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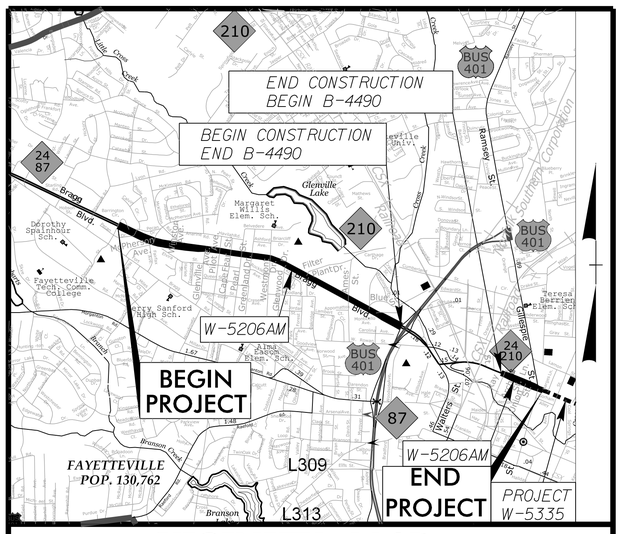
09/08/99

TIP PROJECT: W-5206AM

CONTRACT: C203719

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5206AM	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45336.1.FS39	HSIP-0024(67)	PE
45336.2.39	HSIP-0024(67)	R/W/UTIL
45336.3.39	HSIP-0024(67)	CONST.

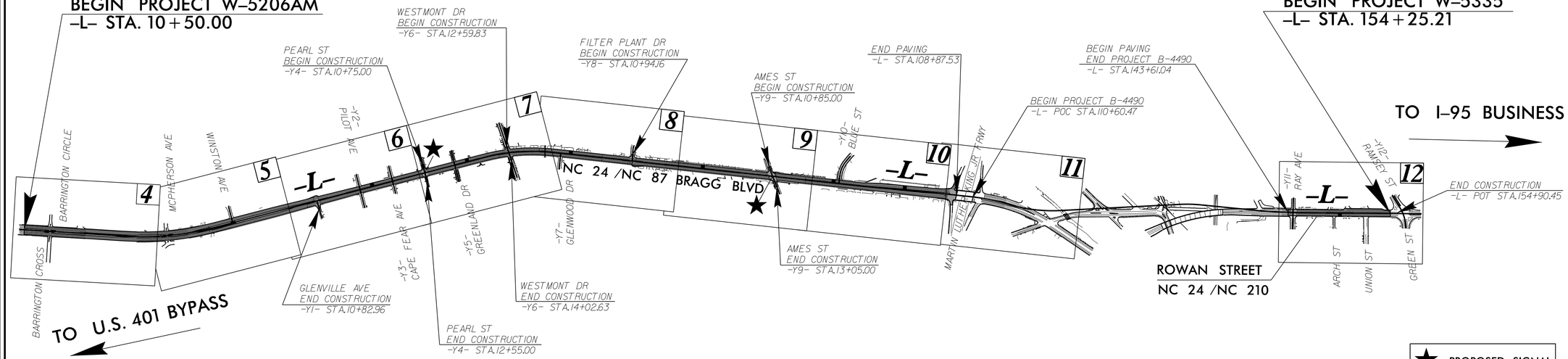
LOCATION: NC 24 / NC 87 FROM BARRINGTON CROSS STREET TO EAST OF MARTIN LUTHER KING WESTBOUND RAMPS; AND NC 24 / NC 210 (ROWAN STREET) BETWEEN RAY AVENUE AND RAMSEY STREET

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

NAD 83/NSRS 2007

BEGIN PROJECT W-5206AM
-L- STA. 10+50.00

END PROJECT W-5206AM
BEGIN PROJECT W-5335
-L- STA. 154+25.21



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	=	30,000
ADT 2035	=	35,500
K	=	8%
D	=	51%
T	=	5% *
V	=	50 MPH
* TTST=3		DUAL=2
FUNC CLASS	=	URB. COLL.
REGIONAL TIER		

PROJECT LENGTH

SECTION 1:		
LENGTH ROADWAY PROJECT W-5206AM	=	1.863 MILES
SECTION 2:		
LENGTH ROADWAY PROJECT W-5206AM	=	0.202 MILES
TOTAL LENGTH PROJECT W-5206AM	=	2.065 MILES

Prepared in the Office of:
CDM Smith
Camp Dresser & McKee
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-0412

FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: July 28, 2015

LETTING DATE: DECEMBER 15, 2015

DAVID CLODGO, PE
PROJECT ENGINEER

CURTIS TILLMAN, PE
PROJECT DESIGN ENGINEER

SEAN MATUSZEWSKI
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038683 ENGINEER MINH QUE CHI NGUYEN

9/24/2015
P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO

P.E.

SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

9/22/2015 8:47:24 AM
USER: CLODGODJ
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PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

INDEX OF SHEETS

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 II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.05 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.

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.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3'-0" RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE CENTURY LINK

FAYETTEVILLE PWC (POWER, WATER, AND FIBER OPTIC)

PIEDMONT NATURAL GAS

TIME WARNER CABLE

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS

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

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	
200.02	Method of Clearing - Method II
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
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
840.45	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
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
852.10	Median Construction - with Curb and Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — 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
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?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 LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	1C-1
MCKIM & CREED	

SURVEY CONTROL SHEET

GPS CALIBRATION REPORT

PROJECT FILE DATA U:\5344\0006P-DrawingsT-Survey\Site_Calibration.vce

TIP NUMBER

USER NAME	SSTRICKLAND	DATE & TIME	10/24/2014 1:18:41 PM
COORDINATE SYSTEM	US STATE PLANE 1983(GROUND)	ZONE	NORTH CAROLINA 3200
HORIZONTAL DATUM	NAD 1983(CONUS)		
VERTICAL DATUM		GEOID MODEL	GEOID12A (CONUS)
COORDINATE UNITS	US SURVEY FEET		
DISTANCE UNITS	US SURVEY FEET		
HEIGHT UNITS	US SURVEY FEET		

LOCAL SITE INFORMATION

LOCALIZED AROUND	VANDER RM3
LATITUDE	N35°01'38.09322"
LONGITUDE	W78°46'08.05374"
SITE SCALE FACTOR	1.00012104

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION USES A LOCALIZED COORDINATE SYSTEM WHICH IS VERY SIMILAR TO NORTH CAROLINA ZONE 3200 FROM WHICH IT WAS DERIVED. PLEASE TAKE CARE IN UTILIZING THESE COORDINATES TO ELIMINATE CONFUSION OF THE TWO SYSTEMS. THIS FILE IS TO AID IN THE USE OF REAL TIME KINEMATIC (RTK) GPS DURING CONSTRUCTION LAYOUT.

DATUM TRANSFORMATION PARAMETERS

DATUM TRANSFORMATION COMPUTATIONS NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

ORIGIN NORTHING	478500.0500 FT
ORIGIN EASTING	030875.5745 FT
ROTATION ABOUT THE CENTER	0°00'00"
TRANSLATION NORTH	1.648 FT
TRANSLATION EAST	-4.637 FT
SCALE FACTOR: 1.000124861	

VERTICAL CALIBRATION PARAMETERS

ORIGIN NORTHING	480288.5347 FT
ORIGIN EASTING	2025528.2196 FT
VERTICAL SHIFT AT ORIGIN	-0.040 FT
SLOPE NORTH	0.000 PPM
SLOPE EAST	0.000 PPM

GEOID MODEL DEFINITION

GEOID12A (CONUS)

RESIDUAL DIFFERENCES BETWEEN GPS AND LOCAL COORDINATES

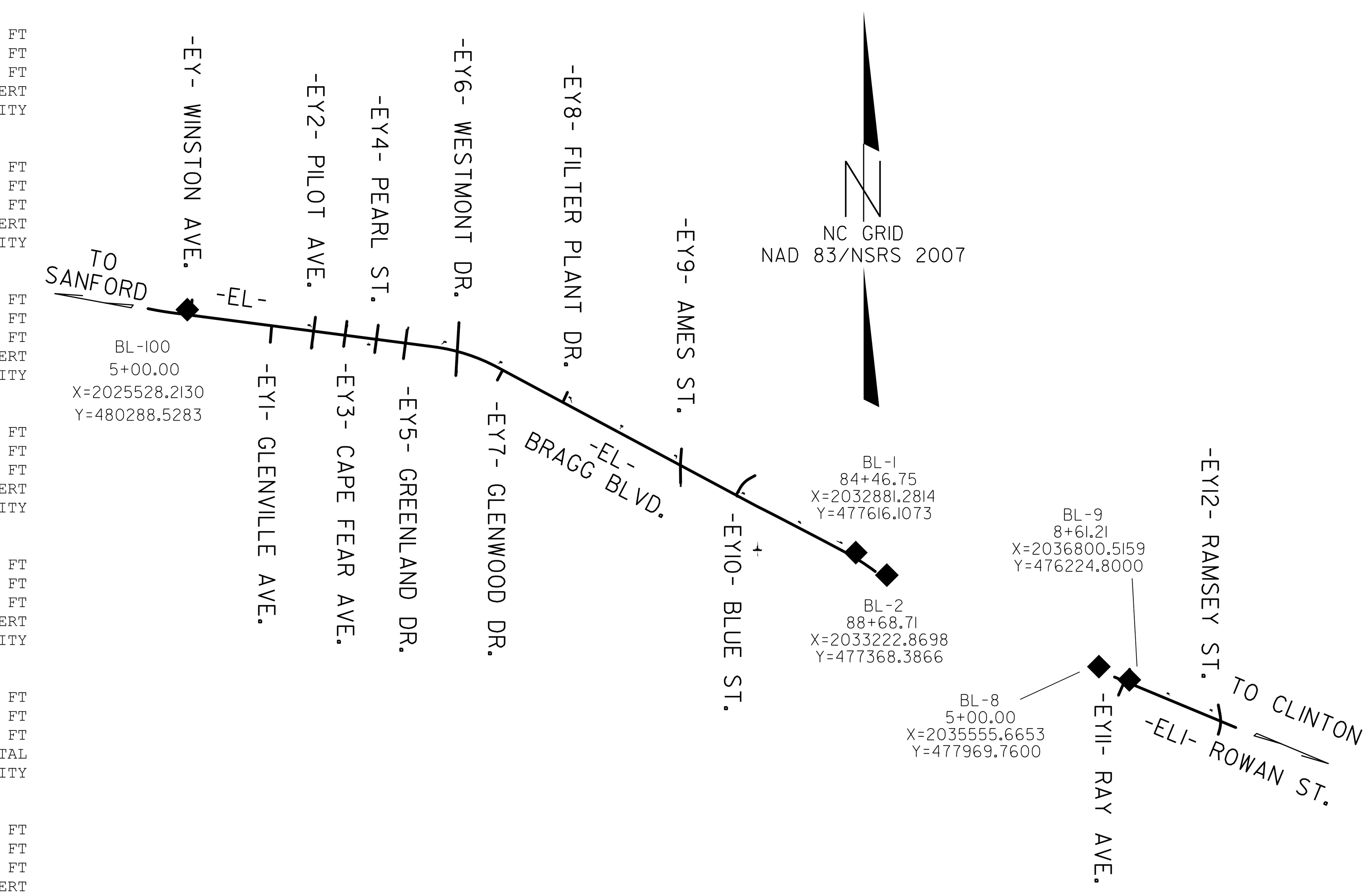
SUMMARY

	MAXIMUM RESIDUAL	ROOT MEAN SQUARE RESIDUAL	POINT
HORIZONTAL	0.047 FT	0.021 FT	2A
VERTICAL	0.076 FT	0.044 FT	8A
THREE-DIMENSIONAL	0.083 FT	0.049 FT	8A

POINT RESIDUALS

RESIDUALS SIGN: CALCULATED-CONTROL

GNSS POINT	CALCULATED POINT FOR DISPLAY ONLY	LOCAL COORDINATES
POINT 101	NORTHING 480155.9651 FT	POINT 101L
LATITUDE N35°04'09.40888"	EASTING 2026171.2072 FT	NORTHING 480155.9602 FT
LONGITUDE W78°54'45.05560"	ELEVATION 54.389 FT	EASTING 2026171.2370 FT
HEIGHT 44.876 FT	HORIZ. RESIDUAL 0.030 FT	ELEVATION 154.239 FT
	VERT. RESIDUAL ?	UTILIZED HORIZONTAL
	3D RESIDUAL ?	QUALITY SURVEY QUALITY
POINT 100	NORTHING 480288.5347 FT	POINT 100L
LATITUDE N35°04'10.72560"	EASTING 2025528.2196 FT	NORTHING 480288.5283 FT
LONGITUDE W78°54'52.78944"	ELEVATION 186.873 FT	EASTING 2025528.2130 FT
HEIGHT 77.382 FT	HORIZ. RESIDUAL 0.009 FT	ELEVATION 186.920 FT
	VERT. RESIDUAL -0.047 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.048 FT	QUALITY SURVEY QUALITY
POINT 102	NORTHING 480098.8171 FT	POINT 102L
LATITUDE N35°04'08.83728"	EASTING 2026894.0230 FT	NORTHING 480098.8018 FT
LONGITUDE W78°54'36.36068"	ELEVATION 1 58.613 FT	EASTING 2026894.0240 FT
HEIGHT 49.076 FT	HORIZ. RESIDUAL 0.015 FT	ELEVATION 158.565 FT
	VERT. RESIDUAL 0.048 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.051 FT	QUALITY SURVEY QUALITY
POINT 103	NORTHING 479922.6271 FT	POINT 103L
LATITUDE N35°04'07.08898"	EASTING 2027522.7875 FT	NORTHING 479922.6430 FT
LONGITUDE W78°54'28.79856"	ELEVATION 1 90.810 FT	EASTING 2027522.7880 FT
HEIGHT 81.251 FT	HORIZ. RESIDUAL 0.016 FT	ELEVATION 190.746 FT
	VERT. RESIDUAL 0.064 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.066 FT	QUALITY SURVEY QUALITY
POINT 104	NORTHING 479910.3608 FT	POINT 104L
LATITUDE N35°04'06.96020"	EASTING 2028325.9334 FT	NORTHING 479910.3685 FT
LONGITUDE W78°54'19.13685"	ELEVATION 165.458 FT	EASTING 2028325.9290 FT
HEIGHT 55.873 FT	HORIZ. RESIDUAL 0.009 FT	ELEVATION 165.312 FT
	VERT. RESIDUAL ?	UTILIZED HORIZONTAL
	3D RESIDUAL ?	QUALITY SURVEY QUALITY
POINT 105	NORTHING 479698.0885 FT	POINT 105L
LATITUDE N35°04'04.85475"	EASTING 2028951.8280 FT	NORTHING 479698.0908 FT
LONGITUDE W78°54'11.60983"	ELEVATION 142.110 FT	EASTING 2028951.8190 FT
HEIGHT 32.503 FT	HORIZ. RESIDUAL 0.009 FT	ELEVATION 142.114 FT
	VERT. RESIDUAL -0.004 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.010 FT	QUALITY SURVEY QUALITY
POINT 106	NORTHING 479266.5728 FT	POINT 106L
LATITUDE N35°04'00.57894"	EASTING 2029757.9784 FT	NORTHING 479266.5866 FT
LONGITUDE W78°54'01.91710"	ELEVATION 173.136 FT	EASTING 2029757.9740 FT
HEIGHT 63.499 FT	HORIZ. RESIDUAL 0.015 FT	ELEVATION 173.185 FT
	VERT. RESIDUAL -0.049 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.051 FT	QUALITY SURVEY QUALITY
POINT 107	NORTHING 478978.9500 FT	POINT 107L
LATITUDE N35°03'57.72888"	EASTING 2030289.8700 FT	NORTHING 478978.9373 FT
LONGITUDE W78°53'55.52211"	ELEVATION 160.275 FT	EASTING 2030289.8770 FT
HEIGHT 50.618 FT	HORIZ. RESIDUAL 0.014 FT	ELEVATION 160.268 FT
	VERT. RESIDUAL 0.007 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.016 FT	QUALITY SURVEY QUALITY
POINT 108	NORTHING 478651.1840 FT	POINT 108L
LATITUDE N35°03'54.48083"	EASTING 2030905.0051 FT	NORTHING 478651.1811 FT
LONGITUDE W78°53'48.12637"	ELEVATION 137.838 FT	EASTING 2030905.0260 FT
HEIGHT 28.158 FT	HORIZ. RESIDUAL 0.021 FT	ELEVATION 137.894 FT
	VERT. RESIDUAL -0.056 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.060 FT	QUALITY SURVEY QUALITY
POINT 109	NORTHING 478264.3081 FT	POINT 109L
LATITUDE N35°03'50.64695"	EASTING 2031622.4021 FT	NORTHING 478264.3043 FT
LONGITUDE W78°53'39.50140"	ELEVATION 127.306 FT	EASTING 2031622.3920 FT
HEIGHT 17.600 FT	HORIZ. RESIDUAL 0.011 FT	ELEVATION 127.320 FT
	VERT. RESIDUAL -0.014 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.018 FT	QUALITY SURVEY QUALITY
POINT 110	NORTHING 477934.5784 FT	POINT 110L
LATITUDE N35°03'47.37876"	EASTING 2032278.2971 FT	NORTHING 477934.5644 FT
LONGITUDE W78°53'31.61572"	ELEVATION 1 31.411 FT	EASTING 2032278.2790 FT
HEIGHT 21.681 FT	HORIZ. RESIDUAL 0.023 FT	ELEVATION 131.375 FT
	VERT. RESIDUAL 0.036 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.042 FT	QUALITY SURVEY QUALITY
POINT 111	NORTHING 477744.0903 FT	POINT 111L
LATITUDE N35°03'45.49045"	EASTING 2032674.3210 FT	NORTHING 477744.1098 FT
LONGITUDE W78°53'26.85439"	ELEVATION 125.534 FT	EASTING 2032674.3210 FT
HEIGHT 15.789 FT	HORIZ. RESIDUAL 0.019 FT	ELEVATION 125.501 FT
	VERT. RESIDUAL 0.033 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.038 FT	QUALITY SURVEY QUALITY
POINT 112	NORTHING 476043.8076 FT	POINT 112L
LATITUDE N35°03'28.63168"	EASTING 2 036334.2964 FT	NORTHING 476043.8120 FT
LONGITUDE W78°52'42.85311"	ELEVATION 1 01.610 FT	EASTING 2036334.3060 FT
HEIGHT -8.267 FT	HORIZ. RESIDUAL 0.011 FT	ELEVATION 101.730 FT
	VERT. RESIDUAL ?	UTILIZED HORIZONTAL
	3D RESIDUAL ?	QUALITY SURVEY QUALITY
POINT 1A	NORTHING 477616.0963 FT	POINT 1
LATITUDE N35°03'44.22226"	EASTING 2032881.2875 FT	NORTHING 477616.1073 FT
LONGITUDE W78°53'24.36647"	ELEVATION 118.918 FT	EASTING 2032881.2814 FT
HEIGHT 9.165 FT	HORIZ. RESIDUAL 0.013 FT	ELEVATION 118.940 FT
	VERT. RESIDUAL -0.022 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.026 FT	QUALITY SURVEY QUALITY
POINT 2A	NORTHING 477368.3776 FT	POINT 2
LATITUDE N35°03'41.76842"	EASTING 2033222.9155 FT	NORTHING 477368.3866 FT
LONGITUDE W78°53'20.26033"	ELEVATION 103.603 FT	EASTING 2033222.8698 FT
HEIGHT -6.163 FT	HORIZ. RESIDUAL 0.047 FT	ELEVATION 103.670 FT
	VERT. RESIDUAL -0.067 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.081 FT	QUALITY SURVEY QUALITY
POINT 8A	NORTHING 476361.6840 FT	POINT 8
LATITUDE N35°03'31.78496"	EASTING 2035555.6320 FT	NORTHING 476361.6800 FT
LONGITUDE W78°52'52.21465"	ELEVATION 105.856 FT	EASTING 2035555.6653 FT
HEIGHT -3.994 FT	HORIZ. RESIDUAL 0.034 FT	ELEVATION 105.780 FT
	VERT. RESIDUAL 0.076 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.083 FT	QUALITY SURVEY QUALITY
POINT 9A	NORTHING 476224.8197 FT	POINT 9
LATITUDE N35°03'30.42733"	EASTING 2035889.9334 FT	NORTHING 476224.8000 FT
LONGITUDE W78°52'48.19547"	ELEVATION 1 03.415 FT	EASTING 2035889.9358 FT
HEIGHT -6.446 FT	HORIZ. RESIDUAL 0.020 FT	ELEVATION 103.420 FT
	VERT. RESIDUAL -0.005 FT	UTILIZED HORZ AND VERT
	3D RESIDUAL 0.020 FT	QUALITY SURVEY QUALITY



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "VANDER RM3" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 464925.95(ft) EASTING: 2069182.42(ft) ELEVATION: 151.82(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999878975
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "VANDER RM3" TO -L- STATION 10+50.00 IS N 70°37' 52" W 48449.32'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.

2. 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:
   TIP####_LS_GPSCALIB_DATE.HTML
   TIP####_LS_WGS84_DATE.TXT
   TIP####_LS_LOCAL_DATE.TXT
   TIP####_LS_CONTROL_DATE.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

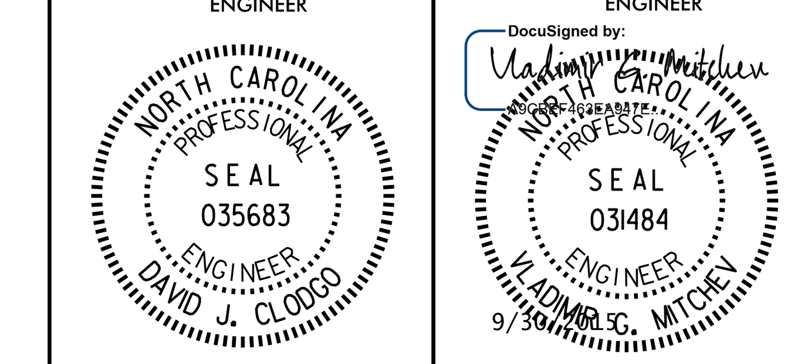
> INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

PAVEMENT SCHEDULE *FINAL PAVEMENT DESIGN*				V1	MILLING BITUMINOUS PAVEMENT, 0" - 1.5" (7' TO 10' WIDTH) TO TIE TO THE EXISTING CURB & GUTTER
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.	V2	MILLING BITUMINOUS PAVEMENT, 2"
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	R1	1'- 6" CONCRETE CURB AND GUTTER	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
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.	R2	2'- 6" CONCRETE CURB AND GUTTER	Y	PAVEMENT INTERLAYER FOR REINFORCEMENT OF ASPHALT OVERLAY
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BEPLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)		
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	4" CONCRETE SIDEWALK		
D2	PROP. APPROX. 5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R5	5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)		
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL		
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXIST. PAVEMENT		

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

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



CDM Smith
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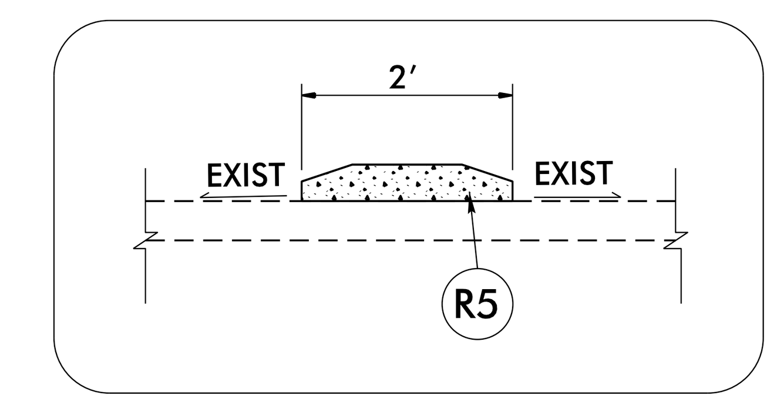
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-0412

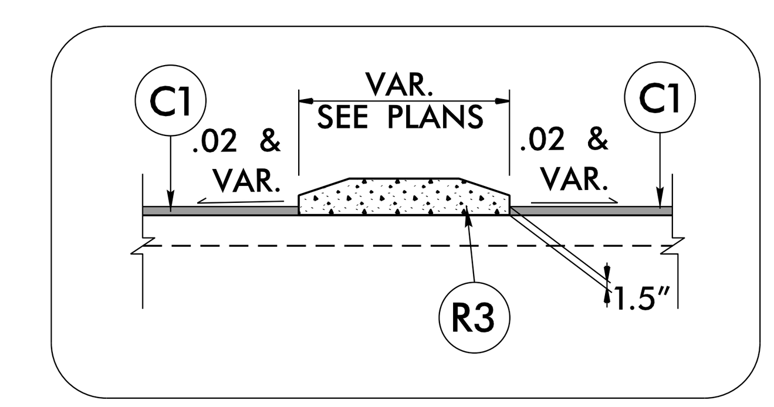
NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1593 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593

SURFACE MOUNTED ISLAND DETAIL
PROPOSED ISLANDS ON -L-



-L- STA. 154+25.21 TO STA. 154+31.00
-L- STA. 154+35.48 TO STA. 154+90.45

KEYED IN ISLAND DETAIL
PROPOSED ISLANDS ON -L-



-L- STA. 144+47.73 TO STA. 154+25.21

MILLING DETAIL ROWAN STREET

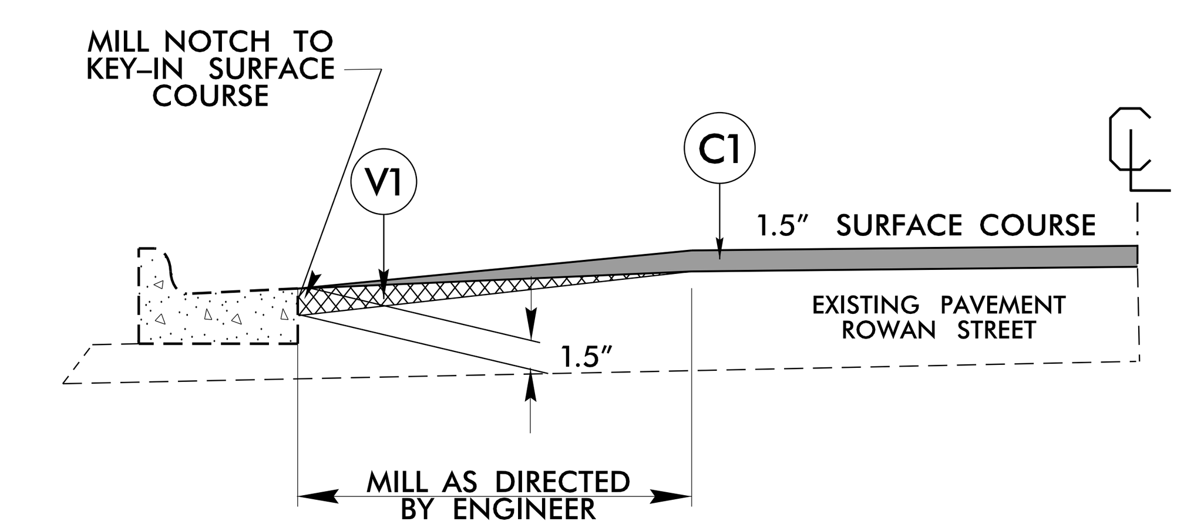
-L- STA. 143+61.04 AND STA. 154+25.21

NOTES TO CONTRACTOR

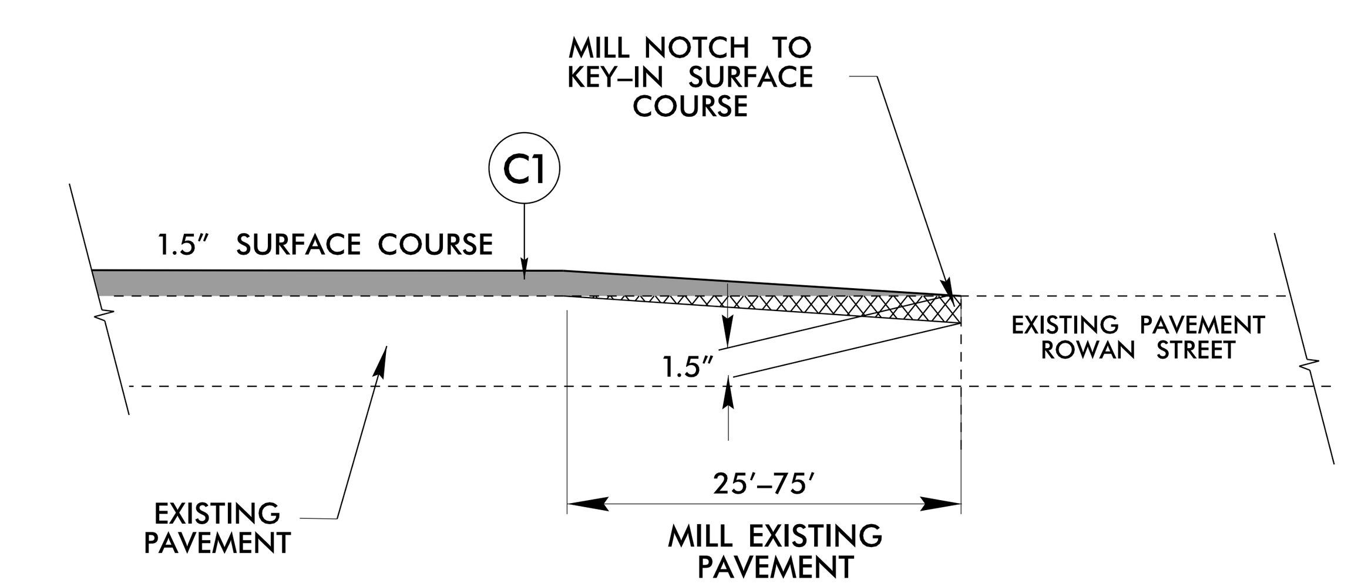
For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

Locations shall include along existing curb & gutter and ties at the beginning and ending point of Rowan Street.

