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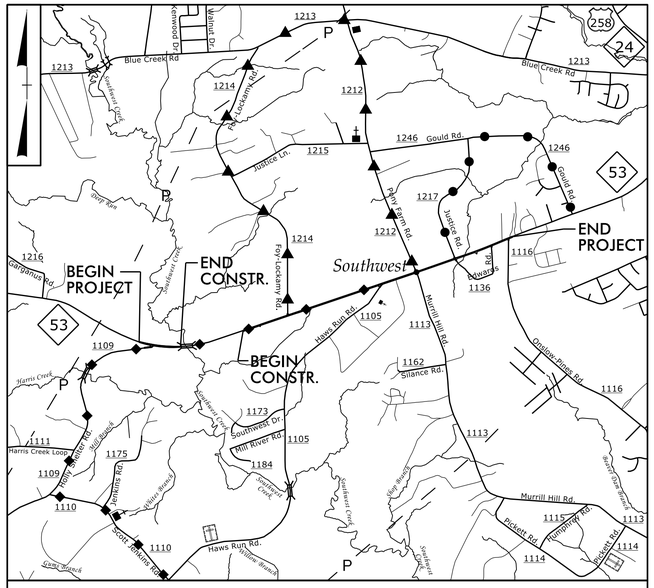
CONTRACT: C202176 TIP PROJECT: R–5023B, R–5023C, SF–4903F

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

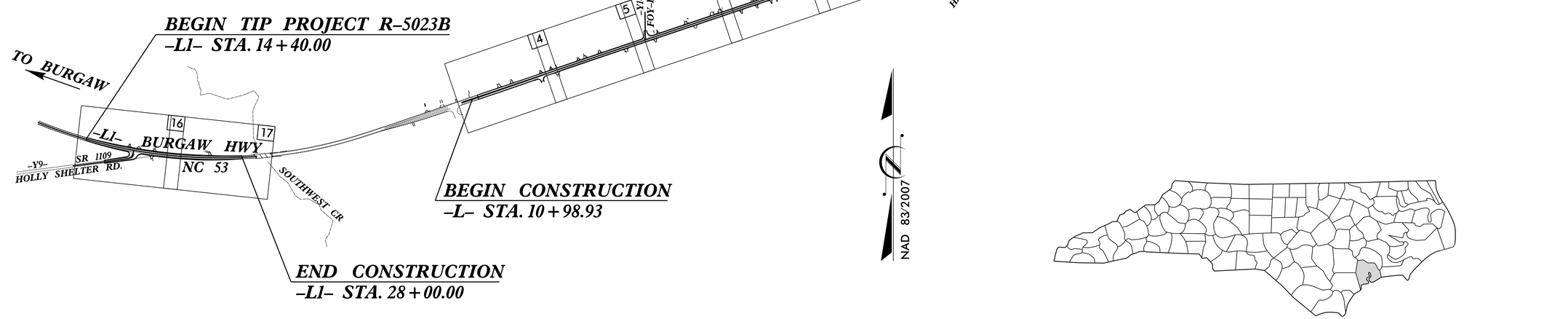
ONSLOW COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R–5023B, R–5023C SF–4903F	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
41922.1.1		R–5023B/C (P.E.)
43463.1.1	HRRR–0053(11)	SF–4903F (P.E.)
41922.2.2	STP–0053(9)	R–5023B (R/W,UTIL)
43463.2.1	HRRR–0053(11)	SF–4903F (R/W,UTIL)
41922.3.4	STP–0053(9)	R–5023B/C & SF–4903F (CONST.)

LOCATION: *NC 53 (BURGAW HIGHWAY) FROM WEST OF SR 1109 (HOLLY SHELTER RD.) TO EAST OF SR 1116 (ONSLOW PINES RD.)*

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



GRAPHIC SCALES

PLANS: 30 15 0 30 60

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2014 = 12,000
V = 60 MPH FOR –L1–
V = 50 MPH FOR –L–

FUNC CLASS = MINOR ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R–5023B = 2.024 MILES

Prepared In the Office of:
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Raleigh NC, 27609

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 11, 2016

LETTING DATE: JANUARY 17, 2017

DAVID W. BASS, PE
PROJECT ENGINEER

W. CRAIG PARKER, PE
PROJECT DESIGN ENGINEER

DAVID LEONARD, PE
NCDOT ROADWAY PROJECT ENGINEER

HYDRAULICS ENGINEER

DocuSigned by: James A. Byrd 11/9/2016
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
P.E.

ROADWAY DESIGN ENGINEER

DocuSigned by: W. Craig Parker 11/9/2016
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W CRAIG PARKER
P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

8/17/99

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

INDEX OF SHEETS, GENERAL NOTES, & STANDARD DRAWINGS

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER CRAIG PARKER

Docusigned by: W. Craig Parker 11/16/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-2	SURVEY CONTROL SHEETS
2A-1 THRU 2A-3	PAVEMENT SCHEDULE, WEDGING DETAILS & TYPICAL SECTIONS
2B-1	DETOUR DETAIL SHEET
2C-1	MODIFIED METHOD III CLEARING DETAIL SHEET
3B-1	SUMMARY OF GUARDRAIL
3B-2	SUMMARY OF EARTHWORK, EXISTING ASPHALT PAVEMENT REMOVAL, SAFETY FENCE & CONC. VALLEY GUTTER
3D-1 THRU 3D-7	SUMMARY OF DRAINAGE
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 17	PLAN SHEETS
18 THRU 23	PROFILE SHEETS
TMP-1 THRU TMP-11	TRAFFIC CONTROL PLANS
PMP-1 THRU PMP-9	PAVEMENT MARKING PLANS
EC-1 THRU EC-31	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-8	SIGNING PLANS
SIG.1.0 THRU SIG.2.5	SIGNAL PLANS
SIG.M1 THRU SIG.M8	METAL POLE STANDARDS
SCP.1 THRU SCP.5	SIGNAL COMMUNICATION PLANS
UC-1 THRU UC-11	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-14	UTILITIES BY OTHERS PLANS
X-1	CROSS SECTION INDEX
X-1A THRU X-1B	EARTHWORK VOLUME SUMMARIES
X-2 THRU X-103	CROSS SECTIONS
C-1 THRU C-6	CULVERT PLANS

EFF. 01-17-2012
REV. 02-29-2016

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
225.02	GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.04	METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT
225.06	METHOD OF GRADING SIGHT DISTANCE AT INTERSECTIONS
	DIVISION 3 - PIPE CULVERTS
300.01	METHOD OF PIPE INSTALLATION
310.02	PARALLEL PIPE END SECTION - PRECAST CONCRETE SECTION FOR 15" TO 24" PIPE
310.04	PARALLEL PIPE END SECTION - PREFABRICATED STEEL SECTION FOR 15" TO 24" PIPE
310.10	DRIVEWAY PIPE CONSTRUCTION
	DIVISION 5 - SUBGRADE, BASES AND SHOULDERS
560.01	METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD I
	DIVISION 6 - ASPHALT BASES AND PAVEMENTS
654.01	PAVEMENT REPAIRS
	DIVISION 8 - INCIDENTALS
815.02	SUBSURFACE DRAIN
838.01	CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS - 15" THRU 48" PIPE 90 SKEW
838.04	CONC. ENDWALL FOR SINGLE & DOUBLE PIPE CULVERTS - 17"X13" THRU 71"X47" ARCH 90 SKEW
838.07	CONC. ENDWALL FOR SINGLE & DOUBLE PIPE CULVRTS - 40"X31" THRU 66"X51" ARCH 90 SKEW
838.11	BRICK ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS - 15" THRU 48" PIPE 90 SKEW
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.01	BRICK CATCH BASIN - 12" THRU 54" PIPE
840.02	CONCRETE CATCH BASIN - 12" THRU 54" PIPE
840.03	FRAME, GRATES AND HOOD - FOR USE ON STANDARD CATCH BASIN
840.14	CONCRETE DROP INLET - 12" THRU 30" PIPE
840.15	BRICK DROP INLET - 12" THRU 30" PIPE
840.16	DROP INLET FRAME AND GRATES - FOR USE WITH STD. DWG 840.14 AND 840.15
840.19	CONCRETE GRATED DROP INLET TYPE 'D' - 12" THRU 36" PIPE
840.24	FRAMES AND NARROW SLOT SAG GRATES
840.25	ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST
840.28	BRICK GRATED DROP INLET TYPE 'D' - 12" THRU 36" PIPE
840.29	FRAMES AND NARROW SLOT FLAT GRATES
840.31	CONCRETE JUNCTION BOX - 12" THRU 66" PIPE
840.32	BRICK JUNCTION BOX - 12" THRU 66" PIPE
840.35	TRAFFIC BEARING GRATED DROP INLET - FOR CAST IRON DOUBLE FRAME AND GRATES
840.45	PRECAST DRAINAGE STRUCTURE
840.46	TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE
840.54	MANHOLE FRAME AND COVER
840.66	DRAINAGE STRUCTURE STEPS
846.01	CONCRETE CURB, GUTTER AND CURB & GUTTER
848.03	DRIVEWAY TURNOUT - DROP CURB TYPE
848.04	STREET TURNOUT
852.01	CONCRETE ISLANDS
862.01	GUARDRAIL PLACEMENT
862.02	GUARDRAIL INSTALLATION
876.01	RIP RAP IN CHANNELS
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS

GENERAL NOTES:

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

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 MODIFIED METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

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.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

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

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE: JONES ONSLOW EMC, CENTURYLINK, ONWASA, & TWC

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

RIGHT-OF-WAY MARKERS:

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

16-NOV-2016 07:25
*49353 Division 3 Environmental Outsourcing*Task Order 02 - NC 53*Roadway*Proj*R-5023BC_rdy_Sht_1A.dgn
$$$$USERNAME$$$$

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

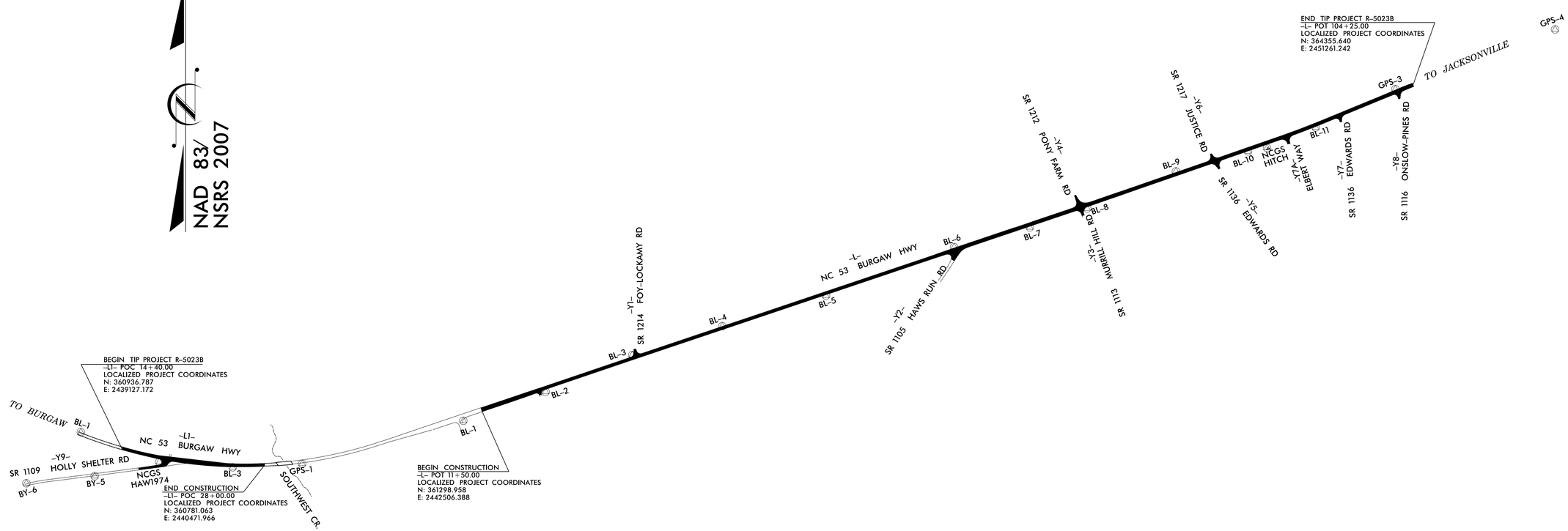
MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	1C-1
Location and Surveys	

SURVEY CONTROL SHEET R-5023B

NAD 83/
NSRS 2007



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 361194.826(ft) EASTING: 2442336.952 (ft)
ELEVATION: 33.03(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999916540
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-1" TO -L1- STATION 14+40.00 IS
S 85°24'13.7" W 3220.14'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

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

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   R5023B_LS_CONTROL.TXT

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

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NCGS REAL TIME NETWORK

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	1C-2
Location and Surveys	

SURVEY CONTROL SHEET R-5023B

BASELINES

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL1	NCDOT GPS R5023B-2	361194.8260	2442336.9520	33.03	OUTSIDE PROJECT LIMITS	
BL2	BL-2	361467.7100	2443110.4130	50.36	17+76.12	36.01 RT
BL3	BL-3	361813.7600	2443924.0240	49.68	26+57.86	29.80 LT
BL4	BL-4	362084.9410	2444769.5510	46.21	35+45.66	17.03 LT
BL5	BL-5	362370.6710	2445744.6020	57.37	45+60.91	23.55 RT
BL6	BL-6	362828.8530	2446948.3130	51.53	58+47.92	25.92 LT
BL7	BL-7	363014.0810	2447659.5560	55.84	65+81.06	25.90 RT
BL8	BL-8	363191.1700	2448198.4250	60.80	71+48.08	30.77 RT
BL9	BL-9	363540.0534	2449032.2685	50.23	80+50.11	25.11 LT
BL10	BL-10	363728.2424	2449708.8143	40.85	87+50.97	19.01 RT
BL11	BL-11	363952.8500	2450345.7980	46.86	94+25.43	24.46 RT
GPS3	NCDOT GPS R5023B-3	364313.4520	2451093.7470	44.91	102+54.06	24.77 LT

BL2

POINT	DESC.	NORTH	EAST	ELEVATION	L1 STATION	OFFSET
BL21	SF4903F BL-1	361088.5460	2438743.7620	46.08	10+26.96	18.77 LT
HAW1974	NCGS MON HAW1974	360807.8860	2439479.8600	38.10	18+11.22	42.98 RT
BL23	SF4903F BL-3	360757.8490	2440170.4420	29.01	24+98.82	19.07 RT
GPS1	NCDOT GPS R5023B-1	360790.9270	2440822.6460	25.44	OUTSIDE PROJECT LIMITS	

BY

POINT	DESC.	NORTH	EAST	ELEVATION	L1 STATION	OFFSET
EQ1	NCGS MON HAW1974	360807.8860	2439479.8600	38.10	18+11.22	42.98 RT
BY5	SF4903F BY-5	360674.2630	2438873.4640	36.41	12+81.61	325.90 RT
BY6	SF4903F BY-6	360607.5270	2438231.4130	30.20	OUTSIDE PROJECT LIMITS	

BENCHMARKS

```
**********************************************
BM1       ELEVATION = 27.09
N 360899      E 2440258
L1 STATION 25+86.00 124 LEFT
RR SPIKE IN 15" HARDWOOD
**********************************************
BM2       ELEVATION = 38.14
N 361096      E 2442378
L STATION 10+00.00
 S 05°07'37.38" E  DIST    155.46
RR SPIKE IN 24" PINE
**********************************************
BM3       ELEVATION = 50.40
N 361867      E 2444421
L STATION 31+45.00 78 RIGHT
RR SPIKE IN 15" HARDWOOD
**********************************************
BM4       ELEVATION = 51.56
N 362849      E 2446717
L STATION 56+35.00 119 LEFT
RR SPIKE IN 12" PINE
**********************************************
BM5       ELEVATION = 44.28
N 363534      E 2449391
L STATION 83+87.00 98 RIGHT
RR SPIKE IN 12" HARDWOOD
**********************************************
BM6       ELEVATION = 45.67
N 364426      E 2451143
L STATION 103+42.00 111 LEFT
RR SPIKE IN 36" HARDWOOD
**********************************************
```

FINAL DESIGN ALIGNMENTS

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	361250.3679	2442364.4763
PC	18+72.91	361533.1347	2443190.3179
PT	19+24.84	361549.8928	2443239.4695
PC	26+41.01	361780.1264	2443917.6244
PT	27+06.19	361801.0003	2443979.3728
PC	39+89.43	362210.3640	2445195.5642
PT	40+53.50	362230.8212	2445256.2799
PC	63+59.94	362967.9283	2447441.7631
PT	64+10.18	362983.9880	2447489.3662
PC	70+26.86	363181.1674	2448073.6747
PT	72+25.23	363245.5019	2448261.3176
PC	77+38.34	363414.2625	2448745.8837
PT	78+36.88	363446.5803	2448838.9708
PC	83+36.28	363609.9129	2449310.9141
PT	83+91.27	363627.9415	2449362.8554
PC	90+53.42	363845.6287	2449988.2046
PT	95+26.51	364013.5082	2450430.4360
POT	107+61.12	364483.6299	2451572.0441

L1

TYPE	STATION	NORTH	EAST
PC	10+00.00	361081.2473	2438711.7861
PT	29+31.94	360789.8389	2440603.6053

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	361790.8934	2443949.4087
POT	12+41.47	362032.3415	2443946.0463

Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	362473.4262	2446787.3033
PC	12+85.07	362711.0123	2446944.8452
PT	13+69.68	362792.0358	2446958.1283
POT	13+81.81	362803.7569	2446955.0035

Y3

TYPE	STATION	NORTH	EAST
PC	7+77.65	362829.9527	2448250.1078
PT	11+11.92	363149.4743	2448152.0937
POT	11+67.12	363201.7263	2448134.2850

Y4

TYPE	STATION	NORTH	EAST
POT	10+00.00	363201.7263	2448134.2850
POT	13+05.09	363481.2229	2448011.9798

Y5

TYPE	STATION	NORTH	EAST
POT	10+00.00	363474.8660	2449506.3949
POT	12+00.17	363637.0811	2449389.1109

Y6

TYPE	STATION	NORTH	EAST
POT	10+00.00	363637.0811	2449389.1109
PC	10+32.09	363666.2958	2449375.8283
PT	10+77.97	363708.6487	2449358.2228
POT	11+98.23	363821.1542	2449315.7230

Y7

TYPE	STATION	NORTH	EAST
POT	10+00.00	363749.2545	2450596.9224
POT	13+25.68	364074.4065	2450578.3167

Y7A

TYPE	STATION	NORTH	EAST
POT	10+00.00	363702.6124	2450123.7393
POT	11+80.21	363874.9195	2450070.9691

Y8

TYPE	STATION	NORTH	EAST
POT	10+00.00	364070.2837	2451127.1592
POT	12+31.65	364301.9045	2451130.7558

Y9

TYPE	STATION	NORTH	EAST
PC	10+00.00	360706.0382	2439012.9712
PT	14+49.00	360764.9934	2439458.0809
PC	14+81.17	360769.3371	2439489.9589
PT	15+44.03	360810.0178	2439532.4168
POT	15+75.28	360840.7722	2439537.9551

FINAL ROW & EASEMENTS

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	71+47.00	-49.78	363266.99154	2448171.20010

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y4	10+78.00	31.17	363285.67891	2448131.56920

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	23+32.00	-58.00	361735.70725	2443606.37081
L	23+32.00	-50.46	361728.56718	2443608.79486
L	23+43.07	-58.00	361739.26516	2443616.85064
L	23+43.63	-66.00	361747.02037	2443614.80865
L	23+59.00	-50.40	361737.19113	2443634.38062
L	23+59.00	-66.00	361751.96250	2443629.36574
L	34+06.00	49.98	361976.87462	2444658.56145
L	34+06.00	70.00	361957.90214	2444664.94749
L	34+39.00	70.00	361968.42942	2444696.22330
L	34+39.00	49.97	361987.41499	2444689.83286
L	56+43.00	-75.00	362809.87086	2446738.45301
L	56+43.00	-49.97	362786.14900	2446746.45378
L	56+78.00	-75.00	362821.05639	2446771.61750
L	56+78.00	-49.96	362797.32818	2446779.62042
L	57+27.08	50.05	362718.24951	2446858.09010
L	64+43.00	-49.80	363041.67037	2447504.54066
L	64+43.00	-68.00	363058.91270	2447498.72211
L	64+69.00	-68.00	363067.22601	2447523.35723
L	64+69.00	-49.79	363049.97490	2447529.17874
L	103+13.57	-49.65	364359.11668	2451139.30040
L	103+21.99	-72.00	364382.99274	2451138.58020
L	103+38.00	-64.00	364381.68989	2451156.42581
L	103+38.00	-49.64	364368.41085	2451161.89420

