

09/28/2019

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

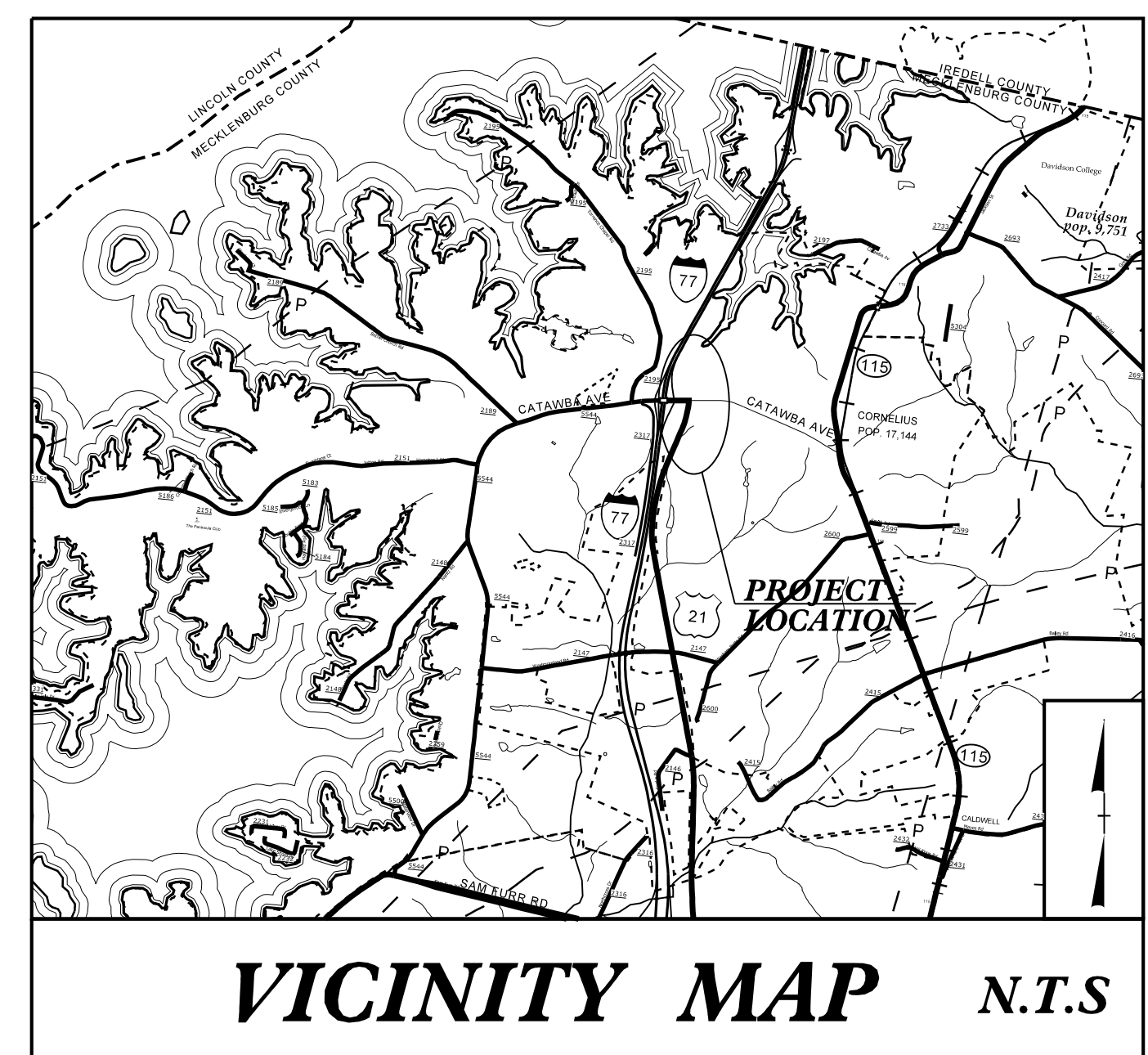
**LOCATION: DUAL ROUNDABOUTS NORTH AND SOUTH OF
SR 5544 (CATAWBA AVE.) AND
US 21 INTERSECTION IN CORNELIUS**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS AND WALLS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	C-5621	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50146.1.F1	N/A	PE	
50146.2.1	N/A	RW, UTILITY	
50146.3.1	CMS-0021(020)	CONST.	

TIP PROJECT: C-5621

CONTRACT: C204495



VICINITY MAP N.T.S

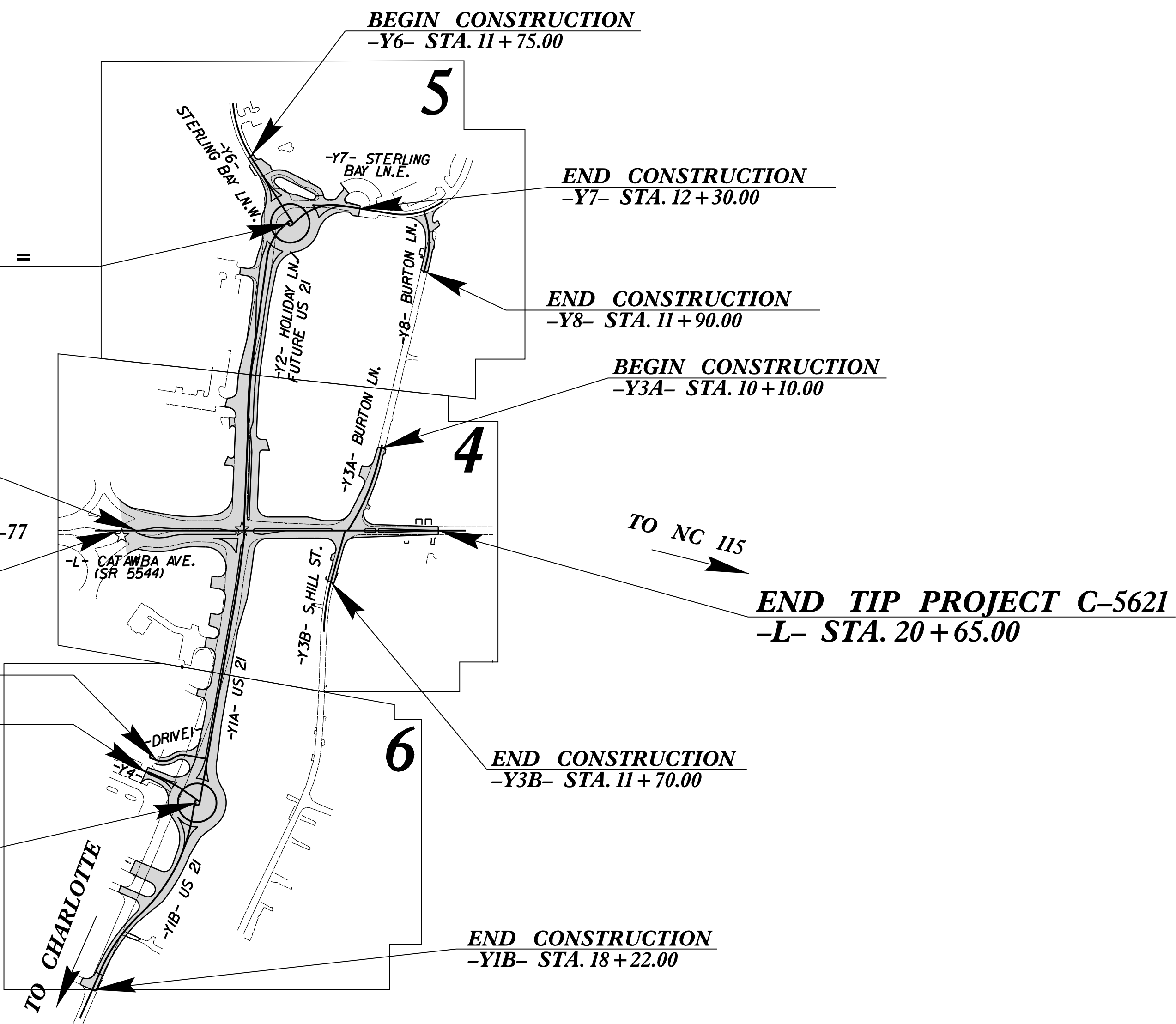
-RA2- CENTER OF CIRCLE =
-Y2- STA. 10+00.00 (O/S 7.5')
-Y6- STA. 14+15.78 (O/S 7.5')
-Y7- STA. 10+00.00 (O/S 7.5')

BEGIN TIP PROJECT C-5621
-L- STA. 11+30.00

BEGIN CONSTRUCTION
-L- STA. 10+75.23

BEGIN CONSTRUCTION
-DRIVEI- STA. 10+25.00
BEGIN CONSTRUCTION
-Y4- STA. 10+80.00

-RA1- CENTER OF CIRCLE =
-Y1A- STA. 18+56.89 (O/S 7.5')
-Y1B- STA. 10+00.00 (O/S 7.5')
-Y4- STA. 12+66.96 (O/S 7.5')



BEGIN CONSTRUCTION
-Y6- STA. 11+75.00

END CONSTRUCTION
-Y7- STA. 12+30.00

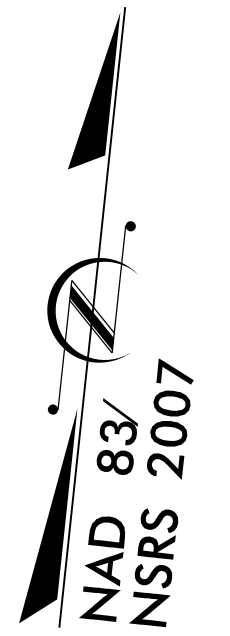
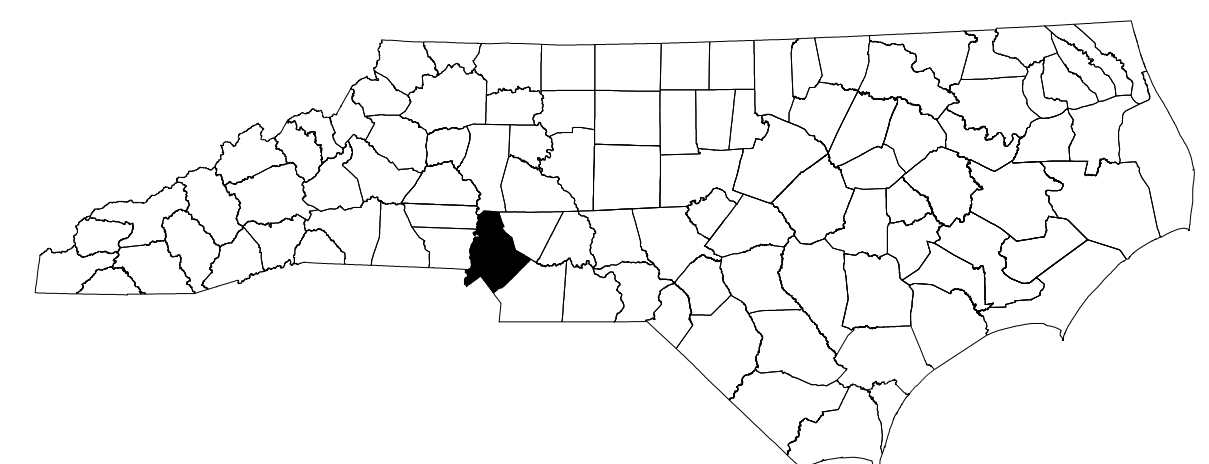
END CONSTRUCTION
-Y8- STA. 11+90.00

BEGIN CONSTRUCTION
-Y3A- STA. 10+10.00

END TIP PROJECT C-5621
-L- STA. 20+65.00

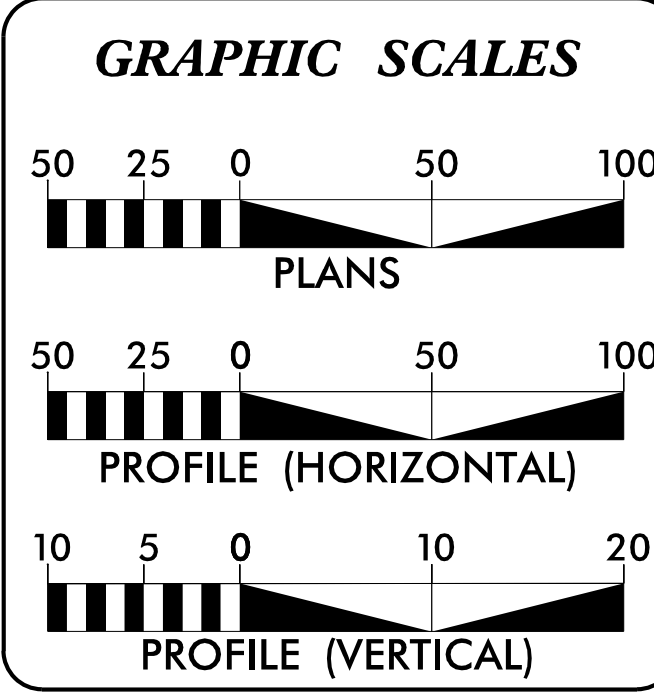
END CONSTRUCTION
-Y3B- STA. 11+70.00

END CONSTRUCTION
-Y1B- STA. 18+22.00



THERE IS FULL CONTROL OF ACCESS ON THIS PROJECT.

★ EXISTING SIGNAL DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2023 =	26,000
ADT 2040 =	45,517
K =	10 %
D =	60 %
T =	4 % *
V =	40 MPH
* TTST =	1 DUAL 3
FUNC CLASS =	LOCAL
REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT C-5621 =	0.187 MILES
TOTAL LENGTH TIP PROJECT C-5621 =	0.187 MILES
-L- USED TO CALCULATE PROJECT LENGTH.	

PREPARED IN THE OFFICE OF:

RS&H 1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 26, 2019

LETTING DATE:
OCTOBER 17, 2023

JENNIFER FARINO, PE
PROJECT ENGINEER

SEAN KORTOVICH, PE
PROJECT DESIGN ENGINEER

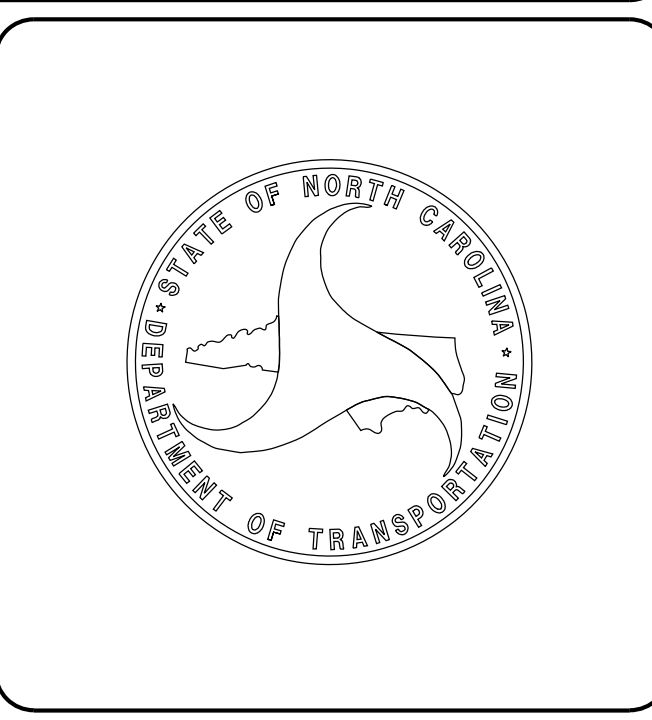
SEAN EPPERSON, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

DocuSigned by:
Alexander R. Vinson
E790C5A478942E
SIGNATURE: P.E. 7/18/2023

ROADWAY DESIGN ENGINEER

DocuSigned by:
SEAN EPPERSON
E79011E857D08415
SIGNATURE: P.E. 7/18/2023



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8/17/99

PROJECT REFERENCE NO. <i>C-5621</i>	SHEET NO. <i>1A</i>
9/21/2023	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-7	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	MONOLITHIC CONCRETE ISLAND DETAIL SHEET
2B-2 THRU 2B-3	ROUNDBOUT DETAIL SHEETS
2B-4 THRU 2B-5	SHEAR POINT DIAGRAMS
2B-6	-DRIVE1- DETAIL SHEET
2B-7	-Y8- DETAIL SHEET
2B-8	DRIVEWAY WIDENING DETAIL SHEET
2B-9	RETAINING WALL DETAIL SHEET
2C-1	CURB RAMPS - MEDIUM OR TURN LANE ISLANDS
2C-2	CURB RAMPS - DIRECTIONAL RAMPS
2C-3	PIPE HANDRAIL MOUNTED ON A WALL
2C-4	1'- 6" CURB & GUTTER TRANSITION SECTION
2C-5	CONVERTING EXISTING DI, CB, OTCB, OR GI TO JUNCTION BOX (MANHOLE OPTIONAL)
2C-6	CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH
3B-1	SUMMARY OF EARTHWORK, ASPHALT PAVEMENT REMOVAL, ASPHALT PAVEMENT BREAKING, AND CONCRETE PAVEMENT REMOVAL
3D-1 THRU 3D-4	DRAINAGE SUMMARY SHEETS
3G-1	GEOTECHNICAL SUMMARY
3P-1	PARCEL INDEX SHEET
3P-2	RIGHT OF WAY AREA DATA SHEET
4 THRU 6	PLAN SHEETS
7 THRU 10	PROFILE SHEETS
RW01	RIGHT OF WAY TITLE SHEET
RW02D-1 THRU RW02E-1	SURVEY CONTROL SHEETS
RW04 THRU RW06	RIGHT OF WAY PLAN SHEETS
TMP-1 THRU TMP-15	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-4	PAVEMENT MARKING PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-9	SIGNING PLANS
SIG-1 THRU SIG-8	TRAFFIC SIGNAL PLANS
SIG-M1 THRU SIG-M8	STANDARD DRAWINGS FOR ALL METAL POLES
SIG-SCP1 THRU SIG-SCP2	SIGNAL WIRELESS COMMUNICATIONS PLANS
UD-1 THRU UD-6A	UTILITY BY OTHERS PLANS
UC-1 THRU UC-11	UTILITY CONSTRUCTION PLANS
W-1	RETAINING WALL PLANS
X-1A THRU X-1B	CROSS-SECTION SUMMARY SHEETS
X-1 THRU X-23	CROSS-SECTIONS

GENERAL NOTES

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.

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

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

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

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

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

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

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

STREET TURNOUT:
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADIUS NOTED ON PLANS.

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE ENERGY UNITED, ELECTRICITIES OF NC, DOMINION ENERGY, AT&T, SPECTRUM/CHARTER, LUMEN, SEGRA, TDS TELECOM, VERIZON, VERIZON WIRELESS
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.

CURB RAMPS:
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

STANDARD DRAWINGS

2018 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, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method 11
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
310.02	Parallel Pipe End Section - Precast Concrete Section for 15" to 24" Pipe
310.03	Cross Pipe End Section - Precast Concrete Section for 18" to 30" Pipe
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method 1
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
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
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorages for Frames - Brick/Concrete/Precast Concrete
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grasses Median - Using 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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

Note: Not to Scale

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
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)*	—

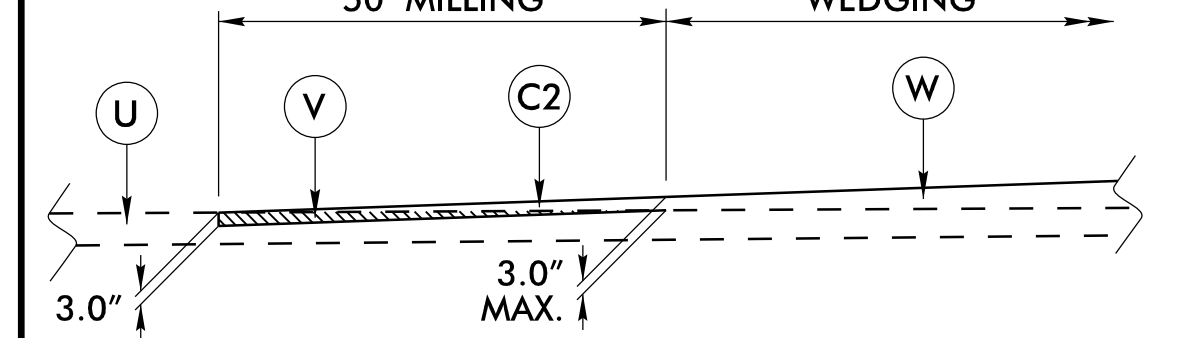
MISCELLANEOUS:

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	AATUR
End of Information	E.O.I.

6/2/2023

PAVEMENT SCHEDULE FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
J1	6" ABC.
K2	8" CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SUBGRADE STABILIZATION.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	1'-6" CONCRETE CURB AND GUTTER.
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN).
R4	7" CONCRETE TRUCK APRON WITH WELDED WIRE MESH
S1	4" CONCRETE SIDEWALK.
S2	4" CONCRETE WITH WELDED WIRE MESH MULTI-USE PATH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING (0" TO 3")
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2A-1).

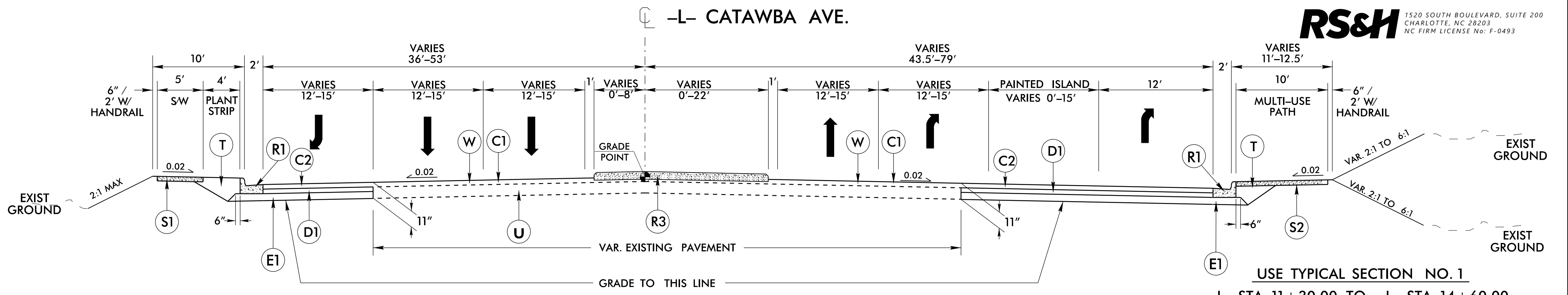
NOTE: PAVEMENT EDGES ARE 1:1 UNLESS SHOWN OTHERWISE



- 0"-3" MILLING ASPHALT PAVEMENT DETAIL**
- L- STA. 11+30.00 TO -L- STA. 11+80.00
 - L- STA. 20+15.00 TO -L- STA. 20+65.00
 - Y1B- STA. 15+70.00 TO -Y1B- STA. 16+20.00
 - Y3A- STA. 10+10.00 TO -Y3A- STA. 10+60.00
 - Y3B- STA. 11+12.00 TO -Y3B- STA. 11+62.00
 - Y4- STA. 10+80.00 TO -Y4- STA. 11+00.00
 - Y6- STA. 11+75.00 TO -Y6- STA. 12+25.00
 - Y7- STA. 11+80.00 TO -Y7- STA. 12+30.00
 - Y8- STA. 11+40.00 TO -Y8- STA. 11+90.00

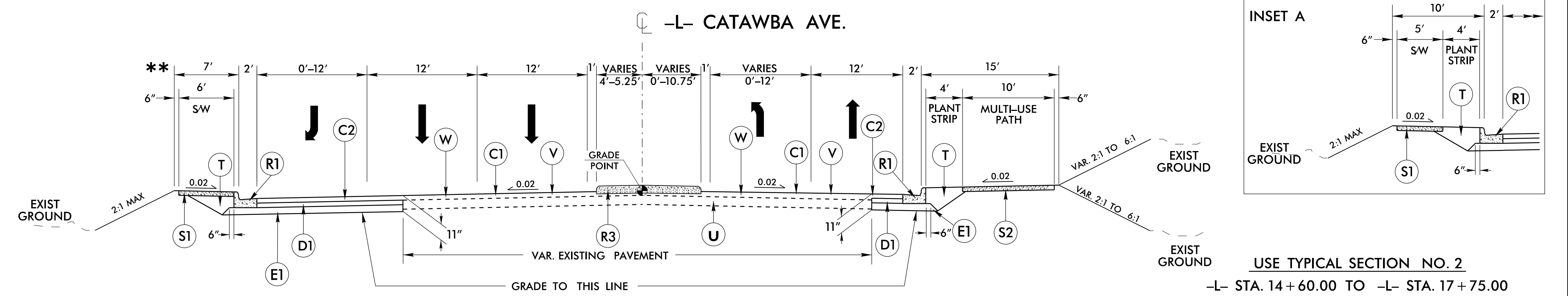
PROJECT REFERENCE NO. C-5621	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER SEAL 030952 WINNER D. FARRIS 9/20/2023	PAVEMENT DESIGN ENGINEER SEAL 024964 JOSEPH T. HOLLAND 9/21/2023
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

RS&H 1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No. F-0493



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 11+30.00 TO -L- STA. 14+60.00
* SEE 2B-9 FOR -RW1- DETAIL

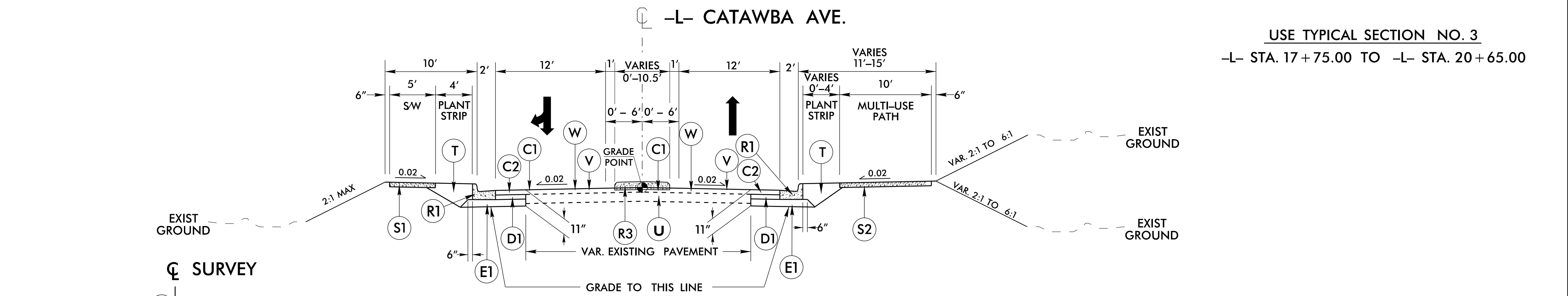


TYPICAL SECTION NO. 2

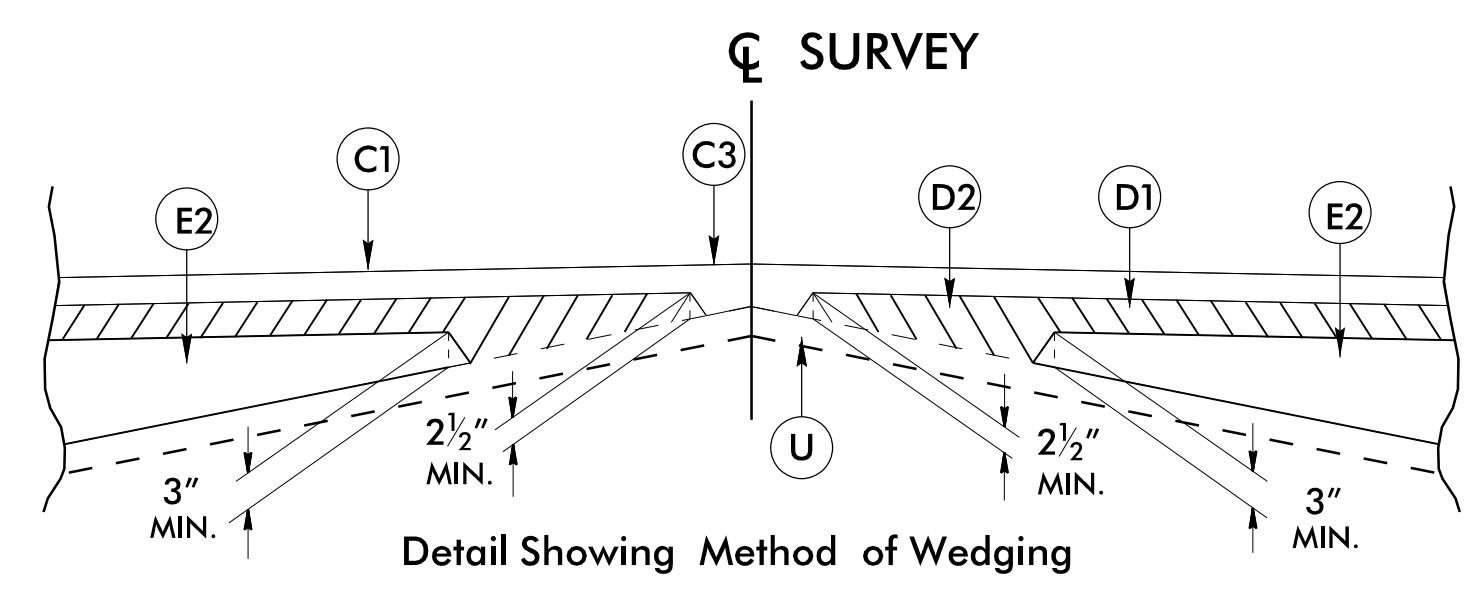
USE TYPICAL SECTION NO. 2
-L- STA. 14+60.00 TO -L- STA. 17+75.00

** USE INSET A FOR BERM WIDTH ON -L- LEFT FROM -L- 15+10.00 TO -L- 15+75.00

USE TYPICAL SECTION NO. 3
-L- STA. 17+75.00 TO -L- STA. 20+65.00



TYPICAL SECTION NO. 3



Detail Showing Method of Wedging

18-SEP-2023 14:15 \\P15\NC5621-Rdwy-tjip.dgn

6/2/2023

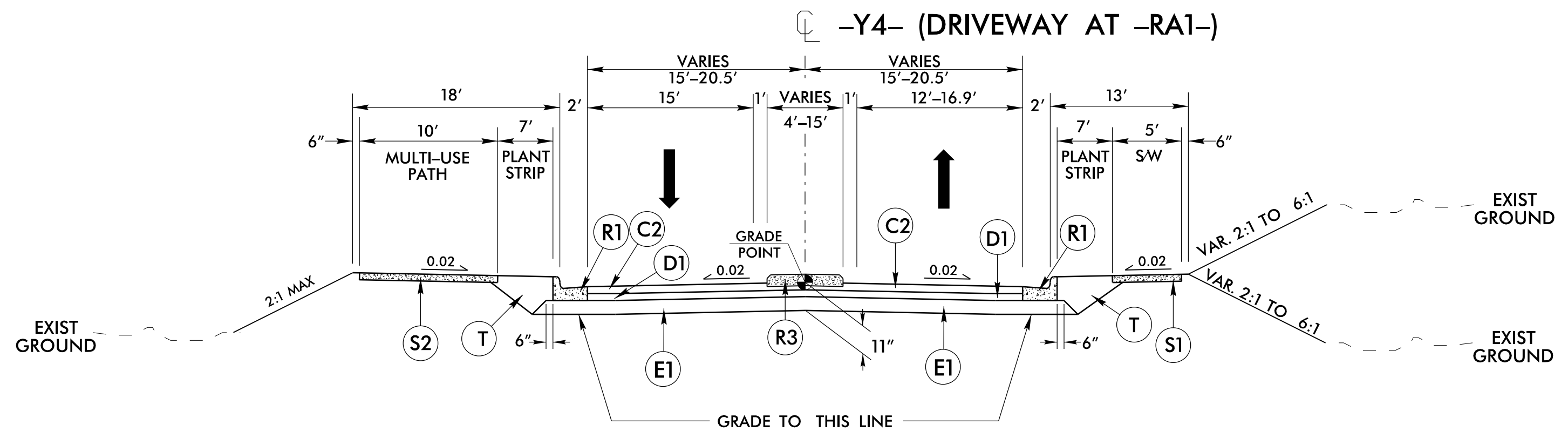
PAVEMENT SCHEDULE	
C1	1.5" S9.5B
C2	3" S9.5B
D1	4" I19.0C
E1	4" B25.0C
R1	2'-6" C&G
R3	5" ISLAND
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

NOTE: PAVEMENT EDGES ARE 1:1 UNLESS SHOWN OTHERWISE

PROJECT REFERENCE NO. C-5621	SHEET NO. 2A-5
ROADWAY DESIGN ENGINEER WINNER D. FRANK 030952 9/20/2023	PAVEMENT DESIGN ENGINEER STEPH T. HOLLAND 02444 9/21/2023

