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 Project: 123  
 Subject: [ None ]  
 Job No. RDY Operator: LS  
 Date: Wednesday September 1, 2010 9:04 am

SYSTEM FIX 4 ASEC 0 BEAR PRI 0 NOR NE STA 2 FILE: 'CHAIN'

\* 1 DESCRIBE CHAIN L

Chain L contains:  
 15001 CUR L\_1 CUR L\_2 CUR L\_3 CUR L\_4 15006

Beginning chain L description

Point 15001 N 543,168.1556 E 690,575.9746 Sta 10+00.00

Course from 15001 to PC L\_1 S 32° 51' 08" E Dist 170.8054

Curve Data  
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Curve L\_1  
 P. I. Station 17+98.81 N 542,497.0975 E 691,009.3072  
 Delta = 62° 15' 05" (LT)  
 Degree = 5° 30' 33"  
 Tangent = 628.0039  
 Length = 1,129.9506  
 Radius = 1,040.0000  
 External = 174.9028  
 Long Chord = 1,075.1873  
 Mid. Ord. = 149.7230  
 P. C. Station 11+70.81 N 543,024.6666 E 690,668.6319  
 P. T. Station 23+00.76 N 542,552.9617 E 691,634.8214  
 C. C. N 543,588.8387 E 691,542.3079  
 Back = S 32° 51' 08" E  
 Ahead = N 84° 53' 47" E  
 Chord Bear = S 63° 58' 40" E

Curve Data  
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Curve L\_2  
 P. I. Station 26+18.40 N 542,581.2180 E 691,951.2090  
 Delta = 9° 37' 56" (RT)  
 Degree = 1° 31' 11"  
 Tangent = 317.6469  
 Length = 633.7968  
 Radius = 3,770.0000  
 External = 13.3582  
 Long Chord = 633.0507  
 Mid. Ord. = 13.3111  
 P. C. Station 23+00.76 N 542,552.9617 E 691,634.8214  
 P. T. Station 29+34.55 N 542,556.1365 E 692,267.8641  
 C. C. N 538,797.9074 E 691,970.1826  
 Back = N 84° 53' 47" E  
 Ahead = S 85° 28' 16" E  
 Chord Bear = N 89° 42' 46" E

Course from PT L\_2 to PC L\_3 S 85° 28' 16" E Dist 693.2324

r4748\_desi gn\_ al i gnments  
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Curve L\_3  
P. I. Station 42+70. 90 N 542, 450. 6177 E 693, 600. 0385  
Delta = 68° 11' 35" (LT)  
Degree = 6° 01' 52"  
Tangent = 643. 1144  
Length = 1, 130. 6837  
Radius = 950. 0000  
External = 197. 2124  
Long Chord = 1, 065. 1188  
Mi d. Ord. = 163. 3104  
P. C. Station 36+27. 79 N 542, 501. 3984 E 692, 958. 9321  
P. T. Station 47+58. 47 N 543, 026. 9831 E 693, 885. 3438  
C. C. N 543, 448. 4322 E 693, 033. 9446  
Back = S 85° 28' 16" E  
Ahead = N 26° 20' 09" E  
Chord Bear = N 60° 25' 56" E

Curve Data  
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Curve L\_4  
P. I. Station 50+12. 76 N 543, 254. 8821 E 693, 998. 1556  
Delta = 31° 33' 18" (RT)  
Degree = 6° 21' 58"  
Tangent = 254. 2921  
Length = 495. 6637  
Radius = 900. 0000  
External = 35. 2350  
Long Chord = 489. 4232  
Mi d. Ord. = 33. 9075  
P. C. Station 47+58. 47 N 543, 026. 9831 E 693, 885. 3438  
P. T. Station 52+54. 13 N 543, 390. 0475 E 694, 213. 5500  
C. C. N 542, 627. 7154 E 694, 691. 9326  
Back = N 26° 20' 09" E  
Ahead = N 57° 53' 27" E  
Chord Bear = N 42° 06' 48" E