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L1	17+18.00	58.00	360812.09821	2439384.39480
L1	17+18.00	50.00	360819.91694	2439386.08817
L1	27+03.00	-63.00	360840.29053	2440373.34955
L1	27+03.00	-50.00	360827.29521	2440373.69845
L1	27+29.00	-50.00	360828.06585	2440399.36992
L1	27+29.00	-63.00	360841.05870	2440398.93867

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	11+86.59	-31.30	362646.23206	2446864.33455

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	8+13.00	44.00	362875.8978	2448283.0435
Y3	8+13.00	29.25	362871.9171	2448268.8442
Y3	8+23.00	44.00	362885.6022	2448280.3133
Y3	8+23.00	29.22	362881.5866	2448266.0902

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y4	12+72.00	47.00	363469.7545	2448068.3012
Y4	12+72.00	31.45	363463.5214	2448054.0557
Y4	12+82.00	47.00	363478.9158	2448064.2923
Y4	12+82.00	31.47	363472.6880	2448050.0603

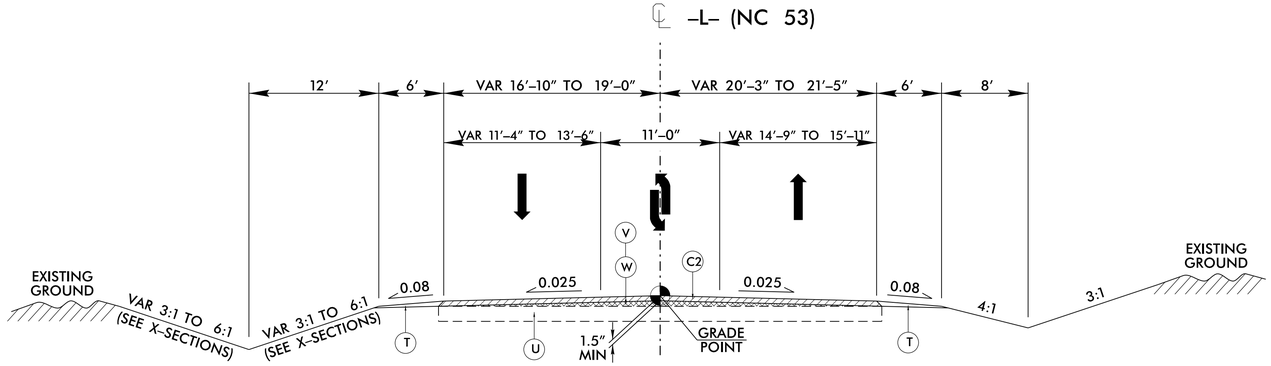
ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y9	12+40.00	-30.00	360766.8760	2439247.0008
Y9	12+65.00	-37.00	360777.1073	2439270.8466
Y9	13+21.00	52.00	360696.3086	2439338.1471
Y9	13+21.00	30.00	360718.1134	2439335.2233
Y9	13+50.00	30.00	360721.9764	2439363.9795
Y9	13+50.00	52.00	360700.1729	2439366.9138

NOTE: DRAWING NOT TO SCALE

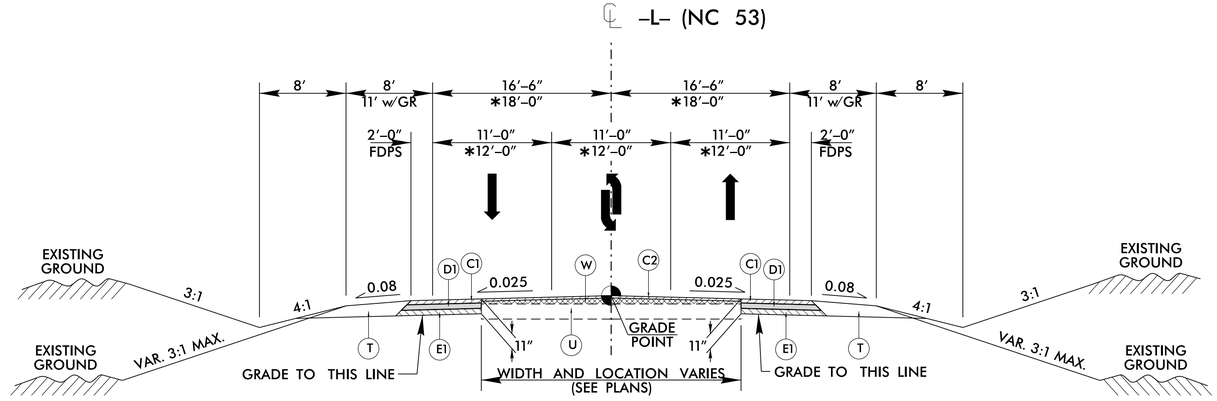
PAVEMENT SCHEDULE *FINAL PAVEMENT DESIGN*	
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH 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 LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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 2.5″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5.5″ IN DEPTH.
R1	2′-6″ CONCRETE CURB AND GUTTER.
R2	CONCRETE VALLEY GUTTER (SEE DETAIL 'A' - SHEET 2A-2)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. VARIABLE DEPTH.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS THIS SHEET)

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



TYPICAL SECTION NO. 1

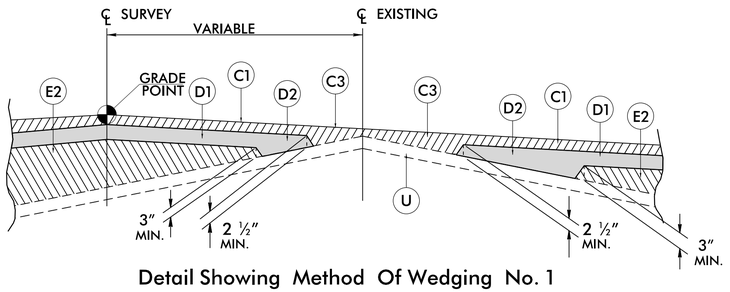
USE TYPICAL SECTION NO. 1 AS FOLLOWS:
–L– STA. 11+50.00 TO STA. 17+40.00



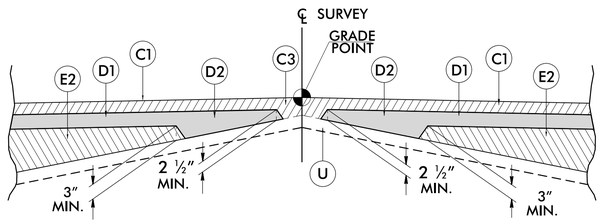
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
–L– STA. 17+40.00 TO STA. 57+60.63
*–L– STA. 58+51.39 TO STA. 71+00.00

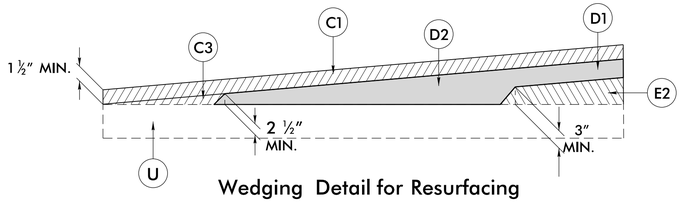
NOTE: TRANSITION FROM 11′–0″ LANES TO 12′–0″ LANES BETWEEN –L– STA. 57+60.63 & STA. 58+51.39 (SEE PLANS)



Detail Showing Method Of Wedging No. 1



Detail Showing Method of Wedging No. 2



Wedging Detail for Resurfacing

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343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R–5023B	2A–1

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER CRAIG PARKER
Craig W. Parker
12/12/2016

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
Clark Morrison
12/13/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R–5023B	2A–2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER

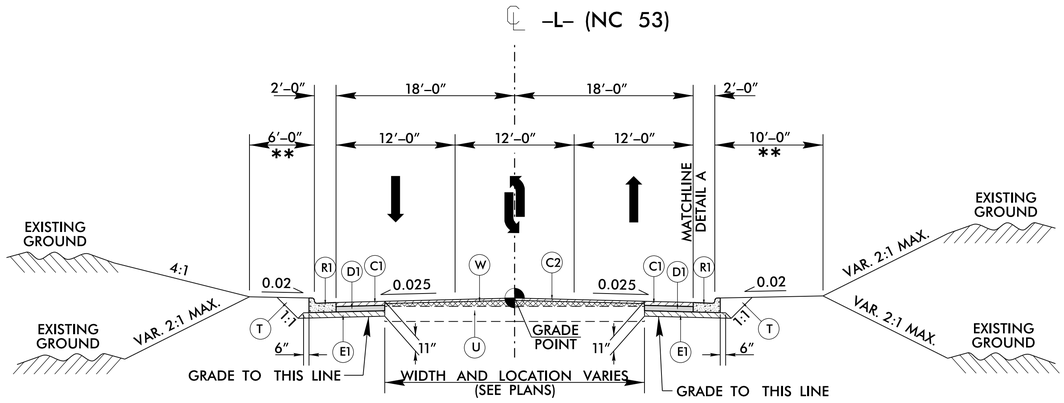
DocuSigned by: W. Craig Parker 12/12/2016

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON

DocuSigned by: Clark Morrison 12/13/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



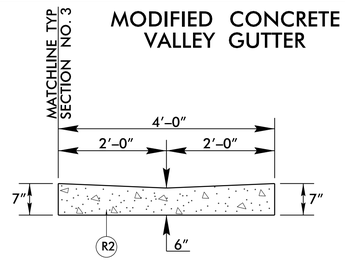
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:
–L– STA. 71+00.00 TO STA. 104+25.00

** NOTE: REDUCED BERM WIDTH AS FOLLOWS:
–L– STA. 87+50.00 TO STA. 89+00.00 RT (SEE X–SECTIONS)
–L– STA. 74+50.00 TO STA. 77+00.00 LT (SEE X–SECTIONS)

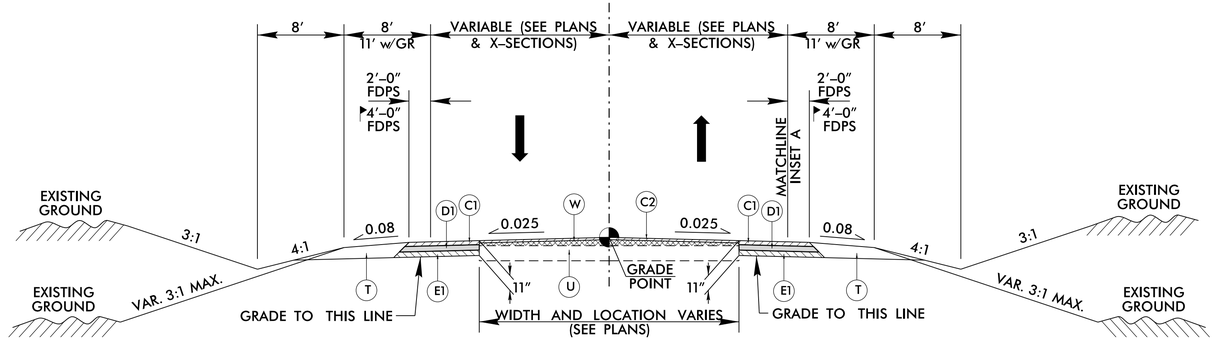
DETAIL 'A'

MODIFIED CONCRETE VALLEY GUTTER



USE DETAIL 'A' AS FOLLOWS:
–L– STA. 71+76 +/– TO STA. 72+33 +/– RT
–L– STA. 72+73 +/– TO STA. 73+22 +/– RT

–Y1– (SR 1214 – FOY–LOCKAMY RD)
–Y2– (SR 1105 – HAWS RUN RD)
–Y3– (SR 1113 – MURRILL HILL RD)
–Y4– (SR 1212 – PONY FARM RD)
–Y9– (SR 1109 – HOLLY SHELTER RD)



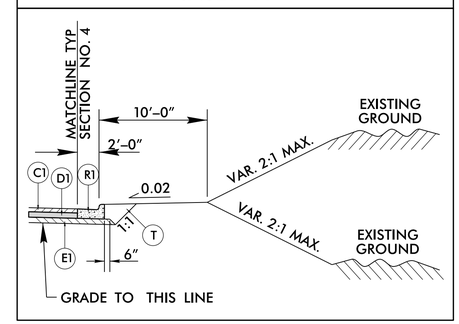
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS:
–Y1– STA. 10+17.34 TO STA. 10+80.00
–Y2– STA. 12+75.00 TO STA. 13+63.86
–Y3– STA. 10+85.00 TO STA. 11+49.12
–Y4– STA. 10+18.06 TO STA. 11+25.00
–Y9– STA. 13+25.00 TO STA. 15+57.28

PAVEMENT SCHEDULE *FINAL PAVEMENT DESIGN*	
C1	3″ S9.5B
C2	1.5″ S9.5B
D1	4″ I19.0B
E1	4″ B25.0B
R1	2′x6″ C & G
R2	VALLEY GUTTER
T	EARTH MATERIAL
U	EXIST. PVM'T
W	WEDGING

NOTES: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
SEE SHEET 2A-1 FOR FULL PAVEMENT SCHEDULE.

INSET 'A'



USE INSET 'A' AS FOLLOWS:
–Y3– STA. 10+85.00 TO STA. 11+49.12 RT
–Y4– STA. 10+18.06 TO STA. 11+23.39 RT

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Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	2A-3

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER

DocuSigned by: W. Craig Parker 12/12/2016

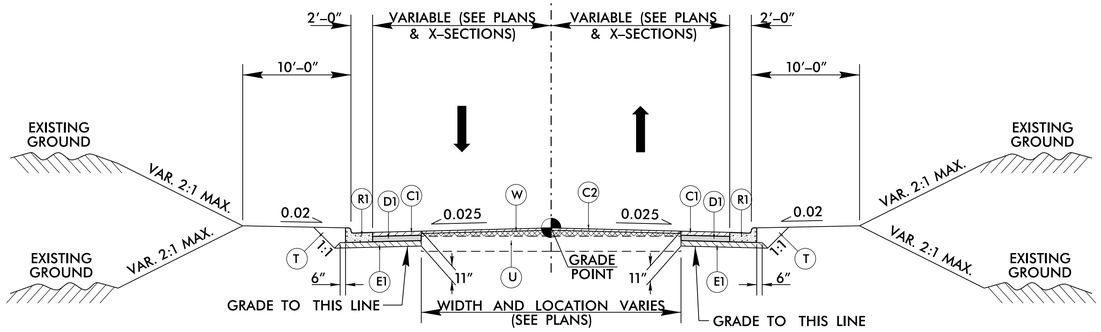
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON

DocuSigned by: Clark Morrison 12/13/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

–Y5– (SR 1136 – EDWARDS RD)
–Y6– (SR 1217 – JUSTICE RD)
–Y7A– (ELBERT WAY)
–Y7– (SR 1136 – EDWARDS RD)
–Y8– (SR 1116 – ONSLOW–PINES RD)

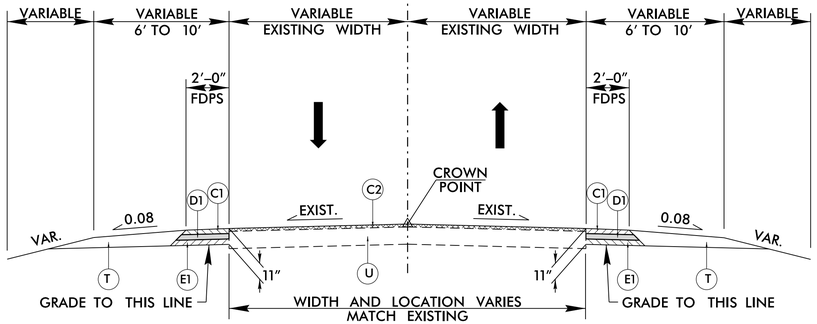


TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS:

–Y5– STA. 11+10.00 TO STA. 11+81.38
–Y6– STA. 10+18.01 TO STA. 11+05.00
–Y7A– STA. 11+00.00 TO STA. 11+62.19
–Y7– STA. 12+54.00 TO STA. 13+06.63
–Y8– STA. 11+50.00 TO STA. 12+12.05

DETOUR ROUTE

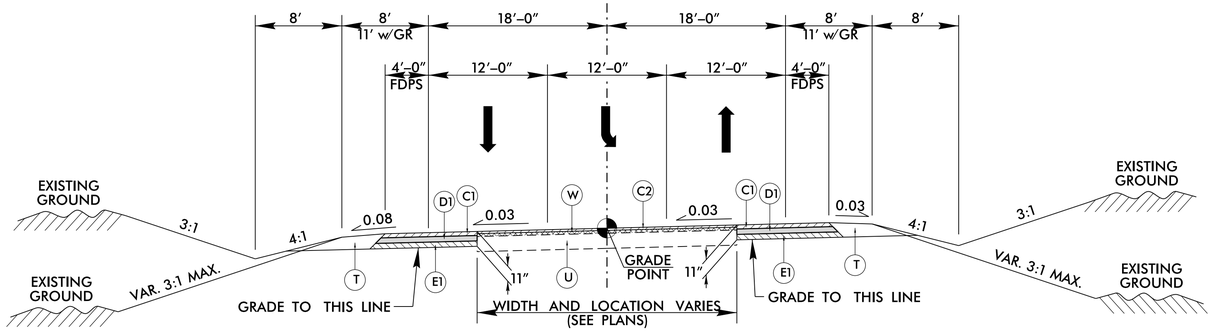


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS:

SR 1217 – GOULD RD
SR 1246 – JUSTICE RD

–L1– (NC 53)



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AS FOLLOWS:

–L1– STA. 14+40.00 TO STA. 28+00.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 6 FROM –L– STA. 14+40.00 TO STA. 18+00.00. TRANSITION BACK TO EXISTING FROM –L– STA. 25+00.00 TO STA. 28+00.00. (SEE PLANS)

PAVEMENT SCHEDULE *FINAL PAVEMENT DESIGN*	
C1	3″ S9.5B
C2	1.5″ S9.5B
D1	4″ I19.0B
E1	4″ B25.0B
R1	2′x6″ C & G
T	EARTH MATERIAL
U	EXIST. PVM'T
W	WEDGING

NOTES: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
SEE SHEET 2A-1 FOR FULL PAVEMENT SCHEDULE.

