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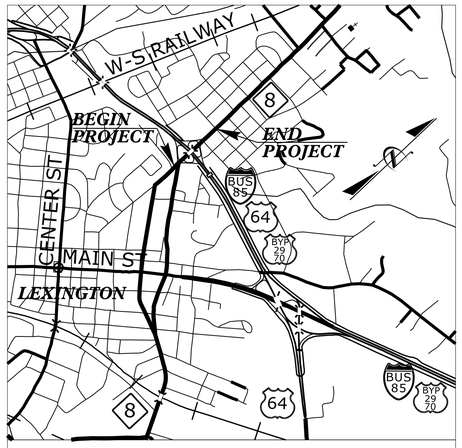
This file or an individual page shall not be considered a certified document.

09/08/99

TIP PROJECT: B-3159

CONTRACT: C203587

See Sheet 1-A For Index of Sheets



VICINITY MAP

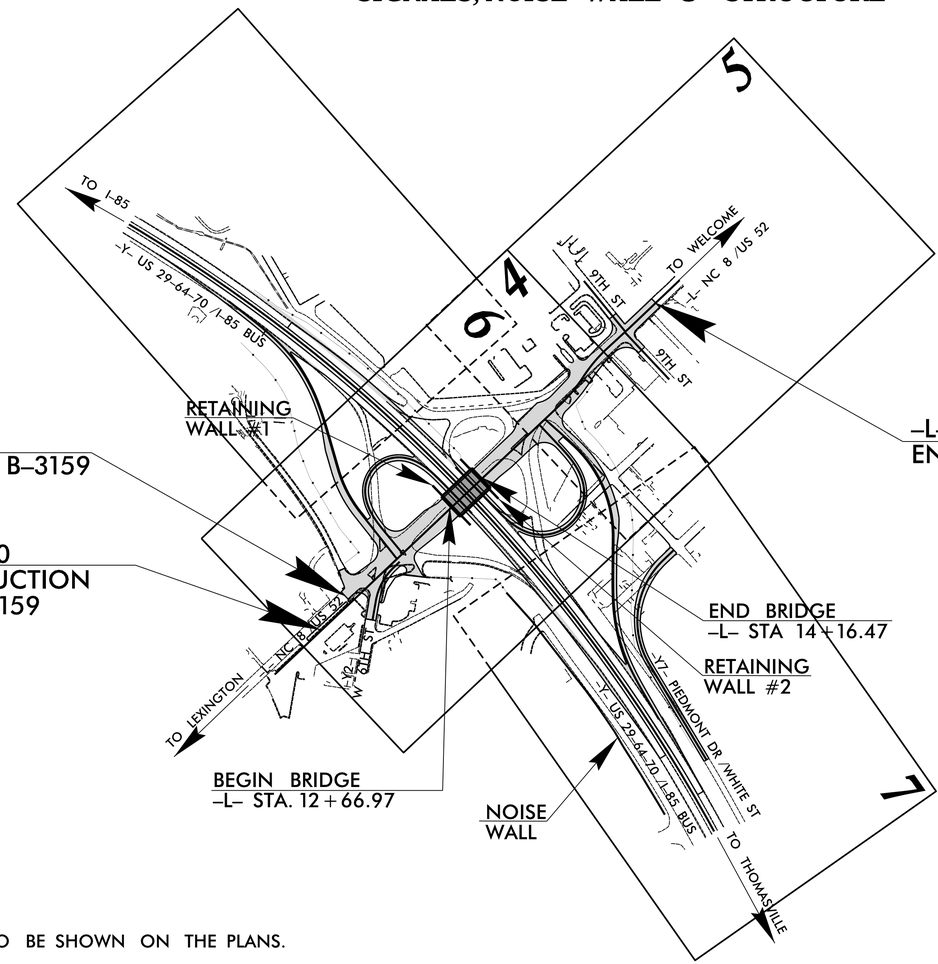
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3159	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38331.1.1	STPNHS-0052(31)	PE
38331.2.FR1	STPNHS-0052(31)	R/W
38331.2.FRU1	STPNHS-0052(31)	UTL
38331.3.FR1	STPNHS-0052(31)	CONST.

LOCATION: BRIDGE NO. 27 OVER US 29-64-70 /I-85 BUS LOOP ON NC 8 /US 52
TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALL, SIGNALS, NOISE WALL & STRUCTURE



THIS IS A FULL CONTROL OF ACCESS PROJECT WITH ACCESS TO BE SHOWN ON THE PLANS.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2015 = 25,000
ADT 2035 = 28,600
DHV = 10 %
D = 60 %
T = 5 % *
V = 40 MPH
* TTST = 2 DUAL = 3
FUNC CLASS = ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY OF TIP PROJECT B-3159 = 0.261 MILES

LENGTH STRUCTURE OF TIP PROJECT B-3159 = 0.028 MILES

TOTAL LENGTH OF TIP PROJECT B-3159 = 0.289 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS
8/4/2015

RIGHT OF WAY DATE:
JUNE 30, 2014

LETTING DATE:
OCTOBER 20, 2015

TONY HOUSER, PE
PROJECT ENGINEER

BRUCE PAYNE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANA
DocuSigned by: Edward J. Vana 8/4/2015
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR.
DocuSigned by: Bruce Payne 8/4/2015
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1A
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B PAYNE

DocuSigned by:
Bruce Payne 9/3/2015
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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-7	SURVEY CONTROL SHEETS
2A-1 THRU 2A-8	PAVEMENT SCHEDULE, TYPICAL SECTIONS AND WEDGING
2B-1	INTERSECTION DETAILS AND DETAIL OF BRIDGE AND PAVEMENT RELATIONSHIP
2B-2	SHEAR POINT DIGRAM
2B-3	NOISE WALL PLAN AND PROFILE
2B-4	TEMPORARY RAMP B / LOOP B CONNECTOR PLAN AND PROFILE
2C-1	ANCHOR UNIT TYPE W-BEAM DETAIL
2C-2	STRUCTURE ANCHOR UNIT TYPE III DETAIL
2C-3	DETAIL TO CONVERT EXISTING DI, CB, OTCB OR GI TO JUNCTION BOX
2C-4	STAMPED CONCRETE SIDEWALK DETAIL
2C-5	SPECIAL JB DETAIL
2H-1	STOCKPILE CONTAINMENT DETAIL
3B-1	SUMMARY OF EARTHWORK, GUARDRAIL SUMMARY, CHAIN LINK FENCE 48" FABRIC SUMMARY, PAVEMENT REMOVAL SUMMARY, SUMMARY OF BREAKING EXISTING ASPALT PAVEMENT AND SUMMARY OF EXISTING CONCRETE PAVEMENT REMOVAL
3D-1 THRU 3D-5	DRAINAGE SUMMARY
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4-7	PLAN SHEETS
8-11	PROFILE SHEETS
TMP-1 THRU TMP-18	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-7	PAVEMENT MARKING PLANS
E1 THRU E2	LIGHTING / ELECTRICAL PLANS
EC-1 THRU EC-11/CONST.7	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-11	SIGNING PLANS
SIG-1.0 THRU SIG.P3	SIGNAL PLANS
SCP.1 THRU SCP.3	SIGNAL COMMUNICATION PLANS
UC-1 THRU UC-9	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-5	UTILITIES BY OTHERS PLANS
X-0	CROSS-SECTION SUMMARY
X-1	CROSS-SECTION INDEX
X-2 THRU X-42	CROSS-SECTIONS
S-1 THRU S-43	STRUCTURE PLANS
W-1 THRU W-8	WALL PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 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 & 560.02

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.

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.

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.

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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE City of Lexington Power

Transmission and Distribution, City of Lexington Gas, Windstream, Time Warner Cable.

Cirty of Lexington - Water and Sanitary Sewer

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.

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
240.01	Guide for Berm Ditch Construction
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 Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II (Sheet 2 of 3 is no longer applicable)
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.01	Guide for Paving Shoulders Under Bridges - Method I
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
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
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.25	Anchorage for Frames - Brick or 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
840.29	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
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.01	Chain Link Fence - 4', 5' and 6' High Fence
876.02	Guide for Rip Rap at Pipe Outlets

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12/05/11

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1B

Note: Not to Scale

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

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 — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- 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 — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A 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

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 — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- 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 — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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:

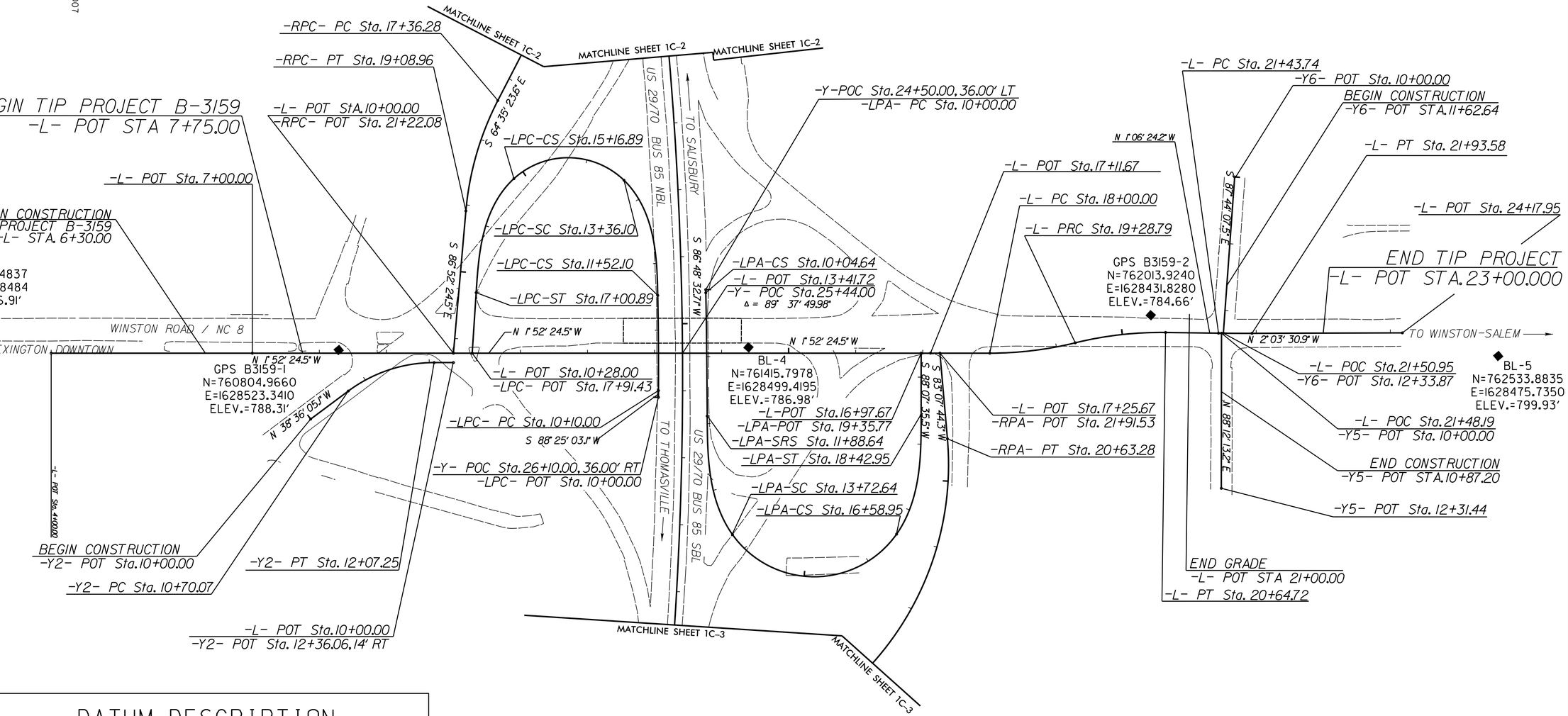
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- 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 — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1C-1
Location and Surveys	

SURVEY CONTROL SHEET B-3159



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-3159-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 760804.9660(ft) EASTING: 1628523.3410(ft) ELEVATION: 788.31(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998914

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-3159-1" TO -L- STATION 7+75.00 IS S 6° 55' 25.3" E 54.10'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

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: B3159_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.

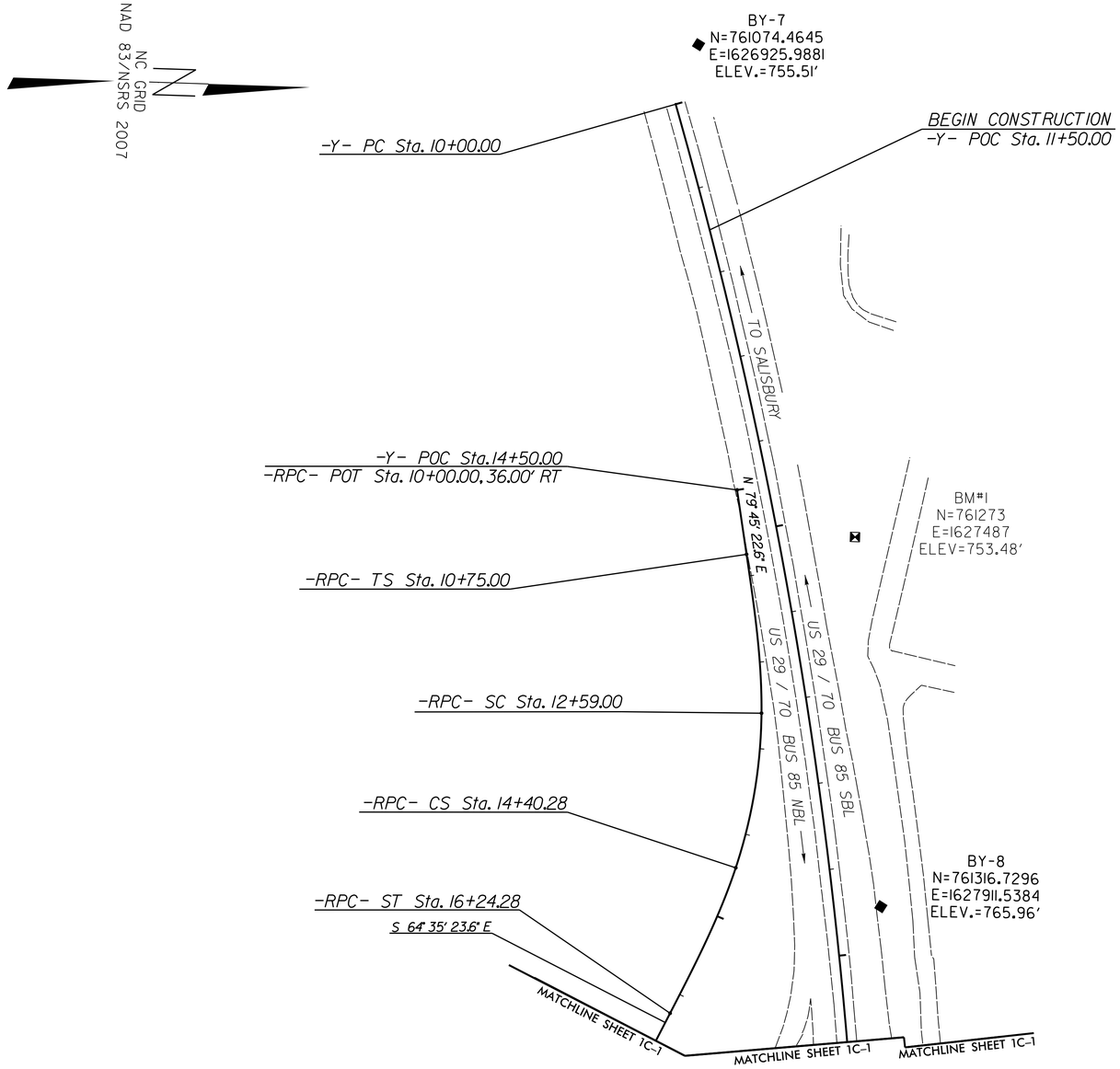
△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1C-2
Location and Surveys	

SURVEY CONTROL SHEET B-3159



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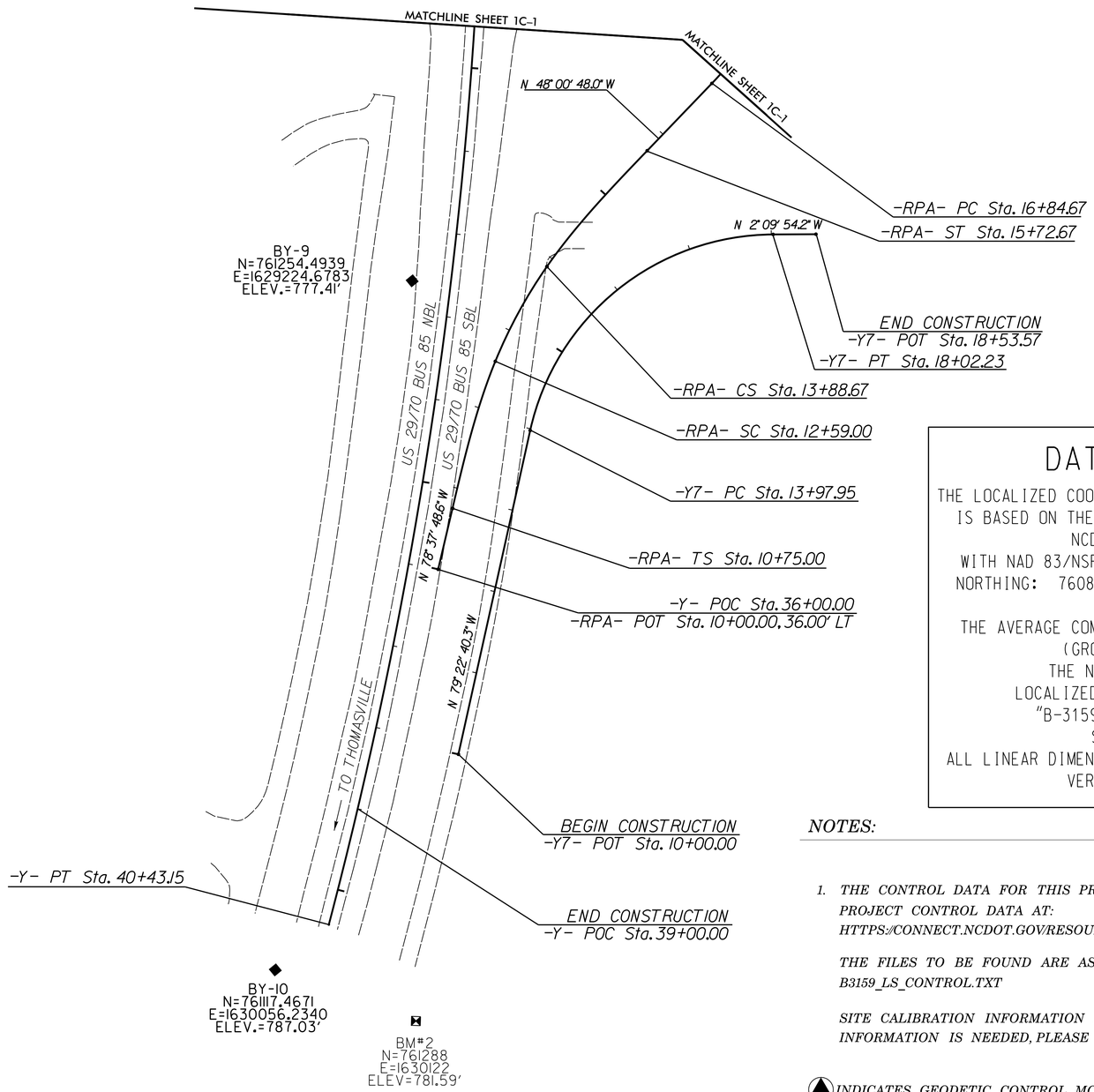
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1C-3
Location and Surveys	

SURVEY CONTROL SHEET B-3159

NAD 83/NSRS 2007
NC GRID



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WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 760804.9660(ft) EASTING: 1628523.3410(ft)
ELEVATION: 788.31(ft)
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ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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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.

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1C-4
Location and Surveys	

SURVEY CONTROL SHEET B-3159

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3		760268.4837	1628488.8484	796.91	OUTSIDE PROJECT LIMITS	
1		760804.9660	1628523.3410	788.31	8+28.89	4.76 LT
4		761415.7978	1628499.4195	786.98	14+40.18	8.70 LT
2		762013.9240	1628431.8280	784.66	20+43.38	25.93 LT
5		762533.8835	1628475.7350	799.93	OUTSIDE PROJECT LIMITS	

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
7		761074.4645	1626925.9881	755.51	OUTSIDE PROJECT LIMITS	
8		761316.7296	1627911.5384	765.96	19+49.16	53.83 LT
4		761415.7978	1628499.4195	786.98	25+36.07	98.52 LT
9		761254.4939	1629224.6783	777.41	32+62.04	46.25 RT
10		761117.4671	1630056.2340	787.03	OUTSIDE PROJECT LIMITS	

****

BM1 ELEVATION = 753.48'
N 761273 E 1627487
Y STATION 15+29.00 87' LEFT
R/R SPIKE SET IN ROOT OF FORKED WILLOW OAK BETWEEN 7TH ST. AND US 29/70 S. BOUND

****

****

BM2 ELEVATION = 781.59'
N 761288 E 1630112
Y STATION 40+43.00
N 46°02'38.06" E DIST 155.86'
R/R SPIKE SET IN ROOT OF 36"3 FORKED OAK ON N. SIDE OF PIEDMONT DR. (SR 1890) SOUTH OF STATE EMPLOYEE'S CREDIT UNION

****

****

BM3 ELEVATION = 796.91'
N 760268 E 1628489
L STATION 7+00.00
S 06°03'20.10" W DIST 410.59'
BL-3

****

****

BM4 ELEVATION = 799.93'
N 762534 E 1628476
L STATION 7+00.00
N 01°44'10.83" W DIST 1858.55'
BL-5

****

****

BM5 ELEVATION = 755.51'
N 761075 E 1626926
Y STATION 40+43.00
S 88°02'49.28" W DIST 3075.58'
BY-7

****

DATUM DESCRIPTION

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THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998914
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-3159-1" TO -L- STATION 7+75.00 IS S 6° 55' 25.3" E 54.10'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/*

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PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1C-5
Location and Surveys	

SURVEY CONTROL SHEET B-3159

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	7+67.51	73.04	760746.1612	1628603.1075
L	7+68.15	73.90	760746.8307	1628603.9470
L	7+95.38	-3.60	760771.5113	1628525.6012
L	8+10.63	40.87	760788.2050	1628569.5427
L	8+53.81	-116.27	760826.2284	1628411.0815
L	18+37.00	42.00	761816.9023	1628535.6425
L	19+17.07	-51.34	761878.5459	1628430.0417
L	19+28.79	42.00	761914.0613	1628517.1354
L	20+64.72	-40.00	762036.0113	1628416.8809
L	20+64.72	40.00	762037.5566	1628496.8709
L	20+92.00	-40.00	762063.2837	1628416.3541

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y	33+50.00	-106.00	761397.7160	1629327.0805
Y	34+00.00	-99.00	761385.3381	1629376.9452
Y	36+00.00	-90.00	761350.3463	1629577.4187
Y	37+50.00	-85.00	761321.2552	1629726.9963
Y	38+20.00	-145.00	761367.6155	1629807.9299
Y	38+20.00	-130.00	761352.8706	1629805.1749

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	10+70.07	19.11	760833.2012	1628599.0177
Y2	10+70.07	20.00	760833.7577	1628599.7149
Y2	11+92.47	20.00	760935.0903	1628558.3303

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y5	10+85.00	20.01	762102.8942	1628540.8437

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y6	11+50.00	22.42	762103.9065	1628370.5051

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y7	12+35.00	40.00	761411.0691	1629566.9451
Y7	12+85.00	40.00	761420.2856	1629517.8018
Y7	13+97.95	60.00	761460.7629	1629410.4751
Y7	17+08.59	-60.00	761573.2311	1629116.5316
Y7	18+02.23	60.00	761687.5835	1629214.8859
Y7	18+02.23	-60.00	761683.0501	1629094.9715
Y7	18+51.37	-60.00	761732.1538	1629093.1152
Y7	18+51.48	60.00	761736.7983	1629213.0253

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
RPA	13+88.67	55.00	761461.5250	1629232.3022
RPA	16+84.67	70.00	761658.0081	1629023.0697
RPA	20+63.28	70.00	761786.2616	1628617.7314

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
RPC	11+25.00	88.73	761070.0452	1627575.0204
RPC	12+59.00	95.00	761077.0570	1627695.4399
RPC	14+40.28	95.00	761057.0859	1627845.4522
RPC	16+24.28	115.00	760974.2391	1627992.8873
RPC	17+36.28	105.00	760935.2136	1628098.3423
RPC	19+08.96	93.00	760894.9024	1628304.6267
RPC	20+19.00	91.01	760890.8868	1628414.6133

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-3159-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 760804.9660(ft) EASTING: 1628523.3410(ft)
ELEVATION: 788.31(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998914
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-3159-1" TO -L- STATION 7+75.00 IS
S 6° 55′ 25.3" E 54.10′
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

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PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1C-6
Location and Surveys	

SURVEY CONTROL SHEET B-3159

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	6+84.80	136.03	760665.5550	1628668.7673
L	7+58.83	-63.70	760733.0147	1628466.7215
L	7+97.03	-73.08	760770.8844	1628456.1057
L	8+00.04	10.00	760776.6163	1628539.0386
L	18+01.78	-83.53	761774.4828	1628412.8145
L	18+58.00	62.00	761842.2086	1628552.6898
L	19+28.79	-72.00	761883.1774	1628407.3984
L	19+28.79	62.00	761919.4783	1628536.3831
L	20+64.72	62.00	762037.9814	1628518.8619
L	20+96.08	62.00	762069.3323	1628518.2563
L	21+05.41	-57.51	762076.3530	1628398.5883

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y	14+50.00	130.00	761043.9961	1627458.7392
Y	34+49.00	129.39	761152.8466	1629399.2092
Y	34+49.00	146.00	761136.3526	1629397.2267
Y	34+58.69	146.00	761135.2179	1629406.6000
Y	34+68.95	146.00	761133.9986	1629416.5255
Y	34+78.00	129.33	761149.4531	1629427.3472
Y	34+78.00	146.00	761132.9090	1629425.2732

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y6	10+40.00	22.60	762108.0715	1628260.5838
Y6	10+40.00	29.00	762101.6765	1628260.3310
Y6	11+54.89	29.00	762097.1368	1628375.1299

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y7	12+35.00	64.00	761434.6578	1629571.3690
Y7	13+04.00	118.00	761500.4513	1629513.5053
Y7	13+55.00	52.39	761445.3714	1629451.2861

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
RPA	16+06.38	100.00	761627.9321	1629101.3340
RPA	16+84.67	100.00	761680.3071	1629043.1384
RPA	20+63.28	100.00	761816.0462	1628614.1424

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
RPC	12+59.00	115.00	761057.0619	1627695.8810
RPC	13+05.00	115.00	761056.4287	1627732.8542
RPC	13+58.93	226.19	760942.0307	1627759.5620
RPC	13+65.00	115.00	761051.2587	1627780.8006
RPC	14+40.28	115.00	761037.9026	1627839.7953
RPC	14+48.24	243.55	760913.2328	1627807.9663
RPC	16+24.28	135.00	760956.1730	1627984.3074
RPC	17+36.28	125.00	760917.1462	1628089.7594
RPC	19+08.96	113.00	760874.9321	1628303.5359
RPC	20+19.00	112.00	760869.9287	1628413.4686

DATUM DESCRIPTION

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NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	1C-7
Location and Surveys	

SURVEY CONTROL SHEET B-3159

L

TYPE	STATION	NORTH	EAST
POT	4+00.00	760376.4606	1628542.1223
PC	18+00.00	761775.7122	1628496.3530
PRC	19+28.79	761902.6830	1628476.7060
PT	20+64.72	762036.7839	1628456.8735
PC	21+43.74	762115.7852	1628455.3473
PT	21+93.58	762165.6048	1628453.9708
POT	23+00.00	762271.9584	1628450.1480

Y

TYPE	STATION	NORTH	EAST
PC	10+00.00	761050.3042	1626995.4477
PT	40+43.15	761179.8138	1629999.7980

Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	760766.5197	1628627.8014
PC	10+70.07	760821.2796	1628584.0850
PT	12+07.25	760947.7978	1628537.4414
POT	12+36.06	760976.5975	1628536.4994

Y5

TYPE	STATION	NORTH	EAST
POT	10+00.00	762120.2325	1628455.2581
POT	12+31.44	762127.4875	1628686.5886

Y6

TYPE	STATION	NORTH	EAST
POT	10+00.00	762132.2344	1628221.5081
POT	12+33.87	762122.9931	1628455.1994

Y7

TYPE	STATION	NORTH	EAST
POT	10+00.00	761328.4367	1629790.5449
PC	13+97.95	761401.7910	1629399.4152
PT	18+02.23	761685.3168	1629154.9287
POT	18+53.57	761736.6167	1629152.9893

RPA

TYPE	STATION	NORTH	EAST
POT	10+00.00	761296.9217	1629569.5565
TS	10+75.00	761311.7073	1629496.0283
SC	12+59.00	761357.2998	1629317.9736
CS	13+88.67	761415.4017	1629202.3416
ST	15+72.67	761531.0553	1629059.4906
PC	16+84.67	761605.9786	1628976.2410
PT	20+63.28	761716.7644	1628626.1059
POT	21+91.53	761701.4219	1628498.7830

RPC

TYPE	STATION	NORTH	EAST
POT	10+00.00	761135.4976	1627437.2108
TS	10+75.00	761148.8353	1627511.0153
SC	12+59.00	761172.0339	1627693.3446
CS	14+40.28	761148.2066	1627872.3227
ST	16+24.28	761078.1144	1628042.2322
PC	17+36.28	761030.0558	1628143.3972
PT	19+08.96	760987.7639	1628309.6990
POT	21+22.08	760976.1398	1628522.5069

