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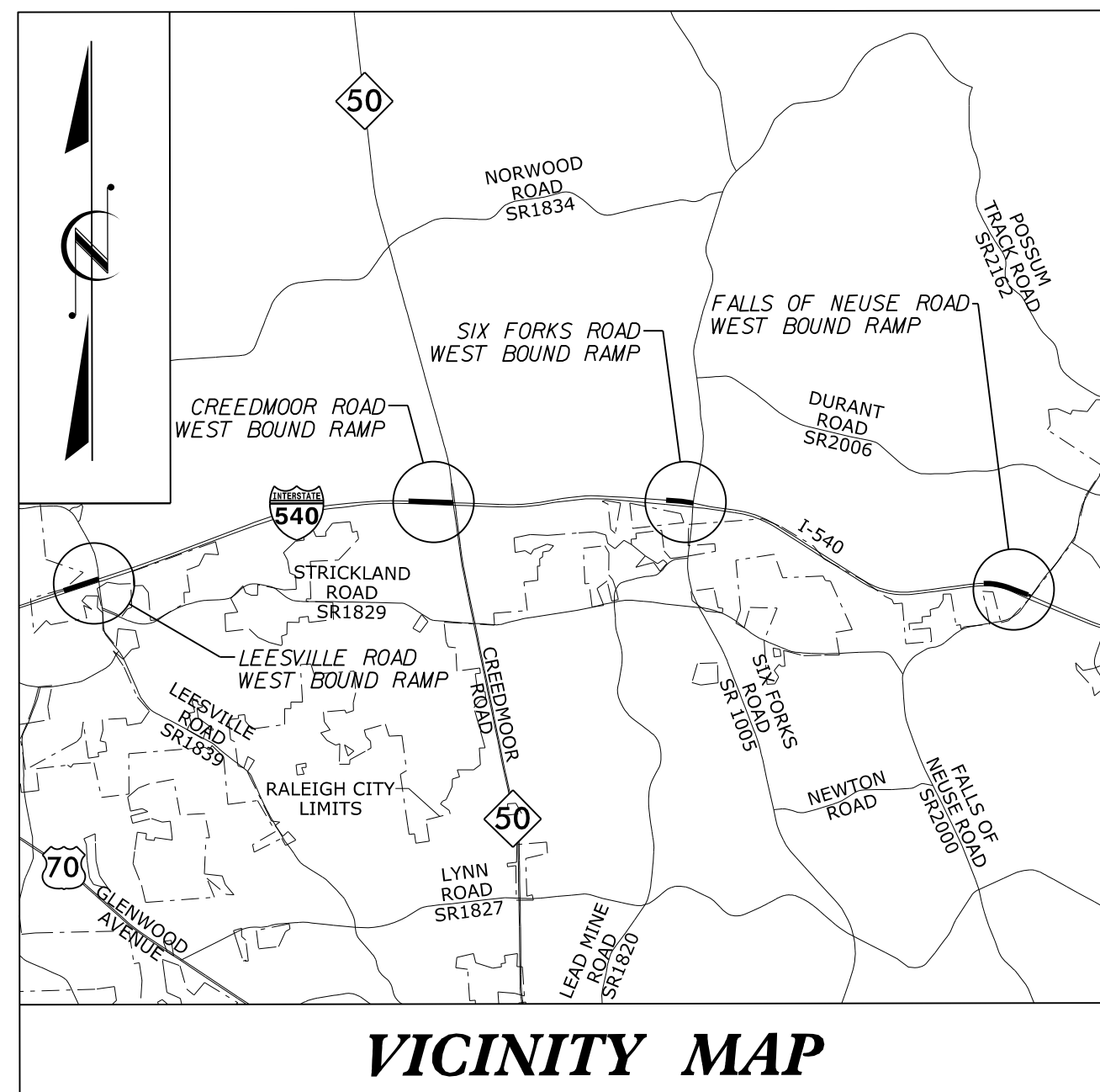
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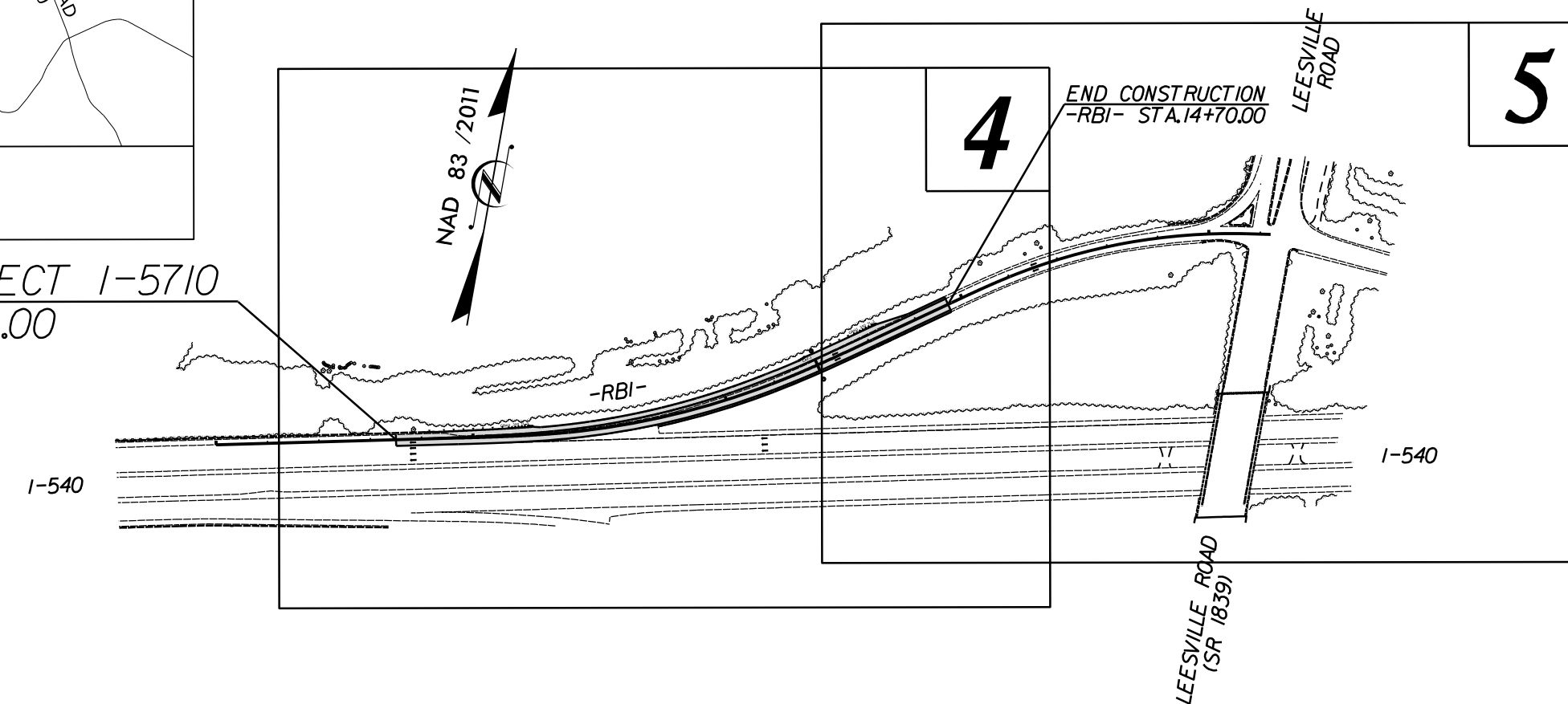
TIP PROJECT: I-5710

CONTRACT: C203791

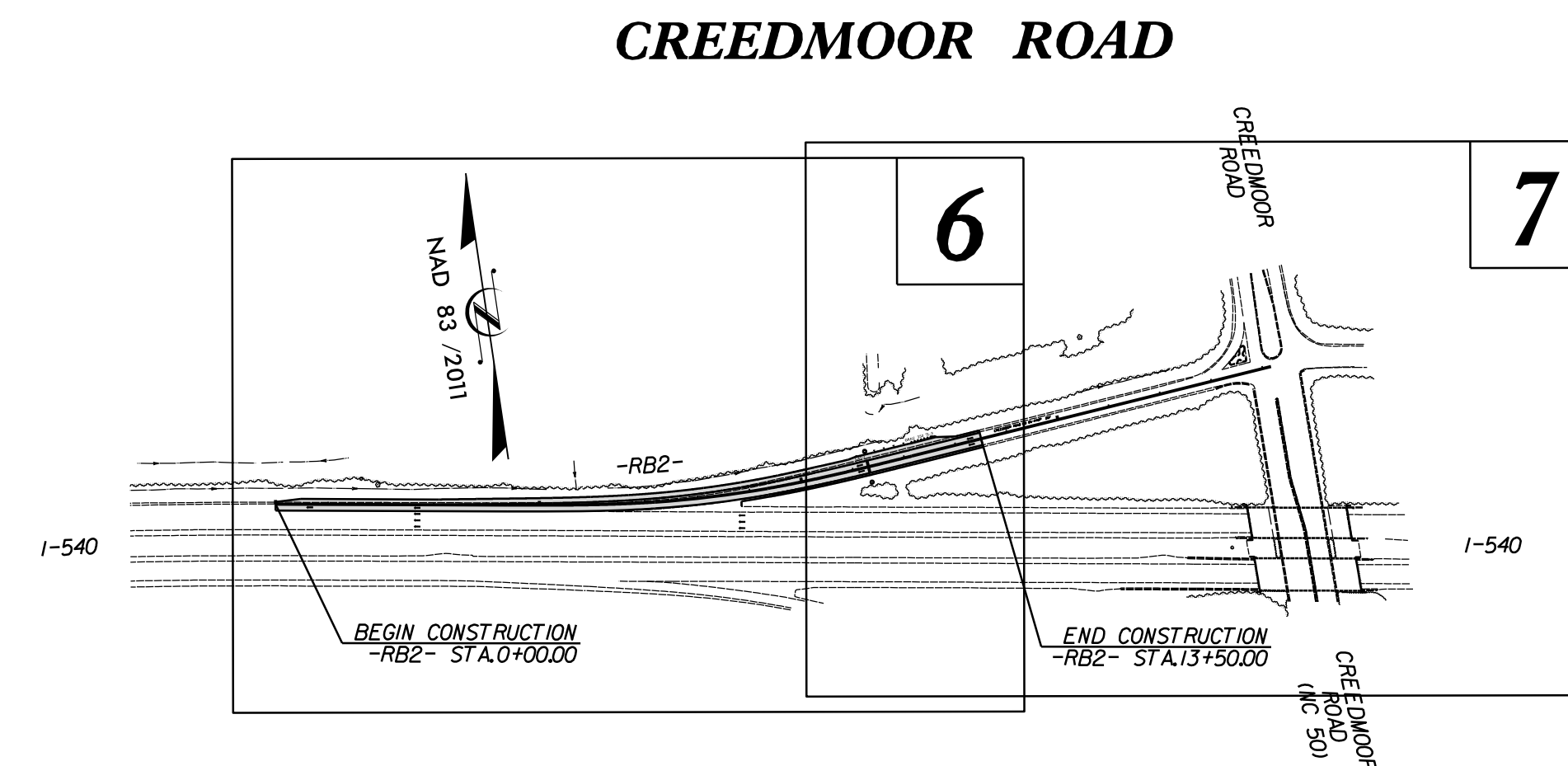
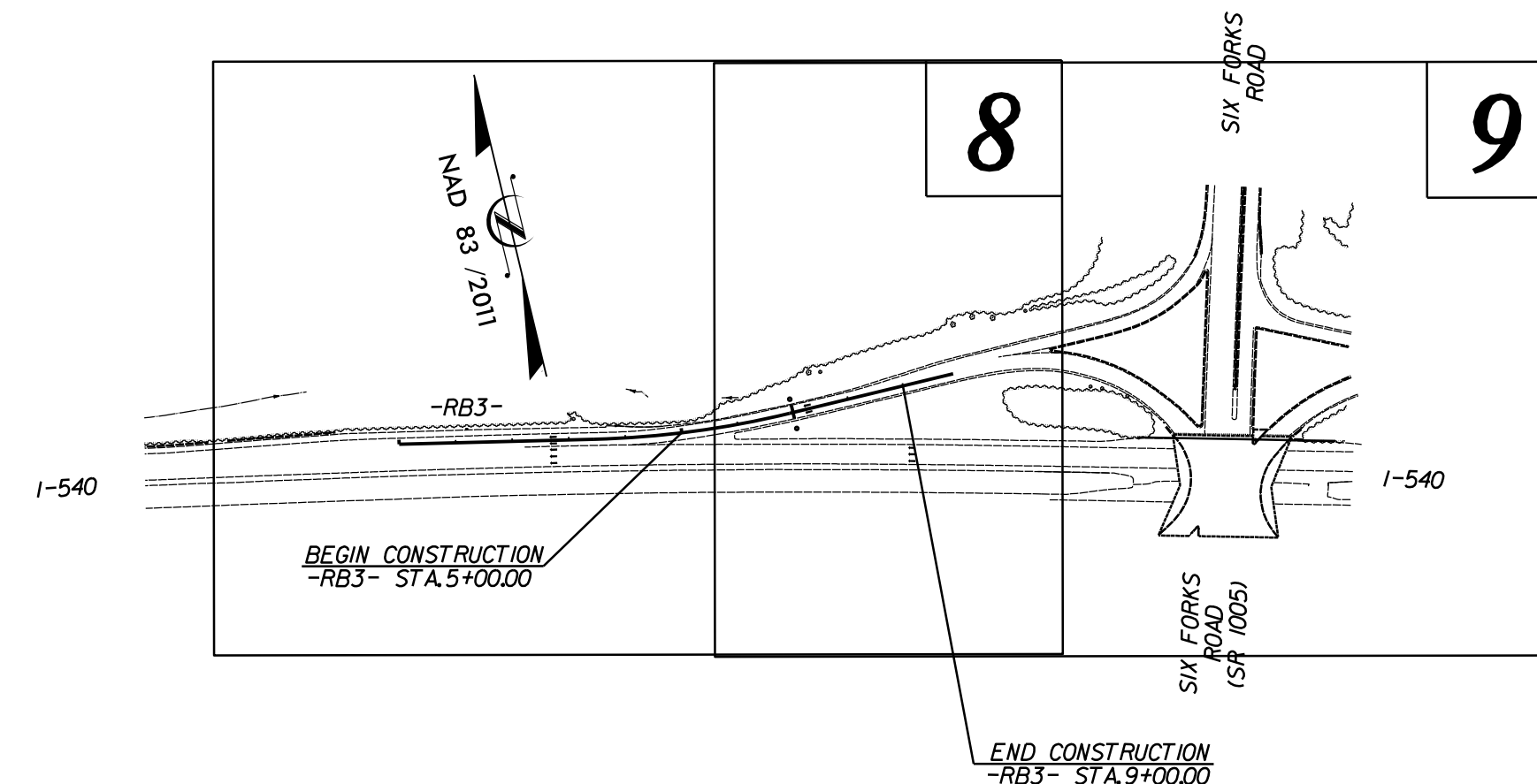
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



BEGIN TIP PROJECT I-5710
-RBI- STA. 3+50.00

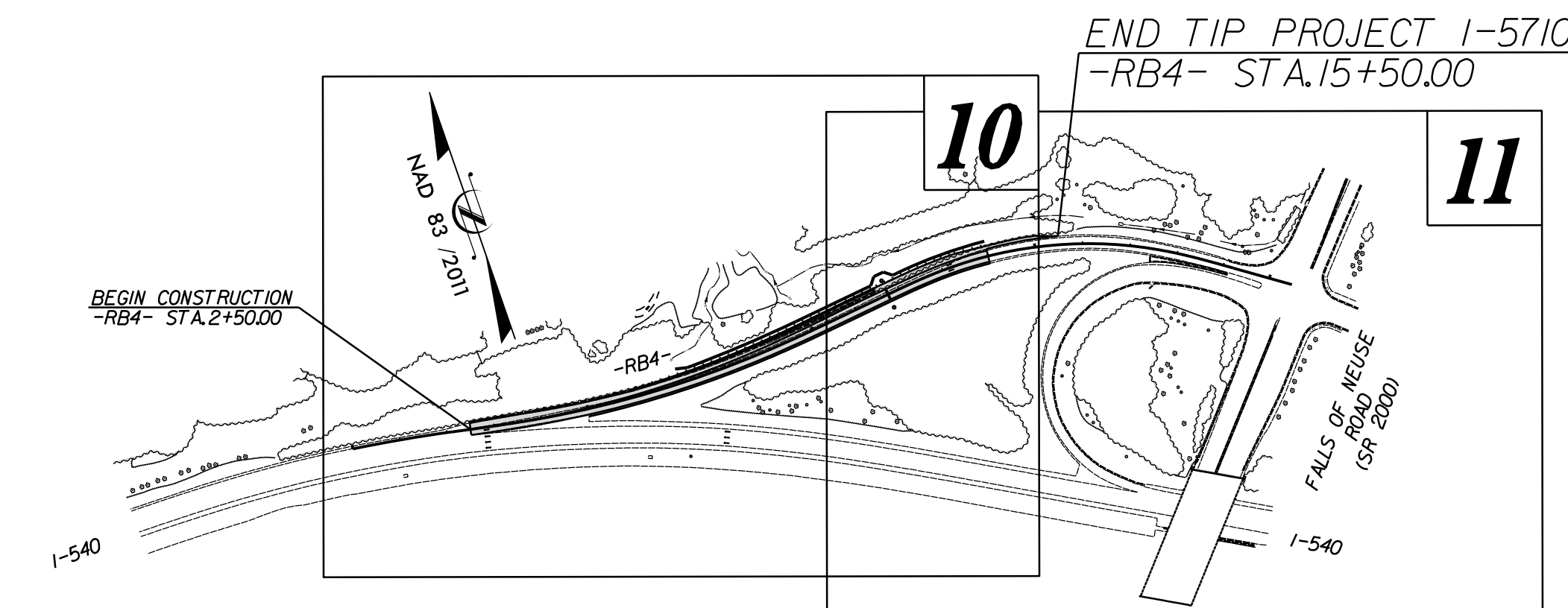


SIX FORKS ROAD



CREEDMOOR ROAD

FALLS OF NEUSE ROAD



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: WEST BOUND RAMP ALONG I-540 AT SR 1839 (LEESVILLE ROAD), NC 50 (CREEDMOOR ROAD), SR 1005 (SIX FORKS ROAD), AND SR 2000 (FALLS OF NEUSE ROAD).

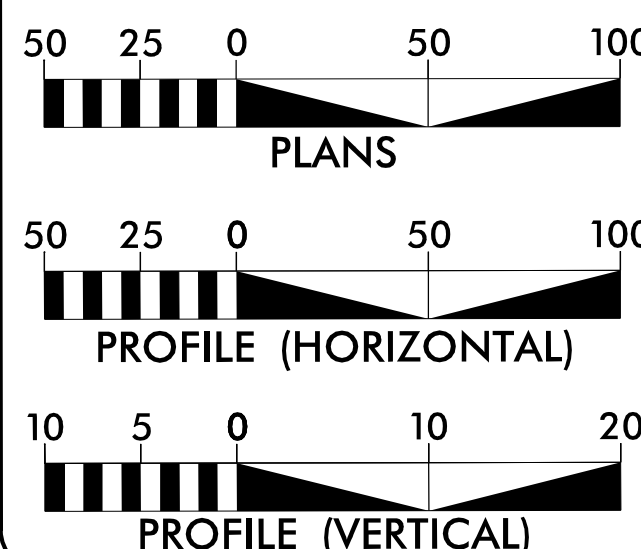
TYPE OF WORK: INSTALLING RAMP METERS - WIDENING, GRADING, PAVING, DRAINAGE, RETAINING WALL, ITS, AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5710	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50125.1.FS1	NHPP-0540(030)	P.E.	
50125.3.1	NHPP-0540(030)	CONST.	

