

TRENCH EARTH

From Outlet 0-1.5m
 $(1.13 \times 1.4) \times 5.3 + (\frac{1.4}{2} \times 2.4) + (\frac{4+1.5}{2} \times 2.3) + (1.5 \times 10.8) + (\frac{1.5 \times 1.0}{2} \times 1.4) + (\frac{1.0 \times 4}{2} \times 4.9) + (\frac{0.4 \times 0}{2} \times 1.6) = 25.42 \text{ m}^2 \times 1.72 = 43.7 \text{ m}^3$

From Outlet Over 1.5m
 $(\frac{0.0+0.2}{2} \times 0.5) + (\frac{0.2+0.3}{2} \times 3.9) + (0.3 \times 5.7) + (\frac{0.3+0.2}{2} \times 0.7) = 2.85 \times 1.72 \text{ m}^2 = 4.9 \times 1.5 =$

To REMOVE EXISTING CULVERT - ADD 0.6m WIDTH

From Outlet 0-1.5m
 $(\frac{0.3+0.4}{2} \times 7) + 2.18 \text{ m}^2 + 16.2 \text{ m}^2 = 18.6 \text{ m}^2 \times 6 \text{ m (width)} = 11.2 \text{ m}^3$

Over 1.5m
 $2.85 \text{ m}^2 \times 0.6 \text{ m} + 1.7 \text{ m}^3 \times 1.5 = \frac{2.6 \text{ m}^3}{13.8 \text{ m}^3}$

Total Trench Earth

$64.9 \text{ m}^3 + 6.3 \text{ m}^3 = 71.2 \text{ m}^3$
 WRF 12-8-06
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GRANULAR BACKFILL FOR STRUCTURES (TO TOP OF CULVERT)

OUTSIDE CULVERT REMOVAL AREA
 $(5.5 \text{ m} + 6.4 \text{ m}) \times 0.7 \text{ m} \times 1.72 \text{ m}^2 = 14.3 \text{ m}^3$

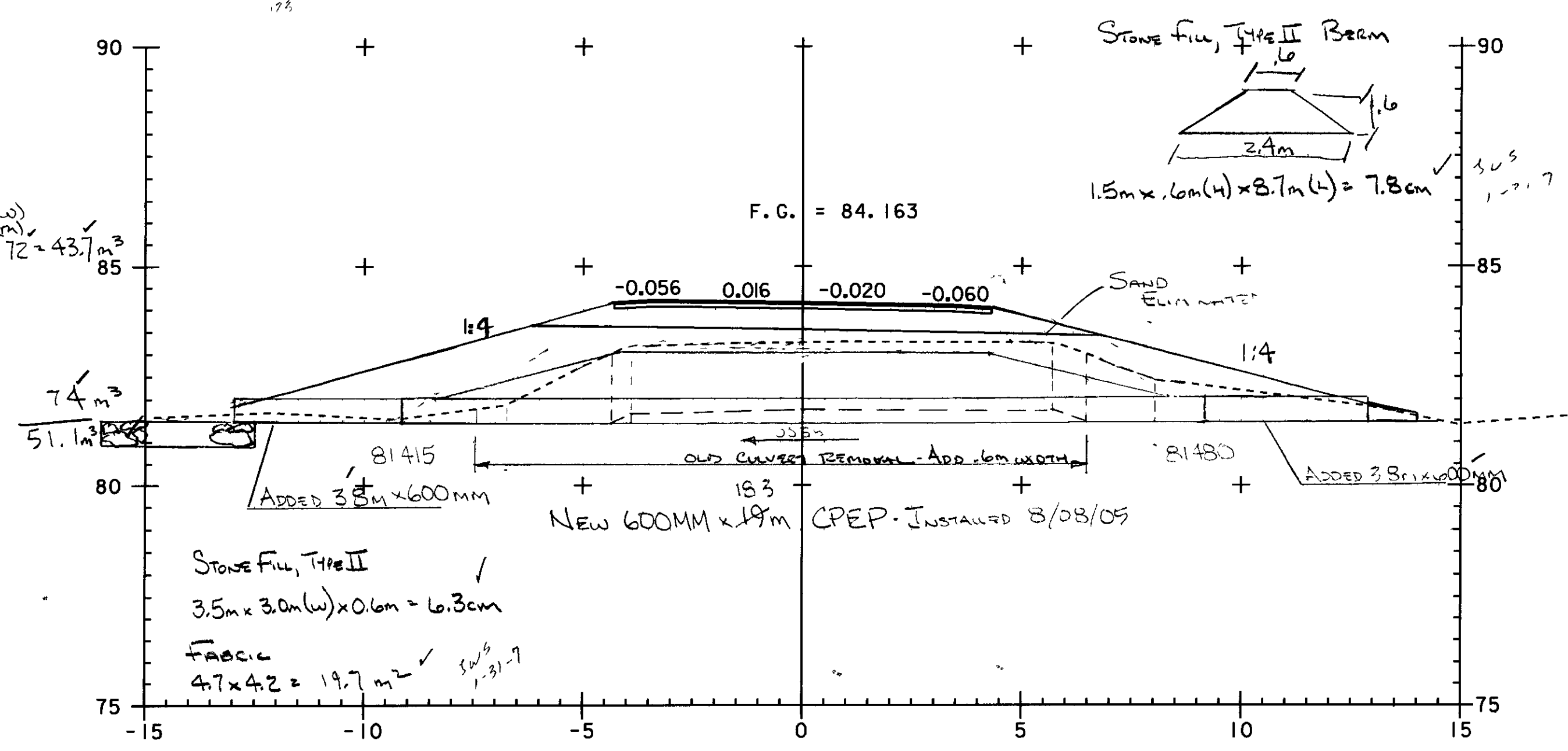
CULVERT REMOVAL AREA
 $14 \text{ m} \times 0.7 \text{ m} \times 2.32 \text{ m} = \frac{22.7 \text{ m}^3}{37.0 \text{ m}^3}$

