

STRUCTURE ESTIMATED QUANTITIES

**Bridge No. SUM-77-0802 L/R
I.R. 77 over East Warner Road**

**SUM-77/277/224-VARIOUS
PID No. 106002**

Summit County, Ohio

Prepared For:

**The Ohio Department of Transportation
District 4**



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January 18, 2021



Client: ODOT District 4
 PID No.: 106002
 Subject: SUM-77-0802L/R Estimated Quantities
 Final Tracings

Job No.: 2017258
 Sheet No.: 1 Of 1
 Made By: RFV Date: 1/14/2021
 Chk'd By: DJC Date: 1/15/2021

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

area (nb) = 527.85 sf
 area (sb) = 527.85 sf
 volume cost deck thickness = 17.00 in
 deck volumes = 1,495.58 cf
 ww volumes = 346.00 cf
 parapet volumes = 584.85 cf
 volume = 89.87 cy
 unit cost = \$300.00 cy

Lump Sum = \$ 26,961.00 >> Use \$27,500

ITEM 202 - APPROACH SLAB REMOVED

width of approach slab o/o = 36.00 ft
 length of approach slab = 25.00 ft
 no. of approach slabs = 4

Total = 400 sy

ITEM 202 - WEARING COURSE REMOVED

same as item 202 - approach slab removed
 wearing surface removal on existing deck slab carried with Item 848
Total = 400 sy

ITEM 503 - COFFERDAMS AND EXCAVATION BRACING

height = 15.00 ft
 length = 35.00 ft
 no. = 4
 total sheeting area = 2100 sf
 unit cost = \$15.00 per sf used

Lump Sum = \$ 31,500.00 >> Use \$30,000

ITEM 503 - UNCLASSIFIED EXCAVATION

Note: For abutments, excavation required for Item 202 removal and new Item 518 porous backfill placement is included with those items for payment. Item 503 will include excavation for the abutment widening only.

rear abutment

length of proposed ftg (median) = 31.30 ft
 width of ftg excavation = 5.00 ft
 ftg depth (avg) = 7.6 ft
 1189.4 cf

forward abutment

length of proposed ftg = 31.30 ft
 width of ftg excavation = 5.00 ft
 ftg depth (avg) = 7.6 ft
 1181.6 cf

piers (adjacent column footing excavations overlap)

excavation length = 40.5 ft, each pier nb+sb
 excavation width = 11 ft
 depth (avg) = 5.75 ft
 no. of excavations = 2
 5123.25 cf

Abut. cy Pier cy

Total = 278 cy

88 190

ITEM 505 - PILE DRIVING EQUIPMENT MOBILIZATION

Lump Sum = \$ 20,000.00

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

rear abutment	no. =	6
	est. length =	50 ft
		300 ft
pier 1	no. =	16
	est. length =	75 ft
		1200 ft
pier 2	no. =	16
	est. length =	70 ft
		1120 ft
forward abument	no. =	6
	est. length =	25 ft
		150
	Total =	2770 ft

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

rear abutment	driven length =	300 ft
	furnished =	330 ft
pier 1	driven length =	1200 ft
	furnished =	1280 ft
pier 2	driven length =	1120 ft
	furnished =	1200 ft
forward abument	driven length =	150 ft
	furnished =	180 ft
	Total =	2990 ft

ITEM 509 - EPOXY COATED REINFORCING STEEL

	lb
deck =	77,103
parapets =	14,340
piers =	28,796
abutment =	9,997
	Total = 130,236 lb

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN

Total = 100 lb

ITEM 509 - NO. 4 GFRP DEFORMED BARS

Total = 4171 ft

ITEM 509 - NO. 6 GFRP DEFORMED BARS

Total = 3310 ft

ITEM 510 - DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT

no. at rear abutment (nb) =	70 ea
no. at rear abutment (sb) =	72 ea
no. at forward abutment (nb) =	70 ea
no. at forward abutment (sb) =	70 ea
Total =	282 ea

ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK

	Area	Thickness
northbound widening =	2665.20 sf	20.38 in
northbound fascia =	263.92 sf	18.05 in, avg.
southbound widening =	2712.58 sf	20.38 in
southbound fascia =	263.92 sf	18.05 in, avg.
	5905.61 sf	
Total =	368 cy	

ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)

median barrier area =	12.32 sf	*from SBR-2-20
median barrier length =	105.57 ft	
median barrier transition area (avg.) =	11.08 sf	
median transition length =	25.00 ft	
no. transitions =	2	
subtotal =	1854.66 cf, median including approach slabs	
parapet area =	588.00 si	*from SBR-1-20
	4.08 sf	
parapet length =	127.57 ft	
no. parapets =	2	
subtotal =	1041.85 cf, fascia	
parapet transition =	1.82 cy	*from SBR-1-20
no. transitions =	4	
	7.28 cy	
Total =	115 cy	

ITEM 511 - CLASS QC1 CONCRETE, PIER ABOVE FOOTINGS

pier 1 cap plan area (sb) =	74.54 sf	
avg. height =	3.72 ft	
pier 1 cap plan area (nb) =	74.38 sf	
avg. height =	3.10 ft	
pier 2 cap plan area (sb) =	74.54 sf	
avg. height =	3.73 ft	
pier 2 cap plan area (nb) =	74.38 sf	
avg. height =	3.20 ft	
subtotal =	1023.45 cf	
pier 1 top of column el. (avg.) =	1017.94	
pier 1 bot of column el. =	1002.50	
avg. height =	15.43 ft	
dia. =	3.00 ft	
no. of columns =	4	
subtotal =	436.41 cf	
pier 2 top of column el. (avg.) =	1017.02	
pier 2 bot of column el. =	1002.40	
avg. height =	14.62 ft	
dia. =	3.00 ft	
no. of columns =	4	
subtotal =	413.37 cf	
Total =	70 cy	

ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING

rear abutment nb top of wall el. (avg) =	1021.99	
bot. of wall el. =	1017.74	
height (avg) =	4.25 ft	
thickness =	2.00 ft	
key area =	0.13 sf	
length (avg) =	23.80 ft	
subtotal =	198.96 cf	
rear abutment sb top of wall el. (avg) =	1021.89	
bot. of wall el. =	1017.04	
height (avg) =	4.85 ft	
thickness =	2.00 ft	
key area =	0.13 sf	

length (avg) = 24.13 ft
subtotal = 230.92 cf

forward abutment nb top of wall el. (avg) = 1019.66
bot. of wall el. = 1015.39
height (avg) = 4.26 ft
thickness = 2.00 ft
key area = 0.13 sf
length (avg) = 23.65 ft
subtotal = 198.66 cf

forward abutment sb top of wall el. (avg) = 1019.57
bot. of wall el. = 1014.84
height (avg) = 4.73 ft
thickness = 2.00 ft
key area = 0.13 sf
length (avg) = 24.28 ft
subtotal = 226.28 cf

Total = 32 cy

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

rear abutment plan area (cadd) = 93.39 sf
forward abutment plan area (cadd) = 93.48 sf
ftg height = 3.00 ft
pier column ftg area = 81.00 sf
no. of colum ftgs = 8
ftg height = 2.50 ft
subtotal = 2180.61 cf