DATUM DESCRIPTION

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ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

NOTES:

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NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2A-1
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR. 8/4/2015 — DocuSigned by: Bruce Payne

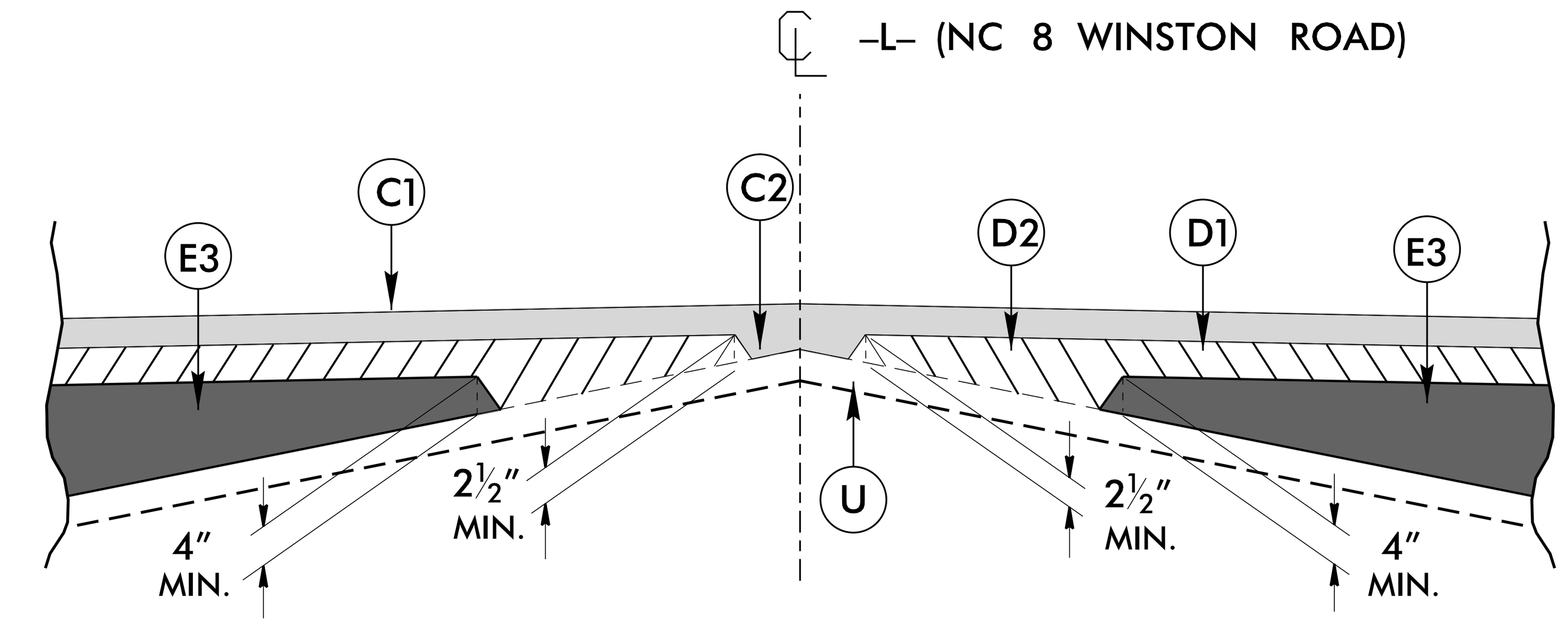
PAVEMENT ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON 8/5/2015 — DocuSigned by: Clark S Morrison

PAVEMENT SCHEDULE

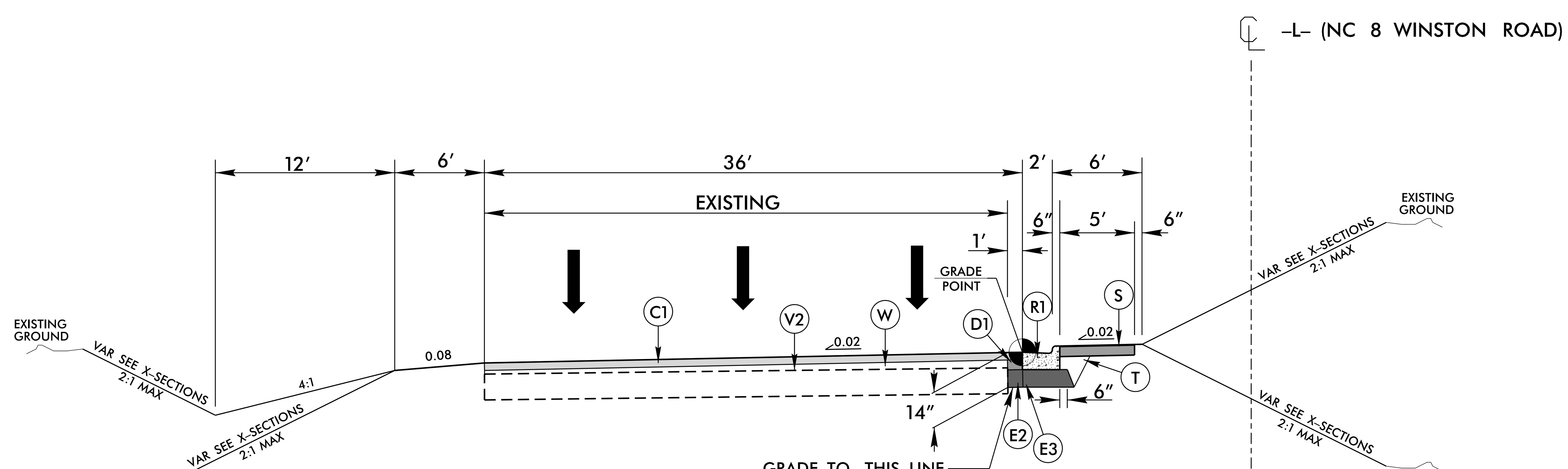
(FINAL PAVEMENT DESIGN JANUARY 31, 2014)
(REVISED MAY 22, 2014)

C1	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.	E5	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
C2	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.	J	PROP. 10" AGGREGATE BASE COURSE
C3	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.	P	PRIME COAT AT A RATE OF 0.35 GAL. PER SQ. YD.
C4	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER
C5	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R2	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S	4" STAMPED CONCRETE SIDEWALK
D2	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 2½" OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL
D3	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
E1	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	V1	3" MILLING
E2	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	V2	VARIABLE DEPTH MILLING - 0" TO 3"
E3	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 GREATER THAN 5½" IN DEPTH OR LESS THAN 4" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).
E4	PROP. APPROX. 10.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 598.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.		

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



Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 7+75.00 TO 8+00.00

NOTES:
FLOAT CROWN POINT AND WARP SUPERELEVATIONS TO TIE TO EXISTING AT 7+75.00.
MILL AS NEEDED.

8/17/99

29-JUL-2015 07:48
R:\Roadway\Proj\B3159_Rdy_psh_typ_02A-1.dgn
$$$$USERNAME$$$$

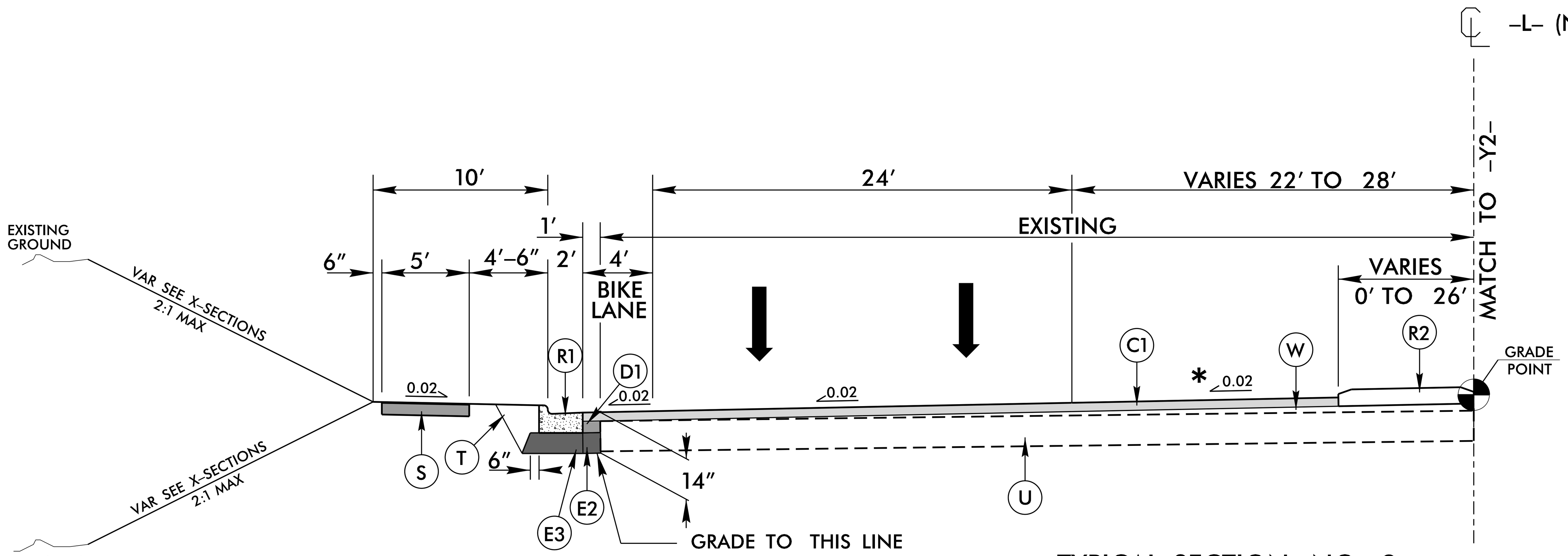
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2A-2

RW SHEET NO.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22610 BRUCE B. PAYNE, JR. 8/4/2015
DocuSigned by: Bruce Payne 18F3AC8AF727432...

PAVEMENT ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK S. MORRISON 8/5/2015
DocuSigned by: Clark S Morrison 066238016E4F400...

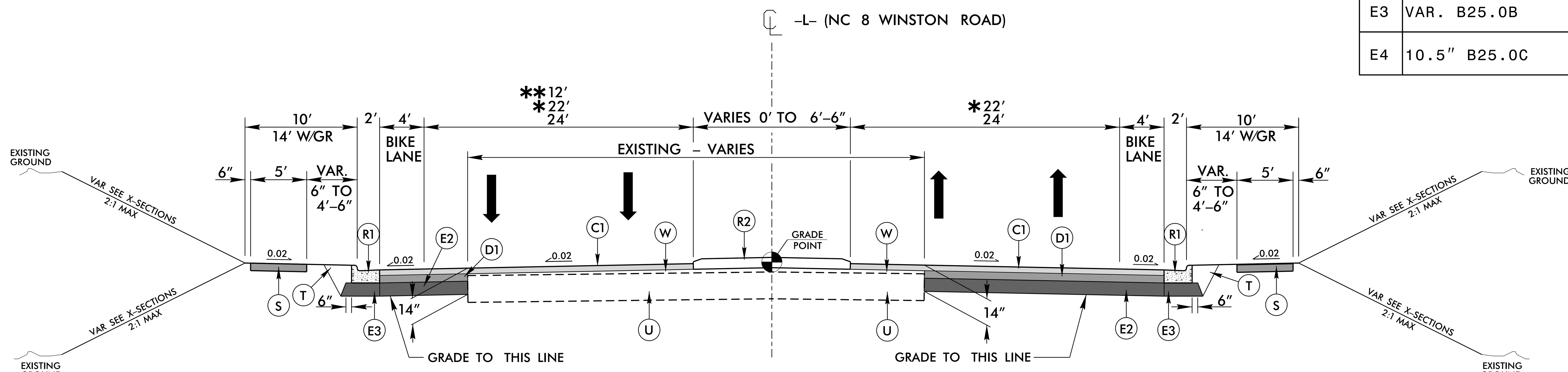
C1	3" S9.5B	E5	5" B25.0B
C2	VAR. S9.5B	J	10" ABC
C3	3" S9.5C	P	PRIME COAT
C4	2" S9.5B	R1	2'-6" C & G
C5	1.5" S9.5B	R2	5" CONC. ISLAND
D1	4" I19.0B	S	4" STAMPED SIDEWALK
D2	VAR. I19.0B	T	EARTH MATERIAL
D3	3" I19.0C	U	EXISTING PVMNT
E1	4.5" B25.0B	V1	3" MILLING
E2	7" B25.0B	V2	VARIABLE DEPTH MILLING 0" TO 3"
E3	VAR. B25.0B	W	WEDGING
E4	10.5" B25.0C		



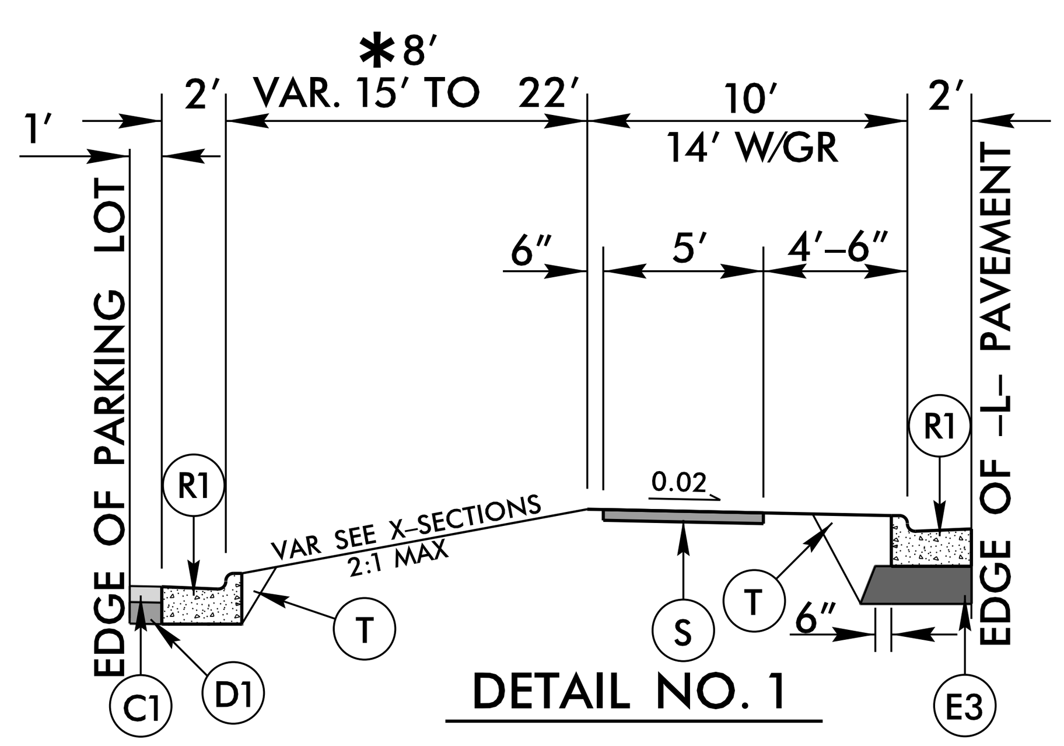
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA. 8+00.00 TO 10+00.00

NOTES:
SEE PLANS FOR TURN LANES AND TAPERS.
* MAY NEED TO WARP FOR PROPER TIE TO -Y2-.



TYPICAL SECTION NO. 3



DETAIL NO. 1

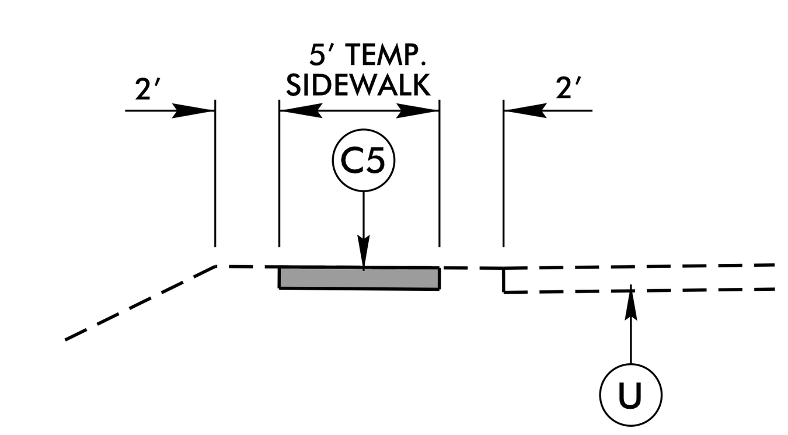
USE DETAIL NO. 1 WITH TYPICAL SECTION NO. 3 & NO. 4
LT: -L- STA. 17+94.00 TO STA. 19+20.00

USE TYPICAL SECTION NO. 3
-L- STA. 10+00.00 TO 11+50.00
-L- STA. 18+50.00 TO 21+00.00

NOTES:
SEE PLANS FOR TURN LANES AND TAPERS.
* -L- STA. 19+64.72 TO 20+64.72 REDUCE 12' LANES TO 11' LANES LEFT AND RIGHT.
** -L- STA. 20+10.00 TO 21+00.00

USE DETAIL NO. 2 WITH PHASE I CONSTRUCTION

SEE TRANSPORTATION MANAGEMENT PLANS SHEET TMP-2D FOR TEMPORARY SIDEWALK LOCATIONS ALONG EXISTING -L-.



DETAIL NO. 2

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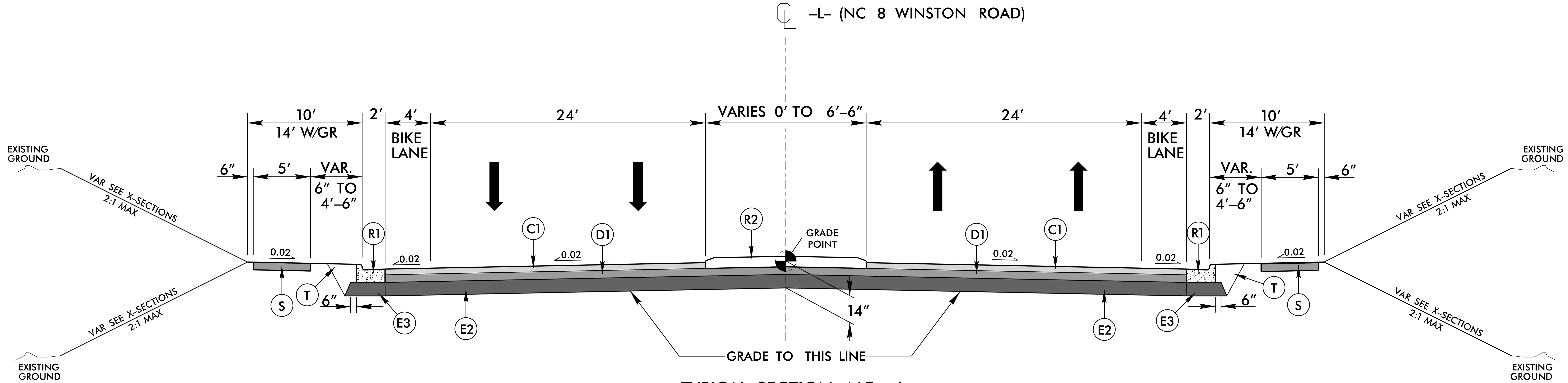
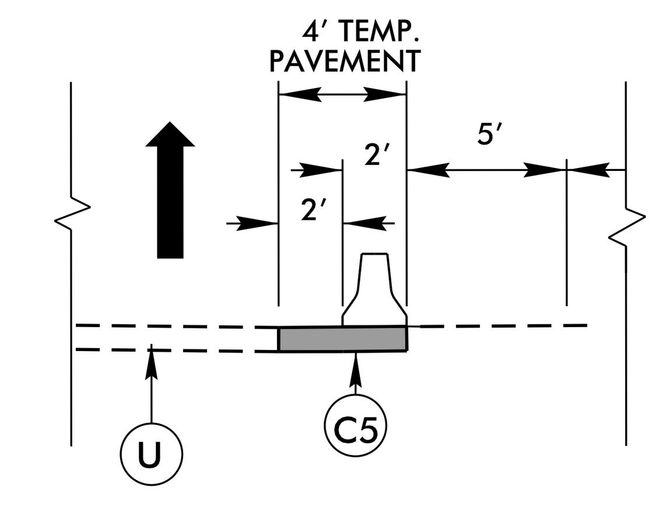
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2A-3
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR. 8/4/2015 — DocuSigned by: Bruce Payne

PAVEMENT ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON 8/5/2015 — DocuSigned by: Clark S Morrison



TYPICAL SECTION NO. 4



DETAIL NO. 4

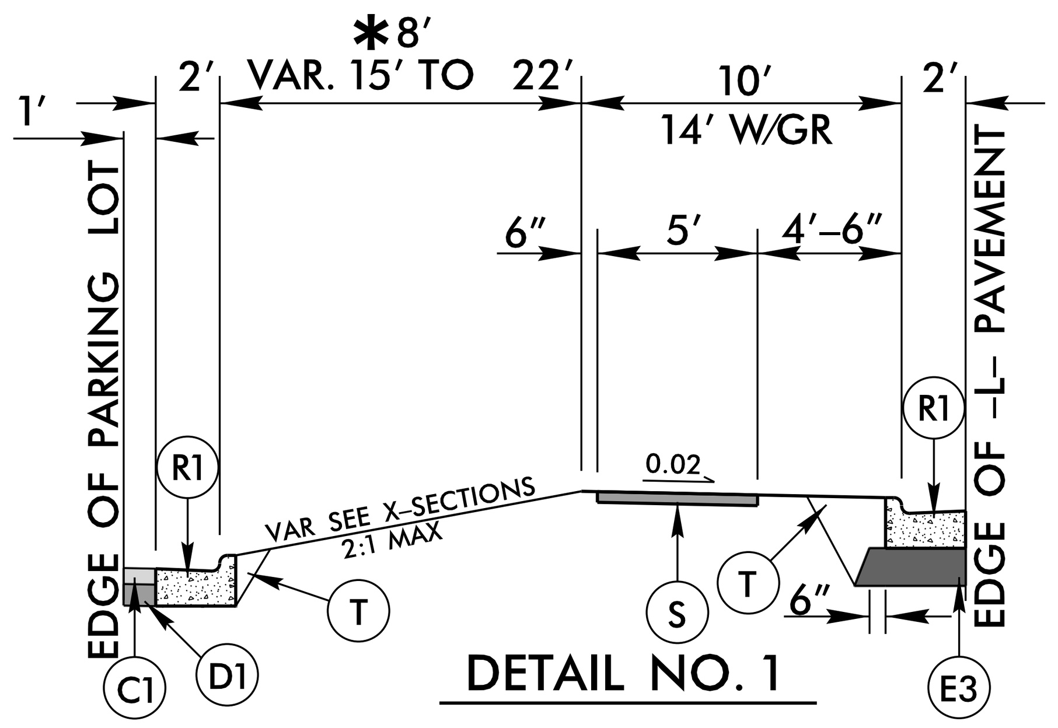
USE DETAIL NO. 4 WITH PHASE I CONSTRUCTION

SEE TRANSPORTATION MANAGEMENT PLANS SHEET TMP-4 FOR TEMPORARY PAVEMENT LOCATIONS ALONG EXISTING -L-.

USE TYPICAL SECTION NO. 4

-L- STA. 11+50.00 TO 12+66.97 (BEGIN BRIDGE)
-L- STA. 14+16.47 (END BRIDGE) TO 18+50.00

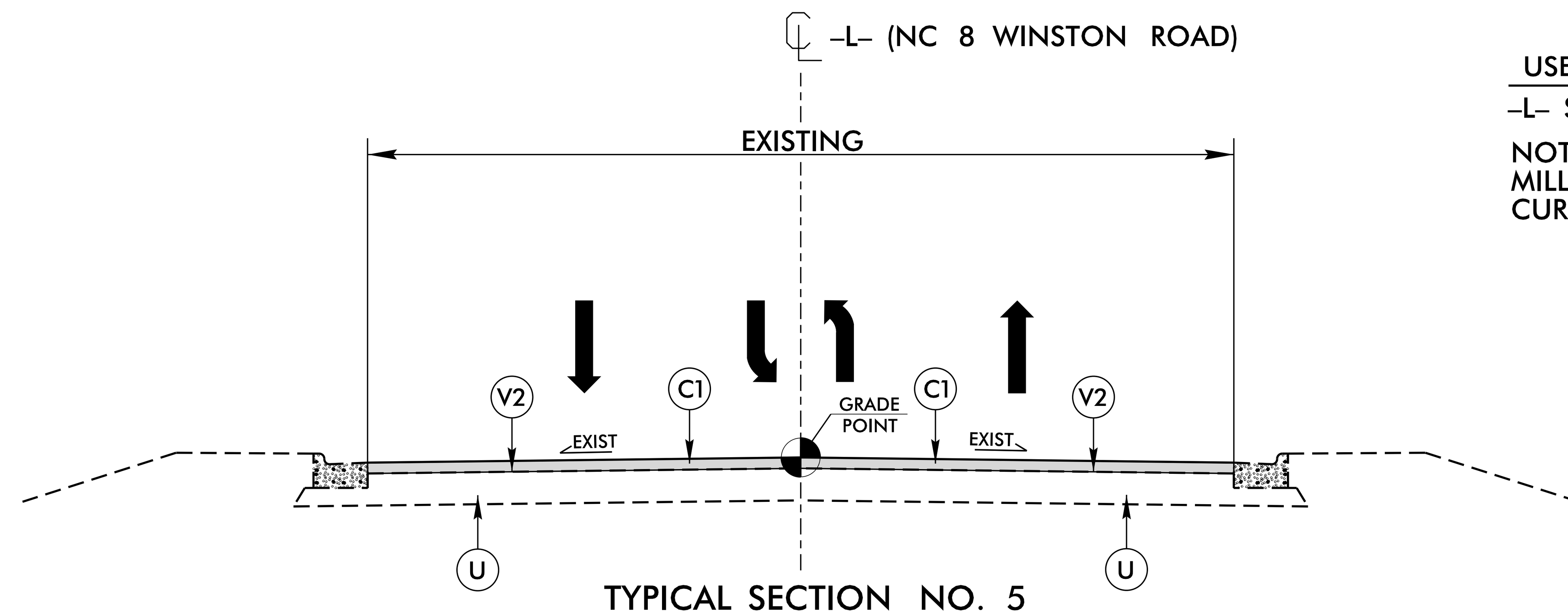
NOTES:
SEE PLANS FOR TURN LANES AND TAPERS.



DETAIL NO. 1

USE DETAIL NO. 1 WITH TYPICAL SECTION NO. 3 & NO. 4

LT: -L- STA. 17+94.00 TO STA. 19+20.00



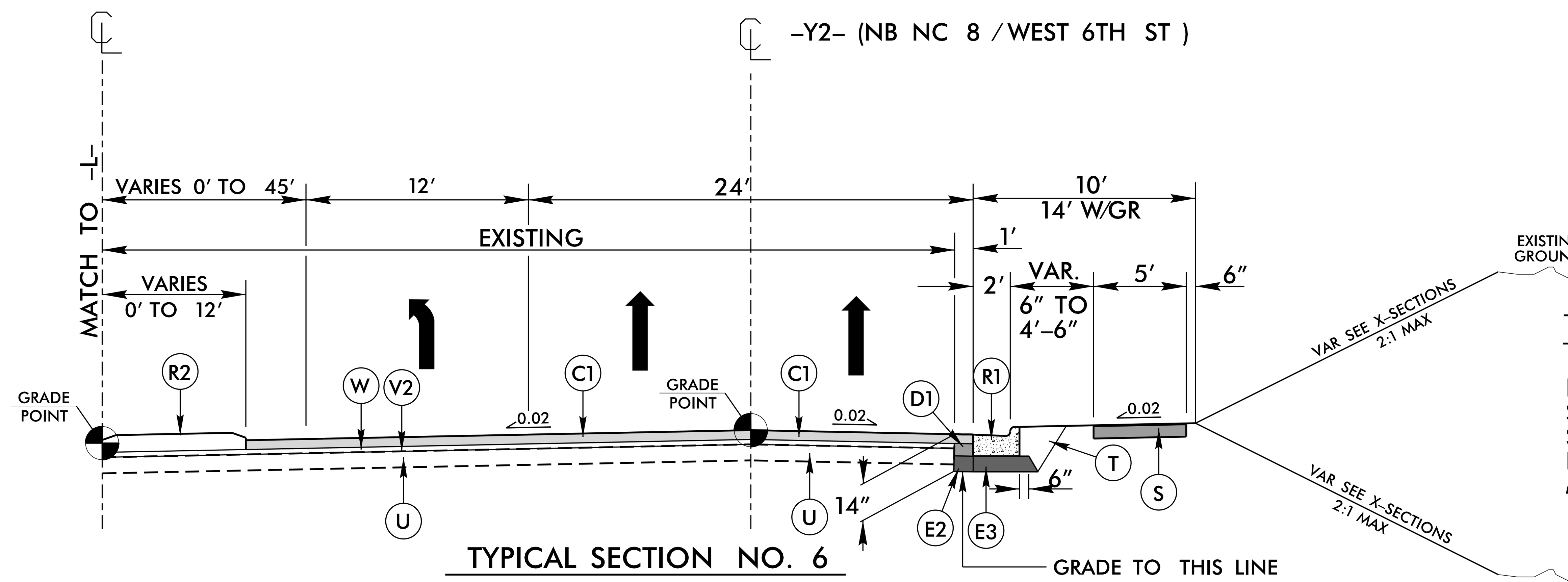
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

-L- STA. 21+00.00 TO 23+00.00

NOTE:
MILL AND OVERLAY AS NEEDED TO ACHIEVE PROPER TIE IN WITH EXISTING CURB & GUTTER AND EXISTING LANE CONFIGURATION.

