

Pavement Calculations

BEL-149-23.67

Include Step under Curb and Gutter & UD Trench

PID: 106789

+ includes 18 inch extension per spec 204.03

By: SAH

| Station | | Side | Length | Begin Width | End Width | Average Width | Surface Area | Item 441 | | Item 441 | | Item 301 | | Item 304 | | Item 204 | Item 407 | Item 202 | |
|-----------------------------------------|-----------|------|--------|-------------|-----------|---------------|--------------|----------------|---------------------|--------------|-----------------|----------------------|-----------|------------------|---------|----------|----------|----------|--------|
| From | To | | | | | | | Surface Course | Intermediate Course | Asphalt Base | #Aggregate Base | +Subgrade Compaction | Tack Coat | Pavement Removed | | | | | |
| Mainline Pavement | | | | FT. | FT. | FT. | SQ. FT. | Thickness | CU. YD. | Thickness | CU. YD. | Thickness | CU. YD. | Thickness | CU. YD. | SQ. YD. | GAL. | SQ. YD. | |
| 119+72.50 | 120+67.72 | RT | 95.22 | 12 | 12 | 12 | 1142.64 | 1.25" | 4.41 | 1.75" | 6.17 | 8.00" | 28.21 | 6.00" | 27.63 | 126.96 | 15.24 | | |
| 120+67.72 | 120+70.00 | RT | 2.28 | 12 | 12.04 | 12.02 | 27.41 | 1.25" | 0.11 | 1.75" | 0.15 | 8.00" | 0.68 | 6.00" | 0.66 | 3.05 | 0.37 | | |
| 120+70.00 | 123+05.05 | RT | 235.05 | 12.04 | 12.14 | 12.09 | 2841.75 | 1.25" | 10.96 | 1.75" | 15.35 | 8.00" | 70.17 | 6.00" | 68.59 | 315.75 | 37.89 | | |
| 123+05.05 | 123+80.00 | RT | 74.95 | 12.14 | 10.81 | 11.475 | 860.05 | 1.25" | 3.32 | 1.75" | 4.65 | 8.00" | 21.24 | 6.00" | 21.02 | 95.56 | 11.47 | | |
| 123+80.00 | 124+32.02 | RT | 52.02 | 10.81 | 10.81 | 10.81 | 562.34 | 1.25" | 2.17 | 1.75" | 3.04 | 8.00" | 13.88 | 6.00" | 13.95 | 62.48 | 7.50 | | |
| PILOT RETURN | | | | | | | | | | | | | | | | | | | |
| 119+72.50 | 119+97.50 | RT | 25.00 | Cadd Area | | | 134.13 | 1.25" | 0.52 | 1.75" | 0.72 | 8.00" | 3.31 | 6.00" | 7.82 | 10.79 | 1.79 | | |
| Ex. Pavement (CADD Area) | | | | | | | | | | | | | | | | | | | |
| 119+72.50 | 124+32.02 | RT | | Cadd Area | | | 2841.80 | | | | | | | | | | | | 315.76 |
| Totals - Carried to the General Summary | | | | | | | | 21 | | 30 | | 137 | | 140 | | 615 | | 74 | 316 |