THIS IS A FULL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2016 = 6,700-13,900
ADT 2036 = 7,300-15,200
DHV = 11-20 %
D = 100 %
* T = 3-7 %
V = 60 MPH
* (TTST 1% + DUAL 2-6%)
FUNC. CLASS. = INTERSTATE STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT I-5710 = 0.790 MILE
TOTAL LENGTH T.I.P. PROJECT I-5710 = 0.790 MILE

Prepared in the Office of:
ATKINS 1616 E. MILLBROOK ROAD, SUITE #310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBES #F-0326

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
N/A

LETTING DATE:
SEPTEMBER 20, 2016

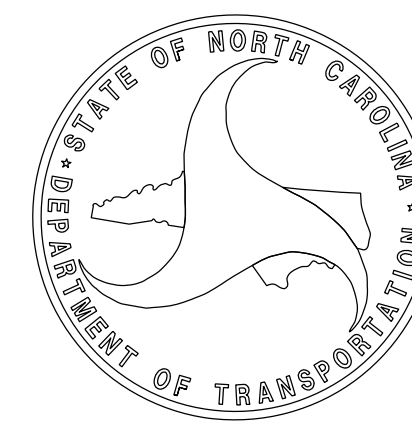
CLINTON MORGAN, P.E.
PROJECT ENGINEER
IAN BERDEAU, E.I.
PROJECT DESIGN ENGINEER
TONY HOUSER, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

DocuSigned by:
Clinton J. Morgan 6/28/2016
SIGNATURE: Clinton J. Morgan, P.E.

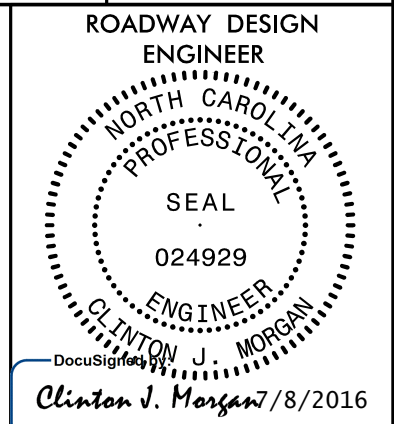
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Clinton J. Morgan 6/28/2016
SIGNATURE: Clinton J. Morgan, P.E.

ROADWAY DESIGN ENGINEER



8/17/99

PROJECT REFERENCE NO. 1-5710	SHEET NO. 1A
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**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C -1 THRU 1C-4	SURVEY CONTROL SHEETS
2A-1 THRU 2A-2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, WEDGING DETAIL, AND MILLING DETAIL
2C-1	TEMPORARY GUARDRAIL ANCHOR UNIT DETAIL
2G-1	STANDARD TEMPORARY SHORING DETAILS
3B-1	SUMMARY OF EARTHWORK, SHOULDER BERM CUTTER, DRAINAGE, GUARDRAIL, AND PAVEMENT REMOVAL
3G-1	SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION
4 THRU 11	PLAN SHEETS
12 THRU 13	PROFILE SHEETS
TMP-1 THRU TMP-32	TRANSPORTATION MANAGEMENT PLANS
EC-1 THRU EC-13	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-7	PAVEMENT MARKING AND SIGNING PLANS
ITS-1 THRU ITS-25	INTELLIGENT TRANSPORTATION SYSTEMS PLANS
W-1 THRU W-4	RETAINING WALL PLANS
X-0	CROSS-SECTION INDEX OF SHEETS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-29	CROSS-SECTIONS

GENERAL NOTES

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04. 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.

GUARDRAIL:

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

TEMPORARY SHORING:

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

LIST OF STANDARDS

STD.NO.	TITLE	EFF. DATE
2012 ROADWAY ENGLISH STANDARD DRAWINGS		
The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:		
EFF. 01-17-2012 REV. 10-30-2012		
DIVISION 2 - EARTHWORK		
200.03	Method of Clearing - Method III	
225.02	Guide for Grading Subgrade - Secondary and Local	
225.04	Method of Obtaining Superelevation - Two Lane Pavement	
DIVISION 3 - PIPE CULVERTS		
300.01	Method of Pipe Installation	
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS		
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I	
DIVISION 6 - ASPHALT BASES AND PAVEMENTS		
665.01	Asphalt Shoulders - Milled Rumble Strips	
DIVISION 8 - INCIDENTALS		
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew	
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew	
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew	
840.00	Concrete Base Pad for Drainage Structures	
840.20	Frames and Wide Slot Flat Grates	
840.25	Anchorage for Frames - Brick or Concrete or Precast	
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates	
840.46	Traffic Bearing Precast Drainage Structure	
840.54	Manhole Frame and Cover	
840.66	Drainage Structure Steps	
840.72	Pipe Collar	
846.01	Concrete Curb, Gutter and Curb & Gutter	
846.04	Drop Inlet Installation in Shoulder Berm Gutter	
862.01	Guardrail Placement	
862.02	Guardrail Installation	
876.02	Guide for Rip Rap at Pipe Outlets	

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\$\$\$\$\$USERNAME\$\$\$\$\$

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

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

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
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	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□ †
Building	□
School	□
Church	□
Dam	▬

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

Baseline Control Point	◇
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	----- RW
Proposed Right of Way Line with Iron Pin and Cap Marker	----- RW ▲
Proposed Right of Way Line with Concrete or Granite RW Marker	----- RW ▲
Proposed Control of Access Line with Concrete C/A Marker	----- C/A
Existing Control of Access	----- C/A
Proposed Control of Access	----- C/A
Existing Easement Line	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Drainage / Utility Easement	----- DUE
Proposed Permanent Utility Easement	----- PUE
Proposed Temporary Utility Easement	----- TUE
Proposed Aerial Utility Easement	----- AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	----- ◇

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

Orchard	☼ ☼ ☼ ☼
Vineyard	□ Vineyard

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	----- P
U/G Power Line LOS C (S.U.E.*)	----- P
U/G Power Line LOS D (S.U.E.*)	----- P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

04/06/15

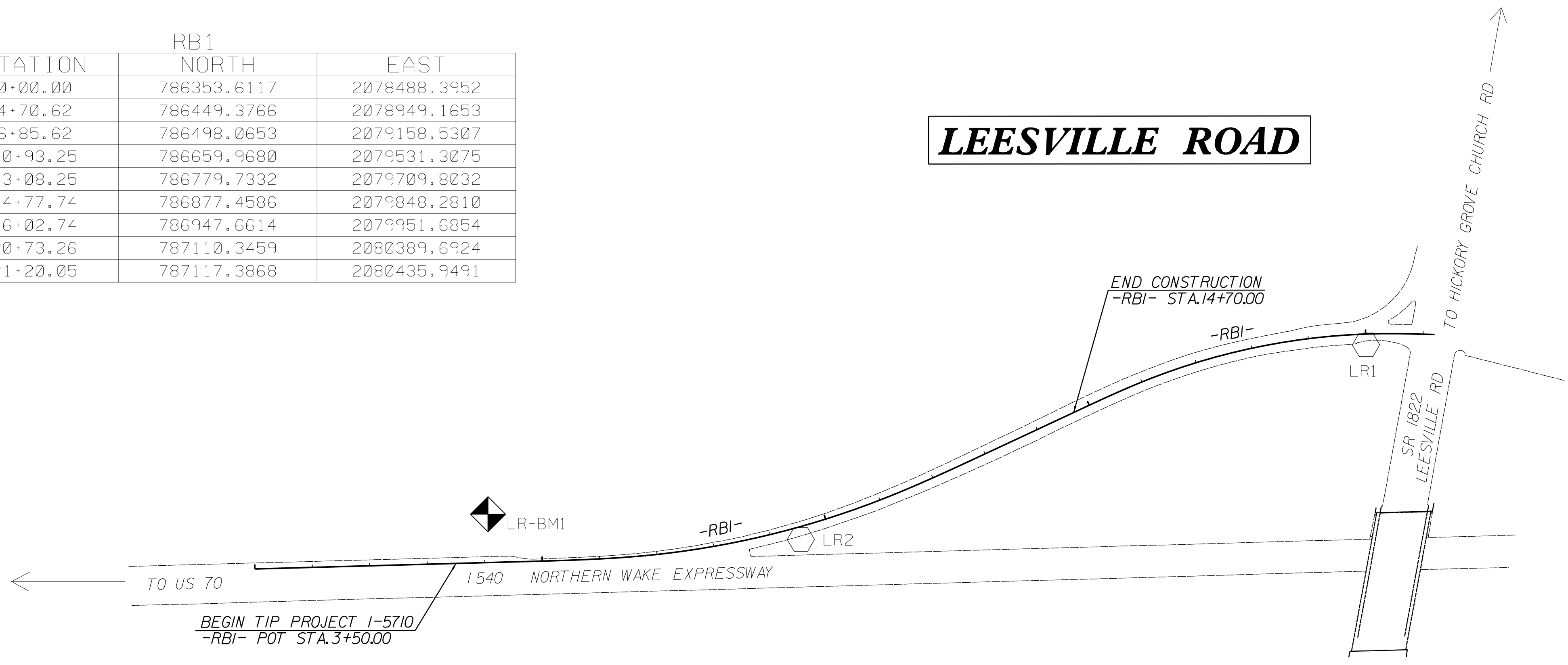
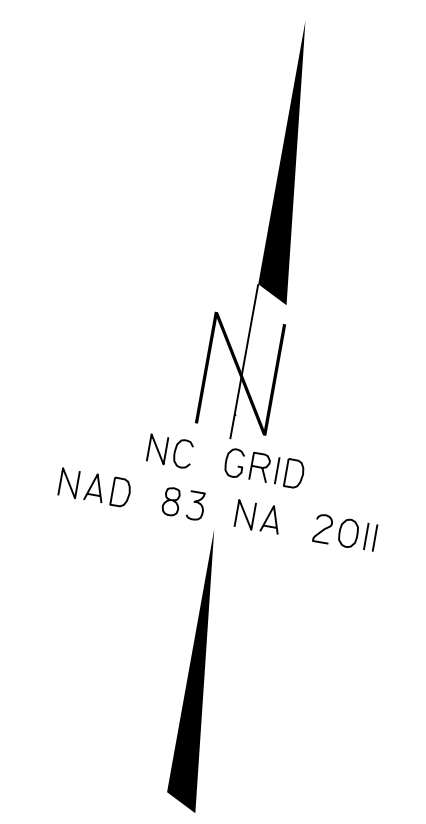
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PROJECT REFERENCE NO.	SHEET NO.
I-5710	1C-1
Location and Surveys	

SURVEY CONTROL I-5710

RB1			
TYPE	STATION	NORTH	EAST
POT	0+00.00	786353.6117	2078488.3952
TS	4+70.62	786449.3766	2078949.1653
SC	6+85.62	786498.0653	2079158.5307
CS	10+93.25	786659.9680	2079531.3075
ST	13+08.25	786779.7332	2079709.8032
TS	14+77.74	786877.4586	2079848.2810
SC	16+02.74	786947.6614	2079951.6854
PT	20+73.26	787110.3459	2080389.6924
POT	21+20.05	787117.3868	2080435.9491

LEESVILLE ROAD



CONTROL POINT	DESC.	NORTH	EAST	ELEVATION	RB1 STATION	OFFSET
301	LR1	787078.582	2080321.580	518.30	19+99.89	18.85 RT
302	LR2	786571.807	2079413.995	494.13	9+49.09	21.67 RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "SF1" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 787201.655(++) EASTING: 2103250.412(++) ELEVATION: 466.509(++)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992221

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SF1" TO -RBI- STATION 3+50.00 IS
 S 88°10'40.56" W 24431.69'

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

NOTES:

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

BENCH MARK DATA

LR-BM1 ELEVATION = 476.44'
 N 786519 E 2078871
 RB1 STATION 4+08.00 84 LEFT
 NAIL SET IN 10" POPLAR TREE

GEOID G12NC
 NOTE: DRAWING NOT TO SCALE

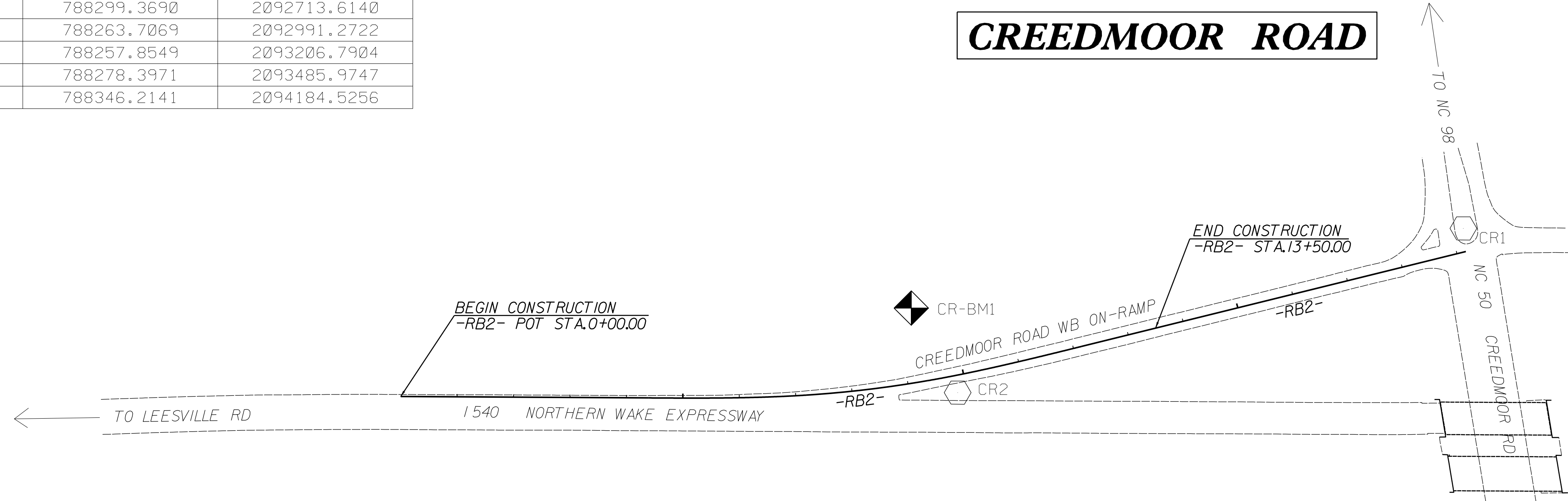
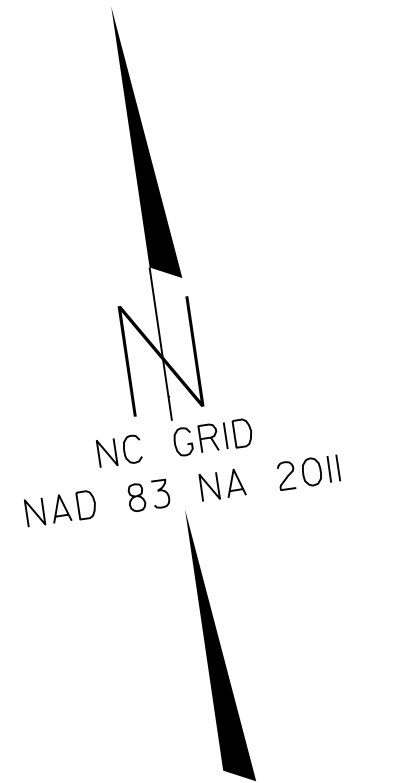
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PROJECT REFERENCE NO.	SHEET NO.
I-5710	1C-2
Location and Surveys	

SURVEY CONTROL SHEET I-5710

RB2			
TYPE	STATION	NORTH	EAST
POT	0+00.00	788365.3965	2092279.8838
TS	4+38.73	788299.3690	2092713.6140
SC	7+18.73	788263.7069	2092991.2722
CS	9+34.43	788257.8549	2093206.7904
ST	12+14.43	788278.3971	2093485.9747
POT	19+16.26	788346.2141	2094184.5256



CONTROL POINT	DESC.	NORTH	EAST	ELEVATION	RB2 STATION	OFFSET
101	CR1	788387.520	2094186.160	377.37	OUTSIDE PROJECT LIMITS	
102	CR2	788229.059	2093257.201	403.74	9+83.37	30.71 RT

BENCH MARK DATA

 CR-BM1 ELEVATION = 418.08
 N 788390 E 2093198
 RB2 STATION 9+29.00 132 LEFT
 BENCH NAIL W/TAG SET IN 12" BIRCH

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "SF1"
 WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 787201.655(±) EASTING: 2103250.412(±±)
 ELEVATION: 466.509(±±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992221
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SF1" TO -RB2- STATION 0+00.00 IS
 N 83°56'41.18" W 11032.08'

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

NOTES:

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

○ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

GEOID G12NC
NOTE: DRAWING NOT TO SCALE

RB - JUN 2016 16:00
 PLOT: I-5710-1C-2.dgn
 USER: JAMES

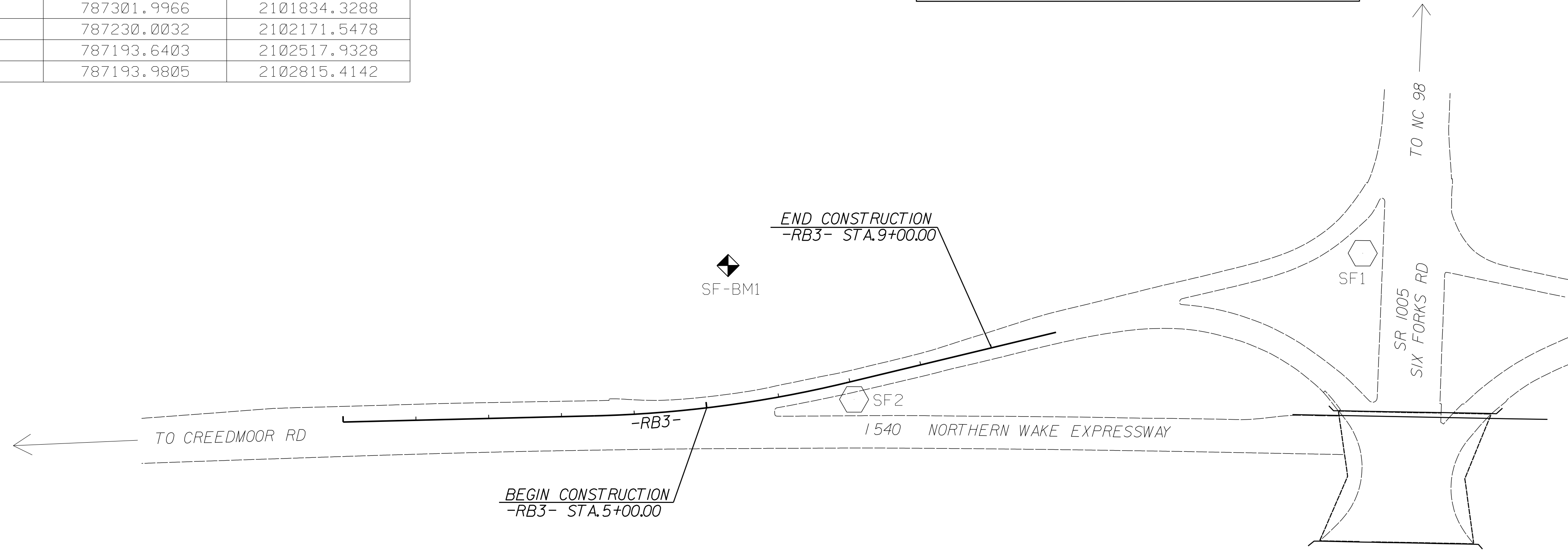
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PROJECT REFERENCE NO.	SHEET NO.
I-5710	1C-3
Location and Surveys	

SURVEY CONTROL SHEET I-5710

RB3			
TYPE	STATION	NORTH	EAST
POT	0+00.00	787301.9966	2101834.3288
PC	3+44.82	787230.0032	2102171.5478
PT	6+93.76	787193.6403	2102517.9328
POT	9+91.24	787193.9805	2102815.4142

SIX FORKS ROAD



CONTROL POINT	DESC.	NORTH	EAST	ELEVATION	RB3 STATION	OFFSET
401	SF1	787201.655	2103250.412	466.51	OUTSIDE PROJECT LIMITS	
402	SF2	787168.466	2102524.319	447.08	7+00.11	25.18 RT