C1	3" S9.5B	E5	5" B25.0B
C2	VAR. S9.5B	J	10" ABC
C3	3" S9.5C	P	PRIME COAT
C4	2" S9.5B	R1	2'-6" C & G
C5	1.5" S9.5B	R2	5" CONC. ISLAND
D1	4" I19.0B	S	4" STAMPED SIDEWALK
D2	VAR. I19.0B	T	EARTH MATERIAL
D3	3" I19.0C	U	EXISTING PVMNT
E1	4.5" B25.0B	V1	3" MILLING
E2	7" B25.0B	V2	VARIABLE DEPTH MILLING 0" TO 3"
E3	VAR. B25.0B	W	WEDGING
E4	10.5" B25.0C		



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6

-Y2- STA. 10+53.13 TO 12+36.14

NOTES:
SEE PLANS FOR TURN LANES AND TAPERS.
SUPERELEVATIONS FLOAT IN VARIABLE WIDTH LOCATIONS TO TIE -Y2- GRADE TO -L- GRADE.
MILL AS NEEDED.

8/17/99

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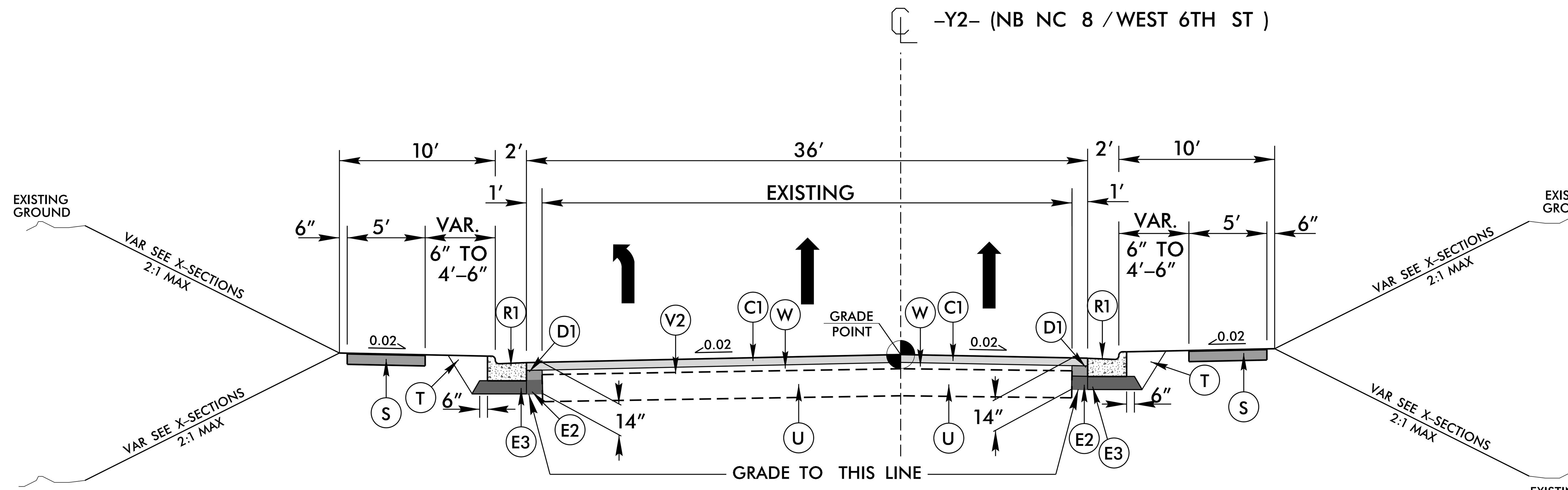
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2A-4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22610 BRUCE B. PAYNE, JR. 8/4/2015 — DocuSigned by: Bruce Payne

PAVEMENT ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK S. MORRISON 8/5/2015 — DocuSigned by: Clark S Morrison

C1	3" S9.5B	E5	5" B25.0B
C2	VAR. S9.5B	J	10" ABC
C3	3" S9.5C	P	PRIME COAT
C4	2" S9.5B	R1	2'-6" C & G
C5	1.5" S9.5B	R2	5" CONC. ISLAND
D1	4" I19.0B	S	4" STAMPED SIDEWALK
D2	VAR. I19.0B	T	EARTH MATERIAL
D3	3" I19.0C	U	EXISTING PVMNT
E1	4.5" B25.0B	V1	3" MILLING
E2	7" B25.0B	V2	VARIABLE DEPTH MILLING 0" TO 3"
E3	VAR. B25.0B	W	WEDGING
E4	10.5" B25.0C		

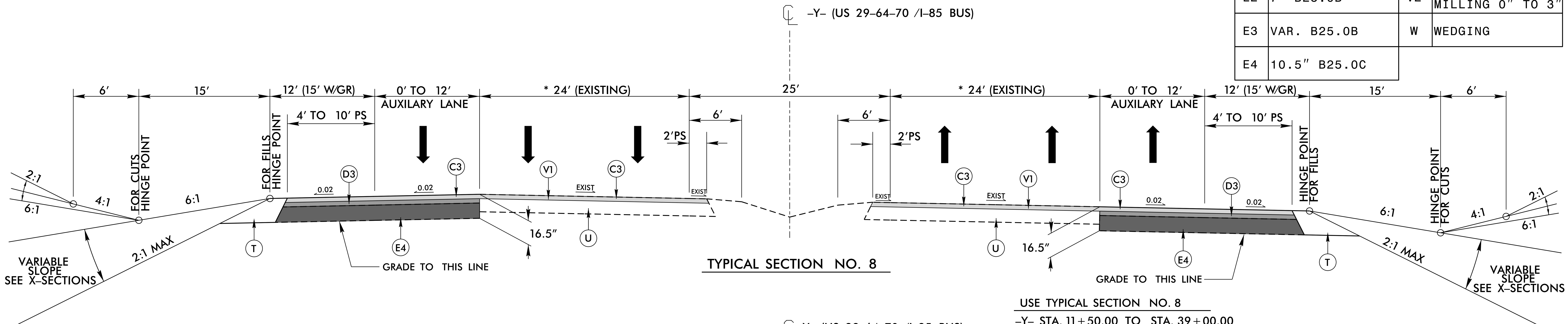


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7

-Y2- STA. 10+00.00 TO 10+53.13

NOTES:
MILL AS NEEDED.



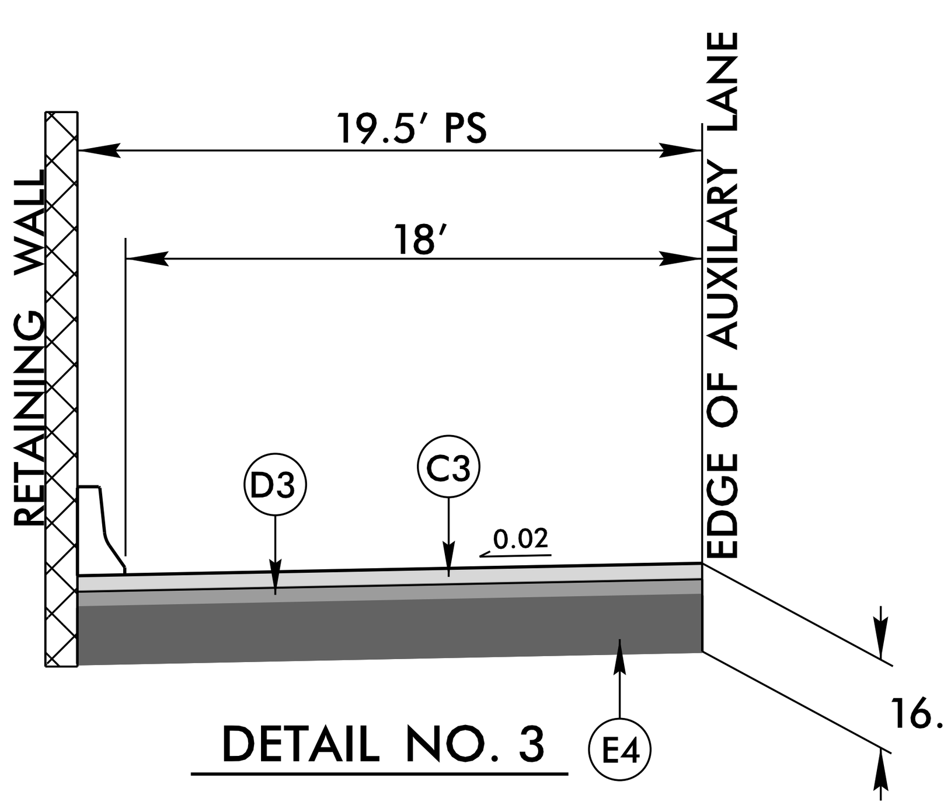
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8

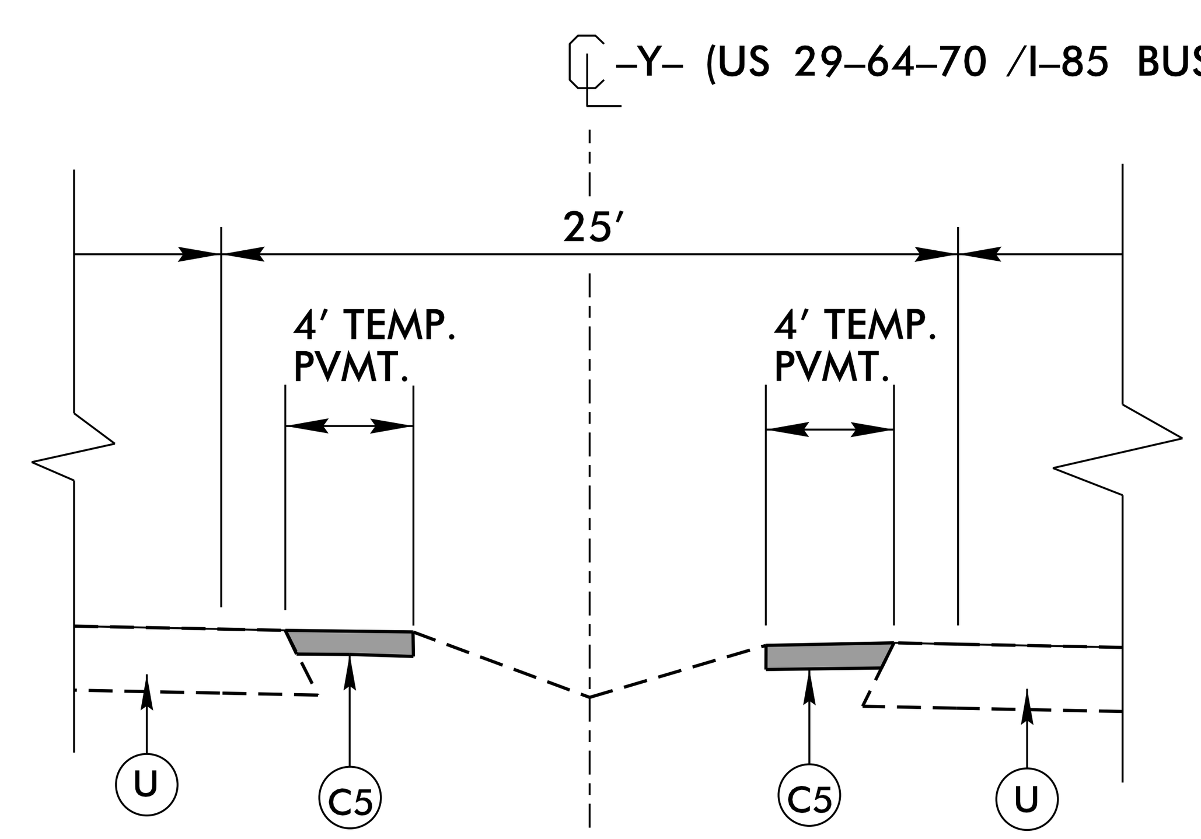
-Y- STA. 11+50.00 TO STA. 39+00.00

*MILL AND REPLACE AT SAME DEPTH, 3"

NOTES:
FROM -Y- STA. 34+20.00 TO 37+20.00 RT
TAPER IN SHOULDER AND DITCH WIDTH TO
TIE TO EXISTING (SEE X-SECTIONS).



DETAIL NO. 3

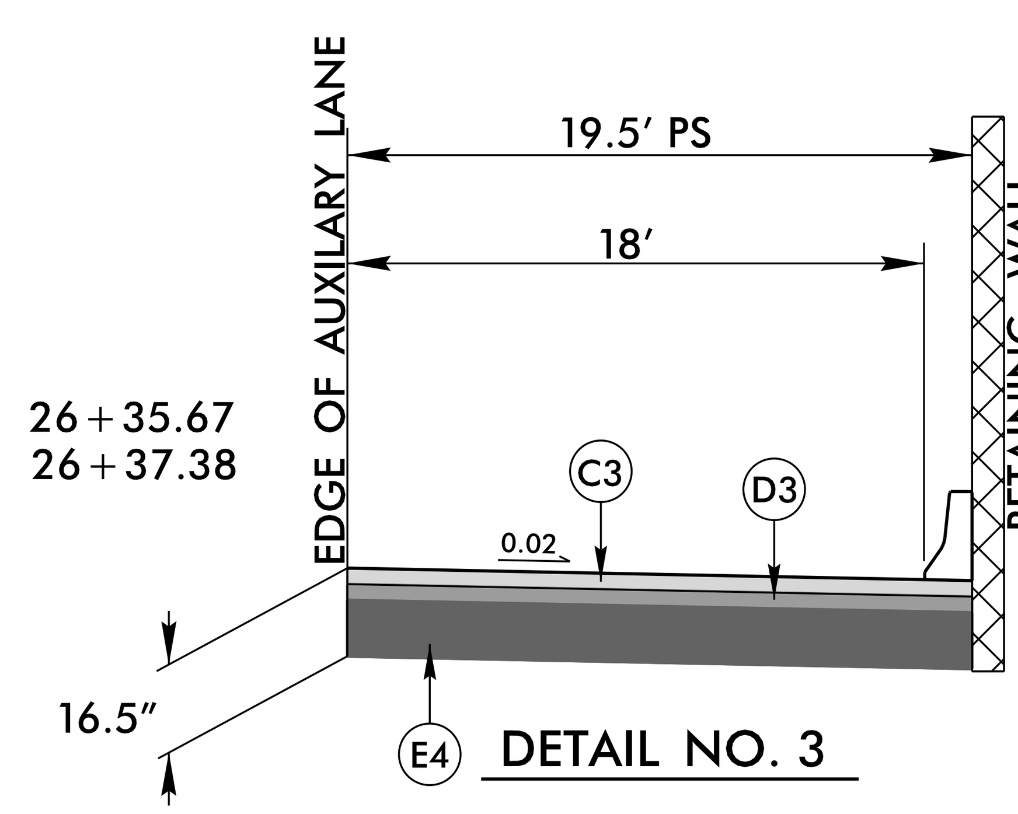


USE DETAIL NO. 5 WITH PHASE 1 CONSTRUCTION

SEE TRANSPORTATION MANAGEMENT PLANS
SHEET TMP-7 FOR TEMPORARY PAVEMENT
LOCATIONS ALONG EXISTING -Y-

USE DETAIL NO. 3 WITH
TYPICAL SECTION NO. 8

LT: -Y- STA. 24+87.00 TO 26+35.67
RT: -Y- STA. 24+39.00 TO 26+37.38

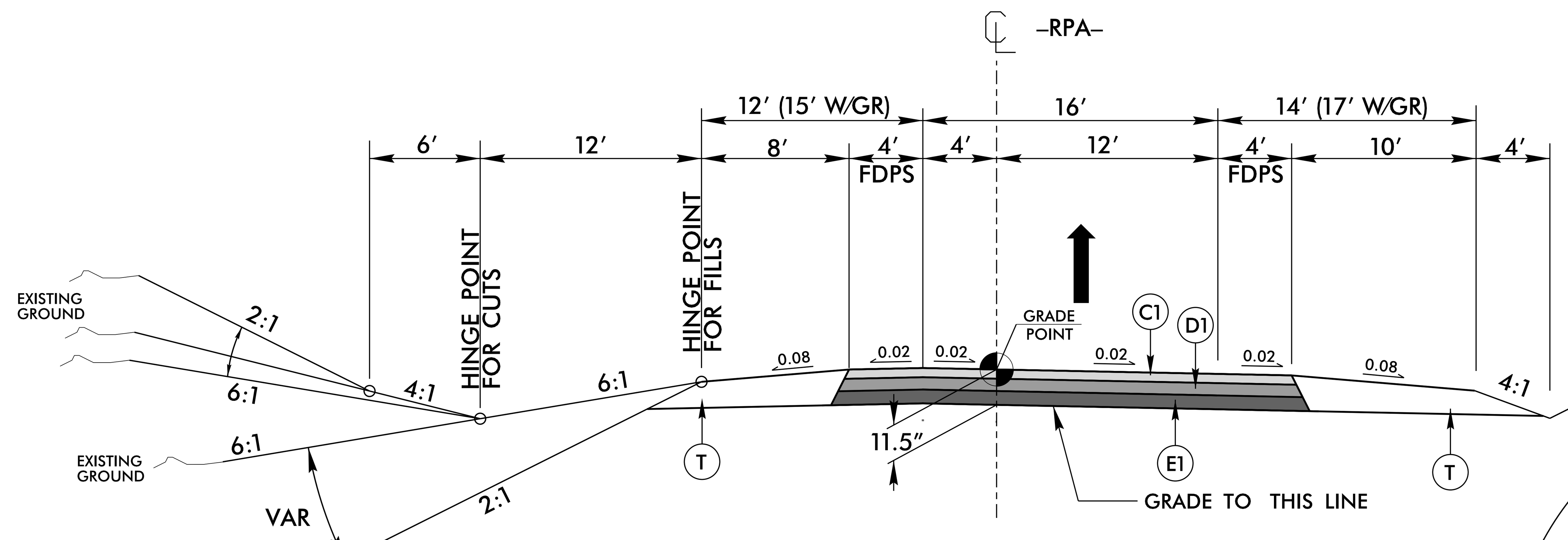


DETAIL NO. 3

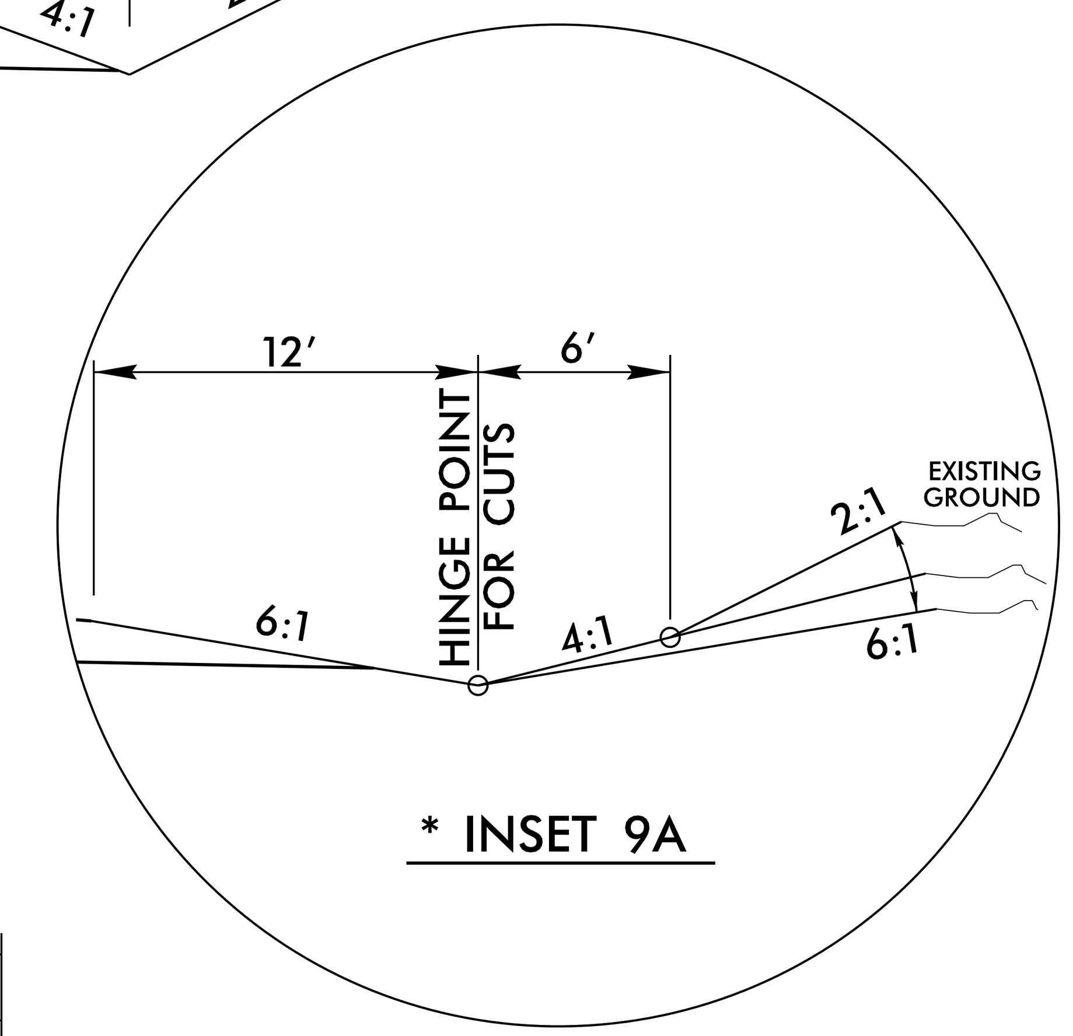
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2A-5
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22610 BRUCE B. PAYNE, JR. 8/4/2015 — DocuSigned by: Bruce Payne

PAVEMENT ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK S. MORRISON 8/5/2015 — DocuSigned by: Clark S Morrison



TYPICAL SECTION NO. 9



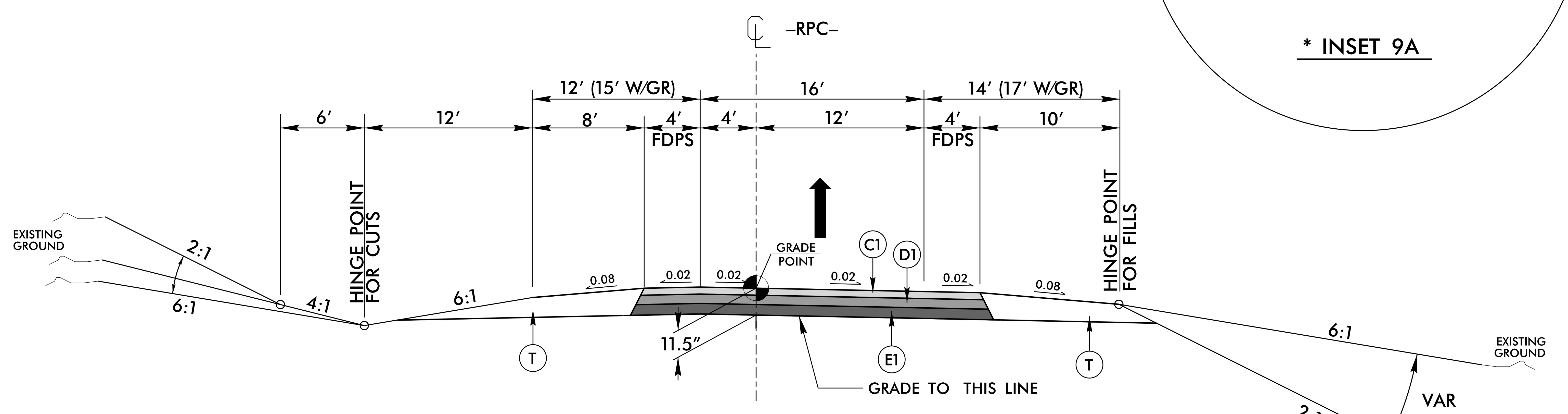
* INSET 9A

USE TYPICAL SECTION NO. 9

* -RPA- STA. 10+00.00 TO STA. 15+72.67
-RPA- STA. 15+72.67 TO STA. 21+61.41

* USE INSET 9A

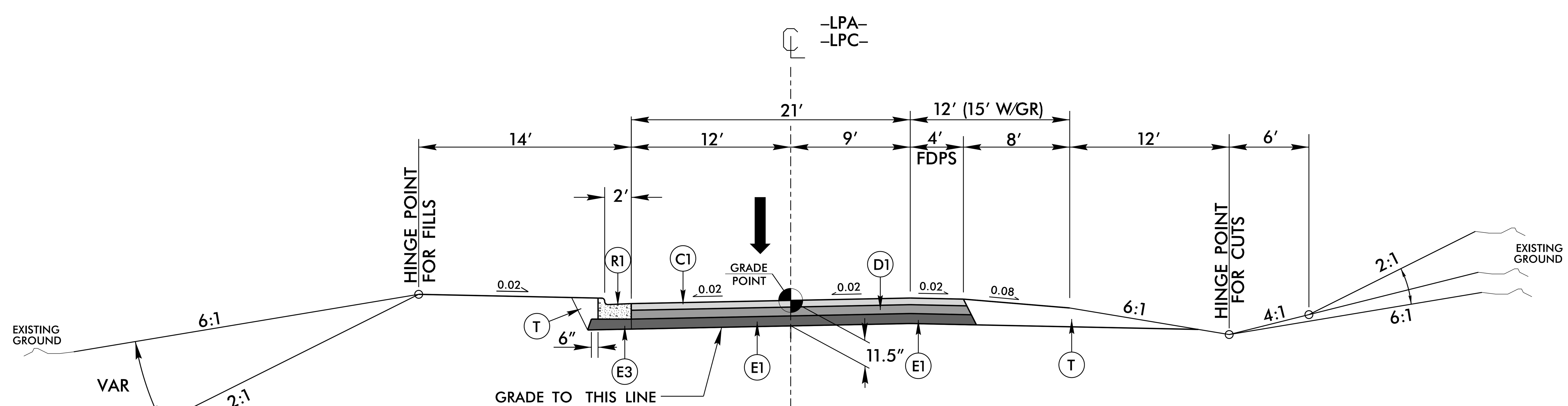
-RPA- STA. 10+00.00 TO STA. 15+72.67 RIGHT OF CENTERLINE



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10

-RPC- STA. 10+00.00 TO STA. 20+71.61



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11

-LPA- STA. 10+00.00 TO STA. 19+05.77
-LPC- STA. 10+00.00 TO STA. 17+41.46

C1	3" S9.5B
C2	VAR. S9.5B
C3	3" S9.5C
C4	2" S9.5B
C5	1.5" S9.5B
D1	4" I19.0B
D2	VAR. I19.0B
D3	3" I19.0C
E1	4.5" B25.0B
E2	7" B25.0B
E3	VAR. B25.0B
E4	10.5" B25.0C
E5	5" B25.0B
J	10" ABC
P	PRIME COAT
R1	2'-6" C & G
R2	5" CONC. ISLAND
S	4" STAMPED SIDEWALK
T	EARTH MATERIAL
U	EXISTING PVMNT
V1	3" MILLING
V2	VARIABLE DEPTH MILLING 0" TO 3"
W	WEDGING

8/17/99

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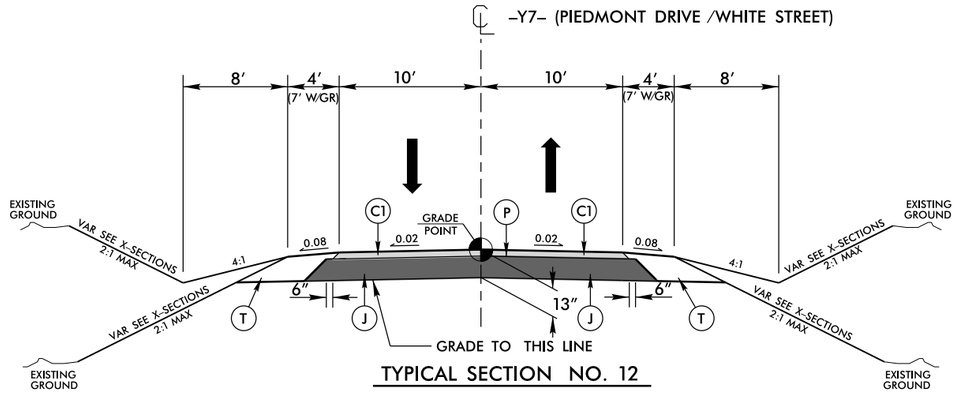
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2A-6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 22610 — NORTH CAROLINA PROFESSIONAL ENGINEER — BRUCE PAYNE
DocuSigned by: 9/3/2015 — Bruce Payne — 18F3AC8AF727432...

PAVEMENT ENGINEER — SEAL 022896 — NORTH CAROLINA PROFESSIONAL ENGINEER — CLARK S. MORRISON
DocuSigned by: 9/3/2015 — Clark S Morris — 066238016E4F400...



