ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

HWY. 18/QUALITY WAY SIGNAL
(JONESBORO) (S)
CRAIGHEAD COUNTY
ROUTE 18 SECTION 4
JOB 101062
FED. AID PROJ. STPC-9227(88)
NOT TO SCALE

PROJECT LOCATION

VICINITY MAP

ARMSKAN HWY. DIST. 10

DESIGN TRAFFIC DATA (HWY. 18):

- DESIGN YEAR: 2021
- 2021 ADT: 0,000
- 2041 ADT: 16,000
- 2041 DMR: 1,600
- DIRECTIONAL DISTRIBUTION: 60%
- TRUCKS: 7%
- DESIGN SPEED: 60 MPH

DATE: 2021.04.29
09:03:40 -05'00'

DEPUTY DIRECTOR
AND CHEF ENGINEER

APPROVED
### INDEX OF SHEETS

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>TITLE</th>
<th>ARK.</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>TITLE SHEET</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>INDEX OF SHEETS AND STANDARD DRAWINGS</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>GOVERNING SPECIFICATIONS AND GENERAL NOTES</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>TYPICAL SECTIONS OF IMPROVEMENT</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>SPECIAL DETAILS</td>
<td></td>
</tr>
<tr>
<td>6 - 8</td>
<td>TEMPORARY EROSION CONTROL DETAILS</td>
<td></td>
</tr>
<tr>
<td>9 - 11</td>
<td>MAINTENANCE OF TRAFFIC DETAILS</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>PERMANENT PAVEMENT MARKING DETAILS</td>
<td></td>
</tr>
<tr>
<td>13 - 14</td>
<td>QUANTITIES</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>SUMMARY OF QUANTITIES AND REVISIONS</td>
<td></td>
</tr>
<tr>
<td>16 - 18</td>
<td>SURVEY CONTROL DETAILS</td>
<td></td>
</tr>
<tr>
<td>19 - 20</td>
<td>PLAN AND PROFILE SHEETS</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>TRAFFIC SIGNAL QUANTITIES</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>TRAFFIC SIGNAL NOTES</td>
<td></td>
</tr>
<tr>
<td>23 - 29</td>
<td>SIGNALIZATION PLAN SHEETS</td>
<td></td>
</tr>
<tr>
<td>27 - 30</td>
<td>CROSS SECTIONS</td>
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### ROADDAY STANDARD DRAWINGS

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<thead>
<tr>
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<td>CURBING DETAILS</td>
<td>11-29-07</td>
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<tr>
<td>DR 1</td>
<td>DETAILS OF DRIVEWAYS &amp; ISLANDS</td>
<td>11-07-19</td>
</tr>
<tr>
<td>GS 1</td>
<td>GUARDRAIL DETAILS</td>
<td>11-07-19</td>
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<tr>
<td>GR 1</td>
<td>GUARDRAIL DETAILS</td>
<td>11-07-19</td>
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<tr>
<td>GR 2</td>
<td>GUARDRAIL DETAILS</td>
<td>11-07-19</td>
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<tr>
<td>PCC 1</td>
<td>CONCRETE PIPE CULVERT FILL HEIGHTS &amp; BEDDING</td>
<td>02-27-14</td>
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<tr>
<td>PCC 2</td>
<td>METAL PIPE CULVERT FILL HEIGHTS &amp; BEDDING</td>
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<tr>
<td>PCC 3</td>
<td>PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)</td>
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<tr>
<td>PCC 4</td>
<td>PLASTIC PIPE CULVERT (PVDF)</td>
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<td>PM 1</td>
<td>PAVEMENT MARKING DETAILS</td>
<td>02-27-20</td>
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<tr>
<td>SD 4</td>
<td>LOOP DETECTOR INSTALLATION</td>
<td>11-07-19</td>
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<tr>
<td>SD 5</td>
<td>CONTROLLER CABINET UTILITY DRAWER</td>
<td>09-12-13</td>
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<tr>
<td>SR 6</td>
<td>HEAVY DUTY PAIL BOX</td>
<td>11-16-17</td>
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<tr>
<td>SD 8</td>
<td>SIGNAL HEAD PLACEMENT</td>
<td>12-05-16</td>
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<td>SD 9</td>
<td>SERVICE POINT</td>
<td>11-07-19</td>
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<td>SD 11</td>
<td>STEEL POLE WITHOUT ARM</td>
<td>11-15-17</td>
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<tr>
<td>SN 1</td>
<td>STANDARD HIGHWAY SIGNS AND SUPPORTS ASSEMBLY</td>
<td>09-12-13</td>
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<tr>
<td>SN 2</td>
<td>U-CHANNEL POST ASSEMBLIES</td>
<td>07-05-19</td>
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<tr>
<td>Si 1</td>
<td>DETAILS OF SPECIAL ITEMS</td>
<td>10-05-19</td>
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<tr>
<td>TC 1</td>
<td>STANDARD TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION</td>
<td>11-07-19</td>
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<td>TC 2</td>
<td>STANDARD TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION</td>
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<td>STANDARD TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION</td>
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<td>TEMPORARY EROSION CONTROL DEVICES</td>
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<tr>
<td>TEC 3</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
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INDEX OF SHEETS AND STANDARD DRAWINGS
DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)

NOTE: TURNOUTS AND PRIVATE DRIVES
SHALL BE PROVIDED WHERE NECESSARY
TO MEET LOCAL CONDITIONS AS DIRECTED
BY THE ENGINEER.

PROPOSED ROW OR TIE
TO EXISTING DRIVEWAY.
WHICHEVER IS FURTHER.

ADSM SURFACE COURSE (1/2")
1220 LBS PER SQ. FT.
AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP.
DEPTH OF ASPHALT OR
GRAVEL DRIVE EXISTING OR 5" CONCRETE IF CONCRETE DRIVE
EXISTING.

WIDENING FOR GUARDRAIL

NOTE: REFER TO SJIM, DW, OR-9
AND CROSS SECTIONS FOR SLOPE
REQUIREMENTS BEHIND GUARDRAIL.

INSTALL 3 RED DIAMOND REFLECTORS (6"X1") @ 18" X 18"
MOUNTED ON "U" CHANNEL POSTS DIRECTLY BEHIND THE GUARDRAIL
AT A HEIGHT OF 4'-6".

