

SUBJECT DESC.: SR 18 OVER CENTER CREEK
 Project ID Number: 88876 JOB NUMBER: MED-18-0172
 DESIGNED BY: MDA DATE: 10/7/22 CHECKED BY: JBD DATE: 10/7/22

202E11002 STRUCTURE REMOVED, OVER 20 FOOT SPAN

FROM ODOT PROCEDURES FOR ESTIMATING MAY 2013

REMOVAL DECK = \$20/SF, REMOVAL SUBSTRUCTURE CONCRETE = \$200/CY

EXISTING DECK AREA = 20FT(44FT) = 880SF(\$20/SF) = \$17600

R.A. FOOTING = 87.6ft*2.5ft*8.11ft = 66 cy

R.A. ABOVE FOOTING = 51FT*11.42ft*4.18ft = 90 cy

R.A. NORTH WINGWALL ABOVE FOOTING = 12.08ft*9.82ft*4.18ft = 18 cy

R.A. NORTH TURNBACK WINGWALL ABOVE FOOTING = 7ft*2.75ft*9.5ft = 7 CY

R.A. SOUTH WINGWALL ABOVE FOOTING = 13.33FT*4.18FT*9.63FT = 20 CY

R.A. SOUTH TURNBACK WINGWALL ABOVE FOOTING = 7ft*2.75ft*9.5ft = 7 CY

F.A. FOOTING = 89.5ft*2.5ft*8ft = 66 cy

F.A. ABOVE FOOTING = 51FT*2ft*11.75ft + 51ft*(4.25ft*11.75ft)/2 = 92 cy

F.A. NORTH WINGWALL ABOVE FOOTING = 11.67FT*9.76FT*4.125FT = 17 CY

F.A. NORTH TURNBACK WINGWALL ABOVE FOOTING = 7FT*2.75FT*9.5FT = 7 CY

F.A. SOUTH WINGWALL ABOVE FOOTING = 15.17FT*10.04FT*4.125FT = 23 CY

F.A. SOUTH TURNBACK WINGWALL ABOVE FOOTING = 7FT*2.75FT*9.5FT = 7 CY

TOTAL CONCRETE REMOVE = 420CY(\$200/CY) = \$84000

TOTAL REMOVAL COST = \$101600

Note: Per existing plans, approach slab only 24 feet wide.
wearing course paved on top is 44 feet, matching bridge width

202E22900 APPROACH SLAB REMOVED

EXISTING APPROACH SLAB AREA = 2*15FT(24FT) = 720 SF

TOTAL APPROACH SLAB AREA REMOVED = 80 SY

202E32500 WEARING COURSE REMOVED

EXISTING DECK/APP SLAB AREA = (15FT*2+22.88FT)(44FT) = 2327 SF

TOTAL WEARING COURSE REMOVED = 259 SY

503E21100 COFFERDAMS AND EXCAVATION BRACING (LS)

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503E21100 UNCLASSIFIED EXCAVATION

R.A. LENGTH = 104.67FT

R.A. WIDTH ABOVE T/R = 2.25FT + 1FT BEHIND = 3.25 FT

R.A. HEIGHT FROM T/R TO GRADE = 12FT (959-947)

R.A. VOLUME = (104.67FT) (3.25FT * 12FT) = 151 CY

F.A. LENGTH = 101.75FT

F.A. WIDTH ABOVE T/R = 2.25FT + 1FT BEHIND = 3.25 FT

F.A. HEIGHT FROM T/R TO GRADE = 11 FT (959.5 - 948.5)

F.A. VOLUME = 101.75FT (3.25FT * 11FT) = 135 CY

TOTAL UNCLASSIFIED EXCAVATION = 286 CY

503E31120 SHALE EXCAVATION

R.A. LENGTH = 104.67FT

R.A. BACKWALL HEIGHT BELOW T/R = 2FT

R.A. BACKWALL WIDTH BELOW T/R = 2.25FT + 1FT BEHIND = 3.25 FT

R.A. FOOTING HEIGHT BELOW T/R = 3FT

R.A. FOOTING WIDTH BELOW T/R = 4FT + 1FT BEHIND = 5FT

R.A. VOLUME = 104.67FT (2FT * 3.25FT + 3FT * 5FT) = 83 CY

F.A. LENGTH = 101.75FT

F.A. BACKWALL HEIGHT BELOW T/R = 3.5FT

F.A. BACKWALL WIDTH BELOW T/R = 2.25FT + 1FT BEHIND

F.A. FOOTING HEIGHT BELOW T/R = 3FT

F.A. FOOTING WIDTH BELOW T/R = 4FT + 1FT BEHIND = 5 FT

F.A. VOLUME = 101.75FT (3.5FT * 3.25FT + 3FT * 5FT) = 99 CY

TOTAL SHALE EXCAVATION = 182 CY

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509E10000 EPOXY COATED REINFORCING STEEL