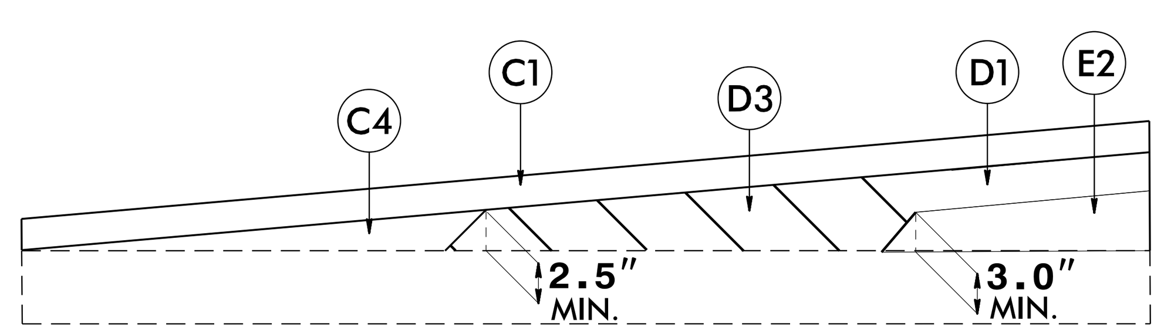
Perform the work in accordance with Section 607 of the January 2012 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.



MILLING ALONG EXISTING CURB & GUTTER

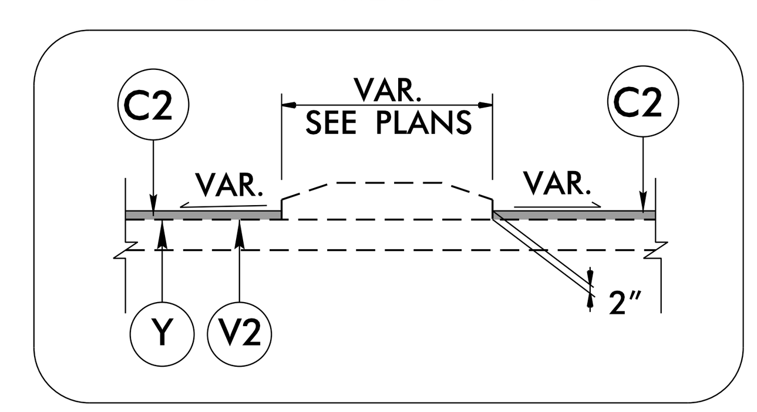


INCIDENTAL MILLING AT BEGIN/END FOR TIE-INS



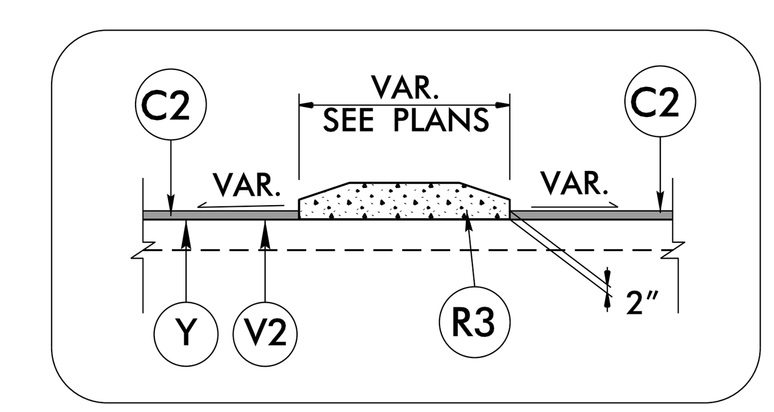
Wedging Detail For Resurfacing

KEYED IN ISLAND DETAIL
EXISTING ISLANDS ON -L-



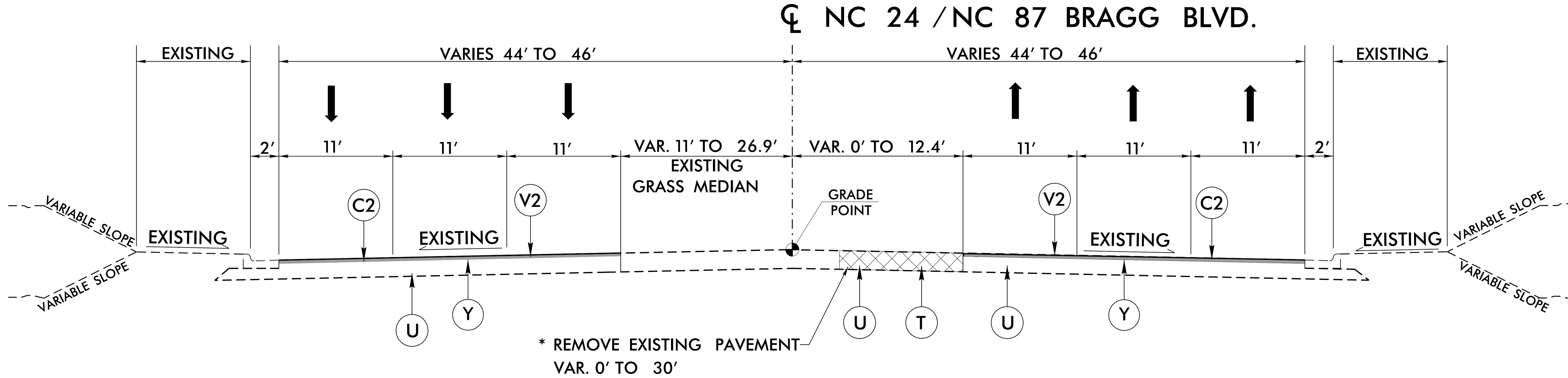
-L- STA. 10+50.00 TO STA. 39+23.52

KEYED IN ISLAND DETAIL
PROPOSED ISLANDS ON -L- & -Y- LINES



-L- STA. 39+23.52 TO STA. 108+87.53

℄ NC 24 / NC 87 BRAGG BLVD.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FOR:
-L- STA. 10+50.00 TO STA. 12+59.49
-L- STA. 13+76.60 TO STA. 24+79.31
-L- STA. 25+99.30 TO STA. 39+23.52
*-L- STA. 28+12.42 TO STA. 32+82.37

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2A-2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLOCCO

PAVEMENT DESIGN ENGINEER

DocuSigned by: Vladimir Mitchev

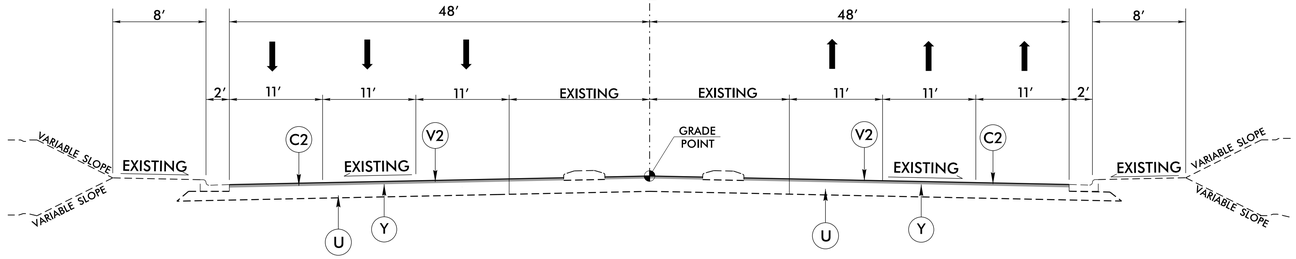
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV

9/30/2021

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

NC DEPARTMENT OF TRANSPORTATION, PAVEMENT MANAGEMENT UNIT, 1593 MAIL SERVICE CENTER, RALEIGH, NC 27699-1593

℄ NC 24 / NC 87 BRAGG BLVD.

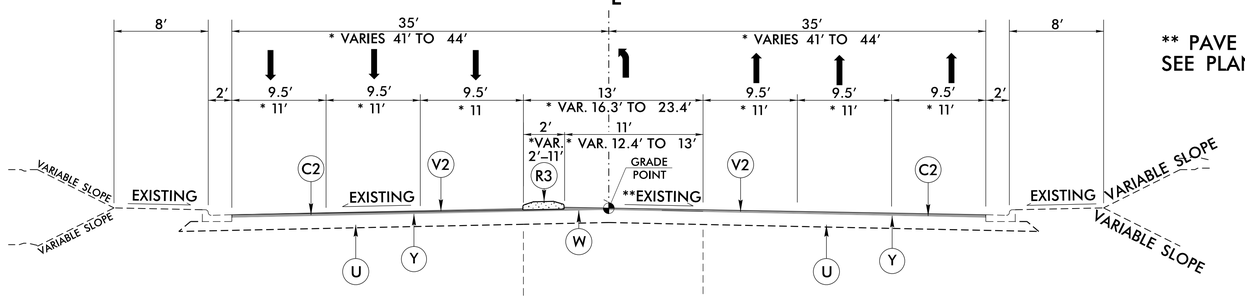


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FOR:

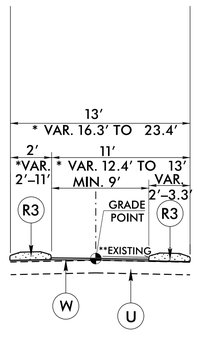
–L– STA. 12+59.49 TO STA. 13+76.60
–L– STA. 24+79.31 TO STA. 25+99.30

℄ NC 24 / NC 87 BRAGG BLVD.



** PAVE TO DRAIN
SEE PLANS & XSCS FOR LOCATIONS

TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 3A

USE TYPICAL SECTION NO. 3 FOR:

* –L– STA. 39+23.52 TO 41+27.90
–L– STA. 59+87.35 TO 61+65.60
–L– STA. 72+72.51 TO 74+59.58

–L– STA. 58+37.32 TO 59+87.35
TRANSITION FROM TYP. 5 TO TYP. 3
–L– STA. 61+65.60 TO 62+43.05
TRANSITION FROM TYP. 3 TO TYP. 5
–L– STA. 71+22.51 TO 72+72.51
TRANSITION FROM TYP. 3 TO TYP. 5

** PAVE TO DRAIN
SEE PLANS & XSCS FOR LOCATIONS

USE TYPICAL SECTION NO. 3A FOR:

* –L– STA. 40+32.96 TO 41+27.90

PAVEMENT SCHEDULE	
C1	1.5″ S9.5C
C2	APPROX. 2″ S9.5C
C3	APPROX. 3″ S9.5C
C4	VAR. S9.5C
D1	APPROX. 4″ I19.0C
D2	APPROX. 5″ I19.0C
D3	VAR. I19.0C
E1	4″ B25.0C
E2	VAR. B25.0C
R1	1′-6″ C&G
R2	2′-6″ C&G
R3	5″ MONO. CONC.(K.I.)
R4	4″ CONC. S/W
R5	5″ MONO. CONC.(S.M.)
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	0″ - 1.5″ MILLING
V2	2″ MILLING
W	WEDGING
Y	PVMT INTERLAYER

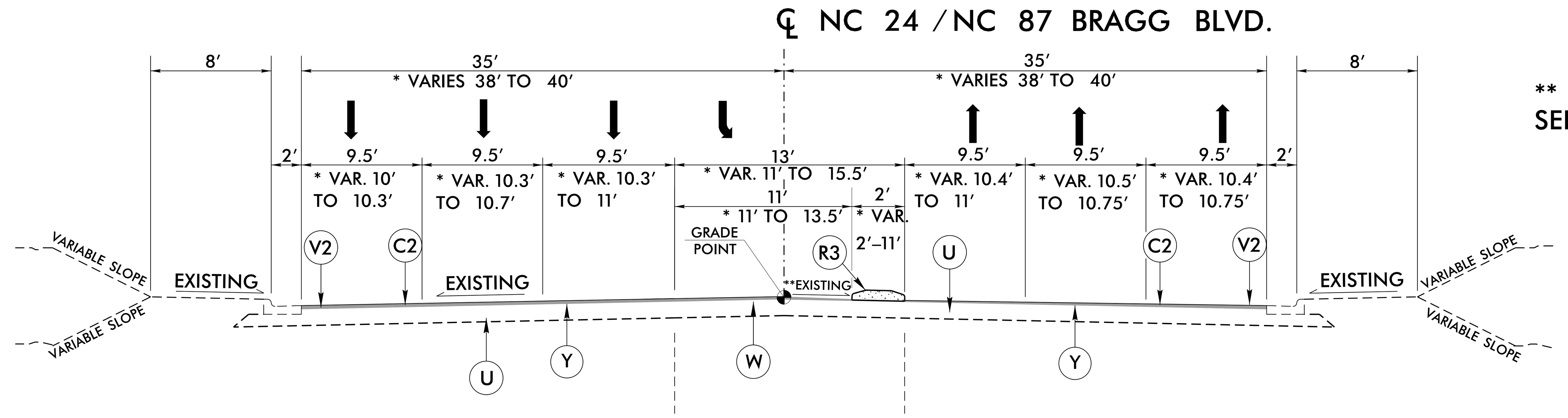
PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2A-3

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035683 DAVID J. CLODGO

PAVEMENT DESIGN ENGINEER — DocuSigned by: Vladimir G. Mitchev — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 VLADIMIR G. MITCHEV — 9/30/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

NC DEPARTMENT OF TRANSPORTATION, PAVEMENT MANAGEMENT UNIT, 1593 MAIL SERVICE CENTER, RALEIGH, NC 27699-1593



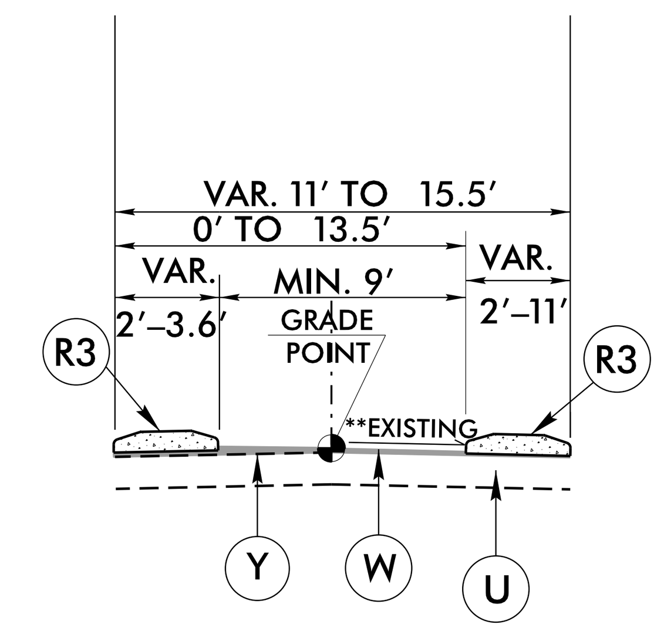
TYPICAL SECTION NO. 4

** PAVE TO DRAIN
SEE PLANS & XSCS FOR LOCATIONS

USE TYPICAL SECTION NO. 4 FOR:

* –L– STA. 41+64.96 TO 43+57.96
–L– STA. 62+43.05 TO 64+25.91
–L– STA. 75+27.85 TO 77+27.85

–L– STA. 41+27.90 TO 41+64.96
TRANSITION FROM TYP. 3 TO TYP. 4
–L– STA. 61+65.60 TO 62+43.05
TRANSITION FROM TYP. 3 TO TYP. 4
–L– STA. 74+59.98 TO 75+27.85
TRANSITION FROM TYP. 3 TO TYP. 4

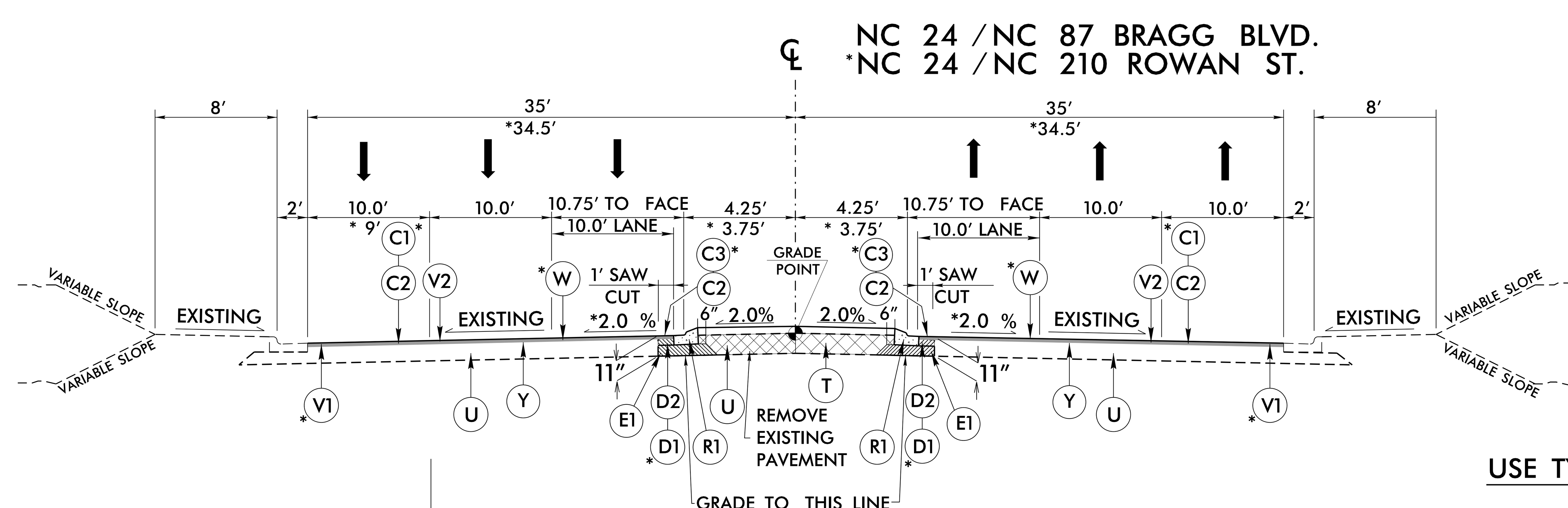


TYPICAL SECTION NO. 4A

** PAVE TO DRAIN
SEE PLANS & XSCS FOR LOCATIONS

USE TYPICAL SECTION NO. 4A FOR:

–L– STA. 41+72.51 TO 42+52.96
–L– STA. 62+25.91 TO 63+12.33

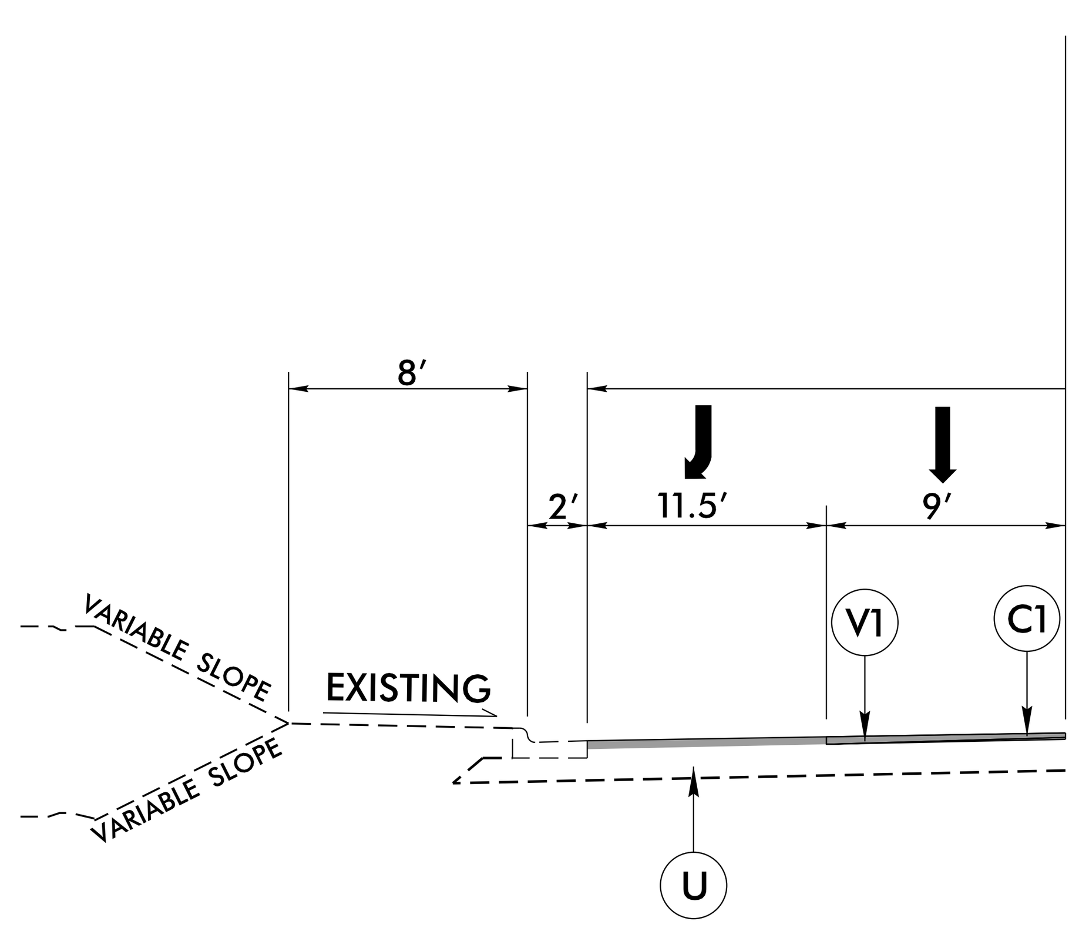


TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 FOR:

–L– STA. 44+57.96 TO 49+74.44
–L– STA. 56+35+41 TO 58+37.32
–L– STA. 65+75.91 TO 71+72.51
–L– STA. 78+07.98 TO 86+23.29
–L– STA. 93+06.30 TO 99+13.01
*–L– STA. 147+47.74 TO 150+40.45

–L– STA. 43+57.96 TO 44+57.96
TRANSITION FROM TYP. 7 TO TYP. 5
–L– STA. 55+35.41 TO 56+35.41
TRANSITION FROM TYP. 7 TO TYP. 5
–L– STA. 64+25.91 TO 65+75.91
TRANSITION FROM TYP. 4 TO TYP. 5
–L– STA. 77+27.85 TO 78+07.98
TRANSITION FROM TYP. 4 TO TYP. 5
–L– STA. 92+06.30 TO 93+06.30
TRANSITION FROM TYP. 7 TO TYP. 5
–L– STA. 146+47.73 TO 147+47.74
TRANSITION FROM TYP. 7 TO TYP. 5



TYPICAL SECTION NO. 5A

USE TYPICAL SECTION NO. 5A FOR:

–L– STA. 149+51.28 TO 150+40.45

PAVEMENT SCHEDULE

C1	1.5″ S9.5C
C2	APPROX. 2″ S9.5C
C3	APPROX. 3″ S9.5C
C4	VAR. S9.5C
D1	APPROX. 4″ I19.0C
D2	APPROX. 5″ I19.0C
D3	VAR. I19.0C
E1	4″ B25.0C
E2	VAR. B25.0C
R1	1′-6″ C&G
R2	2′-6″ C&G
R3	5″ MONO. CONC.(K.I.)
R4	4″ CONC. S/W
R5	5″ MONO. CONC.(S.M.)
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	0″ - 1.5″ MILLING
V2	2″ MILLING
W	WEDGING
Y	PVMT INTERLAYER

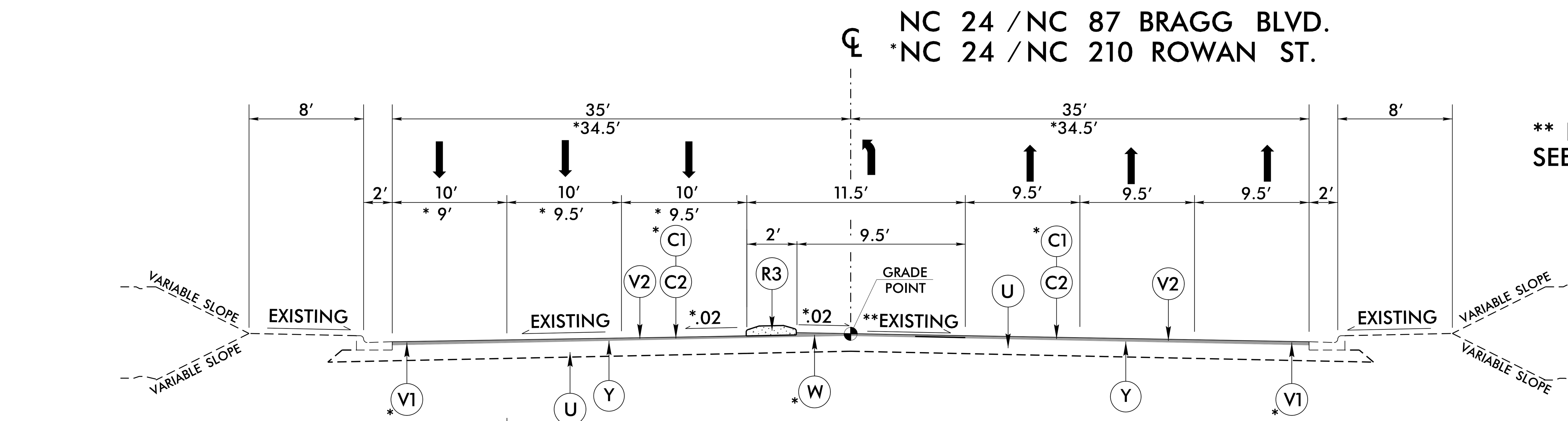
PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2A-4

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODDO

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — 9/30/15

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

NC DEPARTMENT OF TRANSPORTATION, PAVEMENT MANAGEMENT UNIT, 1593 MAIL SERVICE CENTER, RALEIGH, NC 27699-1593



TYPICAL SECTION NO. 6

** PAVE TO DRAIN
SEE PLANS & XSCS FOR LOCATIONS

USE TYPICAL SECTION NO. 6 FOR:

