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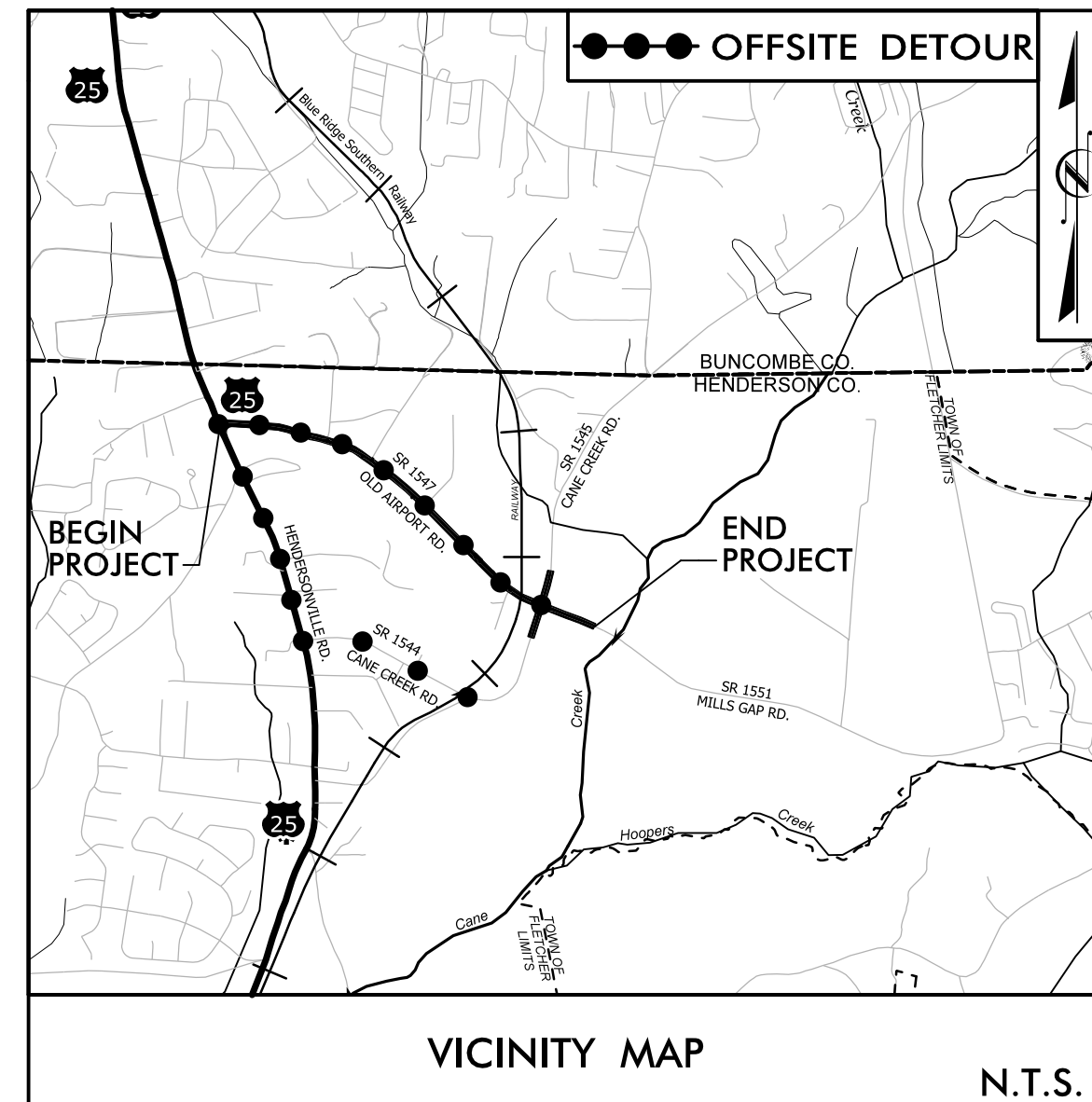
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See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
HENDERSON COUNTY

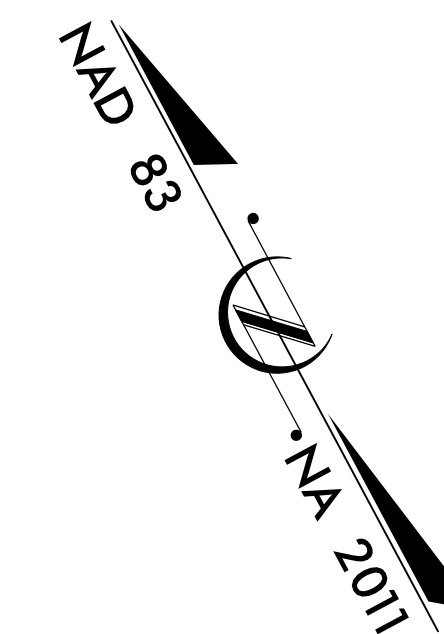
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5840	1	-
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50231.1.D1		P.E.	
50231.2.1		R.O.W./UTILITY	
50231.3.1		CONSTRUCTION	

TIP PROJECT: U-5840

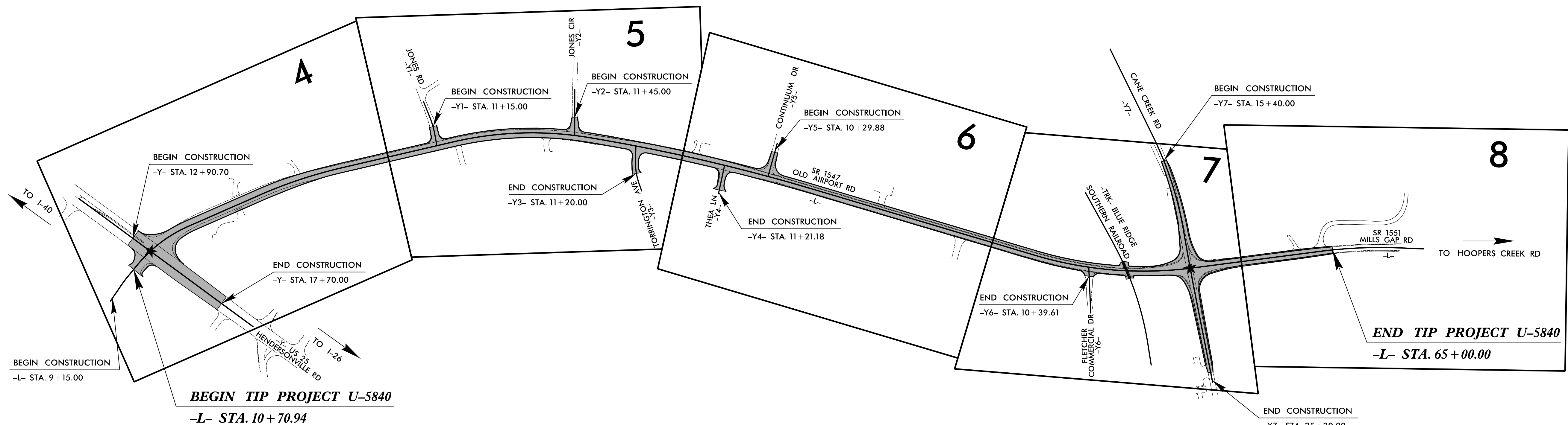


LOCATION: SR 1547 (OLD AIRPORT ROAD) FROM US 25 (HENDERSONVILLE ROAD) TO SR 1551 (MILLS GAP ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERT, SIGNALS, & RETAINING WALLS



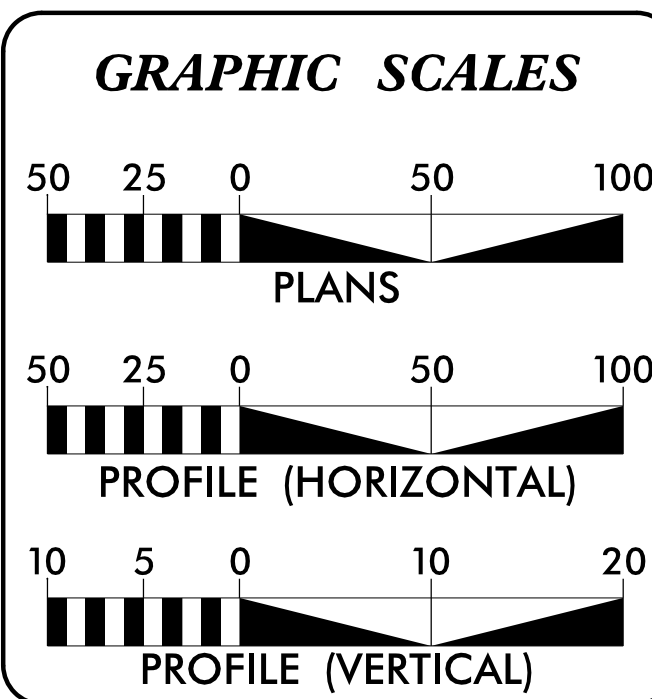
1. DESIGN EXCEPTIONS APPROVED ON JANUARY 11, 2017 FOR SUPERELEVATION, VERTICAL CURVE K VALUE, AND STOPPING SIGHT DISTANCE.



★ REVISED SIGNAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT: C204214



DESIGN DATA

ADT 2018 =	9,000
ADT 2038 =	12,200
K =	6%
D =	55%
T =	6%*
V =	40 MPH
*TTST =	1%, SU = 5%
FUNC. CLASSIFICATION:	URBAN COLLECTOR SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-5840 = 1.028 MILES
TOTAL LENGTH OF TIP PROJECT U-5840 = 1.028 MILES

DIVISION 14 CONTACT: J. SCOTT MILLER, III
DIVISION 14 DESIGN CONSTRUCTION ENGINEER

PLANS PREPARED FOR DIVISION 14 BY:

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 21, 2017

LETTING DATE: DECEMBER 18, 2018

NIKKI T. HONEYCUTT, PE
PROJECT ENGINEER

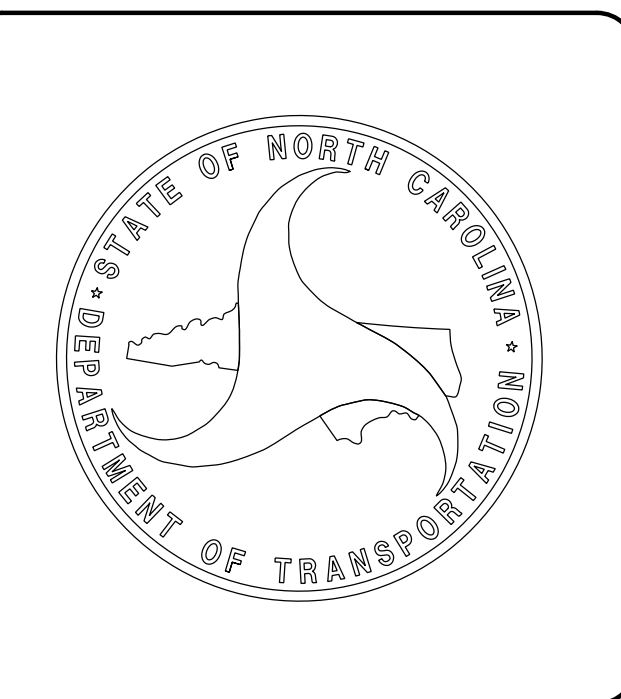
STEPHANIE M. PHILLIPS, EIT
PROJECT DESIGNER

HYDRAULICS ENGINEER

DocuSigned by:
Edward J. Vance
SIGNATURE: 9/20/2018

ROADWAY DESIGN ENGINEER

DocuSigned by:
Nikki T. Honeycutt
SIGNATURE: 9/20/2018



INDEX OF SHEETS

GENERAL NOTES

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-2	SURVEY CONTROL SHEETS
1D-1	PROPOSED ALIGNMENT CONTROL SHEET
2A-1 THRU 2A-4	TYPICAL SECTIONS, PAVEMENT SCHEDULE AND WEDGING DETAIL
2B-1 THRU 2B-2	INTERSECTION DETAILS
2B-3	RAILROAD CROSSING DETAIL
2C-1	CURB RAMPS DETAIL
2C-2	GUARDRAIL AT-1 END UNIT DETAIL
2C-3	GUARDRAIL W BEAM RAIL SECTION DETAIL
2C-4	TRANSITION FROM 2'-6" CURB AND GUTTER TO VALLEY GUTTER
3B-1	EARTHWORK, GUARDRAIL, PAVEMENT REMOVAL AND CHAIN LINK FENCE SUMMARY SHEET
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3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 8	PLAN SHEETS
9 THRU 12	PROFILE SHEETS
TMP-1 THRU TMP-19	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-4	PAVEMENT MARKING PLANS
EC-1 THRU EC-14	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-4	SIGNING PLANS
SIG-1 THRU SIG-13	SIGNAL PLANS
SIG-M1 THRU SIG-M6	STANDARD SIGNAL METAL POLE DETAIL SHEETS
UC-1 THRU UC-11	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-6	UTILITIES BY OTHERS PLANS
X-1 THRU X-34	CROSS SECTIONS
C1 THRU C-3	CULVERT PLANS
W-1 THRU W-6	RETAINING WALL DETAILS

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

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 PLACE. 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 II.

SUPER ELEVATION:
 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. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

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

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".

SUBSURFACE PLANS:
 NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:
 UTILITY OWNERS ON THIS PROJECT ARE:
 WATER - CITY OF HENDERSONVILLE
 SEWER - CANE CREEK WATER AND SEWER
 COMMUNICATIONS - AT&T AND MORRIS BROADBAND
 ELECTRICITY DISTRIBUTION - DUKE ENERGY
 GAS - PSNC ENERGY
 ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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

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.

PROJECT REFERENCE NO. U-5840	SHEET NO. 1A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	

STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS EFF. January 16, 2018

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 II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Super-elevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
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 Gates - 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
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick, Concrete, or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.30	Driveway Drop Inlet
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing 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
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb and Gutter
848.06	Curb Ramp - Existing Curb & Gutter
852.01	Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
866.01	Chain Link Fence - 4', 5' and 6' High Fence
876.01	Rip Rap in Channels
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

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Computed Property Corner	⊗
Property Monument	□
Parcel/Sequence Number	(23)
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—☠
Potential Contamination Area: Soil	☠—S—☠
Known Contamination Area: Water	☠—W—☠
Potential Contamination Area: Water	☠—W—☠
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
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	← FLOW
False Sump	▽

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	⊕
Single Shrub	⊕

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

Hedge	~~~~~
Woods Line	~~~~~
Orchard	⊕
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	⊕
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	⊕
H-Frame Pole	●
U/G Power Cable Hand Hole	PH
U/G Power Line LOS B (S.U.E.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

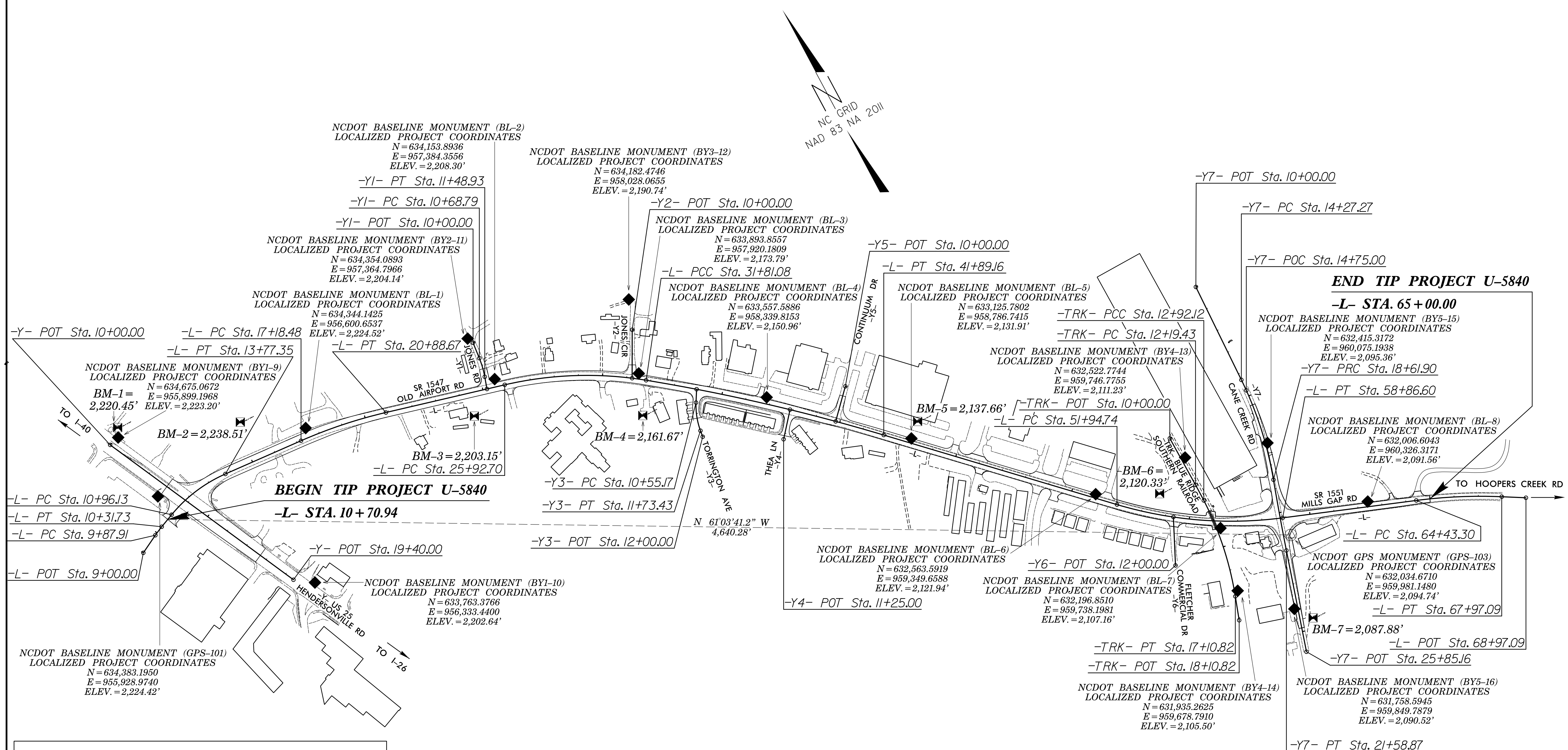
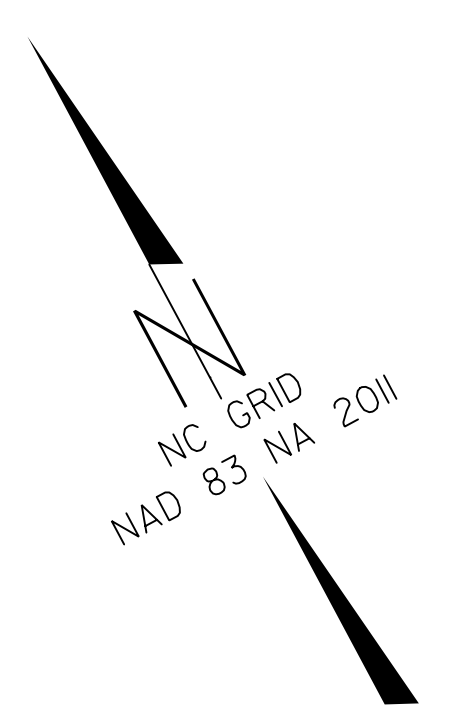
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
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.

SURVEY CONTROL SHEET U-5840

-FINAL-



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-103" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 632034.6710(±) EASTING: 959981.1480(±) ELEVATION: 2094.74(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997797375

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-103" TO -L- STATION 10+70.94 IS
N 61°03'41.2" W 4,640.48'

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

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](https://connect.ncdot.gov/resources/location)
THE FILES TO BE FOUND ARE AS FOLLOWS:
U-5840_LS_CONTROL.TXT
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 MODEL - G12ANC
NOTE: DRAWING NOT TO SCALE

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PROJECT REFERENCE NO. U-5840 SHEET NO. 1C-2 Location and Surveys

SURVEY CONTROL SHEET U-5840

-FINAL-

Table with columns: POINT, DESC., NORTH, EAST, ELEVATION, L STATION, OFFSET. Rows 1-8.

Table with columns: POINT, DESC., NORTH, EAST, ELEVATION, Y STATION, OFFSET. Rows 9-10.

Table with columns: POINT, DESC., NORTH, EAST, ELEVATION, Y1 STATION, OFFSET. Rows 11-10.

Table with columns: POINT, DESC., NORTH, EAST, ELEVATION, Y2 STATION, OFFSET. Rows 12-13.

Table with columns: POINT, DESC., NORTH, EAST, ELEVATION, TRK STATION, OFFSET. Rows 13-14.

Table with columns: POINT, DESC., NORTH, EAST, ELEVATION, Y7 STATION, OFFSET. Rows 15-16.

***** ELEVATION = 2220.45' ***** BM1 ELEVATION = 2137.66' N 634712.14 E 95916.42 N 633175.33 E 958942.76 Y STATION 10+00.00 L STATION 43+07.33 93.86' LEFT N 51+28'19.0" E DIST 77.81' NAIL IN BASE OF 22' CEDAR ***** ELEVATION = 2120.33' ***** BM2 ELEVATION = 2238.51' N 634492.82 E 956374.12 L STATION 53+59.67 85.98' LEFT NAIL IN BASE OF POPLAR ***** ELEVATION = 2203.15' ***** BM3 ELEVATION = 2087.88' N 631689.36 E 959900.68 Y7 STATION 24+53.27 54.06' LEFT NAIL IN BASE OF OAK STUMP ***** ELEVATION = 2161.67' ***** BM4 ELEVATION = 2097.00' N 633732.65 E 957853.02 L STATION 31+91.27 145.93' RIGHT NAIL IN BASE OF LIGHT POLE *****

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-103" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTING: 632034.6710(+) EASTING: 959981.1480(+) ELEVATION: 2094.74(+) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997797375 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-103" TO -L- STATION 10+70.94 IS N 61°03'41.2" W 4,640.48' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

-FINAL- ROW MARKER IRON PIN AND CAP-E

Table with columns: ALIGN, STATION, OFFSET, NORTH, EAST. Rows for station 13+67.13 through 13+69.04.

-FINAL- ROW MARKER PERMANENT PUE EASEMENT-E

Table with columns: ALIGN, STATION, OFFSET, NORTH, EAST. Rows for station 41+85.00 through 13+31.39.

Table with columns: ALIGN, STATION, OFFSET, NORTH, EAST. Rows for station 11+39.37.

Table with columns: ALIGN, STATION, OFFSET, NORTH, EAST. Rows for station 10+86.02 through 10+86.03.

Table with columns: ALIGN, STATION, OFFSET, NORTH, EAST. Rows for station 19+21.00 through 21+69.00.

-FINAL- ROW MARKER PERMANENT PDE EASEMENT-E

Table with columns: ALIGN, STATION, OFFSET, NORTH, EAST. Rows for station 15-75.00 through 42-76.00.

Table with columns: ALIGN, STATION, OFFSET, NORTH, EAST. Rows for station 10+90.22.

-FINAL- ROW MARKER IRON PIN AND CAP-E

Table with columns: ALIGN, STATION, OFFSET, NORTH, EAST. Rows for station 15-40.00 through 20-85.65.

Table with columns: TYPE, STATION, NORTH, EAST. Rows for station 10+00.00 through 12+00.00.

Table with columns: TYPE, STATION, NORTH, EAST. Rows for station 10+00.00 through 11+25.00.

Table with columns: TYPE, STATION, NORTH, EAST. Rows for station 10+00.00 through 11+50.00.

Table with columns: TYPE, STATION, NORTH, EAST. Rows for station 10+00.00 through 12+00.00.

Table with columns: TYPE, STATION, NORTH, EAST. Rows for station 10+00.00 through 25-85.16.

-FINAL- ROW MARKER PERMANENT PUE EASEMENT-E

Table with columns: TYPE, STATION, NORTH, EAST. Rows for station 10+00.00 through 68+97.09.

Table with columns: TYPE, STATION, NORTH, EAST. Rows for station 10+00.00 through 19+40.00.

Table with columns: TYPE, STATION, NORTH, EAST. Rows for station 10+00.00 through 12+00.00.

Table with columns: TYPE, STATION, NORTH, EAST. Rows for station 10+00.00 through 12+00.00.

NOTES:

- 1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/ THE FILES TO BE FOUND ARE AS FOLLOWS: U-5840_LS_CONTROL.TXT 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.

