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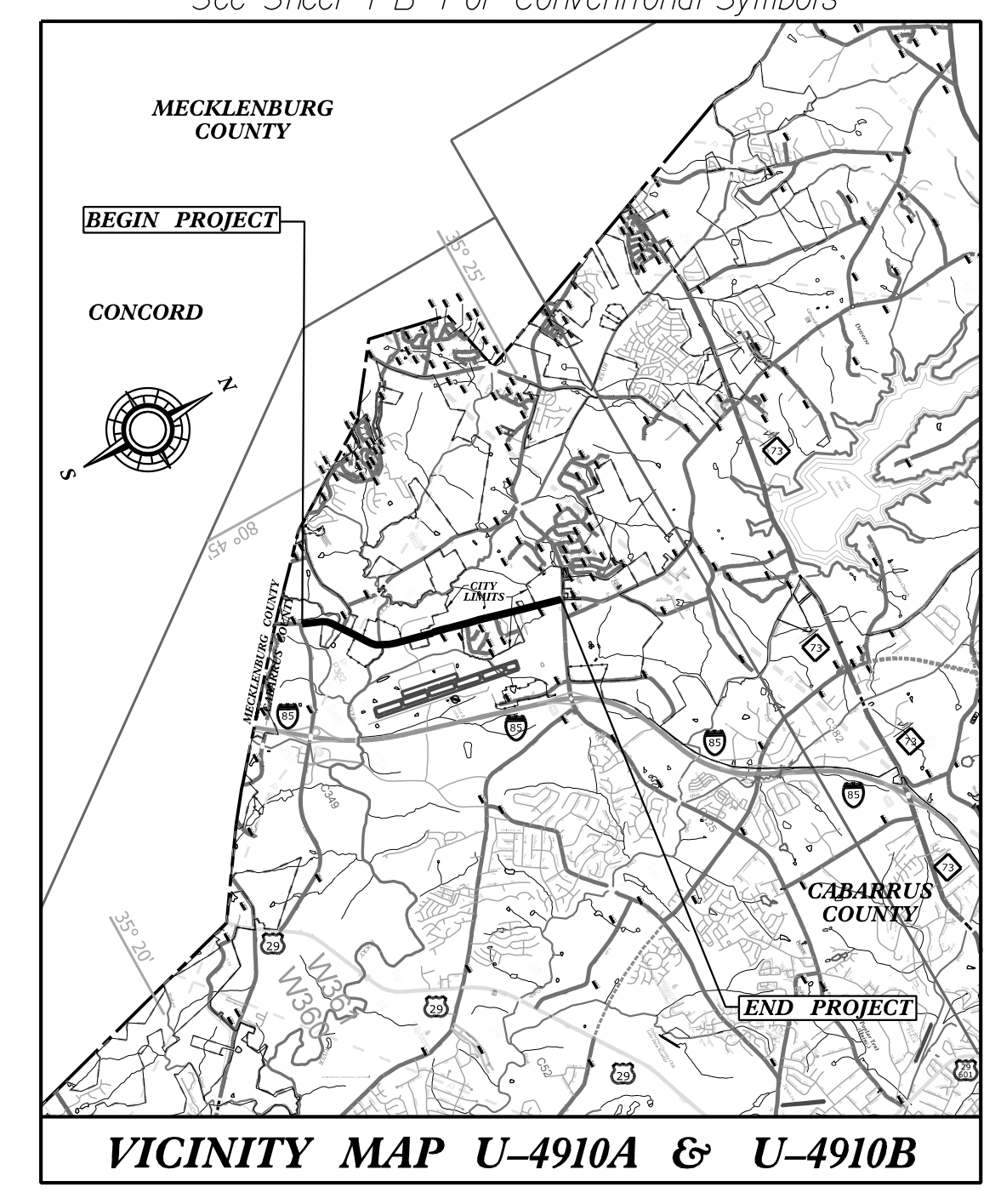
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09/08/99

**CONTRACT NO: C203661 TIP PROJECT: U-4910A /U-4910B**

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

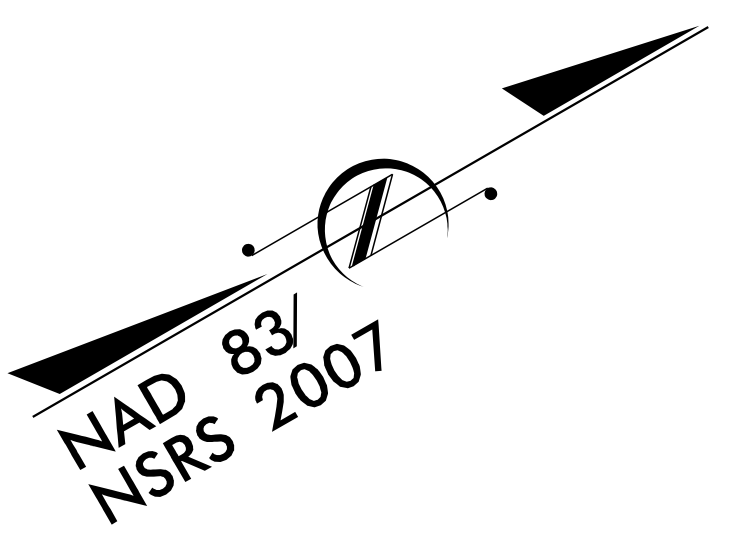


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

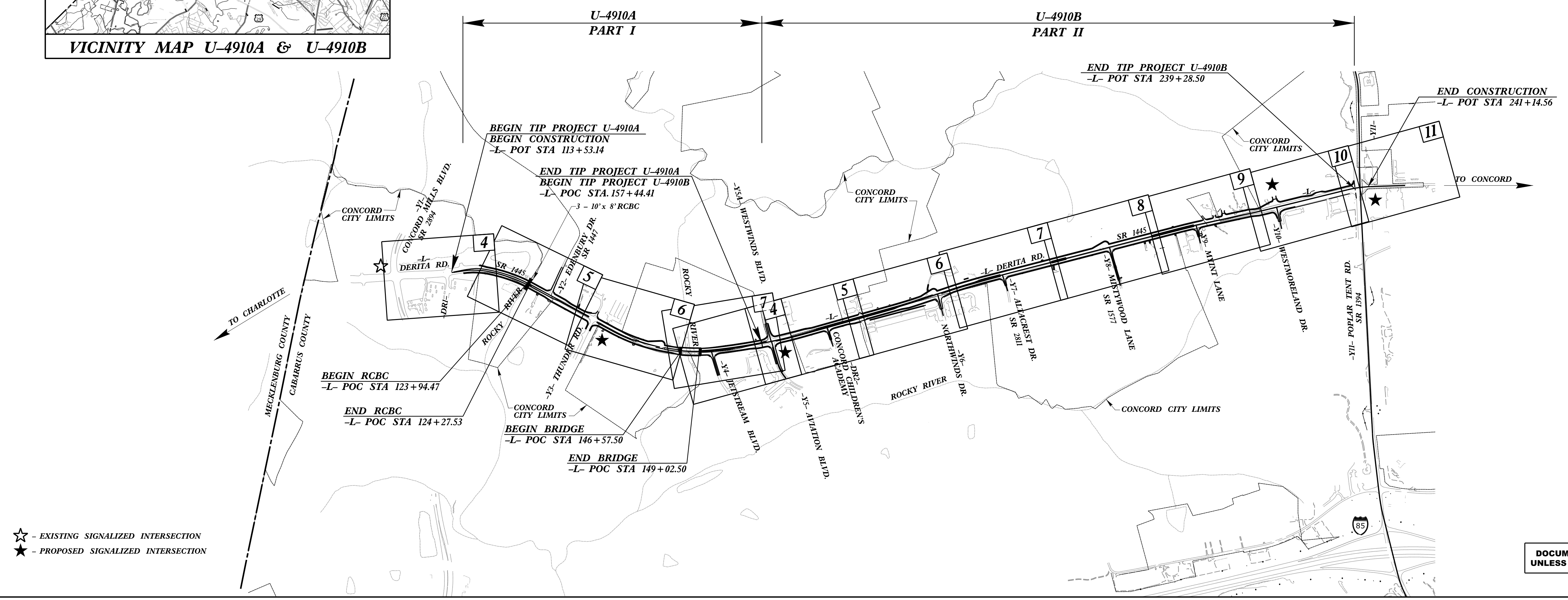
**CABARRUS COUNTY**

**LOCATION: SR 1445 (DERITA ROAD) FROM NORTH OF SR 2894 (CONCORD MILLS BOULEVARD) TO SR 1394 (POPLAR TENT ROAD).**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE & SIGNALS**



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4910A / U-4910B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40373.1.1		U-4910A (PE)	
40373.1.F3	HPP-1445(7)	U-4910B (PE)	
40373.2.D1		U-4910A (R/W & UTIL)	
40373.2.F2	HPP-1445(7)	U-4910B (R/W & UTIL)	
40373.3.3	STPDA-1445(008)	U-4910A CONST U-4910B CONST	



- ☆ - EXISTING SIGNALIZED INTERSECTION
- ★ - PROPOSED SIGNALIZED INTERSECTION

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UNLESS ALL SIGNATURES COMPLETED

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT U-4910A /U-4910B = 2.329 MILES  
LENGTH STRUCTURE TIP PROJECT U-4910A /U-4910B = 0.053 MILES  
TOTAL LENGTH TIP PROJECT U-4910A /U-4910B = 2.382 MILES

Prepared in the Office of:



NC FIRM LICENSE No: F-0342  
701 Corporate Center Drive, Suite 475  
Raleigh, NC 27607  
(919) 854-6200 - (919) 854-6259(FAX)

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
(U-4910A) NOV. 25, 2014

**RIGHT OF WAY DATE:**  
(U-4910B) SEPT. 18, 2014

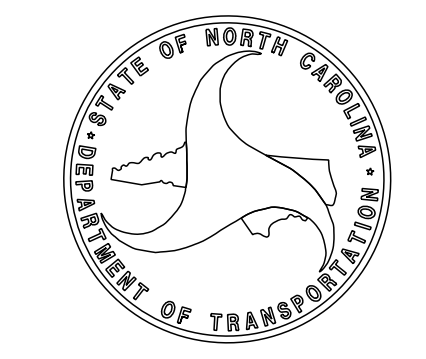
**LETTING DATE:**  
FEB. 21, 2017

**KEVIN J. VAN METRE, P.E.**  
PROJECT ENGINEER

**NEIL DEAN, P.E.**  
PROJECT DESIGNER

**THAD F. DUNCAN, P.E.**  
PROJECT ENGINEER  
NCDOT ROADWAY DESIGN

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

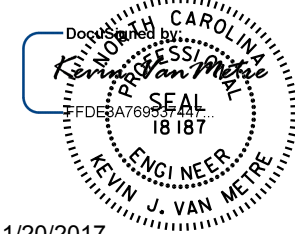


P.E.  
STATE HIGHWAY DESIGN ENGINEER

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8/17/99

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**INDEX OF SHEETS**

PROJECT REFERENCE NO. <i>U-4910A /U-4910B</i>	SHEET NO. <i>1A-1</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
1/20/2017	
Prepared in the Office of: <b>AECOM</b>	
<small>NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Roseboro, NC 27567 (919) 854-6200 • (919) 854-6259(FAX)</small>	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

NO. OF SHEETS	TITLE	(U4910A/U4910B)	START	END
1	TITLE SHEET	(U4910A/U4910B)	1	
3	INDEX OF SHEETS, GENERAL NOTES AND STANDARD DRAWINGS	(U4910A/U4910B)	1A-1	1A-3
1	CONVENTIONAL SYMBOL SHEET	(U4910A/U4910B)	1B-1	
1	TITLE SHEET	(U4910A)	1	
1	SURVEY CONTROL SHEET	(U4910A)	1C-1	
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS AND WEDGING DETAILS		2A-1	2A-2
3	INTERSECTION AND DETOUR DETAILS		2B-1	2B-3
4	DETAILS NOT COVERED BY ROADWAY (SPECIAL DETAILS PRODUCED BY CONTRACTS)		2C-1	2C-4
1	DRAINAGE DETAILS		2D-1	
1	GEOTECHNICAL DETAILS		2G-1	
2	COMBINED SUMMARY (EARTHWORK, GUARDRAIL, ETC.)		3B-1	3B-2
3	DRAINAGE SUMMARIES		3D-1	3D-3
1	GEOTECHNICAL SUMMARIES		3G-1	
1	PARCEL INDEX SHEET		3P-1	
4	PLAN SHEETS		4	7
3	PROFILE SHEETS		8	10
56	TRANSPORTATION MANAGEMENT PLANS	(U4910A/U4910B)	TMP-1	TMP-52
8	PAVEMENT MARKING PLANS		PMP-1	PMP-8
1	EROSION CONTROL - TITLE SHEET	(U4910A/U4910B)	EC-1	
18	EROSION CONTROL - PLANS	(U4910A)	EC-1	EC-11
1	REFORESTATION PLAN	(U4910A)	RF-1	
6	SIGNING PLANS		SGN-1	SGN-6
12	SIGNAL PLANS	(U4910A)	SIG. 1.0	SIG. 5.4
8	SIGNAL PLAN STANDARD DRAWINGS	(U4910A)	SIG. M1	SIG. M8
3	SIGNAL PLAN STANDARD DETAILS	(U4910A)	SIG. P1	SIG. P3
8	SIGNAL COMMUNICATION PLANS	(U4910A)	SCP-1	SCP-8
12	UTILITY CONSTRUCTION PLANS	(U4910A)	UC-1	UC-12
6	UTILITIES BY OTHERS PLANS	(U4910A)	UO-1	UO-7
1	TITLE SHEET	(U4910B)	1	
1	SURVEY CONTROL SHEET	(U4910B)	1C-1	
3	PAVEMENT SCHEDULE, TYPICAL SECTIONS AND WEDGING DETAILS		2A-1	2A-3
6	INTERSECTION AND DETOUR DETAILS		2B-1	2B-6
3	DETAILS NOT COVERED BY ROADWAY (SPECIAL DETAILS PRODUCED BY CONTRACTS)		2C-1	2C-3
1	DRAINAGE DETAILS		2D-1	
2	COMBINED SUMMARY (EARTHWORK, GUARDRAIL, ETC.)		3B-1	3B-2
5	DRAINAGE SUMMARIES		3D-1	3D-5
1	PARCEL INDEX SHEETS		3P-1	
8	PLAN SHEETS		4	11
6	PROFILE SHEETS		12	17
11	PAVEMENT MARKING PLANS		PMP-1	PMP-11
23	EROSION CONTROL - PLANS	(U4910B)	EC-1	EC-19
1	REFORESTATION PLAN	(U4910B)	RF-1	
10	SIGNING PLANS		SGN-1	SGN-10
11	SIGNAL PLANS	(U4910B)	SIG. 1.0	SIG. 4.1
8	SIGNAL PLAN STANDARD DRAWINGS	(U4910B)	SIG. M1	SIG. M8
3	SIGNAL PLAN STANDARD DETAILS	(U4910B)	SIG. P1	SIG. P3
8	SIGNAL COMMUNICATION PLANS	(U4910B)	SCP-1	SCP-11
11	UTILITY CONSTRUCTION PLANS	(U4910B)	UC-1	UC-12
9	UTILITIES BY OTHERS PLANS	(U4910B)	UO-1	UO-10
1	STRUCTURE PLANS - TITLE SHEET	(U4910A/U4910B)	1	
7	STRUCTURE PLANS - CULVERT	(U4910A)	C-01	C-07
1	STRUCTURE PLANS - STANDARD NOTES SHEET		SN	
55	STRUCTURE PLANS - BRIDGE	(U4910B)	S-01	S-55
1	STRUCTURE PLANS - STANDARD NOTES SHEET		SN	
4	RETAINING WALL DETAILS	(U4910B)	W-01	W-04
1	CROSS-SECTION INDEX SHEET	(U4910A)	X-0	
1	CROSS-SECTION SUMMARY SHEET		X-1A	
48	CROSS-SECTIONS		X-1	X-48
1	CROSS-SECTION INDEX SHEET	(U4910B)	X-0	
2	CROSS-SECTION SUMMARY SHEET		X-1A	X-1B
84	CROSS-SECTIONS		X-5	X-88

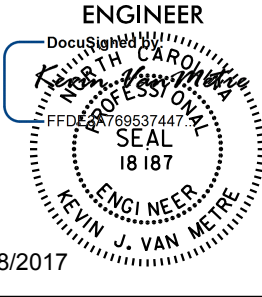
REVISIONS

Revisions:

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**LIST OF STANDARD DRAWINGS**

PROJECT REFERENCE NO. <i>U-4910A /U-4910B</i>	SHEET NO. <i>1A-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	
Prepared in the Office of: <b>AECOM</b>	NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this projectand by reference hereby are considered a part of these plans:

STD.NO. TITLE

DIVISION 2 - EARTHWORK

- 200.03 Method of Clearing - Method III
- 225.02 Guide for Grading Subgrade - Secondary and Local
- 225.04 Method of Obtaining Superelevation - Two Lane Pavement
- 225.06 Method of Grading Sight Distance at Intersections
- 240.01 Guide for Berm Ditch Construction

DIVISION 3 - PIPE CULVERTS

- 300.01 Method of Pipe Installation
- 310.10 Driveway Pipe Construction

DIVISION 4 - MAJOR STRUCTURES

- 422.10 Reinforced Bridge Approach Fills

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS

- 560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I

DIVISION 6 - ASPHALT BASES AND PAVEMENTS

- 654.01 Pavement Repairs

DIVISION 8 - INCIDENTALS

- 815.03 Pipe Underdrain and Blind Drain
- 838.01 Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
- 838.11 Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
- 840.00 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
- 840.24 Frames and Narrow Slot Sag Grates
- 840.25 Anchorage for Frames - Brick or Concrete or Precast

DIVISION 8 - INCIDENTALS CON'T

- 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
- 840.34 Traffic Bearing Junction Box - for Use with Pipes 42" and Under
- 840.35 Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
- 840.45 Precast Drainage Structure
- 840.46 Traffic Bearing Precast Drainage Structure
- 840.54 Manhole Frame and Cover
- 840.66 Drainage Structure Steps
- 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
- 850.01 Concrete Paved Ditches
- 850.10 Guide for Berm Drainage Outlet - 15" and 18" Pipe
- 852.01 Concrete Islands
- 852.02 Concrete Mountable Median - for Use with Rigid or Flexible Pavement
- 852.04 Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
- 852.10 Median Construction - with Curb and Gutter
- 862.01 Guardrail Placement
- 862.02 Guardrail Installation
- 876.01 Rip Rap in Channels
- 876.02 Guide for Rip Rap at Pipe Outlets
- 876.04 Drainage Ditches with Class 'B' Rip Rap

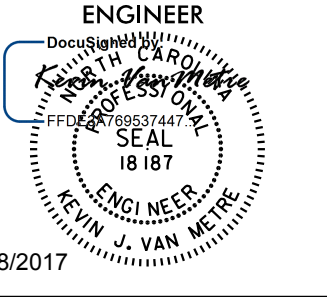
REVISIONS

Revisions:

8/17/99

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**GENERAL NOTES**

PROJECT REFERENCE NO. U-4910A /U-4910B	SHEET NO. 1A-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER  1/18/2017	
Prepared in the Office of: <b>AECOM</b> NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Rosedale, NC 27967 (919) 854-6200 • (919) 854-6259(FAX)	
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GENERAL NOTES: 2012 SPECIFICATIONS  
EFFECTIVE: 01-17-2012  
REVISED: 10-31-2014

GENERAL NOTES - CON'T.

GRADE LINE:  
GRADING AND SURFACING:

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.

STREET TURNOUT:

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

CLEARING:

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

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.

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.

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".

SHOULDER CONSTRUCTION:

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

SUBSURFACE PLANS:

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

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.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

- POWER - DUKE ENERGY PROGRESS
- POWER - CONCORD ELECTRIC
- WATER - CITY OF CONCORD
- SEWER - WATER & SEWER AUTHORITY OF CABARRUS COUNTY
- TELECOMMUNICATIONS - WINDSTREAM
- TELECOMMUNICATIONS - AT&T
- GAS DISTRIBUTION - PSNC
- CATV - TIME WARNER CABLE
- GAS TRANSMISSION - PNG (NO CONFLICTS)
- TELECOMMUNICATIONS - DUKE NET (NO CONFLICTS)

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS

DRIVEWAYS:

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

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.

REVISIONS

Revisions:

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Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4910A /U-4910B	1 B
RW SHEET NO.	

# CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	⊙ EIP
Property Corner	-----
Property Monument	⊠ ECM
Parcel/Sequence Number	Ⓜ 123
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	⊠
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- WLB
Proposed Wetland Boundary	----- WLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

## 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	⊙ CSX TRANSPORTATION MILEPOST 35
Switch	⊠ SWITCH
RR Abandoned	-----
RR Dismantled	-----

## RIGHT OF WAY:

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

## ROADS AND RELATED FEATURES:

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

## VEGETATION:

Single Tree	⊙
Single Shrub	⊙
Hedge	-----
Woods Line	-----

Orchard	⊙
Vineyard	⊠ Vineyard

## EXISTING STRUCTURES:

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

## UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊙ P
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	⊠
H-Frame Pole	●
Recorded U/G Power Line	----- P
Designated U/G Power Line (S.U.E.*)	----- P

## TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊙ T
Telephone Booth	⊠
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	⊠
Recorded U/G Telephone Cable	----- T
Designated U/G Telephone Cable (S.U.E.*)	----- T
Recorded U/G Telephone Conduit	----- TC
Designated U/G Telephone Conduit (S.U.E.*)	----- TC
Recorded U/G Fiber Optics Cable	----- T FO
Designated U/G Fiber Optics Cable (S.U.E.*)	----- T FO

## WATER:

Water Manhole	⊙ W
Water Meter	⊙
Water Valve	⊙
Water Hydrant	⊙
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

## TV:

TV Satellite Dish	⊠
TV Pedestal	⊠
TV Tower	⊙
U/G TV Cable Hand Hole	⊠
Recorded U/G TV Cable	----- TV
Designated U/G TV Cable (S.U.E.*)	----- TV
Recorded U/G Fiber Optic Cable	----- TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	----- TV FO

## GAS:

Gas Valve	◇
Gas Meter	⊙
Recorded U/G Gas Line	----- G
Designated U/G Gas Line (S.U.E.*)	----- G
Above Ground Gas Line	----- A/G Gas

## SANITARY SEWER:

Sanitary Sewer Manhole	⊙ SS
Sanitary Sewer Cleanout	⊙
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
Recorded SS Forced Main Line	----- FSS
Designated SS Forced Main Line (S.U.E.*)	----- FSS

## MISCELLANEOUS:

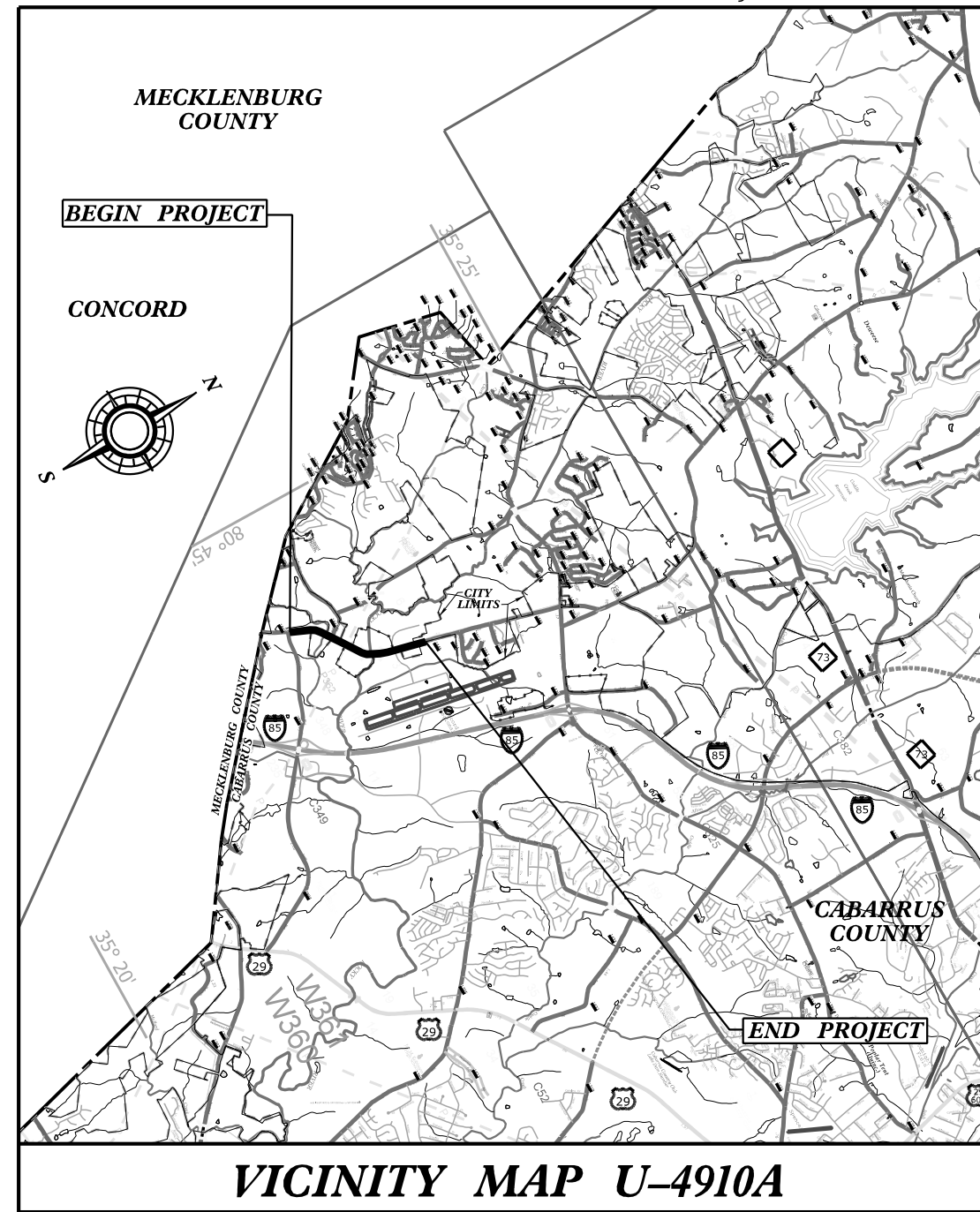
Utility Pole	●
Utility Pole with Base	⊠
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line	----- UTL
U/G Tank; Water, Gas, Oil	⊠
Underground Storage Tank, Approx. Loc.	⊠ UST
A/G Tank; Water, Gas, Oil	⊠
Geoenvironmental Boring	⊙
U/G Test Hole (S.U.E.*)	⊙
Abandoned According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

REVISIONS

Revisions:

DWG: R:\Roadway\Proj\4910A-101\Drawings\Combined.dgn  
USER: schmid  
DATE: 9/19/2016  
TIME: 12:50A PM

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



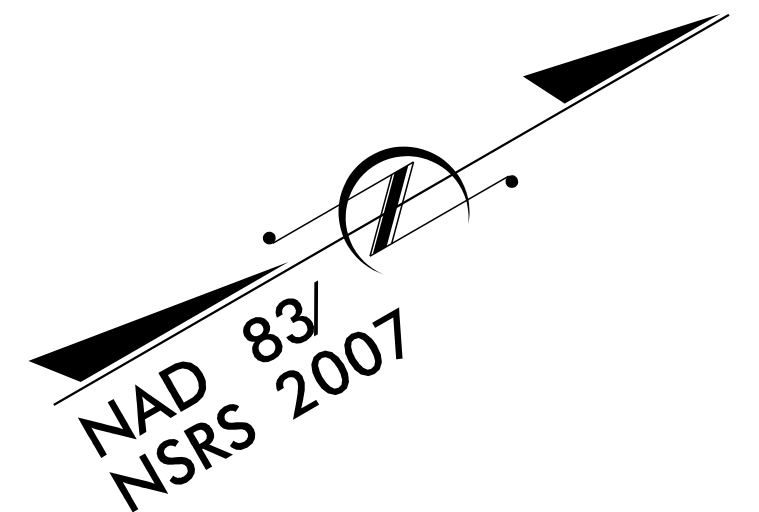
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## CABARRUS COUNTY

**LOCATION: SR 1445 (DERITA ROAD) FROM NORTH OF SR 2894  
(CONCORD MILLS BOULEVARD) TO AVIATION BOULEVARD.**

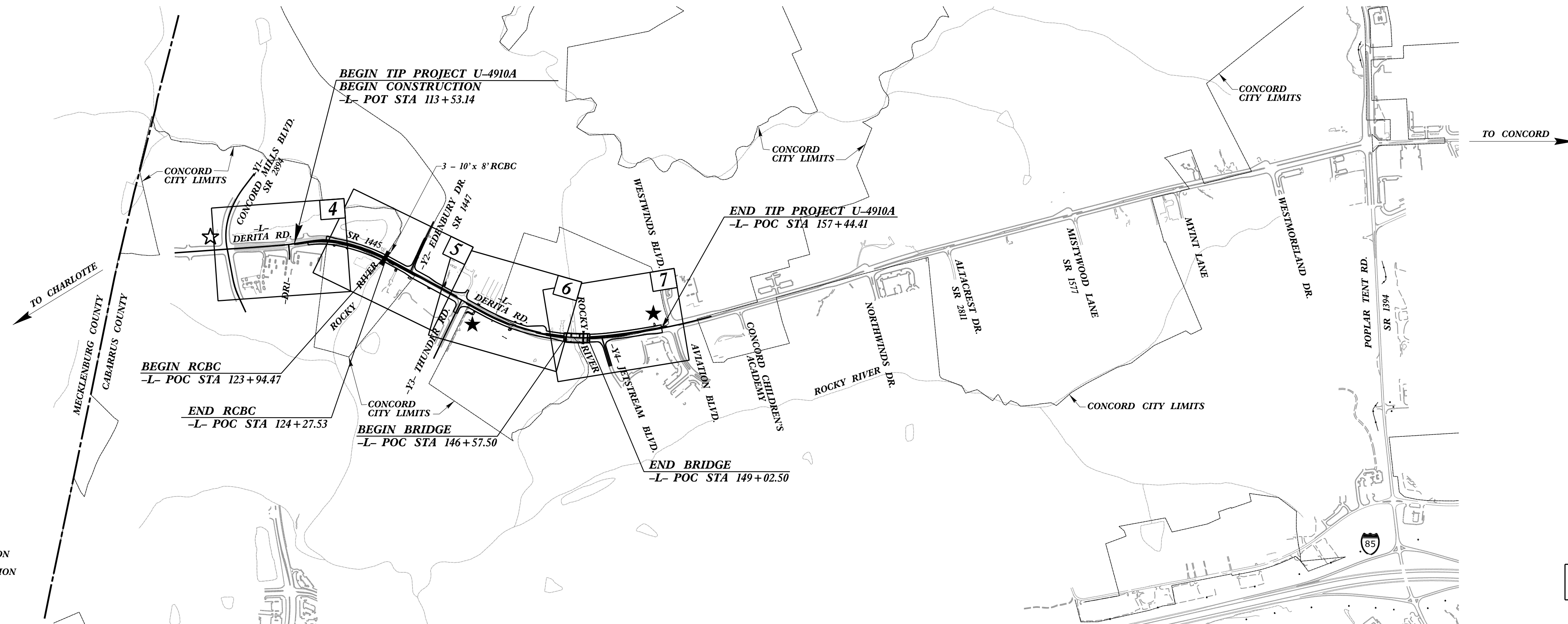
**TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES  
& SIGNALS**