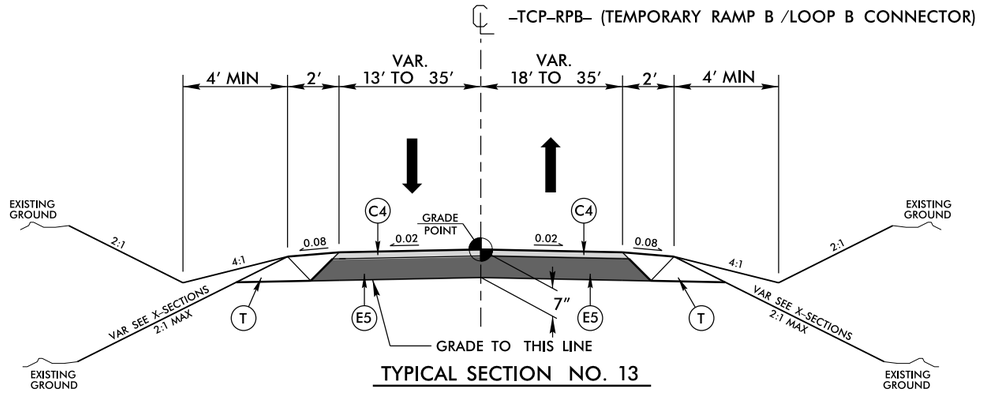
TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12

–Y7– STA. 10+00.00 TO STA. 18+53.57

C1	3″ S9.5B
C2	VAR. S9.5B
C3	3″ S9.5C
C4	2″ S9.5B
C5	1.5″ S9.5B
D1	4″ I19.0B
D2	VAR. I19.0B
D3	3″ I19.0C
E1	4.5″ B25.0B
E2	7″ B25.0B
E3	VAR. B25.0B
E4	10.5″ B25.0C
E5	5″ B25.0B
J	10″ ABC
P	PRIME COAT
R1	2′-6″ C & G
R2	5″ CONC. ISLAND
S	4″ STAMPED SIDEWALK
T	EARTH MATERIAL
U	EXISTING PVMNT
V1	3″ MILLING
V2	VARIABLE DEPTH MILLING 0″ TO 3″
W	WEDGING

TEMPORARY PAVEMENT – PHASE II CONSTRUCTION



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13

–TCP–RPB– STA. 10+50.00 TO STA. 12+66.91

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2A-7
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE JR.

DocuSigned by: Bruce Payne 8/4/2015

STRUCTURE RECOMMENDATIONS

DESIGN DATA	-L-	-Y-
2015 ADT	25,000	27,000
2035 ADT	28,600	36,400
DHV (%)	10	10
D (%)	60	60
DUAL (%)	3	6
TTST (%)	2	7
V (MPH)	40	60
FUNC CLASS	ARTERIAL	FREEWAY

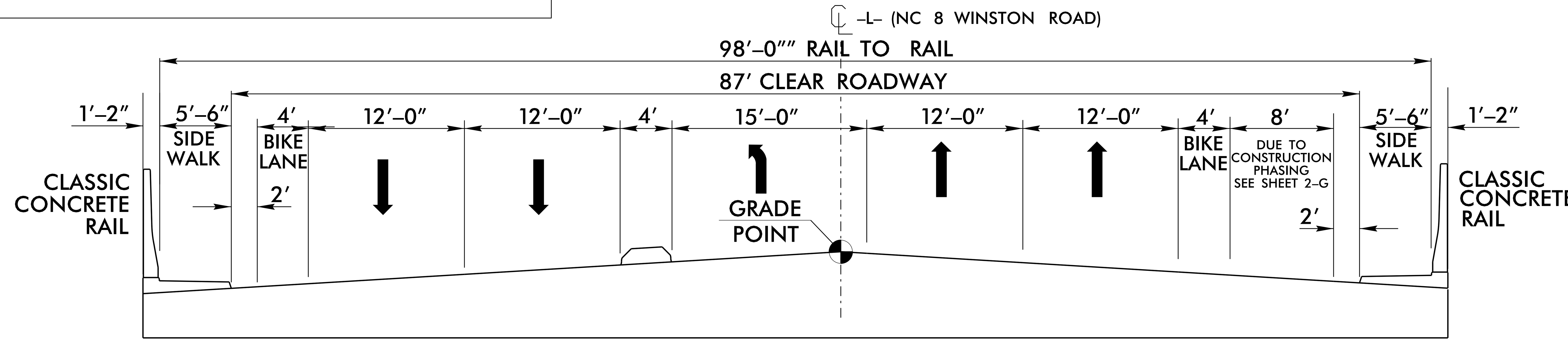
MINIMUM VERTICAL CLEARANCE = 16'-6"

SKEW ANGLE = 89° 37' 49.98"

* SINGLE FACED PRECAST CONCRETE BARRIER (SEE STD. 857.01)

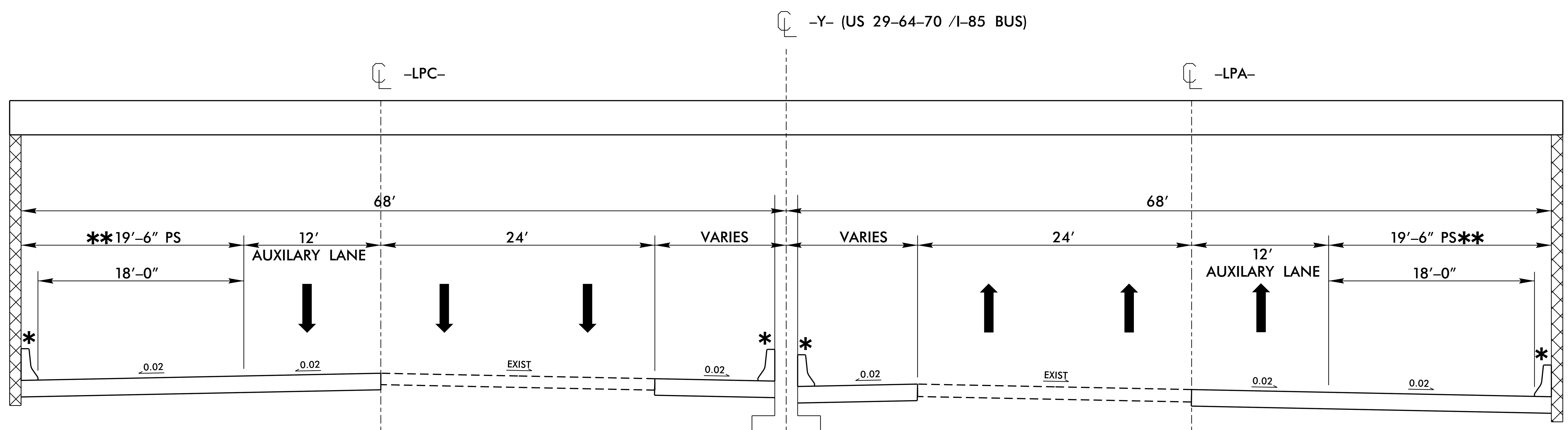
** TO ACCOMMODATE FUTURE LANE

RETAINING WALL DETERMINED BY GEOTECHNICAL ENGINEERING UNIT



-L- (NC 8) STRUCTURE OVER -Y- (US 29-64-70 /I-85 BUS)

-L- STA. 12+66.97 TO -L- STA. 14+16.47



DETAIL OF ROADWAY UNDER PROPOSED STRUCTURE

NOTES:

SEE SHEET 4 FOR PLAN VIEW
SEE SHEET 2A-3 FOR -L- TYPICAL SECTION
SEE SHEET 2A-4 FOR -Y- TYPICAL SECTION

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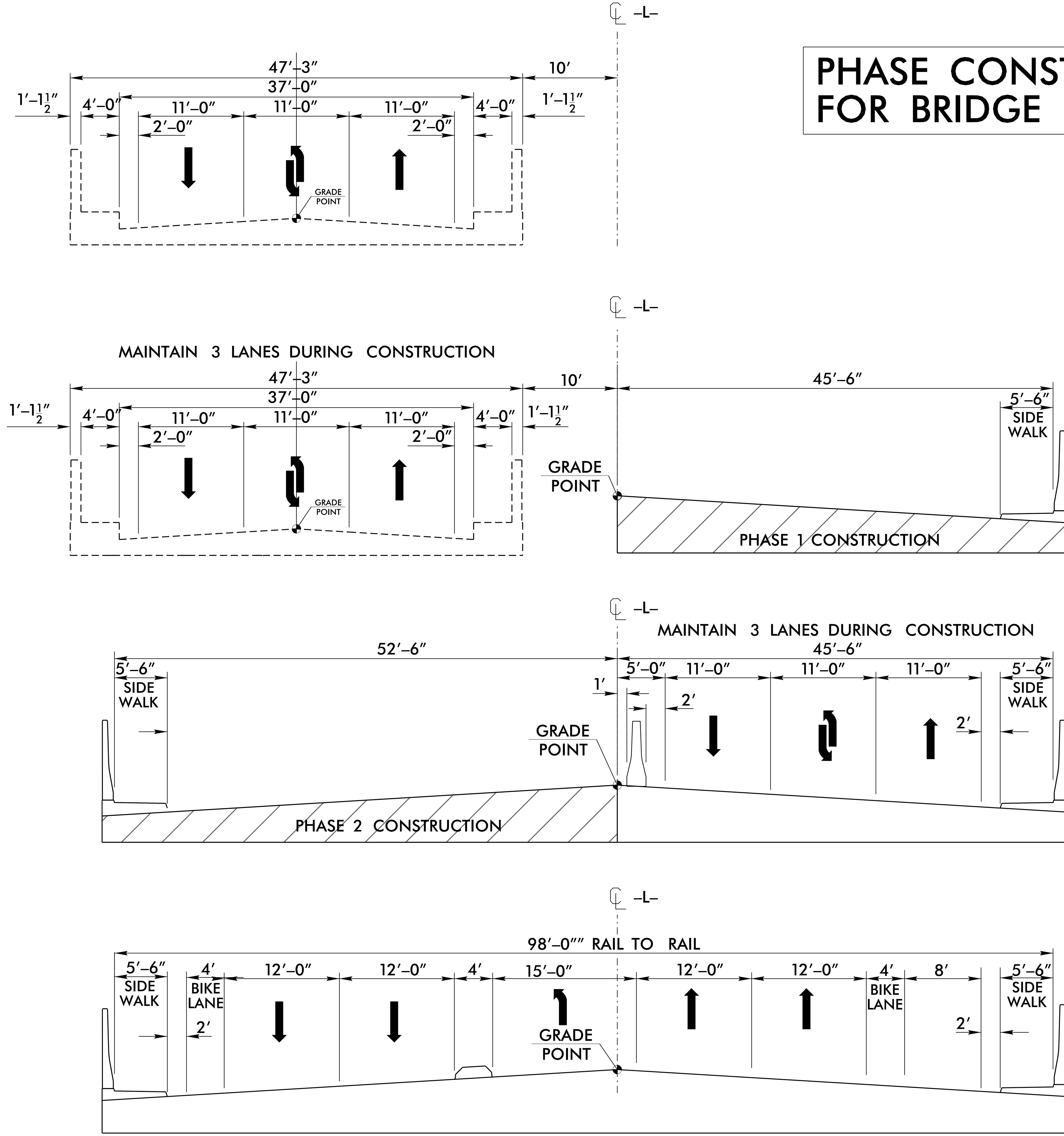
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2A-8
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR.

DocuSigned by: Bruce Payne 8/4/2015

PHASE CONSTRUCTION FOR BRIDGE



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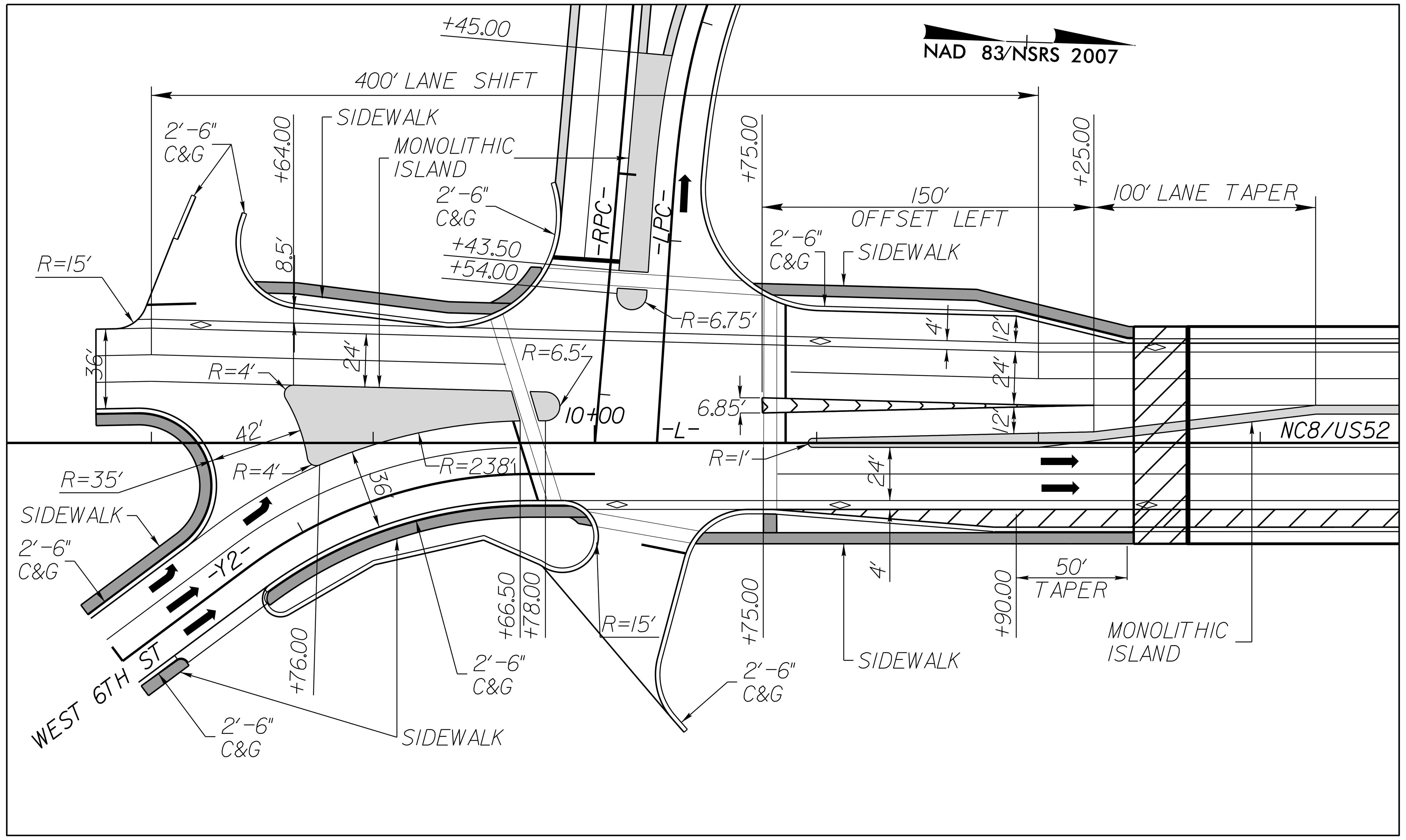
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

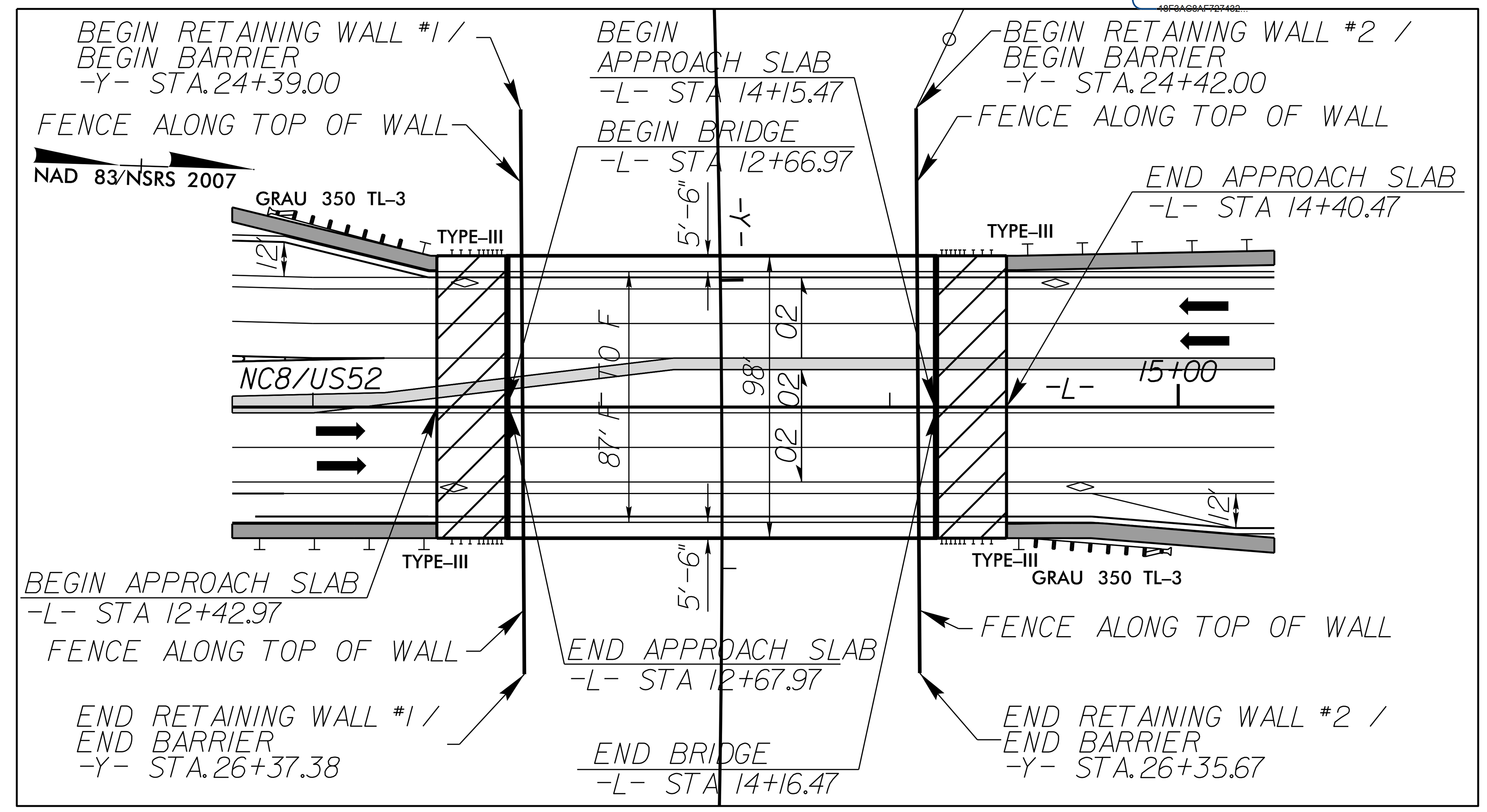
NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR.

DocuSigned by: Bruce Payne 8/4/2015

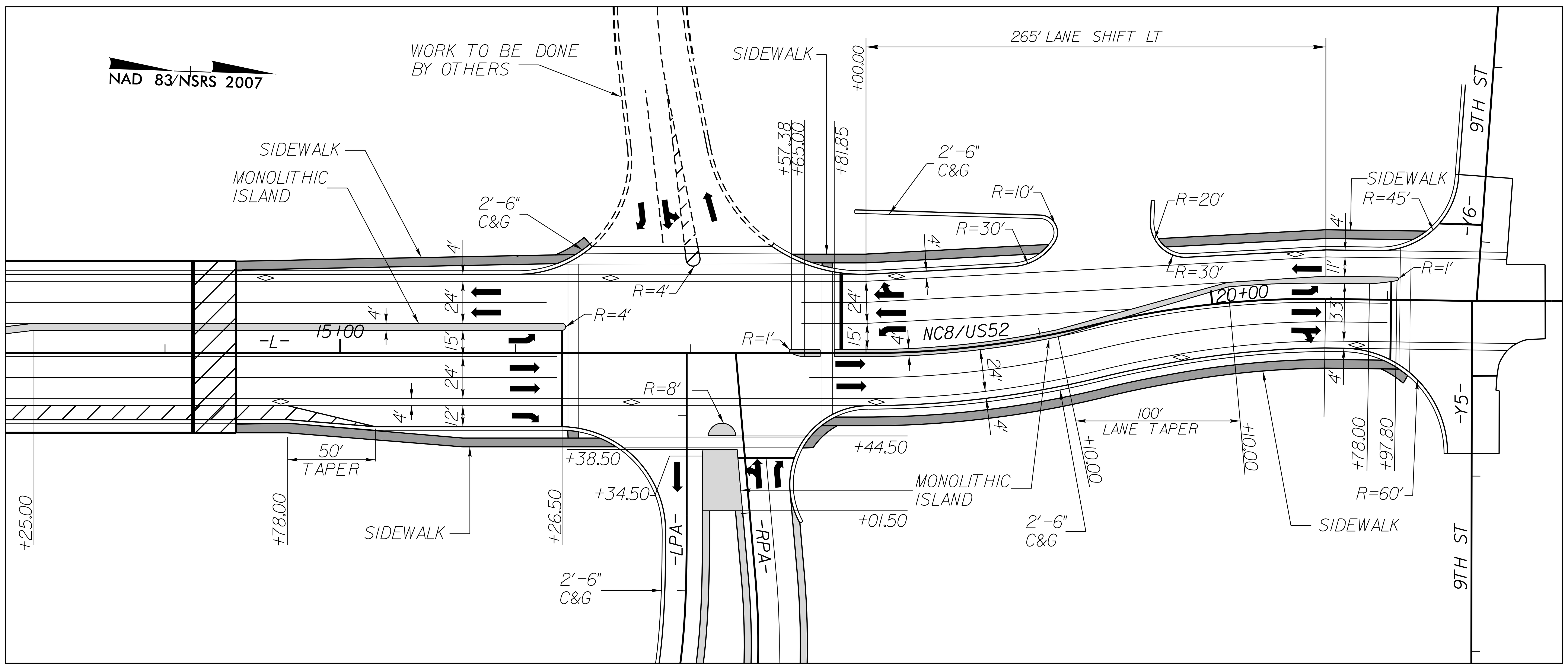
NOTE: DRAWINGS NOT TO SCALE



INTERSECTION DETAIL (SEE PLAN SHEET 4)



DETAIL SHOWING BRIDGE & PAVEMENT RELATIONSHIP (SEE PLAN SHEET 4)



INTERSECTION DETAIL (SEE PLAN SHEET 4 & 5)

PAVED SHOULDERS /ISLANDS

SIDEWALK

5/14/99

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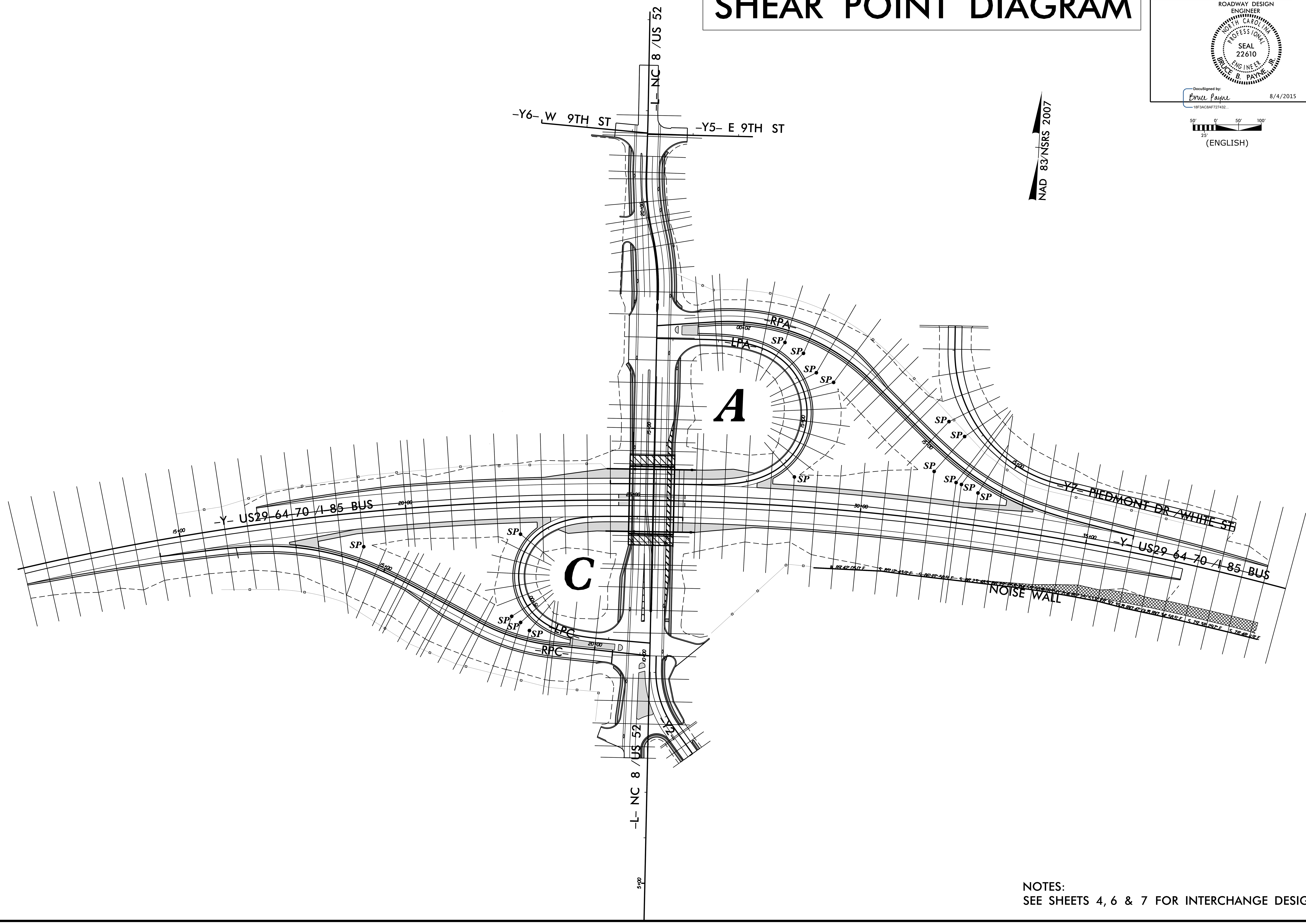
SHEAR POINT DIAGRAM

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2B-2
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22610 BRUCE B. PAYNE JR.

DocuSigned by: Bruce Payne 8/4/2015



NOTES:
SEE SHEETS 4, 6 & 7 FOR INTERCHANGE DESIGN

8/17/99

29-JUL-2015 07:49

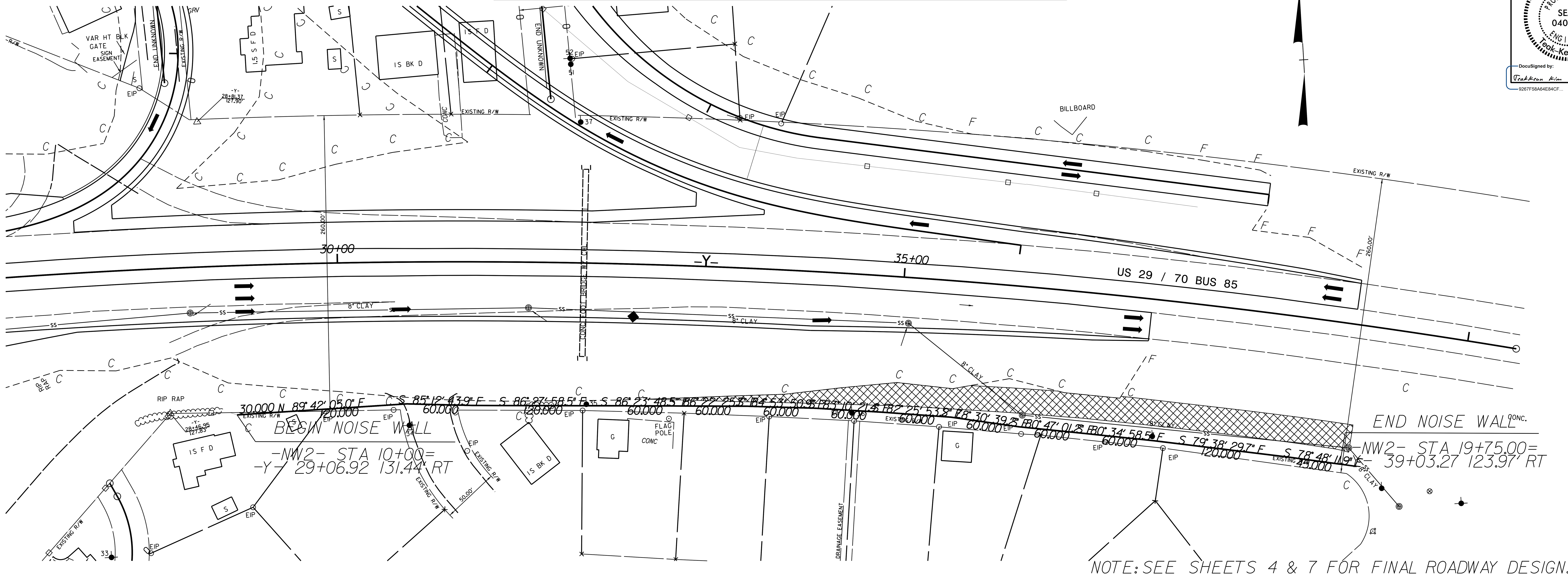
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2B-3

PEDEA ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040699 ENGINEER Teak-Keun Kim 8/4/2015

DocuSigned by: Teakkeun Kim 9267F58A64E84CF...

PLAN AND PROFILE OF NOISE WALL



NOTE: SEE SHEETS 4 & 7 FOR FINAL ROADWAY DESIGN.

NOISE WALL DESIGN DATA			
PANEL NUMBER	1-11	12-53	54-65
TOP ELEVATION	803'	804'	803'
PANEL LENGTH	165'	630'	180'

8/6/13

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8/17/99

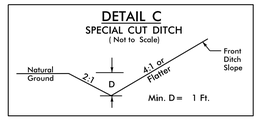
TEMPORARY RAMP B / LOOP B CONNECTOR (-TCP-RPB-) - PHASE 2 TRAFFIC CONTROL

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2B-4
R/W SHEET NO.	