PROPOSED ALIGNMENT CONTROL SHEET U-5840

-L-

TYPE	STATION	NORTH	EAST
POT	9+00.00	634206.1484	955766.0890
PC	9+87.91	634246.6538	955844.1163
PT	10+31.73	634265.1116	955883.8360
PC	10+96.13	634289.6666	955943.3696
PT	13+77.35	634333.1936	956218.6088
PC	17+18.48	634306.7787	956558.7098
PT	20+88.67	634244.2167	956923.0388
PC	25+92.70	634113.3713	957409.7873
PCC	31+81.08	633854.4940	957933.9639
PT	41+89.16	633191.8407	958692.7547
PC	51+94.74	632484.0111	959407.0208
PT	58+86.60	632112.6879	959984.7854
PC	64+43.30	631915.7608	960505.4936
PT	67+97.09	631762.7457	960824.0001
POT	68+97.09	631711.8349	960910.0704

-Y-

TYPE	STATION	NORTH	EAST
POT	10+00.00	634663.6673	955855.5479
POT	19+55.00	633801.8180	956266.9367

-Y1-

TYPE	STATION	NORTH	EAST
POT	10+00.00	634328.2175	957376.2916
PC	10+68.79	634259.7855	957369.2601
PT	11+48.93	634181.5157	957352.7542
POT	12+00.00	634132.9334	957337.0157

-Y2-

TYPE	STATION	NORTH	EAST
POT	10+00.00	634065.4470	957981.4405
POT	12+00.00	633889.2182	957886.8710

-Y3-

TYPE	STATION	NORTH	EAST
POT	10+00.00	633723.3540	958100.1415
PC	10+55.17	633675.7947	958072.1734
PT	11+73.43	633564.8182	958033.6010
POT	12+00.00	633538.4949	958029.9607

-Y4-

TYPE	STATION	NORTH	EAST
POT	10+00.00	633467.0322	958400.7665
POT	11+25.00	633371.7448	958319.8634

-Y5-

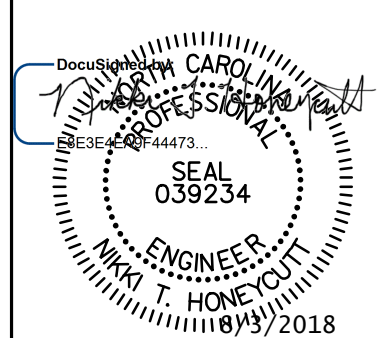
TYPE	STATION	NORTH	EAST
POT	10+00.00	633443.8429	958647.7352
POT	11+50.00	633335.2107	958544.2990

-Y6-

TYPE	STATION	NORTH	EAST
POT	10+00.00	632328.7697	959588.1769
POT	12+00.00	632148.4474	959501.6675

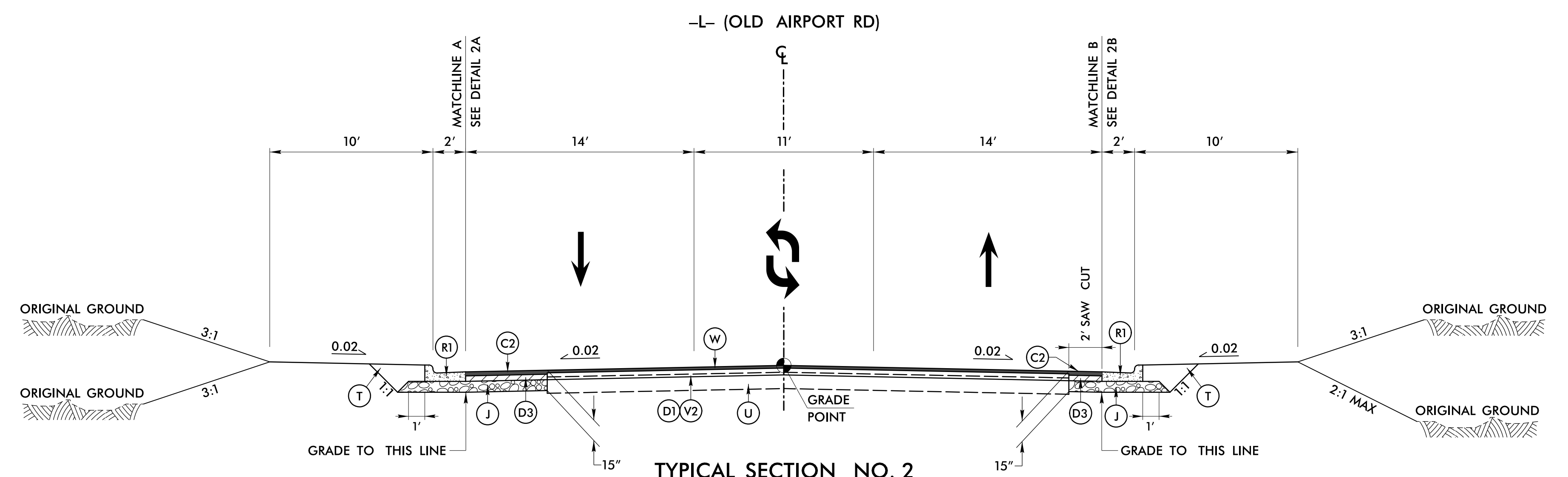
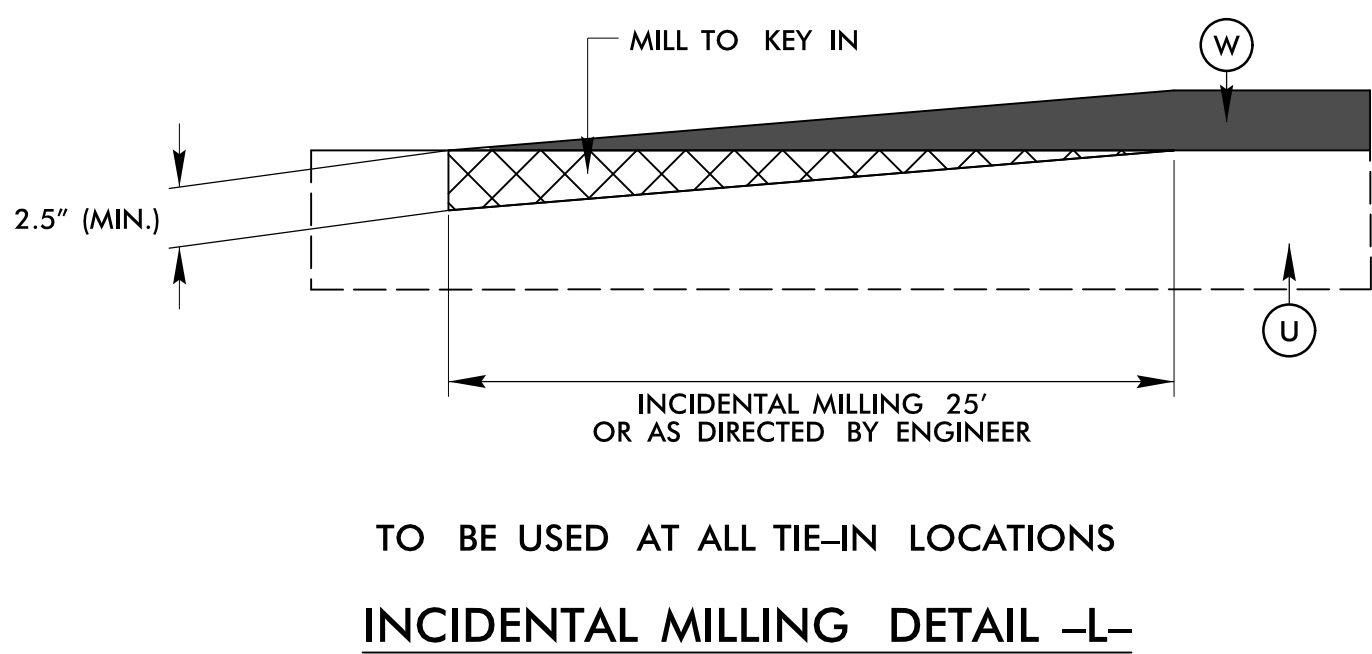
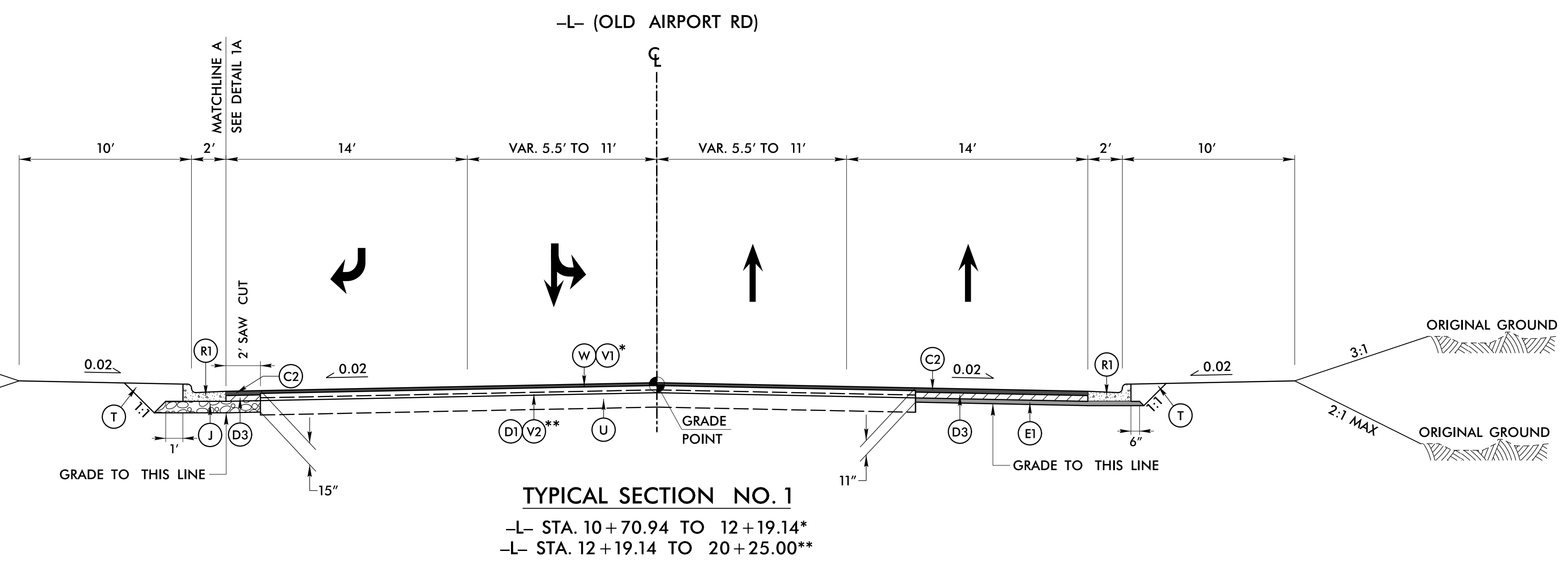
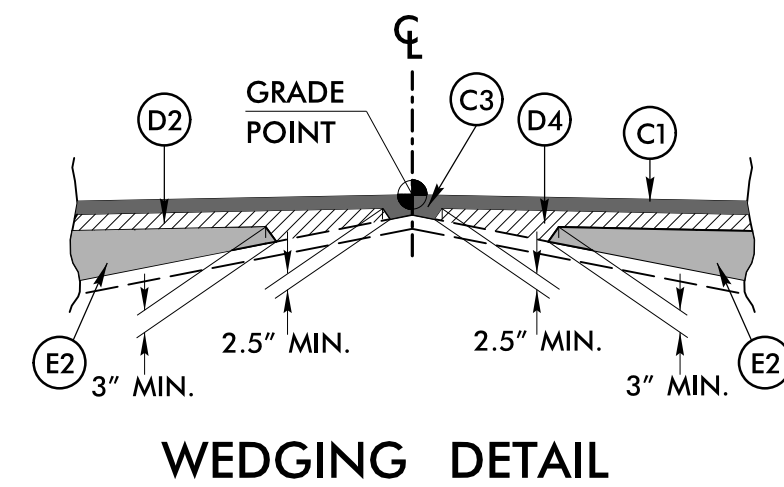
-Y7-

TYPE	STATION	NORTH	EAST
POT	10+00.00	633122.6050	960118.2405
PC	14+27.27	632695.6055	960103.0885
PRC	18+61.90	632269.5179	960025.4008
PT	21+58.87	631986.7480	959934.7048
POT	25+85.16	631578.9350	959810.5495



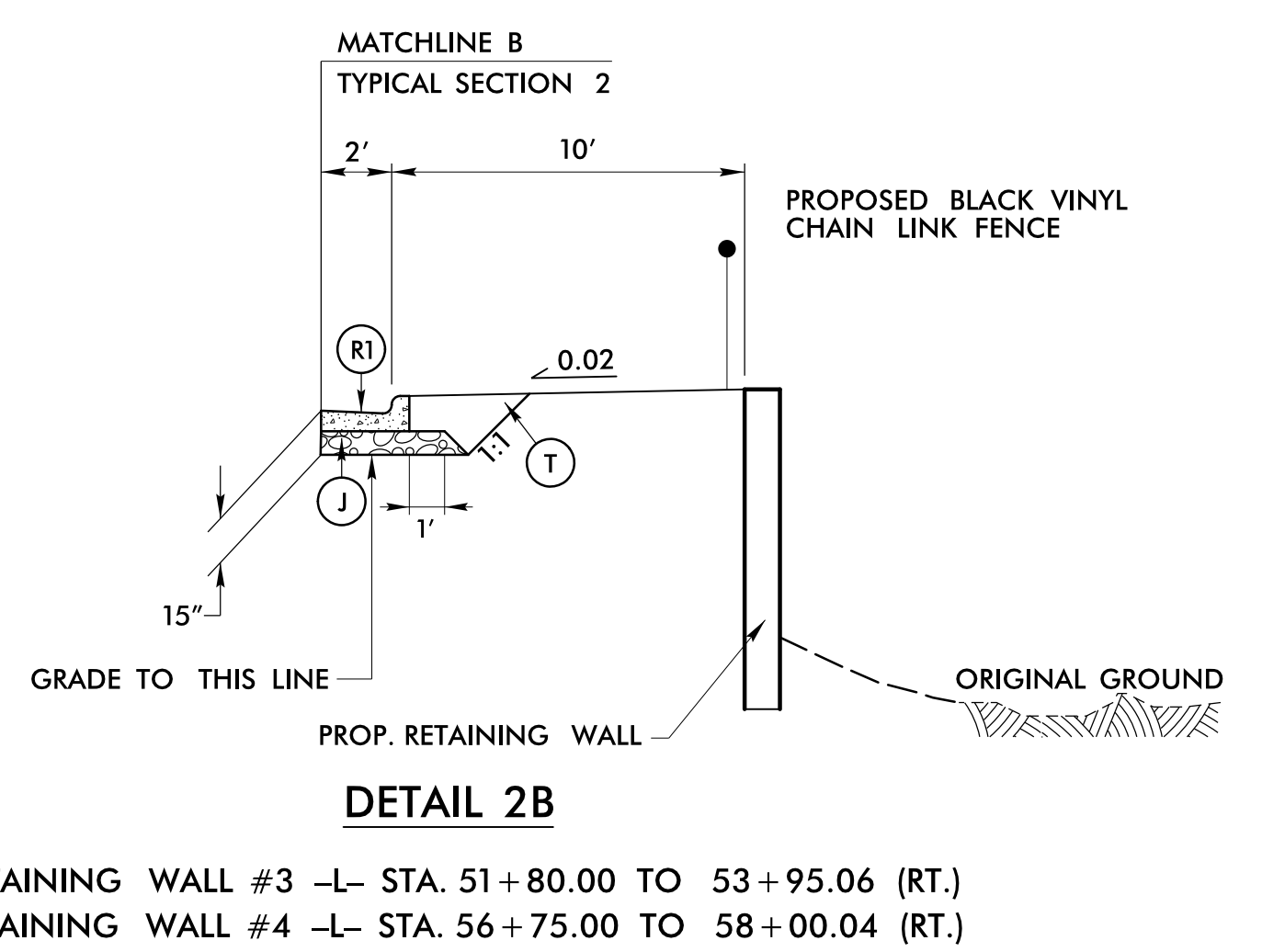
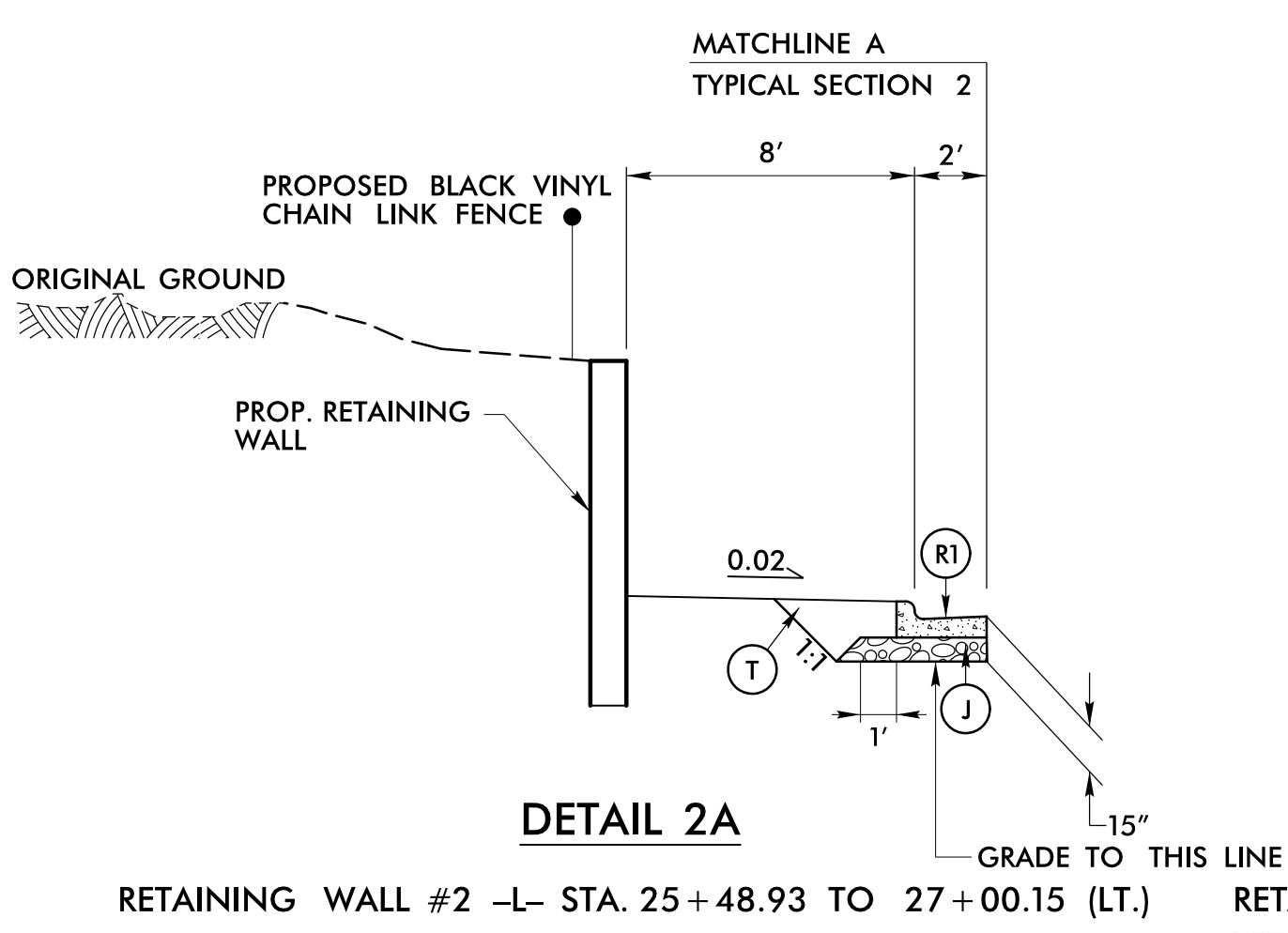
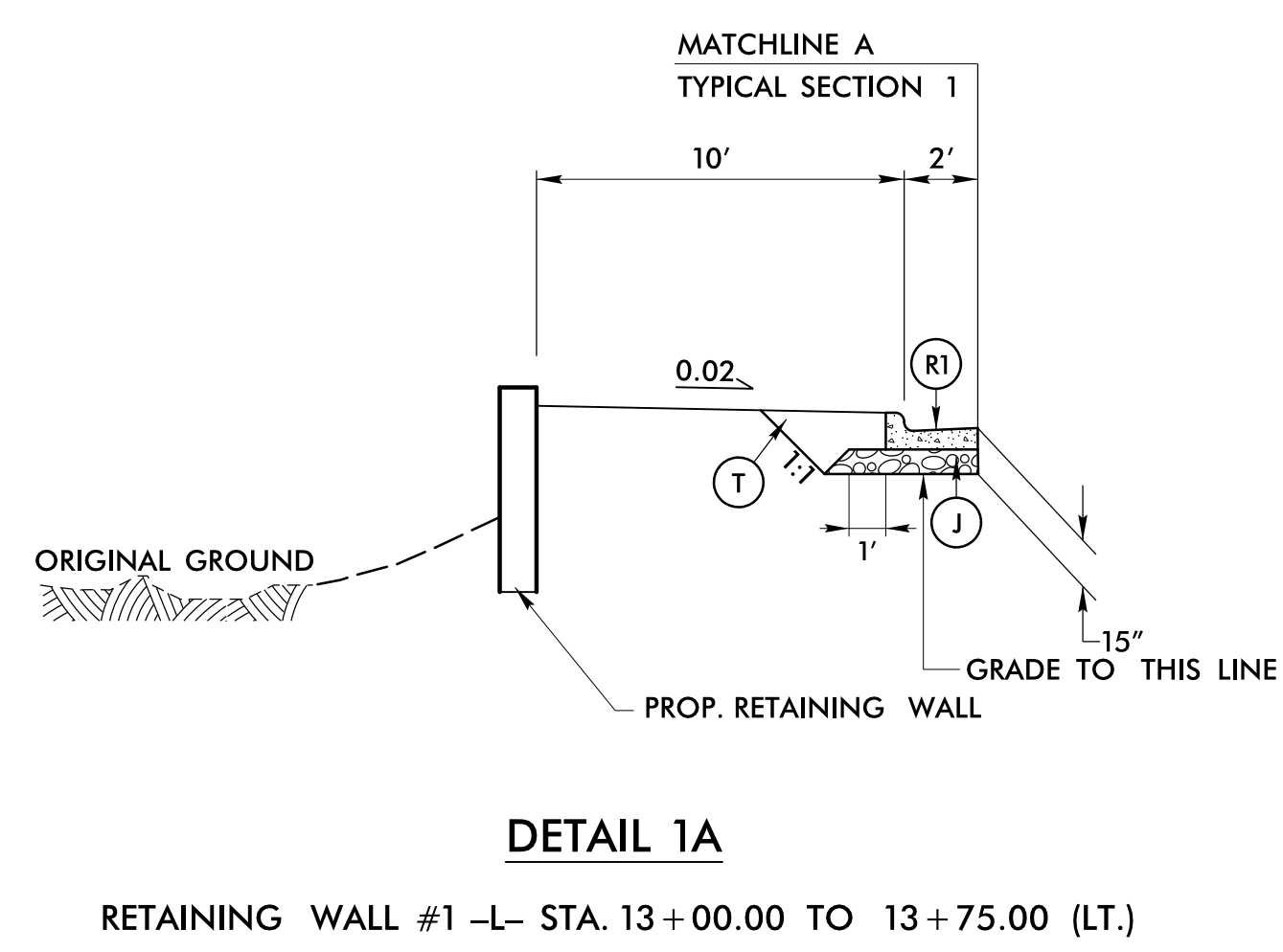
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV 100 Years STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991

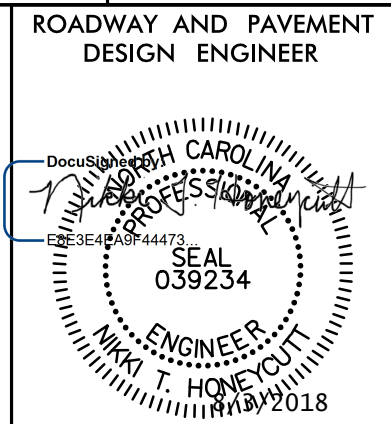


ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D4	PROP. APPROX. 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. APPROX. 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.
J	8" AGGREGATE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER
R2	2' VALLEY GUTTER
R3	EXISTING 2'-6" CONCRETE CURB AND GUTTER
R4	EXISTING MONOLITHIC CONCRETE ISLAND
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING (1.5")
V2	MILLING (2.5")
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL ON THIS SHEET)

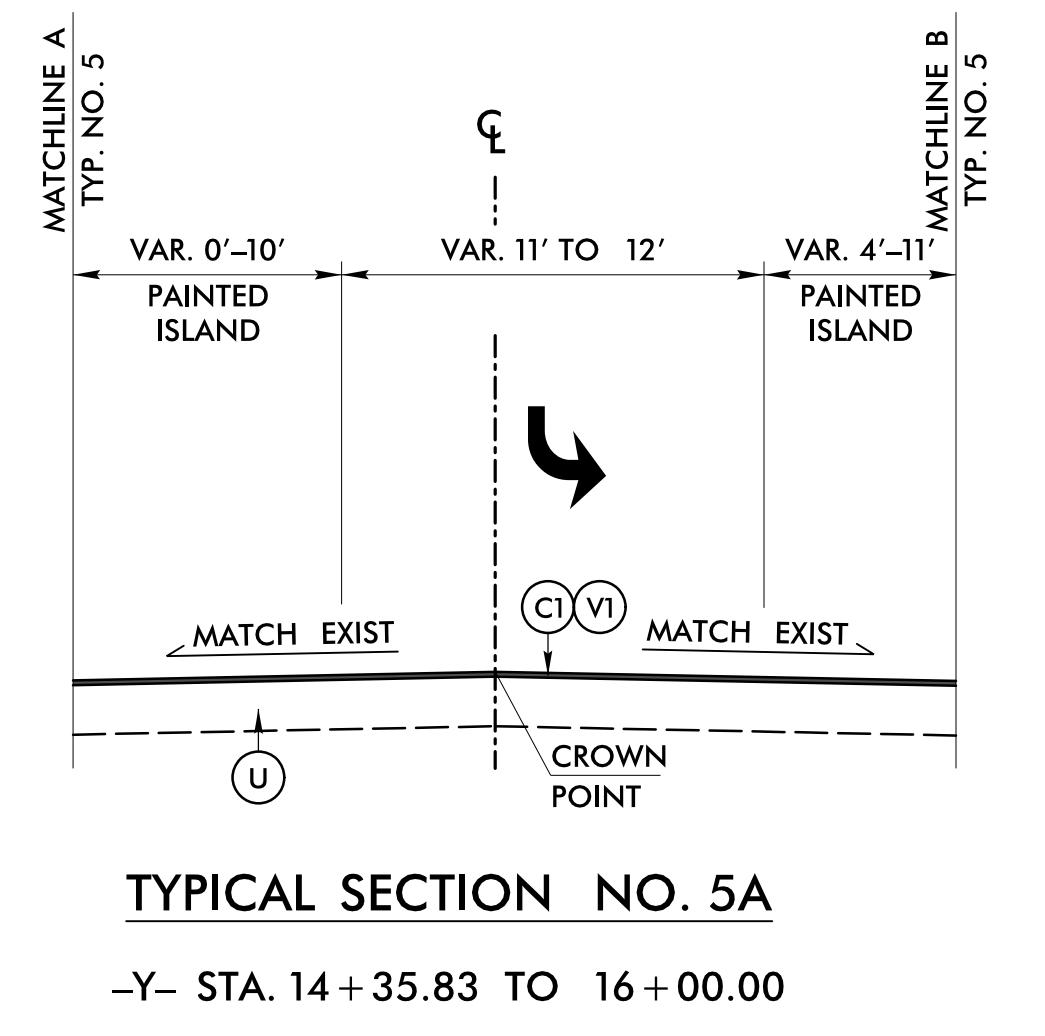
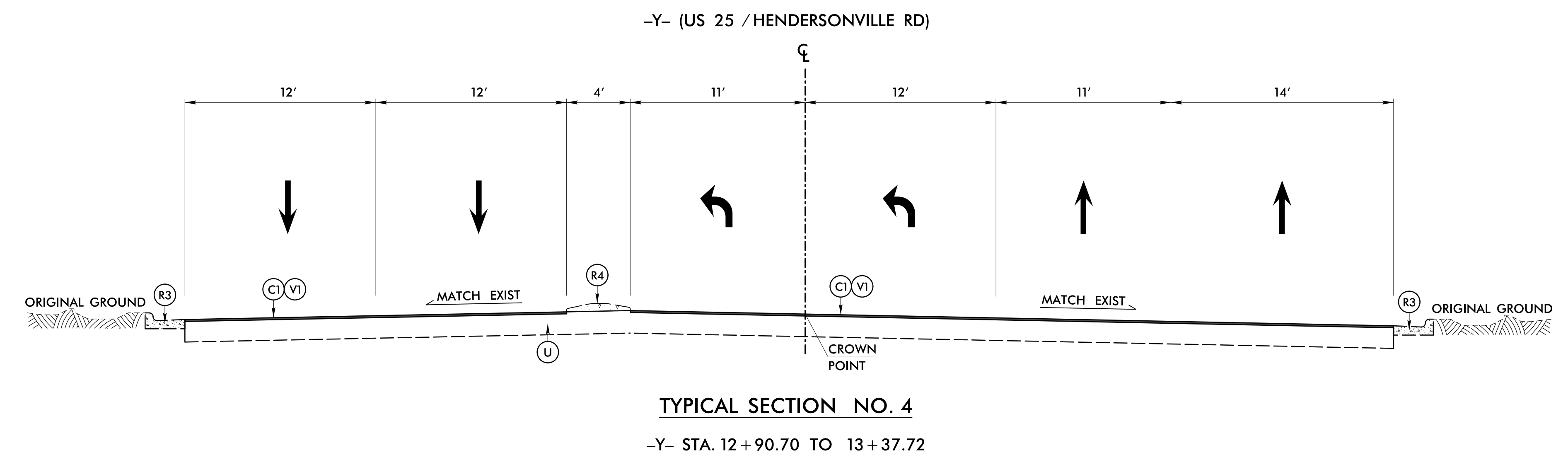
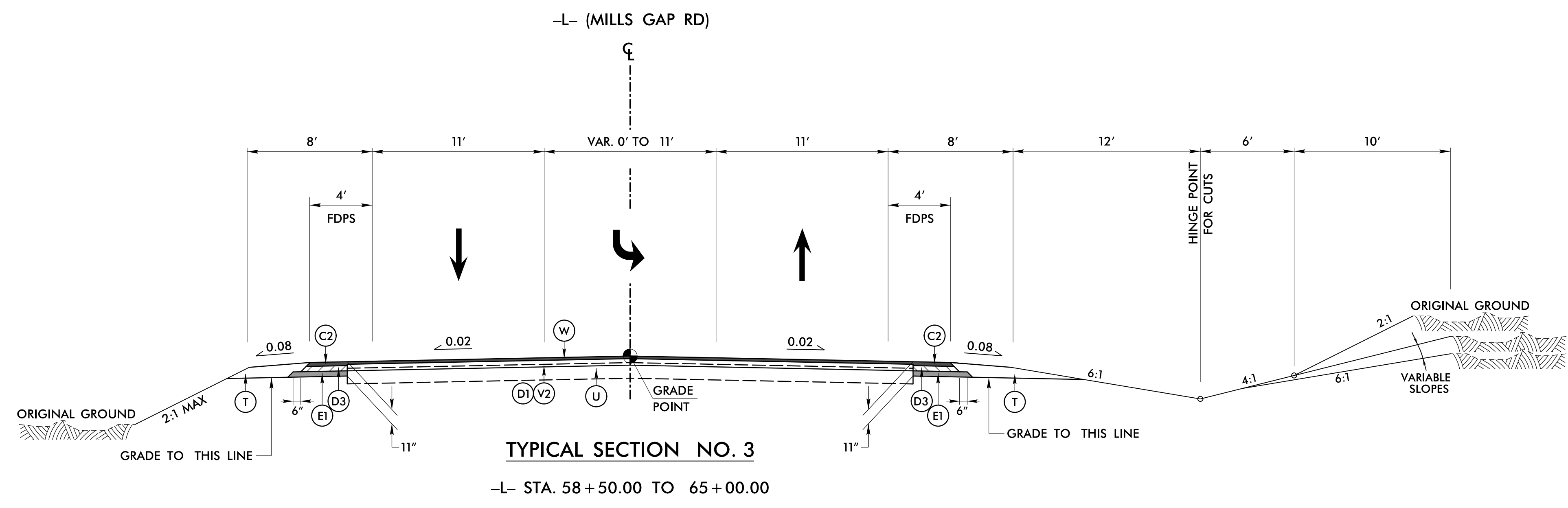


