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09/08/99

TIP PROJECT: U-5935

CONTRACT: C203975

See Sheet 1-A For Index of Sheets

VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

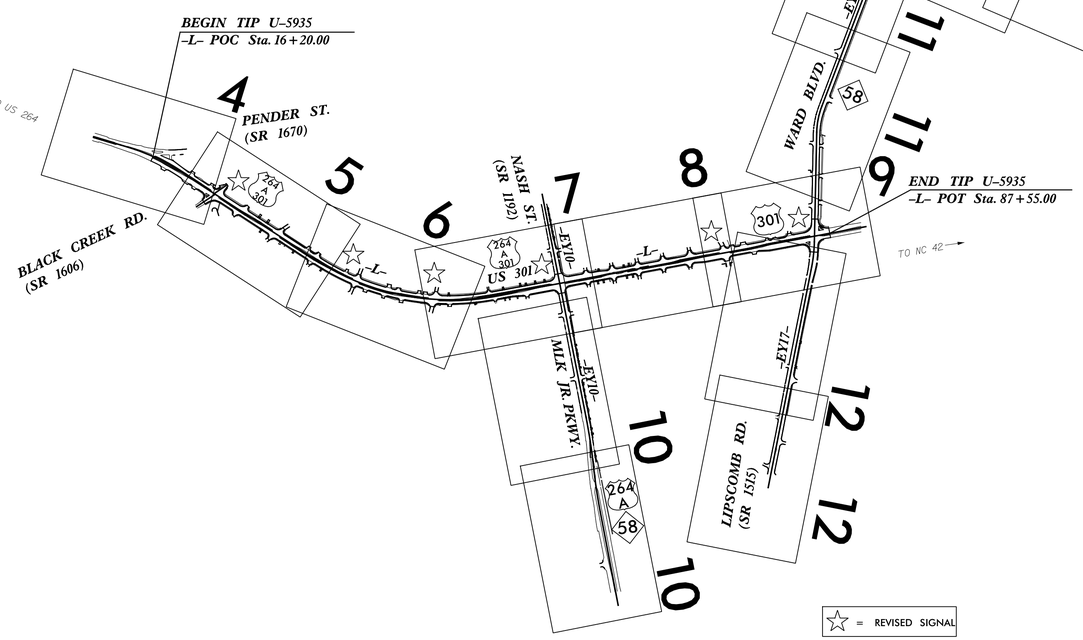
WILSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5935	1	

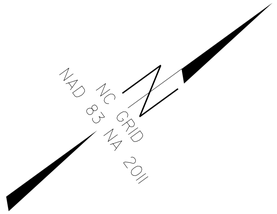
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
44795.1.2		PE
44795.2.1	STBG-0301(041)	R/W
44795.3.1	STBG-0301(041)	CONST.

LOCATION: US 301 FROM BLACK CREEK ROAD (SR 1606) TO LIPSCOMB ROAD (SR 1515)

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



☆ = REVISED SIGNAL



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2016 = 18,200
ADT 2041 = 22,800
K = 9%
D = 55%
T = 11% *
V = 50 MPH
* TTST = 6% + DUAL 5%
FUNC CLASS = ARTERIAL

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5935 = 1.351 MILES
LENGTH STRUCTURE TIP PROJECT U-5935 = 0.000 MILES
TOTAL LENGTH TIP PROJECT U-5935 = 1.351 MILES

Prepared In the Office of:
Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy
Suite 600
Cary, NC 27518
NC License: F-1084

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 24, 2017

LETTING DATE:
SEPTEMBER 19, 2017

TODD H. BUCKNER, PE
PROJECT ENGINEER

TERRY A. HARRIS, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARNARD
DocuSigned by: Brandon Barnard C7351A57E0F0499...
SIGNATURE: P.E. 7/20/2017

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSigned by: Todd Buckner 10B7D515D7F6439...
SIGNATURE: P.E. 7/20/2017

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

20-JUL-2017 15:27
R:\Roadway\Proj\U-5935_RDY_TSH_01.dgn
$$$$USERNAME$$$$

Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy
Suite 600
Cary, NC 27518
NC License: F-1084

PROJECT REFERENCE NO.	SHEET NO.
U-5935	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER

DocuSigned by: 1087011E67F6435...
8/10/2017

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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEETS
2A-1 THRU 2A-4	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	CONCRETE CATCH BASIN (3 OR 4 SIDE OPEN THROAT) (MANHOLE OPTIONAL)
2C-2	SPECIAL DI 840D14
2C-3	CURB RAMPS DIRECTIONAL RAMPS
2C-4	CURB RAMPS MEDIAN OR TURN LANE ISLANDS
2C-5	CURB RAMPS PARALLEL RAMPS
2C-6	DETAIL TO CONVERT EXISTING DI, CB, OTCB OR GI TO JUNCTION BOX (MANHOLE OPTIONAL)
3B-1 THRU 3B-2	ROADWAY SUMMARIES
3D-1 THRU 3D-11	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 20	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-6D	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-14	PAVEMENT MARKING PLANS
EC-1 THRU EC-25	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-28	SIGNING PLANS
SIG-1 THRU SIG-10.1	SIGNAL PLANS
SCP-1 THRU SCP-2	SIGNAL COMMUNICATION PLANS
SIG.SM-1 THRU SIG.SM-8	SIGNAL FOUNDATIONS
SIG. P1 THRU SIG. P3	SIGNAL DETAILS
UC-1 THRU UC-19	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-12	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX OF SHEETS
X-1A THRU X-1D	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-65	CROSS-SECTIONS
S1-1 THRU S1-5	STRUCTURE PLANS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 01-24-2017

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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. 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

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

DRIVEWAYS:

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

STREET TURNOUT:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DIST. POWER - CITY OF WILSON; COMMUNICATIONS - CITY OF WILSON, CENTURY LINK, TIME WARNER CABLE, MCNC; GAS - CITY OF WILSON, PIEDMONT NATURAL GAS; WATER AND SEWER - CITY OF WILSON; TRANSMISSION POWER - CITY OF WILSON.
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS. UTILITES SHOWN TO REMAIN SHOULD BE PROTECTED AND SIDEWALKS TO BE FIELD ADJUSTED AS NECESSARY, COORDINATE WITH ENGINEER.

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS:

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

STANDARD DRAWINGS

EFF. 01-17-2012
REV. 05-24-2017

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.05	Method of Obtaining Superelevation - Divided Highways
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin - 12" thru 48" Pipe
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
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
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
852.10	Median Construction - with Curb and Gutter
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
U-5935	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — 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 & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
U-5935	IC-1
Location and Surveys	

SURVEY CONTROL SHEET U-5935

BL

POINT	DESC.		NORTH	EAST	ELEVATION	L STATION	OFFSET
WT1	U5935	WT-1	714629.7090	2324192.5670	119.23	13+66.86	46.19 LT
WT2	U5935	WT-2	715058.1720	2325061.0060	132.85	23+25.64	57.70 LT
WT3	U5935	WT-3	715388.8810	2326234.2200	136.35	35+39.35	51.27 RT
WT4	U5935	WT-4	716196.0890	2327317.4340	136.58	48+78.96	53.89 RT
WT5	U5935	WT-5	717133.9200	2327829.3270	134.63	59+38.32	60.20 RT
WT6	U5935	WT-6	718058.8480	2328144.9690	133.71	69+08.95	53.79 LT
WT7	U5935	WT-7	719684.1050	2328902.7550	132.32	87+02.11	70.79 LT

BY1

POINT	DESC.		NORTH	EAST	ELEVATION	EY10 STATION	OFFSET
WT16	U5935	WT-16	717427.0990	2327508.0290	133.36	10+42.57	32.24 LT
WT17	U5935	WT-17	716740.7850	2328989.8840	130.37	26+75.64	34.18 LT
WT18	U5935	WT-18	716233.2620	2329769.8150	130.61	35+99.31	56.11 RT

BY2

POINT	DESC.		NORTH	EAST	ELEVATION	EY17 STATION	OFFSET
WT10	U5935	WT-10	722215.0210	2326931.0260	132.80	10+72.86	107.06 LT
WT9	U5935	WT-9	721418.2290	2327203.9380	115.43	19+15.12	38.55 RT
WT8	U5935	WT-8	720250.2720	2327976.7280	130.39	33+09.71	38.62 RT
70	U5935	WT-7	719684.1050	2328902.7550	132.32	43+83.39	84.20 LT
WT19	U5935	WT-19	718572.6260	2329832.0970	132.06	58+19.29	37.32 RT

BY3

POINT	DESC.		NORTH	EAST	ELEVATION	EY20 STATION	OFFSET
10	U5935	WT-10	722215.0210	2326931.0260	132.80	8+47.33	34.57 RT
WT11	U5935	WT-11	722827.6040	2327962.9550	118.82	20+44.90	27.06 RT
WT12	U5935	WT-12	723576.2990	2328978.9220	96.15	33+06.04	26.22 RT
WT13	U5935	WT-13	724224.5420	2329822.2350	95.55	43+65.69	36.79 LT
WT14	U5935	WT-14	724487.9800	2330392.2430	97.95	49+93.56	46.39 LT
WT15	U5935	WT-15	724722.1890	2331154.1630	110.72	57+78.02	56.96 LT

BM1 ELEVATION = 132.20
N 714786 E 2324789
BL STATION 11+04.00 124 RIGHT
BENCH NAIL IN BASE OF 12" OAK

BM2 ELEVATION = 133.93
N 715335 E 2326690
BL STATION 30+21.00 315 RIGHT
BENCH NAIL IN BASE OF 18" OAK

BM3 ELEVATION = 134.38
N 717655 E 2327927
BL STATION 56+32.00 76 LEFT
BENCH NAIL IN BASE OF 36" OAK

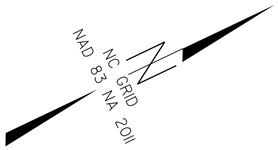
BM4 ELEVATION = 132.42
N 719897 E 2328718
BY2 STATION 35+60.00 85 LEFT
CONCRETE SLAB OF LIGHT POLE

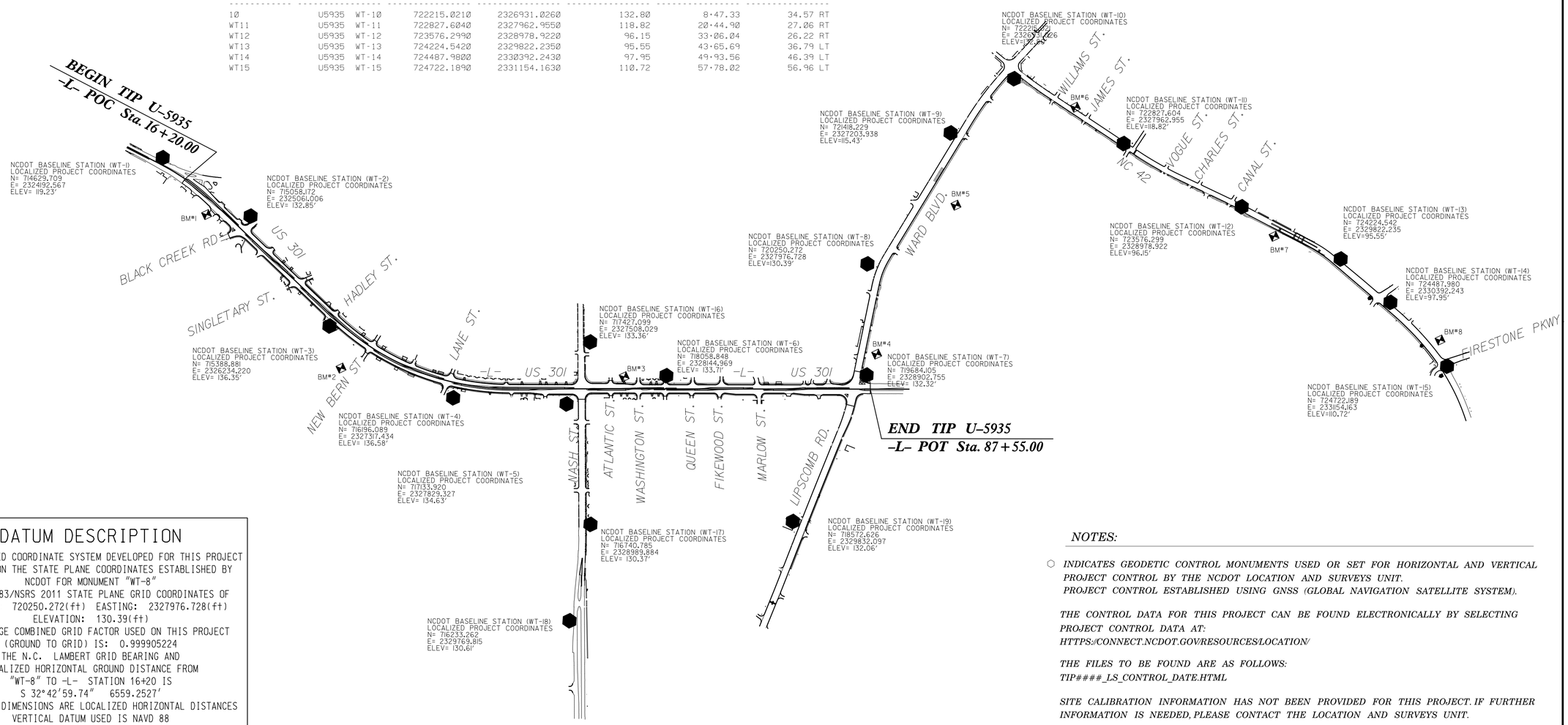
BM5 ELEVATION = 121.80
N 721172 E 2327775
BY2 STATION 18+62.00 341 LEFT
BENCH NAIL IN BASE OF 30" ELM

BM6 ELEVATION = 127.68
N 722586 E 2327436
BY3 STATION 11+23.00 62 LEFT
BENCH NAIL IN BASE OF 15" PINE

BM7 ELEVATION = 90.99
N 723761 E 2329345
BY3 STATION 33+65.00 77 RIGHT
BENCH NAIL IN BASE OF 15" SWEET GUM

BM8 ELEVATION = 106.86
N 724727 E 2330917
BY3 STATION 52+26.00 74 LEFT
BENCH NAIL IN BASE OF 36" OAK





DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "WT-8"
WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 720250.272(ft) EASTING: 2327976.728(ft)
ELEVATION: 130.39(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999905224
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"WT-8" TO -L- STATION 16+20 IS
S 32°42'59.74" 6559.2527'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

⬡ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT. PROJECT CONTROL ESTABLISHED USING GNSS (GLOBAL NAVIGATION SATELLITE SYSTEM).*

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

THE FILES TO BE FOUND ARE AS FOLLOWS:
TIP####_LS_CONTROL_DATE.HTML

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

NOTE: DRAWING NOT TO SCALE

6/2/99
R:\UL-2017 14325
R:\U5935_Survey\U-5935_ls_ic.dgn
$$$$USERNAME$$$$

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6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-5935	2A-1

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSign Envelope ID: 1087011E67F6435...
7/11/2017

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 40257 ENGINEER MATTHEW CLARKE
DocuSign Envelope ID: 1EB2097EAAF437...
7/11/2017

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Michael Baker Engineering, Inc. — Michael Baker INTERNATIONAL — 8000 Regency Pkwy Suite 600, Cary, NC 27518, NC License: F-1084

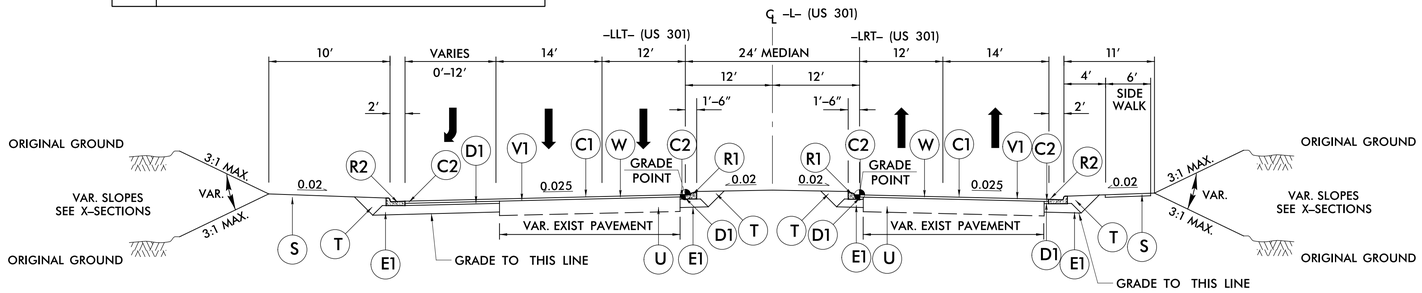
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, Division 4, 509 Ward Blvd, Wilson, NC 27895

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E2	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.	T	EARTH MATERIAL
C2	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.	R1	1'-6" CONCRETE CURB AND GUTTER.	U	EXISTING PAVEMENT
C3	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.	R2	2'-6" CONCRETE CURB AND GUTTER.	V1	MILLING ASPHALT PAVEMENT, 0" TO 3"
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R3	5" MONOLITHIC CONCRETE ISLAND. (KEYED-IN)	V2	MILLING ASPHALT PAVEMENT, 1½"
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	S	4" CONCRETE SIDEWALK.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS THIS SHEET)
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.				

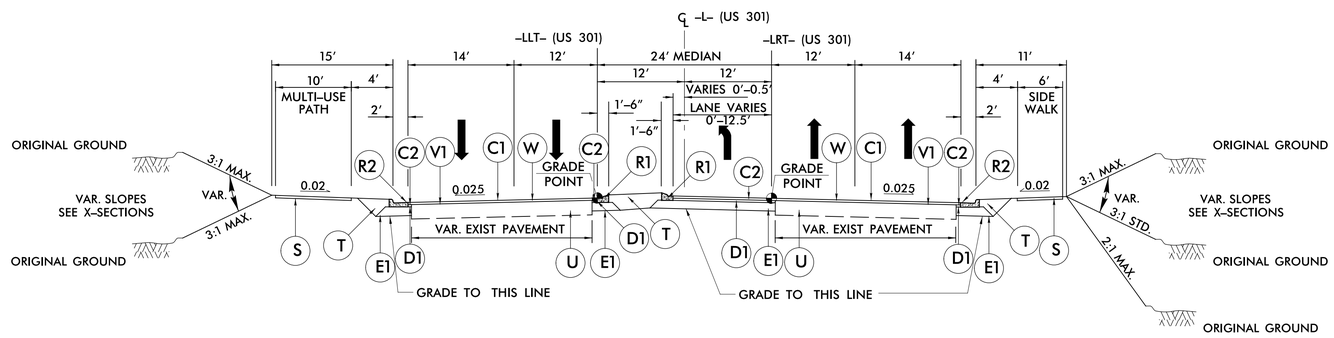
NOTES: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

SIDE SLOPES STEEPER THAN 3:1 REQUIRE REINFORCMENT, SEE PLANS.



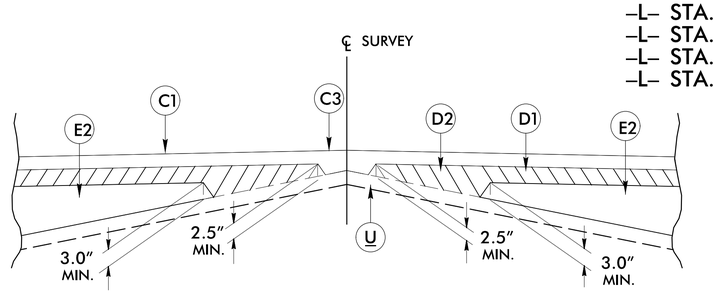
USE TYPICAL SECTION NO. 1

-L- STA. 16+20.00 TO 18+55.08
-L- STA. 52+58.74 TO 55+42.81
-L- STA. 64+53.52 TO 71+33.38

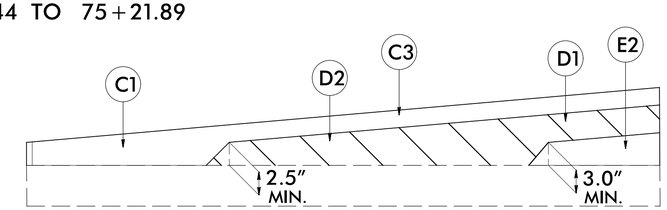


USE TYPICAL SECTION NO. 2

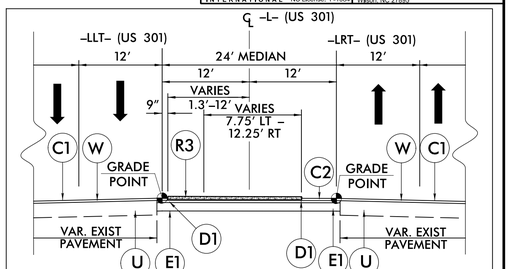
-L- STA. 18+55.08 TO 21+43.82
-L- STA. 28+52.84 TO 28+82.52
-L- STA. 35+44.92 TO 38+35.67
-L- STA. 44+50.98 TO 46+31.36
-L- STA. 55+42.81 TO 58+39.70
-L- STA. 72+25.44 TO 75+21.89



Detail Showing Method of Wedging

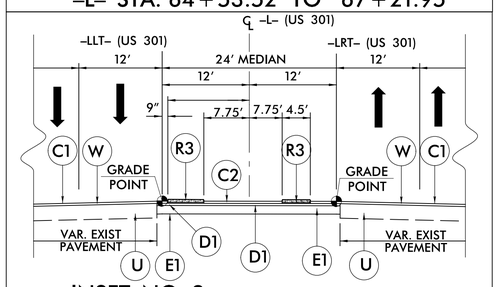


Wedging Detail For Resurfacing



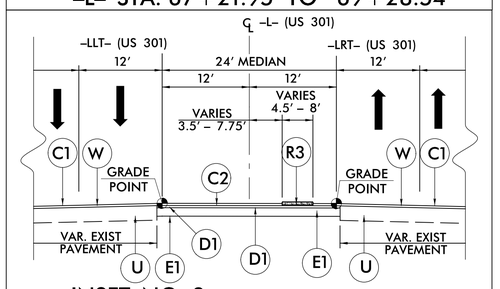
INSET NO. 1

USE WITH TYPICAL NO. 1
-L- STA. 64+53.52 TO 67+21.95



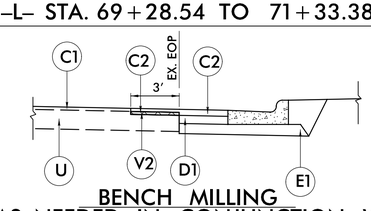
INSET NO. 2

USE WITH TYPICAL NO. 1
-L- STA. 67+21.95 TO 69+28.54



INSET NO. 3

USE WITH TYPICAL NO. 1
-L- STA. 69+28.54 TO 71+33.38



BENCH MILLING

USE AS NEEDED IN CONJUNCTION WITH TYPICALS NO. 1 THRU 9 FOR MEDIAN AND OUTSIDE EDGE OF PAVEMENT.

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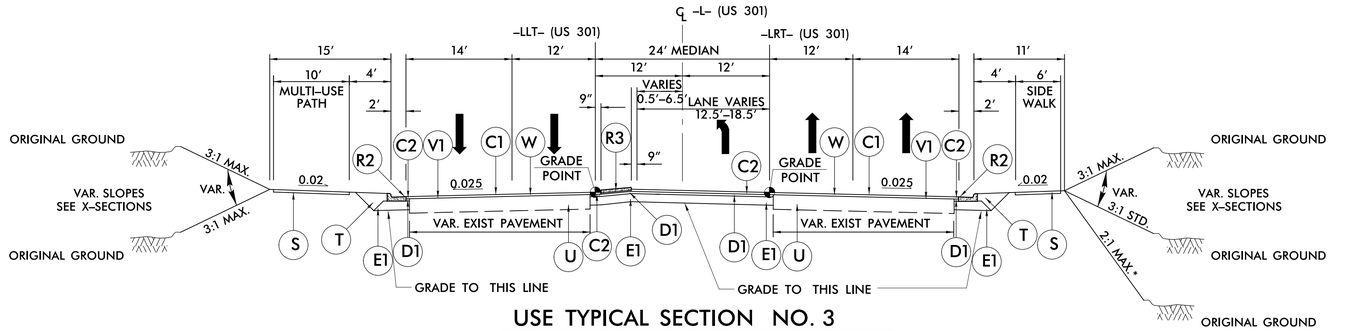
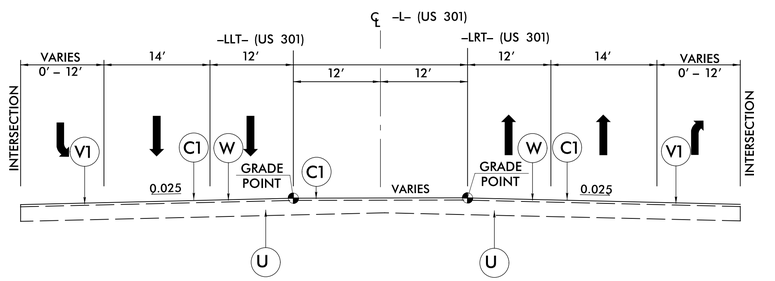
PAVEMENT SCHEDULE	
C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
D1	4" I19.0B
D2	VAR. I19.0B
E1	4" B25.0B
E2	VAR. B25.0B
R1	1'-6" CONC. C&G
R2	2'-6" CONC. C&G
R3	MONO. ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	MILLING VAR.
V2	MILLING 1½"
W	WEDGING



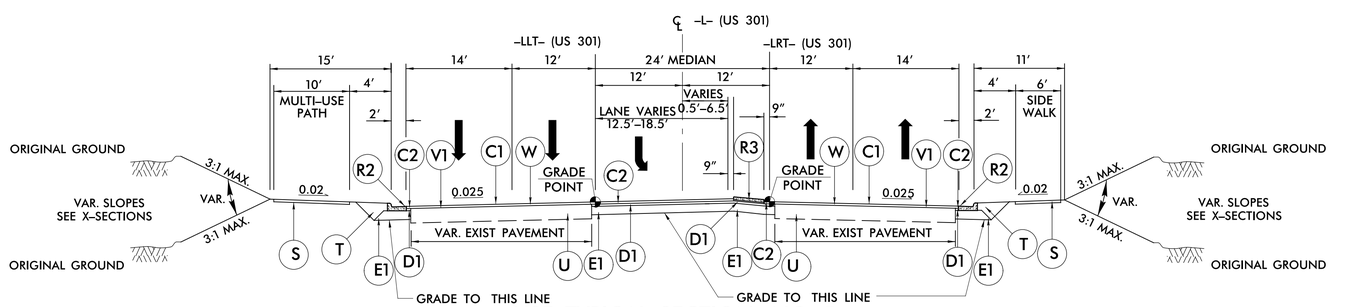
USE TYPICAL SECTION NO. 3

–L– STA. 21+43.82 TO 22+80.22
–L– STA. 28+82.52 TO 30+08.31 *(SEE PLANS FOR LOCATIONS)
–L– STA. 38+35.67 TO 39+35.35
–L– STA. 46+31.36 TO 47+31.02
–L– STA. 58+39.70 TO 59+65.95
–L– STA. 75+21.89 TO 76+42.40



USE TYPICAL SECTION NO. 4

–L– STA. 22+80.22 TO 24+07.60
–L– STA. 30+08.31 TO 31+19.86
–L– STA. 39+35.35 TO 40+21.03
–L– STA. 47+31.02 TO 48+33.74
–L– STA. 59+65.95 TO 61+01.86
–L– STA. 76+42.40 TO 77+56.86
–L– STA. 85+34.86 TO 87+55.00



USE TYPICAL SECTION NO. 5

–L– STA. 24+07.60 TO 25+24.03
–L– STA. 31+19.86 TO 32+45.64
–L– STA. 40+21.03 TO 41+22.37
–L– STA. 48+33.74 TO 49+30.55
–L– STA. 61+01.86 TO 62+28.11
–L– STA. 77+56.86 TO 78+82.74

PROJECT REFERENCE NO.	SHEET NO.
U-5935	2A-2

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCHNER
DocuSigned by: 1087011E67F6435...
7/11/2017

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 40257 ENGINEER MATTHEW CLARKE
DocuSigned by: 1EB20097EAAF437...
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8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084