RED DIAMOND REFLECTORS INSTALLATION
STA. 17+15 TO STA. 17+35 (L-R)
STA. 15+32.00
BEGIN JOB 101062
(HWY. 18)
LOG MILE 9.00

STA. 18+83.00
END JOB 101062
(HWY. 18)

STA. 37+28.34
END QUALITY WAY

STA. 34+00.00
BEGIN QUALITY WAY

REVISIONS

DATE OF REVISION | REVISION
--- | ---

LEGEND
- **SILT FENCE ON LT.**
- **SAND BAG DITCH CHECKS ON LT.**
CONSTRUCTION SEQUENCE

STAGE 2

INSTALL ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS. INSTALL END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS. INSTALL ROAD WORK AHEAD (W20-2) SIGN ON SIDE ROADS AS SHOWN ON THE ADVANCE WARNING DETAILS.

INSTALL TRAFFIC DRUMS AND TRAFFIC CONES AS SHOWN IN THE STAGE 2A MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCT DRAINAGE STRUCTURES AS SHOWN IN THE STAGE 2A MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCT WT, OF HWY. 18 FROM STA 542.32 TO STA 543.20 AND INSTALL GUARDRAIL AS SHOWN IN THE STAGE 2A MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2A

INSTALL REMOVABLE CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2A MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCT DRAINAGE STRUCTURES AS SHOWN IN THE STAGE 2A MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCT WT, OF QUALITY WAY FROM STA 342.30 TO STA 343.20 AND RT. OF QUALITY WAY FROM STA 343.20 TO STA 344.20 AS SHOWN IN THE STAGE 2A MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2B

INSTALL TRAFFIC DRUMS AS SHOWN IN THE STAGE 2B MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCT CONCRETE ISLAND RT. OF QUALITY WAY FROM STA 364.86 TO STA 374.23.

REMOVE CONFLICTING PAVEMENT MARKINGS ON HWY. 18 AND PLACE PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.
TRAFFIC DRUMS @ 60' O.C. ON LT. @ 12 EACH
START 15+32.00
FINISH 18+00.00
TRAFFIC CONES ON DRIVES @ 10' O.C. @ 12 EACH
START 15+32.00
FINISH 18+00.00
STA. 15+32.00
BEGIN JOB 101062
(HWY. 18)
LOG MILE 9.00

STA. 17+16.60
C.L. HWY. 18 STA. 17+16.60
C.L. QUALITY WAY STA. 37+55.51
45' 88'-45' 00'

STA. 18+63.00
END JOB 101062
(HWY. 18)

STA. 34+00.00
BEGIN QUALITY WAY

STA. 37+28.36
END QUALITY WAY
### Removal and Disposal of Culverts

<table>
<thead>
<tr>
<th>Station</th>
<th>Description</th>
<th>Piping Culverts</th>
</tr>
</thead>
<tbody>
<tr>
<td>16+17</td>
<td>32&quot; x 36&quot; Piping Culvert Side Drain Only.</td>
<td>EACH</td>
</tr>
<tr>
<td>17+15.45</td>
<td>48&quot; x 100-cm. Piping Culvert Side Drain.</td>
<td>1</td>
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**Total:** 2

*Note: Quantities shown above shall include removal and disposal of all headwalls and flared end sections if applicable.*

### Standard Signs and Supports

<table>
<thead>
<tr>
<th>Sign Number</th>
<th>Description</th>
<th>Sign Size</th>
<th>Maximum Required</th>
<th>Total Required</th>
<th>Channel Post Sign Support (Type UI)</th>
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<tbody>
<tr>
<td>ORM-1</td>
<td>RED DIAMOND REFLECTORS</td>
<td>1′ x 2′</td>
<td>2</td>
<td>2</td>
<td>EACH/10 FT.</td>
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**Total:** 6.3

### Structures

<table>
<thead>
<tr>
<th>Station</th>
<th>Description</th>
<th>Side Drain</th>
<th>Std. DWG. Nos.</th>
<th>Lin. Ft.</th>
<th>16+19.48 Piping Culvert Side Drain on RT.</th>
<th>180</th>
</tr>
</thead>
</table>

**Total:** For C.M. Piping Culvert installations use type 2 bedding unless otherwise specified. Note: for C.M. Piping Culvert installations use type 2 bedding unless otherwise specified.

### Paving Repair over Culverts (Asphalt)

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Width</th>
<th>Length</th>
<th>Ton</th>
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<tbody>
<tr>
<td>35+96</td>
<td>QUALITY ONLY</td>
<td>10.63</td>
<td>54</td>
<td>32</td>
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**Total:** 32

*Note: Average depth = 8"*

### Drainage

<table>
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<tr>
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<th>Qual</th>
<th>Qual (Type 2)</th>
<th>Qual (Type 3)</th>
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<tr>
<td>16+00</td>
<td>17+00</td>
<td>HWY 18, LT, SIDE</td>
<td>100</td>
<td>2</td>
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**Total:** 100

### Erosion Control Matting

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<th>Station</th>
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<th>Length</th>
<th>Class</th>
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<tr>
<td>34+00</td>
<td>30+00</td>
<td>QUALITY WAY on R1</td>
<td>200</td>
<td>151.11</td>
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**Total:** 151.11

*Note: Average Width = 8.4"*

### Base and Surfacing

<table>
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<th>Station</th>
<th>Location</th>
<th>Length</th>
<th>Aggregate Base Course (Class 3)</th>
<th>Tack Coat</th>
<th>ACI/PM Base Course (1&quot;)</th>
<th>ACHI Base Course (2&quot;)</th>
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</thead>
<tbody>
<tr>
<td>116+00</td>
<td>121+60</td>
<td>Brkly. 18, SHOULDER (WIDE)</td>
<td>50.00</td>
<td>VAR</td>
<td>6.07</td>
<td>116.60</td>
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**TOTALS:**

### Driveways & Turnouts

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<th>Location</th>
<th>Width</th>
<th>Standard Drawings</th>
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<tbody>
<tr>
<td>15+60</td>
<td>HWY 18</td>
<td>16</td>
<td>PCC-1, PCC-1, PCC-2, PCC-3</td>
</tr>
</tbody>
</table>

**TOTALS:** 116.09 | 12.86 | 47.73 | 54

*Note: For C.R. Piping Culvert Installations use type 3 bedding unless otherwise specified. Note: for C.M. Piping Culvert Installations use type 2 bedding unless otherwise specified.*

