

STRUCTURE ESTIMATED QUANTITIES

TANGENT DRILLED SHAFT WALL 4W2

NORTHSIDE OF I-70 EB FROM FRA-70-1395C TO FRA-70-1405C

FRA-70/71-12.68/14.86
PID No. 105523

Franklin County, Ohio

Prepared For:

The Ohio Department of Transportation
District 6



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Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

Job WALL 4W2

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Calculated by RHC Date 5-29-19

Checked by DCN Date 5-31-19

WALL 4W2 QUANTITIES

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

PARTIAL WALL REMOVAL BEHIND PROPOSED WALL

APPROX. LENGTH = 178 ft

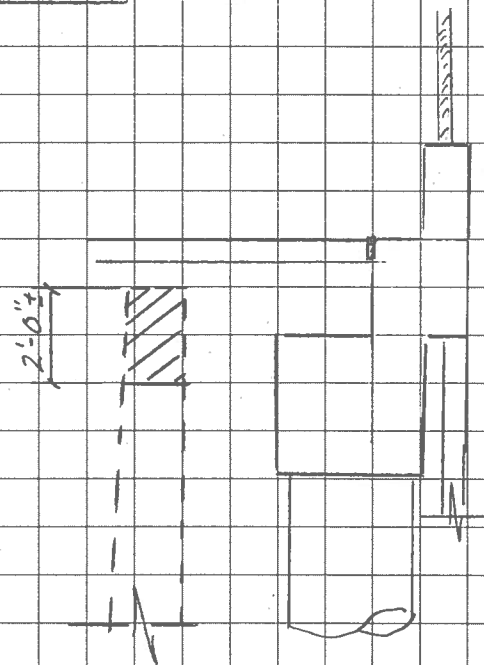
∴ AREA = (2.0')(178') = 356 SF

FULL REMOVAL IN FRONT OF PROPOSED WALL

APPROX. LENGTH ≈ 190 ft

APPROX. HEIGHT ≈ 25 ft

∴ AREA = 4750 SF



TOTAL = (356 SF + 4750 SF) \$10⁰⁰/SF = \$51060

USE \$55,000

LUMP SUM

ITEM 503 - COFFERDAMS AND EXCAVATION BRACING

WOOD LAGGING = 148 SF

PRECAST PANELS = 514 SF

SHEETING (DRILLED SHAFTS) = (544 SF)(6) = 3264 SF

HP14x73 = [(36')(2) + 19']73 = 6643 lbs.

COST:

WOOD LAGGING (148 SF)(\$10⁰⁰/SF) = \$1480

PRECAST PANELS = (514 SF)(\$50⁰⁰/SF) = \$25700

SHEETING = (3264 SF)(\$12⁰⁰/SF) = \$39168

HP14x73 = (6643 lbs)(\$10⁵⁰/lb) = \$66430

\$69670

TOTAL = \$70,000 LUMP SUM



ITEM 503 - UNCLASSIFIED EXCAVATION

EXCAVATION REQUIRED TO CONSTRUCT DRILLED SHAFT CAP

$$\begin{matrix} \text{CAP} & & \text{POROUS BACKFILL} & & \text{LENGTH} \\ \downarrow & & \downarrow & & \downarrow \\ (8.25' + 1' + 2' + 1') & (5.5') & (1.85') & (27CF) & = \underline{462 \text{ CY}} \end{matrix}$$

ITEM 509 - EPOXY COATED REINFORCING STEEL

69,641 LBS

ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, BRIDGE NECK (PARAPET), AS PER PLAN

KNEE WALL AREA = 3.62 SF

LENGTH = 57.1' + 11.3' + 113.1' + 6.1' + 122.1' = 309.7 ft.

VOLUME = (3.62 SF)(309.7') $\frac{\text{CY}}{27CF}$ = 42 CY

ITEM 511 - CLASS QC1 CONCRETE MISC.: CAST-IN-PLACE CONCRETE WALL

(17')(13')(2') $\frac{\text{CY}}{27CF}$ = 17 CY

ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, FOOTING

[1728.5 SF - (25.5 SF)(37 DRILLED SHAFTS) - 7.5 SF (1 DRILLED SHAFT) - 35.6 SF] $\frac{\text{CY}}{27CF}$ = 28 CY
 (BETWEEN DRILLED SHAFTS 1 AND 2)