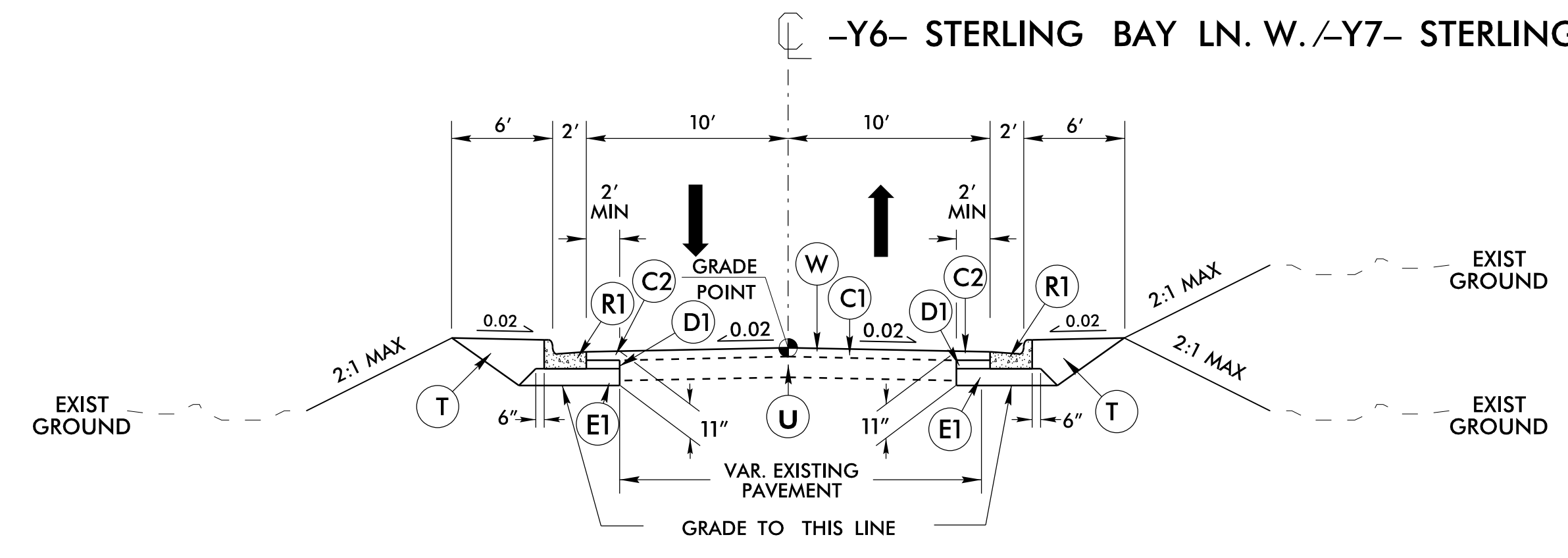
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

RS&H 1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493



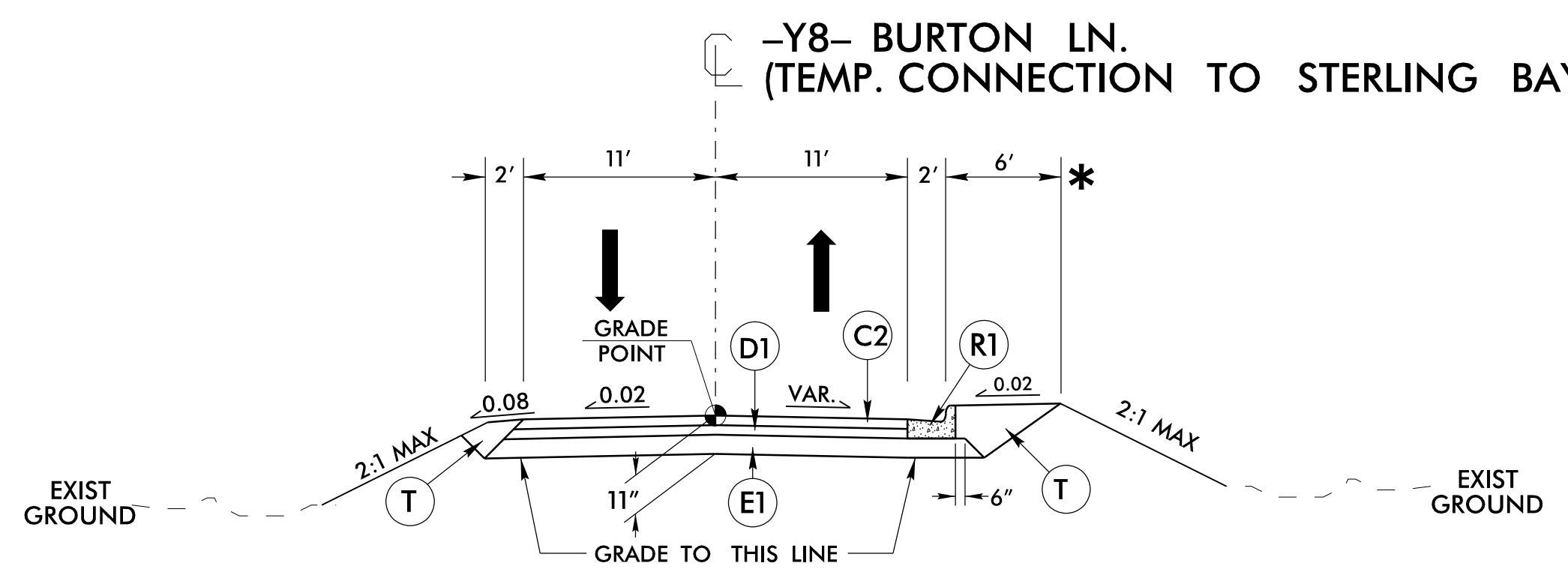
TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13
-Y4- STA. 11+00.00 TO -Y4- STA. 11+77.03



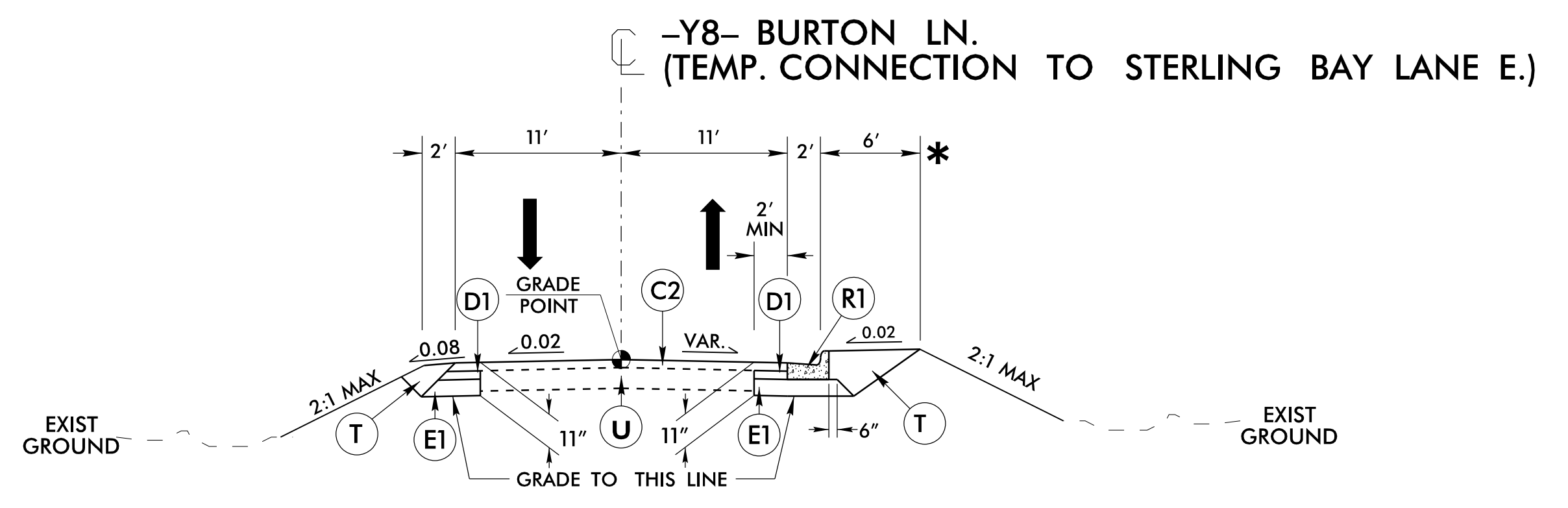
TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14
-Y6- STA. 11+75.00 TO -Y6- STA. 13+26.09
-Y7- STA. 10+89.45 TO -Y7- STA. 12+30.00
NOTE: SAW CUT EXISTING CONCRETE ON -Y6- STA. 11+94± TO 12+51± AND REPLACE WITH FULL DEPTH PAVEMENT



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15
-Y8- STA. 10+10.00 TO -Y8- STA. 11+20.00



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16
-Y8- STA. 11+20.00 TO -Y8- STA. 11+90.00
* 5' SIDEWALK AT BACK OF CURB FROM -Y8- Sta. 11+47.61 TO 11+90.00 RT

18-SEP-2023 14:15 \\P01\proj\180923\1415\C5621-Rdwy-typ.dgn

6/2/2023

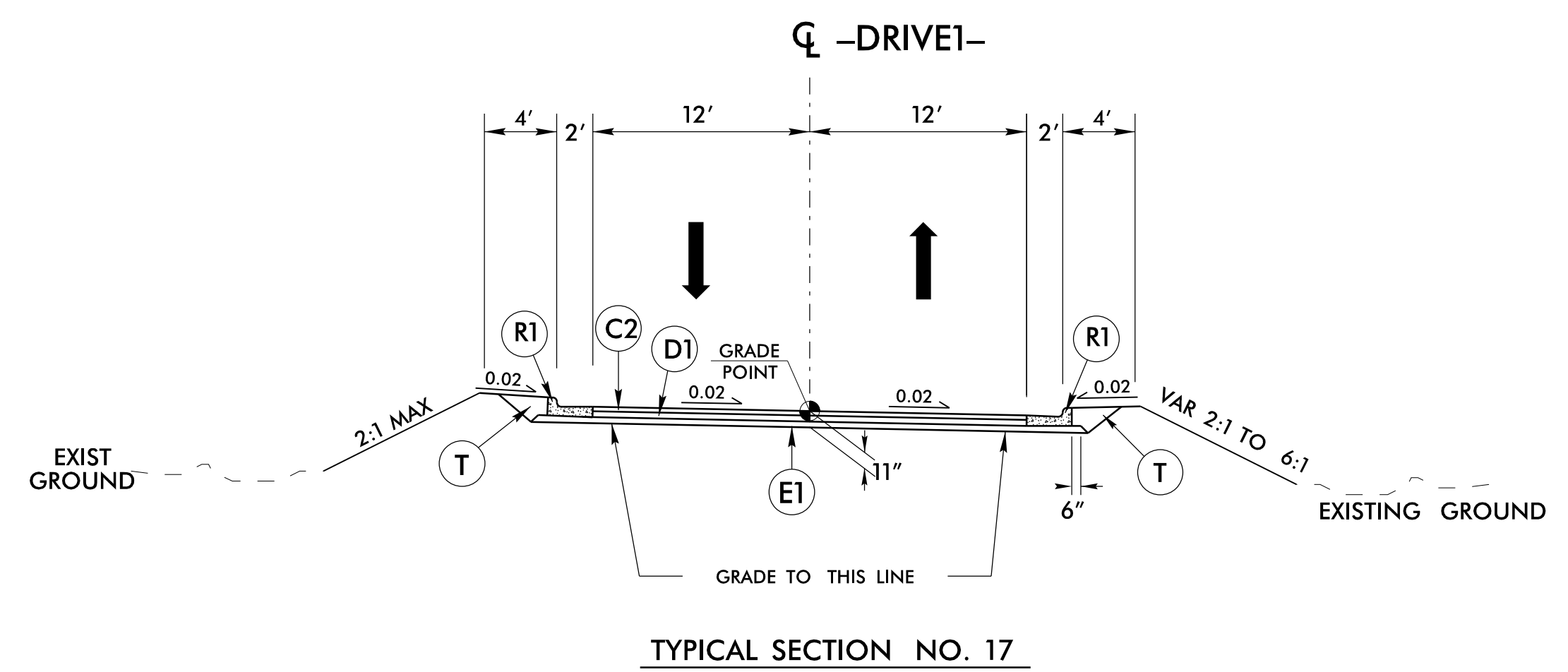
PAVEMENT SCHEDULE	
C1	1.5" S9.5B
C2	3" S9.5B
D1	4" I19.0C
E1	4" B25.0C
J1	6" ABC
R1	2'-6" C&G
R2	1'-6" C&G
R4	7" CONCRETE TRUCK APRON WITH WELDED WIRE MESH
S1	4" SIDEWALK
S2	4" MULTI-USE PATH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

NOTE: PAVEMENT EDGES ARE 1:1 UNLESS SHOWN OTHERWISE

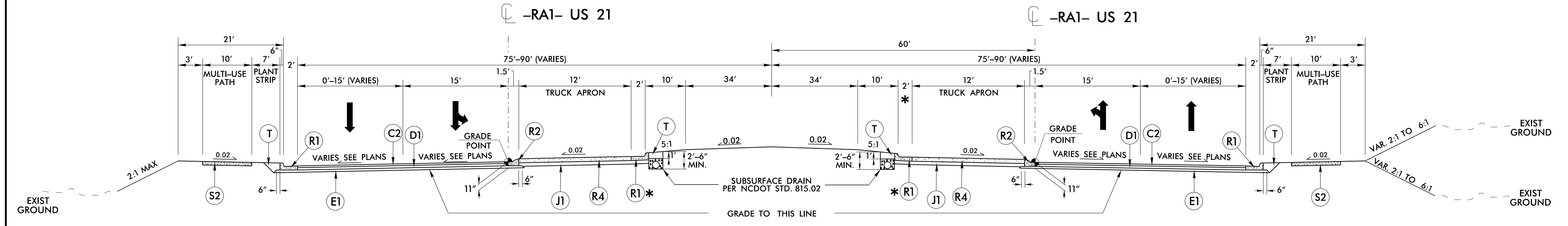
PROJECT REFERENCE NO. C-5621	SHEET NO. 2A-6
ROADWAY DESIGN ENGINEER WINNER D. FRANK SEAL 030952 9/20/2023	PAVEMENT DESIGN ENGINEER STEPH T. HOLLAND SEAL 07886 9/21/2023

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CHARLOTTE, NC 28203
NC FIRM LICENSE NO. F-0493

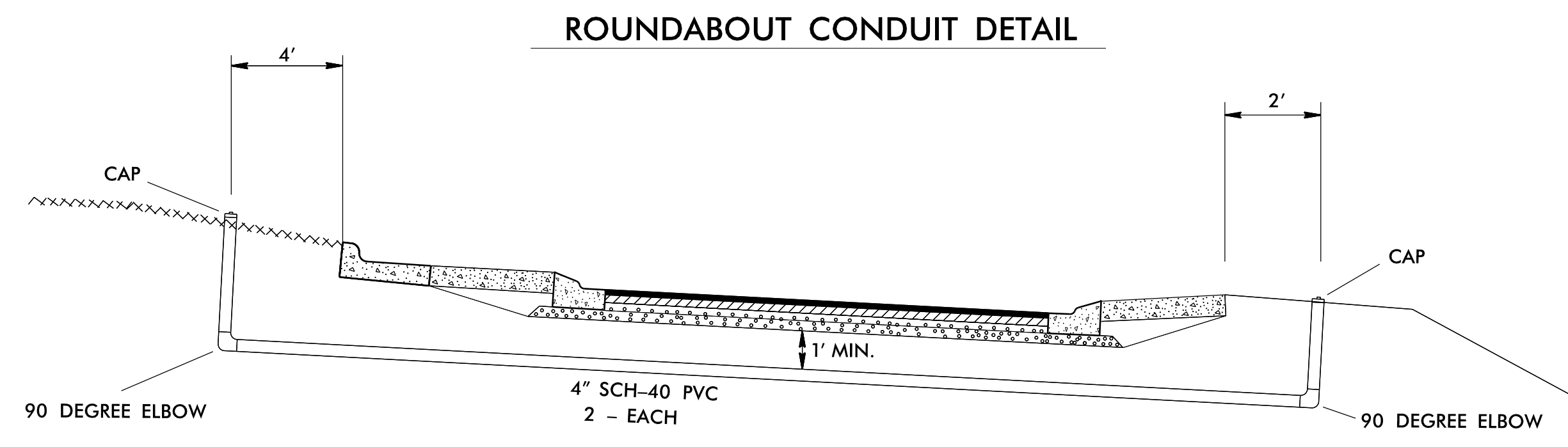
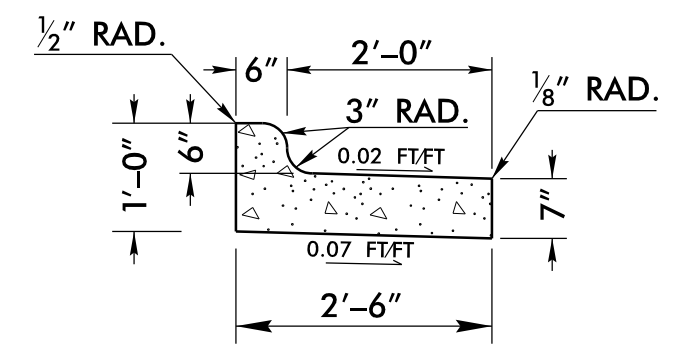


USE TYPICAL SECTION NO. 17
-DRIVEI- STA. 10+25.00 TO 11+52.87



USE TYPICAL SECTION NO. 18
-RA1- STA. 10+00.00 TO -RA1- STA. 13+76.87

* MODIFIED 2'-6" C&G DETAIL FOR ROUNDABOUTS



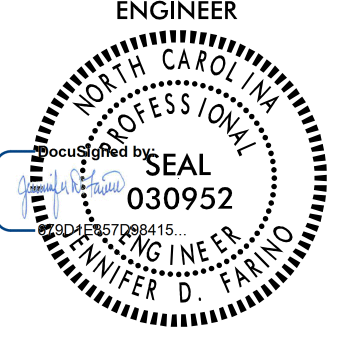
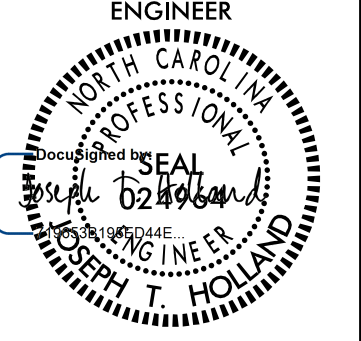
NOTE: SEE PLANS FOR ACTUAL DIMENSIONS.
DETAIL IS FOR INFORMATIONAL USE ONLY.

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6/2/2019

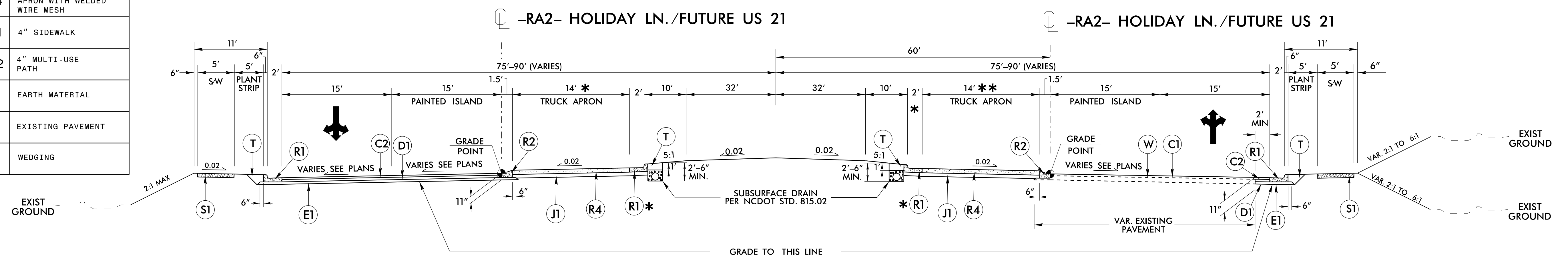
PAVEMENT SCHEDULE	
C1	1.5" S9.5B
C2	3" S9.5B
D1	4" I19.0C
J1	6" ABC
E1	4" B25.0C
R1	2'-6" C&G
R2	1'-6" C&G
R4	7" CONCRETE TRUCK APRON WITH WELDED WIRE MESH
S1	4" SIDEWALK
S2	4" MULTI-USE PATH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

NOTE: PAVEMENT EDGES ARE 1:1 UNLESS SHOWN OTHERWISE

PROJECT REFERENCE NO. C-5621	SHEET NO. 2A-7
ROADWAY DESIGN ENGINEER  ANDREW D. FRIEND 9/20/2023	PAVEMENT DESIGN ENGINEER  JOSEPH T. HOLLAND 9/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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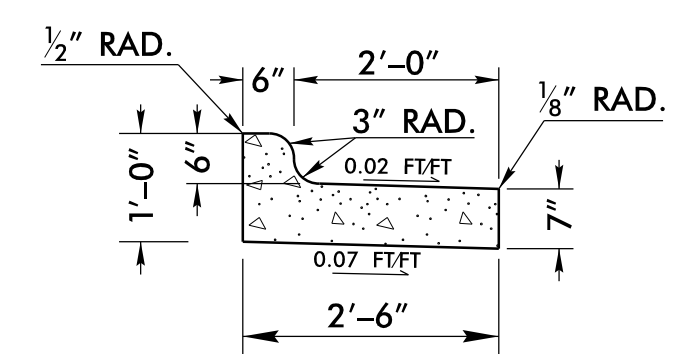


WEDGING FROM -RA2- STA. 11+30.00 TO -RA2- STA. 12+15.00

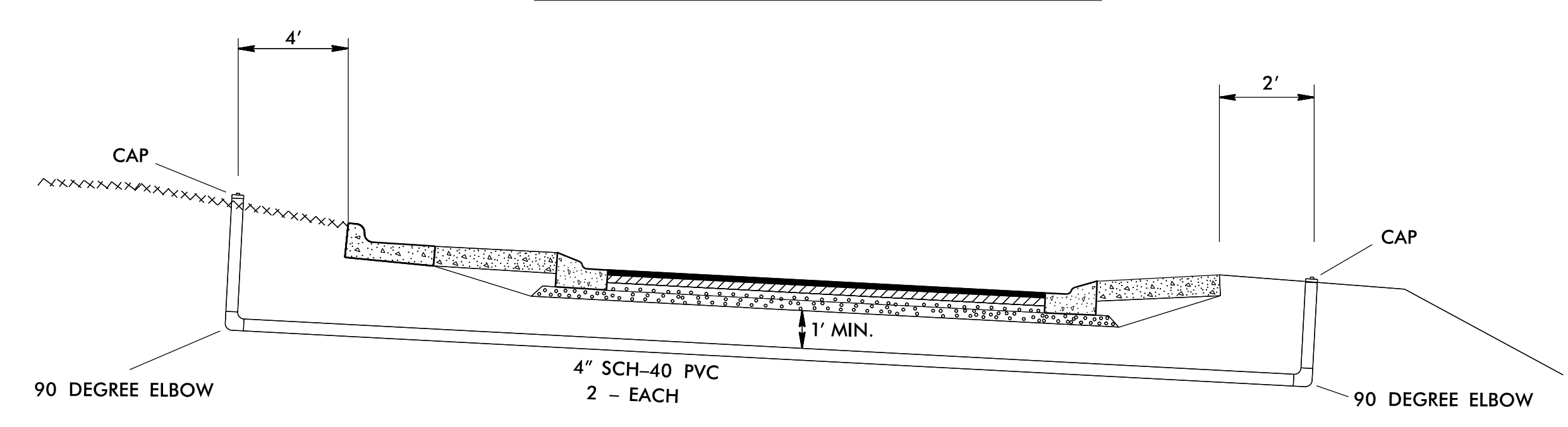
ROUNDABOUT TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19
 -RA2- STA. 10+00.00 TO -RA2- STA. 13+76.70
**** 14' TRUCK APRON REQUIRED TO ACCOMMODATE WB-67 U-TURN MOVEMENTS**

*** MODIFIED 2'-6" C&G DETAIL FOR ROUNDABOUTS**



ROUNDABOUT CONDUIT DETAIL

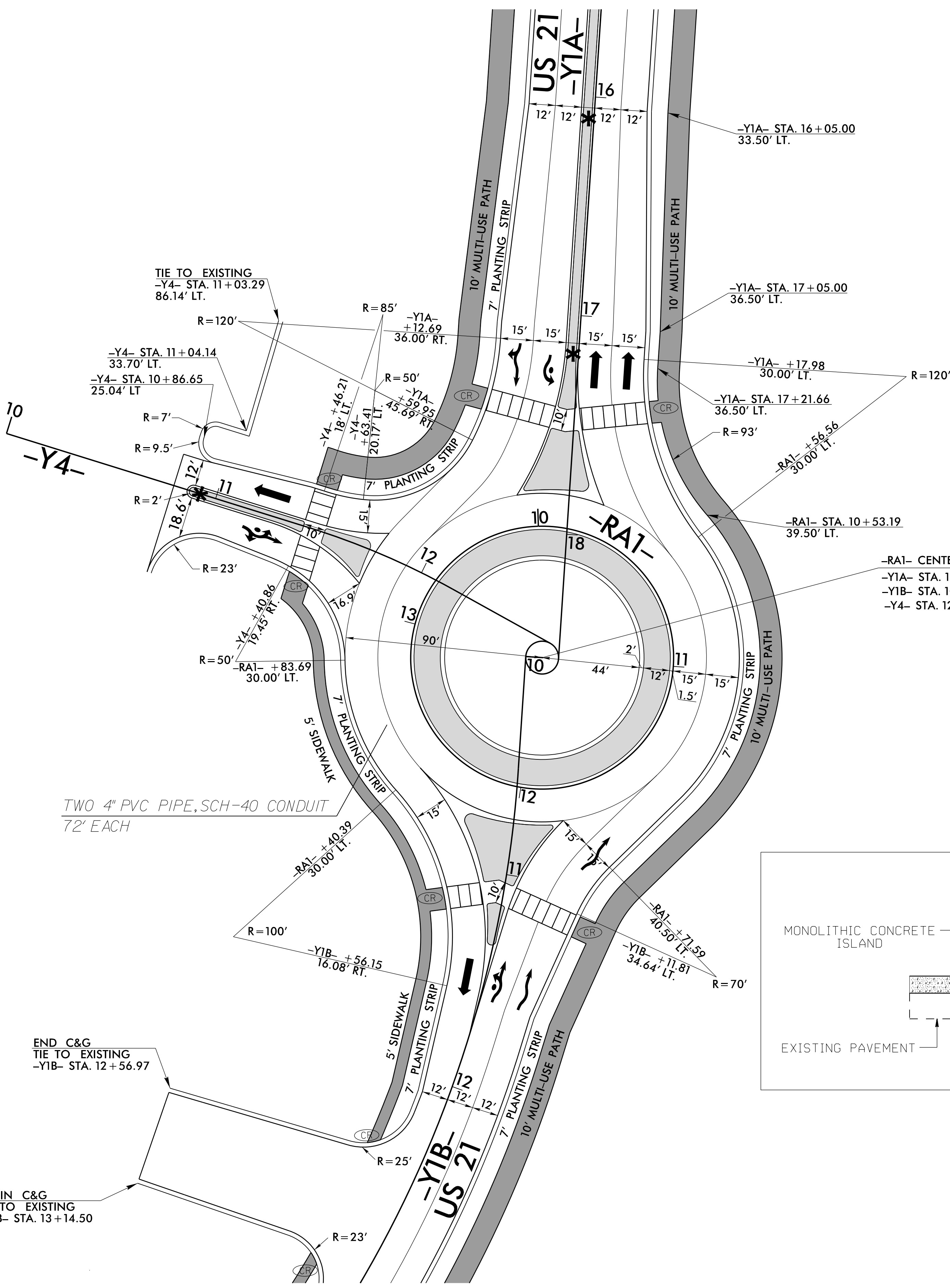
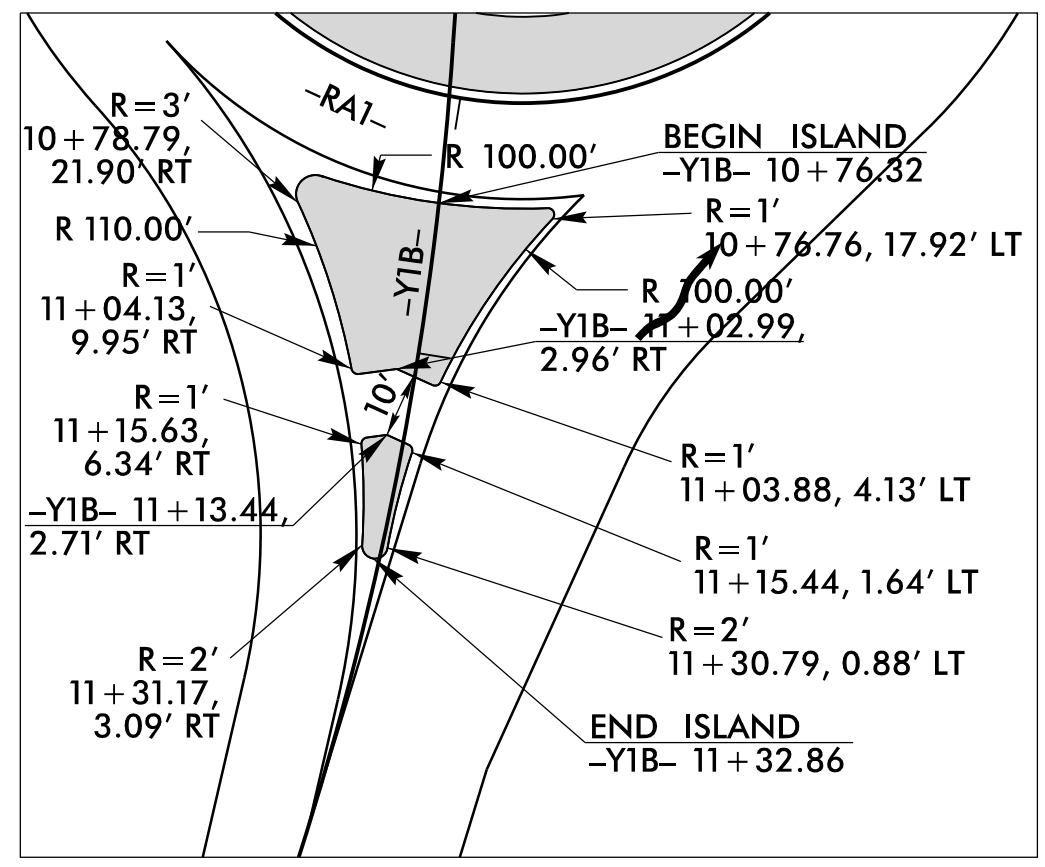
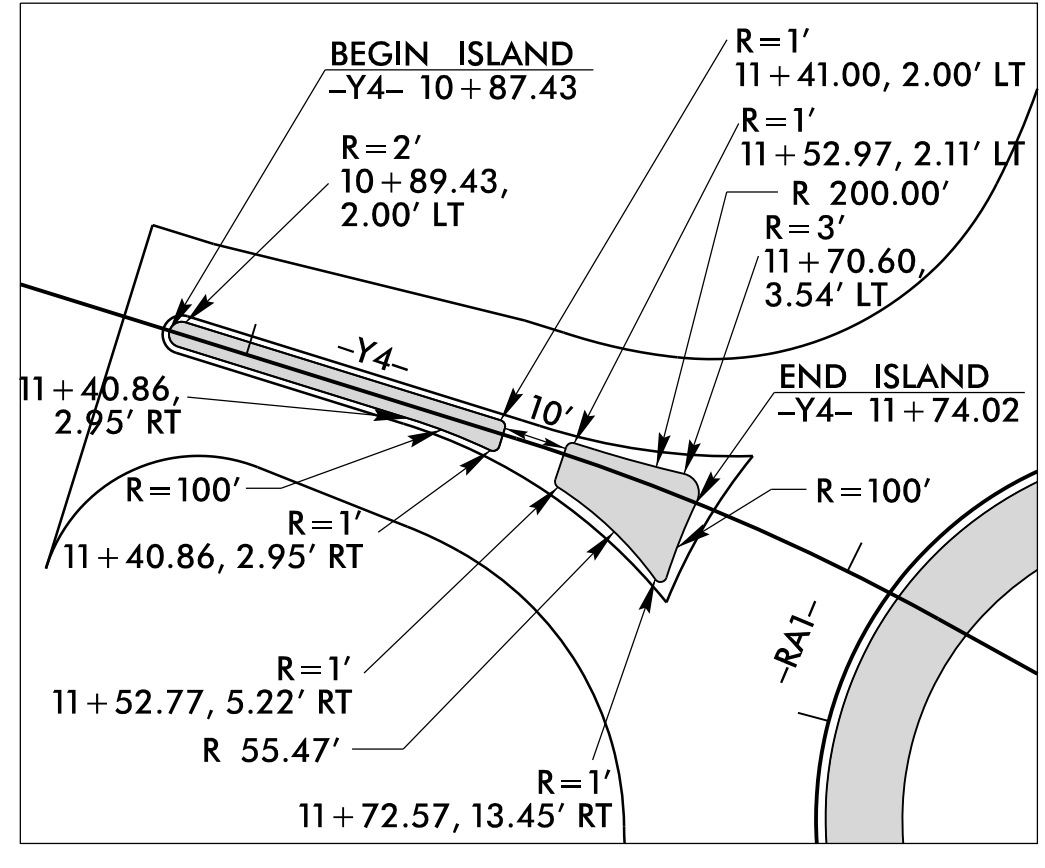
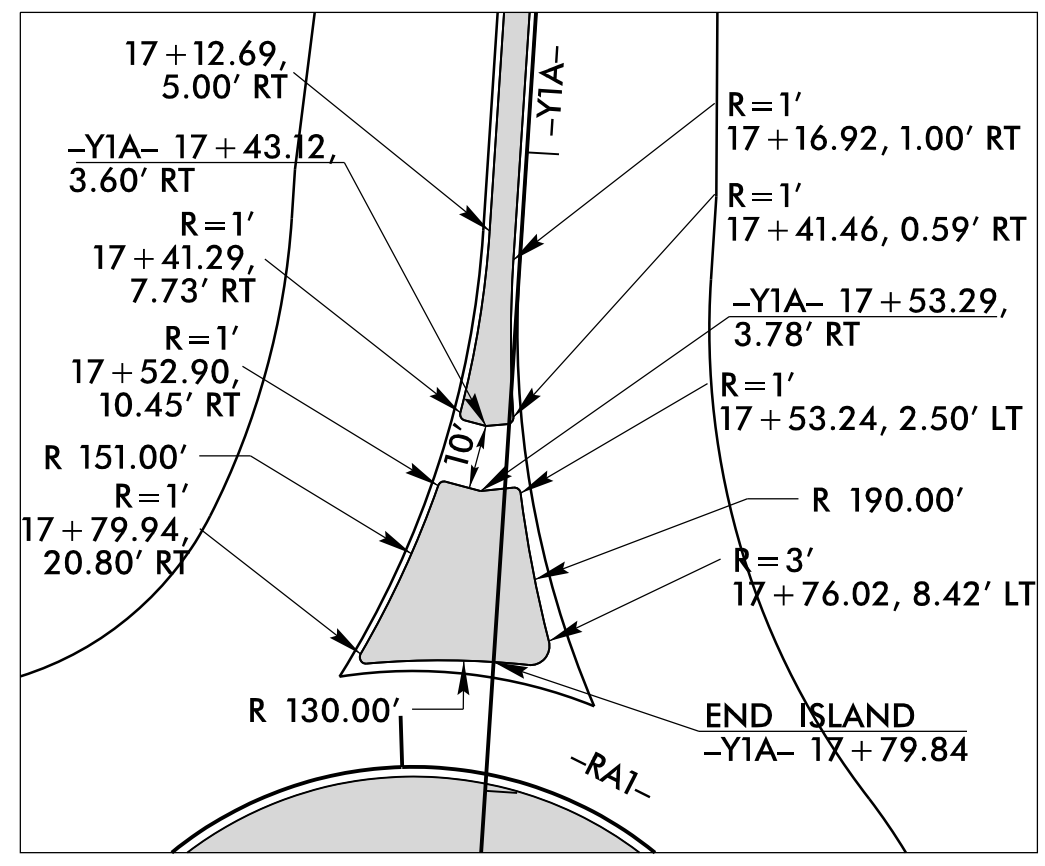


NOTE: SEE PLANS FOR ACTUAL DIMENSIONS. DETAIL IS FOR INFORMATIONAL USE ONLY.