### Soil Log

<table>
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<tr>
<th>Station</th>
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<th>Depth</th>
<th>Liquid Limit</th>
<th>Plasticity Index</th>
<th>AASHTO Classification</th>
<th>Color</th>
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<tr>
<td>12:00</td>
<td>26:RT</td>
<td>0.6</td>
<td>38</td>
<td>21</td>
<td>A-6(16)</td>
<td>BROWN</td>
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<td>13:00</td>
<td>36:RT</td>
<td>0.5</td>
<td>38</td>
<td>17</td>
<td>A-6(15)</td>
<td>BROWN</td>
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<tr>
<td>14:20</td>
<td>44:RT</td>
<td>0.4</td>
<td>36</td>
<td>18</td>
<td>A-6(14)</td>
<td>BROWN</td>
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<td>20:00</td>
<td>48:RT</td>
<td>0.4</td>
<td>41</td>
<td>25</td>
<td>A-6(22)</td>
<td>BROWN</td>
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<tr>
<td>21:00</td>
<td>45:LT</td>
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<td>21</td>
<td>A-6(14)</td>
<td>BROWN</td>
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<tr>
<td>22:00</td>
<td>43:LT</td>
<td>0.5</td>
<td>34</td>
<td>18</td>
<td>A-6(16)</td>
<td>BROWN</td>
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<tr>
<td>25:00</td>
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<td>0.5</td>
<td>34</td>
<td>18</td>
<td>A-6(16)</td>
<td>BROWN</td>
</tr>
</tbody>
</table>

*Note: For C.R. Piping Culvert Installations use type 3 bedding unless otherwise specified. Note: for C.M. Piping Culvert Installations use type 2 bedding unless otherwise specified.*

**Quantities**

- **Earthwork:** 443 cubic yards
- **Concrete Island:** 28 cubic yards
- **Total Paving:** 32 cubic yards
<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
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<tbody>
<tr>
<td>201</td>
<td>REMOVAL AND DISPOSAL OF PIPE CLADDING</td>
</tr>
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<td>202</td>
<td>POLYUREA COATING</td>
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<tr>
<td>203</td>
<td>COMPACTED ENFREMENT</td>
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<td>204</td>
<td>NOT RECOGNIZE BASE COURSE (CLASS 5)</td>
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<td>205</td>
<td>TOP COAT</td>
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<tr>
<td>206</td>
<td>MINERAL AGGREGATE RACOMI BASE COURSE (1 1/2&quot;)</td>
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<tr>
<td>207</td>
<td>ASPHALT RACOMI (P.O 72-22) RACOMI BASE COURSE (1 1/2&quot;)</td>
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<tr>
<td>208</td>
<td>MINERAL AGGREGATE RACOMI BASE COURSE (2&quot;)</td>
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<td>ASPHALT RACOMI (P.O 72-22) RACOMI BASE COURSE (2&quot;)</td>
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<td>ASPHALT RACOMI (P.O 72-22) RACOMI BASE COURSE (3&quot;)</td>
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<tr>
<td>212</td>
<td>REBAR</td>
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<tr>
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<td>SUPERLATIVE bleiben</td>
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<td>MAINTENANCE OF TRAFFIC</td>
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<td>SIGNS</td>
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<td>SCALES</td>
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<td>REMOVABLE CONSTRUCTION PAVEMENT MARKINGS</td>
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<td>REMOVAL OF PERMANENT PAVEMENT MARKINGS</td>
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<td>PT. SIDED DRIP</td>
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<td>221</td>
<td>PT. SIDE DRIP</td>
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<td>222</td>
<td>SELECTED PIPE BEDDING</td>
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<td>223</td>
<td>REPAIR REPAIR OVER CLADDERS (ASPHALT)</td>
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<td>QUADRIPLA (TYPE A)</td>
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<td>ROOF SECTIONS</td>
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<td>S E D I M E N T B A S I N</td>
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<td>235</td>
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<td>237</td>
<td>FRICTION CONTROL WITAG (CLASS 3)</td>
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<tr>
<td>238</td>
<td>CONCRETE ISLAND</td>
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<td>239</td>
<td>ROADWAY CONSTRUCTION CONTROL</td>
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**SUMMARY OF QUANTITIES**

**REVISIONS**

<table>
<thead>
<tr>
<th>DATE</th>
<th>REVISION</th>
<th>SHEET NUMBER</th>
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<td>Removed TEA Atrary OF WAY OCCURANCE SPECIAL REVIRED FROM GOVERNING SPECIFICATIONS</td>
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<td>02/09/2022</td>
<td>REVISED INDEX OF SHEETS, REMOVED SS 415-3 FROM GOVERNING SPECIFICATIONS, AND ADD SS 419-4 TO GOVERNING SPECIFICATIONS</td>
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**SUMMARY OF QUANTITIES AND REVISIONS**
**SURVEY CONTROL COORDINATE**

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<th>Elev.</th>
<th>Feature Description</th>
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<td>5443653.8040</td>
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<td>1738156.4781</td>
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<td>POINT NO. 406 408 408</td>
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<tr>
<td>3</td>
<td>5443653.8040</td>
<td>1738156.4781</td>
<td>0.00</td>
<td>POINT NO. 406 408 408</td>
</tr>
<tr>
<td>4</td>
<td>5443653.9040</td>
<td>1738156.4781</td>
<td>0.00</td>
<td>POINT NO. 406 408 408</td>
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**WAV 18**

<table>
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<tr>
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<th>TYPE</th>
<th>STATION</th>
<th>NORTHING</th>
<th>EASTING</th>
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<tbody>
<tr>
<td>1 4000</td>
<td>POE</td>
<td>POE</td>
<td>10+00.00</td>
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<tr>
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QUALITYWAY

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<tr>
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<tr>
<td>2 4001</td>
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</tbody>
</table>

**NOTICE:**

- **Radar and Gap - Standard - S/L Radar with 5' Aluminum Gap Expanded**
- **Use Gap - 5 Foot Surface for This Project**

**REFERENCE POINTS (1000 SERIES):**

- To be used to establish control in the search area, these points have been determined from satellite observations on points in the area. The points are not to be used for vertical control.

