RA-1475

COMPUTED BY: T. Huffman DATE: 11/06/14

CHECKED BY: D. Gardner DATE: 1/23/15

| PROJECT NO. | SHEET NO. |
|---|---|
| R-2514B | 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 | OFFSET | | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1306 | 1309 | | 21.9 | 20.5 | | | 28 | | | | | | | | | | | | |
| L 146+45 | 57 | LT | 1307 | | 26.6 | | | | | | | | | | | | | | | | | |
| | | | 1307 | 1308 | | 21.5 | 19.4 | | | 28 | | | | | | | | | | | | |
| L 149+09 | 57 | LT | 1401 | | 28.1 | | | | | | | | | | | | | | | | | |
| | | | 1401 | 1402 | | 24.9 | 23.3 | | | | | | | | | | | | | | | |
| L 149+09 | 0 | CL | 1402 | | 26.0 | | | | | | | | | | | | | | | | | |
| | | | 1402 | 1403 | | 23.3 | 23.1 | | | | | | | | | | | | | | | |
| L 149+09 | 57 | RT | 1403 | | 28.1 | | | | | | | | | | | | | | | | | |
| | | | 1403 | 1404 | | 23.1 | 16.0 | | | 48 | | | | | | | | | | | | |
| L 150+80 | 59 | LT | 1405 | | 28.2 | | | | | | | | | | | | | | | | | |
| | | | 1405 | 1413 | | 25.0 | 16.0 | | | 44 | | | | | | | | | | | | |
| L 152+21 | 59 | RT | 1406 | | 27.5 | | | | | | | | | | | | | | | | | |
| | | | 1406 | 1403 | | 24.3 | 23.1 | | | | | | | | | | | | | | | |
| L 155+50 | 0 | CL | 1407 | | 24.2 | | | | | | | | | | | | | | | | | |
| | | | 1407 | 1414 | | 21.5 | 21.3 | | | | | | | | | | | | | | | |
| L 152+19 | 100 | LT | 1409 | 1410 | | 15.9 | 14.4 | | | | | | | | | | | | | | | |
| L 156+97 | 96 | RT | 1412 | 1411 | | 15.3 | 13.0 | | | | | | | | | | | | | | | |
| L 155+50 | 59 | LT | 1414 | | 26.2 | | | | | | | | | | | | | | | | | |
| | | | 1414 | 1408 | | 21.3 | 17.1 | 0.4 | | 36 | | | | | | | | | | | | |
| L 158+44 | 59 | LT | 1415 | | 25.0 | | | | | | | | | | | | | | | | | |
| | | | 1415 | 1416 | | 21.8 | 21.1 | | | | | | | | | | | | | | | |
| L 160+14 | 59 | LT | 1416 | | 24.2 | | | | | | | | | | | | | | | | | |
| | | | 1416 | 1417 | | 21.1 | 13.0 | | | 40 | | | | | | | | | | | | |
| L 155+00 | 59 | RT | 1418 | | 26.4 | | | | | | | | | | | | | | | | | |
| | | | 1418 | 1421 | | 21.7 | 16.8 | | | 36 | | | | | | | | | | | | |
| L 156+24 | 59 | RT | 1419 | | 25.9 | | | | | | | | | | | | | | | | | |
| | | | 1419 | 1418 | | 22.1 | 21.7 | | | | | | | | | | | | | | | |
| L 157+14 | 59 | RT | 1420 | | 25.5 | | | | | | | | | | | | | | | | | |
| | | | 1420 | 1419 | | 22.4 | 22.1 | | | | | | | | | | | | | | | |
| L 162+16 | 0 | CL | 1501 | | 21.6 | | | | | | | | | | | | | | | | | |
| | | | 1501 | 1502 | | 17.6 | 15.2 | 0.7 | | | | | | | | | | | | | | |
| L 165+25 | 59 | RT | 1503 | | 25.9 | | | | | | | | | | | | | | | | | |
| | | | 1503 | 1504 | | 22.8 | 22.6 | | | | | | | | | | | | | | | |
| L 165+13 | 59 | RT | 1504 | | 25.8 | | | | | | | | | | | | | | | | | |
| | | | 1504 | 1505 | | 22.6 | 16.4 | | | 36 | | | | | | | | | | | | |
| L 167+42 | 57 | RT | 1506 | | 28.6 | | | | | | | | | | | | | | | | | |
| | | | 1506 | 1507 | | 25.4 | 16.6 | 1.0 | | 40 | | | | | | | | | | | | |
| L 167+29 | 57 | LT | 1508 | | 28.4 | | | | | | | | | | | | | | | | | |
| | | | 1508 | 1509 | | 25.3 | 25.1 | 1.0 | | | | | | | | | | | | | | |
| L 167+17 | 57 | LT | 1509 | | 28.3 | | | | | | | | | | | | | | | | | |
| | | | 1509 | 1510 | | 25.1 | 25.0 | 1.0 | | | | | | | | | | | | | | |
| L 167+05 | 57 | LT | 1510 | | 28.1 | | | | | | | | | | | | | | | | | |
| | | | 1510 | 1511 | | 25.0 | 16.8 | 1.0 | | 44 | | | | | | | | | | | | |
| L 179+75 | 57 | LT | 1601 | | 42.8 | | | | | | | | | | | | | | | | | |
| | | | 1601 | 1602 | | 39.7 | 38.3 | | | | | | | | | | | | | | | |
| L 179+75 | 0 | CL | 1602 | | 41.0 | | | | | | | | | | | | | | | | | |
| | | | 1602 | 1603 | | 38.3 | 38.1 | | | | | | | | | | | | | | | |
| L 179+75 | 57 | RT | 1603 | | 42.8 | | | | | | | | | | | | | | | | | |
| | | | 1603 | 1604 | | 38.1 | 33.2 | | | 32 | | | | | | | | | | | | |
| L 188+08 | 85 | LT | 1605 | 1606 | | 31.8 | 31.5 | | | | | | | | | | | | | | | |
| | | | | | | | | SHEET TOTALS | | 412 | | | | | | | | | | | | |

