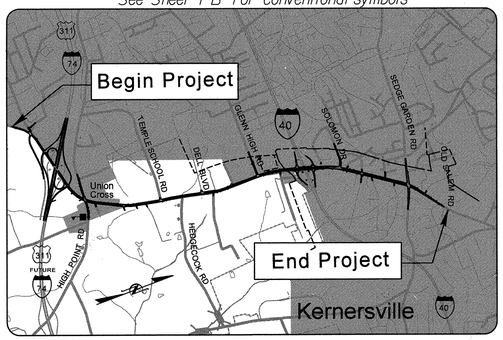
TIP PROJECT: U4909

CONTRACT: C202745

See Sheet 1-A For Index of Sheets
See Sheet 1-B for conventional symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4909	1	

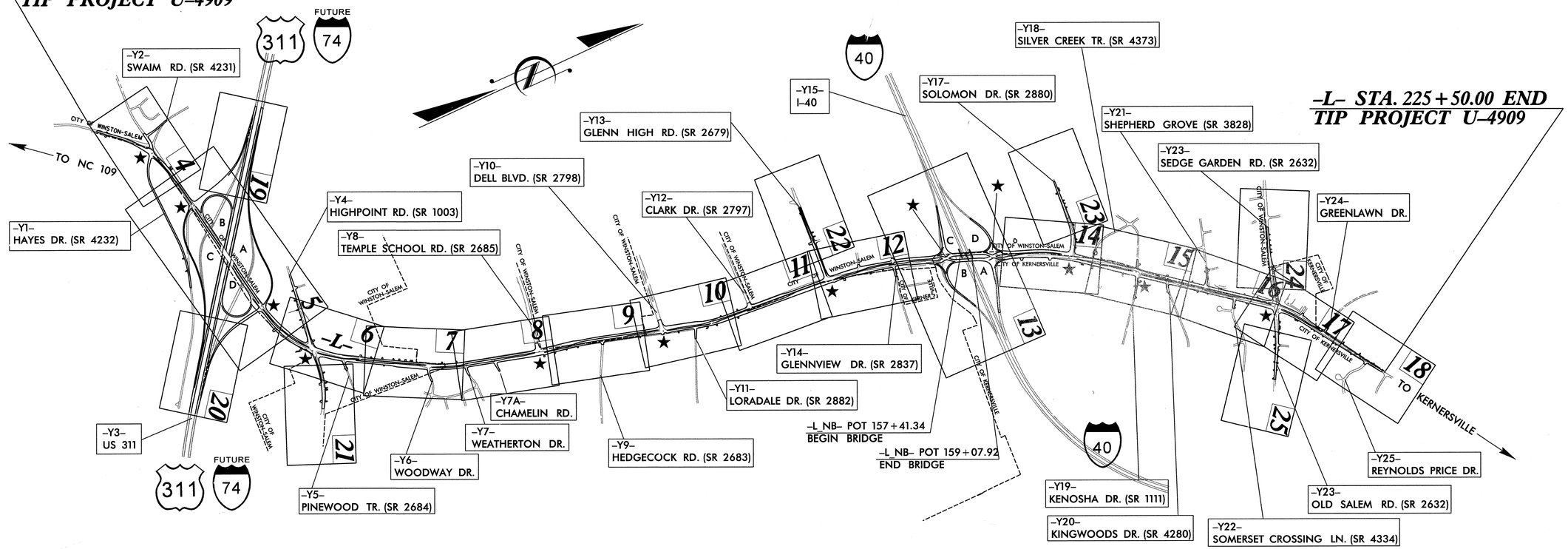
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
40278.1.1	STP-2643(2)	PE
40278.2.1	STPHPP-2643(3)	R/W/UTIL
40278.3.1	STP-2643(5)	CONST

LOCATION: WINSTON SALEM – SR 2643 (UNION CROSS RD.) FROM SR 2691 (WALLBURG RD) TO SR 2632 (SEDGE GARDEN RD.)

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

-L- STA. 7+40.00 BEGIN
TIP PROJECT U-4909

-L- STA. 225+50.00 END
TIP PROJECT U-4909



NOTES:
1. THIS IS A PARTIAL CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON PLANS.

GRAPHIC SCALES

50 0 50 100
PLANS
50 0 50 100
PROFILE (HORIZONTAL)
10 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2011 = 25,120
ADT 2031 = 41,520
DHV = 10%
D = 60%
T = 9% *
V = 50 MPH
CLASS = URBAN COLLECTOR
* DUAL = 6%
DRAINAGE TIER: REGIONAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4909 ..... 4.131 mi
LENGTH STRUCTURE TIP PROJECT U-4909 ..... 0.032 mi
TOTAL LENGTH TIP PROJECT U-4909 ..... 4.099 mi

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
FOR
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 15, 2008

LETTING DATE:
January 17, 2012

J.T. PEACOCK, JR., P.E.
PROJECT ENGINEER
MICHAEL T. MERRITT, P.E.
PROJECT DESIGN ENGINEER
NCDOT CONTACT:
K. ZAK HAMIDI, PE
PROJECT ENGINEER – PROJECT SERVICES

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
SIGNATURE: 10/7/11

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
SIGNATURE: P.E. 10/7/2011

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
P.E.
STATE HIGHWAY DESIGN ENGINEER

10/5/2011
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jbeauchaine

09/08/99

TIP PROJECT: U4909

CONTRACT: C202745

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4909	1	

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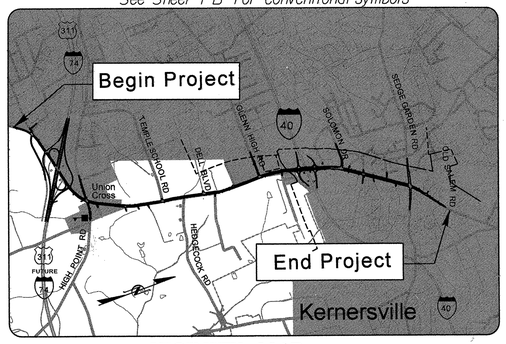


VICINITY MAP

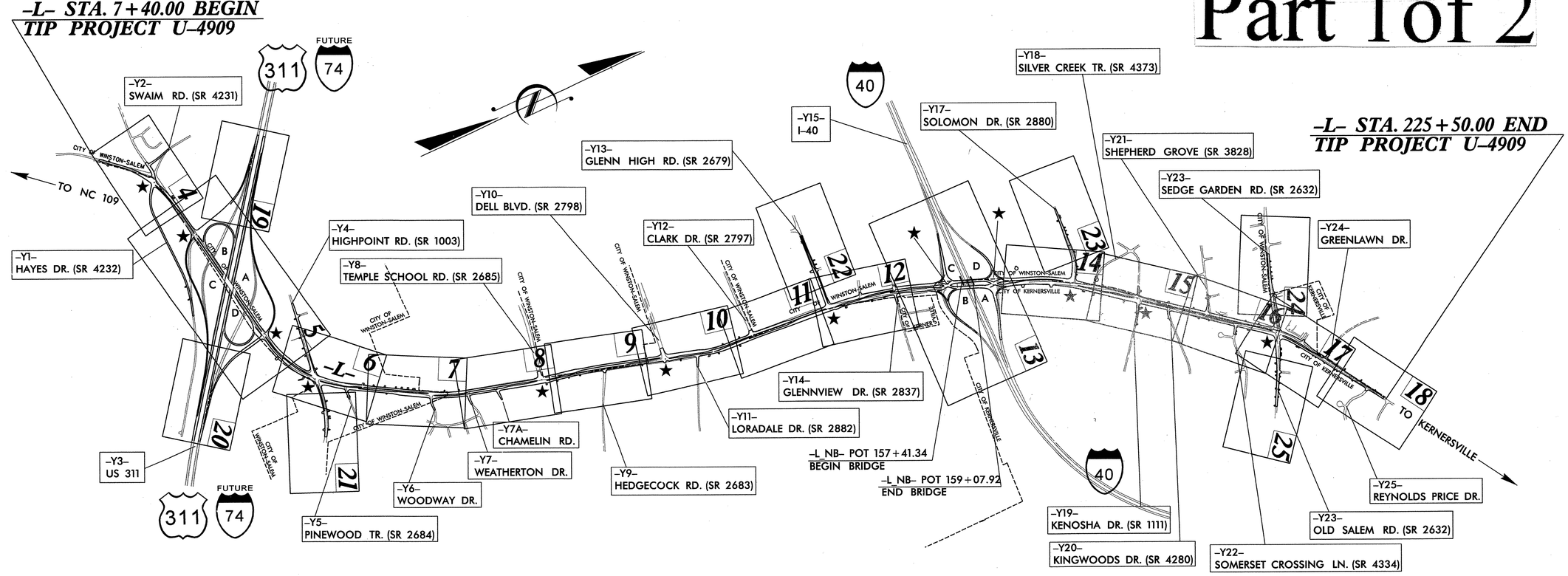
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: WINSTON SALEM – SR 2643 (UNION CROSS RD.) FROM SR 2691 (WALLBURG RD) TO SR 2632 (SEDGE GARDEN RD.)

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

Part 1 of 2



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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
P.E.
STATE HIGHWAY DESIGN ENGINEER

10/5/2011
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jbeauchaine

PROJECT REFERENCE NO.	SHEET NO.
U-4909	1-A

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/14/2011

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX of SHEETS, GENERAL NOTES, and LIST of STANDARDS

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

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 AND 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.

SHOULDER CONSTRUCTION:
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NOS. 560.01 AND 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.

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

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

STREET TURNOUT:
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE 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 IN THE PLANS WILL BE PAID FOR AT THE CONTACT PRICE FOR "TEMPORARY SHORING".

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:
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS. UTILITY OWNERS ON THIS PROJECT ARE: DUKE ENERGY, CENTURYLINK, NORTH STATE COMMUNICATIONS, AT&T (BELLSOUTH), AT&T (LONG DISTANCE), TIME WARNER, PIEDMONT NATURAL GAS, FORSYTH BOARD OF EDUCATION.

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 IN ACCORDANCE WITH THE DETAILS IN THE PLANS.

EFF. 07-18-06
REV. 01-02-07

2006 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 July 18, 2006 are applicable to this projectand by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.01	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
225.05	Method of Obtaining Superelevation - Divided Highways
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS	
700.05	Tying Proposed Pavement to Existing
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.21	Reinforced Concrete Endwall - for Single 54" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.51	Reinforced Brick Endwall - for Single 54" Pipe 90 Skew
DIVISION 8 - INCIDENTALS	
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
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
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 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
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
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
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

INDEX OF SHEETS

1	Title Sheet
1A	Index of Sheets, General Notes, List of Standard Drawings
1B	Conventional Symbols
1C-1F	Survey Control Sheets
2-2L	Pavement Schedule, Typical Sections, Wedging Detail
2M-2N	Method of Pipe Installation Details
2O-2Q	Intersection Details
2R	Cross Section/Shear Point Layout
2S	Ditch Details
2T-2V	Curb Ramp Details
2W	Anchorage for Frames Detail
2X	Standard Temporary Shoring Detail
2Y	Convert Existing DI to JB Detail
3 (2 SHEETS)	Summary of Quantities
3A-3P	Summary of Drainage Quantities
3Q	Summary of Guardrail
3R	Earthwork Summary
3S	Pavement Removal & Breaking Summary, Woven Wire Fence Summary
3T-3U	Parcel Index Sheets
4-25	Plan Sheets
26-54	Profile Sheets
TMP1-TMP103	Traffic Control Plans
PMP1-PMP22	Pavement Marking Plans
E1-E4	Electrical Plans
EC1-EC47	Erosion Control Plans
SIGN1-SIGN30	Signing Plans
SIG1-SIG129	Signal Plans
UC1-UC24	Utility Construction Plans
U1, U4-U25	Utilities By Others Plans
X0	Cross Section Index
XA-XH	Cross Section Summary
X1-X299	Cross Sections
S1-S136	Structure Plans
W1-W10	Retaining Wall Plans

PLANS PREPARED BY :
RKK
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
DIVISION OF HIGHWAYS

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pmccrary

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
U-4909	1-B

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
- Historic Boundary

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 Marker — RW
- 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 Utility Easement — PUE
- Prop. Permanent Drainage Utility Easement — DUE
- Prop. Permanent Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- 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 — HH
- 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:

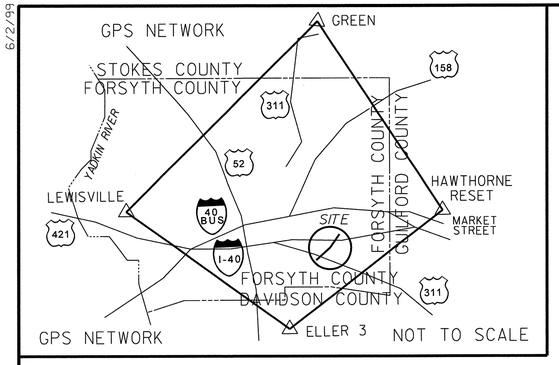
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

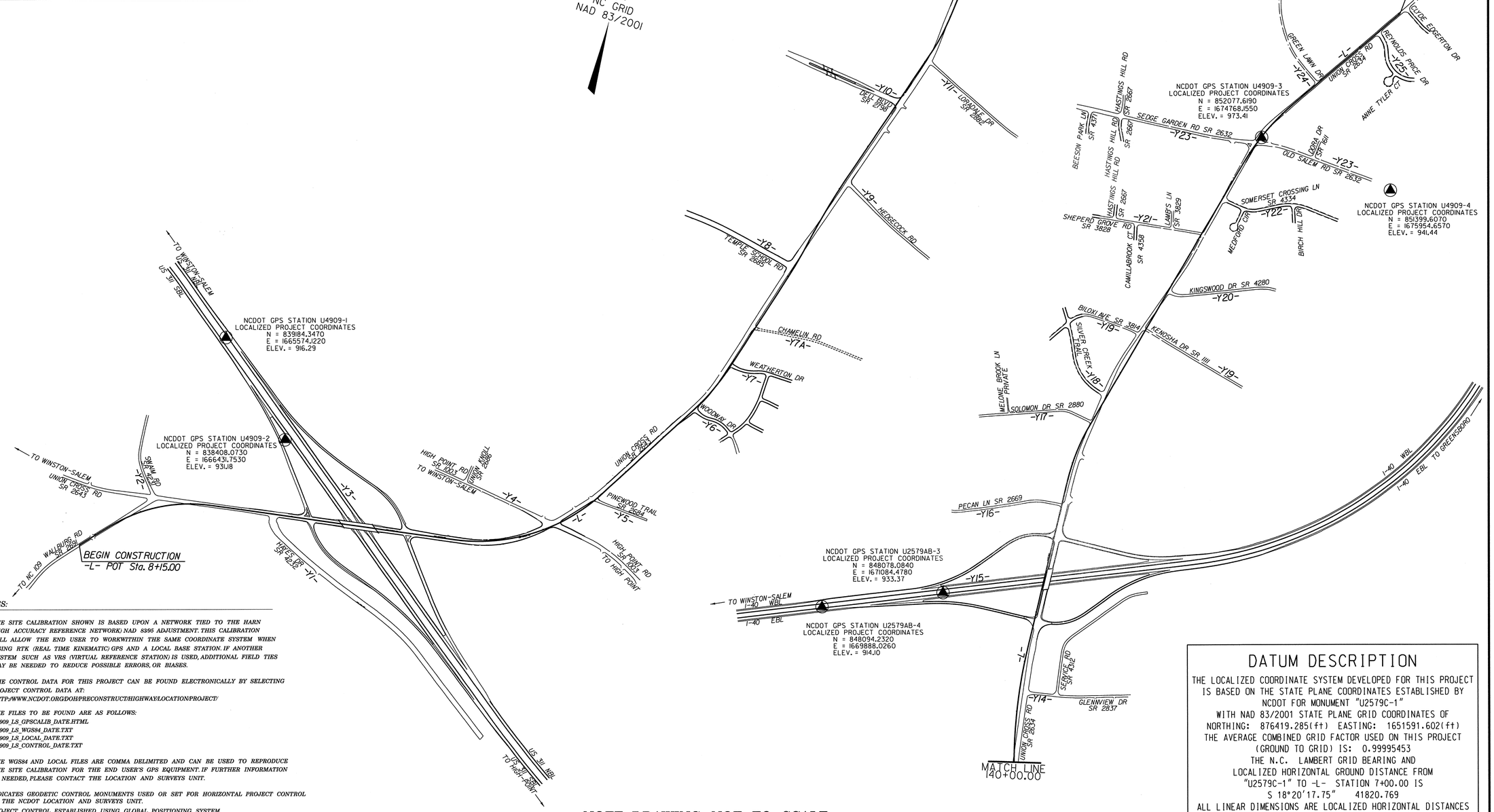
MISCELLANEOUS:

- Proposed Traffic Signal
- 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
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
U-4909	1C
Location and Surveys	

SURVEY CONTROL SHEET U-4909





NOTES:

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 8395 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORKWITHIN 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:
HTTP:/WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
U4909_LS_GPSCALIB_DATE.HTML
U4909_LS_WGS84_DATE.TXT
U4909_LS_LOCAL_DATE.TXT
U4909_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

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U2579C-1"
WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF
NORTHING: 876419.285(ft) EASTING: 1651591.602(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99995453
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U2579C-1" TO -L- STATION 7+00.00 IS
S 18°20'17.75" 41820.769
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

6/2/99
10/5/2011
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PROJECT REFERENCE NO.	SHEET NO.
U-4909	1D
Location and Surveys	

SURVEY CONTROL SHEET U-4909

GPS Calibration Report

Project : U4909_Calibration

TIP Number
User name tbovender Date & Time 7:29:02 AM 3/25/2008
Coordinate System US State Plane 1983
Zone North Carolina 3200
Horizontal Datum NAD 1983 (Conus)
Vertical Datum Geoid Model Geoid03 (Conus) NC Sub Grid
Coordinate Units US survey feet
Distance Units US survey feet
Height Units US survey feet

LOCAL SITE INFORMATION
Localized around U2579C-1
Latitude 36°09'08.35562" N
Longitude 80°10'48.38377" W
Site Scale Factor 1.000045472
Height 870.594

The North Carolina Department of Transportation uses a Localized Coordinate System which is very similar to North Carolina Zone 3200 from which it is 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 computation not requested

Updated Default Projection (Transverse Mercator) Definition

Updated default projection not requested

Horizontal Adjustment Parameters

Northing coordinate of rotation center 845575.353sft
Easting coordinate of rotation center 1670624.663sft
Rotation about the center point 0°00'00"

Translation north -1.361sft
Translation east 0.792sft
Scale factor 1.00003929

Vertical Adjustment Parameters

Northing coordinate of origin point 839184.285sft
Easting coordinate of origin point 1665574.048sft
Vertical separation at origin 0.076sft
Slope north 7.562ppm
Slope east -4.979ppm

Geoid Model Definition

Geoid03 (Conus) NC Sub Grid

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary

Maximum error	Root Mean Square error	Point
Horizontal 0.106sft	0.023	BL-13_GPS
Vertical 0.035sft	0.008	U4909-4_GPS
Three-dimensional 0.108sft	0.024	BL-13_GPS

Point Residuals
WGS84 Coordinates Calculated point
FOR DISPLAY ONLY Local Coordinates

Point U4909-1_GPS Latitude 36°03'01.78617"N Longitude 80°64 07'52.74428"W Height 810.808sft	Northing 839184.285sft Easting 1665574.048sft Elevation 916.303sft Horz error 0.097sft Vert error 0.013sft 3D error 0.098sft	Point U4909-1_Local Northing 839184.347sft Easting 1665574.122sft Elevation 916.290sft Utilized Horz and Vert Quality Survey quality
Point U4909-2_GPS Latitude 36°02'54.20800"N Longitude 80°07'42.19245"W Height 825.730sft	Northing 838408.145sft Easting 1666431.782sft Elevation 931.151sft Horz error 0.078sft Vert error 0.029sft 3D error 0.083sft	Point U4909-2_Local Northing 838408.073sft Easting 1666431.753sft Elevation 931.180sft Utilized Horz and Vert Quality Survey quality
Point U2579AB-4_GPS Latitude 36°04'30.37318"N Longitude 80°07'01.43466"W Height 808.314sft	Northing 848094.283sft Easting 1669888.014sft Elevation 914.051sft Horz error 0.053sft Vert error 0.019sft 3D error 0.056sft	Point U2579AB-4_Local Northing 848094.232sft Easting 1669888.026sft Elevation 914.070sft Utilized Horz and Vert Quality Survey quality
Point U2579AB-3_GPS Latitude 36°04'30.34647"N Longitude 80°06'46.85906"W Height 827.706sft	Northing 848078.146sft Easting 1671084.467sft Elevation 933.390sft Horz error 0.063sft Vert error 0.020sft 3D error 0.067sft	Point U2579AB-3_Local Northing 848078.084sft Easting 1671084.478sft Elevation 933.370sft Utilized Horz and Vert Quality Survey quality
Point U4909-3_GPS Latitude 36°05'10.29921"N Longitude 80°06'02.53000"W Height 867.721sft	Northing 852077.542sft Easting 1674768.142sft Elevation 973.435sft Horz error 0.078sft Vert error 0.025sft 3D error 0.082sft	Point U4909-3_Local Northing 852077.619sft Easting 1674768.155sft Elevation 973.410sft Utilized Horz and Vert Quality Survey quality
Point U4909-4_GPS Latitude 36°05'03.72551"N Longitude 80°05'47.98458"W Height 835.776sft	Northing 851399.608sft Easting 1675954.644sft Elevation 941.405sft Horz error 0.013sft Vert error 0.035sft 3D error 0.037sft	Point U4909-4_Local Northing 851399.607sft Easting 1675954.657sft Elevation 941.440sft Utilized Horz and Vert Quality Survey quality
Point BL-13_GPS Latitude 36°03'27.98360"N Longitude 80°06'50.95985"W Height 858.384sft	Northing 841775.930sft Easting 1670677.082sft Elevation 963.784sft Horz error 0.106sft Vert error 0.024sft 3D error 0.108sft	Point BL-13 Northing 841775.979sft Easting 1670676.988sft Elevation 963.760sft Utilized Horz and Vert Quality Survey quality

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U2579C-1"
WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF NORTHING: 876419.285(ft) EASTING: 1651591.602(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99995453
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U2579C-1" TO -L- STATION 7+00.00 IS S 18°20'17.75" 41820.769
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 8395 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORKWITHIN 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:
HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
U4909_LS_GPSCALIB_DATE.HTML
U4909_LS_WGS84_DATE.TXT
U4909_LS_LOCAL_DATE.TXT
U4909_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.

PROJECT REFERENCE NO.	SHEET NO.
U-4909	1E
Location and Surveys	

SURVEY CONTROL SHEET U-4909

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
5	BL-5	837427.2890	1665317.5730	955.57	15+85.33	90.39 LT
6	BL-6	837780.4260	1666809.3300	954.23	30+96.38	54.29 LT
7	BL-7	837865.7140	1667819.8720	962.90	41+06.78	32.65 RT
8	BL-8	838011.3660	1668588.4730	966.38	48+83.59	41.69 RT
9	BL-9	838395.1971	1669206.0728	961.39	56+03.01	19.76 RT
10	BL-10	838836.3850	1669468.9530	969.49	61+17.88	64.99 LT
11	BL-11	839820.9560	1670135.7570	968.10	73+06.09	25.50 RT
12	BL-12	840880.8730	1670507.4040	970.01	84+29.27	8.92 RT
13	BL-13	841775.9790	1670676.9880	963.76	93+41.42	48.69 LT
14	BL-14	842474.5780	1670896.5210	960.07	100+70.99	13.51 RT
15	BL-15	843508.5300	1671247.5580	961.79	111+61.87	61.19 RT
16	BL-16	844556.7080	1671412.4080	961.90	122+19.59	8.28 RT
17	BL-17	846027.9450	1671456.7440	965.78	136+89.65	65.30 LT
18	BL-18	847007.7330	1671730.2030	961.09	147+00.87	31.47 RT
19	BL-19	847752.2460	1671959.0610	958.38	154+81.29	2.42 LT
20	BL-20	848411.8940	1672293.9910	962.20	162+17.15	73.86 RT
21	BL-21	849012.8070	1672515.0500	967.95	168+58.71	64.47 RT
22	BL-22	849777.2900	1672866.5750	967.35	177+02.10	55.97 LT
23	BL-23	850347.1980	1673362.5100	964.92	184+56.52	16.04 LT
24	BL-24	850768.1530	1673754.0810	965.34	190+29.31	33.36 RT
25	BL-25	851382.2380	1674187.2640	974.81	197+79.91	3.36 LT
3	U4909-3	852077.6190	1674768.1550	973.41	206+87.12	4.35 RT
26	BL-26	852535.3930	1675348.3570	985.37	214+26.40	23.81 LT
27	BL-27	852934.7570	1676080.4150	969.83	222+58.35	31.45 RT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
28	BY1-28	838074.6310	1665098.3600	951.03	OUTSIDE PROJECT LIMITS	
5	BL-5	837427.2890	1665317.5730	955.72	OUTSIDE PROJECT LIMITS	

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
5	BL-5	837427.2890	1665317.5730	955.72	15+85.33	90.39 LT
29	BY2-29	833786.7760	1664834.9120	947.38	8+04.48	22.91 RT

BY3

POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
6	BL-6	837780.4260	1666809.3300	954.23	35+67.87	368.12 RT
30	BY3-30	837577.4860	1666527.2150	951.14	34+63.24	699.52 RT
31	BY3-31	837290.8870	1667062.1000	955.63	40+63.30	609.14 RT
32	BY3-32	837108.6800	1667567.5080	937.77	45+77.28	452.74 RT
33	BY3-33	836923.2590	1668141.9480	911.93	51+48.50	257.63 RT
34	BY3-34	836567.9320	1668653.8030	912.90	57+71.23	236.10 RT

BY4

POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
35	BY4-35	839725.3820	1664835.8390	904.53	OUTSIDE PROJECT LIMITS	
1	U4909-1	839184.3470	1665574.1220	916.29	17+38.16	17.77 LT
2	U4909-2	838408.0730	1666431.7530	931.18	28+89.81	91.11 RT
6	BL-6	837780.4260	1666809.3300	954.23	35+67.87	368.12 RT
36	BY4-36	837884.8800	1667248.5220	938.44	38+57.29	21.65 RT
37	BY4-37	837276.8680	1668059.9800	931.66	48+71.26	23.33 RT
38	BY4-38	836666.4670	1668907.1030	914.06	59+15.24	5.59 RT
39	BY4-39	836038.3070	1669854.5690	915.34	70+53.12	23.69 LT

BY5

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
40	BY5-40	838569.5833	1668268.6777	948.45	13+39.59	21.70 LT
9	BL-9	838395.1971	1669206.0728	961.39	22+91.35	35.51 RT
41	BY5-41	838392.0260	1669657.2050	961.61	27+37.06	25.79 LT
42	BY5-42	838142.1060	1670122.2800	945.44	32+63.39	27.12 RT

BY6

POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
10	BL-10	838836.3850	1669468.9530	969.49	OUTSIDE PROJECT LIMITS	
43	BY6-43	838749.5360	1669790.6040	973.41	12+83.64	11.62 RT

BY7

POINT	DESC.	NORTH	EAST	ELEVATION	Y7A STATION	OFFSET
12	BL-12	840880.8730	1670507.4040	970.01	10+15.79	17.53 LT
44	BY7-44	840938.3320	1671115.2400	972.63	OUTSIDE PROJECT LIMITS	

BY8

POINT	DESC.	NORTH	EAST	ELEVATION	Y8 STATION	OFFSET
45	BY8-45	841623.2020	1670380.7190	964.50	13+44.49	32.19 LT
13	BL-13	841775.9790	1670676.9880	963.76	16+06.38	238.42 LT

BY9

POINT	DESC.	NORTH	EAST	ELEVATION	Y9 STATION	OFFSET
14	BL-14	842474.5780	1670896.5210	960.07	10+19.14	26.76 RT
46	BY9-46	842229.4750	1671394.5250	961.31	15+74.03	13.35 RT

BY10

POINT	DESC.	NORTH	EAST	ELEVATION	Y10 STATION	OFFSET
47	BY10-47	843440.0210	1670311.2080	929.31	OUTSIDE PROJECT LIMITS	
15	BL-15	843508.5300	1671247.5580	961.79	OUTSIDE PROJECT LIMITS	

BY11

POINT	DESC.	NORTH	EAST	ELEVATION	Y11 STATION	OFFSET
15	BL-15	843508.5300	1671247.5580	961.79	11+11.31	357.23 RT
48	BY11-48	843828.2390	1671372.4970	957.57	10+94.54	14.38 RT
49	BY11-49	843642.1410	1671865.3500	964.21	OUTSIDE PROJECT LIMITS	

BY12

POINT	DESC.	NORTH	EAST	ELEVATION	Y13 STATION	OFFSET
50	BY12-50	846009.4920	1670736.8540	959.12	16+04.75	27.90 RT
17	BL-17	846027.9450	1671456.7440	965.78	23+22.75	38.02 LT

BY13

POINT	DESC.	NORTH	EAST	ELEVATION	Y14 STATION	OFFSET
18	BL-18	847007.7330	1671730.2030	961.09	12+85.68	9.96 LT
51	BY13-51	846880.6310	1672192.9250	965.61	17+64.44	13.16 RT

BY14

POINT	DESC.	NORTH	EAST	ELEVATION	Y15 STATION	OFFSET
104	U2579AB-4	848094.2320	1669888.0260	914.10	18+82.11	12.58 RT
103	U2579AB-3	848078.0840	1671084.4780	933.37	30+78.67	8.52 RT
52	BY14-52	848077.7880	1672001.9610	937.05	39+96.02	6.69 LT
100		876419.2850	1651591.6020		POINT NOT SET	
53	BY14-53	848137.2920	1673046.1200	926.69	50+39.03	83.83 LT
54	BY14-54	848068.9362	1674103.8636	901.52	60+98.86	4.76 RT
55	BY14-55	848335.5169	1675107.5135	910.80	71+39.40	3.32 RT

NOTES:

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S 18°20'17.75" 41820.769
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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PROJECT REFERENCE NO.	SHEET NO.
U-4909	1F
Location and Surveys	

SURVEY CONTROL SHEET U-4909

BY15

POINT	DESC.	NORTH	EAST	ELEVATION	Y16 STATION	OFFSET
56	BY15-56	848827.0620	1671454.5830	954.91	OUTSIDE PROJECT LIMITS	
21	BL-21	849012.8070	1672515.0500	967.95	OUTSIDE PROJECT LIMITS	

BY16

POINT	DESC.	NORTH	EAST	ELEVATION	Y17 STATION	OFFSET
58	BY16-58	849753.4860	1671734.1370	962.60	11+72.83	13.61 LT
57	BY16-57	849677.5190	1672495.4100	976.56	19+31.20	34.94 LT
21	BL-21	849012.8070	1672515.0500	967.95	OUTSIDE PROJECT LIMITS	

BY17

POINT	DESC.	NORTH	EAST	ELEVATION	Y18 STATION	OFFSET
60	BY17-60	850611.2030	1672651.1490	942.10	OUTSIDE PROJECT LIMITS	
59	BY17-59	850141.9370	1672658.6390	959.54	11+90.91	12.20 RT
22	BL-22	849777.2900	1672866.5750	967.35	16+07.07	30.00 RT

BY18

POINT	DESC.	NORTH	EAST	ELEVATION	Y19 STATION	OFFSET
61	BY18-61	850515.9010	1672960.1700	959.46	OUTSIDE PROJECT LIMITS	
23	BL-23	850347.1980	1673362.5100	964.92	14+25.08	20.57 LT

BY19

POINT	DESC.	NORTH	EAST	ELEVATION	Y19 STATION	OFFSET
23	BL-23	850347.1980	1673362.5100	964.92	14+25.08	20.57 LT
62	BY19-63	849881.2980	1674023.8160	951.68	OUTSIDE PROJECT LIMITS	

BY20

POINT	DESC.	NORTH	EAST	ELEVATION	Y20 STATION	OFFSET
24	BL-24	850768.1530	1673754.0810	965.34	10+52.32	105.36 LT
63	BY20-63	850624.3590	1673937.5190	967.09	12+91.73	12.40 RT
64	BY20-64	850634.8670	1674338.4500	969.32	OUTSIDE PROJECT LIMITS	

BY21

POINT	DESC.	NORTH	EAST	ELEVATION	Y21 STATION	OFFSET
66	BY21-66	851500.5710	1673203.4380	952.79	OUTSIDE PROJECT LIMITS	
65	BY21-65	851284.0390	1673801.9020	974.12	11+76.95	10.75 RT
25	BL-25	851382.2380	1674187.2640	974.81	14+26.07	279.91 LT

BY22

POINT	DESC.	NORTH	EAST	ELEVATION	Y22 STATION	OFFSET
25	BL-25	851382.2380	1674187.2640	974.81	OUTSIDE PROJECT LIMITS	
67	BY22-67	851474.1430	1674349.4570	976.25	10+65.52	26.19 RT
68	BY22-68	851374.8000	1674542.2390	969.87	12+78.68	15.03 RT
69	BY22-69	851396.2720	1675001.7240	959.36	OUTSIDE PROJECT LIMITS	

BY23

POINT	DESC.	NORTH	EAST	ELEVATION	Y23 STATION	OFFSET
70	BY23-70	852360.4180	1673766.1400	973.98	12+70.40	18.94 LT
71	BY23-71	852097.7400	1674378.7220	976.19	19+33.99	51.63 RT
3	U4909-3	852077.6190	1674768.1550	973.43	23+07.96	61.28 LT
72	BY23-72	851781.4790	1675260.6950	960.71	28+77.55	17.00 RT
4	U4909-4	851399.6070	1675954.6570	941.44	OUTSIDE PROJECT LIMITS	

BY24

POINT	DESC.	NORTH	EAST	ELEVATION	Y24 STATION	OFFSET
73	BY24-73	853112.6780	1675107.4590	981.23	OUTSIDE PROJECT LIMITS	
26	BL-26	852535.3930	1675348.3570	985.41	14+90.29	24.87 RT

BY25

POINT	DESC.	NORTH	EAST	ELEVATION	Y25 STATION	OFFSET
27	BL-27	852934.7570	1676080.4150	969.79	10+29.56	32.68 LT
74	BY25-74	852497.0180	1676137.6010	963.90	14+55.15	33.13 RT

****
BM#1 ELEVATION = 956.57
N 837132 E 1665025
L STATION 11+89 58' LEFT
CHISLED SQUARE ON SE CORNER OF CONCRETE
SLAB FOR A GREEN POWER TRANSFORMER @
FIELD #2 @ THE OLD RADAR BASE
****

****
BM#2 ELEVATION = 955.42
N 837846 E 1666552
L STATION 28+54 162' LEFT
RR SPIKE SET IN SW ROOT OF 30" RED OAK
50' FROM END OF C/A FENCE
****

****
BM#3 ELEVATION = 960.96
N 838255 E 1669365
Y4 STATION 24+66 155' RIGHT
RR SPIKE IN SOUTH ROOT OF A 36" OAK WEST
OF OLD 311 ACROSS FROM OLD 311 CURB
MARKET IN SCHOOL PROPERTY. 100' NW OF
DANIEL BOONE ARROWHEAD HISTORIC MARKER
****

****
BM#4 ELEVATION = 952.06
N 841641 E 1669458
L STATION 88+56 1295' LEFT
RR SPIKE IN SE ROOT OF 14" GUM ON THE
WEST SIDE OF TEMPLE SCHOOL RD. 50' SW
OF A 30" RCP
****

****
BM#5 ELEVATION = 951.68
N 846095 E 1670335
Y13 STATION 11+99 35' LEFT
EASTERN MOST BOLT ON THE BOTTOM OF A
FIRE PLUG. 16' NORTH OF GLENN HIGH RD.
BOLT IS 6' W OF POWER POLE #51 AND 7.6'
W OF POWER POLE 65T
****

****
BM#6 ELEVATION = 962.52
N 848973 E 1672785
L STATION 10+13 2907' LEFT
RR SPIKE IN SEAM OF CONCRETE CURB AND
GUTTER @ SHOPPING CENTER IN FRONT OF
AUTO CREDIT AND BURGER KING AND A
CLEANER WORLD
****

****
BM#7 ELEVATION = 953.98
N 851505 E 1673087
Y21 STATION 10+00
N 73° 53' 53.9" W DIST 571.96'
CHISLED SQUARE @ THE BEGINNING OF THE
CONCRETE CURB ON SHEPARDS GROVE RD.
SQUARE IS ON THE SOUTH CURBING
****

****
BM#8 ELEVATION = 972.62
N 853258 E 1676527
L STATION 226+98
N 59° 26' 22.7" E DIST 111.06'
NCGS MON. "SNOW". 13.5' RIGHT OF
CENTERLINE OF UNION CROSS RD
****

****
BM#9 ELEVATION = 895.70
N 839961 E 1664265
Y3 STATION 10+00
N 63° 42' 42.9" W DIST 788.57'
RR SPIKE IN SEAM OF CONCRETE DITCH 24'
FROM EDGE OF PAVEMENTOF HIGHWAY 311
SOUTH BOUND LANE
****

****
BM#10 ELEVATION = 878.52
N 836093 E 1668960
Y3 STATION 62+97 434' RIGHT
RR SPIKE IN NORTHERN MOST ROOT OF A 36"
MAPLE. 449' SOUTH OF BY4 ON THE EAST
SIDE OF BRANCH
****

****
BM#11 ELEVATION = 929.23
N 849182 E 1674886
Y15 STATION 72+94 861' LEFT
CHISLED CROSS IN WEST END OF A 15" RCP
TO THE CONCRETE DRIVEWAY OF 1156
KENOSHA DR
****

****
BM#12 ELEVATION = 956.00
N 837770 E 1668318
L STATION 45+82 211' RIGHT
RR SPIKE IN THE NE ROOT OF A TWIN
CHERRY TREE RT. OF -L-
****

****
BM#13 ELEVATION = 959.56
N 839905 E 1670304
Y6 STATION 11+45 26' LEFT
NE BOLT OF FIRE HYDRANT EAST OF WOODWAY
DR
****

****
BM#14 ELEVATION = 963.25
N 843276 E 1671342
L STATION 109+65.06 216.92' RIGHT
CHISLED SQUARE IN NE CORNER OF SIDEWALK
@ THE IGLESIA BAUTISTA HISPANA CHURCH
****

****
BM#15 ELEVATION = 959.81
N 848826 E 1671319
Y16 STATION 10+00
S 88° 15' 50.4" W DIST 583.16'
RR SPIKE IN EASTERN BASE OF POWER POLE
W/ A LIGHT OWNED BY DUKE POWER ON PECAN
RD
****

****
BM#16 ELEVATION = 983.67
N 852261 E 1674626
Y23 STATION 21+15 180' LEFT
RR SPIKE IN WESTERN ROOT OF A 24" MAPLE
IN THE NE QUADRANT OF THE INTERSECTION
OF SEDGE GARDEN, UNION CROSS AND OLD
SALEM ROADS
****

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 WORKWITHIN 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:*
HTTP:/WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAYLOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
U4909_LS_GPSCALIB_DATE.HTML
U4909_LS_WGS84_DATE.TXT
U4909_LS_LOCAL_DATE.TXT
U4909_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

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U2579C-1"
WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF
NORTHING: 876419.285(ft) EASTING: 1651591.602(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99995453
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U2579C-1" TO -L- STATION 7+00.00 IS
S 18°20'17.75" 41820.769
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

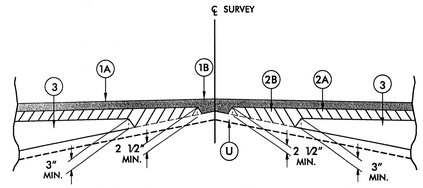
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL F. MERRITT 10/10/2011

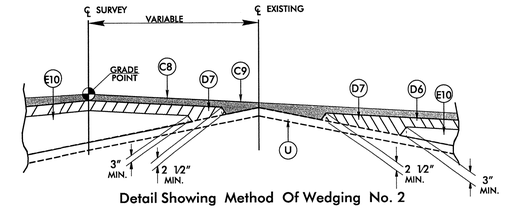
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV 10/10/11

TO BE USED IN CONJUNCTION WITH WEDGING DETAIL NO. 1:

LINE	1A	1B	2A	2B	3
-L-*, -Y3-, -Y15- RAMPS, -Y15- SPURS	C8	C9	D6	D7	E10 *or J3
-Y4- , -Y6-, -Y7-	C5	C6	D2	D3	E4
-Y23- (OLD SALEM RD)	C2	C3	D2	D3	J3
-Y5-, -Y7A-, -Y11-, -Y14-, -Y17-, -Y19- (BILOXI AVE), -Y20-, -Y21-, -Y22-, & -Y24-	C5	C6	N/A	N/A	E4
-Y13-	C5	C6	D1	D3	E4
-Y19- (KENOSHA DR) -Y23- (SEDGE GARDEN RD)	C5	C6	D2	D3	J3



Detail Showing Method of Wedging No. 1



Detail Showing Method Of Wedging No. 2

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	D4	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	J1	PROP. 6" AGGREGATE BASE COURSE. (FOR MAINTENANCE ASPHALT)
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	D5	PROP. APPROX. 3 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	J2	PROP. 8" AGGREGATE BASE COURSE.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.	D6	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	J3	PROP. VAR. DEPTH AGGREGATE BASE COURSE.
C4	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	D7	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 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	P1	PRIME COAT
C5	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.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER.
C6	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.	E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	R2	1'-6" CONCRETE CURB AND GUTTER.
C7	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E5	PROP. APPROX. 3½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
C8	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.	E6	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK
C9	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	E7	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL.
C10	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	E8	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E9	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	W	WEDGING
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E10	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 5½" IN DEPTH.	Y1	MILLING (2.5")
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	G1	PROP. 10" CEMENT TREATED BASE COURSE.	Y2	VARIABLE DEPTH MILLING

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

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR DIVISION OF HIGHWAYS

6/2/99

10/10/2011
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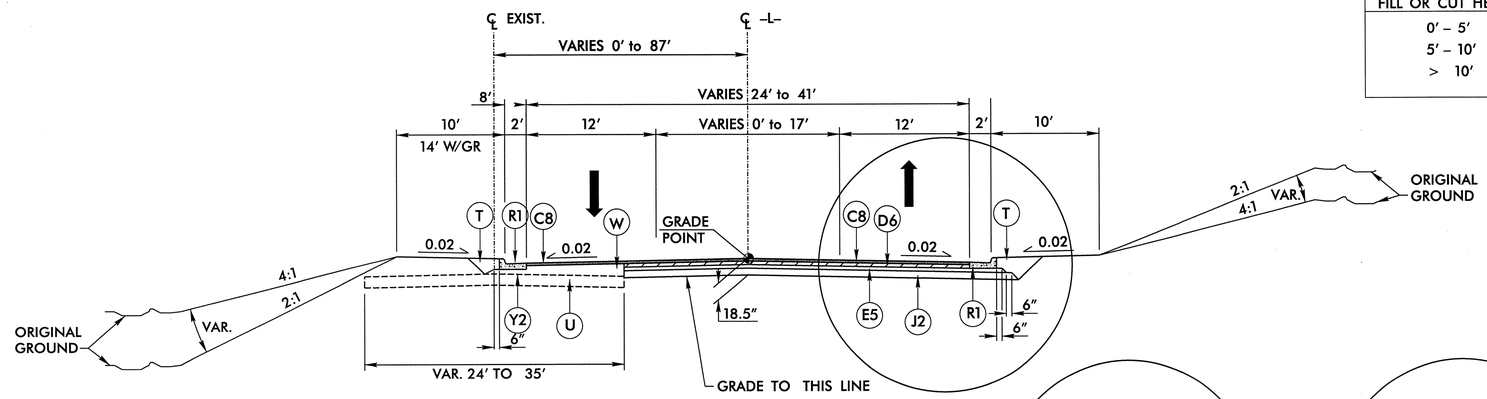
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2A

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — 10/10/2011

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — 10/10/11

FOR TYPICAL SECTION NOS. 1 THRU 6	
FILL OR CUT HEIGHTS	SLOPE
0′ – 5′	4:1
5′ – 10′	3:1
> 10′	2:1

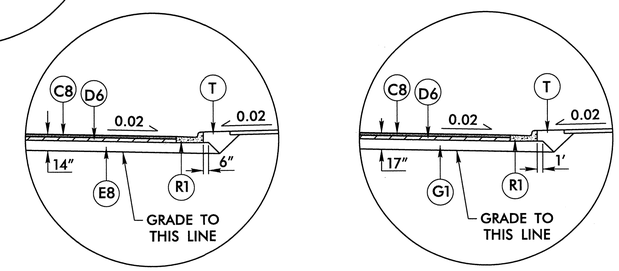
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1 1/4″ SF9.5A
C2	3″ SF9.5A
C3	VAR. SF9.5A
C4	1 1/2″ S9.5B
C5	3″ S9.5B
C6	VAR. S9.5B
C7	1 1/2″ S9.5C
C8	3″ S9.5C
C9	VAR. S9.5C
C10	2″ S9.5C
D1	3″ I19.0B
D2	4″ I19.0B
D3	VAR. I19.0B
D4	2 1/2″ I19.0C
D5	3 1/2″ I19.0C
D6	4″ I19.0C
D7	VAR. I19.0C
E1	4″ B25.0B
E4	VAR. B25.0B
E5	3 1/2″ B25.0C
E6	5 1/2″ B25.0C
E7	6″ B25.0C
E8	7″ B25.0C
E9	8″ B25.0C
E10	VAR. B25.0C
G1	10″ CTBC
J1	6″ ABC
J2	8″ ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2′-6″ CURB
R2	1′-6″ CURB
R3	5″ MCI (KEYED IN)
S	4″ SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5″ MILLING
Y2	VAR. MILLING



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

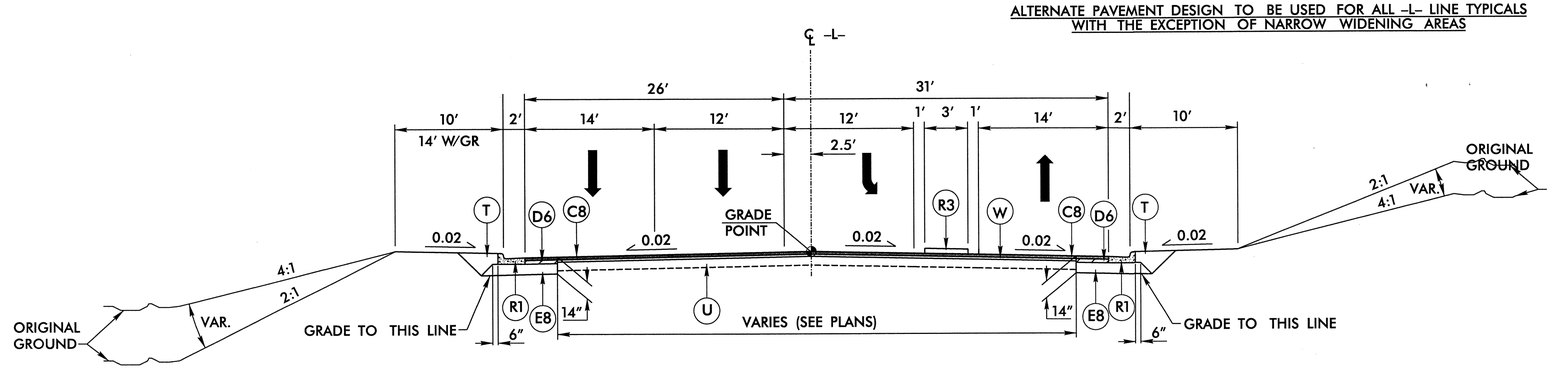
-L- STA. 8+15.00 TO 17+50.00



DETAIL A

DETAIL B

ALTERNATE PAVEMENT DESIGN TO BE USED FOR ALL -L- LINE TYPICALS WITH THE EXCEPTION OF NARROW WIDENING AREAS



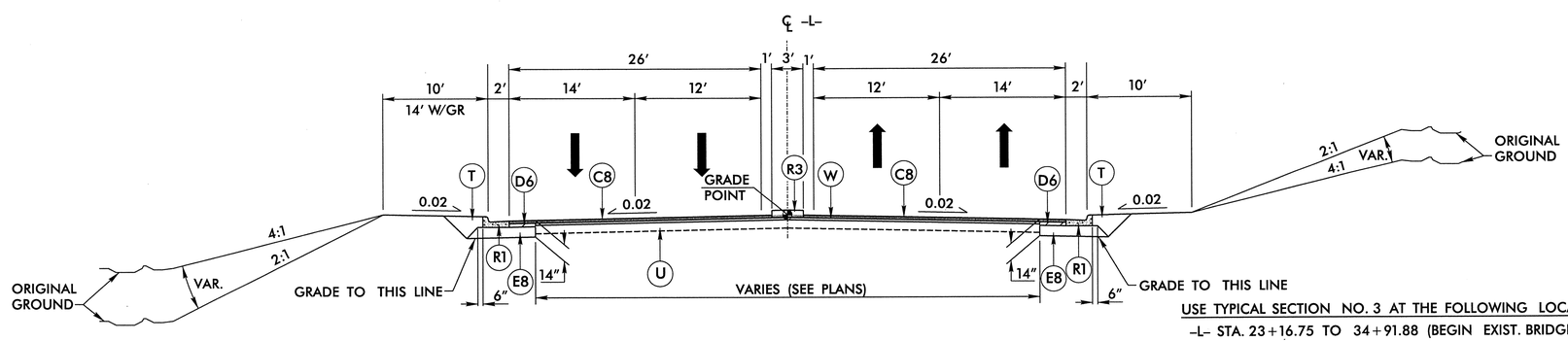
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:

-L- STA. 17+50.00 TO 22+16.75

TRANSITION FROM TYPICAL SECTION NO. 2 TO TYPICAL SECTION NO. 3

-L- STA. 22+16.75 TO 23+16.75



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS:

-L- STA. 23+16.75 TO 34+91.88 (BEGIN EXIST. BRIDGE)

-L- STA. 38+27.88 (END EXIST. BRIDGE) TO STA. 46+35.00

NOTE: JOINTS AT THE EXISTING BEGIN AND END BRIDGE STATIONS WILL BE REPLACED

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR DIVISION OF HIGHWAYS

10/10/2011
R:\Roadway\Proj\u4909_rdy_typ.dgn
apridgen

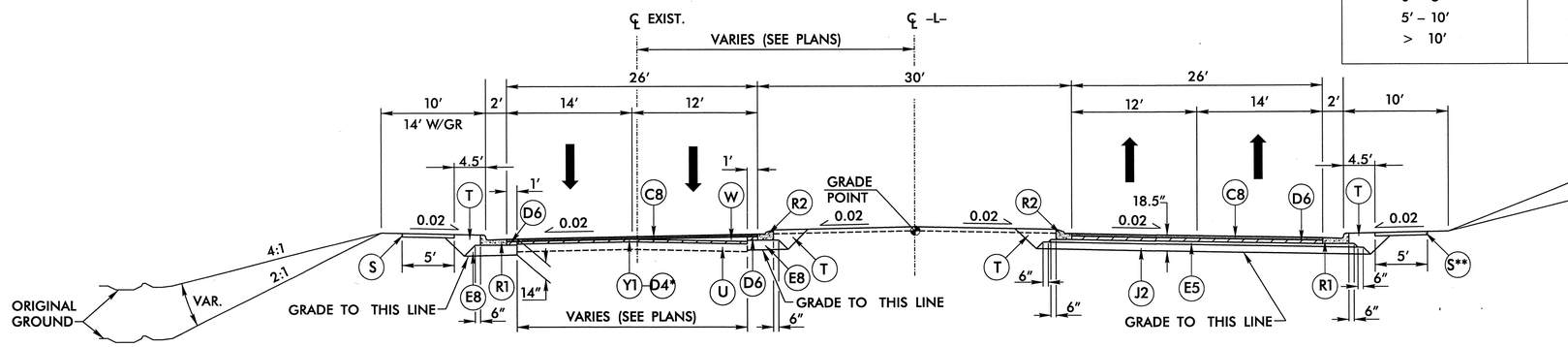
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING

FOR TYPICAL SECTION NOS. 1 THRU 6	
FILL OR CUT HEIGHTS	SLOPE
0' – 5'	4:1
5' – 10'	3:1
> 10'	2:1

PROJECT REFERENCE NO.	SHEET NO.
U-4909	2B

ROADWAY DESIGN — ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21122 — MICHAEL T. MERRITT — 10/10/2011

PAVEMENT DESIGN — ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 031484 — VLADIMIR G. MITCHEV — 10/10/11



TYPICAL SECTION NO. 4

TRANSITION FROM TYPICAL SECTION NO. 3 TO TYPICAL SECTION NO. 4
-L- STA 46+35.00 TO 58+00.00

USE TYPICAL SECTION NO. 4 AT THE FOLLOWING LOCATIONS:

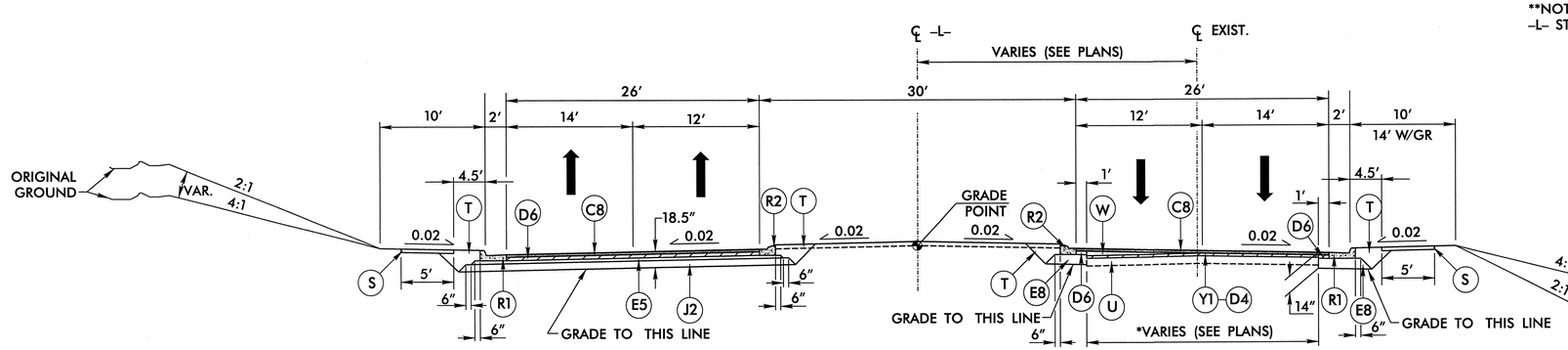
-L- STA. 58+00.00 TO 93+00.00
-L- STA. 119+00.00 TO 136+00.00
-L- STA. 206+00.00 TO STA. 210+60.00

* -L- 56+32.00 TO 158+00.00

**NOTE: NO SIDEWALK AT THE FOLLOWING LOCATIONS:
-L- STA 74+36.60 TO 146+78.84 RT

TRANSITION FROM TYPICAL SECTION NO. 4 TO TYPICAL SECTION NO. 5
-L- STA 93+00.00 TO 97+00.00
-L- STA. 136+00.00 TO 141+00.00

TRANSITION FROM TYPICAL SECTION NO. 5 TO TYPICAL SECTION NO. 4
-L- STA 116+00.00 TO 119+00.00



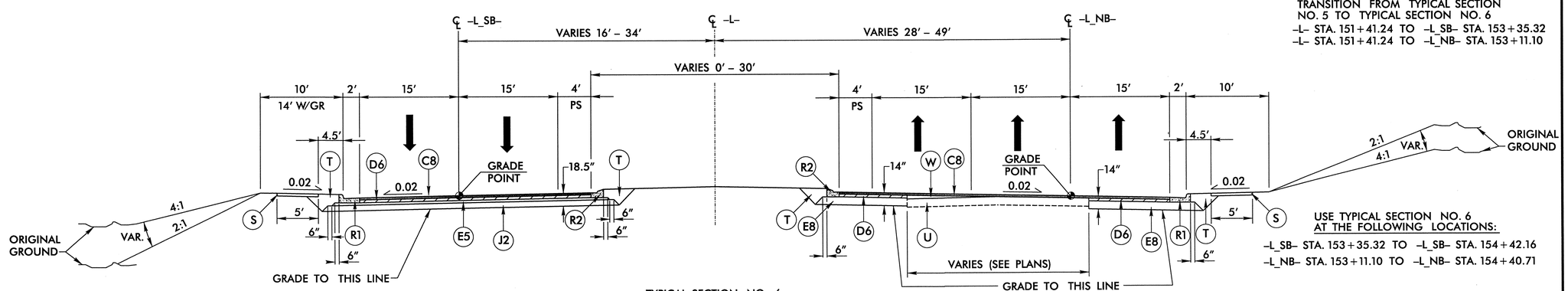
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATIONS:

*-L- STA. 97+00.00 TO 116+00.00
-L- STA. 141+00.00 TO 151+41.24

* -L- STA. 108+50.00 TO 114+00.00
REMOVE EXIST. NORTHBOUND PAVEMENT
USE FULL DEPTH PAVEMENT AS SHOWN
IN SOUTH BOUND LANES

TRANSITION FROM TYPICAL SECTION NO. 5 TO TYPICAL SECTION NO. 6
-L- STA. 151+41.24 TO -L_SB- STA. 153+35.32
-L- STA. 151+41.24 TO -L_NB- STA. 153+11.10



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AT THE FOLLOWING LOCATIONS:

-L_SB- STA. 153+35.32 TO -L_SB- STA. 154+42.16
-L_NB- STA. 153+11.10 TO -L_NB- STA. 154+40.71

MIRROR TYPICAL SECTION NO. 6 AT THE FOLLOWING LOCATIONS:

-L_SB- STA. 162+93.22 TO -L_SB- STA. 163+93.13
-L_NB- STA. 162+97.85 TO -L_NB- STA. 164+28.09

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

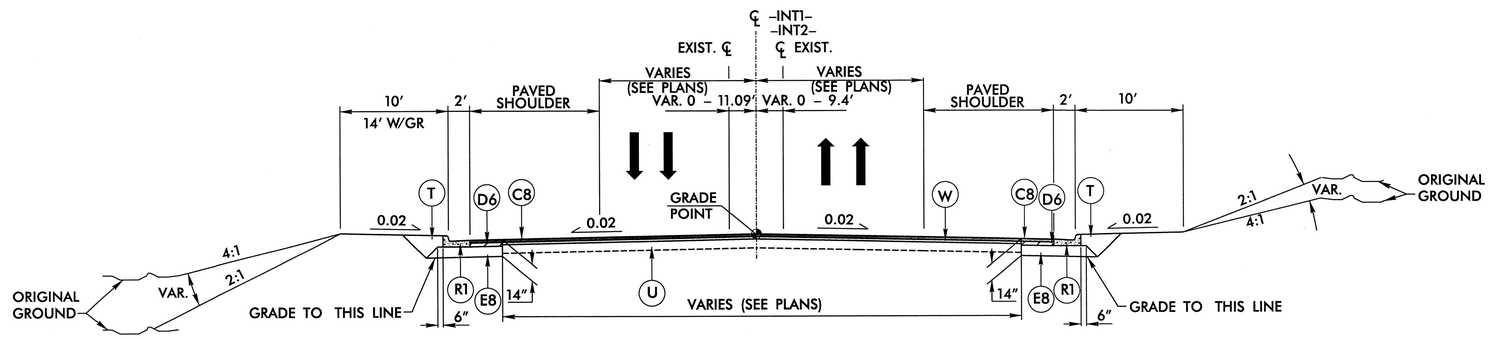
FOR DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4909	2C

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MEWBORN
10/11/2011

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV
10/10/11

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING



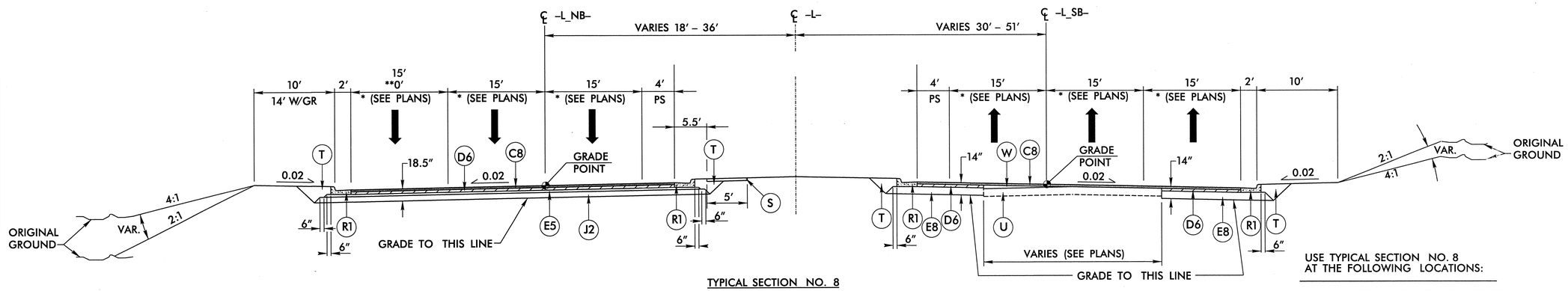
TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
AT THE FOLLOWING LOCATIONS:

-INT1- STA. 154+44.17 TO STA. 155+37.61
-INT2- STA. 161+68.54 TO STA. 162+57.28

TRANSITION FROM TYPICAL SECTION NO. 6
TO TYPICAL SECTION NO. 9

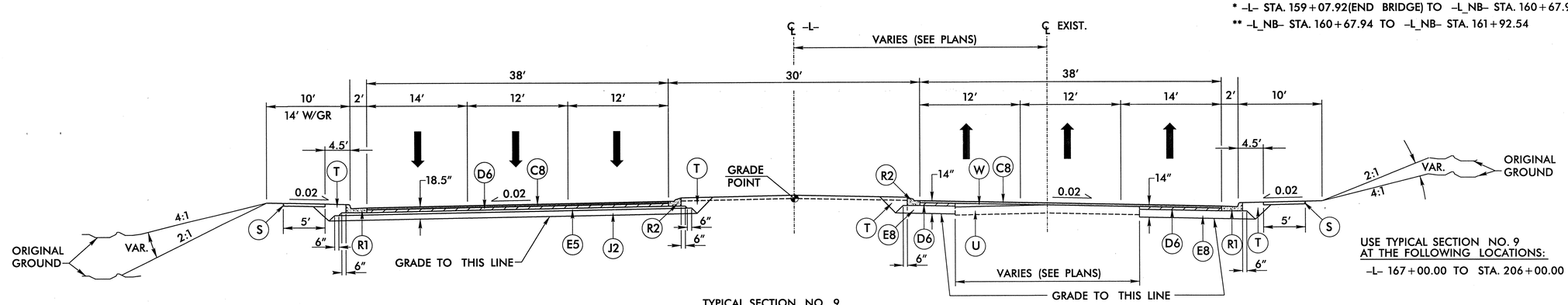
-L_SB- STA. 163+93.13 TO -L- STA. 167+00.00
-L_NB- STA. 164+28.09 TO -L- STA. 167+00.00



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
AT THE FOLLOWING LOCATIONS:

-L_SB- STA. 155+50.85 TO -L_SB- STA. 156+55.37
* -L_SB- STA. 156+55.37 TO -L- 157+41.34(BEGIN BRIDGE)
-L_NB- STA. 155+69.82 TO -L_NB- STA. 156+56.84
* -L_NB- STA. 156+56.84 TO -L- STA. 157+41.34(BEGIN BRIDGE)
* -L- STA. 159+07.92(END BRIDGE) TO -L_SB- STA. 160+67.45
-L_SB- STA. 160+67.45 TO -L_SB- STA. 161+66.98
* -L- STA. 159+07.92(END BRIDGE) TO -L_NB- STA. 160+67.94
** -L_NB- STA. 160+67.94 TO -L_NB- STA. 161+92.54



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9
AT THE FOLLOWING LOCATIONS:

-L- 167+00.00 TO STA. 206+00.00

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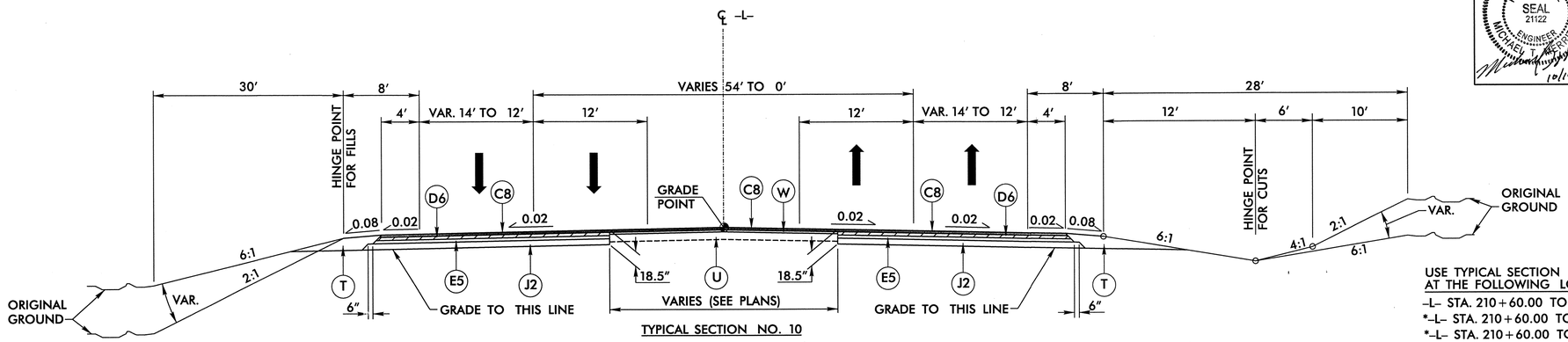
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2D

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — 10/10/2011

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — 10/10/11

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING

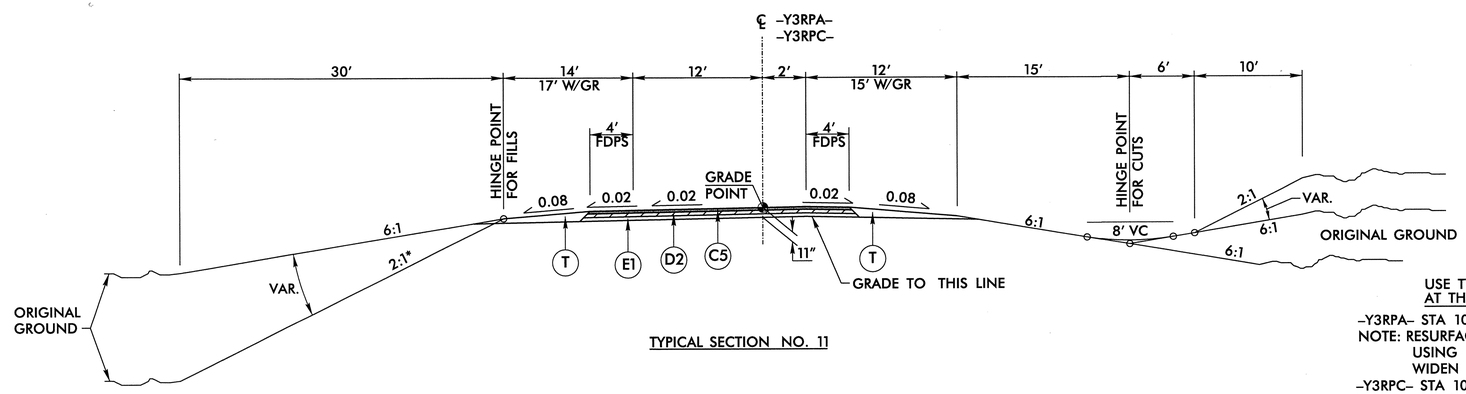


TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10
AT THE FOLLOWING LOCATIONS:

-L- STA. 210+60.00 TO STA. 225+10.00
*-L- STA. 210+60.00 TO STA. 214+35.83 LT.
*-L- STA. 210+60.00 TO STA. 211+17.82 RT.

