

**MED-18-12.99**

**CULVERT NO. 3**

**SFN: 520180045**

**Medina County**

**PID No. 92953**

**CULVERT ESTIMATED QUANTITIES  
Stage 3 Submittal**

for

**Ohio Department of Transportation – District 3**

Prepared by:



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ESTIMATED QUANTITIES



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Checked by \_\_\_\_\_ Date \_\_\_\_\_

ITEM 503 - UNCLASSIFIED EXCAVATION

TOTAL = LUMP SUM

ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN

TOTAL = LUMP SUM

ITEM 504 - STEEL SHEET PILING LEFT IN PLACE, AS PER PLAN

$$\text{TOTAL} = 5.0' \times (20.45' + 5.03' + 2.03' + 20.45') = 239.8' \Rightarrow \text{SAY } \underline{240 \text{ SF}}$$

ITEM 507 - 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN

$$\text{TOTAL} = 18 \times 55.0' = \underline{990 \text{ FT.}}$$

ITEM 507 - 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED

$$\text{TOTAL} = 18 \times (55.0' + 5.0') = \underline{1080 \text{ FT.}}$$

ITEM 509 - EPOXY COATED REINFORCING STEEL

(WINGWALLS) (FOOTING)  
FROM REINFORCING STEEL LISTS = 11,495 # + 4526 # = 16,021 LB

ITEM 511 - CLASS OCL CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING

$$\begin{aligned} \text{NE WINGWALL} &= \left[ \frac{1}{2} \times (950.00 + 940.50) - (929.25 + 2.50) \right] \times 22.0' \times 2.5' - (0.75' \times 0.25' \times 22.0') \\ &= 738.38 \text{ CF} \\ \text{NW WINGWALL} &= \left[ \frac{1}{2} \times (950.00 + 943.00) - (929.25 + 2.50) \right] \times 22.0' \times 2.5' - (0.75' \times 0.25' \times 22.0') \\ &= 807.13 \text{ CF} \end{aligned}$$

EXTENDED HEADWALL  $\frac{1}{2}$  SIDES:

$$\begin{aligned} \text{CADD AREA (EAST)} &= 19.05' \times (950.00 - (929.25 + 2.50)) = 347.7 \text{ CF} \\ \text{CADD AREA (WEST)} &= 11.55' \times (950.00 - (929.25 + 2.50)) = 210.8 \text{ CF} \\ \text{TOP OF CULVERT} &= (950.00 - 939.88) \times 2.50' \times 5.833' = 147.6 \text{ CF} \end{aligned}$$

$$\therefore \text{TOTAL FOR ITEM} = (738.38 + 807.13 + 347.7 + 210.8 + 147.6) \div 27 = 83.4 \text{ CY} \Rightarrow \text{SAY } \underline{83 \text{ CY}}$$

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ITEM 511 - CLASS GC1 CONCRETE, FOOTING

- CADD AREA =  $(347.8 + 313.3) \times 2.50' = 1652.75 \text{ CF}$
- EXTRA THICKNESS ON TDE (CADD AREA) =  $(\frac{123.03}{\text{EAST}} + \frac{109.53}{\text{WEST}}) \times 0.25' = 58.14 \text{ CF}$

• SLOPED FRONT :

LENGTH =  $20.45' + 5.03' + 2.03' + 20.45' = 47.96'$

∴ AREA =  $\frac{1}{2} \times 0.6875' \times 2.75' = 0.9453 \text{ ft}^2$

∴ TOTAL FRONT =  $0.9453 \text{ ft}^2 \times 47.96' = 45.34 \text{ CF}$

∴ TOTAL FOR ITEM =  $(1652.75 + 58.14 + 45.34) \div 27 = 65.05 \text{ CY} \Rightarrow \text{SAY } \underline{65 \text{ CY}}$

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

TOP & BACK =  $(2.50' + 0.50') \times [\sqrt{9.5^2 + 22.0^2} + 19.0' + \sqrt{7.0^2 + 22.0^2}] = 198.15 \text{ ft}^2$

WINGWALL FRONTS =  $\frac{1}{2} \times (950.00 - 934.96) \times 22.0' \times 2 = 330.88 \text{ ft}^2$

MIDDLE FRONT =  $(950.00 - 934.96) \times 16.0' - (939.88 - 934.96) \times 6.0' = 211.12 \text{ ft}^2$

∴ TOTAL FOR ITEM =  $(198.15 + 330.88 + 211.12) \div 9 = 82.24 \text{ SY} \Rightarrow \text{SAY } \underline{85 \text{ SY}}$

ITEM 512 - TYPE 2 WATERPROOFING

ACROSS TOP =  $6.0' \times 3.0' = 18.0 \text{ ft}^2$

CORNER SIDES =  $7.5' \times 3.0' \times 2 = 45.0 \text{ ft}^2$

TOTAL FOR ITEM =  $(18 + 45) \div 9 = \underline{7 \text{ SY}}$

ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER

AROUND EXISTING =  $(\frac{5.0' + 5.0' + 6.0'}{\text{SIDES}}) \times 2.5' = \underline{40 \text{ SF}}$

ITEM 518 - POROUS BACKFILL WITH GEOTEXTILE FABRIC

CADD AREA NE WING =  $179.54 \text{ ft}^2$  ; CADD AREA NW WING =  $173.98 \text{ ft}^2$

CADD AREA (TOP & AROUND SIDES) =  $198.13 \text{ ft}^2$

∴ TOTAL FOR ITEM =  $(179.54 + 173.98 + 198.13) \times 1.50' \div 27 = 30.65 \text{ CY} \Rightarrow \text{SAY } \underline{31 \text{ CY}}$

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ITEM 523 - DYNAMIC LOAD TESTING

TOTAL = 1 EACH

ITEM 601 - ROCK CHANNEL PROTECTION, TYPE B WITH AGGREGATE FILTER

CROSS AREA AT OUTLET END = 489.6  $\text{ft}^2$

AVG. THICKNESS = 2.4'

$$\therefore \text{TOTAL} = 489.6 \text{ ft}^2 \times 2.4' \div 27 = 43.52 \text{ CY} \Rightarrow \text{SAF } \underline{\underline{44 \text{ CY}}}$$