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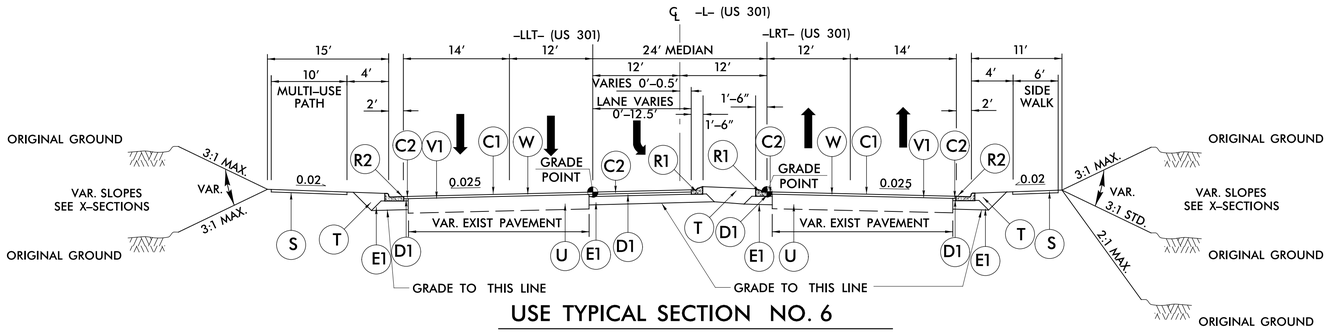
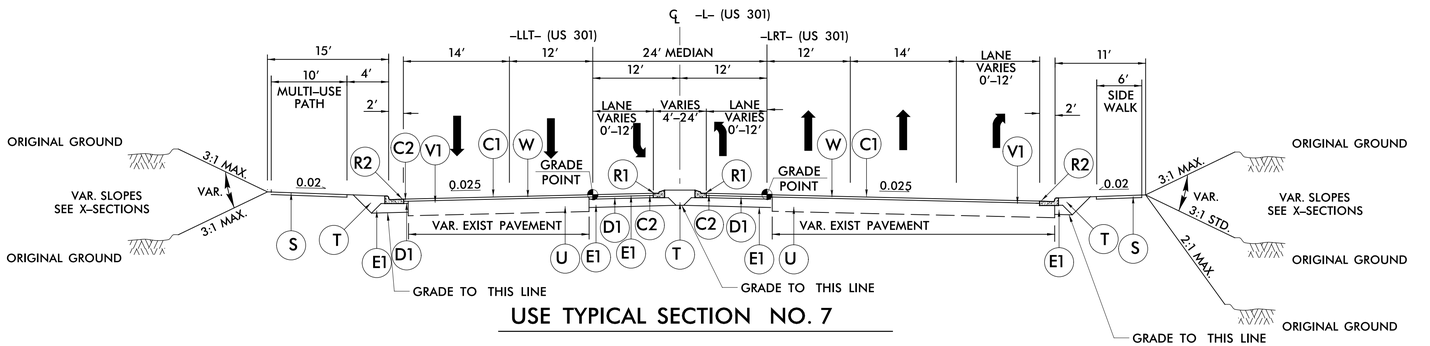
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	MILLING VAR.
V2	MILLING 1½"
W	WEDGING



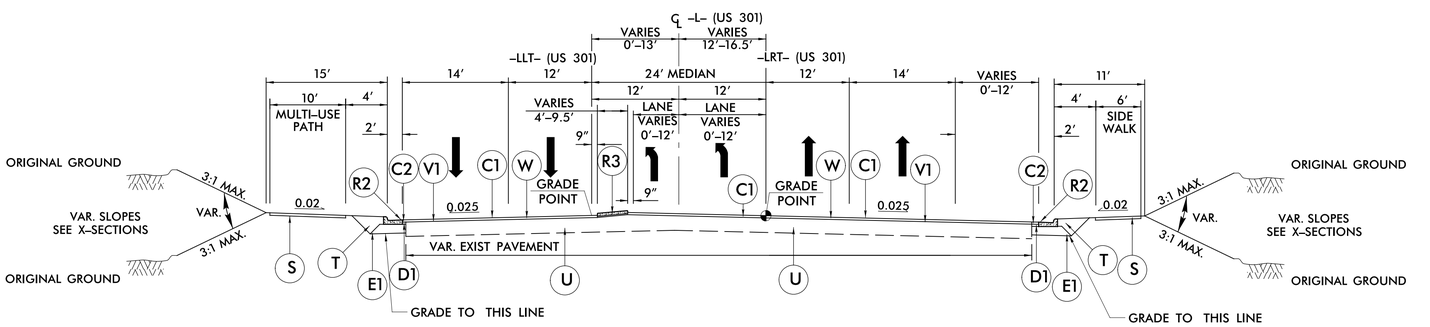
USE TYPICAL SECTION NO. 6

–L– STA. 25+24.03 TO 27+03.31 *(SEE PLANS FOR LOCATIONS)
–L– STA. 32+45.64 TO 35+15.12
–L– STA. 41+22.37 TO 43+09.48
–L– STA. 49+30.55 TO 52+58.74
–L– STA. 62+28.11 TO 64+53.52
–L– STA. 71+33.38 TO 72+25.44



USE TYPICAL SECTION NO. 7

–L– STA. 27+03.31 TO 28+52.84 *(SEE PLANS FOR LOCATIONS)
–L– STA. 35+15.12 TO 35+44.92
–L– STA. 43+09.48 TO 44+50.98
–L– STA. 78+82.74 TO 79+90.45



USE TYPICAL SECTION NO. 8

–L– STA. 79+90.45 TO 85+34.86

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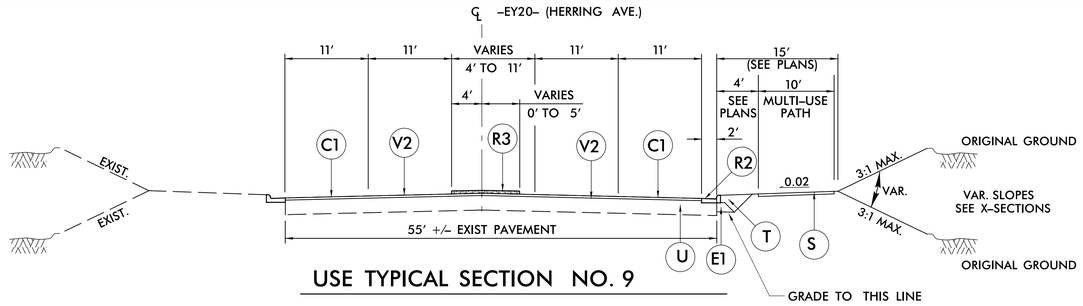
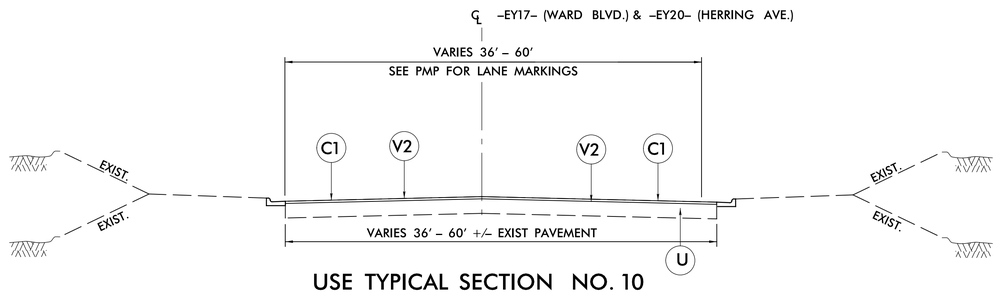


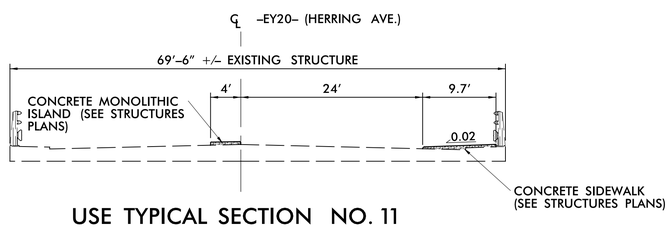
USE TYPICAL SECTION NO. 9

–EY20– STA. 35+59.49 TO 38+52.91
–EY20– STA. 38+47.25 TO 42+09.29



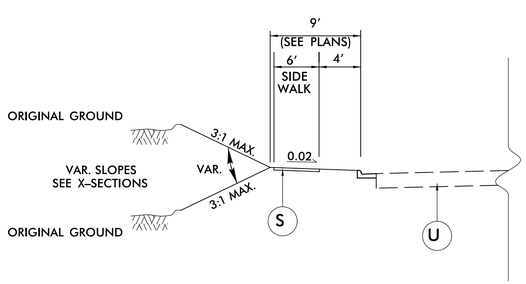
USE TYPICAL SECTION NO. 10

–EY17– STA. 7+60.00 – 13+35.00
–EY20– STA. 5+50.00 – 7+09.77
–EY20– STA. 7+76.87 – 13+42.96



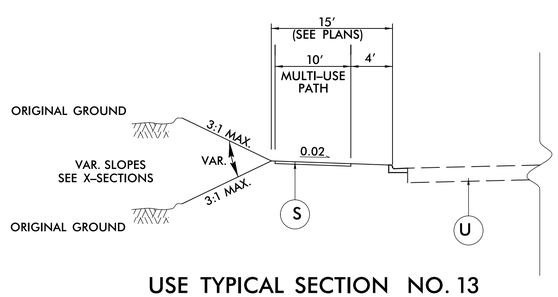
USE TYPICAL SECTION NO. 11

–EY20– STA. 38+52.91 TO 38+47.25



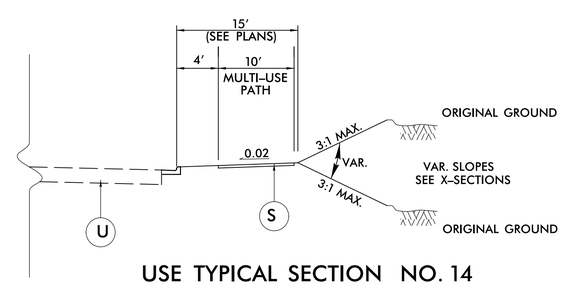
USE TYPICAL SECTION NO. 12

–EY10– STA. 6+52.31 TO 39+32.59
–EY17– STA. 45+02.17 TO 62+66.06



USE TYPICAL SECTION NO. 13

–EY17– STA. 10+85.52 TO 45+35.13



USE TYPICAL SECTION NO. 14

–EY20– STA. 7+97.39 TO 35+59.49
–EY20– STA. 42+09.41 TO 57+08.48

PROJECT REFERENCE NO.	SHEET NO.
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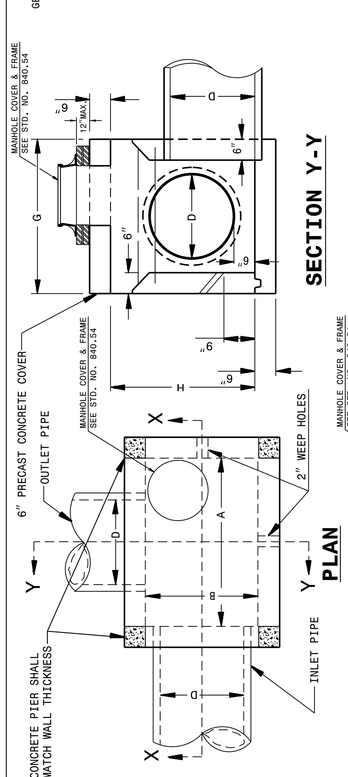
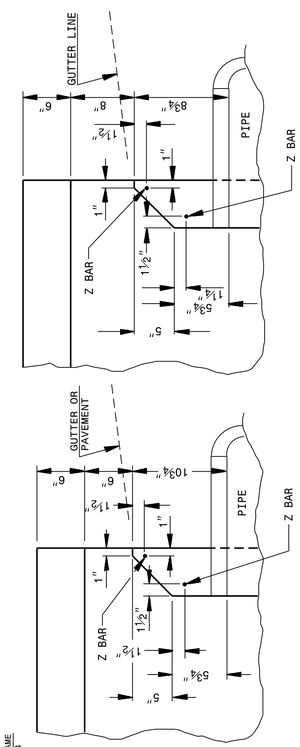
GENERAL NOTES:

ALL CATCH BASINS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 12" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. 840.66.
ALL EXPOSED CORNERS TO BE CHAMFERED 1".
CLASS "B" CONCRETE TO BE USED THROUGHOUT.
2" PIPE WEEPHOLES TO BE PLACED AS DIRECTED BY ENGINEER.
THE 6" OPENING SHOWN MAY BE INCREASED TO 8" MAXIMUM IF DEEMED TO BE NECESSARY BY THE ENGINEER.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #5 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STD. DWG. 840.00.
A STONE DRAIN CONSISTING OF 1 CUBIC FOOT OF NO. 78M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE.
FOR 8' IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB.
OVER 8' IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. QUANTITIES TO BE ADJUSTED ACCORDINGLY.
DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.





MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)

DIM'S OF BOX & PIPE				REINFORCING				TOP & BOT. SLAB DIMENSIONS		CU. YDS. CONC. IN BOX		TOTAL QUANTITIES BOX & SLABS			DEDUCTION ONE PIPE	DED. ONE (1) THROAT OPENING
PIPE	SPAN	WIDTH	HEIGHT	BARS – X		BARS – Y		BARS – Z								
D	A	B	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	F	G	TOP SLAB	BOT. SLAB	WALL, FT.	HF. LBS. REINF.	YD³ (MIN. H)	C.S.	R.C.	YD³
12"	3'-6"	2'-3"	1'-10"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	3'-3"	0.181	0.271	0.250	27	1.046	0.015	0.032	0.046
15"	3'-6"	2'-3"	2'-1"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	3'-3"	0.181	0.271	0.250	27	1.108	0.023	0.036	0.046
18"	4'-0"	2'-8"	2'-4"	5	3'-5"	7	4'-9"	2	4'-9"	4'-9"	3'-8"	0.226	0.340	0.284	35	1.379	0.033	0.049	0.053
24"	4'-0"	2'-8"	2'-10"	5	3'-5"	7	4'-9"	2	4'-9"	4'-9"	3'-8"	0.226	0.340	0.284	35	1.521	0.059	0.085	0.053
30"	4'-0"	3'-6"	3'-4"	5	4'-3"	9	4'-9"	2	4'-9"	5'-3"	4'-6"	0.278	0.417	0.315	43	1.916	0.092	0.127	0.053
36"	4'-6"	4'-0"	3'-10"	5	4'-9"	10	5'-3"	2	5'-3"	5'-9"	5'-0"	0.340	0.510	0.352	51	2.390	0.132	0.178	0.059
42"	5'-0"	4'-6"	4'-4"	5	5'-3"	12	5'-9"	2	5'-9"	6'-3"	5'-6"	0.407	0.611	0.389	64	2.914	0.180	0.243	0.066
48"	5'-0"	5'-0"	4'-10"	5	5'-9"	13	5'-9"	2	5'-9"	6'-0"	6'-0"	0.444	0.666	0.407	68	3.298	0.235	0.317	0.066

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

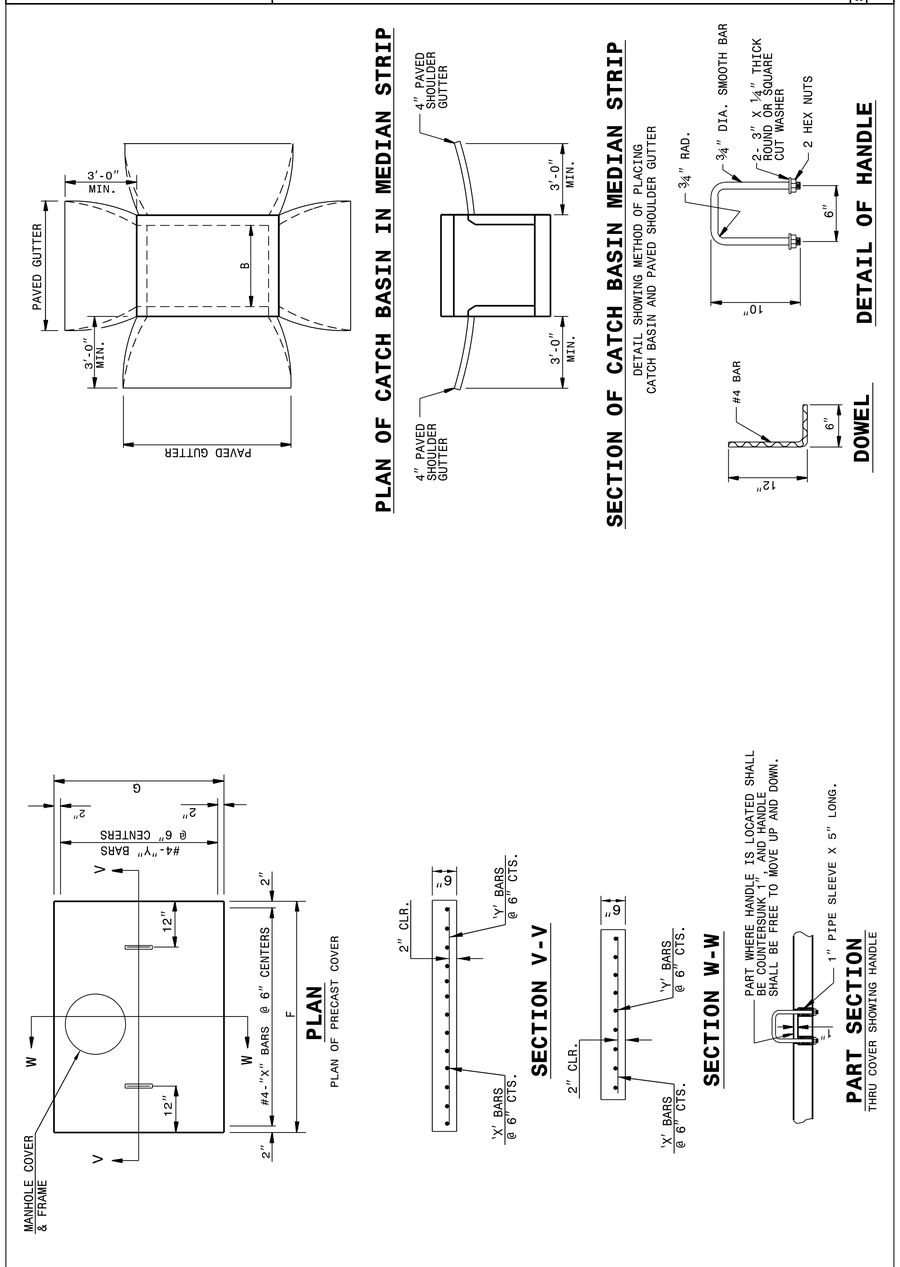
ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN (3 OR 4 SIDE OPEN THROAT) (MANHOLE OPTIONAL)

SHEET 1 OF 2 — **840D04**

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

ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN (3 OR 4 SIDE OPEN THROAT) (MANHOLE OPTIONAL)

SHEET 2 OF 2 — **840D04**



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

ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN (3 OR 4 SIDE OPEN THROAT) (MANHOLE OPTIONAL)

SHEET 2 OF 2 — **840D04**

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
DocuSigned by: Joel S Howerton 873F3D17DCDC45F...
6/26/2017

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

SEE PLATE FOR TITLE

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 07-03-2014
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/nbritt/english/hydro/840d04.dgn

5/14/99
22-JUN-2017 10:57
S:\Contracts\Contracts\Special Details\jhowerton\840d04 3 or 4 side OTCB.dgn
jhowerton AT CSD-292595

DocuSign Envelope ID: 7A03CE3F-16E0-460A-A3C3-142E2DDEC920

PROJECT REFERENCE NO.	SHEET NO.
U-5935	2C-2

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

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

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

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

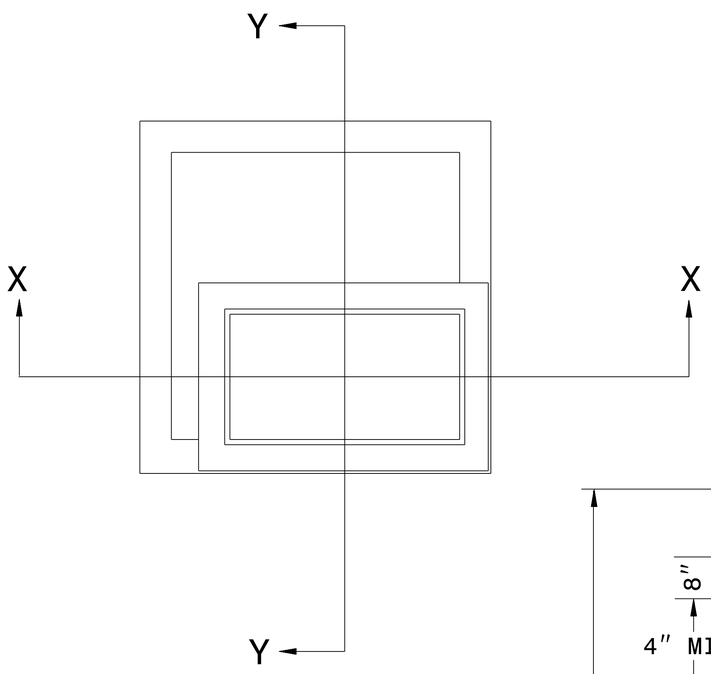
INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.

INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.

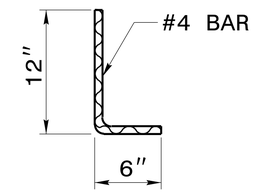
CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

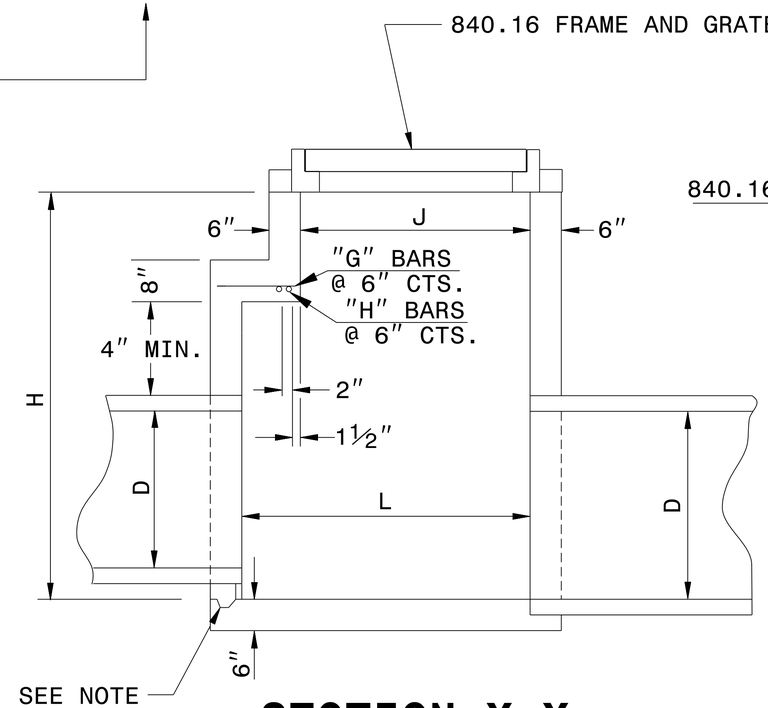
DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.



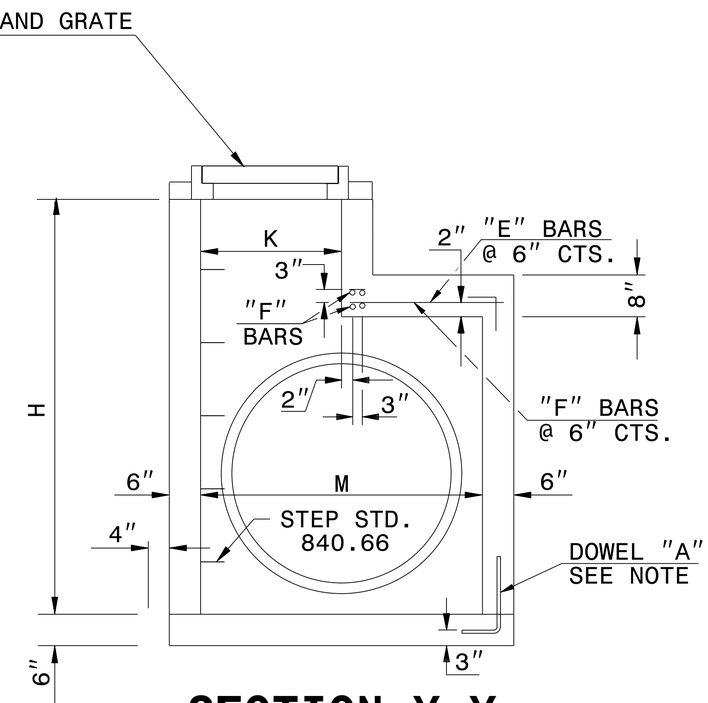
PLAN



DOWEL



SECTION X-X



SECTION Y-Y

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE DROP INLET(BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX AND PIPE						REINFORCING STEEL - NO. 4 BARS									CU YDS CONC. IN BOX				DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E		BARS F		BARS G		BARS H		TOTAL	BOTTOM SLAB	H TOTAL	H PER FT HT	TOTAL		
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	LBS.					C.S.	R.C.
12"	3'-0"	2'-0"	3'-8"	2'-0"	3'-9"	—	—	—	—	—	—	—	—	—	0.362	0.926	0.247	1.288	0.015	0.024
15"	3'-0"	2'-0"	3'-8"	2'-0"	4'-0"	—	—	—	—	—	—	—	—	—	0.362	0.988	0.247	1.350	0.023	0.036
18"				2'-0"	4'-3"	—	—	—	—	—	—	—	—	—	0.362	1.050	0.247	1.412	0.033	0.049
24"				2'-10"	4'-9"	8	1'-5"	6	4'-9"	—	—	—	—	27	0.444	1.362	0.278	1.806	0.059	0.085
30"			3'-8"	3'-5"	5'-3"	8	2'-0"	7	4'-9"	—	—	—	—	33	0.502	1.644	0.288	2.146	0.092	0.127
36"			4'-0"	4'-0"	5'-9"	8	2'-5"	8	4'-11"	4	0'-9"	2	4'-11"	47	0.560	1.931	0.321	2.525	0.132	0.178
42"			4'-10"	4'-10"	6'-3"	10	3'-1"	9	5'-7"		1'-5"	3	5'-7"	67	0.704	2.500	0.370	3.282	0.180	0.243
48"			5'-4"	5'-4"	6'-9"	11	3'-7"	10	6'-1"		1'-11"	4	6'-1"	87	0.823	3.013	0.407	3.920	0.235	0.317
54"			6'-0"	6'-0"	7'-3"	12	4'-1"	11	6'-7"		2'-5"	5	6'-7"	107	0.951	3.589	0.444	4.677	0.297	0.401
60"			6'-6"	6'-6"	7'-9"	13	4'-9"	12	7'-3"		3'-1"	6	7'-3"	135	1.311	4.539	0.494	5.775	0.367	0.495
66"			7'-2"	7'-2"	8'-3"	14	5'-4"	14	7'-10"		3'-7"	7	7'-10"	168	1.136	5.061	0.537	6.506	0.444	0.599
72"	3'-0"	2'-0"	7'-8"	7'-8"	8'-9"	15	5'-11"	15	8'-5"	4	4'-3"	8	8'-5"	199	1.500	5.860	0.580	7.473	0.528	0.713

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON

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6/26/2017

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

SPECIAL DI 840D14

ORIGINAL BY: J HOWERTON DATE: 04/11/17
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: detail/jhowerton/840d14 di 30 rcp.dgn

22-JUN-2017 10:59
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jhowerton AT CSD-292595

