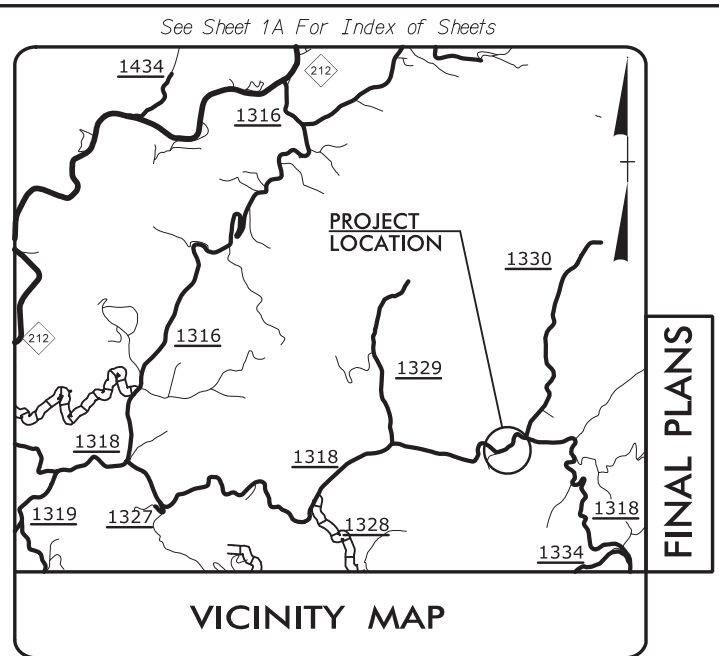


09/28/2011

PROJECT: BP13-R024

CONTRACT: DM00427



FINAL PLANS

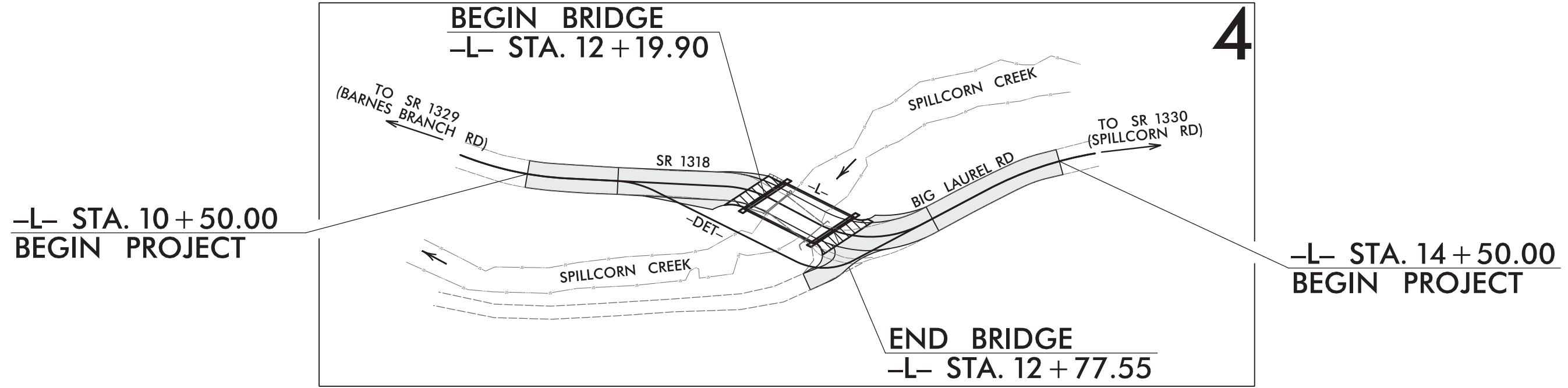
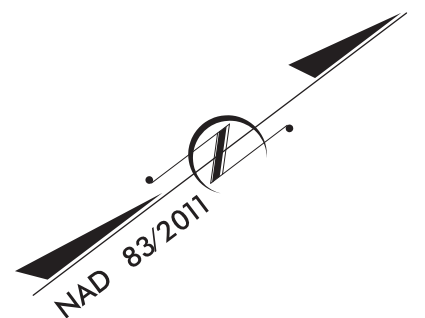
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MADISON COUNTY

LOCATION: BRIDGE #560152 OVER SPILLCORN CREEK
ON SR 1318 (BIG LAUREL RD)

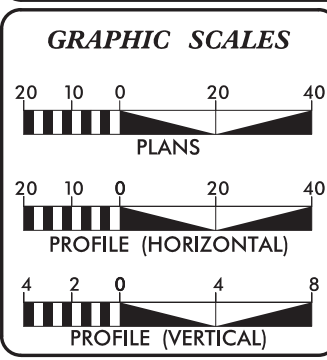
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP13-R024	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP13.R024.1	N/A	PE	
BP13.R024.2	N/A	R/W & UTIL.	
BP13.R024.3	N/A	CONST.	



DESIGN EXCEPTION IS REQUIRED FOR DESIGN SPEED

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2024 =	300
T =	6 % *
V =	15 MPH
* TTST =	3% DUAL = 3%
FUNC CLASS =	MINOR COLLECTOR, RURAL
SUB-REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY PROJECT #BP13-R024	= 0.065 MILES
LENGTH STRUCTURE PROJECT #BP13-R024	= 0.011 MILES
TOTAL LENGTH PROJECT #BP13-R024	= 0.076 MILES

NC DOT CONTACT: JOEL M DAVIS

<p>PLANS PREPARED BY:</p> <p>TGS ENGINEERS 201 W. MARION ST. SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275</p>	<p>PLANS PREPARED FOR:</p> <p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION</p> <p>DIVISION 13 20 OLD T4 Asheville, NC 288013</p>
<p>RIGHT OF WAY DATE:</p> <p>OCT. 31, 2023</p>	<p>JIMMY L. TERRY, PE PROJECT ENGINEER</p>
<p>LETTING DATE:</p> <p>OCT. 1, 2025</p>	<p>AUSTIN R. TURNER, PE PROJECT DESIGN ENGINEER</p>
<p>2024 STANDARD SPECIFICATIONS</p>	

HYDRAULICS ENGINEER

6/20/2024

Seal: DAVID B. PETTY, PROFESSIONAL ENGINEER, SEAL 038697

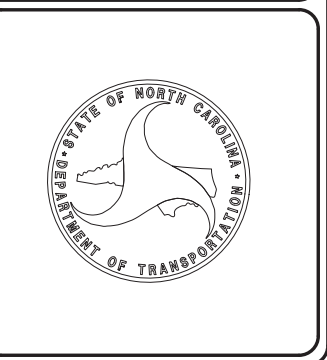
Signature: David B. Petty, P.E.

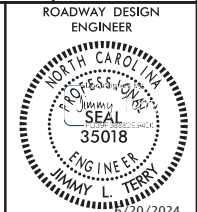
ROADWAY DESIGN ENGINEER

6/20/2024

Seal: JIMMY L. TERRY, PROFESSIONAL ENGINEER, SEAL 35018

Signature: Jimmy L. Terry, P.E.





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

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	ROADWAY DETAIL - DETOUR
2C-1	SPECIAL DETAIL - TYPE III SHOP CURVED ANCHOR UNIT
2C-2	SPECIAL DETAIL - TYPE B-83 SHOP CURVED ANCHOR UNIT
3B-1	ROADWAY AND DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN AND PROFILE SHEET
RW-01 THRU RW-04	SURVEY CONTROL SHEETS
TMP-1 THRU TMP-5	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1 THRU RF-2	STREAMBANK REFORESTATION DETAIL SHEETS
SIGN-1 THRU SIGN-3	SIGNING PLANS
X-1	CROSS-SECTION INDEX
X-1A	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-17	CROSS-SECTIONS
S-1 THRU S-18	STRUCTURE PLANS
	STRUCTURE STANDARD NOTES

GENERAL NOTES

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

GRADE LINE:
GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 11.

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

SIDE ROADS:
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

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

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

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

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.

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

STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill for Bridge Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - for B-77 and B-83 Anchor Units

EFF. 01-16-2024
REV.

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

Note: Not to Scale

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	×
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	_____

HYDROLOGY:

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

RAILROADS:

Standard Gauge	_____
RR Signal Milepost	○
Switch	□
RR Abandoned	_____
RR Dismantled	_____

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Secondary Horiz and Vert Control Point	◆
Vertical Benchmark	⊠
Existing Right of Way Monument	△
Proposed Right of Way Monument (Rebar and Cap)	▲
Proposed Right of Way Monument (Concrete)	⊙
Existing Permanent Easement Monument	◇
Proposed Permanent Easement Monument (Rebar and Cap)	◆
Existing C/A Monument	△
Proposed C/A Monument (Rebar and Cap)	▲
Proposed C/A Monument (Concrete)	⊙
Existing Right of Way Line	_____
Proposed Right of Way Line	_____
Existing Control of Access Line	_____
Proposed Control of Access Line	_____
Proposed ROW and CA Line	_____
Existing Easement Line	_____
Proposed Temporary Construction Easement	_____
Proposed Temporary Drainage Easement	_____
Proposed Permanent Drainage Easement	_____
Proposed Permanent Drainage/Utility Easement	_____
Proposed Permanent Utility Easement	_____
Proposed Temporary Utility Easement	_____
Proposed Aerial Utility Easement	_____

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	_____
Existing Curb	_____
Proposed Slope Stakes Cut	_____
Proposed Slope Stakes Fill	_____
Proposed Curb Ramp	_____
Existing Metal Guardrail	_____
Proposed Guardrail	_____
Existing Cable Guiderail	_____
Proposed Cable Guiderail	_____
Equality Symbol	⊕
Pavement Removal	_____
VEGETATION:	
Single Tree	○
Single Shrub	○
Hedge	_____

Woods Line	_____
Orchard	_____
Vineyard	_____

EXISTING STRUCTURES:

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

UTILITIES:

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

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

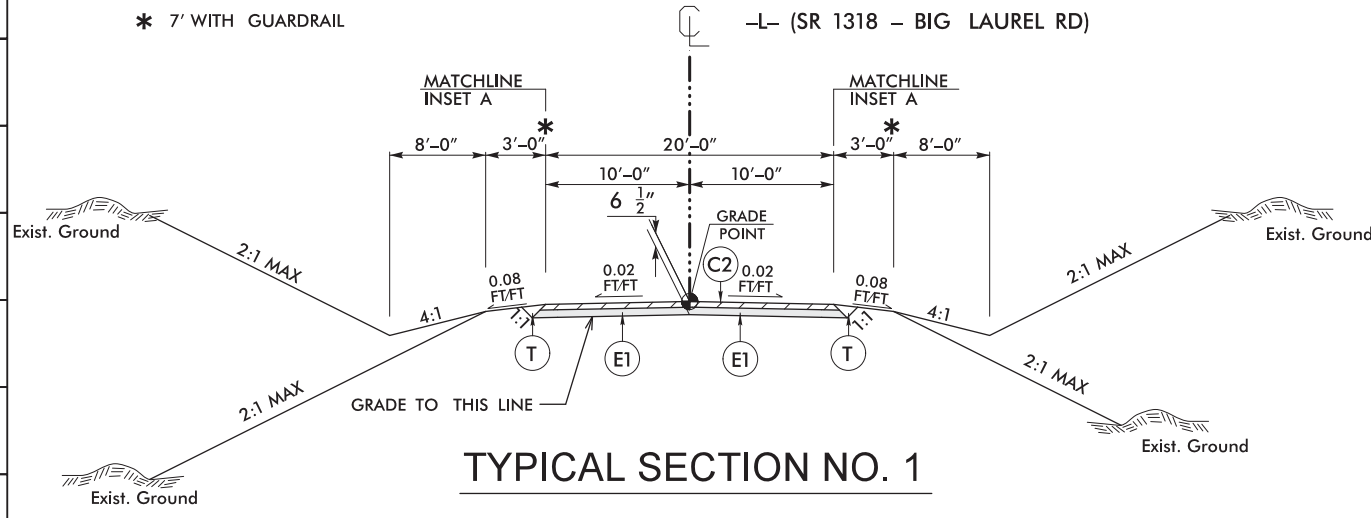
MISCELLANEOUS:

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

PROJECT REFERENCE NO. BPI3-R024	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 35018 L. TERRY	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 044590 ANDREW D. WARGO
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST. SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1 1/2" IN DEPTH.
E1	PROP. APPROX. 4.0" 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.
J	PROP. 6" AGGREGATE BASE COURSE
P1	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING OF EXISTING PAVEMENT (SEE DETAILS THIS SHEET)

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.



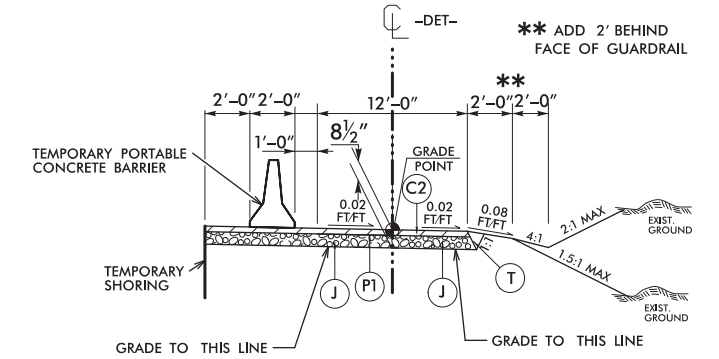
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 11+65.00 TO -L- STA. 12+19.90 (BEGIN BRIDGE)
-L- STA. 12+77.55 (END BRIDGE) TO -L- STA. 13+00.00

NOTE: TRANSITION BETWEEN EXISTING AND TYP. SECT. NO.1 AS FOLLOWS:

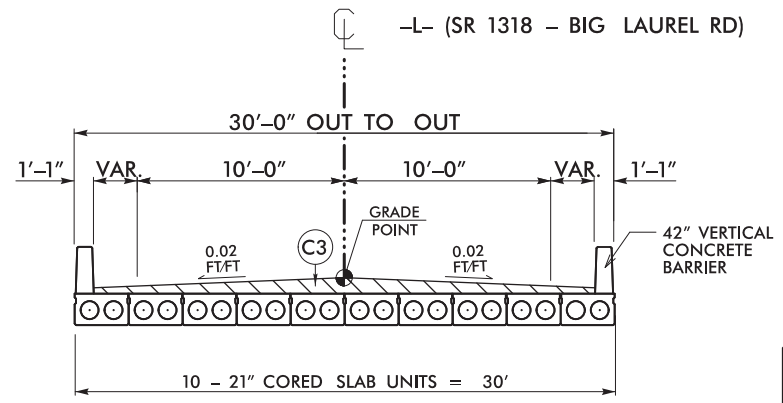
-L- STA. 11+15.00 TO -L- STA. 11+65.00
-L- STA. 13+00.00 TO -L- STA. 13+50.00



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

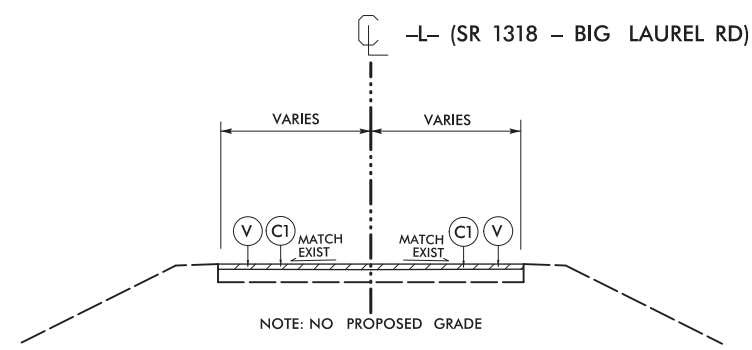
-DET- STA. 11+35.58 TO -DET- STA. 13+14.10



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

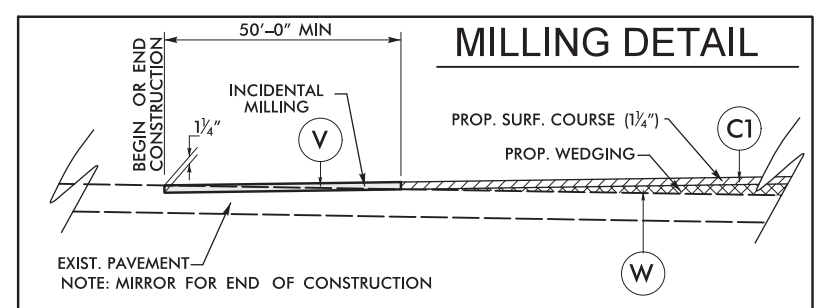
-L- STA. 12+19.90 TO -L- STA. 12+77.55



TYPICAL SECTION NO. 3

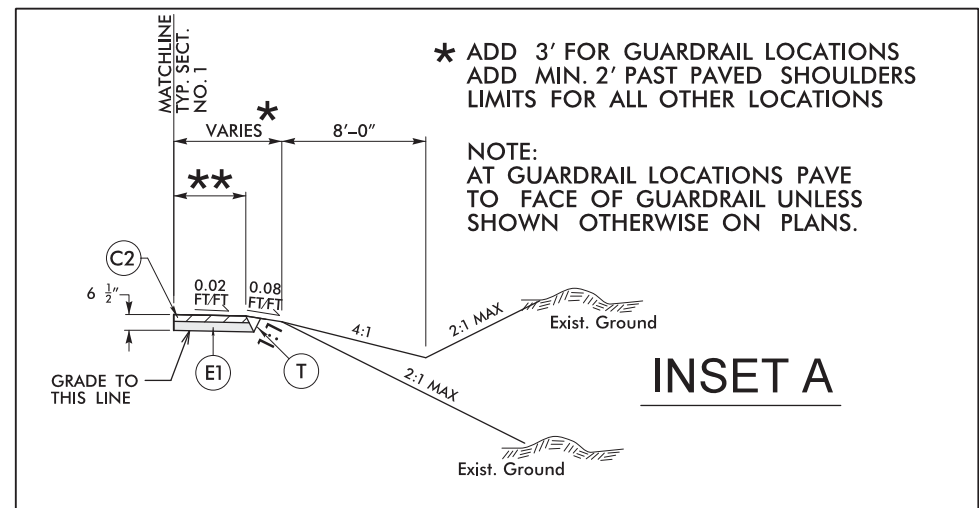
USE TYPICAL SECTION NO. 3

-L- STA. 10+50.00 TO -L- STA. 11+15.00
-L- STA. 13+50.00 TO -L- STA. 14+50.00



USE MILLING DETAIL AS FOLLOWS:

MILLING AND RESURFACING:
-L- STA. 11+15.00 TO -L- STA. 11+65.00
-L- STA. 13+00.00 TO -L- STA. 13+50.00



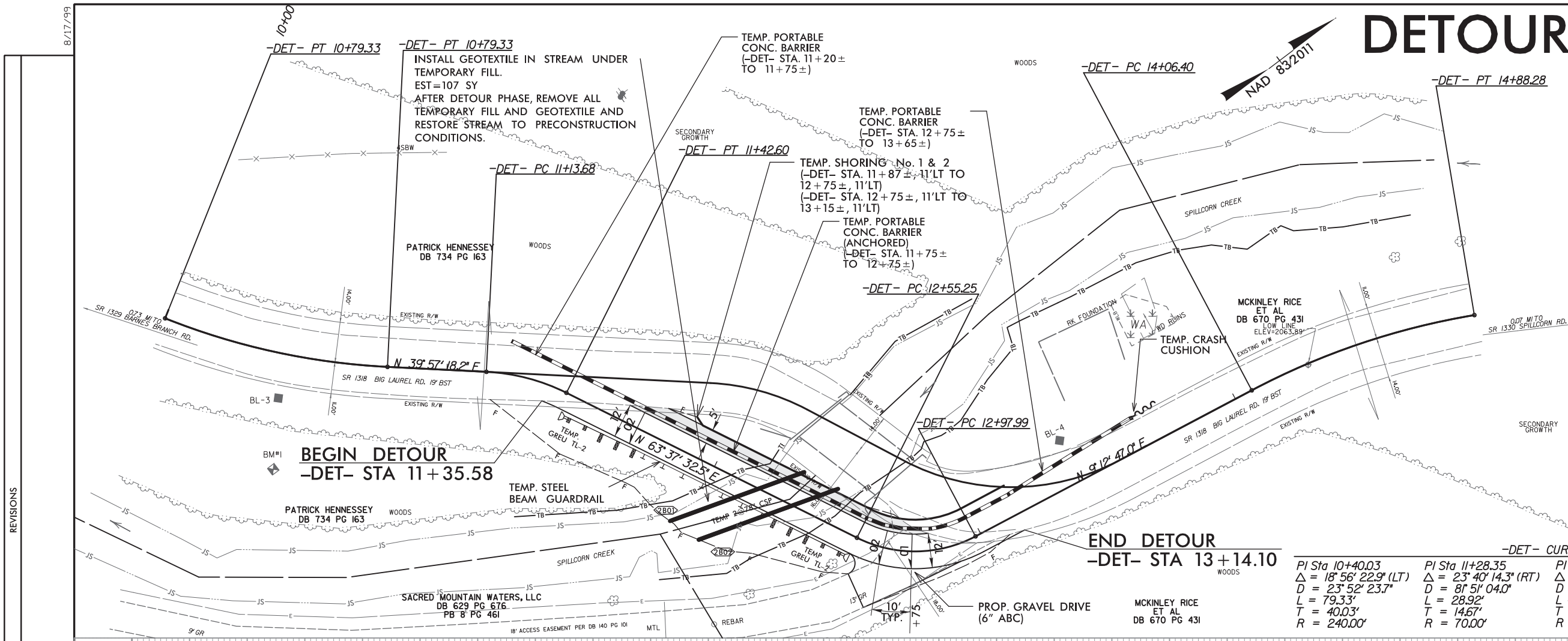
INSET A

USE INSET A

** FDPS WIDTH	STA. TO STA.
0'-0" TO 7'-1"	-L- STA. 11+33.62 RT TO -L- STA. 11+92.14 (BEGIN APPROACH SLAB) RT
0'-0" TO 4'-1"	-L- STA. 11+85.80 LT TO -L- STA. 12+18.35 (BEGIN APPROACH SLAB) LT
0'-0" TO 9'-1"	-L- STA. 12+75.00 (END APPROACH SLAB) RT TO -L- STA. 12+69.25 RT
0'-0" TO 5'-3"	-L- STA. 13+00.88 (END APPROACH SLAB) LT TO -L- STA. 13+50.00 LT

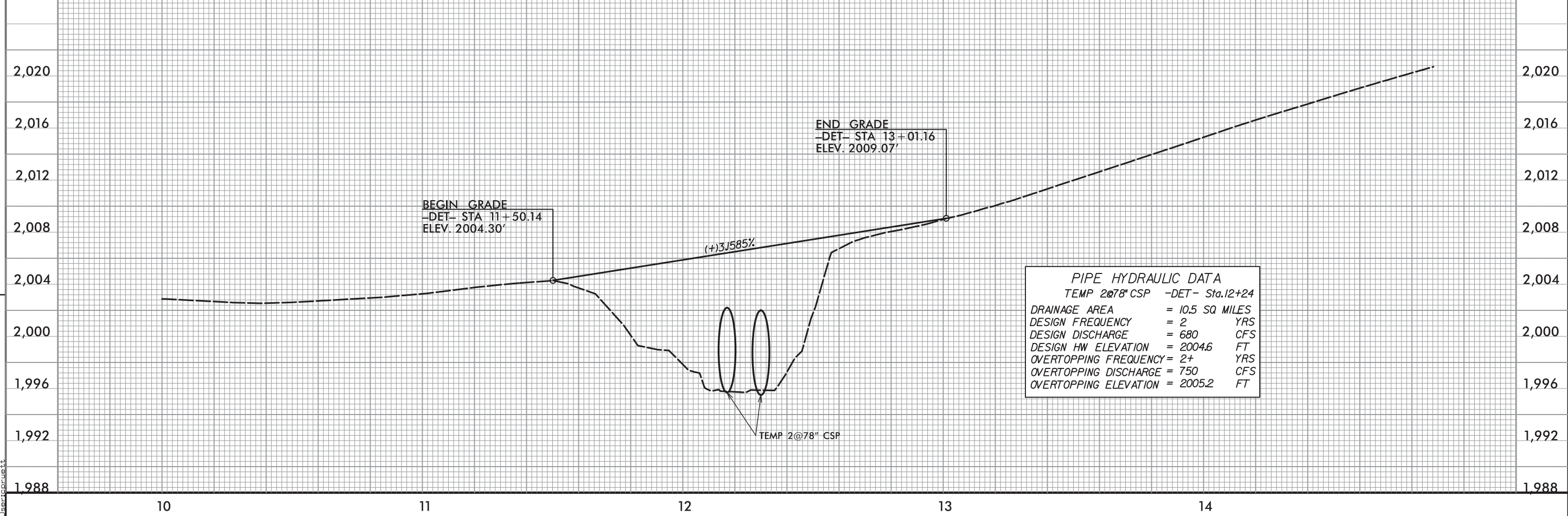
DETOUR

PROJECT REFERENCE NO. BP13-R024	SHEET NO. 2B-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	



-DET- CURVE DATA

PI Sta	PI Sta	PI Sta	PI Sta
10+40.03	11+28.35	12+78.39	14+47.70
$\Delta = 18^\circ 56' 22.9"$ (LT)	$\Delta = 23^\circ 40' 14.3"$ (RT)	$\Delta = 54^\circ 24' 45.4"$ (LT)	$\Delta = 18^\circ 23' 56.1"$ (RT)
$D = 23^\circ 52' 23.7"$	$D = 81^\circ 51' 04.0"$	$D = 127^\circ 19' 26.2"$	$D = 22^\circ 28' 08.2"$
$L = 79.33'$	$L = 28.92'$	$L = 42.74'$	$L = 81.89'$
$T = 40.03'$	$T = 14.67'$	$T = 23.13'$	$T = 41.30'$
$R = 240.00'$	$R = 70.00'$	$R = 45.00'$	$R = 255.00'$



PIPE HYDRAULIC DATA

TEMP 2@78" CSP -DET- Sta.12+24

DRAINAGE AREA	= 10.5 SQ MILES
DESIGN FREQUENCY	= 2 YRS
DESIGN DISCHARGE	= 680 CFS
DESIGN HW ELEVATION	= 2004.6 FT
OVERTOPPING FREQUENCY	= 2+ YRS
OVERTOPPING DISCHARGE	= 750 CFS
OVERTOPPING ELEVATION	= 2005.2 FT

REVISIONS

X:\2024\Division 13\Medison 2019\Medison 152\Roadway\Proj\Medison 152_Rdy_psh_detour.dgn
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STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

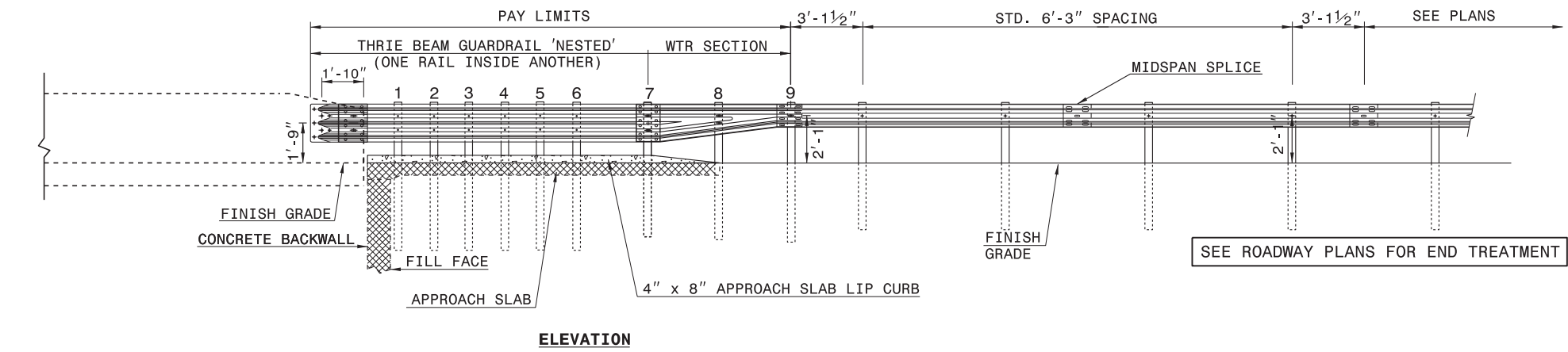
ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**

SHEET 1 OF 1
TYPE III SC

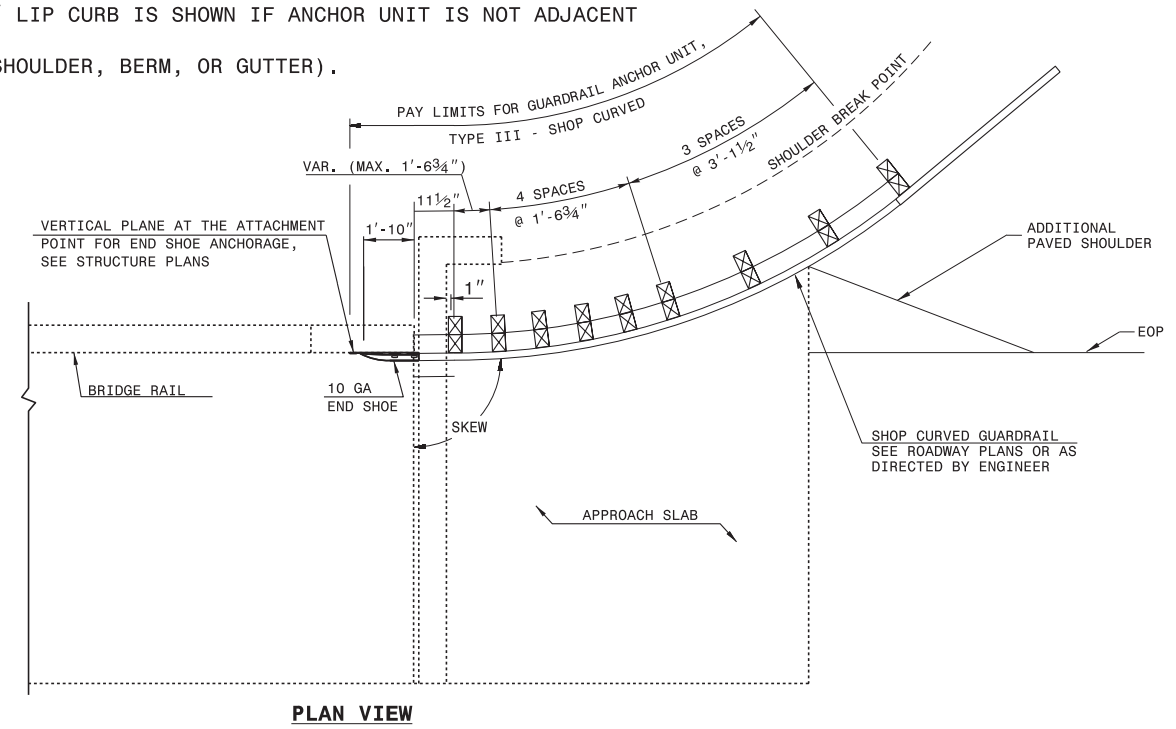
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**

SHEET 1 OF 1
TYPE III SC

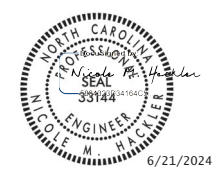


- NOTE:
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 - *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
 - SHOULDER BERM GUTTER MUST BE INSTALLED TO THE 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).
 - USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
 - LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 - SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



**GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED
FOR ATTACHMENT TO RAIL ON BRIDGE**

01-FEB-2018 09:49 S:\Contracts\Special Details\howerton\guardrail\31 inch Guardrail\type_iii.sc.dgn

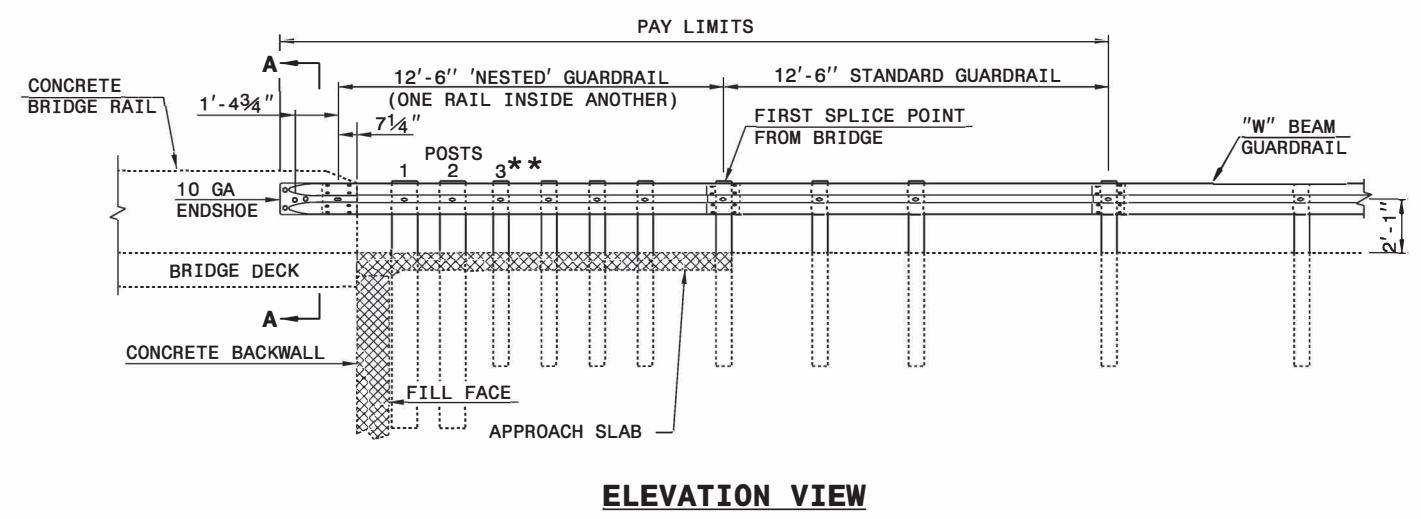
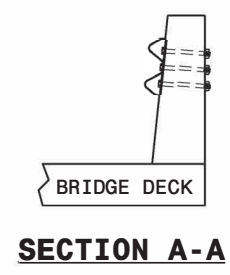


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

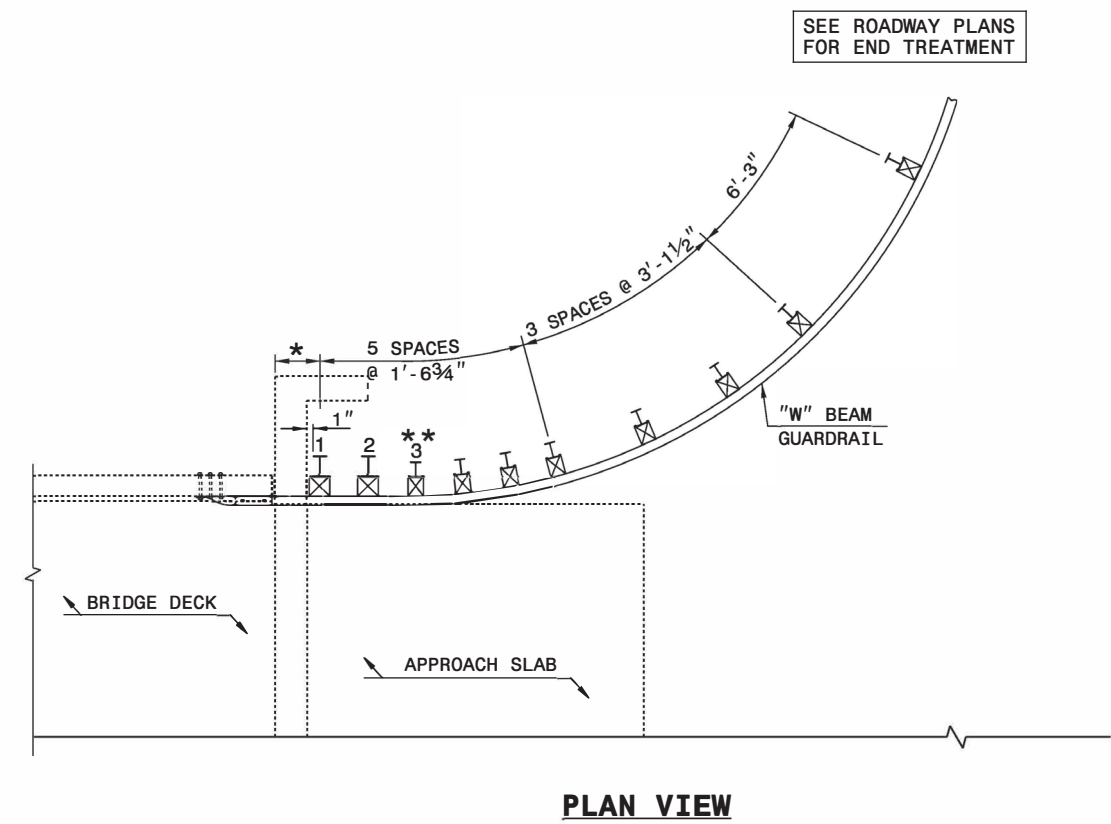
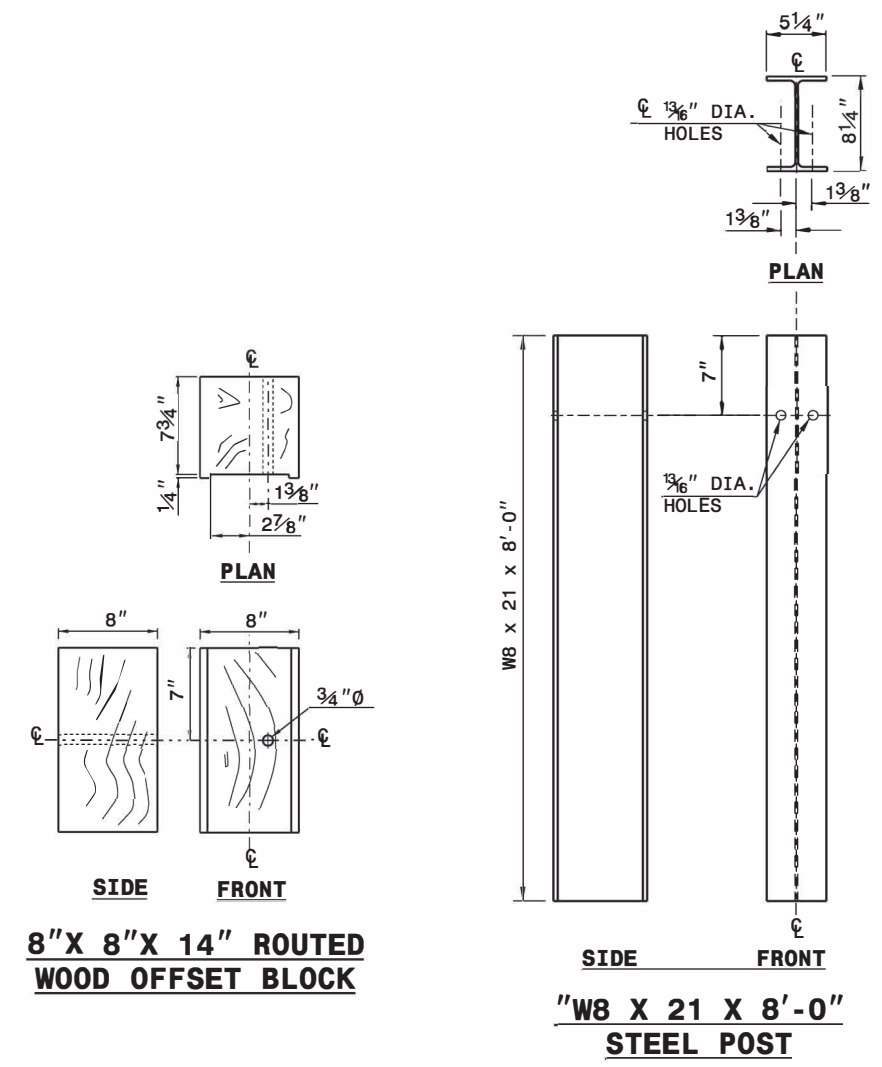
SEE PLATE FOR TITLE

ORIGINAL BY: E.E.Ward	DATE: 4-4-02
MODIFIED BY: T.S.Spell	DATE: 2-01-18
CHECKED BY:	DATE:
FILE SPEC.: jhowerton\guardrail\31inguardrail\typeiiiisc.dgn	

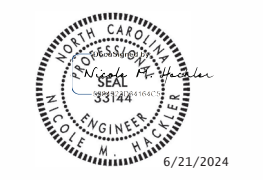


NOTE:

- **ELIMINATE POST 3 AND SHIFT POSTS 1 & 2 ON 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 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- USE NO WOOD POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- POSTS 1 AND 2 TO BE W8 x 21 x 8'-0" LONG STEEL POST AND 8" x 8" x 14" WOOD ROUTED OFFSET BLOCK.



19-NOV-2018 08:26
 S:\Contracts\Special Details\Vertical\Misc. guardrail\NCHRP350 Approved\8-83_minndot.dgn
 J:\overton AT_CSD-292595



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
GUARDRAIL ANCHOR UNIT TYPE B-83 SHOP CURVED	
ORIGINAL BY: E.E. WARD	DATE: 6-10-02
MODIFIED BY: E.E. WARD	DATE: 7-14-04
CHECKED BY:	DATE:
FILE SPEC.:	

STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK IN CUBIC YARDS

Table with columns: Station, Station, Uncl. Excav. +%, Embank. +%, Borrow, Waste. Rows include DETOUR CONSTRUCTION, BRIDGE, DETOUR REMOVAL, and GRAND TOTALS.

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for grading.

Note: Earthwork quantities are calculated by TGS Engineers. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EST. SHALLOW UNDERCUT = 100 CUBIC YARDS EST. SELECT GRANULAR MATERIAL = 400 CUBIC YARDS PER GEOTECH RECOMMENDATION, ESTIMATED 400 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

PAVEMENT REMOVAL SUMMARY IN SQUARE YARDS

Table with columns: SURVEY LINE, Station, Station, LOCATION LT/RT/CL, ASPHALT REMOVAL, ASPHALT BREAKUP, CONCRETE REMOVAL, CONCRETE BREAKUP. Rows include -L-, -L-, -DET- and TOTAL/SAY.

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

GUARDRAIL SUMMARY IN FEET

Main table for GUARDRAIL SUMMARY with columns: LINE, BEG. STA., END STA., LOC., LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPR. END, TRAIL END), "N" DIST. FROM E.O.L., TOTAL SHLDR WIDTH, FLAIR LENGTH (APPR. END, TRAIL END), W (APPR. END, TRAIL END), ANCHORS (AT-1, TYPE III SC, B-83 SC, TEMP TL-2), IMP. ATTEN. TYPE (EA, G, NG), REMOVE EXISTING GUARDRAIL, REMOVE & RESET EXISTING GUARDRAIL, REMARKS.

TEMPORARY GUARDRAIL SUMMARY

Table for TEMPORARY GUARDRAIL SUMMARY with columns: LINE, BEG. STA., END STA., LOC., LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPR. END, TRAIL END), "N" DIST. FROM E.O.L., TOTAL SHLDR WIDTH, FLAIR LENGTH (APPR. END, TRAIL END), W (APPR. END, TRAIL END), ANCHORS (AT-1, TYPE III SC, B-83 SC, TEMP TL-2), IMP. ATTEN. TYPE (EA, G, NG), REMOVE EXISTING GUARDRAIL, REMOVE & RESET EXISTING GUARDRAIL, REMARKS.

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

COMPUTED BY: Zachary Richard, PE DATE: 3/28/2024 CHECKED BY: David Petty, PE DATE: 3/28/2024

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54 INCHES & OVER)

Large table for LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54 INCHES & OVER) with columns: STATION, LOCATION (LT, RT, OR CL), STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE (CRITICAL), DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC), C.S. PIPE, ENDWALLS, REINFORCED ENDWALLS, QUANTITIES (PER EACH (P*THRU) & TOTAL L.S. FOR PAY), FRAME GRATES AND HOOD STANDARD 840.03, CONCRETE TRANSITIONAL SECTION, CONCRETE INLET, CATCH BASIN, D.I. STD. 840.14 OR STD. 840.15, G.D.I. (W/S. FLAT) FRAME W/ 2 GRATES STD. 840.20, T.B.D.I. STD. 841.35, FRAME AND NARROW FLAT GRATE STD. 840.29, CONG. & BRCK PIPE (LUG, C.Y. STD. 840.7), CONG. COLLARS CL. "F" C.Y. STD. 840.72, PIPE REMOVAL (LN. FT.), REMARKS.