BENCH MARK DATA

 SF-BM1 ELEVATION = 432.52
 N 787388 E 2102399
 RB3 STATION 5+59.00 190 LEFT
 NAIL W/TAG SET IN 18" PINE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "SF1"

WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 787201.655(ft) EASTING: 2103250.412(ft)
 ELEVATION: 466.509(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992221

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SF1" TO -RB3- STATION 5+00.00 IS
 N 89°48'23.24" W 925.81'

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

NOTES:

- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

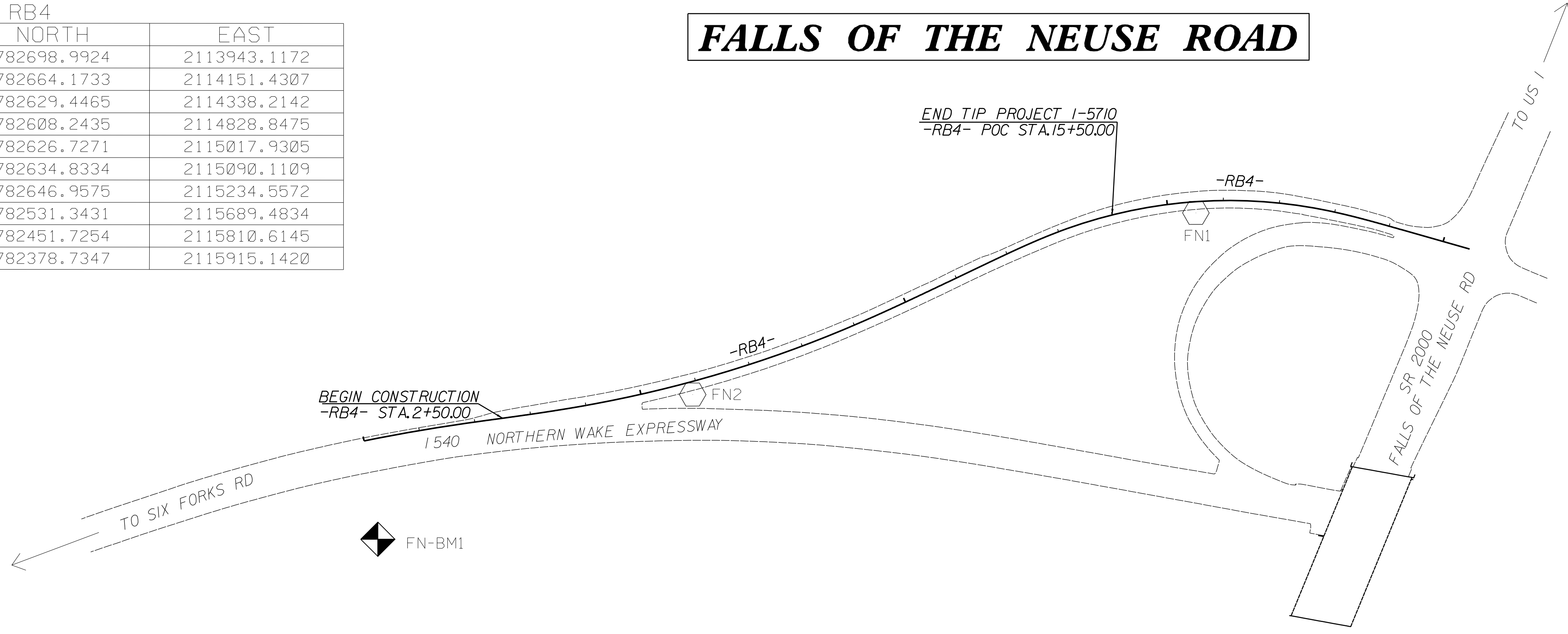
GEOID G12NC
NOTE: DRAWING NOT TO SCALE

08-JUN-2016 16:00
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 USER: JAMES

SURVEY CONTROL SHEET I-5710

RB4			
TYPE	STATION	NORTH	EAST
PC	0+00.00	782698.9924	2113943.1172
TS	2+11.24	782664.1733	2114151.4307
SC	4+01.24	782629.4465	2114338.2142
CS	8+93.36	782608.2435	2114828.8475
ST	10+83.36	782626.7271	2115017.9305
TS	11+55.99	782634.8334	2115090.1109
SC	13+00.99	782646.9575	2115234.5572
CS	17+76.41	782531.3431	2115689.4834
ST	19+21.41	782451.7254	2115810.6145
POT	20+48.90	782378.7347	2115915.1420

FALLS OF THE NEUSE ROAD



CONTROL POINT	DESC.	NORTH	EAST	ELEVATION	RB4 STATION	OFFSET
201	FN1	782598.847	2115475.569	437.54	15+49.70	19.84 RT
202	FN2	782585.825	2114523.061	426.53	5+88.91	22.64 RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "SF1"

WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 787201.655(±) EASTING: 2103250.412(±)
 ELEVATION: 466.509(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992221

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SF1" TO -RB4- STATION 2+50.00 IS
 S 67°26'14.79" E 11845.69'

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

NOTES:

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⬡ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

BENCH MARK DATA

FN-BM1 ELEVATION = 417.97
 N 782525 E 2113909
 FROM STATION 2+50.00 -RB4-
 S 64°56'25.40" W DIST 309.47'
 BENCH NAIL W/TAG SET IN CAMERA POLE

GEOID G12NC
 NOTE: DRAWING NOT TO SCALE

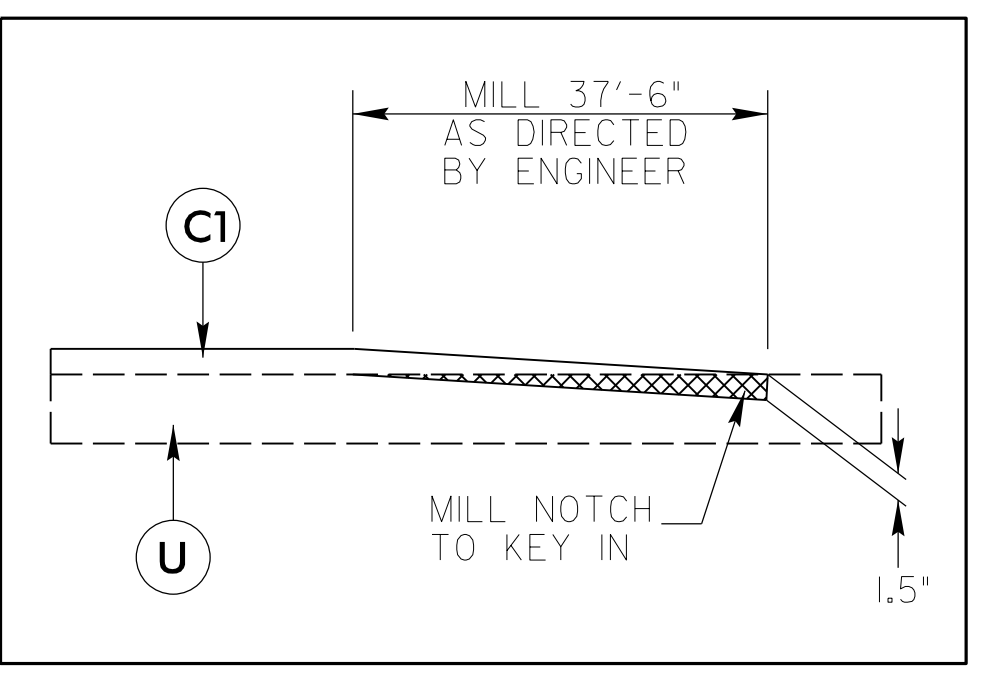
8/17/99

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

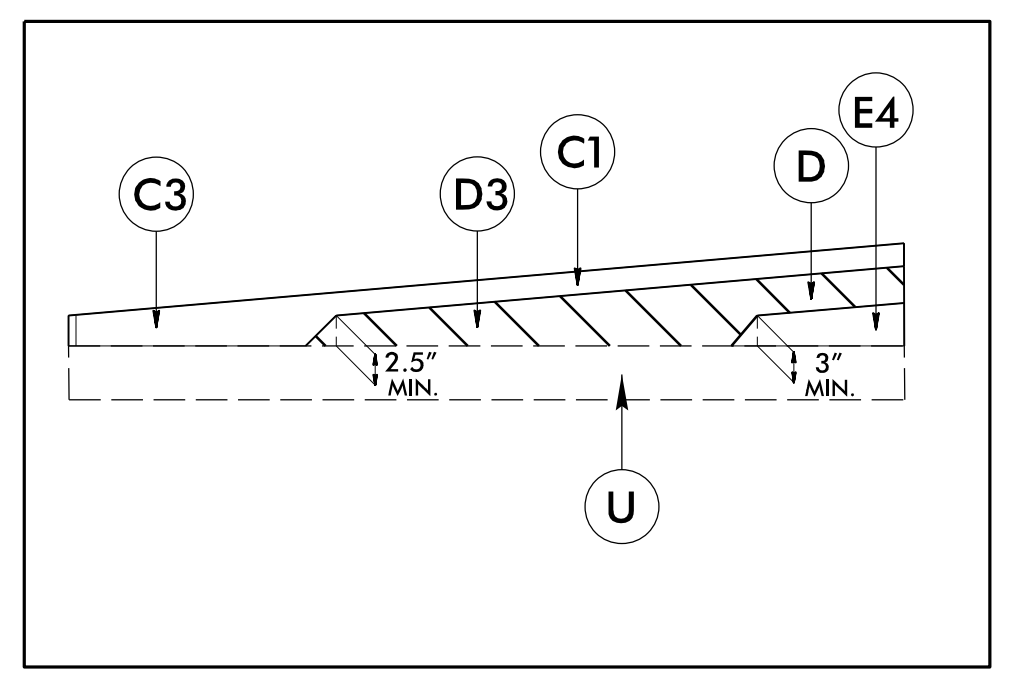
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
J	PROP. VAR. DEPTH AGGREGATE BASE COURSE.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	1.5" MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
Y	MILLED RUMBLE STRIPS (SEE ROADWAY STANDARD DRAWING 665.01)

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

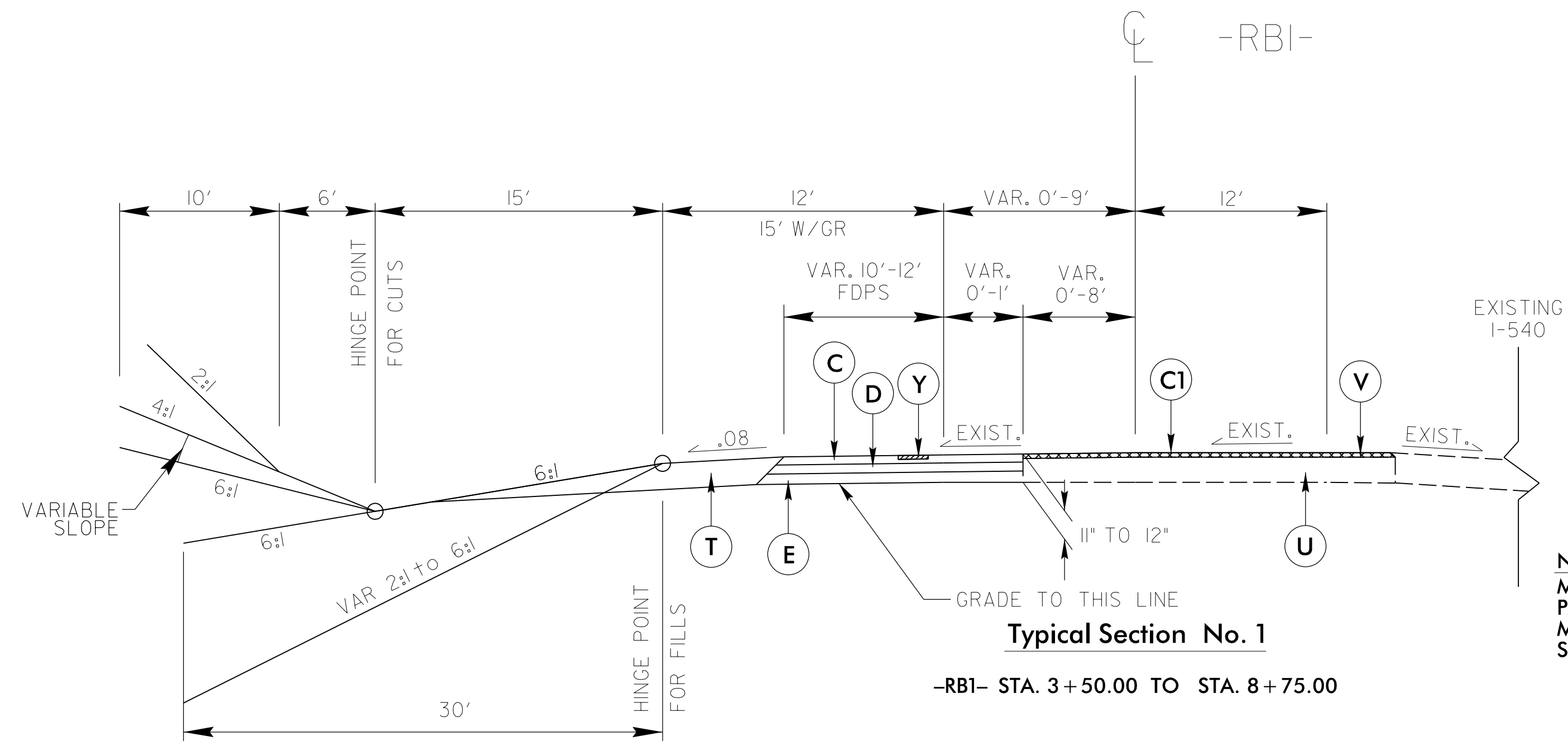
ALIGNMENT	SURFACE COURSE	INTERMEDIATE COURSE	BASE COURSE
-RB1-	C2	D2	E1
-RB2-	C2	D2	E2
-RB4-	C1	D1	E3



DETAIL OF INCIDENTAL MILLING



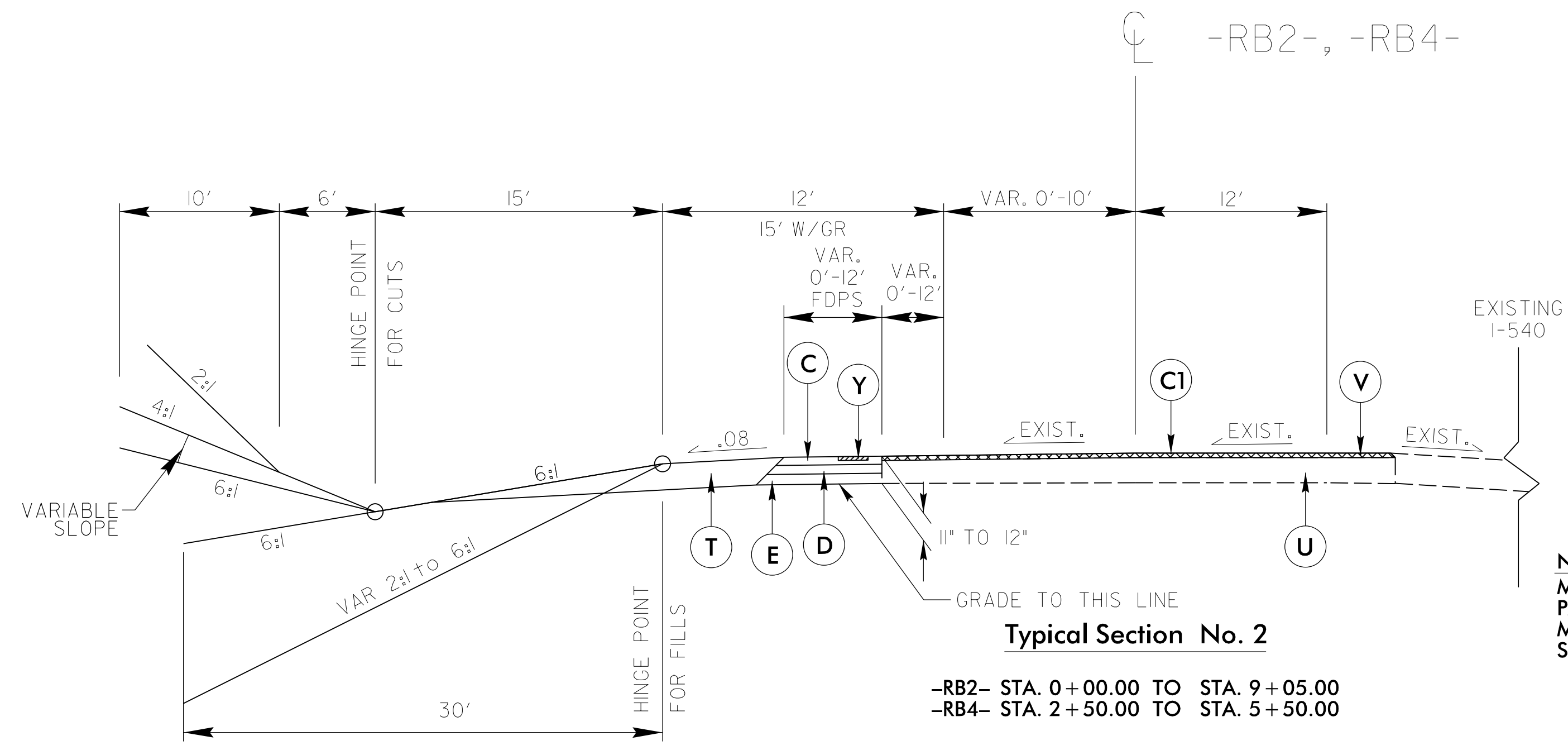
WEDGING DETAIL FOR RESURFACING



Typical Section No. 1

-RB1- STA. 3+50.00 TO STA. 8+75.00

NOTE: MILL, RESURFACE, AND WIDEN EXISTING PAVEMENT ON -RB1-, -RB2-, AND -RB4-. MATCH EXISTING GRADE AND SUPERELEVATION.



Typical Section No. 2

-RB2- STA. 0+00.00 TO STA. 9+05.00
-RB4- STA. 2+50.00 TO STA. 5+50.00

NOTE: MILL, RESURFACE, AND WIDEN EXISTING PAVEMENT ON -RB1-, -RB2-, AND -RB4-. MATCH EXISTING GRADE AND SUPERELEVATION.

