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09/08/19

See Sheet 1A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

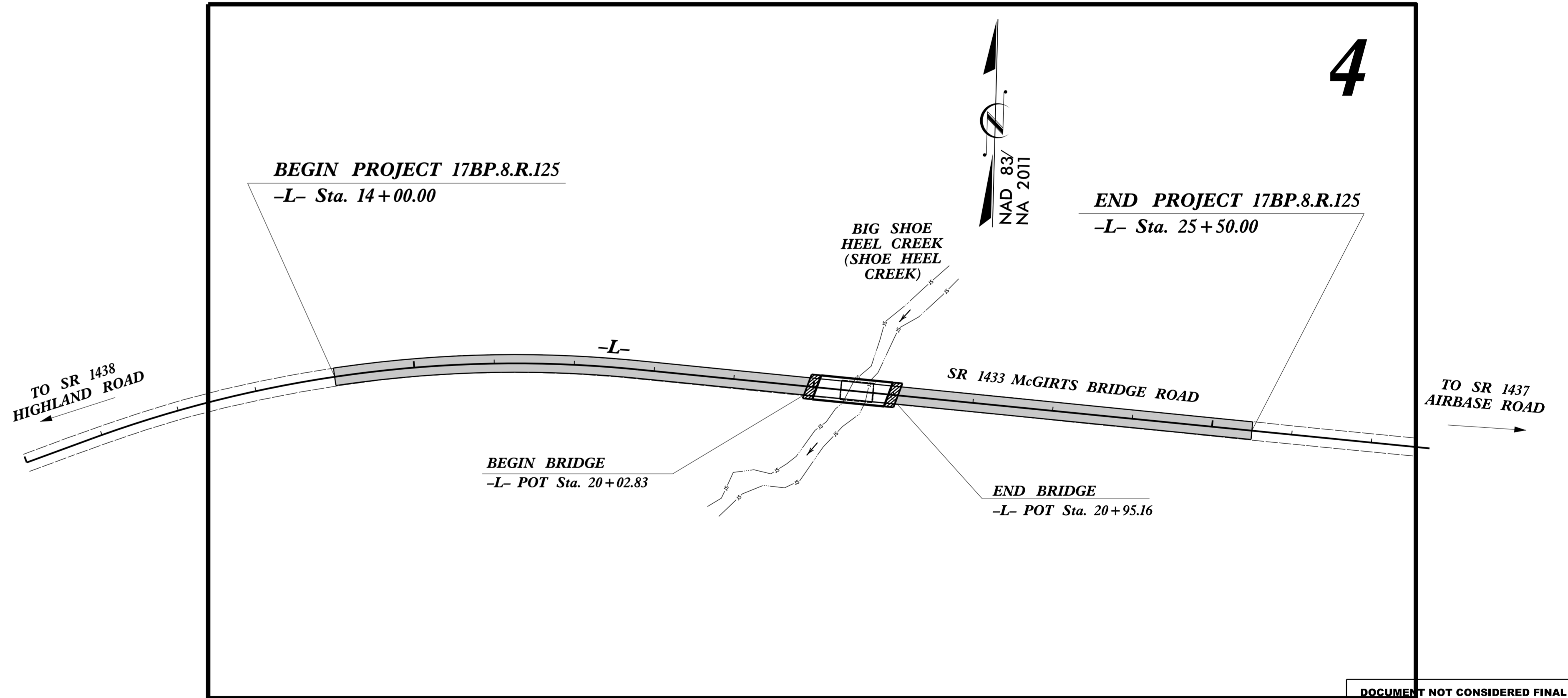
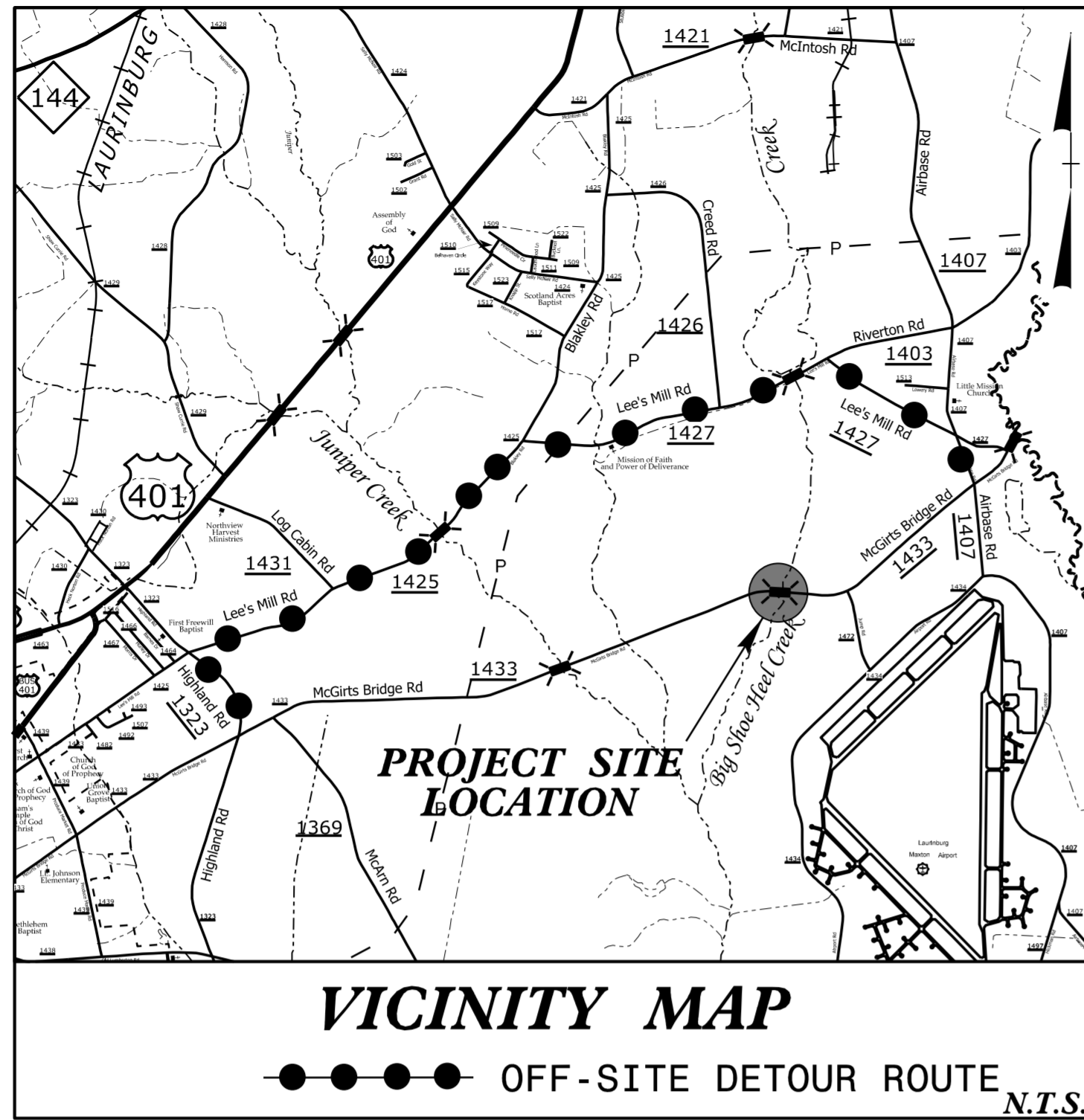
SCOTLAND COUNTY

**LOCATION: BRIDGE NO. 820027 ON SR 1433 (McGIRTS BRIDGE RD)
OVER BIG SHOE HEEL CREEK (SHOE HEEL CREEK)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

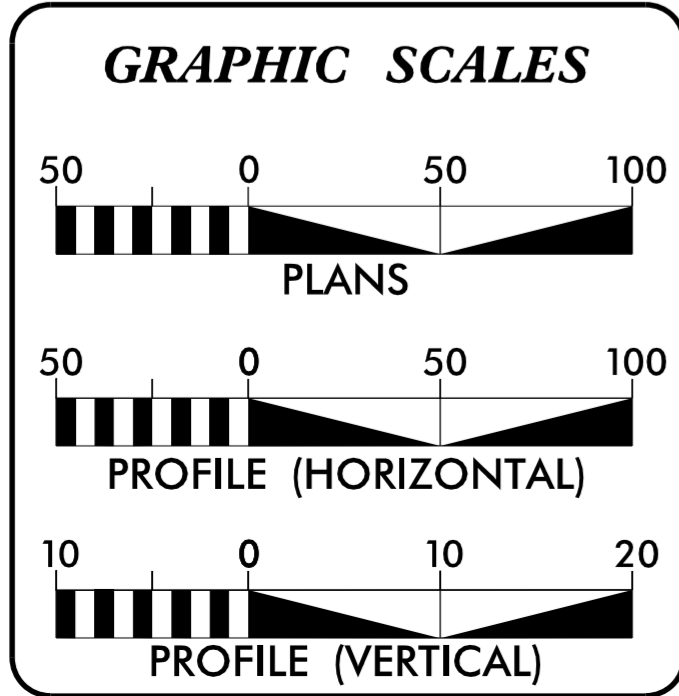
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.125	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.8.R.125		PE / R/W UTIL. / CONST.	

PROJECT: 17BP.8.R.125



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:



DESIGN DATA

ADT 2013	=	1700
ADT 2025	=	3400
K	=	%
D	=	%
T	=	7 % *
V	=	60 MPH
* TTST	=	DUAL
FUNC CLASS	=	MAJOR COLLECTOR
	=	SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.8.R.125	=	0.201 mi
LENGTH STRUCTURE PROJECT 17BP.8.R.125	=	0.017 mi
TOTAL LENGTH OF PROJECT 17BP.8.R.125	=	0.218 mi

PLANS PREPARED BY:
CH ENGINEERING
3220 GLEN ROYAL RD, RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 04, 2017

LETTING DATE:
JUNE 26, 2018

PLANS PREPARED FOR:
**DIVISION OF HIGHWAYS
DIVISION 8**
902 N Sandhills Blvd
Aberdeen, NC 28315

BRIAN A. WILES, PE
PROJECT ENGINEER

TIM WELCH, PE
NCDOT CONTACT
DIV 8 BRIDGE PROGRAM MANAGER

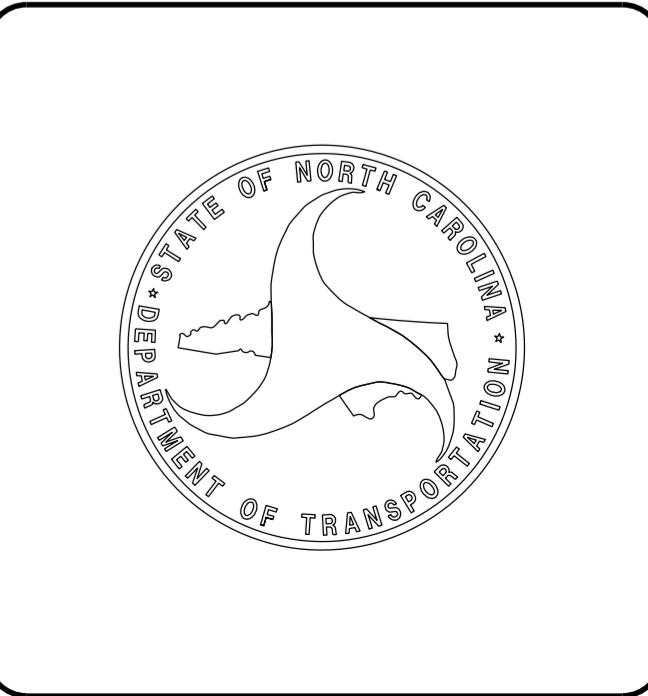
HYDRAULICS ENGINEER

MI ENGINEERING
1011 SCHALUB DRIVE, SUITE 100
RALEIGH, NC 27608
(919) 851-6606
FIRM PE NUMBER - P-0671

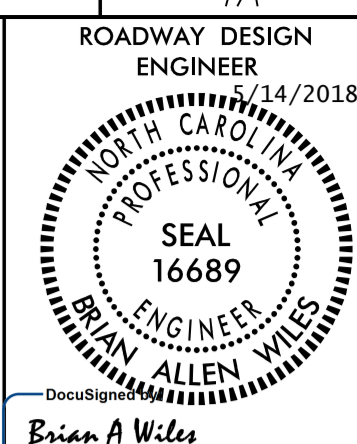
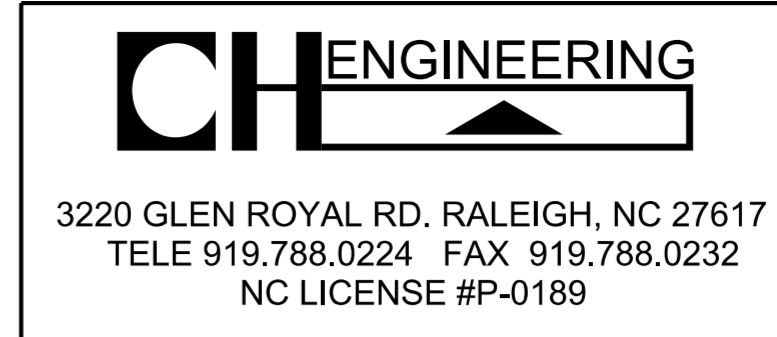
DocuSigned by:
5/15/2018
SIGNATURE: [Signature]

ROADWAY DESIGN ENGINEER

5/15/2018
DocuSigned by:
Brian A Wiles
58000FEAE34DE
SIGNATURE: [Signature]



5/17/2018
P:\Roadway\Proj\Scotland027_Rdy_t.sh.dgn
-USERNAME-



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, PAVED SHOULDER DETAILS AND WEDGING DETAILS
2C-1	GUARDRAIL INSTALLATION
2C-2	DETAIL OF STRUCTURE ANCHOR UNIT, TYPE III
3B-1	SUMMARIES OF EARTHWORK, ASPHALT PAVEMENT REMOVAL, SHOULDER BERM GUTTER AND GUARDRAIL
3D-1	LIST OF PIPES, ENDWALLS, ETC. (for PIPES 48" & UNDER)
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UD-1 THRU UD-2	UTILITIES BY OTHERS PLANS
X-1 THRU X-17	CROSS-SECTIONS
S-1 THRU S-15	STRUCTURE PLANS

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

**GRADE LINE:
GRADING AND SURFACING:**

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

CLEARING:

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

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 Lumbee River Electric Co-op - Power,
AT&T Transmission - Communications and City of Laurinburg - Communications.

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 CONTRACT.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2018
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 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
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	----->
Property Monument	□ ECM
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- NLB
Proposed Wetland Boundary	----- NLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Existing Historic Property Boundary	----- HPB
Known Contamination Area: Soil	☠ - S - ☠
Potential Contamination Area: Soil	?? - S - ??
Known Contamination Area: Water	☠ - W - ☠
Potential Contamination Area: Water	?? - W - ??
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□ †
Building	□
School	□
Church	□
Dam	▬

HYDROLOGY:

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

RAILROADS:

Standard Gauge	----- CSX TRANSPORTATION
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

Note: Not to Scale *S.U.E. = Subsurface Utility Engineering

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	----- (R/W)
New Right of Way Line with Pin and Cap	----- (R/W) ▲
New Right of Way Line with Concrete or Granite RW Marker	----- (R/W) ●
New Control of Access Line with Concrete C/A Marker	----- (C/A) ●
Existing Control of Access	----- (C/A)
New Control of Access	----- (C/A)
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Curb Ramp	----- (CR)
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊗

VEGETATION:

Single Tree	○
Single Shrub	●

Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	----- Vineyard

EXISTING STRUCTURES:

MAJOR: Bridge, Tunnel or Box Culvert	----- CONC
Bridge Wing Wall, Head Wall and End Wall	----- CONC WW
MINOR: Head and End Wall	----- CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	----- S

UTILITIES:

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 LOS B (S.U.E.*)	----- P
U/G Power Line LOS C (S.U.E.*)	----- P
U/G Power Line LOS D (S.U.E.*)	----- P

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	●
U/G Telephone Cable LOS B (S.U.E.*)	----- T
U/G Telephone Cable LOS C (S.U.E.*)	----- T
U/G Telephone Cable LOS D (S.U.E.*)	----- T
U/G Telephone Conduit LOS B (S.U.E.*)	----- TC
U/G Telephone Conduit LOS C (S.U.E.*)	----- TC
U/G Telephone Conduit LOS D (S.U.E.*)	----- TC
U/G Fiber Optics Cable LOS B (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS C (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS D (S.U.E.*)	----- T FO

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	----- W
U/G Water Line LOS C (S.U.E.*)	----- W
U/G Water Line LOS D (S.U.E.*)	----- W
Above Ground Water Line	----- A/G Water

TV:

TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	●
U/G TV Cable LOS B (S.U.E.*)	----- TV
U/G TV Cable LOS C (S.U.E.*)	----- TV
U/G TV Cable LOS D (S.U.E.*)	----- TV
U/G Fiber Optic Cable LOS B (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS C (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS D (S.U.E.*)	----- TV FO

GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	----- G
U/G Gas Line LOS C (S.U.E.*)	----- G
U/G Gas Line LOS D (S.U.E.*)	----- G
Above Ground Gas Line	----- A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.*)	----- FSS
SS Forced Main Line LOS C (S.U.E.*)	----- FSS
SS Forced Main Line LOS D (S.U.E.*)	----- FSS

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- TUTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	●
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

6/2/09

SURVEY CONTROL SHEET 17BP.8.R.125

CH ENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.125	1C-1

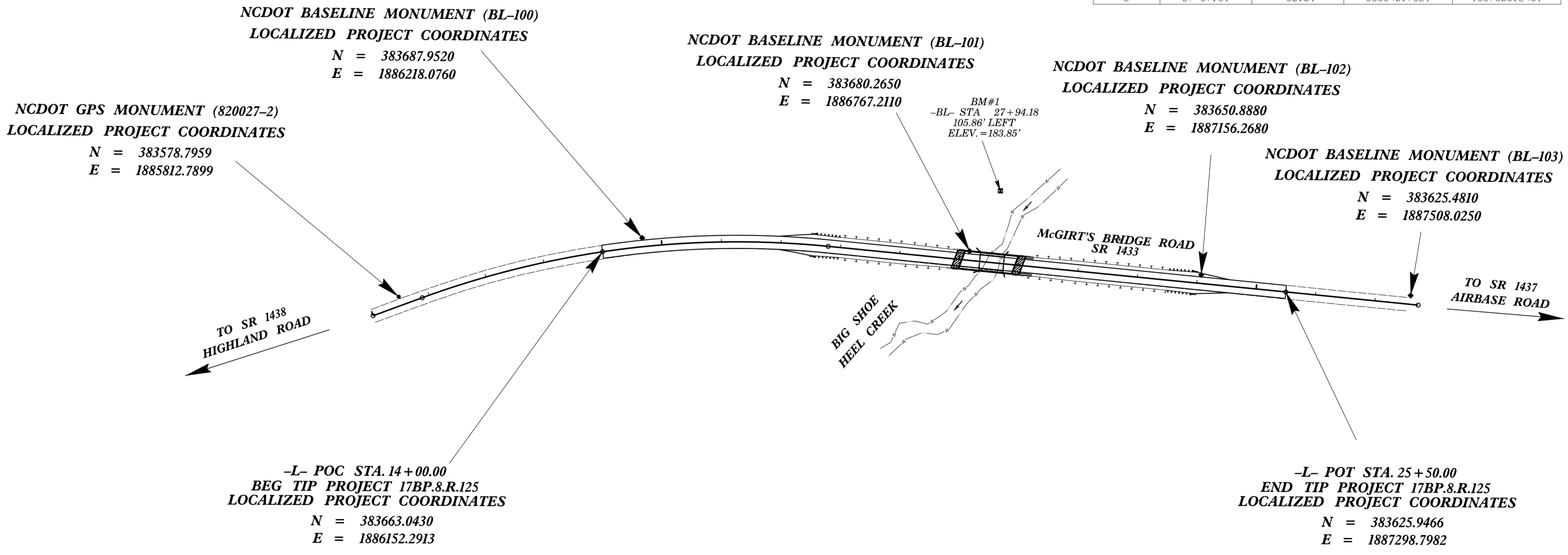
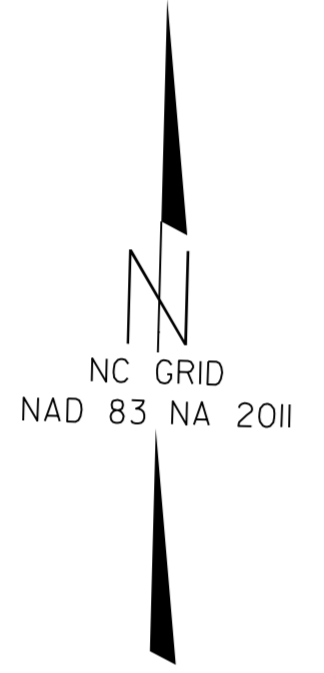
BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	GPS 820027-1	383098.516	1884621.833	210.30	OUTSIDE PROJECT LIMITS	
2	GPS 820027-2	383578.796	1885812.790	202.45	10+51.19	15.07 LT
100	BL-100	383687.952	1886218.076	196.06	14+68.47	14.69 LT
101	BL-101	383680.265	1886767.211	188.85	20+15.87	15.43 LT
102	BL-102	383650.888	1887156.268	186.53	24+06.03	14.49 LT
103	BL-103	383625.481	1887508.025	186.67	27+58.70	14.78 LT

TYPE	STATION	L	
		NORTH	EAST
POT	10+00.00	383545.9330	1885770.7510
PC	10+87.55	383578.1821	1885852.1486
PT	17+79.23	383682.1223	1886530.0738
POT	27+72.93	383609.6994	1887521.1308

ALIGN	STATION	OFFSET	CONCRETE	
			NORTH	EAST
L	14+00.00	29.39	383634.0985	1886157.3751
L	14+00.00	45.00	383618.7215	1886160.0760
L	17+00.00	-45.00	383730.8469	1886451.9071
L	17+79.23	60.00	383622.2818	1886525.7009
L	25+60.00	30.00	383595.2976	1887306.5851
L	25+60.00	60.00	383565.3774	1887304.3987
L	14+00.00	-30.14	383692.7263	1886147.0777
L	14+00.00	-45.00	383707.3646	1886144.5066
L	17+00.00	45.00	383640.8675	1886449.9827
L	17+79.23	-60.00	383741.9627	1886534.4469
L	25+60.00	-60.00	383685.0582	1887313.1445
L	25+60.00	-30.00	383655.1380	1887310.9580

ALIGN	STATION	OFFSET	PERMANENT EASEMENT REBAR AND CAP	
			NORTH	EAST
L	16+73.26	-61.83	383748.0257	1886424.4539
L	16+63.73	-60.52	383746.7217	1886414.5393
L	16+65.05	-49.96	383736.1686	1886415.9273
L	16+49.28	-45.00	383731.1016	1886399.7075
L	16+74.63	-51.41	383737.5995	1886425.8252
L	17+49.75	-53.89	383737.8021	1886503.5524
L	18+33.28	-60.00	383738.0231	1886588.3581
L	19+16.56	-66.30	383738.2407	1886671.8766
L	19+15.90	-76.33	383748.2888	1886671.9491
L	19+25.88	-76.99	383748.2166	1886681.9489
L	19+26.56	-66.64	383737.8437	1886681.8740
L	22+63.89	-60.00	383706.6395	1887017.8205
L	25+60.00	-54.17	383679.2479	1887312.7199
L	27+47.59	-50.48	383661.8950	1887499.5419
L	27+47.81	-60.50	383671.8691	1887500.4943
L	27+57.81	-60.28	383670.9186	1887510.4490
L	27+57.81	-30.01	383640.7321	1887508.2431

 BM1 ELEVATION = 183.85
 N 383783 E 1886816
 BL STATION 27+94 106' RIGHT
 BENCH TIE NAIL IN 12" MAPLE TREE



NOTES:

- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
 - ◆ INDICATES CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 - INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "820027-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 383578.796(++) EASTING: 1885812.790(++) ELEVATION: 202.45(++)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989324

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "820027-2" TO -L- STATION 14+00 IS
 N 76° 03' 48.90" E 349.80'

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

NOTE: DRAWING NOT TO SCALE

5/11/2008
 F:\Roadway\Proj\Scotland027_rdu_1C_1.dgn
 USER:RDM

6/2/99

PAVEMENT SCHEDULE

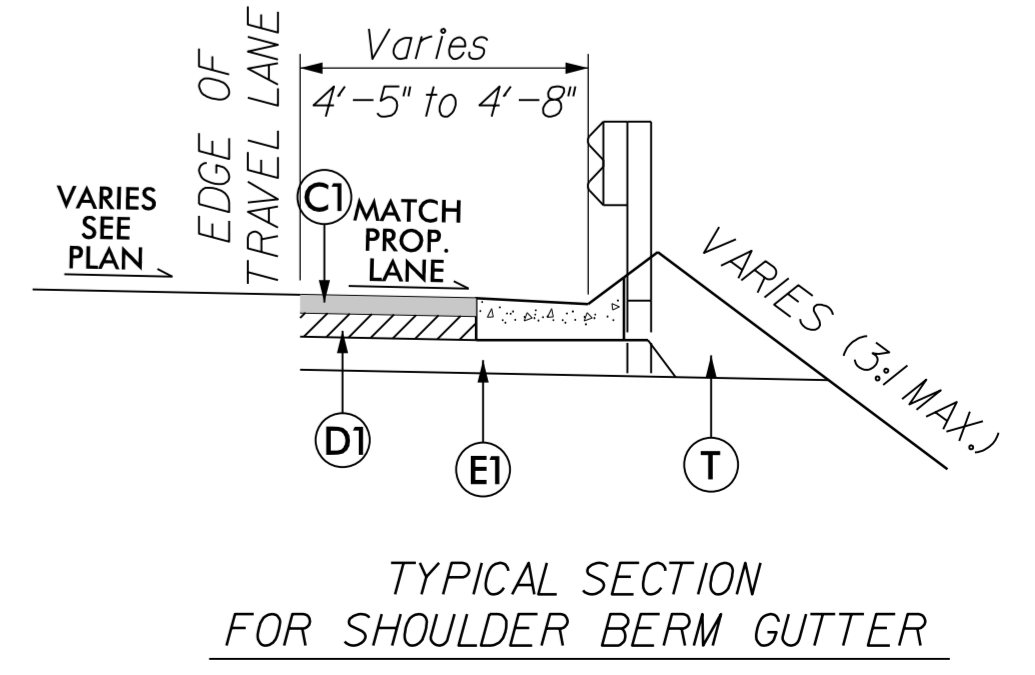
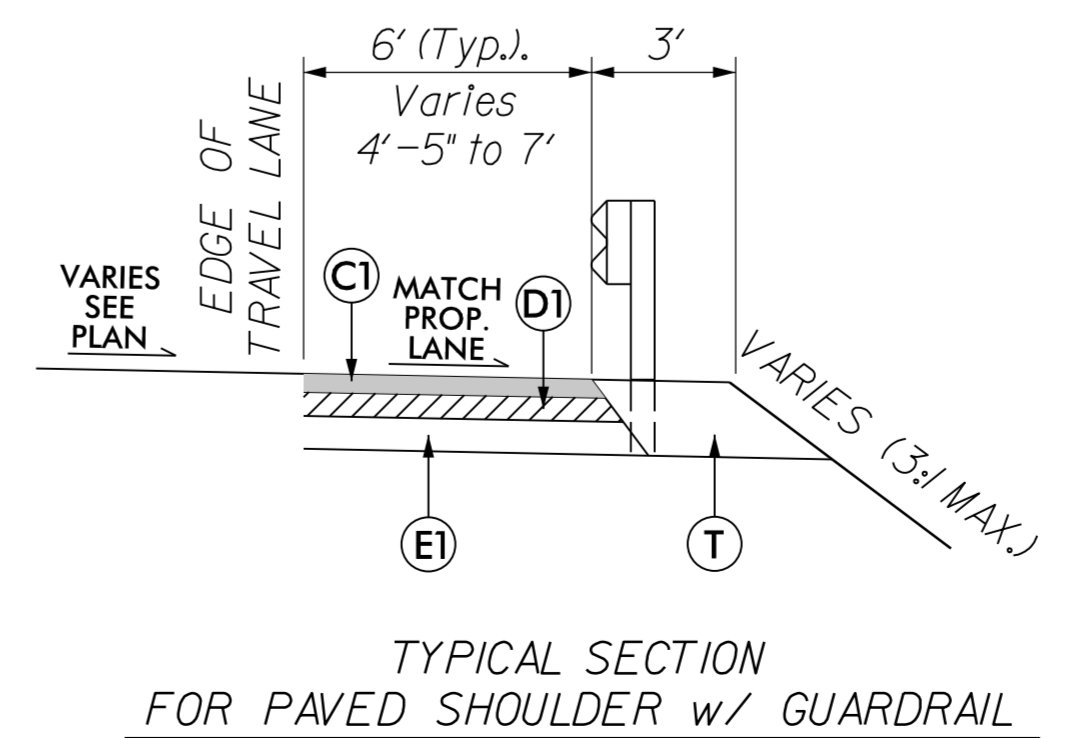
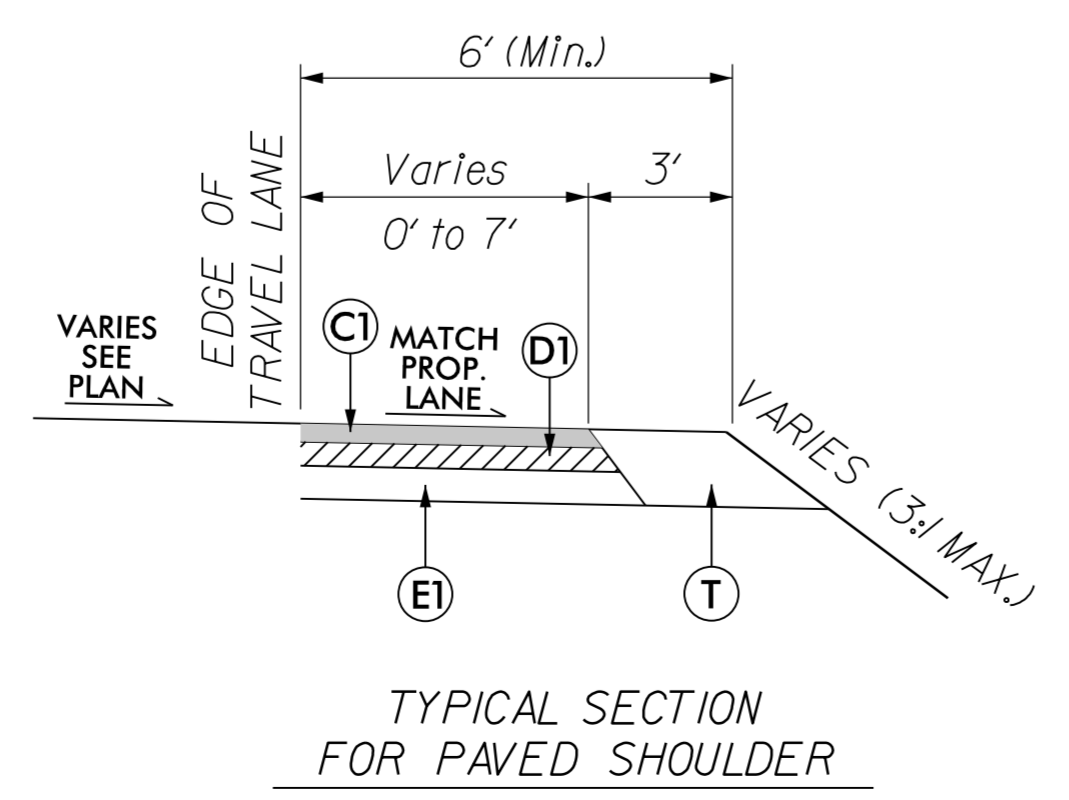
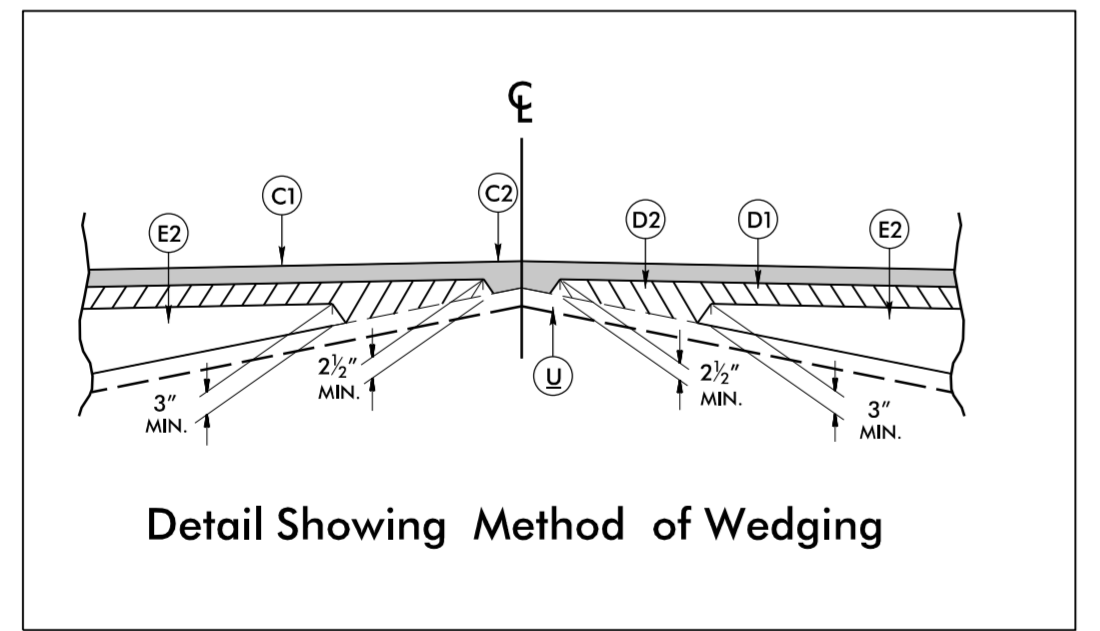
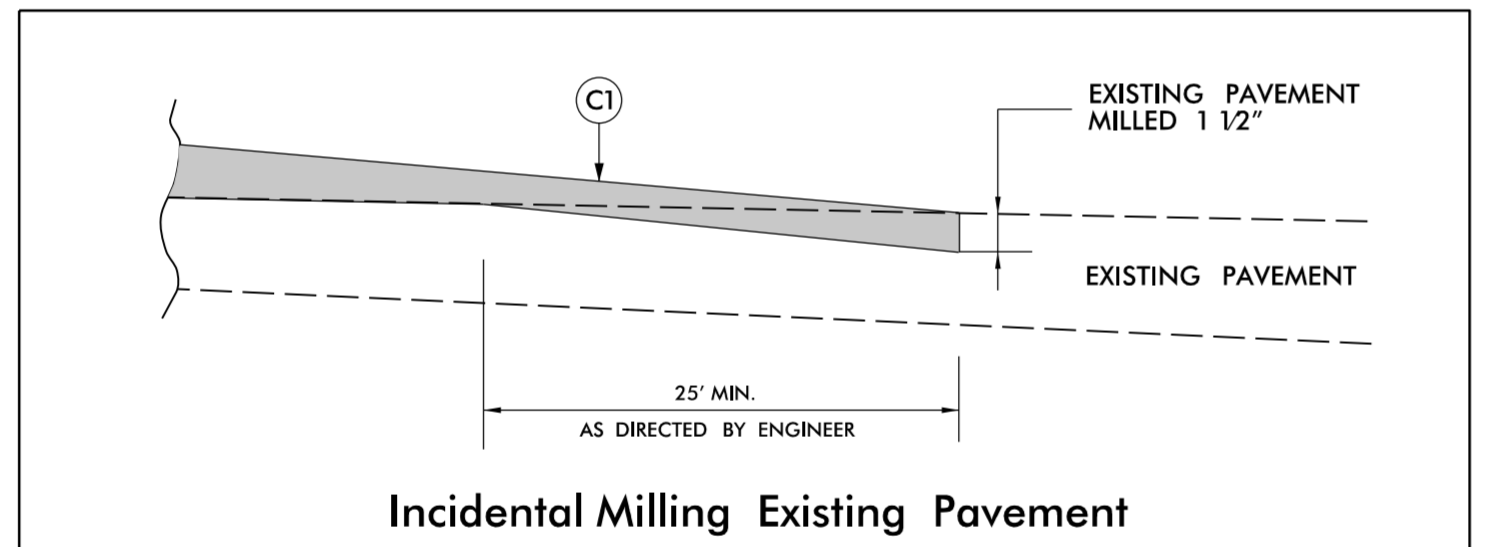
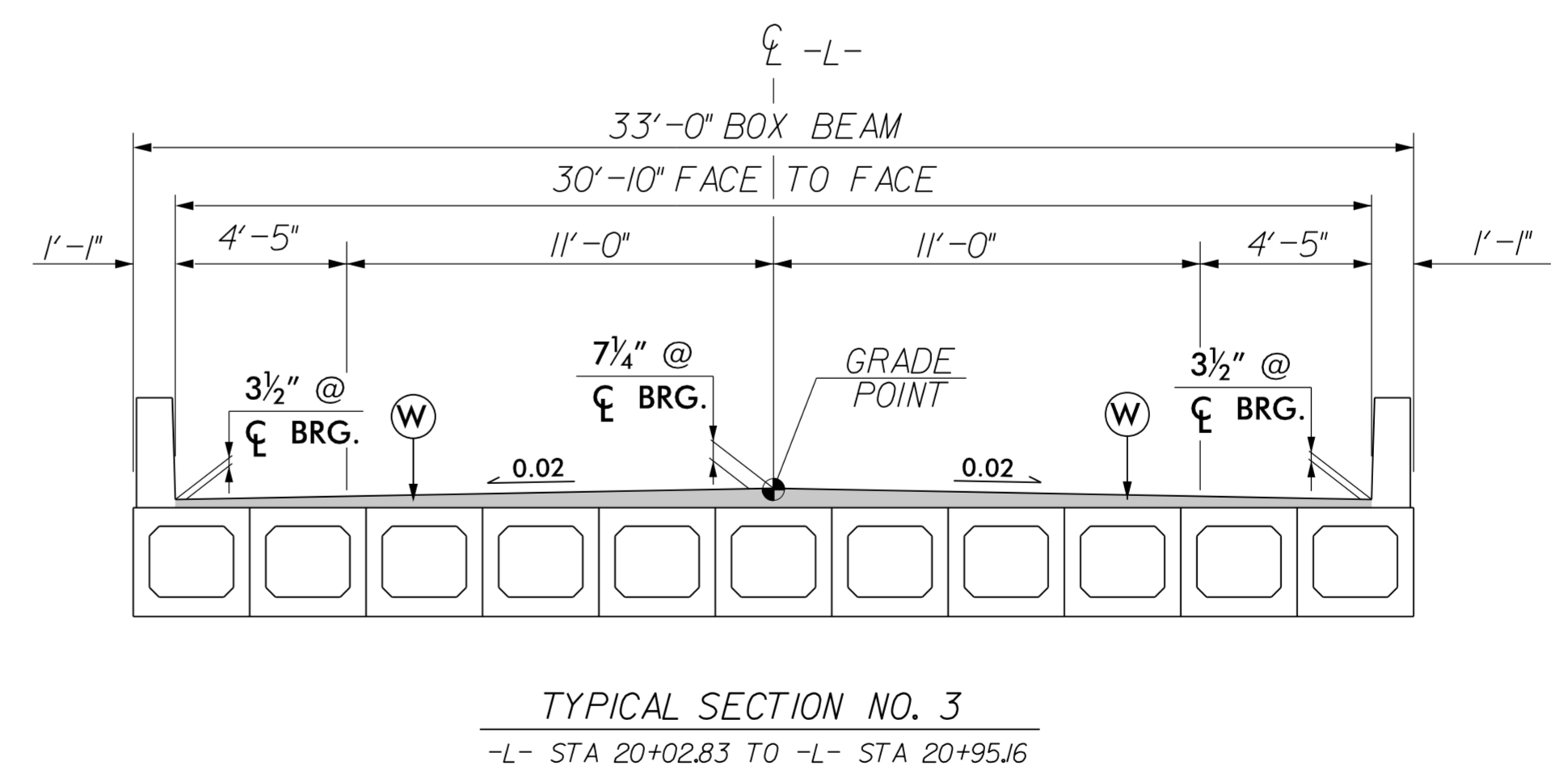
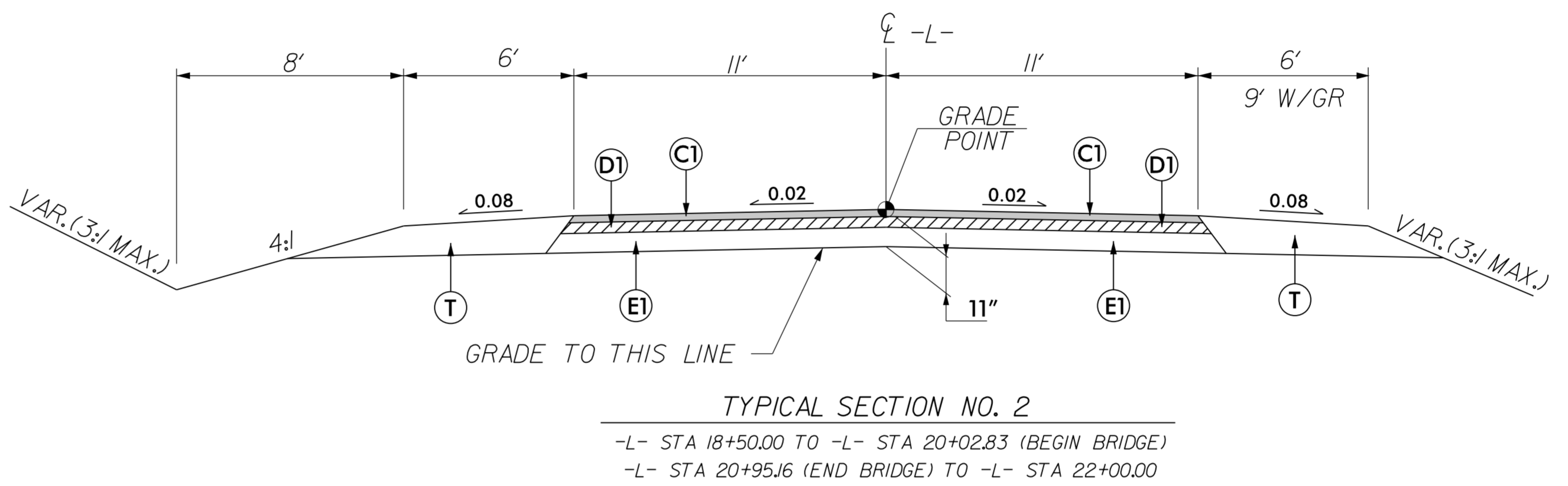
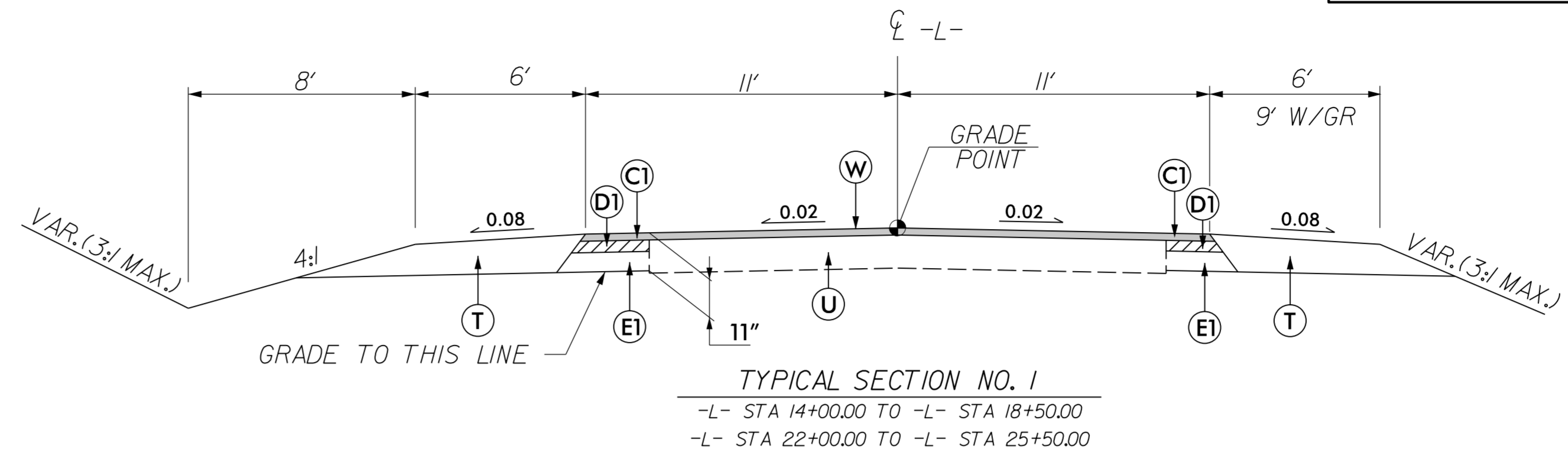
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