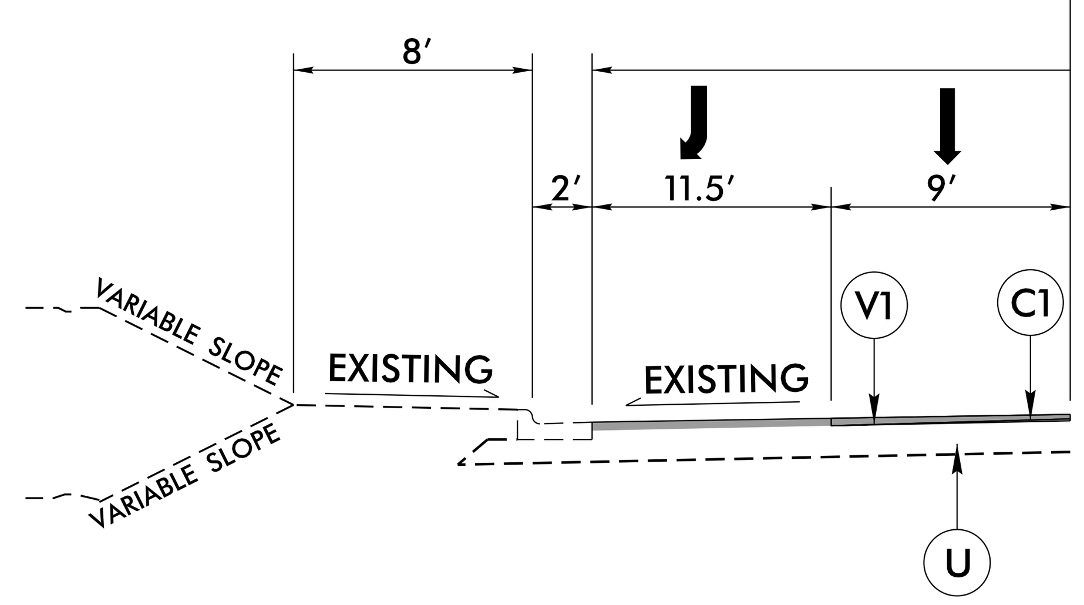
-L- STA. 50+74.44 TO 52+65.44
-L- STA. 87+23.28 TO 89+23.28
* -L- STA. 151+40.45 TO 154+25.21

-L- STA. 49+74.44 TO 50+74.44
TRANSITION FROM TYP. 5 TO TYP. 6

-L- STA. 86+23.29 TO 87+23.28
TRANSITION FROM TYP. 5 TO TYP. 6

-L- STA. 89+23.28 TO 90+06.30
TRANSITION FROM TYP. 6 TO TYP. 7

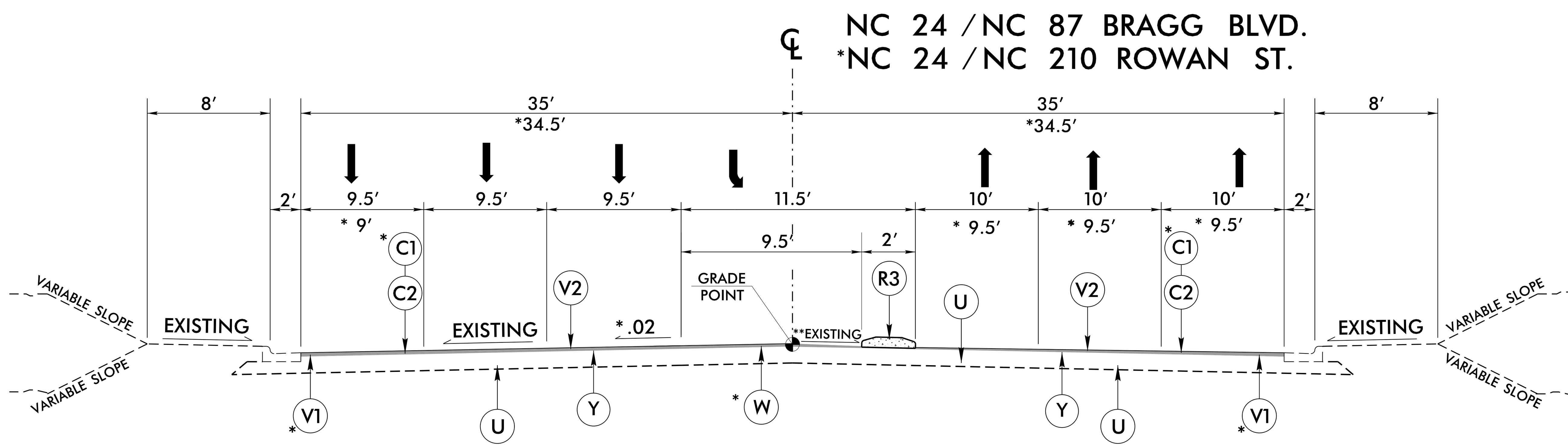
* -L- STA. 150+40.45 TO 151+40.45
TRANSITION FROM TYP. 5 TO TYP. 6



TYPICAL SECTION NO. 6A

USE TYPICAL SECTION NO. 6A FOR:

-L- STA. 151+40.45 TO 153+33.62



TYPICAL SECTION NO. 7

** PAVE TO DRAIN
SEE PLANS & XSCS FOR LOCATIONS

USE TYPICAL SECTION NO. 7 FOR:

-L- STA. 53+44.41 TO 55+35.41
-L- STA. 90+06.30 TO 92+06.30
* -L- STA. 143+61.04 TO 146+47.73

-L- STA. 52+65.44 TO 53+44.41
TRANSITION FROM TYP. 6 TO TYP. 7

PAVEMENT SCHEDULE	
C1	1.5" S9.5C
C2	APPROX. 2" S9.5C
C3	APPROX. 3" S9.5C
C4	VAR. S9.5C
D1	APPROX. 4" I19.0C
D2	APPROX. 5" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
R1	1'-6" C&G
R2	2'-6" C&G
R3	5" MONO. CONC.(K.I.)
R4	4" CONC. S/W
R5	5" MONO. CONC.(S.M.)
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	0" - 1.5" MILLING
V2	2" MILLING
W	WEDGING
Y	PVMT INTERLAYER

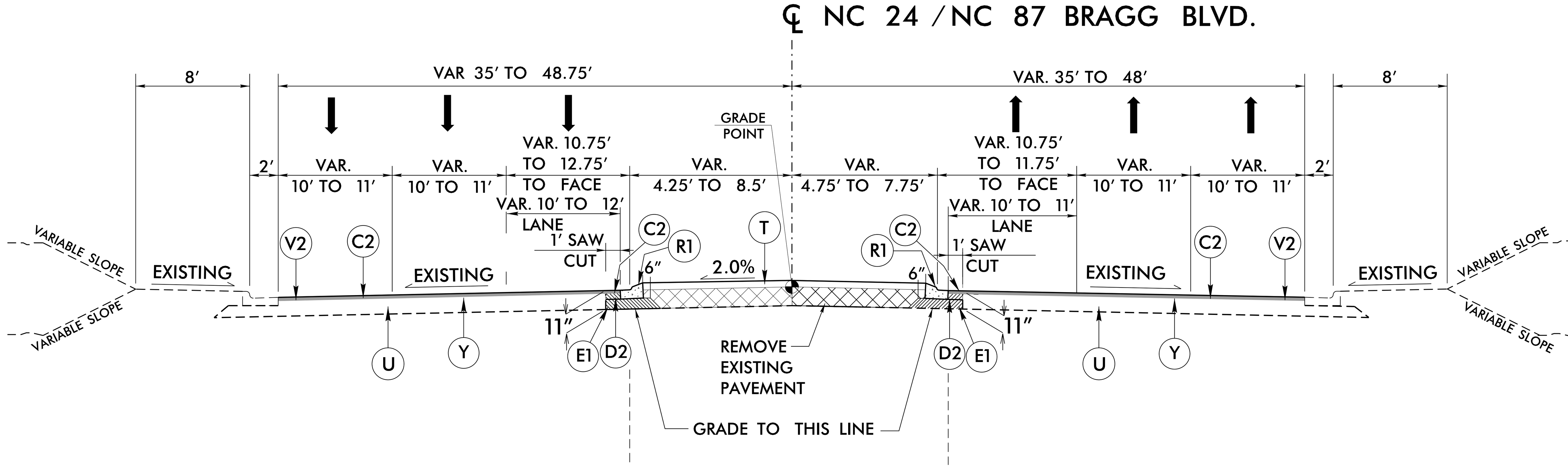
PROJECT REFERENCE NO.	SHEET NO.
W–5206AM	2A–5

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035683 DAVID J. CLODGO

PAVEMENT DESIGN ENGINEER — DocuSigned by: Vladimir G. Mitchev — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 VLADIMIR G. MITCHEV — 9/30/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

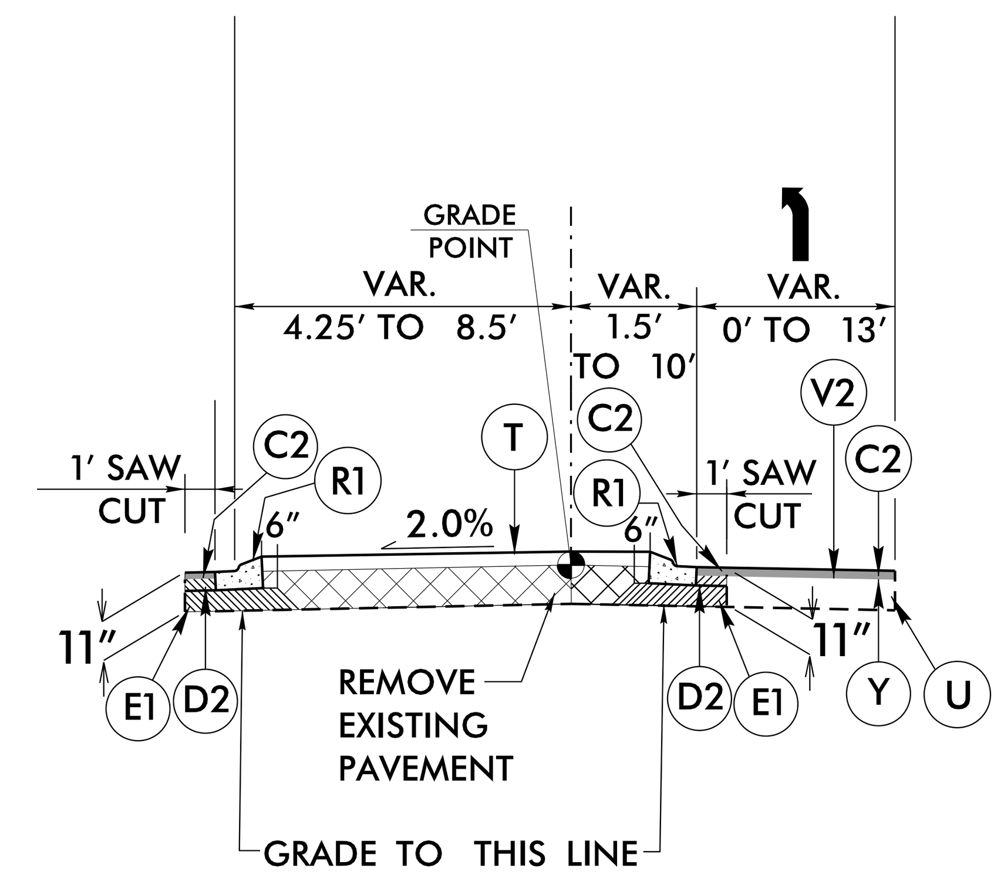
NC DEPARTMENT OF TRANSPORTATION, PAVEMENT MANAGEMENT UNIT, 1593 MAIL SERVICE CENTER, RALEIGH, NC 27699-1593



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 FOR:

–L– STA. 99+13.01 TO STA. 104+50.07

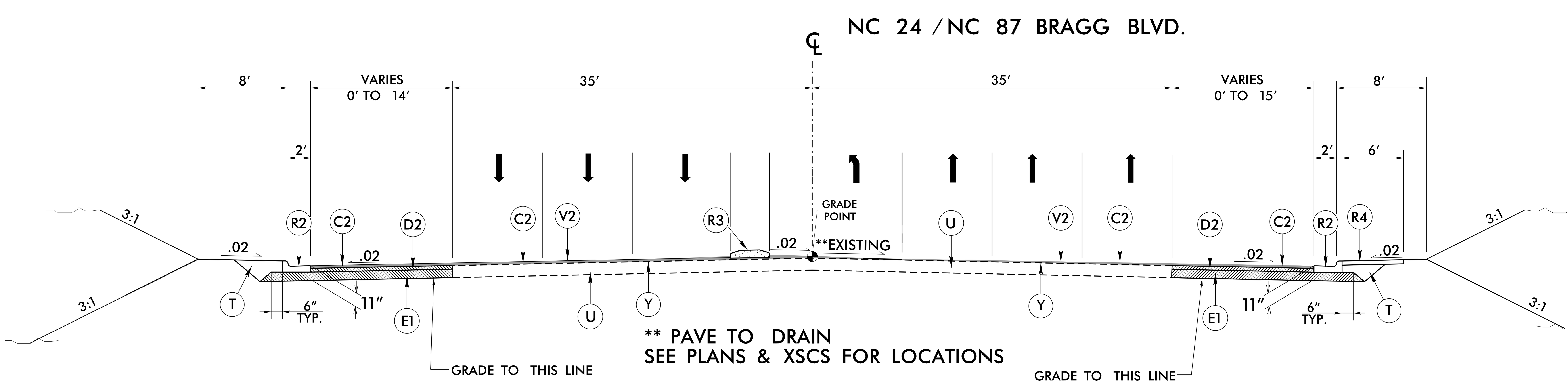


TYPICAL SECTION NO. 8A

USE TYPICAL SECTION NO. 8A FOR:

–L– STA. 104+50.07 TO STA. 108+15.94

–L– STA. 108+15.94 TO STA. 108+87.53 TRANSITION FROM TYP. 8A TO EXIST.



** PAVE TO DRAIN
SEE PLANS & XSCS FOR LOCATIONS

TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9 WITH TYPICAL SECTIONS 3, 4, AND 8A FOR: –L– WIDENING LT & RT

–L– STA. 40+56.42 TO 41+67.06 LT

–L– STA. 74+95.78 TO 76+16.78 RT

–L– STA. 107+27.79 TO 108+28.79

PAVEMENT SCHEDULE

C1	1.5″ S9.5C
C2	APPROX. 2″ S9.5C
C3	APPROX. 3″ S9.5C
C4	VAR. S9.5C
D1	APPROX. 4″ I19.0C
D2	APPROX. 5″ I19.0C
D3	VAR. I19.0C
E1	4″ B25.0C
E2	VAR. B25.0C
R1	1′-6″ C&G
R2	2′-6″ C&G
R3	5″ MONO. CONC.(K.I.)
R4	4″ CONC. S/W
R5	5″ MONO. CONC.(S.M.)
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	0″ - 1.5″ MILLING
V2	2″ MILLING
W	WEDGING
Y	PVMT INTERLAYER

6/2/99

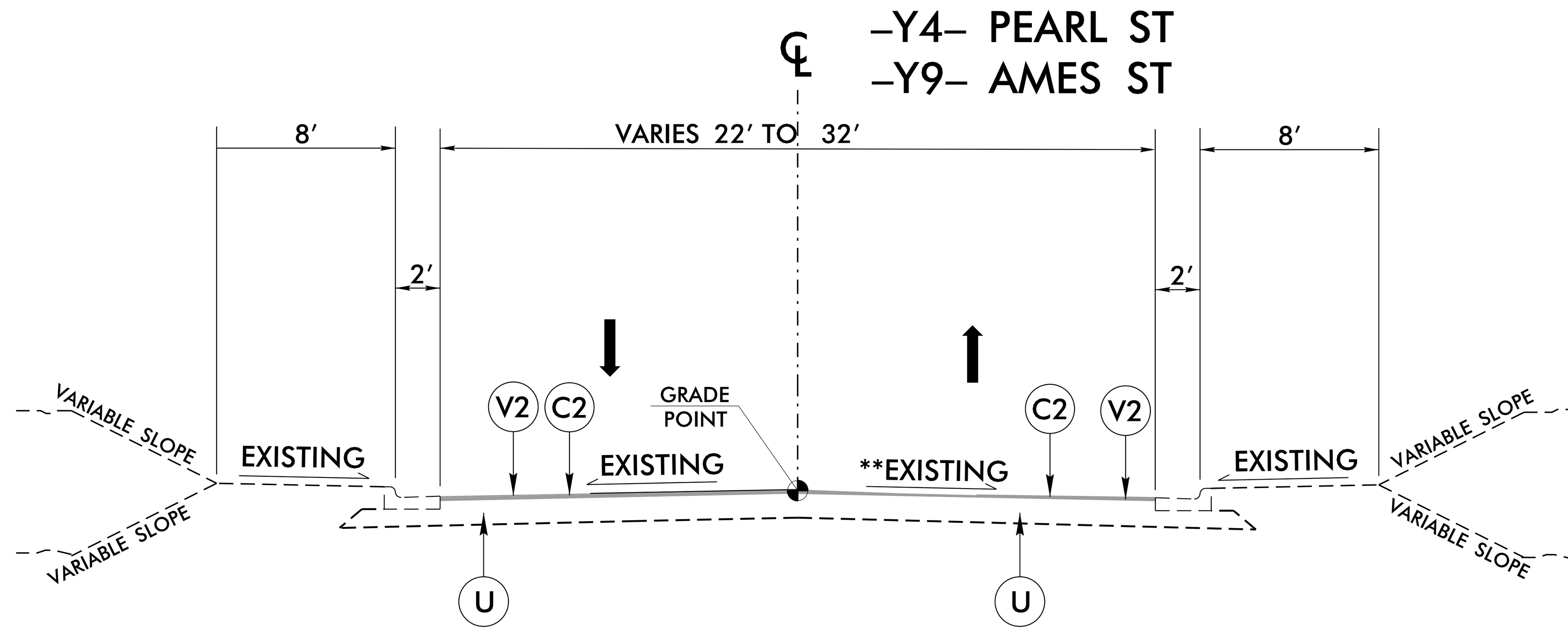
9/28/2015 2:13:40 PM W5206AM_Rdy_typ_2A1-2A6.dgn

PROJECT REFERENCE NO.	SHEET NO.
W–5206AM	2A–6

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO	DocuSigned by: Vladimir G. Mitchev A9CBEF463EA947E... NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV 9/30/2015

CDM Smith
Camp Dresser & McKee
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-0412

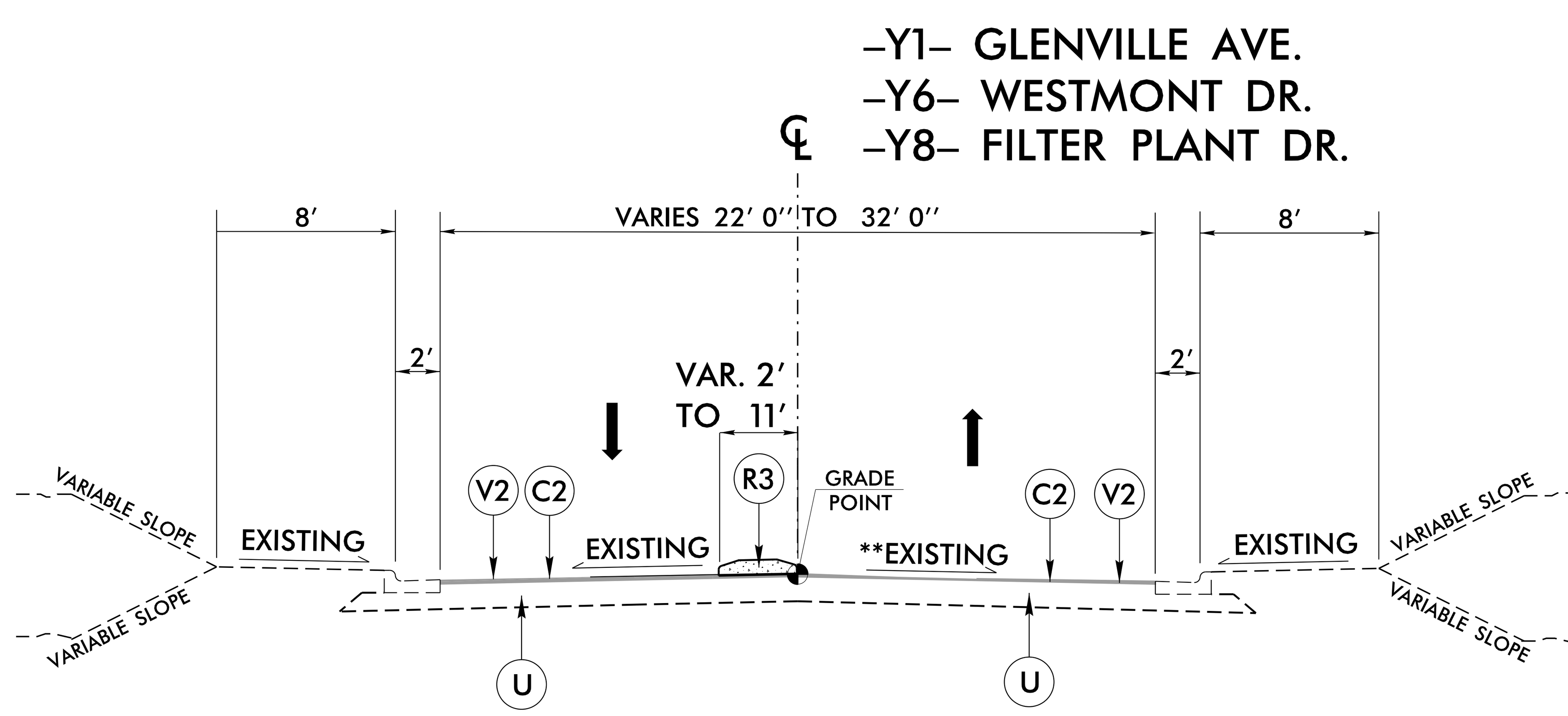
NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1593 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 FOR:

–Y4– STA. 10+75.00 TO 11+29.60
–Y4– STA. 12+00.00 TO 12+55.00
–Y9– STA. 10+85.00 TO 11+50.12
–Y9– STA. 12+28.41 TO 13+05.00



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11 FOR:

–Y1– STA. 10+82.00 TO 10+40.50
–Y6– STA. 12+59.83 TO 12+89.93
–Y6– STA. 13+61.24 TO 14+02.63
–Y8– STA. 10+94.16 TO 11+25.72

PAVEMENT SCHEDULE

C1	1.5″ S9.5C
C2	APPROX. 2″ S9.5C
C3	APPROX. 3″ S9.5C
C4	VAR. S9.5C
D1	APPROX. 4″ I19.0C
D2	APPROX. 5″ I19.0C
D3	VAR. I19.0C
E1	4″ B25.0C
E2	VAR. B25.0C
R1	1′-6″ C&G
R2	2′-6″ C&G
R3	5″ MONO. CONC.(K.I.)
R4	4″ CONC. S/W
R5	5″ MONO. CONC.(S.M.)
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	0″ - 1.5″ MILLING
V2	2″ MILLING
W	WEDGING
Y	PVMT INTERLAYER

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

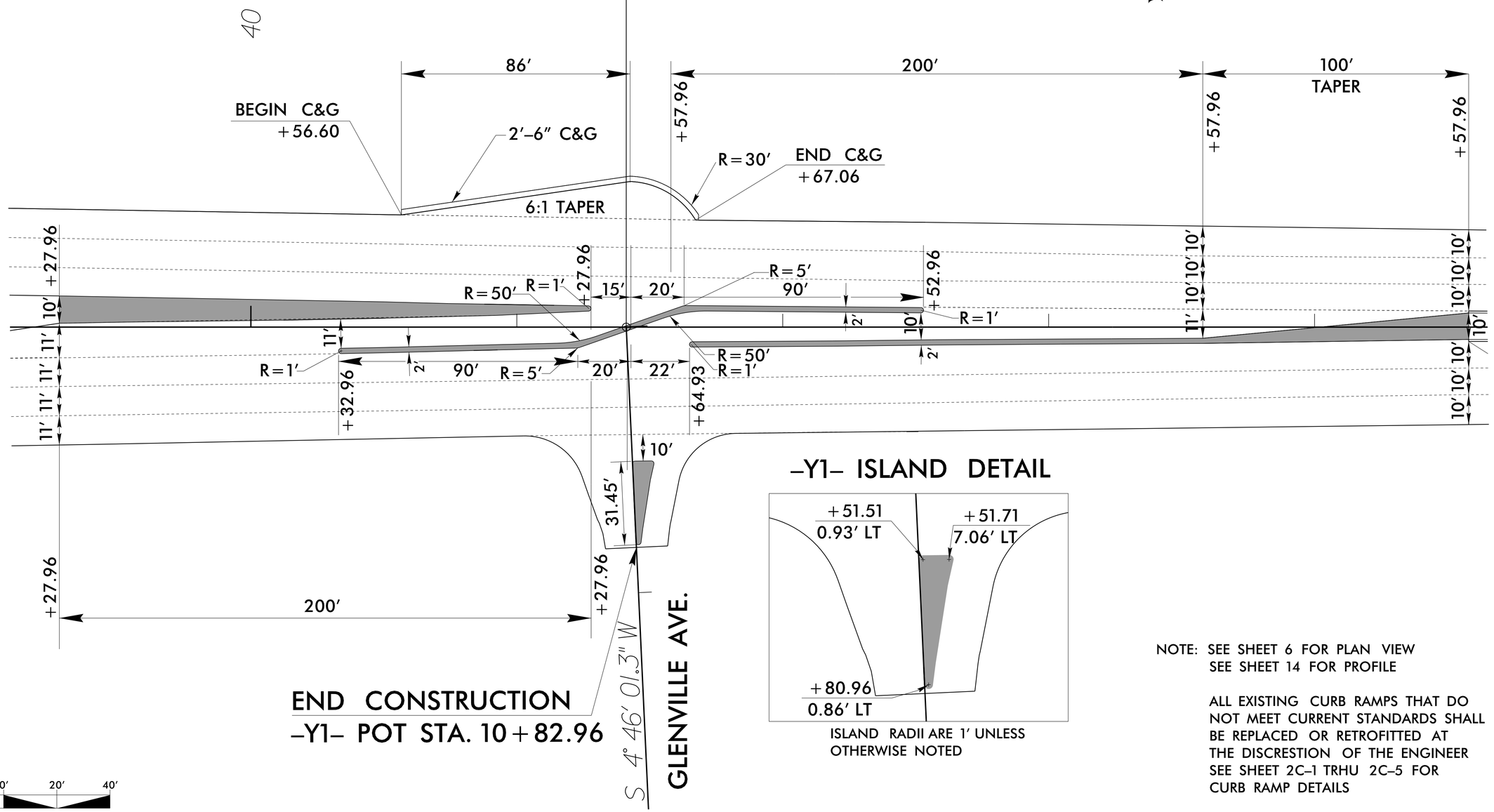
NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODD

CDM Smith
Camp Dresser & McKee
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-0412

DIRECTIONAL CROSS OVER DETAIL –L– /–Y1–

NAD 83/NSRS 2007

POT –L– Sta. 41+41.15
POT –Y1– Sta. 10+00.00



–Y1– ISLAND DETAIL

ISLAND RADII ARE 1′ UNLESS OTHERWISE NOTED

END CONSTRUCTION
–Y1– POT STA. 10+82.96

NOTE: SEE SHEET 6 FOR PLAN VIEW
SEE SHEET 14 FOR PROFILE

ALL EXISTING CURB RAMPS THAT DO NOT MEET CURRENT STANDARDS SHALL BE REPLACED OR RETROFITTED AT THE DISCRESTION OF THE ENGINEER
SEE SHEET 2C–1 TRHU 2C–5 FOR CURB RAMP DETAILS

20′ 0′ 20′ 40′
10′
(ENGLISH)