FROM ABUTMENT REBAR LIST, TOTAL = 13983 LBS

FROM SUPERSTRUCTURE REBAR LIST, TOTAL = 15226 LBS

TOTAL WEIGHT OF REBAR = 29209 LBS

511E34410 CLASS QC2 CONCRETE, SUPERSTRUCTURE

ABUTMENT WIDTH ABOVE CONST. JOINT = 2.25 FT, LENGTH = 50.81 FT

R.A. HEIGHT FROM TOP OF BEARING TO BOTTOM OF SLAB = 2.42FT

R.A. VOLUME = 2.25 (50.81) (2.42) = 10 CY

F.A. HEIGHT FROM TOP OF BEARING TO BOTTOM OF SLAB = 2.42FT

F.A. VOLUME = 2.25 (50.81) (2.42) = 10 CY

SLAB LENGTH = 24.73FT

SLAB WIDTH = 44FT

SLAB DEPTH = 1.5FT

SLAB VOLUME = 24.73FT (44FT) (1.5FT) = 61 CY

TOTAL CLASS QC2 CONCRETE, SUPERSTRUCTURE = 81 CY

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511E43512 CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING

R.A. LENGTH = 104.67FT

R.A. AREA OF FOOTING = 4FT (3FT) = 12 SF

R.A. FOOTING VOLUME = 104.67FT (12 SF) = 47 CY

R.A. STEM AREA = 2.25FT (9.74FT) = 21.92 SF

R.A. STEM VOLUME = 104.67FT (21.92 SF) = 85 CY

R.A. WINGWALL AREA = 134.45 SF

R.A. WINGWALL VOLUME = 134.45 SF (2.25FT) = 11 CY

F.A. LENGTH = 101.75FT

F.A. AREA OF FOOTING = 4FT (3FT) = 12 SF

F.A. FOOTING VOLUME = 101.75FT (12SF) = 45 CY

F.A. STEM AREA = 2.25FT (10.1FT) = 22.73 SF

F.A. STEM VOLUME = 101.75FT (22.73 SF) = 86 CY

F.A. WINGWALL AREA = 128 SF

F.A. WINGWALL VOLUME = 2.25FT (127.8 SF) = 11 CY

TOTAL QC1 CONCRETE, ABUTMENT = 285 CY

SUBJECT DESC.: SR 18 OVER CENTER CREEKProject ID Number: 88876 JOB NUMBER: MED-18-0172DESIGNED BY: MDA DATE: 10/7/22 CHECKED BY: JBD DATE: 10/7/22**512E10100 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)**R.A. NORTH WINGWALL TOP = 2.25FT (27FT) = 7 SYR.A. NORTH WINGWALL SIDE = 2.25FT (27FT) = 7 SYR.A. SOUTH WINGWALL TOP = 2.25FT (26.6FT) = 7 SYR.A. SOUTH WINGWALL SIDE = 2.25FT (26.6FT) = 7 SYF.A. NORTH WINGWALL TOP = 2.25FT (22.7FT) = 6 SYF.A. NORTH WINGWALL SIDE = 2.25FT (22.7FT) = 6 SYF.A. SOUTH WINGWALL TOP = 2.25FT (28.1FT) = 7 SYF.A. SOUTH WINGWALL SIDE = 2.25FT (28.1FT) = 7 SYTOTAL FOR WINGWALLS = 54 SY

ABUTMENT LENGTH (EXCLUDING WINGWALLS) = 50.81 FT

HEIGHT ABOVE GRADE VARIES, APPROX. 11 FT

ABUTMENT AREA = 11FT (50.81 FT) *2 = 124 SY

SLAB DEPTH = 1.5FT

DECK LENGTH = 20.7FT

AREA ALONG DECK = (1.5FT + 0.5FT) * 20.7FT * 2 SIDES = 9 SY**TOTAL AREA FOR SEALING = 187 SY****516E13600 1" PREFORMED EXPANSION JOINT FILLER**

R.A. HEIGHT = F.A. HEIGHT = 3.9 FT

LENGTH = 2.6 FT

R.A. AREA = 2.6 FT (3.9 FT) * 2 = 20.3 SFF.A. AREA = 2.6 FT (3.9 FT) * 2 = 20.3 SF**TOTAL AREA 1" PEJF = 41 SF****516E14020 SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL**

LENGTH R.A. = LENGTH F.A. = 50.81 FT

TOTAL LENGTH, EXPANSION JOINT SEAL = 102 FT

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513E43200 ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE)

BEARINGS 11 3/4" X 11 3/4" X 2" THICK

R.A. = 5 BEARINGS

F.A. = 5 BEARINGS

TOTAL ELASTOMERIC BEARINGS = 10

517E70100 RAILING (THREE STEEL TUBE)

LENGTH = 35 FT (NORTH AND SOUTH)