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

CH ENGINEERING
 3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

PROJECT REFERENCE NO. 17BP.8.R.125	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

Professional Engineer Seal: NORTH CAROLINA PROFESSIONAL ENGINEERS SEAL 16689
 Designated by: Brian Allen Miles
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



R:\162018\17BP.8.R.125\17BP.8.R.125.dgn

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

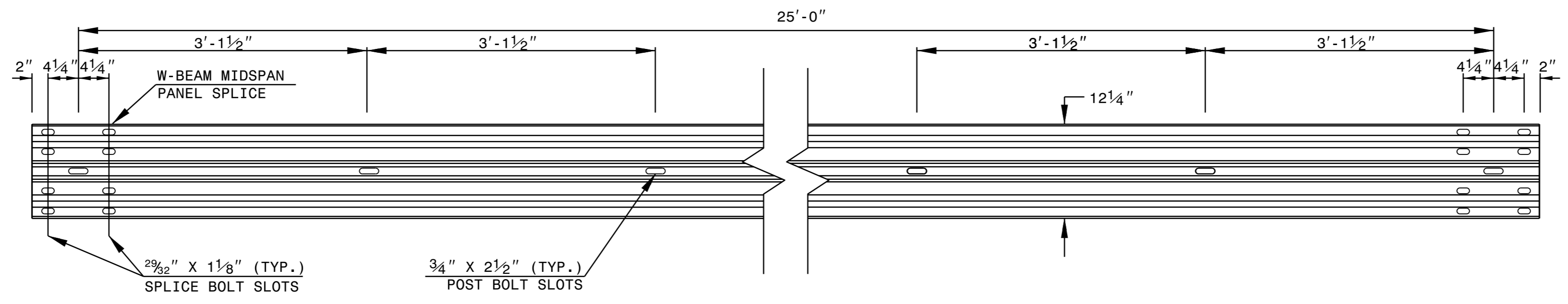
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

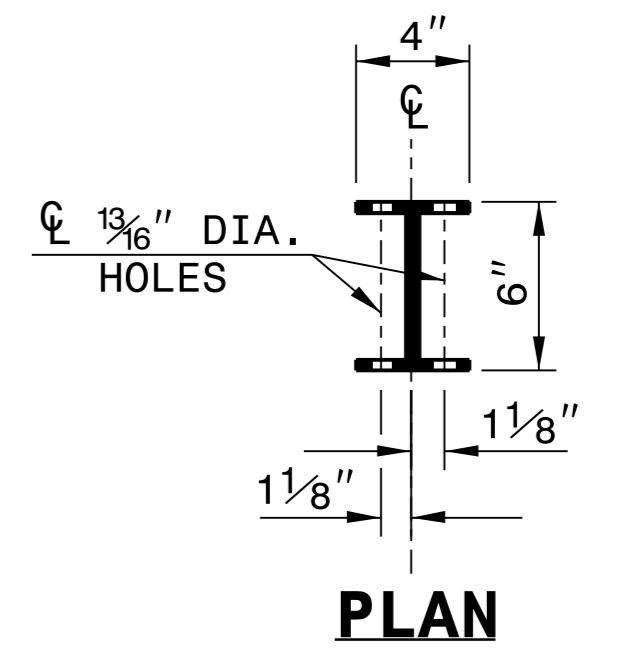
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

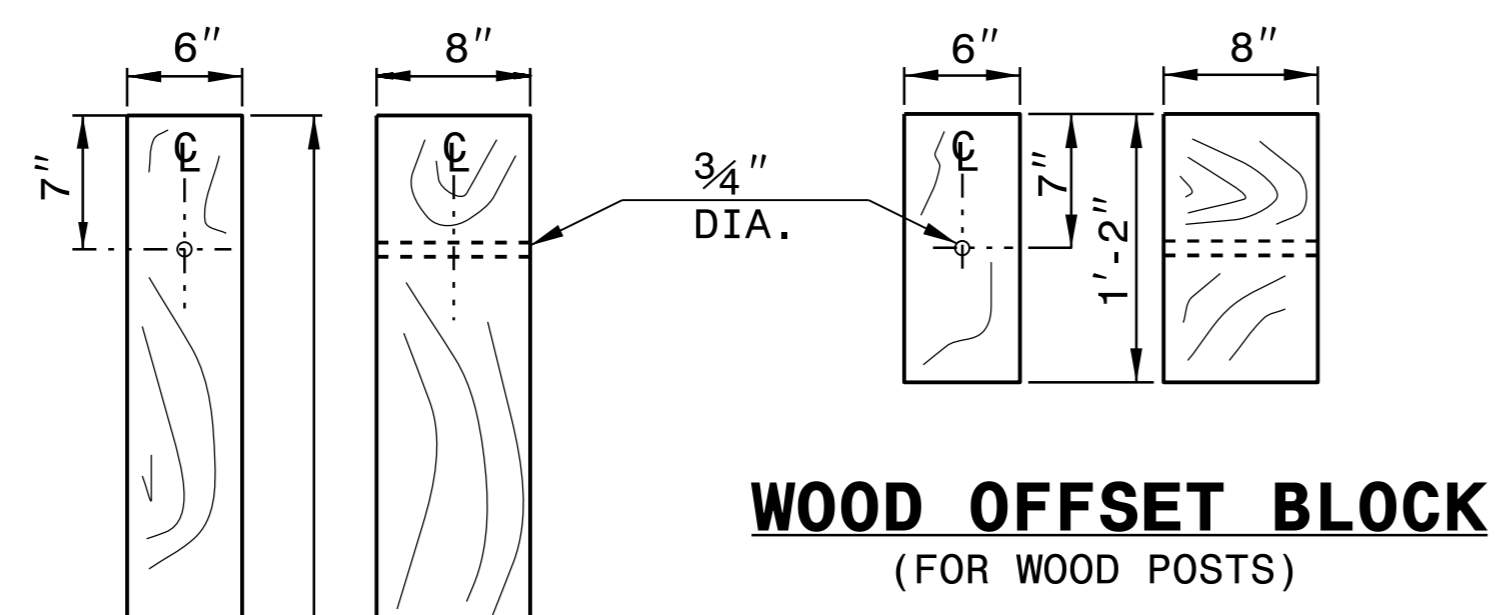
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



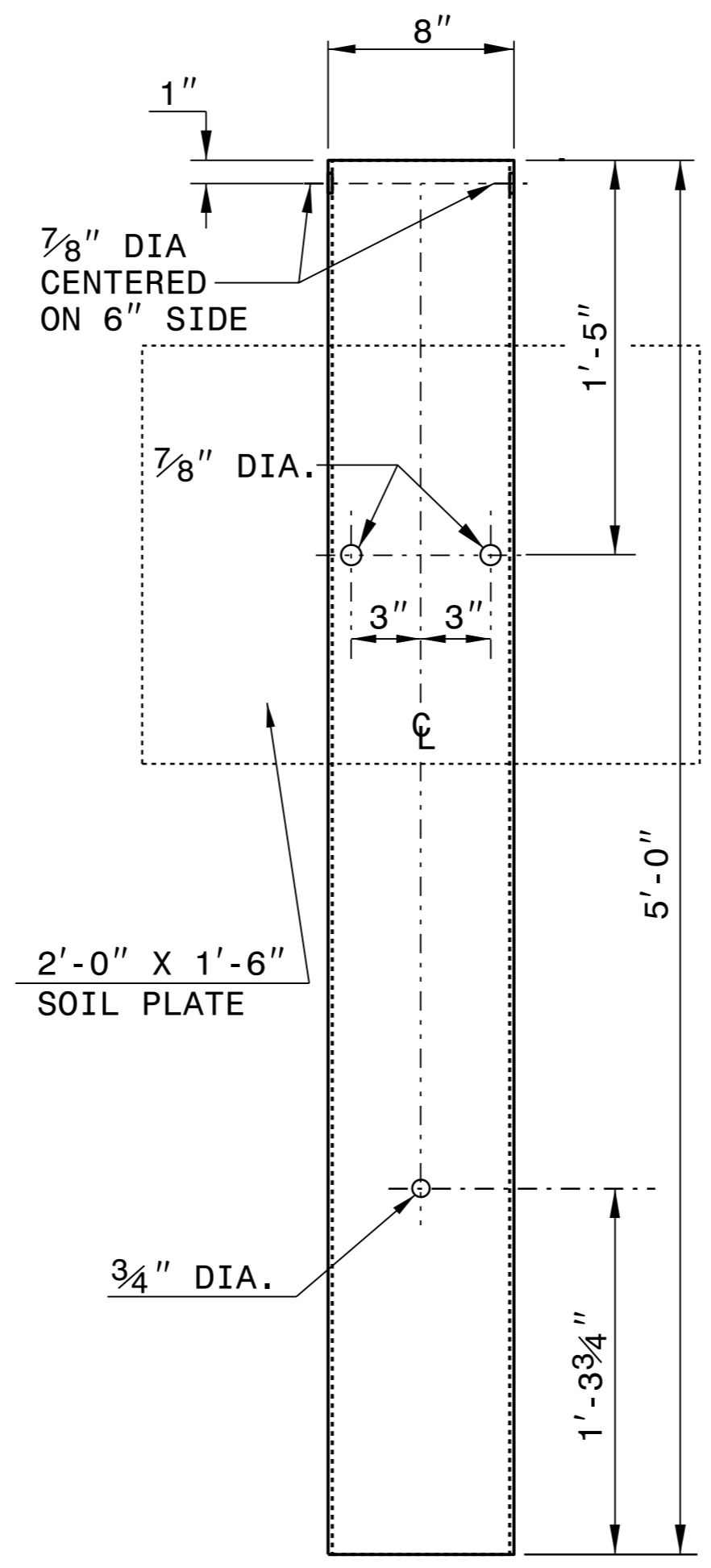
PLAN



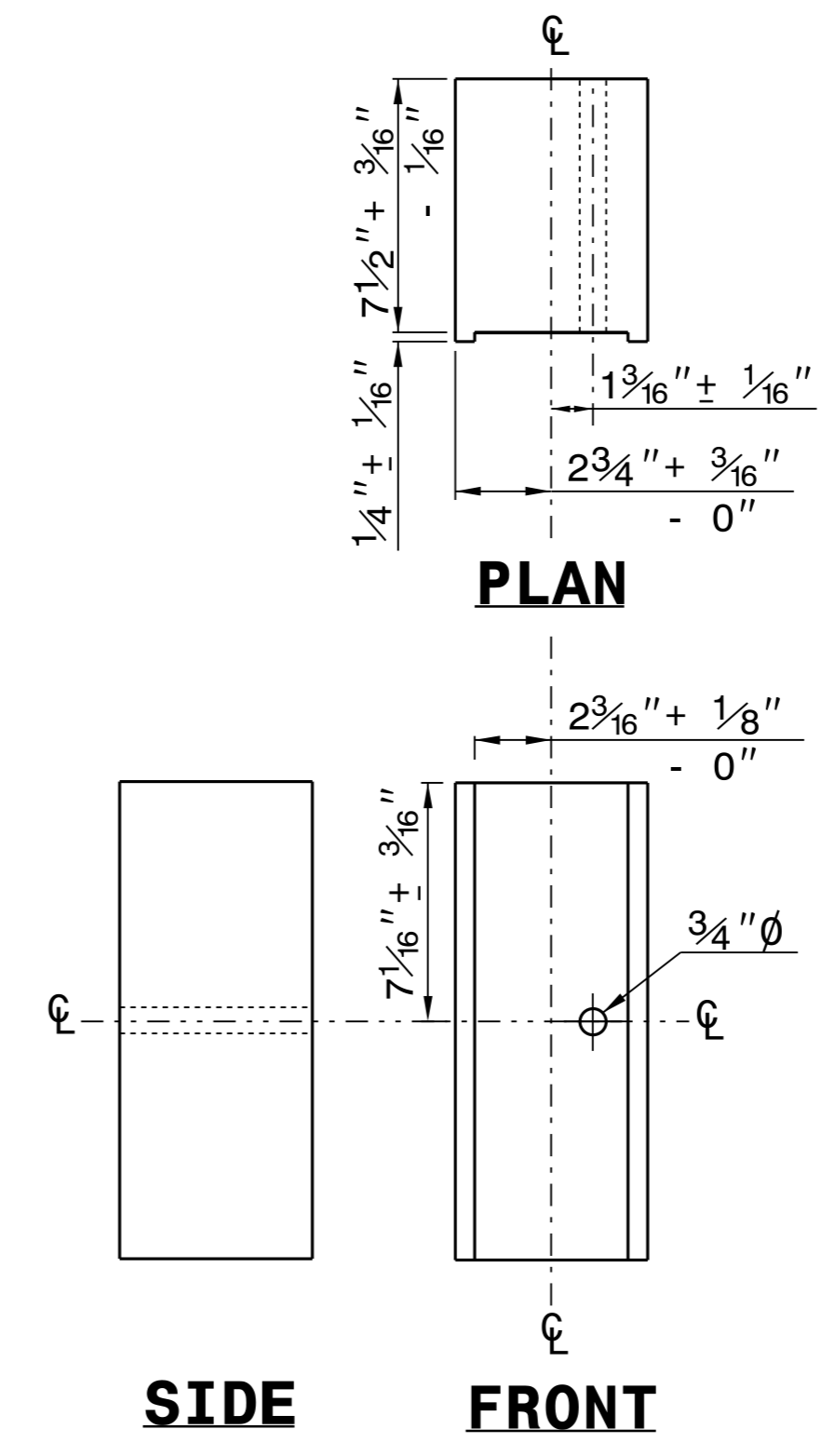
**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



**STEEL TUBE
TS 6"x8"x0.1875"**

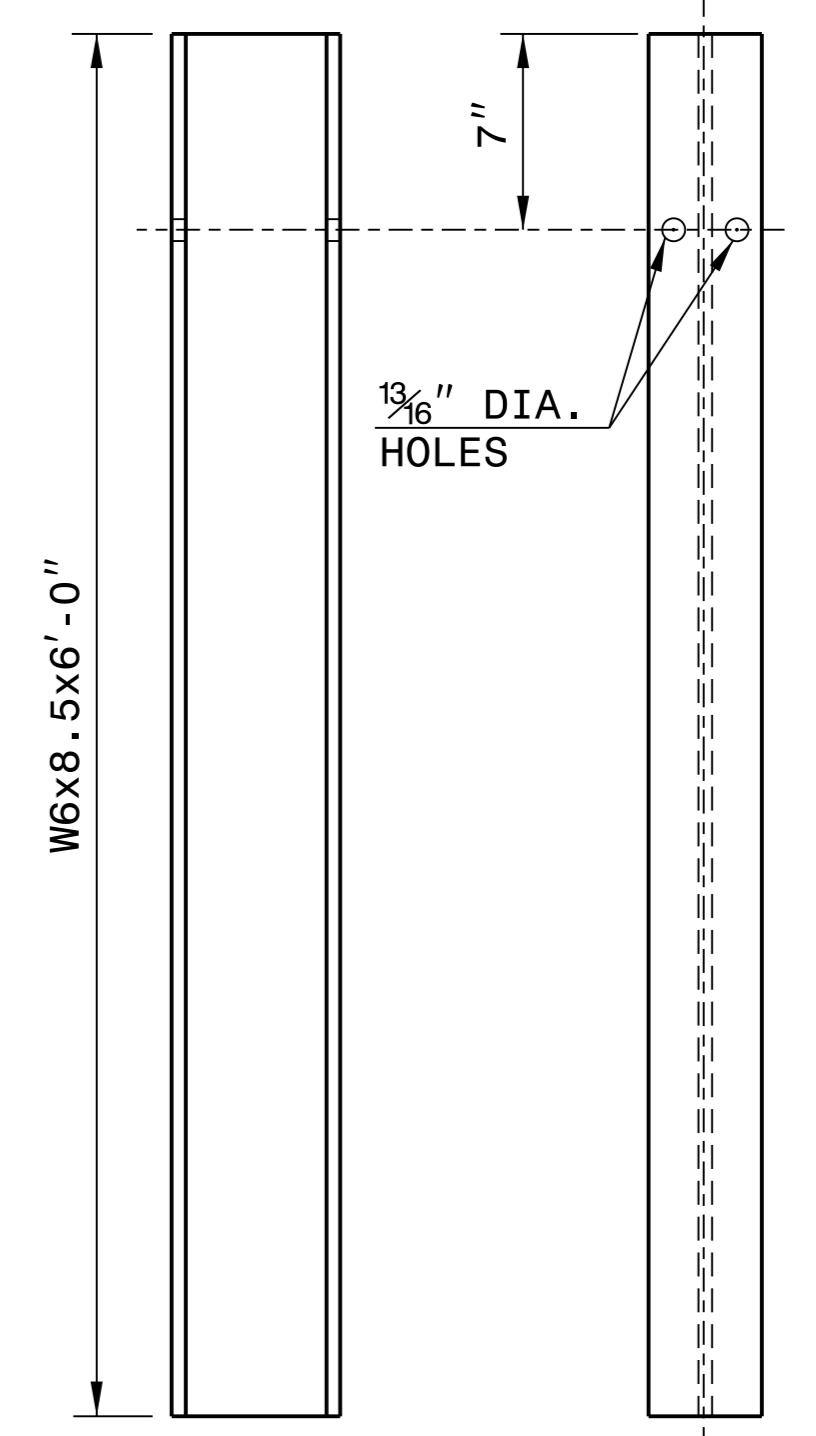


PLAN

SIDE

FRONT

**ROUTED
OFFSET BLOCK**

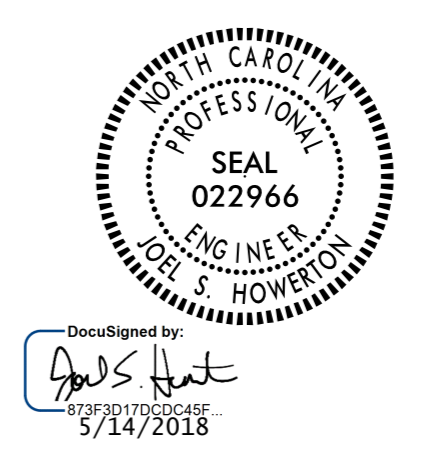


SIDE

FRONT

"W6" STEEL POST

SYSTEM PARTS



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

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____

I4-DEC-2017 10:36
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 Jhowerton AT: USD-292595

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

NOTE:

- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
- SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" X 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 1 OF 7
862D03

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

NOTE:

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- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

NOTE:

- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
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- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

SEE TITLE BLOCK

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ORIGINAL BY: J HOWERTON DATE: 06-22-12
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: DATE:

DocuSigned by:

 5/14/2018

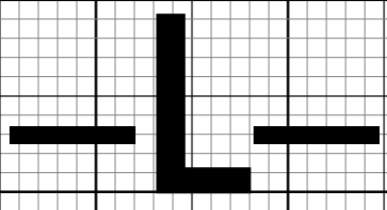
NORTH CAROLINA PROFESSIONAL SEAL
 022966
 ENGINEER
 J. S. Howerton

CH ENGINEERING
 3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

PROJECT REFERENCE NO. 17BP.8.R.125	SHEET NO. 5
ROADWAY DESIGN ENGINEER 5/15/2018	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

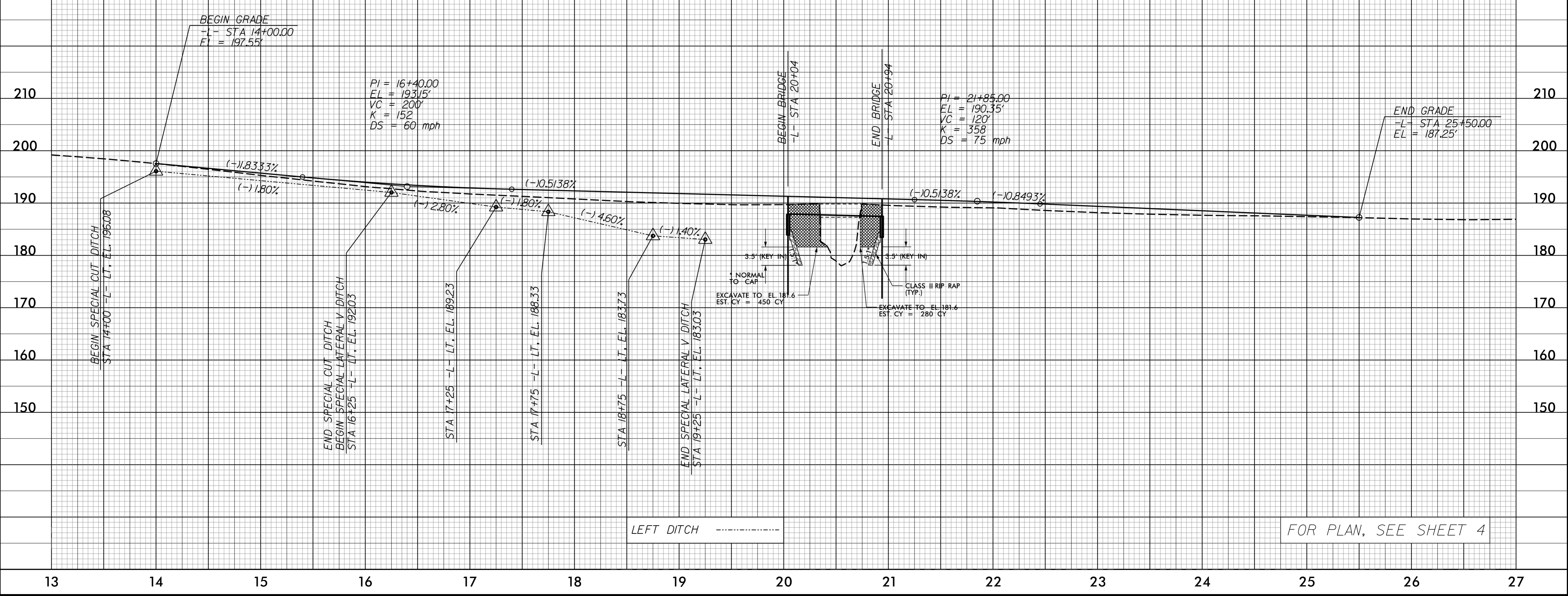


BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 186.6	FT
BASE DISCHARGE	= 2000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 187.4	FT
OVERTOPPING DISCHARGE	= 2700	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 188.1	FT

DATE OF SURVEY	= 6/22/17	
W.S. ELEVATION AT DATE OF SURVEY	= 180.0	FT

BM 1 ELEV = 183.86'
 N 383.783 E 1.886.816
 -L- STA 20+57 12' LEFT
 NAIL SET IN 12" MAPLE TREE



R:\162018\17BP.8.R.125\Proj\Scotlend027_Rdy.pfl_05.dgn

FOR PLAN, SEE SHEET 4

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - TYPES AND MOUNTING
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

- A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTEN ALTERATION.

SIGNING

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

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

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

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

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

- F) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.

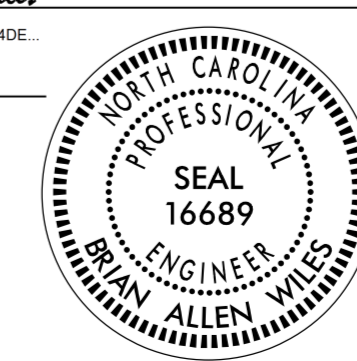

PHASING

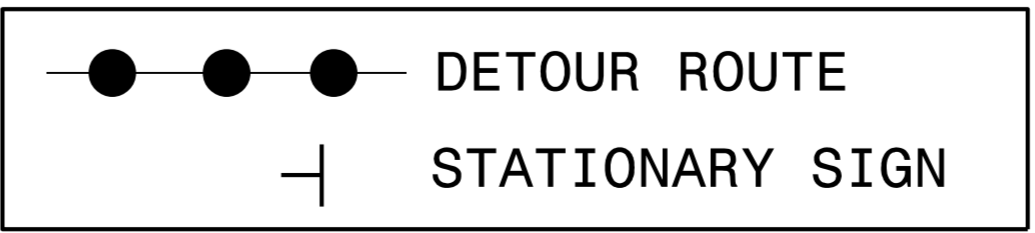
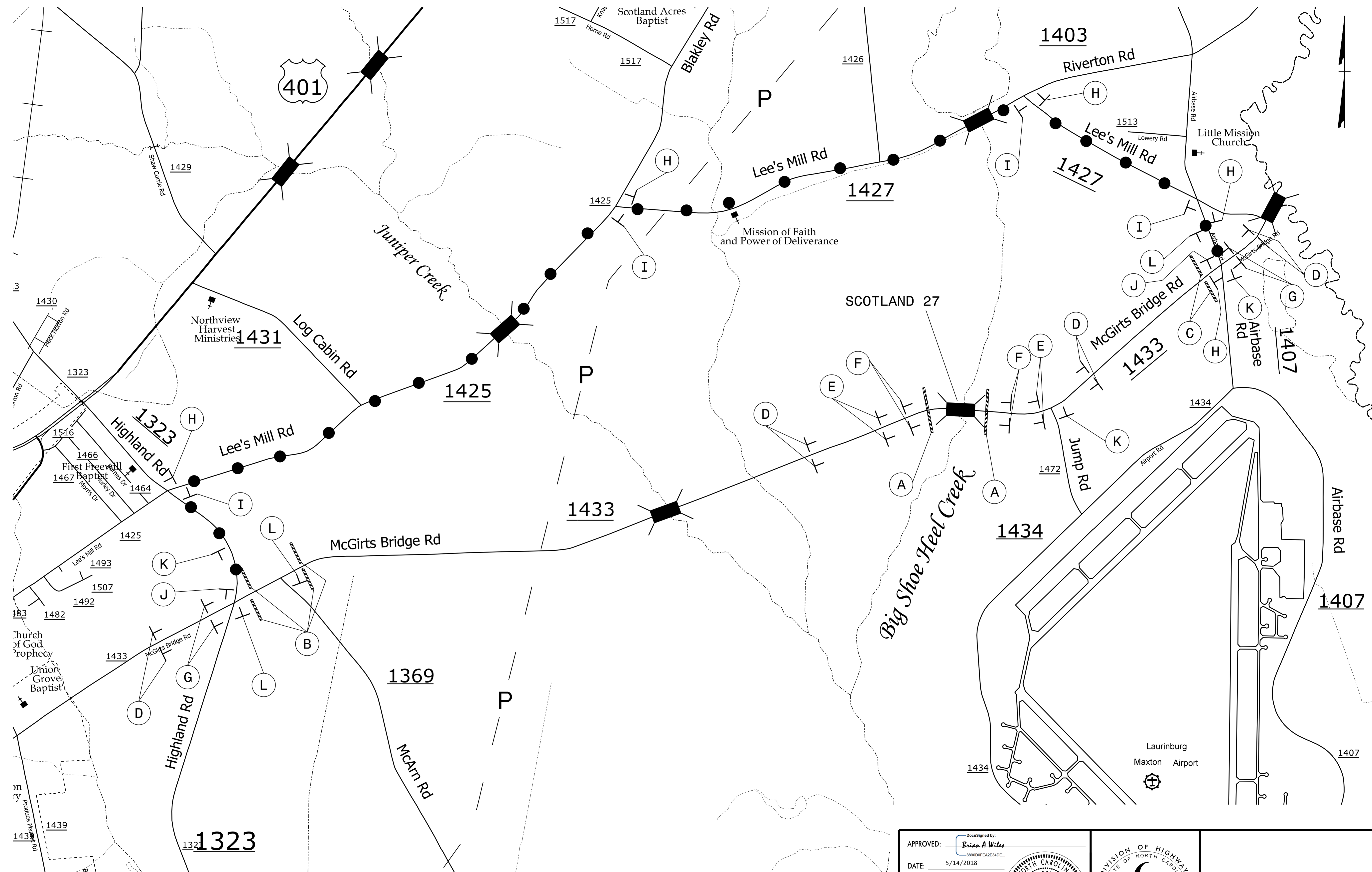
- STEP 1: USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, AND TMP-2, PERFORM THE FOLLOWING:
 - INSTALL ALL ROAD CLOSURE AND DETOUR SIGNING INCLUDING BARRICADES
 - CLOSE SR 1433 (McGIRTS BRIDGE ROAD)
 - PLACE TRAFFIC ONTO OFF-SITE DETOUR
- STEP 2: REMOVE EXISTING BRIDGE #027 AND CONSTRUCT THE PROPOSED BRIDGE AND APPROACHES AS SHOWN IN THE CONSTRUCTION PLANS.
- STEP 3: INSTALL FINAL PAVEMENT MARKINGS.
- STEP 4: REMOVE ALL TRAFFIC CONTROL SIGNING AND DEVICES AND RE-OPEN SR 1433 (McGIRTS BRIDGE ROAD) TO THE FINAL TRAFFIC PATTERN.

PAVEMENT MARKING

THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS) 2300 LF
 THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS) 2300 LF

PERMANENT RAISED PAVEMENT MARKERS 15 EACH

APPROVED: <u>Brian A. Wilder</u> DATE: 5/14/2018 SEAL 		TRANSPORTATION OPERATIONS PLAN
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

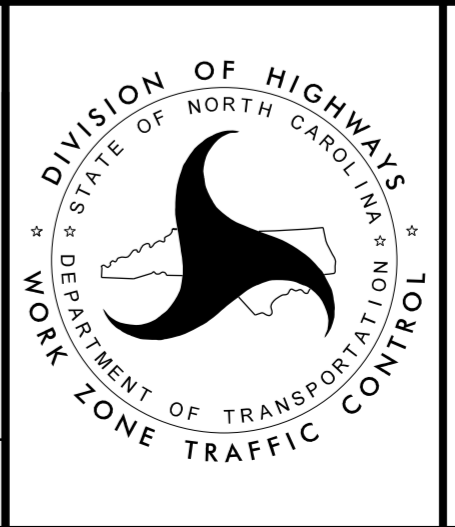


APPROVED: *Brian A. Wiles*
 DATE: 5/14/2018

SEAL

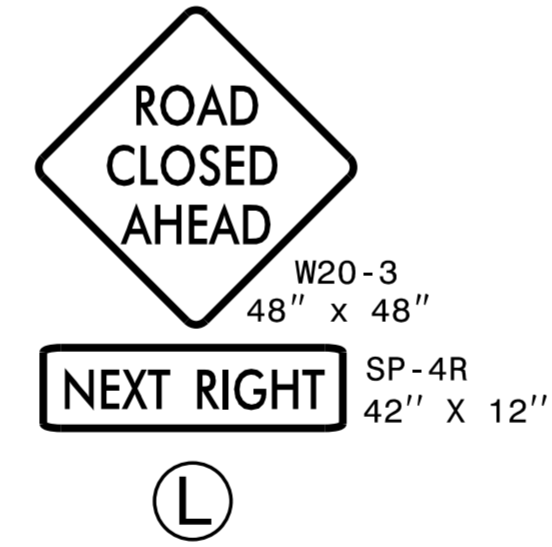
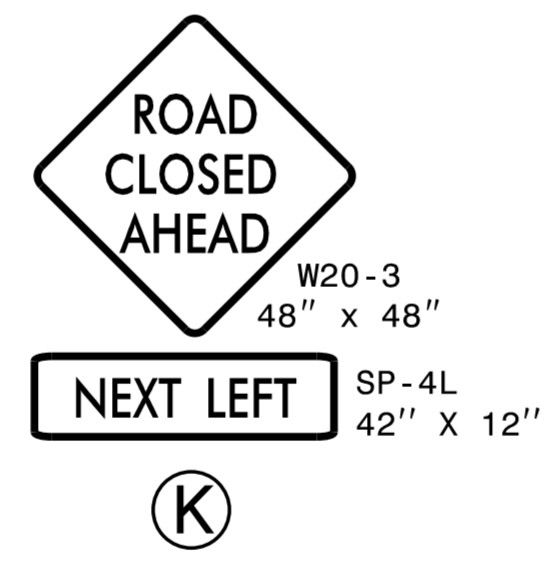
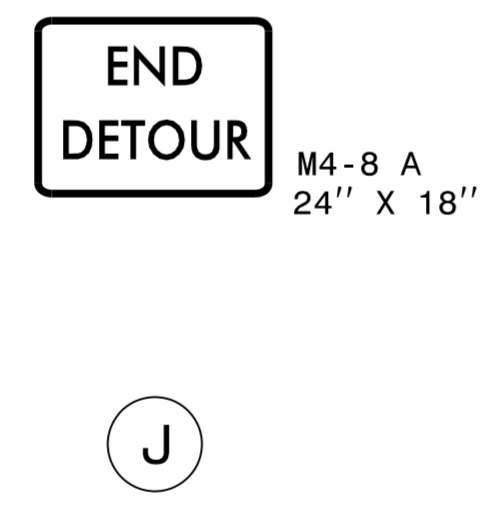
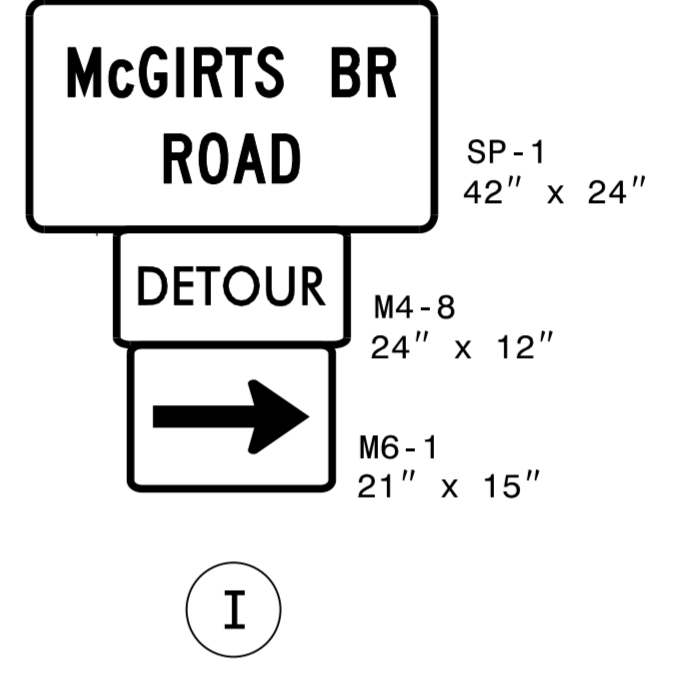
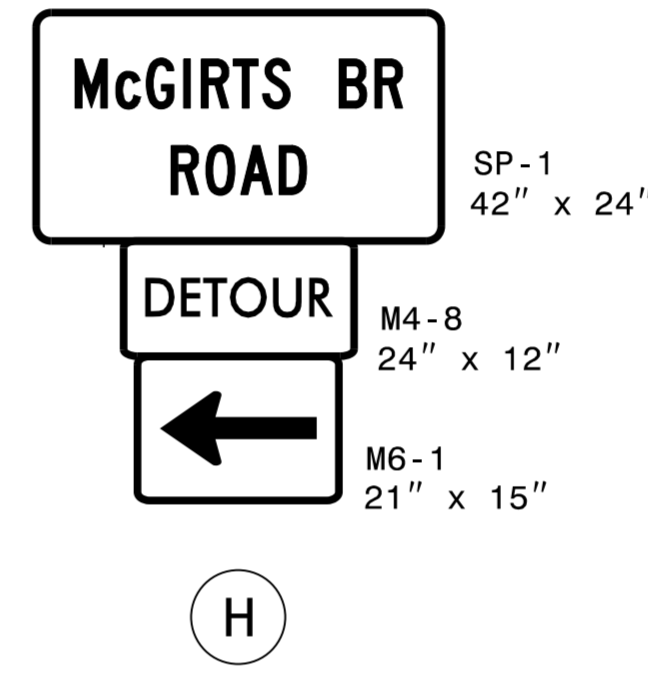
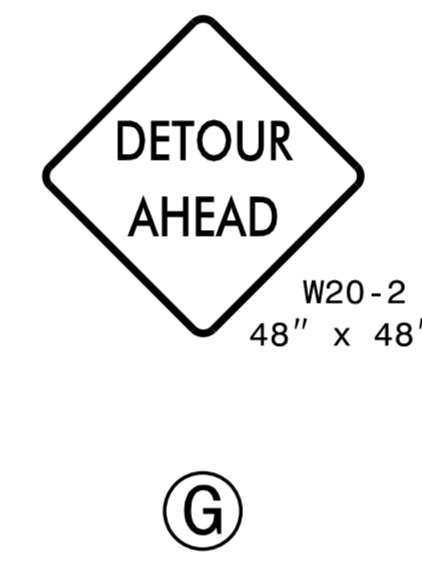
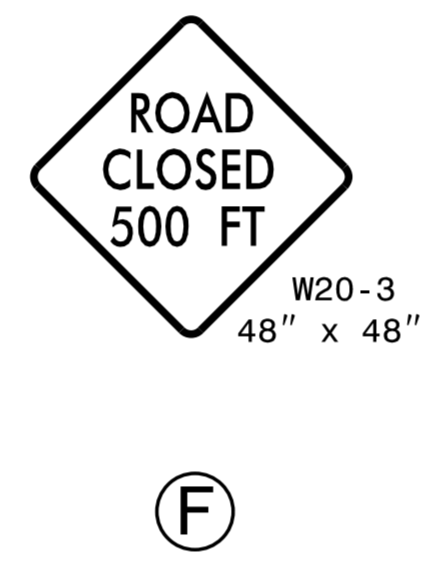
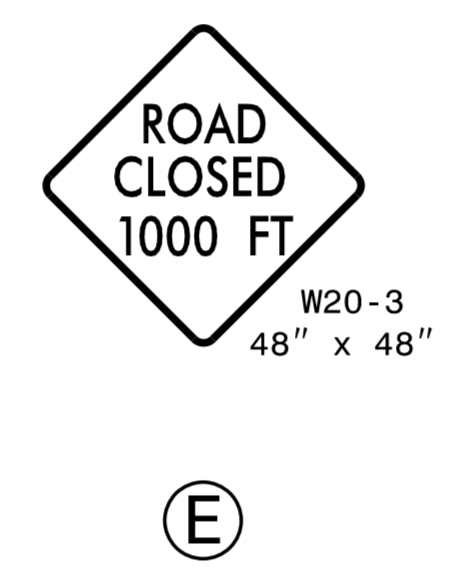
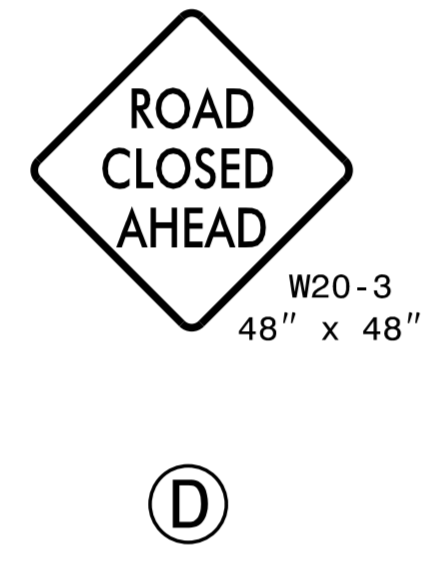
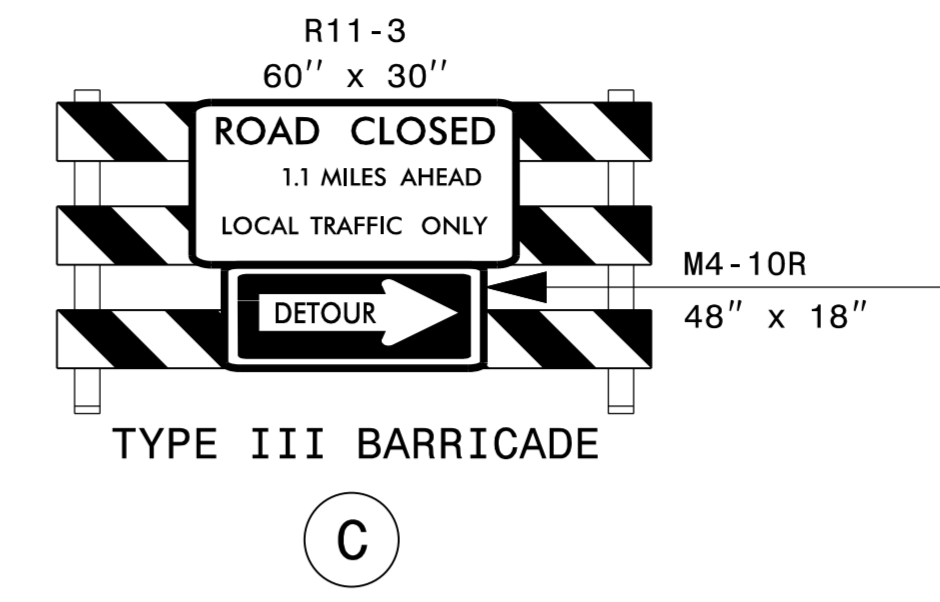
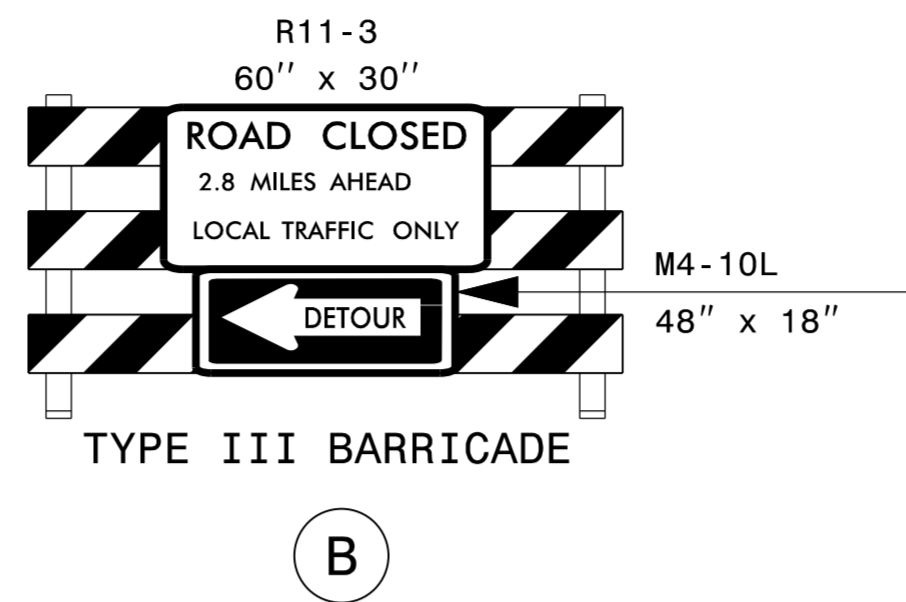
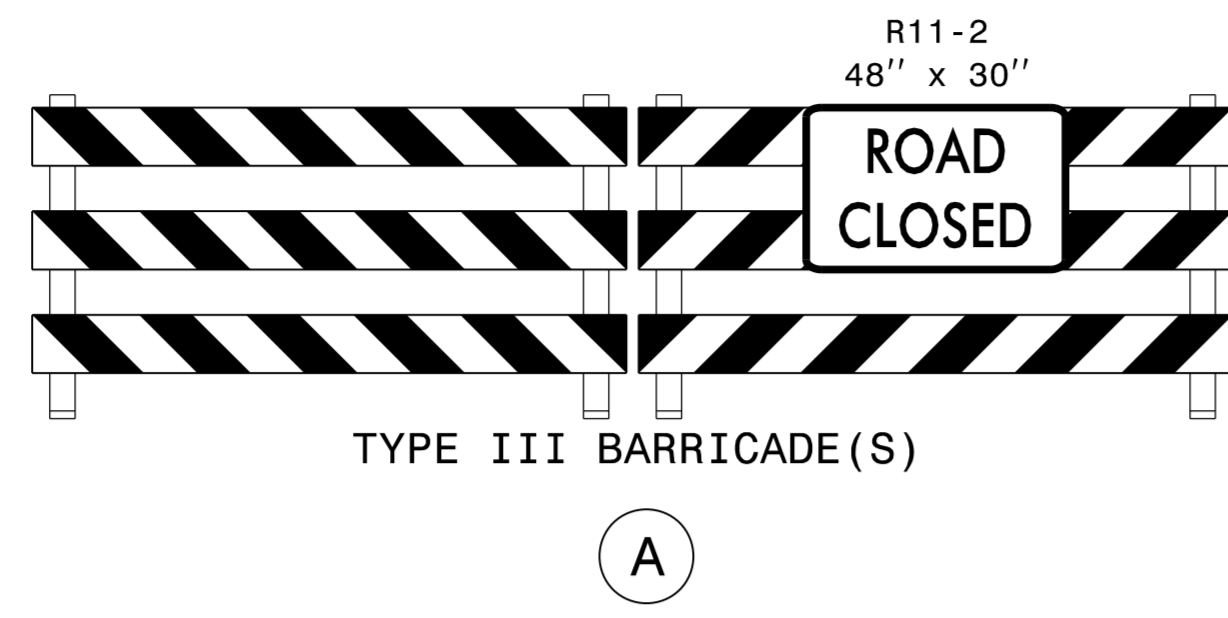
NORTH CAROLINA
 PROFESSIONAL
 SEAL
 16689
 ENGINEER
 BRIAN ALLEN WILES

