TYPICAL SECTIONS OF IMPROVEMENT

EXISTING GROUND

STA. 10+82.07 TO STA. 14+56.23

SHLD.

6'-0"

3 :1

6" COMP'D DEPTH

AGGREGATE BASE COURSE (CL. 7)

85.50 TONS PER STA.

330 LBS. PER SQ. YD. & TACK COAT

22'-3" ACHM BINDER COURSE (1"

40.00 TONS PER STA.

VAR. COMP'D DEPTH

AGGREGATE BASE COURSE (CL. 7)

JOINTS SHALL BE AT LANE LINES.

AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL

THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED

MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

PAYMENT WILL NOT BE MADE FOR

ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE

THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT

BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN

1. REFER TO CROSS SECTIONS FOR DEVIATIONS

FROM NORMAL SLOPES AND LINES. SHALL BE

MADE FROM THE PLANNED SLOPES WITHOUT THE

APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL

BE ADJUSTED ON BASIS OF THE PLAN

THICKNESS. AFTER THE CONSTRUCTION IS COMPLETED,

THE CONTRACTOR WILL CORRECT

TOLERANCE REQUIREMENTS. ANY ADDITIONAL

MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED,

3. THE FINAL THICKNESS OF SURFACE COARSE IS TO BE PLACED

AFTER ALL OTHER COURSES HAVE BEEN Laid. LONGITUDINAL

JOINTS SHALL BE AS LINED.

TYPICAL SECTIONS OF IMPROVEMENT

Digitally Signed 03/09/2015
All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¾" chamfers.

Reinforcing Steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in ‘Manual of Standard Practice’ published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be normal to the centerline of barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless otherwise specified. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway".

Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.

GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

SHEET 1 OF 4 GENERAL DETAILS OF R.C. BOX CULVERT
TYPICAL SECTION M-M

TOP SLAB REINFORCEMENT
"h" bars
"a" bars
"f" bars
"b" bars
"d" bars
"e" bars

PART LONGITUDINAL SECTION
Non-Skewed Ends

PART LONGITUDINAL SECTION N-N
Skewed Ends

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR
Longitudinal bar spacing at individual sections shall be maintained with any resulting non-contact bar laps.

Outside end reinforcement - see "Details of Wingwalls" for additional information and wingwall details.

TOP OF WINGWALL SLOPE

LONGITUDINAL BAR SPACING AT INDIVIDUAL SECTIONS SHALL BE MAINTAINED, WHICH MAY RESULT IN NONCONTACT BAR LAPS.

TYPICAL KEYWAY DETAIL

WINGWALL ATTACHMENT

SPECIAL DETAILS

GENERAL DETAILS OF R.C. BOX CULVERT

SHEET 2 OF 4

DETAILED OF SINGLE BARREL
R.C. BOX CULVERT

SPECIAL DETAILS
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

1. Bent "b" or "b1" bars shall be alternated with Straight "f" bars in bottom. Bent "f" or "f1" bars in bottom. Bent "b" bars or Bent "b1" bars sketch shown. Straight "d" or "d1" bars shall be alternated with Bent "b" bars in bottom.
2. Bent "b" or "b1" bars shall alternate with Straight "d" bars in top. Bent "d" or "d1" bars in top. Bent "b" or Bent "b1" bars sketch shown. Straight "e" bars shall be alternated with Bent "b" bars in top.

TYPICAL KEYWAY DETAIL

- Bent "b" or Bent "b1" bars sketch
- Straight "f" bars in bottom.
- Straight "d" or "d1" bars in top.
- Bent "b" or Bent "b1" bars in top.
- Straight "e" bars in top.

TYPICAL SECTION M-M

- Bent "b" or Bent "b1" bars sketch
- Top Slab shown. Bottom Slab similar.
- Wingwall attachment details of Wingwall attachment.
- Typical Keyway detail.
- Typical Section M-M details.

