| COMPUTED BY: | SUNGATE DESIGN GROUP | DATE: | 8/1/2017 |
|---|---|---|---|
| CHECKED BY: | MICHAEL BAKER ENGINEERING | DATE: | 8/14/2017 |

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| R-5703 | 3D-7 |

**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 % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12 | 15 | 18 | 24 | 30 | 36 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L 281+60 | 0 CL | 2029 | | | 73.2 | 70.6 | | | | | | | | | | | | |
| Y6 10+16 | 0 CL | 2030 | | | 70.5 | 70.0 | | | | | | | | | | | | |
| L 289+75 | 0 CL | 2031 | | | 75.6 | 76.3 | | | | | | | | | | | | |
| L 294+75 | 0 CL | 2101 | | | 76.1 | 75.7 | | | | | | | | | | | | |
| L 295+80 | 0 CL | 2102 | | 81.1 | | | | | | | | | | | | | | |
| | | 2102 | 2103 | | 78.4 | 75.6 | | | | | | | | | | | | |
| L 297+25 | 0 CL | 2104 | | | 75.6 | 75.7 | | | | | | | | | | | | |
| L 297+50 | 0 CL | 2105 | | 81.5 | | | | | | | | | | | | | | |
| | | 2105 | 2106 | | 78.8 | 75.5 | | | | | | | | | | | | |
| L 299+75 | 0 CL | 2107 | | | 75.4 | 75.4 | | | | | | | | | | | | |
| L 302+25 | 0 CL | 2108 | | | 75.2 | 75.1 | | | | | | | | | | | | |
| L 304+75 | 0 CL | 2109 | | | 75.1 | 74.9 | | | | | | | | | | | | |
| L 307+25 | 0 CL | 2201 | | | 74.8 | 74.8 | | | | | | | | | | | | |
| L 308+50 | 0 CL | 2202 | | 80.7 | | | | | | | | | | | | | | |
| | | 2202 | 2203 | | 78.0 | 74.7 | | | | | | | | | | | | |
| L 309+75 | 0 CL | 2204 | | | 74.9 | 74.6 | | | | | | | | | | | | |
| L 313+50 | 0 CL | 2205 | | 79.2 | | | | | | | | | | | | | | |
| | | 2205 | 2206 | | 76.5 | 72.0 | | | | | | | | | | | | |
| L 311+50 | 0 CL | 2207 | | 79.8 | | | | | | | | | | | | | | |
| | | 2207 | 2205 | | 77.1 | 76.5 | | | 200 | | | | | | | X | | |
| L 316+50 | 0 CL | 2208 | | 78.3 | | | | | | | | | | | | | | |
| | | 2208 | 2301 | | 75.6 | 74.7 | | | 300 | | | | | | | X | | |
| L 319+50 | 0 CL | 2301 | | 77.4 | | | | | | | | | | | | | | |
| | | 2301 | 2302 | | 74.7 | 68.6 | 0.4 | | | | | | | | | | | |
| L 320+19 | 0 CL | 2303 | 2304 | | 65.7 | 63.8 | | | | | | | | | | | | |
| L 324+75 | 0 CL | 2305 | | 75.9 | | | | | | | | | | | | | | |
| | | 2305 | 2306 | | 73.1 | 68.2 | 0.3 | | | | | | | | | | | |
| L 328+96 | 0 CL | 2307 | 2308 | | 61.7 | 56.3 | | | | | | | | | | | | |
| L 330+00 | 0 CL | 2309 | | 74.3 | | | | | | | | | | | | | | |
| | | 2309 | 2310 | | 71.5 | 62.5 | | | | | | | | | | | | |
| L 322+25 | 0 CL | 2311 | | 76.6 | | | | | | | | | | | | | | |
| | | 2311 | 2305 | | 73.9 | 73.1 | | | 252 | | | | | | | X | | |
| L 327+25 | 0 CL | 2312 | | 75.1 | | | | | | | | | | | | | | |
| | | 2312 | 2313 | | 72.4 | 63.0 | | | | | | | | | | | | |
| L 340+89 | 64 LT | 2401 | | 75.4 | | | | | | | | | | | | | | |
| | | 2401 | 2402 | | 71.9 | 70.8 | | | 116 | | | | | | | X | | |
| L 339+75 | 62 LT | 2402 | | 74.2 | | | | | | | | | | | | | | |
| | | 2402 | 2405 | | 70.8 | 69.7 | | | | | | | | | | | | |
| L 341+09 | 59 RT | 2403 | | 75.7 | | | | | | | | | | | | | | |
| | | 2403 | 2404 | | 72.3 | 70.8 | | | 136 | | | | | | | X | | |
| L 339+75 | 60 RT | 2404 | | 74.3 | | | | | | | | | | | | | | |
| | | 2404 | 2405 | | 70.8 | 69.7 | | | | | | | | | | | | |
| L 339+50 | 0 CL | 2405 | | 72.4 | | | | | | | | | | | | | | |
| | | 2405 | 2408 | | 69.7 | 68.0 | 0.6 | | 128 | | | | | | | X | | |
| L 338+25 | 60 RT | 2406 | | 73.6 | | | | | | | | | | | | | | |
| | | 2406 | 2408 | | 70.2 | 68.0 | | | | | | | | | | | | |
| L 338+25 | 60 LT | 2407 | | 73.6 | | | | | | | | | | | | | | |
| | | 2407 | 2408 | | 70.2 | 68.0 | | | | | | | | | | | | |
| L 338+25 | 0 CL | 2408 | | 72.0 | | | | | | | | | | | | | | |
| | | 2408 | 2409 | | 67.2 | 66.5 | | | | | 228 | | | | | X | | |
| | | | | | | | SHEET TOTALS | | 1132 | | 228 | | | | | | | |