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



DETOUR ROUTE

5/14/2018
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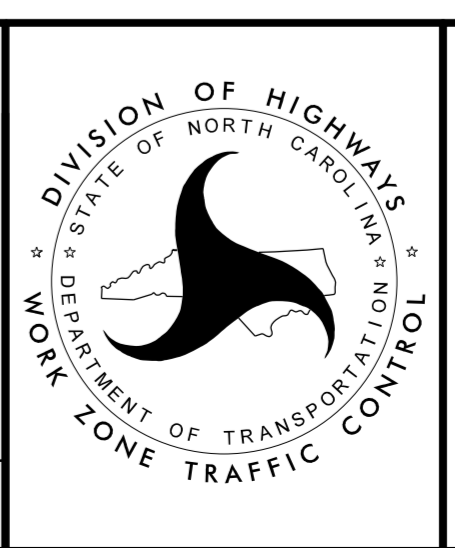


5/14/2018
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APPROVED: Brian A. Wiles
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 DATE: 5/14/2018

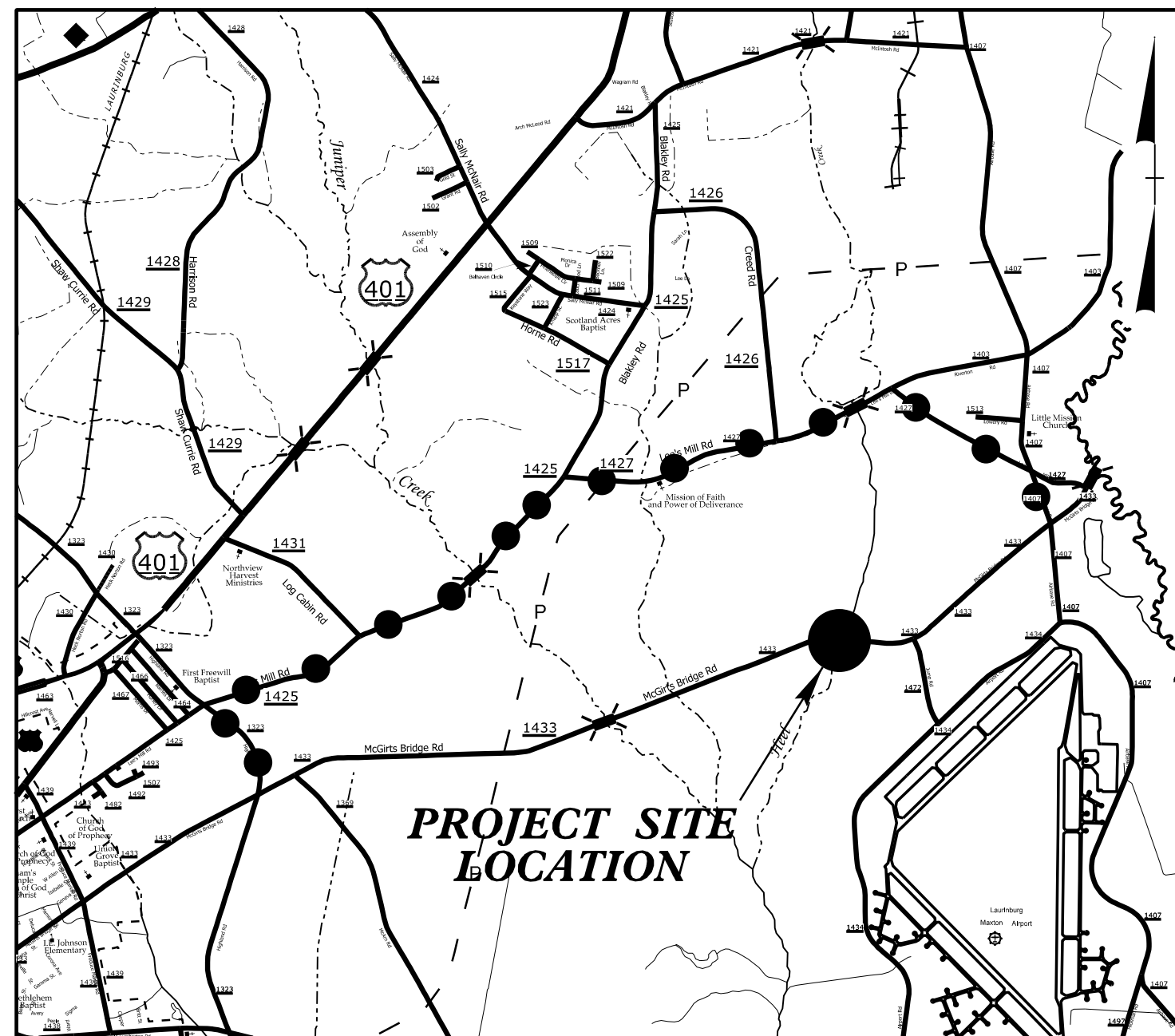
SEAL

**DOCUMENT NOT CONSIDERED FINAL
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DETOUR
SIGNS

TIP PROJECT: 17BP.8.R.125



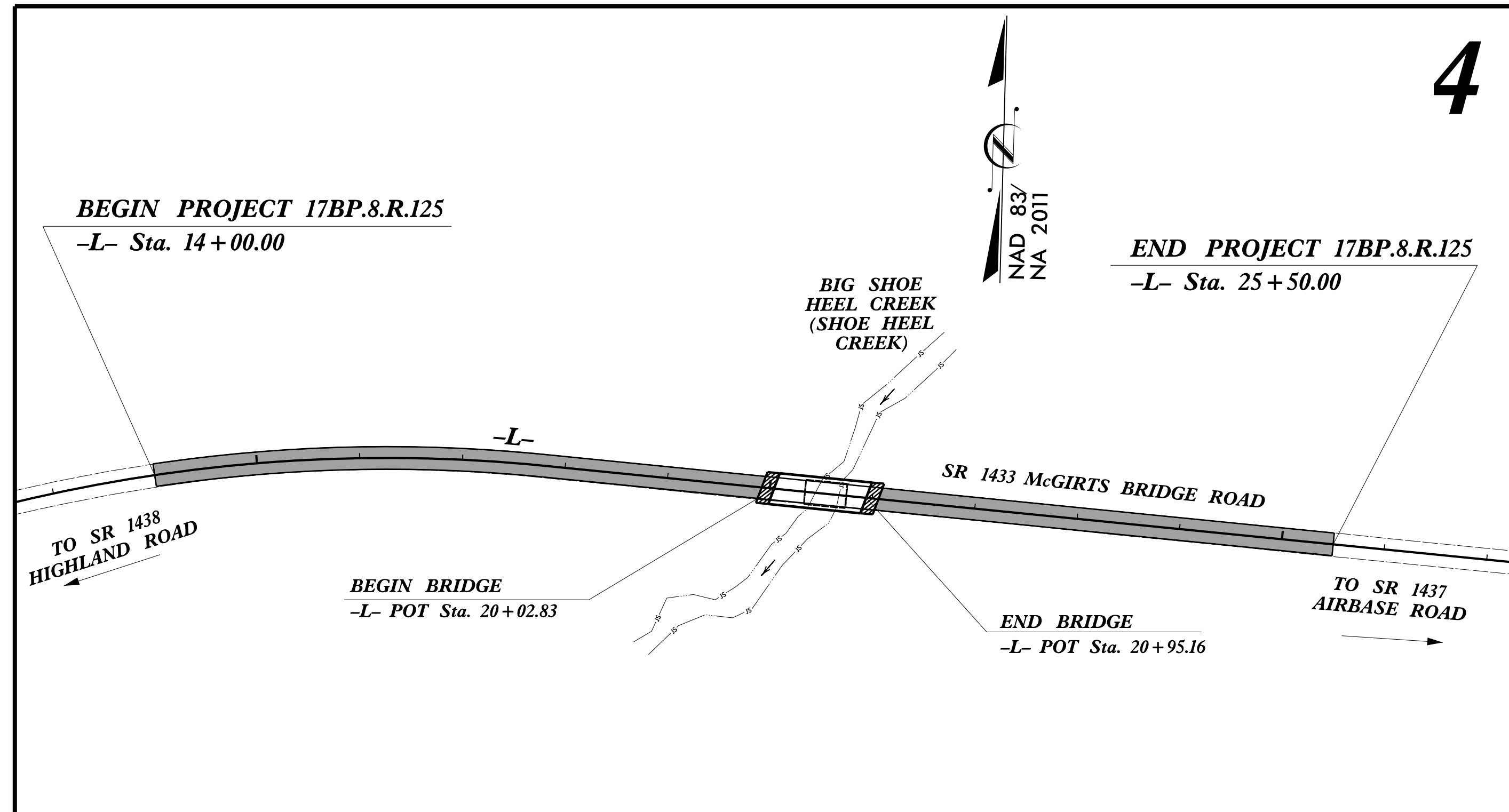
VICINITY MAP

●●●● OFF-SITE DETOUR ROUTE N.T.S.

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

**LOCATION: BRIDGE NO. 820027 ON SR 1433 (McGIRTS BRIDGE RD)
OVER BIG SHOE HEEL CREEK (SHOE HEEL CREEK)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



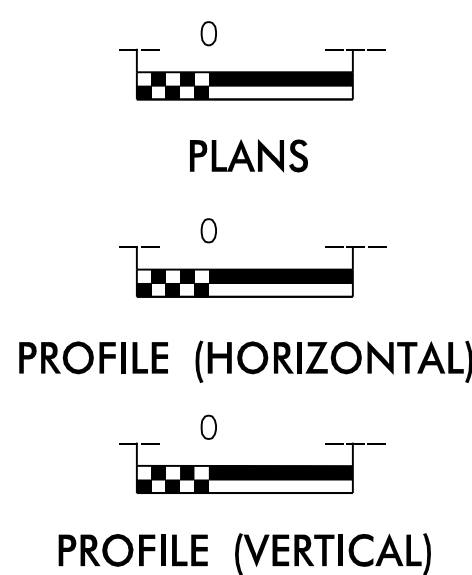
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.125	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.8.R.125		P.E.	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	△△△△△
1622.01	Temporary Berms and Slope Drains	—
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▨
1633.02	Temporary Rock Silt Check Type-B	▨
	Wattle/Coir Fiber Wattle	—
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	—
1634.01	Temporary Rock Sediment Dam Type-A	▨
1634.02	Temporary Rock Sediment Dam Type-B	▨
1635.01	Rock Pipe Inlet Sediment Trap Type-A	U
1635.02	Rock Pipe Inlet Sediment Trap Type-B	U
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

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

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

Prepared in the Office of:
MI ENGINEERING, PLLC
1011 SCHAUB DR SUITE 100
RALEIGH NC 27606

Designed by:
GREGORY COLS **3187**
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611
2018 STANDARD SPECIFICATIONS

Reviewed by:
AARON HARPER

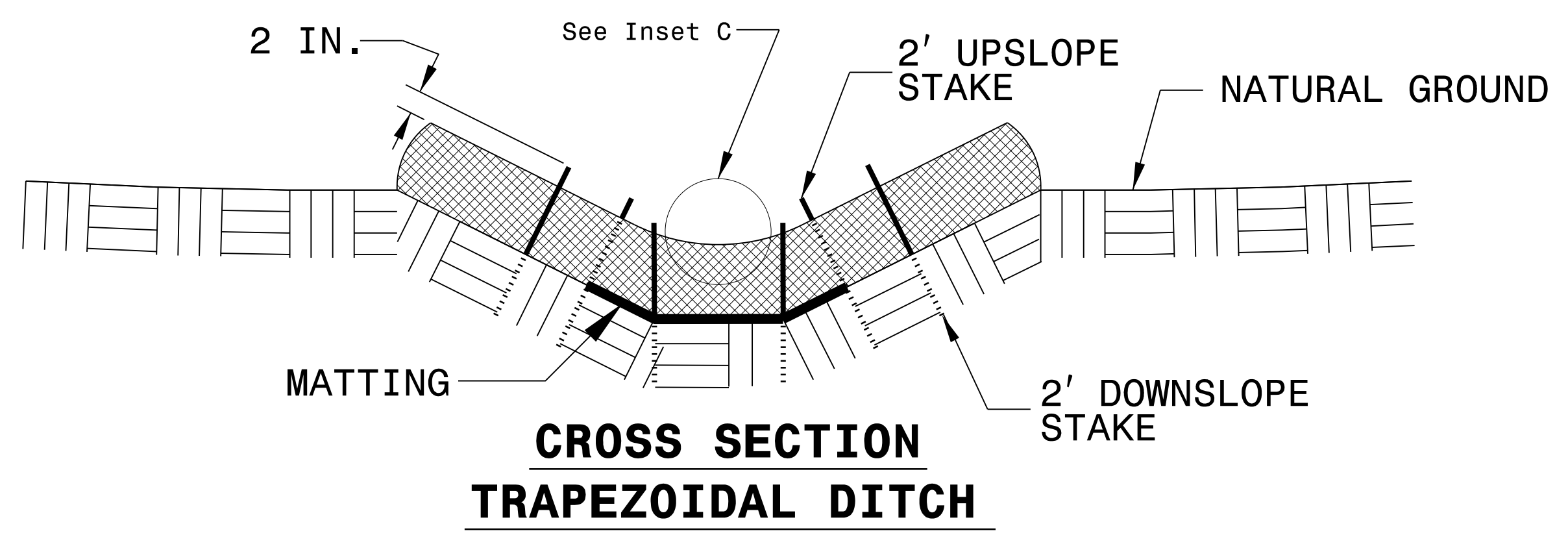
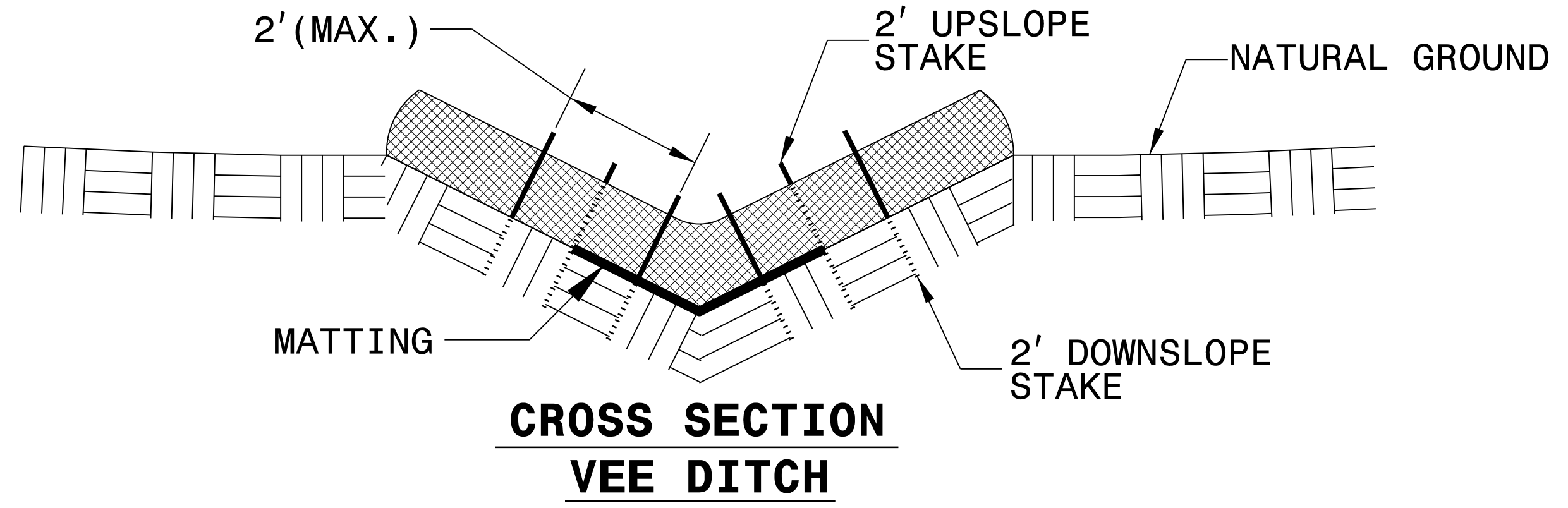
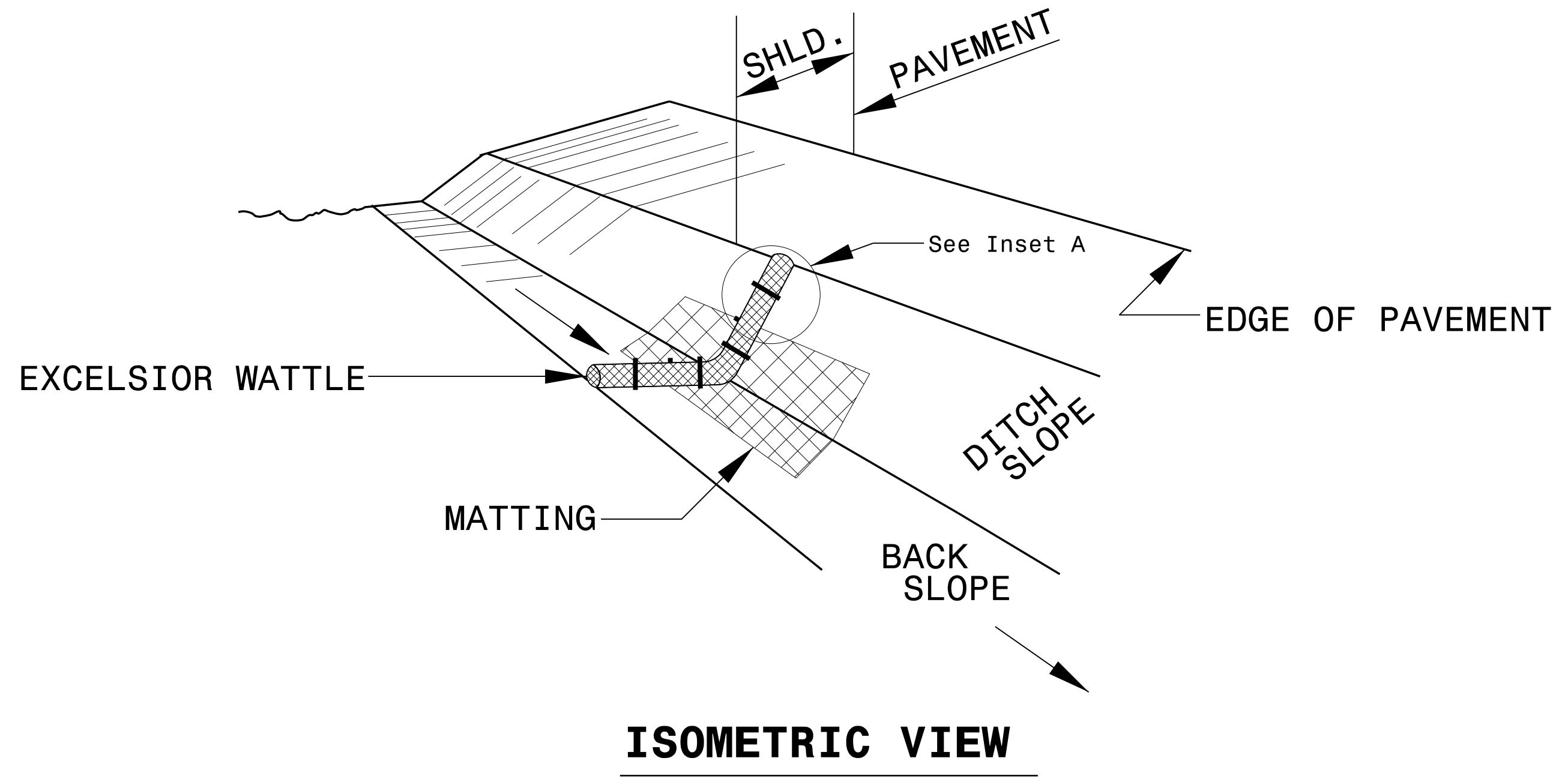
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

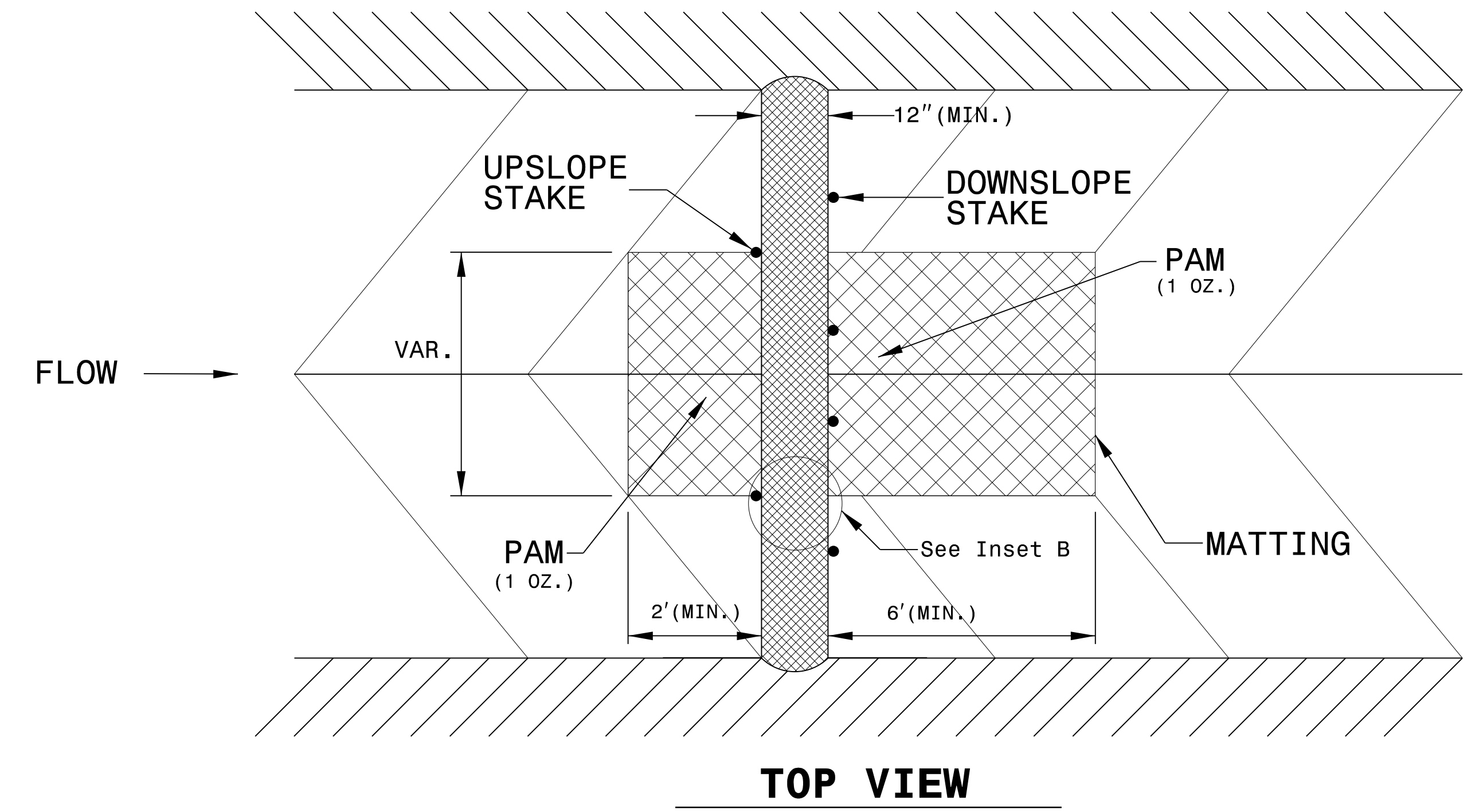
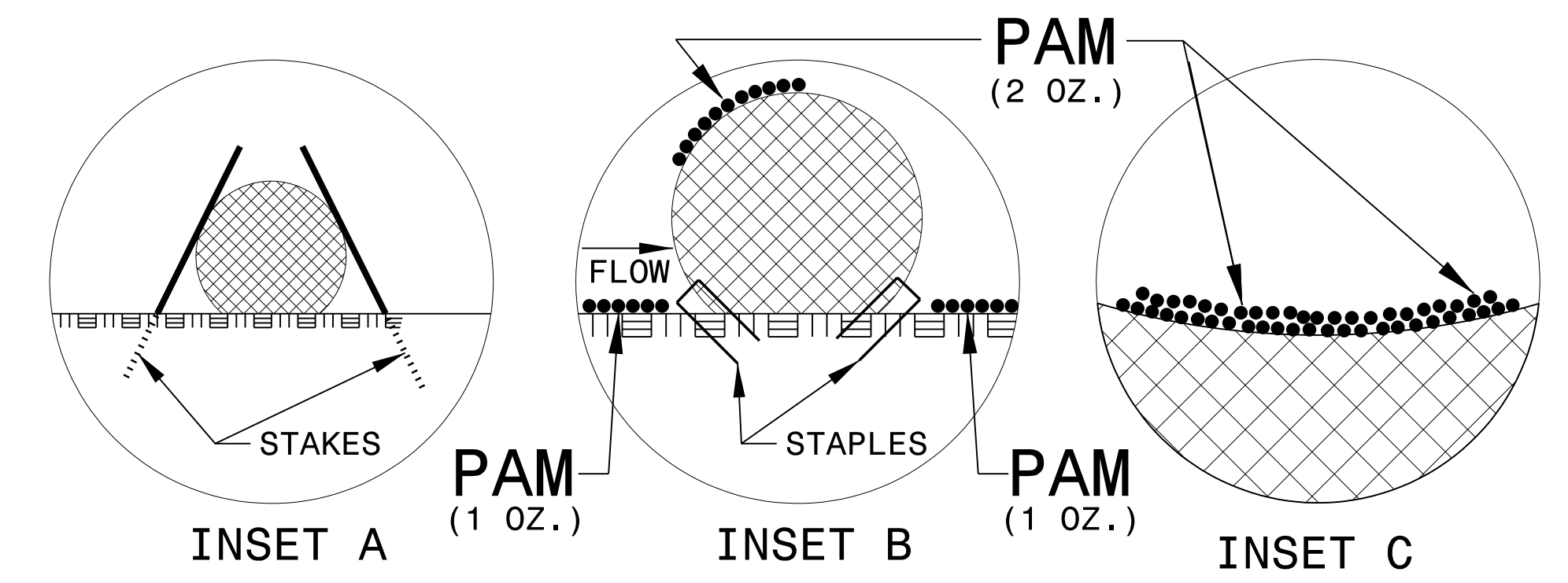
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1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1633.03 Temporary Rock Silt Check Type C
1630.02 Silt Basin Type 1	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	1640.01 Coir Fiber Wattle
1631.01 Matting Installation	1645.01 Temporary Stream Crossing

PROJECT REFERENCE NO. 17BP.8.R.125	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

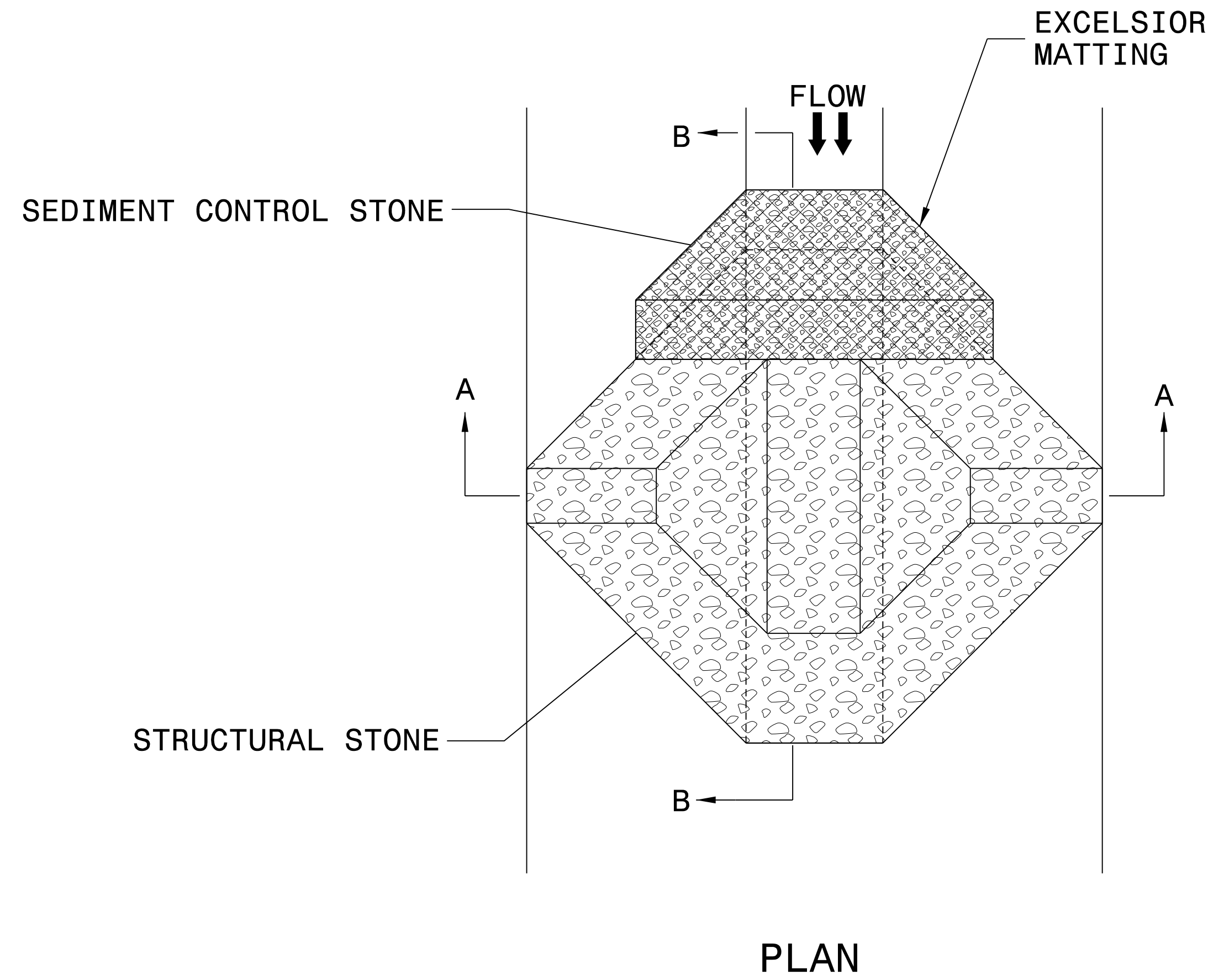


- NOTES:
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
 - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
 - ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
 - INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
 - PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
 - INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
 - INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
 - PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
 - INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



PROJECT REFERENCE NO. 17BP.8.R.125	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



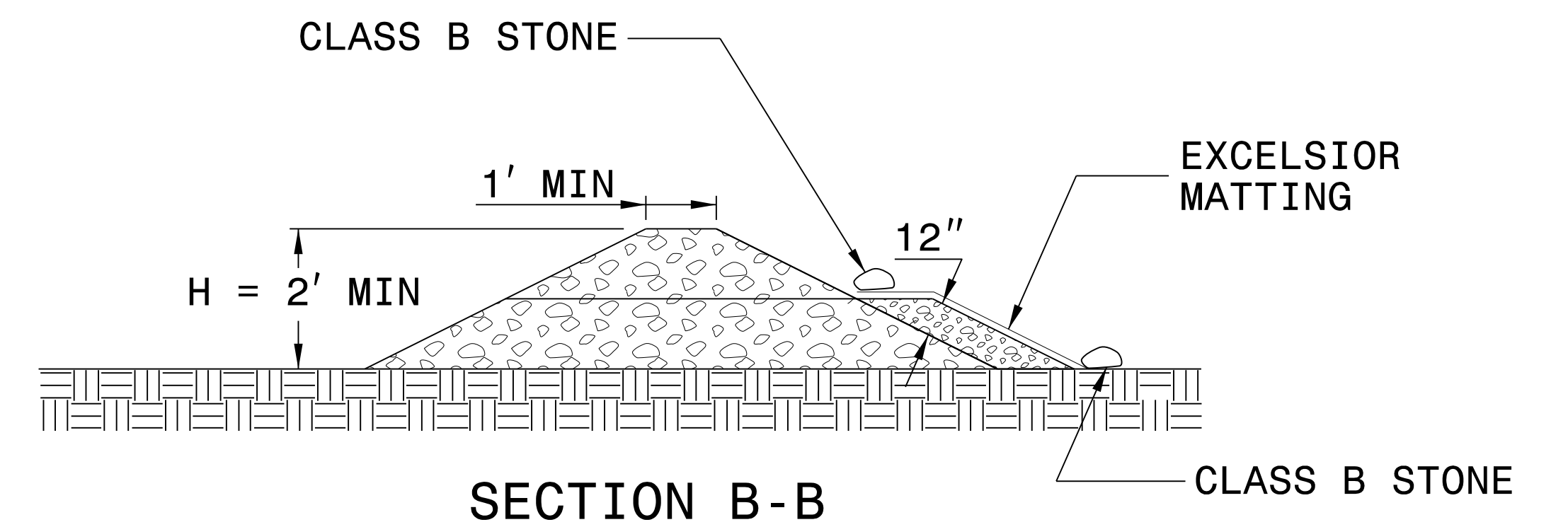
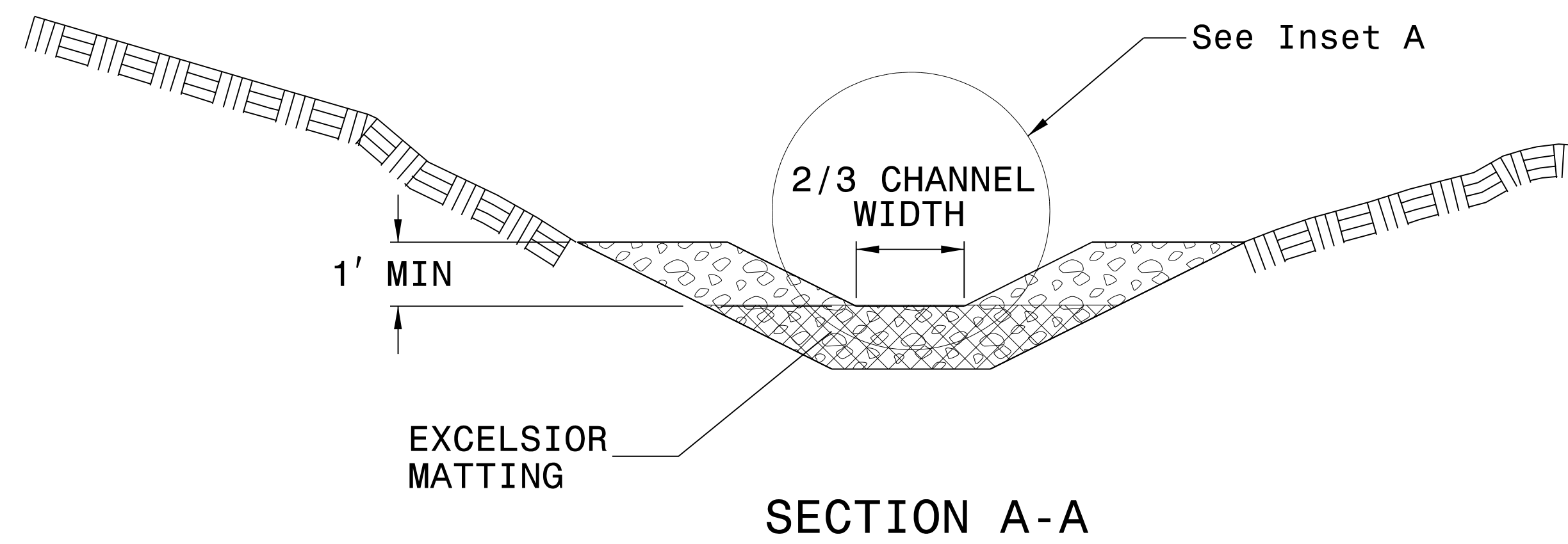
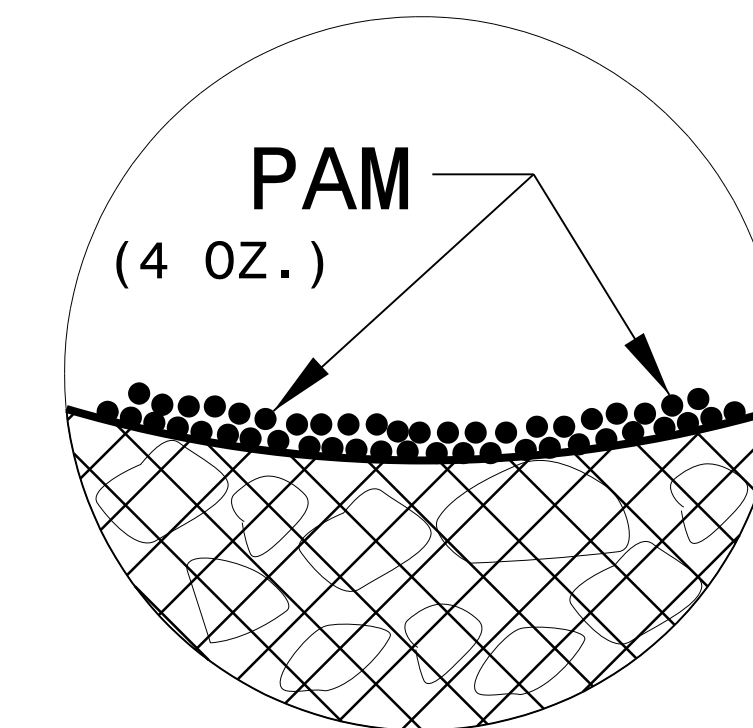
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

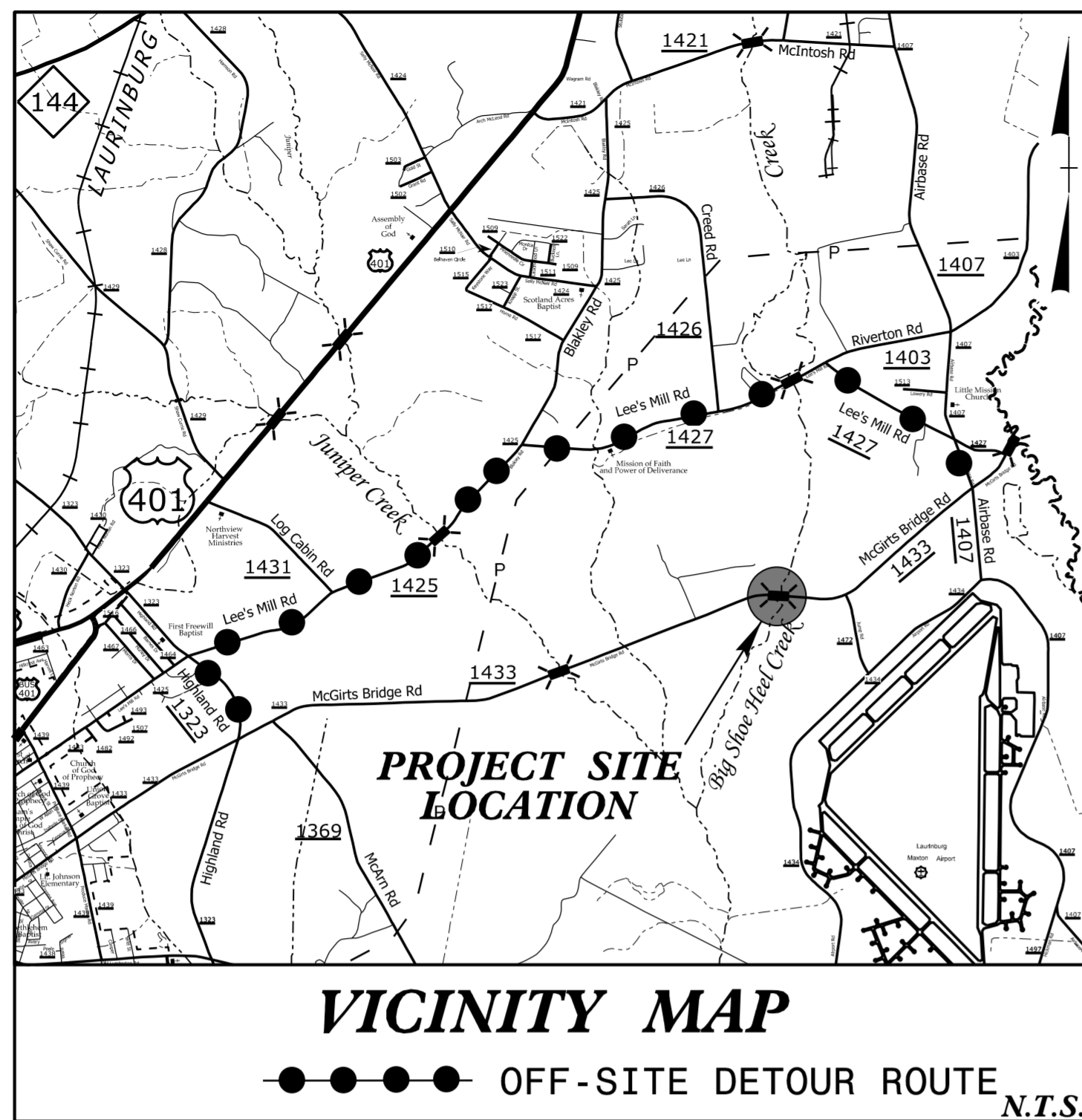
PROJECT REFERENCE NO. <i>17BP.8.RJ25</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

09/08/99

TIP PROJECT: 17BP.8.R.125



STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

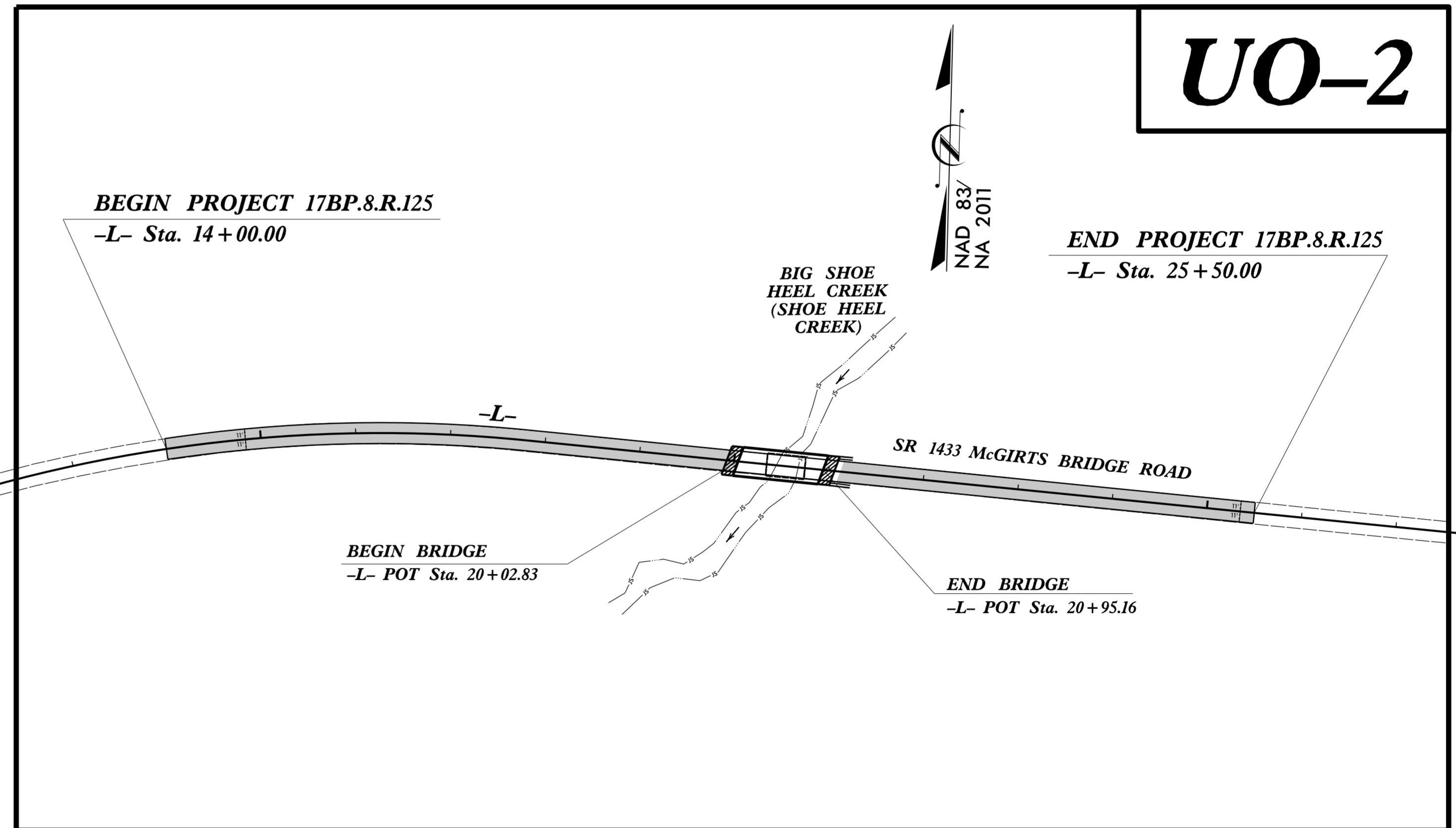
**UTILITIES BY OTHERS PLANS
 SCOTLAND COUNTY**

**LOCATION: BRIDGE NO. 820027 ON SR 1433 (McGIRTS BRIDGE RD)
 OVER BIG SHOE HEEL CREEK (SHOE HEEL CREEK)**

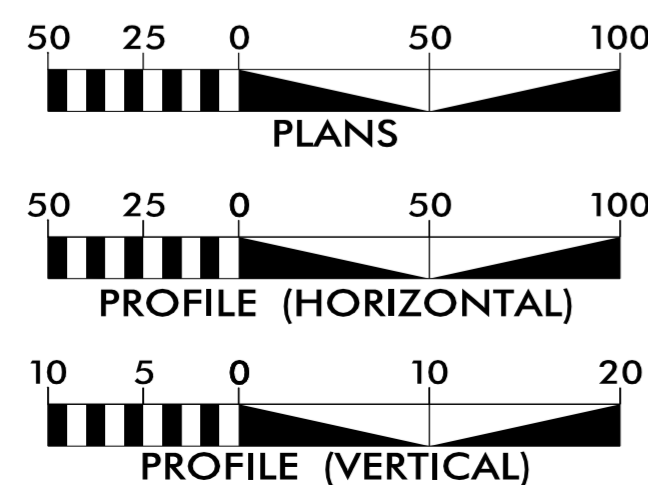
**TYPE OF WORK: POWER DISTRIBUTION, TELEPHONE TRANSMISSION
 AND COMMUNICATION RELOCATION**

T.I.P. NO.	SHEET NO.
17BP.8.R.125	UO-1

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



GRAPHIC SCALES



INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

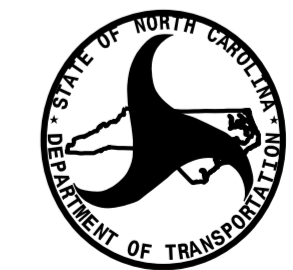
- (A) POWER DISTRIBUTION - LUMBEE RIVER EMC
- (B) TELEPHONE TRANSMISSION - AT&T TRANSMISSION
- (C) COMMUNICATIONS - CITY OF LAURINBURG

PREPARED IN THE OFFICE OF:



3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

UTILITIES PROJECT ENGINEER
 Mary Jo Lee, P.E.



