INDEX OF SHEETS

SHEET NO.

1. TITLE SHEET
2. INDEX OF SHEETS AND STANDARD DRAWINGS
3. GOVERNING SPECIFICATIONS AND GENERAL NOTES
4. - 5. TYPICAL SECTIONS OF IMPROVEMENT
6. - 12. SPECIAL DETAILS
13. - 16. TEMPORARY EROSION CONTROL DETAILS
17. - 19. MAINTENANCE OF TRAFFIC DETAILS
20. PERMANENT PAVEMENT MARKING DETAILS
21. - 25. QUANTITIES
26. SUMMARY OF QUANTITIES AND REVISIONS
27. - 28. SURVEY CONTROL DETAILS
29. - 30. PLAN AND PROFILE SHEETS
31. - 38. CROSS SECTIONS

ROADWAY STANDARD DRAWINGS

DRWG.NO. TITLE DATE

PBC-1. PRECAST CONCRETE BOX CULVERTS 01-28-15

PCO-1. CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING 02-27-14

PCC-1. METAL PIPE CULVERT FILL HEIGHTS & BEDDING 02-27-14

PCC-1. PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE) 02-27-14

PCC-1. PLASTIC PIPE CULVERT (PVC F949) 02-27-14

PM-1. PAVEMENT MARKING DETAILS 01-26-17

RD-1. DETAILS OF PIPE UNDERPURN 12-08-16

RBC-1. REINFORCED CONCRETE BOX CULVERT DETAILS 07-26-12

RBC-2. EXCAVATION PAY LINES, BACKFILL, & SOIL SODDING FOR BOX CULVERTS 11-20-03

SE-2. TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC 10-18-06

C1. STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 04-13-17

C1. STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 09-02-15

C3. STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 09-02-15

C4. STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 02-27-14

C5. STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 10-18-09

TC-1. TEMPORARY EROSION CONTROL DEVICES 11-16-17

TC-2. TEMPORARY EROSION CONTROL DEVICES 06-22-14

TC-3. TEMPORARY EROSION CONTROL DEVICES 11-03-14
GOVERNING SPECIFICATIONS
ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

NUMBER
ERRATA
ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273
REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273
SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273
SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273
SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273
SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273
SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273
SUPPLEMENT - WAGE RATE DETERMINATION
100-3
CONTRACTORS LICENSE
100-4
DEPARTMENT NAME CHANGE
102-2
ISSUANCE OF PROPOSALS
108-1
LIQUIDATED DAMAGES
108-2
WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1
PROTECTION OF WATER QUALITY AND WETLANDS
303-1
AGGREGATE BASE COURSE
400-1
TACK COATS
402-4
DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-6
PERCENT AIR Voids FOR ACNM MIX DESIGNS
400-7
LIQUID ANTI-STRIP ADDITIVE
410-1
CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
464-1
RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
608-1
PIPE CULVERTS FOR SIDE DRAINS
630-1
MULCH COVER
800-1
STRUCTURES
JOB 11013
BELTING REQUIREMENTS AND CONDITIONS
JOB 11015
BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 11015
BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 11015
CARGO PREFERENCE ACT REQUIREMENTS
JOB 11015
CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 11015
DISADVANTAGED BUSINESS ENTERPRISE BIDDERS RESPONSIBILITIES
JOB 11015
GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 11015
MANDATORY ELECTRONIC CONTRACT
JOB 11015
MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 11015
NESTING SITES OF MIGRATORY BIRDS
JOB 11015
PLASTIC PIPE
JOB 11015
REMOVING AND STOCKPILING EXISTING AGGREGATE BASE COURSE (CLASS 7)
JOB 11015
SETTLEMENT AGREEMENTS
JOB 11015
SHORTHOR FOR CULVERTS
JOB 11015
SOIL STABILIZATION
JOB 11015
STORM WATER POLLUTION PREVENTION PLAN
JOB 11015
SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 11015
UTILITY ADJUSTMENTS
JOB 11015
SPECIAL FLOOD HAZARD AREA OPTIONS
JOB 11015
STORM WATeR POLLUTION PREVENTION PLAN
JOB 11015
SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 11015
UTILITY ADJUSTMENTS

GENERAL NOTES
1. GRADE LINE NOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.32 OF THE STANDARD SPECIFICATIONS.
5. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DECISION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INTRINSICALLY OR IN LIEU THEREOF. THE CONTRACTOR, AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
7. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONALWADE 14 PERMIT, REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAVING ALONG A NEUTRAL LINE. AFTER SAVING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
HWY. 33 FULL DEPTH

AGGREGATE BASE COURSE
(CLASS 7) VAR. COMPACTED DEPTH
46.25 TONS/STA.

