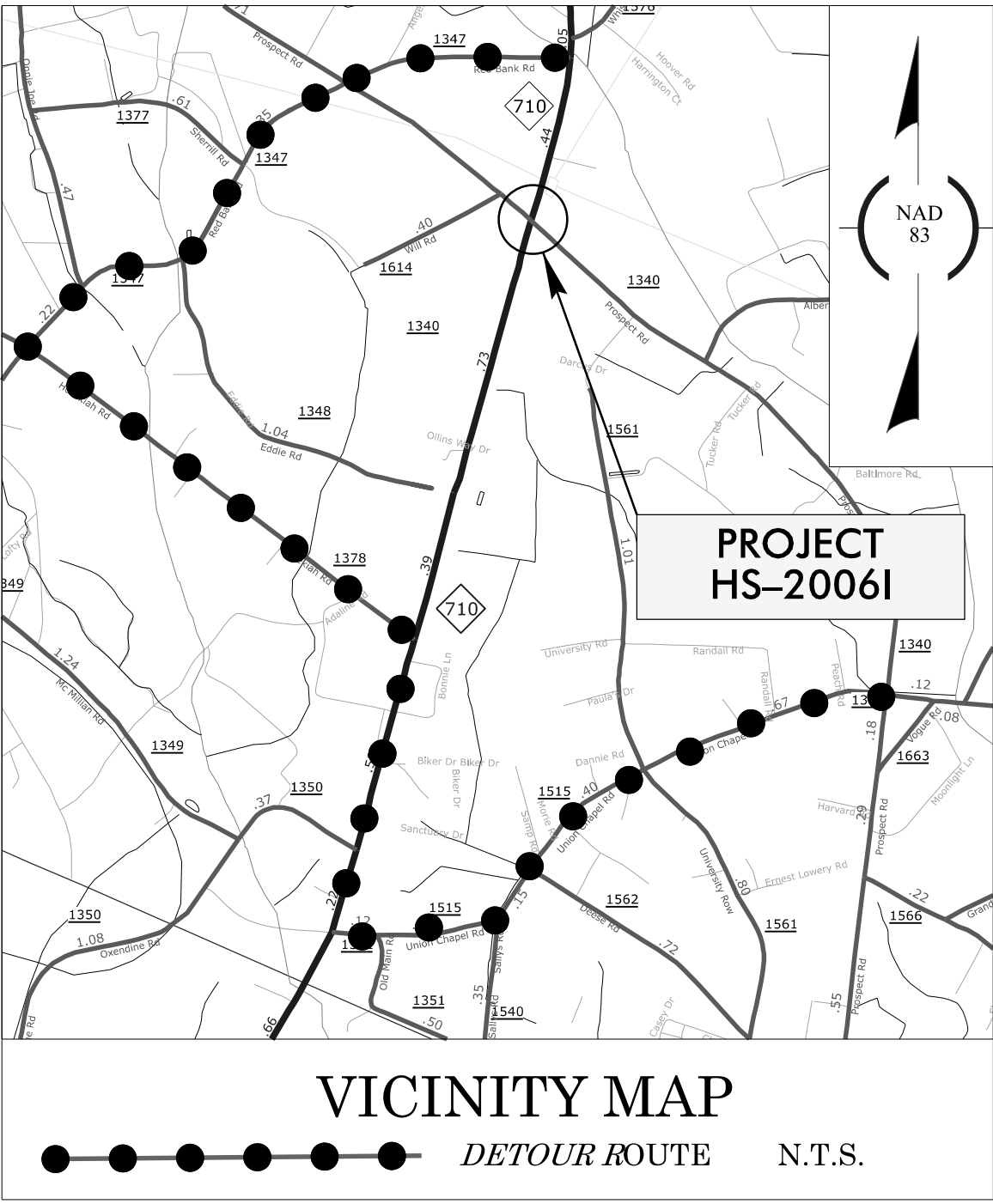


TIP PROJECT: HS-2006I

CONTRACT: DF00500

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

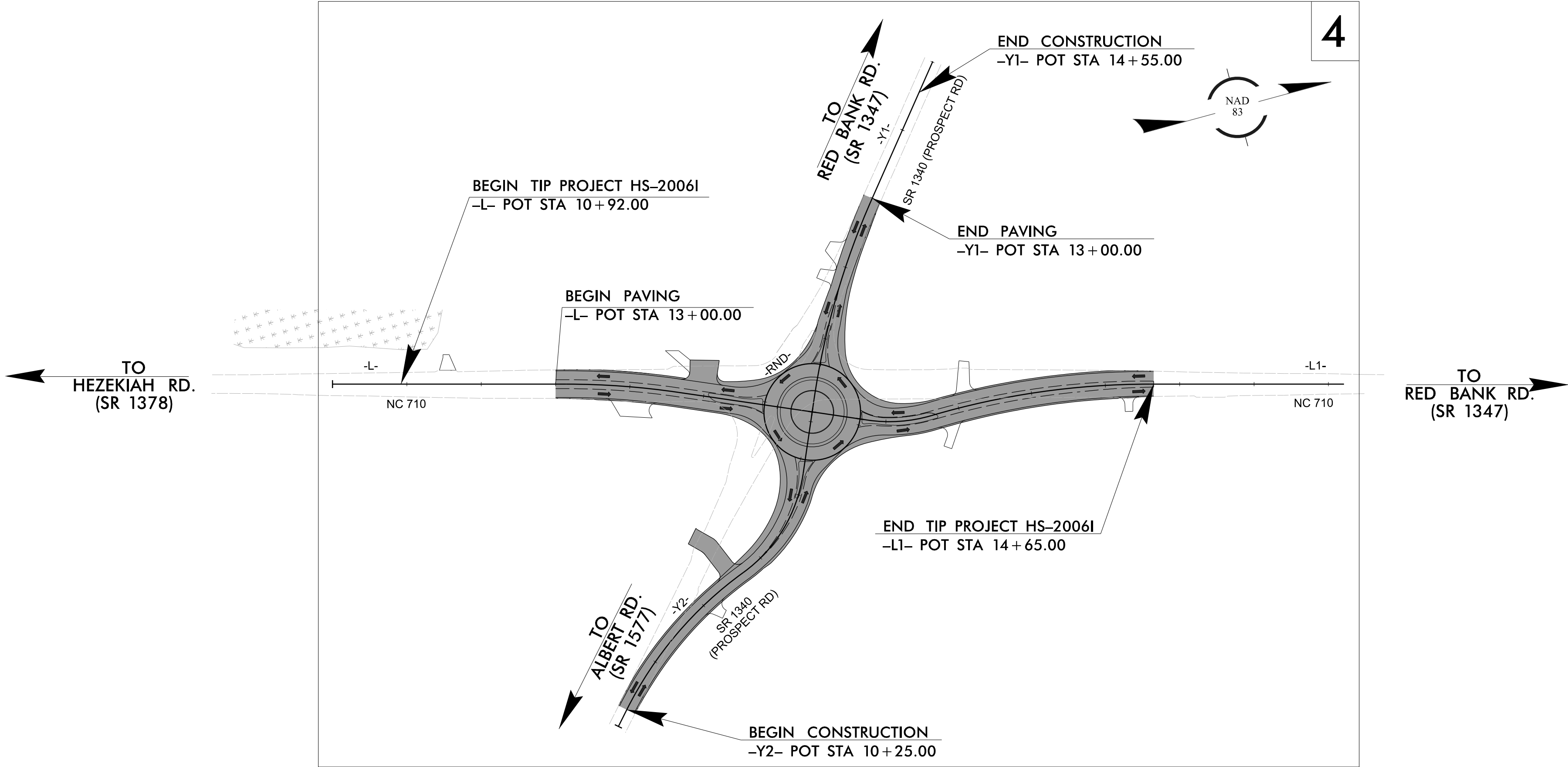
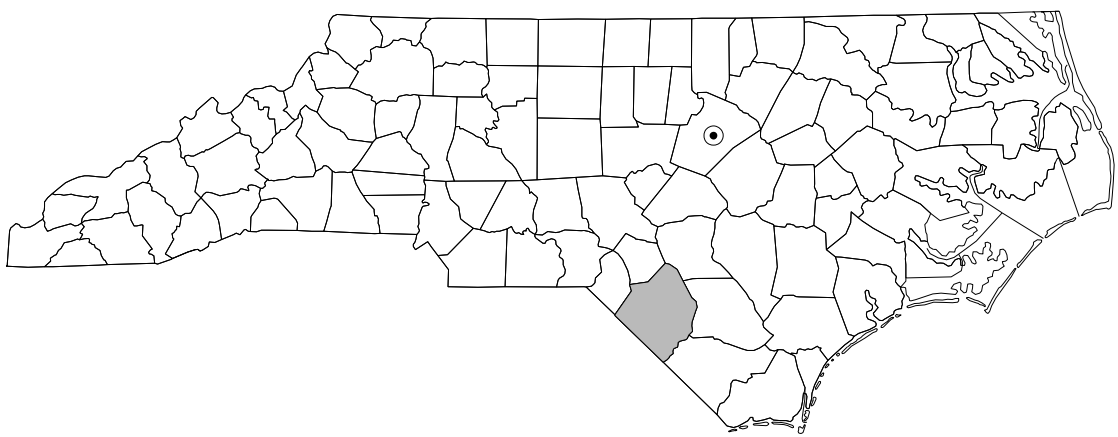


STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

ROBESON COUNTY

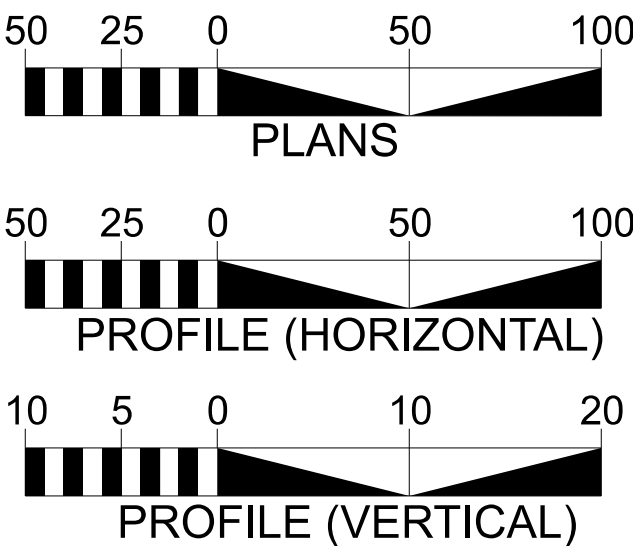
LOCATION: *CONSTRUCT ROUNDABOUT AT NC 710 / SR 1340
(PROSPECT RD) INTERSECTION*

TYPE OF WORK: *GRADING, DRAINAGE AND PAVING*



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2025 = 4800
ADT 2045 = 5300
K = N/A
D = N/A
T = 5 % *
V = 25 MPH
* TTST = 3% DUAL 2%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

PROJECT LENGTH FOR TIP PROJECT HS-2006I
LENGTH ROADWAY = 0.193 MILES
LENGTH STRUCTURE = 0.000 MILES
TOTAL LENGTH = 0.193 MILES

NCDOT CONTACT: CHRISTY W. HUFF, PE

PREPARED IN THE
OFFICE OF:

**CDM
Smith**

CDM Smith Inc.
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC CDA No. F-1255

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 15, 2024

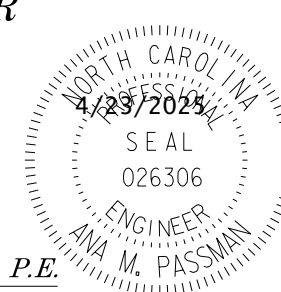
LETTING DATE:
JUNE 4, 2025

ADAM M. CONRAD, P.E.
PROJECT ENGINEER

KEVIN P. SABO, E.I.
PROJECT DESIGN ENGINEER

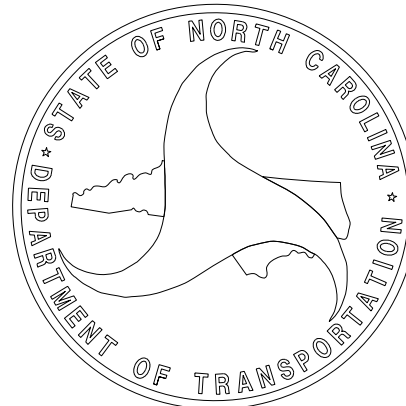
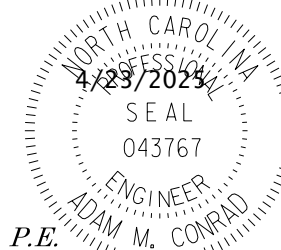
HYDRAULICS ENGINEER

Signed by:
Anna Passman
E-0404560017B456
SIGNATURE:



ROADWAY DESIGN ENGINEER

Signed by:
Adam M. Conrad
E-0404560017B456
SIGNATURE:



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A -1 THRU 2A-3	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-2	ROADWAY DETAIL - ROUNDABOUT LAYOUT
2C-1 THRU 2C-2	ROADWAY DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN SHEET
5 THRU 7	PROFILE SHEETS
RW-01 THRU RW-04	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENT, AND PROPERTY TIES
TMP-1 THRU TMP-4	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-5	SIGNING PLANS
UC-1 THRU UC-5	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1 THRU X-21	CROSS-SECTIONS
	EFF. 01-16-2024 REV.
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	
200.03	Method of Clearing - Method III Modified
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS	
700.01	Concrete Pavement Joints - Construction and Contraction Joints
700.03	Dowel Assembly
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.54	Manhole Frame and Cover
846.01	Concrete Curb, Gutter and Curb & Gutter
848.02	Driveway Turnout - Radius Type
852.01	Concrete Islands
876.02	Guide for Rip Rap at Pipe Outlets

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 MODIFIED METHOD III.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE POWER, LUMBEE RIVER EMC, ROBESON COUNTY WATER, BRIGHT SPEED, SPECTRUM, AND PIEDMONT NATURAL GAS.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

HS-20061

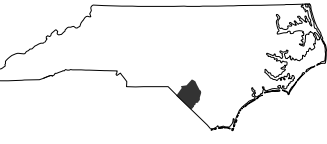
4RDI

1A

NORTH CAROLINA

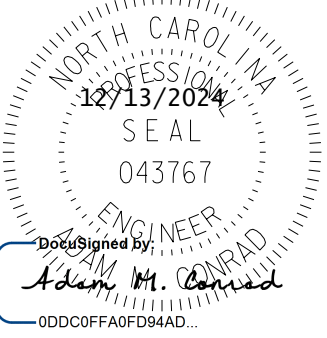
DEPARTMENT OF TRANSPORTATION

ROBESON COUNTY



DIVISION 6

ROADWAY DESIGN
ENGINEER



DESIGNED BY:
Adam M. Conrad
000C0FFA6FD84D...

PREPARED BY



CDM Smith Inc.

5600 Glenwood Avenue

Suite 400

Raleigh, NC 27612-5028

NC CDR No. F-1365

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

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	



*** IN LOCATIONS WHERE THE P.S.
IS WIDER THAN THE TOTAL
SHLDR., EXTEND THE TOTAL
SHLDR. 1' BEYOND THE EOPS.

-L- STA. 14+98.31 TO STA. 15+82.68 (ROUNDAABOUT)
-L1- STA. 10+65.00 (ROUNDAABOUT) TO STA. 13+75.00

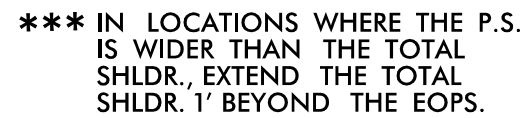
TYPICAL SECTION NO. 2



*** IN LOCATIONS WHERE THE P.S.
IS WIDER THAN THE TOTAL
SHLDR., EXTEND THE TOTAL
SHLDR. 1' BEYOND THE EOPS.

-Y1- STA. 10+65.01 (ROUNDAABOUT) TO STA. 11+28.00

TYPICAL SECTION NO. 3



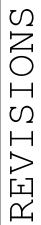
*** IN LOCATIONS WHERE THE P.S.
IS WIDER THAN THE TOTAL
SHLDR., EXTEND THE TOTAL
SHLDR. 1' BEYOND THE EOPS.

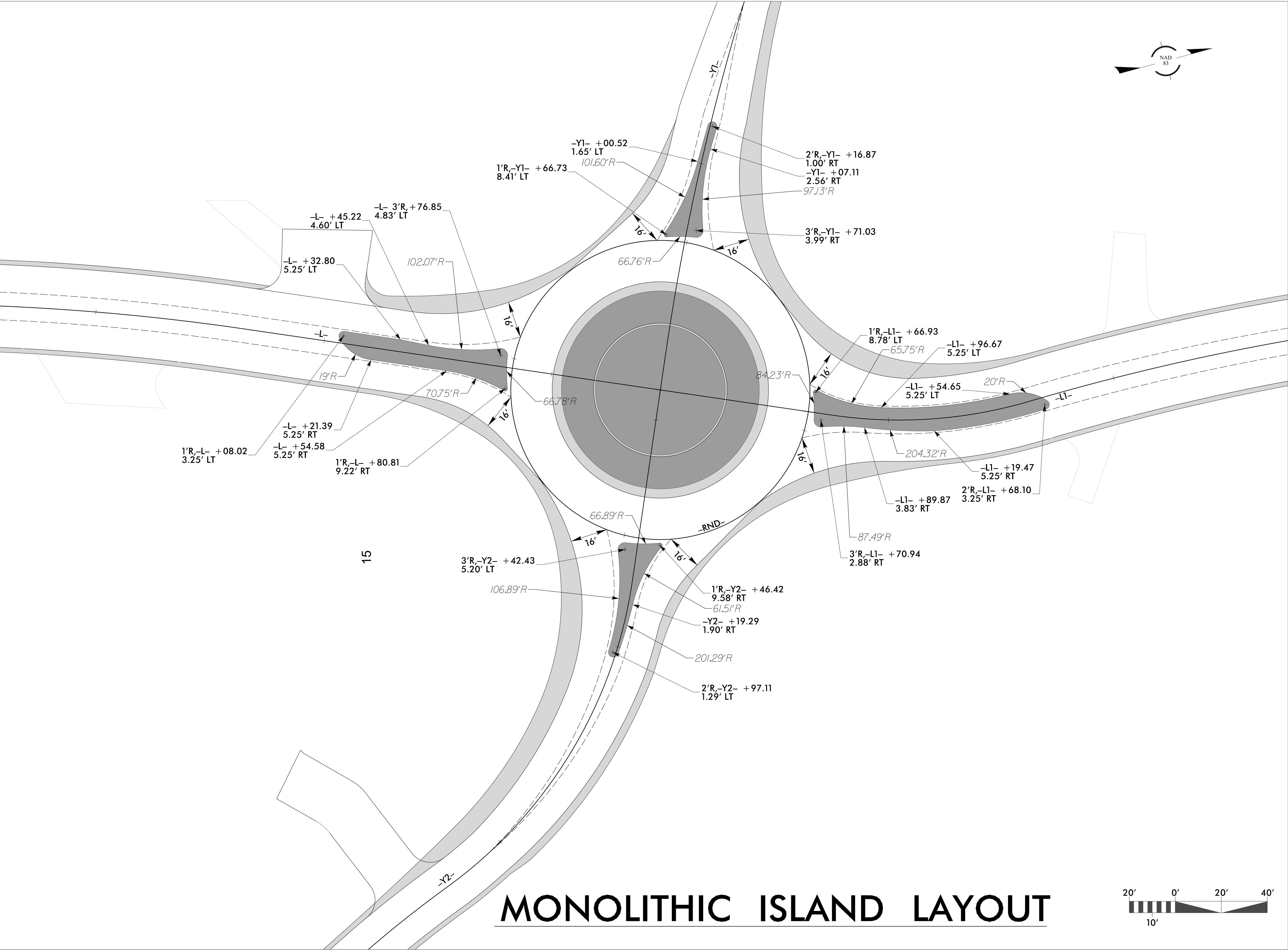
-Y1- STA. 11+28.00 TO STA. 13+00.00

TYPICAL SECTION NO. 4

REVISIONS

PAVEMENT EDGE SLOPES ARE 1:1
UNLESS SHOWN OTHERWISE.





HS-20061

4RDI2B-2

NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

ROBERTSON COUNTY

DIVISION 6

ROADWAY DESIGN

ENGINEER

NORTH CAROLINA

12/18/2024

SEAL

043767

Designated Engineer

Mark M. Conrad

00000CFAP608A00

PREPARED BY

CDM Smith

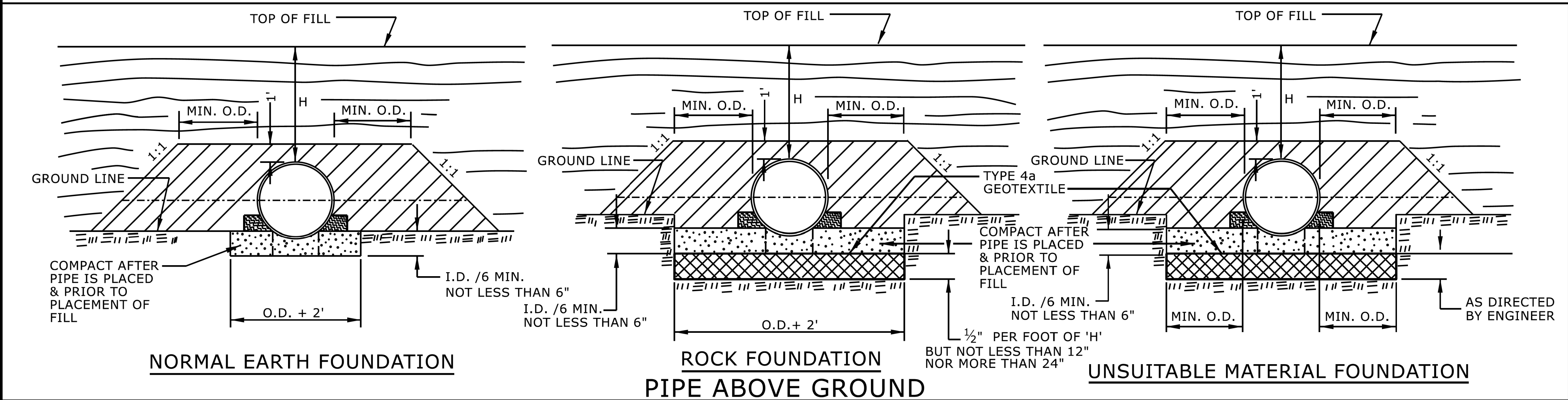
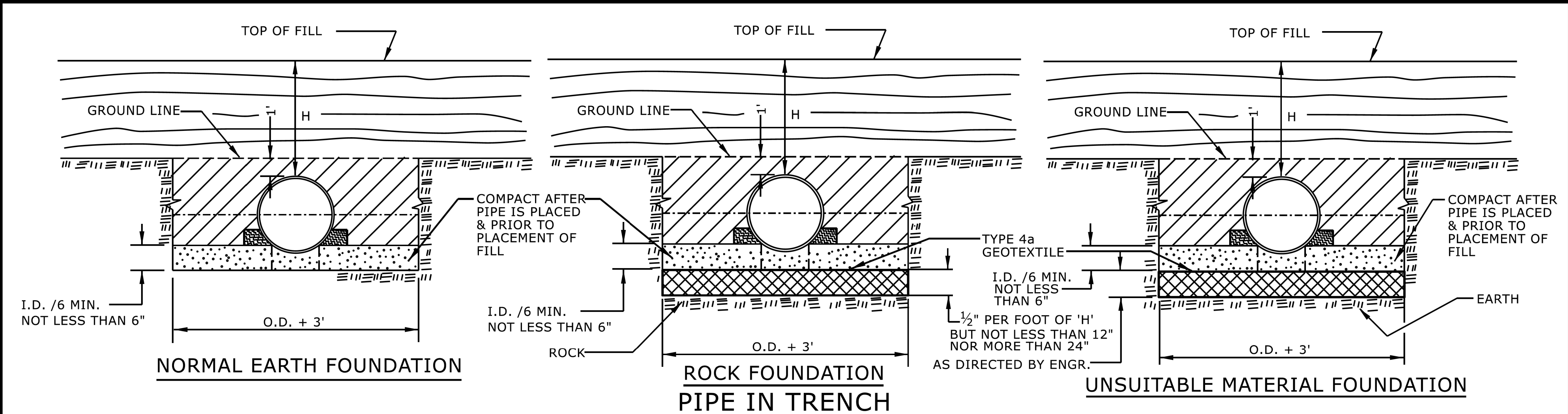
CDM Smith Inc.
5600 Glenwood Avenue
Suite 200
Raleigh, NC 27612-5028
NC CDR No. F-1265

DOCUMENT NOT CONSIDERED FINAL

UNLESS ALL SIGNATURES COMPLETED

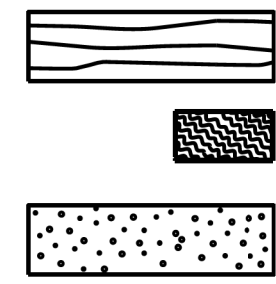
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PROJECT REFERENCE NO.	SHEET NO.
HS-20061	2C-1



GENERAL NOTES:

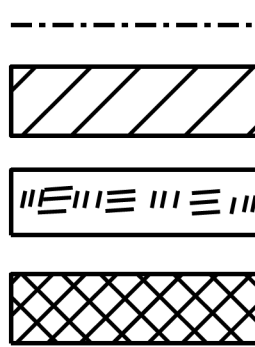
- I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.



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

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

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

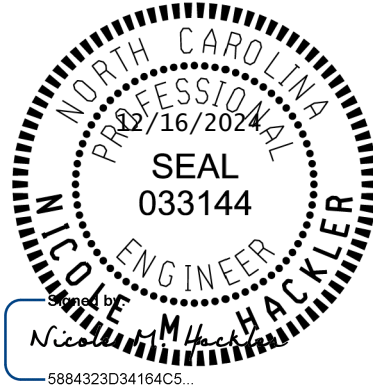


- SPRINGLINE OF PIPE
- SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
- UNDISTURBED EARTH MATERIAL
- SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

SHEET 1 OF 2
300.01



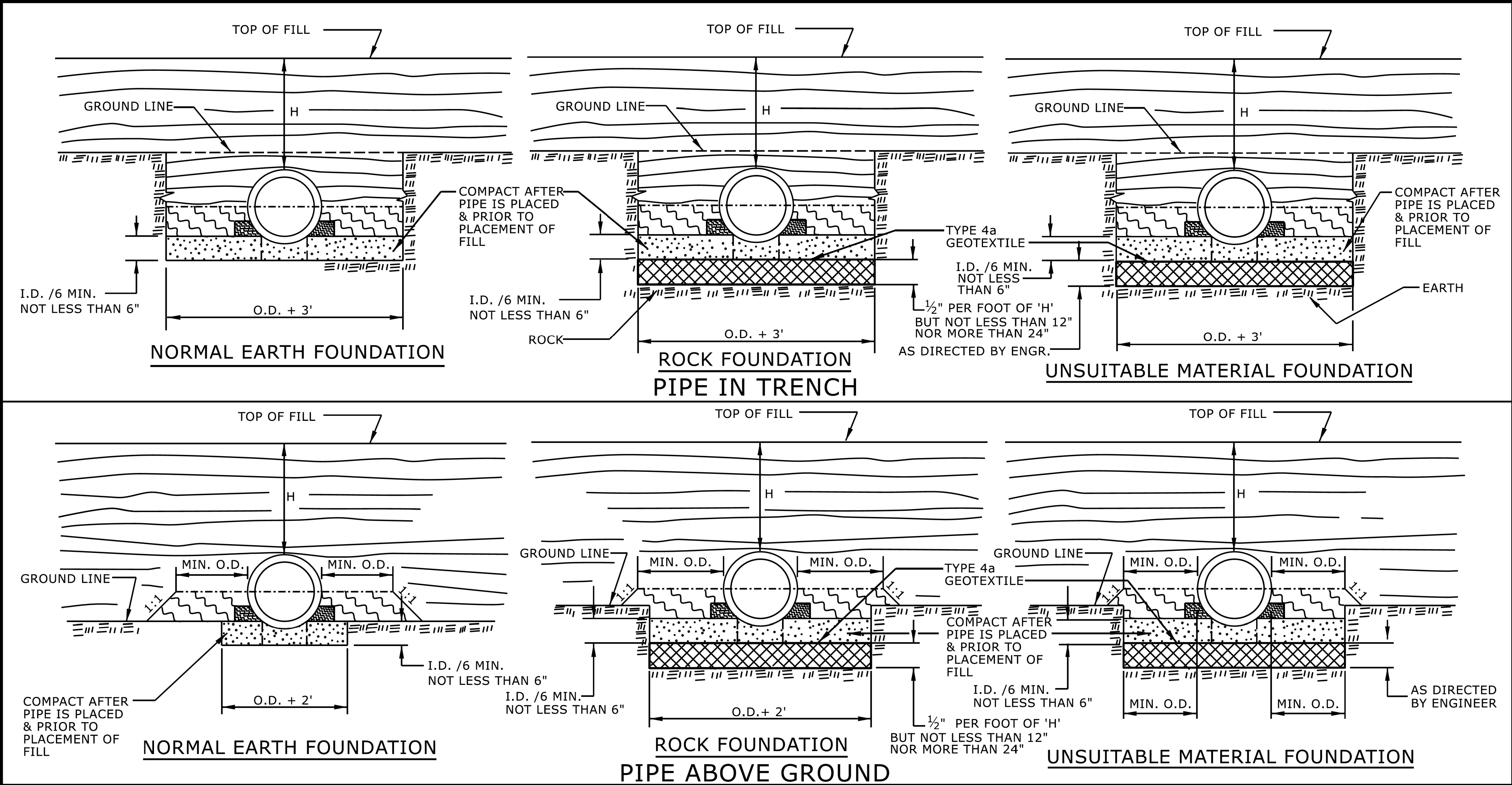
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

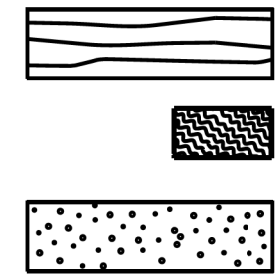
ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

PROJECT REFERENCE NO.	SHEET NO.
HS-20061	2C-2



GENERAL NOTES:

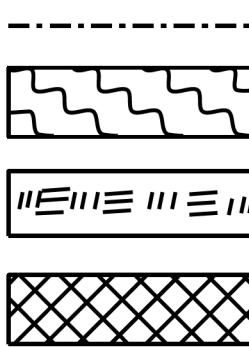
- I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.



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

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

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

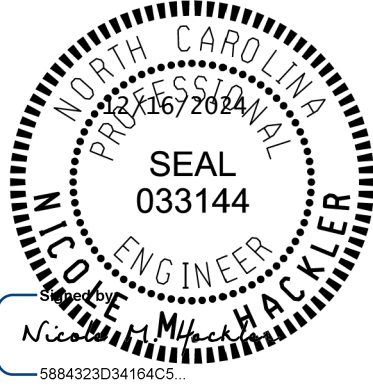


- SPRINGLINE OF PIPE
SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
UNDISTURBED EARTH MATERIAL
SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 2
300.01



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK (CY)

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- 13+00.00 - 15+82.68	178		124		54
-L1- 10+65.00 - 14+65.00	873		445		428
-Y1- 10+65.01 - 13+00.00	71		160	89	
-Y2- 10+25.00 - 14+48.24	558		379		178
-RND- 10+00.00 - 14+08.41	272		948	675	
SUBTOTAL	1,994		2,055	764	660
TOTAL	1,951		2,055	764	660
DRAINAGE DITCH EXCAVATION	-200				
WASTE IN LIEU OF BORROW				-660	-660
PROJECT TOTAL	1,751		2,055	104	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				5	
GRAND TOTAL	1,751		2,055	109	
SAY	1,800			200	

EST. DDE = 200 CY
UNDERCUT (CONTINGENCY) = 300 CY
SHALLOW UNDERCUT (CONTINGENCY) = 100 CY
SELECT GRANULAR MATERIAL, CLASS III (CONTINGENCY) = 300 CY
CLASS IV SUBGRADE STABILIZATION (CONTINGENCY) = 200 TN

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

SUMMARY OF ASPHALT PAVEMENT REMOVAL (SY)

LINE	STATION - STATION	LOCATION	REMOVAL (SY)
-L-/L1-	-L- STA. 13+42.53 TO -L1- STA. 14+26.32	LT	2,505
-Y1-	STA. 10+60.13 TO STA. 12+88.92	LT	684
-Y2-	STA. 10+44.82 TO STA. 15+13.24	LT	1,534
GRAND TOTAL			4,723
SAY			4,730

SUMMARY OF VARIABLE MILLING (1.50"-2.00") (SY)

LINE	STATION - STATION	LOCATION	REMOVAL (SY)
-L1-	STA. 13+75.00 TO STA. 14+65.00	CL	355
-Y1-	STA. 11+82.18 TO STA. 13+00.00	CL	296
GRAND TOTAL			651
SAY			660

SUMMARY OF MILLING (1.50") (SY)

LINE	STATION - STATION	LOCATION	REMOVAL (SY)
-L-	STA. 13+00.00 TO STA. 14+98.31	CL	820
-Y1-	STA. 11+28.00 TO STA. 11+82.18	CL	117
-Y2-	STA. 10+25.00 TO STA. 11+36.41	CL	260
GRAND TOTAL			1,197
SAY			1,200

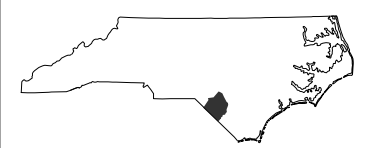
SUMMARY OF EXPRESSWAY GUTTER (LF)

LINE	STATION	STATION	LENGTH (LF)
-RND-	10+00 ±	14+08 ±	307
		TOTAL	307
		SAY	310

HS-20061

4RDI3B-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROBERTSON COUNTY



DIVISION 6

PREPARED BY

CDM Smith

CDM Smith Inc.
5600 Glenwood Avenue
Suite 400
Raleigh, NC 27612-5028
NC CCR No. F-1265

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

COMPUTED BY: Kevin Sabo, E.I.	DATE: 10/14/2024		PROJECT NO.	SHEET NO.
CHECKED BY: Adam Conrad, P.E.	DATE: 10/15/2024		HS-2006I	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

[illegible]

*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 Soil 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.