| FROM | TO | C. A. A. PIPE 12 (.064) | 15 (.064) | 18 (.064) | 24 (.064) | 30 (.079) | 36 (.079) | 42 (.109) | 48 (.109) | | R. C. PIPE CLASS III 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | | R. C. PIPE CLASS IV 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | | R. C. PIPE CLASS V 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1401 | 1402 | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | |
| 1402 | 1403 | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | |
| 1406 | 1403 | | | | | | | | | | | | | | | | | | | | 316 | | | | | | | | | | | | | | | | |
| 1407 | 1414 | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | |
| 1409 | 1410 | | | | | | | | | | | | | | | | | | | | | | | | 216 | | | | | | | | | | | | |
| 1412 | 1411 | | | | | | | | | | | | | | | | | | | | | | | | 208 | | | | | | | | | | | | |
| 1415 | 1416 | | | | | | | | | | | | | | | | | | | | 172 | | | | | | | | | | | | | | | | |
| 1419 | 1418 | | | | | | | | | | | | | | | | | | | | 128 | | | | | | | | | | | | | | | | |
| 1420 | 1419 | | | | | | | | | | | | | | | | | | | | 92 | | | | | | | | | | | | | | | | |
| 1501 | 1502 | | | | | | | | | | | | | | | | | | | | 96 | | | | | | | | | | | | | | | | |
| 1503 | 1504 | | | | | | | | | | | | | | | | | | | | 16 | | | | | | | | | | | | | | | | |
| 1508 | 1509 | | | | | | | | | | | | | | | | | | | | 12 | | | | | | | | | | | | | | | | |
| 1509 | 1510 | | | | | | | | | | | | | | | | | | | | 12 | | | | | | | | | | | | | | | | |
| 1601 | 1602 | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | |
| 1602 | 1603 | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | |
| 1605 | 1606 | | | | | | | | | | | | | | | | | | | | | | 88 | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | | | | | | | | | | | | | | 1144 | | 88 | | 424 | | | | | | | | | | | | |

| FROM | TO | 18" CAAP | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | REINFORCED ENDWALLS CY | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | B: 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME 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 | SPECIAL JB (SEE SPEACIAL DETAIL 2C-3) R-2514C | 15" SIDE DRAIN PIPE ELBOW | 18" CAAP PIPE ELBOW | JB STD. 840.31 or 840.32 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | CONCRETE COLLARS CL. "B" STD. 840.72 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1306 | 1309 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1307 | | | | | | 1 | 0.1 | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1307 | 1308 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1401 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1401 | 1402 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1402 | | | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | |
| 1402 | 1403 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1403 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1403 | 1404 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1405 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1405 | 1413 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1406 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1406 | 1403 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1407 | | | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | |
| 1407 | 1414 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1409 | 1410 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1412 | 1411 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1414 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1414 | 1408 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1415 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1415 | 1416 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1416 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1416 | 1417 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1418 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1418 | 1421 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1419 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1419 | 1418 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1420 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1420 | 1419 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1501 | | | | | | 1 | | | | | | | | | | | | 1 | | | | 1 | 1 | | | | | | | | 3GI |
| 1501 | 1502 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1503 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1503 | 1504 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1504 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1504 | 1505 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1506 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1506 | 1507 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1508 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1508 | 1509 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1509 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1509 | 1510 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1510 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1510 | 1511 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1601 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1601 | 1602 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1602 | | | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | |
| 1602 | 1603 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1603 | | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 1603 | 1604 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| 1605 | 1606 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | 23 | 0.1 | | | | | | | | | | | 1 | 22 | | 19 | 1 | 4 | | 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 |