

CALCULATIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

5
14

LAKE COUNTY
LAK-84-18.86

ITEM 202- EXISTING PAVEMENT REMOVED AND DISPOSED OF

$$\begin{aligned} \text{STA. 12+60 TO 14+24.23} &= 164.23 \text{ FT.} \\ \text{STA. 17+95.77 TO 19+71} &= 175.23 \text{ FT.} \\ &= 339.46 \text{ FT.} \end{aligned}$$

$$\frac{339.46 \text{ FT.} \times 24 \text{ FT.}}{9} = 906 \text{ SQ. YDS.}$$

ITEM 202- EXISTING WEARING COURSE REMOVED AND DISPOSED OF

$$\begin{aligned} \text{STA. 12+50 TO 12+60} \\ \text{STA. 19+71 TO 19+81} \end{aligned}$$

$$\frac{20 \text{ FT.} \times 24 \text{ FT.}}{9} = 54 \text{ SQ. YDS.}$$

ITEM 202- EXISTING GUARD RAIL REMOVED

$$\begin{aligned} \text{STA. 12+48 TO 14+27 Lt.} &= 175 \text{ LIN. FT.} \\ \text{STA. 12+66 TO 14+21 Rt.} &= 150 \text{ LIN. FT.} \\ \text{STA. 17+99 TO 23+00 Lt.} &= 500 \text{ LIN. FT.} \\ \text{STA. 17+92 TO 23+50 Rt.} &= 550 \text{ LIN. FT.} \\ &= 1,375 \text{ LIN. FT.} \end{aligned}$$

ITEM 203 - EXCAVATION INCLUDING EMBANKMENT CONSTRUCTION

$$\begin{aligned} \text{STA. 11+00 TO 14+24} & 495 \text{ CU. YDS.} & 34 \text{ CU. YDS.} \\ \text{STA. 17+96 TO 23+50} & 402 \text{ CU. YDS.} & 60 \text{ CU. YDS.} \\ & 897 \text{ CU. YDS. = CUT} & 94 \text{ CU. YDS. = FILL} \end{aligned}$$

$$\begin{aligned} \text{EMBANKMENT PLUS 18\%} &= 111 \text{ CU. YDS.} \\ \text{SURPLUS EXCAVATION} &= 786 \text{ CU. YDS.} \end{aligned}$$

ITEM 203 - WATER

$$\begin{aligned} \text{EMBANKMENT PREPARATION} &= 111 \text{ CU. YDS.} \\ \text{ITEM 310 - SUBBASE} &= 284 \text{ CU. YDS.} \\ &= 395 \text{ CU. YDS.} \\ \frac{395 \text{ C.Y.} \times 5.0 \text{ GAL./C.Y.}}{1000} &= 2 \text{ M. GAL.} \end{aligned}$$

ITEM 601- PAVED GUTTER, TYPE 1-2

$$\text{STA. 11+50 TO 14+00 Rt.} = 250 \text{ LIN. FT.}$$

ITEM 606- GUARD RAIL, TYPE 4

$$\begin{aligned} \text{STA. 12+67.5 TO 14+17.5 Rt.} &= 150.0 \text{ LIN. FT.} \\ \text{STA. 12+67.5 TO 14+30 Lt.} &= 162.5 \text{ LIN. FT.} \\ \text{STA. 17+89 TO 23+50 Rt.} &= 550.0 \text{ LIN. FT.} \\ \text{STA. 18+02 TO 23+00 Lt.} &= 500.0 \text{ LIN. FT.} \\ &= 1,362.5 \text{ LIN. FT.} \end{aligned}$$

ITEM 659- SEEDING AND MULCHING

$$\begin{aligned} \text{STA. 11+00 TO 14+24} &= 980 \text{ SQ. YDS.} \\ \text{STA. 17+96 TO 23+50} &= 1,655 \text{ SQ. YDS.} \\ &= 2,635 \text{ SQ. YDS.} \end{aligned}$$

ITEM 659- AGRICULTURAL LIMING

$$\begin{aligned} 84 \text{ S.Y.} + 2,635 \text{ S.Y.} &= 2,719 \text{ M. SQ. FT.} \\ \frac{2,719 \text{ M.S.F.} \times 100\#/\text{M.S.F.}}{2000} &= 1.22 \text{ TON} \end{aligned}$$

ITEM 659 COMMERCIAL FERTILIZER (12-12-12)

$$\frac{2,719 \text{ M.S.F.} \times 20\#/\text{M.S.F.}}{2000} = 0.24 \text{ TON}$$

ITEM 660- SODDING

$$\begin{aligned} \text{STA. 11+50 TO 14+00 Rt.} &= 250 \text{ FT.} \\ \frac{250 \text{ FT.} \times 3 \text{ FT.}}{9} &= 84 \text{ SQ. YDS.} \end{aligned}$$