CUR DATA -L1-
Plc 13+90.17
 $\Delta c = 08^{\circ}20'33.5''$ (RT)
D = $05^{\circ}30'33.2''$
Lc = 151.43
Tc = 75.85
R = 1,040
SE=NC
DS=45mph
RO=N/A

CUR DATA -L1-
Plc 11+19.51
 $\Delta c = 24^{\circ}44'57.5''$ (LT)
D = $28^{\circ}38'52.4''$
Lc = 86.39
Tc = 43.88
R = 200
SE=NC
DS=25mph
RO=N/A

CUR DATA -L1-
Plc 13+11.95
 $\Delta c = 16^{\circ}24'24.0''$ (RT)
D = $05^{\circ}30'33.2''$
Lc = 297.80
Tc = 149.93
R = 1,040
SE=NC
DS=45mph
RO=N/A

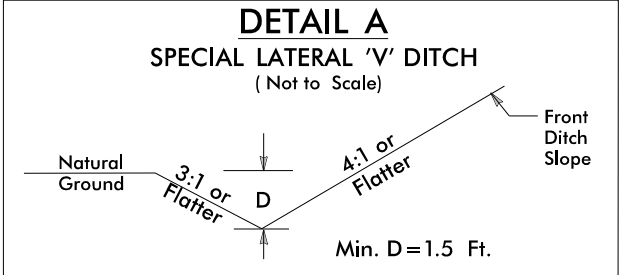
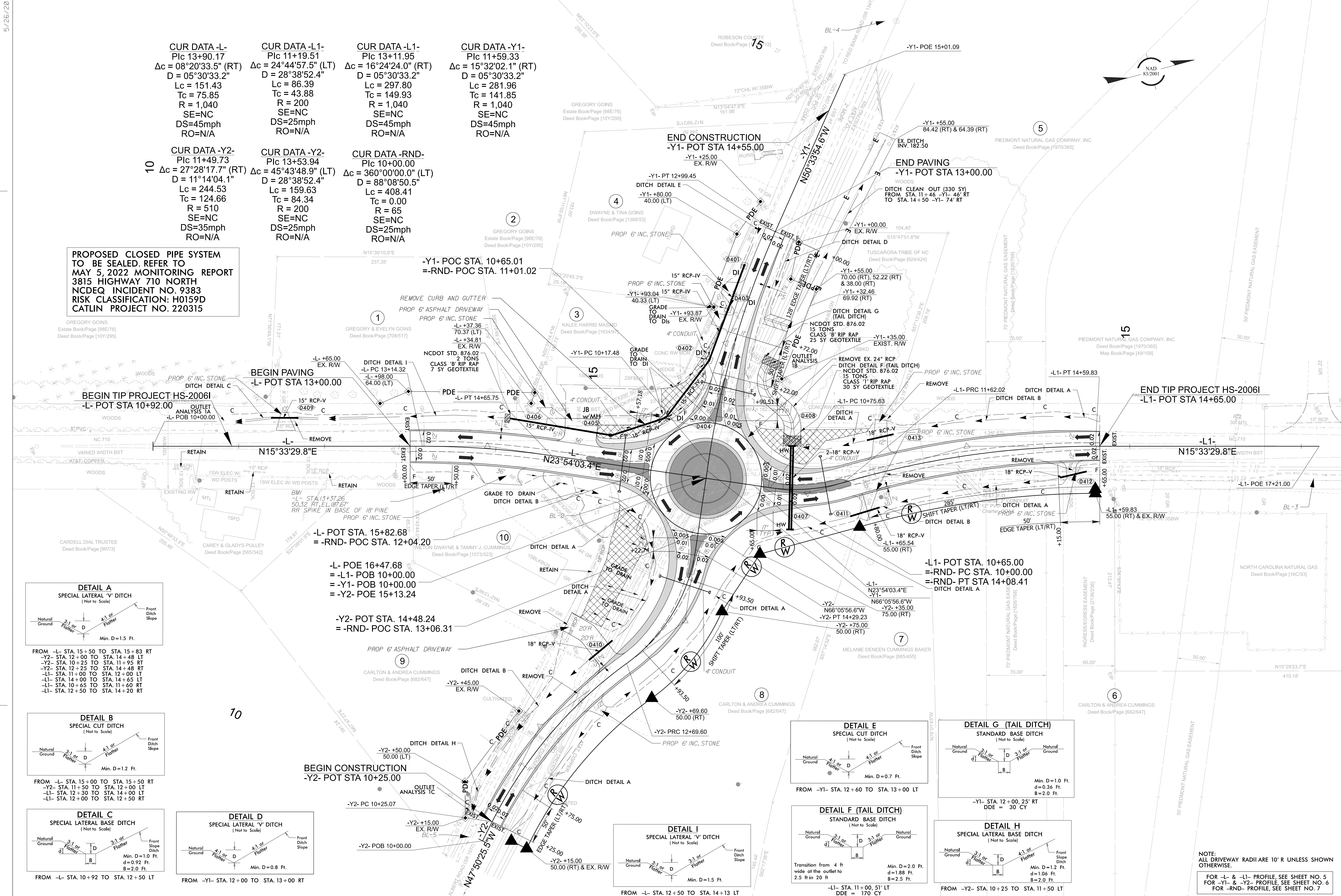
CUR DATA -Y1-
Plc 11+59.33
 $\Delta c = 15^{\circ}32'02.1''$ (RT)
D = $05^{\circ}30'33.2''$
Lc = 281.96
Tc = 141.85
R = 1,040
SE=NC
DS=45mph
RO=N/A

CUR DATA -Y2-
Plc 11+49.73
 $\Delta c = 27^{\circ}28'17.7''$ (RT)
D = $11^{\circ}14'04.1''$
Lc = 244.53
Tc = 124.66
R = 510
SE=NC
DS=35mph
RO=N/A

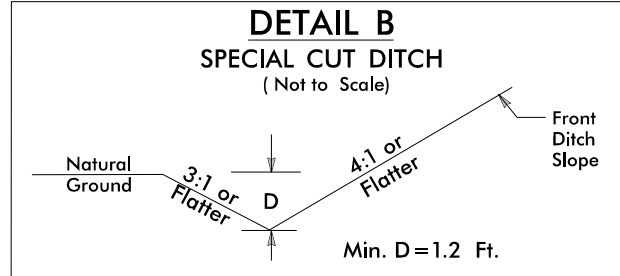
CUR DATA -Y2-
Plc 13+53.94
 $\Delta c = 45^{\circ}43'48.9''$ (LT)
D = $28^{\circ}38'52.4''$
Lc = 159.63
Tc = 84.34
R = 200
SE=NC
DS=25mph
RO=N/A

CUR DATA -RND-
Plc 10+00.00
 $\Delta c = 360^{\circ}00'00.0''$ (LT)
D = $88^{\circ}08'50.5''$
Lc = 408.41
Tc = 0.00
R = 65
SE=NC
DS=25mph
RO=N/A

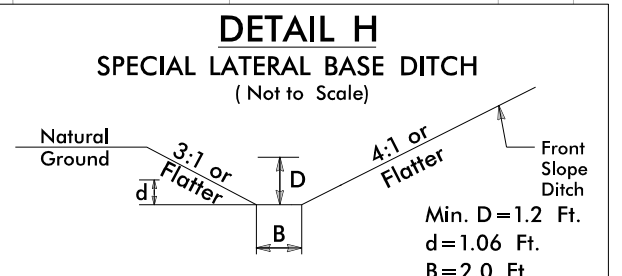
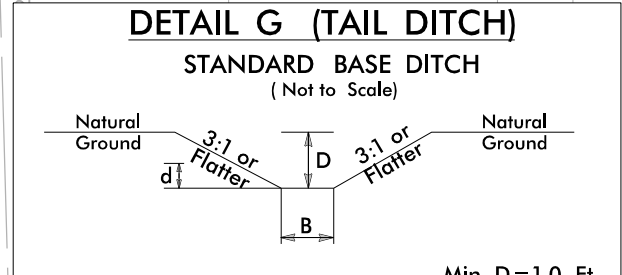
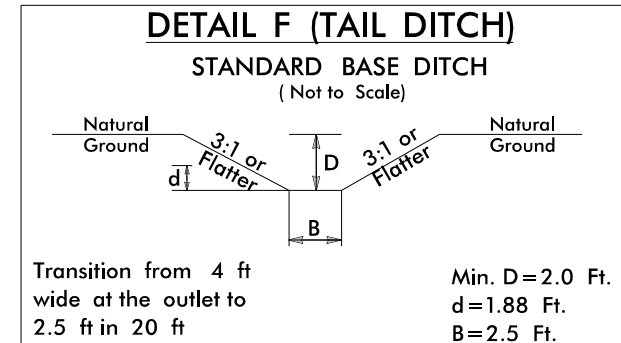
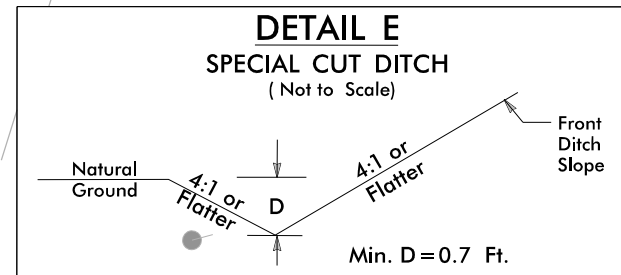
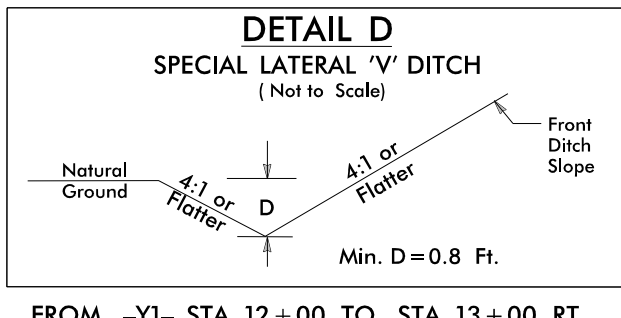
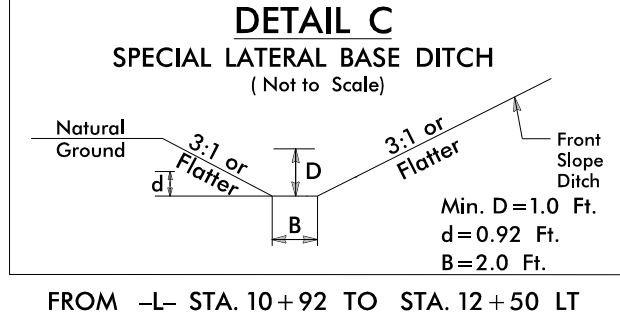
PROPOSED CLOSED PIPE SYSTEM
TO BE SEALED. REFER TO
MAY 5, 2022 MONITORING REPORT
3815 HIGHWAY 710 NORTH
NCDEQ INCIDENT NO. 9383
RISK CLASSIFICATION: H0159D
CATLIN PROJECT NO. 220315



FROM -L- STA. 15+50 TO STA. 15+83 RT
-Y2- STA. 12+00 TO STA. 14+48 LT
-Y2- STA. 12+25 TO STA. 11+95 RT
-Y2- STA. 12+25 TO STA. 14+48 RT
-L1- STA. 11+00 TO STA. 12+00 LT
-L1- STA. 14+00 TO STA. 14+65 LT
-L1- STA. 10+65 TO STA. 11+60 RT
-L1- STA. 12+50 TO STA. 14+20 RT



FROM -L- STA. 15+00 TO STA. 15+50 RT
-Y2- STA. 11+50 TO STA. 12+00 LT
-L1- STA. 12+30 TO STA. 14+00 LT
-L1- STA. 12+10 TO STA. 14+50 RT



NOTE:
ALL DRIVEWAY RADII ARE 10' R UNLESS SHOWN
OTHERWISE.
FOR -L- & -L1- PROFILE, SEE SHEET NO. 5
FOR -Y1- & -Y2- PROFILE, SEE SHEET NO. 6
FOR -RND- PROFILE, SEE SHEET NO. 7

REVISIONS

1. PDE REMOVED FROM PARCEL 3 AND TCE REMOVED FROM PARCEL 10. 09/20/2024 AMC

HS-20061
4RDI 004

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROBESON COUNTY

DIVISION 6
ROADWAY DESIGN
ENGINEER

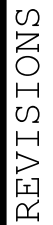
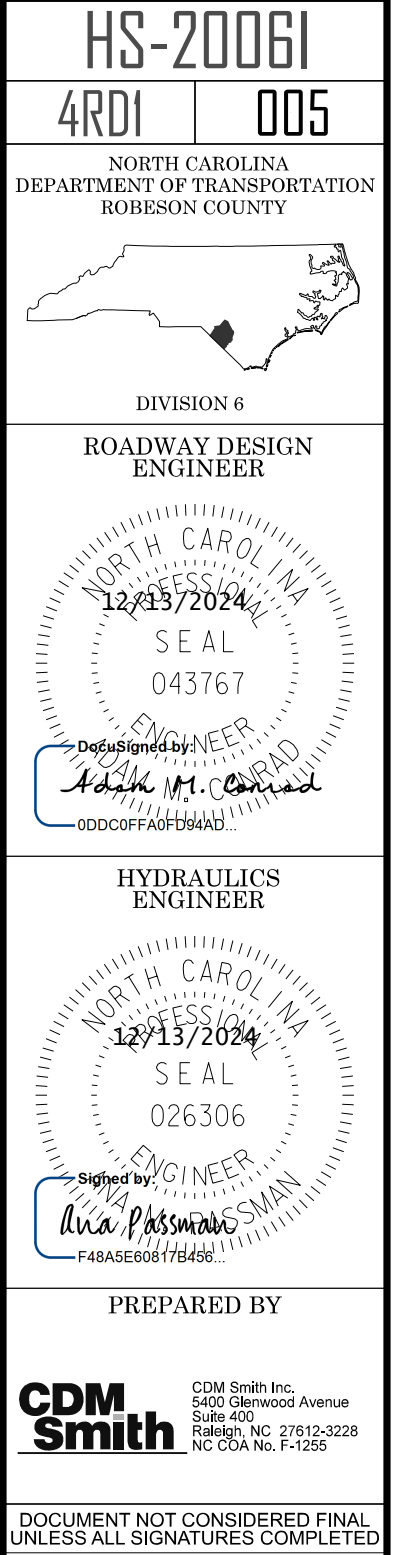
NORTH CAROLINA
SEAL
12/13/2024
043767
Adolph M. Conrad

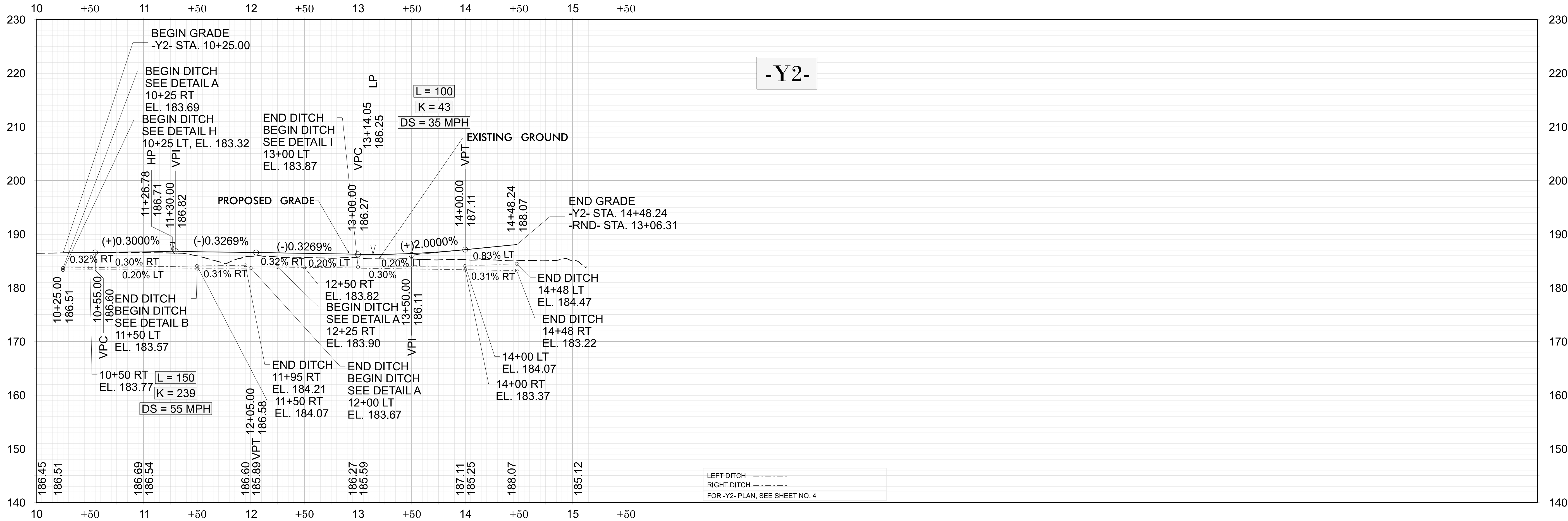
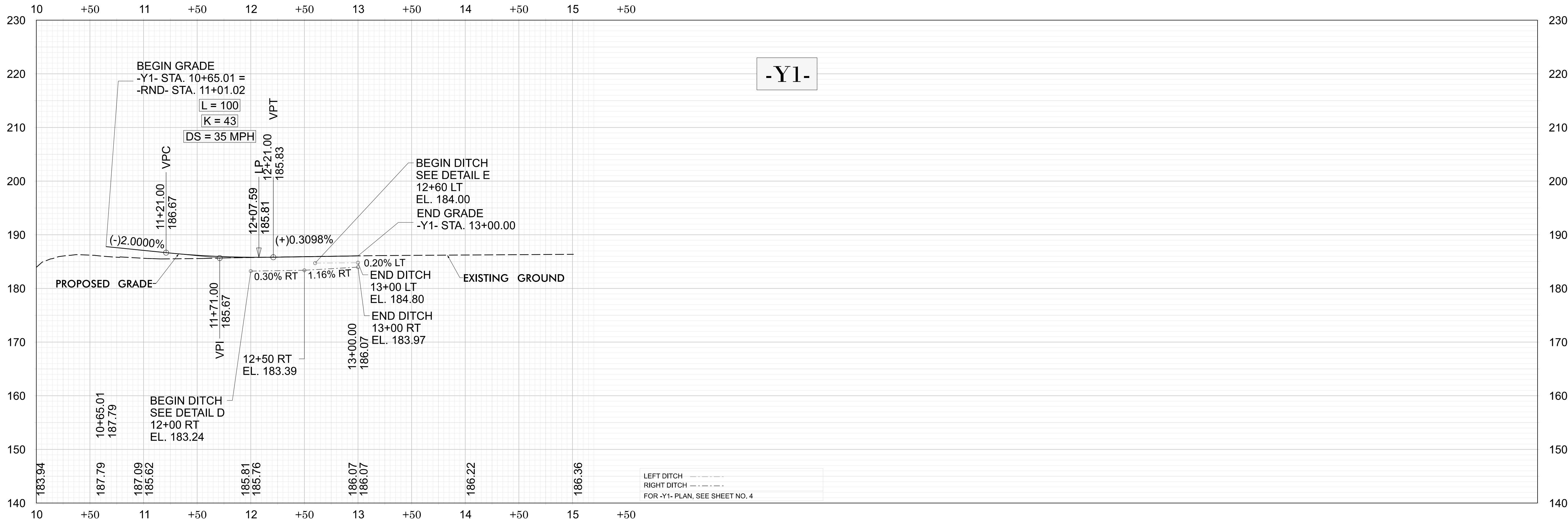
HYDRAULICS
ENGINEER

NORTH CAROLINA
SEAL
12/13/2024
026306
Ana Passman

PREPARED BY
CDM Smith
CDM Smith Inc.
5400 Glenwood Avenue
Suite 100
Raleigh, NC 27612-3228
NC CEN No. F-105

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED





HS-20061

4RDI006

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROBESON COUNTY

DIVISION 6

ROADWAY DESIGN
ENGINEER

12/13/2024

SEAL

043767

Designated by
North Carolina
Professional Engineer
00000FFAF0B8AD

Signature

Hash M. Conrad

12/13/2024

SEAL

026306

Designated by
North Carolina
Professional Engineer
00000FFAF0B8AD

Signature

Alisa P. Simmons

PREPARED BY

CDM Smith Inc.
5600 Glenwood Avenue
Suite 400
Raleigh, NC 27612-5028
NC CEN No. F-1265

**CDM
Smith**

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS



LEFT DITCH - - - - -
RIGHT DITCH - - - - -
FOR -RND- PLAN, SEE SHEET NO. 4

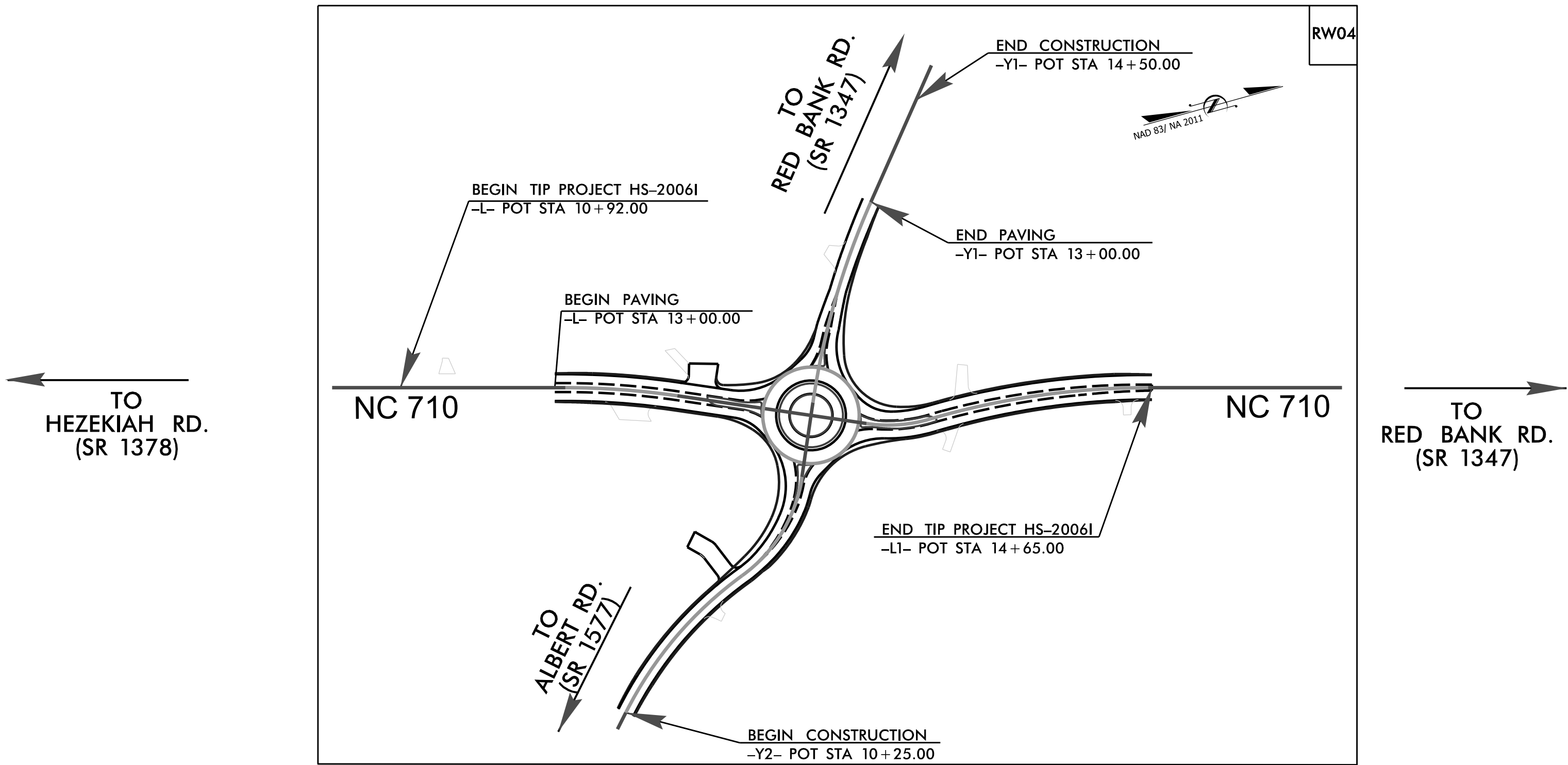
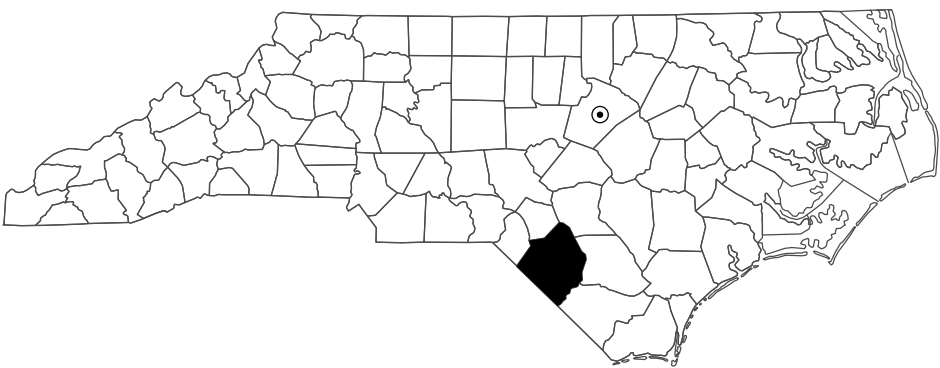
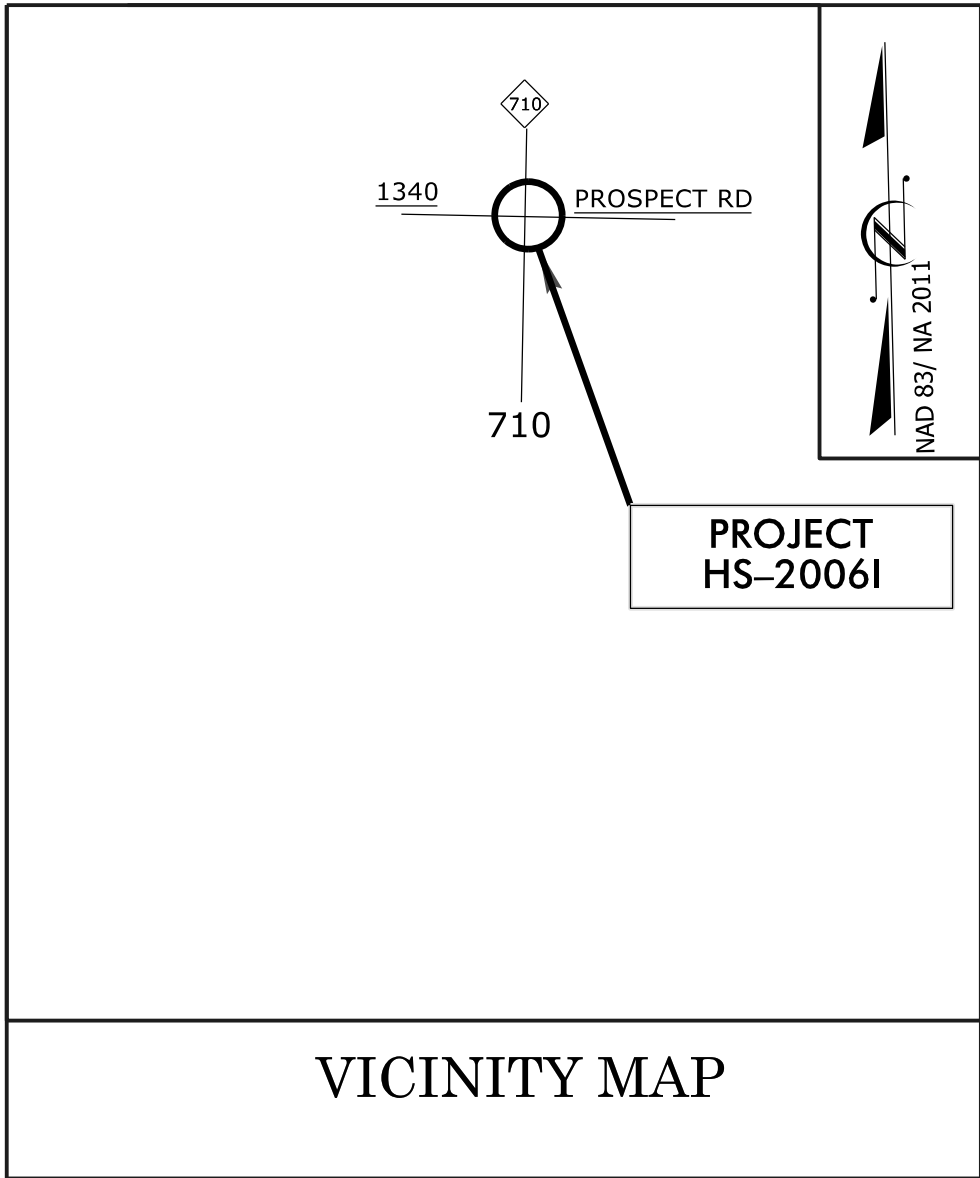
REVISIONS

STATE NO.	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS2006I	RW01	7

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

ROBESON COUNTY



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT HS2006I-101
WITH NAD 83/ NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 354780.6329 EASTING: 1936389.0369
ELEVATION: 185.30
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.9999108558
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

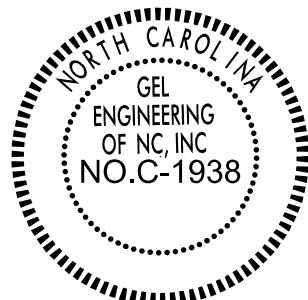
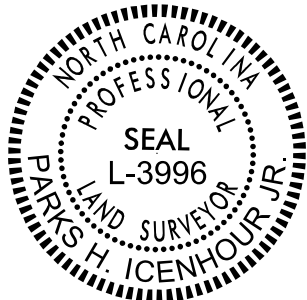
GEL SOLUTIONS
an Affiliate of THE GEL GROUP, INC.
2700 SUMNER BLVD.
SUITE 106
RALEIGH, NC 27616
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 15, 2024

LETTING DATE:
JANUARY 15, 2025

PROFESSIONAL LAND
SURVEYOR

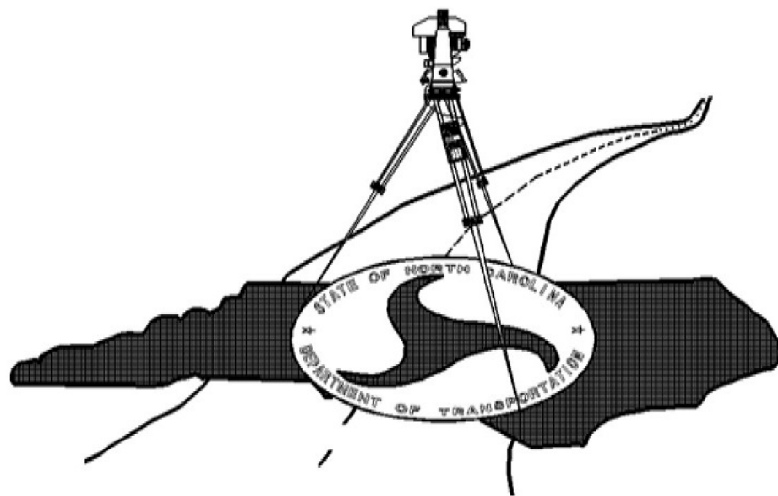


Parks H. Icenhour, Jr.

Digitally signed by
Parks H. Icenhour, Jr.
Date: 2024.11.19
10:15:41 -05'00'

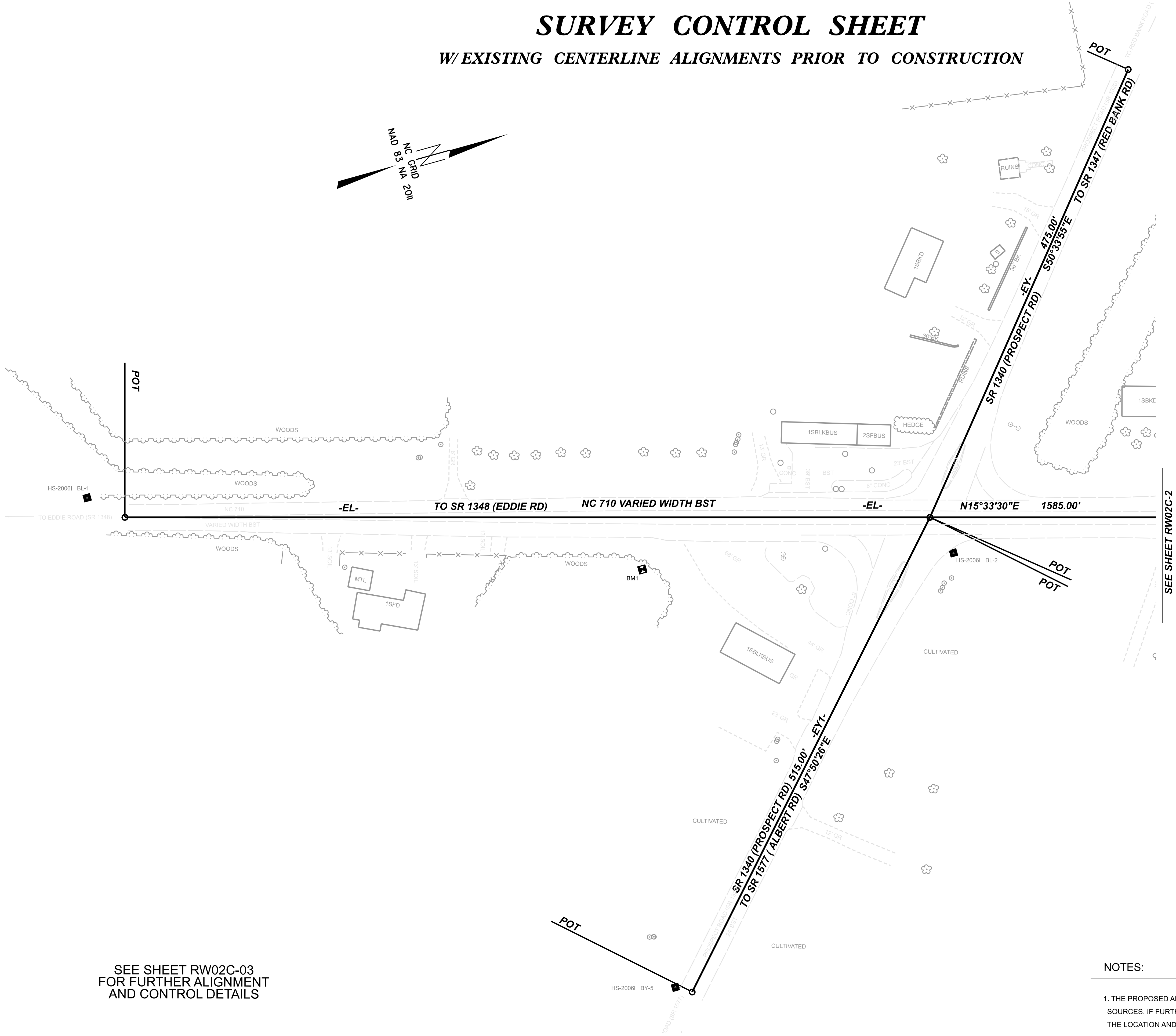
SIGNATURE:

DATE:



SURVEY CONTROL SHEET

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

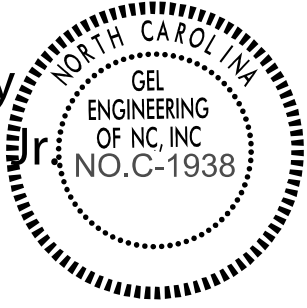


I, PARKS H. ICENHOUR JR, PLS, CERTIFY THAT THE SECONDARY BASELINE CONTROL FOR THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION UTILIZING PRIMARY GPS CONTROL SET BY OTHERS; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:20,000 (CLASS AA) AND VERTICAL ACCURACY TO 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED FROM 1/2023 TO 4/2023 , AND ALL COORDINATES ARE BASED ON NAD 83/NA 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 19th DAY OF NOVEMBER, 2024.

Digitally signed by
Parks H. Icenhour, Jr.
Date: 2024.11.19
10:16:35 -05'00'

PROFESSIONAL LAND SURVEYOR L-3996



HS2006I

R/W02C-1

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

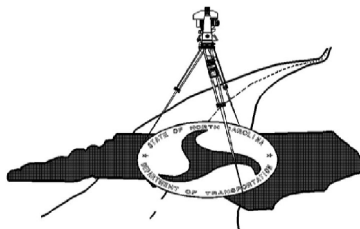
PROFESSIONAL LAND
SURVEYOR

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HS2006I
County: ROBESON

PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY

GEL SOLUTIONS
an Affiliate of THE GEL GROUP, INC.
2700 SUMNER BLVD.
SUITE 108
RALEIGH NC 27616
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

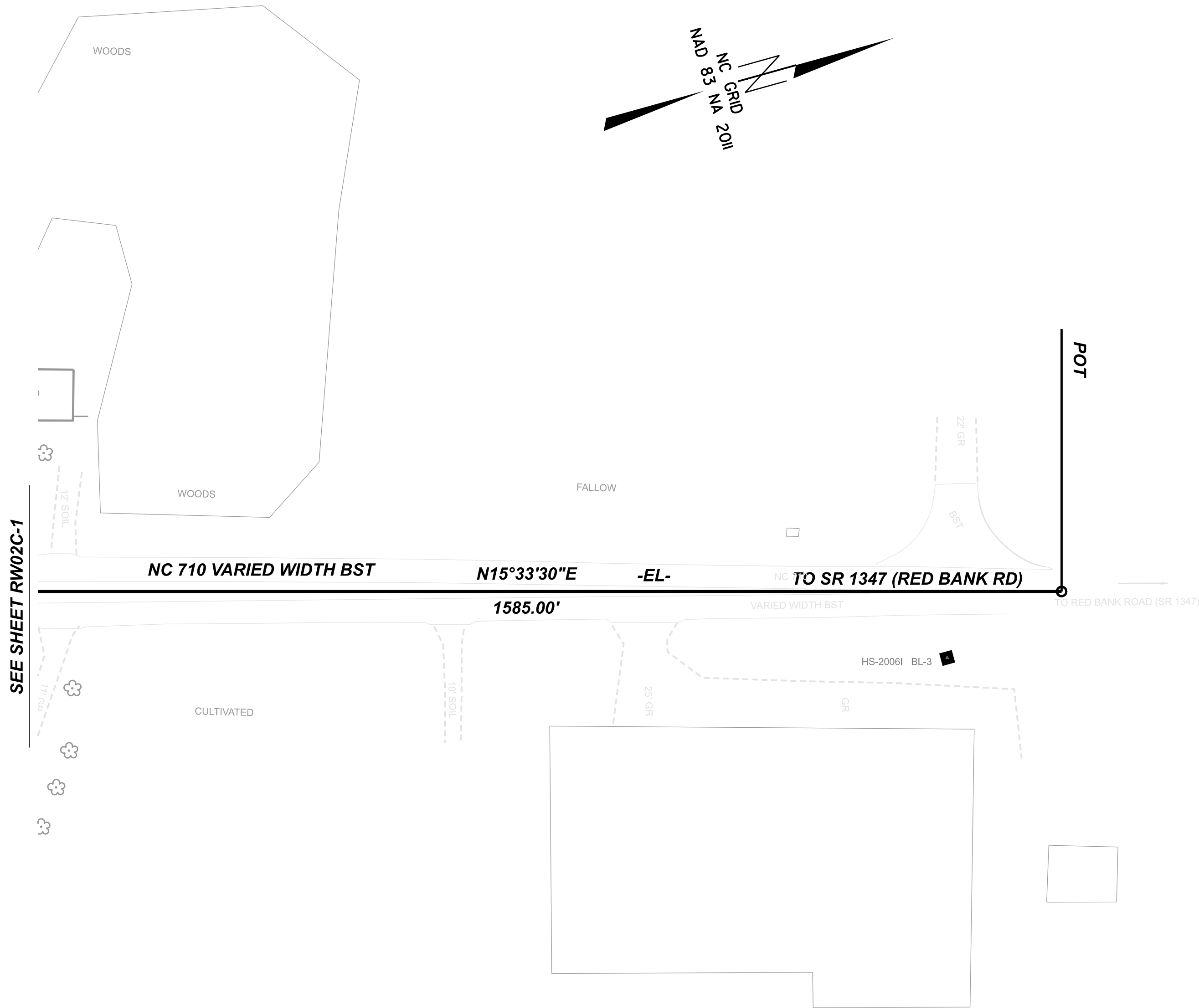
NOTES:

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

SEE SHEET RW02C-03
FOR FURTHER ALIGNMENT
AND CONTROL DETAILS

SURVEY CONTROL SHEET
W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

HS-2006I BY-4



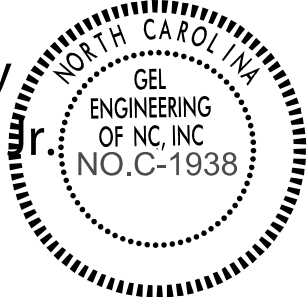
SEE SHEET RW02C-03
FOR FURTHER ALIGNMENT
AND CONTROL DETAILS

I, PARKS H. ICENHOUR JR, PLS, CERTIFY THAT THE SECONDARY BASELINE CONTROL FOR THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION UTILIZING PRIMARY GPS CONTROL SET BY OTHERS: THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:20,000 (CLASS AA) AND VERTICAL ACCURACY TO 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED FROM 1/2023 TO 4/2023 , AND ALL COORDINATES ARE BASED ON NAD 83/NA 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 19th DAY OF NOVEMBER, 2024.

