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ODOT District 4
STRUCTURES QUANTITY CALCULATIONS

Replacement of
SR-45 Bridge No. ATB-45–1913
over Coffee Creek
Austinburg Township,
Ashtabula County, Ohio

PID No. 101798
C-R-S: ATB / TRU - 20 / VAR - 8.28 / VAR

August 1, 2019
TRACINGS

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Project ATB-45-1913 OVER COFFEE CREEK
Project No. 170482 Sheet No. 1 of 4
Calculated By MLF Date 1/21/19
Checked By TAP Date 1/21/2019
Subject FINAL BRIDGE QUANTITIES

202-11003 STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN ~ LS

= ASSUME $23/SF × 3197 SF (BARP-191) = $73,531 ⇒ SAY $75,000

202-22900 APPROACH SLAB REMOVED ~ SY

= 22 FT × 25 FT × 2 EA (1940 PLANS) × 1/9 = 122.22 SY ⇒ SAY 123 SY

202-23500 WEARING COURSE REMOVED ~ SY

= (28 FT × 94.92 FT × 1/9 ×) + 123 SY (A.S.) = 418.31 ⇒ SAY 419 SY

503-11100 COFFERDAMS & EXCAVATION BRACING ~ LS

ASSUME $25,000/PIER × 2 PIERS = $50,000

503-21300 UNCLASSIFIED EXCAVATION ~ LS

= 5 FT × 9.5 FT × 54 FT × 2 EA × 1/27 × $30/CY = $3,760 ⇒ SAY $6,000

505-11100 PILE DRIVING EQUIPMENT MOBILIZATION ~ LS

= $5,000/LOCATION × 2 ABUTS = $10,000

507-00700 16" C.I.P. REINFORCED CONCRETE PILES, DRIVEN ~ FT

= (60 FT × 7 EA) + (75 FT × 7 EA) = 945 FT

507-00751 16" C.I.P. REINFORCED CONCRETE PILES, FURNISHED, A.P.P. ~ FT

= (65 FT × 7 EA) + (80 FT × 7 EA) = 1015 FT

509-10000 EPOXY COATED REINFORCING STEEL ~ LB

= 16,318 LB (SEE REINFORCING LIST IN PLANS)

511-31610 CLASS 4KD CONCRETE, SUPERSTRUCTURE ~ CY

DECK = .5 FT × 32.29 FT × 83 FT × 1/27 = 49.63 CY

CAMBER = 1/2 × .17 FT × 32.29 FT × 83 FT × 1/27 = 8.44 CY

VERT. CURVE = 1/2 × .025 FT × 32.29 FT × 83 FT × 1/27 = 1.24 CY

DIAPHRAGM = (1 FT × 1 FT + 2.25 FT × 1.5 FT) × 32.29 FT × 2 EA × 1/27 = 10.46 CY

TOTAL = 69.77 CY ⇒ SAY 70 CY

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Project ATB-45-1913 OVER COFFEE CREEK
Project No. 170482 Sheet No. 2 of 4
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S11-43510 CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING ~ CY

FOOTING = 3 FT x 3 FT x 32.5 FT x 2 ABUTS x 1/27 = 35 CY

STEM = $\left(\frac{3\text{ FT} + 3.25\text{ FT}}{2}\right)$ x 3 FT x 32.5 FT x 2 ABUTS x 1/27 = 22.51 CY

W.W.'S = 6.54 FT x 3 FT x 20 FT x 2 ABUTS x 1/27 = 29.07 CY

TOTAL = 86.64 CY => SAY 87 CY

S12-10100 SEALING OF CONCRETE SURFACES (EPOXY URETHANE) ~ SY

DECK + BEAM = 3.75 FT x 80 FT x 2 SIDES x 1/9 = 66.67 SY

STEM = 2.5 FT x 32.3 FT x 2 ABUTS x 1/9 = 17.94 SY

W.W.S = (5 FT + 3 FT + .5 FT) x 20 FT x 2 ABUTS x 1/9 = 37.78 SY

TOTAL = 122.39 SY => SAY 123 SY

S12-33000 TYPE 2 WATERPROOFING ~ SY

= 20 FT x 3 FT x 2 ABUTS x 1/9 = 13.33 SY => SAY 14 SY

S15-12090 PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB33-48 (83'0" LONG) ~ EA

= 8 EA

S16-13600 1" P.E.J.F. ~ SF

= 3.5 FT x 3 FT x 2 ENDS x 2 ABUTS = 42 SF

S16-14014 INTEGRAL ABUTMENT EXPANSION JOINT SEAL ~ FT

= ((32.3 FT + 3FT) + 2 x (3.5 FT + 1.5 FT)) x 2 ABUTS = 90.6 FT => SAY 91 FT

S16-43100 ELASTOMERIC BEARING W/ INTERNAL LAMINATES ONLY (NEOPRENE) (6"x8"x1.99") ~ EA

= 2 x 8 BEAMS x 2 ABUTS = 32 EA

S17-70000 RAILING (TWIN STEEL TUBE) ~ FT

= (83 FT + 4.92 FT) x 2 SIDES = 175.84 FT => SAY 176 FT

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Project ATP-45-1913 OVER COFFEE CREEK
Project No. 170482 Sheet No. 3 of 4
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Subject FINAL BRIDGE QUANTITIES

518-21200 POROUS BACKFILL W/ GEOTEXTILE FABRIC ~ CY
= 9 FT x 2 FT x 52.5 FT x 2 ABUTS x 1/27 = 70 CY

SPECIAL 518-22300 STEEL DRIP STRIP ~ FT
= (80 FT + 1.5 FT x 14 POSTS) x 2 SIDES = 202 FT

518-40000 6" P.C.P.P. ~ FT
= 52.5 FT x 2 ABUTS = 105 FT

518-40010 6" N.P.C.P.P. ~ FT
= (13 FT + 16 FT) x 2 = 58 FT

523-20000 DYNAMIC LOAD TESTING ~ EA
= 1 EA

526-10000 REINFORCED CONCRETE APPROACH SLABS (T=12") ~ SY
= 15 FT x 32 FT x 2 EA x 1/9 = 106.7 => SAY 107 SY

526-90010 TYPE A INSTALLATION ~ FT
= 32 FT x 2 EA = 64 FT

SPECIAL 530-14000 STRUCTURAL SURVEY & MONITORING OF VIBRATION ~ LS
SAY $15,000 / SUBSTRUCTURE x 2 ABUTS = $30,000

846-00110 POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM ~ CF
= 20" x 3' / 144 x 32 FT x 2 EA = 26.67 => SAY 27 CF

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Project ATB-(20)(45)
Project No. 170482 Sheet No. 4 of 4
Calculated By TAP Date 7/25/2019
Checked By MLF Date 7/29/19
Subject ATB-45 FINAL BRIDGE QUANTITIES

ITEM 690E98400 - SPECIAL - SURFACE SMOOTHNESS FOR BRIDGES AND APPROACHES - LS

LIMITS: 250 FT ON EITHER ENDS OF APPROACH SLABS INCLUDING APPROACH SLABS LENGTH & BRIDGE = 250' + 115' + 250' = 615'
WIDTH SHALL BE = 32 FT.

UNIT COST: Use $5/SY

TOTAL COST ⇒ $\frac{\$5}{SY} \times \frac{615' \times 32'}{9 SF/SY} = \$10,933 \sim$ Say $\$10,000$