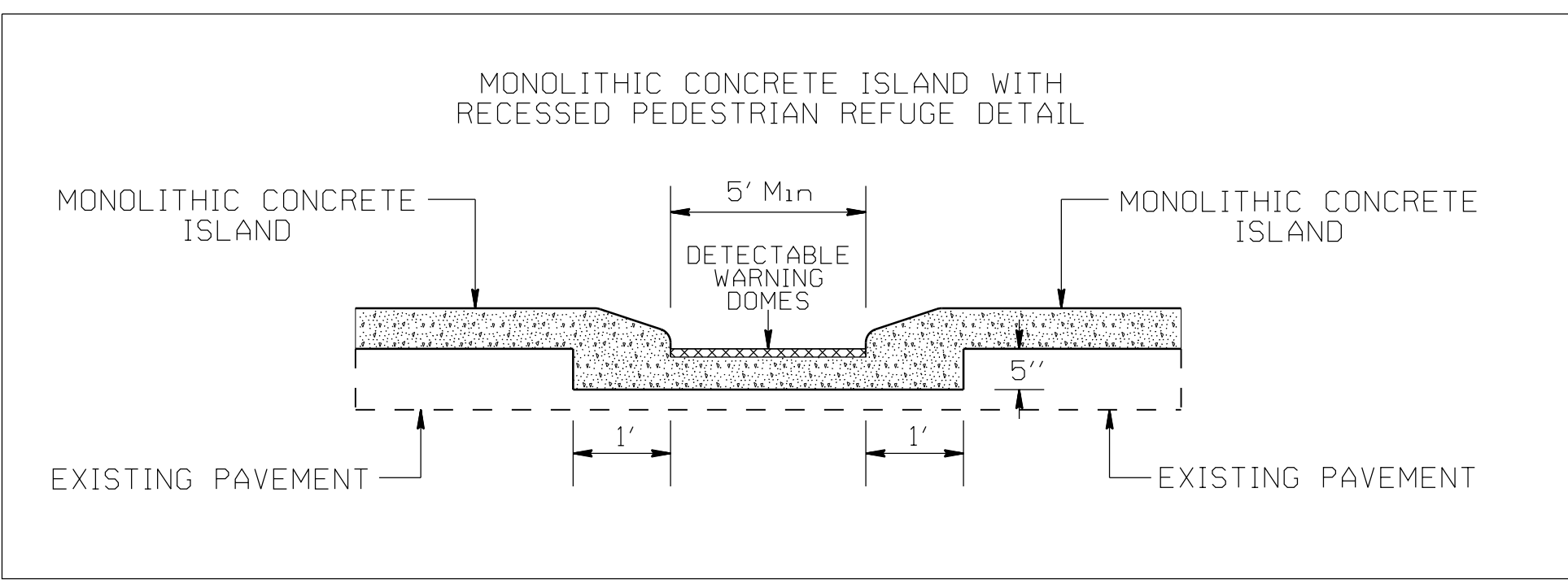
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6/2/2023

ROUNDBABOUT -RA1- DETAIL



TWO 4" PVC PIPE, SCH-40 CONDUIT
72' EACH



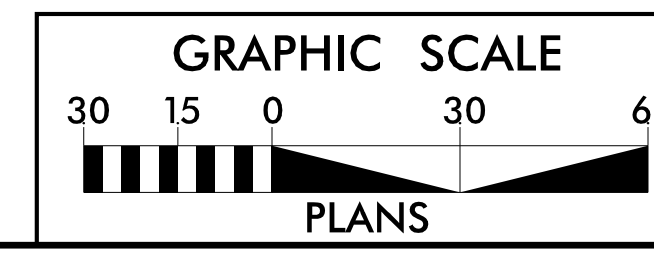
PROJECT REFERENCE NO. C-5621	SHEET NO. 2B-2
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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 NC FIRM LICENSE No. F-0493

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* 4' MONOLITHIC CONCRETE ISLAND PLUS 1.0' WIDTH TO EOT

LOCATION: US 21 AND PARKING LOT INTERSECTION	COUNTY: MECKLENBURG
TIP NO.: C-5621	DESIGNED BY: S. KORTOVICH, PE
CHECKED BY: J. FARINO, PE	DATE: 3/14/2023



18-SEP-2023 14:45
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 S:\Users\jfarino\My Documents

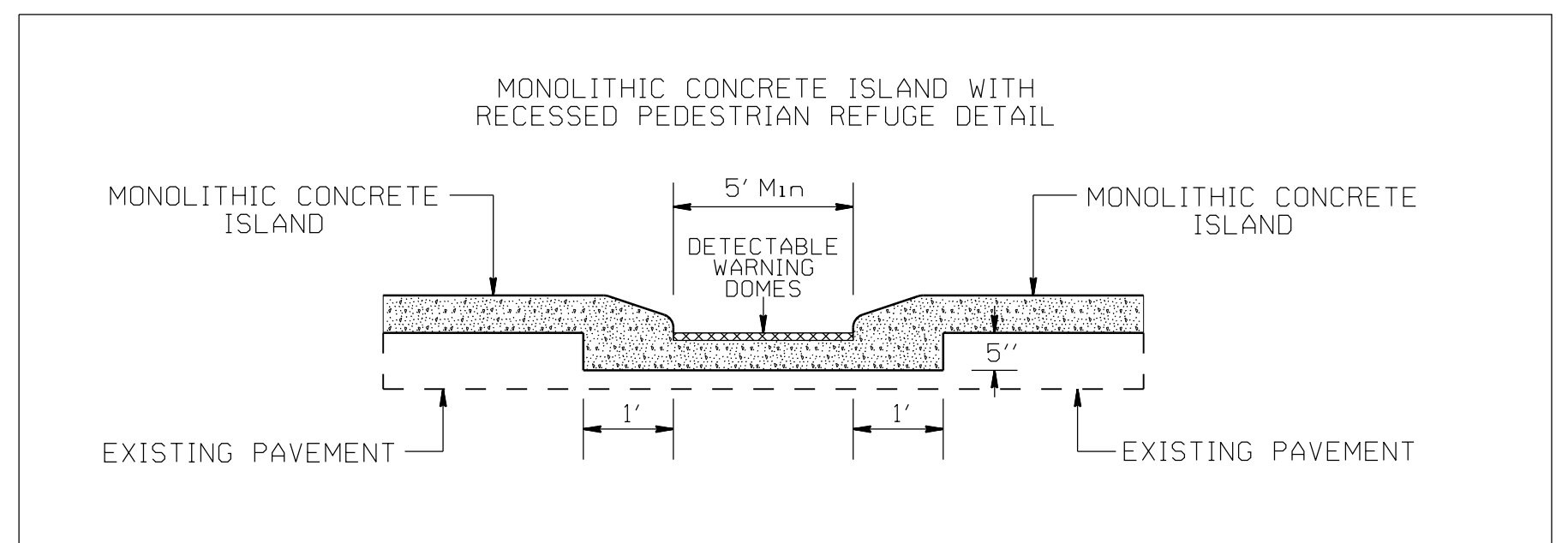
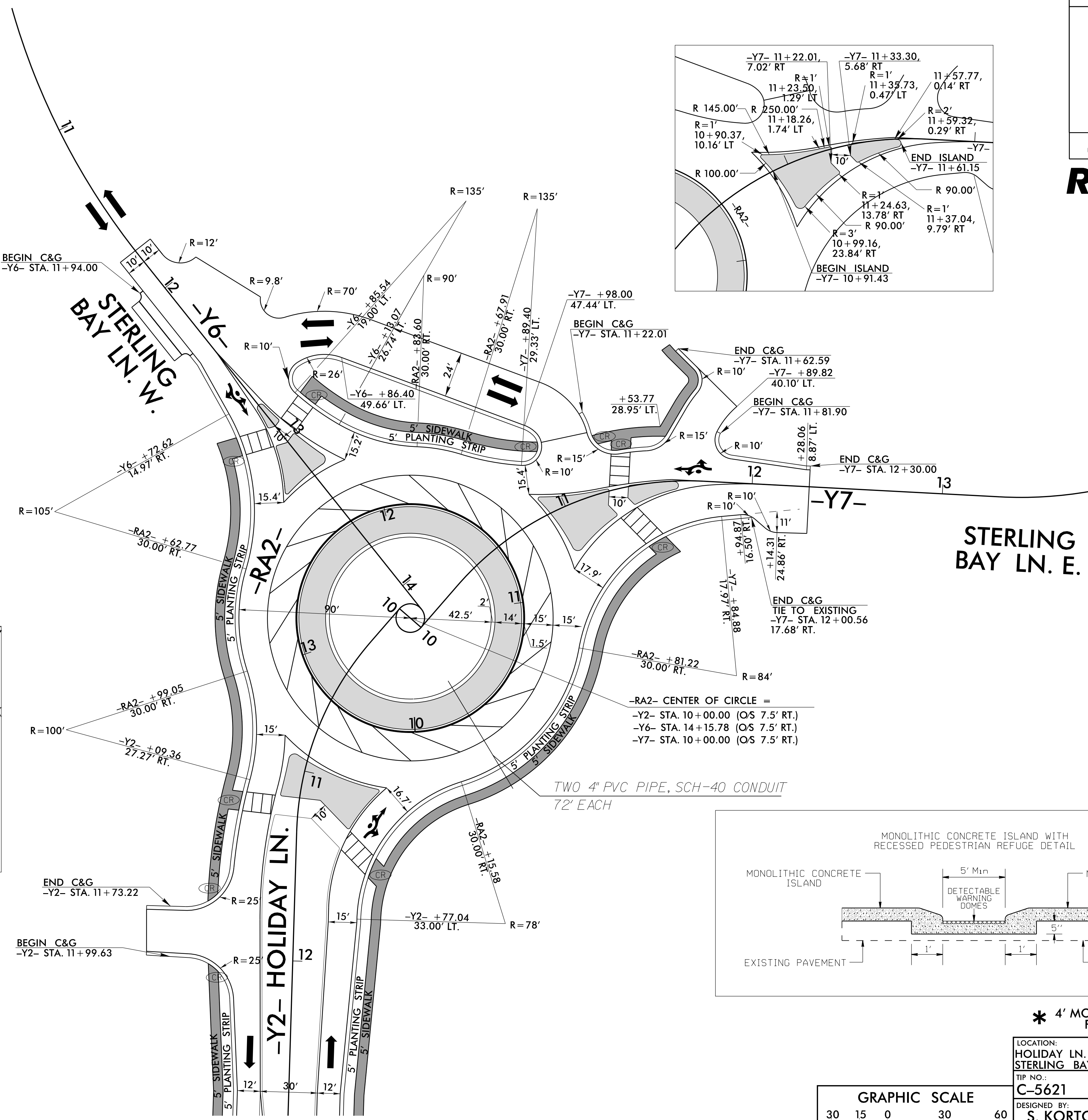
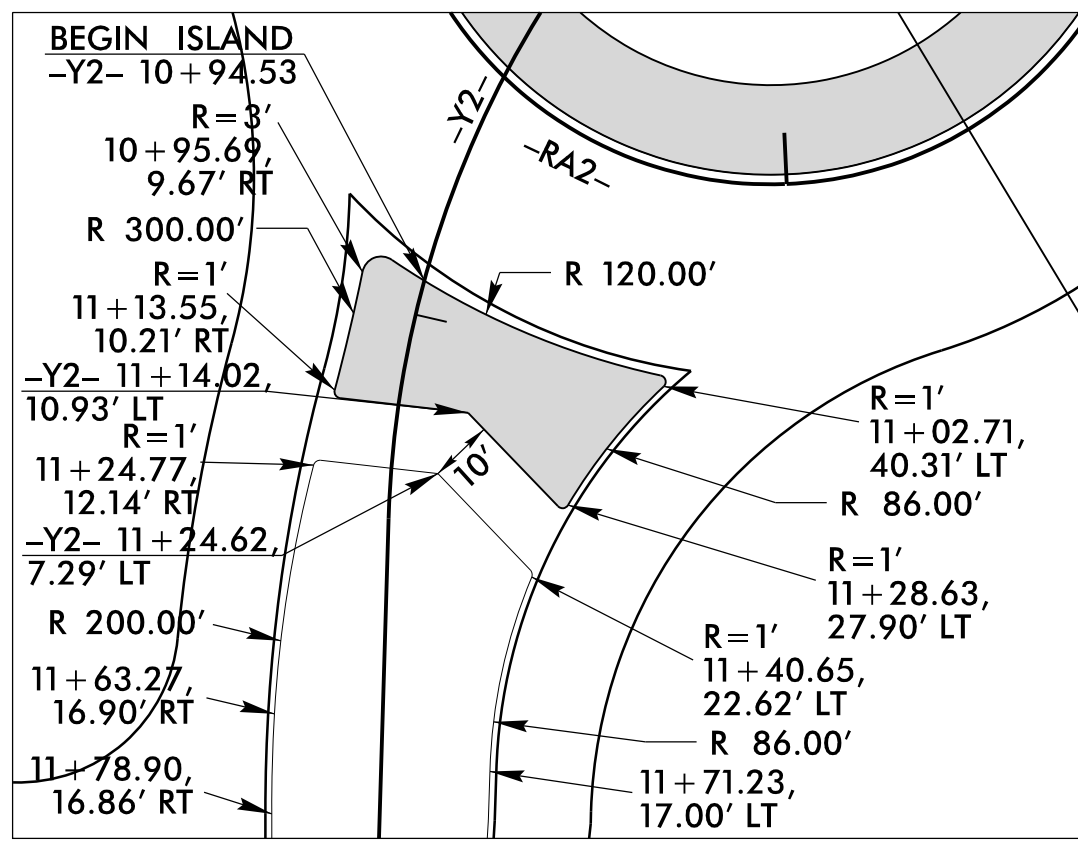
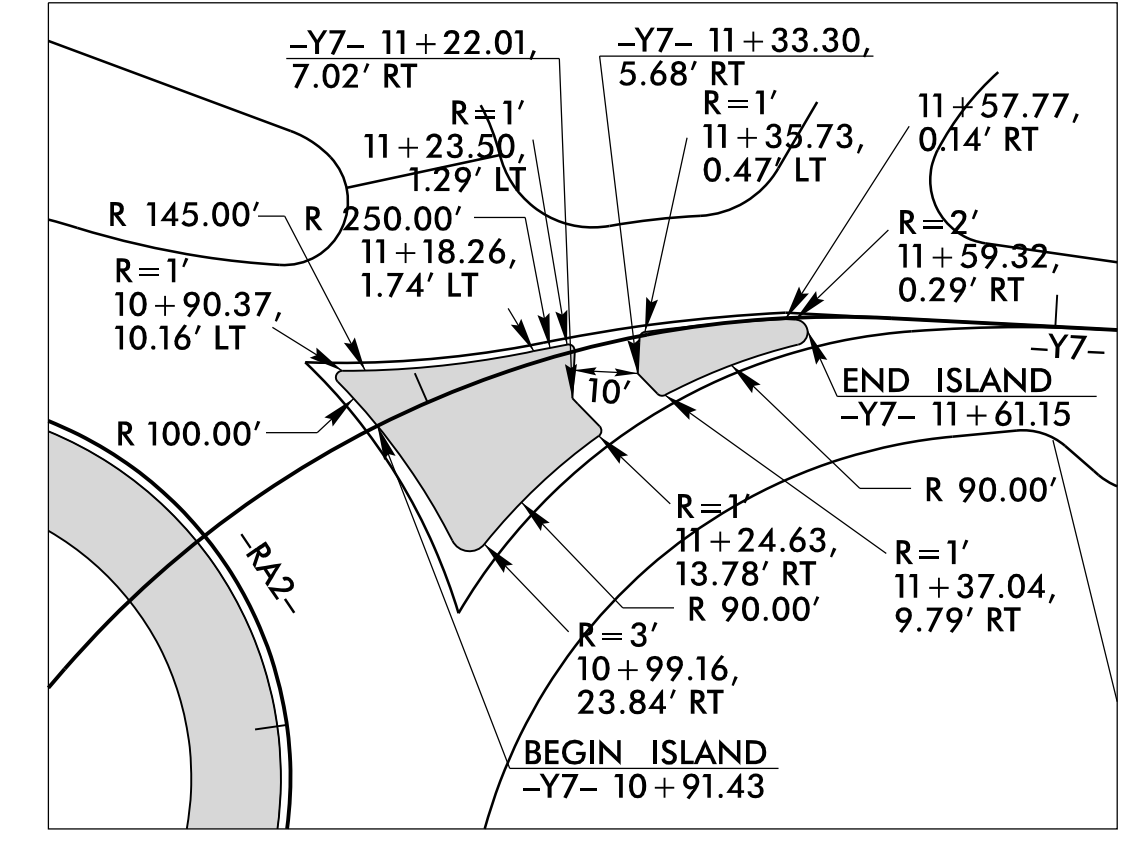
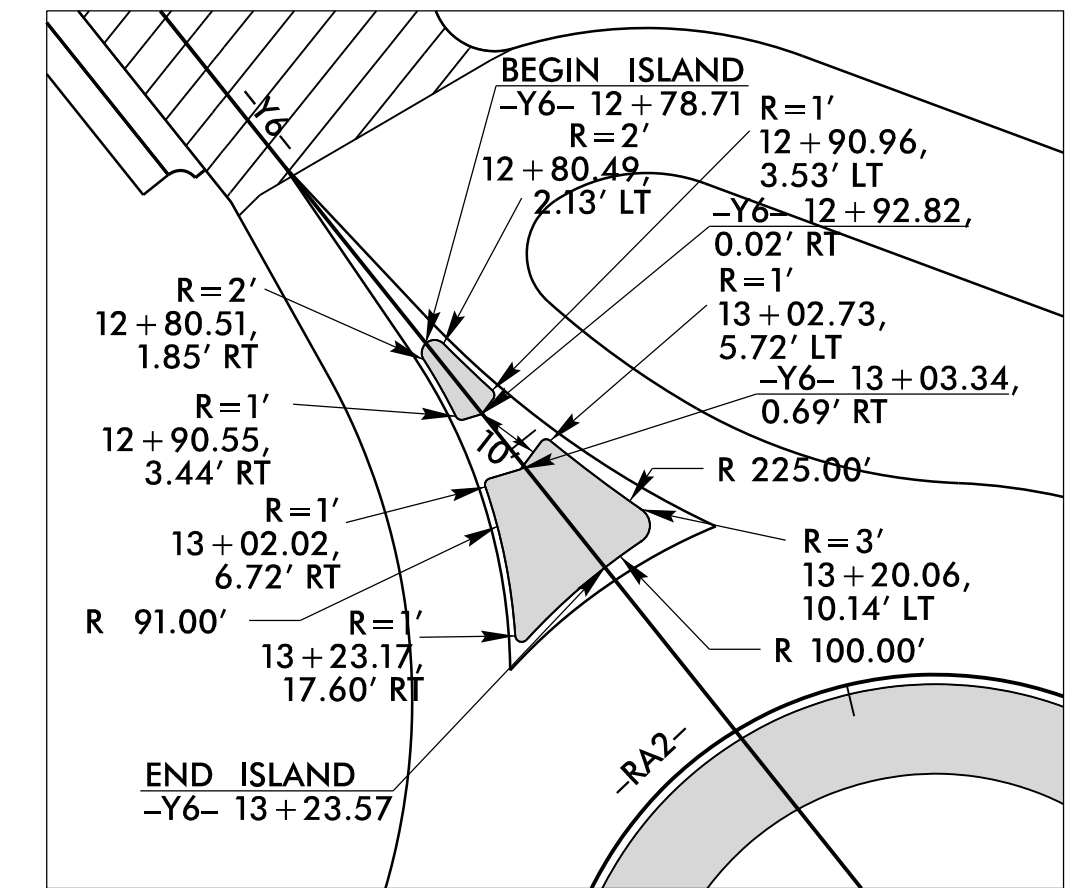
6/2/09

ROUNDBABOUT -RA2- DETAIL

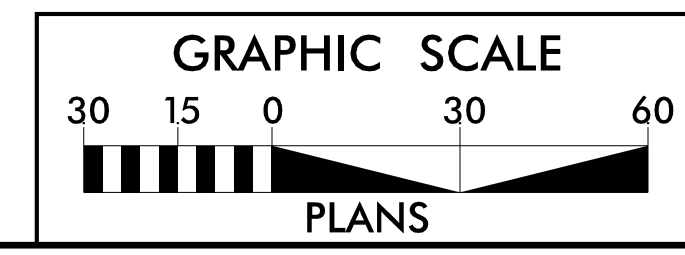
PROJECT REFERENCE NO. C-5621	SHEET NO. 2B-3
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

RS&H
 1520 SOUTH BOULEVARD, SUITE 200
 CHARLOTTE, NC 28203
 NC FIRM LICENSE No. F-0493

NAD 83/NA 2007



*** 4' MONOLITHIC CONCRETE ISLAND PLUS 1.0' WIDTH TO EOT**

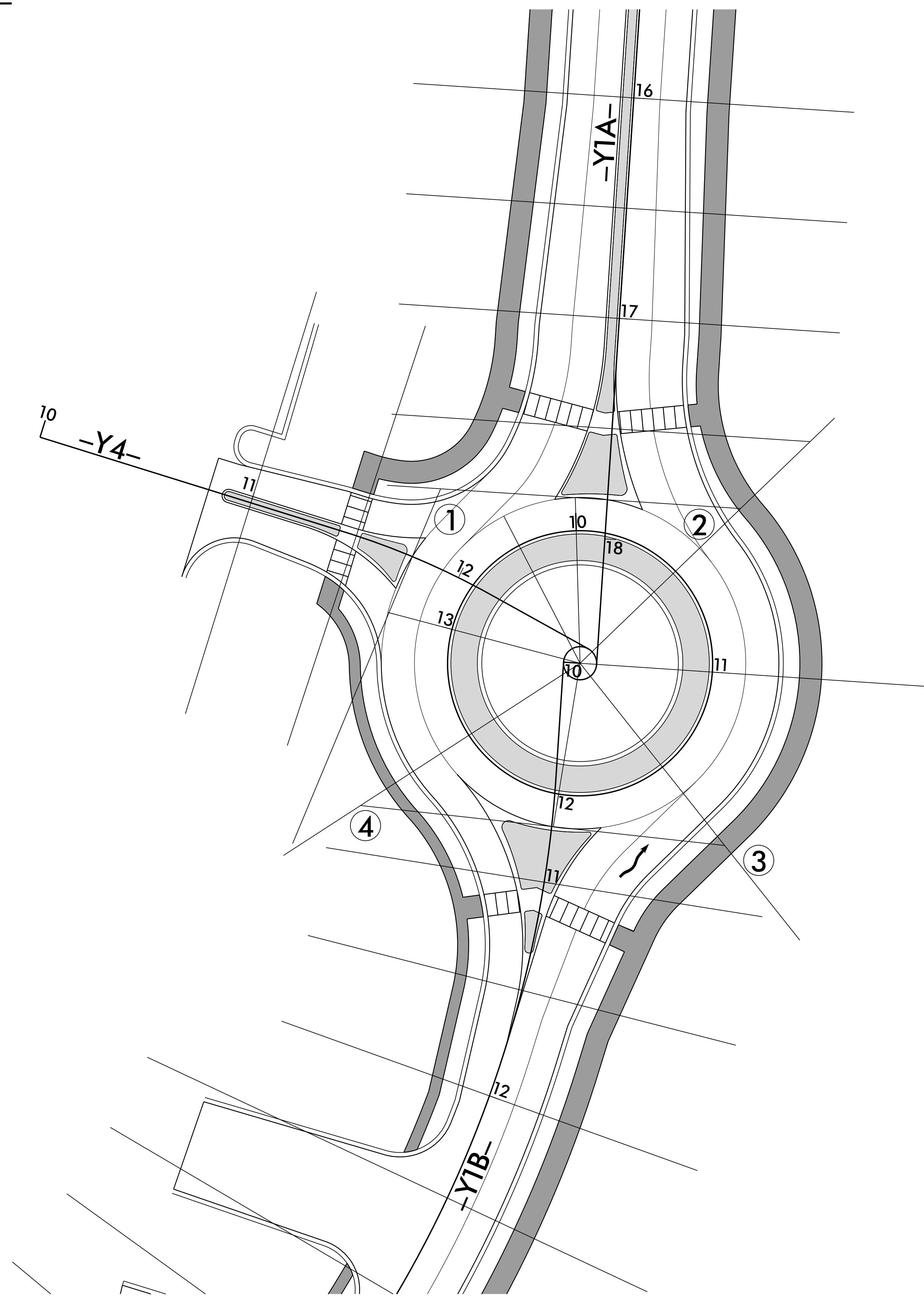


LOCATION: HOLIDAY LN. AND STERLING BAY LN. INTERSECTION	COUNTY: MECKLENBURG
TIP NO.: C-5621	DESIGNED BY: S. KORTOVICH, PE
CHECKED BY: J. FARINO, PE	DATE: 3/14/2023

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 J.FARINO

6/2/2023

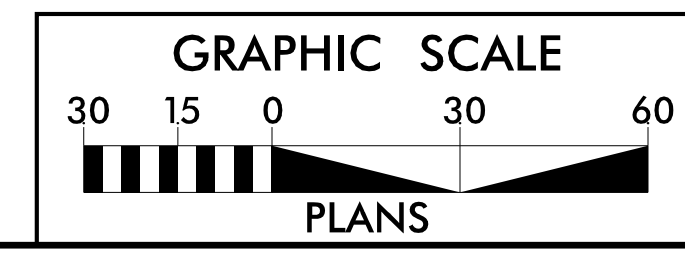
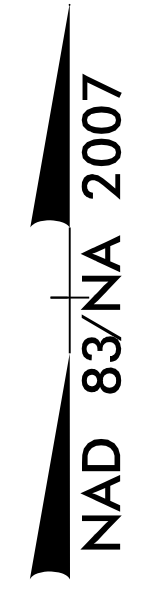
SHEAR POINT DIAGRAM -RA1-



PROJECT REFERENCE NO. C-5621	SHEET NO. 2B-4
ROADWAY DESIGN ENGINEER	

**DOCUMENT NOT CONSIDERED FINAL
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RS&H 1520 SOUTH BOULEVARD, SUITE 200
 CHARLOTTE, NC 28203
 NC FIRM LICENSE NO. F-0493



LOCATION: US 21 AND PARKING LOT INTERSECTION	
TIP NO.: C-5621	COUNTY: MECKLENBURG
DESIGNED BY: S. KORTOVICH, PE	
CHECKED BY: J. FARINO, PE	DATE: 3/14/2023

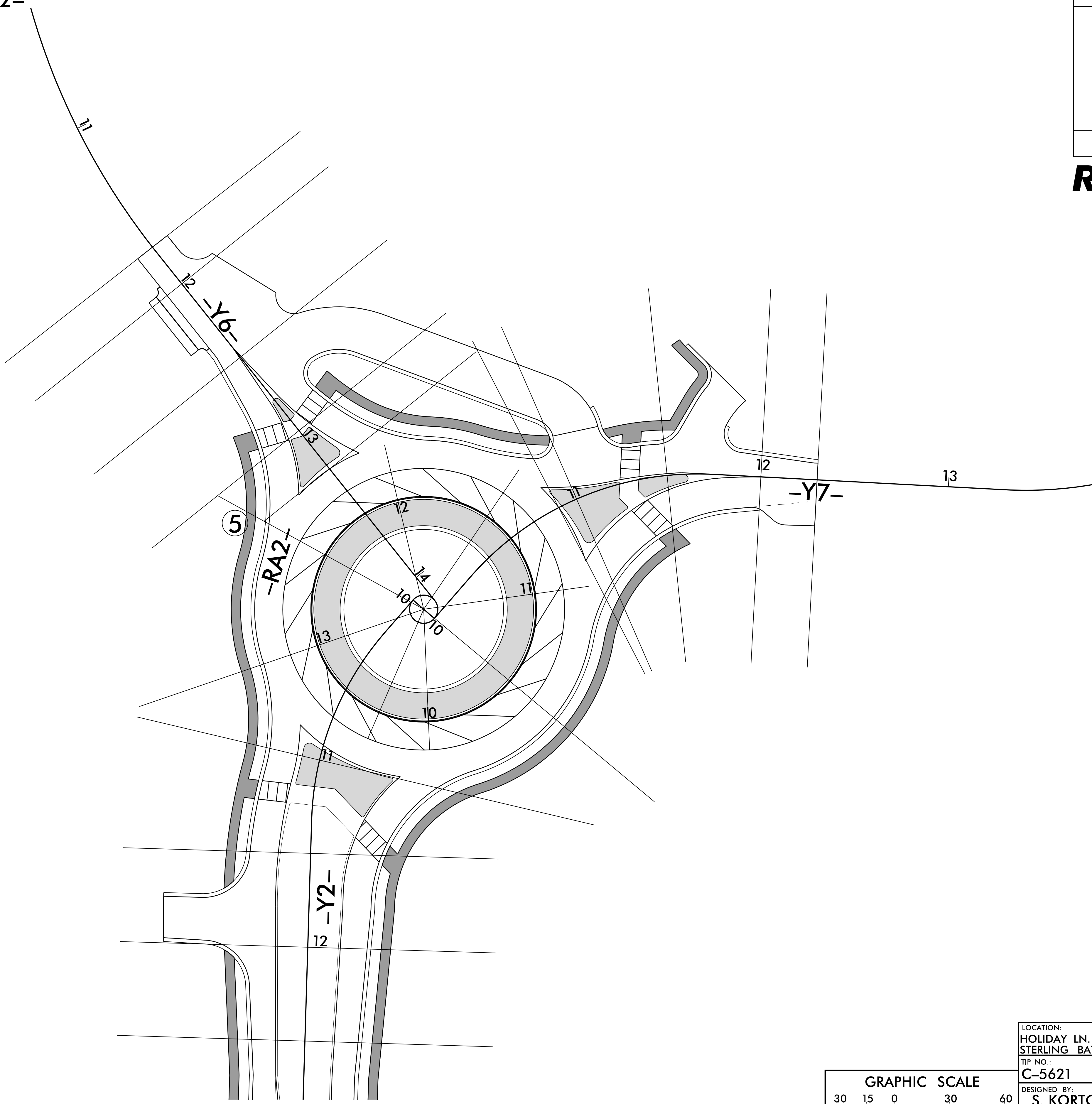
6/2/2019

SHEAR POINT DIAGRAM -RA2-

PROJECT REFERENCE NO. C-5621	SHEET NO. 2B-5
ROADWAY DESIGN ENGINEER	

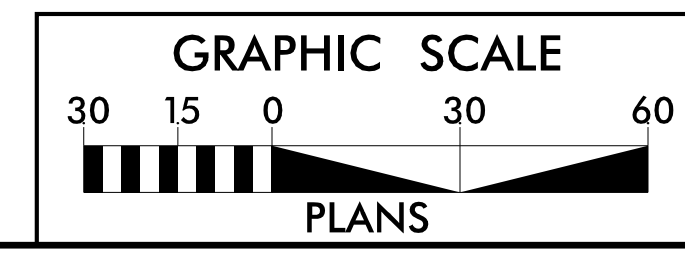
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

RS&H 1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493



NAD 83/NA 2007

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LOCATION: HOLIDAY LN. AND STERLING BAY LN. INTERSECTION	
TIP NO.: C-5621	COUNTY: MECKLENBURG
DESIGNED BY: S. KORTOVICH, PE	
CHECKED BY: J. FARINO, PE	DATE: 3/14/2023

8/17/99

-DRIVE1- DETOUR

-DRIVE1- CURVE DATA

PI Sta 10+53.39	PI Sta 11+00.09
$\Delta = 54^{\circ} 32' 57.6" (LT)$	$\Delta = 44^{\circ} 36' 48.2" (RT)$
$D = 95^{\circ} 29' 34.7"$	$D = 114^{\circ} 35' 29.6"$
$L = 57.12'$	$L = 38.93'$
$T = 30.93'$	$T = 20.51'$
$R = 60.00'$	$R = 50.00'$
SE = STOP CONDITION	SE = STOP CONDITION
RO = STOP CONDITION	RO = STOP CONDITION

-DRIVE1-



BEGIN GRADE -DRIVE1-
 STA. 10+25.00
 ELEV = 798.82'

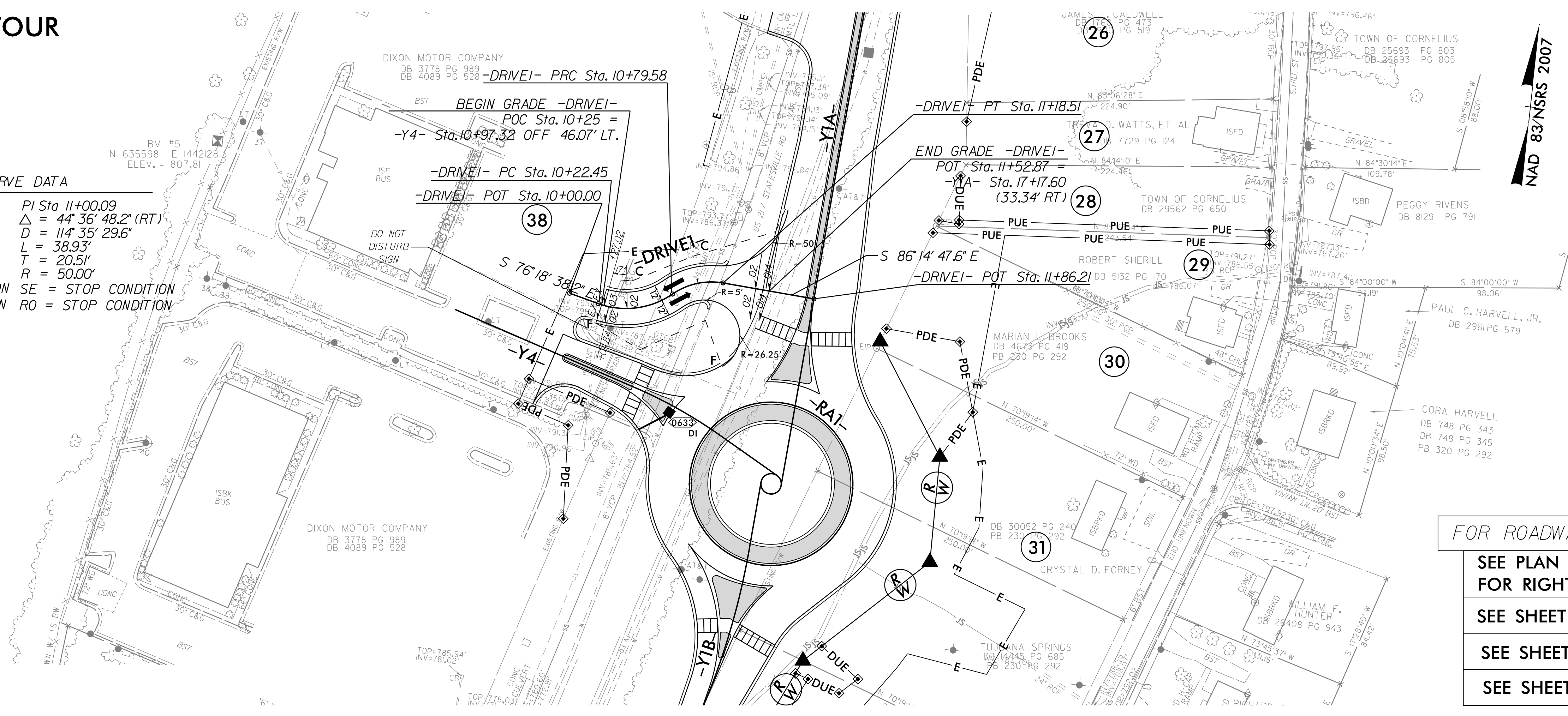
END GRADE -DRIVE1-
 STA. 11+52.87
 ELEV = 794.25'
 -Y1A- STA. 17+17.60
 OFF 33.34' RT.