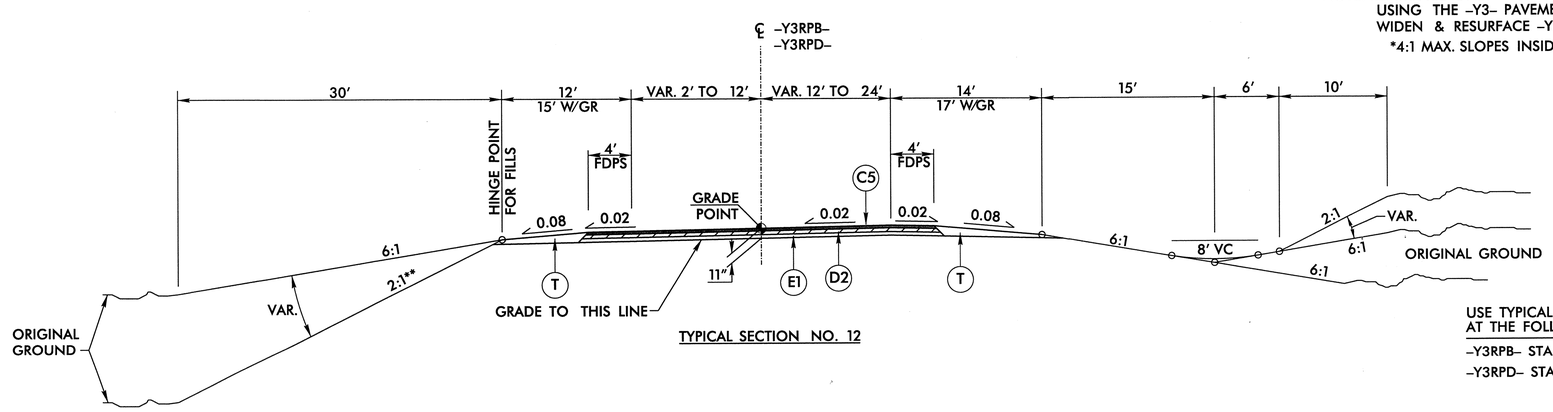
*NOTE: USE 2'-6" CURB and GUTTER



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11
AT THE FOLLOWING LOCATIONS:

-Y3RPA- STA 10+00.00 TO 29+26.34
NOTE: RESURFACE ONLY -Y3- STA. 16+82.33 TO -Y3RPA- STA. 13+10.27
USING THE -Y3- PAVEMENT DESIGN
WIDEN & RESURFACE -Y3RPA- STA. 13+10.27 TO 16+45+/-
-Y3RPC- STA 10+00.00 TO 21+26.62
NOTE: RESURFACE ONLY -Y3RPC- STA. 14+41.09 TO -Y3- STA. 64+20.00
USING THE -Y3- PAVEMENT DESIGN
WIDEN & RESURFACE -Y3RPC- STA. 14+41.09 TO 18+20+/-
*4:1 MAX. SLOPES INSIDE INTERCHANGE



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12
AT THE FOLLOWING LOCATIONS:

-Y3RPB- STA. 14+10.01 TO 26+49.10
-Y3RPD- STA. 15+68.34 TO 26+82.65

NOTE: WIDEN & RESURFACE EXISTING GORE AREAS USING PAVEMENT DESIGN SHOWN IN TYPICAL SECTION NO. 32 ON SHEET 2K.

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FOR
DIVISION OF HIGHWAYS

10/10/2011
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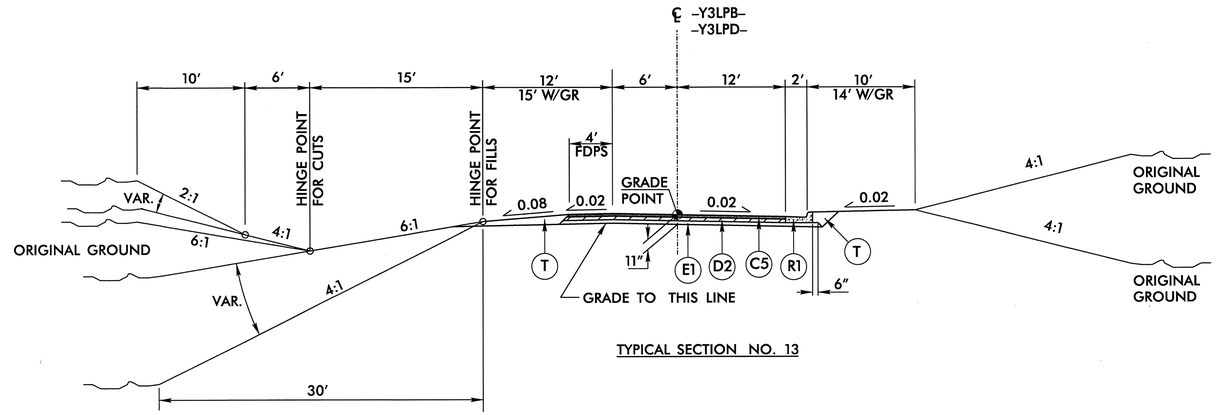
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL R. MERRITT — 10/10/2011

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — 10/10/11

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING

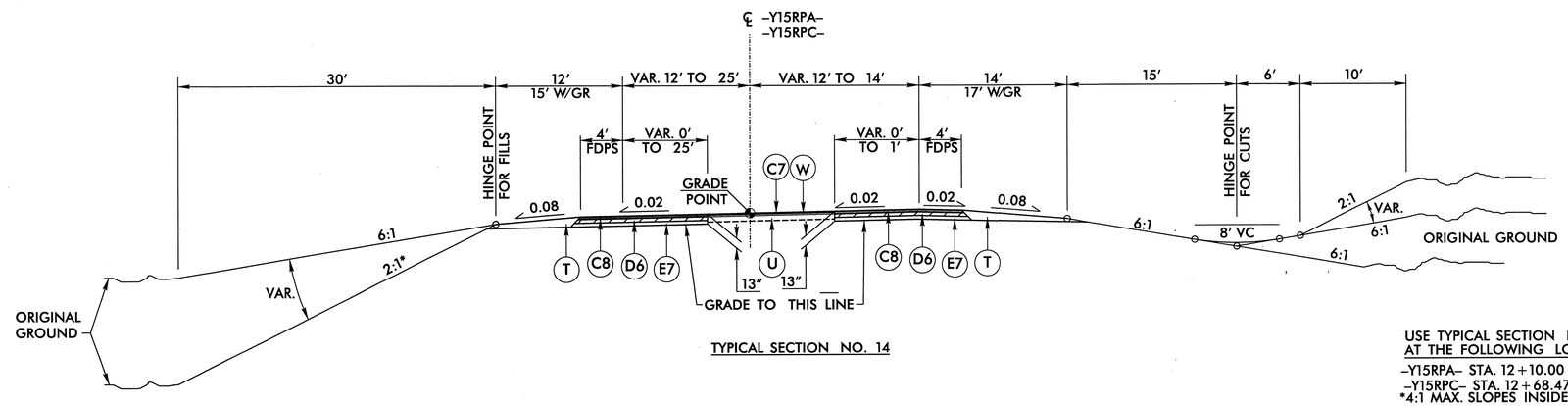


TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13
AT THE FOLLOWING LOCATIONS:

-Y3LPB- STA. 10+00.00 TO 21+09.19

-Y3LPD- STA. 10+00.00 TO 21+09.19



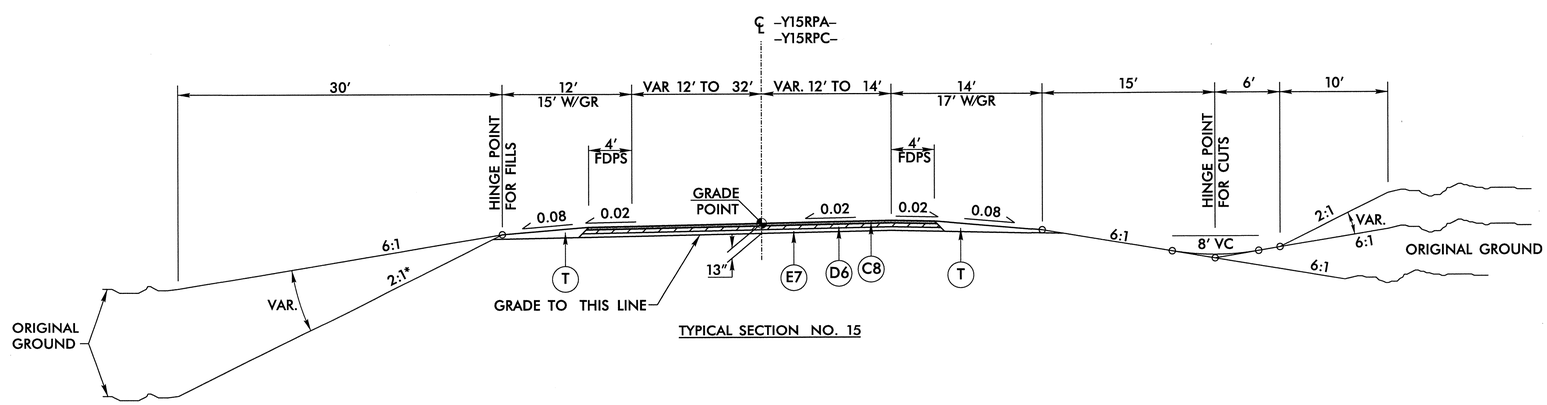
TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14
AT THE FOLLOWING LOCATIONS:

-Y15RPA- STA. 12+10.00 TO 18+37.38

-Y15RPC- STA. 12+68.47 TO 16+30.00

*4:1 MAX. SLOPES INSIDE INTERCHANGE



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15
AT THE FOLLOWING LOCATIONS:

-Y15RPA- STA. 18+37.38 TO 18+96.89

-Y15RPC- STA. 16+30.00 TO 18+56.08

*4:1 MAX. SLOPES INSIDE INTERCHANGE

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FOR
DIVISION OF HIGHWAYS

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PROJECT REFERENCE NO.	SHEET NO.
U-4909	2F

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT

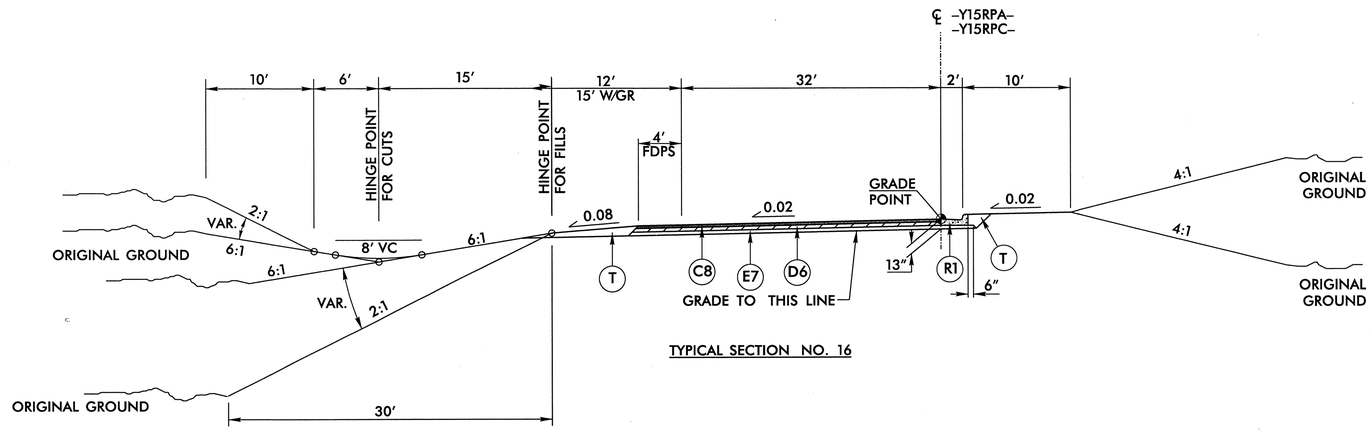
10/10/20

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV

10/10/11

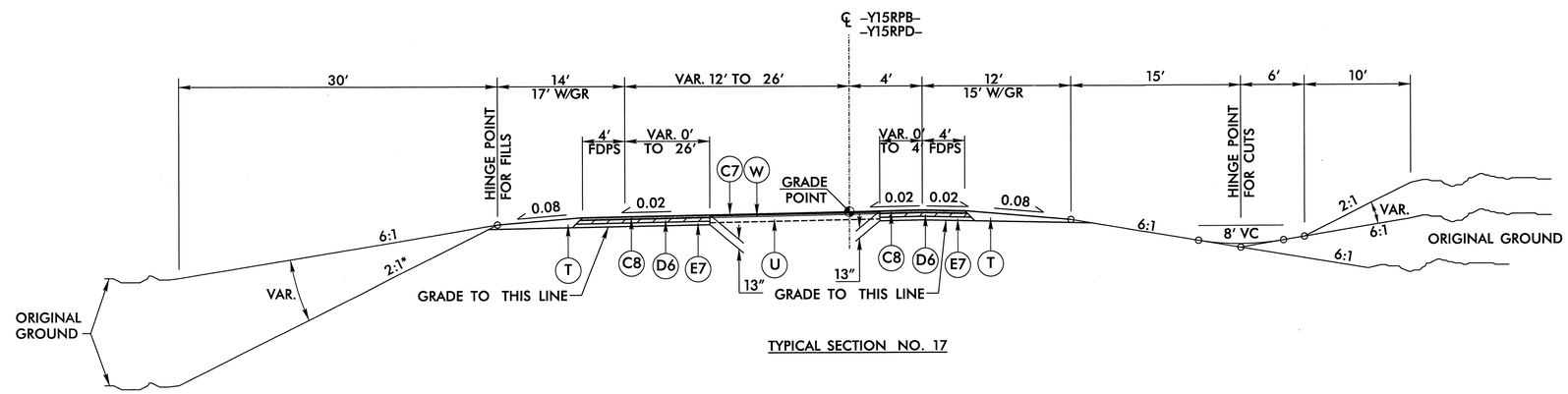
PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16
AT THE FOLLOWING LOCATIONS:

-Y15RPA- STA. 18+96.89 TO 20+37.68
-Y15RPC- STA. 18+56.08 TO 20+47.88

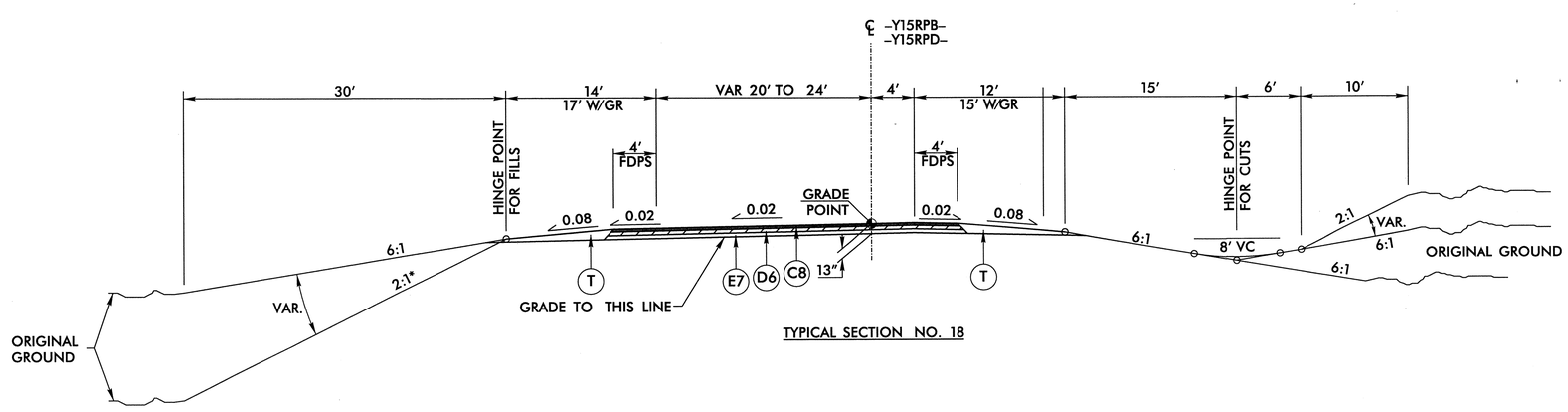


TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17
AT THE FOLLOWING LOCATIONS:

-Y15RPB- STA. 14+50.00 TO 19+77.63
-Y15RPD- STA. 19+16.63 TO 22+10.00

*4:1 MAX. SLOPES INSIDE INTERCHANGE



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18
AT THE FOLLOWING LOCATIONS:

-Y15RPB- STA. 19+77.63 TO 20+70.25
-Y15RPD- STA. 22+10.00 TO 23+46.92

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DIVISION OF HIGHWAYS

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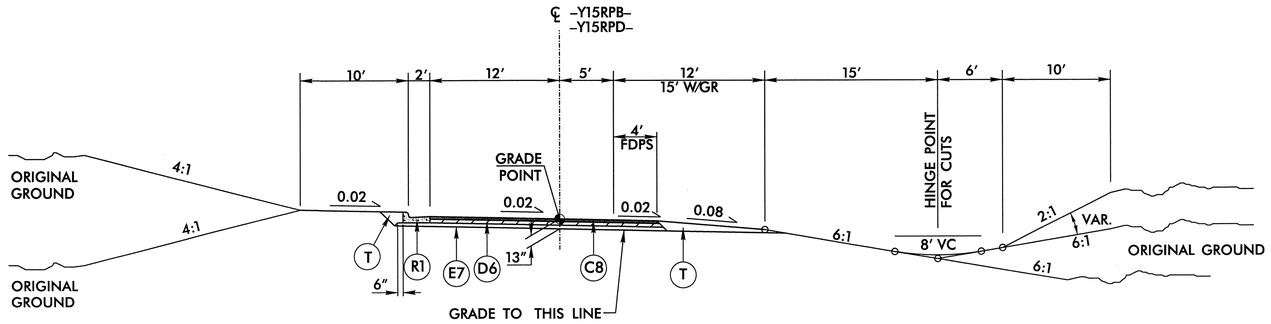
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2G

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL A. MERRITT — 10/10/2011

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — 10/10/11

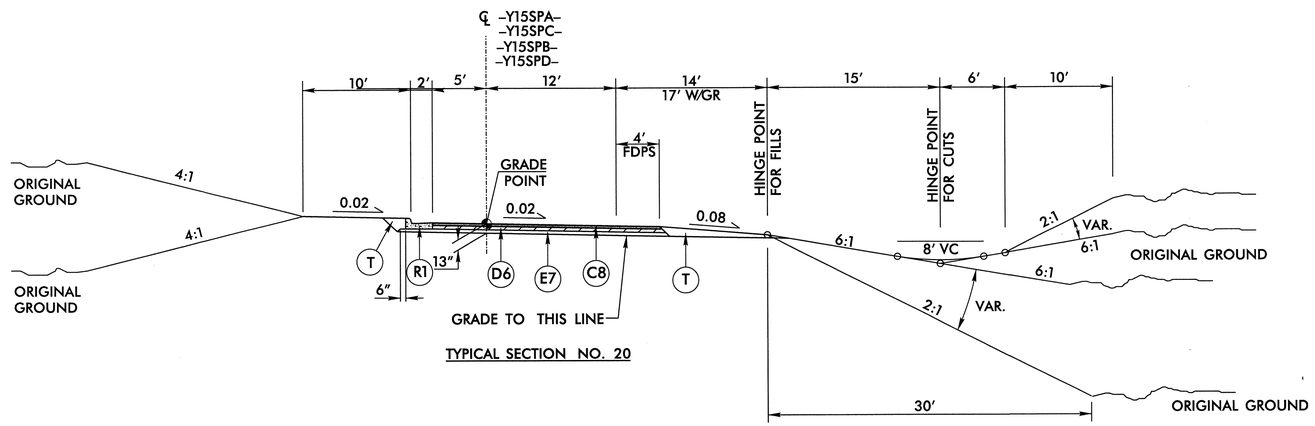
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING



TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19
AT THE FOLLOWING LOCATIONS:
-Y15RPB- STA. 20+70.25 TO 23+92.70
-Y15RPD- STA. 23+46.92 TO 26+14.07

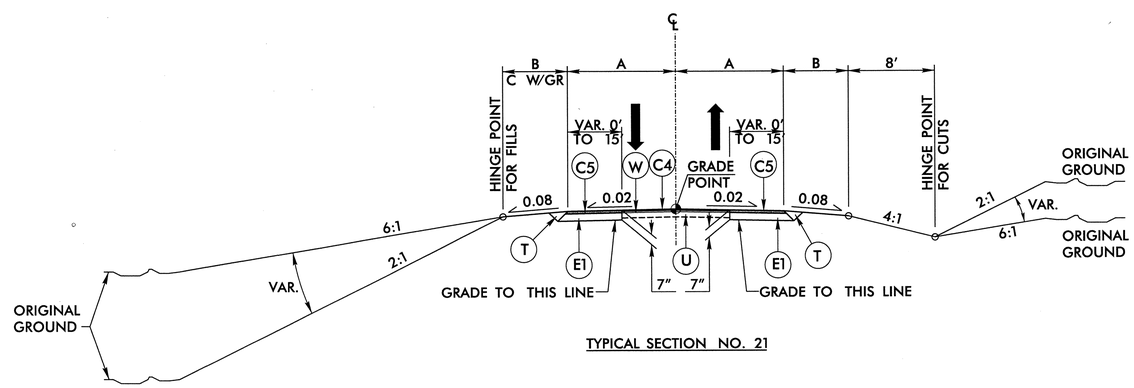
*4:1 MAX. SLOPES INSIDE INTERCHANGE



TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20
AT THE FOLLOWING LOCATIONS:
-Y15SPA- STA. 10+00.00 TO 12+73.25
-Y15SPC- STA. 10+00.00 TO 12+37.36

MIRROR TYPICAL SECTION NO. 20
AT THE FOLLOWING LOCATIONS:
-Y15SPB- STA. 10+00.00 TO 13+03.20
-Y15SPD- STA. 10+00.00 TO 12+90.97



TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21
AT THE FOLLOWING LOCATIONS:

LINE	ROAD NAME	STA. TO STA.	A	B	C
-Y5-	PINEWOOD TR.	10+47.07 TO 12+05.00	VAR. 9' TO 15'	6'	9'
-Y7A-	CHAMELIN RD.	10+43.58 TO 11+95.00	VAR. 8' TO 15'	6'	9'
-Y11-	LORADALE RD.	10+41.39 TO 12+00.00	VAR. 10' TO 15'	6'	9'
-Y19-	BILOXI AVE.	12+40.00 TO 13+83.41	VAR. 9.5' TO 15'	6'	9'
-Y20-	KINGSWOOD DR.	10+53.81 TO 12+20.00	VAR. 10' TO 15'	6'	9'
-Y21-	SHEPHERD GROVE RD.	11+00.00 TO 13+76.42	VAR. 9.5' TO 15'	6'	9'
-Y24	GREEN LAWN DR.	13+30.00 TO 14+81.25	VAR. 9.5' TO 15'	6'	9'

PLANS PREPARED BY :
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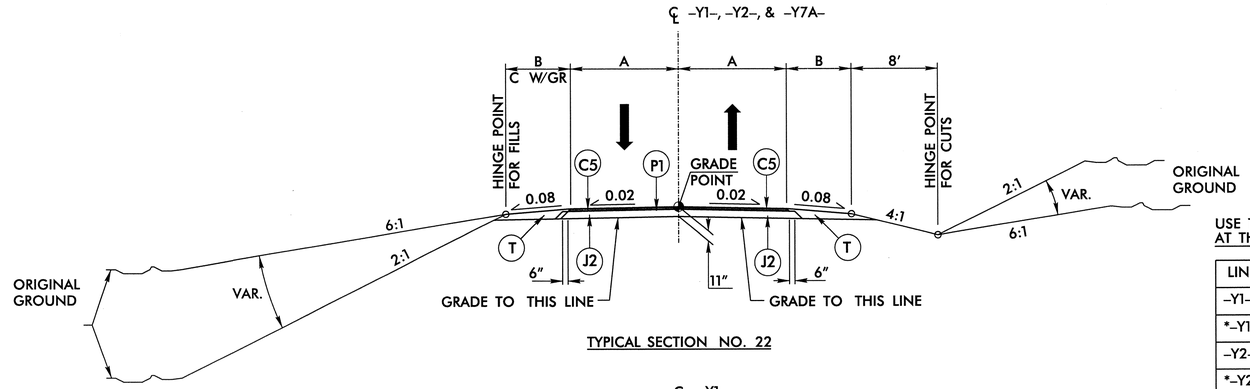
mrmerritt

PROJECT REFERENCE NO.	SHEET NO.
U-4909	2H

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — 10/3/2011

PAVEMENT DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — 10/14/11

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING

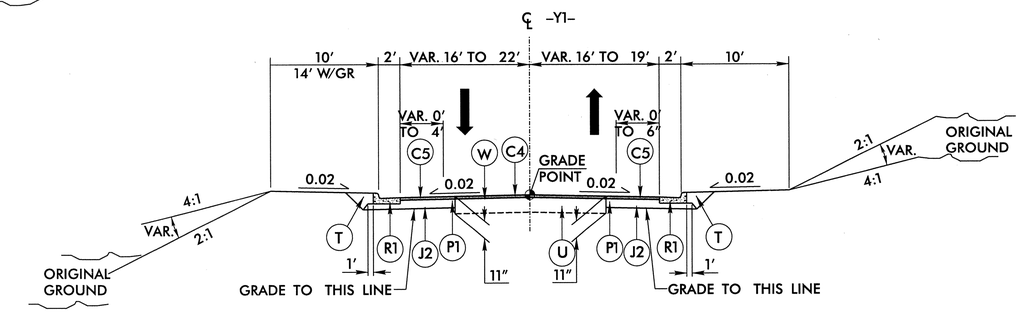


TYPICAL SECTION NO. 22

USE TYPICAL SECTION NO. 22 AT THE FOLLOWING LOCATIONS:

LINE	ROAD NAME	STA. TO STA.	A	B	C
-Y1-	HAYES RD.	15+66.43 TO 33+75.00	VAR. 10' TO 15'	6'	9'
*-Y1-	HAYES RD.	33+75.00 TO 37+05.00	VAR. 10' TO 15'	6'	9'
-Y2-	SWAIM RD.	10+19.15 TO 13+00.00	VAR. 11' TO 17'	6'	9'
*-Y2-	SWAIM RD.	13+00.00 TO 14+00.00	VAR. 11' TO 17'	6'	9'

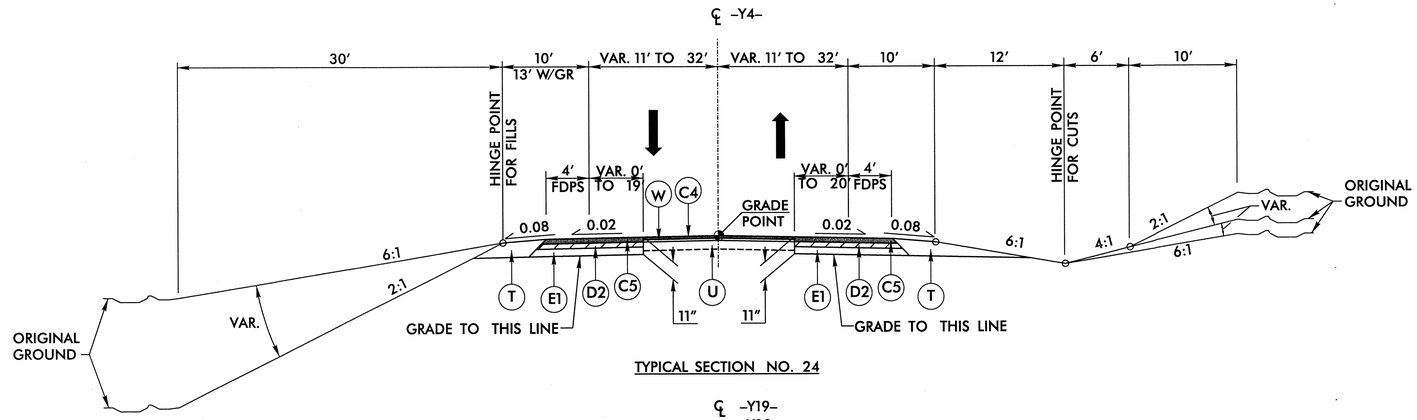
*RESURFACING AND WEDGING REQUIRED



TYPICAL SECTION NO. 23

USE TYPICAL SECTION NO. 23 AT THE FOLLOWING LOCATIONS:

-Y1- STA. 12+00.00 TO 15+16.68

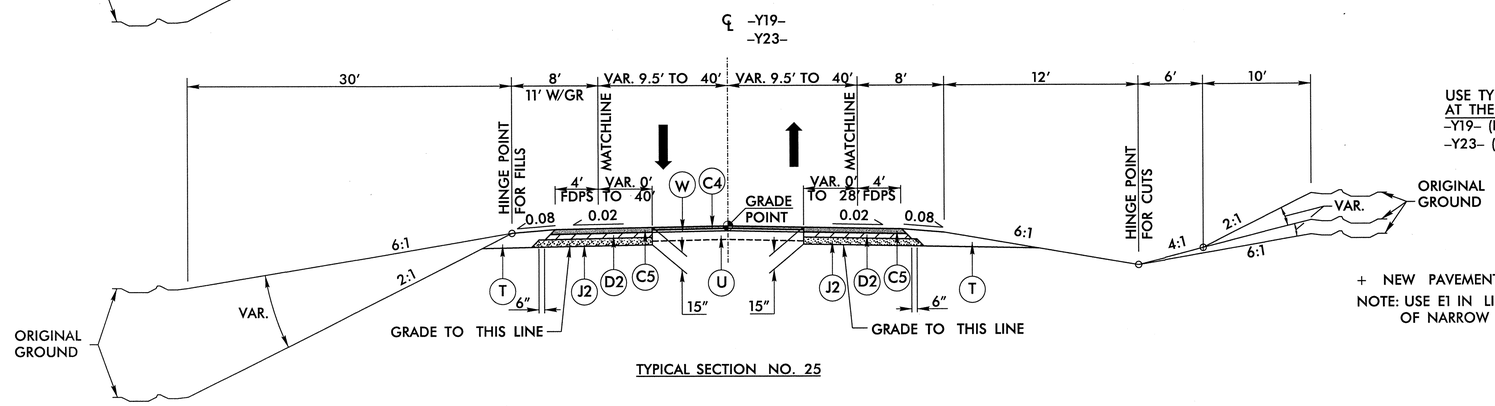


TYPICAL SECTION NO. 24

USE TYPICAL SECTION NO. 24 AT THE FOLLOWING LOCATIONS:

-Y4- STA. 11+00.00 TO 22+41.66

-Y4- STA. 23+49.27 TO 32+00.00



TYPICAL SECTION NO. 25

USE TYPICAL SECTION NO. 25 AT THE FOLLOWING LOCATIONS:

-Y19- (KENOSHA DR) STA. 14+91.41 TO 18+45.00

-Y23- (SEDGE GARDEN RD) STA. 10+60.00 TO 16+45.00 RT. & LT.

+ NEW PAVEMENT STRUCTURE (NO WEDGING)

NOTE: USE E1 IN LIEU OF J2 IN AREAS OF NARROW WIDENING

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR DIVISION OF HIGHWAYS

10/13/2011
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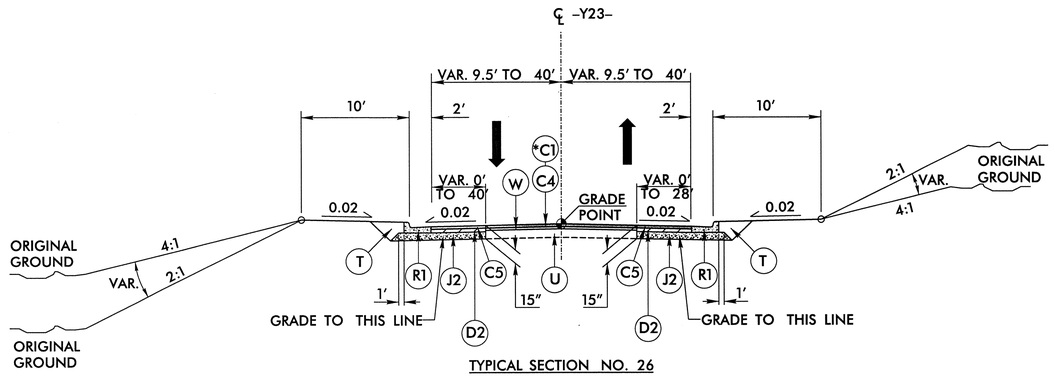
PROJECT REFERENCE NO.	SHEET NO.
U-4909	21
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — 10/13/2011

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV — 10/14/11

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING



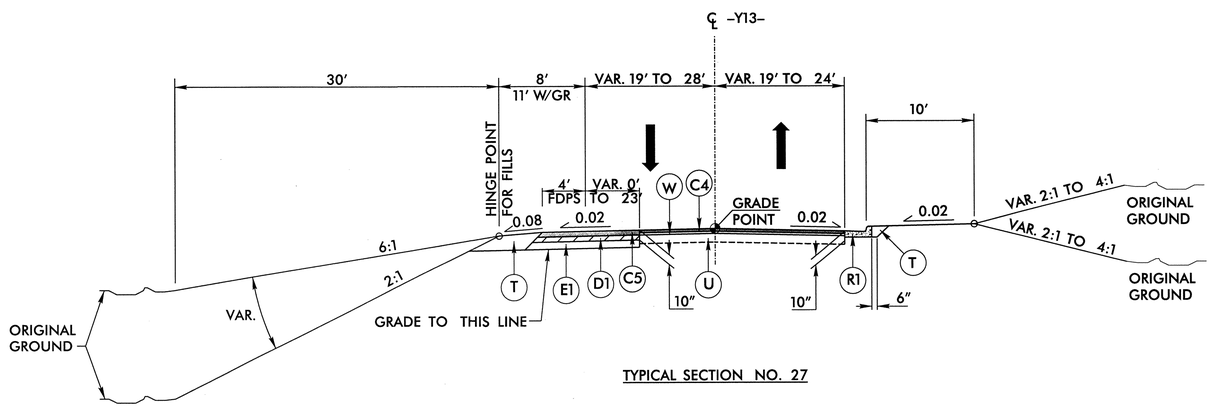
TYPICAL SECTION NO. 26

USE TYPICAL SECTION NO. 26
AT THE FOLLOWING LOCATIONS:

-Y23- (SEDGE GARDEN RD) STA. 16+45.00 TO 19+00.00
\+ -Y23- (SEDGE GARDEN RD) STA. 19+00.00 TO 22+20.37
\+ -Y23- (SEDGE GARDEN RD) STA. 23+21.73 TO 27+00.00
-Y23- (SEDGE GARDEN RD) STA. 27+00.00 TO 33+75.00

\+ NEW PAVEMENT STRUCTURE (NO WEDGING)

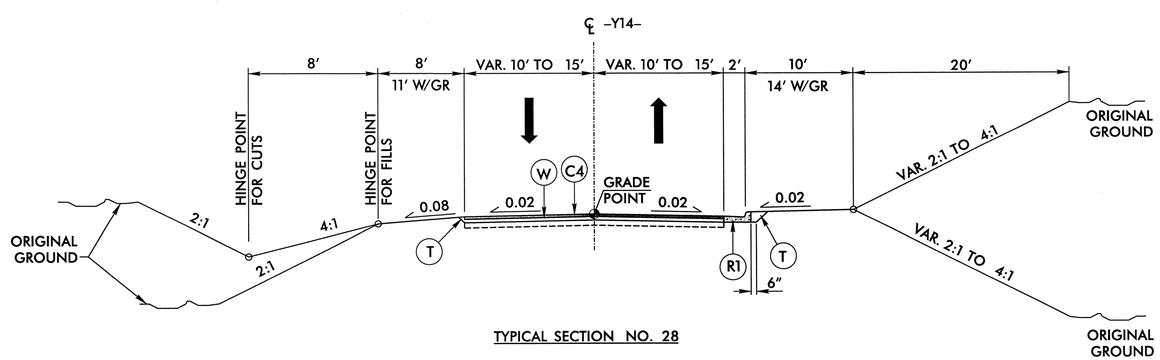
NOTE: USE E2 IN LIEU OF J2 IN AREAS OF NARROW WIDENING



TYPICAL SECTION NO. 27

USE TYPICAL SECTION NO. 27
AT THE FOLLOWING LOCATIONS:

-Y13- STA. 12+10.00 TO 23+46.83



TYPICAL SECTION NO. 28

USE TYPICAL SECTION NO. 28
AT THE FOLLOWING LOCATIONS:

-Y14- STA. 12+94.72 TO 14+50.00

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FOR DIVISION OF HIGHWAYS

10/13/2011
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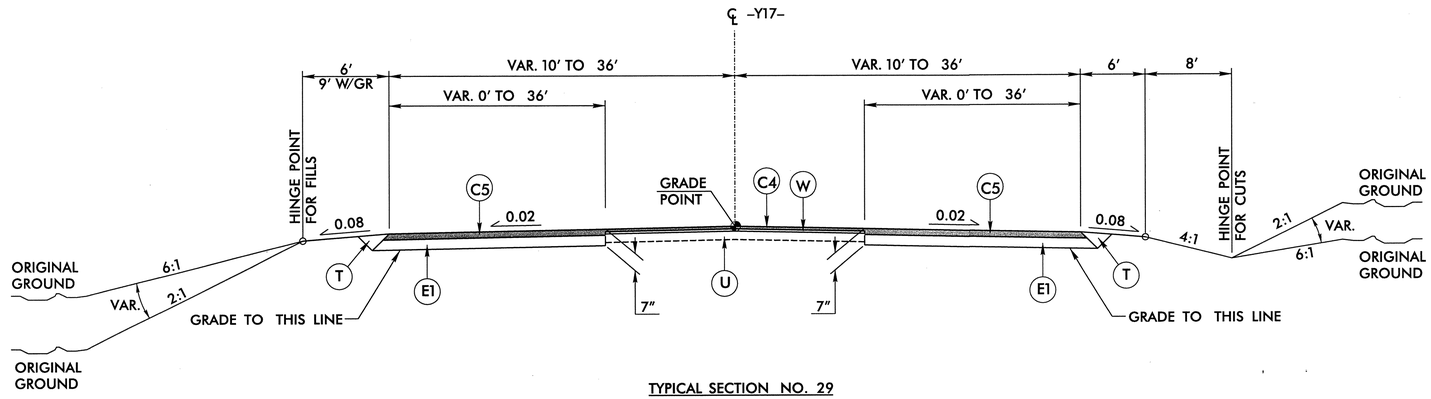
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2J
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/10/2011

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV 10/10/11

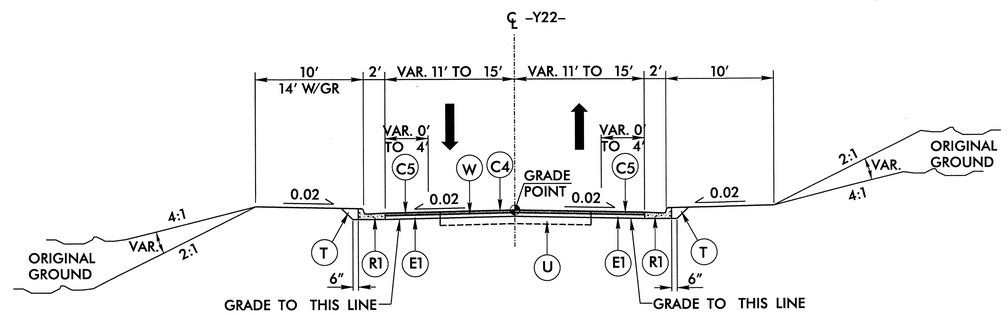
PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING



TYPICAL SECTION NO. 29

USE TYPICAL SECTION NO. 29
AT THE FOLLOWING LOCATIONS:

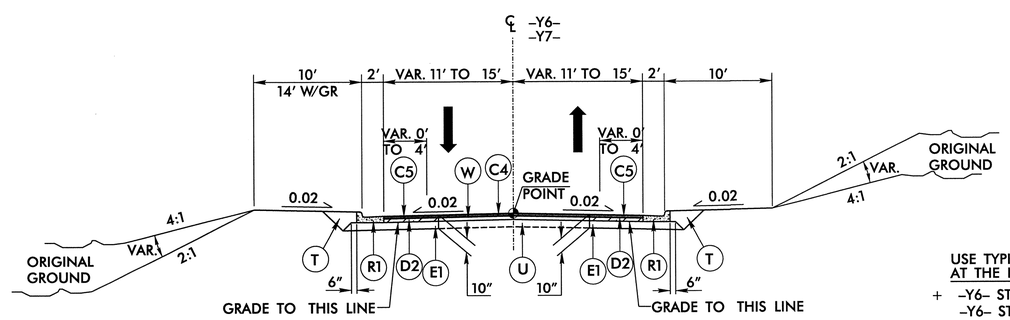
-Y17- STA. 10+20.00 TO 21+65.13



TYPICAL SECTION NO. 30

USE TYPICAL SECTION NO. 30
AT THE FOLLOWING LOCATIONS:

-Y22- STA. 10+53.28 TO 11+85.00



TYPICAL SECTION NO. 31

USE TYPICAL SECTION NO. 31
AT THE FOLLOWING LOCATIONS:

+ -Y6- STA. 10+53.35 TO 12+00.00
  -Y6- STA. 12+00.00 TO 12+40.00
+ -Y7- STA. 10+41.12 TO 11+00.00
  -Y7- STA. 11+00.00 TO 11+75.00

+ NEW PAVEMENT STRUCTURE (NO WEDGING)

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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FOR
DIVISION OF HIGHWAYS

10/10/2011
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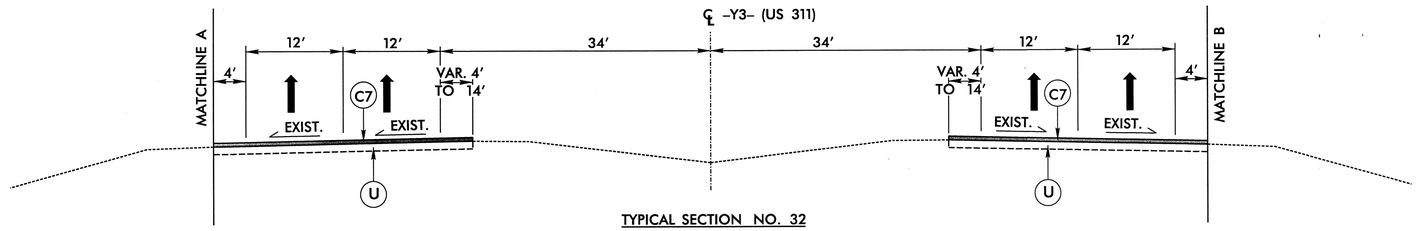
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2K
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL D. MERRITT 10/10/2011

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV 10/10/11

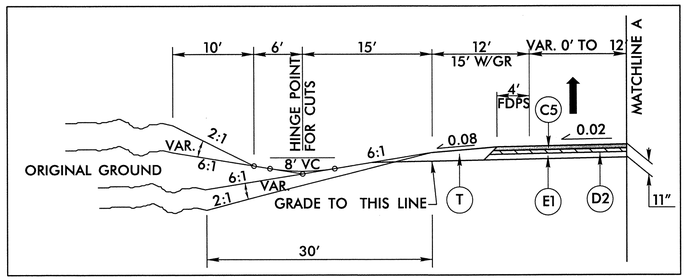
PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING



TYPICAL SECTION NO. 32

USE TYPICAL SECTION NO. 30 AT THE FOLLOWING LOCATIONS:

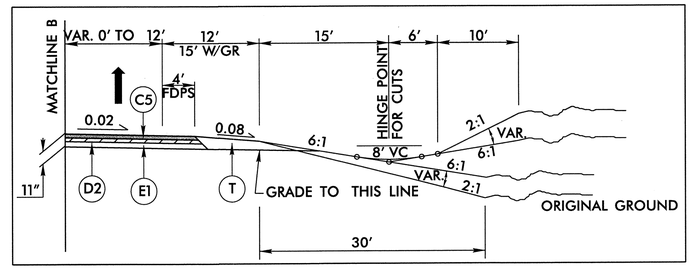
-Y3- STA. 16+82.33 TO 64+19.97



INSET A

USE INSET A IN CONJUNCTION WITH TYPICAL SECTION 32

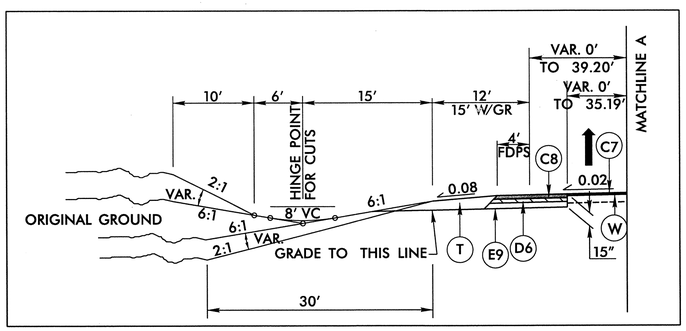
-Y3- STA. 28+89.56 TO 45+39.56 LT.



INSET C

USE INSET C IN CONJUNCTION WITH TYPICAL SECTION 32

-Y3- STA. 34+45.79 TO 50+95.79 RT.

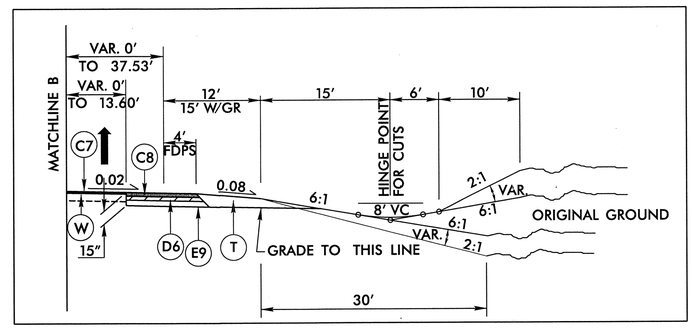


INSET B

USE INSET B IN CONJUNCTION WITH TYPICAL SECTION 32

-Y3- STA. 55+89.78 TO 64+19.97 LT.

(RAMP D GORE AREA)

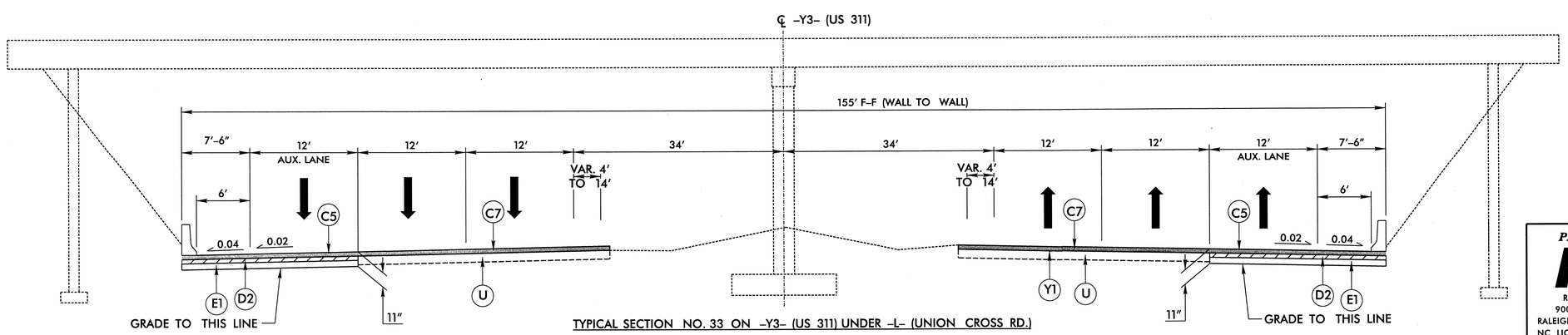


INSET D

USE INSET D IN CONJUNCTION WITH TYPICAL SECTION 32

-Y3- STA. 16+82.33 TO 22+62.51 RT.

(RAMP B GORE AREA)



TYPICAL SECTION NO. 33 ON -Y3- (US 311) UNDER -L- (UNION CROSS RD.)

PLANS PREPARED BY :

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR DIVISION OF HIGHWAYS

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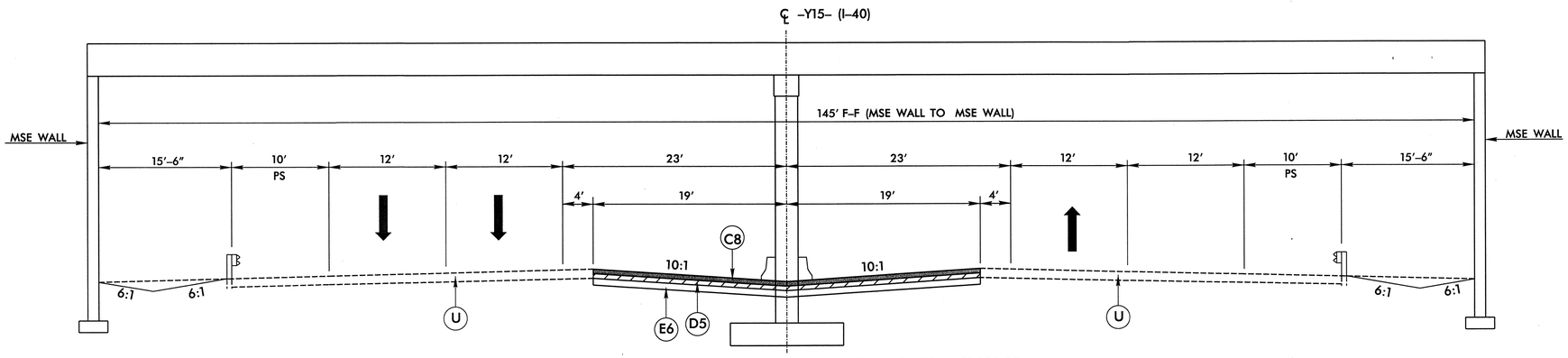
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2L
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. ALBERRITT 10/13/2011

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV 10/14/11

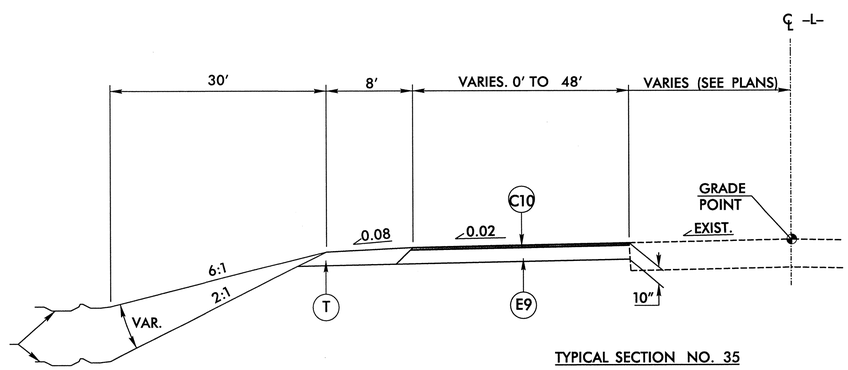
PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	1 1/4" SF9.5A
C2	3" SF9.5A
C3	VAR. SF9.5A
C4	1 1/2" S9.5B
C5	3" S9.5B
C6	VAR. S9.5B
C7	1 1/2" S9.5C
C8	3" S9.5C
C9	VAR. S9.5C
C10	2" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	2 1/2" I19.0C
D5	3 1/2" I19.0C
D6	4" I19.0C
D7	VAR. I19.0C
E1	4" B25.0B
E4	VAR. B25.0B
E5	3 1/2" B25.0C
E6	5 1/2" B25.0C
E7	6" B25.0C
E8	7" B25.0C
E9	8" B25.0C
E10	VAR. B25.0C
G1	10" CTBC
J1	6" ABC
J2	8" ABC
J3	VAR. ABC
P1	PRIME COAT
R1	2'-6" CURB
R2	1'-6" CURB
R3	5" MCI (KEYED IN)
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING
Y1	2.5" MILLING
Y2	VAR. MILLING



TYPICAL SECTION NO. 34 ON -Y15- (I-40) UNDER -L- (UNION CROSS RD.)

USE TYPICAL SECTION NO. 34 AT THE FOLLOWING LOCATIONS:

I-40 UNDER UNION CROSS ROAD



TYPICAL SECTION NO. 35

USE TYPICAL SECTION NO. 35 AT THE FOLLOWING TEMPORARY WIDENING LOCATIONS:

-L- STA. 115+00.00 TO 120+52.00 LT

-L- STA. 154+50.00 TO 155+41.50 LT

-L- STA. 160+95.00 TO 162+00.00 LT

NOTE: SEE TRAFFIC CONTROL PLANS FOR TEMPORARY WIDENING

PLANS PREPARED BY :

RK&K

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FOR DIVISION OF HIGHWAYS

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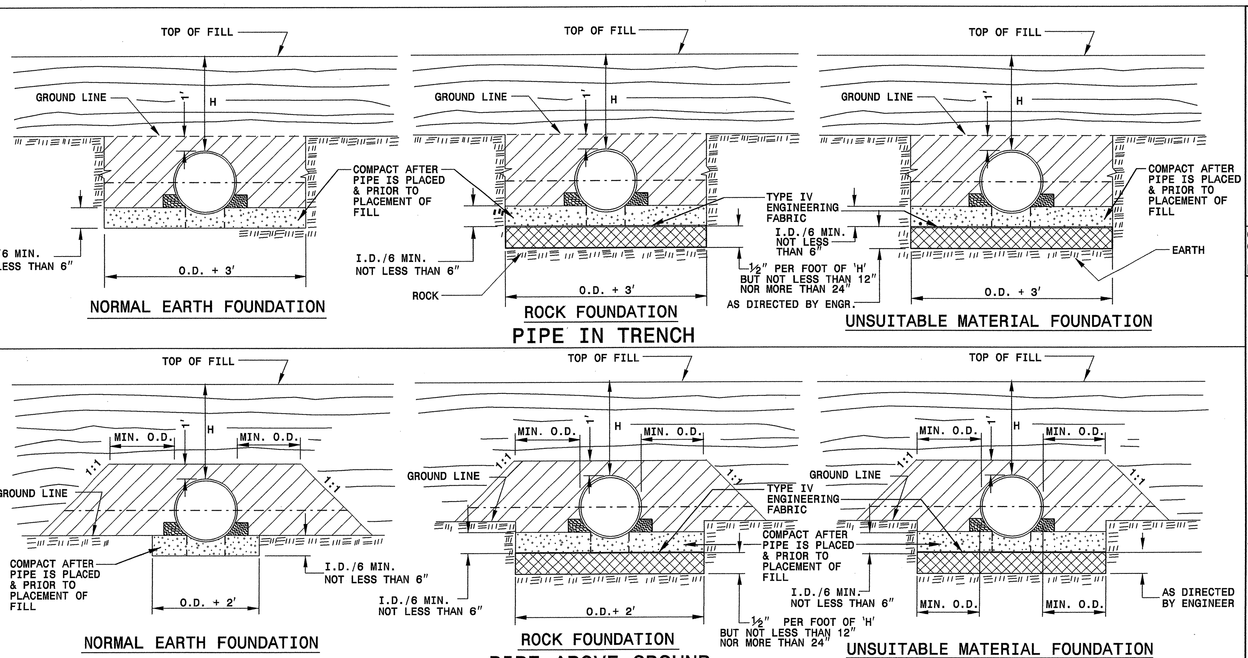
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

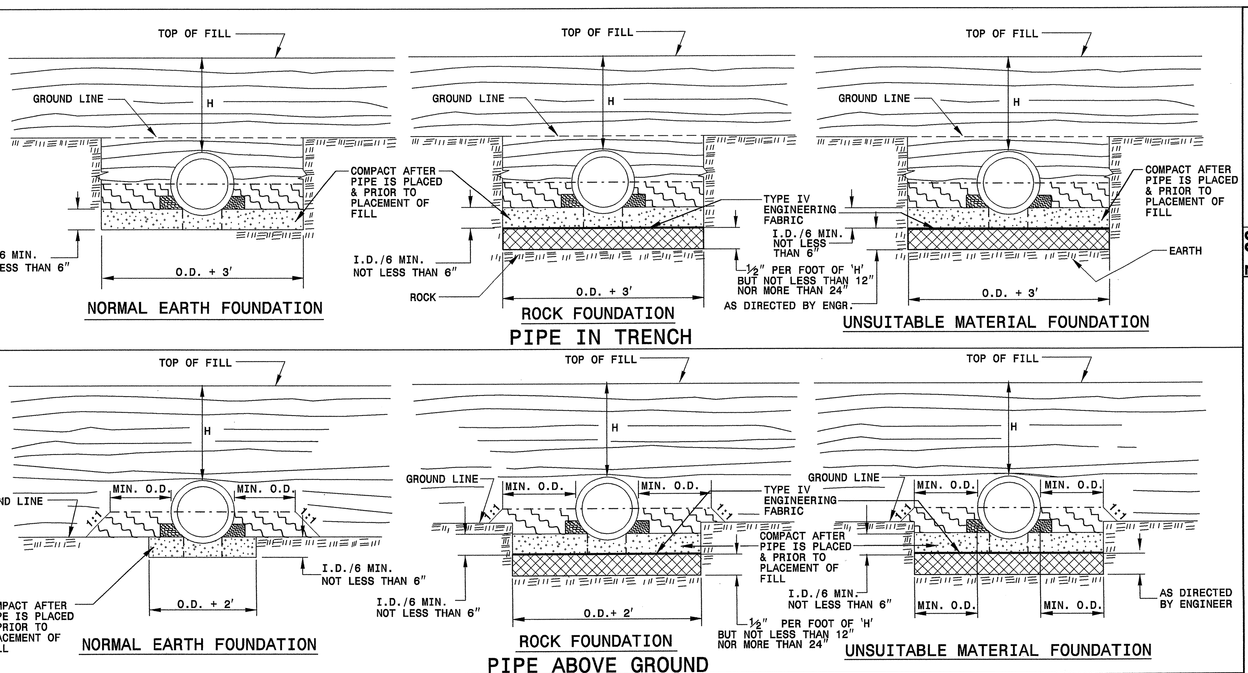
SHEET 1 OF 3
300D01

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

RIGID PIPE



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SHEET 2 OF 3
300D01

SEE PLATE FOR TITLE

ORIGINAL BY: Kkempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/8/09
FILE SPEC: e:\dgnlib\stds\60\codeblib\300D01D300D01.dgn

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

NORTH CAROLINA PROFESSIONAL SEAL 02566 ENGINEER

PROJECT REFERENCE NO. U-6809
SHEET NO. 2-M

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≤ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
* (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

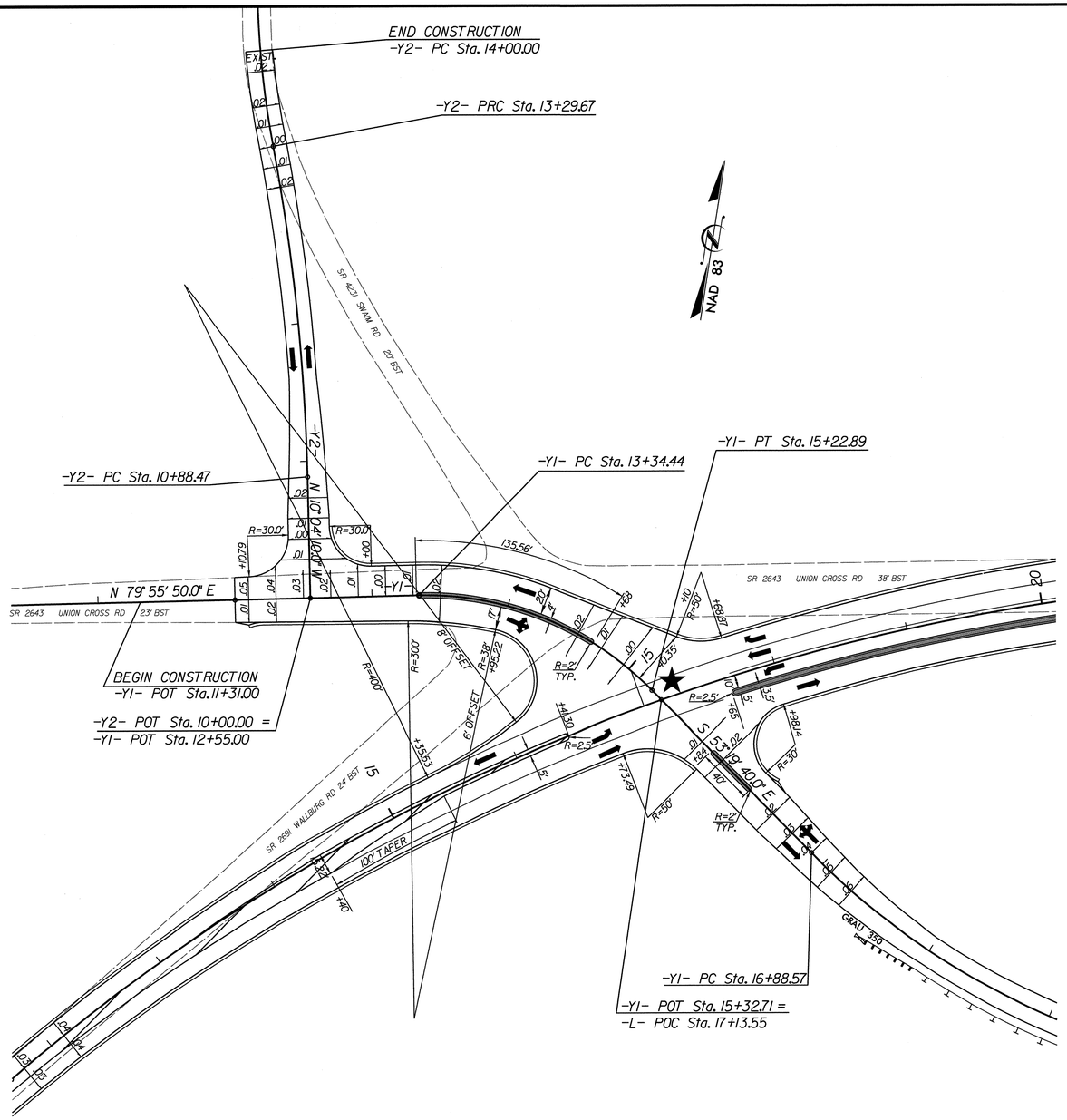
ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/6/09
FILE SPEC/ycig/ericg/stds/stdstodetails/30000/0300d01.dgn

NORTH CAROLINA PROFESSIONAL SEAL 022566 ENGINEER JOHN W. HOWERTON 19-01

PROJECT REFERENCE NO. U-6909
SHEET NO. 2-N

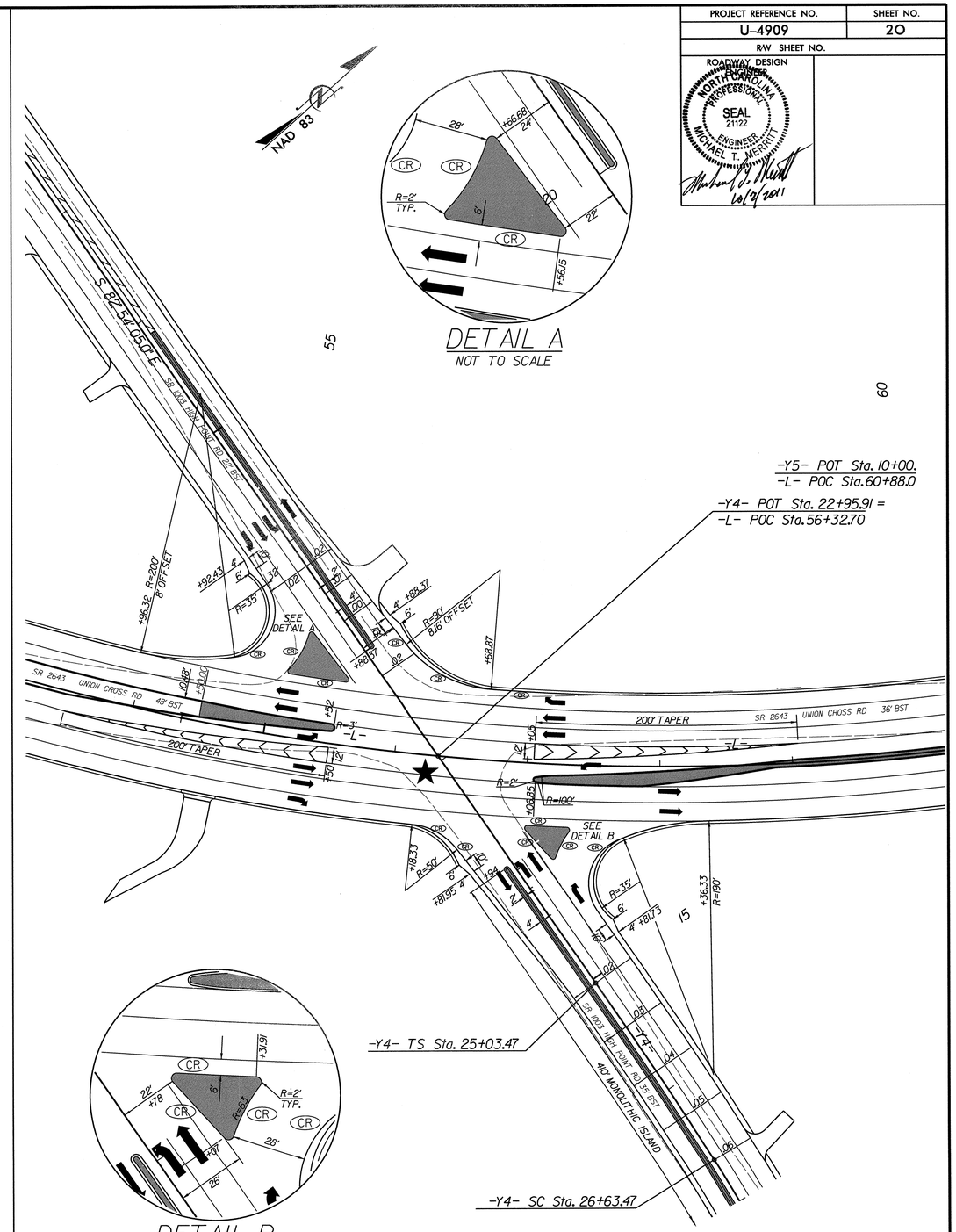
PROJECT REFERENCE NO.	SHEET NO.
U-4909	20
R/W SHEET NO.	
ROADWAY DESIGN	

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/3/2011



DETAIL OF -L- & -Y1-
INTERSECTION

SEE SHT.4 FOR -Y1- PLAN



DETAIL OF -L- & -Y4-
INTERSECTION

PROP. 5" MONOLITHIC CONCRETE ISLANDS (KEYED IN) STD. 852.01

SEE SHT.6 FOR -Y4- PLAN

50 0 50 100
SCALE

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
DIVISION OF HIGHWAYS

REVISIONS

8/17/99

10/5/2011
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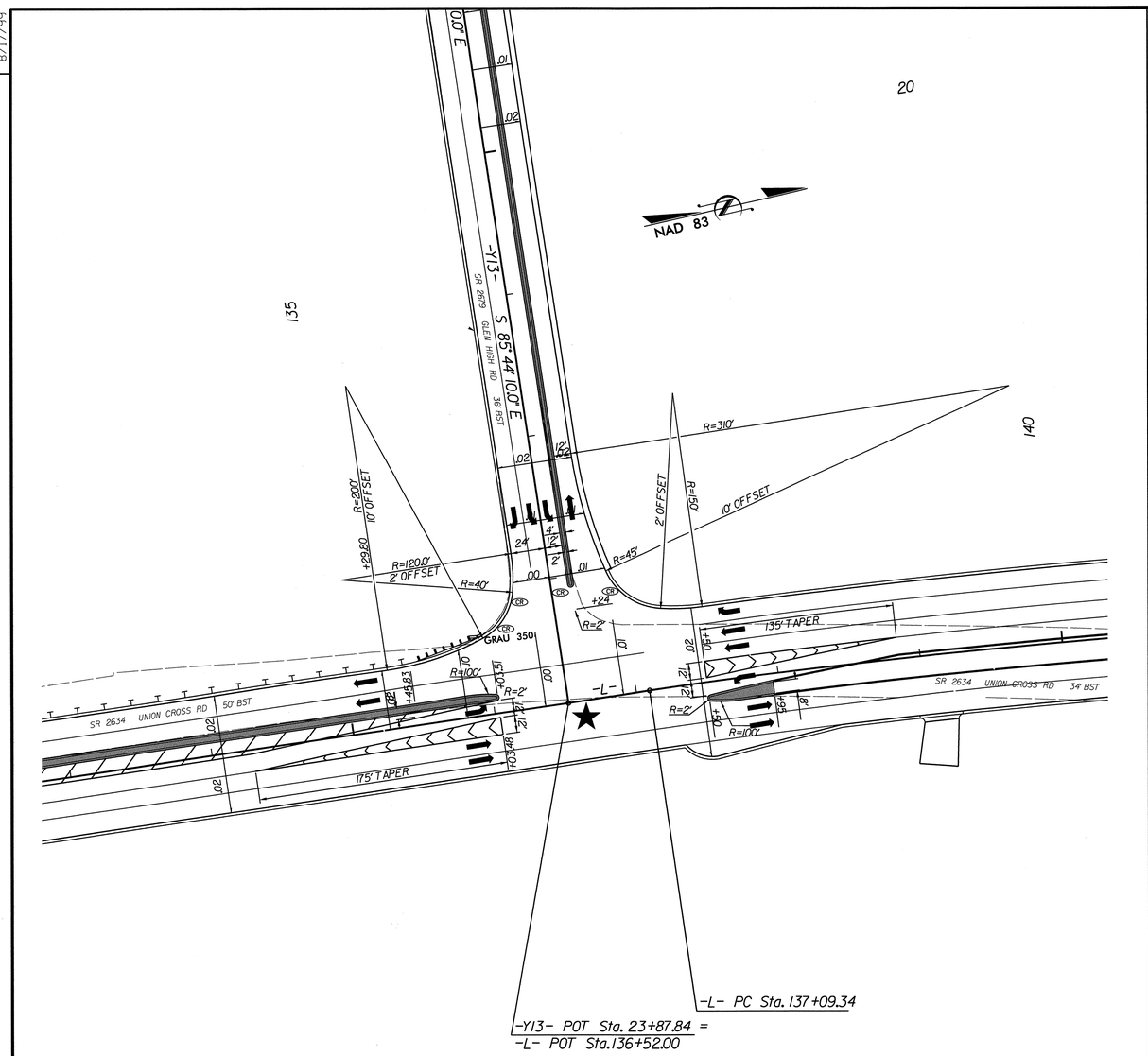
bealgraine

PROJECT REFERENCE NO.	SHEET NO.
U-4909	2P
R/W SHEET NO.	