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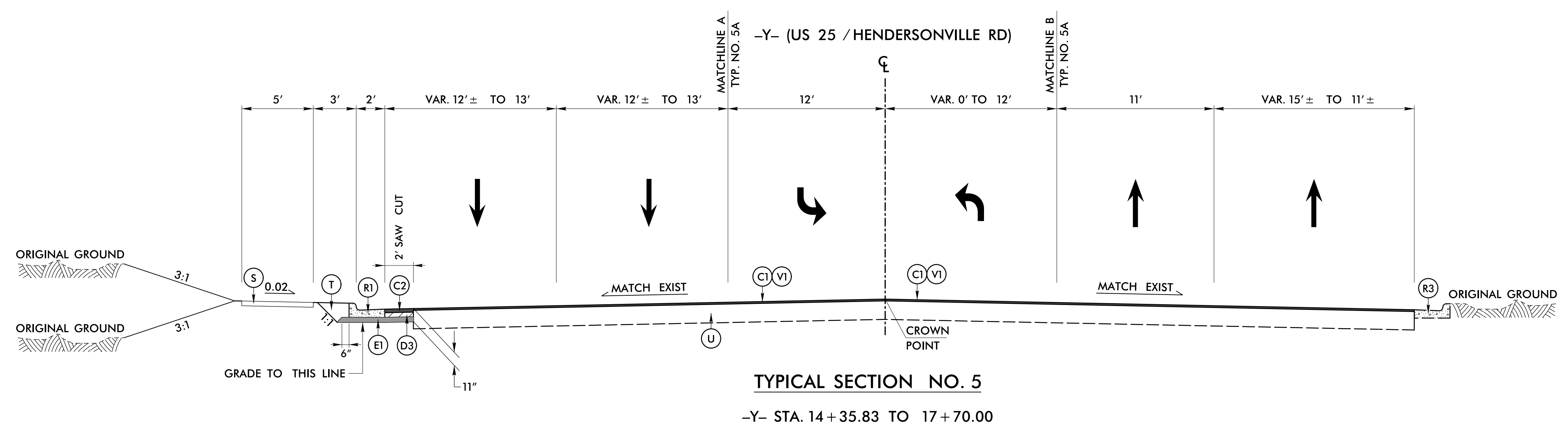
DOCUMENT NOT CONSIDERED FINAL
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Charlotte, NC 28202
NC License Number F-0991

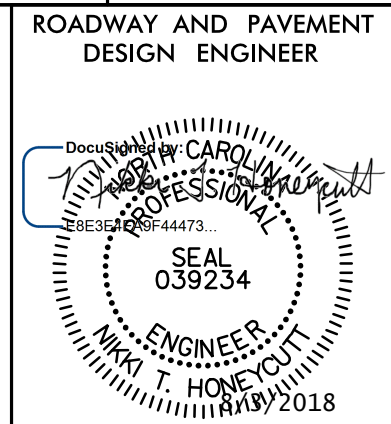


ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	2.5" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
J	8" ABC
R1	2'-6" C&G
R2	2' VALLEY GUTTER
R3	EXISTING 2'-6" C&G
R4	EXISTING MONO. ISLAND
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING (1.5")
V2	MILLING (2.5")
W	VAR. DEPTH ASPHALT PAVEMENT

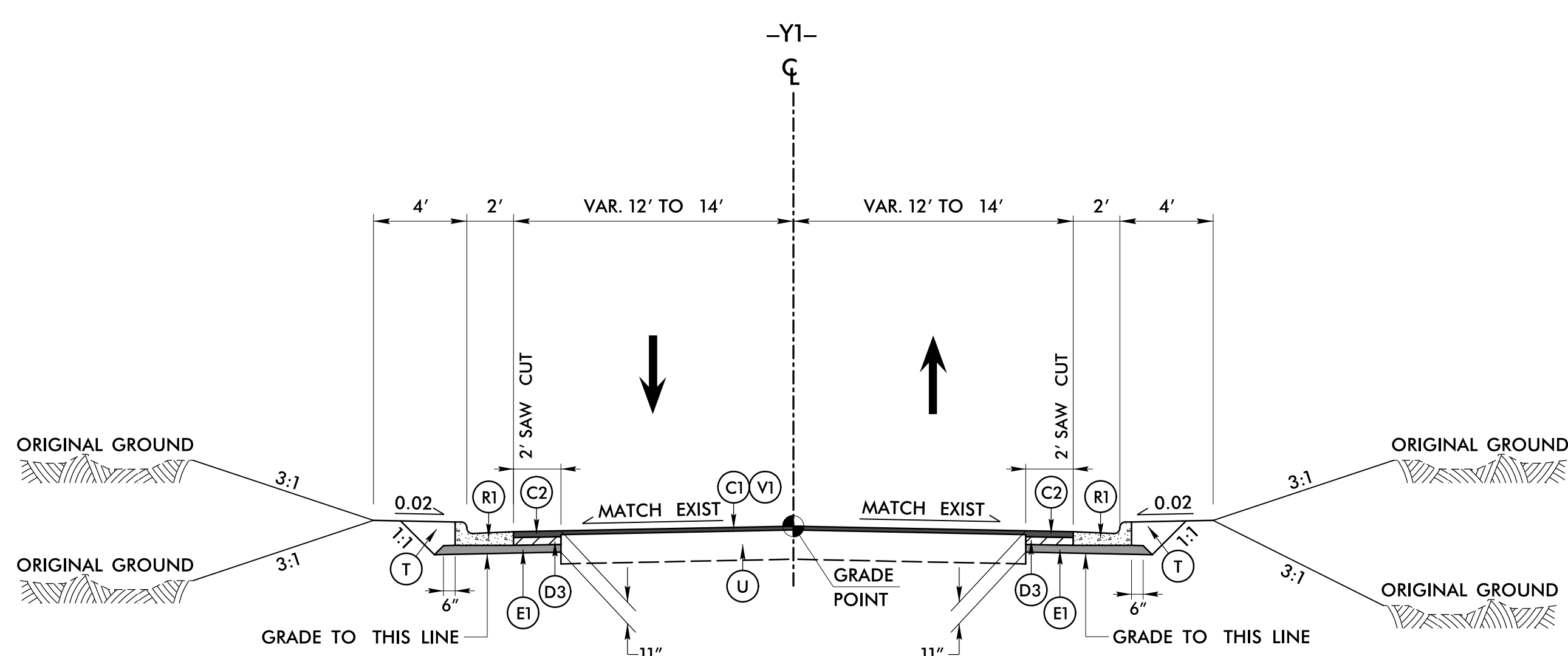


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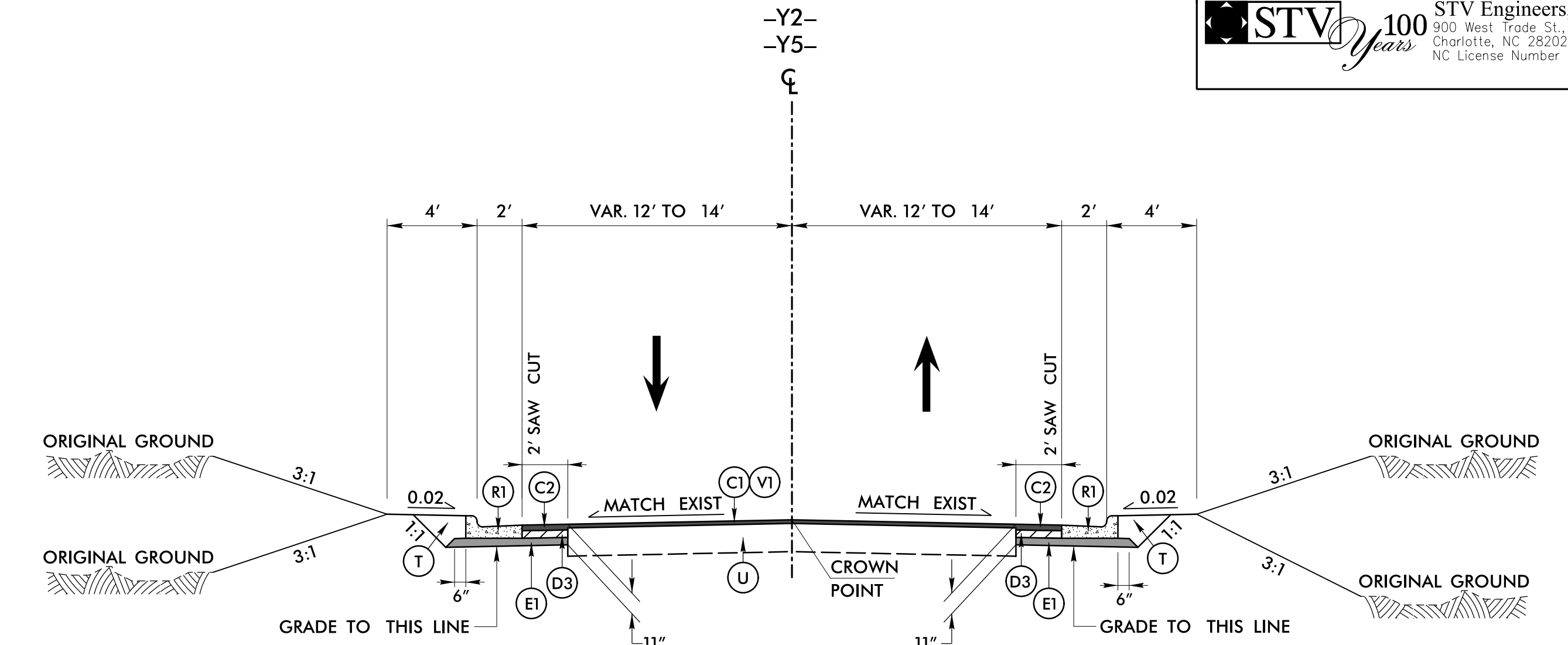


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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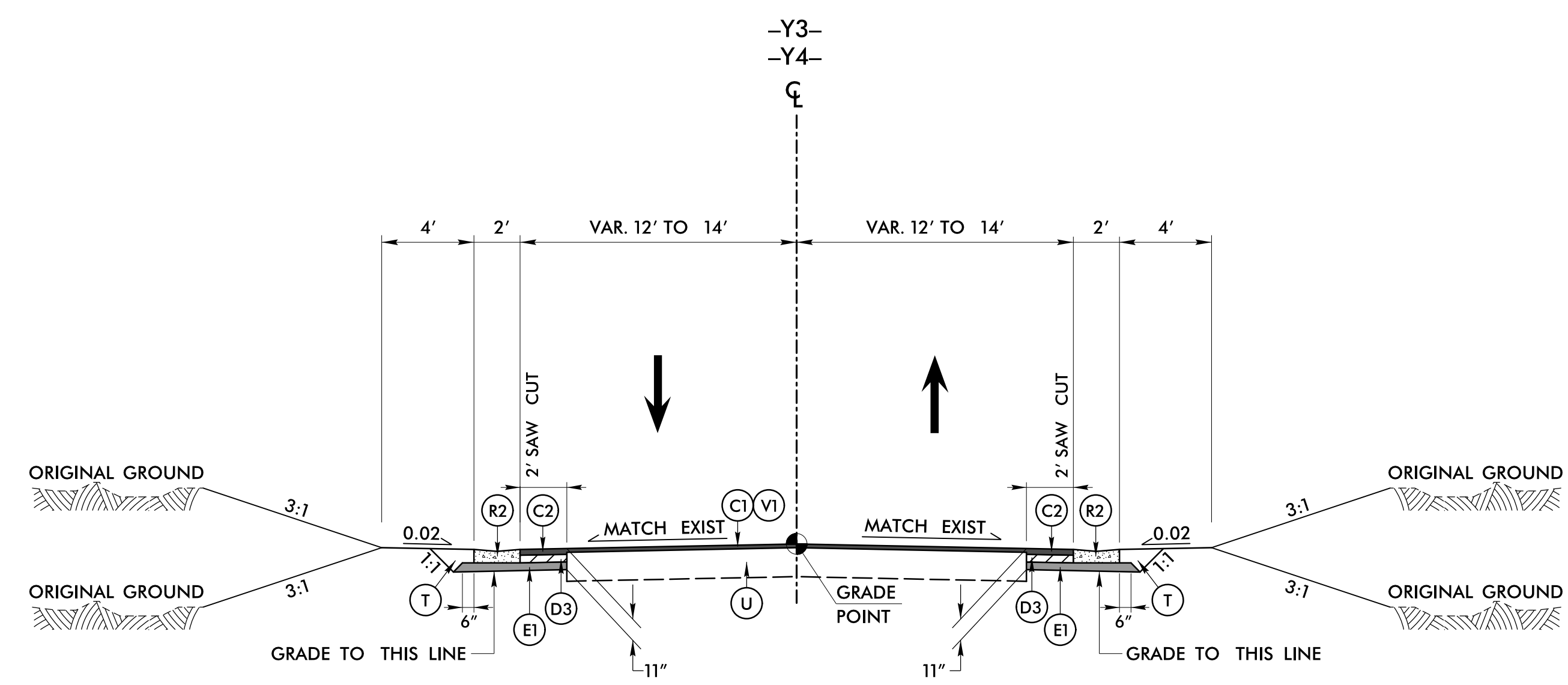
TYPICAL SECTION NO. 6
-Y1- STA. 11+15.00 TO 11+80.47



TYPICAL SECTION NO. 7
-Y2- STA. 11+20.00 TO 11+80.35
-Y5- STA. 10+40.75 TO 11+30.50

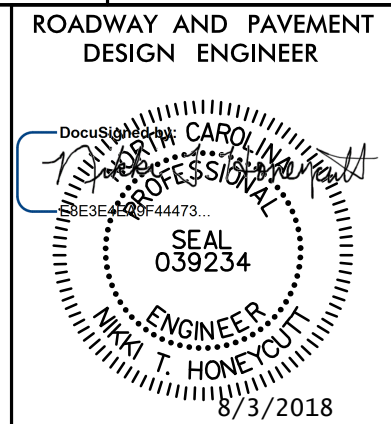
ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	2.5" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
J	8" ABC
R1	2'-6" C&G
R2	2' VALLEY GUTTER
R3	EXISTING 2'-6" C&G
R4	EXISTING MONO. ISLAND
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING (1.5")
V2	MILLING (2.5")
W	VAR. DEPTH ASPHALT PAVEMENT



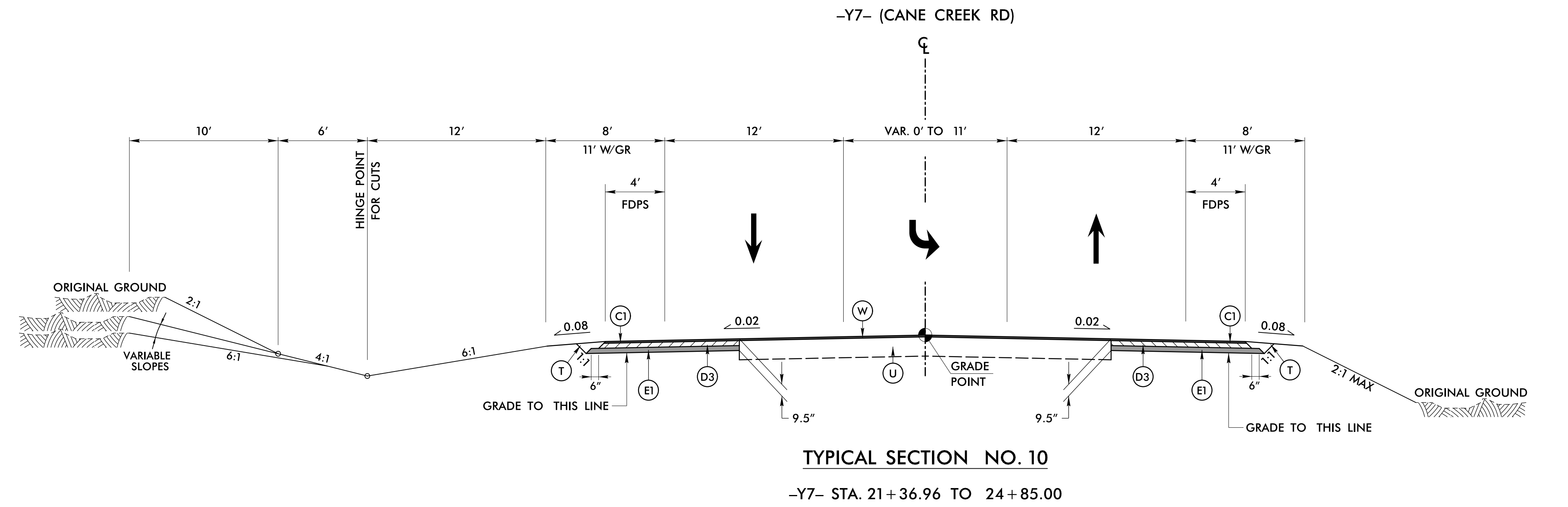
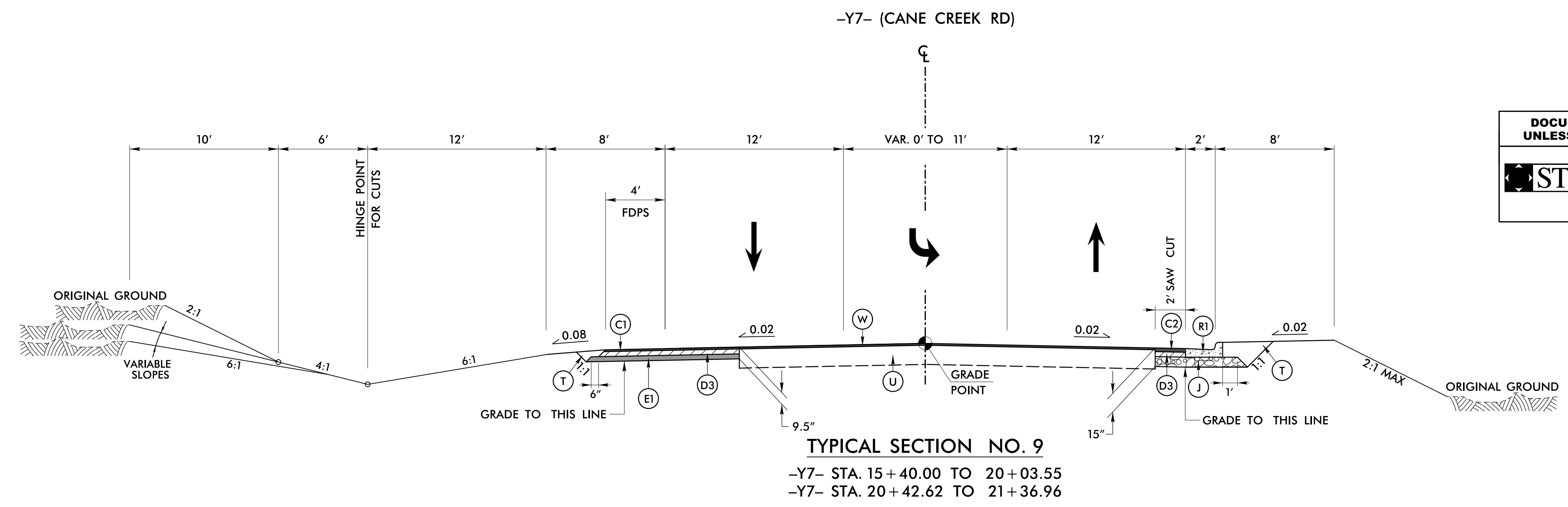
TYPICAL SECTION NO. 8
-Y3- STA. 10+19.72 TO 11+20.00
-Y4- STA. 10+19.51 TO 11+10.00

5/14/1999
7/10/2018
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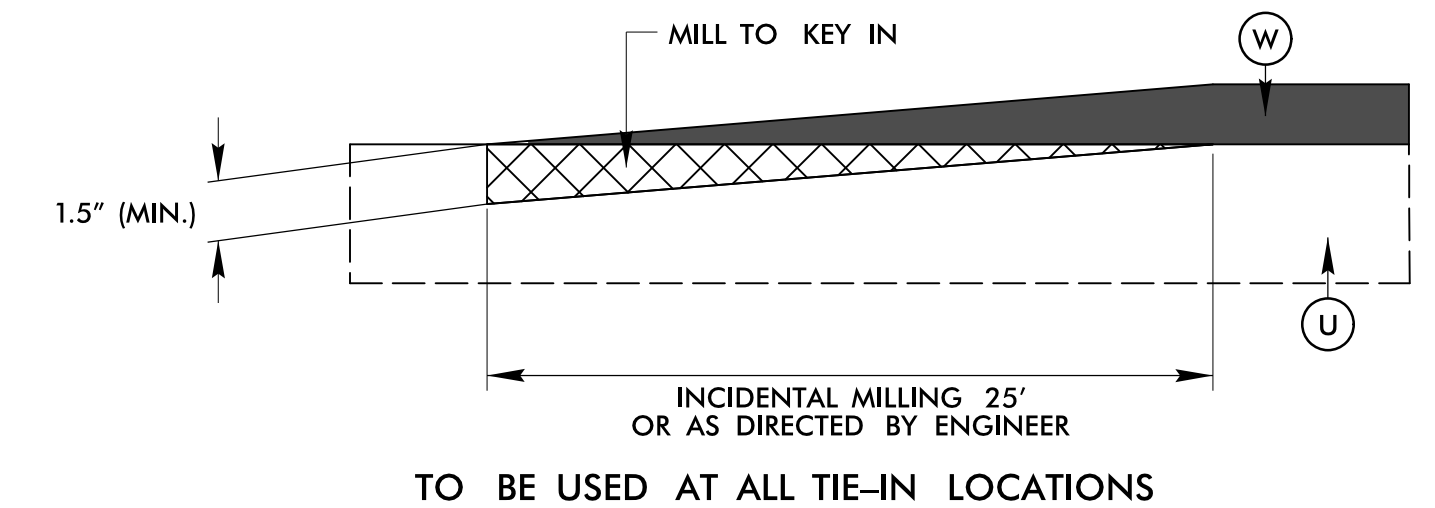
**DOCUMENT NOT CONSIDERED FINAL
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ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE

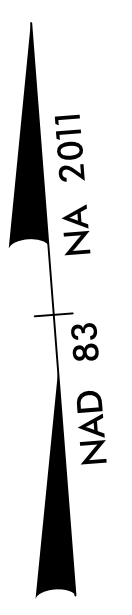
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	2.5" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
J	8" ABC
R1	2'-6" C&G
R2	2' VALLEY GUTTER
R3	EXISTING 2'-6" C&G
R4	EXISTING MONO. ISLAND
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING (1.5")
V2	MILLING (2.5")
W	VAR. DEPTH ASPHALT PAVEMENT



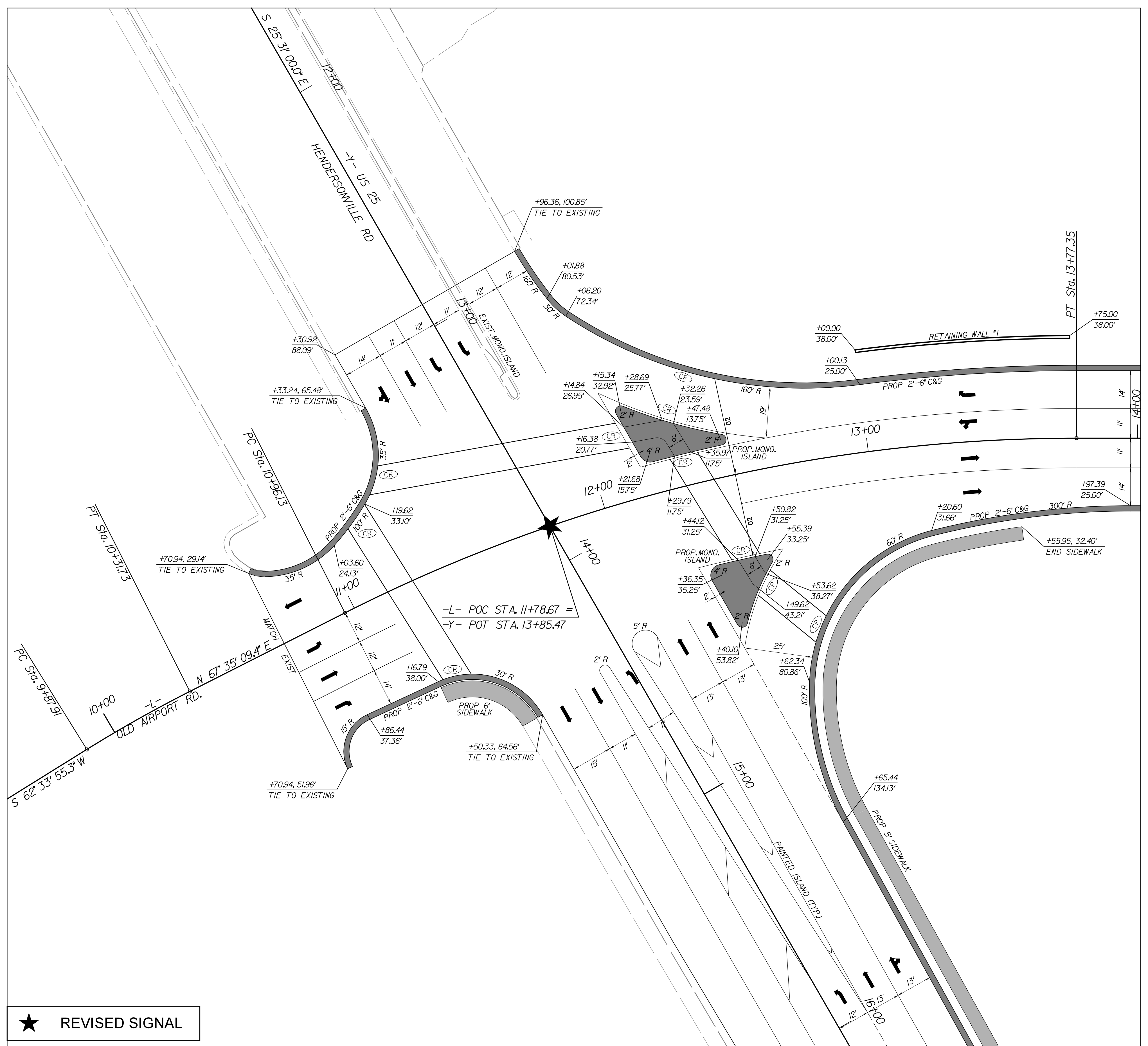
INCIDENTAL MILLING DETAIL -Y7-

5/14/19
7/10/2018
r:\v-roadway\stn\U-5840_rdy_psh02_TYP.dgn

PROJECT REFERENCE NO. U-5840	SHEET NO. 2B-1
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	