### PART I OF II



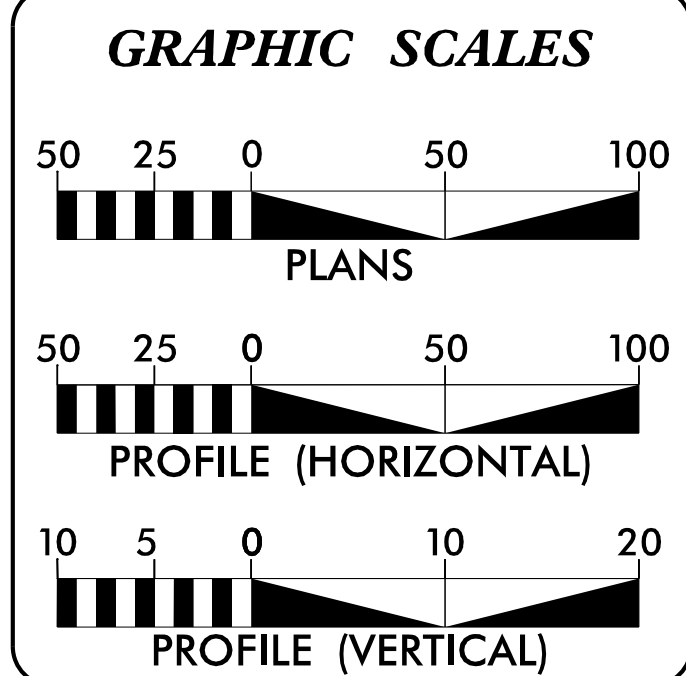
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4910A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40373.1.1	STP-1445(4)	PE	
40373.2.D1	HPP-1445(7)	U-4910A (R/W & UTIL)	
40373.3.3	STPDA-1445(008)	CONSTR	

**CONTRACT NO: C203661 TIP PROJECT: U-4910A**



- ☆ - EXISTING SIGNALIZED INTERSECTION
- ★ - PROPOSED SIGNALIZED INTERSECTION

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



**DESIGN DATA**

ADT 2011 =	11,000
ADT 2035 =	28,300
K =	12 %
D =	65 %
T =	4 % *
V =	50 MPH
* TTST =	1% DUAL 3%

FUNC CLASS - ARTERIAL  
SUBREGIONAL DESIGN

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT	=	0.779 MILES
LENGTH STRUCTURE TIP PROJECT	=	0.053 MILES
TOTAL LENGTH TIP PROJECT	=	0.832 MILES

Prepared in the Office of:

**AECOM**  
NC FIRM LICENSE No: F-0342  
701 Corporate Center Drive, Suite 475  
Raleigh, NC 27607  
(919) 854-6200 - (919) 854-6259(FAX)

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
NOVEMBER 25, 2014

**LETTING DATE:**  
FEB. 21, 2017

**KEVIN J. VAN METRE, P.E.**  
PROJECT ENGINEER

**NEIL DEAN, P.E.**  
PROJECT DESIGNER

**THAD F. DUNCAN, P.E.**  
PROJECT ENGINEER  
NCDOT ROADWAY DESIGN

**HYDRAULICS ENGINEER**

DocuSigned by:  
**W. Henry Wells, Jr.**  
SEAL 9334  
12/19/2016

**ROADWAY DESIGN ENGINEER**

DocuSigned by:  
**Kevin J. Van Metre**  
SEAL 18187  
12/20/2016

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER





**PAVEMENT SCHEDULE**

(FINAL PAVEMENT DESIGN)

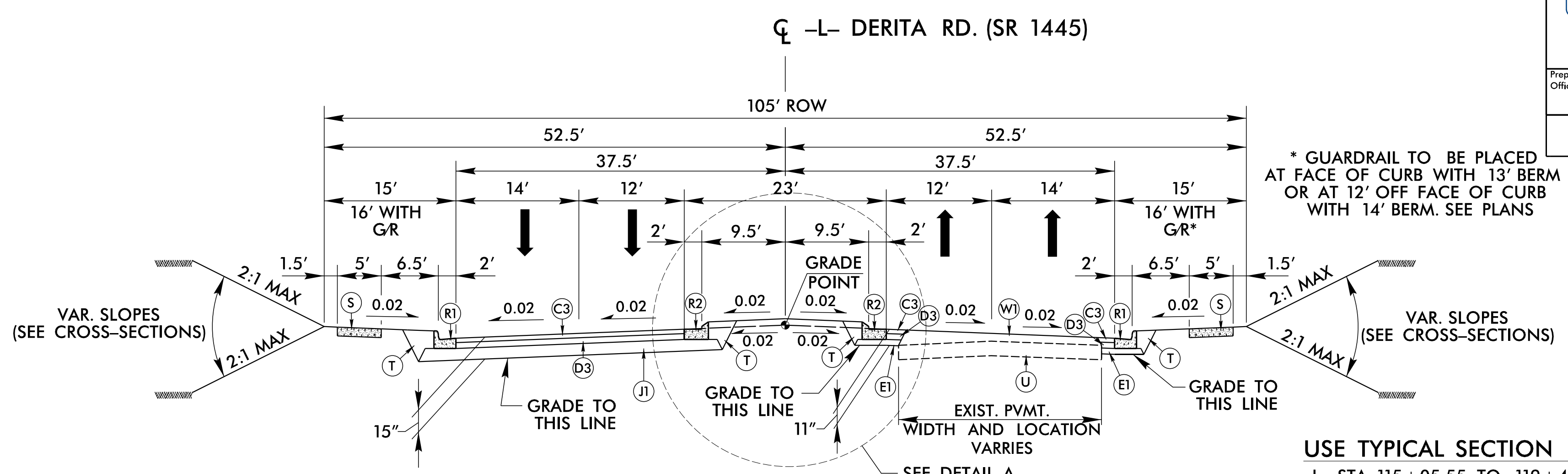
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
J2	PROP. 10" AGGREGATE BASE COURSE.
J3	PROP. 12" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF 0.35 GALLONS PER SQ. YD.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	2'-9" CONCRETE CURB AND GUTTER. (SEE DETAIL SHEET 2-C)
R3	5" MONOLITHIC CONCRETE ISLAND. KEYED IN
R4	EXISTING CONCRETE CURB AND GUTTER.
R5	1'-6" CONCRETE CURB AND GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. 1 1/2" DEPTH.
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 1)

REVISIONS

Revisions:

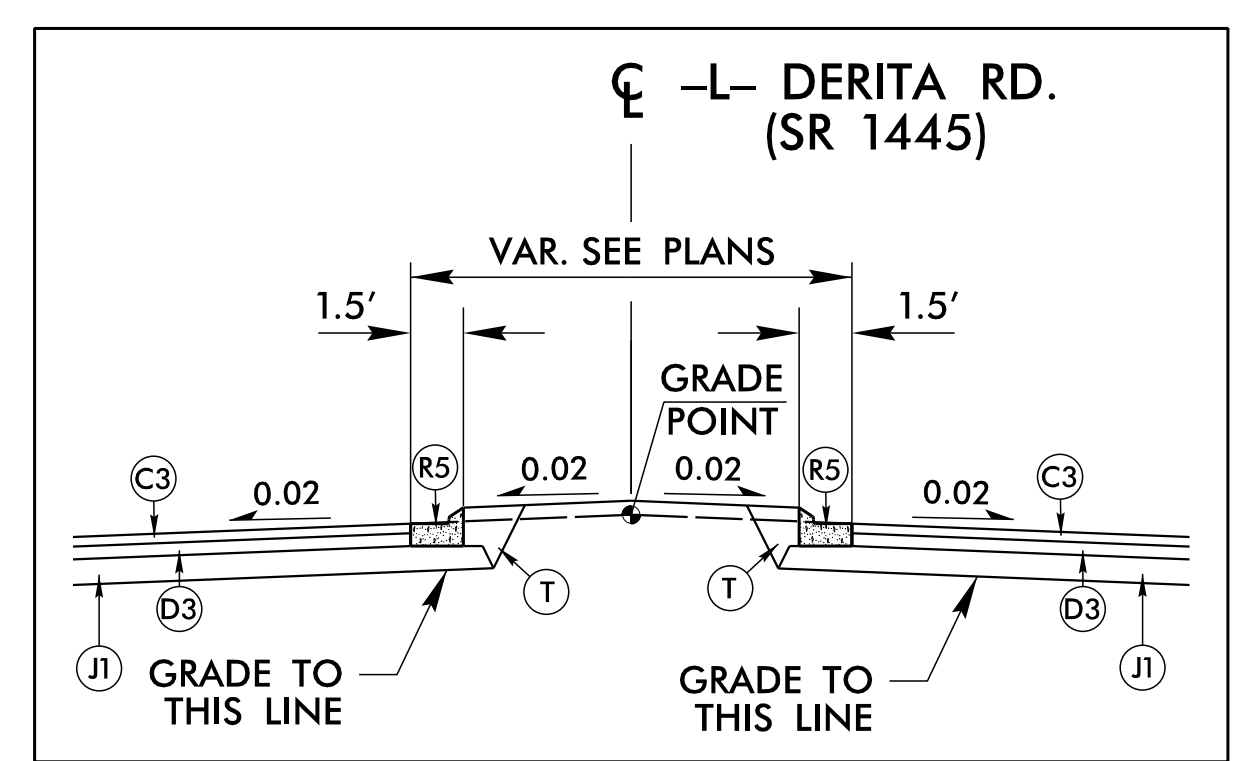
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 USER: schmid  
 DATE: 9/19/2016  
 TIME: 12:53:23 PM

PROJECT REFERENCE NO. U-4910A	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	PAVEMENT ENGINEER 
Prepared in the Office of: <b>AECOM</b> 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



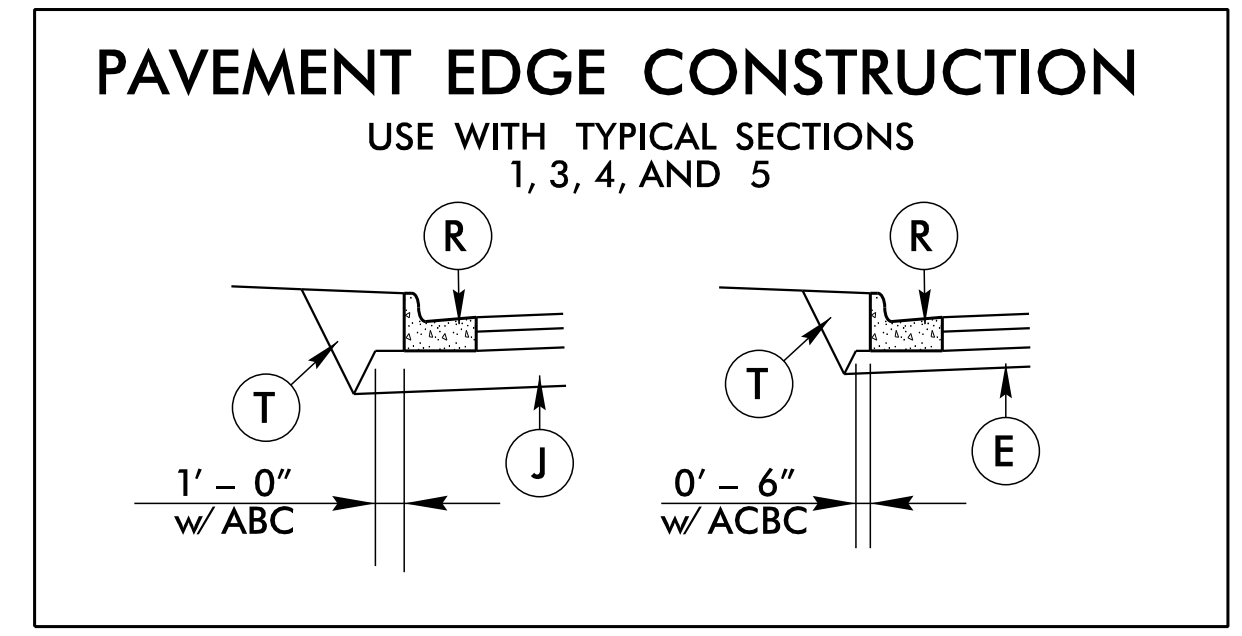
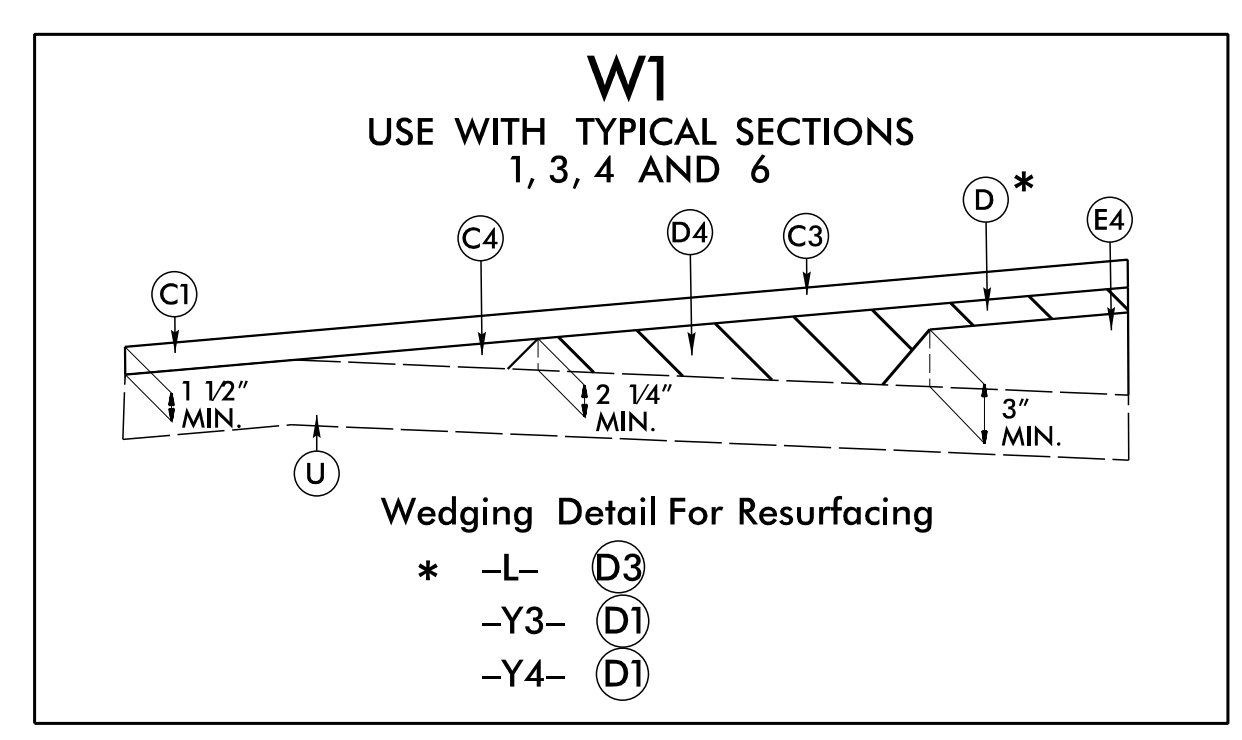
**USE TYPICAL SECTION NO. 1**

- L- STA. 115+05.55 TO 119+40.00 (RESURF)
- L- STA. 119+40.00 TO 133+00.00 (FULL DEPTH)
- L- STA. 133+00.00 TO 141+00.00 (RESURF)
- L- STA. 141+00.00 TO 146+57.50 (BEGIN BRIDGE) (FULL DEPTH)
- L- STA. 149+02.50 (END BRIDGE) TO 153+50.00 (FULL DEPTH)
- L- STA. 153+50.00 TO 157+44.41 (RESURF)

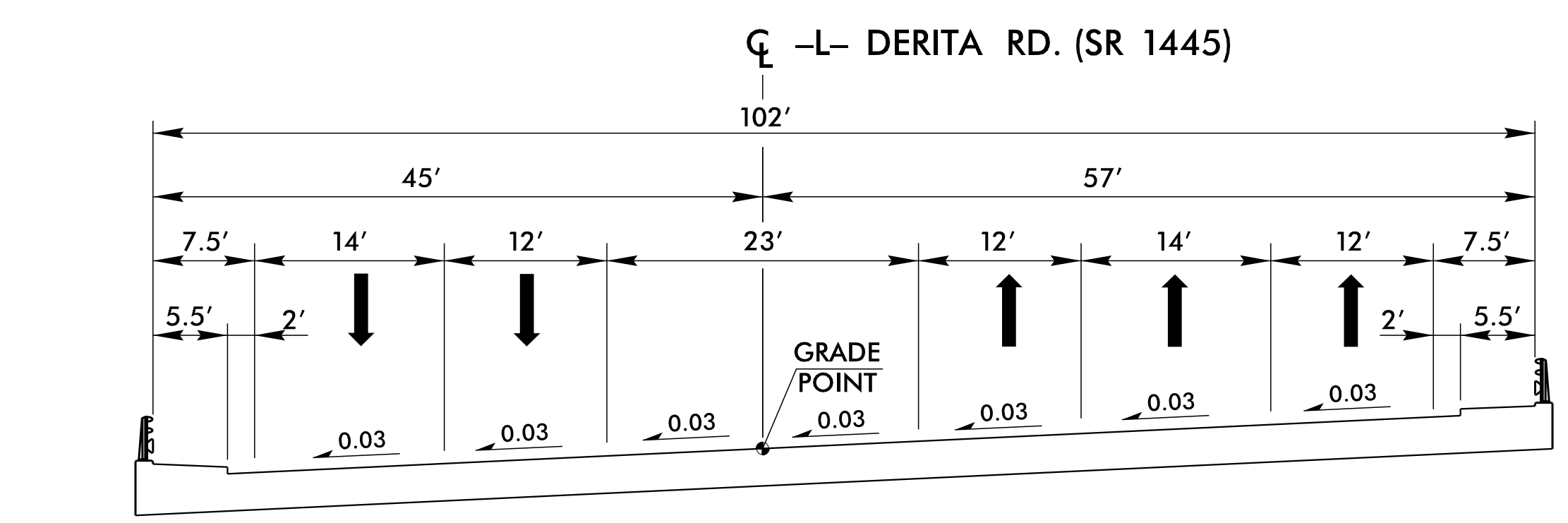


**USE DETAIL A IN CONJUNCTION WITH TYPICAL SECTION NO. 1**

-L- STA. 113+55.39 TO 117+39.50

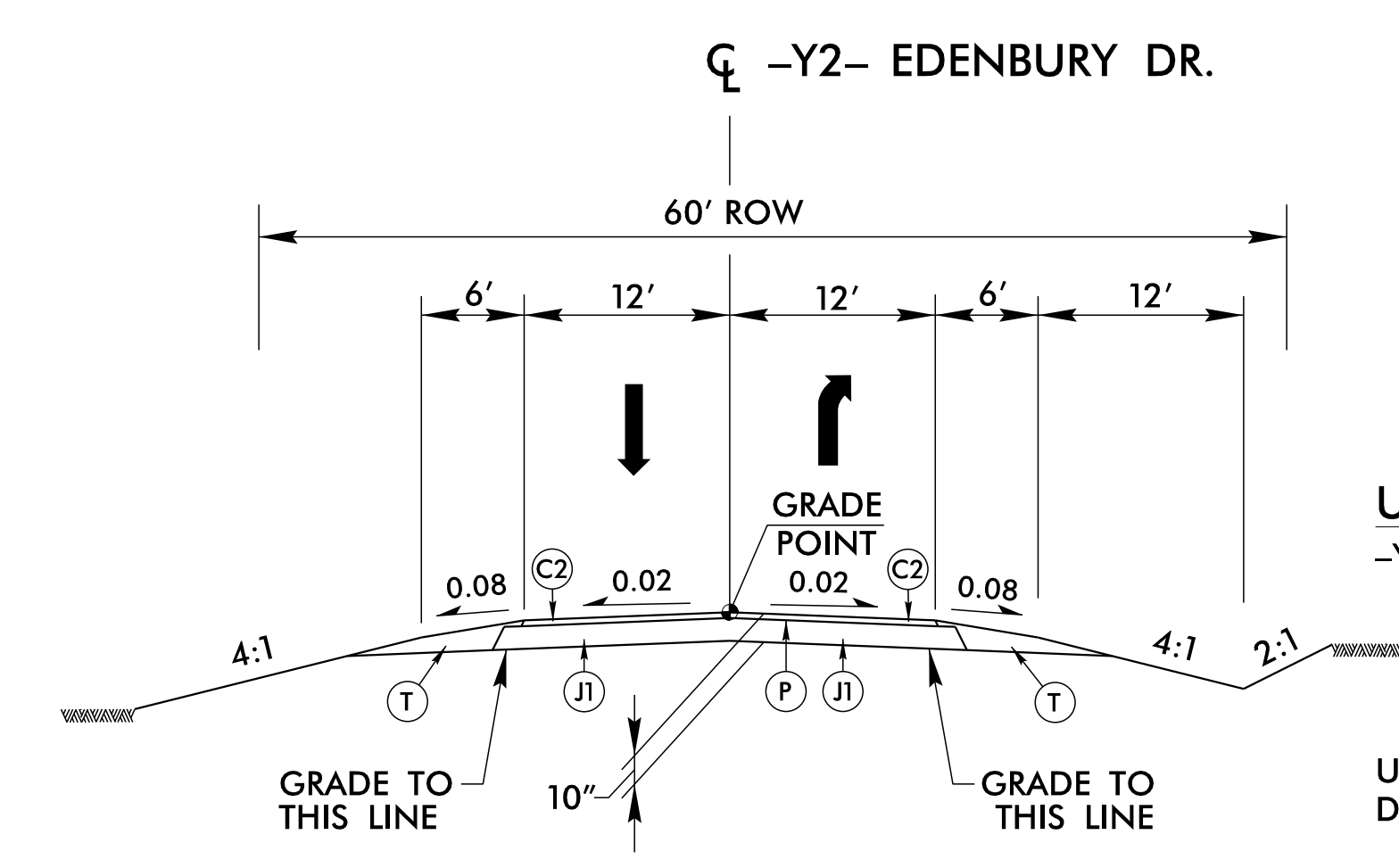


NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



**TYPICAL SECTION ON STRUCTURE**

-L STA. 146+57.50 TO 149+02.50



**USE TYPICAL SECTION NO. 2**

-Y2- STA. 10+49.67 TO 14+20.00 (FULL DEPTH)

USE TYPICAL SECTION NO. 2 PAVEMENT DESIGN FOR ALL ASPHALT DRIVES

**TYPICAL SECTION NO. 2**

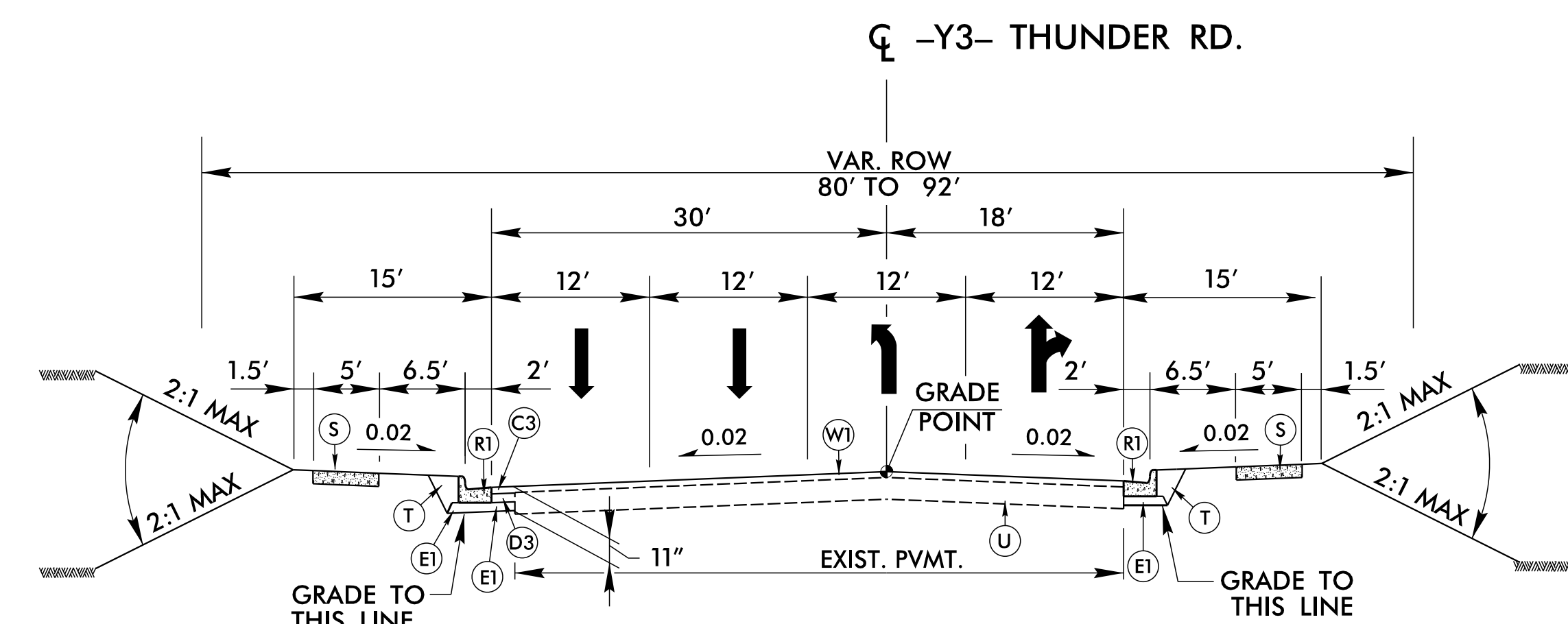
PAVEMENT DESIGN	
C1	1 1/2" S9.5B
C2	2" S9.5B
C3	3" S9.5B
C4	VAR. DEPTH S9.5B
D1	2 1/2" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D4	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	4 1/2" B25.0B
E3	5 1/2" B25.0B
E4	VAR. DEPTH B25.0B
J1	8" ABC
J2	10" ABC
J3	12" ABC
R1	2'-6" C & G
R2	2'-9" C & G
R3	5" MONO. ISLAND KEYED IN
R4	EXIST. C & G
R5	1'-6" C & G
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING 1 1/2"
W1	WEDGING

REVISIONS

Revisions:

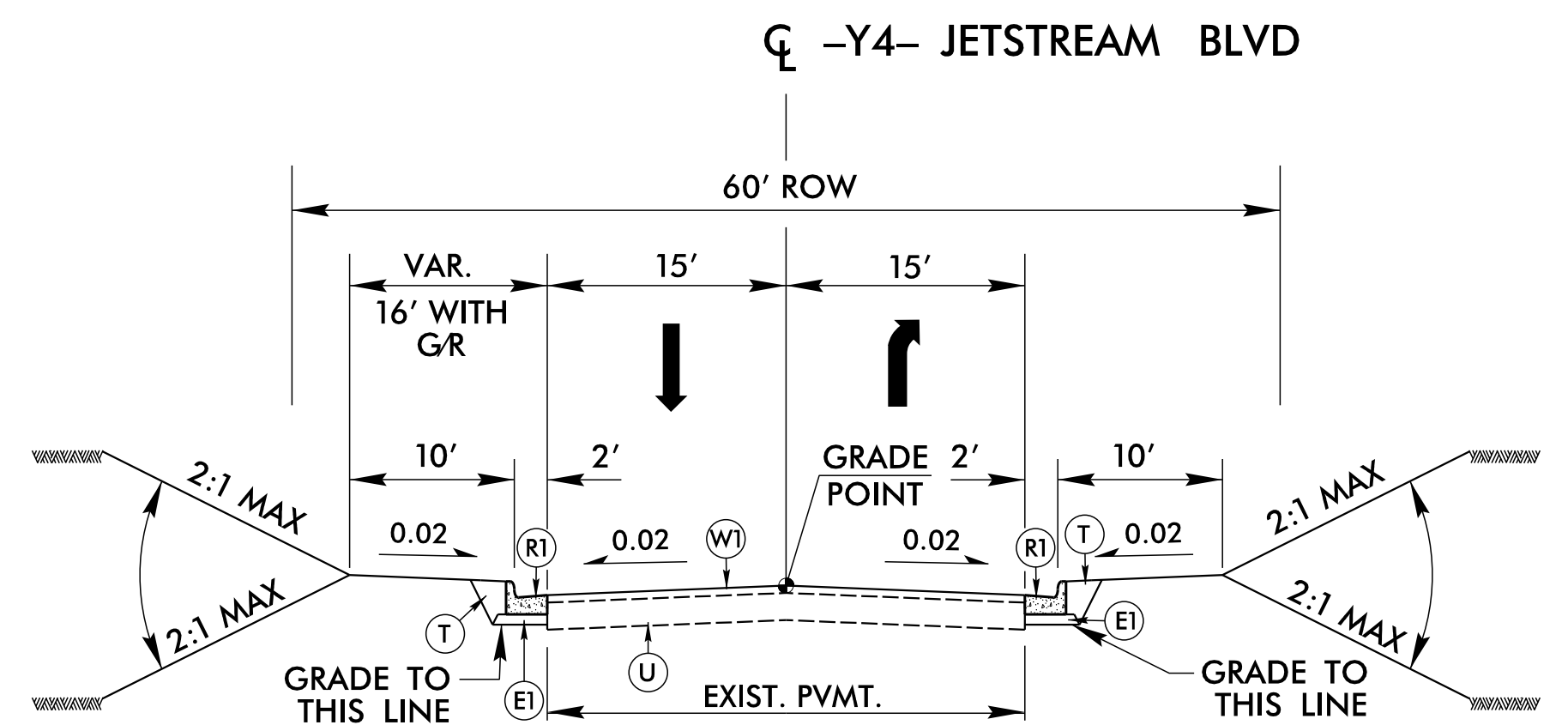
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 Time: 4:05:57 PM