AGGREGATE BASE COURSE
(CLASS 7) VAR. COMPACTED DEPTH
85.50 TONS/STA.

AGGREGATE BASE COURSE
(CLASS 7) VAR. COMPACTED DEPTH
46.25 TONS/STA.

NOTES:
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE WITHOUT THE APPROVAL OF THE ENGINEER.

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1 1/2" OF THE PLAN Dimensions. The contractor shall have determined the thickness that will be used. FIELD ELEVATIONS SHALL NOT BE ALTERED WITHOUT THE APPROVAL OF THE ENGINEER.

THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN Laid. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
TYPICAL SECTIONS OF IMPROVEMENT

DETOUR TANGENT

DETOUR SUPERELEVATION
(Pavement section is same as shown above)
1. **Detail for Transitions**

- **Proposed Overlay**
- **Existing Asphalt Pavement Retain and Overlay**
- **Cold Mill Existing Asphalt Pavement**

2. **Detail for Driveway Turnouts (Collectors)**

- **Edge of Pavement**
- **Construction Limits**

**Legend:**
- **Asphalt Concrete Hot Mix Surface Course:** 2200# Bbl. Per Sq. Yd.
- **Aggregate Base Course (Class 7):** 5' Comp. Depth or Conform to Existing Driveway

**Note:** Turnouts and private drives shall be modified where necessary to meet local conditions as directed by the engineer.
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes:

CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.

VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Sewer for Wrapped)

WRAPPED FABRIC ALTERNATE
(Shown for Wrapped, Shaler for Culvert)

GENERAL NOTES


LIVE LOADING: HL-93

All concrete shall be Class 5 with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed concrete to have NVR finishes.

Reinforcing Steel: Grades B and C conforming to AASHTO M326 or M322. Type A, with mild steel reports.

Reinforcing Steel Tolerances: The tolerances for reinforcing shall meet those listed in Manual of Standard Practice published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for bars such as Figure 3 on page 3-4 of the CRSI Manual shall be minus zero to plus 2/8 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 601.

Membrane Waterproofing shall conform to the requirements of Section 403. Membrane Waterproofing shall be Type C, and as directed by the Engineer applied to all construction joints in the top slab and the sidewalks of R.C. Box culverts and to the construction joints between wings 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 allow all reinforcing steel. The drain openings shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

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

Each barrel component of the culvert may be constructed using continuous pour. For larger construction contracts, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless approved by the Engineer. Construction joints between footings and walls shall be made only where shown on the Plans. Joints shall be formed at the centerline of the barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless shown otherwise. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Filter Material shall not be paid for directly but shall be considered a subsidiary to Class 3 Concrete.

When the top slab of the box culvert serves as finished roadway surface, curbing and finishing shall be in accordance with subsections 602.17 and 602.20. for bridge roadway surface and 8.1.51 for Class 3 Treated Bridge Roadway Surface Finish. Curbing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class 3 Bridge Roadway Finish." The Engineer’s Protective Surface Treatment shall be applied to the roadway surface and the work for this item shall be paid for at 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 C 1377 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.

SHEET 1 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

SPECIAL DETAILS
Note: When top side of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.

SPECIAL DETAILS

TYPICAL SECTION M-M

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB DESIGN, BOTTOM SLAB SIMILAR

WINGWALL ATTACHMENT

See "Details of Wingwall" for additional information and wingwall details.

TYPICAL KEYWAY DETAIL

Non-Construction joints.