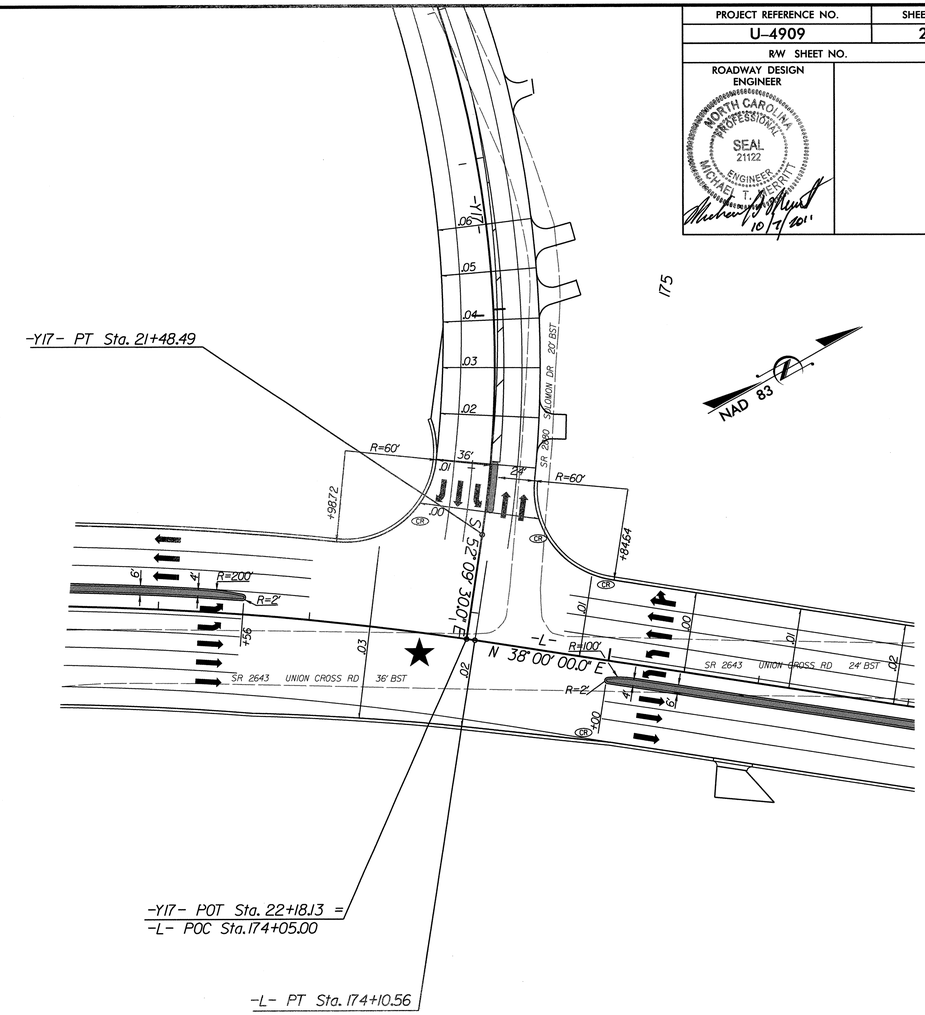
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT

10/7/2011



DETAIL OF -L- & -Y13- INTERSECTION



DETAIL OF -L- & -Y17- INTERSECTION

SEE SHT.12 FOR -Y13- PLAN

50 0 50 100
SCALE

PROP. 5" MONOLITHIC CONCRETE ISLANDS (KEYED IN) STD. 852.01

SEE SHT.14 FOR -Y17- PLAN

PLANS PREPARED BY :

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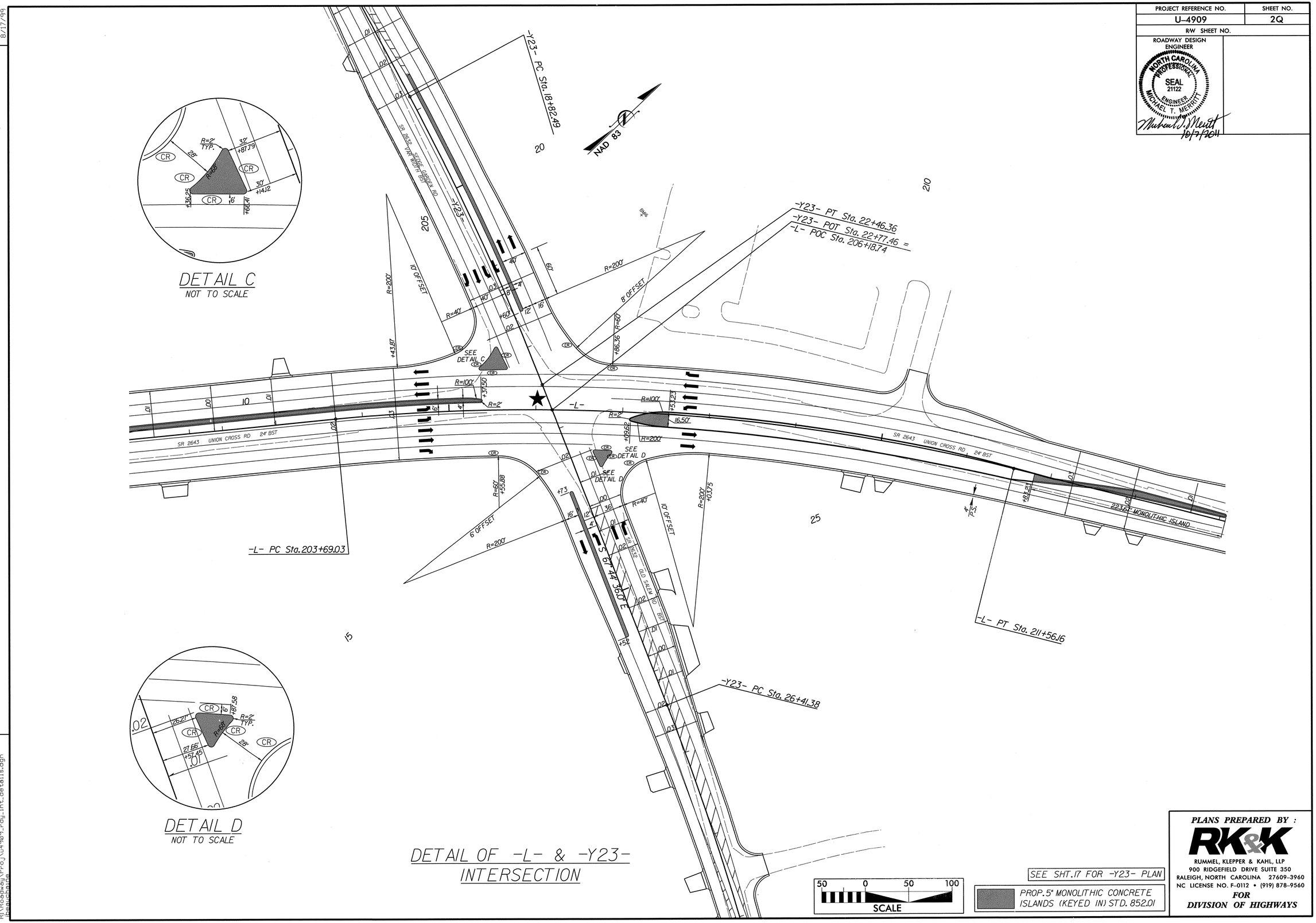
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2Q
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT

Michael T. Merritt 10/7/2011



PLANS PREPARED BY :

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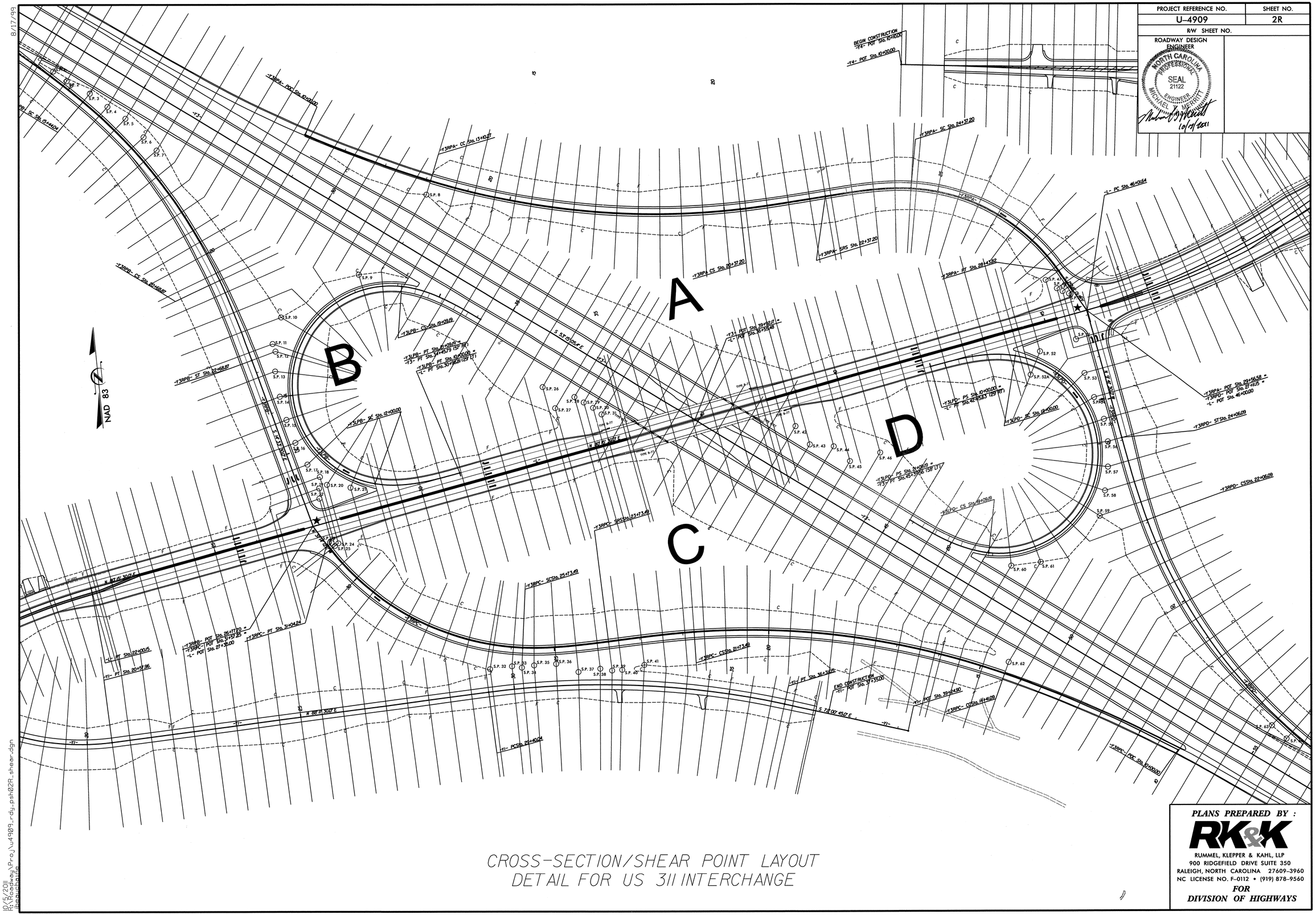
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-4909	2R
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL W. MERRITT

10/1/2011



CROSS-SECTION/SHEAR POINT LAYOUT
DETAIL FOR US 311 INTERCHANGE

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

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10/5/2011
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bcaughame

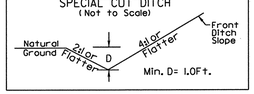
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-4909	2S
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/2/2011

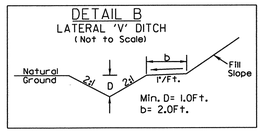
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/2/11

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



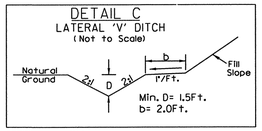
-L- STA. 27+72.22 TO STA. 28+43 LT
-L- STA. 222+69.12 TO STA. 223+50 RT
-L- STA. 225+10 TO STA. 225+50 RT
-Y1- STA. 11+31 TO STA. 12+26 LT
-Y1- STA. 15+62 TO STA. 16+00 RT
-Y1- STA. 27+00 TO STA. 27+50 LT
-Y1- STA. 36+50 TO STA. 37+35 RT
-Y2- STA. 13+00 TO STA. 14+00 LT
-Y3- STA. 34+00 TO STA. 38+00 RT
-Y3- STA. 37+25 TO STA. 39+50 LT
-Y3LPB- STA. 18+19 TO 18+61 LT
-Y3LPD- STA. 18+00 TO 18+35 LT
-Y3RPA- STA. 12+50 TO 13+10.27 LT
-Y3RPB- STA. 14+47 TO 17+00 LT
-Y3RPB- STA. 18+38 TO 19+68.87 RT
-Y3RPC- STA. 18+50 TO 19+00 RT
-Y3RPC- STA. 28+50 TO 30+64 RT
-Y3RPD- STA. 16+05 TO 17+03 RT
-Y4- STA. 28+45 TO STA. 29+00 RT
-Y4- STA. 31+50 TO STA. 32+50 LT
-Y4- STA. 32+00 TO STA. 32+50 RT
-Y10- STA. 13+25 TO STA. 13+75 LT
-Y11- STA. 11+50 TO STA. 12+00 LT & RT
-Y13- STA. 11+48 TO STA. 12+50 LT
-Y13- STA. 16+04.13 TO STA. 19+50 LT
-Y17- STA. 10+00 TO STA. 11+50 LT
-Y17- STA. 20+00 TO STA. 20+50 RT
-Y19- STA. 11+90 TO STA. 13+00 LT & RT
-Y19- STA. 17+45 TO STA. 18+88 LT
-Y20- STA. 10+95 TO STA. 12+20 LT
-Y20- STA. 10+99.87 TO STA. 12+20 RT
-Y4- STA. 25+00 TO STA. 26+50 RT

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



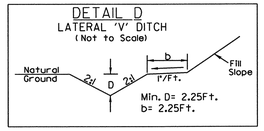
-L- STA. 7+44 TO STA. 8+77 RT; DDE=6CY
-L- STA. 85+79 TO STA. 91+40 RT; DDE=60CY
-L- STA. 95+50 TO STA. 96+65 RT; DDE=17CY
-L- STA. 104+15 TO STA. 106+50 RT; DDE=70CY
-L- STA. 167+05 TO STA. 169+50 RT; DDE=66CY
-L- STA. 171+00 TO STA. 173+25 LT; DDE=36CY
-L- STA. 176+00 TO STA. 176+91 LT; DDE=35CY
-L- STA. 181+50 TO STA. 183+76.64 LT; DDE=35CY
-L- STA. 186+65 TO STA. 187+50 RT; DDE=80CY
-L- STA. 203+50 TO STA. 205+06 LT; DDE=25CY
-L- STA. 210+62 TO STA. 212+75 LT; DDE=38CY
-L_SB- STA. 156+46 TO STA. 157+37.31 RT; DDE=23CY
-Y3RPD- STA. 17+03 TO STA. 19+96 LT; DDE=68CY
-Y15RPC- STA. 13+00 TO STA. 14+10 RT; DDE=69CY
-Y23- STA. 18+25 TO STA. 21+34 RT; DDE=85CY

DETAIL C
LATERAL 'V' DITCH
(Not to Scale)



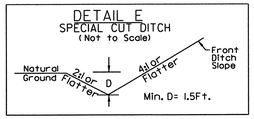
-L- STA. 19+50 TO STA. 26+50 LT; DDE=312CY
-L- STA. 97+75 TO STA. 100+63 RT; DDE=119CY
-L- STA. 189+92 TO STA. 195+50 RT; DDE=184CY
-L_SB- STA. 160+00 TO STA. 160+67.48 RT; DDE=59CY
-Y1- STA. 19+00 TO STA. 21+35 LT; DDE=156CY
-Y1- STA. 27+50 TO STA. 29+50 LT; DDE=150CY
-Y15RPA- STA. 20+00 TO STA. 21+43.51 LT; DDE=494CY

DETAIL D
LATERAL 'V' DITCH
(Not to Scale)



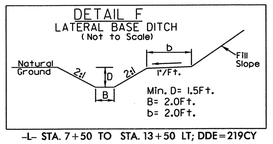
-L- STA. 53+84 TO STA. 54+57 LT; DDE=71CY

DETAIL E
SPECIAL CUT DITCH
(Not to Scale)



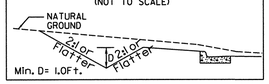
-Y3- STA. 30+34 TO STA. 31+86 RT
-Y3- STA. 45+00 TO STA. 47+32.73 RT
-Y4- STA. 11+00 TO STA. 12+50 LT
-Y4- STA. 15+00 TO STA. 20+00 LT
-Y4- STA. 20+00 TO STA. 21+05 RT

DETAIL F
LATERAL BASE DITCH
(Not to Scale)



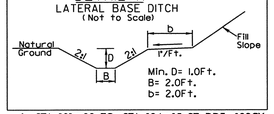
-L- STA. 7+50 TO STA. 13+50 LT; DDE=219CY

DETAIL G
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



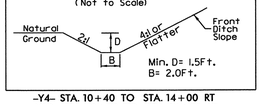
-L- STA. 93+60 TO STA. 95+50 RT
-L- STA. 174+65 TO STA. 176+00 LT
-L- STA. 201+20 TO STA. 203+50 LT
-Y15RPA- STA. 18+00 TO STA. 20+00 LT
-Y17- STA. 21+10 TO STA. 21+36 LT

DETAIL H
LATERAL BASE DITCH
(Not to Scale)



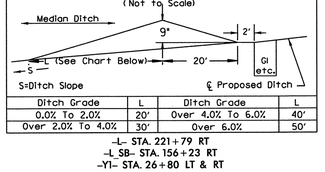
-L- STA. 101+09 TO STA. 104+15 RT; DDE=109CY
-Y3RPA- STA. 19+50 TO STA. 27+00 RT; DDE=882CY
-Y11- STA. 10+67 TO STA. 10+77.92 LT; DDE=2CY
-Y11- STA. 10+75 TO STA. 11+00 RT; DDE=5CY
-Y23- STA. 19+00 TO STA. 21+34 LT; DDE=98CY

DETAIL J
SPECIAL CUT BASE DITCH
(Not to Scale)



-Y4- STA. 10+40 TO STA. 14+00 RT
-Y23- STA. 10+00 TO STA. 16+00 LT

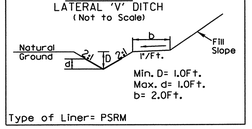
DETAIL J
FALSE SUMP
(Not to Scale)



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'

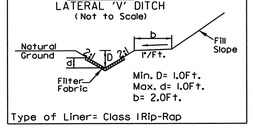
-L- STA. 221+79 RT
-L_SB- STA. 156+23 RT
-Y1- STA. 26+80 LT & RT
-Y3- STA. 20+96 RT
-Y3- STA. 57+27 LT
-Y3RPA- STA. 27+78 LT
-Y3LPB- STA. 17+30 LT
-Y3LPD- STA. 17+34 LT
-Y3RPB- STA. 18+05 LT
-Y3RPB- STA. 18+47 RT
-Y3RPC- STA. 18+30 RT
-Y3RPC- STA. 26+21 LT
-Y3RPD- STA. 18+24 LT
-Y15RPA- STA. 12+03 RT

DETAIL K
LATERAL 'V' DITCH
(Not to Scale)



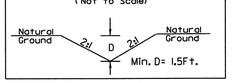
-L- STA. 221+27.82 TO STA. 222+75 LT; DDE=14CY; PSRM=73SY
-L_NB- STA. 159+25 TO STA. 160+85 LT; DDE=13CY; PSRM=80SY
-Y1- STA. 18+00 TO STA. 19+00 LT; DDE=24CY; PSRM=50SY
-Y1- STA. 21+35 TO STA. 22+50 LT; DDE=81CY; PSRM=57SY

DETAIL L
LATERAL 'V' DITCH
(Not to Scale)



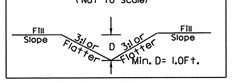
-Y1- STA. 20+25 TO STA. 22+00 RT
DDE=232CY; RR=113TONS; FF=231SY

DETAIL M
STANDARD 'V' DITCH
(Not to Scale)



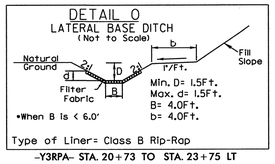
-Y1- STA. 27+00 RT
L=55', S=1.64%, DDE=14CY
BEG. EL=942.90, END EL=942.00
-Y3LPB- STA. 18+08 RT
L=80', S=0.64%, DDE=37CY
BEG. EL=940.71, END EL=940.20

DETAIL N
STANDARD 'V' DITCH
(Not to Scale)



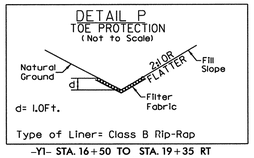
-Y3LPD- STA. 12+50 TO STA. 15+50 LT
(NO DDE; DITCH IS BETWEEN LOOP AND RAMP)

DETAIL O
LATERAL BASE DITCH
(Not to Scale)



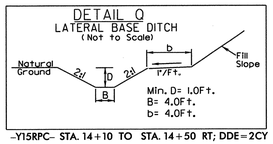
-Y3RPA- STA. 20+73 TO STA. 23+75 LT
DDE=278CY; RR=147TONS; FF=327SY

DETAIL P
TOE PROTECTION
(Not to Scale)



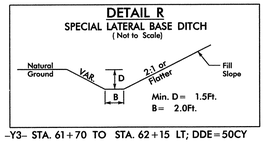
-Y1- STA. 16+50 TO STA. 19+35 RT
RR=99TONS; FF=298SY

DETAIL Q
LATERAL BASE DITCH
(Not to Scale)



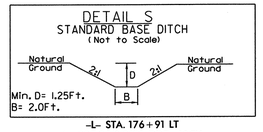
-Y15RPC- STA. 14+10 TO STA. 14+50 RT; DDE=2CY

DETAIL R
SPECIAL LATERAL BASE DITCH
(Not to Scale)



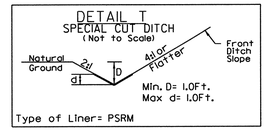
-Y3- STA. 61+70 TO STA. 62+15 LT; DDE=50CY

DETAIL S
STANDARD BASE DITCH
(Not to Scale)



-L- STA. 176+91 LT
L=80', S=0.30%, DDE=10CY
BEG. EL=963.44, END EL=963.20
-L- STA. 222+75 LT
L=60', S=1.43%, DDE=3CY
BEG. EL=965.65, END EL=964.79

DETAIL T
SPECIAL CUT DITCH
(Not to Scale)



-Y3RPC- STA. 17+78 TO 19+50 LT; PSRM=85SY
-Y3RPD- STA. 24+06.09 TO STA. 26+35 RT; PSRM=114SY

10/5/2011
R:\Hydraulics\u4909_hyd_ditchdet.dgn
bengbains

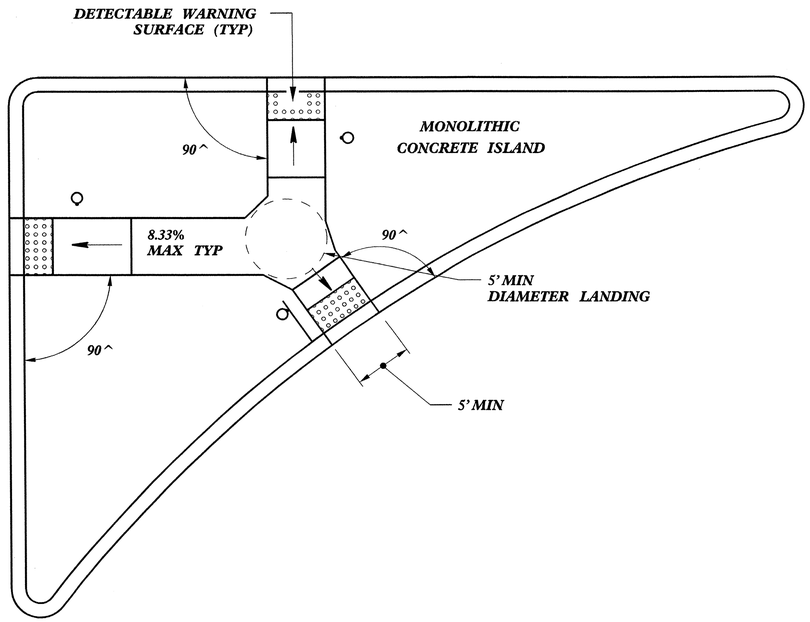
PLANS PREPARED BY :

RK&K

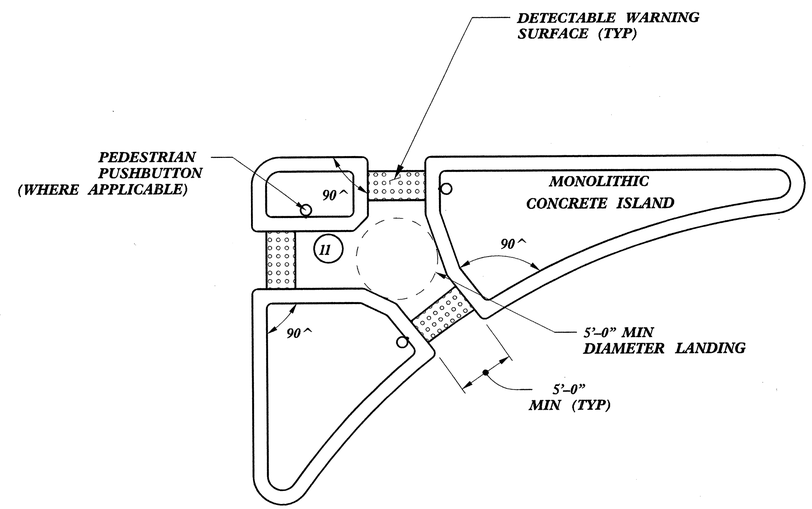
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4909	2T



LARGE ISLAND CURB RAMPS



SMALL ISLAND WITH CUT THROUGH

-SEE ROADWAY DETAIL DRAWING 848D05 FOR DETECTABLE WARNING SURFACE AND FOR RAMP NOTES.

-SEE ROADWAY STANDARD DRAWING 852.01 FOR CONCRETE ISLAND DIMENSIONS.

DETAIL TO BE USED AT THE FOLLOWING ISLAND LOCATIONS:
-Y23- STA. 22+00 RT
-Y23- STA. 23+50 LT

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOSEPH S. HOWERTON
10/20/11

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

CURB RAMPS

Median or Turn Lane Islands

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

5/14/99
04-AUG-2011 09:03
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Contracts\Special Details\vericward\stds\2012 Standard Drawings\2012 Curb Ramp Special Details\Curb Ramp Details.dgn

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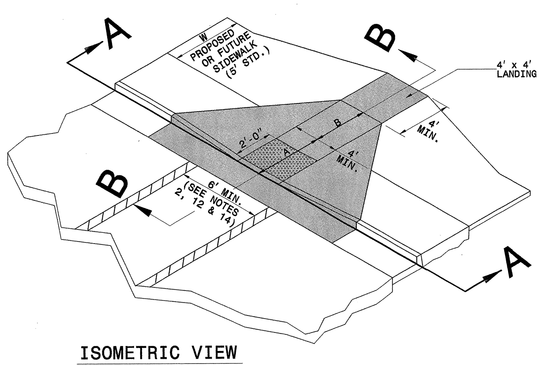
$$$$USERNAME$$$$

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

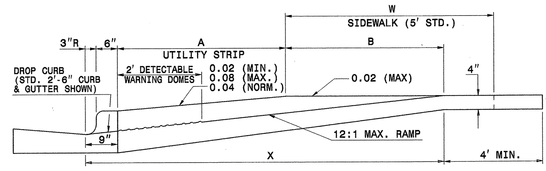
ENGLISH DETAIL DRAWING FOR

CURB RAMP

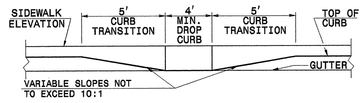
PROPOSED CURB AND GUTTER



ISOMETRIC VIEW



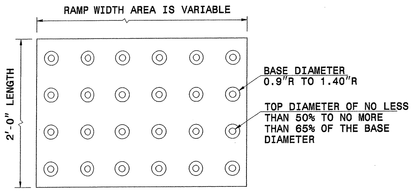
SECTION B-B

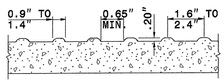


SECTION A-A

PAY LIMITS FOR CURB RAMP

NOTES:
1. DETECTABLE WARNING DOMES WILL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
2. DETECTABLE WARNING DOMES WILL CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.

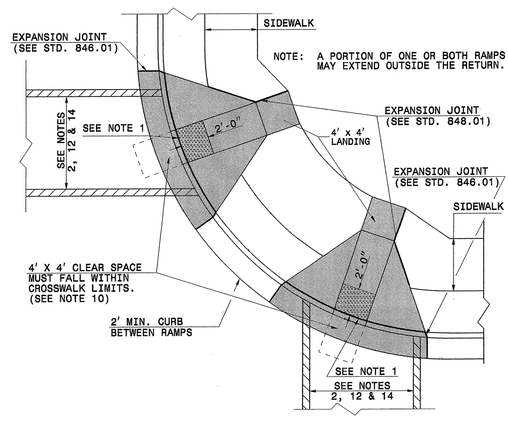




DETECTABLE WARNING DOMES

W	A	W+A+9"	X	B
5'	0.0'	5.8'	5.8'	5.0'*
6'	0.0'	6.8'	6.8'	6.0'**
7'	0.0'	7.8'	7.3'	6.5'**
8'	0.0'	8.8'	7.3'	6.5'**
5'	2.0'	7.8'	7.8'	5.0'
5'	2.5'	8.3'	8.1'	4.8'
5'	3.0'	8.8'	8.3'	4.4'
5'	3.5'	9.3'	8.4'	4.1'
5'	4.0'	9.8'	8.6'	3.8'
5'	4.5'	10.3'	8.7'	3.4'
5'	5.0'	10.8'	8.9'	3.1'

B = X-(A+9")
B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (8.33%) SLOPE.
* BACK OF SIDEWALK DROP REQUIRED FOR ALL SIDEWALK SLOPES.
** BACK OF SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 0.04.



PLAN VIEW
DUAL RAMPS
ANY RADII
(4' MIN. FLOOR WIDTH)

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

ENGLISH DETAIL DRAWING FOR

CURB RAMP

PROPOSED CURB AND GUTTER

SHEET 1 OF 3
848D05

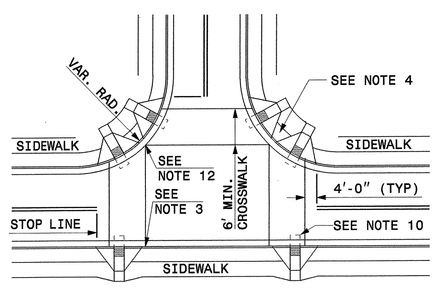
SHEET 1 OF 3
848D05

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

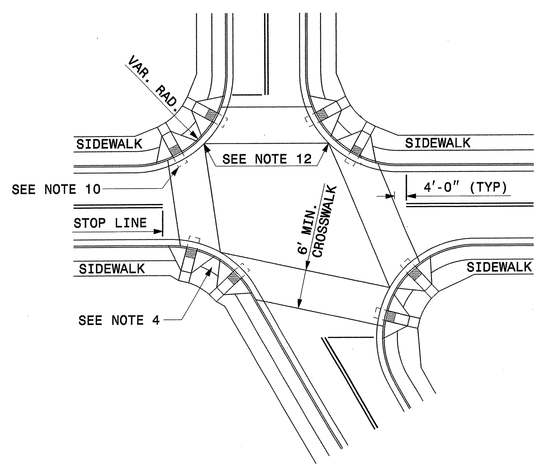
ENGLISH DETAIL DRAWING FOR

CURB RAMP

PROPOSED CURB AND GUTTER



DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS



DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES

ROADWAY PLAN SYMBOL
CR
FOR PROPOSED CURB RAMP

PROPOSED CURB RAMP W/ LANDING
PROPOSED OR FUTURE SIDEWALK

ALLOWABLE LOCATIONS

DUAL RAMP RADII.....ANY

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

ENGLISH DETAIL DRAWING FOR

CURB RAMP

PROPOSED CURB AND GUTTER

SHEET 2 OF 3
848D05

SHEET 2 OF 3
848D05

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: STD.NO.848.05 DATE: 4-22-10
MODIFIED BY: DATE:
CHECKED BY: DATE: 4/12/10
FILE SPEC.: /Specialdetails/Ertcomrcd/STD5/848d05.dgn

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER

PROJECT REFERENCE NO. U-4909
SHEET NO. 2-4

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

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

ENGLISH DETAILS DRAWING FOR

CURB RAMPS

NOTES

SHEET 3 OF 3

848D05

NOTES:

1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT. CONSTRUCT THE CURB RAMP TYPE AS SHOWN IN THE PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER.
2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. WHEN FIELD ADJUSTMENTS REQUIRE MOVING CURB RAMPS OR MARKINGS AS SHOWN, CONTACT THE SIGNING AND DELINEATION UNIT OR LOCATE AS DIRECTED BY THE ENGINEER.
3. COORDINATE THE CURB RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO A 4'x4' CLEAR SPACE AT THE BASE OF THE CURB RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES.
4. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
5. REFER TO THE PAVEMENT MARKING PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS. IF A PAVEMENT MARKING PLAN IS NOT PROVIDED, CONTACT THE SIGNAL DESIGN SECTION FOR THE STOP BAR LOCATIONS OR LOCATE AS DIRECTED BY THE ENGINEER.
6. TERMINATE PARKING A MINIMUM OF 20' BACK OF A PEDESTRIAN CROSSWALK.
7. CONSTRUCT CURB RAMPS A MINIMUM OF 4' WIDE.
8. CONSTRUCT THE RUNNING SLOPE OF THE RAMP 8.33% MAXIMUM.
9. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
10. CONSTRUCT THE SIDE FLARE SLOPE A MAXIMUM OF 10% MEASURED ALONG THE CURB LINE.
11. CONSTRUCT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE BASE OF THE CURB RAMP A MAXIMUM OF 5% AND MAINTAIN A SMOOTH TRANSITION.
12. CONSTRUCT LANDINGS FOR SIDEWALK A MINIMUM OF 4'x4' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. CONSTRUCT LANDINGS FOR MEDIAN ISLANDS A MINIMUM OF 5'x5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
13. TO USE A MEDIAN ISLAND AS A PEDESTRIAN REFUGE AREA, MEDIAN ISLANDS WILL BE A MINIMUM OF 6' WIDE. CONSTRUCT MEDIAN ISLANDS TO PROVIDE PASSAGE OVER OR THROUGHT THE ISLAND.
14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'X5' LANDING AT THE TOP OF A RAMPS, WILL BE CUT THROUGH LEVEL WITH THE SURFACE STREET.
15. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
16. PLACE A ½" EXPANSION JOINT WHERE THE CONCRETE CURB RAMP JOINS THE CURB AS SHOWN IN ROADWAY STANDARD DRAWING 848.01
17. PLACE ALL PEDESTRIAN PUSH BUTTON ACTUATORS AND CROSSING SIGNALS AS SHOWN IN THE PLANS OR AS SHOWN IN THE MUTCD.
18. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR THE DETAILS OR FOR A SPECIAL DESIGN.

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

ENGLISH DETAIL DRAWING FOR

CURB RAMPS

NOTES

SHEET 3 OF 3

848D05

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: STD.NO.848.05 DATE: 4-22-11
MODIFIED BY: DATE:
CHECKED BY: DATE: 5/9/11
FILE SPEC.: S:\Standards\Ecomm\STDS\848d05.dgn

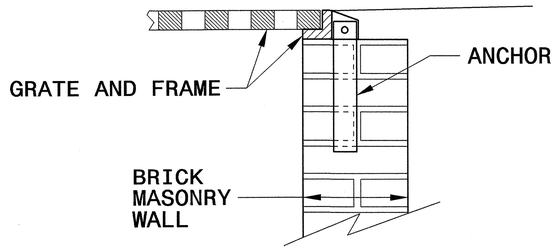
NORTH CAROLINA PROFESSIONAL SEAL 032566 ENGINEER

PROJECT REFERENCE NO. U-4209

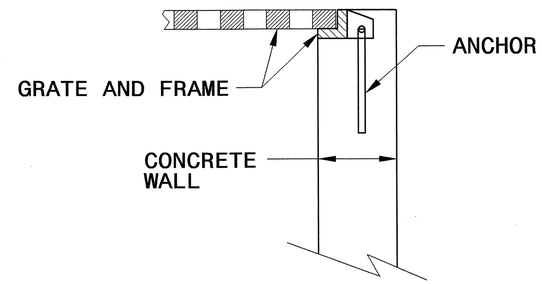
SHEET NO. 2-Y

PROJECT REFERENCE NO.	SHEET NO.
U-4909	2-W

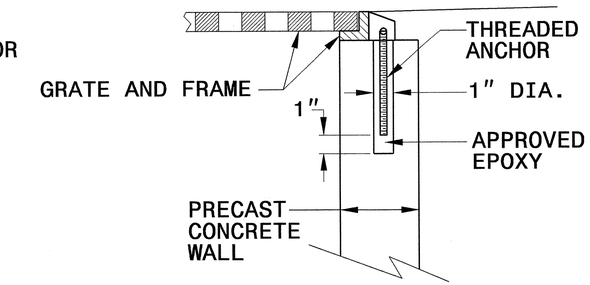
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.



BRICK MASONRY CONSTRUCTION



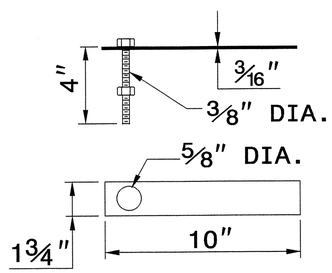
CONCRETE CONSTRUCTION



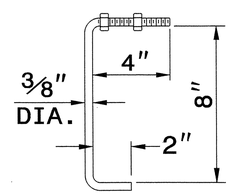
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

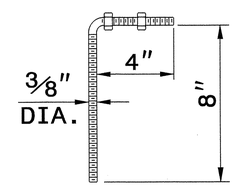
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



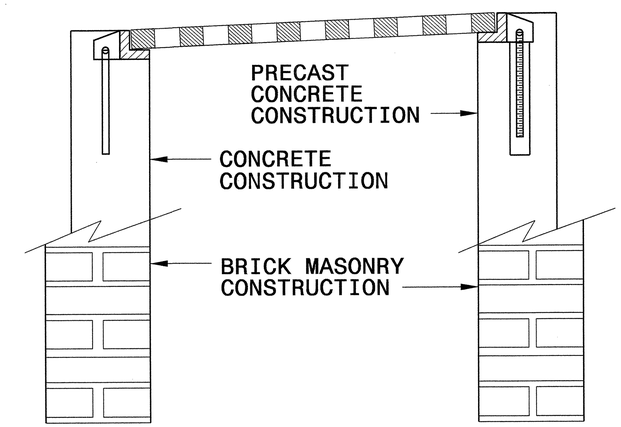
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

STATE OF
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DEPT. OF TRANSPORTATION
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RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL R. HOWERTON
10/20/11

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SEE PLATE FOR TITLE

ORIGINAL BY:	2006 STD 840.25	DATE:	07/18/06
MODIFIED BY:	E.E. WARD	DATE:	9/25/06
CHECKED BY:	[illegible]	DATE:	8/24/11
FILE SPEC.:			

24-AUG-2011 09:23
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET
U-4909	2-X

GEOTECHNICAL ENGINEER

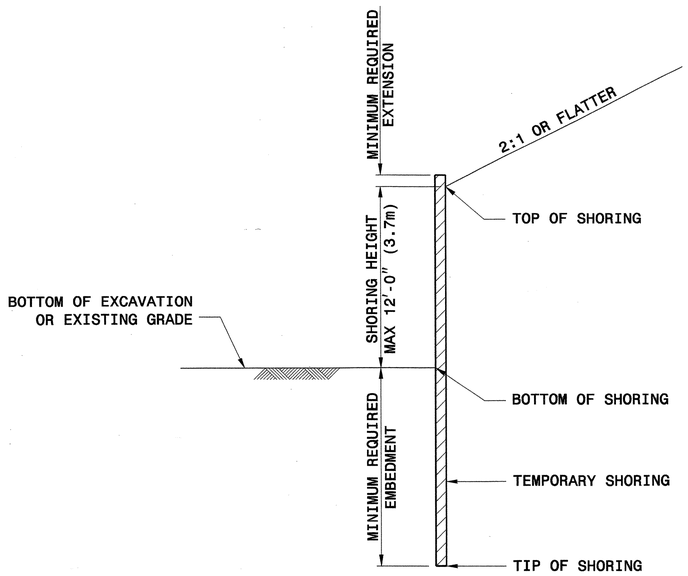
NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 3/29/07

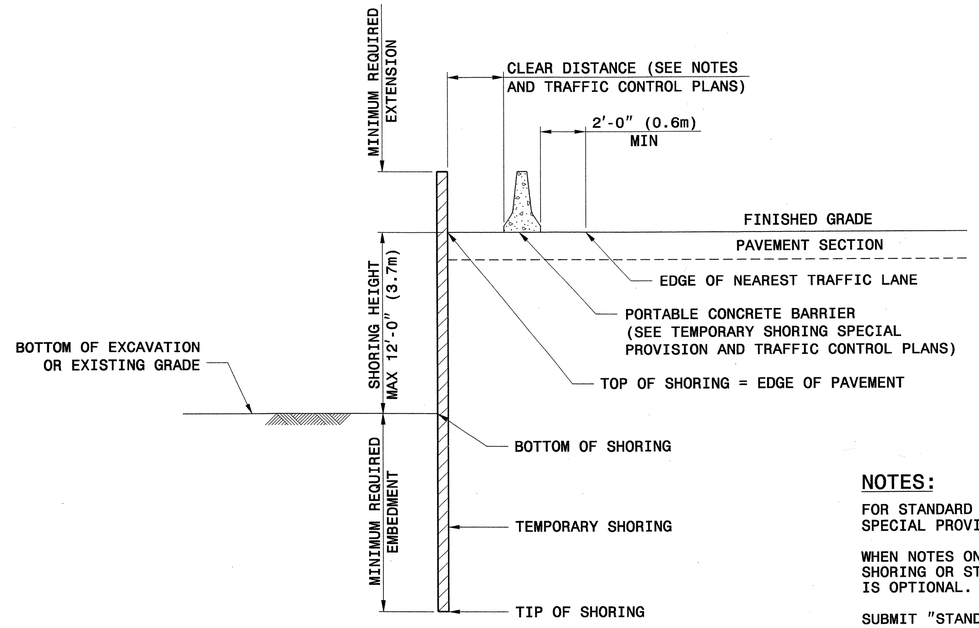
SIGNATURE DATE

ENGINEER

SIGNATURE DATE



SLOPE CASE



SURCHARGE CASE

		SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H PILES WITH TIMBER LAGGING			SHEET PILES		H PILES WITH TIMBER LAGGING		
				MINIMUM REQUIRED EMBEDMENT FT (m)					MINIMUM REQUIRED EMBEDMENT FT (m)		
GROUNDWATER CONDITION	SHORING HEIGHT FT (m)	MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN^3/FT (cm^3/m)	HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)	MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN^3/FT (cm^3/m)	HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)
GROUNDWATER ELEVATION BELOW TIP OF SHORING	< 6 (1.8)	7.5 (2.3)	3.0 (161)	8.0 (2.4)	8.0 (2.4)	8.0 (2.4)	11.0 (3.4)	10.0 (538)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)
	7 (2.1)	8.5 (2.6)	4.5 (242)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	12.0 (3.7)	12.0 (645)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)
	8 (2.4)	10.0 (3.0)	6.5 (349)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	12.5 (3.8)	14.0 (753)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)
	9 (2.7)	11.0 (3.4)	9.5 (511)	--	12.0 (3.7)	12.0 (3.7)	13.5 (4.1)	16.5 (887)	--	12.5 (3.8)	12.5 (3.8)
	10 (3.0)	12.5 (3.8)	13.0 (699)	--	--	13.5 (4.1)	14.0 (4.3)	19.5 (1048)	--	13.5 (4.1)	13.5 (4.1)
	11 (3.4)	13.5 (4.1)	17.0 (914)	--	--	14.5 (4.4)	15.0 (4.6)	22.5 (1210)	--	--	14.5 (4.4)
	12 (3.7)	15.0 (4.6)	21.5 (1156)	--	--	16.0 (4.9)	16.0 (4.9)	25.5 (1371)	--	--	15.5 (4.7)
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND TIP OF SHORING	< 6 (1.8)	11.5 (3.5)	4.5 (242)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	16.0 (4.9)	12.0 (645)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)
	7 (2.1)	13.0 (4.0)	7.0 (376)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	17.0 (5.2)	14.5 (780)	14.5 (4.4)	14.5 (4.4)	14.5 (4.4)
	8 (2.4)	15.0 (4.6)	10.0 (538)	--	15.0 (4.6)	15.0 (4.6)	18.0 (5.5)	17.0 (914)	--	15.5 (4.7)	15.5 (4.7)
	9 (2.7)	17.0 (5.2)	14.0 (753)	--	17.0 (5.2)	17.0 (5.2)	19.0 (5.8)	20.0 (1075)	--	17.0 (5.2)	17.0 (5.2)
	10 (3.0)	18.5 (5.6)	19.5 (1048)	--	--	18.5 (5.6)	20.0 (6.1)	23.5 (1263)	--	--	18.5 (5.6)
	11 (3.4)	20.5 (6.3)	26.0 (1398)	--	--	--	21.0 (6.4)	28.0 (1505)	--	--	20.0 (6.1)
	12 (3.7)	22.5 (6.9)	33.0 (1774)	--	--	--	22.0 (6.7)	33.0 (1774)	--	--	21.5 (6.6)

NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFFIC IMPACT".

NOTES:

FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, STANDARD TEMPORARY SHORING IS OPTIONAL.

SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:
1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
4) H PILE SPACING IS 6'-0" (1.8m).
5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M^3)
FRICTION ANGLE = 30 DEGREES
COHESION = 0 PSF (0 KPA)
GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.

VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS, SET THE BARRIER AGAINST THE TRAFFIC SIDE OF THE SHORING AND USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT".

AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.

CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

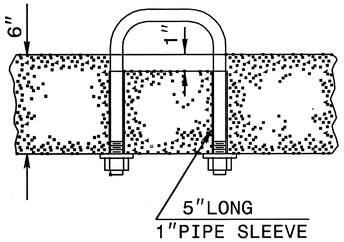
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD DRAWING NO. 1801.01

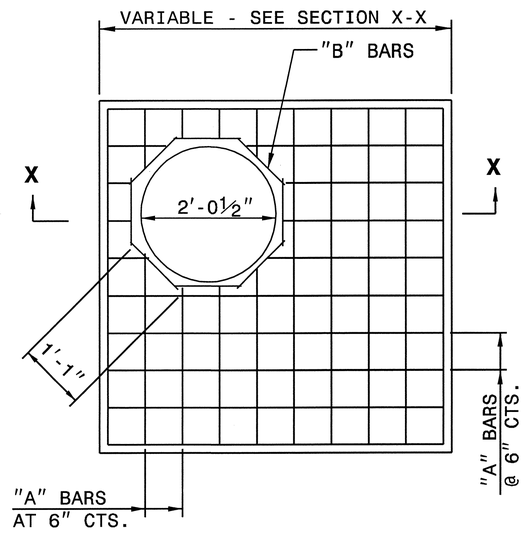
STANDARD TEMPORARY SHORING

DATE: 2-20-07

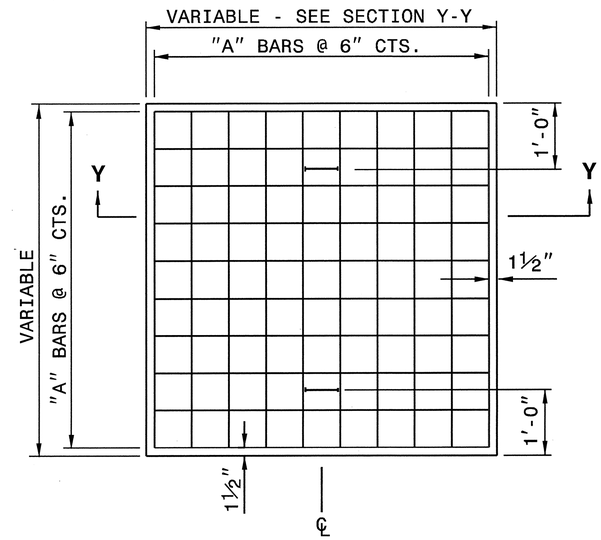
PROJECT REFERENCE NO.	SHEET NO.
U-4909	2-Y



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

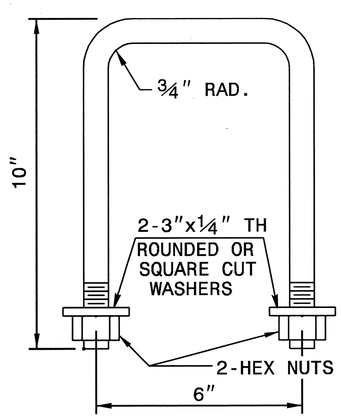
THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

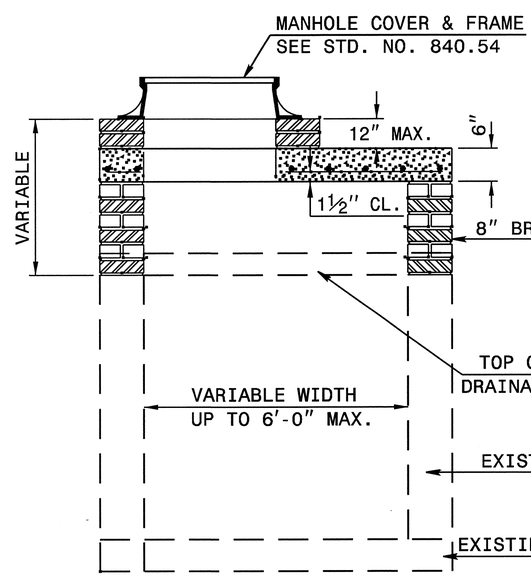
BILL OF MATERIALS

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

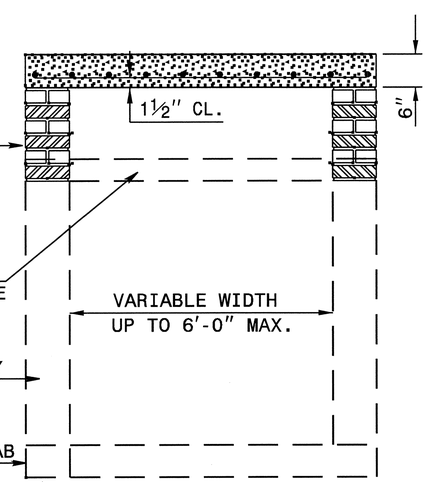
* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



DETAIL OF HANDLE



SECTION X-X



SECTION Y-Y

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN D. HONEYCUTT
10/24/

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN 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

5/14/99

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

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3(1 of 2)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202745

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0000700000-N	SP	Lump Sum		FIELD OFFICE
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)
0015000000-N	205	4	EA	SEALING ABANDONED WELLS
[redacted]				
0036000000-E	225	1,000	CY	UNDERCUT EXCAVATION
0038000000-E	SP	5,000	CY	SHALLOW UNDERCUT
0050000000-E	226	2	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0080000000-E	SP	10,000	TON	CLASS IV SUBGRADE STABILIZA-TION
0134000000-E	240	4,420	CY	DRAINAGE DITCH EXCAVATION
0156000000-E	250	36,960	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0163000000-E	250	6,640	SY	REMOVAL OF EXISTING CONCRETE PAVEMENT
0177000000-E	250	3,770	SY	BREAKING OF EXISTING ASPHALT PAVEMENT
0185000000-E	250	300	SY	BREAKING OF EXISTING CONCRETE PAVEMENT
0196000000-E	270	16,100	SY	FABRIC FOR SOIL STABILIZATION
0199000000-E	SP	720	SF	TEMPORARY SHORING
0255000000-E	SP	420	TON	GENERIC GRADING ITEM EXCAVATION AND STOCKPILING CONTAMINATED SOIL
0318000000-E	SP	2,820	TON	FOUNDATION CONDITIONING MATE-RIAL, MINOR STRS
0320000000-E	SP	8,850	SY	FOUNDATION CONDITIONING FABRIC
0335200000-E	SP	5,264	LF	15" DRAINAGE PIPE
0335300000-E	SP	1,592	LF	18" DRAINAGE PIPE
0335400000-E	SP	920	LF	24" DRAINAGE PIPE
0335500000-E	SP	416	LF	30" DRAINAGE PIPE
0335600000-E	SP	204	LF	36" DRAINAGE PIPE
0335850000-E	SP	16	EA	**" DRAINAGE PIPE ELBOWS (15")
0335850000-E	SP	2	EA	**" DRAINAGE PIPE ELBOWS (24")
0335850000-E	SP	2	EA	**" DRAINAGE PIPE ELBOWS (30")
0343000000-E	SP	976	LF	15" SIDE DRAIN PIPE
0344000000-E	SP	68	LF	18" SIDE DRAIN PIPE
0366000000-E	SP	752	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	SP	148	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E	SP	248	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E	SP	28	LF	30" RC PIPE CULVERTS, CLASS III
0448200000-E	SP	12,392	LF	15" RC PIPE CULVERTS, CLASS IV
0448300000-E	SP	1,332	LF	18" RC PIPE CULVERTS, CLASS IV
0448400000-E	SP	2,412	LF	24" RC PIPE CULVERTS, CLASS IV
0448500000-E	SP	56	LF	30" RC PIPE CULVERTS, CLASS IV
0448600000-E	SP	40	LF	36" RC PIPE CULVERTS, CLASS IV
0453000000-E	SP	1	EA	**" PIPE END SECTION (15")
0453000000-E	SP	1	EA	**" PIPE END SECTION (18")
0576000000-E	SP	26	LF	**" CS PIPE CULVERTS, *****" THICK (54", 0.109")
0995000000-E	340	5,400	LF	PIPE REMOVAL
1011000000-N	500	Lump Sum		FINE GRADING
1275000000-E	600	21,437.5	GAL	PRIME COAT
1297000000-E	607	32,400	SY	MILLING ASPHALT PAVEMENT, ***" DEPTH (2-1/2")
1308000000-E	607	5,640	SY	MILLING ASPHALT PAVEMENT, ***" TO *****" DEPTH (0" TO 2-1/2")
1489000000-E	610	14,950	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	12,770	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1503000000-E	610	51,370	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C
1519000000-E	610	15,570	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1523000000-E	610	41,790	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
1525000000-E	610	1,040	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1693000000-E	654	630	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	270	EA	RIGHT OF WAY MARKERS
2022000000-E	SP	336	CY	SUBDRAIN EXCAVATION
2033000000-E	SP	168	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	SP	1,000	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	SP	2	EA	SUBDRAIN PIPE OUTLETS
2077000000-E	SP	12	LF	6" OUTLET PIPE (SUBDRAINS)
2209000000-E	838	3	CY	ENDWALLS
2220000000-E	838	5.2	CY	REINFORCED ENDWALLS
2253000000-E	840	7	CY	PIPE COLLARS
2264000000-E	840	2	CY	PIPE PLUGS
2275000000-E	SP	5	CY	FLOWABLE FILL
2286000000-N	840	311	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	81	LF	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	52	EA	FRAME WITH TWO GRATES, STD 840.16
2365000000-N	840	14	EA	FRAME WITH TWO GRATES, STD 840.22
2366000000-N	840	5	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	5	EA	FRAME WITH TWO GRATES, STD 840.29
2374000000-N	840	40	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	102	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	86	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	8	EA	FRAME WITH COVER, STD 840.54
2440000000-N	852	36	EA	CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN
2451000000-N	852	28	EA	CONCRETE TRANSITIONAL SECTION FOR DROP INLETS
2542000000-E	846	25,650	LF	1'-6" CONCRETE CURB & GUTTER
2549000000-E	846	49,330	LF	2'-6" CONCRETE CURB & GUTTER
2591000000-E	848	16,060	SY	4" CONCRETE SIDEWALK
2612000000-E	848	2,500	SY	6" CONCRETE DRIVEWAY
2619000000-E	850	9	SY	4" CONCRETE PAVED DITCH
2655000000-E	852	4,000	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2724000000-E	857	490	LF	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED
2759000000-N	SP	130	EA	GENERIC PAVING ITEM CONCRETE CURB RAMPS
2800000000-N	858	1	EA	ADJUSTMENT OF CATCH BASINS
2938000000-N	SP	1	EA	CONVERT EXISTING DROP INLET TO JUNCTION BOX WITH MANHOLE COVER
3000000000-N	SP	2	EA	IMPACT ATTENUATOR UNIT, TYPE 350
3030000000-E	862	5,787.5	LF	STEEL BM GUARDRAIL
3045000000-E	862	50	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3210000000-N	862	9	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3270000000-N	SP	19	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	17	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3360000000-E	863	3,270	LF	REMOVE EXISTING GUARDRAIL
3503000000-E	866	7,700	LF	WOVEN WIRE FENCE, 47" FABRIC
3509000000-E	866	480	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	130	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3628000000-E	876	120	TON	RIP RAP, CLASS I
3649000000-E	876	470	TON	RIP RAP, CLASS B
3656000000-E	876	8,260	SY	FILTER FABRIC FOR DRAINAGE
4048000000-E	902	7	CY	REINFORCED CONCRETE SIGN FOUN-DATIONS
4054000000-E	902	3	CY	PLAIN CONCRETE SIGN FOUNDA-TIONS
4057000000-E	SP	120	CY	OVERHEAD FOOTING
4060000000-E	903	9,045	LB	SUPPORTS, BREAKAWAY STEEL BEAM
4072000000-E	903	4,232	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ****** ("A" AT 18+00 -Y15RPC-)
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ****** ("B" AT 18+00 -Y15RPA-)
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ****** ("C" AT 152+75 -L-)
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ****** ("D" AT 164+25 -L-)
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ****** ("E" AT 160+50 -L-)
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ****** ("F" AT 156+75 -L-)
4102000000-N	904	270	EA	SIGN ERECTION, TYPE E
4108000000-N	904	15	EA	SIGN ERECTION, TYPE F
4109000000-N	904	12	EA	SIGN ERECTION, TYPE *** (OVER-HEAD) (A)
4110000000-N	904	12	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)
4116100000-N	904	6	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (A)
4116100000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (D)
4116100000-N	904	6	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)
4138000000-N	907	6	EA	DISPOSAL OF SUPPORT, STEEL BEAM
4152000000-N	907	3	EA	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
4155000000-N	907	162	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	1,792	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	976	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	666	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	4	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	6	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	1,500	EA	DRUMS
4435000000-N	1135	125	EA	CONES
4445000000-E	1145	2,424	LF	BARRICADES (TYPE III)
4455000000-N	1150	1,560	MD	FLAGGER
4465000000-N	1160	10	EA	TEMPORARY CRASH CUSHIONS
4470000000-N	1160	2	EA	RESET TEMPORARY CRASH CUSHIONS
4480000000-N	1165	4	EA	TMIA
4485000000-E	1170	6,680	LF	PORTABLE CONCRETE BARRIER
4495000000-E	1170	2,230	LF	PORTABLE CONCRETE BARRIER (DRAINAGE)
4500000000-E	1170	2,210	LF	RESET PORTABLE CONCRETE BAR-RIER
4506000000-E	1170	750	LF	RESET PORTABLE CONCRETE BAR-RIER (DRAINAGE)
4510000000-N	SP	160	HR	LAW ENFORCEMENT
4516000000-N	1180	50	EA	SKINNY DRUM
4650000000-N	1251	2,285	EA	TEMPORARY RAISED PAVEMENT MARKERS
4695000000-E	1205	1,536	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4697000000-E	1205	4,060	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)
4705000000-E	1205	88	LF	THERMOPLASTIC PAVEMENT MARKING LINES (16", 120 MILS)
4710000000-E	1205	3,215	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4721000000-E	1205	98	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
4725000000-E	1205	321	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4800000000-N	1205	12	EA	COLD APPLIED PLASTIC PAVEMENT MARKING CHARACTER, TYPE ** (III)
4805000000-N	1205	7	EA	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (III)
4810000000-E	1205	440,465	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	14,862	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	5,352	LF	PAINT PAVEMENT MARKING LINES (24")
4840000000-N	1205	172	EA	PAINT PAVEMENT MARKING CHARAC-TER
4845000000-N	1205	576	EA	PAINT PAVEMENT MARKING SYMBOL
4847000000-E	1205	155,832	LF	POLYUREA PAVEMENT MARKING LINES (4", **********) (HIGHLY REFLECTIVE ELEMENTS)
4847100000-E	1205	4,900	LF	POLYUREA PAVEMENT MARKING LINES (6", **********) (HIGHLY REFLECTIVE ELEMENTS)
4847110000-E	1205	12,836	LF	POLYUREA PAVEMENT MARKING LINES (8", **********) (HIGHLY REFLECTIVE ELEMENTS)
4850000000-E	1205	46,647	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4855000000-E	1205	17	LF	REMOVAL OF PAVEMENT MARKING LINES (6")
4860000000-E	1205	166	LF	REMOVAL OF PAVEMENT MARKING LINES (8")
4870000000-E	1205	238	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
4875000000-N	1205	38	EA	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS
4905000000-N	1253	157	EA	SNOWPLOWABLE PAVEMENT MARKERS
4935000000-N	1267	140	EA	FLEXIBLE DELINEATORS (CRYSTAL)
4940000000-N	1267	116	EA	FLEXIBLE DELINEATORS (YELLOW)
5020000000-N	1401	1	EA	PORTABLE DRIVE UNIT
5025000000-E	1402	28	CY	HIGH MOUNT FOUNDATIONS
5030000000-N	1403	24	EA	HIGH MOUNT LUMINAIRES ******** (750W HPS)
5050000000-N	1404	22	EA	LIGHT STANDARD, TYPE MTLT ********** (45' SA 15')
5070000000-N	1405	22	EA	STANDARD FOUNDATION ********* (TYPE R1)
5080000000-N	1406	22	EA	LIGHT STANDARD LUMINAIRES, TYPE ********** (RDW 250W HPS)
5120000000-N	1407	1	EA	ELECTRIC SERVICE POLE **** ******** (30' CLASS 4)
5125000000-E	1407	50	LF	ELECTRIC SERVICE LATERAL ********** (3,#1/0 USE)
5155000000-E	1409	330	LF	ELECTRICAL DUCT, TYPE BD, SIZE ***** (2")
5160000000-E	1409	860	LF	ELECTRICAL DUCT, TYPE JA, SIZE ***** (3")
5160000000-E	1409	270	LF	ELECTRICAL DUCT, TYPE JA, SIZE ***** (4")

5/28/99

10/5/2011
R:\Roadway\Proj\u4909_rdy_sum.dgn
bpaughline

STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

PROJECT REFERENCE No.	SHEET No.
U-4909	3(2 of 2)

ItemNumber	Sec #	Quantity	Unit	Description
5175000000-E	1410	260	LF	** #6 W/G FEEDER CIRCUIT (2)
5180000000-E	1410	370	LF	** #4 W/G FEEDER CIRCUIT (2)
5185000000-E	1410	370	LF	** #2 W/G FEEDER CIRCUIT (2)
5205000000-E	1410	3,365	LF	** #8 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1-1/2")
5210000000-E	1410	6,070	LF	** #6 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1-1/2")
5215000000-E	1410	1,090	LF	** #4 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1-1/2")
5220000000-E	1410	3,310	LF	** #2 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1-1/2")
5255000000-N	1413	Lump Sum		PORTABLE LIGHTING
5270000000-N	SP	4	EA	GENERIC LIGHTING ITEM 100' HIGH MOUNT STANDARD
5270000000-N	SP	24	EA	GENERIC LIGHTING ITEM ELECTRICAL JUNCTION BOX (PC18)
5270000000-N	SP	4	EA	GENERIC LIGHTING ITEM ELECTRICAL JUNCTION BOX (PC30)
5270000000-N	SP	2	EA	GENERIC LIGHTING ITEM ELECTRICAL JUNCTION BOX (PC36)
5270000000-N	SP	1	EA	GENERIC LIGHTING ITEM LIGHT CONTROL EQUIPMENT, RW, 240/480V, 150A
5325600000-E	1510	48	LF	6" WATER LINE
5325800000-E	1510	705	LF	8" WATER LINE
5326200000-E	1510	78	LF	12" WATER LINE
5326600000-E	1510	212	LF	16" WATER LINE
5327000000-E	1510	584	LF	20" WATER LINE
5327400000-E	1510	749	LF	24" WATER LINE
5546000000-E	1515	1	EA	8" VALVE
5558000000-E	1515	1	EA	12" VALVE
5559000000-E	1515	3	EA	20" VALVE
5559400000-E	1515	1	EA	24" VALVE
5648000000-N	1515	95	EA	RELOCATE WATER METER
5649000000-N	1515	1	EA	RECONNECT WATER METER
5666000000-E	1515	1	EA	FIRE HYDRANT
5672000000-N	1515	33	EA	RELOCATE FIRE HYDRANT
5679600000-E	1515	2	EA	24" LINE STOP
5685400000-E	1515	2	EA	20" LINE STOP WITH BYPASS
5800000000-E	1530	40	LF	ABANDON 6" UTILITY PIPE
5801000000-E	1530	1,242	LF	ABANDON 8" UTILITY PIPE
5804000000-E	1530	69	LF	ABANDON 12" UTILITY PIPE
5810000000-E	1530	207	LF	ABANDON 16" UTILITY PIPE
5812000000-E	1530	448	LF	ABANDON 20" UTILITY PIPE
5813000000-E	1530	533	LF	ABANDON 24" UTILITY PIPE
5815000000-N	1530	25	EA	REMOVE WATER METER
5836400000-E	1540	135	LF	36" ENCASEMENT PIPE
5872200000-E	1550	68	LF	TRENCHLESS INSTALLATION OF 24" IN SOIL
5872210000-E	1550	67	LF	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL
6000000000-E	1605	80,000	LF	TEMPORARY SILT FENCE
6006000000-E	1610	7,000	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	4,200	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	7,000	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	130	ACR	TEMPORARY MULCHING
6018000000-E	1620	3,750	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	16	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	1,500	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	25	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	500	LF	SAFETY FENCE
6030000000-E	1630	14,000	CY	SILT EXCAVATION
6036000000-E	1631	72,800	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	200	SY	COIR FIBER MAT
6038000000-E	SP	900	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	26,000	LF	1/4" HARDWARE CLOTH
6071012000-E	SP	8,500	LF	COIR FIBER WATTLE
6071020000-E	SP	6,700	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	2,000	LF	COIR FIBER BAFFLE
6071050000-E	SP	12	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	105	ACR	SEEDING & MULCHING
6087000000-E	1660	120	ACR	MOWING
6090000000-E	1661	2,000	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	5.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	2,600	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	76	TON	FERTILIZER TOPDRESSING
6114500000-N	SP	100	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	150	EA	RESPONSE FOR EROSION CONTROL
7000000000-E	1705	30	EA	PEDESTRIAN SIGNAL HEAD (**", ** SECTION) (16", 1 SECTION WITH COUNT-DOWN)
7060000000-E	1705	28,135	LF	SIGNAL CABLE
7120000000-E	1705	154	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7132000000-E	1705	20	EA	VEHICLE SIGNAL HEAD (12", 4 SECTION)
7144000000-E	1705	24	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
7252000000-E	1710	9,100	LF	MESSENGER CABLE (1/4")
7264000000-E	1710	10,545	LF	MESSENGER CABLE (3/8")
7288000000-E	1715	610	LF	PAVED TRENCHING (**********) (1, 2")
7300000000-E	1715	17,215	LF	UNPAVED TRENCHING (*********) (1, 2")
7300000000-E	1715	660	LF	UNPAVED TRENCHING (*********) (2, 2")
7301000000-E	1715	1,025	LF	DIRECTIONAL DRILL (*********) (1, 2")
7301000000-E	1715	130	LF	DIRECTIONAL DRILL (*********) (2, 2")
7324000000-N	1716	204	EA	JUNCTION BOX (STANDARD SIZE)
7360000000-N	1720	38	EA	WOOD POLE
7372000000-N	1721	95	EA	GUY ASSEMBLY
7408000000-E	1722	9	EA	1" RISER WITH WEATHERHEAD
7420000000-E	1722	50	EA	2" RISER WITH WEATHERHEAD
7444000000-E	1725	27,185	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	75,235	LF	LEAD-IN CABLE (**********) (14-2)
7484000000-N	SP	5	EA	MICROWAVE VEHICLE DETECTOR
7575142000-N	SP	14	EA	900MHZ WIRELESS RADIO SYSTEM
7575160000-E	1734	10,000	LF	REMOVE EXISTING COMMUNICATIONS CABLE
7576000000-N	SP	36	EA	METAL STRAIN SIGNAL POLE
7588000000-N	SP	2	EA	METAL POLE WITH SINGLE MAST ARM
7590000000-N	SP	2	EA	METAL POLE WITH DUAL MAST ARM
7613000000-N	SP	40	EA	SOIL TEST
7614100000-E	SP	252	CY	DRILLED PIER FOUNDATION
7624000000-N	1743	10	EA	SIGNAL PEDESTAL WITH FOUNDATION
7631000000-N	SP	4	EA	MAST ARM WITH METAL POLE DESIGN
7636000000-N	1745	63	EA	SIGN FOR SIGNALS
7684000000-N	1750	13	EA	SIGNAL CABINET FOUNDATION
7756000000-N	1751	13	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
7780000000-N	1751	91	EA	DETECTOR CARD (TYPE 2070L)
7901000000-N	1753	13	EA	CABINET BASE EXTENDER
7948000000-N	SP	1	EA	TRAFFIC SIGNAL REMOVAL
7980000000-N	SP	6	EA	GENERIC SIGNAL ITEM MODIFY RADIO INSTALLATION
******* BEGIN SCHEDULE AA ******* ******* (3 ALTERNATES) *******				
0022000000-E AA1	225	262,000	CY	UNCLASSIFIED EXCAVATION
1121000000-E AA1	520	44,080	TON	AGGREGATE BASE COURSE
1231000000-E AA1	560	17,900	CY	SHOULDER BORROW
1491000000-E AA1	610	60,340	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1575000000-E AA1	SP	9,875	TON	ASPHALT BINDER FOR PLANT MIX
*** OR ***				
0022000000-E AA2	225	257,000	CY	UNCLASSIFIED EXCAVATION
0106000000-E AA2	230	9,000	CY	BORROW EXCAVATION
1121000000-E AA2	520	9,120	TON	AGGREGATE BASE COURSE
1491000000-E AA2	610	75,640	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1575000000-E AA2	SP	10,550	TON	ASPHALT BINDER FOR PLANT MIX
*** OR ***				
0022000000-E AA3	225	260,000	CY	UNCLASSIFIED EXCAVATION
1121000000-E AA3	520	9,120	TON	AGGREGATE BASE COURSE
1154000000-E AA3	540	42,530	TON	AGGREGATE FOR CEMENT TREATED BASE COURSE
1165000000-E AA3	540	1,720	TON	PORTLAND CEMENT FOR CEMENT TREATED BASE COURSE
1209000000-E AA3	543	11,390	GAL	ASPHALT CURING SEAL
1231000000-E AA3	560	17,300	CY	SHOULDER BORROW
1491000000-E AA3	610	45,240	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1575000000-E AA3	SP	9,210	TON	ASPHALT BINDER FOR PLANT MIX
2143000000-E AA3	818	20	TON	BLOTTING SAND
******* END SCHEDULE AA *******				