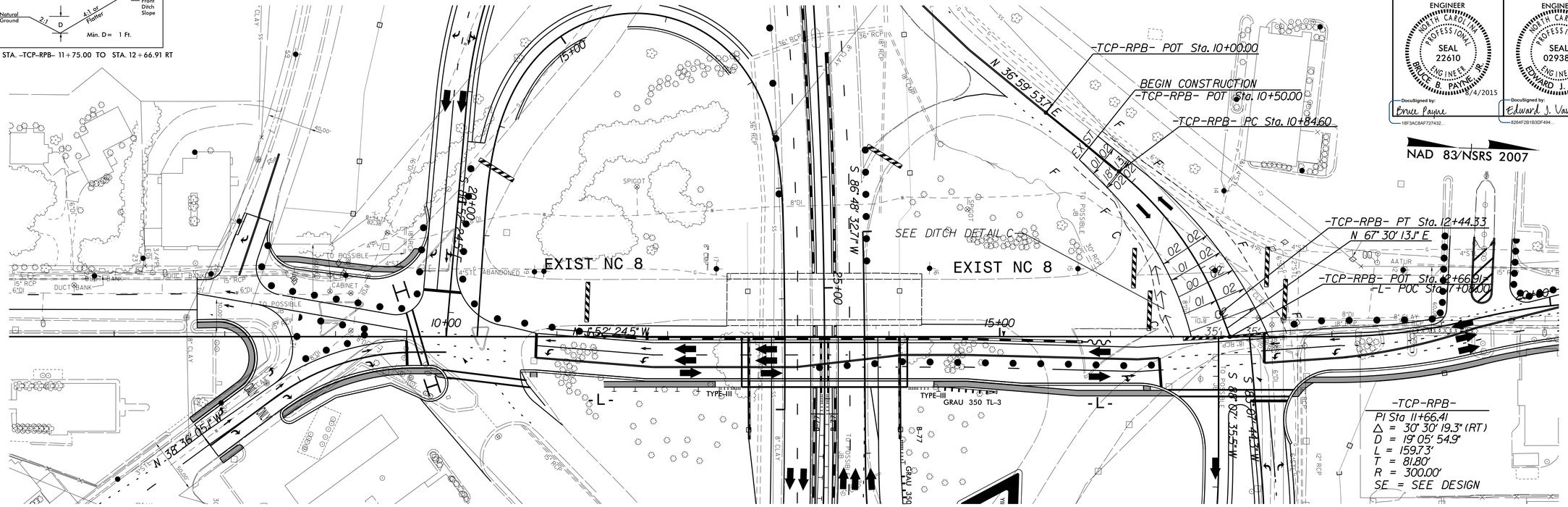
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR.
8/4/2015
DocuSigned by: Bruce Payne
18F3AC8AF727432...

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE
8/4/2015
DocuSigned by: Edward J. Vance
8264F2B1B3DF494...

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)

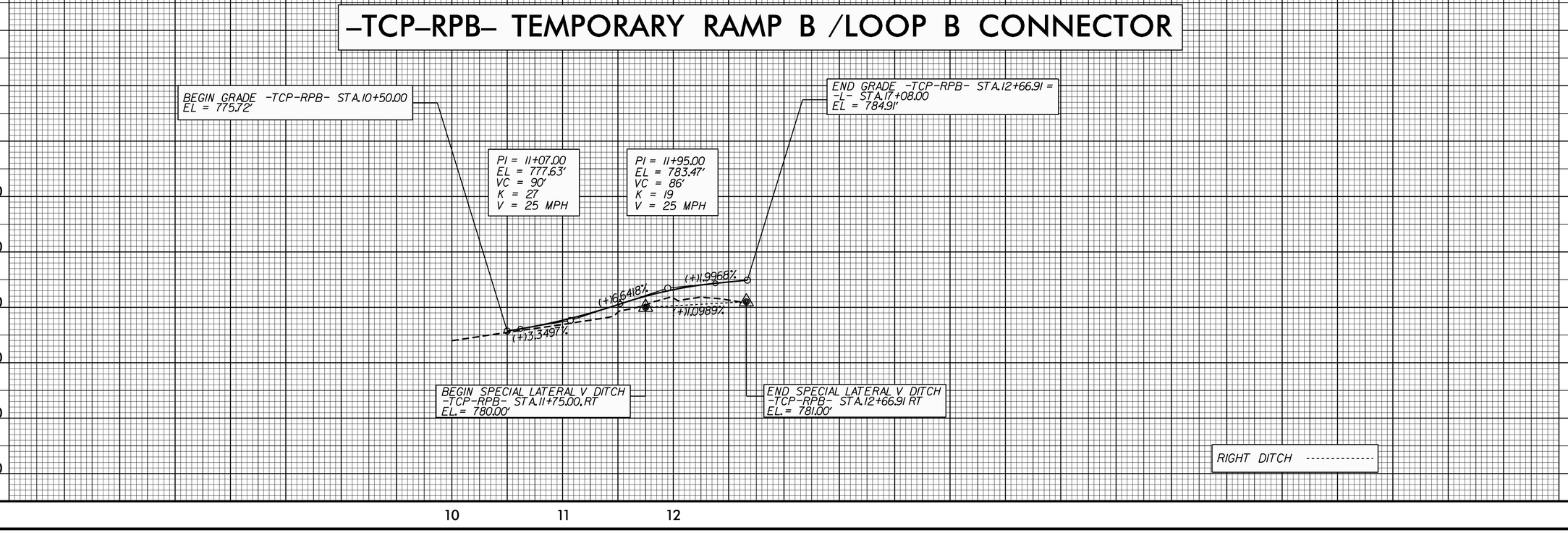


FROM STA. -TCP-RPB- 11+75.00 TO STA. 12+66.91 RT



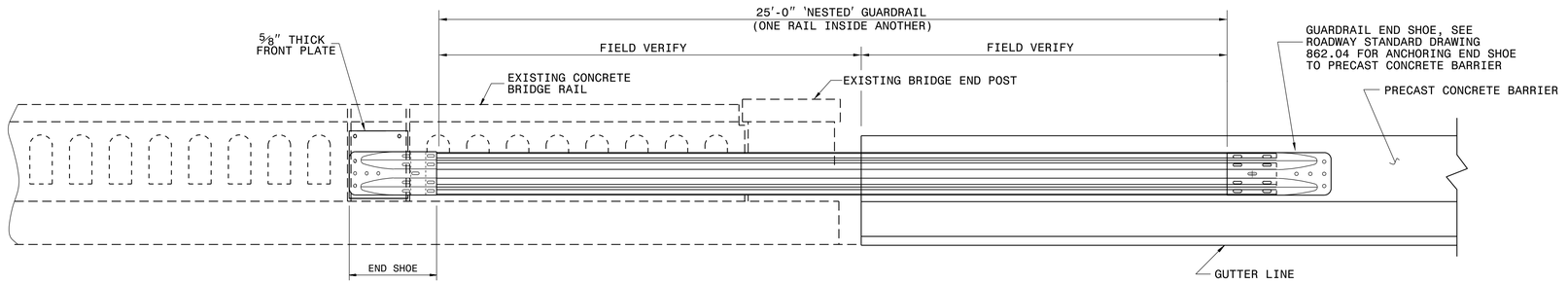
NOTES:
SEE SHEET 4 FOR FINAL ROADWAY DESIGN
SEE TCP SHEETS FOR TRAFFIC CONTROL PLAN

-TCP-RPB- TEMPORARY RAMP B /LOOP B CONNECTOR

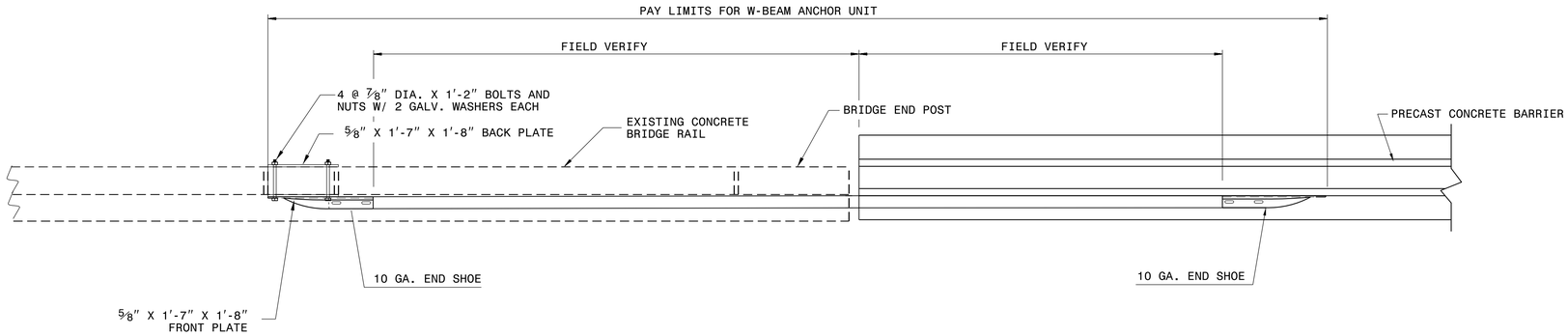


5/14/99

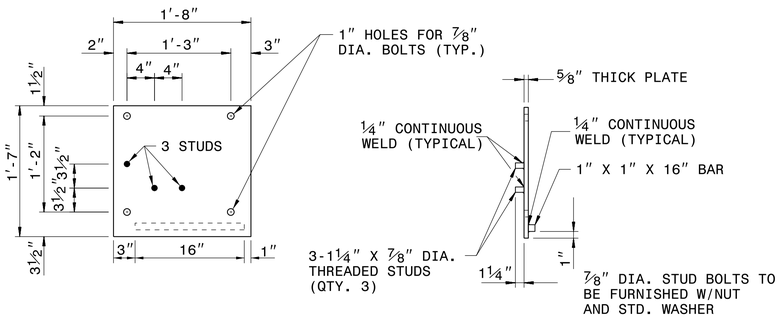
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2C-1



ELEVATION VIEW



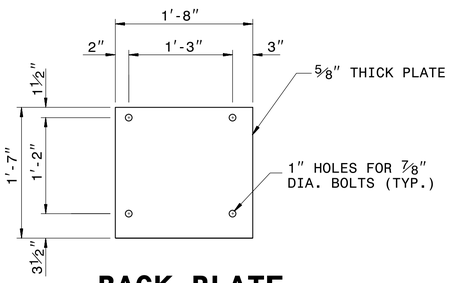
PLAN VIEW



FRONT VIEW

SIDE VIEW

FRONT PLATE



BACK PLATE

GENERAL NOTES:
1. CONFORM NUTS, BOLTS, AND WASHERS TO THE REQUIREMENTS OF A.S.T.M. A-307 AND GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS..
2. TAP NUTS FOR THE 7/8" DIA. STUD BOLTS PLATE AFTER GALVANIZING SEE A.S.T.M. A-563.
3. CONFORM PLATES TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZE AFTER FABRICATION IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS..
4. DRILL ADDITIONAL FIELD HOLES IN STEEL RAIL AS DIRECTED BY THE ENGINEER.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F... 8/4/2015

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

ANCHOR UNIT TYPE W-BEAM

ORIGINAL BY: C.O. CUEVAS DATE: 8-99
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: ds182:\usr\cesar\english\anchor.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2C-2

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 11½" 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 5 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 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
SHEET 3 OF 7
862d03

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.

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

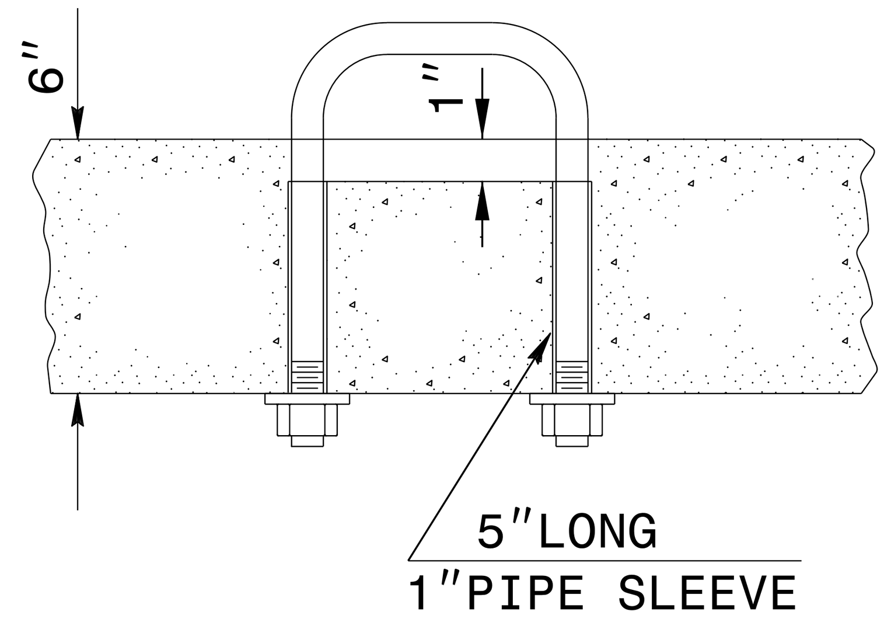
022966
Joel S. Howerton
DocuSigned by:
Joel Howerton
873F3D17DCDC45F...
8/4/2015

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

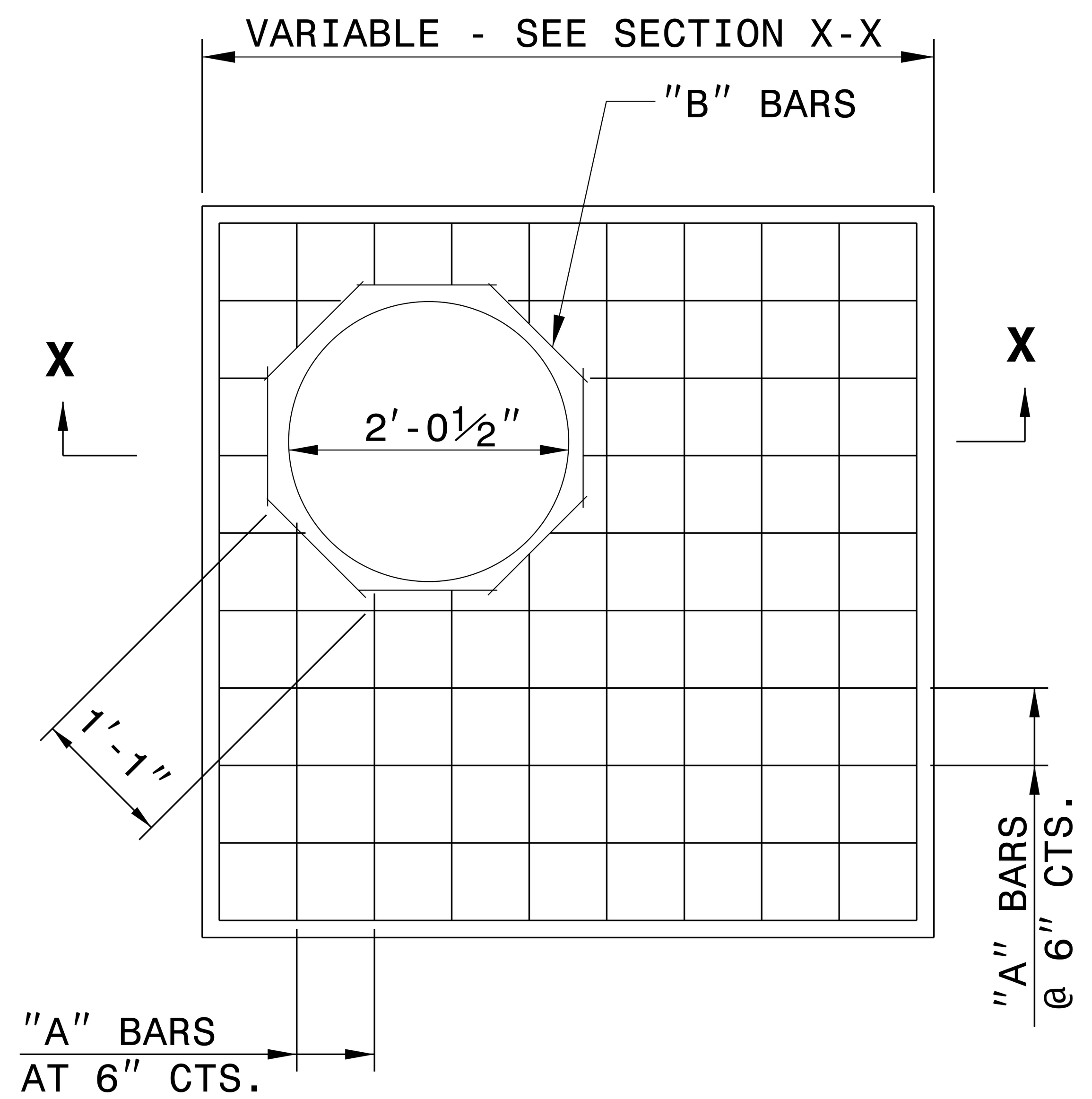
SEE TITLE BLOCK

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

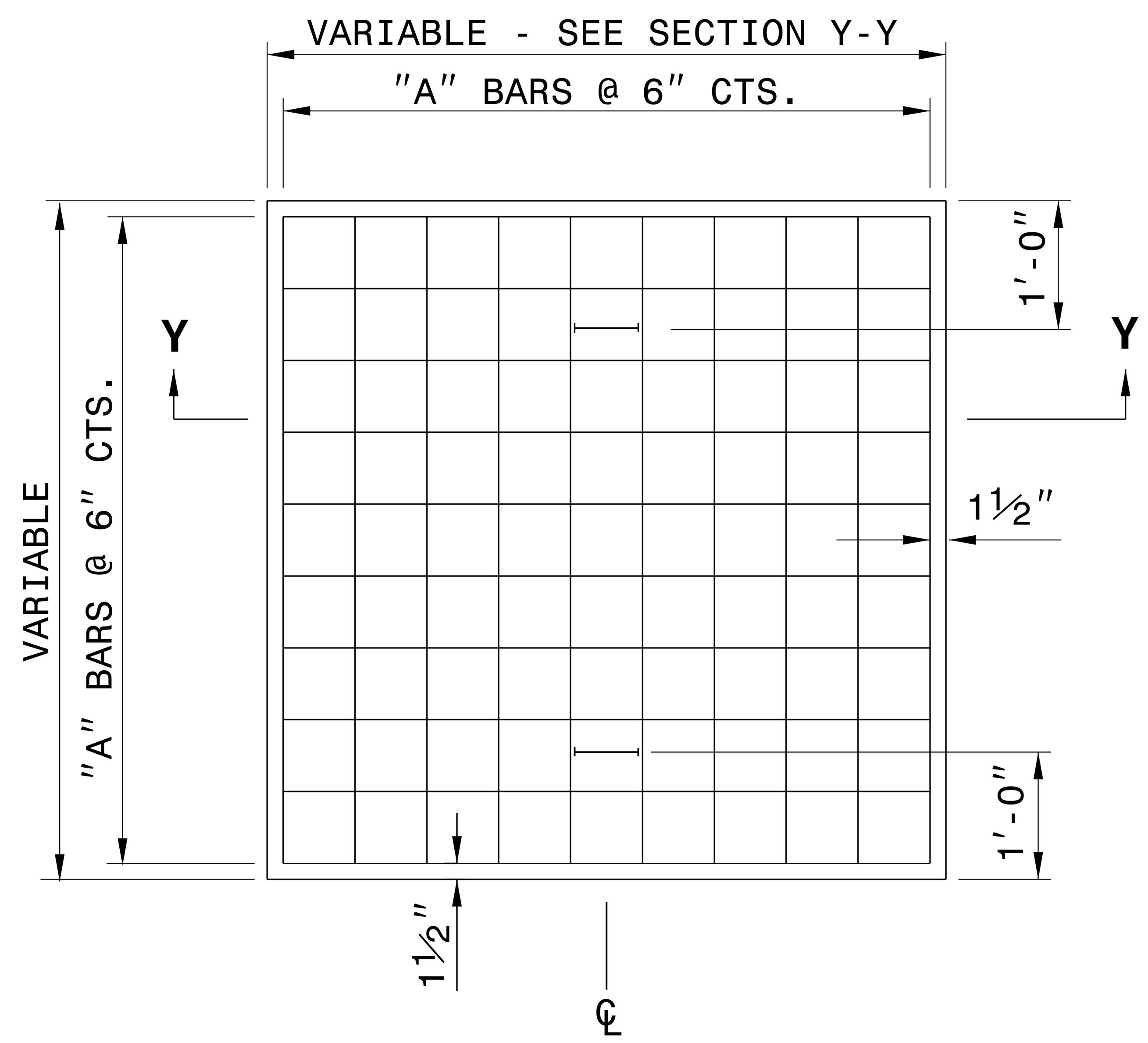
PROJECT REFERENCE NO.	SHEET NO.
B-3159	2C-3



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

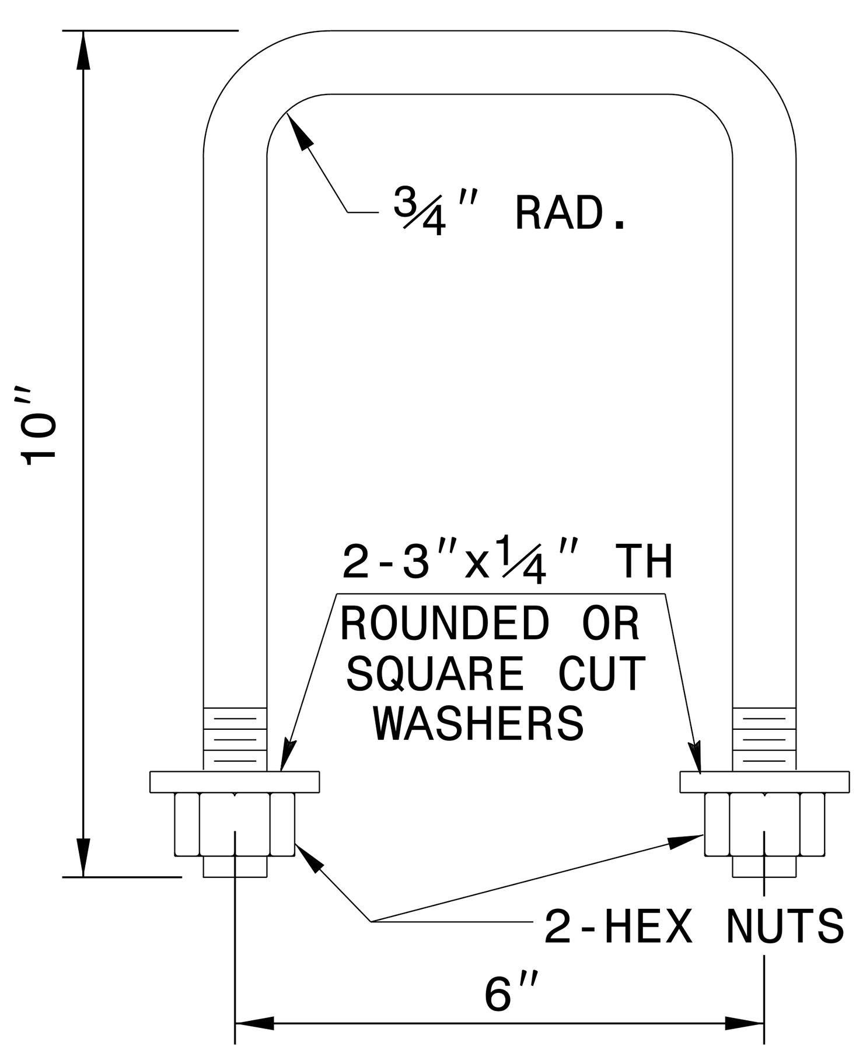
BILL OF MATERIALS

REINFORCING STEEL

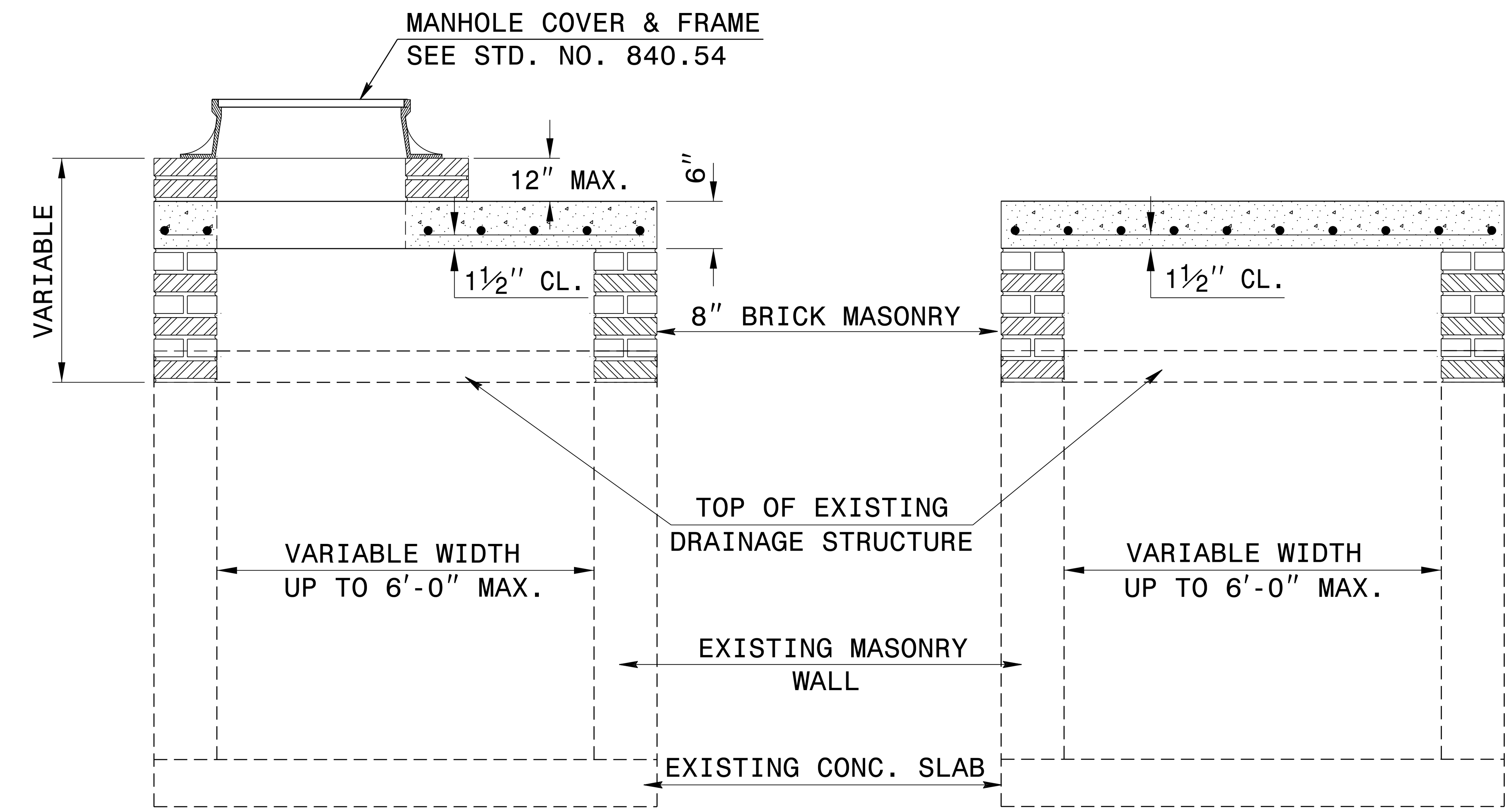
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *

MASONRY	CU YDS
TOP SLAB CONCRETE CLASS "B"	.4326 *
BRICK MASONRY PER FT HT (MIN)	.4111

* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



DETAIL OF HANDLE



SECTION X-X **SECTION Y-Y**

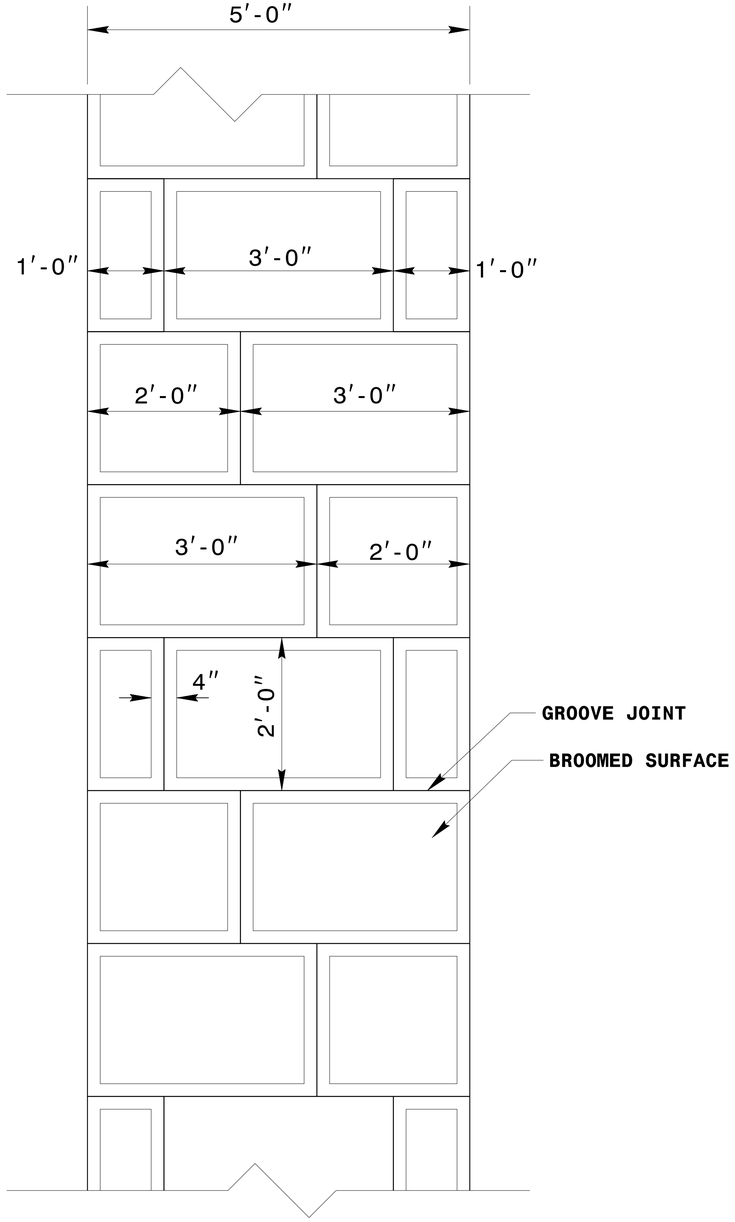
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S. Howerton
DocuSigned by: Joel Howerton 8/4/2015

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

DETAIL TO CONVERT EXISTING DI, CB, OTCB or GI TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: T.S.S. DATE: FEB.2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2C-4



NOTES:

SEE STD. DWG. 848.01 FOR CONCRETE SIDEWALK REQUIREMENTS AND CONSTRUCTION GUIDELINES.