PART LONGITUDINAL SECTION

Non-Skew End

PART LONGITUDINAL SECTION N-N

Skewed End

SPECIAL DETAILS
STA. 201+70.00  
BEGIN DETOUR

STA. 106+70.00  
BEGIN JOB 110615  
LOG MILE 0.19

STA. 107+50.00  
END JOB 110615

STA. 209+00.00  
END DETOUR

LEGEND

CE • SAND BAG DITCH CHECKS
CM • SEDIMENT BASIN
CF • SILT FENCE

CLEARING AND GRUBBING  
TEMPORARY EROSION CONTROL DETAILS
STAGE 1
TEMPORARY EROSION CONTROL DETAILS

STA. 201+70.00
BEGIN DETOUR

STA. 106+70.00
BEGIN JOB 10615
LOG MILE 0.19

STA. 107+50.00
END JOB 10615

STA. 209+00.00
END DETOUR

LEGEND
- SAND BAG DITCH CHECKS
- SEDIMENT BASIN
- Silt Fence

DATE OF REVISION
REVISION

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

REVISIONS
STA. 201+70.00
BEGIN DETOUR

STA. 106+70.00
BEGIN JOB 110615
LOG MILE 0.19

STA. 107+50.00
END JOB 110615

STA. 209+00.00
END DETOUR

STAGE 2
TEMPORARY EROSION CONTROL DETAILS
SEQUENCE OF CONSTRUCTION

STAGE 1
- Maintain traffic on existing lanes.
- Construct detour and temporary pipes.
- Construct temporary driveway.

STAGE 2
- Shift traffic on to detour.
- Remove existing bridge.
- Construct utilities of R.C. box culvert as shown in plans.
- Construct main lanes.

STAGE 3
- Shift traffic on to main lanes.
- Construct remaining portion of R.C. box.
- Remove detour.

END OF JOB
- Install final lift of surface.
- Install final striping.

NOTE: Turnouts and private drives shall be modified where necessary to meet local conditions if and where directed by the Engineer.

CONSTRUCTION PAVEMENT MARKINGS (MAIN LANES): STA. 103+70 to STA. 110+91, 730 ft.

- 15 vertical panels 30' O.C.
- Traffic drums 20' O.C.

DETAIL FOR STAGE 1 TRAFFIC

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS
SEQUENCE OF CONSTRUCTION

STAGE 1
- Maintain traffic on existing lanes
- Construct detour and temporary pipes
- Construct temporary driveway

STAGE 2
- Shift traffic to detour
- Remove existing bridge
- Construct design of R.C. box culvert as shown in plans
- Construct war lanes

STAGE 3
- Shift traffic to main lanes
- Construct remaining portion of R.C. box
- Remove detour

END OF JOB
- Install final lift of surface
- Install final striping

FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL = 225 LIN. FT.

NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
SEQUENCE OF CONSTRUCTION

STAGE 1
- Maintain traffic on existing lanes
- Construct detour and temporary pipes
- Construct temporary driveway

STAGE 2
- Shift traffic on to detour
- Remove existing bridge
- Construct L.T. side of R.C. Box Culvert as shown in plans
- Construct main lanes

STAGE 3
- Shift traffic on to main lanes
- Construct remaining portion of R.C. Box
- Remove existing bridge
- Construct L.T. side of R.C. Box Culvert as shown in plans
- Construct main lanes
- Remove detour

END OF JOB
- Install final lift of surface
- Install final striping

NOTE:
- Turnouts and private drives shall be modified where necessary to meet local conditions if and where directed by the engineer.

RELOCATING PRECAST CONCRETE BARRIER WALL: 226 LNT.FT.

REMOVAL OF CONSTRUCTION PAVEMENT Markings (Main Lanes):
- STA. 05+50 to STA. 110+15: 792 LIN. FT.
- STA. 08+40 to STA. 80+40: 854 LIN. FT.