DIVISION OF HIGHWAYS
 DIVISION 8

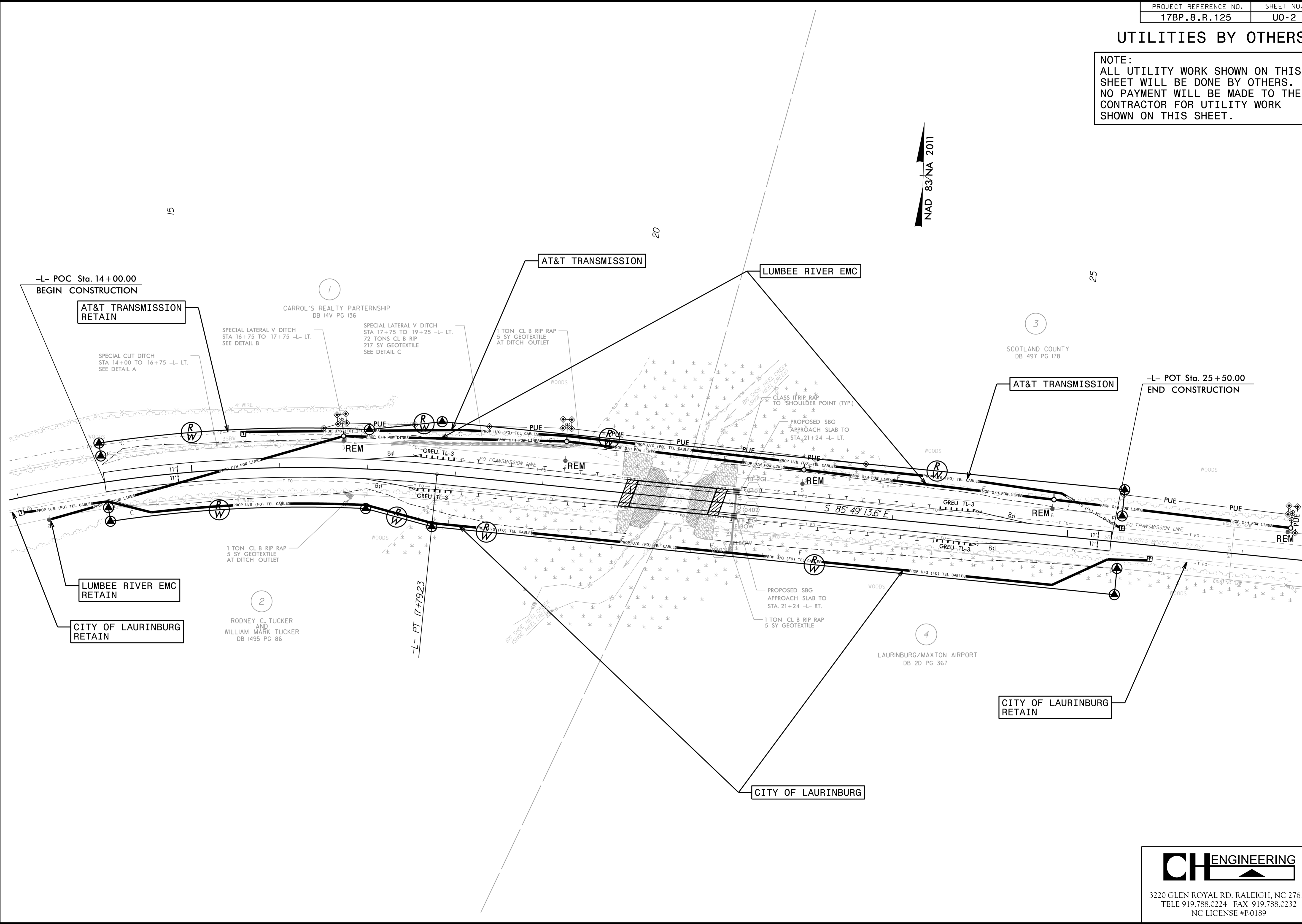
902 NORTH SANDHILLS BLVD
 ABERDEEN, NC 28315

JAMIE YOW DIVISION CONTACT #1
 TIM WELCH, PE DIVISION CONTACT #2
 TRAVIS MORGAN, PE DIVISION CONTACT #3

UTILITIES BY OTHERS

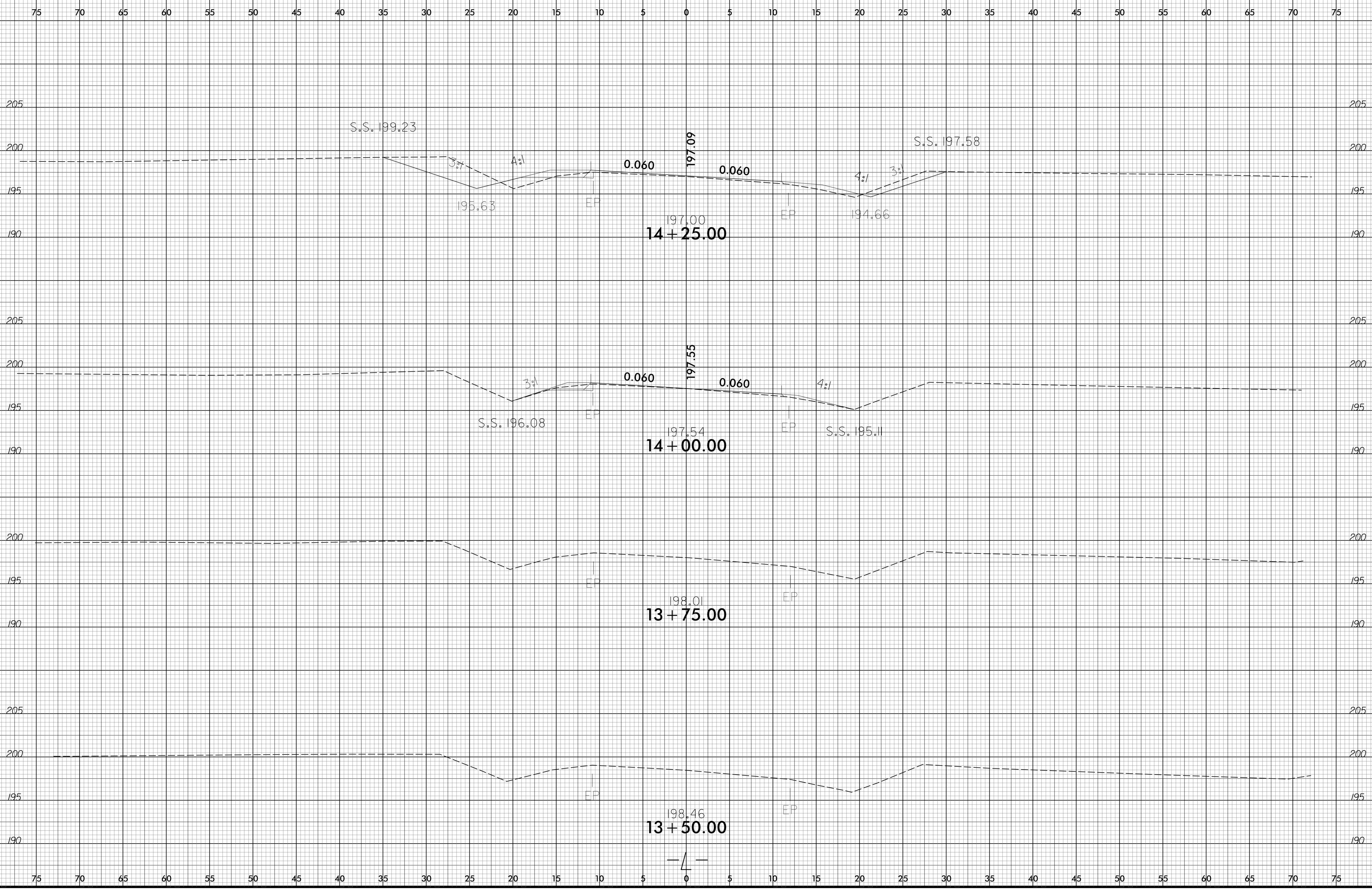
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 ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS.
 NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

NAD 83/NA 2011

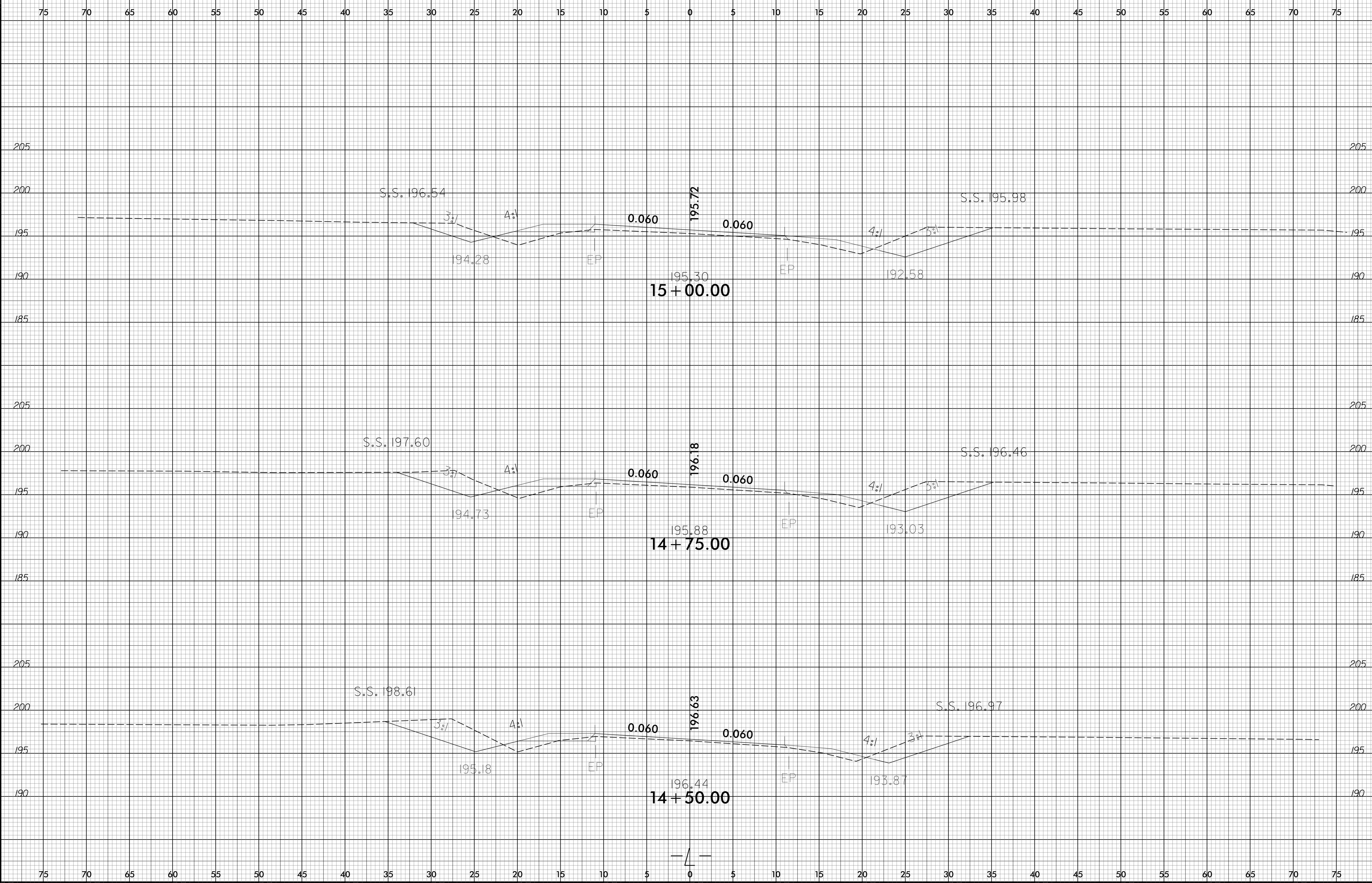


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5/15/2018
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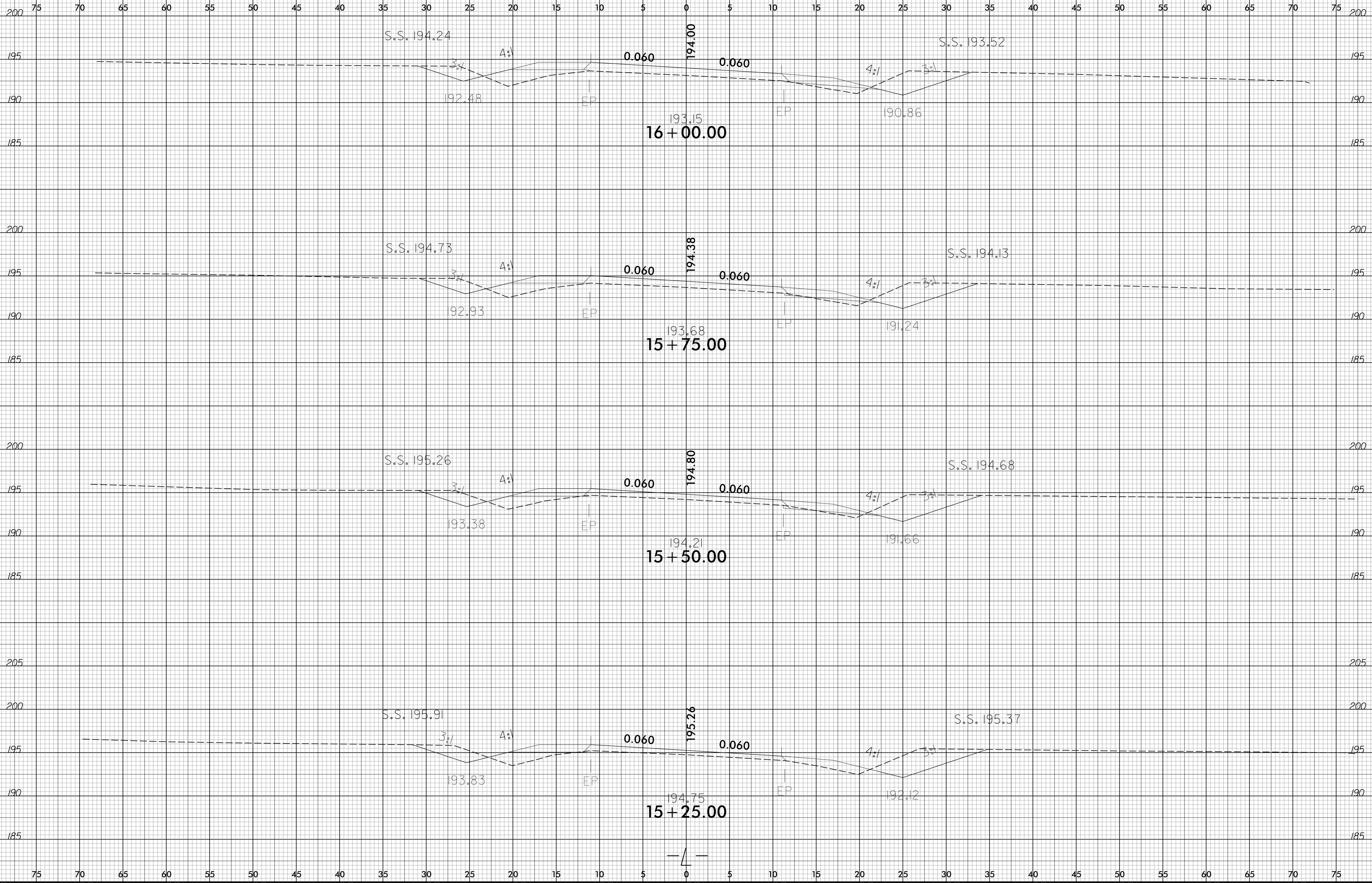
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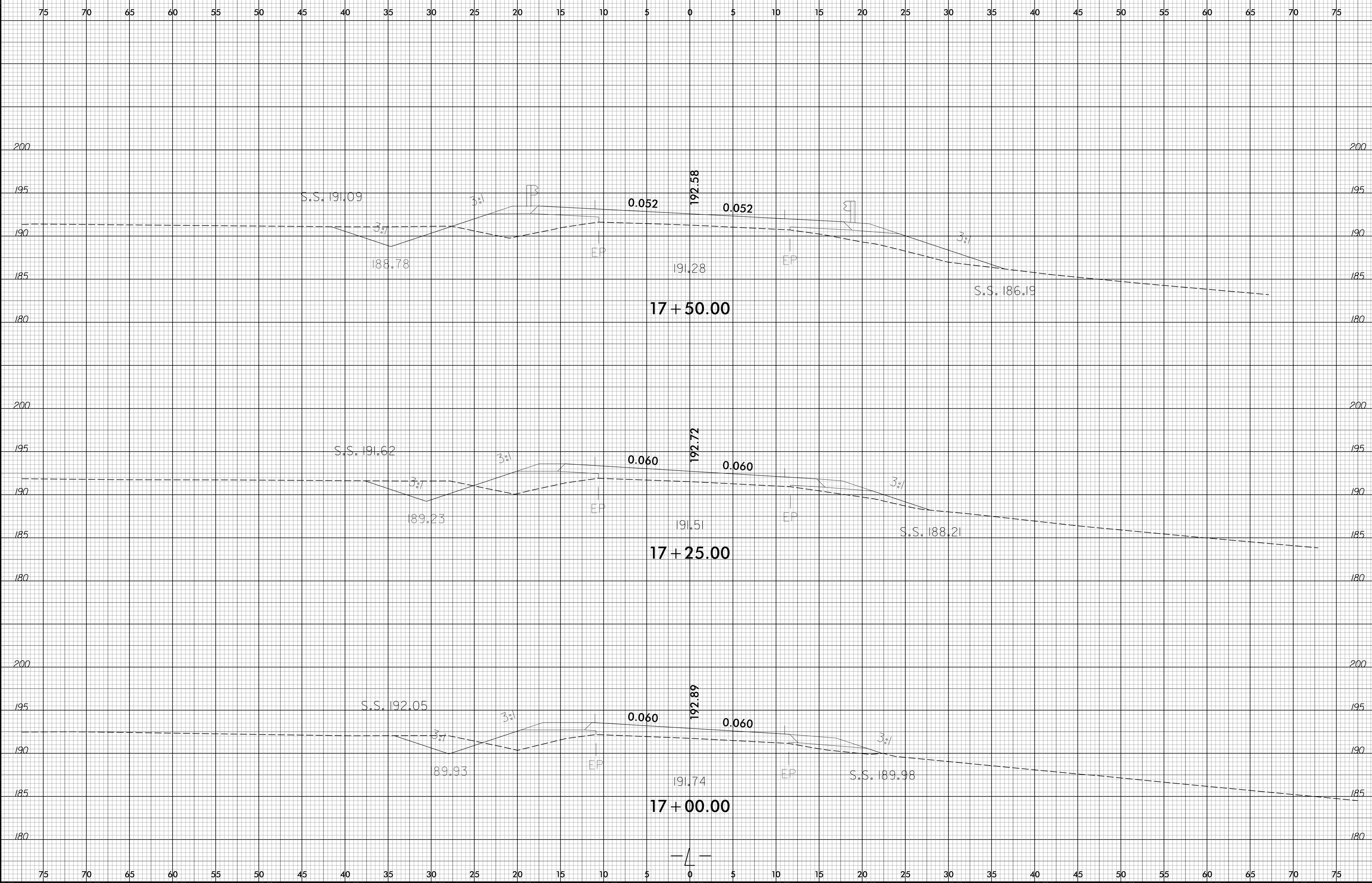
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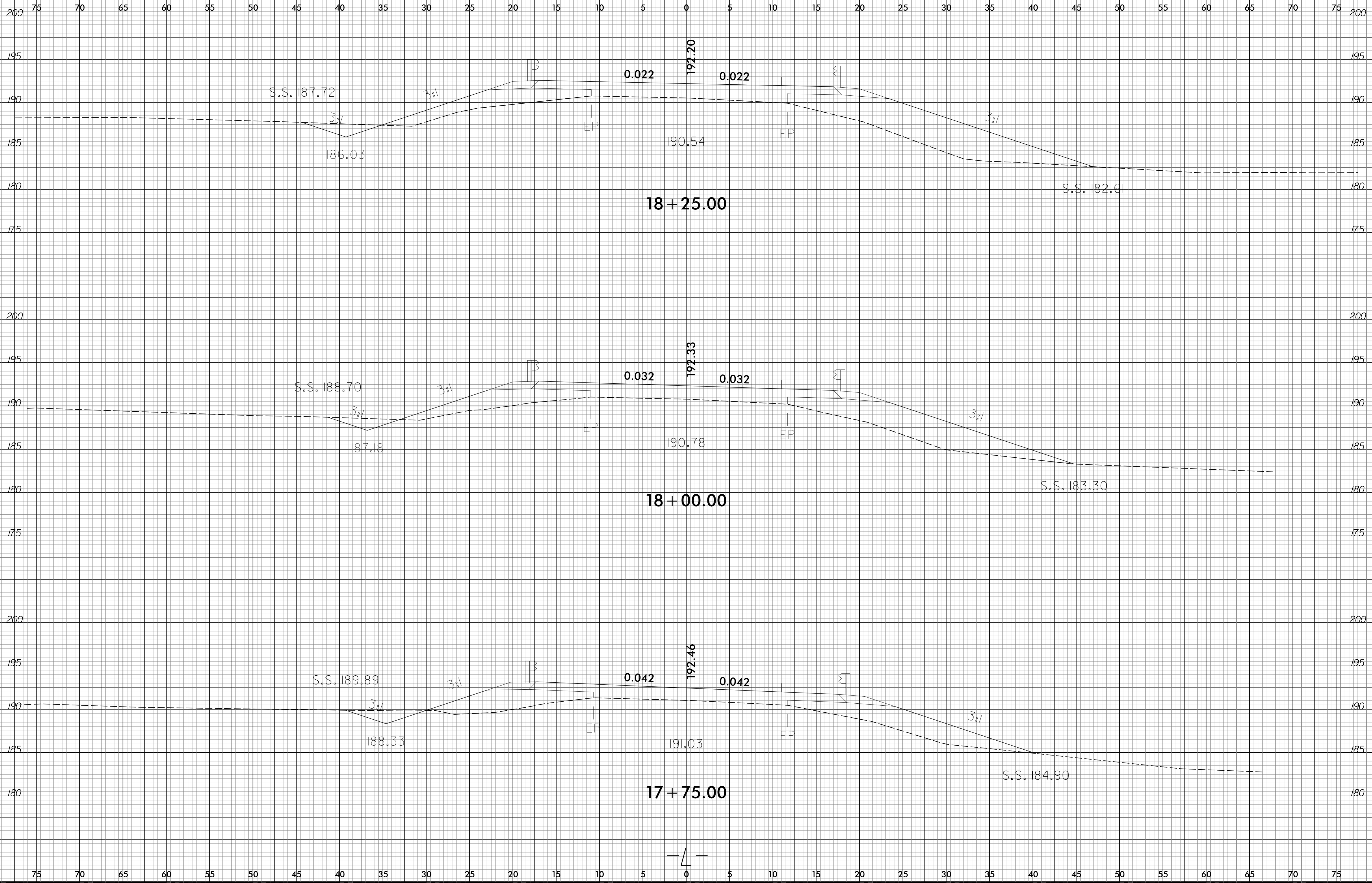
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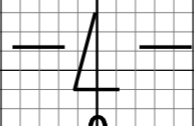
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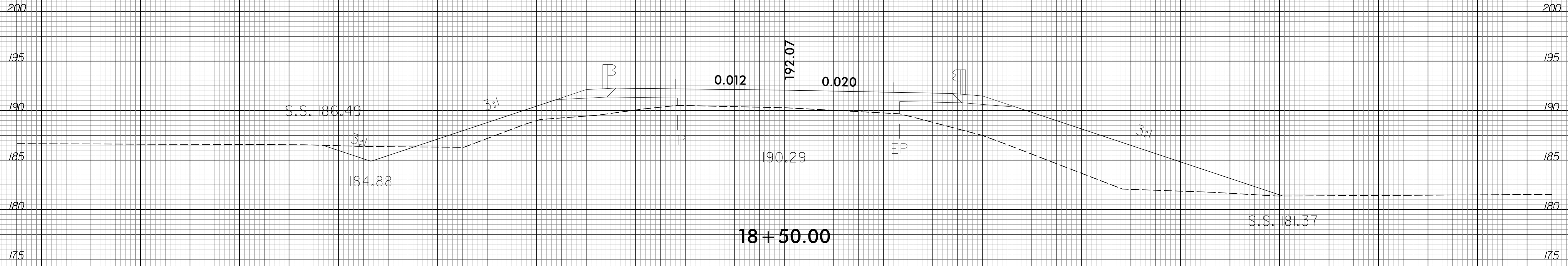
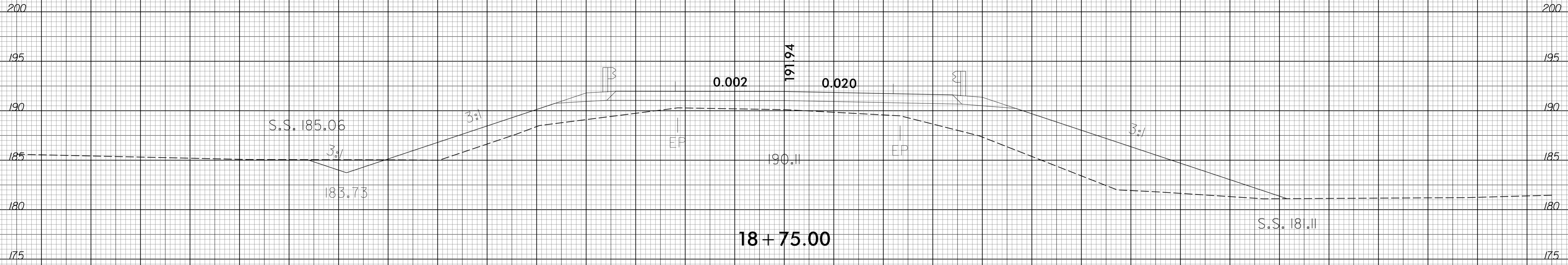
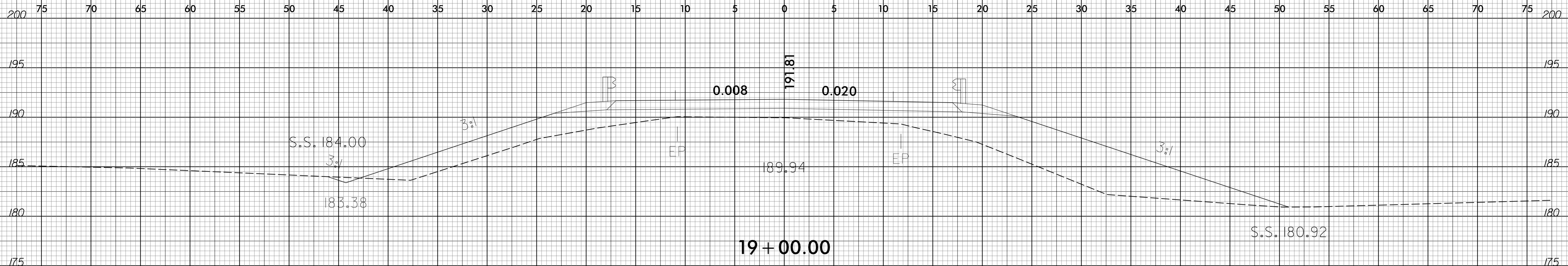


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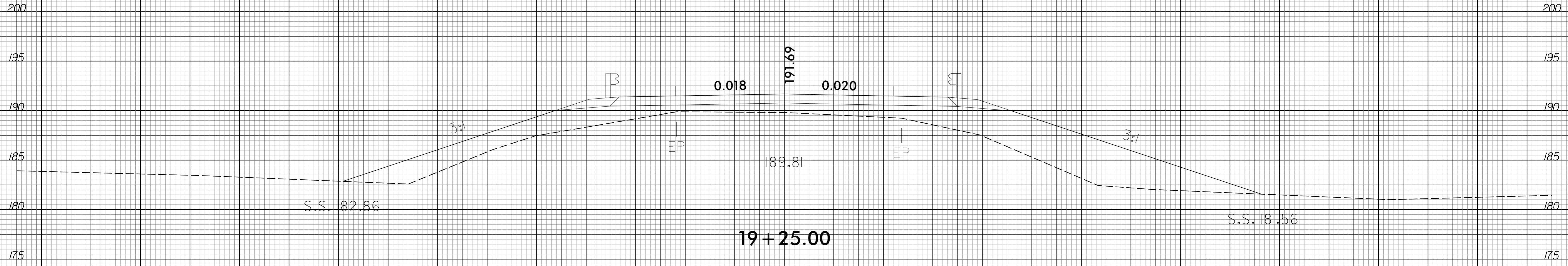
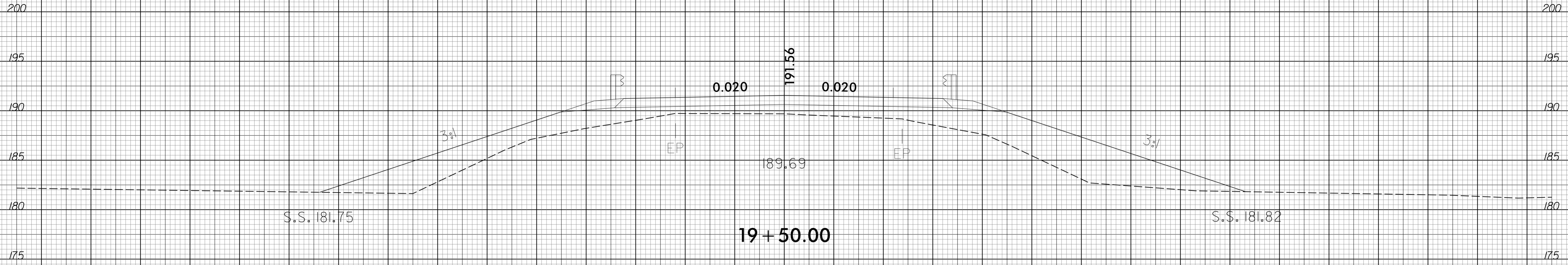
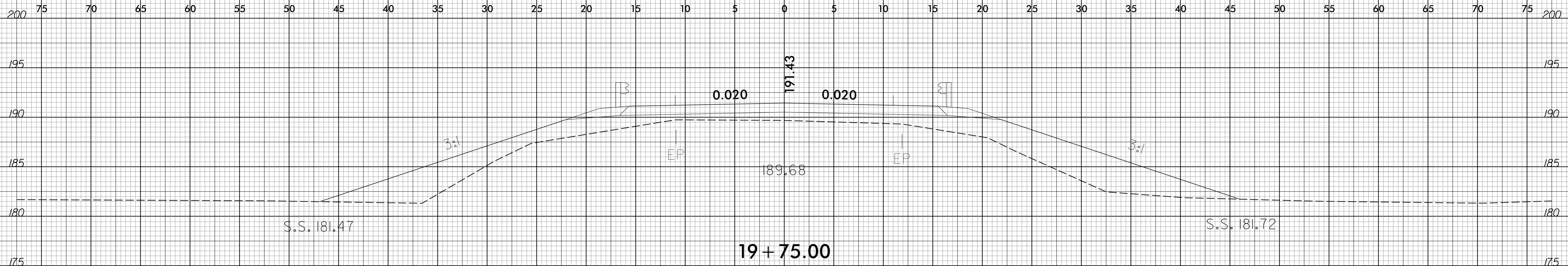


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	17BP.8.R.125	X-7



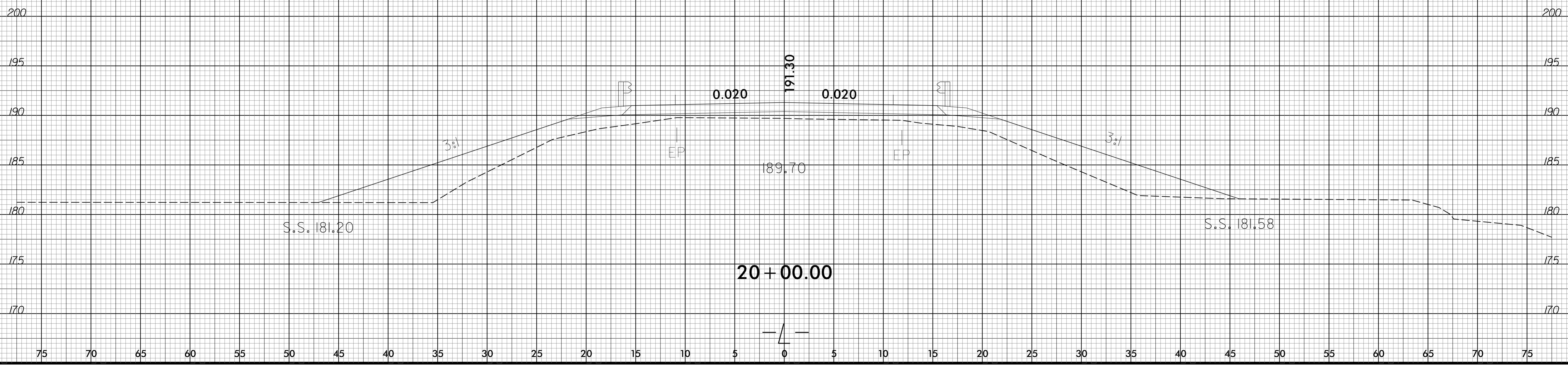
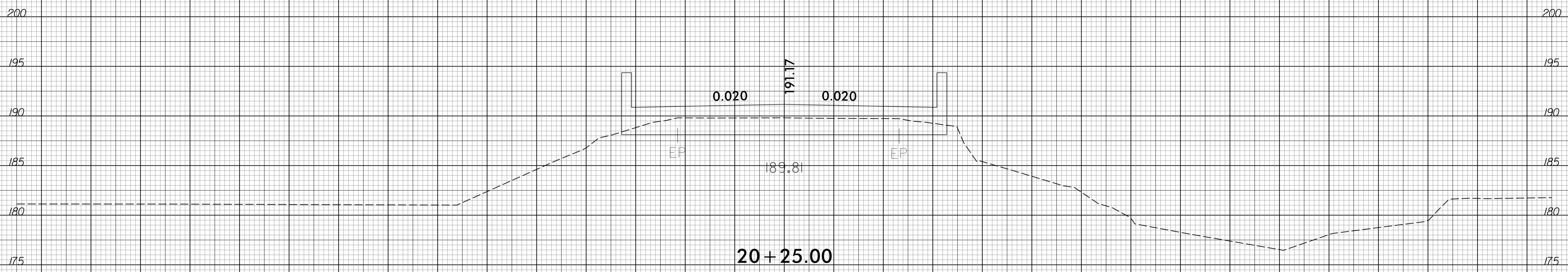
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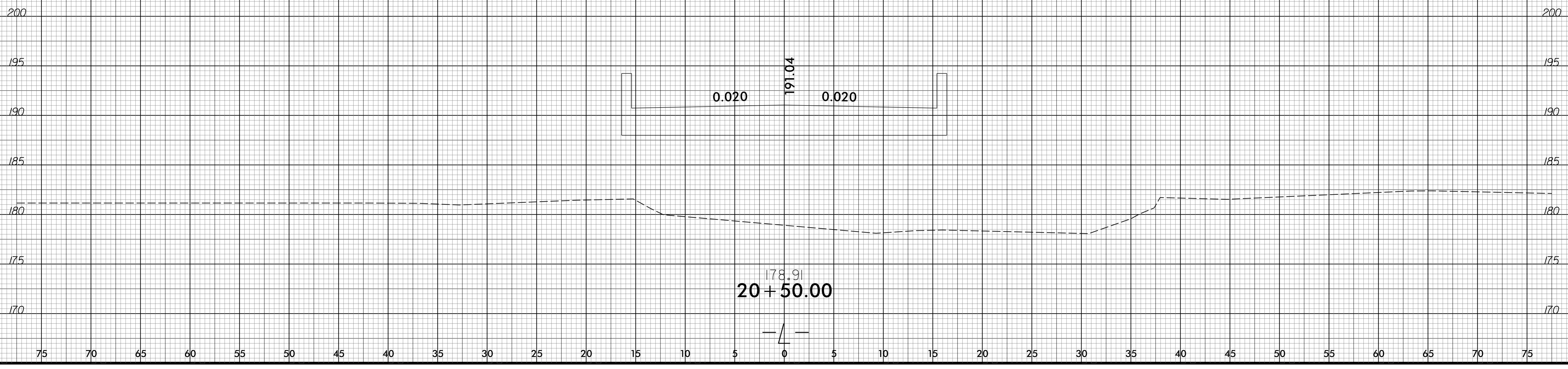
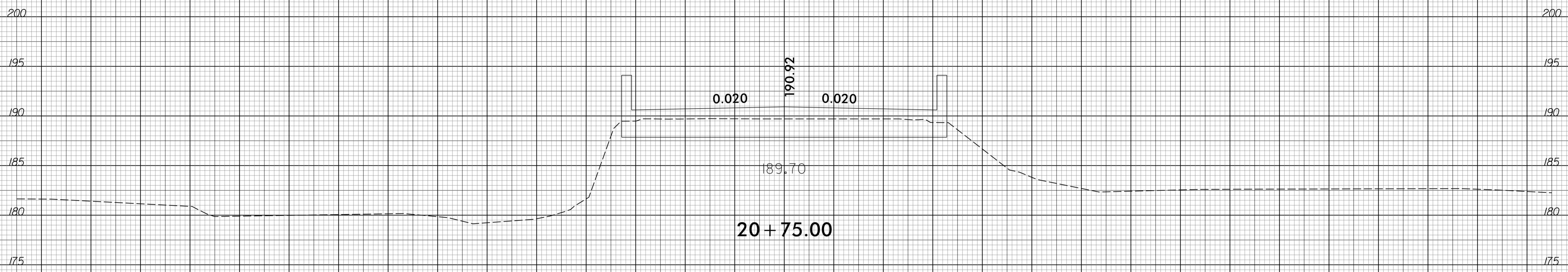