PROJECT REFERENCE NO. U-4910A	SHEET NO. 2A-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	PAVEMENT ENGINEER 
Prepared in the Office of: <b>AECOM</b> NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



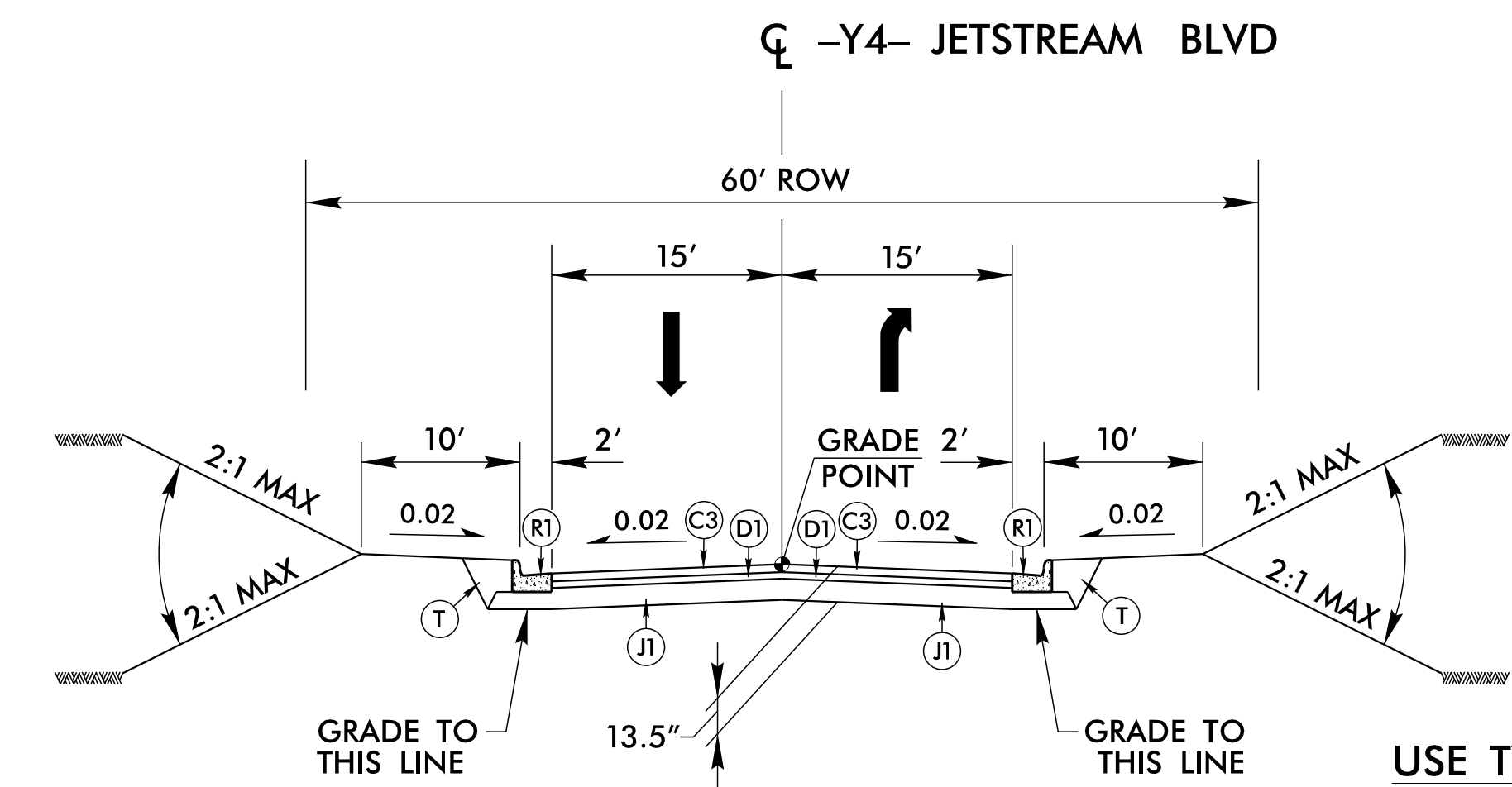
**TYPICAL SECTION NO. 3**

USE TYPICAL SECTION NO. 3  
 -Y3- STA. 12+75.00 TO 13+83.39 (RESURF)



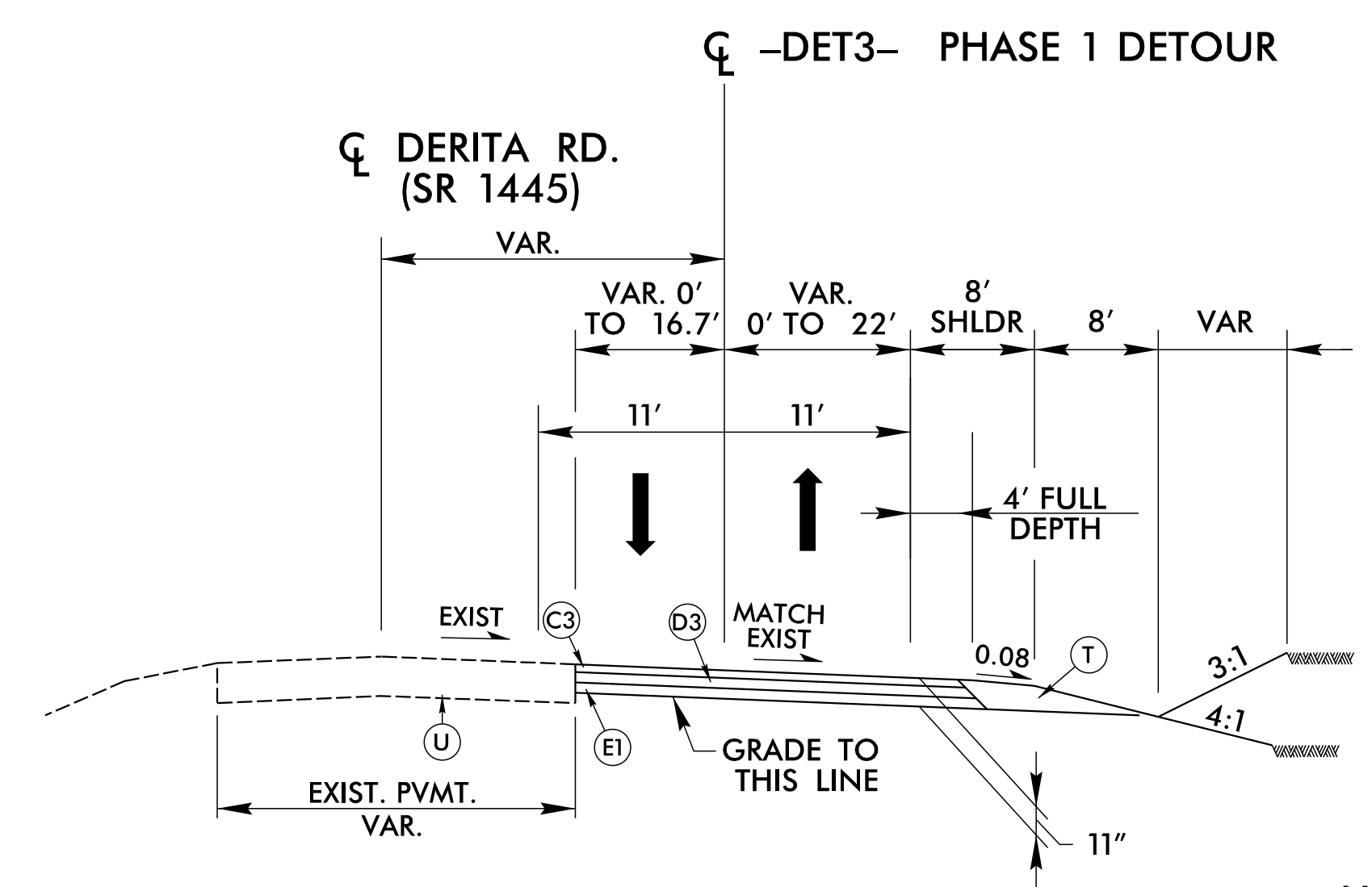
**TYPICAL SECTION NO. 4**

USE TYPICAL SECTION NO. 4  
 -Y4- STA. 10+00.00 TO 11+00.00 (RESURF)



**TYPICAL SECTION NO. 5**

USE TYPICAL SECTION NO. 5  
 -Y4- STA. 11+00.00 TO 12+94.51 (FULL DEPTH)

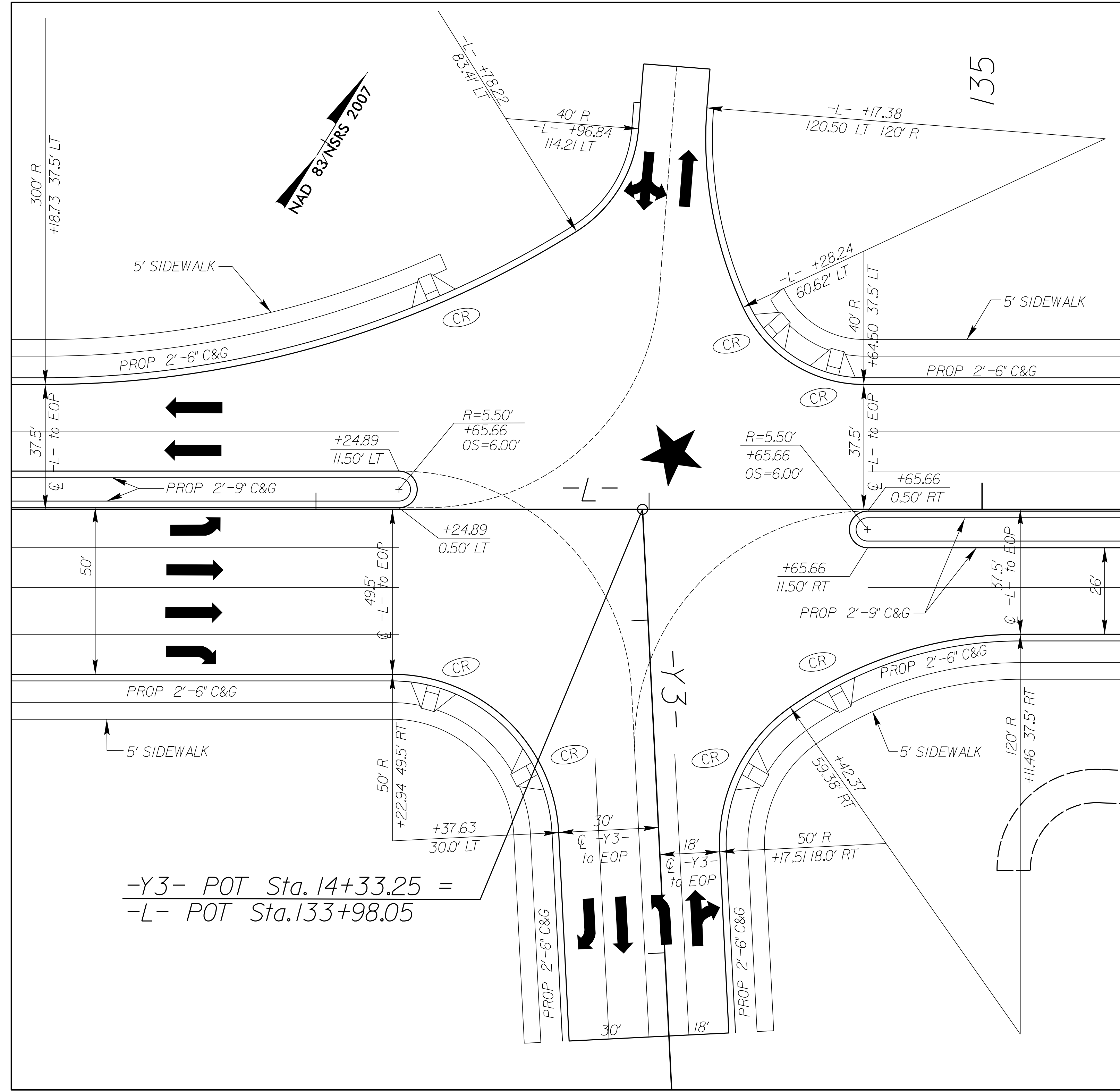


**TYPICAL SECTION NO. 6**

USE TYPICAL SECTION NO. 6  
 -DET3- STA. 14+18.10 TO 35+23.15

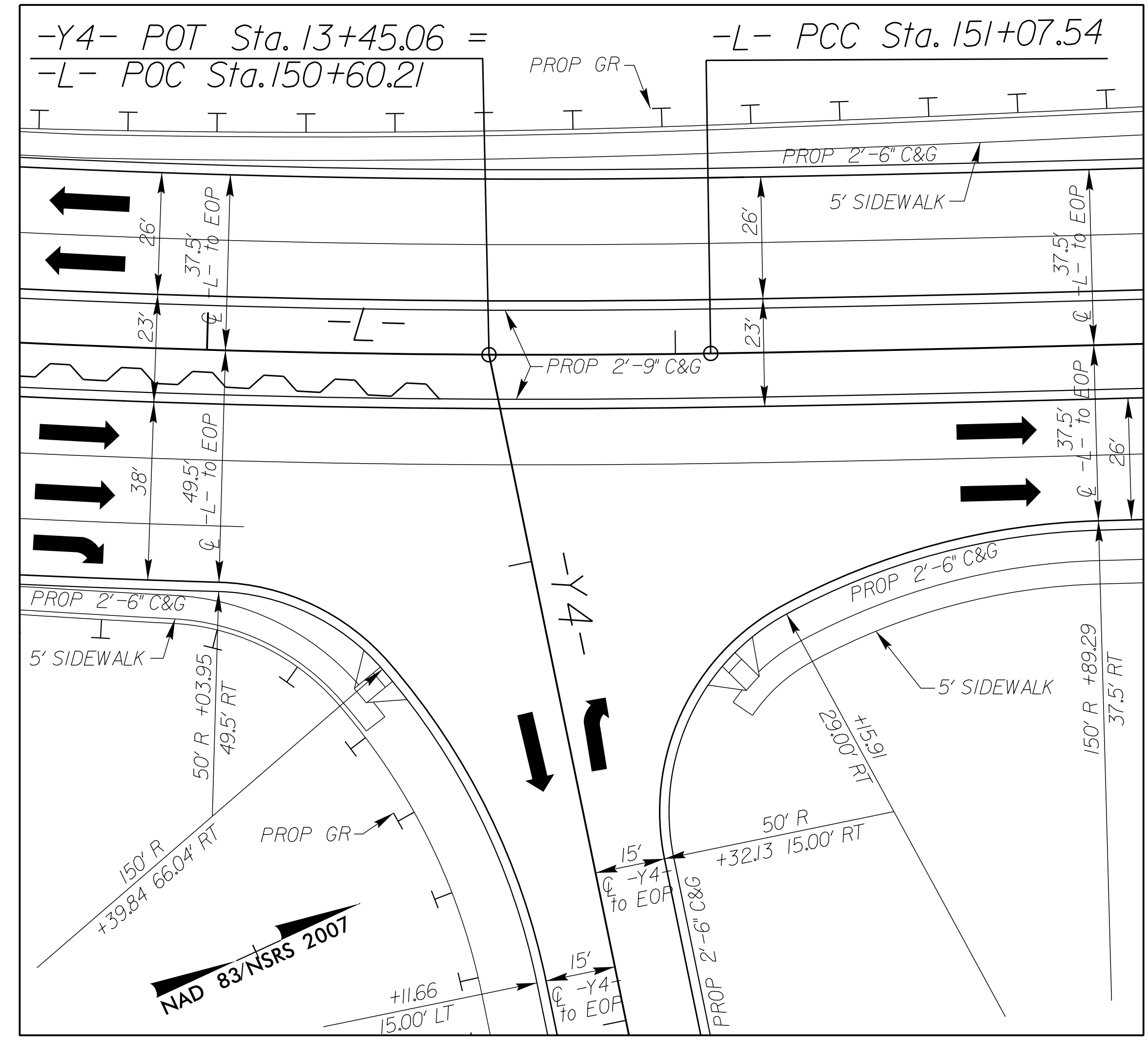
# INTERSECTION DETAIL SHEET

-L- / -Y3-



-Y3- POT Sta. 14+33.25 =  
 -L- POT Sta. 133+98.05

-L- / -Y4-



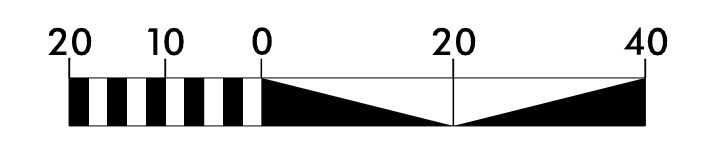
-Y4- POT Sta. 13+45.06 =  
 -L- POC Sta. 150+60.21

PROJECT REFERENCE NO. U-4910A	SHEET NO. 2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: <b>AECOM</b>	
NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
9/21/2016 <b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

REVISIONS

Revisions:

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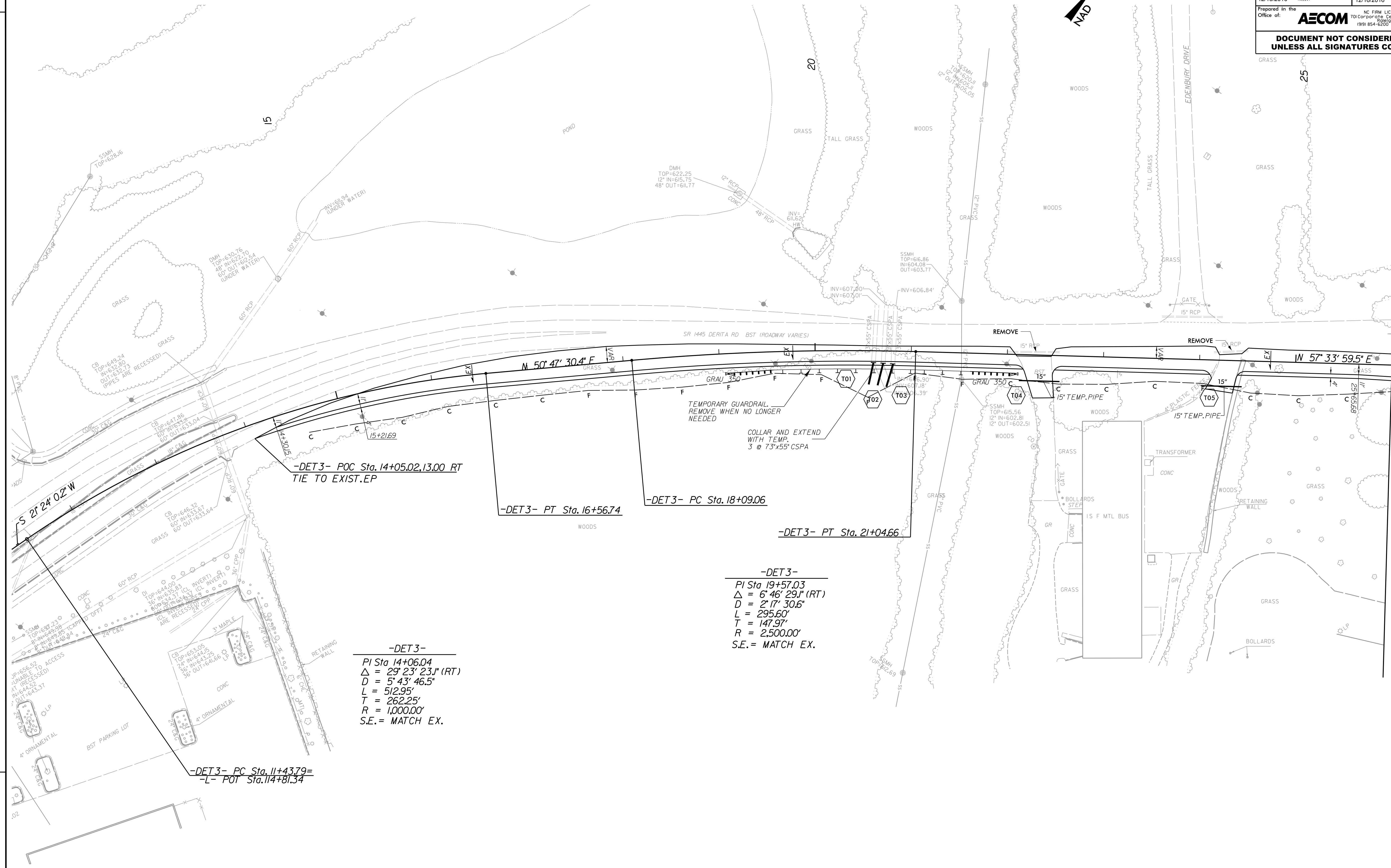


★ PROPOSED SIGNAL  
 SEE SHEET 6 & 7 FOR PLAN VIEW

# -DET3- DETOUR DETAIL

NAD 83 NSRS 2007

PROJECT REFERENCE NO. <b>U-4910A</b>	SHEET NO. <b>2B-2</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
Prepared in the Office of: <b>AECOM</b> NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



REVISIONS

Revisions:

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User: schmid  
Date: 12/15/2016  
Time: 2:51:56 PM

**-DET3-**  
 PI Sta 14+06.04  
 $\Delta = 29^{\circ} 23' 23.1''$  (RT)  
 D = 5' 43' 46.5"  
 L = 512.95'  
 T = 262.25'  
 R = 1,000.00'  
 S.E. = MATCH EX.

**-DET3-**  
 PI Sta 19+57.03  
 $\Delta = 6^{\circ} 46' 29.1''$  (RT)  
 D = 2' 17' 30.6"  
 L = 295.60'  
 T = 147.97'  
 R = 2,500.00'  
 S.E. = MATCH EX.

**-DET3- PC Sta. 11+43.79 =**  
**-L- POT Sta. 11+81.34**

**-DET3- POC Sta. 14+05.02, 13.00 RT**  
**TIE TO EXIST. EP**

**-DET3- PT Sta. 16+56.74**

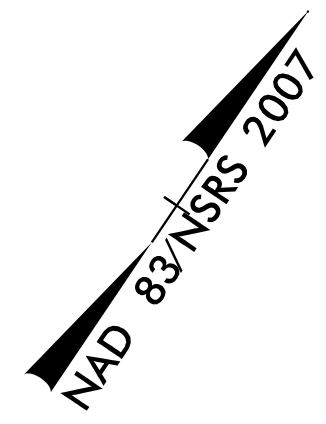
**-DET3- PC Sta. 18+09.06**

**-DET3- PT Sta. 21+04.66**

MATCHLINE -DET3- STA. 26+00 SEE SHEET 2B-3

# -DET3- DETOUR DETAIL

PROJECT REFERENCE NO. <i>U-4910A</i>	SHEET NO. <i>2B-3</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Kevin J. Van Meirke</i>	HYDRAULICS ENGINEER <i>Henry Wells, Jr.</i>
12/16/2016	12/16/2016
Prepared in the Office of:	NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)
<b>AECOM</b>	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



MATCHLINE -DET3- STA. 26+00 SEE SHEET 2B-2



REVISIONS

Revisions:

DGN: R:\Roadway\Proj\4910A\rd\_detour\_022B.dgn  
 USER: schmid  
 DATE: 12/15/2016  
 TIME: 2:52:38 PM

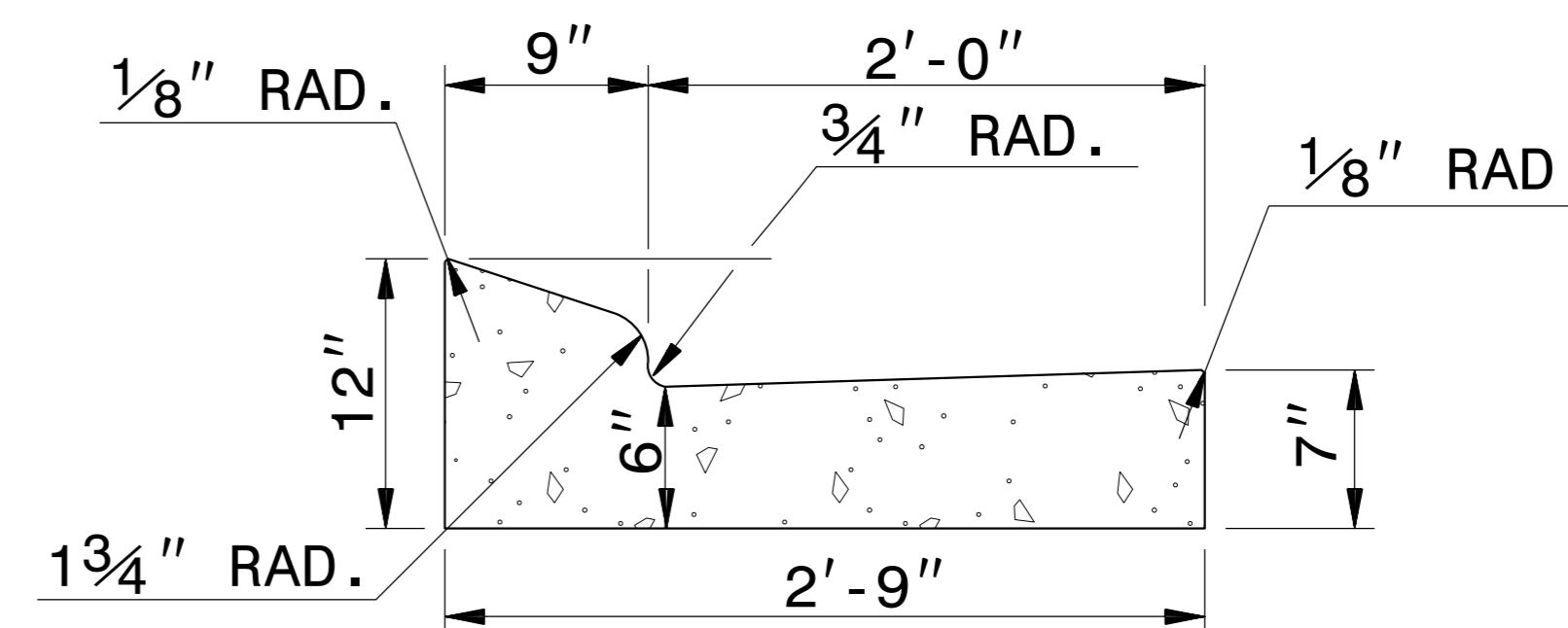
PI Sta 34+52.52	PI Sta 43+06.02
$\Delta = 11' 27' 34.8" (LT)$	$\Delta = 22' 08' 29.9" (LT)$
$D = 1' 25' 56.6"$	$D = 2' 27' 53.5"$
$L = 800.04'$	$L = 898.29'$
$T = 401.36'$	$T = 454.82'$
$R = 4,000.00'$	$R = 2,324.50'$
S.E. = MATCH EX.	S.E. = MATCH EX.