Invalid expression
USER: Ray Mark Rdy.psh.2B-1.dgn

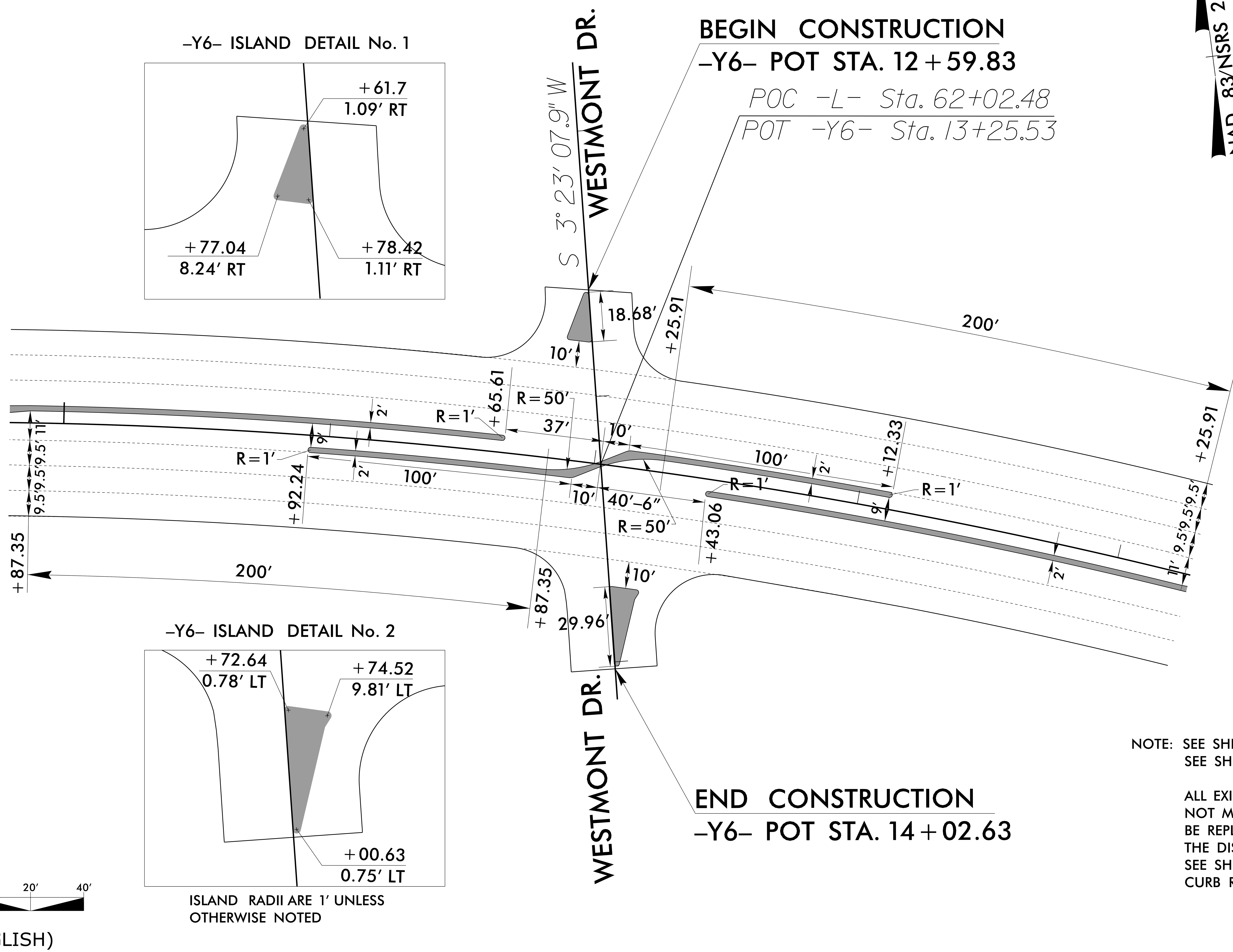
PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2B-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO

CDM Smith
Camp Dresser & McKee
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-0412

DIRECTIONAL CROSS OVER DETAIL -L- /-Y6-



NOTE: SEE SHEET 7 FOR PLAN VIEW
SEE SHEET 14 & 15 FOR PROFILE

ALL EXISTING CURB RAMPS THAT DO NOT MEET CURRENT STANDARDS SHALL BE REPLACED OR RETROFITTED AT THE DISCRESTION OF THE ENGINEER
SEE SHEET 2C-1 TRHU 2C-6 FOR CURB RAMP DETAILS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2B-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO

CDM Smith
Camp Dresser & McKee
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-0412

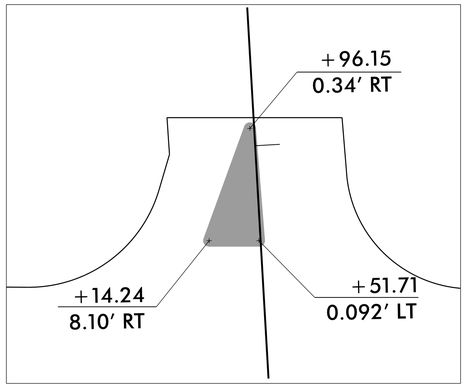
DIRECTIONAL CROSS OVER DETAIL –L– /–Y8–

75

NAD 83/NSRS 2007

PC Sta. –Y8– 10+00.00

–Y8– ISLAND DETAIL



ISLAND RADII ARE 1′ UNLESS OTHERWISE NOTED

FILTER PLANT DR.
S 24° 53′ 30.1″ W

PT Sta. –Y8– 10+46.49

BEGIN CONSTRUCTION
–Y8– POT STA. 10+94.16

+27.85 | 200′ | +27.85 | 100′ TAPER | +27.85

20.55′
10′

+59.98 | R=50′ | R=1′ | 33′–0″ | 20′ | 90′ | 2′ | +02.98 | R=1′

11′ 9.5′ 9.5′ 9.5′ 10′ 10′ 10′

2′ 9.0′ 11′ 9.5′ 9.5′ 9.5′

R=1′ | +82.98 | 2′ 90′ | 20′ | 34′–10″ | R=50′ | R=1′ | 9.0′ 2′

R=30′
2′–6″ C&G
6:1 TAPER

200′

+72.51

EXIST. 6′ CONC. SIDEWALK

POT Sta. –L– 74+94.49
POT Sta. –Y8– 11+60.78

BEGIN C&G
+90.62

92.00′

PROP. 6′ CONC. SIDEWALK

END C&G
+11.78

EXIST. 6′ CONC. SIDEWALK

NOTE: SEE SHEET 8 FOR PLAN VIEW
SEE SHEET 15 FOR PROFILE

ALL EXISTING CURB RAMPS THAT DO NOT MEET CURRENT STANDARDS SHALL BE REPLACED OR RETROFITTED AT THE DISCRESTION OF THE ENGINEER SEE SHEET 2C–1 TRHU 2C–6 FOR CURB RAMP DETAILS

20′ 0′ 20′ 40′
10′
(ENGLISH)

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2B-4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODFO

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

INTERSECTION DETAIL –L– /–Y9–

NAD 83/NSRS 2007

90

AMES ST.
4°28'03.3" W

PC Sta. –Y9– 11+22.92

BEGIN PROP.
5' CONC. SIDEWALK
+59.98

200'

END PROP.
5' CONC. SIDEWALK
+59.79
50.04' LT

100'
TAPER

+06.30

+65.75
47.35' LT

+78.39
42.31' LT

+43.82
42.11' LT

R=10'

R=10'

F

CR

CR

5'

10'

5'

10' 10' 10'

9.5' 9.5' 9.5'

R=1'

R=1'

+23.28

+06.30

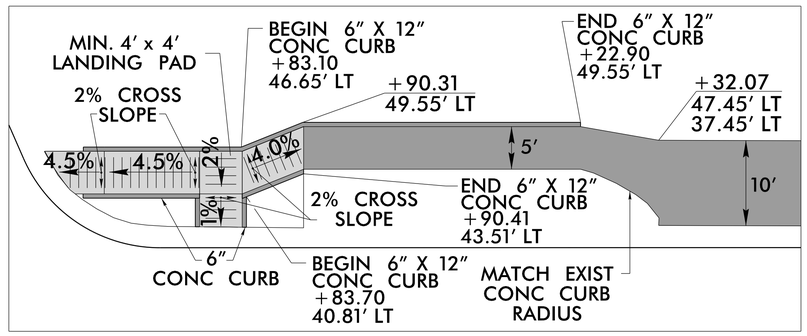
PT Sta. –L– 89+62.27
POC Sta. –Y9– 11+88.66

PT Sta. –Y9– 12+16.02

AMES ST.
S 0°36'49.7" E

20' 0' 20' 40'
10'
(ENGLISH)

SIDEWALK/CURB RAMP DETAIL



★ TRAFFIC SIGNAL

NOTE: SEE SHEET 9 FOR PLAN VIEW
SEE SHEET 15 & 16 FOR PROFILE
ISLAND RADII ARE 1' UNLESS OTHERWISE NOTED

ALL EXISTING CURB RAMPS THAT DO NOT MEET CURRENT STANDARDS SHALL BE REPLACED OR RETROFITTED AT THE DISCRESTION OF THE ENGINEER
SEE SHEET 2C–1 TRHU 2C–6 FOR CURB RAMP DETAILS

5/14/99

Invalid expression
File: C:\...\Rdy_psh_2B-4.dgn
User: ...

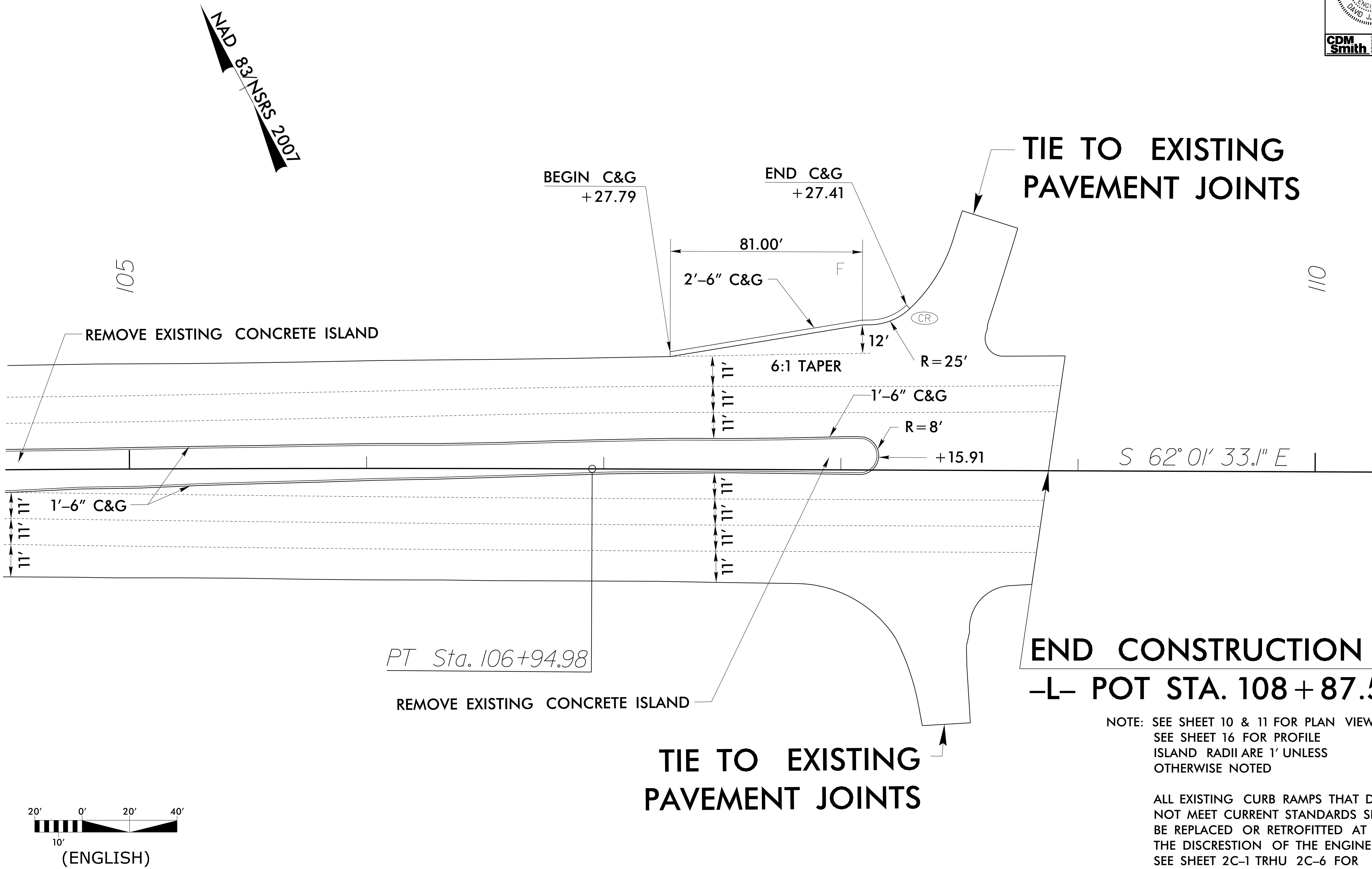
PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2B-5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODFELTER

CDM Smith

INTERSECTION DETAIL -L- /MLK FRWY WESTBOUND RAMPS



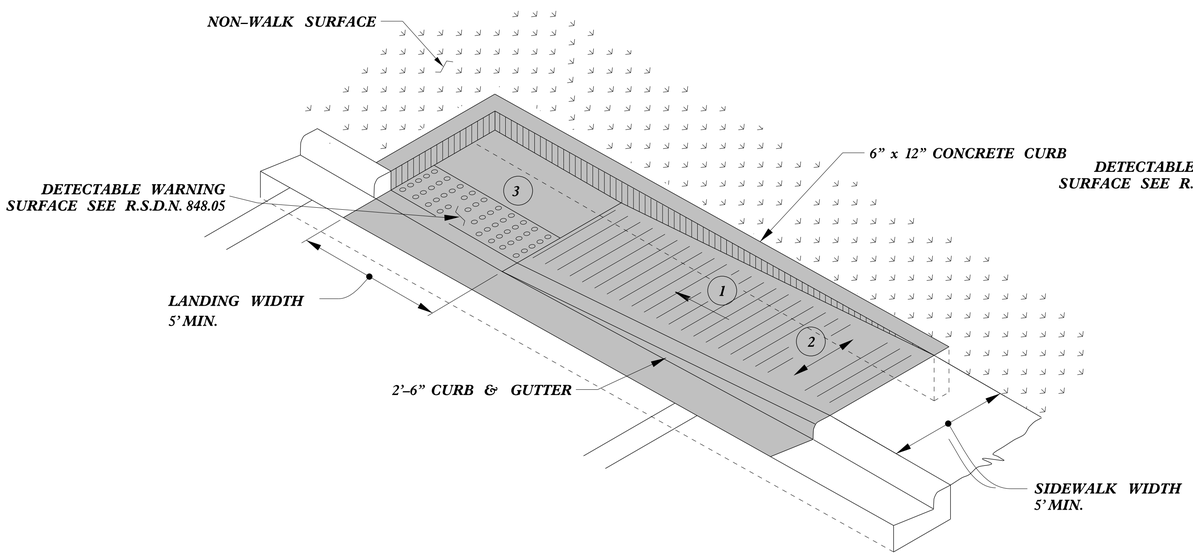
END CONSTRUCTION
-L- POT STA. 108+87.53

NOTE: SEE SHEET 10 & 11 FOR PLAN VIEW
SEE SHEET 16 FOR PROFILE
ISLAND RADII ARE 1' UNLESS OTHERWISE NOTED

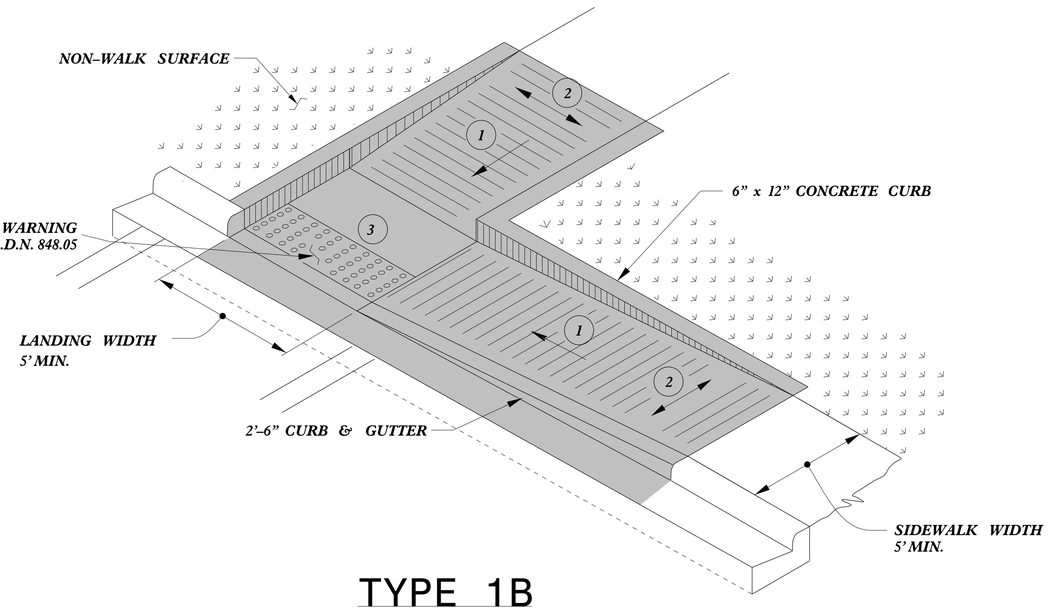
ALL EXISTING CURB RAMPS THAT DO NOT MEET CURRENT STANDARDS SHALL BE REPLACED OR RETROFITTED AT THE DISCRETION OF THE ENGINEER
SEE SHEET 2C-1 TRHU 2C-6 FOR CURB RAMP DETAILS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2C-1



TYPE 1A



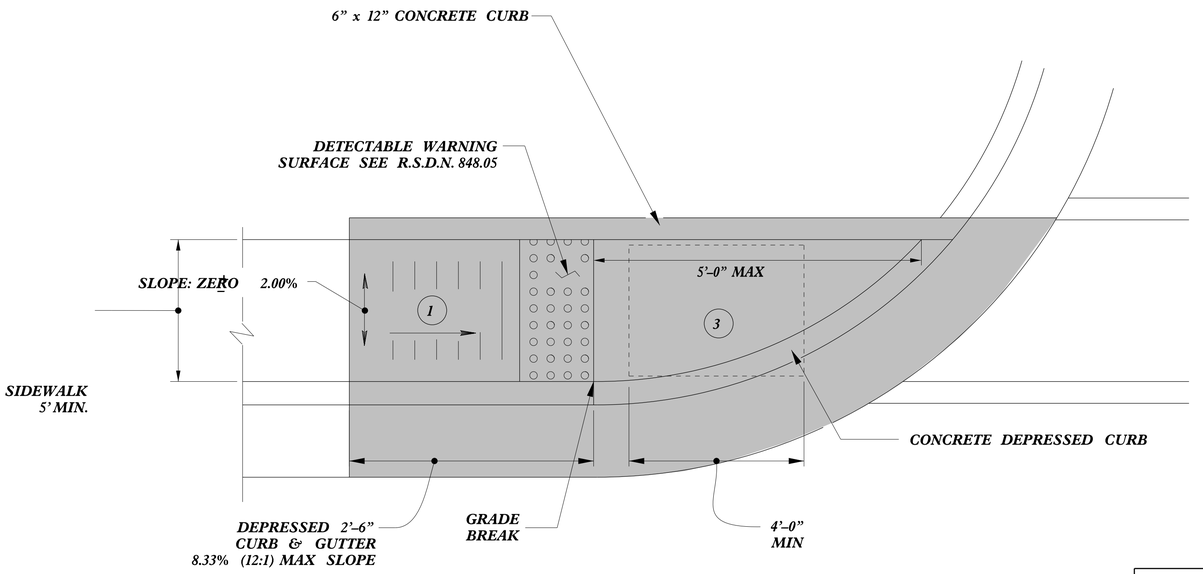
TYPE 1B

PAY LIMITS FOR 1 CURB RAMP

(1) *8.33% (12:1) MAX RAMP SLOPE*

(2) *CROSS SLOPE: 2.00%*

(3) *CURB RAMPS REQUIRE A (4'–0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.*



TYPE 1

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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
Joel Howerton
B73F3D17DCDC45F...
10/30/2015

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

CURB RAMPS

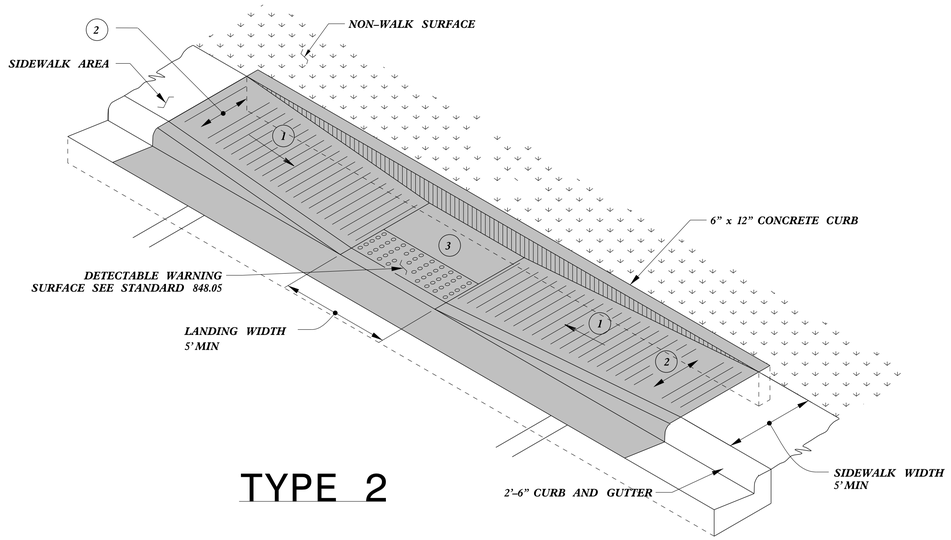
Directional Ramps

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

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

5/14/99

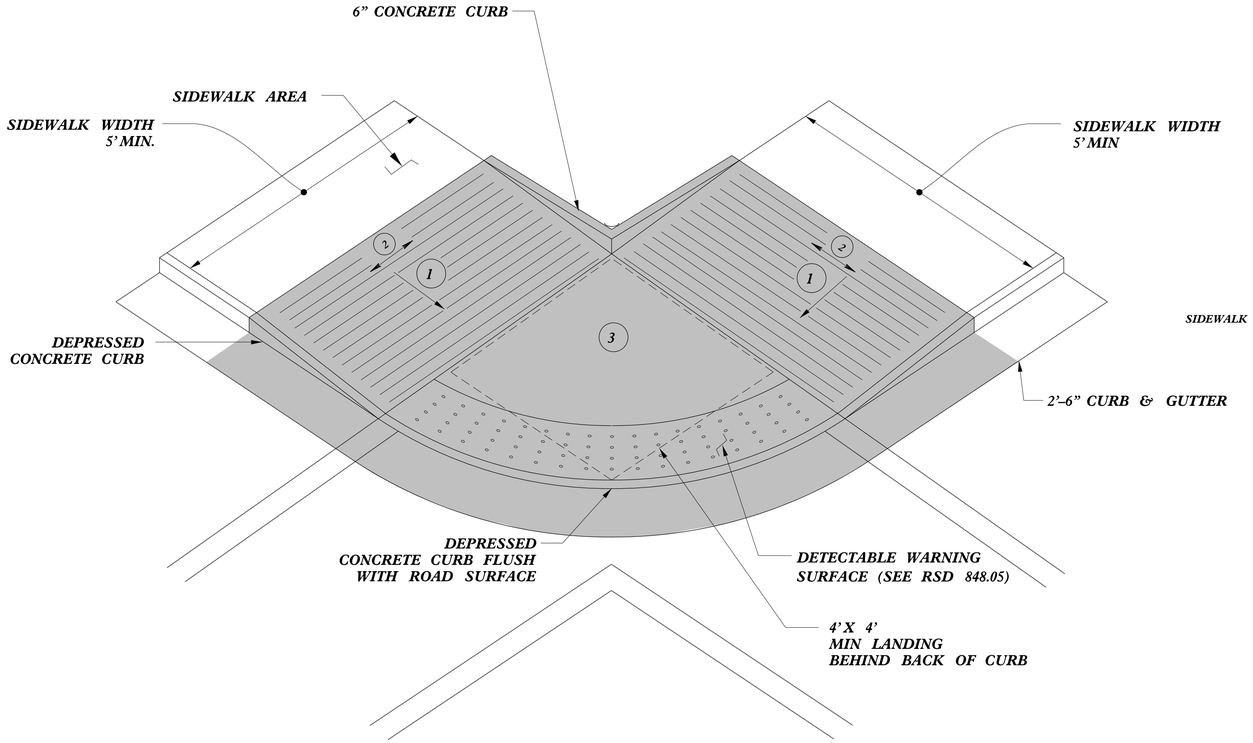
PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2C-2



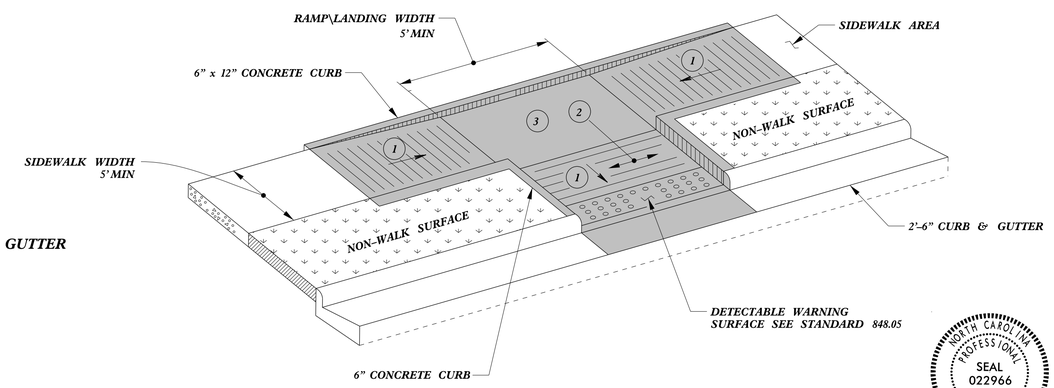
TYPE 2

PAY LIMITS FOR 1 CURB RAMP

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



TYPE 2A



TYPE 3

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
Joel S. Howerton
B73F3D17DCDC45F...
10/30/2015

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

CURB RAMPS

Parallel Ramps

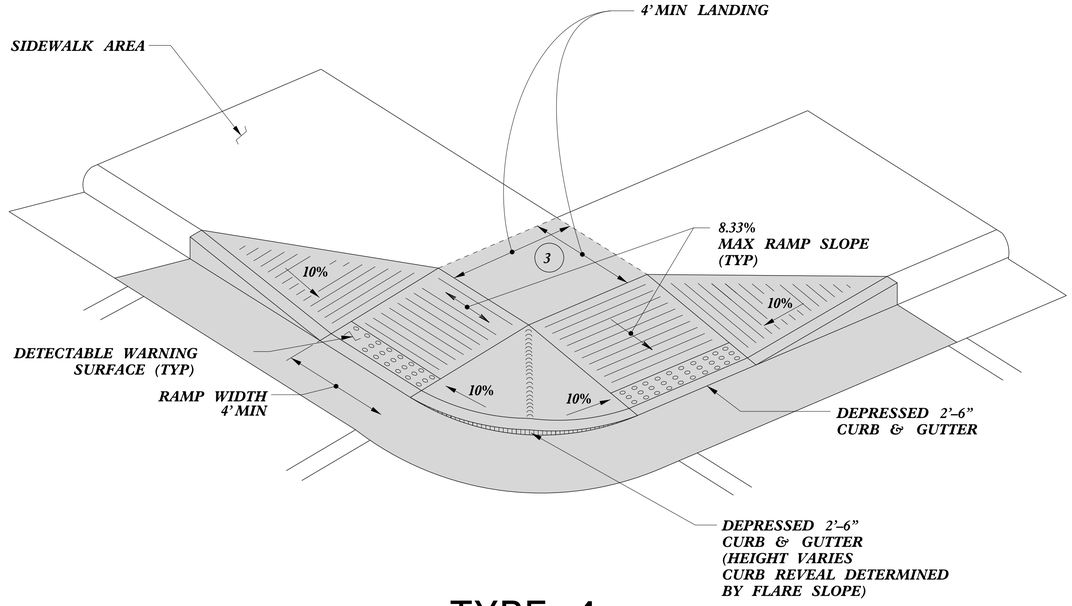
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