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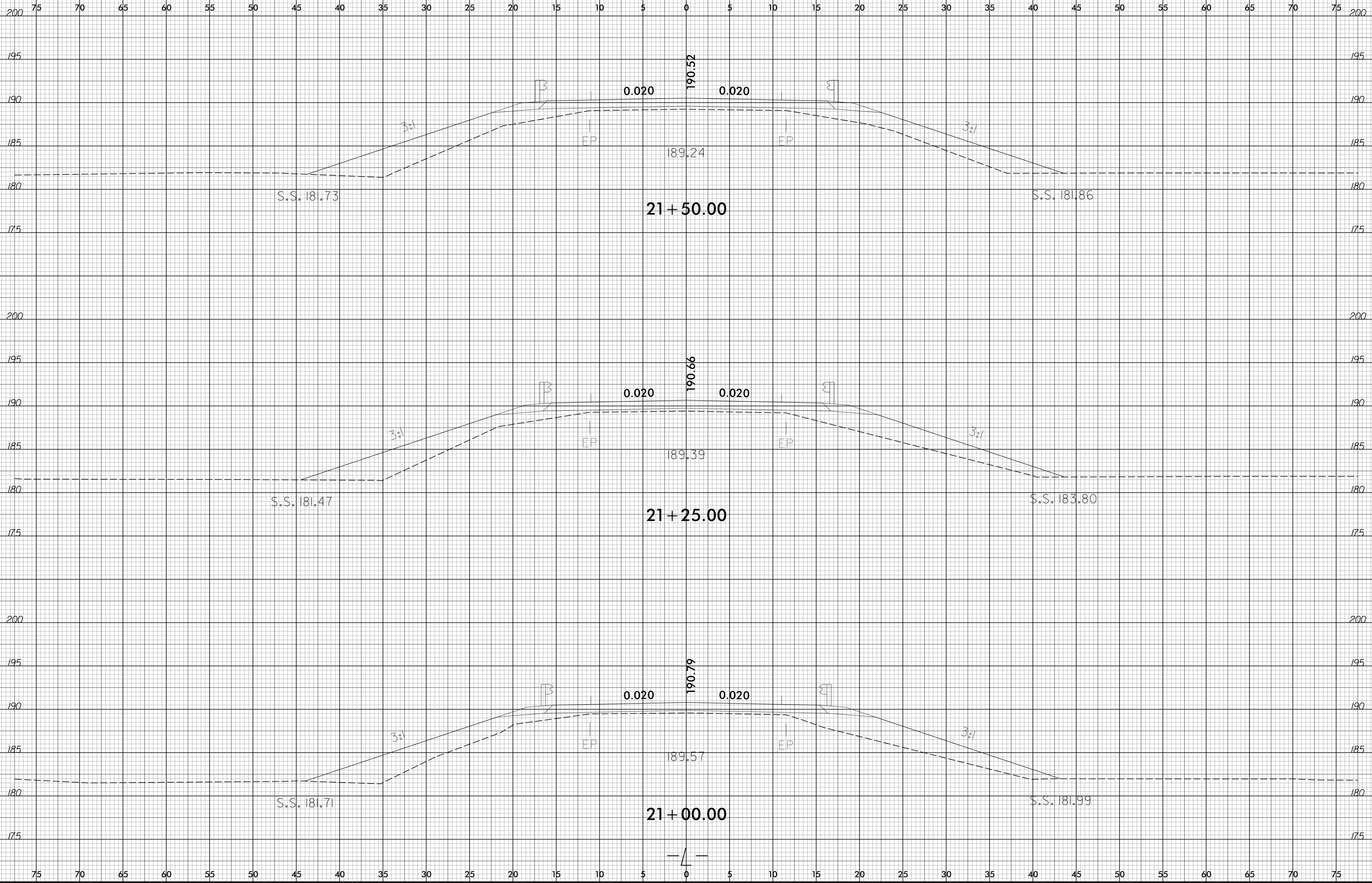
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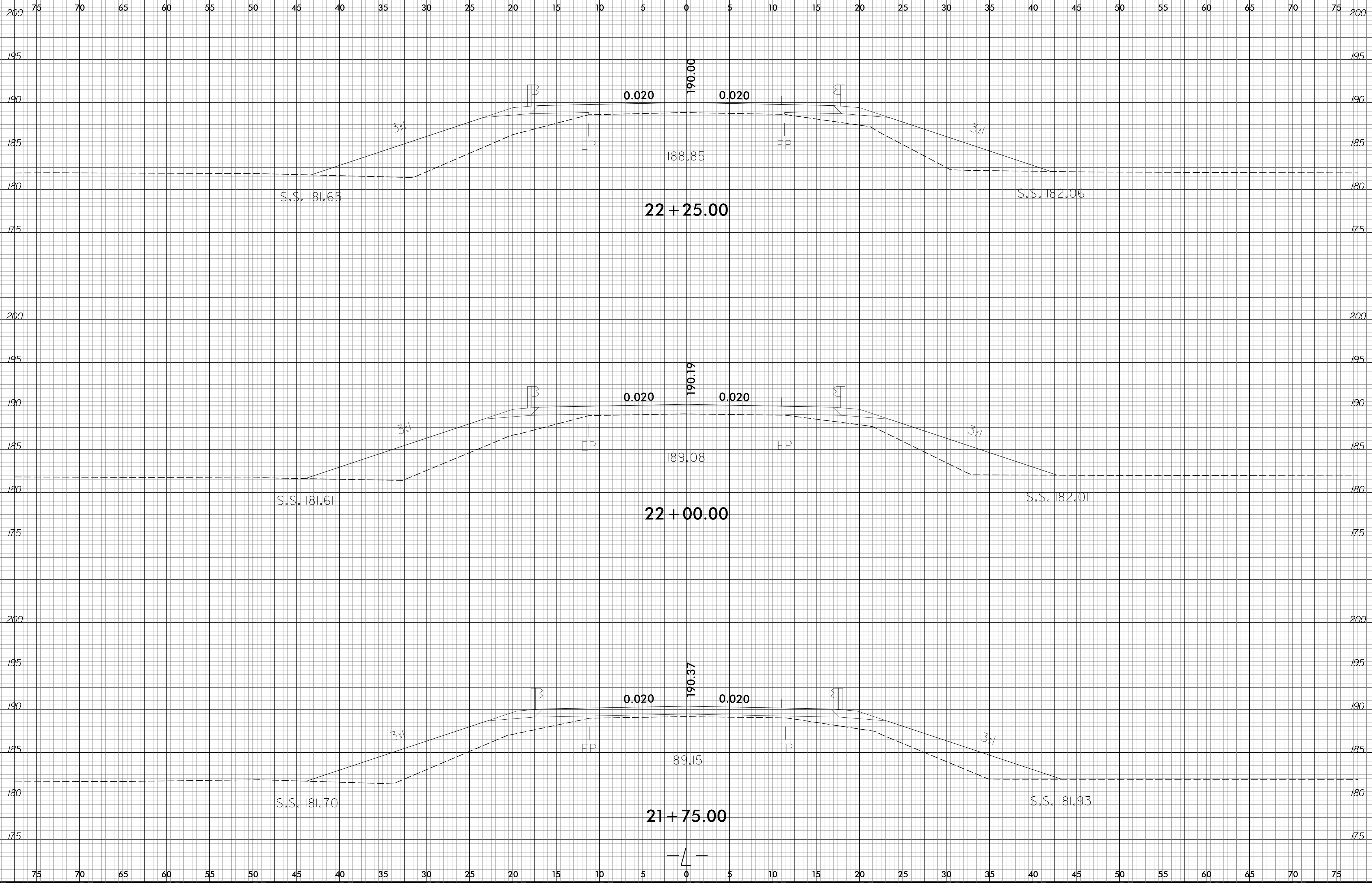
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6/23/16



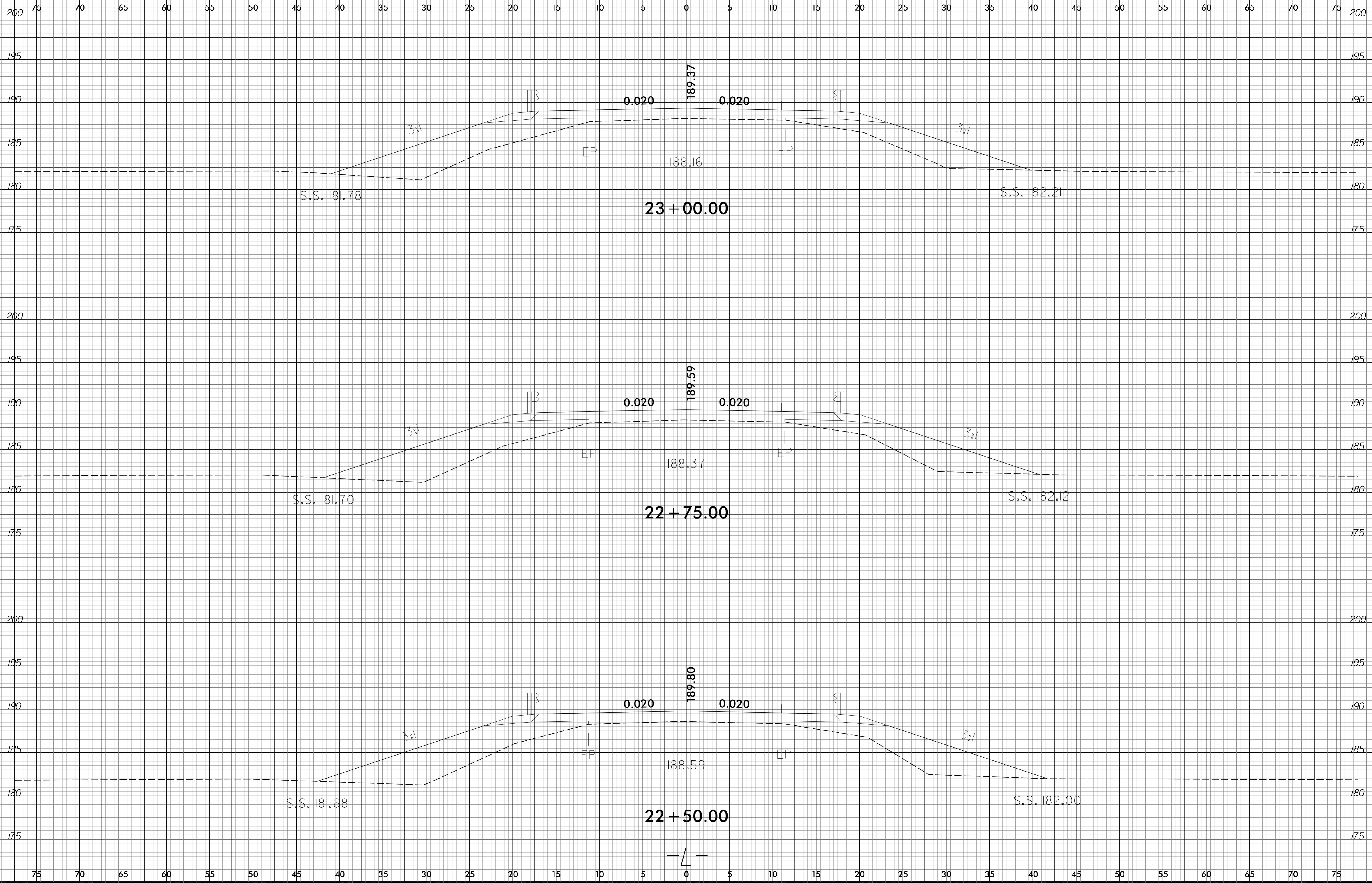
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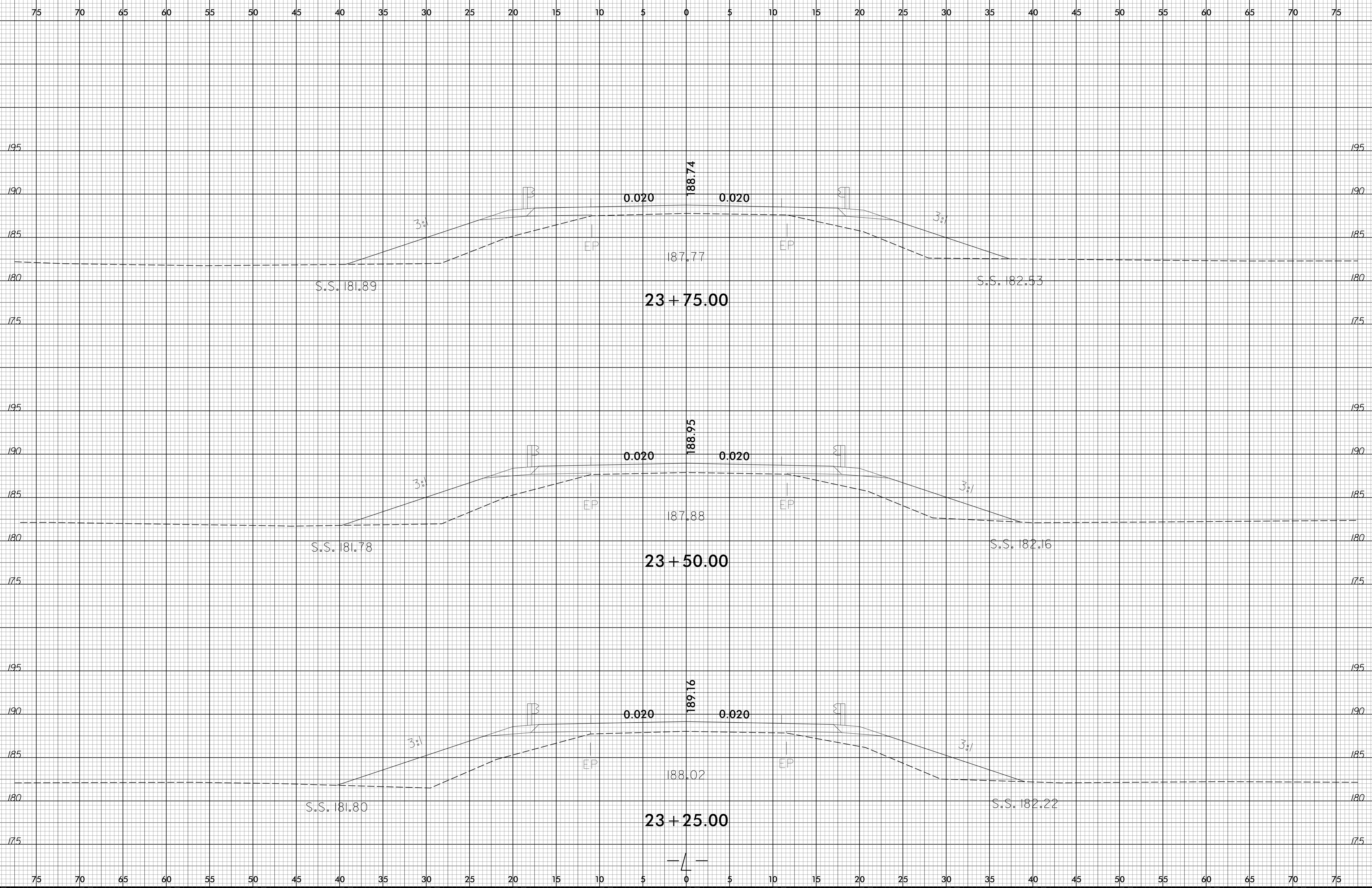
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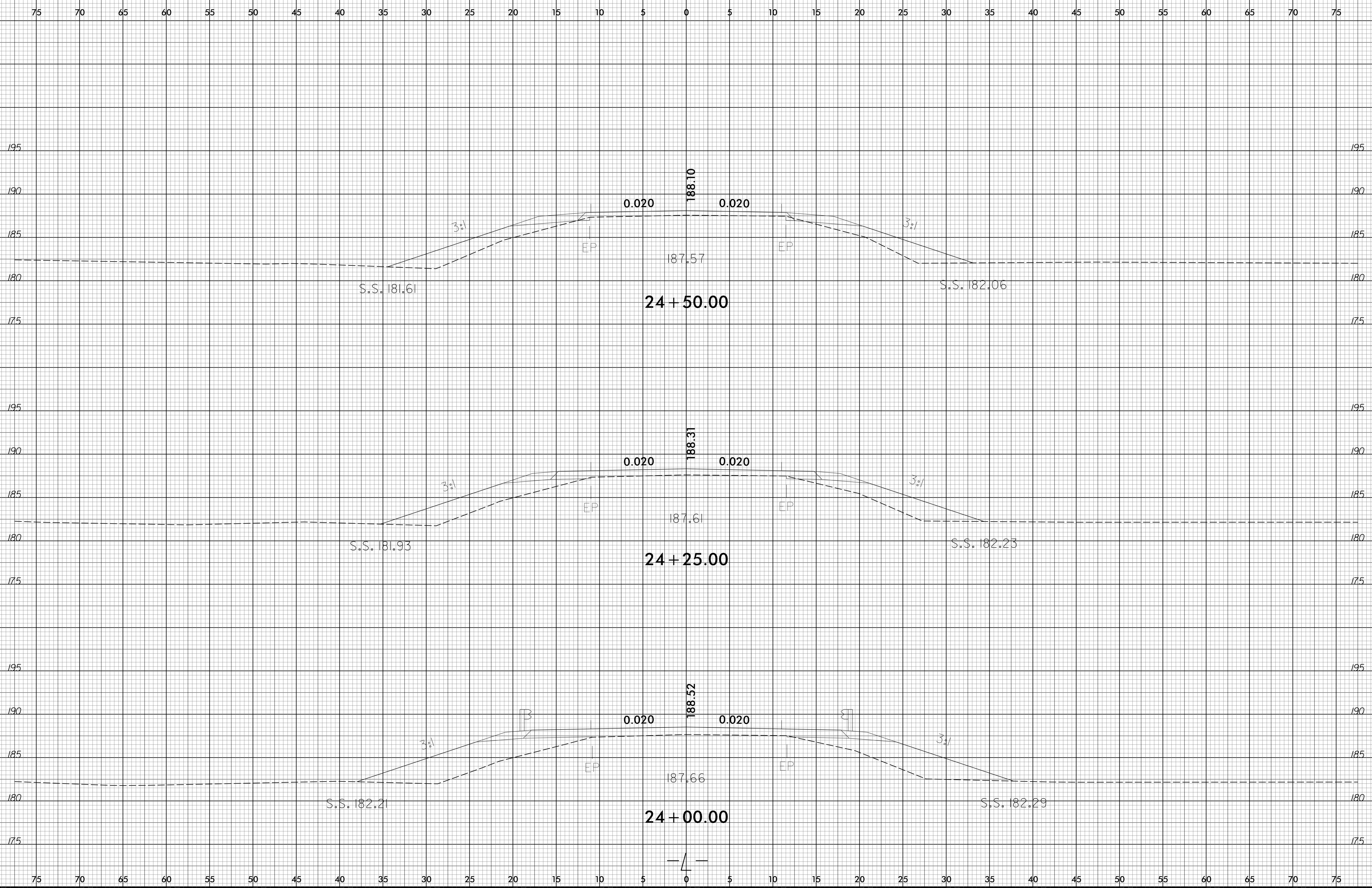
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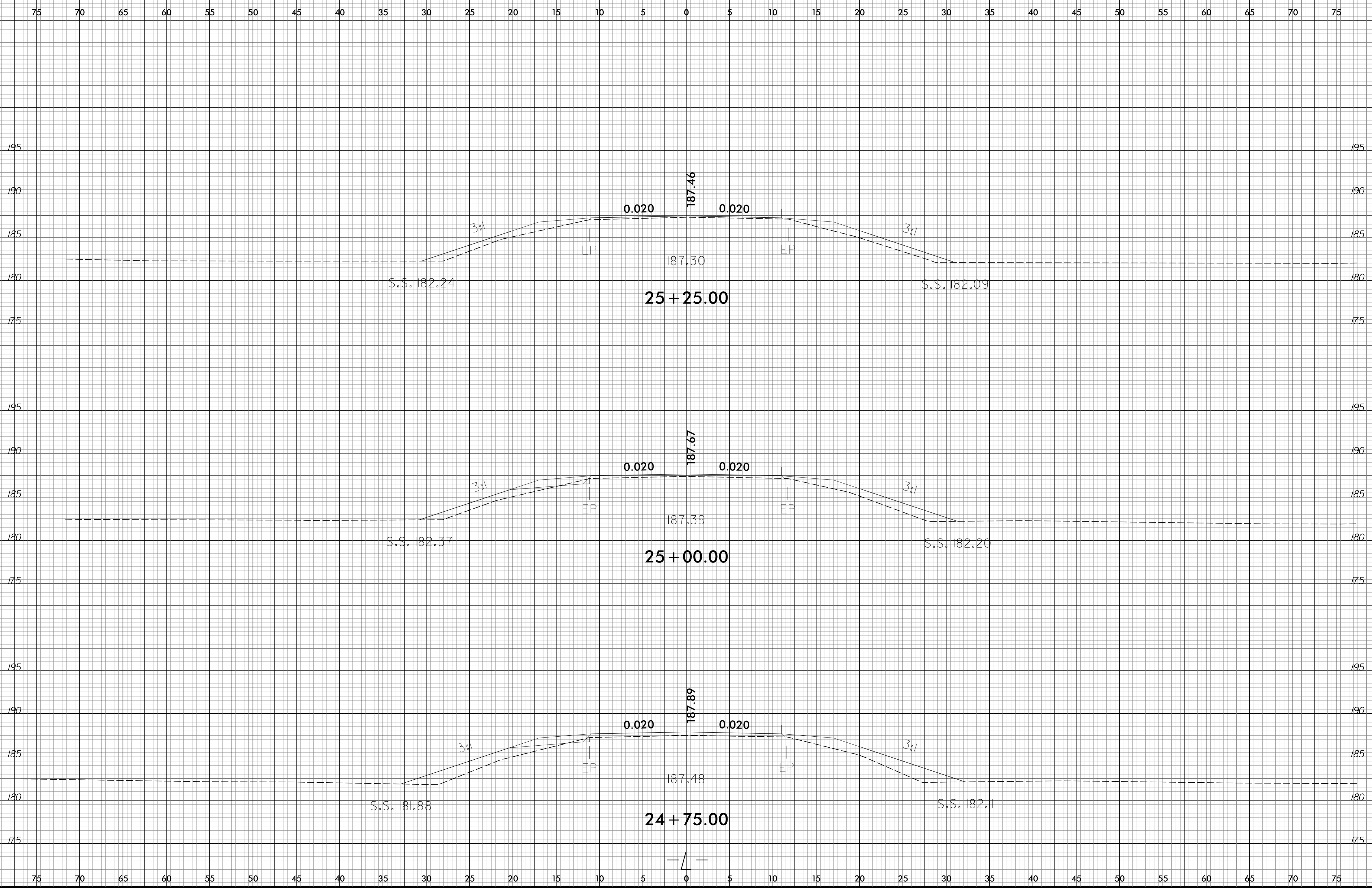


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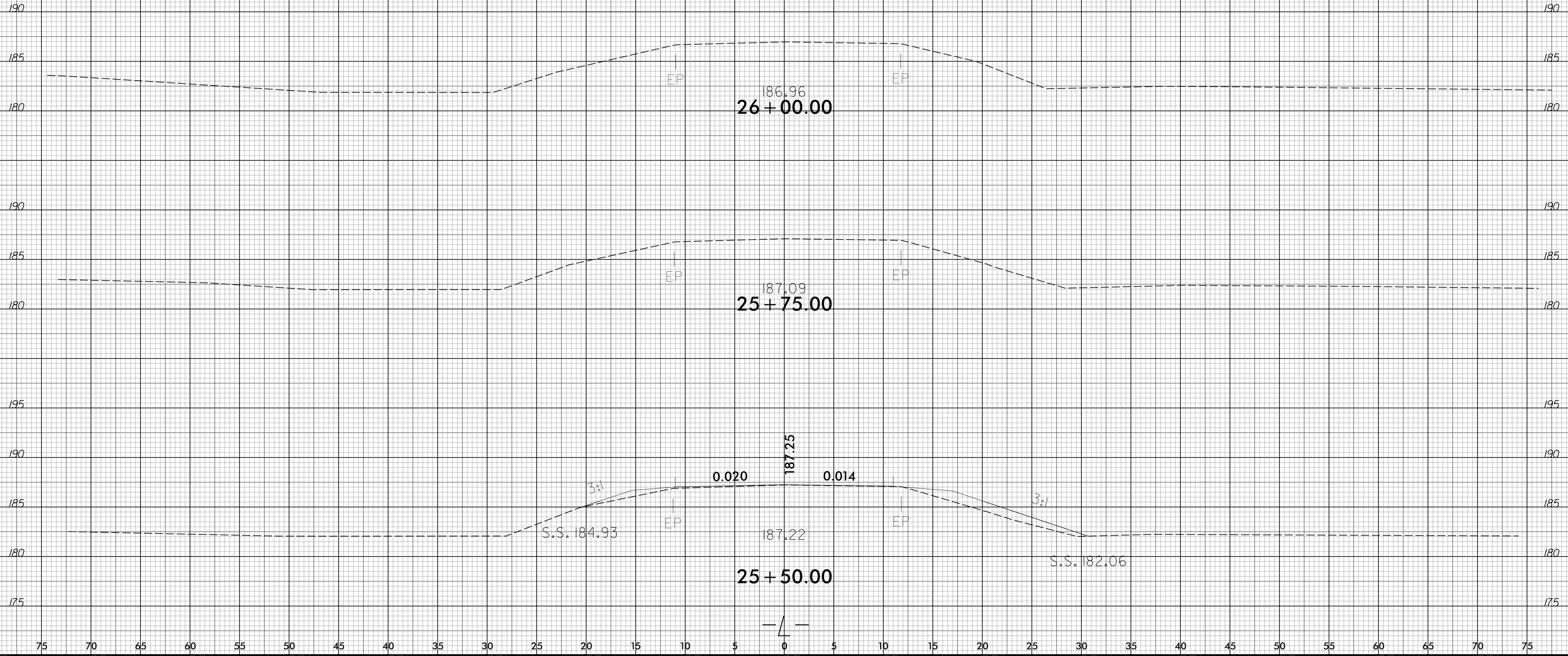


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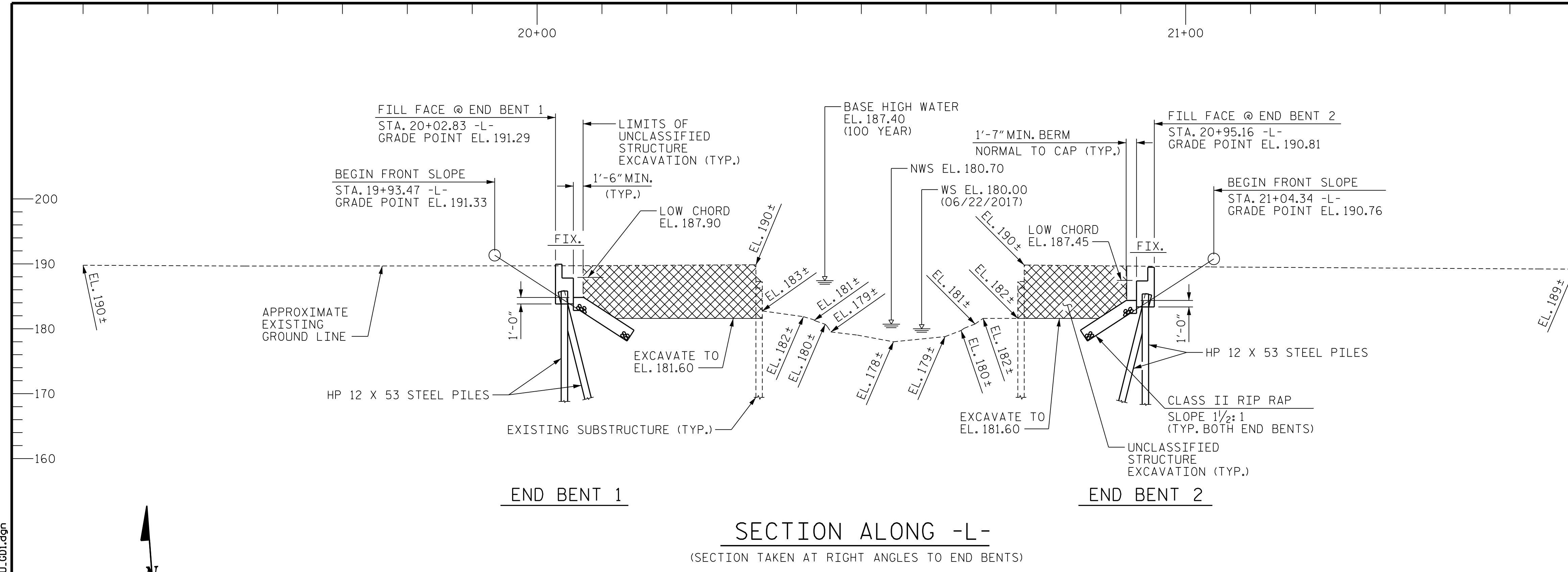




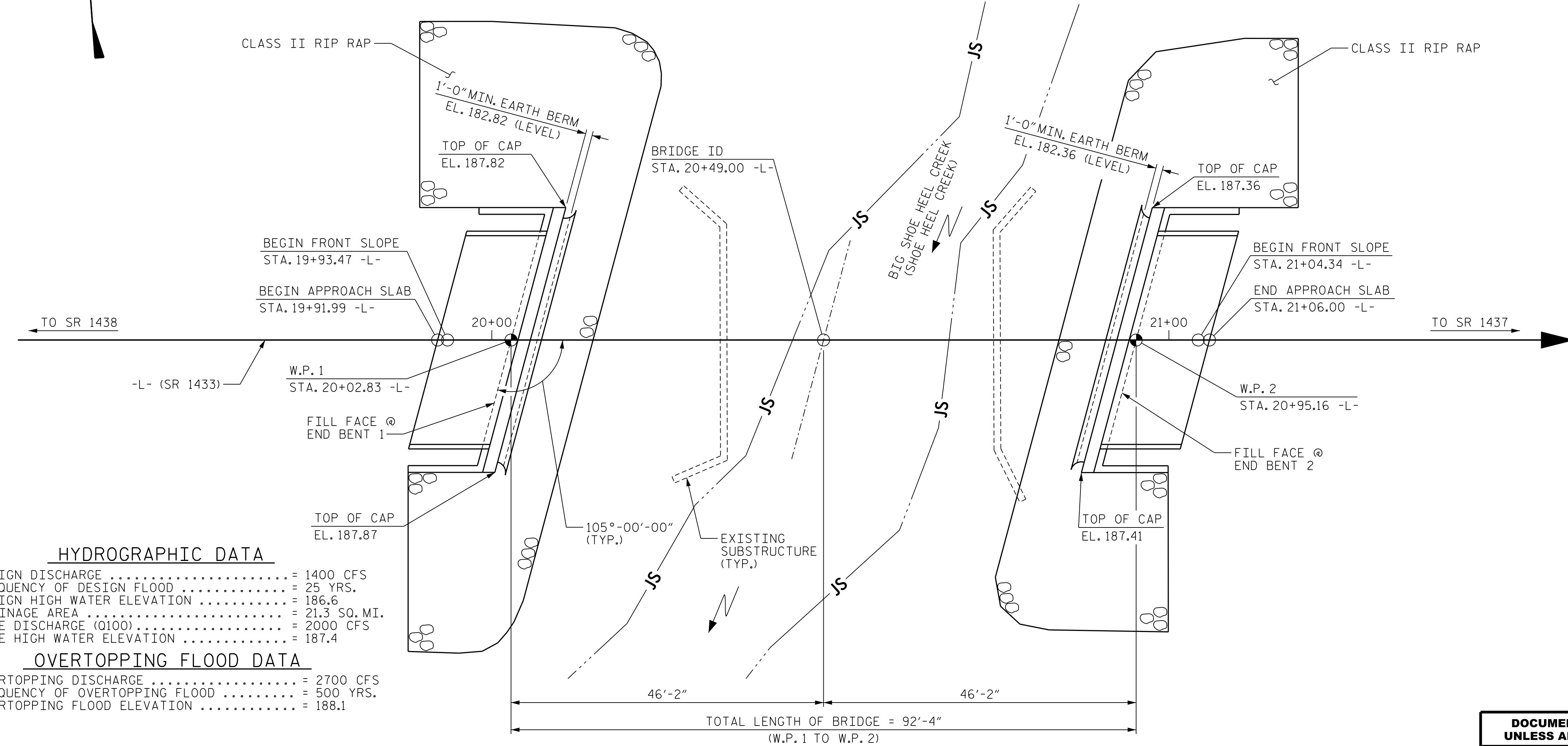
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-0.5138% Δ -0.8493%
 PVI = 21+85.00 -L-
 EL. = 190.35
 V.C. = 120.00 FT.
GRADE DATA -L-



SECTION ALONG -L-
 (SECTION TAKEN AT RIGHT ANGLES TO END BENTS)



PLAN
 (PILES NOT SHOWN FOR CLARITY)

I HEREBY CERTIFY THESE PLANS
 ARE THE AS-BUILT PLANS

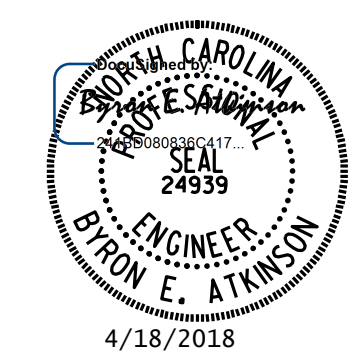
PROJECT NO. 17BP.8.R.125
 SCOTLAND COUNTY
 STATION: 20+49.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 27

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1433
 OVER BIG SHOE HEEL CREEK
 BETWEEN SR 1438 AND SR 1437



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

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

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

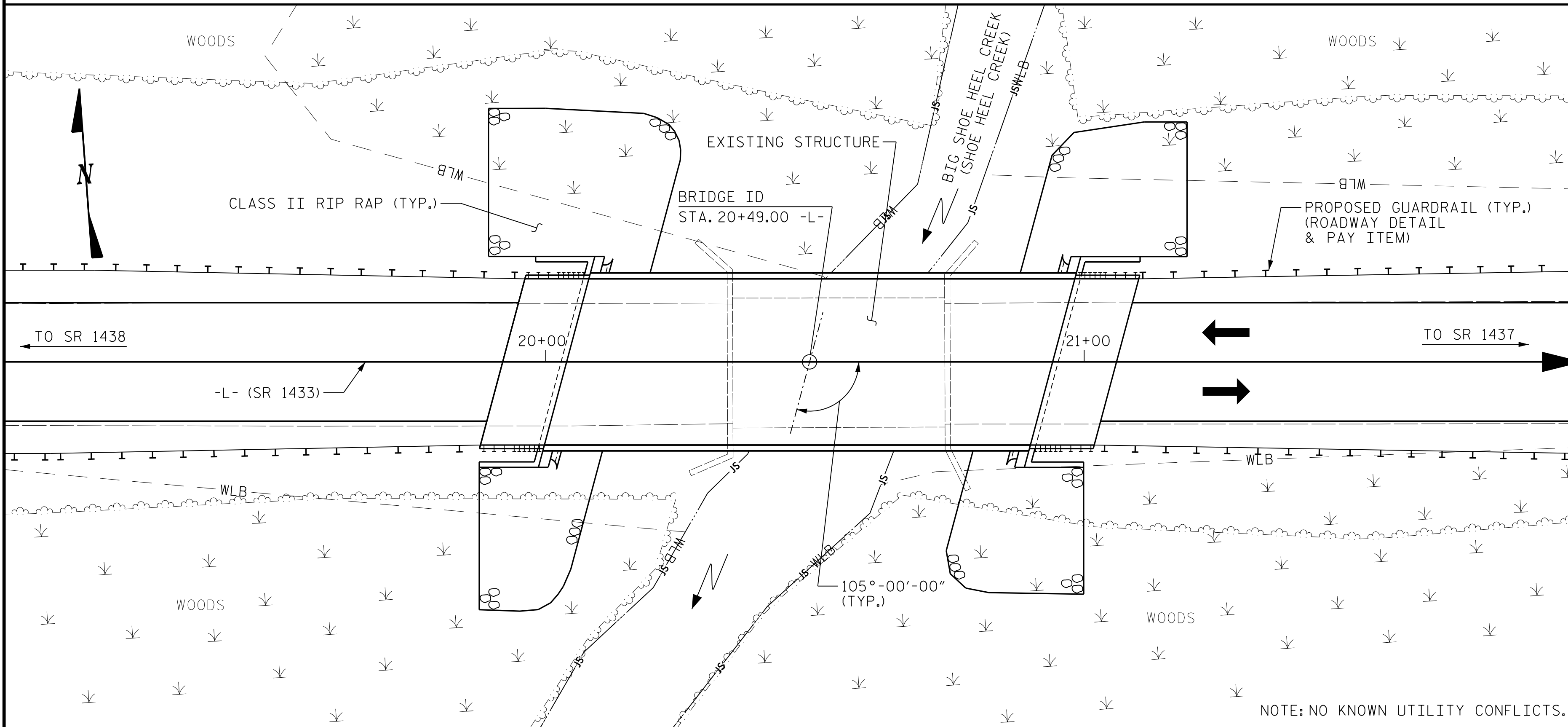
HYDROGRAPHIC DATA
 DESIGN DISCHARGE = 1400 CFS
 FREQUENCY OF DESIGN FLOOD = 25 YRS.
 DESIGN HIGH WATER ELEVATION = 186.6
 DRAINAGE AREA = 21.3 SQ. MI.
 BASE DISCHARGE (Q100) = 2000 CFS
 BASE HIGH WATER ELEVATION = 187.4

OVERTOPPING FLOOD DATA
 OVERTOPPING DISCHARGE = 2700 CFS
 FREQUENCY OF OVERTOPPING FLOOD = 500 YRS.
 OVERTOPPING FLOOD ELEVATION = 188.1

DRAWN BY : B.E. LANNING DATE : 02/18
 CHECKED BY : B.E. ATKINSON DATE : 02/18
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 02/18

4/18/2018 10:47:52 AM User: blanning File: P:\NC Bridges\165006.CH Eng.Div. 8 Br. Repl. 15 Bridges\165006.02.Scotland 27\17BP8R125\Structures\401.001.17BP8R125.SMU.GDI.dgn

B.M. 1: NAIL SET IN 12" MAPLE TREE, 121.18' LT. OF STA. 20+57.00 -L-, EL. 183.86



LOCATION SKETCH

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 2.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 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+49.00 -L-."
 THE EXISTING STRUCTURE CONSISTING OF ONE (1) SPAN @ 40'-6", WITH ASPHALT WEARING SURFACE ON TIMBER DECK WITH I-BEAMS AND A CLEAR ROADWAY WIDTH OF 23'-6" ON TIMBER CAPS WITH TIMBER PILES END BENTS AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS TO NOT ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. EACH SIDE OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON THE DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES".
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.
 AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT AND BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

FOUNDATION NOTES

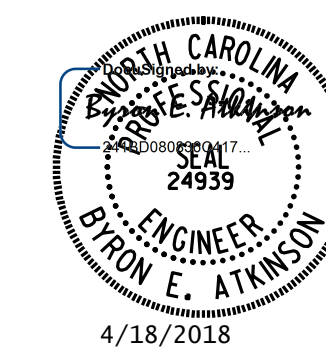
FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 104 TONS PER PILE.
 DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 175 TONS PER PILE.
 IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30 TO 40 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT 1 AND END BENT 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.
 TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING IS REQUIRED AT END BENT 1 OR END BENT 2. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	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	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-9" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	NO. LIN. FT.	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE						LUMP SUM					180.00			LUMP SUM	11	990.00
END BENT 1				LUMP SUM	26.2		3670	7	7 574	7		238	264			
END BENT 2				LUMP SUM	26.2		3670	7	7 539	7		215	239			
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	52.4	LUMP SUM	7340	14	14 1113	14	180.00	453	503	LUMP SUM	11	990.00

PROJECT NO. 17BP.8.R.125
 SCOTLAND COUNTY
 STATION: 20+49.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 1433
 OVER BIG SHOE HEEL CREEK
 BETWEEN SR 1438 AND SR 1437

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

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

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

DRAWN BY : B.E. LANNING DATE : 02/18
 CHECKED BY : B.E. ATKINSON DATE : 02/18
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 02/18

4/18/2018 10:47:54 AM User: blanning
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LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.126	--	1.75	0.267	1.49	A	EL	44.224	0.584	1.15	A	EL	8.845	0.80	0.267	1.13	A	EL	44.224		
	HL-93(Opr)	N/A	--	1.488	--	1.35	0.267	1.94	A	EL	44.224	0.584	1.49	A	EL	8.845	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.491	53.666	1.75	0.267	2.03	A	EL	44.224	0.584	1.49	A	EL	8.845	0.80	0.267	1.53	A	EL	44.224		
	HS-20(Opr)	36.000	--	1.932	69.567	1.35	0.267	2.63	A	EL	44.224	0.584	1.93	A	EL	8.845	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.573	48.237	1.4	0.267	5.92	A	EL	44.224	0.584	4.53	A	EL	8.845	0.80	0.267	3.57	A	EL	44.224	
		SNGARBS2	20.000	--	2.611	52.229	1.4	0.267	4.33	A	EL	44.224	0.584	3.19	A	EL	8.845	0.80	0.267	2.61	A	EL	44.224	
		SNAGRIS2	22.000	--	2.452	53.948	1.4	0.267	4.07	A	EL	44.224	0.584	2.95	A	EL	8.845	0.80	0.267	2.45	A	EL	44.224	
		SNCOTTS3	27.250	--	1.777	48.412	1.4	0.267	2.95	A	EL	44.224	0.584	2.26	A	EL	8.845	0.80	0.267	1.78	A	EL	44.224	
		SNAGGRS4	34.925	--	1.465	51.163	1.4	0.267	2.43	A	EL	44.224	0.584	1.85	A	EL	8.845	0.80	0.267	1.46	A	EL	44.224	
		SNS5A	35.550	--	1.434	50.974	1.4	0.267	2.38	A	EL	44.224	0.584	1.87	A	EL	8.845	0.80	0.267	1.43	A	EL	44.224	
		SNS6A	39.950	--	1.307	52.234	1.4	0.267	2.17	A	EL	44.224	0.584	1.69	A	EL	8.845	0.80	0.267	1.31	A	EL	44.224	
	SNS7B	42.000	--	1.245	52.283	1.4	0.267	2.06	A	EL	44.224	0.584	1.65	A	EL	8.845	0.80	0.267	1.24	A	EL	44.224		
	TTST	TNAGRIT3	33.000	--	1.592	52.537	1.4	0.267	2.64	A	EL	44.224	0.584	2.02	A	EL	8.845	0.80	0.267	1.59	A	EL	44.224	
		TNT4A	33.075	--	1.597	52.815	1.4	0.267	2.65	A	EL	44.224	0.584	1.98	A	EL	8.845	0.80	0.267	1.60	A	EL	44.224	
		TNT6A	41.600	--	1.298	53.997	1.4	0.267	2.15	A	EL	44.224	0.584	1.74	A	EL	8.845	0.80	0.267	1.30	A	EL	44.224	
		TNT7A	42.000	--	1.3	54.619	1.4	0.267	2.16	A	EL	44.224	0.584	1.71	A	EL	8.845	0.80	0.267	1.30	A	EL	44.224	
		TNT7B	42.000	--	1.335	56.09	1.4	0.267	2.21	A	EL	44.224	0.584	1.62	A	EL	8.845	0.80	0.267	1.34	A	EL	44.224	
		TNAGRIT4	43.000	--	1.278	54.943	1.4	0.267	2.12	A	EL	44.224	0.584	1.57	A	EL	8.845	0.80	0.267	1.28	A	EL	44.224	
TNACT5A		45.000	--	1.208	54.37	1.4	0.267	2	A	EL	44.224	0.584	1.55	A	EL	8.845	0.80	0.267	1.21	A	EL	44.224		
TNACT5B	45.000	3	1.197	53.852	1.4	0.267	1.98	A	EL	44.224	0.584	1.5	A	EL	8.845	0.80	0.267	1.20	A	EL	44.224			

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)

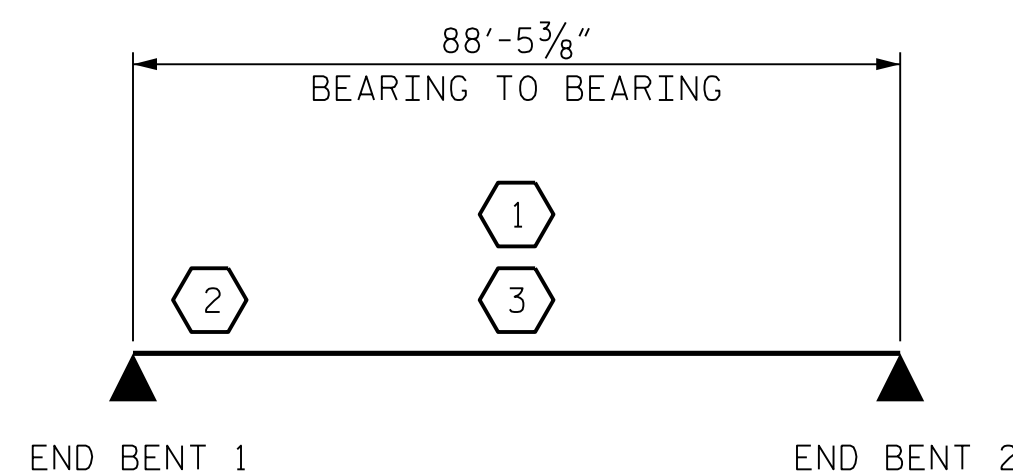
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

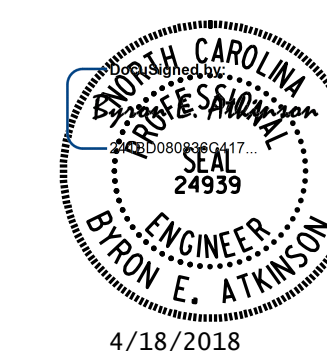
GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. 17BP.8.R.125
SCOTLAND COUNTY
 STATION: 20+49.00 -L-



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UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD LRFR SUMMARY FOR 90' BOX BEAM UNIT 105° SKEW (NON-INTERSTATE TRAFFIC)					
SHEET NO. S-3					
TOTAL SHEETS 15					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

STD. NO. 33LRFR1_75&105S_90L

4/18/2018 10:47:56 AM
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ASSEMBLED BY: J.I. BREWER	DATE: 01/18
CHECKED BY: B.E. ATKINSON	DATE: 02/18
DESIGN ENGINEER OF RECORD: B.E. ATKINSON	DATE: 02/18
DRAWN BY: TMG II/II	
CHECKED BY: AAC II/II	

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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

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

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

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

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

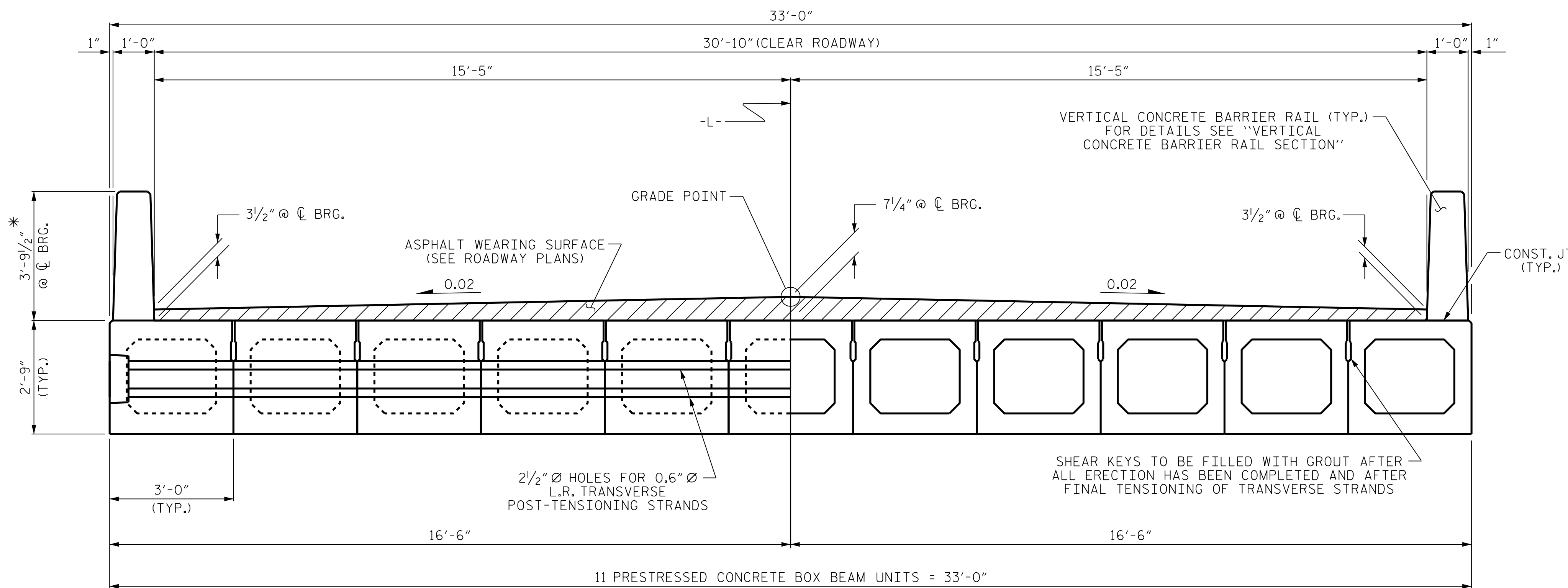
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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.