DETAILS OF MULTI-BARREL

- Details of Multi-Barrel Culvert
- Details of Multi-Barrel Culvert
- Details of Multi-Barrel Culvert
- Details of Multi-Barrel Culvert

GENERAL DETAILS OF R.C. BOX CULVERT

- General Details of R.C. Box Culvert
- General Details of R.C. Box Culvert
- General Details of R.C. Box Culvert
- General Details of R.C. Box Culvert

BOX CULVERT DETAILS - STA 09+80.00 TO STA 10+65.90

REINFORCING DETAILS - HORIZONTAL CURVE NO. 2

BAR LIST - STA 09+80 TO 10+65.97

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SPECIAL DETAILS

NOTE: ALL DETAILING BARS ARE REDUCED TO MATCH CURVES AND INTERSECTIONS.
### MID-SECTION

#### BAR LAP TABLE

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<th>Interior Wall Reinforcing Steel</th>
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#### DESIGN FILL DEPTH (FT.) CLEAR SPAN (FT.) CLEAR HEIGHT (FT.) TOP SLAB THK. BOTTOM SLAB THK. SIDE WALL THK. INTERIOR WALL THK.

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**Notes:**
- For additional information and chart sections, see Sheet 2 of 8.
- The drawing is to be used in conjunction with additional drawings for the culvert sections.
- The section length is based on the design fill depth and must be modified for construction.
- Special details for this section have been included in the drawings.

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**Bar Lap Requirements for the Specified Section:**

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For additional information and sub-sections, see Sheet 7 of 8.
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### INTERIOR WALL REINFORCING STEEL

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<thead>
<tr>
<th>No.</th>
<th>L</th>
<th>W</th>
<th>F</th>
<th>B</th>
<th>C</th>
<th>W</th>
<th>OW</th>
<th>OH</th>
<th>SL</th>
<th>D</th>
<th>S</th>
<th>H</th>
<th>T</th>
<th>B</th>
<th>C</th>
<th>W</th>
<th>OW</th>
<th>OH</th>
</tr>
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<tbody>
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</table>

### TOTAL ADDITIONAL REINF. FOR HDWL

<table>
<thead>
<tr>
<th>No.</th>
<th>L</th>
<th>W</th>
<th>F</th>
<th>B</th>
<th>C</th>
<th>W</th>
<th>OW</th>
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</thead>
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<td></td>
</tr>
</tbody>
</table>

### SPECIAL DETAILS

The required number of bars and lengths shown are for estimating purposes only. The actual number and length required should be determined by the Code. Unless otherwise noted, all dimensions are in inches.
TEMPORARY EROSION CONTROL DETAILS
STAGE 1

REVISIONS

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>SHEETS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LEGEND

• SAND BAG DITCH CHECK
• ROCK DITCH CHECK
• TEMPORARY EROSION CONTROL DETAILS TO BE RETAINED AS LONG AS NEEDED TO CONTROL EROSION.

REVISED

DATE

DIGITALLY SIGNED

3/9/2015
**STAGE 1 CONSTRUCTION**

**MAINTENANCE OF TRAFFIC DETAILS**

1. **BEGIN JOB**
   - STA. 9+80.00
   - PC 10+11.85

2. **PRECAST CONCRETE BARRIER LEFT IN PLACE**
   - Width 12'
   - Depth 36'

3. **INSTALL ADVANCED WARNING SIGNS AS SHOWN**
   - 1. 48" X 48"
   - DBL. 36" X 110'
   - ATTENUATION BARRIER

4. **CONSTRUCT REINFORCED CONCRETE BOX CULVERT**
   - STA. 10+85.90 TO STA. 15+81.13 AND STA. 17+12.00
   - STA. 18+74.89
   - ENDS JOB

5. **TEMPORARY DRAINAGE IMPVTS.**
   - 6TH ST. OVER I-40

6. **FINISHED GROUND**
   - 3:1 SIDE SLOPE FROM STA. 10+85.90 TO STA. 12+65.96

7. **REINFORCED CONCRETE BOX COVER**
   - C.L. ELSINGER BLVD.
   - STA. 10+00.00

8. **BEGIN JOB**
   - STA. 20+00

9. **PRECAST CONCRETE BARRIER LEFT IN PLACE**
   - Width 10'
   - Depth 8'

10. **INSTALL ADVANCED WARNING SIGNS AS SHOWN**
    - 1. 48" X 48"
    - DBL. 36" X 110'

11. **TEMPORARY DRAINAGE IMPVTS.**
    - 6TH ST. OVER I-40

**REVIEWED DATE**

03/09/2015

**EDR. AID PROJ. NO.**

STATE SHEET NO.