	CONCRETE CURB / GUTTER & MONOLITHIC ISLAND
	SIDEWALK & FULL DEPTH PAVED SHOULDER

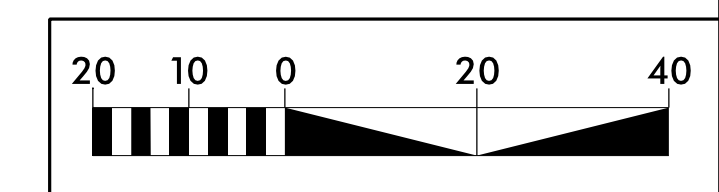


★ REVISED SIGNAL

INTERSECTION DETAIL - A

-L- OLD AIRPORT RD, -Y- US 25 (HENDERSONVILLE RD)

SEE SHEET 4 FOR FULL PLAN VIEW

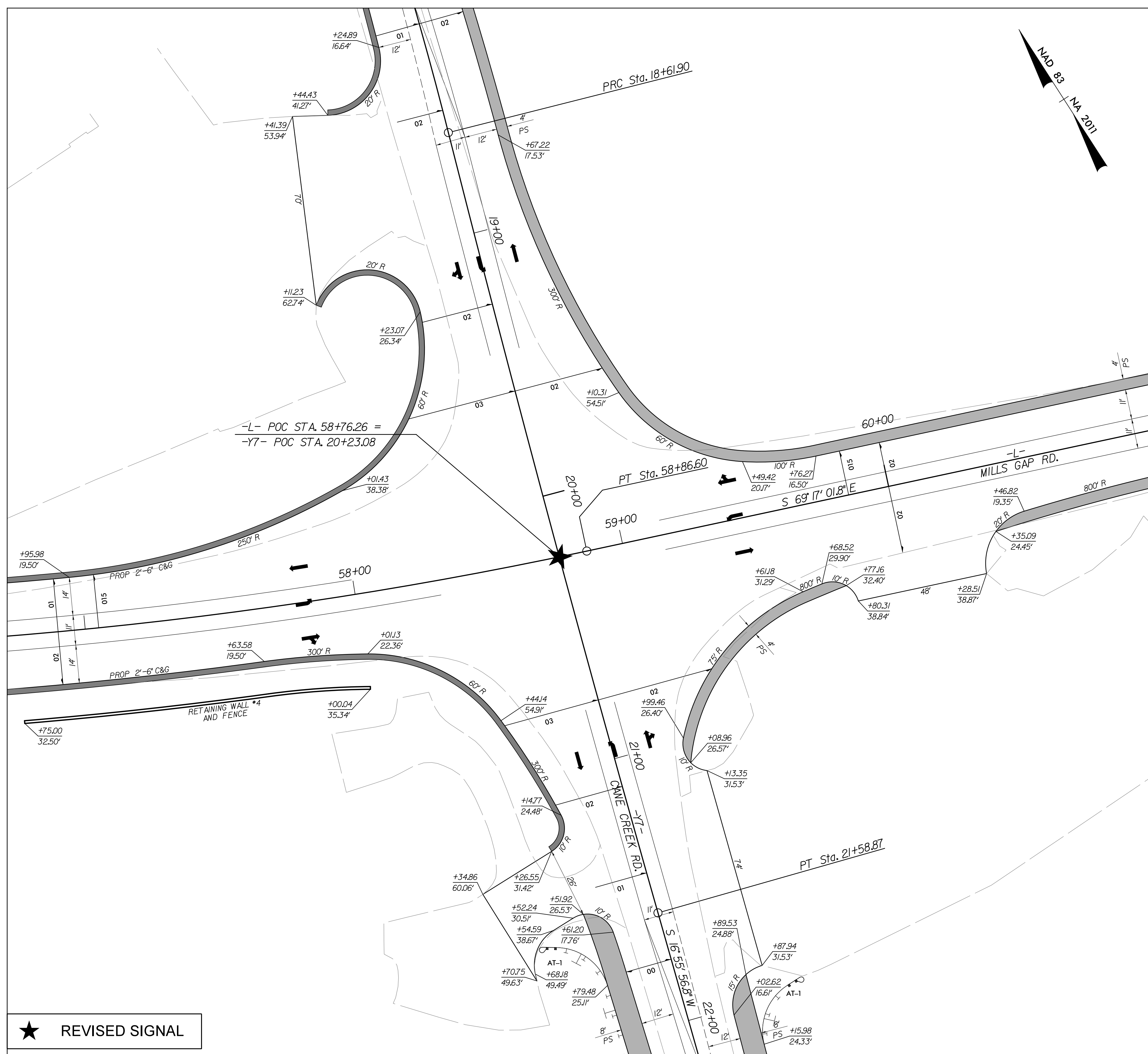


PROJECT REFERENCE NO. U-5840	SHEET NO. 2B-2
ROADWAY DESIGN ENGINEER	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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 STV Engineers, Inc.
 900 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

	CONCRETE CURB /GUTTER
	FULL DEPTH PAVED SHOULDER

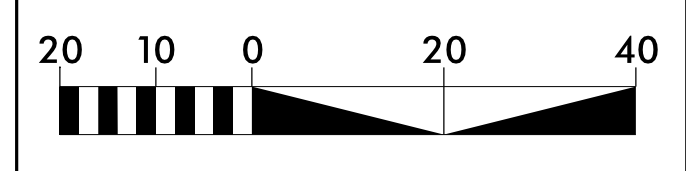


★ REVISED SIGNAL

INTERSECTION DETAIL - B

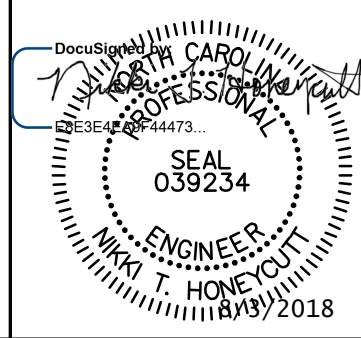

-L- OLD AIRPORT RD, -Y7- CANE CREEK RD

SEE SHEET 7 FOR FULL PLAN VIEW

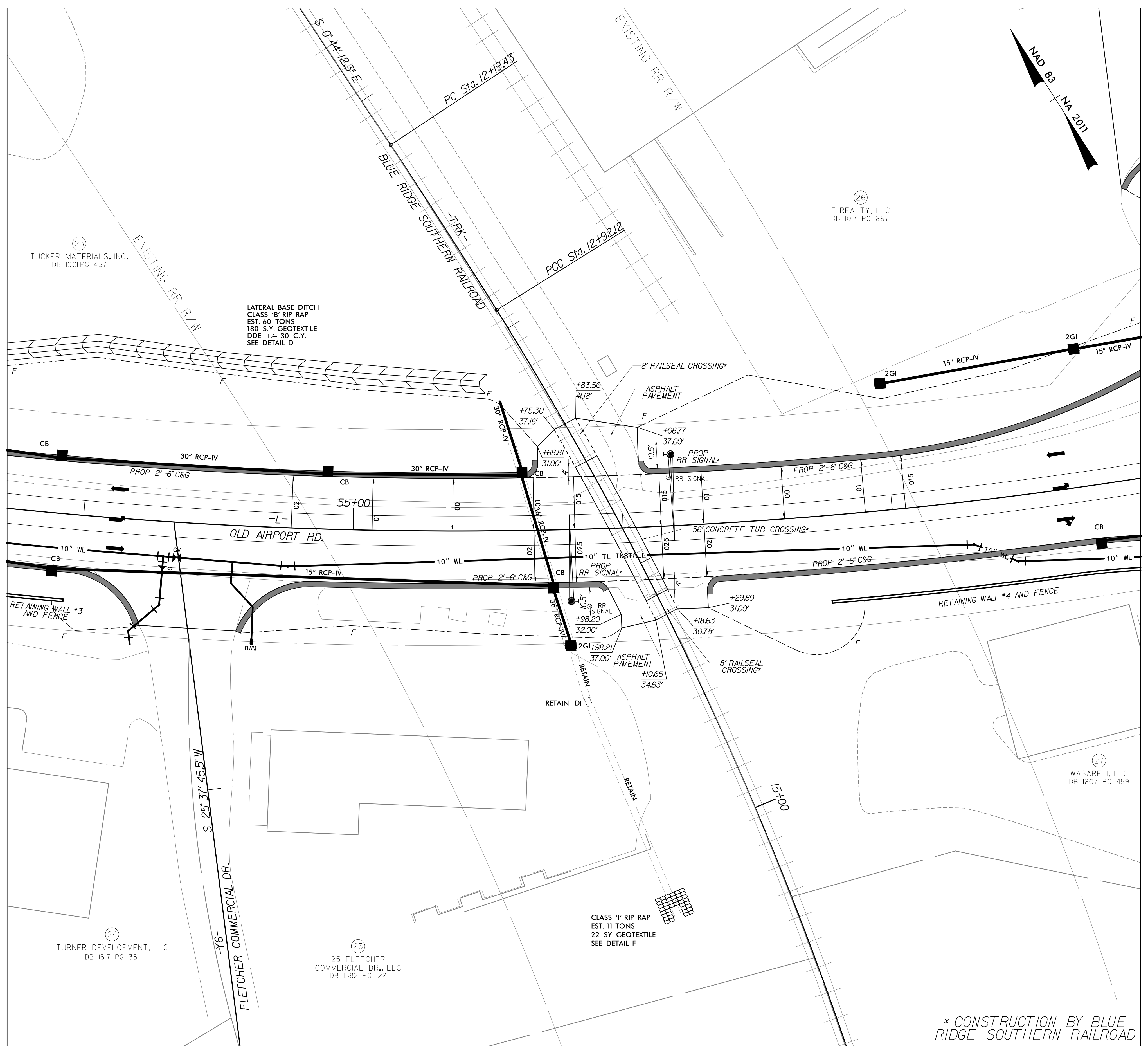


6/2/99

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PROJECT REFERENCE NO. U-5840	SHEET NO. 2B-3
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	

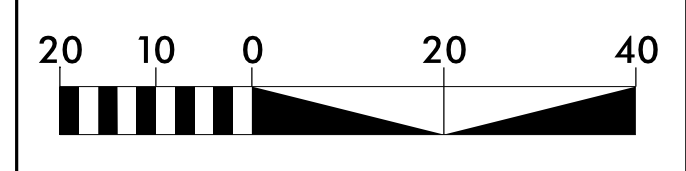
 CONCRETE CURB /GUTTER



RAILROAD CROSSING DETAIL

-L- OLD AIRPORT RD, -TRK- BLUE RIDGE SOUTHERN RAILROAD

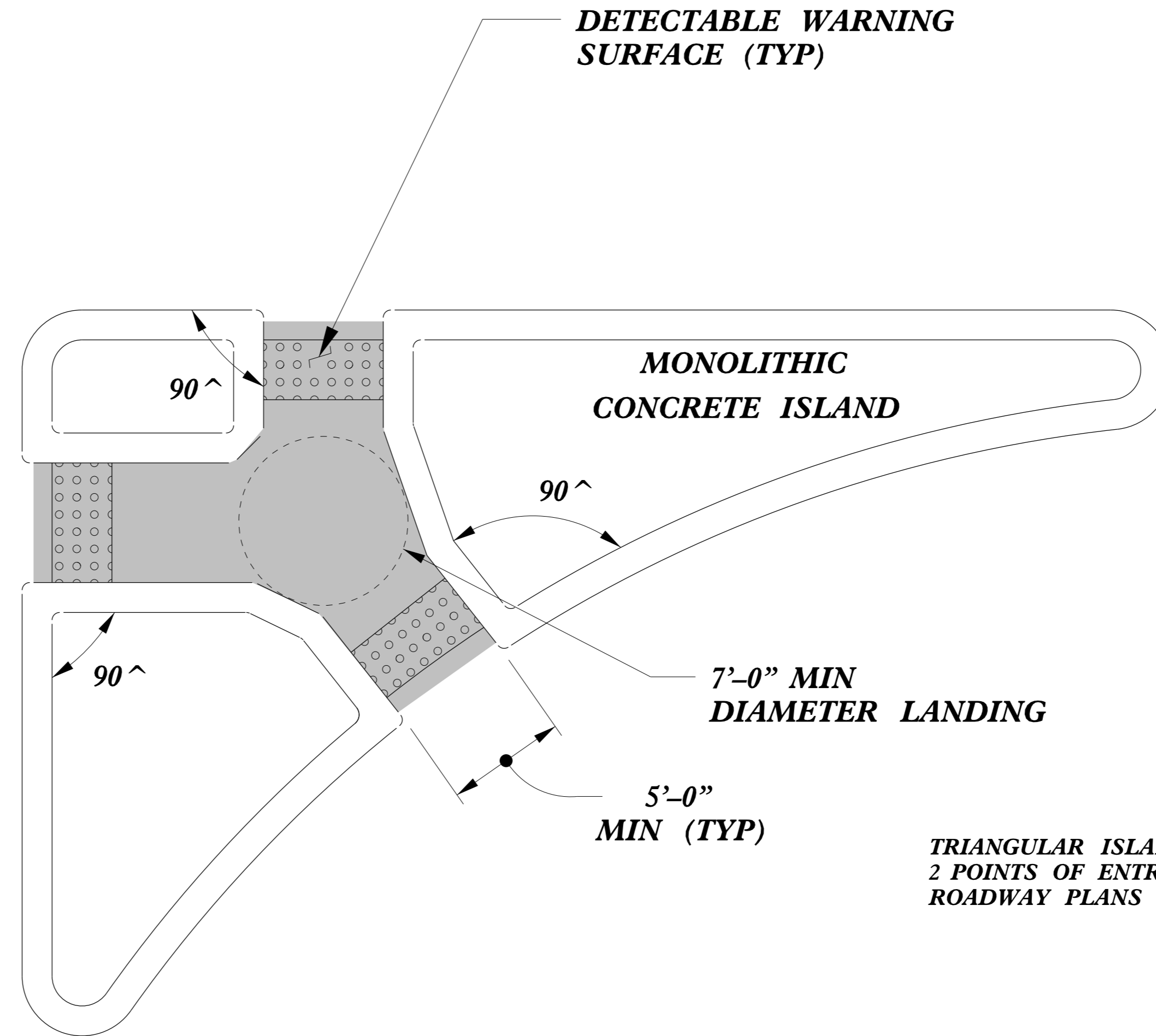
* CONSTRUCTION BY BLUE RIDGE SOUTHERN RAILROAD
SEE SHEET 7 FOR FULL PLAN VIEW



6/2/99

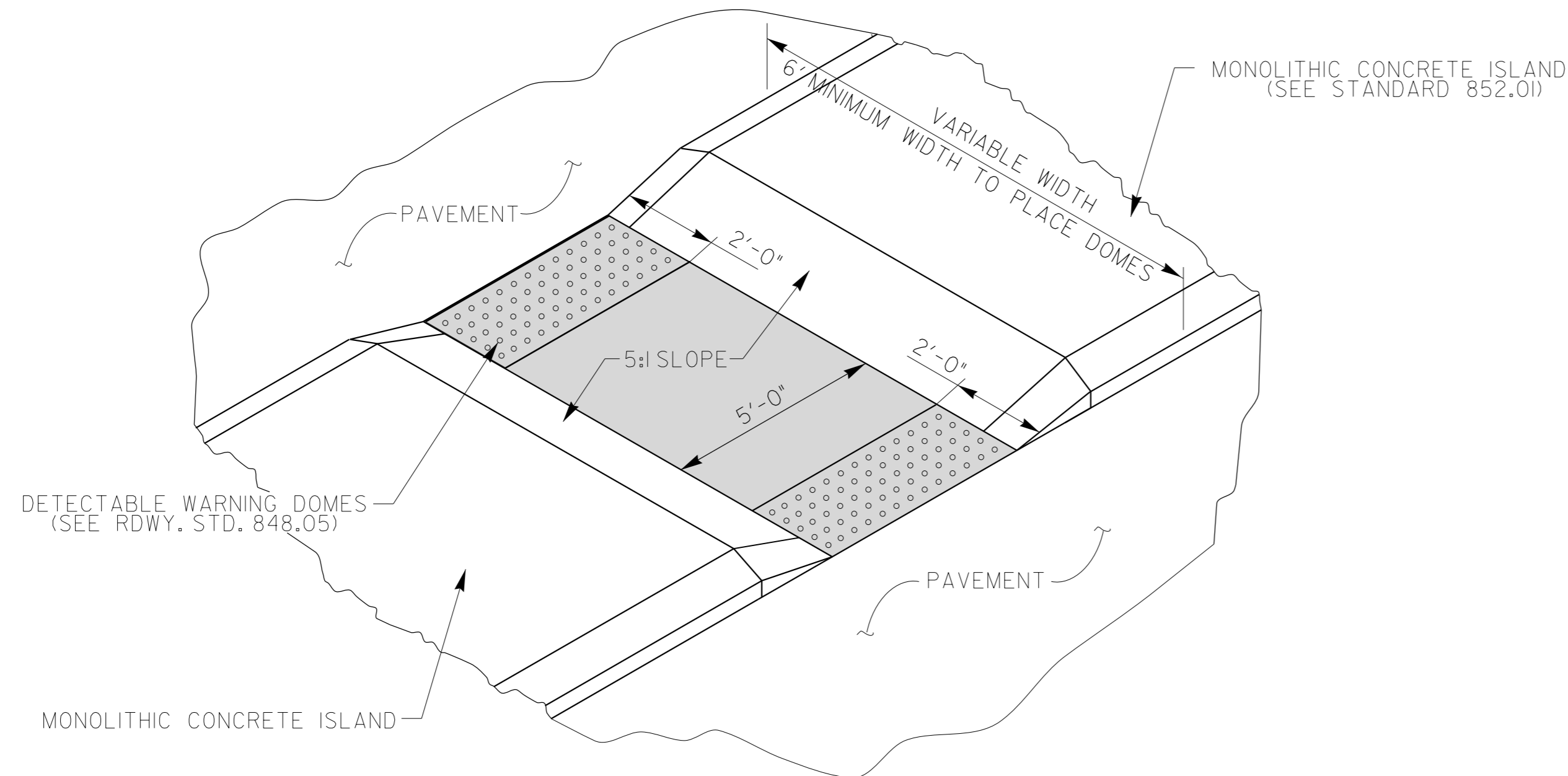
F:\14\2016\14-2016\Proj\RR_Detail\U-5840_rdy_psh_RR_Detail.dgn
11/14/2016 10:05 AM

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

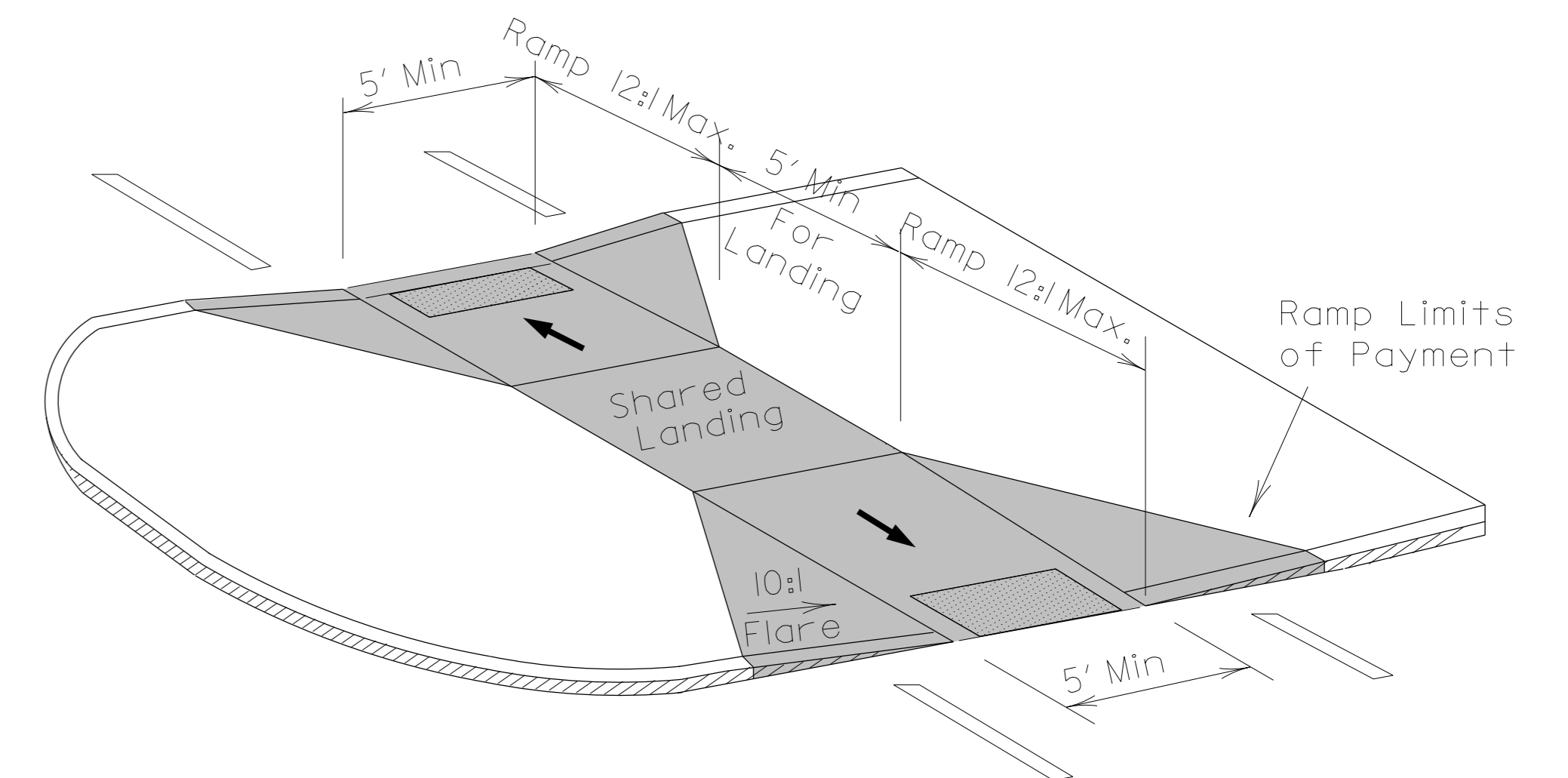


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY
2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE
ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

**TRIANGULAR ISLAND
WITH CUT THROUGH**



**MEDIAN ISLAND
WITH CUT THROUGH**



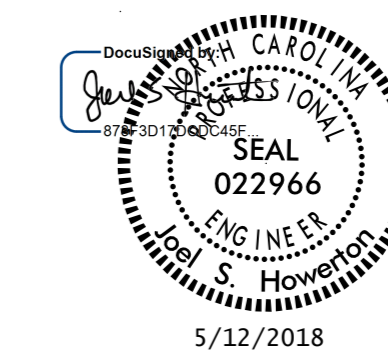
**MEDIAN ISLAND
CURB RAMPS**

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



5/12/2018

5/14/99
C:\P\DESIGN\CONSTRUCTION\USER\NAME

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

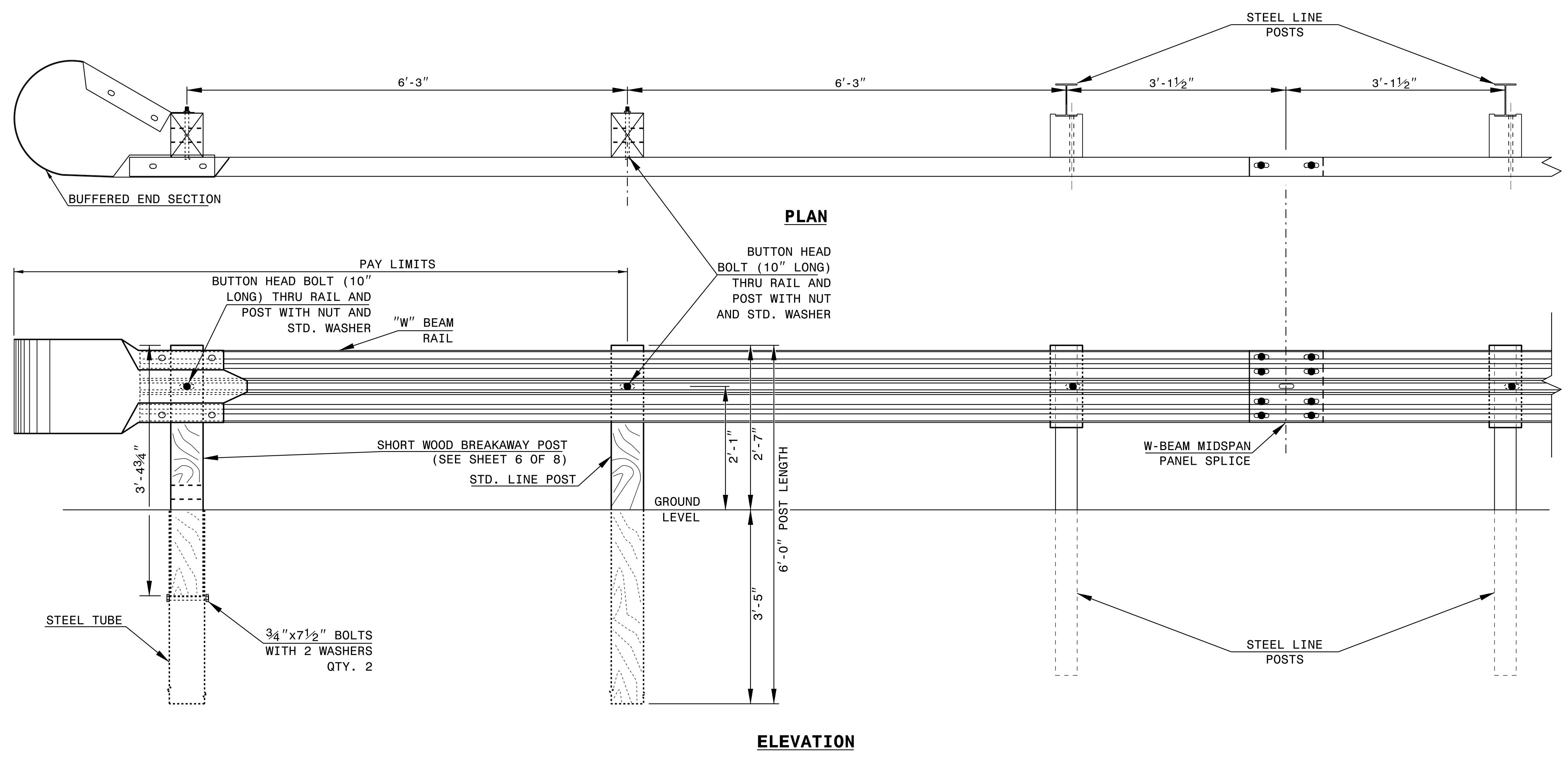
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