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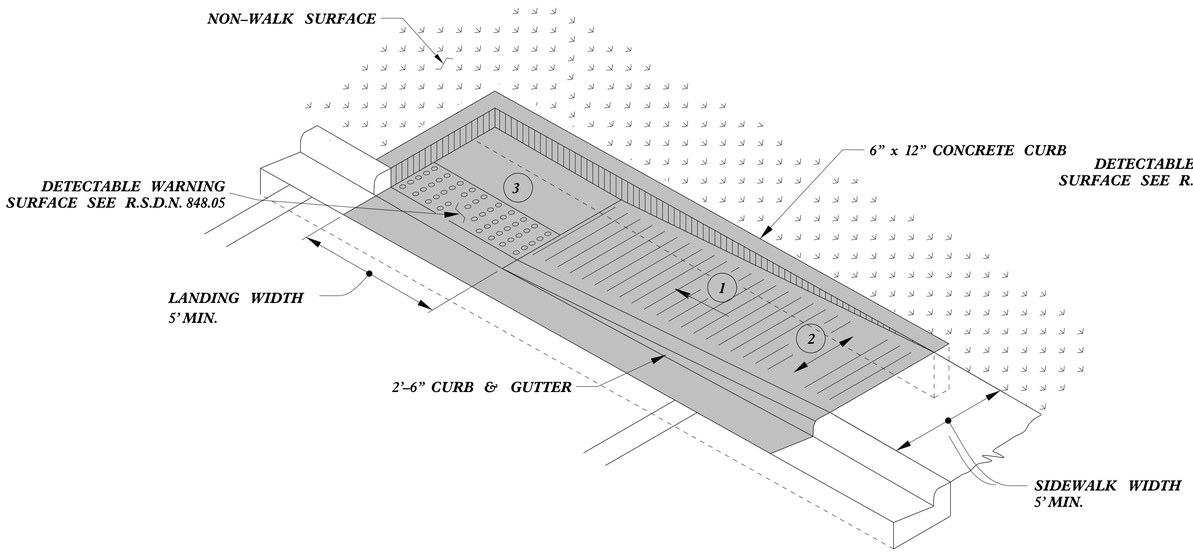
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5935	2C-3



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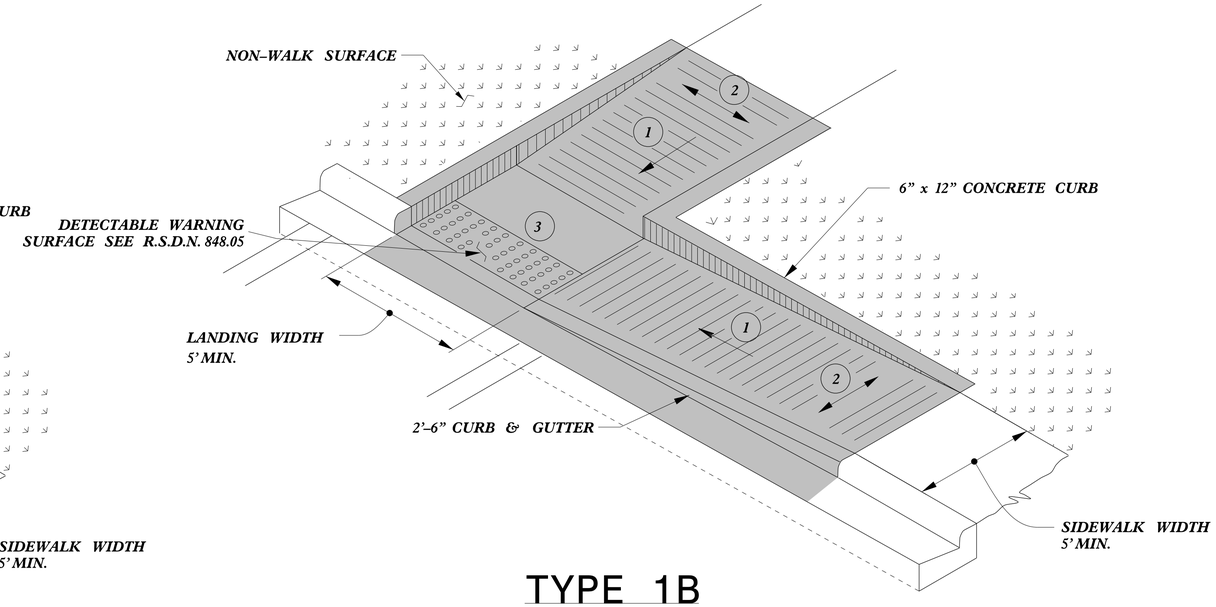

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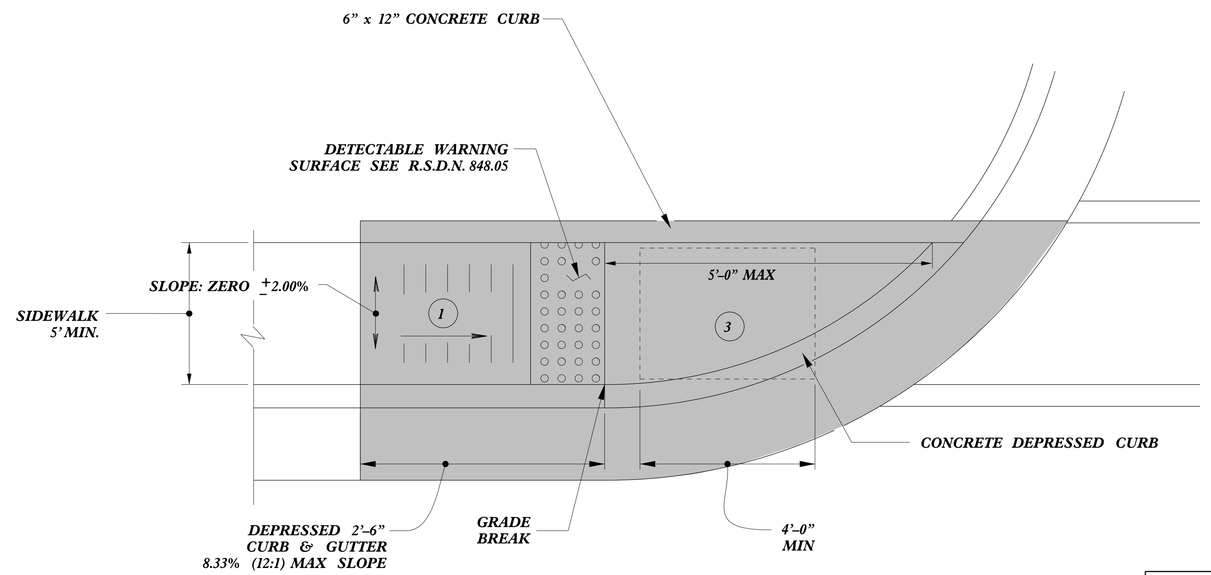

TYPE 1

PAY LIMITS FOR 1 CURB RAMP

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

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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel S Howerton 873F3D17DCDC45F...

6/26/2017

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CONTRACT STANDARDS AND DEVELOPMENT UNIT

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CURB RAMPS

Directional Ramps

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

$$$$SYTME$$$$
$$$$SGEN$$$$
$$$$USRNAME$$$$

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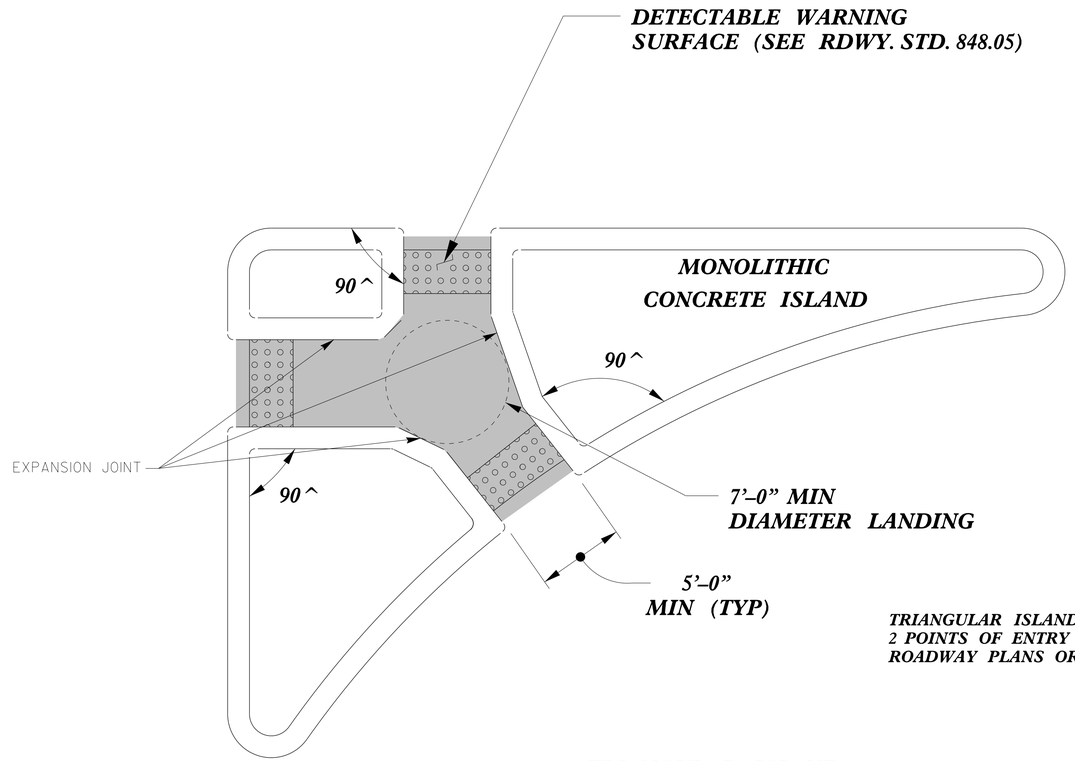
5/14/99

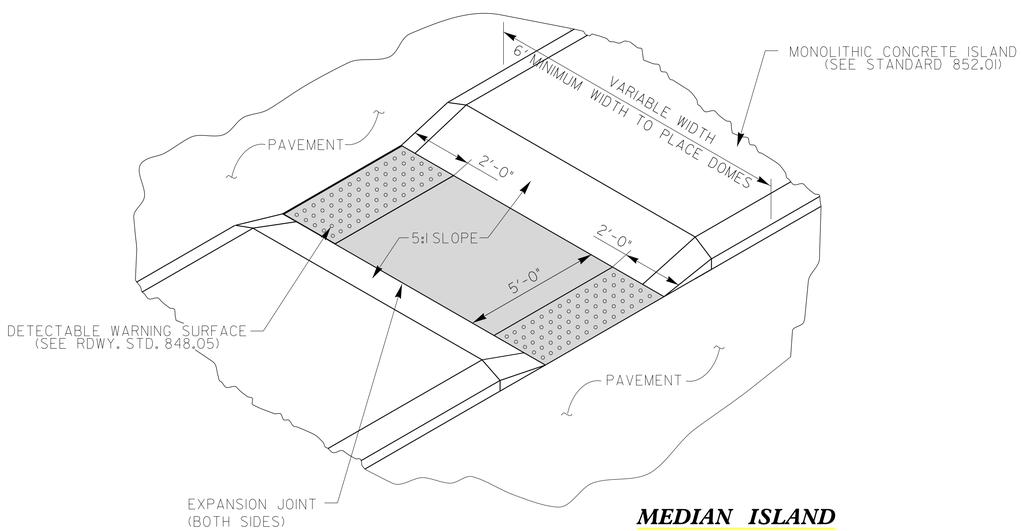
PROJECT REFERENCE NO.	SHEET NO.
U-5935	2C-4

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

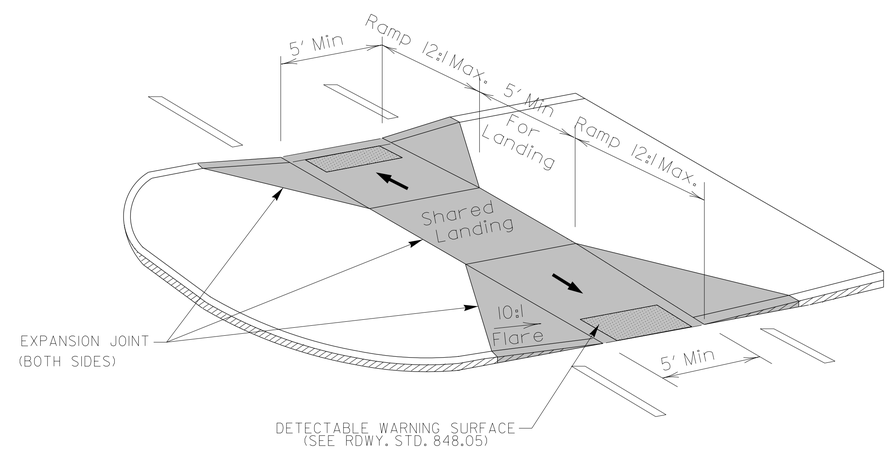


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER John S. Howerton

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6/26/2017

CONTRACT STANDARDS AND DEVELOPMENT UNIT
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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

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$$$$USERNAME$$$$

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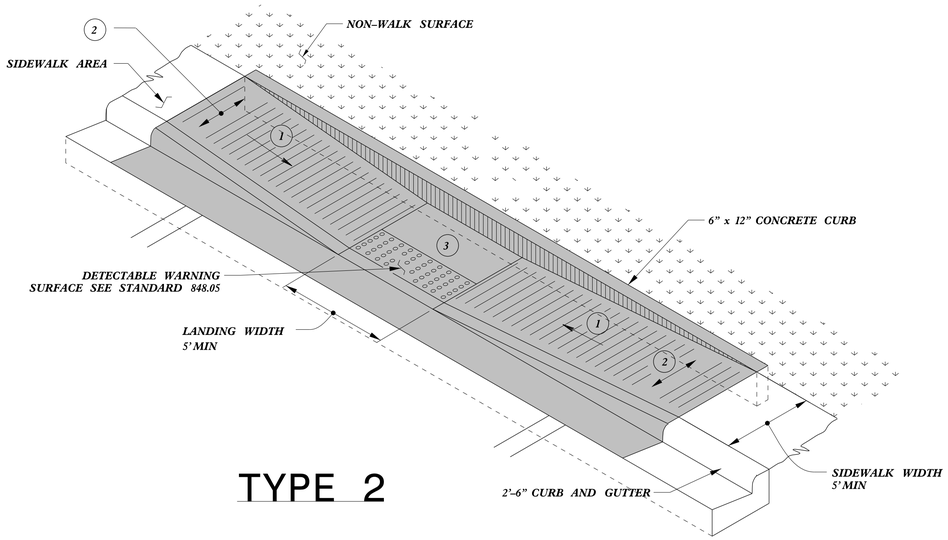
5/14/99

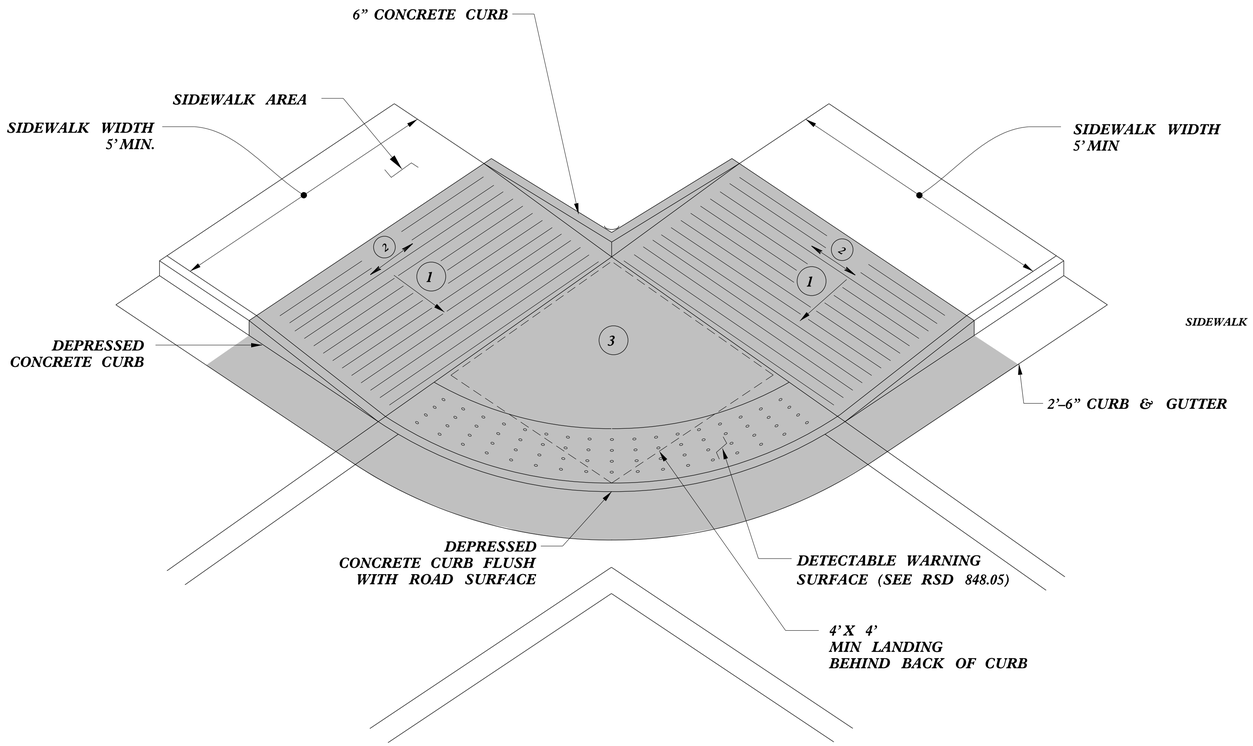
PROJECT REFERENCE NO.	SHEET NO.
U-5935	2C-5



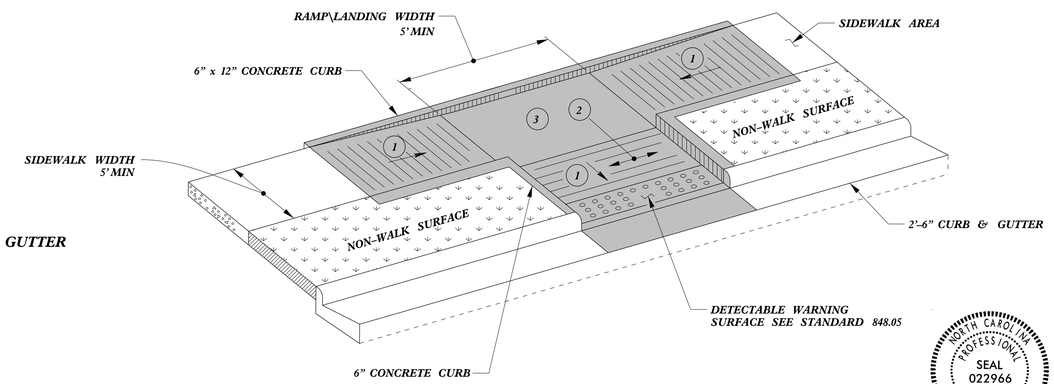
TYPE 2

PAY LIMITS FOR 1 CURB RAMP

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



TYPE 2A



TYPE 2B

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

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

CONTRACT STANDARDS AND DEVELOPMENT UNIT
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CURB RAMPS

Parallel Ramps

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

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$$$$SYSTIME$$$$
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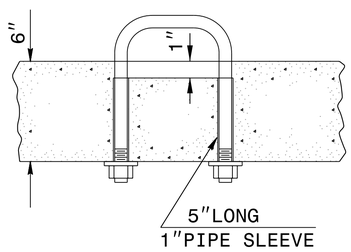
PROJECT REFERENCE NO.	SHEET NO.
U-5935	2C-6



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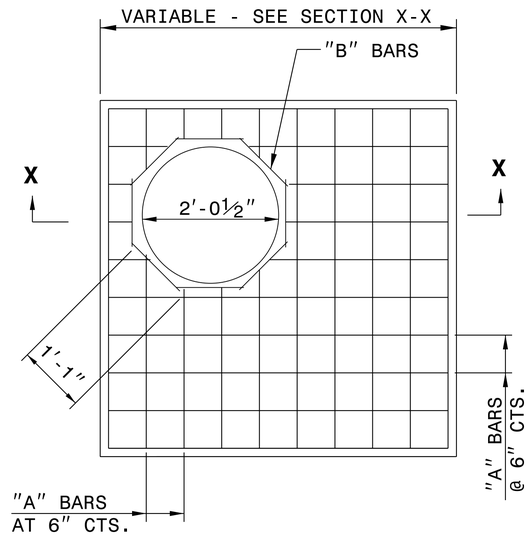
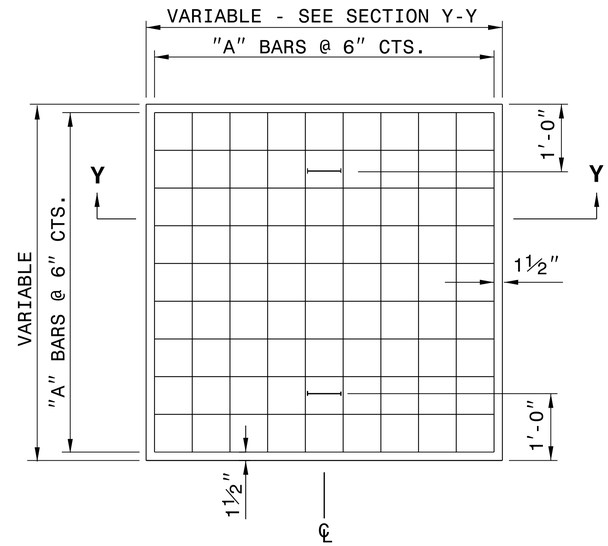


PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

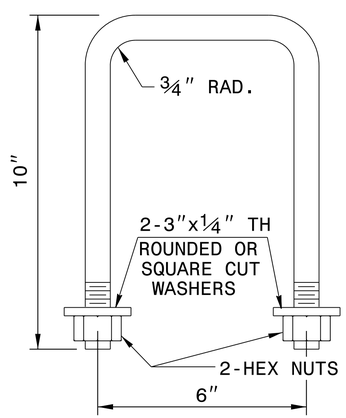
THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

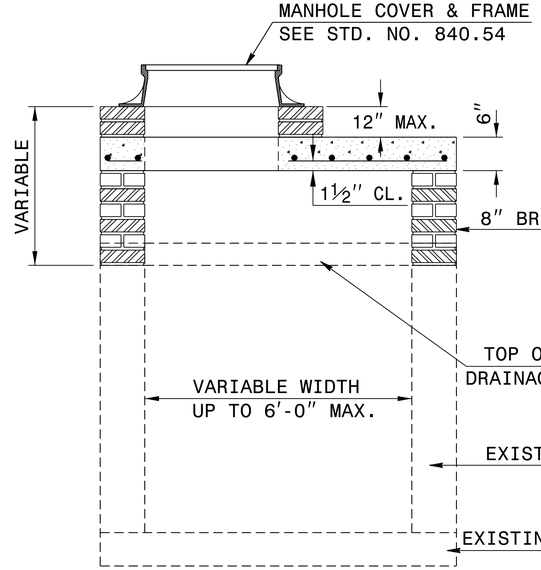
BILL OF MATERIALS

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

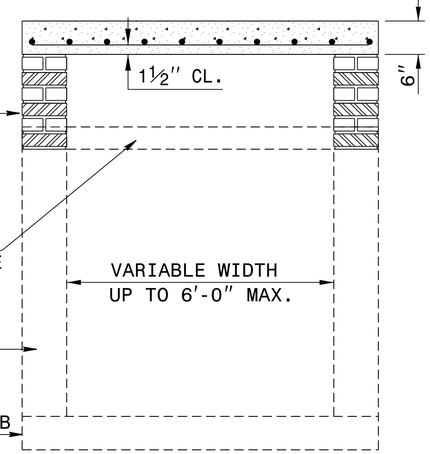
* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



DETAIL OF HANDLE



SECTION X-X



SECTION Y-Y

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S Howerton

DocuSigned by: Joel S Howerton 873F3D17DCDC45F...

6/26/2017

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

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

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

22-JUN-2017 10:49
S:\Contracts\Contracts\Special Details\ericeward\usr\details\stand\boxtojbe.dgn
jhowerton AT CSD-292595

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-5935	3B-1

SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK

STATION	STATION	EXCAVATION TOTAL UNCLASS.	EXCAVATION UNDERCUT	EMBANK. + %	BORROW	WASTE TOTAL
SUMMARY NO. 1 (MEDIAN)		237		4,277	4,040	
-L- STA. 16+20.00	60+00.00					
	SUBTOTAL	237		4,277	4,040	
SUMMARY NO. 2 (MEDIAN)						
-L- STA. 60+00.00	87+55.00	29		948	919	
	SUBTOTAL	29		947	918	
SUMMARY NO. 3 (LT)						
-L- STA. 16+20.00	60+00.00	233		4,931	4,698	
	SUBTOTAL	233		4,930	4,697	
SUMMARY NO. 4 (LT)						
-L- STA. 60+00.00	87+55.00	107		1,836	1,729	
	SUBTOTAL	107		1,835	1,728	
SUMMARY NO. 5 (RT)						
-L- STA. 16+20.00	60+00.00	755		1,655	900	
	SUBTOTAL	755		1,654	899	
SUMMARY NO. 6 (RT)						
-L- STA. 60+00.00	87+55.00	210		3,450	3,240	
	SUBTOTAL	210		3,450	3,240	
SUMMARY NO. 7						
-EY10- STA. 7+00.00	39+32.38	50		163	113	
	SUBTOTAL	50		162	112	
SUMMARY NO. 8						
-EY17- STA. 10+85.52	62+65.98	1,621		475	261	1,407
	SUBTOTAL	1,621		474	260	1,407
SUMMARY NO. 9						
-EY20- STA. 8+50.00	56+50.00	1,380		862		518
	SUBTOTAL	1,380		861		518
TOTAL		4,622		18,590	15,894	1,925
MATERIAL FOR SHOULDER CONSTRUCTION				2,211	2,211	
LOSS DUE TO CLEARING & GRUBBING		-3,000			3,000	
WASTE IN LIEU OF BORROW					-420	-420
PROJECT TOTAL		1,622		20,801	20,685	1,505
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					1,034	
GRAND TOTAL		1,622		20,801	21,719	1,505
SAY		**2,000**			**22,000**	

NOTE: 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.
EST. DDE = 280 CUBIC YARDS
EST. GRADE POINT UNDERCUT = 300 CUBIC YARDS
EST. UNDERCUT CONTINGENCY = 300 CUBIC YARDS
TOTAL EST. UNDERCUT = 600 CUBIC YARDS
TOTAL EST. SHALLOW UNDERCUT = 6100 CUBIC YARDS
CLASS IV SUBGRADE STABILIZATION = 11,700 TONS

THE FOLLOWING AREAS OF EXCAVATION CONTAINS PLASTIC CLAYS WITH PLASTICITY INDEXES GREATER THAN 15 AND LESS THAN 20 AND UNCLASSIFIED EXCAVATION THAT IS MARGINALLY ACCEPTABLE BUT NOT IN THE TOP THREE FEET OF EMBANKMENT OR BACKFILL:

LINE	STATIONS	LOCATION
–EY20–	11+25 TO 12+25	LT AND RT
–EY20–	15+25 TO 24+75	LT AND RT
–EY20–	25+25 TO 31+75	LT AND RT

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

2'–6" CURB & GUTTER

LINE	STATION	STATION	SIDE	GROSS LENGTH	DEDUCTIONS DRIVES	DEDUCTIONS OTHERS	NET LENGTH
-L-	17+90.45	19+96.41	RT	220			220
-L-	20+57.65	21+11.79	RT	73			73
-L-	21+44.96	22+57.42	RT	206			206
-L-	23+10.25	25+94.19	RT	349			349
-L-	26+30.76	30+11.46	RT	420	22		398
-L-	30+48.12	34+80.06	RT	468	44		424
-L-	35+09.97	39+61.86	RT	498	22		476
-L-	39+90.88	40+78.84	RT	120			120
-L-	41+18.03	42+66.70	RT	172			172
-L-	43+00.38	44+41.15	RT	164			164
-L-	44+80.38	47+43.92	RT	294			294
-L-	47+83.77	49+12.57	RT	158			158
-L-	49+51.63	53+67.58	RT	446	22		424
-L-	53+92.12	56+81.20	RT	314	66		248
-L-	57+12.64	60+06.77	RT	330			330
-L-	60+72.86	62+99.33	RT	271			271
-L-	63+28.46	65+60.27	RT	269	44		225
-L-	65+89.23	68+09.05	RT	260	44		216
-L-	68+39.42	70+58.59	RT	262			262
-L-	70+88.72	73+20.89	RT	281			281
-L-	73+51.03	76+87.91	RT	378			378
-L-	77+30.33	79+66.21	RT	275			275
-L-	80+06.05	82+61.18	RT	294			294
-L-	82+84.56	85+30.74	RT	328			328
-L-	18+11.20	20+16.97	LT	225			225
-L-	20+59.59	22+47.33	LT	213			213
-L-	22+94.61	23+29.95	LT	142			142
-L-	24+04.57	26+62.73	LT	364	22		342
-L-	26+90.83	30+74.26	LT	423	44		379
-L-	31+11.13	33+98.65	LT	339			339
-L-	34+22.68	35+07.02	LT	121			121
-L-	35+37.89	38+40.65	LT	330			330
-L-	38+69.35	39+69.38	LT	127			127
-L-	40+00.52	42+93.68	LT	316			316
-L-	43+34.68	43+96.14	LT	83			83
-L-	44+27.39	46+07.31	LT	202			202
-L-	46+41.77	46+66.40	LT	69			69
-L-	47+06.64	47+79.51	LT	102			102
-L-	48+09.87	53+18.19	LT	524	22		502
-L-	53+37.98	60+01.55	LT	702	110		592
-L-	60+75.73	62+96.43	LT	255			255
-L-	63+26.22	65+57.75	LT	269	22		247
-L-	65+87.68	68+12.51	LT	262	44		218
-L-	68+42.39	70+68.95	LT	265			265
-L-	70+98.69	73+42.00	LT	283			283
-L-	73+69.63	76+68.67	LT	345			345
-L-	77+09.06	77+54.22	LT	68			68
-L-	77+98.22	78+66.46	LT	89			89
-L-	79+20.46	81+22.54	LT	228			228
-L-	81+46.13	81+92.32	LT	69			69
-L-	82+20.69	83+41.37	LT	142			142
-L-	83+77.04	86+04.56	LT	310			310
-L-	86+75.18	87+54.89	LT	154			154
-EY20-	35+59.49	38+62.46	RT	303			303
-EY20-	39+37.70	42+09.29	RT	272			272
-EY17-	35+45.34	41+77.39	LT	305			331
						TOTAL	14251
						SAY	**14260**

