| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-3615B | NS-8 |
| R/W SHEET NO. | |

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

# PROPOSED STREAM CENTERLINE TRAVERSE:

# REACH #1

Point PT1 N 834,349.4817 E 1,700,064.2386, Sta. 0+00.00

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

Course from PT1 to PC Curve #1, S 89* 31′ 53.68″ E, Distance 36.6520

Curve #1 Data:

| | | | | | | |
|---|---|---|---|---|---|---|
| P.I. Station | | 0+46.67 | N | 834,349.1001 | E | 1,700,110.9083 |
| Delta | = | 18* 57′ 37.89″ (RT) | | | | |
| Degree | = | 95* 29′ 34.68″ | | | | |
| Tangent | = | 10.0193 | | | | |
| Length | = | 19.8554 | | | | |
| Radius | = | 60.0000 | | | | |
| External | = | 0.8308 | | | | |
| Long Chord | = | 19.7649 | | | | |
| Mid. Ord. | = | 0.8195 | | | | |
| P.C. Station | | 0+36.65 | N | 834,349.1820 | E | 1,700,100.8893 |
| P.T. Station | | 0+56.51 | N | 834,345.7673 | E | 1,700,120.3571 |
| C.C. | | | N | 834,289.1840 | E | 1,700,100.3988 |
| Back | = S | 89* 31′ 53.68″ E | | | | |
| Ahead | = S | 70* 34′ 15.79″ E | | | | |
| Chord Bear | = S | 80* 03′ 04.73″ E | | | | |

Course from PT Curve #1 to PC Curve #2, S 70* 34′ 15.79″ E, Distance 36.4614

Curve #2 Data:

| | | | | | | |
|---|---|---|---|---|---|---|
| P.I. Station | | 1+02.99 | N | 834,330.3061 | E | 1,700,164.1909 |
| Delta | = | 18* 57′ 37.89″ (LT) | | | | |
| Degree | = | 95* 29′ 34.68″ | | | | |
| Tangent | = | 10.0193 | | | | |
| Length | = | 19.8554 | | | | |
| Radius | = | 60.0000 | | | | |
| External | = | 0.8308 | | | | |
| Long Chord | = | 19.7649 | | | | |
| Mid. Ord. | = | 0.8195 | | | | |
| P.C. Station | | 0+92.97 | N | 834,333.6389 | E | 1,700,154.7421 |
| P.T. Station | | 1+12.82 | N | 834,330.2242 | E | 1,700,174.2099 |
| C.C. | | | N | 834,390.2222 | E | 1,700,174.7004 |
| Back | = S | 70* 34′ 15.79″ E | | | | |
| Ahead | = S | 89* 31′ 53.68″ E | | | | |
| Chord Bear | = S | 80* 03′ 04.73″ E | | | | |

Course from PT Curve #2 to PC Curve #3, S 89* 31′ 53.68″ E, Distance 31.9832

Curve #3 Data:

| | | | | | | |
|---|---|---|---|---|---|---|
| P.I. Station | | 1+59.30 | N | 834,329.8442 | E | 1,700,220.6890 |
| Delta | = | 45* 00′ 00.00″ (LT) | | | | |
| Degree | = | 163* 42′ 08.02″ | | | | |
| Tangent | = | 14.4975 | | | | |
| Length | = | 27.4889 | | | | |
| Radius | = | 35.0000 | | | | |
| External | = | 2.8837 | | | | |
| Long Chord | = | 26.7878 | | | | |
| Mid. Ord. | = | 2.6642 | | | | |
| P.C. Station | | 1+44.81 | N | 834,329.9627 | E | 1,700,206.1920 |
| P.T. Station | | 1+72.30 | N | 834,340.0113 | E | 1,700,231.0237 |
| C.C. | | | N | 834,364.9615 | E | 1,700,206.4782 |
| Back | = S | 89* 31′ 53.68″ E | | | | |
| Ahead | = N | 45* 28′ 06.32″ E | | | | |
| Chord Bear | = N | 67* 58′ 06.32″ E | | | | |

Course from PT Curve #3 to PC Curve #4, N 45* 28′ 06.32″ E, Distance 36.0340

Curve #4 Data:

| | | | | | | |
|---|---|---|---|---|---|---|
| P.I. Station | | 2+23.17 | N | 834,375.6910 | E | 1,700,267.2916 |
| Delta | = | 33* 04′ 00.01″ (RT) | | | | |
| Degree | = | 114* 35′ 29.61″ | | | | |
| Tangent | = | 14.8423 | | | | |
| Length | = | 28.8561 | | | | |
| Radius | = | 50.0000 | | | | |
| External | = | 2.1564 | | | | |
| Long Chord | = | 28.4573 | | | | |
| Mid. Ord. | = | 2.0673 | | | | |
| P.C. Station | | 2+08.33 | N | 834,365.2820 | E | 1,700,256.7111 |
| P.T. Station | | 2+37.19 | N | 834,378.6411 | E | 1,700,281.8378 |
| C.C. | | | N | 834,329.6388 | E | 1,700,291.7762 |
| Back | = N | 45* 28′ 06.32″ E | | | | |
| Ahead | = N | 78* 32′ 06.33″ E | | | | |
| Chord Bear | = N | 62* 00′ 06.32″ E | | | | |

Course from PT Curve #4 to PT2, N 78* 32′ 06.33″ E, Distance 57.5539

Point PT2 N 834,390.0810 E 1,700,338.2433, Sta. 2+94.74

Note: PT2 may need to be adjusted to invert in of proposed pipes.

**NATURAL STREAM DESIGN**

**CENTERLINE TRAVERSE- REACH #1**

5/14/99
06-JAN-2015 07:05
Workspace: C:\pwworkin\design 2014\ns-3_to_ns-10 2014.dgn
$$$$USERNAME$$$$