COMPUTED BY: REK DATE: 7/17/2023
 CHECKED BY: DMB DATE: 7/17/2023

(2-3-23)

PROJECT NO. BP13-R024	SHEET NO. 3G-1
--------------------------	-------------------

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

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

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

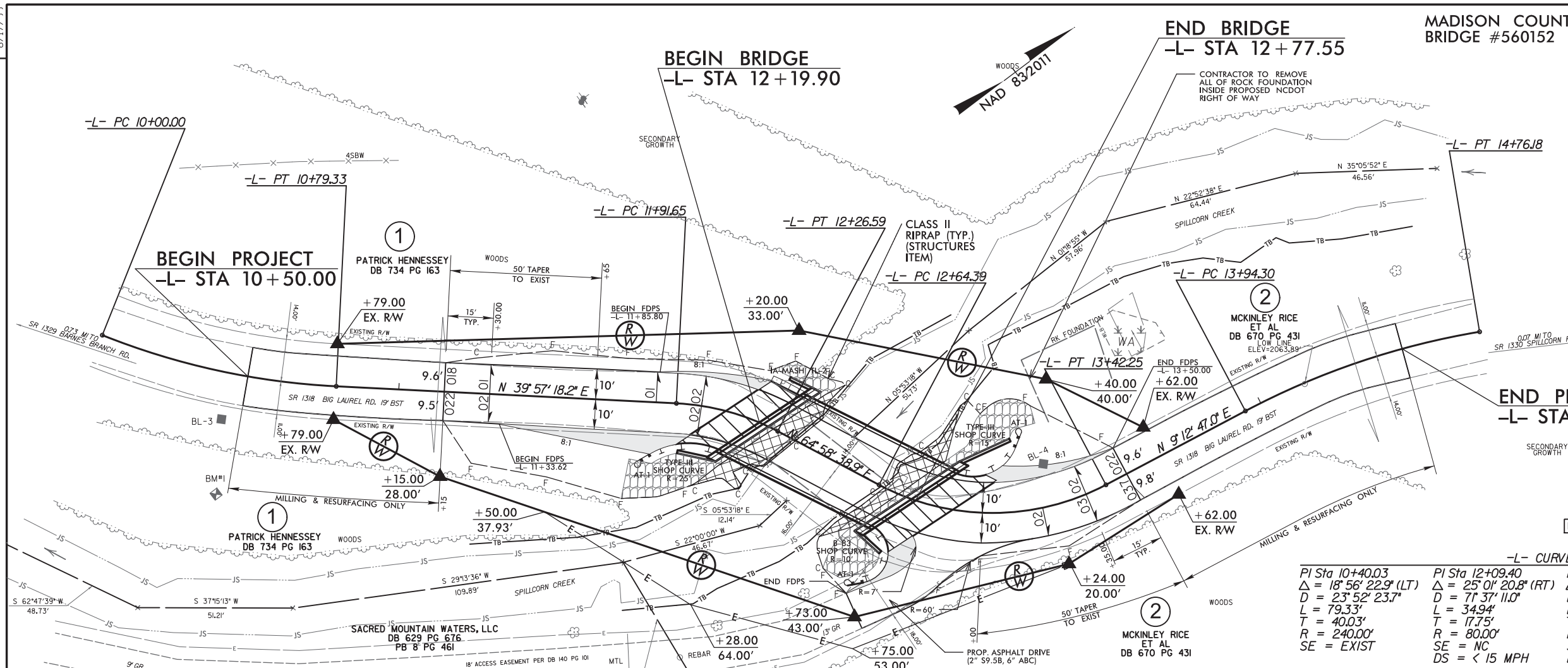
SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
			CONTINGENCY	ASU(1)	12	100	200	300	
				TOTAL CY/TONS/SY:		100	200**	300**	0

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

8/17/99

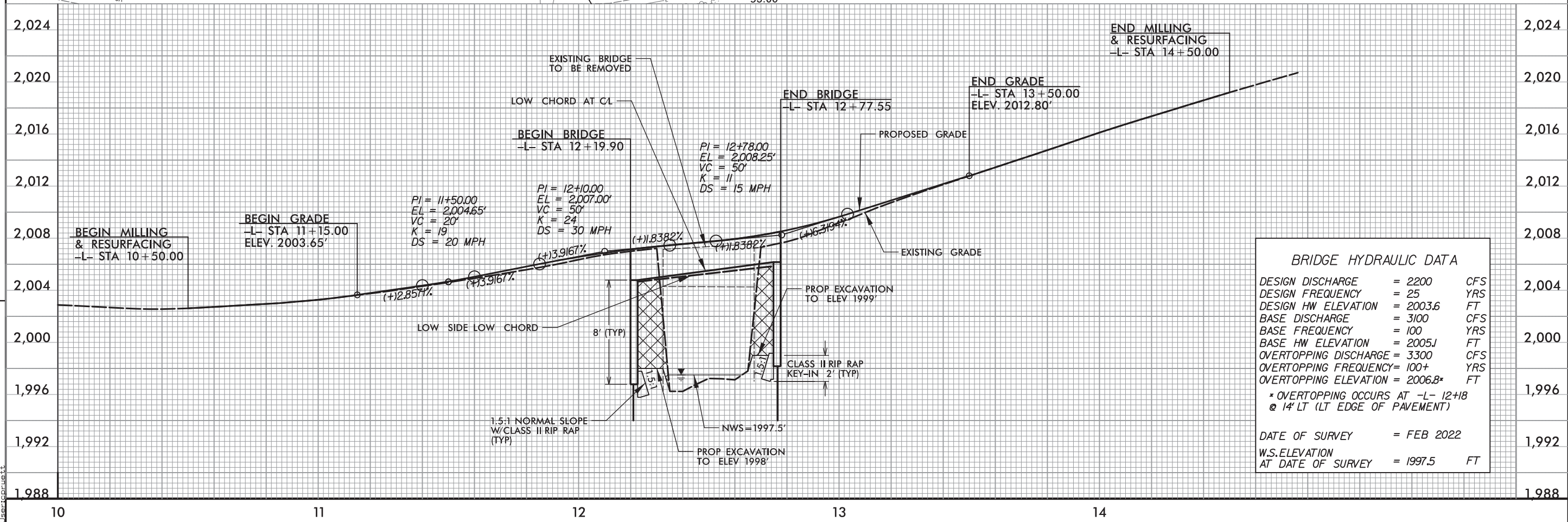
PROJECT REFERENCE NO. BP13-R024	SHEET NO. 4
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 35018 JIMMY L. TERRY	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 038697 DAVID B. PETT
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	



-L- CURVE DATA

PI Sta	Δ	D	L	T	R	SE	DS
10+40.03	18° 56' 22.9" (LT)	23' 52" 23.7"	79.33'	40.03'	240.00'	EXIST	< 15 MPH
12+09.40	25° 01' 20.8" (RT)	71' 37" 11.0"	34.94'	17.75'	80.00'	NC	< 15 MPH
13+06.72	55° 45' 51.9" (LT)	71' 37" 11.0"	77.86'	42.33'	80.00'	NC	< 15 MPH
14+35.60	18° 23' 56.1" (RT)	22' 28" 08.2"	81.89'	41.30'	255.00'	EXIST	< 15 MPH

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-18



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2200	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2003.6	FT
BASE DISCHARGE	= 3100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2005.1	FT
OVERTOPPING DISCHARGE	= 3300	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 2006.8*	FT

* OVERTOPPING OCCURS AT -L- 12+18 @ 14' LT (LT EDGE OF PAVEMENT)

DATE OF SURVEY = FEB 2022
W.S. ELEVATION AT DATE OF SURVEY = 1997.5 FT

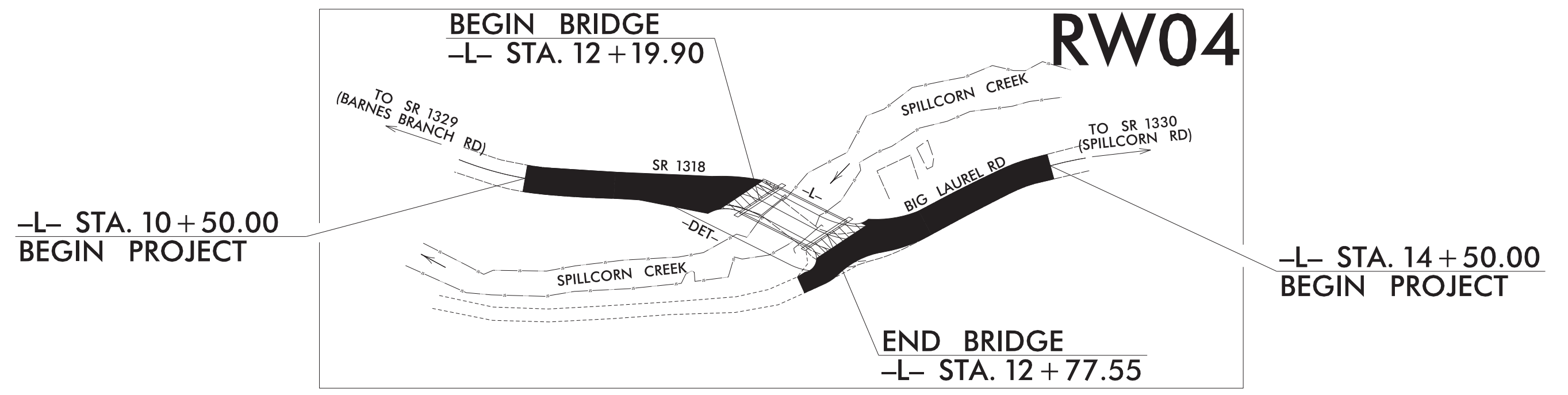
REVISIONS

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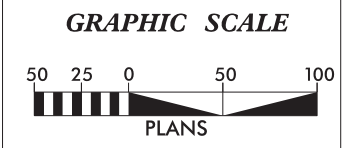
PROJECT: BP13-R024

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP13-R024	RW01	5

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 SURVEY CONTROL, EXISTING CENTERLINES,
 RIGHT OF WAY, EASEMENTS AND PROPERTY TIES
MADISON COUNTY



18-APR-2023 11:46 SA:\Surveyors\Projects\LIB\2023\560152-RW\MTC\560152_Is_rw01.dgn mcornewell AT MORNWELL\TOP



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "151-1" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 813,033.3969(ft) EASTING: 911,136.3634(ft) ELEVATION: 2,029.02(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99979504

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "151-1" TO -L- STATION 10+00.00 IS S 57°31'41.35" W 764.44(ft)

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

Prepared in the Office of:

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

2024 STANDARD SPECIFICATIONS

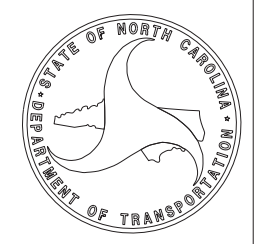
RIGHT OF WAY DATE:
10/31/2023

LETTING DATE:
10/1/2025

PROFESSIONAL LAND SURVEYOR

Designed by
 Matthew Cornwell
 560152-114736475
 SIGNATURE:


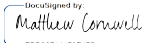

4/19/2023



Date:

SURVEY CONTROL SHEET

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. BP13-R024	SHEET NO. RW02C-1
Location and Surveys	
 TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
 4/10/2022	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

BASELINE

BL POINT	DESC.	NORTH	EAST	ELEVATION
3	BL -3	812637.5937	910537.2243	2001.78
4	BL -4	812844.9339	910712.4572	2009.80
5	BL -5	813059.8296	910807.8821	2024.68
1	151-1	813033.3969	911136.3634	2029.02
2	151-2	813417.5562	911218.1024	2038.64

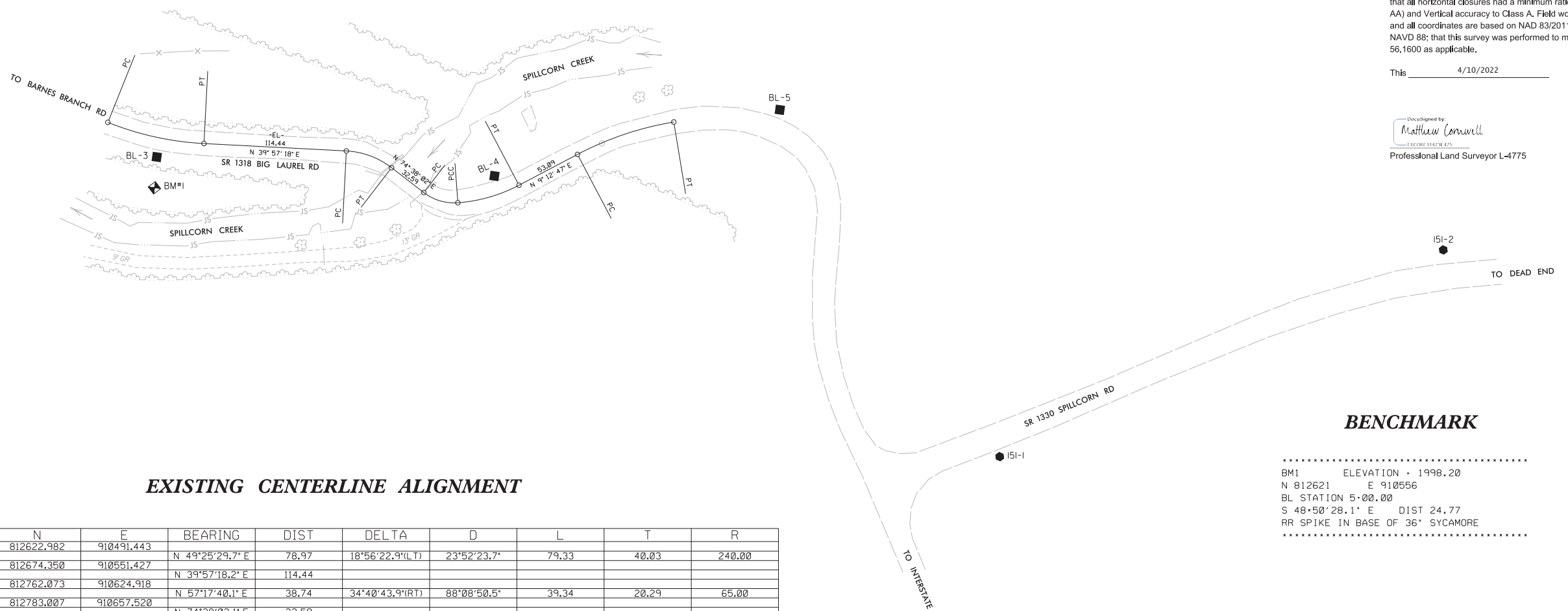
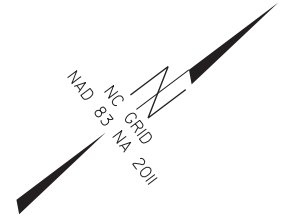
I, Matthew T. Cornwell, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
 Type of GPS field procedure: **RTN**
 Dates of survey: **February 2022**
 Datum/Epoch: **NAD83/2011**
 Published/Fixed-control use: **N/A**
 Localized around: **151-1**
 Northing: **813033.3969**
 Easting: **911136.3634**
 Combined grid factor: **0.99979504**
 Geoid model: **GEIOD18**
 Units: **US Survey Feet**

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed February 2022, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 4/10/2022


 Professional Land Surveyor L-4775



EXISTING CENTERLINE ALIGNMENT

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	812622.982	910491.443	N 49°25'29.7" E	78.97	18°56'22.9"(LT)	23°52'23.7"	79.33	40.03	240.00
CURVE	812674.350	910551.427	N 39°57'18.2" E	114.44					
PT	812762.073	910624.918	N 57°17'40.1" E	38.74	34°40'43.9"(RT)	88°08'50.5"	39.34	20.29	65.00
CURVE	812783.007	910657.520	N 74°38'02.1" E	32.59					
PT	812791.644	910688.949	N 53°41'54.6" E	28.59	41°52'15.0"(LT)	143°14'22.0"	29.23	15.30	40.00
CURVE	812808.568	910711.986	N 20°59'17.1" E	51.02	23°33'00.1"(LT)	45°50'11.8"	51.38	26.06	125.00
PT	812856.200	910730.260	N 09°12'47.0" E	53.09					
CURVE	812908.606	910738.760	N 18°24'45.1" E	81.53	18°23'56.1"(RT)	22°28'08.2"	81.89	41.30	255.00
PT	812985.967	910764.513							


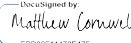

BENCHMARK

.....
 BMI ELEVATION = 1998.20
 N 812621 E 910556
 BL STATION 5+00.00
 S 48°50'28.1" E DIST 24.77
 RR SPIKE IN BASE OF 36" SYCAMORE

NOTES:

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

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO. BP13-R024	SHEET NO. RW02D-1
Location and Surveys	
 <p>TGS ENGINEERS 201 WEST MARION STREET SUITE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275</p>	
PROJECT SURVEYOR	
DocuSigned by:  E8036F11473E475	
4/19/2023	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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

This 4/19/2023

DocuSigned by:

 E8036F11473E475
 Professional Land Surveyor L-4775

REVISIONS


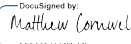

		L	
TYPE	STATION	NORTH	EAST
PC	10+00.00	812622.9824	910491.4426
PT	10+79.33	812674.3504	910551.4274
PC	11+91.65	812760.4445	910623.5540
PT	12+26.59	812781.5610	910651.0399
PC	12+64.39	812797.5518	910685.2973
PT	13+42.25	812857.2347	910730.4273
PC	13+94.30	812908.6059	910738.7597
PT	14+76.18	812985.9665	910764.5129

NOTES:

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

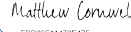
18 APR 2023 10:44
 SA Surveyor
 MTCORNWELL\AFPTOP
 560152\560152.RW\WTC\560152.LS.rw02d-1.dgn

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO. BP13-R024	SHEET NO. RW03E-1
Location and Surveys	
 TGS ENGINEERS 201 WEST MARION STREET SUITE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
DocuSigned by:  <small>116199114718425</small>	
4/19/2023	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Matthew T. Cornwell, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed 4/14/2023, and all coordinates are based on NAD83/2011. That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 4/19/2023

DocuSigned by:

116199114718425
 Professional Land Surveyor L-4775

REVISIONS

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+79.00	11.00	812667.0184	910559.6346
L	10+79.00	-14.00	812683.0997	910540.4933
L	11+15.00	28.00	812683.7086	910595.7947
L	12+20.00	-33.00	812807.1862	910628.8231
L	12+73.00	43.00	812764.8194	910715.1536
L	13+24.00	20.00	812832.1193	910743.9892
L	13+40.00	-40.00	812862.5292	910690.7472
L	13+62.00	-11.00	812878.4871	910722.7307
L	13+62.00	14.00	812874.4845	910747.4082

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 4/14/2023.

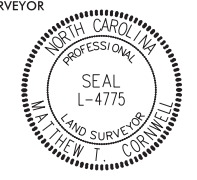
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 SA Surveyor for Matthew Cornwell
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 MATTHEW T. CORNWELL

Location and Surveys

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

PROJECT SURVEYOR

DocuSigned by:
Matthew Cornwell
 ERO03611473E475
 4/19/2023



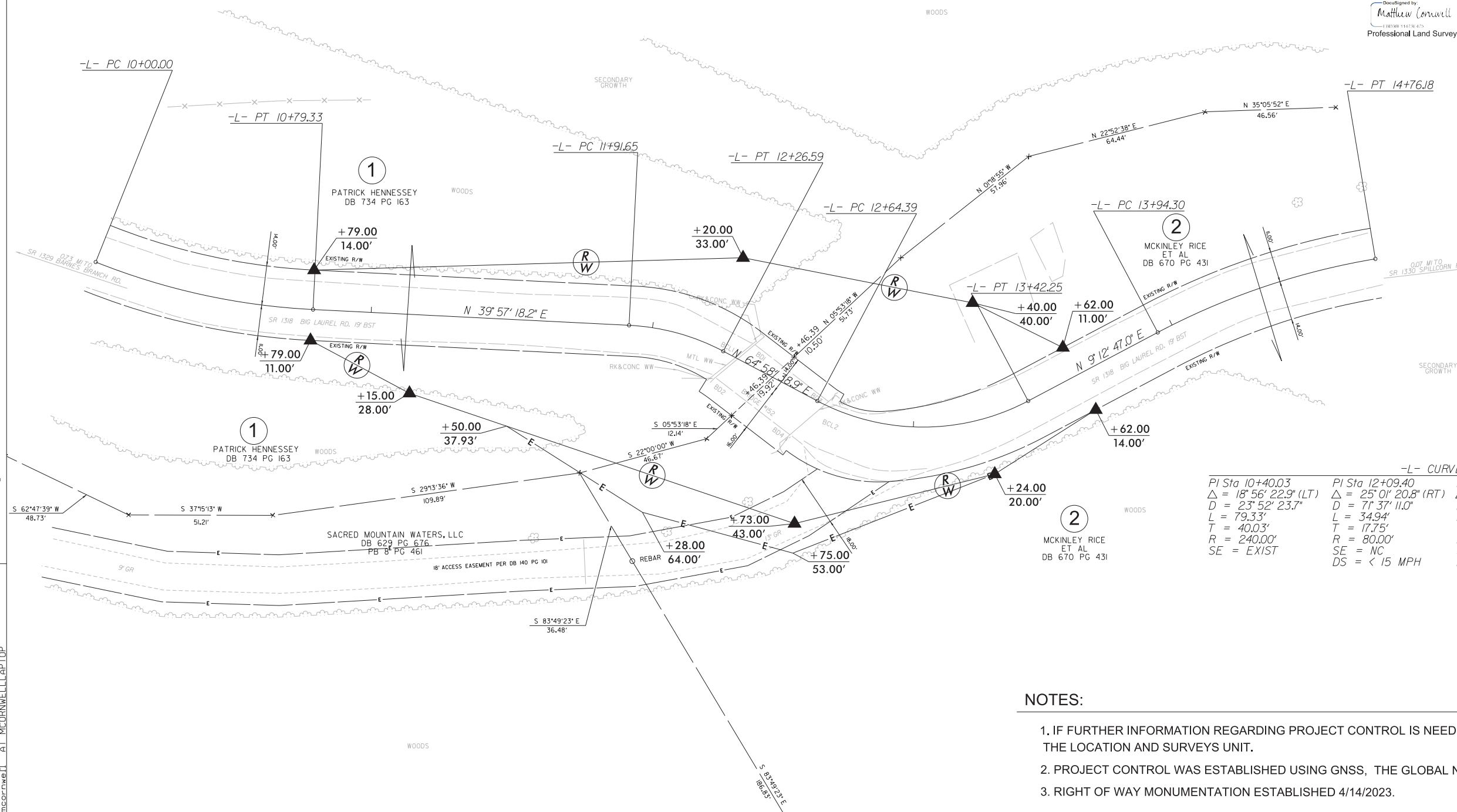
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



I, Matthew T. Cornwell, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed 4/14/2023, and all coordinates are based on NAD83/2011. That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This: 4/19/2023
 DocuSigned by:
Matthew Cornwell
 ERO03611473E475
 Professional Land Surveyor L-4775

REVISIONS



-L- CURVE DATA			
PI Sta 10+40.03	PI Sta 12+09.40	PI Sta 13+06.72	PI Sta 14+35.60
$\Delta = 18^\circ 56' 22.9''$ (LT)	$\Delta = 25^\circ 01' 20.8''$ (RT)	$\Delta = 55^\circ 45' 51.9''$ (LT)	$\Delta = 18^\circ 23' 56.1''$ (RT)
$D = 23^\circ 52' 23.7''$	$D = 71^\circ 37' 11.0''$	$D = 71^\circ 37' 11.0''$	$D = 22^\circ 28' 08.2''$
$L = 79.33'$	$L = 34.94'$	$L = 77.86'$	$L = 81.89'$
$T = 40.03'$	$T = 17.75'$	$T = 42.33'$	$T = 41.30'$
$R = 240.00'$	$R = 80.00'$	$R = 80.00'$	$R = 255.00'$
$SE = EXIST$	$SE = NC$	$SE = NC$	$SE = EXIST$
	$DS < 15$ MPH	$DS < 15$ MPH	

NOTES:

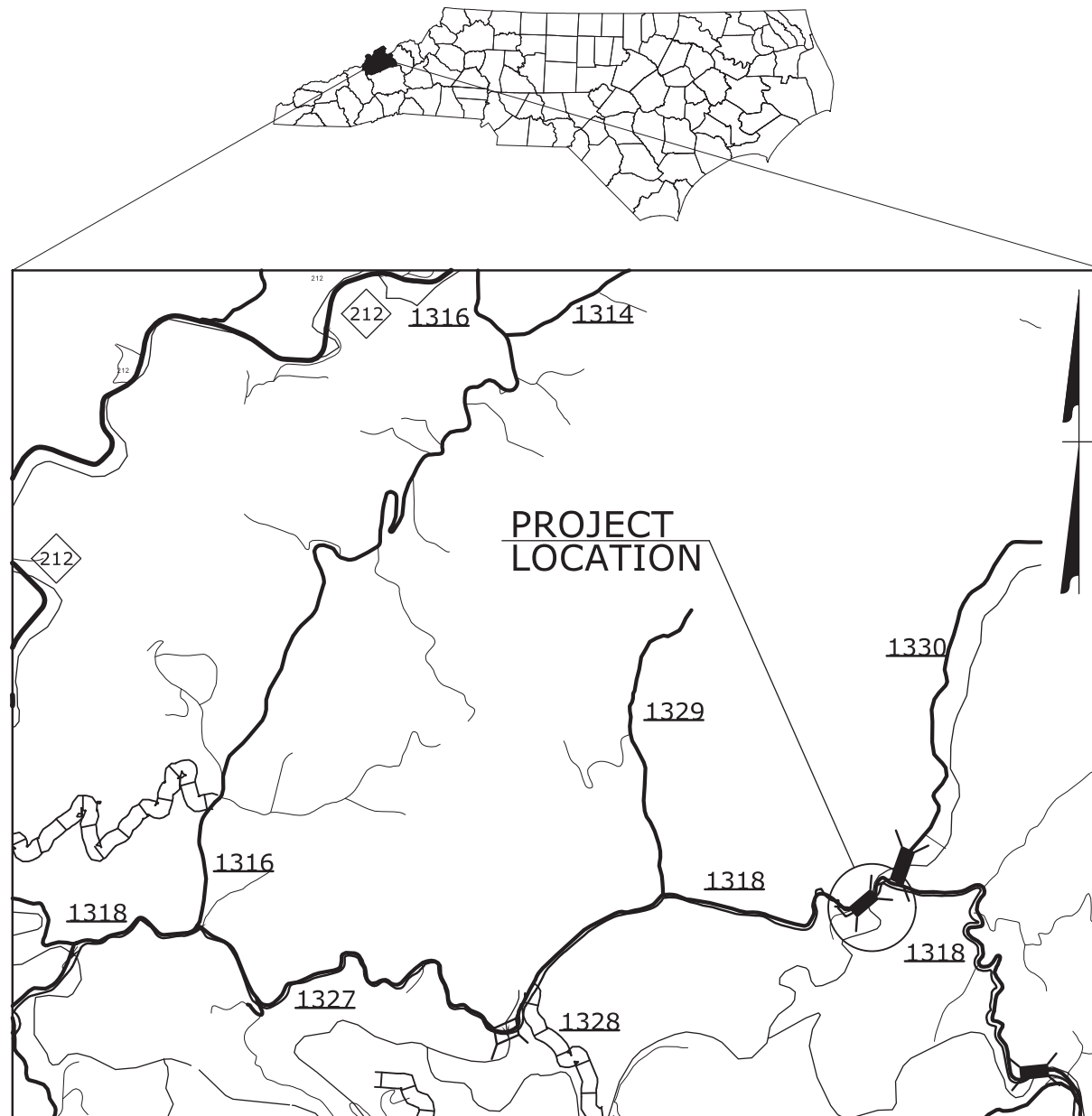
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 4/14/2023.

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 A P MORNWELL L L P
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MADISON COUNTY



INDEX OF SHEETS

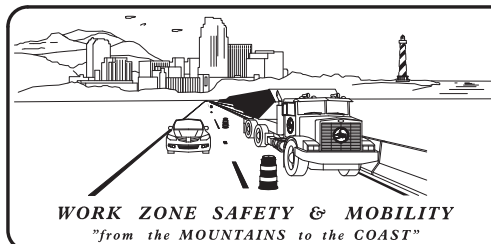
SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, AND GENERAL NOTES)
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-2A	TEMPORARY SHORING DATA
TMP-2B	TEMPORARY TRAFFIC CONTROL PHASING
TMP-3	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE III DETAIL

SHEET NO.

TMP-1

PROJECT: BP13-R024

6/13/2024 13: Madison 2019\Madison 152\Traffic\TrafficControl\TCP\Madison 152_TC_TMP_01.dgn User: smelvin



PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
 201 W. MARION ST. STE. 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

DON PARKER, PE PROJECT ENGINEER
 SANDRA MELVIN DESIGN ENGINEER



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APPROVED: 
 DATE: 6/21/2024

SEAL



ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

- WORK AREA
- REMOVAL
- WEDGING EXISTING PAVEMENT
- MILLING EXISTING PAVEMENT

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY
- PORTABLE
- DS DRIVEWAY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
PAVEMENT MARKINGS	
PAINT (4")	
P1	(4") WHITE EDGELINE
P13	(4") YELLOW DOUBLE CENTER
PAINT (24")	
P61	(24") WHITE STOPBAR

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APPROVED: DATE: 6/21/2024 SEAL			<h3>ROADWAY STANDARD DRAWINGS & LEGEND</h3>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
 - B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
 - C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
 - E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:
 - BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.
 - BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.
 - BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 200 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.
- K) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.
- L) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- M) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 200 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

- N) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- O) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

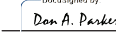
- Q) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

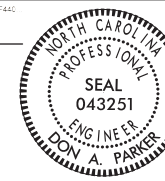
ROAD NAME	MARKING	MARKER
BIG LAUREL RD (-L-)	PAINT	NONE
- R) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.
- S) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- T) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- U) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MANAGEMENT STRATEGIES

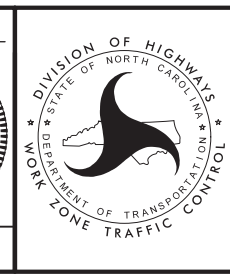
PROPOSED SR 1318 (BIG LAUREL RD) WILL BE CONSTRUCTED USING A COMBINATION OF DEVICES INCLUDING AN ONSITE DETOUR IN A ONE-LANE TWO-WAY PATTERN, A PORTABLE TRAFFIC SIGNAL SYSTEM, AND TEMPORARY LANE CLOSURES UTILIZING FLAGGERS.

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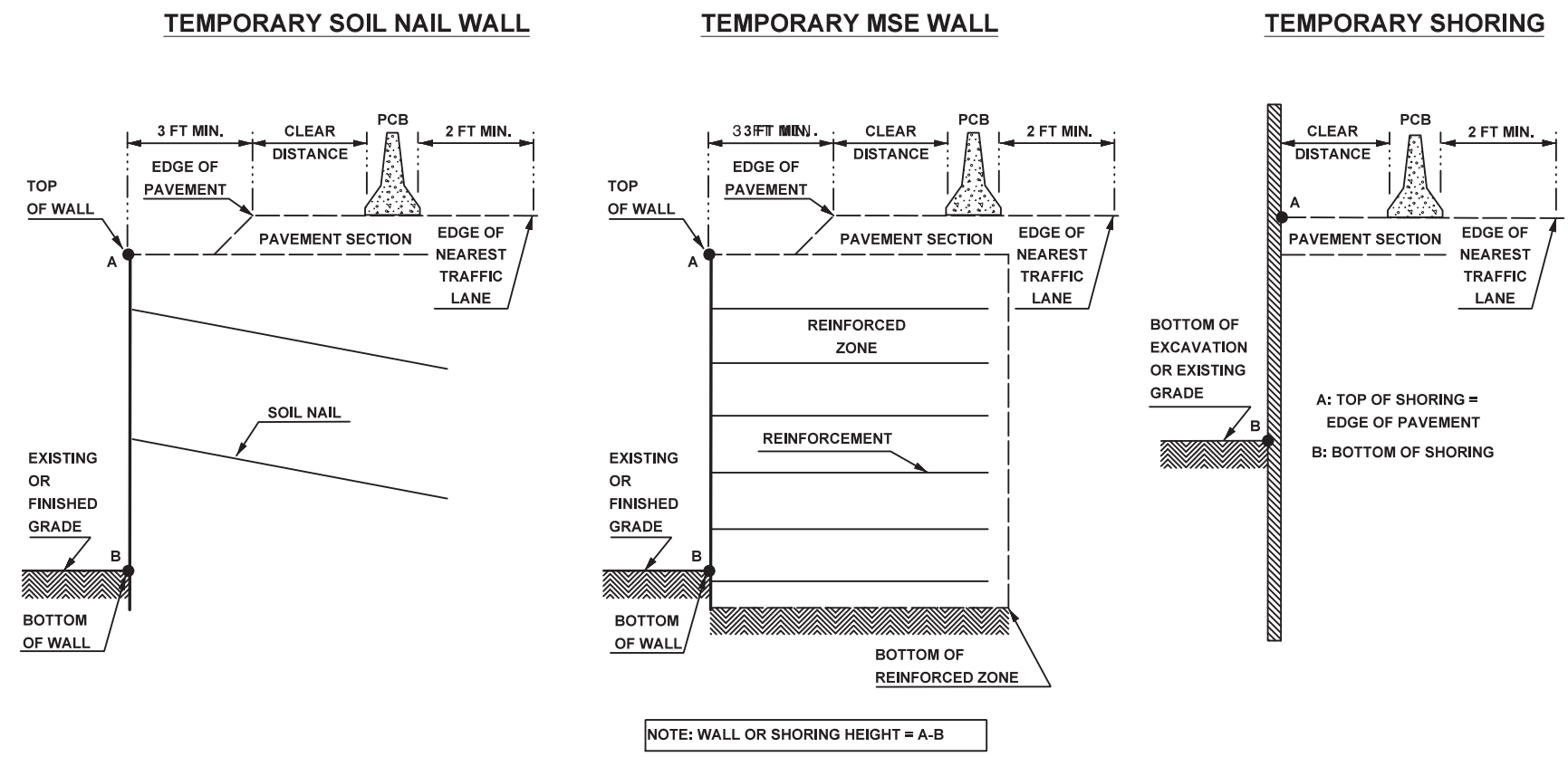
APPROVED: 
 DATE: 6/21/2024



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TRANSPORTATION OPERATIONS PLAN



NOTE: WALL OR SHORING HEIGHT = A-B

FIGURE A

NOTES

- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- REFER TO THE "TEMPORARY SHORING" STANDARD PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- PCB IS REQUIRED IF TEMPORARY SHORING/WALL IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT FOR APPLICABLE PAVEMENT DESIGN).
- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING/WALLS EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS OR APPROVED BY THE ENGINEER.
- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THIS MINIMUM REQUIRED DISTANCE IS NOT AVAILABLE, CONTACT THE ENGINEER.
- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
	50-56	32	36	42	44	47	50	
	>56	32	36	42	45	47	51	
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
26-32		24	25	27	28	32	35	
32-38		24	26	27	30	33	36	
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
		Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds				

* See Figure Below

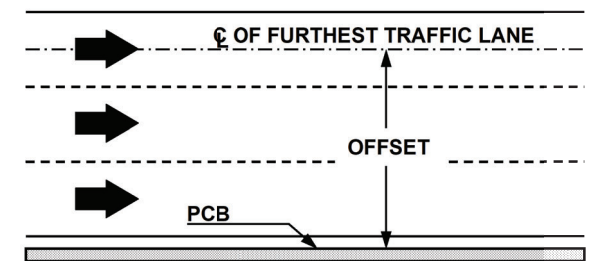


FIGURE B

6/13/2024 X:\NCDOT\ADivision 13 Madison 2019\Madison 152\TrafficControl\TCP\Madison 152\TC_TMP_02 (PCB at Temporary Shoring Locations).dgn User:smelvin

APPROVED: <i>Don A. Parker</i> DATE: 6/21/2024 		PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

TEMPORARY SHORING DATA

PROJ. REFERENCE NO.	SHEET NO.
BP13-R024	TMP-2A

Shoring Location No. 1:

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE STRUCTURE CONSTRUCTION FROM -DET- STATION 11+87, 11.0 FT LT TO -DET- STATION 12+75, 11.0 FT LT.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM -DET- STATION 11+87, 11.0 FT LT TO -DET- STATION 12+75, 11.0 FT LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS:

ABOVE ELEVATION 1993 FT
 UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 28 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 1997 FT

BELOW ELEVATION 1993 FT (ROCK)
 UNIT WEIGHT (γ) = 165 LB/CF
 FRICTION ANGLE (ϕ) = 40 DEGREES
 COHESION (c) = 1000 LB/SF

DRIVEN PILING FOR TEMPORARY SHORING FROM -DET- STATION 11+87, 11.0 FT LT TO -DET- STATION 12+75, 11.0 FT LT MAY NOT PENETRATE BELOW ELEVATION 1993 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM -DET- STATION 11+87, 11.0 FT LT TO -DET- STATION 12+75, 11.0 FT LT. CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

IF GROUNDWATER OR THE FLOOD ELEVATION IS ABOVE THE BOTTOM OF THE REINFORCED ZONE, DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM -DET- STATION 11+87, 11.0 FT LT TO -DET- STATION 12+75, 11.0 FT LT.

Shoring Location No. 2:

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE STRUCTURE CONSTRUCTION FROM -DET- STATION 12+75, 11.0 FT LT TO -DET- STATION 13+15, 11.0 FT LT.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM -DET- STATION 12+75, 11.0 FT LT TO -DET- STATION 13+15, 11.0 FT LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS:

ABOVE ELEVATION 2000 FT
 UNIT WEIGHT (γ) = 110 LB/CF
 FRICTION ANGLE (ϕ) = 26 DEGREES
 COHESION (c) = 0 LB/SF

ELEVATION 2000 FT TO ELEVATION 1994 FT
 UNIT WEIGHT (γ) = 135 LB/CF
 FRICTION ANGLE (ϕ) = 38 DEGREES
 COHESION (c) = 500 LB/SF
 GROUNDWATER ELEVATION = 1997 FT

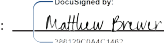
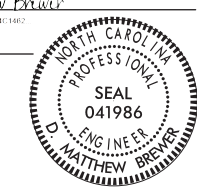

BELOW ELEVATION 1994 FT (ROCK)
 UNIT WEIGHT (γ) = 165 LB/CF
 FRICTION ANGLE (ϕ) = 40 DEGREES
 COHESION (c) = 1000 LB/SF

DRIVEN PILING FOR TEMPORARY SHORING FROM -DET- STATION 12+75, 11.0 FT LT TO -DET- STATION 13+15, 11.0 FT LT MAY NOT PENETRATE BELOW ELEVATION 2000 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.


DO NOT USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM -DET- STATION 12+75, 11.0 FT LT TO -DET- STATION 13+15, 11.0 FT LT. CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM -DET- STATION 12+75, 11.0 FT LT TO -DET- STATION 13+15, 11.0 FT LT.

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APPROVED:  DATE: 6/20/2024	SEAL 		TEMPORARY SHORING DATA
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

PHASING

MADISON COUNTY BRIDGE #560152	PROJ. REFERENCE NO. BP13-R024	SHEET NO. TMP-2B
 TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO. C-0275		

NOTE : UNLESS OTHERWISE NOTED ACCESS TO LOCAL DRIVES MUST BE MAINTAINED AT ALL TIME.

PHASE I

STEP 1

PLACE ALL ADVANCED WORK ZONE WARNING SIGNS IN ACCORDANCE WITH NCDOT RDWY. STD. 1101.01, SHT 3 OF 3.

STEP 2 (TMP-3)

USING TEMPORARY LANE CLOSURES AND FLAGGERS IN ACCORDANCE WITH RDWY. STD. 1101.02, SHT 1 OF 19 INSTALL TEMPORARY PORTABLE TRAFFIC SIGNALS INCLUDING THE APPROPRIATE SIGNAGE. SEE TMP-3 AND RDWY. STD. 1101.02, SHT 17 OF 19.

PLACE TEMPORARY PAVEMENT MARKINGS, CLOSE EXISTING SR 1318 SOUTHBOUND LANE, ACTIVATE THE TEMPORARY SIGNALS AND SHIFT TRAFFIC INTO A ONE-LANE TWO-WAY PATTERN AS SHOWN ON PLANS.

PLACE TEMPORARY DRAINAGE PIPES

CONSTRUCT -DET- FROM -DET- STA 11+36± TO -DET- STA. 13+14± UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE

TIE DETOUR PAVEMENT TO EXISTING SR 1318 (BIG LAUREL RD) EDGE OF PAVEMENT.

PLACE TEMPORARY GUARDRAIL AND PORTABLE CONCRETE BARRIER AS SHOWN ON PLANS.

PLACE SECTION OF TEMPORARY SHORING NO. 1.

USING ABC TIE THE EXISTING DRIVEWAY TO DETOUR AS SHOWN ON PLANS.

STEP 3 (TMP-3)

EXTEND PORTABLE CONCRETE BARRIERS TO CLOSE EXISTING SR 1318, REVISE PAVEMENT MARKINGS AS NEEDED, AND SHIFT TRAFFIC INTO A ONE-LANE TWO-WAY PATTERN AS SHOWN ON PLANS.

PLACE TEMPORARY SHORING NO. 2.

PHASE II

STEP 1 (TMP-4)

WITH TRAFFIC ON THE ONE-LANE TWO-WAY DETOUR DO THE FOLLOWING:

1.A
REMOVE THE EXISTING STRUCTURE

1.B.
CONSTRUCT THE PROPOSED STRUCTURE OVER SPILLCORN CREEK FROM -L- STA . 12+19.90 TO -L- STA. 12+77.55

PERFORM WORK TO CONSTRUCT APPROACHES AND TIE-INS UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS SHOWN ON PLANS.

PHASE III

STEP 1 (TMP-5)

REMOVE TEMP. PORTABLE CONC BARRIER, CLOSE DETOUR TO TRAFFIC AND SHIFT TRAFFIC IN A ONE-LANE TWO-WAY PATTERN ONTO THE NEW STRUCTURE AS SHOWN ON PLANS

COMPLETE CONSTRUCTION OF REMAINING WING WALLS AND BRIDGE APPROACH AS SHOWN IN THE STRUCTURE PLANS

USING TEMPORARY LANE CLOSURES AND FLAGGERS IN ACCORDANCE WITH NCDOT RDWY. STD. 1102.02, SHT 1 OF 14 WEDGE EXISTING PAVEMENT TO CREATE A SMOOTH TRANSITION BETWEEN EXISTING AND PROPOSED PAVEMENT.

USING TEMPORARY LANE CLOSURES AND FLAGGERS IN ACCORDANCE WITH NCDOT RDWY. STD. 1102.02, SHT 1 OF 14 PLACE TEMPORARY PAVEMENT MARKING ON BRIDGE AND APPROACHES AS SHOWN ON PLANS. TIE TEMPORARY PAVEMENT MARKINGS TO EXISTING MARKINGS.

REMOVE DETOUR AND RESTORE LANDSCAPE.

STEP 2

DEACTIVATE THE PORTABLE TRAFFIC SIGNAL SYSTEM AND REMOVE SIGNAGE, REMOVE CONFLICTING PAVEMENT MARKINGS, AND SHIFT TRAFFIC IN A TWO-WAY TWO-LANE PATTERN ONTO THE NEW STRUCTURE.

USING TEMPORARY LANE CLOSURES AND FLAGGERS IN ACCORDANCE WITH NCDOT RDWY. STD. 1102.02, SHT 1 OF 14 PERFORM THE FOLLOWING:

CONSTRUCT SR 1318 (BIG LAUREL RD) FROM -L- STA. 11+15± TO -L- STA. 11+75±, AND FROM -L- STA. 13+00± TO -L- STA. 13+50± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.

MILL EXISTING SR 1318 PAVEMENT FROM -L- STA 10+50± TO 11+15±, AND FROM -L- STA 13+50± TO -L- STA 14+50±.

CONSTRUCT DRIVE RT OF -L- STA. 12+90±

PLACE TEMPORARY PAVEMENT MARKINGS AS SHOWN ON PLAN FROM -L- STA. 10+50± TO -L- STA. 11+75±, AND FROM -L-STA 13+00± TO -L- STA. 14+50±.

STEP 3

USING TEMPORARY LANE CLOSURES AND FLAGGERS IN ACCORDANCE WITH NCDOT RDWY. STD. 1102.02, SHT 1 OF 14 PERFORM THE FOLLOWING:

PLACE FINAL LAYER OF SURFACE COURSE FROM -L- STA 10+50± TO -L- STA 14+50±.

PLACE FINAL PAVEMENT MARKING AS SHOWN IN PAVEMENT MARKING PLANS.

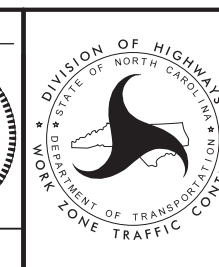
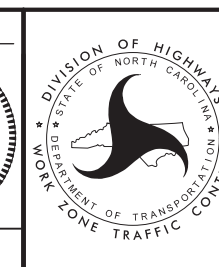
REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES.