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-5935	3B-2

SUMMARY OF QUANTITIES

ASPHALT PAVEMENT REMOVAL SUMMARY

LINE	STATION	STATION	LOCATION	AREA	SQUARE YARDS
L	18+19.00	19+04.00	LT	987.7	110
L	20+62.00	22+48.00	LT	2,179.70	242
L	22+79.00	23+48.00	LT	808.30	90
L	24+02.00	26+30.00	LT	987.60	110
L	26+93.00	30+69.00	LT	1,853.90	206
L	31+07.00	33+87.00	LT	1,481.00	165
L	34+24.00	35+07.00	LT	402.00	45
L	35+39.00	38+36.00	LT	1,569.00	174
L	38+76.00	39+69.00	LT	319.15	35
L	40+19.00	42+87.00	LT	1,519.00	169
L	45+39.00	43+98.00	LT	154.19	17
L	44+25.00	46+00.00	LT	591.60	66
L	47+11.00	47+83.00	LT	269.00	30
L	48+17.00	53+13.00	LT	2842.00	316
L	53+48.00	60+05.00	LT	3555.00	395
L	64+74.00	65+58.00	LT	405.00	45
L	65+87.00	68+13.00	LT	1382.00	154
L	68+46.00	70+58.00	LT	1,401.00	156
L	71+01.00	73+35.00	LT	1,849.00	205
L	73+77.00	76+66.00	LT	1,647.00	183
L	77+13.00	83+30.00	LT	2431.70	270
L	17+90.00	19+82.00	RT	693.96	77
L	20+55.00	22+39.00	RT	443.00	49
L	23+59.00	25+96.00	RT	1137.00	126
L	26+29.00	30+15.00	RT	1795.16	199
L	30+57.00	34+77.00	RT	1918.92	213
L	35+29.00	39+60.00	RT	1897.00	211
L	39+90.00	47+42.00	RT	5825.00	647
L	47+82.00	53+57.00	RT	2690.58	299
L	53+90.00	55+91.00	RT	638.75	71
L	57+15.00	59+73.00	RT	508.69	57
L	60+68.00	63+00.00	RT	2376.30	264
L	63+27.00	68+07.00	RT	1963.00	218
L	68+36.00	70+58.00	RT	998.71	111
L	70+89.00	73+04.00	RT	914.80	102
L	73+71.00	76+77.00	RT	1043.06	116
L	77+37.00	79+57.00	RT	837.14	93
EY17	42+67.00	43+13.00	LT	1,125.00	125
EY20	35+60.00	38+63.00	RT	964.00	107
EY20	39+38.00	42+10.00	RT	1,005.00	112
				TOTAL	6,379
				SAY	**6,380**

MILLING ASPHALT PAVEMENT 1.5" DEPTH

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
EY20	35+59.49	38+62.46	CL	15739.39		1749
EY20	39+37.70	57+08.48	CL	14252.52		1584
EY20	5+50	7+09.77	CL	7726.33		858
EY20	7+76.87	13+42.96	CL	28170.35		3130
EY17	7+60	13+35	CL	36617.75		4069
					TOTAL	11,390
					SAY	**11,500**

MILLING ASPHALT PAVEMENT 0" TO 3" DEPTH

LINE	STATION	STATION	LOCATION	LENGTH	WIDTH	SQUARE YARDS
L	16+20	18+50	LT	230.00	25	639
L	16+20	18+00	RT	180.00	25	500
L	20+50	28+00	LT	750.00	14.5	1208
L	21+85	30+00	RT	815.00	13.5	1223
L	36+50	42+10	LT	560.00	27	1680
L	37+50	40+50	RT	300.00	16	533
L	44+00	46+90	RT	290.00	19	612
L	45+70	49+00	LT	330.00	28.5	1045
L	49+00	58+00	RT	900.00	18	1800
L	52+50	56+50	LT	400.00	19.5	867
L	58+00	60+50	LT	250.00	14	389
L	60+95	70+50	RT	955.00	15	1592
L	67+00	68+50	LT	150.00	15	250
L	71+50	75+50	LT	400.00	12	533
L	73+50	82+50	RT	900.00	17.5	1750
L	79+50	87+50	LT	800.00	13	1156
L	85+64	87+50	RT	186.00	17	351
					TOTAL	16,128
					SAY	**16,130**

GUARDRAIL REMOVAL

LINE	STATION	STATION	LOCATION	LENGTH
L	59+60.00	59+92.00	LT	40
			TOTAL	40
			SAY	**45**

1'-6" CURB & GUTTER

LINE	STATION	STATION	SIDE	GROSS LENGTH	DEDUCTIONS DRIVES	DEDUCTIONS OTHERS	NET LENGTH
L	16+22.43	21+71.08	MD. LT	553			553
L	25+24.06	28+82.52	MD. LT	359			359
L	32+45.64	38+35.46	MD. LT	589			589
L	41+22.57	46+34.36	MD. LT	511			511
L	49+30.55	58+39.70	MD. LT	919			919
L	62+28.11	64+53.52	MD. LT	225			225
L	65+85.00	67+93.69	MD. LT	210			210
L	71+33.38	75+21.89	MD. LT	389			389
L	78+93.26	79+90.45	MD. LT	97			97
L	80+21.86	81+21.86	MD. LT	101			101
L	16+22.43	21+71.08	MD. RT	560			560
L	25+24.03	30+08.41	MD. RT	485			485
L	32+45.64	38+35.67	MD. RT	590			590
L	41+22.39	46+38.92	MD. RT	518			518
L	49+30.55	58+39.70	MD. RT	912			912
L	62+28.11	64+53.58	MD. RT	225			225
L	65+53.43	67+93.69	MD. RT	242			242
L	71+33.38	75+21.89	MD. RT	389			389
L	78+82.74	79+90.45	MD. RT	108			108
						TOTAL	7,985
						SAY	**7,990**

CHAIN LINK RESET

LINE	STATION	STATION	SIDE	LENGTH
-EY10-	10+93.670	11+42.810		49.140
			TOTAL	49.140
			SAY	**50**

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CARYLTBURNS

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

PROJECT NO.	SHEET NO.
U-5935	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84	
L 16+53	2	RT	0401		127.5																													
L 16+67	10	LT	0402		125.7																													
			0402	0401		122.4	122.3															20												
L 16+67	59	RT	0403		126.5																													
L 16+67	68	RT	0404		125.0																													
L 17+00	10	LT	0405		126.4																													
			0405	0402		123.1	122.4																											
L 18+23	54	LT	0406		130.9																													
L 18+25	71	RT	0407		127.8																													
			0407	0404		125.3	122.5																											
L 18+28	51	RT	0408		128.9																													
			0408	0407		125.7	125.3															20												
L 18+68	76	LT	0409		129.6																													
			0409	0406		126.6	126.4	0.4																										
L 19+34	80	RT	0410		129.3																													
			0410	0407		126.8	125.3																											
L 20+15	63	LT	0411		130.7																													
			0411	0409		127.3	126.6																											
L 21+18	40	LT	0412		130.9																													
			0412	0413		127.7	127.6																											
L 21+18	63	LT	0413		131.7																													
			0413	0411		127.6	127.3																											
L 21+68	62	LT	0414		131.5																													
			0414	0413		129.0	128.9																											
L 23+30	73	LT	0501		132.7																													
			0501	0414		130.2	129.0																											
L 24+42	40	RT	0502		134.0																													
			0502	0507		128.9	128.2																											
L 24+50	40	LT	0503		134.0																													
			0503	0505		129.8	129.4																											
L 24+50	64	LT	0504		132.4																													
			0504	0503		129.9	129.8															24												
L 25+93	40	LT	0505		134.6																													
			0505	0508		129.4	129.0																											
L 25+93	64	LT	0506		132.9																													
			0506	0505		130.4	130.3															24												
L 26+66	40	RT	0507		134.7																													
			0507	0510		128.0	127.8																											
L 27+22	40	LT	0508		135.1																													
			0508	0514		129.0	128.5																											
L 27+23	67	LT	0509		132.8																													
			0509	0508		130.3	130.2															28												
L 27+50	40	RT	0510		135.0																													
			0510	0513		127.8	127.4																											
L 28+05	69	LT	0511		132.5																													
			0511	0515		130.0	129.1																											
L 28+87	40	RT	0513		135.4																													
			0513	0512		127.4	127.3																44											
L 28+87	40	LT	0514		135.6																													
			0514	0513		128.2	127.9																											
							SHEET TOTALS															116	44											

LINE & STATION	FROM	TO	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05
L 16+53	0401																								
L 16+67	0402															1			1			1			1
	0402	0401																							
L 16+67	0403																								
L 16+67	0404															1									
L 17+00	0405															1			1			1			1
	0405	0402			32																				
L 18+23	0406																								
L 18+25	0407															1									
	0407	0404			152																				
L 18+28	0408															1			1			1			
	0408	0407																							
L 18+68	0409															1									
	0409	0406			52																				
L 19+34	0410															1									
	0410	0407			104																				
L 20+15	0411															1									
	0411	0409			148																				
L 21+18	0412															1			1		1				
	0412	0413			24																				
L 21+18	0413															1									
	0413	0411			100																				
L 21+68	0414															1									
	0414	0413			48																				
L 23+30	0501															1									
	0501	0414			164																				
L 24+42	0502															1	0.1		1			1			
	0502	0507		224																					
L 24+50	0503															1			1		1				
	0503	0505			144																				
L 24+50	0504															1									
	0504	0503																							
L 25+93	0505															1	0.2		1		1				
	0505	0508			128																				
L 25+93	0506															1									
	0506	0505																							
L 26+66	0507															1	1.7		1			1			
	0507	0510			84																				
L 27+22	0508															1	1.1		1		1				
	0508	0514			164																				
L 27+23	0509															1									
	0509	0508																							
L 27+50	0510															1	2.1		1			1			
	0510	0513			136																				
L 28+05	0511															1									
	0511	0515			80																				
L 28+87	0513															1	3.0		1			1			
	0513	0512																							
L 28+87	0514															1	2.5		1		1				
	0514	0513			80																				
SHEET TOTALS				224	1640											24	10.7		12		5	7			2

LINE & STATION	FROM	TO	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	ADJUST M.H.	SPECIAL DI 840D14 SEE SHEET 2C-2	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	18" DRAINAGE PIPE ELBOWS	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 16+53	0401																1			1								
L 16+67	0402																											
	0402	0401																										
L 16+67	0403																1			1								
L 16+67	0404				1	1																						
L 17+00	0405																											
	0405	0402																										
L 18+23	0406																1			1								
L 18+25	0407				1	1																						
	0407	0404																										
L 18+28	0408																											
	0408	0407																										
L 18+68	0409						1						1															
	0409	0406																										
L 19+34	0410				1	1																						
	0410	0407																										
L 20+15	0411				1	1																						
	0411	0409																										
L 21+18	0412																											
	0412	0413																										
L 21+18	0413				1	1																						
	0413	0411																										
L 21+68	0414				1	1																						
	0414	0413																										
L 23+30	0501				1	1																						
	0501	0414																										
L 24+42	0502																											
	0502	0507																										
L 24+50	0503																											
	0503	0505																										
L 24+50	0504				1	1																						
	0504	0503																										
L 25+93	0505																											
	0505	0508																										
L 25+93	0506				1	1																						
	0506	0505																										
L 26+66	0507																											
	0507	0510																										
L 27+22	0508																											
	0508	0514																										
L 27+23	0509				1	1																						
	0509	0508																										
L 27+50	0510																											
	0510	0513																										
L 28+05	0511				1	1																						
	0511	0515																										
L 28+87	0513																											
	0513	0512																										
L 28+87	0514																											
	0514	0513																										
SHEET TOTALS					11	11	1						1				3			3								

ABBREVIATIONS

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

CARYLTBURNS

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

PROJECT NO.	SHEET NO.
U-5935	3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84
L 28+87	70 LT	0515		131.6																												
		0515	0514		128.2	128.2																										
L 29+73	70 LT	0516		131.0																												
		0516	0515		128.5	128.2																										
L 30+13	68 RT	0518		133.8																												
		0518	0517		129.6	129.6																24										
L 30+42	77 RT	0519		132.2																												
		0519	0520		130.2	130.2	0.8																									
L 30+48	69 RT	0520		134.0																												
		0520	0518		129.7	129.6																										
L 30+80	69 RT	0521		131.5																												
		0521	0520		131.7	130.8															32											
L 31+00	40 RT	0523		136.0																												
		0523	0522		132.8	131.8															28											
L 32+00	40 RT	0524		136.3																												
		0524	0523		133.1	132.8																										
L 33+75	40 LT	0525		136.4																												
		0525	0528		133.2	132.9																										
L 33+95	40 RT	0526		136.8																												
		0526	0527		133.5	132.2															28											
L 34+70	40 LT	0528		136.2																												
		0528	0604		132.9	132.1																										
L 22+67	113 RT	0529		132.5																												
		0529	0531		129.5	129.4																										
23+21	145 RT	0530		132.0																												
		0530	0531		130.5	129.5														28												
23+18	120 RT	0531		132.5																												
		0531	0532		129.4	129.1																										
23+70	53 RT	0532		133.4																												
		0532	0502		129.1	128.9																										
L 26+12	64 RT	0533																														
L 29+14	66 RT	0534																														
L 31+43	69 RT	0535																														
L 31+90	69 RT	0536																														
L 33+00	70 RT	0537																														
L 24+29	59 RT	0538																														
L 36+25	0 CL	0601		136.1																												
		0601	0603		132.9	132.6																										
L 37+00	0 CL	0603		135.8																												
		0603	0607		132.6	132.3																										
L 37+00	40 LT	0604		135.3																												
		0604	0608		132.1	131.8																										
L 37+40	68 LT	0605		132.0																												
		0605	0609		129.2	129.0																44										
		0606	0607		129.3	129.0																										
L 37+77	0 CL	0607		135.6																												
		0607	0608		128.9	128.8																										
L 37+88	40 LT	0608		135.1																												
		0608	0611		128.7	128.3																										
L 37+89	68 LT	0609		132.0																												
SHEET TOTALS																				28	88	68										

LINE & STATION	FROM	TO	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
L 28+87	0515														1						
	0515	0514			28																
L 29+73	0516														1						
	0516	0515			84																
L 30+13	0518														1			1		1	
	0518	0517																			
L 30+42	0519																				
	0519	0520		12																	
L 30+48	0520														1			1			1
	0520	0518				32															
L 30+80	0521																				
	0521	0520																			
L 31+00	0523														1			1			1
	0523	0522																			
L 32+00	0524														1			1			1
	0524	0523			100																
L 33+75	0525														1			1			1
	0525	0528			96																
L 33+95	0526														1			1		1	
	0526	0527																			
L 34+70	0528														1			1			1
	0528	0604			228																
L 22+67	0529														1			1			1
	0529	0531		48																	
23+21	0530																				
	0530	0531																			
23+18	0531														1			1			1
	0531	0532		84																	
23+70	0532														1			1			1
	0532	0502		72																	
L 26+12	0533				100																
L 29+14	0534										40										
L 31+43	0535									36											
L 31+90	0536									20											
L 33+00	0537									24											
L 24+29	0538									16											
L 36+25	0601														1			1			1
	0601	0603			76																
L 37+00	0603														1			1			1
	0603	0607			76																
L 37+00	0604														1			1			1
	0604	0608			84																
L 37+40	0605														1						
	0605	0609																			
	0606	0607			72																
L 37+77	0607														1	1.7		1		1	
	0607	0608			40																
L 37+88	0608														1	1.4		1			1
	0608	0611					140														
L 37+89	0609														1						
SHEET TOTALS				216	984	32	140			96	40				19	3.1		15		3	12

LINE & STATION	FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	ADJUST M.H.	SPECIAL DI 840D14 SEE SHEET 2C-2	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	18" DRAINAGE PIPE ELBOWS	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 28+87	0515						1	1																						
	0515	0514																												
L 29+73	0516						1	1																						
	0516	0515																												
L 30+13	0518																													
	0518	0517																												
L 30+42	0519																											0.3990		
	0519	0520																												
L 30+48	0520																													
	0520	0518																												
L 30+80	0521																													Open End Pipe
	0521	0520																												
L 31+00	0523																													
	0523	0522																												
L 32+00	0524																													
	0524	0523																												
L 33+75	0525																													
	0525	0528																												
L 33+95	0526																													
	0526	0527																												
L 34+70	0528																													
	0528	0604																												
L 22+67	0529																													
	0529	0531																												
23+21	0530																													Open End Pipe
	0530	0531																												
23+18	0531																													
	0531	0532																												
23+70	0532																													
	0532	0502																												
L 26+12	0533																													
L 29+14	0534																													
L 31+43	0535																													
L 31+90	0536																													
L 33+00	0537																													
L 24+29	0538																													
L 36+25	0601			1																										
	0601	0603																												
L 37+00	0603			1																										
	0603	0607																												
L 37+00	0604																													
	0604	0608																												
L 37+40	0605				1																									SEE SPECIAL DETAIL SHEET 2C-1
	0605	0609																												
	0606	0607																												
L 37+77	0607			1																										
	0607	0608																												
L 37+88	0608																													
	0608	0611																												
L 37+89	0609						1	1																						
SHEET TOTALS				3	1		3	3																				0.3990		

ABBREVIATIONS

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

CARYLTBURNS

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

PROJECT NO.	SHEET NO.
U-5935	3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
		0609	0608		129.0	128.9	
L 39+25	10 LT	0610		135.5			
		0610	0611		132.1	131.4	
L 39+30	40 LT	0611		134.6			
		0611	0616		128.3	127.9	
L 39+35	70 LT	0612		132.9			
		0612	0611		130.4	130.3	
L 40+40	40 RT	0613		136.1			
		0613	0614		132.8	132.1	
L 40+40	7 RT	0614		135.6			
		0614	0617		132.1	132.1	
L 40+50	68 LT	0615		132.3			
		0615	0616		129.8	129.7	
L 40+50	40 LT	0616		134.4			
		0616	0618		127.9	127.6	
L 40+50	10 RT	0617		135.6			
		0617	0616		132.1	131.1	
L 41+50	40 LT	0618		134.6			
		0618	0619		127.6	127.3	
L 42+50	40 LT	0619		134.9			
		0619	0622		127.3	126.9	
L 43+25	10 RT	0620		135.5			
		0620	0623		132.3	131.6	
		0622	0623		126.7	126.7	
L 44+14	0 CL	0623		134.9			
		0623	0625		126.7	126.6	
L 44+26	75 RT	0625		135.5			
		0625	0626		126.6	126.6	
L 44+46	66 LT	0627		131.2			
		0627	0624		128.1	126.9	
L 45+46	40 RT	0628		135.7			
		0628	0629		132.5	131.4	
L 45+46	0 CL	0629		134.6			
		0629	0623		131.4	131.0	
L 45+87	40 LT	0630		134.7			
		0630	0631		131.5	130.7	
L 45+87	66 LT	0631		133.2			
		0631	0627		128.5	128.1	
L 46+50	40 LT	0632		134.5			
		0632	0633		128.8	128.7	
L 46+50	65 LT	0633		133.0			
		0633	0631		128.7	128.5	
L 47+25	40 LT	0634		134.4			
		0634	0632		129.0	128.8	
L 48+65	40 LT	0635		134.7			
		0635	0634		129.4	129.0	
L 48+73	66 LT	0636		132.4			
		0636	0635		129.5	129.4	
L 49+82	67 LT	0637		132.3			
		0637	0636		129.8	129.5	

FROM	TO	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE
0609	0608																													28					
0610	0611																												28						
0611	0616																														116				
0612	0611																												32						
0613	0614																												32						
0614	0617																												8						
0615	0616																												28						
0616	0618																														96				
0617	0616																												48						
0618	0619																														96				
0619	0622																														144				
0620	0623																												88						
0622	0623																																56		
0623	0625																																76		
0625	0626																		52																
0627	0624																												28						
0628	0629																												40						
0629	0623																												132						
0630	0631																												28						
0631	0627														136																				
0632	0633														24																				
0633	0631														60																				
0634	0632																												72						
0635	0634																												136						
0636	0635																												28						
0637	0636																												104						
SHEET TOTALS															220				52										832	28	452		132		

FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	ADJUST M.H.	SPECIAL DI 840D14 SEE SHEET 2C-2	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	18" DRAINAGE PIPE ELBOWS	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
0610					1							1				1	1																						
0611					1	1.4		1			1																												
0612					1											1	1																						
0613					1			1	1																														
0614					1							1				1	1																						
0615					1											1	1																						
0616					1	1.5		1	1																														
0617					1							1				1	1																						
0618					1	2.0		1		1																													
0619					1	2.6		1		1																													
0620					1			1		1			1																										
0623					1	3.2		1			1		1																										
0625					1	3.9															1							1											
0627					1											1	1																						
0628					1			1	1																														
0629					1			1	1				1																										
0630					1			1			1																												
0631					1											1	1																						
0632					1	0.8		1			1																												
0633					1											1	1																						
0634					1	0.4		1	1																														
0635					1	0.3		1		1																													
0636					1											1	1																						
0637					1											1	1																						
SHEET TOTALS					24	16.1		13	5	4	4	3	3			10	10				1							1											

ABBREVIATIONS

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

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

PROJECT NO.	SHEET NO.
U-5935	3D-4

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84		R. C. PIPE CLASS IV 12	15	18	24	30	36	42	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	ADJUST M.H.	SPECIAL DI 840D14 SEE SHEET 2C-2	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	18" DRAINAGE PIPE ELBOWS	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 50+00	10 RT	0701		134.5																																											1			1			1			1																										
		0701	0702		131.3	131.0																															100																																														
L 51+00	10 RT	0702		134.2																																											1			1			1			1																										
		0702	0704		131.0	130.7																															100																																													
L 51+50	40 LT	0703		134.7																																											1			1			1																											
		0703	0705		131.5	131.0																															132																																													
L 52+00	10 RT	0704		133.9																																											1			1		1				1																										
		0704	0733		130.7	130.3																															116																																													
L 52+85	40 LT	0705		134.3																																											1			1			1																											
		0705	0706		131.0	128.2																															28																																													
L 52+99	64 LT	0706		130.7																																											1												1	1																						
		0706	0708		128.2	128.0																															24																																													
L 53+23	10 RT	0707		133.7																																											1	5.0	4.7	1			1			1																										
L 53+25	64 LT	0708		132.4																																											1	5.0	3.1																		1					1											
L 53+54	64 LT	0709		130.0																																											1												1	1																						
		0709	0708		127.3	127.1	0.7																														28																																													
L 53+80	40 LT	0710		134.3																																											1	2.4		1	1																														
		0710	0709		126.9	126.8																			36																																																														
L 54+13	67 RT	0711		130.0																																											1										1																										SEE SPECIAL DETAIL SHEET 2C-1
L 54+47	68 LT	0712		131.2																																											1												1	1																						
		0712	0709		128.7	127.5																		92																																																																
L 54+94	67 RT	0713		130.6																																											1												1	1																						
		0713	0711		127.5	127.2																																80																																													
L 55+00	40 LT	0714		134.5																																											1	1.6		1		1																													
		0714	0710		127.9	127.4	0.5																														120																																														
L 55+02	69 LT	0715		131.2																																											1												1	1																						
		0715	0714		128.7	128.6																															28																																														
L 55+71	71 RT	0716		130.7																																											1												1	1																						
		0716	0713		127.7	127.5																																76																																													
L 55+75	42 RT	0717		133.7																																											1			1		1																														
		0717	0721		130.5	130.2																															84																																														
L 55+80	40 LT	0718		134.8																																											1	1.5		1		1																													
		0718	0714		128.2	127.9	0.3																														84																																														
L 55+80	70 LT	0719		130.8																																											1												1	1																						
		0719	0718		128.3	128.2																															28																																														
L 56+56	73 RT	0720		131.3																																											1												1	1																						
		0720	0716		128.8	128.2	0.3																														84																																														
L 56+56	59 RT	0721		134.6																																																																					1			1								
		0721	0720		129.5	128.8																		12																																																																
L 56+76	61 RT	0722		133.3																																											1			1	1																														
		0722	0721		129.6	129.5																		20																																																														
L 57+30	40 LT	0723		135.1																																											1	0.7		1		1																													
		0723	0718		129.4	129.0																															152																																														
L 57+30	67 LT	0724		132.0																																											1												1	1																						
		0724	0723		129.5	129.4																															28																																														
L 57+39	62 RT	0725		135.0																																											1																	1							1											
L 57+40	52 RT	0726		134.2																																											1			1			1																											
		0726	0725		131.2	131.2																														12																																															
L 58+33	40 LT	0728		135.0																																											1	0.1		1			1																												
		0728	0723		129.8	129.5																															104																																														
SHEET TOTALS																					124	36														12	1240	156										26	16.3	7.8	14	2	5	7			4	1		9	9				1		1					3			1								

ABBREVIATIONS

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

CARYLTBURNS

CARYLTBURNS

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

PROJECT NO.	SHEET NO.
U-5935	3D-5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
L 58+33	67	LT	0729		132.4			
			0729	0728		129.9	129.8	
L 58+50	52	RT	0730		134.6			
			0730	0726		131.6	131.2	
L 59+40	64	LT	0731		133.0			
			0731	0732		130.5	130.4	
L 59+40	40	LT	0732		134.7			
			0732	0728		130.4	130.1	
L 53+15	10	RT	0733		133.9			
			0733	0707		130.3	130.3	
EY10 08+00	32	LT	0734					
EY 07+99	39	LT	0735		132.0			
			0735	0734		127.0	126.7	
L 62+70	40	RT	0801		134.4			
			0801	0805		131.4	131.1	
L 62+86	66	RT	0802		131.4			
			0802	0803		129.2	129.0	
L 63+46	68	RT	0803		131.5			
			0803	0806		129.0	129.0	
L 63+69	80	LT	0804		132.5			
			0804	0807		130.0	129.3	
L 63+80	40	RT	0805		134.2			
			0805	0806		131.1	129.8	
L 63+80	67	RT	0806		132.0			
			0806	0809		129.0	128.8	
L 64+06	78	LT	0807		131.8			
			0807	0808		129.3	129.2	
L 64+15	52	LT	0808		134.8			
			0808	0812		129.2	128.9	
L 64+50	71	RT	0809		132.6			
			0809	0811		128.8	128.7	
L 65+00	71	LT	0810		131.6			
			0810	0812		129.1	129.0	
L 65+09	67	RT	0811		132.6			
			0811	0813		128.7	128.5	
L 65+15	41	LT	0812		134.7			
			0812	0822		128.9	128.1	
L 65+86	69	RT	0813		132.9			
			0813	0814		128.5	128.4	
L 66+50	72	RT	0814		132.4			
			0814	0816		128.4	128.2	
L 67+40	40	RT	0815		134.1			
			0815	0816		131.1	129.8	
L 67+40	72	RT	0816		132.0			
			0816	0817		128.7	128.6	
L 67+78	74	RT	0817		132.0			
			0817	0823		128.6	128.6	
L 67+82	40	RT	0818		133.9			
			0818	0823		130.9	130.7	
L 67+85	10	RT	0819		135.0			