**BASES OF BEARING:**

- **AASHTO STATE PIANO: NO BINGHAM, NO EOA: NO**
- **Determined From GPS Static Observations On Points In:**
  - **CONFORMING ANGLES:** 75° 30' 00" 55° 45' 00" 65° 20' 00" 70° 30' 00" 55° 45' 00" 65° 20' 00"
- **75° 30' 00" 55° 45' 00" 65° 20' 00" 70° 30' 00" 55° 45' 00" 65° 20' 00"**

**SURVEY CONTROL DETAILS**
SURVEY BASELINE

STA. 15+32.00
BEGIN JOB T0T062
(Hwy. 18)
LOG MILE 9.00

STA. 18+83.00
END JOB T0T062
(Hwy. 18)

C.L. HWY. 18 STA. 17+16.60
C.L. QUALITY WAY STA. 37+25.51
A = 88°45'00"
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<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ITEM</th>
<th>QUANTITY</th>
<th>UNIT</th>
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<tr>
<td>SP &amp; 701</td>
<td>SYSTEM LOCAL CONTROLLER T52-TYPE 2, E-NET.(8 PHASES)</td>
<td>1</td>
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<tr>
<td>SP</td>
<td>ETHERNET SWITCH, T100 HARDENED (8-PORT)</td>
<td>1</td>
<td>EACH</td>
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<tr>
<td>SP</td>
<td>E-NET CABLE (EXTERIOR CAT 5E)</td>
<td>80</td>
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<tr>
<td>SP</td>
<td>LOCAL RADIO (E-NET T 5.6) WITH ANTENNA</td>
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<tr>
<td>704</td>
<td>VEHICLE DETECTOR RACK MOUNT</td>
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</tr>
<tr>
<td>SP</td>
<td>LOOP WIRING CLASS II (T/C16 A.W.G.)</td>
<td>794</td>
<td>LIN FT</td>
</tr>
<tr>
<td>704</td>
<td>FED/R WEEK</td>
<td>1944</td>
<td>LIN FT</td>
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<tr>
<td>SP &amp; 706</td>
<td>TRAFFIC SIGNAL HEAD, LED, (5-SECTION, 1 WAY)</td>
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<td>TRAFFIC SIGNAL HEAD, LED, (4-SECTION, 1 WAY)</td>
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<tr>
<td>708</td>
<td>TRAFFIC SIGNAL CABLE (50/14 A.W.G.)</td>
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<td>TRAFFIC SIGNAL CABLE (200/14 A.W.G.)</td>
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<td>LIN FT</td>
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<tr>
<td>SP</td>
<td>ELECTRICAL CONDUCTORS IN CONDUIT (10/8 A.W.G., E.G.C.)</td>
<td>313</td>
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<td>SP</td>
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<td>GALVANIZED STEEL CONDUIT (2&quot;)</td>
<td>20</td>
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<td>710</td>
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<td>374</td>
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<td>710</td>
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<td>710</td>
<td>NON-METALLIC CONDUIT (2&quot;)</td>
<td>697</td>
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<td>710</td>
<td>NON-METALLIC CONDUIT (3&quot;)</td>
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<tr>
<td>711</td>
<td>CONCRETE PULL BOX (TYPE 2)</td>
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</tr>
<tr>
<td>711</td>
<td>CONCRETE PULL BOX (TYPE 1 HD)</td>
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<tr>
<td>SS &amp; 714</td>
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</tr>
<tr>
<td>SS &amp; 714</td>
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<tr>
<td>SP</td>
<td>LED LUMINAIRES ASSEMBLY</td>
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<td>EACH</td>
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<tr>
<td>SP</td>
<td>SERVICE POINT ASSEMBLY (2 CIRCUITS)</td>
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<td>SP</td>
<td>18&quot; STREET NAME SIGN</td>
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<tr>
<td>SP &amp; 733</td>
<td>VIDEO DETECTOR (IP)</td>
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<td>EACH</td>
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<tr>
<td>SP &amp; 733</td>
<td>VIDEO CABLE (EXTERIOR CAT SE)</td>
<td>380</td>
<td>LIN FT</td>
</tr>
<tr>
<td>SP &amp; 733</td>
<td>VIDEO MONITOR (CLR)</td>
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<tr>
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<td>VEHICLE DETECTOR RACK, [16 CHANNEL]</td>
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<tr>
<td>SP &amp; 733</td>
<td>CENTRAL CONTROL UNIT, [8 CHANNEL]</td>
<td>1</td>
<td>EACH</td>
</tr>
<tr>
<td>SP &amp; 733</td>
<td>VIDEO PROCESSOR, EDGE CARD P (2 CAMERA)</td>
<td>3</td>
<td>EACH</td>
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</table>

**NOTES:**
1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM A535 TYPE 8 OR 8 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE VISIBLE AND BUBBLE FREE SURFACES.
2. ALUMINUM SIGN BLANKS SHALL BE ALCLOY 6063-78 OR SIMILAR. THE ALUMINUM SIGN SHALL BE ALUMINIZED. THE ALUMINUM SHEETING SHALL BE 0.0080 INCH NORMAL THICKNESS AND OF THE SEO MRP WITH 1.75 CORNER SIZES. POSTS TO BE STAINLESS STEEL='
TRAFFIC SIGNAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (CURRENT EDITION) NATIONAL ELECTRICAL CODE, NFPA 101 (CURRENT EDITION) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND E.G.C. TO GROUND LUG OF CONTROL CABINET AND TO GROUND POLE. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.


4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.

5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CAN BE KEPT ACTIVE. DO NOT ALLOW POWER TO BE TAKEN OFF DURING THE TEST.

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SYSTEM DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE STANDARD DRAWINGS MAY BE USED.

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.

10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PERMANENT PAVEMENT MARKING DETAILS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTE ON STANDARD DRAWINGS). PAINTING WILL BE INCLUDED IN SECTION 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

12. ALL CONCRETE PULL BOXES SHALL BE TYPE 2 HO UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE THREE- INCH DIAMETER UNLESS OTHERWISE INDICATED.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LED LUMINARIES ASSEMBLIES SHALL HAVE A BUG RATING OF U0.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SIGNAL SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE ASSOCIATED PHASE. COMBINATION (COMB) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCUPANCY DATA.

16. THE RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY/COUNTY.

17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINARIE ARM WILL BE USED, THIRTY- EIGHT (38) FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINARIE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINARIE ARM, A HEIGHT OF TWENTY-ONE (21) FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL SIX (6) FEET SHOULD BE USED DIRECTLY ABOVE “VIDEO DETECTOR” AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE "O" THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS SIX (6) FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY/OBSTRUCTIONS. REFER TO DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELLED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY/OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.

19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMÉBLEMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEPT INTO COMPETENT ROCK.

20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIPS SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS REMOVED. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO MSA STANDARDS.

22. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR ARMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED T-Rough HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.

23. TRAFFIC SIGNAL CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR AUTHORIZED WITHOUT THIS PRIOR NOTIFICATION.

24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE ASH TO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS, 4TH EDITION (2013) WITH 2000 AND 2009 EXTENSIONS.