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

$$$$$SYSTIME$$$$
$$$$$USERNAME$$$$
$$$$$CONTIME$$$$
$$$$$CONNAME$$$$

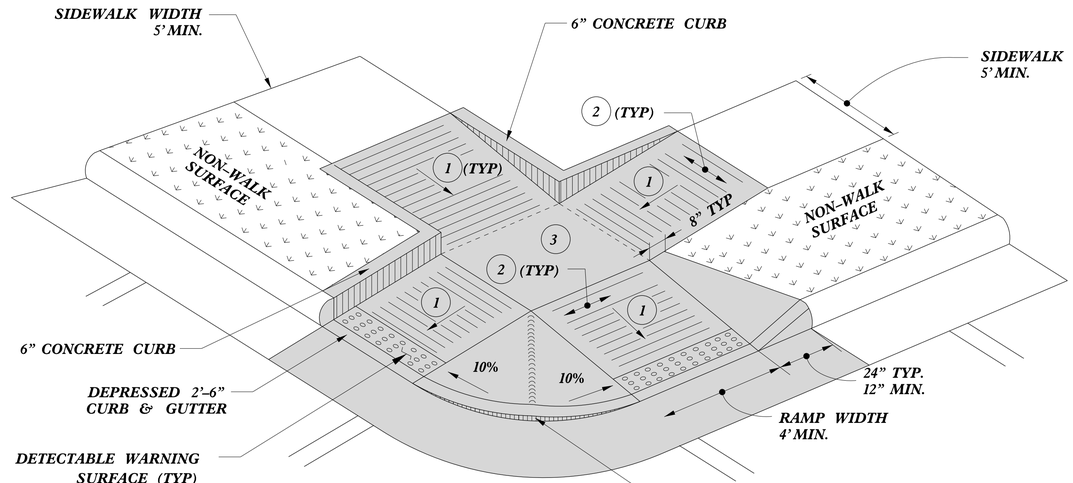
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2C-3

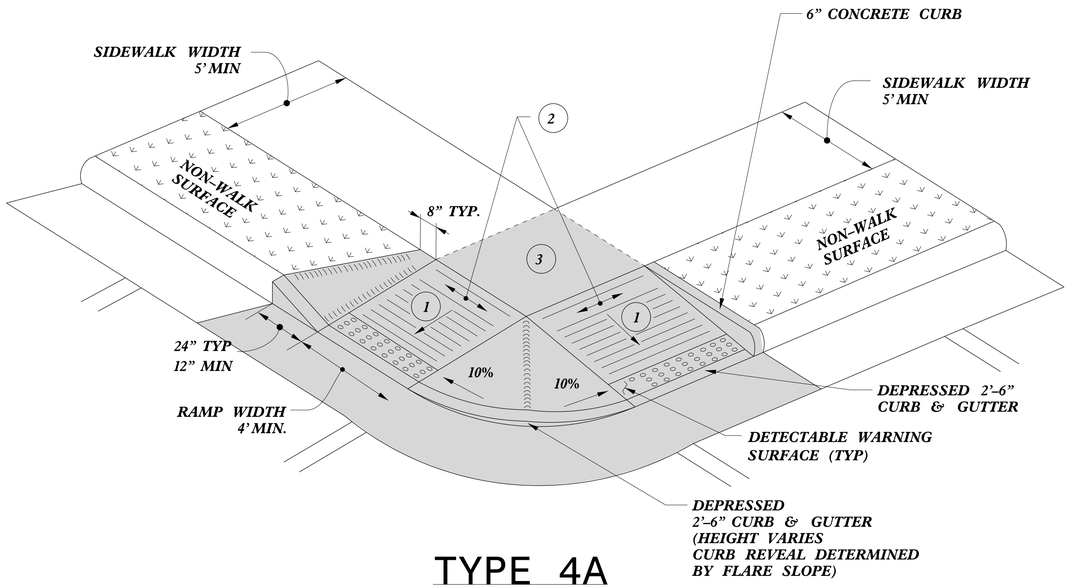


TYPE 4

PAY LIMITS FOR 1 CURB RAMP



TYPE 5



TYPE 4A

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
Joel Howerton
873F3D17DCDC45F...
10/30/2015

(1) 8.33% (12:1) MAX RAMP SLOPE

(2) CROSS SLOPE: 2.00%

(3) CURB RAMPS REQUIRE A (4'–0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

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

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

CURB RAMPS

Shared Landing

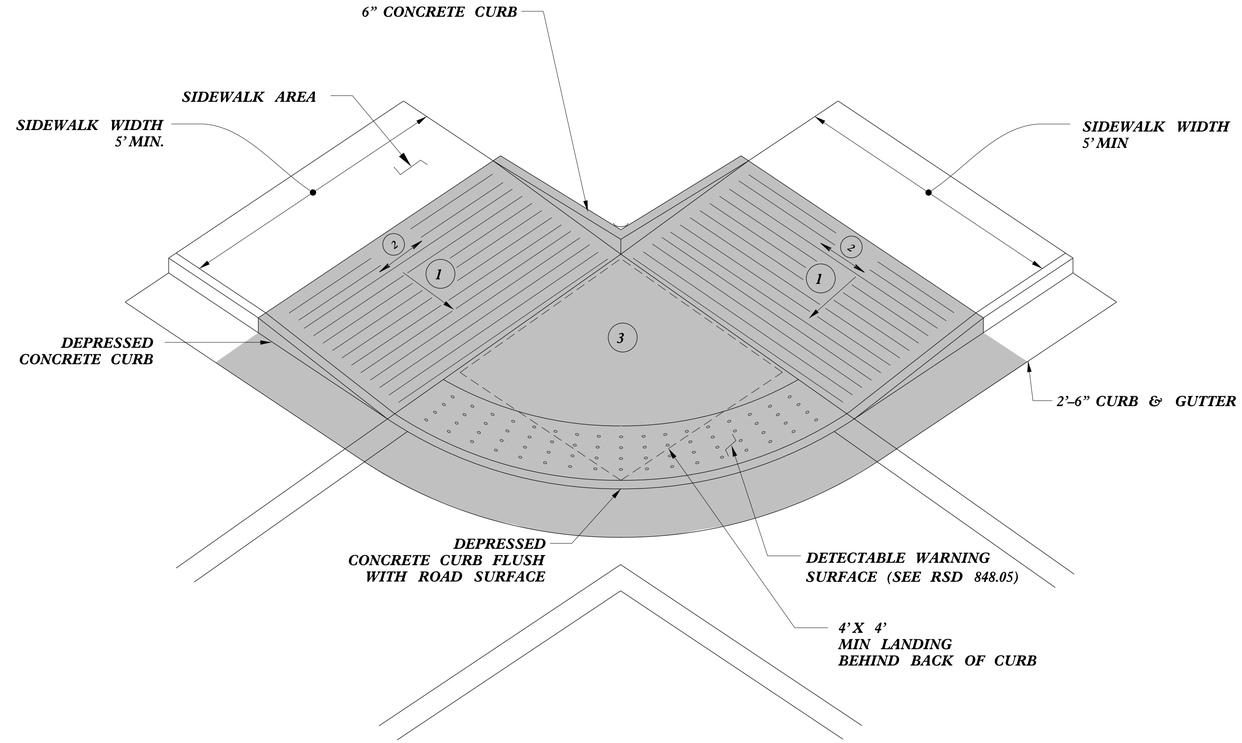
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

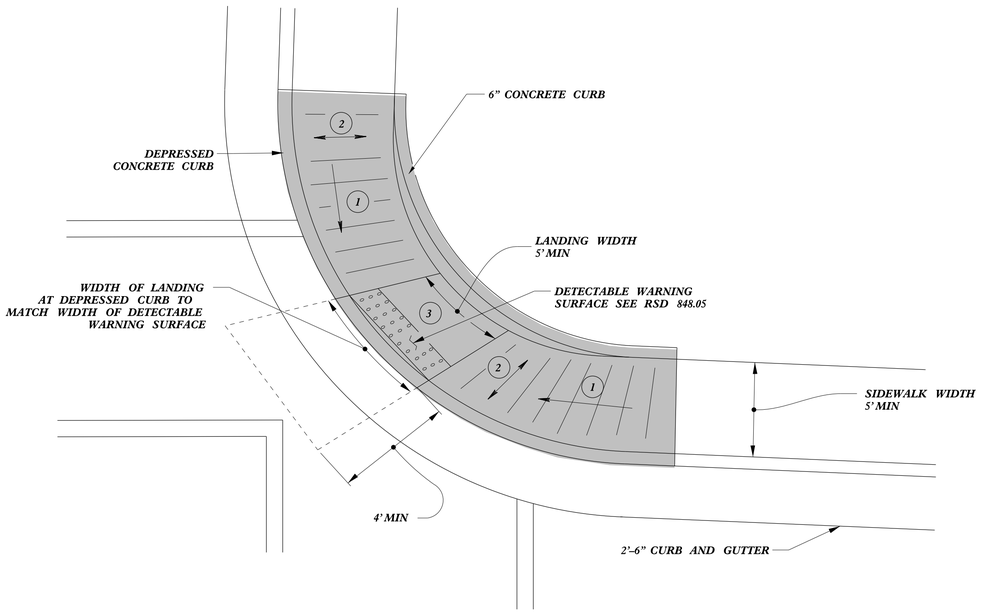
$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$DGNS$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2C-4

PAY LIMITS FOR 1 CURB RAMP





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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
Joel Howerton
873F3D17DCDC45F...
10/30/2015

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

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

CURB RAMPS

Blended Transition

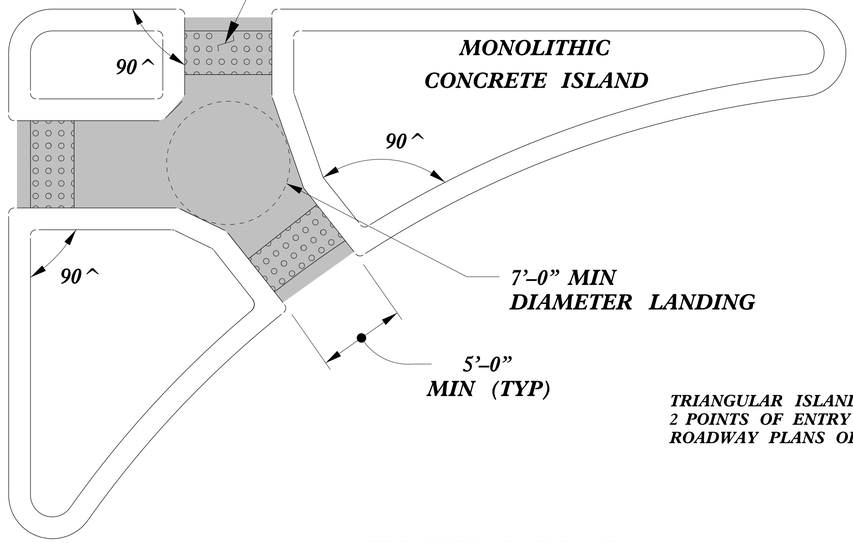
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

$$$$SYSTEM$$$$
$$$$USERNAME$$$$

5/14/99

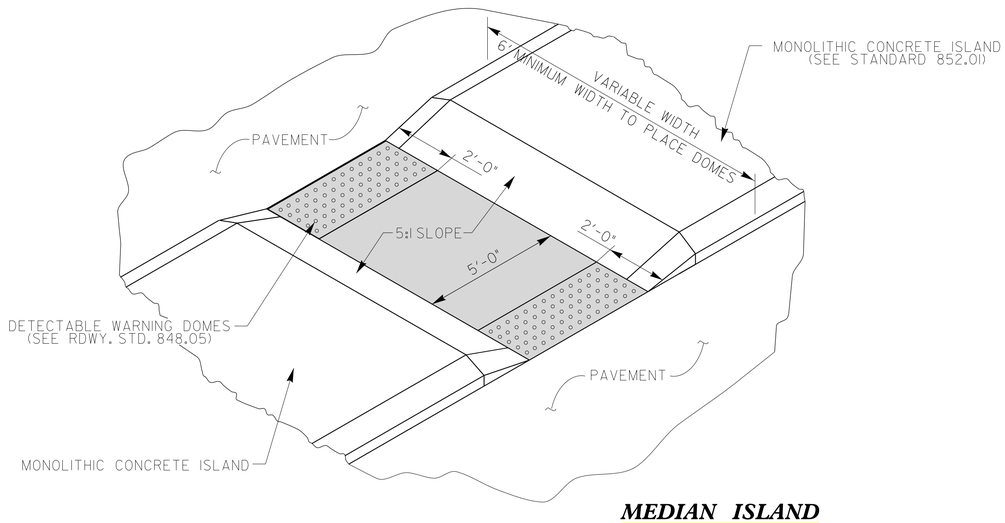
PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2C-5

PAY LIMITS FOR 1 CURB RAMP

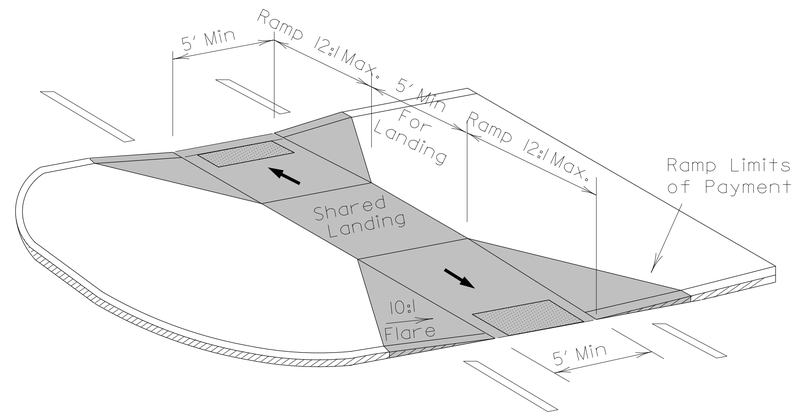


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
Joel Howerton
B73F3D17DCDC45F...
10/30/2015

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

CURB RAMPS

Median or Turn Lane Islands

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

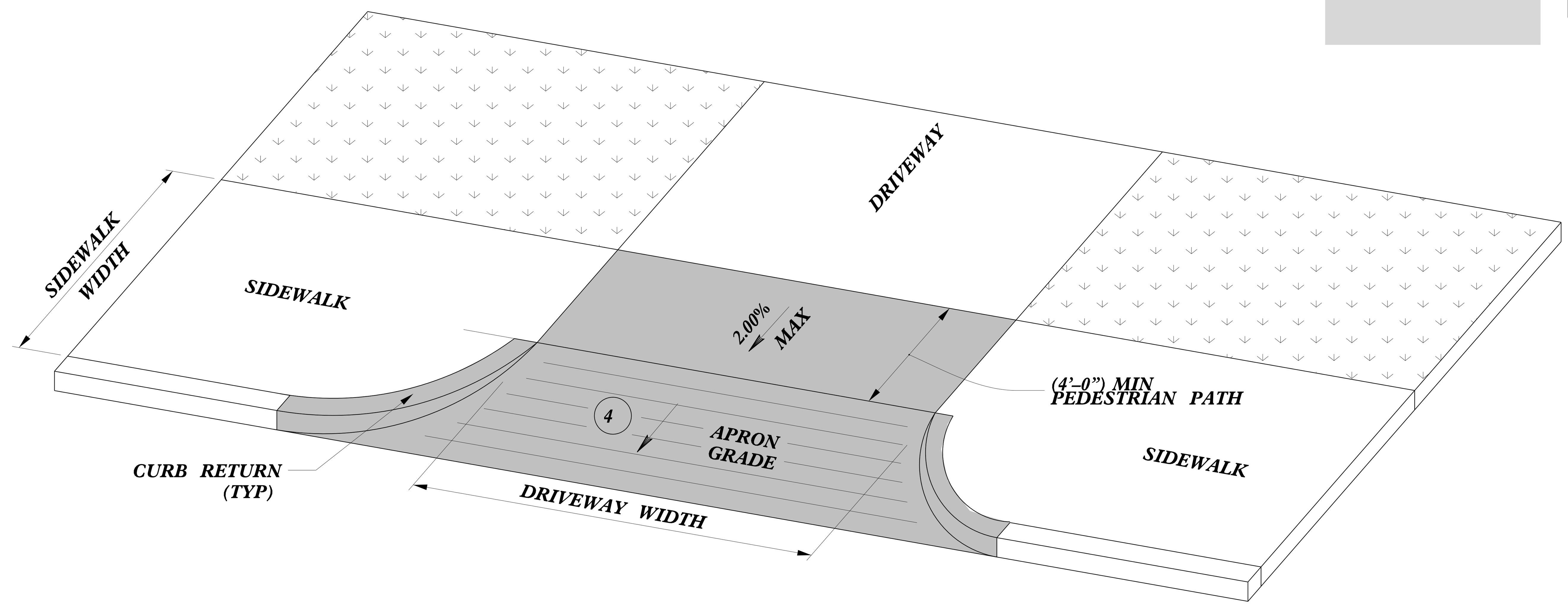
$$$$ SYSTEM $$$$
$$$$ USERNAME $$$$

(1) 8.33% (12:1) MAX RAMP SLOPE

(2) CROSS SLOPE: 2.00%

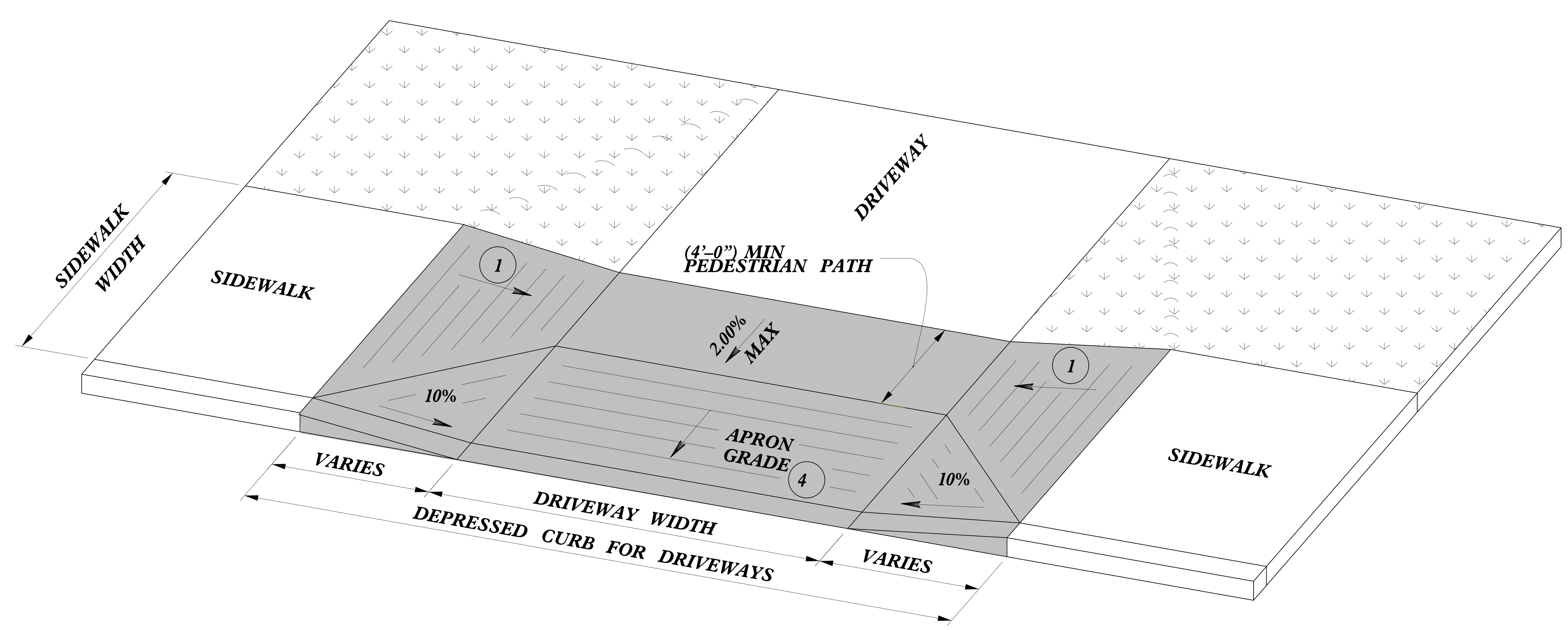
(4) 8.00% MAX CHANGE IN GRADE BETWEEN ROAD SURFACE AND DRIVEWAY

PAY LIMITS FOR 1 CURB RAMP



DRIVEWAY APRON

OPTION 1



–SEE ROADWAY DETAIL DRAWING 848.05 FOR DETECTABLE WARNING SURFACE AND FOR RAMP NOTES.

–SEE ROADWAY STANDARD DRAWING 848.02 FOR CONCRETE DRIVEWAYS.

DRIVEWAY APRON

OPTION 2

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
Joel Howerton
873F3D17DCDC45F...
10/30/2015

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

CURB RAMPS

@ DRIVEWAY OPENINGS

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

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

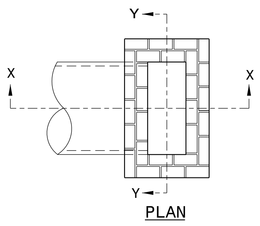
5/14/99

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

ENGLISH DETAIL DRAWING FOR

BRICK NARROW DROP INLET

12" THRU 24" PIPE



PLAN

GENERAL NOTES:

CLASS 'B' CONCRETE TO BE USED.

ALL MORTAR JOINTS ARE ½" ± ⅛".

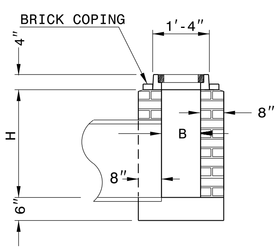
FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

BRICK MASONRY DROP INLET NOT TO BE USED IN LOCATIONS SUBJECT TO TRAFFIC.

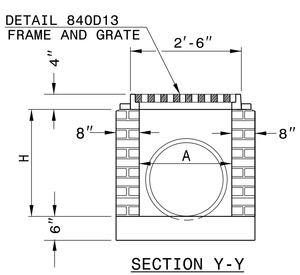
JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICK.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD 840.00.

FOR 8'-0" IN HEIGHT OR LESS USE 8" WALL. OVER 8'-0" IN HEIGHT USE 12" WALL TO 6'-0" FROM TOP OF WALL, AND 8" WALL FOR THE REMAINING 6'-0". QUANTITIES TO BE ADJUSTED ACCORDINGLY.



SECTION X-X



SECTION Y-Y

DIMENSIONS AND QUANTITIES FOR DROP INLET									
DIMENSIONS OF BOX & PIPE				CONC. IN BASE	TOTAL BRICK MASONRY			DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	HEIGHT						
D	A	B	H (MIN.)	CY. YDS.	PER FT. HEIGHT	BRICK COPING	MIN. H	C.M.	R.C.
12"	2'-0"	0'-10"	2'-8"	0.133	0.206	0.025	0.574	0.020	0.032
15"	2'-0"	0'-10"	3'-0"	0.133	0.206	0.025	0.643	0.031	0.047
18"	2'-0"	0'-10"	3'-5"	0.133	0.206	0.025	0.729	0.044	0.065
24"	2'-0"	0'-10"	4'-0"	0.133	0.206	0.025	0.849	0.078	0.113

SHEET 1 OF 1

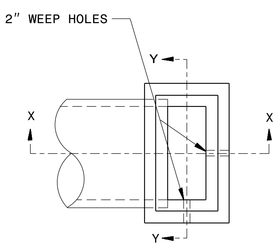
840D12

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

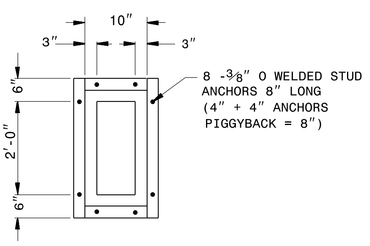
ENGLISH DETAIL DRAWING FOR

CONCRETE NARROW DROP INLET

12" THRU 24" PIPE



PLAN
WITH GRATE & FRAME REMOVED



PLAN
SHOWING POSITION OF BOLTS

GENERAL NOTES:

CLASS "B" CONCRETE TO BE USED THROUGHOUT.

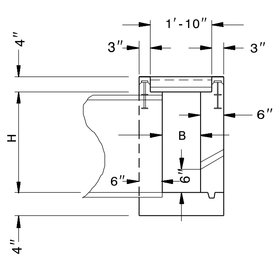
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTER, AS DIRECTED BY ENGINEER.

TWO 2" PIPE WEEP HOLES TO BE PLACED AS DIRECTED BY ENGINEER.

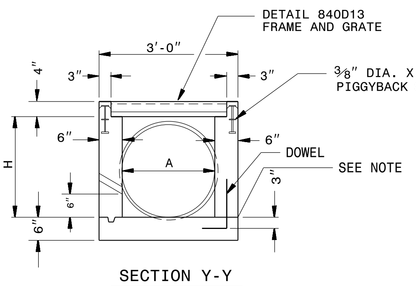
FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD 840.00.

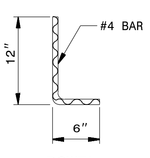
A STONE DRAIN CONSISTING OF 1 CUBIC FOOT OF NO. 78M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE.