Course from PT L\_4 to 15006 N 57° 53' 27" E Dist 356. 7591

Point 15006 N 543, 579. 6778 E 694, 515. 7377 Sta 56+10. 89

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Ending chain L description

\* 2 DESCRIBE CHAIN Y1

Chain Y1 contains:  
15022 CUR Y1\_1 15024

Beginning chain Y1 description

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Point 15022 N 542, 605. 0841 E 691, 204. 9256 Sta 10+00. 00

Course from 15022 to PC Y1\_1 S 14° 52' 32" W Dist 77. 9776

Curve Data  
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Curve Y1\_1  
P. I. Station 12+15. 27 N 542, 397. 0324 E 691, 149. 6618  
Delta = 27° 32' 59" (LT)  
Degree = 10° 13' 53"

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Tangent = 137. 2888  
 Length = 269. 2669  
 Radi us = 560. 0000  
 External = 16. 5832  
 Long Chord = 266. 6804  
 Mi d. Ord. = 16. 1063  
 P. C. Stati on 10+77. 98 N 542, 529. 7199 E 691, 184. 9069  
 P. T. Stati on 13+47. 24 N 542, 263. 0888 E 691, 179. 7836  
 C. C. N 542, 385. 9553 E 691, 726. 1386  
 Back = S 14° 52' 32" W  
 Ahead = S 12° 40' 27" E  
 Chord Bear = S 1° 06' 03" W

Course from PT Y1\_1 to 15024 S 12° 40' 27" E Di st 29. 5723

Poi nt 15024 N 542, 234. 2370 E 691, 186. 2719 Sta 13+76. 82

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 Endi ng chai n Y1 descri pti on

\* 3 DESCRIBE CHAIN Y2

Chai n Y2 contai ns:  
 15025 CUR Y2\_1 15028

Begi nni ng chai n Y2 descri pti on

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 Poi nt 15025 N 543, 171. 4614 E 694, 892. 3589 Sta 10+00. 00

Course from 15025 to PC Y2\_1 N 51° 25' 45" W Di st 225. 8429

Curve Data

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Curve Y2\_1  
 P. I. Stati on 13+08. 40 N 543, 363. 7411 E 694, 651. 2434  
 Del ta = 19° 19' 11" (RT)  
 Degree = 11° 48' 49"  
 Tangent = 82. 5531  
 Length = 163. 5389  
 Radi us = 485. 0000  
 External = 6. 9756  
 Long Chord = 162. 7653  
 Mi d. Ord. = 6. 8767  
 P. C. Stati on 12+25. 84 N 543, 312. 2706 E 694, 715. 7865  
 P. T. Stati on 13+89. 38 N 543, 433. 6665 E 694, 607. 3635  
 C. C. N 543, 691. 4615 E 695, 018. 1757  
 Back = N 51° 25' 45" W  
 Ahead = N 32° 06' 33" W  
 Chord Bear = N 41° 46' 09" W

Course from PT Y2\_1 to 15028 N 32° 06' 33" W Di st 773. 4574

Poi nt 15028 N 544, 088. 8125 E 694, 196. 2429 Sta 21+62. 84

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 Endi ng chai n Y2 descri pti on

\* 4 DESCRIBE CHAIN Y3

Chai n Y3 contai ns:

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15070 CUR Y3\_1 SPI Y3\_1A 15072

Beginni ng chai n Y3 descri pti on

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 Poi nt 15070                    N            543, 733. 7282 E            693, 659. 6311 Sta            10+00. 00

Curve Data  
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Curve Y3\_1  
 P. I.    Stati on                    13+34. 55    N            543, 885. 8446 E            693, 957. 5970  
 Del ta       =            13° 19' 18" (LT)  
 Degree      =            2° 00' 00"  
 Tangent     =            334. 5491  
 Length      =            666. 0811  
 Radi us      =            2, 864. 7900  
 External    =            19. 4681  
 Long Chord =            664. 5818  
 Mi d. Ord. =            19. 3367  
 P. C.    Stati on                    10+00. 00    N            543, 733. 7282 E            693, 659. 6311  
 P. T.    Stati on                    16+66. 08    N            544, 102. 5242 E            694, 212. 4950  
 C. C.                                    N            546, 285. 2514 E            692, 357. 0371  
 Back        = N    62° 57' 18" E  
 Ahead       = N    49° 38' 00" E  
 Chord Bear = N    56° 17' 39" E

