| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-3615B | NS-9 |
| R/W SHEET NO. | |

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 012575 Paul F. Fisher
1/6/2015
DocuSigned by: Paul Fisher
E8A4BA8B8BA4FC...

# PROPOSED STREAM CENTERLINE TRAVERSE:

# REACH #2

Point PT1 N 834,397.8948 E 1,700,376.7701, Sta. 0+00.00

Note: PT1 may need to be adjusted to invert out of proposed pipes.

Course from PT1 to PC Curve #1, N 78* 32′ 06.33″ E, Distance 47.9406

Curve #1 Data:

| | | | | | |
|---|---|---|---|---|---|
| P.I. Station | 0+62.25 | N | 834,410.2673 | E | 1,700,437.7739 |
| Delta = | 29* 09′ 31.48″ (LT) | | | | |
| Degree = | 104* 10′ 26.92″ | | | | |
| Tangent = | 14.3053 | | | | |
| Length = | 27.9904 | | | | |
| Radius = | 55.0000 | | | | |
| External = | 1.8299 | | | | |
| Long Chord = | 27.6893 | | | | |
| Mid. Ord. = | 1.7710 | | | | |
| P.C. Station | 0+47.94 | N | 834,407.4238 | E | 1,700,423.7541 |
| P.T. Station | 0+75.93 | N | 834,419.5813 | E | 1,700,448.6317 |
| C.C. | | N | 834,461.3264 | E | 1,700,412.8219 |
| Back | = N 78* 32′ 06.33″ E | | | | |
| Ahead | = N 49* 22′ 34.85″ E | | | | |
| Chord Bear | = N 63* 57′ 20.59″ E | | | | |

Course from PT Curve #1 to PC Curve #2, N 49* 22′ 34.85″ E, Distance 36.0996

Curve #2 Data:

| | | | | | |
|---|---|---|---|---|---|
| P.I. Station | 1+27.02 | N | 834,452.8467 | E | 1,700,487.4107 |
| Delta = | 35* 02′ 04.45″ (RT) | | | | |
| Degree = | 120* 37′ 21.70″ | | | | |
| Tangent = | 14.9924 | | | | |
| Length = | 29.0448 | | | | |
| Radius = | 47.5000 | | | | |
| External = | 2.3099 | | | | |
| Long Chord = | 28.5944 | | | | |
| Mid. Ord. = | 2.2028 | | | | |
| P.C. Station | 1+12.03 | N | 834,443.0853 | E | 1,700,476.0314 |
| P.T. Station | 1+41.08 | N | 834,454.3068 | E | 1,700,502.3319 |
| C.C. | | N | 834,407.0327 | E | 1,700,506.9581 |
| Back | = N 49* 22′ 34.85″ E | | | | |
| Ahead | = N 84* 24′ 39.29″ E | | | | |
| Chord Bear | = N 66* 53′ 37.07″ E | | | | |

Course from PT Curve #2 to PC Curve #3, N 84* 24′ 39.29″ E, Distance 79.9529

Curve #3 Data:

| | | | | | |
|---|---|---|---|---|---|
| P.I. Station | 2+42.32 | N | 834,464.1675 | E | 1,700,603.0961 |
| Delta = | 56* 03′ 15.32″ (RT) | | | | |
| Degree = | 143* 14′ 22.02″ | | | | |
| Tangent = | 21.2927 | | | | |
| Length = | 39.1333 | | | | |
| Radius = | 40.0000 | | | | |
| External = | 5.3142 | | | | |
| Long Chord = | 37.5912 | | | | |
| Mid. Ord. = | 4.6910 | | | | |
| P.C. Station | 2+21.03 | N | 834,462.0937 | E | 1,700,581.9047 |
| P.T. Station | 2+60.16 | N | 834,447.7458 | E | 1,700,616.6499 |
| C.C. | | N | 834,422.2839 | E | 1,700,585.8004 |
| Back | = N 84* 24′ 39.29″ E | | | | |
| Ahead | = S 39* 32′ 05.38″ E | | | | |
| Chord Bear | = S 67* 33′ 43.05″ E | | | | |

Course from PT Curve #3 to PC Curve #4, S 39* 32′ 05.38″ E, Distance 50.6630

Curve #4 Data:

| | | | | | |
|---|---|---|---|---|---|
| P.I. Station | 3+26.29 | N | 834,396.7447 | E | 1,700,658.7440 |
| Delta = | 37* 56′ 03.32″ (LT) | | | | |
| Degree = | 127* 19′ 26.24″ | | | | |
| Tangent = | 15.4659 | | | | |
| Length = | 29.7935 | | | | |
| Radius = | 45.0000 | | | | |
| External = | 2.5835 | | | | |
| Long Chord = | 29.2523 | | | | |
| Mid. Ord. = | 2.4433 | | | | |
| P.C. Station | 3+10.82 | N | 834,408.6725 | E | 1,700,648.8993 |
| P.T. Station | 3+40.62 | N | 834,393.3891 | E | 1,700,673.8415 |
| C.C. | | N | 834,437.3172 | E | 1,700,683.6050 |
| Back | = S 39* 32′ 05.38″ E | | | | |
| Ahead | = S 77* 28′ 08.71″ E | | | | |
| Chord Bear | = S 58* 30′ 07.05″ E | | | | |

Course from PT Curve #4 to PC Curve #5, S 77* 28′ 08.71″ E, Distance 51.9048

Curve #5 Data:

| | | | | | |
|---|---|---|---|---|---|
| P.I. Station | 4+08.29 | N | 834,378.7065 | E | 1,700,739.9018 |
| Delta = | 43* 01′ 39.13″ (LT) | | | | |
| Degree = | 143* 14′ 22.02″ | | | | |
| Tangent = | 15.7675 | | | | |
| Length = | 30.0389 | | | | |
| Radius = | 40.0000 | | | | |
| External = | 2.9955 | | | | |
| Long Chord = | 29.3380 | | | | |
| Mid. Ord. = | 2.7868 | | | | |
| P.C. Station | 3+92.52 | N | 834,382.1275 | E | 1,700,724.5099 |
| P.T. Station | 4+22.56 | N | 834,386.7083 | E | 1,700,753.4880 |
| C.C. | | N | 834,421.1747 | E | 1,700,733.1885 |
| Back | = S 77* 28′ 08.71″ E | | | | |
| Ahead | = N 59* 30′ 12.16″ E | | | | |
| Chord Bear | = N 81* 01′ 01.73″ E | | | | |

Course from PT Curve #5 to PT2, N 59* 30′ 12.16″ E, Distance 42.9544
Point PT2 N 834,408.5071 E 1,700,790.5001, Sta. 4+65.52

Note: PT2 may need to be adjusted to match invert of existing stream.

**NATURAL STREAM DESIGN**
**CENTERLINE TRAVERSE- REACH #2**

5/14/99
06-JAN-2015 07:06
Manage\NatStream Design 2014\ns-3.to.ns-10 2014.dgn
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