25. DOOR PANEL TEST PUSH BUTTONS SHALL ACTIVATE INDICATED PHASES. DETECTION ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODIFICATION.

26. ALL SYSTEM DETECTOR PAVING AND AGGREGATED EQUIPMENT SHALL BE PROTECTED BY THE MIAN CONTROLLER CABINET POWER SURGE PROTECTION.

27. IN PULL BOXES, POLE BASES, JUNCTION BOXES AND CONTROLLER CABINETS, THE DIRECTION OF EACH CABLE RUN SHALL BE INDICATED BY ATTACHING A PERMANENT TAG OF RIGID PLASTIC OR NONFERROUS METAL TO THE CONDUIT. TAGS SHALL BE EMBOSSED, STAMPED OR ENGRAVED WITH LETTERS 1/4" OR GREATER IN HEIGHT AND SECURED TO THE CONDUIT WITH NYLON OR PLASTIC TIES. IN INSTANCES WHERE THE CONDUIT OR CONDUIT INTRANCES ARE NOT VISIBLE OR ACCESSIBLE, A DIRECTION TAG SHALL BE ATTACHED TO EACH CABLE.

28. THE CONTRACTOR SHALL PERFORM ALL WORK POSSIBLE THAT WILL MINIMIZE THE TIME THAT THE TRAFFIC SIGNAL IS OUT OF OPERATION. IF, IN THE OPINION OF THE ENGINEER, TRAFFIC CONDITIONS WARRANT THE CONTRACTOR SHALL PROVIDE FLAGMAN TO DIRECT TRAFFIC WHILE THE TRAFFIC SIGNAL IS OUT OF OPERATION.

29. ALL NON-METALLIC CONDUIT RUNS SHALL HAVE BELL RING FITTINGS INSTALLED ON THE TERMINATING ENDS OF THE CONDUIT. THIS INCLUDES PULL BOXES, POLE BASES, AND TRAFFIC SIGNAL CABINETS.

30. ALL CONCRETE PULL BOXES SHALL BE SET ON A GRAVEL OR CRUSHED STONE BEDDING AS SPECIFIED IN SECTION 711, CONCRETE PULL BOX, OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014.
**PHASING DIAGRAM**

1. **NOT USED**
2. **NOT Used**
3. **NOT Used**

**SIGNAL FACES**

12, 6, 8, 4, 5, 9, 4, 6, 7

**NOTES:**
1. **ALL SIGNAL HEADS SHALL HAVE BACPLATES.**
2. **REFER TO SPECIAL PROVISION "REFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACPLATES.**

**DESIGN PARAMETERS**

- POSTED SPEED LIMIT: 60 MPH EAST AND WEST APPROACH
- 35 MPH SOUTH APPROACH
- NO BUS STOPS
- NO RAILROAD TRACKS
- NO EXISTING INTERCONNECTIONS
- NO FIRE STATION
- NO PARKING
- NO SIGHT DISTANCE RESTRICTIONS
- LOCATION OF STOP LINES SHOWN ON PERMANENT PAVEMENT MARKING
- MINIMUM CLEAR ZONE DISTANCE: 4 FEET BEHIND CURB
- MINIMUM CLEAR ZONE DISTANCE: 30 FEET (HWY 18)

**NOTE TO CONTRACTOR:**
- CONTACT THE CITY OF JONESBORO FOR ANTENNA ORIENTATION.

**LOCAL RADIO WITH ANTENNA, CAT 5E CABLE, MOUNTED ON POLE A.**

**VIRTUAL 6 X 6 PULSE VDZ (TYPICAL)**
- LOCATED 100' BEHIND STOP LINE

**9 X 6 PULSE LOOP DETECTION ZONE (TYPICAL)**
- LOCATED 260' BEHIND STOP LINE

**VIRTUAL 6 X 6 PRESENCE VDZ (TYPICAL)**
- LOCATED 85' BEHIND STOP LINE

**HIGHWAY 18 AND QUALITY WAY**

**POLE DIMENSIONS**

<table>
<thead>
<tr>
<th>POLE</th>
<th>MAST ARM</th>
<th>MAST ARM ANGLE</th>
<th>VERT SHAV</th>
<th>LUM ARM</th>
<th>LUM ANGLE</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>46/32</td>
<td>180°/90°</td>
<td>35°</td>
<td>15°</td>
<td>180°</td>
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<tr>
<td>B</td>
<td>40°</td>
<td>180°</td>
<td>35°</td>
<td>5°/20°</td>
<td>90°/180°</td>
</tr>
</tbody>
</table>

*ANGLE MEASURED CLOCKWISE FROM MAIN HOLE.
### Phasing Diagram

![Phasing Diagram](image)

**SIGNAL FACES**

1. All signal heads shall have backplates.
2. Refer to special provision "retroreflective backplates" for details on requirements for backplates.

### Detector Chart

<table>
<thead>
<tr>
<th>DET. ID</th>
<th>LOCATION DIRECTION</th>
<th>TYPE</th>
<th>CAB. TRIM.</th>
<th>AMP CHN.</th>
<th>CON. RJP.</th>
<th>DET. #</th>
<th>PH#</th>
<th>SYSTEM DET. #</th>
<th>MASTER SYSTEM DET. #</th>
<th>COMMENTS</th>
<th>TUBE LENGTHS</th>
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<tr>
<td>L21 A&amp;B</td>
<td>WB ADVANCE</td>
<td>LOCAL</td>
<td>2</td>
<td>V2</td>
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<td>3</td>
<td></td>
<td></td>
<td>TDDP</td>
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<td>L22 A&amp;B</td>
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<td>LOCAL</td>
<td>26</td>
<td>V2</td>
<td>2</td>
<td>LOOP</td>
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<td></td>
<td></td>
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<td>COMB</td>
<td>2</td>
<td>V10</td>
<td>2</td>
<td>2</td>
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<td></td>
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<td>V41</td>
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<td>COMB</td>
<td>9</td>
<td>V4</td>
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<td>LOCAL</td>
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<td>Y12</td>
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<td>4</td>
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<td>COMB</td>
<td>3</td>
<td>V13</td>
<td>5</td>
<td>5</td>
<td>CAMERA V2</td>
<td>37&quot;</td>
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<td>LOCAL</td>
<td>6</td>
<td>V6</td>
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<td>L62 A&amp;B</td>
<td>EB INTERMEDIATE</td>
<td>LOCAL</td>
<td>30</td>
<td>V6</td>
<td>6</td>
<td>LOOP</td>
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<td></td>
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<td>V83 A&amp;B</td>
<td>EB NEAR</td>
<td>COMB</td>
<td>5</td>
<td>V14</td>
<td>6</td>
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<td>CAMERA V6</td>
<td>37&quot;</td>
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</tr>
</tbody>
</table>

