RA-1553

COMPUTED BY: BNE DATE: 2/22/2017

CHECKED BY: JGD DATE: 2/22/2017

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2707C | 3D-10 |

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.**

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

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | MIN. REQUIRED SLOPE % | SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | THICKNESS OR GAUGE | | | | | | | | | | | |
| 568+00 -L- | CL | 1902 | | 926.1 | | | | | | | | | | | | | | | |
| | | 1902 | 1903 | | 923.4 | 923.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 572+50 -L- | LT | 1904 | | | | | | | | | | | | | | | | | |
| | | 1904 | 1905 | | 935.3 | 930.8 | | | | 20 | | | | | | X | | | |
| 572+50 -L- | RT | 1905 | | 933.8 | | | | | | | | | | | | | | | |
| | | 1905 | 1906 | | 930.8 | 930.4 | | | | | | | | | | | | | |
| 572+40 -L- | CL | 1906 | | 933.4 | | | | | | | | | | | | | | | |
| | | 1906 | 1907 | | 930.4 | 926.2 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 578+50 -L- | LT | 1908 | | | | | | | | | | | | | | | | | |
| | | 1908 | 1909 | | 949.9 | 939.6 | | | | 24 | | | | | | X | | | |
| 578+50 -L- | LT | 1909 | | 942.6 | | | | | | | | | | | | | | | |
| | | 1909 | 1910 | | 939.1 | 938.8 | | | | | | | | | | | | | |
| 578+50 -L- | CL | 1910 | | 943.5 | | | | | | | | | | | | | | | |
| | | 1910 | 1911 | | 938.8 | 938.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 584+52 -L- | LT | 2001 | | | | | | | | | | | | | | | | | |
| | | 2001 | 2002 | | 950.6 | 949.8 | | | | | | | | | | | | | |
| 584+52 -L- | RT | 2002 | | 958.2 | | | | | | | | | | | | | | | |
| | | 2002 | 2003 | | 949.8 | 944.8 | | | | 44 | | | | | | X | | | |
| | | | | | | | | | | | | | | | | | | | |
| 589+00 -L- | RT | 2004 | | 868.5 | | | | | | | | | | | | | | | |
| | | 2004 | 2006 | | 965.8 | 963.6 | | | | | | | | | | | | | |
| 589+00 -L- | LT | 2005 | | 968.4 | | | | | | | | | | | | | | | |
| | | 2005 | 2006 | | 965.7 | 963.6 | | | | | | | | | | | | | |
| 589+00 -L- | CL | 2006 | | 966.4 | | | | | | | | | | | | | | | |
| | | 2006 | 2009 | | 963.6 | 957.3 | | | | | | | | | | | | | |
| 586+50 -L- | LT | 2007 | | 963.2 | | | | | | | | | | | | | | | |
| | | 2007 | 2008 | | 960.4 | 959.6 | | | | | | | | | | | | | |
| 586+15 -L- | LT | 2008 | | 962.3 | | | | | | | | | | | | | | | |
| | | 2008 | 2009 | | 959.6 | 957.3 | | | | | | | | | | | | | |
| 586+15 -L- | CL | 2009 | | 960.1 | | | | | | | | | | | | | | | |
| | | 2009 | 2010 | | 957.1 | 956.9 | | | | | | | | | | | | | |
| 586+15 -L- | RT | 2010 | | 962.3 | | | | | | | | | | | | | | | |
| | | 2010 | 2011 | | 956.9 | 936.0 | | | | 68 | | | | | | X | | | |
| | | | | | | | | | | | | | | | | | | | |
| 586+97 -L- | RT | 2012 | | 938.0 | | | | | | | | | | | | | | | |
| | | 2012 | 2013 | | 933.0 | 932.5 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 583+33 -L- | CL | 2014 | | | 951.0 | 950.2 | | | | | | | | | | | | | |
| 589+36 -L- | CL | 2015 | | | 939.6 | 931.7 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 20+60 -Y10- | RT | 2016 | | | | | | 36 | | | | | | | | | | | |
| 20+60 -Y10- | LT | 2017 | | | | | | 40 | | | | | | | | | | | |
| 24+42 -Y10- | RT | 2018 | | | | | | 36 | | | | | | | | | | | |
| 24+60 -Y10- | LT | 2019 | | | | | | 72 | | | | | | | | | | | |
| 23+03 -Y11REV2- | RT | 2020 | | | | | | 20 | | | | | | | | | | | |
| 23+78 -Y11REV2- | RT | 2021 | | | | | | 20 | | | | | | | | | | | |
| 25+18 -Y11REV2- | LT | 2022 | | | | | | | | 56 | | | | | | | | | |
| SHEET TOTALS | | | | | | | | 224 | | 212 | | | | | | | | | |