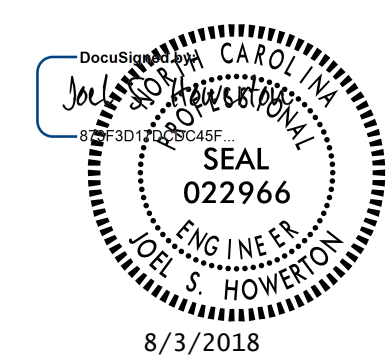
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM



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

A.T. - 1 SYSTEM

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: _____

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

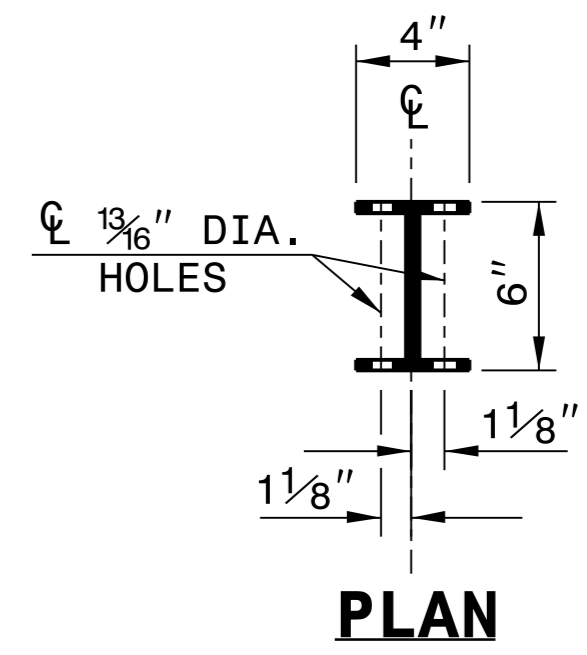
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



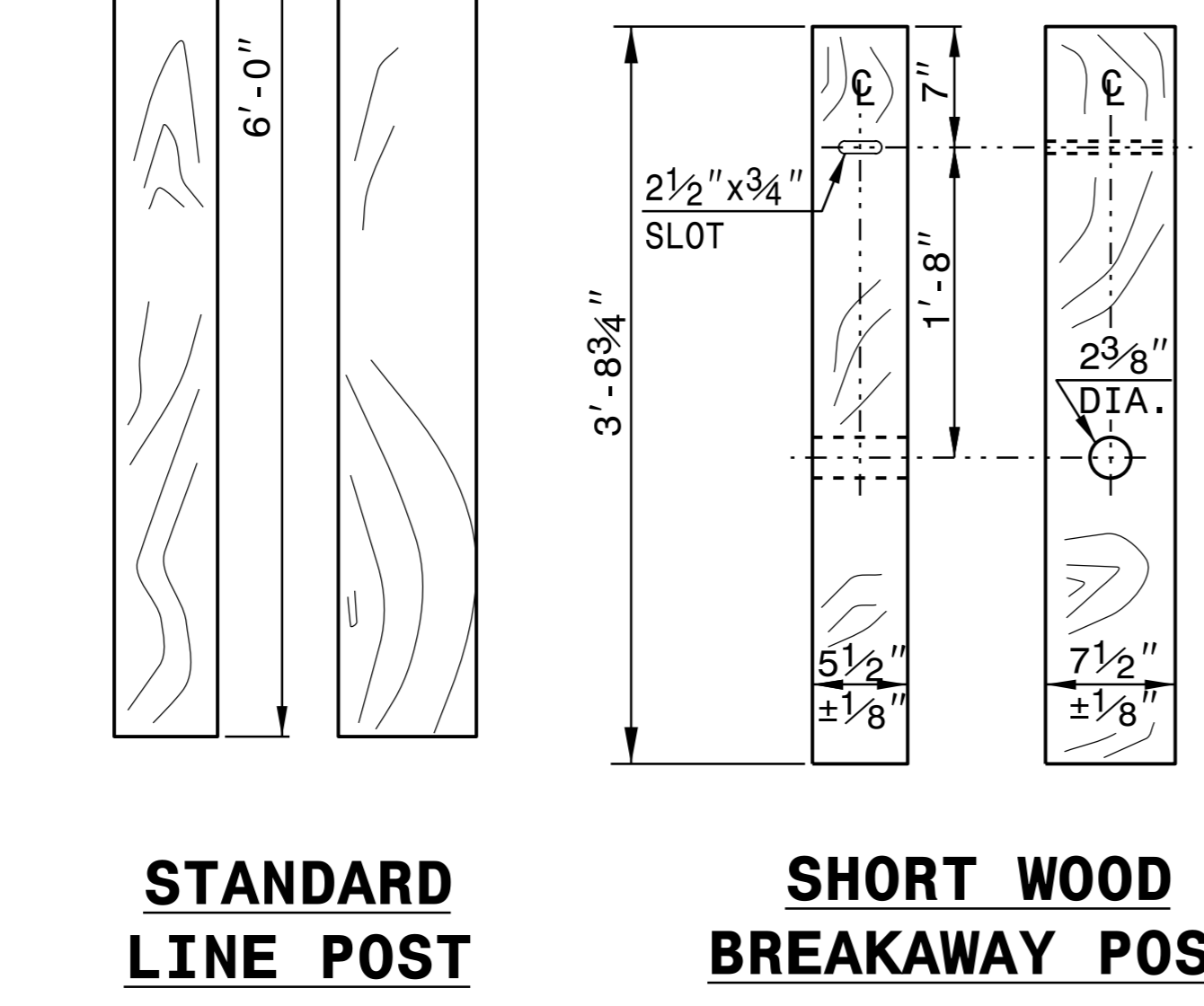
STANDARD W-BEAM GUARDRAIL



PLAN

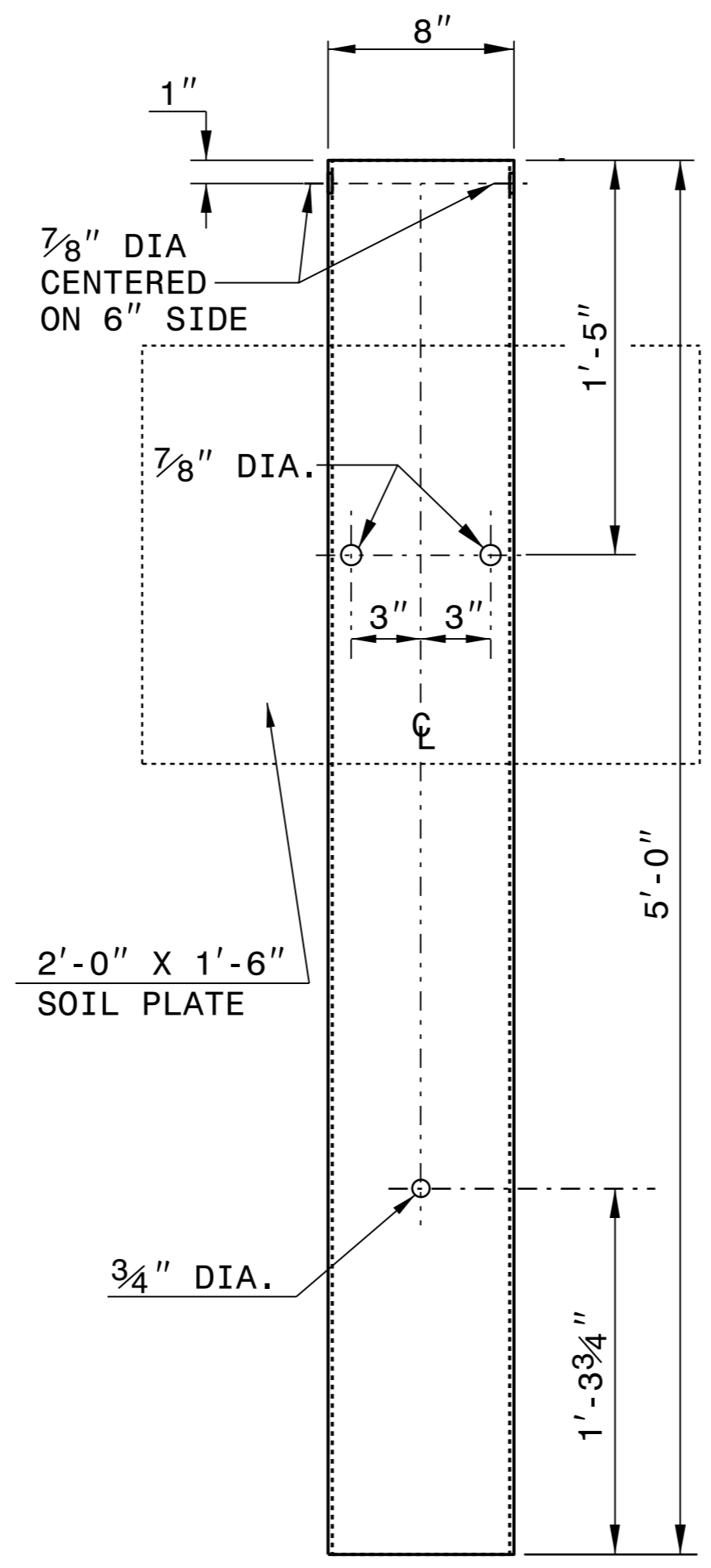


**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

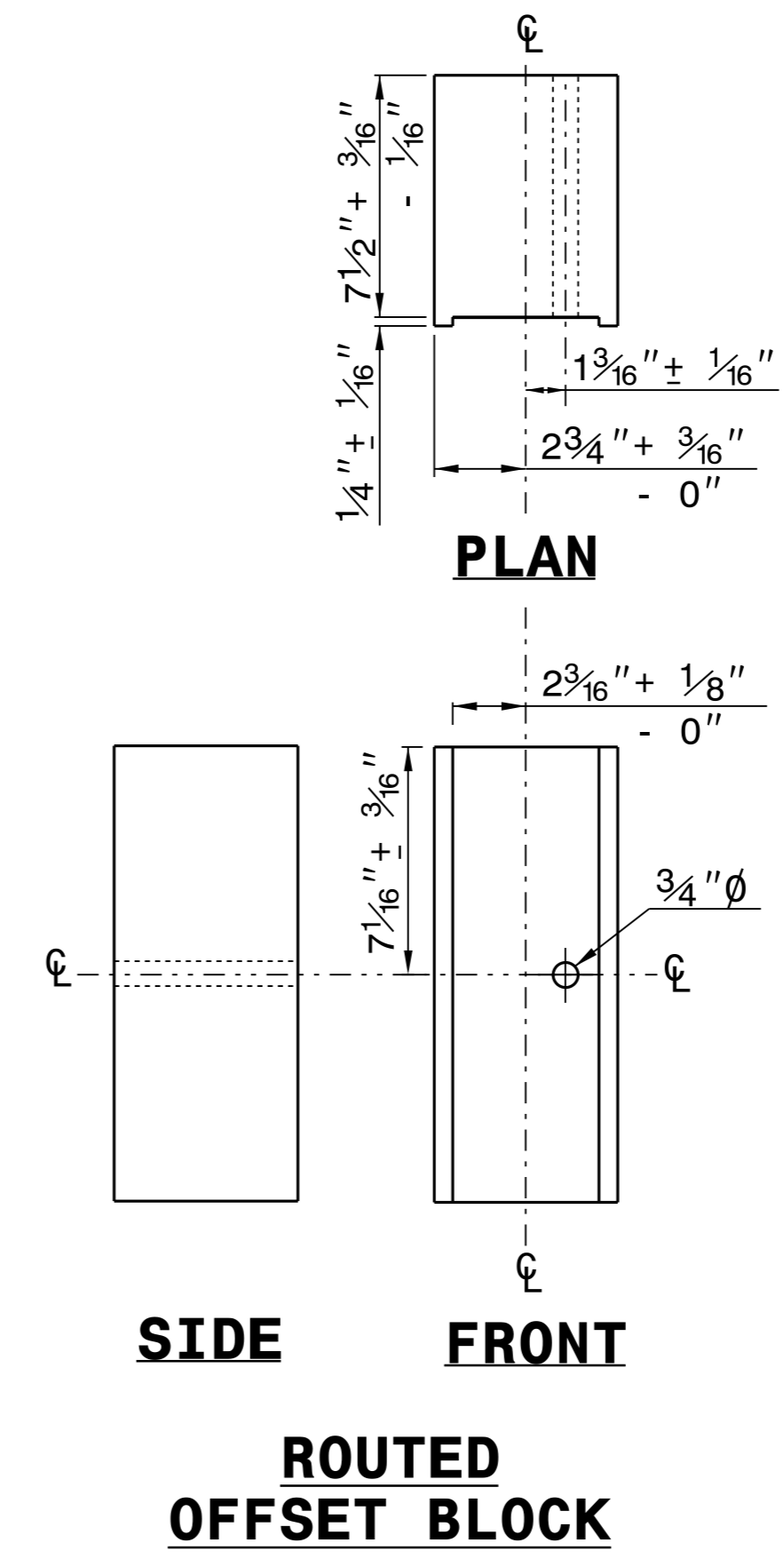


**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



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

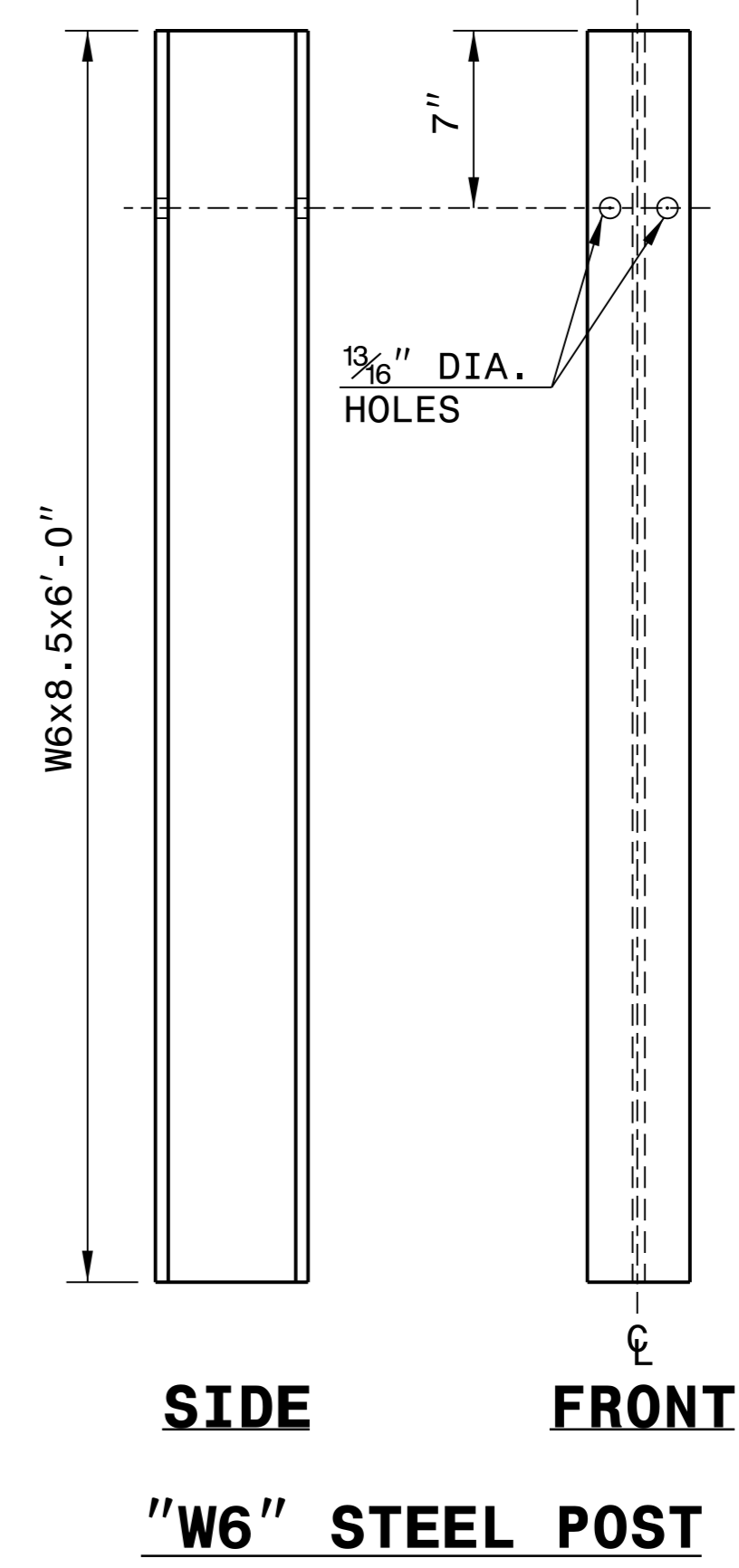


PLAN

SIDE

FRONT

**ROUTED
OFFSET BLOCK**

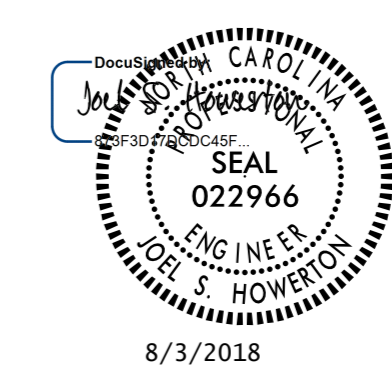


SIDE

FRONT

"W6" STEEL POST

SYSTEM PARTS

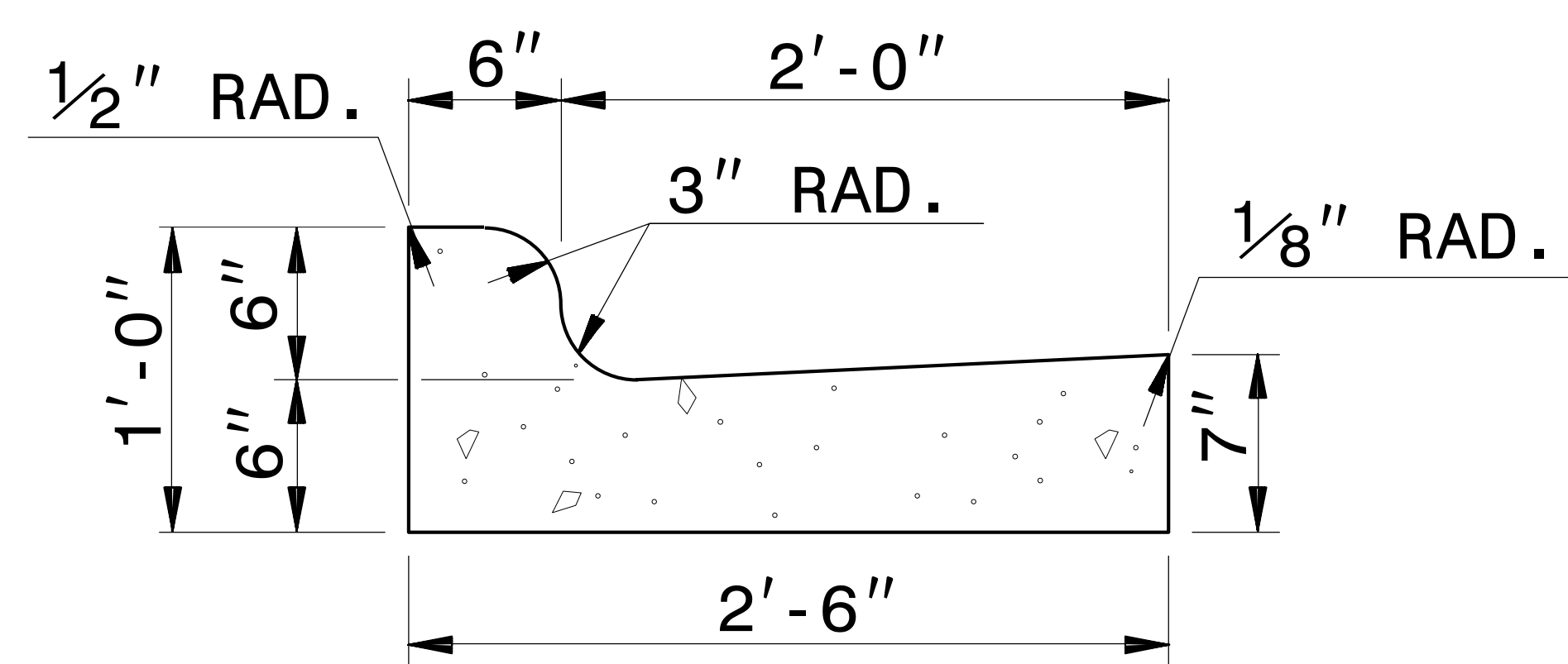


**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

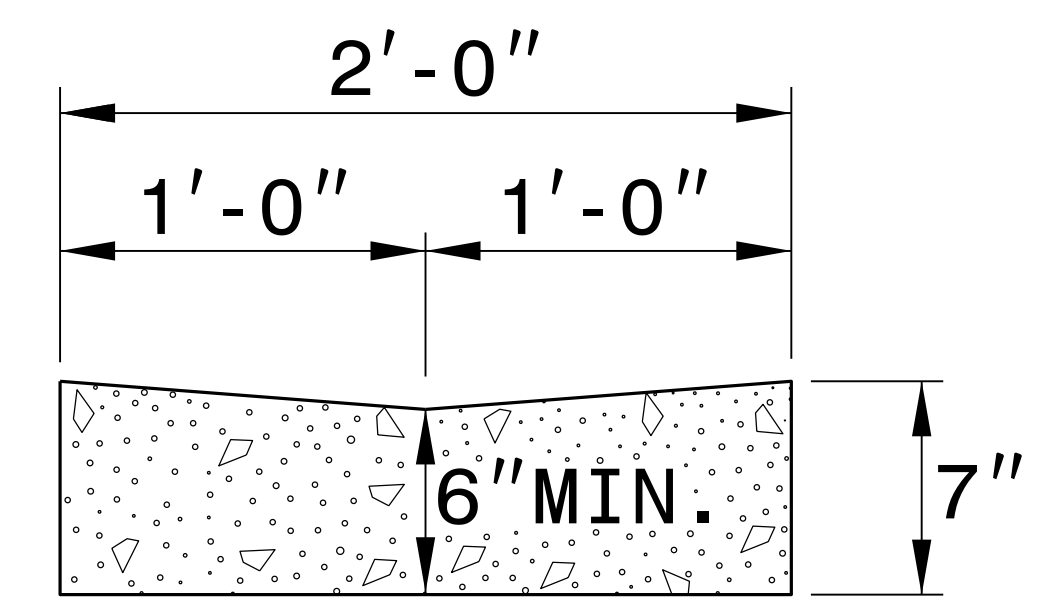
SEE TITLE BLOCK

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

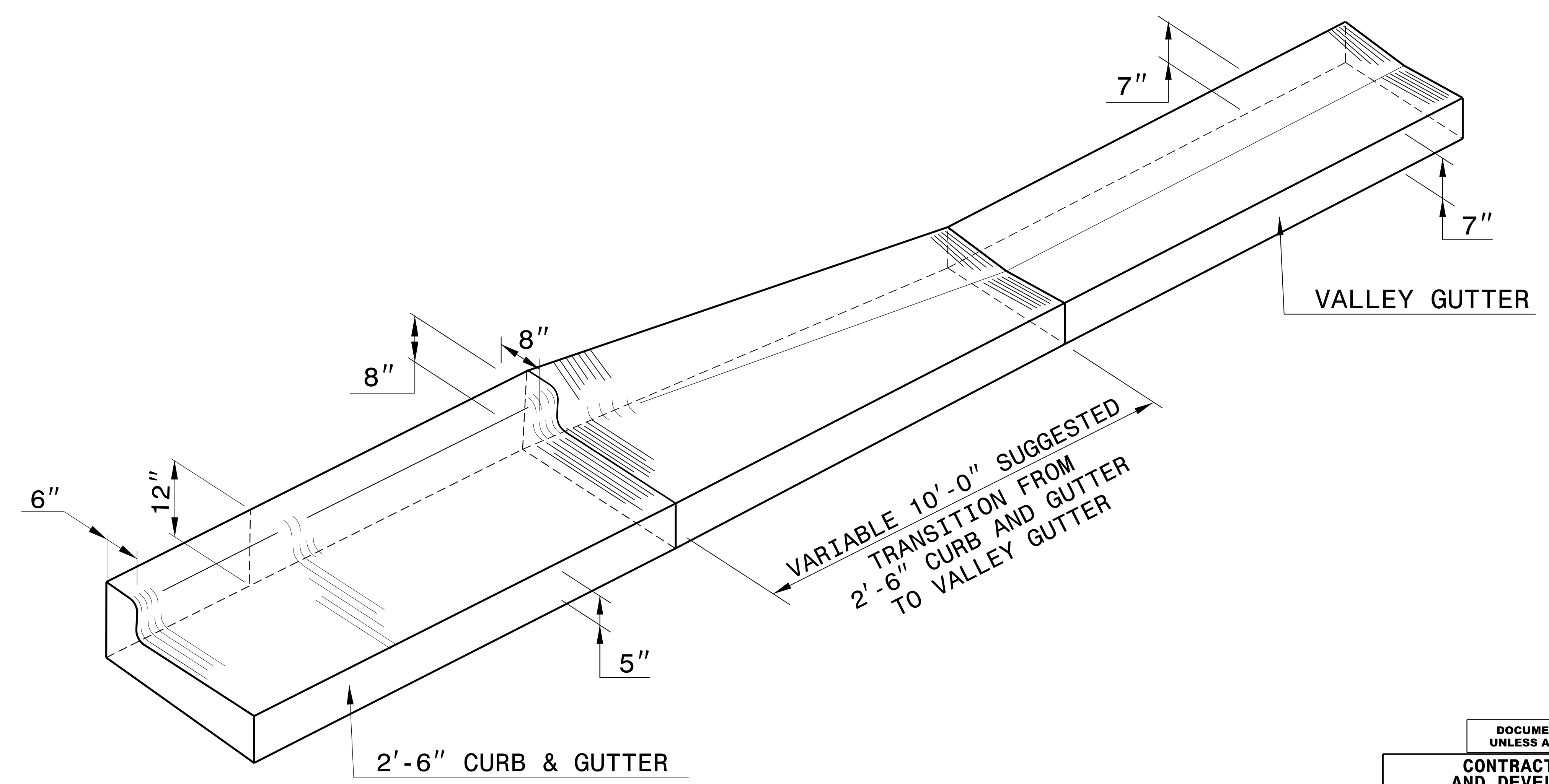
*NOTE: SEE STD. DWG. 846.01 FOR GENERAL NOTES



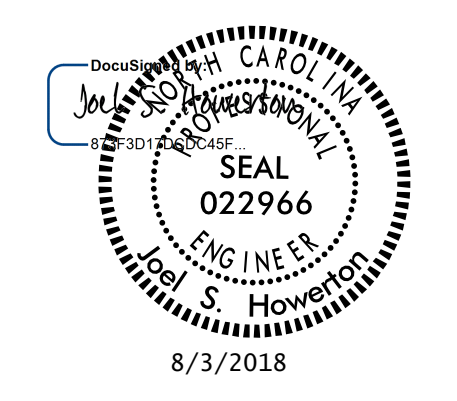
2'-6" CURB AND GUTTER



VALLEY GUTTER



ISOMETRIC VIEW OF TRANSITION



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSITION FROM 2'-6" CURB AND GUTTER TO VALLEY GUTTER

ORIGINAL BY: T.S. SPELL DATE: FEB. 4, 2009
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: w:\usr\details\stand\cgtransit.dgn