PROJECT REFERENCE NO. 1-5710	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 024929 CLINTON J. MORGAN	PAVEMENT DESIGN ENGINEER SEAL 031484 VADIMIR G. MITCHELL
Clinton J. Morgan / 2/29/2016	Vadimir G. Mitchell / 2/29/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

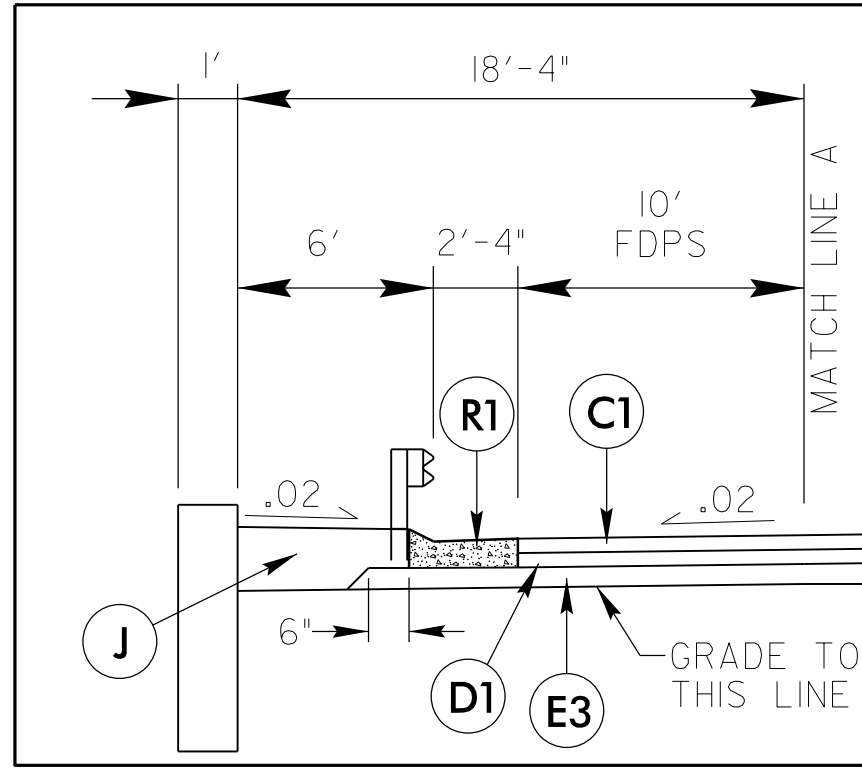
29 JUN 2016 15:03
 R:\Projects\15710_Rdwy_Typ.dgn
 \$\$\$\$DISFRANME\$\$\$\$

PAVEMENT SCHEDULE			
C1	1.5" TYPE S9.5B	E3	7" TYPE B25.0B
C2	3" TYPE S9.5B	J	VAR. DEPTH ABC
D1	3.5" TYPE I19.0B	R1	SHOULDER BERM GUTTER
D2	4" TYPE I19.0B	T	EARTH MATERIAL
E1	4" TYPE B25.0B	U	EXISTING PAVEMENT
E2	4.5" TYPE B25.0B	W	WEDGING

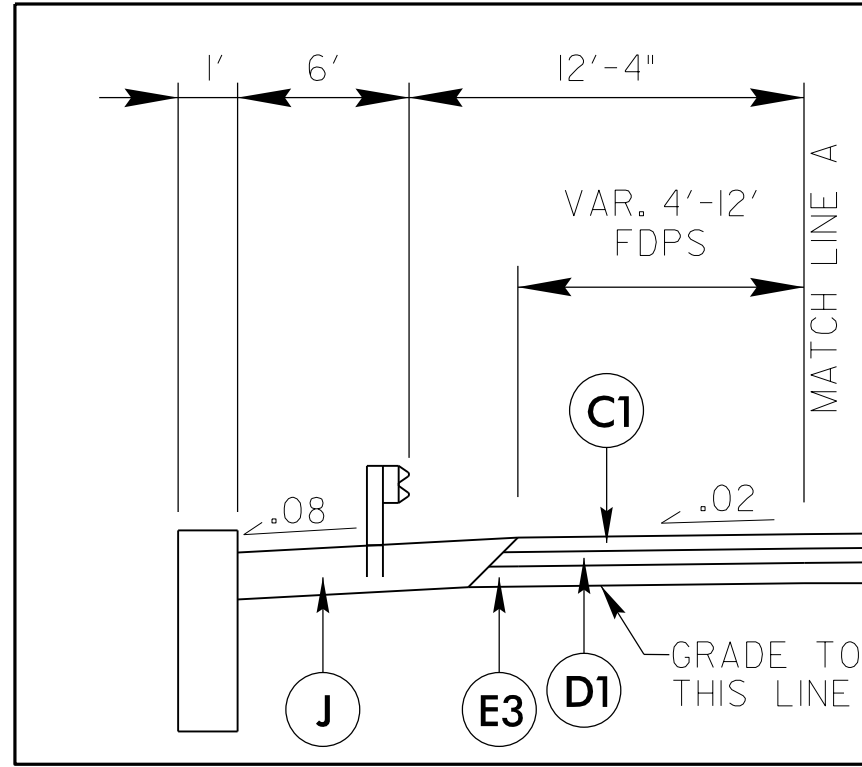
ALIGNMENT	SURFACE COURSE	INTERMEDIATE COURSE	BASE COURSE
-RB1-	C2	D2	E1
-RB2-	C2	D2	E2
-RB4-	C1	D1	E3

PROJECT REFERENCE NO. 1-5710	SHEET NO. 2A-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 024929 CLINTON J. MORGAN	PAVEMENT DESIGN ENGINEER SEAL 031484 VADIM G. MITCHELL
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

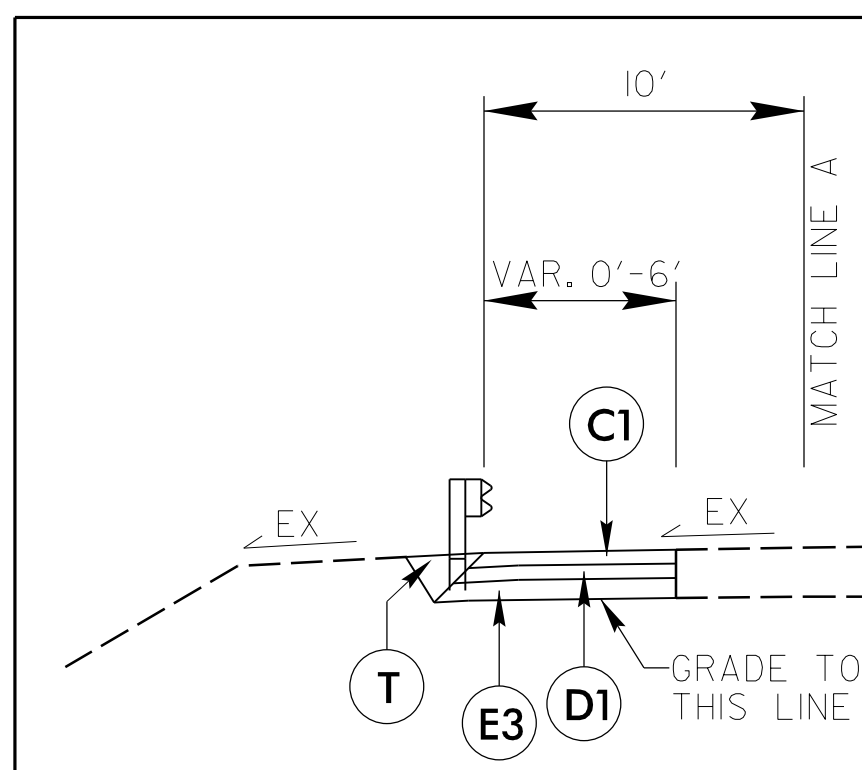
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



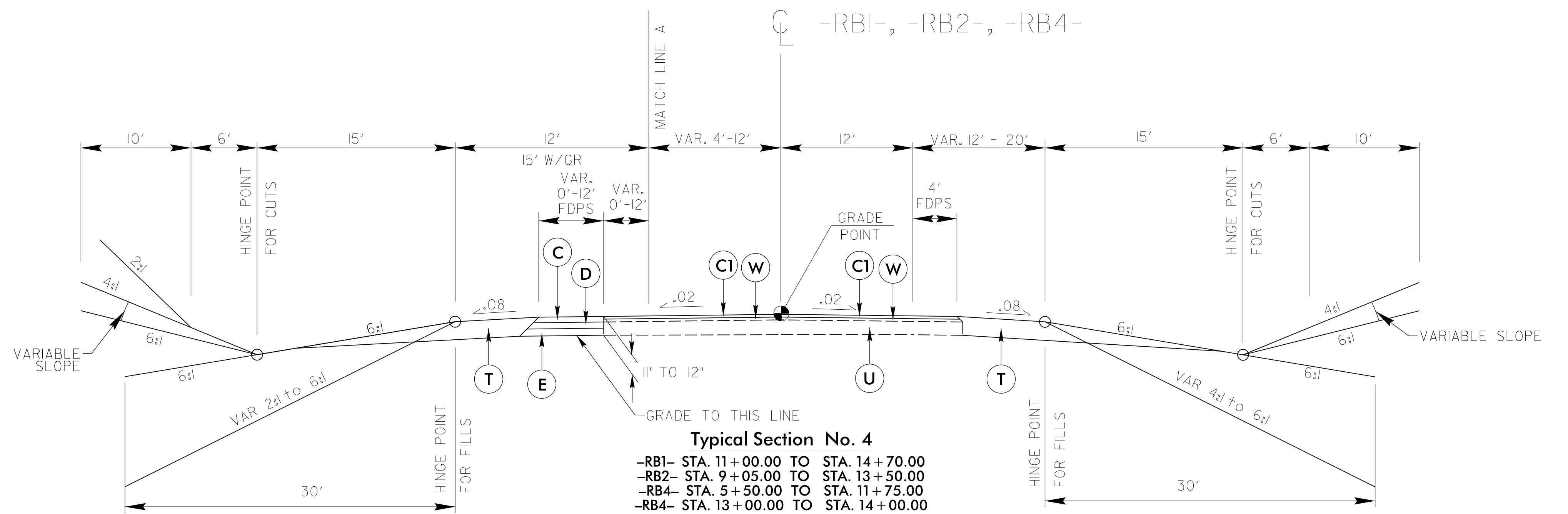
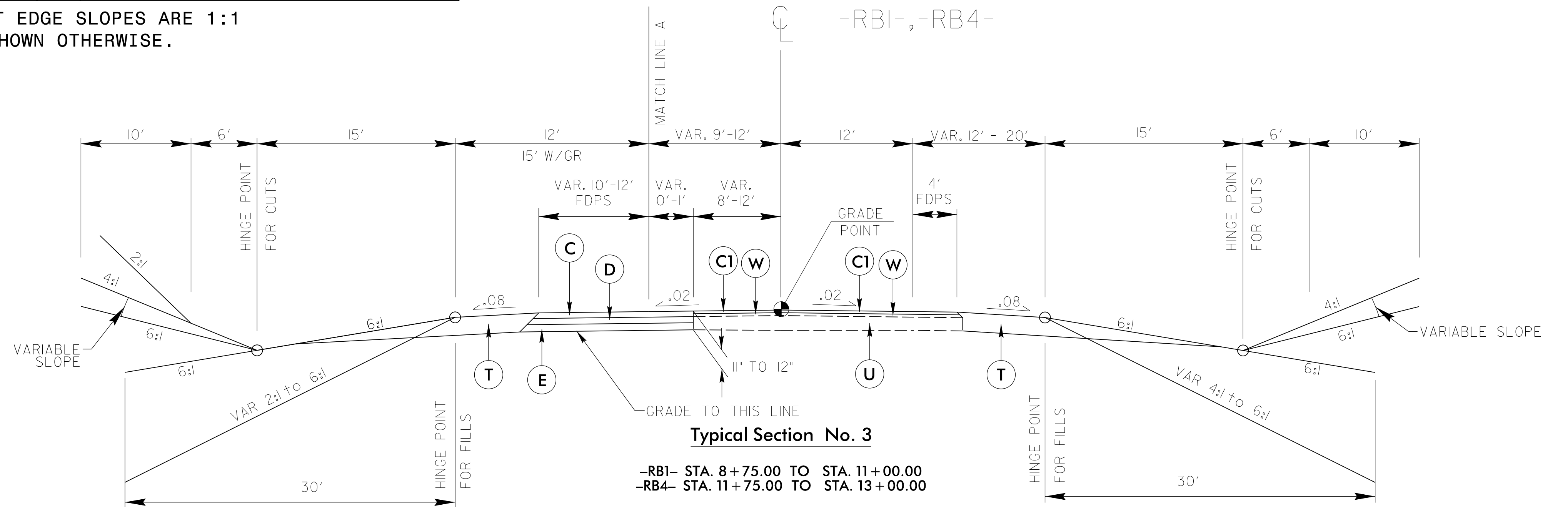
Detail Showing Retaining Wall With Shoulder Berm Gutter Section
 Use in conjunction with Typical Section No. 2
 -RB4- STA. 7+00.00 TO STA. 11+55.00

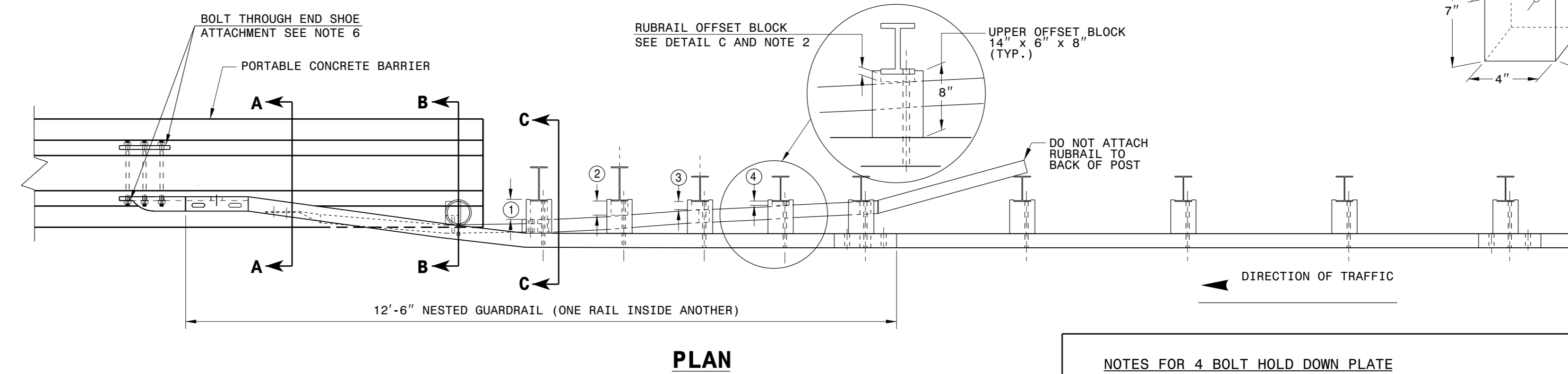
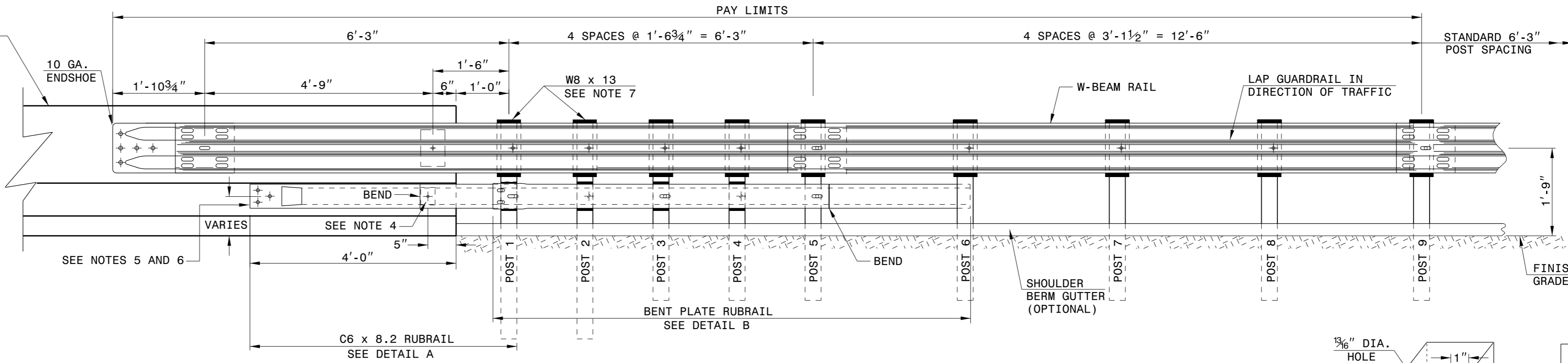
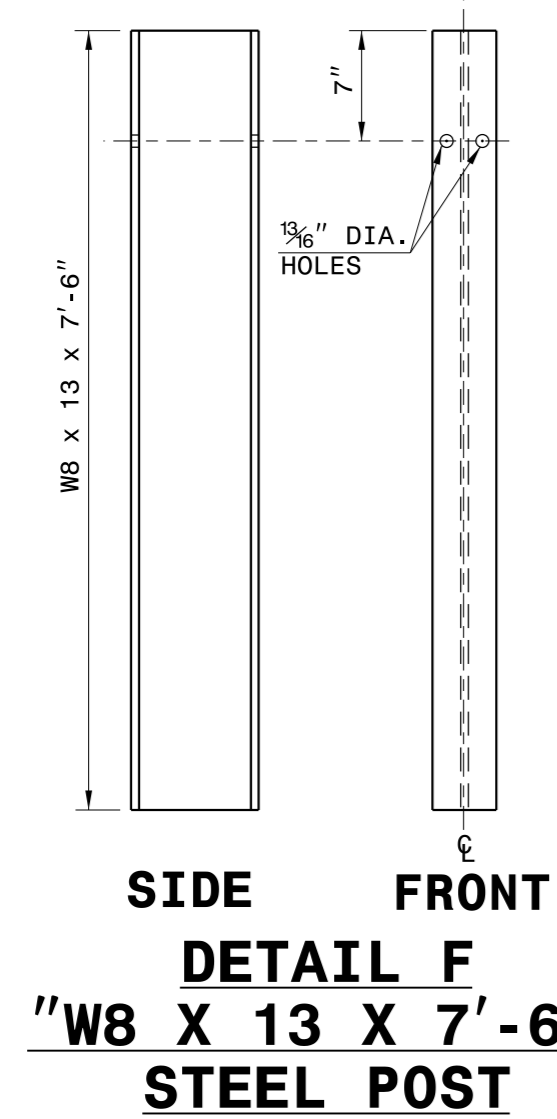
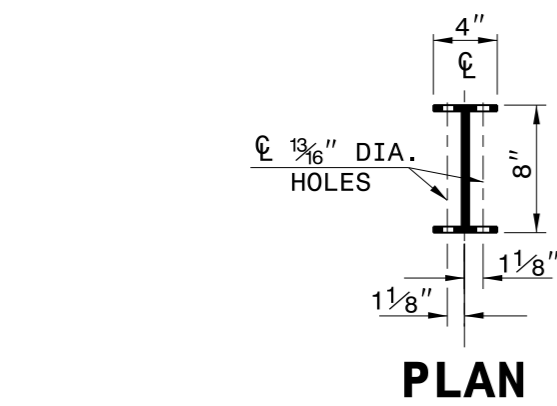
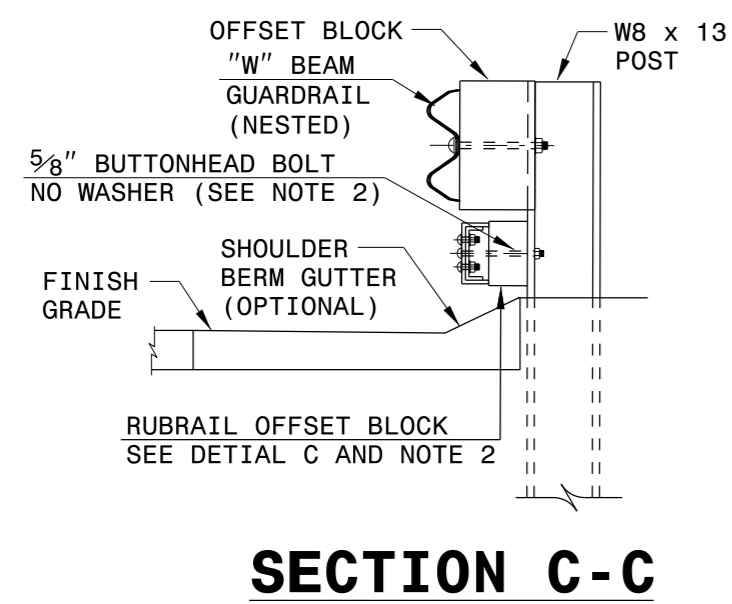
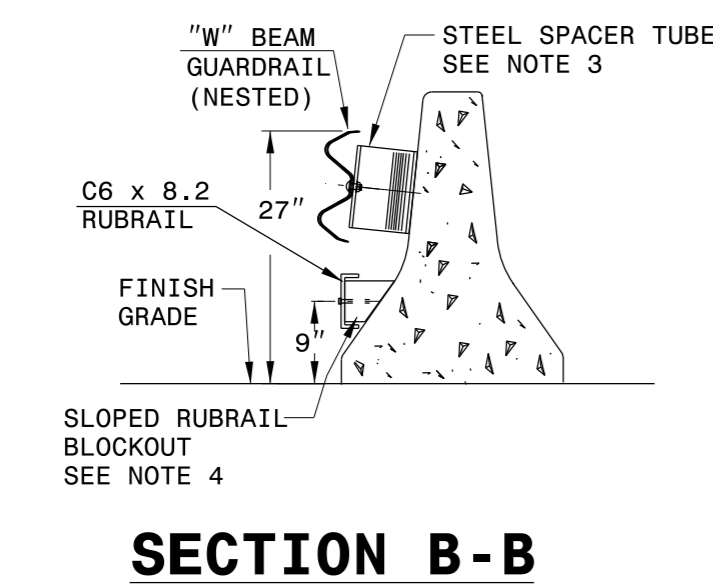
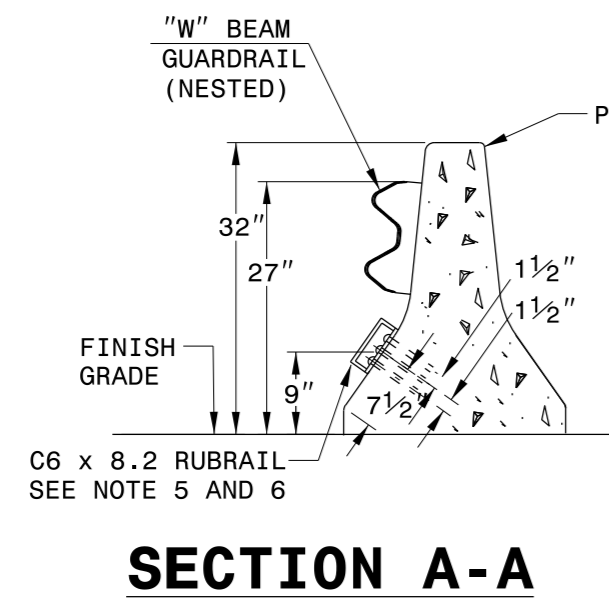