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-A

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 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 THICKNESS OR GAUGE .064 | .064 | .064 | .064 | .079 | .079 | .109 | .109 | R.C. PIPE CLASS III SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS IV SIZE 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 850.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
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COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-B

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE 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" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 850.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-C

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 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 SIZE 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS III SIZE 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV SIZE 12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE																				.064	.064	.064	.064	.079	.079	.109	.109																
SHEETS 5 & 6																																											
-L- 50+50	CL	75		963.67																																							
-L- 50+50	CL	75	76		960.67	960.02																														200							
-L- 52+50	CL	76		961.94																																							
-L- 52+50	CL	76	77		960.02	959.31																						136															
-L- 53+84	CL	77		961.23																																							
-L- 53+84	CL	77	78		959.31	958.05																														44							
-L- 53+84	LT	78		959.97																																							
-L- 53+84	LT	78	80		957.80	956.26				24																																	
SHEET 6																																											
-Y4- 21+05	RT	82		958.92																																							
-Y4- 21+05	RT	82	81		955.92	955.87				20								X	X																									
-Y4- 19+23	RT	83																																									
-Y4- 18+06	RT	84																																										
-Y4- 16+48	RT	85										23																															
-L- 57+25	LT	90		963.45																																							
-L- 57+25	LT	90	89		960.45	959.45																														48							
-L- 56+75	LT	89		962.45																																							
-L- 56+75	LT	89	87		959.45	958.33				88								X	X																									
-Y4- 22+02	LT	88		960.90																																							
-Y4- 22+02	LT	88	87		958.65	958.33				12								X	X																									
-Y4- 22+00	LT	87		961.33																																							
-Y4- 22+00	LT	87	86		958.08	957.64					60							X	X																									
-L- 57+60	CL	94		966.40																																							
-L- 57+60	CL	94	93		963.23	962.20																														52							
-L- 57+10	CL	93		965.37																																							
-L- 57+10	CL	93	92		962.20	961.03																														40							
-Y4- 23+79	CL	92		965.93																																							
-Y4- 23+79	CL	92	91		959.00	957.22																																36					
-Y4- 26+68	LT	95																																									
-L- 57+09	RT																																										
-L- 58+91	LT																																										
-L- 61+08	LT																																										
-L- 61+38	RT																																										
-L- 61+90	LT																																										
SHEETS 6 & 7																																											
-L- 63+88	CL	96		971.00																																							
-L- 63+88	CL	96	97		967.83	966.87																														44							
-L- 63+89	LT	97		969.87																																							
-L- 63+89	LT	97	98		966.87	964.15																														128							
-L- 65+15	LT	98		967.15																																							
-L- 65+15	LT	98	99		964.15	961.65																														204							
-L- 66+50	RT	104		965.15																																							
-L- 66+50	RT	104	103		962.15	961.54																														128							
-L- 67+11	RT	105		964.30																																							
-L- 67+11	RT	105	106		962.05	961.83				64								X	X																									
-L- 67+76	RT	106		965.00																																							
-L- 67+76	RT	106	103		961.83	961.54				16							X			X																								
-L- 69+28	RT	108		965.15																																							
-L- 69+28	RT	108	107		962.15	961.63																														104							
-L- 68+25	RT	107		964.63																																							
-L- 68+25	RT	107	103		961.63	961.48																														48							
SHEET TOTALS								0	200	84	23	0	0	0	0					0	0	0	0	0	0	0	0	136	0	0	0	0	0	0	0	0	1040	0	36	0	0	0	0	0

STATION	** " " 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')	LIN. FT. A 5.0' THRU 10.0'	LIN. FT. B 10.0' AND ABOVE	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')	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	M.D.J. TYPE "B" STD. 840.18 OR 840.27	M.D.J. TYPE "D" STD. 840.19 OR 840.28	ADJUSTMENT OF CATCH BASIN	T.B.G.D.I. STD. 840.35	CONVERT DI TO JB W/ MH	M.D.J. FRAME WITH TWO GRATES STD. 840.22	M.D.J. (N.S.) FRAME WITH TWO GRATES STD. 840.24	M.D.J. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29	M.D.J. FRAME WITH ONE GRATE STD. 840.22	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	B.D.O. TYPE "D" STD. 858.10	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG C.Y. STD. 840.70	PIPE REMOVAL LIN. FT.	REMARKS
SHEETS 5 & 6																																					
-L- 50+50								1				1			1		1																				
-L- 50+50																																					
-L- 52+50								1								1							1				1										
-L- 52+50																																					
-L- 53+84								2								2							2				2										
-L- 53+84																																					
-L- 53+84								2															2				2										
-L- 53+84																																					
SHEET 6																																					
-Y4- 21+05								2				2			2																						
-Y4- 21+05																																				201	
-Y4- 19+23				21																																21	
-Y4- 18+06				18																																18	
-Y4- 16+48																																				23	
-L- 57+25								1				1		1																							
-L- 57+25																																					
-L- 56+75								1				1		1																							
-L- 56+75																																					
-Y4- 22+02								1										1	1																		
-Y4- 22+02																																					
-Y4- 22+00								1				1		1																							
-Y4- 22+00																																					
-L- 57+60								1								1		1	1																		
-L- 57+60																																					
-L- 57+10								1								1		1	1																		
-L- 57+10																																				582	
-Y4- 23+79								1	1.93																							1	1				
-Y4- 23+79																																		0.55		13	
-Y4- 26+68				26																																	
-L- 57+09																																				64	
-L- 58+91																																				340	
-L- 61+08																																				87	
-L- 61+38																																				40	
-L- 61+90																																				78	
SHEETS 6 & 7																																					
-L- 63+88								1								1		1	1																		
-L- 63+88																																					
-L- 63+89								1				1			1																						
-L- 63+89																																					
-L- 65+15								1				1			1																						
-L- 65+15																																				210	
-L- 66+50								1				1		1																							
-L- 66+50																																				121	
-L- 67+11								1										1	1																		
-L- 67+11																																					
-L- 67+76								1										1	1																		
-L- 67+76																																					
-L- 69+28								1				1			1																						
-L- 69+28																																					
-L- 68+25								1				1			1																						
-L- 68+25																																					
SHEET TOTALS				26	39	0	0	23	1.93	0.00		11	0	4	7	6	1	6	6	0	0	0	5	0	0	0	5	0	0	1	1	0		0.55	0.000	1,798	

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

5/28/99

10/13/2011
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nharris

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-D

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 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 SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS III SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS IV SIZE 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') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | "TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') | 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 850.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-E

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 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 SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS III SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS IV SIZE 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') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | 'TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' * (1.3 X COL. 'B') | 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 850.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-F

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 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 SIZE 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS III SIZE 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV SIZE 12"	15"	18"	24"	30"	36"	42"	48"
								THICKNESS OR GAUGE												.064	.064	.064	.064	.079	.079	.109	.109																
SHEETS 9 & 10 CONT'D.																																											
-L- 109+00	RT	169		958.11																																							
-L- 109+00	RT	169	168		955.07	954.86																															68						
-L- 108+33	RT	168		957.94																																							
-L- 108+33	RT	168	167		954.86	954.20																															56						
-L- 107+79	RT	167		958.05																																							
-L- 107+79	RT	167	158		954.20	953.86																																	88				
-L- 106+00	LT	157		959.32																																							
-L- 106+00	LT	157	158		956.32	955.00																															196						
-L- 107+95	LT	158		958.00																																							
-L- 107+95	LT	158	159		953.86	953.66																																	40				
-L- 108+33	CL	160		958.84																																							
-L- 108+33	CL	160	159		955.84	954.94																																	40				
-L- 108+33	LT	159		957.94																																							
-L- 108+33	LT	159	161		953.66	953.00																																	120				
-L- 109+51	LT	161		958.07																																							
-L- 109+51	LT	161	162		953.00	950.21					88						X	X																									
-Y10- 14+02	RT	162		953.96																																							
-Y10- 14+02	RT	162	164		950.21	949.00					88						X	X																									
SHEET 10																																											
-Y10- 13+91	LT	165		953.71																																							
-Y10- 13+91	LT	165	166		950.71	950.65			24								X	X																									
-Y11- 10+67	LT	172		956.08																																							
-Y11- 10+67	LT	172	176		953.83	953.64			24								X	X																									
-Y11- 10+74	LT	176		958.31																																							
-Y11- 10+74	LT	176	173		953.64	953.52				36							X	X																									
-Y11- 10+76	RT	173		958.30																																							
-Y11- 10+76	RT	173	174		953.52	953.43				24							X	X																									
-Y11- 10+75	RT	174		955.94																																							
-Y11- 10+75	RT	174	175		952.94	952.78					28						X	X																									
-L- 114+74	RT	175		958.06																																							
-L- 114+74	RT	175	177		952.78	952.46																																	104				
-L- 116+91	CL	182		960.76																																							
-L- 116+91	CL	182	181		957.76	956.76																															52						
-L- 116+38	CL	181		959.76																																							
-L- 116+38	CL	181	180		956.76	955.28																															68						
-L- 116+11	LT	180		958.28																																							
-L- 116+11	LT	180	177		955.28	954.58																															104						
-L- 114+58	LT	178		957.71																																							
-L- 114+58	LT	178	177		954.71	954.55																															52						
-L- 115+08	LT	177		957.58																																							
-L- 115+08	LT	177	179		952.46	950.16					36						X	X																									
-L- 110+37	LT																																										
-L- 110+87	LT																																										
-L- 115+58	RT																																										
SHEET 11																																											
-L- 123+00	RT	183		962.78																																							
-L- 123+00	RT	183	184		959.78	959.05																															120						
-L- 124+00	CL	187		962.98																																							
-L- 124+00	CL	187	184		959.81	959.05																															40						
-L- 124+19	RT	184		962.05																																							
-L- 124+19	RT	184	185		959.05	958.85																															64						
SHEET TOTALS								0	48	60	240	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	820	0	392	0	0	0	0

STATION	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')	LIN. FT. A 5.0' THRU 10.0'	LIN. FT. B 10.0' AND ABOVE	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B')	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	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	ADJUSTMENT OF CATCH BASIN	T.B.G.D.I. STD. 840.35	CONVERT DI TO JB W/ MH	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29	M.D.I. FRAME WITH ONE GRATE STD. 840.22	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	B.D.O. TYPE "D" STD. 850.10	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG C.Y. STD. 840.70	PIPE REMOVAL LIN. FT.	REMARKS
SHEETS 9 & 10 CONT'D.																																					
-L- 109+00								1				1			1																						
-L- 109+00																																					
-L- 108+33								1				1	1																								
-L- 108+33																																					
-L- 107+79								1				1		1																							
-L- 107+79																																					
-L- 106+00								1				1			1																						
-L- 106+00																																					
-L- 107+95								1				1			1																					0.130	
-L- 107+95																																					
-L- 108+33								1				1	1				1																				
-L- 108+33																																					
-L- 108+33								1				1	1																								
-L- 108+33																																					
-L- 109+51								1	0.07			1			1																						
-L- 109+51																																					
-Y10- 14+02								1				1			1																						
-Y10- 14+02																																					
SHEET 10																																					
-Y10- 13+91								2				2		2																							
-Y10- 13+91																																					
-Y11- 10+67								1										1	1																0.130		
-Y11- 10+67																																					
-Y11- 10+74								1				1			1																						
-Y11- 10+74																																					
-Y11- 10+76								1				1		1																							
-Y11- 10+76																																					
-Y11- 10+75								1										1	1																		
-Y11- 10+75																																					
-L- 114+74								1	0.28			1		1																							
-L- 114+74																																					
-L- 116+91								1				1		1					1																		
-L- 116+91																																					
-L- 116+38								1				1		1					1																		
-L- 116+38																																					
-L- 116+11								1				1		1																							
-L- 116+11																																					
-L- 114+58								1				1			1																						
-L- 114+58																																					
-L- 115+08								1	0.12			1	1																								
-L- 115+08																																					
-L- 110+37																																				35	
-L- 110+87																																				135	
-L- 115+58																																				143	
SHEET 11																																					
-L- 123+00								1				1		1																							
-L- 123+00																																					
-L- 124+00								1								1		1	1																		
-L- 124+00																																					
-L- 124+19								1				1	1																								
-L- 124+19																																					
SHEET TOTALS	0	0	0	0	0	0	0	24	0.47	0.00		21	5	10	6	1	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0		0.00	0.260	313		

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

5/28/99

10/13/2011
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mbarris

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-G

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 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 SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS III SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS IV SIZE 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') | LIN. FT. 5.0' THRU 10.0' A | LIN. FT. 10.0' AND ABOVE B | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') | 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 859.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-H

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 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 SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 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') | LIN. FT. 5.0' THRU 10.0' A | LIN. FT. 10.0' AND ABOVE B | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') | 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 850.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
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COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-1

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT, RT, OR CL)*	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE	12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE												
SHEET 13 CONT'D.																				
-L_NB- 161+15	LT	241		961.15																
-L_NB- 161+15	LT	241	242		958.15	951.00				64							X			X
-L- 162+65	CL																			
-L- 165+70	CL																			
-Y15_RPA- 17+65	CL																			
SHEETS 13 & 14																				
-Y15_RPA- 20+24	LT	243		961.37																
-Y15_RPA- 20+24	LT	243	244		958.37	958.23														
-L_SB- 161+60	RT	244		962.00																
-L_SB- 161+60	RT	244	246		958.23	957.77				152								X	X	
-L_NB- 163+53	RT	245		964.61																
-L_NB- 163+53	RT	245	246		961.61	960.23														
-L- 168+16	RT	250		969.13																
-L- 168+16	RT	250	251		966.13	964.55														
-L_NB- 167+35	RT	251		967.55																
-L_NB- 167+35	RT	251	253		964.55	962.43														
-L_NB- 165+61	RT	252	253		960.40	960.29				36								X	X	
-L_NB- 165+46	RT	253		965.43																
-L_NB- 165+46	RT	253	246		960.29	959.59					204							X	X	
-Y15_SPA- 11+76	RT	246		963.23																
-Y15_SPA- 11+76	RT	246	247		957.77	956.70					88							X	X	
-L- 169+00	CL	254		971.97																
-L- 169+00	CL	254	255		968.80	967.07														
-L- 167+82	CL	255		970.24																
-L- 167+82	CL	255	256		967.07	966.91														
-L- 167+82	LT	256		970.64																
-L- 167+82	LT	256	257		966.91	964.01														
-L- 166+07	LT	257		967.01																
-L- 166+07	LT	257	248		964.01	961.23				320								X	X	
-Y15_SPD- 12+07	LT	248		964.23																
-Y15_SPD- 12+07	LT	248	249		961.23	958.42				108								X	X	
-Y15_RPA- 17+59	LT	243A		952.66																
-Y15_RPA- 17+59	LT	243A	243B		949.66	944.75				104								X	X	
SHEET 14																				
-L- 172+55	LT	263		971.67																
-L- 172+55	LT	263	264		969.75	969.55														
-L- 172+53	CL	264		972.95																
-L- 172+53	CL	264	265		969.55	967.69														
-L- 172+53	RT	265		970.69																
-L- 172+53	RT	265	266		967.69	965.82														
-L- 173+76	RT	266		968.82																
-L- 173+76	RT	266	267		965.57	965.22														
-L- 174+56	RT	267		968.47																
-L- 174+56	RT	267	268		965.22	965.00														
-L- 175+08	RT	268		968.25																
-L- 175+08	RT	268	269		964.50	964.06														
-L- 177+00	RT	270		968.00																
-L- 177+00	RT	270	269		965.00	964.78														
-L- 176+29	RT	269		967.81																
-L- 176+29	RT	269	271		964.06	963.92														
-L- 176+29	CL	271		968.92																
-L- 176+29	CL	271	272		963.92	963.71														
SHEET TOTALS									0	784	292	0	0	0	0	0				

STATION	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"
SHEET 13 CONT'D.																								
-L_NB- 161+15																								
-L_NB- 161+15																								
-L- 162+65																								
-L- 165+70																								
-Y15_RPA- 17+65																								
SHEET 13 & 14																								
-Y15_RPA- 20+24																								
-Y15_RPA- 20+24																		44						
-L_SB- 161+60																								
-L_SB- 161+60																								
-L_NB- 163+53																								
-L_NB- 163+53																		28						
-L- 168+16																								
-L- 168+16																		124						
-L_NB- 167+35																								
-L_NB- 167+35																		188						
-L_NB- 165+61																								
-L_NB- 165+46																								
-L_NB- 165+46																								
-Y15_SPA- 11+76																								
-Y15_SPA- 11+76																								
-L- 169+00																								
-L- 169+00																		120						
-L- 167+82																								
-L- 167+82																		44						
-L- 167+82																								
-L- 167+82																		176						
-L- 166+07																								
-L- 166+07																								
-Y15_SPD- 12+07																								
-Y15_SPD- 12+07																								
-Y15_RPA- 17+59																								
-Y15_RPA- 17+59																								
SHEET 14																								
-L- 172+55																								
-L- 172+55																		64						
-L- 172+53																								
-L- 172+53																		76						
-L- 172+53																								
-L- 172+53																			120					
-L- 173+76																								
-L- 173+76																			80					
-L- 174+56																								
-L- 174+56																			52					
-L- 175+08																								
-L- 175+08																				120				
-L- 177+00																								
-L- 177+00																		72						
-L- 176+29																								
-L- 176+29																				44				
-L- 176+29																								
-L- 176+29																				68				
SHEET TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	936	252	232	0	0	0	0

STATION	** " 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')	LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	"TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B')"	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	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	ADJUSTMENT OF CATCH BASIN	T.B.G.D.I. STD. 840.35	CONVERT DI TO JB W/ MH	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29	M.D.I. FRAME WITH ONE GRATE STD. 840.22	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	B.D.O. TYPE "D" STD. 850.10	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG C.Y. STD. 840.70	PIPE REMOVAL LIN. FT.	REMARKS
SHEET 13 CONT'D.																																					
-L_NB- 161+15								1			1		1				1																				
-L_NB- 161+15																															2@15"						
-L- 162+65																																		130			
-L- 165+70																																		70			
-Y15_RPA- 17+65																																		109			
SHEET 13 & 14																																					
-Y15_RPA- 20+24								1			1		1																								
-Y15_RPA- 20+24																																					
-L_SB- 161+60								1			1			1		1																					
-L_SB- 161+60																																		121			
-L_NB- 163+53								1			1	1				1																					
-L_NB- 163+53																																					
-L- 168+16								1			1			1																							
-L- 168+16																																					
-L_NB- 167+35								1			1			1																							
-L_NB- 167+35																																					
-L_NB- 165+61																																					
-L_NB- 165+46								1		0.14		1			1																						
-L_NB- 165+46																																					
-Y15_SPA- 11+76								1				1			1																						
-Y15_SPA- 11+76																																					
-L- 169+00								1									1		1	1																	
-L- 169+00																																					
-L- 167+82								1									1		1	1																	
-L- 167+82																																					
-L- 167+82								1				1			1																						
-L- 167+82																																					
-L- 166+07								1				1			1																						
-L- 166+07																																					
-Y15_SPD- 12+07								2				2			2																						
-Y15_SPD- 12+07																																					
-Y15_RPA- 17+59								1				1			1																						
-Y15_RPA- 17+59																																					
SHEET 14																																					
-L- 172+55								1													1			1													
-L- 172+55																																					
-L- 172+53								1									1		1	1																	
-L- 172+53																																					
-L- 172+53								1				1			1																						
-L- 172+53																																					
-L- 173+76								1				1			1																						
-L- 173+76																																					
-L- 174+56								1				1			1																						
-L- 174+56																																					
-L- 175+08								1				1			1																						
-L- 175+08																																					
-L- 177+00								1				1			1																						
-L- 177+00																																					
-L- 176+29								1				1	1																								
-L- 176+29																																					
-L- 176+29								1									1		1	1																	
-L- 176+29																																					
SHEET TOTALS	0	0	0	0	0	0	0	24	0.14	0.00		19	2	11	6	4	3	4	4	0	1	0	0	0	0	1	0	0	0	0	0	2@15"	0.00	0.000	430	

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

5/28/99

10/13/2011
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charris

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-J

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | LOCATION (LT, RT, OR CL)* | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE*CRITICAL | DRAINAGE 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') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" * (1.3 X COL."B") | 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 850.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
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COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-K

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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 | DRAINAGE 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') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') | 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 850.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
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COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-L

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE 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" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 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. | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | LIN. FT. 5.0' THRU 10.0' A | LIN. FT. 10.0' AND ABOVE B | "TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') | 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 838.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
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COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-M

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 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 THICKNESS OR GAUGE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 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') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | "TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B')" | 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 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | ADJUSTMENT OF CATCH BASIN | T.B.G.D.I. STD. 840.35 | CONVERT DI TO JB W/ MH | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29 | M.D.I. FRAME WITH ONE GRATE STD. 840.22 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | M.H. FRAME AND COVER STD. 840.54 | B.D.O. TYPE "D" STD. 850.10 | DRAINAGE PIPE ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG C.Y. STD. 840.70 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-N

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE											
SHEET 22																			
-Y13- 19+63	CL	391		962.24															
-Y13- 19+63	CL	391	392		959.07	958.70													
-Y13- 19+63	RT	392		961.70															
-Y13- 19+63	RT	392	393		958.70	958.13													
-Y13- 18+15	RT	393		961.13															
-Y13- 18+15	RT	393	394		958.13	957.67													
-Y13- 16+64	RT	394		960.76															
-Y13- 16+64	RT	394	395		957.67	952.46													
-Y13- 13+64	RT	395		955.46															
-Y13- 13+64	RT	395	396		952.46	948.65													
-Y13- 12+22	RT	396		951.65															
-Y13- 12+22	RT	396	397		948.65	947.80			80								X	X	
-Y13- 17+35	LT	389			958.03	957.70			24								X	X	
-Y13- 18+10	LT	390			958.60	957.49			24								X	X	
-Y13- 11+72	LT	387																	
-Y13- 16+88	LT	388																	
-Y13- 18+74	RT																		
SHEET 23																			
-Y17- 12+10	RT	398																	
-Y17- 11+46	LT	399																	
-Y17- 11+77	LT	400																	
-Y17- 13+45	LT	401																	
-Y17- 13+93	LT	402																	
-Y17- 14+59	LT	403																	
SHEET 24																			
-Y23- 11+76	LT	404																	
-Y23- 12+64	LT	405																	
-Y23- 14+04	LT	406																	
-Y23- 14+46	LT	407																	
SHEET 25																			
-Y23- 28+28	LT	412		962.00															
-Y23- 28+28	LT	412	413		958.83	958.68													
-Y23- 28+76	LT	413		962.00															
-Y23- 28+76	LT	413	414		958.68	958.61			20								X	X	
-Y23- 28+89	LT	414		962.12															
-Y23- 28+89	LT	414	415		958.61	957.69													
-Y23- 28+89	RT	415		960.69															
-Y23- 28+89	RT	415	416		957.69	949.20													
-Y23- 31+89	RT	416		952.20															
-Y23- 31+89	RT	416	417		949.20	943.57													
-Y23- 32+08	LT	422		952.25															
-Y23- 32+08	LT	422	421		949.08	948.59			16								X	X	
-Y23- 32+08	LT	421		951.59															
-Y23- 32+08	LT	421	419		948.59	943.98													
-Y23- 33+56	LT	420		947.00															
-Y23- 33+56	LT	420	419		943.83	943.78			16								X	X	
SHEET TOTALS								0	180	0	0	0	0	0	0				

STATION	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"
SHEET 22																								
-Y13- 19+63																								
-Y13- 19+63																		40						
-Y13- 19+63																								
-Y13- 19+63																		148						
-Y13- 18+15																								
-Y13- 18+15																		152						
-Y13- 16+64																								
-Y13- 16+64																		300						
-Y13- 13+64																								
-Y13- 13+64																		144						
-Y13- 12+22																								
-Y13- 12+22																								
-Y13- 17+35																								
-Y13- 18+10																								
-Y13- 11+72																								
-Y13- 16+88																								
-Y13- 18+74																								
SHEET 23																								
-Y17- 12+10																								
-Y17- 11+46																								
-Y17- 11+77																								
-Y17- 13+45																								
-Y17- 13+93																								
-Y17- 14+59																								
SHEET 24																								
-Y23- 11+76																								
-Y23- 12+64																								
-Y23- 14+04																								
-Y23- 14+46																								
SHEET 25																								
-Y23- 28+28																								
-Y23- 28+28																		48						
-Y23- 28+76																								
-Y23- 28+76																								
-Y23- 28+89																								
-Y23- 28+89																		48						
-Y23- 28+89																								
-Y23- 28+89																		300						
-Y23- 31+89																								
-Y23- 31+89																		184						
-Y23- 32+08																								
-Y23- 32+08																								
-Y23- 32+08																								
-Y23- 32+08																		152						
-Y23- 33+56																								
-Y23- 33+56																								
SHEET TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1516	0	0	0	0	0	0

STATION	* " 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. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. FT. 5.0' THRU 10.0' A	10.0' AND ABOVE B	"TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B')	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	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	ADJUSTMENT OF CATCH BASIN	T.B.G.D.I. STD. 840.35	CONVERT DI TO JB W/ MH	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29	M.D.I. FRAME WITH ONE GRATE STD. 840.22	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	B.D.O. TYPE "D" STD. 850.10	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG C.Y. STD. 840.70	PIPE REMOVAL LIN. FT.	REMARKS
SHEET 22																																						
-Y13- 19+63								1								1																						
-Y13- 19+63																																						
-Y13- 19+63								1				1			1																							
-Y13- 19+63																																						
-Y13- 18+15								1				1			1																							
-Y13- 18+15																																						
-Y13- 16+64								1				1			1																							
-Y13- 16+64																																						
-Y13- 13+64								1				1			1																							
-Y13- 13+64																																						
-Y13- 12+22								1				1			1																							
-Y13- 12+22																																						
-Y13- 17+35																																						
-Y13- 18+10																																						
-Y13- 11+72				22																																		
-Y13- 16+88				24																																		
-Y13- 18+74																																					58	
SHEET 23																																						
-Y17- 12+10				28																																		
-Y17- 11+46				28																																		
-Y17- 11+77				30																																		
-Y17- 13+45				22																																		
-Y17- 13+93				18																																		
-Y17- 14+59				18																																		
SHEET 24																																						
-Y23- 11+76				24																																		
-Y23- 12+64				24																															0.090			
-Y23- 14+04				24																																		
-Y23- 14+46				24																																		
SHEET 25																																						
-Y23- 28+28								1									1	1																				
-Y23- 28+28																																						
-Y23- 28+76								1									1	1																				
-Y23- 28+76																																						
-Y23- 28+89								1					1	1																							60	
-Y23- 28+89																																						
-Y23- 28+89								1					1	1																								
-Y23- 28+89																																						
-Y23- 31+89								1					1		1																							
-Y23- 31+89																																						
-Y23- 32+08								1									1	1																				
-Y23- 32+08																																						
-Y23- 32+08								1					1	1																								
-Y23- 32+08																																						
-Y23- 33+56								1									1	1																				
-Y23- 33+56																																						
SHEET TOTALS	0	0	0	286	0	0	0	14	0.00	0.00	9	3	0	6	1	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.090	118	

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

5/28/99

10/13/2011
R:\Roadway\Proj\u4909_rdy_sum_drn.dgn
mharris

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-0

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE 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
SIZE / THICKNESS OR GAUGE																			
SHEET 25 CONT'D.																			
-Y23- 33+60	LT	419		946.98															
-Y23- 33+60	LT	419	417		943.78	943.57													
-Y23- 33+73	RT	417		946.57															
-Y23- 33+73	RT	417	418		943.32	943.05				28							X	X	
SHEET TOTALS								0	0	28	0	0	0	0	0				
SHEET 3-A TOTALS								0	608	92	36	0	172	0	0				
SHEET 3-B TOTALS								0	380	64	0	56	0	0	0				
SHEET 3-C TOTALS								0	200	84	23	0	0	0	0				
SHEET 3-D TOTALS								0	628	52	112	0	0	0	0				
SHEET 3-E TOTALS								0	116	116	56	44	0	0	0				
SHEET 3-F TOTALS								0	48	60	240	0	0	0	0				
SHEET 3-G TOTALS								0	208	68	40	0	0	0	0				
SHEET 3-H TOTALS								0	388	692	0	0	0	0	0				
SHEET 3-I TOTALS								0	784	292	0	0	0	0	0				
SHEET 3-J TOTALS								0	810	0	216	0	0	0	0				
SHEET 3-K TOTALS								0	120	20	0	0	28	0	0				
SHEET 3-L TOTALS								0	564	0	184	308	0	0	0				
SHEET 3-M TOTALS								0	174	8	0	0	0	0	0				
SHEET 3-N TOTALS								0	180	0	0	0	0	0	0				
SHEET 3-P TOTALS																			
PROJECT TOTALS								0	5,208	1,576	907	408	200	0	0				
SAY								0	5,264	1,592	920	416	204	0	0				

STATION	C.S. PIPE 12"	15"	18"	24"	30"	36"	42"	48"	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"
SIZE / THICKNESS OR GAUGE	.064	.064	.064	.064	.079	.079	.109	.109																
SHEET 25 CONT'D.																								
-Y23- 33+60																								
-Y23- 33+60																		32						
-Y23- 33+73																								
-Y23- 33+73																								
SHEET TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	0	0	0	0
SHEET 3-A TOTALS	0	0	0	0	0	0	0	0	0	84	0	0	0	0	0	0	0	796	160	0	0	0	0	0
SHEET 3-B TOTALS	0	0	0	0	0	0	0	0	0	92	64	172	0	0	0	0	0	560	296	0	0	0	0	0
SHEET 3-C TOTALS	0	0	0	0	0	0	0	0	0	136	0	0	0	0	0	0	0	1,040	0	36	0	0	0	0
SHEET 3-D TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,052	144	0	0	0	0	0
SHEET 3-E TOTALS	0	0	0	0	0	0	0	0	0	140	0	52	0	0	0	0	0	1,270	100	184	0	0	0	0
SHEET 3-F TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	820	0	392	0	0	0	0
SHEET 3-G TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,960	0	0	0	0	0	0
SHEET 3-H TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	764	0	0	0	0	0	0
SHEET 3-I TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	936	252	232	0	0	0	0
SHEET 3-J TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	92	668	0	0	0	0
SHEET 3-K TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,124	0	716	0	36	0	0
SHEET 3-L TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	316	160	160	52	0	0	0
SHEET 3-M TOTALS	0	0	0	0	0	0	0	0	0	292	80	20	0	0	0	0	0	36	112	0	0	0	0	0
SHEET 3-N TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,516	0	0	0	0	0	0
SHEET 3-P TOTALS																								
PROJECT TOTALS	0	0	0	0	0	0	0	0	0	744	144	244	24	0	0	0	0	12,266	1,316	2,388	52	36	0	0
SAY	0	0	0	0	0	0	0	0	0	752	148	248	28	0	0	0	0	12,392	1,332	2,412	56	40	0	0

STATION	*** 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 (2 Grates)	M.D.I. TYPE "B" STD. 840.19 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	ADJUSTMENT OF CATCH BASIN	T.B.G.D.I. STD. 840.35	CONVERT DI TO JB W/ WH	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29	M.D.I. FRAME WITH ONE GRATE STD. 840.22	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	M.H. FRAME AND COVER STD. 840.54	B.D.O. TYPE "D" STD. 850.10	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG C.Y. STD. 840.70	PIPE REMOVAL LIN. FT.	REMARKS
SHEET 25 CONT'D.																																							
-Y23- 33+60								1			1		1																										
-Y23- 33+60																																						45	
-Y23- 33+73								1			1	1																											
-Y23- 33+73																																							
SHEET TOTALS	0	0	0	0	0	0	0	2	0.00	0.00	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0.000	0.000	45	
SHEET 3-A TOTALS	0	0	0	0	0	2.8	0	20	8.74	0.00	16	3	6	7	3	0	3	3	0	0	0	0	0	0	0	0	1	1	1	4@15"	0.000	0.130	142	
SHEET 3-B TOTALS	0	0	0	0	0	0	0	22	8.05	0.78	12	2	7	3	1	0	1	1	2	4	0	0	1	6	0	0	0	2	1	4	1	2@15"	1.300	0.116	325	
SHEET 3-C TOTALS	0	0	0	0	0	0	0	23	1.93	0.00	11	0	4	7	6	1	6	6	0	0	0	5	0	0	0	5	0	0	1	1	0		0.550	0.000	1,798	
SHEET 3-D TOTALS	0	0	0	0	0	0	0	22	15.65	0.00	21	9	5	7	1	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2@15"	0.000	0.000	927	
SHEET 3-E TOTALS	0	0	0	0	0	0	0	24	3.65	0.00	22	4	7	11	0	11	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2@30"	0.000	0.000	52	
SHEET 3-F TOTALS	0	0	0	0	0	0	0	24	0.47	0.00	21	5	10	6	1	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0		0.000	0.260	313	
SHEET 3-G TOTALS	0	0	0	0	0	0	0	26	5.44	0.00	23	2	15	6	1	6	2	2	0	0	0	0	0	0	0	0	0	1	1	0	0		0.000	0.045	0	
SHEET 3-H TOTALS	0	0	0	0	0	0	0	24	20.84	0.07	20	2	12	6	2	6	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2@15"	0.656	0.175	562	
SHEET 3-I TOTALS	0	0	0	0	0	0	0	24	0.14	0.00	19	2	11	6	4	3	4	4	0	1	0	0	0	0	1	0	0	0	0	0	0	2@15"	0.000	0.000	430	
SHEET 3-J TOTALS	0	0	0	0	0	150	27	0	20	0.44	0.00	14	1	9	4	0	0	5	5	0	0	0	0	0	0	0	0	0	1	1	0		0.000	0.000	344	
SHEET 3-K TOTALS	0	0	0	0	0	56	0	0	25	0.21	0.00	19	2	9	8	3	0	3	3	0	3	0	0	0	0	3	0	0	0	0	0	4@15"	0.800	0.000	42	
SHEET 3-L TOTALS	0	0	0	0	0	0	0	0	27	13.47	0.00	17	4	5	8	4	3	10	10	0	0	0	0	0	0	0	0	0	0	0	0	2@24"	0.000	0.260	0	
SHEET 3-M TOTALS	0	0	0	0	0	242	0	0	14	0.00	0.00	2	0	1	1	1	0	3	3	4	5	1	0	0	8	1	0	0	0	0	0		1.000	0.000	210	
SHEET 3-N TOTALS	0	0	0	0	0	286	0	0	14	0.00	0.00	9	3	0	6	1	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0		0.000	0.090	118	
SHEET 3-P TOTALS																																	2.580			
PROJECT TOTALS	0	0	0	0	0	964	66	2.8	0	311	79.03	1.11	228	40	102	86	28	36	52	52	6	13	1	5	1	14	5	5	0	2	5	8	2	16@15" 2@24" 2@30"	6.886	1.076	5,308	
SAY	0	0	0	0	0	976	68	3	0	311	81		228	40	102	86	28	36	52	52	6	13	1	5	1	14	5	5	0	2	5	8	2		7	2	5,400	

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

5/28/99

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5/28/99

COMPUTED BY: JS DATE: 11/30/2009
CHECKED BY: MAL DATE: 06/01/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-P

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54 INCHES & OVER)

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 54" | 60" | 66" | 72" | 78" | 84" | | | C.S. PIPE (UNLESS NOTED OTHERWISE) 54" .109 | 54" .138 | 54" .168 | 54" SHOP ELONGATED .138 | 54" SHOP ELONGATED .168 | 60" .138 | 60" .168 | 66" .138 | 66" .168 | 72" .139 | 72" .168 | | STRUCTURAL PLATE PIPE 60" 12 | 60" 10 | 66" 12 | 66" 10 | 72" 12 | 72" 10 | | | | REINFORCED ENDWALLS WITH R.C. - C.Y. | REINFORCED ENDWALLS WITH C.S. - C.Y. | MASONRY DRAINAGE STRUCTURES CUBIC YARDS | C.B. STD. 840.01 OR 840.02 | FRAMES, GRATES & HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | | CONCRETE TRANSITIONAL SECTION DROP INLET | CATCH BASIN | | | | | | | | | | REINF. CONC. FLARED END SECTIONS NO. & SIZE | CORR. STEEL FLARED END SECTIONS NO. & Size | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY:	JLB	DATE:	8/05/2008
CHECKED BY:	ASH	DATE:	8/08/2008
REVISED BY:	MAL	DATE:	12/14/2009
REVISED BY:	ABP	DATE:	5/31/2011

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-Q

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUARDRAIL SUMMARY

"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.

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACE CONC. BARRIER	REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TERM. END SECTION	GRAU 350	CAT-1	B-77	AT-1	TYPE III	XI MOD	XIII	M-350	EA	G	NG			
-L-	32+92.82	35+24.07	RT	231.25			35+24.07		VAR.	VAR.	50'		1'			1		1										204	
-L-	34+22.32	34+59.82	LT	37.50			34+59.82	34+35.00	2.5'	VAR.							1	1										186	
-L-	37+95.62	40+26.87	LT	231.25			37+95.62		VAR.	VAR.						1		1										198	
-L-	38+59.97	38+97.47	RT	37.50			38+59.97	38+97.47	2.5'	VAR.							1	1										200	
-L-	124+55.25	135+99.00	LT	1,125.00	18.75				2'	10'	50'		1'			1			1									1,229	
-Y1-	17+50.00	21+62.50	RT	412.50			18+50.00	20+57.96	6'	9'	50'	50'	1'	1'		2													
-Y1-	29+00.00	33+50.00	LT	450.00			30+00.00	32+50.00	6'	9'	50'	50'	1'	1'		2													
-Y3-	34+82.39	38+73.33	RT	390.94																							93.6		
-Y3-	40+17.59	41+14.15	LT	96.56																							95.03		
-Y3-	41+12.62	45+06.37	LT	393.75			41+12.62		6' - 12'	15'	50'	300'	1'	6'		1		1											
-Y3-	60+43.75	65+00.00	LT	456.25			63+50.00	60+50.00	14'	17'	50'		1'			1	1											528	
-Y3RPA-	18+93.75	26+50.00	LT	756.25			25+50.00	19+00.00	14'	17'	50'		1'			1	1												
-Y12-	13+85.59	14+54.34	LT	37.50	31.25				2'	10'									1										
-Y15-	37+97.52	40+66.27	RT	268.75			39+14.15		10.0'	10'	50'					1		1											
-Y15-	39+31.50	39+96.25	MED	87.50														2						1					
-Y15-	39+49.37	41+11.87	LT	162.50													1	1											
-Y15-	39+95.00	41+40.00	LT MED	145.00																							145		
-Y15-	39+95.00	41+40.00	RT MED	145.00																							145		
-Y15-	41+58.75	42+23.50	MED	187.50														2						1					
-Y15-	41+67.53	43+36.28	LT	168.75							50'					1		1											
-L_NB-/Y15RPD	158+97.64	25+94.55	LT	187.50			160+70.59	158+97.64									1	1										80	
-L_SB_/-Y15SPC-	152+58.49	11+07.93	RT	206.25			11+89.08				50'		1'			1	1											91	
-L_NB_/-Y15RPC-	19+90.89	157+32.66	LT	193.75			157+32.66									1		1										203	
-L_SB-/-Y15RPA--	159+63.84	21+04.79	RT	128.75			159+63.84				50'		1'			1		1										79	
-L_SB-/-Y15SPD-	12+17.33	166+38.94	LT	331.25			164+20.00				50'					1	1											203	
Y15SPA/L	11+31.21	164+31.25	RT	181.25			164+25.00		14'		50'		1'			1	1												
-L_NB-	156+31.23	157+49.98	RT	118.75			157+49.98									1		1											
-L_SB-	159+45.99	160+64.74	LT	118.75			159+45.99									1		1											
			SUBTOTALS	7,050.00	50.00											19	9	17	2					2			478.63	3,201	
	LESS ANCHOR DEDUCTIONS:																												
	GRAU 350	19 @ 50.00ft		950.00																									
	CAT-1	9 @ 6.25ft		56.25																									
	B77	17 @ 18.75ft		318.75																									
	AT-1	2 @ 6.25ft			12.50																								
			ANCHOR TOTALS:	1,325.00	12.50																								
			GRAND TOTALS	5725.00	37.50																								
			SAY	5,787.50	50.00	10 ADDITIONAL GUARDRAIL POSTS																					490	3,270	

COMPUTED BY: JLB	DATE: 5/2/2008	PROJECT REFERENCE NO.	SHEET NO.
CHECKED BY: ABP	DATE: 5/2/2011	U-4909	3-R
REVISED BY:	DATE:		

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LINE	STATION	STATION	EXCAVATION TOTAL UNCLASS.	EXCAVATION UNDERCUT	EMBANKMENT +%	BORROW	WASTE TOTAL
	SUMMARY #1						
-L- (RT)	8+15.00	35+05.63 (Begin Bridge)	1,195		7,909	6,714	
-Y1-	15+66.43	37+05.00	13,086		21,190	8,104	
-Y3- (RT)	49+50.00	65+00.00	161		4		157
-Y3RPC-	14+41.09	31+26.62	35,018		343		34,675
	SUMMARY 1 SUBTOTAL		**49,460**		**29,446**	**14,818**	**34,832**
	SUMMARY #2						
-L- (LT)	8+15.00	34+68.96 (Begin Bridge)	2,982		2,168		814
-Y1-	12+00.00	15+16.68	63		614	551	
-Y2-	10+46.35	13+50.00	165		572	407	
-Y3- (RT)	16+82.33	31+50.00	1,213		589		624
-Y3- (RT)	31+50.00	49+50.00	18,991		601		18,390
-Y3RPB-	10+00.00	26+49.10	63,189		322		62,867
-Y3LPB-	10+00.00	21+09.19	21,534		151		21,383
	SUMMARY 2 SUBTOTAL		**108,137**		**5,017**	**958**	**104,077**
	SUMMARY #3						
-L- (RT)	38+41.64 (End Bridge)	56+32.70 (-Y4- Intersection)	3,295		3,232		63
-Y3- (LT)	31+50.00	49+50.00	12,185		334		11,851
-Y3- (LT)	49+50.00	65+00.00	491		2,534	2,043	
-Y3RPD-	10+00.00	26+82.65	22,131		3,305		18,826
-Y3LPD-	10+00.00	21+09.19	4,134		4,680	546	
	SUMMARY 3 SUBTOTAL		**42,236**		**14,085**	**2,589**	**30,741**
	SUMMARY #4						
-L- (LT)	38+14.06 (End Bridge)	56+32.70 (-Y4- Intersection)	1,998		888		1,110
-Y3- (LT)	16+82.33	31+50.00	52		46		6
-Y3RPA-	13+10.27	29+26.34	2,939		34,171	31,232	
	SUMMARY 4 SUBTOTAL		**4,989**		**35,105**	**31,232**	**1,116**
	SUMMARY #5						
-L- (RT)	56+32.70 (-Y4- Intersection)	86+00.00	5,772		5,060		712
-Y4-	23+49.27	32+00.00	2,251		1,031		1,220
-Y5-	10+47.07	11+50.00	13		127	114	
-Y6-	10+53.35	12+40.00	1		1,099	1,098	
-Y7-	10+41.12	11+75.00	10		166	156	
-Y7A-	10+43.58	11+95.00	53		77	24	
	SUMMARY 5 SUBTOTAL		**8,100**		**7,560**	**1,392**	**1,932**
	SUMMARY #6						
-L- (LT)	56+32.70 (-Y4- Intersection)	86+00.00	857		4,955	4,098	
-Y4-	11+00.00	22+41.66	3,097		376		2,721
	SUMMARY 6 SUBTOTAL		**3,954**		**5,331**	**4,098**	**2,721**
	SUMMARY #7						
-L- (RT)	86+00.00	116+00.00	1,797		4,835	3,038	
-Y11-	10+41.39	12+00.00	32		187	155	
	SUMMARY 7 SUBTOTAL		**1,829**		**5,022**	**3,193**	
	SUMMARY #8						
-L- (LT)	86+00.00	116+00.00	1,358		25,992	24,634	
	SUMMARY 8 SUBTOTAL		**1,358**		**25,992**	**24,634**	
	SUMMARY #9						
-L- (RT)	116+00.00	146+00.00	793		11,167	10,374	
	SUMMARY 9 SUBTOTAL		**793**		**11,167**	**10,374**	
	SUMMARY #10						
-L- (LT)	116+00.00	146+00.00	411		13,776	13,365	
-Y13-	12+00.00	23+46.83	1,753		1,405		348
	SUMMARY 10 SUBTOTAL		**2,164**		**15,181**	**13,365**	**348**
	SUMMARY #11						
-L- (RT)	146+00.00	157+41.34 (Begin Bridge)	351		2,165	1,814	
-Y14-	12+94.72	14+50.00	49		86	37	
-Y15-	36+50.00	45+00.00	370				370
-Y15RPB-	14+50.00	23+92.70	12,286		664		11,622
-Y15SPB-	10+00.00	13+03.61	539		480		59
	SUMMARY 11 SUBTOTAL		**13,595**		**3,395**	**1,851**	**12,051**
	SUMMARY #12						
-L- (LT)	146+00.00	157+41.34 (Begin Bridge)	1,892		16,829	14,937	
-Y15RPC-	12+68.47	20+48.15	4,497		8,077	3,580	
-Y15SPC-	10+00.00	12+37.53	865		256		609
	SUMMARY 12 SUBTOTAL		**7,254**		**25,162**	**18,517**	**609**
		SUBTOTALS	**243,869**		**182,463**	**127,021**	**188,429**

LINE	STATION	STATION	EXCAVATION TOTAL UNCLASS.	EXCAVATION UNDERCUT	EMBANKMENT +%	BORROW	WASTE TOTAL
	SUMMARY #13						
-L- (RT)	159+07.92 (End Bridge)	189+00.00	1,430		11,723	10,293	
-Y15RPA-	12+10.00	20+37.68	4,874		1,246		3,628
-Y15SPA-	10+00.00	12+73.25	30		757	727	
-Y19-	14+91.41	18+45.00	780		100		680
	SUMMARY 13 SUBTOTAL		**7,114**		**13,826**	**11,020**	**4,309**
	SUMMARY #14						
-L- (LT)	159+07.92 (End Bridge)	189+00.00	1,681		23,248	21,567	
-Y15RPD-	19+16.63	26+14.07	65		6,925	6,860	
-Y15SPD-	10+00.00	12+90.97			2,272	2,272	
-Y16-	12+00.00	12+61.00	59				59
-Y17-	10+20.00	21+65.13	3,348		1,121		2,227
-Y18-	14+60.00	15+46.00	164		2		162
-Y19-	12+40.00	13+61.63	69		130	61	
	SUMMARY 14 SUBTOTAL		**5,386**		**33,698**	**30,760**	**2,448**
	SUMMARY #15						
-L- (RT)	189+00.00	206+18.74 (-Y23- Intersection)	2,449		989		1,460
-Y20-	10+53.81	12+20.00	35		106	71	
-Y22-	10+53.28	11+85.00	27		25		2
	SUMMARY 15 SUBTOTAL		**2,511**		**1,120**	**71**	**1,462**
	SUMMARY #16						
-L- (LT)	189+00.00	206+18.74 (-Y23- Intersection)	3,954		1,096		2,858
-Y21-	11+00.00	13+76.42	339		68		271
	SUMMARY 16 SUBTOTAL		**4,293**		**1,164**		**3,129**
	SUMMARY #17						
-L- (RT)	206+18.74 (-Y23- Int)	225+10.00	1,513		1,784	271	
-Y23-	23+21.73	33+75.00	548		4,175	3,627	
	SUMMARY 17 SUBTOTAL		**2,061**		**5,959**	**3,898**	
	SUMMARY #18						
-L- (LT)	206+18.74 (-Y23- Int)	225+10.00	4,072		256		3,816
-Y23-	10+60.00	22+20.37	2,190		1,984		206
-Y24-	13+30.00	14+81.25	19		11		8
	SUMMARY 18 SUBTOTAL		**6,281**		**2,251**		**4,031**
		SUBTOTALS	**27,646**		**58,018**	**45,749**	**15,379**

PROJECT SUBTOTAL:	**271,515**		**240,481**	**172,770**	**203,807**
EST.LOSS DUE TO CLEARING & GRUBBING	-10,000				-10,000
WASTE TO REPLACE BORROW				-172,770	-172,770
GRAND TOTAL:	**261,515**				**21,037**
SAY:	**262,000**				
ESTIMATED SHOULDER BORROW: 17,900 CY					
-L- PAVEMENT STRUCTURE VOLUME = 22,797 CY					
EARTHWORK TOTALS FOR ALTERNATE PAVEMENT DESIGN					
PROJECT SUBTOTAL:	**271,515**		**240,481**	**172,770**	**203,807**
ADJUSTMENT FOR PAVEMENT DESIGN (ALTERNATE 2)	-5,192		6,959	6,959	-5,192
EST. SHOULDER MATERIAL			17,213	17,213	
EST.LOSS DUE TO CLEARING & GRUBBING	-10,000				-10,000
WASTE TO REPLACE BORROW				-188,615	-188,615
PROJECT TOTAL:	256,323		264,653	8,327	0
5% TO REPLACE TOPSOIL ON BORROW PITS				416	
GRAND TOTAL:	**256,323**		**264,653**	**8,743**	**0**
SAY:	**257,000**			**9,000**	
ALTERNATE -L- PAVEMENT STRUCTURE VOLUME = 13,876 CY					
EARTHWORK TOTALS FOR ALTERNATE PAVEMENT DESIGN					
PROJECT SUBTOTAL:	**271,515**		**240,481**	**172,770**	**203,807**
ADJUSTMENT FOR PAVEMENT DESIGN (ALTERNATE 3)	-1,598		2,140	2,140	-1,598
EST.LOSS DUE TO CLEARING & GRUBBING	-10,000				-10,000
WASTE TO REPLACE BORROW				-174,910	-174,910
GRAND TOTAL:	**259,917**		**242,621**		**17,300**
SAY:	**260,000**				
ESTIMATED SHOULDER BORROW = 17,300 CY					
ALTERNATE -L- PAVEMENT STRUCTURE VOLUME = 19,823 CY					
ESTIMATED UNDERCUT : 1000 CY					
ESTIMATED SHALLOW UNDERCUT CONTINGENCY : 5000 CY					

*** EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.**

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COMPUTED BY: SKM	DATE: 8/4/2008
CHECKED BY: MAL	DATE: 8/11/2008
REVISED BY:	DATE:

6/16/99

PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-S

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT BREAKING & REMOVAL SUMMARIES

REMOVAL OF EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	12+05	16+36	Lt.	10,381.53		1,153.50
-L-	60+00	61+19	Lt.	4,386.07		487.34
-L-	74+50	77+00	Lt.	9,758.01		1,084.22
-L-	86+00	90+48	Lt.	17,362.89		1,929.21
-L-	102+00	103+50	Rt.	5,693.47		632.61
-L-	108+50	114+00	Rt.	24,873.94		2,763.77
-L-	124+37	135+91	Lt.	15,861.68		1,762.41
-L-	140+07	144+00	Rt.	763.09		84.79
-L-	144+00	146+82	Rt.	7,783.92		864.88
-L-	147+10	149+50	Rt.	9,560.82		1,062.31
-L-	154+84	156+80	Rt.	462.30		51.37
-L-	156+70	157+30	Rt.	2,421.69		269.08
-L-	159+34	160+04	Rt.	2,410.96		267.88
-L-	160+00	161+10	Rt.	248.78		27.64
-L-	161+50	166+30	Rt.	1,012.21		112.47
-L-	165+60	165+81	Lt.	2,004.89		222.77
-L-	177+11	177+65	Lt.	1,877.07		208.56
-L-	178+21	183+46	Lt.	5,052.24		561.36
-L-	212+03	217+50	CL.	13,053.79		1,450.42
-L-	115+00	120+50	LT	11,907.88		1,323.10
-L-	154+50	155+42	LT	3,932.23		436.91
-L-	160+95	162+00	LT	2,358.11		262.01
-Y1-	14+60	15+85	Lt.	4,743.77		527.09
-Y2-	10+18	13+70	Rt.	7,231.28		803.48
-Y3-	28+91	40+15	Lt.	5,543.05		615.89
-Y3-	32+53	39+30	Rt.	3,132.21		348.02
-Y3-	39+73	50+96	Rt.	5,487.51		609.72
-Y3-	40+94	47+32	Lt.	3,301.59		366.84
-Y3RPA-	14+48	26+00	Rt.	23,606.95		2,622.99
-Y3RPB-	14+09	26+70	Lt.	24,062.10		2,673.57
-Y3RPC-	15+94	28+00	Rt.	25,449.55		2,827.73
-Y3RPC-	19+90	31+15	Lt./Rt.	21,836.13		2,426.24
-Y3RPD-	16+21	26+70	Lt.	31,334.45		3,481.61
-Y19-	14+25	16+76	Lt.	4,011.28		445.70
-Y21-	11+80	14+28	Lt.	3,848.97		427.66
					TOTAL	35,195.16
					SAY	***36,960***

BREAKING OF EXISTING CONCRETE PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	162+28	163+00	LT.	2,501.80		277.98
					TOTAL	277.98
					SAY	***300***

REMOVAL OF EXISTING CONCRETE PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	159+29	162+50	LT.	13,960.92		1551.21
-Y15RPA-	13+90	20+50	RT.	18,376.07		2041.79
-Y15RPB-	17+02	23+30	LT.	15,392.14		1710.24
-Y15RPC-	16+10	18+52	RT.	3,770.38		418.93
-Y15SPC-	11+77	13+68	RT.	5,414.00		601.56
					TOTAL	6,323.72
					SAY	***6,640***

BREAKING OF EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	17+71	20+34	Lt.	3,186.59		354.07
-L-	31+53	32+39	Rt.	1,232.37		136.93
-L-	140+24	144+00	Rt.	3,766.97		418.55
-L-	149+50	154+62	Rt.	9,262.24		1,029.14
-L-	154+82	156+87	Rt.	3,209.23		356.58
-L-	159+98	161+04	Rt.	1,834.49		203.83
-L-	161+56	166+28	Rt.	5,724.13		636.01
-L-	165+61	165+82	Lt.	535.76		59.53
-L-	166+62	168+44	Rt.	1,006.55		111.84
-Y1-	13+70	15+15	Lt.	2,541.59		282.40
					TOTAL	3,588.88
					SAY	***3,770***

WOVEN WIRE FENCE SUMMARY

WOVEN WIRE FENCE

$$E = \frac{[A - (8B + 16C + 16D)]}{14} - \frac{(B + C + D)}{2} \qquad F = (2B + 3C + 3D)$$

STATION TO STATION	LT. OR RT.	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POSTS	F 5" POSTS
-L- 19+10 - 26+0	RT.	670.66	1	1	2	42	11
-L- 24+00 - 26+00.50	LT.	231.58	1	2		12	8
-L- 47+50 - 48+95	LT.	136.94	2			8	4
-L- 47+75 - 49+50	RT.	184.72	2			11	4
-L- 49+55 - 54+07.17	LT.	470.91	2	3		27	13
-L- 50+10 - 54+30	RT.	443.33	2		1	28	7
-L- 54+90 - 56+00	RT.	116.11	2			6	4
-L- 147+20.20 - 148+09.16	RT.	112.87	2	1		4	7
-L- 147+31.96 - 153+46.25	LT.	625.40	2	1	1	39	10
-L- 168+19.15 - 173+10	LT.	517.49	2		1	33	7
-Y1- 28+58.73 - 35+22.21	LT.	678.11	1	1	2	42	11
-Y3RPA- 19+18.11 - 28+00.00	LT.	964.05	2		2	63	10
-Y3RPB- 14+50.06 - 25+00.00	RT.	980.21	1		3	64	11
-Y3RPC- 27+16.91 - 31+13.67	LT.	481.51		1	1	31	6
-Y3RPD- 17+88.55 - 25+50.00	RT.	718.27	2		2	46	10
TOTAL		7,332.16				457	123
SAY		**7,700**				**480**	**130**

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PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-T

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	FORSYTH COUNTY
3	4	WILMA C.W. SPACH
4	4	WILMA C.W. SPACH
5	4	JAMES M. MECUM, JR.
6	4	JAMES M. MECUM, JR.
7	4,5,19	FLETCHER WEAVIL
8	4	TIMOTHY B. & LYNDA S. HAMILTON
9	4	MICHAEL G. KIRKMAN & STEPHEN R.KIRKMAN
10	4,5	BOBBY JOE SMITH
11	5,19	DENNIE O. & CAROL L. WEAVIL
12	5	SAMUEL N. & MARTHA G. BRIMAGE
13	5	JESSICA & MARCUS ATKINS
14	5	RICKY C. & TERESA D. COOK
15	5	TOMMY L. & LOU W. CHRISTMAS
16	5	DEBORAH W. PADGETT
17	5	LARRY E. & BARBARA P. SIMPSON
18	5	BRUCE A. & LINDA D. ANDERSON
19	5	CHARLES D. & JANET H. ENGLEBERT
20	5,6	JAMES S. HEDGECOCK
21	5	C.W. MYERS TRADING POST, INC
21A	5	DAVID & SHANON GARNER
22	5	JONATHAN A.ENGLEBERT & SHANNON D. WILLIAMS
23	5	KELLY J. ROBERTSON
24	5	LEIGHTON EDWARDS REALTY, INC.
25	5	MARK F. & SHEREE D. ICENHOWER
26	5,6	RAYMOND C. & RACHEL S. McGEE
27	5	RAYBURN & BETTY WOODYARD
28	5	RICHARD K. & MARY C. STEVENSON
29	5,6	ROBERT Y. & JONNIE H. TUCKER,ONEITA F. TUCKER,AND PAUL & INA J.T. STEPHENS
30	5	DENNIE O. & CAROL L. WEAVIL
31	5	BILL D. & DINA P. KATSIS
32	5	JERRY W. WEAVIL
33	5	CHRIS T. GIANNOPOULOS
34	5	TOM & ANNA GIANNOPOULOS
35	5	JUDY-LOU E. LEONARD
36	5	JESSE G. TAYLOR
38	5,6	GLENN D. HART
39	5,6	MICKEY D. & ZELMA P. REDDICK
40	6	JERRY R. & SHIRLEY A. DOWNEY
40A	6,7	UNION CROSS MORAVIAN CHURCH
41	6	PHIL V. MAYS
42	6	JAMES L. HILL
43	6,21	WINSTON-SALEM/FORSYTH COUNTY BOARD OF EDUCATION
44	6,21	WILLIAM F. & ONEIDA G. THOMAS
45	6	R. WAYNE & GLENDA C. ELLER
46	6	GEORGE L. & ANN C. YOUNTZ
48	6	CHARLES BANKS, III
49	6	DONNA G. PASOUR
50	6	SUSIE T. HAUSER
51	6,7	ETHELENE C. SPAUGH
52	6,7	UNION CROSS MORAVIAN CHURCH
53	7	MICHAEL D. & DEBORAH D. JONES
54	7	SONYA K. KETNER
55	7	GREGORY L. MARTIN
56	7	PEGGY L. HICKS
57	7	JEFFREY V. & EFFIE V. PARRISH
58	7	WILLIAM T. MOSS
59	7,8	ESTATE OF EARLIE F. LEONARD
59A	7,8	CHARLES R. LEONARD

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
60	7	RONALD A. & PEGGY A. COTTER
61	7	JENNIFER TROUIT BOWMAN
62	7	SAM H. & PENNY F. COGGINS
63	7	MARK A. & ANGELA N. WALL
64	7	JADE ASSOCIATED II, LLC
65	7	CYNTHIA/GARY LYNCH
66	7	MICAH G. MOORE AND WIFE JESSICA A. MOORE
67	7	JADE ASSOCIATED II, LLC
68	7	SHUGART MANGEMENT, INC.
69	7,8	WEATHERSTONE TOWNHOMES HOA, INC.
70	8	PAUL & INA J.T. STEPHENS
71	8,9,10	WS INDUSTRIAL PROPERTIES SUB V LLC
72	8	BILLY R. LANKFORD, JR.
73	8	HELEN C. NcELROY
74	8	SHUGART ENTERPRISES, LLC
75	8	WEATHERSTONE TOWNHOMES HOA, INC.
76	8	WEATERSTONE TOWNHOMES HOA, INC.
77	8,9	PAUL & INA J.T. STEPHENS
78	8,9	PAUL & INA J.T. STEPHENS
80	9	PAUL & INA J.T. STEPHENS
82	9	PAUL & INA J.T. STEPHENS
84	10	WILCOHESS LLC
85	10	WINSTON-SALEM ALLIANCE (1' STRIP)
86	10	WINSTON-SALEM ALLIANCE (1' STRIP)
87	10,11	EDNA C. EDWARDS
88	10	IGLESIA BAUTISTA HISPANA DE UNION CROSS
89	10	VICKIE O. & TOMMY D. SAWYER
90	10	WILLIAM M. & LINDA BARNETT
91	10	DANNY R. & FRANCES G. SINK
92	10,11	JIMMY D. & JOYCE G. SIDES
93	11	R. DENNIS & FRANKIE E. WEAVIL
94	11,12,22	WINSTON-SALEM/FORSYTH COUNTY BOARD OF EDUCATION
94A	22	REID W. DAVIS AND WIFE CAROLYN DAVIS
95	11	ONEITA F. TUCKER AND PAUL & INA J.T. STEPHENS
96	11,12	CHARLES O. WILLIARD, JR
97	12	GLENN CROSSING ASSOCIATES, LLC
98	12	GLENN CROSSING ASSOCIATES, LLC
99	12	GLENN CROSSING ASSOCIATES, LLC
101	12	CHARLES O. JR. & RILLA W. WILLARD
102	12	C. STANLEY & KIMBERLY P. TART
103	12	ROBERT H. & TREVA BOYLES
104	12	LARRY W. & KATHRYN H. BOYLES
105	12	LARRY D. SR., & DONNA HOLMAN
106	12,13	UNION CROSS, LLC
107	12,13	PRIME PROPERTY, LLC
108	13	GLENN CROSSING ASSOCIATES, LLC
109	13	PRIME PROPERTY, LLC
110	13,14	T. WRAY & ESTIE M. CHARLES
111	13,14	UNION CROSS STATION LLC
112	14	T. WRAY & ESTIE M. CHARLES
113	14	MARY E.S. SOLOMON
114	14,23	ROBERT H. & TREVA H. BOYLES
115	14,23	HAROLD D. & MARY A. SPAINHOUR
116	14	DAVID A. & PHILIPPA H. KING
117	14	SAMUEL H. & BOBBIE R. HENSDALE
118	14	D.H. HORTON, INC
119	14	TRIAD HOLDING COMPANY, LLC
120	14	GREENWOOD & CHARLES, INC.
121	14	MARK & DEBRA OVERBY
122	14	JAY T. PROPERTIES, LLC

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PROJECT REFERENCE NO.	SHEET NO.
U-4909	3-U

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
123	14,15	BYRON W. SMITH
125	14,15	D.H. HORTON, INC
126	15	TIMOTHY W. MCBRIDE
127	15	NEWTON S. JR. & JEAN McBRIDE
128	15	NEWTON S. JR. & JEAN McBRIDE
129	15	JOSEPH A. & EILEEN R. BEASLEY
130	15	WILLIAM G. & JANE P. MILLER
131	15	WILLIE H. & HAZEL S. CAVENAUGH
132	15	RANDLE L. & CYNTHIA W. STULTZ
133	15,16	LEO O. WHICKER, JR.
135	15	R.C. SMITH, VANCE V. SMITH, BYRON W. SMITH, & DELIA A.S. SMITH
136	15	RONALD M. & ANCY F. SMITH
137	15	EDWARD L. & JOYCE C. KELLER
138	15	STANLEY L. JR. & JULIA L. TORREY
139	15	JOHN A. & LORETTA W. PEEPLES
140	15	HOUSTON W. JR. & CHARLENE M. SMITH
141	15	ALVA F. & ANN J. MARTIN
142	15,16	DONALD & FAYE B. JACKSON
143	16	RONALD K. BOONE
144	16	CHARLES A. & ELAINE C. TRICOLI
145	16	CHARLES T. LONG
146	16	SUGAR & SPICE CHILD ENRICHMENT CENTER, INC.
147	16	RACHAEL JOYCE & BRYANT TAYLOR
148	16,17,24	DONALD A. & MAXINE D. JOYCE
149	16	MARK D. & LEESA S. YATES
150	16	MICHAEL S. & TRINA S. RANSOM
151	16	ROBERT W. & RIZZA L. SANTUCCI
152	16	PETER & CHARLENE AQUINO
153	16	DUNG ZUAN & THU LIEN T. LE
154	16	JASON E. CHASE
155	16	FREDRICK K. ISAACSON & SALLY A. SPRAGUE
156	16	RODNEY & MISTY GODWIN
157	16,17	GARY D. & JUADANE S. SMITH
158	17,24	GREENWOOD & CHARLES
159	17	CVS 3643 NC, LLC
159A	17	GREENWOOD & CHARLES
160	17	ROBERT G. & ZORA P. HEMRICK
161	17	V.L. & ELEANOR H. ROSS
162	17,18	LARRY E. & PATRICIA P. FREEZE
164	17	ANNA M. WALL
165	17,25	ROBERT T. & BRENDA HICKS
166	17	KYLE H. & FRANCES S. HARRIS
167	17	BEESON CROSS ROADS FIRE AND RESCUE, INC
168	17	CHOOLER T. & PRISCILLA Y. CAUDILL
169	17	PREFECTO RUIZ, CONCEPCION CORDONA, & JOSEFINO RUIZ
170	17	JAMES O. & NANNIE V. BEESON
171	17	JOSEPH B. & TAMMY W. FLETCHER
172	17	BOBBY C. & ELIZABETH W. ALLEN
173	17,18	ROYCE E. & CAROLYN R. VOSS
174	18	DAVID S. & MARILYN S. PASCHAL
175	18	BETTY H. CLARK, ROGER L., JR & CAROLE T. HASTINGS (TRUST
175A	18	LUCILLE M. SAPP
176	18	ROGER L. HASTINGS
177	18	DONALD L. HASTINGS
178	18	G. VANCE & KATHLEEN D. O'BRIEN
179	18	LARRY C. & MELINDA S. LANDIS
180	18	ANNE H. WADDELL
181	18	CECELIA E. & JOEL STEMPLE

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
183	21	JOSE L. GARCIA
184	21	CHAD E. & KIMBERLY GREENE
185	21	MARK STOEHR & DEBRA MAIDEN
186	21	MARK STOEHR
187	22	CHARLESO. WILLIARD, JR.
188	22	WEST POINT VILLIAGE ASSOCIATES
188A	22	WEST POINT VILLIAGE ASSOCIATES
189	23	ANTHONY S. DANIEL
190	23	MARSHALL G. CHEEK AND WIFE EDNA M. CHEEK
191	23	TIMOTHY D. SMITH AND WIFE JENNIFER D. SMITH
192	23	MICHAEL & SANDY ZIELINSKI
193	23	SANDRA R. WARD (P/A)ELLIS R. & CATHERINE E. RUNIONS
194	23	MARTY W. & CHRISTY A. WHICKER
195	23	JERYY L. WHITTUM LINDA E. WHITTUM
196	23	MARGIE W. HARRIS
197	24	ROGER D. JOHNSON
198	24	RUSSELL F. & EDITH W. BRENDLE
199	24	FLOYD H. & BETTY W. GOODE 199
200	24	ODELL & MYRTLE BALLARD
201	24	RONALD F. & INEZ L. DAY
202	24	SHEETS FAMILY, LP
203	24	RALPH T. KIGER, JR
204	24	DANIEL A. & PATSY W. MAYS
205	24	LEO O. WHICKER
206	25	JAMES E. MESSICK, III
207	25	FLOYD E. & MARTHA S. MABE
208	25	KRISTOPHER & EMILY R. ABERNATHY
209	25	BOBBY L. & EDNA C. BOND
210	25	SHELBA J. TALLEY
211	17,25	MICHAEL W. & PATRICIA POWELL
212	25	ROBERT J. SKOTCHER
213	25	ELNORA M. JONES
214	25	STEVEN C. WILLIAMS
215	25	MAYAN PROPERTIES, LLC
216	25	NO PROPERTY NAME

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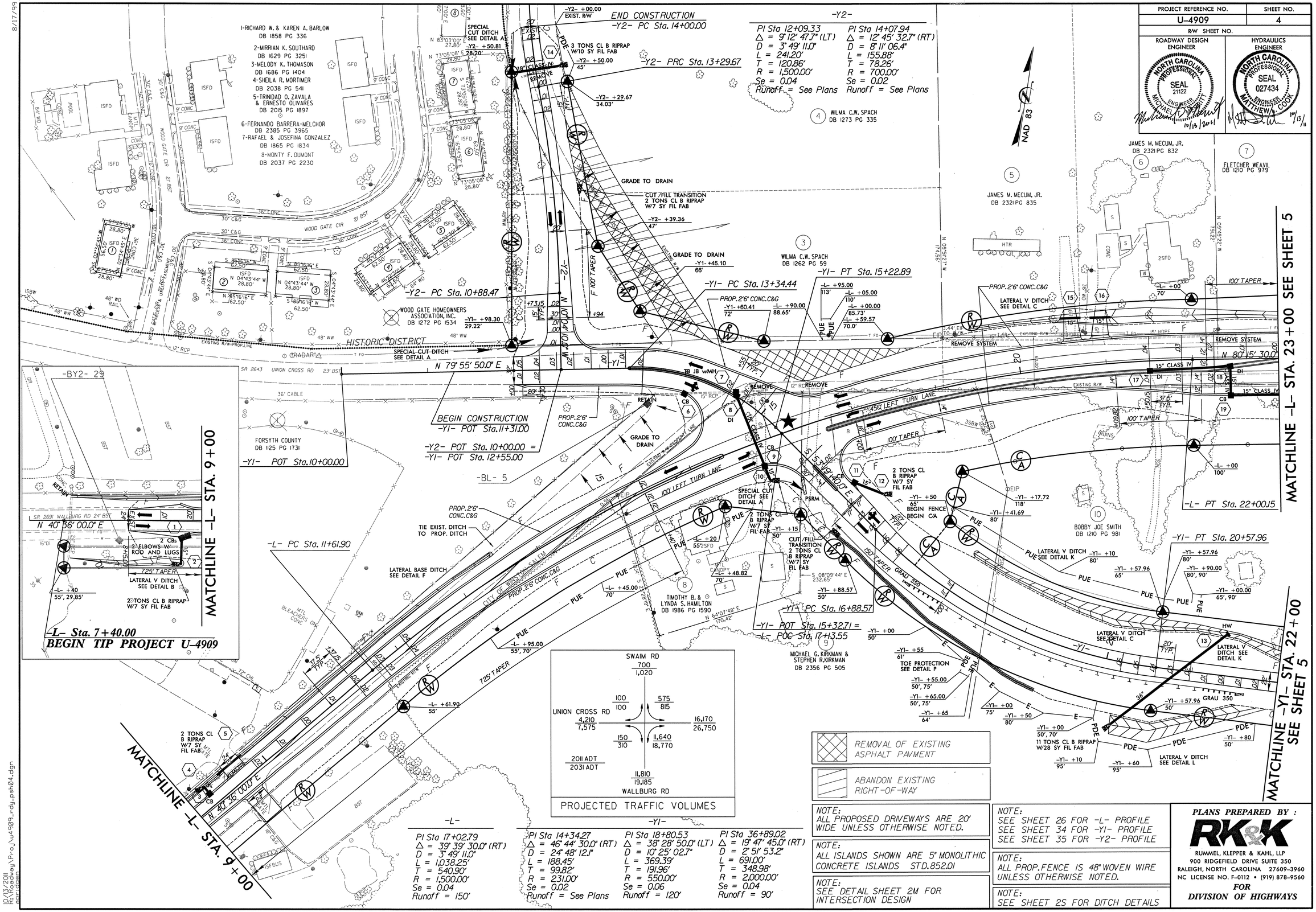
PROJECT REFERENCE NO.	SHEET NO.
U-4909	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL D. PRUITT 10/15/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW A. COOK 10/13/11



NOTE: ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE: ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE: SEE DETAIL SHEET 2M FOR INTERSECTION DESIGN

NOTE: SEE SHEET 26 FOR -L- PROFILE
SEE SHEET 34 FOR -Y1- PROFILE
SEE SHEET 35 FOR -Y2- PROFILE

NOTE: ALL PROP. FENCE IS 48" WOVEN WIRE UNLESS OTHERWISE NOTED.