6/13/2024 13 Madison 2019\Madison 152\Traffic\TrafficControl\TCP\Madison 152_Tc_TMP_02B(Phasing).dgn User:smelvin

APPROVED: Don A. Parker
 DATE: 6/21/2024

SEAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED




PHASING

PHASE I, STEP 2

SEE TMP-1A FOR TEMPORARY PAVEMENT MARKING SCHEDULE

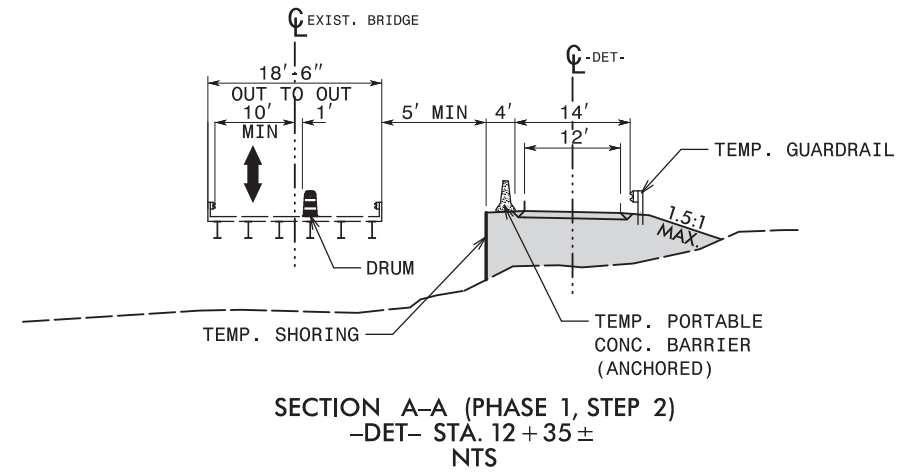
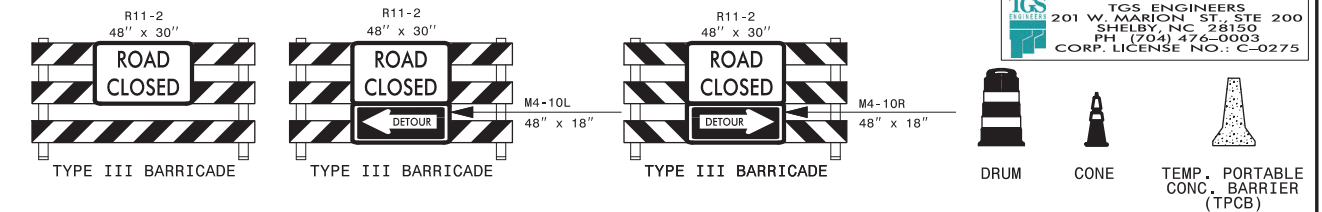
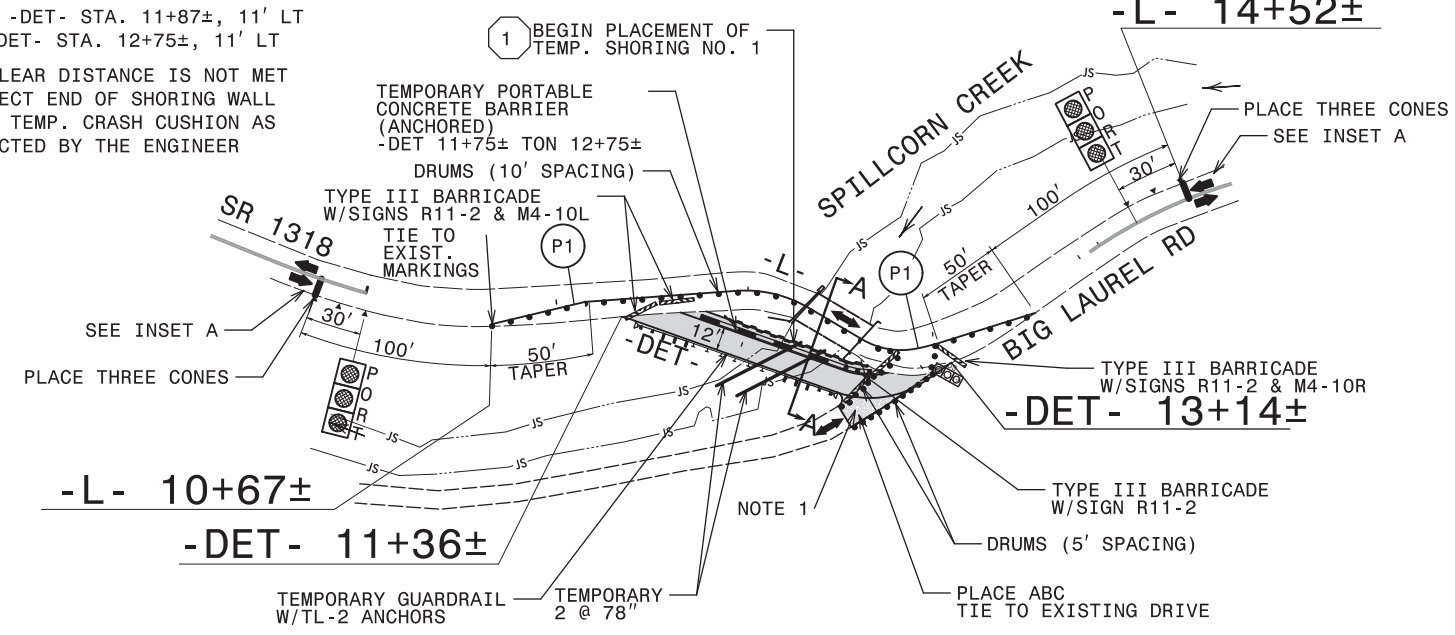
MADISON COUNTY
BRIDGE #560152

PROJ. REFERENCE NO.	SHEET NO.
BP13-R024	TMP-3
 TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO. C-0275	

1 QUANTITY = 555 SF

TEMPORARY SHORING
FROM -DET- STA. 11+87±, 11' LT
TO -DET- STA. 12+75±, 11' LT

IF CLEAR DISTANCE IS NOT MET
PROTECT END OF SHORING WALL
WITH TEMP. CRASH CUSHION AS
DIRECTED BY THE ENGINEER



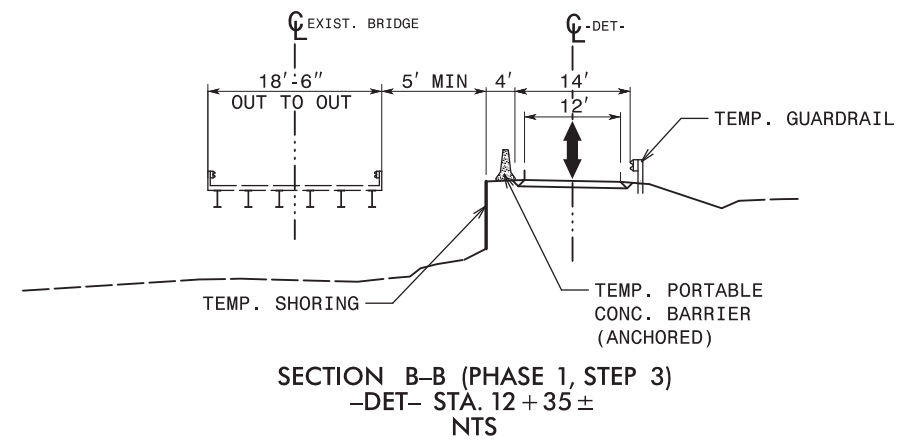
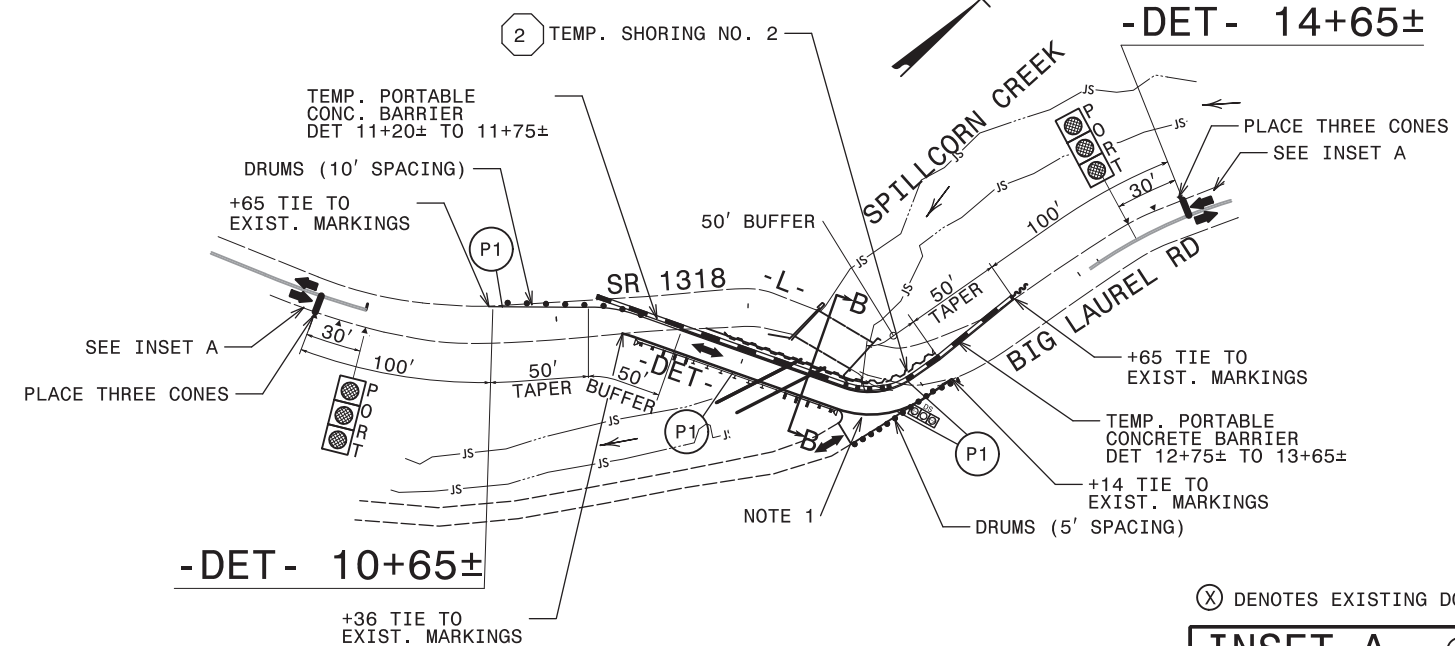
PHASE I, STEP 3

SEE TMP-1A FOR TEMPORARY PAVEMENT MARKING SCHEDULE

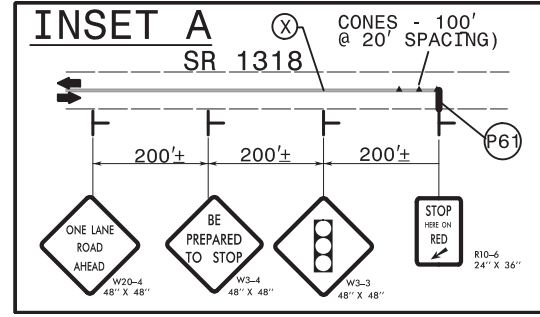
2 QUANTITY = 92 SF

TEMPORARY SHORING
FROM -DET- STA. 12+75±, 11' LT
TO -DET- STA. 13+15±, 11' LT

IF CLEAR DISTANCE IS NOT MET
PROTECT END OF SHORING WALL
WITH TEMP. CRASH CUSHION AS
DIRECTED BY THE ENGINEER



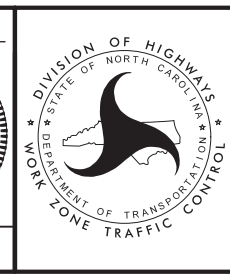
⊗ DENOTES EXISTING DOUBLE YELLOW PAVEMENT MARKINGS



APPROVED: *Don A. Parker*
DATE: 6/21/2024

PROFESSIONAL ENGINEER
SEAL 043251
DON A. PARKER

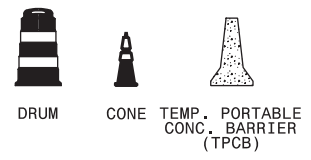
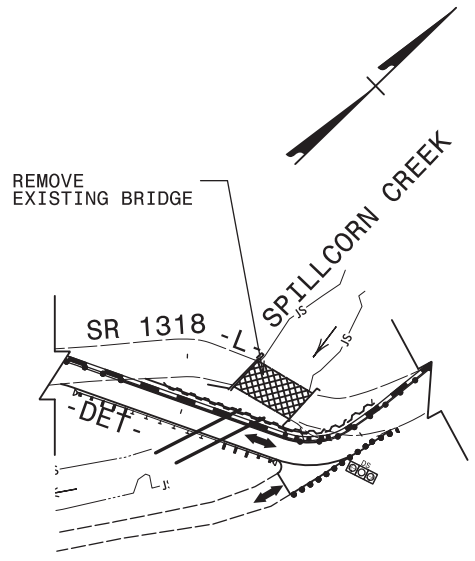
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



TEMPORARY TRAFFIC CONTROL PHASE I DETAIL

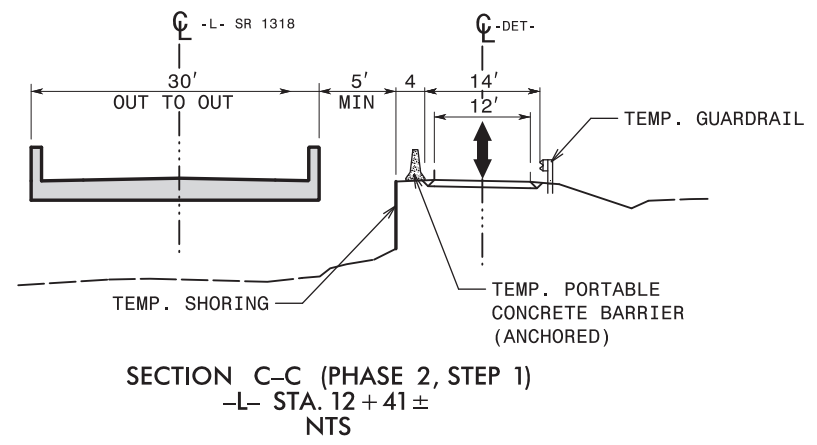
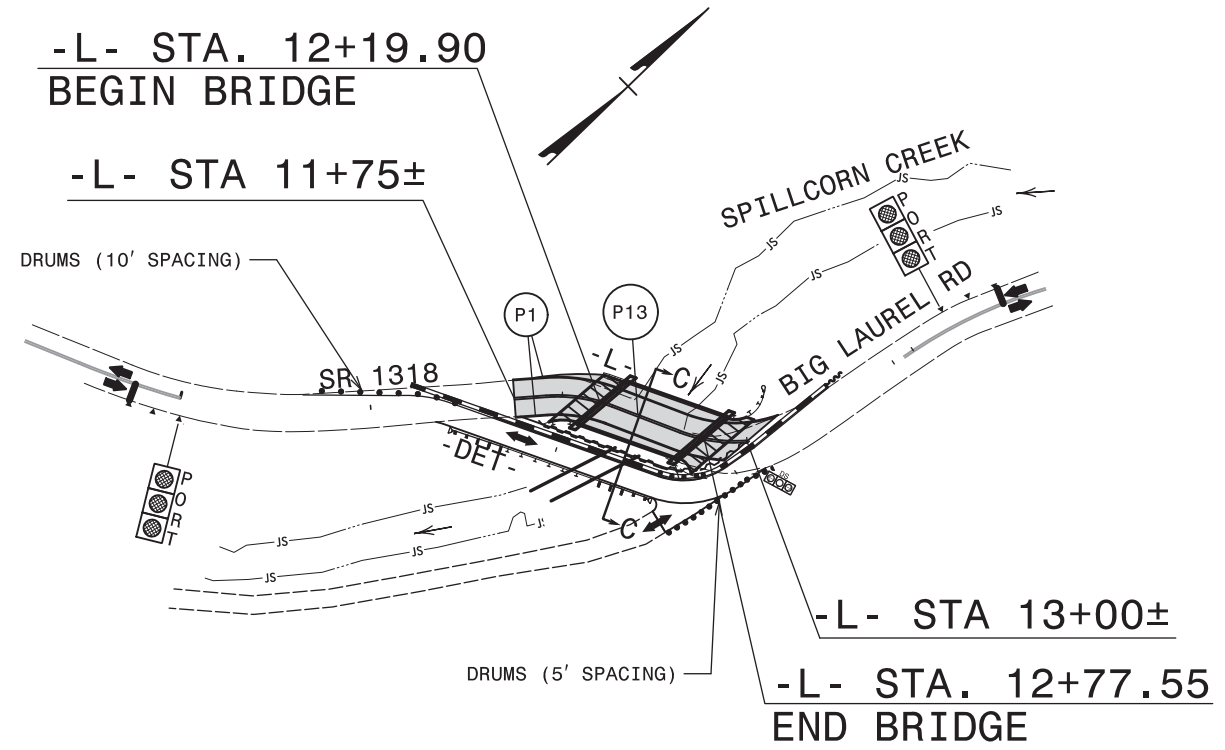
6/13/2024
 User: tsmelvin
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PHASE II, STEP 1.A



PHASE II, STEP 1.B

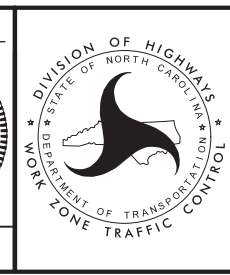
SEE TMP-1A FOR TEMPORARY PAVEMENT MARKING SCHEDULE



6/13/2024 13: Madison 2019\Madison 152\TrafficControl\TCP\Madison 152.TC.TMP_04 (PH02).dgn User:tsmevin

APPROVED: *Don A. Parker*
75DB8E9CADEF44C

DATE: 6/21/2024

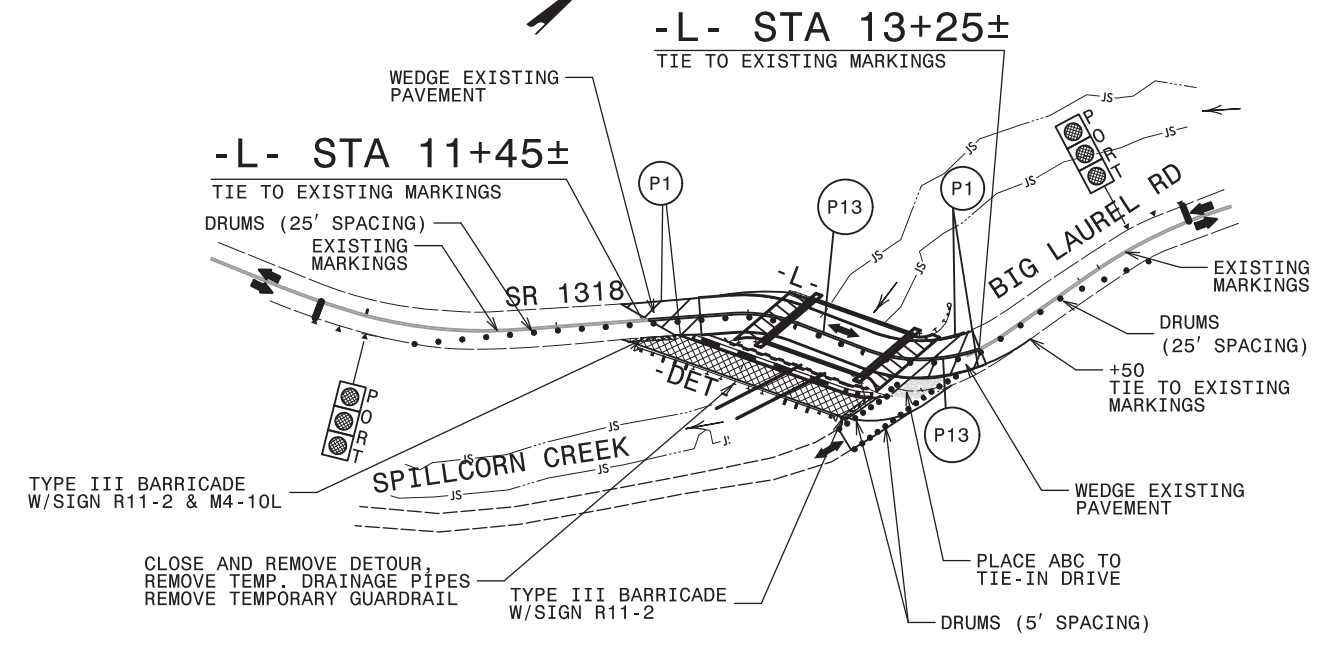


TEMPORARY TRAFFIC CONTROL PHASE II DETAIL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

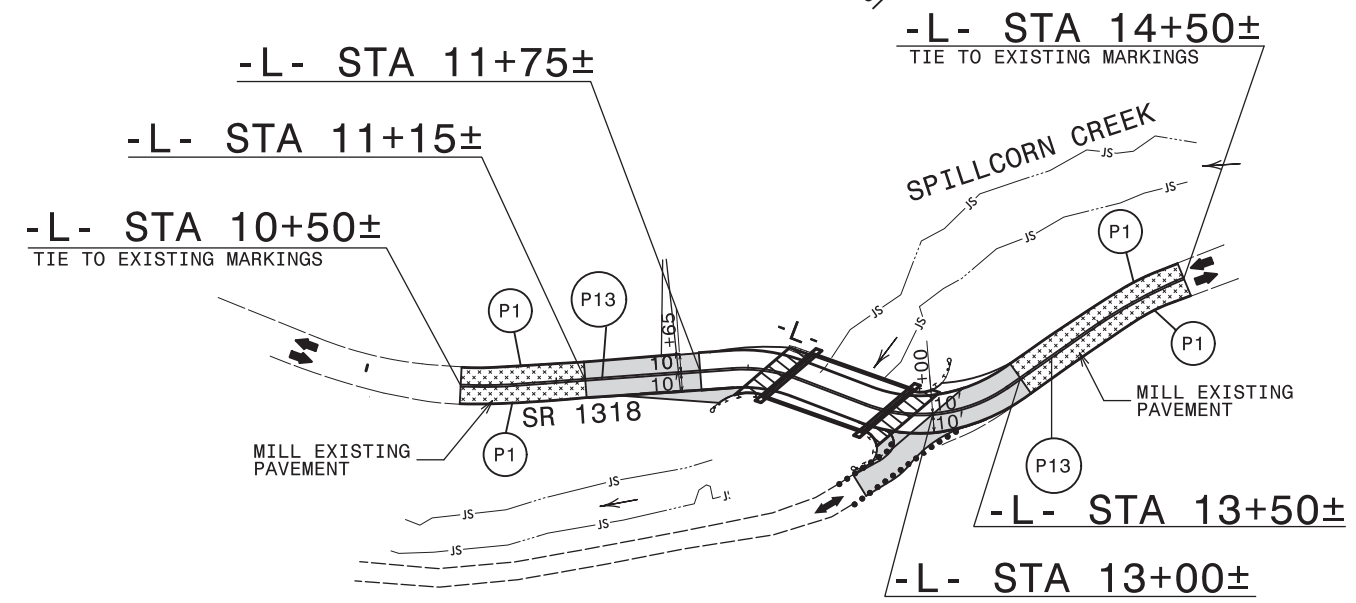
PHASE III, STEP 1

SEE TMP-1A FOR TEMPORARY PAVEMENT MARKING SCHEDULE



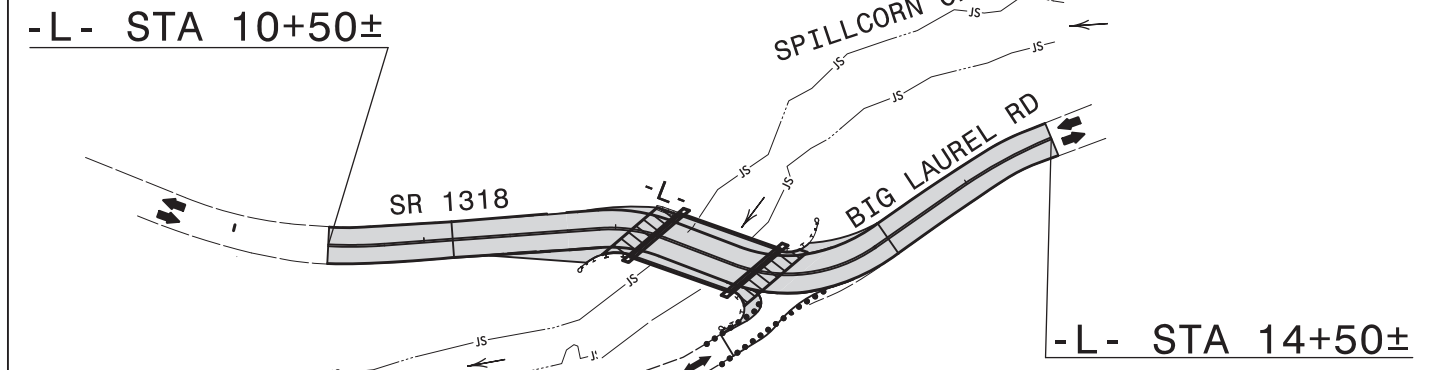
PHASE III, STEP 2

SEE TMP-1A FOR TEMPORARY PAVEMENT MARKING SCHEDULE



PHASE III, STEP 3

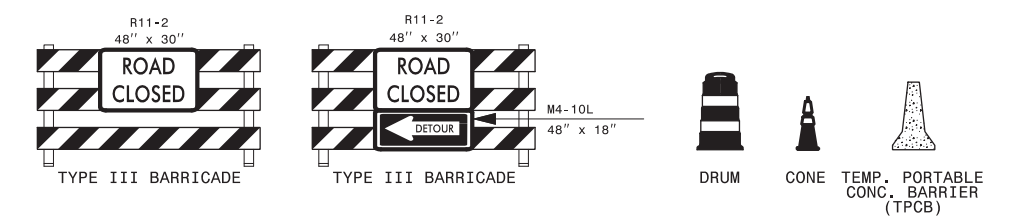
SEE PAVEMENT MARKING PLANS FOR LAYOUT AND SCHEDULE



MADISON COUNTY BRIDGE #560152

PROJ. REFERENCE NO.	SHEET NO.
BP13-R024	TMP-5

TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



APPROVED: *Don A. Parker*

DATE: 6/21/2024

7549005 (04/27) - 442

SEAL 043251

ENGINEER DON A. PARKER

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

TRUCK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL PHASE III DETAIL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

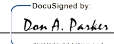


6/13/2024 13: Madison 2019\Madison 13\Division 13\Traffic\TrafficControl\TCP\Madison 152.TC.TMP_05 (PH03).dgn User:tsm\vin

PROJECT: BPI3-R024

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN
MADISON COUNTY**

LOCATION: STRUCTURE #560152 OVER SPILLCORN CREEK ON SR 1318 (BIG LAUREL RD)

PROJECT NO. BP13-R024	SHEET NO. PMP-1
APPROVED:  DATE: 6/21/2024	
SEAL 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGE
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

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

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

ROAD NAME	MARKING	MARKER
BIG LAUREL RD (-L-)	PAINT	NONE
- B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.
- C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.


FINAL PAVEMENT MARKING SCHEDULE

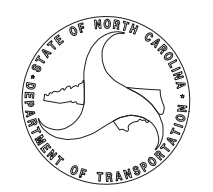
SYMBOL	DESCRIPTION
	PAVEMENT MARKINGS PAINT (4")
P1	WHITE EDGELINE
P13	YELLOW DOUBLE CENTER

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP-2	PAVEMENT MARKING DETAIL

PLAN PREPARED FOR N.C.D.O.T. BY:

 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	<u>DON PARKER, PE</u> PROJECT ENGINEER
	<u>SANDRA MELVIN</u> DESIGN TECHNICIAN



TIP NO. BP13-R024	SHEET NO. PMP-2
APPROVED: <u>Don A. Parker</u>	
DATE: 6/21/2024	



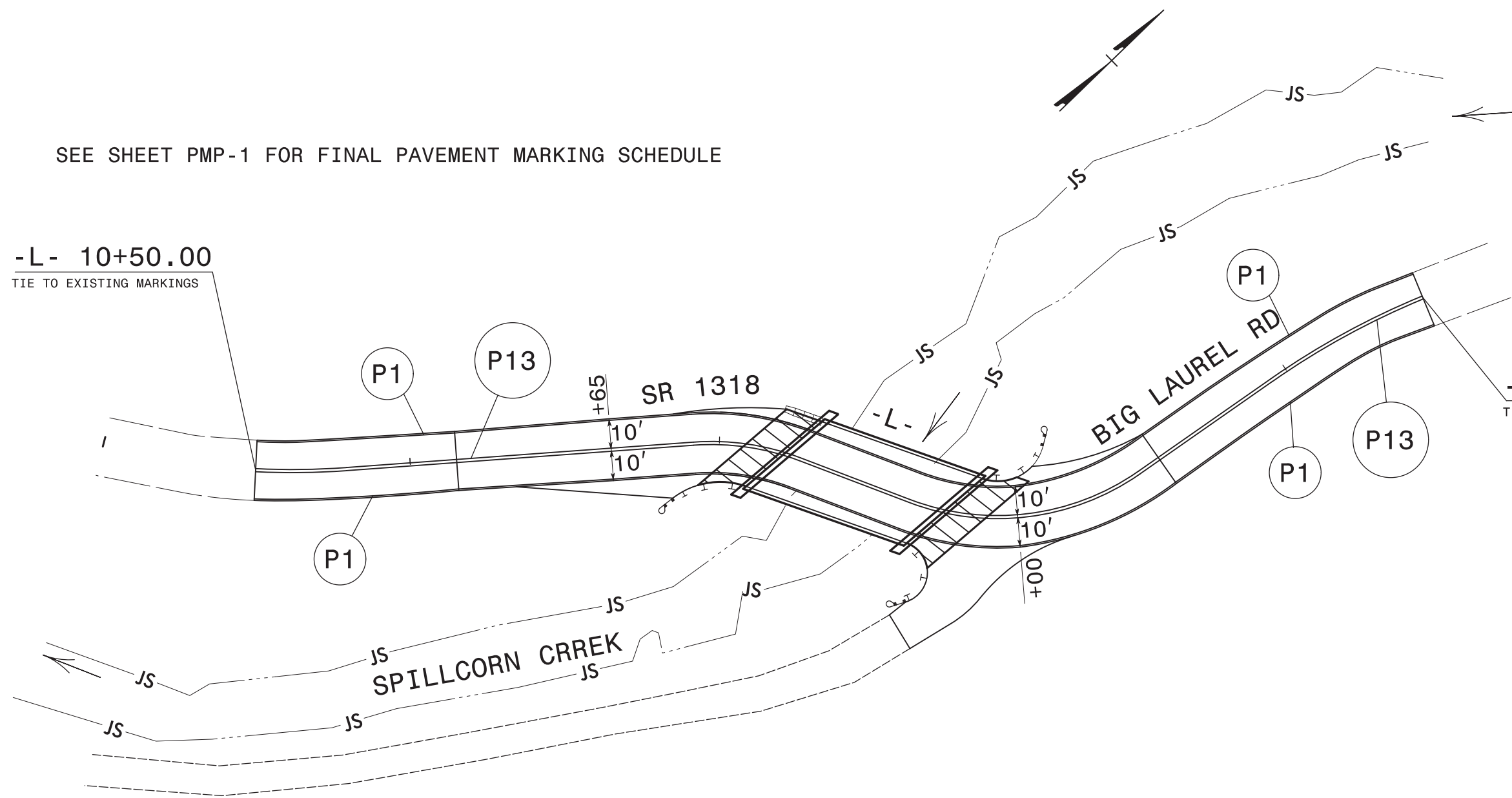
DOCUMENT NOT CONSIDERED FINAL
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TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH: (704) 476-0003
CORP. LICENSE NO.: C-0275

SEE SHEET PMP-1 FOR FINAL PAVEMENT MARKING SCHEDULE

-L- 10+50.00
TIE TO EXISTING MARKINGS

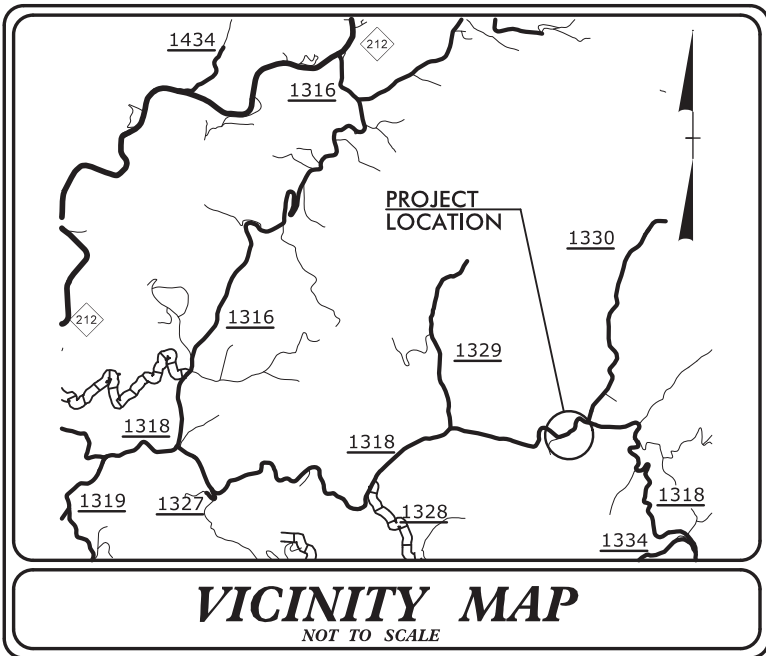
-L- 14+50.00
TIE TO EXISTING MARKINGS



6/20/2024 X:\NC001\Division 13 Madison 2019\Madison 152\Traffic\Pavement Marking\Madison 152_Sgn_PMP_02.dgn User:cpurgett

PAVEMENT MARKING DETAIL

PROJECT: BP13-R024

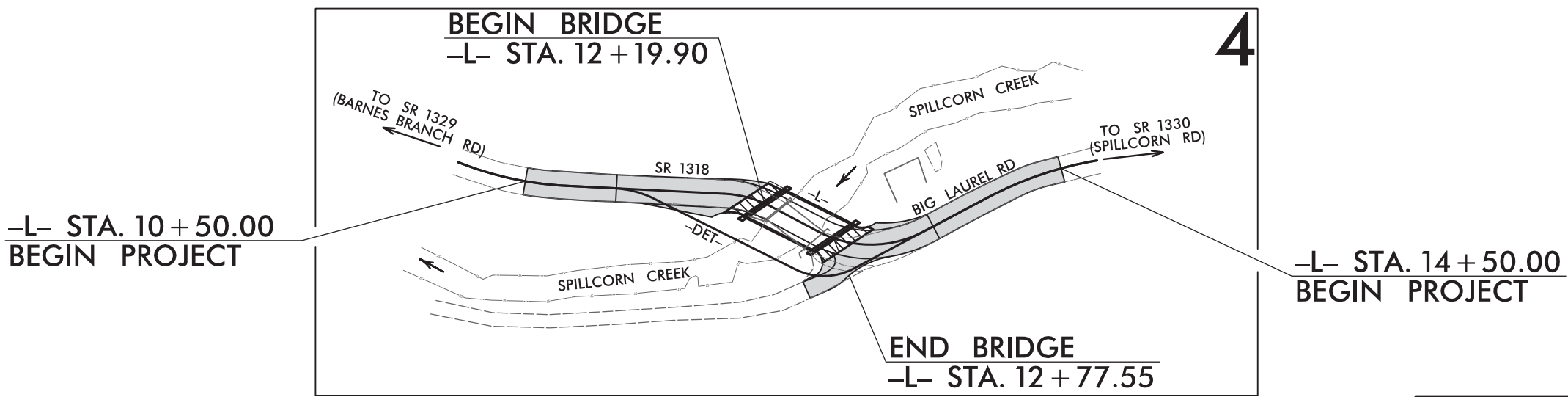
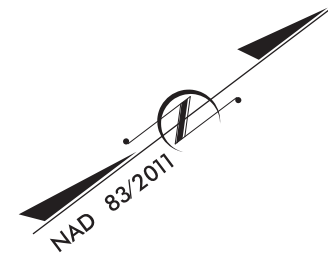


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
**PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL**

MADISON COUNTY
**LOCATION: BRIDGE NO. 560152 OVER SPILLCORN CREEK
ON SR 1318 (BIG LAUREL RD)**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP13-R024	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP13.R024.1	N/A	PE	
BP13.R024.2	N/A	RW & UTIL	
BP13.R024.3	N/A	CONST.	

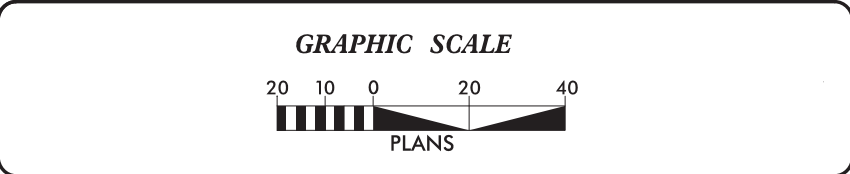


THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

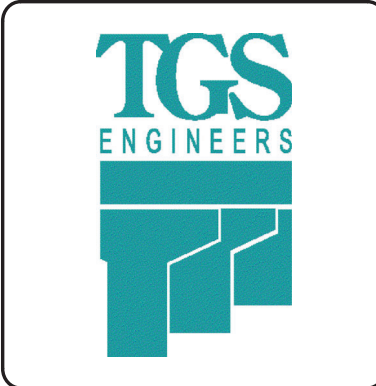
THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT
High Quality Water Zone(s) Exist
From Sta. Begin
to Sta. End
Refer To E. C. Special Provisions for Special Considerations.



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2024 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.



Prepared In the Office of:
TGS ENGINEERS
201 W. MARION ST-STE 200
SHELBY, NC 28150

Designed by:
Andrew H. Cochran, PE **3015**
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

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

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

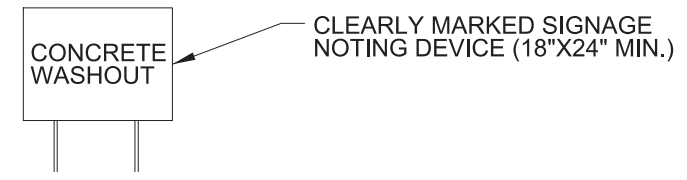
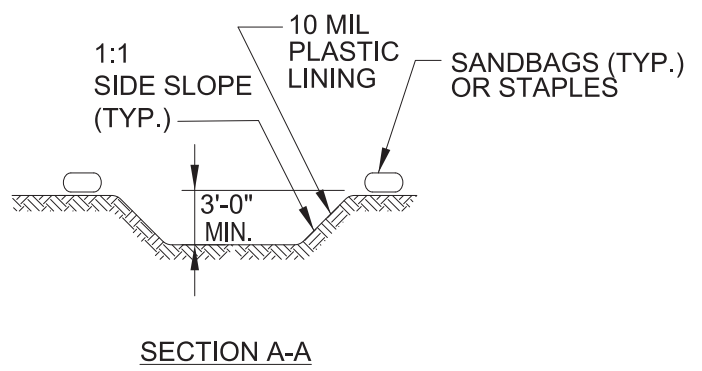
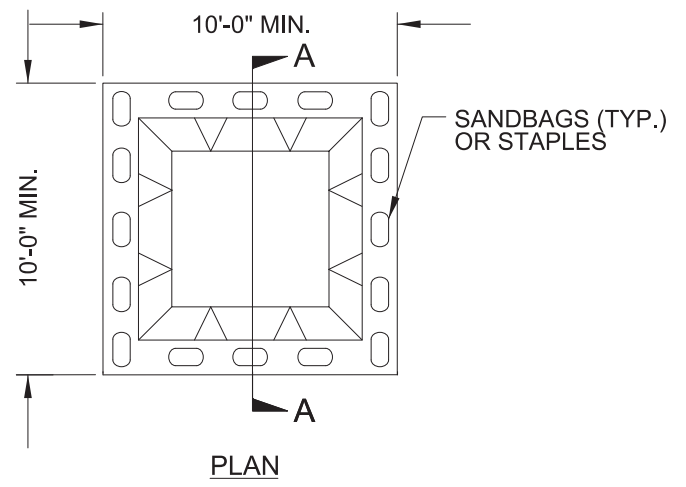
PROJECT REFERENCE NO. BP13-R024	SHEET NO. EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EROSION & SEDIMENT CONTROL LEGEND

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

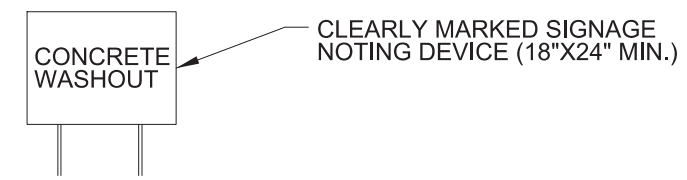
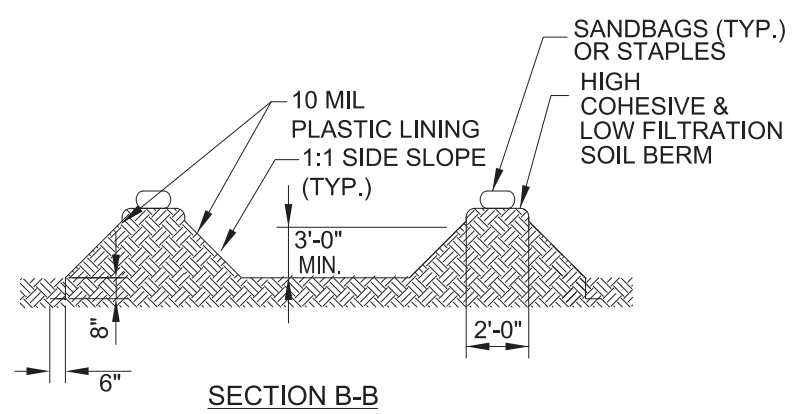
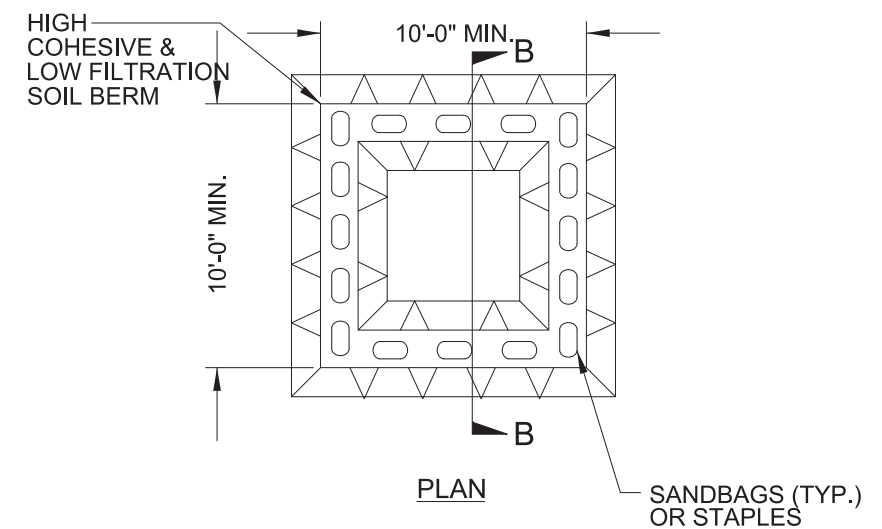
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

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



ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>BPI3-R024</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

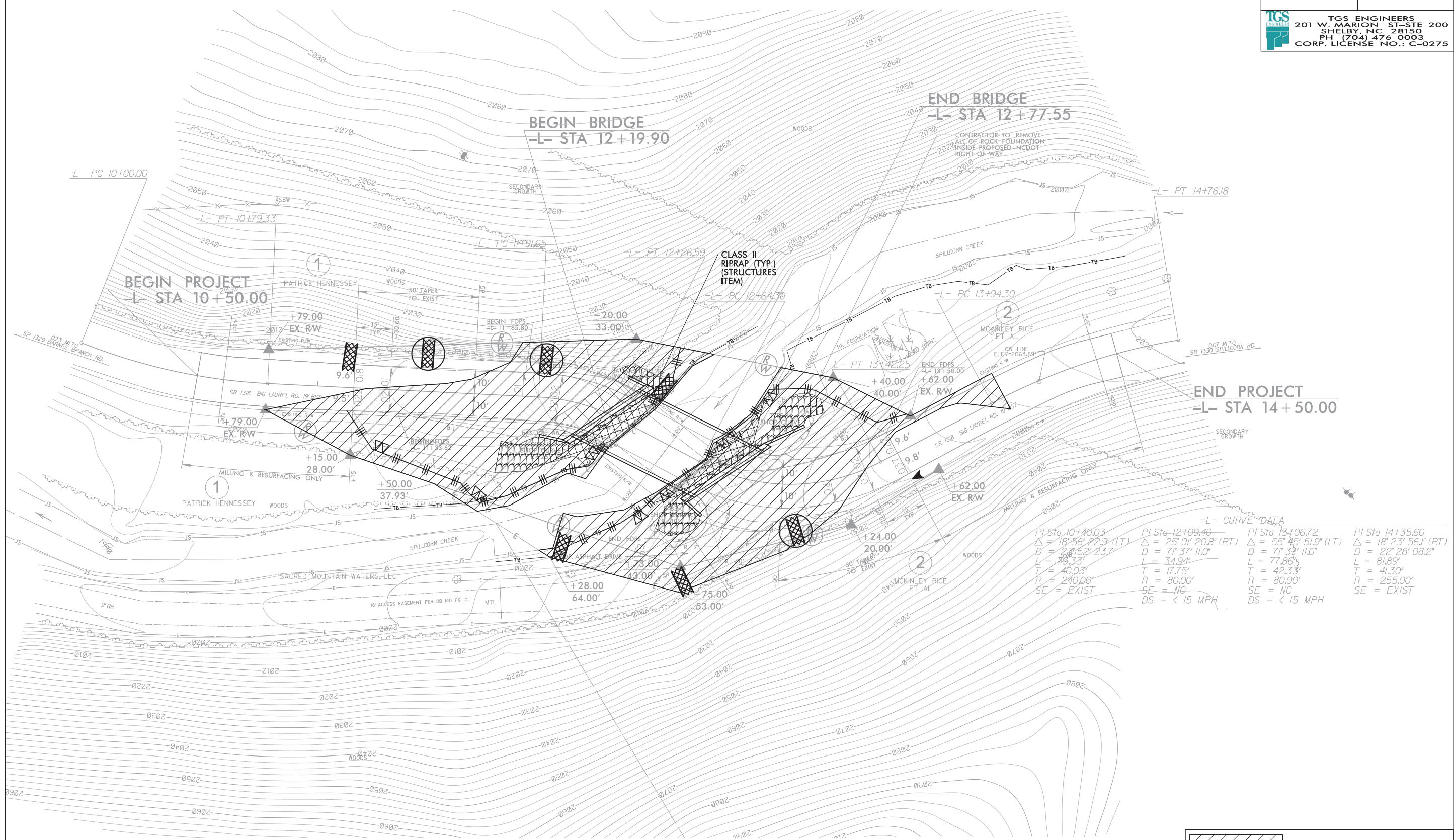
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES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

