66
REINFORCING STEEL				LBS.	1398
* EPOXY COATED REINFORCING STEEL				LBS.	1040
CLASS AA CONCRETE				C. Y.	18.7

PROJECT NO. **HB-0065**
WILKES COUNTY
STATION: **13+74.00 -L-**



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 120° SKEW					
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
				S-25	
				TOTAL SHEETS 25	

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

PROJECT NO. **HB-0065**
WILKES COUNTY
STATION: **13+74.00 -L-**

6/10/2026

NORTH CAROLINA

PROFESSIONAL

SEAL

15431

ENGINEER

THOMAS K. KOCH

Signed by:

Thomas K. Koch

0447096406

ETHERILL

ENGINEERING

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STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD NOTES

REVISIONS

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

SHEET NO.

TOTAL SHEETS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DRAWN BY :	J. PENDERGRAFT	DATE :	1-25
CHECKED BY :		DATE :	
DESIGN ENGINEER OF RECORD:	T. KOCH	DATE :	2-26

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