SIZE / THICKNESS OR GAUGE

FROM	TO	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84	R. C. PIPE CLASS IV 12	15	18	24	30	36	42
0729	0728																												28				
0730	0726																											108					
0731	0732																												24				
0732	0728																												108				
0733	0707																												8				
0735	0734														4																		
0801	0805																											108					
0802	0803																											60					
0803	0806																											32					
0804	0807																												36				
0805	0806																											28					
0806	0809																											68					
0807	0808																												28				
0808	0812																												100				
0809	0811																												56				
0810	0812																												36				
0811	0813																												76				
0812	0822																												268				
0813	0814																												64				
0814	0816																												88				
0815	0816													32																			
0816	0817																												36				
0817	0823																												20				
0818	0823													20																			
SHEET TOTALS														52	4														404	976				

STRUCTURE FROM	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16
0729						1											1	1
0730						1			1			1						
0731						1											1	1
0732						1			1	1								
0733						1			1	1				1				
0735						1											1	1
0801						1			1		1							
0802						1											1	1
0803						1											1	1
0804						1											1	1
0805						1			1	1								
0806						1											1	1
0807						1											1	1
0808						1	0.5		1			1						
0809						1											1	1
0810						1											1	1
0811						1											1	1
0812						1	0.8		1			1						
0813						1												
0814						1											1	1
0815						1			1		1							
0816						1											1	1
0817						1											1	1
0818						1			1		1							
0819						1							1				1	1
SHEET TOTALS						25	1.3		9	3	3	3	1	1			15	15

STRUCTURE FROM	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	ADJUST M.H.	SPECIAL DI 840D14 SEE SHEET 2C-2	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	18" DRAINAGE PIPE ELBOWS	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
0734																				0.3999		
0813						1					1											
SHEET TOTALS						1					1									0.3999		

ABBREVIATIONS

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

CARYLTBURNS

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5935	3D-6

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

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

ABBREVIATIONS

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

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84		R. C. PIPE CLASS IV 12	15	18	24	30	36	42	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	
		0819	0821		131.6	131.5																															20							
L 67+85	72 LT	0820		131.6																																								
		0820	0822		129.1	129.0																															32							
L 67+85	10 LT	0821		135.0																																								
		0821	0822		131.5	130.7																															28							
L 67+85	40 LT	0822		134.0																																								
		0822	0825		128.1	127.8																															88							
L 67+91	58 RT	0823		134.8																																								
		0823	0824		128.1	128.0																																56						
L 68+45	64 RT	0824		132.9																																								
		0824	0828		128.0	127.8																			84																			
L 68+75	40 LT	0825		134.2																																								
		0825	0830		127.8	127.4																															128							
L 69+30	10 RT	0826		134.7																																								
		0826	0827		131.3	130.4																															28							
L 69+30	40 RT	0827		133.6																																								
		0827	0828		130.4	129.3																															24							
L 69+30	64 RT	0828		133.2																																								
		0828	0829		127.8	127.7																			20																			
L 69+52	64 RT	0829		132.8																																								
		0829	0832		127.7	127.5																			104																			
L 70+00	40 LT	0830		134.4																																								
		0830	0836		127.4	126.7																															240							
L 70+00	72 LT	0831		130.6																																								
		0831	0830		128.1	128.0																															32							
L 70+56	71 RT	0832		132.9																																								
		0832	0833		127.5	127.5																			36																			
L 70+94	70 RT	0833		132.2																																								
		0833	0835		127.5	127.4																			56																			
L 71+11	40 RT	0834		134.0																																								
		0834	0833		130.8	129.0																															36							
L 71+50	74 RT	0835		131.1																																								
		0835	0838		127.4	127.1																			124																			
L 72+40	40 LT	0836		134.3																																								
		0836	0841		128.6	127.8																																260						
L 72+75	40 RT	0837		140.3																																								
		0837	0838		137.1	129.5				32				x		x	x	x																										
L 72+75	72 RT	0838		132.0																																								
		0838	0839		127.1	127.0																																		68				
L 73+46	78 RT	0839		132.5																																								
		0839	0840		127.0	126.8																																		52				
L 74+00	77 RT	0840		132.1																																								
		0840	0843		126.8	126.4																			132																			
L 75+00	40 LT	0841		133.9																																								
		0841	0846		127.8	127.5																																88						
L 75+15	51 RT	0842		133.0																																								
		0842	0844		129.7	129.5																															64							
L 75+33	80 RT	0843		133.2																																								
		0843	0902		126.4	126.1																			112																			
L 75+80	51 RT	0844		132.8																																								
SHEET TOTALS										32																	668													720	404		120				

FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	ADJUST M.H.	SPECIAL DI 840D14 SEE SHEET 2C-2	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	18" DRAINAGE PIPE ELBOWS	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
0819	0821																																						
0820					1													1	1																					
0820	0822																																						
0821					1								1				1	1																					
0821	0822																																						
0822					1	0.9		1	1																															
0822	0825																																						
0823					1	1.7																1							1											
0823	0824																																						
0824																											1														Adjust MH
0824	0828																																						
0825					1	1.4		1		1																													
0825	0830																																						
0826					1								1				1	1																					
0826	0827																																						
0827					1			1	1																															
0827	0828																																						
0828					1	0.4																1							1											
0828	0829																																						
0829					1	0.1														1										1												
0829	0832																																						
0830					1	1.9		1			1																												
0830	0836																																						
0831					1													1	1																					
0831	0830																																						
0832					1	0.3																1							1											
0832	0833																																						
0833					1																	1							1											
0833	0835																																						
0834					1			1			1																												
0834	0833																																						
0835					1															1										1												
0835	0838																																						
0836					1	2.6		1	1																															
0836	0841																																						
0837					1			1		1																													
0837	0838																																				2			
0838					1															1										1												
0838	0839																																						
0839					1	0.5																		1					1											
0839	0840																																						
0840					1	0.3														1										1												
0840	0843																																						
0841					1	1.1		1			1																												
0841	0846																																						
0842					1			1		1																													
0842	0844																																						
0843					1	1.8														1										1												
0843	0902																																						
0844					1			1		1																													
SHEET TOTALS					24	13.0		10	3	4	3		2				4	9				4		1			1	5	5							2				

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

PROJECT NO.	SHEET NO.
U-5935	3D-7

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
			0844	0901		129.5	129.3	
L 75+87	66	LT	0845		131.4			
			0845	0846		128.9	128.8	
L 75+90	40	LT	0846		133.6			
			0846	0908		127.5	126.8	
L 66+55	71	LT	0847		132.3			
			0847	0848		129.8	129.5	
L 67+02	67	LT	0848		132.0			
			0848	0820		129.5	129.1	
L 63+80	10	RT	0849		135.0			
			0849	0805		132.0	131.2	
L 72+40	9	LT	0850		134.6			
			0850	0836		131.3	131.1	
L 76+45	51	RT	0901		132.6			
			0901	0902		129.3	129.2	
L 76+45	80	RT	0902		132.1			
			0902	0906		126.1	125.6	
			0904	0905		128.2	128.0	
L 77+52	65	LT	0905		131.0			
			0905	0907		128.0	127.3	
L 78+00	78	RT	0906		130.9			
			0906	0913		125.6	125.2	
L 78+49	68	LT	0907		129.8			
			0907	0908		127.3	127.3	
L 78+50	40	LT	0908		132.2			
			0908	0910		126.8	126.5	
L 79+31	69	LT	0909		128.0			
			0909	0910		126.2	126.1	
L 79+31	40	LT	0910		132.3			
			0910	0911		125.0	124.9	
L 79+32	5	RT	0911		133.1			
			0911	0912		124.9	124.8	
L 79+33	40	RT	0912		132.0			
			0912	0913		124.8	124.7	
L 80+40	66	RT	0915		130.3			
			0915	0913		126.0	125.7	
L 80+40	42	RT	0916		131.7			
			0916	0915		128.5	127.8	
L 80+64	41	LT	0917		131.9			
			0917	0910		126.9	126.5	
L 81+03	67	LT	0918		129.7			
			0918	0917		126.0	125.8	
			0919	0918		128.3	128.2	
L 81+64	66	RT	0920		132.5			
			0920	0915		126.4	126.0	
L 81+72	75	RT	0921		129.6			
			0921	0920		127.1	127.1	
L 81+79	66	RT	0922		131.5			
			0922	0920		126.4	126.4	
L 81+83	57	RT	0923		131.7			

FROM	TO	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84		R. C. PIPE CLASS IV 12	15	18	24	30	36	42	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY
0844	0901																													64										
0845																																								
0845	0846																													24										
0846																																								
0846	0908																														260									
0847																																								
0847	0848																													48										
0848																																								
0848	0820																													80										
0849																																								
0849	0805																												28											
0850																																								
0850	0836																													28										
0901																																								
0901	0902																													28										
0902																																								
0902	0906																																152							
0904	0905														44																									
0905																																								
0905	0907																													96										
0906																																								
0906	0913																	132																						
0907																																								
0907	0908																													28										
0908																																								
0908	0910																														80									
0909																																					4.500		
0909	0910																		32																					
0910																																								
0910	0911																																	44						
0911																																								
0911	0912																		36																					
0912																																								
0912	0913																		24																					
0915																																								
0915	0913																															104								
0916																																								
0916	0915																													24										
0917																																								
0917	0910															132																								
0918																																								
0918	0917																														48									
0919	0918														20																									
0920																																								
0920	0915																															124								
0921																																								
0921	0920																													12										
0922																																								
0922	0920																16																							
0923																																								
SHEET TOTALS															64	132	16	132	92										28	432	388	228	152	44				4.500		

FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	ADJUST M.H.	SPECIAL DI 840D14 SEE SHEET 2C-2	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	18" DRAINAGE PIPE ELBOWS	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
0844	0901																																				
0845		1												1	1																						
0845	0846																																				
0846		1	1.0		1			1																													
0846	0908																																				
0847		1												1	1																						
0847	0848																																				
0848		1												1	1																						
0848	0820																																				
0849		1			1	1					1																										
0849	0805																																				
0850		1			1	1					1																										
0850	0836																																				
0901		1			1		1																														
0901	0902																																				
0902		1	1.0												1										1												
0902	0906																																				
0904	0905																																				
0905		1												1	1																						
0905	0907																																				
0906		1	0.3												1										1												
0906	0913																																				
0907		1												1	1																						
0907	0908																																				
0908		1	0.5		1			1																													
0908	0910																																				
0909																																					
0909	0910																																				
0910		1	2.3		1			1																													
0910	0911																																				
0911		1	3.2																1							1											
0911	0912																																				
0912		1	2.2		1			1																													
0912	0913																																				
0915		1													1										1												
0915	0913																																				
0916		1			1	1																															
0916	0915																																				
0917		1	1.1		1	1																															
0917	0910																																				
0918		1													1										1												
0918	0917																																				
0919	0918																																				
0920		1	1.1																1							1											
0920	0915																																				
0921		1												1	1																						
0921	0920																																				
0922																										1			1								
0922	0920																																				
0923		1	2.2		1			1																													
SHEET TOTALS		22	14.9		10	4	1	5			2			6	10				2						4	3			1								

ABBREVIATIONS

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

CARYLTBURNS

CARYLTBURNS

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

PROJECT NO.	SHEET NO.
U-5935	3D-8

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
L 83+22	57	RT	0927		132.1			
			0927	0928		128.9	128.7	
L 83+22	71	RT	0928		132.6			
			0928	0922		128.0	127.6	
L 83+35	71	LT	0929		130.8			
			0929	0926		129.5	129.5	
L 83+51	76	RT	0930		130.6			
			0930	0928		128.1	128.0	
L 83+54	10	LT	0931		133.9			
L 84+09	73	LT	0933		132.2			
			0933	0932		130.7	129.8	
L 84+09	53	LT	0934		132.9			
			0934	0935		127.8	127.7	
L 84+10	10	LT	0935		134.1			
			0935	0931		127.7	127.5	
L 84+50	56	RT	0936		132.5			
			0936	0927		129.2	128.9	
EY10 26+85	47	LT	1004		129.4			
			1004	1003		127.1	127.0	
EY10 28+00	45	LT	1005		129.4			
			1005	1004		127.4	127.1	
EY10 31+96	30	LT	1006		128.9			
			1006	1008		126.7	126.6	
EY10 32+02	45	LT	1008		129.4			
			1008	1007		126.2	126.1	0.4
EY10 32+68	45	LT	1010		128.3			
			1010	1008		126.8	126.2	
EY20 38+39	24	RT	1401		95.4			
EY20 38+40	30	RT	1402		96.2			
EY20 39+88	24	RT	1405		94.7			
EY20 39+88	28	RT	1406		95.4			
EY20 40+77	26	RT	1409		94.5			
L 30+49	71	RT	0000					
L 69+53	64	RT	0000					
L 63+24	59	LT	0000					
L 64+33	62	LT	0000					
L 65+35	29	RT	0000					
L 65+73	62	LT	0000					
L 66+90	62	LT	0000					
L 67+42	62	LT	0000					
L 68+27	63	LT	0000					
L 70+37	33	RT	0000					
L 67+22	5	LT	0000					
L 73+37	66	RT	0000					
L 70+87	73	LT	0000					
L 76+47	62	LT	0000					
L 77+27	63	LT	0000					
L 77+75	61	LT	0000					
L 78+96	61	LT	0000					
L 78+98	4	RT	0000					

SIZE / THICKNESS OR GAUGE

LINE & STATION	FROM	TO	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84
L 83+22	0927																										
	0927	0928																									
L 83+22	0928																										
	0928	0922																									
L 83+35	0929																										
	0929	0926														20											
L 83+51	0930																										
	0930	0928																									
L 83+54	0931																										
L 84+09	0933																										
	0933	0932														32											
L 84+09	0934																										
	0934	0935																									
L 84+10	0935																										
	0935	0931															56										
L 84+50	0936																										
	0936	0927																									
EY10 26+85	1004																										
	1004	1003														44											
EY10 28+00	1005																										
	1005	1004													112												
EY10 31+96	1006																										
	1006	1008															16										
EY10 32+02	1008																										
	1008	1007															12										
EY10 32+68	1010																										
	1010	1008															68										
EY20 38+39	1401																										
EY20 38+40	1402																										
EY20 39+88	1405																										
EY20 39+88	1406																										
EY20 40+77	1409																										
L 30+49	0000																										
L 69+53	0000																										
L 63+24	0000																										
L 64+33	0000																										
L 65+35	0000																										
L 65+73	0000																										
L 66+90	0000																										
L 67+42	0000																										
L 68+27	0000																										
L 70+37	0000																										
L 67+22	0000																										
L 73+37	0000																										
L 70+87	0000																										
L 76+47	0000																										
L 77+27	0000																										
L 77+75	0000																										
L 78+96	0000																										
L 78+98	0000																										
SHEET TOTALS															112	96	152										

LINE & STATION	FROM	TO	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
L 83+22	0927														1			1			1
	0927	0928			16																
L 83+22	0928														1						
	0928	0922			144																
L 83+35	0929																				
	0929	0926																			
L 83+51	0930														1						
	0930	0928			28																
L 83+54	0931																				
L 84+09	0933																				
	0933	0932																			
L 84+09	0934														1			1		1	
	0934	0935			40																
L 84+10	0935														1	1.4					
	0935	0931																			
L 84+50	0936														1			1			1
	0936	0927			128																
EY10 26+85	1004														1						
	1004	1003																			
EY10 28+00	1005														1						
	1005	1004																			
EY10 31+96	1006														1			1			1
	1006	1008																			
EY10 32+02	1008														1						
	1008	1007																			
EY10 32+68	1010																				
	1010	1008																			
EY20 38+39	1401														1			1		1	
EY20 38+40	1402																				
EY20 39+88	1405														1			1		1	
EY20 39+88	1406																				
EY20 40+77	1409														1	0.1		1		1	
L 30+49	0000																				
L 69+53	0000																				
L 63+24	0000																				
L 64+33	0000																				
L 65+35	0000																				
L 65+73	0000																				
L 66+90	0000																				
L 67+42	0000																				
L 68+27	0000																				
L 70+37	0000																				
L 67+22	0000																				
L 73+37	0000																				
L 70+87	0000																				
L 76+47	0000																				
L 77+27	0000																				
L 77+75	0000																				
L 78+96	0000																				
L 78+98	0000																				
SHEET TOTALS					356										13	1.5		7		4	3

NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

LINE & STATION	FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	ADJUST M.H.	SPECIAL DI 840D14 SEE SHEET 2C-2	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	18" DRAINAGE PIPE ELBOWS	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 83+22	0927																													
	0927	0928																												
L 83+22	0928											1							1											
	0928	0922																												
L 83+35	0929																											0.3990		
	0929	0926																												
L 83+51	0930							1	1																						
	0930	0928																												
L 83+54	0931																		1			1								
L 84+09	0933																													Open End Pipe
	0933	0932																												
L 84+09	0934																													
	0934	0935																												
L 84+10	0935											1							1											
	0935	0931																												
L 84+50	0936																													
	0936	0927																												
EY10 26+85	1004						1	1																						
	1004	1003																												
EY10 28+00	1005						1	1																						
	1005	1004																												
EY10 31+96	1006																													
	1006	1008																												
EY10 32+02	1008											1							1											
	1008	1007																												
EY10 32+68	1010																													Open End Pipe
	1010	1008																												
EY20 38+39	1401																													
EY20 38+40	1402																		1	1										
EY20 39+88	1405																													
EY20 39+88	1406																		1	1										
EY20 40+77	1409																													
L 30+49	0000																												20	
L 69+53	0000																												256	
L 63+24	0000																										4			
L 64+33	0000																										1			
L 65+35	0000																										4			
L 65+73	0000																										3			
L 66+90	0000																										1			
L 67+42	0000																										1			
L 68+27	0000																										3			
L 70+37	0000																										3			
L 67+22	0000																										3			
L 73+37	0000																												57	
L 70+87	0000																										3			
L 76+47	0000																												44	
L 77+27	0000																												38	
L 77+75	0000																												53	
L 78+96	0000																												63	
L 78+98	0000																												68	
SHEET TOTALS							3	3				3							6	2		1					26	0.3990	599	

ABBREVIATIONS

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

CARYLTBURNS

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

PROJECT NO.	SHEET NO.
U-5935	3D-9

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

The sheet also has these columns, which have no entries in any row: SIZE; THICKNESS OR GAUGE; TOP ELEVATION (FT.); INVERT ELEVATION (FT.); INVERT ELEVATION (FT.); MINIMUM REQUIRED SLOPE (%); Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC), sizes 12, 15, 18, 24, 30, 36; DO NOT USE RCP; DO NOT USE CSP; DO NOT USE CAAP; DO NOT USE HDPE; DO NOT USE PVC; R. C. PIPE CLASS III, sizes 12, 15, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84; R. C. PIPE CLASS IV, sizes 12, 15, 18, 24, 30, 36, 42; 18" SIDE DRAIN PIPE; 24" SIDE DRAIN PIPE; ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) (CY); REINFORCED ENDWALLS (CY); DRAINAGE STRUCTURE MASONRY (CY); QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)): 0' THRU 5' (EACH), A 5' THRU 10' (LIN. FT.), B 10' AND ABOVE (LIN. FT.); C.B. STD. 840.01 OR STD. 840.02; FRAME, GRATES, AND HOOD STD. 840.03; GRATE TYPE E, F, G; CONCRETE TRANSITIONAL SECTION: D.I. STD. 852.04 OR STD. 852.06, C.B. STD. 852.05; OPEN THROAT C.B. STD. 840.04 OR STD. 840.05; CONCRETE BRIDGE APPROACH D.I. STD. 840.13; D.I. STD. 840.14 OR STD. 840.15; D.I. FRAME AND GRATES STD. 840.16; G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29; DRIVEWAY D.I. STD. 840.30; FRAME W/ GRATE FOR DRIVEWAY STD. 840.30; J.B. STD. 840.31 OR STD. 840.32; ANGLED VANE GRATES AND FRAMES STD. 840.33; T.B.J.B. STD. 840.34; T.B.D.I. STD. 840.35; T.B.D.I. FOR STEEL GRATES STD. 840.36; SPECIAL DI 840D14 SEE SHEET 2C-2; CONVERT EXISTING C.B. TO J.B.; CONVERT EXISTING C.B. TO D.I.; CONVERT EXISTING J.B. TO D.I.; ADJUST C.B.; 18" DRAINAGE PIPE ELBOWS.

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	TO	ADJUST M.H.	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B.	ADJUST D.I.	FLOWABLE FILL (CY)	CONCRETE COLLARS CL. "B" STD. 840.72 (CY)	PIPE REMOVAL (LIN. FT.)	REMARKS
L 79+86	60	RT	0000								48	
L 79+25	65	RT	0000								16	
L 79+92	58	LT	0000								32	
L 84+34	10	LT	0000								45	
L 76+45	3	LT	0000								18	
L 76+60	33	RT	0000						5			
L 77+07	67	RT	0000						9			
EY10 26+65	34	LT	0000								44	
EY10 31+95	40	LT	0000								20	
EY10 27+69	41	LT	0000								16	
L 16+68	72	RT	0000								5	
L 60+63	600	LT	0000							0.4465		
EY 10 26+27	39	LT	1002					1				
EY10 25+72	39	LT	1001			1	1					
L 16+98	61	RT	0000								57	
L 17+70	63	RT	0000								72	
L 20+34	58	LT	0000								65	
L 18+60	56	LT	0000								73	
L 22+75	58	LT	0000								61	
L 26+69	58	LT	0000								53	
L 28+30	60	LT	0000								49	
L 29+29	61	LT	0000								33	
L 28+88	2	LT	0000								80	
L 28+96	35	RT	0000						6			
L 29+16	63	RT	0000								20	
L 26+10	58	RT	0000								80	
L 30+31	65	RT	0000						2			
L 36+83	1	LT	0000								59	
L 37+75	62	LT	0000								29	
L 37+76	4	RT	0000								137	
L 38+92	57	LT	0000								28	
L 38+42	59	LT	0000								37	
L 39+84	58	LT	0000								61	
L 40+90	56	LT	0000								28	
L 43+15	55	LT	0000								45	
L 44+09	54	LT	0000								65	
EY20 43+71	43	RT	1410		1							Adjust MH
EY20 46+26	43	RT	1411		1							Adjust MH
L 28+43	97	RT	0000								16	
L 44+16	26	LT	0000						4			
L 44+26	39	RT	0000						8			
L 44+32	100	RT	0000								50	
L 46+24	56	LT	0000								26	
L 46+85	57	LT	0000								45	
L 53+26	60	LT	0000								32	
L 53+28	1	LT	0000								18	
L 54+70	60	RT	0000								36	
L 54+77	61	LT	0000								29	
L 56+21	59	RT	0000								68	
L 56+66	59	RT	0000								16	
SHEET TOTALS					2	1	1	1	34	0.4465	1712	

ABBREVIATIONS

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

CARYLTBURNS

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

PROJECT NO.	SHEET NO.
U-5935	3D-10

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC
L 56+48	61	LT	0000																
L 56+64	29	RT	0000																
L 57+98	59	LT	0000																
L 58+91	59	LT	0000																
L 63+80	2	LT	0000																
L 65+55	63	RT	0000																
L 65+86	66	RT	0000																
L 67+01	63	RT	0000																
L 67+63	63	RT	0000																
L 68+23	64	RT	0000																
SHEET TOTALS																			
PROJECT TOTALS											32								

	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84		R. C. PIPE CLASS IV 12	15	18	24	30	36	42
SHEET TOTALS																						
PROJECT TOTALS	112	176	768	280	16	800	144										884	7180	1008	820	272	176

	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30
SHEET TOTALS																						
PROJECT TOTALS	96	40		4.500			177	87.0		90	17	29	44		6	15	2		61	70	1	

LINE & STATION	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	ADJUST M.H.	SPECIAL DI 840D14 SEE SHEET 2C-2	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	18" DRAINAGE PIPE ELBOWS	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 56+48																			24	
L 56+64																	3			
L 57+98																			28	
L 58+91																			20	
L 63+80																			301	
L 65+55																			92	
L 65+86																			5	
L 67+01																			25	
L 67+63																			20	
L 68+23																			44	
SHEET TOTALS																	3		559	
PROJECT TOTALS		11		3	1		3	9	23	2		7			1	2	63	1.6444	2870	

ABBREVIATIONS

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

CARYLTBURNS

COMPUTED BY:	Ecological Engineering LLP	DATE:	6/28/2017
CHECKED BY:	Ecological Engineering LLP	DATE:	6/28/2017

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5935	3D-11

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

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

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | R. C. PIPE CLASS III 54 | 60 | 66 | 72 | 78 | 84 | R. C. PIPE CLASS IV 54 | 60 | 66 | 72 | 78 | 84 | R. C. PIPE CLASS V 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | REINFORCED ENDWALLS CY | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | B: 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | CONCRETE BRIDGE APPROACH D.I. STD. 840.13 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | DRIVEWAY D.I. STD. 840.30 | FRAME W/ GRATE FOR DRIVEWAY STD. 840.30 | J.B. STD. 840.31 OR STD. 840.32 | ANGLED VANE GRATES AND FRAMES STD. 840.33 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | STEEL FRAME WITH TWO GRATES STD. 840.37 | TEMP STEEL PLATE COVER MASONRY DRAINAGE | SPRING BOX STD. 840.41 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

COMPUTED BY: SWT DATE: 06/12/2017	(2-16-16)	PROJECT NO.	SHEET NO.
CHECKED BY: REK DATE: 06/12/2017		U-5935	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-EY17-	25+50	30+50	LT	UD	1000
-EY17-	35+50	45+29.59	LT	UD	2000
-EY20-	30+50	40+00	RT	UD	1000
CONTINGENCY					500
				TOTAL LF:	4500

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-EY17-	10+85.52	45+29.59	ASU		3000	6090	4450		
-EY20-	8+50	10+25	ASU		150	310	250		
-EY20-	10+50	16+00	ASU		500	1020	200		
-EY20-	11+25	12+25	ASU		100	210	200		
-EY20-	15+25	34+75	ASU		1350	2750	2550		
-EY20-	46+00	49+25	ASU		200	410	400		
-EY20-	54+25	56+75	ASU		200	410	350		
CONTINGENCY					600	500	500		
			TOTAL CY/TONS/SY:		6100	11700	8900**	0	0

***ASU = Aggregate Subgrade**
***AST = Aggregate Stabilization**
****Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.**

PROJECT REFERENCE NO.	SHEET NO.
U-5935	3P-1
R/W SHEET NO.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	MT SINAI CHURCH OF CHRIST
2	4	MCE COMMERCIAL LLP (J&K COMMERCIAL LLP)
3	4,5	WARD BLVD CENTER LLC
4	5	LOU THOMAS
5	5	ISAAC ARTIS HEIRS
6	5	HOBBIE HINNANT
7	5	GERALDINE MYLES
8	6	PRIDE OF WILSON LODGE HENRY ELLIS POST 17
8A	6	ANDREWS PROPERTIES
9	7	NO CLAIM
10	7	KENNETH HARRIS
11	7	JOYCE MCALLISTER
12	7	HERBERT WILLIAMS
13	7	LIZZIE JOYNER
14	7	DOLLY ARTIS
15	7	TINA EVANS
16	7	JESSICA WILLIAMS
17	7	EVA HARGROVE
18	7	HATTIE MORGAN
18A	7,8	CITY OF WILSON REDEVELOPMENT COMMISSION
19	8	PAULINE SIMS (LER) HOLLOWAY
20	8	JOHN BATTLE HEIRS
21	8	EDMOND TAYLOR HEIRS
22	9	A E COX PROPERTIES LLC
23	9,11	WILSON COMMUNITY COLLEGE
24	11,13,14	WILSON COUNTY TECHNICAL INSTITUE
25	12	WILSON COUNTY BOARD OF EDUCATION
26	13	YOUTH ENRICHMENT PROGRAM OF WILSON INC.
27	13	DIVERSIFIED OPPURTUNITIES INC.
27A	13	GEORGE C. VENTERS NICKYE Y. VENTERS
29	13	YOUTH ENRICHMENT PROGRAM OF WILSON INC.
31	6	SOUTHERN CONTAINER CORP.
32	13	CARL RICKER JR.
33	13, 14	CITY OF WILSON
34	11	EASTERN NC SANATORIUM
35	4	AVERETTE LAMM
36	10	GEORGE DOUGLAS LEACH
37	8	IR COLEMAN
38	9	FIKEWOOD RESTAURANT LLC
39	9	WILSON 301 LLC