Madison County Bridge #560152



PROJECT REFERENCE NO. BPI3-R024	SHEET NO. EC-04/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
 201 W. MARION ST-STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275



-L- CURVE DATA

PI Sta	PI Sta	PI Sta	PI Sta
10+40.03	12+09.40	13+06.72	14+35.60
$\Delta = 18^{\circ} 56' 22.9" (LT)$	$\Delta = 25^{\circ} 01' 20.8" (RT)$	$\Delta = 55^{\circ} 45' 51.9" (LT)$	$\Delta = 18^{\circ} 23' 56.1" (RT)$
$D = 230.52' 23.7"$	$D = 71^{\circ} 37' 11.0"$	$D = 71^{\circ} 37' 11.0"$	$D = 22^{\circ} 28' 08.2"$
$L = 89.33'$	$L = 34.94'$	$L = 77.86'$	$L = 81.89'$
$T = 40.03'$	$T = 17.75'$	$T = 42.33'$	$T = 41.30'$
$R = 240.00'$	$R = 80.00'$	$R = 80.00'$	$R = 255.00'$
SE = EXIST	SE = NC	SE = NC	SE = EXIST
	DS = < 15 MPH	DS = < 15 MPH	

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

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

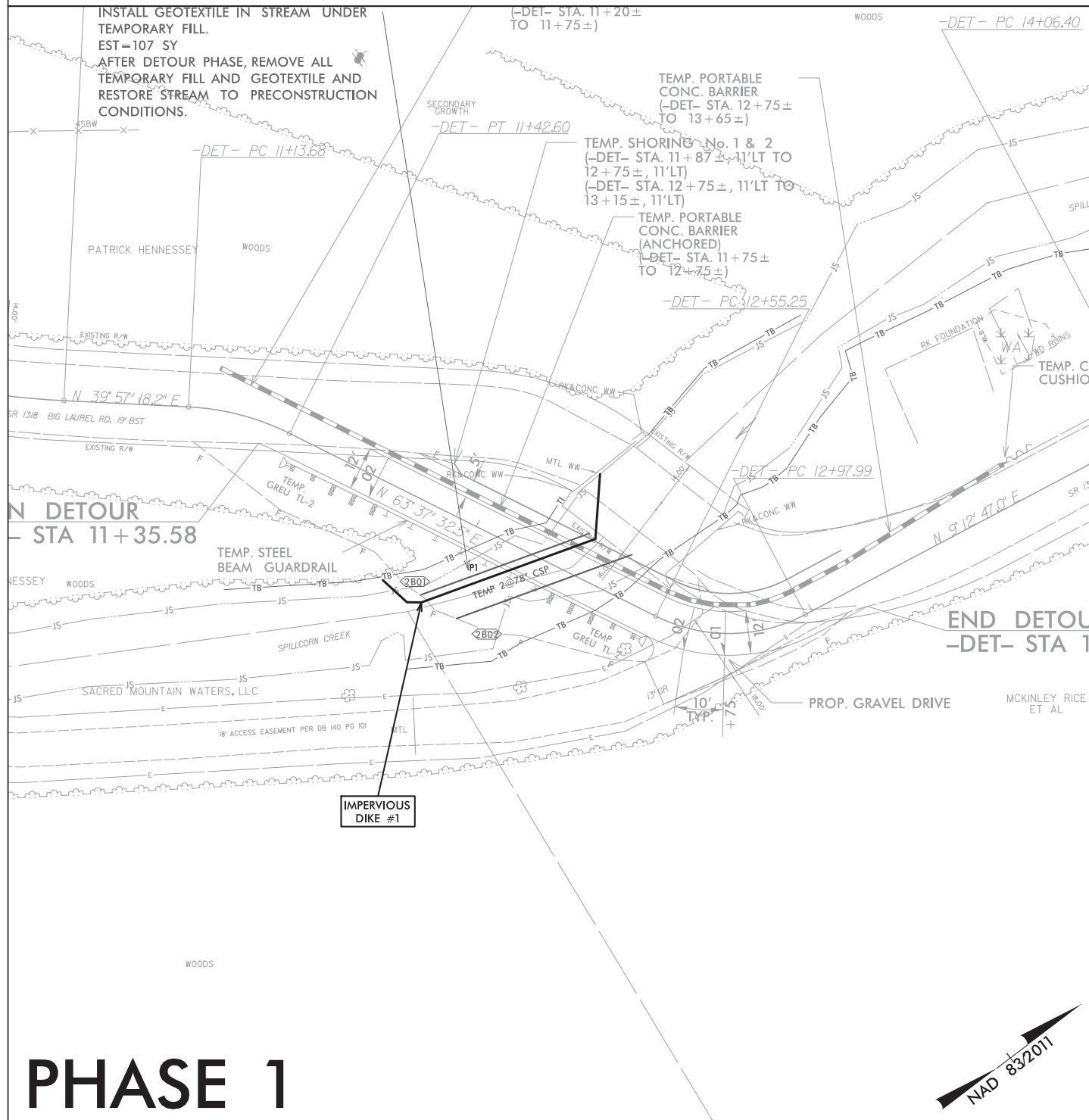
 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
BPI3-R024	EC-05/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

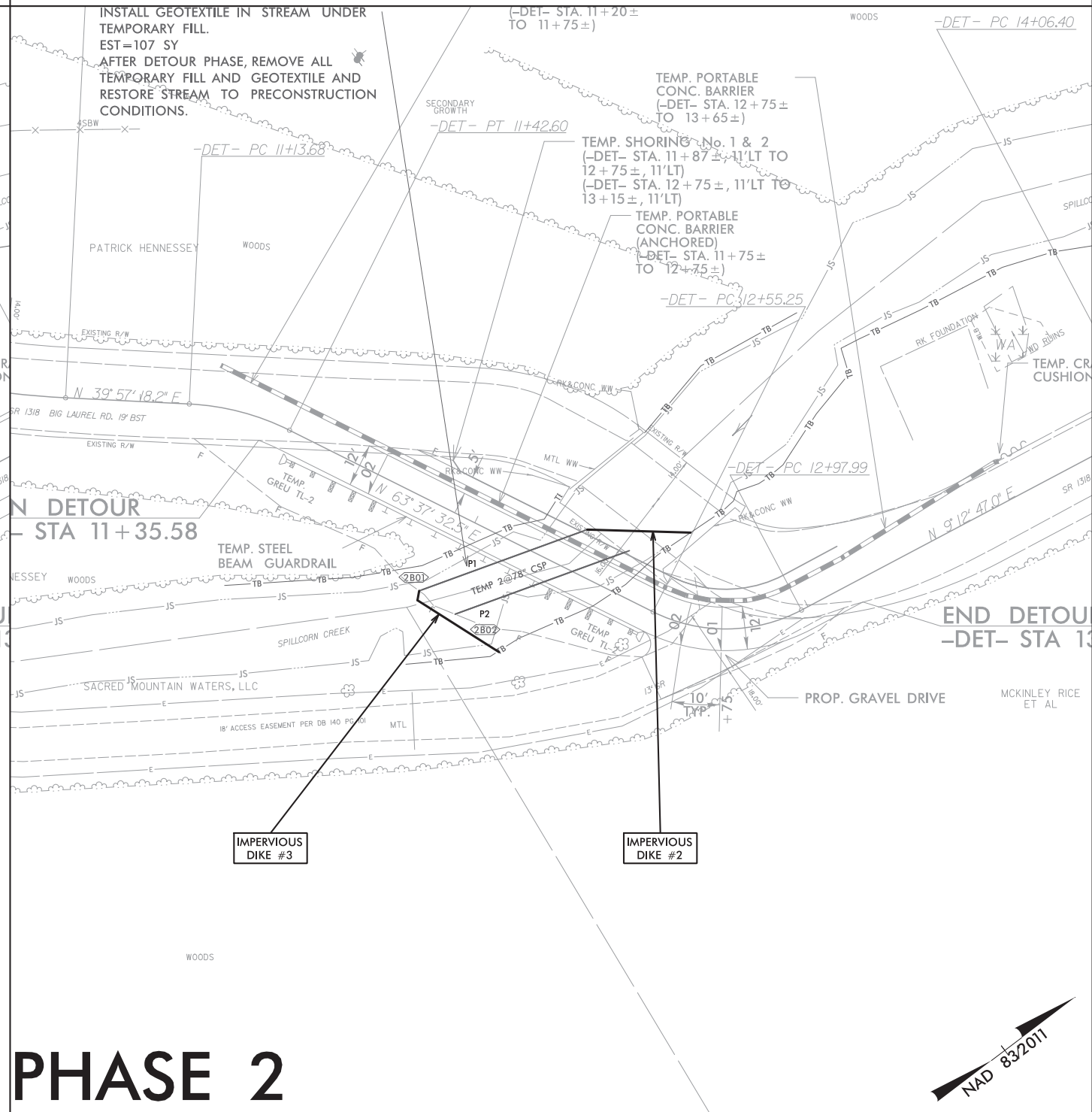
PIPE CONSTRUCTION SEQUENCE STA. 12 + 31 -L-

1. INSTALL TRAFFIC CONTROL DEVICES AND TEMPORARY PAVEMENT AS DESCRIBED ON TMP-2B-1.
2. INSTALL IMPERVIOUS DIKE #1.
3. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN(S).
4. INSTALL TEMPORARY 78" DRAINAGE PIPE P1 PER NCDOT RDY STD. 1645.01.

1. REMOVE IMPERVIOUS DIKE #1.
2. INSTALL IMPERVIOUS DIKES #2 & #3, DIVERTING FLOW THRU TEMPORARY 78" DRAINAGE PIPE P1.
3. INSTALL TEMPORARY 78" DRAINAGE PIPE P2 PER NCDOT RDY STD. 1645.01.
4. REMOVE IMPERVIOUS DIKES #2 & #3, RESTORING FLOW THROUGH BOTH TEMPORARY 78" DRAINAGE PIPES.
5. COMPLETE DETOUR ROADWAY AND DIVERT TRAFFIC. SEE EC-06/CONST. 2B-1 FOR DETOUR FINAL GRADE EROSION CONTROL.



PHASE 1



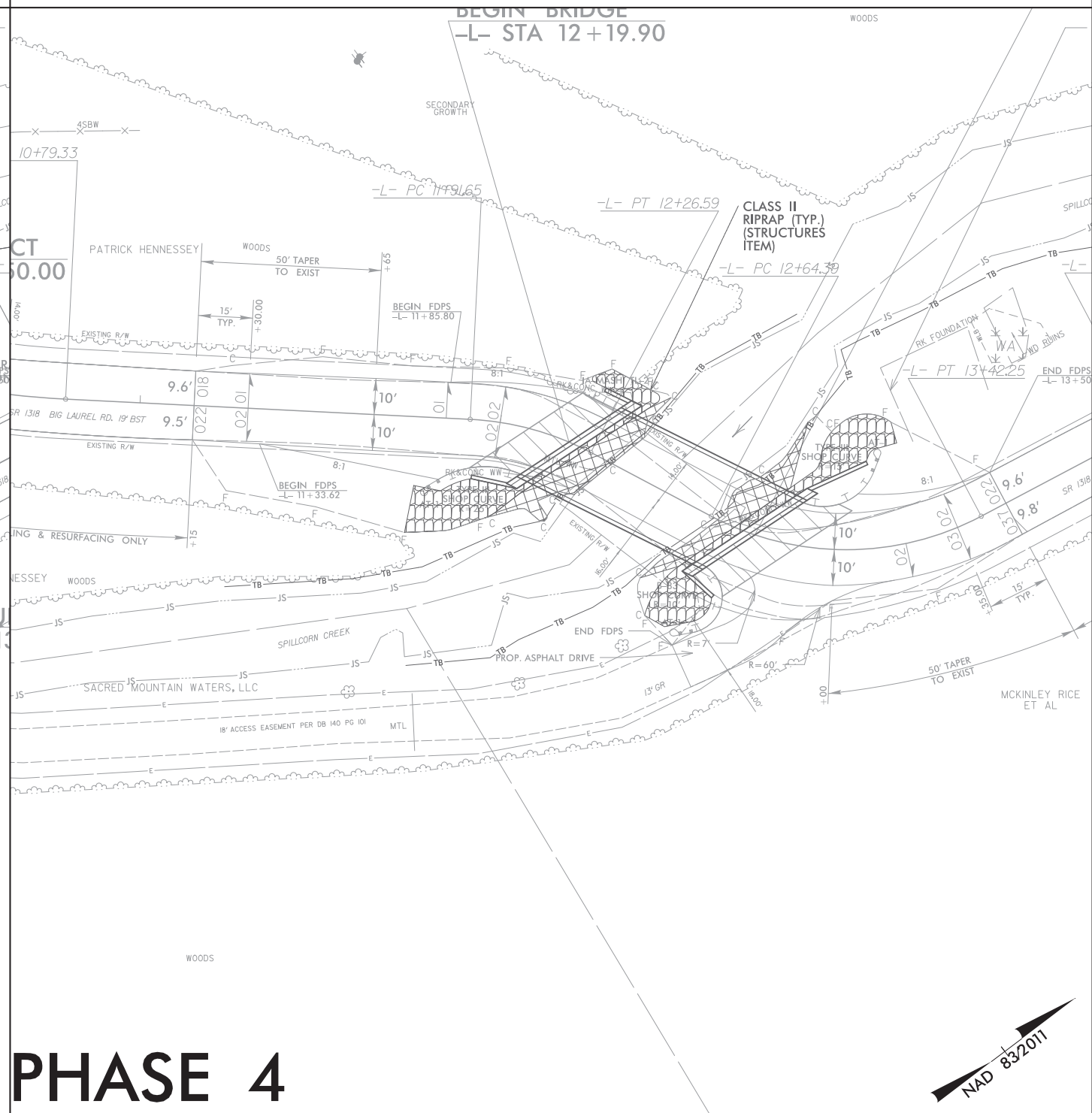
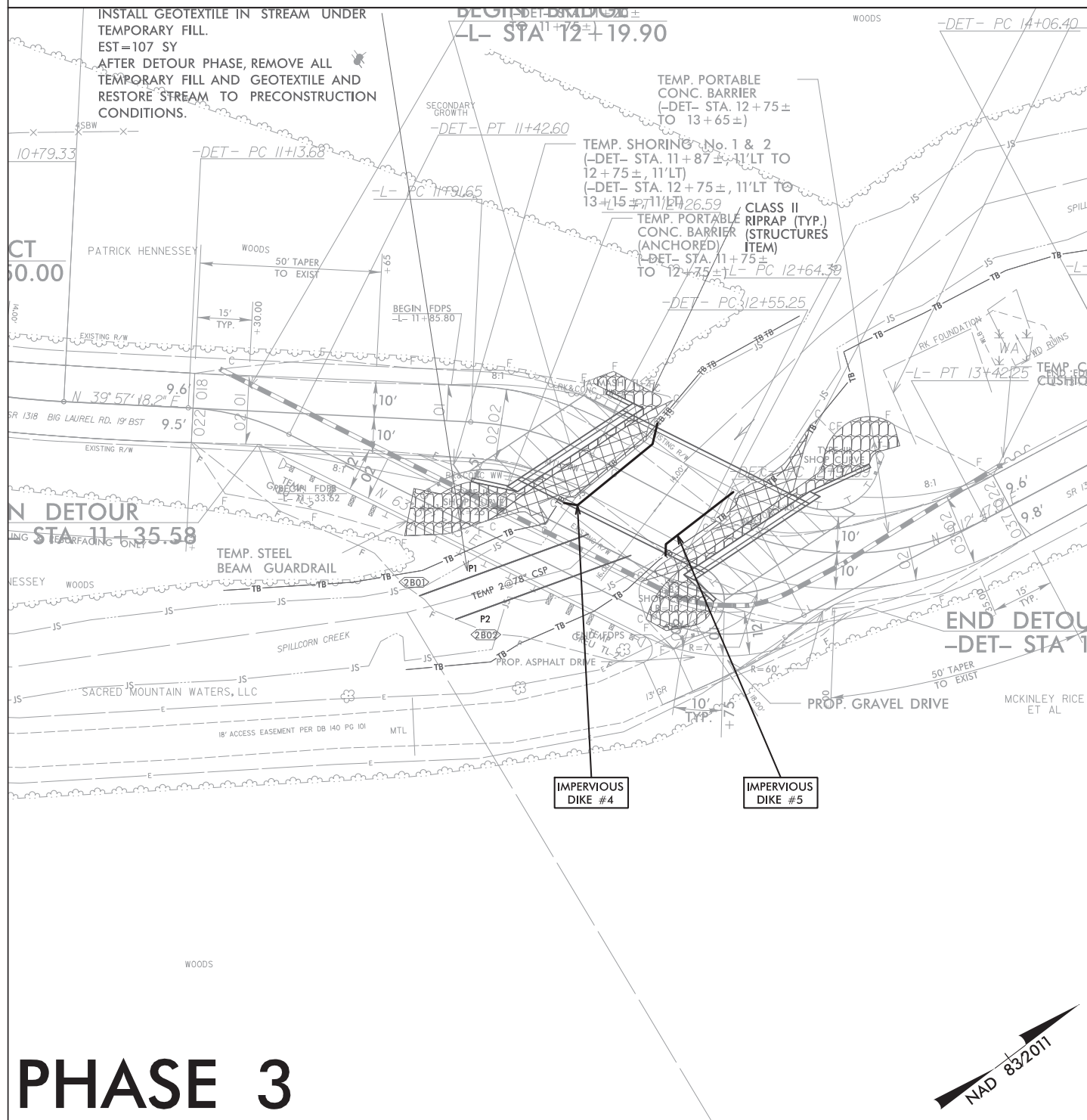
PHASE 2

PROJECT REFERENCE NO. BPI3-R024	SHEET NO. EC-05A/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PIPE CONSTRUCTION SEQUENCE STA. 12+31 -L-

1. INSTALL IMPERVIOUS DIKES #4 & #5.
2. REMOVE EXISTING BRIDGE AND CONSTRUCT PROPOSED BRIDGE.
3. REMOVE IMPERVIOUS DIKES #4 & #5.
4. COMPLETE ROADWAY AND SHIFT TRAFFIC FROM DETOUR.

1. DISPOSE OF TEMPORARY 78" DRAINAGE PIPES AS DESCRIBED IN DRAINAGE PLANS.
2. COMPLETE ANY NECESSARY INLET/OUTLET CHANNEL IMPROVEMENTS AND REESTABLISH STREAM ACCORDING TO CONST. PLANS.



DETOUR

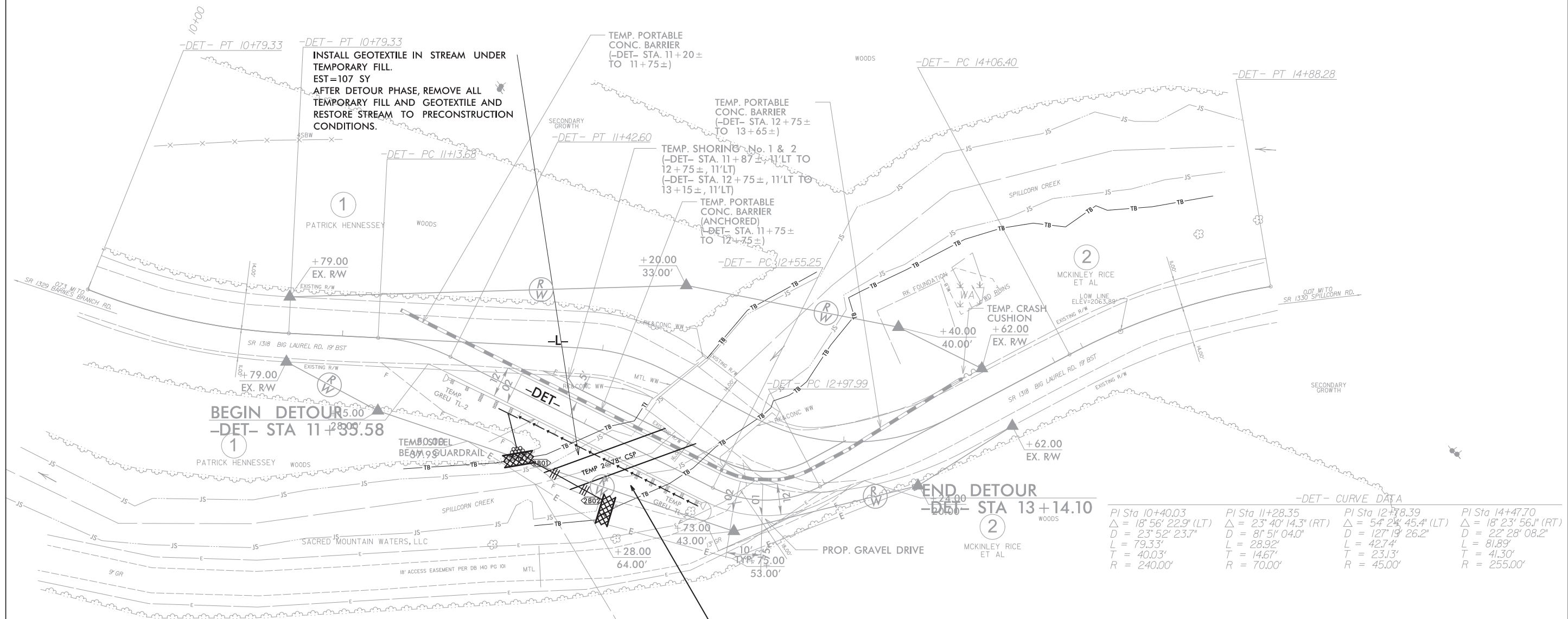
MAINTAIN EROSION CONTROL PERIMETER PROTECTION FROM EC-04/CONST.4 AS APPROPRIATE FOR FINAL DETOUR PHASE.

Madison County
Bridge #560152



PROJECT REFERENCE NO. BPI3-R024	SHEET NO. EC-06/CONST.2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
201 W. MARION ST. STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



-DET- CURVE DATA

PI Sta	PI Sta	PI Sta	PI Sta
10+40.03	11+28.35	12+78.39	14+47.70
$\Delta = 18^\circ 56' 22.9" (LT)$	$\Delta = 23^\circ 40' 14.3" (RT)$	$\Delta = 54^\circ 24' 45.4" (LT)$	$\Delta = 18^\circ 23' 56.1" (RT)$
$D = 23^\circ 52' 23.7"$	$D = 81^\circ 51' 04.0"$	$D = 127^\circ 19' 26.2"$	$D = 22^\circ 28' 08.2"$
$L = 79.33'$	$L = 28.92'$	$L = 42.74'$	$L = 81.89'$
$T = 40.03'$	$T = 14.67'$	$T = 23.13'$	$T = 41.30'$
$R = 240.00'$	$R = 70.00'$	$R = 45.00'$	$R = 255.00'$

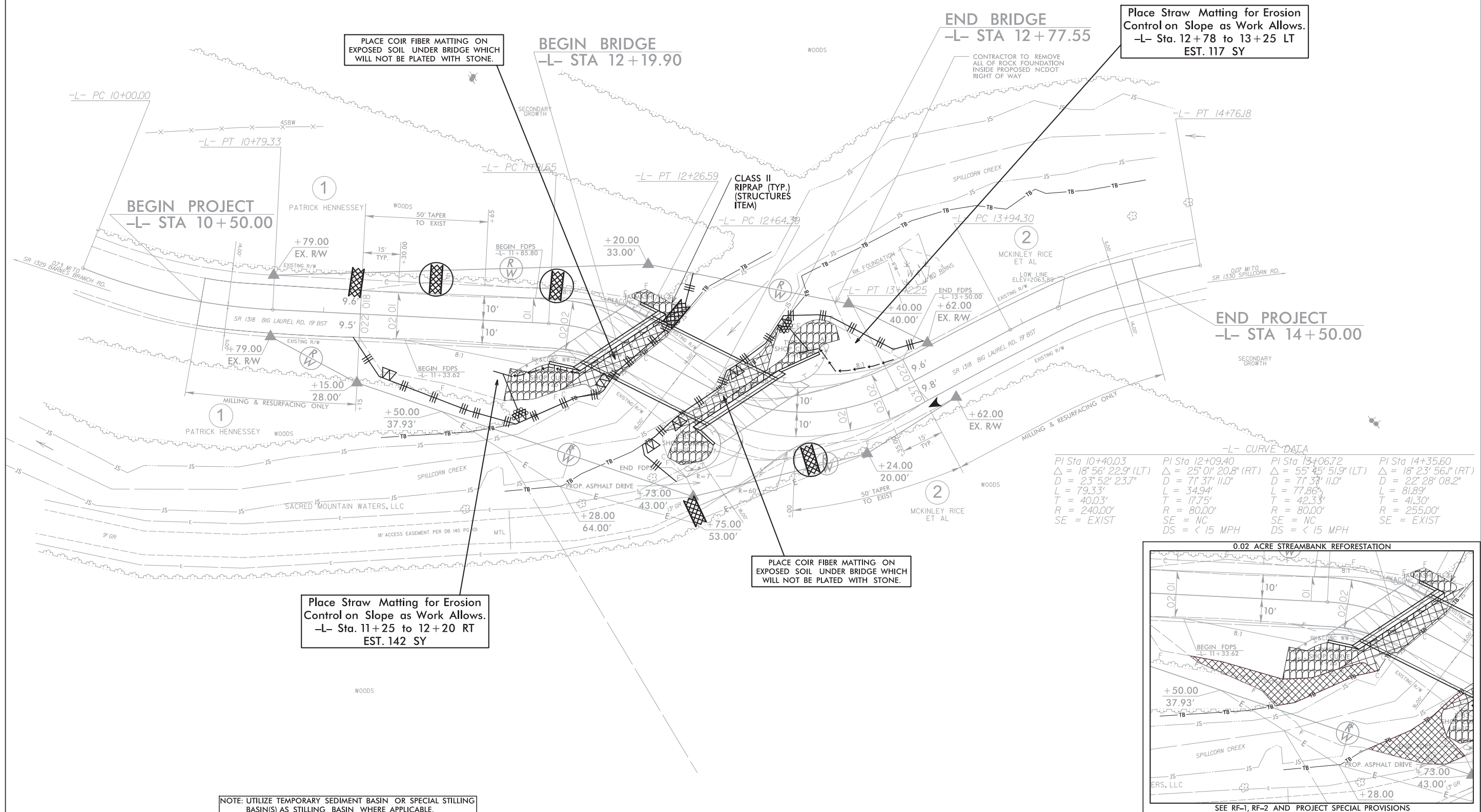
Place Coir Fiber Matting for Erosion Control on Slope as Work Allows.
-DET- Sta. 11+50 to 12+50 RT
EST. 201 SY

**Madison County
Bridge #560152**



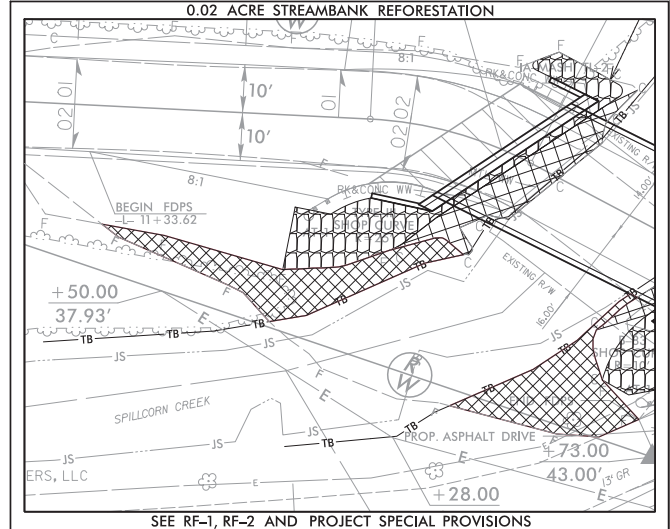
PROJECT REFERENCE NO. <i>BPI3-R024</i>	SHEET NO. <i>EC-07/CONST.4</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
201 W. MARION ST-STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



-L- CURVE DATA

PI Sta	PI Sta	PI Sta	PI Sta
10+40.03	12+09.40	13+06.72	14+35.60
$\Delta = 18^{\circ} 56' 22.9" (LT)$	$\Delta = 25^{\circ} 01' 20.8" (RT)$	$\Delta = 55^{\circ} 45' 51.9" (LT)$	$\Delta = 18^{\circ} 23' 56.1" (RT)$
$D = 23^{\circ} 52' 23.7"$	$D = 71^{\circ} 37' 11.0"$	$D = 71^{\circ} 37' 11.0"$	$D = 22^{\circ} 28' 08.2"$
$L = 79.33'$	$L = 34.94'$	$L = 77.86'$	$L = 81.89'$
$T = 40.03'$	$T = 17.75'$	$T = 42.33'$	$T = 41.30'$
$R = 240.00'$	$R = 80.00'$	$R = 80.00'$	$R = 255.00'$
SE = EXIST	SE = NC	SE = NC	SE = EXIST
	DS = < 15 MPH	DS = < 15 MPH	



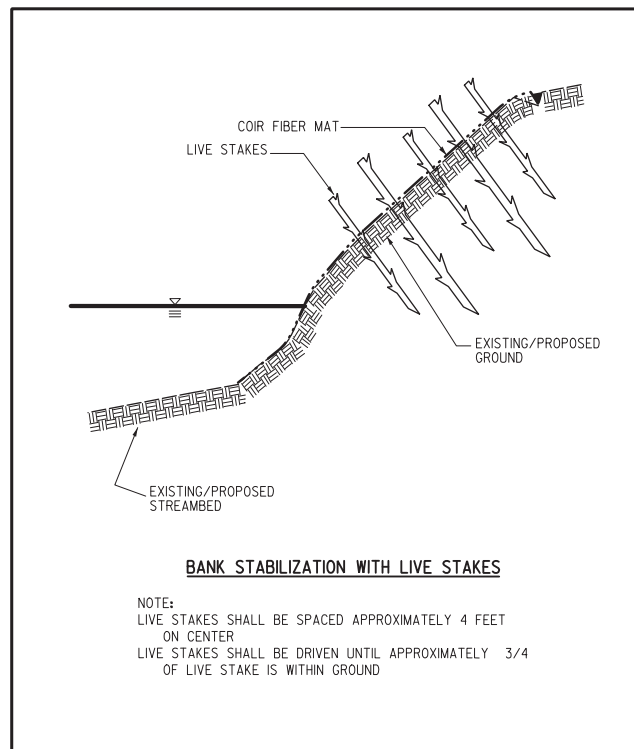
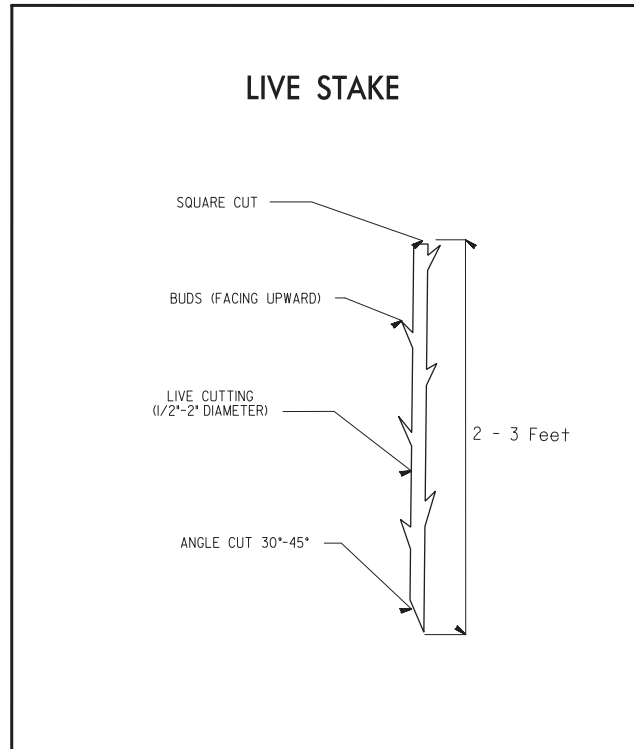
NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

SEE RF-1, RF-2 AND PROJECT SPECIAL PROVISIONS

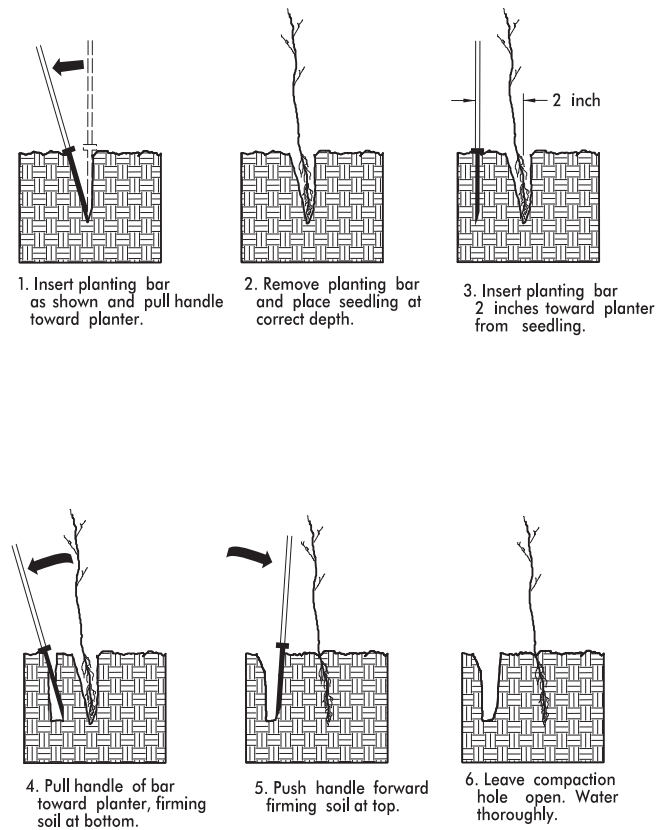
PROJECT REFERENCE NO. <i>BPI3-R024</i>	SHEET NO. <i>RF-1</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

LIVE STAKES PLANTING DETAIL



BAREROOT PLANTING DETAIL DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



PLANTING NOTES:

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



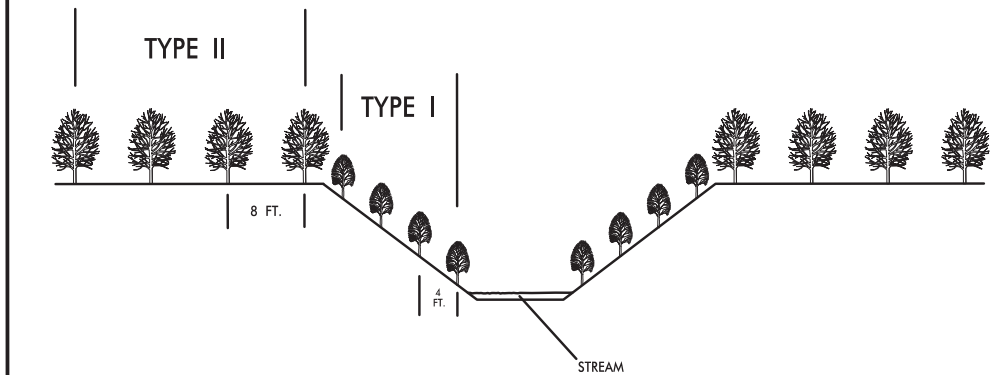
KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



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

- TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.
- TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.
- NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

STREAMBANK REFORESTATION TYPICAL



STREAMBANK REFORESTATION

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

TYPE 1

50% SALIX NIGRA	BLACK WILLOW	2 ft - 3 ft LIVE STAKES
50% CORNUS AMOMUM	SILKY DOGWOOD	2 ft - 3 ft LIVE STAKES

TYPE 2

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR
25% NYSSA SYLVATICA	BLACK GUM	12 in - 18 in BR

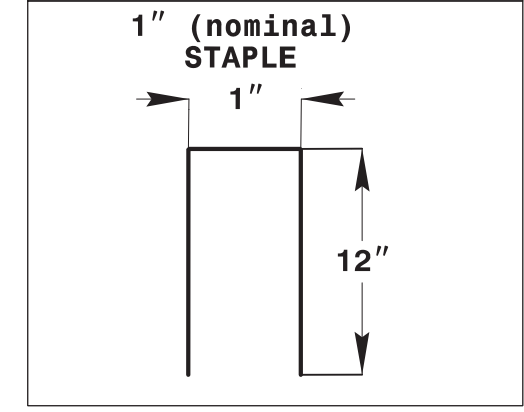
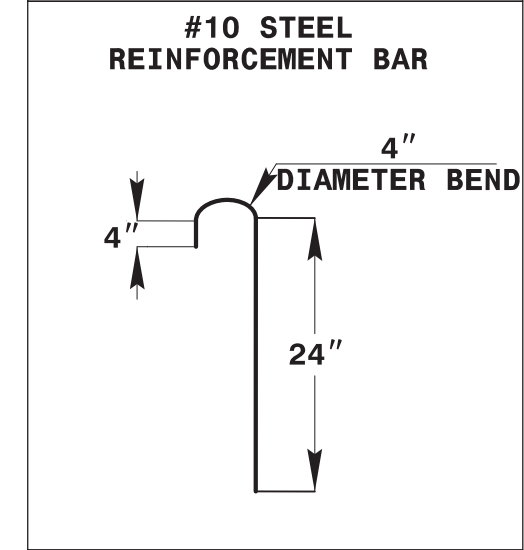
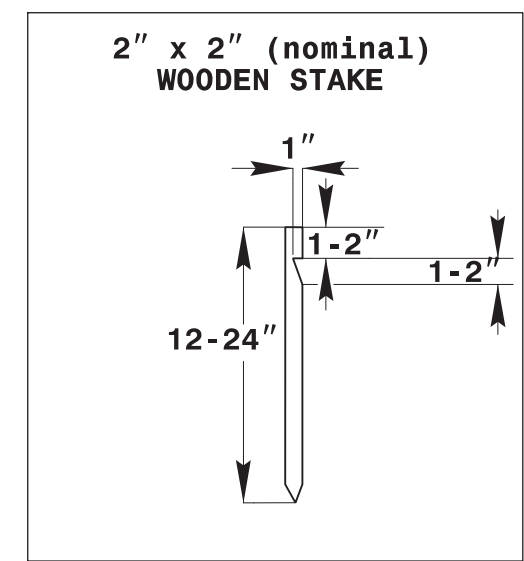
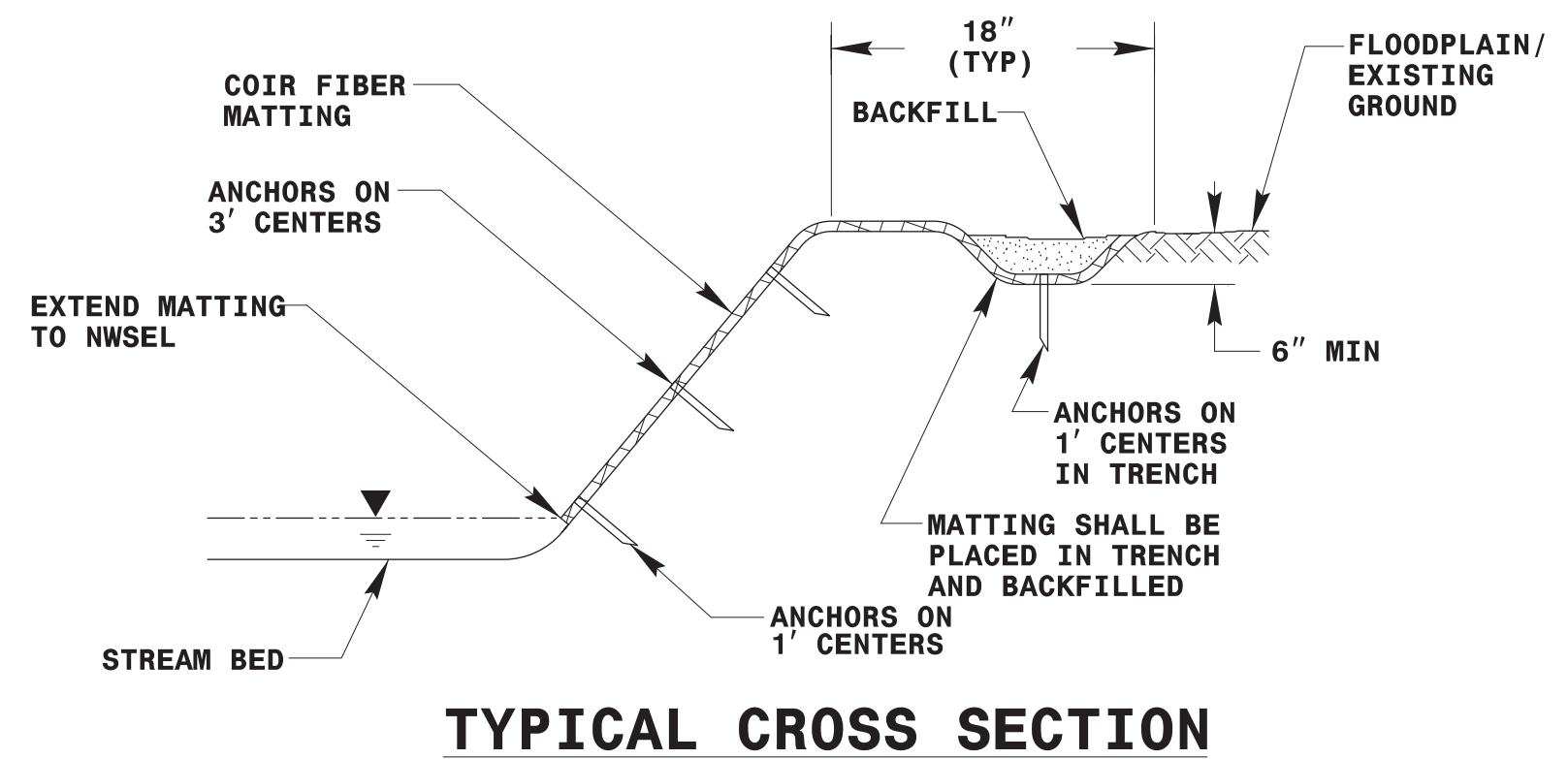
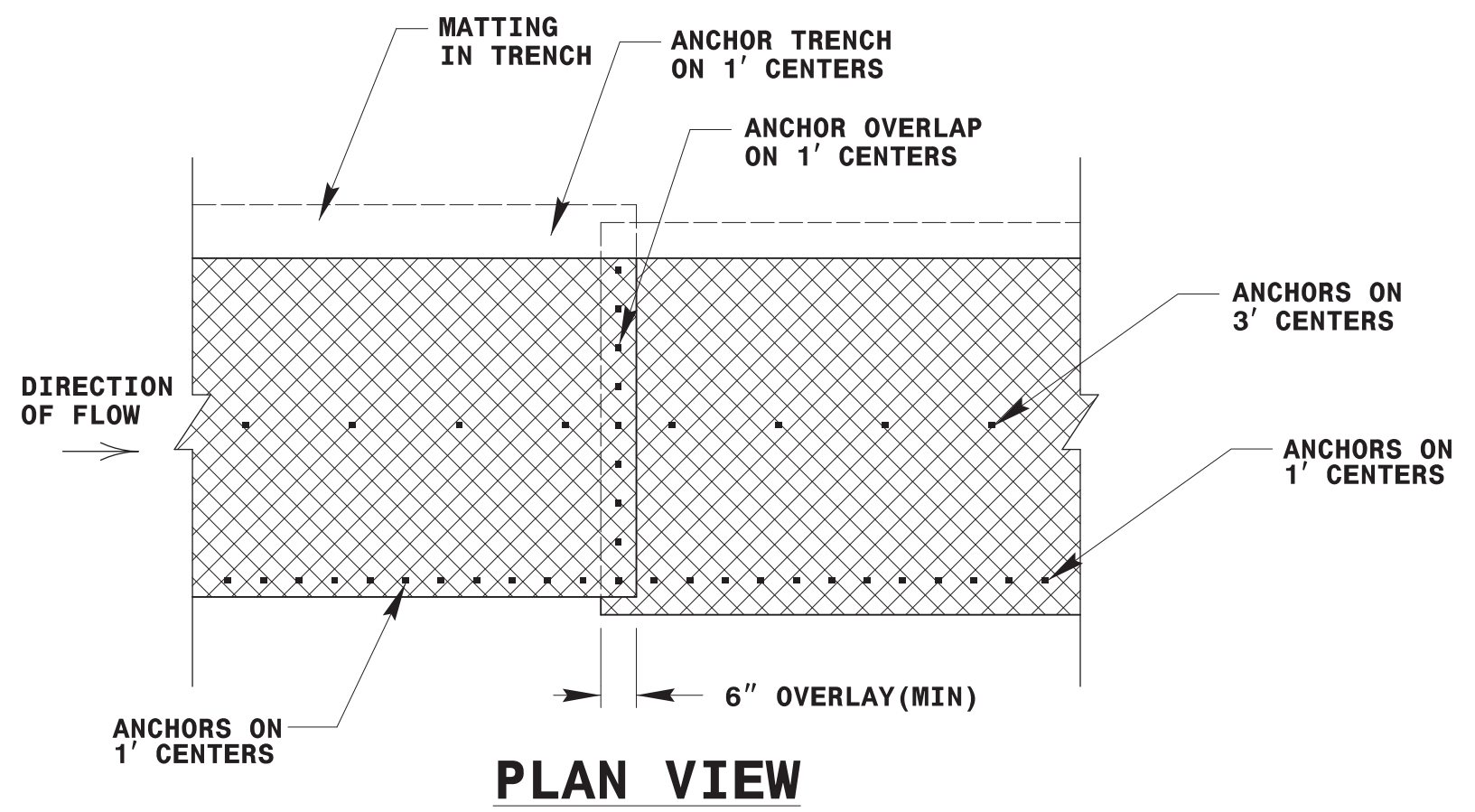
- SEE PLAN SHEETS FOR AREAS TO BE PLANTED

STREAMBANK REFORESTATION

DETAIL SHEET 1 OF 2

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

PROJECT REFERENCE NO. <i>BPI3-R024</i>	SHEET NO. <i>RF-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ANCHOR OPTIONS

COIR FIBER MATTING DETAIL

NOT TO SCALE

STREAMBANK REFORESTATION
DETAIL SHEET 2 OF 2
 N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
MADISON COUNTY
LOCATION: BRIDGE #560152 OVER SPILLCORN CREEK
ON SR 1318 (BIG LAUREL RD)

BP13-R024
SIGN 001

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

APPROVED: *Kevin B. Roach, P.E.*
DATE: 06/21/2024

SEAL
024921
KING ENGINEER
KEVIN B. ROACH

INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

- . SIGNS FURNISHED BY STATE
- . CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.
- . IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- . WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- . ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- . WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- . THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- . SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	184	L.F.
4102000000	904	SIGN ERECTION, TYPE E	4	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	6	EA.