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Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	2B-1
RW SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker
11/4/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
DocuSigned by: James A. Byrd
11/3/2016

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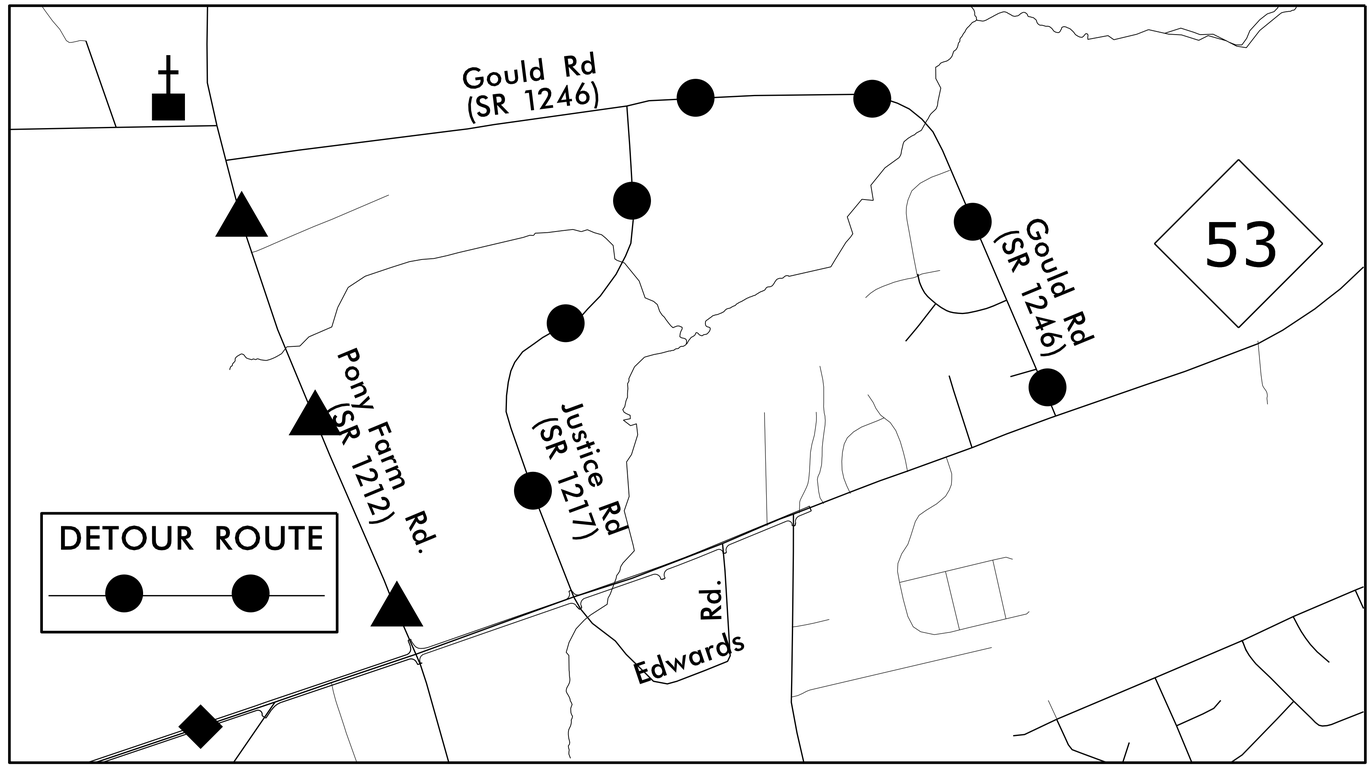
R-5023B DETOUR DETAIL SHEET

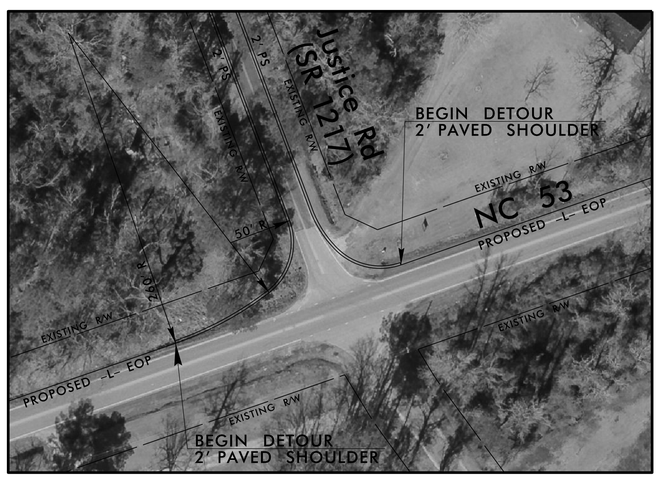


DETOUR ROUTE TO BE USED FOR 90 DAY ICT FOR CONSTRUCTION OF 6'X6' RCBC AT -L- STA. 87+40 +/-. REFER TO TMP-2B

NAD 83/2007

NOTE: RIGHT OF WAY LIMITS DEPICTED BELOW ARE FOR INFORMATION ONLY AND ARE NOT BASED ON ACTUAL SURVEYS.

NC 53 /JUSTICE RD INTERSECTION



JUSTICE RD /GOULD RD INTERSECTION

NC 53 /GOULD RD INTERSECTION

SEE SHEET 2A-3 FOR DETOUR TYPICAL SECTION

REVISIONS

8/17/99

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	2C-1

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

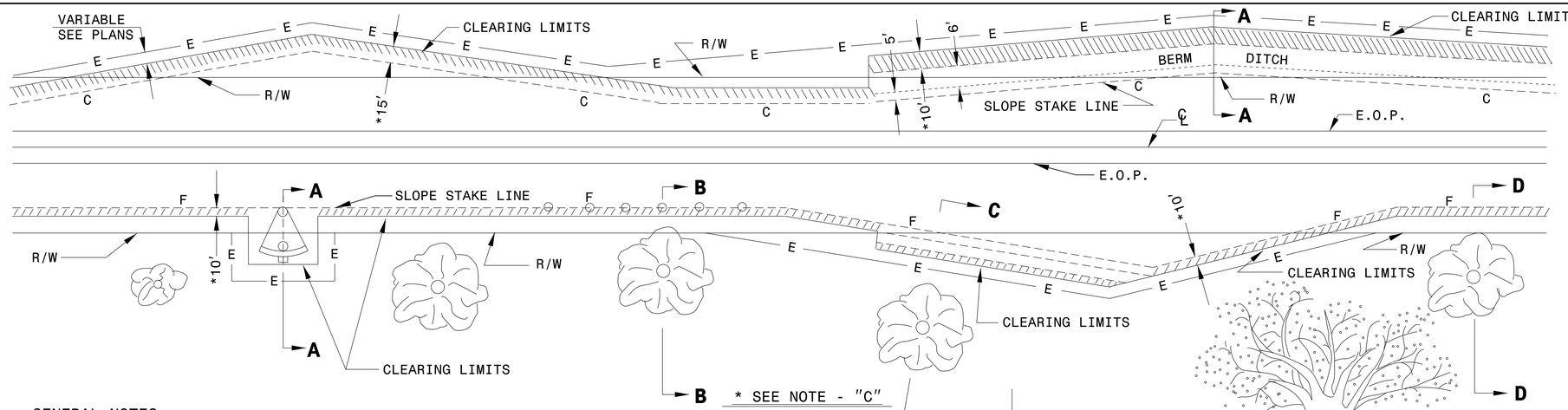
ENGLISH DETAIL DRAWING FOR

METHOD OF CLEARING

MODIFIED METHOD - III

SHEET 1 OF 1

200D03



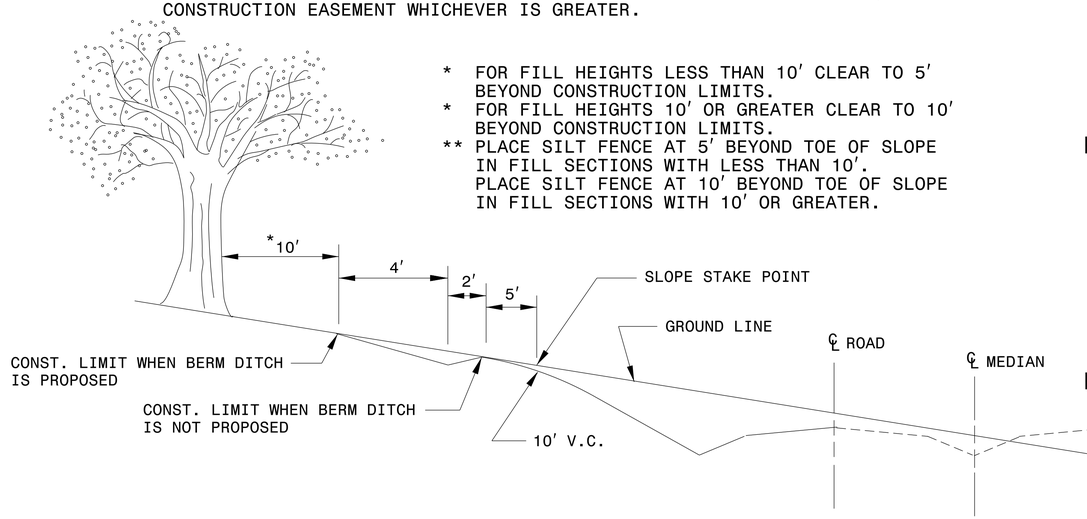
GENERAL NOTES:

1. REMOVE TREES OUTSIDE THE CLEARING LIMIT WHEN, IN THE OPINION OF THE ENGINEER, THE UTILITY OF A TREE WILL BE DESTROYED BY THE CONSTRUCTION OR THE CLEARING OPERATION.
2. CLEAR IN ACCORDANCE WITH THIS STANDARD EXCEPT WHERE ADDITIONAL CLEARING IS REQUIRED FOR SAFETY AS SHOWN ON THE PLANS.

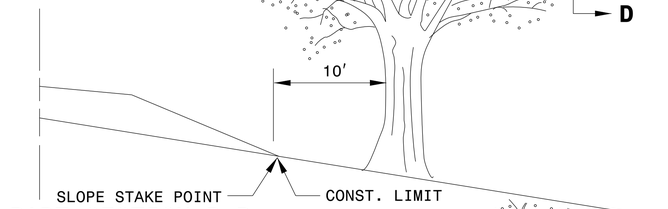
METHOD III CLEARING LIMITS

(A) CUTS -- CLEAR TO CONSTRUCTION LIMITS.
(B) FILLS - CLEAR TO 5'/10' * BEYOND CONSTRUCTION LIMITS, UNLESS SPECIFIED OTHERWISE BY WETLAND PERMIT.
(C) CUTS AND FILLS - WHEN THE CLEARING LIMITS (A AND B) EXCEED THE PROPOSED R/W OR PROPOSED CONSTRUCTION EASEMENTS, THEN CLEAR ONLY TO THE R/W OR CONSTRUCTION EASEMENT WHICHEVER IS GREATER.

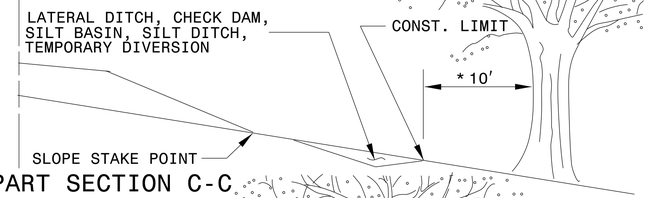
* FOR FILL HEIGHTS LESS THAN 10' CLEAR TO 5' BEYOND CONSTRUCTION LIMITS.
* FOR FILL HEIGHTS 10' OR GREATER CLEAR TO 10' BEYOND CONSTRUCTION LIMITS.
** PLACE SILT FENCE AT 5' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH LESS THAN 10'. PLACE SILT FENCE AT 10' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH 10' OR GREATER.



SECTION A-A



PART SECTION D-D



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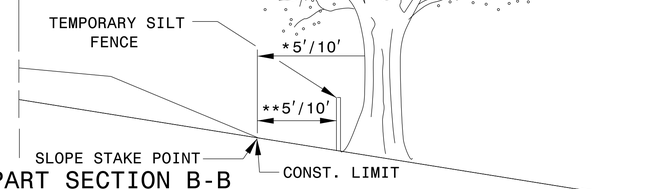
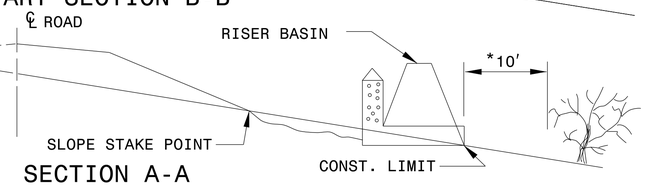


PART SECTION B-B



SECTION A-A

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

ENGLISH DETAIL DRAWING FOR

METHOD OF CLEARING

MODIFIED METHOD - III

SHEET 1 OF 1

200D03

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 11/16/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY:	T.S.S.	DATE:	FEB.2000
MODIFIED BY:	K.A.K.	DATE:	AUG.2016
CHECKED BY:		DATE:	
FILE SPEC.:	kkempf/english/0200d301.dgn		

$$$$USERNAME$$$$ $$$$SCENARIO$$$$ $$$$SYSTIME$$$$

COMPUTED BY: *WC Parker, PE* **DATE:** *7-26-2016*
CHECKED BY: **DATE:**

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	*3B-1*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	B-77	TYPE III	AT-1	G	NG				
-L-	34+06.81	36+13.06	LT	206.25			HEADWALL		8'	11'	50'		1'				1			1									
-L-	56+46.78	57+32+/-	LT	56.25	31.25		HEADWALL		8'	11'										1			1						
-L-	55+93+/-	56+72.28	RT	56.25	43.75		HEADWALL		8'	11'										1			1						
-L-	84+60+/-	87+36.62	RT	231.25	68.75		CULVERT		2'	10'										1			1						
-L-	87+44.40	88+10+/-	LT	43.75	43.75		CULVERT		2'	6'										1			1						
-L-	91+97.22	94+15.97	LT	218.75			93+10.56	92+03+/-	2'	6'	100'		13'+/-					1		1									
-L1-	25+12.50	28+00.00	RT	287.5			BRIDGE		8'	11'	287.5'		5.75'				1										290		
	GUARDRAIL SUBTOTALS:			**1,100.00**	**187.5**												**2**	**1**		**6**			**4**				**290**		
	GUARDRAIL SUBTOTALS:			**1,100.00**	**187.50**																								
	ANCHOR DEDUCTIONS:																												
	GRAU-350: 2 @ 50' EA			100																									
	M-350: 1 @ 37.5' EA			37.5																									
	CAT-1: 6 @ 6.25' EA			37.5																									
	TYPE AT-1: 4 @ 6.25' EA				25																								
	ANCHOR TOTALS:			**175**	**25**																								
	GUARDRAIL GRAND TOTALS:			**925.00**	**162.5**												**2**	**1**		**6**			**4**				**290**		
			SAY:	**975.0**	**187.5**																								
			ADDITIONAL GUARDRAIL POSTS = 5																										

COMPUTED BY: Monica Duval DATE: 7-26-2016 REV By WCP: 11/08/16
CHECKED BY: _____ DATE: _____

PROJECT NO.	SHEET NO.
R-5023B	3B-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
(CUBIC YARDS)

Line	Station	Station	Uncl. Excav.	Undercut	Embank. +%	Borrow	Waste
-L-	11+50.00	41+50.00	5,368	0	2,154	0	3,214
-Y1-	10+17.34	10+80.00	181	0	1	0	180
-L-	41+50.00	71+50.00	3,882	227	1,803	0	2,307
-Y2-	1100	1363.86	198	0	116	0	82
-Y3-	1085	1149.12	19	0	13	0	7
SUBTOTAL #1			9,648	227	4,086	0	5,789
-Y4-	10+18.06	11+25.00	35	0	108	73	0
-L-	71+50.00	101+50.00	946	603	4,475	3,529	603
-Y5-	11+10.00	11+81.38	13	0	151	138	0
-Y6-	10+18.08	10+82.00	30	0	101	71	0
Detour (Gould Rd to Justice Rd)			1,110	0	0	0	1,110
-Y7-	12+54.00	13+06.63	11	0	81	70	0
SUBTOTAL #2			2,145	603	4,916	3,881	1,713
-Y7A-	11+00.00	11+62.19	71	0	13	0	59
-L-	101+50.00	104+25.00	48	71	770	722	71
-Y8-	11+50.00	12+12.05	31	0	91	60	0
SUBTOTAL #3			150	71	874	782	130
-L1-	14+40.00	28+00.00	2,101	1,080	1,983	0	1,199
-Y9-	12+75.00	15+57.28	239	0	804	565	0
SUBTOTAL #4			2,340	1,080	2,787	565	1,199
TOTALS			14,283	1,981	12,663	5,228	8,830
MATERIAL FOR SHOULDER CONSTR.			0	0	3,250	3,250	0
ADDITIONAL UNDERCUT			0	2,500	3,125	3,125	2,500
WASTE IN LIEU OF BORROW			0	0	0	-6,849	-6,849
PROJECT TOTALS			14,283	4,481	19,038	4,755	4,481
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT						238	
GRAND TOTALS:			14,283	4,481	19,038	4,992	4,481
SAY:			**14,300**	**4,490**	**0**	**5,000**	**4,500**

Est. DDE: 158 Yd^3
Est. Shallow Undercut (Geotech): 2,000 Yd^3
Est. Shallow Undercut (Division): 2,000 Yd^3
Total Shallow Undercut = 4,000 Yd^3

Est. Class IV Subgrade Stabilization (Geotech): 3,800 Tons
Est. Class IV Subgrade Stabilization by Station (Division): 3,800 Tons
Total Class IV Subgrade Stabilization: 7,600 Tons

Note: Earthwork quantities are calculated by HNTB for Division 03. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Design Unit.

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

LINE	Station	Station	LOC LT/RT/CL	FT^2
-L1-	18+81.00	20+56.00	RT	3,293.00
			TOTAL FT^2	3,293.00
			TOTAL YD^2	365.89
			SAY	**400**

SUMMARY OF SAFETY FENCE

STATION TO STATION	LOC	LENGTH (LF)
-L- 73+97.12 - 77+88.97	LT	414.30
-L- 84+53.59 - 87+72.46	LT	330.00
Safety Fence for Erosion Control		1,200.00
TOTAL:		1,944.30
SAY:		**2,040**

SUMMARY OF CONCRETE VALLEY GUTTER

STATION TO STATION	LOC	LENGTH (LF)
-L- 71+76 - 72+34	RT	58.3
-L- 72+72 - 73+22	RT	50.4
TOTAL:		108.7
SAY:		**120**

SUMMARY OF BONDED FIBER MATRIX

LINE	Station	Station	LOC LT/RT/CL	FT^2
-L-	11+90	13+40	LT	2,179.70
-L-	73+65	77+25	LT	2,075.33
-L-	86+75	88+25	LT	910.72
-L-	86+75	87+25	RT	624.42
-L-	88+25	89+25	RT	864.59
-L1-	21+25	22+25	LT	1,666.43
			SubTotal:	**8,321.19**
For Slopes between 2:1 and 3:1, an application rate of 3,500 lb/ac shall be used as per special provision.				
		8,321.19	FT^2	
		0.19	AC	
		668.60	LB	
	SAY:	**700**	**LB**	

RALD084

COMPUTED BY:	BRC	DATE:	1/8/15
CHECKED BY:	JAB	DATE:	10/27/16

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-5023B	3D-1

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CAAP, or HDPE)									DO NOT USE RCP	DO NOT USE CAAP	DO NOT USE HDPE	C. A. A. PIPE														R. C. PIPE CLASS III									R. C. PIPE CLASS IV									66" x 51" C.A. PIPE ARCH CULVERTS, 0.138" THICK	42" x 29" C.A. PIPE ARCH CULVERTS, 0.138" THICK		15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03				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. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	FRAME WITH NARROW SLOT GRATES STD. 840.29	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	15" PIPE END SECTION	18" PIPE END SECTION	24" PIPE END SECTION		FLOWABLE FILL	PIPE REMOVAL	REMARKS
SIZE									12	15	18	24	30	36	42	48	54				12	15	18	24		30			36			42	48	54	12	15	18	24	30	36	42	48	54	12	15	18	24	30	36	42	48	54										A	B		GRATE TYPE																					
THICKNESS OR GAUGE			FROM	TO	FT.	FT.	FT.	%													.064	.064	.064	.064		.079			.079			.109	.109																											CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		E	F	G																	CY	LIN. FT.	
			IN	0401		32.7	32.4			12																																																																										
			IN	0401		33.9	32.4				40																																																																					1					
L 11+02	31	LT	0401		36.1																																																							1														1				1							
			IN	0403		42.6	41.5			12																																																																										
			IN	0403		41.9	41.5				4																																																																			1					
L 14+81	35	LT	0403		45.7																																																							1														1				1							
			0403	0402		41.5	39.1				100																																																																						
L 13+80	36	LT	0402		41.7																																																							1												1	1												
			0402	OUT		39.1	37.9				52																																																																						
			0404	OUT		46.5	46.4			44																																																																							
L 17+46	30	LT	0404		48.5																																																							1												1	1												
			0501	0404		47.1	46.5			88																																																																							
L 18+37	30	LT	0501		49.0																																																							1												1	1												
L 17+21	32	RT	0405																																																				80																									1						
L 20+73	34	LT	0502																																																				20																									1						
L 21+35	34	LT	0503																																																				32																									1						
			0504	OUT		44.4	43.7																																								88																																								
L 24+87	35	RT	0505																																																			48																									1						
L 22+66	40	LT	0506																																																			32																									1						
L 30+51	33	LT	0601																																																			28																									1						
			IN	0602		43.3	43.0			80																																																																								
			0602	OUT		43.0	42.2			72																																																																							
L 33+29	33	LT	0602		44.9																																																							1												1	1												
L 31+22	33	RT	0603																																																			32																									1						
L 27+96	33	LT	0604																																																			24																									1						
L 36+55	42	LT	0703																																																			24																									1						
L 37+23	40	LT	0704																																																			24																									1						
L 38+06	39	LT	0705																																																			28																									1						
L 40+94	36	LT	0706																																																			24																									1						
L 41+57	35	LT	0707																																																			24																									1						
L 40+97	41	RT	0708																																																			36																									1						
L 38+58	41	RT	0709																																																				24																									1					
L 38+09	41	RT	0710																																																				24																									1					
L 36+80	40	RT	0711																																																				24																									1					
L 35+36	41	RT	0712																																																				32																									1					
L 39+53	39	RT	0713																																																				40																									1					
L 43+30	33	LT	0801																																																			28																									1						
L 45+18	33	LT	0802																																																			24																									1						
L 46+83	33	LT	0803																																																			24																									1						
L 47+58	34	LT	0804																																																			32																									1						
L 48+53	34	LT	0805																																																			24																									1						
L 49+09	35	LT	0806																																																			24																									1						
L 49+82	35	LT	0807																																																			24																									1						
L 49+37	37	RT	0808																																																				24																									1					
L 47+60	37	RT	0809																																																			24																									1						
L 46+24	36	RT	0810																																																			28																									1						
L 43+86	33	RT	0811																																																			32																									1						
L 50+76	36	LT	0901																																																			32																									1						
L 51+98	36	LT	0902																																																			28																									1						
L 55+63	40	LT	0903																																																				36																									1					
SHEET TOTALS										308	196																																				88								780	204				6												4	4	2				2	26	9					