PI = 10+50.00
 EL = 798.32'
 VC = 50'
 K = 6
 DS = 19 MPH

PI = 11+07.00
 EL = 792.42'
 VC = 50'
 K = 4
 DS = 15 MPH

PROPOSED GRADE
 EXISTING GROUND

FOR ROADWAY PLANS, SEE SHEET 6
 SEE PLAN SHEETS RW04, RW05, RW06
 FOR RIGHT OF WAY INFORMATION
 SEE SHEET 7 FOR -Y1A- PROFILE
 SEE SHEET 8 FOR -Y1B- PROFILE
 SEE SHEET 9 FOR -Y4- PROFILE



NAD 83/NSRS 2007

PROJECT REFERENCE NO. C-5621	SHEET NO. 2B-6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 030952 9/20/2023	HYDRAULICS ENGINEER SEAL 049764
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

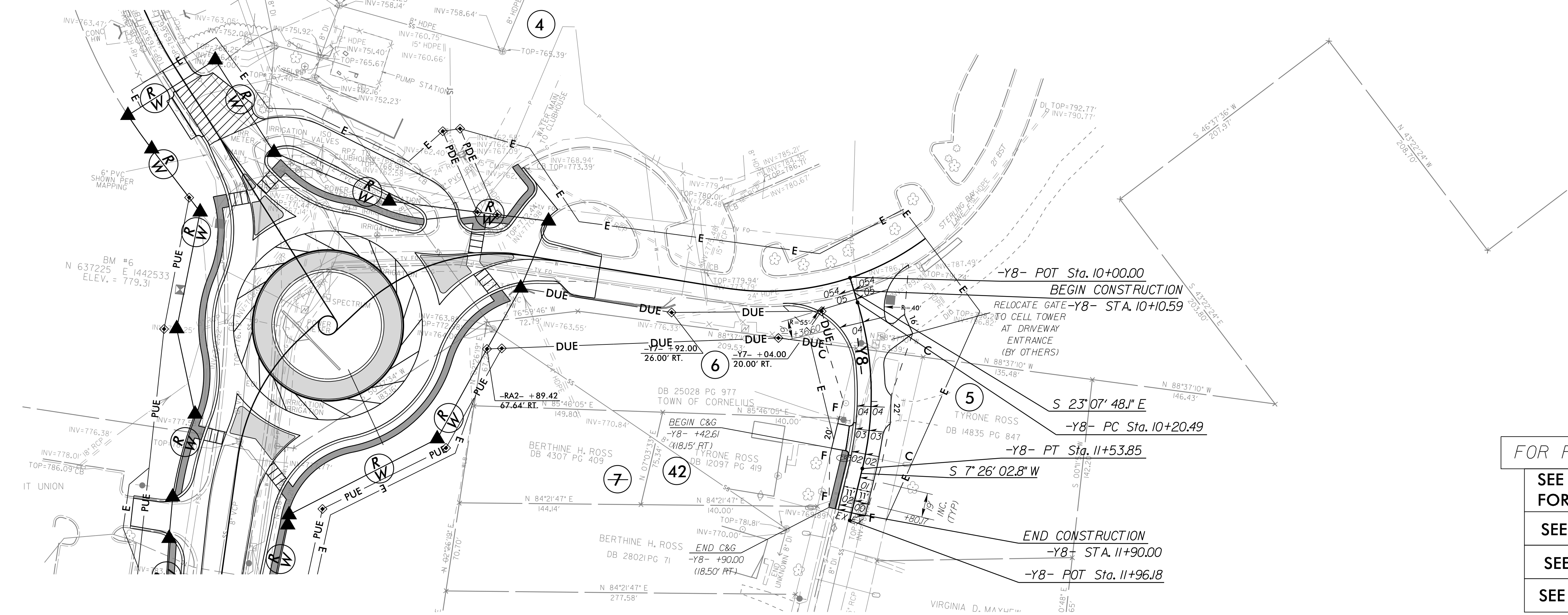
RS&H 1520 SOUTH BOULEVARD, SUITE 200
 CHARLOTTE, NC 28203
 NC FIRM LICENSE No: F-0493

REVISIONS

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8/17/99

-Y8- DETOUR



NAD 83/NSRS 2007

PROJECT REFERENCE NO. C-5621	SHEET NO. 2B-7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 030952 ENGINEER D. FARRIS	HYDRAULICS ENGINEER SEAL 049764 ENGINEER A. VISSO
9/20/2023	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FOR ROADWAY PLANS, SEE SHEET 5
 SEE PLAN SHEETS RW04, RW05, RW06 FOR RIGHT OF WAY INFORMATION
 SEE SHEET 8 FOR -Y2- PROFILE
 SEE SHEET 9 FOR -Y6- PROFILE
 SEE SHEET 10 FOR -Y7- PROFILE


REVISIONS



18-SEP-2023 14:34 R:\Roadway\Projects\C-5621\Rdw\psh_Y8.dgn

5/14/2007

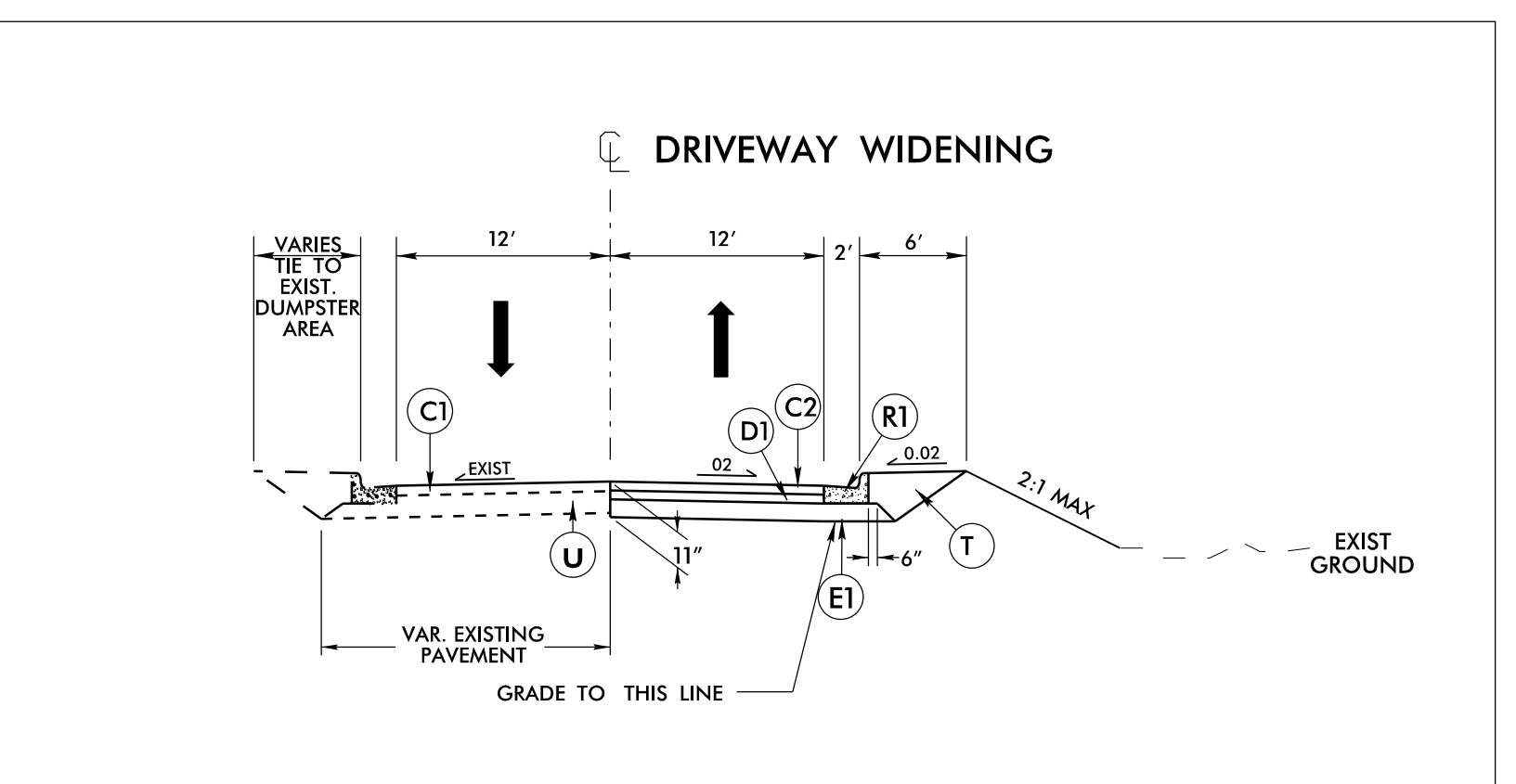
DRIVEWAY WIDENING DETAIL

PROJECT REFERENCE NO. <i>C-5621</i>	SHEET NO. <i>2B-8</i>
ROADWAY DESIGN ENGINEER	
	

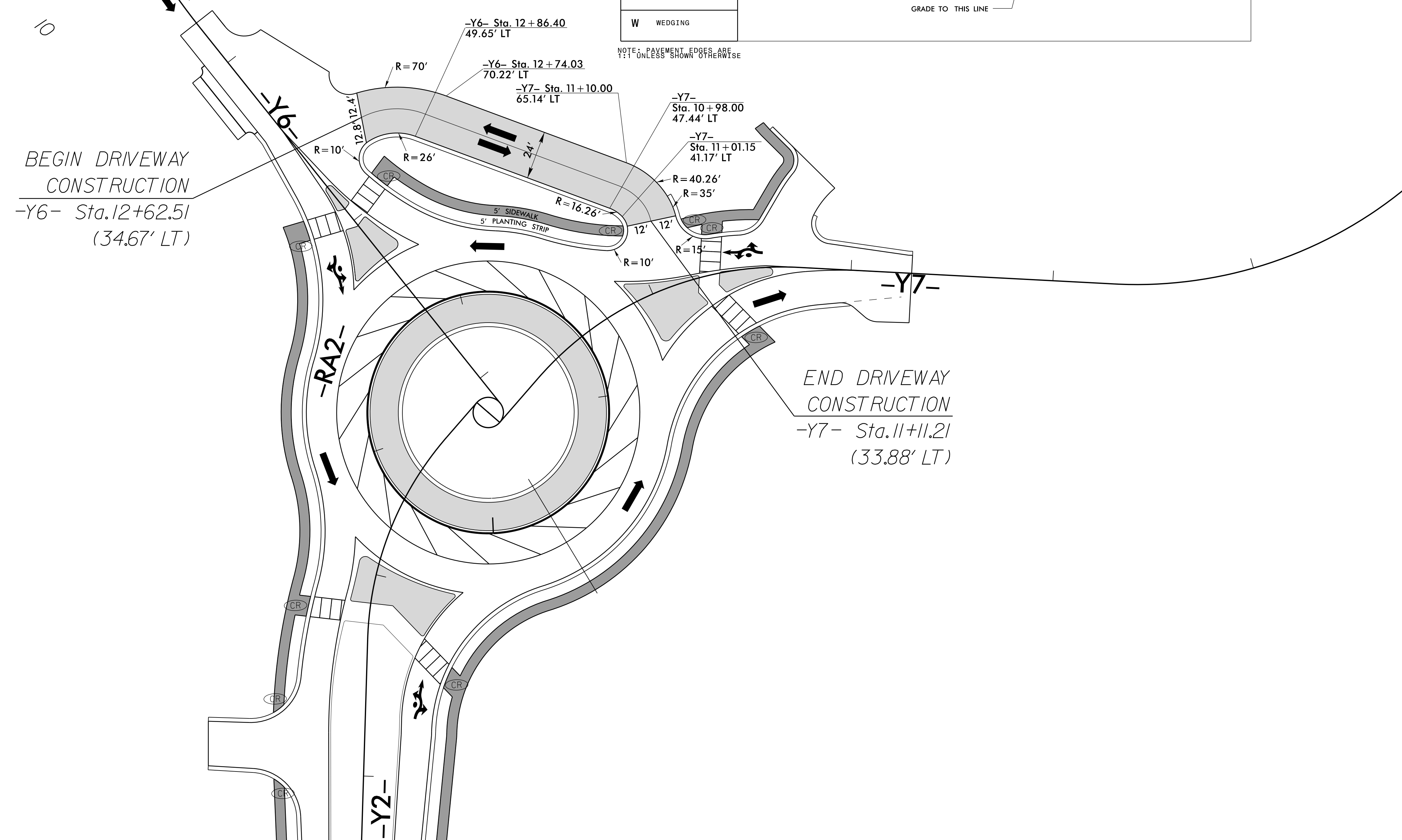
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

RS&H 1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

PAVEMENT SCHEDULE	
C1	1.5" S9.5C
C2	3" S9.5C
D1	4" I19.0C
E1	4" B25.0C
R1	2'-6" C&G
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

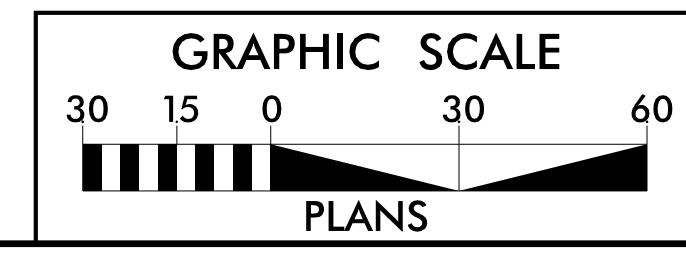


NOTE: PAVEMENT EDGES ARE 1:1 UNLESS SHOWN OTHERWISE



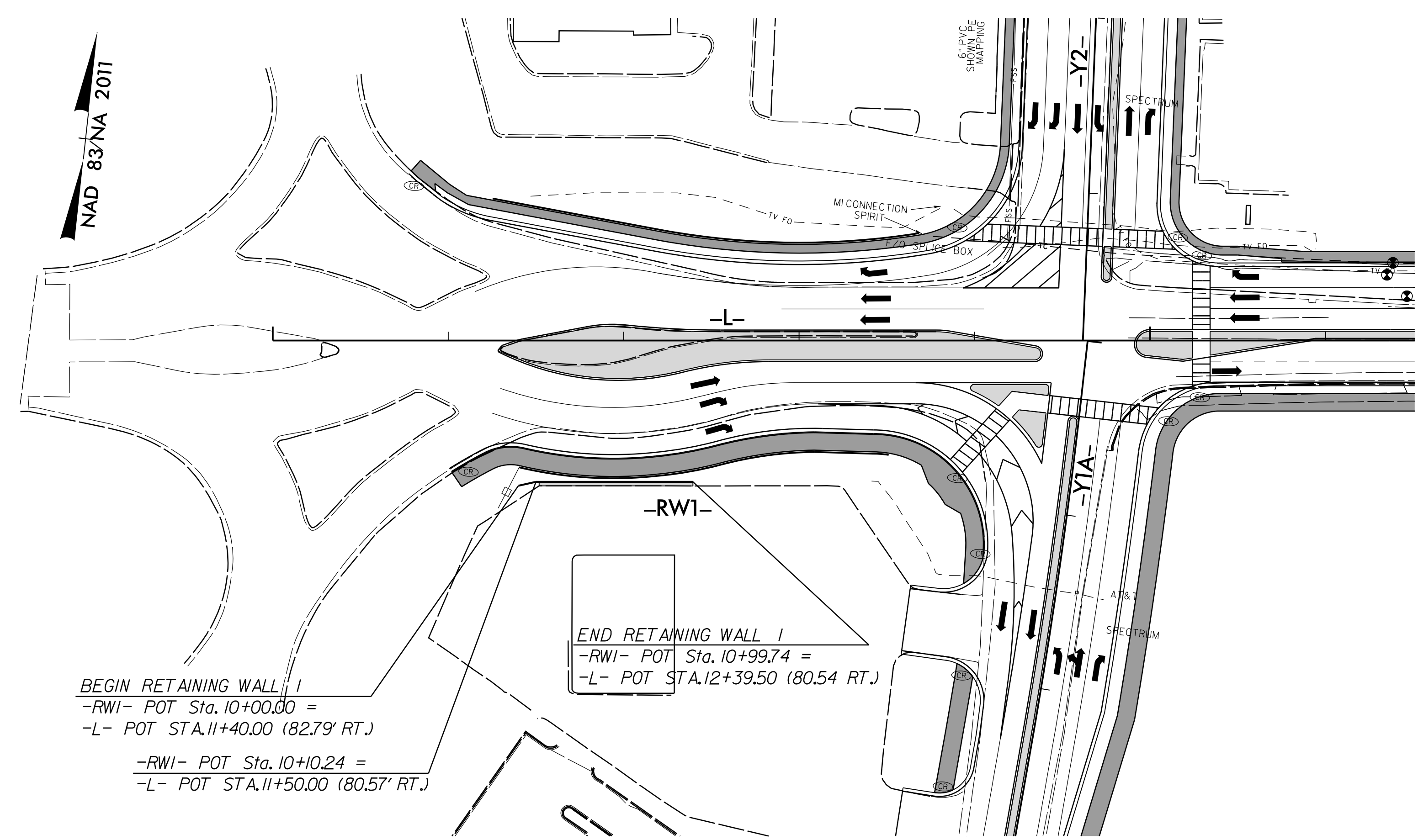
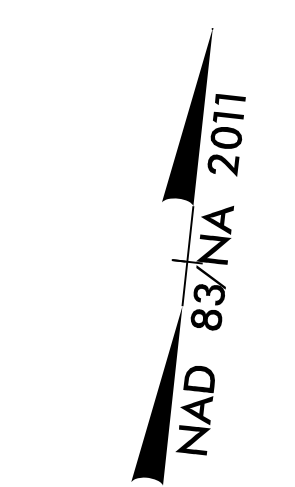
NAD 83/NA 2007

LOCATION: HOLIDAY LN. AND STERLING BAY LN. INTERSECTION	COUNTY: MECKLENBURG
TIP NO.: C-5621	DESIGNED BY: S. KORTOVICH, PE
CHECKED BY: J. FARINO, PE	DATE: 3/14/2023



R:\Roadway\2007\1415\RDY_dumpster_detail_2B8.dgn

8/17/99



BEGIN RETAINING WALL #1
-RW1- POT Sta. 10+00.00 =
-L- POT STA. 11+40.00 (82.79' RT.)

-RW1- POT Sta. 10+10.24 =
-L- POT STA. 11+50.00 (80.57' RT.)

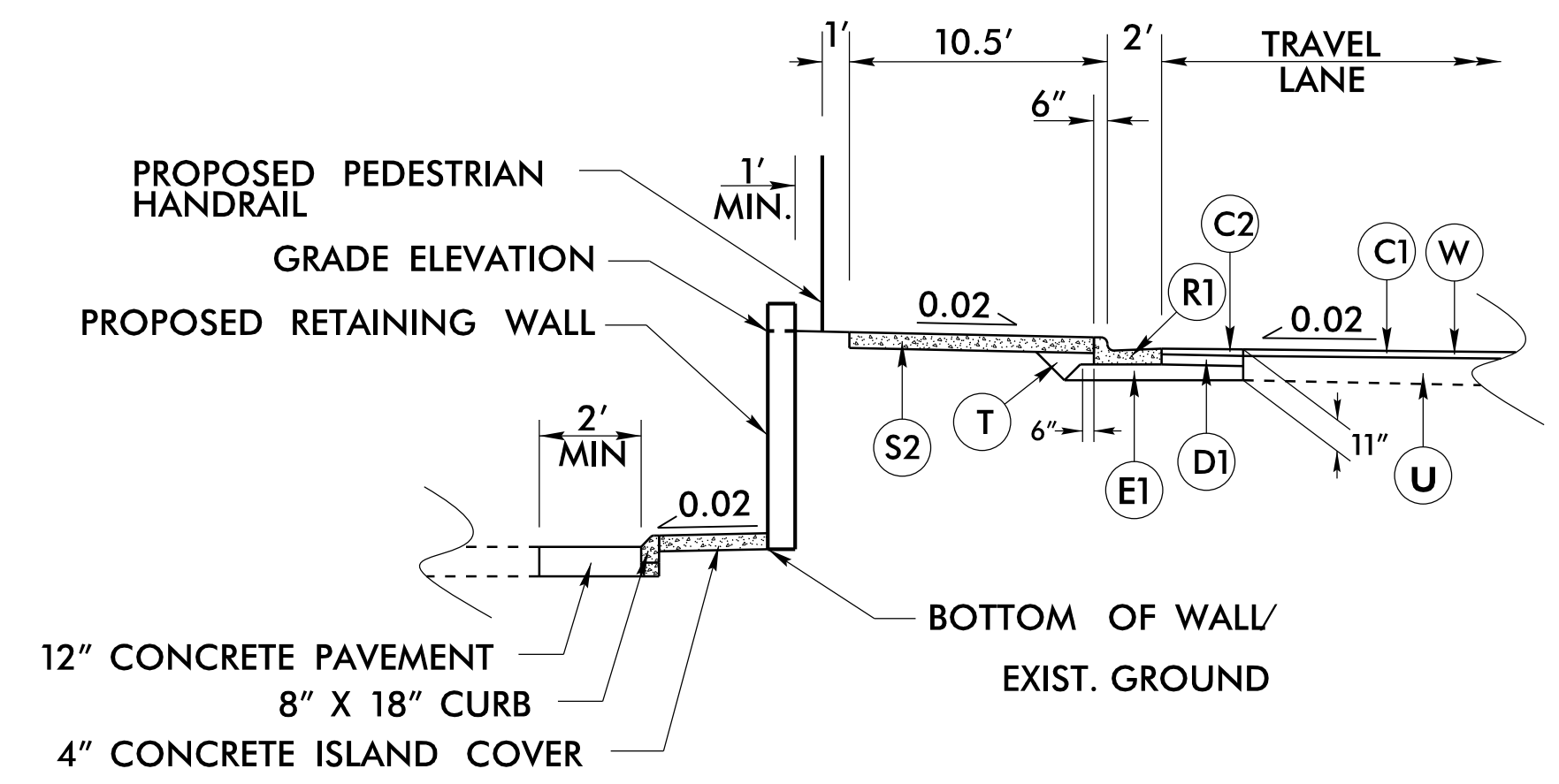
END RETAINING WALL #1
-RW1- POT Sta. 10+99.74 =
-L- POT STA. 12+39.50 (80.54 RT.)

RETAINING WALL -RW1- DETAIL

PAVEMENT SCHEDULE			
C1	1.5" S9.5B	S2	4" MULTI-USE PATH
C2	3" S9.5CB	T	EARTH MATERIAL.
D1	4" I19.0C	U	EXISTING PAVEMENT.
E1	4" B25.0C	W	WEDGING
R1	2'-6" C&G		

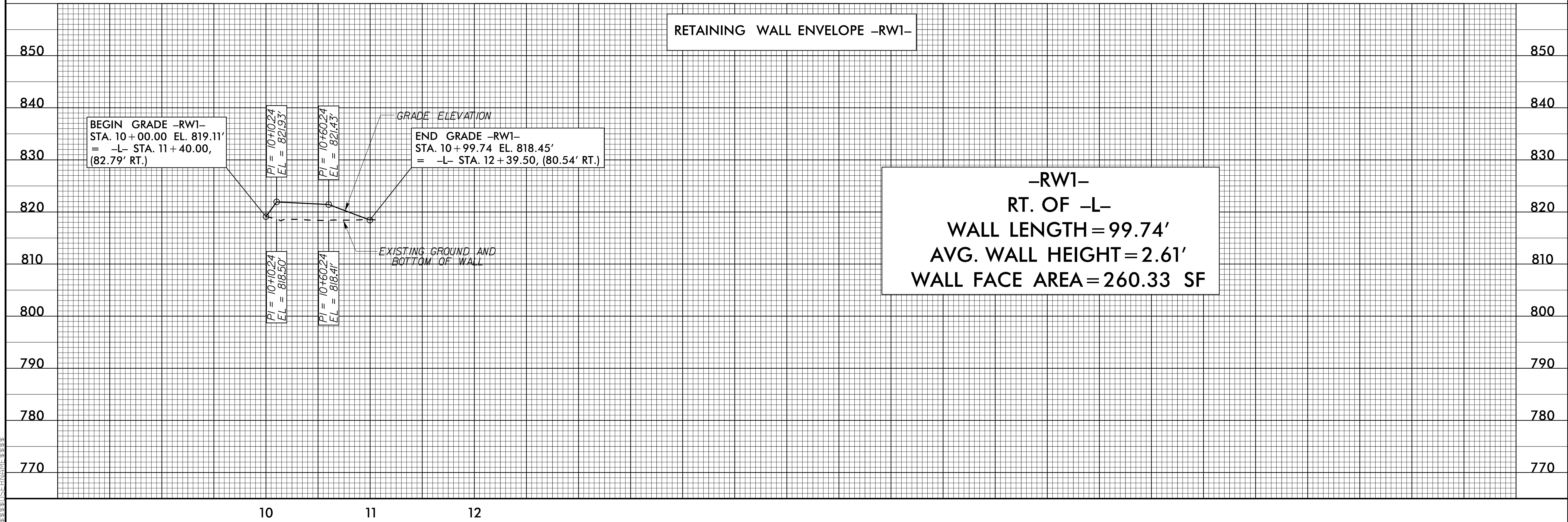
PROJECT REFERENCE NO. C-5621	SHEET NO. 2B-9
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	

RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493



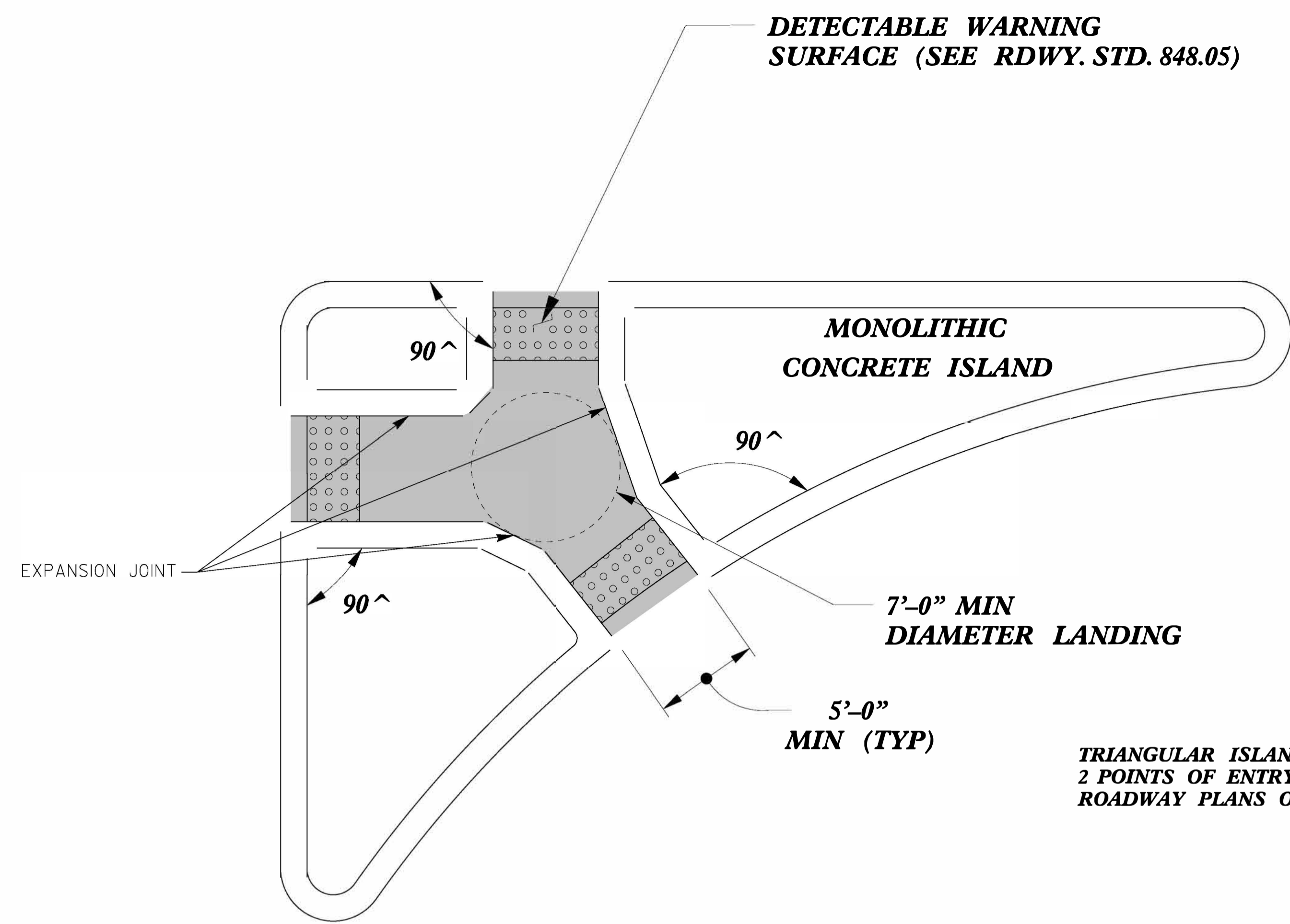
SECTION THROUGH RETAINING WALL
-RW1- STA. 10+00.00 TO -RW1- STA. 10+99.74

REPLACE 8"X18" CURB FROM -RW1- STA. 10+12.06 TO -RW1- STA. 10+99.74



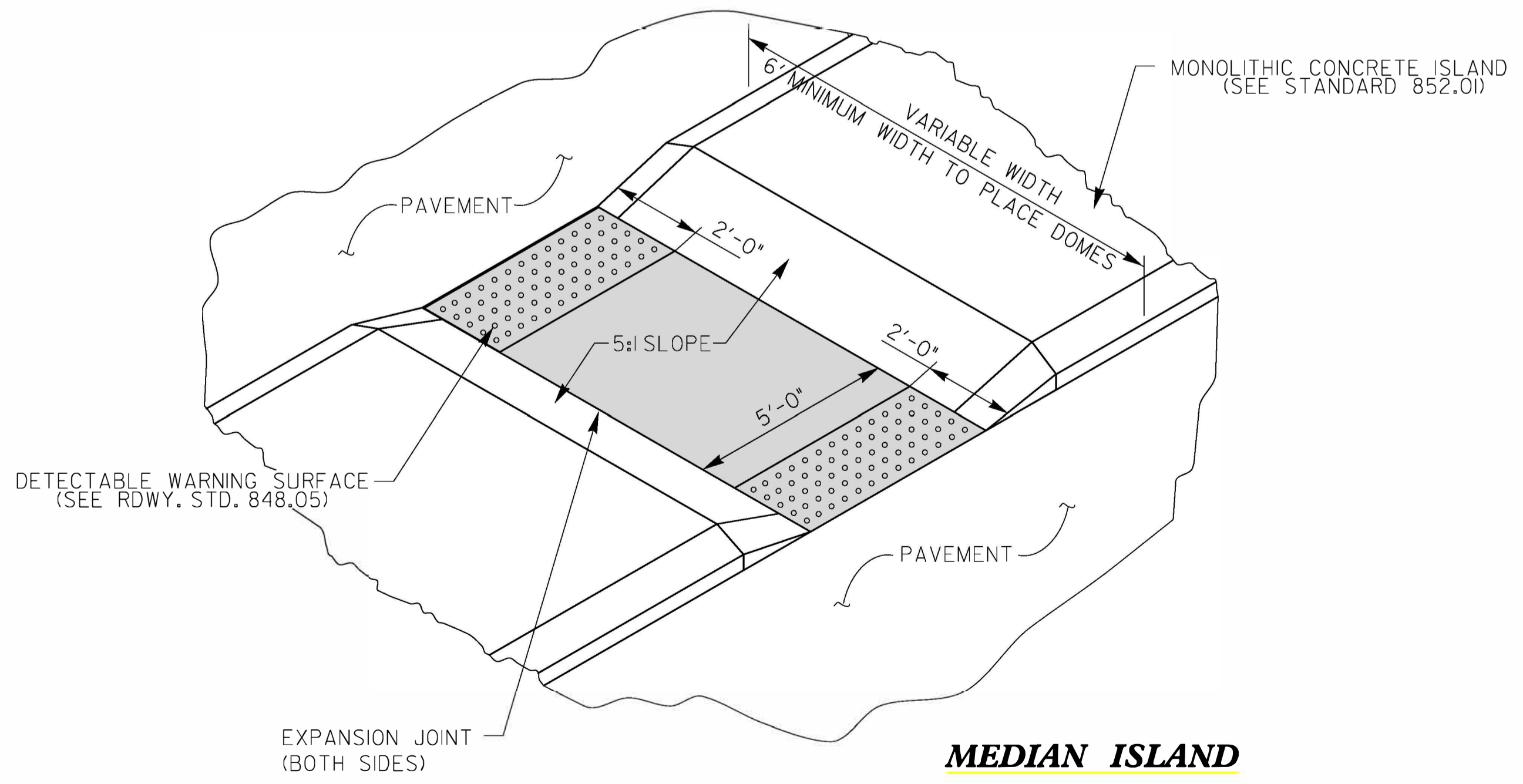
20-SEP-2023 10:10 AM P:\P\03\211810_C-5621-Rdw_psh_retwal1.dgn