Detail Showing Retaining Wall Section
 Use in conjunction with Typical Section No. 3 & 4
 -RB4- STA. 11+55.00 TO STA. 14+00.00

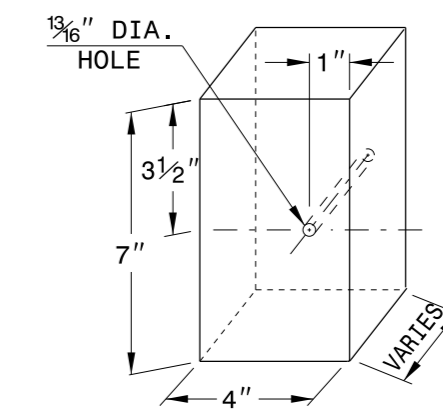
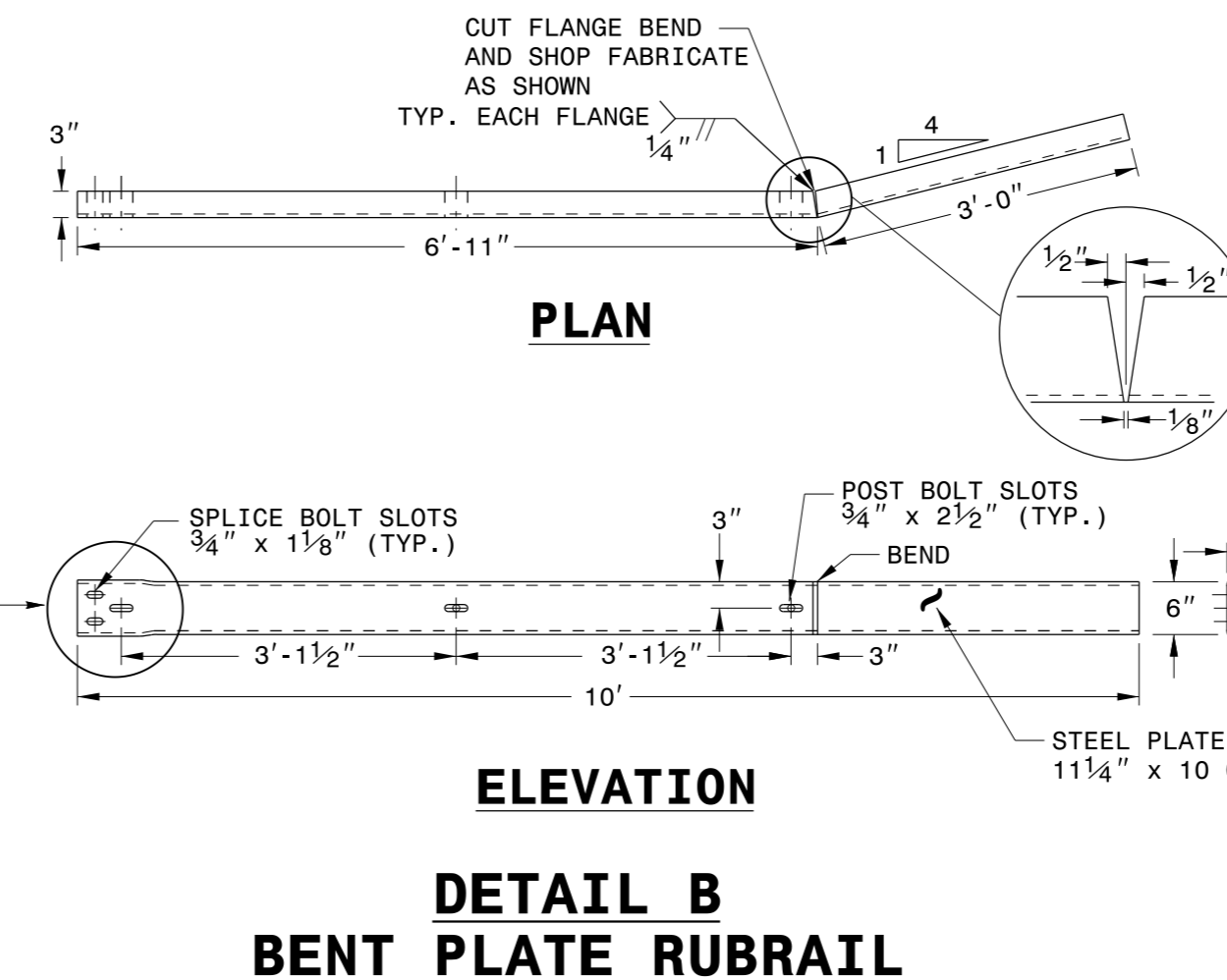
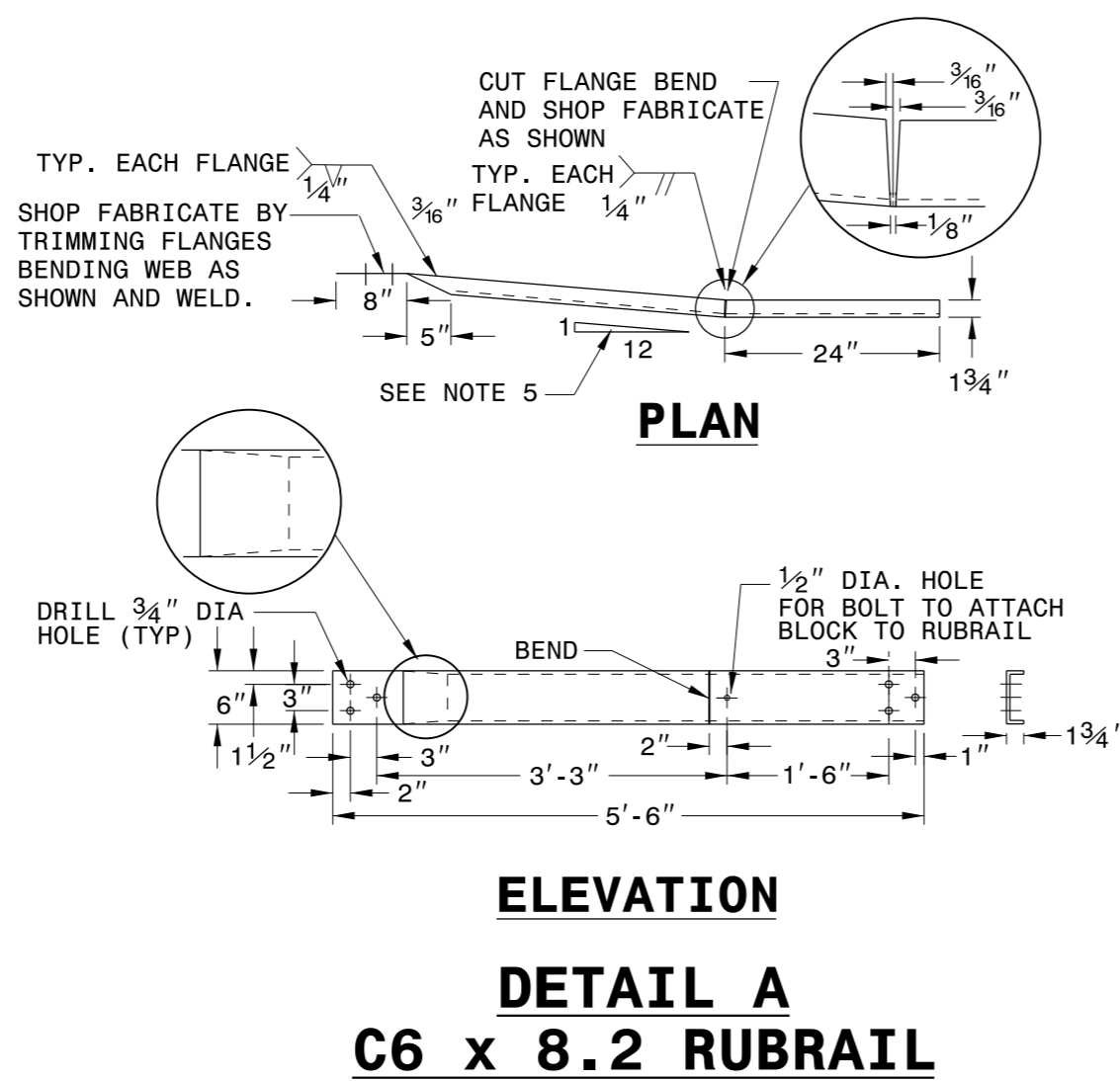


Detail Showing Full Depth Paved Shoulder
 Use in conjunction with Typical Section No. 4
 -RB4- STA. 14+00.00 TO STA. 15+50.00





- GENERAL NOTES:**
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
 - RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTT HEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4 1/2" BUTT HEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
 - STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" x 1 1/4" LONG BUTT HEAD BOLT AND RECTANGULAR PLATE WASHER.
 - SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER.
 - SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE JERSEY SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
 - ANCHORAGE:
 - AT PORTABLE CONCRETE BARRIER, ANCHOR RUBRAIL USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS.
 - AT PORTABLE CONCRETE BARRIER, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD-DOWN PLATE AS SHOWN. INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
 - POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.



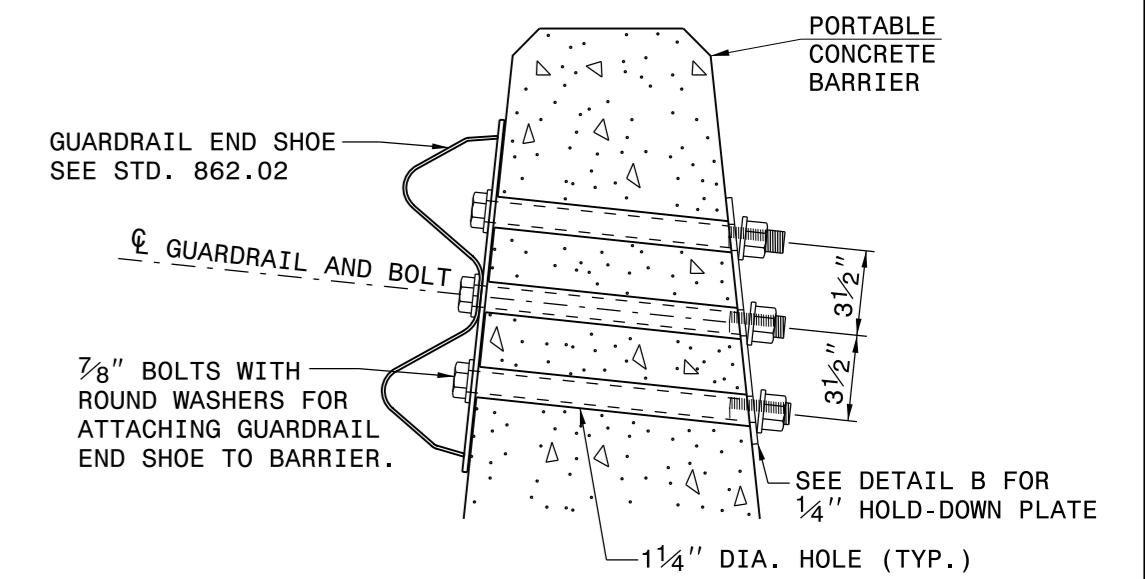
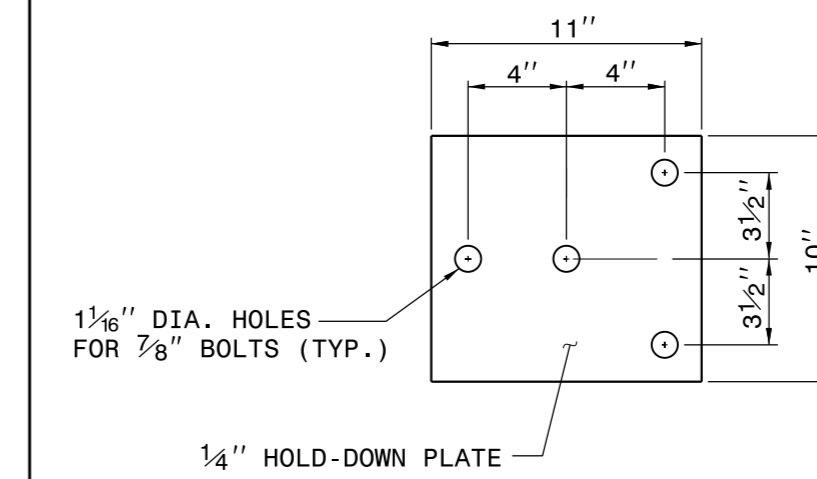
POST	THICKNESS	BOLT LENGTH
1	4 1/4"	9"
2	3 1/4"	5" *
3	2"	6"
4	1"	3" *

* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.

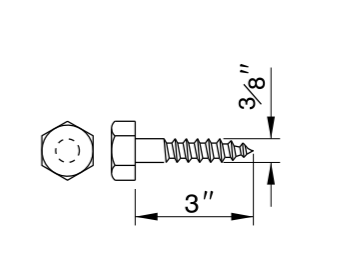
DETAIL C
RUBRAIL BLOCKOUT

NOTES FOR 4 BOLT HOLD DOWN PLATE

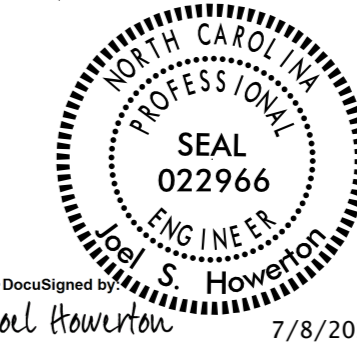
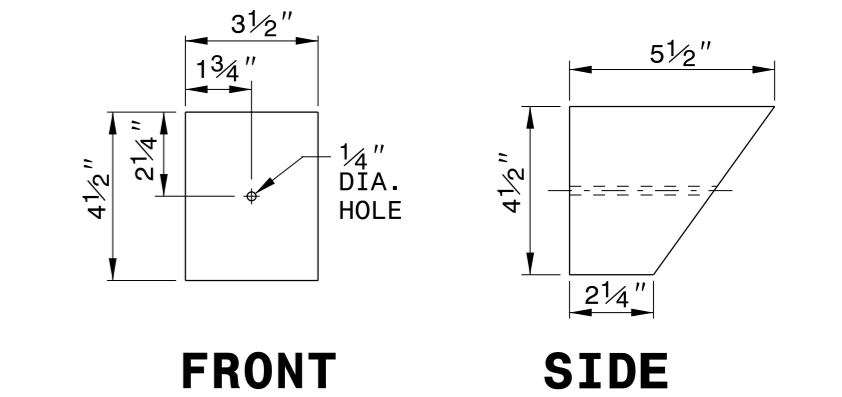
- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 7/8" DIA. BOLTS WITH NUTS AND WASHERS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL. THE 1/4" DIA. HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



DETAIL E
LAG BOLT



DETAIL D
SLOPED RUBRAIL BLOCKOUT



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

TEMPORARY GUARDRAIL ANCHOR UNIT TYPE B-77

ORIGINAL BY: E.E. WARD DATE: 04-07-04
 MODIFIED BY: E.E. WARD DATE: 07-14-05
 CHECKED BY: DATE:
 FILE SPEC.: jhowerton/Temporary B-77 to PCB

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

C:\TIME\DESIGN\CONSTRUCTION\USER\NAME\\$\$\$\$\$.DWG
 C:\TIME\DESIGN\CONSTRUCTION\USER\NAME\\$\$\$\$\$.DWG
 C:\TIME\DESIGN\CONSTRUCTION\USER\NAME\\$\$\$\$\$.DWG

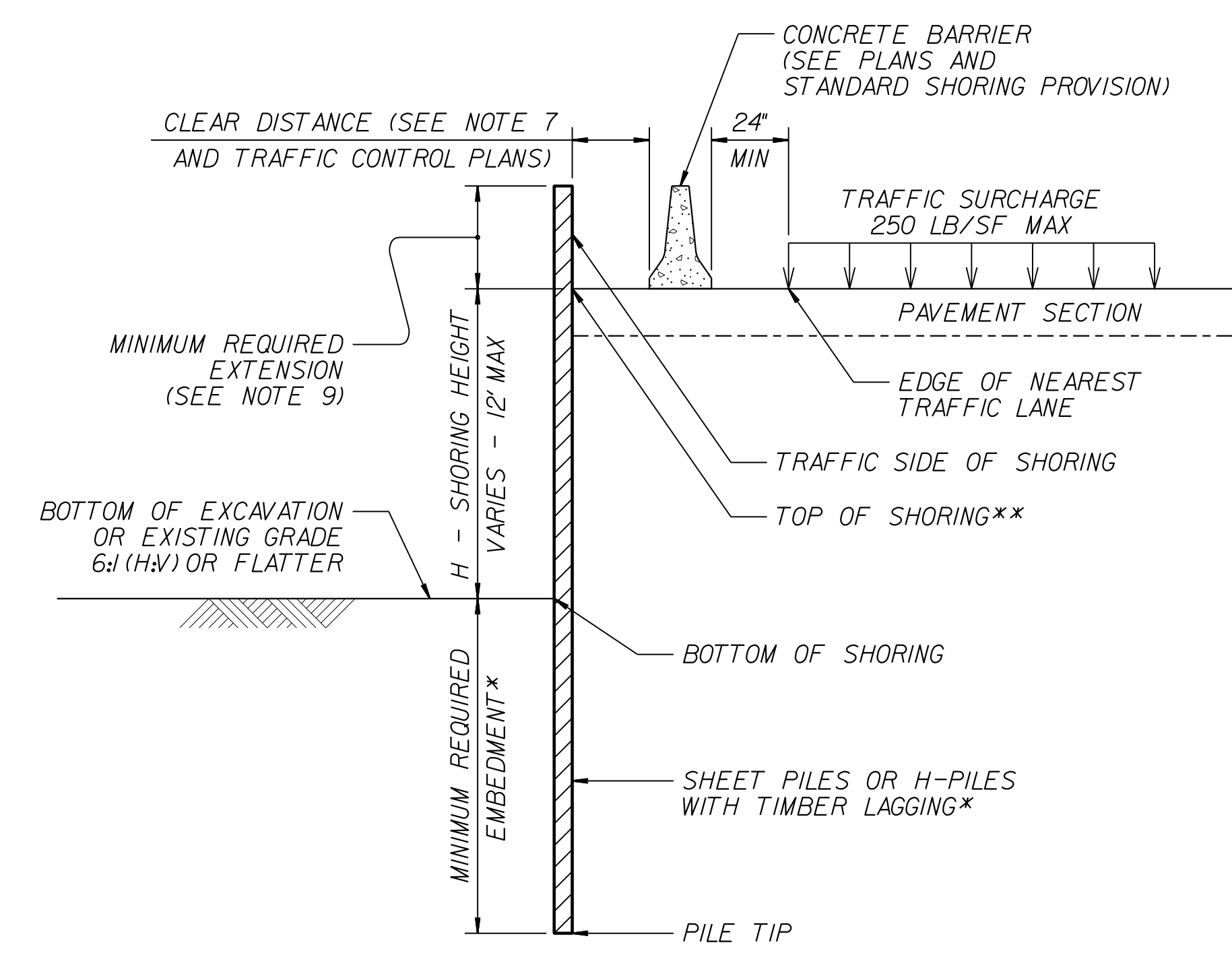
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