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5935	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD BUCKNER
DocuSign Envelope ID: 108701E67F6435... 7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARHAM
DocuSign Envelope ID: C7351A57E0F0499... 7/11/2017

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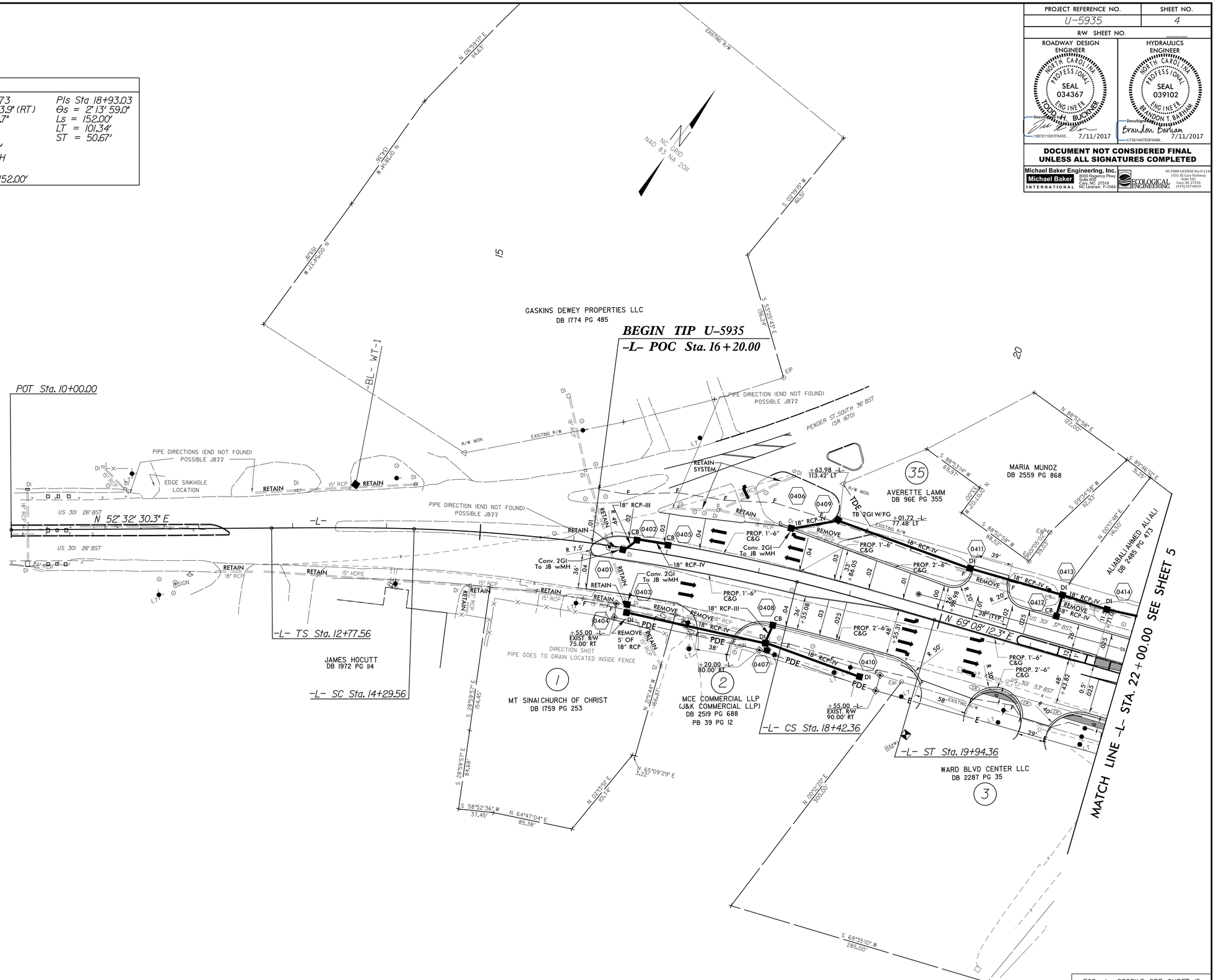
ECOLOGICAL ENGINEERING — NC FIRM LICENSE Nº C-1145 — 1151 SE Cary Parkway Suite 110 Cary, NC 27518 (919) 557-9029

-L-		
PIs Sta 13+78.91 Θs = 2° 13′ 59.0″ Ls = 152.00′ LT = 101.34′ ST = 50.67′	PI Sta 16+36.73 Δ = 12° 07′ 43.9″ (RT) D = 2° 56′ 17.7″ L = 412.79′ T = 207.17′ R = 1,950.00′ Ds = 50 MPH SE = 0.04 RUNOFF = 152.00′	PIs Sta 18+93.03 Θs = 2° 13′ 59.0″ Ls = 152.00′ LT = 101.34′ ST = 50.67′



FOR -L- PROFILE SEE SHEET 15

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5935	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSigned by: 108701 1E67F6435... 7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARNHAM
DocuSigned by: Brandon Barnham C7351A57E0F0499... 7/11/2017

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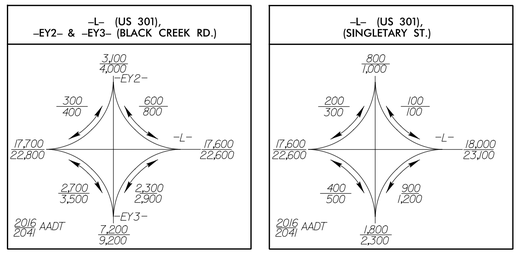
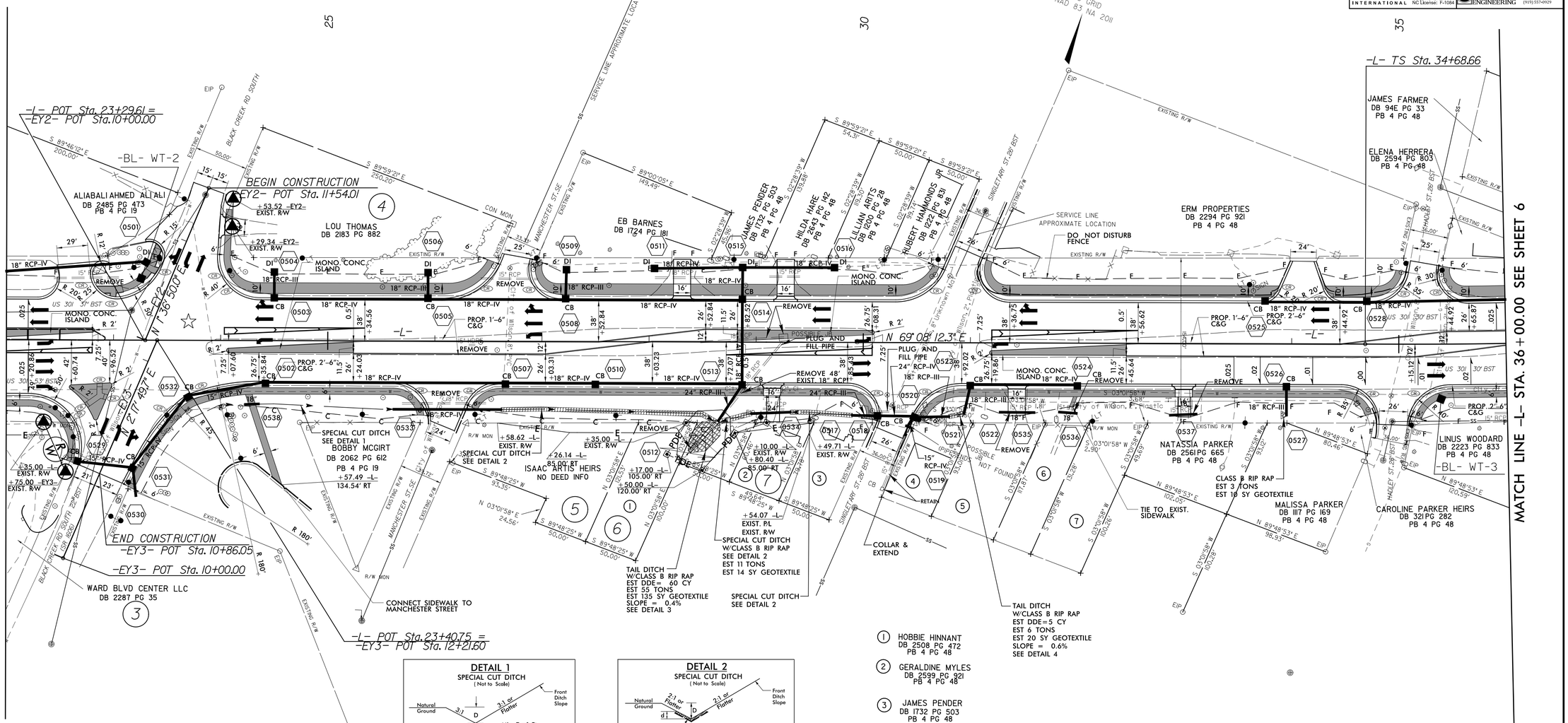
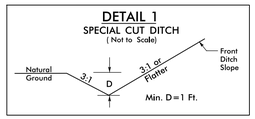
Michael Baker Engineering, Inc. — Michael Baker INTERNATIONAL — 8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084
NC FIRM LICENSE No: P-1146 — 1151 SE Cary Parkway Suite 1 Cary, NC 27518 (919) 557-0929 — ECOLOGICAL ENGINEERING

-L-		
PIs Sta 35+66.66	PI Sta 44+91.24	PIs Sta 53+43.81
Θs = 1° 45' 16.9"	Δ = 40° 05' 11.7" (LT)	Θs = 1° 45' 16.9"
Ls = 147.00'	D = 2° 23' 14.4"	Ls = 147.00'
LT = 98.00'	L = 1,679.14'	LT = 98.00'
ST = 49.00'	T = 875.58'	ST = 49.00'
	R = 2,400.00'	
	Ds = 50 MPH	
	SE = 0.04	
	RUNOFF = 147.00'	



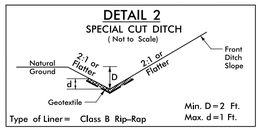


DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)



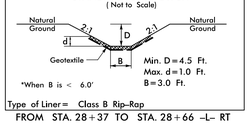
FROM -L- STA. 24+00 TO STA. 25+62 RT.

DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)



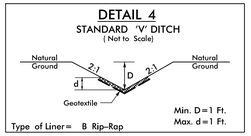
FROM -L- STA. 26+62 TO STA. 29+90 RT.

DETAIL 3
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 28+37 TO STA. 28+66 -L- RT

DETAIL 4
STANDARD 'V' DITCH
(Not to Scale)



FROM STA. 30+80 TO STA. 30+95 -L- RT

☆ = REVISED SIGNAL

1. HOBBIE HINNANT DB 2508 PG 472 PB 4 PG 48
2. GERALDINE MYLES DB 2599 PG 921 PB 4 PG 48
3. JAMES PENDER DB 1732 PG 503 PB 4 PG 48
4. D&M INVESTMENTS OF ELM CITY LLC DB 2293 PG 163 PB 4 PG 48
5. BRENDA SIMMONS NO DEED PB 4 PG 48
6. HELEN TUCKER DB 1294 PG 932 PB 4 PG 48
7. MILDRED BATTS DB 2346 PG 621 PB 4 PG 48

FOR -L- PROFILE SEE SHEETS 15 & 16

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5935	6
R/W SHEET NO.	

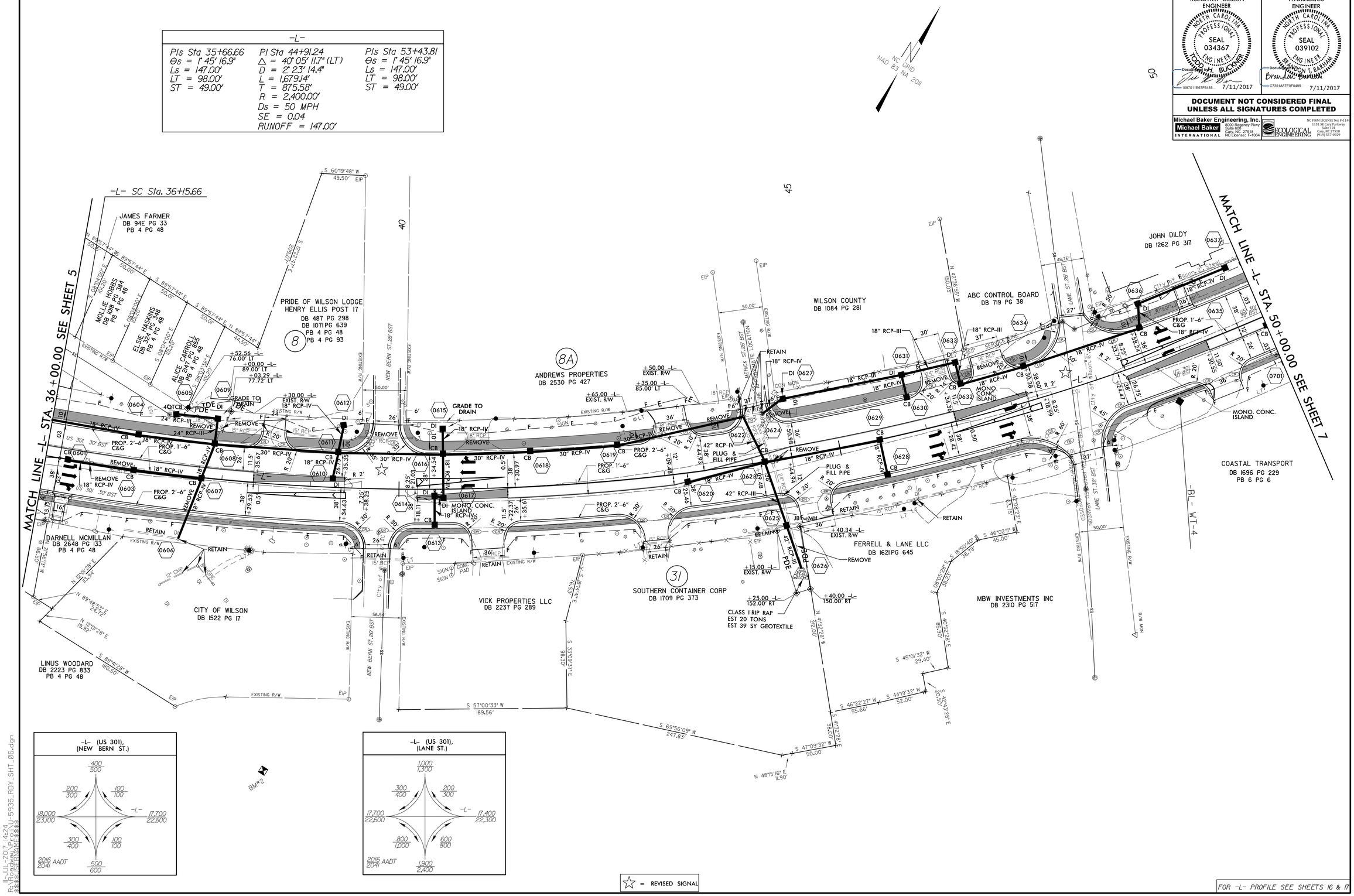
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSign 1087011E67F8435... 7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARNHAM
DocuSign C7351A57E0F0499... 7/11/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084
ECOLOGICAL ENGINEERING
NC FIRM LICENSE Noc F-1183
1551 SE Cary Parkway Suite 102 Cary, NC 27518 (919) 557-9929

-L-		
PIs Sta 35+66.66	PI Sta 44+91.24	PIs Sta 53+43.81
Θs = 1° 45' 16.9"	Δ = 40° 05' 11.7" (LT)	Θs = 1° 45' 16.9"
Ls = 147.00'	D = 2° 23' 14.4"	Ls = 147.00'
LT = 98.00'	L = 1,679.14'	LT = 98.00'
ST = 49.00'	T = 875.58'	ST = 49.00'
	R = 2,400.00'	
	Ds = 50 MPH	
	SE = 0.04	
	RUNOFF = 147.00'	



FOR -L- PROFILE SEE SHEETS 16 & 17

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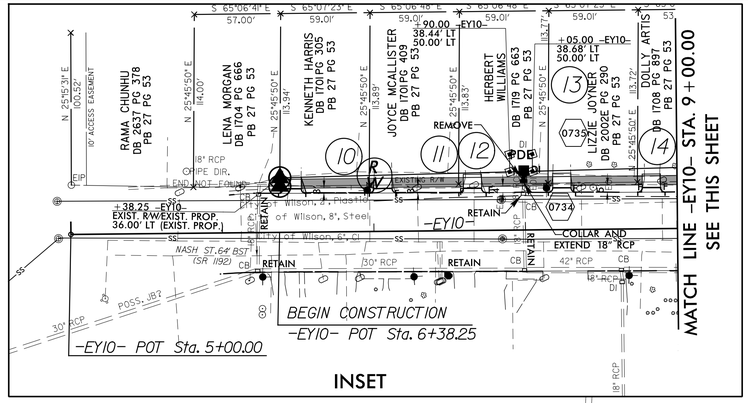
PROJECT REFERENCE NO.	SHEET NO.
U-5935	7
R/W SHEET NO.	

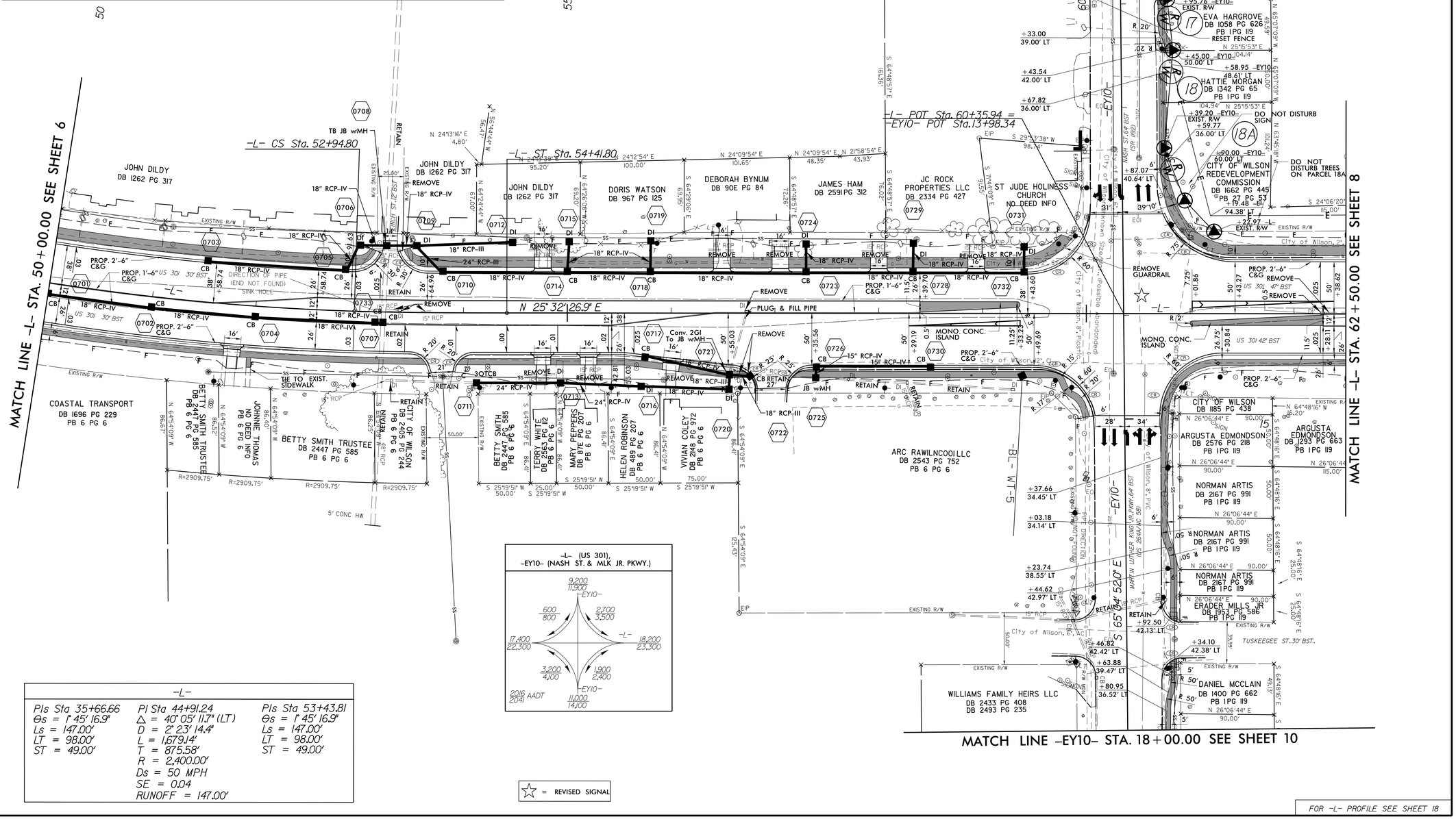
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSigned by: 108701E67F0435... 7/20/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARNHAM
DocuSigned by: Brandon Barham C7351A57E0F0499... 7/20/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc. — Michael Baker INTERNATIONAL
8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084
ECOLOGICAL ENGINEERING — NC FIRM LICENSE No: F-1183 1551 SE Cary Parkway Suite 110 Cary, NC 27518 (919) 557-9029





-L-		
PIs Sta 35+66.66	PI Sta 44+91.24	PIs Sta 53+43.81
Θs = 1° 45' 16.9"	Δ = 40° 05' 11.7" (LT)	Θs = 1° 45' 16.9"
Ls = 147.00'	D = 2° 23' 14.4"	Ls = 147.00'
LT = 98.00'	L = 1,679.14'	LT = 98.00'
ST = 49.00'	T = 875.58'	ST = 49.00'
	R = 2,400.00'	
	Ds = 50 MPH	
	SE = 0.04	
	RUNOFF = 147.00'	

FOR -L- PROFILE SEE SHEET 18

20-JUL-2017 15:30
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5/14/99

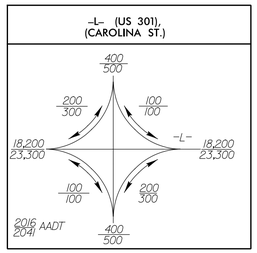
PROJECT REFERENCE NO.	SHEET NO.
U-5935	8
R/W SHEET NO.	

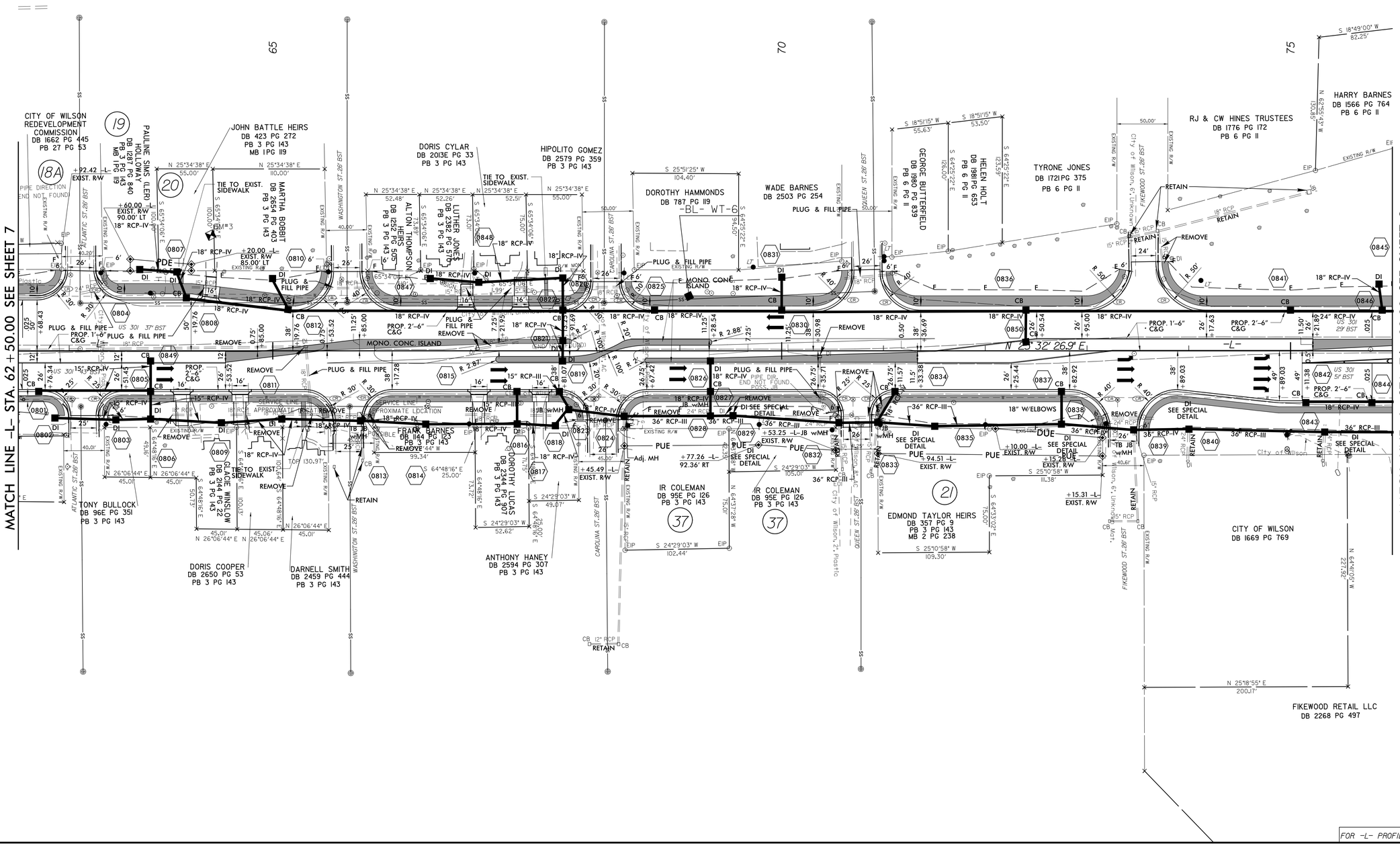
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSign 1087011E67F6435...
7/20/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARHAM
DocuSign C7341A57EDF0499...
7/20/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy Suite 600 Cary, NC 27518
NC License: F-1084
ECOLOGICAL ENGINEERING
NC FIRM LICENSE Not F-1148
1151 SE Cary Parkway Suite 110 Cary, NC 27518
(919) 557-0929





FOR -L- PROFILE SEE SHEETS 18 & 19

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5/14/99

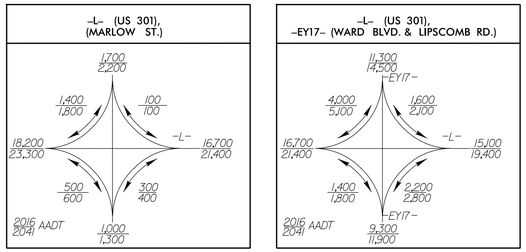
PROJECT REFERENCE NO.	SHEET NO.
U-5935	9
R/W SHEET NO.	