**PAY LIMITS FOR 2 OR 3 CURB RAMPS
(CALCULATE BASED ON NUMBER OF
SETS OF TRUNCATED DOMES)**

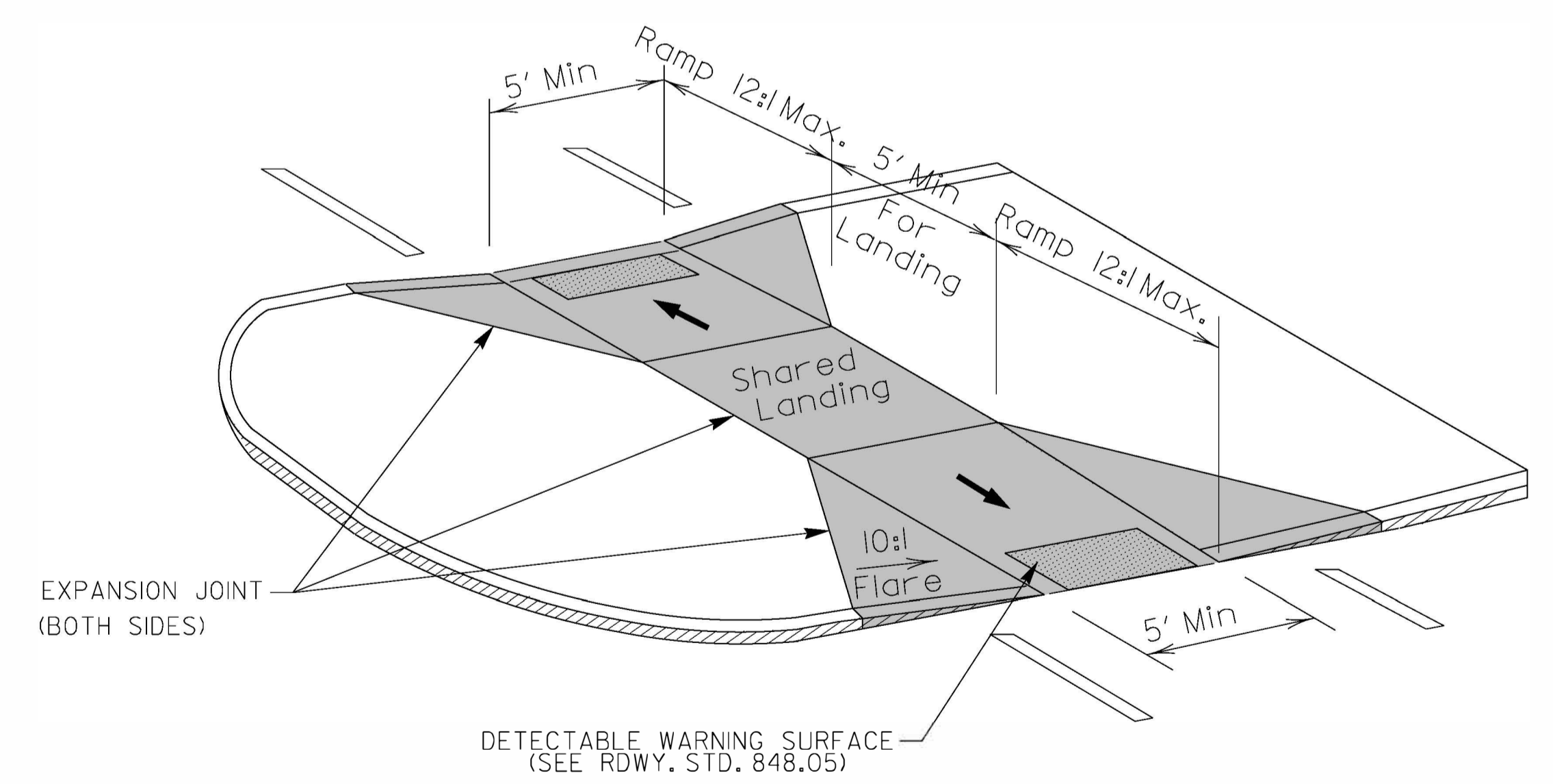


**TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY
2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE
ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.**

**TRIANGULAR ISLAND
WITH CUT THROUGH
TYPE 6**



**MEDIAN ISLAND
WITH CUT THROUGH
TYPE 7**



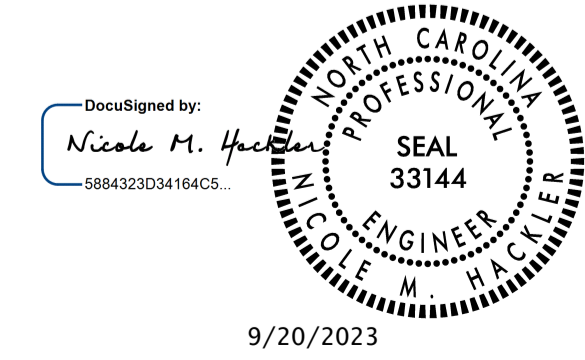
**MEDIAN ISLAND
CURB RAMPS
TYPE 8**

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

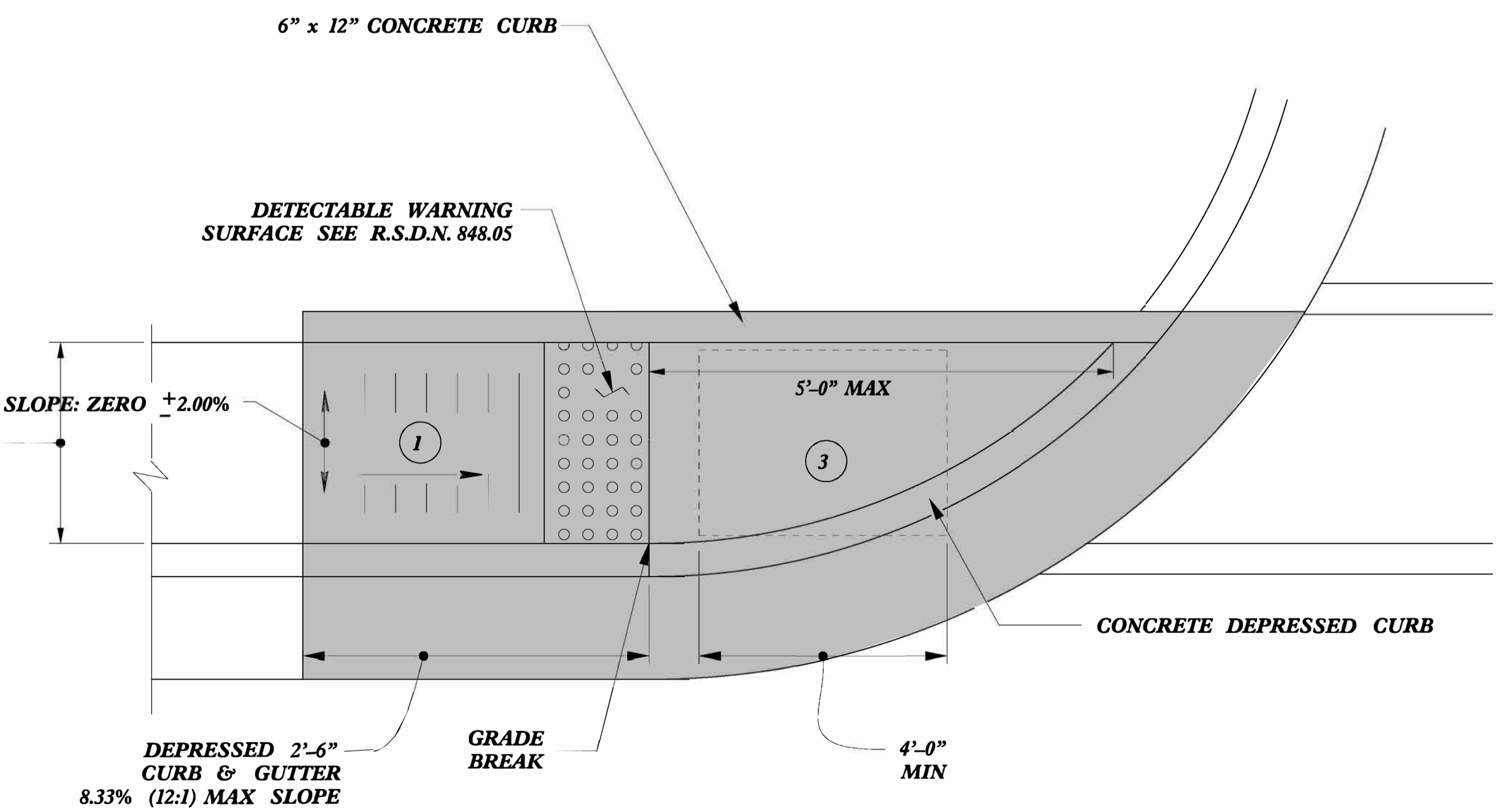
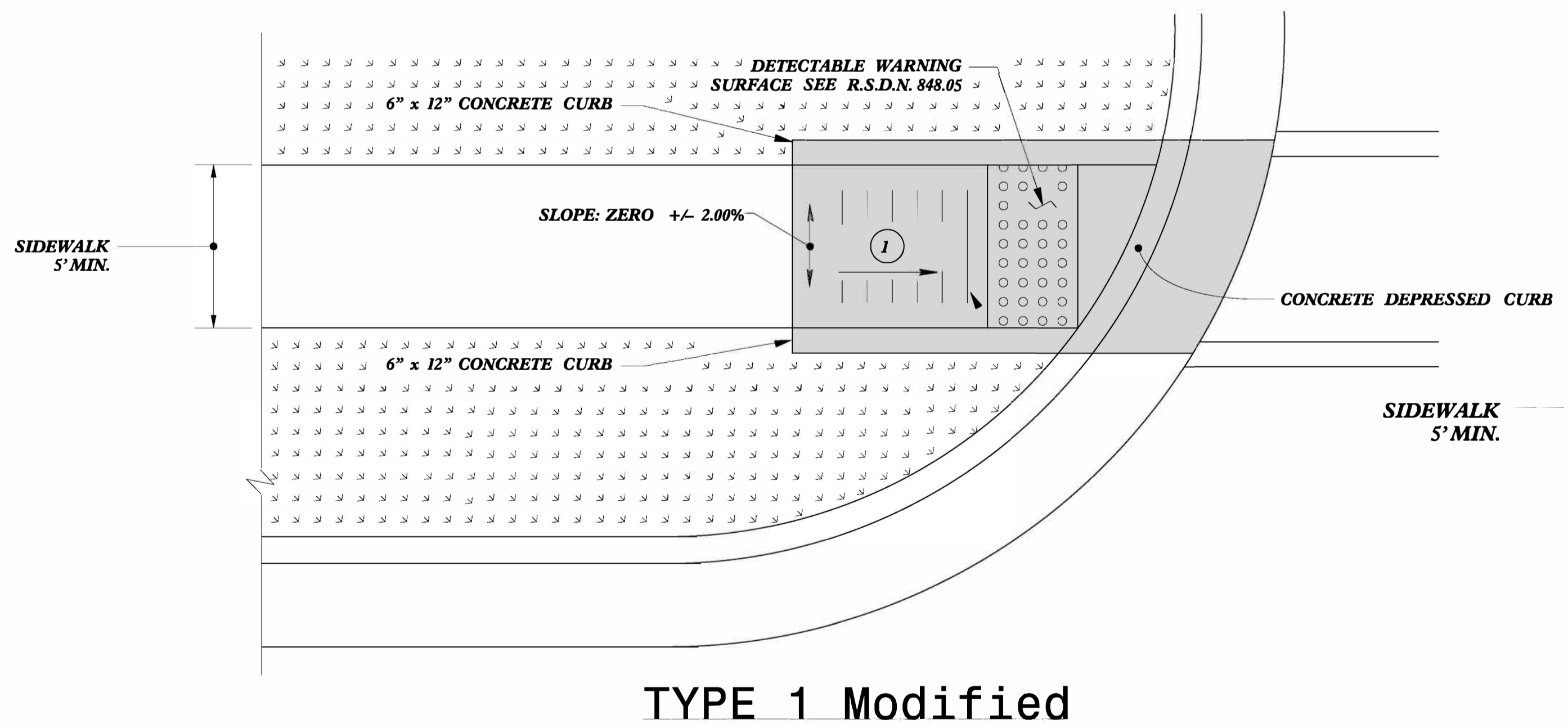
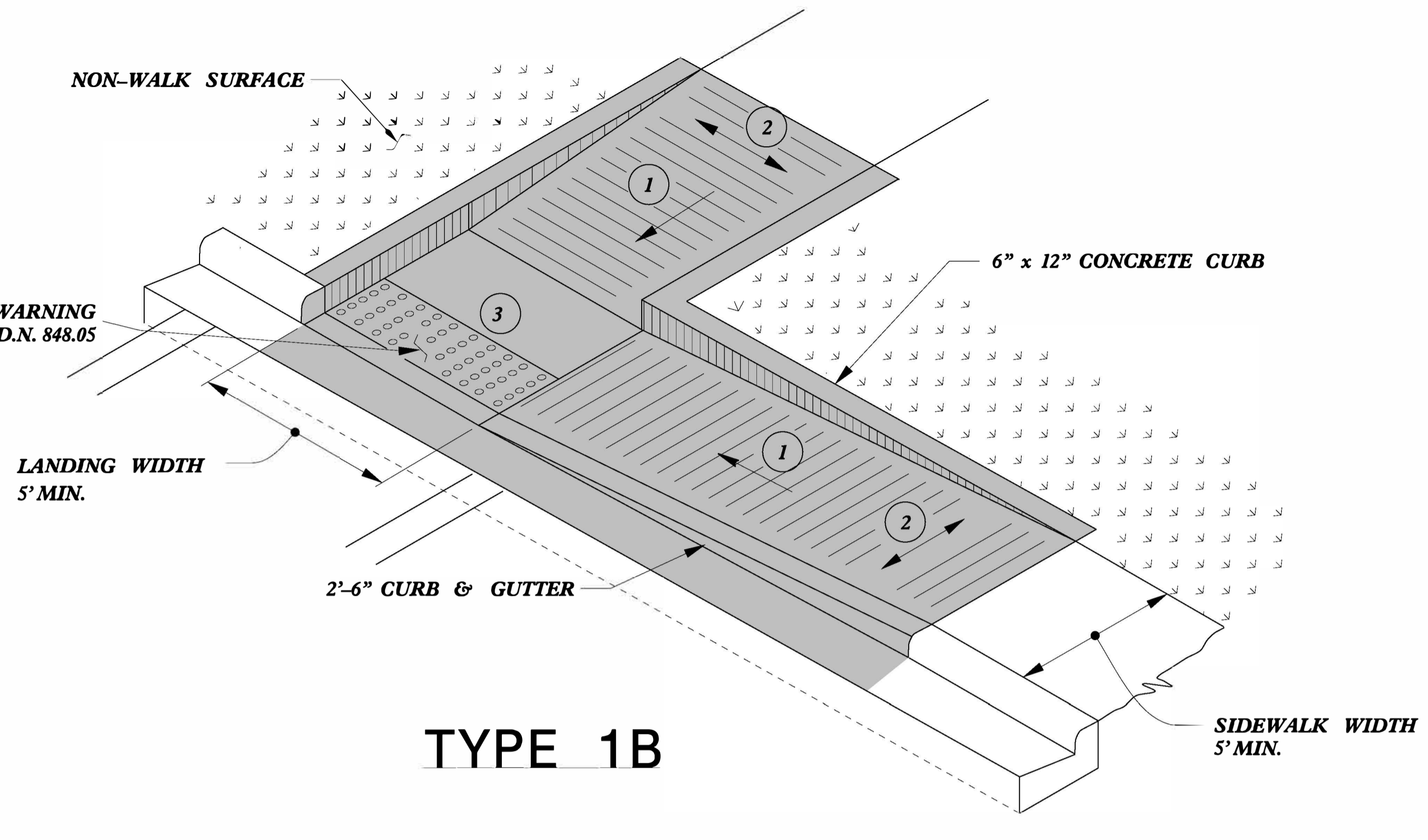
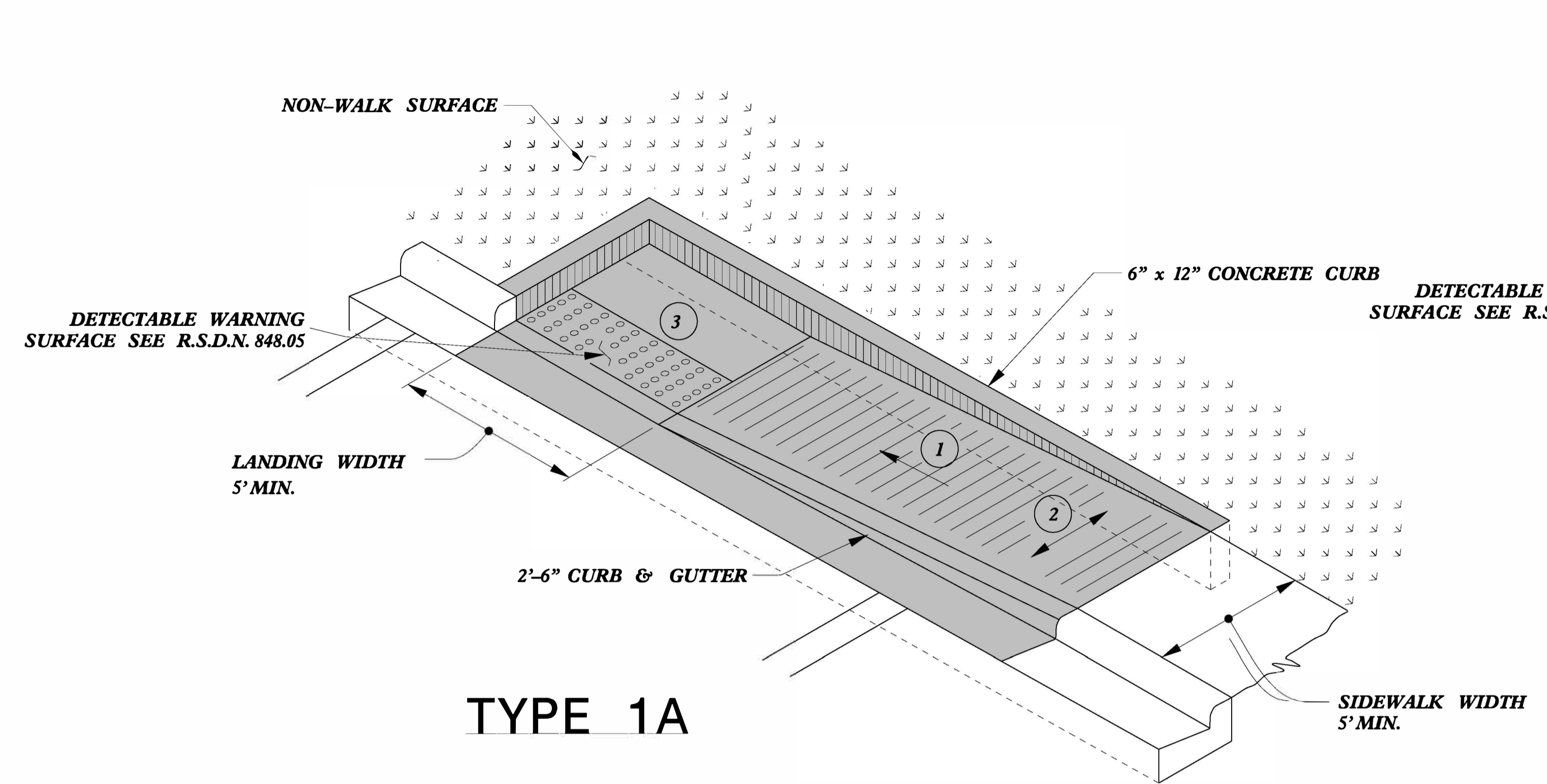
**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS
Median or Turn Lane Islands

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn



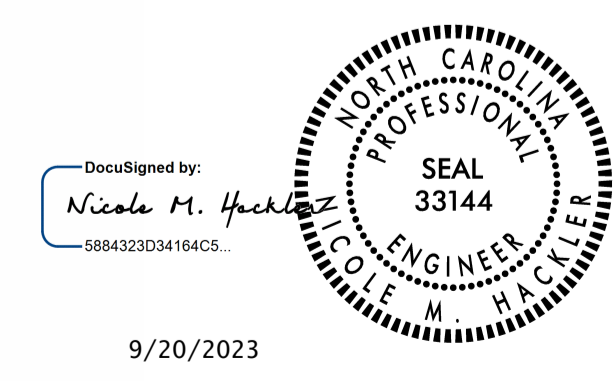
5/14/99
SYTIME
CONSTRUCTION
SURNAME



- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR 1 CURB RAMP

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES



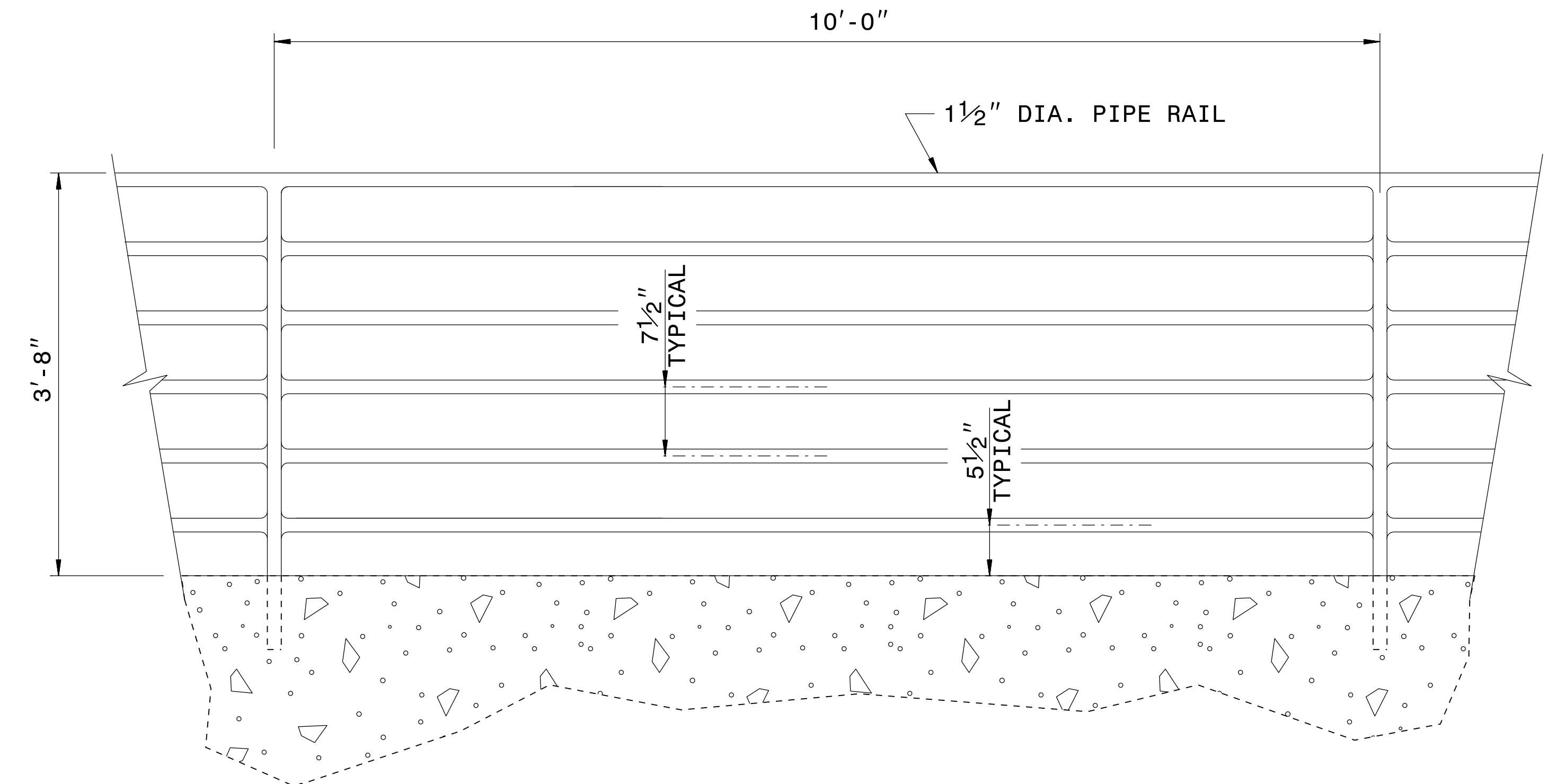
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

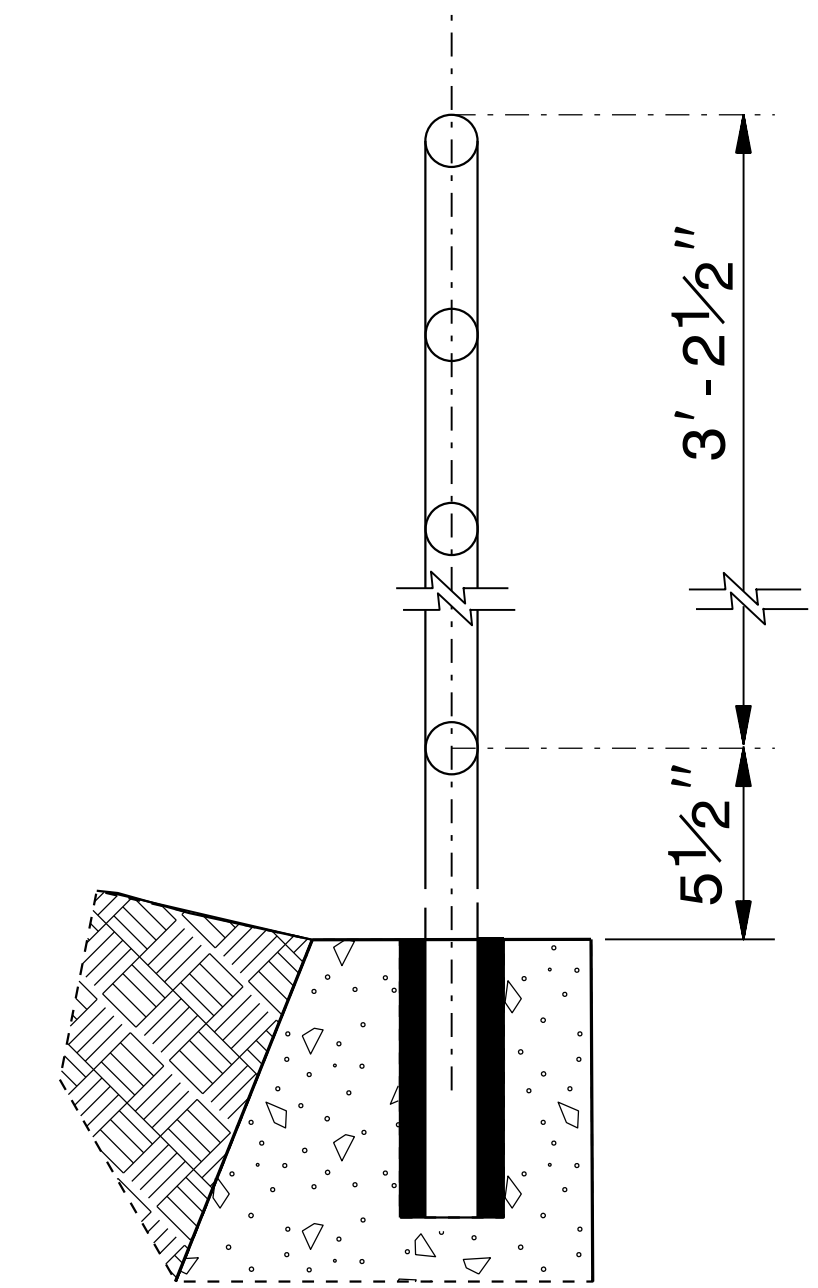
CURB RAMPS
Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn

5/14/99



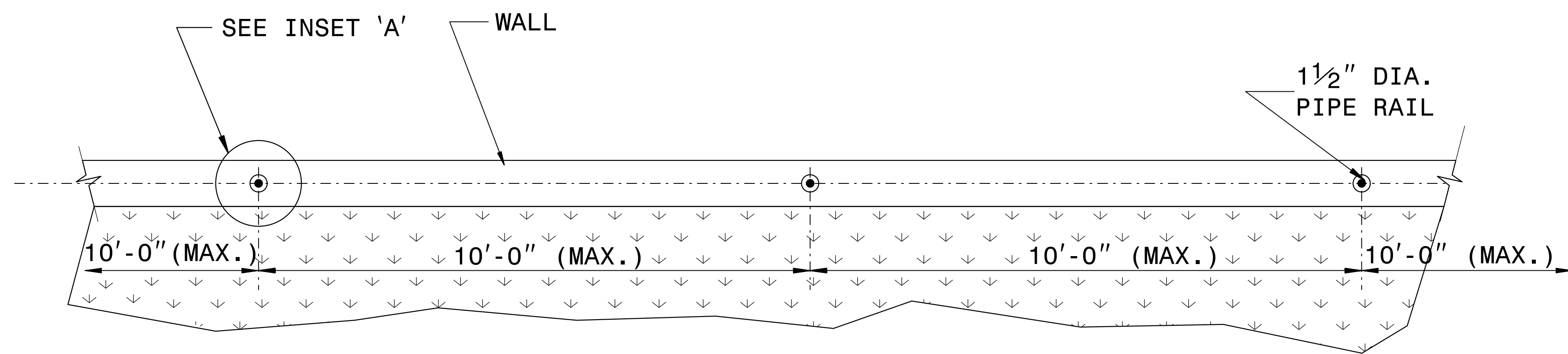
ELEVATION OF HANDRAIL



INSET 'A'

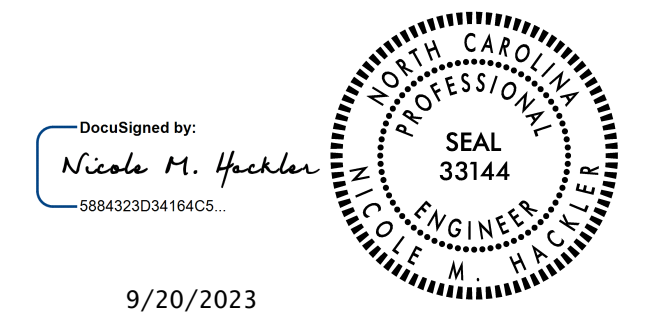
NOTES:

- CONSTRUCT PROPOSED STEEL PIPE RAIL 1 1/2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.
- EMBED PIPE RAIL INTO PROPOSED WALL WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM PER THE WALL MANUFACTURER'S RECOMMENDATIONS.
- REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.
- PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.
- CENTER THE PROPOSED RAILING ON TOP OF THE WALL WITH POST SPACING SYMMETRICAL ABOUT THE CENTER-LINE OF THE WALL.
- WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.
- SUBMIT THE ATTACHMENT OF THE HANDRAIL TO THE RETAINING WALL TO THE CONTRACTS AND STANDARDS OFFICE FOR APPROVAL.