Pavement Calculations

BEL-149-23.67

Include 6" Step on Shoulder and 14" step behind curb

PID: 106789

+ includes 18 inch extension per spec 204.03

By: SAH

| Station | | Side | Length | Begin Width | End Width | Average Width | Surface Area | Item 452 | | Item 452 | | Item 304 | | Item 204 | Item 202 | | Item 408 | |
|------------------------------------------------|-----------|------|--------|-------------|-----------|---------------|--------------|-------------------------------------------------------------|----------------------------------------------------------|-----------------|----------------------|------------------|-------------------------|------------|----------|-----------|----------|--|
| From | To | | | | | | | 13" Non-Reinforced Concrete Pavement, Class QCP1 WITH QC/OA | Non-Reinforced Concrete Pavement, Misc.: 13" Thick Class | #Aggregate Base | +Subgrade Compaction | Pavement Removed | Prime Coat, As Per Plan | | | | | |
| RAMP A | | | | FT. | FT. | FT. | SQ. FT. | Thickness | SQ YD | | SQ YD | Thickness | CU. YD. | SQ. YD. | SQ. YD. | | GAL. | |
| 12+75.00 | 13+25.00 | RT | 50.00 | 0 | 8 | 4 | 200.00 | 13.00" | 22.22 | | | 6.00" | 3.70 | 22.22 | | | | |
| 13+25.00 | 14+85.06 | RT | 160.06 | 8 | 8 | 8 | 1280.48 | 13.00" | 142.28 | | | 6.00" | 23.71 | 142.28 | | | | |
| 14+85.06 | 15+30.00 | RT | 44.94 | 8 | 12.5 | 10.25 | 460.64 | 13.00" | 51.18 | | | 6.00" | 8.53 | 51.18 | | | | |
| 15+30.00 | 15+35.06 | RT | 5.06 | 12.5 | 13 | 12.75 | 64.51 | | | 13" | 7.17 | 6.00" | 1.19 | 7.17 | | | | |
| RADIUS RETURN | | | | | | | | | | | | | | | | | | |
| 15+35.06 | 124+50.05 | R&L | | Cadd Area | | | 2098.39 | | | 13.00" | 233.15 | 6.00" | 38.86 | 233.15 | | | | |
| Ex. Pavement (CADD Area) | | | | | | | | | | | | | | | | | | |
| 12+75.00 | 124+50.05 | R&L | | Cadd Area | | | 2652.28 | | | | | | | | | 294.70 | | |
| S.R. 149 | | | | | | | | | | | | | | | | | | |
| 123+70.52 | 124+50.05 | LT. | 79.53 | 0 | 7.9 | 3.95 | 314.14 | 13.00" | 34.90 | | | 6.00" | 5.82 | 34.90 | | | | |
| Ex. Pavement (CADD Area) | | | | | | | | | | | | | | | | | | |
| 123+70.52 | 124+50.05 | LT | | Cadd Area | | | 772.51 | | | | | | | | | 85.83 | | |
| | | | | | | | | | | | | | | | | | | |
| Ramp A Shoulder | | | | | | | | | | | | | | | | | | |
| 12+75.00 | 13+25.00 | RT | 50.00 | 6 | 6 | 6 | 300.00 | 13.00" | 33.33 | | | 6.00" | 6.02 | 41.67 | | | 4.44 | |
| 13+25.00 | 14+85.06 | RT | 160.06 | 6 | 6 | 6 | 960.36 | 13.00" | 106.71 | | | 6.00" | 19.27 | 133.38 | | | 14.23 | |
| 14+85.06 | 15+35.06 | RT | 50.00 | 6 | 6 | 6 | 300.00 | 13.00" | 33.33 | | | 6.00" | 6.02 | 41.67 | | | 4.44 | |
| RADIUS RETURN | | | | | | | | | | | | | | | | | | |
| 15+35.06 | 124+50.05 | R&L | 95.82 | 6 | 6 | 6 | 574.92 | 13.00" | 63.88 | | | 6.00" | 11.53 | 79.85 | | | 8.52 | |
| S.R. 149 | | | | | | | | | | | | | | | | | | |
| 123+40.43 | 124+50.05 | LT. | 109.62 | 6 | 6 | 6 | 657.72 | 13.00" | 73.08 | | | 6.00" | 13.19 | 91.35 | | | 9.74 | |
| Totals - Carried to the General Summary | | | | | | | | 561 | 240 | | | 138 | 879 | 381 | | 41 | | |