SECTION X-X



SECTION Y-Y



DOWEL

DIMENSIONS AND QUANTITIES FOR DROP INLET								
DIMENSIONS OF BOX & PIPE				CUBIC YARDS IN BOX		TOTAL QUAN. BOX & COVER	DEDUCTIONS FOR ONE PIPE CU. YDS.	
PIPE	SPAN	WIDTH	HEIGHT					
D	A	B	H	FLOOR & COPING	WALL PER FT. H	CU. YDS. MIN. H	C.M.	R.C.
12"	2'-0"	0'-10"	2'-8"	0.129	0.142	0.507	0.015	0.024
15"	2'-0"	0'-10"	3'-0"	0.129	0.142	0.555	0.023	0.036
18"	2'-0"	0'-10"	3'-5"	0.129	0.142	0.614	0.033	0.049
24"	2'-0"	0'-10"	4'-0"	0.129	0.142	0.697	0.059	0.085

DIMENSIONS FOR CHANNELS			
CHANNELS			
NO.	SIZE	LENGTH	TOTAL LIN. FT.
2	3" X 4.1#	2'-6"	5'-0"
2	3" X 4.1#	1'-10"	3'-8"

SHEET 1 OF 1

840D11

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

SEE PLATE FOR TITLE

ORIGINAL BY: 1998 STDS
MODIFIED BY: E.E. WAHO DATE: 3-21-02
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/840stds/840d11.dgn

SEAL 022966 NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
Gail Howerton
10/30/2015

PROJECT REFERENCE NO. W-5206AM
SHEET NO. 2C-7

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2C-8

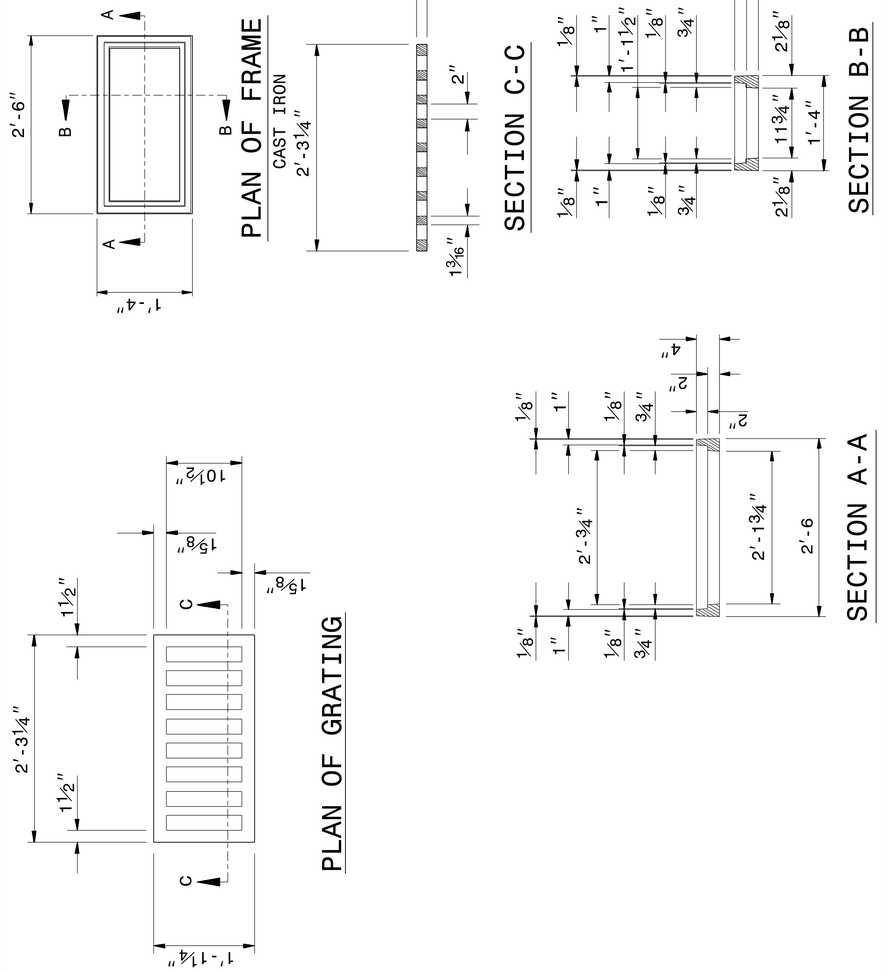
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

NARROW DROP INLET FRAME AND GRATE

FOR USE WITH DETAIL 840D11 & 840D12

SHEET 1 OF 1 **840D13**

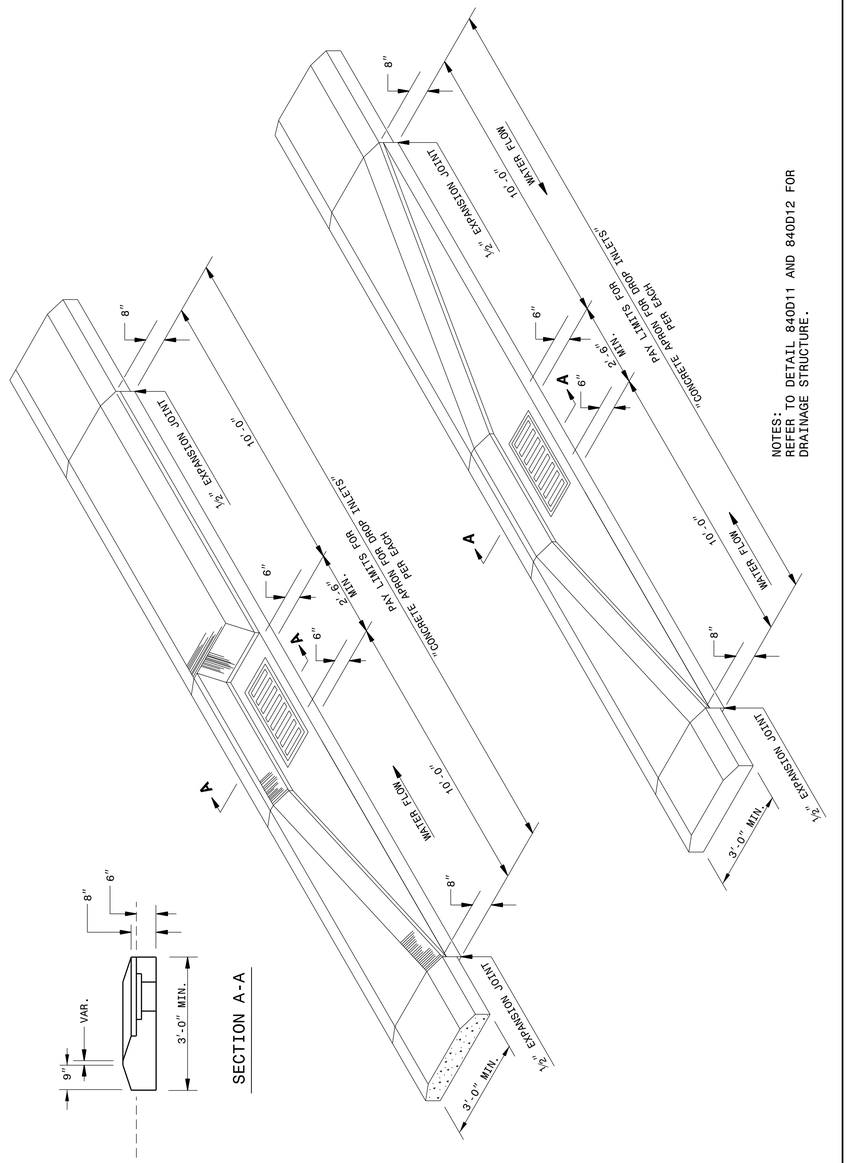


STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

METHOD FOR PLACEMENT OF DROP INLETS IN ISLANDS

SHEET 1 OF 1 **852D03**



NOTES:
REFER TO DETAIL 840D11 AND 840D12 FOR DRAINAGE STRUCTURE.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S. Howerton
BT3F3D7DCDC04SF...
10/30/2015

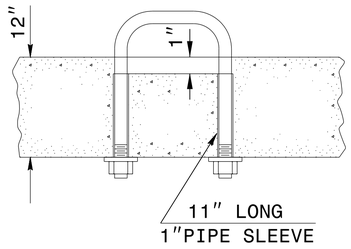
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **NARROW DROP INLET FRAME AND GRATE** FOR USE WITH DETAIL 840D11 & 840D12	SHEET 1 OF 1 **840D13**
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **METHOD FOR PLACEMENT OF DROP INLETS IN ISLANDS**	SHEET 1 OF 1 **852D03**

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

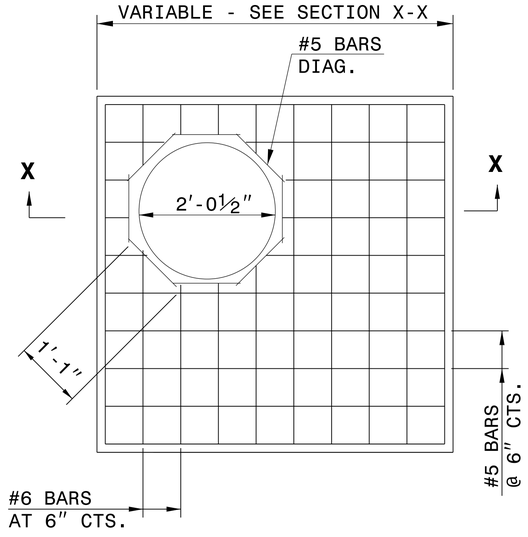
SEE PLATE FOR TITLE

ORIGINAL BY: 1998 STDS DATE:
MODIFIED BY: E.E. WARD DATE: 3-21-02
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/840stds/840d11.dgn

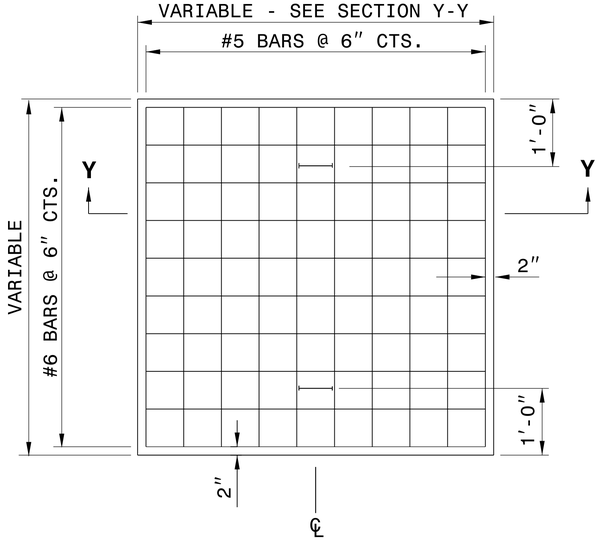
PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	2C-9



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

BILL OF MATERIALS

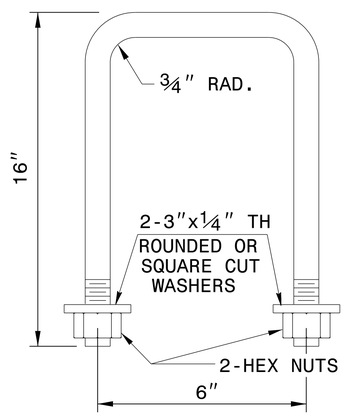
MASONRY	
TOP SLAB CONCRETE CLASS "A"	.037YDS^3 PER FT^2
BRICK MASONRY	.025YDS^3 PER FT^2
REINFORCING STEEL	7.64LBS PER FT^2

MANHOLE OPTION QUANTITIES

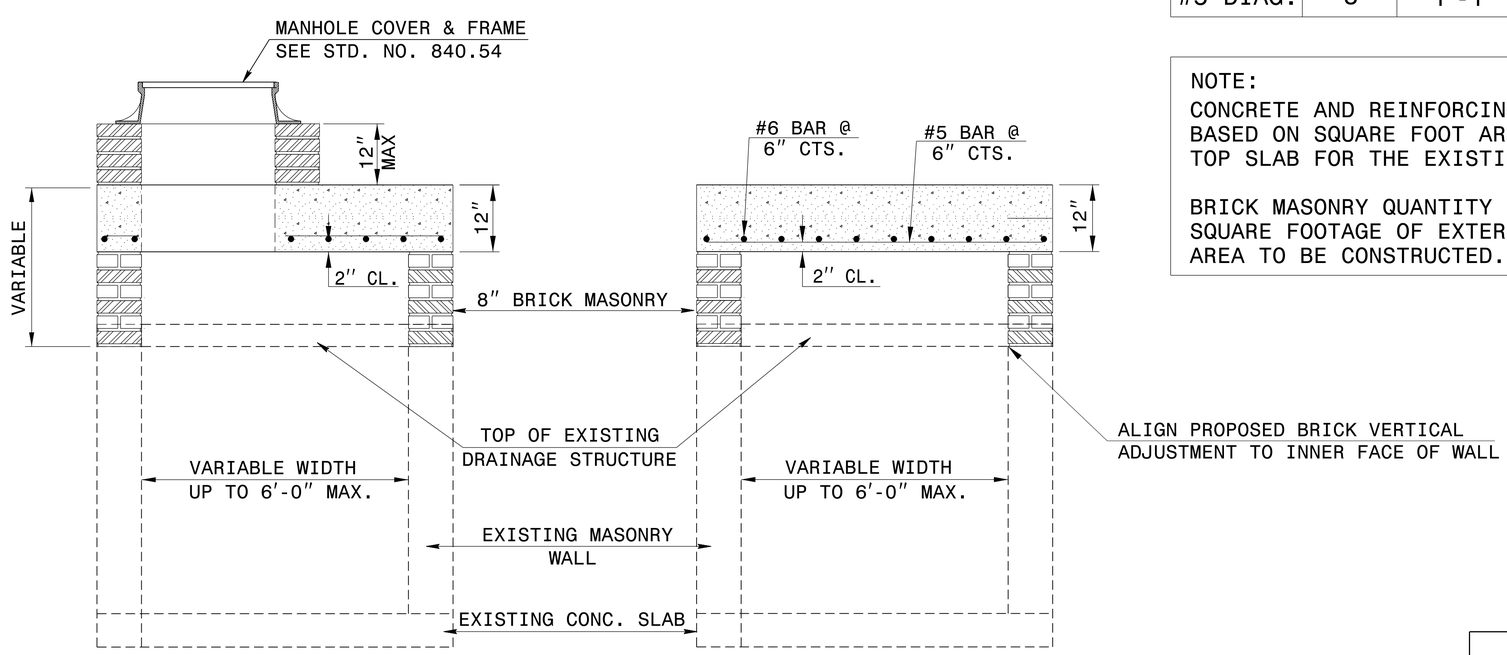
SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1'-1"	9.04

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.

BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.



DETAIL OF HANDLE



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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
Joel Howerton
873F3D17DCDC45F...
10/30/2015

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

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

ORIGINAL BY: T.S.S. DATE: FEB.2000
MODIFIED BY: E.E.W. DATE: NOV.2001
CHECKED BY: DATE:
FILE SPEC.: w:ericward/usr/details/stand/boxtotbjbe.dgn

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

$$$$USERNAME$$$$ $$$$USER$$$$ $$$$SYSTIME$$$$

COMPUTED BY: CJT DATE: 5/13/2015
CHECKED BY: DJC DATE: 8/05/2015

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- STA. 38+50	-L- STA. 42+00	149	166	17	
-L- STA. 74+00	-L- STA. 76+00	116			116
-L- STA. 107+50	-L- STA. 108+00	19	18		2
-L- MED. STA. 44+57.96	-L- MED. STA. 49+74.44		223	223	
-L- MED. STA. 56+35.41	-L- MED. STA. 58+87.38		106	106	
SUBTOTALS:		284	512	346	118
-L- MED. STA. 65+17.32	-L- MED. STA. 71+77.98		285	285	
-L- MED. STA. 78+07.98	-L- MED. STA. 86+23.28		346	346	
-L- MED. STA. 93+06.30	-L- MED. STA. 108+15.91		915	915	
-L- MED. STA. 147+47.96	-L- MED. STA. 150+40.45		100	100	
SUBTOTALS:			1,646	1,646	
SUBTOTALS:					
TOTAL		284	2,158	1,992	118
WASTE IN LIEU OF BORROW				-118	-118
PROJECT TOTALS:		284	2,158	1,874	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				94	
GRAND TOTALS:			2,158	1,967	
SAY:		300		2,000	

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

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	28+12	32+82	CL	574.89
-L-	44+58	49+74	CL	57.39
-L-	44+58	49+74	CL	57.39
-L-	56+35	58+87	CL	27.99
-L-	56+35	58+87	CL	28.00
-L-	65+17	71+78	CL	73.41
-L-	65+17	71+78	CL	73.41
-L-	78+08	86+23	CL	90.59
-L-	78+08	86+23	CL	90.59
-L-	93+06	108+15	CL	169.10
-L-	93+06	108+15	CL	167.59
-L-	147+48	150+40	CL	32.52
-L-	147+48	150+40	CL	32.52
TOTAL:				1,475.38
SAY:				1,480

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	32+09.97	33+09.97	CL	100'			32+19.11		11.5'	11.5'	50'						1													EXIST. G.R. EXTENDED TO PREVENT MEDIAN CROSSING
PROJECT TOTAL				100'													1													
ANCHOR UNIT DEDUCTION																														
GRAU 350			1 @ 50.00'	50.00																										
TOTAL				50.00																										
SAY				50.00'													1													
ADDITIONAL GUARDRAIL POSTS				5																										

COMPUTED BY: MQCN	DATE: 9/3/2015
CHECKED BY: DJC	DATE: 9/3/2015

PROJECT NO.	SHEET NO.
W-5206AM	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

DL-2KYBDZ1

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)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	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"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	CONVERT EXISTING CB to TB JB W/MH	J.B. STD. 840.31 OR 840.32	J.B. M.H. COVER & FRAME STD. NO. 840.54	DI STD. 852D03 DI in ISLANDS 2C-8	DI STD 840D13 NARROW DI FRAME & GRATE 2C-8	DI STD 840D11 & 840D12 CONC NARROW DI 2C-7	FLOWABLE FILL CY	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
41+63	CL	605		147.08																																															1							1													1	1	1					NARROW DI in ISLANDS
41+63	CL	605	601		143.91	142.93	0.01																														52																																								
41+17	CL	601		147.1																																															1							1													1	1	1					NARROW DI in ISLANDS
41+17	CL	601	602		142.93	140.23	0.02																														80																																								
40+31	CL	602		147.87																																															1							1		1	1																	DI
41+75	LT	606		146.07																																																																						6				EXIST CB/FILL AND PLUG EXISTING 15" RCP
41+75	LT	606	603		142.60	142.25																															24																																								
41+48	LT	603		145.25																																															1			1	1																							CB @ SAG
41+48	LT	603	604		142.25	141.98	0.003																														108																																								
40+30	LT	604		147.45																																																																											EXIST CB
40+30	CL	607	602		140.24	140.23																																					8																																					
40+30	CL	607																																																																										1.0126		48" COLLAR
59+50	CL	703		167.62																																															1							1		1	1																	DI
59+50	CL	703	704		164.45	160.9	0.036																														100																																								
60+50	CL	704		164.07																																															1							1													1	1	1					NARROW DI in ISLANDS
60+50	CL	704	705		160.9	156.17	0.038																														124																																								
61+75	CL	705		159.34																																															1							1													1	1	1					NARROW DI in ISLANDS
61+75	CL	705	706		156.17	155.16	0.092																														12																																								
61+75	CL	706		158.68																																															1							1													1	1	1					NARROW DI in ISLANDS
61+75	CL	706	707		155.16	152.85	0.062																														32																																								
61+65	RT	707		157.25																																																																											EXIST CB
63+00	CL	708		154.25																																															1							1													1	1	1					NARROW DI in ISLANDS
63+00	CL	708	709		151.08	148.3	0.076																														48																																								
63+50	CL	709		151.47																																															1							1													1	1	1					NARROW DI in ISLANDS
63+50	CL	709	710		148.3	141.91	0.044																														148																																								
65+00	CL	710		145.08																																															1							1		1	1																	DI
65+00	CL	710	801		141.91	137.5	0.038																														120																																								
67+00	CL	803		141.54																																															1			1			1		1																				CB
67+00	CL	803	802		138.37	138	0.012																														32																																								
66+69	CL	802		141.46																																															1			1	1				1																				CB
66+69	CL	802	801		138	137.5	0.012																														44																																								
66+20	CL	801		141.79																																															1			1		1			1																				CB
66+20	CL	801	804		137.5	134.81	0.071																														40																																								
66+20	RT	804		140.21																																																																										EXIST CB
73+00	CL	805		165.95																																															1							1													1	1	1					NARROW DI in ISLANDS
73+00	CL	805	810		162.78	161	0.05																														36																																								
73+00	LT	810		165																																															1									1	1																	
73+00	LT	810	809		161	160.79	0.003																														8																																								EXIST DI
73+00	LT	809		164.31																																																																										EXIST DI
75+20	CL	806		172.85																																															1							1													1	1	1					NARROW DI in ISLANDS
75+20	CL	806	807		169.68	168.56	0.03																														40																																								
75+25	RT	807		172.37																																																																1		1								T.B.J.B. M.H.
75+25	RT	807	808		168.56	167.51	0.044																														36																																								
74+85	RT	808		170.91																																															1			1			1																				38	
99+85	RT	1001		127.11																																															1			1	1																							CB @ SAG
99+85	RT	1001	1002		124.11	123.2	0.021																														44																																								
99+37	RT	1002		127.28																																																																										
107+80	LT	1101		127.67																																															1			1			1																					CONNECT CB TO EXIST. PIPE
PROJECT TOTALS																																					1128						8								20			7	3	1	3	12	3	4	4							1		1	9	9	9	6		1.0126	38	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: DJC	DATE: 7-25-2015
CHECKED BY: CJT	DATE: 7-28-2015

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	3P-1

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	6	Edward W. Grannis, Jr.
2	8	Fasul Potter Finch, LLC.
3	9	Clayton G. Clement
4	9	Clayton G. Clement
5	12	Branch Banking and Trust Co.
6	7	Homebuyers of Wilmington, LLC
7	7	James G. and Kay H. Jones

5/28/99

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User: jhill
Level: 1

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLOUGH

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 036683 ENGINEER JANIE QUE CM MCLAWHORN

9/24/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

MI Engineering, PLLC, 1011 Schaub Drive Suite 100, Raleigh, NC 27606, NC COA No.

NAD 83/NSRS 2007

10 15 20

BEGIN PROJECT W-5206AM
-L- POT STA. 10+50.00

TS Sta. 19+62.65

SC Sta. 22+56.65

HAYMOUNT PARTNERS LLC
DB 6137 PG 521

HAYMOUNT PARTNERS LLC
DB 6137 PG 521

BEAR INVESTMENTS LLC
DB 7601PG 753

KELLY & KELLY INVESTMENTS CO.
DB 4314 PG 155

KELLY & KELLY INVESTMENTS CO.
DB 4420 PG 166

EXISTING CURB RAMP TO BE REPLACED OR RETROFFITED

BM#1
-L- STA 19+73.41
70.16' LEFT
ELEV. 210.67'

18" RCP
15" RCP
24" RCP
30" RCP
60" RCP
CB
CBCB
EIP
EXISTING R/W
60" CONC. WALK
30" C&G
33' BST BRAGG BLVD WEST BOUND LANE
GRASS MEDIAN
MTL GUARDRAIL
-EL-
S 64° 25' 33.7" E
40' BST BRAGG BLVD EAST BOUND LANE
20' BST BARRINGTON CIRCLE
50.00'

RITCHIE SMITH
DB 4903 PG 138

MELISSA MILLER
DB 8228 PG 483

PATRICIA ANN GOSSAWAY
DB 6457 PG 250

BRETT HERRMANN
DB 6440 PG 742

WILLIAM WALKER
DB 6728 PG 723

ALLISON PROPERTIES
DB 5373 PG 470

MORGAN JOHNSON
DB 3243 PG 675

CAPE FEAR RESIDENTIAL GROUP
DB 8282 PG 157

WESLEY MEREDITH
DB 4837 PG 157

PETRINA SPURS
DB 8420 PG 576

WADE HARDIN
DB 7354 PG 410

BARBARA ANN STEWART
DB 8628 PG 865

POT Sta. 10+00.00

SEE SHEET 5
MATCH LINE -L- STA. 23+94.00

NOTE: SEE SHEET 13 FOR PROFILE
SEE SHEET 2C-1 THRU 2C-6
FOR CURB RAMP DETAILS

REVISIONS

8/17/99

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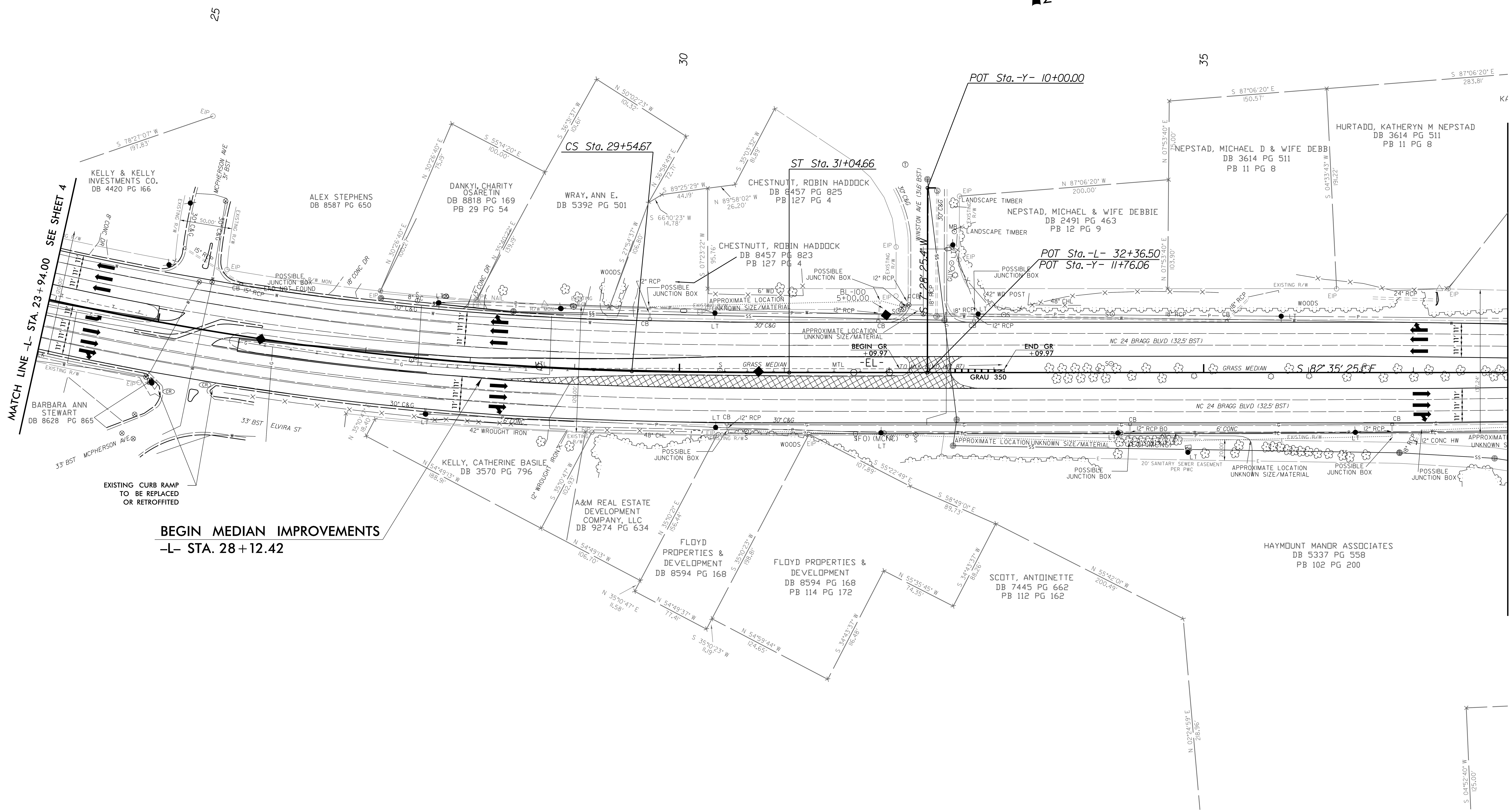
USER: jhill
DGN: 1

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO	NORTH CAROLINA PROFESSIONAL SEAL 038683 ENGINEER MELANIE QUE CHI NGUYEN 9/24/2015
CDM Smith. Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412	MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No.