BROOM THE CONCRETE SURFACE IN A TRANSVERSE DIRECTION TO TRAFFIC.

PLACE A GROOVE JOINT 1″ DEEP WITH 1/8″ RADII IN THE CONCRETE SIDEWALK IN THE PATTERN ILLUSTRATED.

DIMENSIONS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S HOWERTON

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

8/4/2015

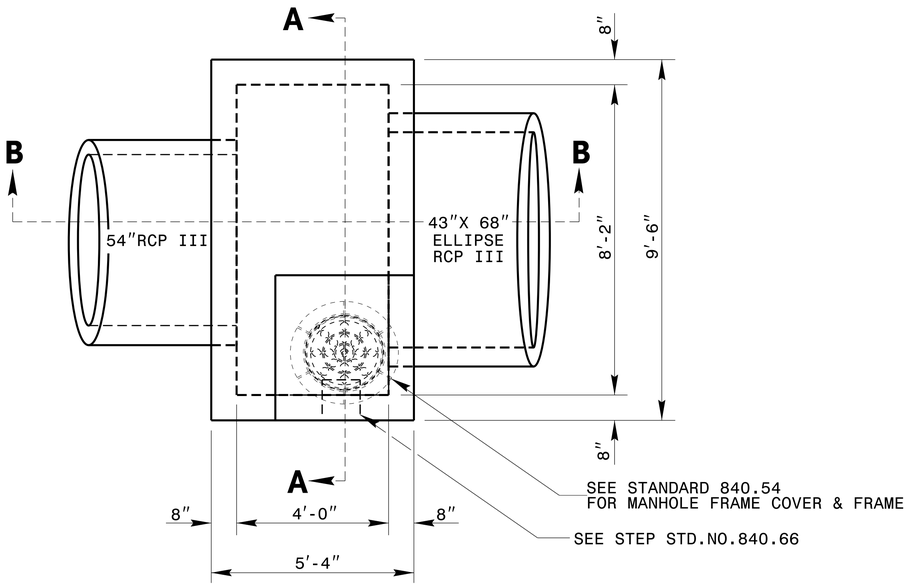
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

STAMPED CONCRETE SIDEWALK

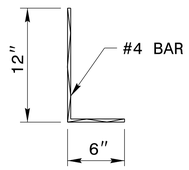
ORIGINAL BY: KKEMPF DATE: 7-30-2015
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: kkempf/english/848D1.dgn

$$$$SYSTIME$$$$
$$$$JOBNAME$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-3159	2C-5



PLAN VIEW



DOWEL

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

INSTALL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT AND BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE.

CHAMFER ALL EXPOSED CORNERS 1".

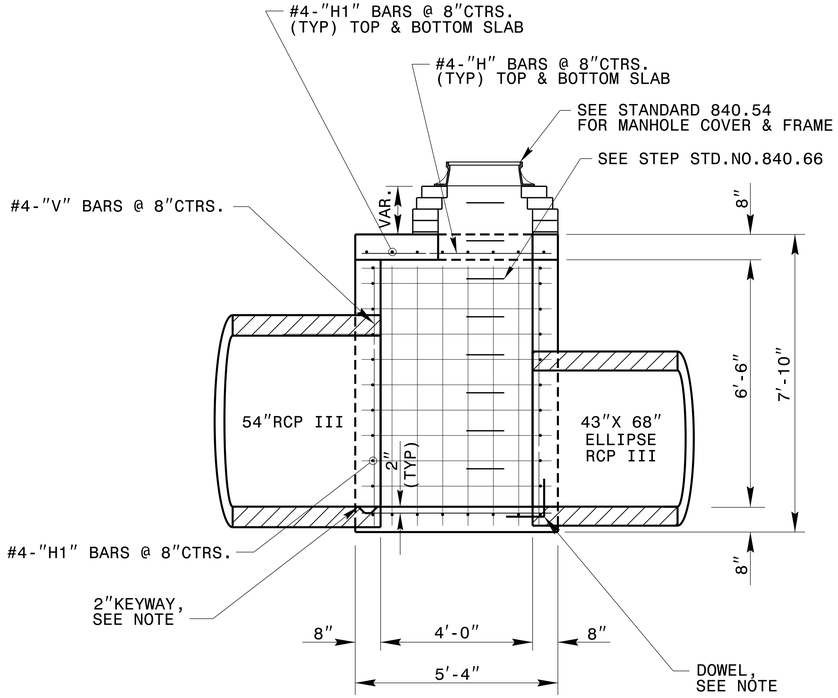
2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.

HEIGHT DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

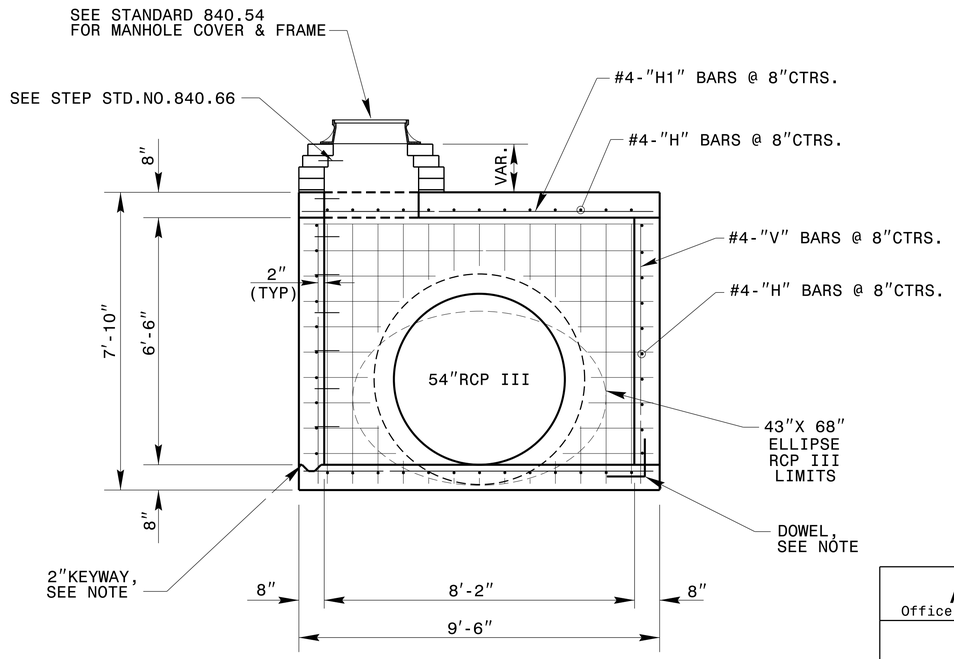
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	WEIGHT
H	46	#4	7'-0"	154
H1	36	#4	8'-0"	221
V	42	#4	6'-10"	192
TOTAL REINF. STEEL (LBS.)				567
CLASS "B" CONC.(CU.YDS.)				6.8
DEDUCTION FOR 54" RC PIPE III				-0.6
DEDUCTION FOR 43"X 68" ELLIPSE RCP III				-0.6
TOTAL CL."B" CONC.(CU.YDS.)				5.6

* 0.30 CU. YD. PER FOOT OF RISER HEIGHT



SECTION B-B



SECTION A-A

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F... 8/4/2015

STRUCTURE #0602

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

SPECIAL JB

ORIGINAL BY: nbritt DATE: 04/22/2008
MODIFIED BY: nbritt DATE: 07/30/2015
CHECKED BY: DATE:
FILE SPEC.: detail/nbritt/english/bridge/b3159_54jb.dgn

$$$$SYSTEM$$$$
$$$$PROJECT$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET
B-3159	2H-1

GEOENVIRONMENTAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31499 ENGINEER CYRUS F. PARKER

DocuSigned by: Cyrus Parker 8/26/2015 C06492AF5E824DF...

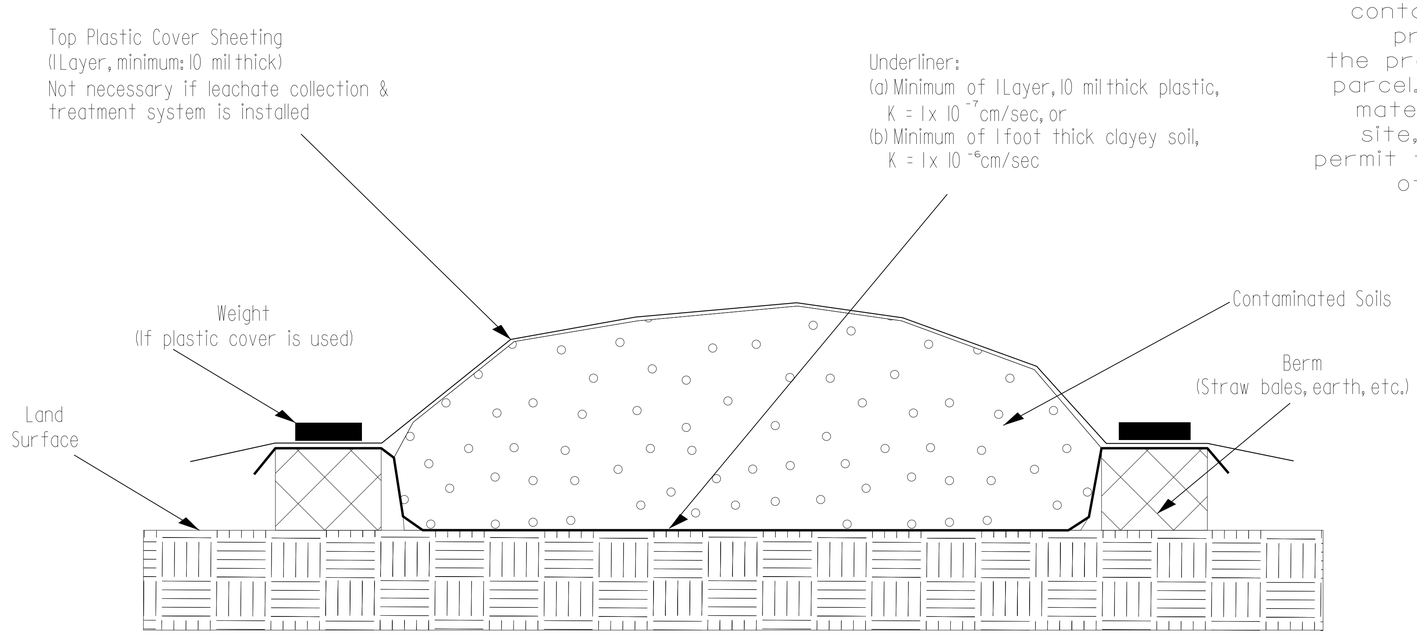
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

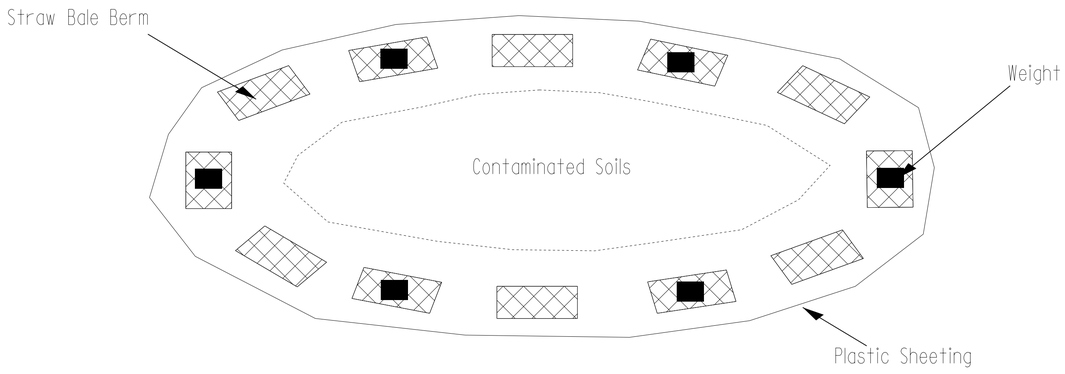
Detail for Temporary Containment of Contaminated Soil

Cross-Section View



NOTE:
The Contractor shall stockpile all contaminated soil excavated from a property in a location within the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDENR UST Section for off-site temporary storage.

Map View



PREPARED BY: _	DATE: _
REVIEWED BY: _	DATE: _

GEOTECHNICAL ENGINEERING UNIT

☐ EASTERN REGIONAL OFFICE
☐ WESTERN REGIONAL OFFICE
☒ CONTRACT OFFICE

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STOCKPILE CONTAINMENT DETAIL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	_	_	3	_	_
2	_	_	4	_	_

12/06/07

COMPUTED BY: RLC DATE: 4/11/2014
CHECKED BY: AEV DATE: 6/18/2015

PROJECT REFERENCE NO.	SHEET NO.
B-3159	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
–L– 7+50.00	–L– 12+66.97	26	4,338	4,312	0
–RPC– 14+40.28	–RPC– 20+71.61	19,080	1,526	0	17,554
–LPC– 13+50.00	–LPC– 15+38.00	2,352	0	0	2,352
–Y2– 10+00.00	–Y2– 10+53.13	158	8	0	150
SUBTOTALS:		21,616	5,872	4,312	20,057
–L– 14+16.47	–L– 21+25.00	175	8,297	8,122	0
–RPA– 13+50.00	–RPA– 21+61.41	38,148	104	0	38,045
–LPA– 13+90.00	–LPA– 16+67.00	11,127	0	0	11,127
–Y7– 16+20.00	–Y7– 18+53.57	4,256	0	0	4,256
SUBTOTALS:		53,706	8,401	8,122	53,428
–Y– 11+50.00	–Y– 39+50.00	42,525	468	0	42,057
SUBTOTALS:		42,525	468	0	42,057
–TCP–RPB– 10+50.00	–TCP–RPB– 12+66.91	157	436	279	0
SUBTOTALS:		157	436	279	0
PROJECT TOTALS:		118,004	15,177	12,712	115,541
WASTE TO REPLACE BORROW				–12,712	–12,712
LOSS DUE TO CLEARING & GRUBBING		–700			–700
GRAND TOTALS:		117,304	15,177	0	102,129
SAY:		117,400			

SHOULDER BORROW = 3,250 CY

"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

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.

CHAIN LINK FENCE, 48" FABRIC SUMMARY

SURVEY LINE	STATION	STATION	LOCATION	FABRIC LENGTH LF	END BRACE	CORNER BRACE	LINE BRACE	LINE POSTS	TERMINAL POSTS
–L–	8+53.81	9+18.32	LT	64.75	1	1	1	6	3
–L–	10+52.53	12+07.93	RT	225.25	1	1	1	19	3
–L–	18+05.35	19+28.79	RT	186.65	1	2	2	17	5
–Y–	15+00.00	26+35.67	LT	1,156.33	2	8	7	99	17
–Y–	28+46.95	29+06.92	RT	59.02	1	1	1	6	3
–Y7–	10+61.14	12+13.51	LT	152.38	1	0	1	13	2
–RPA–	10+02.82	20+63.28	RT	1,094.51	0	5	6	94	11
–RPC–	11+25.00	20+19.00	RT	874.37	1	5	6	75	12
–Y–	24+39.00	26+37.38	RT	198.38	2	0	1	17	3
TOTAL:				4,011.64	10	23	26	346	59
SAY:				4,050				346	59

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	11+50.00	12+00.00	LT	222.60
–L–	17+50.00	18+50.00	LT	451.50
	EXISTING RAMP /LOOP B		CL	2,770.77
	EXISTING RAMP C		CL	1,661.95
	EXISTING RAMP /LOOP A		CL	1,693.41
	EXISTING RAMP D		CL	1,357.38
	SERVICE ROAD		CL	2,211.08
	8TH STREET		CL	1,269.94
	VIRGINIA DRIVE		CL	765.94
	WHITE STREET		CL	1,063.37
	PIEDMONT DRIVE		CL	1,545.83
TEMPORARY PAVEMENT TO BE REMOVED				
–TCP–RPB–	RAMP B /LOOP B CONNECTOR		CL	1,219.57
–L–	11+00.00	12+52.00	RT	67.56
–L–	14+30.00	15+05.00	RT	33.33
–Y–	20+85.00	25+97.00	MED	227.56
–Y–	22+90.00	29+96.00	MED	313.78
		TOTAL:		16,875.57
		SAY:		16,900

SUMMARY OF BREAKING EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	12+00.00	12+53.58	LT	219.91
–L–	14+29.48	17+50.00	LT	1,628.12
–L–	15+02.99	17+50.00	CL	552.02
		TOTAL:		2,400.05
		SAY:		2,500

SUMMARY OF EXISTING CONCRETE PAVEMENT REMOVAL

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	8+86.14	9+02.83	LT	13.05
–L–	8+85.10	9+25.27	LT	60.43
–L–	9+73.78	10+01.54	LT	69.99
–L–	10+23.45	10+38.32	CL	23.23
–L–	9+78.82	10+41.68	RT	174.82
–L–	PARKING LOT IN QUADRANT A		RT	4,938.47
			TOTAL:	5,279.98
			SAY:	5,350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH: STRAIGHT	LENGTH: SHOP CURVED	LENGTH: DOUBLE FACED	WARRANT POINT: APPROACH END	WARRANT POINT: TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH: APPROACH END	FLARE LENGTH: TRAILING END	W: APPROACH END	W: TRAILING END	ANCHORS: XI MOD	ANCHORS: GRAU 350 TL–2	ANCHORS: GRAU 350 TL–3	ANCHORS: TEMP. W–BEAM	ANCHORS: TERM. END SECTION	ANCHORS: CAT–1	ANCHORS: TYPE III	ANCHORS: B–77	ANCHORS: AT–1	IMPACT ATTENUATOR TYPE 350: EA	IMPACT ATTENUATOR TYPE 350: G	IMPACT ATTENUATOR TYPE 350: NG	SINGLE FACED BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	10+73.47	12+66.97 (BRIDGE)	RT	193.50			12+66.97 (BRIDGE)		15.5	18.5	50		1				1				1										
–L–	14+16.47 (BRIDGE)	14+97.72	RT	81.25				14+16.47 (BRIDGE)	15.5	18.5		50		1			1				1										
–L–	11+85.72	12+66.97 (BRIDGE)	LT	81.25			12+66.97 (BRIDGE)		7.5	10.5	50		1				1				1										
–L–	14+16.47 (BRIDGE)	15+97.72	LT	181.25				14+16.47 (BRIDGE)	7.5	10.5		157.25		3.15			1				1										
–Y–	11+49.50	24+87.00	RT MED	1,337.50			24+87.00		8.5	10.5												1							1,564.49		
–Y–	24+87.00	25+95.00	RT MED																								108	108			
–Y–	25+95.00	39+01.25	RT MED	1,306.25				25+95.00	8.5	10.5												1							1,463.87		
–Y–	11+49.50	24+87.00	LT MED	1,337.50				24+87.00	8.5	10.5												1							1,337.50		
–Y–	24+87.00	25+95.00	LT MED																								108	108			
–Y–	25+95.00	39+01.25	LT MED	1,306.25			25+95.00		8.5	10.5												1							1,526.21		
–Y–	16+75.00	19+87.50	LT	312.50				16+75.00	12	15	150		3				1												385.20		
–Y–	37+93.75	39+00.00	LT	106.25			39+00.00		12	15													1								
–Y–	23+57.75	24+39.00	RT	81.25			24+39.00		20	23	50		1				1					1							154.38		
–Y–	24+39.00	26+37.38	RT																								198.38				
–Y–	24+42.00	26+35.67	LT																								193.67				
–Y–	26+35.67	27+16.92	LT	81.25			26+35.67		20	23	50		1				1					1							138.26		
–Y7–	14+00.00	16+00.00	LT	200.00			14+50.00	15+50.00	4	7	25	25	0.5	0.5		2															
BARRICADE	ROCHELLE DRIVE			37.50															2												
BARRICADE	8TH STREET			37.50															2												
BARRICADE	SERVICE ROAD			37.50															2												
BARRICADE	VIRGINIA DRIVE			37.50															2												
–L–	EXISTING BRIDGE																	2													
			PROJECT TOTALS	6,756.00												2	7	2	8		4	6	1				608.05				
			ANCHOR DEDUCTIONS																													
			(2) GRAU 350 TL–2 @ 25' EACH =	–50.00																												
			(7) GRAU 350 TL–3 @ 50' EACH =	–350.00																												
			(4) TYPE III @ 18.75' EACH =	–75.00																												
			(6) B–77 @ 18.75' EACH =	–112.50																												
			(1) AT–1 @ 6.25' EACH =	–6.25																												
			GRAND TOTALS	6,162.25												2	7	2	8		4	6	1				608.05	6,785.91			
			SAY	6,225			ADDITIONAL GUARDRAIL POSTS = 5									2	7	2	8		4	6	1				625	6,800			

$$$$ILISFRNAME$$$$

12-AUG-2015 10:40
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COMPUTED BY:	MBC	DATE:	1/28/2015
CHECKED BY:	AEV	DATE:	6/25/2015

PROJECT NO.	SHEET NO.
B-3159	3D-1

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	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)			C. S. PIPE			R. C. PIPE CLASS III									15" R.C. PIPE CULVERTS, CLASS IV		18" WELDED STEEL PIPE 0.312" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.531" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	
SIZE								12	15	18	12	15	18	12	15	18	24	30	36	42	48							
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%				.064	.064	.064															
L 07+92	54 LT	0401		788.9																								
		0401	0402		785.3	783.6									72													
L 08+64	62 LT	0402		787.2																								
		0402	0471		783.4	783.3										8												
L 08+66	71 LT	0471		787.5																								
		0471	0403		783.3	782.3										96												
L 09+63	64 LT	0403		786.3																								
		0403	0404		782.3	780.3										56												
RPC 20+07	30 RT	0404		784.6																								
		0404	0405		780.3	772.3										216												
RPC 18+00	50 RT	0405		776.5																								
		0405	0616		772.3	758.6										204												
L 10+34	85 RT	0406		785.6																								
		0406	0407		781.6	778.0									36													
Y 26+24	274 RT	0407		781.3																								
L 10+69	32 RT	0408		786.9																								
		0408	0407		780.4	778.0									48													
L 11+01	62 LT	0409		786.8																								
		0409	0410		784.9	773.5							36															
-Y- 27+88	119 RT	0411		773.0																								
		0411	0422		766.3	762.0										48												
LPC 14+41	14 LT	0412		767.2																								
		0412	0413		761.3	759.3										88												
LPC 13+38	14 LT	0413		764.6																								
		0413	0414		757.8	757.6	0.5												52									
Y 22+44	63 RT	0414		763.8																								
		0414	0611		757.6	756.1	0.5												292									
-LPC- 13+15	61 LT	0415		767.4																								
		0415	0416		765.5	761.2								28														
LPC 13+18	32 LT	0416		766.8																								
		0416	0413		758.0	757.8	0.5												24									
Y 23+75	80 RT	0417		767.2																								
		0417	0416		758.3	758.0	0.4												60									
LPC 11+97	46 LT	0418		761.4																								
		0418	0417		761.5	760.0									40													
Y 24+33	64 RT	0419		767.6																								
		0419	0460		758.7	758.3	0.3												56									
Y 26+42	62 RT	0420		769.9																								
		0420	0419		759.6	758.7	0.3												208									
Y 26+42	86 RT	0421		767.1																								
		0421	0420		759.8	759.6	0.3												24									
Y 27+88	74 RT	0422		768.9																								
		0422	0421		760.5	759.8													144									
Y 22+50	1 LT	0423		766.4																								
		0423	0424		761.9	760.5																			72			??
Y 22+50	72 LT	0424		764.9																								
		0424	0607		754.9	752.9													192									
Y 23+61	75 LT	0425		765.3																								
		0425	0424		755.4	754.9													112									
Y 23+72	106 LT	0426		766.0																								
SHEET TOTALS												36	28		196	716			1164						72			

LINE & STATION	FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	DRAINAGE STRUCTURE MASONRY	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) 0' THRU 5'	A 5' THRU 10'	B 10' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30
			CY	CY	EACH	LIN. FT.	LIN. FT.																						
L 07+92	0401																												
	0401	0402																											
L 08+64	0402				1			1			1																		
	0402	0471																											
L 08+66	0471				1																								
	0471	0403																											
L 09+63	0403				1			1			1																		
	0403	0404																											
RPC 20+07	0404				1			1			1																		
	0404	0405																											
RPC 18+00	0405				1													1					1						
	0405	0616																											
L 10+34	0406				1			1	1																				
	0406	0407																											
Y 26+24	0407																												
L 10+69	0408				1	1.5		1			1																		
	0408	0407																											
L 11+01	0409				1			1			1																		
	0409	0410																											
-Y- 27+88	0411				1	1.8												1					1						
	0411	0422																											
LPC 14+41	0412				1	0.9		1		1																			
	0412	0413																											
LPC 13+38	0413				1	1.8		1	1																				
	0413	0414																											
Y 22+44	0414				1	1.3											1				1								
	0414	0611																											
-LPC- 13+15	0415																												
	0415	0416																											
LPC 13+18	0416				1	3.9																							
	0416	0413																											
Y 23+75	0417				1	3.9											1						1						
	0417	0416																											
LPC 11+97	0418																												
	0418	0417																											
Y 24+33	0419				1	3.9															1								
	0419	0460																											
Y 26+42	0420				1	5.0	0.3																						
	0420	0419																											
Y 26+42	0421				1	2.3											1						1						
	0421	0420																											
Y 27+88	0422				1	3.4											1						1						
	0422	0421																											
Y 22+50	0423				1													1					1						
	0423	0424																											
Y 22+50	0424				1	5.0																							
	0424	0607																											
Y 23+61	0425				1	4.9											1						1						
	0425	0424																											
Y 23+72	0426				1													1					1						
SHEET TOTALS					22	39.6	0.3	8	2	1	5						5	4			2		8						

LINE & STATION	FROM	TO	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B. (SEE SHEET 2C-3)	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B. (SEE SHEET 2C-3)	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	BERM DITCH OUTLET STD. 850.11 (PER EACH)		##" SLUICE GATE (##" SIZE SLUICE GATE)		MODIFIED CONC. FLUME	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN		FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
																													CY	CY	CY	LIN. FT.	
L 07+92	0401													1																			
	0401	0402																														66	
L 08+64	0402																																
	0402	0471																															
L 08+66	0471		1					1																									
	0471	0403																															
L 09+63	0403																																
	0403	0404																														41	
RPC 20+07	0404																																
	0404	0405																															
RPC 18+00	0405																																
	0405	0616																															
L 10+34	0406																																
	0406	0407																															
Y 26+24	0407							1	1																								
L 10+69	0408																																
	0408	0407																															
L 11+01	0409																																
	0409	0410													2																		
-Y- 27+88	0411																															25	
	0411	0422																														77	
LPC 14+41	0412																																
	0412	0413																															
LPC 13+38	0413																												15.4				
	0413	0414																															
Y 22+44	0414																																
	0414	0611																															
-LPC- 13+15	0415																																
	0415	0416																															
LPC 13+18	0416		1					1																									
	0416	0413																															
Y 23+75	0417																																
	0417	0416																											34.6				
LPC 11+97	0418																																
	0418	0417																															
Y 24+33	0419					1																											
	0419	0460																															
Y 26+42	0420				1			1																									
	0420	0419																											109				
Y 26+42	0421																																
	0421	0420																															
Y 27+88	0422																																
	0422	0421																															
Y 22+50	0423																																
	0423	0424																											14.8				
Y 22+50	0424		1					1																									
	0424	0607																														205	
Y 23+61	0425																																
	0425	0424																														274	
Y 23+72	0426																																
SHEET TOTALS			3		1	1		5	1					1	2														174			688	