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

ENGLISH DETAIL DRAWING FOR  
**2'-9" CONCRETE CURB & GUTTER**

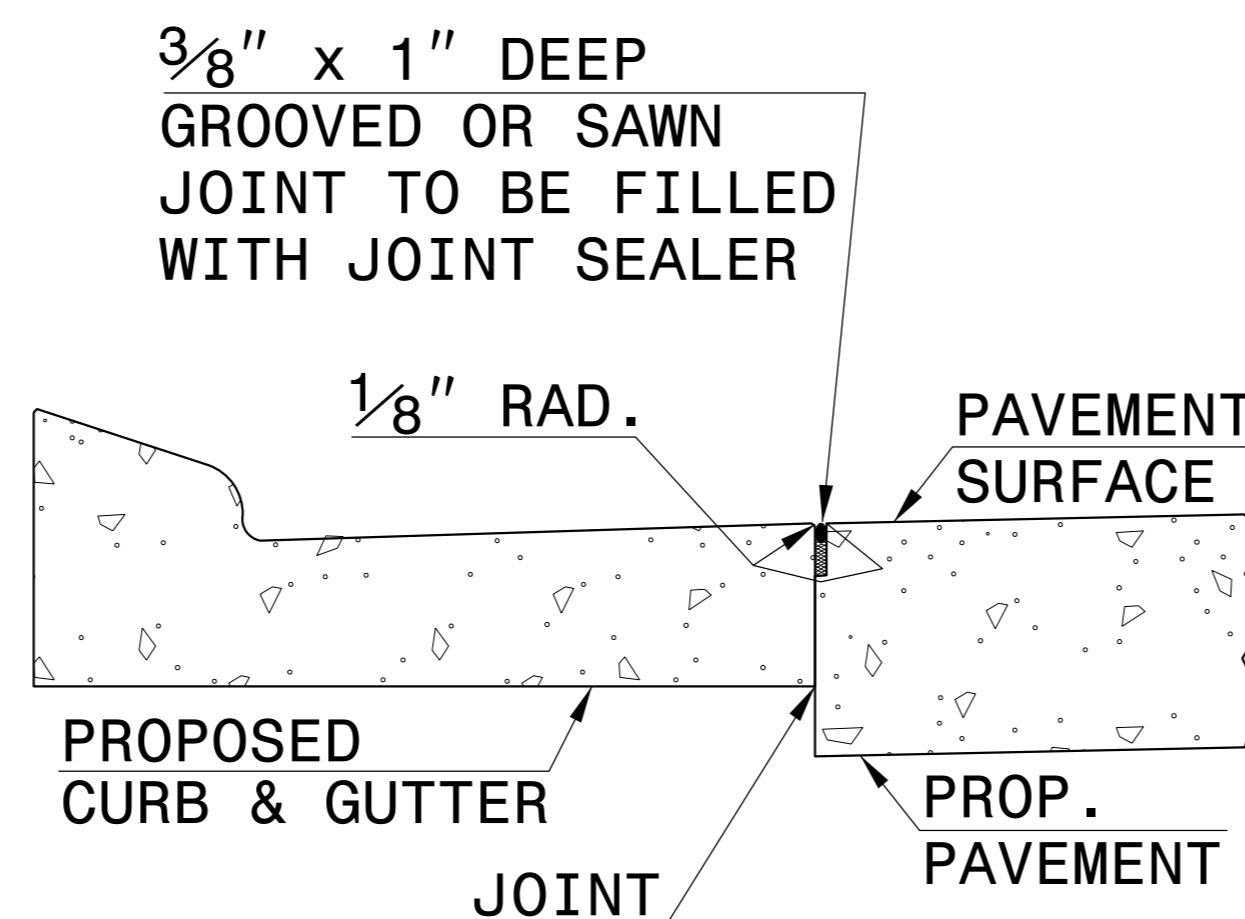
**GENERAL NOTES:**

- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
- FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.
- SEE RDWY. STD. DWG. NO. 846.01, SHEET 2 OF 3 FOR PLACEMENT IN SUPERELEVATIONS. (USE 2'-6" CURB AND GUTTER RATES)

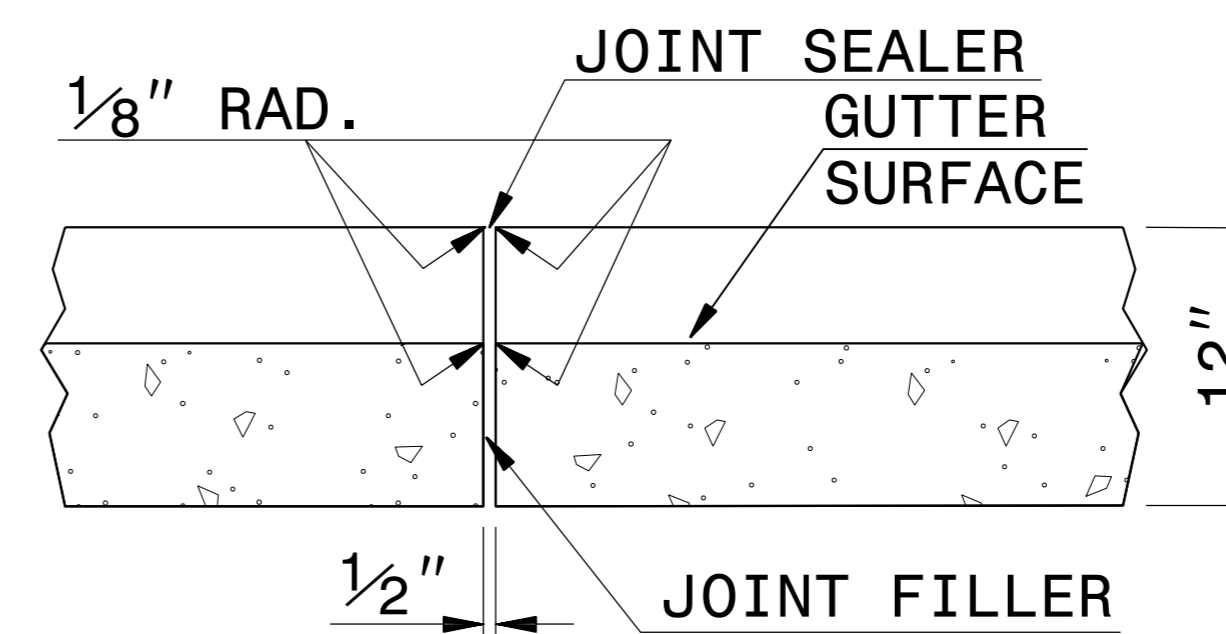


**2'-9" CURB AND GUTTER**

**SECTION VIEW OF CURB AND GUTTER**



**LONGITUDINAL JOINT**



**TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER**

**SECTION VIEW OF JOINTS**

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

ENGLISH DETAIL DRAWING FOR  
**2'-9" CONCRETE CURB & GUTTER**

SHEET 1 OF 1  
**846D01**

SHEET 1 OF 1  
**846D01**



1/6/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

**SEE PLATE FOR TITLE**

ORIGINAL BY: STD. 846.01 DATE: \_\_\_\_\_  
MODIFIED BY: E.E. WARD DATE: 8-15-00  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
FILE SPEC.: /usr/details/stand/c&g2'-9".dgn

846D01.dwg  
 1/6/2017 10:00 AM  
 S. Howerton  
 022966  
 1/6/2017 10:00 AM  
 S. Howerton  
 022966

Draw: R:\Roadway\Proj\9900\_01\rdy\_detail\_0220c\_2.dgn  
 USER: schmid  
 DATE: 9/19/2016  
 TIME: 12:34:5 PM

Revisions:

\*\*\*\*\*SYTIME\*\*\*\*\*  
 \*\*\*\*\*SECTION\*\*\*\*\*  
 \*\*\*\*\*USERNAMES\*\*\*\*\*

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

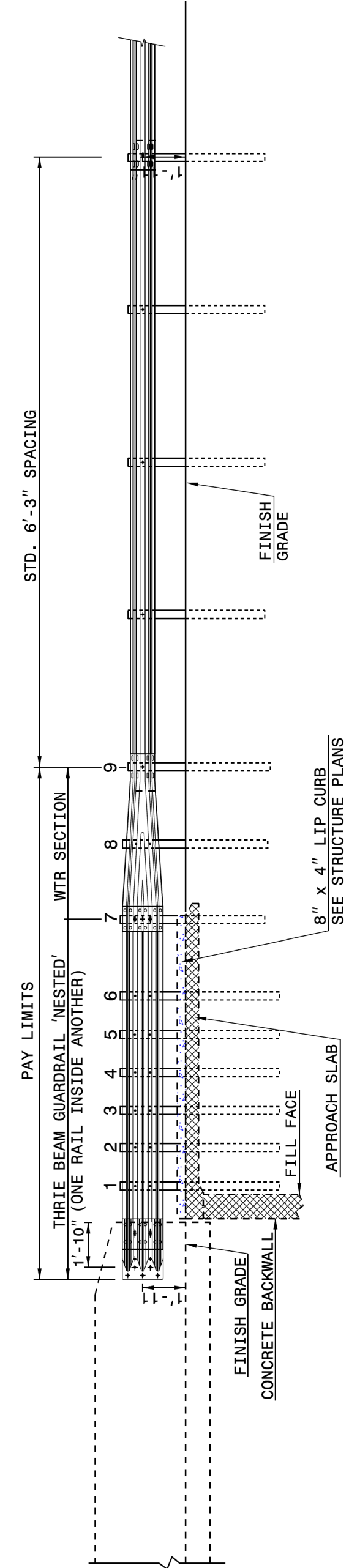
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
 GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
 RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862d03**

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

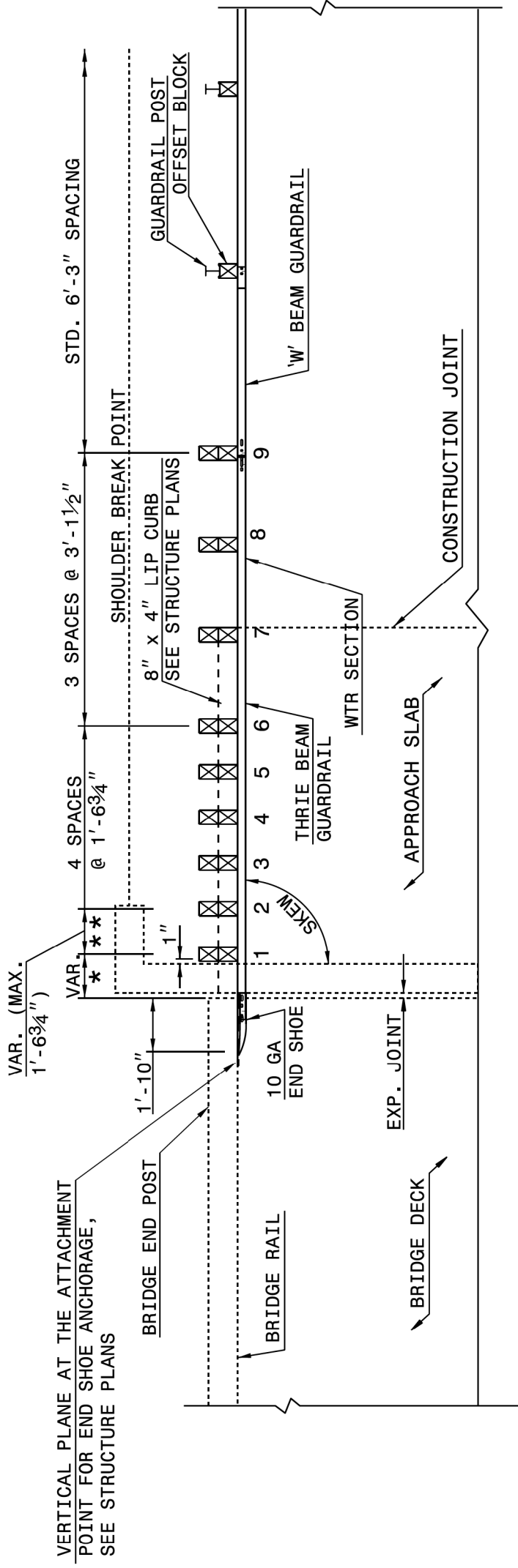
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
 GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
 RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862d03**



**ELEVATION**

NOTE:  
 \*\*POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.  
 \*\*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2". IF CONCRETE BACKWALL IS NOT PRESENT.  
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" X 4" LIP CURB IS SHOWN. IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.  
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).  
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.  
 -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



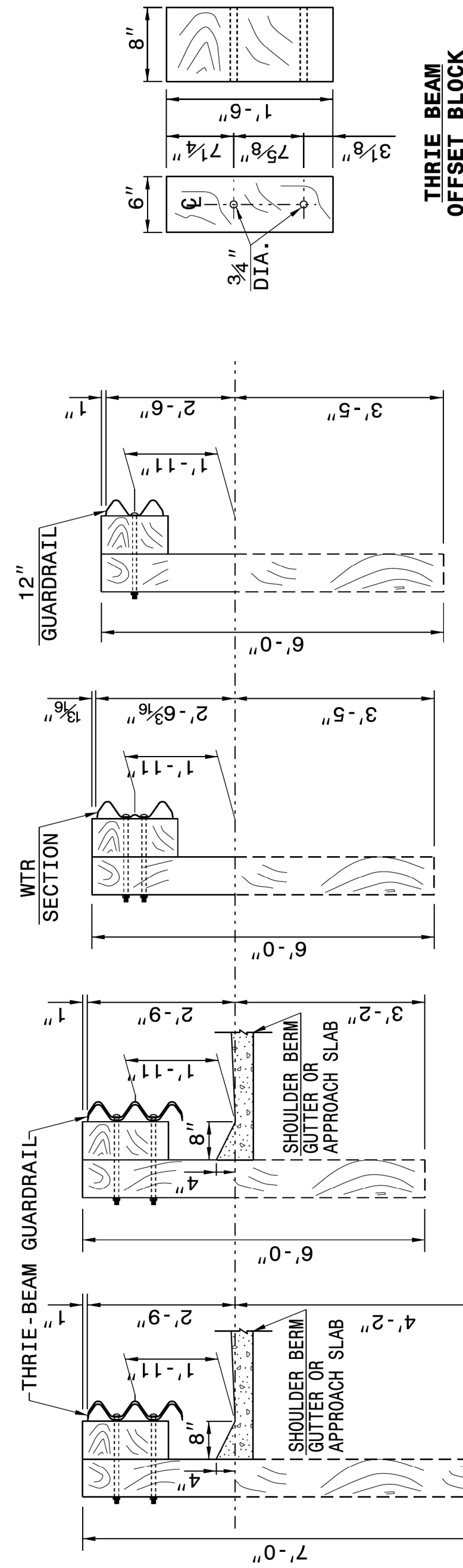
**PLAN VIEW**

**GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER**

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

ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
 GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7  
**862d03**



**SECTION OF 'W' BEAM POST 9**

**SECTION OF WTR BEAM POST 8**

**SECTION OF THRIE BEAM POST 7**

**SECTION OF THRIE BEAM POSTS 1 THRU 6**

**THRIE BEAM OFFSET BLOCK**

**THRIE-BEAM SECTION**

**END SHOE**

**WTR SECTION ELEVATION VIEW**

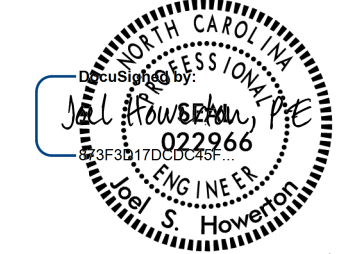
**THRIE BEAM LINE POST**

NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.

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

**SEE TITLE BLOCK**

ORIGINAL BY: J HOWERTON DATE: 06-22-12  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC.:

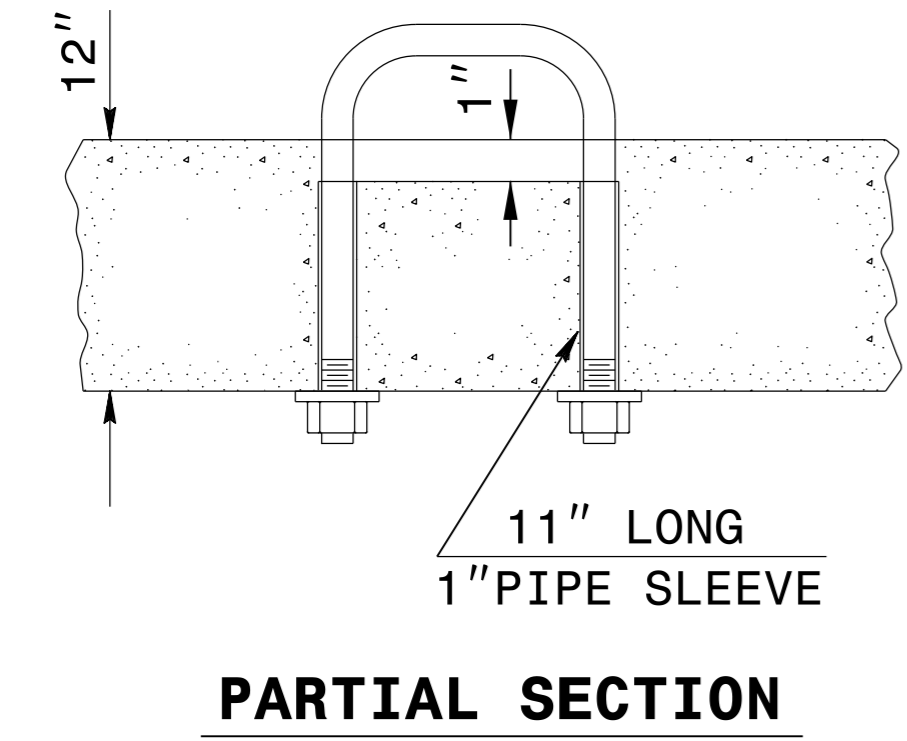


9/22/2016

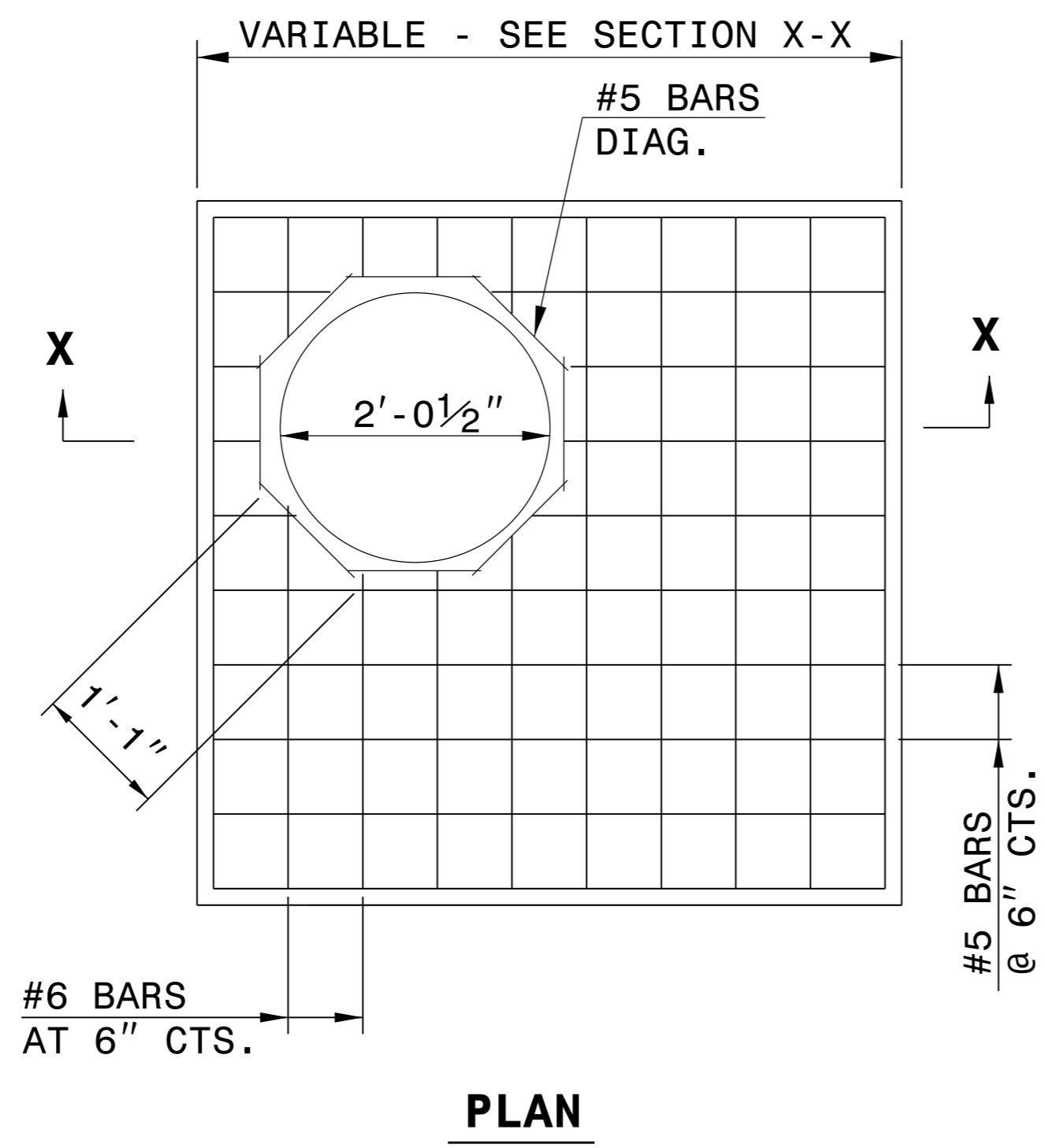
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO. U-4910A	SHEET NO. 2C-2
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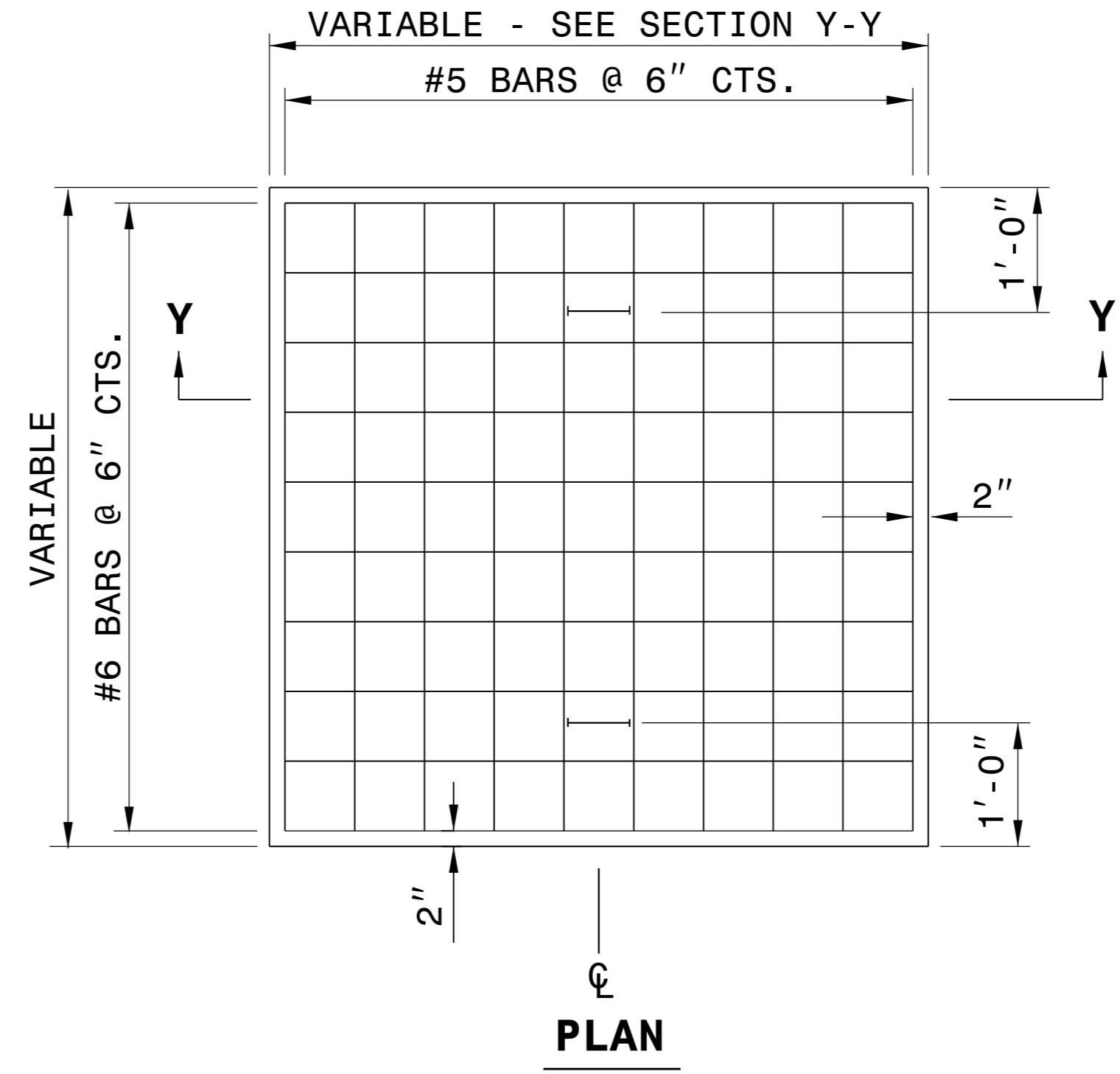
5/14/99



**PARTIAL SECTION**



**PLAN**



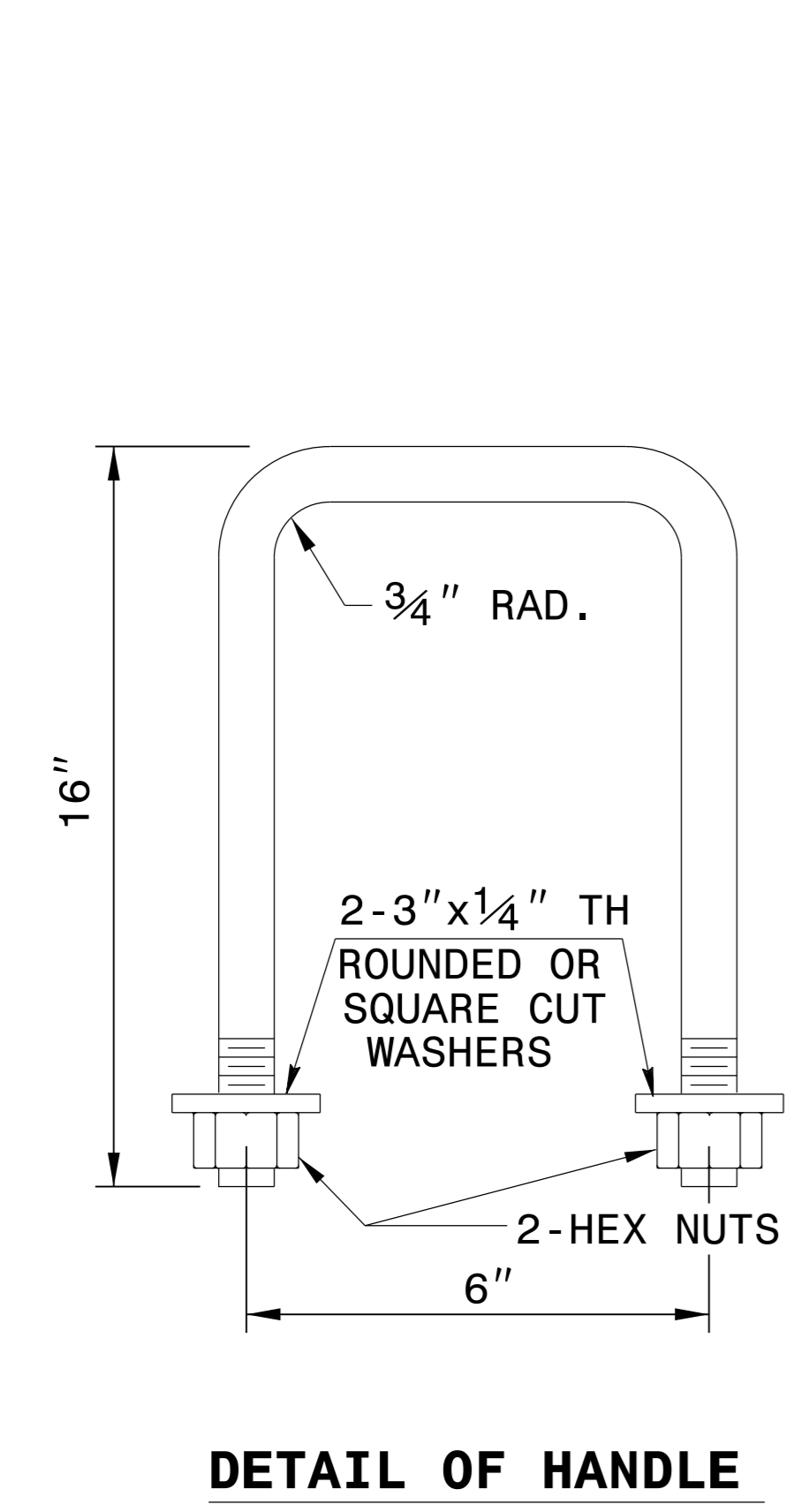
**PLAN**

**GENERAL NOTES:**

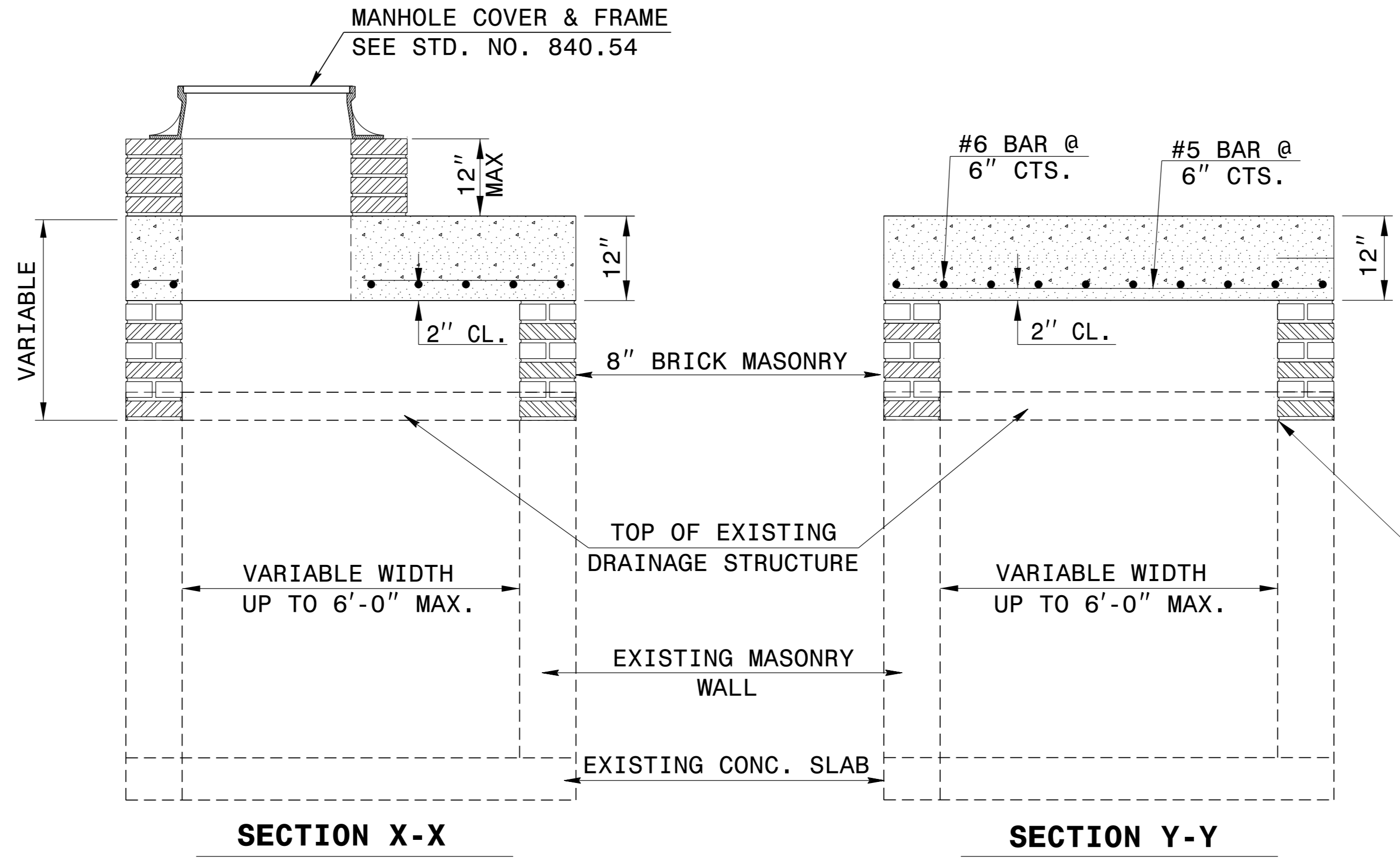
CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.  
FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

**BILL OF MATERIALS**

MASONRY			
TOP SLAB CONCRETE CLASS "A"	.037YDS <sup>3</sup> PER FT <sup>2</sup>		
BRICK MASONRY	.025YDS <sup>3</sup> PER FT <sup>2</sup>		
REINFORCING STEEL	7.64LBS PER FT <sup>2</sup>		
MANHOLE OPTION QUANTITIES			
SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1'-1"	9.04



**DETAIL OF HANDLE**



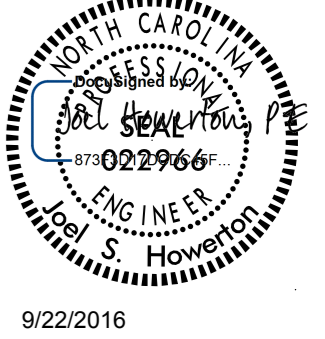
**SECTION X-X**

**SECTION Y-Y**

**NOTE:**

CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.  
BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.