NOTE: SEE SHEET 2S FOR DITCH DETAILS

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR DIVISION OF HIGHWAYS

8/17/99

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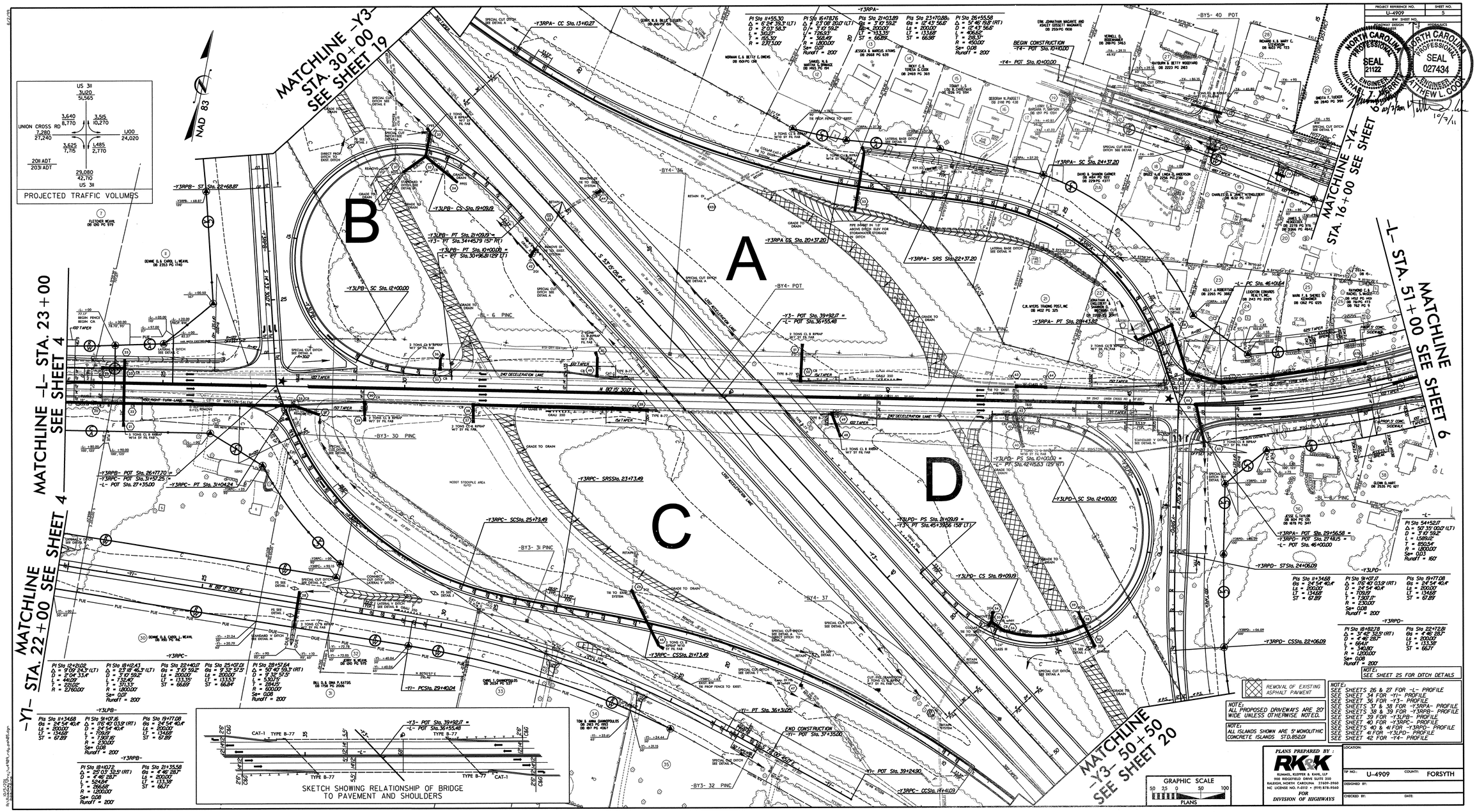
PROJECT REFERENCE NO.	SHEET NO.
U-4909	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
U-4909	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW V. COOK 10/7/11

NOTE:
ALL PROP. FENCE IS 48" WOVEN WIRE UNLESS OTHERWISE NOTED.

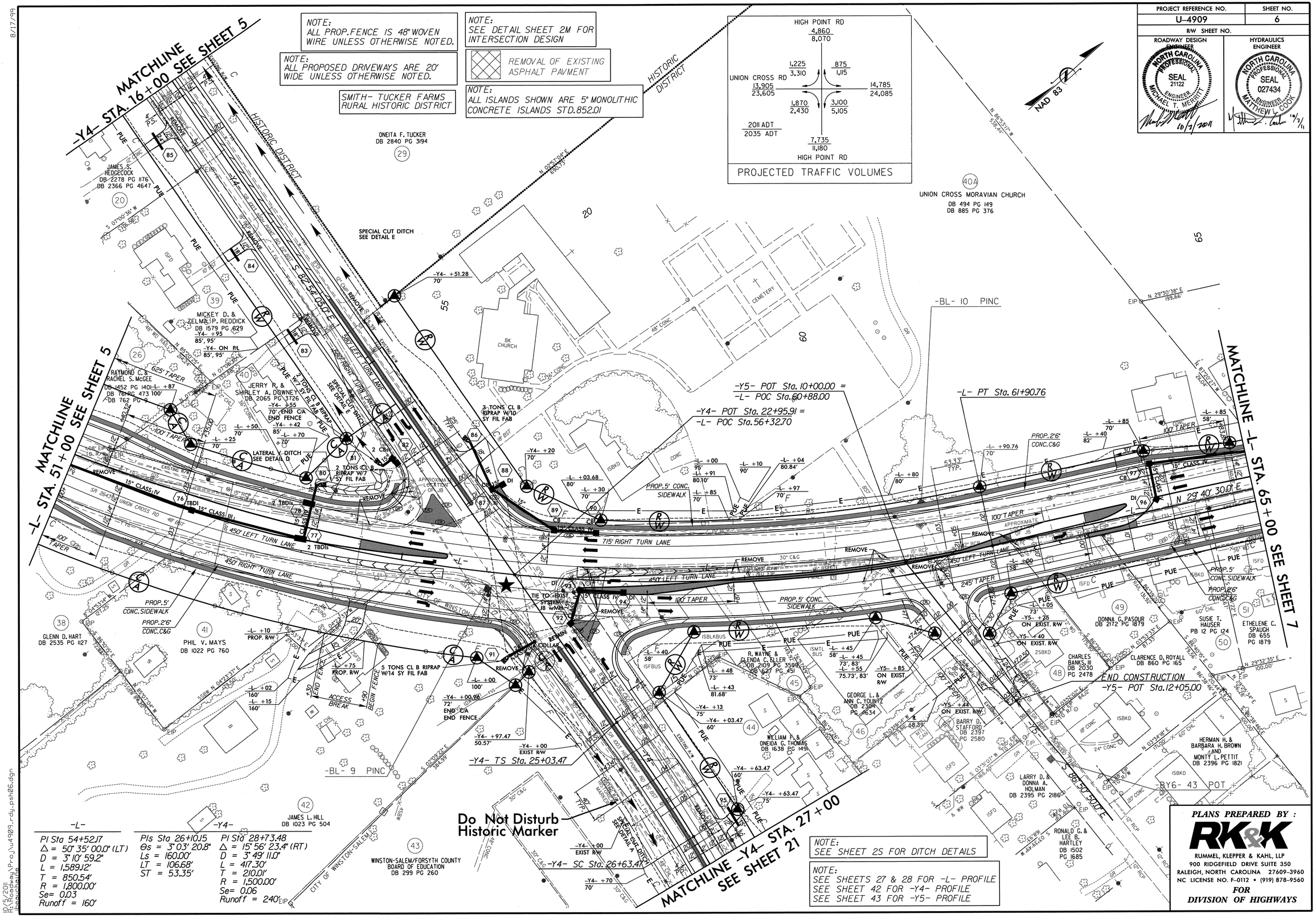
NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

SMITH- TUCKER FARMS RURAL HISTORIC DISTRICT

NOTE:
SEE DETAIL SHEET 2M FOR INTERSECTION DESIGN

REMOVAL OF EXISTING ASPHALT PAVMENT

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD. 852.01



NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
SEE SHEETS 27 & 28 FOR -L- PROFILE
SEE SHEET 42 FOR -Y4- PROFILE
SEE SHEET 43 FOR -Y5- PROFILE

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR DIVISION OF HIGHWAYS

8/17/99

10/5/2011
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beaulchase

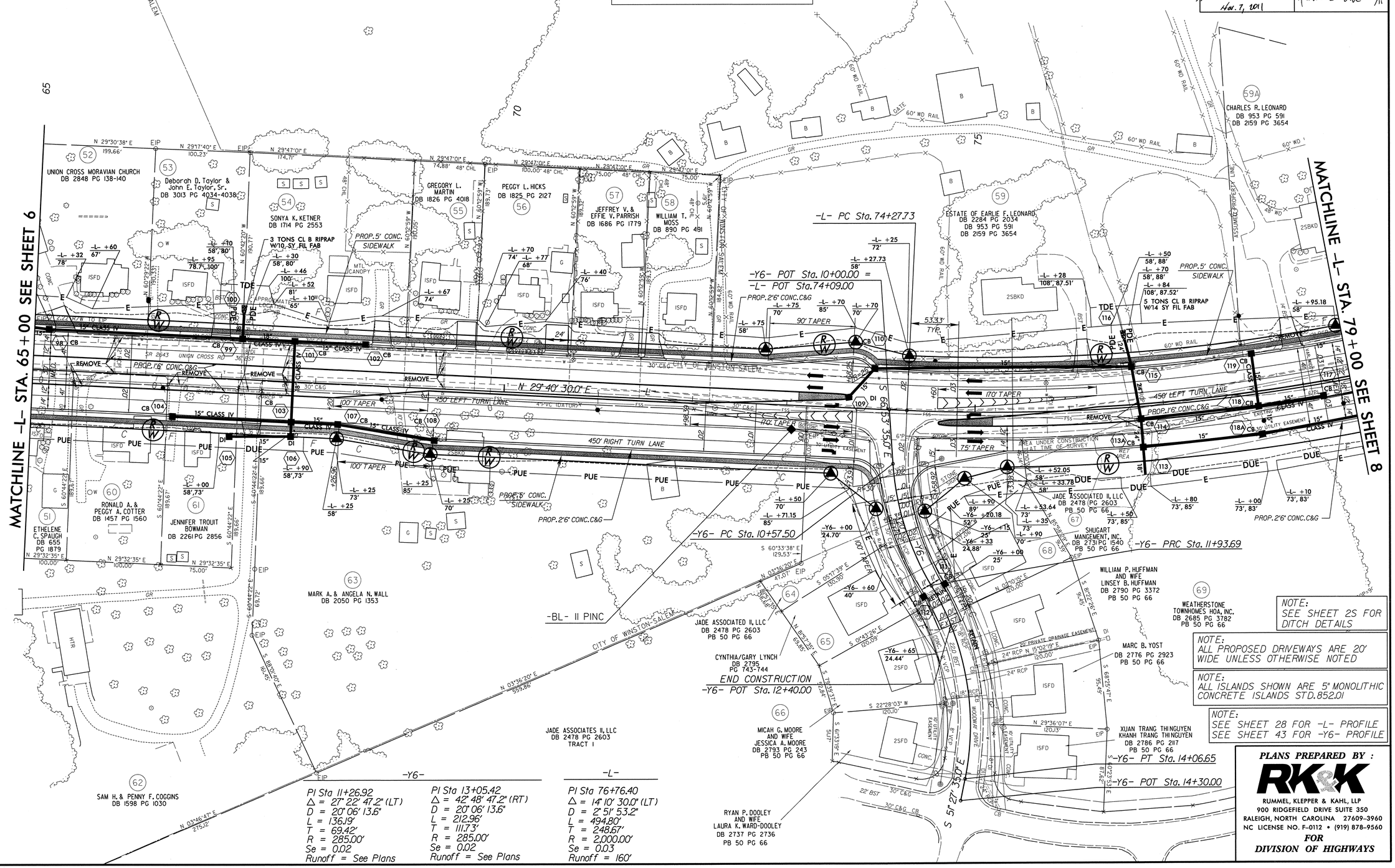
PROJECT REFERENCE NO.	SHEET NO.
U-4909	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. WRIGHT
Oct. 7, 2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW D. WOOTEN
11/7/11

UNION CROSS RD
14,785 / 24,085 — 14,835 / 24,295
900 / 900 — 950 / 1,110
2011 ADT / 2031 ADT
1,850 / 2,010
WEATHERSTONE DEVELOPMENT

PROJECTED TRAFFIC VOLUMES



-Y6-

PI Sta 11+26.92
Δ = 27° 22' 47.2" (LT)
D = 20° 06' 13.6"
L = 136.19'
T = 69.42'
R = 285.00'
Se = 0.02
Runoff = See Plans

PI Sta 13+05.42
Δ = 42° 48' 47.2" (RT)
D = 20° 06' 13.6"
L = 212.96'
T = 111.73'
R = 285.00'
Se = 0.02
Runoff = See Plans

-L-

PI Sta 76+76.40
Δ = 14° 10' 30.0" (LT)
D = 2° 51' 53.2"
L = 494.80'
T = 248.67'
R = 2,000.00'
Se = 0.03
Runoff = 160'

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 43 FOR -Y6- PROFILE

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR DIVISION OF HIGHWAYS

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11/7/2011
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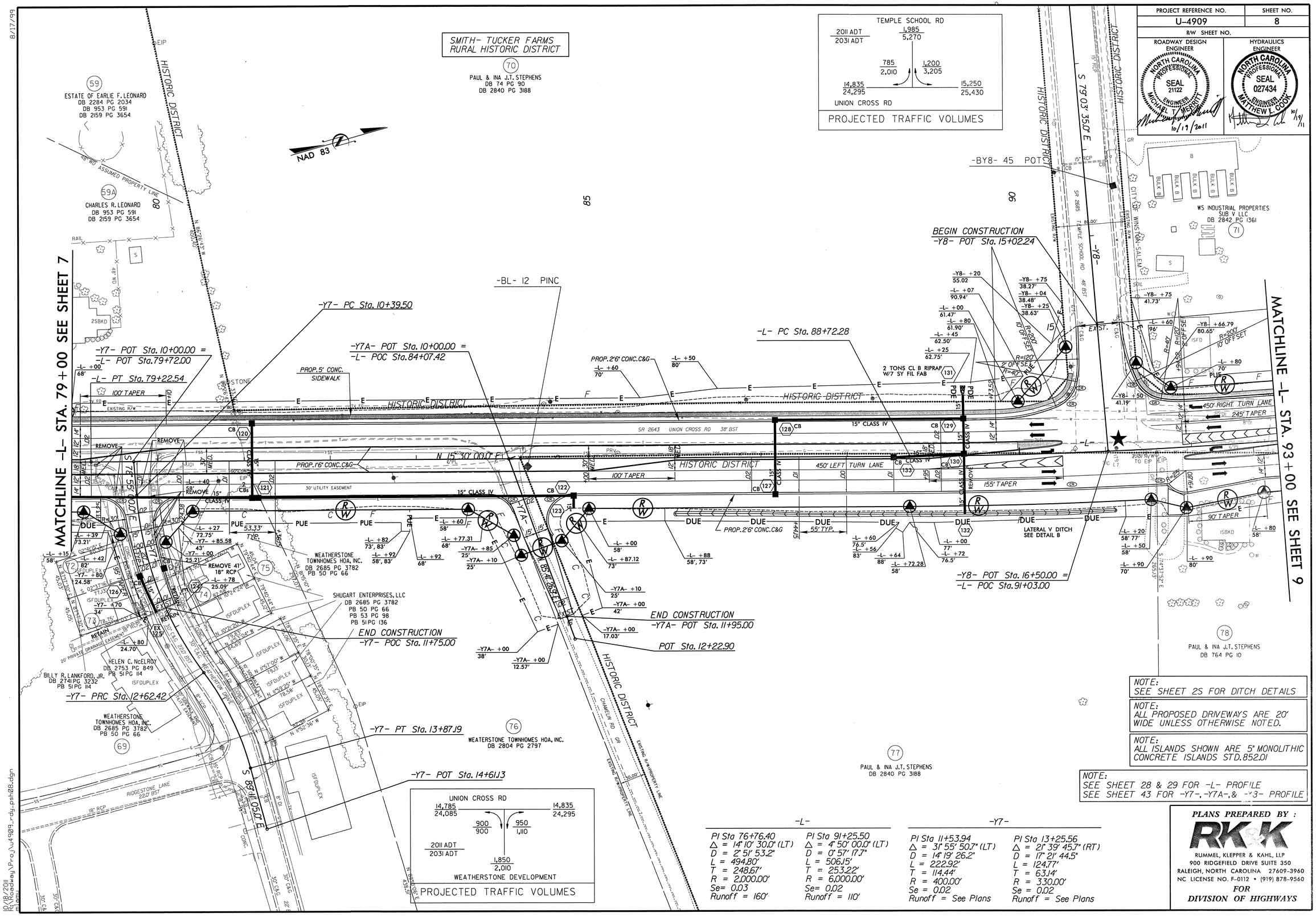
PROJECT REFERENCE NO.	SHEET NO.
U-4909	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MCDERMITT 10/17/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/9/11



NOTE:
SEE SHEET 25 FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
SEE SHEET 28 & 29 FOR -L- PROFILE
SEE SHEET 43 FOR -Y7-, -Y7A-, & -Y3- PROFILE

-L-

PI Sta 76+76.40	PI Sta 91+25.50
Δ = 14° 10' 30.0" (LT)	Δ = 4° 50' 00.0" (LT)
D = 2° 51' 53.2"	D = 0° 57' 17.7"
L = 494.80'	L = 506.15'
T = 248.67'	T = 253.22'
R = 2,000.00'	R = 6,000.00'
Se= 0.03	Se= 0.02
Runoff = 160'	Runoff = 110'

-Y7-

PI Sta 11+53.94	PI Sta 13+25.56
Δ = 31° 55' 50.7" (LT)	Δ = 21° 39' 45.7" (RT)
D = 14° 19' 26.2"	D = 17° 21' 44.5"
L = 222.92'	L = 124.77'
T = 114.44'	T = 63.14'
R = 400.00'	R = 330.00'
Se = 0.02	Se = 0.02
Runoff = See Plans	Runoff = See Plans

PLANS PREPARED BY :

RKK

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR DIVISION OF HIGHWAYS

8/17/99

10/18/2011
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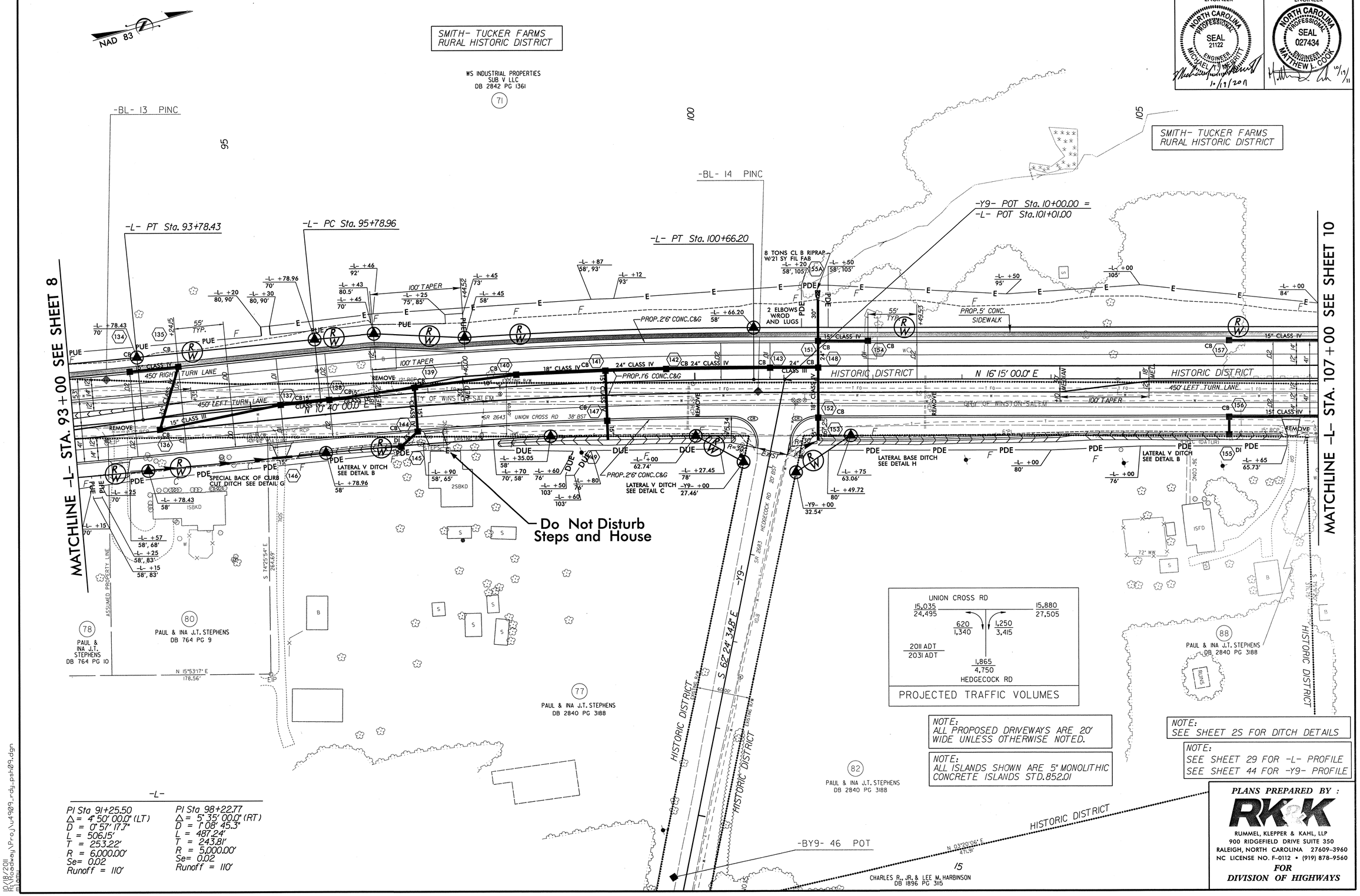
mlamm

PROJECT REFERENCE NO.	SHEET NO.
U-4909	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MCGRATTY — 10/17/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 10/19/11



PLANS PREPARED BY :

RKK

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR DIVISION OF HIGHWAYS

8/17/99

10/18/2011
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mlamb

PROJECT REFERENCE NO.	SHEET NO.
U-4909	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

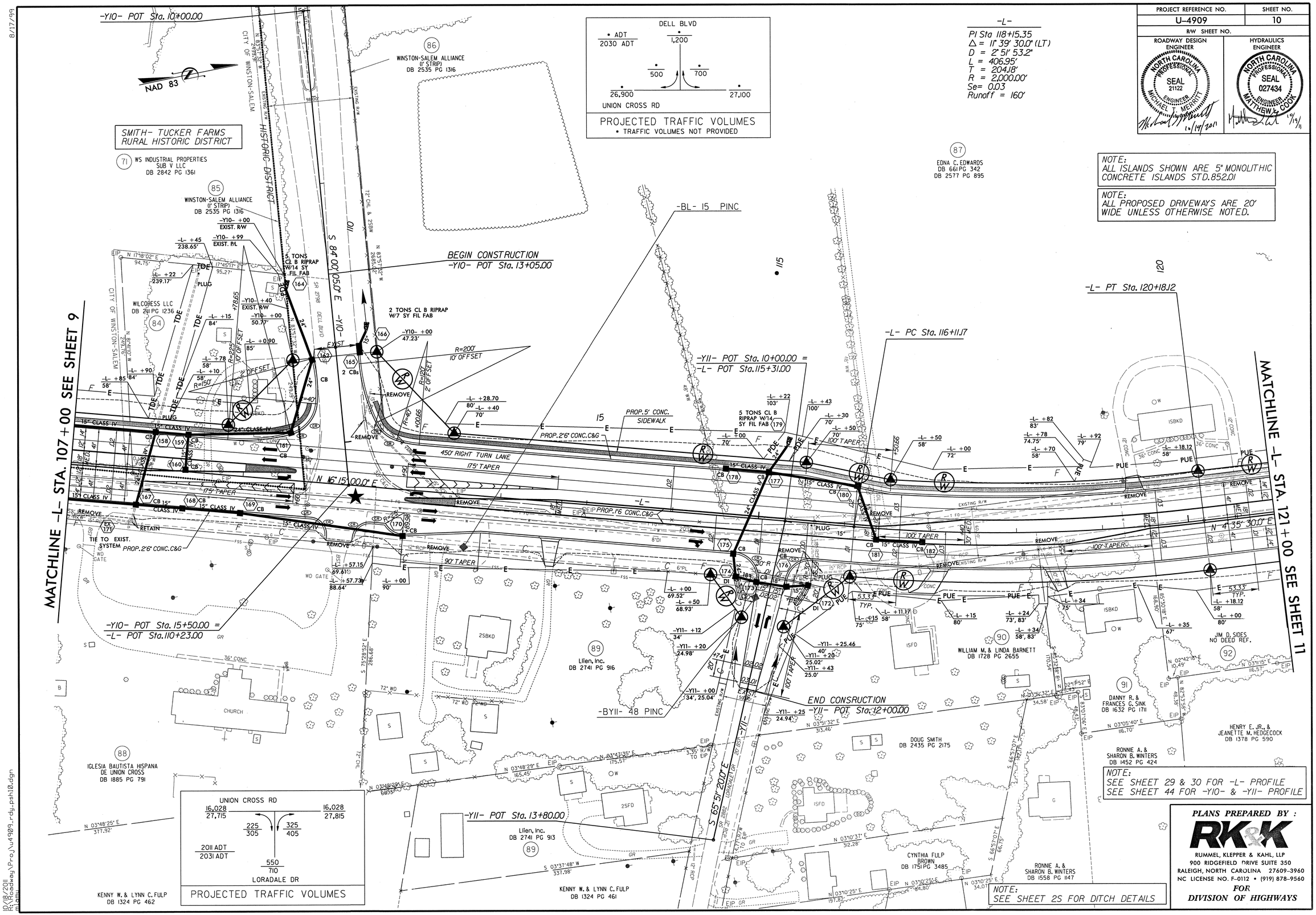
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/19/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/19/11

-L-
PI Sta 118+15.35
Δ = 11° 39' 30.0" (LT)
D = 2° 51' 53.2"
L = 406.95'
T = 204.18'
R = 2,000.00'
Se= 0.03
Runoff = 160'

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.



NOTE:
SEE SHEET 29 & 30 FOR -L- PROFILE
SEE SHEET 44 FOR -Y10- & -Y11- PROFILE

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR DIVISION OF HIGHWAYS

8/17/99

10/18/2011
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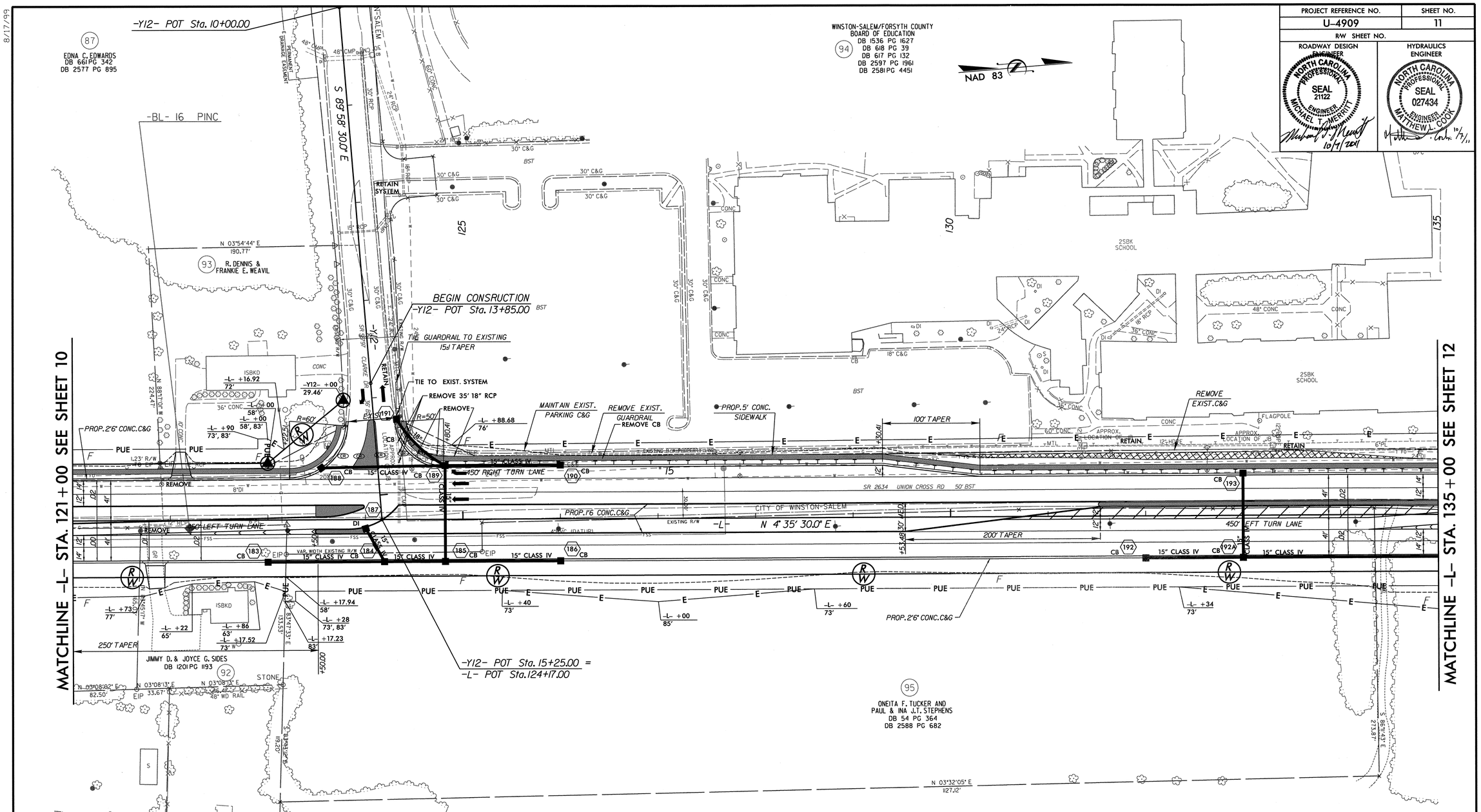
PROJECT REFERENCE NO.	SHEET NO.
U-4909	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/1/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/1/11



REMOVAL OF EXISTING ASPHALT PAVMENT

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE: NO TRAFFIC VOLUMES FOR INTERSECTION OF CLARKE DR & UNION CROSS RD

NOTE:
SEE SHEET 30 FOR -L- PROFILE
SEE SHEET 44 FOR -Y12- PROFILE

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR DIVISION OF HIGHWAYS

8/17/98

10/5/2011
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PROJECT REFERENCE NO.	SHEET NO.
U-4909	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/19/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW W. COOK 10/19/11

NOTE:
SEE DETAIL SHEET 2N FOR INTERSECTION DESIGN

-L-
PI Sta 144+30.22
Δ = 16° 24' 30.0" (RT)
D = 1° 08' 45.3"
L = 1,431.90'
T = 720.88'
R = 5,000.00'
Se=0.02
Runoff = 110'

-Y14-
PI Sta 17+64.64
Δ = 6° 33' 58.0" (LT)
D = 2° 51' 53.2"
L = 229.20'
T = 114.73'
R = 2,000.00'
Se=0.03
Runoff = 110'

NAD 83

MATCHLINE -Y13- STA.20+00 SEE SHEET 22

MATCHLINE -L- STA. 135+00 SEE SHEET 11

MATCHLINE -L- STA. 149+00 SEE SHEET 13

-Y14- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y14- POT Sta. 11+72.45

-Y14- POT Sta. 12+53.67 =
-L- POC Sta.146+89.27

-L- PC Sta. 137+09.34

-Y13- POT Sta. 23+87.84 =
-L- POT Sta.136+52.00

-Y14- PC Sta. 16+49.91

END CONSTRUCTION
-Y14- POT Sta. 14+50.00

-BL- 17 PINC

-BL- 18 PINC

-BY13- 51 POT

GLENN CROSSING ASSOCIATES, LLC
DB 2770 PG 1473
PB 52 PG 85

WINSTON-SALEM/FORSYTH COUNTY BOARD OF EDUCATION
DB 1536 PG 1627
DB 618 PG 39
DB 617 PG 132
DB 2597 PG 1961
DB 2581 PG 445

WEST POINT VILLAGE ASSOCIATES
DB 2770 PG 1479
PB 52 PG 85

PRIME PROPERTY, LLC
DB 2770 PG 1477
PB 52 PG 85

CHARLES O. JR. & RILLA W. WILLARD
DB 1018 PG 439

CHARLES O. WILLIARD, JR
DB 289 PG 125

C. STANLEY & KIMBERLY P. TART
DB 1969 PG 470

DB 2244 PG 3736

LARRY W. BOYLES AND WIFE KATHRYN H. BOYLES
DB 2928 PG 3689
DB 2906 PG 4399
DB 2899 PG 1155
DB 927 PG 569

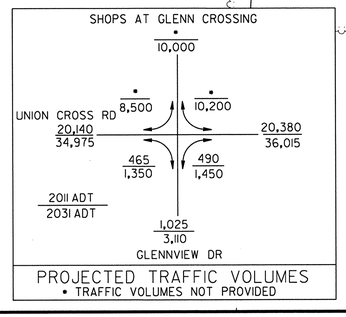
ROBERT H. & TREVA BOYLES
DB 778 PG 312
DB 723 PG 90
DB 831 PG 545

LARRY D. SR. & DONNA HOLMAN
DB 2337 PG 5617

UNION CROSS, LLC
DB 2592 PG 1111

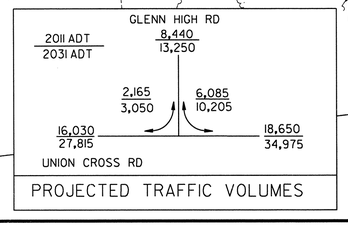
HELEN G. WOOD
DB 2156 PG 1086

SHOPS AT GLENN CROSSING



PROJECTED TRAFFIC VOLUMES
• TRAFFIC VOLUMES NOT PROVIDED

GLENN HIGH RD



PROJECTED TRAFFIC VOLUMES

NOTE:
ALL PROP. FENCE IS 48" WOVEN WIRE UNLESS OTHERWISE NOTED.

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
SEE SHEET 30 & 31 FOR -L- PROFILE
SEE SHEET 45 FOR -Y13- & -Y14- PROFILE

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
DIVISION OF HIGHWAYS

8/17/99

10/18/2011
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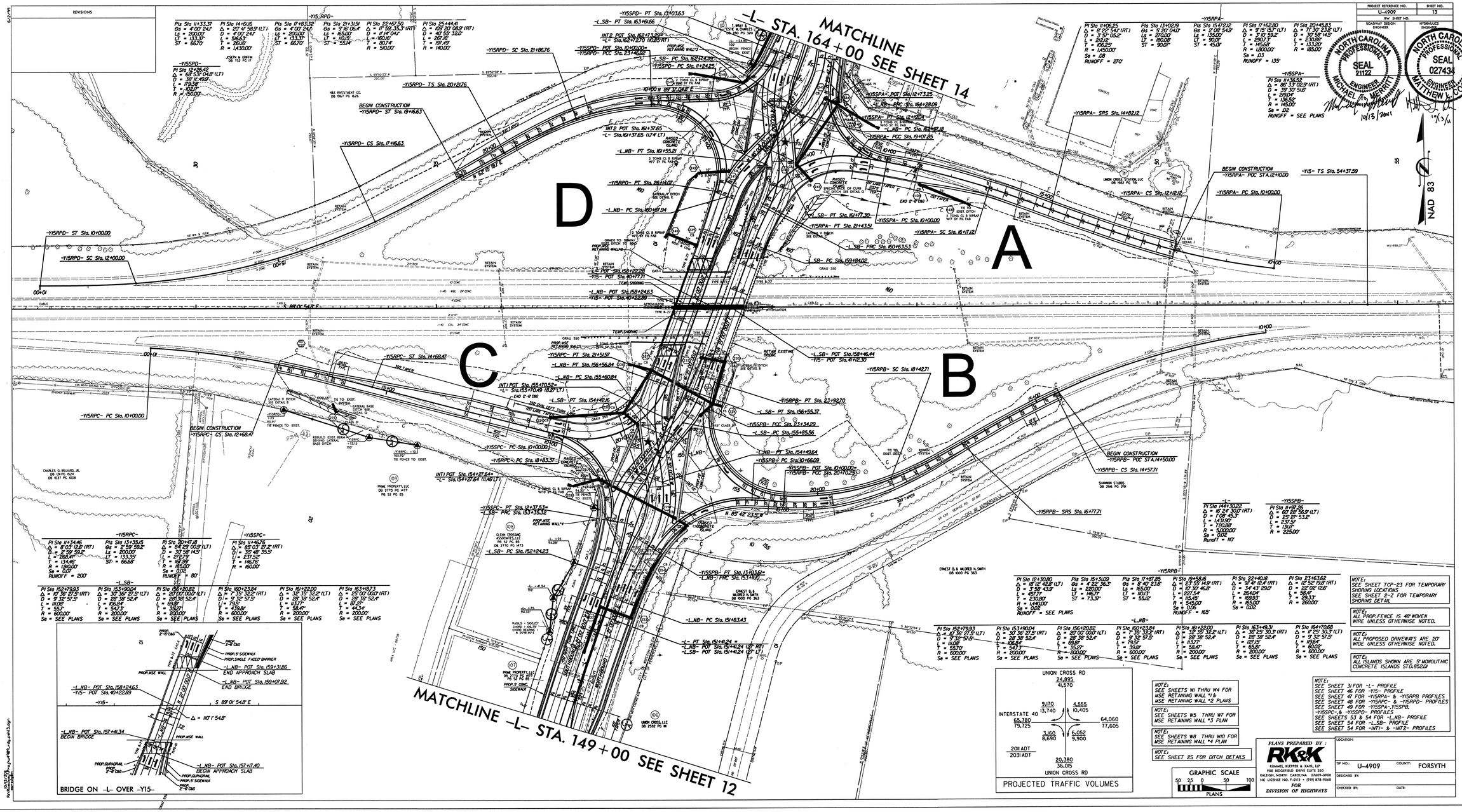
mtomi

REVISIONS

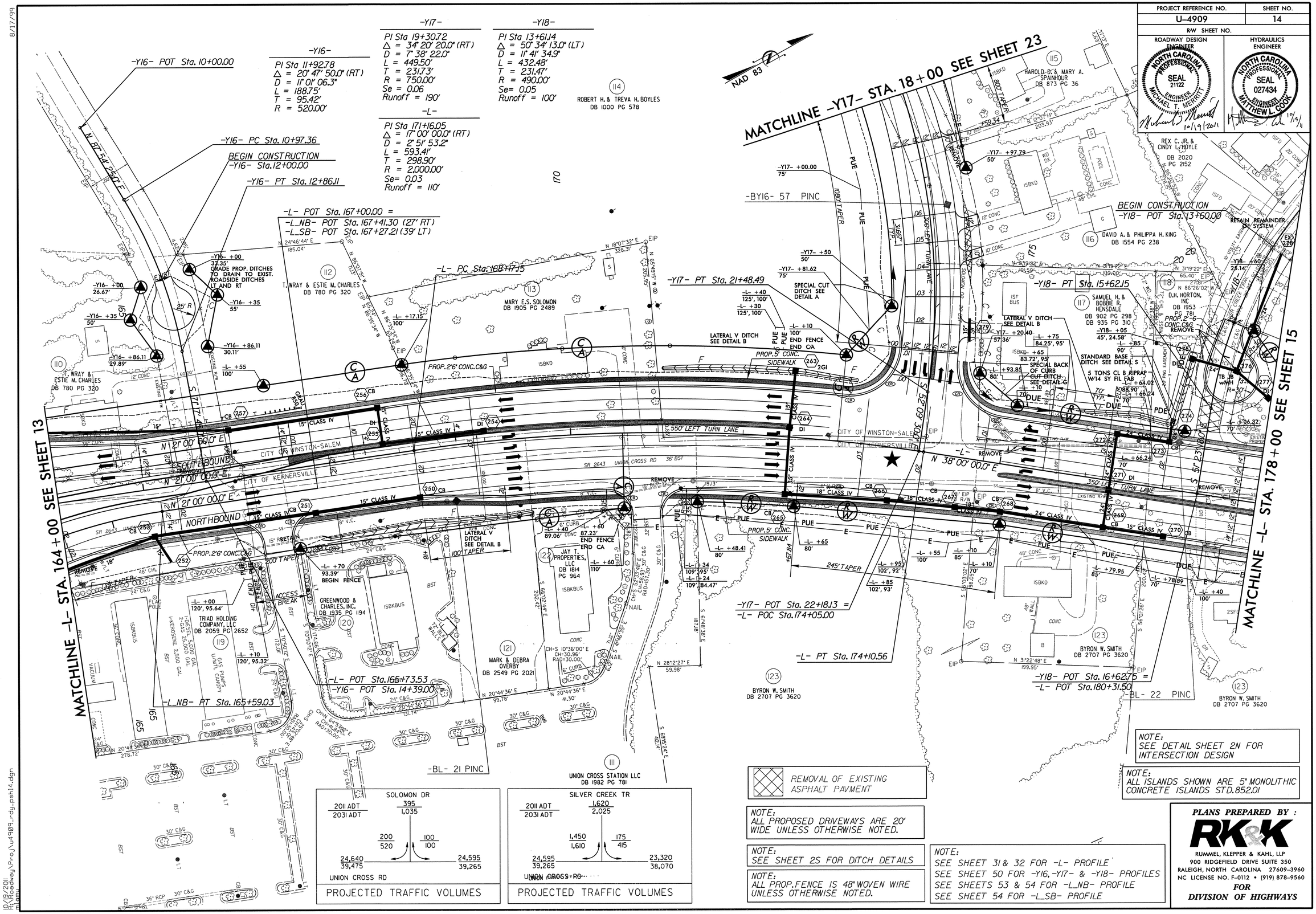
PROJECT REFERENCE NO.	SHEET NO.
U-4909	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER


MATCHLINE -L- STA. 164+00 SEE SHEET 14
MATCHLINE -L- STA. 149+00 SEE SHEET 12
A
B
C
D
NAD 83
-Y15RPD- ST Sta. 10+00.00
-Y15RPD- SC Sta. 12+00.00
-Y15RPD- CS Sta. 17+16.63
-Y15RPD- TS Sta. 20+21.76
-Y15RPD- SC Sta. 21+86.76
-Y15RPC- ST Sta. 14+68.47
-Y15RPC- PC Sta. 10+00.00
-Y15RPC- CS Sta. 12+68.47
-Y15SPC- PC Sta. 10+00.00
-Y15RPC- PC Sta. 18+83.37
-Y15SPC- PT Sta. 12+37.53
-L- PRC Sta. 153+55.32
-L_SB- PC Sta. 152+24.23
-L_NB- PC Sta. 151+83.43
-L- PT Sta. 151+41.24
-L_NB- POT Sta. 151+41.24 (27' RT)
-L_SB- POT Sta. 151+41.24 (27' LT)
-Y15RPB- SC Sta. 18+42.71
-Y15RPB- PT Sta. 23+92.70
-L_SB- PT Sta. 156+55.37
-Y15SPB- PCC Sta. 23+34.29
-L_SB- PC Sta. 155+85.56
-L_NB- PT Sta. 154+49.64
-Y15SPB- PC Sta. 30+66.09
-Y15SPB- POT Sta. 10+00.00
-Y15RPB- POC Sta. 20+10.25
-Y15RPB- SRS Sta. 16+77.71
-Y15RPB- POC ST A.14+50.00
-Y15RPB- CS Sta. 14+57.71
-Y15RPA- ST Sta. 10+00.00
-Y15RPA- PC Sta. 10+00.00
-Y15RPA- CS Sta. 12+12.12
-Y15RPA- SC Sta. 16+17.12
-Y15RPA- SRS Sta. 14+82.12
-Y15RPA- POC ST A.12+10.00
-Y15- TS Sta. 54+37.59
-L_SB- PC Sta. 159+84.02
-L_NB- POT Sta. 158+24.63
-Y15- POT Sta. 40+22.89
-L_SB- POT Sta. 158+46.44
-Y15- POT Sta. 41+12.30
-L_NB- PT Sta. 151+77.30
-Y15RPA- PT Sta. 21+43.51
-L_SB- PRC Sta. 160+63.53
-L_NB- PC Sta. 160+61.94
-Y15RPD- PT Sta. 26+14.07
-L_NB- PT Sta. 161+55.21
-L- Sta. 161+37.65 (17.4' LT)
-Y15RPD- PT Sta. 13+03.63
-L_SB- PT Sta. 163+16.66
-Y15SPD- PT Sta. 12+73.25
-L_NB- PRC Sta. 164+28.09
-L_NB- PC Sta. 162+87.18
-Y15RPA- PCC Sta. 15+01.85
-Y15SPA- PC Sta. 10+00.00
-Y15SPA- PT Sta. 21+43.51
BEGIN CONSTRUCTION -Y15RPD- ST Sta. 15+16.63
BEGIN CONSTRUCTION -Y15RPC- CS Sta. 12+68.47
BEGIN CONSTRUCTION -Y15RPB- POC ST A.14+50.00
BEGIN CONSTRUCTION -Y15RPA- POC ST A.12+10.00
-Y15RPA- PC Sta. 10+00.00
-Y15RPA- CS Sta. 12+12.12
-Y15RPA- SC Sta. 16+17.12
-L- Y15RPD- PT Sta. 12+37.53
-L_SB- PRC Sta. 153+55.32
-L_NB- PC Sta. 151+83.43
-L- PT Sta. 151+41.24
-L_NB- POT Sta. 151+41.24
-L_SB- POT Sta. 151+41.24
-L_NB- PT Sta. 154+49.64
-Y15SPB- PC Sta. 30+66.09
-Y15SPB- POT Sta. 10+00.00
-Y15RPB- POC Sta. 20+10.25
-Y15RPB- SRS Sta. 16+77.71
-Y15RPB- POC ST A.14+50.00
-Y15RPB- CS Sta. 14+57.71
-L_NB- PT Sta. 151+77.30
-Y15RPA- PT Sta. 21+43.51
-L_SB- PRC Sta. 160+63.53
-L_NB- PC Sta. 160+61.94
-Y15RPD- PT Sta. 26+14.07
-L_NB- PT Sta. 161+55.21
-L- Sta. 161+37.65 (17.4' LT)
-Y15RPD- PT Sta. 13+03.63
-L_SB- PT Sta. 163+16.66
-Y15SPD- PT Sta. 12+73.25
-L_NB- PRC Sta. 164+28.09
-L_NB- PC Sta. 162+87.18
-Y15RPA- PCC Sta. 15+01.85
-Y15SPA- PC Sta. 10+00.00
-Y15SPA- PT Sta. 21+43.51
-Y15RPA- SRS Sta. 14+82.12
-Y15RPA- POC ST A.12+10.00
-Y15RPA- PC Sta. 10+00.00
-Y15RPA- CS Sta. 12+12.12
-Y15- TS Sta. 54+37.59
-Y15RPA- SC Sta. 16+17.12
-L_SB- PC Sta. 159+84.02
-L_NB- POT Sta. 158+24.63
-Y15- POT Sta. 40+22.89
-L_SB- POT Sta. 158+46.44
-Y15- POT Sta. 41+12.30
-Y15RPB- SC Sta. 18+42.71
-Y15RPB- PT Sta. 23+92.70
-L_SB- PT Sta. 156+55.37
-Y15SPB- PCC Sta. 23+34.29
-L_SB- PC Sta. 155+85.56
-L_NB- PT Sta. 154+49.64
-Y15SPB- PC Sta. 30+66.09
-Y15SPB- POT Sta. 10+00.00
-Y15RPB- POC Sta. 20+10.25
-Y15RPB- SRS Sta. 16+77.71
-Y15RPB- POC ST A.14+50.00
-Y15RPB- CS Sta. 14+57.71
-L_NB- PT Sta. 151+77.30
-Y15RPA- PT Sta. 21+43.51
-L_SB- PRC Sta. 160+63.53
-L_NB- PC Sta. 160+61.94
-Y15RPD- PT Sta. 26+14.07
-L_NB- PT Sta. 161+55.21
-L- Sta. 161+37.65 (17.4' LT)
-Y15RPD- PT Sta. 13+03.63
-L_SB- PT Sta. 163+16.66
-Y15SPD- PT Sta. 12+73.25
-L_NB- PRC Sta. 164+28.09
-L_NB- PC Sta. 162+87.18
-Y15RPA- PCC Sta. 15+01.85
-Y15SPA- PC Sta. 10+00.00
-Y15SPA- PT Sta. 21+43.51
-Y15RPA- SRS Sta. 14+82.12
-Y15RPA- POC ST A.12+10.00
-Y15RPA- PC Sta. 10+00.00
-Y15RPA- CS Sta. 12+12.12
-Y15- TS Sta. 54+37.59
-Y15RPA- SC Sta. 16+17.12
-L_SB- PC Sta. 159+84.02
-L_NB- POT Sta. 158+24.63
-Y15- POT Sta. 40+22.89
-L_SB- POT Sta. 158+46.44
-Y15- POT Sta. 41+12.30
-Y15RPB- SC Sta. 18+42.71
-Y15RPB- PT Sta. 23+92.70
-L_SB- PT Sta. 156+55.37
-Y15SPB- PCC Sta. 23+34.29
-L_SB- PC Sta. 155+85.56
-L_NB- PT Sta. 154+49.64
-Y15SPB- PC Sta. 30+66.09
-Y15SPB- POT Sta. 10+00.00
-Y15RPB- POC Sta. 20+10.25
-Y15RPB- SRS Sta. 16+77.71
-Y15RPB- POC ST A.14+50.00
-Y15RPB- CS Sta. 14+57.71
-Y15RPC- ST Sta. 14+68.47
-Y15RPC- PC Sta. 10+00.00
-Y15RPC- CS Sta. 12+68.47
-Y15SPC- PC Sta. 10+00.00
-Y15RPC- PC Sta. 18+83.37
-Y15SPC- PT Sta. 12+37.53
-L- PRC Sta. 153+55.32
-L_SB- PC Sta. 152+24.23
-L_NB- PC Sta. 151+83.43
-L- PT Sta. 151+41.24
-L_NB- POT Sta. 151+41.24
-L_SB- POT Sta. 151+41.24
-L_NB- PT Sta. 154+49.64
-Y15SPB- PC Sta. 30+66.09
-Y15SPB- POT Sta. 10+00.00
-Y15RPB- POC Sta. 20+10.25
-Y15RPB- SRS Sta. 16+77.71
-Y15RPB- POC ST A.14+50.00
-Y15RPB- CS Sta. 14+57.71
-L_NB- PT Sta. 151+77.30
-Y15RPA- PT Sta. 21+43.51
-L_SB- PRC Sta. 160+63.53
-L_NB- PC Sta. 160+61.94
-Y15RPD- PT Sta. 26+14.07
-L_NB- PT Sta. 161+55.21
-L- Sta. 161+37.65 (17.4' LT)
-Y15RPD- PT Sta. 13+03.63
-L_SB- PT Sta. 163+16.66
-Y15SPD- PT Sta. 12+73.25
-L_NB- PRC Sta. 164+28.09
-L_NB- PC Sta. 162+87.18
-Y15RPA- PCC Sta. 15+01.85
-Y15SPA- PC Sta. 10+00.00
-Y15SPA- PT Sta. 21+43.51
-Y15RPA- SRS Sta. 14+82.12
-Y15RPA- POC ST A.12+10.00
-Y15RPA- PC Sta. 10+00.00
-Y15RPA- CS Sta. 12+12.12
-Y15- TS Sta. 54+37.59
-Y15RPA- SC Sta. 16+17.12
-L_SB- PC Sta. 159+84.02
-L_NB- POT Sta. 158+24.63
-Y15- POT Sta. 40+22.89
-L_SB- POT Sta. 158+46.44
-Y15- POT Sta. 41+12.30
-Y15RPB- SC Sta. 18+42.71
-Y15RPB- PT Sta. 23+92.70
-L_SB- PT Sta. 156+55.37
-Y15SPB- PCC Sta. 23+34.29
-L_SB- PC Sta. 155+85.56

PROJECT REFERENCE NO.	SHEET NO.
U-4909	14
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — 10/19/2011

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 10/19/11



REMOVAL OF EXISTING ASPHALT PAVMENT

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROP. FENCE IS 48" WOVEN WIRE UNLESS OTHERWISE NOTED.

NOTE:
SEE SHEET 31 & 32 FOR -L- PROFILE
SEE SHEET 50 FOR -Y16, -Y17- & -Y18- PROFILES
SEE SHEETS 53 & 54 FOR -L_NB- PROFILE
SEE SHEET 54 FOR -L_SB- PROFILE

NOTE:
SEE DETAIL SHEET 2N FOR INTERSECTION DESIGN

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

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8/17/99

10/19/2011
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mlamb

PROJECT REFERENCE NO.	SHEET NO.
U-4909	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MESHITT — Nov. 7, 2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 11/7/11

-Y19-
PI Sta 16+91.50
△ = 11° 32' 15.0" (RT)
D = 5° 43' 46.5"
L = 201.37'
T = 101.03'
R = 1,000.00'
Se= 0.04
Runoff = See Plans

-Y20-
PI Sta 11+19.09
△ = 25° 46' 00.0" (LT)
D = 21° 13' 14.4"
L = 121.42'
T = 61.76'
R = 270.00'
Se= 0.04
Runoff = See Plans

-BL- 23 PINC

-BY18- 61 POT

-Y19- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y19- POT Sta. 11+90.00

-Y20- POT Sta. 10+00.00 =
-L- POT Sta.189+16.50

-Y19- POT Sta. 14+37.41 =
-L- POT Sta.184+38.69

-Y18- PC Sta. 11+29.67

-BY17- 59 PINC

Do Not Disturb
Historic Well House
(within 10' boundary)

-Y20- PC Sta. 10+57.34

-Y20- PT Sta. 11+78.76

END CONSTRUCTION
-Y20- POT Sta. 12+20.00

-Y19- PC Sta. 15+90.47

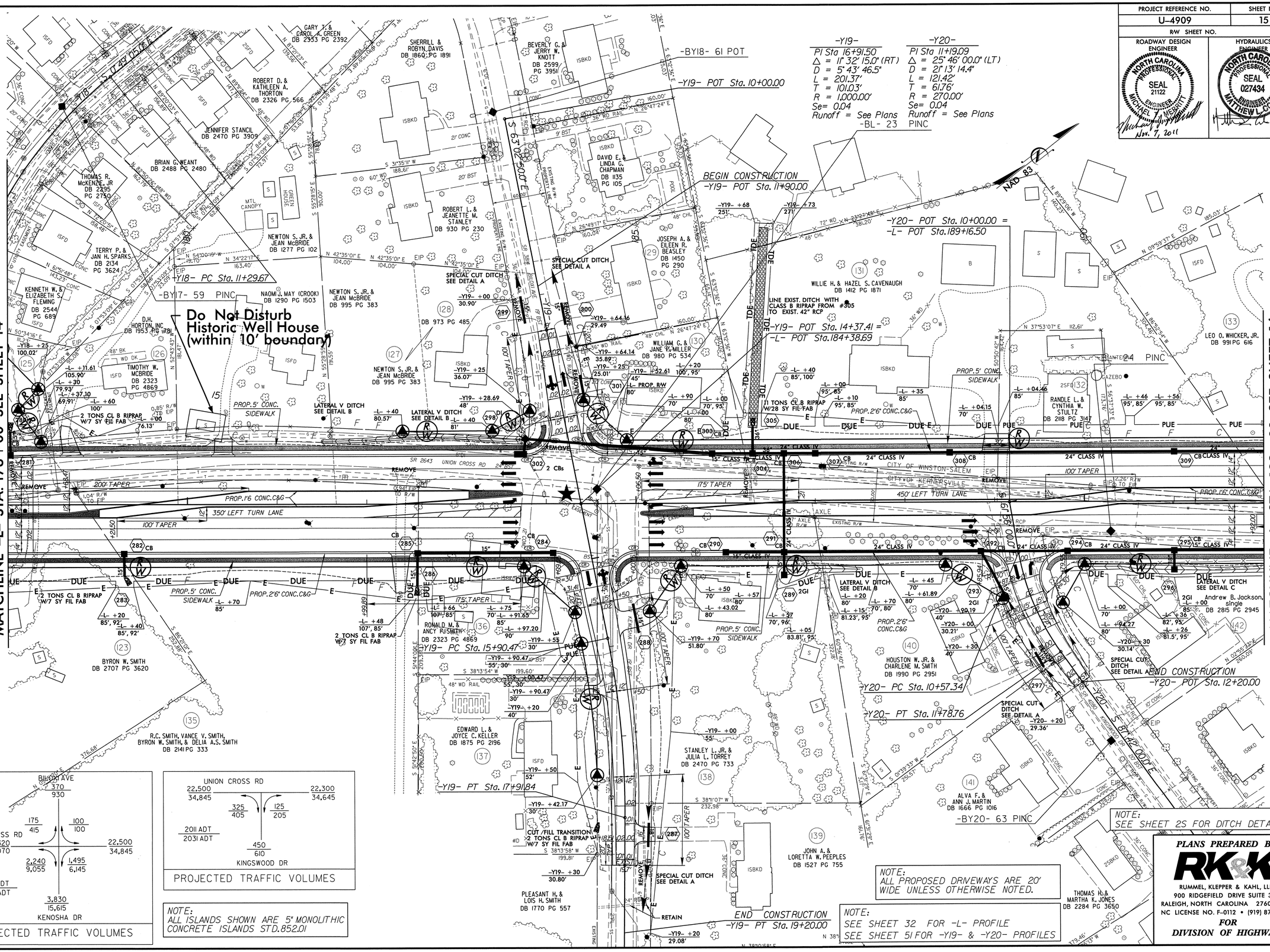
-Y19- PT Sta. 17+91.84

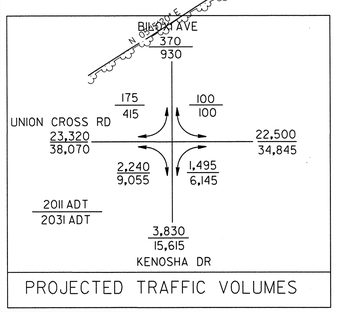
END CONSTRUCTION
-Y19- PT Sta. 19+20.00

-BY20- 63 PINC

MATCHLINE -L- STA. 178+00 SEE SHEET 14

MATCHLINE -L- STA. 192+00 SEE SHEET 16





PROJECTED TRAFFIC VOLUMES

PROJECTED TRAFFIC VOLUMES

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 51 FOR -Y19- & -Y20- PROFILES

PLANS PREPARED BY :
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bpaulchris

PROJECT REFERENCE NO.	SHEET NO.
U-4909	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — Nov. 7, 2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 11/3/11

-Y21-	-Y22-	-L-
PI Sta 12+43.26	PI Sta 13+02.85	PI Sta 207+66.48
Δ = 21° 03' 45.0" (RT)	Δ = 36° 27' 25.0" (LT)	Δ = 19° 36' 30.0" (RT)
D = 11° 27' 33.0"	D = 22° 55' 05.9"	D = 2° 29' 28.0"
L = 183.80'	L = 159.07'	L = 787.13'
T = 92.95'	T = 82.33'	T = 397.45'
R = 500.00'	R = 250.00'	R = 2,300.00'
Se= 0.02		Se= 0.03
Runoff = See Plans		Runoff = 210'

SHEPHERD GROVE RD

2011 ADT / 2031 ADT	750 / 910	
	525 / 605	225 / 305
22,300 / 34,645		22,000 / 34,345

UNION CROSS RD

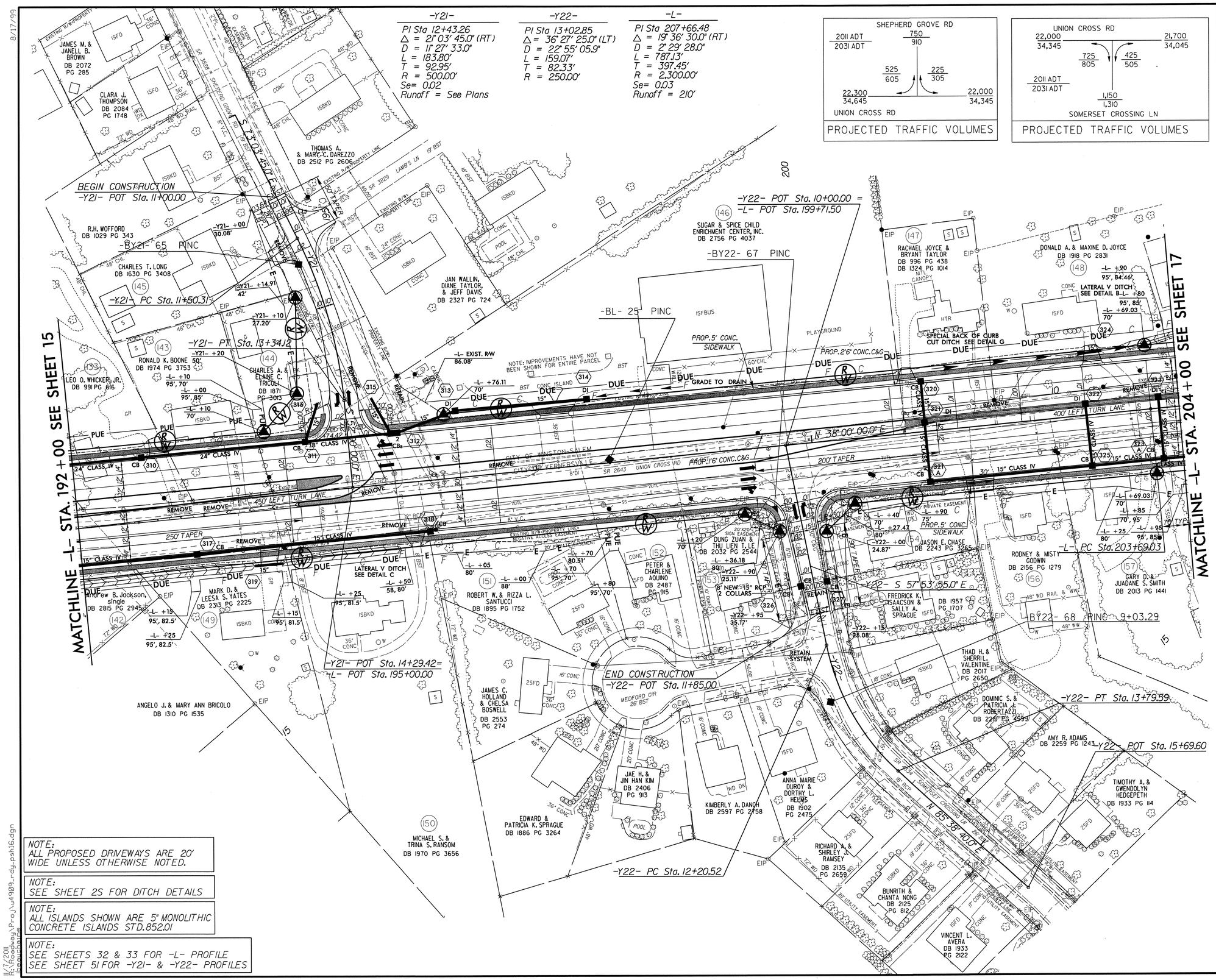
PROJECTED TRAFFIC VOLUMES

UNION CROSS RD

22,000 / 34,345		21,700 / 34,045
	725 / 805	425 / 505
2011 ADT / 2031 ADT		
	1,150 / 1,310	

SOMERSET CROSSING LN

PROJECTED TRAFFIC VOLUMES



NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
SEE SHEETS 32 & 33 FOR -L- PROFILE
SEE SHEET 51 FOR -Y21- & -Y22- PROFILES