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

RD278046

COMPUTED BY:	MBC	DATE:	1/28/2015
CHECKED BY:	AEV	DATE:	6/25/2015

PROJECT NO.	SHEET NO.
B-3159	3D-2

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 FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 18	C. S. PIPE 12 .064	C. S. PIPE 15 .064	C. S. PIPE 18 .064	R. C. PIPE CLASS III 12	R. C. PIPE CLASS III 15	R. C. PIPE CLASS III 18	R. C. PIPE CLASS III 24	R. C. PIPE CLASS III 30	R. C. PIPE CLASS III 36	R. C. PIPE CLASS III 42	R. C. PIPE CLASS III 48		15" R.C. PIPE CULVERTS, CLASS IV		18" WELDED STEEL PIPE 0.312" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.531" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B. (SEE SHEET 2C-3)	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B. (SEE SHEET 2C-3)	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	BERM DITCH OUTLET STD. 850.11 (PER EACH)		##" SLUICE GATE (##" SIZE SLUICE GATE)		MODIFIED CONC. FLUME	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
			0426	0425		763.0	761.5										32																																																																				
Y 23+82	130	LT	0472		766.5																																																																																	
			0472	0426		765.0	763.0										24																																																																					
Y 24+37	65	LT	0427		768.8																											1	5.0	2.5																1										1																												
			0427	0425		756.3	755.9	0.4											76																																																																					
LPA 11+92	26	LT	0428		770.7																											1	5.0	3.4														1												1																												
			0428	0427		757.4	756.3	0.4											204																																																																					
Y 27+25	0	CL	0429		771.3																											1	2.4												1					1																																									
			0429	0462		764.0	758.8	0.8																		68			??																																																												
LPA 13+92	14	LT	0430		770.4																											1	4.2		1	1																																																							
			0430	0462		761.3	757.8												100																																																																				48	
Y 28+78	0	CL	0431		771.8																											1													1					1																																				8.9				
			0431	0429		767.6	764.0										152																																																																						
Y 28+51	65	LT	0432		769.6																											1	2.9											1						1																																									
			0432	0430		761.8	761.3												48																																																																						
LPA 14+04	55	LT	0433		778.8																																																																																		
			0433	0430		764.5	762.3										44																																																																						
L 15+75	80	LT	0434																																																																																					
L 16+00	47	LT	0435		787.3																											1	5.0	0.2	1			1																																																			
			0435	0434		777.1	773.5							44																																																											2																	30	
			0436	0435		782.6	782.4									36																																																																								
L 16+19	15	LT	0436		786.6																											1								1		1	1																																																
L 18+00	47	LT	0437		782.8																											1	0.1		1			1																																																						
			0437	0435		778.1	777.1										200																																																																						8.3				
RPA 21+00	27	RT	0439		782.5																											1			1			1																																																										
			0439	0469		778.3	777.0										104																																																																						177	
L 18+46	32	RT	0440		783.5																											1			1	1																																																									
			0440	0439		779.1	778.3										108																																																																							
			0441	0440		779.3	779.1										32																																																																						
L 18+46	1	RT	0441		783.5																											1								1		1	1																																															
L 18+46	47	LT	0442		782.6																											1			1	1																																																									
			0442	0437		778.3	778.1										40																																																																			2.5				
L 18+92	44	LT	0443		782.8																											1			1		1																																																							
			0443	0442		778.5	778.3										40																																																																			9.6				
L 19+60	32	RT	0444		784.1																											1			1			1																																																										
			0444	0440		779.8	779.1										116																																																																						
L 19+89	30	LT	0445		784.6																											1	0.6		1		1																																																							
			0445	0443		779.0	778.5										100																																																																			4.6				
			0446	0445		780.7	779.3									24																																																																							
L 19+93	7	LT	0446		784.7																											1								1		1	1																																																
L 16+20	44	RT	0447		786.6																											1			1		1																																																							
			0447	0448		783.1	779.8			44																																																																																
L 07+75	13	LT	0449		788.1																											1			1		1																																																								
			0449	0465		784.1	783.6									88																																																																					24	
L 9+59	11	LT	0450		788.1																											1								1		1	1																																																
			0450	0464		782.7	782.0	0.5								48																																																																							
Y2 10+53	26	LT	0451		790.2																											1			1			1																																																										
			0451	0466		786.2	783.4									72																																																																							
LPA 15+00	14	LT	0453		771.9																											1	2.2		1		1																																																							
			0453	0430		764.8	762.3										96																																																																						
SHEET TOTALS										44				44		268	1088		428							68					22	27.4	6.1	13	3	5	5		4		4	4	1	2			1		4										2										2													34			279	

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

RD278046

COMPUTED BY:	MBC	DATE:	1/28/2015
CHECKED BY:	AEV	DATE:	6/25/2015

PROJECT NO.	SHEET NO.
B-3159	3D-3

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 FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	Side Drain Pipe 15	Side Drain Pipe 18	C. S. PIPE 12 .064	C. S. PIPE 15 .064	C. S. PIPE 18 .064	R. C. PIPE CLASS III 12	R. C. PIPE CLASS III 15	R. C. PIPE CLASS III 18	R. C. PIPE CLASS III 24	R. C. PIPE CLASS III 30	R. C. PIPE CLASS III 36	R. C. PIPE CLASS III 42	R. C. PIPE CLASS III 48
Y 23+75	64 RT	0460		766.7																	
		0460	0417		758.3	758.3	0.4												16		
Y 27+25	83 LT	0461		767.0																	
		0461	0462		758.9	758.8										16					
Y 27+25	67 LT	0462		769.9																	
		0462	0428		757.8	757.4	0.4											84			
Y 26+39	79 LT	0463		764.1																	
		0463	0461		759.3	758.9										84					
L 09+86	28 RT	0464		786.4																	
		0464	0408		782.0	780.4	0.8								84						
		0465	0466		783.6	783.4									28						
L 8+62.58		0465																			
L 08+75	6 RT	0466		787.8																	
		0466	0450		783.4	782.7	0.5								84						
L 17+00	82 LT	0467			778.0	773.5										172					
RPA 20+00	42 RT	0469		781.2																	
		0469	0470		777.0	775.9	0.3									216					
RPA 18+00	42 RT	0470		781.1																	
		0470	0705		775.9	764.9	0.5									356					
L 20+16	31 LT	0501		784.8																	
		0501	0445		781.2	779.0										28					
L 20+76	30 RT	0502		786.9																	
		0502	0444		781.9	779.8										108					
L 20+75	49 RT	0503		786.9																	
		0503	0502		782.0	781.9										20					
L 21+68	39 LT	0504																			
L 21+35	50 RT	0505		787.3																	
		0505	0503		784.8	783.8								60							
L 21+92	23 RT	0507		786.9																	
		0507	0502		782.5	781.9										116					
L 21+38	39 LT	0508		787.5																	
Y 17+34	116 LT	0604		755.7																	
		0604	0603		750.8	750.4	0.5											36			
Y 17+31	96 RT	0605		759.4																	
		0605	0603		752.0	749.4															
Y 17+31	123 RT	0606		766.9																	
		0606	0605		760.2	755.2							28								
Y 20+60	74 LT	0607		761.2																	
		0607	0603		752.4	749.4														332	
Y 18+50	65 RT	0610		762.2																	
		0610	0615		755.6	753.0														64	
Y 19+48	56 RT	0611		762.7																	
		0611	0610		756.1	755.6														96	
Y 15+71	108 RT	0614		766.0																	
		0614	0613		762.8	760.5									24						
Y 18+27	124 RT	0615		759.3																	
		0615	0605		753.0	752.0	0.3													96	
RPC 16+00	43 RT	0616		764.7																	
		0616	0615		758.6	755.0										196					
Y 30+01	75 RT	0701		770.9																	
SHEET TOTALS													28	60	220	1312		120	16	588	

LINE & STATION	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO		15" R.C. PIPE CULVERTS, CLASS IV		18" WELDED STEEL PIPE 0.312" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.531" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
Y 23+75	0460											1	3.4						
	0460	0417																	
Y 27+25	0461											1	3.1						
	0461	0462																	
Y 27+25	0462											1	5.0	2.1					
	0462	0428																	
Y 26+39	0463											1							
	0463	0461																	
L 09+86	0464											1			1		1		
	0464	0408																	
	0465	0466																	
L 8+62.58	0465											1							
L 08+75	0466											1							
	0466	0450																	
L 17+00	0467																		
RPA 20+00	0469											1							
	0469	0470																	
RPA 18+00	0470											1	0.2						
	0470	0705																	
L 20+16	0501																		
	0501	0445																	
L 20+76	0502											1			1			1	
	0502	0444																	
L 20+75	0503											1							
	0503	0502																	
L 21+68	0504																		
L 21+35	0505																		
	0505	0503																	
L 21+92	0507											1			1			1	
	0507	0502																	
L 21+38	0508			24															
Y 17+34	0604									2.300									
	0604	0603																	
Y 17+31	0605											1	2.4						
	0605	0603						176											
Y 17+31	0606																		
	0606	0605																	
Y 20+60	0607											1	3.8						
	0607	0603																	
Y 18+50	0610											1	1.6						
	0610	0615																	
Y 19+48	0611											1	1.6						
	0611	0610																	
Y 15+71	0614											1							
	0614	0613																	
Y 18+27	0615											1	1.3						
	0615	0605																	
RPC 16+00	0616											1	1.1						
	0616	0615																	
Y 30+01	0701											1	4.3						
SHEET TOTALS				24				176		2.300		20	27.8	2.1	3		1	2	

LINE & STATION	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54
Y 23+75	0460																					1			1
	0460	0417																							
Y 27+25	0461							1					1												
	0461	0462																							
Y 27+25	0462																					1			1
	0462	0428																							
Y 26+39	0463							1					1												
	0463	0461																							
L 09+86	0464																								
	0464	0408																							
	0465	0466																							
L 8+62.58	0465		1		1	1																			
L 08+75	0466																			1					1
	0466	0450																							
L 17+00	0467																								
RPA 20+00	0469							1					1												
	0469	0470																							
RPA 18+00	0470							1					1												
	0470	0705																							
L 20+16	0501																								
	0501	0445																							
L 20+76	0502																								
	0502	0444																							
L 20+75	0503																			1					1
	0503	0502																							
L 21+68	0504																								
L 21+35	0505																								
	0505	0503																							
L 21+92	0507																								
	0507	0502																							
L 21+38	0508																								
Y 17+34	0604																								
	0604	0603																							
Y 17+31	0605						1						1												
	0605	0603																							
Y 17+31	0606																								
	0606	0605																							
Y 20+60	0607						1						1												
	0607	0603																							
Y 18+50	0610						1						1												
	0610	0615																							
Y 19+48	0611						1						1												
	0611	0610																							
Y 15+71	0614				1	1																			
	0614	0613																							
Y 18+27	0615						1				1														
	0615	0605																							
RPC 16+00	0616							1					1												
	0616	0615																							
Y 30+01	0701						1						1												
SHEET TOTALS			1		2	2	6	5			1		10							2		2			4

LINE & STATION	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	CONVERT EXISTING C.B. TO J.B. (SEE SHEET 2C-3)	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B. (SEE SHEET 2C-3)	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	BERM DITCH OUTLET STD. 850.11 (PER EACH)		##" SLUICE GATE (##" SIZE SLUICE GATE)		MODIFIED CONC. FLUME	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y 23+75	0460																										
	0460	0417																									
Y 27+25	0461																										
	0461	0462																									
Y 27+25	0462																										
	0462	0428																					1.5				
Y 26+39	0463																										
	0463	0461																									
L 09+86	0464																										
	0464	0408																									
	0465	0466																									
L 8+62.58	0465																										
L 08+75	0466																										
	0466	0450																									
L 17+00	0467																										
RPA 20+00	0469																										
	0469	0470																								175	
RPA 18+00	0470																										
	0470	0705																									
L 20+16	0501				1																						
	0501	0445																								30	
L 20+76	0502																										
	0502	0444																					7.8				
L 20+75	0503																										
	0503	0502																									
L 21+68	0504																										CLEAN OUT CATCH BASIN
L 21+35	0505																							0.3530			
	0505	0503																									
L 21+92	0507																										
	0507	0502																					1.1			87	
L 21+38	0508																							0.7980			2 COLLARS
Y 17+34	0604																										
	0604	0603																									
Y 17+31	0605																										
	0605	0603																					2.9				
Y 17+31	0606													1													
	0606	0605								2																	
Y 20+60	0607																										
	0607	0603																									
Y 18+50	0610																										
	0610	0615																									
Y 19+48	0611																										
	0611	0610																									
Y 15+71	0614																										
	0614	0613																					2.9			60	
Y 18+27	0615																										
	0615	0605																									
RPC 16+00	0616																										
	0616	0615																									
Y 30+01	0701																										
SHEET TOTALS					1					2				1									16	1.1510		352	

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

RD278046

COMPUTED BY:	MBC	DATE:	1/28/2015
CHECKED BY:	AEV	DATE:	6/25/2015

PROJECT NO.	SHEET NO.
B-3159	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)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	Side Drain Pipe 15	Side Drain Pipe 18	C. S. PIPE 12 .064	C. S. PIPE 15 .064	C. S. PIPE 18 .064	R. C. PIPE CLASS III 12	R. C. PIPE CLASS III 15	R. C. PIPE CLASS III 18	R. C. PIPE CLASS III 24	R. C. PIPE CLASS III 30	R. C. PIPE CLASS III 36	R. C. PIPE CLASS III 42	R. C. PIPE CLASS III 48		15" R.C. PIPE CULVERTS, CLASS IV		18" WELDED STEEL PIPE 0.312" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.531" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
		0701	0422		761.5	760.5													208																			
Y 32+50	75 RT	0702		774.1																											1							
		0702	0701		769.8	763.0										244																						
Y 31+51	63 LT	0703		772.9																											1	4.1						
		0703	0432		763.8	762.3	0.4										300																					
RPA 14+50	31 LT	0704		773.9																											1	4.8						
		0704	0703		764.1	763.8	0.4										56																					
RPA 14+50	43 RT	0705		771.5																											1	2.1						
		0705	0704		764.4	764.1	0.3										72																					
RPA 12+83	39 RT	0706		773.5																											1	2.8						
		0706	0705		765.7	764.9										152																						
Y7 14+79	22 RT	0707		776.8																											1	1.3						
		0707	0706		770.5	765.7										48																						
Y 34+64	132 RT	0708		781.3																											1	2.8						
		0708	0709		773.5	773.1													60																			
Y 34+64	70 RT	0709		777.3																											1							
		0709	0710		773.1	772.8	0.5																			68												
Y 34+65	0 CL	0710		779.2																											1	1.4						
		0710	0711		772.8	772.4	0.5																			88												
Y7 13+49	28 LT	0711		776.6																											1							
		0711	0712		772.4	771.9													96																			
Y 31+03	147 RT	0717		793.8																											1			1		1		
		0717	0716		790.8	790.3									40																							
Y 30+65	150 RT	0716		793.3																											1			1			1	
		0716	0715		790.3	773.0							72																									
Y 16+45	CL																																					
SHEET TOTALS												72			40	444	428		364							156					12	19.3		2		1	1	
PROJECT TOTALS									44			108	100	60	724	3560	428	548	1544	588			24		140	156	176		2.300		76	125.2		26	5	8	13	

LINE & STATION	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B. (SEE SHEET 2C-3)	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B. (SEE SHEET 2C-3)	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	BERM DITCH OUTLET STD. 850.11 (PER EACH)		##" SLUICE GATE (##" SIZE SLUICE GATE)		MODIFIED CONC. FLUME	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
	0701	0422																																															44	
Y 32+50	0702							1					1																																					
	0702	0701																																															275	
Y 31+51	0703						1						1																																					
	0703	0432																																																
RPA 14+50	0704							1					1																																					
	0704	0703																																																
RPA 14+50	0705							1					1																																					
	0705	0704																																																
RPA 12+83	0706							1			1																																							
	0706	0705																																															15	
Y7 14+79	0707							1					1																																					
	0707	0706																																																
Y 34+64	0708							1									1																																	
	0708	0709																																											33.3				
Y 34+64	0709							1					1																																					
	0709	0710																																																
Y 34+65	0710							1					1																																					
	0710	0711																																											33.3				
Y7 13+49	0711							1					1																																					
	0711	0712																																																
Y 31+03	0717																																																	
	0717	0716																																																
Y 30+65	0716																																																	
	0716	0715																													2																		60	
Y 16+45																																													234.4				PEDESTRIAN TUNNEL
SHEET TOTALS							1	9			1		8				1															2														301			394	
PROJECT TOTALS			5		6	6	13	20			5		30				1			5		3	3		9	1		1			1	4	4				1									525	1.1510		1713	

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

RD278046

COMPUTED BY:	MBC	DATE:	1/28/2015
CHECKED BY:	AEV	DATE:	6/25/2015

PROJECT NO.	SHEET NO.
B-3159	3D-5

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 54 INCHES & OVER)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
Y 16+88	73 LT	0602		758.7			
		0602	0617		749.3	749.2	0.5
Y 16+55	69 LT	0617		760.3			
Y 16+45	65 LT						
Y 17+31	80 LT	0603		755.7			
		0602	0603				
SHEET TOTALS							
PROJECT TOTALS							

LINE & STATION (SIZE / THICKNESS OR GAUGE)	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 18	24	30	36	C. S. PIPE 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)	42 (.109)	48 (.109)	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	R. C. PIPE CLASS IV 12	15	18	24	30	36	R. C. PIPE CLASS V 12	15	18	24	30
Y 16+88																																		
(0602–0617)																					32													
Y 16+55																																		
Y 16+45																																		
Y 17+31																																		
(0602–0603)																																		
SHEET TOTALS																					32													
PROJECT TOTALS																					32													

LINE & STATION	56" X 40" ELLIPSE PIPE LINER	43" X 68" ELLIPSE RCP-III	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	5' THRU 10' (A) LIN. FT.	10' AND ABOVE (B) LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
Y 16+88					3.882							
(0602–0617)												
Y 16+55					4.283							
Y 16+45	19											
Y 17+31					2.970							
(0602–0603)		40										
SHEET TOTALS	19	40			11.135							
PROJECT TOTALS	19	40			11.135							

LINE & STATION	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. SEE SHEET 2C-5	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	15" C.S. ELBOW	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y 16+88																		1						1											
(0602–0617)																																			
Y 16+55																			1					1											
Y 16+45																																			
Y 17+31							1						1																						
(0602–0603)																																			
SHEET TOTALS							1						1					1	1					2											
PROJECT TOTALS							1						1					1	1					2											

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

COMPUTED BY: GEOTECH UNIT DATE: 4/28/2014
CHECKED BY: AEV DATE: 6/25/2015

PROJECT NO.	SHEET NO.
B-3159	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	600
				TOTAL LF:	600

*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					1000	1800	2000		
			TOTAL CY/TONS/SY:		1000	1800	2000	0	0

*ASU = Aggregate Subgrade
*AST = Aggregate Stabilization

PROJ. REFERENCE NO.	SHEET NO.
B-3159	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

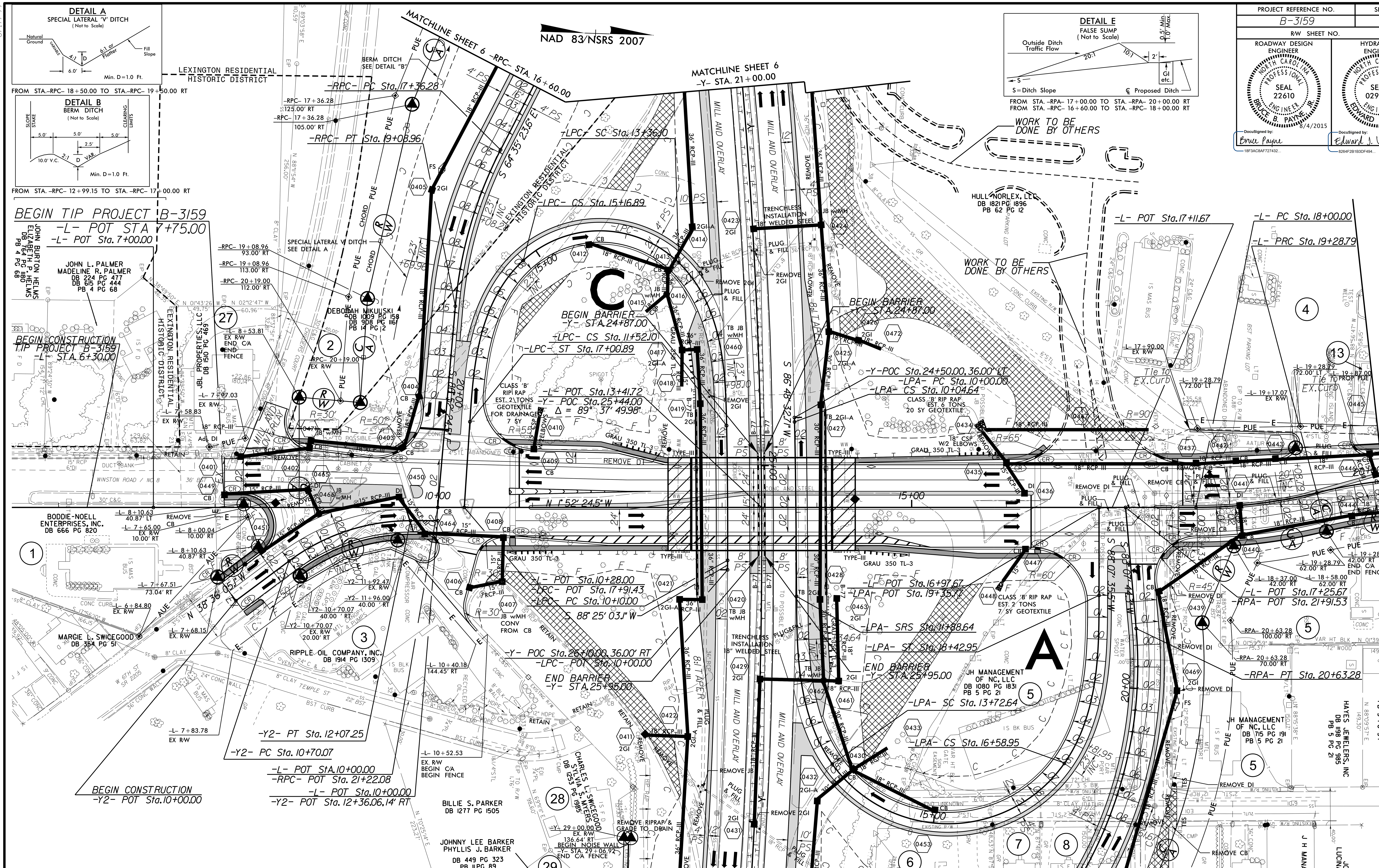
PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	BODDIE-NOELL ENTERPRISES, INC.
2	4 & 6	DEBORAH MIKULSKI
3	4	RIPPLE OIL COMPANY, INC.
4	4 & 5	HULL-NORLEX, LLC
5	4 & 5	JH MANAGEMENT OF NC, LLC
6	4 & 7	THOMAS LEROY LEE
7	4 & 7	JOHN MILTON FRITTS and BETTY E FRITTS
8	4 & 7	BRAXTON E.and SARAH S. TROUBLEFIELD
9	4 & 7	RHONDA B. MILLER
10	4	DAVID TODD HUNT
12	7	EVA J. SHAW and RALPH SHAW
13	4 & 5	NINTH STREET NORLEX, LLC
14	4 & 5	HAYES JEWLERS, INC.
15	4 & 7	VIVIAN E. BROADWAY
16	7	MARGARET P. SMITH, WIDOW
17	7	TODD. J. SURRATT
18	7	JAMES EARL LANIER and DEBRA LANIER
19	7	HEI H. TAM and YIM CHAU WU TAM
20	7	HILDA W. FLYNT
21	7	ROBERT L. EVERHART, III
22	7	H. CLAY KOONTS
23	7	ROY BACELHOLMAN JR, HOMER ROGER HOLMAN, and JANET FAYE HOLMAN STEWART
24	7	GRUBB HOLDINGS COMPANY, LLC
25	7	GARY S. COOPER
26	7	RAJKUMAR DYAL SEENANAN ET UX NADIA SEENANAN
27	4	JBL PROPERTIES, LLC
28	4 & 7	CHARLES L. SWICEGOOD and SYLVIA S. MYERS
29	4 & 7	JOHNNY LEE BARKER and PHYLLIS J. BARKER

PROJECT REFERENCE NO.	SHEET NO.
B-3159	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR. 8/4/2015
DocuSigned by: Bruce Payne 18F3AC8AF727432...

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE 8/4/2015
DocuSigned by: Edward J. Vance 8264F2B1B3DF494...



NOTES:
SEE SHEET 8 FOR -L- & -Y2- PROFILE
SEE SHEET 9 FOR -RPA- PROFILE
SEE SHEET 9 FOR -LPA- PROFILE
SEE SHEET 10 FOR -RPC- PROFILE
SEE SHEET 10 FOR -LPC- PROFILE
SEE SHEET 2B-3 FOR NOISE WALL DESIGN
SEE SHEET 2B-1 FOR BRIDGE DETAIL
SEE SHEET 2B-1 FOR INTERSECTION DETAILS
SEE SHEET S-1 - S-43 FOR STRUCTURES PLANS
SEE SHEET W-1 - W-8 FOR WALL PLANS
SEE SHEET 4A FOR CURVE AND TRAFFIC DATA

Note: A concrete ditch detail for the ditches conveying drainage behind the proposed MSE wall are included in the Geotechnical Wall Plans.

Drainage pickup structures will be applied at appropriate locations at the toe of the MSE wall to collect ditch flow.

Sta -Y- 24+39 to 24+84.99 (right)
Sta -Y- 25+93.96 to 26+37.38 (right)
Sta -Y- 24+42 to 24+88.32 (left)
Sta -Y- 25+93.73 to 26+35.67 (left)

PAVED SHOULDERS /ISLANDS
PAINT STRIPING
STAMPED SIDEWALK
PAVEMENT REMOVAL
BRIDGE APPROACH SLABS

(2) DEBORAH MILKULSKI, DB 1009 PG 158, DB 908 PG 1161, PB 14 PG 2
(6) THOMAS LEROY LEE, DB 1758 PG 318, PB 5 PG 25
(7) JOHN MILTON FRITTS, BETTY E FRITTS, DB 507 PG 744, PB 5 PG 25
(8) BRAXTON E. and SARAH S. TROUBLEFIELD, DB 648 PG 21, PB 5 PG 25
(9) RHONDA B. MILLER, DB 1340 PG 233, PB 5 PG 34
(15) VIVIAN E. BROADWAY, DB 514 PG 359, PB 5 PG 25

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3159	4A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR.

DocuSigned by: Bruce Payne 8/4/2015
18F3ACBAF727432...

-L-

PI Sta 18+64.71
△ = 13° 50' 42.1" (LT)
D = 10° 44' 58.8"
L = 128.79'
T = 64.71'
R = 533.00'
SE = SEE PLANS

PI Sta 19+97.13
△ = 14° 36' 42.4" (RT)
D = 10° 44' 58.8"
L = 135.93'
T = 68.33'
R = 533.00'
SE = SEE PLANS

-Y-

PI Sta 25+58.78
△ = 30° 35' 22.0" (RT)
D = 1° 00' 18.7"
L = 3,043.15'
T = 1,558.78'
R = 5,700.00'
SE = EXIST

-RPA-

PI Sta 18+86.35
△ = 48° 51' 27.7" (LT)
D = 12° 54' 16.0"
L = 378.61'
T = 201.68'
R = 444.00'
SE = .08

-RPC-

PI Sta 18+23.72
△ = 22° 17' 00.9" (LT)
D = 12° 54' 16.0"
L = 172.68'
T = 87.45'
R = 444.00'
SE = .08

-LPA-

PI Sta 10+02.32
△ = 0° 02' 46.5" (RT)
D = 0° 59' 48.8"
L = 4.64'
T = 2.32'
R = 5,747.48'
SE = .02

PIs Sta 10+65.97
θs = 0° 55' 01.7"
Ls = 184.00'
LT = 122.67'
ST = 61.33'

PIs Sta 13+13.81
θs = 35° 08' 29.1"
Ls = 184.00'
LT = 125.17'
ST = 63.62'

PI Sta 15+84.35
△ = 109° 21' 47.2" (LT)
D = 38° 11' 49.9"
L = 286.31'
T = 211.71'
R = 150.00'
SE = .08

PIs Sta 17+22.57
θs = 35° 08' 29.1"
Ls = 184.00'
LT = 125.17'
ST = 63.62'

-LPC-

PI Sta 10+81.05
△ = 1° 26' 15.2" (LT)
D = 1° 00' 42.0"
L = 142.10'
T = 71.05'
R = 5,663.48'
SE = .08

PIs Sta 12+77.76
θs = 0° 50' 41.6"
Ls = 184.00'
LT = 125.66'
ST = 66.51'

PI Sta 14+48.63
△ = 86° 19' 20.1" (LT)
D = 47° 44' 47.3"
L = 180.79'
T = 112.53'
R = 120.00'
SE = .08

PIs Sta 15+81.88
θs = 43° 55' 36.4"
Ls = 184.00'
LT = 126.67'
ST = 64.99'

-Y2-

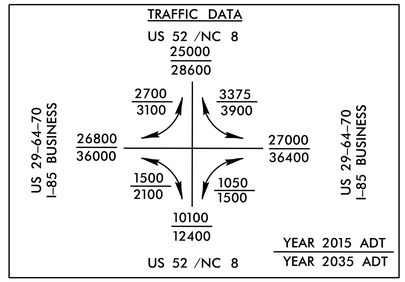
PI Sta 11+41.11
△ = 36° 43' 40.6" (RT)
D = 26° 46' 25.4"
L = 137.18'
T = 71.04'
R = 214.00'
SE = SEE PLANS

-Y3-

PI Sta 12+87.78
△ = 60° 06' 55.5" (LT)
D = 21° 42' 10.6"
L = 276.99'
T = 152.78'
R = 264.00'
SE = .08

PI Sta 15+39.19
△ = 61° 27' 14.0" (RT)
D = 26° 46' 25.4"
L = 229.53'
T = 127.20'
R = 214.00'
SE = SEE PLANS

TRAFFIC DATA

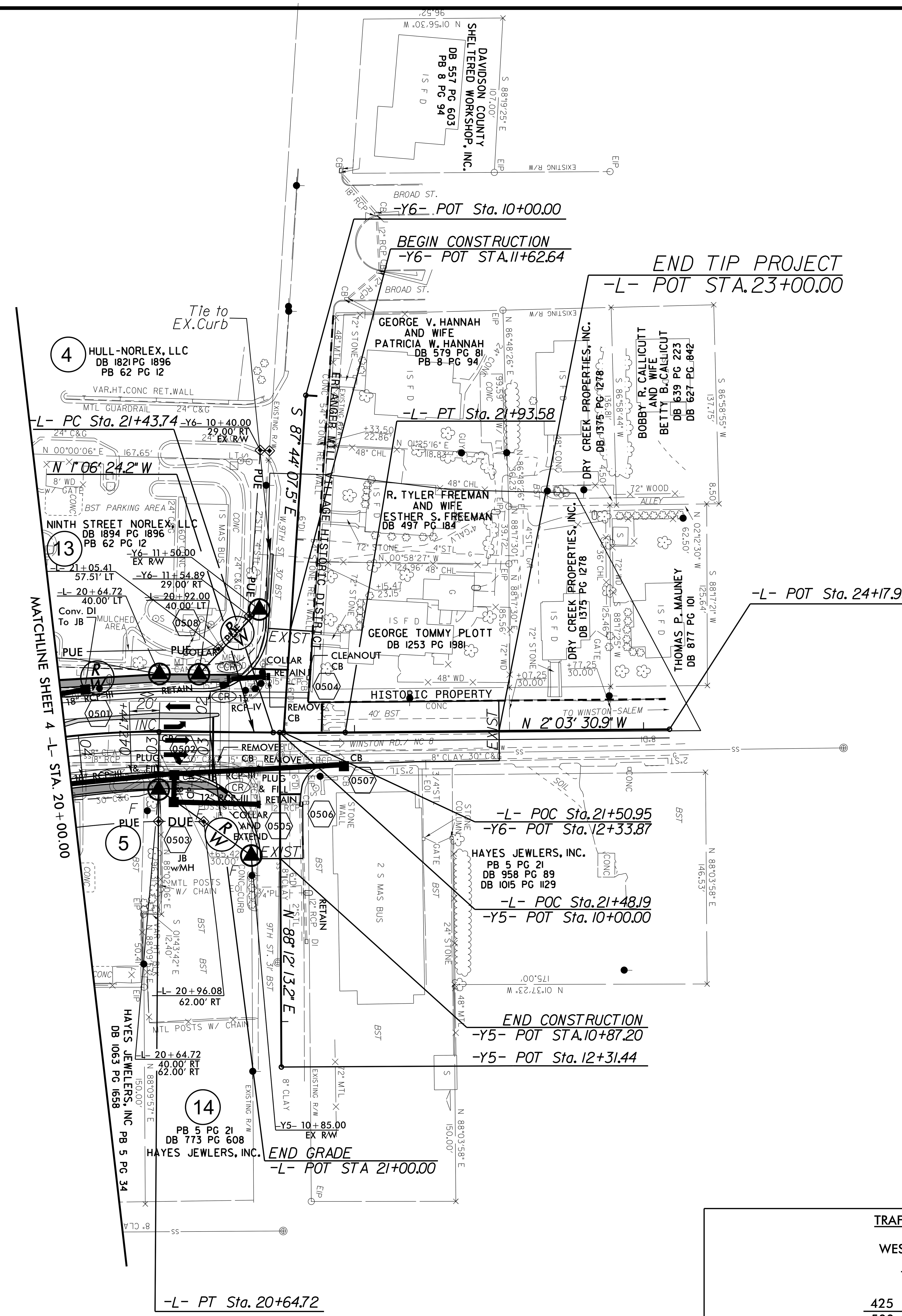


PROJECT REFERENCE NO.	SHEET NO.
B-3159	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE JR. 8/4/2015 — DocuSigned by: Bruce Payne 18F3AC8AF727432...