1"=120'
STAGE 2 GRADING AND PAVING
(48" X 24")
C.L. I-40 MEDIAN

AMITY RD. STA. 10+05 TO STA. 10+89
LEFT EDGE LINE = 147 L.F.
RIGHT EDGE LINE = 84 L.F.
CENTER DBL. YELLOW LINE = 66 L.F.

AMITY RD. STA. 10+05 TO STA. 10+40
LEFT EDGE LINE = 361 L.F.
RIGHT EDGE LINE = 462 L.F.
CENTER DBL. YELLOW LINE = 390 L.F.

1000 FT.
ROAD WORK
(1) W20-1
500 FT.
ROAD WORK
(1) G20-1

FOR STAGE 3 TRAFFIC CONFIGURATION
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS SHOWN
CONSTRUCT AMITY RD. DETOUR EAST
ELSINGER BLVD.
MAINTAIN TRAFFIC ON EXISTING AMITY RD.

BEGIN JOB
STA. 9+80.00
12 VERTICAL PANELS AT 10' O.C.
PRECAST CONCRETE BARRIER
LEFT IN PLACE
STA. 7208+50

PRECAST CONCRETE BARRIER
LEFT IN PLACE
STA. 7210+00

1500 FT.
ROAD WORK
(1) G20-2
48'
ROAD WORK
(1) W20-1

END UNIT
STA. 18+74.89

END UNIT
SPECIAL
650!
TAPER
48'
1100'
C.P. 13+94.26
SPECIAL
TAPER
48'
600'
C.P. 15+94.26

7210 + 00
AMITY RD. DETOUR EAST RT.
PRECAST CONCRETE BARIER
948'
0.861

7210 + 00
AMITY RD. DETOUR EAST LT.
PRECAST CONCRETE BARIER
431'
0.861

7215 + 00
AMITY RD. DETOUR EAST
PRECAST CONCRETE BARIER
48'
1.767

PRECAST CONCRETE BARIER
LEFT IN PLACE
STA. 16+03.20

500'
ROAD WORK
(1) W20-1

500'
ROAD WORK
(1) G20-1

1000 FT.
ROAD WORK
(1) W20-1
(1) W20-1
(48" X 24")
(48" X 48")

7200 + 00
AMITY RD. STA. 15+40 TO STA. 16+00
12 VERTICAL PANELS AT 10' O.C.
PRECAST CONCRETE BARRIER

7215 + 00
AMITY RD. STA. 15+40 TO STA. 16+00
12 VERTICAL PANELS AT 10' O.C.
PRECAST CONCRETE BARRIER

END JOB
STA. 18+74.89

1500 FT.
ROAD WORK
(1) G20-2
48'
ROAD WORK
(1) W20-1

END UNIT
STA. 18+74.89

500'
ROAD WORK
(1) W20-1

1500 FT.
ROAD WORK
(1) G20-2
48'
ROAD WORK
(1) W20-1

3500'
ROAD WORK
(1) W20-1

7215 + 00
AMITY RD. DETOUR EAST
PRECAST CONCRETE BARIER
48'
1.767

3000'
ROAD WORK
(1) W20-1
(1) W20-1
(48" X 48")
(48" X 24")

7200 + 00
AMITY RD. STA. 15+40 TO STA. 16+00
12 VERTICAL PANELS AT 10' O.C.
PRECAST CONCRETE BARRIER

7215 + 00
AMITY RD. STA. 15+40 TO STA. 16+00
12 VERTICAL PANELS AT 10' O.C.
PRECAST CONCRETE BARRIER

END JOB
STA. 18+74.89

500'
ROAD WORK
(1) W20-1

1000 FT.
ROAD WORK
(1) W20-1
(1) W20-1
(48" X 48")
(48" X 24")

7215 + 00
AMITY RD. DETOUR EAST
PRECAST CONCRETE BARIER
48'
1.767
STAGE 3 CONSTRUCTION
TRAFFIC ROAD WORK

(1) G20-2 C.L. I-40 MEDIAN

NOTE: ALL STAGE 3 SIGNS AND DEVICES SHALL BE LEFT IN PLACE UPON COMPLETION OF WORK.

(48" X 48")
(1) W20-1

BE LEFT IN PLACE UPON COMPLETION OF WORK.