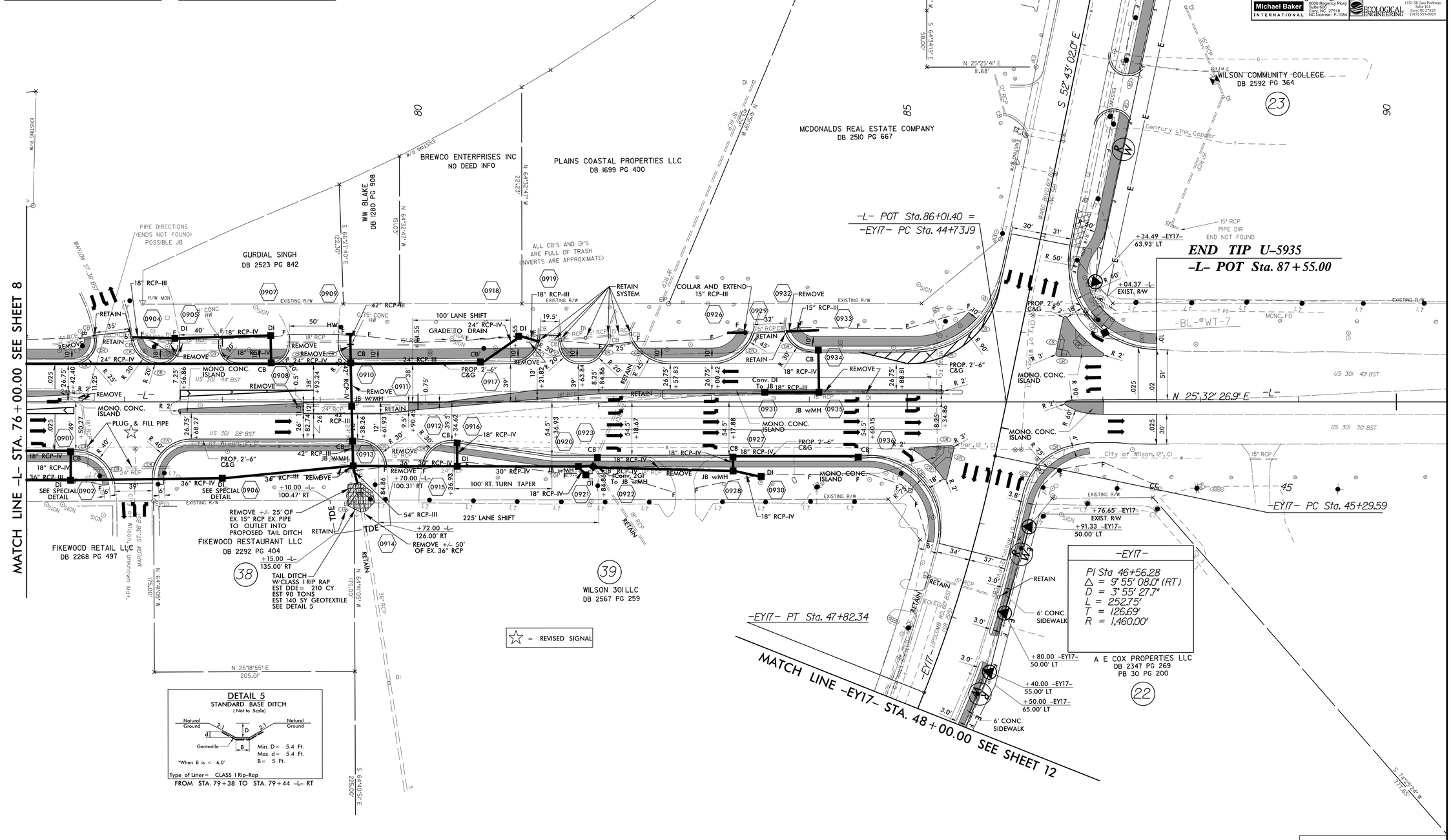
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSigned by: 10870116E7F6435... 7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARNHAM
DocuSigned by: Brandon Barham C7351A57E0F0499... 7/11/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy Suite 600 Cary, NC 27518
NC License: F-1084
NC FIRM LICENSE Noc F-1145
1151 SE Cary Parkway Suite 110 Cary, NC 27518
(919) 557-6929
ECOLOGICAL ENGINEERING





DETAIL 5
STANDARD BASE DITCH
(Not to Scale)

Min. D = 5.4 Ft.
Max. d = 5.4 Ft.
B = 5 Ft.
*When B is < 6.0'

Type of Liner = CLASS I Rip-Rap
FROM STA. 79+38 TO STA. 79+44 -L- RT

FOR -L- PROFILE SEE SHEET 20

11-JUL-2017 14:21
R:\Roadway\Proj\U-5935_RDY_SHT_09.dgn
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PROJECT REFERENCE NO.	SHEET NO.
U-5935	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER JOSHUA BUCKER
DocuSign envelope ID: 1087011E67F6435...
7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARNHAM
DocuSign envelope ID: C7351A57E0F0499...
7/11/2017

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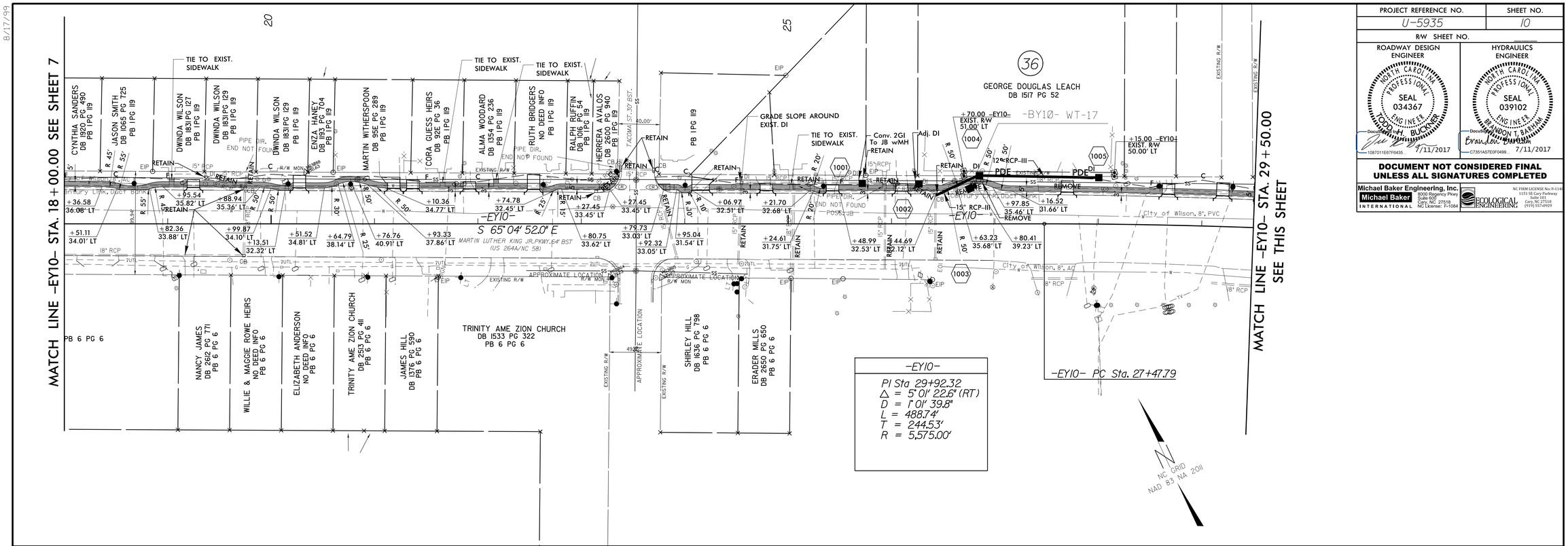
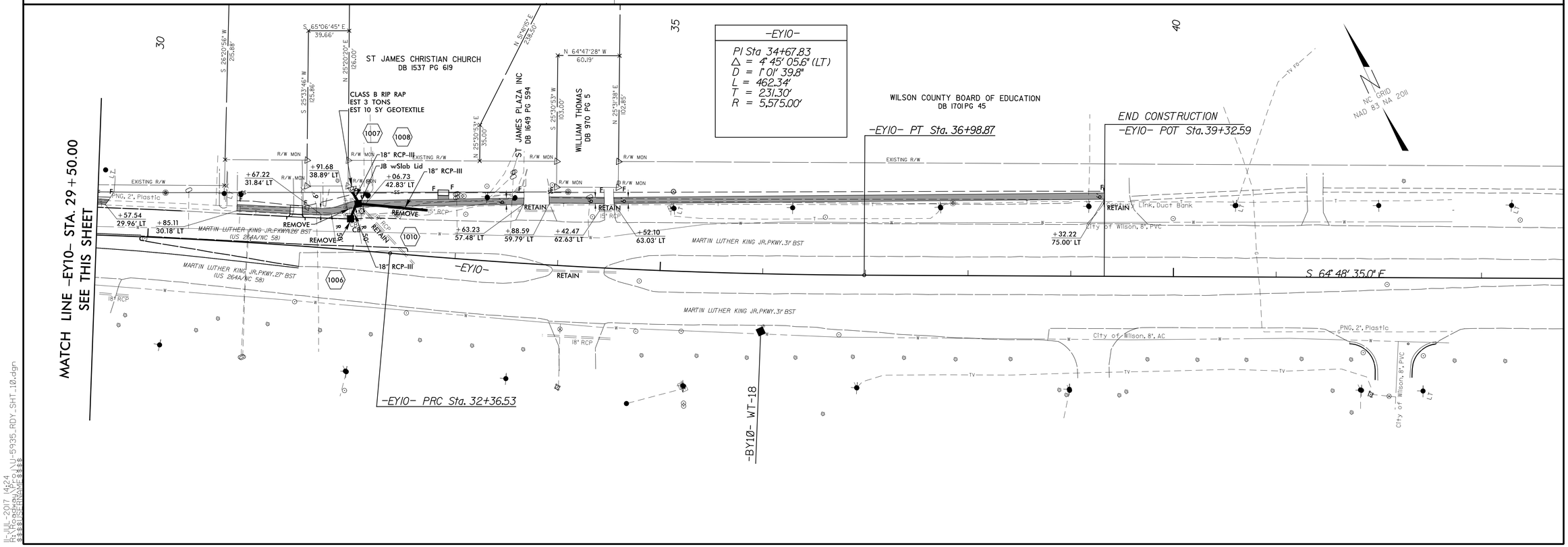
Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy, Suite 600 Cary, NC 27518 NC License: F-1084
NC FIRM LICENSE: Nov F-1149 1155 SE Cary Parkway Suite 101 Cary, NC 27518 (919) 557-09929
ECOLOGICAL ENGINEERING





8/17/99

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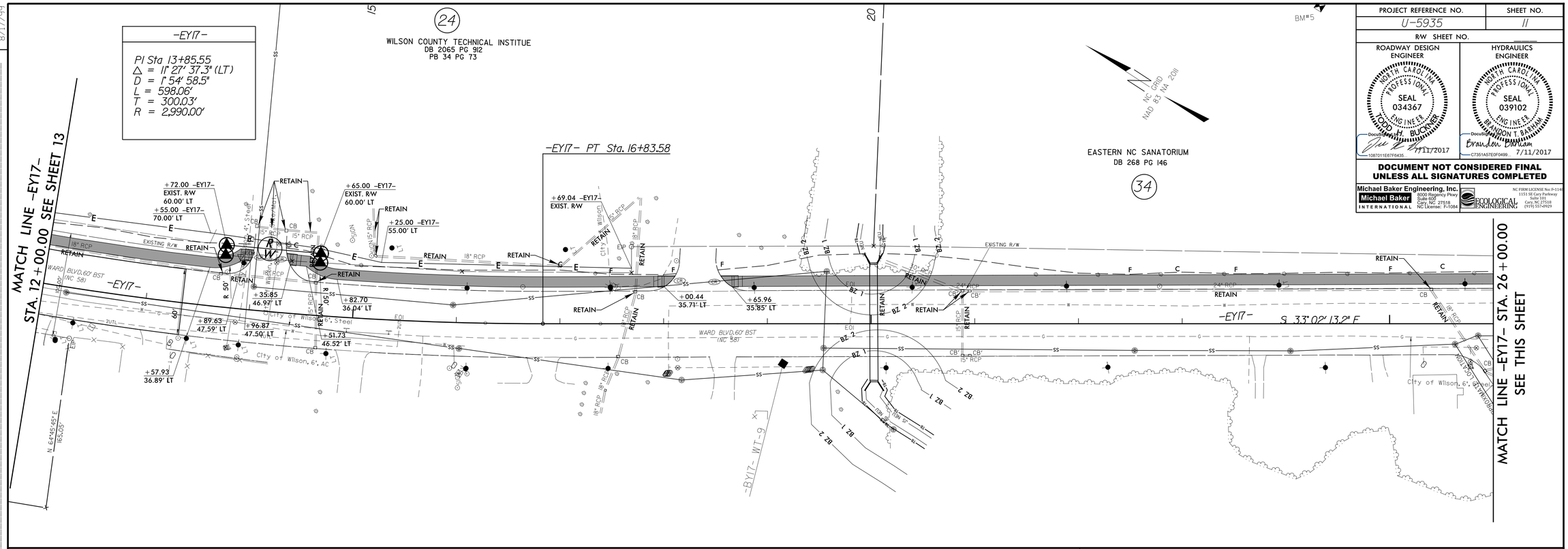
PROJECT REFERENCE NO.	SHEET NO.
U-5935	11
R/W SHEET NO.	

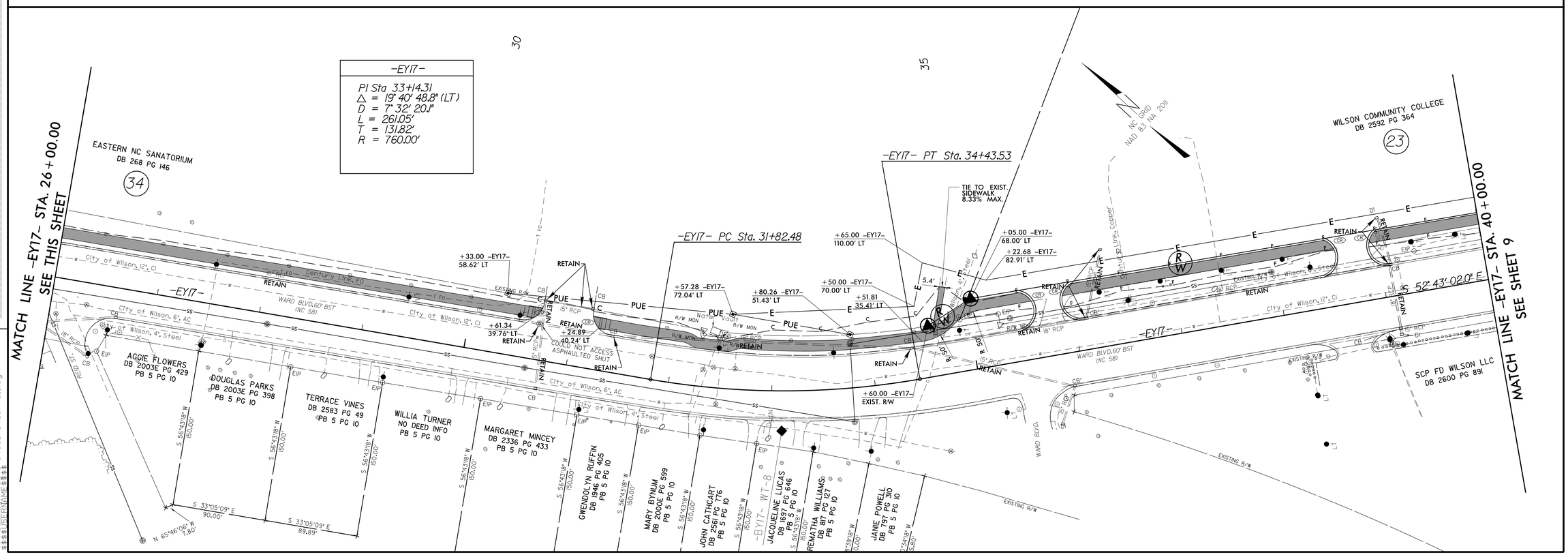
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSigned by: 10B701E61E7E435... 7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARHAM
DocuSigned by: C7351A57E0F0499... 7/11/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084
NC FIRM LICENSE Nov F-1146
1153 SE Cary Parkway Suite 101 Cary, NC 27518 (919) 557-9929
ECOLOGICAL ENGINEERING





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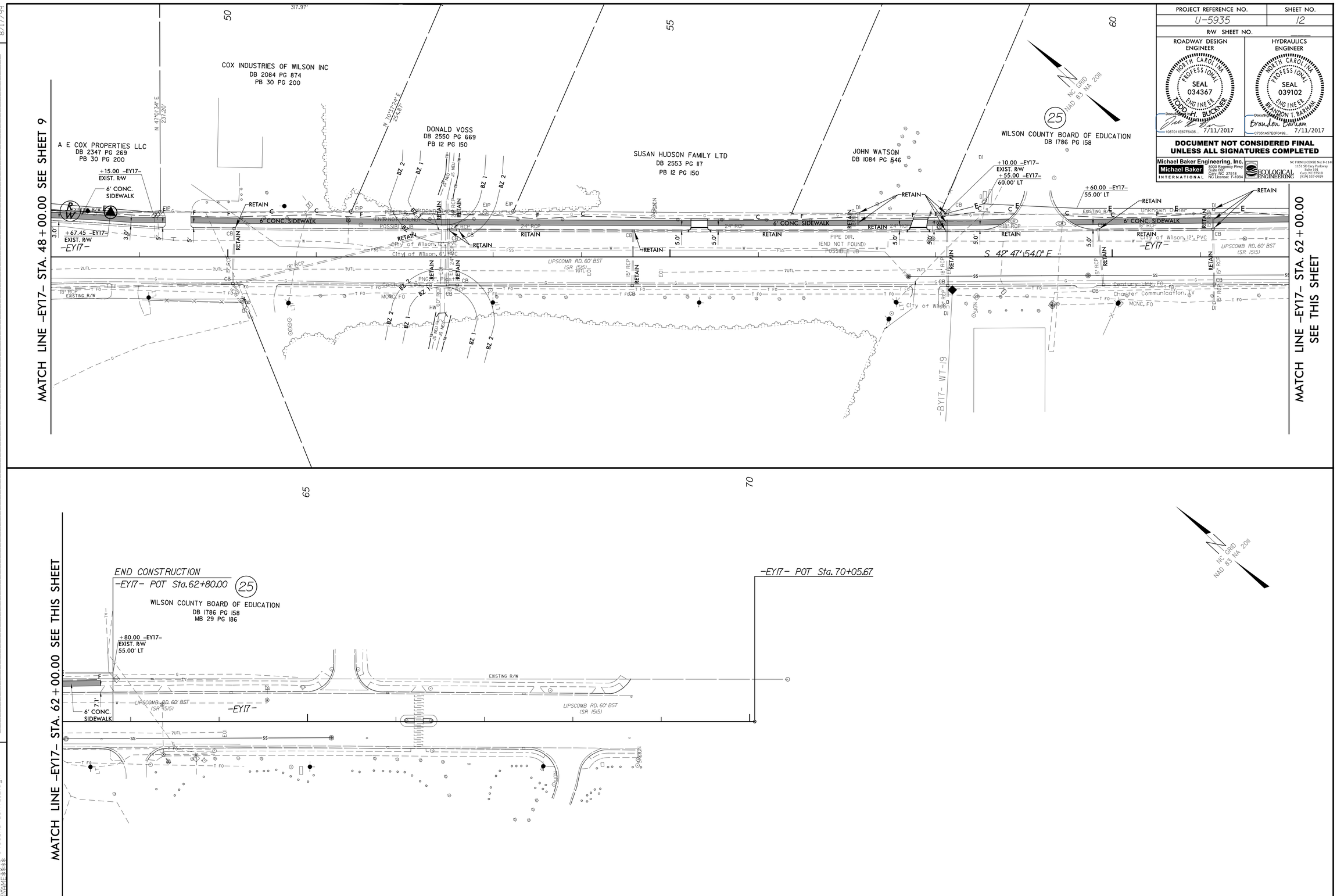
PROJECT REFERENCE NO.	SHEET NO.
U-5935	12
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSigned by: 1087011E67F0435...
7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARHAM
DocuSigned by: Brandon Barham C7351057E0F0499...
7/11/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084
NC FIRM LICENSE: Nov F-1146
1153 SE Cary Parkway Suite 101 Cary, NC 27518 (919) 557-9929
ECOLOGICAL ENGINEERING



REVISIONS

8/17/99

10-JUL-2017 10:46
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PROJECT REFERENCE NO.	SHEET NO.
U-5935	13
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKER
DocuSigned by: 10870116E7F6435...
8/2/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARHAM
DocuSigned by: Brandon T. Barham C7351A57E0F0499...
8/2/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc. — Michael Baker INTERNATIONAL — 8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084
NC FIRM LICENSE Nov P-1146 — 1153 SE Cary Parkway Suite 101 Cary, NC 27518 (919) 557-0929 — ECOLOGICAL ENGINEERING

REVISIONS

8/17/99

-EY20- PC Sta. 7+01.84

BEGIN CONSTRUCTION -EY17- POT Sta. 7+60.00

-EY20-
PI Sta 9+39.84
Δ = 6° 48' 36.9" (LT)
D = 1° 25' 56.6"
L = 475.45'
T = 238.00'
R = 4,000.00'

INDERSON TAJWAR INC DB 1891 PG 192

BEGIN CONSTRUCTION -EY20- POT Sta. 5+50.00

RKW PROPERTIES LLC DB 2446 PG 339

-EY20- PT Sta. 11+77.29

-EY17- PT Sta. 10+45.59 = -EY20- POC Sta. 7+42.84

N 65° 49' 08.1" E

N 59° 00' 31.1" E

RELOCATE BUS SHELTER TO NEW PAD

BUS SHELTER PAD

DO NOT DISTURB SIGN

CARL RICKER JR DB 1501 PG 844

CONTRACTOR NOT TO DISRUPT PARKING

WILSON COUNTY TECHNICAL INSTITUE DB 2065 PG 912 PB 34 PG 73

☆ = REVISED SIGNAL

-EY17- EPC Sta. 10+85.52

MATCH LINE -EY17- STA. 12+00.00 - SEE SHEET 11

MATCH LINE -EY20- STA. 20+00.00 - SEE THIS SHEET

-EY20- PC Sta. 22+18.73

-EY20- PT Sta. 26+24.67

-EY20- PC Sta. 30+60.01

-EY20-
PI Sta 24+22.03
Δ = 8° 02' 53.1" (LT)
D = 1° 58' 57.2"
L = 405.95'
T = 203.31'
R = 2,890.00'

-EY20-
PI Sta 31+58.80
Δ = 2° 24' 30.2" (RT)
D = 1° 13' 08.6"
L = 197.56'
T = 98.79'
R = 4,700.00'

RETAIN SYSTEM

DO NOT DISTURB FIRE CONNECTION

DO NOT DISTURB SIGN

CONCRETE SPREADER INV=94.76' OVERFLOW=96.50'

GRADE SLOPE AROUND EXIST. LEVEL SPREADER

YOUTH ENRICHMENT PROGRAM OF WILSON INC. DB 1769 PG 408 PB 38 PG 266

DIVERSIFIED OPPURTUNITIES INC. DB 1554 PG 89 PB 22 PG 206

GEORGE C. VENTERS NICKYE Y. VENTERS DB 2465 PG 328

YOUTH ENRICHMENT PROGRAM OF WILSON INC. DB 2425 PG 1

CITY OF WILSON DB 1964 PG 600

☆ = REVISED SIGNAL

MATCH LINE -EY20- STA. 20+00.00 - SEE THIS SHEET

MATCH LINE -EY20- STA. 32+50.00 - SEE SHEET 14

22-AUG-2017 14:18
R:\Roadway\Proj\U-5935_RDY_SHT_13.dgn
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PROJECT REFERENCE NO.	SHEET NO.
U-5935	14
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD M. BUCKNER
DocuSigned by: 10870116E7F6435... 7/11/2017

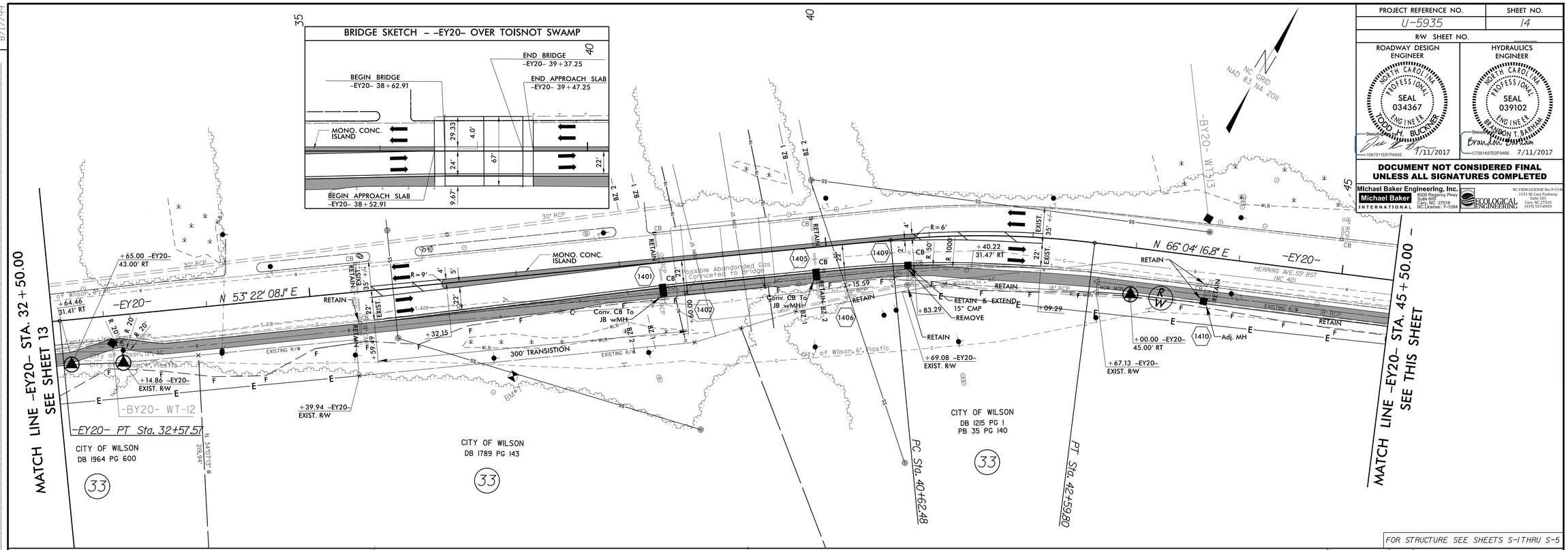
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARNAN
DocuSigned by: Brandon Barnan C7351A57E0F0499... 7/11/2017

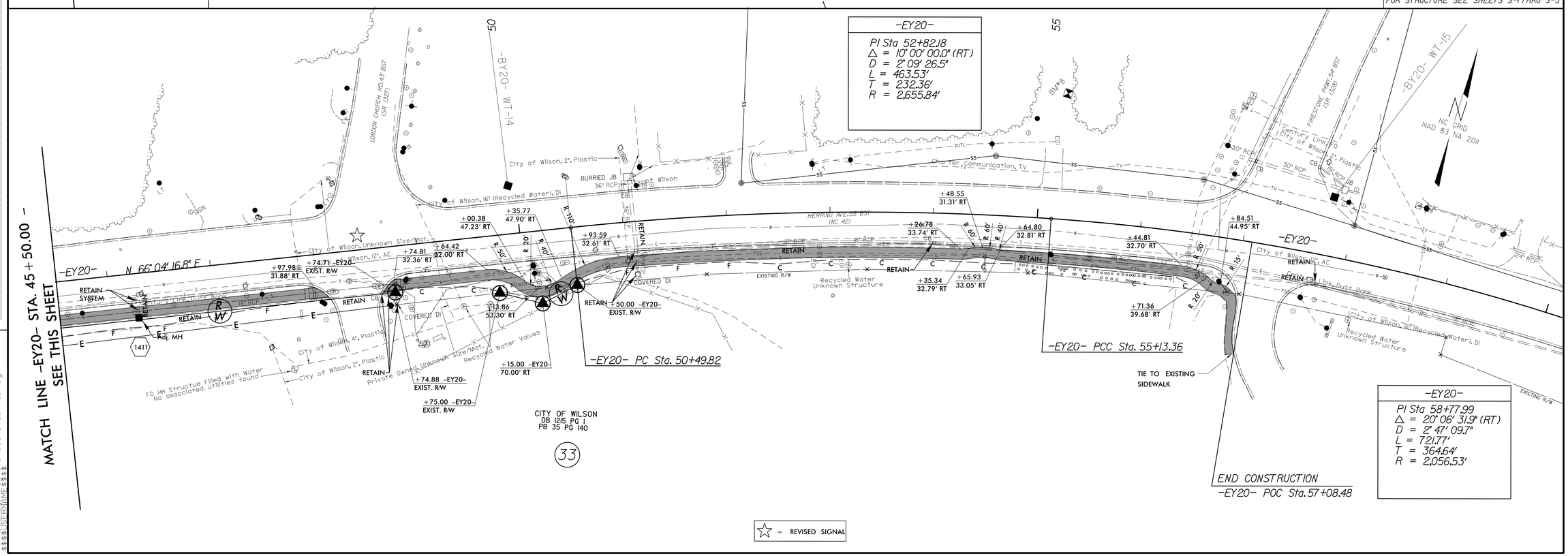
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc. — Michael Baker INTERNATIONAL — 8000 Regency Pkwy, Suite 600, Cary, NC 27518, NC License: F-1084
NC FIRM LICENSE: Nc: F-1149 — 1153 SE Cary Parkway, Suite 101, Cary, NC 27518 (919) 557-0929 — ECOLOGICAL ENGINEERING