Spi ral Y3\_1A                    Type 2            Spi ral El ement

Angle            3° 00' 00" (LT) P            1. 3089    BK N    49° 38' 00" E  
 LS               300. 0000            K            149. 9863    AH N    46° 38' 00" E  
 R                2, 864. 7900            LT            200. 0287    CB N    47° 38' 00" E  
 YS               5. 2350               ST            100. 0261    Defl            1° 00' 00"  
 XS               299. 9178               LC            299. 9634    Deg            2° 00' 00"

Spi ral Coordi nates  
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Poi nt	North	East	Stati on
CS	544, 102. 5242	694, 212. 4950	16+66. 08
PI	544, 167. 3088	694, 288. 7065	17+66. 11
ST	544, 304. 6615	694, 434. 1222	19+66. 08
CC	546, 285. 2514	692, 357. 0371	

Course from ST Y3\_1A to 15072 N 46° 38' 00" E Di st 841. 0883

Poi nt 15072                    N            544, 882. 2072 E            695, 045. 5718 Sta            28+07. 17

=====  
 Endi ng chai n Y3 descri pti on

\*            5    DESCRIBE CHAIN Y4

Chai n Y4 contains:  
 15042 CUR Y4\_1 15044

Beginni ng chai n Y4 descri pti on

=====  
 Poi nt 15042                    N            543, 083. 0345 E            694, 156. 1303 Sta            10+00. 00

Course from 15042 to PC Y4\_1 N 46° 31' 51" E Di st 190. 6942

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Curve Data

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Curve Y4\_1  
 P. I. Station 12+90. 15 N 543, 282. 6488 E 694, 366. 7075  
 Delta = 11° 21' 35" (RT)  
 Degree = 5° 43' 46"  
 Tangent = 99. 4586  
 Length = 198. 2652  
 Radius = 1, 000. 0000  
 External = 4. 9338  
 Long Chord = 197. 9407  
 Mid. Ord. = 4. 9096  
 P. C. Station 11+90. 69 N 543, 214. 2250 E 694, 294. 5258  
 P. T. Station 13+88. 96 N 543, 335. 5147 E 694, 450. 9525  
 C. C. N 542, 488. 4791 E 694, 982. 4886  
 Back = N 46° 31' 51" E  
 Ahead = N 57° 53' 27" E  
 Chord Bear = N 52° 12' 39" E

Course from PT Y4\_1 to 15044 N 57° 53' 27" E Dist 184. 6569

Point 15044 N 543, 433. 6665 E 694, 607. 3635 Sta 15+73. 62

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 Ending chain Y4 description

\* 6 DESCRIBE CHAIN Y5

Chain Y5 contains:  
 15200 CUR Y5\_1 CUR Y5\_2 CUR Y5\_3 15201

Beginning chain Y5 description

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 Point 15200 N 543, 579. 6778 E 694, 515. 7377 Sta 10+00. 00

Course from 15200 to PC Y5\_1 N 57° 53' 27" E Dist 333. 0243

Curve Data

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Curve Y5\_1  
 P. I. Station 15+89. 50 N 543, 893. 0176 E 695, 015. 0639  
 Delta = 91° 27' 53" (LT)  
 Degree = 22° 55' 06"  
 Tangent = 256. 4742  
 Length = 399. 0901  
 Radius = 250. 0000  
 External = 108. 1606  
 Long Chord = 358. 0435  
 Mid. Ord. = 75. 4973  
 P. C. Station 13+33. 02 N 543, 756. 6923 E 694, 797. 8211  
 P. T. Station 17+32. 11 N 544, 106. 7047 E 694, 873. 2301  
 C. C. N 543, 968. 4512 E 694, 664. 9371  
 Back = N 57° 53' 27" E  
 Ahead = N 33° 34' 26" W  
 Chord Bear = N 12° 09' 30" E