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	E AND F SHEETS
SIGN-3	SIGNING PLAN SHEETS

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

KELVIN JORDAN SIGNING & DELINEATION REGIONAL ENGINEER
WALTER JOHNSON SIGNING & DELINEATION PROJECT DESIGN ENGINEER

T.I.P.: BP13-R024

5/26/20

401 QUANTITY REQ'D. 2



36" x 36"
W1-4R

ONE "U" POST PER SIGN

402 QUANTITY REQ'D. 2



18" x 18"
W13-1P

MOUNT BELOW SIGN
IN 2 INSTALLATIONS

BP13-R024

SIGN 002

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

APPROVED: *Renee B. Roach, P.E.*

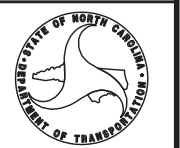
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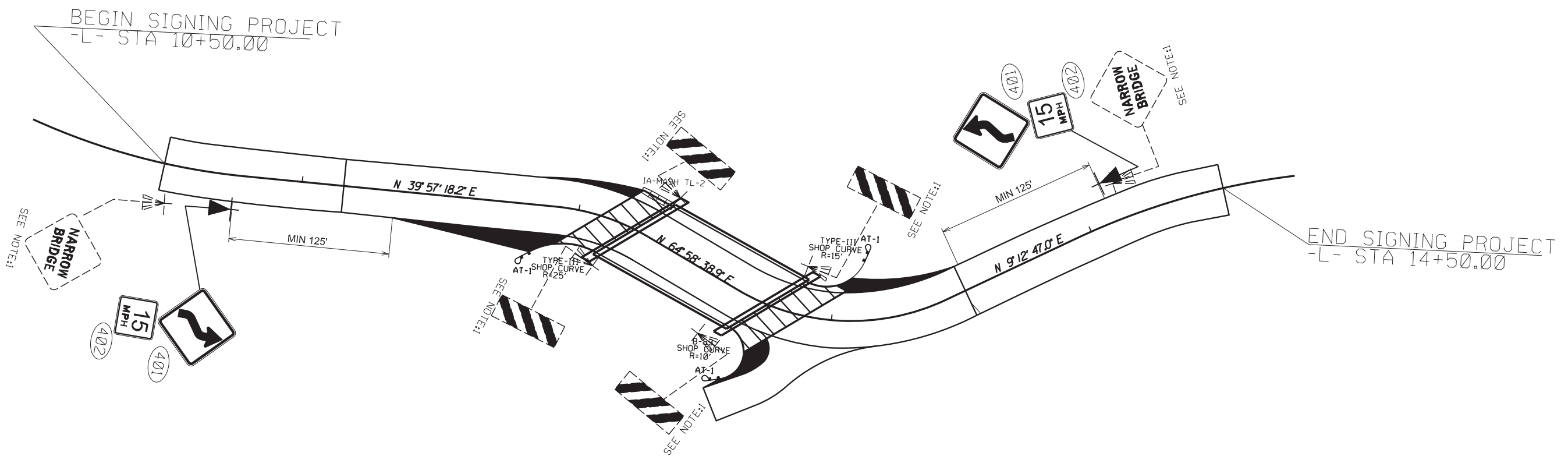
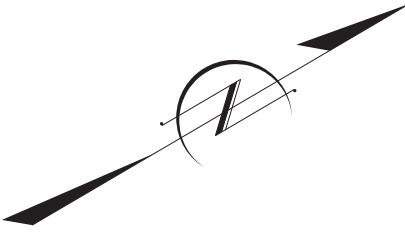
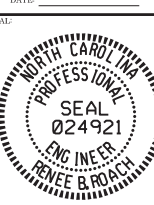
SEAL



INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED





PROJECT NOTES

- 1. DISPOSAL OF SIGN SYSTEM, U-CHANNEL

PROJECT REFERENCE NO.	SHEET NO.
BP13-R024	X-1
RW SHEET NO.	

BP13 - R024

CROSS-SECTION INDEX

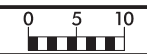
XS - INDEX	X - 1
XS - SUMMARY	X - 1A
- L -	X - 2 THRU X - 13
- DET -	X - 14 THRU X - 17

REVISIONS

8/17/99

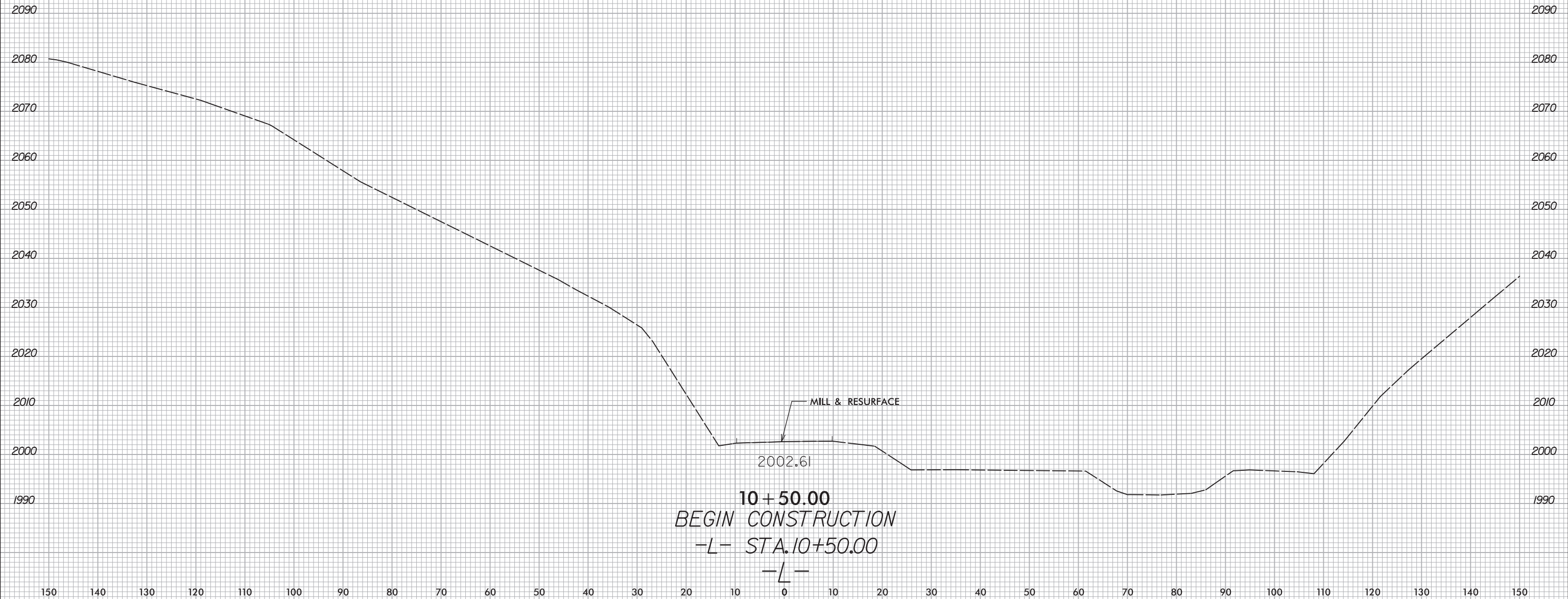
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
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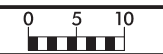
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10 + 50.00
 BEGIN CONSTRUCTION
 -L- STA. 10+50.00
 -L-
 2002.61

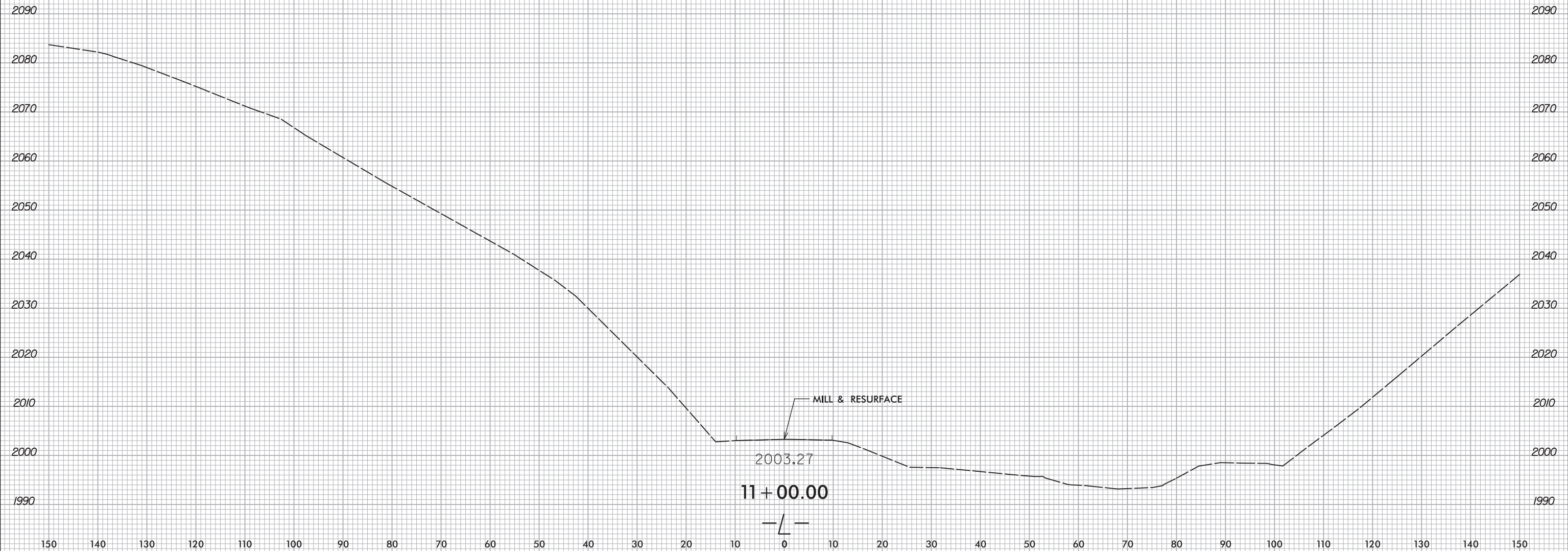
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6/23/16



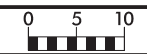
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BP13-R024	X-3

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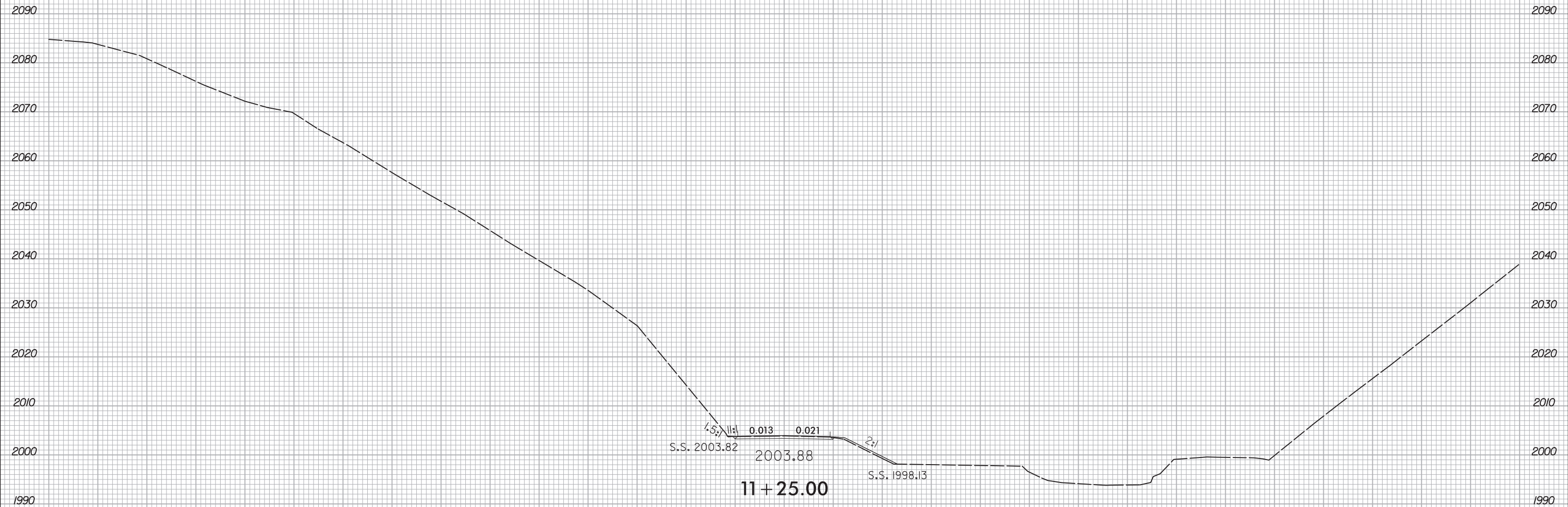
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
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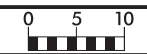
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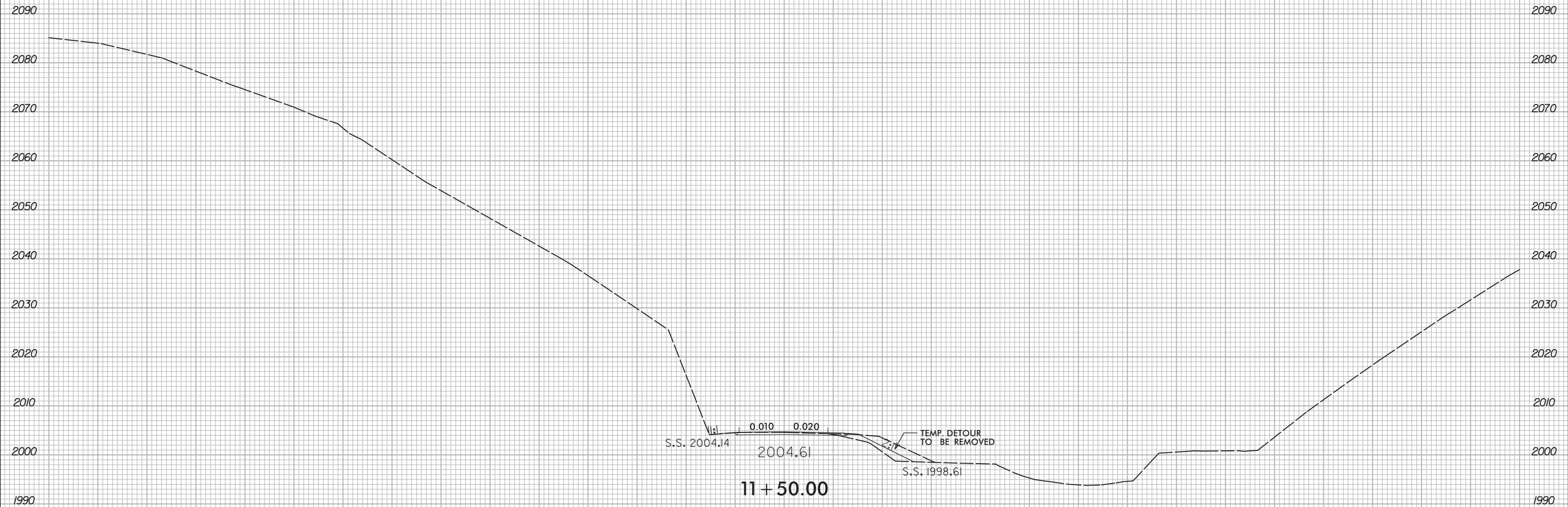
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
BP13-R024	X-5

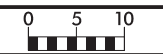
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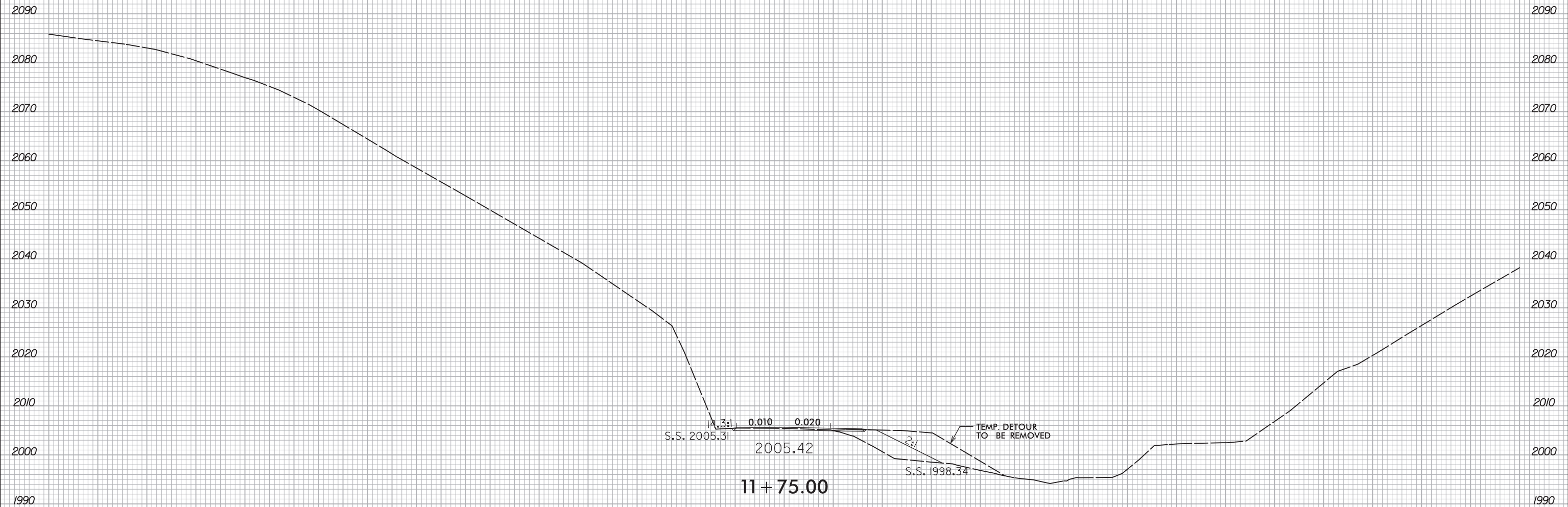
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6/23/16

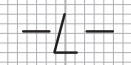


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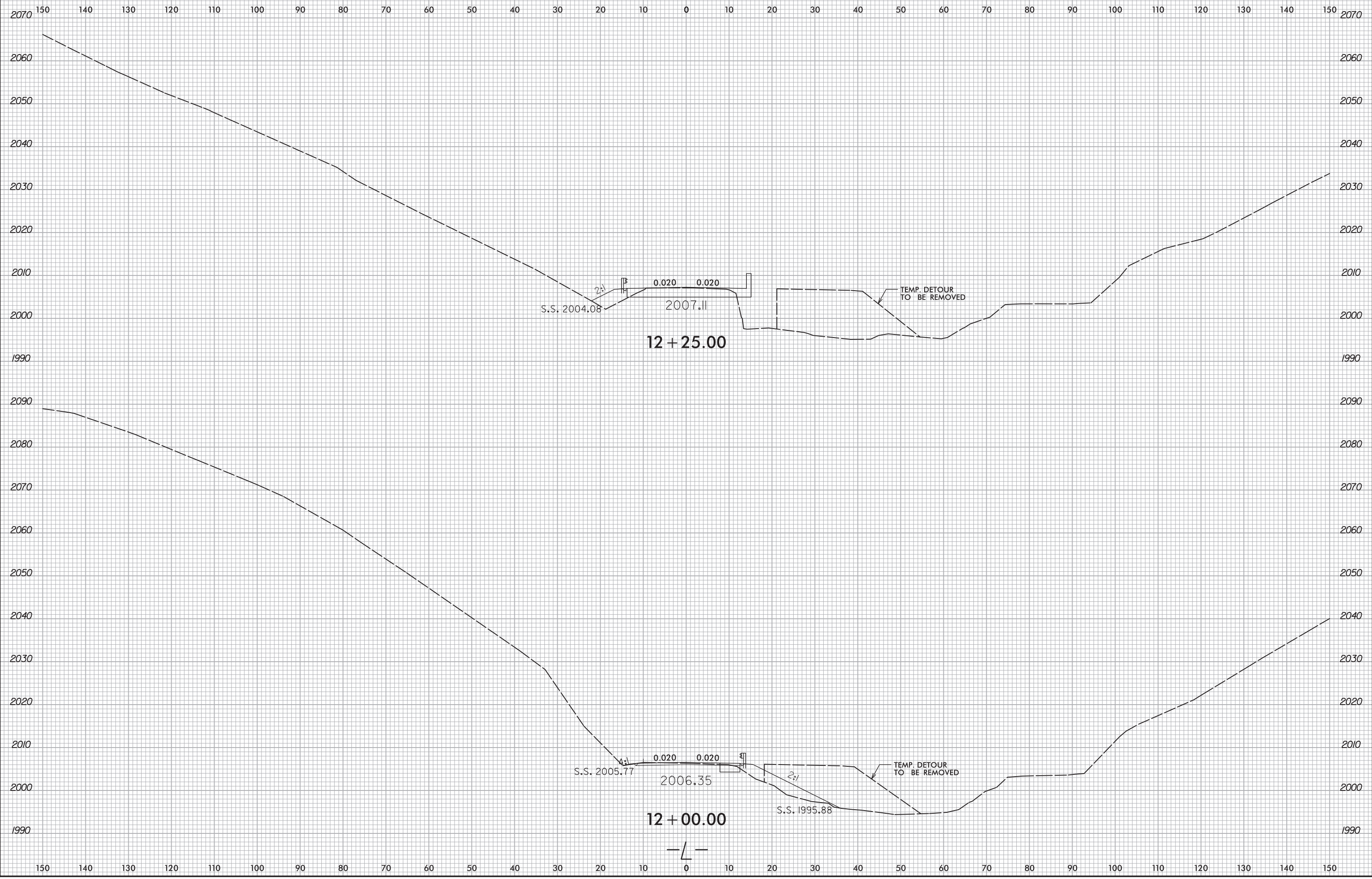
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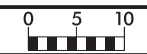
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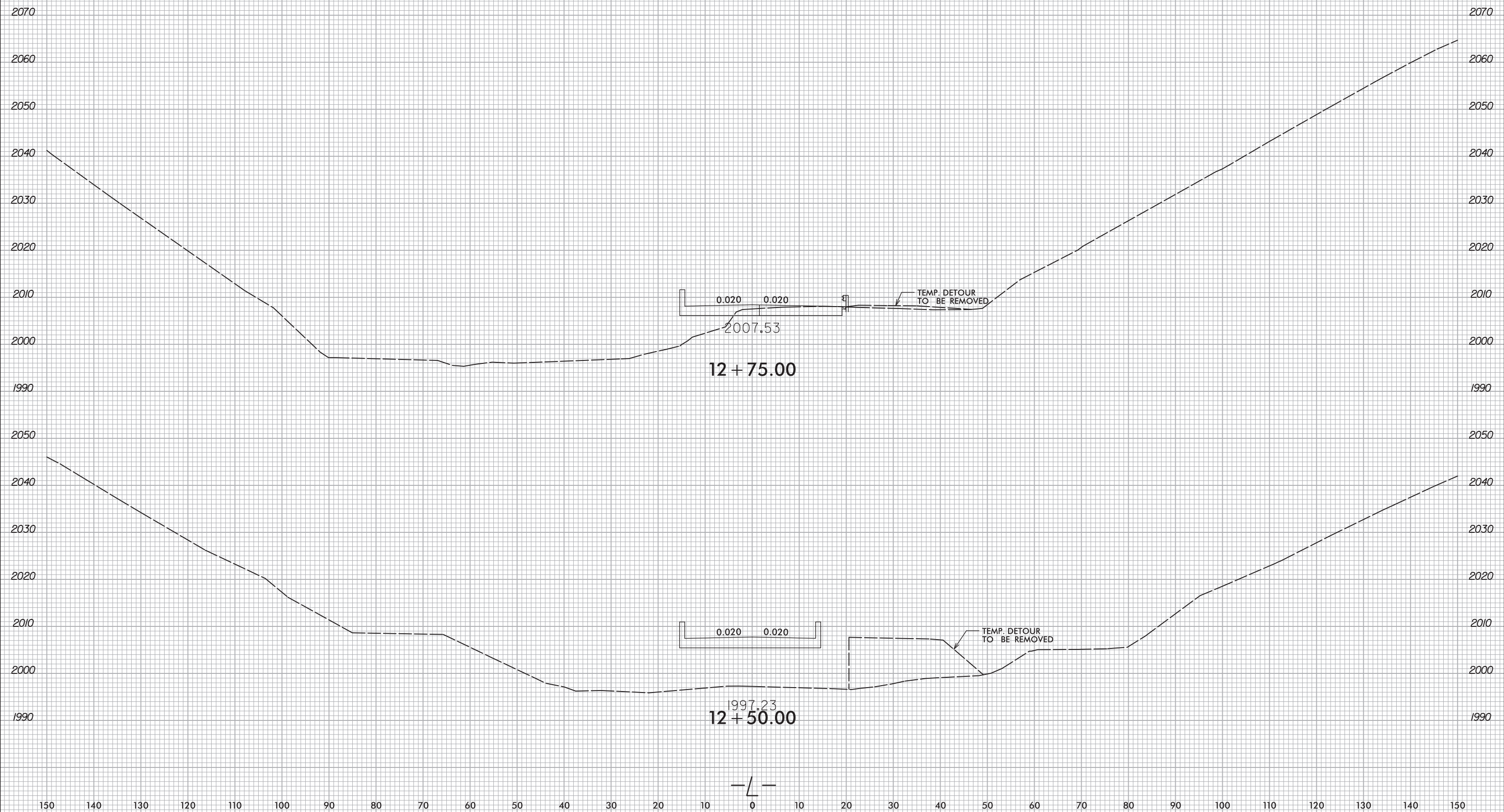
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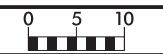
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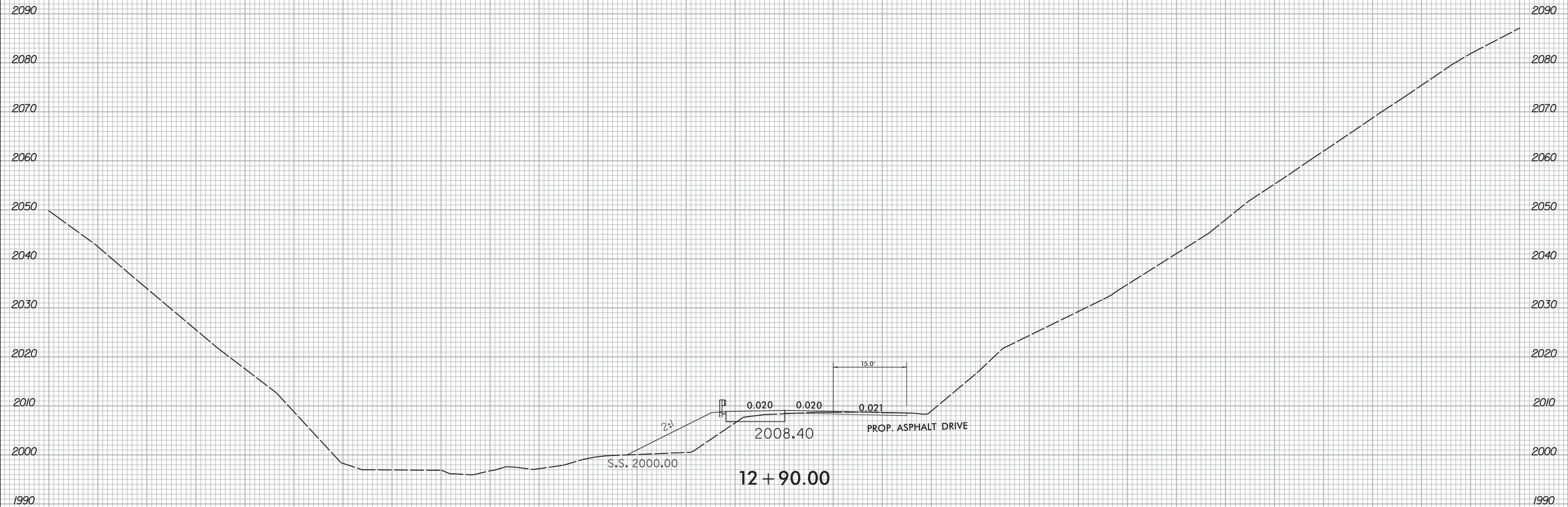
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
BP13-R024	X-9

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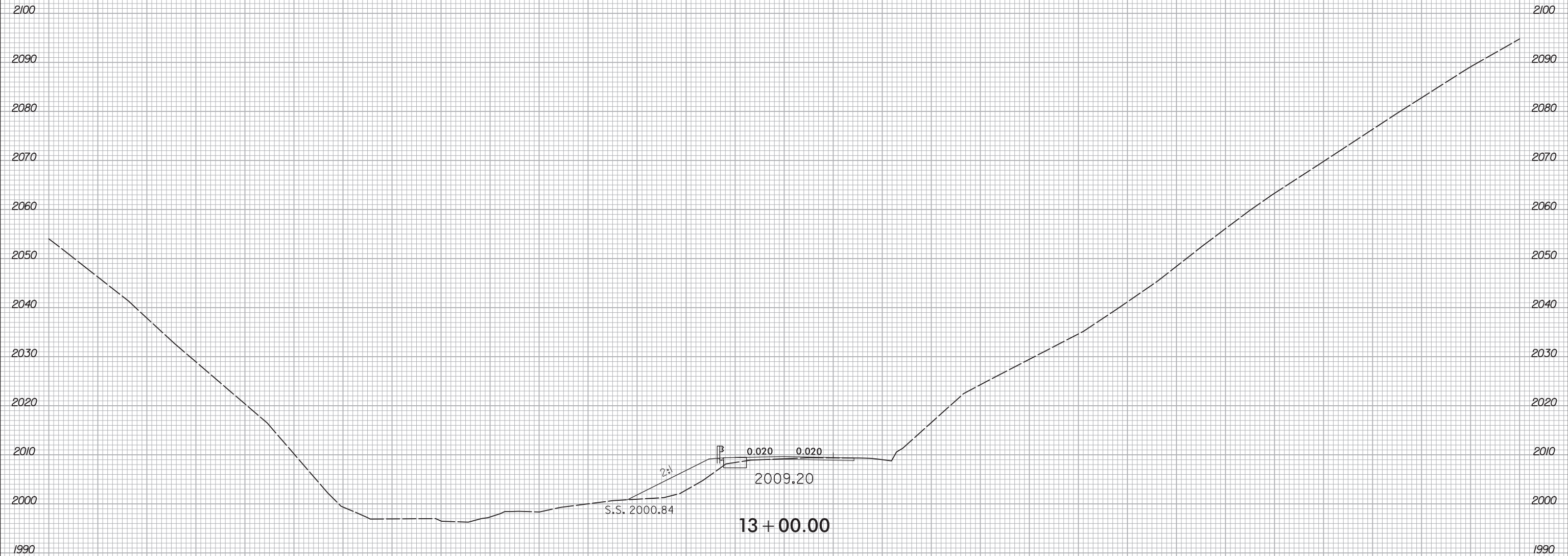
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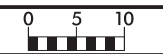
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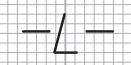
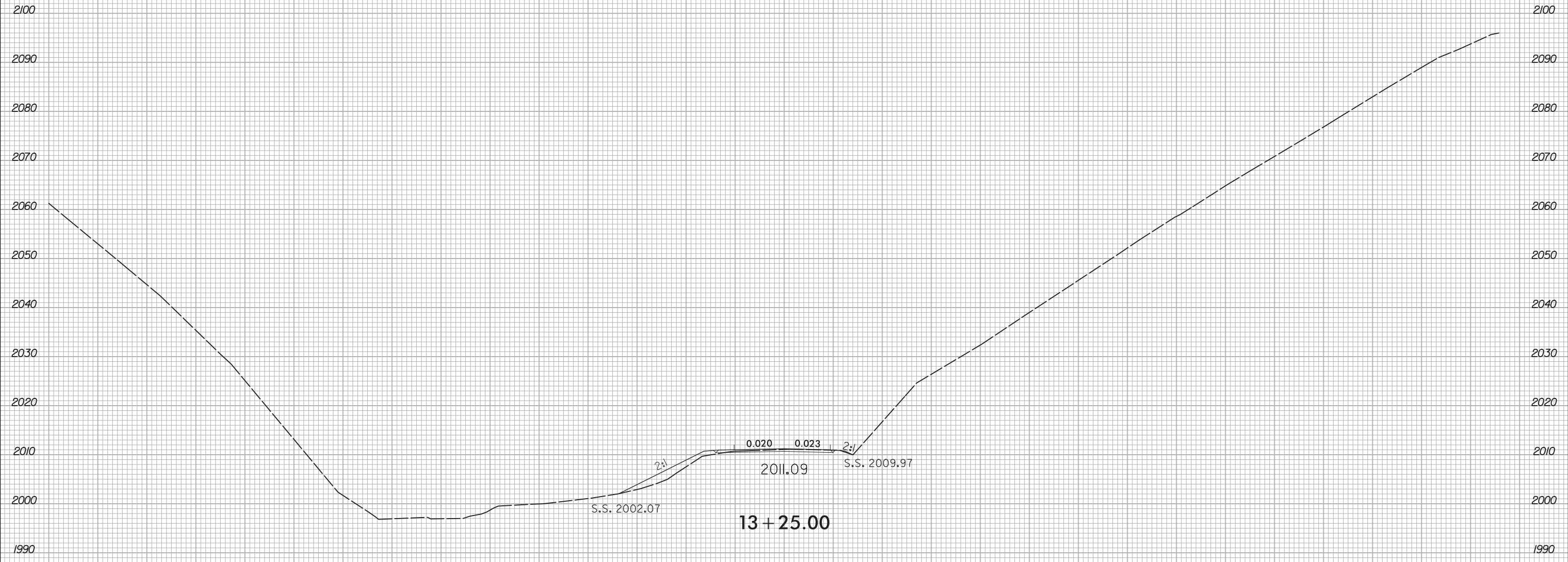
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BP13-R024	X-11

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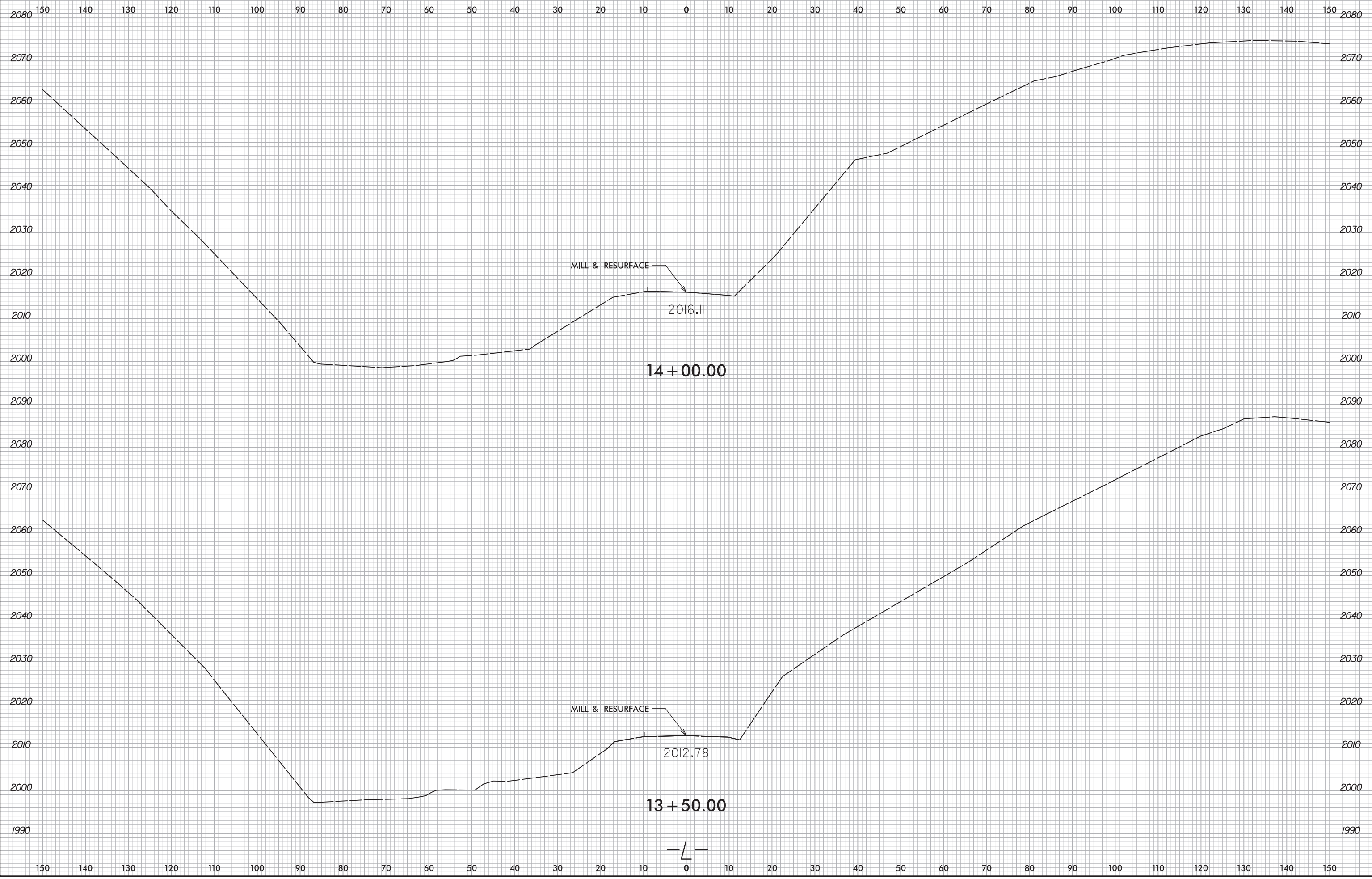


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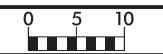
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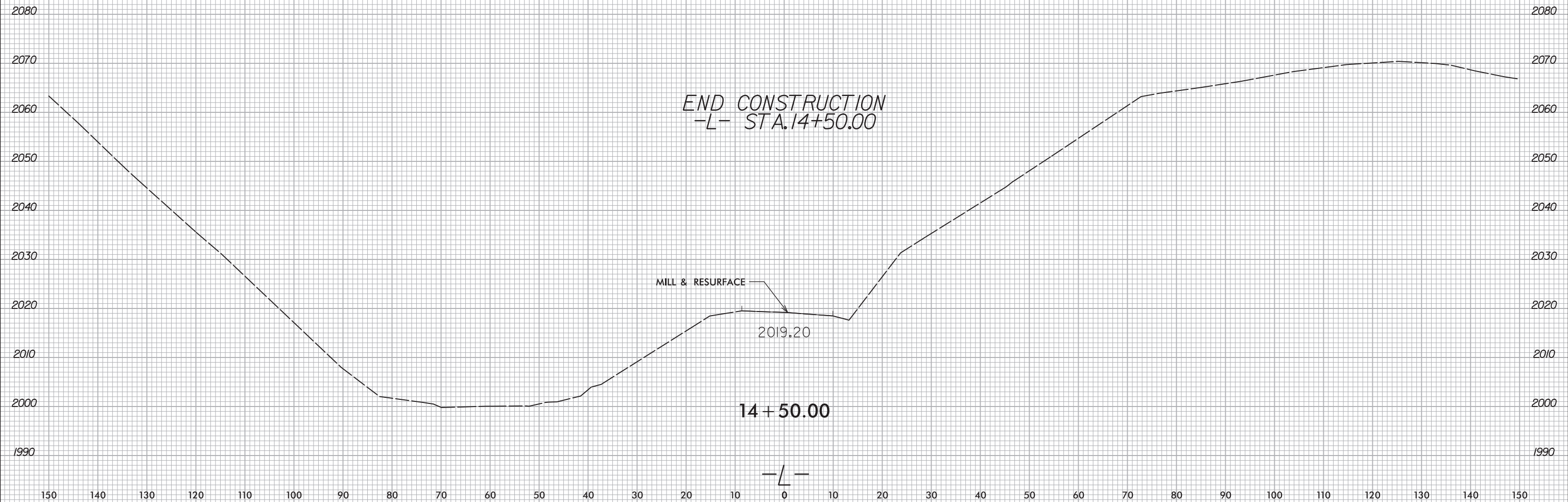
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6/23/16



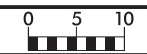
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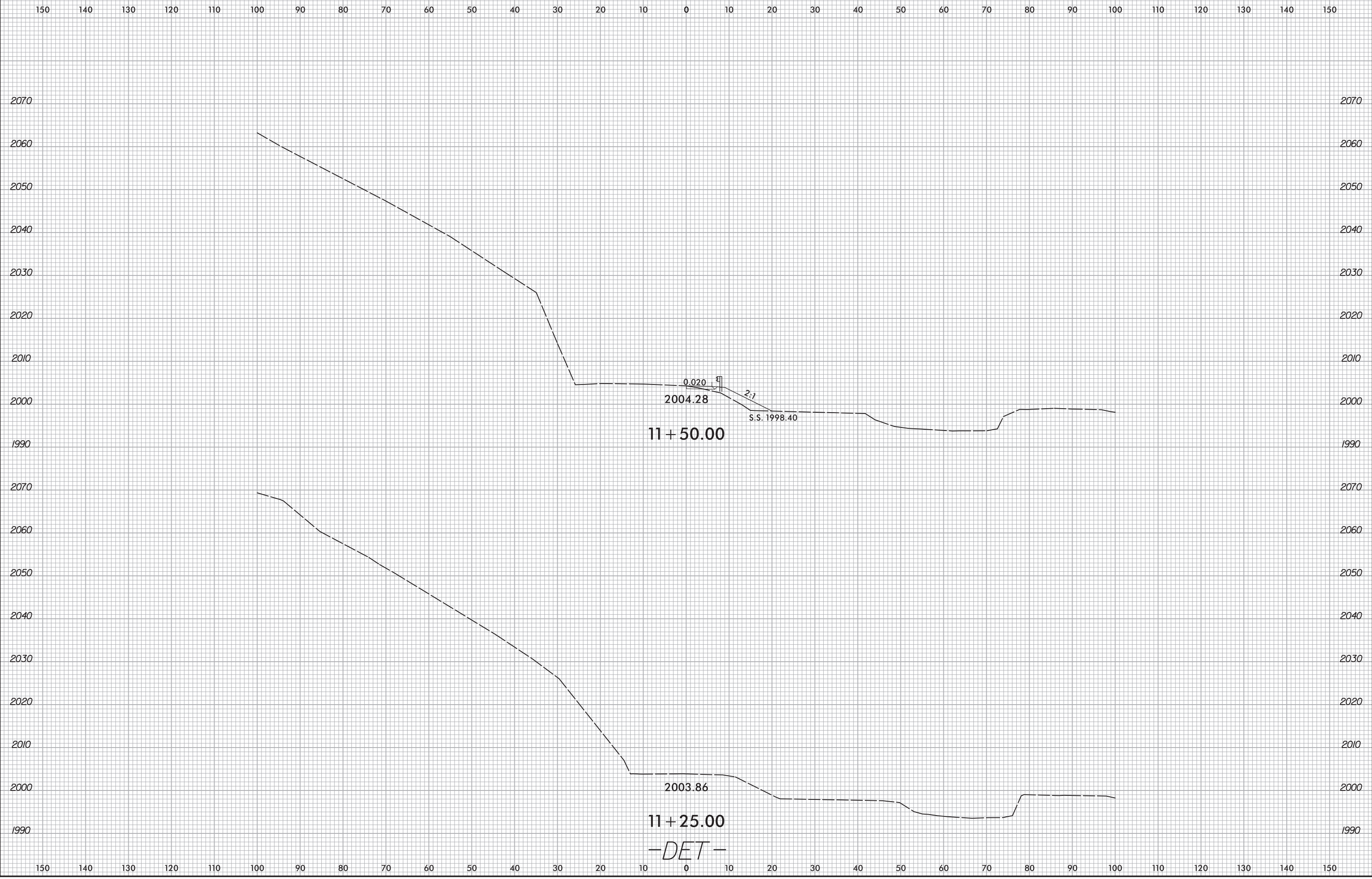