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

RALD084

COMPUTED BY:	BRC	DATE:	1/8/15
CHECKED BY:	JAB	DATE:	10/27/16

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-5023B	3D-2

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CAAP, or HDPE)									DO NOT USE RCP	DO NOT USE CAAP	DO NOT USE HDPE	C. A. A. PIPE														R. C. PIPE CLASS III									R. C. PIPE CLASS IV										66" x 51" C.A. PIPE ARCH CULVERTS, 0.138" THICK	42" x 29" C.A. PIPE ARCH CULVERTS, 0.138" THICK		15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03				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. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	FRAME WITH NARROW SLOT GRATES STD. 840.29	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	15" PIPE END SECTION	18" PIPE END SECTION	24" PIPE END SECTION		FLOWABLE FILL	PIPE REMOVAL	REMARKS
SIZE								12	15	18	24	30	36	42	48	54				12	15	18	24		30			36			42	48	54	12	15	18	24	30	36	42	48	54	12	15	18	24	30	36	42	48	54											A	B		GRATE TYPE																					
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%													.064	.064	.064	.064		.079			.079			.109	.109																												CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		E	F	G																	CY	LIN. FT.	
L 56+58	32 RT	0904			47.5	46.9																																																132						5.228																										HEADWALL STD. 838.04
		IN	1001		48.0	47.7			48																																																																														
		1001	0905		47.7	47.5			36																																																																														
L 58+00	40 LT	1001		50.3																																																								1								1	1																
		0905	OUT		47.5	47.1			60																																																																													
L 57+60	41 LT	0905		50.0																																																								1								1	1																
Y2 12+15	CL	0906			48.8	48.6																																																52						1.950																										HEADWALL STD. 838.04
L 53+51	37 RT	0907																																																								32																									1				
L 51+54	37 RT	0908																																																							24																									1					
L 50+26	37 RT	0909																																																							24																									1					
L 55+45	40 RT	0910																																																								60																									1				
		IN	1002		49.9	49.5			48																																																																						1						
		1002	OUT		49.5	49.4			40																																																																														
L 60+65	37 LT	1002		51.5																																																								1												1	1												
L 61+85	39 LT	1003																																																						44																										1						
L 64+12	45 LT	1004																																																						80																																	
		1005	OUT		50.7	49.5																																								80																																								1				
L 65+37	40 RT	1006																																																							60																									1					
		IN	1007		51.4	51.1			36																																																																					1						
		1007	OUT		51.1	51.0	0.9		44																																																																														
L 63+63	37 RT	1007		53.0																																																								1												1	1												
L 61+84	33 RT	1008																																																						20																										1						
L 58+79	58 RT	1009																																																						48																																20	
L 68+07	36 RT	1105																																																						28																										1						
L 67+58	38 RT	1106																																																						32																										1						
		1108	OUT		54.3	54.2	0.3																																							48																																													
Y4 11+00	13 RT	1108		57.6																																																								1			1		1																				
		1101	1108		55.2	54.3	0.8																																							68																																															
Y4 10+35	41 RT	1101		59.2																																																								1			1		1																				
		1104	1101		55.5	55.4	0.5																																						24																																																
L 71+54	40 LT	1104		57.8																																																								1								1	1																
		1102	1101		57.0	55.2	0.5																																							64																																															
L 71+29	27 RT	1102		60.2																																																								1			1			1																			
		1103	1102		58.1	57.2																																							52																																																
L 71+78	34 RT	1103		60.9																																																								1															1	1										
		1201	1203		54.5	52.4	0.6																																						128																																																
L 76+00	20 RT	1201		57.5																																																								1			1		1																				
		1202	1201		55.1	54.5	0.3																																						16																																																
L 76+00	37 RT	1202		57.3																																																								1								1	1																
		1203	1204		52.4	50.5	1.0																																						120																																																
L 77+30	20 RT	1203		55.4																																																								1			1		1																				
		1204	1211		50.5	50.1	1.3																																						36																																																
L 78+50	20 RT	1204		53.5																																																								1			1		1																				
		1205	1213		46.6	46.5																																							36																																																
L 81+00	20 RT	1205		49.6																																																								1			1		1																				
		1111	1112		55.0	54.8																																							16																																																
L 73+98	36 LT	1111		57.2																																																								1								1	1																
		1112	1215		54.8	53.8																																							152																																																
L 73+98	20 LT	1112		60.3																																																								1	0.5		1			1																			
		1215	1209		53.8	53.3																																							100																																															
SHEET TOTALS									312																																			680	180	80									184		252	108	92		7.178	16	0.5		8		6	2		5	5			2	2		1	1			6	3	3			20	

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

RALD084

COMPUTED BY: BRC DATE: 1/8/15

CHECKED BY: JAB DATE: 10/27/16

PROJECT NO.	SHEET NO.
R-5023B	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 %
L 75+50	20 LT	1215		58.4			
		1214	1215		53.9	53.8	
L 75+50	28 LT	1214		56.1			
		1209	1211		53.3	49.8	
L 76+50	20 LT	1209		56.8			
		1210	1209		53.6	53.3	
L 76+50	27 LT	1210		55.8			
		1211	1213		49.6	46.4	0.6
L 78+50	20 LT	1211		53.5			
		1212	1211		51.3	50.5	
L 78+50	36 LT	1212		53.5			
		1213	1314		46.3	43.4	0.9
L 81+00	20 LT	1213		49.6			
		1314	1305		42.9	41.7	
L 82+85	20 LT	1314		46.7			
		1301	1305		42.7	42.4	
L 83+50	20 RT	1301		45.7			
		1302	1308		39.2	38.9	
L 86+00	20 RT	1302		42.2			
		1303	1309		38.7	37.2	
L 87+15	20 RT	1303		41.7			
		1304	1310		39.4	39.2	
L 88+50	20 RT	1304		42.4			
		1305	1307		41.7	39.9	0.5
L 83+50	28 LT	1305		45.4			
		1306	1305		42.8	42.4	0.7
L 83+41	38 LT	1306		45.0			
		IN	1313		42.0	41.9	0.3
Y6 10+66	23 RT	1313		44.2			
		1313	1307		41.9	40.6	
		1307	1308		39.9	38.1	0.7
L 84+80	20 LT	1307		43.6			
		1308	1309		38.1	36.4	0.7
L 86+00	20 LT	1308		42.2			
		1309	1311		36.4	36.2	0.8
L 87+15	20 LT	1309		41.7			
		1310	1312		39.0	38.6	0.3
L 88+50	20 LT	1310		42.4			
		1311	OUT		36.2	35.8	0.8
L 87+35	20 LT	1311		41.7			
		1312	OUT		36.7	36.2	0.4
L 87+66	20 LT	1312		41.8			
L 93+85	20 LT	1402		47.8			
		1402	1403		43.9	43.4	
		1403	1404		43.4	42.1	
L 92+20	20 LT	1403		46.7			
		1404	1310		42.1	39.4	0.4
L 90+80	20 LT	1404		45.1			
		1405	1403		44.5	43.7	
		IN	1405		45.4	44.5	
		SHEET TOTALS					

FROM	TO	Drainage Pipe (RCP, CAAP, or HDPE) 12	15	18	24	30	36	42	48	54	DO NOT USE RCP	DO NOT USE CAAP	DO NOT USE HDPE	C. A. A. PIPE 12 .064	15 .064	18 .064	24 .064		30 .079			36 .079			42 .109	48 .109	54
1215																											
1214	1215																										
1214																											
1209	1211																										
1209																											
1210	1209																										
1210																											
1211	1213																										
1211																											
1212	1211																										
1212																											
1213	1314																										
1213																											
1314	1305																										
1314																											
1301	1305																										
1301																											
1302	1308																										
1302																											
1303	1309																										
1303																											
1304	1310																										
1304																											
1305	1307																										
1305																											
1306	1305																										
1306																											
IN	1313																										
1313																											
1313	1307																										
1307	1308																										
1307																											
1308	1309																										
1308																											
1309	1311																										
1309																											
1310	1312																										
1310																											
1311	OUT																										
1311																											
1312	OUT																										
1312																											
1402																											
1402	1403																										
1403	1404																										
1403																											
1404	1310																										
1404																											
1405	1403																										
IN	1405																										
SHEET TOTALS																											

FROM	TO	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	54
1215																			
1214	1215											8							
1214																			
1209	1211											200							
1209																			
1210	1209											8							
1210																			
1211	1213												248						
1211																			
1212	1211											16							
1212																			
1213	1314												184						
1213																			
1314	1305													64					
1314																			
1301	1305											44							
1301																			
1302	1308											36							
1302																			
1303	1309											36							
1303																			
1304	1310											36							
1304																			
1305	1307													128					
1305																			
1306	1305											16							
1306																			
IN	1313											32							
1313																			
1313	1307											64							
1307	1308													120					
1307																			
1308	1309													116					
1308																			
1309	1311													20					
1309																			
1310	1312												84						
1310																			
1311	OUT													12					
1311																			
1312	OUT												8						
1312																			
1402																			
1402	1403											164							
1403	1404											140							
1403																			
1404	1310											228							
1404																			
1405	1403											36							
IN	1405											20							
SHEET TOTALS												1084	524	460					

FROM	TO		66" x 51" C.A. PIPE ARCH CULVERTS, 0.138" THICK	42" x 29" C.A. PIPE ARCH CULVERTS, 0.138" THICK		15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) 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	
1215											1			1			1	
1214	1215																	
1214											1							
1209	1211																	
1209											1			1			1	
1210	1209																	
1210											1							
1211	1213																	
1211											1			1			1	
1212	1211																	
1212											1							
1213	1314																	
1213											1			1			1	
1314	1305																	
1314											1			1			1	
1301	1305																	
1301											1			1		1		
1302	1308																	
1302											1			1		1		
1303	1309																	
1303											1			1	1			
1304	1310																	
1304											1			1			1	
1305	1307																	
1305											1	1.8		1	1			
1306	1305																	
1306											1							
IN	1313																	
1313											1							
1313	1307																	
1307	1308																	
1307											1			1			1	
1308	1309																	
1308											1			1			1	
1309	1311																	
1309											1	0.3		1	1			
1310	1312																	
1310											1			1		1		
1311	OUT																	
1311											1	0.6		1		1		
1312	OUT																	
1312											1	0.1		1		1		
1402											1			1		1		
1402	1403																	
1403	1404																	
1403											1			1		1		
1404	1310																	
1404											1			1		1		
1405	1403																	
IN	1405																	
SHEET TOTALS											24	2.8		19	3	8	8	

FROM	TO	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. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	FRAME WITH NARROW SLOT GRATES STD. 840.29	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	15" PIPE END SECTION	18" PIPE END SECTION	24" PIPE END SECTION		FLOWABLE FILL CY	PIPE REMOVAL LIN. FT.	REMARKS
1215																			
1214	1215																		
1214		1	1																
1209	1211																		
1209																			
1210	1209																		
1210		1	1																
1211	1213																		
1211																			
1212	1211																		
1212		1	1																
1213	1314																		
1213																			
1314	1305																		
1314																			
1301	1305																		
1301																			
1302	1308																		
1302																			
1303	1309																		
1303																			
1304	1310																		
1304																			
1305	1307																		
1305																			
1306	1305																		
1306		1	1																
IN	1313																		
1313		1	1																
1313	1307																		
1307	1308																		
1307																			
1308	1309																		
1308																			
1309	1311																		
1309																			
1310	1312																		
1310																			
1311	OUT																		
1311																			
1312	OUT																		
1312																			
1402																			
1402	1403																		
1403	1404																		
1403																			
1404	1310																		
1404																			
1405	1403																		
IN	1405																		
SHEET TOTALS		5	5																

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:	BRC	DATE:	1/8/15
CHECKED BY:	JAB	DATE:	10/27/16

PROJECT NO.	SHEET NO.
R-5023B	3D-4

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CAAP, or HDPE) 12	15	18	24	30	36	42	48	54	DO NOT USE RCP	DO NOT USE CAAP	DO NOT USE HDPE	C. A. A. PIPE 12 .064	15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	48 .109	54	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	54	66" x 51" C.A. PIPE ARCH CULVERTS, 0.138" THICK	42" x 29" C.A. PIPE ARCH CULVERTS, 0.138" THICK	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) 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	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. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	FRAME WITH NARROW SLOT GRATES STD. 840.29	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	15" PIPE END SECTION	18" PIPE END SECTION	24" PIPE END SECTION	FLOWABLE FILL CY	PIPE REMOVAL LIN. FT.	REMARKS
L 92+20	20 RT	1405		47.5																																																	1			1			1																	
L 96+15	37 RT	1406		47.3																																																	1							1	1															
		1406	1407		45.1	44.8																																	16																																						
L 96+15	20 RT	1407		47.9																																																	1			1		1																		
		1407	1408		44.8	44.6																																	36																																						
L 96+15	20 LT	1408		47.9																																																	1			1			1																	
		1408	1501		44.6	44.0																																	208																																						
		1409	1502		43.0	41.9																																	128																																						
L 96+95	41 LT	1409		45.2																																																	1							1	1															
		1501	1504		41.8	41.2																																		216																																					
L 98+25	20 LT	1501		47.2																																																	1	0.4		1			1																	
		1502	1501		41.9	41.8																																	20																																						
L 98+25	38 LT	1502		44.6																																																	1							1	1															
		1503	1502		42.7	41.9																																	64																																						
L 98+91	37 LT	1503		44.9																																																	1							1	1															
		1504	1509		41.2	40.3																																			164																																				
L 100+43	20 LT	1504		46.6																																																	1	0.4		1			1																	
		1505	1504		42.0	41.2																																	24																																						
L 100+43	44 LT	1505		44.2																																																	1							1	1															
		1506	1501		44.2	44.1																																	36																																						
L 98+25	20 RT	1506		47.2																																																	1			1		1																		
		1507	1504		43.3	43.2																																		36																																					
		IN	1507		43.4	43.3																																		40																																					
L 100+43	20 RT	1507		46.6																																																	1			1		1																		
		1508	1509		40.5	40.3																																				36																																			
L 102+10	20 RT	1508		46.1																																																	1	0.6		1		1																		
		1509	1511		40.3	39.8	0.5																																			88																																			
L 102+10	20 LT	1509		46.1																																																	1	0.8		1			1																	
		1510	1508		40.7	40.5																																				44																																			
		IN	1510		43.0	40.7																																			52																																				
L 102+27	60 RT	1510		43.9																																																	1											1	1											
		1511	OUT		39.8	39.6	0.5																																			36																																			
L 103+00	20 LT	1511		45.9																																																	1	1.1		1			1																	
		1512	1511		42.3	41.9																																	112																																						
L 104+12	20 LT	1512		45.8																																																	1			1			1																	
		1513	1512		42.4	42.3																																	36																																						
L 104+12	20 RT	1513		45.4																																																	1			1		1																		
EL 25+73		1601	OUT		34.3	34.0																																			80																																				
Y1 13+91		1602	OUT		31.7	30.2																																				68																																			
EL 27+33	34 LT	1603																																															24																							1					
EL 28+72	34 LT	1604																																															32																							1					
EL 33+50	37 LT	1701																																															40																							1					
EL 35+25		1702			23.8	21.2																																		88																																					
L 13+54	29 LT																																																																										22	
EL 25+74	0 CL																																																																										58	
EL 35+25	0 CL																																																																										57	
L 102+19	0 CL																																																																										74	
L 14+66	26 LT																																																																										25	
L 99+05	39 LT																																																																										22	
L 98+58	38 LT																																																																										17	
						SHEET TOTALS																																	680	380	296	272							96				18	3.3		12		5	7	5	5			1	1						3				275	

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

RALD084

COMPUTED BY:	BRC	**DATE:**	1/8/15
CHECKED BY:	JAB	**DATE:**	10/27/16

PROJECT NO.	**SHEET NO.**
R-5023B	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 / 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, CAAP, or HDPE) 12	15	18	24	30	36	42	48	54	DO NOT USE RCP	DO NOT USE CAAP	DO NOT USE HDPE	C. A. A. PIPE 12 .064	15 .064	18 .064	24 .064		30 .079			36 .079			42 .109	48 .109	54	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	54		66" x 51" C.A. PIPE ARCH CULVERTS, 0.138" THICK	42" x 29" C.A. PIPE ARCH CULVERTS, 0.138" THICK		15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) 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		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. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	FRAME WITH NARROW SLOT GRATES STD. 840.29	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	15" PIPE END SECTION	18" PIPE END SECTION	24" PIPE END SECTION		FLOWABLE FILL CY	PIPE REMOVAL LIN. FT.	REMARKS
L 23+45	45 LT																																																																																						8	
L 23+42	0 CL																																																																																						50	
L 79+52	21 LT																																																																																						34	
L 80+19	21 LT																																																																																						96	
L 79+19	20 LT																																																																																						28	
L 78+83	20 LT																																																																																						40	
L 78+43	19 LT																																																																																						36	
L 78+05	20 LT																																																																																						36	
L 78+01	26 RT																																																																																						38	
L 78+87	26 RT																																																																																						33	
L 79+62	27 RT																																																																																						32	
L 81+73	26 RT																																																																																						21	
L 84+33	39 RT																																																																																							53	
L 76+40	30 RT																																																																																						21	
L 76+92	28 RT																																																																																						32	
L 77+64	26 RT																																																																																						32	
L 73+80	33 LT																																																																																					19	
L 74+30	31 LT																																																																																					20	
L 76+00	26 LT																																																																																					17	
L 76+82	23 LT																																																																																						29	
L 71+25	8 LT																																																																																					63	
L 100+79	39 LT																																																																																					30	
L 87+97	24 LT																																																																																					21	
L 88+99	23 LT																																																																																					19	
L 90+65	19 LT																																																																																					21	
L 97+16	39 LT																																																																																					20	
L 17+20	29 RT																																																																																					60	
L 18+67	26 RT																																																																																					31	
L 17+33	22 LT																																																																																					22	
L 99+21	20 RT																																																																																					29	
L 95+19	28 RT																																																																																					21	
L 91+40	20 RT																																																																																					72	
L 20+76	22 LT																																																																																					18	
L 21+35	21 LT																																																																																					21	
L 21+84	21 LT																																																																																					5	
L 22+68	23 LT																																																																																					20	
L 89+84	20 LT																																																																																					20	
L 30+50	25 LT																																																																																					19	
L 32+97	29 LT																																																																																					60	
L 33+60	28 LT																																																																																					57	
L 34+21	0 CL																																																																																					46	
L 36+56	26 LT																																																																																					18	
L 35+36	22 RT																																																																																					21	
L 36+80	24 RT																																																																																					25	
L 37+21	26 LT																																																																																					20	
L 38+07	26 LT																																																																																					21	
L 38+09	25 RT																																																																																					17	
L 38+58	25 RT																																																																																					18	
L 39+54	24 RT																																																																																					21	
L 40+98	26 RT																																																																																					21	
SHEET TOTALS																																																																																								1532	