REVISIONS

8/17/99





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PROJECT REFERENCE NO.	SHEET NO.
U-5935	15

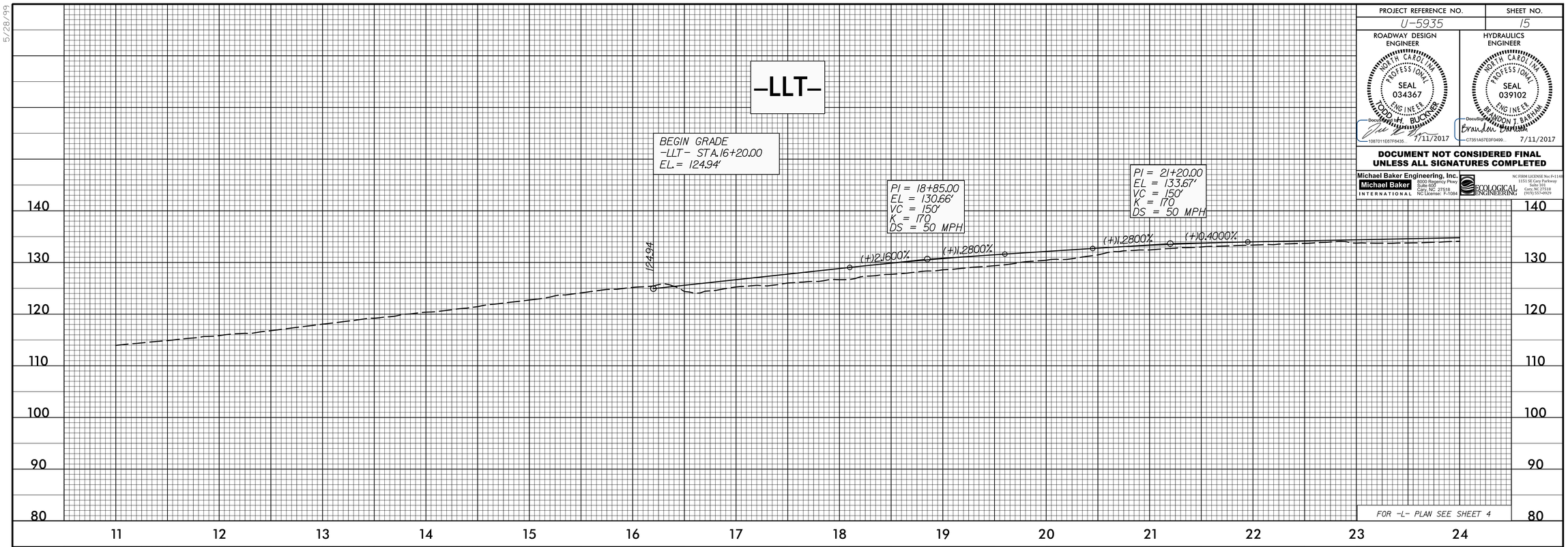
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER
LORD H. BUCKNER
DocuSign Envelope ID: 1087011E67F6435... 7/11/2017

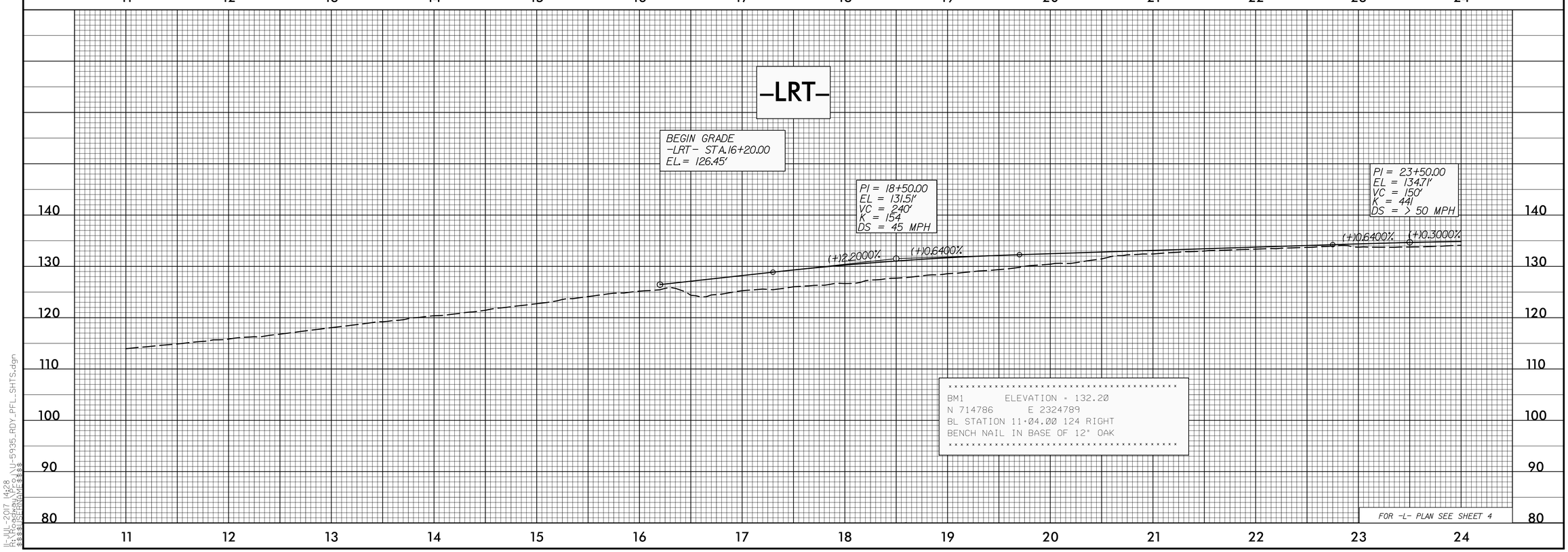
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER
BRANDON T. BARHAM
DocuSign Envelope ID: C7351A57E0F0499... 7/11/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084

ECOLOGICAL ENGINEERING
NC FIRM LICENSE No: F-1146
1151 SE Cary Parkway Suite 101 Cary, NC 27518 (919) 553-6929





5/28/99

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5935	16

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER JOSHUA BUCKNER
DocuSigned by: 1087011E67F6435...
7/11/2017

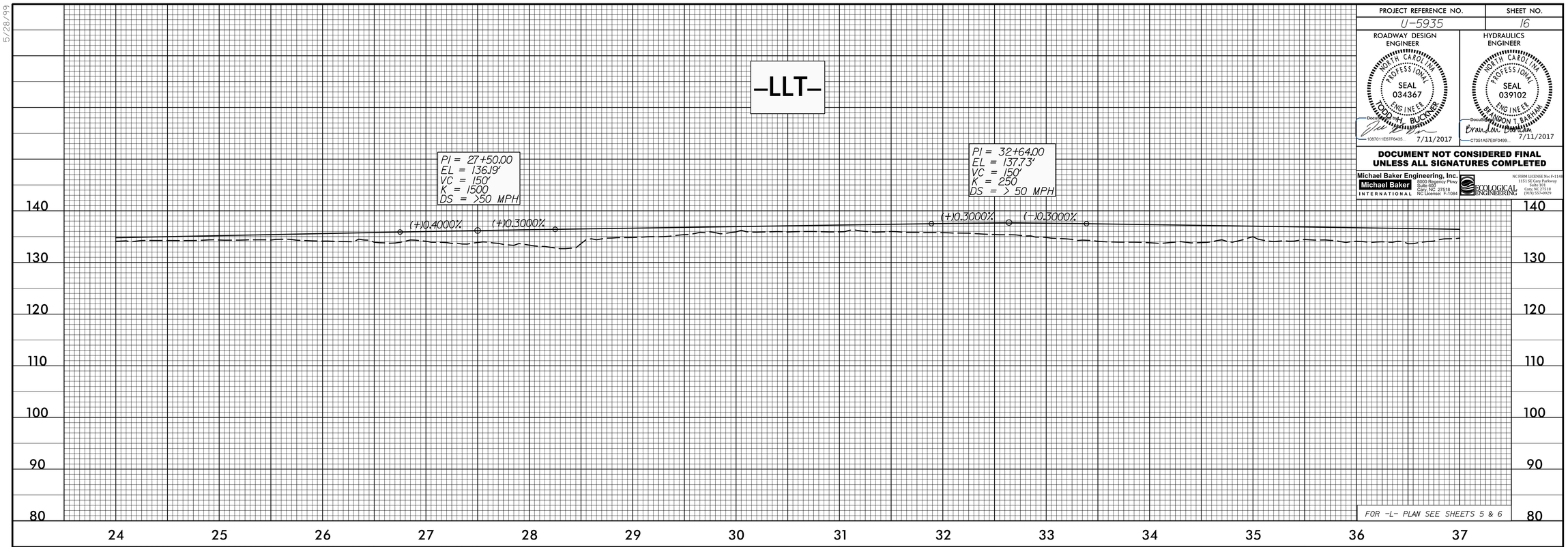
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARHAM
DocuSigned by: C7351A57E0F0499...
7/11/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Michael Baker Engineering, Inc.
Michael Baker INTERNATIONAL
8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084

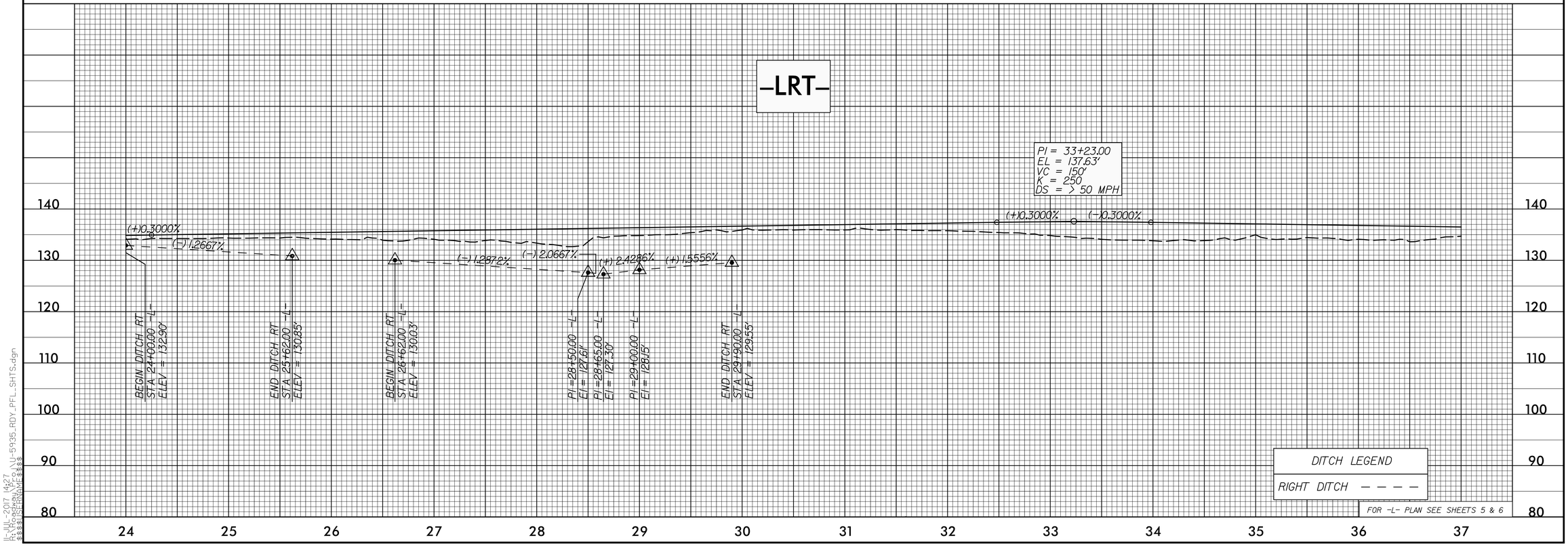
NC FIRM LICENSE No: F-1146
1151 SE Cary Parkway Suite 101 Cary, NC 27518 (919) 557-6929
ECOLOGICAL ENGINEERING

-LLT-



FOR -L- PLAN SEE SHEETS 5 & 6

-LRT-



DITCH LEGEND
RIGHT DITCH — — — —

FOR -L- PLAN SEE SHEETS 5 & 6

I:\MH-2017 \427
$$$$USERNAME$$$$ $$$$ $$$$ $

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5935	17

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER LORI H. BUCKNER
DocuSigned by: 1087011E07F6435... 7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARNHAM
DocuSigned by: C7351A57E0F0499... 7/11/2017

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Michael Baker INTERNATIONAL
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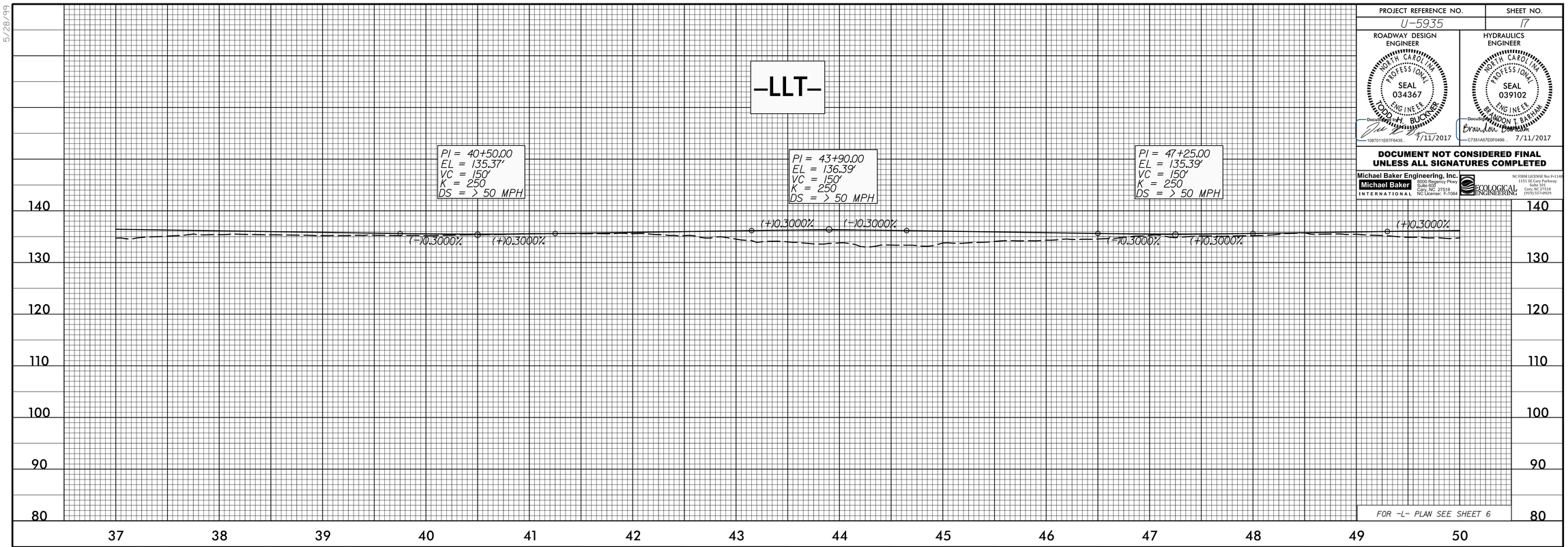
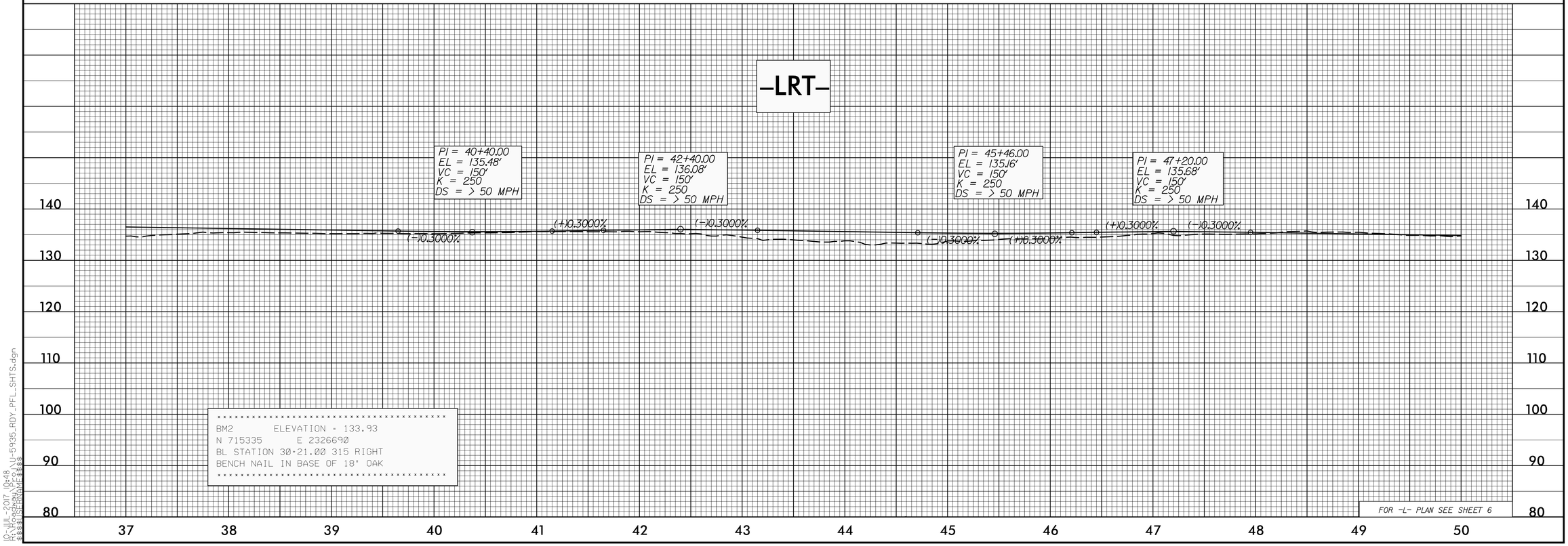
NC FIRM LICENSE No: F-1146
ECOLOGICAL ENGINEERING
1151 SE Cary Parkway Suite 101 Cary, NC 27518 (919) 553-4029

-LLT-



FOR -L- PLAN SEE SHEET 6

-LRT-




```
*****************************************
BM2        ELEVATION = 133.93
N 715335       E 2326690
BL STATION 30+21.00 315 RIGHT
BENCH NAIL IN BASE OF 18" OAK
*****************************************
```

FOR -L- PLAN SEE SHEET 6

R:\HL-2017 10:48
$$$$DIRECTORY$$$$ U-5935_RDY_PFL_SHTS.dgn
$$$$USERNAME$$$$

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PROJECT REFERENCE NO.	SHEET NO.
U-5935	18

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER LORIN H. BUCKNER
DocuSigned by: 1087011E07F6435...
7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARHAM
DocuSigned by: C7351A57E0F0499...
7/11/2017

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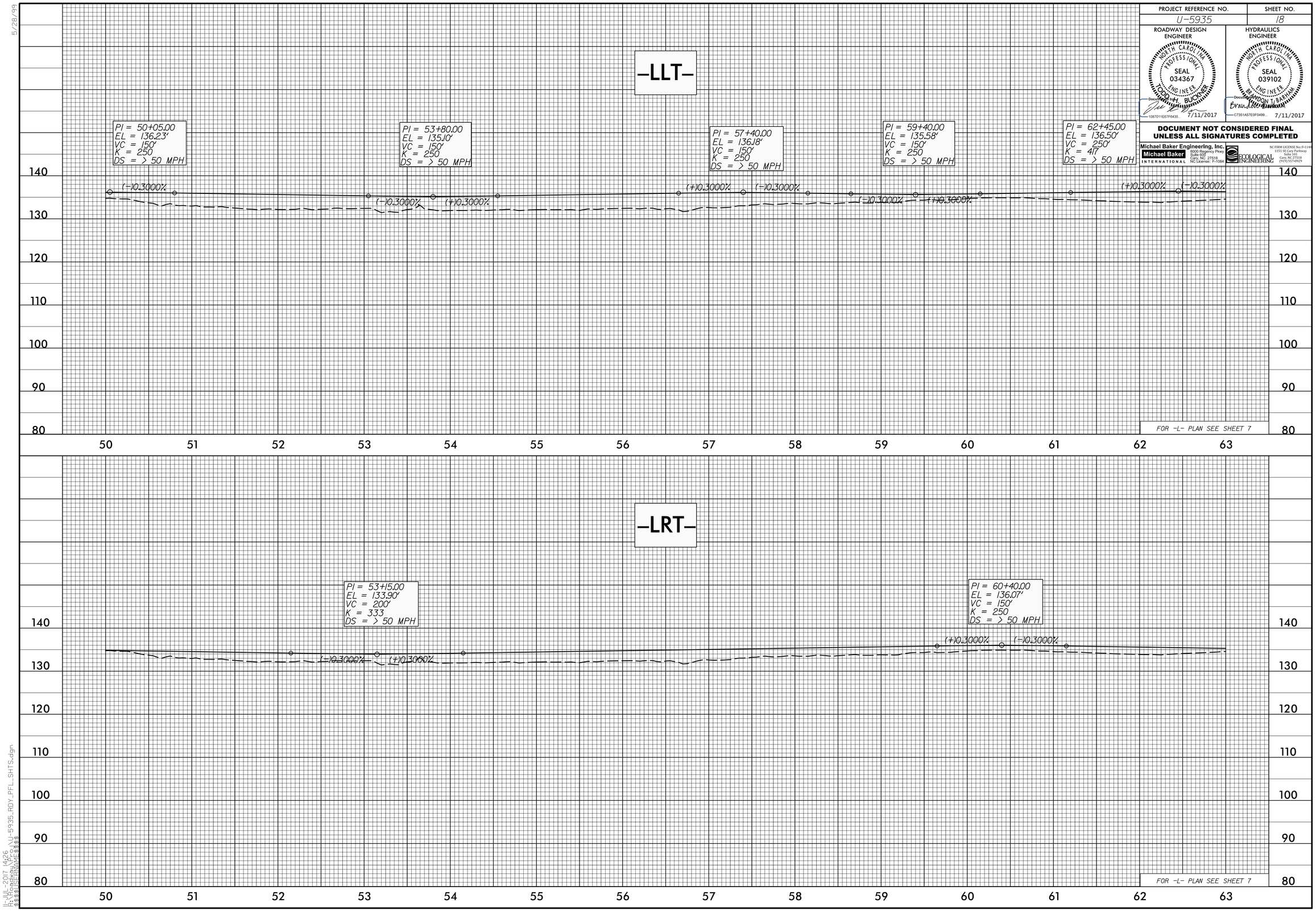

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$$$$DATE$$$$
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PROJECT REFERENCE NO.	SHEET NO.
U-5935	19

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER LORD H. BUCKNER
DocuSigned by: 1087011E67F6435...
7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARHAM
DocuSigned by: C7351A57E0F0499...
7/11/2017

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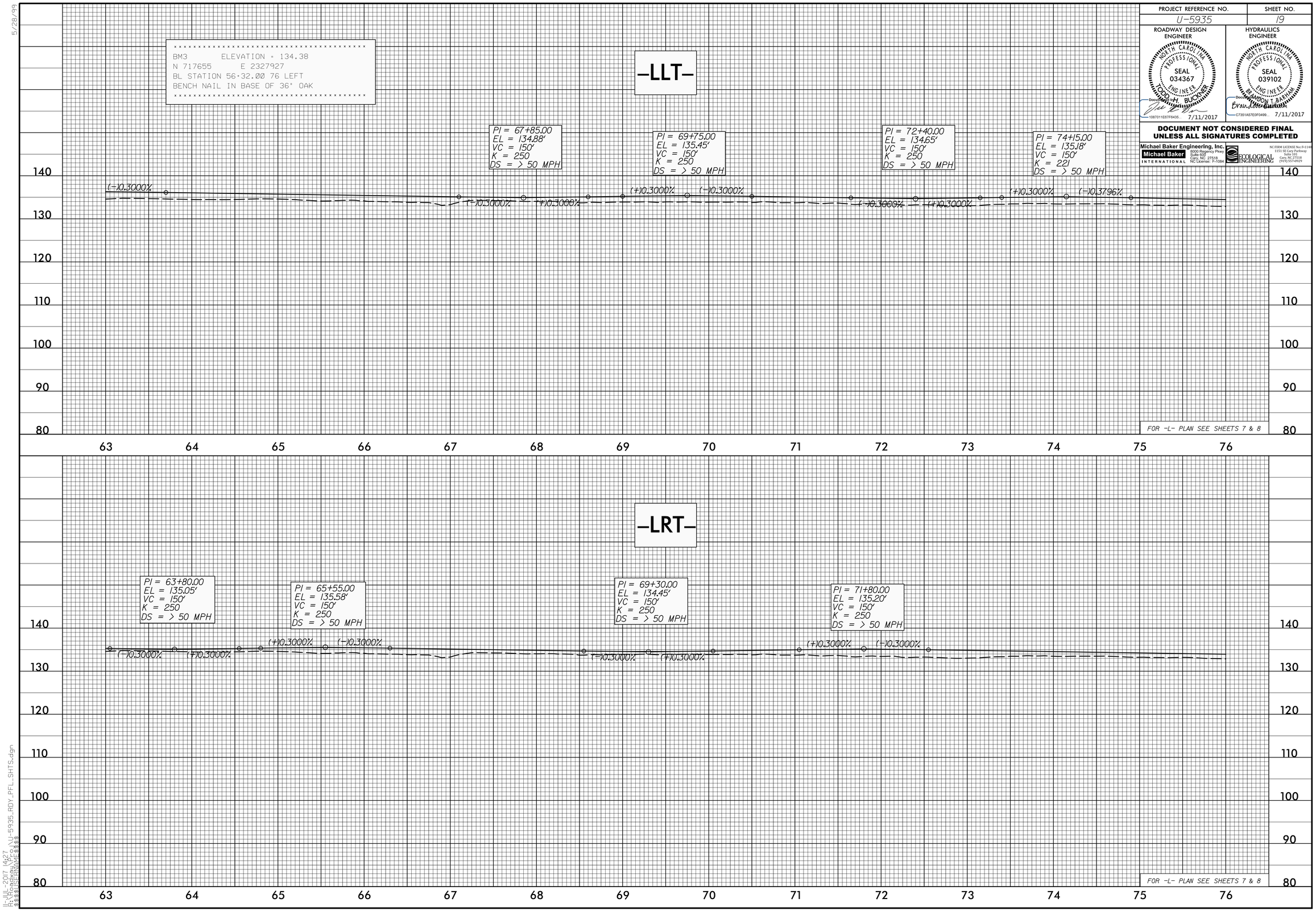

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PROJECT REFERENCE NO.	SHEET NO.
U-5935	20

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER JOSEPH B. BUCKNER
DocuSigned by: 1087011E67F6435... 7/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039102 ENGINEER BRANDON T. BARNHAM
DocuSigned by: Brandon Barnham C7351A57E0F0499... 7/11/2017

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NC FIRM LICENSE No: F-1146 1151 SE Cary Parkway Suite 101 Cary, NC 27518 (919) 553-6929
ECOLOGICAL ENGINEERING

BM4 ELEVATION = 132.42
N 719897 E 2328718
BY2 STATION 35+60.00 85 LEFT
CONCRETE SLAB OF LIGHT POLE

-LLT-

END GRADE
-LLT- STA. 87+55.00
EL. = 132.89'

PI = 80+55.00
EL = 132.75'
VC = 150'
K = 221
DS = > 50 MPH

PI = 86+00.00
EL = 134.38'
VC = 205'
K = 163
DS = 50 MPH

(-)0.3796% (+)0.3000% (+)0.3000% (-)0.9600%

FOR -L- PLAN SEE SHEET 9

-LRT-

END GRADE
-LRT- STA. 87+55.00
EL. = 132.63'

PI = 80+40.00
EL = 132.62'
VC = 200'
K = 333
DS = > 50 MPH

PI = 86+00.00
EL = 134.30'
VC = 225'
K = 163
DS = 50 MPH

(-)0.3000% (+)0.3000% (+)0.3000% (-)1.0800%

FOR -L- PLAN SEE SHEET 9

$$$$USERNAME$$$$
$$$$DATE$$$$
$$$$TIME$$$$
$$$$DGNFILE$$$$
$$$$MODEL$$$$