ALIGN PROPOSED BRICK VERTICAL ADJUSTMENT TO INNER FACE OF WALL



9/22/2016

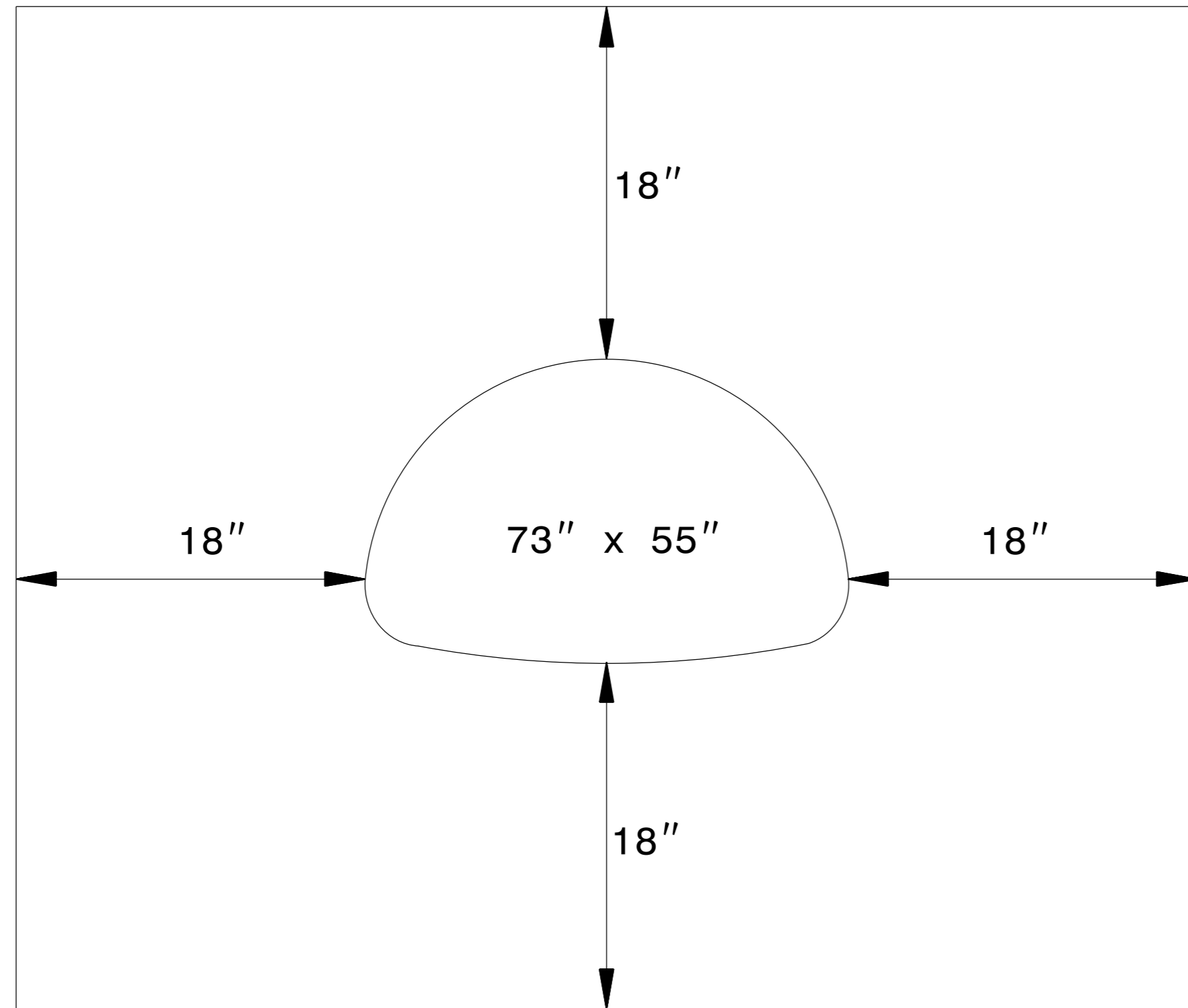
**CONTRACT STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**DETAIL TO CONVERT EXISTING TRAFFIC BEARING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)**

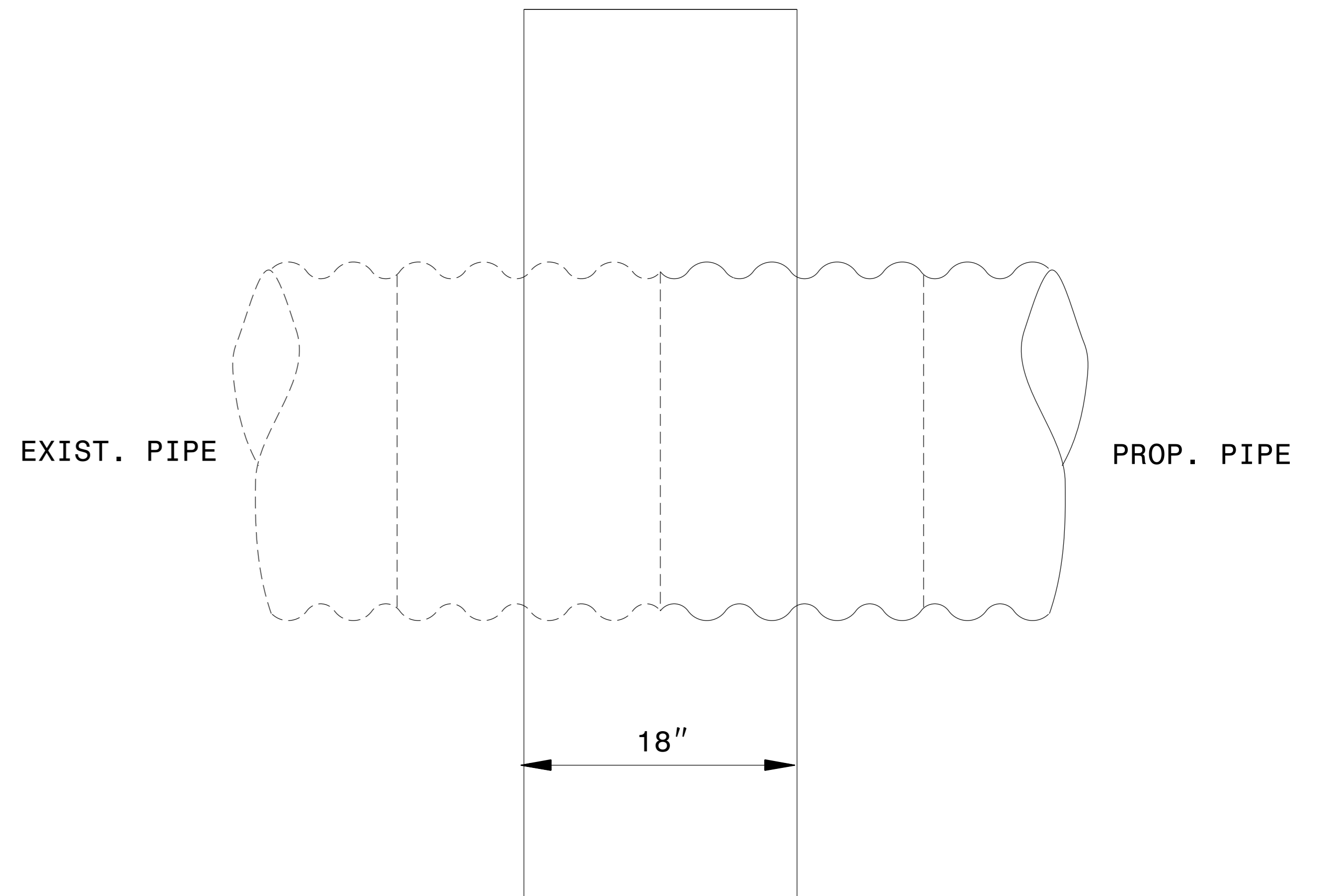
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MODIFIED BY: E.E.W.	DATE: NOV. 2001
CHECKED BY:	DATE:
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





**ELEVATION**



**SIDE ELEVATION**

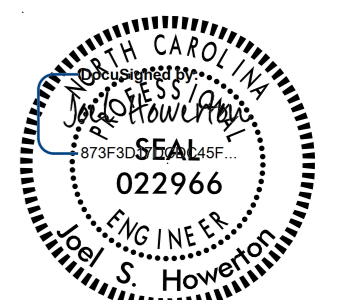
**GENERAL NOTES:**

USE PIPE COLLAR FOR EXTENDING EXISTING CONCRETE PIPE CULVERTS AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER. THIS INCLUDES EXTENDING EXISTING PIPES WITH PIPES OF DIFFERENT MATERIALS.

CONSTRUCT THE PIPE COLLAR WITH CLASS "B" OR BETTER CONCRETE.

OBSERVE ALL REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

**3.283 Cu Yd. Concrete**



1/6/2017

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

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

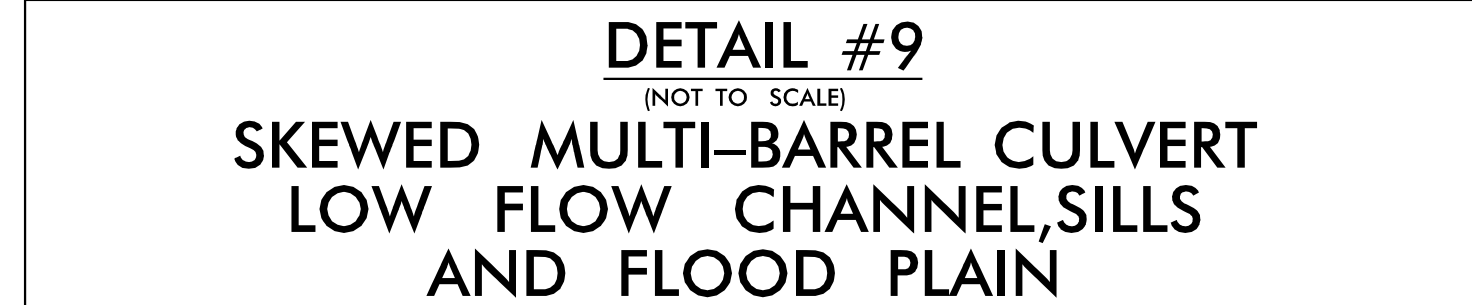
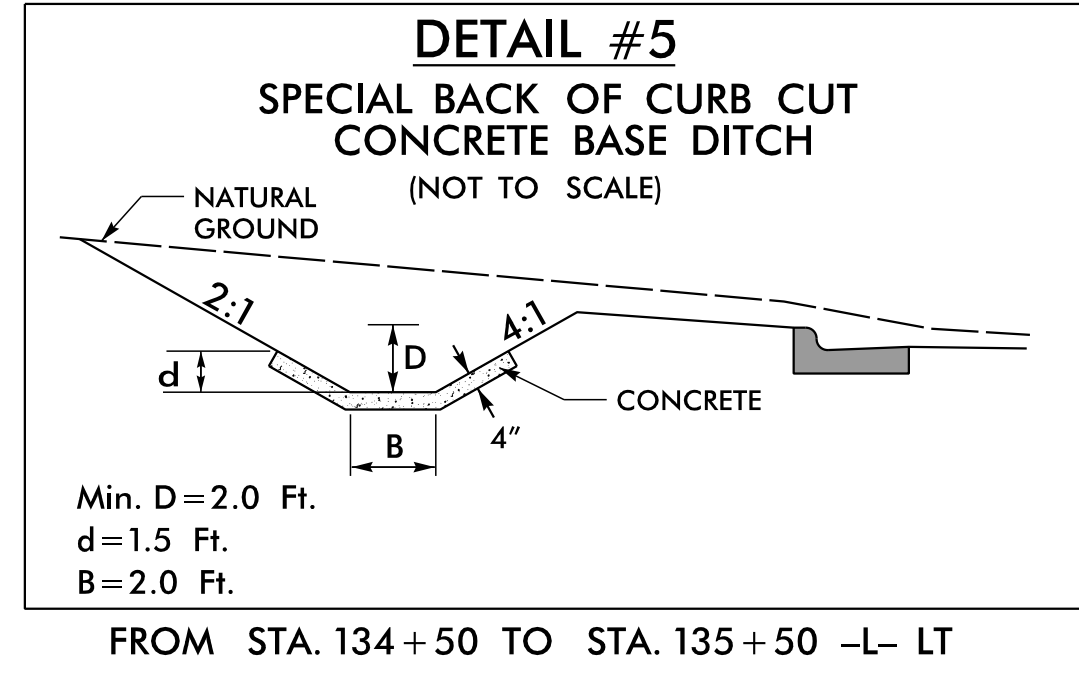
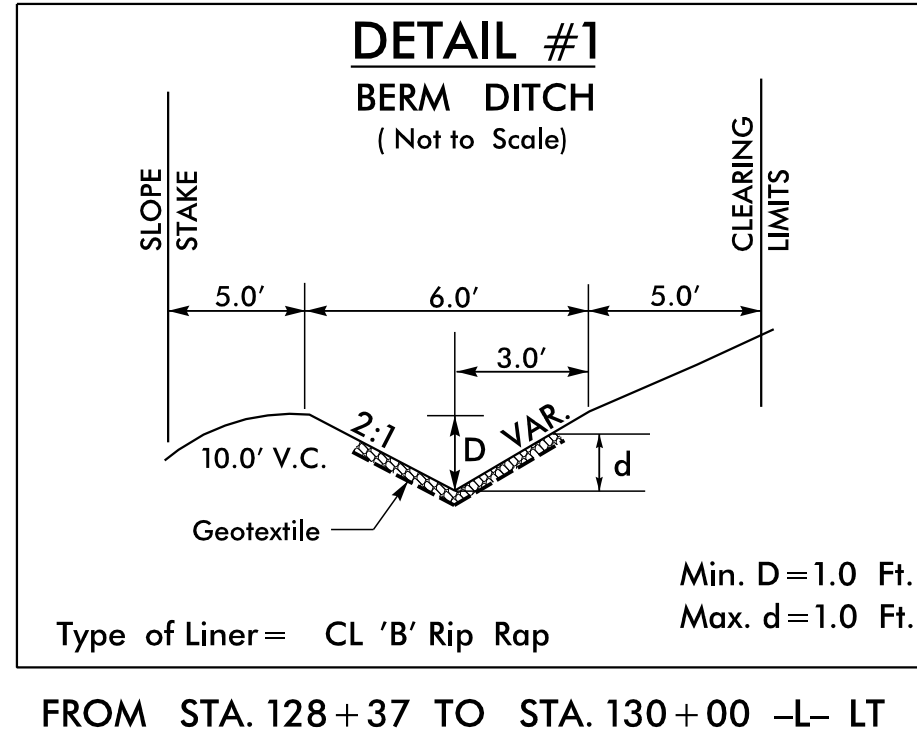
**DETAIL OF CONCRETE  
COLLAR FOR  
73" X 55" CSP**

ORIGINAL BY: J. Howerton DATE: 3-18-14  
 MODIFIED BY: DATE:   
 CHECKED BY: DATE:   
 FILE SPEC.: s:jhowerton/Arch Pipe Collar.dgn

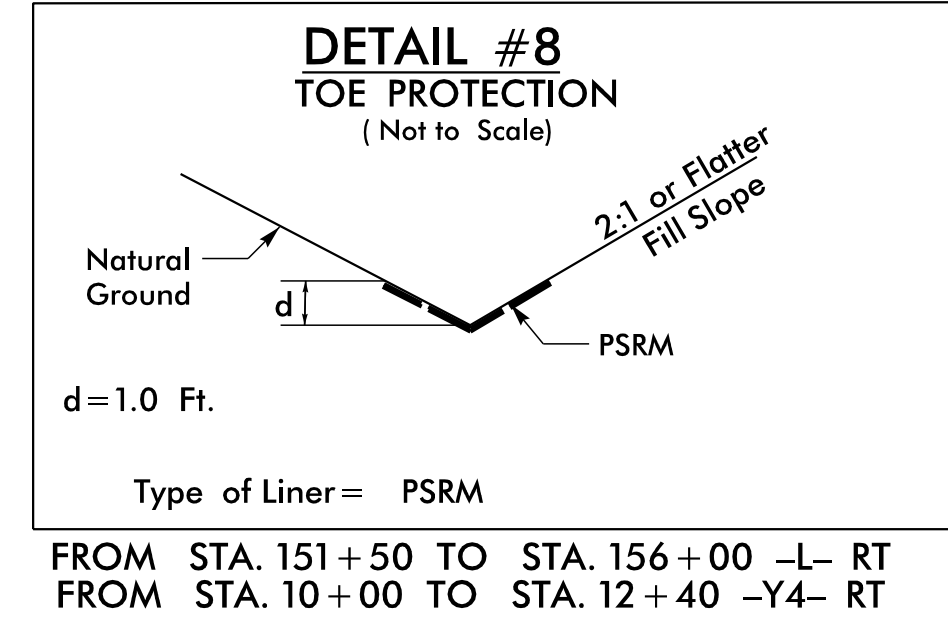
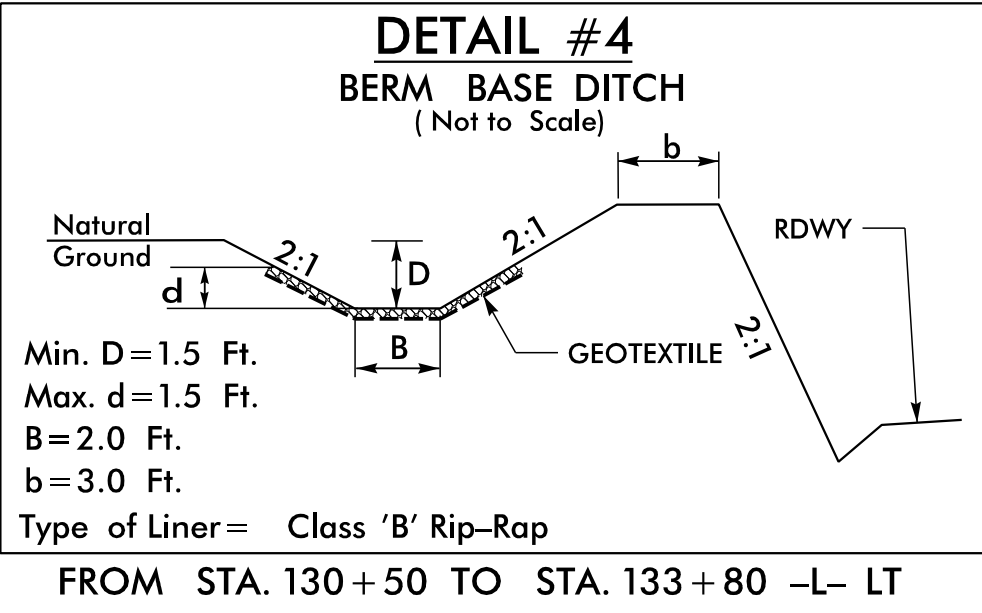
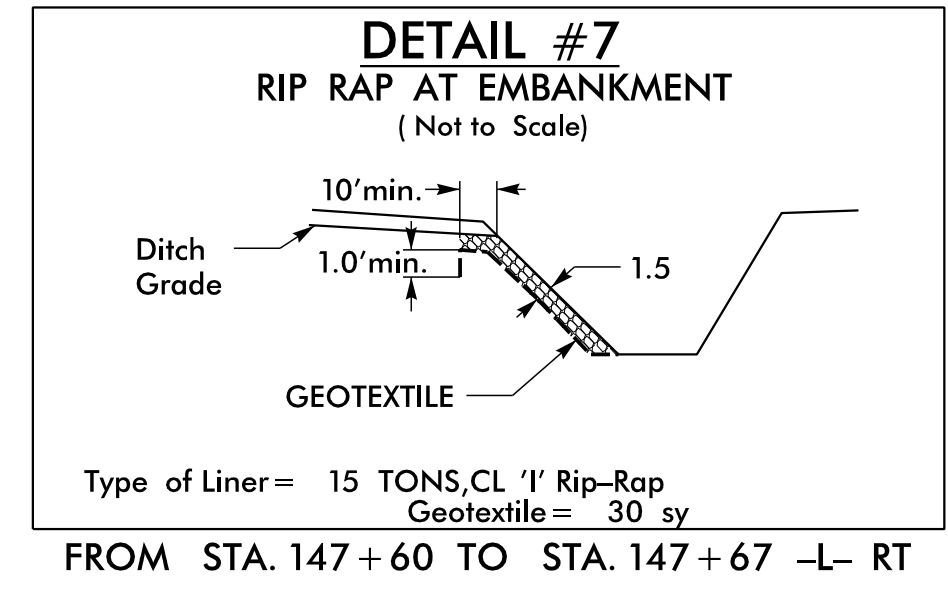
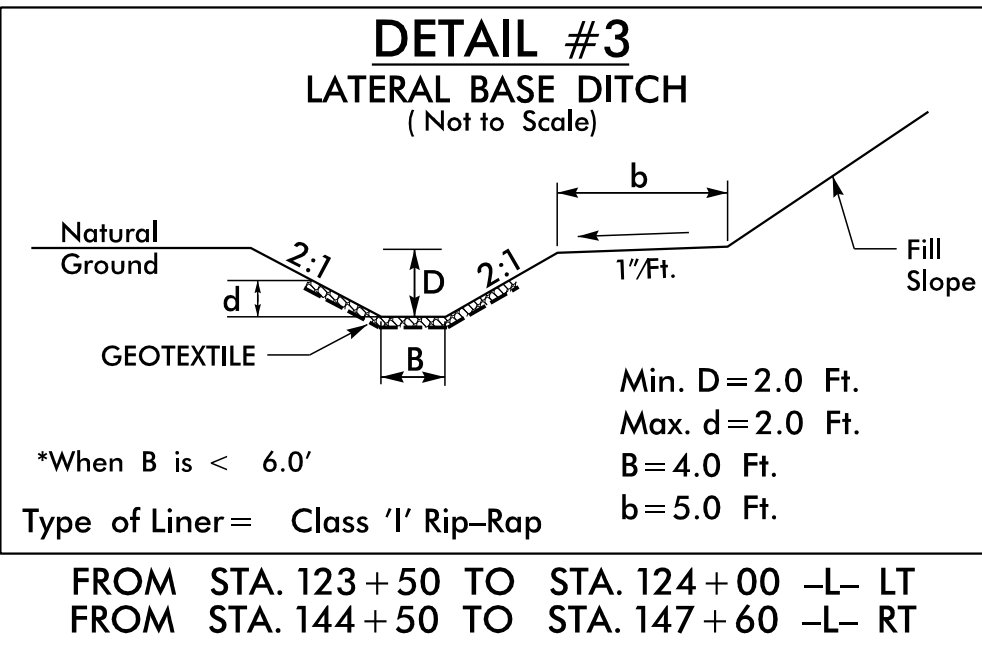
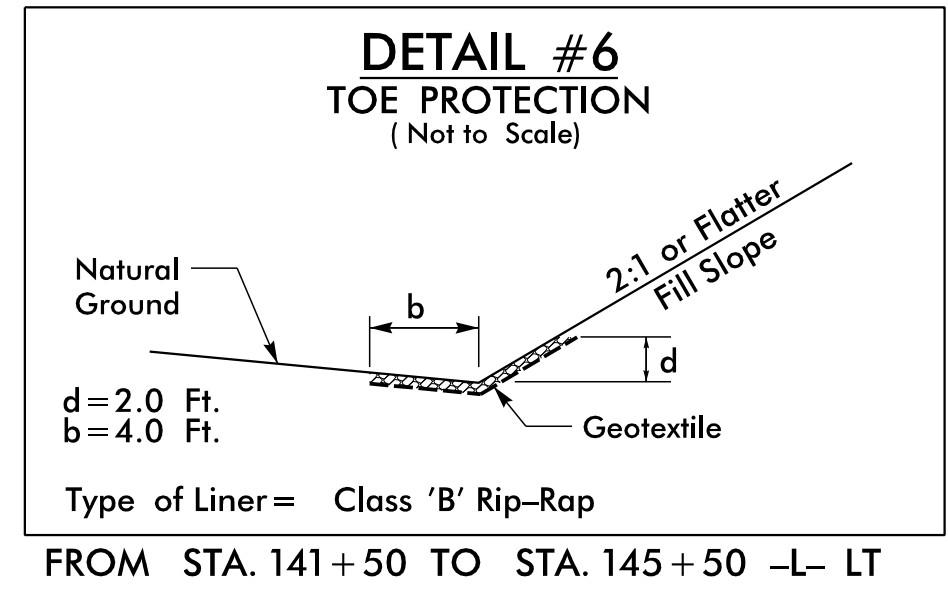
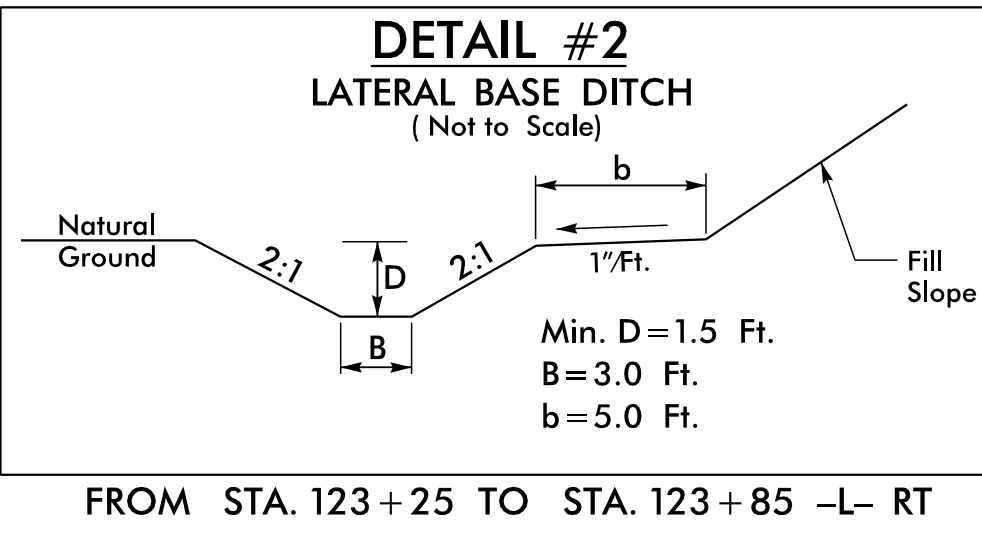
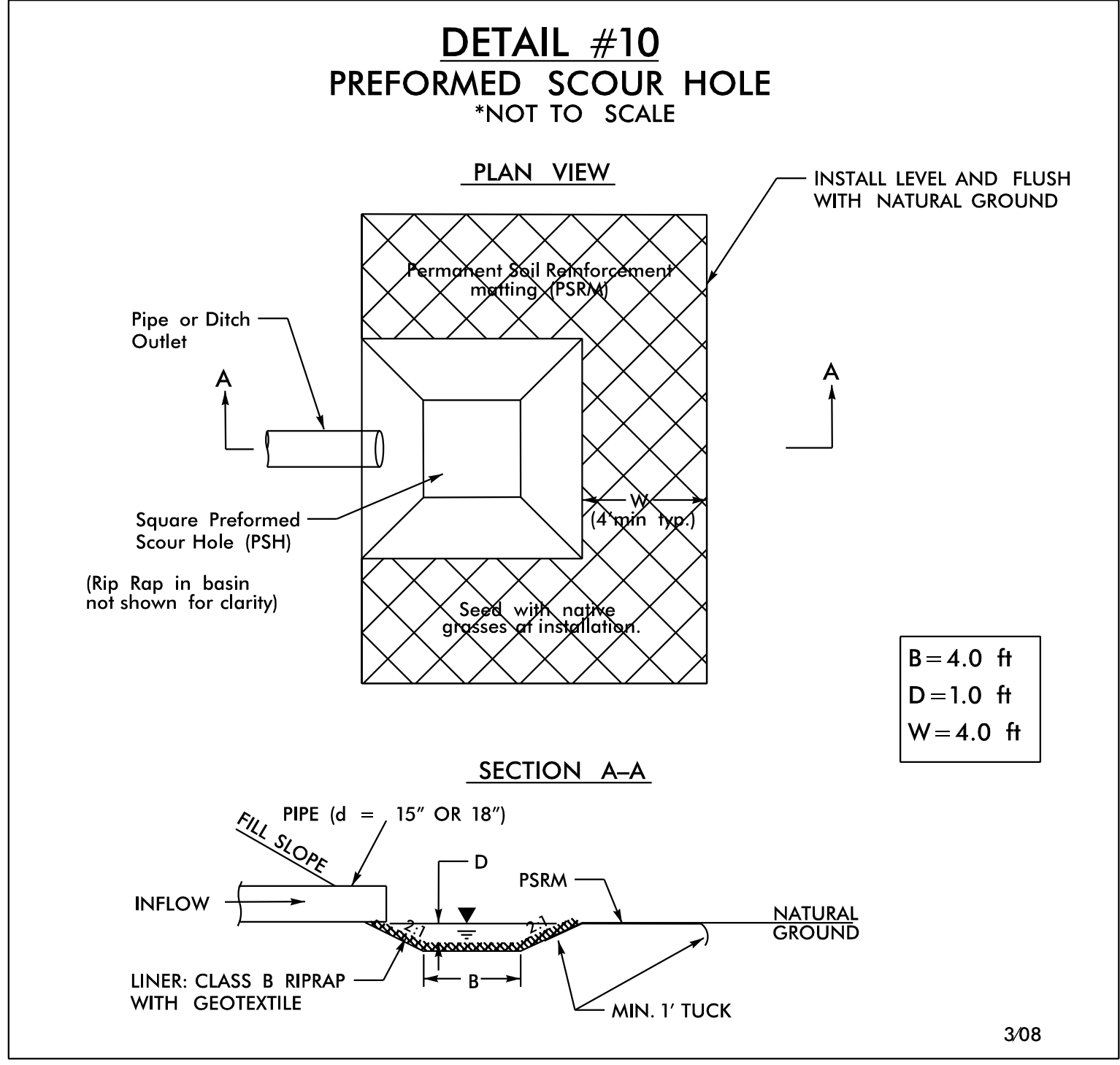
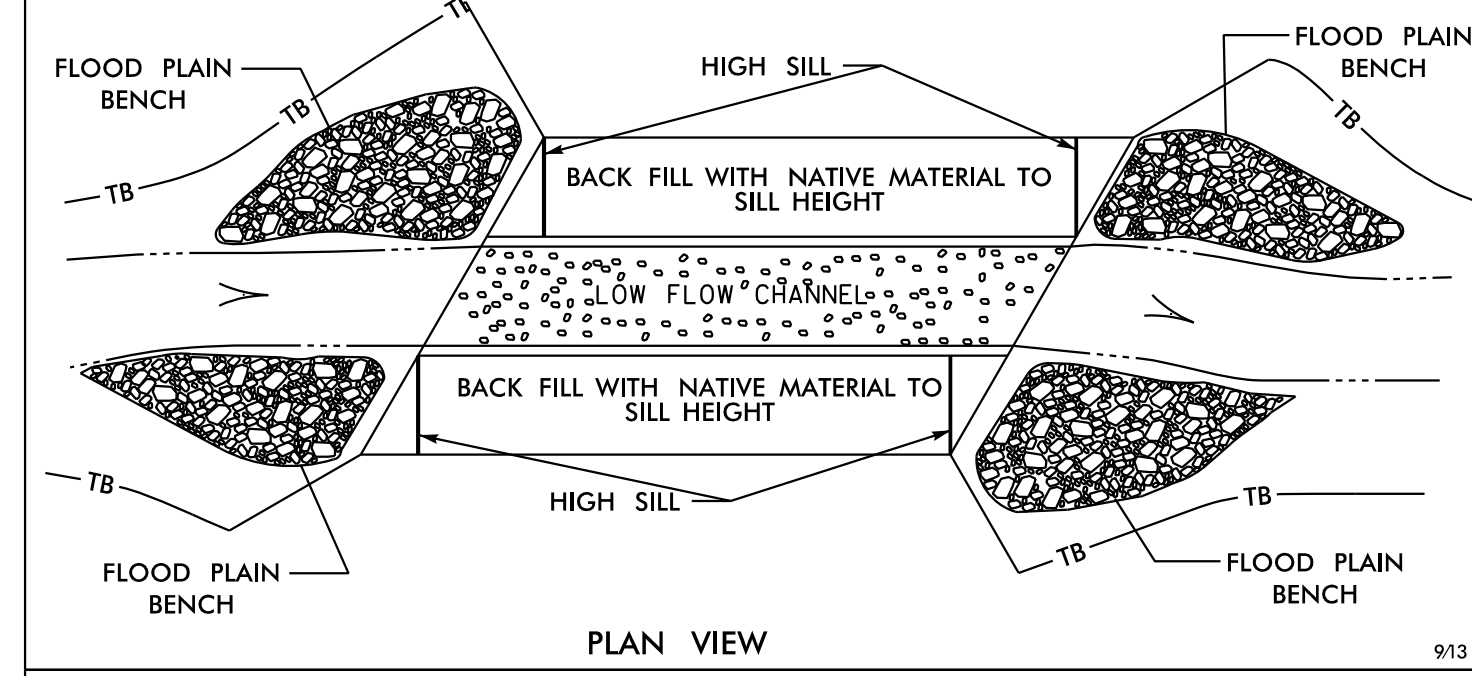
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 Plot Range: All  
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# DRAINAGE DETAILS