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: BRC DATE: 1/8/15

CHECKED BY: JAB DATE: 10/27/16

PROJECT NO.	SHEET NO.
R-5023B	3D-6

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CAAP, or HDPE)									DO NOT USE RCP	DO NOT USE CAAP	DO NOT USE HDPE	C. A. A. PIPE														R. C. PIPE CLASS III									R. C. PIPE CLASS IV										66" x 51" C.A. PIPE ARCH CULVERTS, 0.138" THICK	42" x 29" C.A. PIPE ARCH CULVERTS, 0.138" THICK		15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03				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. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	FRAME WITH NARROW SLOT GRATES STD. 840.29	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	15" PIPE END SECTION	18" PIPE END SECTION	24" PIPE END SECTION		FLOWABLE FILL	PIPE REMOVAL	
SIZE		FROM	TO					12	15	18	24	30	36	42	48	54				12	15	18	24		30			36			42	48	54	12	15	18	24	30	36	42	48	54	12	15	18	24	30	36	42	48	54										0' THRU 5'	A 5' THRU 10'	B 10' AND ABOVE		GRATE TYPE																					
THICKNESS OR GAUGE				FT.	FT.	FT.	%													.064	.064	.064	.064		.079			.079			.109	.109																												CY	EACH	LIN. FT.	LIN. FT.		E	F	G																		CY	LIN. FT.	REMARKS
L 40+94	27 LT																																																																																				19	
L 41+56	28 LT																																																																																			23	
L 43+89	27 RT																																																																																				21	
L 44+00	29 LT																																																																																				7	
L 46+26	24 RT																																																																																				15	
L 46+85	26 LT																																																																																				21	
L 45+20	29 LT																																																																																				21	
L 47+59	25 RT																																																																																				15	
L 47+57	26 LT																																																																																				37	
L 48+55	26 LT																																																																																				17	
L 49+35	25 RT																																																																																				17	
L 49+09	25 LT																																																																																				17	
L 49+82	25 LT																																																																																				17	
L 50+23	25 RT																																																																																			18	
L 50+77	24 LT																																																																																				25	
L 51+56	26 RT																																																																																				21	
L 51+99	24 LT																																																																																				20	
L 53+50	25 RT																																																																																				21	
L 56+58	0 CL																																																																																				54	
L 56+61	0 CL																																																																																				55	
L 57+40	31 LT																																																																																				20	
L 57+82	30 LT																																																																																				20	
L 60+43	33 LT																																																																																				19	
L 60+93	35 LT																																																																																				31	
L 61+85	36 LT																																																																																				30	
L 61+83	32 RT																																																																																				21	
L 63+47	37 RT																																																																																				24	
L 63+85	38 RT																																																																																				36	
L 63+98	44 LT																																																																																				32	
L 64+56	5 LT																																																																																				76	
L 65+38	35 RT																																																																																				41	
L 67+59	33 RT																																																																																				24	
L 68+08	34 RT																																																																																				25	
L 84+27	24 LT																																																																																				72	
L 84+51	46 LT																																																																																				49	
L 55+68	28 LT																																																																																				39	
L 58+79	58 RT																																																																																				20	
L 27+56	21 RT																																																																																				21	
L 24+99	21 RT																																																																																				16	
L 31+20	20 RT																																																																																				31	
Y1 13+91	0 CL																																																																																				41	
Y2 11+55	CL																																																																																			6		
Y2 12+90	CL																																																																																			4		
SHEET TOTALS																																																																																						10	1149	
PROJECT TOTALS									620	196																																		2444	1084	836	360							184		1128	312	92		7.178	64	6.6		39	3	19	17		15	15			7	7	2	1	1		2	35	12	3		10	2976	

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:	BRC	DATE:	1/8/15
CHECKED BY:	JAB	DATE:	10/27/16

PROJECT NO.	SHEET NO.
R-5023B	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 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 %
L 34+22	35 LT	0701			40.3	39.7	
SHEET TOTALS							
PROJECT TOTALS							

LINE & STATION	Drainage Pipe (RCP, CAAP, or HDPE) 12	15	18	24	30	36	42	48	54	DO NOT USE RCP	DO NOT USE CAAP	DO NOT USE HDPE
L 34+22												
SHEET TOTALS												
PROJECT TOTALS												

LINE & STATION	C. A. A. PIPE													
SIZE	12	15	18	24		30			36			42	48	54
THICKNESS OR GAUGE	.064	.064	.064	.064		.079			.079			.109	.109	
L 34+22														
SHEET TOTALS														
PROJECT TOTALS														

LINE & STATION	R. C. PIPE CLASS III									R. C. PIPE CLASS IV									R. C. PIPE CLASS V									
SIZE	12	15	18	24	30	36	42	48	54	12	15	18	24	30	36	42	48	54	12	15	18	24	30	36	42	48	54	
L 34+22																												
SHEET TOTALS																												
PROJECT TOTALS																												

LINE & STATION	66" x 51" C.A. PIPE ARCH CULVERTS, 0.138" THICK	42" x 29" C.A. PIPE ARCH CULVERTS, 0.138" THICK		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28		FLOWABLE FILL CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 34+22	80			5.968																					HEADWALL STD. 838.07
SHEET TOTALS	80			5.968																					
PROJECT TOTALS	80			5.968																					

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: RHT	DATE: 8/9/2016
CHECKED BY: WCP	DATE: 9/16/2016

(2-16-16)

PROJECT NO.	SHEET NO.
R-5023B	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY PER GEOTECH RECS				SD	5500
CONTIGENCY PER DIVISION				SD	5,930
				TOTAL LF:	11,430

***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
-L-	54+75	103+87					900		
-L1-	14+75	20+94					850		
CONTINGENCY PER GEOTECH RECS.			ASU		2,000	3,800	6,000		
CONTINGENCY PER DIVISION			ASU		2,000	3,800	6,000		
				TOTAL CY/TONS/SY:	4,000	7,600	13,750**	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.**

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX

PARCEL NO.	SHEET NO.	OWNER
1	4	JOSEPH M. COTTON, et ux (NO CLAIM)
2	4	NELLAPHA S. MORTON
3	4 & 5	JEFFERY K. MORTON, et ux (NO CLAIM)
4	4 & 5	ONSLOW COUNTY BOARD OF EDUCATION
5	5	OLIVER D. ROBERTS, et ux
6	N/A	UNUSED PARCEL NUMBER
7	5 & 6	JAMES M. JARMAN, JR.
8	6	JAY W. KELLUM
9	6 & 7	JOSEPHINE ROBINSON
10	7	LEVI HILL, et ux
11	7	THOMAS WELLS, JR., et ux
12	7	THOMAS WELLS, et ux
13	7	JOSE C. MENDOZA VASQUEZ, et ux
14	7 & 8	JAMES MILLER, et ux
15	9	NEW BEGINNINGS CHRISTIAN CENTER
16	9 & 10	JAMES G. DIXON
17	9	VERNIE A. PADGETT, et al
18	9	DAVID L. BAGGETT
19	9	FREEDOM LAND HOLDINGS, INC.
20	9 & 10	BEAVER CREEK INVESTORS, INC
21	10	EDWARD R. FLINCHUM
22	10	FLOYD FILGER, et al
23	10	FLOYD FILGER, et al
24	10 & 11	ALBEN H. CROUCH, et ux
25	11	C4 JACKSONVILLE FD, LLC
25A	11	C4 JACKSONVILLE FD, LLC
26	11	BETTY BLAKE
27	12	WILLIAM S. TERRELL, JR.
28	12 & 13	SOVEREIGN GRACE BAPTIST CHURCH
29	13	SOUTHWEST PRIMITIVE BAPTIST
30	13	RON S. BLARE
31	13	SOVEREIGN GRACE BAPTIST CHURCH
32	14	TONY EDWARDS
33	15	ANGELIQUE G. ROBERTS

PARCEL NO.	SHEET NO.	OWNER
34	16	MARK A. PETTEWAY
35	16	JAMES LEE ROCHELLE (NO CLAIM)
36	16 & 17	LARRY C. JENKINS
37	16	MARK A. PETTEWAY
38	16 & 17	JOAN PETTEWAY ROSS

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A. BYRD
DocuSigned by: James A. Byrd 11/3/2016

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

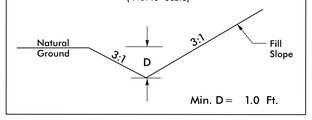
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2007

10

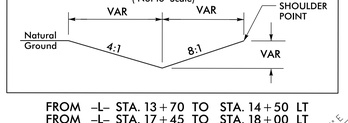
15

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM –L– STA. 11+50 TO STA. 13+25 LT
FROM –L– STA. 14+95 TO STA. 17+00 LT

DETAIL B
MODIFIED TYPICAL CUT DITCH
(Not to Scale)



FROM –L– STA. 13+70 TO STA. 14+50 LT
FROM –L– STA. 17+45 TO STA. 18+00 LT

S 71°47'57" W
276.22'

N 76°57'17" E
77.64'

EIP

N 72°40'14" E
173.92'

EIP

N 27°50'26" E
97.74'

EIP

N 74°14'39" E
63.34'

EIP

S 3°40'42" E
109.99'

EIP

S 15°20'27" E
128.10'

MARGARET M. GURGANUS
DB 1295 PG 848
MB 64 PG 88

CEMETERY

N 12°38'34" W
141.31'

N 32°15'49" W
153.42'

–L– STA. 12+00 TO 13+25 LT
TIE–IN BACK SLOPE OF PROP. DITCH INSIDE EXIST. RIGHT–OF–WAY. (2.5:1 MAX BACK SLOPE)

(NO CLAIM)
(1)
JOSEPH M. COTTON, et ux
DB 1315 PG 486
MB 55 PG 30

(2)
NELLAPHA S. MORTON
DB 2050 PG 95

S 71°22'23" W
265.00'

(NO CLAIM)
(3)
JEFFERY K. MORTON, et ux
DB 2881 PG 343

S 18°37'37" E
167.17'

END RESURFACING +40.00 –L–

BEGIN WIDENING +40.00 –L–

–L– POT Sta. 10+00.00

SPECIAL LAT. 'V'–DITCH SEE DETAIL A

CLASS 'B' RIP–RAP EST. 2 TONS EST. 7 SYGF

MOD. TYPICAL CUT DITCH SEE DETAIL B

CLASS 'B' RIP–RAP EST. 2 TONS EST. 7 SYGF

MOD. TYPICAL CUT DITCH SEE DETAIL B

EXISTING R/W
EXISTING R/W
100.00'
8' SOIL
DITCH
15"
18"
18" PPES
18" HDPE
RETAIN
CONC HW
REMOVE HW
JB W/ MH FRAME & COVER
(0401)
EIP
W
C
E
FO
FSS
(0402)
2GI–D
18"
18" RCP
REMOVE
20' R
(0403)
JB W/ MH FRAME & COVER
(0404)
(0405)
15" RCP
30' R
24" CMP
22" SST
2' FDPS
2' FDPS
+80.50
+81.02
+32.00 –L–
60.00'
-BL- 2 PINC
NC 53 BURGAW HWY WIDTH VARIES
WIDTH VARIES
–L– N 71° 05' 56.0" E
N 71°23'51" E
357.92' WITH CL
REMOVE
8d
TIE TO EXISTING DITCH

BEGIN CONSTRUCTION
–L– POT 10+98.93

BEGIN RESURFACING GRADE
+50.00 –L–

+40.00 –L–
EX. R/W
60.00'

+00.00 –L–
63.00'

(4)
ONSLOW COUNTY BOARD OF EDUCATION
DB 3603 PG 667
MB 29 PG 141

NOTE: S.U.E. SURVEYS BEGIN AT –L– STATION 16+55+/–. THE CONTRACTOR IS DIRECTED TO CALL 811 BEFORE DIGGING BETWEEN STATIONS 10+98+/– AND 16+55+/–.

MATCHLINE PLAN SHEET 5
–L– STA. 18+00.00

SEE SHEET 18 FOR –L– PROFILE

REVISIONS
8.17.99

03-NOV-2016 12:01
C:\Projects\49353 Division 3 Environmental Outsourcing\Task Order 02 - NC 53\Roadway\Proj\R5023BC_RDY_PSH_4.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
DocuSigned by: James A. Byrd 11/3/2016

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NC License No: C-1554

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MATCHLINE PLAN SHEET 4 –L– STA. 18+00.00

MATCHLINE PLAN SHEET 6 –L– STA. 26+00.00

–L–
PI Sta 18+98.87
△ = 0° 08' 55.6" (RT)
D = 0° 17' 11.3"
L = 51.93'
T = 25.96'
R = 20,000.00'
RO = SEE PLANS
SE = SEE PLANS

NAD 83/2007

20

25

OLIVER D. ROBERTS, et ux
DB 2840 PG 279
MB 51PG 93

JAMES M. JARMAN
DB 3043 PG 353
MB 55 PG 103

(NO CLAIM)
3
JEFFERY K. MORTON, et ux
DB 2881PG 343

2
NELLAPHA S. MORTON
DB 2050 PG 95

5
OLIVER D. ROBERTS, et ux
DB 1473 PG 184

2
NELLAPHA S. MORTON
DB 2050 PG 95

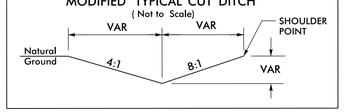
7
JAMES M. JARMAN, JR.
DB 850 PG 599
MB 23 PG 2

S 71°22'23" W 265.00'
S 71°14'51" W 252.52'
S 79°31'10" W 255.61'
N 18°40'29" W 210.00'
S 14°59'05" E 210.00'
N 18°37'37" W 167.17'
N 18°40'29" W 174.02'
S 14°59'05" E 174.97'
N 15°41'21" W 188.27'
N 14°20'28" W 218.89'

MOD. TYPICAL CUT DITCH SEE DETAIL B
SPECIAL LAT. 'V'-DITCH SEE DETAIL C
CULTIVATED FIELD
+43.63 –L– EX. PROP LINE
+43.07 –L– EX. PROP LINE
+32.00 –L– EX. R/W 58.00'
+59.00 –L– EX. R/W 66.00'
CLASS 'B' RIP-RAP EST. 8 TONS EST. 21 SYGF
REMOVE
12' DR
EIP
EXISTING R/W
2 CL-D
12" PVC, ONWASA
2' FDPS
16.5'
0.25
100.00
INNERDUCT
T FO
FSS
FSS MARKER
20' R
15" PPES
15" RCP
REMOVE
0501
0502
0503
0504
0505
0506
N 71°14'51.5" E
NC 53 BURGAW HWY WIDTH VARIES
–L–
30" RCP-IV
REMOVE
15" CMP
ELEC METER
SPECIAL CUT DITCH SEE DETAIL D
SPECIAL LAT. 'V'-DITCH SEE DETAIL C
20' DR
+10.00 –L– EX. R/W
–L– PT Sta. 19+24.84
–L– PC Sta. 18+72.91

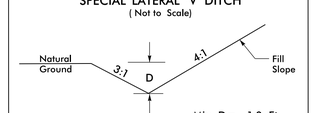
LIGHTHOUSE BAPTIST CHURCH
DB 2453 PG 736
MB 43 PG 120

DETAIL B
MODIFIED TYPICAL CUT DITCH
(Not to Scale)



FROM –L– STA. 18+00 TO STA. 19+50 LT

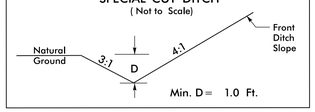
DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.

FROM –L– STA. 19+50 TO STA. 25+00 LT
FROM –L– STA. 22+75 TO STA. 24+25 RT

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.0 Ft.

FROM –L– STA. 19+00 TO STA. 22+75 RT
FROM –L– STA. 24+25 TO STA. 25+50 RT

SEE SHEET 18 FOR –L– PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
DocuSigned by: James A. Byrd 11/3/2016

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MATCHLINE PLAN SHEET 5 –L– STA. 26+00.00

MATCHLINE PLAN SHEET 7 –L– STA. 34+00.00

NAD 83/2007

30

JAMES M. JARMAN
DB 3043 PG 353
MB 55 PG 103

JAMES M. JARMAN, JR.
DB 850 PG 599
MB 23 PG 2
(7)

(8)
JAY W. KELLUM
DB 2966 PG 720

JAMES D. KELLUM, et ux
DB 2093 PG 769

HORACE JONES HEIRS
DB 402 PG 388

(9)
JOSEPHINE ROBINSON
ESTATE FILE

DALTON R. ROBINSON, et ux
DB 498 PG 509

N 84°54'55" E 284.97'

N 89°59'14" W 197.57'

S 89°38'55" W 277.06'

S 89°48'01" W 2.56'

N 50°62'00" W 201.42'

N 0°47'52.2" W

S 13°10'04" E 86.98'

S 13°25'34" E 90.55'

S 12°47'08" E 69.89'

S 17°49'16" E 105.62'

N 18°37'37" W 173.89'

S 18°37'37" E 173.89'

S 71°22'23" W 140.00'

DITCH

EXISTING R/W

-Y1- POT Sta. 12+41.47

-Y1- PC Sta. 10+00.00

-Y1- PT Sta. 10+80.00

END CONSTRUCTION
-Y1- STA. 10+80.00

+88.00 -Y1-
EX. R/W
46.00'

+00.00 -Y1-
EX. R/W

+56.00 -L-
EX. R/W

+28.00 -L-
EX. R/W

-BL- 3 PINC

SEE DETAIL FOR CUT DITCH

SPECIAL CUT DITCH
SEE DETAIL D

RECORDS INDICATE AIR RELEASE VALVE, NOT FOUND IN FIELD

EXISTING R/W MON

6' DR

20' DR

24' DR

17' DR

40' R

20' R

10' R

REMOVE 15" RCP

REMOVE EX PIPE 15" RCP

15" PPES

2' FDPS

INNERDUCT

NC 53 BURGAW HWY WIDTH VARIES

CULTIVATED FIELD

SPECIAL LAT. 'V' DITCH
SEE DETAIL C

BM3

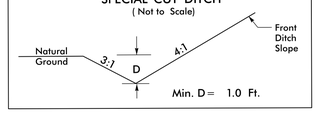
-L- PT Sta. 27+06.19

-L- POC STA 26+74.57 =
-Y1- POT STA 10+00.00

-L- PC Sta. 26+41.01

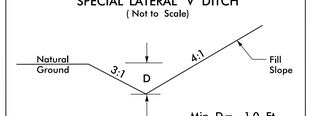
-L-
PI Sta 26+73.60
Δ = 0°08'57.8" (RT)
D = 0°13'45.1"
L = 65.18'
T = 32.59'
R = 25,000.00'
RO = SEE PLANS
SE = SEE PLANS

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



FROM –L– STA. 27+50 TO STA. 29+50 LT
FROM –L– STA. 31+00 TO STA. 32+50 LT
FROM –L– STA. 31+50 TO STA. 33+25 RT

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



FROM –L– STA. 33+25 TO STA. 34+00 RT

SEE SHEET 18 FOR –L– PROFILE
SEE SHEET 21 FOR –Y1– PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	7
R/W SHEET NO.	