07-SEP-2017 08:20 S:\Contracts\Contractors\Special Details\vericard\usr\details\stand\c&g transition sections.dgn JHowerton AT USD-292595

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK IN CUBIC YARDS

SURVEY LINE	FROM STATION	TO STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
PHASE II							
-L- (RT)	10+70.00	23+00.00	310		838	528	
-Y7- (LT)	15+40.00	20+00.00	81		36		45
SUBTOTAL			391		874	528	45
PHASE IV							
-L- (LT)	12+00.00	40+00.00	995		1,868	873	
-L- (LT)	40+00.00	55+94.70	344		2,294	1,950	
-L- (LT)	56+04.70	58+40.00	25		522	497	
-L- (LT)	59+30.00	65+00.00	55		48		7
-Y7- (RT)	15+40.00	20+00.00	38		357	319	
SUBTOTAL			1,457		5,089	3,639	7
PHASE VI							
-L- (RT)	23+00.00	35+00.00	135		1,067	932	
-L- (RT)	35+00.00	55+94.70	310		2,321	2,011	
-L- (RT)	56+04.70	58+20.00	52		199	147	
-L- (RT)	60+35.00	65+00.00	48		38		10
-Y7- (LT & RT)	20+00.00	20+50.00			76	76	
SUBTOTAL			545		3,701	3,166	10
PHASE VIII							
-Y7- (LT)	20+50.00	22+12.37	98		55		43
-Y7- (LT)	22+22.01	24+85.00	35		503	468	
-Y7- (RT)	20+50.00	22+12.37	4		435	431	
-Y7- (RT)	22+22.01	24+85.00	550		151		399
SUBTOTAL			687		1,144	899	442
TOTAL			3,080		10,808	8,232	504
MATERIAL FOR SHOULDER CONSTRUCTION					219		219
WASTE IN LIEU OF BORROW						-504	-504
PROJECT TOTAL			3,080		11,027	7,947	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT						397	
GRAND TOTAL			3,080		11,027	8,344	
SAY			3,500		8,500		

BLACK VINYL CHAIN LINK FENCE SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (LF)
-W2-	10+00.00	11+56.50	160
-W3-	10+00.00	12+19.00	220
-W4-	10+00.00	11+27.67	128
TOTAL:			508
SAY:			510

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	12+94	19+49	LT	492
-Y7-	16+72	18+36	RT	65
-Y7-	20+58	21+35	RT	178
TOTAL:				735
SAY:				740

EST DDE SAY 60 CY

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

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

* W = MEASURED FROM "N" AT THE BEGINNING OF THE ANCHOR TO "N" AT THE END OF THE ANCHOR.
 * 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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH (LF)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W*		ANCHORS									IMPACT ATTENUATOR TYPE 350	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS									
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	B-77	GREU TL-3	M-350	TYPE III	CAT-1	VI MOD	BIC	AT-1														
-L-	54+93.00	55+93.00	RT																																		
-L-	56+11.00	57+11.00	LT																																		
-Y7-	21+59.40	23+70.42	RT	193.75	25.00		22+09.87	22+19.50	8.00	11.00		50.0'		1.0'																							
-Y7-	21+95.92	23+69.43	LT	156.25	25.00		22+19.50	22+09.87	8.00	11.00		50.0'		1.0'																							
TOTAL:				350.00	50.00																																
LESS ANCHOR DEDUCTIONS																																					
GREU TL-3				2 @ 50'	=					100.00																											
AT-1				2 @ 6.25'	=					12.50																											
TOTAL DEDUCTIONS:										112.50																											
TOTAL GUARDRAIL LENGTH:										237.50	50.00																										
SAY:										237.50	50.00																										
																	TOTAL REMOVAL OF EXISTING GUARDRAIL:									375'											

COMPUTED BY: MSP DATE: 8/1/2018
CHECKED BY: GM DATE: 8/1/2018

PROJECT NO. SHEET NO.
U-5840 3D-4

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Table with columns for Line & Station, Offset, Structure Number, Invert Elevation, Minimum Required Slope, Drainage Pipe, C.S. Pipe, R.C. Pipe Class IV, Endwalls, Reinforced Endwalls, Drainage Structure, Quantities for Drainage Structures, Frame, Grates, and Hood, and Pipe Removal. Includes a 'SHEET TOTALS' row at the bottom.

ABBREVIATIONS
C.A.A. CORRUGATED ALUMINIUM ALLOY
C.B. CATCH BASIN
C.S. CORRUGATED STEEL
D.I. DROP INLET
G.D.I. GRATED DROP INLET
H.D.P.E. HIGH DENSITY POLYETHYLENE
J.B. JUNCTION BOX
M.H. MANHOLE
N.S. NARROW SLOT
P.V.C. POLYVINYL CHLORIDE
R.C. REINFORCED CONCRETE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX
W.S. WIDE SLOT

REMARKS

COMPUTED BY: _____ MSP DATE: 8/1/2018
 CHECKED BY: _____ GM DATE: 8/1/2018

PROJECT NO. _____ SHEET NO. _____
 U-5840 3D-6

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	SIZE	THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER		TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)			C. S. PIPE			R. C. PIPE CLASS IV					ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	REINFORCED ENDWALLS	MASONRY	DRAINAGE STRUCTURE	QUANTITIES FOR DRAINAGE STRUCTURES		FRAME, GRATES, AND HOOD STD. 840.03	GRATE TYPE	E	F	G	PIPE REMOVAL LIN. FT.	REMARKS																																																																			
			FROM	TO	12	15					18	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	.064	.064	.064	12	15					18	24								30	36	42	48	A	B																																																													
Y7 23+31	28	RT																																					10																																																														
Y7 24+71	18	RT																																					81																																																														
L 28+95	25	LT																																						4																																																													
L 27+37	25	LT																																						2																																																													
L 21+21	24	LT																																						11																																																													
SHEET TOTALS																																																																	108																																				
PROJECT TOTALS																												220	80										12																											86	50.4	59	2	29	28			10	10	2	6							8			1	65	4	4			8						28	3.0891	2812

COMPUTED BY: S. Phillips DATE: 7/5/2018
 CHECKED BY: G. McCauley DATE: 7/5/2018

(2-16-16)

PROJECT NO.
U-5840

SHEET NO.
3G-1

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

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

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/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
CONTINGENCY			ASU	18	200	400	400		
					TOTAL CY/TONS/SY:	200	400	400**	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.

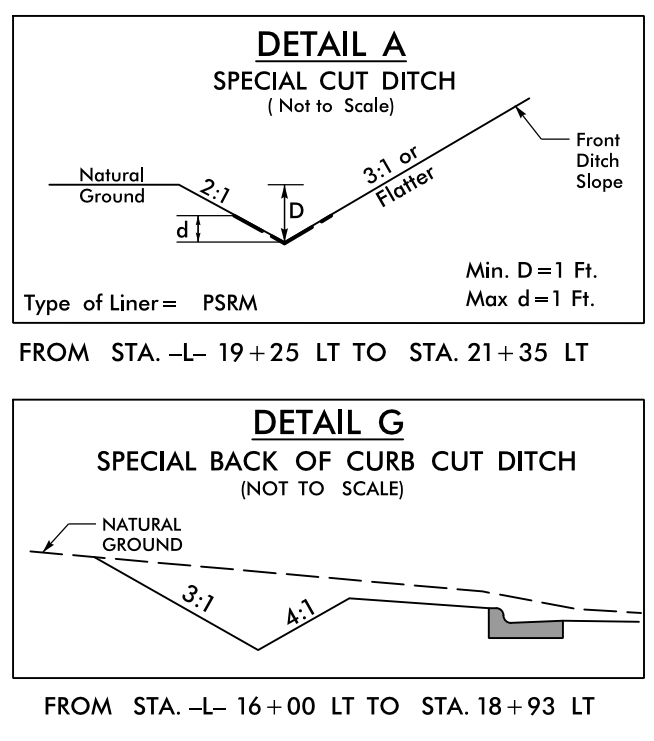
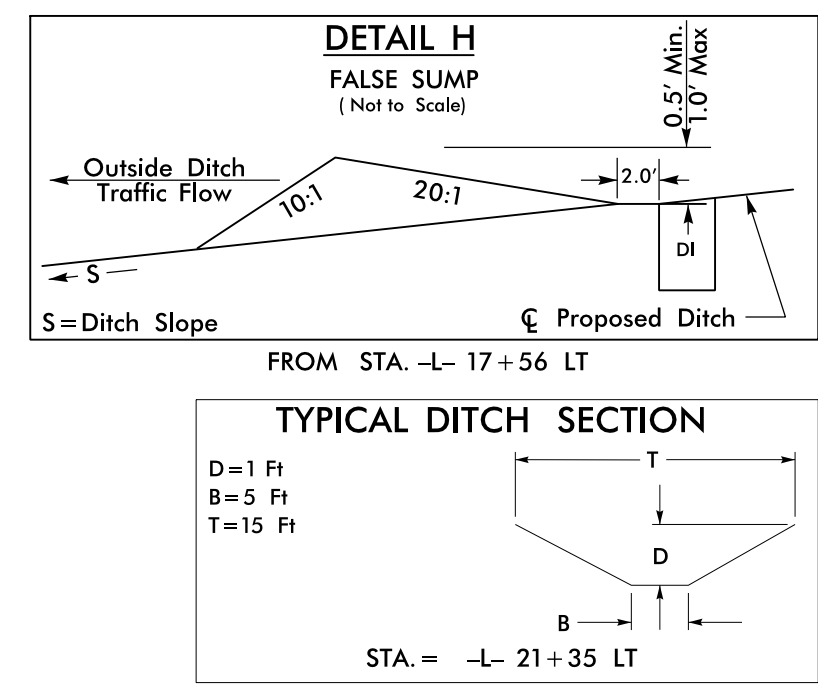
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. <i>U-5840</i>	SHEET NO. <i>3P-1</i>
 STV Engineers, Inc. <small>300 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991</small>	

PARCEL INDEX SHEET

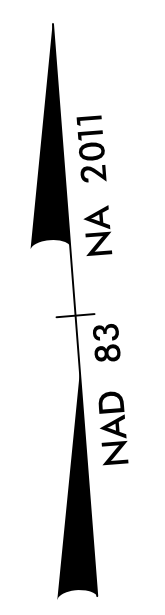
PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME
1	4	CALVARY EPISCOPAL CHURCH
2	4, 5	CALVARY EPISCOPAL CHURCH
3	4	FIRST CITIZENS BANK & TRUST CO.
4	4	TONYA M. RICE
5	4	RONALD P. LANCE
6	5	STEVEN M. WHITAKER
7	5	DAVID C. MORGAN
8	5	RONALD P. LANCE, LE
9	5	WILLIS REALTY, LLC
10	5	DAVID M. PUCKETT
11	4, 5	RONALD P. LANCE, LE & CHRISTOPHER LANCE
12	5	SHARON C. PEEK
13	5	UNIVERSAL PROPERTIES HENDERSONVILLE, LLC
14	5	ROBERT A. CUEVAS, ET AL
15	5, 6	THE TOWNES AT CONNER CREEK
16	5	JERRY LEE SOUTHER
17	5	GEORGIA JEANETTE SHOOK, ET AL
18	5, 6	TRU
19	6	GENNEALEE LLOYD DEAN
20	6	DAVID SCOT BUILDERS, INC
21	6	TRU
22	6	AAA COOPER TRANSPORTATION
23	6, 7	TUCKER MATERIALS, INC
24	6, 7	TURNER DEVELOPMENT, LLC
25	7	DELETED
26	7	FIREALTY, LLC
27	7	WASARE I, LLC
28	7	CAB PROPERTIES, LLC
29	7, 8	ADELE PETIGRU MOORE
30	7, 8	WNC INVESTORS, LLC
31	7, 8	OLD AIRPORT RD LLC
32	8	TIMOTHY C. MAY, JULIE S. MAY
33	8	DELETED
34	6	DC PLUS, LLC

PROJECT REFERENCE NO. U-5840		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
		STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	



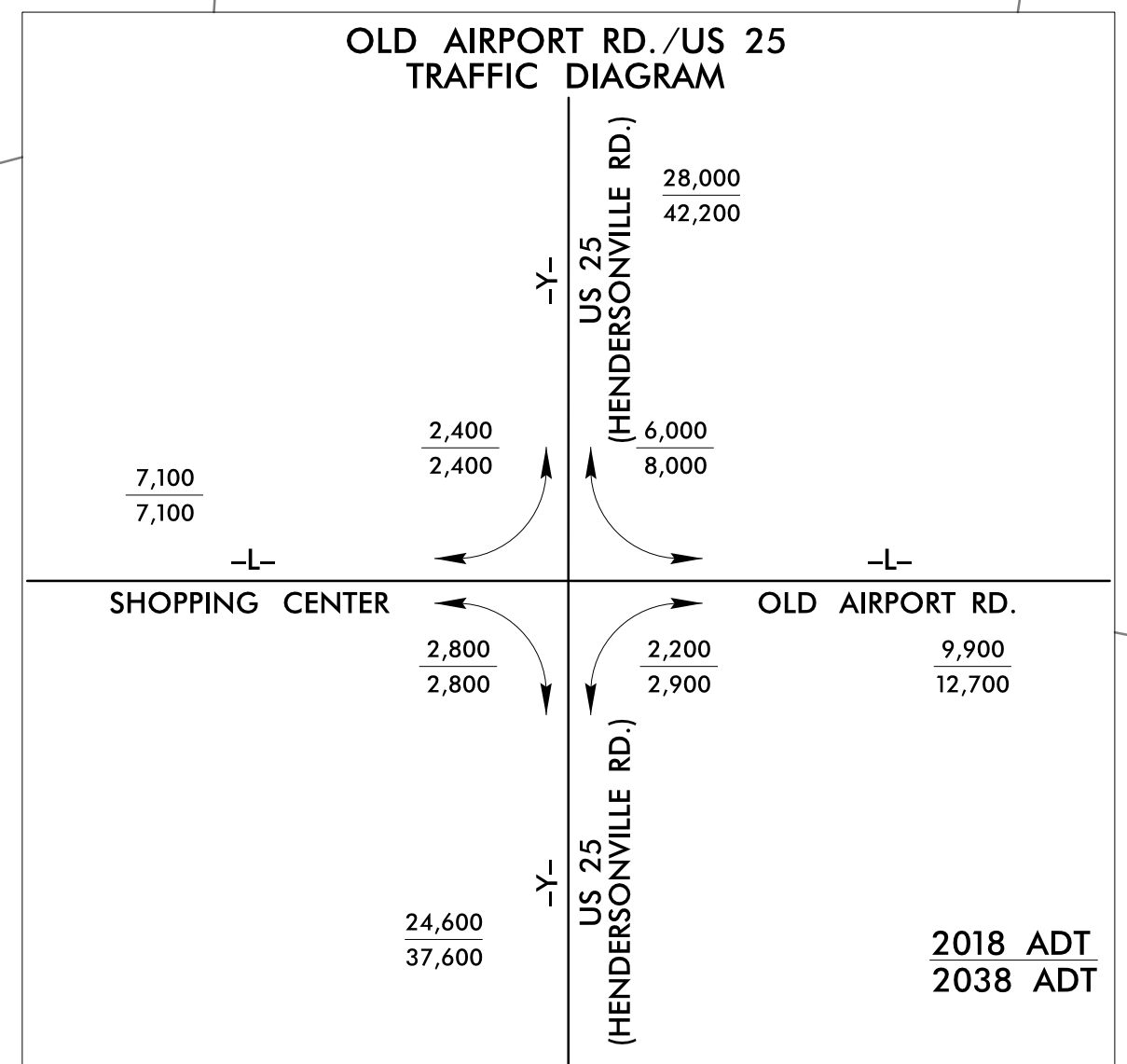
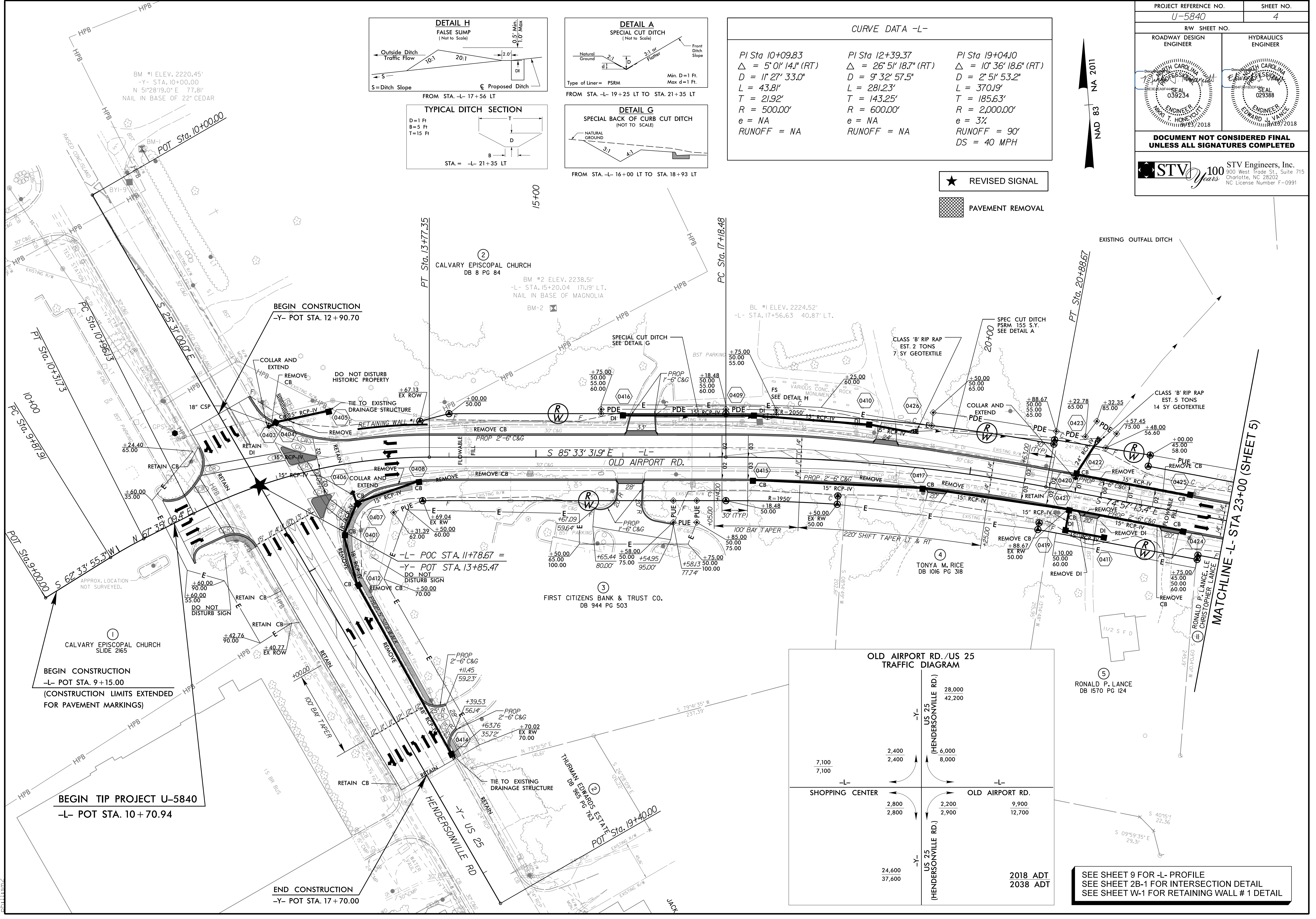
CURVE DATA -L-

PI Sta 10+09.83	PI Sta 12+39.37	PI Sta 19+04.10
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$D = 11^{\circ}27'33.0''$	$D = 9^{\circ}32'57.5''$	$D = 2^{\circ}51'53.2''$
$L = 43.81'$	$L = 281.23'$	$L = 370.19'$
$T = 21.92'$	$T = 143.25'$	$T = 185.63'$
$R = 500.00'$	$R = 600.00'$	$R = 2,000.00'$
$e = NA$	$e = NA$	$e = 3\%$
$RUNOFF = NA$	$RUNOFF = NA$	$RUNOFF = 90'$
		$DS = 40$ MPH



★ REVISED SIGNAL

▨ PAVEMENT REMOVAL



SEE SHEET 9 FOR -L- PROFILE
 SEE SHEET 2B-1 FOR INTERSECTION DETAIL
 SEE SHEET W-1 FOR RETAINING WALL # 1 DETAIL

9/13/2016
 P:\Projects\U-5840\Drawings\Sheet\U-5840-4.dwg
 chullam

CURVE DATA -L-	CURVE DATA -Y1-	CURVE DATA -Y3-
PI Sta 28+90.72	PI Sta 11+09.01	PI Sta 11+15.08
$\Delta = 22^\circ 28' 28.5''$ (RT)	$\Delta = 12^\circ 05' 00.0''$ (RT)	$\Delta = 22^\circ 35' 04.6''$ (LT)
D = 3' 49' 11.0"	D = 15' 04' 40.2"	D = 19' 05' 54.9"
L = 588.38'	L = 80.4'	L = 118.25'
T = 298.02'	T = 40.22'	T = 59.90'
R = 1,500.00'	R = 380.00'	R = 300.00'
e = 3%	e = NA	e = NA
RUNOFF = 90'	RUNOFF = NA	RUNOFF = NA
DS = 40 MPH	DS = NA	DS = NA

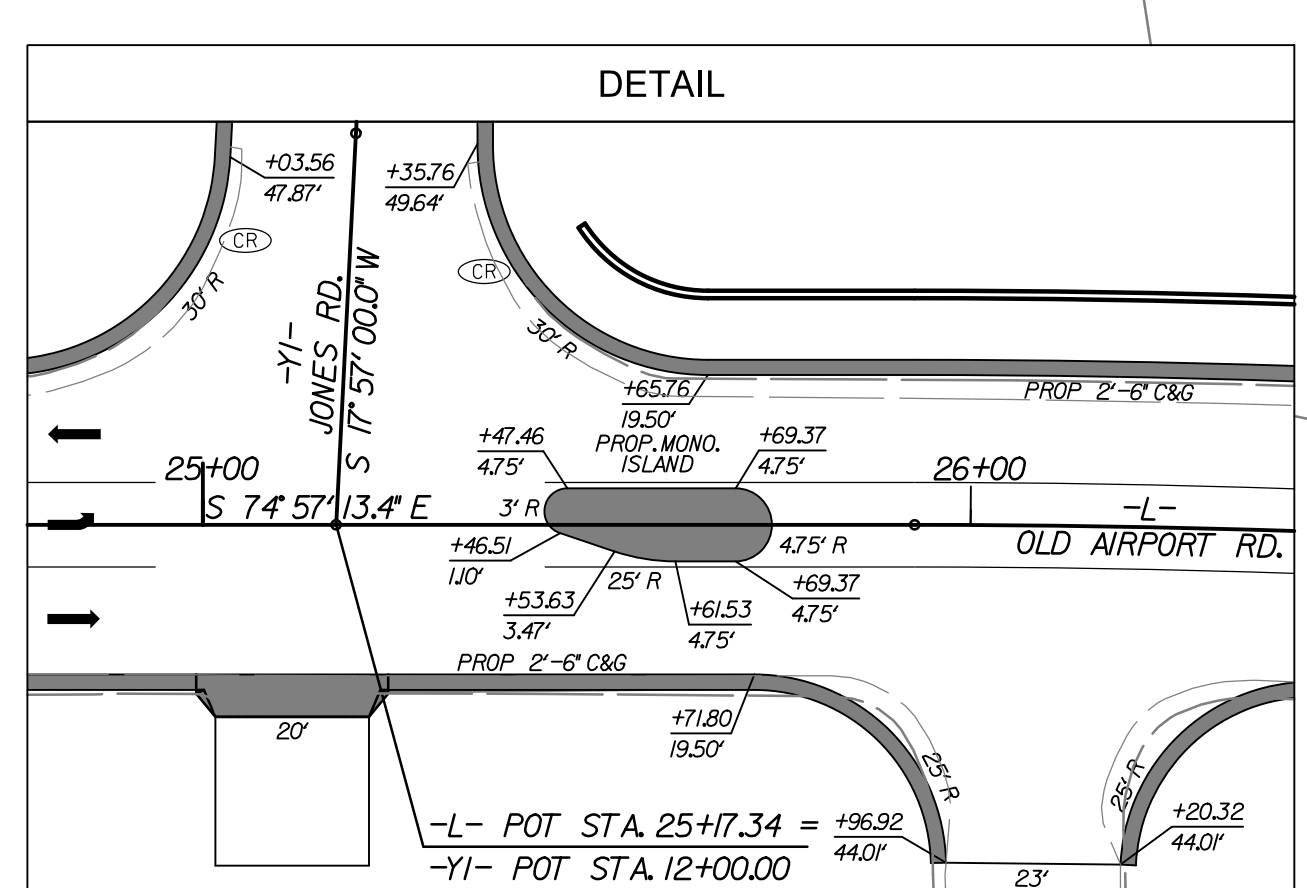
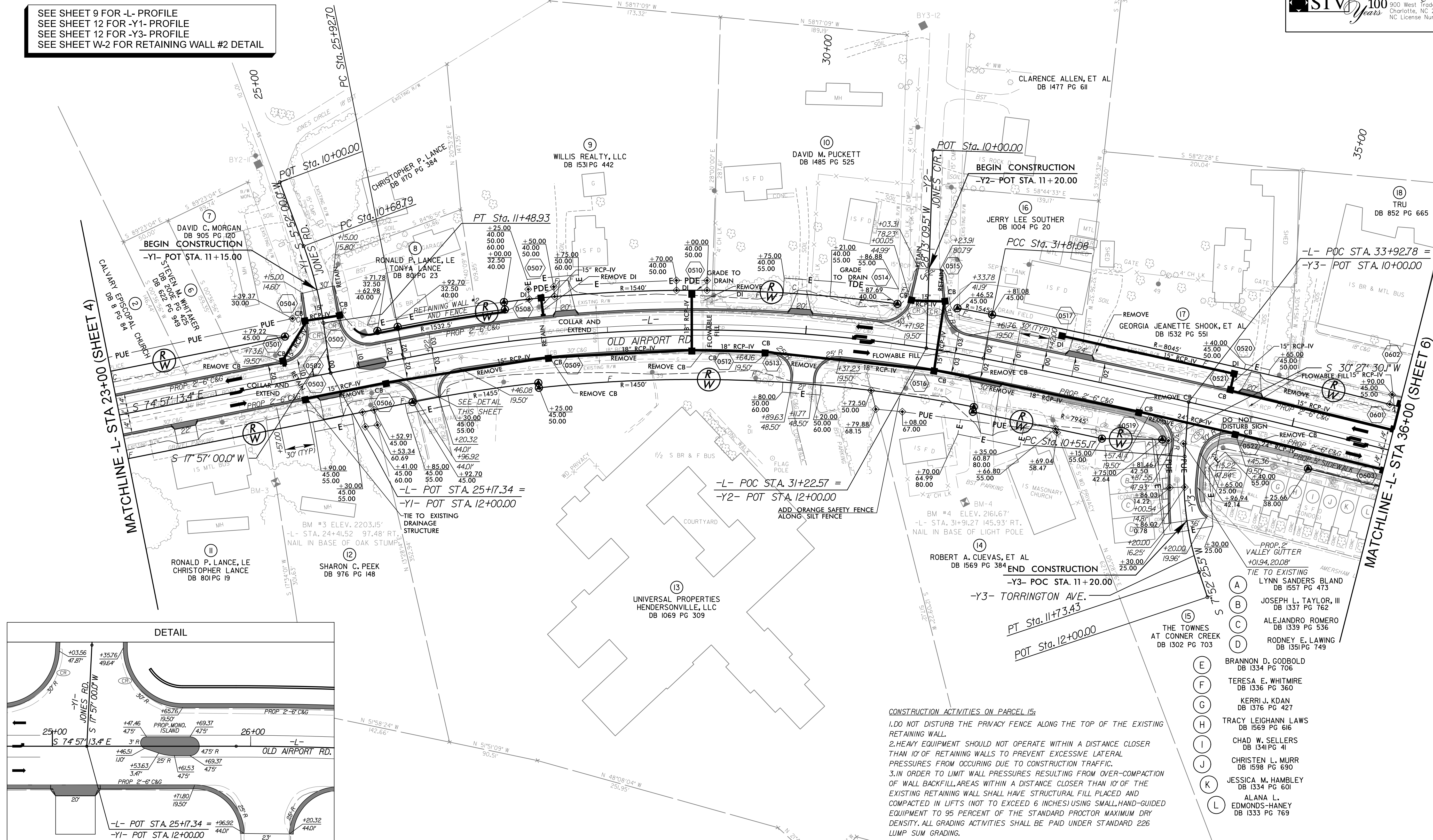
SEE SHEET 9 FOR -L- PROFILE
 SEE SHEET 12 FOR -Y1- PROFILE
 SEE SHEET 12 FOR -Y3- PROFILE
 SEE SHEET W-2 FOR RETAINING WALL #2 DETAIL

PROJECT REFERENCE NO. U-5840 SHEET NO. 5

RW SHEET NO. ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

STV 100 Years STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



CONSTRUCTION ACTIVITIES ON PARCEL 15:

- DO NOT DISTURB THE PRIVACY FENCE ALONG THE TOP OF THE EXISTING RETAINING WALL.
- HEAVY EQUIPMENT SHOULD NOT OPERATE WITHIN A DISTANCE CLOSER THAN 10' OF RETAINING WALLS TO PREVENT EXCESSIVE LATERAL PRESSURES FROM OCCURRING DUE TO CONSTRUCTION TRAFFIC.
- IN ORDER TO LIMIT WALL PRESSURES RESULTING FROM OVER-COMPACTION OF WALL BACKFILL, AREAS WITHIN A DISTANCE CLOSER THAN 10' OF THE EXISTING RETAINING WALL SHALL HAVE STRUCTURAL FILL PLACED AND COMPACTED IN LIFTS (NOT TO EXCEED 6 INCHES) USING SMALL, HAND-GUIDED EQUIPMENT TO 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ALL GRADING ACTIVITIES SHALL BE PAID UNDER STANDARD 226 LUMP SUM GRADING.