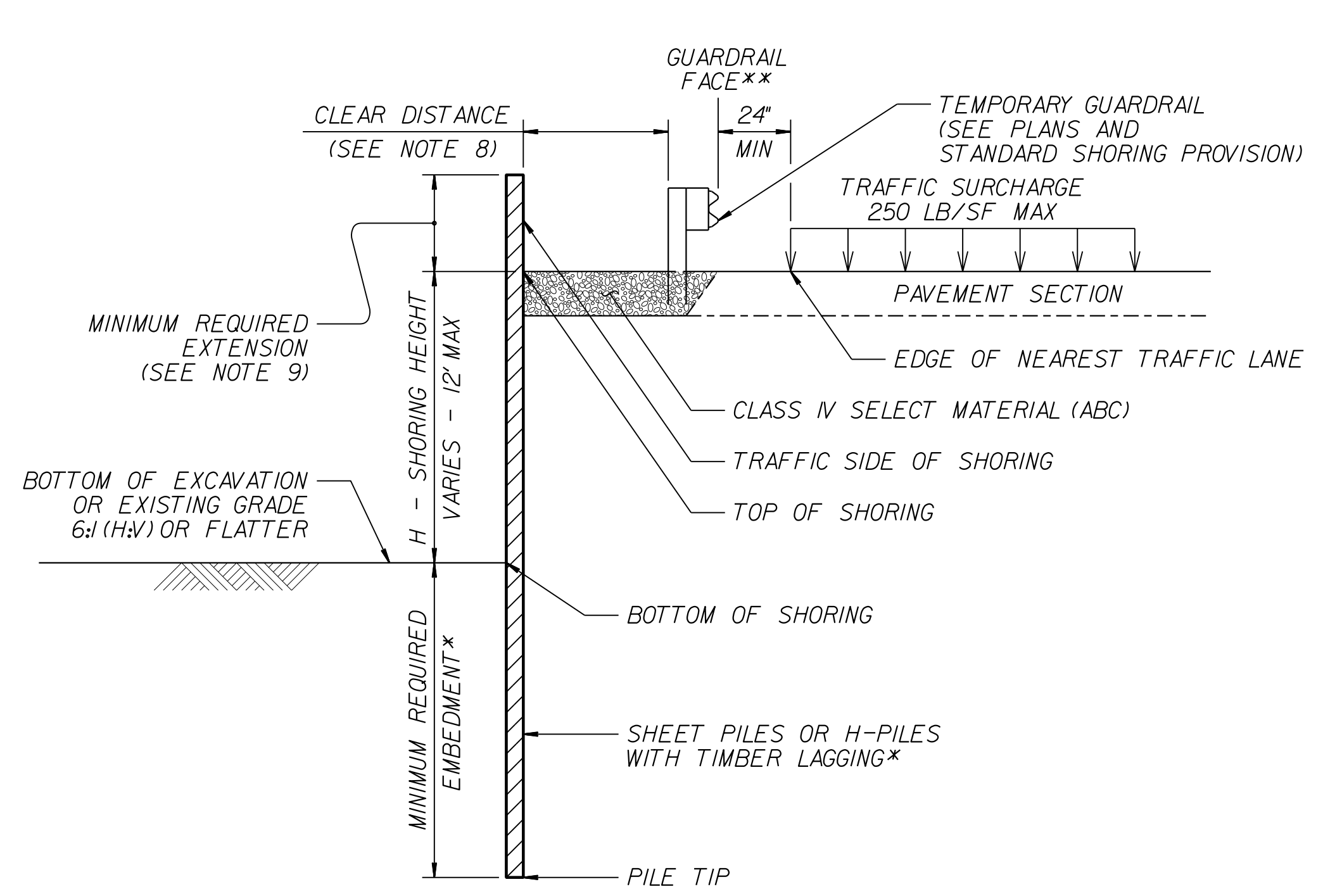
*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

NOTES:

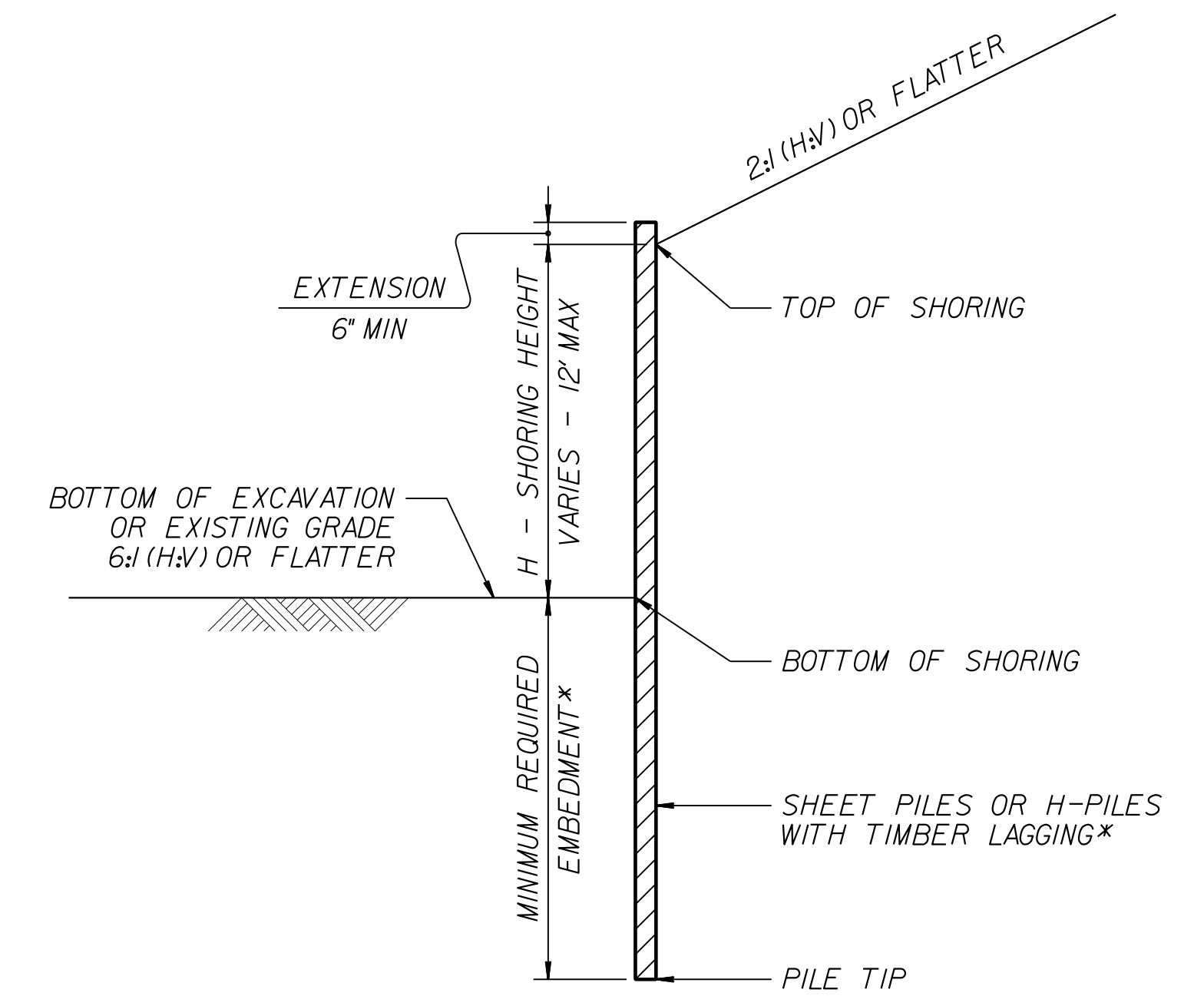
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120 \text{ LB/CF}$
FRICTION ANGLE, $\phi = 30 \text{ DEGREES}$
COHESION, $c = 0 \text{ LB/SF}$
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:
connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



CONCRETE BARRIER
**TOP OF SHORING =
EDGE OF PAVEMENT

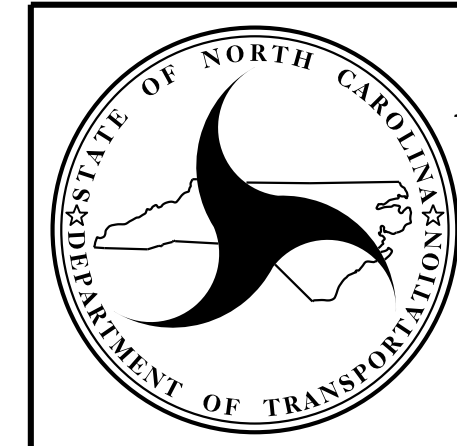


TEMPORARY GUARDRAIL
**GUARDRAIL FACE =
EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING
(SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING
(SURCHARGE CASE)
*SEE TABLE ABOVE.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.01

STANDARD
TEMPORARY SHORING

12/06/07

COMPUTED BY: IWB DATE: 06-06-16
CHECKED BY: CJM DATE: 06-06-16

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. 1-5710
SHEET NO. 3B-1

SUMMARY OF EARTHWORK
IN CUBIC YARDS

Table with columns: STATION, UNCL EXCAV., EMBANK. +%, BORROW, WASTE. Rows include RB1, RB2, RB4 station ranges and project totals.

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

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

SHOULDER BERM
GUTTER SUMMARY

IN LINEAR FEET

Table with columns: SURVEY LINE, STATION, STATION, LENGTH. Row: -RB4- (LT) 6+05 to 11+55, 550'.

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

Table with columns: SURVEY LINE, STATION, STATION, LOCATION, YD^2. Row: -RB4- 8+50 to 11+65, LT, 34.17.

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

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

Main table for LIST OF PIPES, ENDWALLS, ETC. with columns for STATION, LOCATION, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, SIDE DRAIN PIPE, C.S. PIPE, R.C. PIPE (CLASS III), R.C. PIPE (CLASS IV), ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, TYPE OF GRATE, CONCRETE TRANSITIONAL SECTION, CORR. STEEL ELBOWS NO. & SIZE, CONC. COLLARS CL. "B" C.Y. STD. 840.72, FLOWABLE FILL C.Y., PIPE REMOVAL LIN. FT., and ABBREVIATIONS.

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

GUARDRAIL SUMMARY

Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (XI MOD, TEMP. B-77, GRAU 350, M-350, TYPE III, CAT-1, VI MOD, BIC, AT-1), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, and REMARKS.

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12/06/07

COMPUTED BY: T.W. Jaskolka DATE: 12/21/15
CHECKED BY: DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. 1-5710
SHEET NO. 36-1

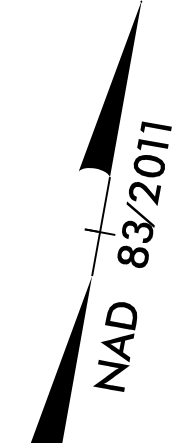
SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION										
LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS	
			AST					500		
			ASU	12	1000	2000	3000			
			TOTAL CY/TONS/SY:			1000	2000	3000**	500	0

*ASU = Aggregate Subgrade
 *AST = Aggregate Stabilization
 **Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

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USER: T.W. JASKOLKA

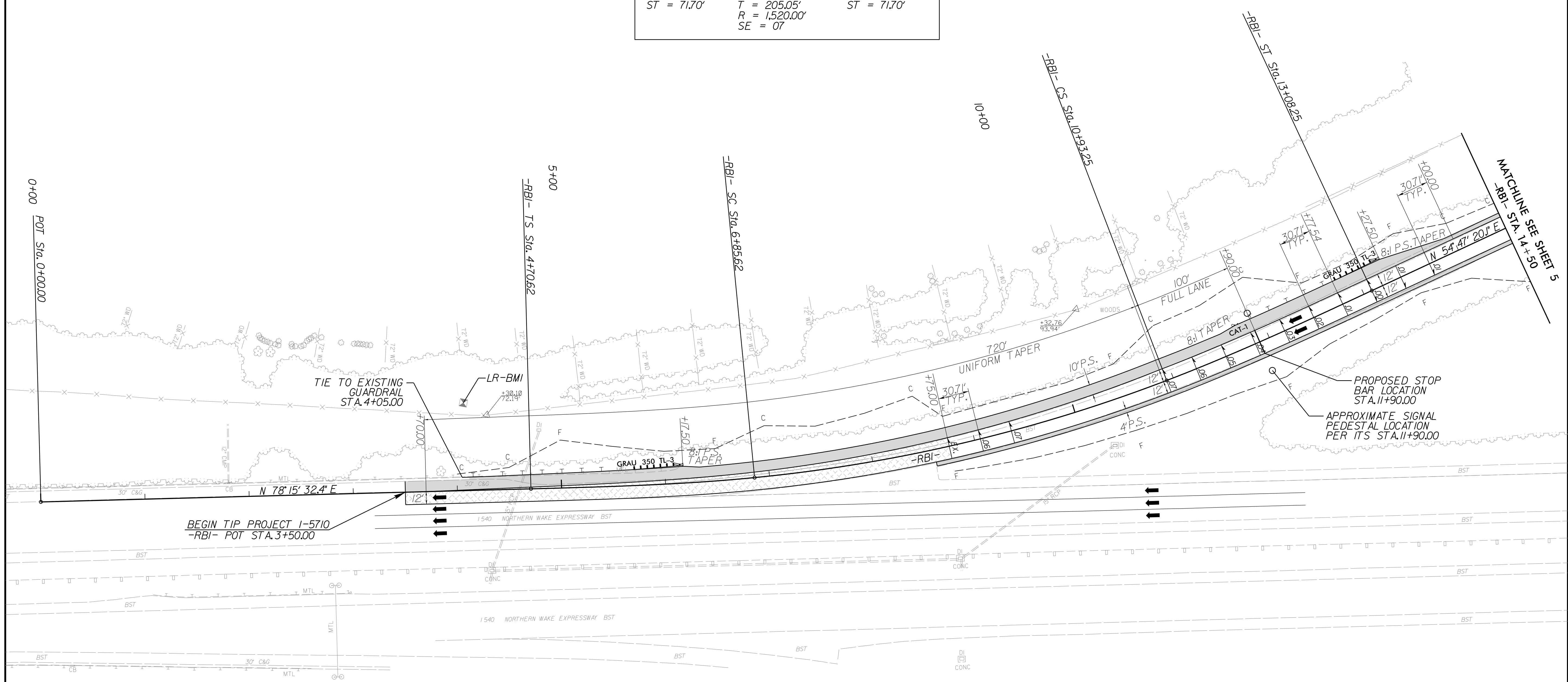
PROJECT REFERENCE NO. 1-5710	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 024929 CLINTON J. HAYES 6/28/2016	HYDRAULICS ENGINEER SEAL 041957 ROBERT SPOONER 6/28/2016
<p align="center">DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	

LEESVILLE ROAD



-RBI-

Pls Sta 6+13.99	PI Sta 8+90.67	Pls Sta 11+64.96
$\theta_s = 4'03'07.8''$	$\Delta = 15'21'56.7''$ (LT)	$\theta_s = 4'03'07.8''$
$L_s = 215.00'$	$D = 3'46'10.1''$	$L_s = 215.00'$
$LT = 143.37'$	$L = 407.64'$	$LT = 143.37'$
$ST = 71.70'$	$T = 205.05'$	$ST = 71.70'$
	$R = 1,520.00'$	
	$SE = 07$	



- PAVED SHOULDER
- MILL AND RESURFACE

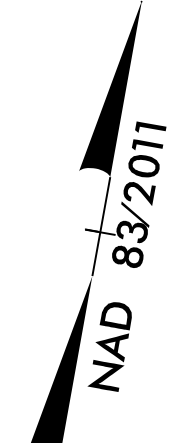
NOTE: SEE SHEET 12 FOR -RBI- PROFILE VIEW

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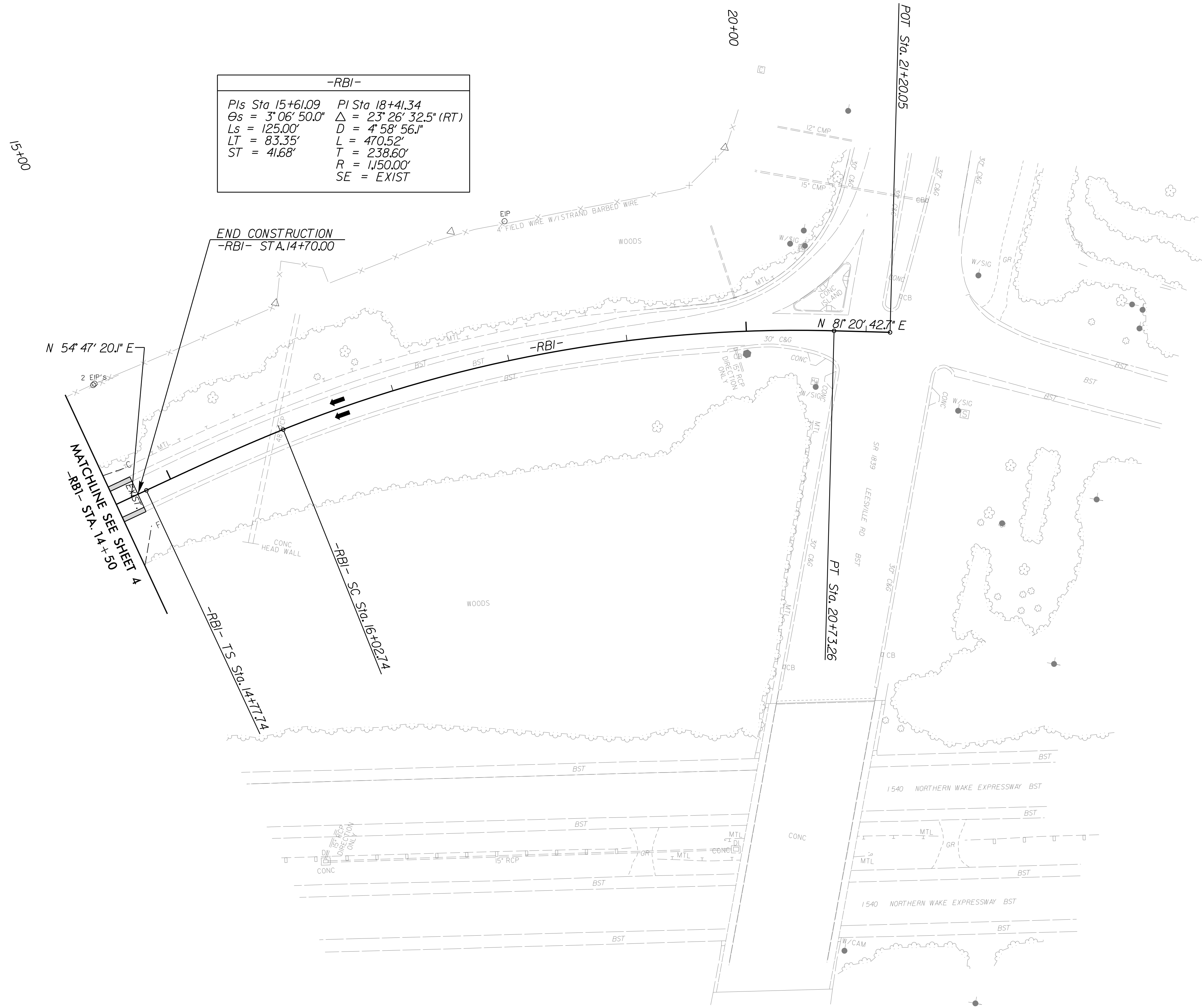
8/17/99