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DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A. BYRD
DocuSigned by: James A. Byrd 11/3/2016

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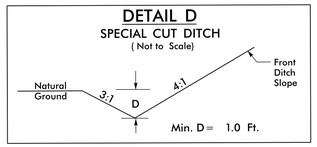
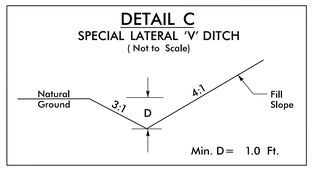
DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



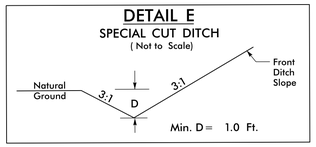
FROM –L– STA. 34+25 TO STA. 42+00 LT
FROM –L– STA. 35+25 TO STA. 40+00 RT
FROM –L– STA. 41+50 TO STA. 42+00 RT

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



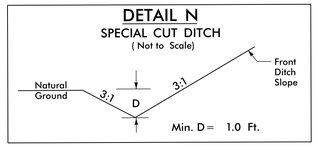
FROM –L– STA. 34+00 TO STA. 35+25 RT

DETAIL E
SPECIAL CUT DITCH
(Not to Scale)



FROM –L– STA. 40+00 TO STA. 41+50 RT

DETAIL N
SPECIAL CUT DITCH
(Not to Scale)



FROM –L– STA. 34+00 TO STA. 34+18 LT

40

–L–
PI Sta 40+21.47
△ = 0° 02' 05.9" (LT)
D = 0° 03' 16.4"
L = 64.07'
T = 32.03'
R = 105,000.00'
RO = SEE PLANS
SE = SEE PLANS

NAD 83/2007

N 19°27'W 2112'

HORACE JONES HEIRS
DB 402 PG 388

S 00°00'24"E 3612.7'

SPECIAL CUT DITCH SEE DETAIL N

CLASS 'B' RIP-RAP
EST. 2 TONS
EST. 7 SYGF

PEGGY L. GURGANUS SHEPARD, et al
DB 1210 PG 190
TRACT I, II & III

WALTON HOMEPLACE, INC.
DB 2236 PG 977

SPECIAL CUT DITCH SEE DETAIL D

–L– PC Sta. 39+89.43

–L– PT Sta. 40+53.50

CULTIVATED FIELD

16' DR

–BL– 4 PINC

GRAU-350

REMOVE EXIST. HW

N 71° 23' 49.3" E

N 71° 21' 43.5" E

–L–

NC 53 BURGAW HWY WIDTH VARIES

INNERDUCT

SPECIAL LAT. 'V'-DITCH SEE DETAIL C

SPECIAL CUT DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL E

EST. 14 SY PSRM

EST. 13 SY PSRM

EST. 12 SY PSRM

EST. 15 SY PSRM

EST. 14 SY PSRM

+06.00 –L– EX. R/W 61.00' 70.00'

+39.00 –L– EX. R/W 60.00' 70.00'

+00.00 –L– 61.00'

+00.09 –L– EX. R/W

+61.00 –L– 58.00'

+30.08 –L– EX. R/W

+63.00 –L– 60.00'

+00.00 –L– 57.00'

+02.00 –L– 64.00'

+50.00 –L– 56.00'

+00.00 –L– 60.00'

N 34°24'43" E 113.20'

N 34°18'43" E 22.20'

PROPERTY LINE DRAWN BY TAX MAPPING

CLASS 'I' RIP-RAP (NO RIP RAP IS TO BE PLACED IN STREAM BED) EST. 40 TONS EST. 75 SYGF

9 JOSEPHINE ROBINSON ESTATE FILE

10 LEVI HILL, et ux DB 546 PG 244

ELMER LAURIO, et ux DB 3031 PG 140

11 THOMAS WELLS, JR., et ux DB 459 PG 75

12 THOMAS WELLS, et ux DB 816 PG 737

13 JOSE C. MENDOZA VASQUEZ, et ux DB 3361 PG 462

14 JAMES MILLER, et ux DB 3934 PG 915 MB 62 PG 107

S 16°19'24" E 204.26'

N 16°39'12" W 205.00'

S 16°33'10" E 205.58'

S 16°19'23" E 205.47'

N 18°32'13" W 264.43'

N 26°56'13" W 326.94'

MATCHLINE PLAN SHEET 6
–L– STA. 34+00.00

MATCHLINE PLAN SHEET 8
–L– STA. 42+00.00

SEE SHEET 18 AND 19 FOR –L– PROFILE

03-NOV-2016 12:01
C:\Users\jmcdonald\Documents\49353 Division 3 Environmental Outsourcing\Task Order 02 - NC 53\Roadway\Proj\R5023BC_RDY_PSH_7.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker
11/4/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
DocuSigned by: James A. Byrd
11/3/2016

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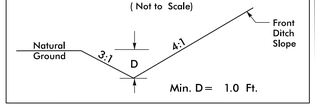
$$$$USERNAME$$$$

MATCHLINE PLAN SHEET 7 –L– STA. 42+00.00

MATCHLINE PLAN SHEET 9 –L– STA. 50+00.00

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



FROM –L– STA. 42+00 TO STA. 43+50 LT
FROM –L– STA. 46+50 TO STA. 50+00 LT
FROM –L– STA. 42+00 TO STA. 44+00 RT
FROM –L– STA. 45+50 TO STA. 50+00 RT

WALTON HOMEPLACE, INC.
DB 2236 PG 977

MARK HATTON
DB 2594 PG 364

RICHARD DUGGAN, et ux
DB 2269 PG 537

JAMES S. PERRY, et al
DB 2908 PG 679

SHERYL FUTRELLE
DB 3151 PG 853
MB 57 PG 123

JAMES MILLER, et ux
DB 3934 PG 915
MB 62 PG 107

DERYCK W. SMITH
DB 3938 PG 885
MB 62 PG 107

JERRY J. WALLACE, et ux
DB 3633 PG 841
MB 62 PG 107

KENNETH M. WITHEROW
DB 3855 PG 578

KENNETH M. WITHEROW
DB 659 PG 853

KENNETH M. WITHEROW
DB 659 PG 849

GLENWOOD KENNEDY
DB 2394 PG 226

COLE N. DELLINGER, et ux
DB 2951 PG 618

SPECIAL CUT DITCH SEE DETAIL D

EST. 17 SY PSRM

EST. 16 SY PSRM

EST. 20 SY PSRM

-BL- 5 PINC

-L-

N 71° 21' 43.5" E

NC 53 BURGAW HWY WIDTH VARIES

SEE SHEET 19 FOR –L– PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER

DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A. BYRD

DocuSigned by: James A. Byrd 11/3/2016

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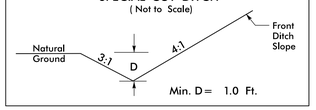
50

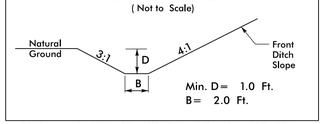
55

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



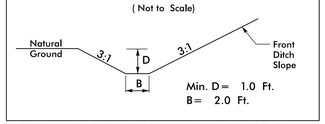
FROM –L– STA. 50+00 TO STA. 57+00 LT
FROM –L– STA. 50+00 TO STA. 53+00 RT
FROM –Y2– STA 11+00 TO STA. 13+00 RT

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



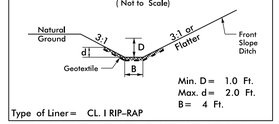
FROM –L– STA. 53+00 TO STA. 54+50 RT
FROM –L– STA. 57+00 TO STA. 57+50 RT

DETAIL G
SPECIAL CUT BASE DITCH
(Not to Scale)



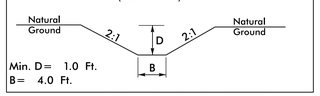
FROM –L– STA. 54+50 TO STA. 56+58 RT

DETAIL H
SPECIAL CUT BASE DITCH
(Not to Scale)



Type of Liner= CL. I RIP-RAP
FROM –L– STA. 56+58 TO STA. 57+00 RT

DETAIL I
STANDARD BASE DITCH
(Not to Scale)



–Y2– STA. 12+15 LT

MATCHLINE PLAN SHEET 8
–L– STA. 50+00.00

MATCHLINE PLAN SHEET 10
–L– STA. 58+00.00

DONNA P. KENNEDY
DB 755 PG 56
MB 57 PG 123

JESSE HANSLEY
DB 3292 PG 120
MB 57 PG 123

NEW BEGINNINGS CHRISTIAN CENTER
DB 3479 PG 935
MB 57 PG 123

15
NEW BEGINNINGS CHRISTIAN CENTER
DB 3479 PG 935
MB 57 PG 123

16
JAMES G. DIXON
DB 701 PG 619
MB 29 PG 42

S 10°31'48" E
282.69'

S 31°23'01" E
33.39'

S 12°40'21" E
150.80'

BM4

CLASS 'B' RIP-RAP
EST. 2 TONS
EST. 7 SYGF

CLASS 'I' RIP-RAP
EST. 40 TONS
EST. 70 SYGF

S 10°58'28" E
38.60'

SPECIAL CUT BASE DITCH SEE DETAIL F

+78.00 –L–
EX. R/W
62.00'
75.00'

+43.00 –L–
EX. R/W
62.00'
75.00'

+00.00 –L–
62.00'

+11.00 –L–
EX. R/W

+72.12 –L–
EX. R/W @
PROP. LINE

FALLOW

14' DR

LANE TAPER

+60.63

SPECIAL CUT DITCH SEE DETAIL D

0901 0902 0903 0904 0905 0906 0907 0908 0909 0910

EIP

EXISTING R/W

12" PVC, ONWASA

END OF NEWLY INSTALLED WATERLINE

15" PPES

18" PPES

24" PPES

20' R

REMOVE

2' FDPS

–L– N 71°21'43.5" E
NC 53 BURGAW HWY WIDTH VARIES

INNERDUCT

CAT-1

HW

2-42" x 39' CAPA

EST. 20 SY PSRM

SPECIAL CUT DITCH SEE DETAIL D

+00.00 –L–
64.00'

SPECIAL CUT BASE DITCH SEE DETAIL G

+40.00 –L–
66.40'
89.00'

+63.00 –L–
EX. R/W

SPECIAL CUT BASE DITCH SEE DETAIL H

+00.00 –L–
67.00'

+59.53 –L–
69.71'

CLASS 'I' RIP-RAP
EST. 70 TONS
EST. 120 SYGF

+71.00 –L–
91.13'

TDE

DDE

STD. BASE DITCH SEE DETAIL I
S=0.8%
EST. 110 CY DDE

FILL IN EXIST. DITCH
EST. 110 CY

+86.59 –Y2–
31.30'

+37.16 –Y2–
31.20'

CLASS 'I' RIP-RAP
EST. 15 TONS
EST. 30 SYGF

FILL W/ FLOWABLE MATERIAL

BEGIN CONSTRUCTION
–Y2– STA. 11+00.00

SPECIAL CUT DITCH SEE DETAIL D

–Y2– POT Sta. 10+00.00

N 33°32'53.3" E

+55.00 –Y2–
52.00'

+88.00 –Y2–
EX. R/W
36.00'

ELEC METER
REMOVE EX. FES
REMOVE

SR 1105 HANKS RUN

17
VERNIE A. PADGETT, et al
DB 2331 PG 185

18
DAVID L. BAGGETT
DB 1093 PG 168

19
FREEDOM LAND HOLDINGS, INC.
DB 3601 PG 566

20
BEAVER CREEK INVESTORS, INC
DB 2662 PG 484

COLE N. DELLINGER, et ux
DB 2951 PG 618

S 18°41'43" E
209.82'

S 18°40'28" E
209.86'

N 18°40'28" W
210.00'

S 71°20'13" W
105.88'

S 71°23'02" W
209.91'

S 71°22'58" W
210.00'

SEE SHEET 19 FOR –L– PROFILE
SEE SHEET 21 FOR –Y2– PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
DocuSigned by: James A. Byrd 11/4/2016

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343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1504

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REVISIONS

8/17/99

MATCHLINE PLAN SHEET 9
-L- STA. 58+00.00

MATCHLINE PLAN SHEET 11
-L- STA. 66+00.00

S 7I°22'23" W
185.96'

S 54°04'37" E
149.31'

S 54°01'47" E
110.52'

N 18°06'37" W
137.62'

N 18°30'03" W
269.62'

N 65°57'09" E
127.20'

S 20°39'05" E
302.91'

S 16°32'28" E
249.53'

NAD 83/2007

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 3:1, D, 4:1, Front Ditch Slope, Min. D= 1.0 Ft.
FROM -L- STA. 58+50 TO STA. 62+50 LT

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Fill Slope, Min. D= 1.0 Ft.
FROM -L- STA. 63+00 TO STA. 65+00 RT

DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 4:1, Fill Slope, Min. D= 1.0 Ft.
FROM -L- STA. 65+00 TO STA. 66+00 RT

16 JAMES G. DIXON
DB 701 PG 619
MB 29 PG 42

RICHARD M. TALLMAN, et ux
DB 3570 PG 800

EVANS GARAGE, INC.
DB 3047 PG 767

21 EDWARD R. FLINCHUM
DB 533 PG 656
MB 2 PG 164

22 FLOYD FILGER, et al
DB 435 PG 669

23 FLOYD FILGER, et al
DB 2852 PG 815

24 ALBEN H. CROUCH, et ux
DB 3659 PG 854
DB 66 PG 117

20 BEAVER CREEK INVESTORS, INC
DB 2662 PG 484

ROY L.EVANS
DB 1343 PG 279

CHARLES E. CARPER
DB 791 PG 679

HORIZON LANE

-L- POT Sta. 58+46.24 = -Y2- POT Sta. 13+81.81

-Y2- PT Sta. 13+69.68

-Y2- PC Sta. 12+85.07

-L- PC Sta. 63+59.94

-L- PT Sta. 64+10.18

LANE TAPER

-BL- 6 PINC

-BL- 7 PINC

SPECIAL CUT DITCH SEE DETAIL D

SPECIAL LAT. 'V'-DITCH SEE DETAIL A

SPECIAL LAT. 'V'-DITCH SEE DETAIL C

CLASS 'B' RIP-RAP
EST. 5 TONS
EST. 14 SYGF

EST. 16 SY PSRM

DO NOT DISTURB WELL

FILL W/ FLOWABLE MATERIAL

REMOVE EX. FES

-L- N 71° 21' 43.5" E
NC 53 BURGAW HWY WIDTH VARIES

PDE

ISLAND DETAIL
N.T.S.
+44 5' LT; 4' R; 90° R; 10' R; PROPOSED 5" MONLITHIC CONC. ISLAND (KEYED-IN); +06 5' LT; 2' R

-Y2-
PI Sta 13+30.09
Δ = 48° 28' 32.5" (LT)
D = 57° 17' 44.8"
L = 84.61'
T = 45.02'
R = 100.00'
RO = SEE PLANS
SE = SEE PLANS

-L-
PI Sta 63+85.06
Δ = 0° 00' 34.0" (LT)
D = 0° 01' 07.6"
L = 50.24'
T = 25.12'
R = 305,000.00'
RO = SEE PLANS
SE = SEE PLANS

SEE SHEET 19 FOR -L- PROFILE
SEE SHEET 21 FOR -Y2- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
R-5023B	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A. BYRD
DocuSigned by: James A. Byrd 11/3/2016

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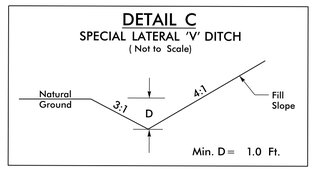
DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM –L– STA. 66+00 TO STA. 69+00 RT

–L–
PI Sta 71+26.04
Δ = 0° 33' 15.9" (LT)
D = 0° 16' 46.2"
L = 198.37'
T = 99.18'
R = 20,500.00'
RO = SEE PLANS
SE = SEE PLANS

MATCHLINE SHEET 10
–L– STA. 66+00.00

MATCHLINE SHEET 12
–L– STA. 74+00.00

MATCHLINE – INSET
–Y4– STA. 12+20.00

NAD 83/2007

FLOYD FILGER
DB 2766 PG 859

O.J. BROWN HEIRS
DB 297 PG 384

BOBBY S. WILLIAMS
DB 741PG 185

C4 JACKSONVILLE FD LLC
DB 4405 PG 777
MB 37 PG 179

C4 JACKSONVILLE FD LLC
DB 4405 PG 783
MB 37 PG 179

C4 JACKSONVILLE FD LLC
DB 4405 PG 788
MB 37 PG 179

CHESLEY R. ROCHELLE, et ux
DB 297 PG 254

BETTY BLAKE
DB 3797 PG 193
TRACT III

BETTY BLAKE
DB 3797 PG 193
TRACT II

BETTY BLAKE
DB 3797 PG 193
TRACT I

JAMES D. JUSTICE, et al
DB 1349 PG 550
MB 2 PG 164

JAMES D. JUSTICE, et al
DB 1349 PG 550
MB 2 PG 164

END CONSTRUCTION
–Y4– STA. 11+60+/–

–L– POC Sta. 70+90.86 =
–Y3– POT Sta. 11+67.12
–Y4– POT Sta. 10+00.00

–L– PC Sta. 70+26.86

–L– PT Sta. 72+25.23

BEGIN SAFETY FENCE @ PROP. CORNER

–Y3– PT Sta. 11+11.92

BEGIN CONSTRUCTION
–Y3– STA. 10+85.00

–Y3– PC Sta. 7+77.65

CLASS 'B' RIP-RAP
EST. 3 TONS
EST. 10 SYGF

EST. 15 SY PSRM

EST. 20 SY PSRM

SPECIAL LAT. 'V'-DITCH SEE DETAIL C

TIE TO EXISTING C&G

BEGIN C&G TIE TO EXIST.

REMOVE EX. DI

REMOVE SEDIMENT

SPECIAL VALLEY GUTTER (SEE TYPS)

-BL- 8 PINC

N 71° 21' 09.5" E

N 70° 47' 53.6" E

N 23° 38' 01.5" W
–Y4–

N 18° 49' 13.3" W
–Y3–

NC 53 BURGAW HWY WIDTH VARIES

SR 1212 POWE FARM RD EXT

SR 1113 MURRILL HILL RD EXT

+40.00 –Y4– EX. R/W

+00.00 –Y4– 38.00'

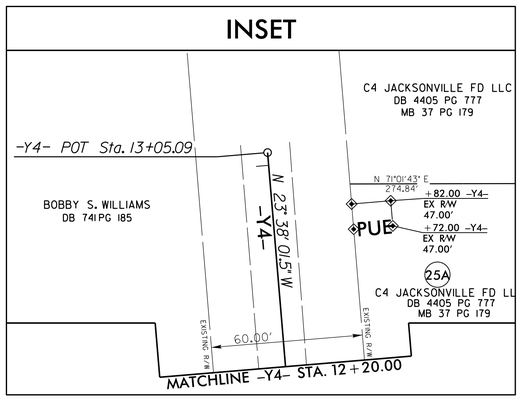
+78.00 –Y4– EX. R/W

+70.00 –Y4– 38.15'

+47.00 –L– EX. R/W

180'-60'-180' 6.5' OFFSET

INSET



LEGEND

EXISTING SIGNAL TO BE MODIFIED

–Y3–
PI Sta 9+44.84
D = 3° 32' 01.0" (LT)
D = 1° 03' 25.6"
L = 334.27'
T = 167.19'
R = 5,420.00'
RO = SEE PLANS
SE = SEE PLANS

SEE SHEET 20 FOR –L– PROFILE
SEE SHEET 21 FOR –Y3– PROFILE
SEE SHEET 21 FOR –Y4– PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	12
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER

DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD

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MATCHLINE SHEET 11
-L- STA. 74+00.00

MATCHLINE SHEET 13
-L- STA. 82+00.00

-L-
PI Sta 77+87.61
△ = 0°06' 42.5" (RT)
D = 0°06' 48.4"
L = 98.54'
T = 49.27'
R = 50,500.00'
RO = SEE PLANS
SE = SEE PLANS

75

80

NAD 83/2007

S 40°18'33" E
675.92'

N 17°07'37" W
630.33'

(27) WILLIAM S. TERRELL, JR.
DB 3189 PG 739
MB 2 PG 164

LEWIS J. KOLLMEYER, et ux
DB 1021 PG 42

SUSAN CASTELLANOS
NDR

-BL- 9 PINC

+01.54 -L-
EX. R/W CORNER

PROTECTED AREA
DO NOT DISTURB

+55.00 -L-
34.00'

+34.00 -L-
EX. R/W

+19.93 -L-
49.68'

+19.92 -L-
29.68'

END SAFETY FENCE @ PROP. CORNER

SAFETY FENCE

EXISTING R/W MON

20' R/W SHIFT

13' DR

16' DR

20' DR

24' DR

28' DR

11' DR

15" RCP-IV

18" RCP-IV

REMOVE

2'-6" C&G

CB-G

CB-F

DI

1201 1202 1203 1204 1205 1209 1210 1211 1212 1213 1214 1215

N 70° 47' 53.6" E

N 70° 54' 36.1" E

-L- PC Sta. 77+38.34

-L- PT Sta. 78+36.88

80.00'

NC 53 BURGAW HWY WIDTH VARIES

FIBER OPTIC

ELEC METER

ECM

CONC HW

BLK WALL

JAMES D. JUSTICE, et al
DB 1349 PG 550
MB 2 PG 164

DAVID L. LYON, et ux
DB 1274 PG 310

TIMOTHY W. ANDERSON
DB 4028 PG 388

FRANCES D. KINEV
DB 1055 PG 956

WALTON CEMETERY
NDR

(28) SOVEREIGN GRACE BAPTIST CHURCH
DB 730 PG 67
TRACT II

N 18°15'30" W
124.35'

N 76°56'20" E
213.09'

N 19°03'40" W
141.04'

S 19°09'41" E
242.30'

N 19°03'40" W
478.79'

N 35°45'17" W
146.20'

N 73°44'41" W
102.50'

S 77°30'19" W
74.40'

SEE SHEET 20 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	13
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
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HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
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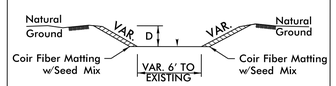
REVISIONS

8/17/99

-Y6-
PI Sta 10+55.04
△ = 3° 45' 17.6" (RT)
D = 8° 11' 06.4"
L = 45.87'
T = 22.95'
R = 700.00'
RO = SEE PLANS
SE = SEE PLANS