PROJECT REFERENCE NO. U-4910A	SHEET NO. 2D-1
RW SHEET NO.	
HYDRAULICS ENGINEER	
Prepared in the Office of:	AECOM
NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



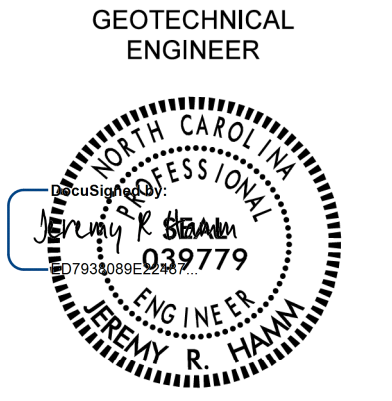
- \*NOTES:
- 1) NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S) NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
  - 2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
  - 3) DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL.



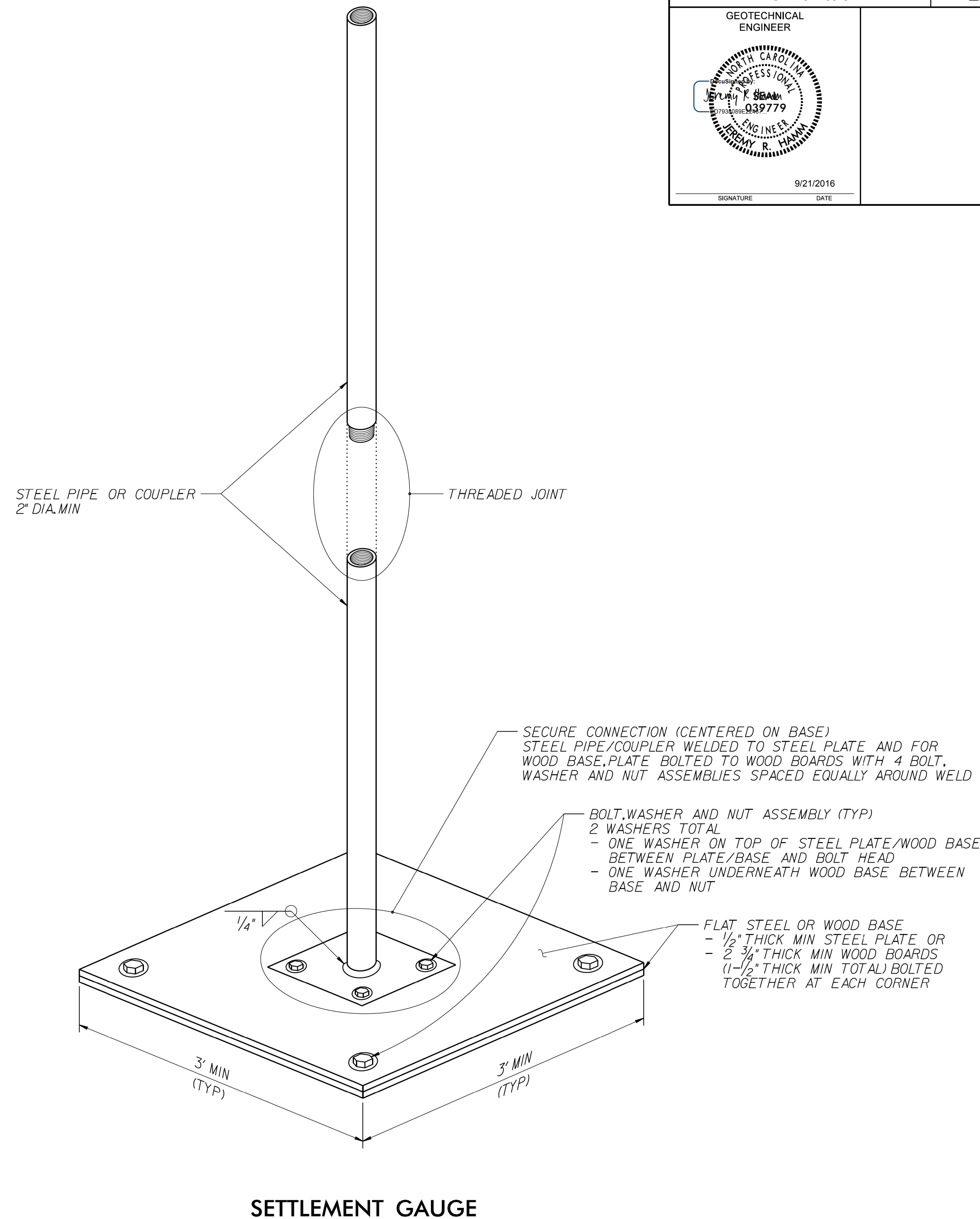
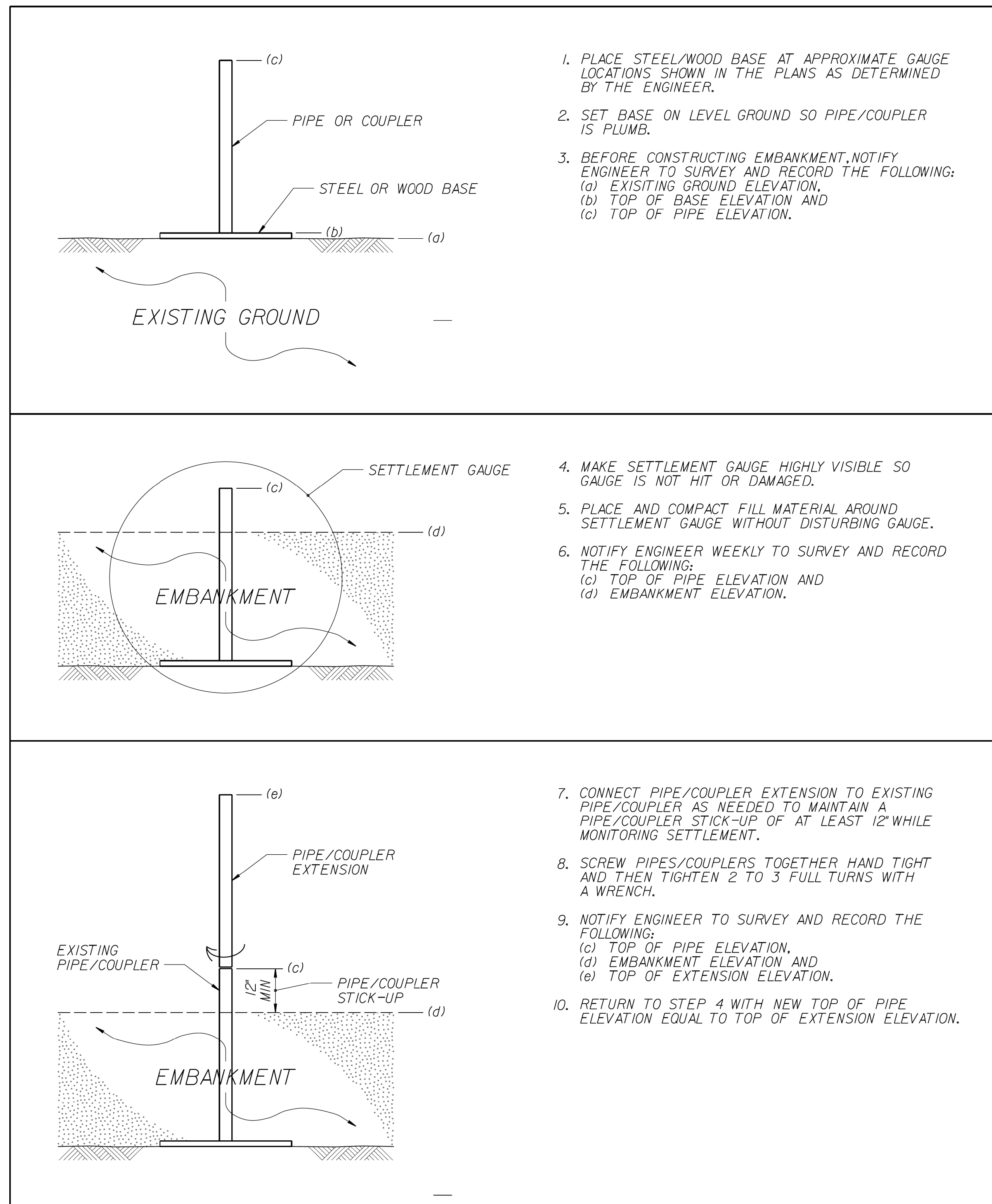
REVISIONS

Revisions:

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 Date: 12/20/2016  
 Time: 2:09:30 PM

<b>PROJECT REFERENCE NO.</b>		<b>SHEET NO.</b>	
U-4910A		2G-1	
GEOTECHNICAL ENGINEER 			
SIGNATURE		DATE	
		9/21/2016	

### EMBANKMENT MONITORING SEQUENCE



**SETTLEMENT GAUGE**

**NOTES:**

1. SEE ROADWAY SUMMARY SHEETS FOR APPROXIMATE SETTLEMENT GAUGE LOCATIONS.
2. FOR STANDARD EMBANKMENT MONITORING, SEE EMBANKMENT SETTLEMENT GAUGES PROVISION.
3. INSTALL SETTLEMENT GAUGES AFTER CLEARING AND GRUBBING GAUGE LOCATIONS AND BEFORE CONSTRUCTING EMBANKMENTS WITH EMBANKMENT MONITORING.



FALCON ENGINEERING, INC.  
1210 TRINITY ROAD, SUITE 110  
RALEIGH, NC 27607  
PHONE: 919.871.0800  
FAX: 919.871.0803

**STANDARD DETAIL NO. 1804.01**

**STANDARD EMBANKMENT MONITORING**

DATE: 2-19-13

REVISIONS

Revisions:

Drawn: R:\Roadway\Proj\4910A\rd\_detail\_0226.dwg  
User: scheid  
Date: 9/19/2016  
Time: 12:20:18 PM

## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

### SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

LINE	Station	Station	LOC LT/RT/CL	YD <sup>2</sup>
-L-	125+75.00	133+00.00	LT/RT	2952.31
-L-	146+37.71	146+75.67	RT	114.15
-L-	148+83.78	149+20.95	RT	98.79
-Y2-	10+49.67	14+20.00	LT/RT	915.35
<b>TOTAL:</b>				<b>4080.60</b>
<b>SAY:</b>				<b>4090</b>

U-4910A PROJECT TOTAL 4,090  
 U-4910B PROJECT TOTAL 3,340  
**GRAND TOTAL 7,430**

### SUMMARY OF BREAKING EXISTING ASPHALT PAVEMENT

LINE	Station	Station	LOC LT/RT/CL	YD <sup>2</sup>
-L-	119+40.00	125+75.00	LT/RT	2622.36
-L-	141+00.00	146+37.00	RT	1890.11
-L-	149+22.00	154+00.00	RT	1364.37
-Y4-	11+00.00	13+05.00	LT/RT	761.71
<b>TOTAL:</b>				<b>6638.56</b>
<b>SAY:</b>				<b>6640</b>

U-4910A PROJECT TOTAL 6,640  
 U-4910B PROJECT TOTAL 1,320  
**GRAND TOTAL 7,960**

REVISIONS

"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.  
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

### GUARDRAIL SUMMARY

LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		"N" DIST FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH		W		TYPE III	ANCHORS				REMOVE EXISTING GRDRAIL	REMARKS		
				STRAIGHT	SHOP CURVED	TEMP. STRAIGHT	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END		GRAU 350	TMP GRAU 350	CAT-1	TMP CAT-1				
-L-	120+00.00	125+25.00	RT	525.00			121+00.00		2	13' BERM	50		1		III		1						
-L-	123+00.00	126+50.00	LT	350.00			124+39.33		2	13' BERM	50		1		III		1						
-L-	142+99.62	146+62.12	RT	362.50			144+00.00		14	14' BERM					III		1					112.5	
-L-	144+45.73	146+58.23	LT	212.50				144+50.00	VAR.	VAR.		0			III				1			112.5	
-L-	148+96.54	149+94.67	RT	100.00			148+96.54		VAR.	VAR.					III							112.5	
-L-	149+94.67	150+29.16	RT		37.5				VAR.	VAR.					III								
-L-	149+03.04	152+53.04	LT	350.00			151+50.00		VAR.	VAR.					III		1					80	
-Y4-	10+49.16	12+11.66	LT	162.50					14	14' BERM					III		1						
-Y4-	12+11.66	12+80.13	LT		75		12+11.66		14	14' BERM					III								
-DET3-	19+00.00	22+12.50	RT			312.50	20+50.00		8	11	50	50	1	1	III			2				TEMP. GUARDRAIL - REMOVE WHEN NO LONGER NEEDED	
<b>SUBTOTAL</b>				<b>2062.50</b>	<b>112.50</b>	<b>312.50</b>									4	5	2	3	0			417.50	
<b>DEDUCT ANCHORS:</b>																							
<b>TYPE</b>																							
<b>LENGTH EA</b>																							
<b>CAT-1</b>				6.25	0.00																		
<b>GRAU 350</b>				50.00	-250.00																		
<b>TEMP GRAU</b>				50.00		-100.00																	
<b>TYPE III</b>				18.75	-75.00																		
<b>ADDITIONAL POSTS = 10</b>																							
<b>TOTAL</b>				<b>1737.50</b>	<b>112.50</b>	<b>212.50</b>									4	5	2		0			417.50	
<b>SAY</b>				<b>1750</b>	<b>125</b>	<b>225</b>																425	
<b>U-4910A PROJECT TOTAL</b>		<b>10</b>	<b>U-4910A PROJECT TOTAL</b>		<b>1,750</b>	<b>125</b>	<b>225</b>	<b>U-4910A PROJECT TOTAL</b>		<b>4</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>U-4910A PROJECT TOTAL</b>		<b>425</b>						
<b>U-4910B PROJECT TOTAL</b>		<b>10</b>	<b>U-4910B PROJECT TOTAL</b>		<b>1,125</b>	<b>0</b>	<b>0</b>	<b>U-4910B PROJECT TOTAL</b>		<b>0</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>U-4910B PROJECT TOTAL</b>		<b>0</b>						
<b>GRAND TOTAL</b>		<b>20</b>	<b>GRAND TOTAL</b>		<b>2,875</b>	<b>125</b>	<b>225</b>	<b>GRAND TOTAL</b>		<b>4</b>	<b>8</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>GRAND TOTAL</b>		<b>425</b>						

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**SUMMARY OF EARTHWORK**  
IN CUBIC YARDS

PROJECT REFERENCE NO. <i>U-4910A</i>	SHEET NO. <i>3B-2</i>
RW SHEET NO.	
Prepared in the Office of: <b>AECOM</b>	
NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

STATION TO STATION	SIDE	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- 114+00 TO 126+50	LT	385		20,640	20,255	
-L- 127+00 TO 146+59.98	LT	12,001		17,236	5,935	700
-Y2- 11+00 TO 14+00		4,761		6		4,755
SUBTOTAL		16,762		17,241	5,935	5,455
-L- 149+00.10 TO 157+44.41	LT	38		13,259	13,221	
-DET3- 118+00 TO 138+00		2,390		1,076		1,314
-L- 114+00 TO 126+50	RT	397		17,776	17,379	
-L- 127+00 TO 146+59.98	RT	7,907		16,728	8,821	
-Y3- 12+50 TO 13+50		8		61	53	
SUBTOTAL		7,915		16,789	8,874	
-L- 149+00.10 TO 157+44.41	RT	412		12,588	12,176	
-Y4- 10+00 TO 12+50		17		3,842	3,825	
SUBTOTAL		429		16,430	16,001	
SUMMARY TOTALS		28,316		103,209	81,663	6,768
MATERIAL FOR SHOULDER CONSTRUCTION				120	120	
ADDITIONAL UNDERCUT			350	420	420	350
UNSUITABLE UNCLASS. EXCAV. (CONTINGENCY)					615	615
WASTE IN LIEU OF BORROW					-6,068	-6,068
PROJECT TOTALS		28,316	350	103,749	76,750	1,665
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					3,838	
GRAND TOTALS		28,316	350	103,749	80,588	1,665
SAY		28,400	400		80,600	
U-4910A PROJECT TOTAL		28,400	400		80,600	
U-4910B PROJECT TOTAL		40,600	1,400		23,900	
GRAND TOTAL		69,000	1,800		104,500	

**U-4910A PROJECT TOTAL**

ESTIMATED DDE = 630 CY  
 ESTIMATED SHALLOW UNDERCUT BY STATIONS = 150 CY  
 ESTIMATED SHALLOW UNDERCUT CONTINGENCY = 175 CY  
 TOTAL SHALLOW UNDERCUT = 180 CY  
 PAVEMENT STRUCTURE VOLUME = 4,035 CY

**U-4910B PROJECT TOTAL**

ESTIMATED DDE = 330 CY  
 ESTIMATED SHALLOW UNDERCUT BY STATIONS = 2,250 CY  
 ESTIMATED SHALLOW UNDERCUT CONTINGENCY = 325 CY  
 TOTAL SHALLOW UNDERCUT = 2,720 CY  
 PAVEMENT STRUCTURE VOLUME = 11,152 CY

**GRAND TOTAL**

ESTIMATED DDE = 960 CY  
 ESTIMATED SHALLOW UNDERCUT BY STATIONS = 2,400 CY  
 ESTIMATED SHALLOW UNDERCUT CONTINGENCY = 500 CY  
 TOTAL SHALLOW UNDERCUT = 2,900 CY  
 PAVEMENT STRUCTURE VOLUME = 15,187 CY

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.

REVISIONS

Revisions:









# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

### SUMMARY OF SUBSURFACE DRAINAGE

Project	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
U-4910A		CONTINGENCY		SD	350
U-4910B		CONTINGENCY		SD	650
				<b>TOTAL LF:</b>	1000

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

### SUMMARY OF EMBANKMENT WAITING PERIODS

LINE	Station	Station	MONTHS
-L-	146+00	146+60	2
-L-	149+00	149+50	2

### SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE and Station	Offset	
		Distance FT	Direction LT/RT
1	-L- 146+50	40	LT
2	-L- 146+50	70	RT
3	-L- 149+25	30	LT
4	-L- 149+25	80	RT
<b>TOTAL GAUGES (EACH):</b>			4
<b>U-4910A PROJECT TOTAL</b>			4
<b>U-4910B PROJECT TOTAL</b>			0
<b>GRAND TOTAL</b>			4

### SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

Project	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
U-4910A	-L-	154+00.00	157+00.00	ASU	18	150	400	400		
		CONTINGENCY				175	350	350		
				Subtotal CY/TONS/SY:		325	750	750**	0	0
U-4910B	-L-	157+00.00	159+00.00		18	300	750	750		
	-L-	164+00.00	166+00.00		18	200	700	700		
	-L-	186+00.00	187+00.00					700		
	-L-	208+00.00	209+75.00		18	400	950	950		
	-L-	214+00.00	215+50.00		18	450	1,050	1,050		
	-L-	228+00.00	238+50.00		18	900	2,100	2,100		
		CONTINGENCY				325	650	1,150		
				Subtotal CY/TONS/SY:		2575	6200	7400**	0	0
				Grand Total CY/TONS/SY:		2900	6950	8150**	0	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.

### SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS
Bridge No. 3 on SR 1445 (Derita Road) over Rocky River	1 & 2	2

REVISIONS

Revisions:

8/17/99

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

<small>PROJECT REFERENCE NO.</small> <i>U-4910A</i>	<small>SHEET NO.</small> <i>3P-1</i>
<small>RW SHEET NO.</small>	
<small>ROADWAY DESIGN ENGINEER</small>	
Prepared in the Office of: <b>AECOM</b>	
NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 19060P, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

## PARCEL INDEX

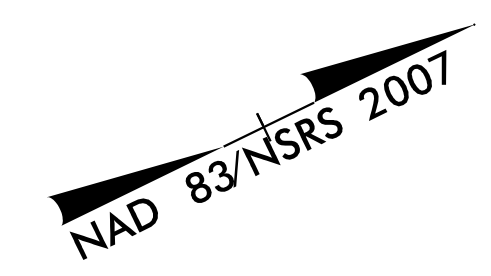
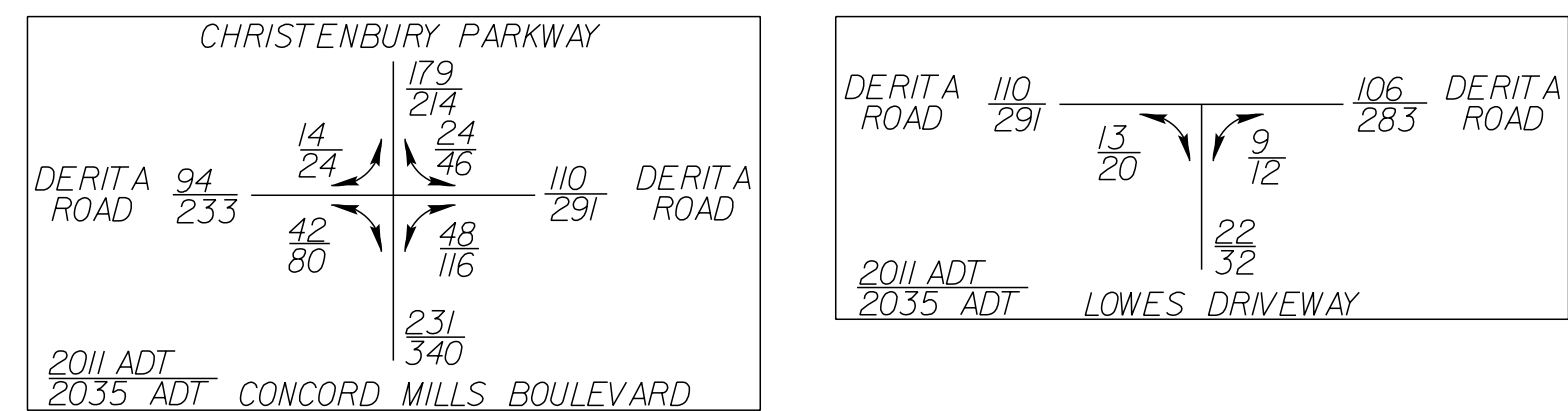
PARCEL NO.	PROPERTY OWNERS NAME	SHEET NO.
1	PDG/INLAND CONCORD VENTURE DB 8108 PG 184	4, 5
2	PDG/INLAND CONCORD VENTURE DB 8108 PG 184	4
3	AGREE CONCORD LLC DB 9374 PG 240	4
4	BONDS REAL ESTATE LPP A NC LLP DB 3785 PG 677	4, 5
5	BONDS REAL ESTATE LPP A NC LLP DB 681 PG 196	5
6	BONDS REAL ESTATE LPP A NC LLP DB 519 PG 677	5
7	CHRISTENBURY FARMS INC DB 5027 PG 53 ****	5
8	PIEDMONT NATURAL GAS DB 6316 PG 98	5,6
9	WAL-MART REAL ESTATE BUSINESS TRUST DB 9249 PG 43	5,6
10	WAL-MART STORES EAST LP DB 7732 PG 310	5,6
11	CRESENT CONCORD VENTURE I LLC DB 8190 PG 336	6
12	DEPOT SELF STORAGE DB3654 PG 112	6
13	DANNY E MOREAU DB 4373 PG 79	6
13	DANNY E MOREAU DB 4373 PG 83	6
13	DANNY E MOREAU DB 4373 PG 76	6
14	NOT USED	
15	NOT USED	
16	EDWIN B BONDS & ETTA MAE GOSS NO DEED REFERENCE	6
17	JOSEPH W & JOY H MOREAU DB 773 PG 103	6, 7
18	WILLIAM L & DONNA MOWRY DB 1851 PG 10	6, 7
20	CITY OF CONCORD DB 717 PG 293	7
21	JRNC INVESTMENTS LLC DB 8456 PG 142	7
22	ROUSH FENWAY RACING, LLC DB 07945 PG 0082	7
23	DELAWARE GENERAL CORPORATION DB 3811 PG 225	7