NOTE: ALL STAGE 3 SIGNS AND DEVICES SHALL BE LEFT IN PLACE UPON COMPLETION OF WORK.

(24" X 24")
(1) W13-1

PRECAST CONCRETE BARRIER
LEFT IN PLACE

(24') BARR.
(48" X 24")
(1) G20-1
ROAD WORK

500 FT.
WORK
(1) W20-1

LEFT IN PLACE

NOTES:
1. LEFT IN PLACE UPON COMPLETION OF WORK.
2. TEMPORARY IMPACT LEFT IN PLACE

MAINTENANCE OF TRAFFIC DETAILS

STAGE 3
**Plan View**

- **Top Surface of Culvert Top Slab**
- **Precast Concrete Box Culverts**
- **Type of Geotextile Fabric** (as shown per Subsection 625.02)
- **Geotextile Filter Fabric**
- **Stop Drainage Fill Material** (as per Subsection 403.01)
- **Class “S” Concrete**
- **Minimum 10” O.C. M Bars**
- **Max. 10” O.C. J Bars**
- **Headwall**
- **Foundation Footing**
- **Curtain Wall**
- **Apron**

**Cross-Section A - A**

- **Precast Concrete Box Culverts**
- **Type of Geotextile Fabric**
- **Stop Drainage Fill Material**
- **Class “S” Concrete**
- **Minimum 10” O.C. M Bars**
- **Max. 10” O.C. J Bars**
- **Headwall**
- **Foundation Footing**
- **Curtain Wall**
- **Apron**

**Bar List**

<table>
<thead>
<tr>
<th>Bar No.</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>#4</td>
<td>3'-2&quot;</td>
</tr>
<tr>
<td>J</td>
<td>#4</td>
<td>1'-8&quot;</td>
</tr>
<tr>
<td>L</td>
<td>#4</td>
<td>6&quot;</td>
</tr>
<tr>
<td>W</td>
<td>#4</td>
<td>1'-0&quot;</td>
</tr>
</tbody>
</table>

**Notes:**
- **Length and Number of Bars Varies with Size of Culvert**
- **Bar Bender Diagram**

**General Notes:**
- **Wings, Curtain Walls and Aprons** shall be tied to the precast concrete sections by reinforcing steel dowels and grouting.
- **M and W Bars** shall be spaced 20” maximum on center in precast box.
- **Wings, Eaves, Arched and Curtain Walls** shall be constructed in accordance with the applicable and standard specifications and shall be provided with a green splice, where required, of the precast concrete box culverts.
- **Wings, Eaves, Arched and Curtain Walls** shall be constructed in accordance with the applicable and standard specifications and shall be provided with a green splice, where required, of the precast concrete box culverts.

**Section A - A**

- **Precast Concrete Box Culverts**
- **Type of Geotextile Fabric**
- **Stop Drainage Fill Material**
- **Class “S” Concrete**
- **Minimum 10” O.C. M Bars**
- **Max. 10” O.C. J Bars**
- **Headwall**
- **Foundation Footing**
- **Curtain Wall**
- **Apron**

**Notes:**
- **Length and Number of Bars Varies with Size of Culvert**
- **Bar Bender Diagram**

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**Section A - A**

- **Precast Concrete Box Culverts**
- **Type of Geotextile Fabric**
- **Stop Drainage Fill Material**
- **Class “S” Concrete**
- **Minimum 10” O.C. M Bars**
- **Max. 10” O.C. J Bars**
- **Headwall**
- **Foundation Footing**
- **Curtain Wall**
- **Apron**

**Notes:**
- **Length and Number of Bars Varies with Size of Culvert**
- **Bar Bender Diagram**

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- **Wings, Eaves, Arched and Curtain Walls** shall be constructed in accordance with the applicable and standard specifications and shall be provided with a green splice, where required, of the precast concrete box culverts.
### Minimum Height of Fill ‘H’ Over Circular R.C. Pipe Culverts

<table>
<thead>
<tr>
<th>Class of Pipe</th>
<th>Installation Type</th>
<th>M 206</th>
<th>106&quot;</th>
<th>97&quot;</th>
<th>87&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>Type 1</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Class II</td>
<td>Type 1</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Class III</td>
<td>Type 1</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Note: Minimum outer bedding shall follow a minimum of 12" of pavement.