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BP13-R024	X-14



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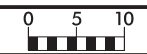
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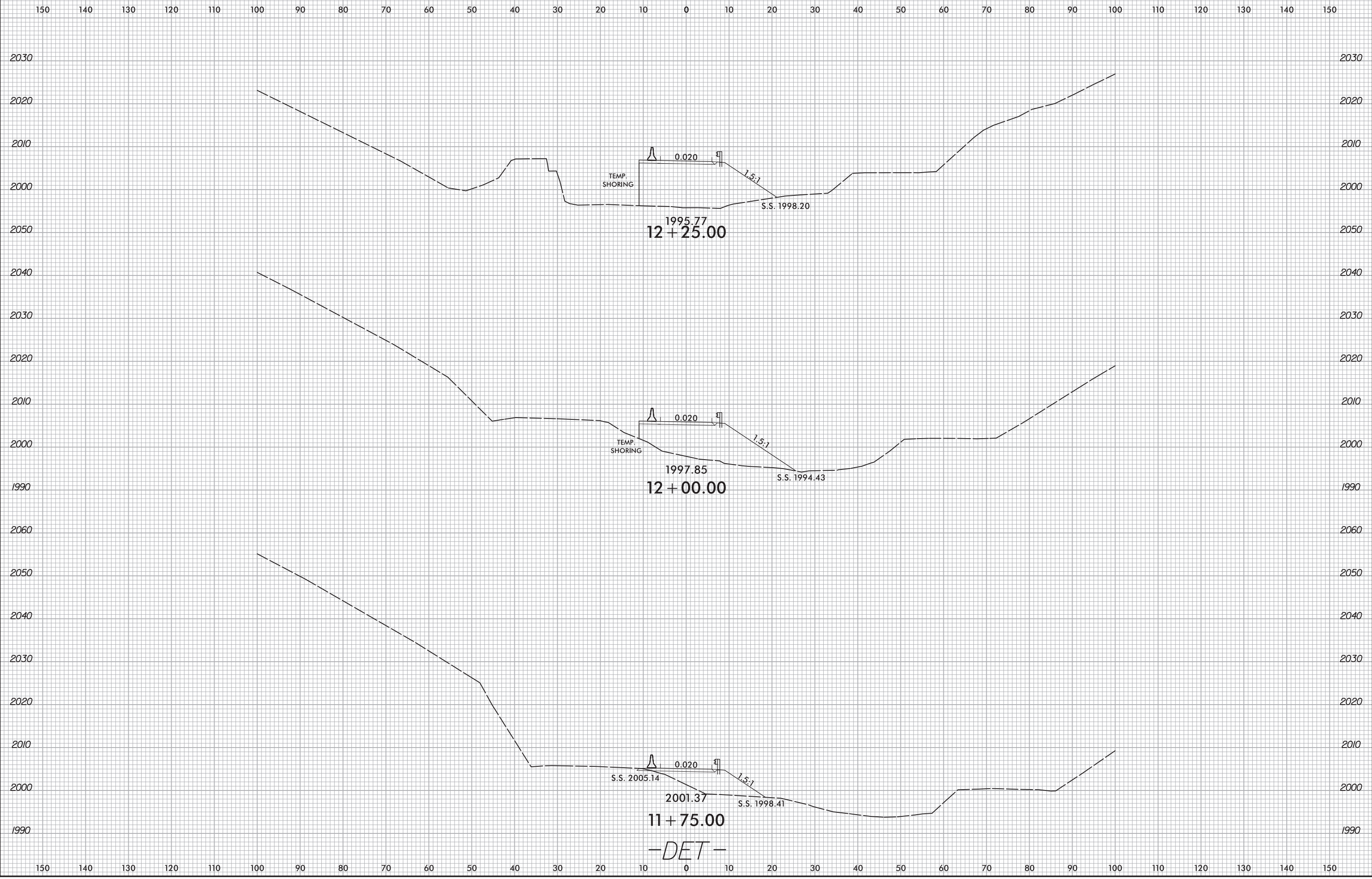
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-DET-

6/23/16

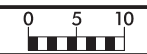


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BP13-R024	X-15



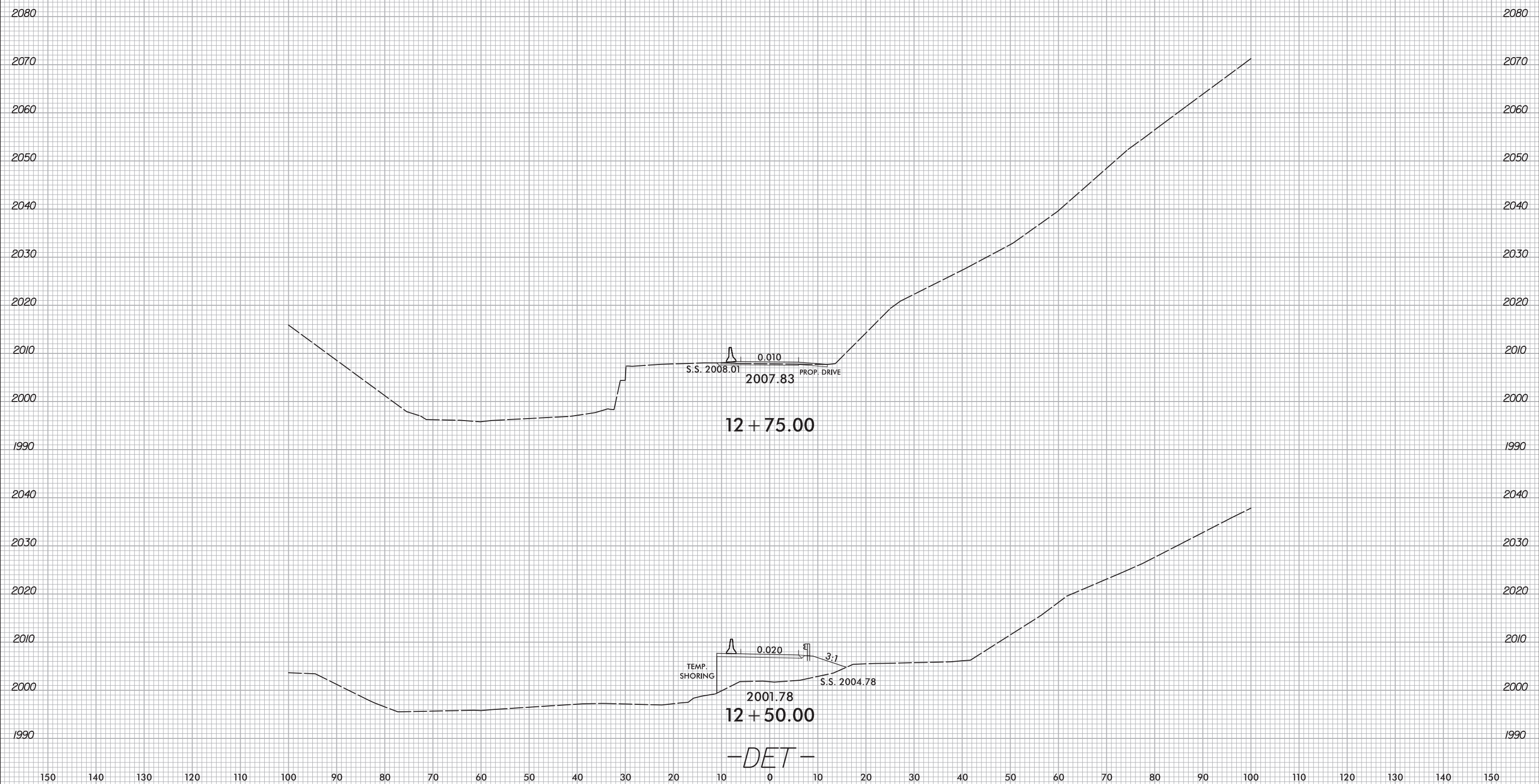
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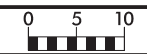
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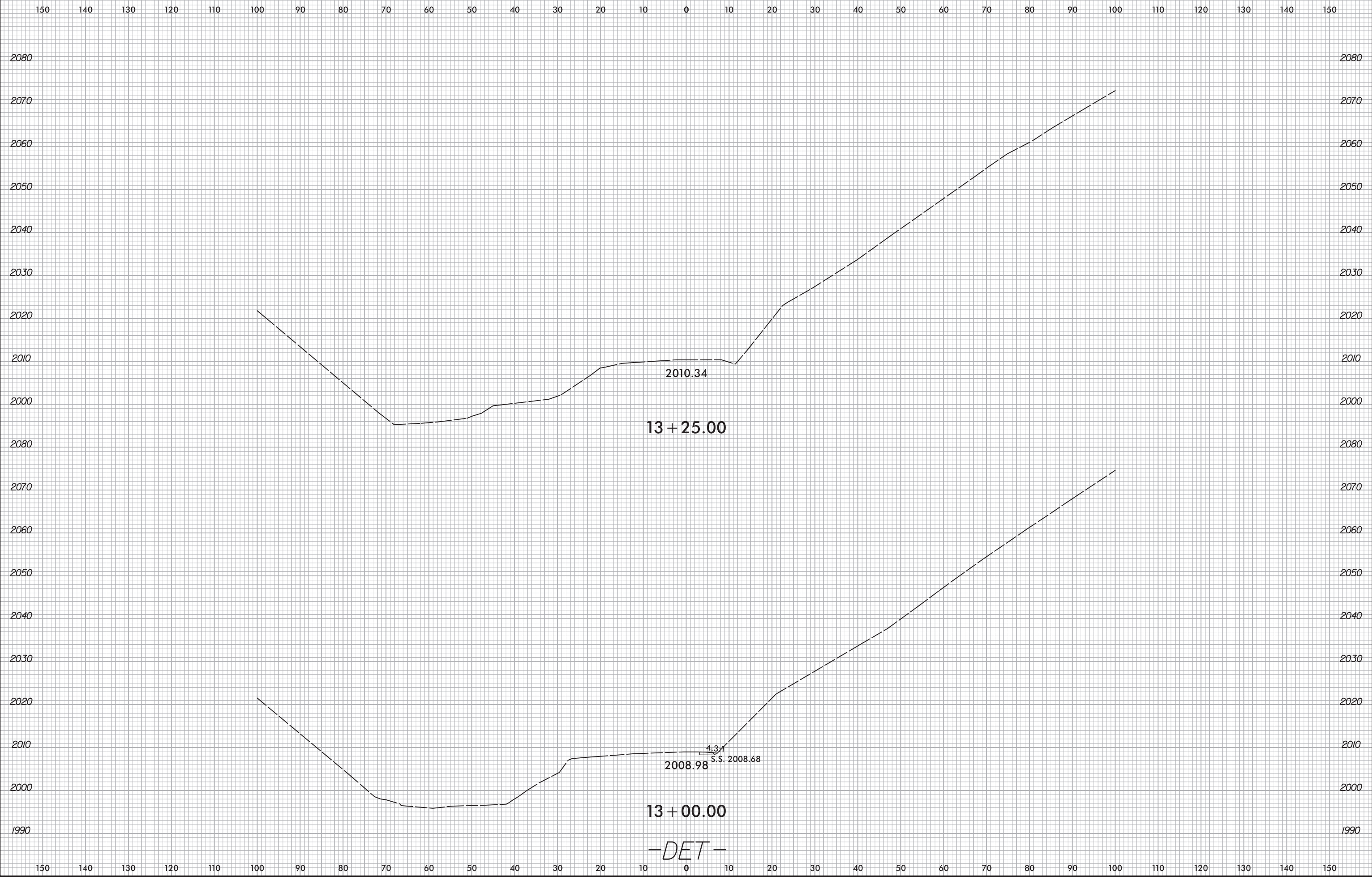
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 User:rsme1vm

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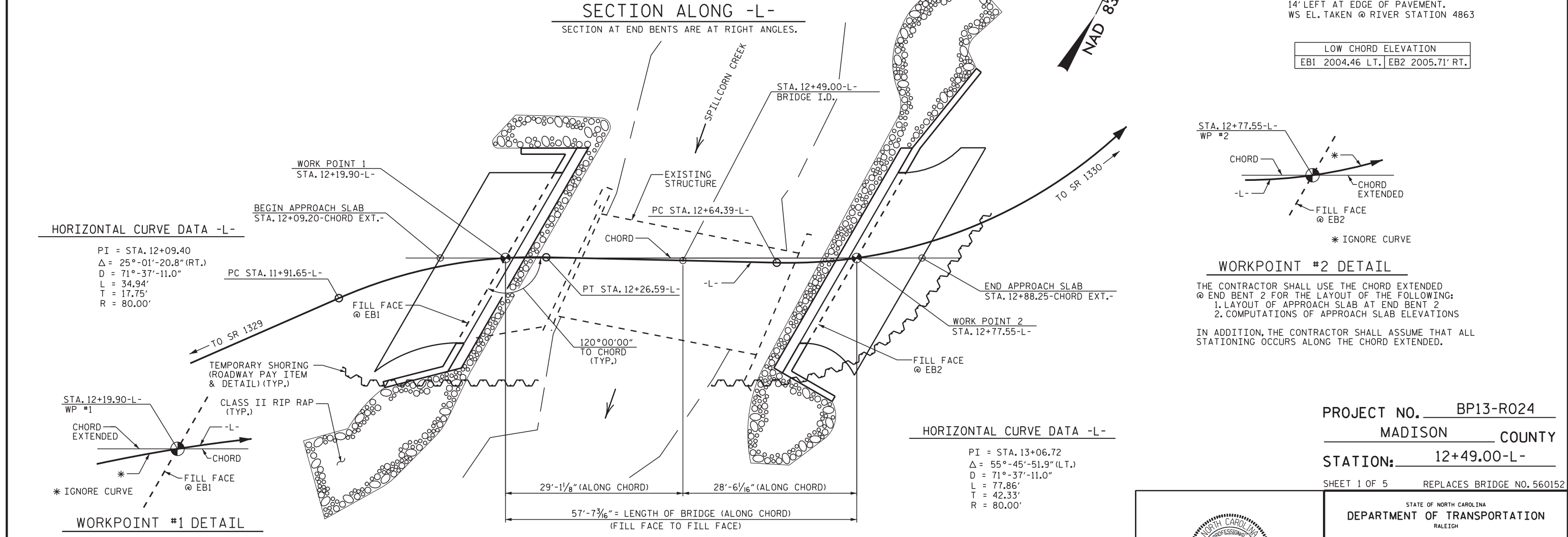
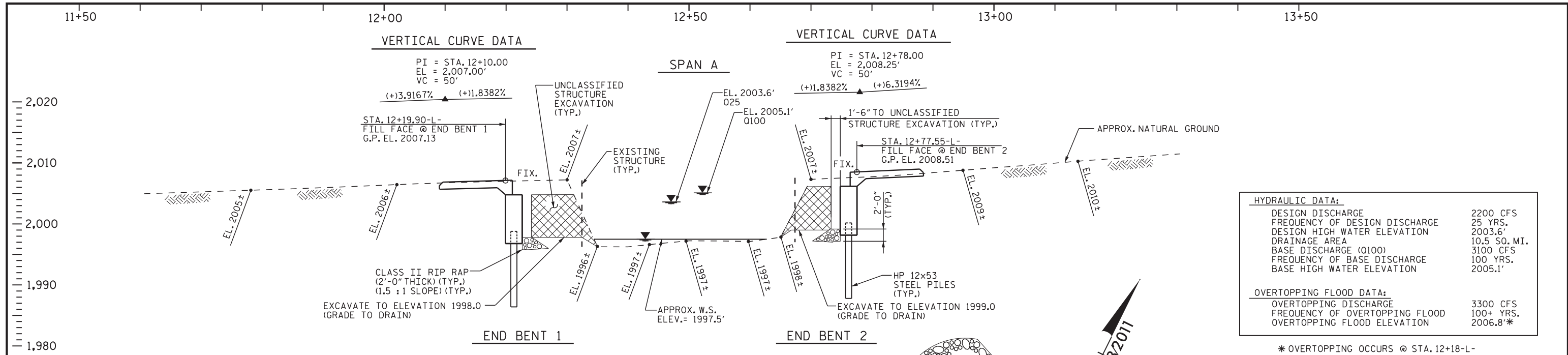
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PROJ. REFERENCE NO.	SHEET NO.
BP13-R024	X-17



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User:rsmeivm



PROJECT NO. BP13-R024
MADISON COUNTY
STATION: 12+49.00-L-
SHEET 1 OF 5 REPLACES BRIDGE NO. 560152

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER SPILLCORN CREEK
ON SR 1329 AND SR 1330

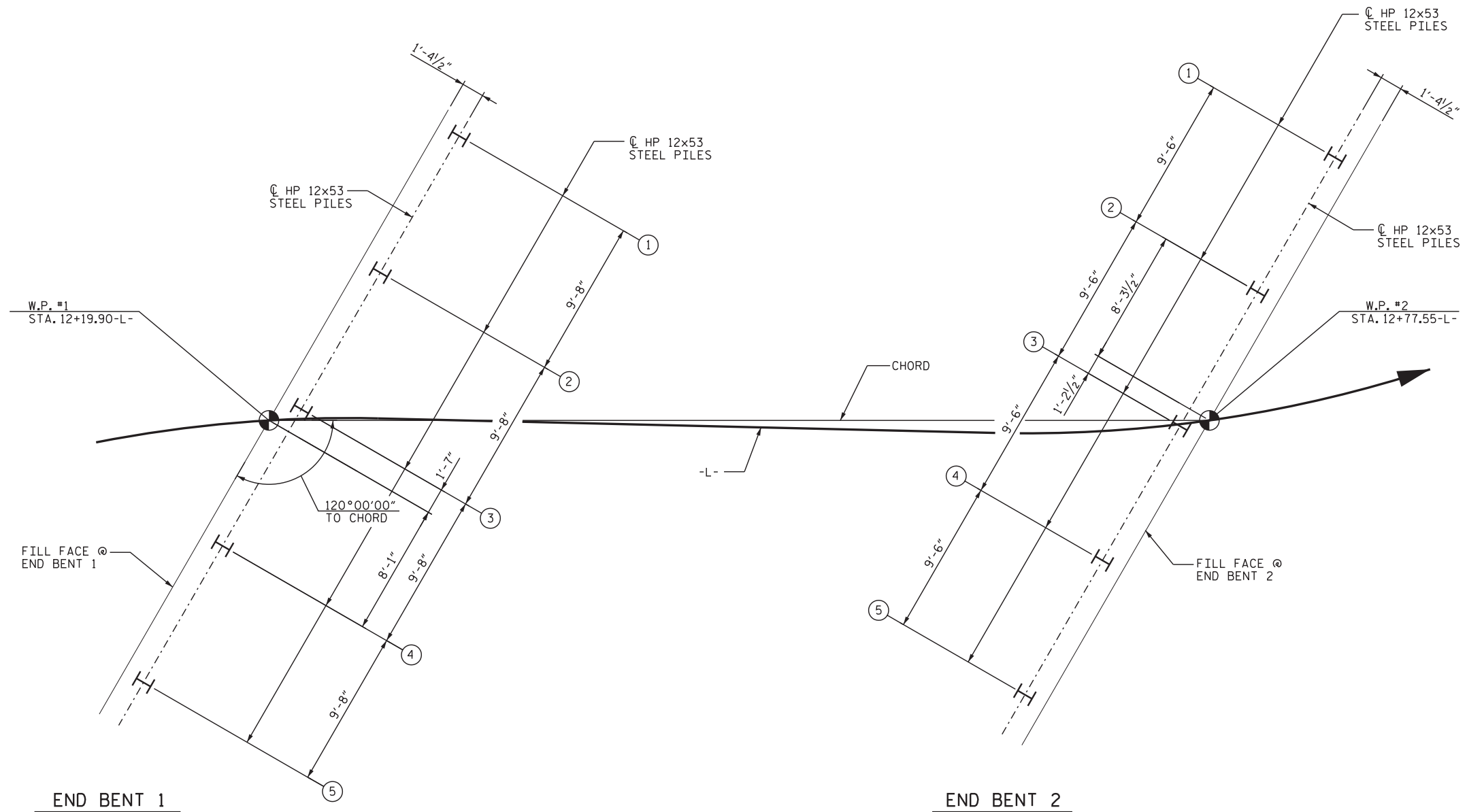
6/21/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

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

DRAWN BY : NMW DATE : 1/23
CHECKED BY : MGC DATE : 3/23



FOUNDATION LAYOUT PLAN

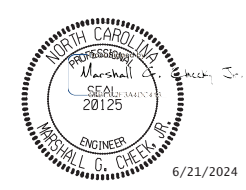
ALL END BENT PILES ARE HP 12x53 STEEL PILES. DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES. ORIENT PILES AS SHOWN.

FOUNDATION RECOMMENDATION NOTES

- FOR PILES, SEE PILE PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.
- INSTALL PILES AT END BENT 1 TO A MINIMUM TIP ELEVATION OF 1984.5 FEET OR A MINIMUM PENETRATION OF 9.0 FEET INTO WEATHERED ROCK AND / OR CRYSTALLINE ROCK, WHICHEVER IS DEEPER.
- INSTALL PILES AT END BENT 2 TO A MINIMUM TIP ELEVATION OF 1987.0 FEET OR A MINIMUM PENETRATION OF 9.0 FEET INTO WEATHERED ROCK AND / OR CRYSTALLINE ROCK, WHICHEVER IS DEEPER.
- FILL HOLES FOR PILE EXCAVATION AT END BENT 1 AND END BENT 2 WITH CONCRETE.

PROJECT NO. BP13-R024
MADISON COUNTY
 STATION: 12+49.00-L-

SHEET 2 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER SPILLCORN CREEK
 ON SR 1318 BETWEEN
 SR 1329 AND SR 1330

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED						REVISIONS			SHEET NO.			
TGS ENGINEERS 201 W. MARION ST STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275						NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
						1			3			TOTAL SHEETS
						2			4			18

DRAWN BY : NMW DATE : 1/23
 CHECKED BY : MGC DATE : 3/23

SUMMARY OF PILE INFORMATION/INSTALLATION
(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

End Bent/ Bent No. Pile(s) *-* (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling For Piles *			Drilled-in-Piles		
					Min. Pile Tip (Tip No Higher Than) Elev. FT	Required Driving Resistance (RDR)* * per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Exc Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile LIN FT	Pile Exc In Soil per Pile LIN FT
End Bent 1, Piles 1-5	95	SEE END BENT SHEETS	15			160					1984.5	9.0	3.0
End Bent 2, Piles 1-3 (Rock)	97		15			165					1987.0	10.9	
End Bent 2, Piles 4-5 (WR)	97		15			165					1987.0	10.9	

SUMMARY OF DPT / PILE ORDER LENGTHS
(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

Dynamic Pile Testing (DPT)				Pile Order Lengths	
End Bent/ Bent No.	DPT Required? YES or MAYBE	DPT Test Pile Length FT	DPT Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis * EST or DPT
End Bent 1, Piles 1-5					
End Bent 2, Piles 1-5					

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

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

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

PILE DESIGN INFORMATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

End Bent/ Bent No. Pile(s) *-* (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load * per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-5	95			0.60			1.00
End Bent 2, Piles 1-5	97			0.60			1.00

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

SUMMARY OF PILE ACCESSORIES

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

End Bent/ Bent No. Pile(s) *-* (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates Required? YES or MAYBE	Steel Pile Points			Steel Pile Tips Required? YES
		Pipe Pile Cutting Shoes Required? YES	Pipe Pile Conical Points Required? YES	H-Pile Points Required? YES	
End Bent 1, Piles 1-5					
End Bent 2, Piles 1-5					
TOTAL QUANTITY:					

NOTES:

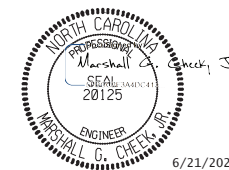
- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Robert E. Kral, 042642) on 07/17/2023.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, ie., the number of piles with a Required Driving Resistance.
- The Engineer will determine the need for Dynamic Pile Testing and Pipe Pile Plates when DPT's or Plates may be required.

PROJECT NO. BP13-R024

MADISON COUNTY

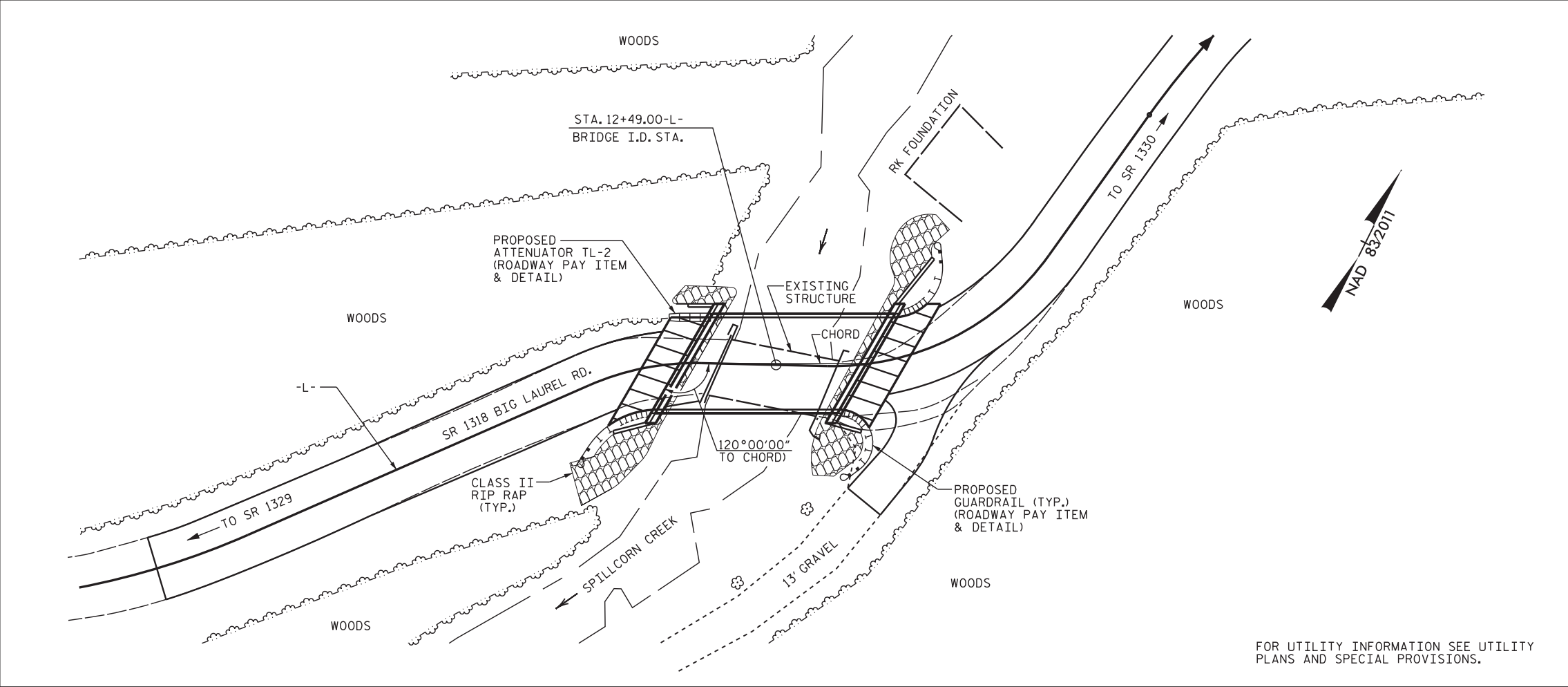
STATION: 12+49.00-L-

SHEET 3 OF 5

	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH	
	PILE FOUNDATION TABLES	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
TGS ENGINEERS 201 W. MARION ST STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275		
REVISIONS		SHEET NO.
NO.	BY:	DATE:
1		
2		
3		
4		
S-3		TOTAL SHEETS
18		

DRAWN BY : NMW DATE : 1/23
CHECKED BY : MGC DATE : 7/23

BENCH MARK #1: RR SPIKE SET IN BASE OF 36" SYCAMORE; 40.0' RT. OF STA. 10+46.83-L- ; ELEV. = 1998.20'



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE STANDARD NOTES SHEET SN.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR THE DISTANCE OF 20 FT. (LT.) AND 30 FT. (RT.) @ END BENT 1 AND 30 FT. (LT.) AND 25 FT. (RT.) @ END BENT 2 EACH SIDE OF THE CENTERLINE OF THE BRIDGE 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.
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL MAY CONTAIN LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM THE 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 STA. 12+49.00-L-."

THE EXISTING SINGLE SPAN STRUCTURE (1 @ 36'-6") ON A TIMBER FLOOR ON SALVAGED I-BEAMS AND A SUBSTRUCTURE CONSISTING OF RUBBLE MASONRY (WIDENED), SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THIS LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITIES ON ROADWAY PLANS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR ASBESTOS ASSESMENT, SEE SPECIAL PROVISIONS.
 FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

PROJECT NO. BP13-R024
MADISON COUNTY
 STATION: 12+49.00-L-
 SHEET 4 OF 5

		STATE OF NORTH CAROLINA		SHEET NO. S-4	
		DEPARTMENT OF TRANSPORTATION RALEIGH			
TGS ENGINEERS 201 W. MARION ST STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275		GENERAL DRAWING FOR BRIDGE OVER SPILLCORN CREEK ON SR 1318 BETWEEN SR 1329 AND SR 1330		TOTAL SHEETS 18	
		REVISIONS			
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY : NMW DATE : 1/23
 CHECKED BY : MGC DATE : 2/23

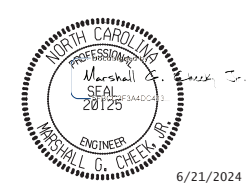
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TOTAL BILL OF MATERIAL

ITEM	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS "A" CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 x 53 STEEL PILES	HP 12x53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP, CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LUMP SUM	C.Y.	LUMP SUM	LBS.		NO.	LIN. FT.	LIN. FT.	TONS	S.Y.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE												110.00				10	550.00
END BENT 1			15.00	45.00	LUMP SUM	44.8		5,180	5	5	75		200	220			
END BENT 2				54.50	LUMP SUM	46.2		5,562	5	5	75		170	190			
TOTALS	LUMP SUM	LUMP SUM	15.00	99.50	LUMP SUM	91.0	LUMP SUM	10,742	10	10	150	110.00	370	410	LUMP SUM	10	550.00

PROJECT NO. BP13-R024
MADISON COUNTY
 STATION: 12+49.00-L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER SPILLCORN CREEK
 ON SR 1318 BETWEEN
 SR 1329 AND SR 1330

DOCUMENT NOT CONSIDERED FINAL
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TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

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

DRAWN BY : NMW DATE : 1/23
 CHECKED BY : MGC DATE : 6/23

8/26/21

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	1	1.163	-	1.75	0.249	1.36	55'	EL	26.923	0.659	1.21	55'	EL	10.769	0.80	0.249	1.16	55'	EL	26.923		
	HL-93 (OPERATING)	N/A		1.564	-	1.35	0.249	1.76	55'	EL	26.923	0.659	1.56	55'	EL	10.769	N/A	-	-	-	-	-		
	HS-20 (INVENTORY)	36.000	2	1.424	51.265	1.75	0.249	1.70	55'	EL	26.923	0.659	1.42	55'	EL	10.769	0.80	0.249	1.46	55'	EL	26.923		
	HS-20 (OPERATING)	36.000		1.846	66.455	1.35	0.249	2.20	55'	EL	26.923	0.659	1.85	55'	EL	10.769	N/A	-	-	-	-	-		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.057	41.264	1.4	0.249	4.46	55'	EL	26.923	0.659	3.96	55'	EL	10.769	0.80	0.249	3.06	55'	EL	26.923	
		SNGARBS2	20.000		2.374	47.473	1.4	0.249	3.46	55'	EL	26.923	0.659	2.90	55'	EL	10.769	0.80	0.249	2.37	55'	EL	26.923	
		SNAGRIS2	22.000		2.291	50.392	1.4	0.249	3.34	55'	EL	26.923	0.659	2.72	55'	EL	10.769	0.80	0.249	2.29	55'	EL	26.923	
		SNCOTTS3	27.250		1.524	41.521	1.4	0.249	2.22	55'	EL	26.923	0.659	1.98	55'	EL	10.769	0.80	0.249	1.52	55'	EL	26.923	
		SNAGGRS4	34.925		1.310	45.740	1.4	0.249	1.91	55'	EL	26.923	0.659	1.71	55'	EL	10.769	0.80	0.249	1.31	55'	EL	26.923	
		SNS5A	35.550		1.278	45.439	1.4	0.249	1.86	55'	EL	26.923	0.659	1.76	55'	EL	10.769	0.80	0.249	1.28	55'	EL	26.923	
		SNS6A	39.950		1.189	47.481	1.4	0.249	1.73	55'	EL	26.923	0.659	1.63	55'	EL	10.769	0.80	0.249	1.19	55'	EL	26.923	
	SNS7B	42.000		1.132	47.562	1.4	0.249	1.65	55'	EL	26.923	0.659	1.64	55'	EL	10.769	0.80	0.249	1.13	55'	EL	26.923		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.454	47.984	1.4	0.249	2.12	55'	EL	26.923	0.659	1.92	55'	EL	10.769	0.80	0.249	1.45	55'	EL	26.923	
		TNT4A	33.075		1.465	48.451	1.4	0.249	2.14	55'	EL	26.923	0.659	1.85	55'	EL	10.769	0.80	0.249	1.46	55'	EL	26.923	
		TNT6A	41.600		1.213	50.478	1.4	0.249	1.77	55'	EL	26.923	0.659	1.81	55'	EL	10.769	0.80	0.249	1.21	55'	EL	26.923	
		TNT7A	42.000		1.228	51.576	1.4	0.249	1.79	55'	EL	26.923	0.659	1.67	55'	EL	10.769	0.80	0.249	1.23	55'	EL	26.923	
		TNT7B	42.000		1.282	53.827	1.4	0.249	1.87	55'	EL	26.923	0.659	1.58	55'	EL	10.769	0.80	0.249	1.28	55'	EL	26.923	
		TNAGRIT4	43.000		1.213	52.158	1.4	0.249	1.77	55'	EL	26.923	0.659	1.52	55'	EL	10.769	0.80	0.249	1.21	55'	EL	26.923	
TNAGT5A		45.000		1.136	51.134	1.4	0.249	1.66	55'	EL	26.923	0.659	1.55	55'	EL	10.769	0.80	0.249	1.14	55'	EL	26.923		
TNAGT5B	45.000	3	1.116	50.224	1.4	0.249	1.63	55'	EL	26.923	0.659	1.44	55'	EL	10.769	0.80	0.249	1.12	55'	EL	26.923			
EMERGENCY VEHICLE (EV)	EV2	28.750		1.642	47.205	1.3	0.249	2.62	55'	EL	29.620	0.659	1.64	55'	EL	5.420	0.80	0.249	1.78	55'	EL	26.923		
	EV3	43.000	4	1.111	47.752	1.3	0.249	1.70	55'	EL	26.920	0.659	1.11	55'	EL	5.420	0.80	0.249	1.16	55'	EL	26.923		

LOAD FACTORS:

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

NOTES:
 MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
 ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:
 1.
 2.
 3.
 4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

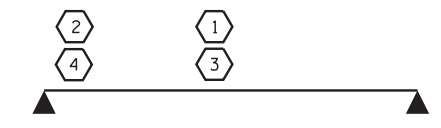
3 LEGAL LOAD RATING **

4 EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY
 FOR SPAN " A "

PROJECT NO. BP13-R024
MADISON COUNTY
 STATION: 12+49.00 -L-

ASSEMBLED BY: ZCS DATE: 6/23
 CHECKED BY: MGC DATE: 7/23
 DRAWN BY: MAA 1/08 REV. 11/2/08RRR MAA/GM
 CHECKED BY: GM/DI 2/08 REV. 10/1/11 MAA/GM
 REV. 04/23 BNS/BAJ

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 55' CORED SLAB UNIT
 60° SKEW & 120° SKEW
 (NON-INTERSTATE TRAFFIC)

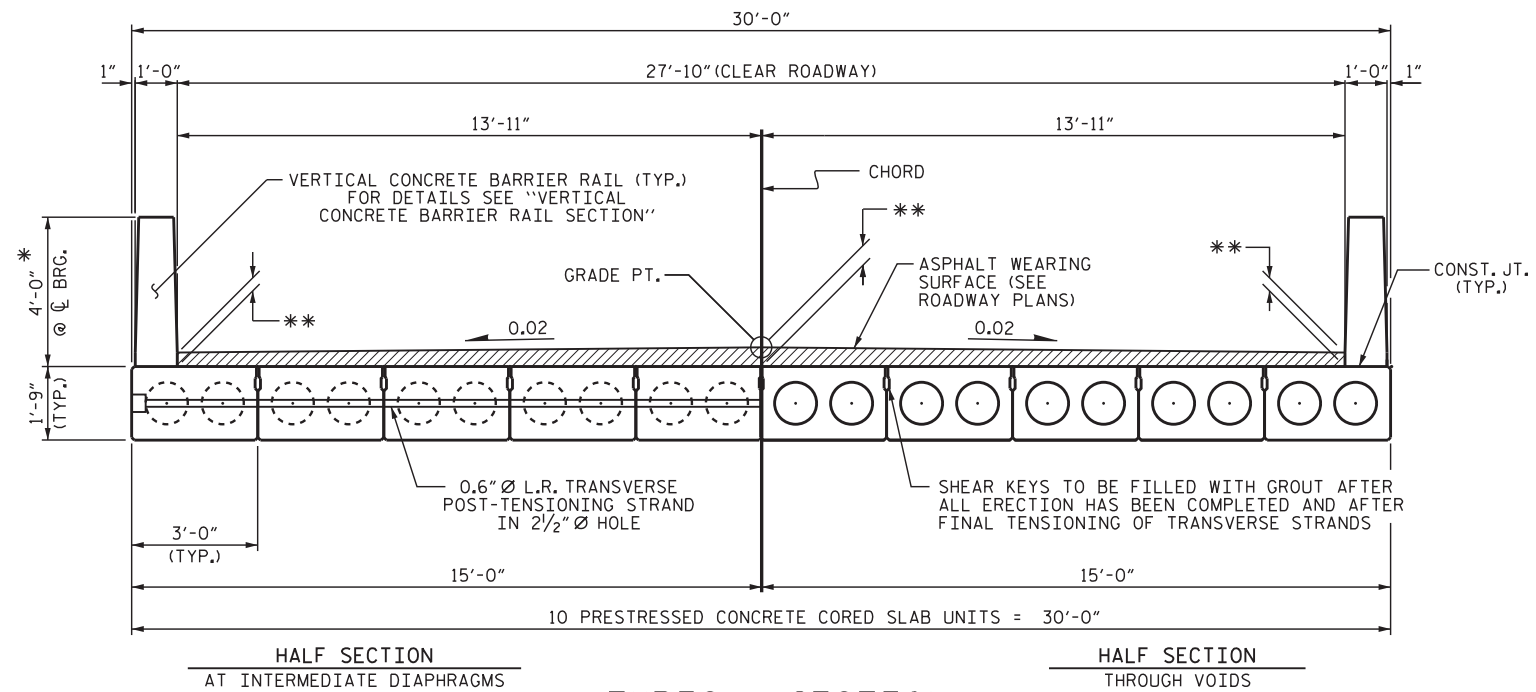
6/21/2024

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

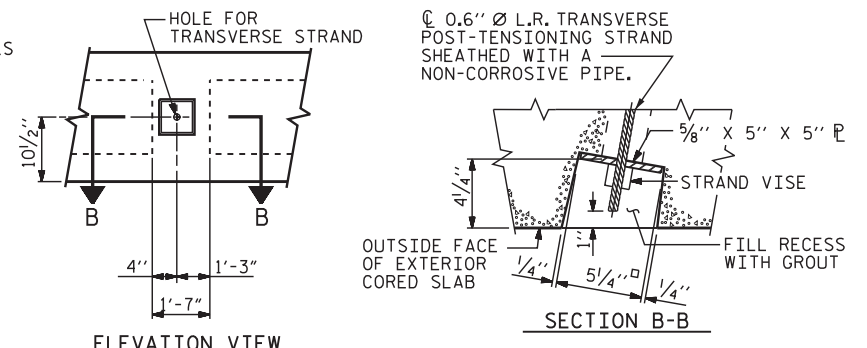
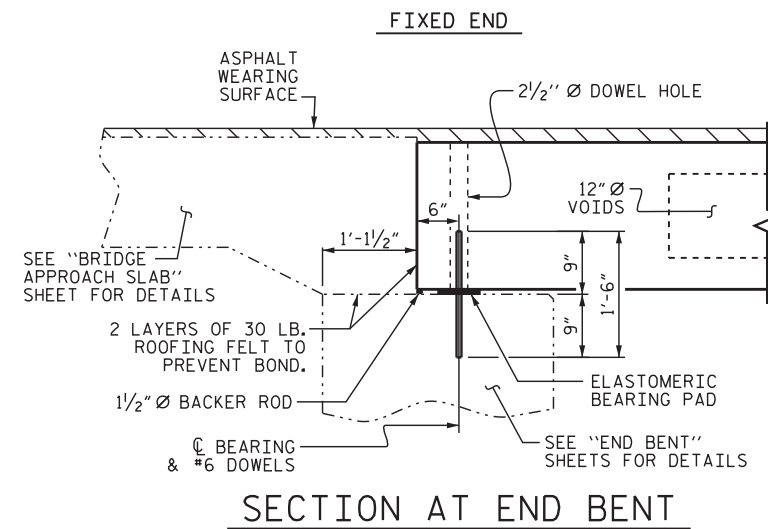
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS 18
2			4			

*****SYTIME*****
 *****DCN*****
 *****USER*****

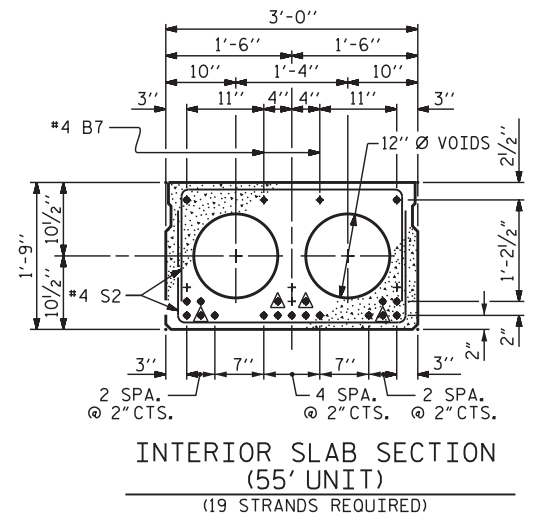


* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

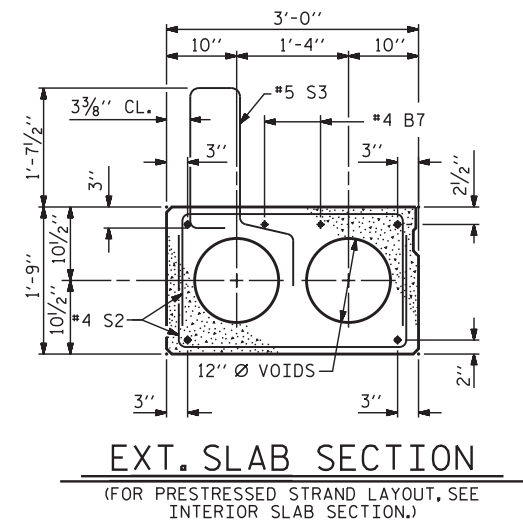
ASPHALT WEARING SURFACE THICKNESS TABLE						
BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS						
SPAN A	** @ CL BEARINGS			** @ MIDSPAN		
	LT. GUTTER	GRADE PT.	RT. GUTTER	LT. GUTTER	GRADE PT.	RT. GUTTER
END BENT 1	4 1/8"	8 3/8"	5 5/8"			
MID SPAN				1 1/2"	6 1/16"	4"
END BENT 2	6"	8 3/8"	4 3/4"			



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

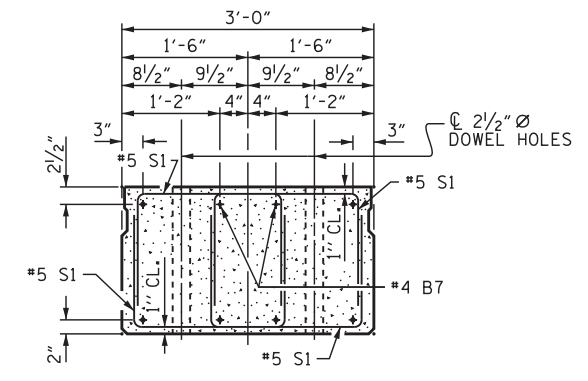


0.6" Ø LOW RELAXATION STRAND LAYOUT

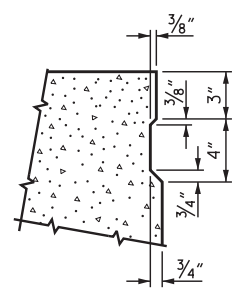
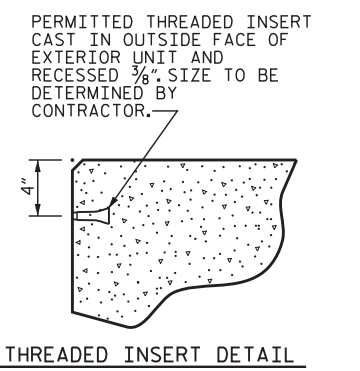


▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



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



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

PROJECT NO. BP13-R024
MADISON COUNTY
STATION: 12+49.00-L-
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