REVISIONS

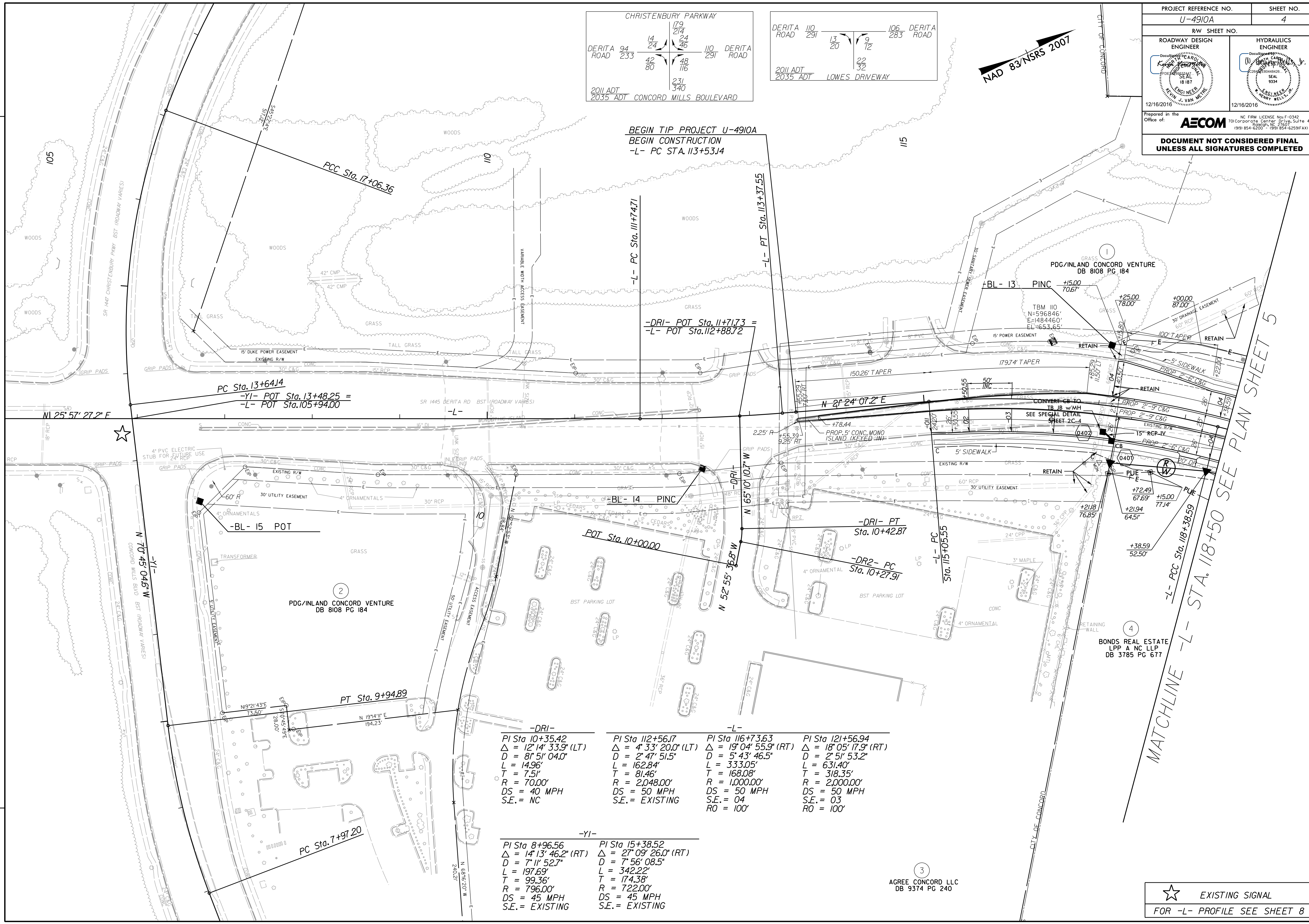
Revisions:

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PROJECT REFERENCE NO.		SHEET NO.	
U-4910A		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
12/16/2016		12/16/2016	
Prepared in the Office of:			
		NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			



BEGIN TIP PROJECT U-4910A  
 BEGIN CONSTRUCTION  
 -L- PC STA. 113+53.14



-DRI-	-L-	-L-	-L-
PI Sta 10+35.42	PI Sta 112+56.17	PI Sta 116+73.63	PI Sta 121+56.94
$\Delta = 12' 14'' 33.9''$ (LT)	$\Delta = 4' 33'' 20.0''$ (LT)	$\Delta = 19' 04'' 55.9''$ (RT)	$\Delta = 18' 05'' 17.9''$ (RT)
D = 81' 51' 04.0"	D = 2' 47' 51.5"	D = 5' 43' 46.5"	D = 2' 51' 53.2"
L = 14.96'	L = 162.84'	L = 333.05'	L = 631.40'
T = 7.51'	T = 81.46'	T = 168.08'	T = 318.35'
R = 70.00'	R = 2,048.00'	R = 1,000.00'	R = 2,000.00'
DS = 40 MPH	DS = 50 MPH	DS = 50 MPH	DS = 50 MPH
S.E. = NC	S.E. = EXISTING	S.E. = 04	S.E. = 03
		RO = 100'	RO = 100'

-YI-	-L-
PI Sta 8+96.56	PI Sta 15+38.52
$\Delta = 14' 13'' 46.2''$ (RT)	$\Delta = 27' 09'' 26.0''$ (RT)
D = 7' 11' 52.7"	D = 7' 56' 08.5"
L = 197.69'	L = 342.22'
T = 99.36'	T = 174.38'
R = 796.00'	R = 722.00'
DS = 45 MPH	DS = 45 MPH
S.E. = EXISTING	S.E. = EXISTING

REVISIONS

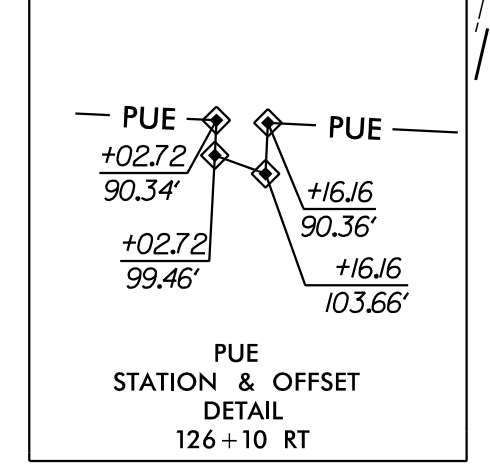
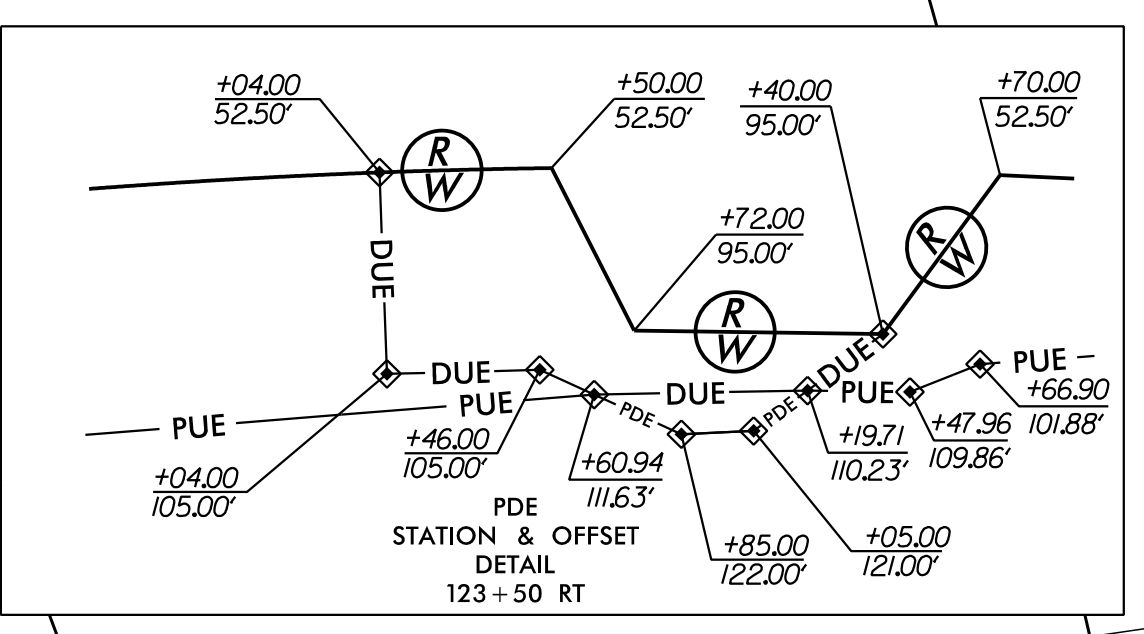
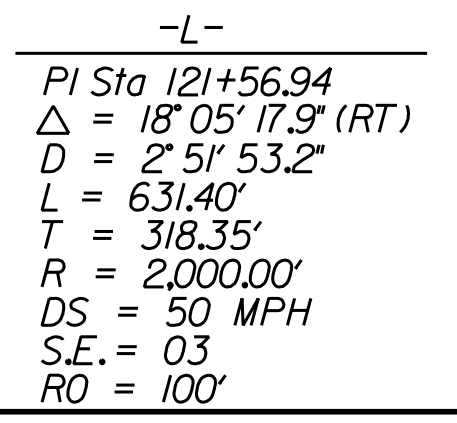
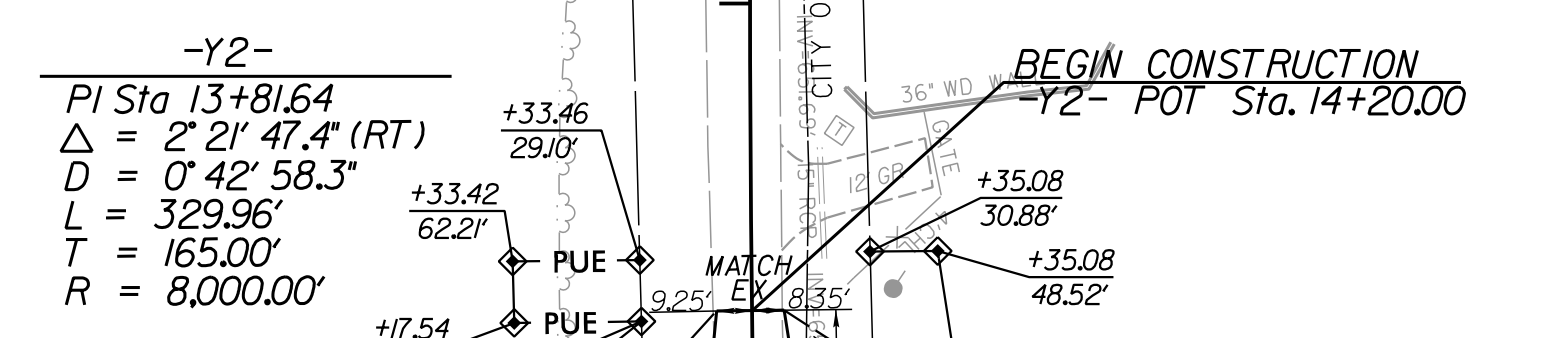
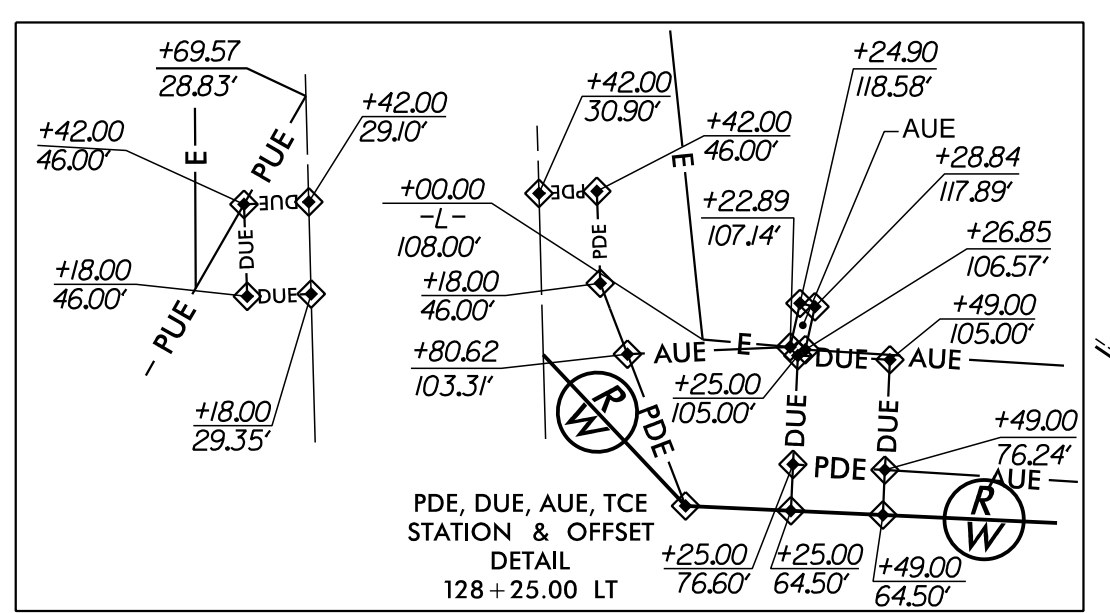
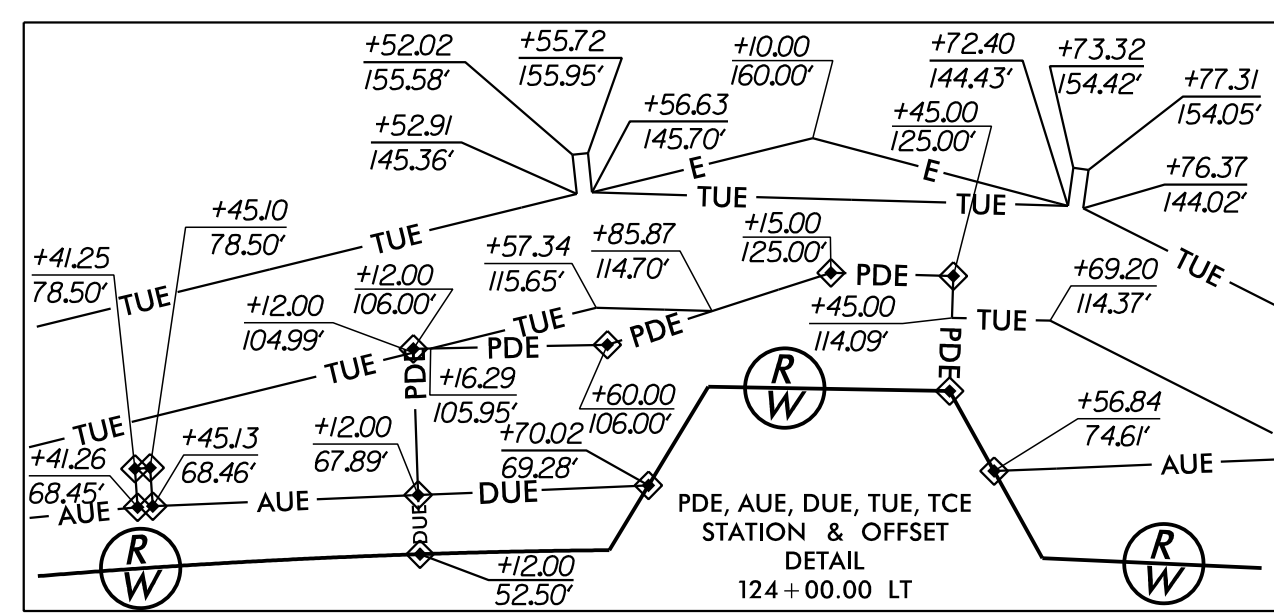
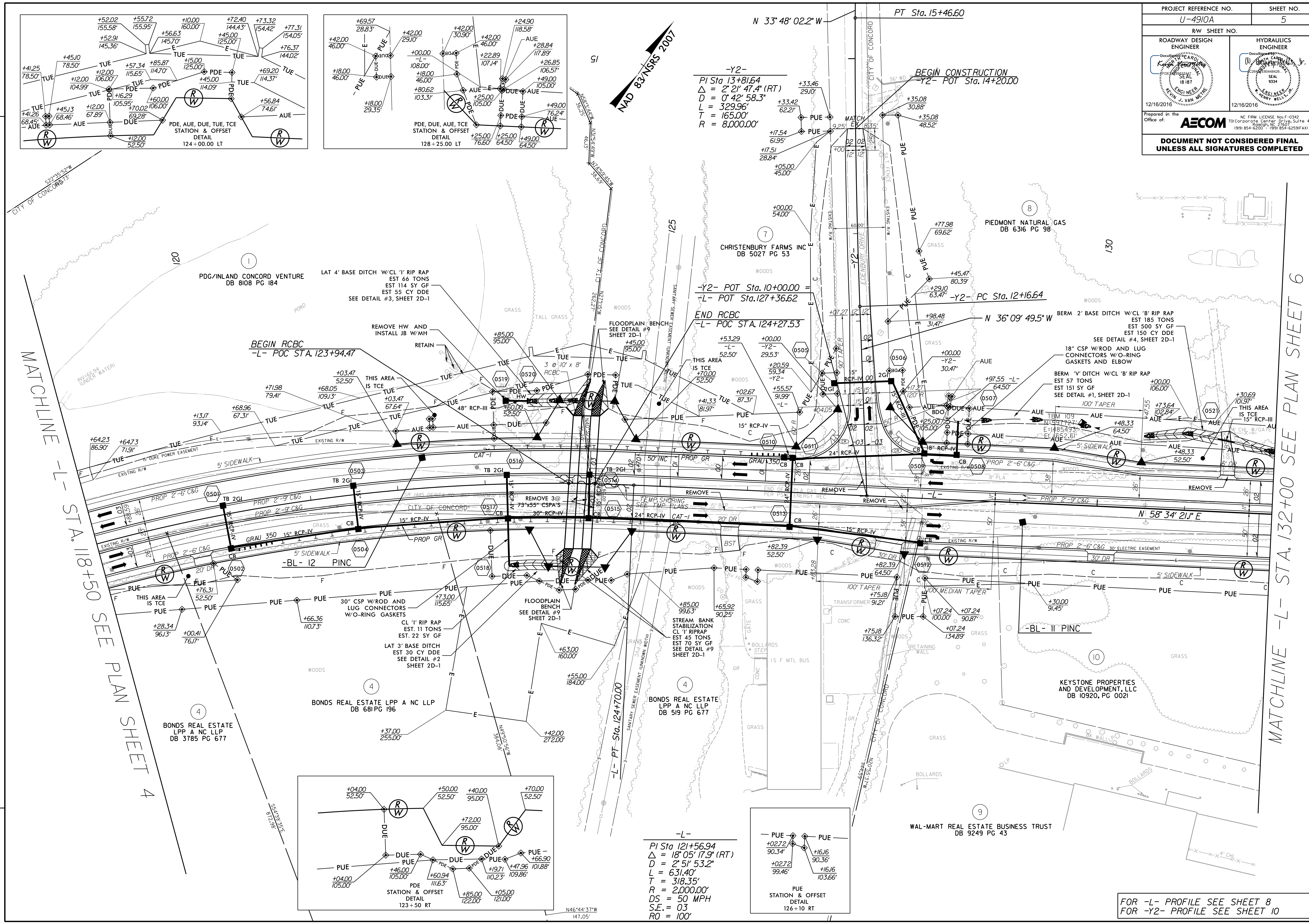
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MATCHLINE -L- STA. 118+50 SEE PLAN SHEET 5

★ EXISTING SIGNAL  
 FOR -L- PROFILE SEE SHEET 8

PROJECT REFERENCE NO. <b>U-4910A</b>	SHEET NO. <b>5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>
12/16/2016	12/16/2016
<p>Prepared in the Office of:</p> <p><b>AECOM</b></p> <p>NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6259(FAX)</p>	
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	



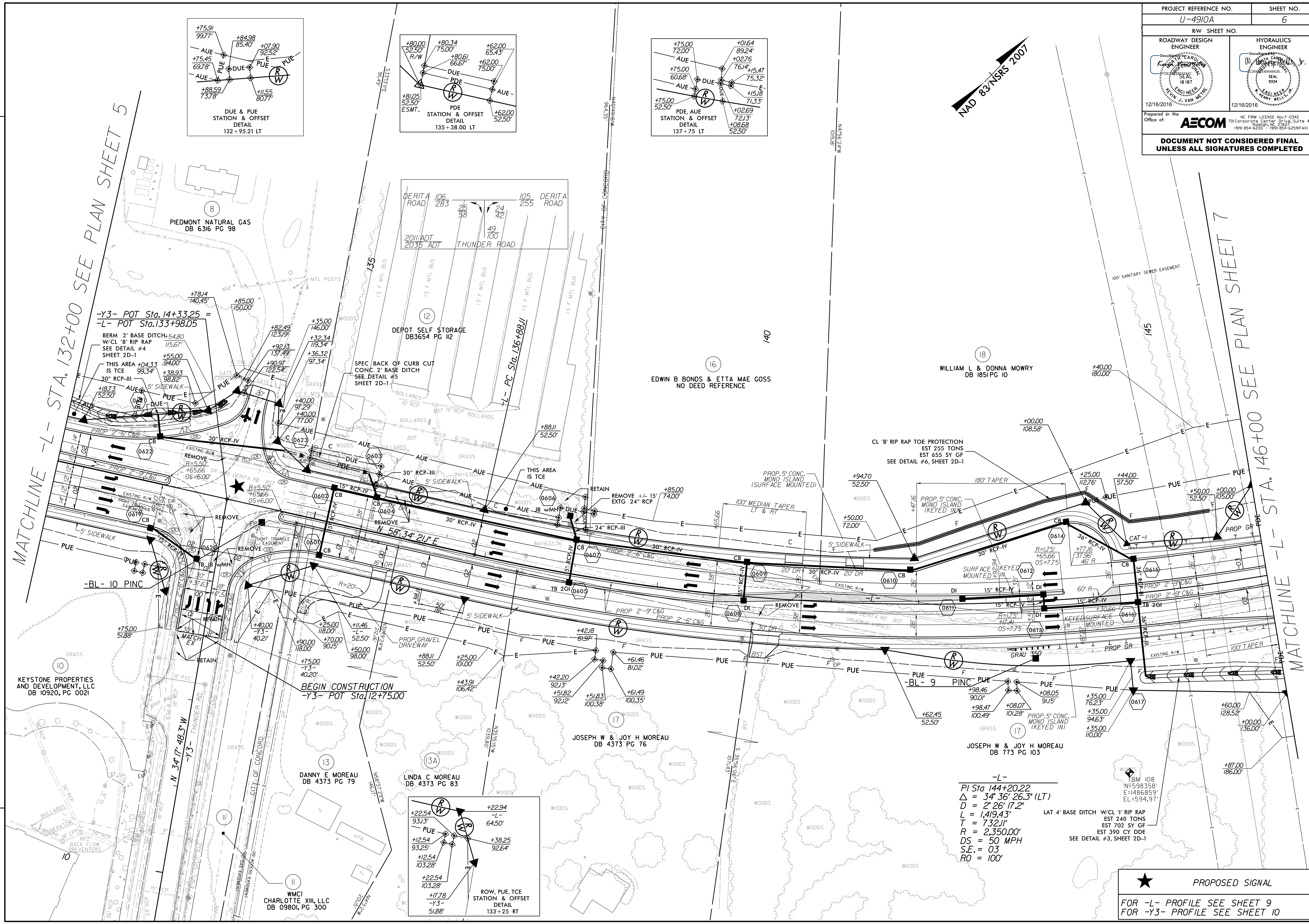
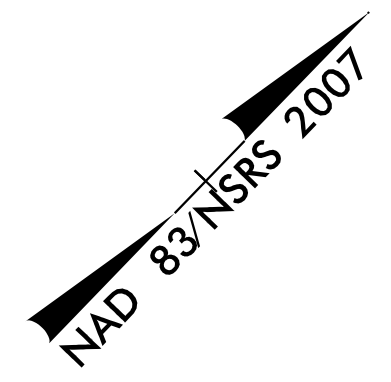
MATCHLINE -L- STA. 118+50 SEE PLAN SHEET 4

MATCHLINE -L- STA. 132+00 SEE PLAN SHEET 6

Revisions:  
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 DATE: 12/15/2016  
 TIME: 4:25:05 PM

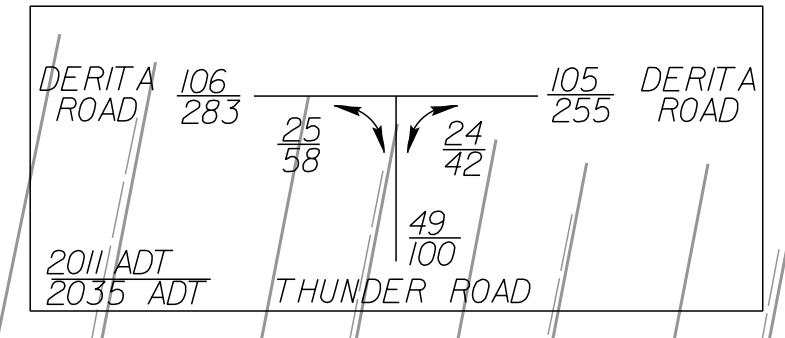
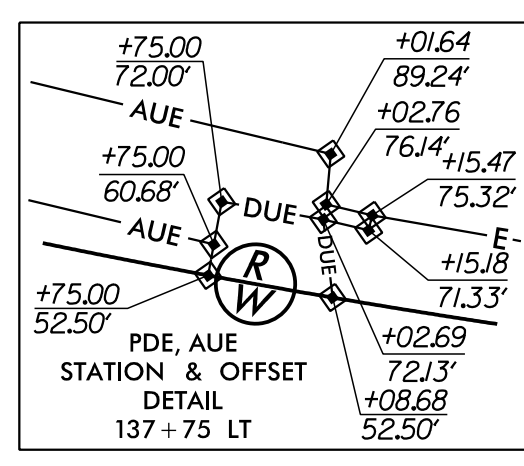
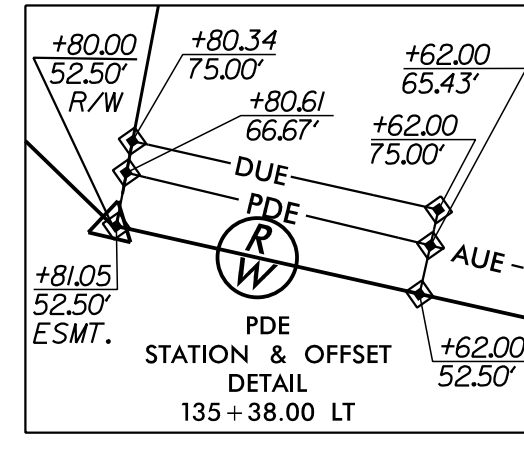
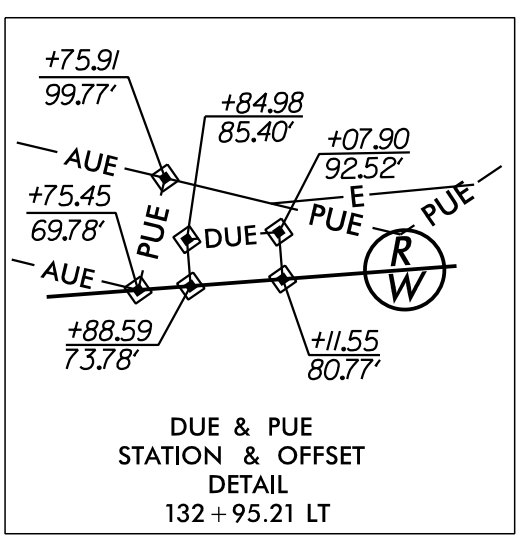
FOR -L- PROFILE SEE SHEET 8  
FOR -Y2- PROFILE SEE SHEET 10

PROJECT REFERENCE NO. <b>U-4910A</b>		SHEET NO. <b>6</b>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER <i>[Signature]</i>		HYDRAULICS ENGINEER <i>[Signature]</i>	
12/16/2016		12/16/2016	
Prepared in the Office of:		NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Rosedale, NC 27087 (919) 854-6200 • (919) 854-6259(FAX)	
<b>AECOM</b>			
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			



MATCHLINE -L- STA. 132+00 SEE PLAN SHEET 5

MATCHLINE -L- STA. 146+00 SEE PLAN SHEET 7



-Y3- POT Sta. 14+33.25 =  
-L- POT Sta. 133+98.05

BERM 2' BASE DITCH W/CL 'B' RIP RAP SEE DETAIL #4 SHEET 2D-1  
THIS AREA IS TCE  
30" RCP-III  
5' SIDEWALK  
REMOVE R=5.50  
OS=6.00

DEPOT SELF STORAGE DB3654 PG 112  
SPEC BACK OF CURB CUT CONC. 2' BASE DITCH SEE DETAIL #5 SHEET 2D-1

EDWIN B BONDS & ETNA MAE GOSS NO DEED REFERENCE

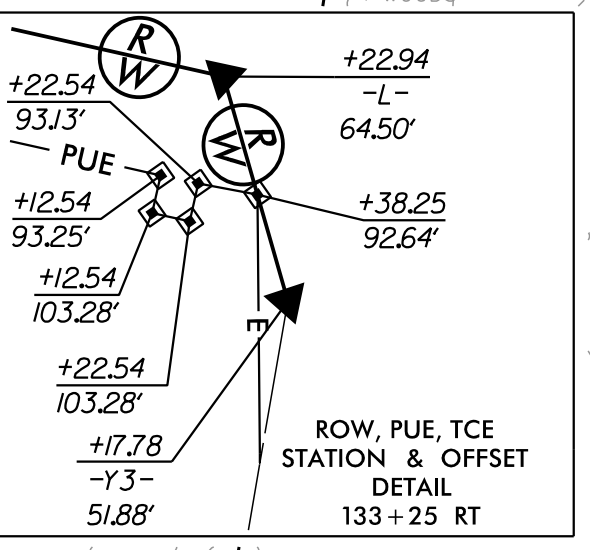
WILLIAM L & DONNA MOWRY DB 1851 PG 10

KEYSTONE PROPERTIES AND DEVELOPMENT, LLC DB 10920, PG 0021

BEGIN CONSTRUCTION -Y3- POT Sta. 12+75.00

JOSEPH W & JOY H MOREAU DB 4373 PG 76

JOSEPH W & JOY H MOREAU DB 773 PG 103



-L-  
PI Sta 144+20.22  
Δ = 34' 36" 26.3" (LT)  
L = 1,419.43'  
T = 732.11'  
R = 2,350.00'  
DS = 50 MPH  
S.E. = 03  
RO = 100'