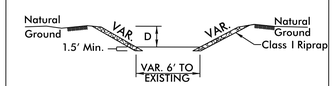
NAD 83/2007

DETAIL K (Not to Scale)
CULVERT CHANNEL IMPROVEMENTS (UPSTREAM)



D = Varies (To Top of Bank)
EST. 20 CY DDE
EST. 25 SY SY MATTING

DETAIL I (Not to Scale)
CULVERT CHANNEL IMPROVEMENTS (DOWNSTREAM)



D = Varies (To Top of Bank)
EST. 18 CY DDE
EST. 16 TONS CLASS I RIPRAP
EST. 23 SY GEOTEXTILE FABRIC

S 43°53'34" W 166.59'
TONY EDWARDE DB 328 PG 178
N 71°05'31" E 201.20'
S 65°16'42" E 314.68'
S 44°49'27" W 137.71'

-Y6- POT Sta. 11+98.23
N 20° 41' 40.0" W
60.00'
SR 1217 JUSTICE RD EAST
EXISTING R/W
END CONSTRUCTION -Y6- STA. 11+05.00
+98.00 -Y6- EX. R/W
+14.00 -L- EX. R/W 96.00'
SUSAN CASTELLANOS NDR
+80.67 END C&G
50' R
-Y6- PT Sta. 10+77.97
-L- PT Sta. 83+91.27
-L- PC Sta. 83+36.28
+56.01 END C&G
BEGIN SAFETY FENCE -Y6- +62.00 EX. R/W
+80.00 -L- 38.17'
-Y6- PC Sta. 10+32.09
SAFETY FENCE
+00.00 -L- 40.00'
+93.31 -L- EX. R/W @ PROP. LINE
END SAFETY FENCE +72.46 -L- EX. R/W
+09.42 -L- EX. PROP LINE
+36.00 -L- 67.00'
+46.00 -L- EX. R/W
29 SOUTHWEST PRIMITIVE BAPTIST NDR
SEE SHEETS C-1 THRU C-6 FOR CULVERT PLANS
PROTECTED AREA DO NOT DISTURB
CULVERT CHANNEL IMPROVEMENTS (DOWNSTREAM) SEE DETAIL I
30 RON S. BLARE DB 1823 PG 715
UT TO BUFFALO CREEK
S 84°35'07" E 108.14'
MATCHLINE SHEET 12 -L- STA. 82+00.00
MATCHLINE SHEET 14 -L- STA. 90+00.00
N 70° 48' 24.2" E
NC 53 BURGAW HWY WIDTH VARIES
-L-
-Y6- POT Sta. 84+19.07= -Y5- POT Sta. 12+00.17 -Y6- POT Sta. 10+00.00
+91.00 -L- EX. R/W
+47.76 BEGIN C&G
+36.00 -Y5- EX. R/W
BM5
BEGIN CONSTRUCTION -Y5- STA. 11+10.00
N 35° 52' 03.0" W
SR 1136 EDWARDS RD EAST
60.00'
+85.00 -L- EX. R/W
+23.87 BEGIN C&G
+06.00 -L- 28.91'
+10.62
31 SOVEREIGN GRACE BAPTIST CHURCH DB 730 PG 67 TRACT I
28 SOVEREIGN GRACE BAPTIST CHURCH DB 730 PG 67 TRACT II
CULVERT CHANNEL IMPROVEMENTS (UPSTREAM) SEE DETAIL K
-BL- 10 PINC
S 09°05'08" W 51.90'
N 80°06'18" E 178.37'
CEMETERY BURIAL DATES EARLY 1900'S
TONY K. EDWARDS CEMETERY DB 3076 PG 786 MB 55 PG 149
NCGS MON "HITCH" ELEV= 47.85'
S 23°45'33" E 64.39'
S 66°29'16" W 33.14'
A. RYAN CANNON DB 2513 PG 72 DB 350 PG 490
JOSEPH ZIMMERMANN DB 3434 PG 548 MB 58 PG 94
LISA SANDLIN DB 3274 PG 509 MB 58 PG 94
N 58°07'16" E 161.27'
S 28°34'48" W 37.58'
S 09°25'42" E 151.67'
S 02°36'46" W 143.03'
-Y5- POT Sta. 10+00.00
-Y5-
JASON M. McCALL DB 2051 PG 505 MB 44 PG 199
S 49°48'54" W 97.08'
S 28°39'04" W 124.04'

-L-
PI Sta 83+63.77
△ = 0° 06' 11.8" (LT)
D = 0° 11' 16.3"
L = 54.98'
T = 27.49'
R = 30,500.00'
RO = SEE PLANS
SE = SEE PLANS

SEE SHEET 20 FOR -L- PROFILE
SEE SHEET 21 FOR -Y5- PROFILE
SEE SHEET 22 FOR -Y6- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
R-5023B	14
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER

DocuSigned by: W. Craig Parker
11/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD

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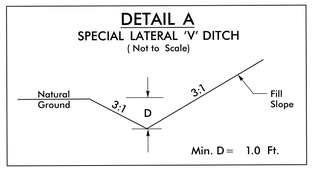
REVISIONS 8/17/99

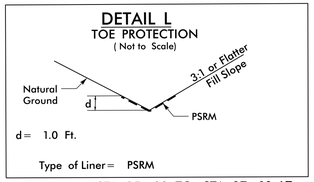
-L-
PI Sta 92+90.02
△ = 3° 11' 20.1" (LT)
D = 0° 40' 26.6"
L = 473.09'
T = 236.60'
R = 8,500.00'
RO = SEE PLANS
SE = SEE PLANS

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM -L- STA. 92+20 TO STA. 95+00 RT

DETAIL L
TOE PROTECTION
(Not to Scale)



FROM -L- STA. 95+00 TO STA. 97+10 LT
FROM -L- STA. 97+25 TO STA. 98+00 LT

NAD 83/2007

MATCHLINE SHEET 13
-L- STA. 90+00.00

MATCHLINE SHEET 15
-L- STA. 98+00.00

DONALD G. JUSTICE, et ux
DB 742 PG 325

TONY EDWARDS
DB 328 PG 178

RICHARD M. WEST, et ux
DB 3653 PG 329
MB 61PG 225

NATHAN WERVW, et ux
DB 3182 PG 131
MB 55 PG 149

MICHAEL JACOBS, et ux
DB 3294 PG 666
MB 55 PG 149

JASON PUETZ, et ux
DB 3271PG 5
MB 55 PG 149

ALLISON BIRGANS
DB 3294 PG 855
MB 55 PG 149

RONALD GRIFFIN
DB 1080 PG 179

DENNIS R. WILLIAMS, et ux
DB 1018 PG 807

-L- PC Sta. 90+53.42
N 70° 48' 24.2" E
-L- POC Sta. 91+41.22 = -Y7A- POT Sta. 11+80.21
-L- PT Sta. 95+26.51
-L- POT Sta. 96+86.43 = -Y7- POT Sta. 13+25.68
-Y7A- POT Sta. 10+00.00
-Y7A- N 17° 01' 39.2" W
BEGIN CONSTRUCTION -Y7A- STA. 11+00.00
BEGIN CONSTRUCTION -Y7- STA. 12+54.00
-Y7-
-BL- 11 PINC
-L-
CAT-1
M-350
DO NOT DISTURB SIGN
SPECIAL LAT. 'V'-DITCH SEE DETAIL A
TOE PROTECTION SEE DETAIL L EST. 155 SY PSRM
TOE PROTECTION SEE DETAIL L EST. 55 SY PSRM
REPORTS INDICATE TELEPHONE PEDESTAL. NOT FOUND IN FIELD
FIBER OPTIC
2SFBUS
NC 53 BURGAW HWY WIDTH VARIES
SR 1106 EDWARDS RD
EIBERT WAR RD
N 74°30'38" E 292.21'
N 68°26'23" E 159.58'
N 3°16'29" W
N 67°35'14" E 210.88'
S 15°04'09" E 323.48'
S 03°27'49" E 209.66'
S 11°05'49" E 209.73'
N 13°46'49" W 200.00'
N 13°46'26" W 200.16'
N 17°01'39" W 218.98'
N 17°02'39" W 218.36'
N 17°02'39" W 330.43'
N 17°02'39" W 262.87'
N 67° 37' 04.1" E
S 71°05'31" W 100.01'
N 71°05'31" E 10.20'
S 16°58'18" E 40.75'
S 60°04'50" E 34.51'
S 23°59'20" W 38.65'
N 74°30'38" E 292.18'
N 50°25'40" W 293.78'
60.00'
50' R
30' INC TYP
16' DR
20' DR
24' DR
15" RCP-IV
2'-6" C&G
REMOVE
EXISTING R/W
EIP
ECM
PK
TC
TV
60° WD
12' CONC
10' ABAND
CB-F
CB-G
DI
1402
1403
1404
1405
1406
1407
1408
1409

SEE SHEETS 20 AND 21 FOR -L- PROFILE
SEE SHEET 22 FOR -Y7- PROFILE
SEE SHEET 22 FOR -Y7A- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	15
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A. BYRD
DocuSigned by: James A. Byrd 11/3/2016

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Raleigh, North Carolina 27609
NC License No: C-1554

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REVISIONS 8/17/99

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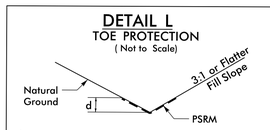
DETAIL L
TOE PROTECTION
(Not to Scale)



d = 1.0 Ft.

Type of Liner = PSRM

FROM –L– STA. 98+00 TO STA. 98+95 LT
FROM –L– STA. 99+15 TO STA. 100+65 LT
FROM –L– STA. 99+25 TO STA. 102+25 RT
FROM –L– STA. 101+00 TO STA. 103+20 LT

MATCHLINE SHEET 14
–L– STA. 98+00.00

S 08°15'41" E 42.42'

100

FRIENDLY LANE

N 01°32'02" W 459.83'

20' ACCESS EASEMENT

12' BST

CAROLYN EDWARDS
DB 328 PG 179

TOE PROTECTION
SEE DETAIL L
EST. 70 SY PSRM

TOE PROTECTION
SEE DETAIL L
EST. 120 SY PSRM

TOE PROTECTION
SEE DETAIL L
EST. 175 SY PSRM

ARNOLD W. JOHNSON, et ux
DB 766 PG 553

–L– POT Sta. 102+83.88 =
–Y8– POT Sta. 12+31.65

GPS3 POT

N 01°43'00" W 137.72'

S 69°17'46" W 37.54'

CEMETERY

N 68°06'51" E 37.05'

N 60,804.0 86'69

NAD 83/2007

105

ANGELIQUE G. ROBERTS
DB 2302 PG 267
33

S 58°17'39" W 14.00'

S 31°02'06" W 40.56'

S 58°40'06" W 67.23'

S 18°40'00" W 46.74'

S 27°48'49" W 75.09'

S 19°43'35" W 43.09'

S 13°50'50" E 24.02'

N 68°06'51" E 37.05'

N 60,804.0 86'69

BM6

CLASS 'B' RIP-RAP
EST. 12 TONS
EST. 35 SYGF

+21.99 –L– 72.00'

+13.57 –L– 49.65'

+38.00 –L– 64.00'

PDE

END TIP PROJECT R-5023B
–L– POT 104+25.00

EXISTING R/W

1502 1501 1503 1505 1504 1509 1512 1511 1506 1507 1508 1513 1510

DI BK HW 15" RCP REMOVE 15" RCP-IV 18" RCP-IV 24" RCP-IV 30" RCP-IV 36" DR 20' DR 24" DR 16' DR 2'-6" C&G CB-G CB-F 2GI-D 9' CONC DITCH SDVL 8" SDR 30" RCP 24" RCP 0"ABAND 6' W 100.00'

N 67° 37' 04.1" E –L–

NC 53 BURGAW HWY WIDTH VARIES

FIBER OPTIC

ABAND

+12.10

+21.04

+54.60 BEGIN C&G

+73.75 BEGIN C&G

+83.86

35' R

50' R

END C&G

TOE PROTECTION
SEE DETAIL L
EST. 280 SY PSRM

CAROLYN J. EDWARDS
DB 547 PG 812

ADAM D. LAWSON, et ux
DB 3362 PG 645

JONATHAN M TROMBA, et ux
DB 2907 PG 300

JOSE R. CAMPOS, et ux
DB 589 PG 255

ARMIDA L. GUTIERREZ
DB 1715 PG 925
DB 1313 PG 560

S 2°14'16" E 152.57'

N 68°26'00" E 5.65'

N 68°26'23" E 94.26'

N 68°39'00" E 63.43'

N 89°16'01" W 181.51'

S 89°16'01" E 192.69'

N 89°34'41" W 302.35'

S 2°42'07" E 244.31'

60.44' M 55°00'00" N

95.57' M 10°30'49" N

200' x 150' SD

N 0°53'22.61" E

SR 1116 DAWSON PINES RD BST

–Y8–

–Y8– POT Sta. 10+00.00

10

BEGIN CONSTRUCTION
–Y8– STA. 11+50.00

SEE SHEET 21 FOR –L– PROFILE
SEE SHEET 22 FOR –Y8– PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	16
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
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NAD 83/2007

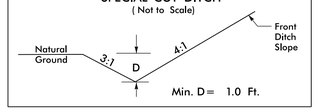
REVISIONS 8/17/99

-L1-
PI Sta 19+84.23
△ = 26° 59' 05.5" (LT)
D = 1° 23' 48.4"
L = 1,931.94'
T = 984.23'
R = 4,102.00'
RO = SEE PLANS
SE = SEE PLANS

15

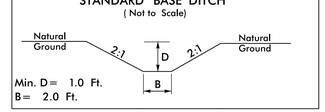
20

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



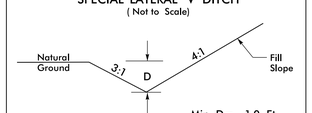
FROM -L1- STA. 15+00 TO STA. 18+00 LT
FROM -Y9- STA. 12+50 TO STA. 15+00 LT
FROM -Y9- STA. 13+00 TO STA. 15+00 RT

DETAIL M
STANDARD BASE DITCH
(Not to Scale)



-L1- STA. 17+38 RT

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



FROM -L1- STA. 20+50 TO STA. 22+00 RT

-L1- STA. 21+50 TO 21+85 LT
TIE-IN BACK SLOPE OF PROP. DITCH INSIDE EXIST. RIGHT-OF-WAY. (2:1 BACK SLOPE)

RUBY KATHLEEN ROCHELLE
DB 469 PG 778

(34) MARK A. PETTEWAY
DB 3363 PG 977
MB 59 PG 77

DOUGLAS G. & MARTHA K. PARKHURST
DB 435 PG 547

JAMES LEE ROCHELLE
DB 1722 PG 127
MB 55 PG 238

(35) (NO CLAIM)

(36) LARRY C. JENKINS
DB 1999 PG 0

360' UNIFORM TRANSITION

EXISTING R/W

SPECIAL CUT DITCH SEE DETAIL D

+28.00 -L1- EX. R/W

REMOVE EXIST. HW

+50.00 -L1- 63.00'

+22.37 -L1- EX. R/W @ PROP. LINE

-L1- POC Sta. 18+62.04 =
-Y9- POT Sta. 15+75.28

SOD PROP. DITCH BACK SLOPE -L1- STA. 21+00 TO 22+00 LT EST. 145 SY

+53.69 -L1- EX. R/W @ PROP. LINE

NC 53 BURGAW HWY 28' BST

1601 TEL FO MARKER

4" FDPS +00.00 10' R

20' R

1603 15" PPES REMOVE 48" RCP 20' R

1604 15" PPES REMOVE 12" CMP 20' R

TEL FO MARKER

24" RCP REMOVE

18"

4" FDPS +08.25

35' R

+74.72

+33.42

+44.67

50' R

20' R

16' R

+92.16 -L1- EX. R/W

SPECIAL LAT. 'V'-DITCH SEE DETAIL C

+00.00 -L1- 69.00'

MATCHLINE PLAN SHEET 17
-L1- STA. 22+00.00

BEGIN TIP PROJECT R-5023B
-L1- POC 14+40.00

MARK A. PETTEWAY
DB 3363 PG 977
MB 59 PG 77
(37)

CLASS 'B' RIP-RAP EST. 5 TONS EST. 14 SYGF

+18.00 -L1- EX. R/W 58.00'

STD. BASE DITCH SEE DETAIL M S=3.0% EST. 10 CY DDE

+65.00 -Y9- EX. R/W 37.00'

SPECIAL CUT DITCH SEE DETAIL D

+40.00 -Y9- EX. R/W

PDE

1602

30" RCP REMOVE

WLB

N 82° 14' 26" E

-Y9- PT Sta. 15+44.03

+19.00 -Y9- 56.29'

+00.00 -Y9- 52.00'

-Y9- PC Sta. 14+81.17

-Y9- PT Sta. 14+49.00

SR 1109 HOLLY SHELTER RD. 20' BST

BEGIN CONSTRUCTION
-Y9- POC 12+50.00

+65.00 -Y9- EX. R/W 35.00'

+21.00 -Y9- EX. R/W 46.00' 52.00'

+50.00 -Y9- EX. R/W 52.00'

SPECIAL CUT DITCH SEE DETAIL D

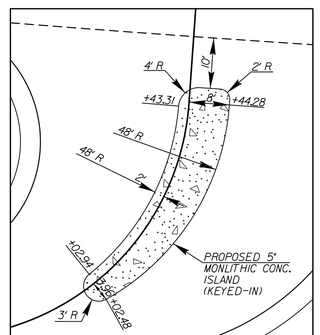
CLASS 'I' RIP-RAP EST. 11 TONS EST. 22 SYGF

(38) JOAN PETTEWAY ROSS
DB 3363 PG 973
MB 59 PG 77

ENID PETTEWAY WHITE
DB 3363 PG 975
MB 59 PG 77

-Y9-

PI Sta 12+24.50	PI Sta 15+17.52
△ = 0° 25' 43.5" (LT)	△ = 72° 01' 55.8" (LT)
D = 0° 05' 43.8"	D = 114° 35' 29.6"
L = 449.00'	L = 62.86'
T = 224.50'	T = 36.35'
R = 60,000.00'	R = 50.00'
RO = SEE PLANS	RO = SEE PLANS
SE = SEE PLANS	SE = SEE PLANS



ISLAND DETAIL
N.T.S.