Curve Data

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Curve Y5\_2  
 P. I. Station 19+18. 30 N 544, 261. 8289 E 694, 770. 2672

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Del ta = 73° 21' 11" (RT)  
 Degree = 22° 55' 06"  
 Tangent = 186.1851  
 Length = 320.0632  
 Radi us = 250.0000  
 External = 61.7128  
 Long Chord = 298.6484  
 Mi d. Ord. = 49.4949  
 P. C. Stati on 17+32.11 N 544,106.7047 E 694,873.2301  
 P. T. Stati on 20+52.18 N 544,404.9154 E 694,889.3938  
 C. C. N 544,244.9581 E 695,081.5231  
 Back = N 33° 34' 26" W  
 Ahead = N 39° 46' 45" E  
 Chord Bear = N 3° 06' 09" E

Curve Data  
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Curve Y5\_3  
 P. I. Stati on 21+44.96 N 544,476.2184 E 694,948.7571  
 Del ta = 1° 03' 47" (LT)  
 Degree = 0° 34' 23"  
 Tangent = 92.7799  
 Length = 185.5546  
 Radi us = 10,000.0000  
 External = 0.4304  
 Long Chord = 185.5519  
 Mi d. Ord. = 0.4304  
 P. C. Stati on 20+52.18 N 544,404.9154 E 694,889.3938  
 P. T. Stati on 22+37.73 N 544,548.6105 E 695,006.7872  
 C. C. N 550,803.2043 E 687,204.2198  
 Back = N 39° 46' 45" E  
 Ahead = N 38° 42' 57" E  
 Chord Bear = N 39° 14' 51" E

Point 15201 N 544,548.6105 E 695,006.7872 Sta 22+37.73

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 Endi ng chai n Y5 descri pti on

\* 7 DESCRIBE CHAIN Y6

Chai n Y6 contains:  
 15050 CUR Y6\_1 CUR Y6\_2 15056

Be gni ni ng chai n Y6 descri pti on  
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Point 15050 N 543,882.6946 E 694,490.3457 Sta 10+00.00

Course from 15050 to PC Y6\_1 N 31° 59' 28" E Di st 182.0721

Curve Data  
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Curve Y6\_1  
 P. I. Stati on 12+33.76 N 544,080.9512 E 694,614.1868  
 Del ta = 8° 26' 44" (RT)  
 Degree = 8° 11' 06"  
 Tangent = 51.6848  
 Length = 103.1824  
 Radi us = 700.0000  
 External = 1.9055  
 Long Chord = 103.0890

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Mi d. Ord. = 1. 9003  
 P. C. Station 11+82.07 N 544,037.1157 E 694,586.8049  
 P. T. Station 12+85.25 N 544,120.2897 E 694,647.7099  
 C. C. N 543,666.2654 E 695,180.4969  
 Back = N 31° 59' 28" E  
 Ahead = N 40° 26' 12" E  
 Chord Bear = N 36° 12' 50" E

Course from PT Y6\_1 to PC Y6\_2 N 40° 26' 12" E Dist 43.6310

Curve Data

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Curve Y6\_2  
 P. I. Station 14+04.69 N 544,211.1947 E 694,725.1763  
 Del ta = 33° 44' 11" (RT)  
 Degree = 22° 55' 06"  
 Tangent = 75.8041  
 Length = 147.2025  
 Radi us = 250.0000  
 External = 11.2399  
 Long Chord = 145.0853  
 Mi d. Ord. = 10.7563  
 P. C. Station 13+28.89 N 544,153.4984 E 694,676.0093  
 P. T. Station 14+76.09 N 544,231.8692 E 694,798.1066  
 C. C. N 543,991.3468 E 694,866.2903  
 Back = N 40° 26' 12" E  
 Ahead = N 74° 10' 23" E  
 Chord Bear = N 57° 18' 17" E

Course from PT Y6\_2 to 15056 N 74° 10' 23" E Dist 34.7603

Point 15056 N 544,241.3495 E 694,831.5492 Sta 15+10.85

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 Ending chain Y6 descri ption