PLATE 3-FULL CROSS SECTION-FULL LINE
MINIMUM WARRANTED
HIGHWAY SERIES NO SHEET
MARKED IN RED
A.R.W. IN GREEN

NO.	REVISIONS	BY	DATE

JANUARY
SURVEYED
PLOTTED
DRAWN
TRACED
SUBMITTED
WALK BOOK NO.
VERIFICATION
VERIFIED & CHECKED

Trench Earth - DI - 0.5' = 5'x7'x8' = 315 cy

Over 5' = (18.5/2)x7x5)x1.5 = 156 cy

Grav. Backfill for Structures

Under Base DI x 7'x5'x1' = 63 cy

Pipe - 6" Undercut = 38'x55'x0.5' = 104.5 cy

To Top Pipe = 20'x55'x2.75' = 275 cy - (π/4 (15x20)) = 163 cy

63 cy + 104.5 cy + 163 cy = 330.5 x 1/27 = 12.2 cy

WRF 7-28-11

Pipe (4.5+4.5/2)x24)(4.5+5/2)x12)+(5x5.5/2)+(5.5+0.8/2)x10.5) = 464.4 cy

Over 5' (0.0+4.5/2)x6.5)+(4.5+4.5/2)x12)+(4.5+7.5/2)x40.5)+(7.5+5.5/2)x4.0)+(5.5+0.0/2)x6.0) = 326.7 x 1.5 = 490.0 cy

Excavation Stone Pad c162+00 - (2.7x5)+(2.7+2.0/2)x5)x8' = 344.8 cy

Total Trench Earth - (315+156+464.4+490.0)x0.5 = 344.8 cy = 8186.7 x 1/27 = 303.2 cy

- Trench Rock - 3.5

299.7 cy WRF 7-28-11

Trench Rock - 6'x4'x2.75' = 66

5'x6'x1' = 30

96 cy x 1/27 = 3.5 cy

1250

153+55

Trench Earth - (1.5x1)x(1.5+5x2)+(4.5+5/2x6)+(4.5+3/2x24)+(3.5+3.0/2x11)+(3.5+2.5/2x3)x27x1/27 = 35.1 cy WRF 8-25-11

Trench Rock - 18 RCP

Trenched 5'L x 2.29' = 150.28 x 1/27 = 5.6 cy

35.1 cy
5.6 cy
40.7 cy
28.2 cy

✓ 11-28-11

✓ WRF 11-28-11

1250

1250.0

1150+94

Trench Earth 63'-0.5'

LB - 132 = 48.1 cy

5.5'x48.1'x1' = 264.5 cy

Over 5'

48.1 x 24'(1.5x)x1.5x1/27 = 15.3 cy

Grav. Backfill

DI - (48.1x6)(4.88/2x4)x5) = 19 cy

New 18" x 30' RCCSP .064

Type A Grate & Inlet

Stone Fill Pad Type I

Remove Existing 18" RCP

(48.1-5)(6.4)(0.96)/27 = 5.6 cy

T.E.

Trench Earth 0.5' from Outlet

(0.0+1.5/2)x5)+(0.0+0.8/2)x5)+(0.0+0.8/2)(24+2x2)+(12+2x1)+(3.0+3.5/2x45)

(0.0+3.5/2x4)+(3.5+4.5/2)x45) = 838.8 cy x 1/27 = 31.1 cy

31.1 cy + 15.3 cy = 46.4 cy WRF 8-01-11

47.1 - 5.6 = 41.9 cy T.E.

✓ 11-28-11

Pipe - (6+0.5x4.5)+(6+4.5/2)x3.0 - 1/2 x π(1.5²/4)x6) = 360.4 cy + 19 cy = 551.4 cy x 1/27 = 20.4 cy WRF 9-01-11

20.4 cy x 1.15 = 23.5 cy WRF 9-28-11

✓ 11-28-11

T.E. - 12x5'x2'x1/27 = 15.1 cy

S.E. = 12x11'x2'x1/27 = 15 cy

Calc by JB.

1250.3

44.8' Lg

1250

1242.0

T.E. - 15'x9'x2'x1/27 = 10.0 cy Calc by JB.

S.E. - 15'x9'x2'x1/27 = 10.0 cy

✓ LR 8/18/11

156+00 Lt x 156+56 Rt

New 30" x 118' LF CPEP

w/Grade Headwall & Inlet

Type II Stone Fill Pad Outlet

Type I Stone Fill Pad Inlet

Trench Earth Deep Inlet

(7.5)

0.5' [(50x50)+(1.5x18)]x9.5 = 263.2

Over 5' [(0.0+0.4/2)x5]x9.5x1.5 = 39.2

302.4 cy³ WRF 8-18-11

Trench Earth Pipe 0.5'

[(1.8+1.5/2x3)+(1.5+0.0/2x6)+(0.0+3.2/2x7)+(3.2+3.8/2x7)+(3.8+4.2/2x7)+(4.2+5.0/2x21)+(5.0+5.9)+(5.0+1.8/2x11.2)+(1.8+1.3/2x15)+(1.3+0.8/2x3.8)]x5.5 = 1833.4 cy³

Over 5' (0.0+0.4/2x16)(3.4+0.0/2x3)x5.5x1.5 = 31.4 cy³

302.4 + 1833.4 + 31.4 x 1/27 = 80.3 cy WRF 8-18-11

Boulder @ Outlet - 8.6 cy

71.7 cy T.E.

Boulder @ Outlet

11x7x3x1/27 = 8.6 cy FN by LR

1250

1250.0

Remove 18" RCP

Remove Existing Pipe

T.E. Removal

DI - 7x7x3.3 (+wall) = 161.7 cy³ x 1/27 = 6.0 cy

- 3.2 cy

2.8 cy WRF 8-25-11

T.E. - DI:

Top (12") + Bottom (18") = 20" = 1.67'

5.5'(1.67'+4')x1' = 31.52 x 1/27 = 3.2 cy

WRF 8-25-11

T.E. - (2.2+5.0/2x19)+(5.0x9)+(5.0x3)+(5.0+2.5/2x9)+(2.5x2)x4.5 = 684.7 cy³

T.E. over 5' - (0.0+3.0/2x9)+(1.5+0.0/2x3)x4.5x1.5 = 48.6 cy³

684.7 + 48.6 + 730.3 x 1/27 = 27 cy

- 5.4 cy

21.6 cy WRF 8-25-11

14A - 18" LF

Remove 18" RCP

T.E. - 18" RCP

Removed 50 LF x 2.29' x 1/27 = 5.35 cy

WRF 8-25-11

Total T.E. 3.2 cy + 5.4 cy = 8.6 cy

Total T.E. - 2.8 cy + 21.6 cy = 24.4 cy

WRF 8-25-11

✓ 11-28-11

1250

1250.0

1244.3

Stone Fill Type I - 3'x5'x1'x1/27 = 0.6 cy

T.E. = 0.6 cy

1256.20

1250

1250.3

1242.0

1250

1250.0

1150+94

1244.3

1242.0

1250

1250.0

1242.0

1250

1250.0

1242.0

1250

1250.0