PLANS PREPARED BY :

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bpaulchase

PROJECT REFERENCE NO.	SHEET NO.
U-4909	17
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

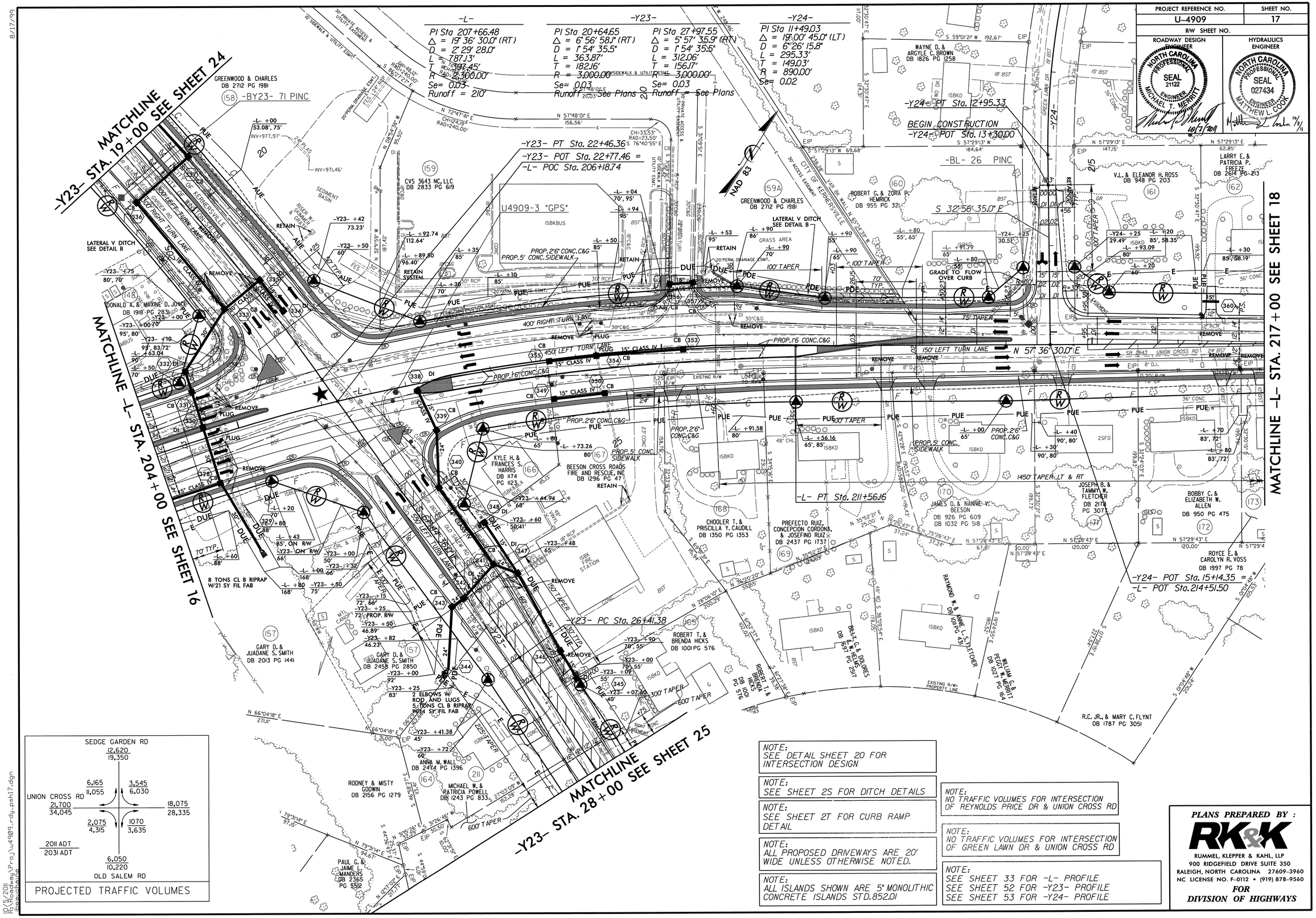
HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11

-L-
PI Sta 207+66.48
Δ = 19° 36' 30.0" (RT)
D = 2° 29' 28.0"
L = 787.13'
T = 397.45'
R = 2,300.00'
Se= 0.03
Runoff = 210'

-Y23-
PI Sta 20+64.65
Δ = 6° 56' 58.1" (RT)
D = 1° 54' 35.5"
L = 363.87'
T = 182.16'
R = 3,000.00'
Se= 0.03
Runoff = See Plans

PI Sta 27+97.55
Δ = 5° 57' 35.9" (RT)
D = 1° 54' 35.5"
L = 312.06'
T = 156.17'
R = 3,000.00'
Se= 0.03
Runoff = See Plans

-Y24-
PI Sta 11+49.03
Δ = 19° 00' 45.0" (LT)
D = 6° 26' 15.8"
L = 295.33'
T = 149.03'
R = 890.00'
Se= 0.02



PROJECTED TRAFFIC VOLUMES

NOTE:
SEE DETAIL SHEET 20 FOR INTERSECTION DESIGN

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
SEE SHEET 2T FOR CURB RAMP DETAIL

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
NO TRAFFIC VOLUMES FOR INTERSECTION OF REYNOLDS PRICE DR & UNION CROSS RD

NOTE:
NO TRAFFIC VOLUMES FOR INTERSECTION OF GREEN LAWN DR & UNION CROSS RD

NOTE:
SEE SHEET 33 FOR -L- PROFILE
SEE SHEET 52 FOR -Y23- PROFILE
SEE SHEET 53 FOR -Y24- PROFILE

PLANS PREPARED BY :
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10/6/2011
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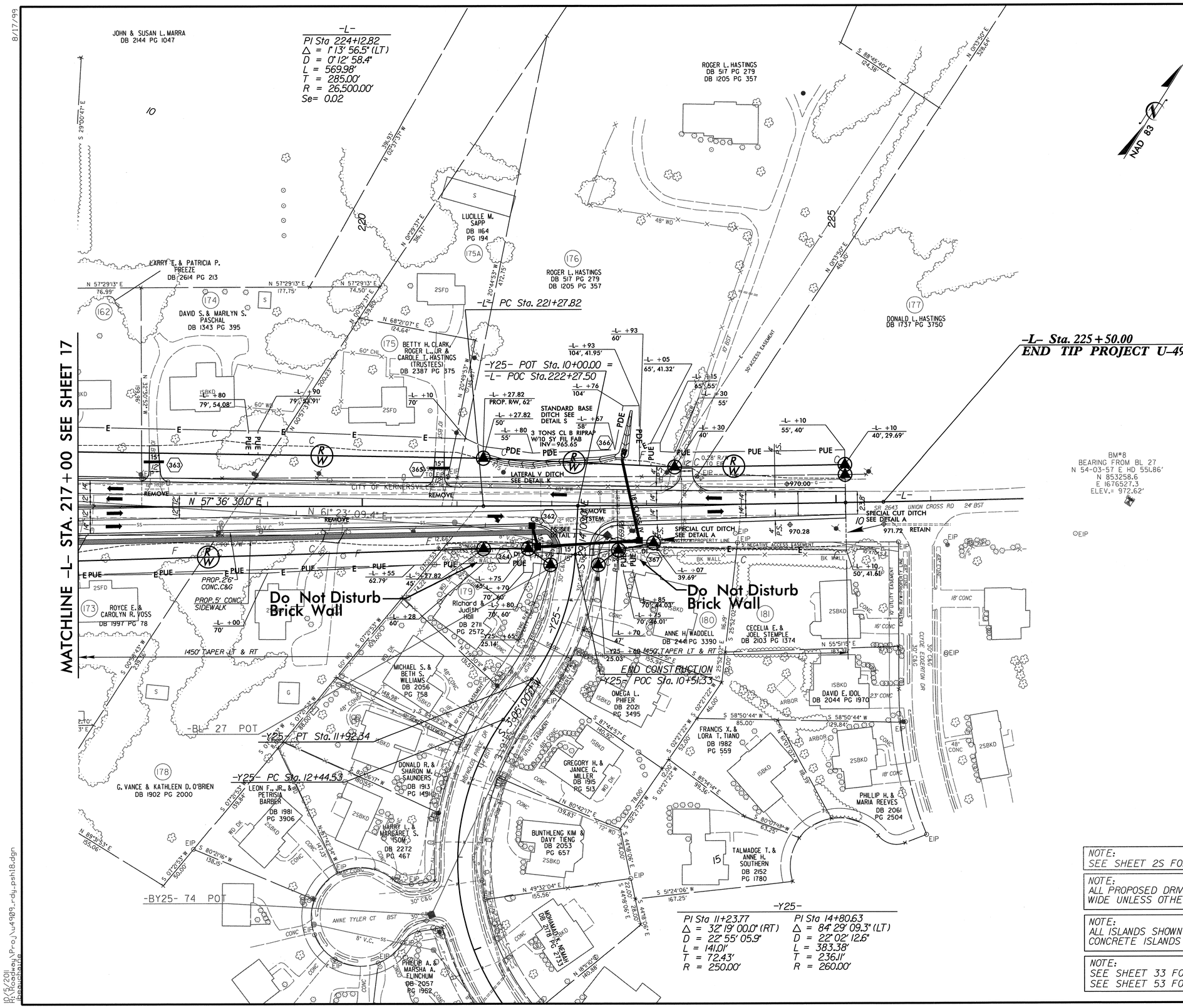
beauchane

PROJECT REFERENCE NO.	SHEET NO.
U-4909	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11



NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
SEE SHEET 33 FOR -L- PROFILE
SEE SHEET 53 FOR -Y25- PROFILE

PLANS PREPARED BY :
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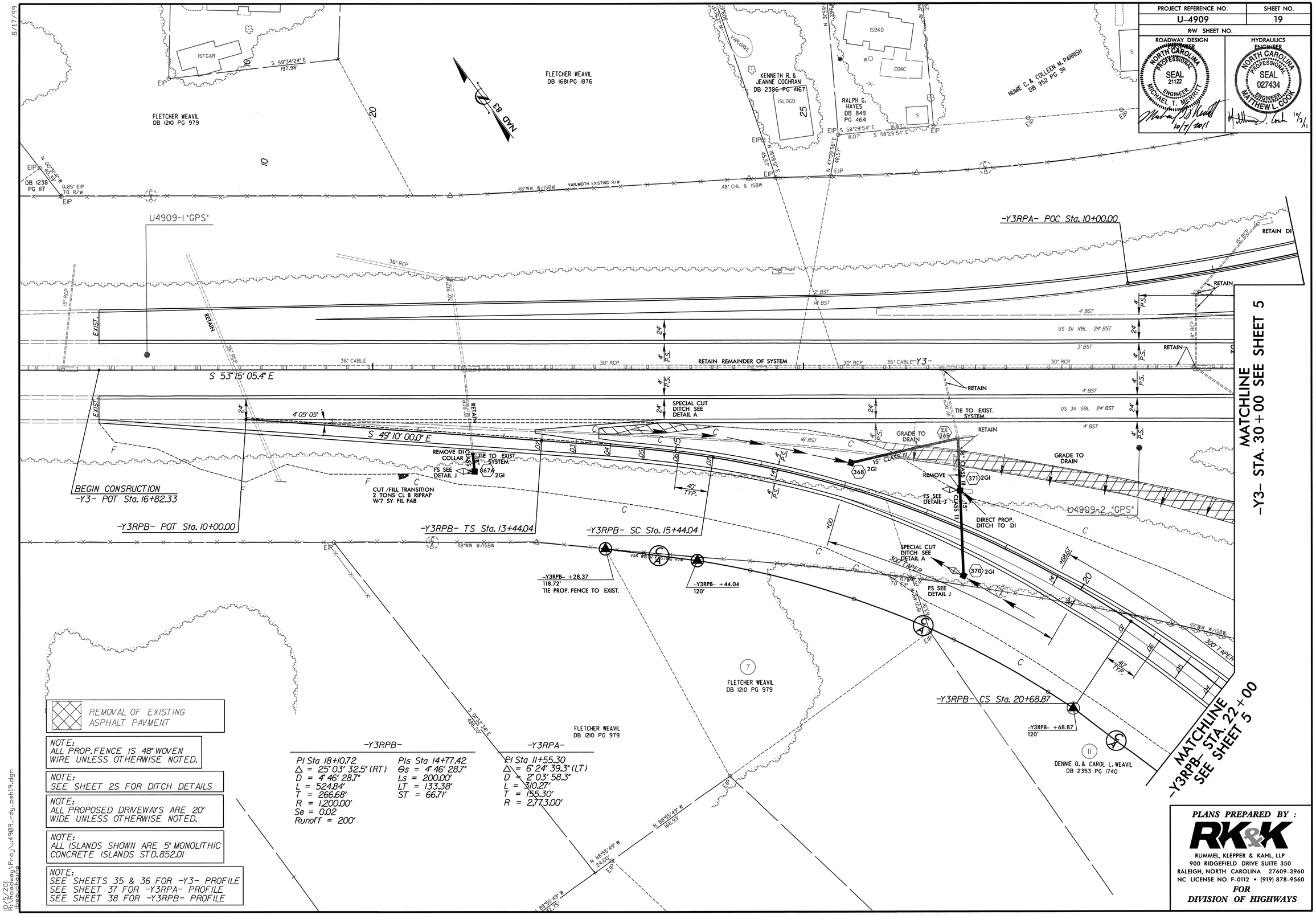
bcauchanne

PROJECT REFERENCE NO.	SHEET NO.
U-4909	19
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — 10/7/2011

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 10/7/11



REMOVAL OF EXISTING ASPHALT PAVMENT

NOTE:
ALL PROP. FENCE IS 48" WOVEN WIRE UNLESS OTHERWISE NOTED.

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
SEE SHEETS 35 & 36 FOR -Y3- PROFILE
SEE SHEET 37 FOR -Y3RPA- PROFILE
SEE SHEET 38 FOR -Y3RPB- PROFILE

-Y3RPB-		-Y3RPA-
PI Sta 18+10.72	PIs Sta 14+77.42	PI Sta 11+55.30
Δ = 25° 03' 32.5" (RT)	Θs = 4° 46' 28.7"	Δ = 6° 24' 39.3" (LT)
D = 4° 46' 28.7"	Ls = 200.00'	D = 2° 03' 58.3"
L = 524.84'	LT = 133.38'	L = 310.27'
T = 266.68'	ST = 66.71'	T = 155.30'
R = 1,200.00'		R = 2,773.00'
Se = 0.02		
Runoff = 200'		

PLANS PREPARED BY :

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10/5/2011
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bpaulchate

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-4909	20
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — 10/19/2011

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 10/19/11

-Y3-

PIs Sta 62+30.18
Θs = 0° 15' 07.8"
Ls = 90.00'
LT = 60.00'
ST = 30.00'

PI Sta 67+02.10
Δ = 4° 56' 58.2" (LT)
D = 0° 33' 37.3"
L = 883.29'
T = 441.92'
R = 10,225.00'

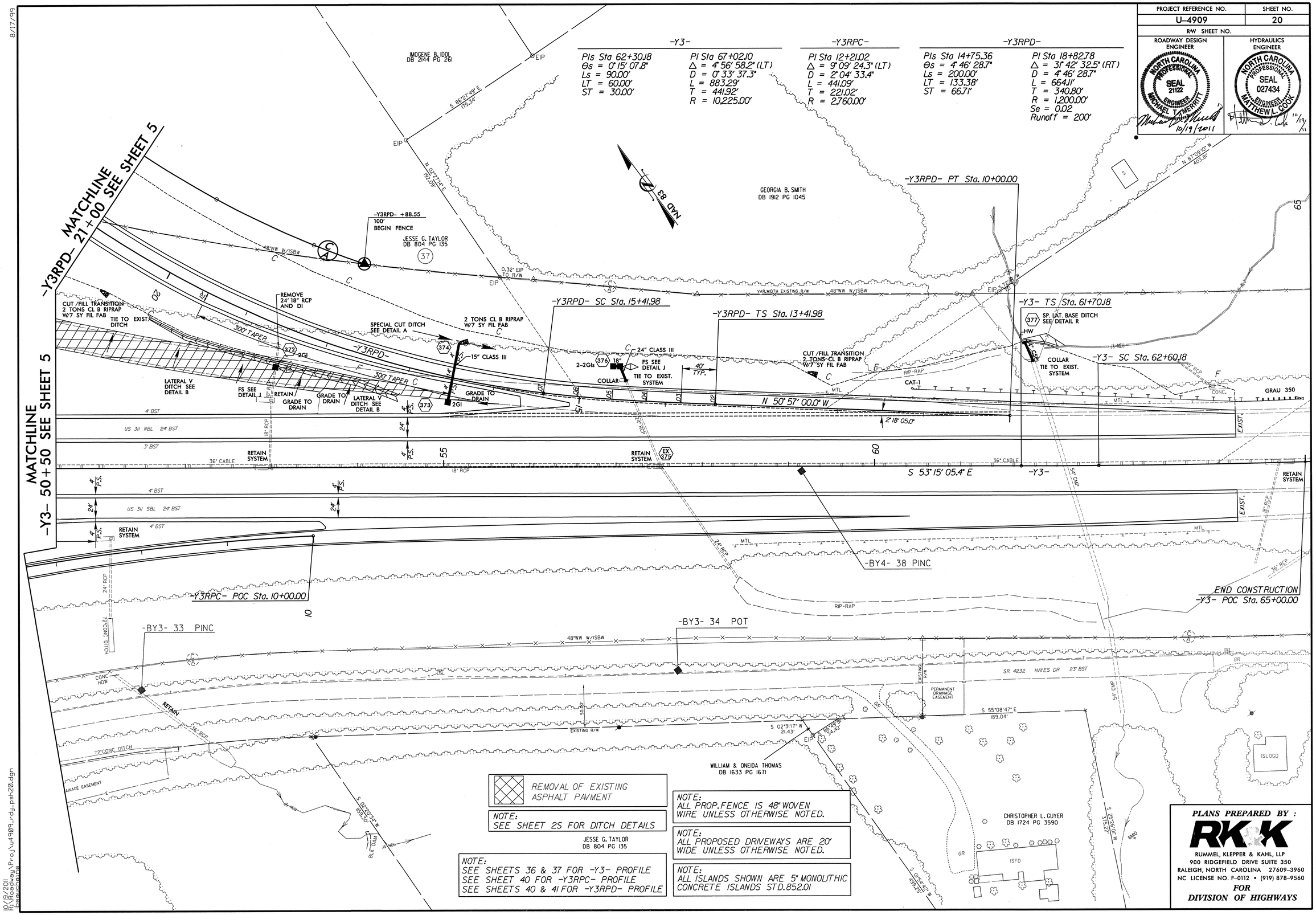
-Y3RPC-

PI Sta 12+21.02
Δ = 9° 09' 24.3" (LT)
D = 2° 04' 33.4"
L = 441.09'
T = 221.02'
R = 2,760.00'

-Y3RPD-

PIs Sta 14+75.36
Θs = 4° 46' 28.7"
Ls = 200.00'
LT = 133.38'
ST = 66.71'

PI Sta 18+82.78
Δ = 31° 42' 32.5" (RT)
D = 4° 46' 28.7"
L = 664.11'
T = 340.80'
R = 1,200.00'
Se = 0.02
Runoff = 200'



PLANS PREPARED BY :
RKK
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lbeauchaine

PROJECT REFERENCE NO.	SHEET NO.
U-4909	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

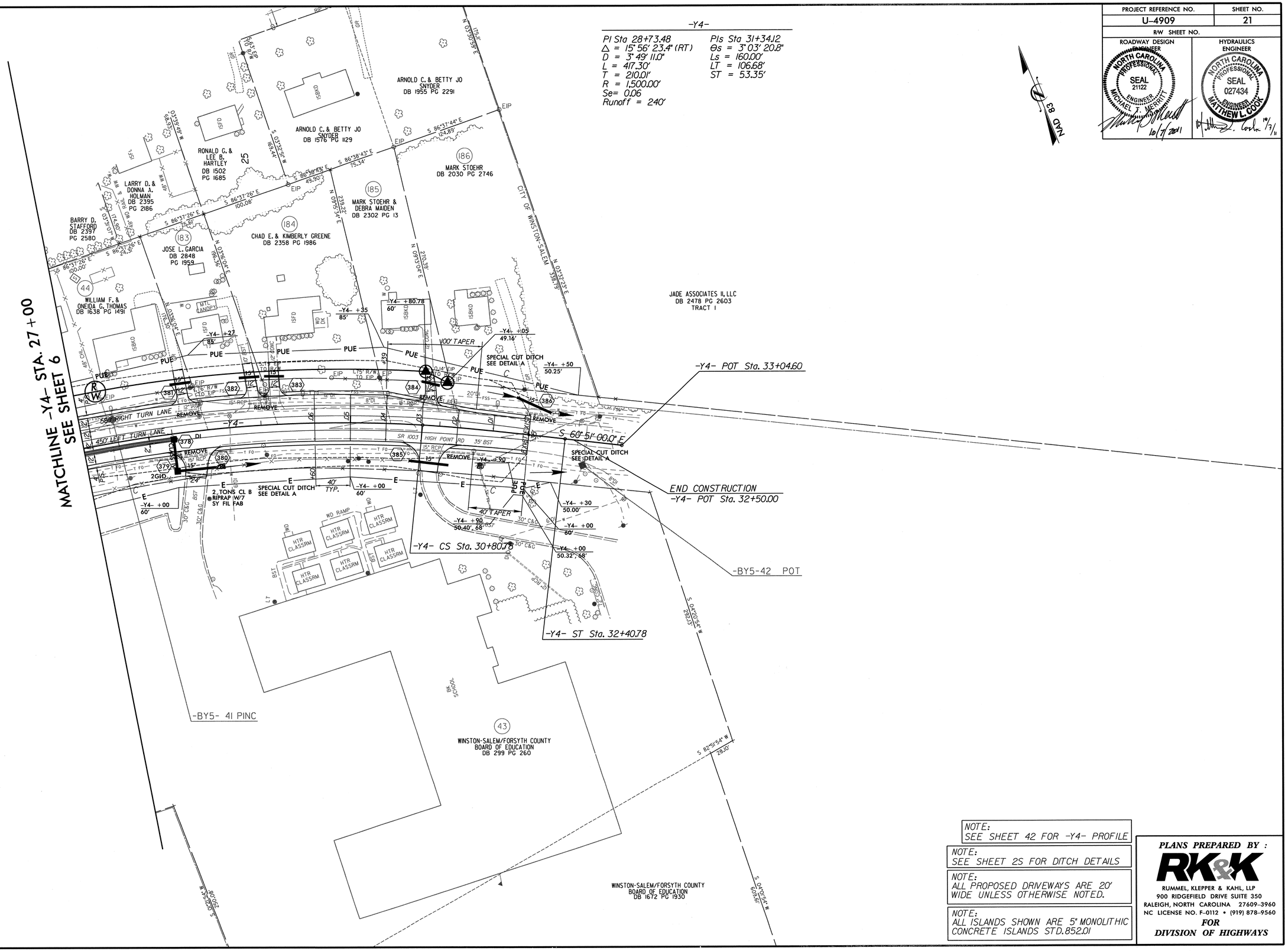
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11

-Y4-

PI Sta 28+73.48
Δ = 15° 56' 23.4" (RT)
D = 3° 49' 11.0"
L = 417.30'
T = 210.01'
R = 1,500.00'
Se= 0.06
Runoff = 240'

PIs Sta 31+34.12
Θs = 3° 03' 20.8"
Ls = 160.00'
LT = 106.68'
ST = 53.35'



NOTE:
SEE SHEET 42 FOR -Y4- PROFILE

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

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8/17/99

10/5/2011
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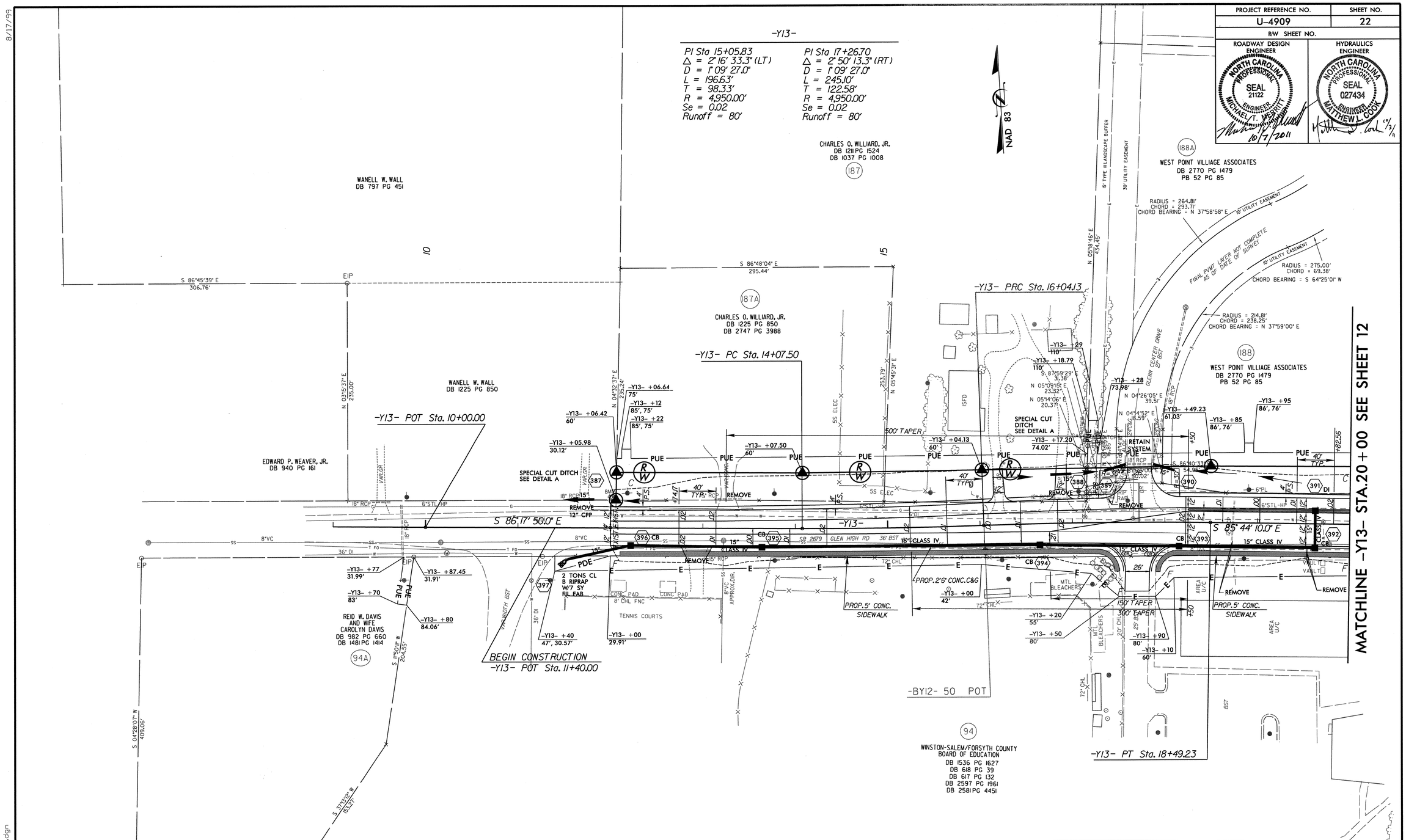
bauchanie

PROJECT REFERENCE NO.	SHEET NO.
U-4909	22
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MESHRIT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11



NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
SEE SHEET 45 FOR -Y13- PROFILE

PLANS PREPARED BY :
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10/5/2011
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bearichaire

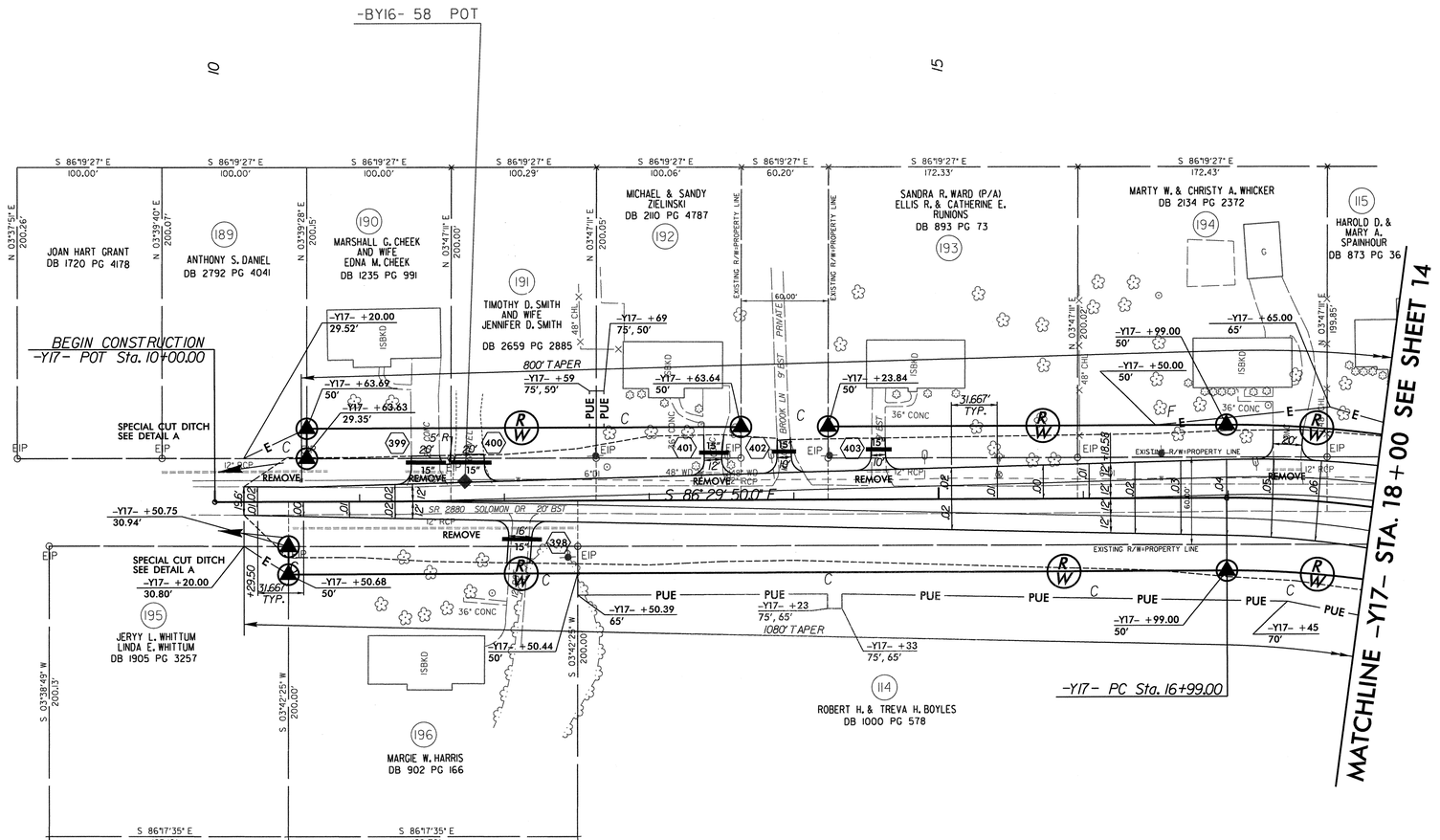
PROJECT REFERENCE NO.	SHEET NO.
U-4909	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11

-Y17-
PI Sta 19+30.72
Δ = 34° 20' 20.0" (RT)
D = 7° 38' 22.0"
L = 449.50'
T = 231.73'
R = 750.00'
Se = 0.06
Runoff = 190'

NAD 83



NOTE:
SEE SHEET 50 FOR -Y17- PROFILE

NOTE:
SEE SHEET 25 FOR DITCH DETAILS

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
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8/17/99

10/5/2011
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bealchase

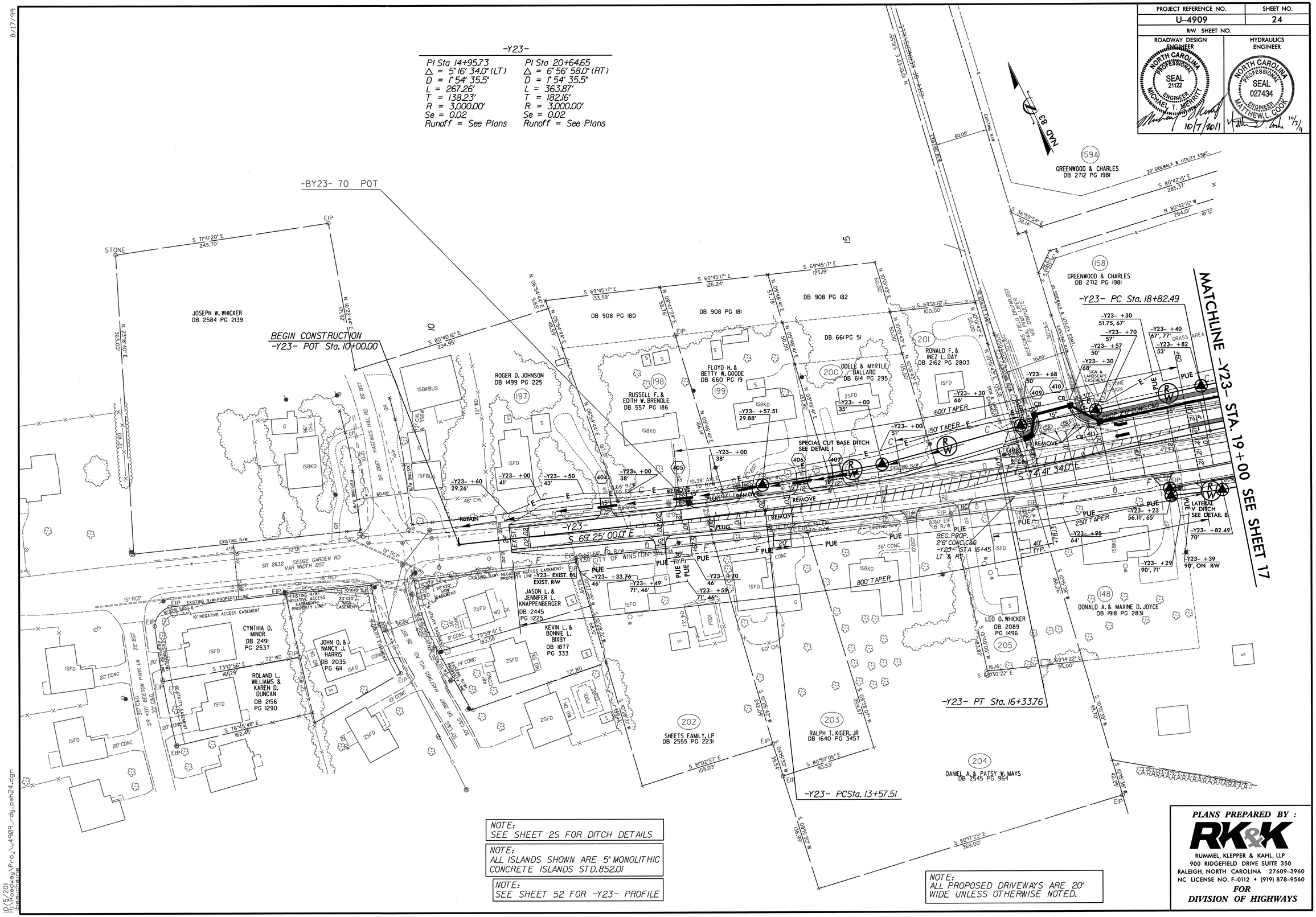
PROJECT REFERENCE NO.	SHEET NO.
U-4909	24
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11

-Y23-

PI Sta 14+95.73	PI Sta 20+64.65
Δ = 5° 16' 34.0" (LT)	Δ = 6° 56' 58.0" (RT)
D = 1° 54' 35.5"	D = 1° 54' 35.5"
L = 267.26'	L = 363.87'
T = 138.23'	T = 182.16'
R = 3,000.00'	R = 3,000.00'
Se = 0.02	Se = 0.02
Runoff = See Plans	Runoff = See Plans


MATCHLINE -Y23- STA. 19 + 00 SEE SHEET 17
-BY23- 70 POT
BEGIN CONSTRUCTION
-Y23- POT Sta. 10+00.00
-Y23- PC Sta. 18+82.49
-Y23- PT Sta. 16+33.76
-Y23- PCSta. 13+57.51
-Y23- 69° 25' 00.0" E
S 69°25'00" E 1,340'
NAD 83
JOSEPH W. WHICKER DB 2584 PG 2139
ROGER D. JOHNSON DB 1499 PG 225
RUSSELL F. & EDITH W. BRENDLE DB 557 PG 186
FLOYD H. & BETTY W. GOODE DB 660 PG 19
DB 908 PG 180
DB 908 PG 181
DB 908 PG 182
DB 661 PG 51
ODELL & MYRTLE BALLARD DB 614 PG 295
RONALD F. & INEZ L. DAY DB 2162 PG 2803
GREENWOOD & CHARLES DB 2712 PG 1981
CYNTHIA D. MINOR DB 2491 PG 2537
ROLAND L. WILLIAMS & KAREN D. DUNCAN DB 2156 PG 1290
JOHN O. & NANCY J. HARRIS DB 2035 PG 611
JASON L. & JENNIFER L. KNAPPENBERGER DB 2445 PG 1225
KEVIN L. & BONNIE L. BIXBY DB 1877 PG 333
SHEETS FAMILY, LP DB 2555 PG 2231
RALPH T. KIGER, JR DB 1640 PG 3457
DANIEL A. & PATSY W. MAYS DB 2545 PG 964
LEO O. WHICKER DB 2089 PG 1496
DONALD A. & MAXINE D. JOYCE DB 1918 PG 2831
SR 2632 SEDGE GARDEN RD VAR WIDTH BST
SR 4371 BEESON PARK LN 22' BST
CITY OF WINSTON-SALEM
SPECIAL CUT BASE DITCH SEE DETAIL 1
LATERAL DITCH SEE DETAIL 8
BEG. PROP. 2'6" CONC.C&G -Y23- STA 16+45 LT & RT.
PROJECT TO CONCLUDE
600' TAPER
150' TAPER
250' TAPER
800' TAPER
RETAIN
REMOVE
PLUG
PUE
EXISTING R/W
NEGATIVE ACCESS EASEMENT
SIGN & LANDSCAPE EASEMENT
STONE SIGN
GRASS AREA
EXISTING R/W PROPERTY LINE
EXISTING R/W NEGATIVE ACCESS EASEMENT PROPERTY LINE
EXISTING R/W NEGATIVE ACCESS EASEMENT PROPERTY LINE
-Y23- EXIST. R/W
-Y23- EXIST. R/W
-Y23- PVI
-Y23- +00 150' TAPER
-Y23- +30 600' TAPER
-Y23- +68 50'
-Y23- +95 64'
-Y23- +82.49 70'
-Y23- +39 90', ON R/W
-Y23- +29 90', 71'
-Y23- +40 67', 77'
-Y23- +30 51.75, 67'
-Y23- +70 57'
-Y23- +57 50'
-Y23- +30 68'
-Y23- +82 53'
-Y23- +23 56.11', 65'
-Y23- +60 29.26'
-Y23- +00 41'
-Y23- +50 43'
-Y23- +00 38'
-Y23- +57.51 29.88'
-Y23- +33.76 46'
-Y23- +49 71', 46'
-Y23- +70 46'
-Y23- +59 71', 46'
-Y23- +78.13 40' TYP.
-Y23- +00 51'
-Y23- +00 35'
-Y23- +30 66'
-Y23- +00 38'
-Y23- +00 38'
-Y23- +00 29.26'
-Y23- +00 41'
-Y23- +50 43

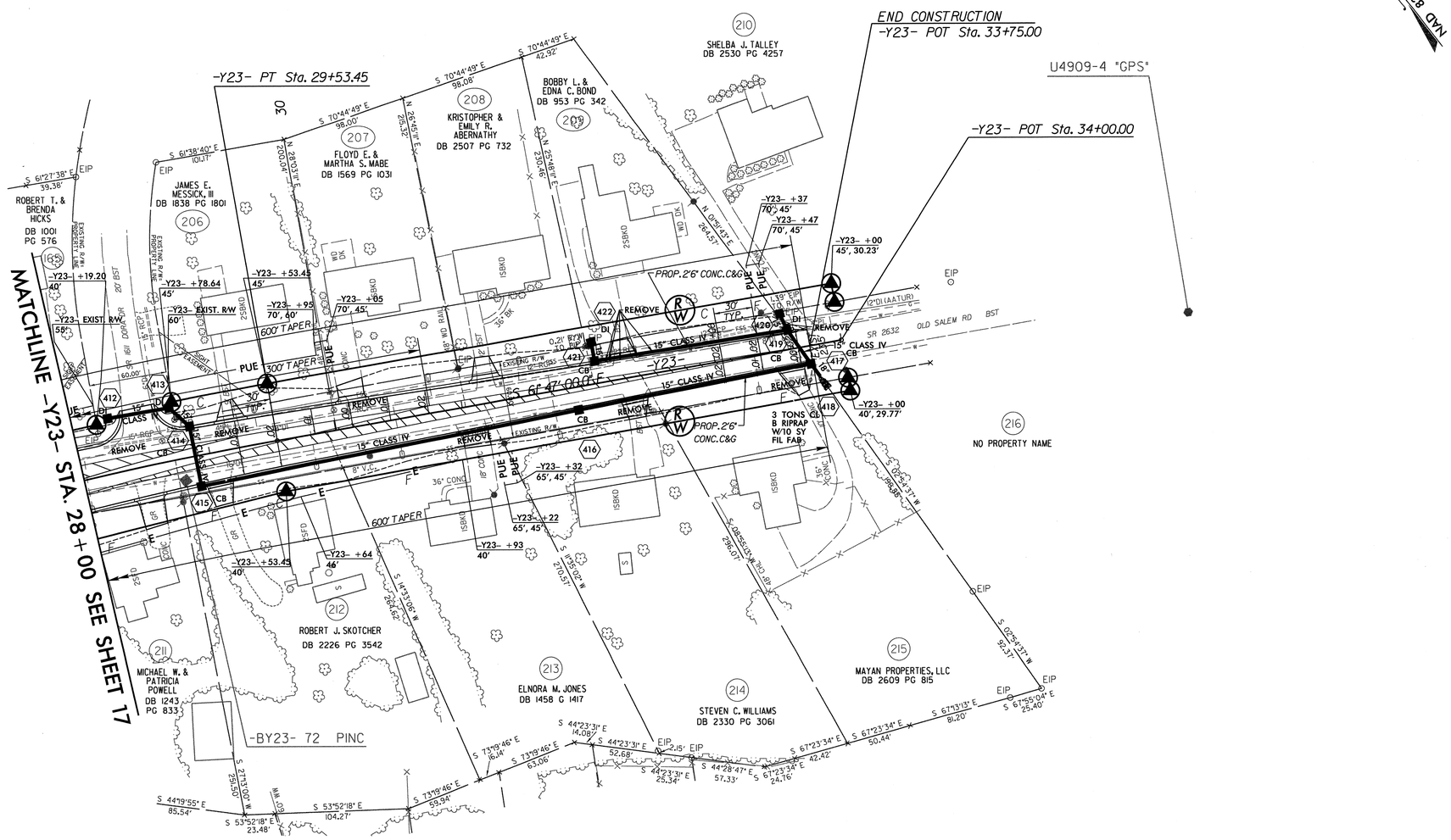
PROJECT REFERENCE NO.	SHEET NO.
U-4909	25
R/W SHEET NO.	
ROADWAY DESIGN	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11

-Y23-

PI Sta 27+97.56
Δ = 5° 57' 36.0" (RT)
D = 1° 54' 35.5"
L = 312.06'
T = 156.17'
R = 3,000.00'
Se = 0.02
Runoff = See Plans



NOTE:
SEE SHEET 52 FOR -Y23- PROFILE

NOTE:
SEE SHEET 2S FOR DITCH DETAILS

NOTE:
ALL PROPOSED DRIVEWAYS ARE 20' WIDE UNLESS OTHERWISE NOTED.

NOTE:
ALL ISLANDS SHOWN ARE 5" MONOLITHIC CONCRETE ISLANDS STD.852.01

PLANS PREPARED BY :

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FOR DIVISION OF HIGHWAYS

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10/5/2011
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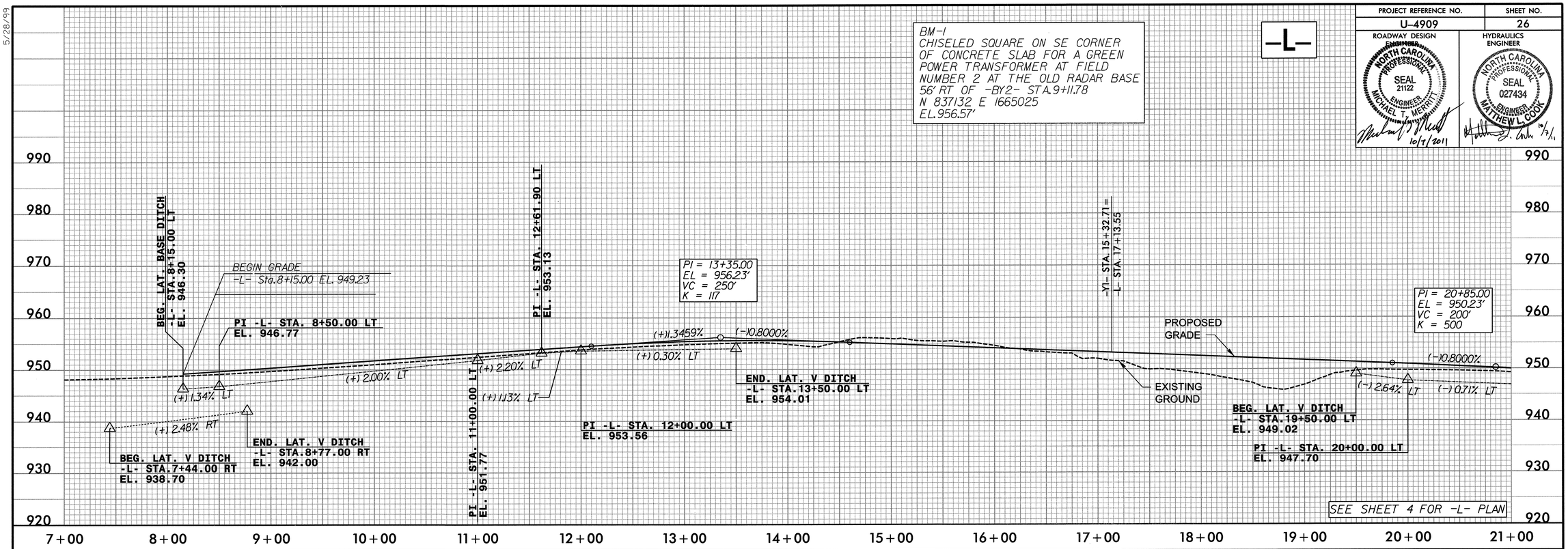
Beauchaine

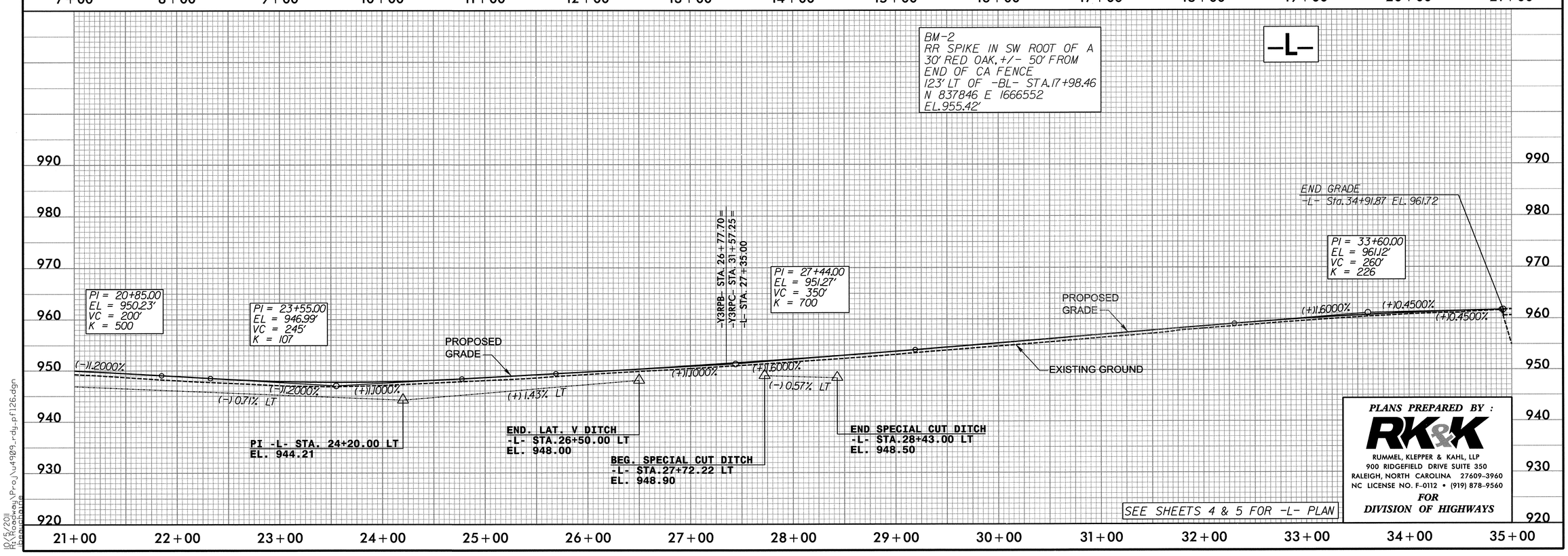
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4909	26

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11





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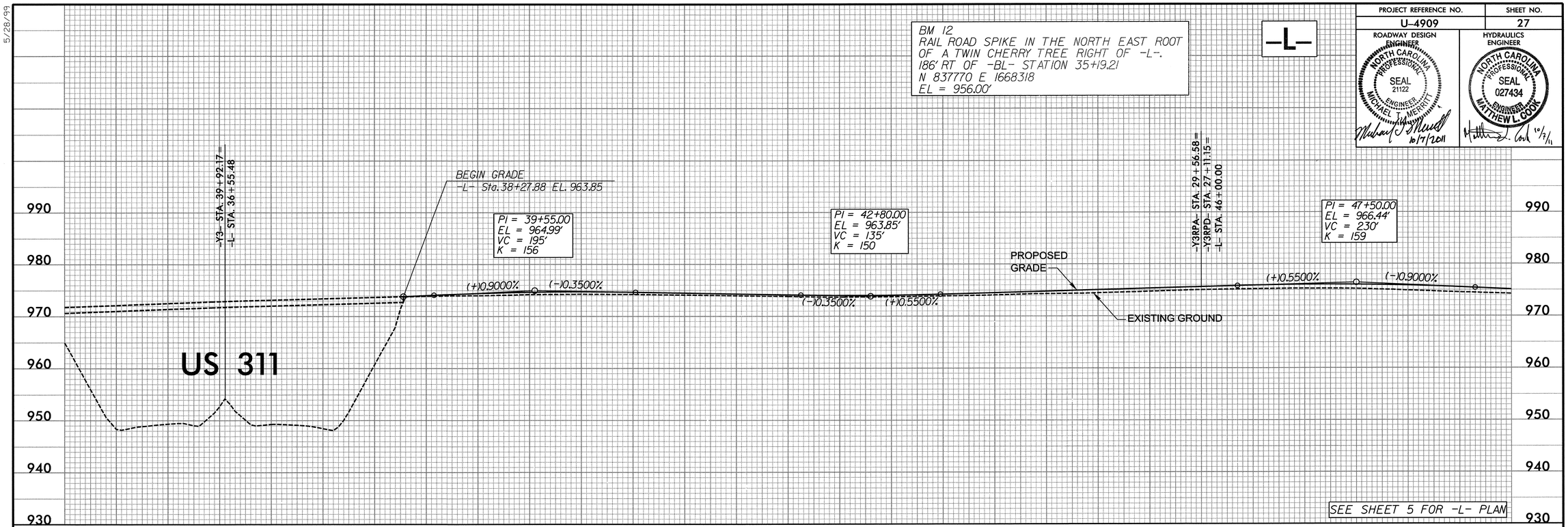
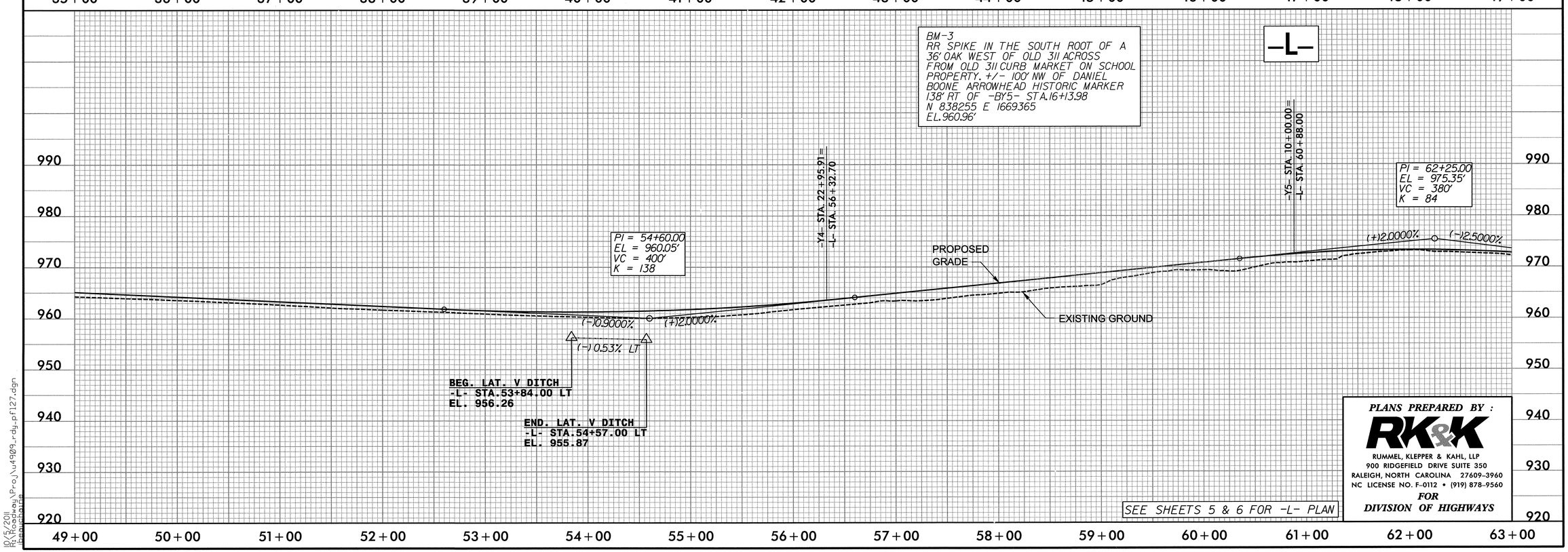
PROJECT REFERENCE NO.	SHEET NO.
U-4909	27

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11





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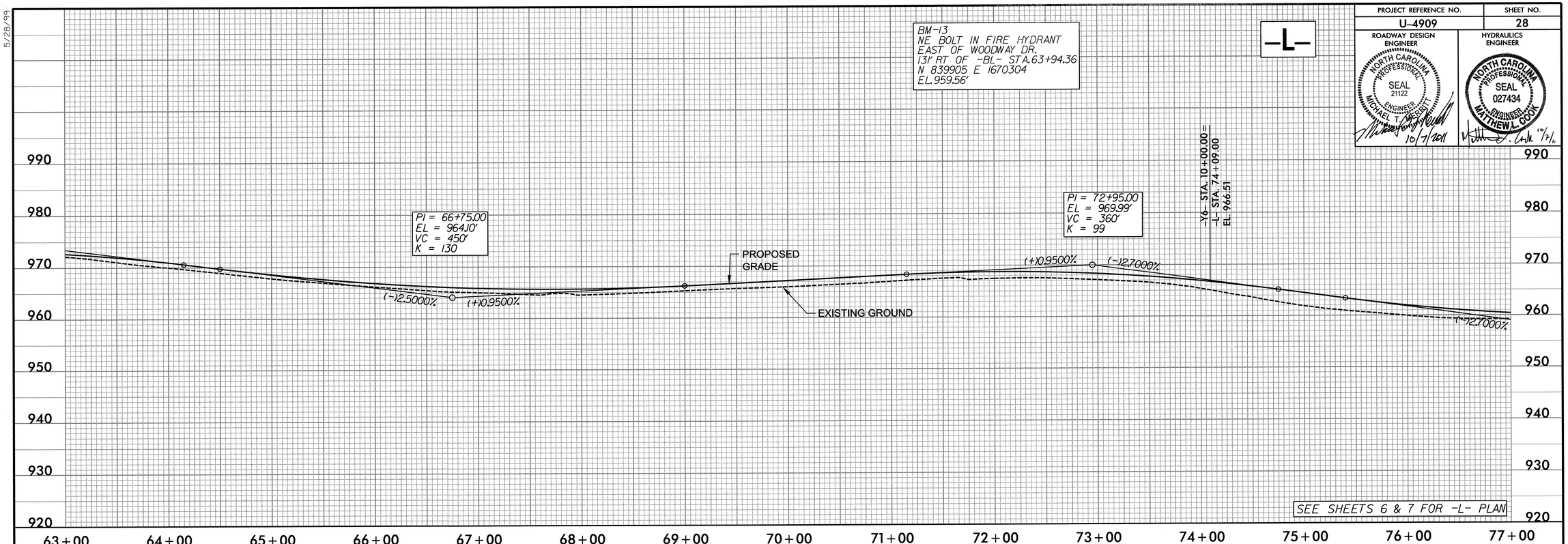
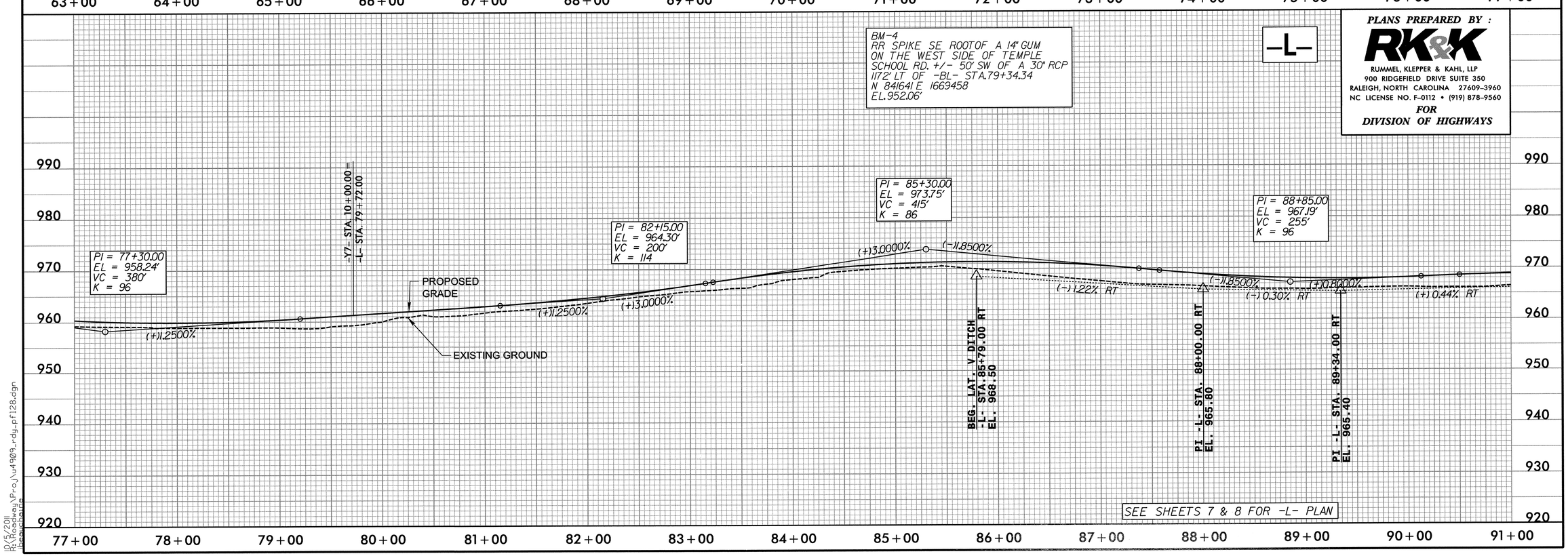
bcarlone

PROJECT REFERENCE NO.	SHEET NO.
U-4909	28

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. WRIGHT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11





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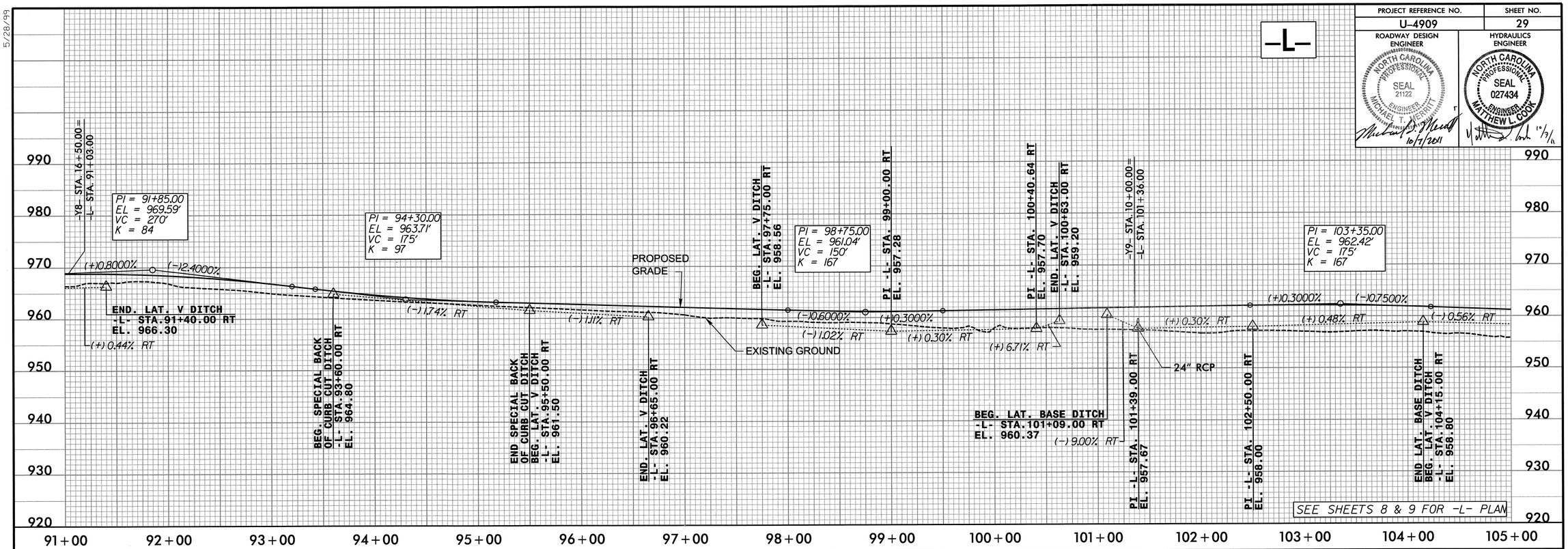
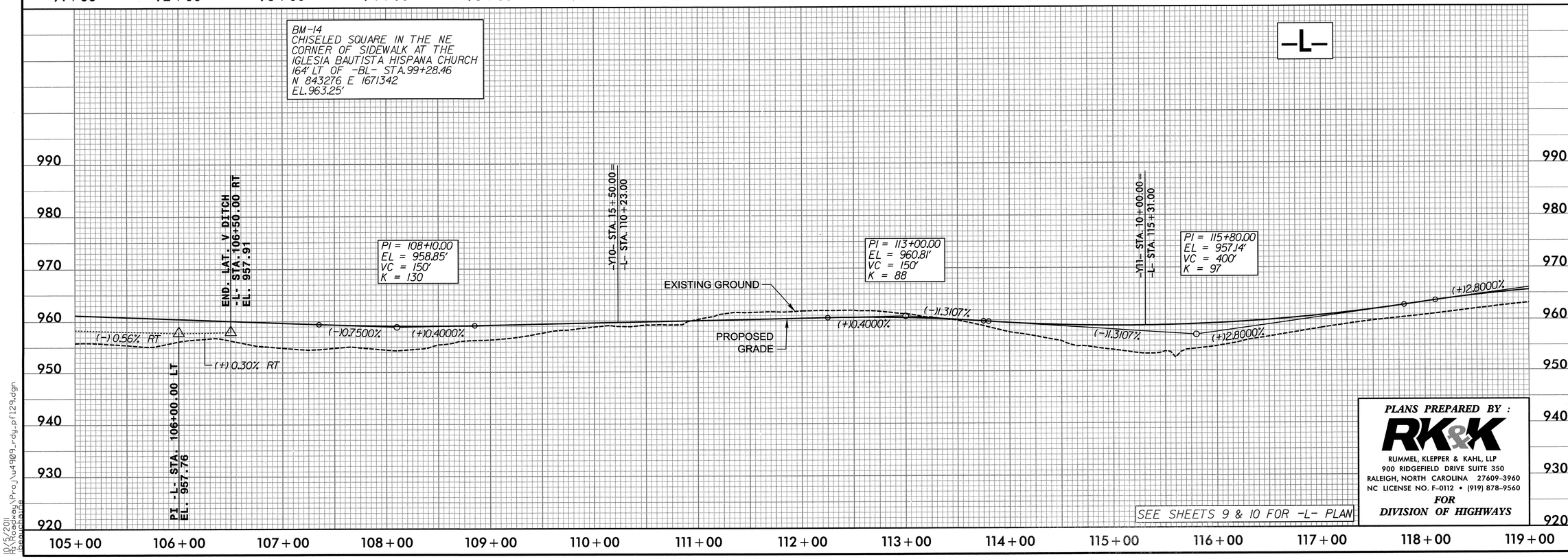
PROJECT REFERENCE NO.	SHEET NO.
U-4909	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11





PLANS PREPARED BY :

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FOR DIVISION OF HIGHWAYS

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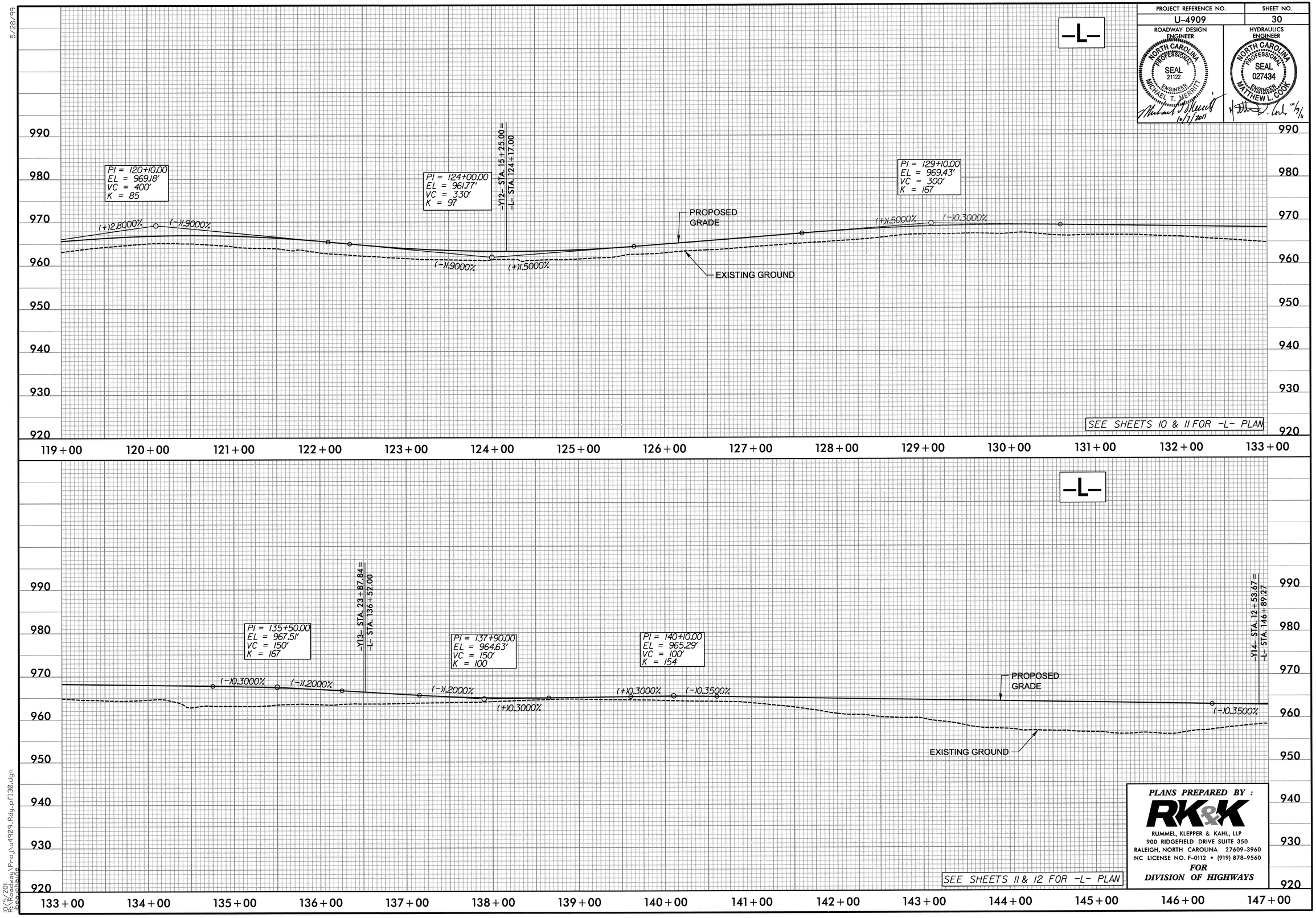
PROJECT REFERENCE NO.	SHEET NO.
U-4909	30