### Maximum Height of Fill ‘H’ Over Circular R.C. Pipe Culverts

<table>
<thead>
<tr>
<th>Installation Type</th>
<th>Class of Pipe</th>
<th>M 206</th>
<th>106&quot;</th>
<th>97&quot;</th>
<th>87&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Class I</td>
<td>21</td>
<td>32</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Type 2</td>
<td>Class II</td>
<td>16</td>
<td>25</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Type 3</td>
<td>Class III</td>
<td>13</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

Note: Minimum height of fill ‘H’ over circular R.C. Pipe Culverts shall be determined using Type 1 installation.

### General Notes

1. Concrete pipe culvert construction shall comply with Arkansas State Highway and Transportation Department engineering standards and specifications, and with other applicable construction standards and specifications.
2. Concrete pipe culverts shall be designed and constructed in accordance with the Minimum Design Criteria specified by the Arkansas Department of Transportation.
3. Concrete pipe culverts shall be constructed to conform to the design specifications for circular, arch, and horizontal elliptical pipe culverts.
4. Concrete pipe culverts shall be constructed to conform to the design specifications for circular, arch, and horizontal elliptical pipe culverts.
5. Concrete pipe culverts shall be constructed to conform to the design specifications for circular, arch, and horizontal elliptical pipe culverts.
6. Concrete pipe culverts shall be constructed to conform to the design specifications for circular, arch, and horizontal elliptical pipe culverts.
7. Concrete pipe culverts shall be constructed to conform to the design specifications for circular, arch, and horizontal elliptical pipe culverts.
8. Concrete pipe culverts shall be constructed to conform to the design specifications for circular, arch, and horizontal elliptical pipe culverts.
9. Concrete pipe culverts shall be constructed to conform to the design specifications for circular, arch, and horizontal elliptical pipe culverts.
10. Concrete pipe culverts shall be constructed to conform to the design specifications for circular, arch, and horizontal elliptical pipe culverts.

### Notes

- Nominal pipe sizes are not to be used for determining fill heights.
- Minimum outer bedding shall follow a minimum of 12" of pavement.
- Minimum height of fill ‘H’ over circular R.C. Pipe Culverts shall be determined using Type 1 installation.
- Maximum height of fill ‘H’ over circular R.C. Pipe Culverts shall be determined using Type 1 installation.

### Diagram

- The diagram illustrates the construction sequence for circular, arch, and horizontal elliptical pipe culverts.
- The legend explains the different symbols used in the diagram.

### Figures

- Figures 1 through 10 illustrate the construction sequence and details for circular, arch, and horizontal elliptical pipe culverts.

---

**Arkansas State Highway Commission**

**Concrete Pipe Culvert Fill Heights & Bedding**

**Standard Drawing PCC-1**

---

**Revision**

**Date Filed**
**MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT “H”**

<table>
<thead>
<tr>
<th>Trench Width</th>
<th>0’-0”</th>
<th>3’-0”</th>
<th>6’-0”</th>
</tr>
</thead>
<tbody>
<tr>
<td>H = 5’-0”</td>
<td>8’-0”</td>
<td>11’-0”</td>
<td>14’-0”</td>
</tr>
<tr>
<td>H = 10’-0”</td>
<td>16’-0”</td>
<td>20’-0”</td>
<td>24’-0”</td>
</tr>
</tbody>
</table>

**MINIMUM COVER FOR CONSTRUCTION LOADS**

<table>
<thead>
<tr>
<th>Diameter (in)</th>
<th>18”</th>
<th>24”</th>
<th>30”</th>
<th>36”</th>
<th>42”</th>
<th>48”</th>
</tr>
</thead>
<tbody>
<tr>
<td>95% LC = 12”</td>
<td>15”</td>
<td>21”</td>
<td>27”</td>
<td>33”</td>
<td>42”</td>
<td>48”</td>
</tr>
<tr>
<td>100% LC = 18”</td>
<td>24”</td>
<td>30”</td>
<td>36”</td>
<td>42”</td>
<td>54”</td>
<td>60”</td>
</tr>
</tbody>
</table>

**GENERAL NOTES**

1. Pipe shall conform to AASHTO M294, Type S. Installation shall conform to Job Special Provision.
2. Joins shall be installed per Manufacturer's instructions.
3. Compact structural bedding outside the middle third of the pipe.
4. Structural backfill shall be placed and compacted in layers not exceeding 8”.
5. A structured embankment and trench installations shall be compacted to 95% of the maximum density according to the type or class of material used.

**TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS**

A structured embankment and trench installation shall be compacted to 95% of the maximum density according to the type or class of material used.

**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. Use structural backfill, embankment, and outer structural bedding material shall be compacted to 95% of the maximum density according to the type or class of material used.
5. Pipe installation may require the use of restraint, anchoring, and similar methods in order to meet vibration and alignment requirements.
**GENERAL NOTES**

1. **Type 2 Embankment, Trench and Structural Backfill Installations**
   - Conform to the AASHTO LRFD Bridge Design Specifications, Fifth Edition.
   - Compliance with the AASHTO LRFD Bridge Construction Specifications, Fifth Edition.

2. **Multiple Installation of PVC Pipes**
   - Minimum Trench Width Based on Fill Height
   - Minimum Cover for Construction Loads

3. **Minimum Cover Note; Deemed General Notes and Minimum Cover Note; Deemed General Notes**
   - Minimum Cover Values, "H", shall be measured from the top of the pipe to the top of the structural bedding surface. The surface shall be maintained.

4. **Type 2 Embankment and Trench Installations**
   - Structural Backfill, embankment, and outer structural bedding material shall be compacted to 95% of the maximum density according to the type or class of material used.

5. **Construction Sequence**
   - Place structural bedding material to grade, do not compact.
   - Install pipe to grade.
   - Compact structural bedding outside the middle third of the pipe.
   - Install pipe so pipe socket is in the same or comparable plane as the adjacent pipe and compact adjacent pipe bedding and structural backfill above.

6. **Multiple Installation of PVC Pipes**
   - Minimum Trench Width Based on Fill Height
   - Minimum Cover for Construction Loads

7. **Legend**
   - "H" = Fill Height
   - "D" = Outside Diameter of Pipe
   - "W" = Minimum Width

8. **Structural Backfill Material**
   - Structural backfill material shall be selected to provide stability and support for the structural bedding and pipe installed.

9. **Type 2 Embankment and Trench Installations**
   - Structural backfill, embankment, and outer structural bedding material shall be compacted to 95% of the maximum density according to the type or class of material used.

10. **Construction Sequence**
    - Place structural bedding material to grade, do not compact.
    - Install pipe to grade.
    - Compact structural bedding outside the middle third of the pipe.
    - Install restraint, weighting and simulating methods to help maintain grade and alignment.

11. **Multiple Installation of PVC Pipes**
    - Minimum Trench Width Based on Fill Height
    - Minimum Cover for Construction Loads

12. **Legend**
    - "H" = Fill Height
    - "D" = Outside Diameter of Pipe
    - "W" = Minimum Width
    - "M" = Minimum Cover
    - "S" = Structural Backfill Material
    - "L" = Uncompacted
    - "R" = Loose or Unplaced

13. **Pipe Installation**
    - May require the use of restraints, weighting, and simulating methods in order to help maintain grade and alignment.

14. **Multiple Installation of PVC Pipes**
    - Minimum Trench Width Based on Fill Height
    - Minimum Cover for Construction Loads

15. **Legend**
    - "H" = Fill Height
    - "D" = Outside Diameter of Pipe
    - "W" = Minimum Width
    - "M" = Minimum Cover
    - "S" = Structural Backfill Material
    - "L" = Uncompacted
    - "R" = Loose or Unplaced

16. **Pipe Installation**
    - May require the use of restraints, weighting, and simulating methods in order to help maintain grade and alignment.
TO THE AHTD QUALIFIED PRODUCTS LIST.

APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR

DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE
11-17-10

REMOVED PLOWABLE PVMT MRKRS

REVISED GENERAL NOTES & DATE

9-30-80

FILMED

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD DRAWING PM-1

PAVEMENT MARKING DETAILS

DRAWN
1-9-30-80

BROKEN LINE STRIPING

SOLID LINE STRIPING ON CONCRETE PAVEMENT

SOLID LINE STRIPING ON ASPHALT PAVEMENT

ASPHALT PAVEMENT

CONCRETE PAVEMENT

CROSSWALK AND STOPBAR DETAILS

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

NOTE:

LINES SHALL HAVE A WIDTH OF 4 INCHES.