| LINE & STATION | FROM | TO | C. S. PIPE 12 (.064) | C. S. PIPE 15 (.064) | C. S. PIPE 18 (.064) | C. S. PIPE 24 (.064) | C. S. PIPE 30 (.079) | C. S. PIPE | C. S. PIPE | C. S. PIPE 36 (.079) | R. C. PIPE CLASS III 12 | 15 | 18 | 24 | 30 | 36 | 42 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L 281+60 | 2029 | | | | | | | | | | | | 268 | | | | | | | | | | | | | | | | | | | | |
| Y6 10+16 | 2030 | | | | | | | | | | | | | | | | | | | | 48 | | | | | | | | | | | | |
| L 289+75 | 2031 | | | | | | | | | | | | | | | 224 | | | | | | | | | | | | | | | | | |
| L 294+75 | 2101 | | | | | | | | | | | | | | | 168 | | | | | | | | | | | | | | | | | |
| L 295+80 | 2102 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2102 | 2103 | | | | | | | | | | 84 | | | | | | | | | | | | | | | | | | | | | |
| L 297+25 | 2104 | | | | | | | | | | | | | | | 168 | | | | | | | | | | | | | | | | | |
| L 297+50 | 2105 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2105 | 2106 | | | | | | | | | | 84 | | | | | | | | | | | | | | | | | | | | | |
| L 299+75 | 2107 | | | | | | | | | | | | | | | 176 | | | | | | | | | | | | | | | | | |
| L 302+25 | 2108 | | | | | | | | | | | | | | | 176 | | | | | | | | | | | | | | | | | |
| L 304+75 | 2109 | | | | | | | | | | | | | | | 176 | | | | | | | | | | | | | | | | | |
| L 307+25 | 2201 | | | | | | | | | | | | | | | 172 | | | | | | | | | | | | | | | | | |
| L 308+50 | 2202 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2202 | 2203 | | | | | | | | | | 88 | | | | | | | | | | | | | | | | | | | | | |
| L 309+75 | 2204 | | | | | | | | | | | | | | | 172 | | | | | | | | | | | | | | | | | |
| L 313+50 | 2205 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2205 | 2206 | | | | | | | | | | 100 | | | | | | | | | | | | | | | | | | | | | |
| L 311+50 | 2207 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2207 | 2205 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 316+50 | 2208 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2208 | 2301 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 319+50 | 2301 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2301 | 2302 | | | | | | | | | | 116 | | | | | | | | | | | | | | | | | | | | | |
| L 320+19 | 2303 | 2304 | | | | | | | | | | | | | | | 272 | | | | | | | | | | | | | | | | |
| L 324+75 | 2305 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2305 | 2306 | | | | | | | | | | 108 | | | | | | | | | | | | | | | | | | | | | |
| L 328+96 | 2307 | 2308 | | | | | | | | | | | | | | | 308 | | | | | | | | | | | | | | | | |
| L 330+00 | 2309 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2309 | 2310 | | | | | | | | | | 120 | | | | | | | | | | | | | | | | | | | | | |
| L 322+25 | 2311 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2311 | 2305 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 327+25 | 2312 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2312 | 2313 | | | | | | | | | | 116 | | | | | | | | | | | | | | | | | | | | | |
| L 340+89 | 2401 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2401 | 2402 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 339+75 | 2402 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2402 | 2405 | | | | | | | | | | | | | | | | | 68 | | | | | | | | | | | | | | |
| L 341+09 | 2403 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2403 | 2404 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 339+75 | 2404 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2404 | 2405 | | | | | | | | | | | | | | | | | 68 | | | | | | | | | | | | | | |
| L 339+50 | 2405 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2405 | 2408 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 338+25 | 2406 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2406 | 2408 | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | |
| L 338+25 | 2407 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2407 | 2408 | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | |
| L 338+25 | 2408 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2408 | 2409 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | | | | | | | | | | 816 | 268 | | | 1432 | 580 | | 256 | | 48 | | | | | | | | | | | | |