**Controller Input Abbreviations:**

- V = Vehicle Input
- D = System or Auxiliary Input
- P = Pedestrian Input

**Note:** "AMP CHN." refers to the rack output position.

This system is wired to controller input detector number which is programmed to actuate the designated phase. Example: V9 = system detector 1, V10 = system detector 2

### Interval Chart

<table>
<thead>
<tr>
<th>SIGNAL FACES</th>
<th>2+5 CLR</th>
<th>2+6 CLR</th>
<th>4 CLR</th>
<th>FLASH SEQUENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2 &amp; 8</td>
<td>R</td>
<td>R</td>
<td>G</td>
<td>R</td>
</tr>
<tr>
<td>3</td>
<td>(&lt;)</td>
<td>(&lt;)</td>
<td>(&lt;)</td>
<td>(&lt;)</td>
</tr>
<tr>
<td>4, 5 &amp; 9</td>
<td>G</td>
<td>G</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>6 &amp; 7</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>G Y R</td>
</tr>
</tbody>
</table>

* Denotes green or yellow arrow depending on next phase
** Denotes green or yellow ball depending on next phase
*** Denotes flashing yellow arrow or yellow arrow depending on next phase

Date 04.20.2021 File Name 191062_61.dgn

**Location:** Highway 18 and Quality Way

**City:** Jamesburg

**County:** CRAWFORD

**District:** 10

**Scale:** NA

**Drawn by:** BIBS
CONCRETE COMBINATION CURB AND GUTTER

DETAIL OF GUTTER SLOPE
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.

ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB

DETAILS OF MODIFIED CURB

NOTES:
1. USE MODIFIED CURB AS SPECIFIED ON STD. DR-1.
2. INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED.
3. SUPERELEVATION.
4. 0" ON HIGH SIDE OF SUPERELEVATION.
5. DETAILS OF MODIFIED CURB AS SPECIFIED ON STD. DR-1.
6. CONSTRUCTION POLICIES AND PROCEDURES TO BE FOLLOWED ON THE TYPE OF CURB OR CURBS AND GUTTERS SPECIFIED.
SLOTS

HOLES IN POSTS AND BLOCKS TO BE 3/8" DIA.

NOTES:
- SLOTS 3/8" X 4" SPACED AT 2'-8" OC.
- HOLES FOR TYPE "B"
- TYPE "A"

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS

W-BEAM GUARDRAIL
- FULL SECTION SHOWN SHOULDER DIMENSIONS AND Widths STANDARDIZED PER DISSAVERS
- REVISED WASHER NOTES
- REVISED BLOCKOUT DETAILS
- REVISED WOOD LINE POST DETAIL
- REVISED WOOD POST NOTE

WOOD BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS

STEEL POST

DETAILS OF WOOD LINE POST CONNECTIONS

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

WOOD BLOCKOUT (W-BEAM)

PLASTIC BLOCKOUT (W-BEAM)

- STEEL POST
- GALVANIZED 16d NAIL
- POST & REV. GENERAL NOTE, DELETED DET.
- REVISED BLOCKOUTS TO WOOD, DELETED CONC.
- ADDED PLASTIC BLOCKOUT
- REMOVED GUARDRAIL AT BRIDGE ENDS
- REVISED WOOD BLOCKOUT & DETAILS OF BLOCKOUT CONNECTIONS & STEEL POST
- REVISED DIMENSION ON WOOD & PLASTIC
- RAISED HEIGHT OF GUARDRAIL 1"
- REVISED GENERAL NOTES AND RAISED
- REV. ANCHOR POST, ELEV. NOTES & POST
- REV. GEN. NOTE & DEPTH OF ANC. POST
- DET. OF POST PLACE. IN SOLID ROCK, &
- REVISED WASHER NOTE
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- REV. BLOCKOUTS TO WOOD, DELETED CONC.
**Plan Layout of Type A Guardrail at Low-Fill Culverts**

- **Shoulder Edge:** 1'-6" Min.  
- **Pavement/Soil Line:** Top slab of R.C. box culvert to top of wing wall.

**Notes:**
- **Shop Weld:** Base plate, washer plate.
- **Washers:** M270 (GR. 36) steel 5/8"x8"x12" AASHTO.
- **Bolts:** 1" hex head bolt with nut.
- **Anchor:** Base plate, washer plate, and anchor (TYP.).

**Case 1**
- **Solid Rock:**
  - **Posts:** Plan view steel is equal to 24".
  - **Notes:** For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of required drilling (B) is equal to 24".

**Case 2**
- **Solid Rock (W-Beam):**
  - **Posts:** Plan view wood is equal to 24".
  - **Notes:** For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to 44" minus the depth of soil whichever is less.

**Backfill:**
- **Zone A:** According to Section 617.03(a).
- **Zone B:** According to Section 617.03(a).

**Specifications:**
- **D-698:** Grading. Compact to 95% maximum dry density.
- **ASTM D-698:** Backfill according to Section 617.03(a).

**Design Speeds:**
- **50 MPH or Less:** All type A guardrails as shown on std. dwg. CG-1, May be used. For design speeds of 55 MPH or more, type A guard rails shall be used.
- **55 MPH or More:** For design speeds of 55 MPH or more, all type A guardrails shall be used.

**Alternate Post Size:**
- **W6x8.5** or **W6x9**.

**NOTE:**
- When possible, posts shall be spaced by the engineer. Using methods and materials approved shall be installed by drilling and epoxying interior or exterior wall. Anchor bolts and posts must be installed over an embedment of culvert. When this is not possible to avoid interior and exterior walls, note: when possible, posts shall be spaced according to detail.
NORMAL ROADWAY WIDTH

WIDTH OF SURFACING

SECTION ON CURVE

SECTION ON TANGENT

NOTE: NORMAL SECTION TO EACH SIDE TO SUPPORT GUARDRAIL.

METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

GUARDRAIL DETAILS

DETAILED SHOWING POSITION OF GUARDRAIL ON HIGHWAY

SECTION A-A

DETAILS OF WIDENING FOR GUARDRAIL

SECTION B-B

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-9
CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE, DO NOT COMPACT.
2. INSTALL PIPE TO GRADE, DO NOT COMPACT.
3. PLACE AND COMPACT THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE INSTALLATION IN ACCORDANCE WITH THE MEASURED SPAN AND RISE.