2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.

3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

5. THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

6. THE ONGOING SURFACE TREATMENT DETAILS FOR PREPARED OR CONCRETE PAVEMENT SHOULD BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.

7. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

8. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.

9. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

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11. THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

NOTE:

DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBMIT SMALLER MARKERS FOR APPROVAL. THE PLACEMENT OF MARKERS MAY BE DONE IN REFERENCE TO THE ABOVE SHOWN PRODUCT LIST.

NOTE:

DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBMIT SMALLER MARKERS FOR APPROVAL. THE PLACEMENT OF MARKERS MAY BE DONE IN REFERENCE TO THE ABOVE SHOWN PRODUCT LIST.

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DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBMIT SMALLER MARKERS FOR APPROVAL. THE PLACEMENT OF MARKERS MAY BE DONE IN REFERENCE TO THE ABOVE SHOWN PRODUCT LIST.

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GENERAL NOTES:
ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS, IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE, ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD, ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.
EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

1. EXISTING CHANNEL
2. CHANNEL CHANGE
3. ROADWAY EXCAVATION
4. STRUCTURAL EXCAVATION
5. FLOW LINE
6. BACKFILL-PLACED IN HORIZONTAL LAYERS
7. EMBANKMENT-PLACED IN HORIZONTAL LAYERS
8. LONGITUDINAL SECTION
9. PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS
10. NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.
11. ORIGINAL GROUND
12. EXCAVATION LINE
13. GRADE LINE
14. BOX CULVERT
15. SOLID SODDING
16. NOTE:
17. STRIP OF SOLID SODDING.
18. LENGTH MEASURED ALONG THE CENTER OF 2' L OF ROADWAY
19. BOX CULVERT BACKFILL DETAILS FOR BOX CULVERT
20. DETAILS THROUGH EXISTING CHANNELS
21. SECTION A-A
22. SECTION B-B
23. SECTION C-C
24. GENERAL NOTES:
25. ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS, IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE, ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD, ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.
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THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.

REINFORCING DETAILS AND CULVERT DIMENSIONS SAME AS STANDARD CULVERT DRAWINGS

THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.

IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.

REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.

ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

NOTE: NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION. SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.
Notes:

1. Flagger stations at night as needed. Flood lights should be provided to mark approaching traffic. Staggered stations, a single flagger may be used.

2. Truck mounted attenuators (optional) refer to MUTCD.

3. Temporary striping back to back 8 chevrons W1-4.

4. Channelizing devices separate right from through traffic.

5. The maximum spacing between channelizing devices in a taper shall be approximately equal in feet to the speed limit. When the existing speed limit is 55 mph and the plans require a speed limit of 55 mph, the R2-1 (45) shall be omitted.

6. Lane width and length required shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1 (XX) shall be installed to match original speed limit.

7. Where there is no change in the existing speed limit, or as directed by the engineer.

Taper Formulas:

L = S x W for speeds of 45 mph or more.

L = min. length of taper.

W = width of offset.

General Notes:

1. Speed limit, or as directed by the engineer.

2. SharedModule: 400 ft or 140 m is recommended.

3. Flagger stations at night as needed. Flood lights should be provided to mark approaching traffic. Staggered stations, a single flagger may be used.

4. Truck mounted attenuators (optional) refer to MUTCD.

5. Temporary striping back to back 8 chevrons W1-4.

6. Channelizing devices separate right from through traffic.

7. The maximum spacing between channelizing devices in a taper shall be approximately equal in feet to the speed limit. When the existing speed limit is 55 mph and the plans require a speed limit of 55 mph, the R2-1 (45) shall be omitted.

8. Where there is no change in the existing speed limit, or as directed by the engineer.

Taper Formulas:

L = S x W for speeds of 45 mph or more.

L = min. length of taper.

W = width of offset.
4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab. (See BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."
CLEARING AND GRUBBING

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

GENERAL NOTE
Place perimeter controls (i.e., soil fences, diversion ditches, sediment basins) as required.

EXCAVATION

EXISTING GROUND
INTERCEPTOR OR DIVERSION DITCH

NUMBER OF PHASES WILL VARY.