| LINE & STATION | FROM | TO | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY | REINFORCED ENDWALLS CY | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | B: 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | 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/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | J.B. STD. 840.31 OR STD. 840.32 | M.H. FRAME AND COVER STD. 840.54 | ADJUST 2GI | 15" C.S. ELBOW, 0.064" THICK | 18" C.S. ELBOW, 0.064" THICK | 24" C.S. ELBOW, 0.064" THICK | 30" SLUICE GATE | 36" SLUICE GATE | MODIFIED CONC. FLUME | PIPE CLEAN OUT EA | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L 281+60 | 2029 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y6 10+16 | 2030 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 289+75 | 2031 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EQ. PIPE |
| L 294+75 | 2101 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EQ. PIPE |
| L 295+80 | 2102 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2102 | 2103 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 297+25 | 2104 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EQ. PIPE |
| L 297+50 | 2105 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2105 | 2106 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 299+75 | 2107 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EQ. PIPE |
| L 302+25 | 2108 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EQ. PIPE |
| L 304+75 | 2109 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EQ. PIPE |
| L 307+25 | 2201 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EQ. PIPE |
| L 308+50 | 2202 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2202 | 2203 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 309+75 | 2204 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EQ. PIPE |
| L 313+50 | 2205 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2205 | 2206 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 311+50 | 2207 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2207 | 2205 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 316+50 | 2208 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2208 | 2301 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 319+50 | 2301 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2301 | 2302 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 320+19 | 2303 | 2304 | 4.500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 324+75 | 2305 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2305 | 2306 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 328+96 | 2307 | 2308 | 4.500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 330+00 | 2309 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2309 | 2310 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 322+25 | 2311 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2311 | 2305 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 327+25 | 2312 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2312 | 2313 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 340+89 | 2401 | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 2401 | 2402 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 339+75 | 2402 | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 2402 | 2405 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 341+09 | 2403 | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 2403 | 2404 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 339+75 | 2404 | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 2404 | 2405 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 339+50 | 2405 | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| | 2405 | 2408 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 338+25 | 2406 | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 2406 | 2408 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 338+25 | 2407 | | | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | |
| | 2407 | 2408 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 338+25 | 2408 | | | | | 1 | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | |
| | 2408 | 2409 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTALS | | | 9.000 | | | 19 | | | | | | | | | | | | 1 | 18 | | 6 | 13 | | | | | | | | | | | | | | | |

**ABBREVIATIONS**

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

CARYLTBURNS