Parks H. Icenhour, Jr.

Digitally signed by
Parks H. Icenhour,
Date: 2024.11.19
10:39:46 -05'00'

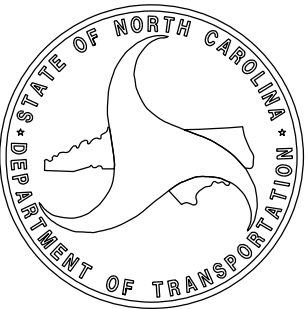


PROFESSIONAL LAND SURVEYOR L-3996

HS2006I

R/W 02C-2

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

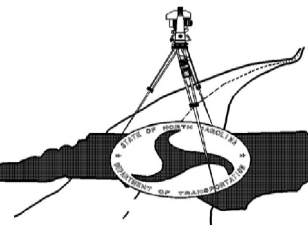


DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HS2006I
County: ROBESON

PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY

GEL SOLUTIONS
an Affiliate of THE GEL GROUP, INC.
2700 SUMNER BLVD.
SUITE 106
RALEIGH, NC 27616
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

NOTES:

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

SURVEY CONTROL SHEET

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PRIMARY CONTROL TABLE				
POINT	Description	Northing	Easting	Elevation
101	HS2006I-101	354780.6329	1936389.0369	185.3
102	HS2006I-102	355198.5893	1936492.0540	185.52

BASELINE POINTS TABLE				
POINT	DESC	NORTH	EAST	ELEVATION
BL-1	HS2006I-1	352691.9473	1935770.771	183.61
BL-2	HS2006I-2	353487.0646	1936047.653	185.14
BL-3	HS2006I-3	354175.8533	1936243.055	186.13

BY POINTS TABLE				
POINT	DESC	NORTH	EAST	ELEVATION
BY-4	HS2006I-BY4	353836.7282	1935594.578	185.88
BY-5	HS2006I-BY5	353114.2845	1936381.295	185.69

BENCHMARK TABLE				
BENCH	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM1	353192	1935982	187.66	RR SPIKE IN BASE OF 18" PINE

EXISTING ALIGNMENT NAME:EL									
POINT	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R
POT	352722.1223	1935798.9011							
LINE			N15°33'29.83"E	1585.0000					
POT	354249.0449	1936224.0275							

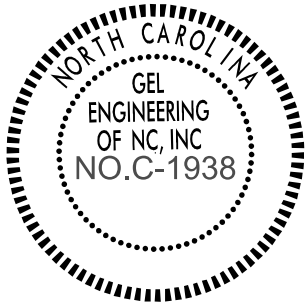
EXISTING ALIGNMENT NAME:EY									
POINT	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R
POT	353776.0537	1935641.4670							
LINE			S50°33'54.58"E	475.0000					
POT	353474.3335	1936008.3321							

EXISTING ALIGNMENT NAME:EY1									
POINT	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R
POT	353474.3335	1936008.3321							
LINE			S47°50'25.51"E	515.0000					
POT	353128.6666	1936390.0904							

I, PARKS H. ICENHOUR JR, PLS, CERTIFY THAT THE SECONDARY BASELINE CONTROL FOR THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION UTILIZING PRIMARY GPS CONTROL SET BY OTHERS; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:20,000 (CLASS AA) AND VERTICAL ACCURACY TO 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED FROM 1/2023 TO 4/2023 , AND ALL COORDINATES ARE BASED ON NAD 83/NA 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 19th DAY OF NOVEMBER, 2024.

Parks H. Icenhour, Jr. Digitally signed by
Parks H. Icenhour, Jr.
Date: 2024.11.19
10:16:15 -05'00'



PROFESSIONAL LAND SURVEYOR L-3996

HS2006I

R/W02C-3

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

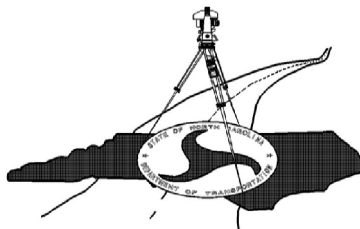
PROFESSIONAL LAND
SURVEYOR

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HS2006I
County: ROBESON

PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY

GEL SOLUTIONS
an Affiliate of THE GEL GROUP, INC.
2700 SUMNER BLVD.
SUITE 100
RALEIGH, NC 27616
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

NOTES:

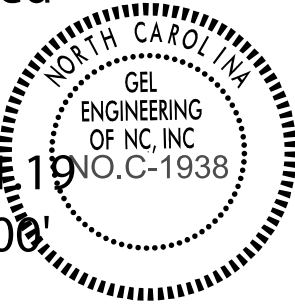
1. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

PROPOSED ALIGNMENT CONTROL SHEET

I, PARKS H. ICENHOUR JR., 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 19th DAY OF NOVEMBER, 2024.

Digitally signed by Parks H. Icenhour, Jr.
Date: 2024.11.19 10:16:57 -05'00'
PROFESSIONAL LAND SURVEYOR L-3996



PROPOSED ALIGNMENT: L												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
POT	10+00.00	352881.7595	1935843.3474	N15°33'29.83"E	314.323							
PC	13+14.32	353184.5648	1935927.6545	N19°43'46.60"E	151.297	08°20'33.5"	05°30'33.2"	151.431	75.850	1040.000		
PT	14+65.75	353326.9803	1935978.7297	N23°54'03.36"E	181.928							
POT	16+47.68	353493.3074	1936052.4390									

PROPOSED ALIGNMENT: L1												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
POT	10+00.00	353493.3074	1936052.4390	N23°54'03.36"E	75.630							
PC	10+75.63	353562.4519	1936083.0810	N11°31'34.61"E	85.721	24°44'57.5"	28°38'52.4"	86.391	43.880	200.000		
PRC	11+62.02	353646.4445	1936100.2096	N07°21'17.84"E	296.788	16°24'24.0"	05°30'33.2"	297.804	149.928	1040.000		
PT	14+59.83	353940.7904	1936138.2032	N15°33'29.83"E	261.177							
POT	17+21.00	354192.3972	1936208.2556									

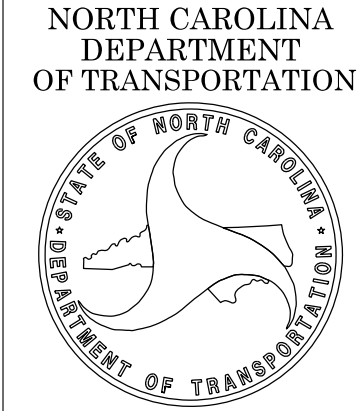
PROPOSED ALIGNMENT: Y1												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
POT	10+00.00	353493.3074	1936052.4390	N66°05'56.64"W	17.483							
PC	10+17.48	353500.3908	1936036.4549	N58°19'55.61"W	281.100	15°32'02.1"	05°30'33.2"	281.963	141.851	1040.000		
PT	12+99.45	353647.9667	1935797.2094	N50°33'54.58"W	201.648							
POT	15+01.09	353776.0537	1935641.4670									

PROPOSED ALIGNMENT: Y2												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
POT	10+00.00	353128.6666	1936390.0904	N47°50'25.51"W	25.069							
PC	10+25.07	353145.4930	1936371.5071	N34°06'16.65"W	242.194	27°28'17.7"	11°14'04.1"	244.530	124.662	510.000		
PRC	12+69.60	353346.0333	1936235.7075	N43°14'02.21"W	155.425	45°43'48.9"	28°38'52.4"	159.629	84.340	200.000		
PT	14+29.23	353459.2704	1936129.2445	N66°05'56.64"W	84.010							
POT	15+13.24	353493.3074	1936052.4390									

NOTES:

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

HS2006I
R/W 02D-I



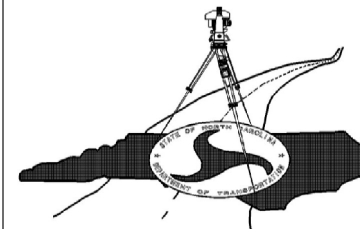
PROFESSIONAL LAND SURVEYOR



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED
2024 STANDARD SPECIFICATIONS

TIP PROJECT: HS2006I
County: ROBESON

PREPARED FOR



LOCATION AND SURVEYS UNIT

PREPARED BY

GEL SOLUTIONS
an Affiliate of THE GEL GROUP, INC.
2700 SUMNER BLVD.
SUITE 106
RALEIGH, NC 27616
(919) 544-1100
WWW.GEL-SOLUTIONS.COM

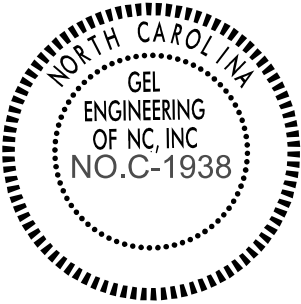
RIGHT OF WAY CONTROL SHEET

I, PARKS H. ICENHOUR JR., PLS, CERTIFY THAT THE RIGHT OF WAY AND PERMANENT EASEMENT MONUMENTATION FOR THIS PROJECT SHOWN HEREIN WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED FROM 10/2024 TO 11/2024, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 19th DAY OF NOVEMBER, 2024.

Parks H. Icenhour, Jr.

Digitally signed by
Parks H. Icenhour, Jr.
Date: 2024.11.19
10:17:21 -05'00'



PROFESSIONAL LAND SURVEYOR L-3996

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
12+65.00	-50	353150.3989	1935866.292
12+98.00	-64	353186.0062	1935861.622
14+65.00	-74	353356.2035	1935910.794
14+65.00	-61.54	353351.1841	1935922.143

PK NAIL SET

PK NAIL SET

PERMANENT ROW MARKER IRON PIN AND CAP: L1			
STATION	OFFSET	NORTH	EAST
11+65.54	55	353650.5938	1936155.16
14+59.83	55	353925.9902	1936191.175
14+59.83	50	353927.3313	1936186.358

PERMANENT EASEMENT MARKER IRON PIN AND CAP: Y1			
STATION	OFFSET	NORTH	EAST
11+14.18	-47.21	353502.401	1935926.996
11+35.00	64.3	353609.4403	1935964.446
12+55.00	70	353676.3615	1935874.284
12+55.00	38	353650.8304	1935854.991
12+80.00	-40	353604.3721	1935787.563
13+00.00	30	353671.4892	1935815.837
13+25.00	-30	353641.0081	1935758.462

PERMANENT ROW MARKER IRON PIN AND CAP: Y2			
STATION	OFFSET	NORTH	EAST
10+15.00	30	353160.9729	1936399.107
10+15.00	50	353175.8321	1936412.494
12+69.60	50	353363.4448	1936282.532
13+75.00	50	353469.5047	1936207.017
14+35.00	75	353530.1777	1936154.354

PERMANENT EASEMENT MARKER IRON PIN AND CAP: Y2			
STATION	OFFSET	NORTH	EAST
10+15.00	-30	353116.4962	1936358.835
10+50.00	-50	353127.3316	1936318.082
11+45.00	-45.28	353210.0937	1936255.465

NOTES:

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

HS2006I

R/W03E-1

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

PROFESSIONAL LAND
SURVEYOR

NORTH CAROLINA
PROFESSIONAL
LAND SURVEYOR
SEAL
L-3996
PARKS H. ICENHOUR

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HS2006I
County: ROBESON

PREPARED FOR

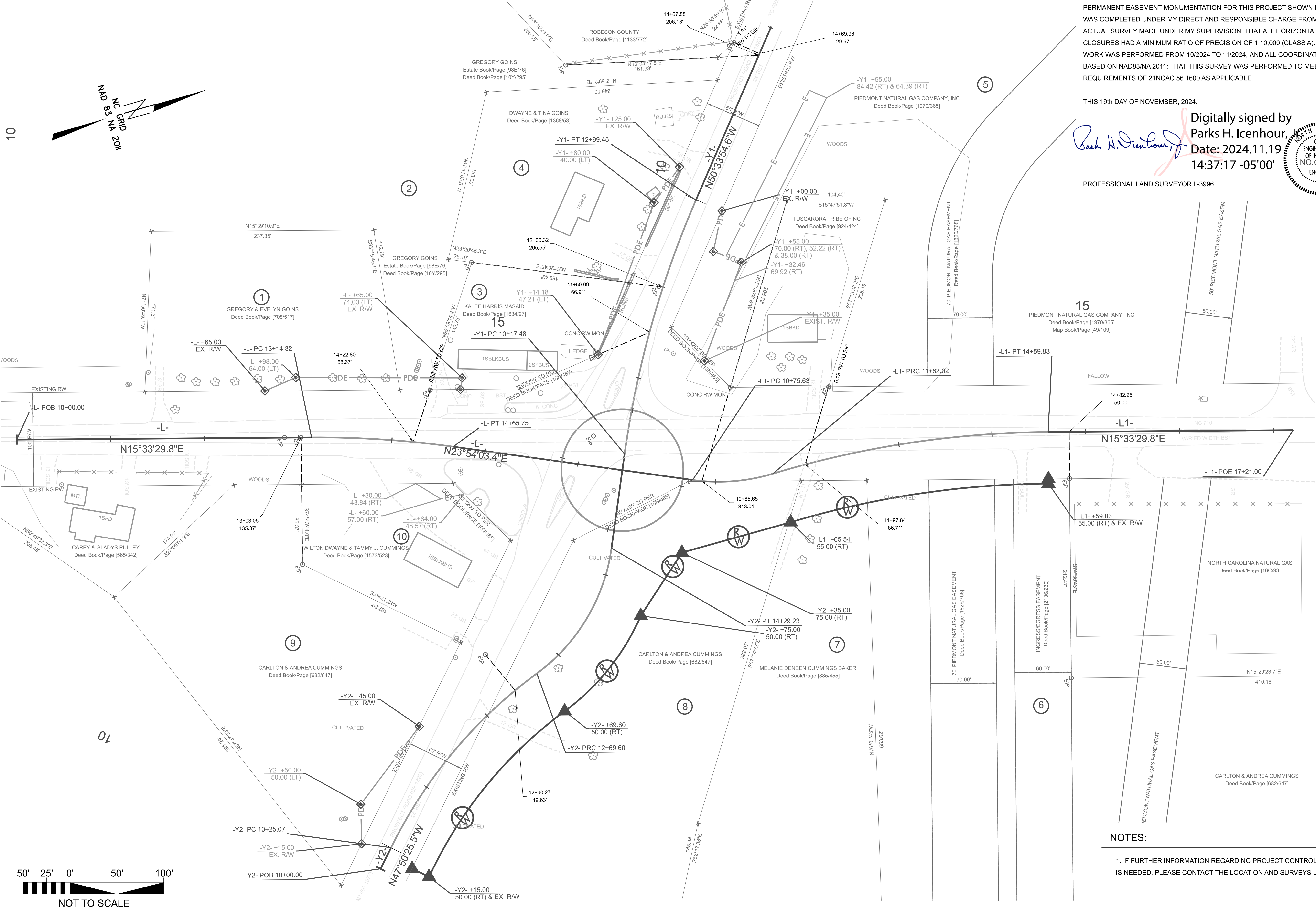
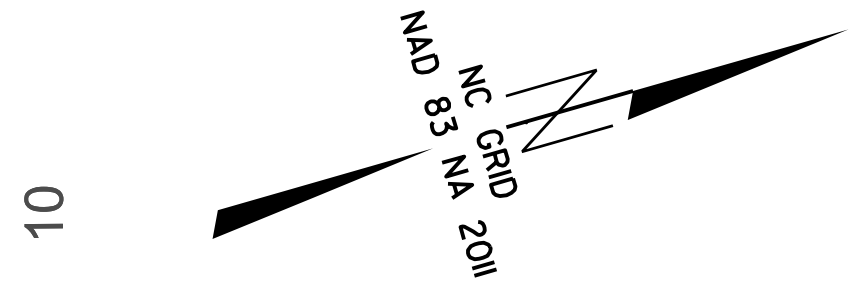
LOCATION AND
SURVEYS UNIT

PREPARED BY

GEL SOLUTIONS

an Affiliate of THE GEL GROUP, INC.

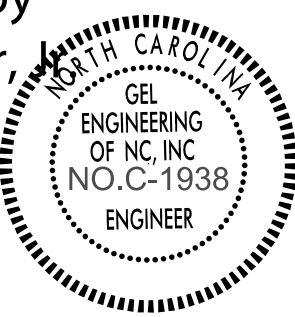
2700 SUMNER BLVD.
SUITE 106
RALEIGH, NC 27616
(919) 544-1100
WWW.GEL-SOLUTIONS.COM



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THIS 19th DAY OF NOVEMBER, 2024.

Digitally signed by
Parks H. Icenhour
Date: 2024.11.19
14:37:17 -05'00'



PROFESSIONAL LAND SURVEYOR L-3996



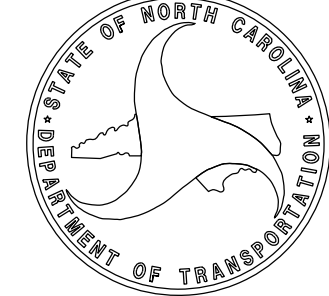
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- 1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

HS20061

R/W 04

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

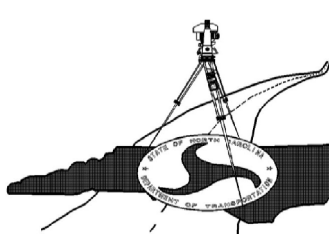


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ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HS20061
County: ROBESON

PREPARED FOR



LOCATION AND SURVEYS UNIT

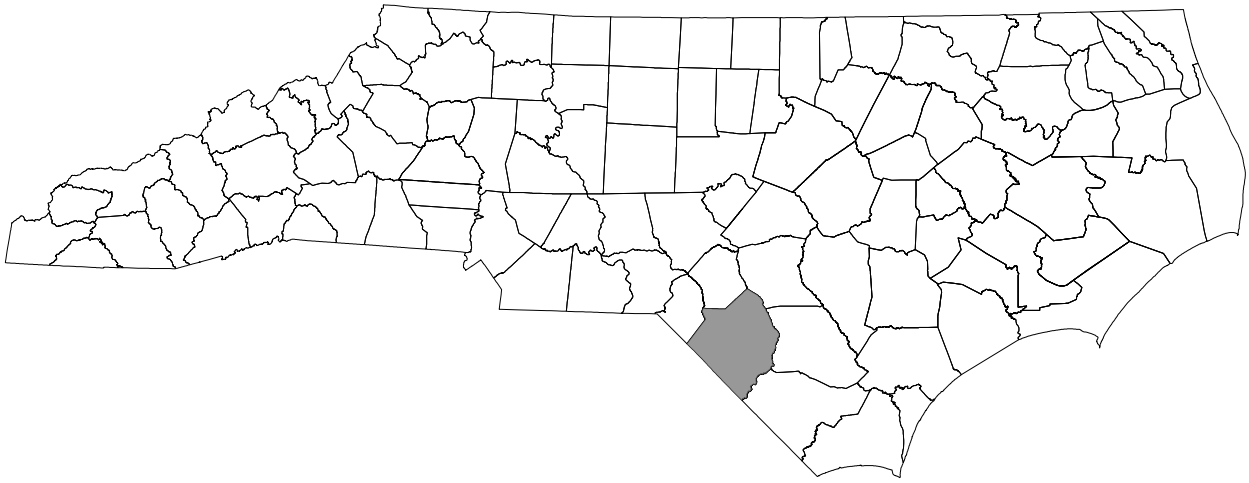
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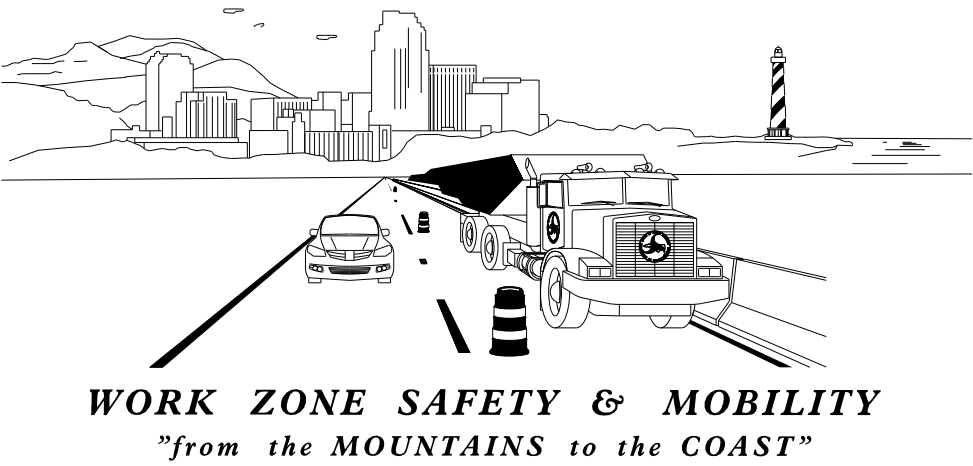
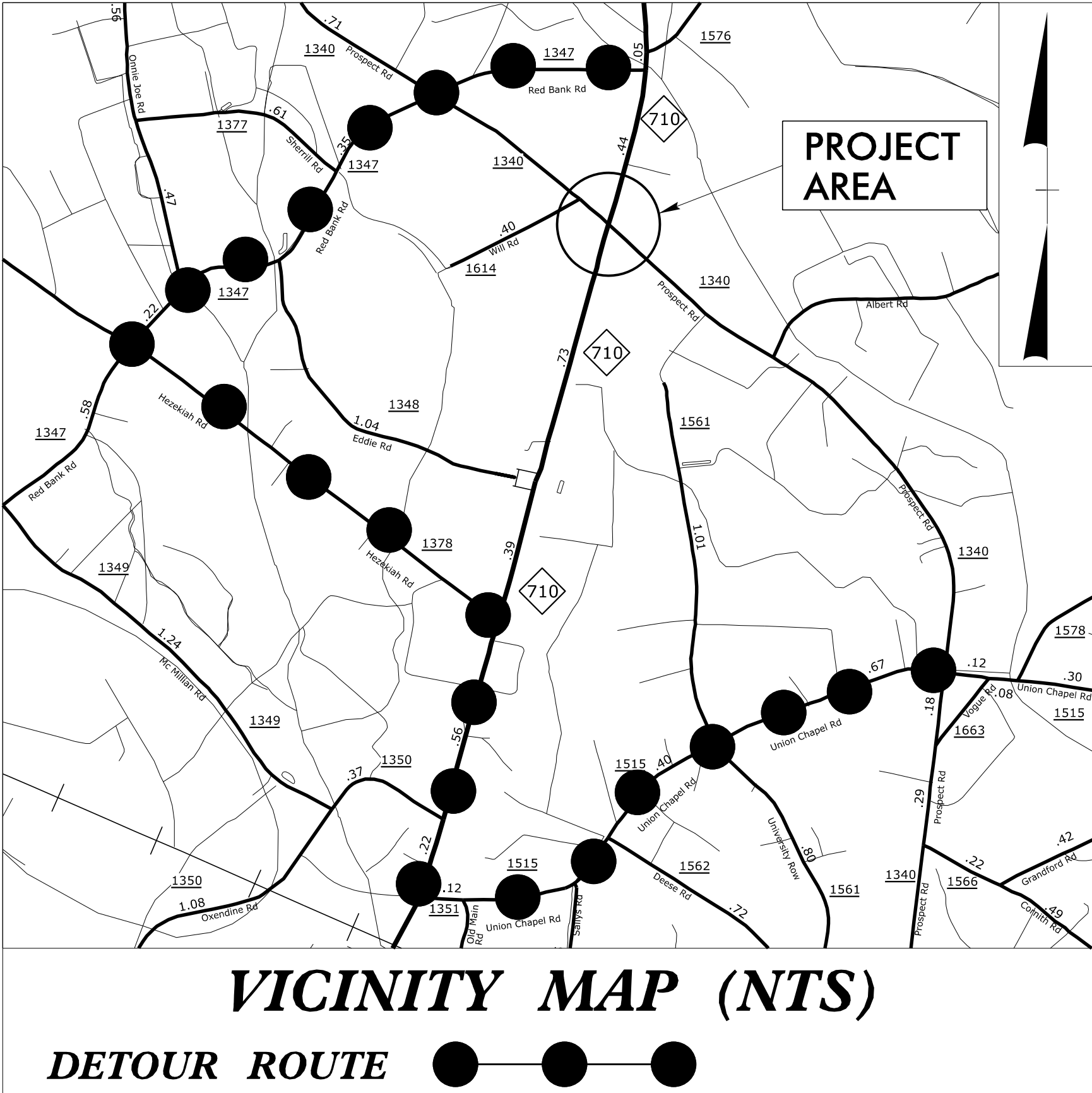
TIP PROJECT: HS-2006I

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN
ROBESON COUNTY



LOCATION: CONSTRUCT ROUNDABOUT AT NC 710 /SR 1340
(PROSPECT RD) INTERSECTION



NCDOT CONTACTS:

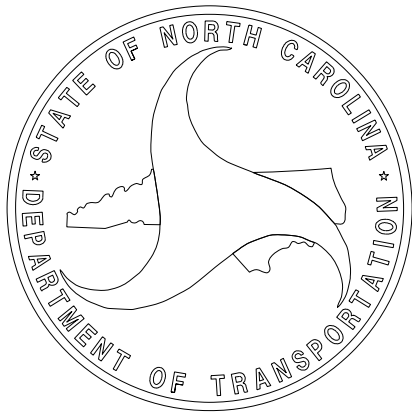
JAMES V. FLOWERS
DIVISION TRAFFIC ENGINEER

JASON P. SALISBURY, P.E.
DIVISION CONSTRUCTION ENGINEER

PLANS PREPARED BY:

ADAM M. CONRAD, P.E.
PROJECT ENGINEER

KEVIN P. SABO, E.I.
PROJECT DESIGN ENGINEER



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, GENERAL NOTES, PHASING, AND LOCAL NOTES)
TMP - 2	OFF SITE DETOUR DETAIL
TMP - 3	OFF SITE DETOUR SIGN LEGEND
TMP - 4	SIGN DESIGN

HS-2006I

TMP1

WORK ZONE TRAFFIC CONTROL ENGINEER

12/13/2024

SEAL

043767

Adam M. Conrad

Professional Engineer

00000000000000000000

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

WORK ZONE TRAFFIC CONTROL UNIT

PREPARED BY

CDM Smith

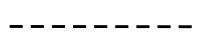
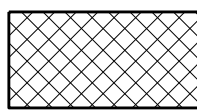
CDM Smith Inc.
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612
NC CDA No. F-1255

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES - TYPE-III

GENERAL

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

SIGNALS

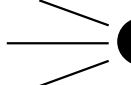
-  EXISTING
-  PROPOSED
-  TEMPORARY

PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES

LEGEND

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

HS-20061

TMP | IA

WORK ZONE TRAFFIC CONTROL ENGINEER

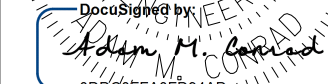
NORTH CAROLINA

12/13/2024

SEAL

043767

DocuSign

By: 

00009FA1F199AD

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UNLESS ALL SIGNATURES COMPLETED



WORK ZONE TRAFFIC CONTROL UNIT
PREPARED BY

CDM Smith

CDM Smith Inc.

5400 Glenwood Avenue

Suite 401

Raleigh, NC 27612

NC CCA No. F-1255

MANAGEMENT STRATEGIES

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

- A) FULL ROADWAY CLOSURES
- B) OFF-SITE DETOURS / USE OF ALTERNATIVE ROUTES
- C) MAINTAIN LOCAL ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

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

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

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

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

TRAFFIC CONTROL DEVICES

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

LOCAL NOTES

- A) UNLESS OTHERWISE NOTED MAINTAIN ACCESS TO RESIDENCES AND BUSINESSES AT ALL TIMES DURING CONSTRUCTION.
- B) PROVIDE ONE MONTH NOTICE TO THE ENGINEER, ROBESON COUNTY EMERGENCY SERVICES, AND ROBESON COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURES.

HS-20061

TMP118

WORK ZONE TRAFFIC CONTROL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 043767 ENGINEER ADAM M. CONRAD

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STATE OF NORTH CAROLINA

WORK ZONE TRAFFIC CONTROL UNIT

PREPARED BY

CDM Smith

CDM Smith Inc.
2000 Gateway Avenue
Durham, NC 27603
(919) 286-7725



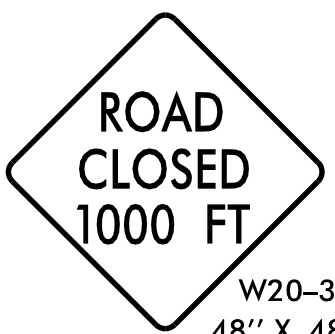
OFF-SITE DETOUR ROUTE
SEE SHEET TMP-3 FOR SIGN LEGEND



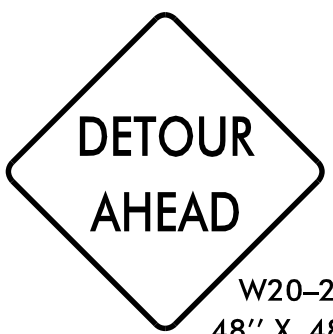
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B



C



D



E



F



G



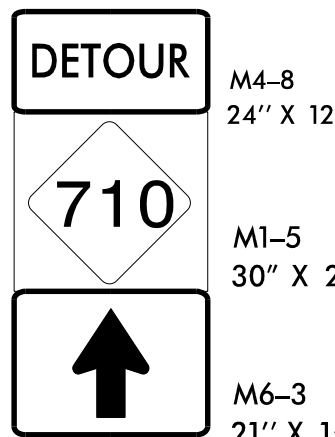
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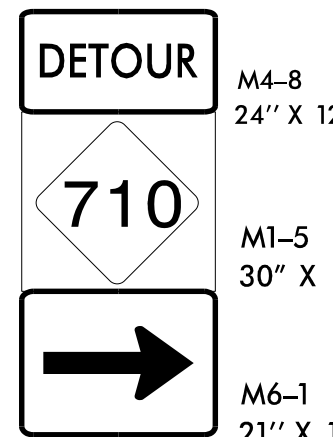
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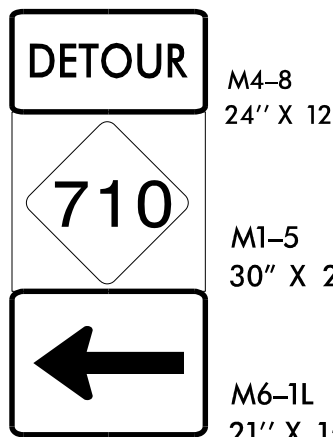
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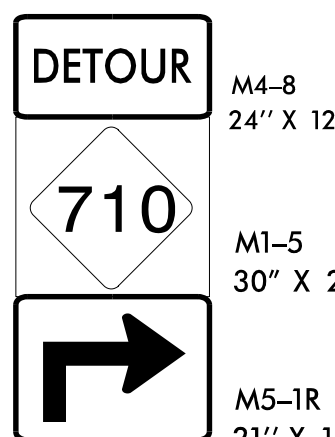
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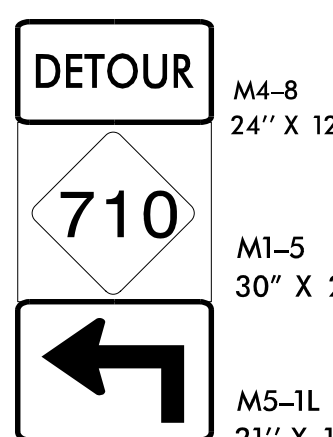
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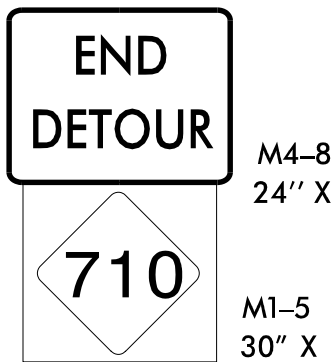
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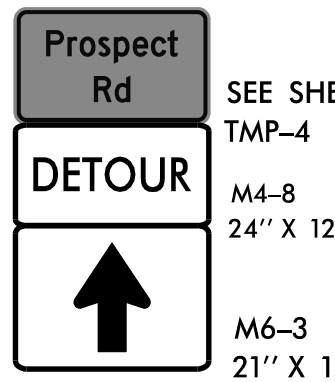
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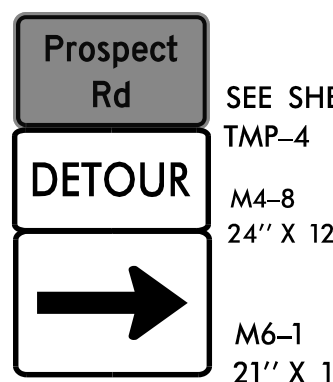
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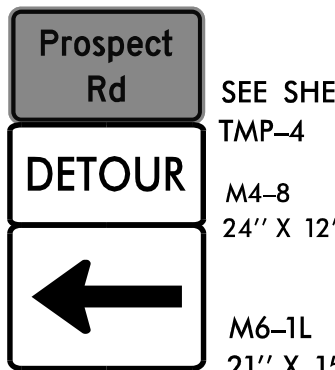
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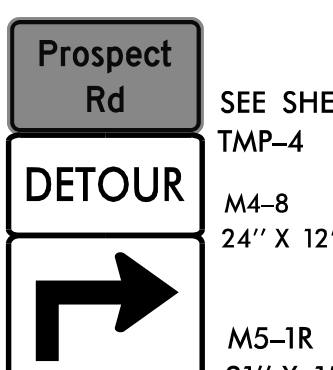
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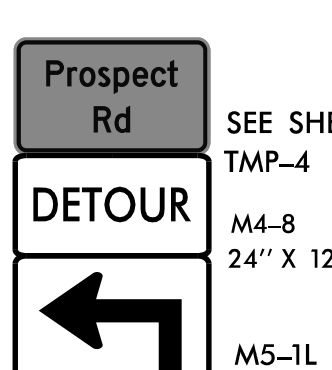
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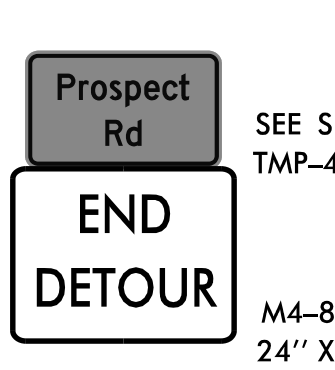
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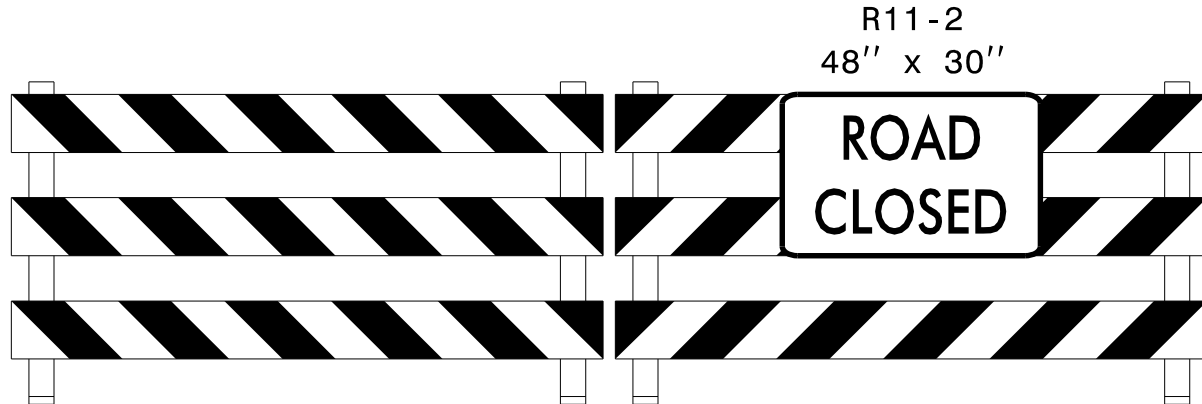
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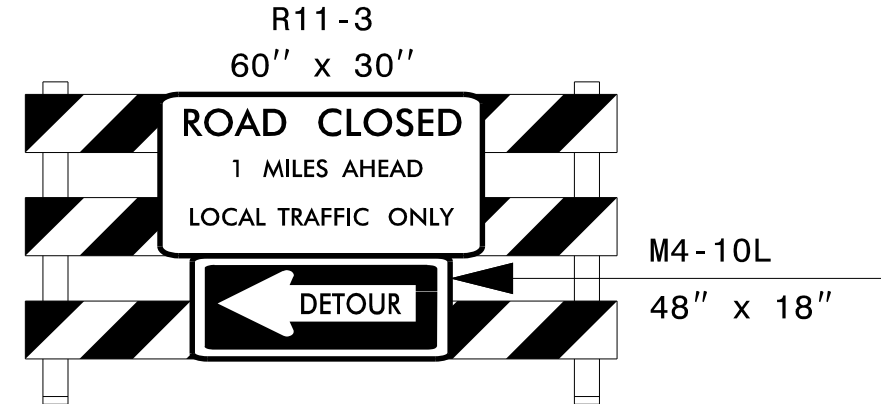