TOTAL LENGTH, TST RAILING = 70 FT

518E21200 POROUS BACKFILL WITH GEOTEXTILE FABRIC

WIDTH = 2 FT

LENGTH OF R.A. NORTH WINGWALL = 26.3 FT

HEIGHT FROM BOTTOM OF FOOTING TO TOP OF GRADE VARIES, APPROXIMATELY 13 FT

R.A. NORTH WINGWALL VOLUME = 2FT (26.4 FT) (13 FT) = 25 CY

LENGTH OF R.A. SOUTH WINGWALL = 27.3 FT

HEIGHT FROM BOTTOM OF FOOTING TO TOP OF GRADE VARIES, APPROXIMATELY 13 FT

R.A. SOUTH WINGWALL VOLUME = 2FT (27.3 FT) (13 FT) = 26 CY

LENGTH OF F.A. NORTH WINGWALL = 23.4 FT

HEIGHT FROM BOTTOM OF FOOTING TO TOP OF GRADE VARIES, APPROXIMATELY 13 FT

F.A. NORTH WINGWALL VOLUME = 2FT (23.4 FT) (13 FT) = 23 CY

LENGTH OF F.A. SOUTH WINGWALL = 27.4 FT

HEIGHT FROM BOTTOM OF FOOTING TO TOP OF GRADE VARIES, APPROXIMATELY 13 FT

F.A. SOUTH WINGWALL VOLUME = 2FT (27.4 FT) (13 FT) = 26 CY

TOTAL FOR WINGWALLS = 100 CY

LENGTH R.A. = LENGTH F.A. = 50.81 FT

R.A. DEPTH VARIES, ASSUME 13FT

F.A. DEPTH VARIES, ASSUME 13FT

R.A. VOLUME = F.A. VOLUME = 2 FT (13 FT) (50.81 FT) * 2 = 98 CY

TOTAL VOLUME, POROUS BACKFILL = 198 CY

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518E22300 STEEL DRIP STRIP

DECK LENGTH = 20.7 FT

2 DRIP STRIPS = 41.4 FT

TOTAL LENGTH, STEEL DRIP STRIP = 41 FT

518E40000 6" PERFORATED CORRUGATED PLASTIC PIPE

R.A., 2 PIPES, LENGTHS: 52 FT AND 50 FT

F.A., 2 PIPES, LENGTHS: 48 FT AND 51 FT

TOTAL LENGTH, 6" PCPP = 201 FT

518E40012 6" NON-PERFORATED CORRUGATED PLASTIC PIPE

R.A. NORTH PIPE

PIPE OUTLET ELEVATION = 948.60

GROUND ELEVATION AT OUTLET = 950

APPROXIMATE PIPE LENGTH = 10

R.A. SOUTH PIPE

PIPE OUTLET ELEVATION = 948.60

GROUND ELEVATION AT OUTLET = 950

APPROXIMATE PIPE LENGTH = 10

F.A. NORTH PIPE

PIPE OUTLET ELEVATION = 948.60

GROUND ELEVATION AT OUTLET = 950

APPROXIMATE PIPE LENGTH = 10

F.A. SOUTH PIPE

PIPE OUTLET ELEVATION = 948.60

GROUND ELEVATION AT OUTLET = 950

APPROXIMATE PIPE LENGTH = 10

TOTAL LENGTH, 6" NPCPP = 40 FT

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524E94704 DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK

NUMBER OF DRILLED SHAFTS, R.A. = 9
 DEPTH OF DRILLED SHAFTS, R.A. = 7 FT
 TOTAL LENGTH DRILLED SHAFTS, R.A. = 9 * 7 = 63 FT
 NUMBER OF DRILLED SHAFTS, F.A. = 9
 DEPTH OF DRILLED SHAFTS, F.A. = 7 FT
 TOTAL LENGTH DRILLED SHAFTS, F.A. = 9 * 7 = 63 FT

TOTAL LENGTH DRILLED SHAFTS = 126 FT

526E30000 REINFORCED CONCRETE APPROACH SLABS (T=17")

APPROACH SLAB LENGTH = 30 FT * 2 = 60 FT
 APPROACH SLAB WIDTH = 44 FT

TOTAL APPROACH SLAB AREA = 293 SY

613E41200 LOW STRENGTH MORTAR BACKFILL

STA. 54+30	5.623 SF
STA. 54+40 BACK	3.642 SF
STA. 54+40 FORWARD	3.669 SF
STA. 55+15 BACK	3.688 SF
STA. 55+15 FORWARD	5.221 SF
STA. 55+25	3.131 SF
STA. 55+35	2.677 SF

VOLUME, STA. 54+30 TO STA. 54+40 FORWARD = 10FT * (5.623 SF + 3.669 SF)/2 = 1.72 CY
 VOLUME STA. 54+40 BACK TO STA. 55+15 BACK = 75FT * (3.642 SF + 3.688 SF)/2 = 10.18 CY
 VOLUME STA. 54+40 FORWARD TO STA. 55+15 FORWARD = 75FT*(3.669 SF+5.221 SF)/2 = 12.35 CY
 VOLUME STA. 55+15 BACK TO STA. 55+25 = 10FT * (3.688 SF + 3.131 SF)/2 = 1.26 CY
 VOLUME STA. 55+25 TO STA. 55+35 = 10FT * (3.131 SF + 2.677 SF)/2 = 1.1 CY

TOTAL VOLUME LOW STRENGTH MORTAR BACKFILL = 30 CY