ITEM 867 - TEMPORARY WIRE FACED MECHANICALLY STABILIZED EARTH WALL, AS PER PLAN

LUMP SUM

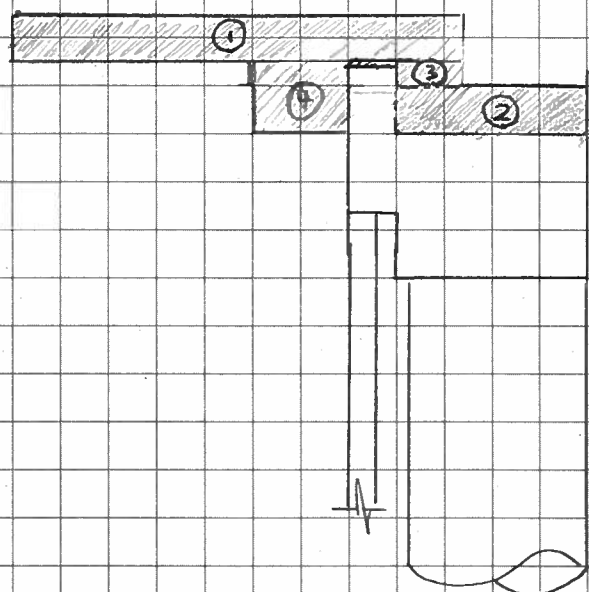


ITEM 511 - CLASS Q02 CONCRETE WITH QC/QA, SIDEWALK, AS PER PLAN

VOLUME: ↙ AVG. LENGTH

① (1.6') (13.83') (205') = 4536 CF
 ② (1.5') (8.25') (210') = 2599 CF
 ③ (0.5') (1025 SF) = 513 CF
 ④ (45.86 SF) (2.0') = 792 CF
 7740 CF

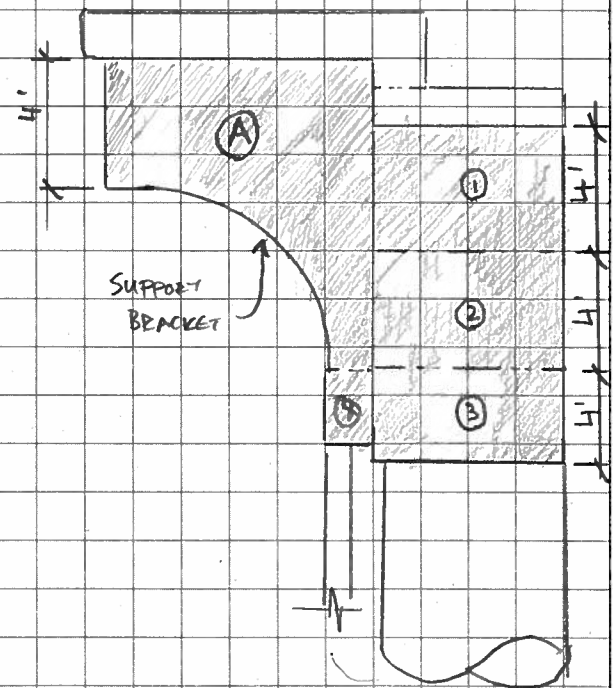
TOTAL (7740 CF) $\frac{CY}{27CF}$ = 287 CY



ITEM 511 - CLASS Q01 CONCRETE, MISCL: SUPPORT BRACKET AND DRILLED SHAFT CAP

SUPPORT BRACKETS:

DRILLED SHAFT #	VOLUME
1	(63.3 SF) (2.83') = 179 CF
2	(56 SF) (2.83') = 159 CF
4	(42.3 SF) (2.83') = 120 CF
7	(47.8 SF) (4.0') = 191 CF
10	(54.2 SF) (4.0') = 217 CF
13	" " = 217 CF
16	" " = 217 CF
19	" " = 217 CF
	1517 CF



DRILLED SHAFT CAP

① (4') (8.25') (203' + 113') = 10428 CF
 ② (4') (8.25') (8.0') 6 = 1584 CF
 ③ (4') (8.25') (8.0') 6 = 1584 CF
 COPING WALL = (1.75') (3.7') (113') = 732 CF
 BTWN SHAFTS 1 + 2 = (8.25') (4') (26') = 858 CF
 ④ (1.25') (3.0') (314') = 1178 CF

TOTAL = (1517 CF + 16364 CF) $\frac{CY}{27CF}$ = 663 CY → 16364 CF



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Job WALL 4W2

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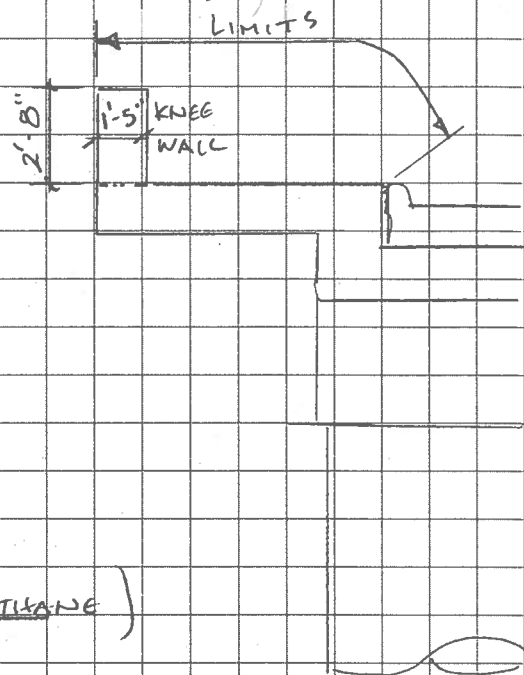
ITEM 512 - SEALING CONCRETE SURFACES (NON-EPOXY)