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11



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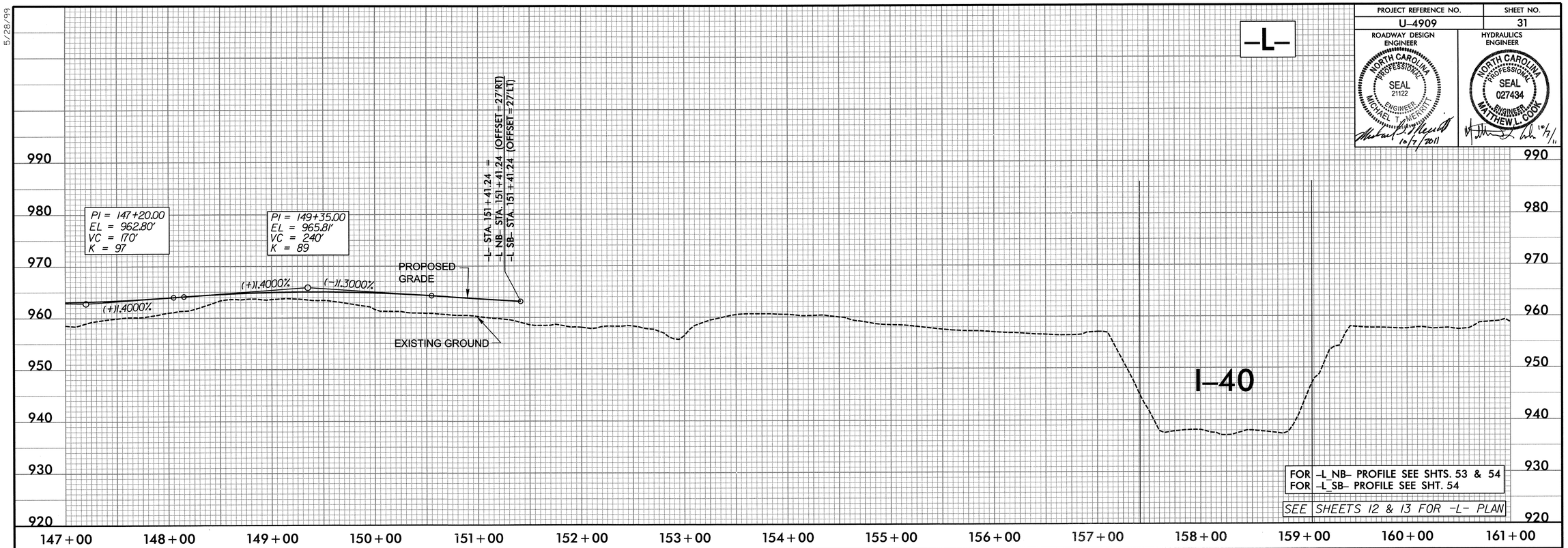
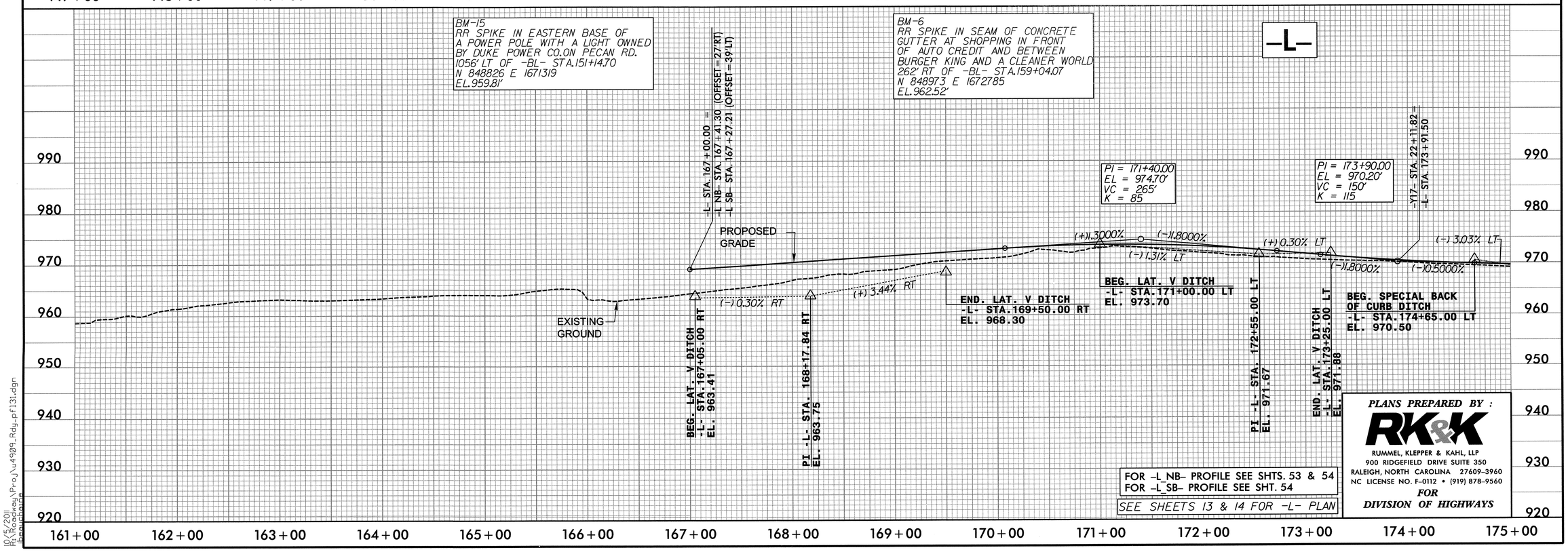
PROJECT REFERENCE NO.	SHEET NO.
U-4909	31

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. NEWBITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11





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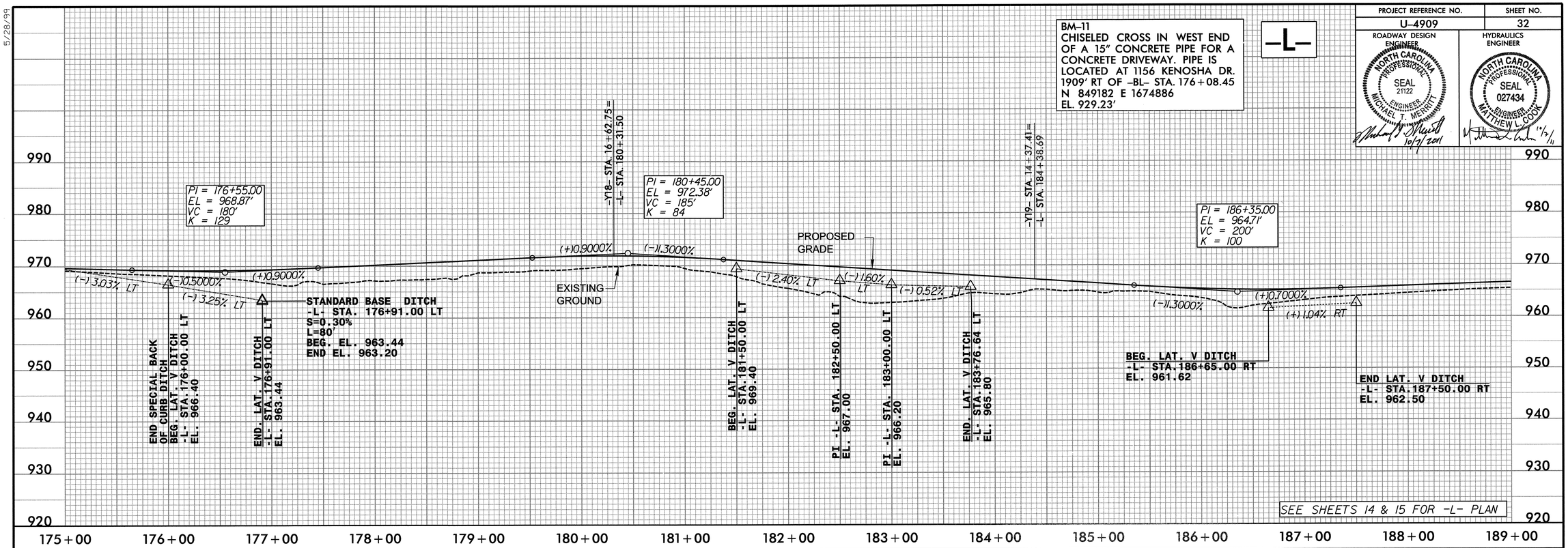
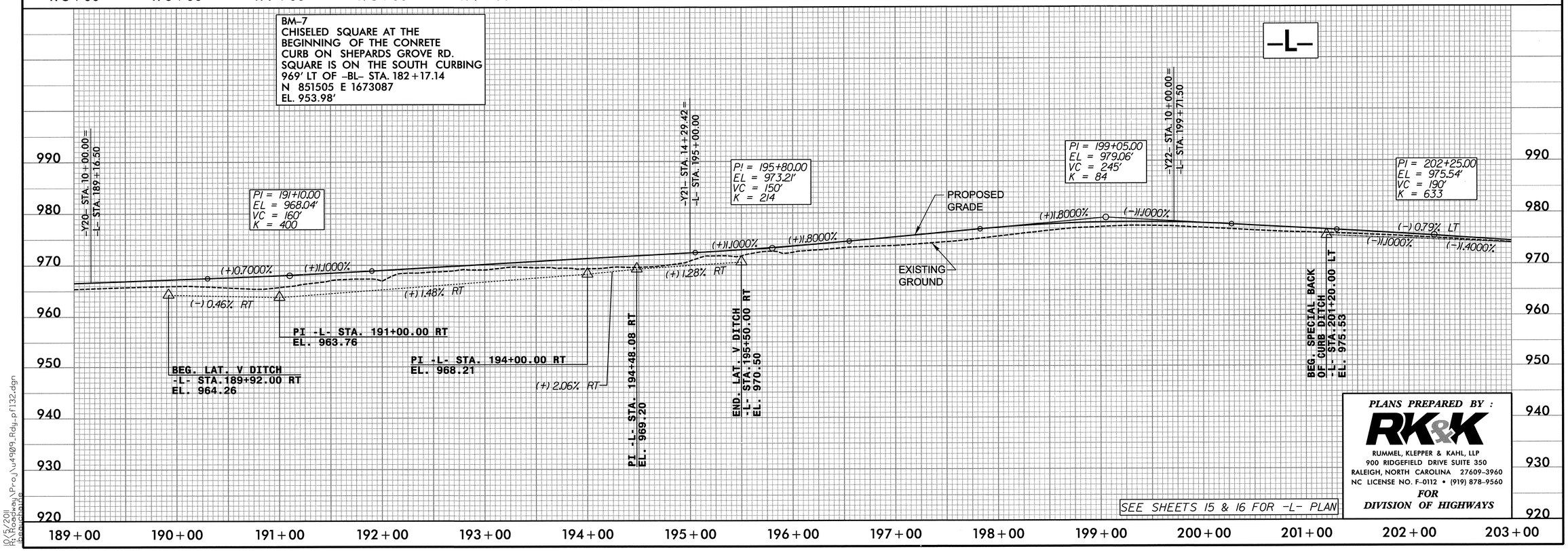
PROJECT REFERENCE NO.	SHEET NO.
U-4909	32

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. METRITT — 10/9/2011

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 10/7/11





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FOR DIVISION OF HIGHWAYS

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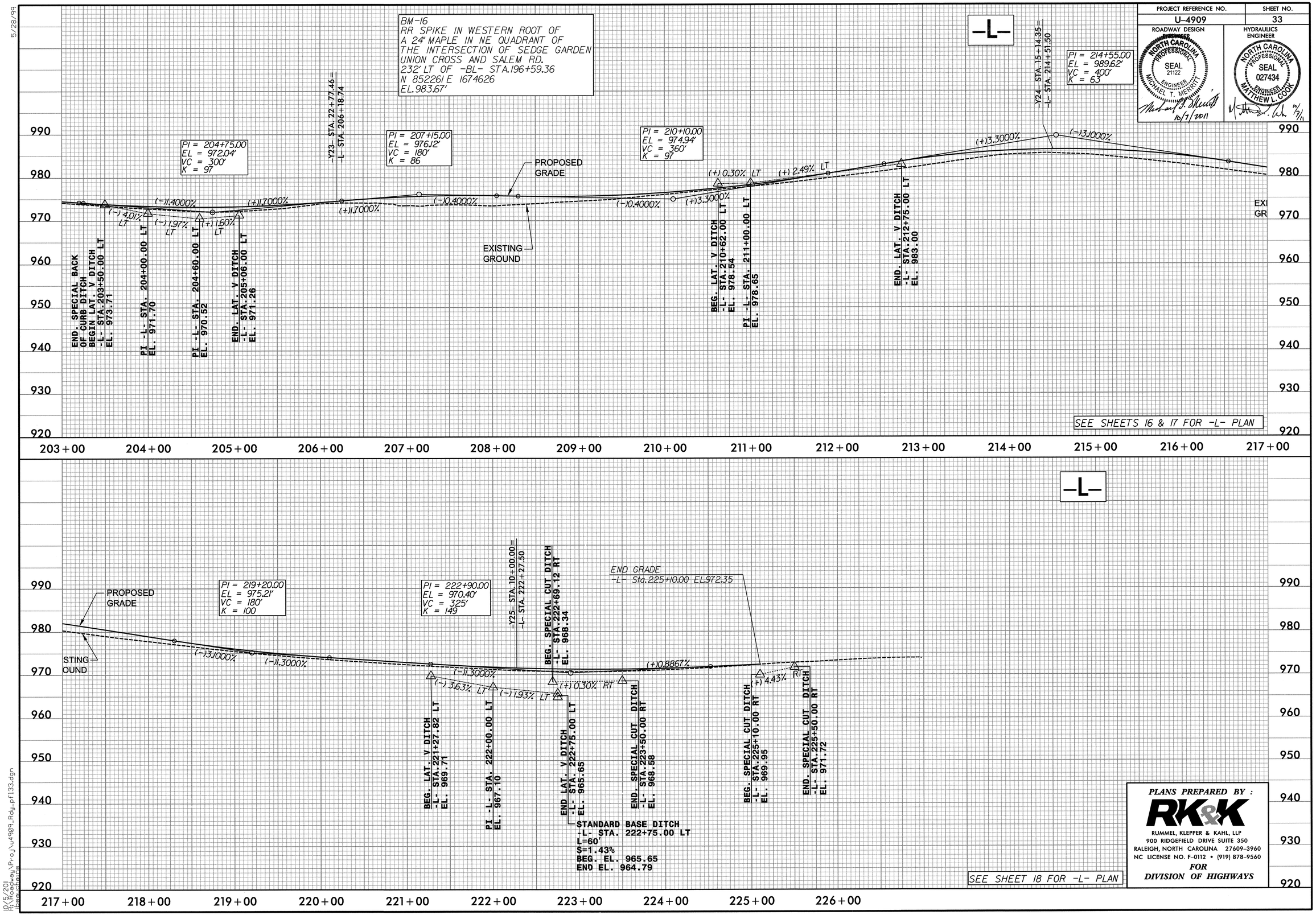
PROJECT REFERENCE NO.	SHEET NO.
U-4909	33
ROADWAY DESIGN	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11



PLANS PREPARED BY :

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bcampbell

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PROJECT REFERENCE NO.	SHEET NO.
U-4909	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11

-Y1-

BM 8
NCGS MONUMENT "SNOW" 13.5' RIGHT
OF CENTERLINE OF UNION CROSS RD.
BEARING FROM BL-27: N 54°03'57"E
HORIZONTAL DISTANCE 551.86'
N 853258 E 1676527
EL = 972.62' (DOT ELEVATION)

BEGIN GRADE
-Y1- Sta.12+00.00 EL. 960.17'

END GRADE
-Y1- Sta.15+16.68 EL. 953.83'=
-L- Sta.17+06.77 (14.5' LT)

BEGIN GRADE
-Y1- Sta.15+66.43 EL. 951.86'=
-L- Sta.17+28.10 (30.5' LT)

-Y2- STA. 10+00.00 =
-Y1- STA. 12+55.00

-Y1- STA. 15+32.71 =
-L- STA. 17+13.55

PI = 14+65.00
EL = 955.93'
VC = 100'
K = 41

-Y1- 20+86 CL
36" RCP
DESIGN Q = 41.1 cfs
DESIGN FREQ = 25 yr
DESIGN EL = 924.1 ft
BASE FLOOD Q = 51.0 cfs
BASE FLOOD FREQ = 100 yr
BASE FLOOD EL = 924.7 ft
OT Q = 129.3 cfs
OT FREQ = 500+ yr
OT EL = 932.9 ft

PI = 21+40.00
EL = 923.18'
VC = 870'
K = 96

(-) 4.28% LT
(-) 1.6000%
(-) 4.0635%
.039
.040
(-) 5.0000%
(-) 1.87% RT
(-) 3.40% LT
(-) 1.53% LT
(+) 8.20% LT
(-) 10.30% RT

BEG. SPECIAL CUT DITCH
-Y1- STA.11+31.00 LT
EL. 959.79

END SPECIAL CUT DITCH
-Y1- STA.12+26.00 LT
EL. 955.72

BEG. SPECIAL CUT DITCH
-Y1- STA.15+62.00 RT
EL. 948.99

END SPECIAL CUT DITCH
-Y1- STA.16+00.00 RT
EL. 948.28

EXISTING GROUND

PROPOSED GRADE

BEG. LAT. V DITCH
-Y1- STA.18+00.00 LT
EL. 928.00

END LAT. V DITCH
BEG LAT. V DITCH
-Y1- STA.19+00.00 LT
EL. 924.60

BEG. LAT. V DITCH
-Y1- STA.20+25.00 RT
EL. 912.20

END LAT. V DITCH
-Y1- STA.22+00.00 RT
EL. 930.23

END LAT. V DITCH
BEG LAT. BASE DITCH
-Y1- STA.21+35.00 LT
EL. 921.00

36" RCP

END LAT. BASE DITCH
-Y1- STA.22+50.00 LT
EL. 930.43

SEE SHEETS 4 & 5 FOR -Y1- PLAN

970 960 950 940 930 920 910 900

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

-Y1-

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PI = 32+45.00
EL = 967.93'
VC = 895'
K = 84

PROPOSED GRADE

(-) 6.5900%

END GRADE
-Y1- Sta.37+05.00 EL. 937.62'

(+) 4.0500%
(+) 0.44% LT
(+) 0.44% LT

EXISTING GROUND

BEG. SPECIAL CUT DITCH
-Y1- STA.27+00.00 LT
EL. 943.16

18" RCP

END SPECIAL CUT DITCH
BEG LAT. V DITCH
-Y1- STA.27+50.00 LT
EL. 943.38

END LAT. V DITCH
-Y1- STA.29+50.00 LT
EL. 944.25

STANDARD V DITCH
-Y1- STA. 27+00.00 RT
S=1.64%, L=55'
BEG. EL. 942.90
END EL. 942.00

BEG. SPECIAL CUT DITCH
-Y1- STA.36+50.00 RT
EL. 938.44

(-) 4.68% RT

PI -Y1- STA.37+00.00 RT
EL. 936.10

(-) 1.00% RT

END SPECIAL CUT DITCH
-Y1- STA.37+35.00 RT
EL. 935.75

SEE SHEET 5 FOR -Y1- PLAN

980 970 960 950 940 930 920 910 900

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

10/5/2011
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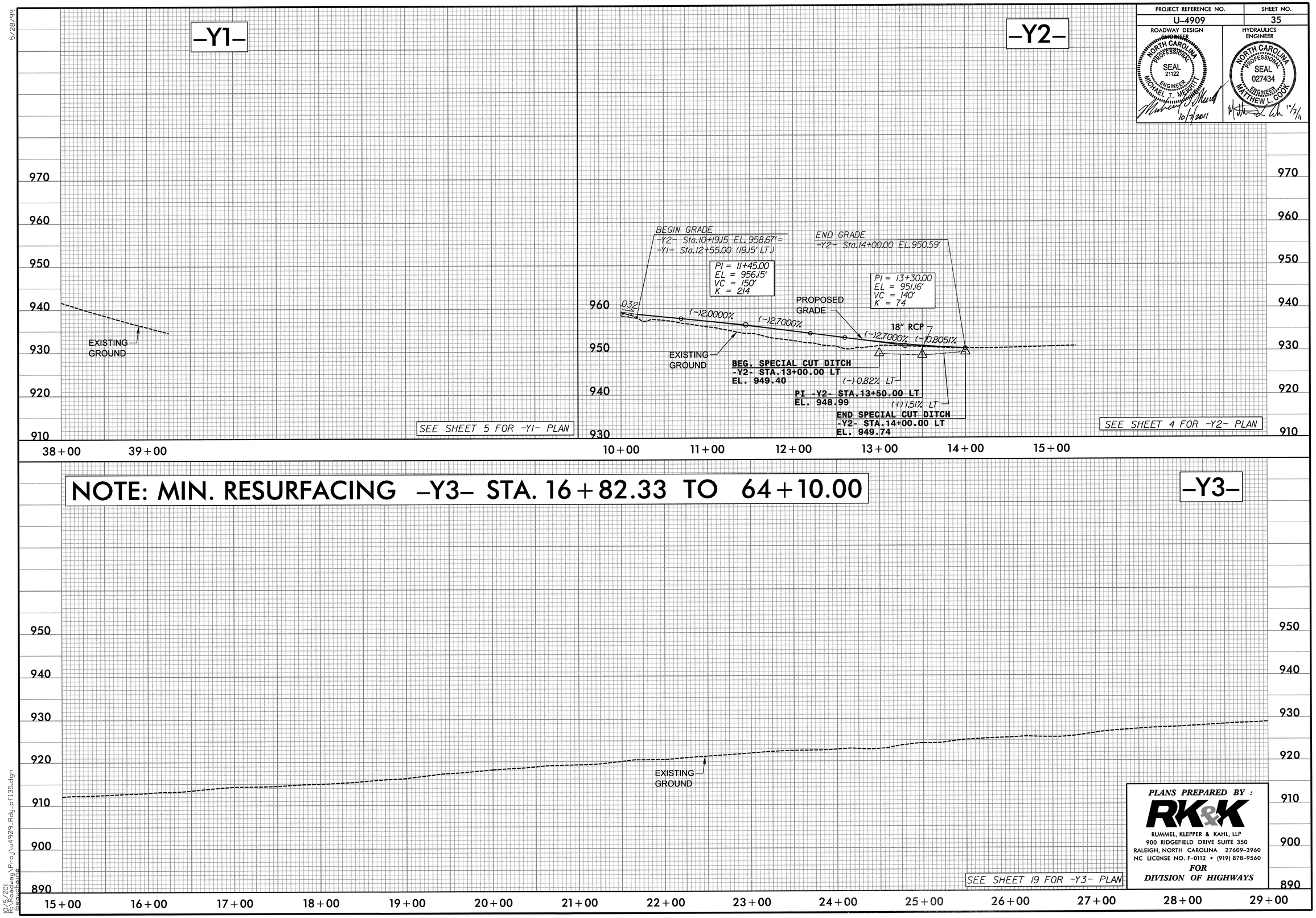
jeanclaire

PROJECT REFERENCE NO.	SHEET NO.
U-4909	35

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11



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RK&K
RUMMEL, KLEPPER & KAHL, LLP
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FOR
DIVISION OF HIGHWAYS

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bearnbaise

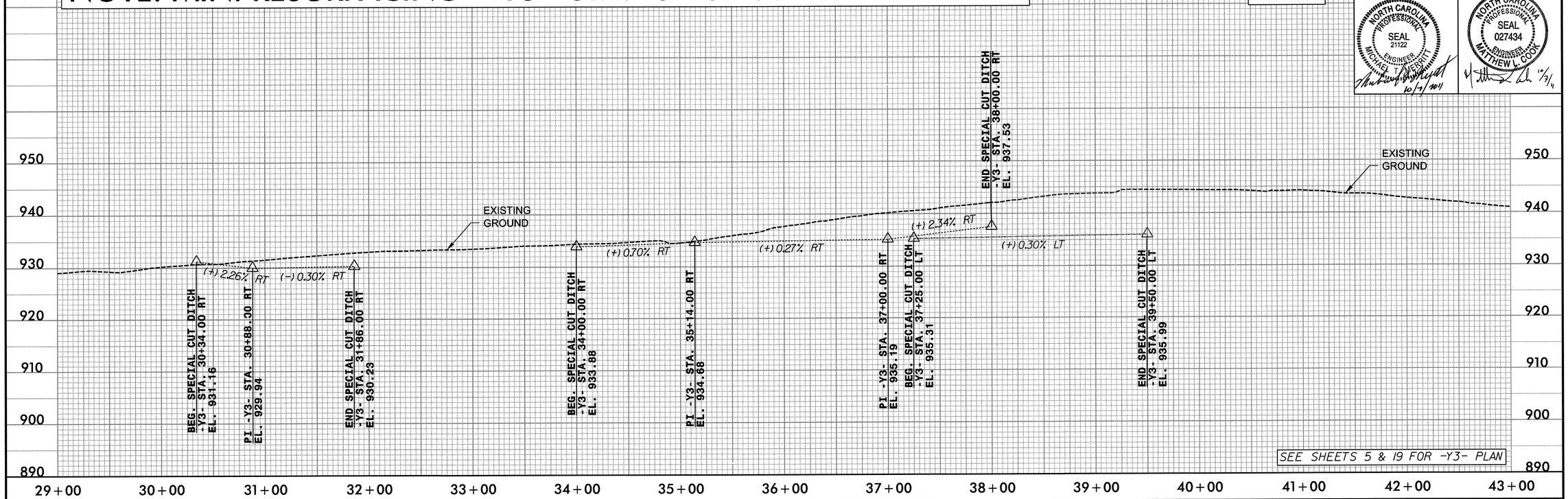
PROJECT REFERENCE NO.	SHEET NO.
U-4909	36

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. FIFFITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11

NOTE: MIN. RESURFACING –Y3– STA. 16+82.33 TO 64+10.00

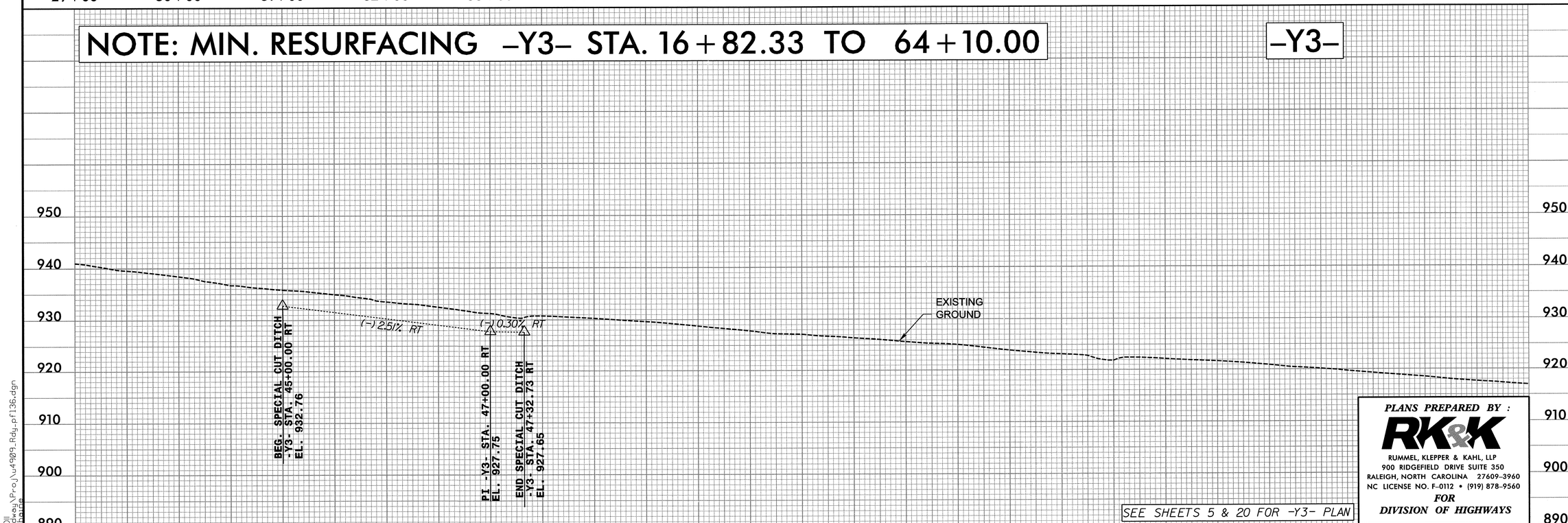
–Y3–



SEE SHEETS 5 & 19 FOR -Y3- PLAN

NOTE: MIN. RESURFACING –Y3– STA. 16+82.33 TO 64+10.00

–Y3–



SEE SHEETS 5 & 20 FOR -Y3- PLAN

PLANS PREPARED BY :
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FOR
DIVISION OF HIGHWAYS

5/28/99

10/5/2011
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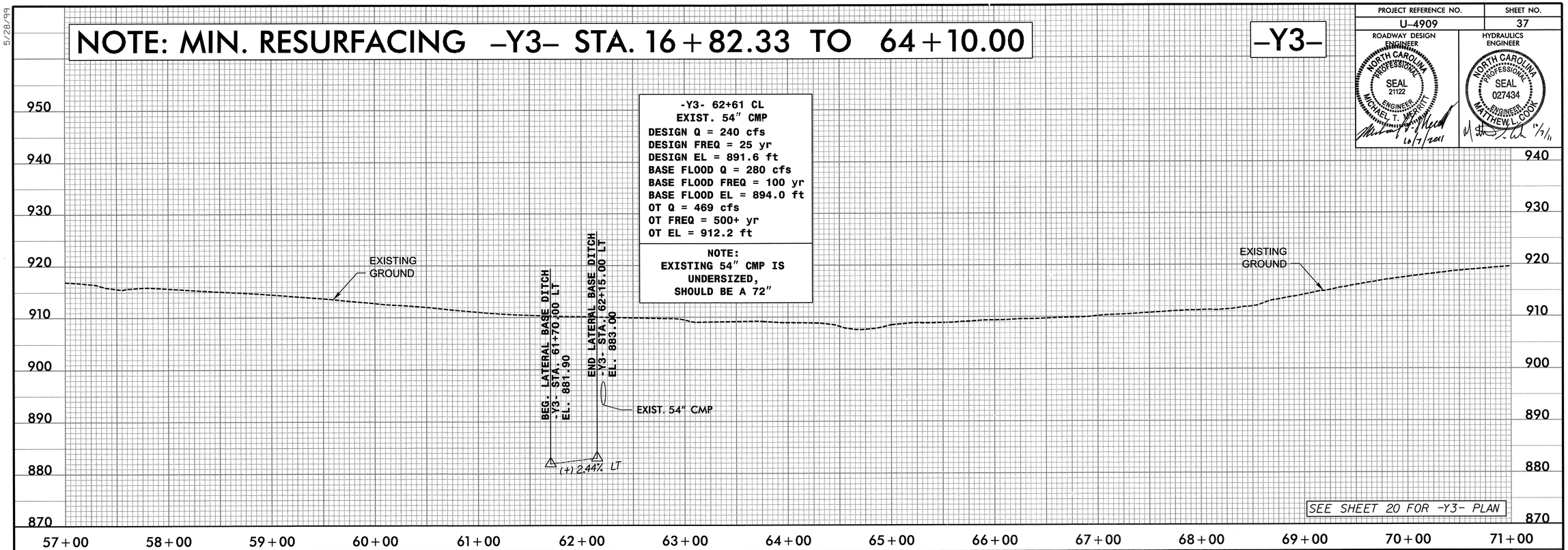
PROJECT REFERENCE NO.	SHEET NO.
U-4909	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 6/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 6/7/11

NOTE: MIN. RESURFACING -Y3- STA. 16+82.33 TO 64+10.00

-Y3-



SEE SHEET 20 FOR -Y3- PLAN

-Y3RPA-

PLANS PREPARED BY :

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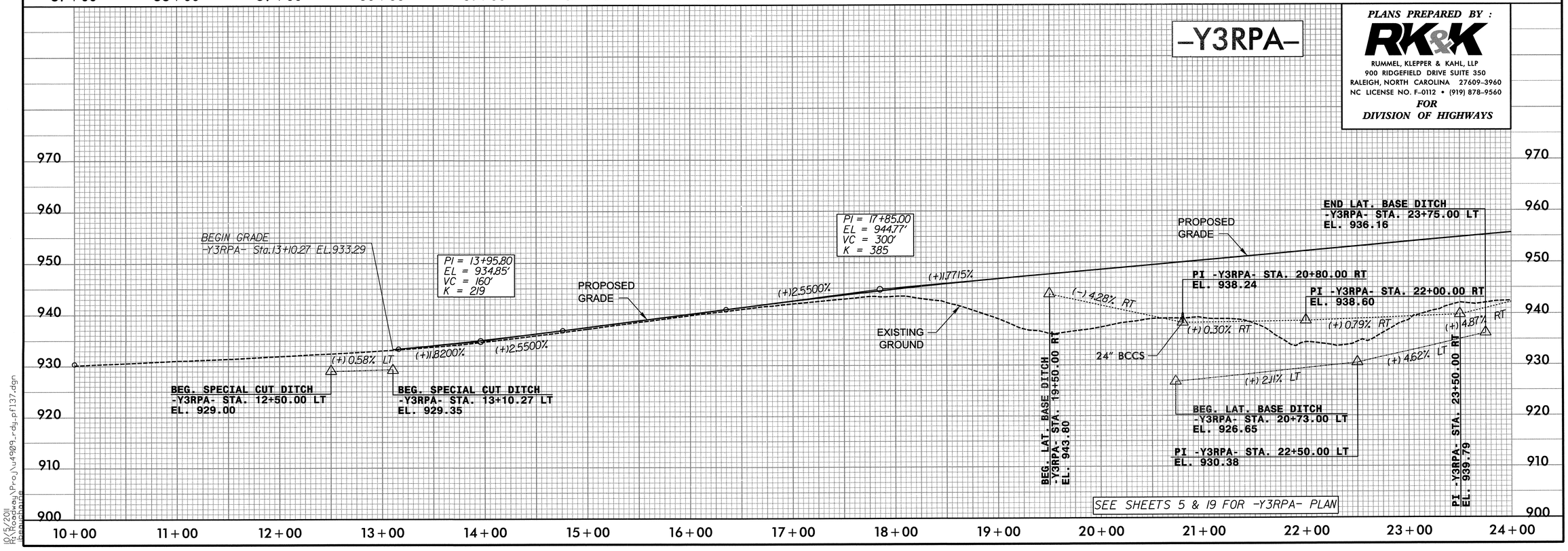

SEE SHEETS 5 & 19 FOR -Y3RPA- PLAN

5/28/99

10/5/2011
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bearchaine

PROJECT REFERENCE NO.	SHEET NO.
U-4909	38

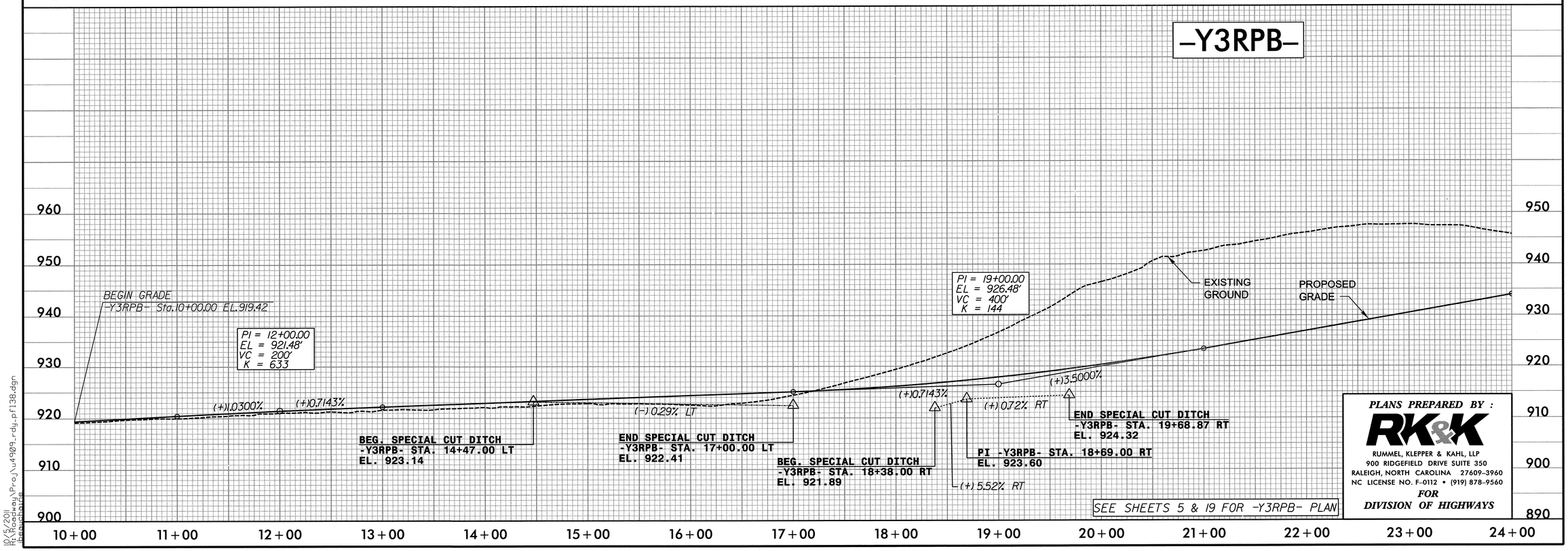
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — 10/7/2011

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 10/3/11

-Y3RPA-

SEE SHEET 5 FOR -Y3RPA- PLAN

-Y3RPB-



SEE SHEETS 5 & 19 FOR -Y3RPB- PLAN

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5/28/99

10/5/2011
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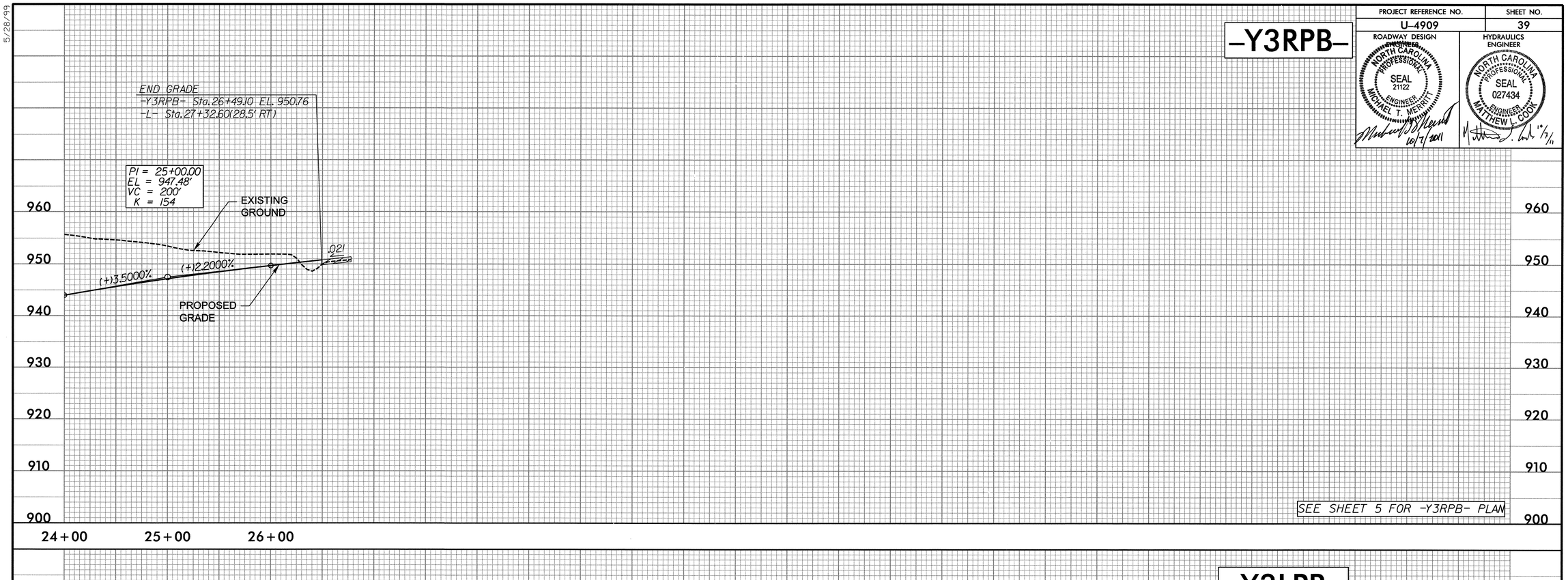
beauchaine

PROJECT REFERENCE NO.	SHEET NO.
U-4909	39

ROADWAY DESIGN ENGINEER: MICHAEL T. METRITT, NORTH CAROLINA PROFESSIONAL SEAL 21122, ENGINEER, 10/7/2011

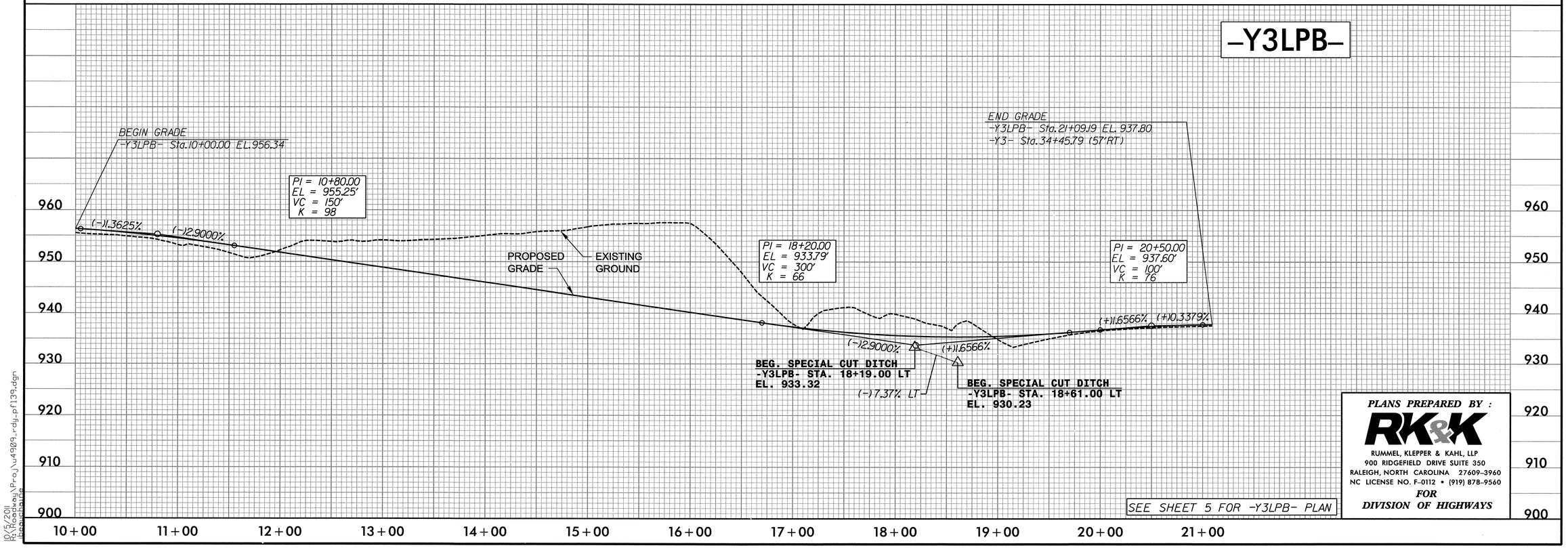
HYDRAULICS ENGINEER: MATTHEW L. COOK, NORTH CAROLINA PROFESSIONAL SEAL 027434, ENGINEER, 10/7/11

-Y3RPB-



SEE SHEET 5 FOR -Y3RPB- PLAN

-Y3LPB-



SEE SHEET 5 FOR -Y3LPB- PLAN

PLANS PREPARED BY :
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5/28/99

10/5/2011
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lbenjamine

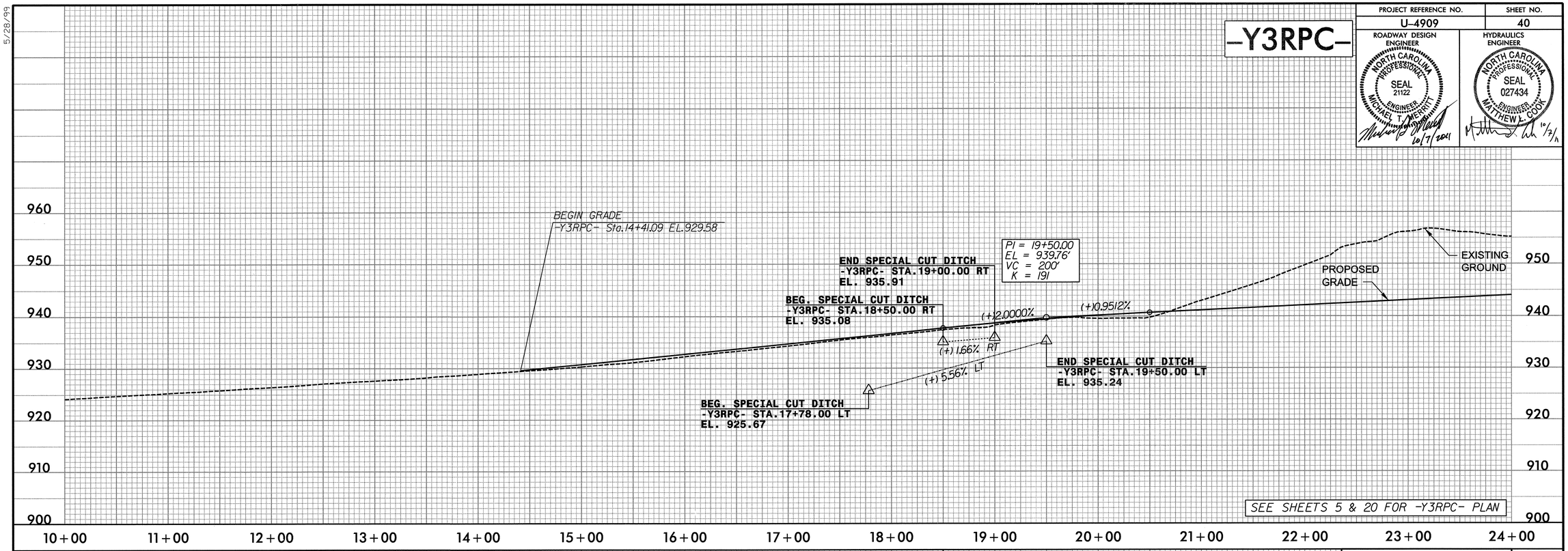
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4909	40

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11

-Y3RPC-



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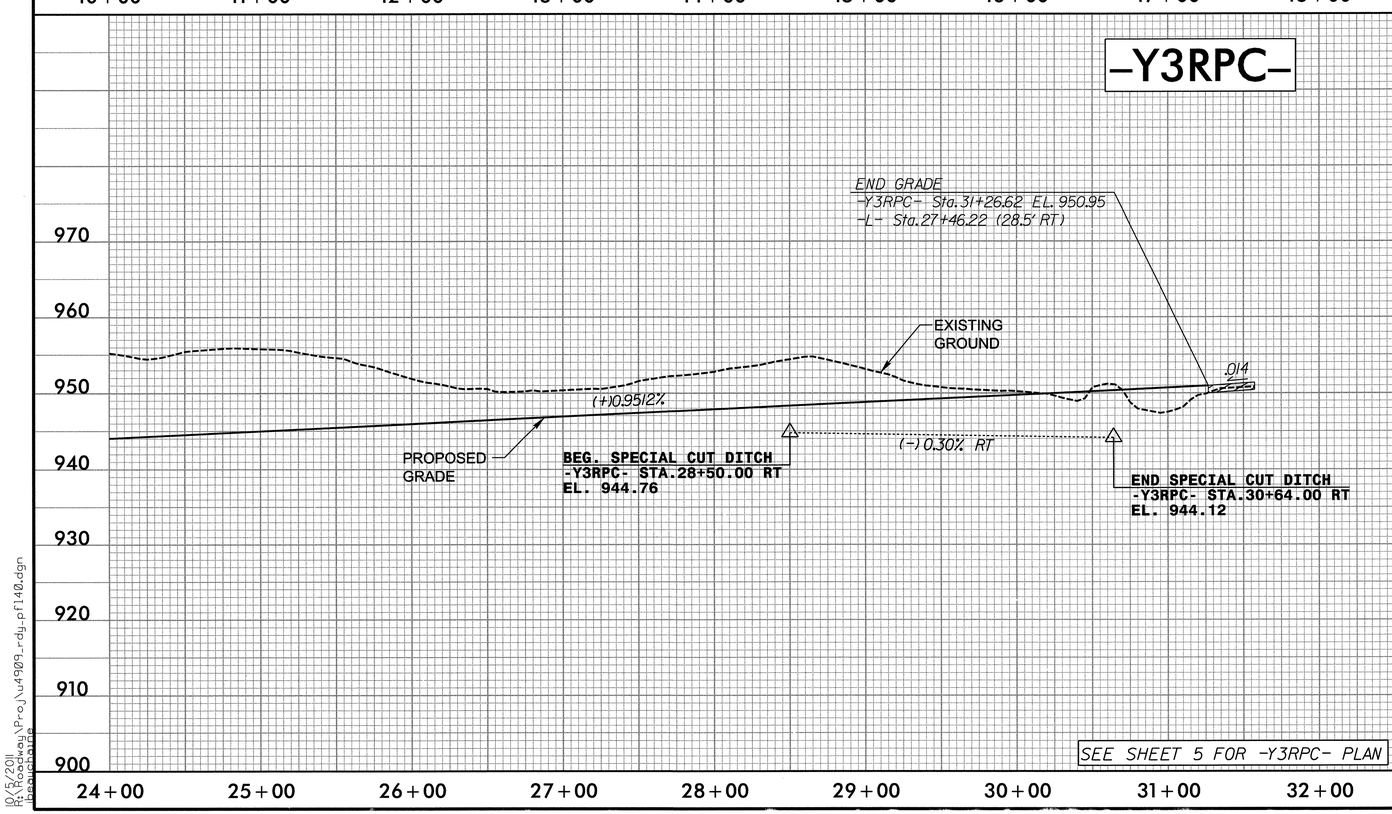

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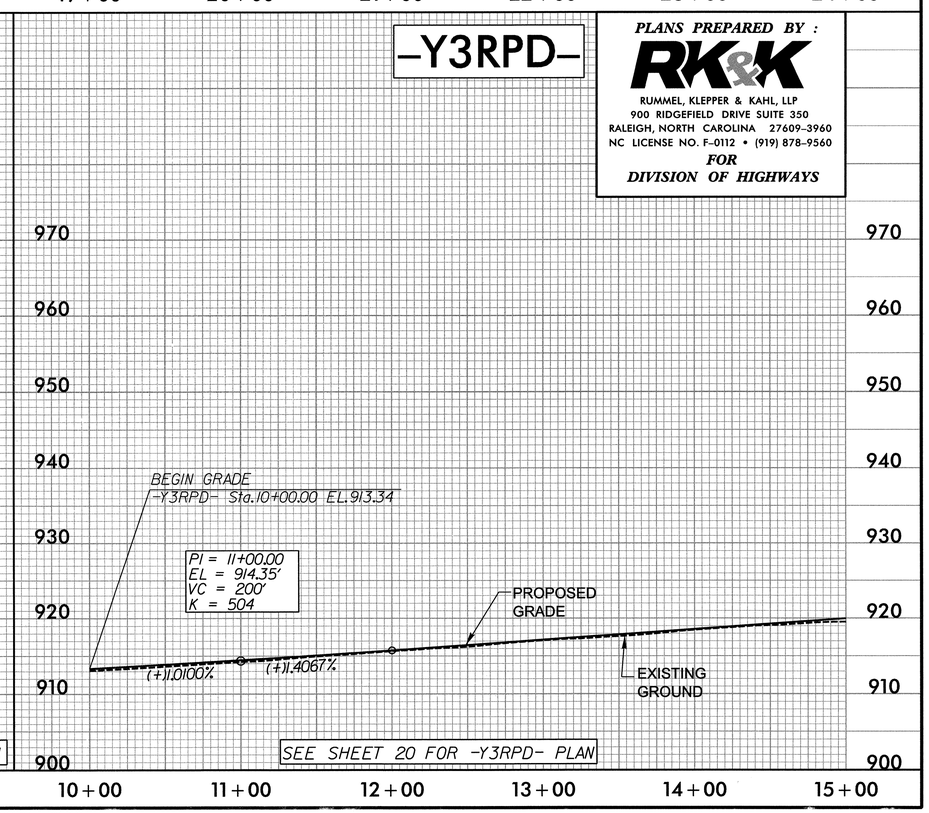

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10/5/2011
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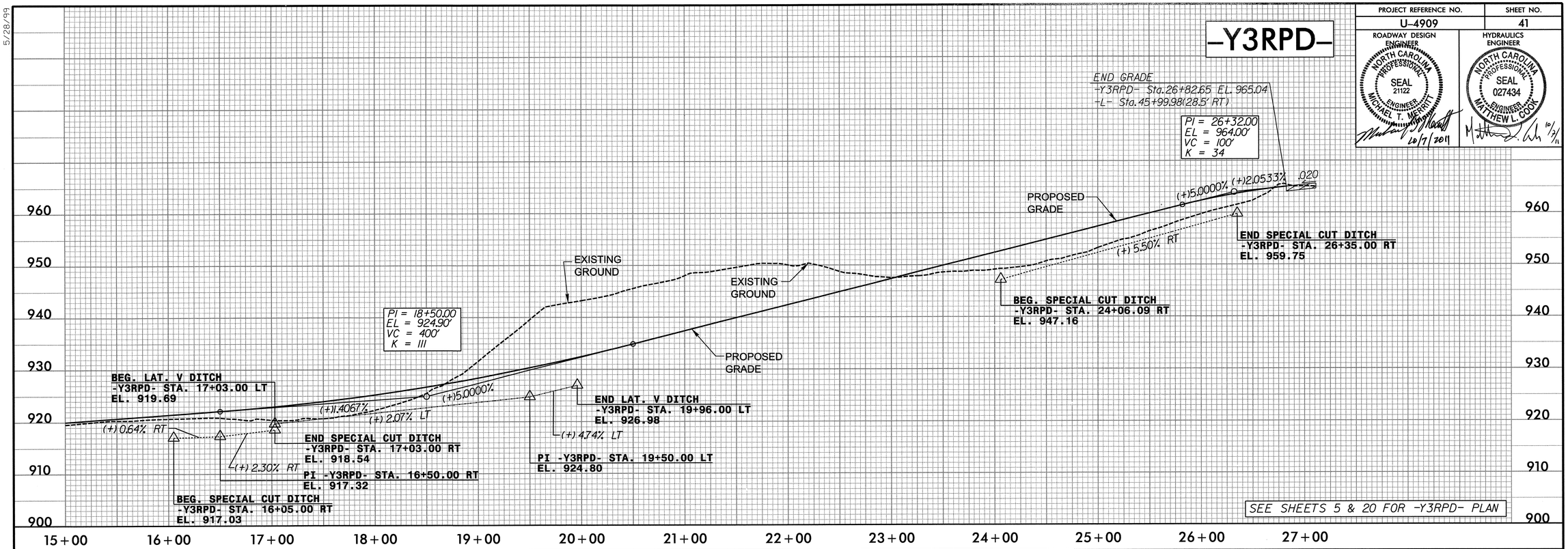
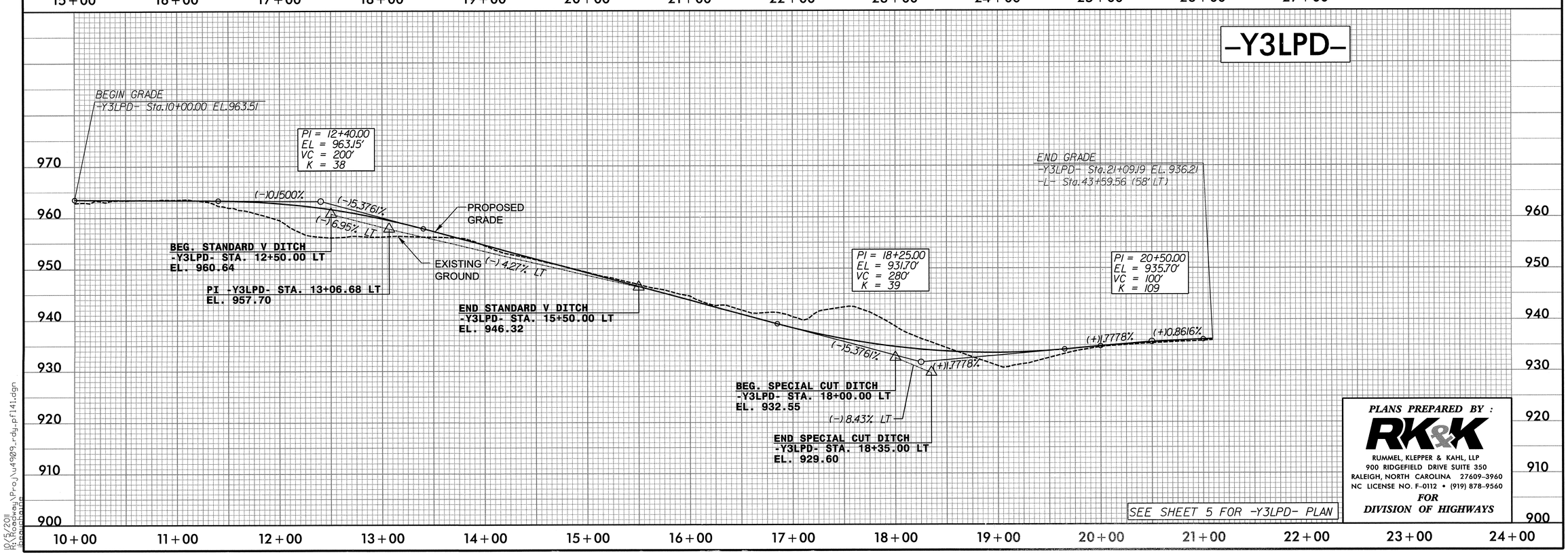
kevinbyrne

PROJECT REFERENCE NO.	SHEET NO.
U-4909	41

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT — 10/7/2011

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 10/7/11





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10/3/2011
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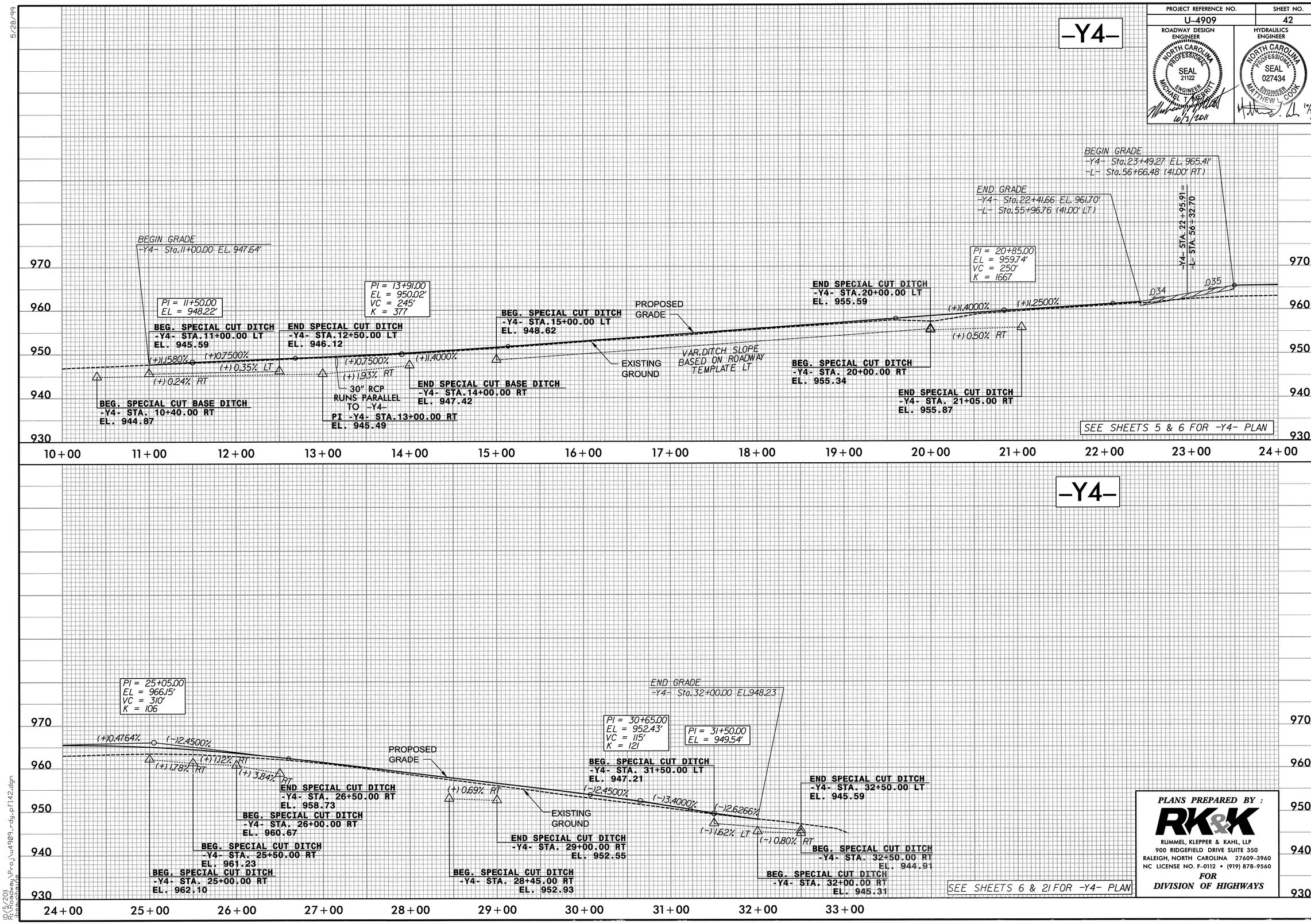
PROJECT REFERENCE NO.	SHEET NO.
U-4909	42

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MESHIT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11



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10/5/2011
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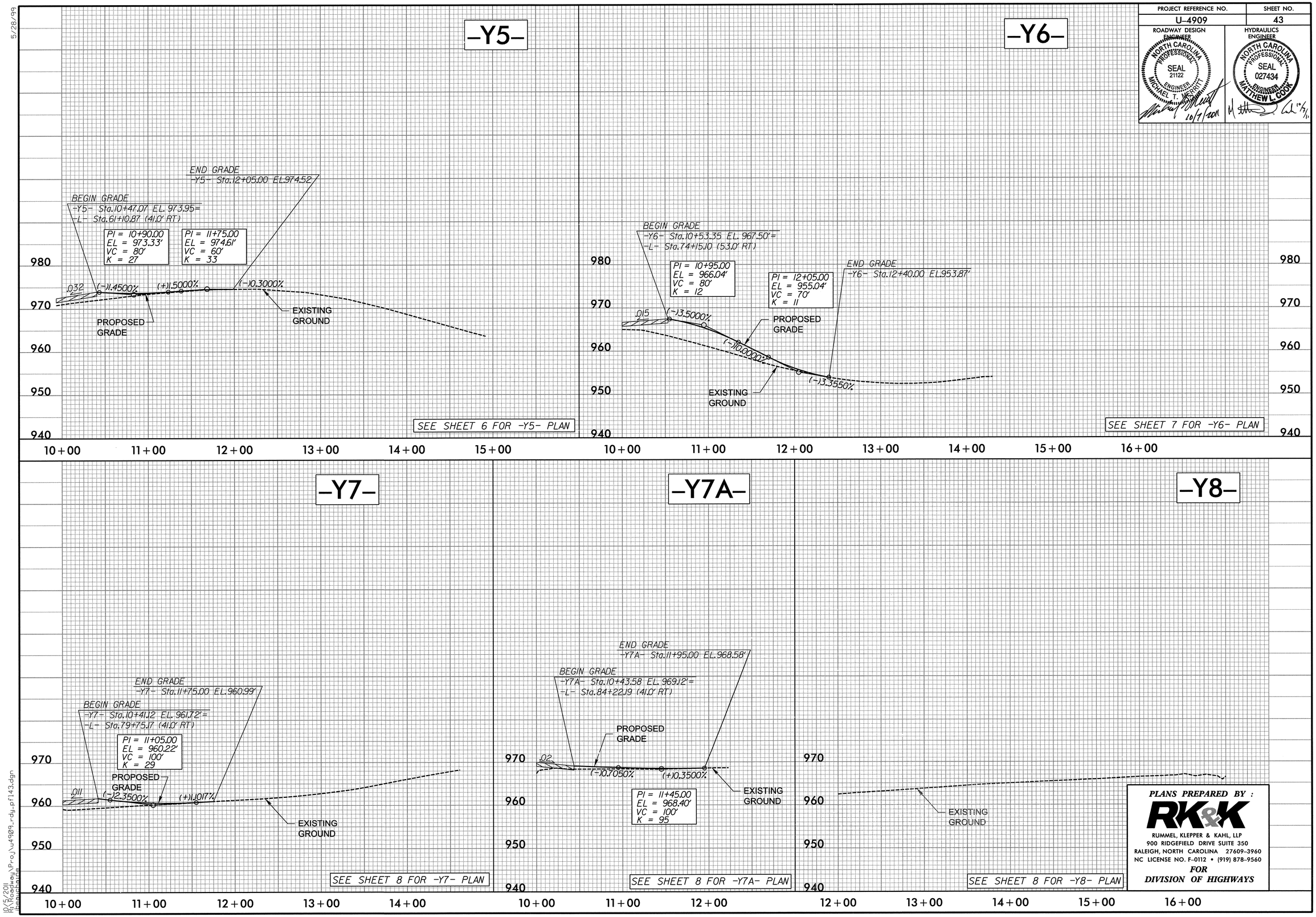
jasonwhite

PROJECT REFERENCE NO.	SHEET NO.
U-4909	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/1/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/1/11



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10/5/2011
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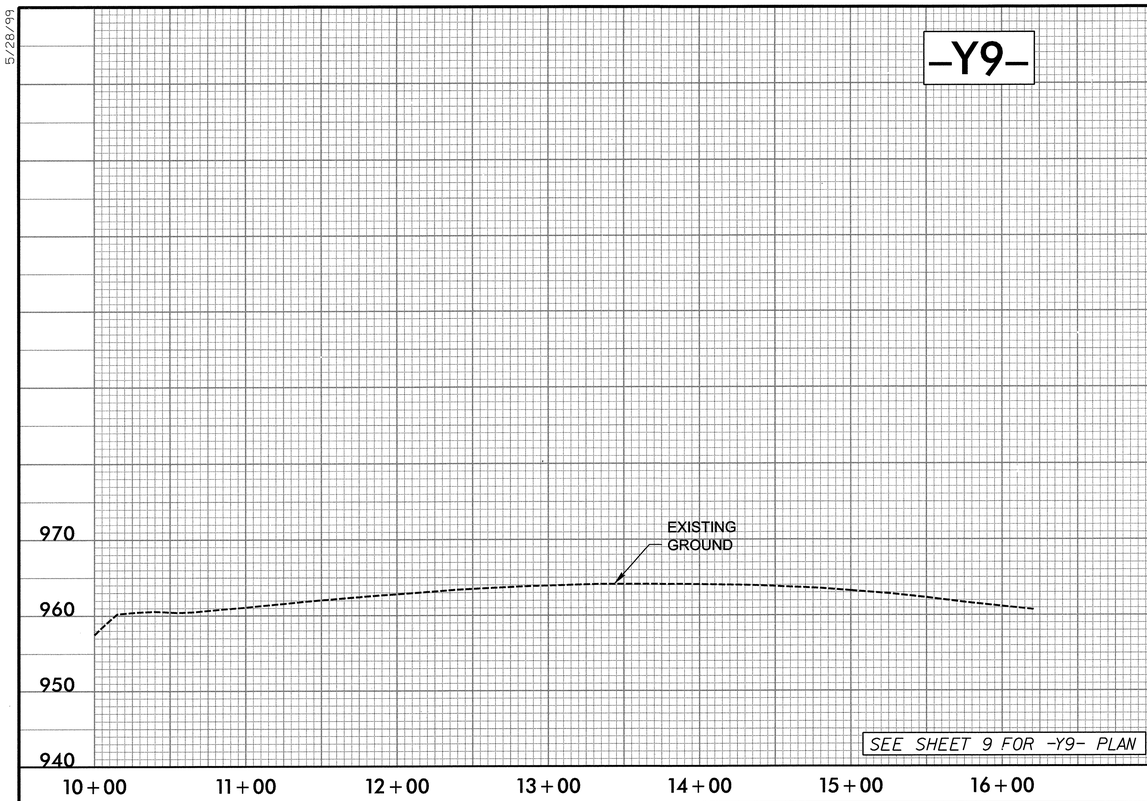
bpowell