Total = 81 cy

Abut cy Pier cy
21 60

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

abutments

rear abutment face area = 180.20 sf
rear abutment ww face area (nb) = 18.01 sf
rear abutment ww face area (sb) = 8.35 sf
ww side & top area (nb) = 15.42 sf
ww side & top area (sb) = 13.78 sf
ww back area (nb) = 3.86 sf
ww back area (sb) = 3.44 sf

forward abutment face area = 229.53 sf
forward abutment ww face area (nb) = 16.04 sf
forward abutment ww face area (sb) = 12.46 sf
ww side & top area (nb) = 16.18 sf
ww side & top area (sb) = 16.33 sf
ww back area (nb) = 4.04 sf
ww back area (sb) = 4.08 sf

abutment subtotal = 541.72 sf

61

piers

southbound pier caps perimeter = 165.49 ft
southbound pier 1 cap height (avg) = 3.58 ft
southbound pier 2 cap height (avg) = 3.52 ft
southbound pier 1 cap bottom cadd area = 198.76 sf
southbound pier 2 cap bottom cadd area = 198.76 sf
southbound caps area = 1573.88 sf

northbound pier caps perimeter = 165.38 ft
northbound pier 1 cap height (avg) = 3.12 ft
northbound pier 2 cap height (avg) = 3.13 ft
northbound pier 1 cap bottom cadd area = 198.59 sf
northbound pier 2 cap bottom cadd area = 198.59 sf
northbound caps area = 1431.88 sf

pier 1 top of column el. (avg.) = 1017.94
pier 1 ground line el. (avg) = 1006.00
avg. height = 11.93 ft
dia. = 3.00 ft
perimeter of column = 9.42 ft
no. of columns = 12

pier 1 columns area = 1349.82 sf
 pier 2 top of column el. (avg.) = 1017.02
 pier 2 ground line el. (avg) = 1005.00
 avg. height = 12.02 ft
 dia. = 3.00 ft
 perimeter of column = 9.42 ft
 no. of columns = 12
 pier 2 columns area = 1359.43 sf

piers subtotal = 5715.00 sf 636

parapets

parapet perimeter = 10.23 ft
 length = 127.57 ft
 no. of parapets = 2
 transition perimeter (avg) = 7.36 ft
 length = 14.00 ft
 no. of transitions = 4
 3021.50 sf

median barrier perimeter = 11.37 ft
 length = 105.57 ft
 transition median barrier perimeter (avg) = 9.15 ft
 length = 25.00 ft
 no. of transitions = 2
 1657.63 sf

parapets subtotal = 4679.13 sf 520

Total = 1217 sy

ITEM 512 - TYPE 2 WATERPROOFING

rear abutment joints = 14.21 ft
 forward abutment joints = 13.98 ft
 width = 3 ft

Total = 10 sy

ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER

abutment (outside edge of slab) = 1.96 sf 8 sf
 locations = 4
 parapets (at bridge limits) = 4.08 sf 17 sf
 locations = 4
 median barriers (at bridge limits) = 12.32 sf 25 sf
 locations = 2

Total = 50 sf

ITEM 516 - 2" PREFORMED EXPANSION JOINT FILLER

abutment (at median gap) (ftg) = 9.00 sf
 locations = 2.00
 abutment (at median gap) (stem) = 9.50 sf
 locations = 2.00

Total = 37 sf

ITEM 518 - POROUS BACKFILL WITH GEOTEXTILE FABRIC

rear abutment back wall area = 848.25 sf
 forward abutment back wall area = 834.33 sf
 width = 2.00 ft

Total = 125 cy

	SB	NB	
Rear T/Slab =	1023.57	1023.96	(avg. elevations)
Rear B/Ftg. =	1014.04	1014.74	
Fwd T/Slab =	1021.24	1021.58	(avg. elevations)
Fwd B/Ftg. =	1011.84	1012.39	
Approx. Top thickness =			18 in.
Approx. overall width (each side) =			87 ft.