KNEE WALL = $(1.42' + 2.67') \times (310') = 1268 \text{ SF}$

SIDEWALK = $(12.42) \times (114') + (8') \times (6') = 1464 \text{ SF}$

COPING WALL = $(1.58') \times (113') = 179 \text{ SF}$
2911 SF

TOTAL $(2911 \text{ SF}) \times \frac{54}{9 \text{ SF}} = \underline{\underline{323 \text{ SY}}}$



ITEM 512 - SEALING CONCRETE SURFACES (EPOXY-URETHANE)

KNEE WALL $(2.67') \times (310') = 828 \text{ SF}$
AVG. DEPTH

FRONT FACE = $(27.4') \times (315') = 8631 \text{ SF}$
(INCLUDES BRACKETS)

SIDES OF BRACKETS: $2 [63.3 + 56 + 423 + 47.8 + 4(54.2)] = 852 \text{ SF}$

UNDERSIDE/SIDEWALK = 1628 SF
11939 SF

TOTAL = $(11939 \text{ SF}) \times \frac{54}{9 \text{ SF}} = \underline{\underline{1327 \text{ SY}}}$



ITEM 512 - TYPE 2 WATERPROOFING

$(2') \times (4') + 1234.5 \text{ SF} + 624.5 \text{ SF}$
 $+ (58.5') \times (1.0') + 125.8' \times (1.0') + 112.7' \times (3.0')$
 $\left] \times \frac{54}{9 \text{ SF}} = \underline{\underline{155 \text{ SY}}}$



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Job WALL 4W2

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ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER

END WALL
 ↙

$$(4')(4')(2) + (7.25')(4) + (3')(3.6') = \underline{\underline{72 \text{ SF}}}$$

ITEM 518 - POROUS BACKFILL WITH GEOTEXTILE FABRIC

$$[(4')(2') + (2.8')(2')](314') \frac{\text{CY}}{27\text{CF}} = \underline{\underline{152 \text{ CY}}}$$

ITEM 518 - 6" PERFORATED CORRUGATED PLASTIC PIPE

$$(314') (2 \text{ PIPES } = \text{ONE BEHIND WALL, ONE IN FRONT PANEL FOOTING}) = \underline{\underline{628 \text{ FT}}}$$

ITEM 518 - 6' NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS

$$\underline{\underline{29 \text{ FT}}}$$



Revised: MOJ 3-15-20
 Checked: RHC 3-16-20

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ITEM 524 - DRILLED SHAFTS, 60" DIAMETER, ABOVE BEDROCK, WITH QC/QA

79 FT.

ITEM 524 - DRILLED SHAFTS, 9/16" DIAMETER, ABOVE BEDROCK, WITH QC/QA, AS PER PLAN

TOTAL = 2955 FT.

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 4

$$X\text{-SECTIONAL AREA} = (16") (1") (2) + (40") (5/8") = 73.5 \text{ IN}^2$$

$$\text{UNIT WEIGHT} = [(73.5 \text{ IN}^2) / 144] (490 \text{ PCF}) = 250.1 \text{ PLF}$$

$$\text{TOTAL LENGTH} = 1300.93 \text{ FT (SUM OF PLAN TABLE)}$$

$$\text{TOTAL} = (250.1 \text{ PLF}) (1300.93 \text{ FT}) = \underline{\underline{325,363 \text{ LBS}}}$$

ITEM SPECIAL - ENGINEERED FULL LIGHTWEIGHT CELLULAR CONCRETE FILL, PERVIOUS

$$\text{AVERAGE DEPTH} = 15 \text{ FT.}$$

$$\text{AVERAGE WIDTH} = (4.2' + 9') (1/2) = 6.6 \text{ FT.}$$

$$\text{VOLUME} (15') (6.6') (113') (27 \text{ CF}) = \underline{\underline{415 \text{ CY}}}$$



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ITEM SPECIAL - STRUCTURES: PRECAST FACADE PANELS

TOTAL AREA = 4782 SF

ITEM 607 - FENCE MISC.: WALL MOUNTED TYPE A (WITH VANDAL MESH)

TOTAL LENGTH = 309 FT.