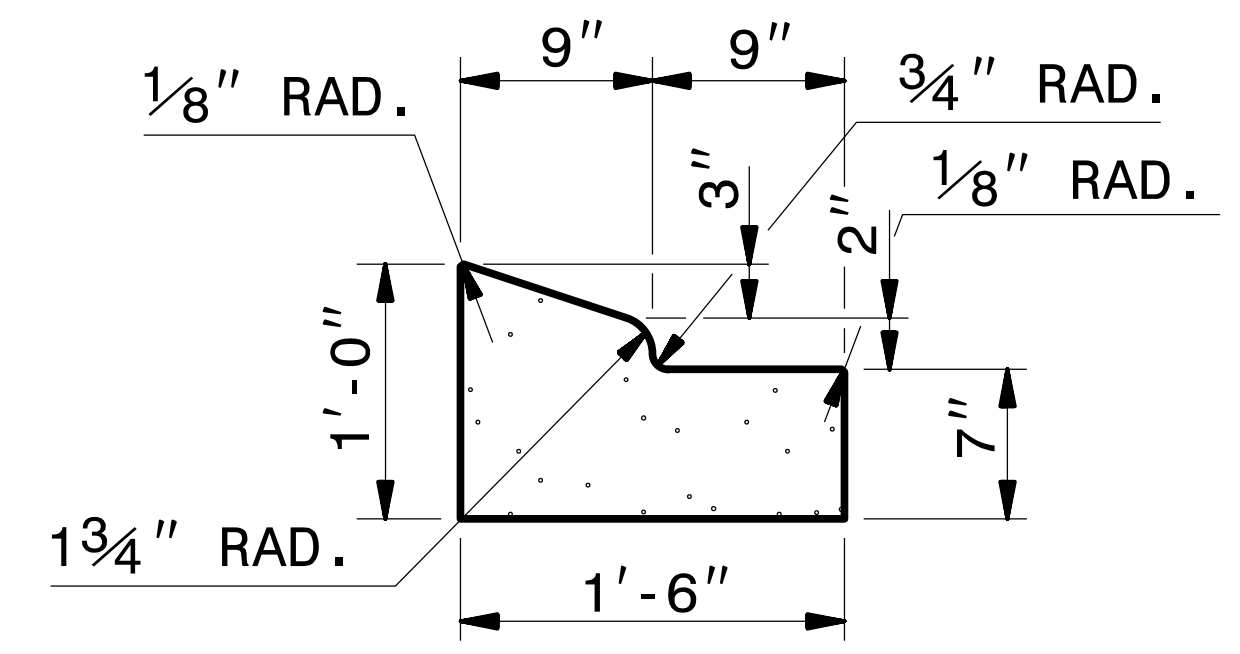
PLAN VIEW

24-MAY-2018 14:10 S:\Contracts\Special Details\Howerton\Handrail on Retaining Wall.dgn jhowerton AT USD-292595



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

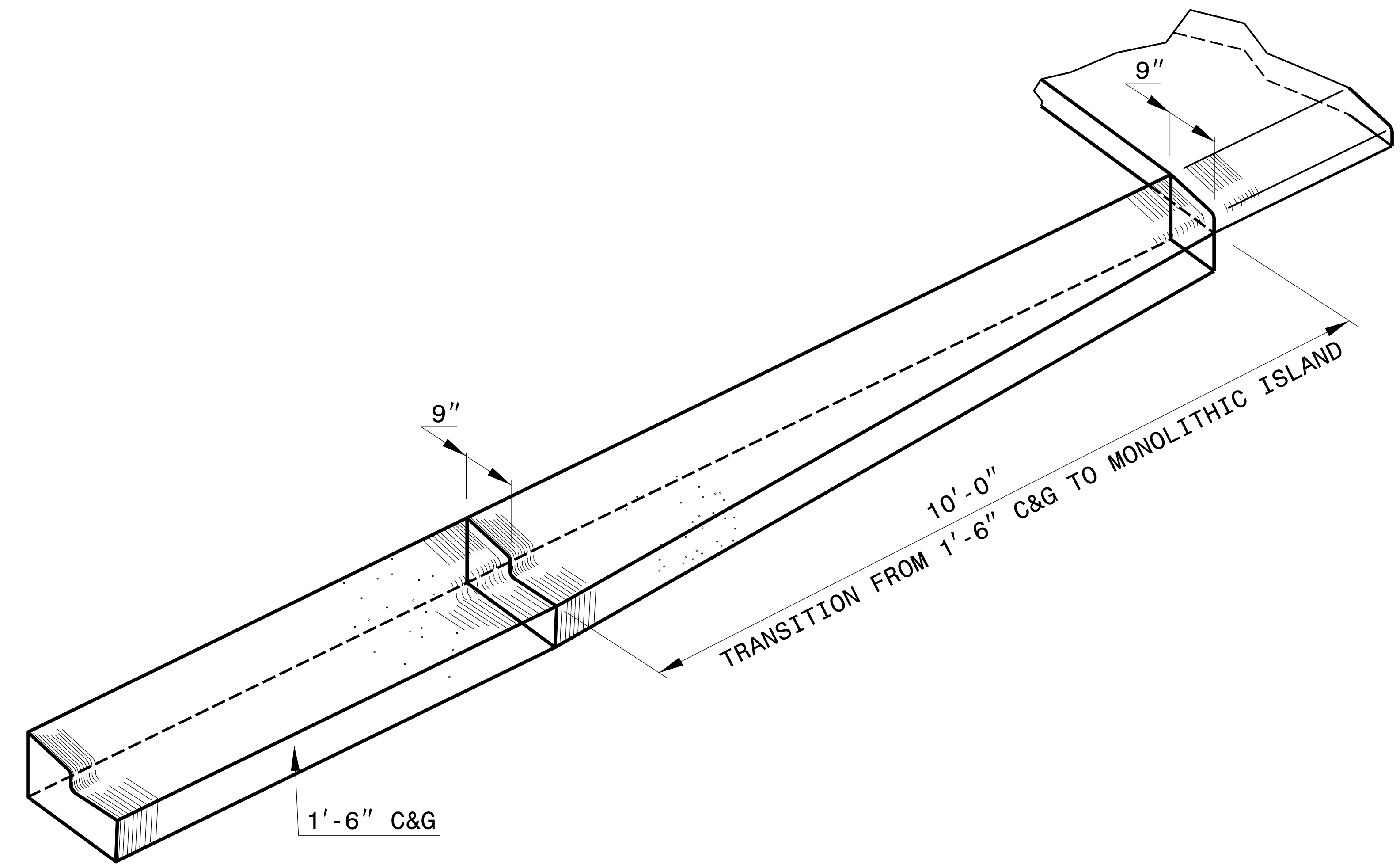
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
DETAIL OF PIPE HANDRAIL MOUNTED ON A WALL	
ORIGINAL BY: E.E. WARD	DATE: 12-99
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: jhowerton/handrail_on_retaining_wall.dgn	



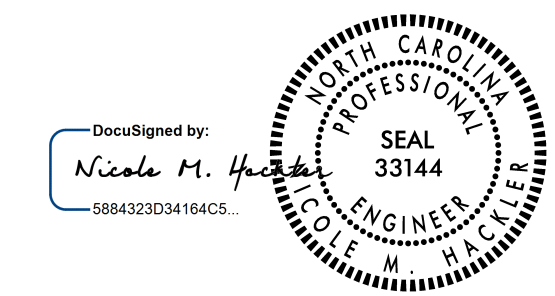
NOTE: SEE STD. DWG. 846.01 FOR ADDITIONAL CURB AND GUTTER INFORMATION.

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.

1'-6" CURB AND GUTTER



**ISOMETRIC VIEW OF
TRANSITIONING CURB & GUTTER**



9/20/2023

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

**DETAIL OF 1'-6"
CURB & GUTTER
TRANSITION SECTION**

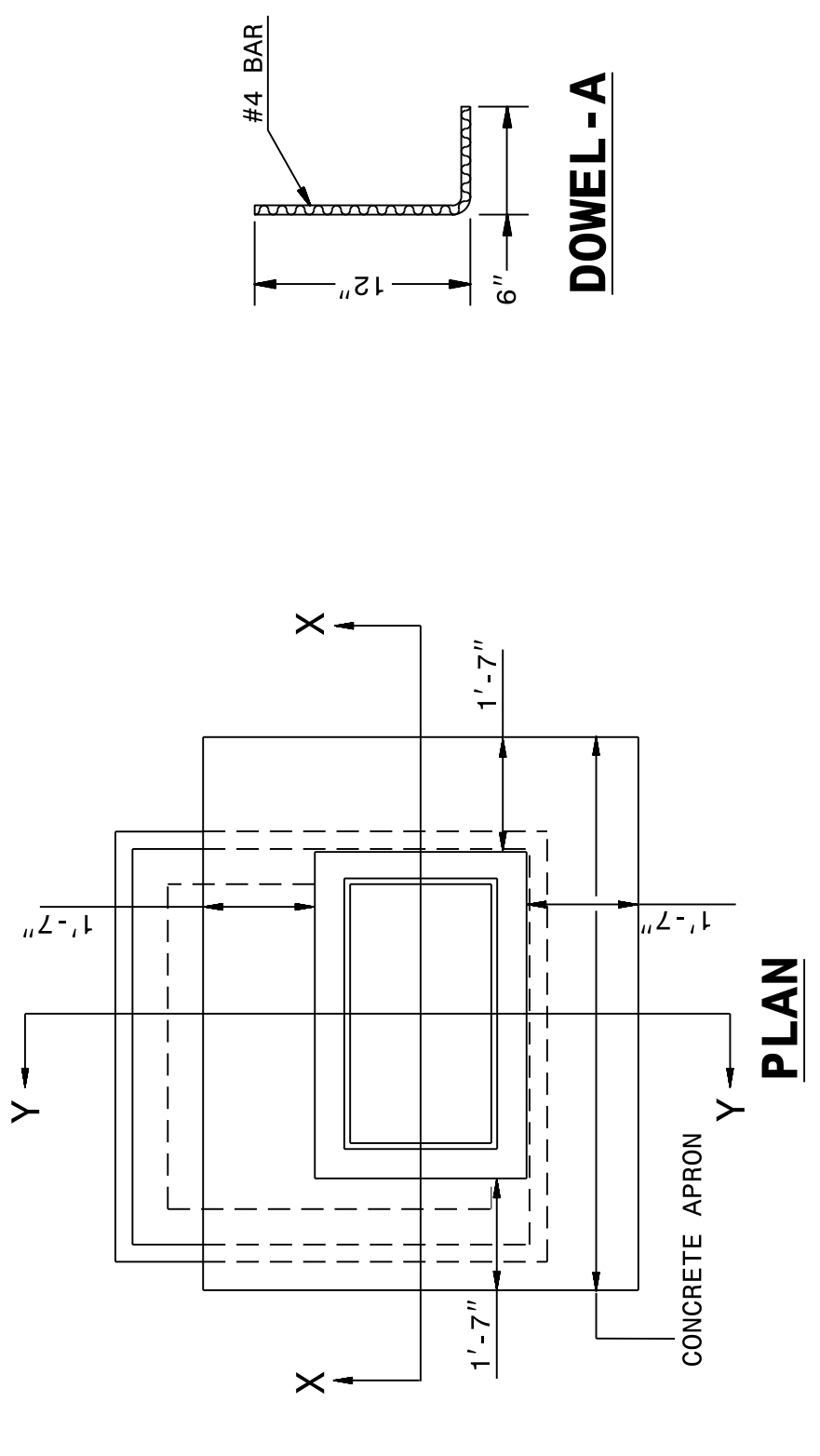
ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: KKEMPF DATE: 09-24-14
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: kkempf/english/curb_gutter_transition.dgn

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

ENGLISH DETAIL DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH 12" THRU 72" PIPE

SHEET 1 OF 2 **840d17**

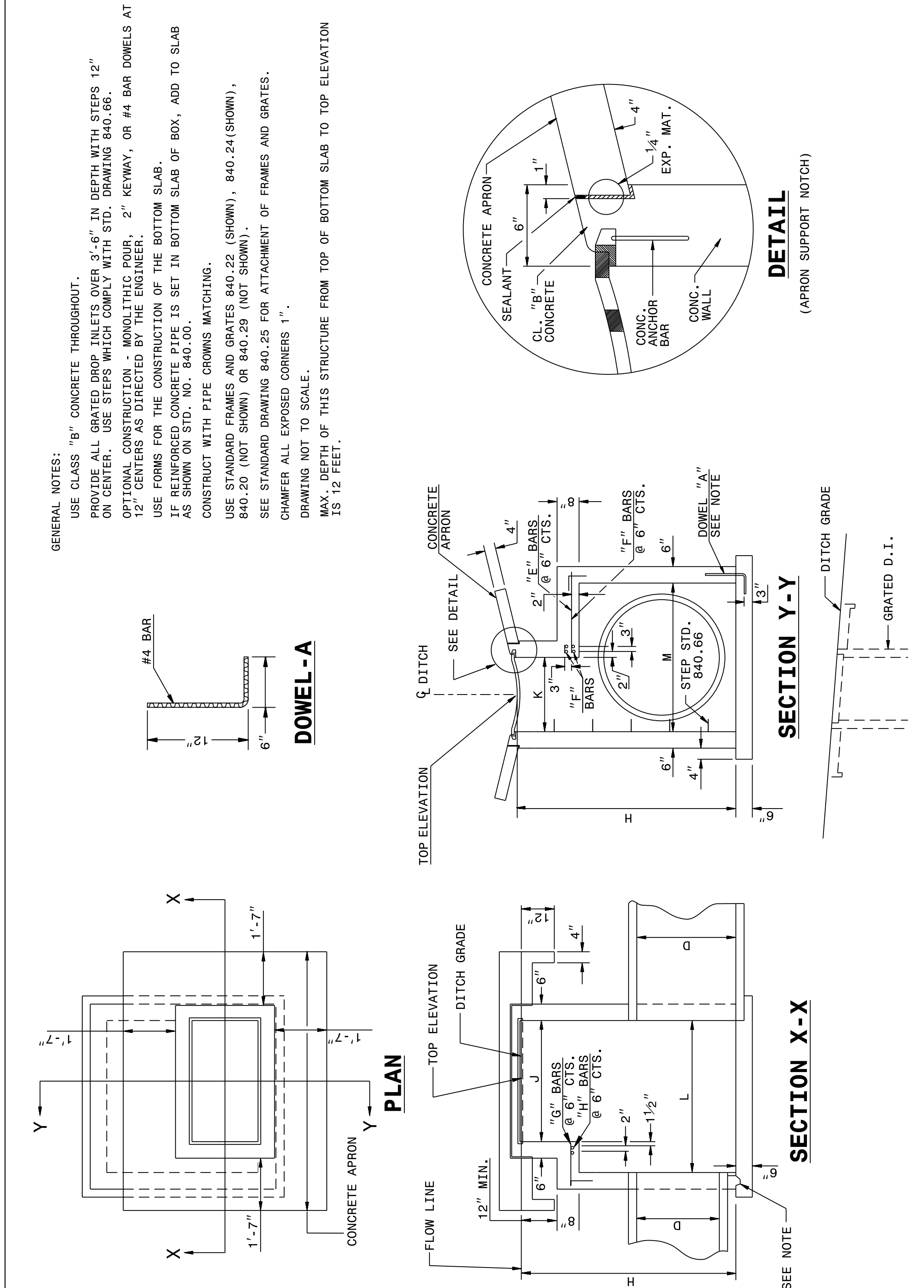
GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL GRATED DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 RE REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24 (SHOWN), 840.20 (NOT SHOWN) OR 840.29 (NOT SHOWN).
 SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.



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

ENGLISH DETAIL DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH 12" THRU 72" PIPE

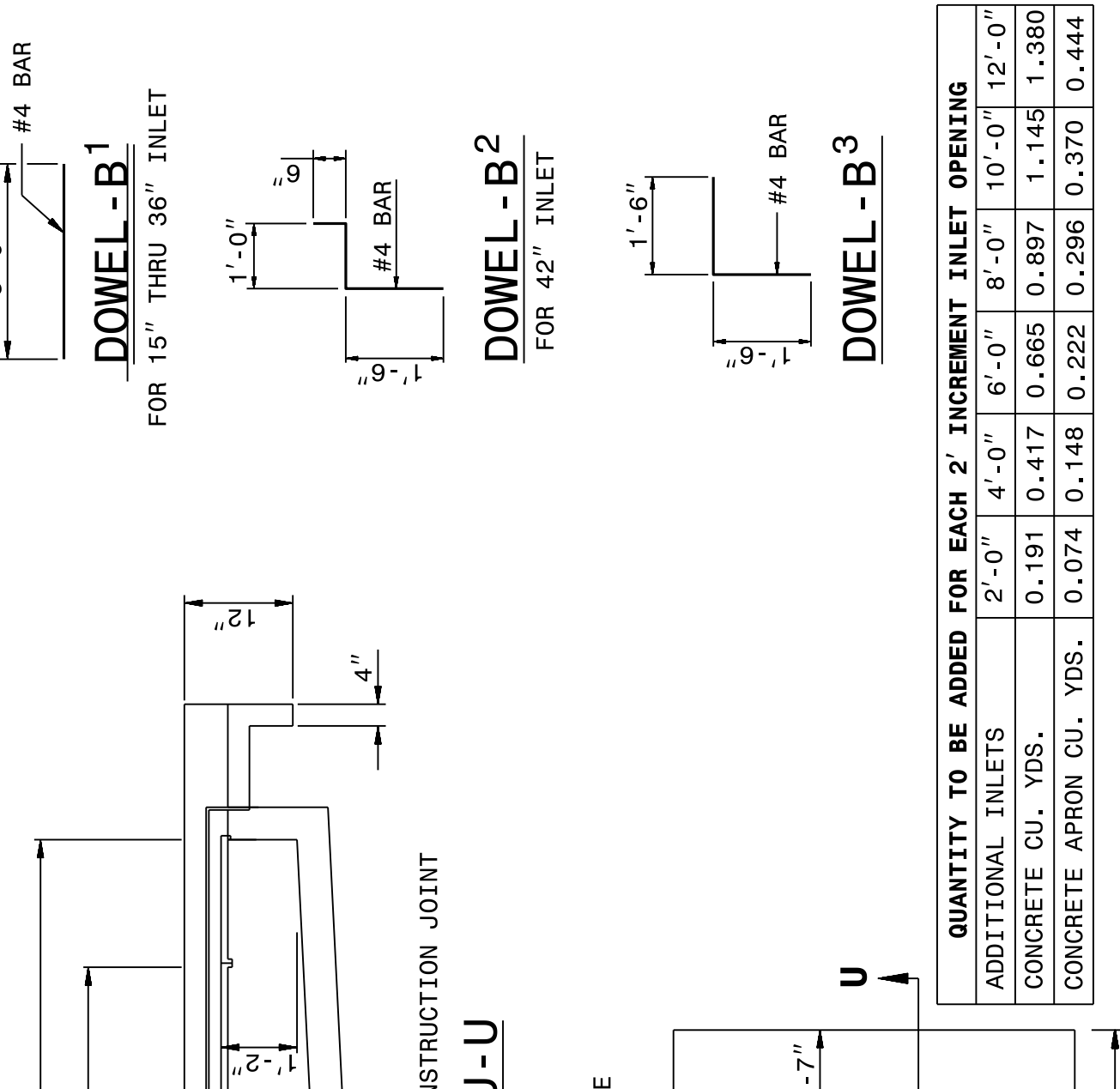
SHEET 1 OF 2 **840d17**



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

ENGLISH DETAIL DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH 12" THRU 72" PIPE

SHEET 2 OF 2 **840d17**



QUANTITY TO BE ADDED FOR EACH 2' INCREMENT INLET OPENING

ADDITIONAL INLETS	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"	12'-0"
CONCRETE CU. YDS.	0.191	0.417	0.665	0.897	1.145	1.380
CONCRETE APRON CU. YDS.	0.074	0.148	0.222	0.296	0.370	0.444

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET (BASED ON MIN. HEIGHT, H)

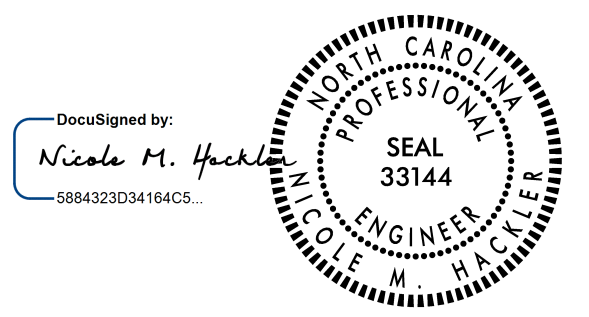
PIPE	DIMENSIONS OF BOX AND PIPE		REINFORCING STEEL - NO. 4 BARS				CU YDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE						
	SPAN	WIDTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	H	PER FT HT	TOTAL				
12"	3'-8"	2'-0"	2'-0"	2'-3"	—	—	—	0.362	0.926	0.247	0.395	1.683	0.015	0.024	
15"	3'-8"	2'-0"	2'-0"	2'-5"	—	—	—	0.362	0.988	0.247	0.395	1.745	0.023	0.036	
18"	—	—	2'-0"	2'-8"	—	—	—	0.362	1.050	0.247	1.807	0.033	0.049	—	
24"	—	—	2'-10"	3'-3"	8	1'-5"	6	4'-9"	27	0.444	1.362	0.278	2.201	0.059	0.085
30"	—	—	3'-6"	3'-10"	8	2'-0"	7	4'-9"	33	0.502	1.644	0.288	2.541	0.082	0.127
36"	—	—	4'-0"	4'-4"	8	2'-5"	8	4'-11"	4	0'-9"	2	4'-11"	2.920	0.132	0.178
42"	—	—	4'-10"	5'-0"	10	3'-1"	9	5'-7"	67	0.704	2.500	0.370	3.677	0.180	0.243
48"	—	—	5'-4"	5'-6"	11	3'-7"	10	6'-1"	87	0.823	3.013	0.407	4.315	0.235	0.317
54"	—	—	6'-0"	6'-0"	12	4'-1"	11	6'-7"	107	0.951	3.589	0.444	5.072	0.287	0.401
60"	—	—	6'-6"	6'-7"	13	4'-9"	12	7'-3"	135	1.311	4.539	0.494	6.170	0.367	0.495
66"	—	—	7'-2"	7'-1"	14	5'-4"	14	7'-10"	168	1.136	5.061	0.537	6.901	0.444	0.599
72"	—	—	7'-8"	7'-8"	15	5'-11"	15	8'-5"	199	1.500	5.860	0.580	6.901	0.444	0.599

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

ENGLISH DETAIL DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH 12" THRU 72" PIPE

SHEET 2 OF 2 **840d17**

\\SEP-2017 11:55 AM C:\projects\Specdata\840d17 Minimum Depth Type A.dgn
 jhowerton At CSD 2/25/95



9/20/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: J. Howerton DATE: 1/22/14
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: jhowerton\minimum_depth_type A.dgn

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

**SUMMARY OF EARTHWORK
 IN CUBIC YARDS**

STATION	STATION	UNCL. EXCAV.	EMBANK.	BORROW	WASTE
PHASE I					
-L- 11+30.00	-L- 20+65.00	855	1,586	731	
-Y1A- LT 10+23.86	-Y1A- LT 17+82.26	287	7,691	7,404	
-Y1A- RT 10+50.00	-Y1A- RT 11+50.00	82	2,272	2,190	
-Y1B- 10+74.58	-Y1B- 16+20.00	1,169	10,690	9,521	
SUBTOTALS:		2,393	22,239	19,846	
-Y3A- 10+10.00	-Y3A- 12+38.81	97	47		50
-Y3B- 10+24.65	-Y3B- 11+62.00	45	46	1	
Y8- 10+10.59	-Y8- 11+90.00	568	36		532
-DRIVEI- 10+25.00	-DRIVEI- 11+52.87	133	76		57
-RAI- 10+00.00	-RAI- 13+76.70	42	12,719	12,677	
SUBTOTALS:		885	12,923	12,678	639
PHASE II					
-Y1A- RT 11+50.00	-Y1A- RT 17+82.26	257	1,500	1,243	
-Y1B- RT 10+74.58	-Y1B- RT 16+20.00	1,075	10,601	9,526	
-Y2- 10+91.85	-Y2- 19+53.79	9,923	957		8,966
-Y4- 10+80.00	-Y4- 11+77.03	68	1,198	1,130	
SUBTOTALS:		11,323	14,255	11,899	9,416
-Y6- 11+75.00	-Y6- 13+26.09	120	135	15	
-Y7- LT 10+89.45	-Y7- LT 11+50.00	3	9	6	
-Y7- RT 10+89.45	-Y7- RT 12+00.00	31	400	369	
-RAI- 12+48.15	-RAI- 13+53.95		987	987	
-RA2- 10+00.00	-RA2- 13+76.70	2,287	616		1,671
SUBTOTALS:		2,441	2,147	1,365	1,671
PHASE IIIA					
-Y7- LT 12+00.00	-Y7- LT 12+30.00	16	10		6
-DRIVEI- 10+25.00	-DRIVEI- 11+52.87	-133	-76	57	
PHASE IIIB					
-Y7- RT 12+00	-Y7- RT 12+30.00	58	309	251	
SUBTOTALS:		-59	212	308	6
TOTALS:		16,983	51,807	46,096	11,282
WASTE IN LIEU OF BORROW				-11,282	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				1,741	
GRAND TOTALS:		17,433	51,807	36,553	
SAY:		17,500		36,600	

Est. Shallow Undercut = 1,100 CY CONTINGENCY
 Est. Select Granular Material = 400 CY CONTINGENCY
 Est. Undercut Excavation = 450 CY CONTINGENCY

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.

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

ASPHALT PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	11+30.00	14+28.54	LT	74.22
-L-	11+30.00	14+11.77	RT	69.30
-L-	14+68.64	17+88.30	LT	81.04
-L-	14+73.66	17+28.50	RT	283.11
-L-	17+90.41	20+65.00	RT	61.46
-L-	18+27.30	20+65.00	LT	56.90
-RAI-	12+48.15	13+56.17	RT	374.90
-RA2-	11+32.94	13+46.11	LT/RT	340.18
-Y1A-	11+02.49	11+40.22	RT	10.99
-Y1A-	11+89.15	11+90.74	RT	6.22
-Y1A-	11+95.60	12+64.79	RT	43.84
-Y1A-	12+65.46	12+73.25	RT	5.58
-Y1A-	13+06.93	13+12.54	RT	7.70
-Y1A-	13+18.92	13+49.14	RT	19.26
-Y1A-	13+75.97	15+10.25	RT	130.94
-Y1A-	15+27.40	17+82.26	RT	795.08
-Y1B-	10+00.00	16+54.12	RT	1519.29
-Y2-	10+76.58	19+03.72	LT/RT	2132.32
-Y2-	15+05.05	16+81.62	LT	89.85
-Y2-	15+99.69	16+38.17	RT	25.73
-Y2-	16+58.50	17+63.33	RT	32.26
-Y2-	17+80.95	19+03.72	RT	32.64
-Y3A-	10+10.00	11+16.23	RT	23.50
-Y3A-	11+20.26	11+84.75	LT	6.42
-Y3A-	12+03.17	12+30.41	LT	6.32
-Y3A-	12+11.82	12+51.25	RT	8.80
-Y3B-	10+17.59	11+62.00	LT	38.53
-Y3B-	10+35.55	10+84.29	RT	14.66
-Y3B-	10+97.48	10+99.47	RT	0.75
-Y3B-	10+99.58	11+62.00	RT	13.63
-Y4-	10+80.00	11+92.25	LT/RT	456.77
-Y6-	11+75.00	11+94.60	LT	5.65
-Y6-	11+75.00	11+94.46	RT	5.82
-Y6-	12+44.42	13+37.86	RT	66.94
-Y6-	12+60.57	14+01.40	LT	93.49
-Y7-	10+88.27	12+30.00	RT	32.17
-Y7-	11+19.04	11+73.39	LT	24.10
-Y7-	11+76.13	12+30.00	LT	19.05
-Y8-	10+03.64	10+52.68	LT/RT	214.53
-DRIVEI-	10+25.00	11+19.13	LT	122.76
-DRIVEI-	10+25.00	11+16.39	RT	122.69
TOTAL:				7,469.41
SAY:				7,470

**SUMMARY OF BREAKING
 EXISTING ASPHALT PAVEMENT**

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-Y1A-	17+01	17+23	CL	2.43
-Y1A-	17+25	17+47	CL	2.44
-Y1A-	17+49	17+82	CL	3.68
-Y1B-	10+75	12+92	CL	24.21
-Y1B-	14+13	14+39	CL	2.81
-Y5-	10+90	12+20	CL	14.45
-RAI-	10+00	13+77	CL	41.87
TOTAL:				91.90
SAY:				100

**SUMMARY OF EXISTING
 CONCRETE PAVEMENT REMOVAL**

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	11+52	12+40	RT	19.49
-Y6-	11+94	12+51	CL	230.04
TOTAL:				249.53
SAY:				250

COMPUTED BY: J. B. Barfield DATE: 6/29/23
 CHECKED BY: M. J. Alexander DATE: 6/30/23

(2-3-23)

PROJECT NO. 50146.1.F1 (C-5621)	SHEET NO. 3G-1
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**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

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

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-Y1A-	10+50	17+82	ASU(2)	8		818	1871		
-Y1B-	11+00	12+50	ASU(2)	8		401	917		
-Y4-	11+50	11+77	ASU(2)	8		80	183		
	CONTINGENCY		ASU(1)	12	1000	2000	3000		
			TOTAL CY/TONS/SY:		1100	3499**	6271**	0	0

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

Totals include contingencies from Geotechnical Report - REVISED Design and Construction Recommendations dated June 27, 2023

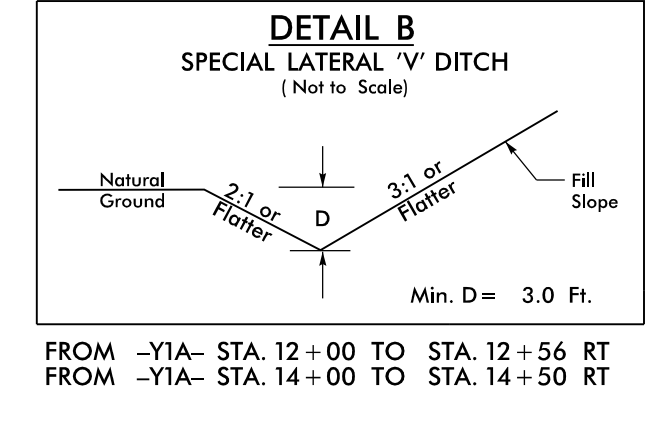
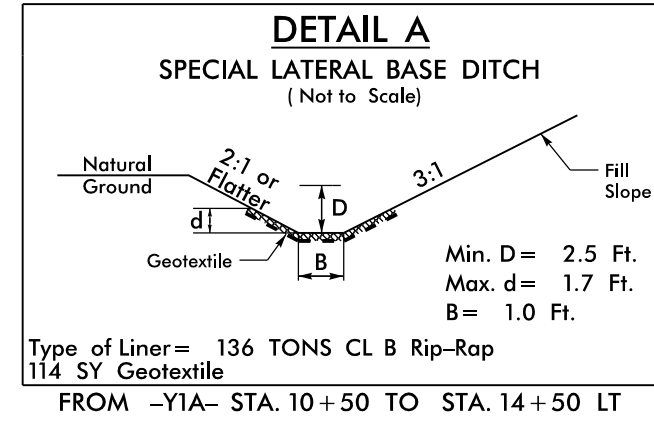
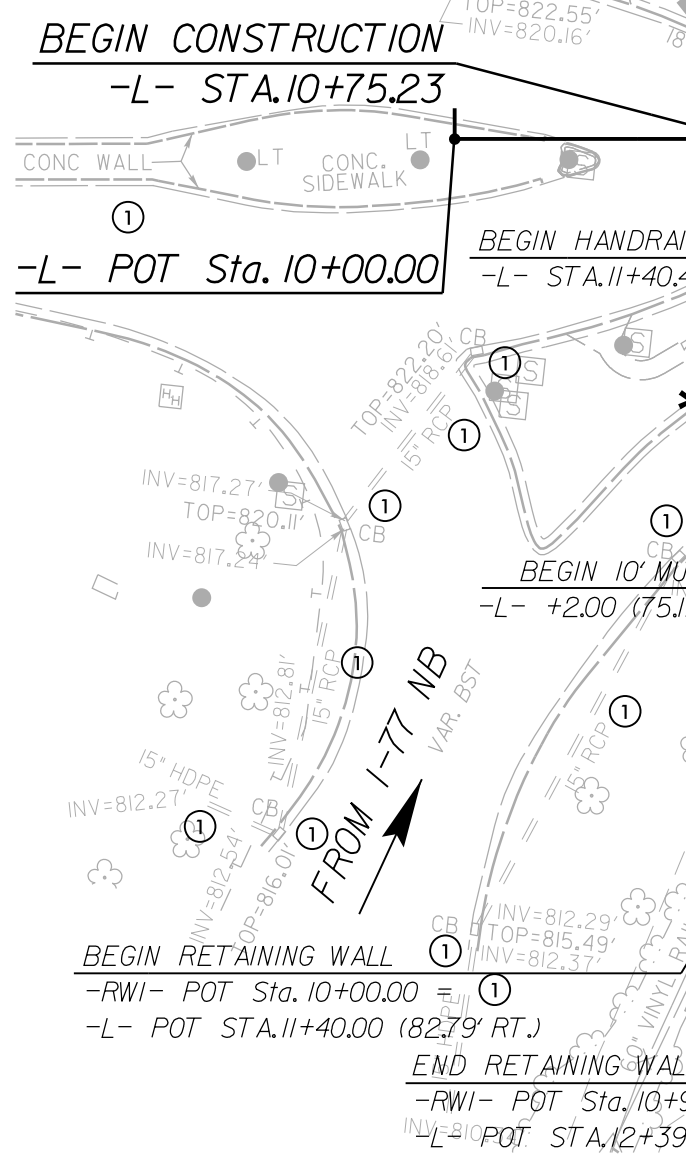
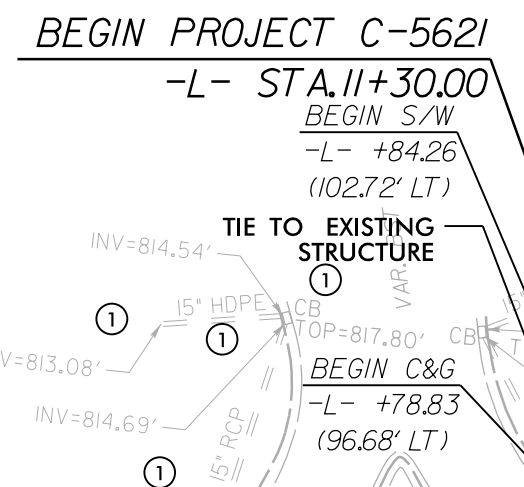
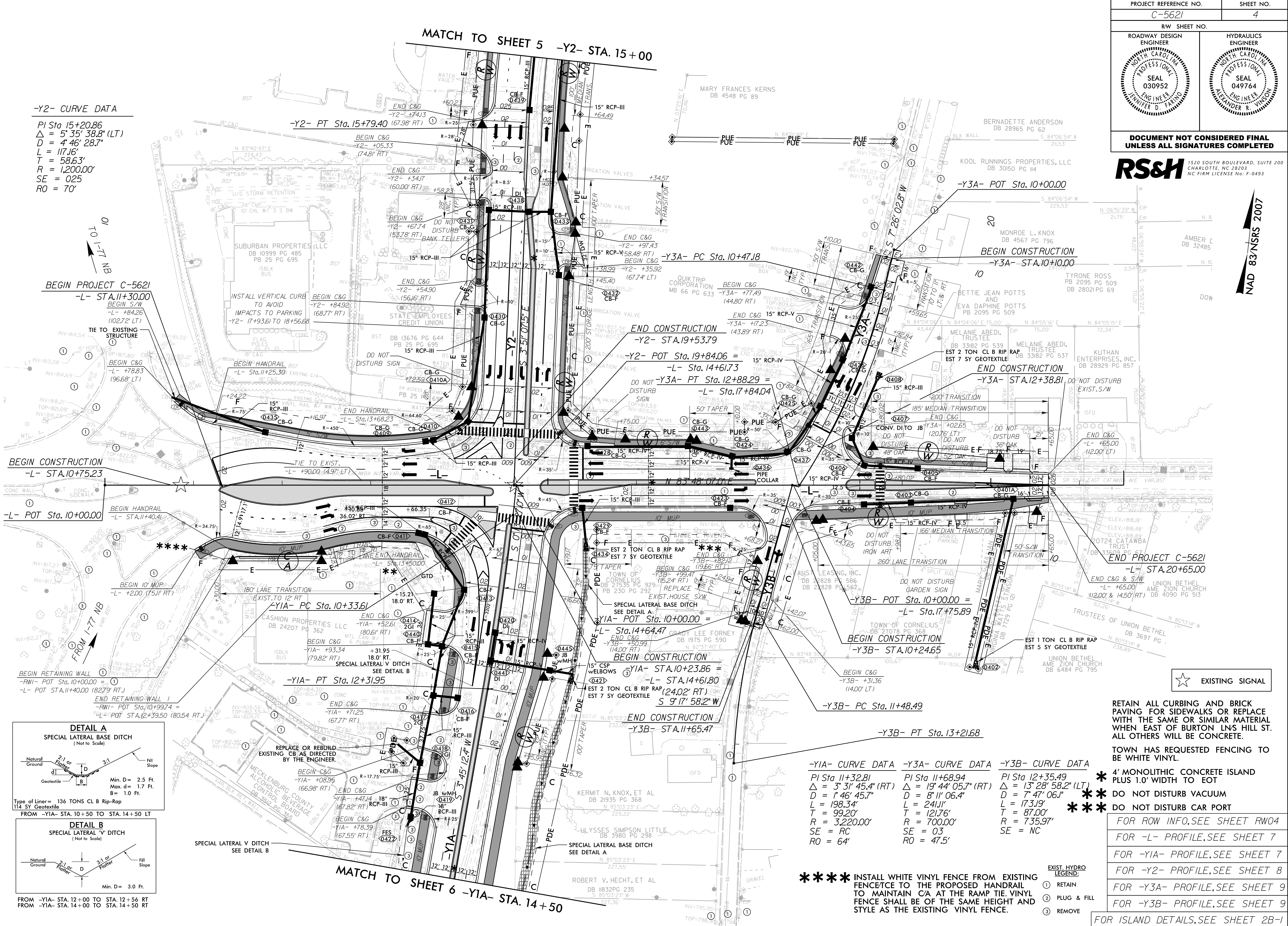
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NC FIRM LICENSE NO. F-0493