Pavement Calculations

BEL-149-23.67

Include 6" Step on Shoulder and 14" step behind curb

PID: 106789

+ includes 18 inch extension per spec 204.03

By: SAH

| Station | | Side | Length | Begin Width | End Width | Average Width | Surface Area | Item 452 | | | | | Item 304 | | Item 204 | Item 202 | | Item 408 | |
|------------------------------------------------|-----------|------|--------|-------------|-----------|---------------|--------------|-----------------|----------------------|--|--|--|------------------|-------------------------|------------|----------|-----------|----------|--|
| From | To | | | | | | | #Aggregate Base | +Subgrade Compaction | | | | Pavement Removed | Prime Coat, As Per Plan | | | | | |
| RAMP B | | | | FT. | FT. | FT. | SQ. FT. | Thickness | SQ YD | | | | Thickness | CU. YD. | SQ. YD. | SQ. YD. | | GAL. | |
| Radius Return | | | | | | | | | | | | | | | | | | | |
| 124+72.02 | 00+77.36 | RT | | Cadd Area | | | 1719.66 | 13.00" | 191.07 | | | | 6.00" | 31.85 | 191.07 | | | | |
| 00+77.36 | 01+37.36 | RT | 60.00 | 6 | 0 | 3 | 180.00 | 13.00" | 20.00 | | | | 6.00" | 3.33 | 20.00 | | | | |
| Ex. Pavement (CADD Area) | | | | | | | | | | | | | | | | | | | |
| 124+72.02 | 01+37.36 | RT | | Cadd Area | | | 1742.98 | | | | | | | | | | 193.66 | | |
| S.R. 149 | | | | | | | | | | | | | | | | | | | |
| 124+32.02 | 124+72.02 | RT | 40.00 | 10.81 | 15.33 | 13.07 | 522.80 | 13.00" | 58.09 | | | | 6.00" | 9.68 | 58.09 | | | | |
| Ex. Pavement (CADD Area) | | | | | | | | | | | | | | | | | | | |
| 124+32.02 | 124+72.02 | RT | | Cadd Area | | | 309.72 | | | | | | | | | | 34.41 | | |
| | | | | | | | | | | | | | | | | | | | |
| Ramp B Shoulder | | | | | | | | | | | | | | | | | | | |
| Radius Return | | | | | | | | | | | | | | | | | | | |
| 124+72.02 | 00+77.36 | RT | 84.58 | 6 | 6 | 6 | 507.48 | 13.00" | 56.39 | | | | 6.00" | 10.18 | 70.48 | | | 7.52 | |
| 00+77.36 | 01+37.36 | RT | 60.00 | 6 | 6 | 6 | 360.00 | 13.00" | 40.00 | | | | 6.00" | 7.22 | 50.00 | | | 5.33 | |
| S.R. 149 | | | | | | | | | | | | | | | | | | | |
| 124+32.02 | 124+72.02 | RT | 40.00 | 2.5 | 6.5 | 4.5 | 180.00 | 13.00" | 20.00 | | | | 6.00" | 4.20 | 26.67 | | | 3.56 | |
| Totals - Carried to the General Summary | | | | | | | | 386 | | | | | 66 | 416 | 228 | | 16 | | |

ODOT District 11
Signal Calculations - BEL-149-23.64

CALC: SAH - 10/14/21
 CHKD:

ITEM 625 25500 CONDUIT, 3", 725.04

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | |
|-----------------------------|--------------|
| C-1/PB-1 to SP-1 (x2 pipes) | 18 FT |
| PB-2 to SP-2 | 7 FT |
| PB-3 to SP-3 | 70 FT |
| Total | 95 FT |

ITEM 625 290000 TRENCH

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | |
|------------------|--------------|
| C-1/PB-1 to SP-1 | 9 FT |
| PB-2 to SP-2 | 7 FT |
| PB-3 to SP-3 | 70 FT |
| Total | 86 FT |

ITEM 625 25900 CONDUIT, JACKED OR DRILLED, 3"

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | |
|------------------|---------------|
| C-1/PB-1 to PB-2 | 102 FT |
| PB-2 to PB-3 | 71 FT |
| Total | 173 FT |

ITEM 625 30700 PULL BOX, 725.08, 18"

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|--------------|---------------|------------------------------------------|
| PB-2 | 1 EACH | |
| PB-3 | 1 EACH | (NOTE PB-1 CARRIED WITH CONTROLLER COST) |
| Total | 2 EACH | |