SEE SHEET 22 FOR -L1- PROFILE
SEE SHEET 23 FOR -Y9- PROFILE

03-NOV-2016 12:03
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$$$$USERNAME$$$$

-L1-
PI Sta 19+84.23
△ = 26° 59' 05.5" (LT)
D = 1° 23' 48.4"
L = 1,931.94'
T = 984.23'
R = 4,102.00'
RO = SEE PLANS
SE = SEE PLANS

25

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	17
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
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HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
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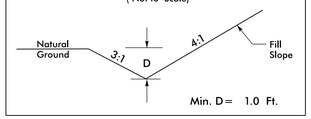
DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM -L1- STA. 24+50 TO STA. 26+49 LT
FROM -L1- STA. 22+00 TO STA. 26+79 RT

MATCHLINE PLAN SHEET 16 -L1- STA. 22+00.00

BM1

36
LARRY C. JENKINS
DB 1999 PG 0

SOD PROP. DITCH BACK SLOPE -L1- STA. 22+00 TO 22+50 LT EST. 115 SY

CLASS 'B' RIP-RAP EST. 2 TONS EST. 8 SYGF

END CONSTRUCTION
-L1- POC 28+00.00

SPECIAL LAT. 'V'-DITCH SEE DETAIL C

+50.00 -L1- 66.00'
+00.00 -L1- 63.00'
+00.00 -L1- 65.00'
+18.00 -L1- 57.00'
+02.00 -L1- 57.00'
+26.00 -L1- EX. R/W
+03.00 -L1- EX. R/W 63.00'
+29.00 -L1- EX. R/W 63.00'
PDE

EXISTING R/W
100.00'
9' DR
10' SOIL
15" RCP
15" PPES
10' R
20' R
REMOVE
18" RCP
REMOVE
4' FDPS
18"
NC 53 BURGAW HWY 28' BST
GRAU-350
+40.00
360' UNIFORM TRANSITION
TIE TO EXISTING GUARDRAIL
POLE BASE
TEL FO MARKER
-L1- PT Sta. 29+31.94
+76.00 -L1- EX. R/W
+52.00 -L1- 59.00'
+51.00 -L1- 60.00'
SPECIAL LAT. 'V'-DITCH SEE DETAIL C
+50.00 -L1- 65.00'
-BL2- 3

38
JOAN PETTEWAY ROSS
DB 3363 PG 973
MB 59 PG 77

SEE SHEET 22 FOR -L1- PROFILE

REVISIONS

8.17.99

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PROJECT REFERENCE NO.	SHEET NO.
R-5023B	18

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A. BYRD
DocuSigned by: James A. Byrd 11/3/2016

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BM2 ELEVATION = 38.14
N 361096 E 2442378
L STATION 10+00.00
S 05°07'37.38" E Dist 155.46
RR SPIKE IN 24" PINE

BEGIN GRADE
–L– STA 11+50.00
ELEV. = 38.11

BEGIN LEFT DITCH GRADE
–L 1150LT– STA 11+50.00
ELEV. = 33.90

END LEFT DITCH GRADE
–L 1150LT– STA 17+00.00
ELEV. = 46.40

BEGIN RIGHT DITCH GRADE
–L 1900RT– STA 19+00.00
ELEV. = 47.50

BEGIN LEFT DITCH GRADE
–L 1950LT– STA 19+50.00
ELEV. = 47.50

PI = 17+40.00
EL = 51.72'
VC = 420'
K = 152
V = 60 MPH

PI = 23+00.00
EL = 49.18'
VC = 480'
K = 577
V = 80 MPH

(+)2.3064%
(–)0.4524%
(+)2.2727%
(–) 0.4000%
(–) 0.5200%
(–)0.4524%
(+)0.3797%
(–) 1.3793%
(+) 1.2250%
(–) 2.4889%
(+) 2.0437%
49.73'

PI = 22+00.000
EI = 46.30

PI = 22+50.000
EI = 45.94

PI = 23+37.750
EI = 44.40

PI = 23+40.000
EI = 43.70

30" RCP

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

PIPE HYDRAULIC DATA
STR.0504, –L– Sta. 23+40

DRAINAGE AREA	= 7.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 24	CFS
DESIGN HW ELEVATION	= 46.9	FT
100 YEAR DISCHARGE	= 26	CFS
100 YEAR HW ELEVATION	= 47.0	FT
OVERTOPPING FREQUENCY	= >500+	YRS
OVERTOPPING DISCHARGE	= –	CFS
OVERTOPPING ELEVATION	= 49.6	FT

SEE SHEETS 4 AND 5 FOR –L– PLAN

BM3 ELEVATION = 50.40
N 361867 E 2444421
L STATION 31+45.00 78 RIGHT
RR SPIKE IN 15" HARDWOOD

PIPE HYDRAULIC DATA
STR.0701, –L– Sta. 34+20

DRAINAGE AREA	= 73	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 90	CFS
DESIGN HW ELEVATION	= 45.6	FT
100 YEAR DISCHARGE	= 100	CFS
100 YEAR HW ELEVATION	= 46.1	FT
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING DISCHARGE	= 130	CFS
OVERTOPPING ELEVATION	= 47.1	FT

PI = 28+20.00
EL = 51.16'
VC = 185'
K = 170
V = 62 MPH

PI = 35+05.00
EL = 46.30'
VC = 350'
K = 174
V = 68 MPH

49.73'
(+) 2.0437%
(+) 1.2250%
(+)0.3797%
(–)0.7089%
(–) 0.3500%
(–) 2.3000%
(–) 0.5556%
(–) 0.4167%
(–) 1.8000%
(–)0.7089%
(+)1.3039%
(+) 0.7733%
(+) 1.0852%
50.15'

END LEFT DITCH GRADE
–L 1950LT– STA 25+00.00
ELEV. = 46.97'

END RIGHT DITCH GRADE
–L 1900RT– STA 25+50.00
ELEV. = 47.00

CENTERLINE INTERSECTION
–L– STA 26+74.57 =
–Y1– STA 10+00.00

BEGIN LEFT DITCH GRADE
–L 2750LT– STA 27+50.00
ELEV. = 47.80

END LEFT DITCH GRADE
–L 2750LT– STA 29+50.00
ELEV. = 47.10

BEGIN LEFT DITCH GRADE
–L 3100LT– STA 31+00.00
ELEV. = 46.00

BEGIN RIGHT DITCH GRADE
–L 3150RT– STA 31+50.00
ELEV. = 45.60

END LEFT DITCH GRADE
–L 3100LT– STA 32+50.00
ELEV. = 43.30

PI = 33+50.000
EI = 41.00

BEGIN LEFT DITCH GRADE
–L 3400LT– STA 34+00.00
ELEV. = 42.20

END LEFT DITCH GRADE
–L 3400LT– STA 34+18.00
ELEV. = 42.10

PI = 34+22.000
EI = 40.70

BEGIN LEFT DITCH GRADE
–L 3425LT– STA 34+25.00
ELEV. = 42.10

1 @ 66" x 51" CAPA

PI = 38+00.000

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

SEE SHEETS 5, 6 AND 7 FOR –L– PLAN

5/28/99

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PROJECT REFERENCE NO.	SHEET NO.
R-5023B	19

ROADWAY DESIGN ENGINEER

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DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD

DocuSigned by: James A. Byrd 11/3/2016

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5/28/99

PI = 45+21.00
EL = 59.55'
VC = 450'
K = 224
V = 67 MPH

(+) 1.3039%

(−) 0.7075%

(+) 1.6182%

(+) 2.3200%

(−) 0.8167%

(−) 0.6955%

EI = 45.00

PI = 41+50.000
EI = 48.60

END LEFT DITCH GRADE
-L 3425LT- STA 43+50.00
ELVE. = 53.90

END RIGHT DITCH GRADE
-L 3350RT- STA 44+00.00
ELEV. = 54.40

BEGIN RIGHT DITCH GRADE
-L 4550RT- STA 45+50.00
ELEV. = 55.20

BEGIN LEFT DITCH GRADE
-L 4650LT- STA 46+50.00
ELEV. = 55.10

50.15'

54.75'

DITCH LEGEND	
LEFT DITCH	— · — · —
RIGHT DITCH	----------

SEE SHEETS 7, 8 AND 9 FOR -L- PLAN

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00

0 10 20 30 40 50 60 70

BM4 ELEVATION = 51.56
N 362849 E 2446717
L STATION 56+35.00 119 LEFT
RR SPIKE IN 12" PINE

PIPE HYDRAULIC DATA
STR.0904, -L- Sta. 56+60

DRAINAGE AREA	= 41	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 55	CFS
DESIGN HW ELEVATION	= 49.8	FT
100 YEAR DISCHARGE	= 65	CFS
100 YEAR HW ELEVATION	= 50.2	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 110	CFS
OVERTOPPING ELEVATION	= 52.1	FT

PI = 57+15.00
EL = 51.10'
VC = 550'
K = 385
V = 80 MPH

54.75'

(−) 0.8112%

(−) 0.7075%

(+) 1.5410%

(+) 0.7208%

(+) 0.6158%

(−) 0.5110%

(+) 1.2854%

2 @ 42" X 29" CAPA

24" RCP

PI = 52+50.000
EI = 50.20

PI = 55+58.500
EI = 47.49

PI = 56+60.500
EI = 46.87

END RIGHT DITCH GRADE
-L 4550RT- STA 57+50.00
ELVE. = 48.90

CENTERLINE INTERSECTION
-L- STA 58+46.24 =
-Y2- STA 113+81.81

END LEFT DITCH GRADE
-L 4650LT- STA 62+50.00
ELEV. = 50.50

BEGIN RIGHT DITCH GRADE
-L 6300RT- STA 63+00.00
ELVE. = 51.50

PI = 64+56.550
EI = 50.70

57.48'

PIPE HYDRAULIC DATA
STR.1005, -L- Sta. 64+56

DRAINAGE AREA	= 9.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14	CFS
DESIGN HW ELEVATION	= 52.7	FT
100 YEAR DISCHARGE	= 16	CFS
100 YEAR HW ELEVATION	= 52.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= -	CFS
OVERTOPPING ELEVATION	= 56.2	FT

DITCH LEGEND	
LEFT DITCH	— · — · —
RIGHT DITCH	----------

SEE SHEETS 9 AND 10 FOR -L- PLAN

52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00

0 10 20 30 40 50 60 70

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Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	20

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker 11/4/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
DocuSigned by: James A. Byrd 11/3/2016

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5/28/99

-L-

PI = 73+25.00
EL = 62.71'
VC = 400'
K = 173
V = 62 MPH

(+)0.7208%

(-)1.5916%

57.48

51.96

END RIGHT DITCH GRADE
-L- 6300RT- STA 69+00.00
ELEV. = 56.40

CENTERLINE INTERSECTION
-L- STA 70+90.86 =
-Y3- STA 11+67.12 =
-Y4- STA 10+00.00

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

SEE SHEETS 11 AND 12 FOR -L- PLAN

66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00

BM5 ELEVATION = 44.28
N 363534 E 2449391
L STATION 83+87.00 98 RIGHT
RR SPIKE IN 12" HARDWOOD

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 190	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 40.5	FT
BASE DISCHARGE	= 210	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 40.99	FT
OVERTOPPING DISCHARGE	= 260 +	CFS
OVERTOPPING FREQUENCY	= 500 (+)	YRS
OVERTOPPING ELEVATION	= 42.4	FT
DATE OF SURVEY	= 01/13/14	
W.S.ELEVATION AT DATE OF SURVEY	= 35.6	FT

-L-

PI = 93+80.00
EL = 49.33'
VC = 400'
K = 265
V = 71 MPH

PI = 86+89.00
EL = 41.00'
VC = 405'
K = 145
V = 62 MPH

WS EL= 35.6'
SURVEY 1-13-14

51.96

(-)1.5916%

(+)1.2065%

1 @ 6' x 6' RCBC

(+)1.2065%

(+) 0.3000%

48.66

INTERSECTION CENTERLINE
-L- STA 84+19.07 =
-Y5- STA 12+00.17
-Y6- STA 10+00.00

BM: NCGS MONUMENT "HITCH"
N 363,760 E 2,449,888
EL = 47.85'

CENTERLINE INTERSECTION
-L- STA 91+41.22 =
-Y7A- STA 11+80.21

BEGIN RIGHT DITCH GRADE
-L- 9220RT- STA 92+20.00
ELEV. = 45.41

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

SEE SHEETS 12, 13 AND 14 FOR -L- PLAN

80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00

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$$$$USERNAME$$$$

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5/28/99

BM6 ELEVATION = 45.67
N 364426 E 2451143
L STATION 103+42.00 111 LEFT
RR SPIKE IN 36" HARDWOOD

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PROJECT REFERENCE NO.	SHEET NO.
R-5023B	21

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HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
DocuSigned by: James A. Byrd 11/3/2016

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-L-

PI = 93+80.00
EL = 49.33'
VC = 400'
K = 265
V = 71 MPH

48.66'

(+) 0.3000%

(-)0.3011%

END RIGHT DITCH GRADE
-L 9220RT- STA 95+00.00
ELEV. = 46.25

CENTERLINE INTERSECTION
-L- STA 96+86.43 =
-Y7- STA 13+25.68

CENTERLINE INTERSECTION
-L- STA 102+83.88 =
-Y8- STA 12+31.65

END GRADE
-L- STA 104+25.00
ELEV. = 46.19

SEE SHEETS 14 AND 15 FOR -L- PLAN

-Y1-

BEGIN GRADE
-Y1- STA 10+71.34
ELEV. = 50.22

(-)1.1798%

END GRADE
-Y1- STA 10+80.00
ELEV. = 49.48

SEE SHEET 6 FOR -Y1- PLAN

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

94+00 95+00 96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 10+00 11+00

-Y2-

PIPE HYDRAULIC DATA
STR.0906, -Y2- Sta. 12+15

DRAINAGE AREA	= 28	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 28	CFS
DESIGN HW ELEVATION	= 52.8	FT
100 YEAR DISCHARGE	= 45	CFS
100 YEAR HW ELEVATION	= -	FT
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING DISCHARGE	= 38	CFS
OVERTOPPING ELEVATION	= 53.5	FT

BEGIN GRADE
-Y2- STA 12+75.00
ELEV. = 52.84

PI = 13+10.00
EL = 52.70'
VC = 70'
K = 60
V = 44 MPH

1 @ 42" X 29" CAPA

(-)0.4000%

(-)1.5596%

(-) 0.7276%

(+) 0.5204%

BEGIN RIGHT DITCH GRADE
-Y2 1100RT- STA 11+00.00
ELEV. = 49.60

PI = 12+15.450
EL = 48.76

END RIGHT DITCH GRADE
-Y2 1100RT- STA 13+00.00
ELEV. = 49.20

END GRADE
-Y2- STA 13+63.86
ELEV. = 51.86

SEE SHEETS 9 AND 10 FOR -Y2- PLAN

-Y3-

BEGIN GRADE
-Y3- STA 10+85.00
ELEV. = 61.41

PI = 11+28.00
EL = 60.63'
VC = 40'
K = 26
V = 25 MPH

(-)1.8061%

(-)0.3000%

END GRADE
-Y3- ST 11+49.12
ELEV. = 60.57

SEE SHEET 11 FOR -Y3- PLAN

-Y4-

BEGIN GRADE
-Y4- STA 10+18.06
ELEV. = 60.56

PI = 10+50.00
EL = 59.30'
VC = 60'
K = 36
V = 29 MPH

(-)3.9449%

(-)2.3000%

END GRADE
-Y4- STA 11+25.00
ELEV. = 57.57

SEE SHEET 11 FOR -Y4- PLAN

-Y5-

BEGIN GRADE
-Y5- STA 11+10.00
ELEV. = 42.55

(+)3.0961%

END GRADE
-Y5- STA 11+81.38
ELEV. = 44.76

SEE SHEET 13 FOR -Y5- PLAN

10+00 11+00 12+00 13+00 14+00 10+00 11+00 12+00 10+00 11+00 12+00 10+00 11+00 12+00

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PROJECT REFERENCE NO.	SHEET NO.
R-5023B	22

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
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HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A BYRD
DocuSigned by: James A. Byrd 11/3/2016

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–Y6–

BEGIN GRADE
–Y6– STA 10+18.01
ELEV. = 44.86

PI = 10+47.00
EL = 45.44'
VC = 50
K = 61
V = 45 MPH

(+)2.0000%
(+)1.1869%

END GRADE
–Y6– STA 10+82.00
ELEV. = 45.86

SEE SHEET 13 FOR –Y6– PLAN

–Y7–

BEGIN GRADE
–Y7– STA 12+54.00
ELEV. = 47.98

PI = 12+80.00
EL = 48.06'
VC = 50'
K = 82
V = 49 MPH

(–)0.3000%
(+)0.3073%

END GRADE
–Y– STA 13+06.63
ELEV. = 47.98

SEE SHEET 14 FOR –Y7– PLAN

–Y7A–

BEGIN GRADE
–Y7A– STA 11+00.00
ELEV. = 47.77

PI = 11+45.00
EL = 46.94'
VC = 30'
K = 19
V = 21 MPH

(+)0.3042%
(–)1.8394%

END GRADE
–Y7A– STA 11+62.19
ELEV. = 46.89

SEE SHEET 14 FOR –Y7A– PLAN

–Y8–

BEGIN GRADE
–Y8– STA 11+50.00
ELEV. = 47.06

PI = 11+85.00
EL = 46.78'
VC = 50'
K = 62
V = 45 MPH

(–)1.5970%
(–)0.8000%

24" RCP

END GRADE
–Y8– STA 12+12.05
ELEV. = 46.35

SEE SHEET 15 FOR –Y8– PLAN

PIPE HYDRAULIC DATA
STR.1510IN, –Y8– Sta. 11+51

DRAINAGE AREA	= 10.7	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 15	CFS
DESIGN HW ELEVATION	= 45.1	FT
100 YEAR DISCHARGE	= 24	CFS
100 YEAR HW ELEVATION	= 46.2	FT
OVERTOPPING FREQUENCY	= 100 (+)	YRS
OVERTOPPING DISCHARGE	= 30	CFS
OVERTOPPING ELEVATION	= 46.8	FT

BM1 ELEVATION = 27.09
N 360899 E 2440258
L1 STATION 25+86.00 124 LEFT
RR SPIKE IN 15" HARDWOOD

–L1–

PIPE HYDRAULIC DATA
STR.1601, –L1– Sta. 17+42

DRAINAGE AREA	= 4.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14	CFS
DESIGN HW ELEVATION	= 36.3	FT
100 YEAR DISCHARGE	= 15	CFS
100 YEAR HW ELEVATION	= 36.4	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= –	CFS
OVERTOPPING ELEVATION	= 39.6	FT

PIPE HYDRAULIC DATA
STR.1702, –L1– Sta. 26+94

DRAINAGE AREA	= 1.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 3.7	CFS
DESIGN HW ELEVATION	= 24.8	FT
100 YEAR DISCHARGE	= 4.3	CFS
100 YEAR HW ELEVATION	= 24.9	FT
OVERTOPPING FREQUENCY	= ≥500±	YRS
OVERTOPPING DISCHARGE	= –	CFS
OVERTOPPING ELEVATION	= 27.6	FT

BEGIN GRADE
–L1– STA 14+40.00
ELEV. = 43.23

PI = 15+60.00
EL = 41.48'
VC = 100'
K = 144
V = 60 MPH

PI = 18+10.00
EL = 39.57'
VC = 270'
K = 339
V = 75 MPH

PI = 23+20.00
EL = 31.61'
VC = 200'
K = 558
V > 80 MPH

PI = 26+90.00
EL = 27.16'
VC = 200'
K = 288
V > 80 MPH

END GRADE
–L1– STA 28+00.00
ELEV. = 26.60

(–)1.4583%
(–)0.7638%
(–)1.7810%
(+)3.4097%
(–)0.7638%
(–)1.5609%
(–)1.5609%
(–)1.2027%
(–)1.4310%
(–)1.2027%
(–)0.5091%
(–)2.8000%

24" RCP
18" RCP

BEGIN LEFT DITCH GRADE
–L1 1500LT– STA 15+09.00
ELEV. = 38.68

PI = 17+46.000 LT
El = 34.30

END LEFT DITCH GRADE
–L1 1500LT– STA 18+00.00
ELEV. = 36.14

BEGIN RIGHT DITCH GRADE
–L1 2050RT– STA 20+50.00
ELEV. = 32.80

BEGIN LEFT DITCH GRADE
–L1 2450LT– STA 24+50.00
ELEV. = 26.77

END LEFT DITCH GRADE
–L1 2450LT– STA 26+49.00
ELEV. = 21.20

END RIGHT DITCH GRADE
–L1 2050RT– STA 26+79.00
ELEV. = 23.80

DITCH LEGEND
LEFT DITCH —·—·—·—
RIGHT DITCH ---------

SEE SHEETS 16 & 17 FOR –L1– PLAN

PROJECT REFERENCE NO.	SHEET NO.
R-5023B	23

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ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
DocuSigned by: W. Craig Parker 12/9/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER JAMES A. BYRD
DocuSigned by: James A. Byrd 12/9/2016

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PIPE HYDRAULIC DATA
STR.1602, -Y9- Sta. 13+41

DRAINAGE AREA	= 7.2	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 23	CFS
DESIGN HW ELEVATION	= 34.1	FT
100 YEAR DISCHARGE	= 25	CFS
100 YEAR HW ELEVATION	= 34.2	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= -	CFS
OVERTOPPING ELEVATION	= 36.2	FT

-Y9-

BEGIN GRADE
-Y9- STA 12+75.00
ELEV. = 36.70

END GRADE
-Y9- STA 15+57.28
ELEV. = 39.38

PI = 13+80.00
EL = 36.39'
VC = 210'
K = 97
V = 50 MPH

PI = 15+20.00
EL = 39.01'
VC = 70'
K = 80
V = 45 MPH

(+)1.8730%
(+)1.0000%
(-)0.3000%
(-) 2.2836%
(+) 2.0886%
(-) 2.0513%
(+) 2.3106%
30" RCP

BEGIN LEFT DITCH GRADE
-Y9 1275LT- STA 12+75.00
ELEV. = 33.23

BEGIN RIGHT DITCH GRADE
-Y9 1300RT- STA 13+00.00
ELEV. = 31.00

PI = 13+39.000 RT
EL = 30.20

PI = 13+42.000 LT
EL = 31.70

END LEFT DITCH GRADE
-Y9 1275LT- STA 15+00.00
ELEV. = 35.00

END RIGHT DITCH GRADE
-Y9 1300RT- STA 15+00.00
ELEV. = 33.92

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

SEE SHEET 16 FOR -Y9- PLAN

40
30
20
10
0
12+00
13+00
14+00
15+00