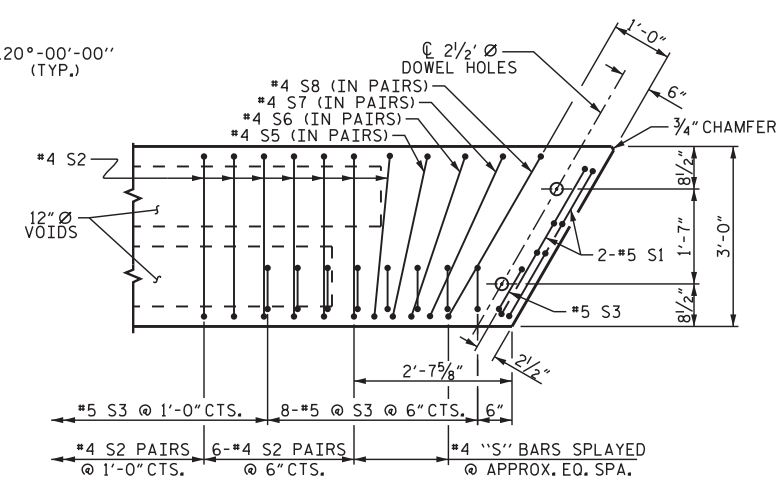
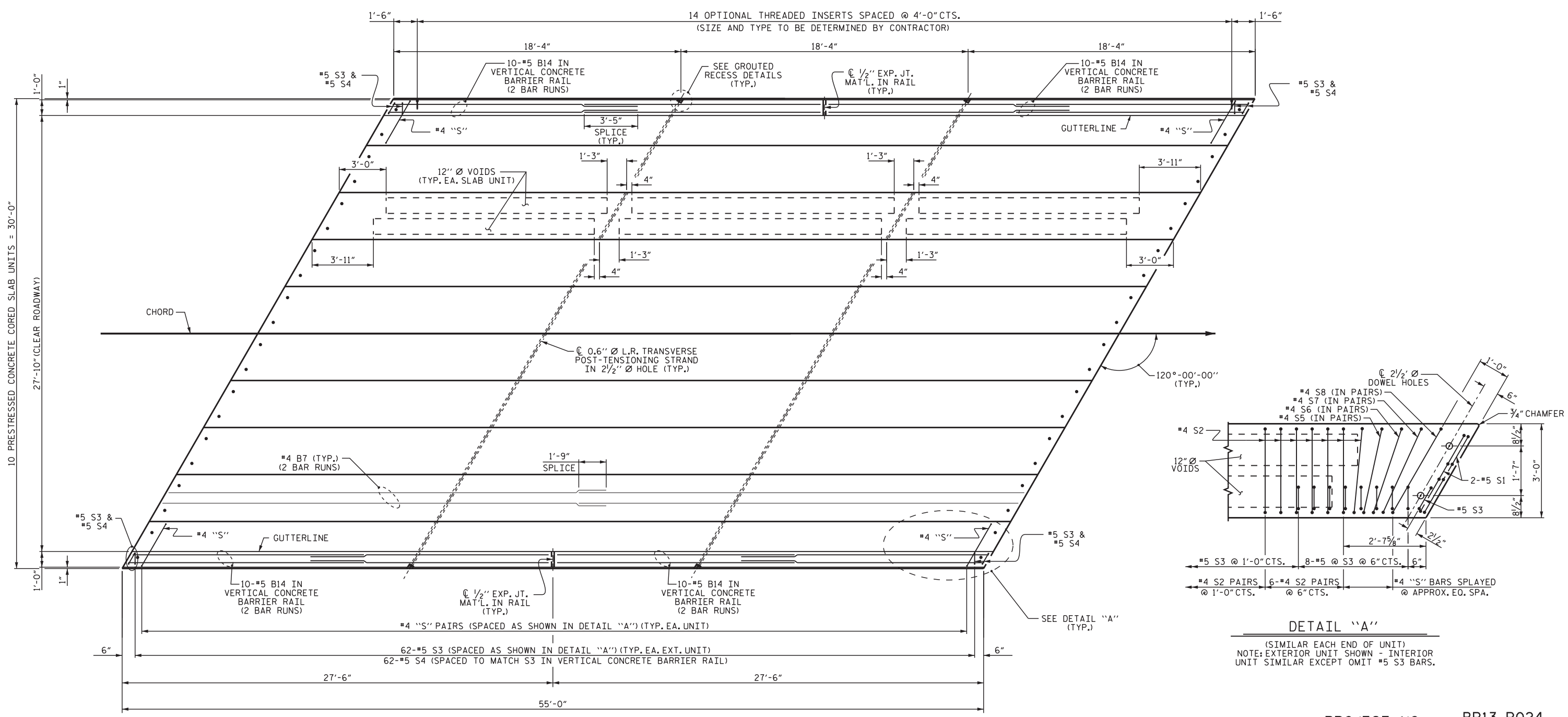
6/21/2024

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TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

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

ASSEMBLED BY :	NMW	DATE :	1/23
CHECKED BY :	MGC	DATE :	2/23
DRAWN BY :	DGE 5/09	REV. 8/14	MAA/TMG
CHECKED BY :	BCH 6/09		

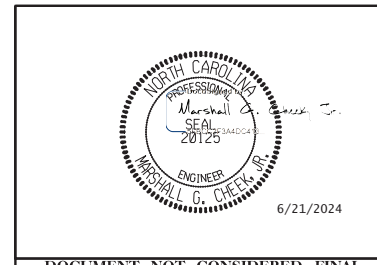


DETAIL "A"
 (SIMILAR EACH END OF UNIT)
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT

PROJECT NO. BP13-R024
MADISON COUNTY
 STATION: 12+49.00-L-

SHEET 2 OF 3



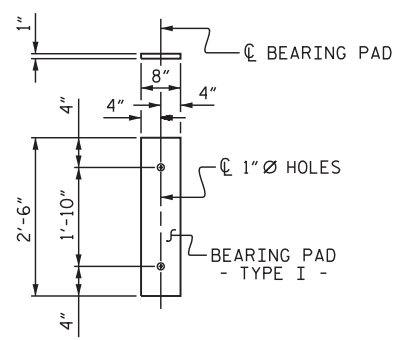
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
PLAN OF 55' UNIT
27'-10" CLEAR ROADWAY
120° SKEW

ASSEMBLED BY :	NMW	DATE :	1/23
CHECKED BY :	MGC	DATE :	2/23
DRAWN BY :	DGE 3/09	REV. 12/5/11	MAA/AAC
CHECKED BY :	BCH 3/09	REV. 8/14	MAA/TMG

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

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



FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

CORED SLABS REQUIRED			
55' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	8	55'-0"	440'-0"
TOTAL	10		550'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL							
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT	
55' UNIT							
*B14	80	80	#5	STR	15'-6"	1293	
*S4	128	128	#5	2	7'-2"	957	
* EPOXY COATED REINFORCING STEEL						LBS.	2250
CLASS AA CONCRETE						CU.YDS.	16.3
TOTAL VERTICAL CONCRETE BARRIER RAIL						LN. FT.	110.00

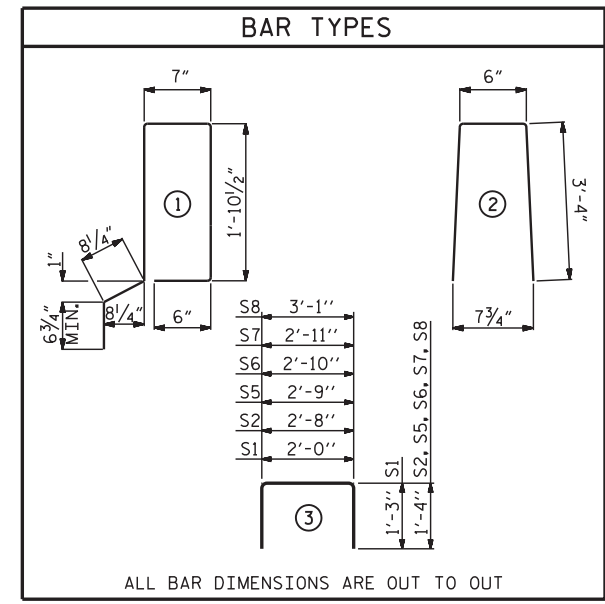
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT				
55' UNITS	ASPHALT OVERLAY THICKNESS @ MID-SPAN		RAIL HEIGHT @ MID-SPAN	
	LEFT GUTTER	RIGHT GUTTER	LEFT GUTTER	RIGHT GUTTER
	1 1/2"	4"	3'-7 1/2"	3'-10"

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

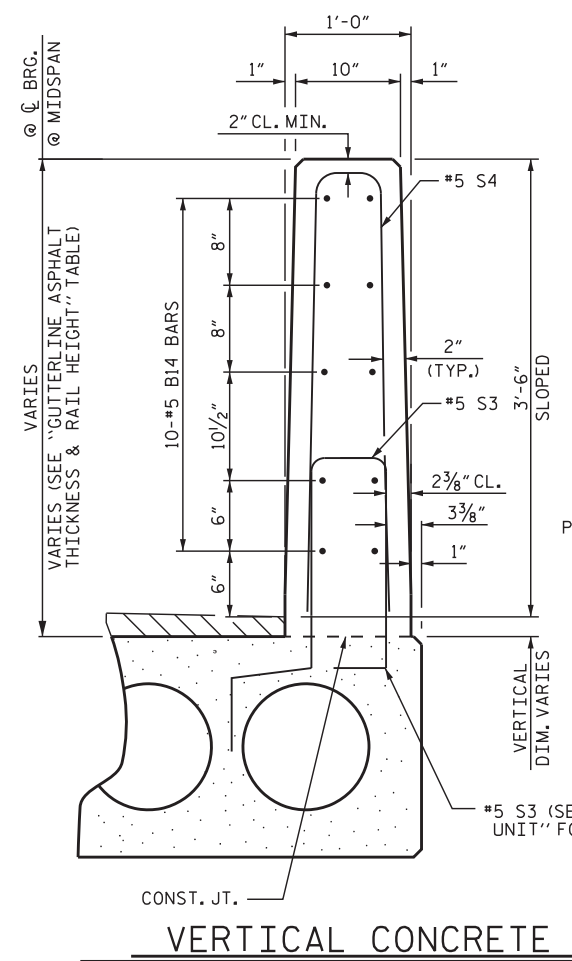
** INCLUDES FUTURE WEARING SURFACE

CONCRETE RELEASE STRENGTH	
UNIT	PSI
55' UNITS	4900

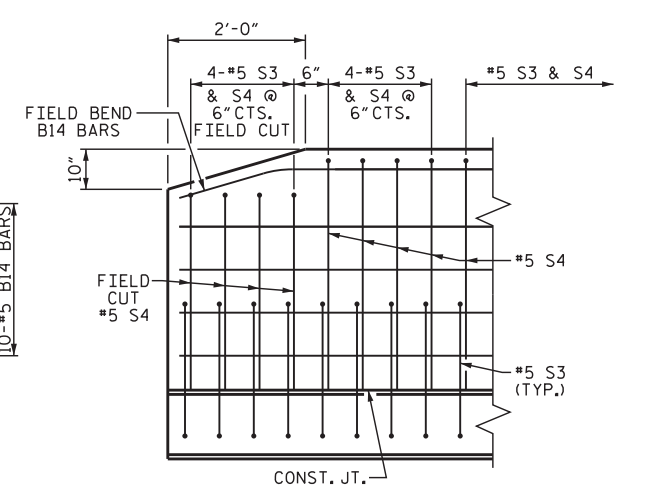
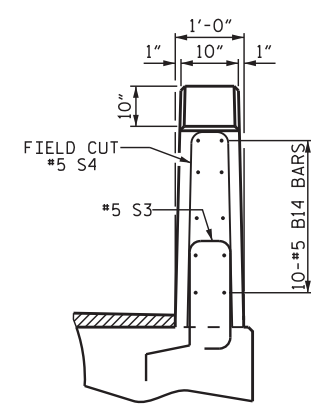
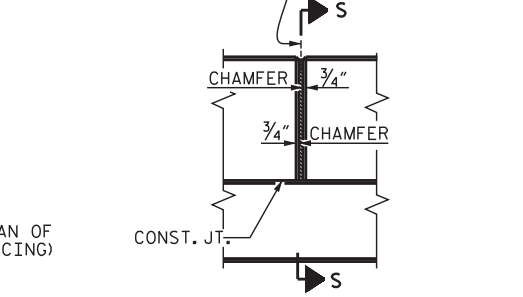
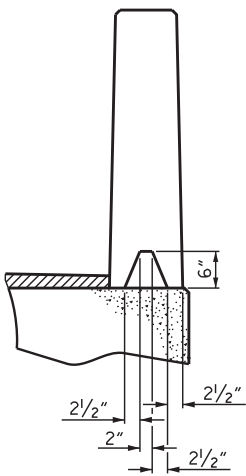
GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-3"	75	28'-3"	75
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	112	#4	3	5'-4"	399	5'-4"	399
*S3	64	#5	1	6'-1"	406		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-7"	15	5'-7"	15
S8	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	571	LBS.	571
* EPOXY COATED REINFORCING STEEL				LBS.	406		
6500 P.S.I. CONCRETE				CU. YDS.	8.0	CU. YDS.	8.0
0.6" Ø L.R. STRANDS				No.	19	No.	19



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED)



END OF RAIL DETAILS

NOTES

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

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

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

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

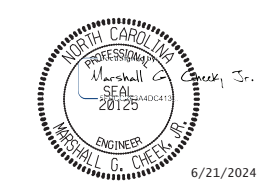
THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

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

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

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

PROJECT NO. BP13-R024
MADISON COUNTY
STATION: 12+49.00-L-
SHEET 3 OF 3



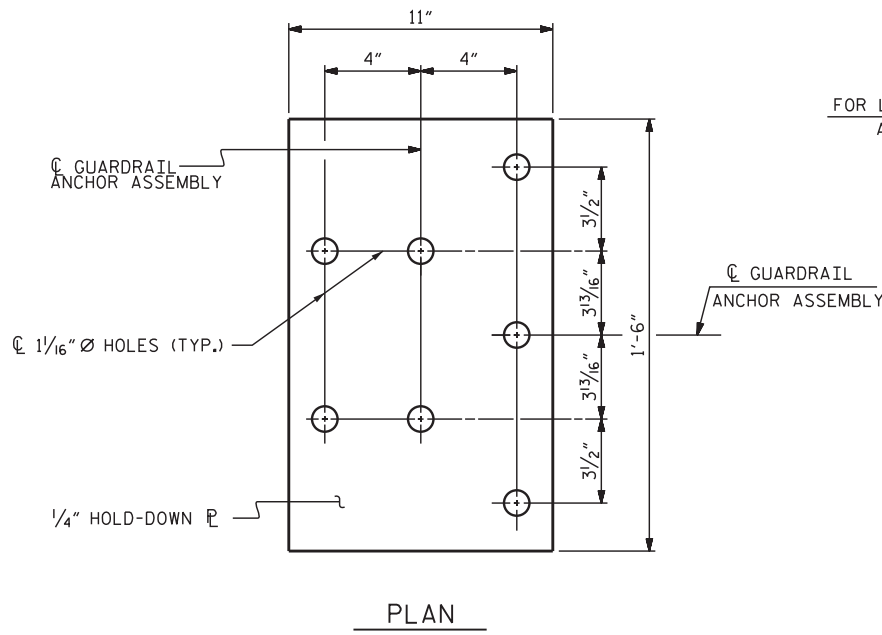
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

ASSEMBLED BY :	NMW	DATE :	1/23
CHECKED BY :	MGC	DATE :	2/23
DRAWN BY :	DGE 5/09	REV. 5/18	MAA/THC
CHECKED BY :	BCH 6/09		

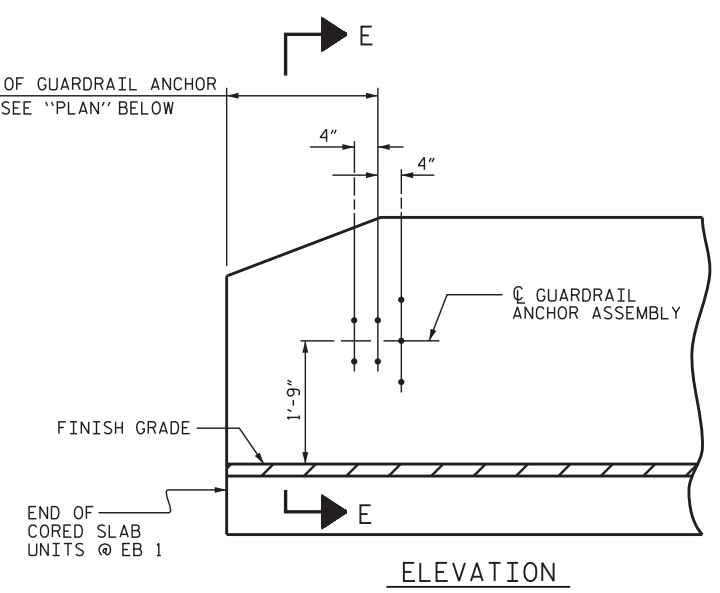
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TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
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CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS 18
2			4			

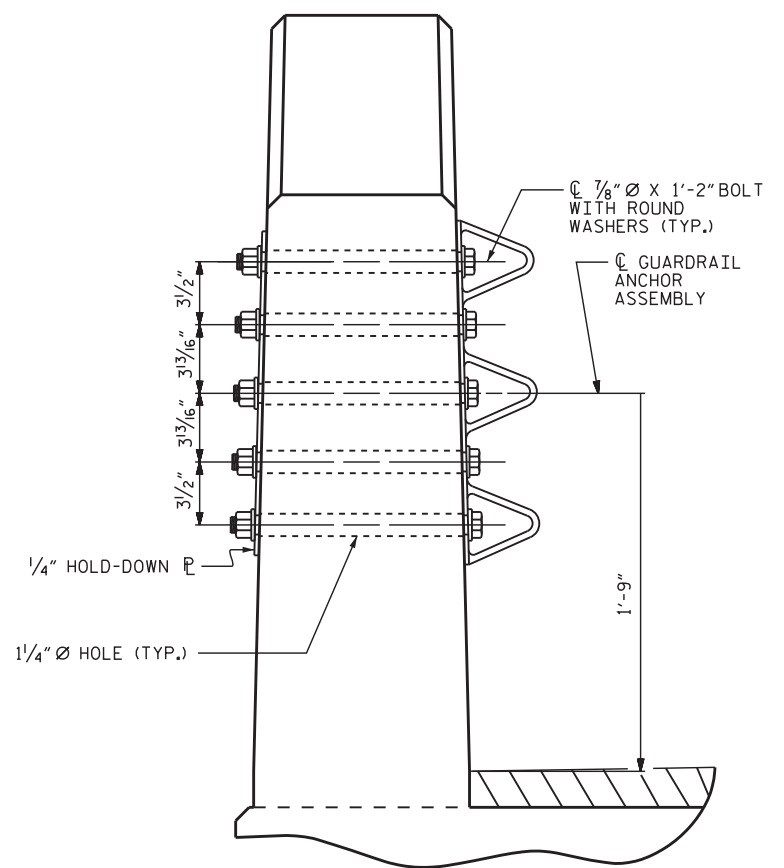


FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

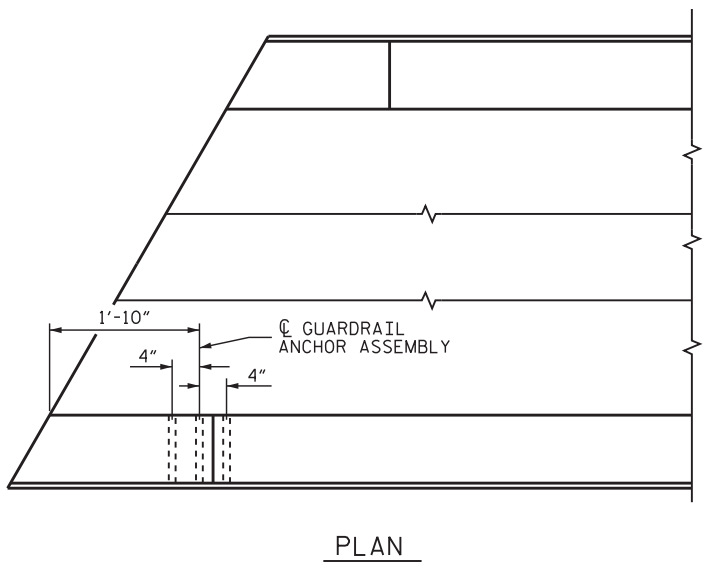


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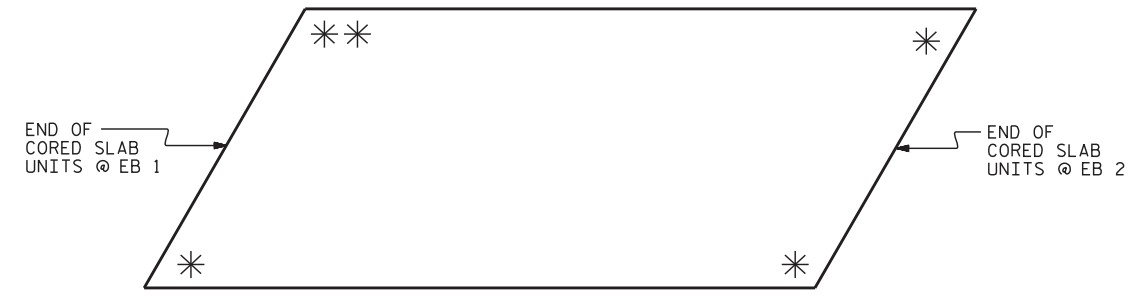
- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- BOLTS SHALL CONFORM TO 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.
- ANCHORAGE OF TRAFFIC ATTENUATOR TO VERTICAL CONCRETE BARRIER RAIL SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND AS DIRECTED BY THE ENGINEER.



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



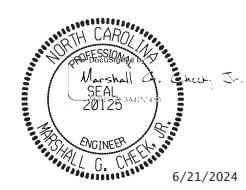
LOCATION OF ANCHORS FOR GUARDRAIL
END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT
** LOCATION OF TRAFFIC ATTENUATOR (ROADWAY PAY ITEM & DETAIL)

PROJECT NO. BP13-R024
MADISON COUNTY
STATION: 12+49.00-L-



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

ASSEMBLED BY : NMW	DATE : 1/23
CHECKED BY : MGC	DATE : 2/23
DRAWN BY : MAA 5/10	REV. 1/15 MAA/TMG
CHECKED BY : GM 5/10	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

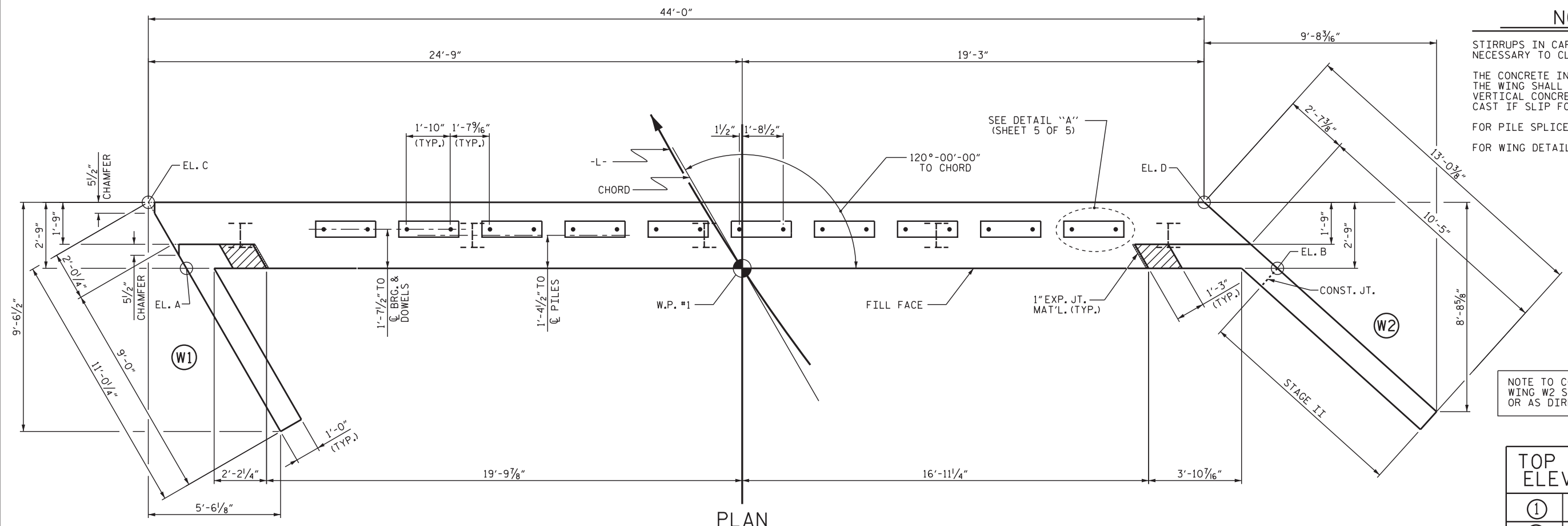
TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

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

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 FOR PILE SPLICE DETAILS, SEE SHEET 5 OF 5.
 FOR WING DETAILS, SEE SHEET 3 OF 5.

NOTE TO CONTRACTOR:
 WING W2 SHALL BE STAGED AS SHOWN OR AS DIRECTED BY THE ENGINEER.



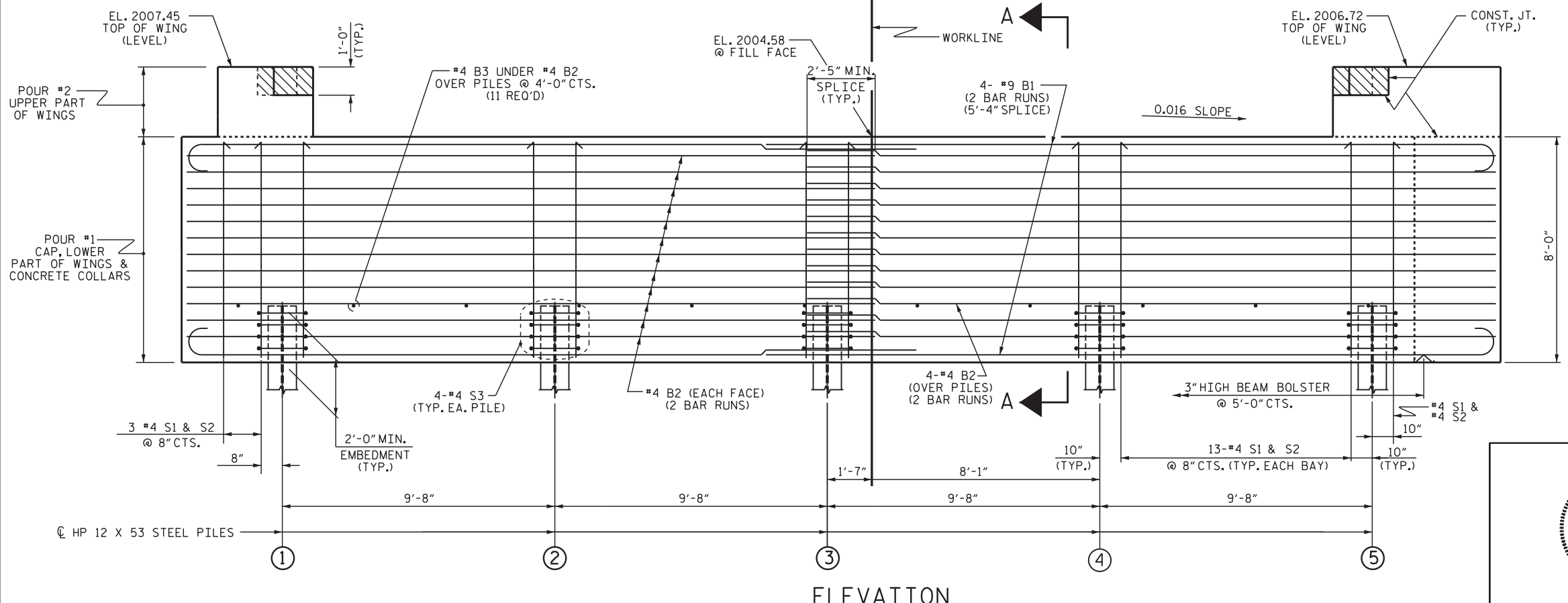
PLAN

TOP OF PILE ELEVATIONS

①	1998.97
②	1998.81
③	1998.66
④	1998.50
⑤	1998.35

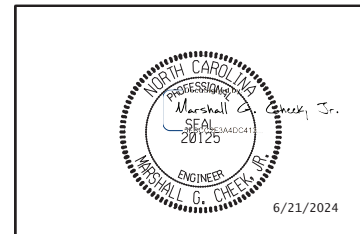
CAP ELEVATIONS

POINTS	TOP OF CAP	BOTTOM OF CAP
A	2004.95	1996.95
B	2004.22	1996.22
C	2005.07	1997.07
D	2004.37	1996.37



ELEVATION

PROJECT NO. BP13-R024
MADISON COUNTY
 STATION: 12+49.00-L-
 SHEET 1 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUBSTRUCTURE
 END BENT 1**

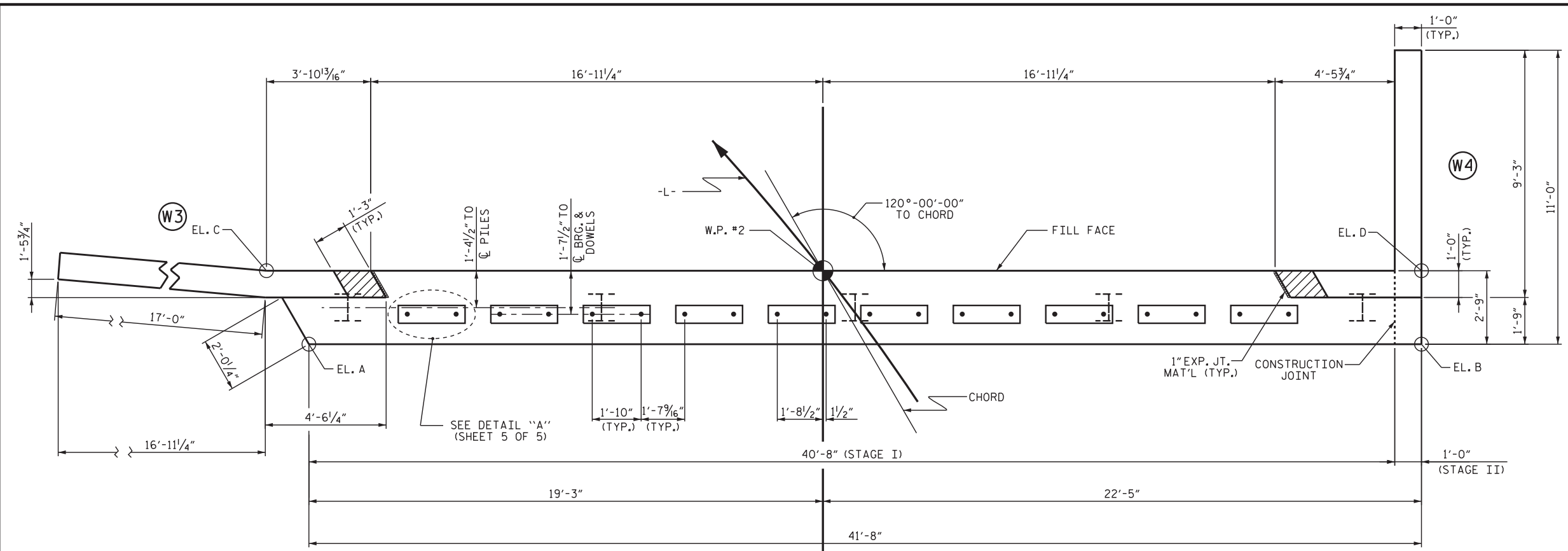
WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 5 OF 5.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 5 OF 5.

DRAWN BY : NMW DATE : 1/23
 CHECKED BY : MGC DATE : 3/23
 DESIGN ENGINEER OF RECORD : MGC DATE : 3/23

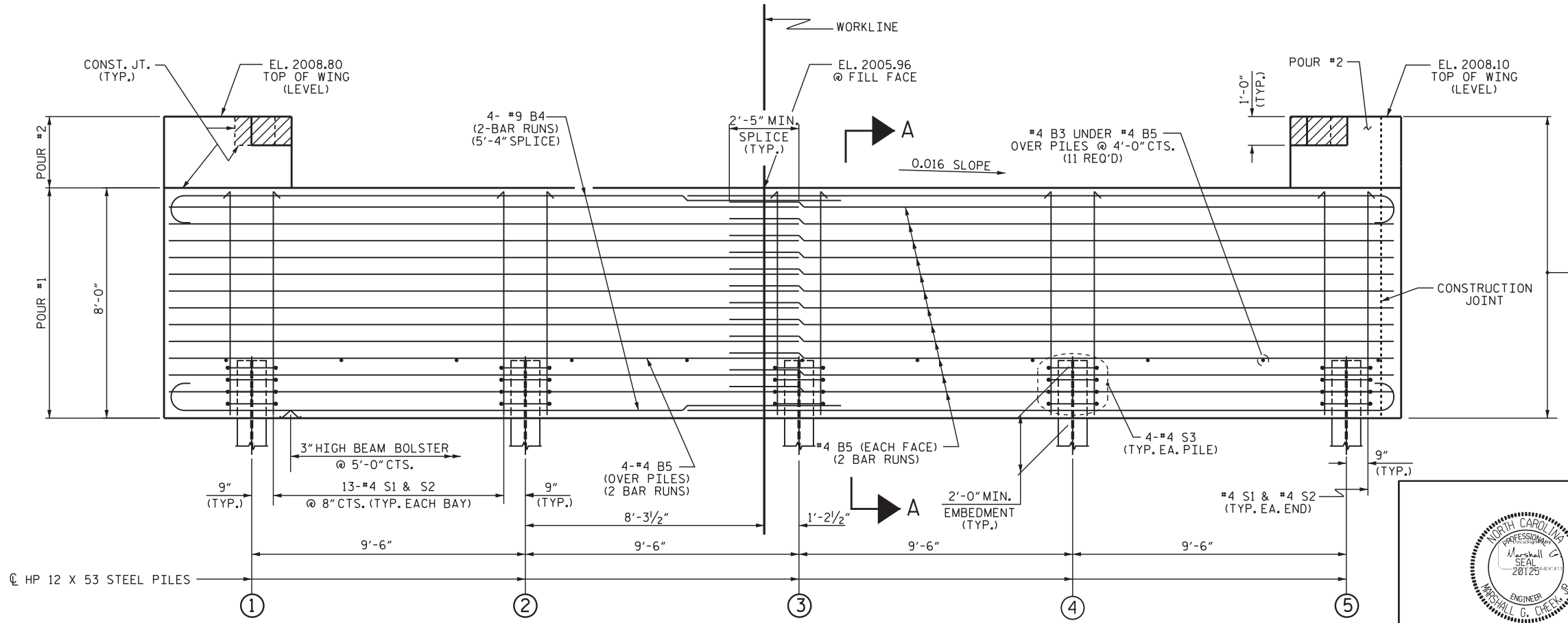
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275



PLAN



ELEVATION

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
- FOR PILE SPLICE DETAILS, SEE SHEET 5 OF 5.
- FOR WING DETAILS, SEE SHEET 4 OF 5.

NOTE TO CONTRACTOR:
END BENT 2 SHALL BE STAGED AS SHOWN OR AS DIRECTED BY THE ENGINEER.

TOP OF PILE ELEVATIONS

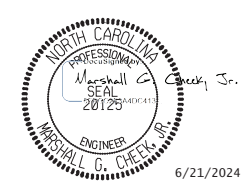
①	2000.21
②	2000.06
③	1999.91
④	1999.76
⑤	1999.61

CAP ELEVATIONS

POINTS	TOP OF CAP	BOTTOM OF CAP
A	2006.21	1998.21
B	2005.54	1997.54
C	2006.30	1998.30
D	2005.60	1997.60

PROJECT NO. BP13-R024
MADISON COUNTY
 STATION: 12+49.00-L-

SHEET 2 OF 5



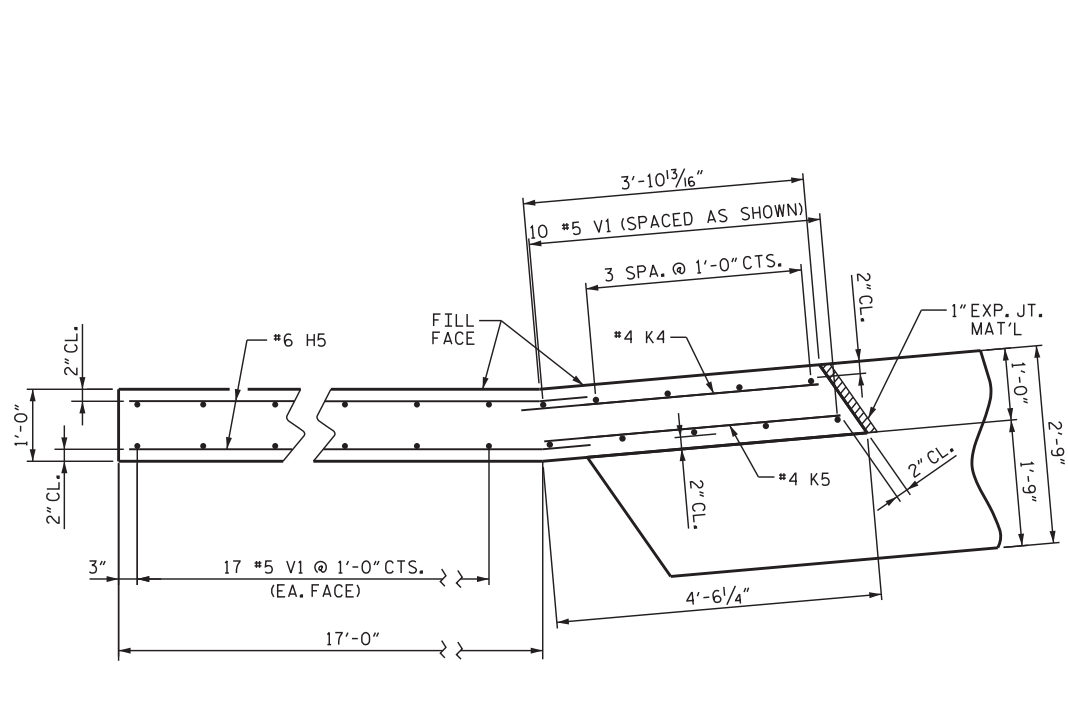
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED						REVISIONS			SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:				
1			3			S-12			
2			4			TOTAL SHEETS 18			

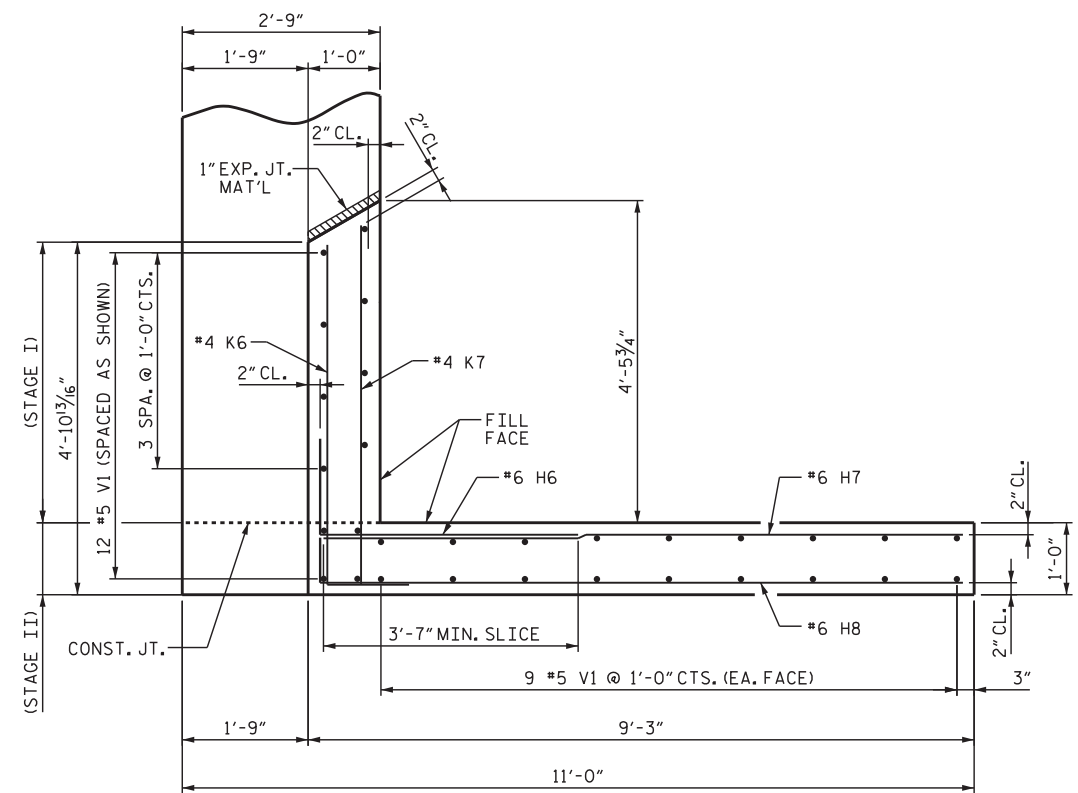
DRAWN BY : NMW DATE : 1/23
 CHECKED BY : MCC DATE : 3/23
 DESIGN ENGINEER OF RECORD : MGC DATE : 3/23

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

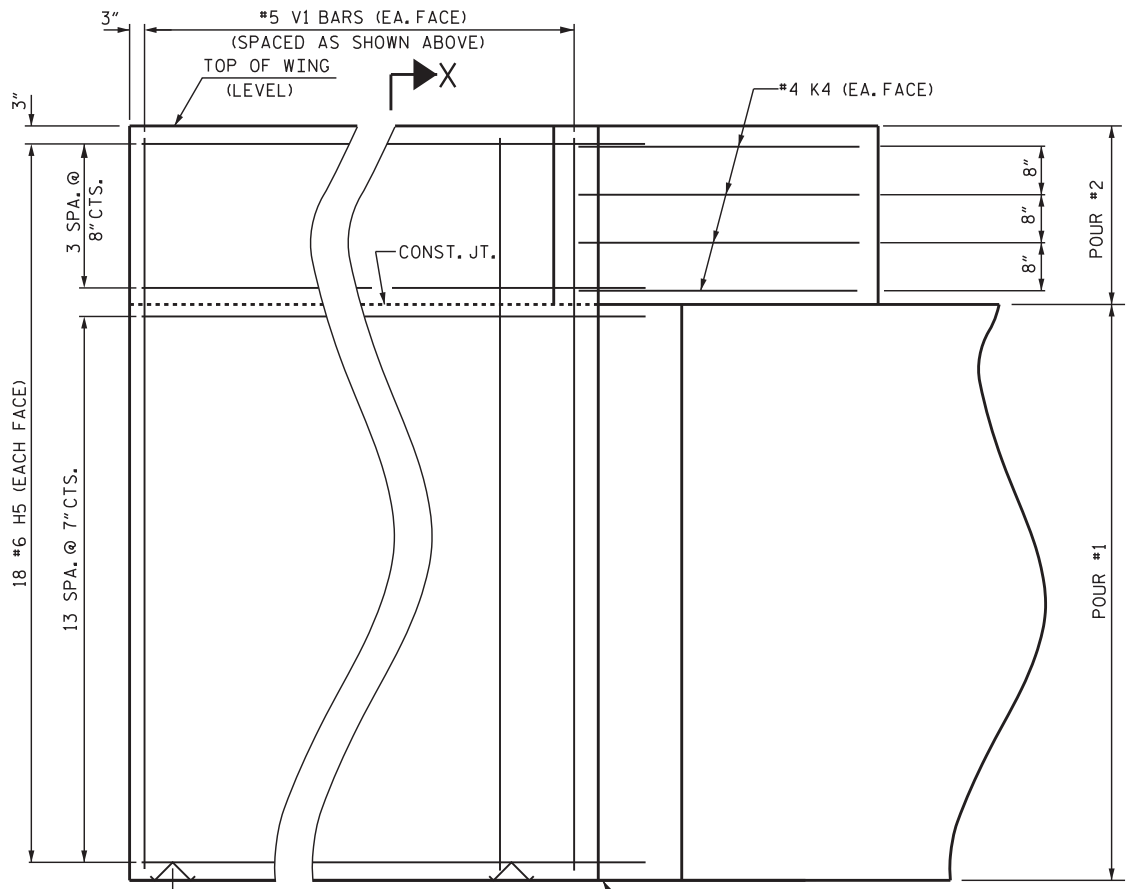
TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275