PROJECT REFERENCE NO. <i>1-5710</i>	SHEET NO. <i>5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 024929 <i>Clinton J. Morgan</i> 6/28/2016	HYDRAULICS ENGINEER SEAL 041957 <i>Robert Goodson</i> 6/28/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

LEESVILLE ROAD



-RBI-	
<i>PIs Sta 15+61.09</i>	<i>PI Sta 18+41.34</i>
$\Theta_s = 3^{\circ}06'50.0''$	$\Delta = 23^{\circ}26'32.5''$ (RT)
$L_s = 125.00'$	$D = 4^{\circ}58'56.1''$
$LT = 83.35'$	$L = 470.52'$
$ST = 41.68'$	$T = 238.60'$
	$R = 1,150.00'$
	$SE = EXIST$



PAVED SHOULDER

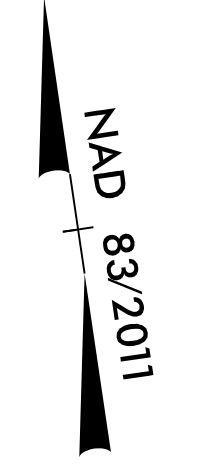
NOTE: SEE SHEET 12 FOR -RBI- PROFILE VIEW

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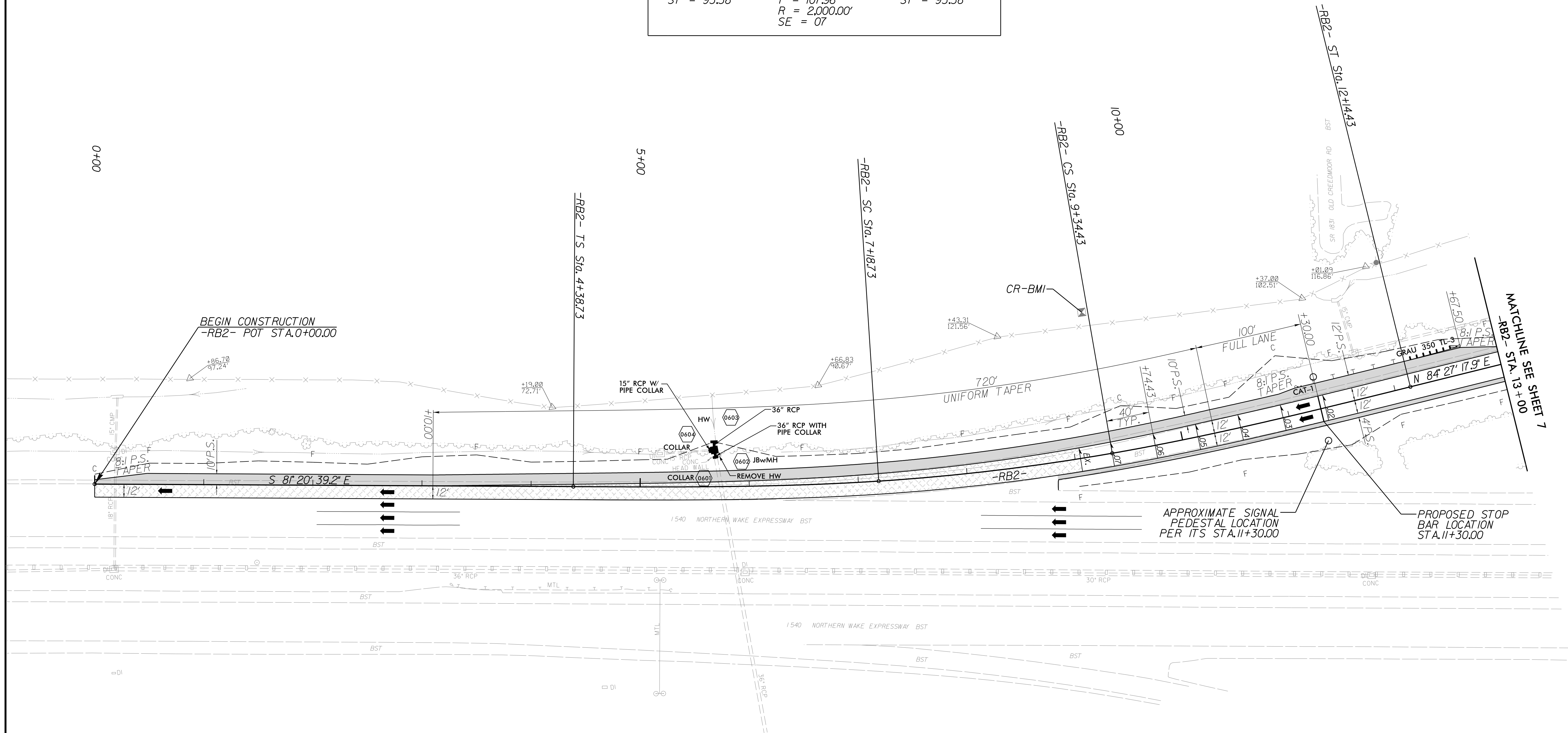
8/17/99

PROJECT REFERENCE NO. 1-5710	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 024929 CLINTON J. MORGAN	HYDRAULICS ENGINEER SEAL 041957 DWAYNE ROBERT GOODSON
Clinton J. Morgan, 2/28/2016	Dwayne Robert Goodson, 6/28/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

CREEDMOOR ROAD



-RB2-		
PIs Sta 6+25.44	PI Sta 8+26.68	PIs Sta 10+27.81
$\Theta_s = 4'00''38.5''$	$\Delta = 6'10''45.9''$ (LT)	$\Theta_s = 4'00''38.5''$
$L_s = 280.00'$	$D = 2'51''53.2''$	$L_s = 280.00'$
$LT = 186.71'$	$L = 215.70'$	$LT = 186.71'$
$ST = 93.38'$	$T = 107.96'$	$ST = 93.38'$
	$R = 2,000.00'$	
	$SE = 07$	



- PAVED SHOULDER
- MILL AND RESURFACE

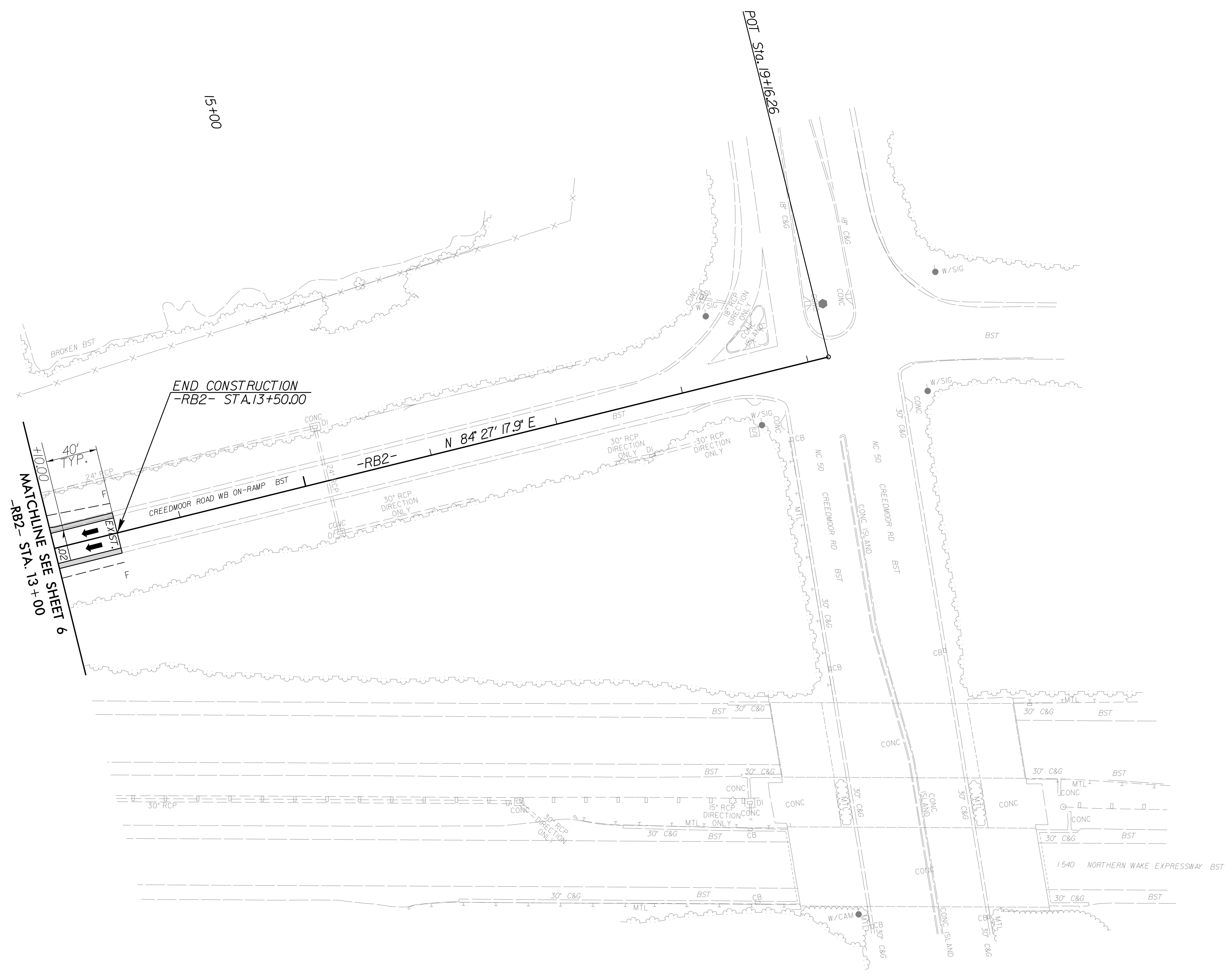
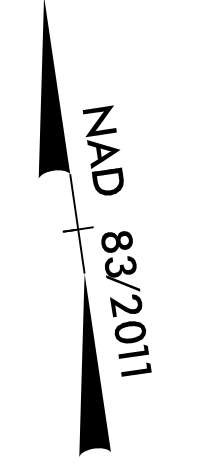
NOTE: SEE SHEET 12 FOR -RB2- PROFILE VIEW

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PROJECT REFERENCE NO. 1-5710	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 024929 CLINTON J. MORGAN	HYDRAULICS ENGINEER SEAL 041957 DAVE ROBERT GOODISON
Clinton J. Morgan, 6/28/2016	Dave Robert Goodison, 6/28/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

CREEDMOOR ROAD



PAVED SHOULDER

NOTE: SEE SHEET 12 FOR -RB2- PROFILE VIEW

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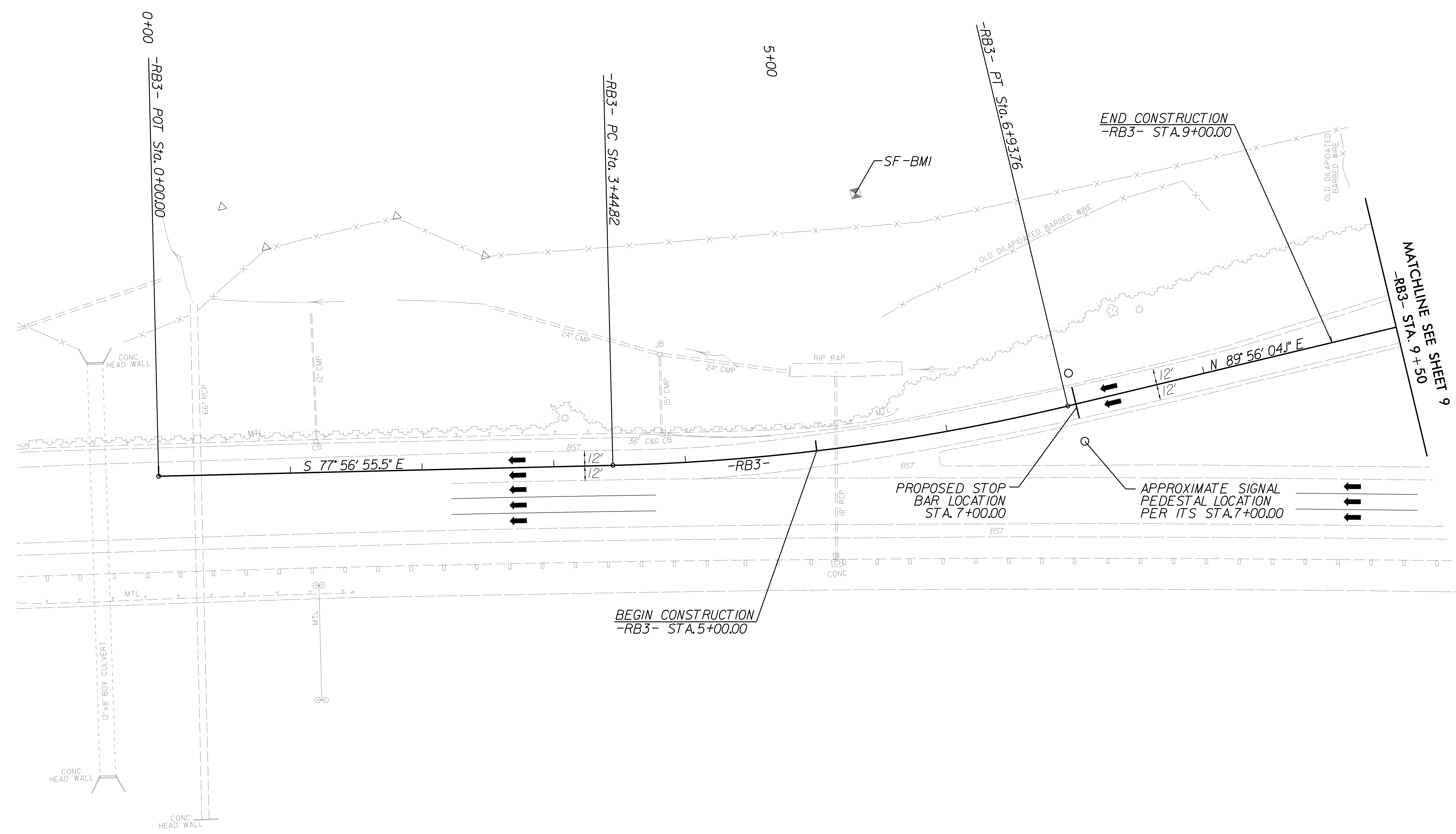
8/17/99

SIX FORKS ROAD

NAD 83/2011

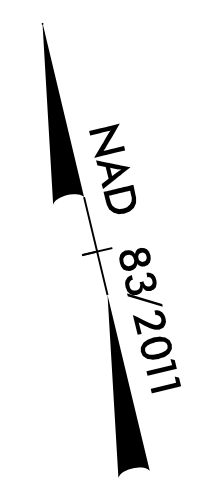
PROJECT REFERENCE NO. 1-5710	SHEET NO. 8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 024929 CLAYTON J. MORAN	HYDRAULICS ENGINEER SEAL 041957 DAVID ROBERT GOODSON
Clinton J. Moran 6/28/2016	David Robert Goodson 6/28/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-RB3-
 PI Sta 5+19.94
 $\Delta = 12^{\circ} 07' 00.4" (LT)$
 $D = 3^{\circ} 28' 20.9"$
 $L = 348.94'$
 $T = 175.12'$
 $R = 1,650.00'$
 SE = EXIST

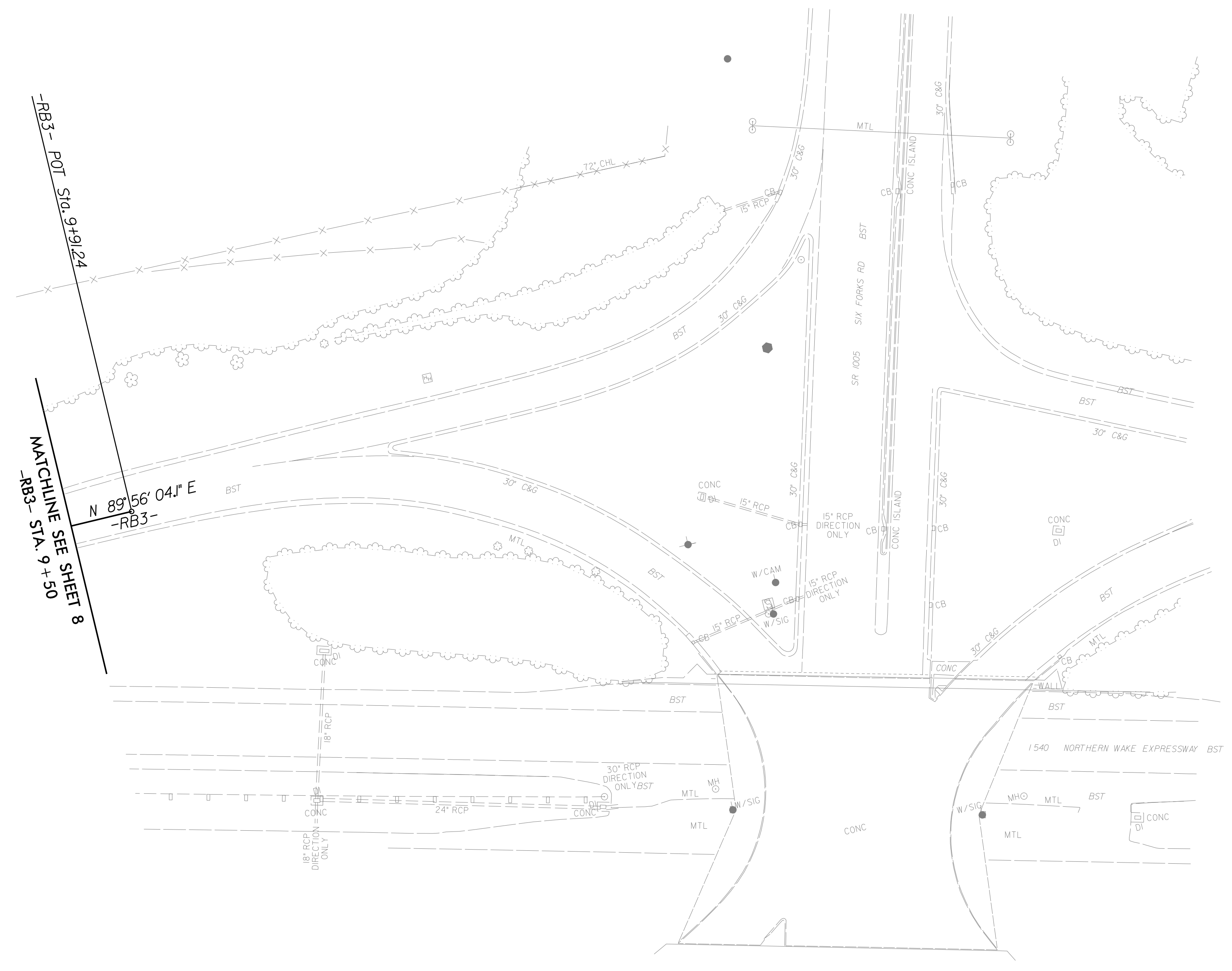


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SIX FORKS ROAD



PROJECT REFERENCE NO. <i>1-5710</i>	SHEET NO. <i>9</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 024929 <i>Clinton J. Meyers</i>	HYDRAULICS ENGINEER SEAL 041957 <i>Robert Goodison</i>
6/28/2016	6/28/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