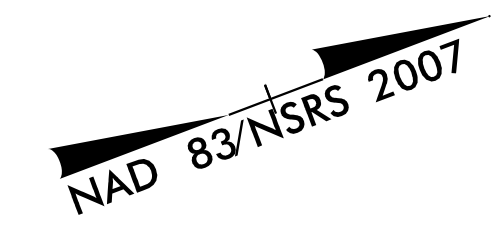
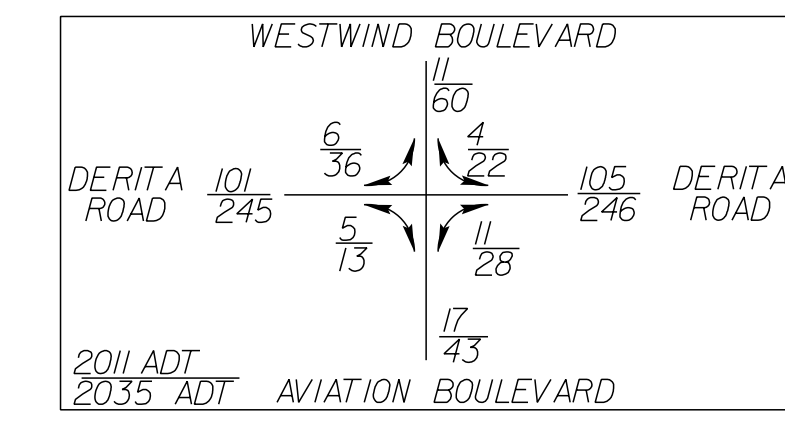
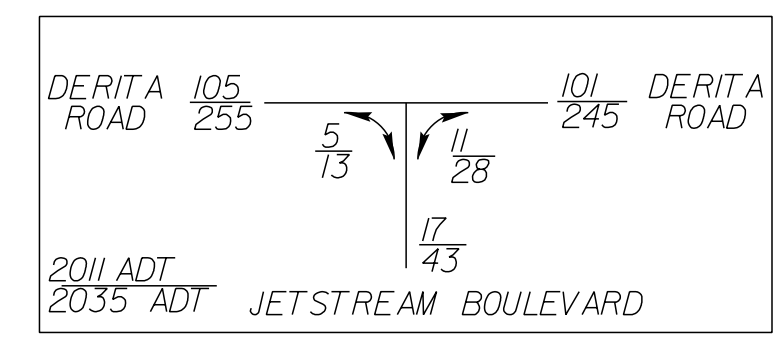
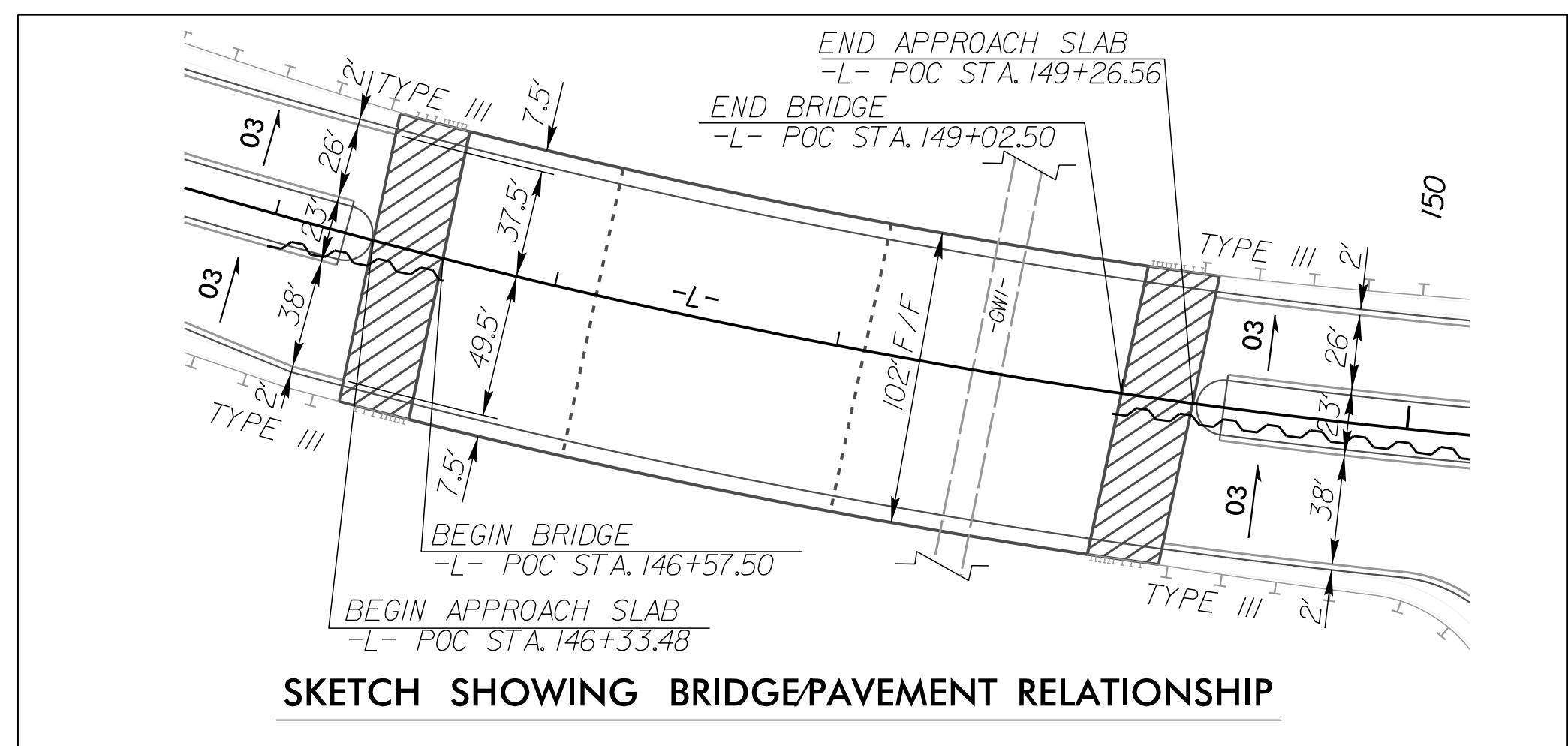
LAT 4' BASE DITCH W/CL 'I' RIP RAP EST 240 TONS EST 702 SY GF EST 390 CY DDE SEE DETAIL #3, SHEET 2D-1

★ PROPOSED SIGNAL  
FOR -L- PROFILE SEE SHEET 9  
FOR -Y3- PROFILE SEE SHEET 10

REVISIONS

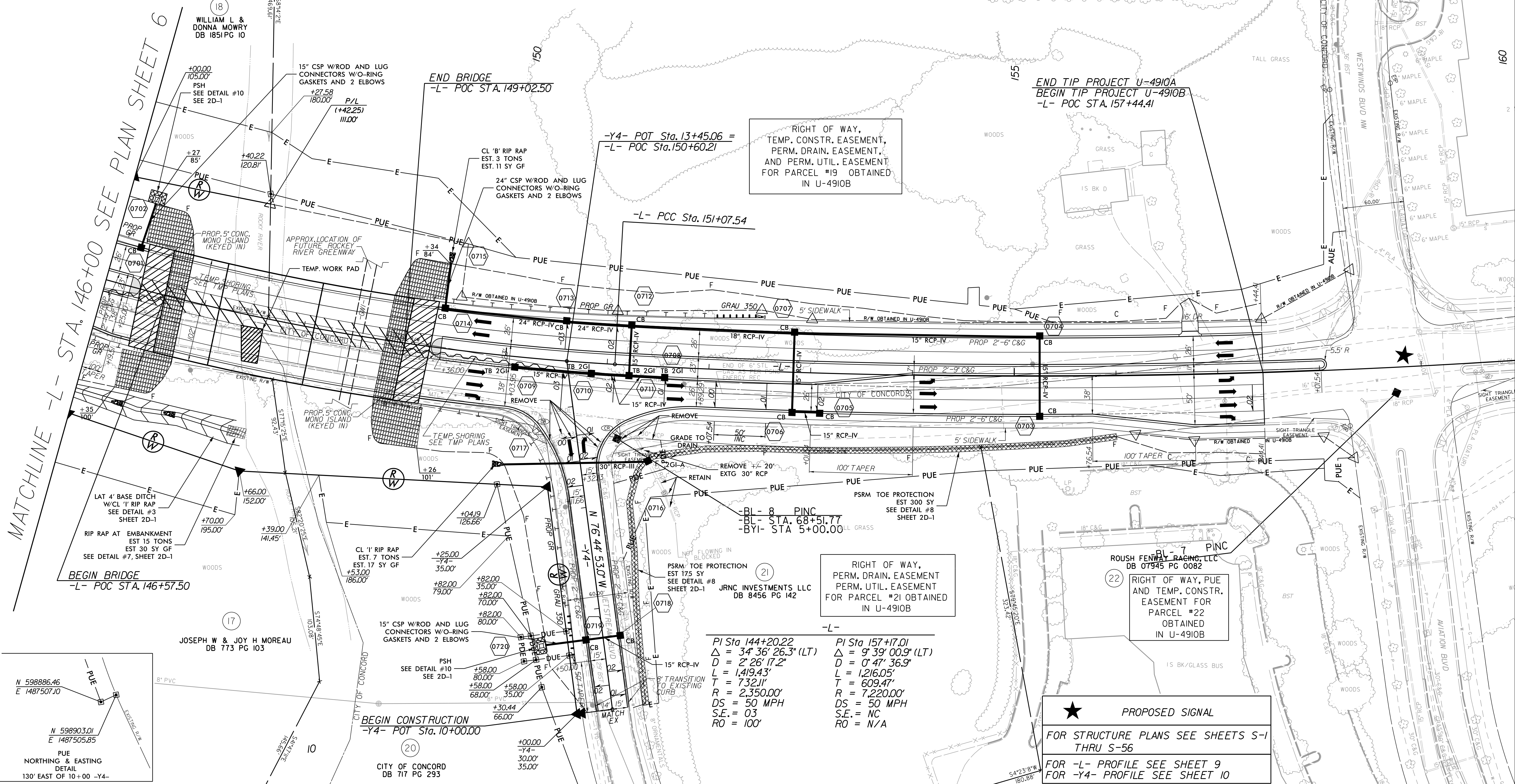
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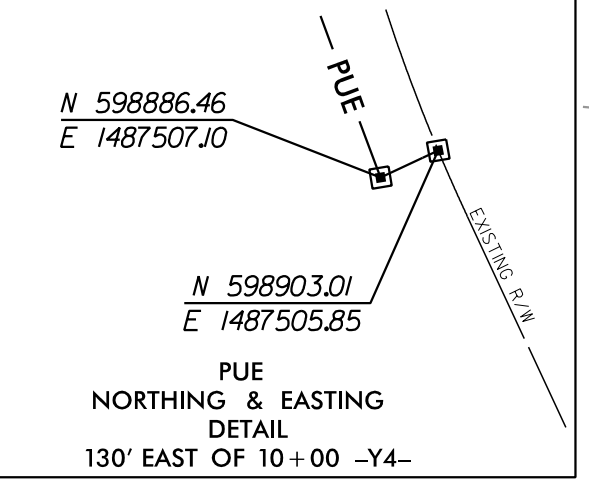


(23) DELAWARE GENERAL CORPORATION  
DB 3811 PG 225

(19) JEFFERY C RILEY  
DB 9319 PG 200  
BACK PROPERTY LINE INFORMATION  
(NOT SHOWN ON PLAN SHEET)  
PLOTTED FROM GIS INFORMATION



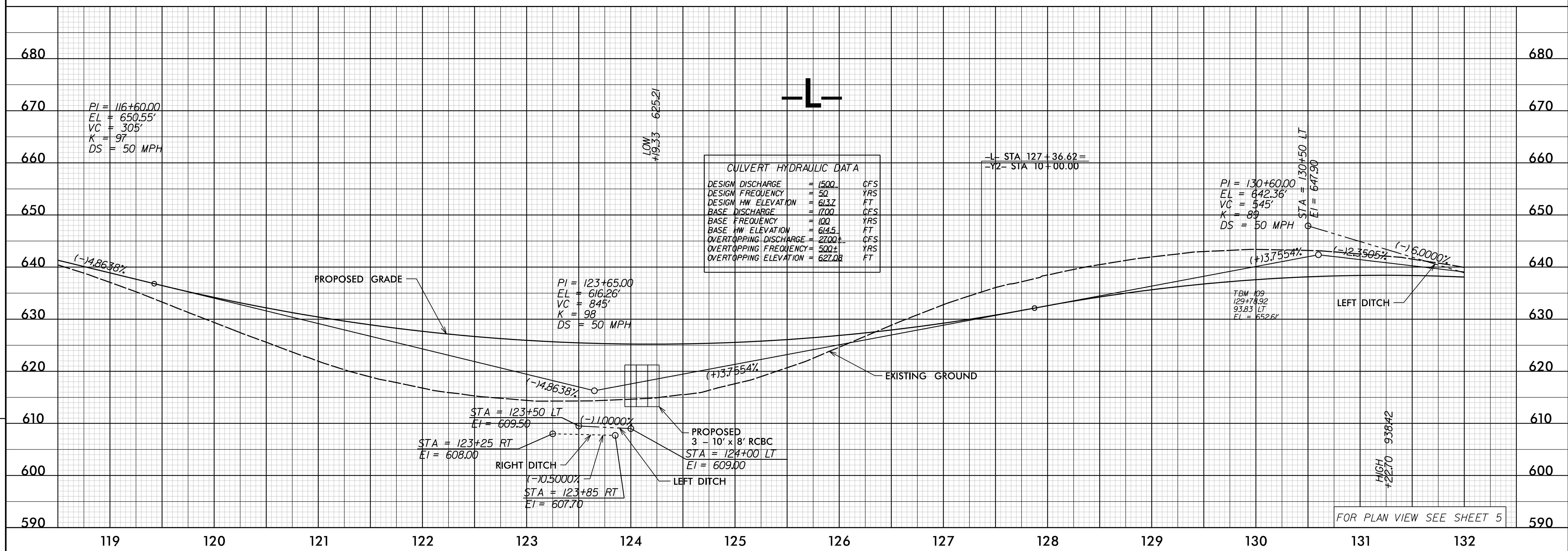
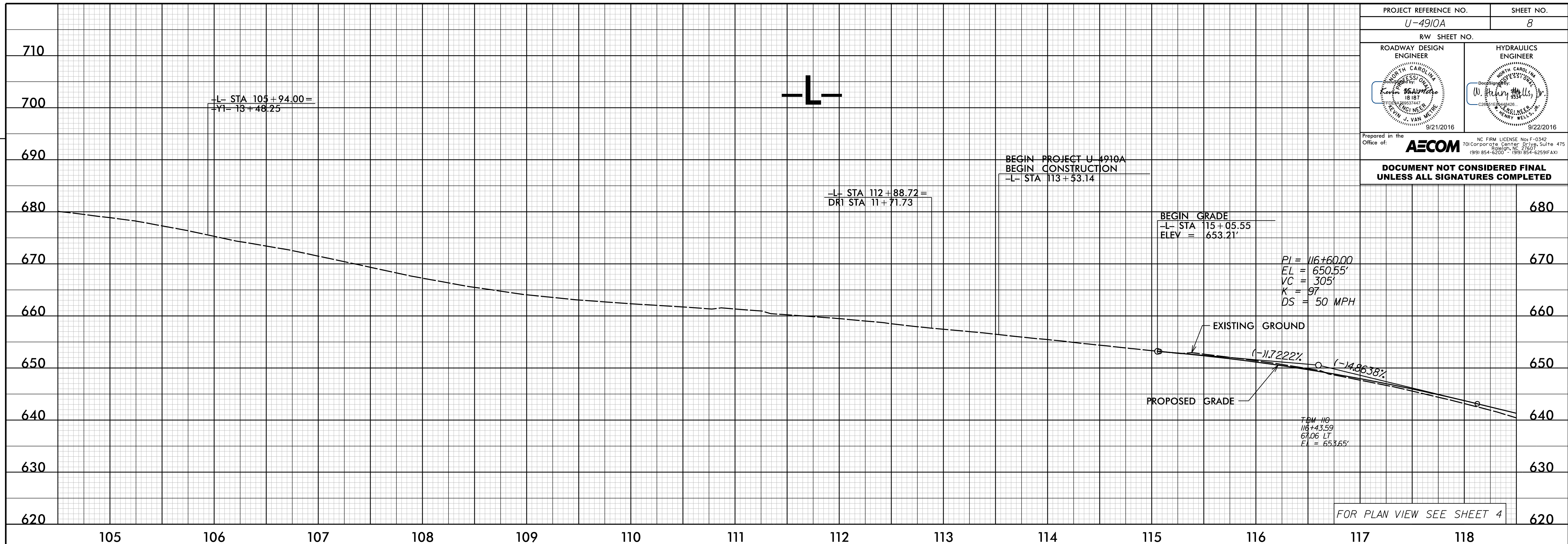
MATCHLINE -L- STA. 146+00 SEE PLAN SHEET 6



★ PROPOSED SIGNAL  
FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-56  
FOR -L- PROFILE SEE SHEET 9  
FOR -Y4- PROFILE SEE SHEET 10

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PROJECT REFERENCE NO. <b>U-4910A</b>	SHEET NO. <b>8</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
Prepared in the Office of: <b>AECOM</b> 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



DESIGN DISCHARGE	= 1500	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 613.7	FT
BASE DISCHARGE	= 1700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 614.5	FT
OVERTOPPING DISCHARGE	= 2700	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 627.08	FT

REVISIONS

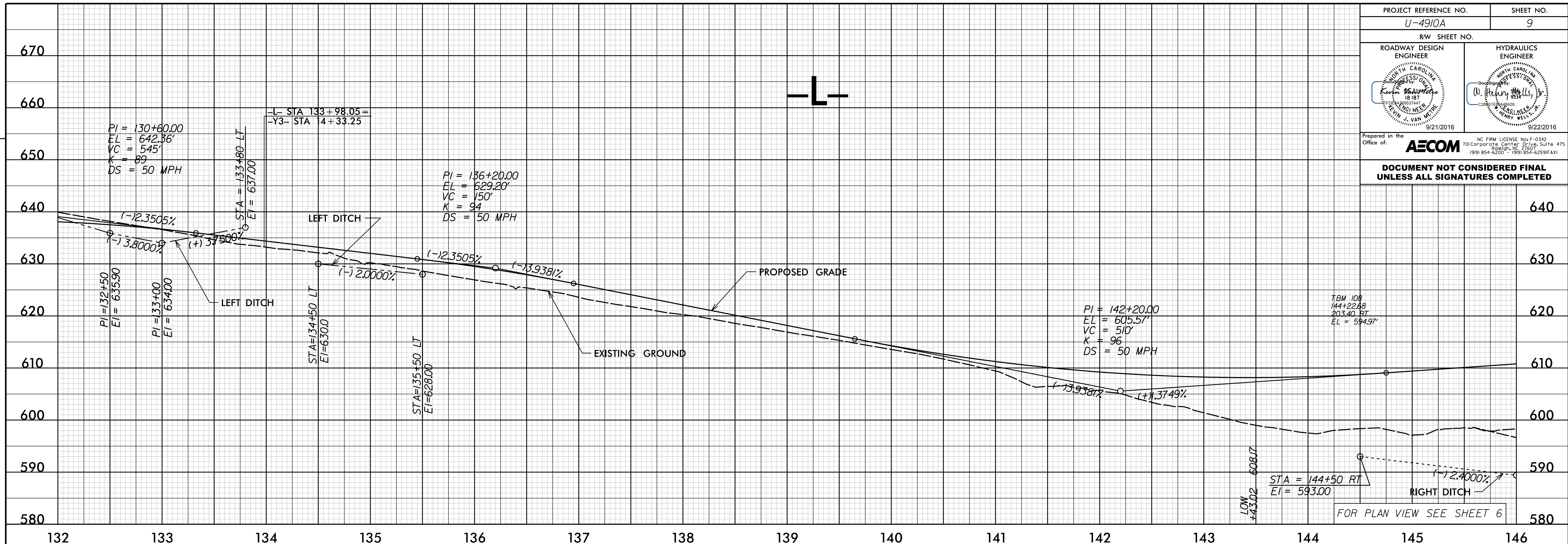
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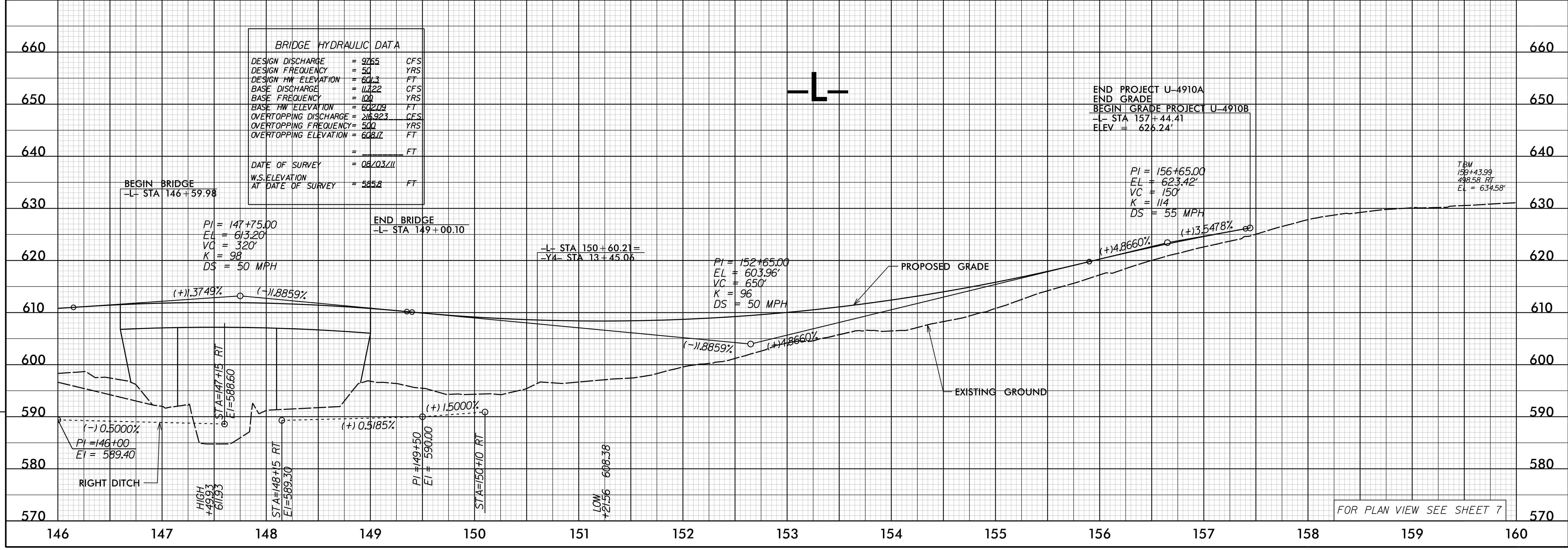
FOR PLAN VIEW SEE SHEET 4

FOR PLAN VIEW SEE SHEET 5

PROJECT REFERENCE NO. U-4910A	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Kevin B. Moore</i>	HYDRAULICS ENGINEER <i>W. Brian Mills</i>
9/21/2016	9/22/2016
Prepared in the Office of: <b>AECOM</b> 701 Corporate Center Drive, Suite 415 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6259(FAX)	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 9765	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 601.3	FT
BASE DISCHARGE	= 11222	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 602.09	FT
OVERTOPPING DISCHARGE	= 216.923	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 608.12	FT
DATE OF SURVEY	= 08/03/11	
W.S. ELEVATION AT DATE OF SURVEY	= 585.8	FT



BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 9765	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 601.3	FT
BASE DISCHARGE	= 11222	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 602.09	FT
OVERTOPPING DISCHARGE	= 216.923	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 608.12	FT
DATE OF SURVEY	= 08/03/11	
W.S. ELEVATION AT DATE OF SURVEY	= 585.8	FT

REVISIONS

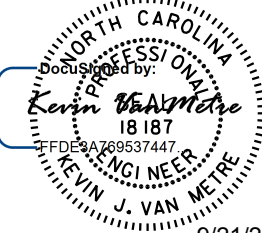
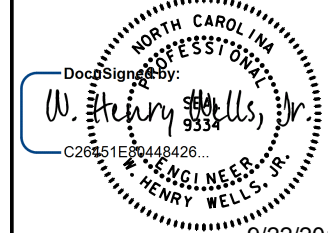
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FOR PLAN VIEW SEE SHEET 6

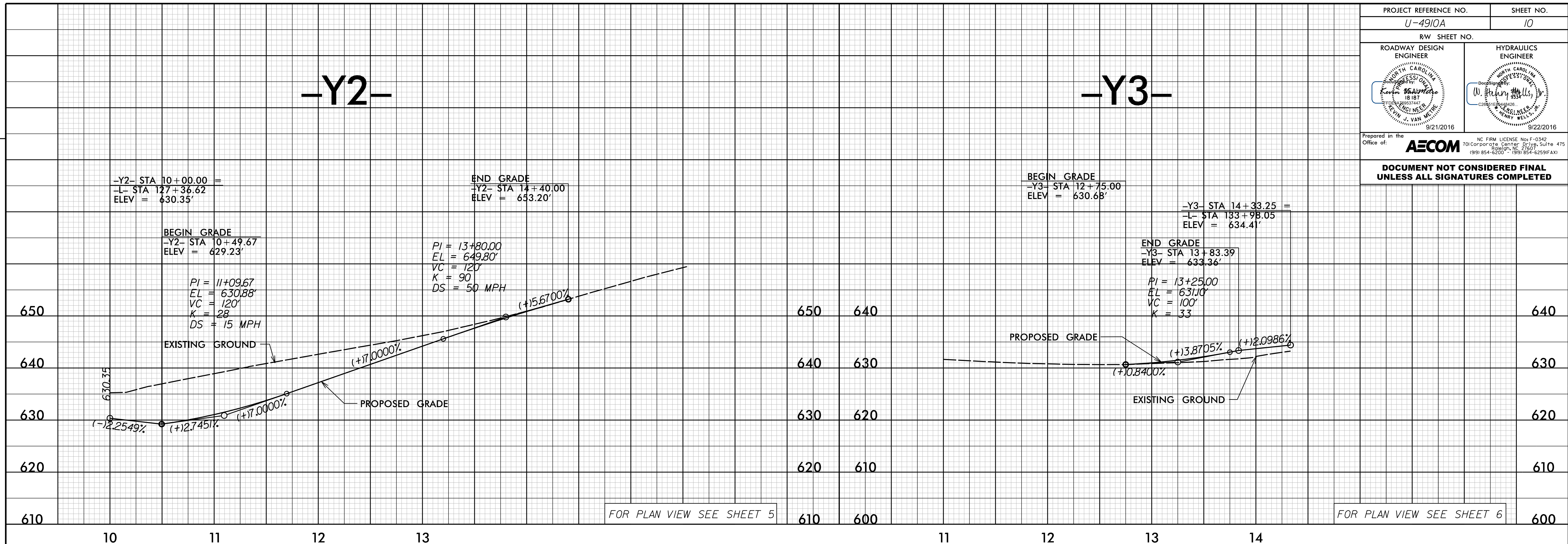
FOR PLAN VIEW SEE SHEET 7



PROJECT REFERENCE NO. <b>U-4910A</b>	SHEET NO. <b>10</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
9/21/2016	9/22/2016

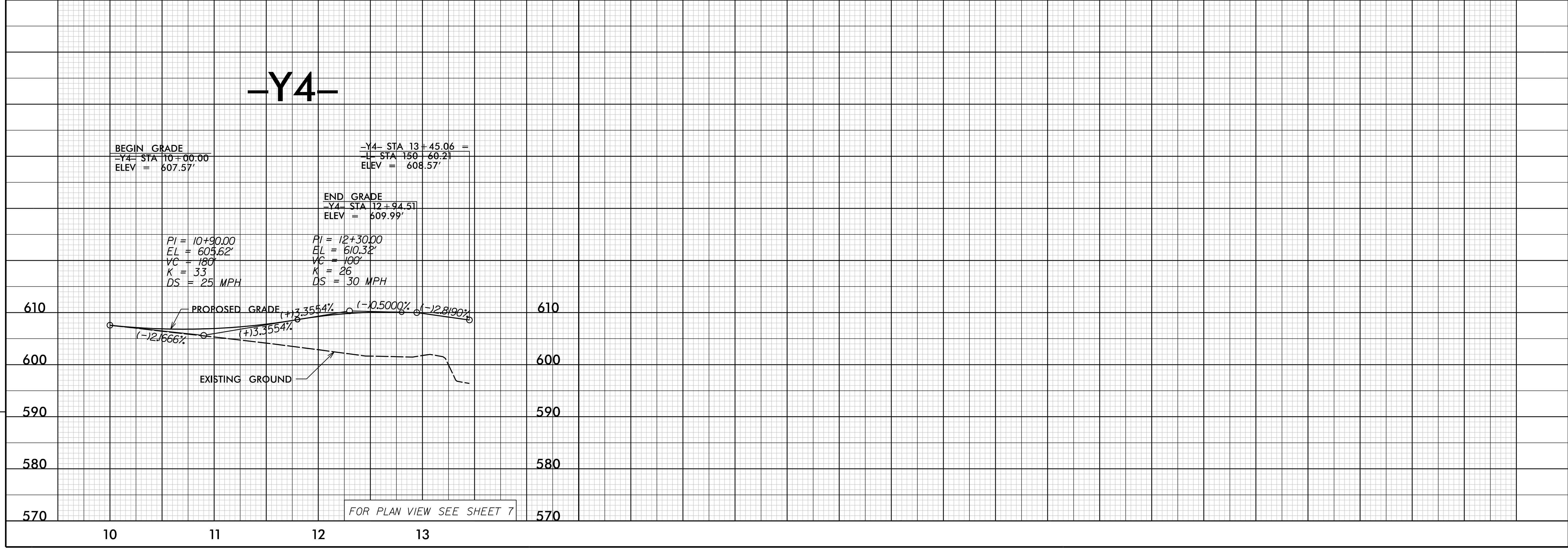
Prepared in the Office of: **AECOM**  
 NC FIRM LICENSE No. F-0342  
 701 Corporate Center Drive, Suite 4175  
 Raleigh, NC 27607  
 (919) 854-6200 • (919) 854-6259(FAX)

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FOR PLAN VIEW SEE SHEET 5

FOR PLAN VIEW SEE SHEET 6



FOR PLAN VIEW SEE SHEET 7

REVISIONS

Revisions:

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