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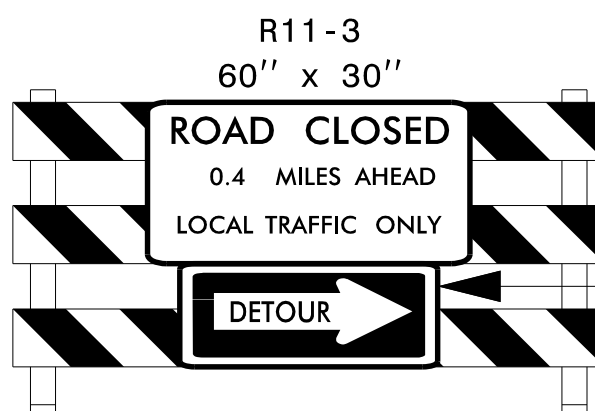
TYPE III BARRICADE(S)

AA



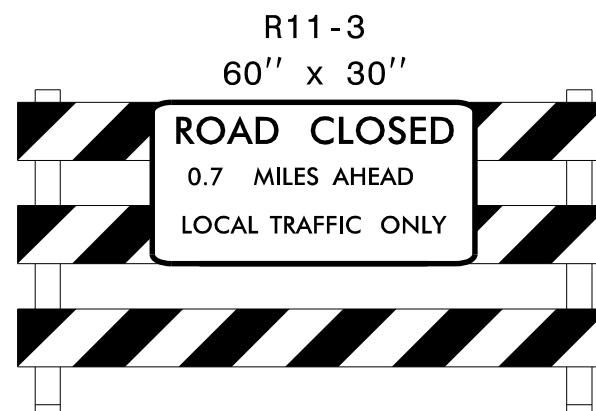
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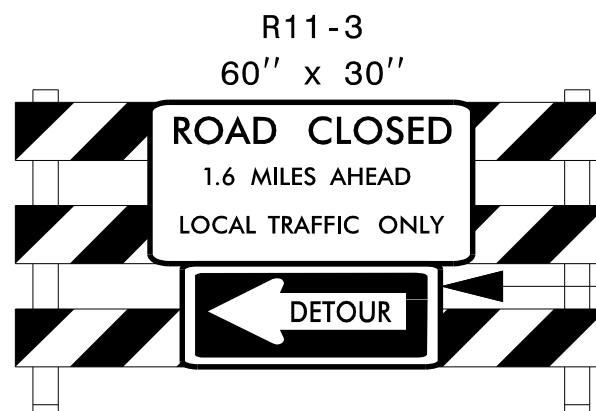
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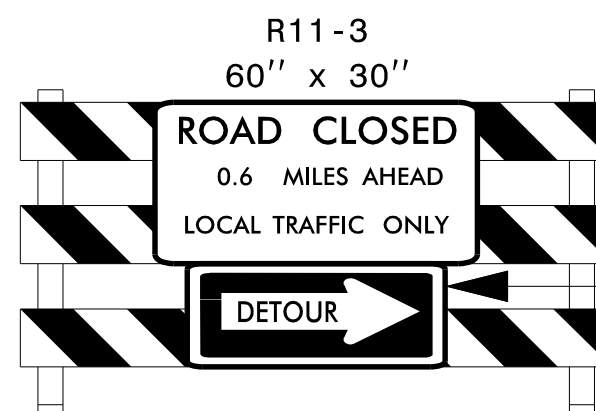
TYPE III BARRICADE

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TYPE III BARRICADE

EE



TYPE III BARRICADE

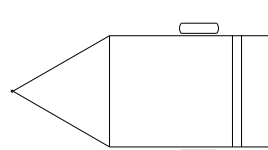
FF



TYPE III BARRICADE

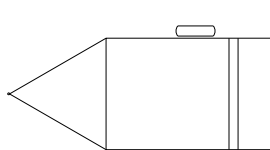
GG

MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2
NC 710 WILL BE CLOSED	STARTING (DAY) (TIME)	NC 710 CLOSED 2 MI	FOLLOW POSTED DETOUR
CHANGEABLE MESSAGE SIGN PRIOR TO CLOSURE		CHANGEABLE MESSAGE SIGN DURING CLOSURE	



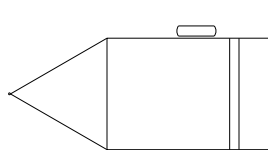
HH

MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2
NC 710 WILL BE CLOSED	STARTING (DAY) (TIME)	NC 710 CLOSED 1.3 MI	FOLLOW POSTED DETOUR
CHANGEABLE MESSAGE SIGN PRIOR TO CLOSURE		CHANGEABLE MESSAGE SIGN DURING CLOSURE	



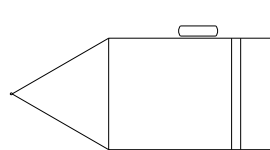
II

MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2
PROSPECT WILL BE CLOSED	STARTING (DAY) (TIME)	PROSPECT CLOSED 2.5 MI	FOLLOW POSTED DETOUR
CHANGEABLE MESSAGE SIGN PRIOR TO CLOSURE		CHANGEABLE MESSAGE SIGN DURING CLOSURE	



JJ

MESSAGE NO. 1	MESSAGE NO. 2	MESSAGE NO. 1	MESSAGE NO. 2
PROSPECT WILL BE CLOSED	STARTING (DAY) (TIME)	PROSPECT CLOSED 1.5 MI	FOLLOW POSTED DETOUR
CHANGEABLE MESSAGE SIGN PRIOR TO CLOSURE		CHANGEABLE MESSAGE SIGN DURING CLOSURE	



KK

HS-20061

TMP3

WORK ZONE TRAFFIC CONTROL ENGINEER

NORTH CAROLINA

12/23/2024

SEAL

043767

DocuSign by

Adrian M. Conner

00000000000000000000

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



ROADWAY DESIGN UNIT

PREPARED BY

CDM Smith
CDM Smith Inc.
5400 Glenwood Avenue
Suite 100
Charlotte, NC 27012
NC CDA No. F-1225

SIGN NUMBER: 1 TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 2'-6" HEIGHT: 1'-6" TOTAL AREA: 3.8 Sq.Ft. BORDER TYPE: INSET RECESS: 0.47" WIDTH: 0.63" RADII: 1.5" NO. Z BARS: LENGTH: BACKG COLOR: Fluorescent Orange COPY COLOR: Black <table><tr><th>SYMBOL</th><th>X</th><th>Y</th><th>WID</th><th>HT</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table> MAT'L: 0.080" (2.0 mm) ALUMINUM	SYMBOL	X	Y	WID	HT																																				DESIGN BY: KPS PROJECT ID: HS-2006I CHECKED BY: AMC LOCATION: ROBESON Nov 17, 2023 DIV: 6 Prospect Rd 2'-6" 1'-6" 3.5" 4"D 3" 4"D 3.5" 4.96" 20.08" 4.97" BORDER R=1.5" TH=0.63" IN=0.47" Spacing Factor is 1 unless specified otherwise																																																																																																																																																																																																																																																																								
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USE NOTES: 1,2 1. Legend and border shall be direct applied black non-reflective sheeting. 2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.																																																																																																																																																																																																																																																																																																																	
LETTER POSITIONS <table><tr><th colspan="25">Letter spacings are to start of next letter</th><th>Series/Size</th></tr><tr><th colspan="25"></th><th>Text Length</th></tr><tr><td></td><td></td><td>P</td><td>r</td><td>o</td><td>s</td><td>p</td><td>e</td><td>c</td><td>t</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>D 2000</td></tr><tr><td></td><td>5</td><td>3.2</td><td>1.8</td><td>2.8</td><td>2.4</td><td>2.9</td><td>2.8</td><td>2.5</td><td>1.6</td><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>20.1</td></tr><tr><td></td><td></td><td>R</td><td>d</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>D 2000</td></tr><tr><td></td><td>12.2</td><td>3.2</td><td>2.4</td><td>12.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5.6</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> FILENAME: HS-2006I_TMP_Detour_Sign_Design NORTH CAROLINA D.O.T. SIGN DETAIL		Letter spacings are to start of next letter																									Series/Size																										Text Length			P	r	o	s	p	e	c	t																		D 2000		5	3.2	1.8	2.8	2.4	2.9	2.8	2.5	1.6	5																	20.1			R	d																								D 2000		12.2	3.2	2.4	12.2																							5.6																																																																																																																																												
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HS-2006I

TMP4

WORK ZONE TRAFFIC CONTROL ENGINEER

NORTH CAROLINA

12/13/2024

SEAL

043767

Professional Engineer

Allen M. Lawrence

00000FA059441

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



WORK ZONE TRAFFIC CONTROL UNIT

PREPARED BY

CDM Smith

CDM Smith Inc.
5410 Glenwood Avenue
Suite 401
Raleigh, NC 27612
NC CCA No. F-1255

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT MARKING PLAN
ROBESON COUNTY

LOCATION: CONSTRUCT ROUNDABOUT AT NC 710/SR 1340
(PROSPECT RD) INTERSECTION

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR 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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.14	PAVEMENT MARKINGS - ROUNDABOUTS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING (USE DETAIL IN LIEU OF STANDARDS FOR SHEET 2 OF 3)
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	7,180	L.F.
4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	510	L.F.
4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	20	EA.
4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	48	EA.

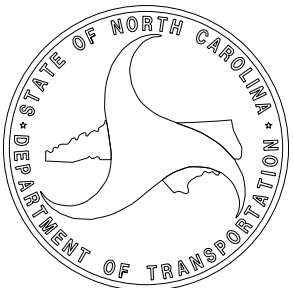
PLAN PREPARED BY: CDM SMITH, INC.

ADAM M. CONRAD, P. E. PROJECT MANAGER
KEVIN P. SABO, E.I. PROJECT DESIGN ENGINEER

CDM Smith
CDM Smith Inc.
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612
NC COA No. F-1255

PLAN REVIEWED BY: N.C.D.O.T. DIVISION 6

JAMES V. FLOWERS DIVISION TRAFFIC ENGINEER
JASON P. SALISBURY, P.E. DIVISION CONSTRUCTION ENGINEER



GENERAL NOTES

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

- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE
AS FOLLOWS:
- | | | |
|-----------|---------------|------------------|
| ROAD NAME | MARKING | MARKER |
| ALL | THERMOPLASTIC | PERMANENT RAISED |
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY
THE ENGINEER.
- E) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED
IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS
AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING
THE EXTRUDED THERMOPLASTIC PAY ITEM.
- F) CONTACT JAMES FLOWERS (DIVISION TRAFFIC ENGINEER) AT 910-364-0606 PRIOR
TO PLACEMENT OF THERMOPLASTIC MARKINGS AT TIE-INS.

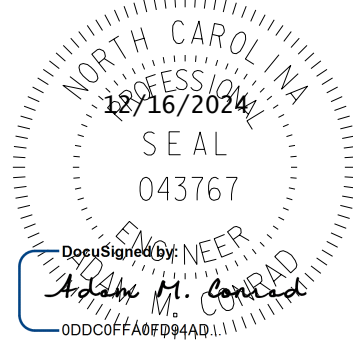
INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE SHEET
PMP-1A	PAVEMENT MARKING SPECIAL DETAIL
PMP-2	PAVEMENT MARKING SCHEDULE/PAVEMENT MARKING DETAIL

HS-2006I

PMP 1

PAVEMENT MARKING DESIGN
ENGINEER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

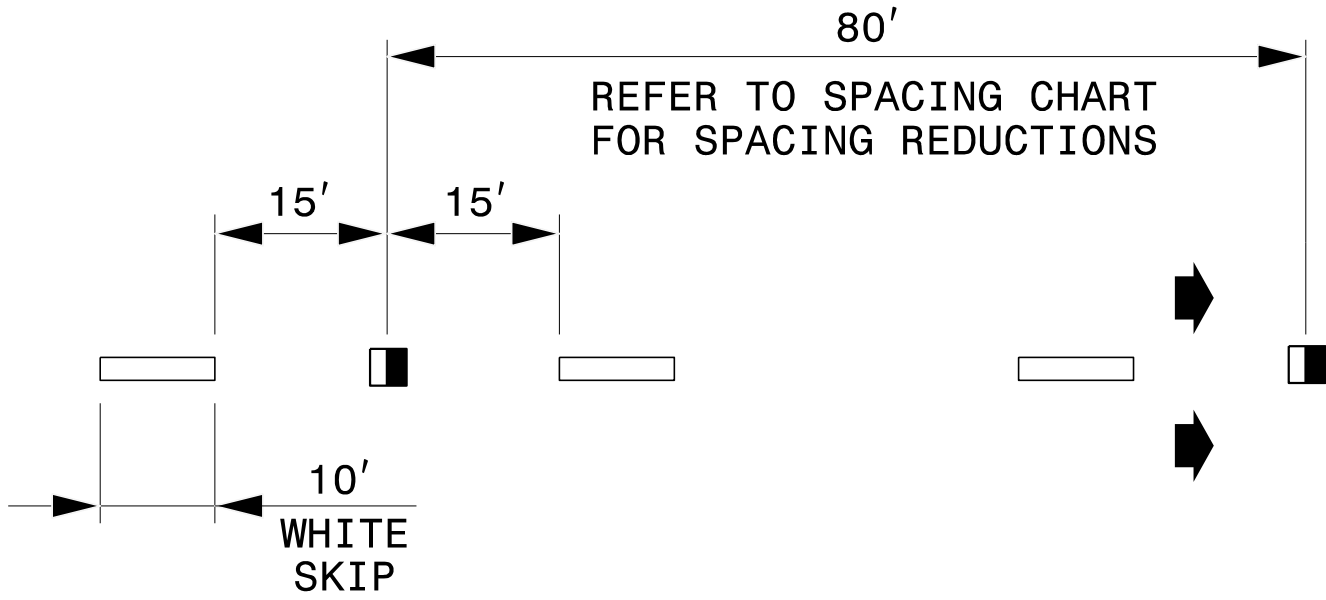


ROADWAY DESIGN UNIT

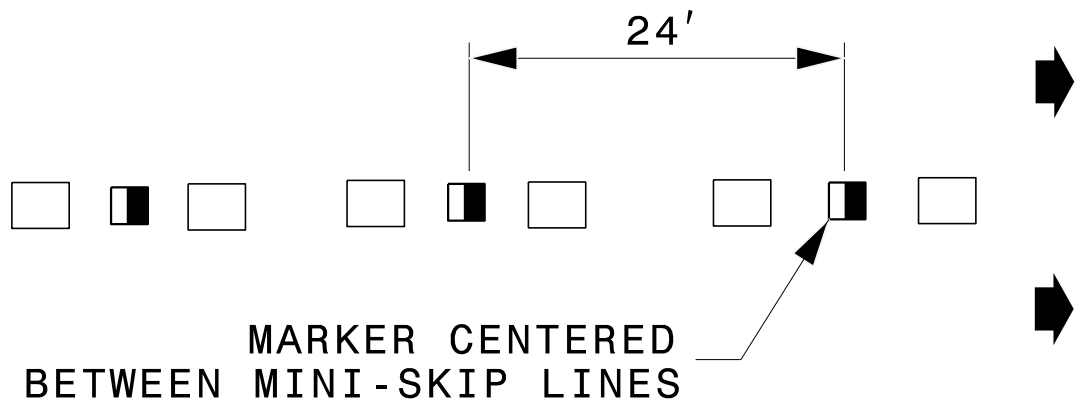
PREPARED BY

CDM Smith
CDM Smith Inc.
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612
NC COA No. F-1255

10'-30'/SP SKIP LINE



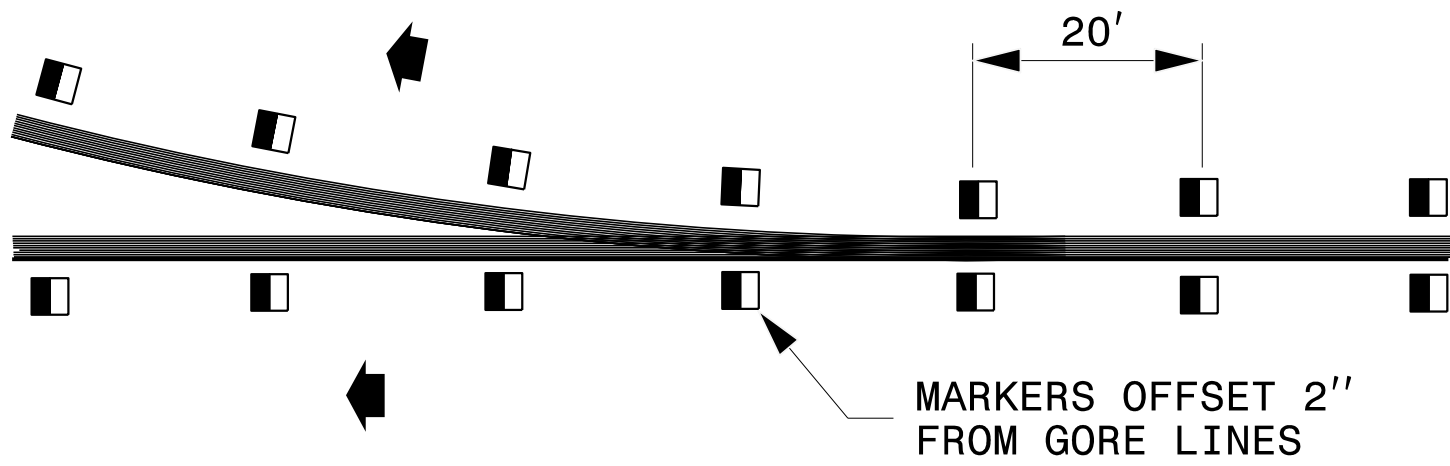
3'-9'/SP MINI-SKIP LINE



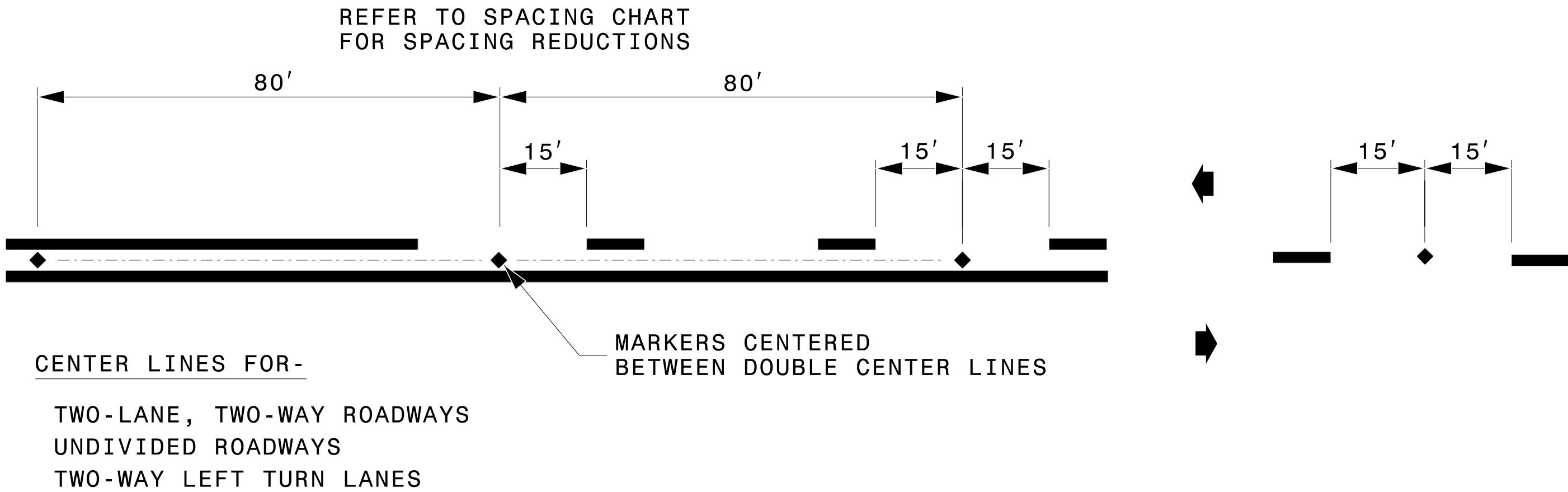
LEGEND

- CRYSTAL/RED PAVEMENT MARKER
- YELLOW/YELLOW PAVEMENT MARKER
- DIRECTION OF TRAFFIC FLOW

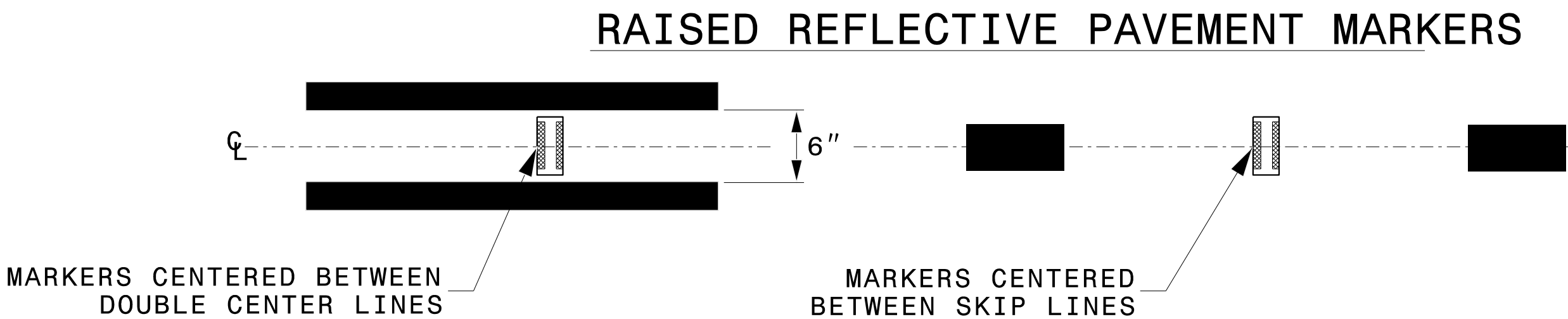
GORE LINES



YELLOW CENTER LINES



DETAIL OF PAVEMENT MARKER PLACEMENT



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

ROADWAY DETAIL DRAWING FOR
RAISED PAVEMENT MARKERS
INSTALLATION SPACING

SHEET 2 OF 3
1250D01



CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-8950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: M.V. SPRINGER DATE: 2-15-24
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PAVEMENT
MARKING SCHEDULE

SYMBOL	DESCRIPTION
T1	WHITE EDGELINE
T10	YELLOW EDGELINE
T13	YELLOW DOUBLE CENTER
T40	WHITE GORELINE
T42	YELLOW DIAGONAL
T45	3 FT. - 3 FT./SP WHITE MINISKIP
T103	24" YIELD LINE TRIANGLE
MA	PERMANENT RAISED PAVEMENT MARKERS
	PERMANENT RAISED MARKER (YELLOW & YELLOW)

-L- NC 710

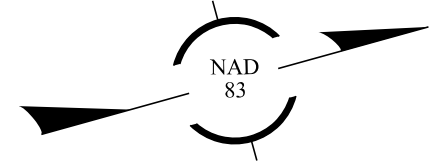
-L- STA. 13+00 +/-
TIE TO EXIST. MARKINGS

-Y2- STA. 10+25 +/-
TIE TO EXIST. MARKINGS

15

15

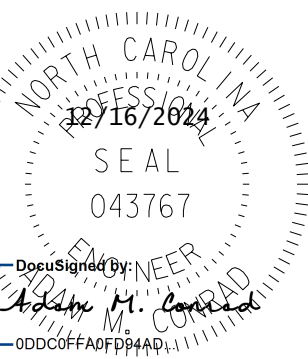
10



HS-20061

PMP 2

PAVEMENT MARKING DESIGN
ENGINEER



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STATE OF NORTH CAROLINA

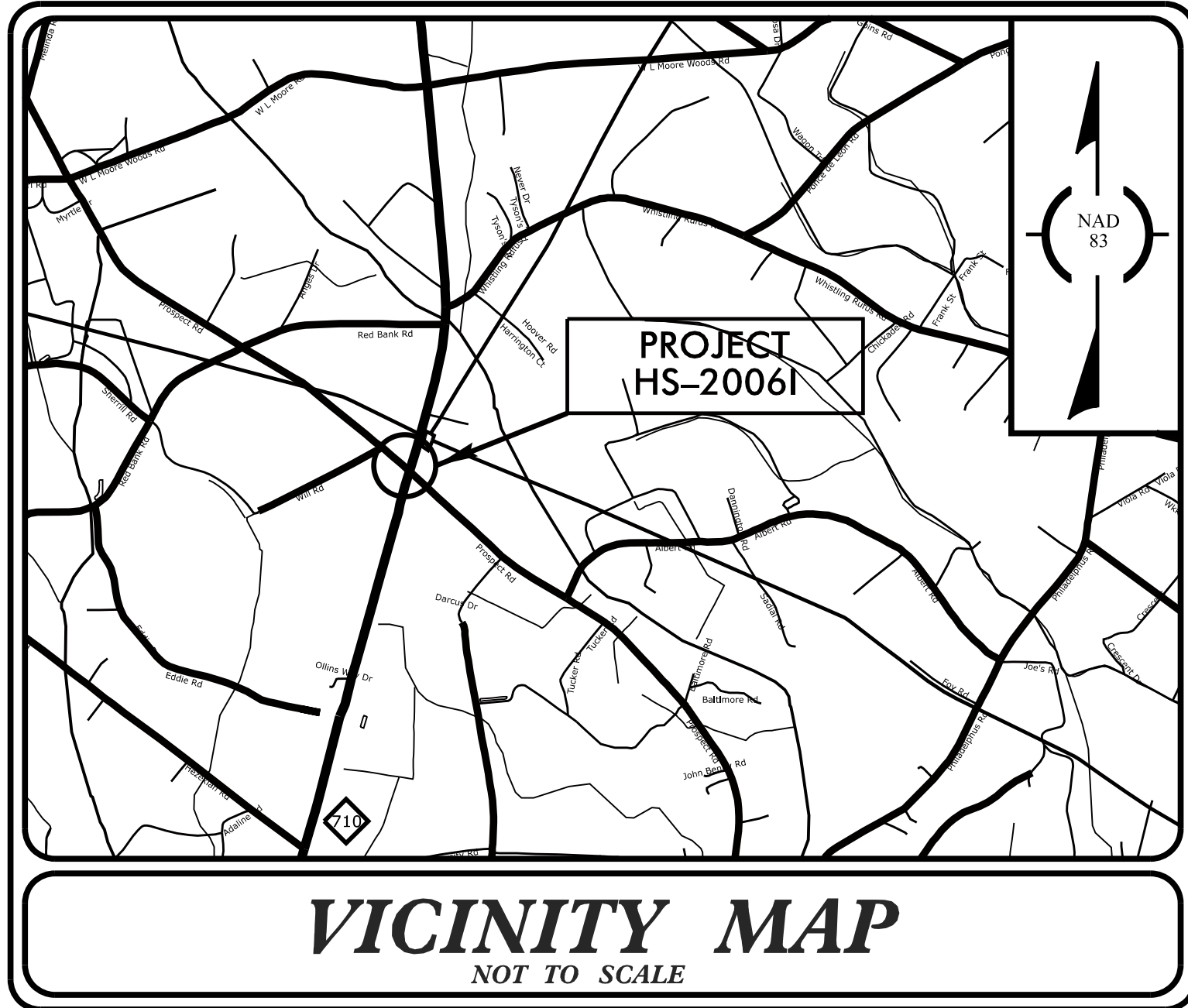


ROADWAY DESIGN UNIT

PREPARED BY

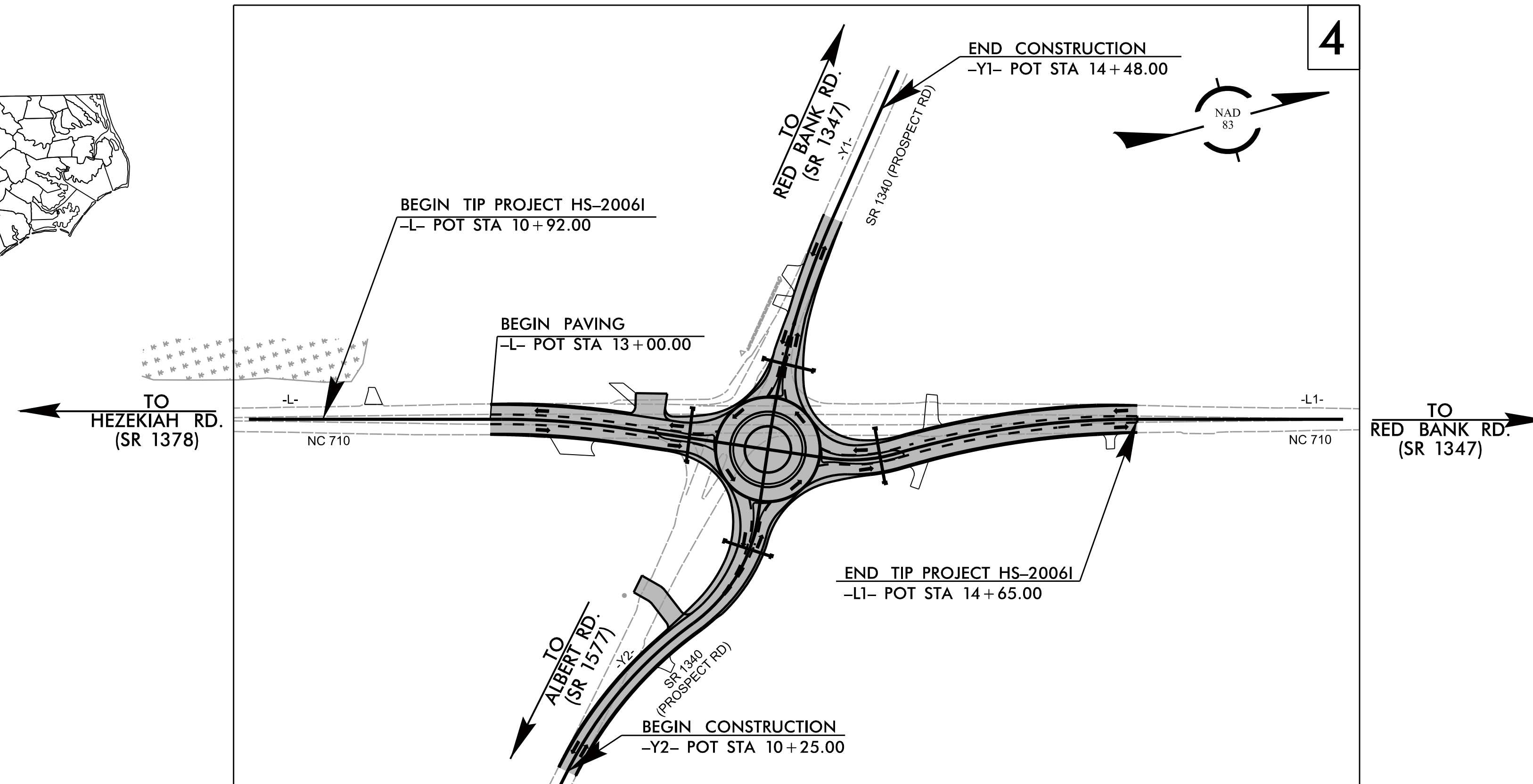
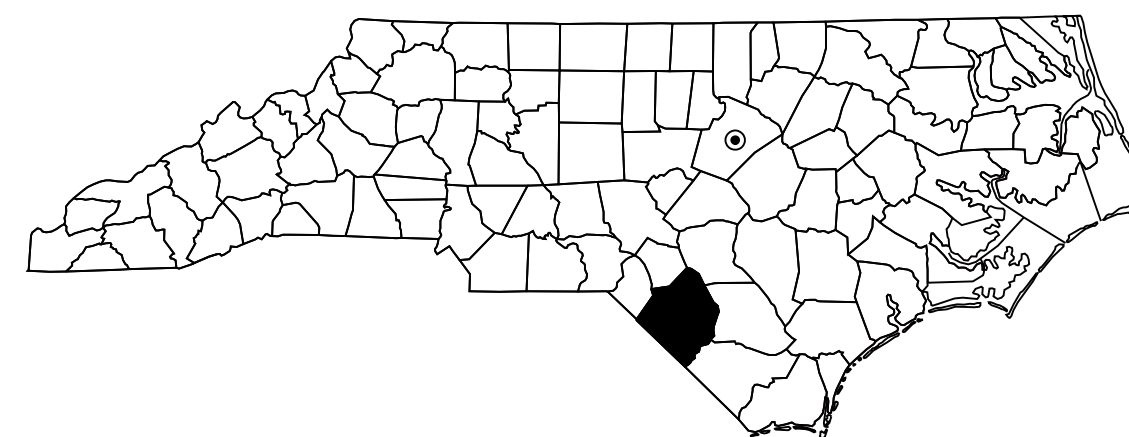
CDM Smith
CDM Smith Inc.
4500 Park Road
Charlotte, NC 28209
NC CDR No. F-1205

TIP PROJECT: HS-2006I



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

LOCATION: *CONSTRUCT ROUNDABOUT AT NC 710 / SR 1340
(PROSPECT RD) INTERSECTION*
TYPE OF WORK: *GRADING, DRAINAGE AND PAVING*



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

GRAPHIC SCALE



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

**CDM
Smith**

Prepared In the Office of:
CDM Smith, Inc.
4600 Park Road
Suite 240
Charlotte, NC 28209
NC COA No. F-1255

Designed by:

Heather Harkenrider
NAME

328I
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

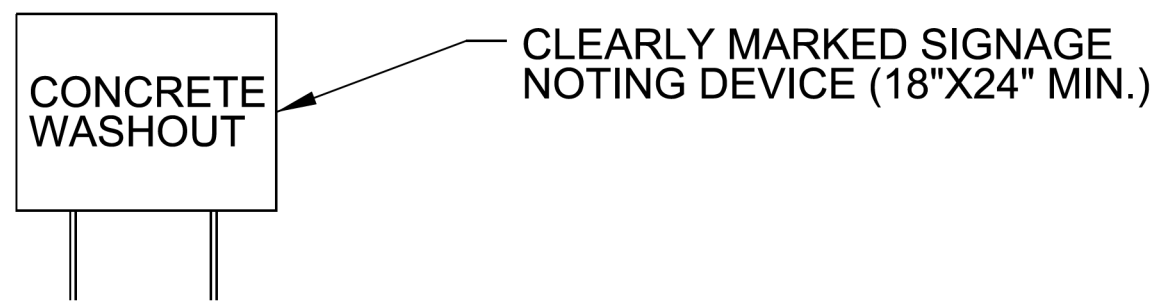
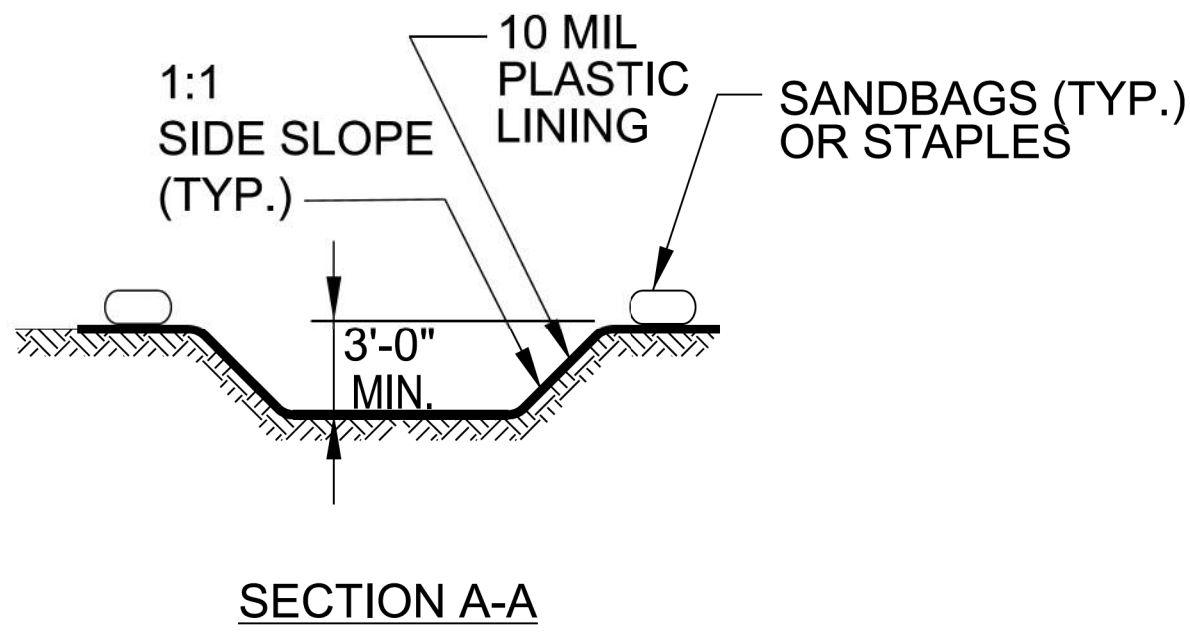
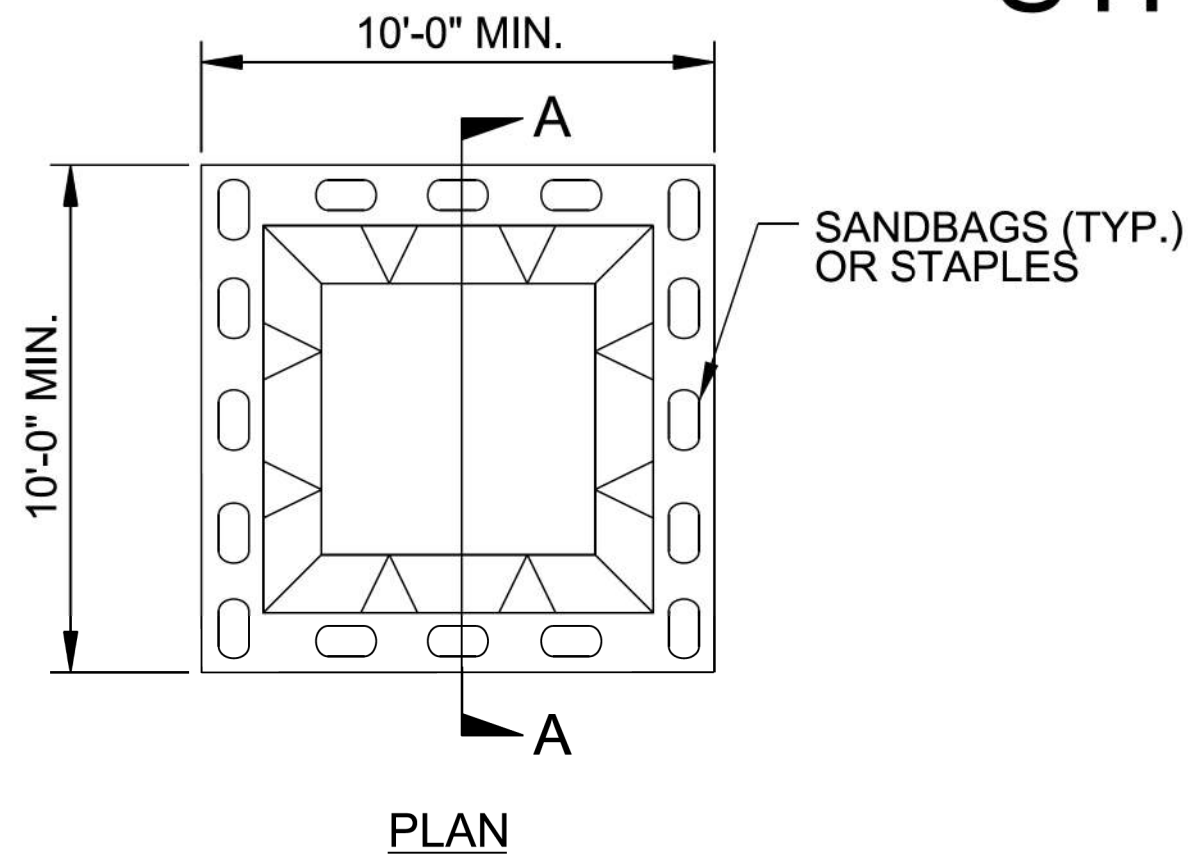
PROJECT REFERENCE NO.	SHEET NO.
HS-20061	EC-02