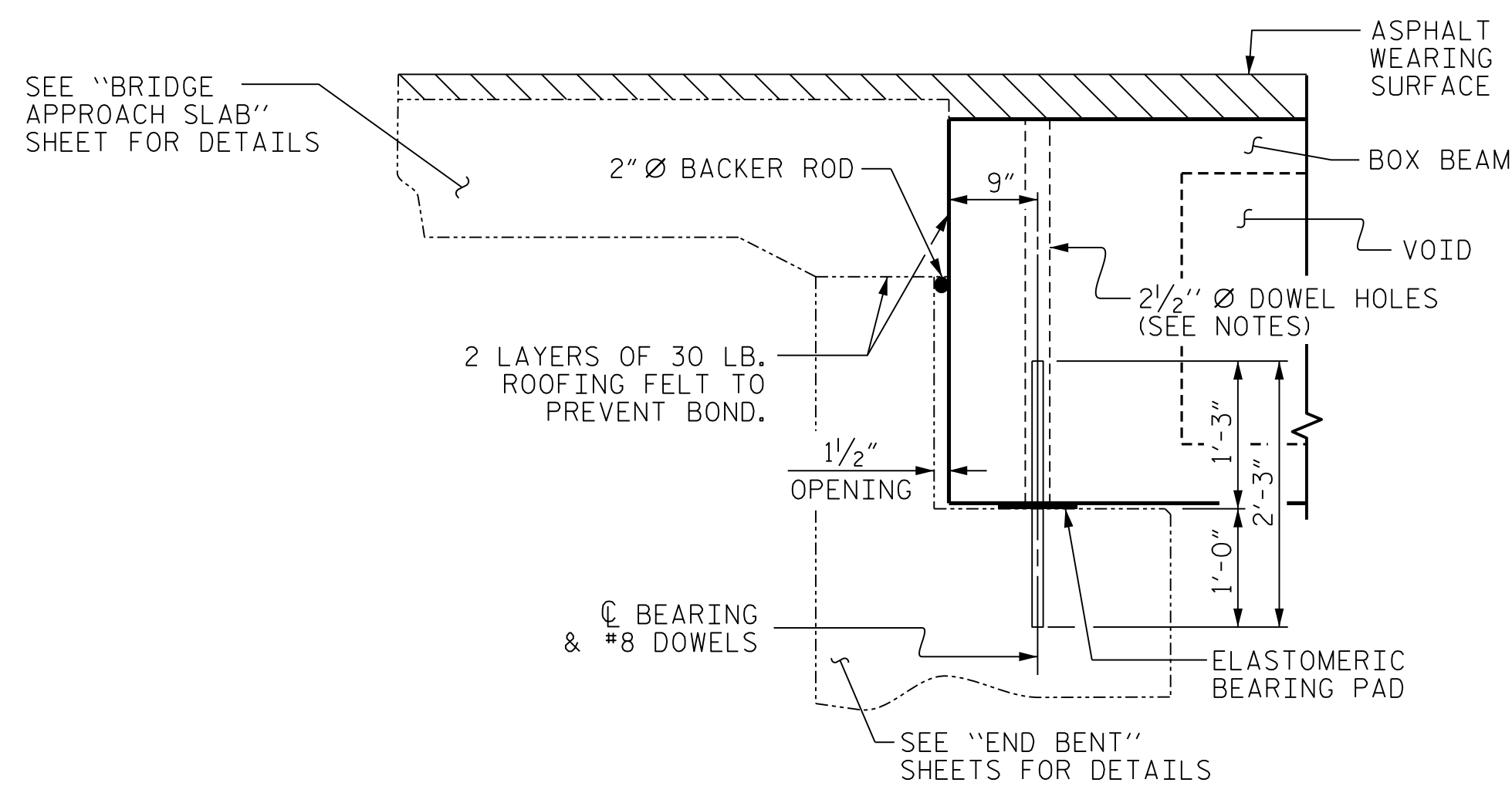
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

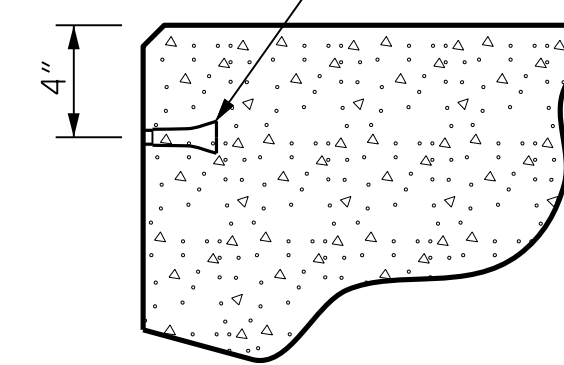
* THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END



SECTION AT END BENT

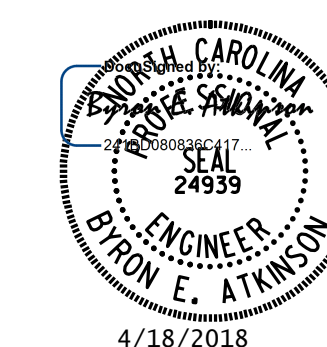
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL

PROJECT NO. 17BP.8.R.125
SCOTLAND COUNTY
STATION: 20+49.00 -L-

SHEET 1 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

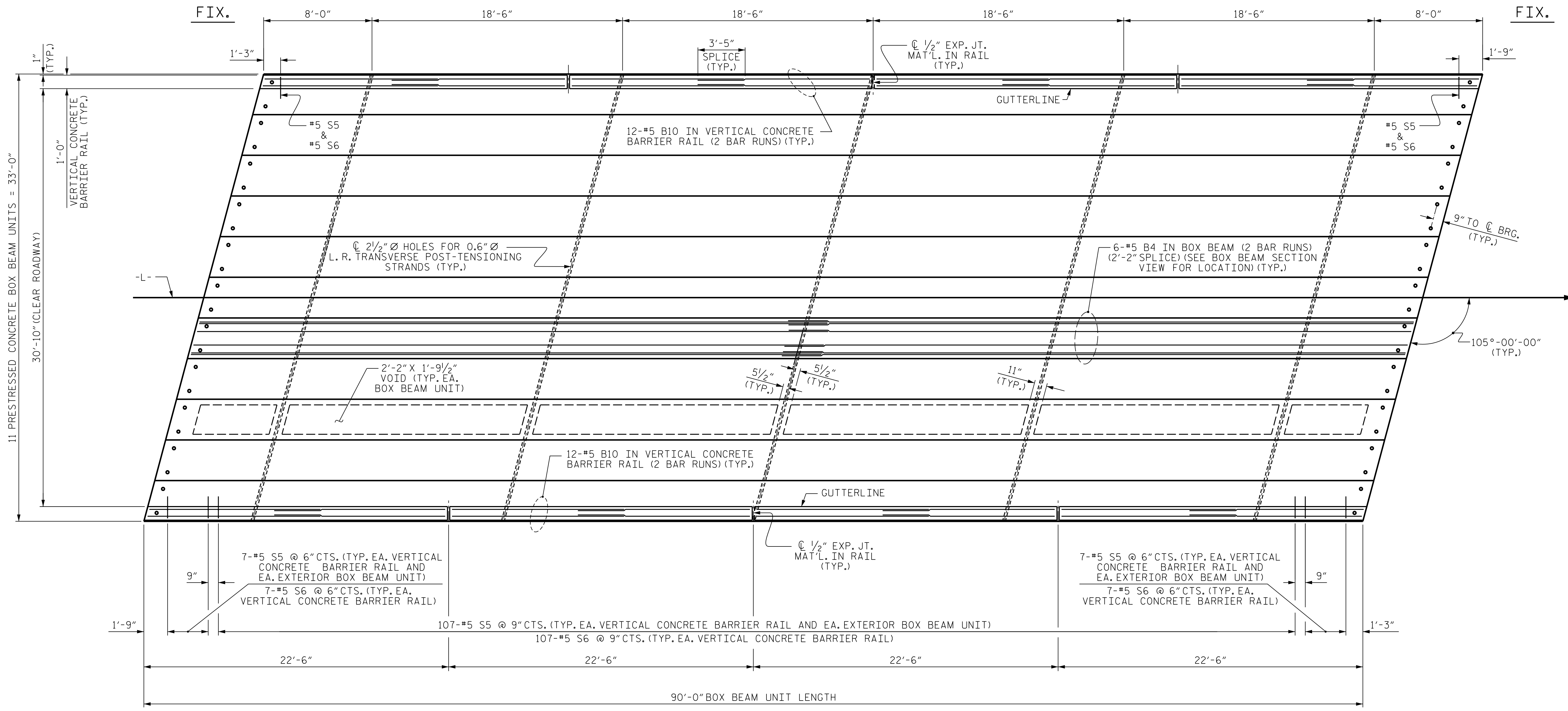
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			15

STD. NO. STD.33PCBB-33_90S

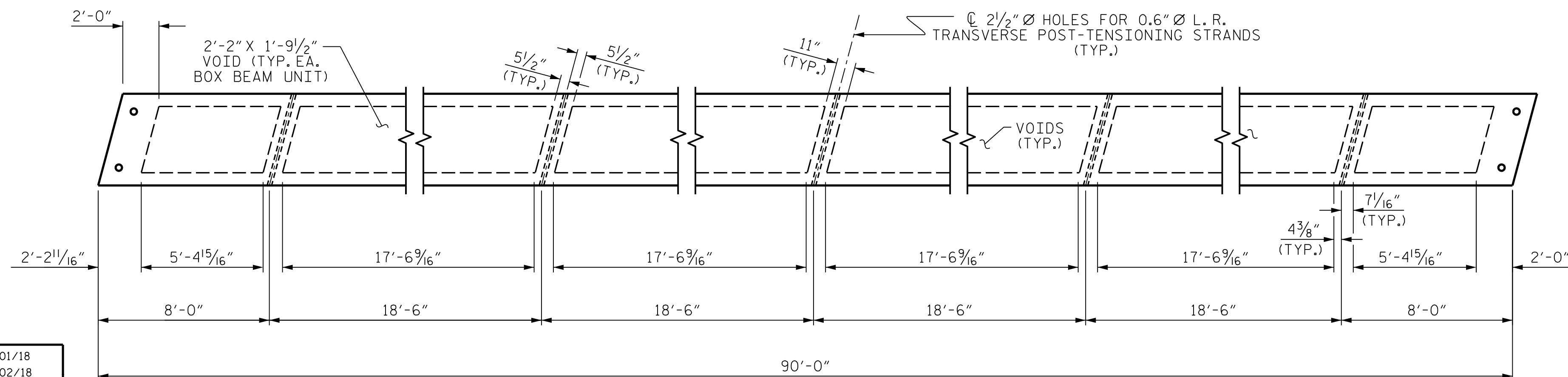
ASSEMBLED BY: B.E. LANNING	DATE: 01/18
CHECKED BY: B.E. ATKINSON	DATE: 02/18
DESIGN ENGINEER OF RECORD: B.E. ATKINSON	DATE: 02/18
DRAWN BY: DGE 8/II	REV. 9/14
CHECKED BY: TMG II/II	MAA/TMG

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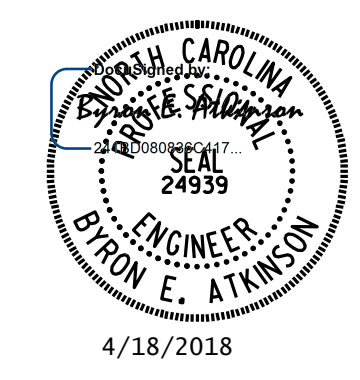


PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. 17BP.8.R.125
 SCOTLAND COUNTY
 STATION: 20+49.00 -L-
 SHEET 2 OF 5



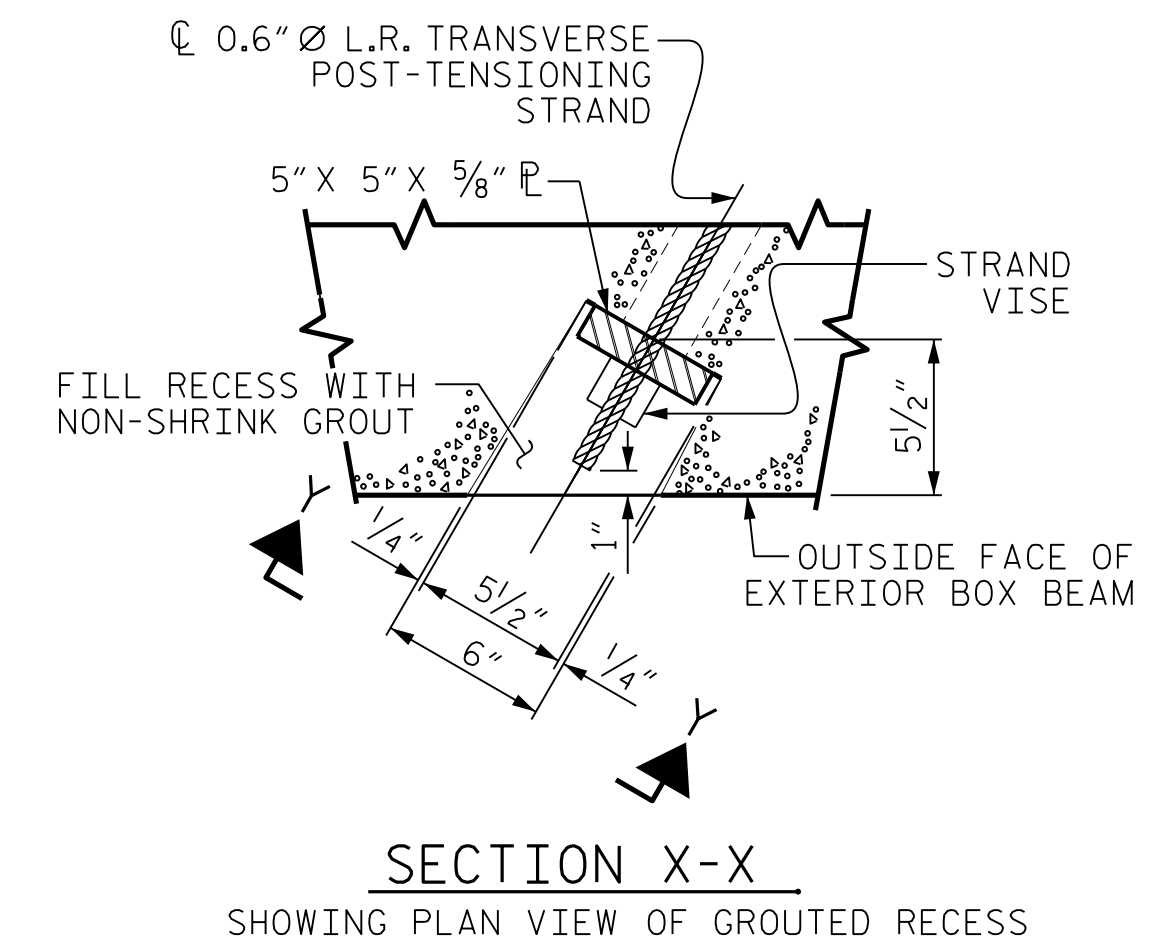
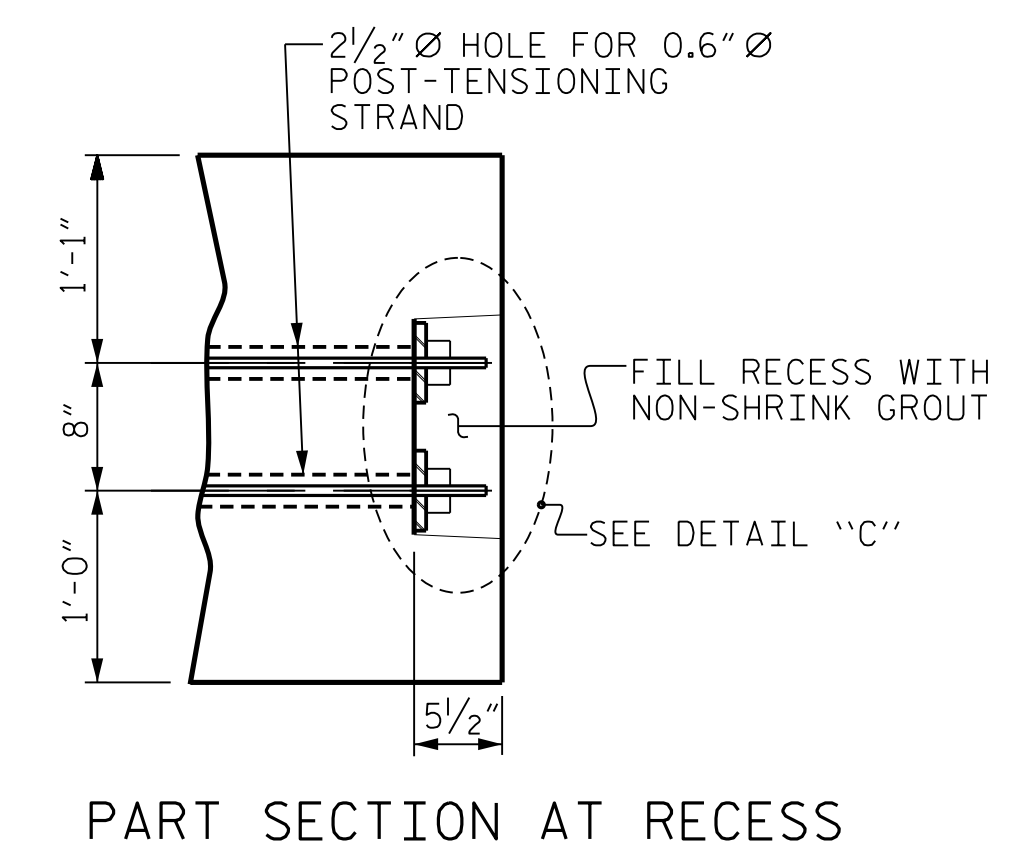
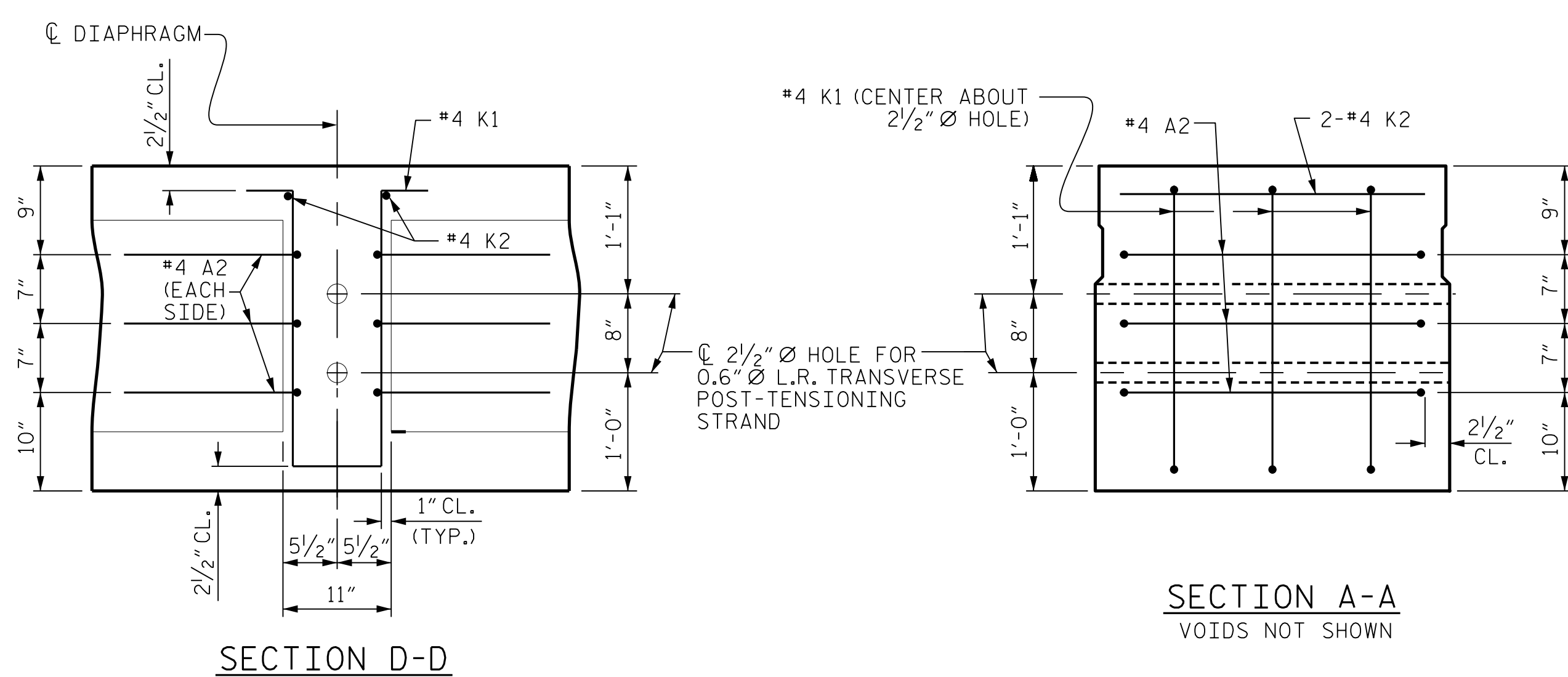
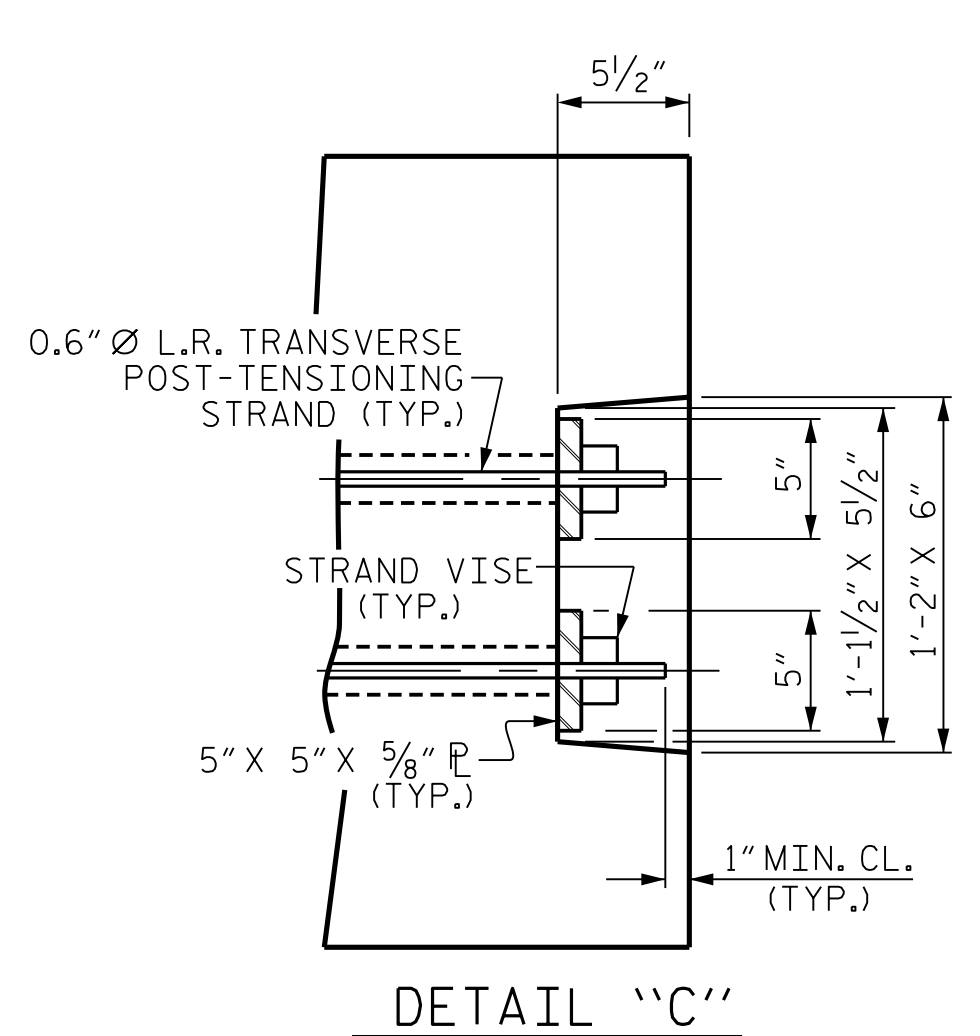
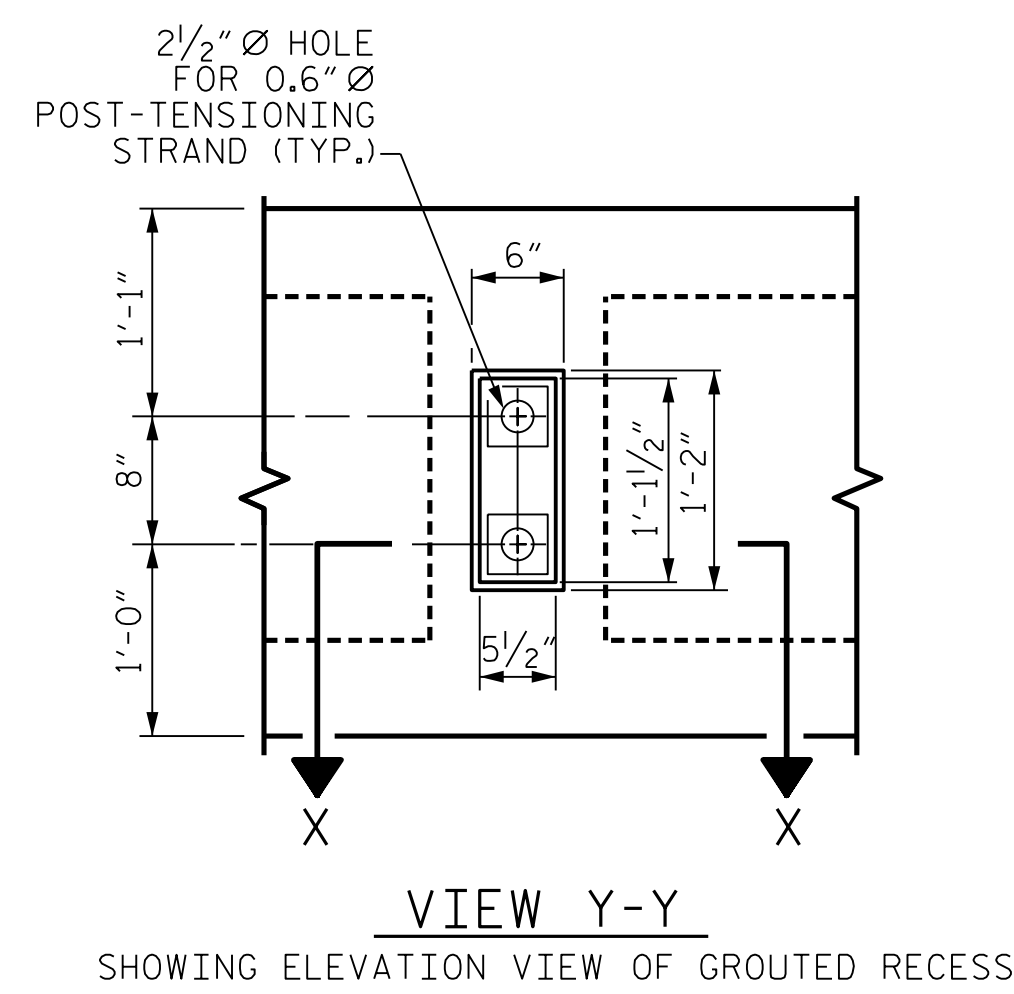
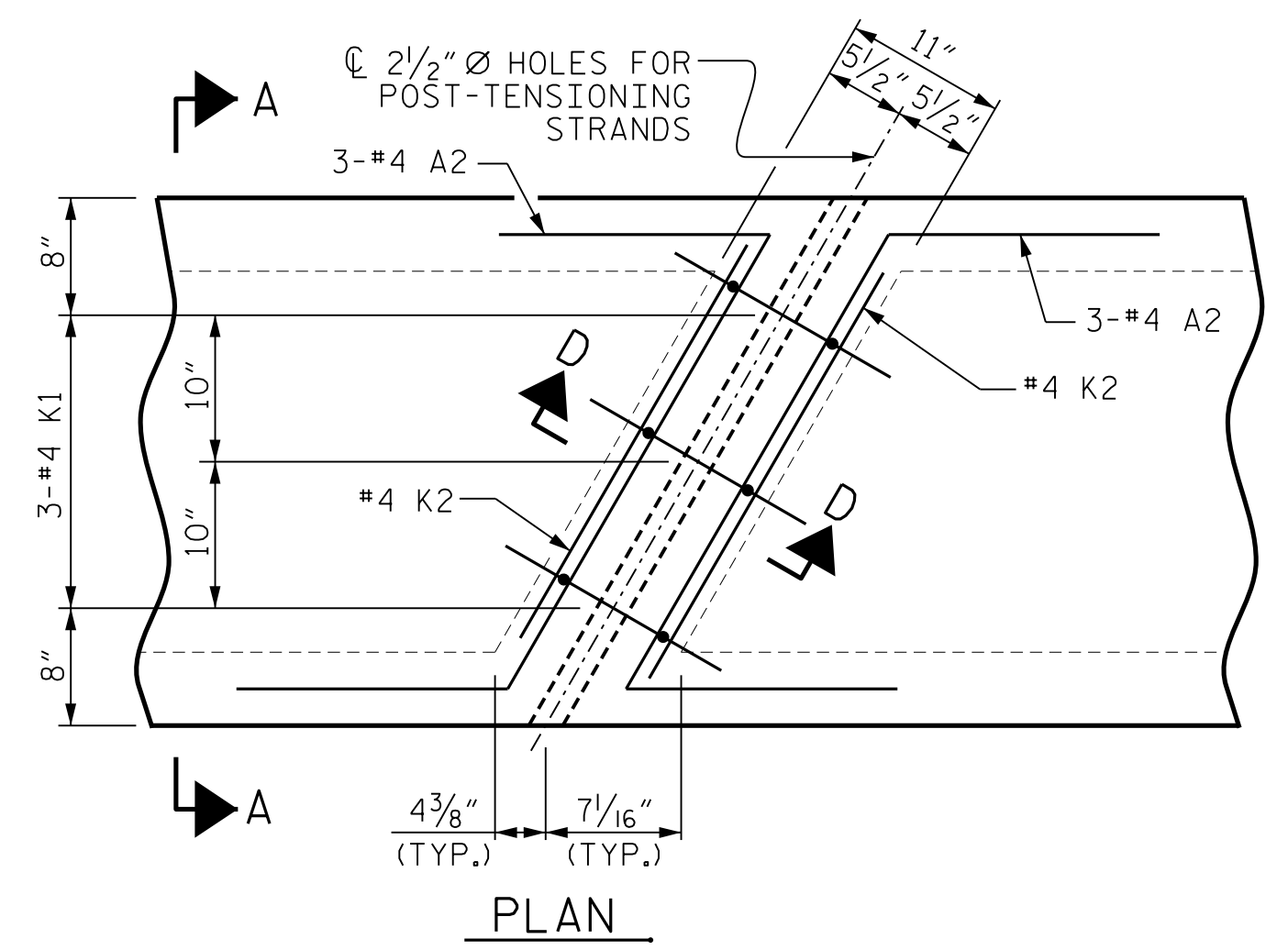
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 90' UNIT
 30'-10" CLEAR ROADWAY
 105° SKEW

ASSEMBLED BY : J.I. BREWER	DATE: 01/18
CHECKED BY : B.E. ATKINSON	DATE: 02/18
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE: 02/18
DRAWN BY : DGE 8/11	REV. 8/14
CHECKED BY : TMG 11/11	MAA/TMG

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MI ENGINEERING
 1011 SCHAUH DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

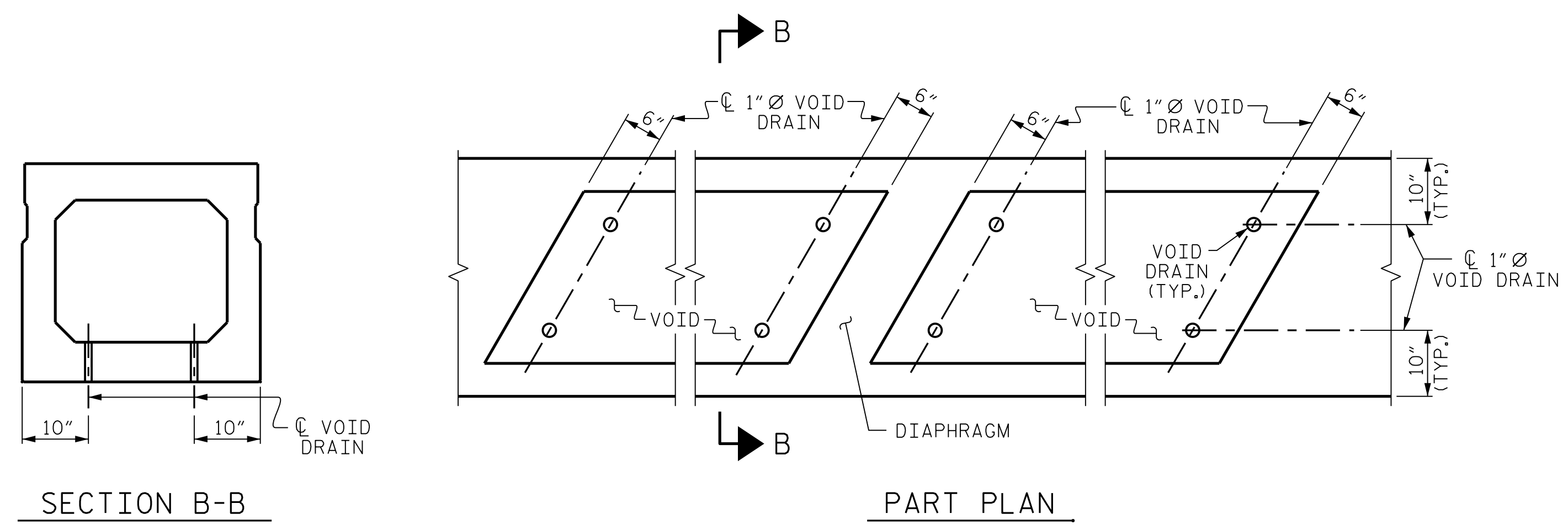
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS	
2			4			15	



DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.

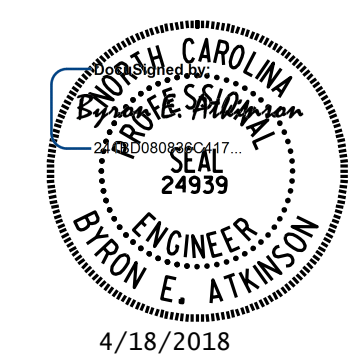
GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM



DEAD LOAD DEFLECTION AND CAMBER	
90' BOX BEAM UNIT	3'-0" x 2'-9"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND 2 3/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	3/4" ↓
FINAL CAMBER	2" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 17BP.8.R.125
 SCOTLAND COUNTY
 STATION: 20+49.00 -L-



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MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

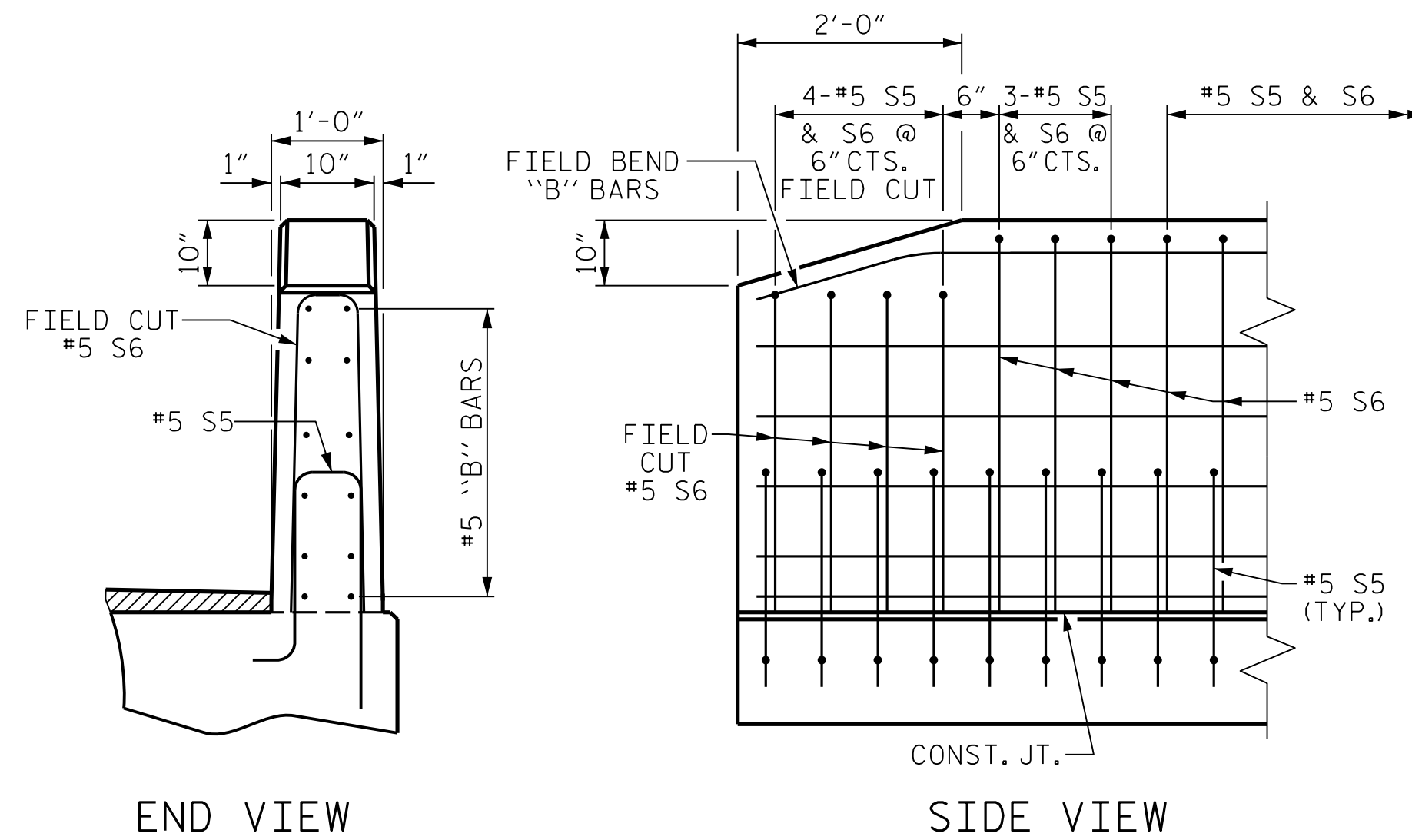
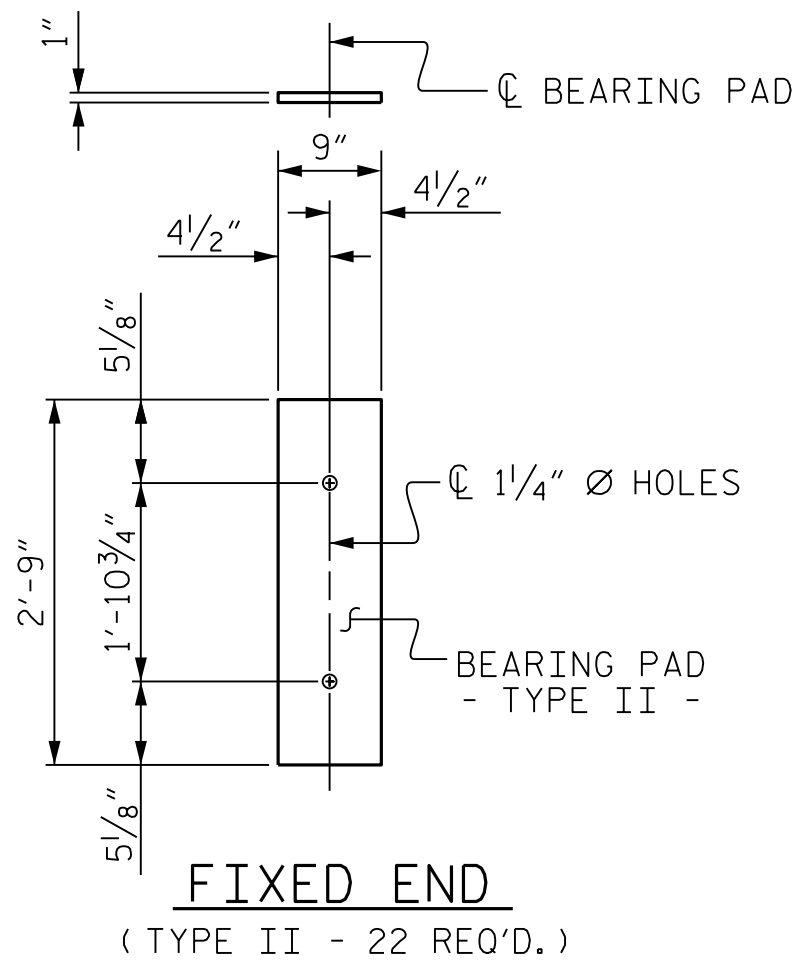
STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

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

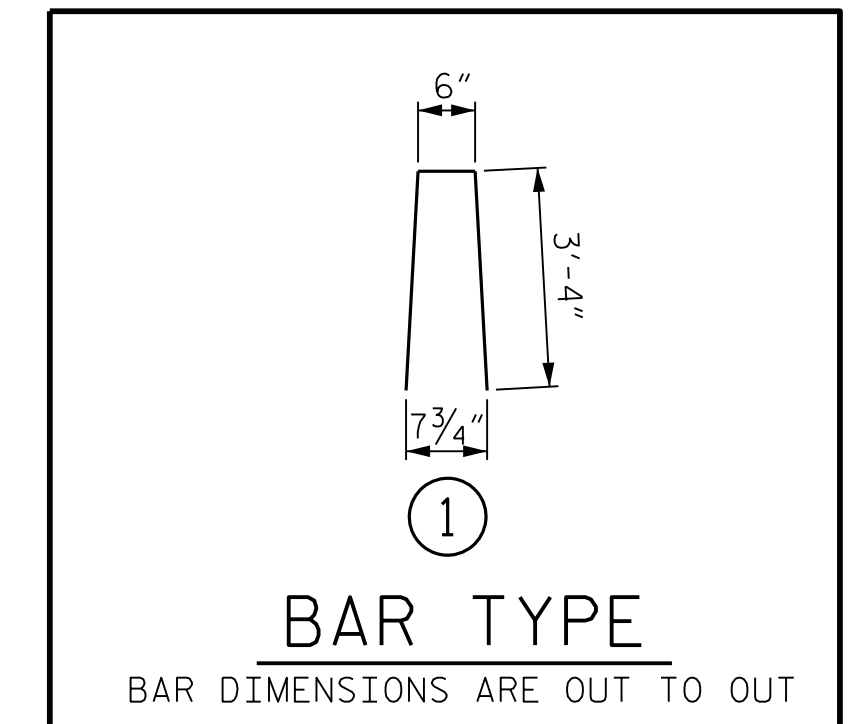
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ASSEMBLED BY: J.I. BREWER	DATE: 01/18
CHECKED BY: B.E. ATKINSON	DATE: 02/18
DESIGN ENGINEER OF RECORD: B.E. ATKINSON	DATE: 02/18
DRAWN BY: DGE II/II	REV. 8/14
CHECKED BY: TMG II/II	MAA/TMG



BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	90'-0"	180'-0"
INTERIOR B.B.	9	90'-0"	810'-0"
TOTAL	11		990'-0"