ITEM 625 32000 GROUND ROD

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | |
|--------------|---------------|
| SP-1 | 1 EACH |
| SP-2 | 1 EACH |
| SP-3 | 1 EACH |
| C-1 | 1 EACH |
| Total | 4 EACH |

ODOT District 11
Signal Calculations - BEL-149-23.64

CALC: SAH - 10/14/21
CHKD:

ITEM 632 05006 VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | |
|--------------|---------------|
| 2A | 1 EACH |
| 2B | 1 EACH |
| 2C | 1 EACH |
| 4A | 1 EACH |
| 4C | 1 EACH |
| 6A | 1 EACH |
| 6B | 1 EACH |
| 6C | 1 EACH |
| Total | 8 EACH |

ITEM 632 05086 VEHICULAR SIGNAL HEAD, (LED), BLACK, 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | |
|----|--------|
| 4B | 1 EACH |
|----|--------|

ITEM 632 25000 COVERING OF VEHICULAR SIGNAL HEAD

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | |
|--------------|---------------|
| 2A | 1 EACH |
| 2B | 1 EACH |
| 2C | 1 EACH |
| 4A | 1 EACH |
| 4B | 1 EACH |
| 4C | 1 EACH |
| 6A | 1 EACH |
| 6B | 1 EACH |
| 6C | 1 EACH |
| Total | 9 EACH |

ODOT District 11
Signal Calculations - BEL-149-23.64

CALC: SAH - 10/14/21
 CHKD:

ITEM 632 40700 SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG

S.R. 149 & I.R. 70 RAMP A/RAMPB

Controller To 2A & 2B

| | | | | | | | | | | |
|------------|---------------------|-------|-----------------|---------|-------|-------|---|-----|-----|--|
| Slack (x2) | C-1/PB-1 to PB-2 | Slack | PB-2 to SP-2 | Up SP-2 | To 2B | Slack | | | | |
| 10 | + 102 | + 5 | + 7 | + 24 | + 34 | + 5 | = | 187 | Ft. | |
| | | | | Slack | To 2A | Slack | | | | |
| | | | | + 5 | + 10 | + 5 | = | 20 | Ft. | |

Controller To 2C

| | | | | | | | | | | |
|------------|---------------------|---------|-------|--|--|--|---|----|-----|--|
| Slack (x2) | C-1/PB-1 to SP-1 | Up SP-1 | Slack | | | | | | | |
| 10 | + 9 | + 24 | + 5 | | | | = | 48 | Ft. | |

Controller to Head 4A & 4B & 4C

| | | | | | | | | | | |
|------------|---------------------|---------|-------|-------|--|--|---|----|-----|--|
| Slack (x2) | C-1/PB-1 to SP-1 | Up SP-1 | To 4C | Slack | | | | | | |
| 10 | + 9 | + 24 | + 19 | + 5 | | | = | 67 | Ft. | |
| | | Slack | To 4B | Sack | | | | | | |
| | | + 5 | + 9 | + 5 | | | = | 19 | Ft. | |
| | | Slack | To 4A | Sack | | | | | | |
| | | + 5 | + 11 | + 5 | | | = | 21 | Ft. | |

Controller to Head 6A & 6B

| | | | | | | | | | | |
|------------|---------------------|---------|-------|-------|--|--|---|----|-----|--|
| Slack (x2) | C-1/PB-1 to SP-1 | Up SP-1 | To 6B | Slack | | | | | | |
| 10 | + 9 | + 24 | + 48 | + 5 | | | = | 96 | Ft. | |
| | | Slack | To 6A | Sack | | | | | | |
| | | + 5 | + 10 | + 5 | | | = | 20 | Ft. | |

Controller To 6C

| | | | | | | | | | | |
|------------|---------------------|-------|-----------------|-------|-----------------|--------------|---|------------|------------|--|
| Slack (x2) | C-1/PB-1 to PB-2 | Slack | PB-2 to PB-3 | Slack | PB-3 to SP-3 | Up SP-3 | | | | |
| 10 | + 102 | + 5 | + 71 | + 5 | + 70 | + 19 | = | 282 | Ft. | |
| | | | | | To 2A | Slack | | | | |
| | | | | | + 0 | + 5 | = | 5 | Ft. | |
| | | | | | | Total | = | 765 | Ft. | |