NAD 83 NSRS 2007

-Y2- CURVE DATA

PI Sta 15+20.86
 $\Delta = 5' 35'' 38.8''$ (LT)
 $D = 4' 46'' 28.7''$
 $L = 117.16'$
 $T = 58.63'$
 $R = 1,200.00'$
 $SE = 025$
 $RO = 70'$



-Y1A- CURVE DATA	-Y3A- CURVE DATA	-Y3B- CURVE DATA
PI Sta 11+32.81	PI Sta 11+68.94	PI Sta 12+35.49
$\Delta = 3' 31'' 45.4''$ (RT)	$\Delta = 19' 44'' 05.7''$ (RT)	$\Delta = 13' 28'' 58.2''$ (LT)
$D = 1' 46'' 45.7''$	$D = 8' 11'' 06.4''$	$D = 7' 47'' 06.1''$
$L = 198.34'$	$L = 241.11'$	$L = 173.19'$
$T = 99.20'$	$T = 121.76'$	$T = 87.00'$
$R = 3,220.00'$	$R = 700.00'$	$R = 735.97'$
$SE = RC$	$SE = 03$	$SE = NC$
$RO = 64'$	$RO = 47.5'$	

*** INSTALL WHITE VINYL FENCE FROM EXISTING FENCE TO THE PROPOSED HANDRAIL TO MAINTAIN C/A AT THE RAMP TIE. VINYL FENCE SHALL BE OF THE SAME HEIGHT AND STYLE AS THE EXISTING VINYL FENCE.

RETAIN ALL CURBING AND BRICK PAVING FOR SIDEWALKS OR REPLACE WITH THE SAME OR SIMILAR MATERIAL WHEN EAST OF BURTON LNS HILL ST. ALL OTHERS WILL BE CONCRETE.

TOWN HAS REQUESTED FENCING TO BE WHITE VINYL.

- 4' MONOLITHIC CONCRETE ISLAND PLUS 1.0' WIDTH TO EOT
 - DO NOT DISTURB VACUUM
 - DO NOT DISTURB CAR PORT
- FOR ROW INFO, SEE SHEET RW04
 FOR -L- PROFILE, SEE SHEET 7
 FOR -Y1A- PROFILE, SEE SHEET 7
 FOR -Y2- PROFILE, SEE SHEET 8
 FOR -Y3A- PROFILE, SEE SHEET 9
 FOR -Y3B- PROFILE, SEE SHEET 9
 FOR ISLAND DETAILS, SEE SHEET 2B-1

EXIST. HYDRO LEGEND:
 ① RETAIN
 ② PLUG & FILL
 ③ REMOVE

★ EXISTING SIGNAL

REVISIONS

8/17/99
 04-OCT-2023 10:49 R:\p\p\C5621\C5621.Rdw_psh_4.dgn
 \$\$\$\$\$\$
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8/17/19

PROJECT REFERENCE NO. C-5621		SHEET NO. 5	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
9/20/2023		9/20/2023	
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NC FIRM LICENSE No. F-0493

- LEGEND**
- ① RETAIN
 - ② PLUG & FILL
 - ③ REMOVE

NAD 83/NSRS 2007

-Y6- CURVE DATA
 PI Sta 10+90.94
 $\Delta = 27^\circ 37' 05.5''$ (LT)
 $D = 15^\circ 29' 07.2''$
 $L = 178.35'$
 $T = 90.94'$
 $R = 370.00'$
 SE = NC**

-Y7- CURVE DATA
 PI Sta 11+07.12
 $\Delta = 52^\circ 01' 23.6''$ (RT)
 $D = 35^\circ 48' 35.5''$
 $L = 145.28'$
 $T = 78.08'$
 $R = 160.00'$

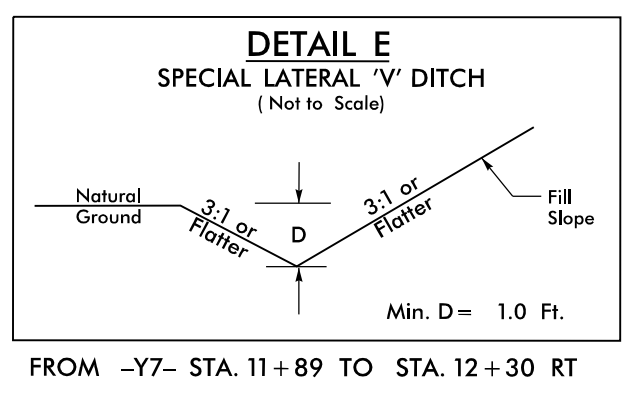
-Y6- PC Sta. 10+00.00

-Y2- CURVE DATA
 PI Sta 10+79.68
 $\Delta = 39^\circ 15' 6.2''$ (RT)
 $D = 35^\circ 48' 35.5''$
 $L = 109.61'$
 $T = 57.05'$
 $R = 160.00'$

-Y2- CURVE DATA
 PI Sta 15+20.86
 $\Delta = 5^\circ 35' 38.8''$ (LT)
 $D = 4^\circ 46' 28.7''$
 $L = 117.16'$
 $T = 58.63'$
 $R = 1,200.00'$

-RA2- CURVE DATA
 PI Sta 10+00.15
 $\Delta = 359^\circ 43' 22.9''$ (LT)
 $D = 95^\circ 29' 34.7''$
 $L = 376.70'$
 $T = 0.15'$
 $R = 60.00'$

-Y8- CURVE DATA
 PI Sta 10+88.80
 $\Delta = 30^\circ 33' 51.0''$ (RT)
 $D = 22^\circ 55' 05.9''$
 $L = 133.36'$
 $T = 68.31'$
 $R = 250.00'$
 SE = 04**
 RO = 76'



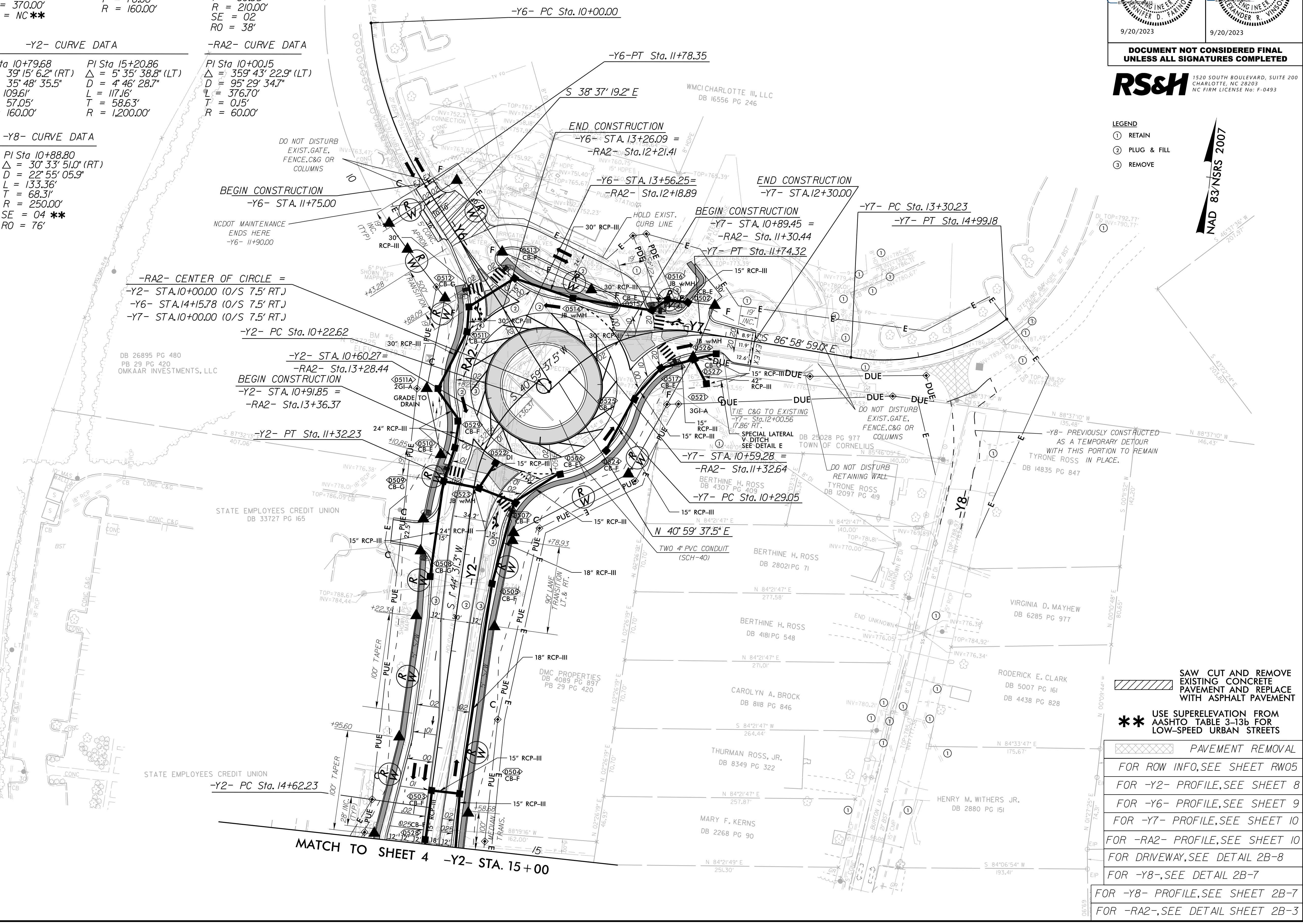
-RA2- CENTER OF CIRCLE =
 -Y2- STA.10+00.00 (O/S 7.5' RT.)
 -Y6- STA.14+15.78 (O/S 7.5' RT.)
 -Y7- STA.10+00.00 (O/S 7.5' RT.)

-Y2- PC Sta. 10+22.62
-Y2- STA. 10+60.27 =
-RA2- Sta. 13+28.44
BEGIN CONSTRUCTION
-Y2- STA. 10+91.85 =
-RA2- Sta. 13+36.37

-Y2- PT Sta. 11+32.23

-Y2- PC Sta. 14+62.23

MATCH TO SHEET 4 -Y2- STA. 15+00



- SAW CUT AND REMOVE EXISTING CONCRETE PAVEMENT AND REPLACE WITH ASPHALT PAVEMENT
- **** USE SUPERELEVATION FROM AASHTO TABLE 3-13b FOR LOW-SPEED URBAN STREETS
- PAVEMENT REMOVAL
- FOR ROW INFO, SEE SHEET RW05
- FOR -Y2- PROFILE, SEE SHEET 8
- FOR -Y6- PROFILE, SEE SHEET 9
- FOR -Y7- PROFILE, SEE SHEET 10
- FOR -RA2- PROFILE, SEE SHEET 10
- FOR DRIVEWAY, SEE DETAIL 2B-8
- FOR -Y8-, SEE DETAIL 2B-7
- FOR -Y8- PROFILE, SEE SHEET 2B-7
- FOR -RA2-, SEE DETAIL SHEET 2B-3

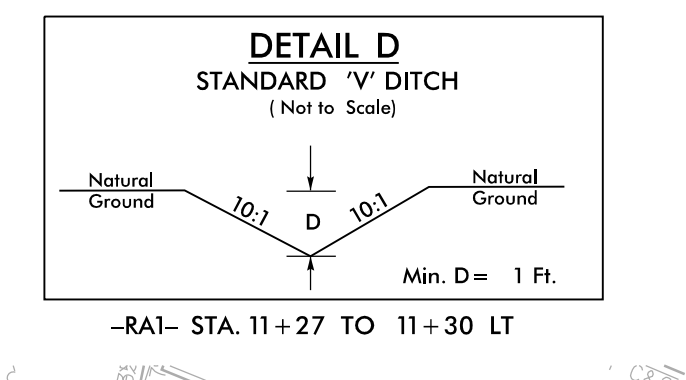
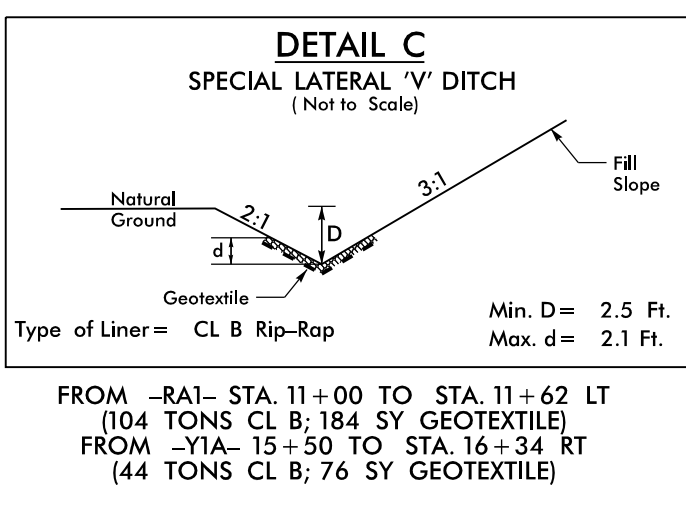
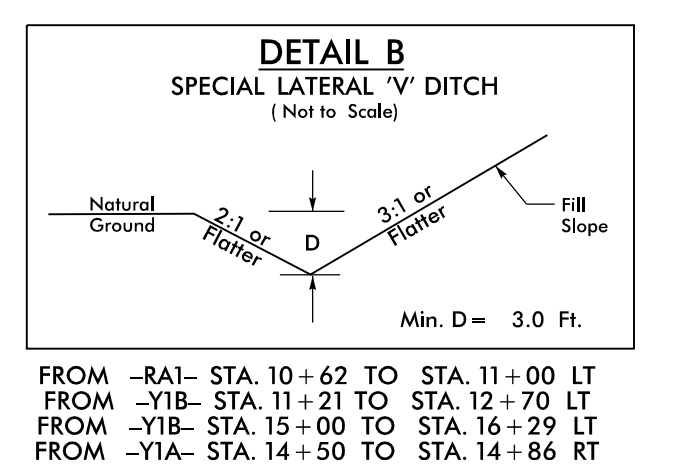
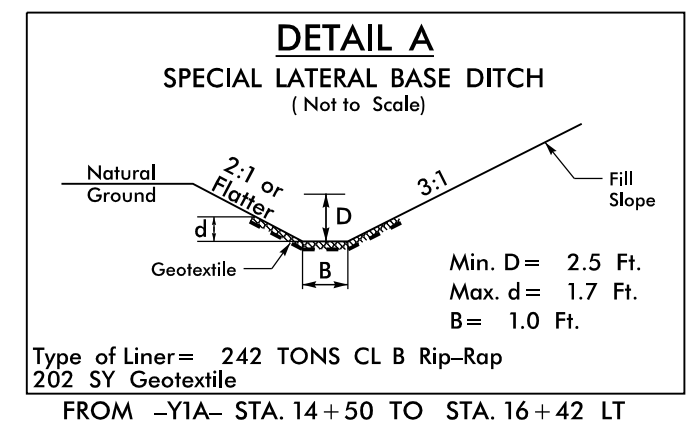
REVISIONS

18-SEP-2023 14:16 NC5621.Rdy_psh_5.dgn
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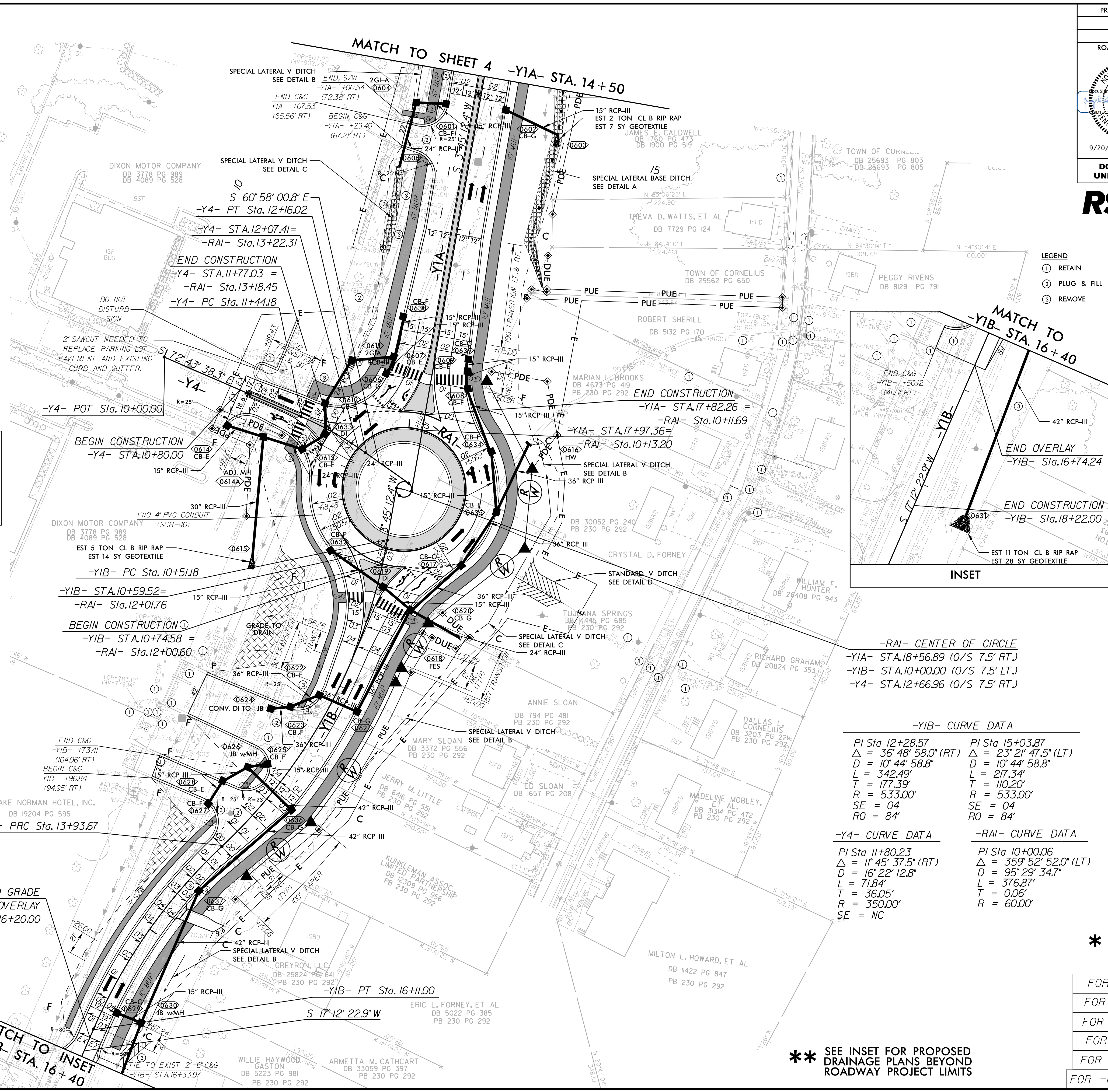
PROJECT REFERENCE NO. C-5621	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 030952 NORTH CAROLINA PROFESSIONAL ENGINEER D. FARRINGHAM	HYDRAULICS ENGINEER SEAL 049764 NORTH CAROLINA PROFESSIONAL ENGINEER ALEXANDER R. VINTON
9/20/2023	9/20/2023
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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NAD 83 NSRS 2007



PROPOSED PIPE 0630 TO 0631
OUTFALLS TO A LARGE WELL
VEGETATED DITCH. THIS DITCH
CONVEYS THE RUNOFF TO THE
RETENTION POND LOCATED BEHIND
THE NORTH MECKLENBURG
ANIMAL HOSPITAL.



- LEGEND**
- ① RETAIN
 - ② PLUG & FILL
 - ③ REMOVE

-RAI- CENTER OF CIRCLE
-Y1A- STA. 18+56.89 (O/S 7.5' RT.)
-Y1B- STA. 10+00.00 (O/S 7.5' LT.)
-Y4- STA. 12+66.96 (O/S 7.5' RT.)

-Y1B- CURVE DATA

PI Sta 12+28.57	PI Sta 15+03.87
$\Delta = 36^\circ 48' 58.0''$ (RT)	$\Delta = 23^\circ 21' 47.5''$ (LT)
D = 10' 44' 58.8"	D = 10' 44' 58.8"
L = 342.49'	L = 217.34'
T = 177.39'	T = 110.20'
R = 533.00'	R = 533.00'
SE = 04	SE = 04
RO = 84'	RO = 84'

-Y4- CURVE DATA

PI Sta 11+80.23	PI Sta 10+00.06
$\Delta = 11^\circ 45' 37.5''$ (RT)	$\Delta = 359^\circ 52' 52.0''$ (LT)
D = 16' 22' 12.8"	D = 95' 29' 34.7"
L = 71.84'	L = 376.87'
T = 36.05'	T = 0.06'
R = 350.00'	R = 60.00'
SE = NC	

NOTE: REMOVE EXISTING SW ALONG -Y1A-&-Y1B- RT.

* 4' MONOLITHIC CONCRETE ISLAND PLUS 1.0' WIDTH TO EOT

PAVEMENT REMOVAL

- FOR ROW INFO, SEE SHEET RW06
- FOR -Y1A- PROFILE, SEE SHEET 7
- FOR -Y1B- PROFILE, SEE SHEET 8
- FOR -Y4- PROFILE, SEE SHEET 9
- FOR -RAI- PROFILE, SEE SHEET 10
- FOR -RAI-, SEE DETAIL SHEET 2B-2

** SEE INSET FOR PROPOSED DRAINAGE PLANS BEYOND ROADWAY PROJECT LIMITS

** MATCH TO INSET
-Y1B- STA. 16+40

REVISIONS

8.17.7.99

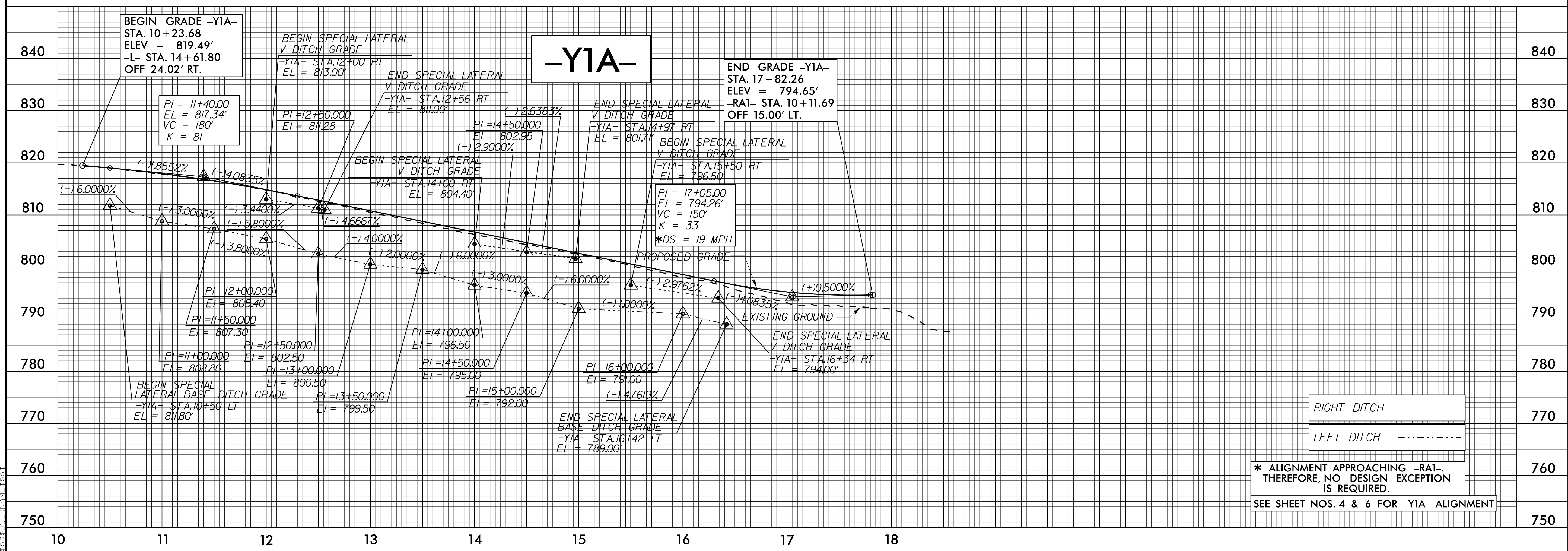
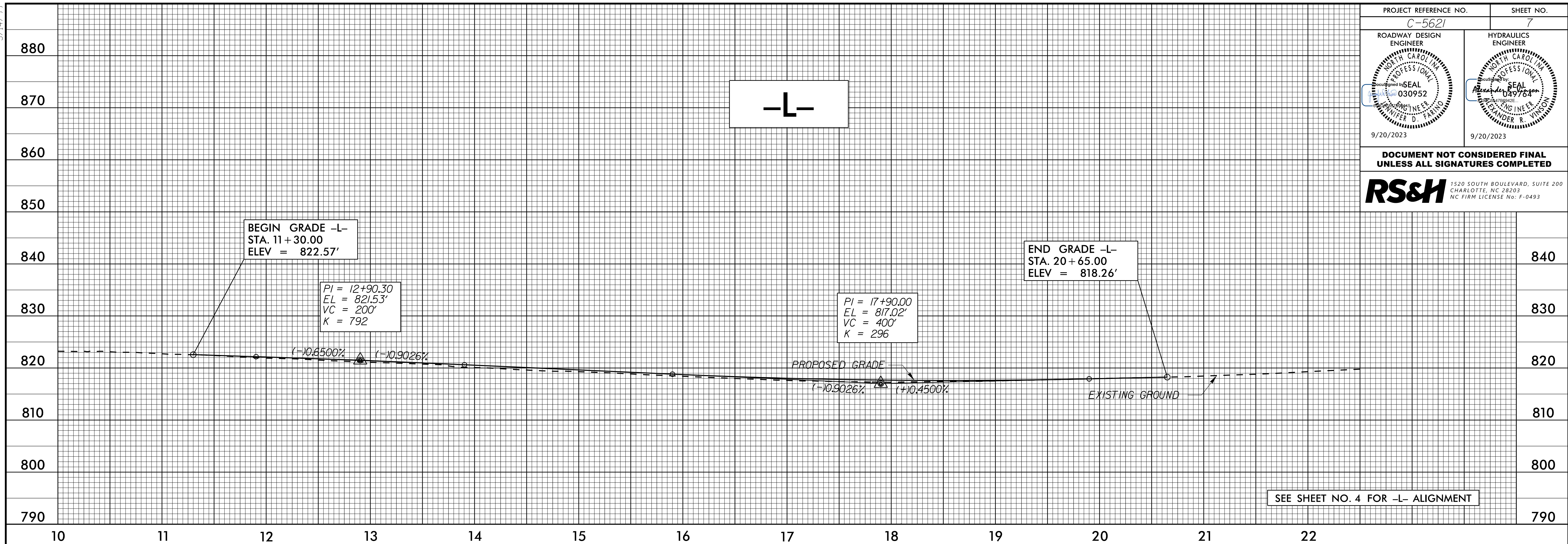
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5/14/99

PROJECT REFERENCE NO. C-5621	SHEET NO. 7
ROADWAY DESIGN ENGINEER PROFESSIONAL SEAL 030952 WINIFER D. FRANK	HYDRAULICS ENGINEER PROFESSIONAL SEAL ALEXANDER R. WILSON
9/20/2023	9/20/2023