CONSTRUCTION PAVEMENT Markings (Main Lanes):
- STA. 05+50 to STA. 80+40: 2884 LIN. FT.
SEQUENCE OF CONSTRUCTION

STAGE 1
- Maintain traffic on existing lanes
- Construct detour and temporary pipes
- Construct temporary driveway

STAGE 2
- Shift traffic on to detour
- Remove existing bridge
- Construct box culvert
- Construct main lanes

STAGE 3
- Shift traffic on to main lanes
- Remove detour

END OF JOB
- Install final lift of surface
- Install final striping

REFLECTORIZED PAINT MARKINGS (MAIN LANES)
- STA 102+00 to STA 112+00
- 6" double yellow centerline = 2000 LF. FT.
- 6" white edge line

PERMANENT PAVEMENT MARKING DETAILS
### ADVANCE WARNING SIGNS AND DEVICES

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>DESCRIPTION</th>
<th>SIGN SIZE</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>STAGE 3</th>
<th>END OF JOB</th>
<th>MAXIMUM NUMBER REQUIRED</th>
<th>TOTAL SIGNS REQUIRED</th>
<th>VERTICAL PANELS</th>
<th>TRAFFIC DRUMS</th>
<th>BARRICADES (TYPE II)</th>
<th>PRECAST CONCRETE BARRIER</th>
</tr>
</thead>
<tbody>
<tr>
<td>W00-1</td>
<td>ROAD WORK 1500 FT.</td>
<td>48&quot;x6&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>TRAFFIC DRUMS</td>
</tr>
<tr>
<td>W01-1</td>
<td>ROAD WORK 1500 FT.</td>
<td>48&quot;x6&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>WS0-1</td>
<td>ROAD WORK 500 FT.</td>
<td>24&quot;x24&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>W1-2</td>
<td>SPEED LIMIT (ADVISE)</td>
<td>15&quot;x15&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>R1-2</td>
<td>ROAD CLOSED</td>
<td>48&quot;x30&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>R2-2</td>
<td>OBJECT MARKER</td>
<td>15&quot;x15&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>D1-3</td>
<td>OBJECT MARKER</td>
<td>15&quot;x15&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>W3-6</td>
<td>LARGE ARROW</td>
<td>48&quot;x24&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>W3-8</td>
<td>CHAINING</td>
<td>10&quot;x10&quot;</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>120</td>
<td>120</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>R4-1</td>
<td>DO NOT PASS</td>
<td>24&quot;x30&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>W5-1</td>
<td>RIGHT SHOULDER CLOSED</td>
<td>30&quot;x24&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>BARRICADES</td>
</tr>
<tr>
<td>W24-1</td>
<td>DOUBLE REVERSE CURVE RT</td>
<td>48&quot;x48&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>TRAFFIC DRUMS</td>
</tr>
<tr>
<td>W25-1</td>
<td>DOUBLE REVERSE OVD. L</td>
<td>48&quot;x48&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>TRAFFIC DRUMS</td>
</tr>
</tbody>
</table>

**NOTE:** This is a low traffic volume road as defined in Section 604.03, Standard Specifications For Highway Construction.

### CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>STAGE 3</th>
<th>END OF JOB</th>
<th>REMOVAL OF PERMANENT MARKINGS</th>
<th>CONSTRUCTION MARKINGS</th>
<th>REMOVAL OF CONSTRUCTION MARKINGS</th>
<th>RAISED MARKERS</th>
<th>REFLECTORIZED PAINT MARKING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIN. FT</td>
<td>EACH</td>
<td>LIN. FT</td>
<td>LIN. FT</td>
<td>LIN. FT</td>
<td>LIN. FT</td>
<td>LIN. FT</td>
<td>LIN. FT</td>
<td>LIN. FT</td>
</tr>
<tr>
<td>REMOVAL OF PERMANENT MARKINGS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1005 1005</td>
<td>1655 1655</td>
<td>6534 6534</td>
<td>1655</td>
<td></td>
</tr>
<tr>
<td>CONSTRUCTION PAVEMENT MARKINGS</td>
<td>730</td>
<td>2920</td>
<td>2884</td>
<td>1655</td>
<td>1655 1655</td>
<td>6534 6534</td>
<td>1655</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1655</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAISED MARKERS TYPE E YEL</td>
<td></td>
<td></td>
<td>13</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** This is a low traffic volume road as defined in Section 604.03, Standard Specifications For Highway Construction.