| STATION | C.S. PIPE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | .064 | .064 | .064 | .064 | .079 | .079 | .109 | .109 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 568+00 -L- | | | | | | | | | | | | | | | | |
| 572+50 -L- | | | | | | | | | | | | | | | | |
| 572+50 -L- | | | | | | | | | | | | | | | | |
| 572+40 -L- | | | | | | | | | | | | | | | | |
| 578+50 -L- | | | | | | | | | | | | | | | | |
| 578+50 -L- | | | | | | | | | | | | | | | | |
| 584+52 -L- | | | | | | | | | | | | | | | | |
| 589+00 -L- | | | | | | | | | | | | | | | | |
| 589+00 -L- | | | | | | | | | | | | | | | | |
| 589+00 -L- | | | | | | | | | | | | | | | | |
| 586+50 -L- | | | | | | | | | | | | | | | | |
| 586+15 -L- | | | | | | | | | | | | | | | | |
| 586+15 -L- | | | | | | | | | | | | | | | | |
| 586+97 -L- | | | | | | | | | | | | | | | | |
| 583+33 -L- | | | | | | | | | | | | | | | | |
| 20+60 -Y10- | | | | | | | | | | | | | | | | |
| 24+42 -Y10- | | | | | | | | | | | | | | | | |
| 23+03 -Y11REV2- | | | | | | | | | | | | | | | | |
| 25+18 -Y11REV2- | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | | | | | | | | | |

| STATION | R.C. PIPE CLASS III 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS IV 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 24" R.C. PIPE (CLASS V) | 30" R.C. PIPE (CLASS V) | 36" R.C. PIPE (CLASS V) | 42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 568+00 -L- | | | | | | | | | | | | | | | | | | | | |
| 572+50 -L- | | | | | | | | | | | | | | | | | | | | |
| 572+50 -L- | | | | | | | | | | | | | | | | | | | | |
| 572+40 -L- | | | | | | | | | | | | | | | | | | | | |
| 578+50 -L- | | | | | | | | | | | | | | | | | | | | |
| 578+50 -L- | | | | | | | | | | | | | | | | | | | | |
| 584+52 -L- | | | | | | | | | | | | | | | | | | | | |
| 589+00 -L- | | | | | | | | | | | | | | | | | | | | |
| 589+00 -L- | | | | | | | | | | | | | | | | | | | | |
| 589+00 -L- | | | | | | | | | | | | | | | | | | | | |
| 586+50 -L- | | | | | | | | | | | | | | | | | | | | |
| 586+15 -L- | | | | | | | | | | | | | | | | | | | | |
| 586+15 -L- | | | | | | | | | | | | | | | | | | | | |
| 586+97 -L- | | | | | | | | | | | | | | | | | | | | |
| 583+33 -L- | | | | | | | | | | | | | | | | | | | | |
| 589+36 -L- | | | | | | | | | | | | | | | | | 288 | | | |
| 20+60 -Y10- | | | | | | | | | | | | | | | | | | | | |
| 24+42 -Y10- | | | | | | | | | | | | | | | | | | | | |
| 23+03 -Y11REV2- | | | | | | | | | | | | | | | | | | | | |
| 25+18 -Y11REV2- | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | 372 | 324 | 248 | | | | | | 200 | 232 | | | | | | 288 | | | |

| STATION | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') PER EACH (0' THRU 5.0') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION DROP INLET | CATCH BASIN | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | T.B.D.I. STD. 840.35 | T.B.J.B. STD. 840.34 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | CONVERT EXISTING C.B. TO T.B.J.B. | 1" STEEL COVER | CONCRETE ENDWALL AND SLUICE GATE STD. 838.02 | 8" SLUICE GATE | 15" SIDE DRAIN PIPE ELBOW | 18" SIDE DRAIN PIPE ELBOW | 24" SIDE DRAIN PIPE ELBOW | 30" SIDE DRAIN PIPE ELBOW | 36" SIDE DRAIN PIPE ELBOW | BERM DITCH OUTLET STD. 850.10 | BERM DITCH OUTLET STD. 850.11 | CONCRETE AND BRICK PIPE PLUG STD. 840.71 | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 568+00 -L- | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 572+50 -L- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | |
| 572+50 -L- | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 572+40 -L- | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 578+50 -L- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | |
| 578+50 -L- | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 578+50 -L- | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 584+52 -L- | | | 1 | 3.4 | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 589+00 -L- | | | 1 | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 589+00 -L- | | 56 | 1 | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 589+00 -L- | | 56 | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 586+50 -L- | | 32 | 1 | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 586+15 -L- | | 56 | 1 | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 586+15 -L- | | 56 | 1 | 0.4 | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 586+97 -L- | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | DRAWDOWN STRUCTURE, SEE SHEET 2D-3 |
| 583+33 -L- | | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 589+36 -L- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+60 -Y10- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24+42 -Y10- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+03 -Y11REV2- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25+18 -Y11REV2- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | 232 | | | | | | | | | | | | 14 | 3.8 | | | | | | | | | | | | | | | | | | | | | 13 | 6 | 7 | | | | | | | | |

**ABBREVIATIONS**

| | |
|---|---|
| C.A.A. | CORRUGATED ALUMINUM 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 |