EROSION & SEDIMENT CONTROL LEGEND

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

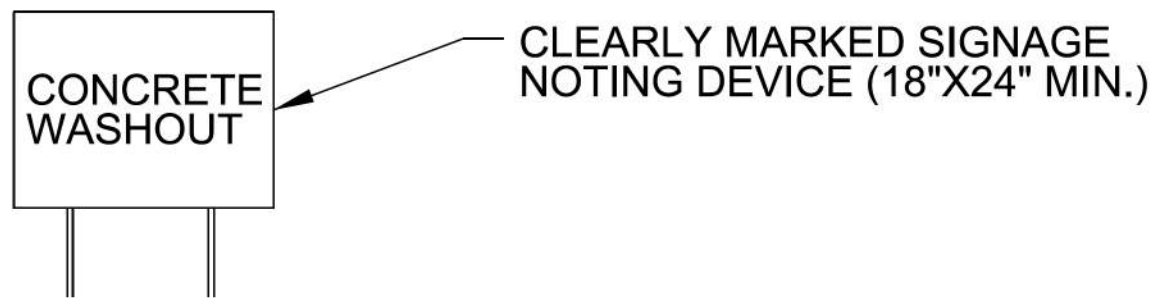
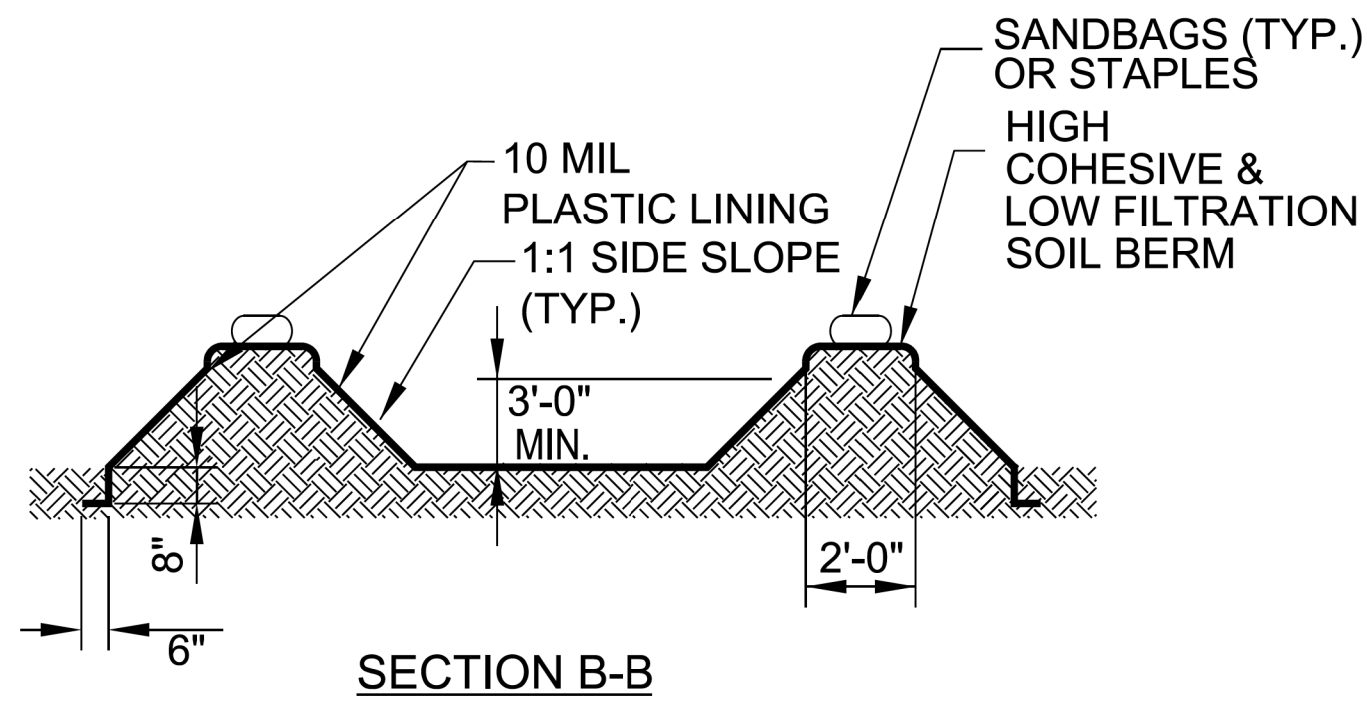
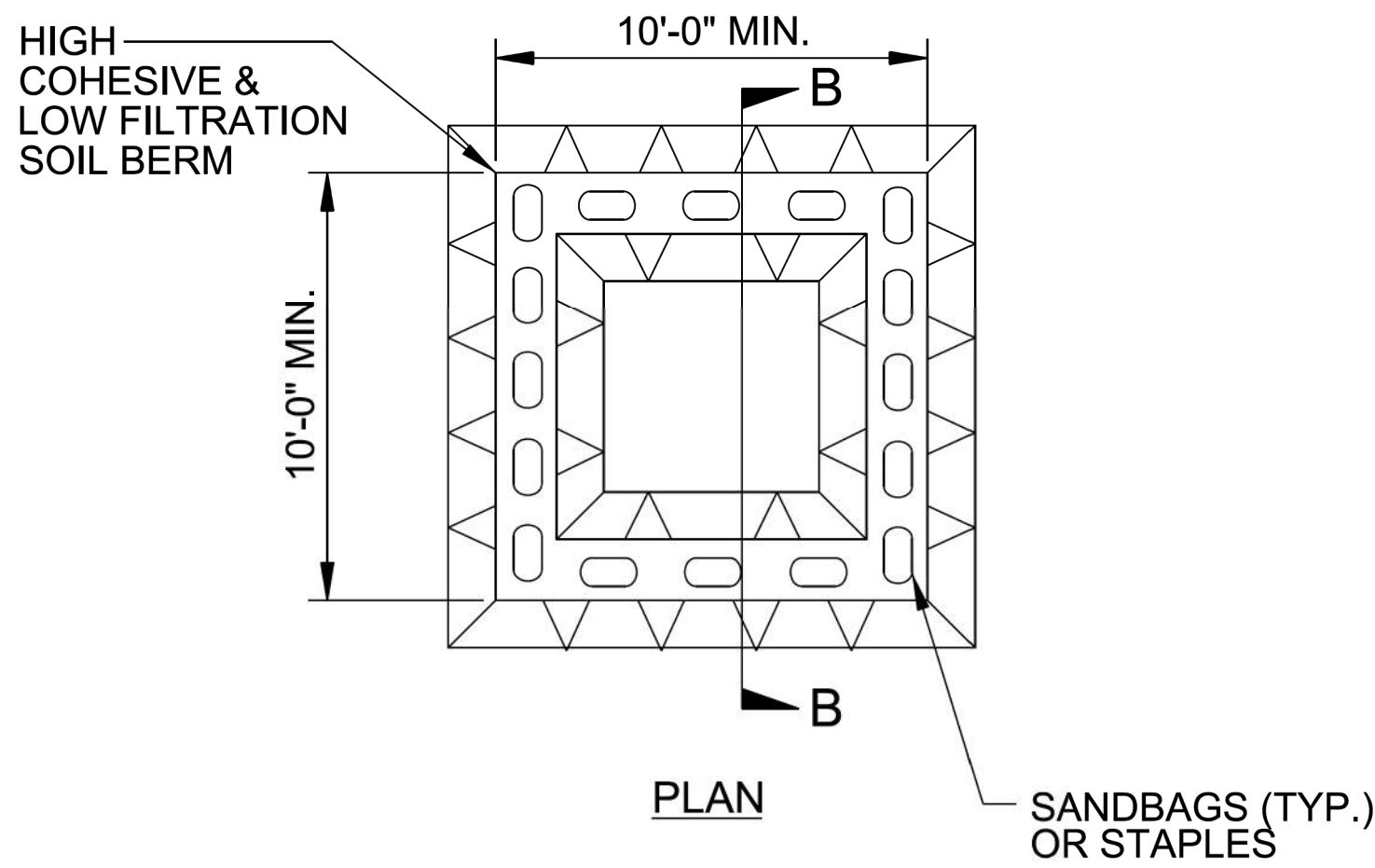
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet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

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 CLEARY 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 CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

5/26/20

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

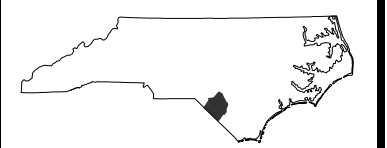
SOIL STABILIZATION TIMEFRAMES

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

HS-20061

4RDI | EC-03

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROBERSON COUNTY



DIVISION 6

PREPARED BY

CDM Smith

CDM Smith Inc.
5600 Glenwood Avenue
Suite 400
Raleigh, NC 27612-5028
NC CCR No. F-1265

REVISIONS

MATTING FOR DITCHES

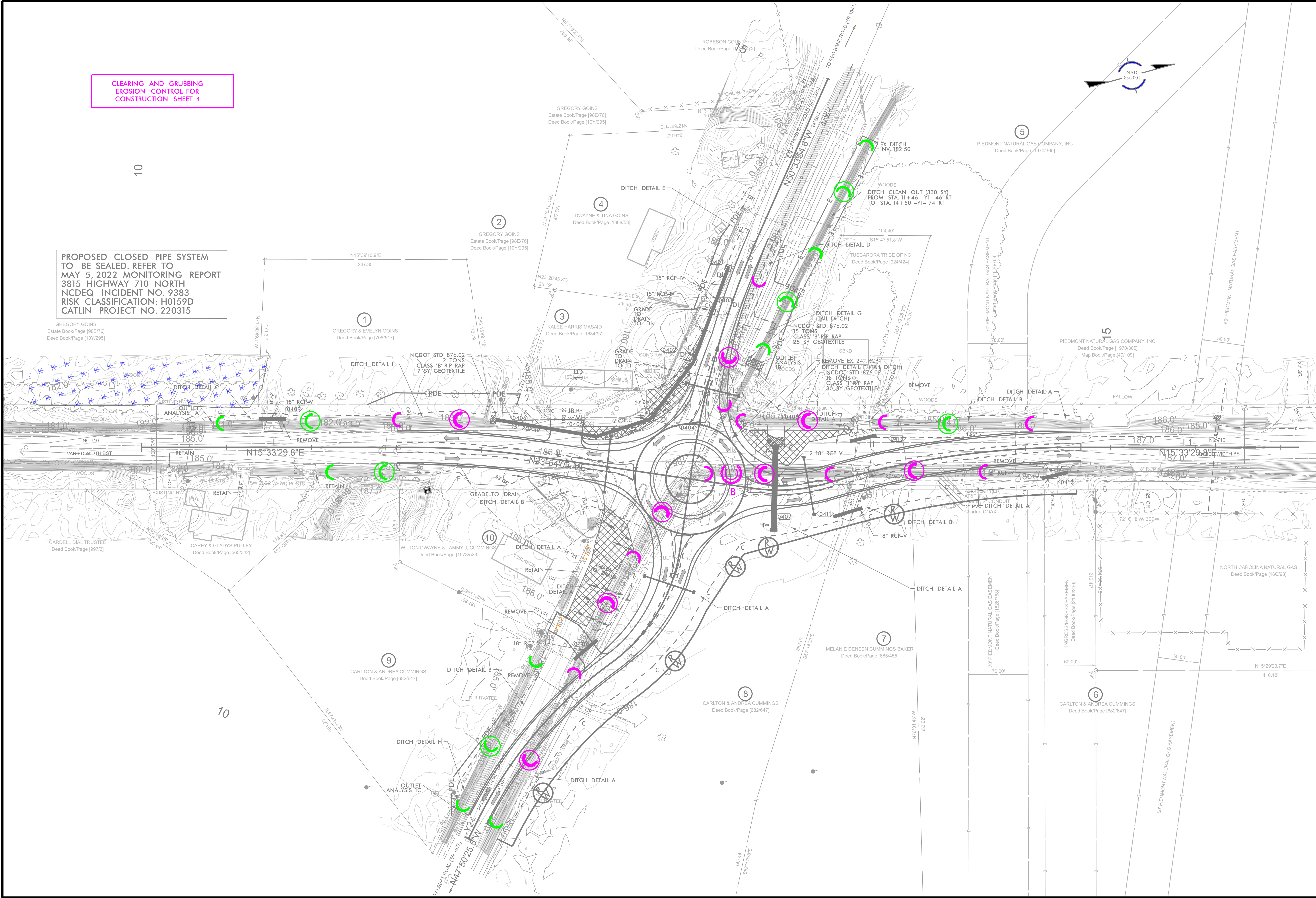
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MATTING FOR EROSION CONTROL

[illegible]

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

PROPOSED CLOSED PIPE SYSTEM
TO BE SEALED. REFER TO
MAY 5, 2022 MONITORING REPORT
3815 HIGHWAY 710 NORTH
NCDEQ INCIDENT NO. 9383
RISK CLASSIFICATION: H0159D
CATLIN PROJECT NO. 220315



PROPOSED CLOSED PIPE SYSTEM
TO BE SEALED. REFER TO
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CATLIN PROJECT NO. 220315

GREGORY GOINS
Estate Book/Page [98E/76]
Deed Book/Page [10Y/295]

1
GREGORY & EVELYN GOINS
Deed Book/Page [70B/517]

2
GREGORY GOINS
Estate Book/Page [98E/76]
Deed Book/Page [10Y/295]

4
DWAYNE & TINA GOINS
Deed Book/Page [136B/53]

3
KALEE HARRIS MASAI
Deed Book/Page [163A/97]

5
PIEDMONT NATURAL GAS COMPANY, INC.
Deed Book/Page [1970/365]
Map Book/Page [49/109]

CARDELL DIAL TRUSTEE
Deed Book/Page [997/3]

CAREY & GLADYS PULLEY
Deed Book/Page [565/342]

9
CARLTON & ANDREA CUMMINGS
Deed Book/Page [682/647]

8
CARLTON & ANDREA CUMMINGS
Deed Book/Page [682/647]

7
MELANIE DENEEN CUMMINGS BAKER
Deed Book/Page [885/455]

6
CARLTON & ANDREA CUMMINGS
Deed Book/Page [682/647]

REVISIONS

TIP PROJECT: HS-2006I

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SIGNING PLAN

ROBESON COUNTY

LOCATION: CONSTRUCT ROUNDABOUT AT NC 710 / SR 1340
(PROSPECT RD) INTERSECTION

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR 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
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL SUPPORTS
910.40	SINGLE LANE ROUNDABOUT SIGNING (USE DETAIL IN LIEU OF STANDARDS FOR SHEET 1A OF 2)
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	640	L.F.
4102000000-N	904	SIGN ERECTION, TYPE E	36	EA.
4108000000-N	904	SIGN ERECTION, TYPE F	14	EA.
4116100000-N	904	SIGN ERECTION, RELOCATE TYPE D (GROUND MOUNTED)	1	EA.
4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	20	EA.
4957000000-N	1264	OBJECT MARKERS (TYPE I)	4	EA.

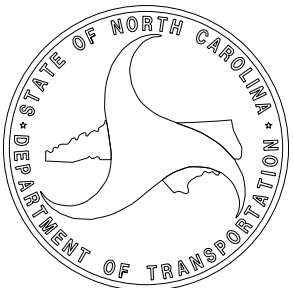
PLAN PREPARED BY: CDM SMITH, INC.

ADAM M. CONRAD, P.E. PROJECT MANAGER
KEVIN P. SABO, E.I. PROJECT DESIGN ENGINEER

CDM Smith
CDM Smith Inc.
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612
NC COA No. F-1255

PLAN REVIEWED BY: N.C.D.O.T. DIVISION 6

JAMES V. FLOWERS DIVISION TRAFFIC ENGINEER
JASON P. SALISBURY, P.E. DIVISION CONSTRUCTION ENGINEER



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.
- . ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- . 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.
- . EXISTING SOLAR POWERED FLASHERS WILL BE RETAINED BY THE NCDOT DIVISION 6 TRAFFIC SERVICES DEPARTMENT. THE CONTRACTOR SHALL COORDINATE WITH NCDOT AND NCDOT WILL PERFORM THE REMOVAL.

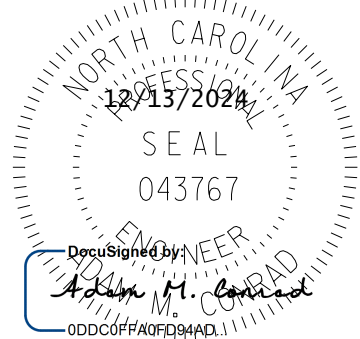
INDEX

SHEET NO.	DESCRIPTION
SIGN-1	SIGNING PLAN TITLE SHEET
SIGN-1A	SIGNING SPECIAL DETAIL
SIGN-2	SIGN DESIGNS TYPE E AND F
SIGN-3	EXISTING SIGN SHEET
SIGN-4 THRU SIGN-5	PROPOSED SIGN SHEETS

HS-2006I

SIGN 1

SIGNING DESIGN
ENGINEER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

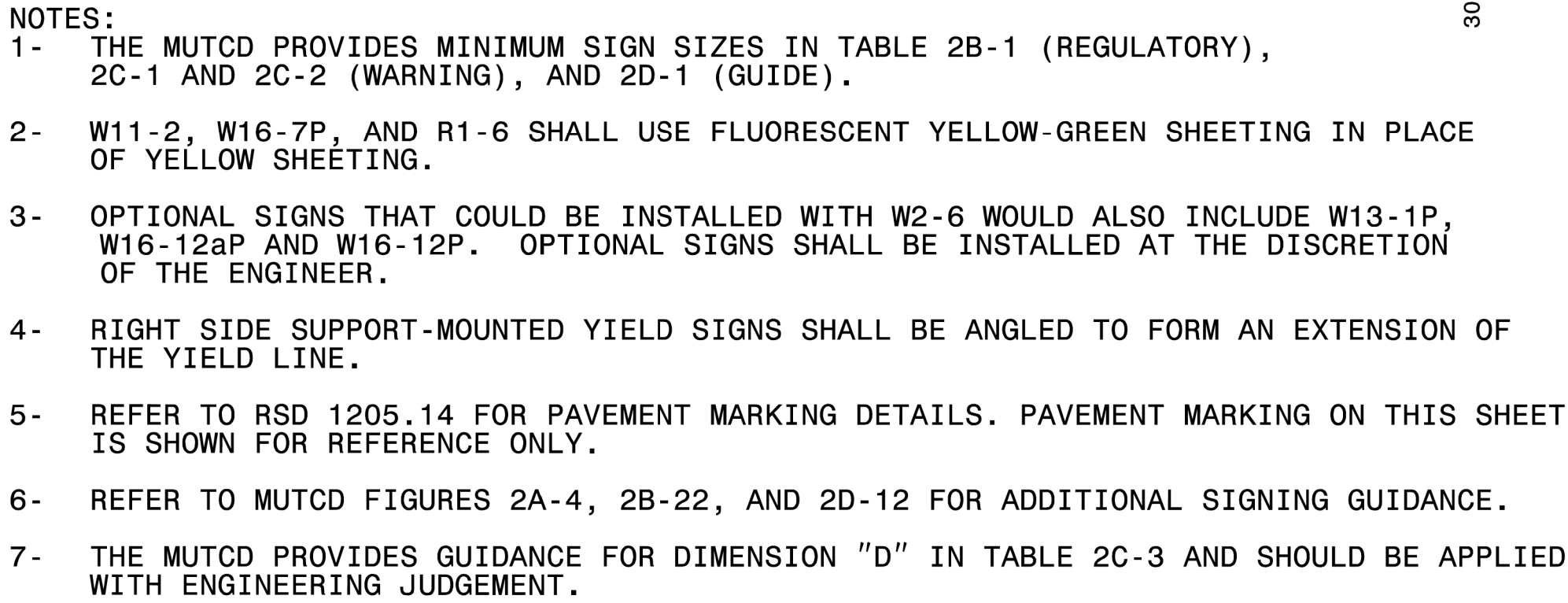


ROADWAY DESIGN UNIT

PREPARED BY

CDM Smith
CDM Smith Inc.
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612
NC COA No. F-1255

ORIGINAL BY:	R.S. GALLO	DATE:	02-29-2024
MODIFIED BY:		DATE:	
CHECKED BY:		DATE:	
FILE SPEC.:			

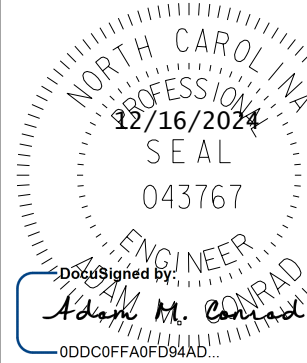


401 QUANTITY REQUIRED 8 YIELD R1-2 36" X 36" X 36" W2-6 18" X 18" ONE "U POST" PER SIGN		402 QUANTITY REQUIRED 4 ONE WAY R6-1 48" X 18" TWO "U POSTS" PER SIGN		403 QUANTITY REQUIRED 4 W2-6 36" X 36" ONE "U POST" PER SIGN		404 QUANTITY REQUIRED 4 W3-2 36" X 36" ONE "U POST" PER SIGN		405 QUANTITY REQUIRED 3 SPEED LIMIT 55 R2-1 24" X 30" ONE "U POST" PER SIGN		406 QUANTITY REQUIRED 1 SPEED LIMIT 45 R2-1 24" X 30" ONE "U POST" PER SIGN		407 QUANTITY REQUIRED 4 R4-7 24" X 30" OM1-3 18" X 18" ONE "U POST" PER SIGN	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED STATE OF NORTH CAROLINA ROADWAY DESIGN UNIT PREPARED BY CDM Smith Inc. 5400 Glenwood Avenue Suite 400 Raleigh, NC 27612 NC CDA No. F-125 CDM Smith													
501 QUANTITY REQUIRED 2 JCT M2-1 21" X 15" 710 M1-5 30" X 24" ONE "U POST" PER SIGN		502 QUANTITY REQUIRED 1 WEST M3-4 24" X 12" 710 M1-5 30" X 24" ONE "U POST" PER SIGN		503 QUANTITY REQUIRED 1 EAST M3-2 24" X 12" 710 M1-5 30" X 24" ONE "U POST" PER SIGN		504 QUANTITY REQUIRED 1 WEST M3-4 24" X 12" 710 M1-5 30" X 24" M6-2 21" X 15" ONE "U POST" PER SIGN		505 QUANTITY REQUIRED 1 EAST M3-2 24" X 12" 710 M1-5 30" X 24" M6-2 21" X 15" ONE "U POST" PER SIGN					
TYPE "E" AND "F" SIGNS													

HS-20061

SIGN 3

SIGNING DESIGN
ENGINEER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

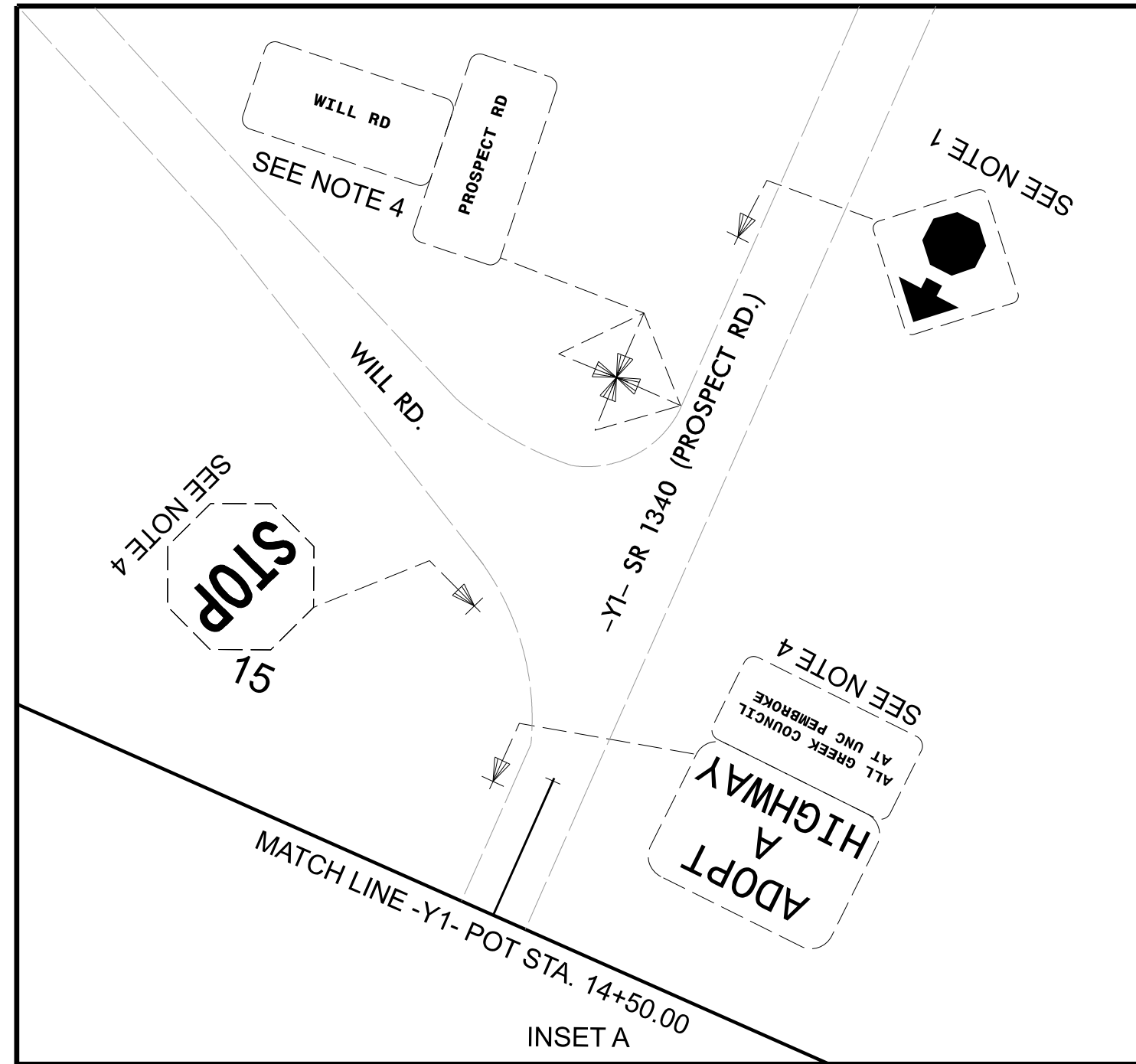
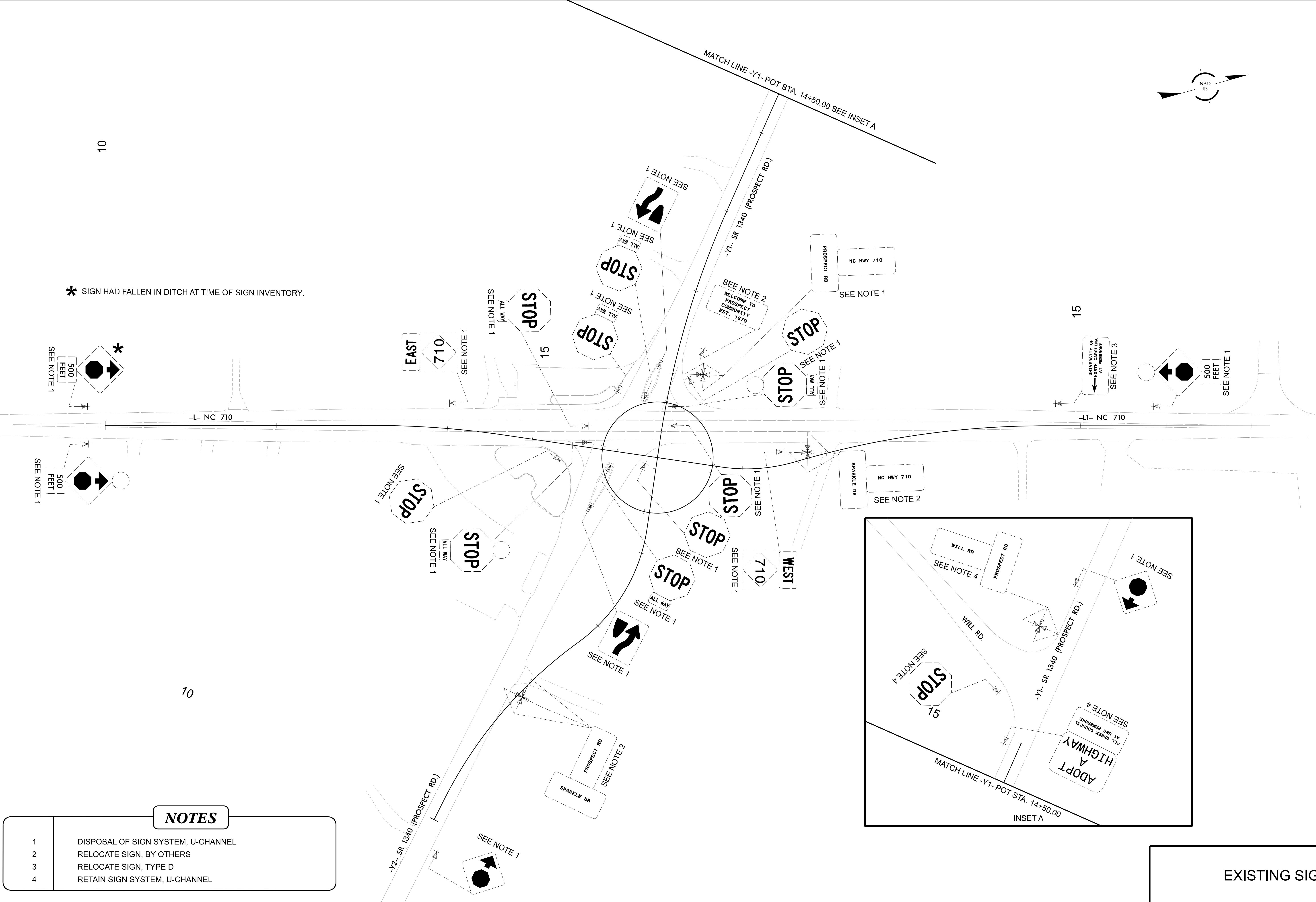
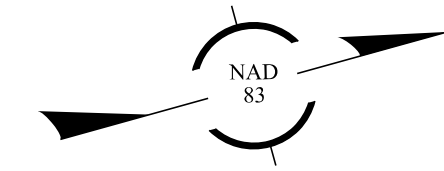
STATE OF NORTH CAROLINA



ROADWAY DESIGN UNIT

PREPARED BY

CDM Smith
CDM Smith Inc.
5400 Glenwood Avenue
Suite 100
Raleigh, NC 27612
NC CDA No. F-1255



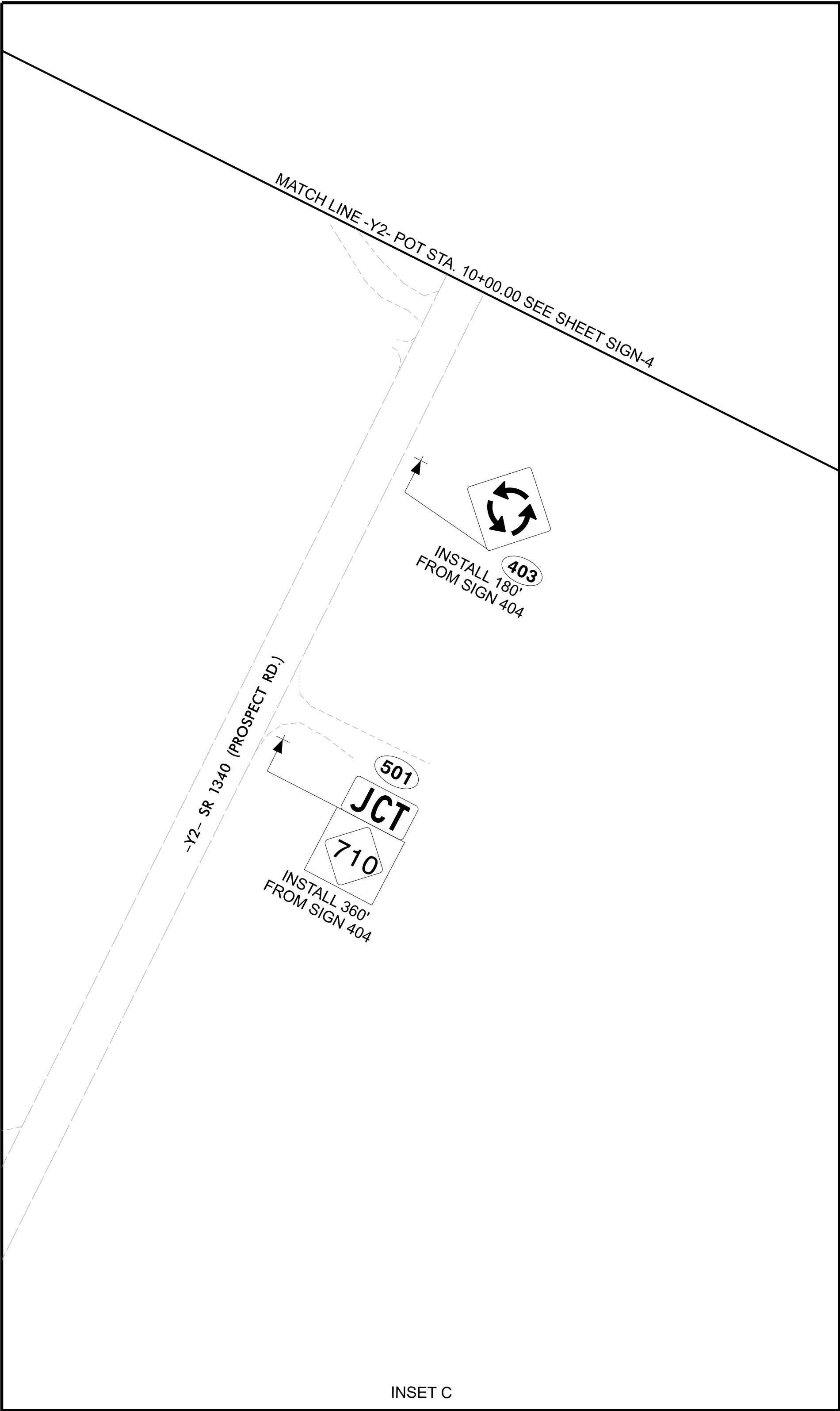
NOTES

- 1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL
- 2 RELOCATE SIGN, BY OTHERS
- 3 RELOCATE SIGN, TYPE D
- 4 RETAIN SIGN SYSTEM, U-CHANNEL

EXISTING SIGNS

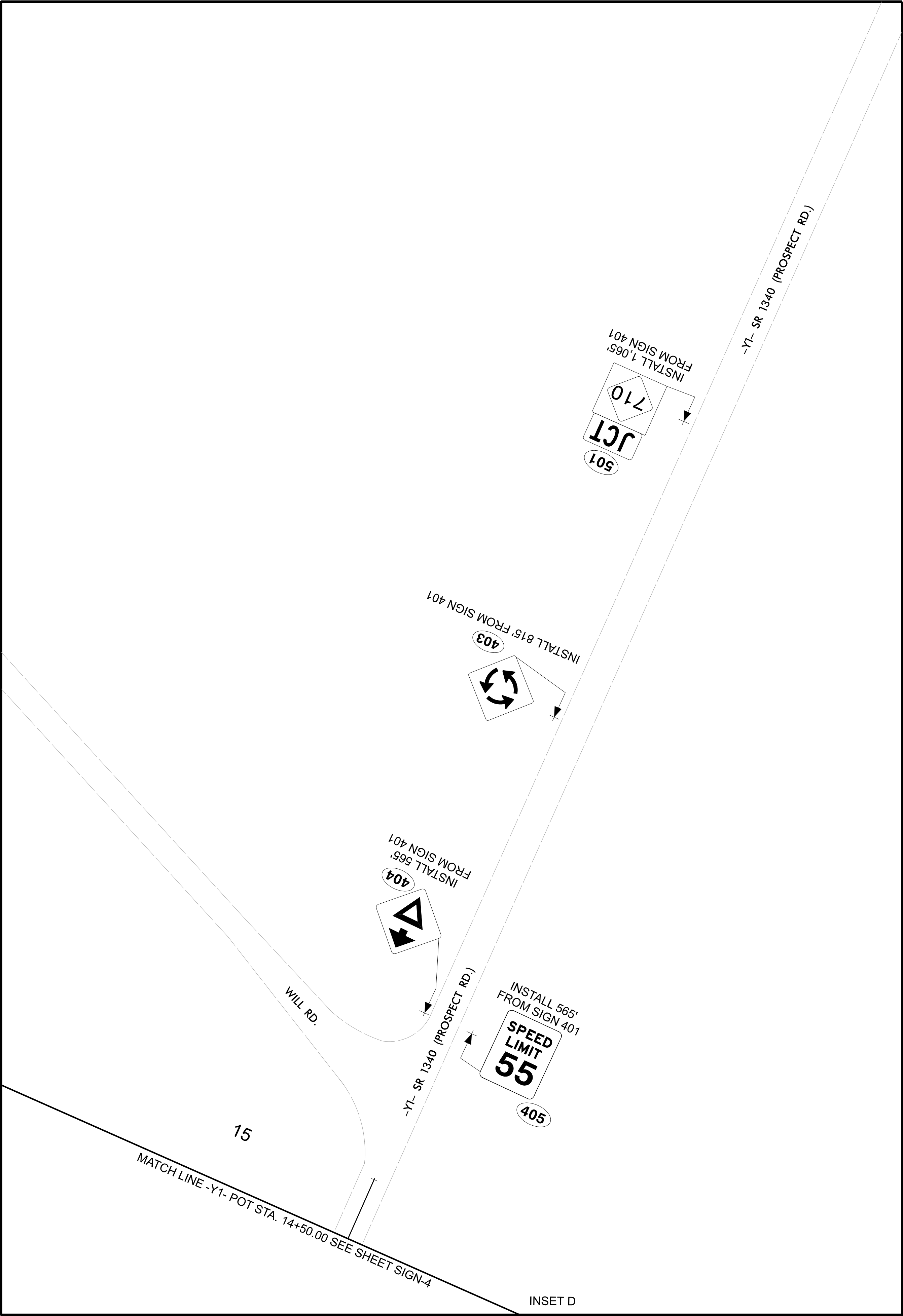
NC COA No. F-1255





NOTES

- 1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL
- 2 RELOCATE SIGN, BY OTHERS
- 3 RELOCATE SIGN, TYPE D
- 4 RETAIN SIGN SYSTEM, U-CHANNEL



PROPOSED SIGNS

HS-20061

SIGN5

SIGNING DESIGN
ENGINEER

NORTH CAROLINA
PROFESSIONAL
SEAL
12/16/2024
043767
ADMINISTRATIVE
Seal of the State of North Carolina
Professional Engineer
00000FFAFB9A8D11

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



ROADWAY DESIGN UNIT

PREPARED BY

CDM
Smith

CDM Smith Inc.
5400 Glenwood Avenue
Suite 100
Shelley, NC 27512
NC CDA No. F-1255

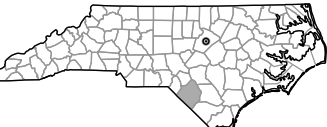
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION

HS-20061

4UTI | UC-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY



UTILITY CONSTRUCTION
PLANS ONLY

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

DESIGNED BY: NP

DRAWN BY: NP

CHECKED BY: TM

APPROVED BY:

REVISED:

PREPARED BY

KCI

KCI ASSOCIATES OF N.C., P.A.
4000 Falls of Neuse Road, Suite 200
Raleigh, NC 27609-4270
Phone (919) 733-9211
NC Firm License No. C40764

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

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

PROPOSED SEWER SYMBOLS

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

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

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

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

EXISTING UTILITIES SYMBOLS

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

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

*For Existing Utilities

Utility Line Drawn from Record _____
(Type as Shown)

Designated Utility Line _____
(Type as Shown)

REVISIONS

UTILITY CONSTRUCTION

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.