**Contact the maintenance division after the final lift of surface course has been placed to schedule the zoning of the project.**

### QUANTITIES
### Clearing and Grubbing

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Clearing</th>
<th>Grubbing</th>
</tr>
</thead>
<tbody>
<tr>
<td>107+04</td>
<td>110+01</td>
<td>000' 33</td>
<td>4</td>
</tr>
</tbody>
</table>

**Totals:** 4 4

### Removal and Disposal of Items

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Guardrail</th>
</tr>
</thead>
<tbody>
<tr>
<td>107+00</td>
<td>107+20</td>
<td>94</td>
</tr>
</tbody>
</table>

**Totals:** 94

*Note: The quantities shown above for the removal and disposal of guardrail shall include the removal and disposal of all guardrail terminals and terminal anchor posts.*

### Removal and Disposal of Culverts

<table>
<thead>
<tr>
<th>Station</th>
<th>Description</th>
<th>Pipe Culverts</th>
</tr>
</thead>
<tbody>
<tr>
<td>104+82</td>
<td>18&quot; X 24 CM PIPE CULVERT ON LT.</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total:** 1

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

### Removal of Existing Bridge Structure

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Lump Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>106+97</td>
<td>107+17</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Total:** 0.00

### Earthwork

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Type</th>
<th>Grade</th>
<th>Cubic Yards</th>
</tr>
</thead>
<tbody>
<tr>
<td>107+30</td>
<td>110+91</td>
<td>Excavation</td>
<td>Stage 1 MAIN LANES</td>
<td>2037</td>
</tr>
<tr>
<td>107+70</td>
<td>108+60</td>
<td>Excavation</td>
<td>Stage 2 MAIN LANES</td>
<td>382</td>
</tr>
<tr>
<td>107+70</td>
<td>110+91</td>
<td>Excavation</td>
<td>Stage 3 MAIN LANES</td>
<td>374</td>
</tr>
<tr>
<td>107+82</td>
<td>Approaches</td>
<td></td>
<td></td>
<td>643</td>
</tr>
<tr>
<td>107+105</td>
<td>Channel Change</td>
<td></td>
<td></td>
<td>1460</td>
</tr>
</tbody>
</table>

**Totals:** 7956 8770 100

*Note: Earthwork quantities shown above shall be paid as plan quantity.*

### Soil Log

<table>
<thead>
<tr>
<th>Station</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Location</th>
<th>Depth Limit</th>
<th>Plasticity Index</th>
<th>AASHTO Classification</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>104+00</td>
<td>35 0 33.10 E 91 21 52.10</td>
<td>6' LT. 0-5 47</td>
<td>A-7-6(28)</td>
<td>29 17 A(6,6)</td>
<td>BROWN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>104+00</td>
<td>35 0 33.10 E 91 21 52.10</td>
<td>6' LT. 0-5 47</td>
<td>A-7-6(28)</td>
<td>29 17 A(6,6)</td>
<td>BROWN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>104+00</td>
<td>35 0 33.10 E 91 21 52.10</td>
<td>6' LT. 0-5 47</td>
<td>A-7-6(28)</td>
<td>29 17 A(6,6)</td>
<td>BROWN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Soil characteristics tabulated above are representative of the location of the sample, and from surface indications are typical for the limits shown. These data are shown for information only. The state will not be responsible for variations in the soil characteristics and/or extent of same differing from the above tabulations.**

### Erosion Control Matting

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Length</th>
<th>Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>107+100</td>
<td>107+40</td>
<td>139.00</td>
<td>139.00</td>
</tr>
<tr>
<td>107+20</td>
<td>107+74</td>
<td>139.00</td>
<td>139.00</td>
</tr>
<tr>
<td>107+30</td>
<td>107+95</td>
<td>139.00</td>
<td>139.00</td>
</tr>
<tr>
<td>107+105</td>
<td>107+50</td>
<td>139.00</td>
<td>139.00</td>
</tr>
</tbody>
</table>