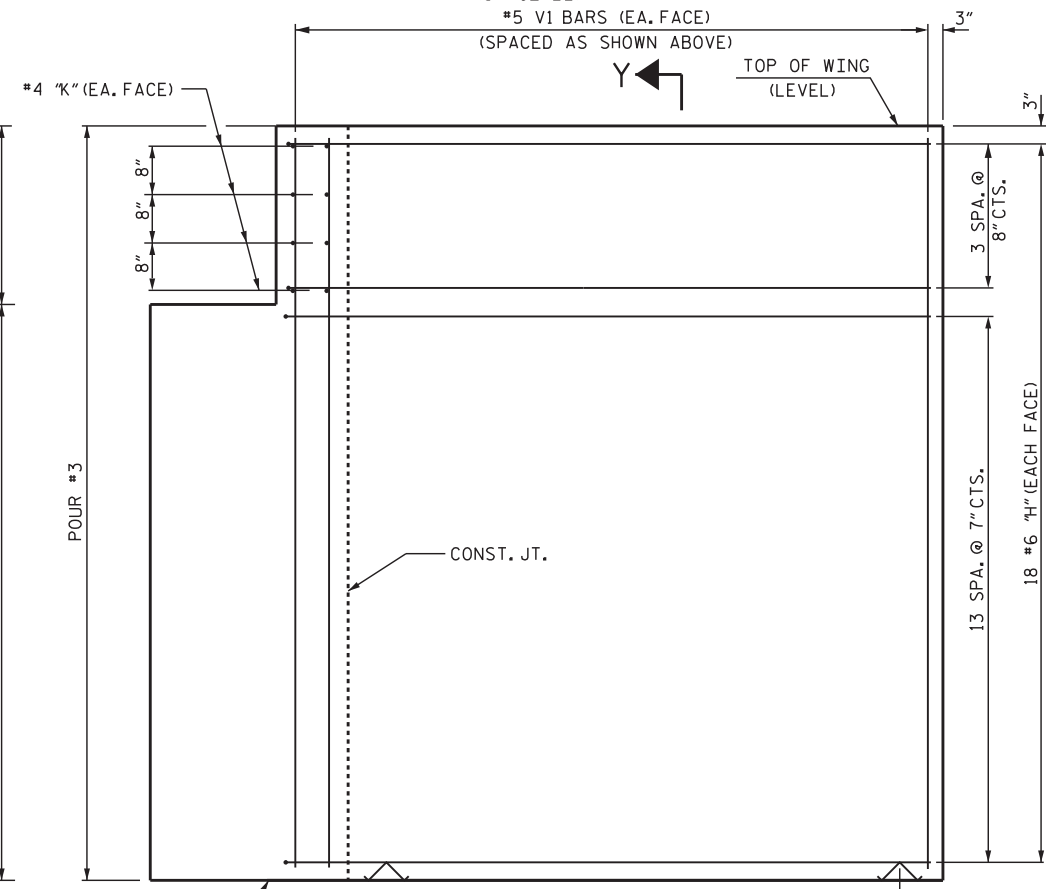
PLAN OF WING (W3)
(STAGE I)



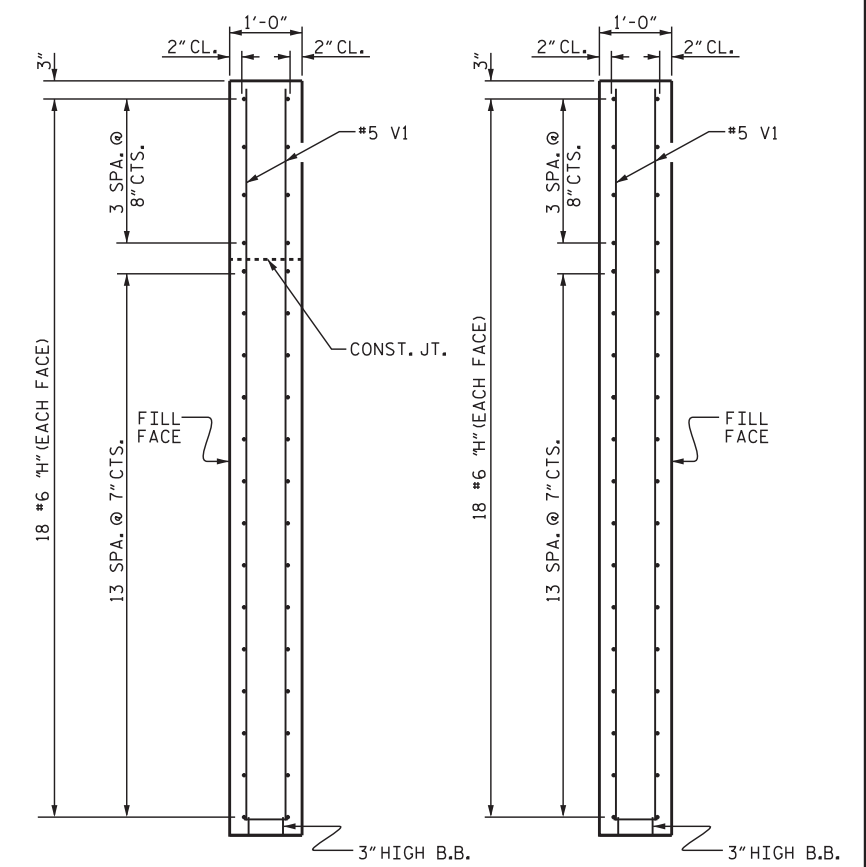
PLAN OF WING (W4)
(STAGE II)



ELEVATION OF WING (W3)
(STAGE I)



ELEVATION OF WING (W4)
(STAGE II)



SECTION X-X **SECTION Y-Y**

DRAWN BY : NMW DATE : 1/23
 CHECKED BY : MGC DATE : 3/23
 DESIGN ENGINEER OF RECORD : MGC DATE : 3/23

NOTE: THE #6 H6 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

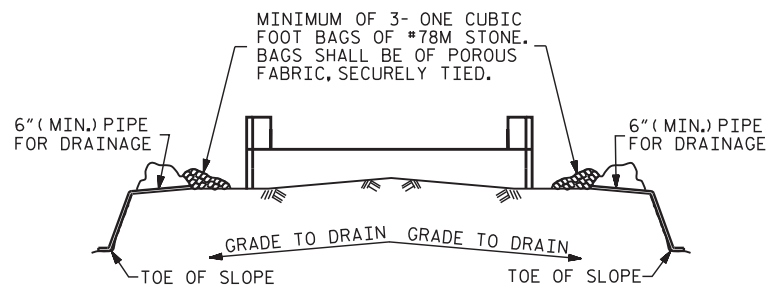
PROFESSIONAL ENGINEER
 Marshall G. Cheek, Jr.
 20125
 6/21/2024

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
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PROJECT NO. BP13-R024
MADISON COUNTY
 STATION: 12+49.00-L-
 SHEET 4 OF 5

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-14
2			4			18

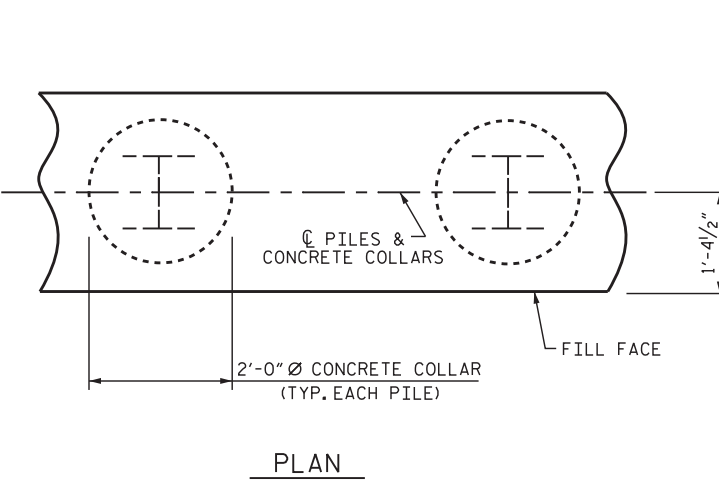
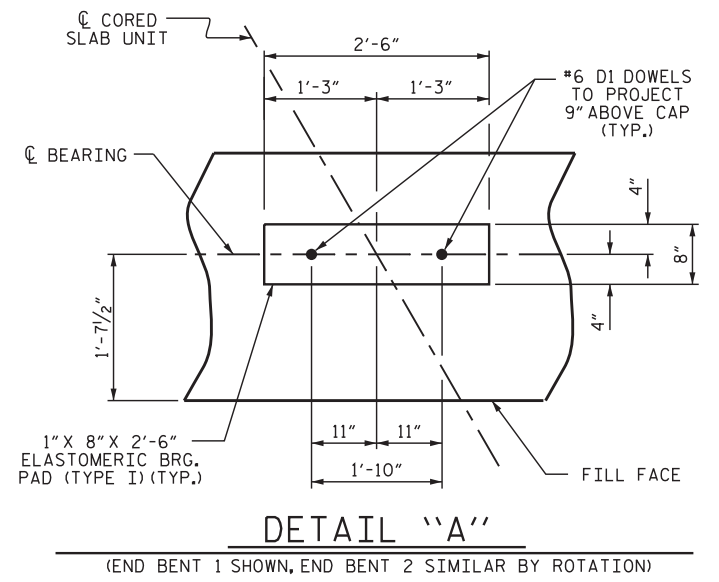


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

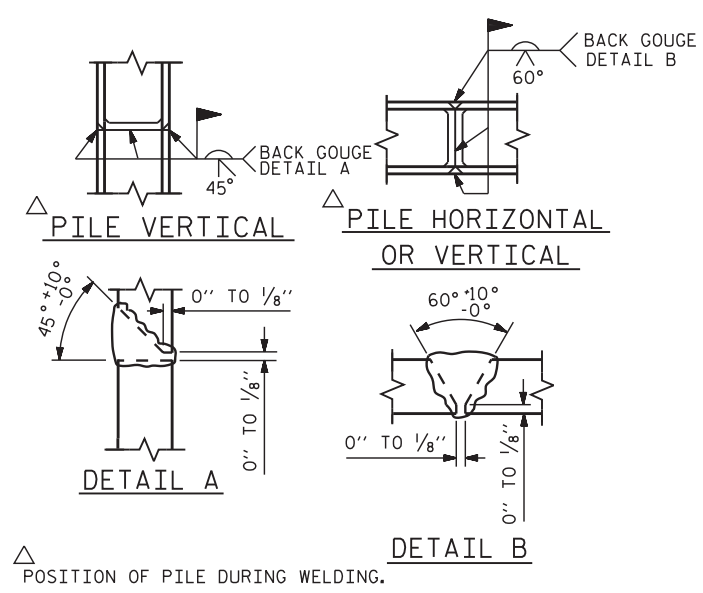
TEMPORARY DRAINAGE AT END BENT



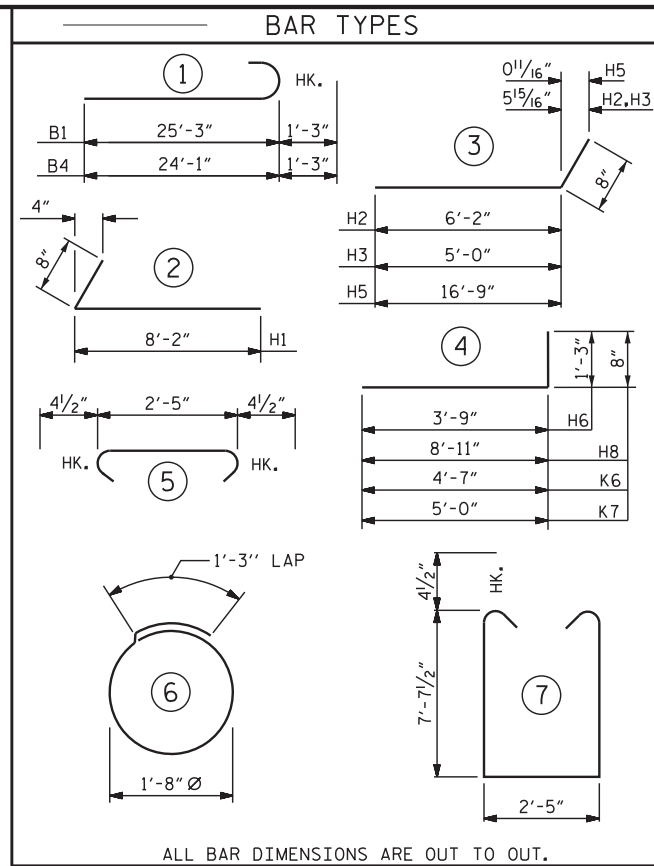
CORROSION PROTECTION FOR STEEL PILES DETAIL

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

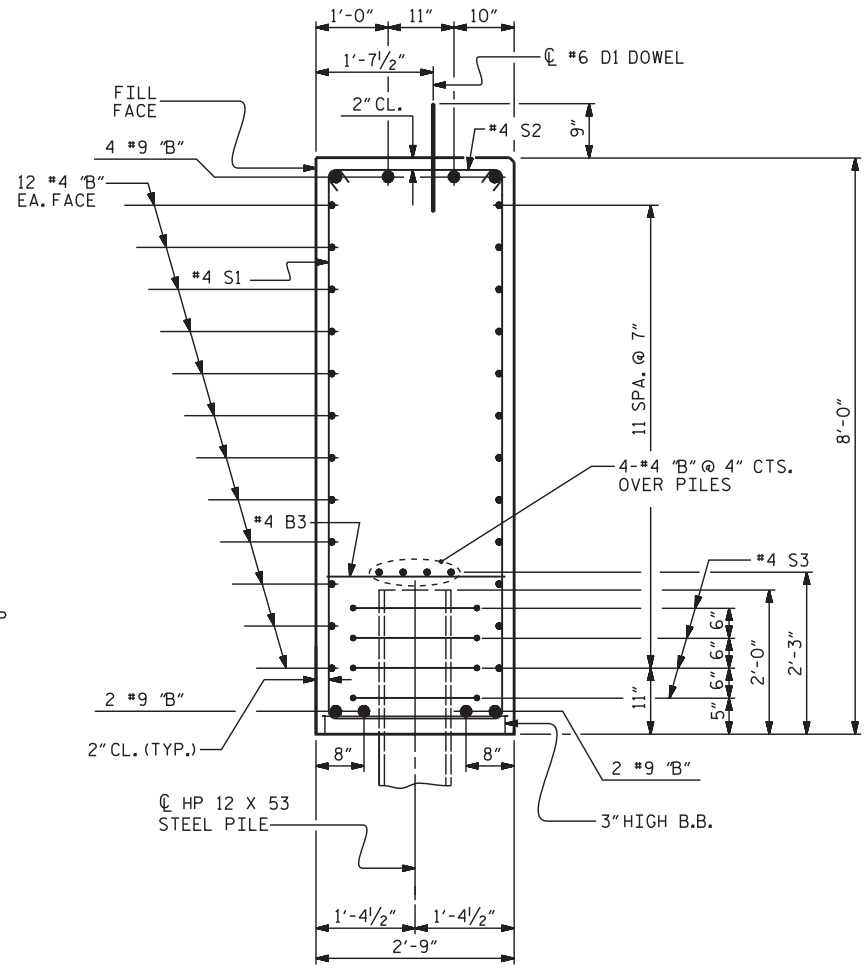
DRAWN BY : NMW DATE : 1/23
 CHECKED BY : MGC DATE : 3/23
 DESIGN ENGINEER OF RECORD : MGC DATE : 3/23



PILE SPLICE DETAILS



BILL OF MATERIAL END BENT 1						BILL OF MATERIAL END BENT 2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	16	#9	1	26'-6"	1442	B3	11	#4	STR.	2'-5"	18
B2	56	#4	STR	23'-9"	888	B4	16	#9	1	25'-4"	1378
B3	11	#4	STR	2'-5"	18	B5	56	#4	STR	22'-7"	845
D1	20	#6	STR	1'-6"	45	D1	20	#6	STR	1'-6"	45
H1	36	#6	2	8'-10"	478	H5	36	#6	3	17'-5"	942
H2	18	#6	3	6'-10"	185	H6	18	#6	4	5'-0"	135
H3	18	#6	3	5'-8"	153	H7	18	#6	STR	8'-11"	241
H4	36	#6	STR.	8'-7"	464	H8	18	#6	4	9'-7"	259
K1	8	#4	STR	2'-10"	15	K4	4	#4	STR	3'-6"	9
K2	4	#4	STR	4'-10"	13	K5	4	#4	STR	4'-1"	11
K3	4	#4	STR	4'-6"	12	K6	4	#4	4	5'-3"	14
						K7	4	#4	4	5'-8"	15
S1	56	#4	7	18'-5"	689	S1	54	#4	7	18'-5"	664
S2	56	#4	5	3'-2"	118	S2	54	#4	5	3'-2"	114
S3	20	#4	6	6'-6"	87	S3	20	#4	6	6'-6"	87
V1	54	#5	STR	10'-2"	573	V1	74	#5	STR	10'-2"	785
REINFORCING STEEL 5180 LBS.						REINFORCING STEEL 5562 LBS.					
CLASS A CONCRETE BREAKDOWN						CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				39.7 C.Y.		POUR #1 CAP, LOWER PART OF WINGS & COLLARS				39.7 C.Y.	
POUR #2 UPPER PART OF WINGS				1.6 C.Y.		POUR #2 UPPER PART OF WING W3, W4				2.3 C.Y.	
POUR #3 WING W2				3.5 C.Y.		POUR #3 WING W4				4.2 C.Y.	
TOTAL CLASS A CONCRETE				44.8 C.Y.		TOTAL CLASS A CONCRETE				46.2 C.Y.	



SECTION A-A

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

PROJECT NO. BP13-R024
 MADISON COUNTY
 STATION: 12+49.00-L-
 SHEET 5 OF 5

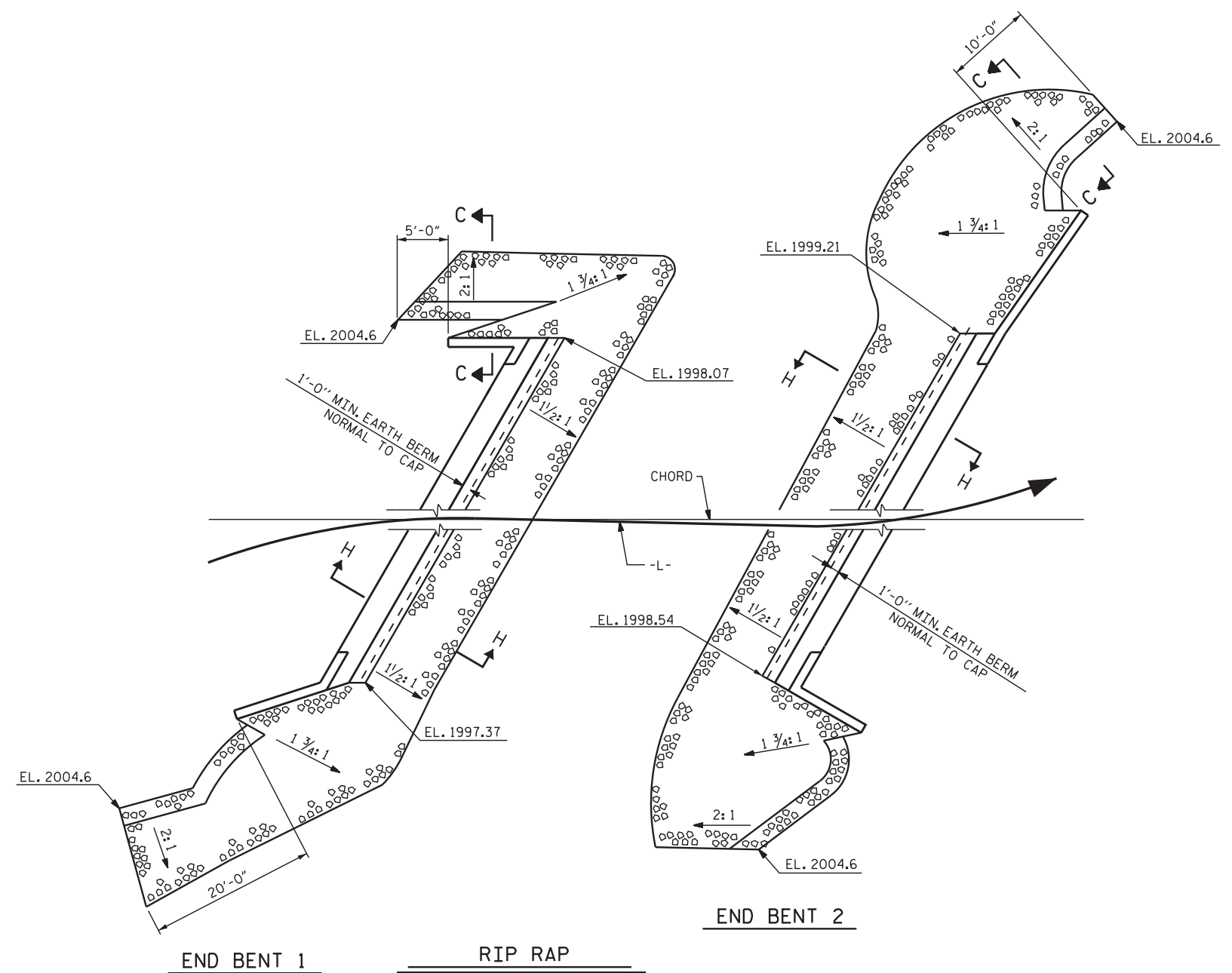
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PROFESSIONAL ENGINEER
 Marshall G. Cheek, Jr.
 SEAL
 20125
 6/21/2024

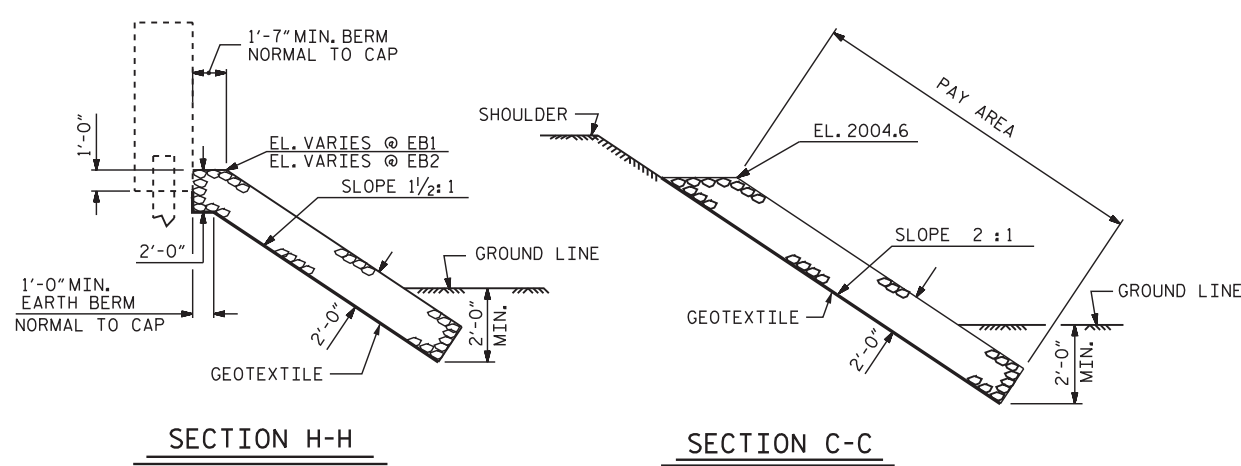
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

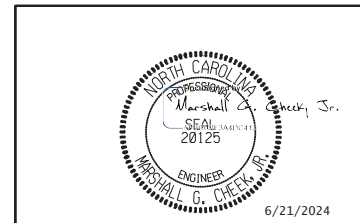
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS 18
2			4			



ESTIMATED QUANTITIES		
BRIDGE @ STA. 12+49.00-L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	200	220
END BENT 2	170	190



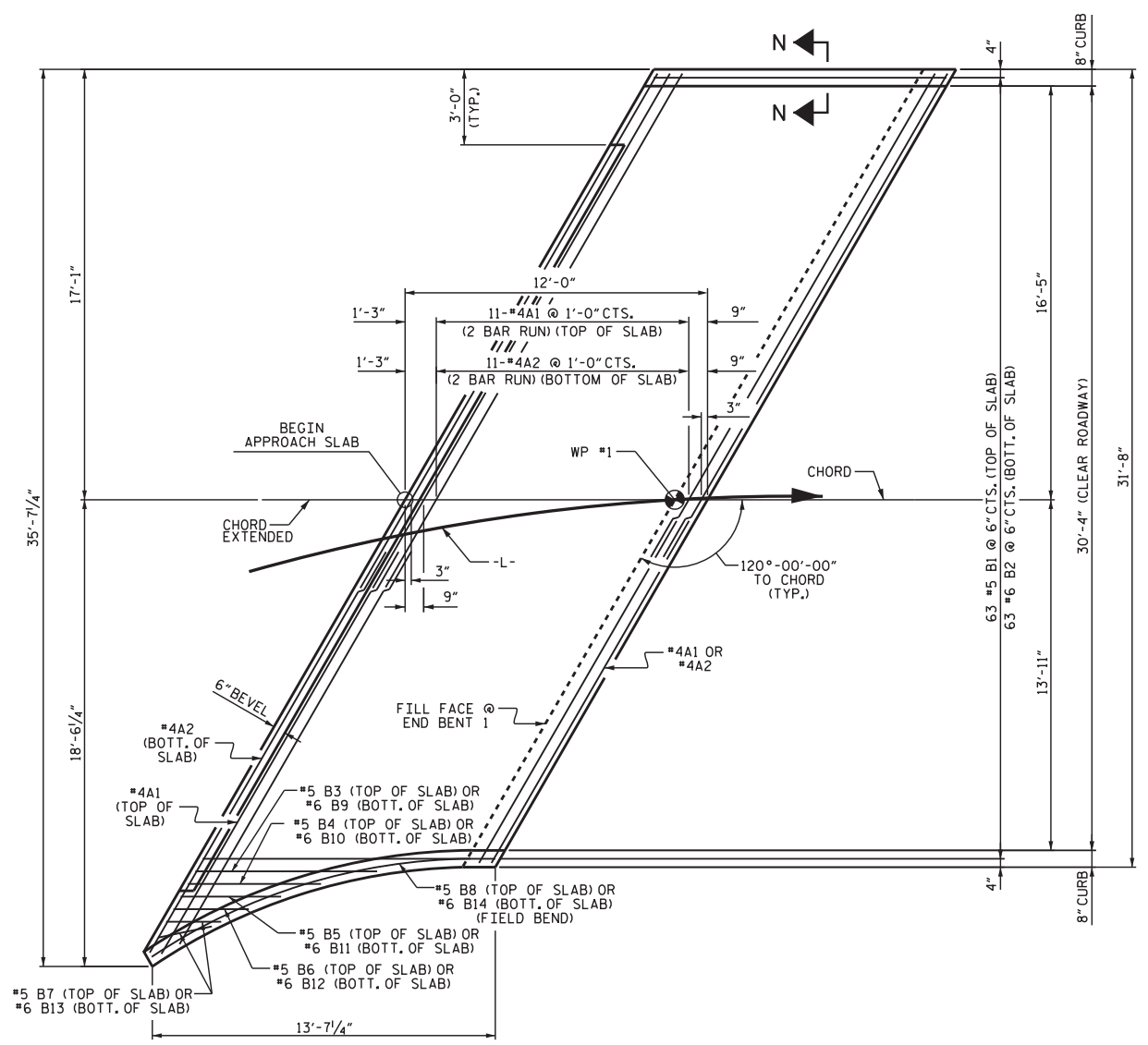
PROJECT NO. BP13-R024
MADISON COUNTY
 STATION: 12+49.00-L-



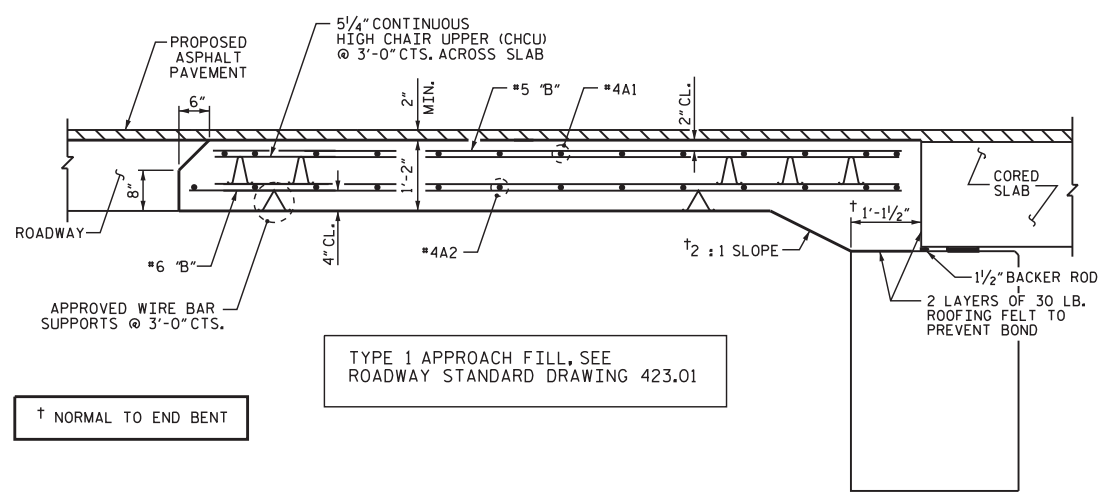
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RIP RAP DETAILS

ASSEMBLED BY :	NMW	DATE :	2/23
CHECKED BY :	MGC	DATE :	3/23
DRAWN BY :	REK	REV. 10/1/11	MAA/GM
CHECKED BY :	RDU	REV. 12/21/11	MAA/GM
		REV. 12/17	MAA/THC

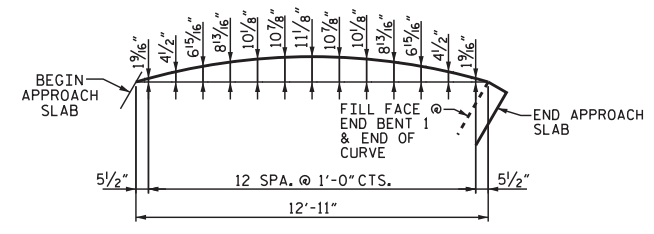
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED						REVISIONS			SHEET NO.			
TGS ENGINEERS 201 W. MARION ST STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275						NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
						1			3			TOTAL SHEETS
						2			4			18



PLAN @ END BENT 1



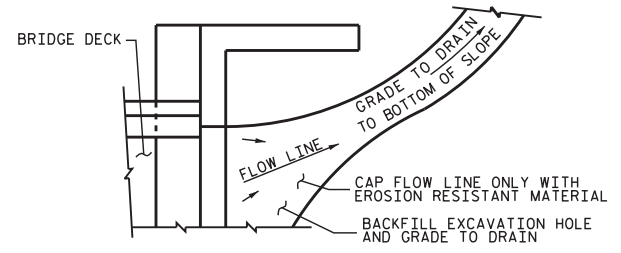
SECTION THRU SLAB



ARC OFFSETS - RIGHT SIDE

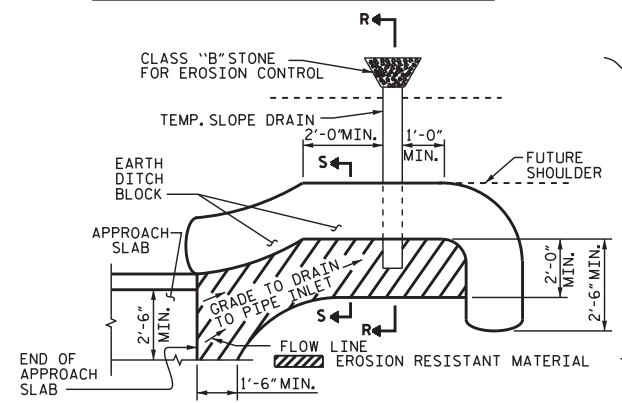
NOTES

FOR APPROACH FILL, SEE ROADWAY PLANS.
 AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
 APPROACH SLAB GROOVING IS NOT REQUIRED.



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\"/>

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

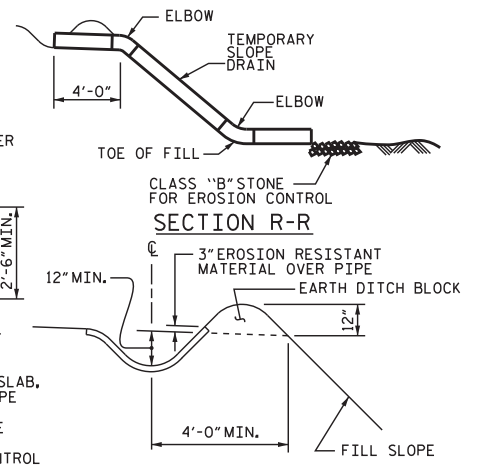
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL

APPROACH SLAB AT EB 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	21'-2"	368	
A2	26	#4	STR	21'-0"	365	
*B1	63	#5	STR	11'-1"	728	
B2	63	#6	STR	11'-7"	1096	
*B3	1	#5	STR	6'-8"	7	
*B4	1	#5	STR	4'-9"	5	
*B5	1	#5	STR	3'-11"	4	
*B6	1	#5	STR	2'-11"	3	
*B7	2	#5	STR	2'-2"	5	
*B8	1	#5	STR	13'-5"	14	
B9	1	#6	STR	7'-2"	11	
B10	1	#6	STR	5'-3"	8	
B11	1	#6	STR	3'-11"	6	
B12	1	#6	STR	2'-11"	4	
B13	2	#6	STR	2'-2"	7	
B14	1	#6	STR	13'-5"	20	
REINFORCING STEEL					LBS.	1517
* EPOXY COATED REINFORCING STEEL					LBS.	1134
CLASS AA CONCRETE					C. Y.	20.6

SPLICE LENGTHS

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

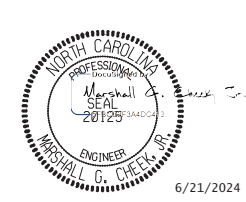


SECTION R-R

PROJECT NO. BP13-R024
 MADISON COUNTY

STATION: 12+49.00-L-

SHEET 1 OF 2

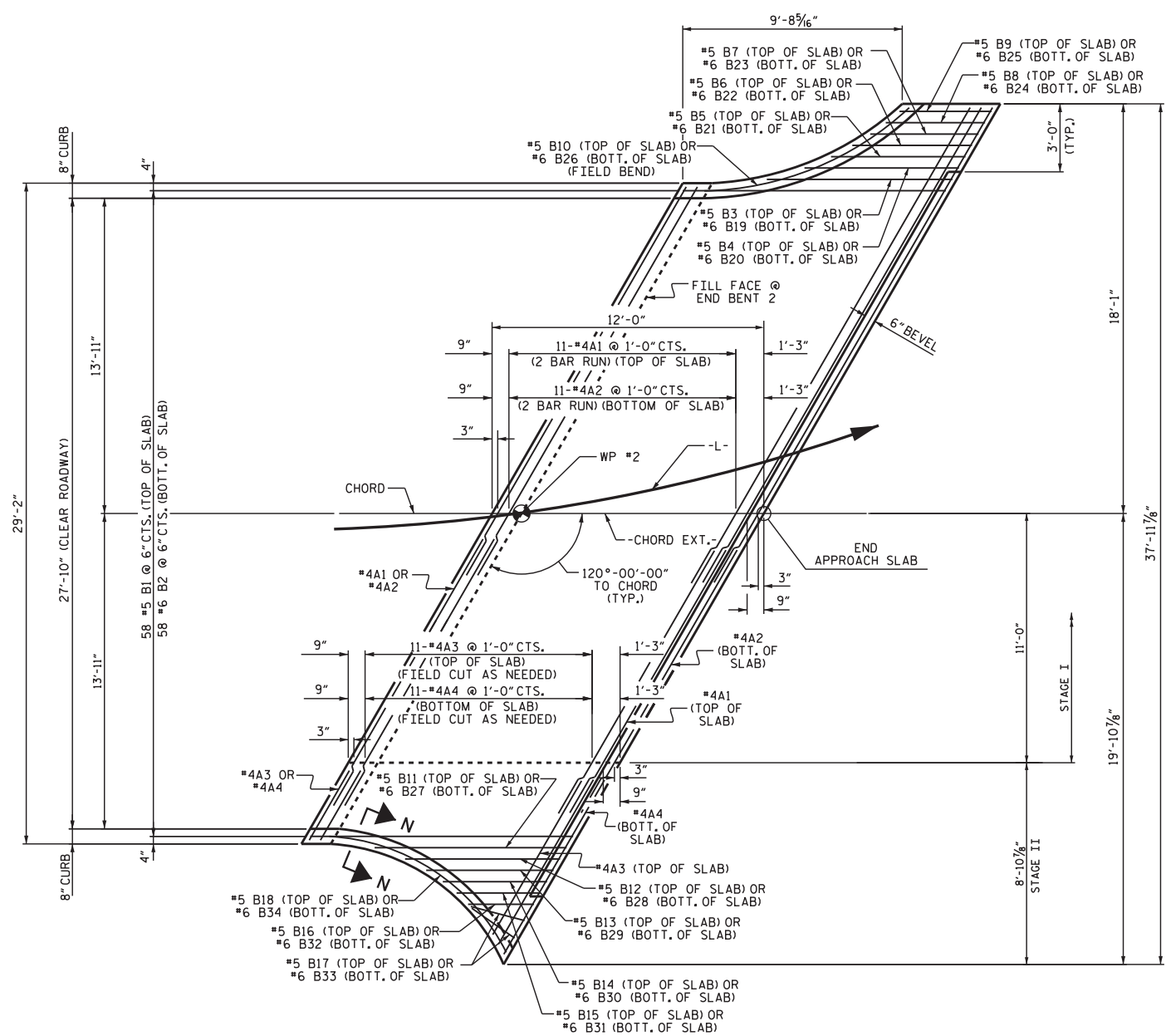


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)
 120° SKEW

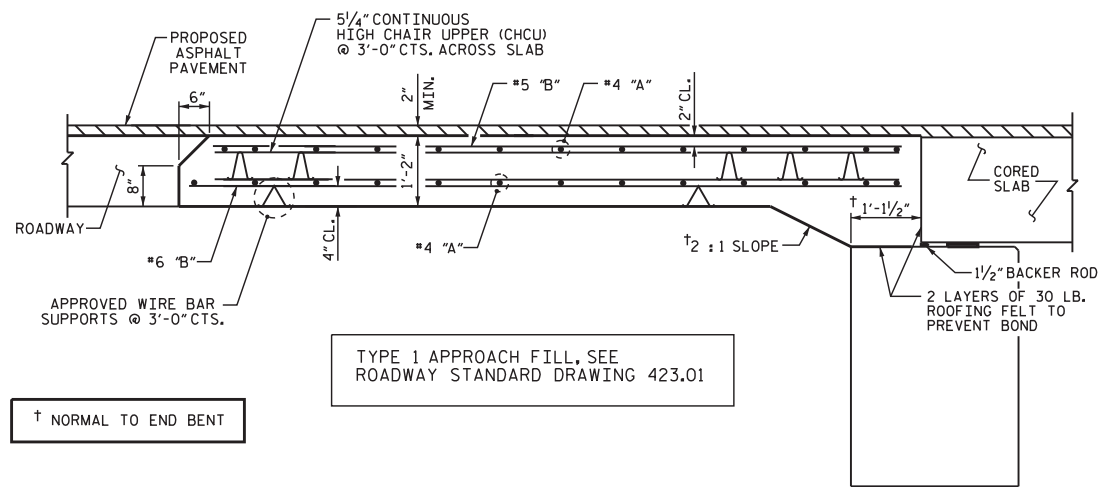
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED						REVISIONS			SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:				
1			3			S-17			
2			4			TOTAL SHEETS 18			

DRAWN BY : NMW DATE : 2/23
 CHECKED BY : MCC DATE : 2/23
 DESIGN ENGINEER OF RECORD : MCC DATE : 1/24

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
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 CORP. LICENSE NO.: C-0275



PLAN @ END BENT 2



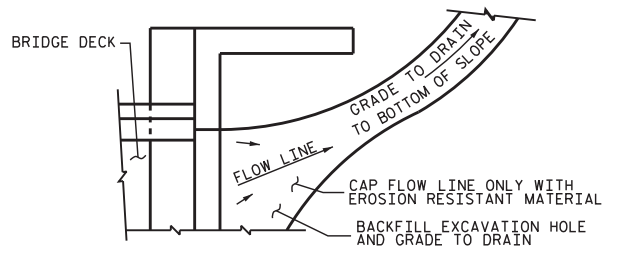
SECTION THRU SLAB

DRAWN BY : NMW DATE : 2/23
 CHECKED BY : MCC DATE : 2/23
 DESIGN ENGINEER OF RECORD : MCC DATE : 1/24

NOTES

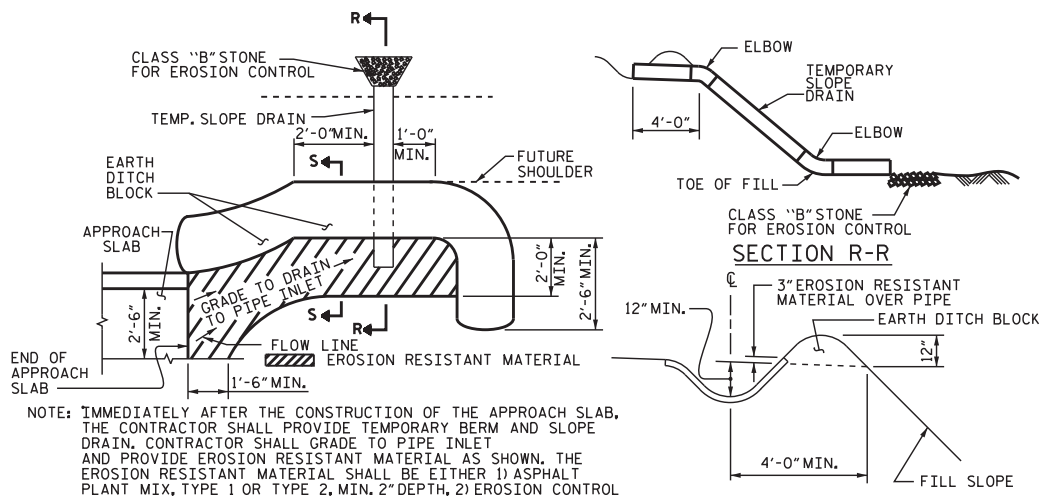
FOR APPROACH FILL, SEE ROADWAY PLANS.
 AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
 APPROACH SLAB GROOVING IS NOT REQUIRED.

NOTE TO CONTRACTOR:
 APPROACH SLAB 2 SHALL BE STAGED AS SHOWN OR AS DIRECTED BY THE ENGINEER.



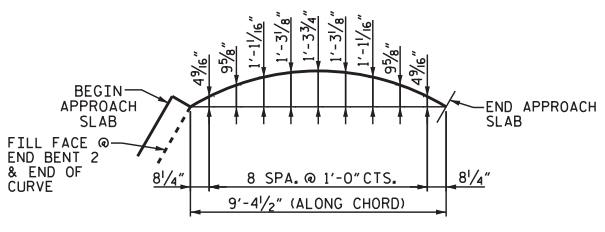
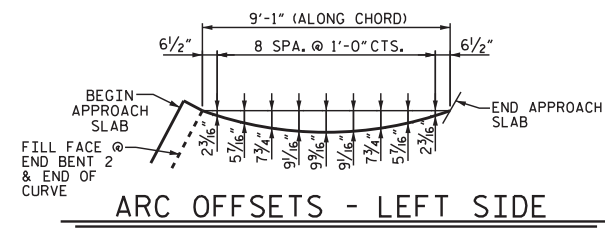
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

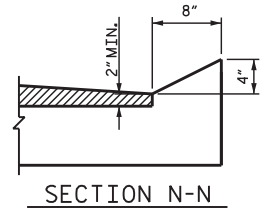


BILL OF MATERIAL

APPROACH SLAB AT EB 2 STAGE I					APPROACH SLAB AT EB 2 STAGE II						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	18'-9"	326	*A3	13	#4	STR	9'-9"	85
A2	26	#4	STR	18'-5"	320	A4	13	#4	STR	9'-9"	85
*B1	51	#5	STR	11'-1"	590	*B1	7	#5	STR	11'-1"	81
B2	51	#6	STR	11'-7"	887	B2	7	#6	STR	11'-7"	122
*B3	1	#5	STR	7'-8"	8	*B12	1	#5	STR	6'-4"	7
*B4	1	#5	STR	6'-9"	7	*B13	1	#5	STR	5'-1"	5
*B5	1	#5	STR	5'-11"	6	*B14	1	#5	STR	4'-1"	4
*B6	1	#5	STR	5'-3"	5	*B15	1	#5	STR	3'-2"	3
*B7	1	#5	STR	4'-9"	5	*B16	1	#5	STR	2'-10"	3
*B8	1	#5	STR	4'-4"	5	*B17	2	#5	STR	2'-3"	5
*B9	1	#5	STR	4'-0"	4	*B18	1	#5	STR	9'-10"	10
*B10	1	#5	STR	10'-0"	10	B27	1	#6	STR	8'-5"	13
*B11	1	#5	STR	7'-11"	8	B28	1	#6	STR	6'-10"	10
B19	1	#6	STR	7'-8"	12	B29	1	#6	STR	5'-7"	8
B20	1	#6	STR	6'-9"	10	B30	1	#6	STR	4'-7"	7
B21	1	#6	STR	5'-11"	9	B31	1	#6	STR	3'-8"	6
B22	1	#6	STR	5'-3"	8	B32	1	#6	STR	2'-10"	4
B23	1	#6	STR	4'-9"	7	B33	2	#6	STR	2'-3"	7
B24	1	#6	STR	4'-4"	7	B34	1	#6	STR	9'-10"	15
B25	1	#6	STR	4'-0"	6						
B26	1	#6	STR	10'-0"	15						
					REINFORCING STEEL	LBS.					277
					* EPOXY COATED REINFORCING STEEL	LBS.					203
					* EPOXY COATED REINFORCING STEEL	LBS.					974
					CLASS AA CONCRETE	C. Y.					3.6
					CLASS AA CONCRETE	C. Y.					16.8

SPLICE LENGTHS

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



PROJECT NO. BP13-R024
 MADISON COUNTY
 STATION: 12+49.00-L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 120° SKEW

6/21/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

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