ITEM 518 - 6" PERFORATED CORRUGATED PLASTIC PIPE

rear abutment length = 179.30 ft
 forward abutment length = 179.34 ft

Total = 360 ft

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

rear abutment length = 30.00 ft
forward abutment length = 30.00 ft
Total = 60 ft

ITEM 519 - SPECIAL - COMPOSITE FIBER WRAP SYSTEM

column dia. = 3.00 ft
perimeter = 9.42 ft
pier 1L col. heights = 14.95 ft
pier 1R col. heights = 15.02 ft
pier 2L col. heights = 14.16 ft
pier 2R col. heights = 14.18 ft
no. of existing columns per pier = 4.00
2198.24 sf
Total = 2199 sf

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN

See General Notes

rear abutment = 5.00 sf
piers = 5.00 sf
forward abutment = 60.00 sf
contingency = 20.00 sf
Total = 90 sf

ITEM 523 - DYNAMIC LOAD TESTING

abutments = 1 ea
piers = 1 ea
Total = 2 ea

ITEM 526 - REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15"), AS PER PLAN

approach slab area (cadd) = 3952.73 sf
no. of approach slabs = 2
Total = 879 sy

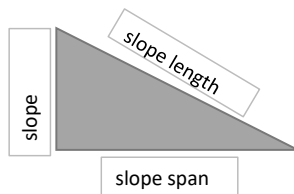
ITEM 526 - TYPE A INSTALLATION, AS PER PLAN

length of installation (per app slab) = 162.14 ft
no. of installations = 2
Total = 325 ft

ITEM 601 - CRUSHED AGGREGATE SLOPE PROTECTION

rear abutment top of slope el. = 1021.00
bot. of slope el. (avg) = 1006.00
slope height = 15.00 ft
slope span = 30.03 ft
slope length = 33.57 ft
slope width (approx) = 42.00 ft
1409.90 sf

forward abutment top of slope el. = 1018.50
bot. of slope el. (avg) = 1005.50
slope height = 13.00 ft
slope span = 30.03 ft
slope length = 32.72 ft
slope width (approx) = 42.00 ft
1374.42 sf
Total = 310 sy



ITEM 846 - POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM

width = 20 in
height = 3 in
length of installation (per app slab) = 162 ft

no. of installations = 2
135 cf

Total = 136 cf

ITEM 848 - MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, 1 1/2 " THICK. AND VARIES

width of overlay (nb) = 52.00 ft
width of overlay (sb) = 52.00 ft
length of overlay = 105.57 ft

Total = 1220 sy

ITEM 848 - SURFACE PREPARATION USING HYDRODEMOLITION

width of hydrodemolition (nb) = 51.00 ft
width of hydrodemolition (sb) = 51.00 ft
length hydrodemolition = 105.57 ft

Total = 1197 sy

ITEM 848 - MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY

deck length = 105.57 ft

variable thickness area (sb) = 4.68 sf
variable thickness road width = 16.50 ft
subtract 1.5" thick area = 2.06 sf
sb volume = 276.65 cf

variable thickness area (nb) = 4.54 sf
variable thickness road width = 16.50 ft
subtract 1.5" thick area = 2.06 sf
nb volume = 261.55 cf

Total = 60 cy

ITEM 848 - HAND CHIPPING

use 10% total removal area = 105.57 sf
Unsound area unknown

Total = 12 sy

ITEM 848 - TEST SLAB

Lump Sum = \$ 1,500.00

ITEM 848 - FULL-DEPTH REPAIR

Total = 2 cy

ITEM 848 - WEARING COURSE REMOVED, ASPHALT

Equals Item 848E10000

Total = 1,220 sy

VOID ABUTMENT CALCS FOR REFERENCE.....

rear abutment

length of abutment = 181.30 ft
width of exist. porous backfill = 1.50 ft
depth (avg) = 4.74 ft
length of proposed ftg = 33.30 ft
width of ftg excavation = 5.00 ft
ftg depth (avg) = 7.75 ft
2580.03 cf

forward abutment

length of abutment = 181.30 ft
width of exist. porous backfill = 1.50 ft
depth (avg) = 4.62 ft
length of proposed ftg = 33.30 ft
width of ftg excavation = 5.00 ft
ftg depth (avg) = 7.60 ft
2523.10 cf

	cy	ratio (lb/cy)	lb
deck =	0	250	0
parapets =	0	100	0
piers =	0	150	0
abutment =	0	100	0
footings =	0	150	0