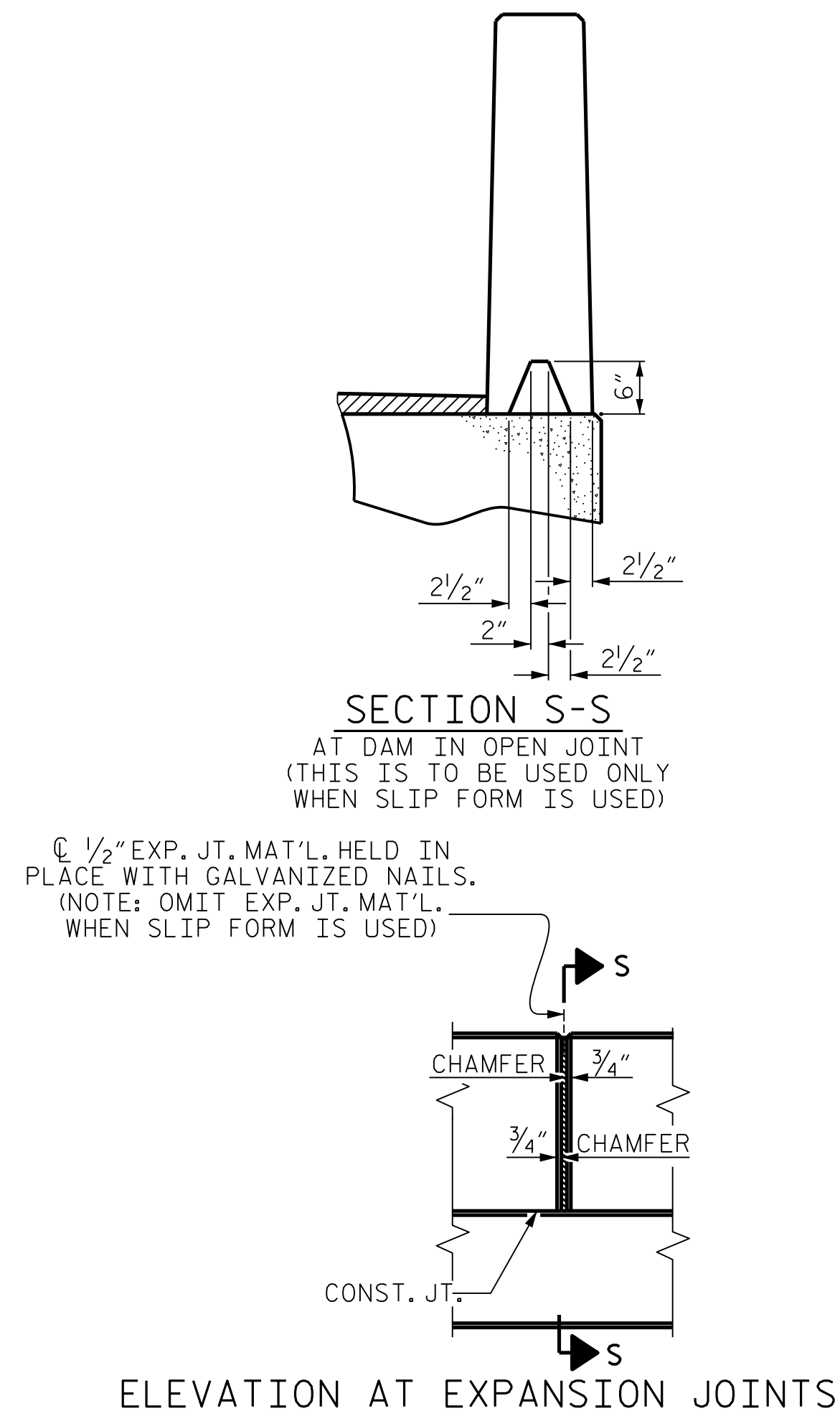
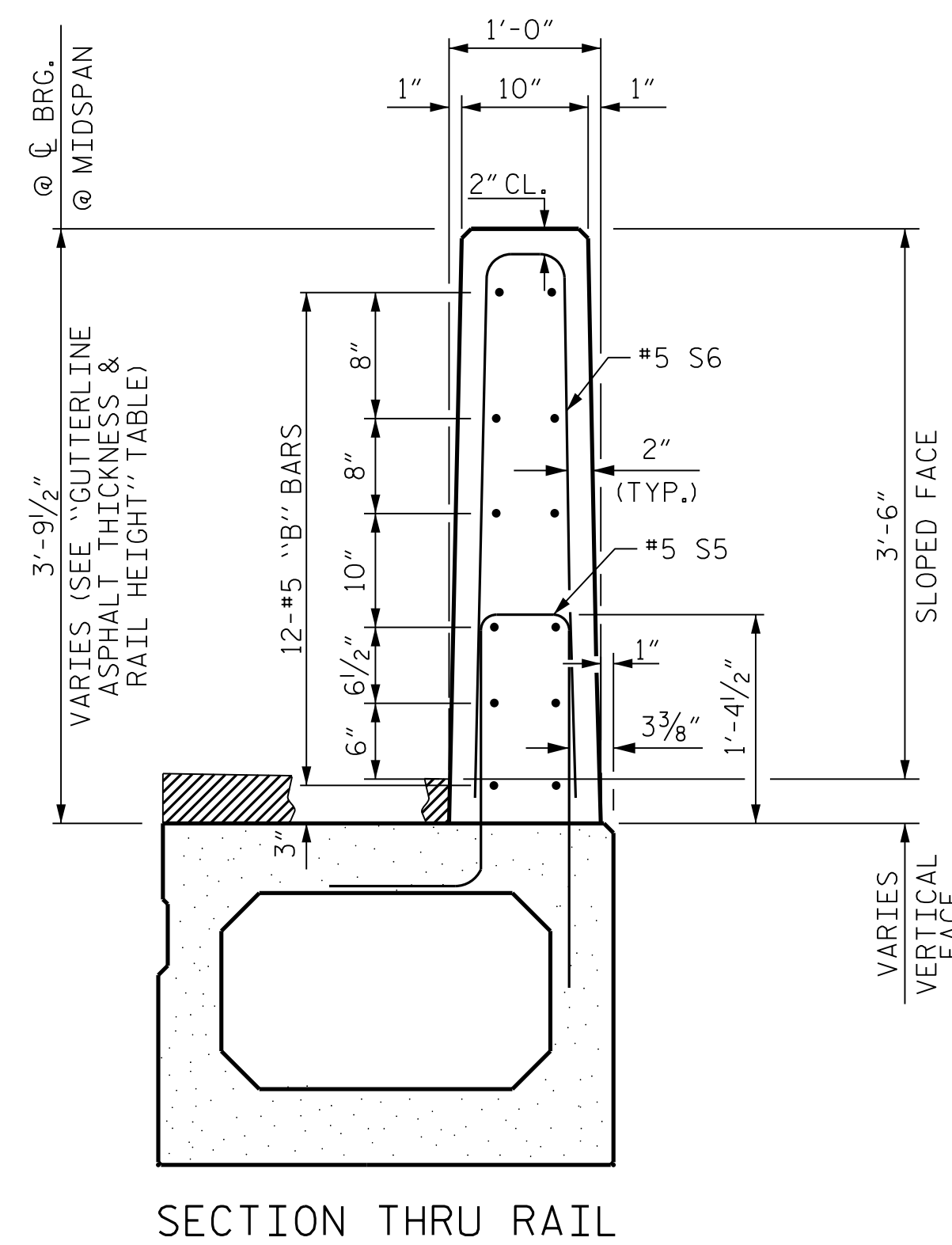


ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

END OF RAIL DETAILS

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL					
BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT
90' UNIT					
*B10	192	#5	STR	12'-10"	2570
*S6	242	#5	1	7'-2"	1809
* EPOXY COATED REINFORCING STEEL				LBS.	4379
CLASS AA CONCRETE				CU.YDS.	23.3
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.	180.00

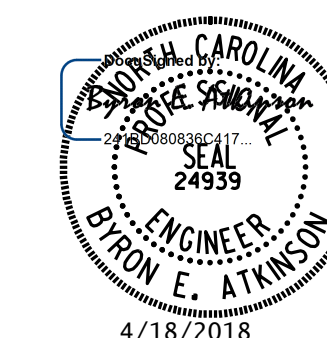


GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
90' UNITS	1 1/2"	3'-7 1/2"

VERTICAL CONCRETE BARRIER RAIL DETAILS

PROJECT NO. 17BP.8.R.125
SCOTLAND COUNTY
 STATION: 20+49.00 -L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			TOTAL SHEETS 15

STD. NO. 33PCBB8_75&105S

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ASSEMBLED BY: J.I. BREWER	DATE: 01/18
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DESIGN ENGINEER OF RECORD: B.E. ATKINSON	DATE: 02/18
DRAWN BY: DGE IO/II	REV. 4/15
CHECKED BY: TMG II/II	MAA/TMG

NOTES

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

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

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

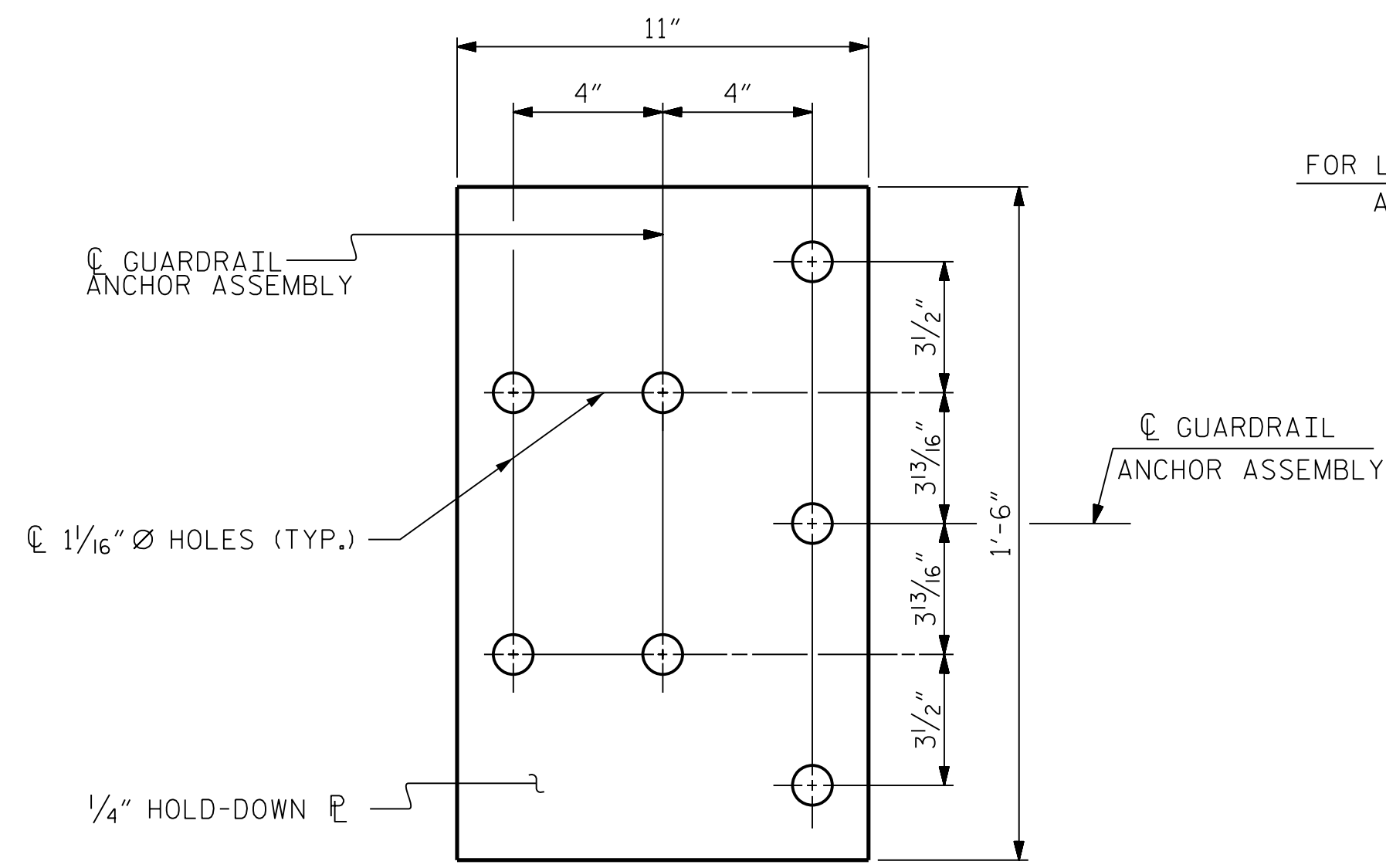
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

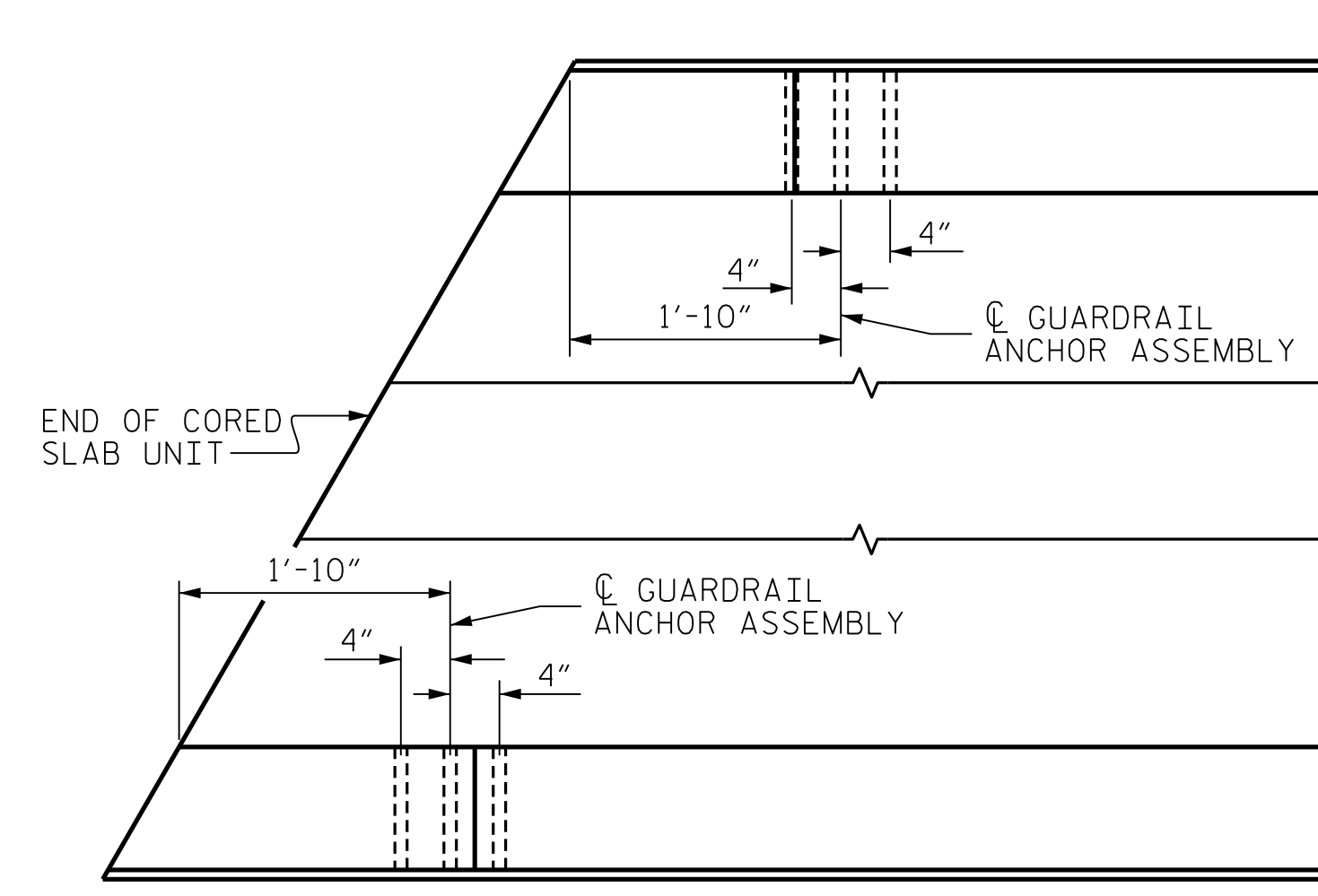
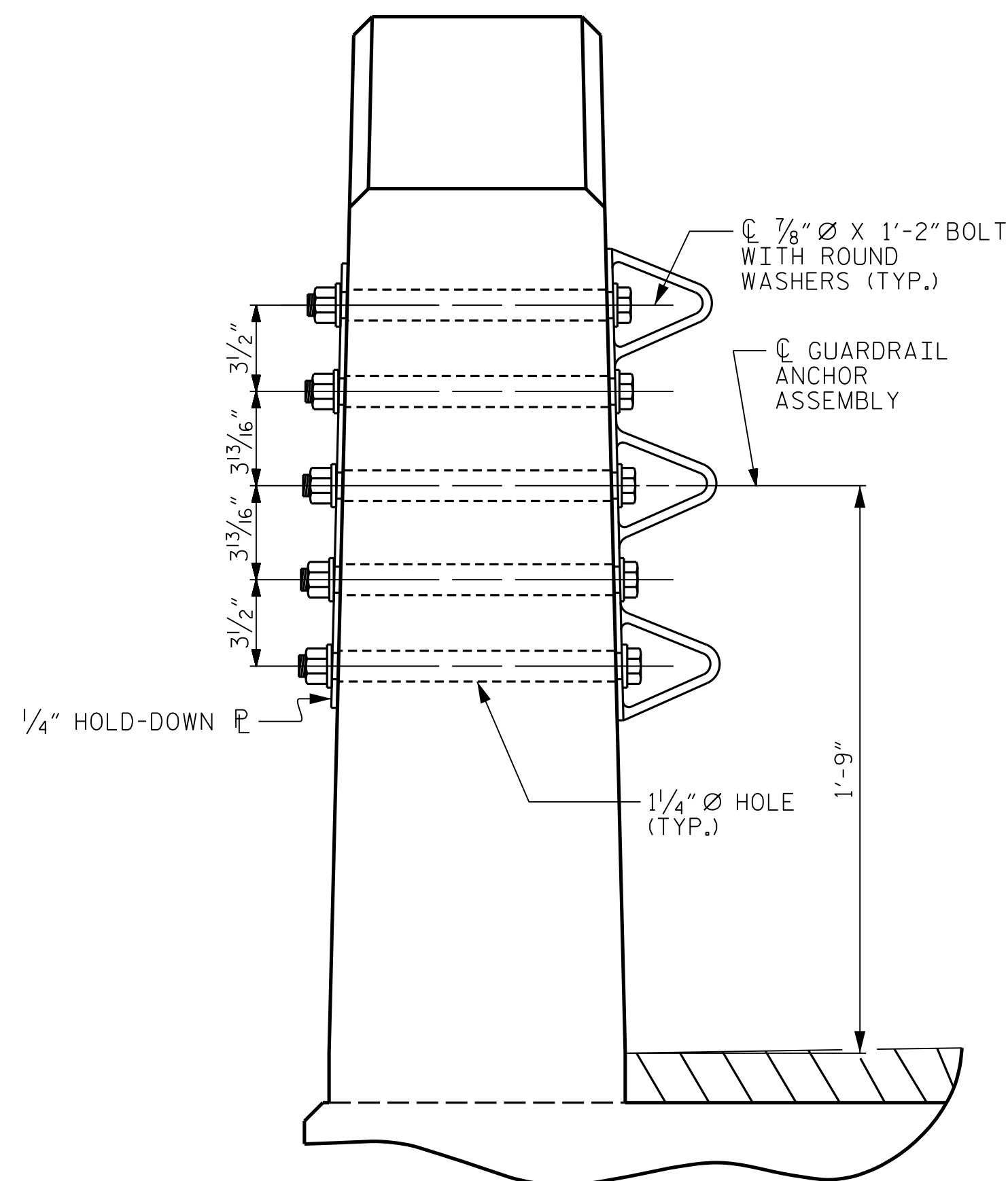
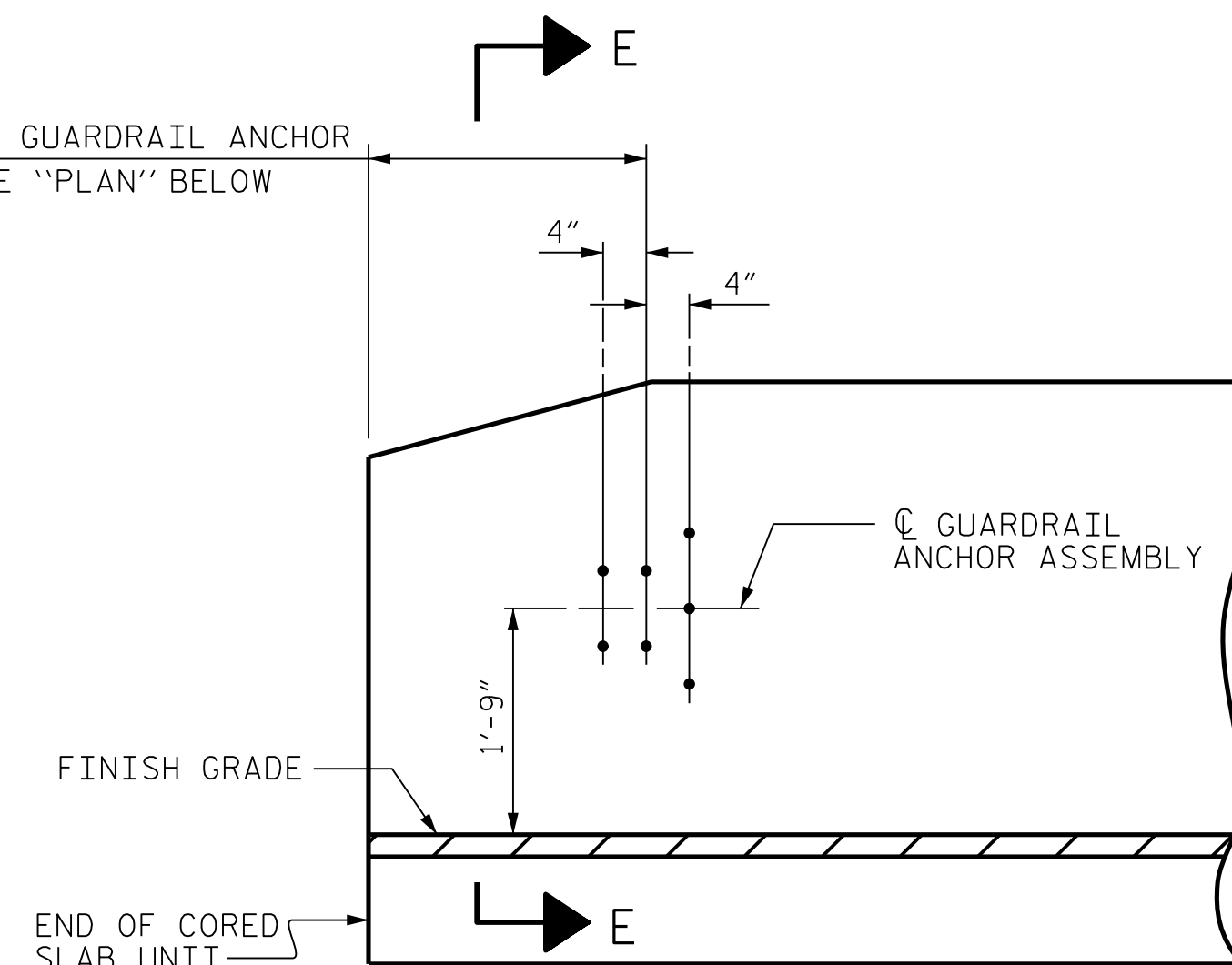
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

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



FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



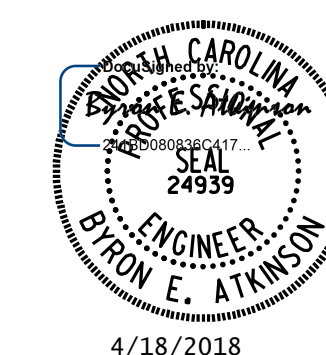
LOCATION OF ANCHORS FOR GUARDRAIL

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



* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.8.R.125
SCOTLAND COUNTY
STATION: 20+49.00 -L-



4/18/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			15

(SHT 1a) STD. NO. GRA3

4/18/2018 10:48:09 AM User: blanning
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ASSEMBLED BY: B.E. LANNING	DATE: 01/18
CHECKED BY: B.E. ATKINSON	DATE: 02/18
DESIGN ENGINEER OF RECORD: B.E. ATKINSON	DATE: 02/18
DRAWN BY: MAA 5/10	REV. 6/13 MAA/GM
CHECKED BY: GM 5/10	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC

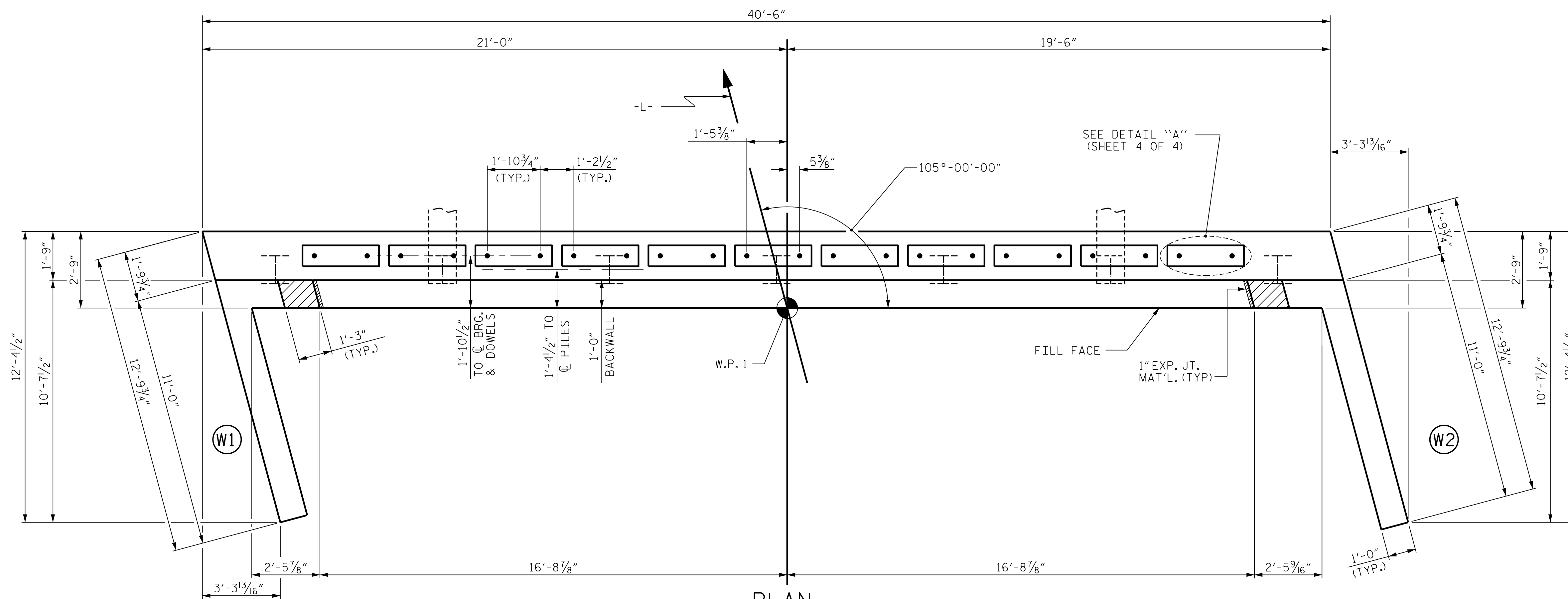
NOTES

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

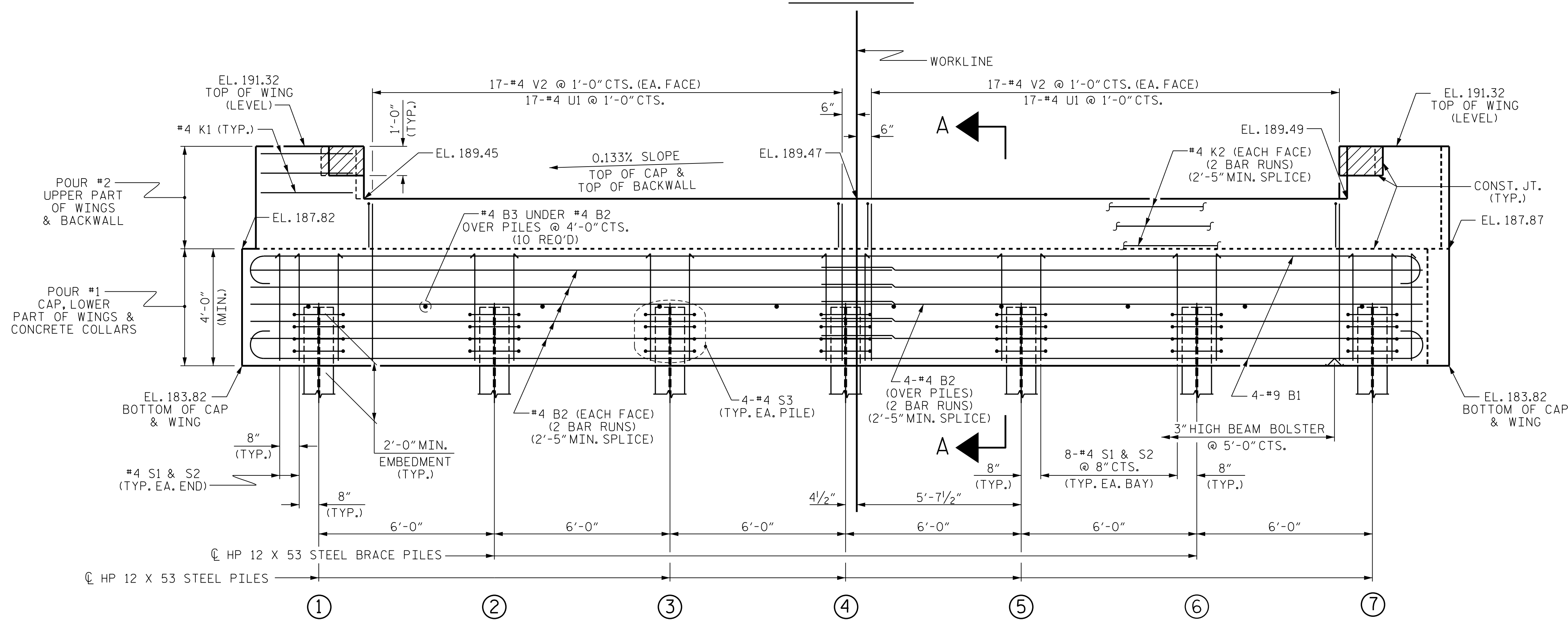
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

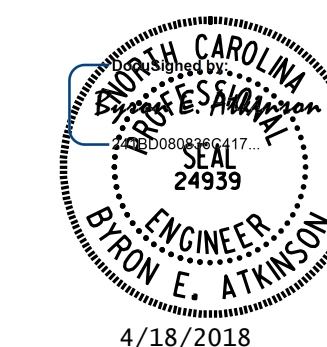
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. 17BP.8.R.125
SCOTLAND COUNTY
STATION: 20+49.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1



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MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

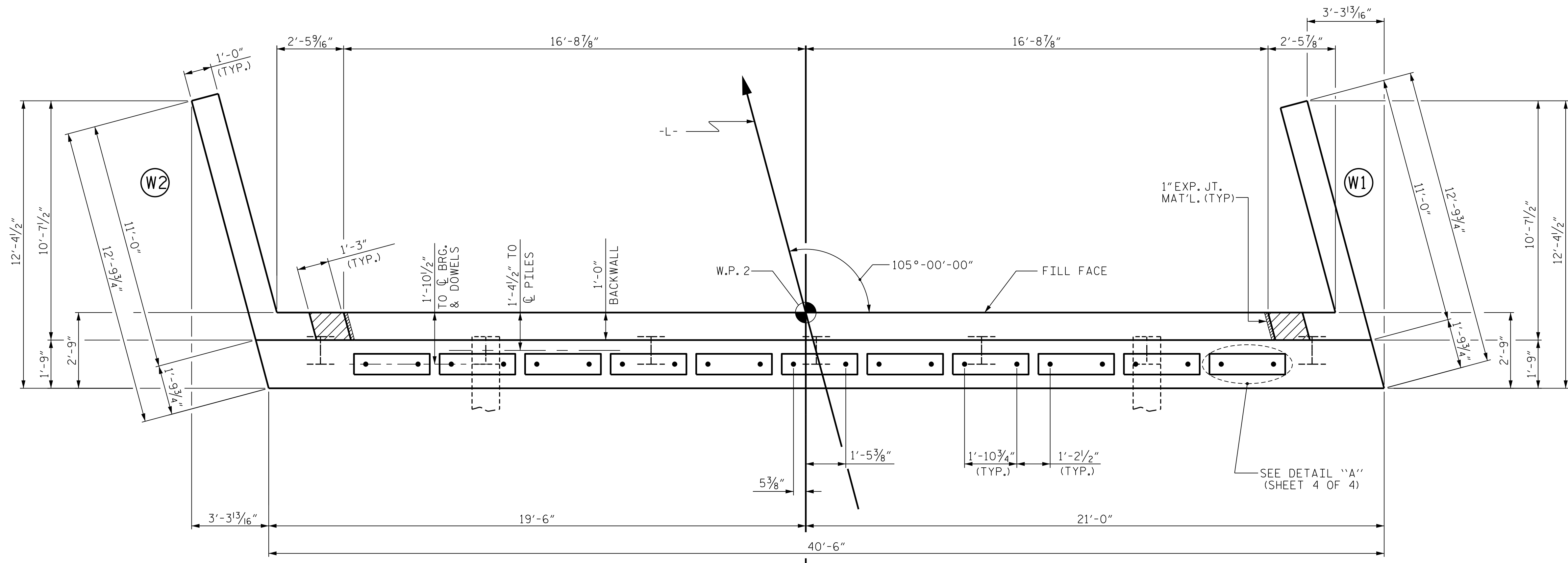
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS 15	
2			4				

STD. NO. EB_33_105S4_33BB

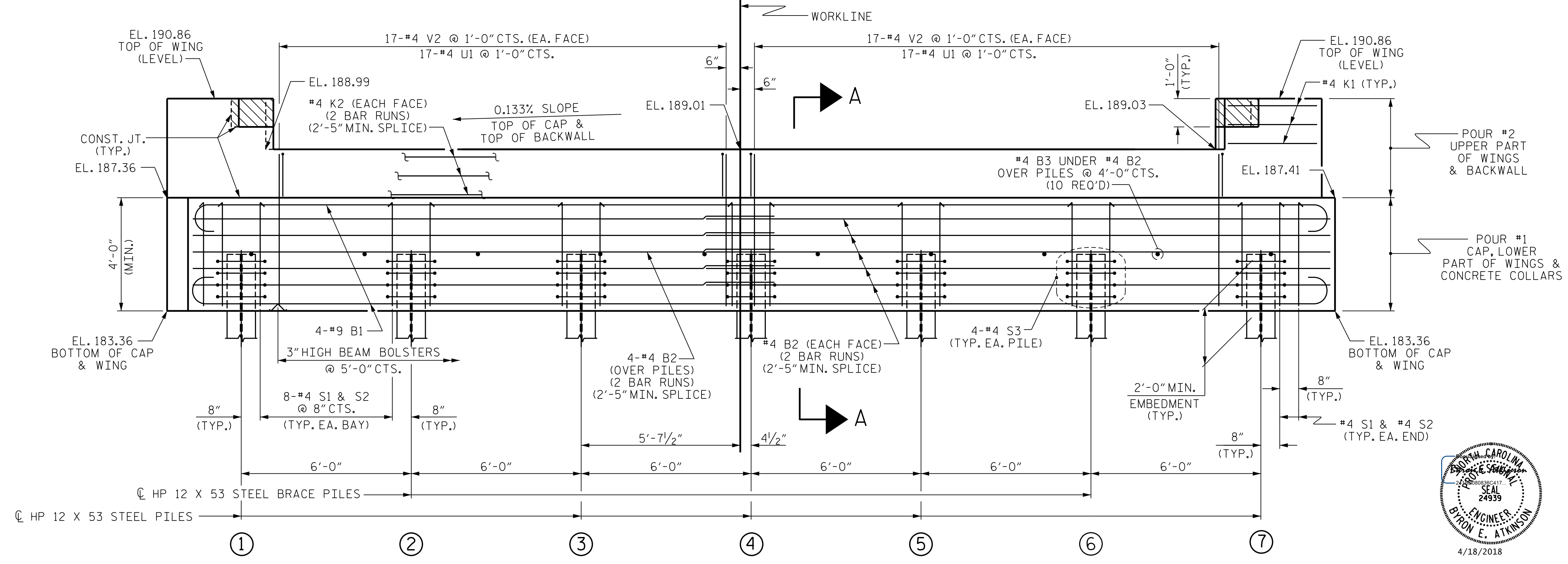
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ASSEMBLED BY: J.I. BREWER	DATE: 01/18
CHECKED BY: B.E. ATKINSON	DATE: 02/18
DESIGN ENGINEER OF RECORD: B.E. ATKINSON	DATE: 02/18
DRAWN BY: WJH 12/11	REV. 4/15
CHECKED BY: ACC 12/11	MAA/TMG

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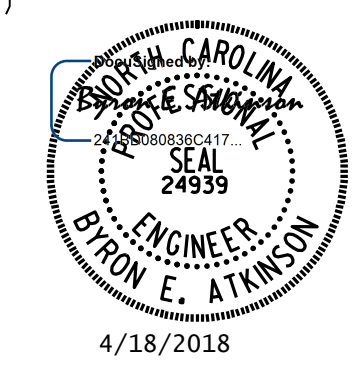
PLAN



ELEVATION

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

PROJECT NO. 17BP.8.R.125
SCOTLAND COUNTY
 STATION: 20+49.00 -L-
 SHEET 2 OF 4



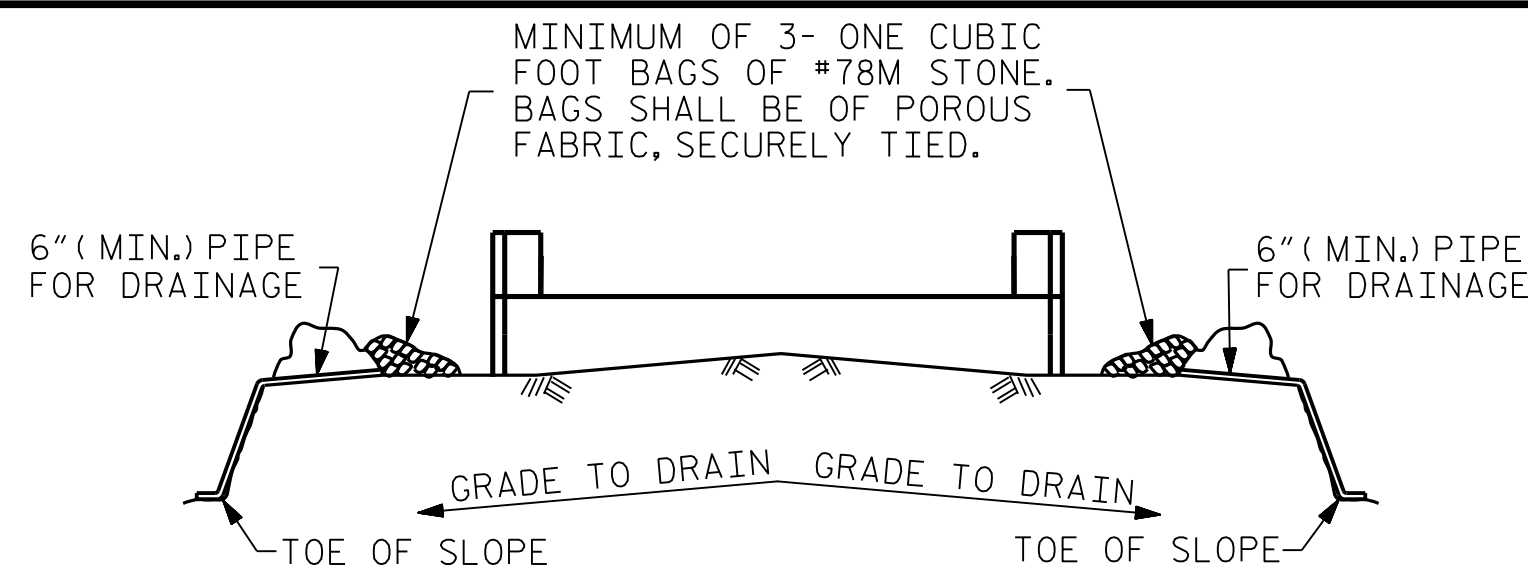
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 2

ASSEMBLED BY: J.I. BREWER	DATE: 01/18
CHECKED BY: B.E. ATKINSON	DATE: 02/18
DESIGN ENGINEER OF RECORD: B.E. ATKINSON	DATE: 02/18
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CHECKED BY: ACC 12/11	MAA/TMG

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MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

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

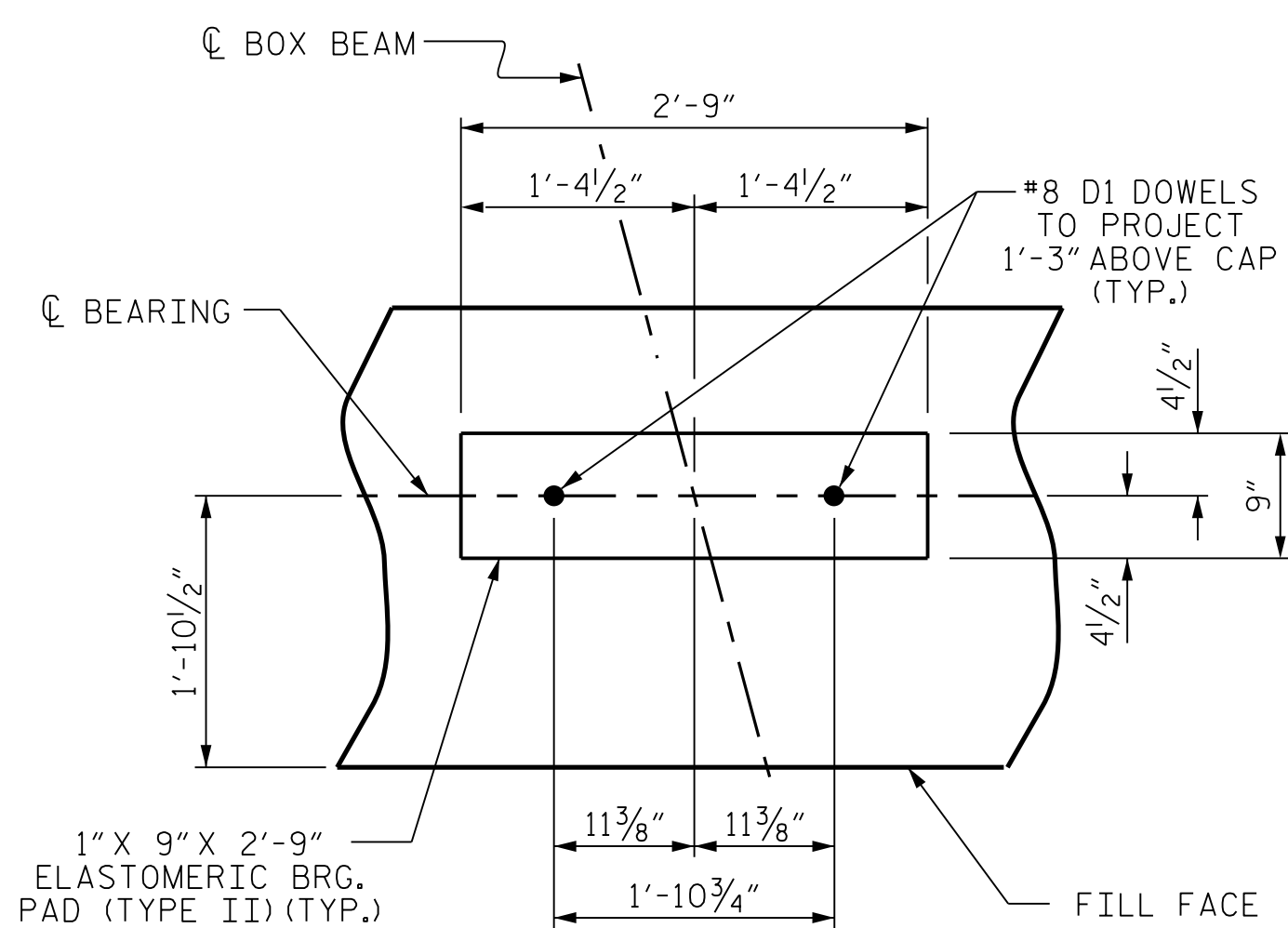


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

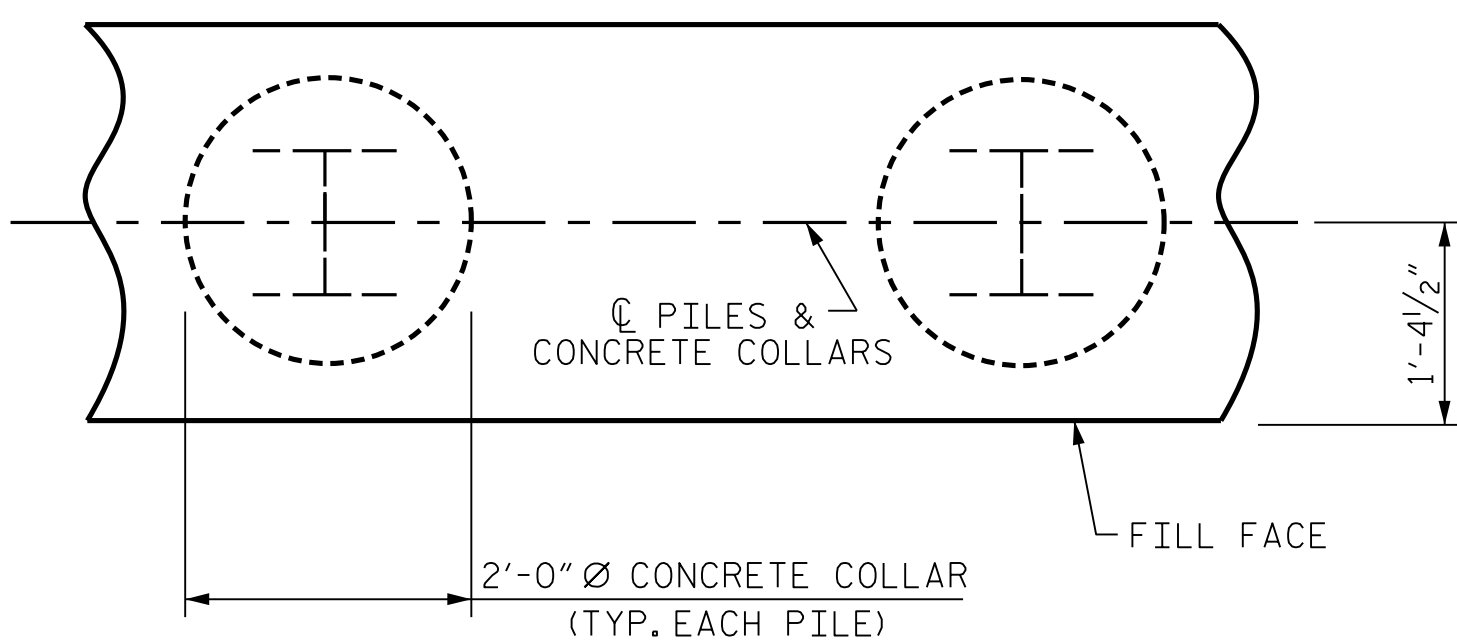
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