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE PER LINEAR FOOT OF CONCRETE PIPE.

- LEGEND -
- = NORMAL PIPE DIAMETER OF PIPE
  = INSTALL FROM TOP OF PIPE FEED
  - = CONTRACTED PIPE

INSTALLED SHOULDER AND ROADWAY AREAS SHALL NOT VARY MORE THAN 2 PERCENT FROM THE VALUES SHOWN ON THE PLAN.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH APPLICABLE REVISIONS.
2. CONCRETE PIPE MATERIALS SHALL BE CIRCULAR R.C. PIPE CULVERTS SHALL BE USED.
3. MATERIALS NOT LISTED ABOVE MAY BE USED WITH THE ENGINEER'S PRIOR WRITTEN APPROVAL.
4. MATERIALS SHALL BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED.
5. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED.
6. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES.
7. THE MAXIMUM TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR PASSAGE OF EQUIPMENT.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE INSTALLATION.

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN 2 PERCENT FROM THE VALUES SHOWN ON THE PLAN.

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

<table>
<thead>
<tr>
<th>CLASS OF PIPE</th>
<th>INSTALLATION TYPE</th>
<th>MINIMUM</th>
<th>6&quot;</th>
<th>12&quot;</th>
<th>18&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TYPE 1 (ALL)</td>
<td>FILL 12&quot;</td>
<td>24</td>
<td>33</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>TYPE 2</td>
<td>FILL 12&quot;</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>TYPE 3</td>
<td>FILL 12&quot;</td>
<td>36</td>
<td>46</td>
<td>56</td>
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</table>

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

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<th>CLASS OF PIPE</th>
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<th>12&quot;</th>
<th>18&quot;</th>
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<tbody>
<tr>
<td></td>
<td>TYPE 1 (ALL)</td>
<td>COVER 2&quot;</td>
<td>24</td>
<td>33</td>
<td>42</td>
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<tr>
<td></td>
<td>TYPE 2</td>
<td>COVER 2&quot;</td>
<td>30</td>
<td>40</td>
<td>50</td>
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<tr>
<td></td>
<td>TYPE 3</td>
<td>COVER 2&quot;</td>
<td>36</td>
<td>46</td>
<td>56</td>
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</tbody>
</table>

MINIMUM HEIGHT OF FILL "H" OVER R.C., ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

<table>
<thead>
<tr>
<th>CLASS OF PIPE</th>
<th>INSTALLATION TYPE</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS V</th>
</tr>
</thead>
<tbody>
<tr>
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<td>TYPE 2 OF PIPE</td>
<td>2&quot;</td>
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MAXIMUM HEIGHT OF FILL "H" OVER R.C., ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

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<tr>
<th>CLASS OF PIPE</th>
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<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TYPE 3 OF PIPE</td>
<td>3&quot;</td>
<td>3&quot;</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>

NOTE: INSTALLATION SHOULDER AND ROADWAY AREAS SHALL NOT VARY MORE THAN 2 PERCENT FROM THE VALUES SHOWN ON THE PLAN.
**GENERAL NOTES**

1. PIPE SHALL CONFORM TO ASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISIONS IF SHOWN ON DRAWINGS.

2. PIPE SHALL BE INSTALLED TO GRADE AS DIRECTED BY THE ENGINEER.

3. DRAG PIPE TO GRADE.

4. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.

5. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.

**MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"**

<table>
<thead>
<tr>
<th>Trench Width</th>
<th>Fill Height &quot;H&quot;</th>
</tr>
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<tbody>
<tr>
<td>2'-0&quot;</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td>2'-0&quot;</td>
<td>3'-6&quot;</td>
</tr>
<tr>
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</tr>
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<td>4'-6&quot;</td>
</tr>
<tr>
<td>4'-0&quot;</td>
<td>6'-0&quot;</td>
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**MINIMUM TRENCH WIDTH**

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<td>4'-6&quot;</td>
</tr>
<tr>
<td>4'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
</tbody>
</table>

**CONSTRUCTION SEQUENCE**

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.

2. INSTALL PIPE TO GRADE.

3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.

4. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.

5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING, OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

**LEGEND**

- **MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS**

- **MINIMUM COVER VALUES, "H"**

- **MAXIMUM FILL HEIGHT = 15'-0"**

- **TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS**

- **CONSTRUCTION LOADS**

- **MINIMUM COVER FOR CONSTRUCTION LOADS**

- **CENTERLINE**

- **MINIMUM TRENCH WIDTH**

- **UNCOMPACTED LOOSELY PLACED**

- **H" < 10'-0"**

- **"H" > OR = 10'-0"**

- **HAUNCH AREA**

- **STRUCTURAL BACKFILL**

- **PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)**

- **ARKANSAS STATE HIGHWAY COMMISSION**

- **STANDARD DRAWING PCP-1**
Installation

**Material Requirements for Type 2 Embankment and Trench Installations**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>MATERIAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Structural Backfill Material Should Be Used As Laid for Structural Material, and Will Not Be Allowed.</td>
</tr>
</tbody>
</table>

**Structural Backfill Material** Shall Have a Maximum Relative Density of 95% of the Maximum Density According to the Type or Class of Material Used. See "Minimum Cover for Structural Backfill" Table for Appropriate Maximum Fill Heights and Minimum Cover Requirements.

**Minimum Trench Width** Based on Fill Height "H" (in feet)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>55</td>
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<tr>
<td>4</td>
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<td>5</td>
<td>100</td>
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**Minimum Cover for Construction Loads** Table

<table>
<thead>
<tr>
<th>Type</th>
<th>R-100</th>
<th>R-200</th>
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<th>R-400</th>
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**General Notes**

1. PIPE SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE. INSTALL PIPE TO GRADE.
4. COMPACT STRUCTURAL BEDDING INSIDE THE MIDDLE THIRD OF THE PIPE. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
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7. FOR PIPE OTHER THAN PVC F949, MATERIALS OTHER THAN PVC SHALL NOT BE ALLOWED.
8. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING CONSTRUCTION SEQUENCE. 
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(Additional notes and diagrams related to structural backfill and trench installations)
**MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT “H”**

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**MINIMUM COVER FOR CONSTRUCTION LOADS**

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**GENERAL NOTES**

1. PIPE HOLES BASED ON DESIGN ASSUMED AT A MINIMUM OF 1000 PSI FOR DURABILITY EFFECTIVE FOR SUESSORS RELATIVE TO THE STRUCTURAL DESIGN AND STRENGTH CONSTRUCTION LOADS.