2. THE EXISTING UTILITIES BELONG TO ROBESON COUNTY PUBLIC WORKS.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. ALL PROPOSED WATER LINE SHALL BE MINIMUM SDR 21 PVC OR C900 DR18 PVC UNLESS OTHERWISE NOTED IN THE PLANS.

2. ALL PROPOSED DUCTILE IRON FITTINGS SHALL BE MECHANICAL JOINTS.

3. ALL PROPOSED WATER LINES SHALL BE INSTALLED WITH A MINIMUM OF 36 INCHES OF COVER. ALL WATER LINES SHALL BE INSTALLED WITH A MINIMUM OF 24 INCHES OF HORIZONTAL AND 18 INCHES OF VERTICAL SEPARATION FROM STORM SEWERS AND OTHER DRY UTILITIES.

4. VERIFY ALL ILLUSTRATED UTILITY CROSSINGS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF CONFLICTS ARE ENCOUNTERED.

5. CONTRACTOR SHALL COORDINATE ALL WATER SHUT-DOWNS WITH ROBESON COUNTY PUBLIC WORKS. PROVIDE A MINIMUM OF 48 HOURS OF NOTICE PRIOR TO ANY SHUT-DOWN. UTILITY OWNER MAY REQUIRE THAT ANY SHUT-DOWNS TAKE PLACE AT A TIME OF LOW DEMAND.

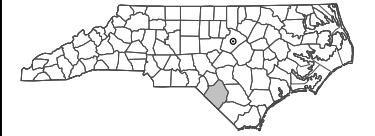
HS-20061

4UT1UC-3

NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

ROBESON COUNTY



UTILITY CONSTRUCTION

PLANS ONLY

039117

03/09/2024

Seal of the Professional Engineer

039117

03/09/2024

DESIGNED BY: CS

DRAWN BY: CS

CHECKED BY: TM

APPROVED BY:

REVISED:

PREPARED BY

KCI

KCI ASSOCIATES OF N.C., P.A.
4000 Valley of Nations Road, Suite 200
Raleigh, NC 27609-6270
Phone (919) 785-0214
NC Firm License No. C47064

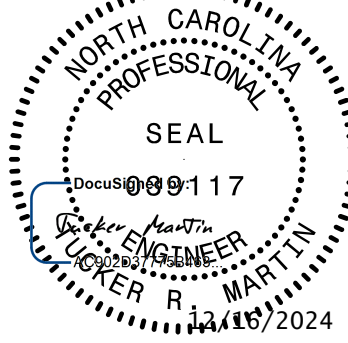
REVISIONS

PROJECT TYPICAL DETAILS

UTILITY CONSTRUCTION



UTILITY CONSTRUCTION
PLANS ONLY



DESIGNED BY: LB

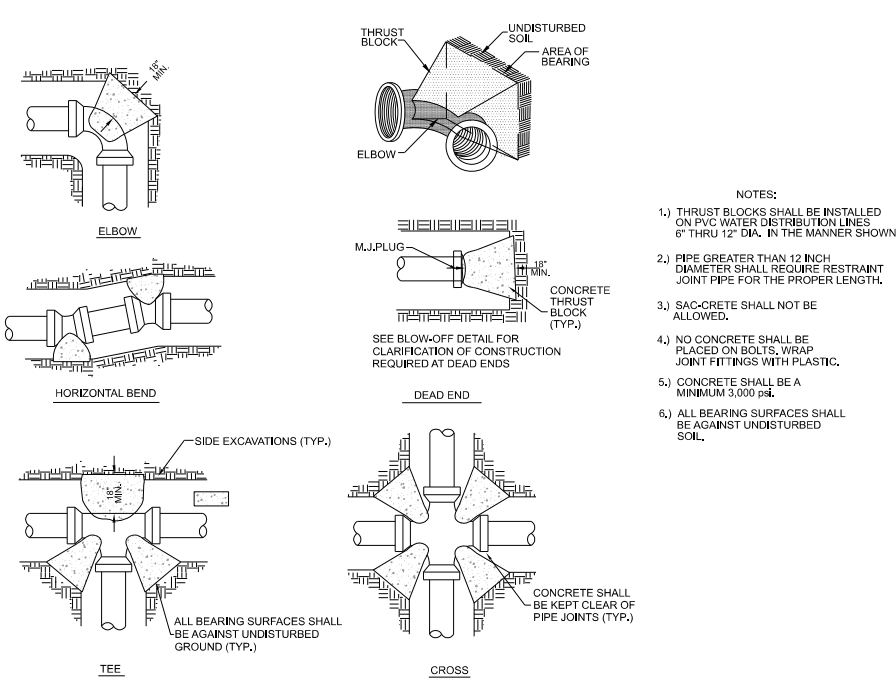
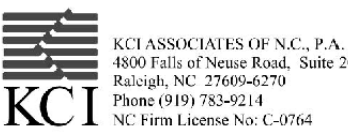
DRAWN BY: LB

CHECKED BY: SS

APPROVED BY: TM

REVISED:

PREPARED BY

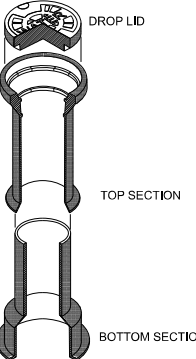
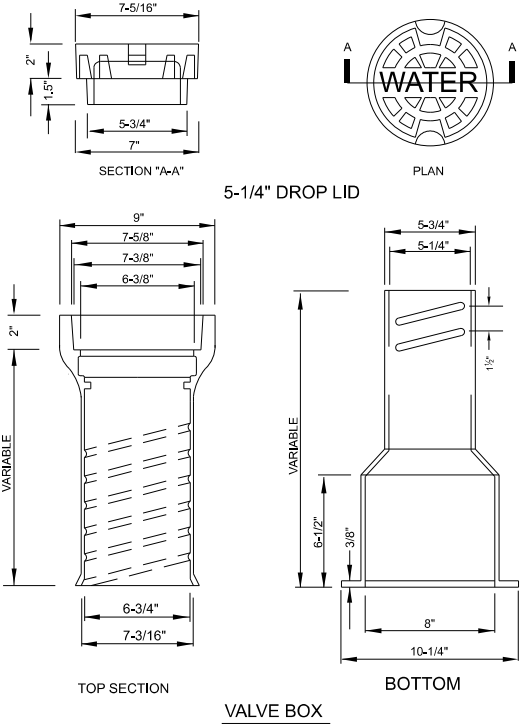


CONCRETE THRUST BLOCK DETAIL
NTS

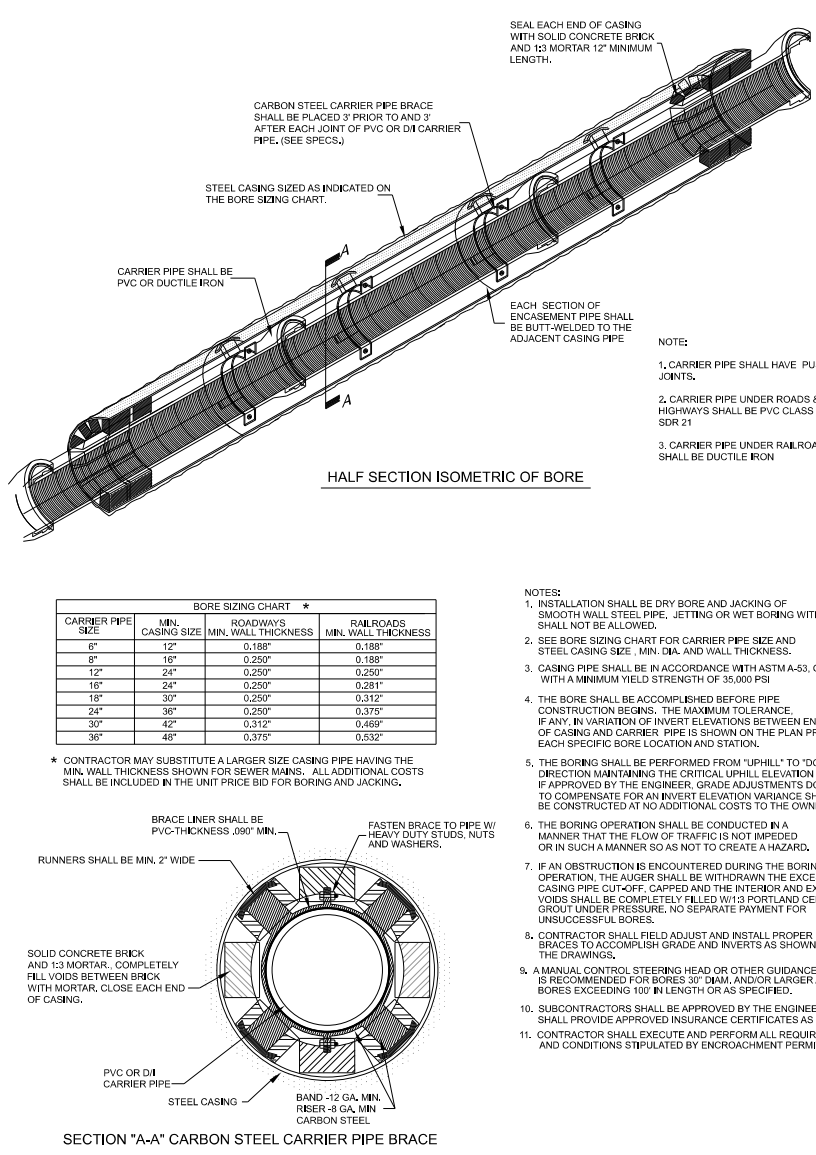
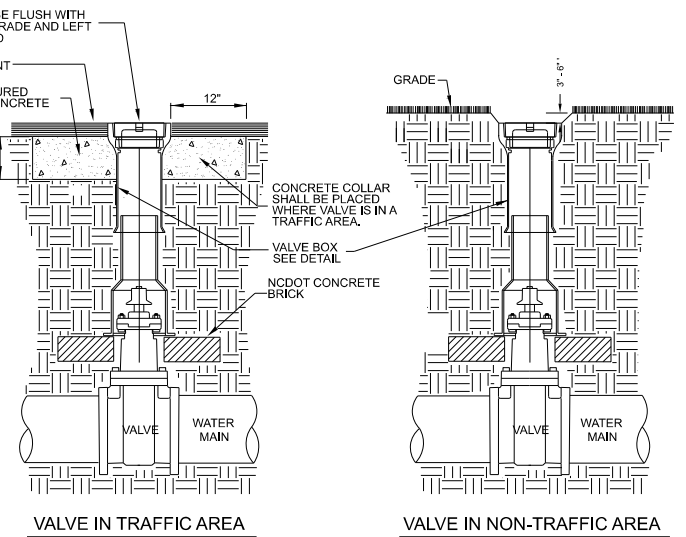
THRUST BLOCKING SCHEDULE							
FEETING SIZE (IN.)	MINIMUM BLOCKING AREAS AND VOLUME IN C.Y. AND (C.Y.)						
	11' 6"	22' 12"	45'	90'	TEE	PLUS	
2					0.21 (0.17)	0.38 (0.31)	0.20 (0.17)
4					0.47 (0.39)	0.81 (0.67)	0.46 (0.38)
6	0.46 (0.38)	0.80 (0.67)	1.73 (0.89)	3.09 (0.93)	2.17 (0.28)	2.17 (0.28)	2.17 (0.28)
8	0.80 (0.67)	1.50 (0.94)	3.09 (0.94)	5.49 (0.95)	3.81 (0.43)	3.81 (0.43)	3.81 (0.43)
10	1.50 (0.69)	2.30 (0.67)	4.72 (0.92)	8.49 (0.84)	5.82 (0.81)	5.82 (0.81)	5.82 (0.81)
12	2.30 (0.80)	3.00 (1.04)	6.00 (0.76)	10.00 (1.00)	6.00 (0.84)	6.00 (0.84)	6.00 (0.84)
14	3.00 (0.80)	4.00 (1.04)	7.00 (0.80)	11.00 (1.07)	7.00 (0.87)	7.00 (0.87)	7.00 (0.87)
16	3.80 (0.80)	4.80 (1.04)	8.00 (0.80)	12.00 (1.07)	8.00 (0.87)	8.00 (0.87)	8.00 (0.87)
18	4.60 (0.80)	5.60 (1.04)	9.00 (0.80)	13.00 (1.07)	9.00 (0.87)	9.00 (0.87)	9.00 (0.87)
20	5.40 (0.80)	6.40 (1.04)	10.00 (0.80)	14.00 (1.07)	10.00 (0.87)	10.00 (0.87)	10.00 (0.87)
24	6.70 (0.79)	7.70 (0.69)	12.00 (0.79)	16.00 (0.79)	12.00 (0.79)	12.00 (0.79)	12.00 (0.79)
30	10.40 (0.77)	20.70 (1.06)	40.40 (0.85)	70.00 (10.30)	10.00 (0.80)	10.00 (0.80)	10.00 (0.80)
36	15.00 (1.20)	30.00 (1.19)	60.00 (1.07)	100.00 (1.07)	15.00 (1.00)	15.00 (1.00)	15.00 (1.00)

NOTE: Values shown are based on 150 psi water pressure and 3000 PSI ultimate dry capacity. Block must be tested capacity each as block, joint or full day will require greater bedding area and volume.

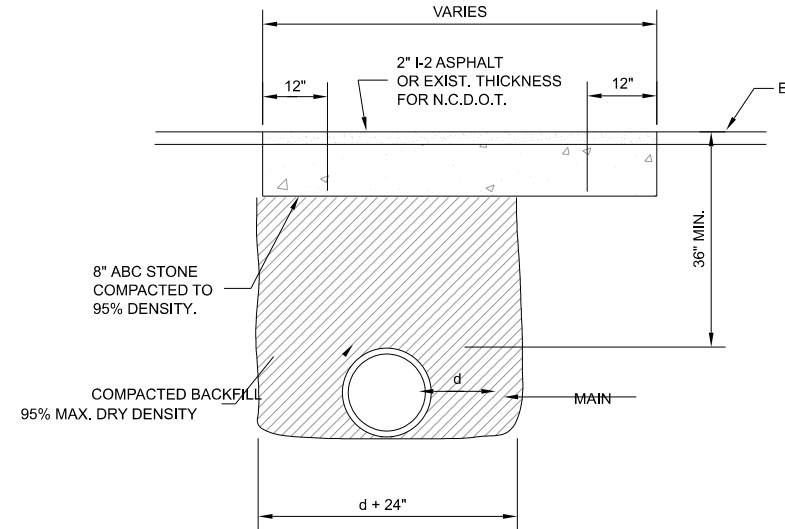
The thrust blocking shown above is based on the use of mechanical joint as shown on plans.



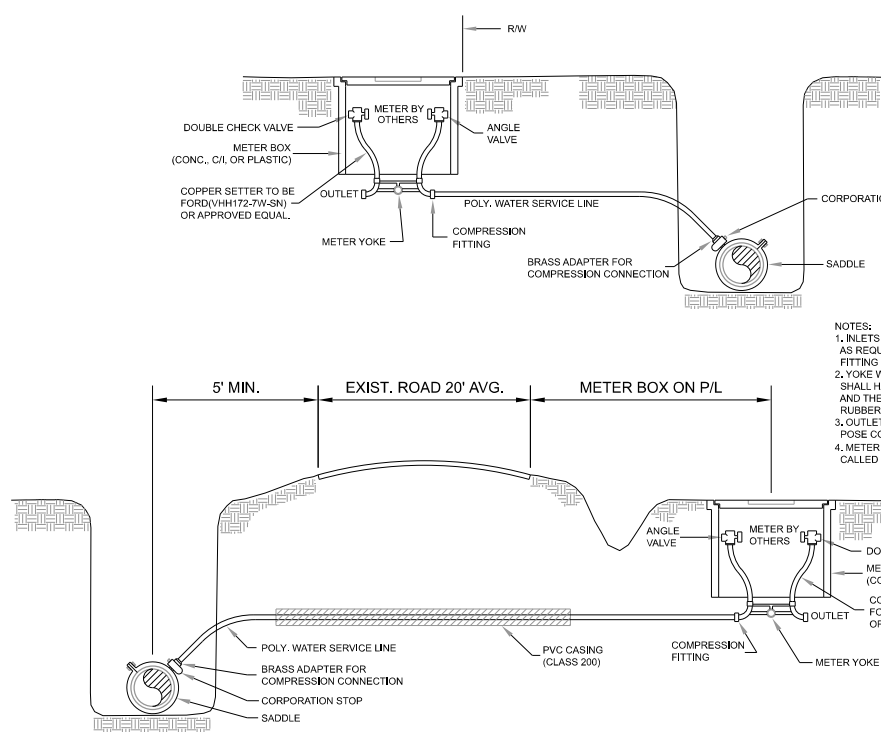
Valve Box Detail
NTS



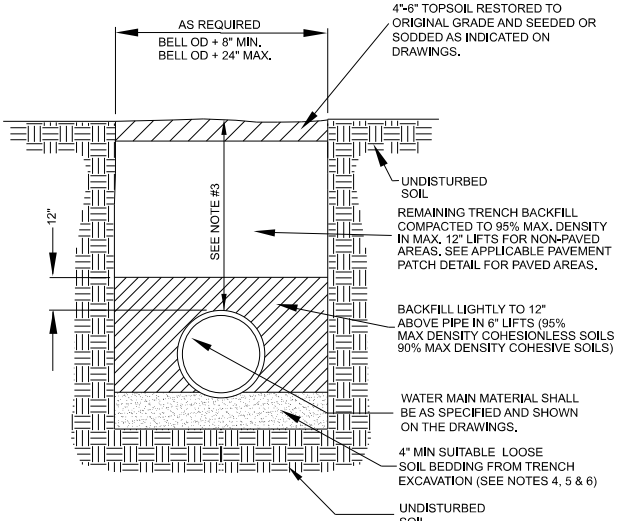
Boring Detail for Highways and Railroads
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OPEN CUT & PATCH DETAIL
NTS

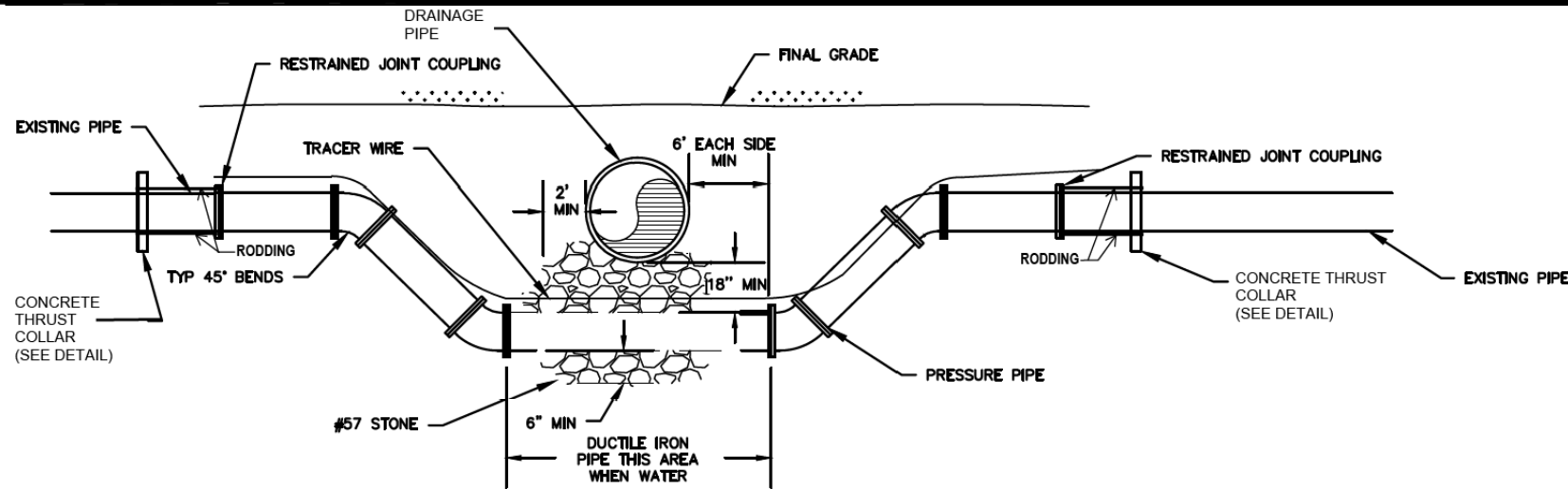


Typical House Service Detail
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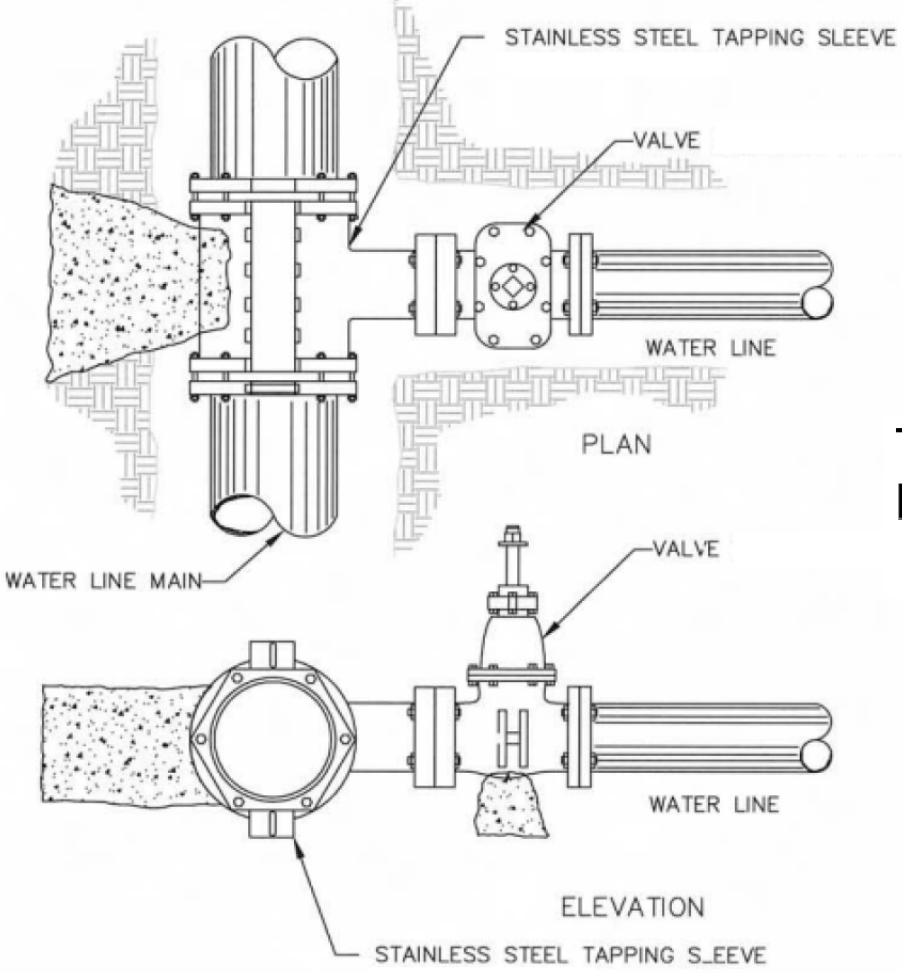


WATER MAIN BEDDING DETAIL
NTS

- NOTES:
1. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN THE CITY OF ROBESON COUNTY. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.
 2. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN TRAFFIC AREAS. TRENCH BOXES SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.
 3. SEE PLANS FOR MINIMUM COVER.
 4. LOOSE SOIL OR SELECT MATERIAL IS DEFINED AS "A" MATERIAL SOIL EXCAVATED FROM THE TRENCH. FREE OF ROCKS, FOREIGN MATERIAL, AND FILLING MATERIAL.
 5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. BEDDING MATERIAL SHALL NOT BE USED FOR UNLESS SPECIFICALLY APPROVED BY THE ENGINEER. NO EXCAVATION BELOW THE BOTTOM OF PIPE IS REQUIRED.
 6. TEST FOR DENSITY OF BEDDING MATERIAL MAY BE MADE AT THE OPTION OF THE ENGINEER AND CONTRACTOR. TESTS SHALL BE CONDUCTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.
 7. BEDDING MATERIAL SHALL BE PROPERLY RODDED AND COMPACTED AND THE PIPE MANHOUS.
 8. TEST FOR DENSITY OF BEDDING MATERIAL MAY BE MADE AT THE OPTION OF THE ENGINEER AND CONTRACTOR. TESTS SHALL BE CONDUCTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.

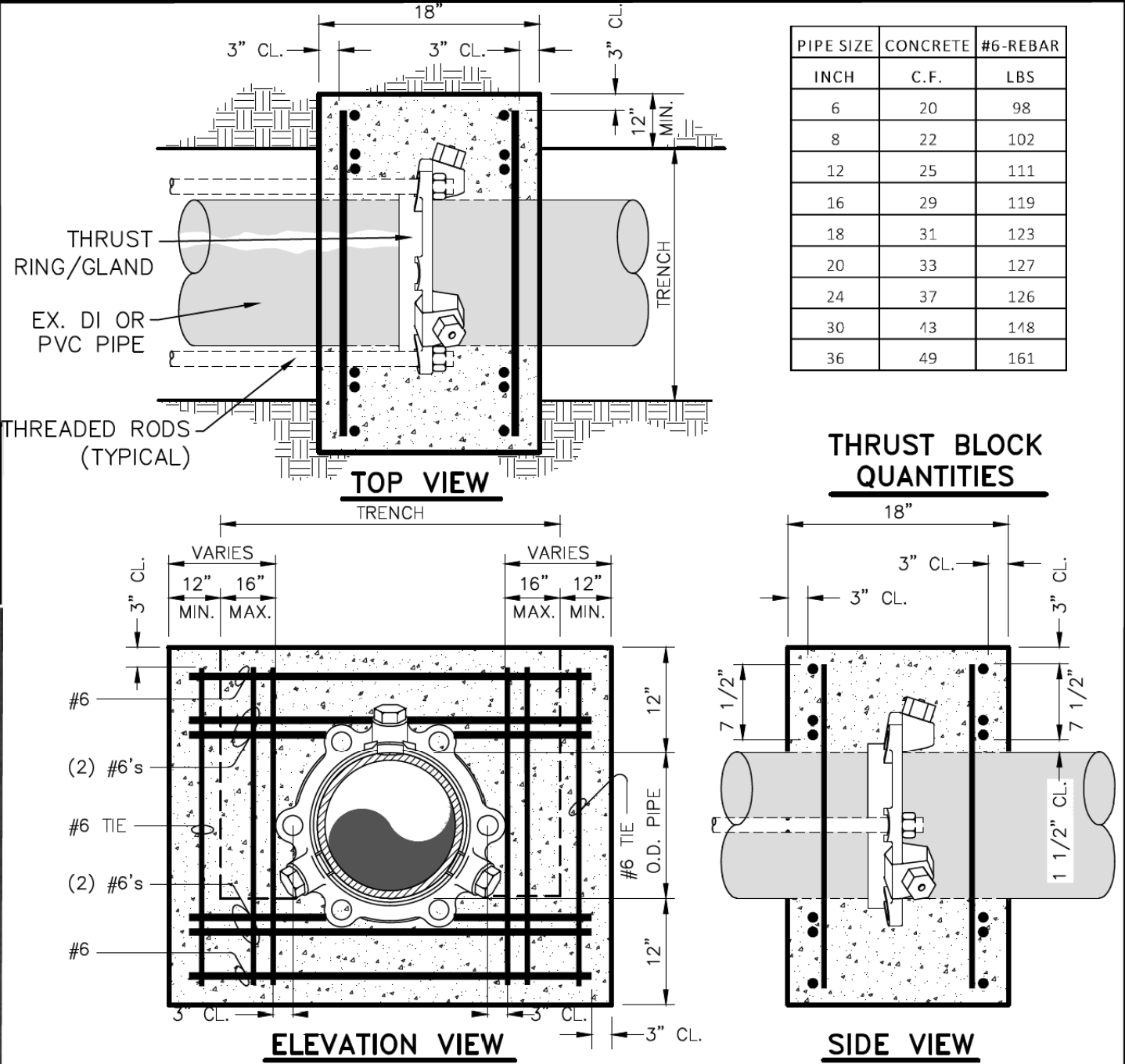


DRAINAGE PIPE CROSSING VERTICAL OFFSET DETAIL



TAPPING SLEEVE AND VALVE DETAIL

- NOTES:
- 1.) TAPPING SLEEVE WILL BE STAINLESS STEEL.
 - 2.) APPROVED RESILIENT SEAT TAPPING VALVE.
 - 3.) SOLID CONCRETE OR BRICK BLOCKING WILL BE USED AS FOOTING FOR DUCTILE IRON PIPE.
 - 4.) CONCRETE WILL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINTS FITTINGS.
 - 5.) SEE APPROPRIATE STANDARD DETAIL FOR THRUST BLOCK DIMENSIONS.
 - 6.) ALL FITTINGS AND APPURTENANCES SHALL BE RESTRAINED.



- CONCRETE THRUST COLLAR NOTES:
1. CONCRETE SHALL BE 3,000 P.S.I. MINIMUM.
 2. REINFORCING BARS SHALL BE DEFORMED, AND TIED TOGETHER.
 3. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK(S) INSTALLATION SHALL BE THE MINIMUM WIDTH.
 4. BACKFILL AND COMPACT IN 6" LAYERS.
 5. PLACE RESTRAINED JOINT THRUST RING 4" MINIMUM FROM END OF EXISTING PIPE.
 6. ROD THRUST RING/GLAND TO PROPOSED VALVE OR RESTRAINED FITTING.
 7. SEE DETAILS FOR THRUST RING/GLAND AND TIE ROD ANCHORS.