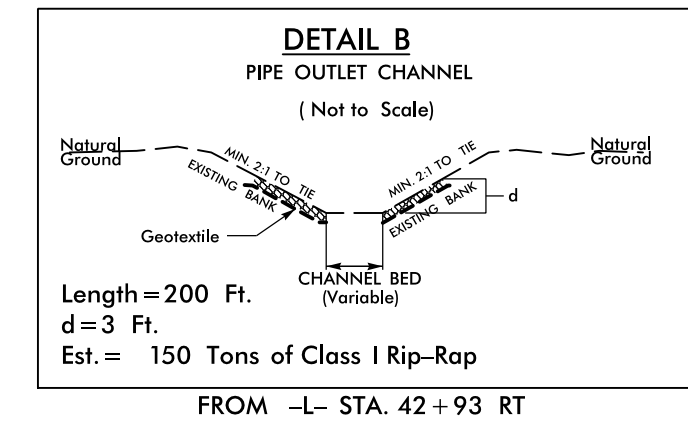
- (A) LYNN SANDERS BLAND DB 1557 PG 473
- (B) JOSEPH L. TAYLOR, III DB 1337 PG 762
- (C) ALEJANDRO ROMERO DB 1339 PG 536
- (D) RODNEY E. LAWING DB 1351 PG 749
- (E) BRANNON D. GODBOLD DB 1334 PG 706
- (F) TERESA E. WHITMIRE DB 1336 PG 360
- (G) KERRI J. KDAN DB 1376 PG 427
- (H) TRACY LEIGHANN LAWS DB 1569 PG 616
- (I) CHAD W. SELLERS DB 1341 PG 41
- (J) CHRISTEN L. MURR DB 1598 PG 690
- (K) JESSICA M. HAMBLEY DB 1334 PG 601
- (L) ALANA L. EDMONDS-HANEY DB 1333 PG 769

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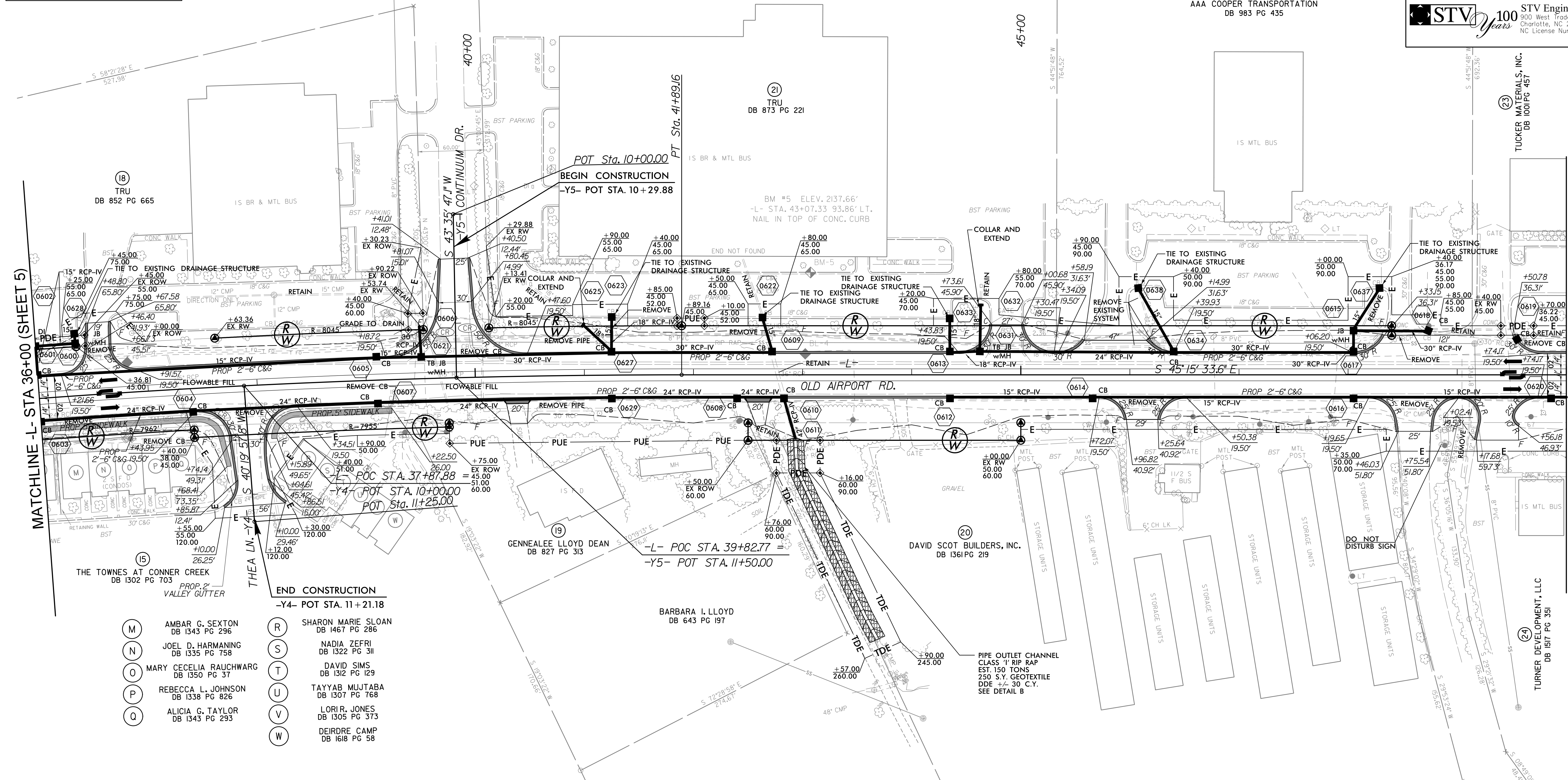
PROJECT REFERENCE NO. U-5840	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	

CURVE DATA -L-

PI Sta 36+85.79
 $\Delta = 7' 13'' 11.3''$ (RT)
 $D = 0' 42'' 58.3''$
 $L = 1,008.08'$
 $T = 504.71'$
 $R = 8,000.00'$
 $e = NA$
 $RUNOFF = NA$
 $DS = 50 MPH$



CHORD = N 32°27'58" E
 DIST = 102.50'
 RAD = 283.00'
 ARC = 103.08'



- | | |
|---|--|
| (M) AMBAR G. SEXTON
DB 1343 PG 296 | (R) SHARON MARIE SLOAN
DB 1467 PG 286 |
| (N) JOEL D. HARMANING
DB 1335 PG 758 | (S) NADIA ZEFRI
DB 1322 PG 311 |
| (O) MARY CECELIA RAUCHWARG
DB 1350 PG 37 | (T) DAVID SIMS
DB 1312 PG 129 |
| (P) REBECCA L. JOHNSON
DB 1338 PG 826 | (U) TAYYAB MUJTABA
DB 1307 PG 768 |
| (Q) ALICIA G. TAYLOR
DB 1343 PG 293 | (V) LORI R. JONES
DB 1305 PG 373 |
| | (W) DEIRDRE CAMP
DB 1618 PG 58 |

8/1/2018 10:05 AM Proj:\SHT\U-5840_rdy_psh.dwg
 chills.dwg

SEE SHEET 10 FOR -L- PROFILE
 SEE SHEET 12 FOR -Y4- PROFILE

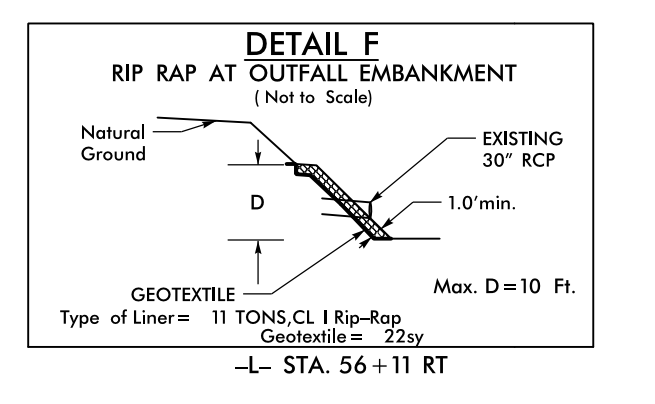
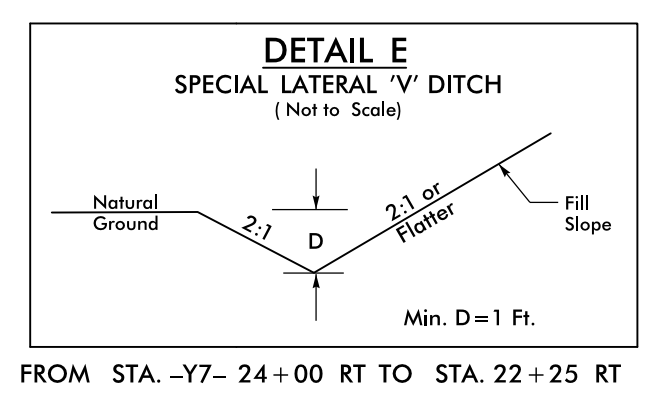
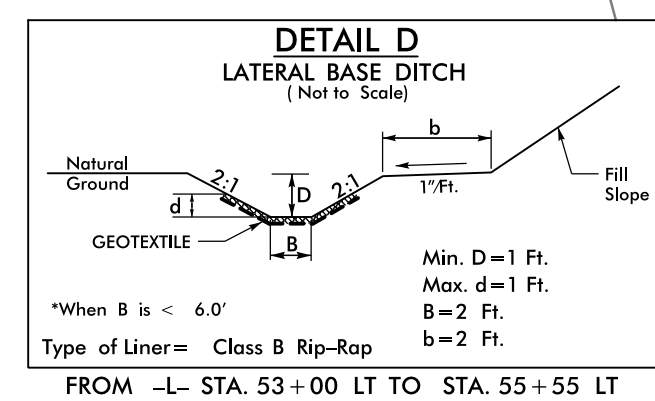
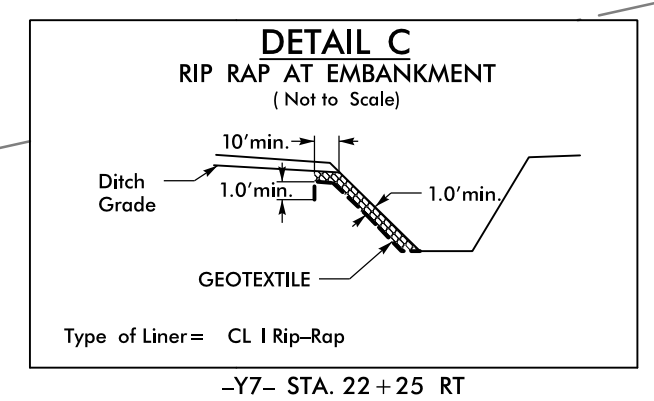
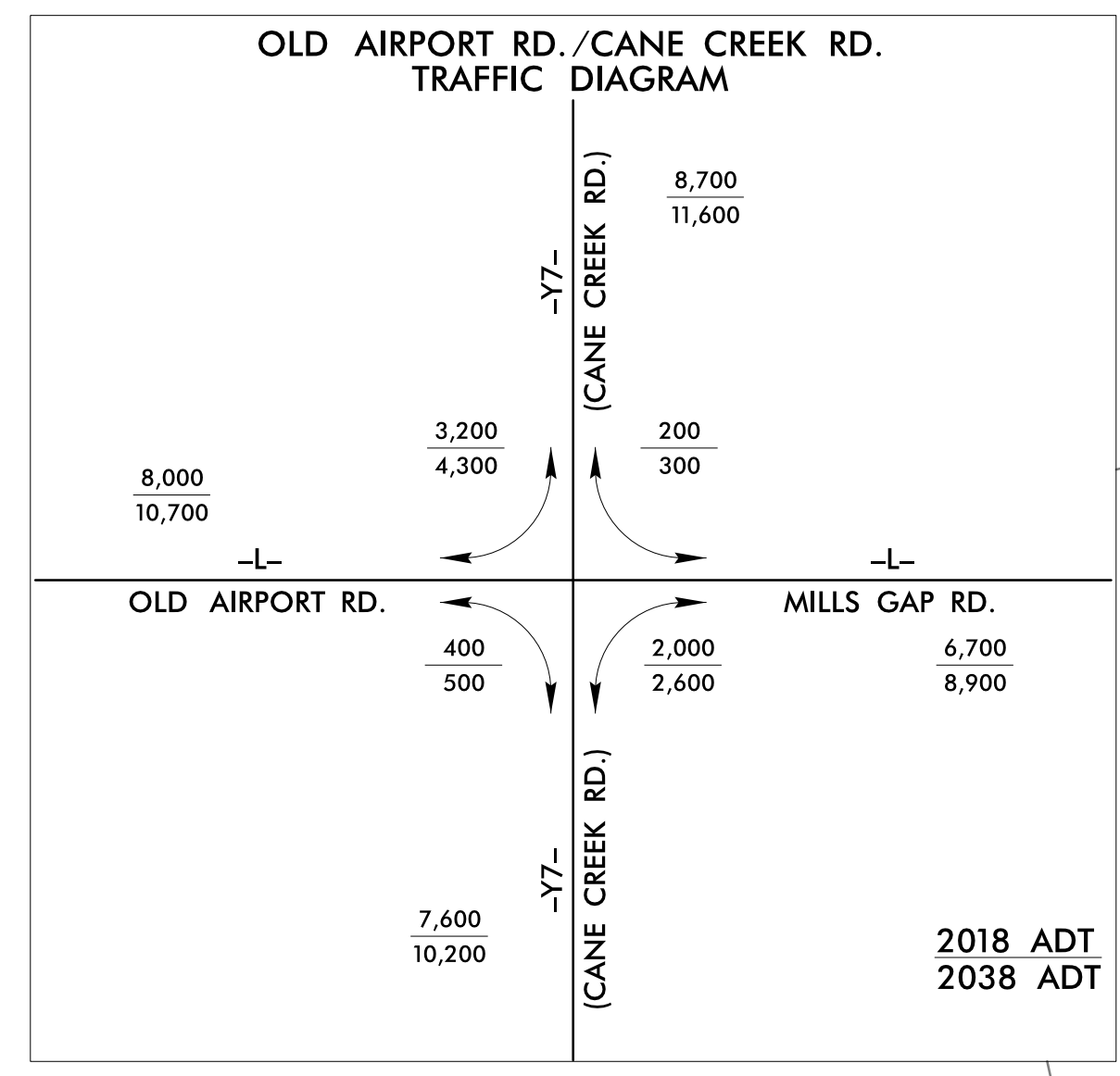
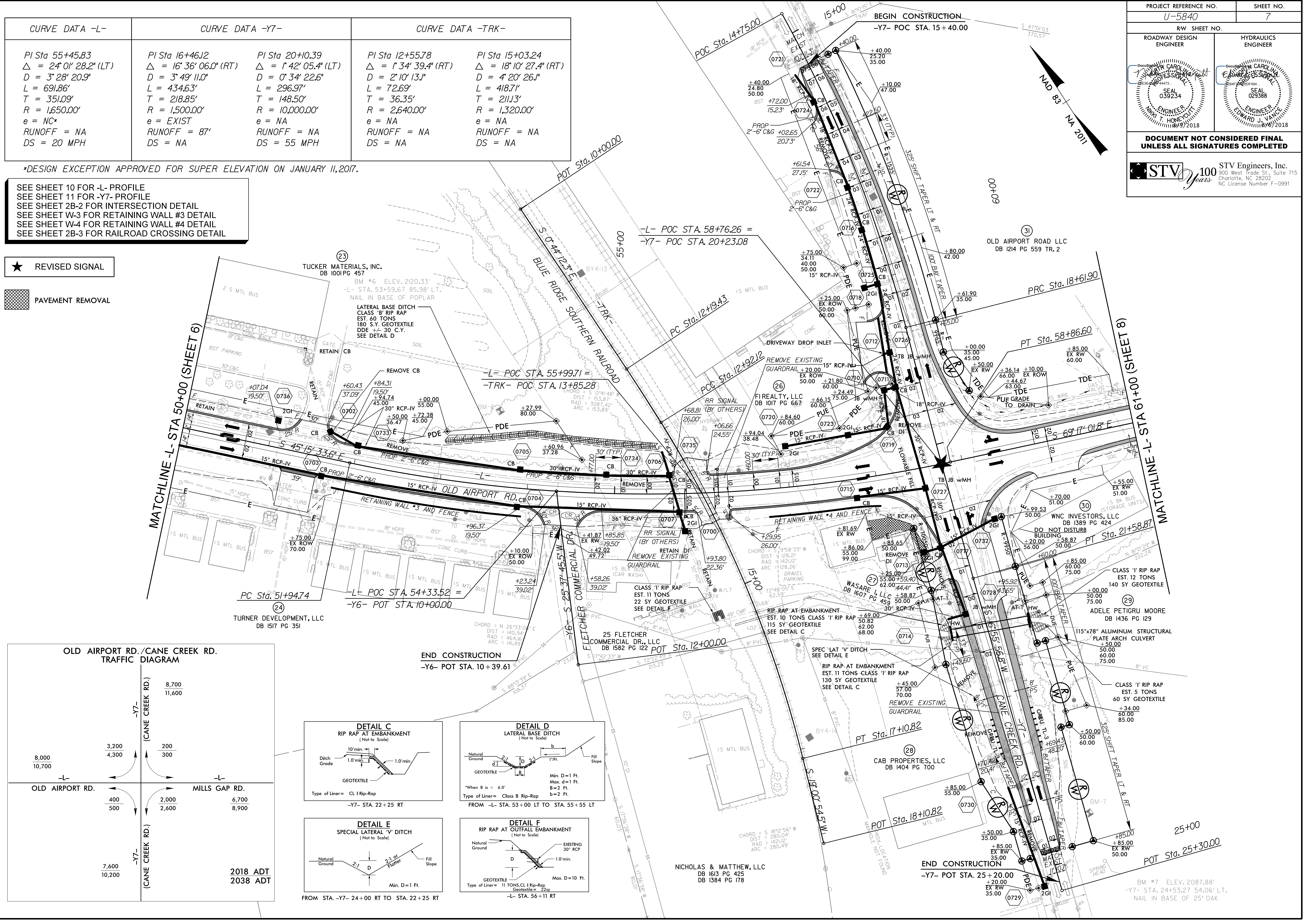
CURVE DATA -L-	CURVE DATA -Y7-		CURVE DATA -TRK-	
PI Sta 55+45.83	PI Sta 16+46.12	PI Sta 20+10.39	PI Sta 12+55.78	PI Sta 15+03.24
$\Delta = 24^{\circ} 01' 28.2" (LT)$	$\Delta = 16^{\circ} 36' 06.0" (RT)$	$\Delta = 1^{\circ} 42' 05.4" (LT)$	$\Delta = 1^{\circ} 34' 39.4" (RT)$	$\Delta = 18^{\circ} 10' 27.4" (RT)$
D = 3' 28' 20.9"	D = 3' 49' 11.0"	D = 0' 34' 22.6"	D = 2' 10' 13.1"	D = 4' 20' 26.1"
L = 691.86'	L = 434.63'	L = 296.97'	L = 72.69'	L = 418.71'
T = 351.09'	T = 218.85'	T = 148.50'	T = 36.35'	T = 211.13'
R = 1,650.00'	R = 1,500.00'	R = 10,000.00'	R = 2,640.00'	R = 1,320.00'
e = NC*	e = EXIST	e = NA	e = NA	e = NA
RUNOFF = NA	RUNOFF = 87'	RUNOFF = NA	RUNOFF = NA	RUNOFF = NA
DS = 20 MPH	DS = NA	DS = 55 MPH	DS = NA	DS = NA

*DESIGN EXCEPTION APPROVED FOR SUPER ELEVATION ON JANUARY 11, 2017.

SEE SHEET 10 FOR -L- PROFILE
 SEE SHEET 11 FOR -Y7- PROFILE
 SEE SHEET 2B-2 FOR INTERSECTION DETAIL
 SEE SHEET W-3 FOR RETAINING WALL #3 DETAIL
 SEE SHEET W-4 FOR RETAINING WALL #4 DETAIL
 SEE SHEET 2B-3 FOR RAILROAD CROSSING DETAIL

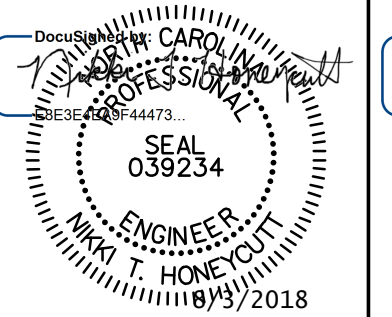
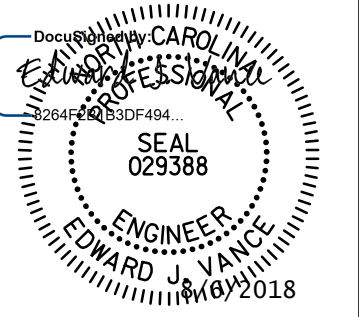

★ REVISED SIGNAL

PAVEMENT REMOVAL



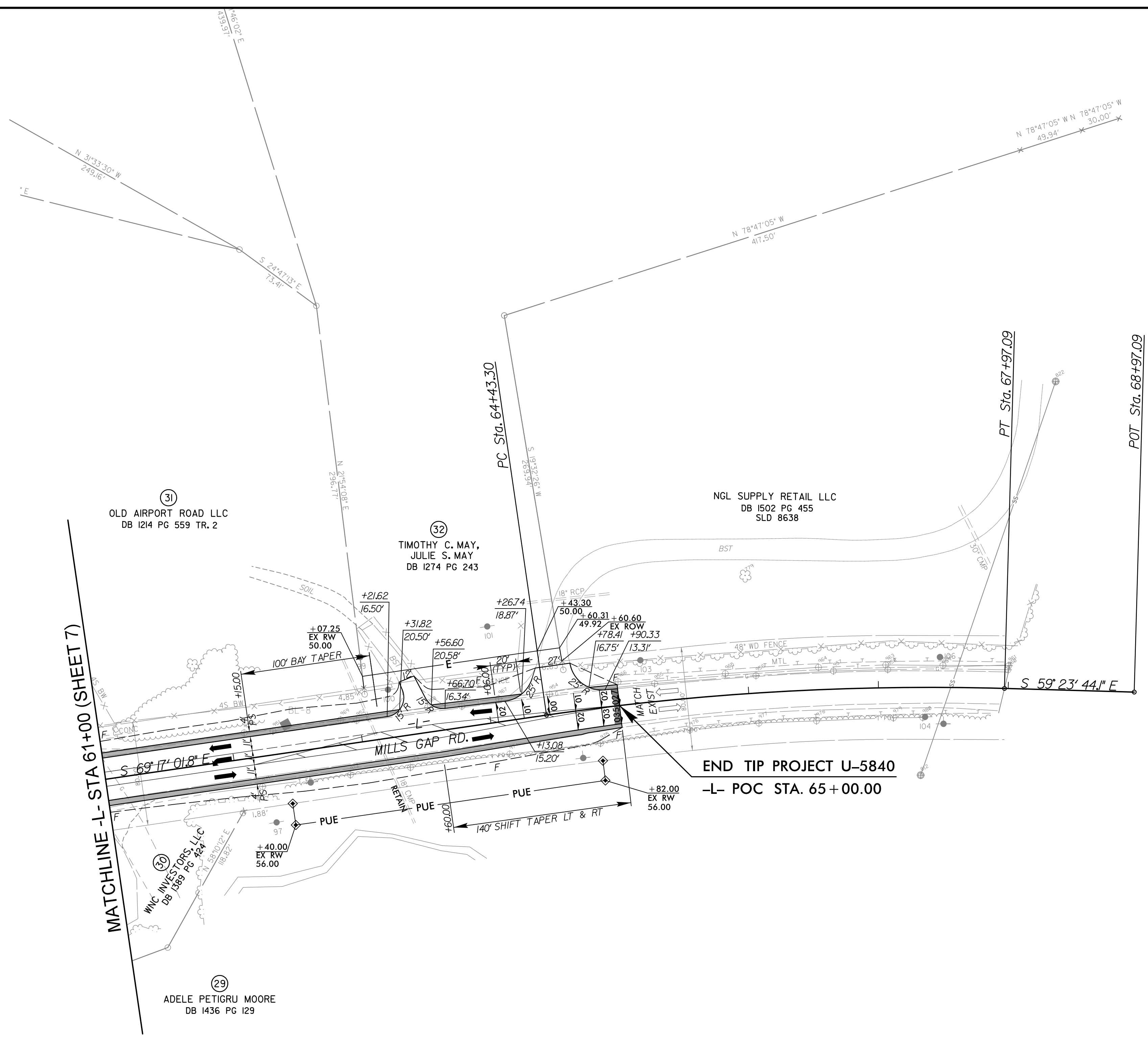
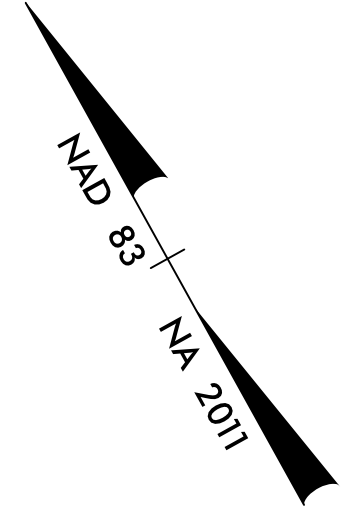
PROJECT REFERENCE NO. U-5840	SHEET NO. 7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	