REVISIONS

-L-		
PIs Sta 21+58.68 Θs = 2° 54' 08.3" Ls = 294.00' LT = 196.03' ST = 98.02'	PI Sta 26+07.35 Δ = 13° 46' 52.6" (LT) D = 1° 58' 27.7" L = 698.01' T = 350.70' R = 2,902.00'	PIs Sta 30+04.67 Θs = 1° 28' 50.4" Ls = 149.99' LT = 100.00' ST = 50.00'



PAVEMENT REMOVAL

NOTE: SEE SHEET 13 & 14 FOR PROFILE
SEE SHEET 2C-1 THRU 2C-6
FOR CURB RAMP DETAILS

8/17/99

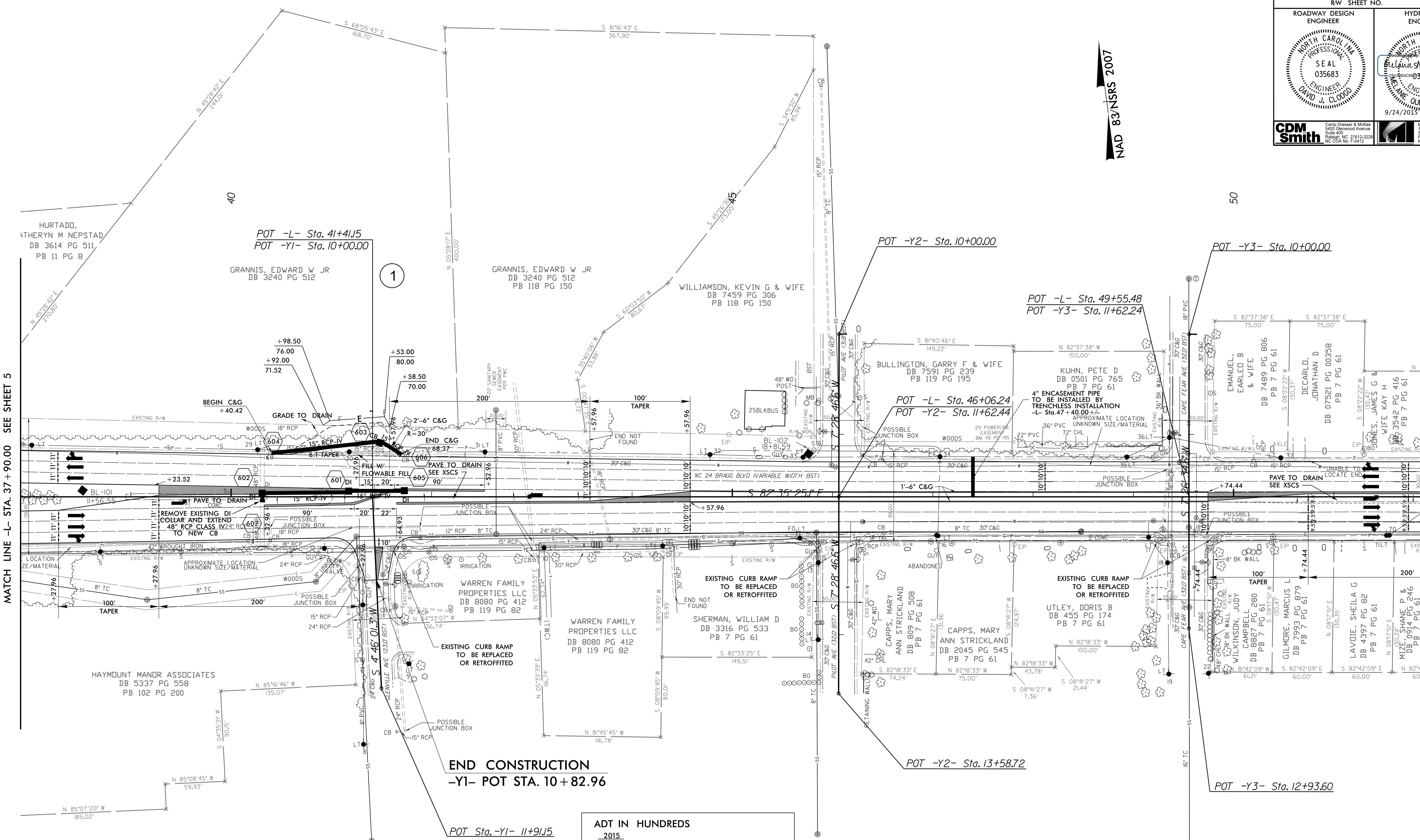
PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035683 DAVID J. CLODGO

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038683 MELANIE QUE CHI NGUYEN 9/24/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No.



ADT IN HUNDREDS

2015 / 2035

-L- BRAGG BLVD.

Movement	ADT (2015 / 2035)
-L- westbound/eastbound left	334 / 450
Left turn	5 / 7
Right turn	7 / 9
-L- eastbound	336 / 452
-Y1-	12 / 16

-Y1- GLENVILLE AVE.

NOTE: SEE SHEET 14 FOR PROFILE
SEE SHEET 2B-1 FOR CROSS OVER DETAIL
SEE SHEET 2C-7 & 2C-8 FOR DRAINAGE DETAIL
SEE SHEET 2C-1 THRU 2C-6
FOR CURB RAMP DETAILS

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035683 DAVID J. CLODGO

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038683 MCLANE QUE CHI NGUYEN 9/24/2015

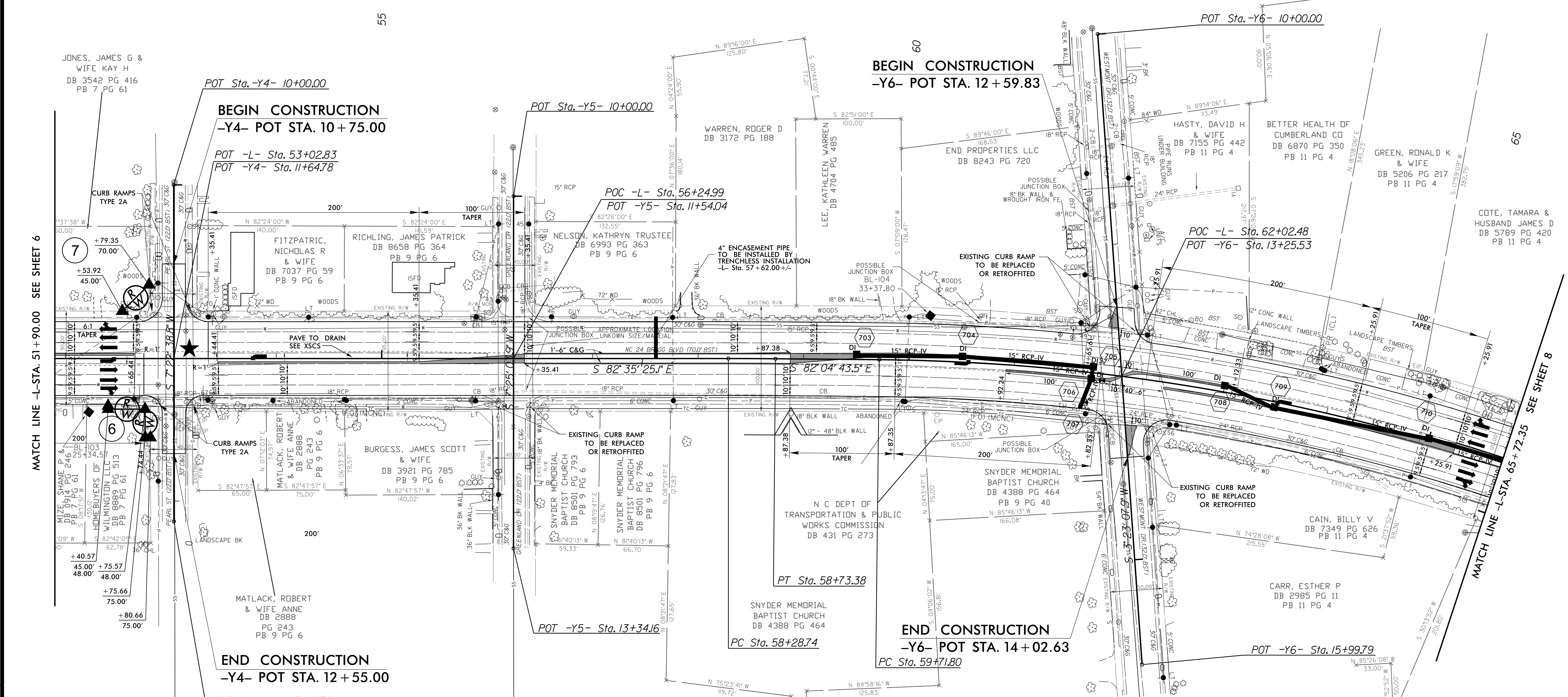
CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No.

REVISIONS

-L-	
PI Sta 58+51.06	PI Sta 63+12.19
△ = 0° 30' 41.6" (RT)	△ = 19° 54' 11.2" (RT)
D = 1° 08' 45.3"	D = 2° 57' 12.2"
L = 44.64'	L = 673.91'
T = 22.32'	T = 340.38'
R = 5,000.00'	R = 1,940.00'

NAD 83/NSRS 2007



ADT IN HUNDREDS 2015/2035 — -Y4- PEARL ST.	
-L- BRAGG BLVD. west	336/452
-L- BRAGG BLVD. east	338/456
-Y4- north	24/32
-Y4- south	14/18
Turns	7/10, 10/13, 4/6, 3/5

ADT IN HUNDREDS 2015/2035 — -Y6- WESTMONT DR.	
-L- BRAGG BLVD. west	339/456
-L- BRAGG BLVD. east	344/459
-Y6- north	24/32
-Y6- south	5/7
Turns	10/14, 13/17, 2/3, 2/3

★ TRAFFIC SIGNAL

NOTE: EXISTING FLASHING YELLOW LIGHT ON WESTMONT DR TO BE REMOVED
SEE SHEET 14 & 15 FOR PROFILE
SEE SHEET 2C-1 THRU 2C-6 FOR CURB RAMP DETAILS
SEE SHEET 2B-2 FOR CROSS OVER DETAIL
SEE SHEET 2C-7 & 2C-8 FOR DRAINAGE DETAILS

9/21/2015 4:27:03 PM

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038683 ENGINEER MELANIE QUE OR NGUYEN

9/24/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue Suite 400, Raleigh, NC 27612-3228, NC CDA No. F-0412

MI Engineering, PLLC, 1011 Schaub Drive Suite 100, Raleigh, NC 27606, NC CDA No.

8/17/99

REVISIONS

–L–	
PI Sta 63+12.19	PI Sta 68+33.48
△ = 19° 54' 11.2" (RT)	△ = 0° 21' 09.8" (RT)
D = 2° 57' 12.2"	D = 1° 08' 45.3"
L = 673.91'	L = 30.78'
T = 340.38'	T = 15.39'
R = 1,940.00'	R = 5,000.00'

–Y8–
PI Sta 10+23.42
△ = 17° 17' 43.2" (LT)
D = 37° 12' 18.2"
L = 46.49'
T = 23.42'
R = 154.00'

NAD 83/NSRS 2007

MATCH LINE –L–STA. 65+72.35 SEE SHEET 7

MATCH LINE –L–STA. 79+27.00 SEE SHEET 9

PT Sta. –Y8– 10+46.49

PC Sta. –Y8– 10+00.00

BEGIN CONSTRUCTION
–Y8– POT STA. 10+94.16

POT Sta. –L– 74+94.49
POT Sta. –Y8– 11+60.78

PRICE, THOMAS A & WIFE
DB 4697 PG 841
PB 11 PG 4

GGB FAYETTEVILLE LLC
DB 8820 PG 866
PB 11 PG 4

WEAVER, ANTHONY F
DB 8013 PG 592
PB 11 PG 4

BOULEVARD INVESTMENTS LLC
DB 8013 PG 562
PB 11 PG 4

BRYAN FAMILY LIMITED
DB 04112 PG 71
PB 21 PG 23

ROBINSON, THURSTON J & WIFE
DB 6800 PG 774
PB 21 PG 23

POLLOCK, ROBERT M & WIFE
DB 8354 PG 388
PB 126 PG 59

CARR, ESTHER P
DB 2985 PG 11
PB 11 PG 04

CARR, A BRYAN JR & W ROBERT
DB 2985 PG 1
PB 11 PG 04

EBENEZER BIBLE CHURCH TRUSTEES
DB 8657 PG 67
PB 11 PG 4

CARR, H J HEIRS, A BRYAN JR & W ROBERT
DB 2985 PG 1
PB 120 PG 187

VALENZUELA, JULIA CRYSTAL & HUSBAND BRANDON L
DB 8698 PG 579
PB 120 PG 187

WILDE, SHANE
DB 4557 PG 577
PB 11 PG 4

HOLT, CHARLES B & WIFE
DB 8456 PG 449
PB 126 PG 182

BURK, CARL C JR
DB 8428 PG 47
PB 0126 PG 182

CARTER, MANLEY PEARSON
DB 4245 PG 257
PB 11 PG 4

FRY-NOLTE, MARGARET S
DB 8155 PG 882
PB 11 PG 4

FISHER, ROBERT D JR & WIFE
DB 3168 PG 687
PB 11 PG 4

FASUL POTTER FINCH LLC
DB 8497 PG 180

PERIVOLARIS, DEMETRIOS & WIFE
DB 5777 PG 761

4" ENCASEMENT PIPE TO BE INSTALLED BY TRENCHLESS INSTALLATION –L– Sta. 68+48.00+/–

PT Sta. 68+48.87

PC Sta. 68+18.09

POT Sta. –L– 67+44.08
POT Sta. –Y7– 10+00.00

PC Sta. –Y7– 11+24.67

PT Sta. 66+45.71

PT Sta. –Y7– 11+70.20

Historic Property Boundary (HPB)

EXISTING CURB RAMP TO BE REPLACED OR RETROFFITED

EXISTING CURB RAMP TO BE REPLACED OR RETROFFITED

PAVE TO DRAIN SEE XSCS

PAVE TO DRAIN SEE XSCS

CONNECT CB TO EXISTING 15" RCP

PROP. 6' CONC. SIDEWALK

–Y7–
PI Sta 11+47.49
△ = 10° 26' 04.8" (LT)
D = 22° 55' 05.9"
L = 45.53'
T = 22.83'
R = 250.00'

ADT IN HUNDREDS

2015 / 2035

–Y8– FILTER PLANT DR.

–L– BRAGG BLVD.

6/8 5/6 2/2

357/481 358/482

NOTE: SEE SHEET 15 FOR PROFILE
SEE SHEET 2B–3 FOR CROSS OVER DETAIL
SEE SHEET 2C–1 THRU 2C–6
FOR CURB RAMP DETAILS

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PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	9
R/W SHEET NO.	

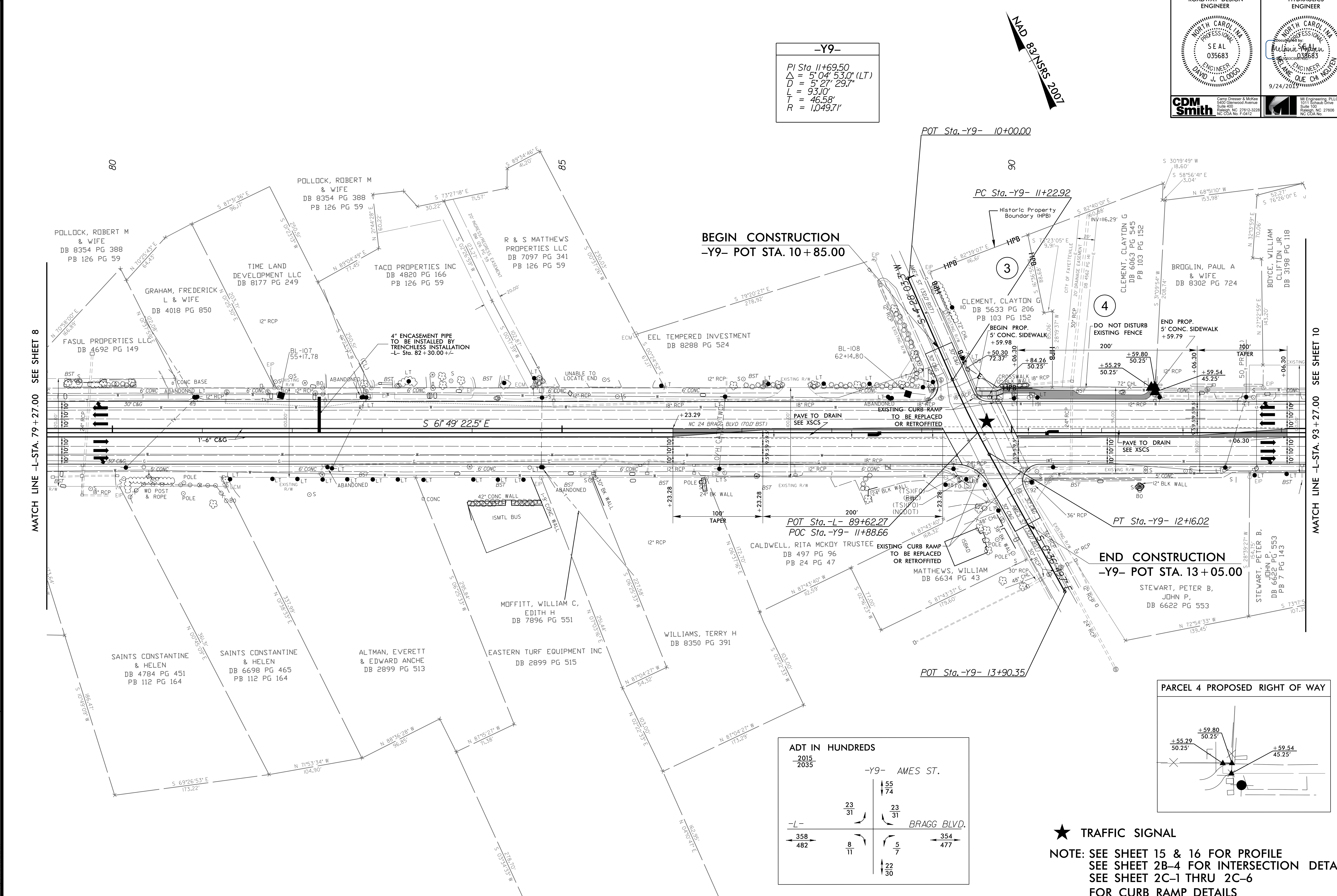
ROADWAY DESIGN ENGINEER — SEAL 035683, DAVID J. CLODDO, NORTH CAROLINA PROFESSIONAL ENGINEER

HYDRAULICS ENGINEER — SEAL 038683, MELANIE QUE CHI NGUYEN, NORTH CAROLINA PROFESSIONAL ENGINEER, 9/24/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No.

REVISIONS



ADT IN HUNDREDS

PARCEL 4 PROPOSED RIGHT OF WAY

★ TRAFFIC SIGNAL

NOTE: SEE SHEET 15 & 16 FOR PROFILE
SEE SHEET 2B-4 FOR INTERSECTION DETAIL
SEE SHEET 2C-1 THRU 2C-6
FOR CURB RAMP DETAILS

8/17/99

9/21/2015 4:30:48 PM

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038683 ENGINEER MELANIE S. HOLLYN

9/24/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC CDA No. F-0412

MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC CDA No.

8/17/99

REVISIONS

–Y10–
PI Sta 11+51.26
Δ = 32° 01' 02.3" (LT)
D = 21° 05' 09.6"
L = 151.84'
T = 77.96'
R = 271.72'

–L–	
PI Sta 100+32.86	PI Sta 104+23.93
Δ = 1° 36' 56.4" (LT)	Δ = 1° 24' 45.8" (RT)
D = 0° 40' 26.6"	D = 0° 15' 37.6"
L = 239.69'	L = 542.44'
T = 119.85'	T = 271.23'
R = 8,500.00'	R = 22,000.00'

NAD 83/NSRS 2007

MATCH LINE –L– STA. 93+27.00 SEE SHEET 9

MATCH LINE –L– STA. 107+28.00 SEE SHEET 11

POT Sta. –Y10– 10+00.00

PC Sta. –Y10– 10+73.30

PT Sta. –Y10– 12+25.14

PC Sta. 99+13.01

POT Sta. –L– 96+57.19

POT Sta. –Y10– 13+14.62

PRC Sta. 101+52.70

PT Sta. 106+94.98

S 61° 15' 16.8" W

S 61° 49' 22.5" E

S 62° 01' 33.1" E

CUMBERLAND COUNTY
DB 06389 PG 00431
PB 0111 PG 0069

CUMBERLAND COUNTY
DB 6519 PG 412
PB 46 PG 42

PARROUS, VICTOR
DB 4672 PG 168
PB 7 PG 143

PARROUS, V
DB 4672 PG 168
PB 7 PG 143

BOYCE, WILLIAM CLIFTON JR
DB 3198 PG 118

CUMBERLAND HOLDINGS LLC
DB 6541 PG 839
PB 7 PG 143

THOMPSON, ROBERT J & WIFE
DB 5444 PG 39
PB 10 PG 68

CITY OF FAYETTEVILLE
DB 2892 PG 173
PB 46 PG 42

GALA, DILIP K & WIFE DAKSHA D
DB 0279 PG 296
PB 46 PG 42

CITY OF FAYETTEVILLE
DB 2892 PG 173
PB 46 PG 42

STEWART, PETER B, JOHN P,
DB 6622 PG 553
PB 7 PG 143

CARPET ONE OF FAYETTEVILLE INC
DB 8817 PG 586
PB 22 PG 8

BANTSOLAS, JOHN
DB 6851 PG 141
PB 114 PG 18

STILL COMMERCIAL ENTERPRISES
DB 7654 PG 694
PB 114 PG 18

DEMETRIOU, CHRISTOS
DB 2101 PG 42
PB 7 PG 143

HONDROS, JAMES K & WIFE
DB 2983 PG 391
PB 7 PG 143

LYNCH, MARK N
DB 2714 PG 108
PB 7 PG 89

LYNCH, MARK N & WIFE DEBORAH D
DB 7028 PG 752
PB 7 PG 89

HOWARD, LILLIAN B & SON
DB 7058 PG 28
PB 7 PG 8

4" ENCASEMENT PIPE TO BE INSTALLED BY TRENCHLESS INSTALLATION –L– Sta. 96+00.00 +/–

EXISTING CURB RAMP TO BE REPLACED OR RETROFFITED

4" ENCASEMENT PIPE TO BE INSTALLED BY TRENCHLESS INSTALLATION –L– Sta. 103+45.00 +/–

BEGIN C&G +27.79

BEGIN C&G +39.86

END C&G +81.79

ABANDON 6" UTILITY PIPE STA. 98+67.84 TO 107+68.66

REMOVE EXISTING CONCRETE ISLAND

BL-109 70+29.84

BL-110 77+63.95

NC 24 BRAGG BLVD (VARIABLE WIDTH BST)

BECKWITH AVE./(HUSKE AVE.) -ABANDONED-

NOTE: SEE SHEET 16 FOR PROFILE
SEE SHEET 2C–1 THRU 2C–6
FOR CURB RAMP DETAILS

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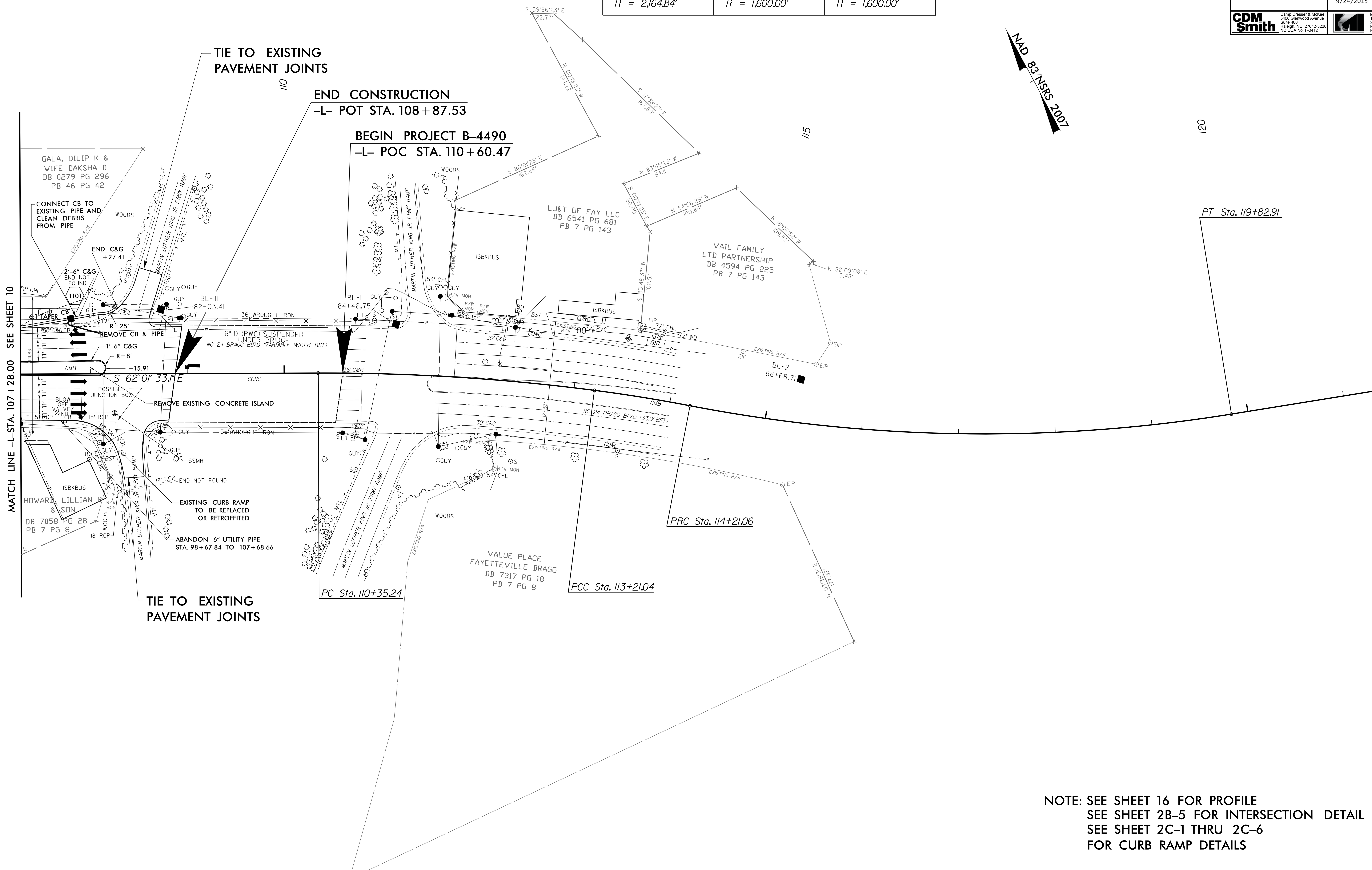
PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO	NORTH CAROLINA PROFESSIONAL SEAL 038683 ENGINEER MELANIE QUE CHI NGUYEN 9/24/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No.

-L-		
PI Sta 111+78.35	PI Sta 113+71.07	PI Sta 117+04.91
Δ = 7° 33' 51.6" (RT)	Δ = 3° 34' 53.1" (RT)	Δ = 20° 07' 11.6" (LT)
D = 2° 38' 47.9"	D = 3° 34' 51.6"	D = 3° 34' 51.6"
L = 285.81'	L = 100.01'	L = 561.85'
T = 143.11'	T = 50.02'	T = 283.85'
R = 2,164.84'	R = 1,600.00'	R = 1,600.00'



NOTE: SEE SHEET 16 FOR PROFILE
SEE SHEET 2B-5 FOR INTERSECTION DETAIL
SEE SHEET 2C-1 THRU 2C-6
FOR CURB RAMP DETAILS

REVISIONS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	12

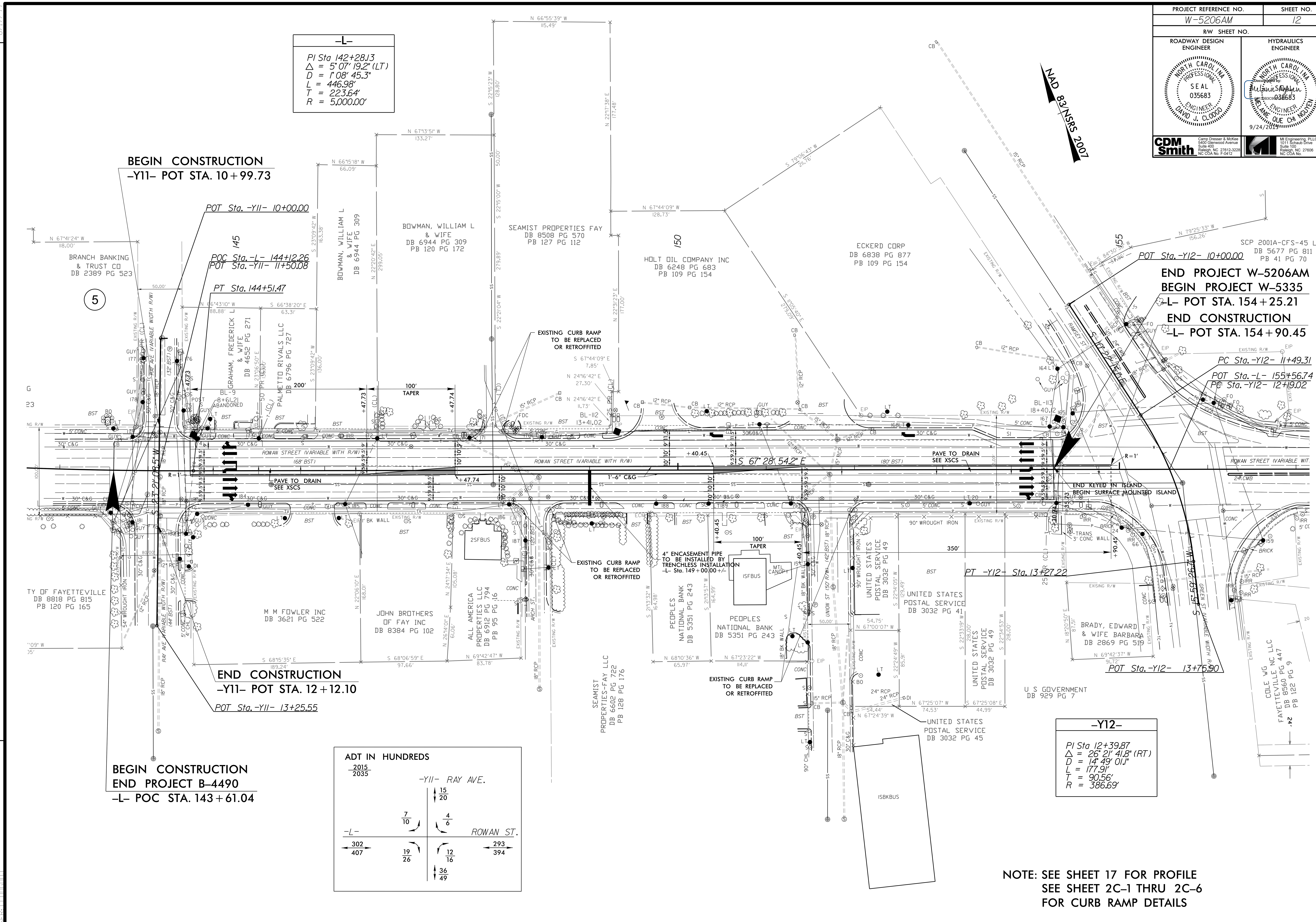
R/W SHEET NO.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 036683 ENGINEER MELANIE QUE CHI NGUYEN 9/24/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No.