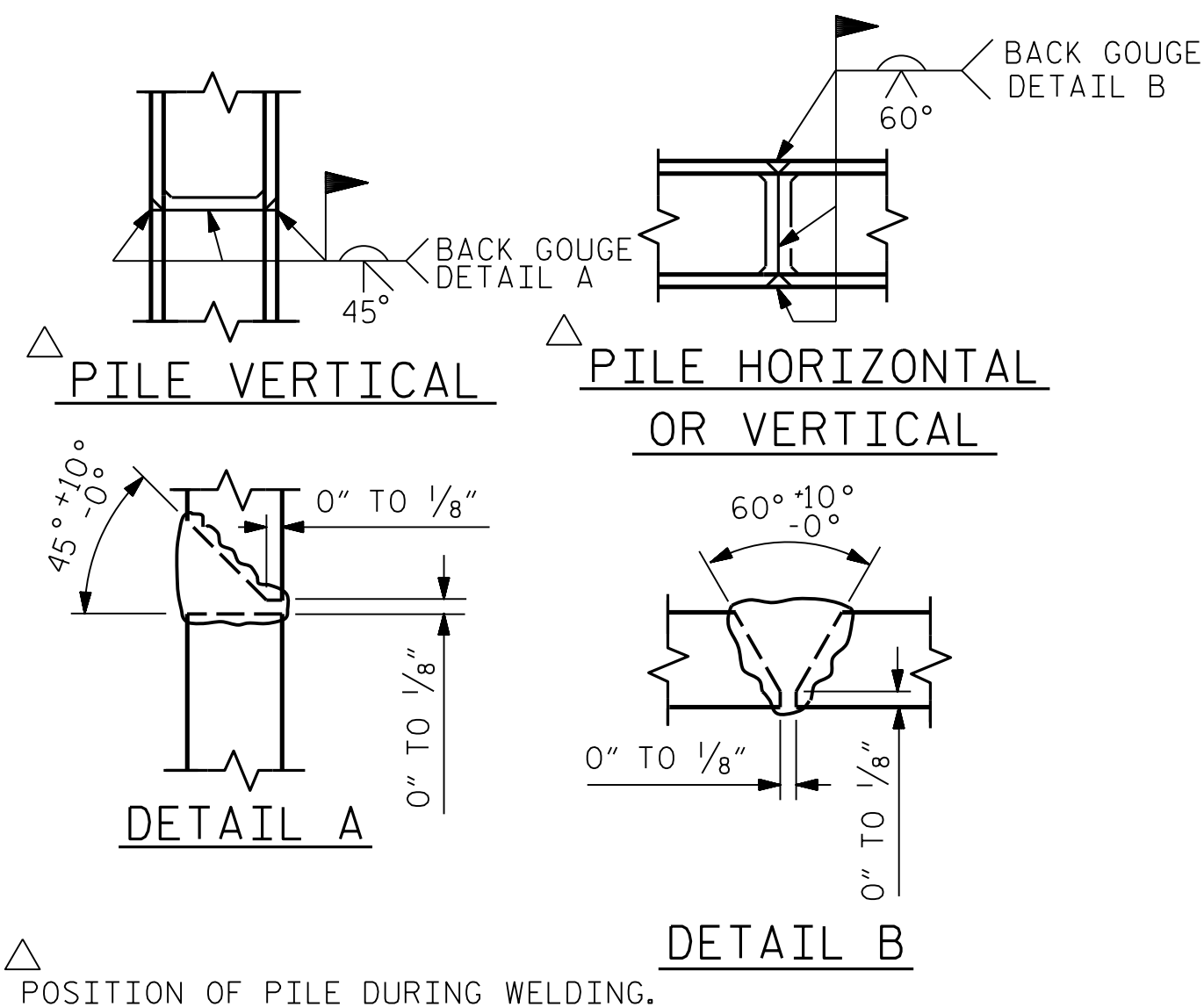
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



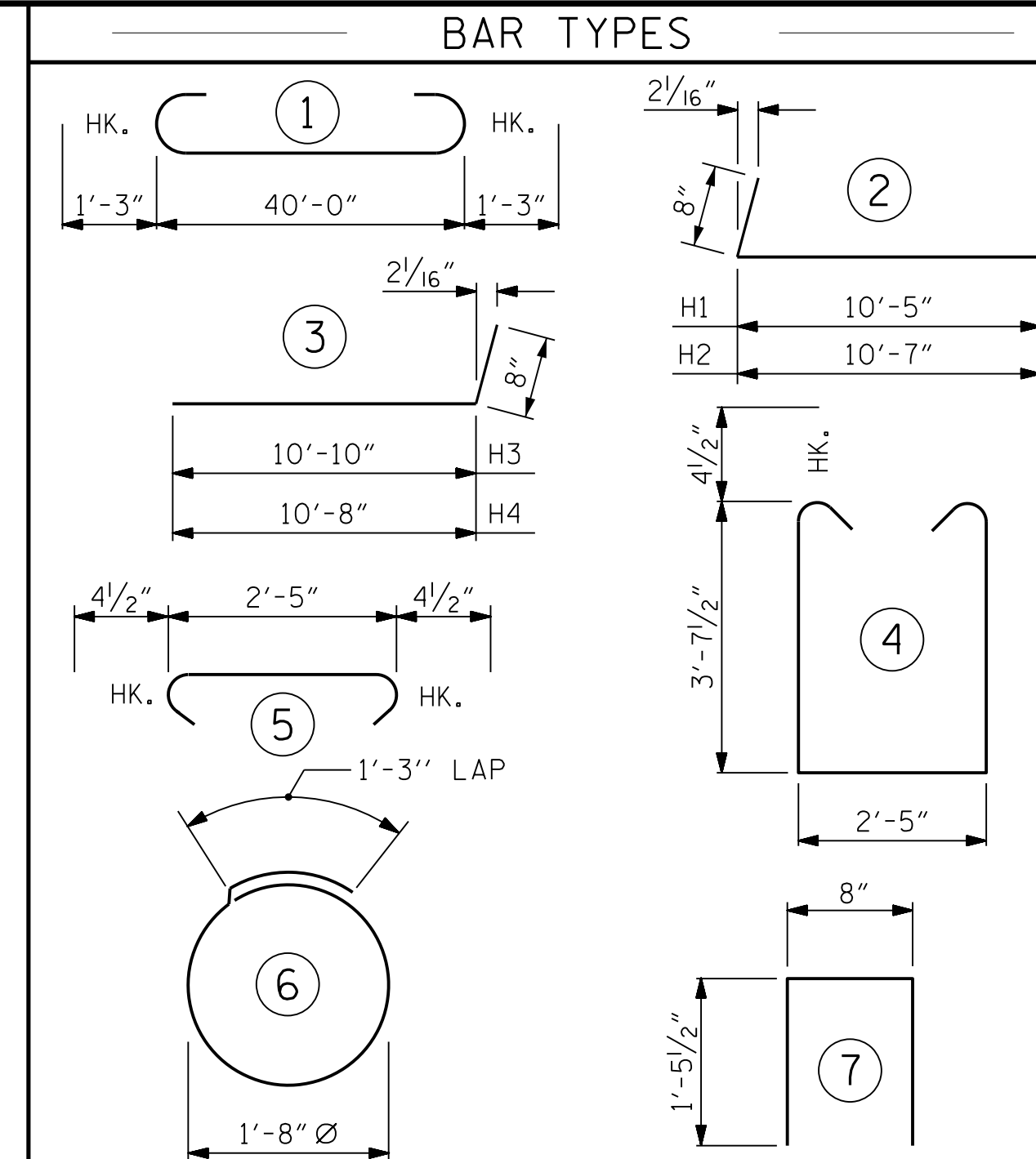
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1		END BENT No. 2	
HP 12 X 53 STEEL PILES	NO: 7	HP 12 X 53 STEEL PILES	NO: 7
LIN. FT.= 574		LIN. FT.= 539	
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES		PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	
NO: 7		NO: 7	
PILE REDRIVES		PILE REDRIVES	
NO: 7		NO: 7	

BILL OF MATERIAL

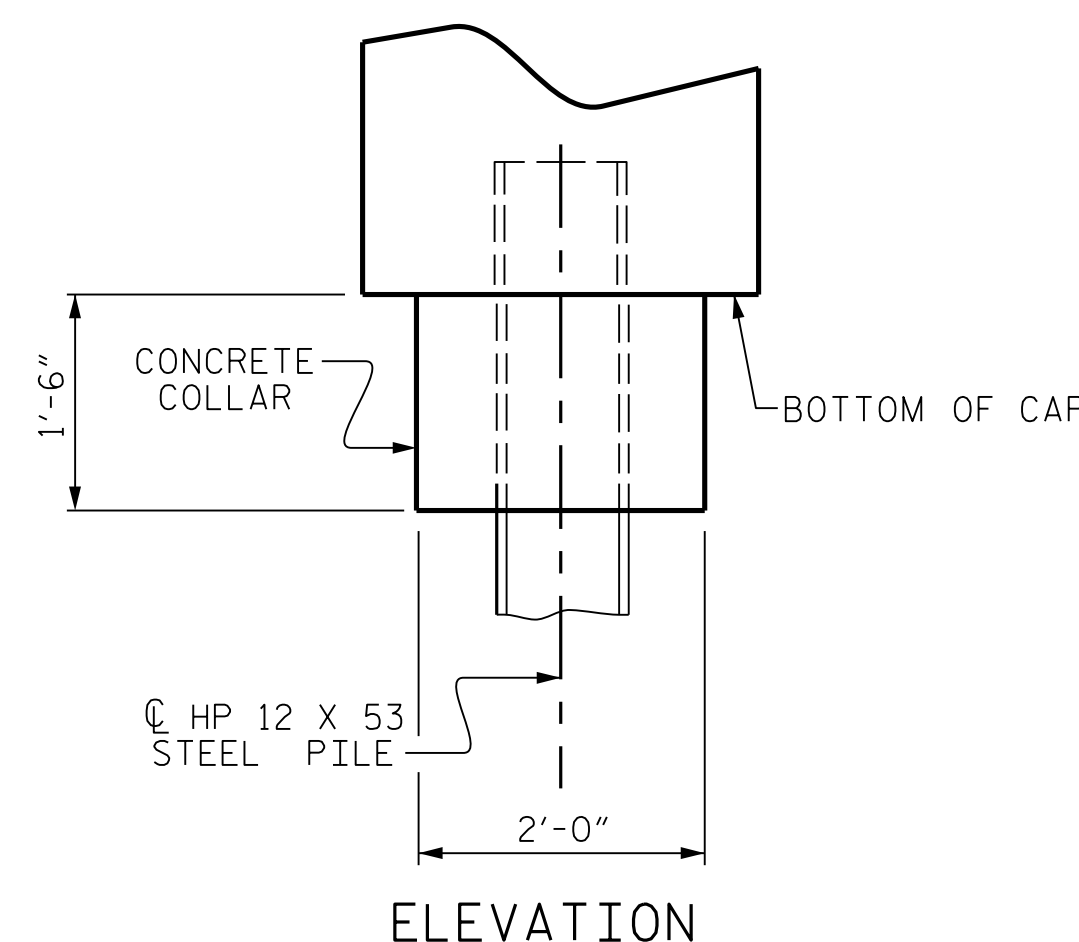
FOR ONE END BENT

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	#8		42'-6"	1156
B2	#4	STR	21'-4"	399
B3	#4	STR	2'-5"	16
D1	#8	STR	2'-3"	132
H1	#5	2	11'-1"	139
H2	#5	2	11'-3"	141
H3	#5	3	11'-6"	144
H4	#5	3	11'-4"	142
K1	#4	STR	3'-1"	25
K2	#4	STR	21'-4"	171
S1	#4	4	10'-5"	362
S2	#4	5	3'-2"	110
S3	#4	6	6'-6"	122
U1	#4	7	3'-7"	81
V1	#4	STR	7'-2"	292
V2	#4	STR	5'-3"	238

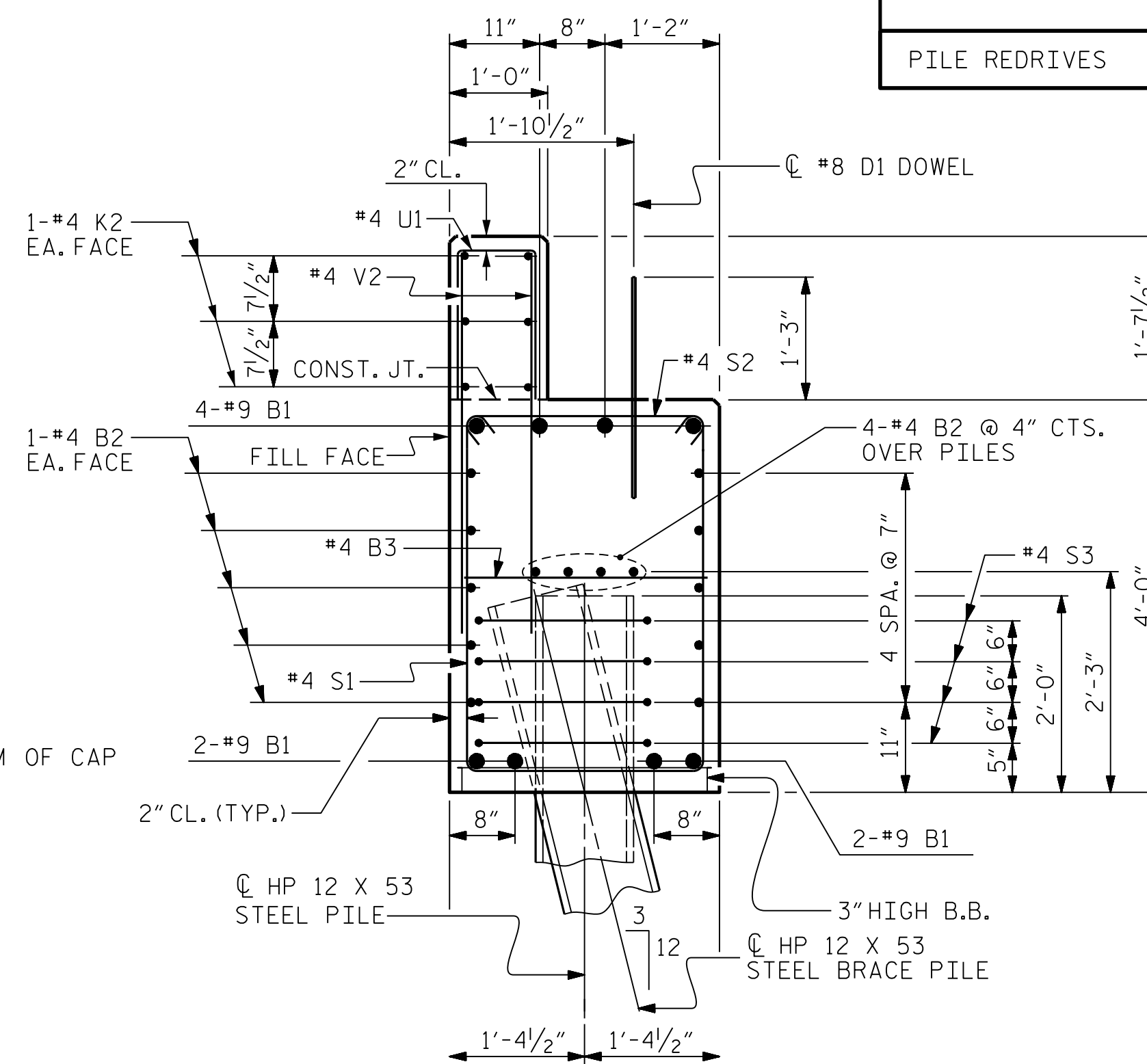
REINFORCING STEEL (FOR ONE END BENT) 3670 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS	20.7 C.Y.
POUR #2 BACKWALL & UPPER PART OF WINGS	5.5 C.Y.
TOTAL CLASS A CONCRETE	26.2 C.Y.

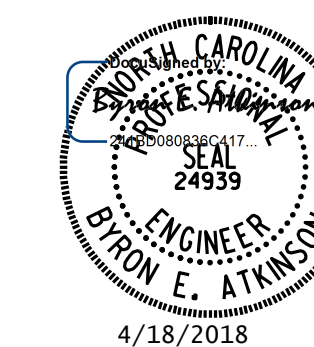


ELEVATION



SECTION A-A

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



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MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

PROJECT NO. 17BP.8.R.125
SCOTLAND COUNTY
STATION: 20+49.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2
DETAILS

REVISIONS

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

SHEET NO.
S-13
TOTAL SHEETS
15

STD. NO. EB_33_105S4_33BB

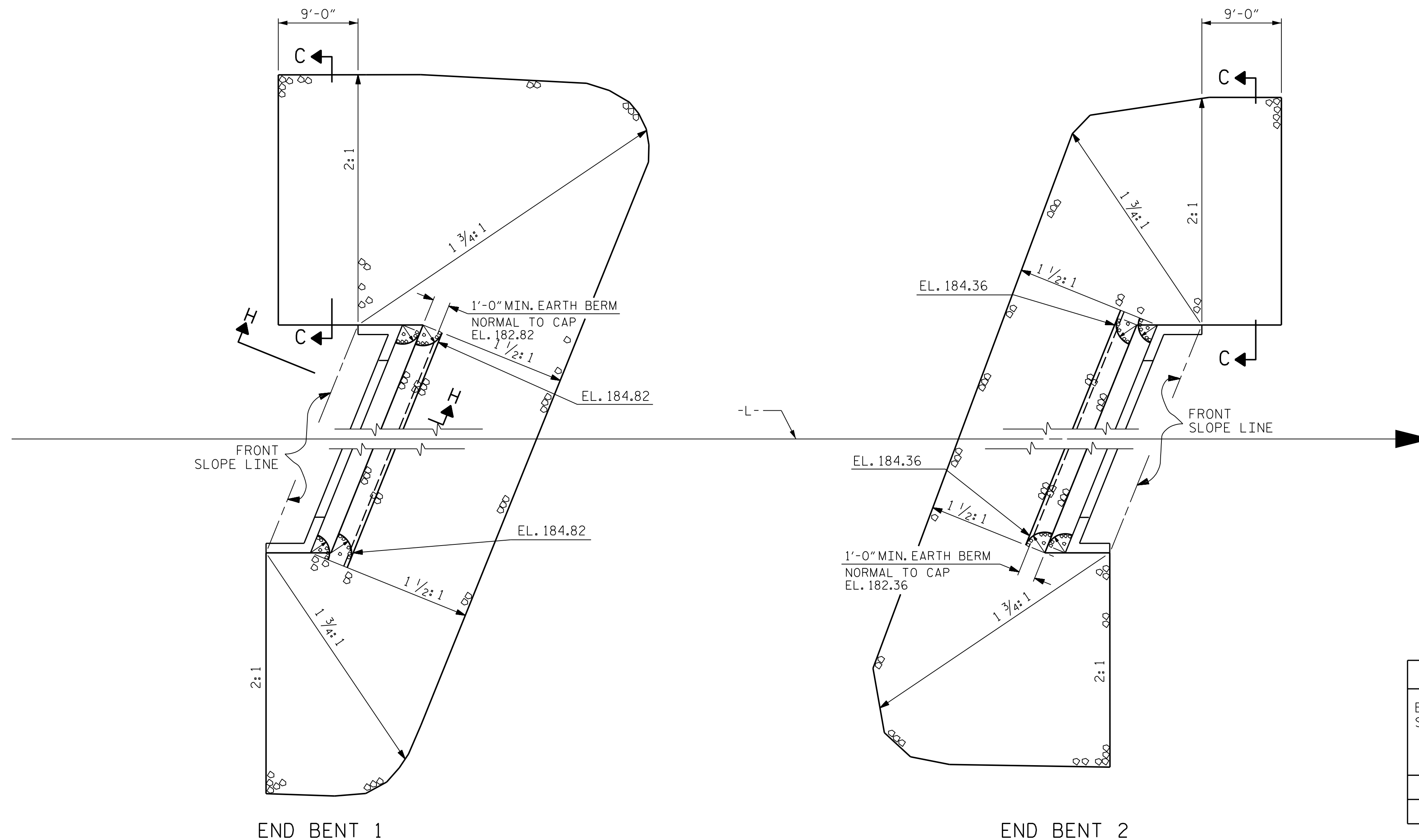
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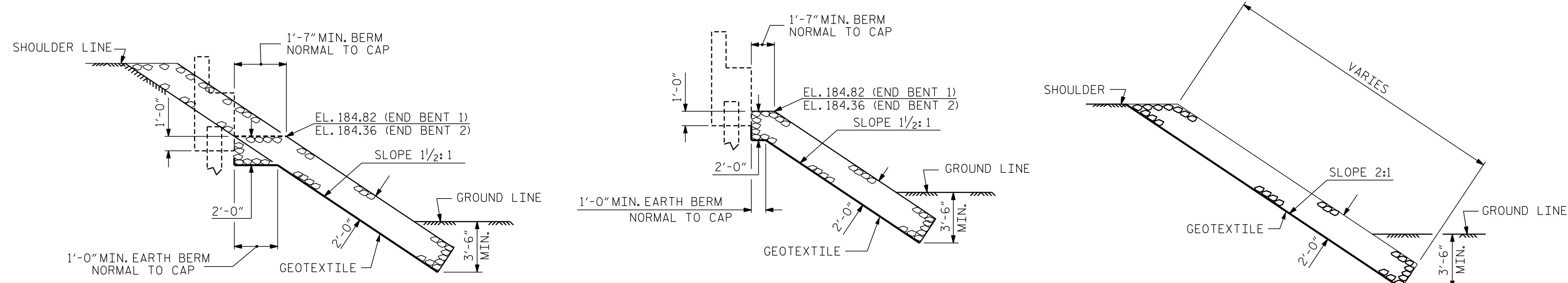
ASSEMBLED BY: J.I. BREWER	DATE: 01/18
CHECKED BY: B.E. ATKINSON	DATE: 02/18
DESIGN ENGINEER OF RECORD: B.E. ATKINSON	DATE: 02/18
DRAWN BY: WJH 12/11	REV. 4/17
CHECKED BY: AAC 12/11	MAA/THC

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ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+49.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	238	264
END BENT 2	215	239

PLAN

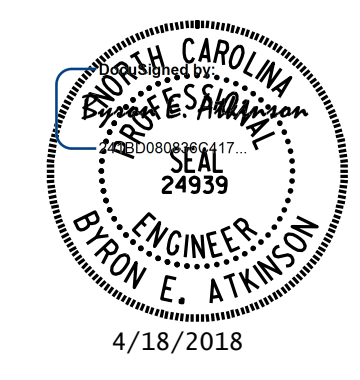


SECTION H-H

SECTION C-C
BERM RIP RAPPED

SECTION C-C

PROJECT NO. 17BP.8.R.125
 SCOTLAND COUNTY
 STATION: 20+49.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RIP RAP DETAILS

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ASSEMBLED BY: J.I. BREWER	DATE: 01/18
CHECKED BY: B.E. ATKINSON	DATE: 02/18
DESIGN ENGINEER OF RECORD: B.E. ATKINSON	DATE: 02/18
DRAWN BY: REK 1/84	REV. 10/1/11 MAA/GM
CHECKED BY: RDU 1/84	REV. 12/21/11 MAA/GM
	REV. 12/17 MAA/THC

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

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1			3			TOTAL SHEETS 15
2			4			

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4"Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

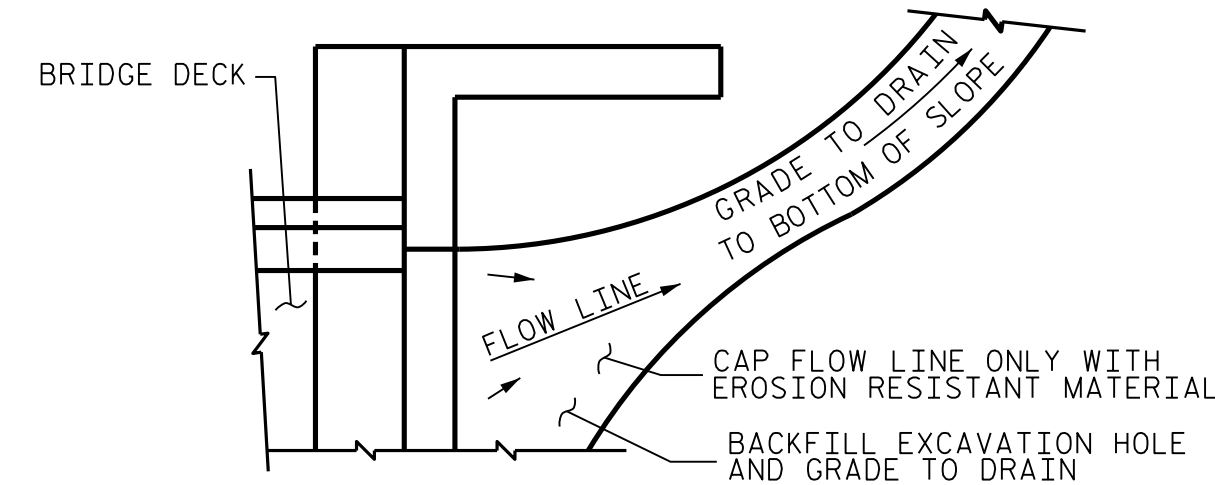
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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.

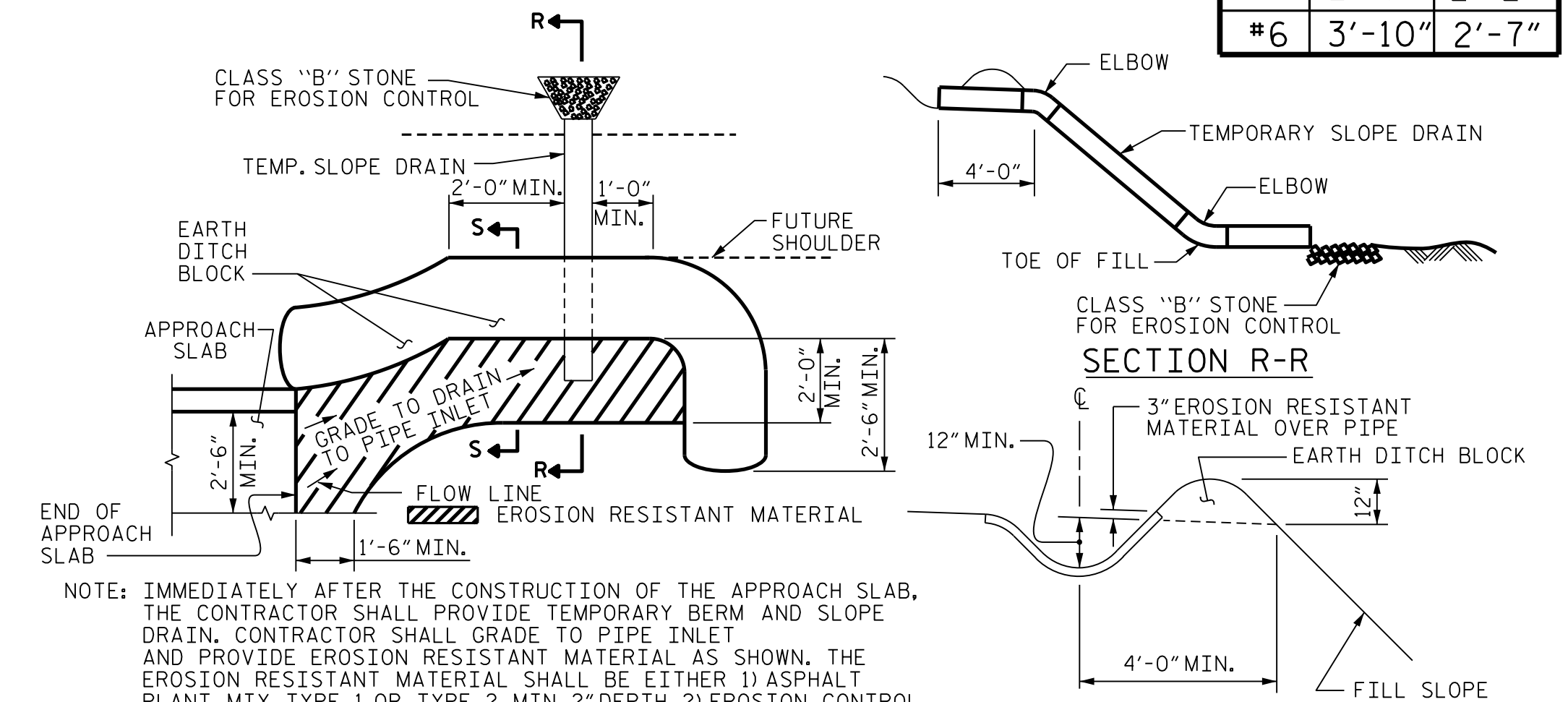
FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



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.

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

BILL OF MATERIAL

APPROACH SLAB AT EB 1

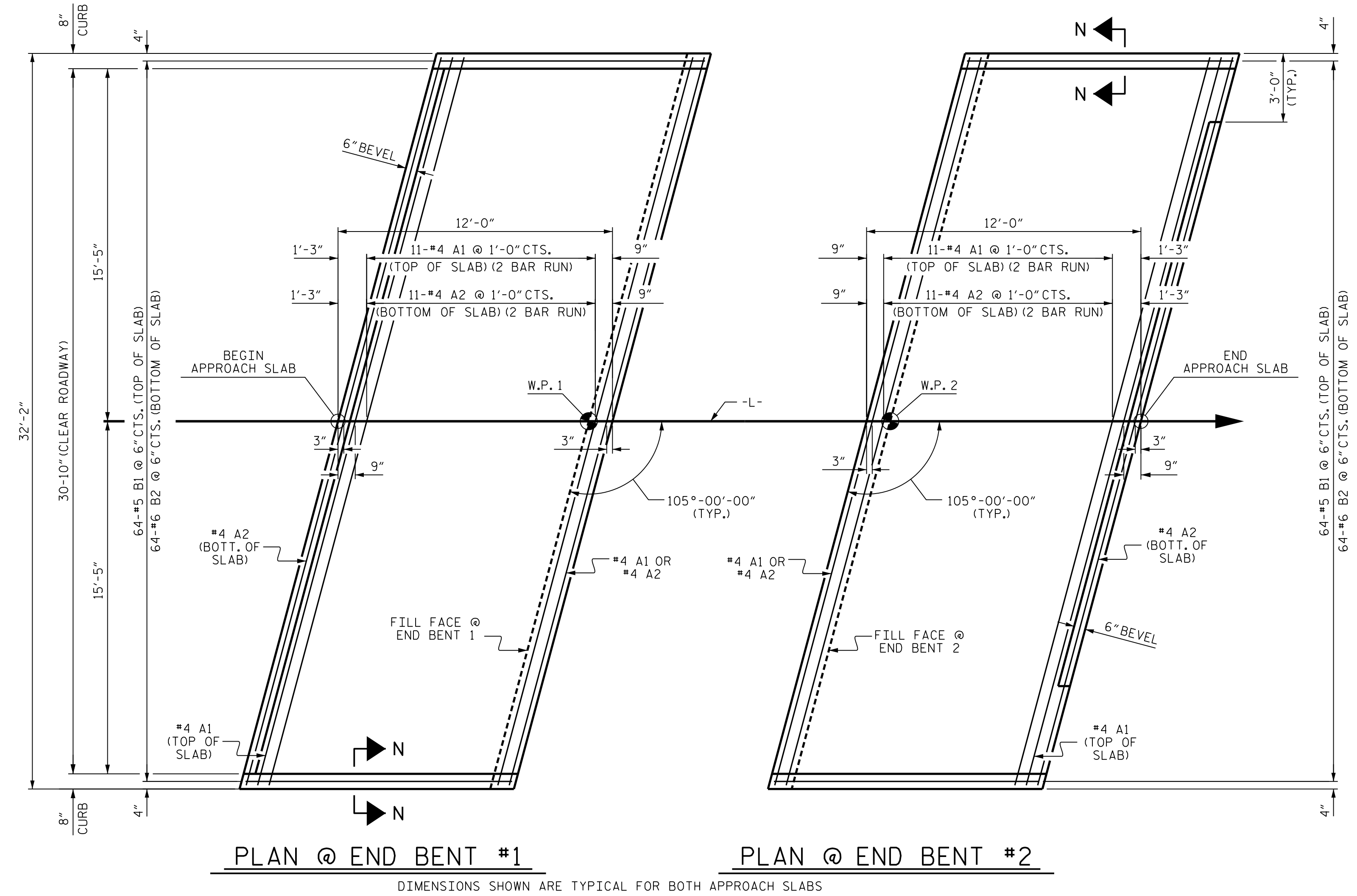
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	17'-6"	304
A2	26	#4	STR	17'-5"	302
*B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1113
REINFORCING STEEL				LBS.	1415
*EPOXY COATED REINFORCING STEEL				LBS.	1044
CLASS AA CONCRETE				C. Y.	17.0

APPROACH SLAB AT EB 2

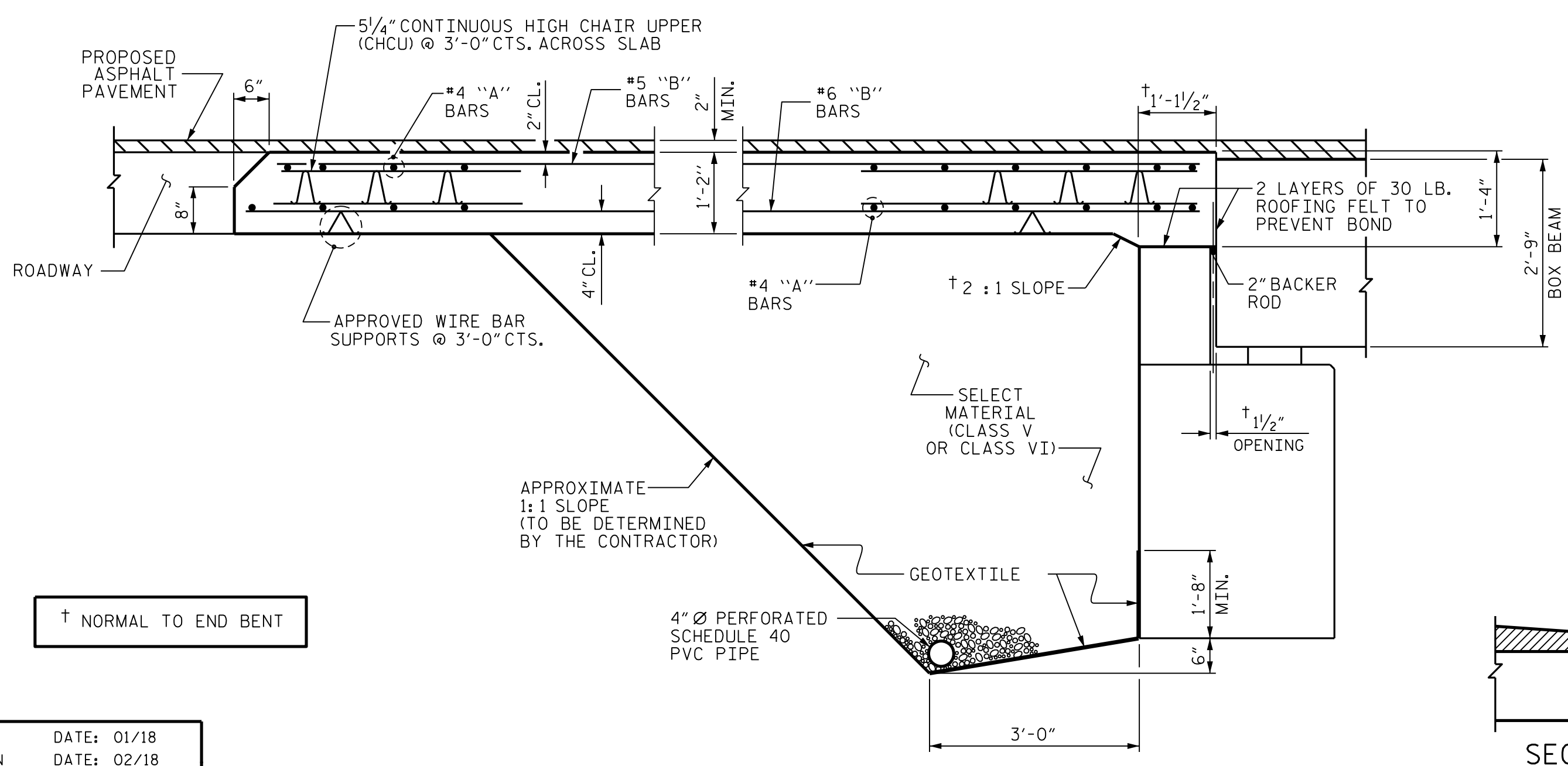
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	17'-6"	304
A2	26	#4	STR	17'-5"	302
*B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1113
REINFORCING STEEL				LBS.	1415
*EPOXY COATED REINFORCING STEEL				LBS.	1044
CLASS AA CONCRETE				C. Y.	17.0

SPLICE LENGTHS

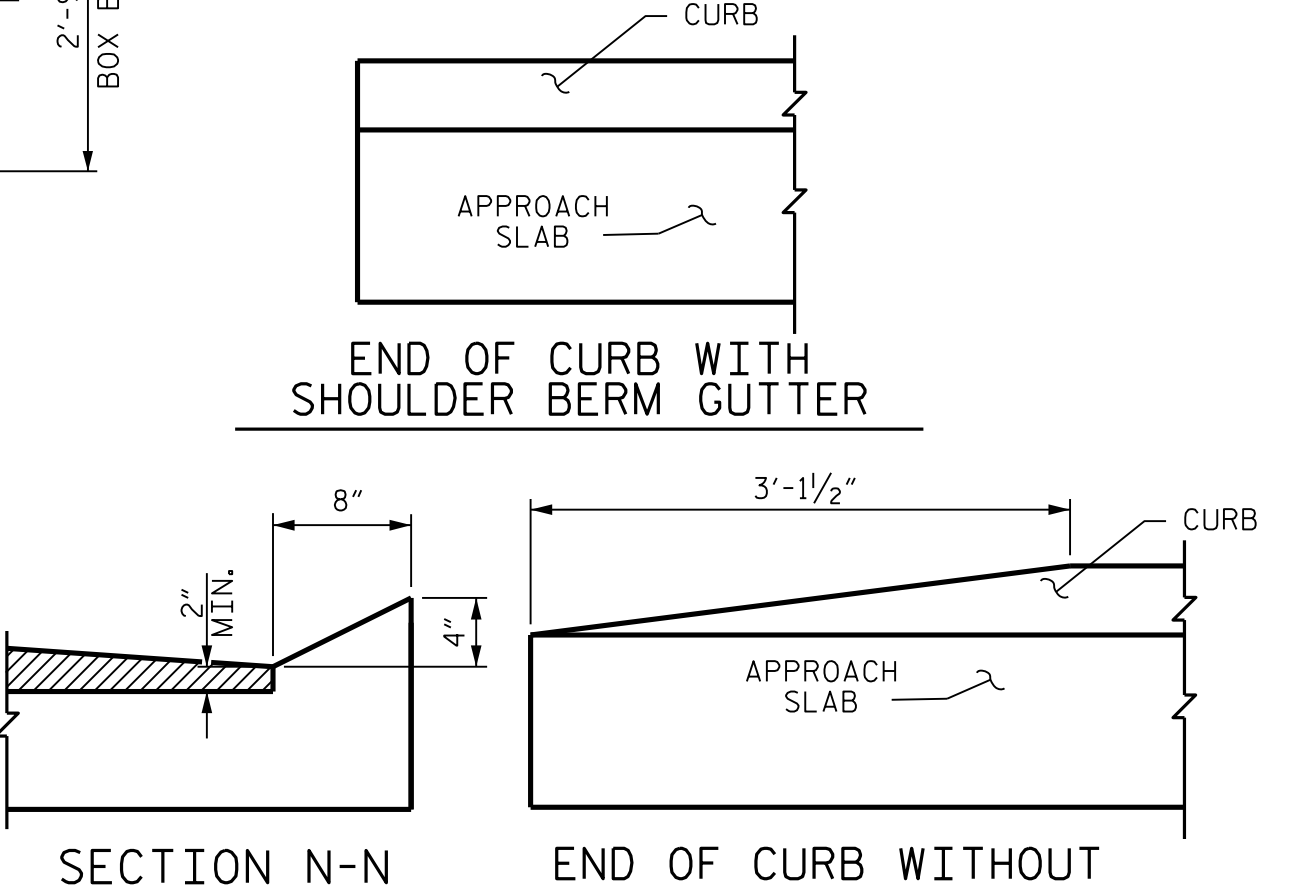
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



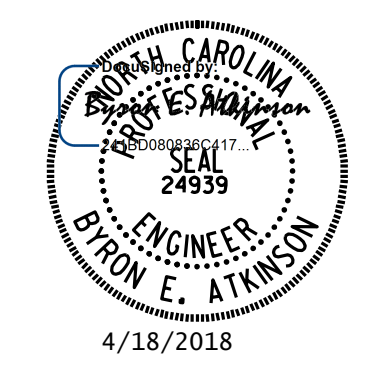
PLAN @ END BENT #1 **PLAN @ END BENT #2**
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB
(TYPE II - MODIFIED APPROACH FILL)



CURB DETAILS



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MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

PROJECT NO. 17BP.8.R.125
SCOTLAND COUNTY
STATION: 20+49.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
BOX BEAM UNIT
(SUB-REGIONAL TIER)
105° SKEW

REVISIONS

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

SHEET NO. **S-15**
TOTAL SHEETS 15

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ASSEMBLED BY: J.I. BREWER DATE: 01/18
 CHECKED BY: B.E. ATKINSON DATE: 02/18
 DESIGN ENGINEER OF RECORD: B.E. ATKINSON DATE: 02/18
 DRAWN BY: MAA II/II REV. 12-17 MAA/THC
 CHECKED BY: ACC II/II