PHASE 1 EXCAVATION
PHASE 2 EXCAVATION
FINAL PHASE EXCAVATION

EMBANKMENT

EXISTING GROUND

EXISTING GROUND

PHASE 1 EMBANKMENT
PHASE 2 EMBANKMENT
FINAL PHASE EMBANKMENT

GENERAL NOTE

SLOPES IS STABILIZED.

PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE WORK PROGRESS.

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE
1. Excavate and stabilize interceptor or diversion ditches.
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. Sediment basins, silt fences, diversion ditches, erosion control devices as required.

GENERAL NOTE

ALL SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

EMBANKMENT

CONSTRUCTION SEQUENCE
1. Construct diversion ditches, ditch checks, sediment basins, silt fences, erosion control devices as specified.
2. Place Phase 1 embankment with permanent or temporary seeding. All embankment construction is to be temporarily abandoned for a period of greater than 21 days.
3. Place Phase 2 embankment with permanent or temporary seeding. Provide diversion ditches and slope drains. If embankment construction is to be temporarily abandoned for a period of greater than 21 days.
4. Place final Phase of embankment with permanent or temporary seeding. Provide diversion ditches and slope drains. Maintain until entire slope is stabilized.
TRIANGULAR SILT DIKE INSTALLATION FOR DIVERSION DITCH AND/OR DITCH LINER

TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH

NOTE: SEE SHEET OR DRAINAGE CONTROL POINT SYMBOL TO BE USED TO DENOTE CONTROL POINT ON PLANS.

GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKES. THE UNIT SHALL BE USED TO CONTAIN SEDIMENT AND MINIMIZE EROSION. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE HOTSPOT WITHIN THE CENTER OR CENTER OF DRAINAGE CONTROL POINT. THE CENTER OR CENTER OF DRAINAGE CONTROL POINT SHALL BE WIDER THAN THE CENTER OR CENTER OF DRAINAGE CONTROL POINT. THE CENTER OR CENTER OF DRAINAGE CONTROL POINT SHALL BE WIDER THAN THE CENTER OR CENTER OF DRAINAGE CONTROL POINT. THE CENTER OR CENTER OF DRAINAGE CONTROL POINT SHALL BE WIDER THAN THE CENTER OR CENTER OF DRAINAGE CONTROL POINT. THE CENTER OR CENTER OF DRAINAGE CONTROL POINT SHALL BE WIDER THAN THE CENTER OR CENTER OF DRAINAGE CONTROL POINT.

2. SIMPLIFIED SYMBOL TO BE USED TO DENOTE DEVICE ON PLANS.

CONNECT TO R.C. BOX CULVERT
REMOVE 6' OF R.C. PIPE CULVERT AND 42" X 228' R.C. PIPE CULVERT
STA. 16+67 IN PLACE
FL. = 286.07 +67 42" RCP
AREA CUT = 0 SQ. FT.
VOLUME CUT = 0 CU. YD.
AREA FILL = 63 SQ. FT.
VOLUME FILL = 125 CU. YD.

R.C. BOX CULVERT
STA. E+50 TO STA. E+66
STA. 17+00 TO STA. 18+50

AREA CUT = 0 SQ. FT.
VOLUME CUT = 0 CU. YD.

AREA FILL = 143 SQ. FT.
VOLUME FILL = 108 CU. YD.

R.C. BOX CULVERT
STA. 17+00 TO STA. 18+50
STA. 18+74.89 END R.C. BOX CULVERT

STA. 18+73 TO STA. 18+73

AREA CUT = 0 SQ. FT.
VOLUME CUT = 0 CU. YD.

AREA FILL = 25 SQ. FT.
VOLUME FILL = 21 CU. YD.

F.L. = 284.46

STA. 18+72.89 R.C. BOX CULVERT

-3 : 1

2 9 1.3 3
2 9 2 .3 3
2 9 2 .3 3
2 9 1.3 2
53
57
DRAINAGE IMPVTS. - 6TH ST. OVER I-40
CROSS SECTIONS
STA. 12+50 TO STA. 13+05
AMITY RD. DETOUR EAST

AREA CUT = 25 SQ. FT.
VOLUME CUT = 78 CU. YD.

AREA FILL = 11 SQ. FT.
VOLUME FILL = 112 CU. YD.