NOTE: SEE SHEET 17 FOR PROFILE
SEE SHEET 2C-1 THRU 2C-6
FOR CURB RAMP DETAILS

9/21/2015 4:34:47 PM

PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	13

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO

HYDRAULICS ENGINEER

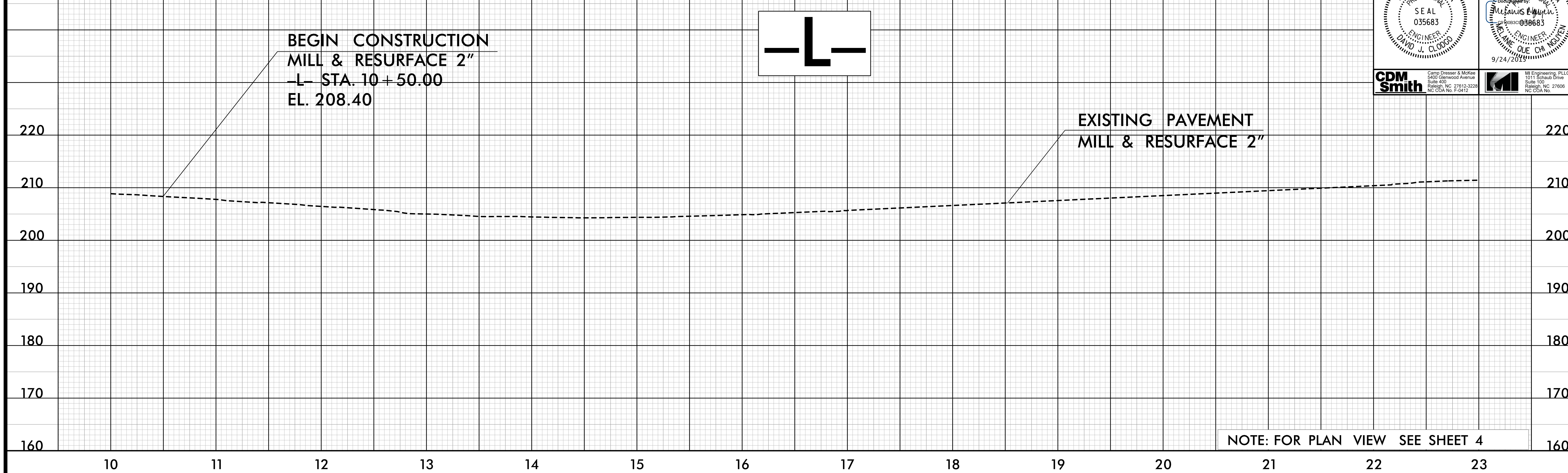
DocuSigned by: Melanie Nguyen C9130B3C99674BD...

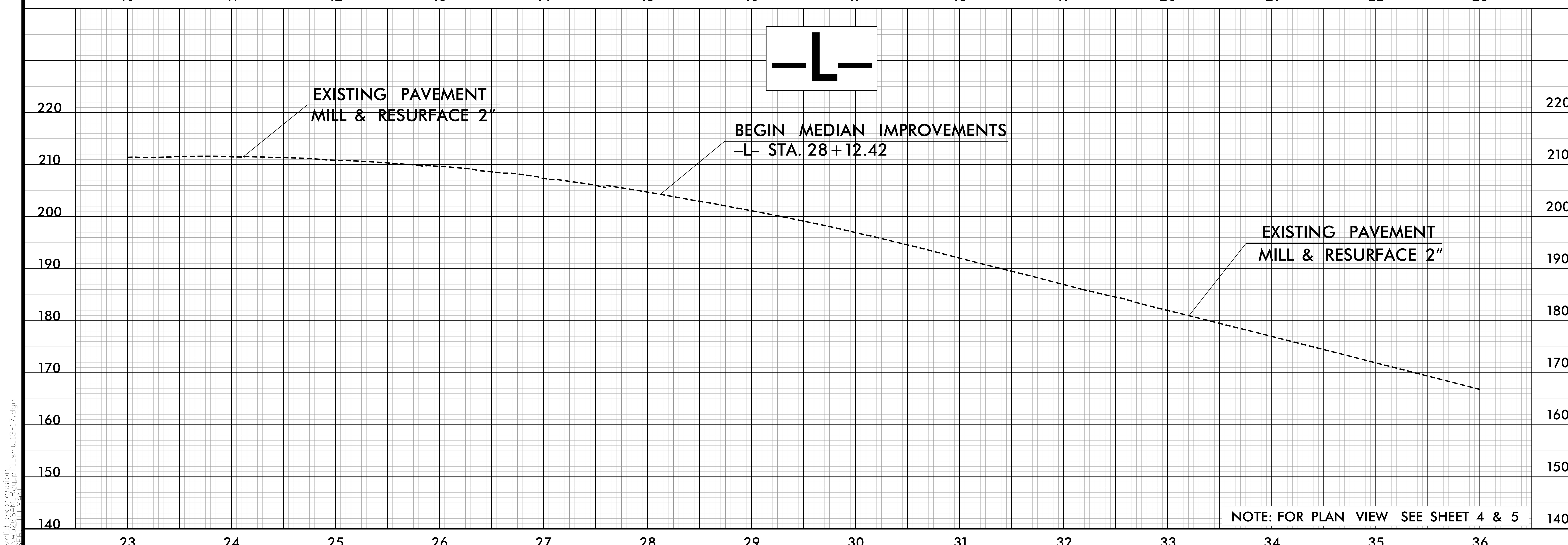
NORTH CAROLINA PROFESSIONAL SEAL 038683 ENGINEER MELANIE QUE CHI NGUYEN

9/24/2015

CDM Smith
Camp Dresser & McKee
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-0412

MI Engineering, PLLC
1011 Schaub Drive
Suite 100
Raleigh, NC 27606
NC COA No.





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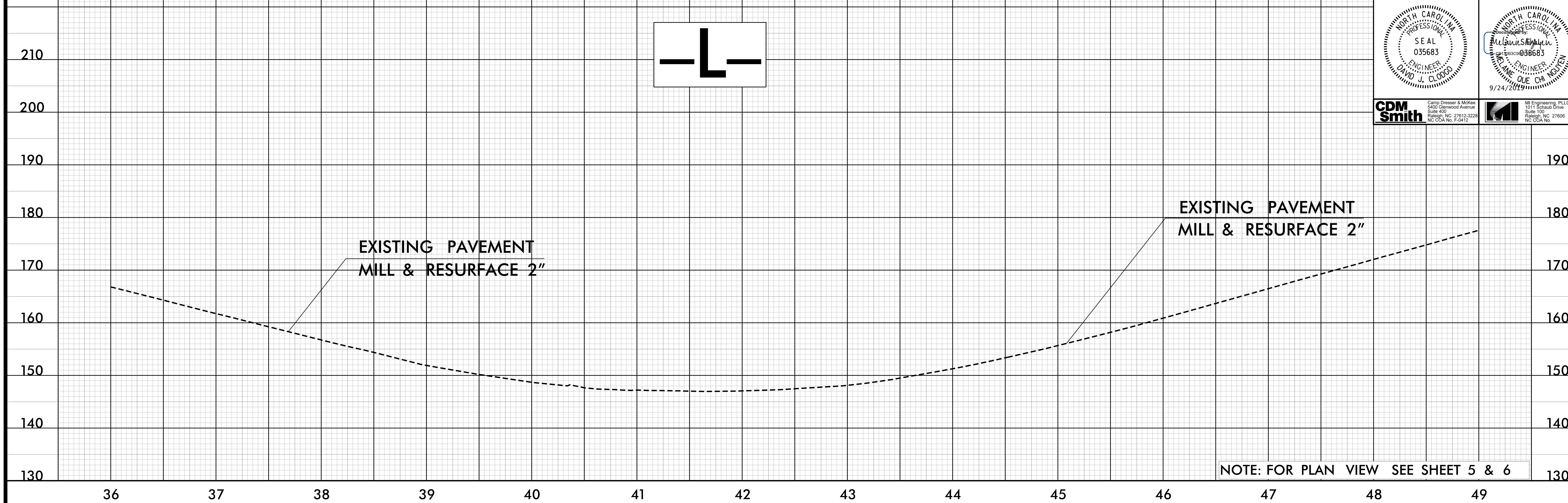
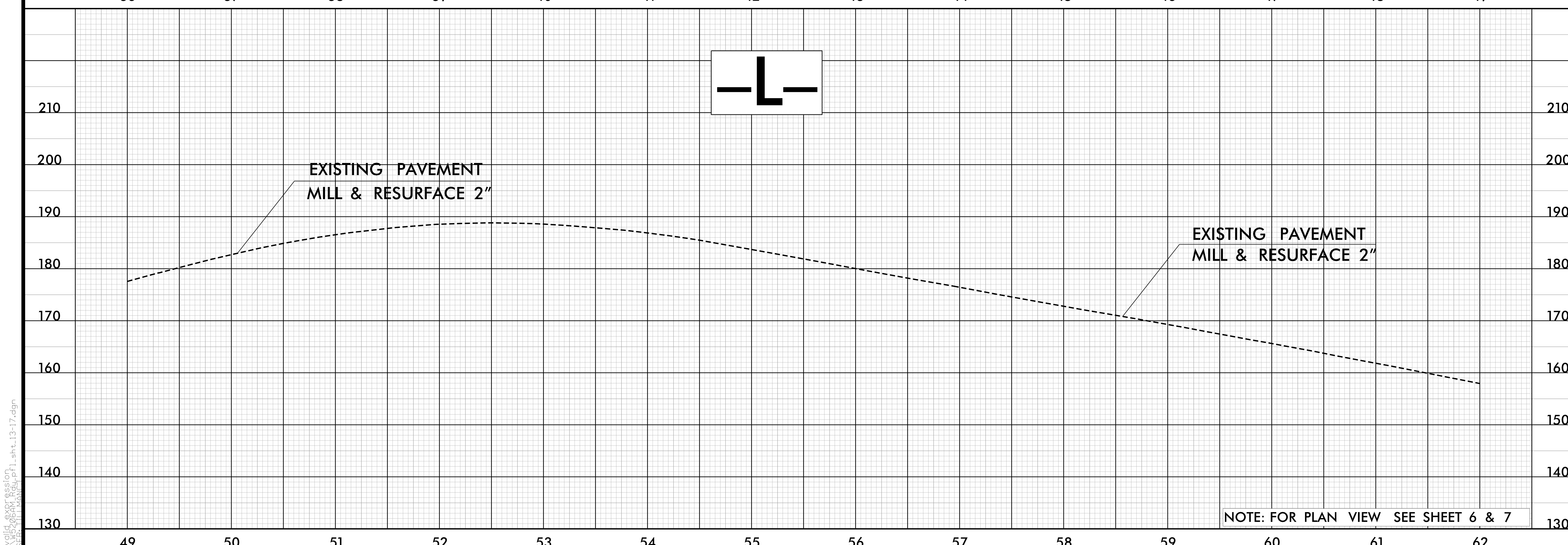
W-5206AM	14

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

CDM Smith





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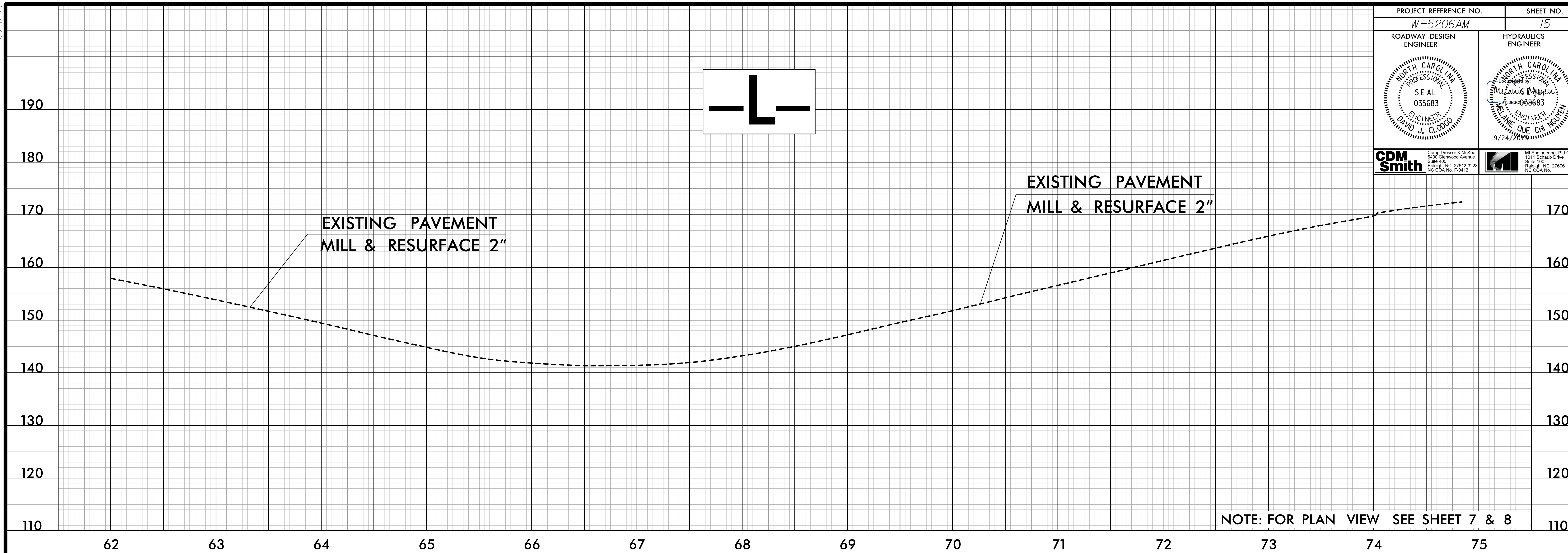
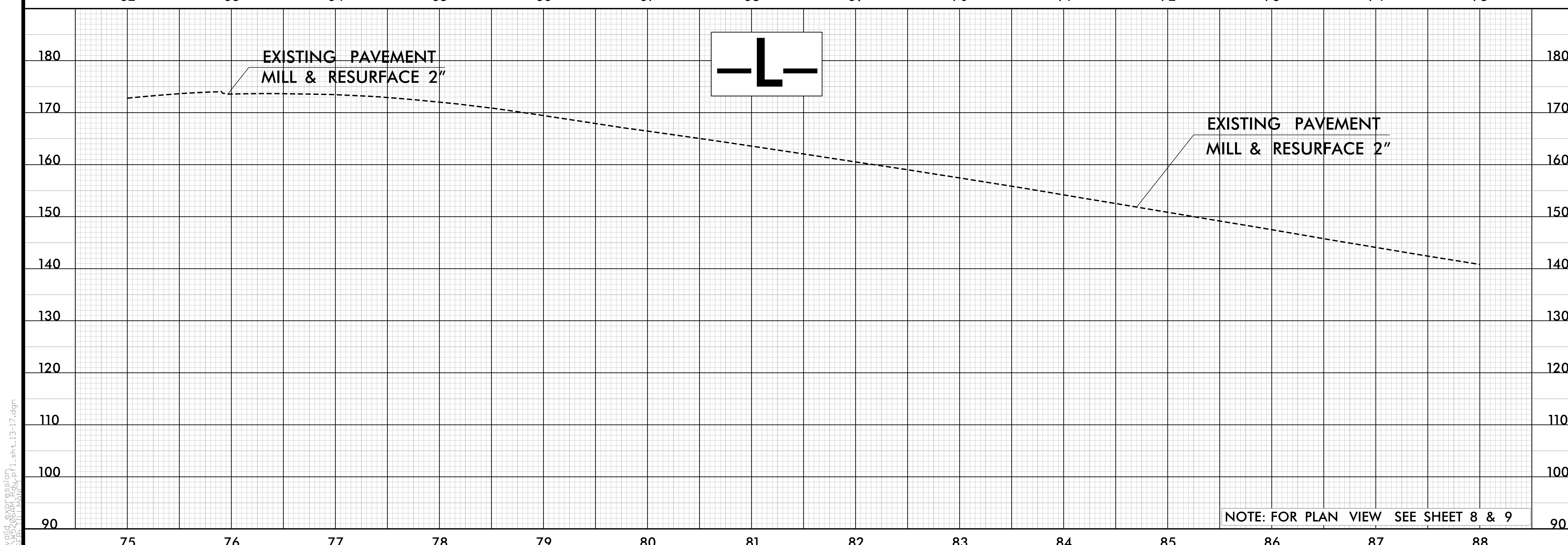
W-5206AM	15

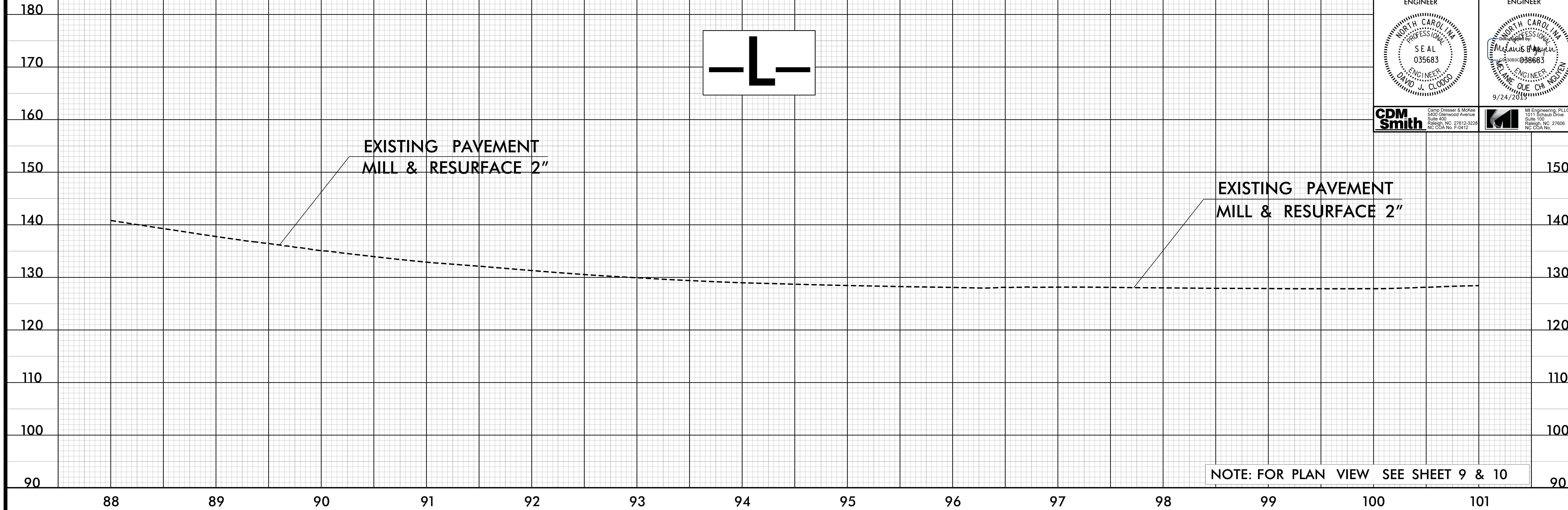
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO	NORTH CAROLINA PROFESSIONAL SEAL 038683 ENGINEER MELANIE QUE CHI NGUYEN 9/24/2019
CDM Smith	MI Engineering, PLLC

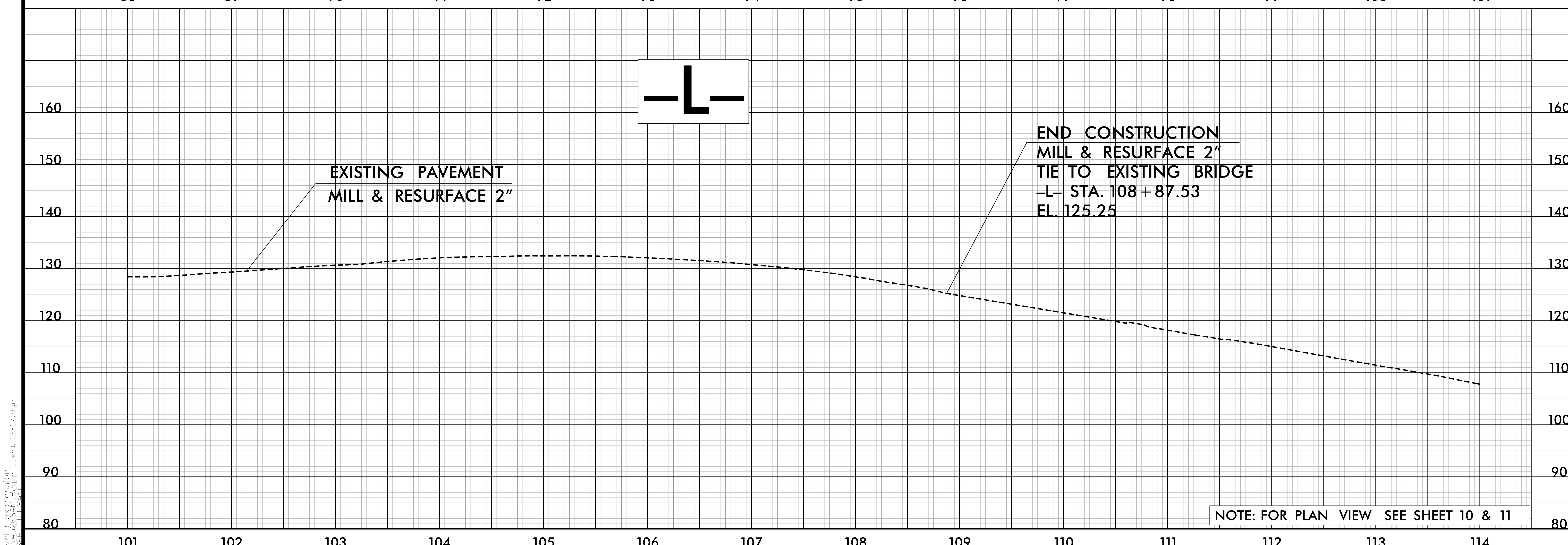




PROJECT REFERENCE NO.	SHEET NO.
W-5206AM	16

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035683 DAVID J. CLODGO	DocuSigned by: Melanie Nguyen C9130B3C996748D... NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038683 MELANIE QUE CHI NGUYEN 9/24/2015
CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412	MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No.





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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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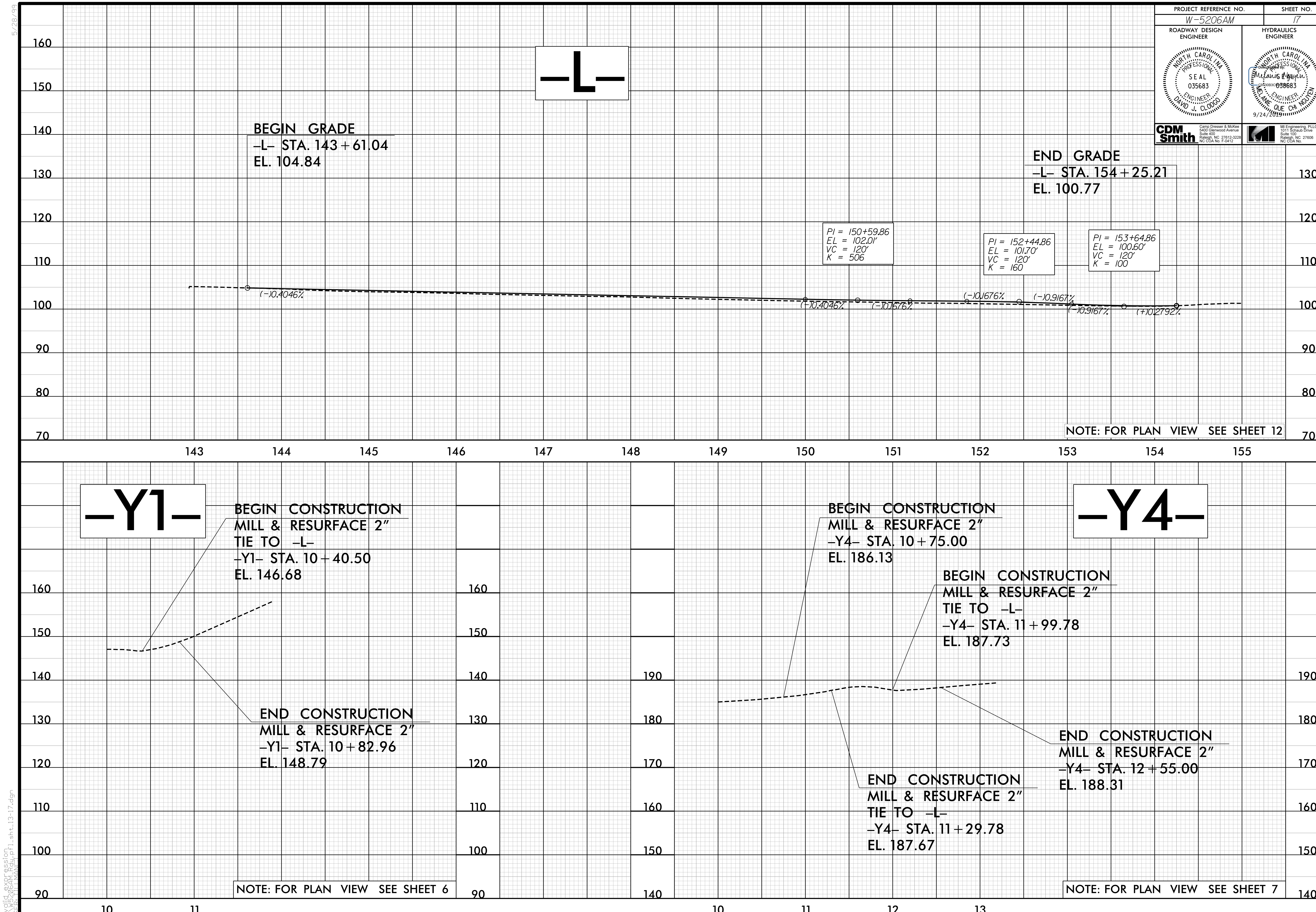
CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412	MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No.



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ROADWAY DESIGN ENGINEER — SEAL: NORTH CAROLINA PROFESSIONAL SEAL 035683 ENGINEER DAVID J. CLODGO

HYDRAULICS ENGINEER — DocuSigned by: Melanie Nguyen, C9130B3C99674B... — SEAL: NORTH CAROLINA PROFESSIONAL 038683 ENGINEER MELANIE QUE CHI NGUYEN — 9/24/2015

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-0412

MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No.