ITEM 301- 3" BITUMINOUS AGGREGATE BASE

$$\begin{aligned} \text{STA. 11+00 TO 12+50 Rt. (4' BERM)} &= 150 \text{ FT.} \times 4 \text{ FT.} = 600 \text{ SQ. FT.} \\ \text{STA. 11+50 TO 12+50 Rt. (MAIL BOX APR)} &= 70 \text{ FT.} \times 4 \text{ FT.} = 280 \text{ SQ. FT.} \\ \text{STA. 12+50 TO 14+24 Rt. Lt. (2,4' BERMS)} &= 174 \text{ FT.} \times 8 \text{ FT.} = 1,392 \text{ SQ. FT.} \\ \text{STA. 17+96 TO 23+50 Rt. Lt. (2,4' BERMS)} &= 554 \text{ FT.} \times 8 \text{ FT.} = 4,432 \text{ SQ. FT.} \\ \text{4, 50 FT. TAPERS (4'-7') @ APPROACHS} &= 200 \text{ FT.} \times 15 \text{ FT.} = 3,000 \text{ SQ. FT.} \\ \text{4, 12 FT.} \times 3 \text{ FT. PORTIONS BELOW ASPHALT SAFETY CURBS} &= 144 \text{ SQ. FT.} \\ &= 7,148 \text{ SQ. FT.} \end{aligned}$$

$$\frac{7,148 \text{ S.F.}}{9} = 795 \text{ SQ. YDS.}$$

$$795 \text{ S.Y.} \times \frac{3}{36} = 67 \text{ CU. YDS.}$$

ITEM 304- 6" AGGREGATE BASE

$$\text{AREA OF ITEM 301} = 795 \text{ SQ. YDS.}$$

$$795 \text{ S.Y.} \times \frac{6}{36} = 133 \text{ CU. YDS.}$$

ITEM 310- 6" SUBBASE, GRADING A OR B

$$\begin{aligned} \text{AREA OF ITEM 451} &= 772 \text{ SQ. YDS.} \\ \text{AREA OF ITEM 611} &= 134 \text{ SQ. YDS.} \\ \text{AREA OF PAVED SHOULDER} &= 795 \text{ SQ. YDS.} \\ &= 1,701 \text{ SQ. YDS.} \end{aligned}$$

$$1,701 \text{ S.Y.} \times \frac{6}{36} = 284 \text{ CU. YDS.}$$

ITEM 404- ASPHALT CONCRETE

$$\begin{aligned} \text{STA. 12+50 TO 12+60} \\ \text{STA. 19+71 TO 19+81} \end{aligned}$$

$$\frac{20 \text{ FT.} \times 24 \text{ FT.} \times 0.2 \text{ FT.}}{27} = 4 \text{ CU. YDS.}$$

ITEM 407- TACK COAT

$$\begin{aligned} \text{STA. 12+50 TO 12+60} \\ \text{STA. 19+71 TO 19+81} \end{aligned}$$

$$\frac{20 \text{ FT.} \times 24 \text{ FT.}}{9} \times 0.10 \text{ GAL./S.Y.} = 6 \text{ GAL.}$$

ITEM 409- SEAL COAT BITUMINOUS MATERIAL

$$\text{AREA OF ITEM 301} = 795 \text{ SQ. YDS.}$$

$$795 \text{ S.Y.} \times 0.25 \text{ GAL./S.Y.} = 199 \text{ GAL.}$$

ITEM 409- SEAL COAT COVER AGGREGATE, N# 8

$$795 \text{ S.Y.} \times 0.008 \text{ C.Y./S.Y.} = 7 \text{ CU. YDS.}$$

ITEM 451- 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT

$$\begin{aligned} \text{STA. 12+60 TO 13+99.23} &= 139.23 \text{ FT.} \\ \text{STA. 18+20.77 TO 19+71} &= 150.23 \text{ FT.} \\ &= 289.46 \text{ FT.} \end{aligned}$$

$$\frac{289.46 \text{ FT.} \times 24 \text{ FT.}}{9} = 772 \text{ SQ. YDS.}$$

ITEM 609- ASPHALT CONCRETE SAFETY CURB, AS PER PLAN

$$12 \text{ LIN. FT. @ EACH ABUTMENT WING} = 48 \text{ LIN. FT.}$$

ITEM 611- REINFORCED CONCRETE APPROACH SLABS

$$\begin{aligned} \text{STA. 14+00} &\pm \text{ TO } 14+25 \pm \\ \text{STA. 17+96} &\pm \text{ TO } 18+21 \pm \end{aligned}$$

$$\frac{2 \times [25 \text{ FT.} \times 24 \text{ FT.}]}{9} = 134 \text{ SQ. YDS.}$$

ITEM 601- DUMPED ROCK CHANNEL PROTECTION

$$\begin{aligned} \text{STA. 14+00, 46 FT. Rt.} &= 6 \\ \text{5 FT. WIDE} \times 10 \text{ FT. LONG} \times 30 \text{ INCHES DEEP} &= 5 \text{ CU. YDS.} \end{aligned}$$