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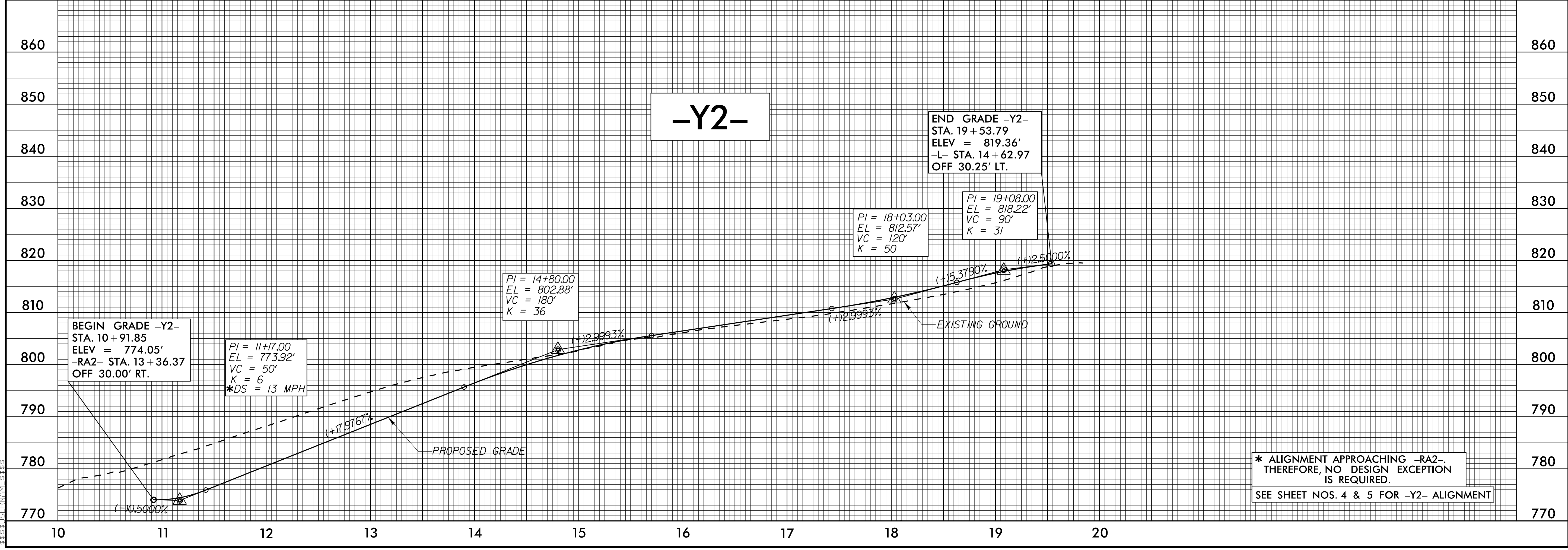
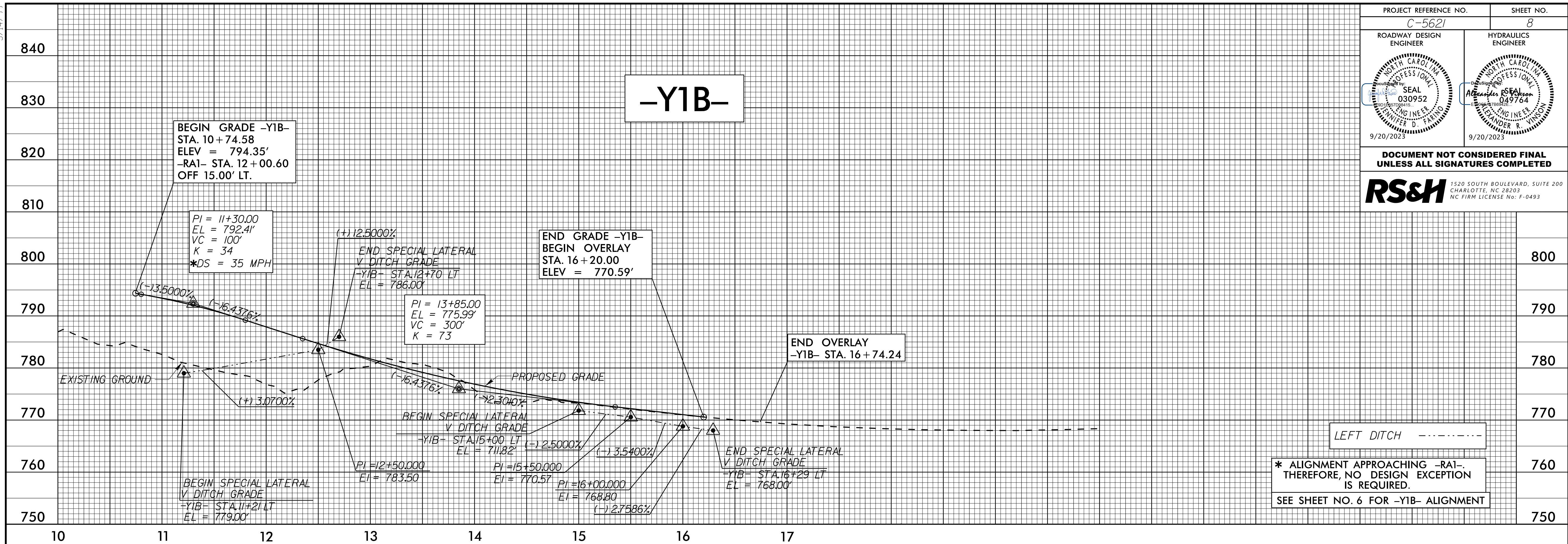
RS&H 1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE NO: F-0493



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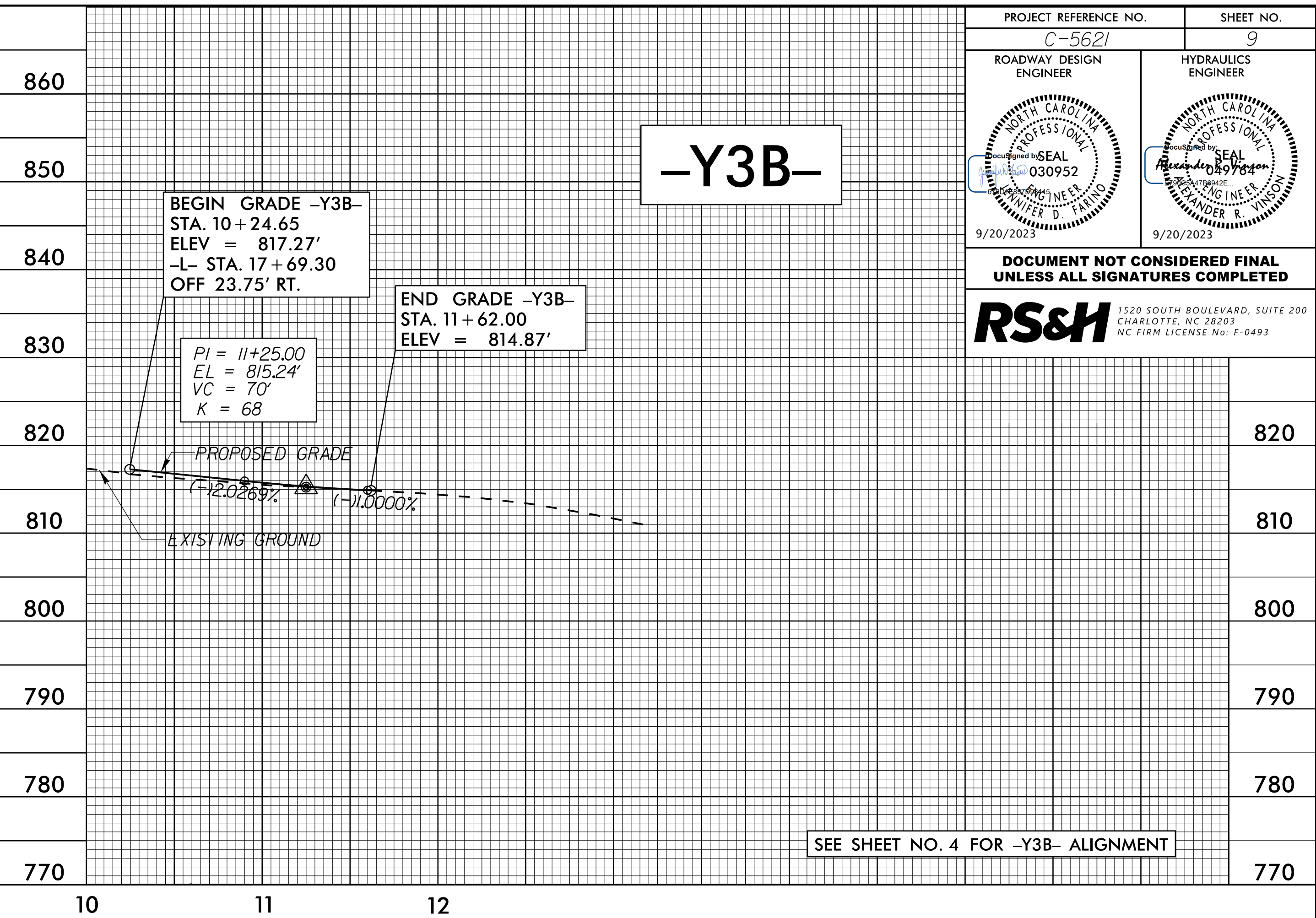
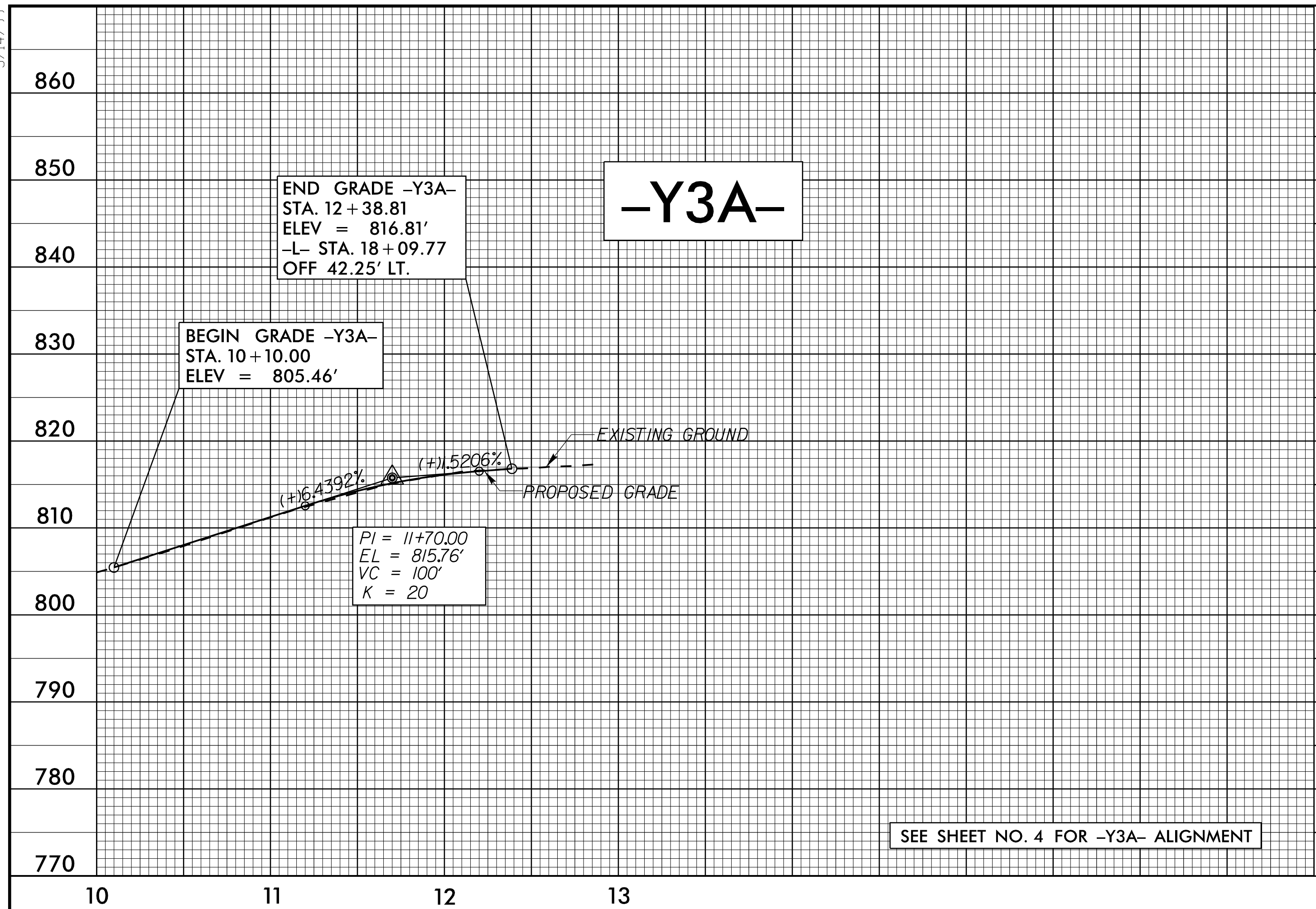
PROJECT REFERENCE NO. C-5621	SHEET NO. 8
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
RS&H 1520 SOUTH BOULEVARD, SUITE 200 CHARLOTTE, NC 28203 NC FIRM LICENSE NO: F-0493	



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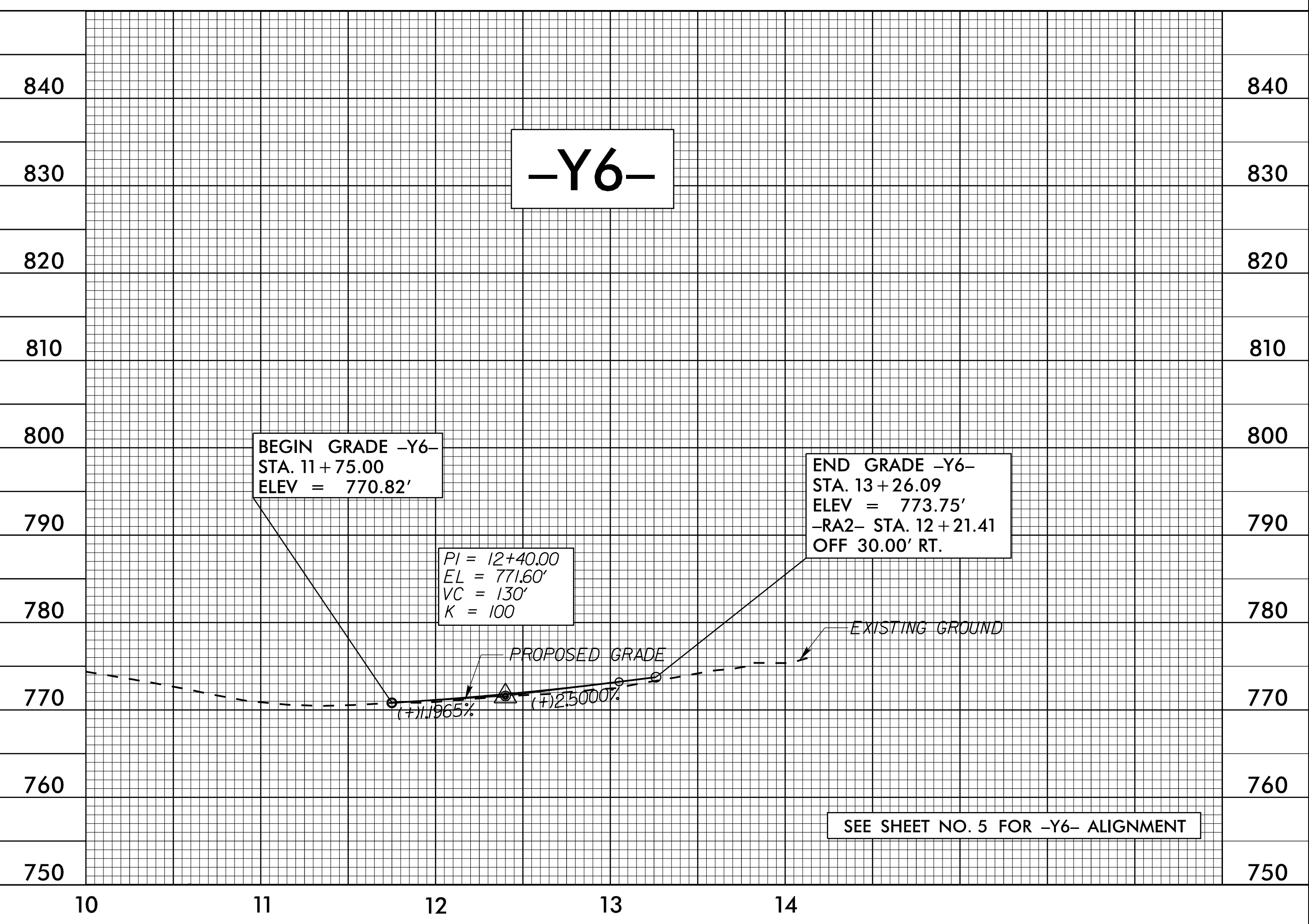
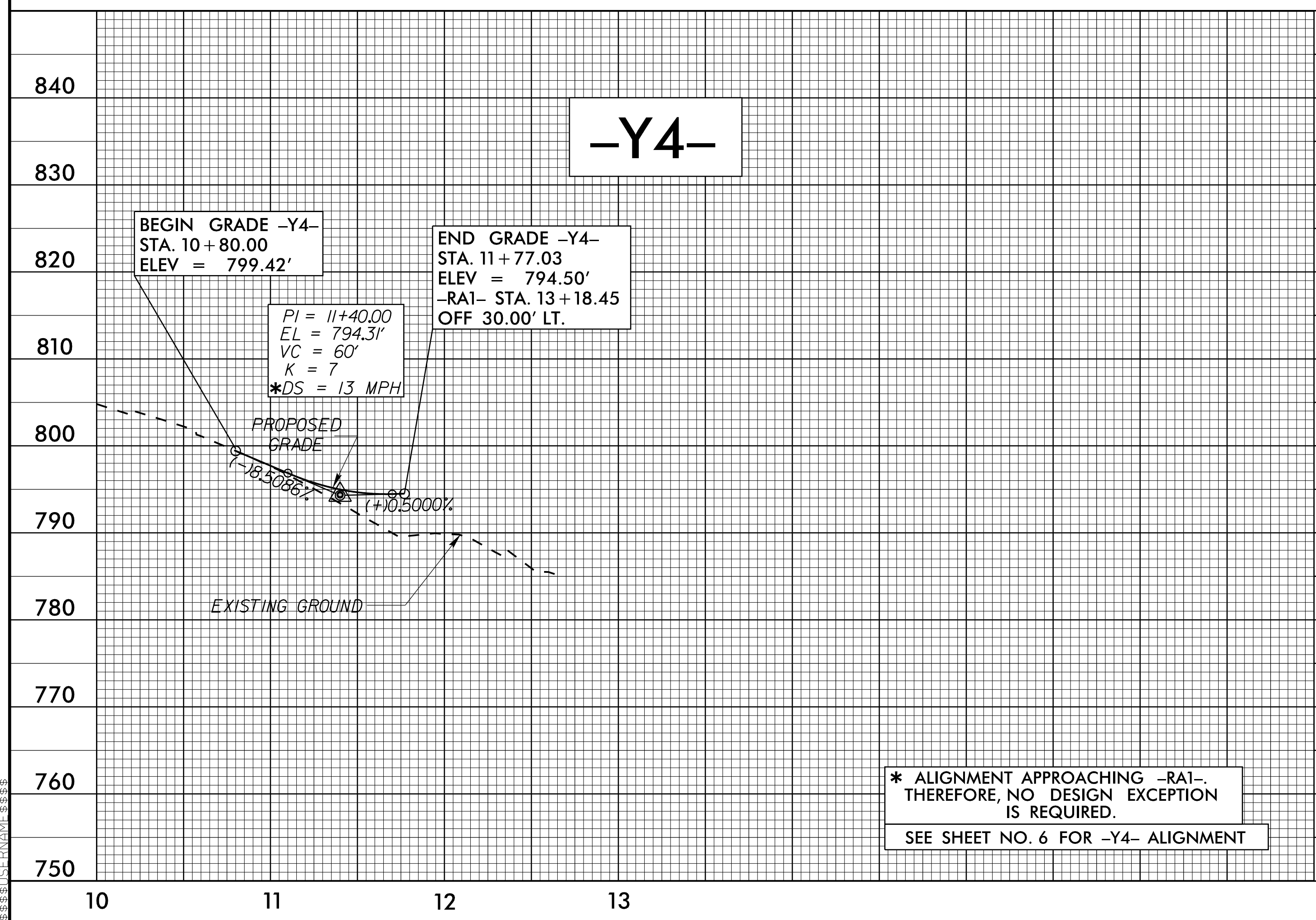
5/14/99

PROJECT REFERENCE NO. <i>C-5621</i>	SHEET NO. 9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
RS&H 1520 SOUTH BOULEVARD, SUITE 200 CHARLOTTE, NC 28203 NC FIRM LICENSE NO: F-0493	



SEE SHEET NO. 4 FOR -Y3A- ALIGNMENT

SEE SHEET NO. 4 FOR -Y3B- ALIGNMENT



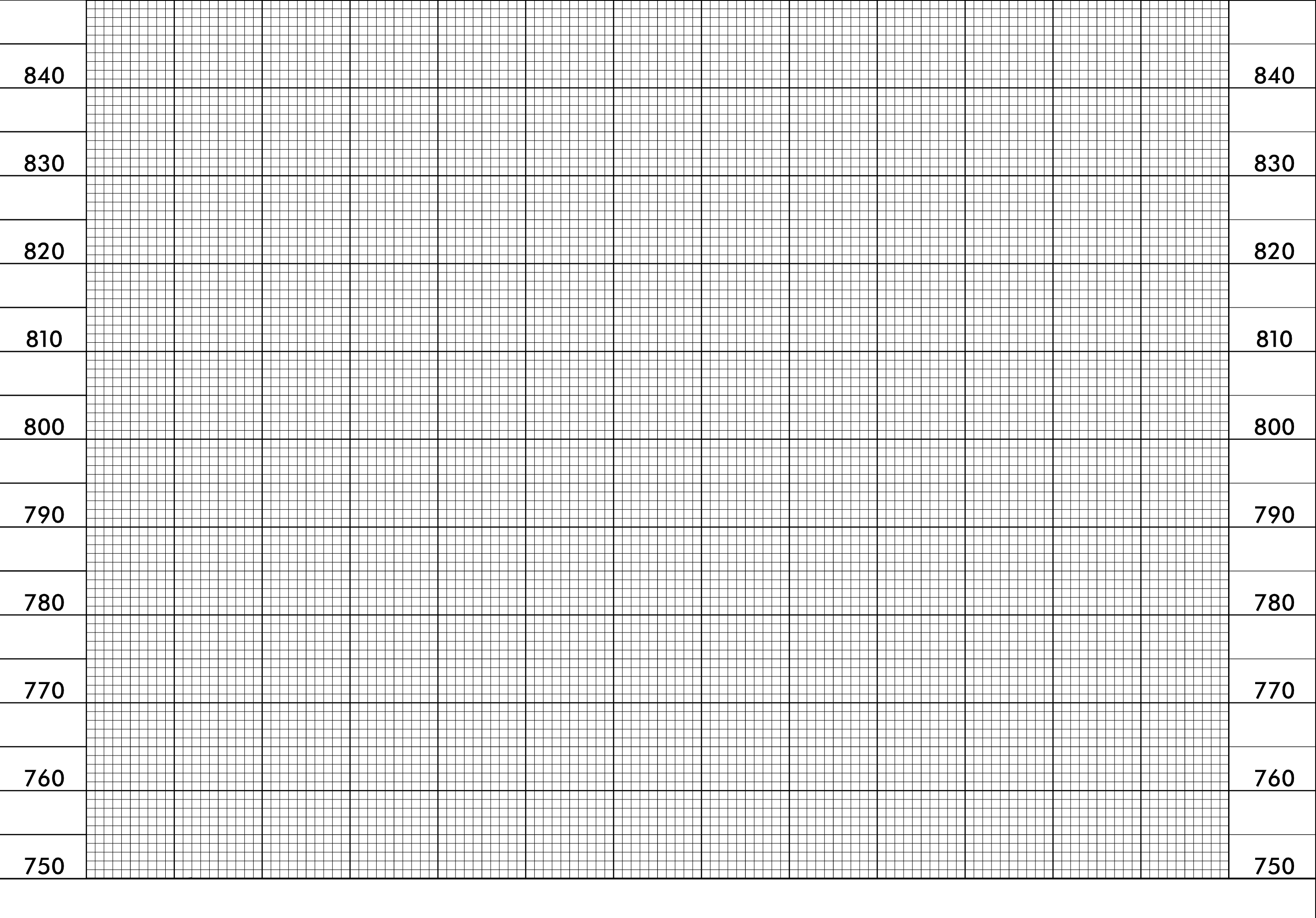
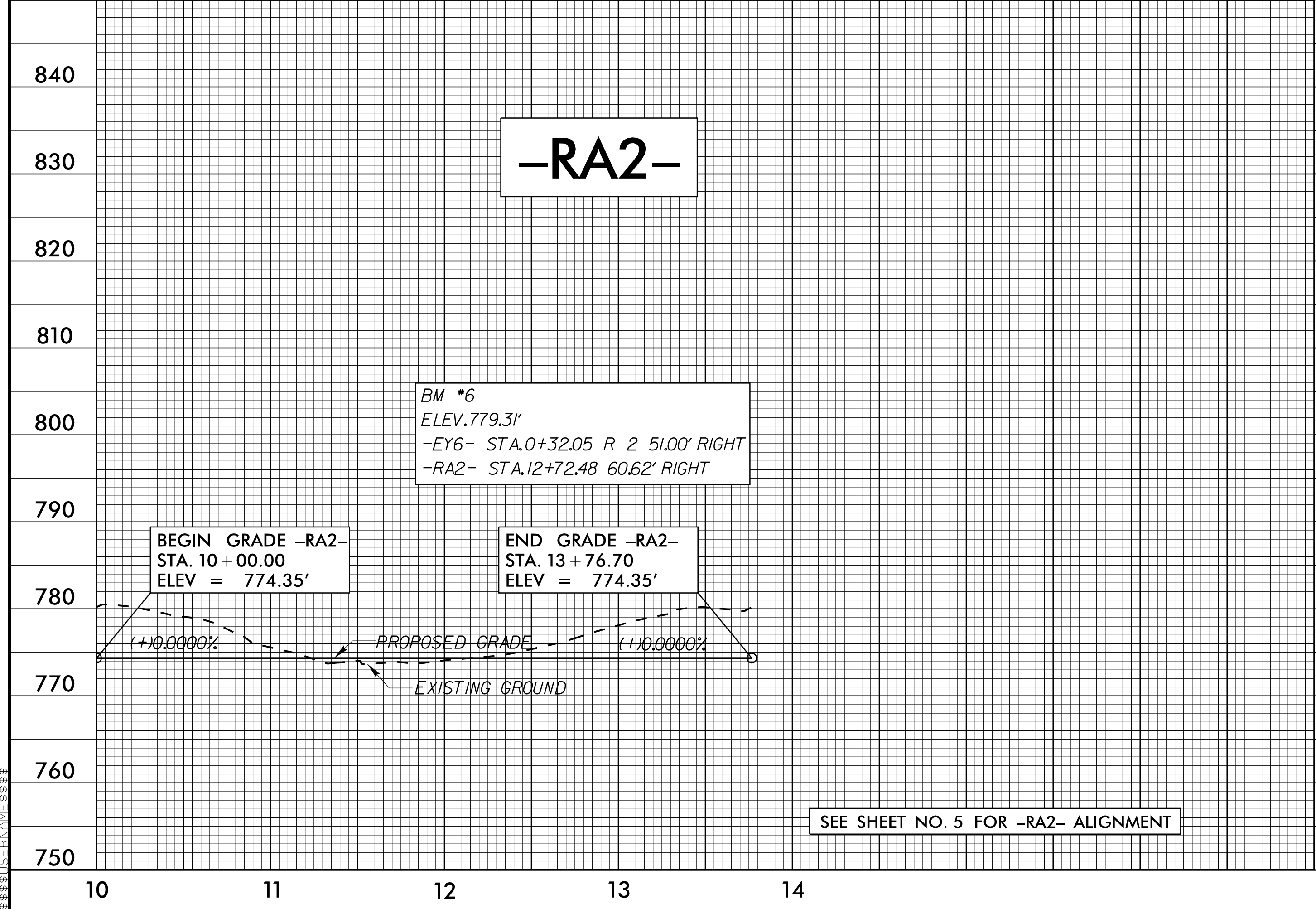
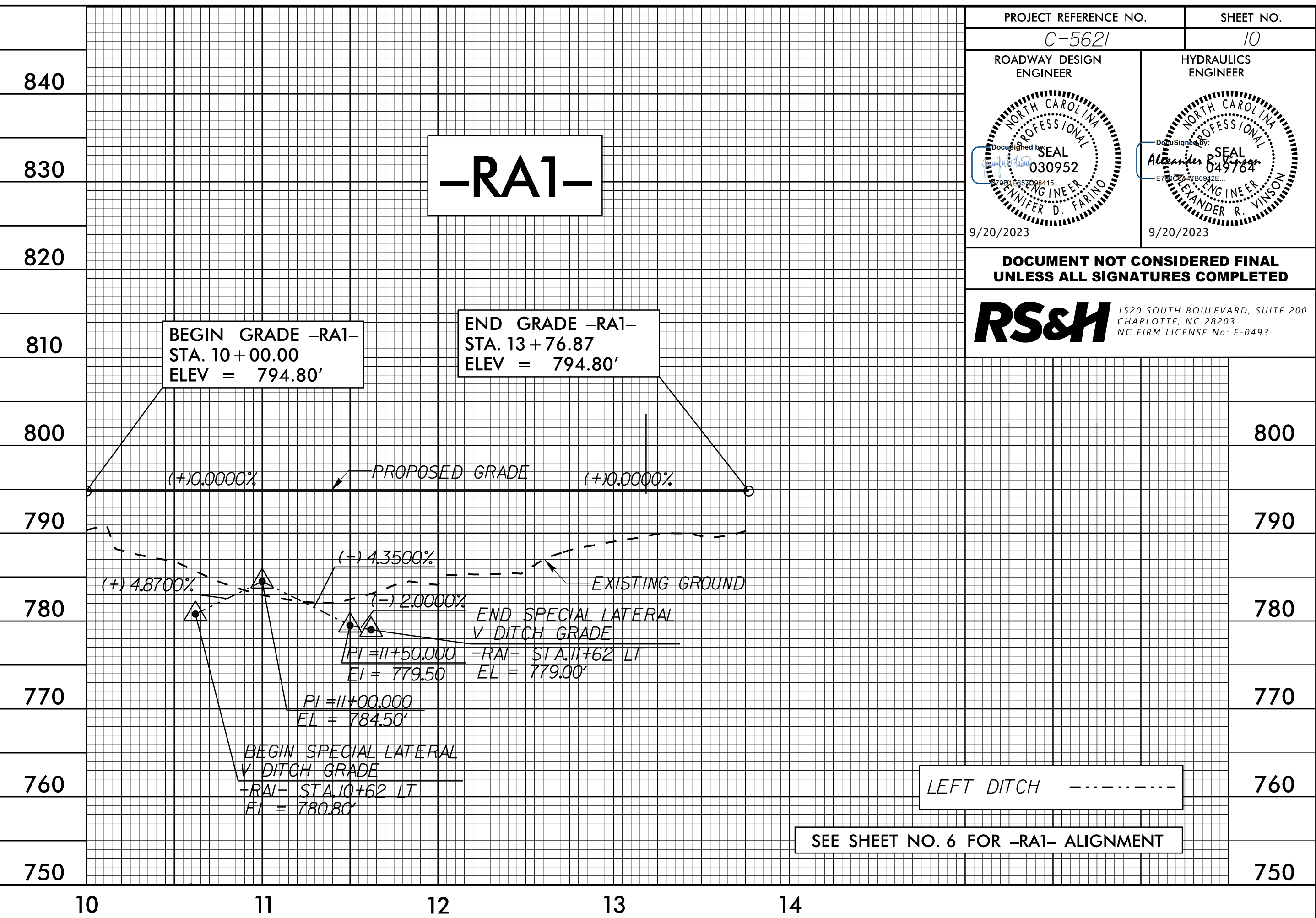
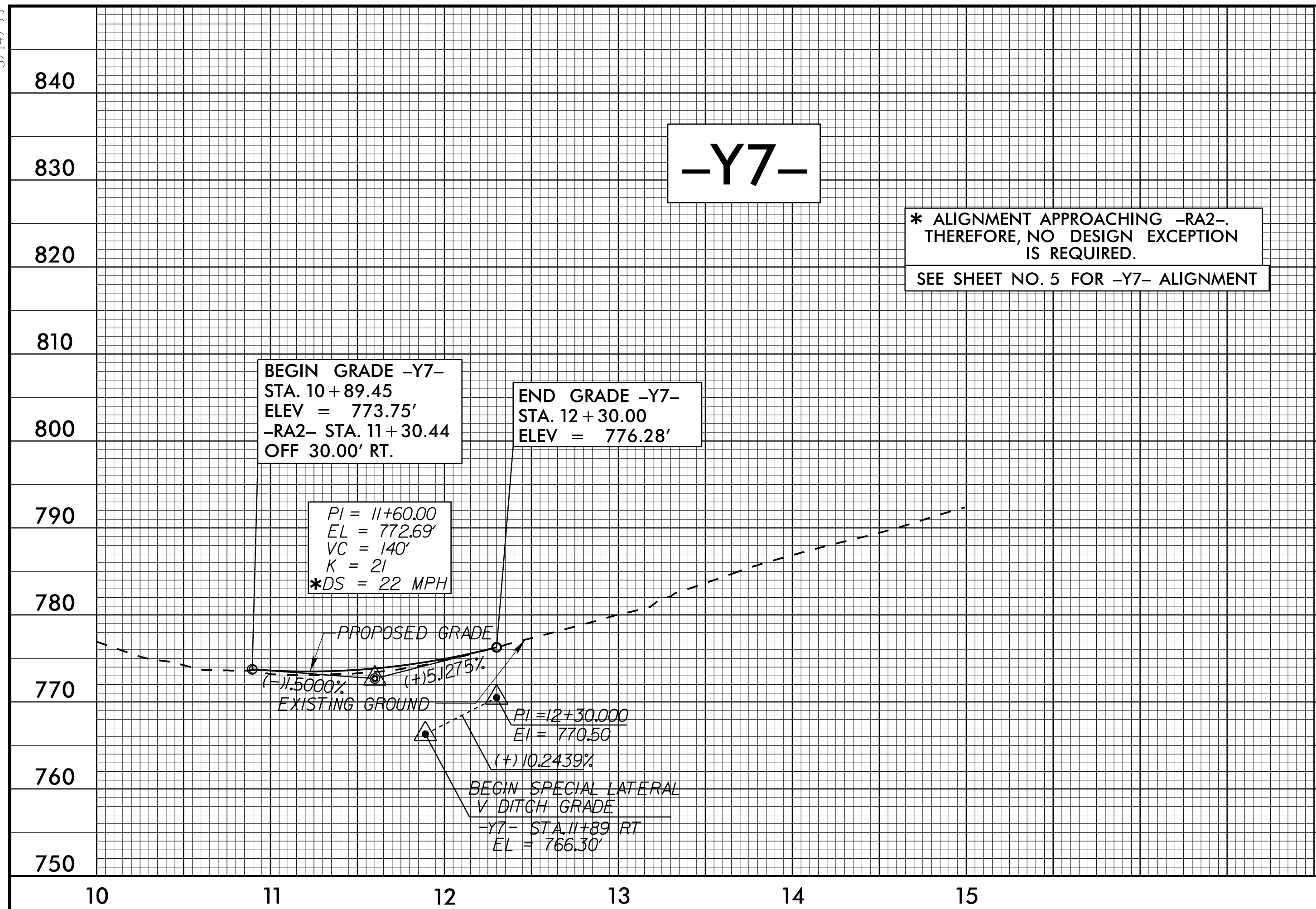
* ALIGNMENT APPROACHING -RA1-. THEREFORE, NO DESIGN EXCEPTION IS REQUIRED.
SEE SHEET NO. 6 FOR -Y4- ALIGNMENT

SEE SHEET NO. 5 FOR -Y6- ALIGNMENT

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PROJECT REFERENCE NO. <i>C-5621</i>	SHEET NO. <i>10</i>
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
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