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PROJECT REFERENCE NO. U-5840	SHEET NO. 8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
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CURVE DATA -L-


PI Sta 66+20.64
 $\Delta = 9^{\circ} 53' 17.7''$ (RT)
 $D = 2^{\circ} 47' 41.7''$
 $L = 353.79'$
 $T = 177.34'$
 $R = 2,050.00'$
 $e = EXIST$
 $RUNOFF = NA$
 $DS = NA$

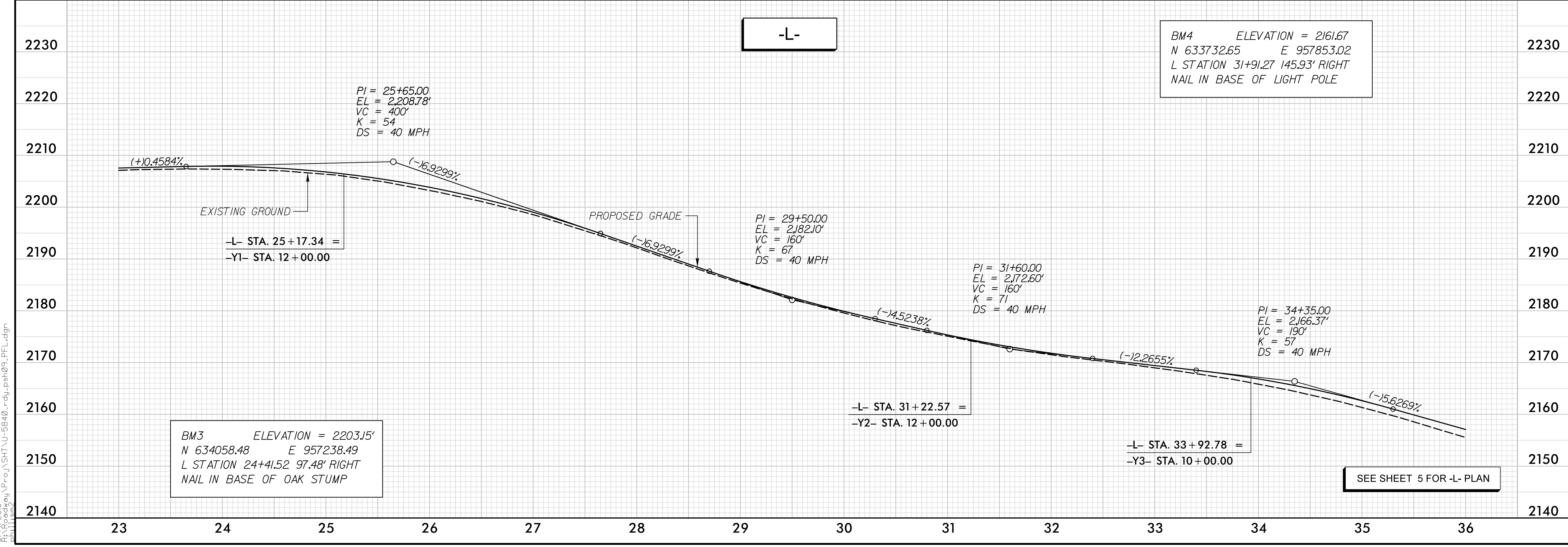
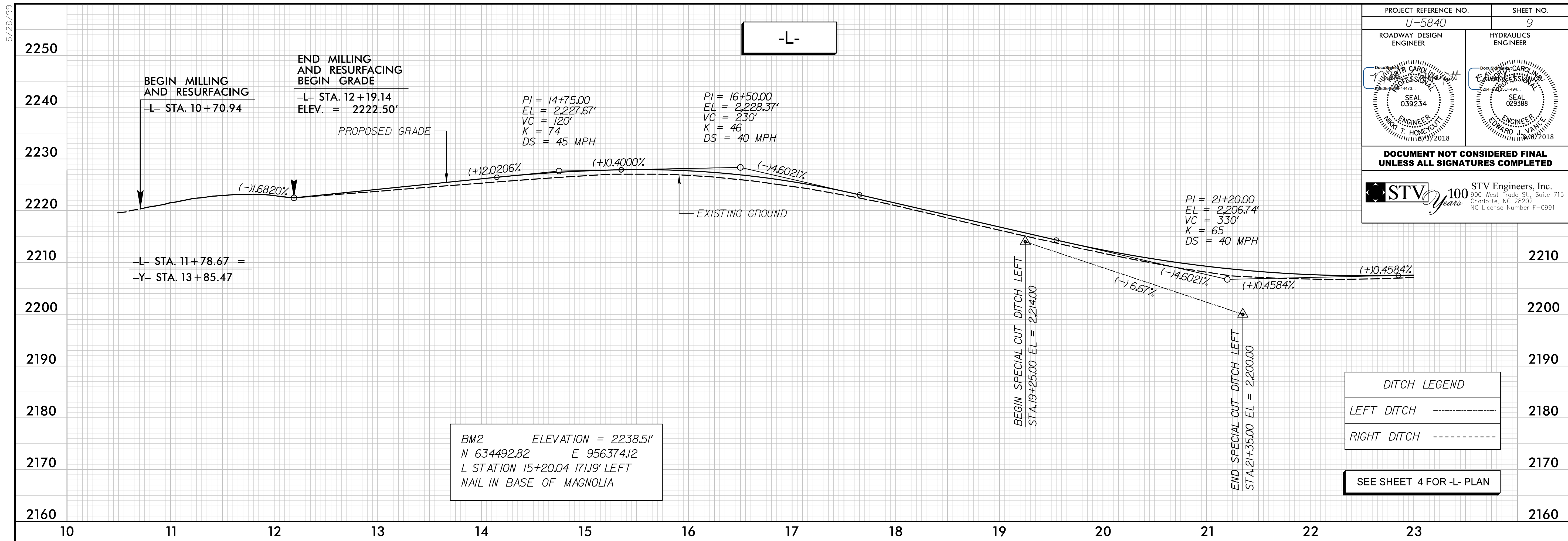


END TIP PROJECT U-5840
-L- POC STA. 65+00.00

6/27/2018
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 chulliam

SEE SHEET 11 FOR -L- PROFILE

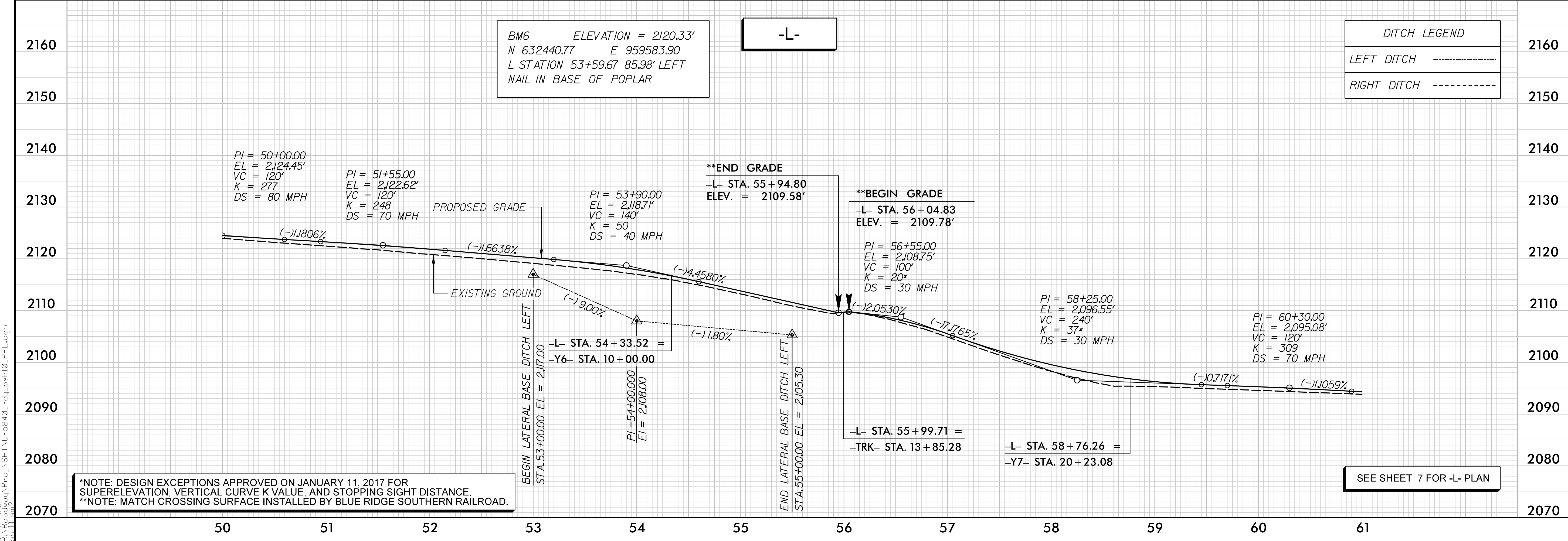
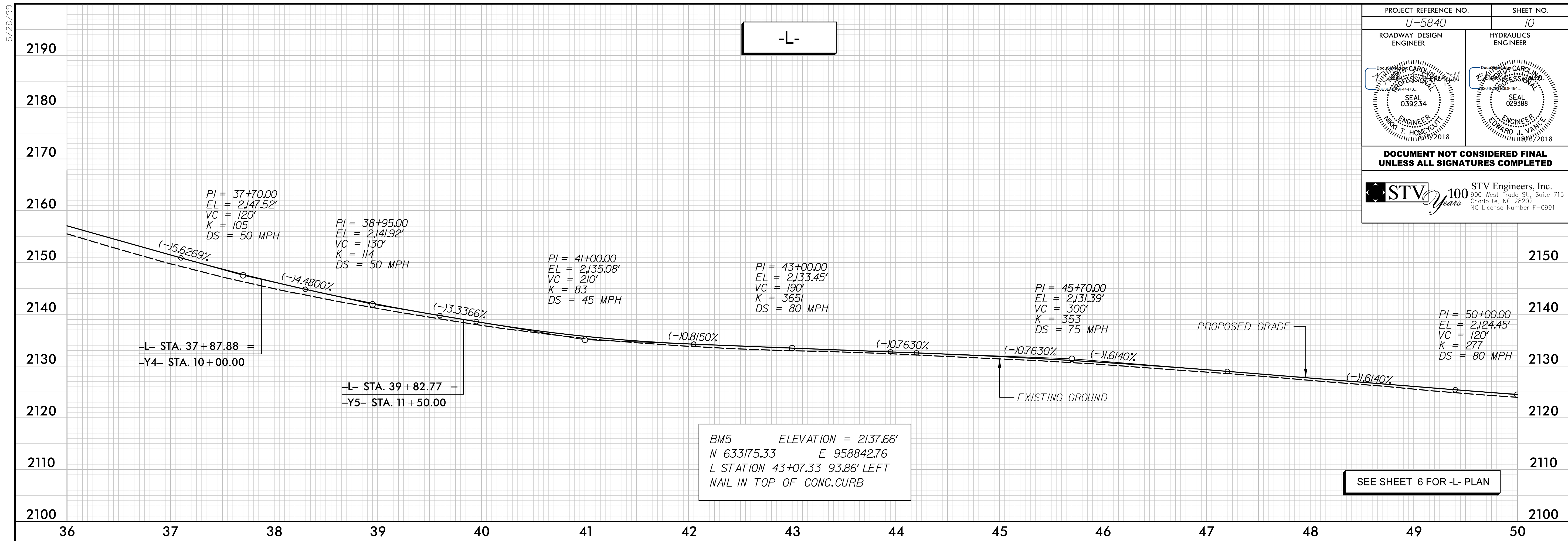
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5/28/19

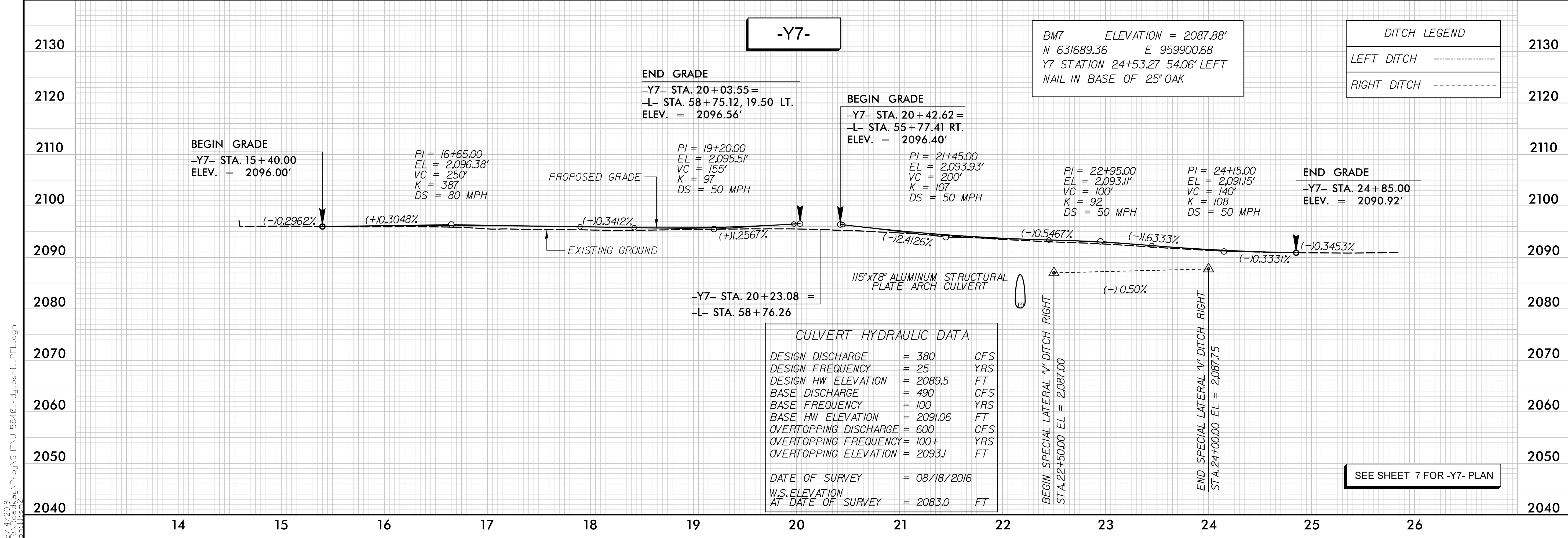
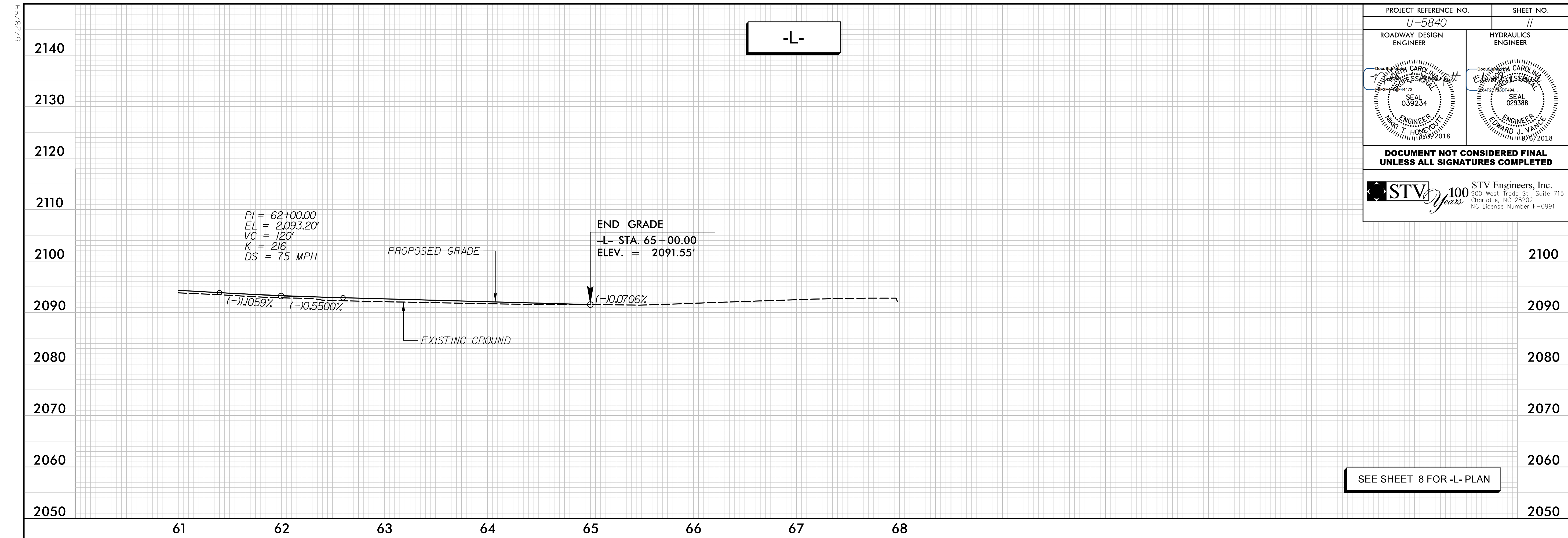
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PROJECT REFERENCE NO. U-5840	SHEET NO. 10
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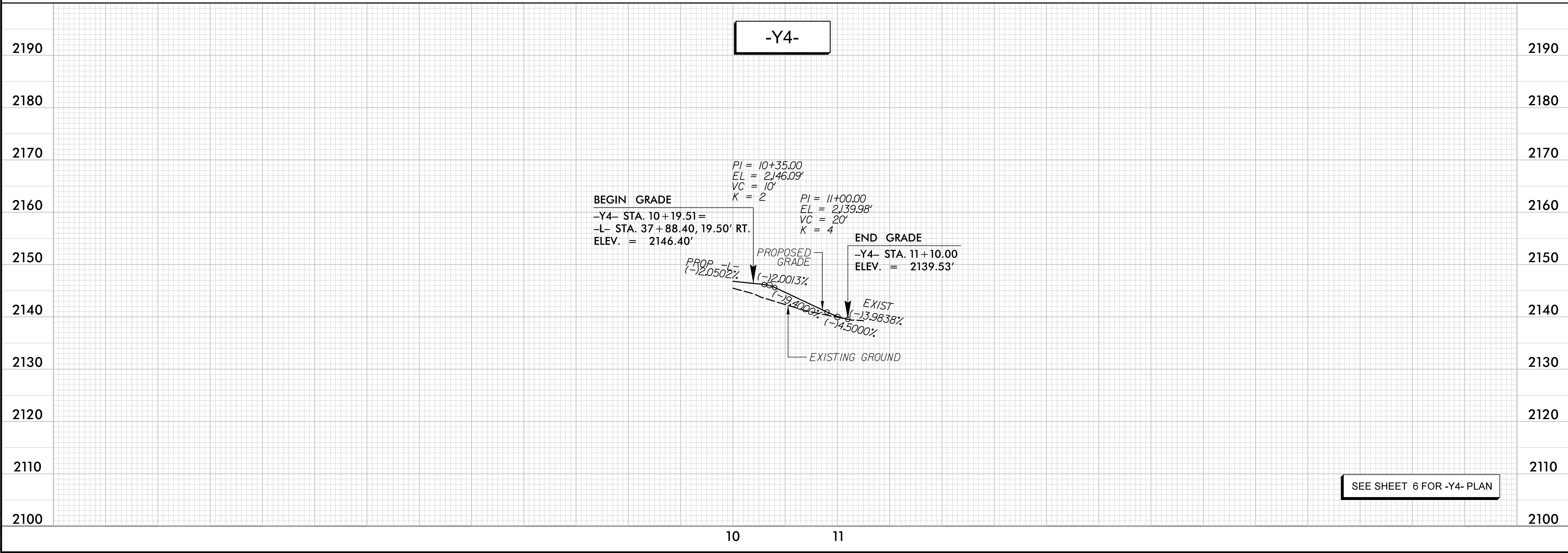
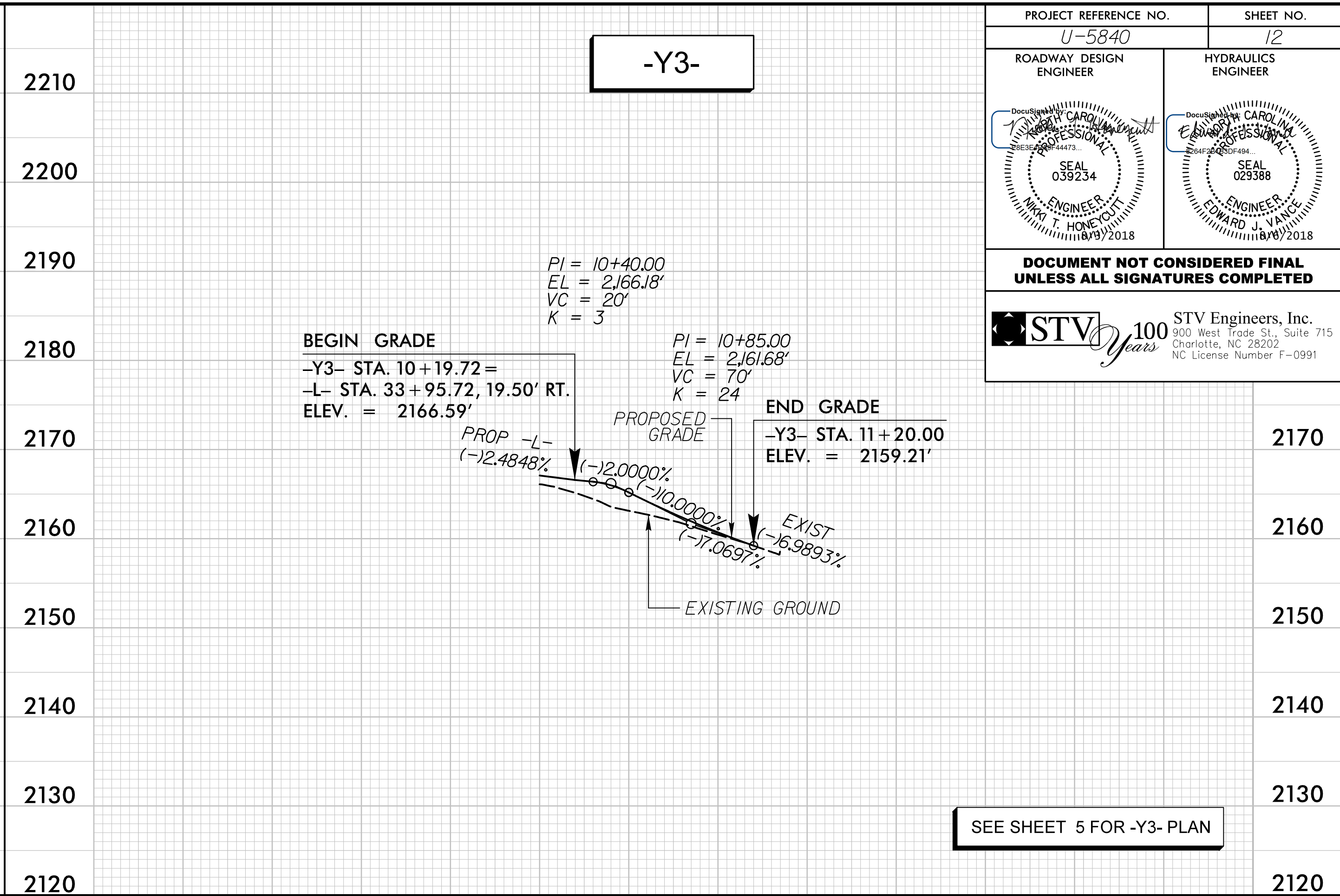
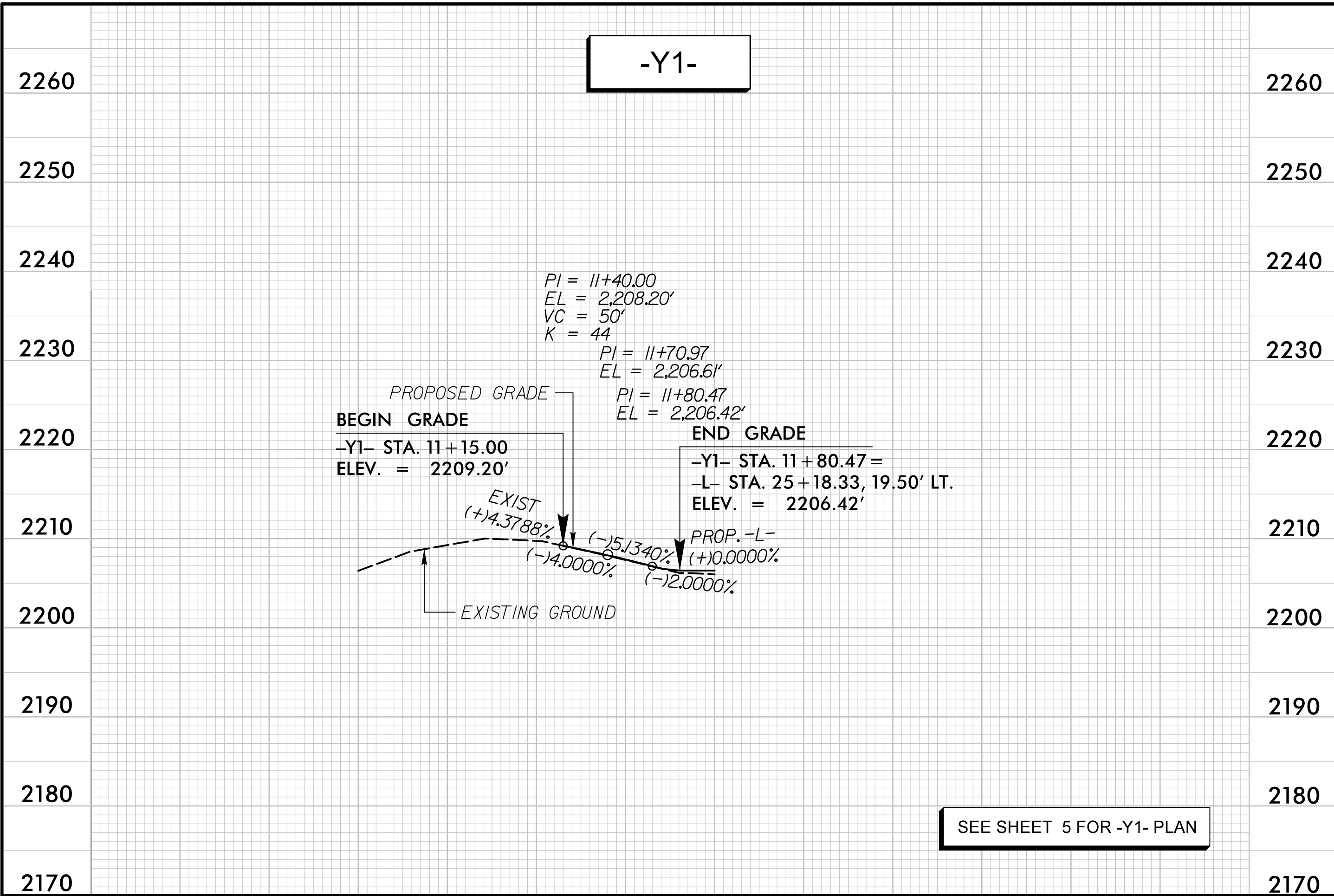


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PROJECT REFERENCE NO. <i>U-5840</i>	SHEET NO. <i>11</i>
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>
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PROJECT REFERENCE NO. U-5840	SHEET NO. 12
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