ODOT District 11
Signal Calculations - BEL-149-23.64

CALC: SAH - 10/14/21
 CHKD:

ITEM 632 64010 SIGNAL SUPPORT FOUNDATION

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | | |
|--------------|----------|-------------|--|
| SP-1 | 1 | EACH | |
| SP-2 | 1 | EACH | |
| SP-3 | 1 | EACH | |
| Total | 3 | EACH | |

ITEM 632 68200 POWER CABLE, 2 CONDUCTOR, NO 6. AWG

S.R. 149 & I.R. 70 RAMP A/RAMPB

Top of SP-1 to C-1/PB-1

| | | | | | | |
|--|-------|-----------|---------------------|------------|---|------------------|
| | Slack | Down SP-1 | SP-1 to C-1/PB-1 | Slack (x2) | | |
| | 5 | + 29 | + 9 | + 10 | = | 53 Ft. |

ITEM 632 70001 POWER SERVICE, AS PER PLAN

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | | |
|--------------|---|------|--|
| Service Drop | 1 | EACH | |
|--------------|---|------|--|

ITEM 632 70400 CONDUIT RISER, 2" DIAMETER

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | | |
|------|---|------|--|
| SP-1 | 1 | EACH | |
|------|---|------|--|

**ITEM 632 75484 SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 10 POLE, WITH MAST ARMS TC-81.21
 DESIGN 14 AND DESIGN 12**

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | | |
|------|---|------|--|
| SP-1 | 1 | EACH | |
|------|---|------|--|

ITEM 632 72130 SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | | |
|------|---|------|--|
| SP-2 | 1 | EACH | |
|------|---|------|--|

ODOT District 11
Signal Calculations - BEL-149-23.64

CALC: SAH - 10/14/21
CHKD:

ITEM 632 72100 SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 2

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|------|---|------|
| SP-3 | 1 | EACH |
|------|---|------|

ITEM 632 90100 REMOVAL OF TRAFFIC SIGNAL INSTALLATION

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|--------------|---|------|
| Exist System | 1 | EACH |
|--------------|---|------|

ITEM 633 65523 CABINET, TYPE 332L, AS PER PLAN

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|-----|---|------|
| C-1 | 1 | EACH |
|-----|---|------|

ITEM 633 67100 CABINET FOUNDATION

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|-----|---|------|
| C-1 | 1 | EACH |
|-----|---|------|

ITEM 633 67200 CONTROLLER WORK PAD

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|-----|---|------|
| C-1 | 1 | EACH |
|-----|---|------|

ITEM 633 75001 UNINTERRUPTIBLE POWER SUPPLY (UPS), BATTERY REPLACEMENT, AS PER PLAN

tha

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|-----|---|------|
| C-1 | 1 | EACH |
|-----|---|------|

ITEM 633 68500 TELEPHONE SERVICE

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|-----|---|------|
| C-1 | 1 | EACH |
|-----|---|------|

ODOT District 11
Signal Calculations - BEL-149-23.64

CALC: SAH - 10/14/21
CHKD:

ITEM 633 68511 COMMUNICATIONS, AS PER PLAN

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|-----|---|------|
| C-1 | 1 | EACH |
|-----|---|------|

ITEM 809 69123 ATC CONTROLLER, AS PER PLAN

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|-----|---|------|
| C-1 | 1 | EACH |
|-----|---|------|

ITEM 809 69001 ADVANCED RADAR DETECTION, AS PER PLAN

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|--------------|----------|-------------|
| SP-1 | 1 | EACH |
| SP-2 | 1 | EACH |
| Total | 2 | EACH |

ITEM 809 69101 STOP LINE RADAR DETECTION, AS PER PLAN

S.R. 149 & I.R. 70 RAMP A/RAMPB

| | | |
|--------------|----------|-------------|
| SP-1 | 1 | EACH |
| SP-2 | 1 | EACH |
| Total | 2 | EACH |