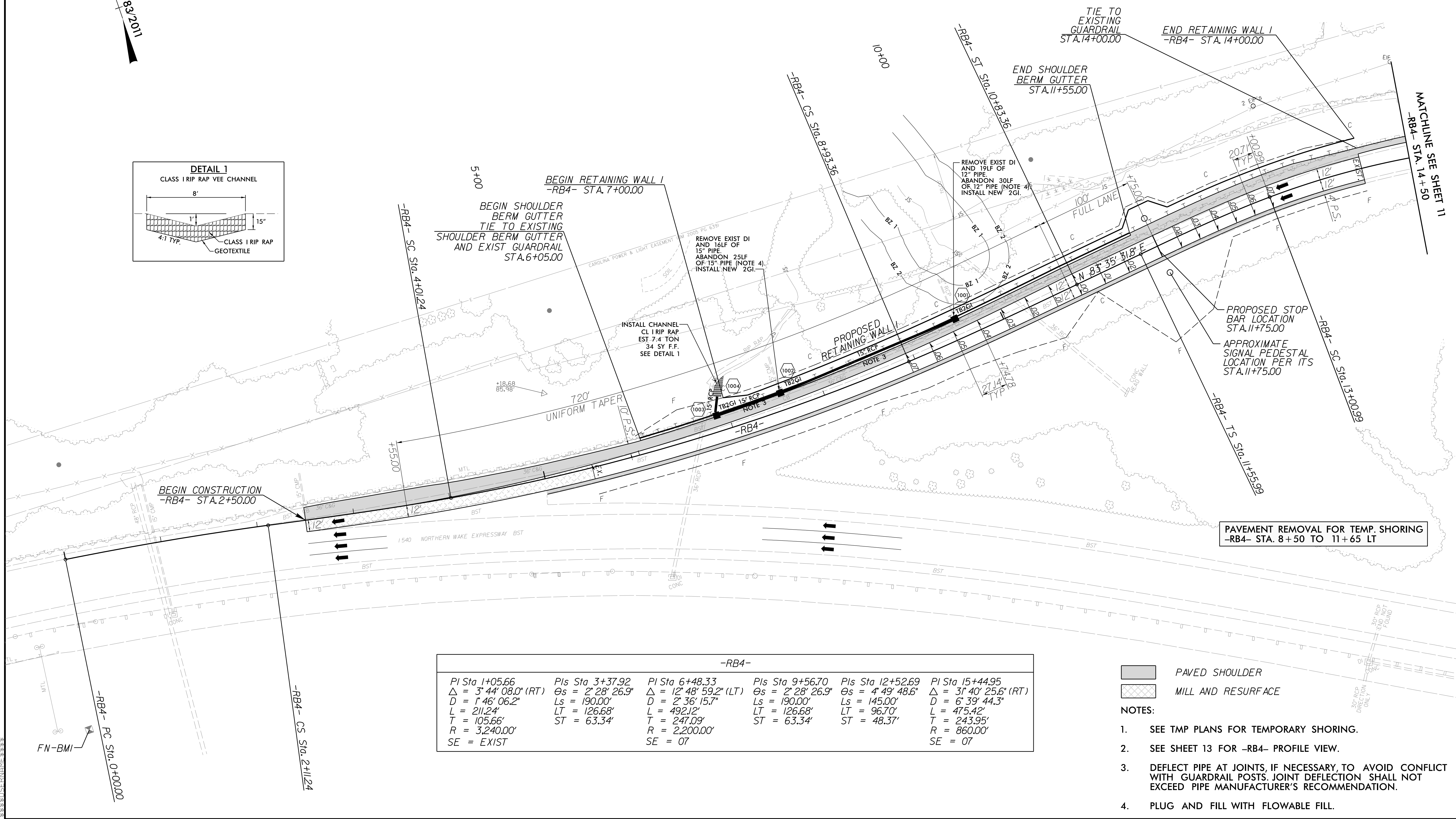
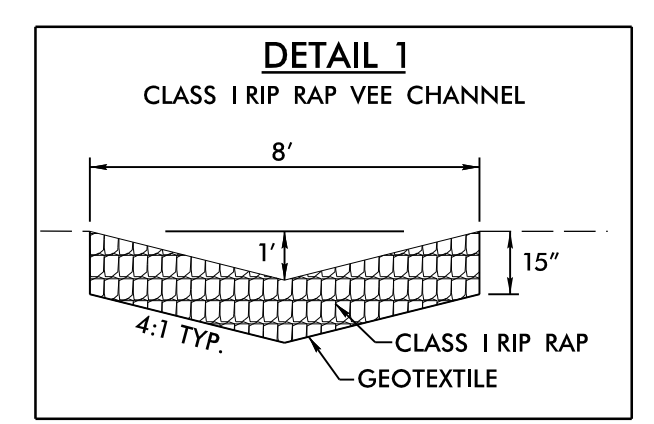
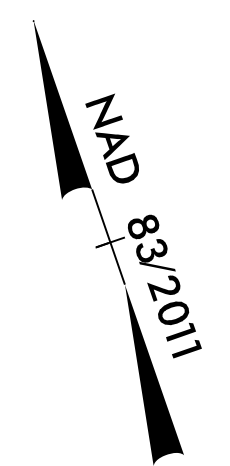
-RB3- POT Sta. 9+91.24

MATCHLINE SEE SHEET 8
-RB3- STA. 9 + 50

N 89°56'04" E
-RB3-

PROJECT REFERENCE NO. 1-5710	SHEET NO. 10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 024929 Clinton J. Morgan / 2/27/2016	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 041957 Robert J. Goodison / 7/26/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

FALLS OF NEUSE ROAD



-RB4-					
PI Sta 1+05.66	PIs Sta 3+37.92	PI Sta 6+48.33	PIs Sta 9+56.70	PIs Sta 12+52.69	PI Sta 15+44.95
$\Delta = 3' 44' 08.0''$ (RT)	$\Theta_s = 2' 28' 26.9''$	$\Delta = 12' 48' 59.2''$ (LT)	$\Theta_s = 2' 28' 26.9''$	$\Theta_s = 4' 49' 48.6''$	$\Delta = 31' 40' 25.6''$ (RT)
$D = 1' 46' 06.2''$	$L_s = 190.00'$	$D = 2' 36' 15.7''$	$L_s = 190.00'$	$L_s = 145.00'$	$D = 6' 39' 44.3''$
$L = 211.24'$	$LT = 126.68'$	$L = 492.12'$	$LT = 126.68'$	$LT = 96.70'$	$L = 475.42'$
$T = 105.66'$	$ST = 63.34'$	$T = 247.09'$	$T = 247.09'$	$T = 243.95'$	$T = 243.95'$
$R = 3,240.00'$		$R = 2,200.00'$		$ST = 48.37'$	$R = 860.00'$
$SE = EXIST$		$SE = 07$			$SE = 07$

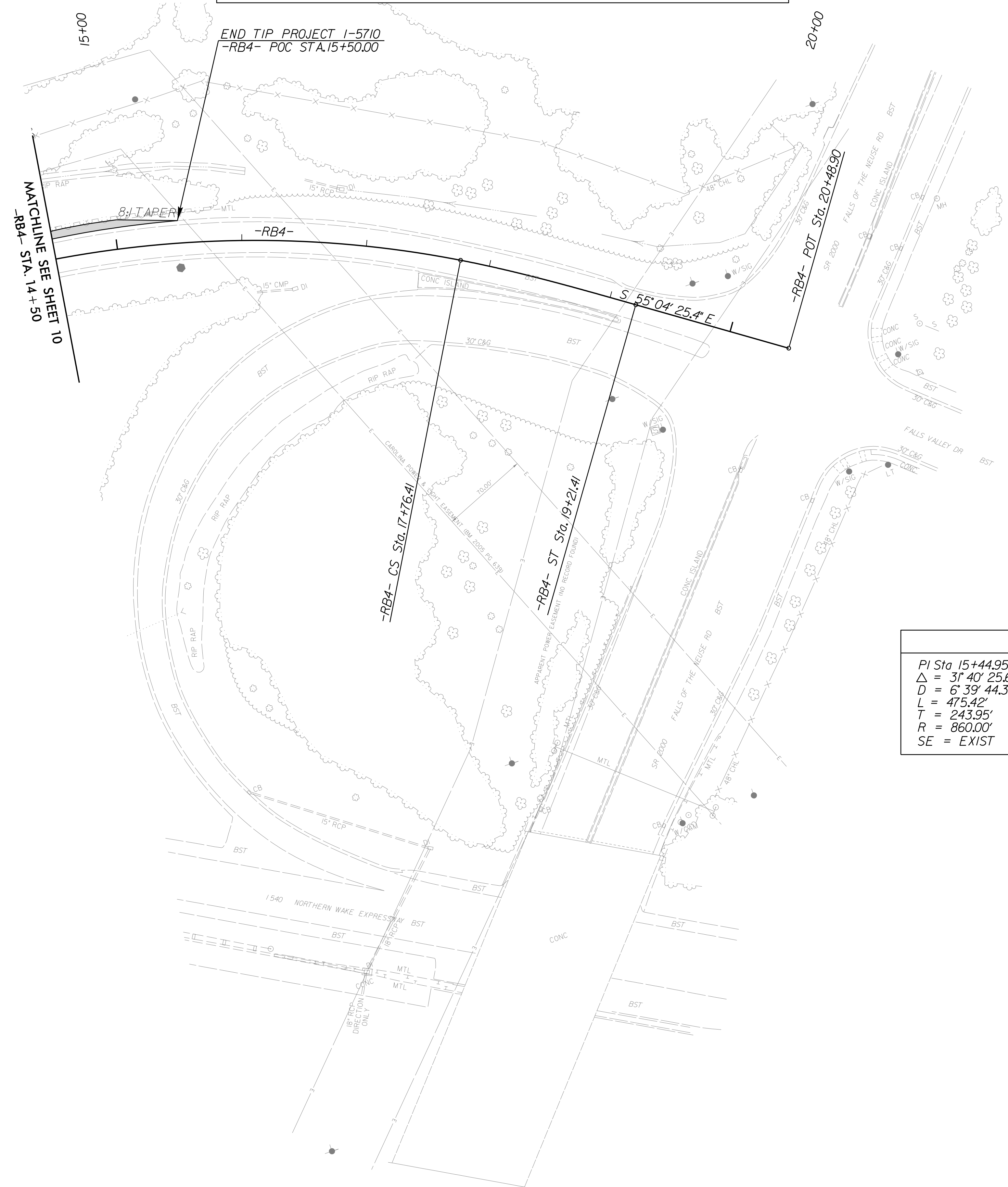
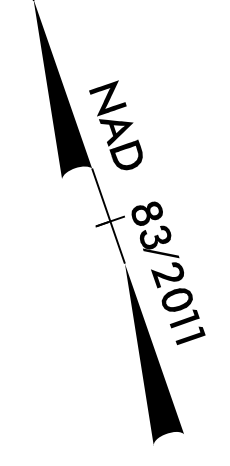
- PAVED SHOULDER
- MILL AND RESURFACE

- NOTES:
- SEE TMP PLANS FOR TEMPORARY SHORING.
 - SEE SHEET 13 FOR -RB4- PROFILE VIEW.
 - DEFLECT PIPE AT JOINTS, IF NECESSARY, TO AVOID CONFLICT WITH GUARDRAIL POSTS. JOINT DEFLECTION SHALL NOT EXCEED PIPE MANUFACTURER'S RECOMMENDATION.
 - PLUG AND FILL WITH FLOWABLE FILL.

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 26 Roadway Design
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PROJECT REFERENCE NO. <i>1-5710</i>	SHEET NO. <i>11</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 024929 CLINTON J. MORAN	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 041957 ROBERT GOODSON
<i>Clinton J. Moran</i> 6/28/2016	<i>Robert Goodson</i> 6/28/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

FALLS OF NEUSE ROAD



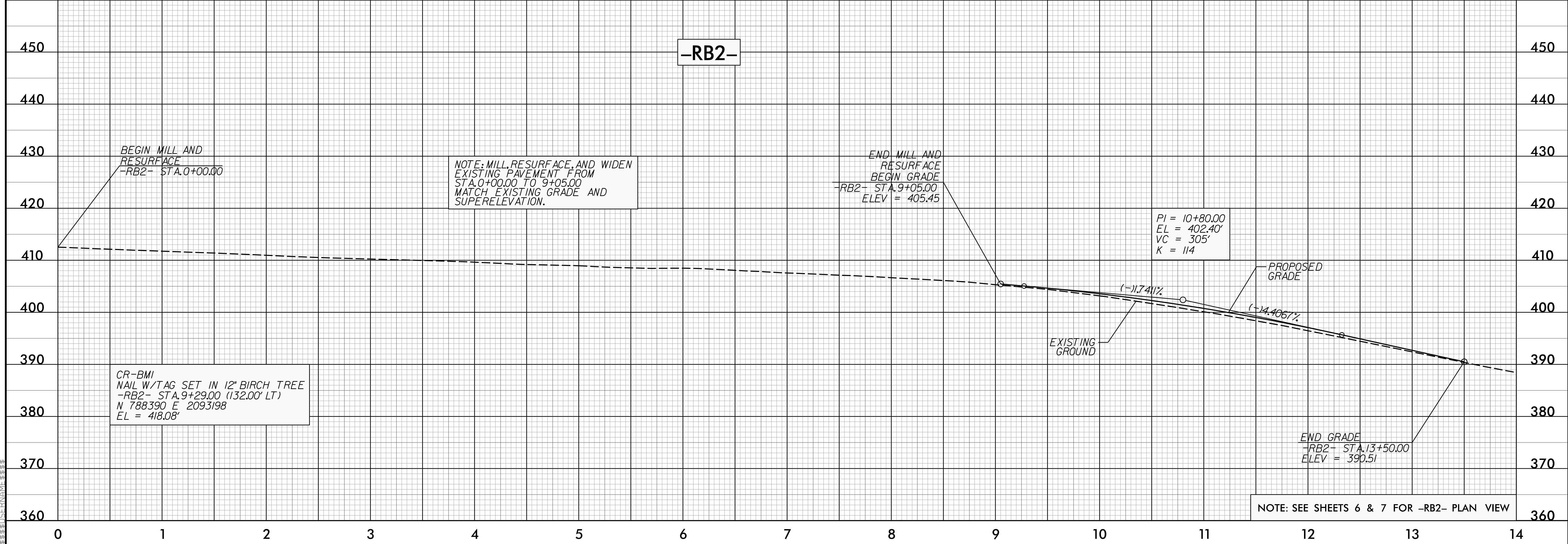
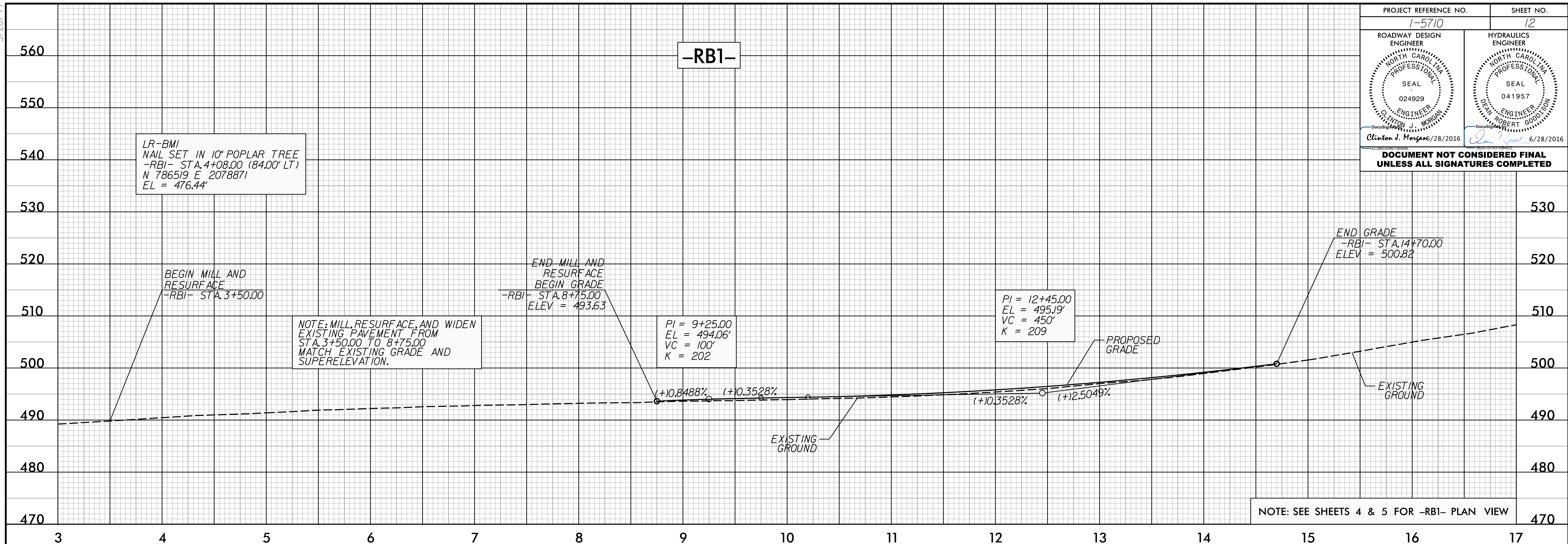
-RB4-	
PI Sta 15+44.95	PIs Sta 18+24.78
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$D = 6^{\circ} 39' 44.3''$	$L_s = 145.00'$
$L = 475.42'$	$LT = 96.70'$
$T = 243.95'$	$ST = 48.37'$
$R = 860.00'$	
$SE = EXIST$	

NOTE: SEE SHEET 13 FOR -RB4- PROFILE VIEW

5/28/16

PROJECT REFERENCE NO. 1-5710	SHEET NO. 12
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 024929 CLINTON J. MORGAN	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 041957 ROBERT J. GOODEN
Clinton J. Morgan 6/28/2016	Robert J. Gooden 6/28/2016

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UNLESS ALL SIGNATURES COMPLETED

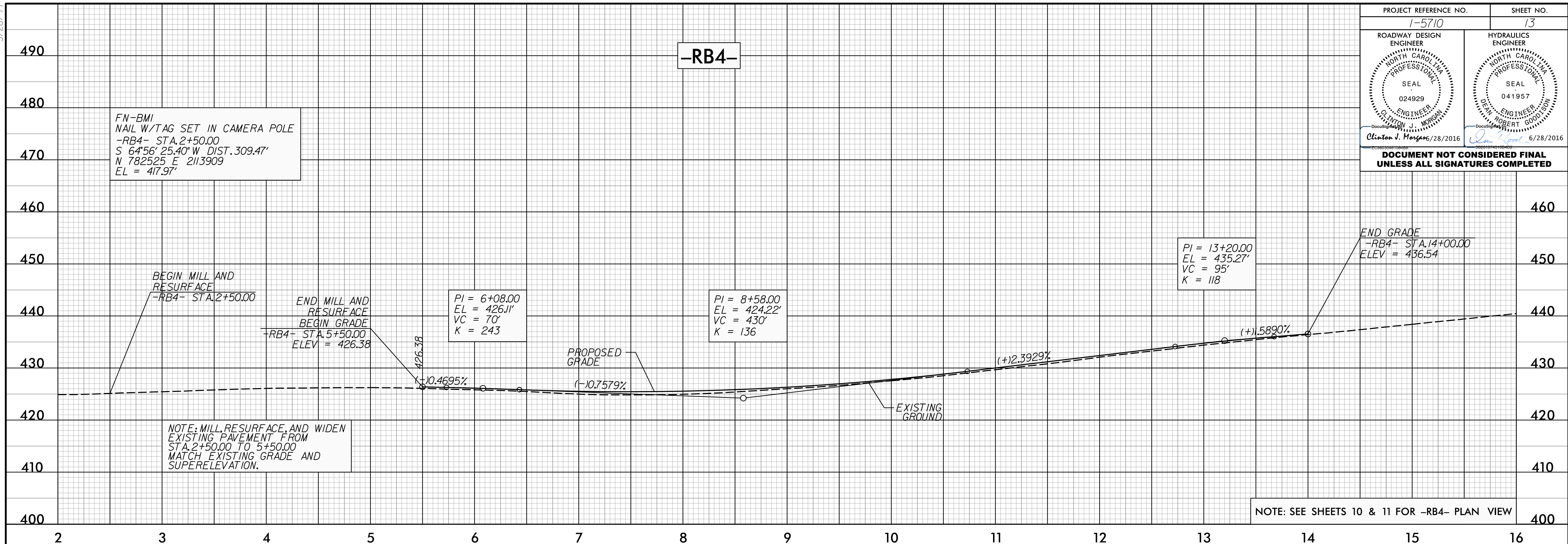


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PROJECT REFERENCE NO. 1-5710	SHEET NO. 13
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 024929 CLINTON J. MORROW	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 041957 ROBERT GOODENSON
Clinton J. Morrow 6/28/2016	Robert Goodenson 6/28/2016

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