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**BROKEN LINE STRIPING**

**CONCRETE PAVEMENT**

**SOLID LINE STRIPING ON CONCRETE PAVEMENT**

**SOLID LINE STRIPING ON ASPHALT PAVEMENT**

**STRIPING AT ADJACENT NO PASSING Lanes**

**YIELD LINE DETAIL**

**CROSSWALK AND STOP LINE DETAILS**

**Pavement Edge Line Marking**

**Detail of Standard Raised Pavement Markers**

**Notes:**
1. Refer to the striping details for pavement marking line widths.
2. This drawing shall be used in conjunction with the latest revised edition of the "Manual on Uniform Traffic Control Devices.
3. Raised pavement markers shall be placed on an 80 feet spacing, unless otherwise shown in the plans.

**Arkansas State Highway Commission**

**Pavement Marking Details**

**Standard Drawing PM-1**
1. Right hand slide shown, left slide opposite.

2. General devices (CC3002-99-0102) or equal and contains (1) right hand slide assembly, (1) left hand slide assembly necessary to fasten slide assembly to underside of controller shelf small.

3. All hardware necessary to fasten slide assembly to underside of controller shelf small.

NOTES:

- 3.63 (TYP.)
- .70
- 13.25
- .203 DIA.
- (2) HOLES FROM THIS SIDE
- .187 DIA. C'SK .100 TO .280 DIA.

FOR AUTOMATIC RELEASE CHAMFER CHASSIS BUTTON AND INTERMEDIATE SLOT BE INCLUDED.

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD DRAWING SD-5

ISSUED AS STANDARD DRAWING 9-12-13

UTILITY DRAWER

CONTROLLER CABINET

9-12-13

6-15-05

* * *
GENERAL NOTES:

1. FOUR SECTION "PROTECTED/PERMISSIVE" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEETS OF EXISTING OR NEW PLANNED MAST ARMS, INSTALLATION HEADS SHOULD BE PLACED ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH SIDE OF THE INTERSECTION.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, EQUALLY SPACED HORIZONTALLY AND PERPENDICULAR TO THE APPROACH SIDE OF THE INTERSECTION.

5. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEETS OF EXISTING OR NEW PLANNED MAST ARMS, INSTALLATION HEADS SHOULD BE PLACED ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH SIDE OF THE INTERSECTION.

6. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, EQUALLY SPACED HORIZONTALLY AND PERPENDICULAR TO THE APPROACH SIDE OF THE INTERSECTION.

7. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEETS OF EXISTING OR NEW PLANNED MAST ARMS, INSTALLATION HEADS SHOULD BE PLACED ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH SIDE OF THE INTERSECTION.

8. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, EQUALLY SPACED HORIZONTALLY AND PERPENDICULAR TO THE APPROACH SIDE OF THE INTERSECTION.

9. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEETS OF EXISTING OR NEW PLANNED MAST ARMS, INSTALLATION HEADS SHOULD BE PLACED ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH SIDE OF THE INTERSECTION.

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NOTE: WHERE LEFT TURN HEADS HERE I ON 20, AND 20, DO NOT CALL FOR INSTALLATION HEADS, MAST ARMS STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS SHOWN SHOULD ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.

DIMENSIONS:

9' TYPICAL
8' TYPICAL

Submit to the Arkansas State Highway Commission

Signal Head Placement

Standard Drawing SD-8

Issue Date: 3-11-10

Review Date: 9-12-13

Approved Date: 12-9-99

Arkansas State Highway Commission
NOTES:
SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN DETAIL (F).
ALL SIGN POSTS SHALL BE PLUMB.
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.
NORMAL INSTALLATIONS WILL REQUIRE 5/16" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

NOTES:
A SIGN AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.
SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN DETAIL (F).
NORMAL INSTALLATIONS WILL REQUIRE 5/16" CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.
ALL SIGN POSTS SHALL BE PLUMB.
THE POST FOR "TYPE U" SUPPORTS SHALL BE HOT DIP GALVANIZED.
CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE
1. Place perimeter controls (i.e., silt fences, diversion ditches, sediment basins, etc.)
2. Perform clearing and grubbing operation.

EXCAVATION

EXISTING GROUND
INTERCEPTOR OR DIVERSION DITCH

GENERAL NOTE

3. Number of phases will vary, three phases shown for illustration.

EXISTING GROUND
PHASE 1 EXCAVATION
PHASE 2 EXCAVATION
FINAL PHASE EXCAVATION

EMBANKMENT

EXISTING GROUND
PHASE 1 EMBANKMENT
PHASE 2 EMBANKMENT
FINAL PHASE EMBANKMENT

GENERAL NOTE

1. Construct diversion ditches, ditch checks, sediment basins, silt fences, or other erosion control devices as specified.
2. Place phase 1 embankment with permanent or temporary seeding.
3. Place phase 2 embankment with permanent or temporary seeding.
4. Place final phase of embankment with permanent or temporary seeding.

SEDIMENT BASINS, Silt Fences, etc.

CONSSTRUCTION SEQUENCE

1. Place perimeter controls (i.e., silt fences, diversion ditches, sediment basins, etc.)
2. Perform phase 1 excavation, place permanent or temporary seeding.
3. Perform phase 2 excavation, place permanent or temporary seeding.
4. Perform final phase of excavation, place permanent or temporary seeding.
5. Provide diversion ditches and slope drains and maintain until entire slope is stabilized.

NOTE:

- Construction sequence may vary depending on project requirements.
- Phases may be adjusted or added as needed.
- Diversion ditches and slope drains should be maintained until the entire slope is stabilized.
- Erosion control devices should be installed and maintained as required.
- Clearing and grubbing should be performed prior to excavation.
- Excavation should be performed in equal increments not to exceed 25 feet, measured horizontally.

EMBANKMENT

EXCAVATION

EXISTING GROUND
INTERCEPTOR OR DIVERSION DITCH

FINAL PHASE EMBANKMENT

EXISTING GROUND
PHASE 1 EMBANKMENT
PHASE 2 EMBANKMENT

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INTERCEPTOR OR DIVERSION DITCH

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EXCAVATION

EXISTING GROUND
INTERCEPTOR OR DIVERSION DITCH

FINAL PHASE EMBANKMENT

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