PROJECT REFERENCE NO.	SHEET NO.
U-4909	44

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/7/2014

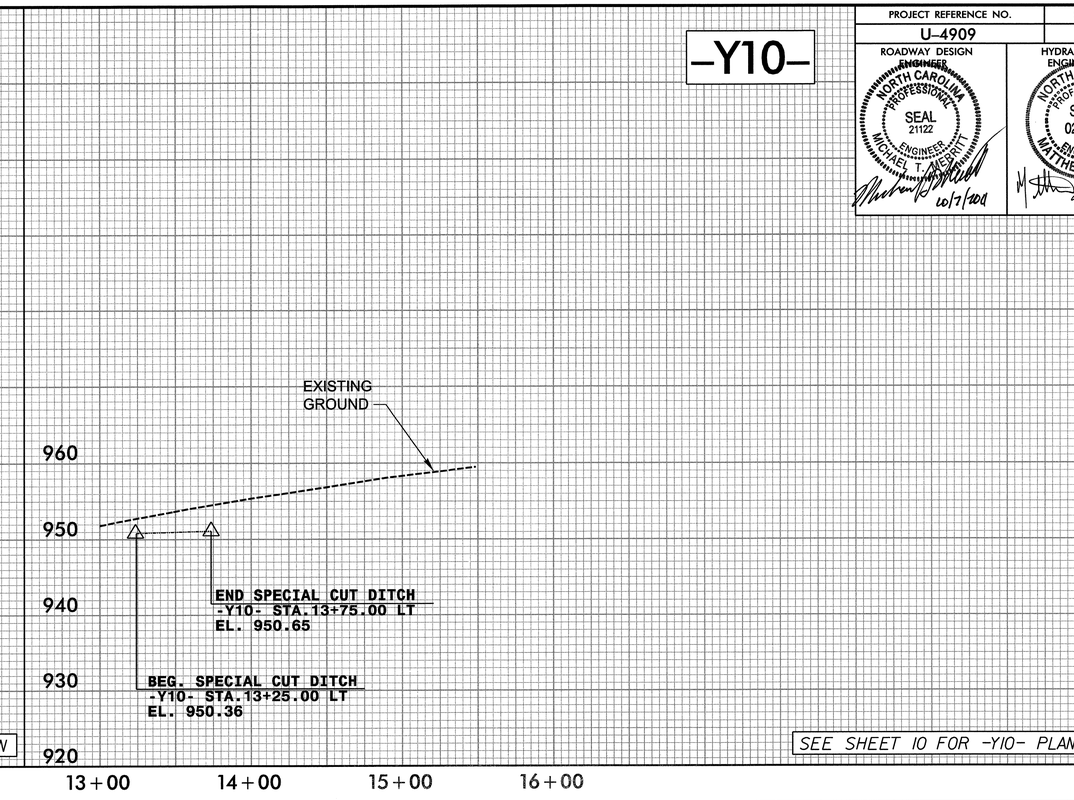
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/14

-Y9-



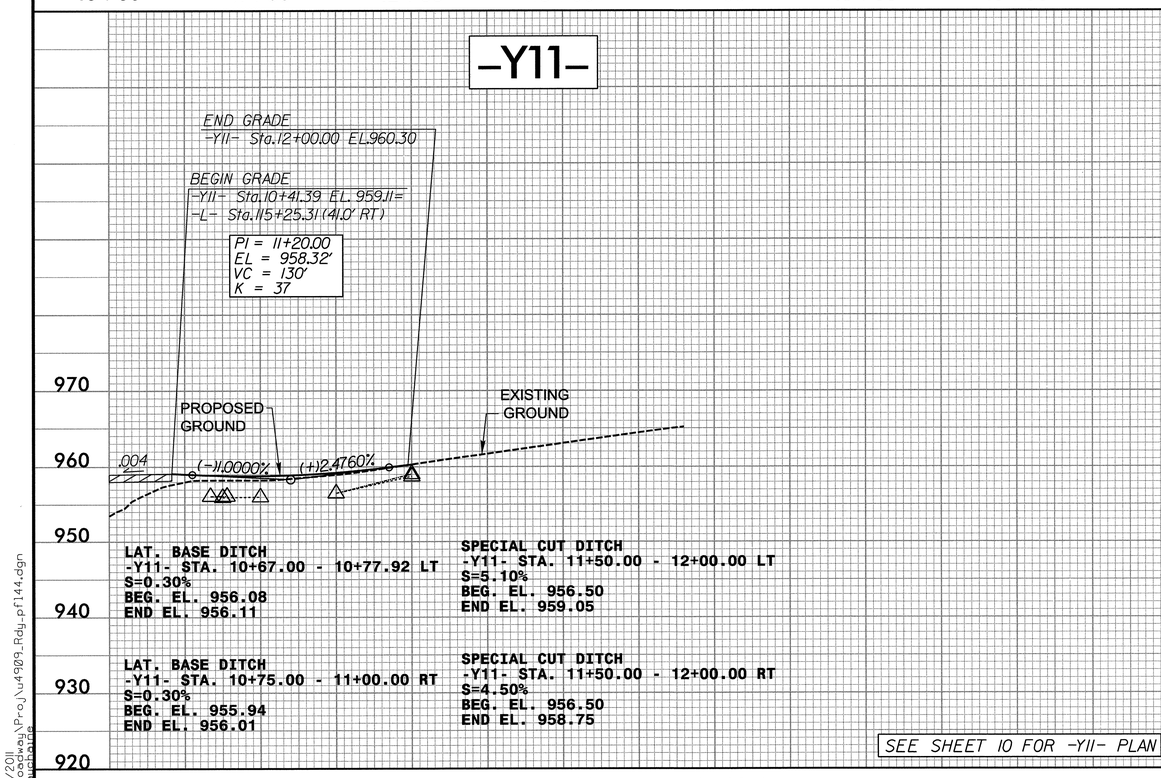
SEE SHEET 9 FOR -Y9- PLAN

-Y10-



SEE SHEET 10 FOR -Y10- PLAN

-Y11-



LAT. BASE DITCH
-Y11- STA. 10+67.00 - 10+77.92 LT
S=0.30%
BEG. EL. 956.08
END EL. 956.11

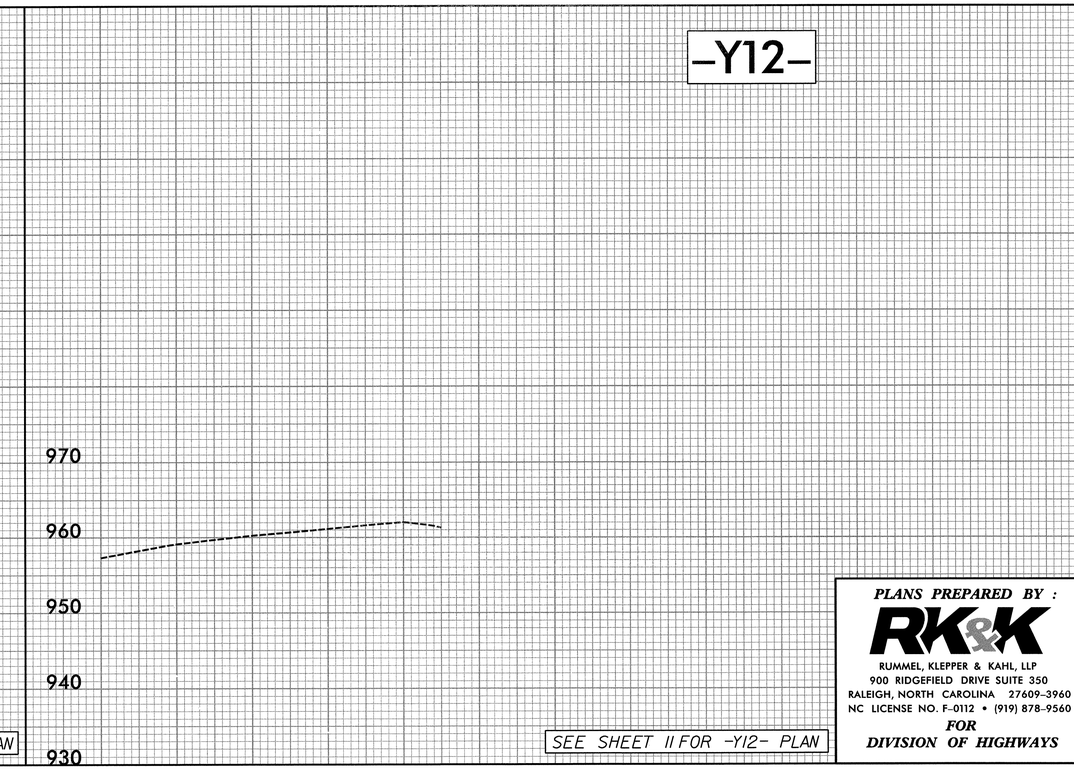
SPECIAL CUT DITCH
-Y11- STA. 11+50.00 - 12+00.00 LT
S=5.10%
BEG. EL. 956.50
END EL. 959.05

LAT. BASE DITCH
-Y11- STA. 10+75.00 - 11+00.00 RT
S=0.30%
BEG. EL. 955.94
END EL. 956.01

SPECIAL CUT DITCH
-Y11- STA. 11+50.00 - 12+00.00 RT
S=4.50%
BEG. EL. 956.50
END EL. 958.75

SEE SHEET 10 FOR -Y11- PLAN

-Y12-



SEE SHEET 11 FOR -Y12- PLAN

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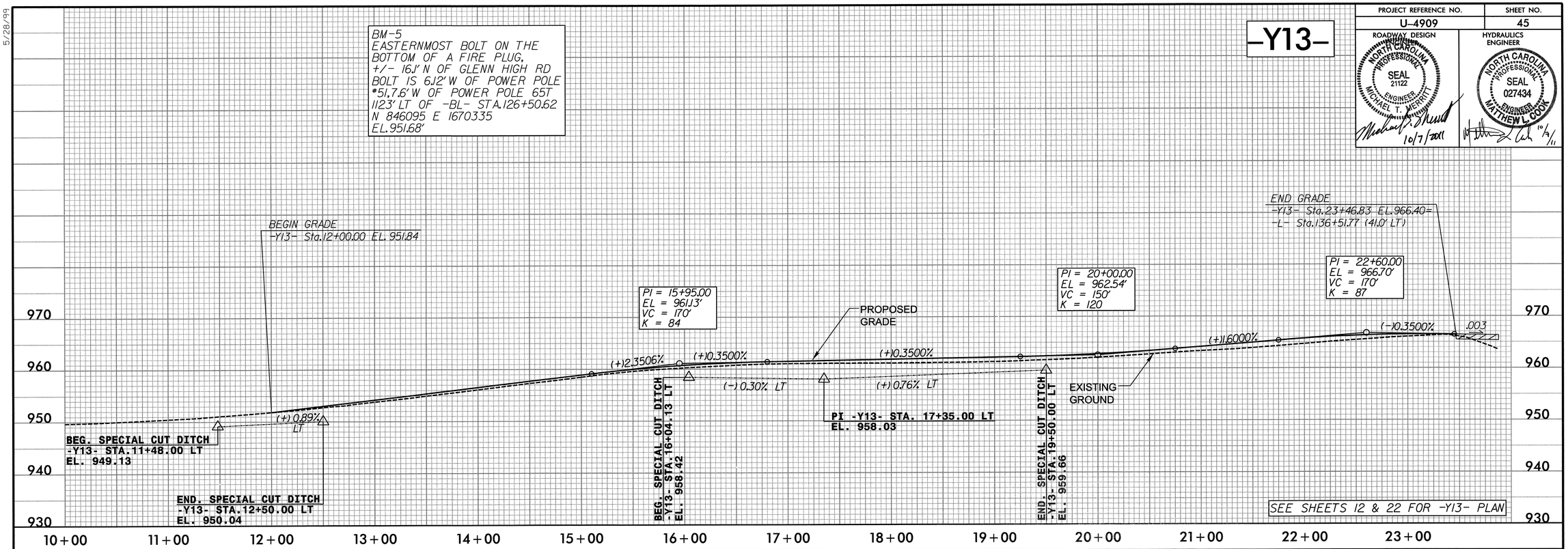
lisapaylor

PROJECT REFERENCE NO.	SHEET NO.
U-4909	45

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. METRITT — 10/7/2011

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK — 10/7/11

-Y13-



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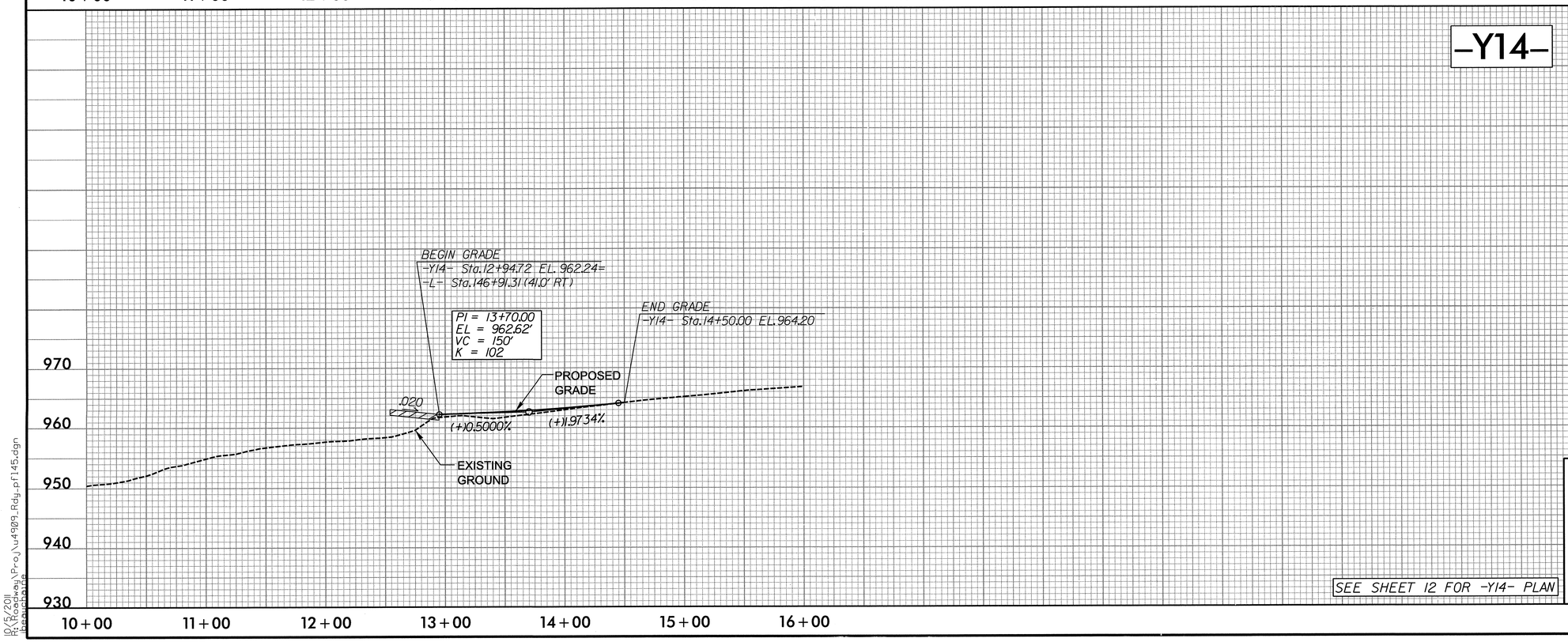

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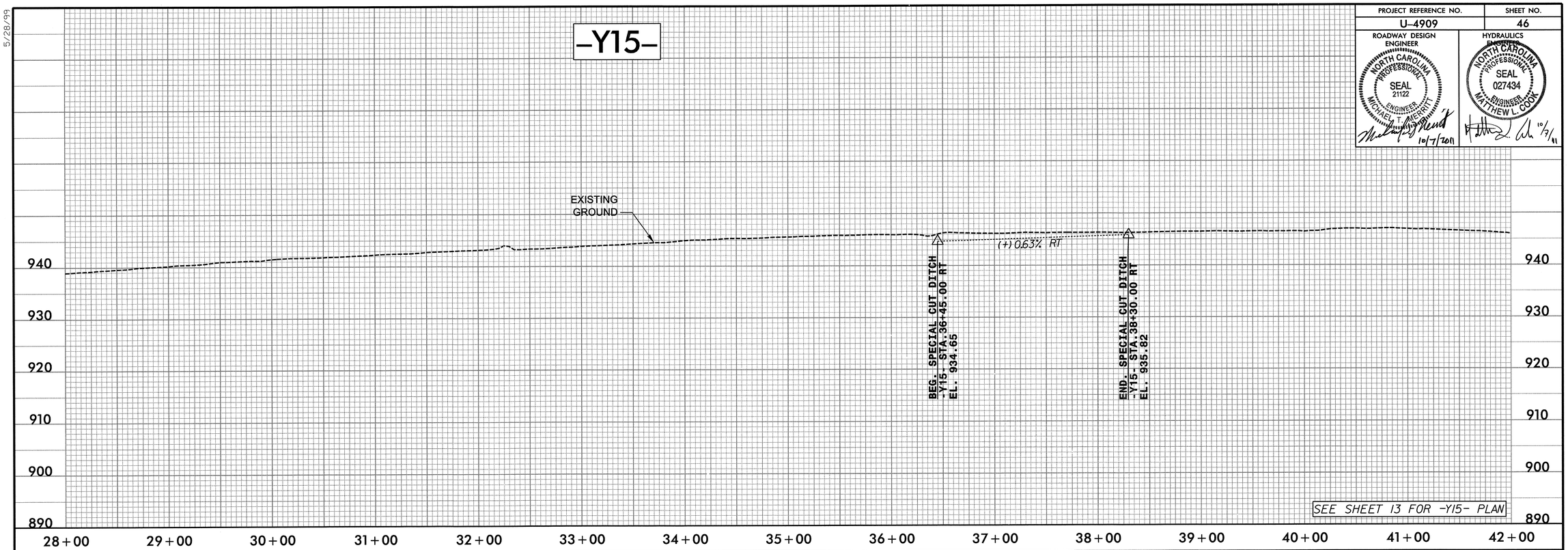
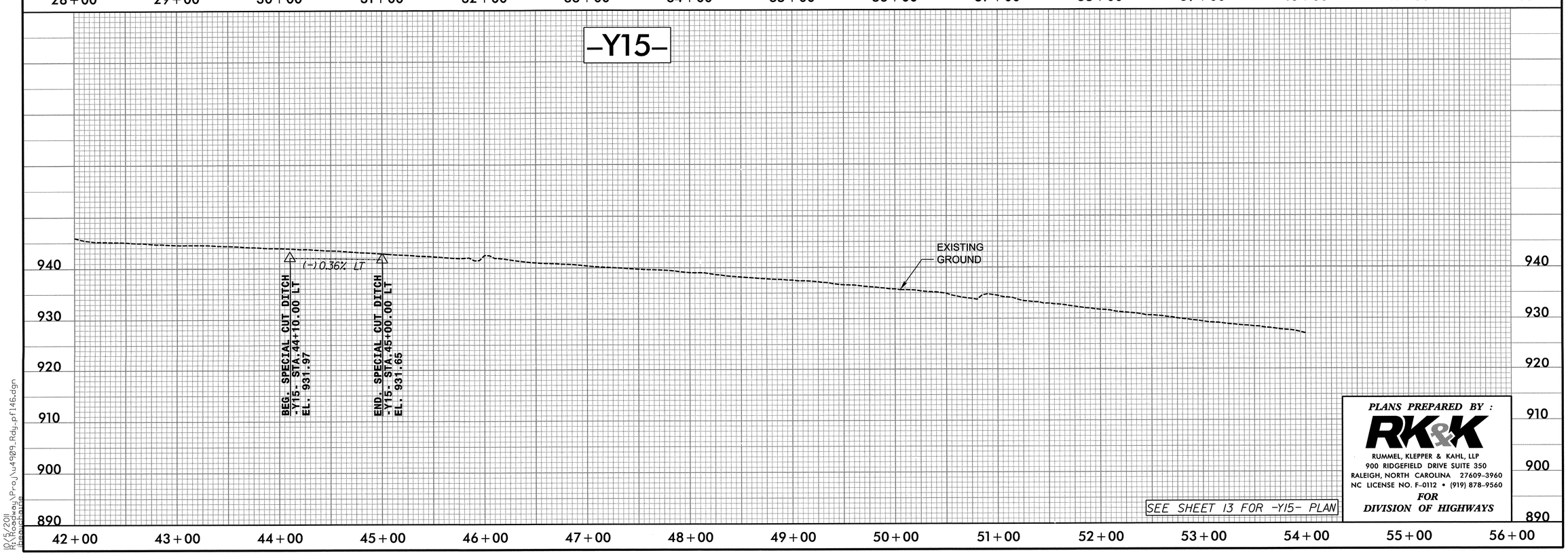
lisacoates

PROJECT REFERENCE NO.	SHEET NO.
U-4909	46

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11





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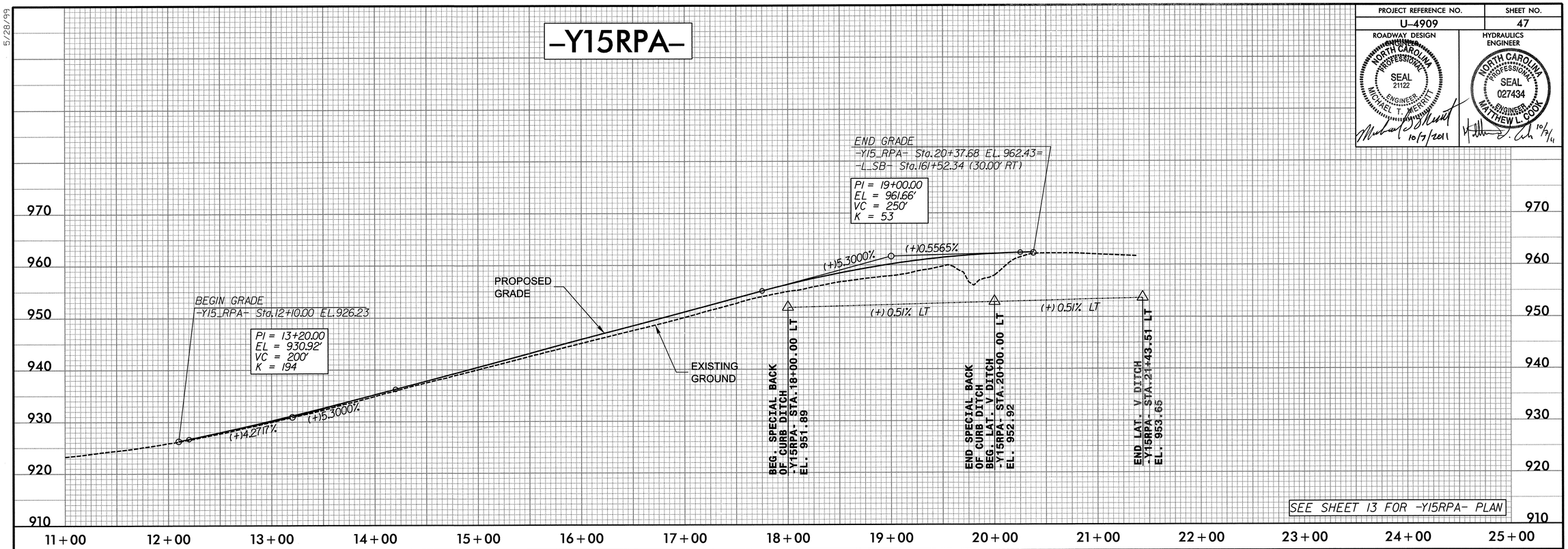
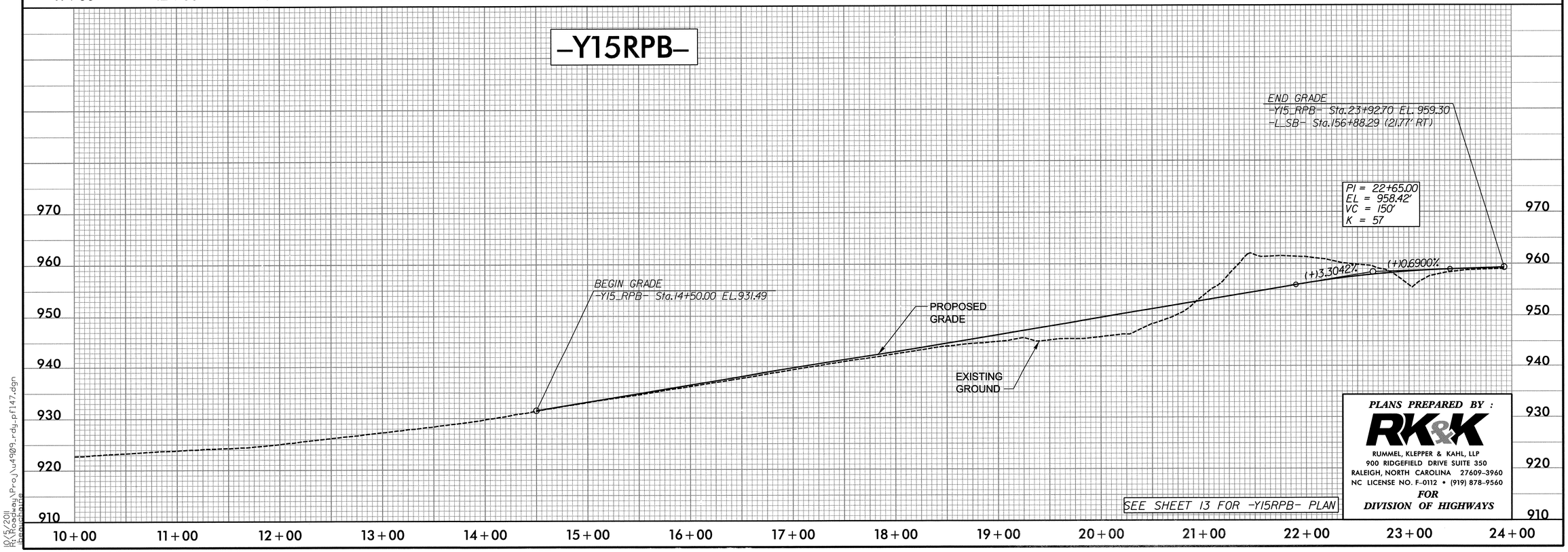
PROJECT REFERENCE NO.	SHEET NO.
U-4909	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11





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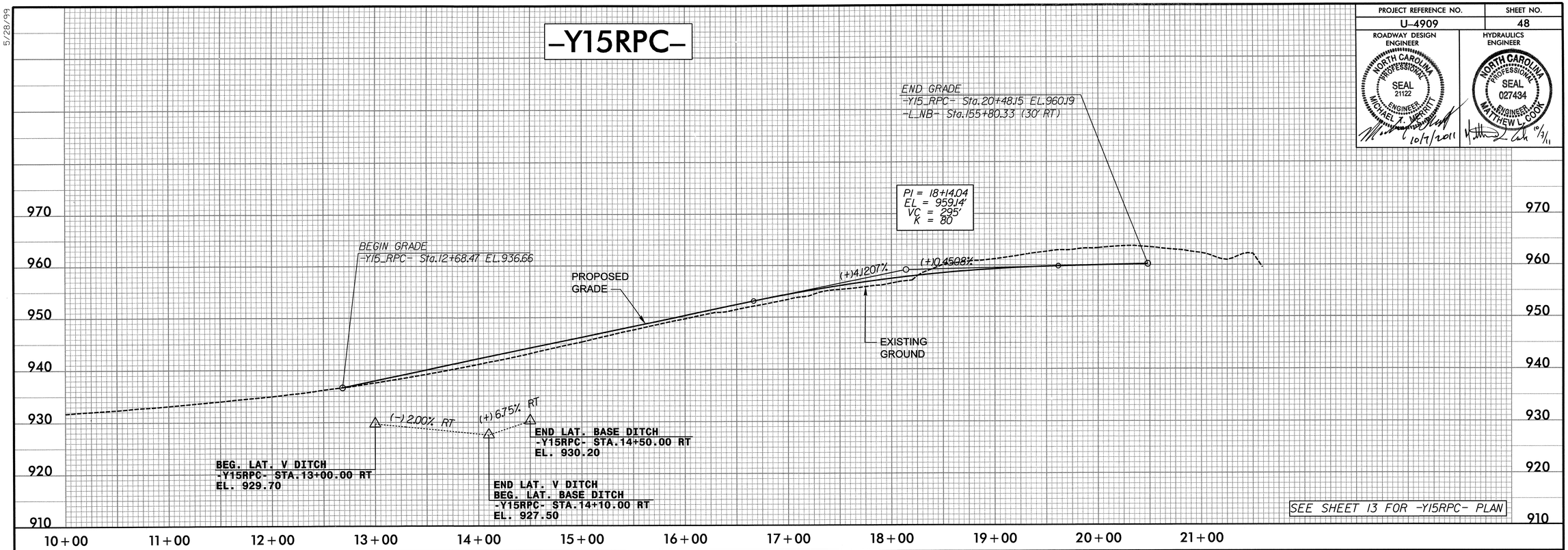
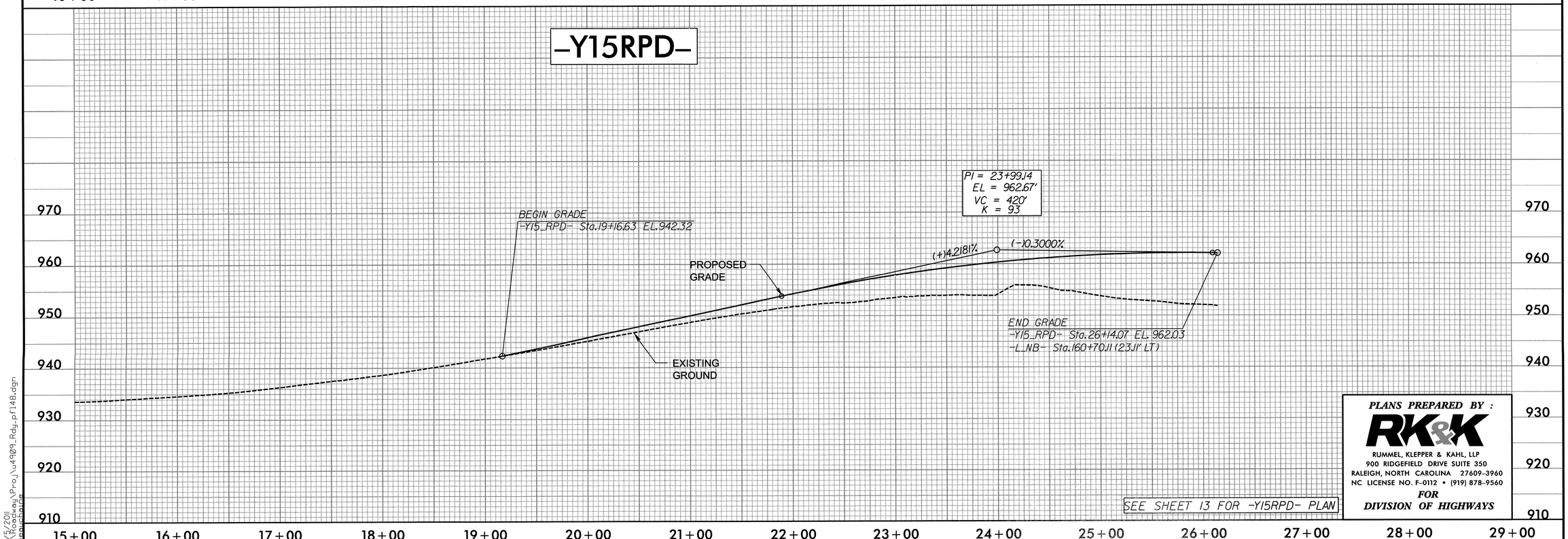
lbeaubaire

PROJECT REFERENCE NO.	SHEET NO.
U-4909	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/3/11





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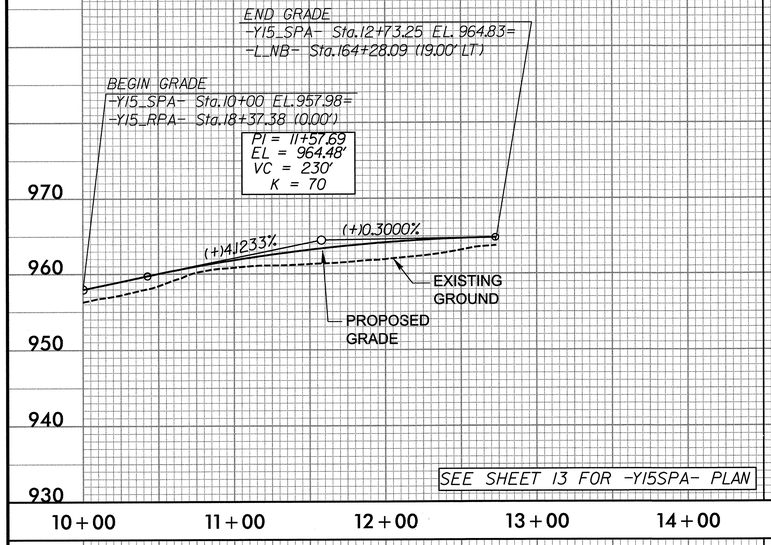
PROJECT REFERENCE NO.	SHEET NO.
U-4909	49

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. WORTH
10/7/2011

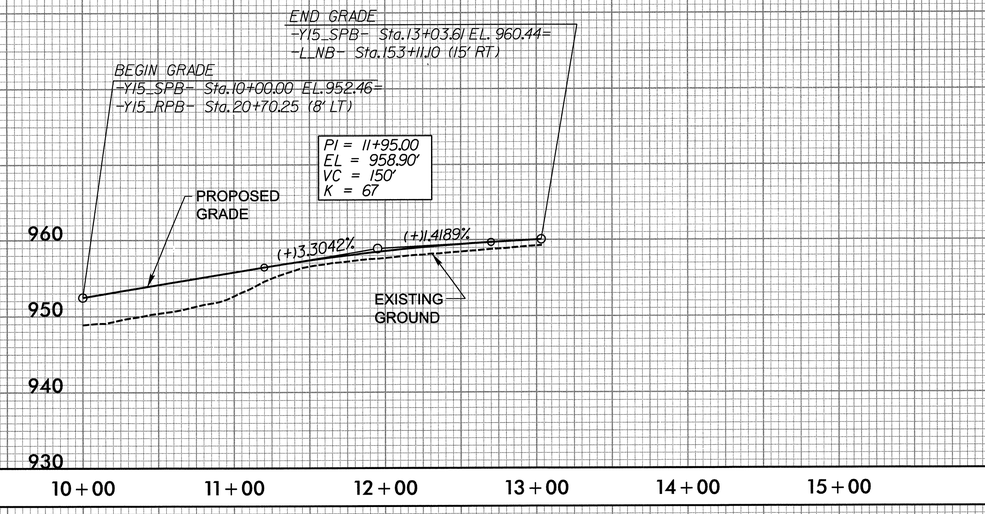
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11

-Y15SPA-



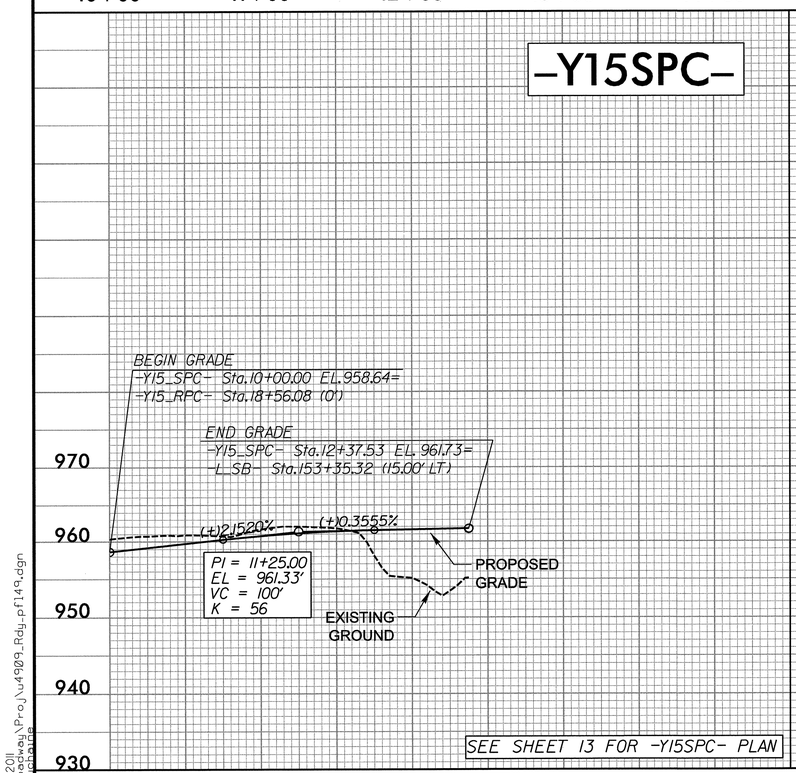
SEE SHEET 13 FOR -Y15SPA- PLAN

-Y15SPB-



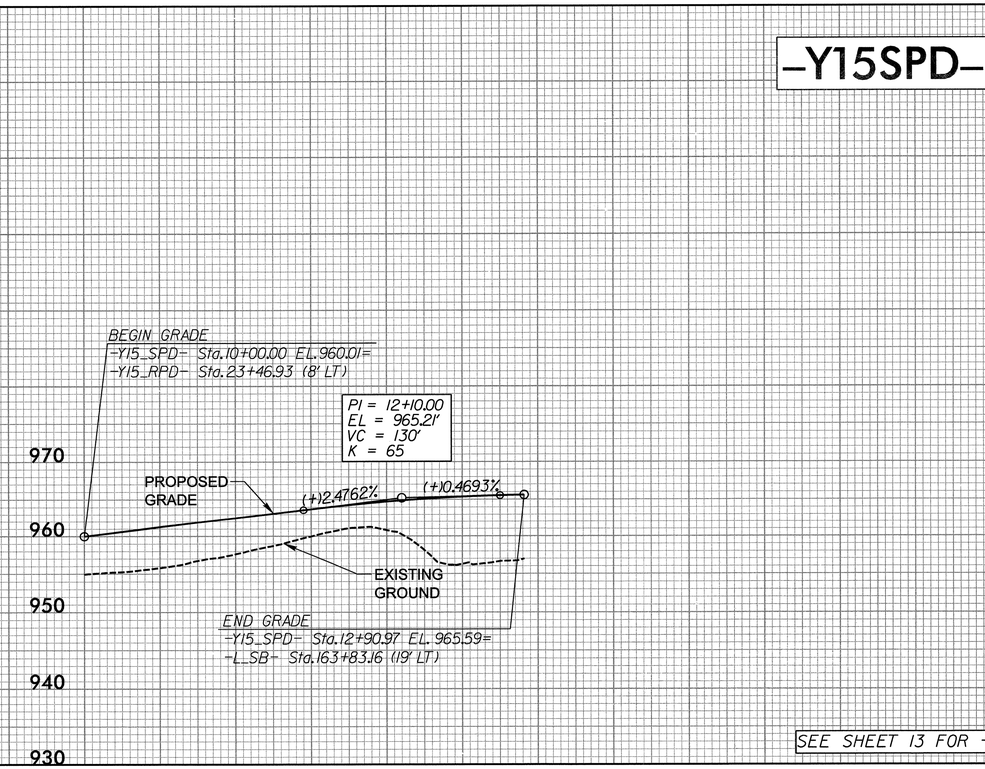
SEE SHEET 13 FOR -Y15SPB- PLAN

-Y15SPC-



SEE SHEET 13 FOR -Y15SPC- PLAN

-Y15SPD-



SEE SHEET 13 FOR -Y15SPD- PLAN

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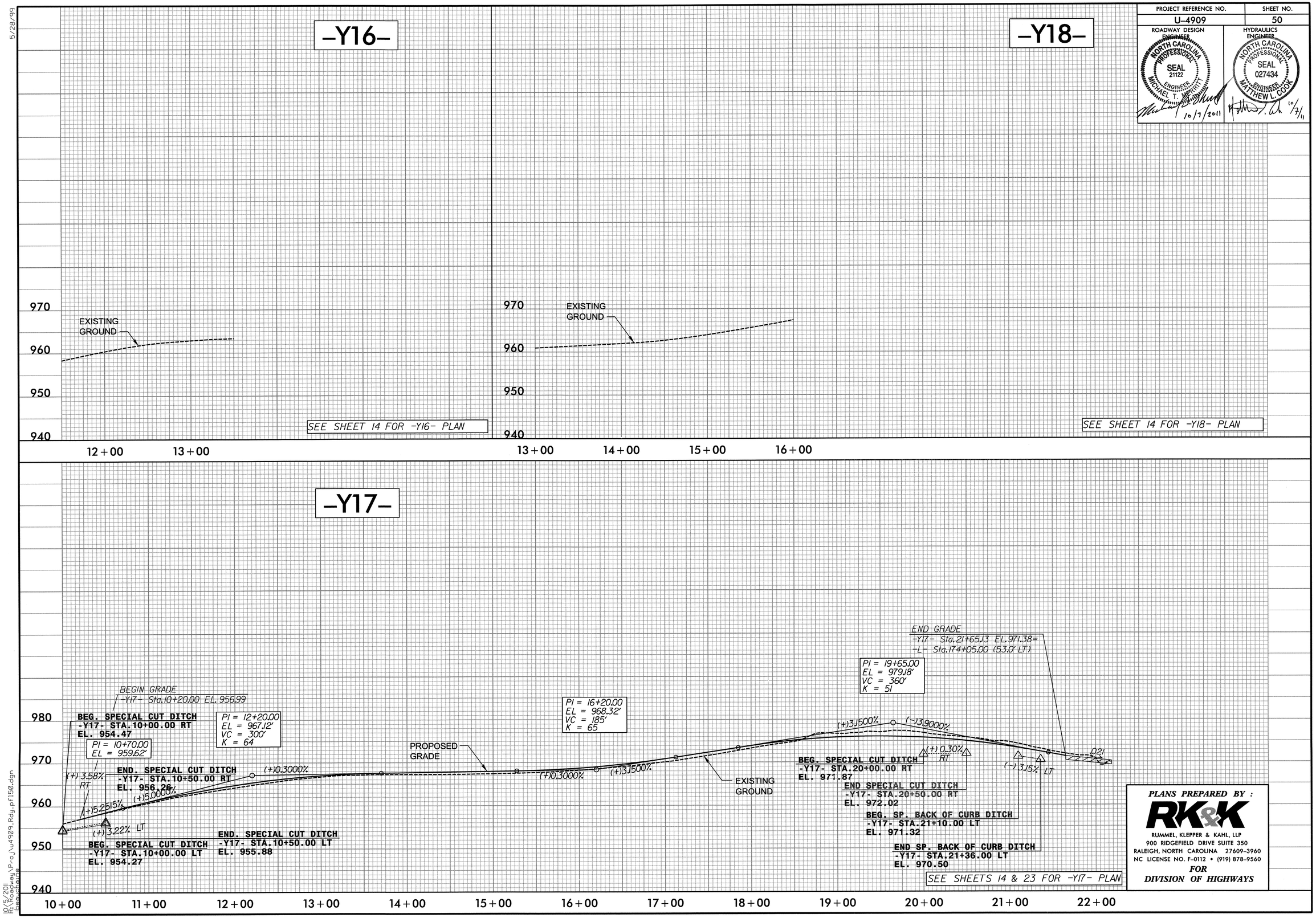
jbeauchamp

PROJECT REFERENCE NO.	SHEET NO.
U-4909	50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MORRITT 10/7/2011

NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK 10/7/11



PLANS PREPARED BY :

RK&K

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RALEIGH, NORTH CAROLINA 27609-3960
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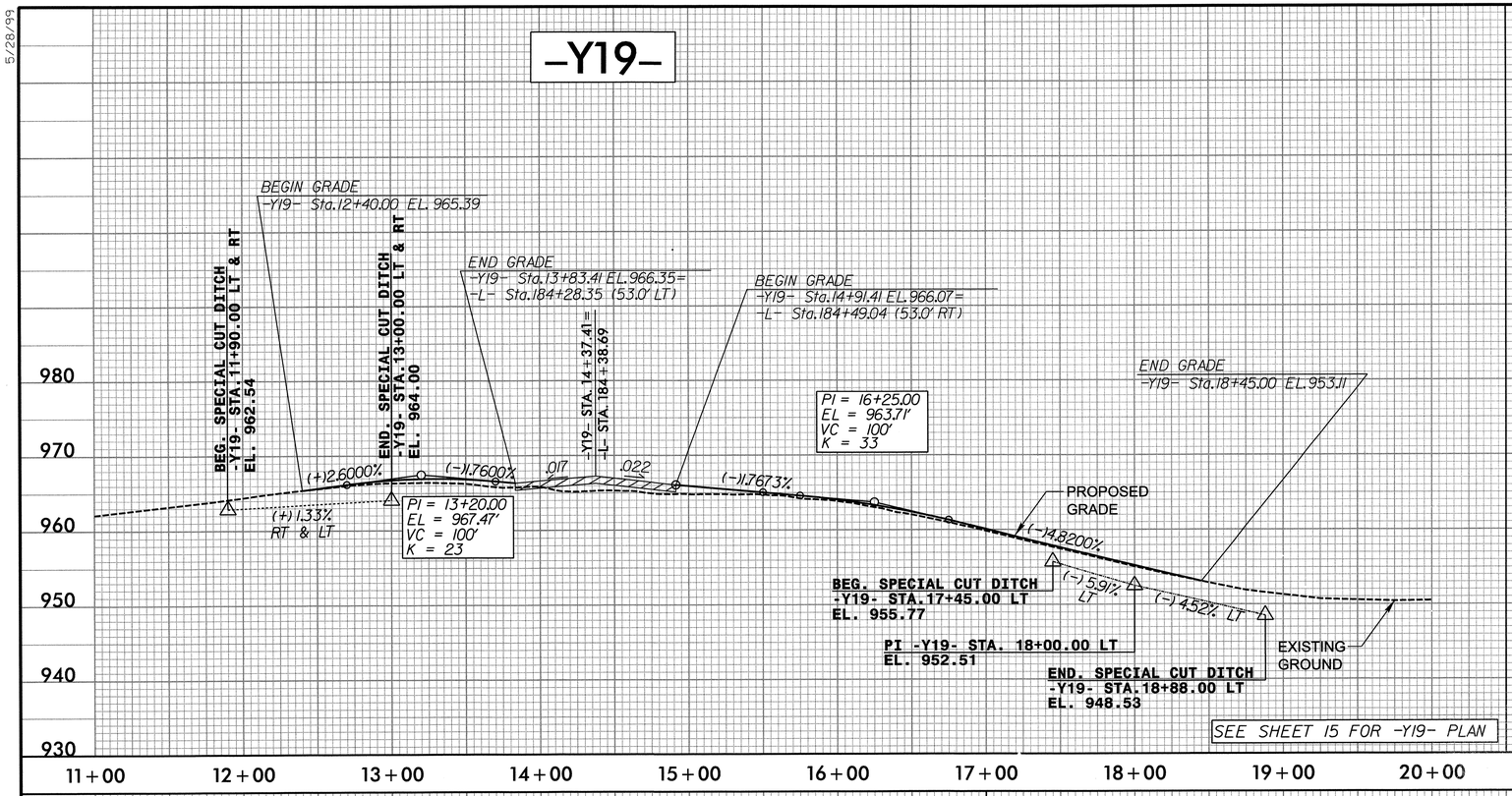
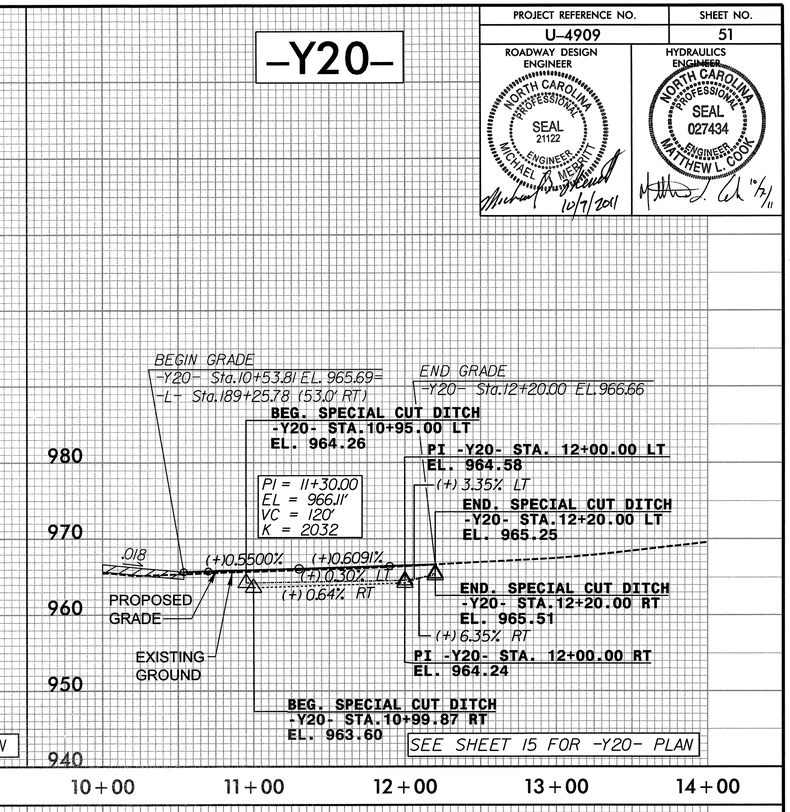
Bentley\PW

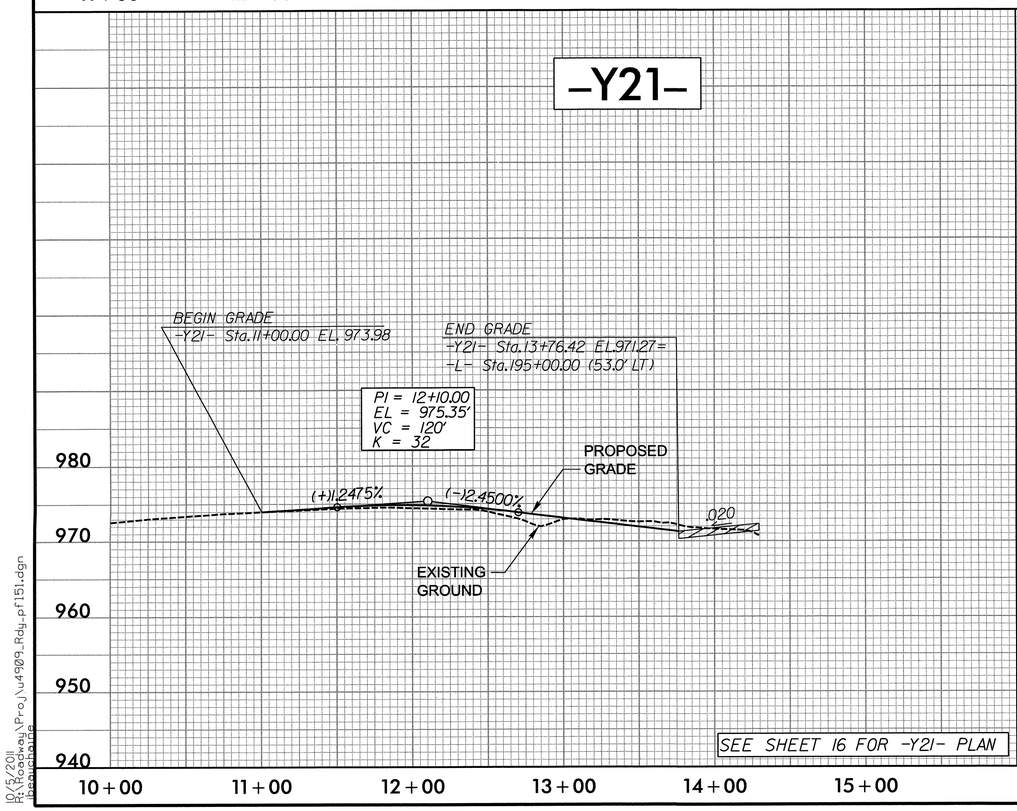
PROJECT REFERENCE NO.	SHEET NO.
U-4909	51

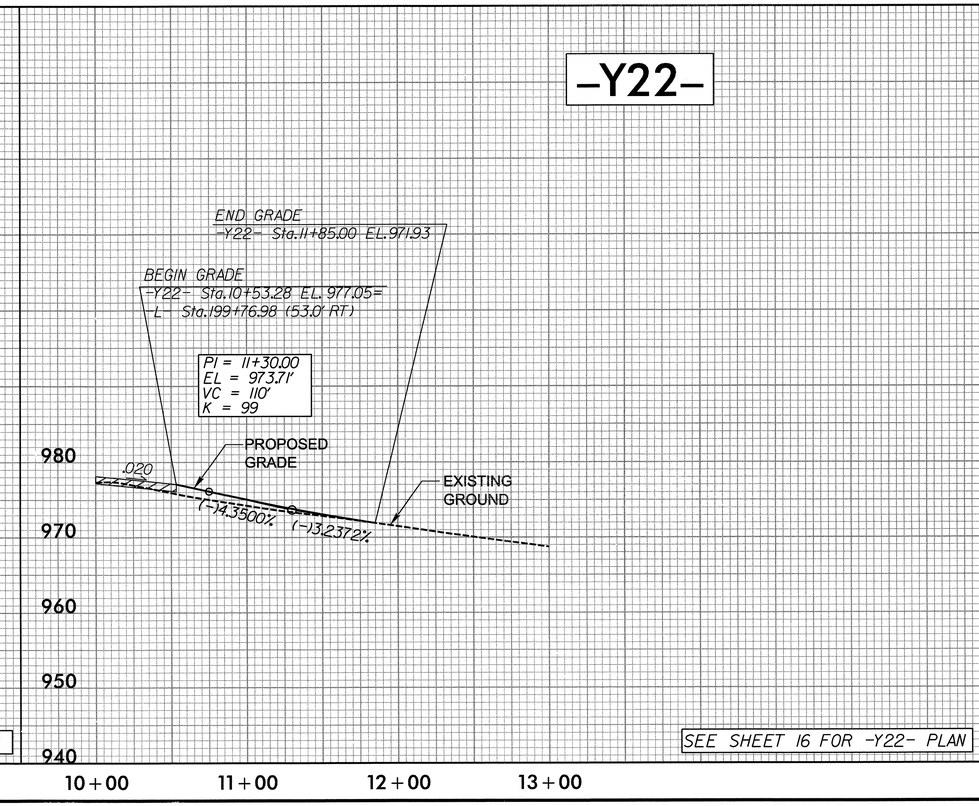
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL K. MERRITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11









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NC LICENSE NO. F-0112 • (919) 878-9560
FOR
DIVISION OF HIGHWAYS

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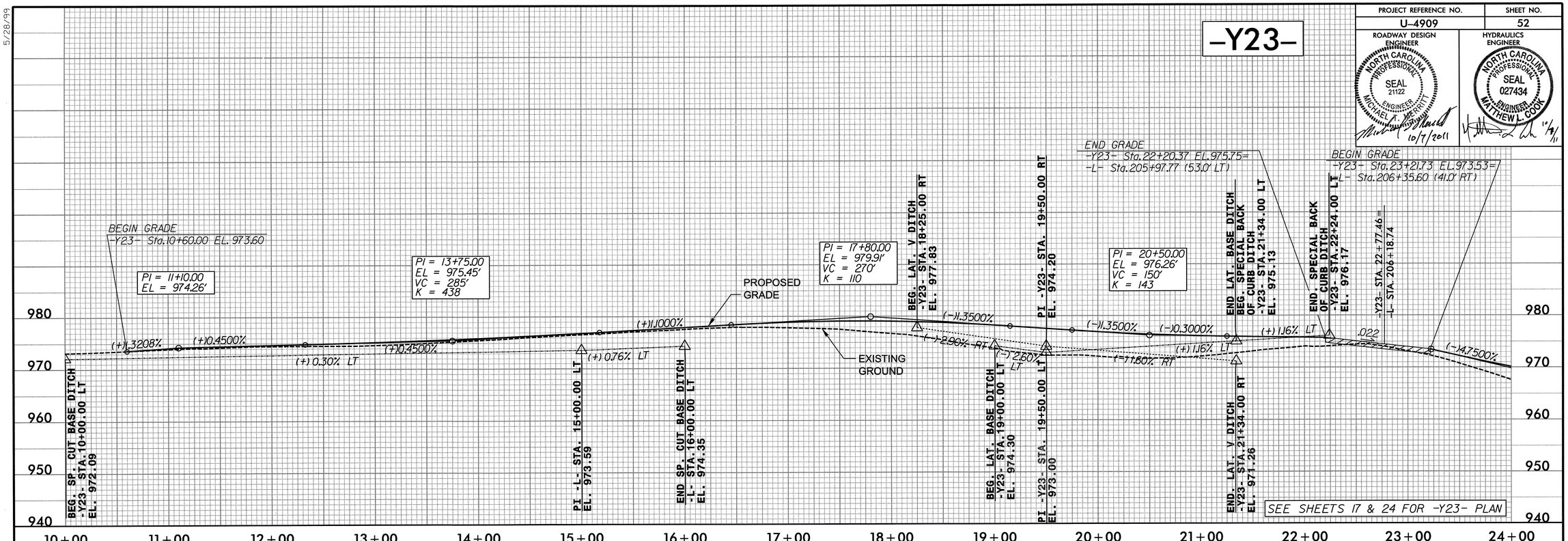
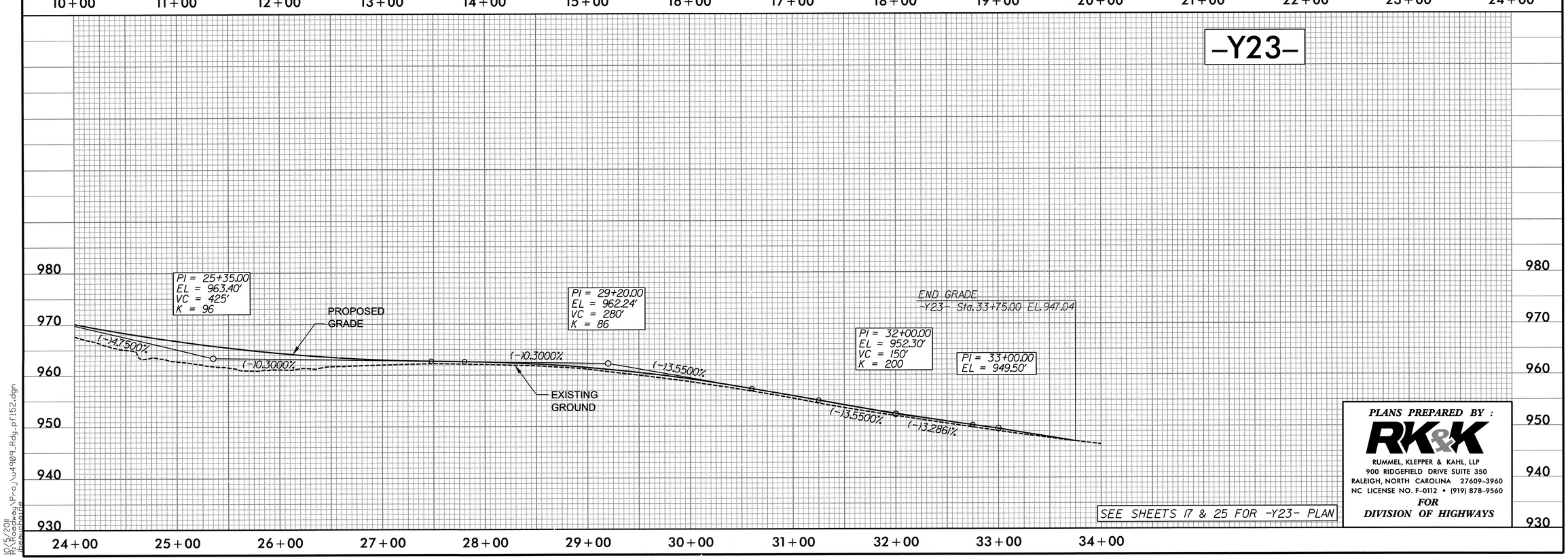
Beaufort Co

PROJECT REFERENCE NO.	SHEET NO.
U-4909	52

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21122 ENGINEER MICHAEL T. MERRITT
10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW L. COOK
10/7/11





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U-4909	53

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10/7/2011

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027434 ENGINEER MATTHEW X. COOK
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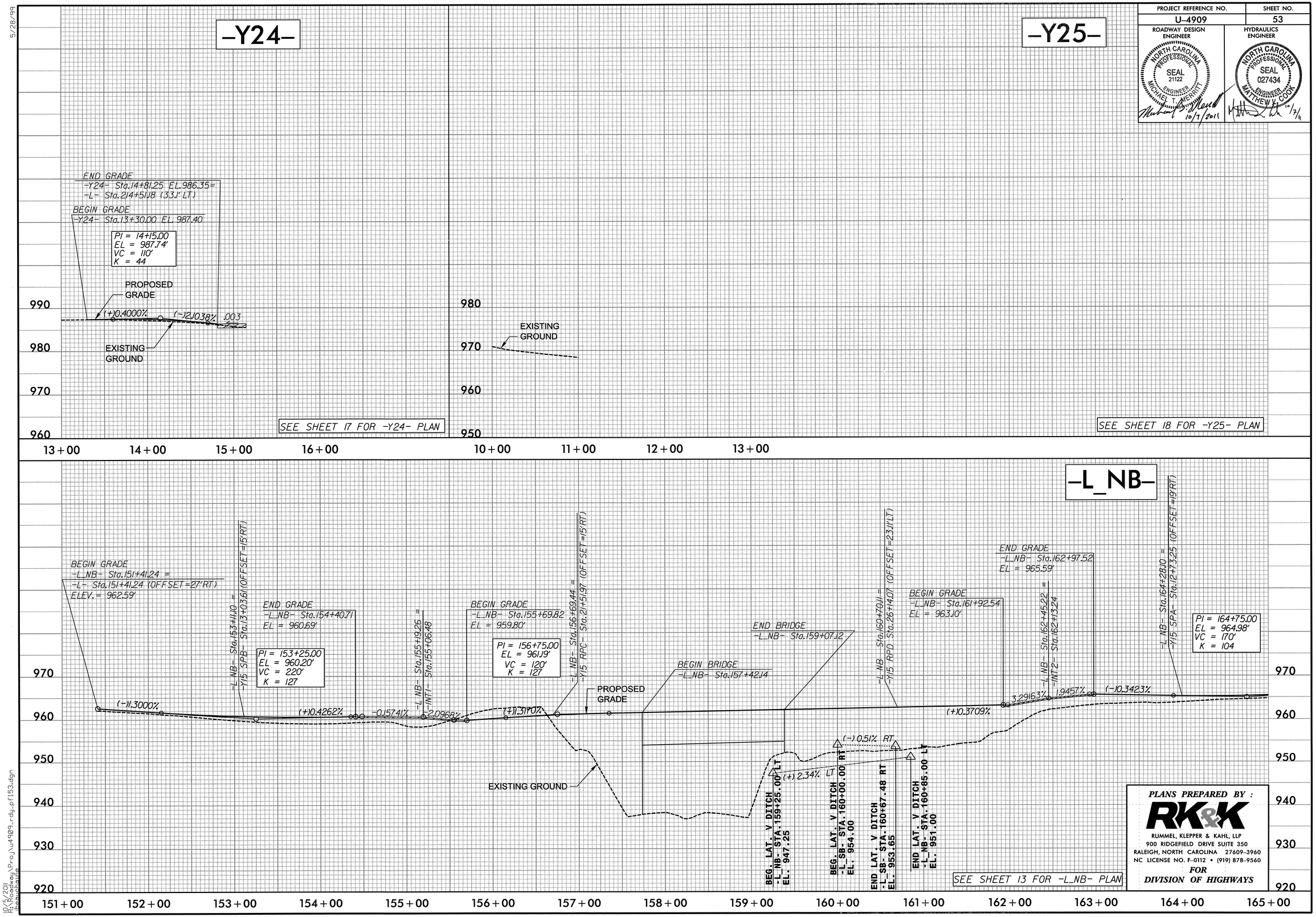

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10/7/2011

HYDRAULICS ENGINEER
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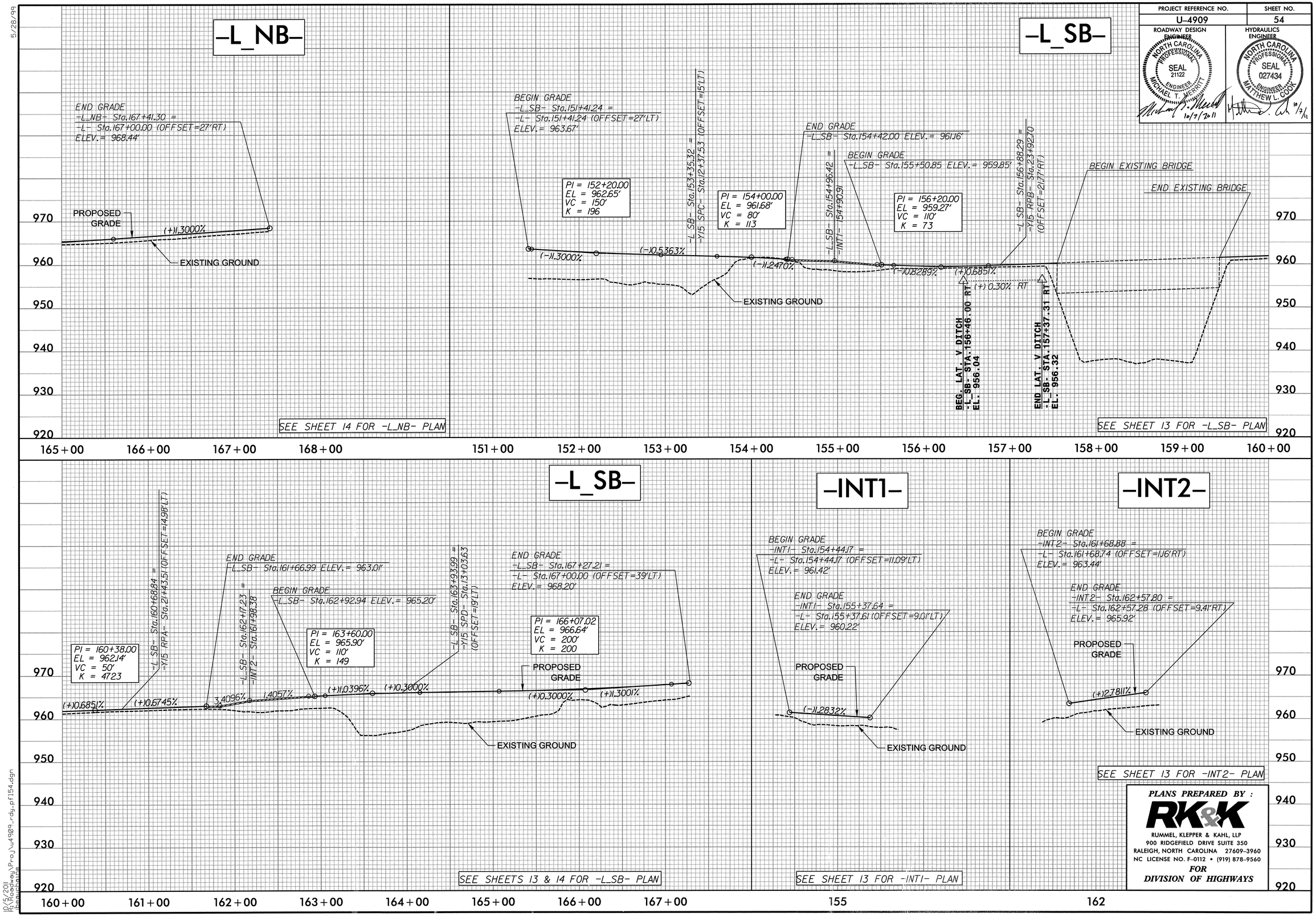

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