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE 8/4/2015 — DocuSigned by: Edward J. Vance 8264F2B1B3DF494...

NAD 83/NSRS 2007



-L-

PI Sta 19+97.13	PI Sta 21+68.66
Δ = 14° 36' 42.4" (RT)	Δ = 0° 57' 06.7" (LT)
D = 10° 44' 58.8"	D = 1° 54' 35.5"
L = 135.93'	L = 49.84'
T = 68.33'	T = 24.92'
R = 533.00'	R = 3,000.00'
SE = SEE PLANS	SE = SEE PLANS

TRAFFIC DATA

-Y6- WEST 9TH ST: 1900 / 2200

425 / 500 — 850 / 1000

US 52 -L- /NC 8: 22100 / 25600 — 21750 / 25200 US 52 -L- /NC 8

1275 / 1500 — 525 / 600

2425 / 2800 -Y5- EAST 9TH ST

YEAR 2015 ADT
YEAR 2035 ADT

ISLANDS
STAMPED SIDEWALK

NOTES:
SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 2B-1 FOR INTERSECTION DETAIL

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-3159	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR. 8/4/2015	NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE 8/4/2015
DocuSigned by: Bruce Payne 18F3AC8AF727432...	DocuSigned by: Edward J. Vance 8264F2B1B3DF494...

NAD 83/NSRS 2007

-RPC-

PIs Sta 11+97.82	PI Sta 13+50.37	PIs Sta 15+01.75
Θs = 8° 58' 47.7"	Δ = 17° 41' 38.5" (RT)	Θs = 8° 58' 47.7"
Ls = 184.00'	D = 9° 45' 38.8"	Ls = 184.00'
LT = 122.82'	L = 181.28'	LT = 122.82'
ST = 61.48'	T = 91.37'	ST = 61.48'
	R = 587.00'	
	SE = .08	

-Y-

PI Sta 25+58.78
Δ = 30° 35' 22.0" (RT)
D = 1° 00' 18.7"
L = 3,043.15'
T = 1,558.78'
R = 5,700.00'
SE = EXIST

PAVEMENT REMOVAL

PAVED SHOULDER

NOTES:
SEE SHEET 10 FOR -RPC- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
B-3159	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR. 8/13/2015 — DocuSigned by: Bruce Payne 18F3AC8AF727432...

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE 8/12/2015 — DocuSigned by: Edward J. Vance 8264F2B1B3DF494...

-RPA-

PIs Sta 11+97.82
Θs = 8° 58' 47.7"
Ls = 184.00'
LT = 122.82'
ST = 61.48'

PI Sta 13+24.10
Δ = 12° 39' 25.3" (RT)
D = 9° 45' 38.8"
L = 129.67'
T = 65.10'
R = 587.00'
SE = .08

PIs Sta 14+50.15
Θs = 8° 58' 47.7"
Ls = 184.00'
LT = 122.82'
ST = 61.48'

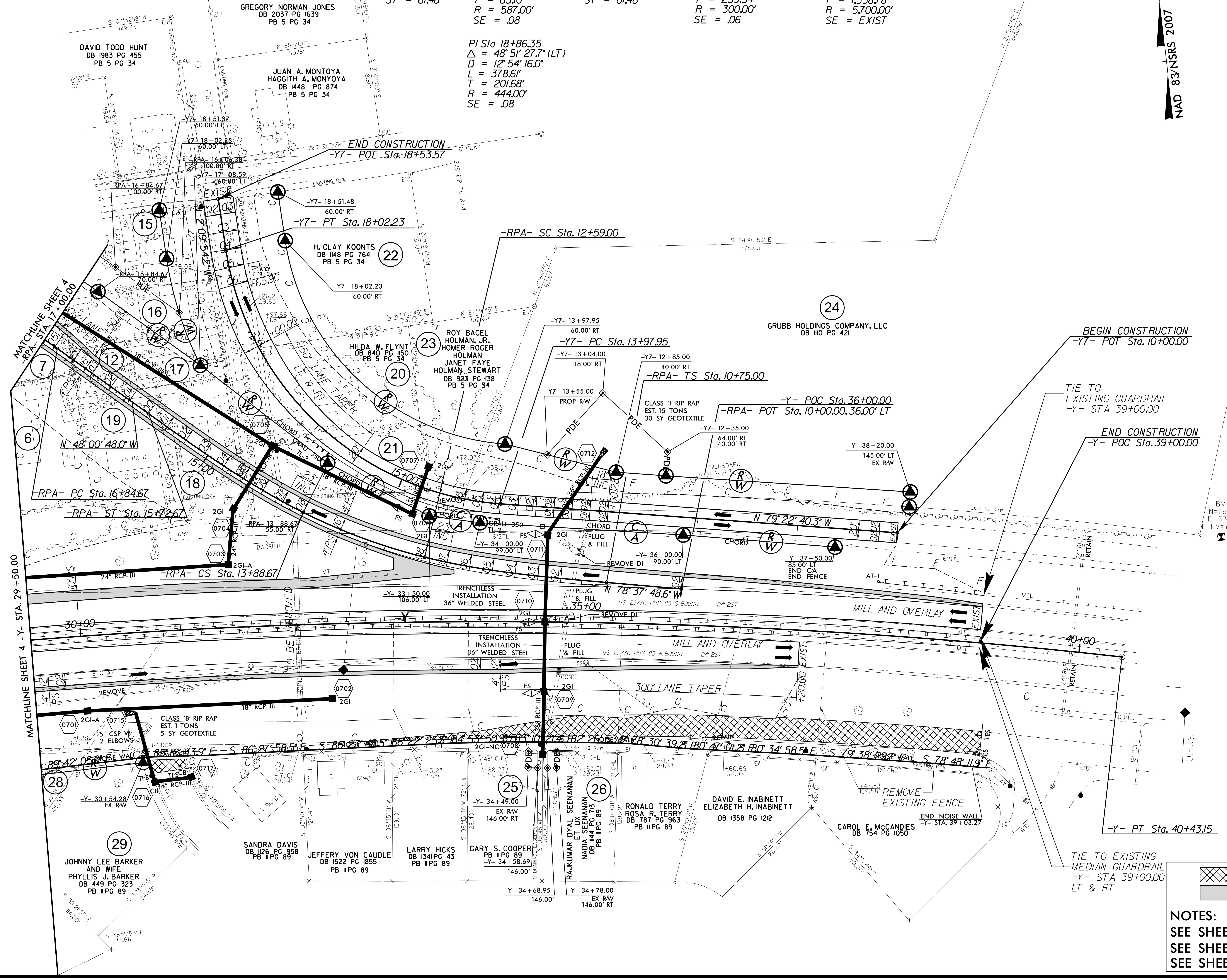
PI Sta 18+86.35
Δ = 48° 51' 27.7" (LT)
D = 12° 54' 16.0"
L = 378.61'
T = 201.68'
R = 444.00'
SE = .08

-Y7-

PI Sta 16+37.49
Δ = 77° 12' 46.1" (RT)
D = 19° 05' 54.9"
L = 404.29'
T = 239.54'
R = 300.00'
SE = .06

-Y-

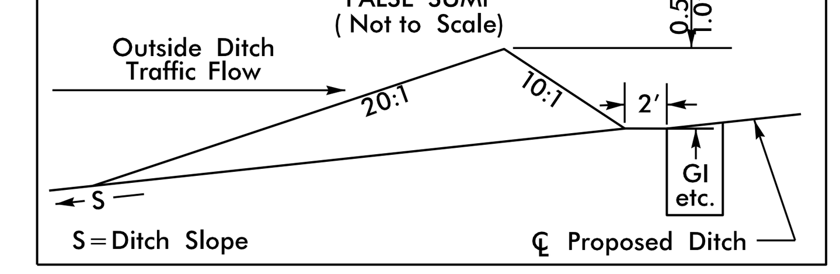
PI Sta 25+58.78
Δ = 30° 35' 22.0" (RT)
D = 1° 00' 18.7"
L = 3,043.15'
T = 1,558.78'
R = 5,700.00'
SE = EXIST



NAD 83/NSRS 2007
END CONSTRUCTION
-Y7- POT Sta. 18+53.57
-Y7- PT Sta. 18+02.23
-RPA- SC Sta. 12+59.00
-RPA- TS Sta. 10+75.00
-Y7- PC Sta. 13+97.95
BEGIN CONSTRUCTION
-Y7- POT Sta. 10+00.00
TIE TO EXISTING GUARDRAIL -Y- STA 39+00.00
END CONSTRUCTION
-Y- POC Sta. 39+00.00
-Y- POC Sta. 36+00.00
-RPA- POT Sta. 10+00.00, 36.00' LT
MATCHLINE SHEET 4 -RPA- STA. 17+00.00
MATCHLINE SHEET 4 -Y- STA. 29+50.00
-RPA- PC Sta. 16+84.67
-RPA- ST Sta. 15+72.67
-RPA- CS Sta. 13+88.67
GREGORY NORMAN JONES DB 2037 PG 1639 PB 5 PG 34
DAVID TODD HUNT DB 1983 PG 455 PB 5 PG 34
JUAN A. MONTOYA HAGGITH A. MONYOYA DB 1448 PG 874 PB 5 PG 34
H. CLAY KOONTS DB 1148 PG 764 PB 5 PG 34
HILDA W. FLYNT DB 840 PG 1150 PB 5 PG 34
ROY BACEL HOLMAN, JR. HOMER ROGER HOLMAN JANET FAYE HOLMAN STEWART DB 923 PG 138 PB 5 PG 34
GRUBB HOLDINGS COMPANY, LLC DB 1110 PG 421
CLASS 'I' RIP RAP EST. 15 TONS 30 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE
TRENCHLESS INSTALLATION 36" WELDED STEEL
MILL AND OVERLAY
US 29/70 BUS 85 S.BOUND
US 29/70 BUS 85 N.BOUND
300' LANE TAPER
150' LANE TAPER
REMOVE EXISTING FENCE
END NOISE WALL -Y- STA. 39+03.27
-Y- PT Sta. 40+43.15
TIE TO EXISTING MEDIAN GUARDRAIL -Y- STA 39+00.00 LT & RT
BM#2 N=761288 E=1630122 ELEV=781.59'
SANDRA DAVIS DB 1126 PG 958 PB 11 PG 89
JEFFERY VON CAUDLE DB 1522 PG 1855 PB 11 PG 89
LARRY HICKS DB 1341 PG 43 PB 11 PG 89
GARY S. COOPER PB 11 PG 89
RAJKUMAR DYAL SEENANAN ET UX NADIA SEENANAN DB 1144 PG 713 PB 11 PG 89
RONALD TERRY ROSA R. TERRY DB 787 PG 963 PB 11 PG 89
DAVID E. INABINETT ELIZABETH H. INABINETT DB 1358 PG 1212
CAROL E. McCANDIES DB 754 PG 1050
JOHNNY LEE BARKER AND WIFE PHYLLIS J. BARKER DB 449 PG 323 PB 11 PG 89

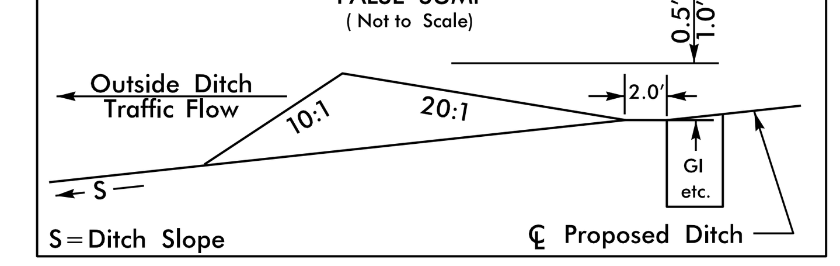
6	THOMAS LEROY LEE DB 1758 PG 318 PB 5 PG 25
7	JOHN MILTON FRITTS BETTY E FRITTS DB 507 PG 744 PB 5 PG 25
12	EVA J. SHAW RALPH SHAW
15	VIVIAN E. BROADWAY DB 514 PG 359 PB 5 PG 25
16	MARGARET P. SMITH, WIDOW DB 1393 PG 1195 PB 5 PG 34
17	TODD. J. SURRATT DB 2012 PG 2079 PB 5 PG 34
18	JAMES EARL LANIER DEBRA LANIER DB 1805 PG 1273 PB 5 PG 34
19	HEI H. TAM YIM CHAU WU TAM DB 1235 PG 948 PB 5 PG 34
21	ROBERT L. EVERHART, III
28	CHARLES L. SWICEGOOD DB 1253 PG 1985

DETAIL E
FALSE SUMP (Not to Scale)



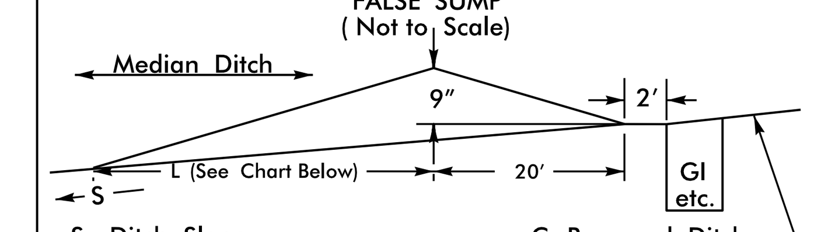
FROM STA. -L- 29+50.00 TO STA. -L- 39+00.00 RT

DETAIL F
FALSE SUMP (Not to Scale)



FROM STA. -RPA- 10+00.00 TO STA. -RPA- 14+50.00 RT

DETAIL G
FALSE SUMP (Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FROM STA. -L- 29+50.00 TO STA. -L- 39+00 MEDIAN

PAVEMENT REMOVAL
PAVED SHOULDER

NOTES:
SEE SHEET 9 FOR -RPA- PROFILE.
SEE SHEET 11 FOR -Y7- PROFILE.
SEE SHEET 2B-3 FOR NOISE WALL DESIGN.

8/17/99
12-AUG-2015 07:33
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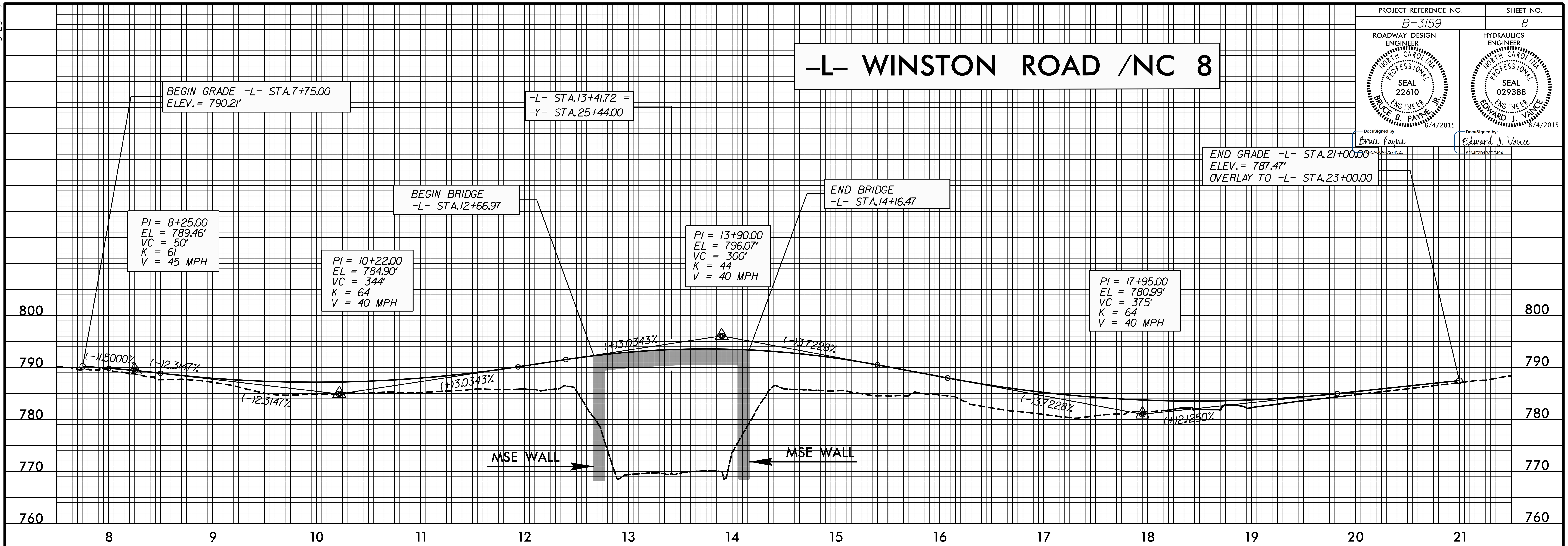
$$$$USERNAME$$$$

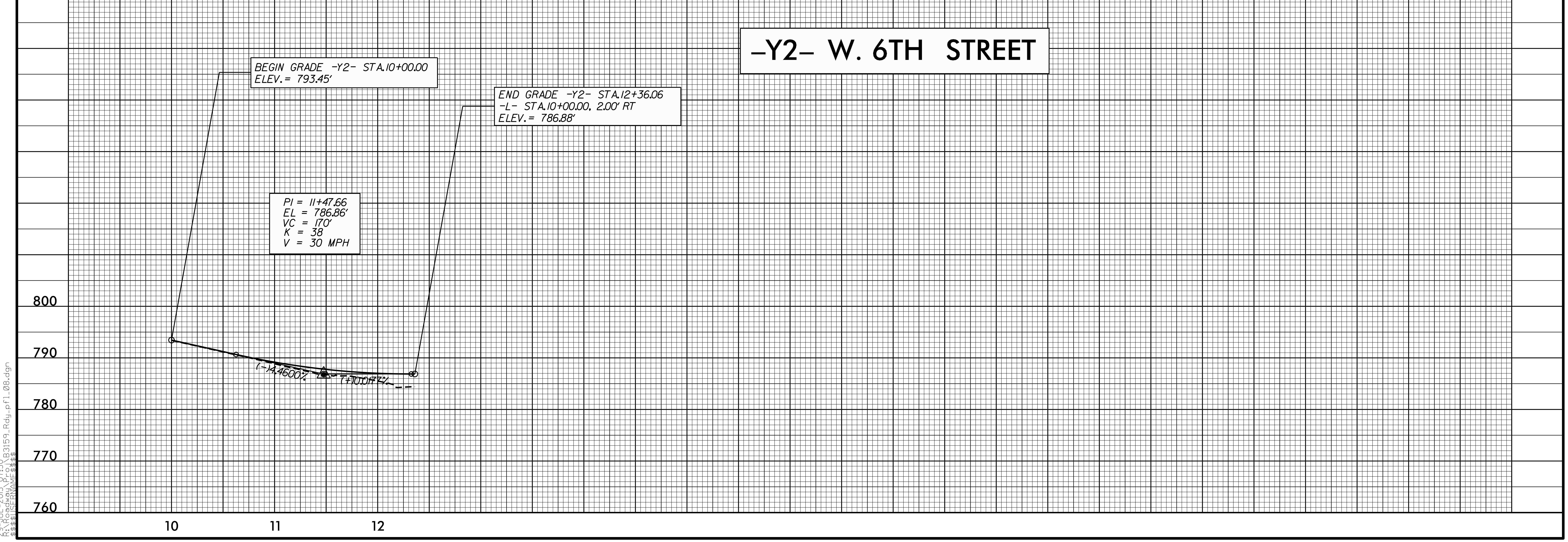
PROJECT REFERENCE NO.	SHEET NO.
B-3159	8

ROADWAY DESIGN ENGINEER — SEAL 22610, NORTH CAROLINA PROFESSIONAL ENGINEER, BRUCE B. PAYNE, JR., 8/4/2015 — DocuSigned by: Bruce Payne

HYDRAULICS ENGINEER — SEAL 029388, NORTH CAROLINA PROFESSIONAL ENGINEER, EDWARD J. VANCE, 8/4/2015 — DocuSigned by: Edward J. Vance



-L- WINSTON ROAD /NC 8
BEGIN GRADE -L- STA.7+75.00
ELEV.= 790.21'
-L- STA.13+41.72 =
-Y- STA.25+44.00
BEGIN BRIDGE
-L- STA.12+66.97
END BRIDGE
-L- STA.14+16.47
END GRADE -L- STA.21+00.00
ELEV.= 787.47'
OVERLAY TO -L- STA.23+00.00
PI = 8+25.00
EL = 789.46'
VC = 50'
K = 61
V = 45 MPH
PI = 10+22.00
EL = 784.90'
VC = 344'
K = 64
V = 40 MPH
PI = 13+90.00
EL = 796.07'
VC = 300'
K = 44
V = 40 MPH
PI = 17+95.00
EL = 780.99'
VC = 375'
K = 64
V = 40 MPH
(-)1.5000%
(-)2.3147%
(-)2.3147%
(+)3.0343%
(+)3.0343%
(-)3.7228%
(-)3.7228%
(+)2.1250%
MSE WALL
MSE WALL
800
790
780
770
760
8
9
10
11
12
13
14
15
16
17
18
19
20
21



5/28/99

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3159	9

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE JR.
6/4/2015
DocuSigned by: Bruce Payne 13F3AC2847727432

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE
6/4/2015
DocuSigned by: Edward J. Vance 8264F2B B3DE484...

–RPA–

BEGIN GRADE –RPA– STA 10+00.00
–Y– STA 36+00.00, 36' LT
EL = 782.75'

PI = 11+50.00
EL = 780.76'
VC = 100'
K = 100
V = 50 MPH

PI = 14+05.00
EL = 774.82'
VC = 300'
K = 85
V = 45 MPH

END GRADE –RPA– STA 21+61.41
–L– STA 17+28.29, 30' RT
EL = 784.01'

(–)1.327%
(–)2.3309%
(–)2.3309%
(+)1.2156%

800 790 780 770 760 750
10 11 12 13 14 15 16 17 18 19 20 21

–LPA–

BEGIN GRADE –LPA– STA 10+00.00
–Y– STA 24+50.00, 36' LT
EL = 769.39'

PI = 10+35.00
EL = 769.46'
VC = 40'
K = 40
V = 30 MPH

PI = 12+75.50
EL = 772.34'
VC = 147'
K = 79
V = 45 MPH

PI = 14+55.00
EL = 771.15'
VC = 180'
K = 40
V = 30 MPH

PI = 17+60.00
EL = 782.88'
VC = 100'
K = 38
V = 35 MPH

END GRADE –LPA– STA 19+05.77
–L– STA 16+97.67, 30' RT
EL = 784.65'

EXIST –RPA–

(+)0.2010%
(+)1.1994%
(+)1.1994%
(–)0.6673%
(–)0.6673%
(+)3.8462%
(+)3.8462%
(+)1.2156%

790 780 770 760 750
10 11 12 13 14 15 16 17 18 19

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PROJECT REFERENCE NO.
B-3159
SHEET NO.
10
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR.
8/4/2015
DocuSigned by:
Bruce Payne
18F3AC8AF727432...
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE
8/4/2015
DocuSigned by:
Edward J. Vance
8264F2B1B3DF494...
5/28/99
-RPC-
BEGIN GRADE -RPC- STA.10+00.00
-Y- STA.14+50.00, 36' RT
ELEV.= 761.73'
END GRADE -RPC- STA.20+71.61
-L- STA.10+04.40, 50.28' LT
ELEV.= 786.15'
PI = 11+87.00
EL = 764.16'
VC = 196'
K = 99
V = 50 MPH
BEGIN BERM DITCH RIGHT
-RPC- STA.12+99.15, EL.= 767.55'
SEE DITCH DETAIL B
PI = 15+00.00
EL = 762.00'
VC = 430'
K = 79
V = 45 MPH
PI =16+24.28
El = 783.77
END BERM DITCH RIGHT
-RPC- STA.17+00.00, EL.= 784.99'
SEE DITCH DETAIL B
BEGIN LATERAL 'V' DITCH RIGHT
-RPC- STA.18+50.00, EL.= 778.98'
SEE DITCH DETAIL A
END LATERAL 'V' DITCH RIGHT
-RPC- STA.19+50.00, EL.= 779.58'
SEE DITCH DETAIL A
PI = 19+40.00
EL = 782.86'
VC = 150'
K = 67
V = 45 MPH
(+)1.3000%
(-)0.6889%
(-)0.6889%
(+)4.7398%
(+) 4.9888%
(+) 1.6112%
(+)4.7398%
(+)2.5000%
(+) 0.6000%
DITCH LEGEND
RIGHT DITCH
790
780
770
760
750
10
11
12
13
14
15
16
17
18
19
20
21
-LPC-
BEGIN GRADE -LPC- STA.10+00.00
-Y- STA.26+10.00, 36' RT
ELEV.= 770.31'
END GRADE -LPC- STA.17+41.46
-L- STA.10+31.25, 49.56' LT
ELEV.= 786.25'
PI = 16+35.00
EL = 783.59'
VC = 65'
K = 10
V = 20 MPH
PI = 10+90.00
EL = 769.18'
VC = 75'
K = 157
V = 60 MPH
PI = 12+45.00
EL = 767.99'
VC = 60'
K = 35
V = 35 MPH
PI = 14+15.00
EL = 763.74'
VC = 200'
K = 17
V = 20 MPH
(-)1.2500%
(-)0.7729%
(-)0.7729%
(-)2.5000%
(-)2.5000%
(+)9.0234%
(+)9.0234%
(+)2.5000%
790
780
770
760
750
740
10
11
12
13
14
15
16
17
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-Y7- PIEDMONT DRIVE /WHITE STREET
PROJECT REFERENCE NO.
B-3159
SHEET NO.
11
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR.
8/4/2015
DocuSigned by:
Bruce Payne
18F3AC8AF727432...
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE
8/4/2015
DocuSigned by:
Edward J. Vance
8264F2B1B3DF494...
BEGIN GRADE -Y7- STA.10+00.00
EL = 777.35'
END GRADE -Y7- STA.18+53.57
EL = 789.48'
PI = 11+70.00
EL = 781.55'
VC = 120'
K = 39
V = 35 MPH
PI = 15+70.00
EL = 779.16'
VC = 190'
K = 40
V = 30 MPH
PI = 18+02.00
EL = 788.72'
VC = 56'
K = 21
V = 30 MPH
(+)2.4692%
(-)0.5978%
(-)0.5978%
(+)4.1222%
(+)4.1222%
(+)1.4737%
800
790
780
770
760
750
10
11
12
13
14
15
16
17
18
5/28/99
29-JUL-2015 07:50
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