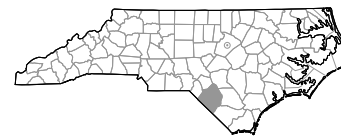
CONCRETE THRUST COLLAR DETAIL

REVISIONS

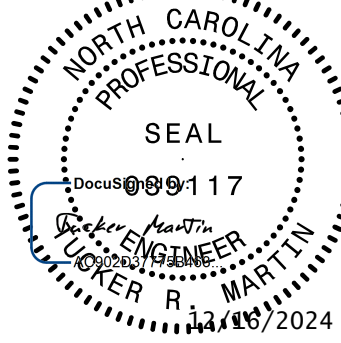
UTILITY CONSTRUCTION

HS-20061
4UT1 UC-4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROBISON COUNTY



UTILITY CONSTRUCTION
PLANS ONLY



DESIGNED BY: LB

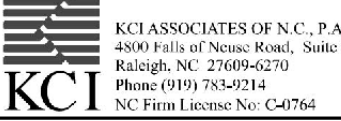
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CHECKED BY: SS

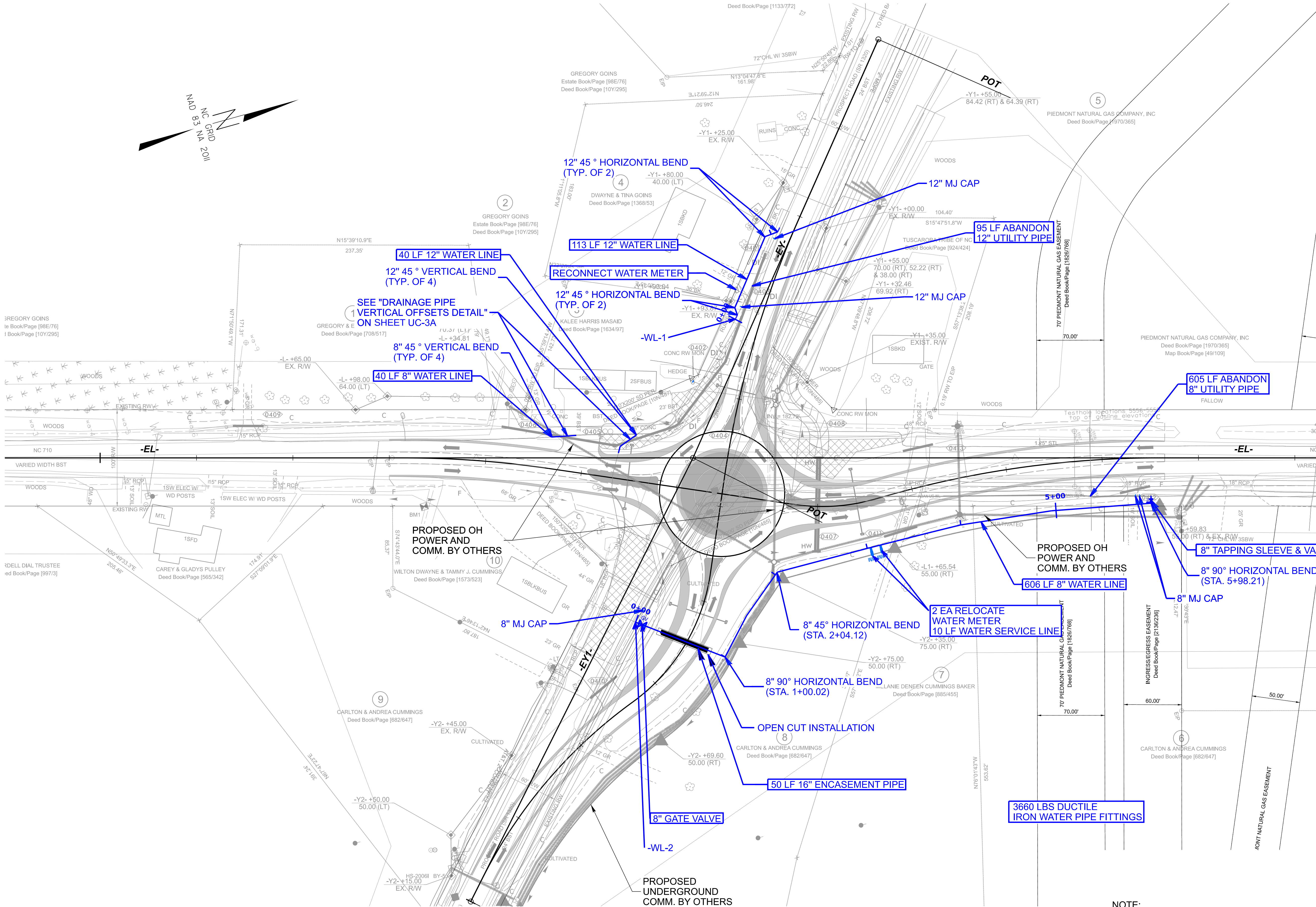
APPROVED BY: TM

REVISED:

PREPARED BY



REVISIONS



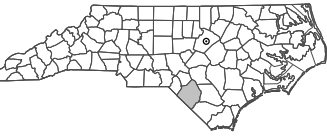
NOTE:
1. SEE SHEET UC-5 FOR -WL-1 & -WL-2 PROFILE VIEWS

UTILITY CONSTRUCTION

HS-20061

4UT1 | UC-5

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ROBESON COUNTY



UTILITY CONSTRUCTION
PLANS ONLY

099117

09/29/2024

DocuSign

Envelope ID: C7EAA35E-5160-4256-AD12-694C6D60749E

Seal

Professional Engineer

Robert R. Martin

Water Right

DESIGNED BY: LB

DRAWN BY: LB

CHECKED BY: SS

APPROVED BY: TM

REVISED:

PREPARED BY

KCI ASSOCIATES OF N.C., P.A.
4600 Falls of Neuse Road, Suite 300
Raleigh, NC 27609-6270
Phone (919) 786-0144
NC Firm License No. C4764

Diagram showing the proposed water line (-WL-1) construction. The plan includes the following details:

- PROPOSED GRADE
- EXISTING GROUND
- PROPOSED CONNECTION TO EXISTING 12" WATERLINE
- PROPOSED 45° VERTICAL BEND (TYP. OF 2) (INV. 181.25)
- PROPOSED 45° HORIZONTAL BEND (TYP. OF 2)
- PROPOSED 12" WATER LINE
- PROPOSED 45° VERTICAL BEND (TYP. OF 2) (INV. 181.39)
- PROPOSED 45° HORIZONTAL BEND (TYP. OF 2)
- 3' MIN. (TYP.)

FOR PLAN VIEW, SEE SHEET UC-4

Diagram showing the proposed water line (-WL-2) construction. The plan includes the following details:

- PROPOSED CONNECTION TO EXISTING 8" WATERLINE
- PROPOSED GRADE
- EXISTING GROUND
- PROPOSED 90° HORIZONTAL BEND
- PROPOSED 45° HORIZONTAL BEND
- PROPOSED 8" WATER LINE
- 50 LF 16" ENCASEMENT PIPE VIA OPEN CUT INSTALLATION
- EXISTING COMM CABLES (TYP. OF 3)
- PROPOSED 8" GATE VALVE
- PROPOSED 8" TAPPING VALVE
- PROPOSED 90° HORIZONTAL BEND
- EXISTING GAS LINE
- EXISTING GAS LINE
- 3' MIN. (TYP.)
- 18" MIN. (TYP.)
- PROPOSED 8" TSV CONNECTION TO EXISTING 8" WATERLINE

FOR PLAN VIEW, SEE SHEET UC-4

REVISIONS

CROSS SECTION SHEET INDEX

X-1A	CROSS SECTION SHEET INDEX
X-1B	CROSS SECTION SUMMARY
X-1	THRU X-5 -L-
X-6	THRU X-9 -L1-
X-10	THRU X-12 -Y1-
X-13	THRU X-16 -Y2-
X-17	THRU X-21 -RND-

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

Note: "Quantities are approximate only. The Resident Engineer will re-cross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid."

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

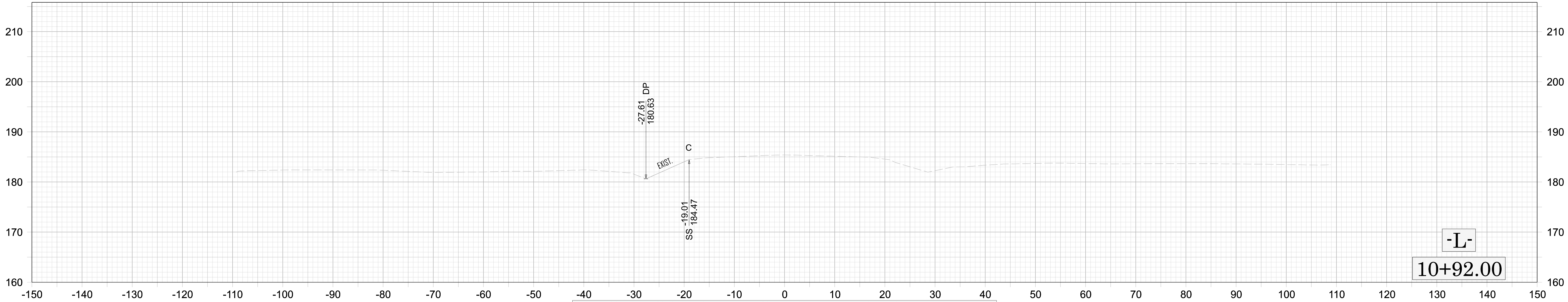
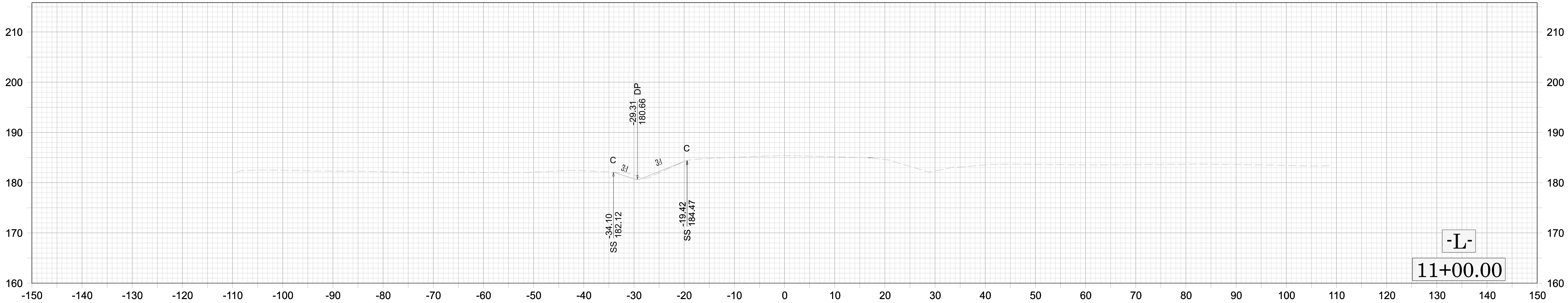
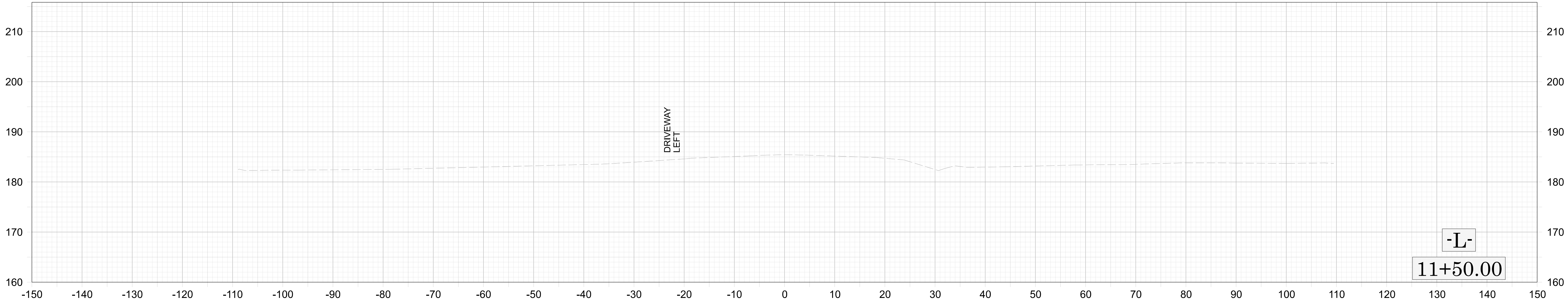
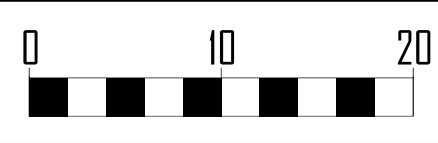
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

Quantities are approximate only. The Resident Engineer will recross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

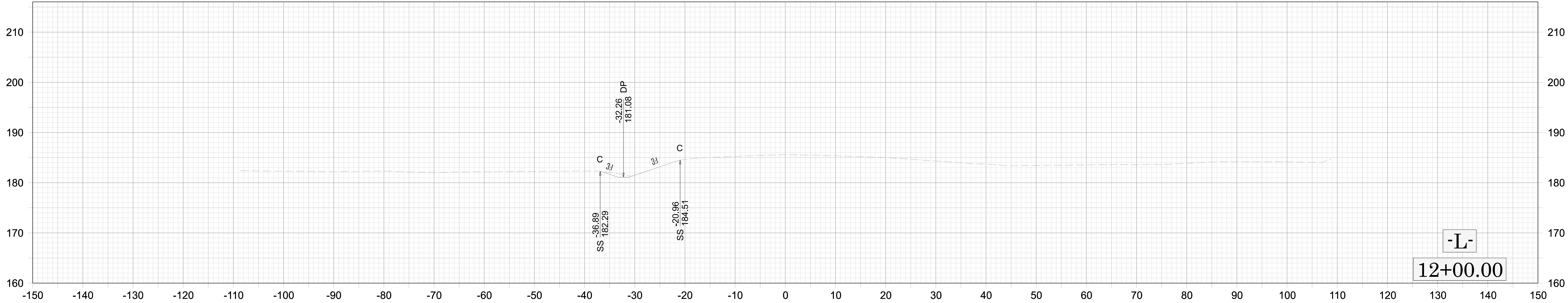
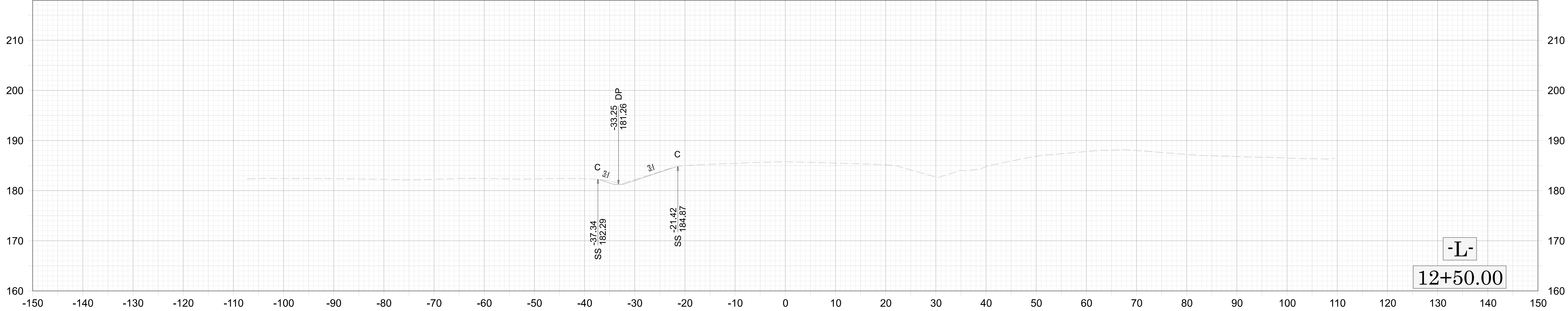
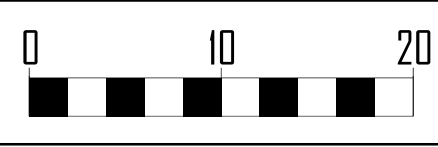
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

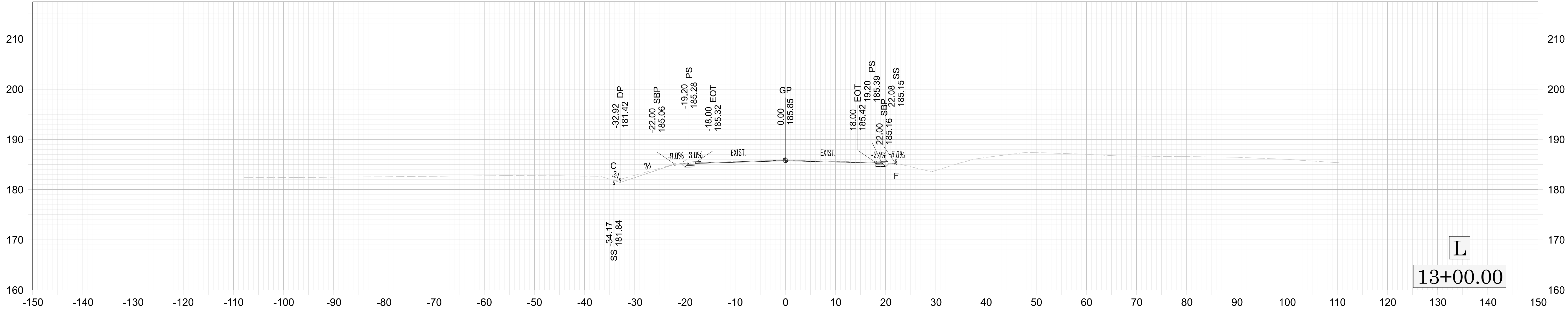
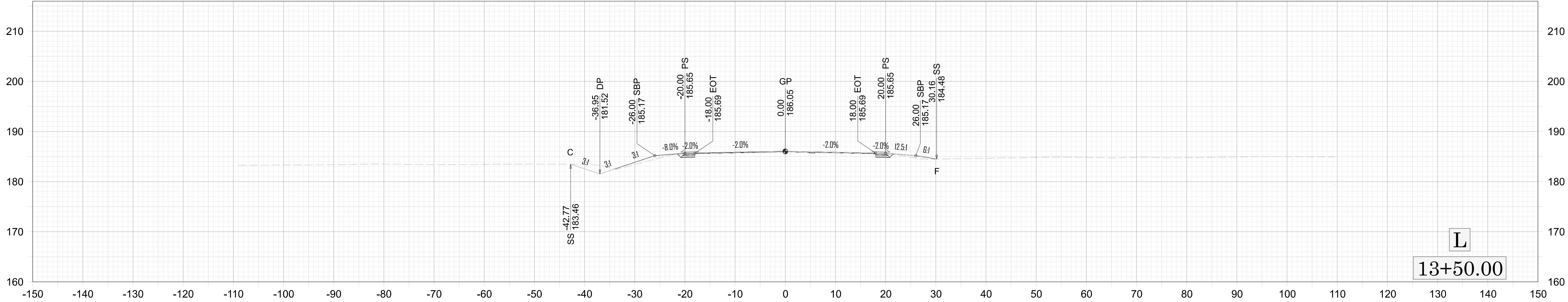
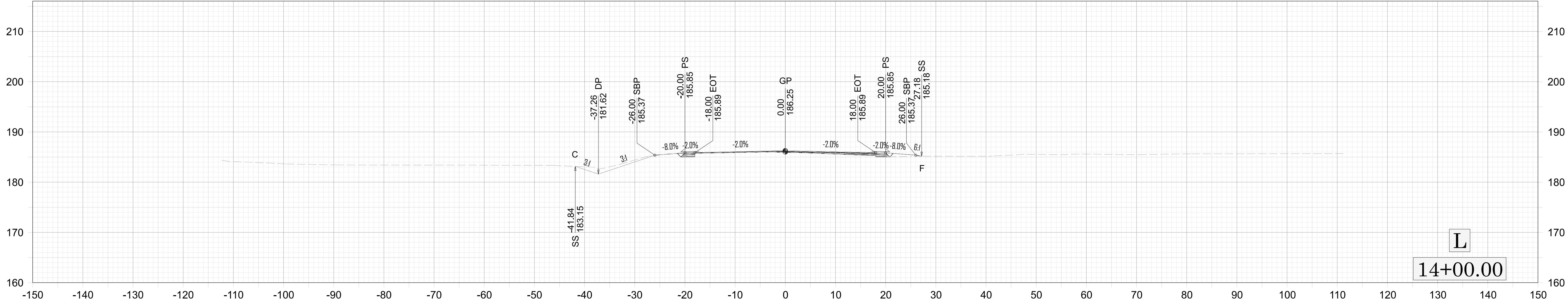
CROSS-SECTION SUMMARY

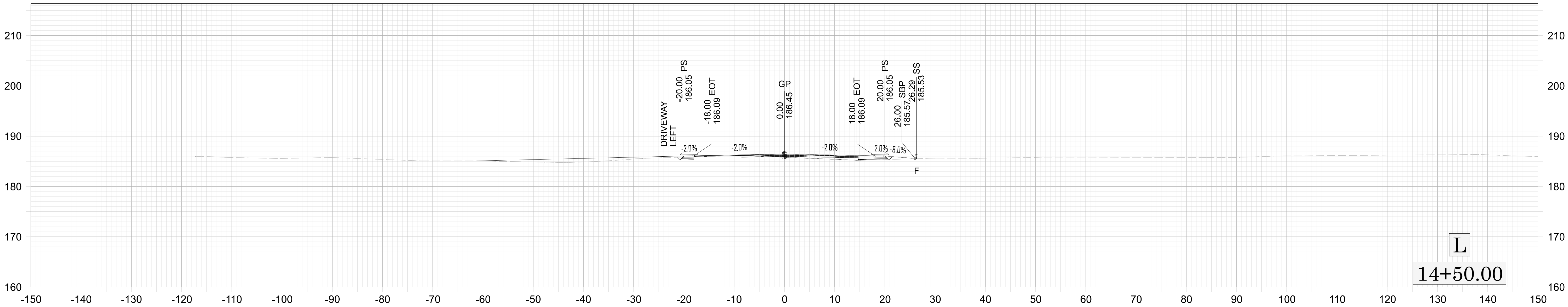
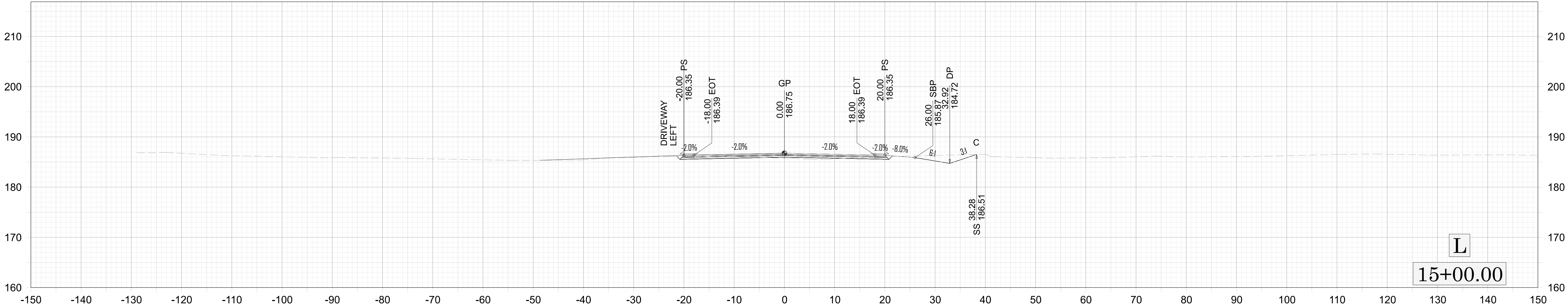
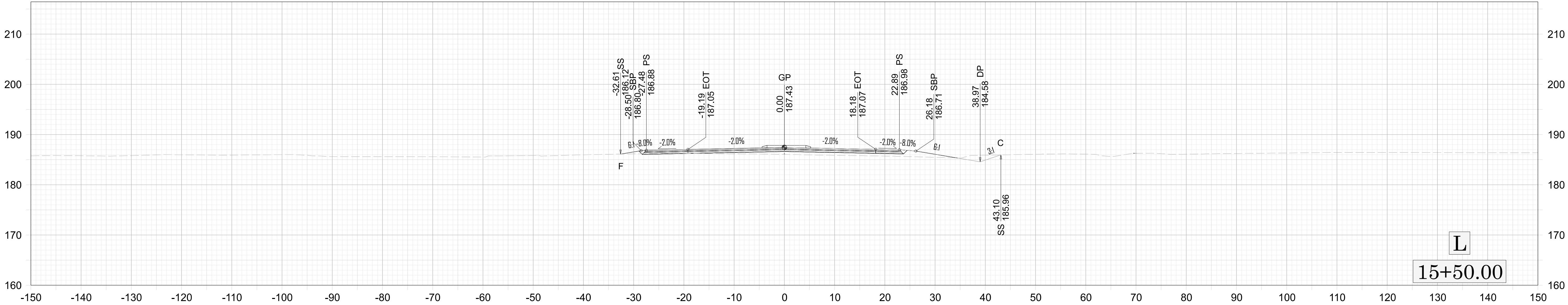
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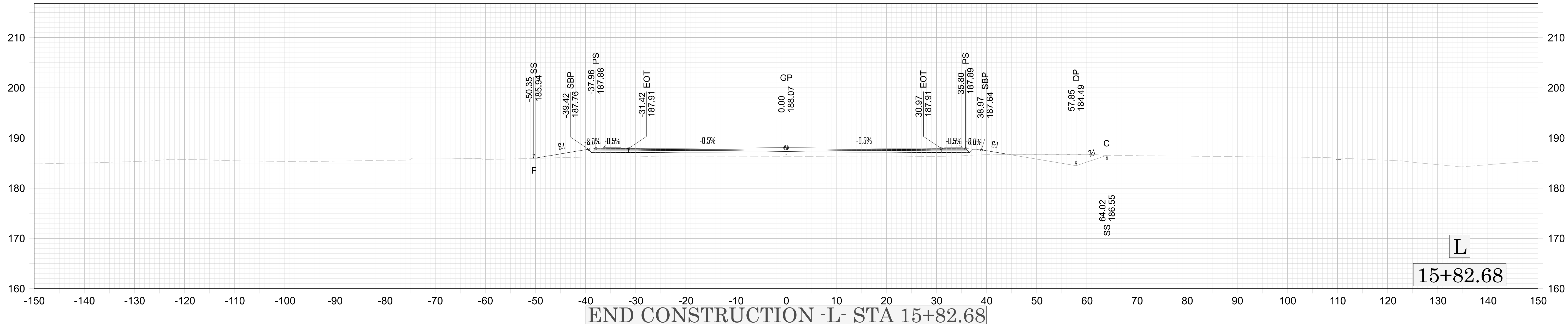
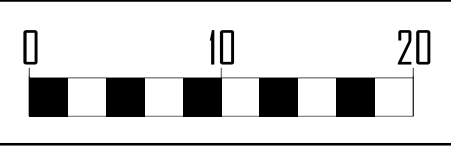


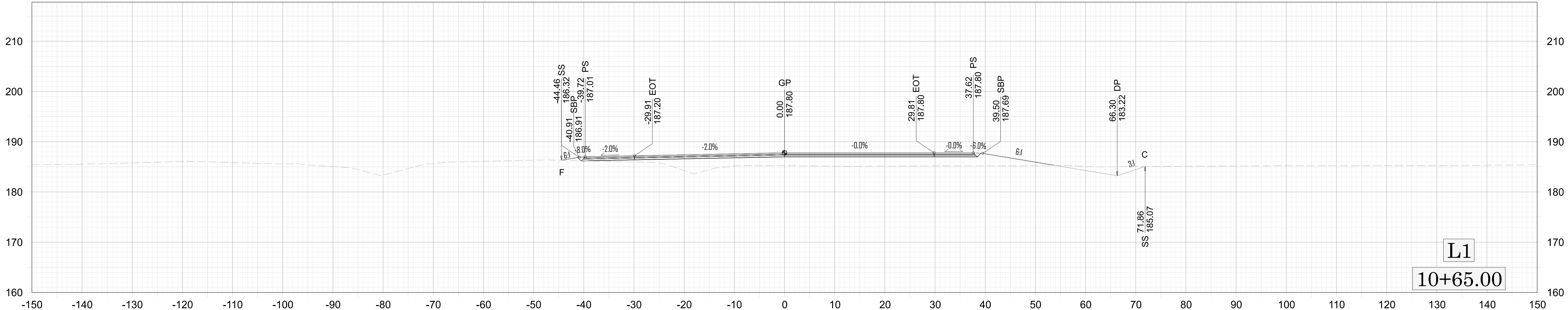
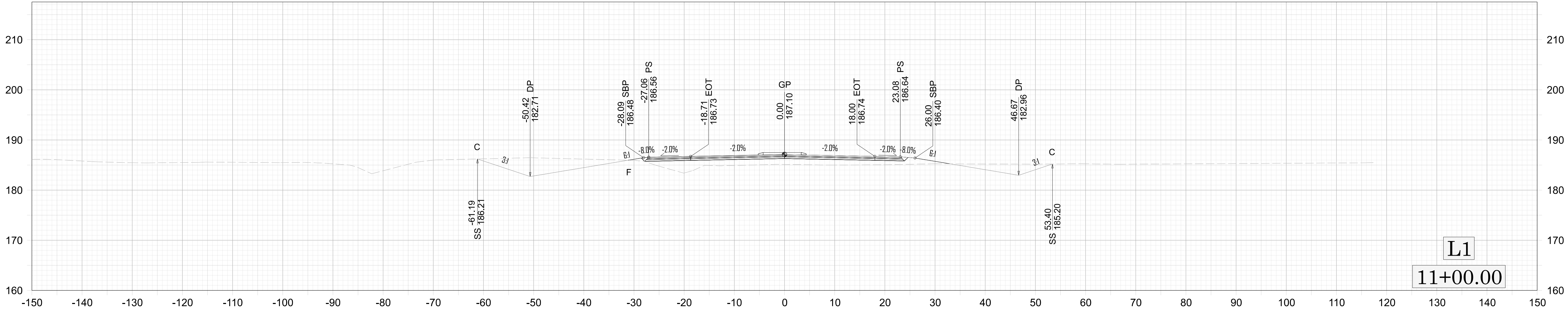
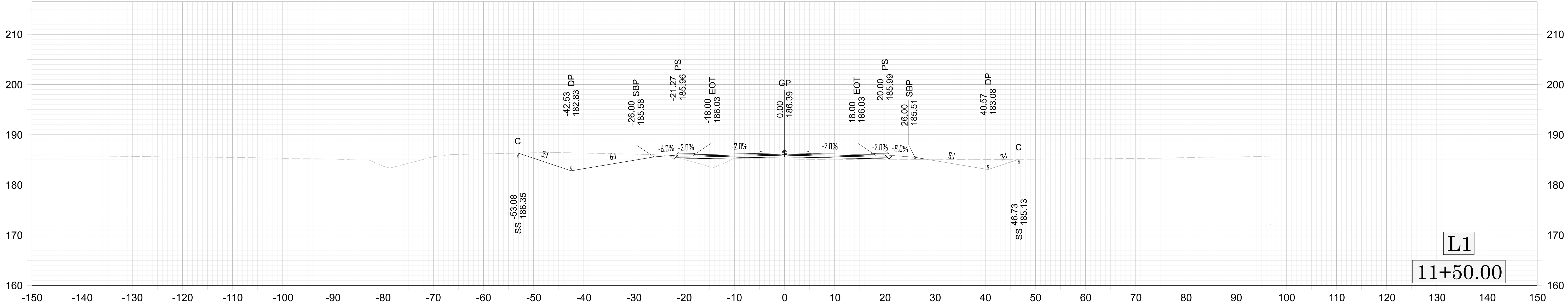
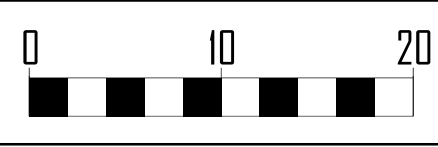
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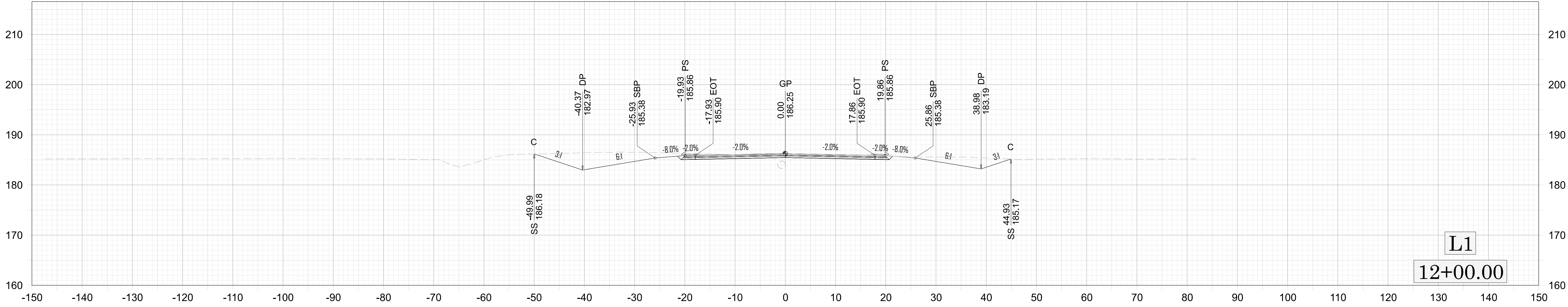
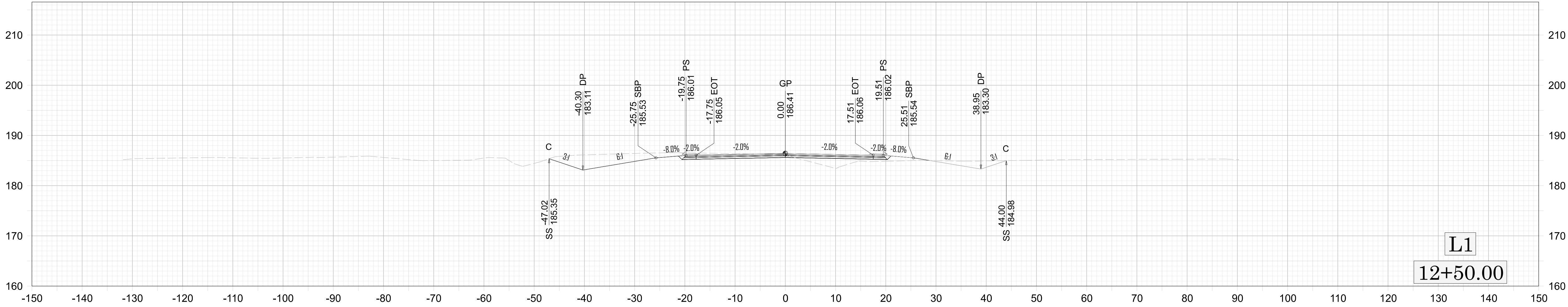
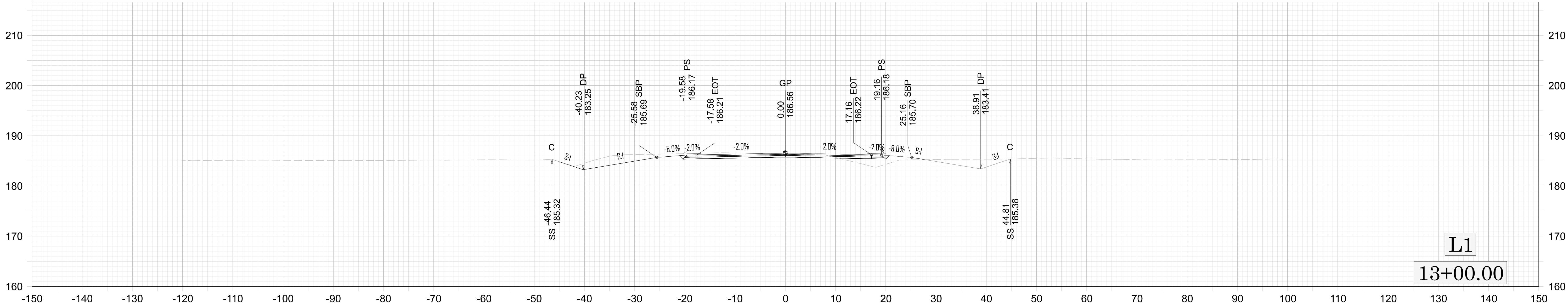
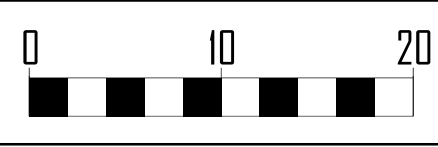


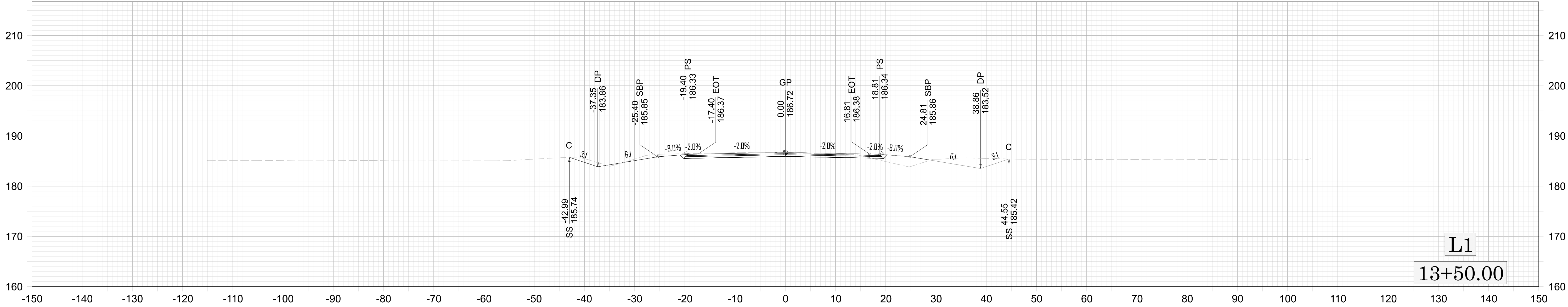
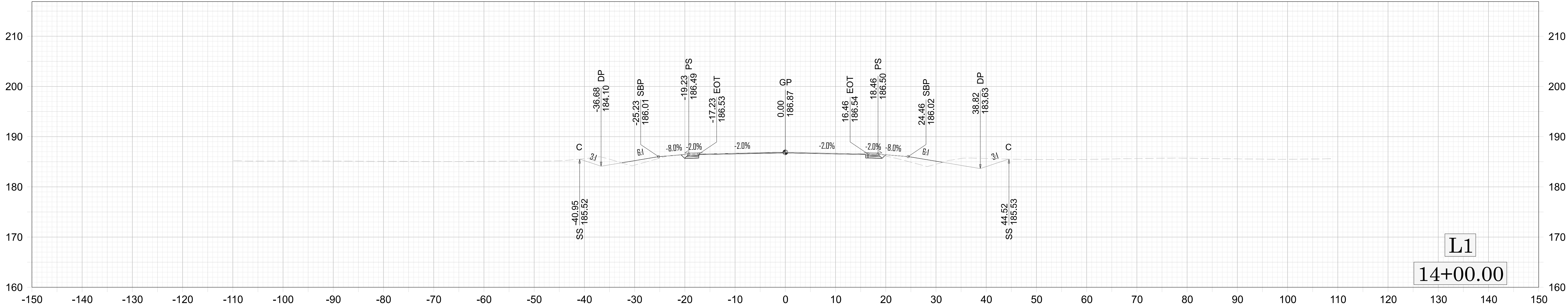
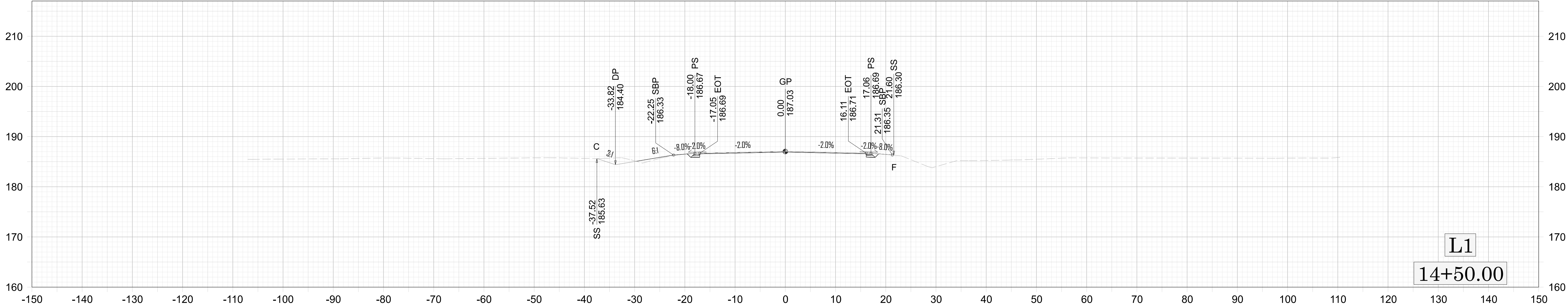
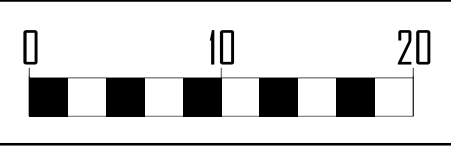