Earth Borrow - 85m c in over culvert and 16.5m wide @ TOP OF CULVERT

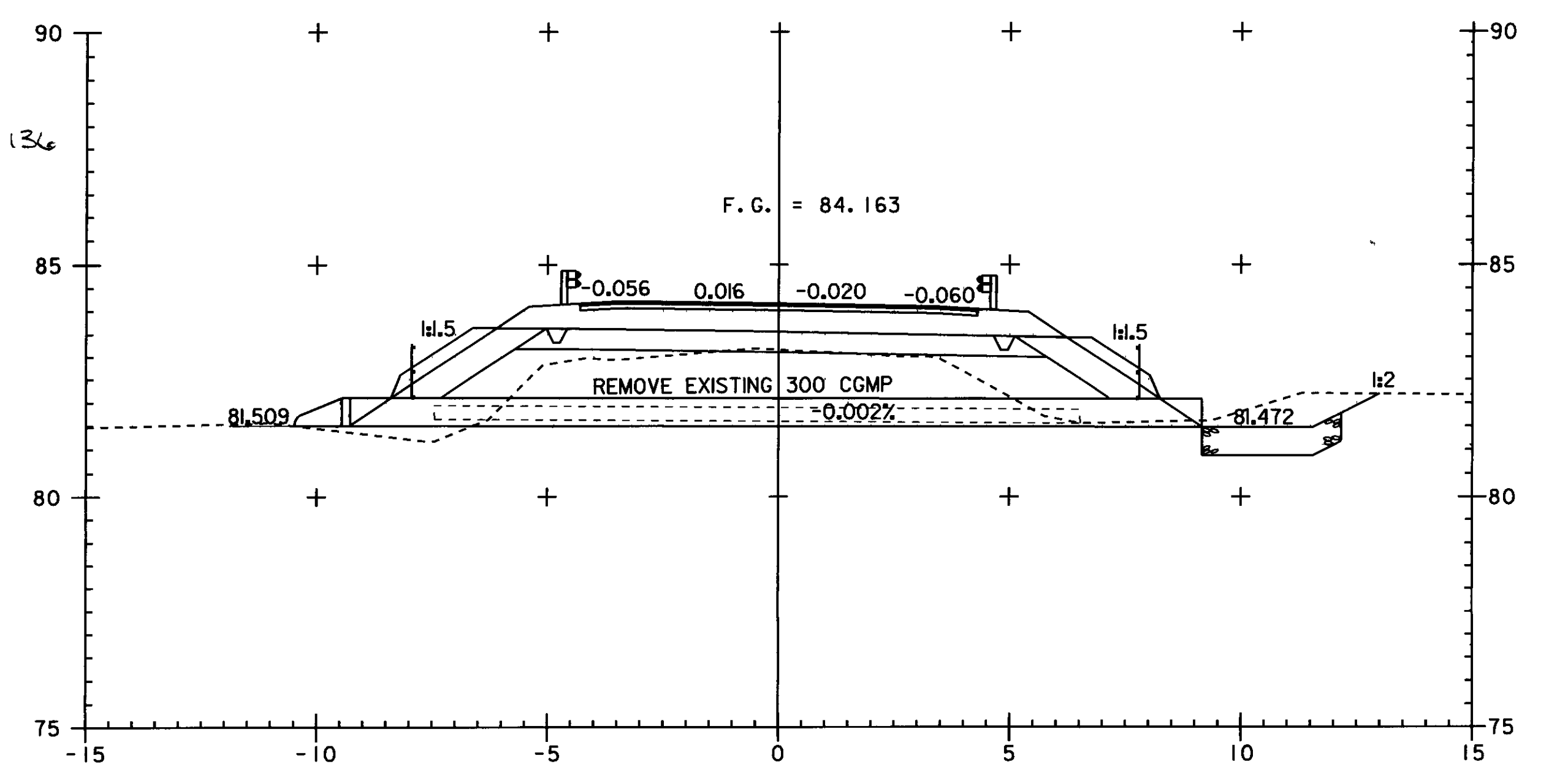
CULVERT REMOVAL AREA
 $(\frac{2+6.0}{2} \times 3.2) + (10 \times 8.5) + (\frac{10+0.5}{2} \times 2.3) = 12.14 \text{ m}^2 \times 2.32 \text{ m} = 28.16 \text{ m}^3$

OUTSIDE CULVERT REMOVAL
 $(\frac{0.0+0.2}{2} \times 0.9) + (\frac{0.5+0.0}{2} \times 1.6) = .49 \times 1.72 \text{ m} = \frac{.84 \text{ m}^3}{29.00 \text{ m}^3 \times 1.15 = 33.4 \text{ m}^3}$

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4+492 FIELD PROFILE



4+492 DESIGN SECTION

DRAINAGE SHEET 17

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