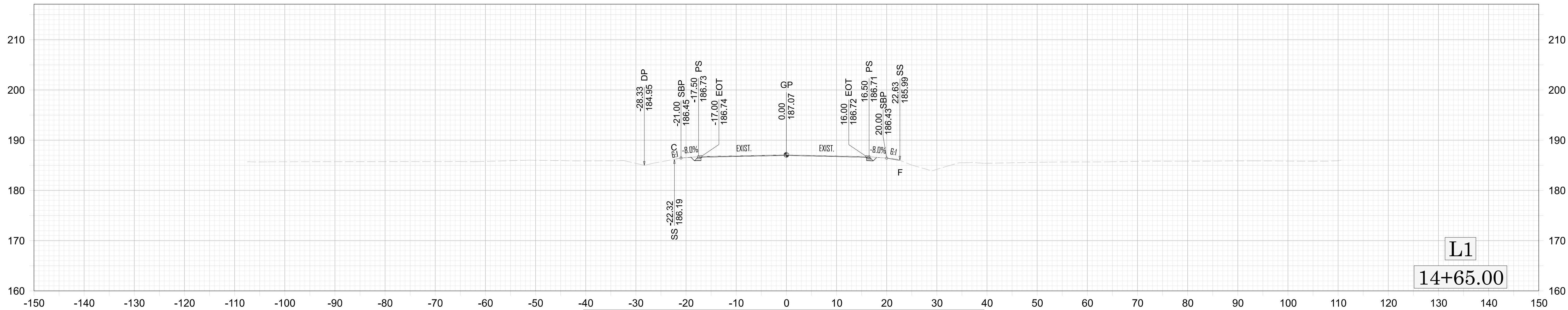
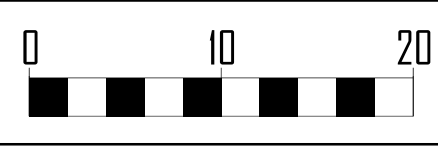




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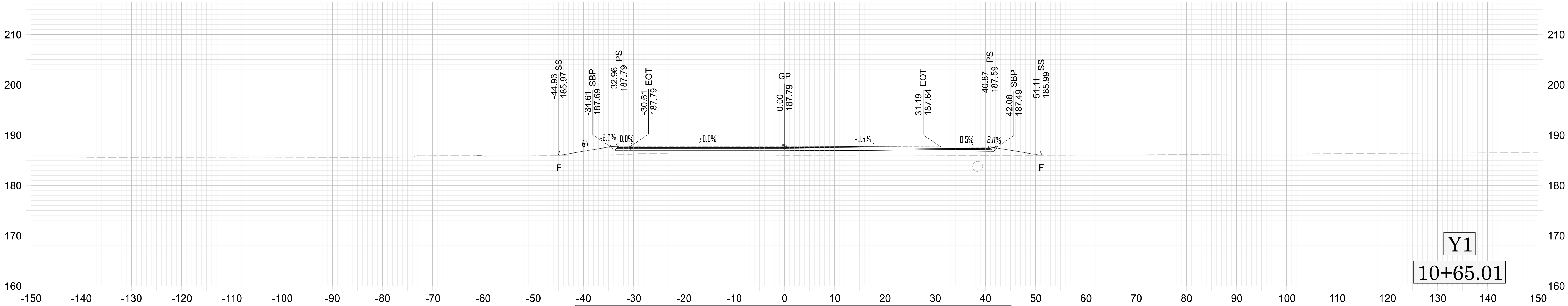
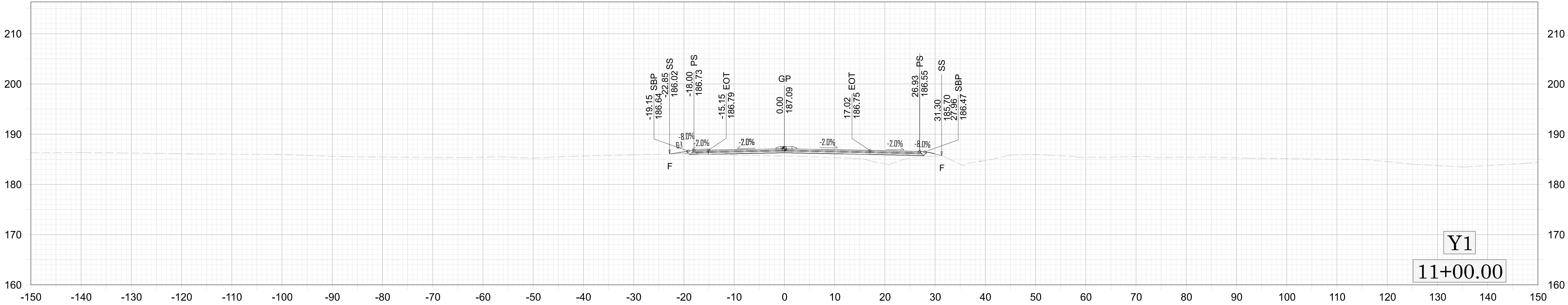
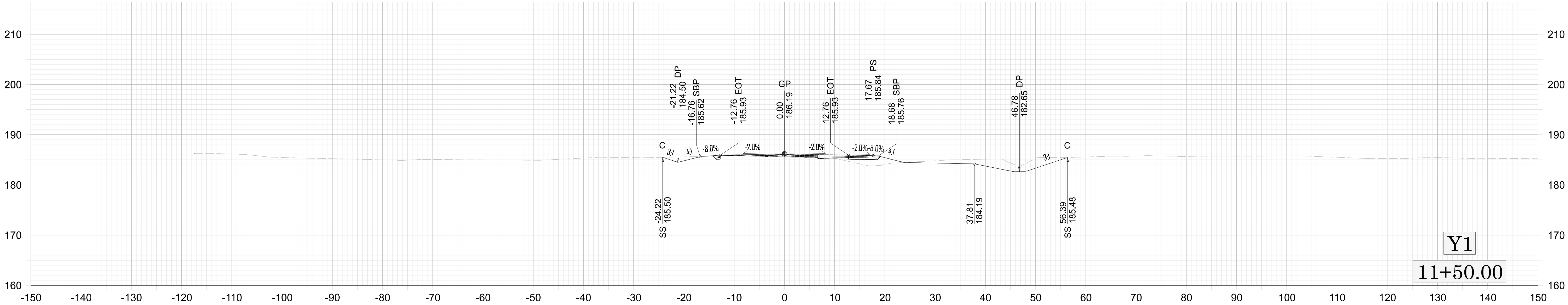




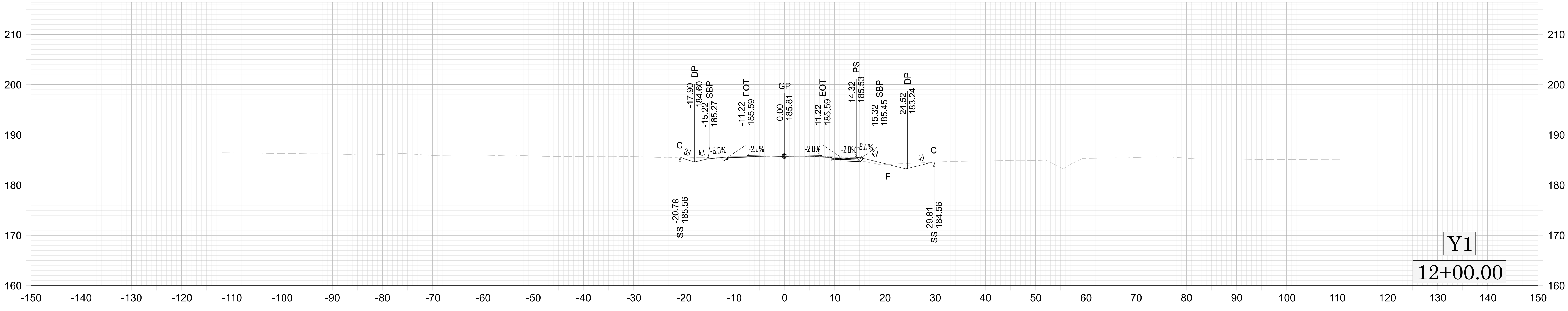
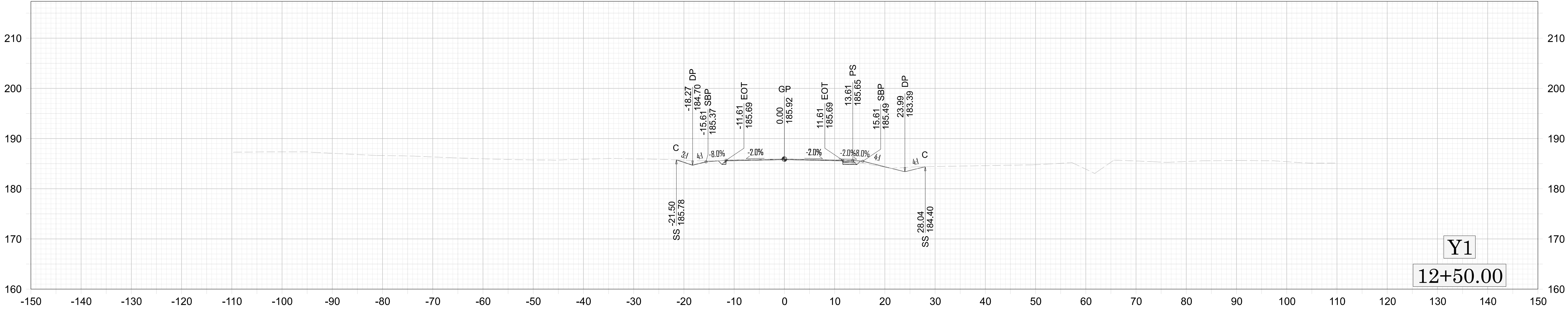
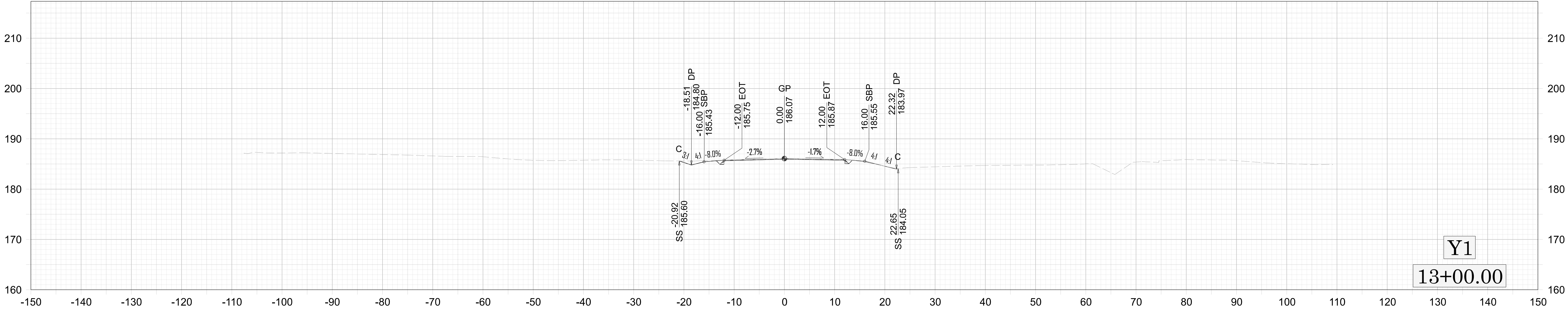


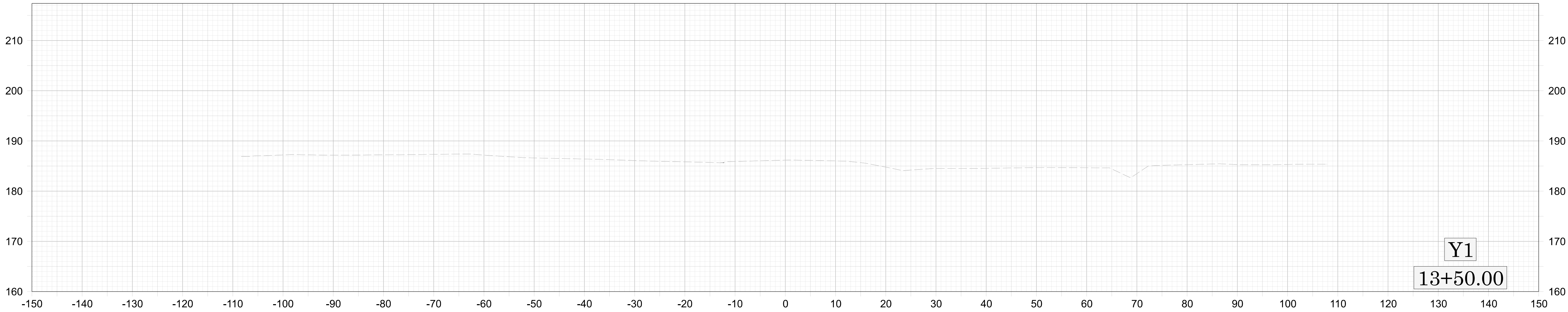
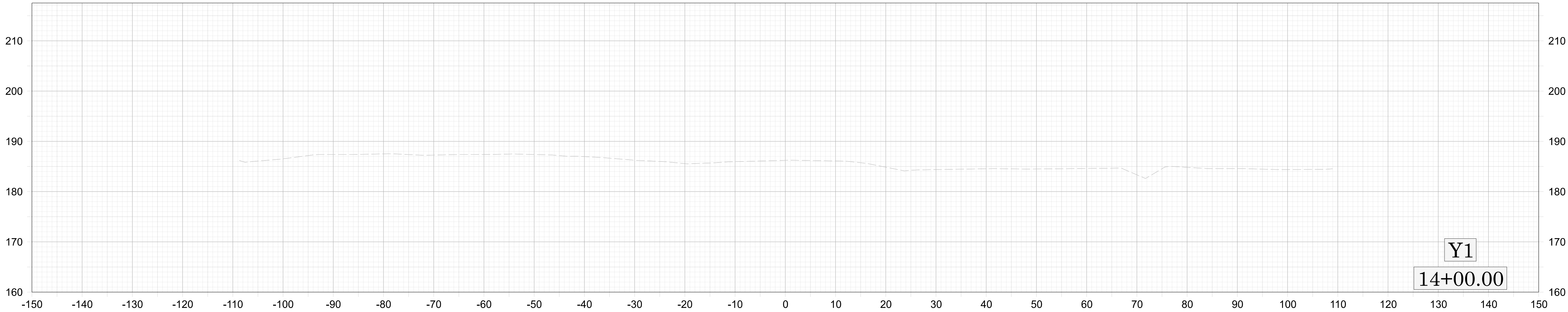
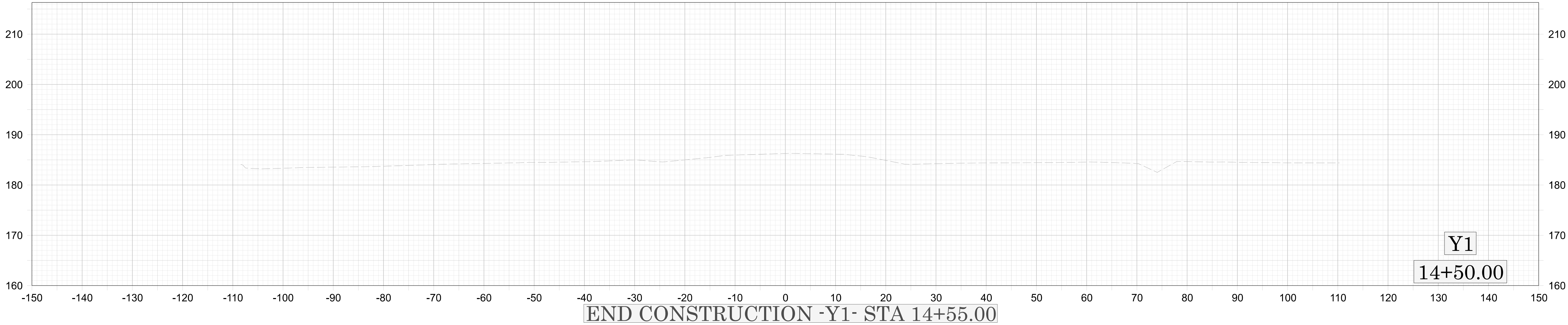
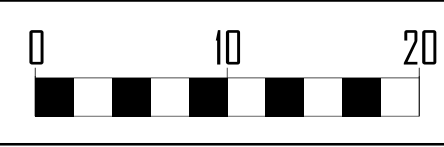
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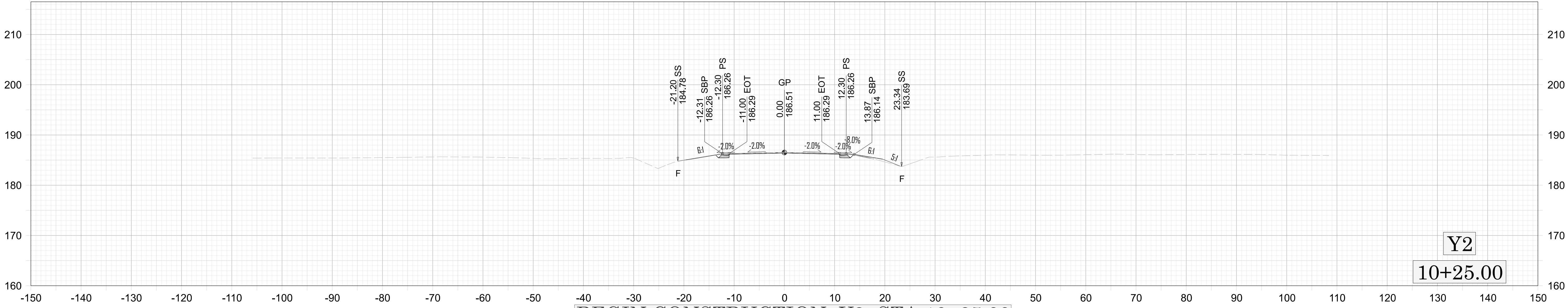
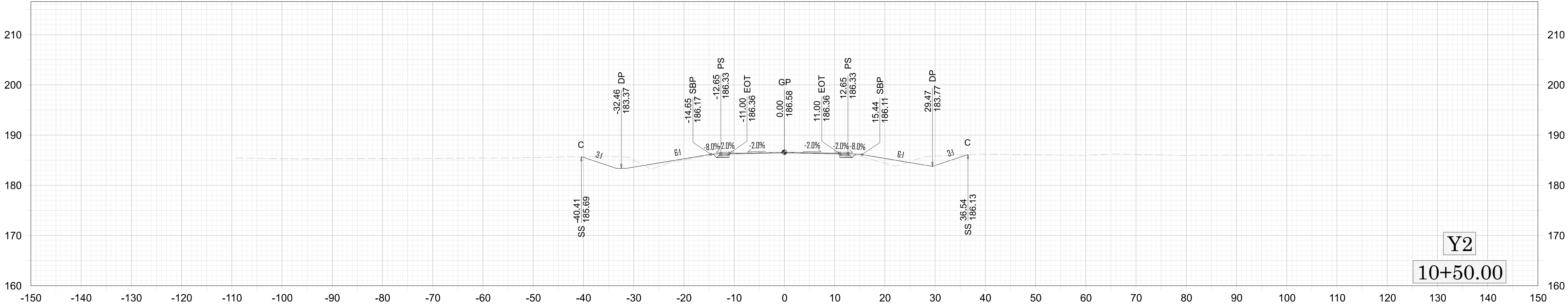
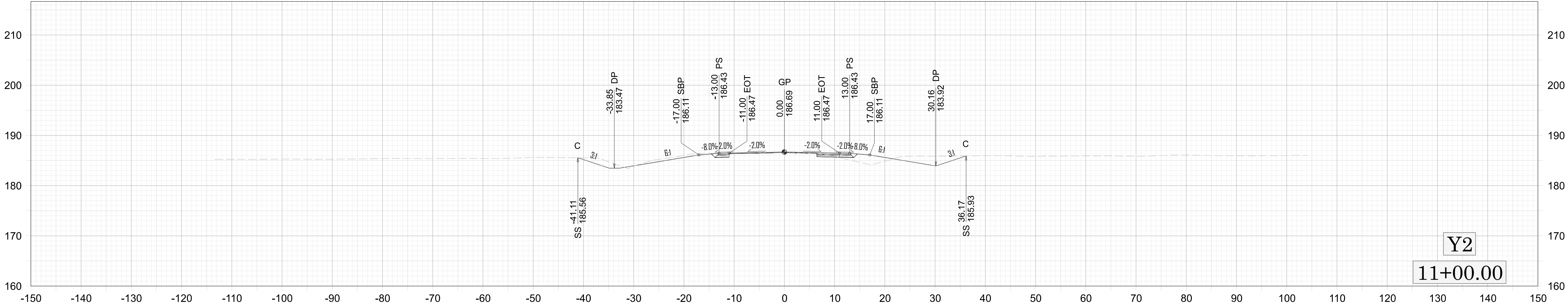
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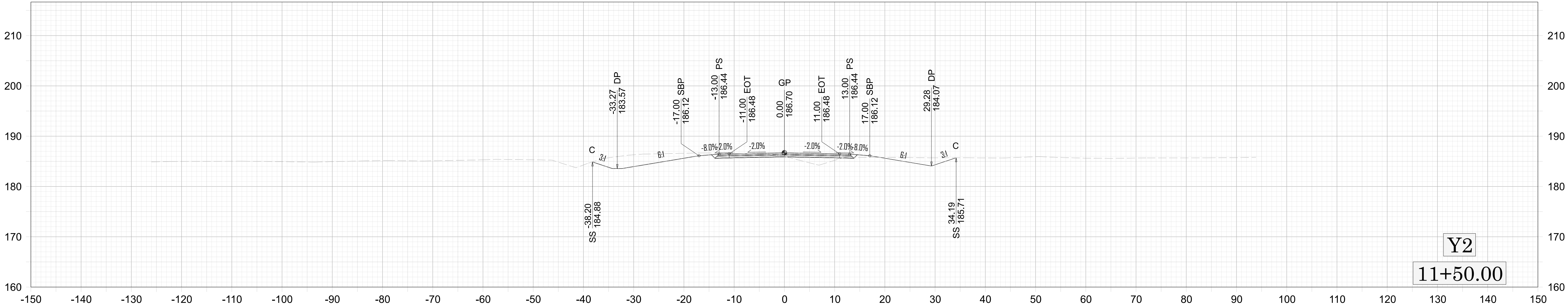
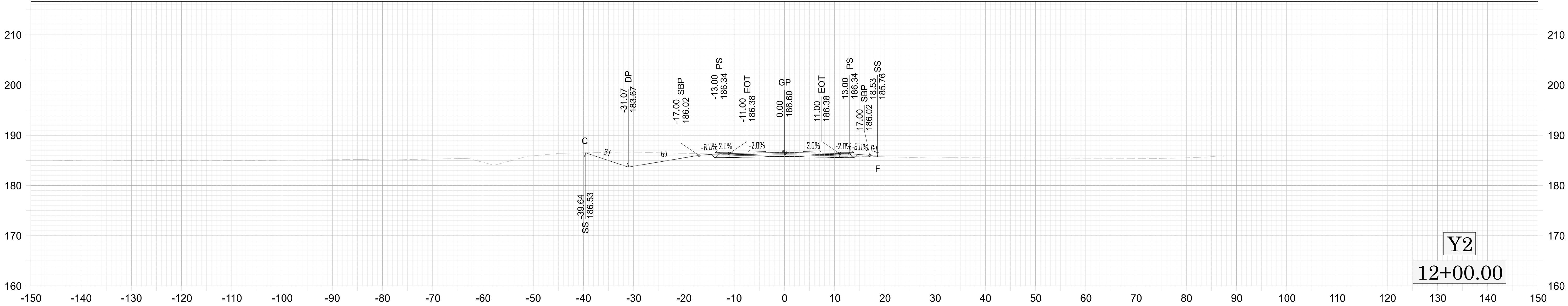
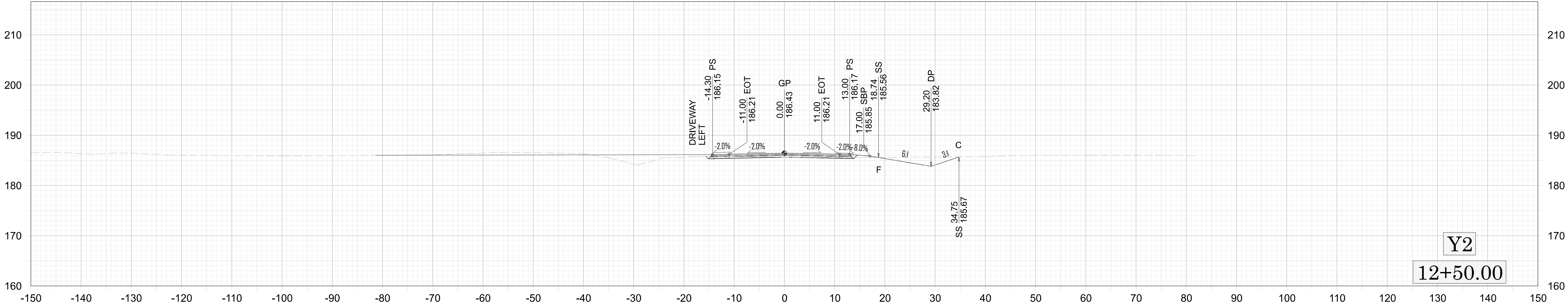
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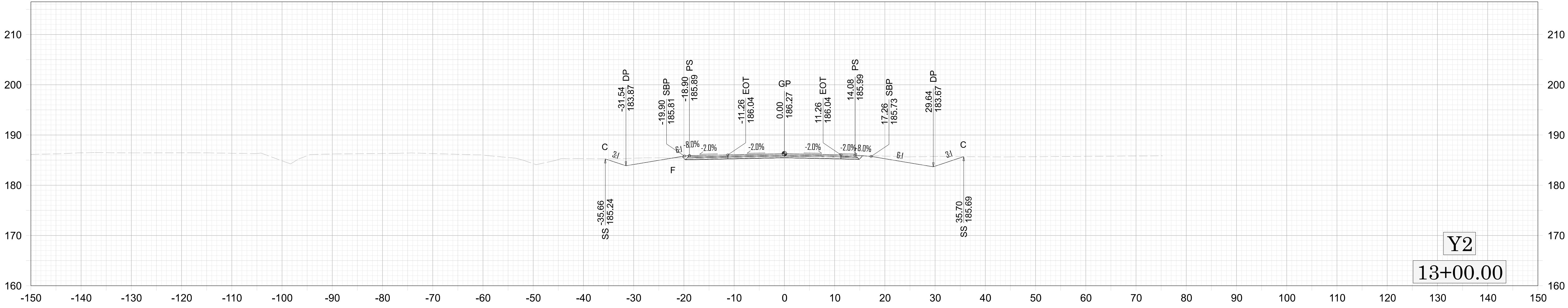
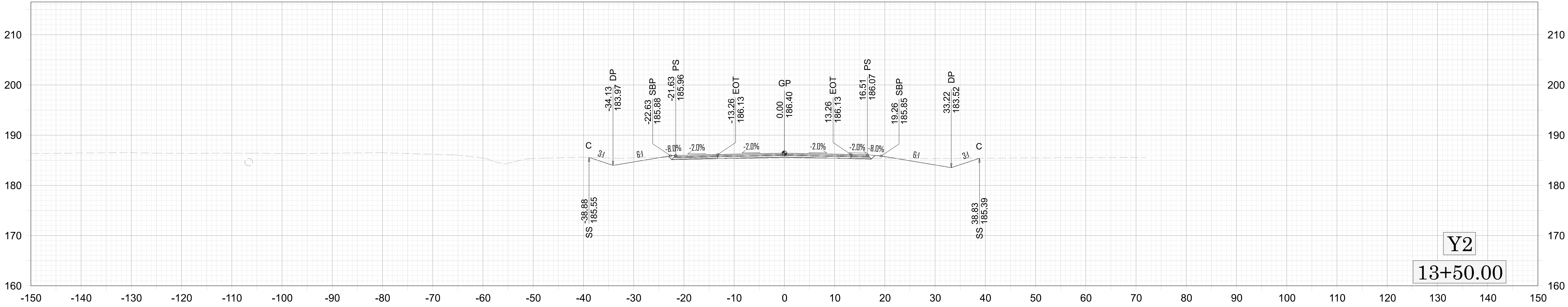
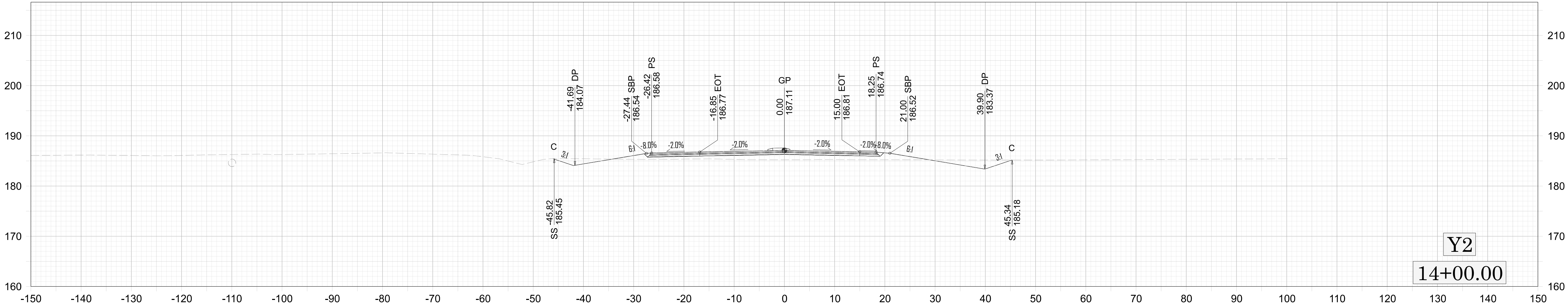


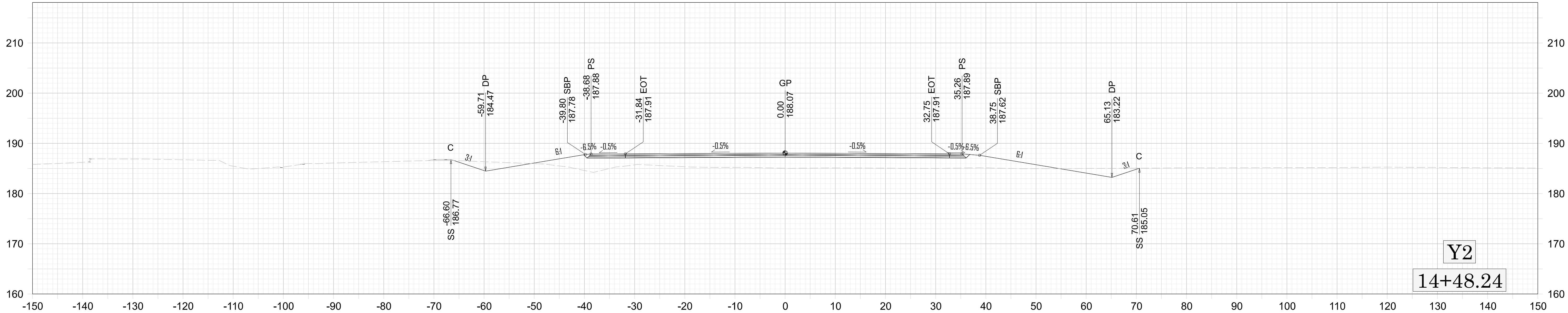
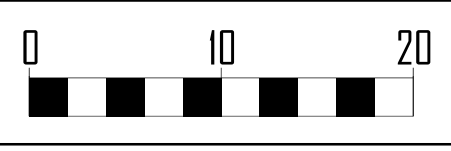




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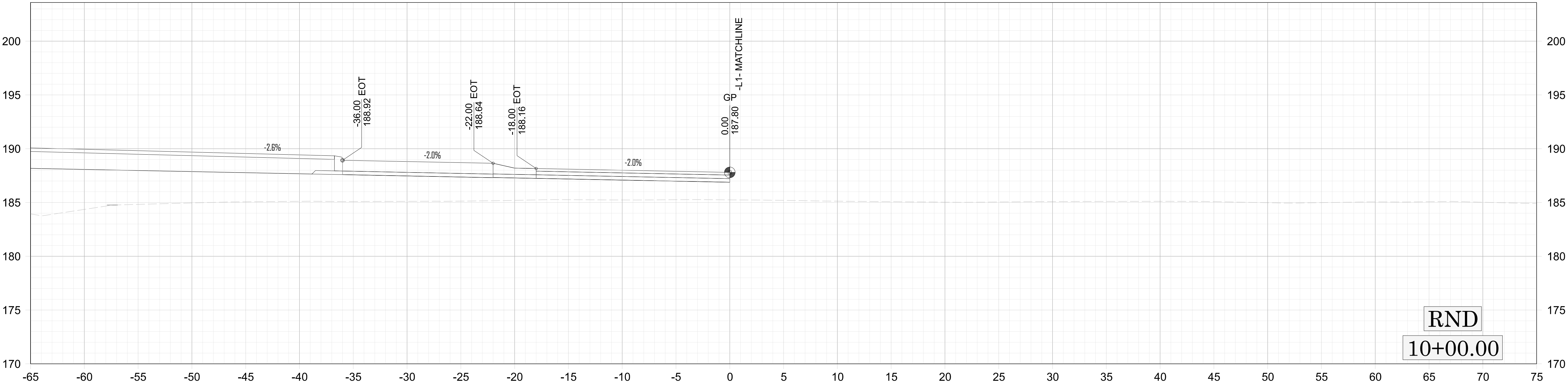
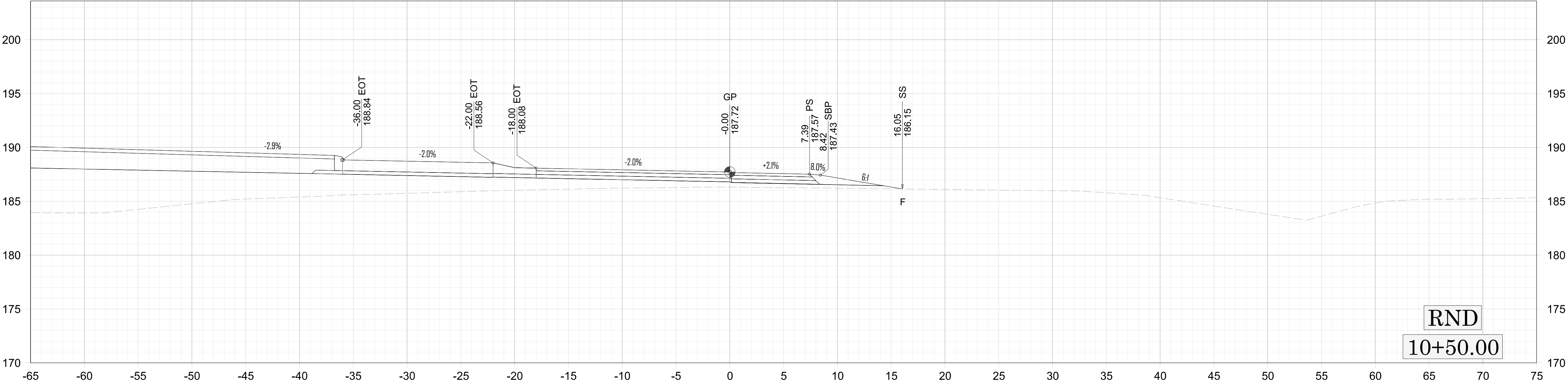
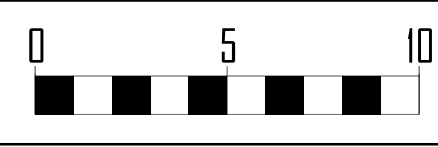






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Y2
14+48.24



BEGIN CONSTRUCTION -RND- STA 10+00.00