**Total:** 592.00

*Note: Average Width = 12'-0"*
## Erosion Control

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Seeding</th>
<th>Lime</th>
<th>Mulch</th>
<th>Water</th>
<th>Second Seeding Application</th>
<th>Temporary Seeding</th>
<th>Mulch</th>
<th>Water</th>
<th>Sand Bag Ditch Checks</th>
<th>Silt Fence</th>
<th>Sediment Removal &amp; Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Project</td>
<td>Clearing and grubbing</td>
<td>ACRE</td>
<td>TON</td>
<td>ACRE</td>
<td>M.GAL</td>
<td>ACRE</td>
<td>ACRE</td>
<td>M.GAL</td>
<td>BAG</td>
<td>LIN. FT</td>
<td>CU.YD</td>
<td>CU.YD</td>
</tr>
<tr>
<td>Entire Project</td>
<td>Stage 1</td>
<td>0.23</td>
<td>0.48</td>
<td>0.23</td>
<td>23.5</td>
<td>0.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entire Project</td>
<td>Stage 2</td>
<td>1.00</td>
<td>2.10</td>
<td>1.09</td>
<td>107.1</td>
<td>1.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entire Project</td>
<td>Stage 3</td>
<td>1.00</td>
<td>2.10</td>
<td>1.09</td>
<td>107.1</td>
<td>1.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entire Project</td>
<td>Be used if and where directed by the engineer</td>
<td>4.00</td>
<td>6.00</td>
<td>4.00</td>
<td>408.0</td>
<td>4.00</td>
<td>4.00</td>
<td>81.6</td>
<td>132</td>
<td>500</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

**Totals:**

| | 5.28 | 18.56 | 5.28 | 538.6 | 5.28 | 6.58 | 6.58 | 134.3 | 374 | 1380 | 848 | 848 | 911 |

### Benchmark Marks

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Benchmark Marks</th>
<th>Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>107+00</td>
<td>Box culvert on LT.</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Total:** 1

*Note: Shown for information only. Must be furnished and placed by State forces.*

### 4" Pipe Underdrain

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th># Pipe Underdrains</th>
<th>Outlet Protectors</th>
<th>Lin. Ft</th>
<th>Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>106+70</td>
<td>107+50</td>
<td>Main lanes</td>
<td></td>
<td>92</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total:** 192

*Note: Quantity estimated.

See Section 104.03 of the Std. Specs.*
## STRUCTURES

<table>
<thead>
<tr>
<th>STATION</th>
<th>DESCRIPTION</th>
<th>TEMPORARY CULVERTS</th>
<th>SPAN</th>
<th>HEIGHT</th>
<th>LENGTH</th>
<th>CLASS 5 CONCRETE ROADWAY</th>
<th>RENDY STEEL ROADWAY (GRADE 50)</th>
<th>UNCL/EXC FOR STR, ROADWAY</th>
<th>SOLID SODDING</th>
<th>WATER</th>
<th>STD. DWG. NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>202+66</td>
<td>DETOUR ONLY</td>
<td>50</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>209+00</td>
<td>DETOUR CROSS DRAIN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>207+20</td>
<td>SOLID SODDING FOR BOX CULVERT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BASIS OF ESTIMATE:**

- 202+66 DETOUR ONLY
- 209+00 DETOUR CROSS DRAIN
- 207+20 SOLID SODDING FOR BOX CULVERT

**STATION DETAILS:**

<table>
<thead>
<tr>
<th>STATION</th>
<th>STRUCTURES OVER 20'-0&quot; SPAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>207+00</td>
<td>10 6 60 130.03 19084 482</td>
</tr>
</tbody>
</table>

**NOTES:**

- SELECTED PIPE BEDDING
- For R.C. pipe culvert installations use Type 2 bedding unless otherwise specified.
- For C.M. pipe culvert installations use Type 2 bedding unless otherwise specified.

## BASE AND SURFACING

<table>
<thead>
<tr>
<th>STATION</th>
<th>LOCATION</th>
<th>LENGTH</th>
<th>AGGREGATE BASE COURSE CLASS T</th>
<th>TACK COAT</th>
<th>ACHM BINDER COURSE (&quot;C&quot;)</th>
<th>ACHM SURFACE COURSE (&quot;I&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(LBS/GAL, PER SQ. YD.)</td>
<td>(SQUAD, SQ. YD.)</td>
<td>(GALLONS)</td>
<td>(AVG. W/B, TON)</td>
</tr>
</tbody>
</table>

**BASIS OF ESTIMATE:**

- Agg. Binder Course ("I")
- ACHM Binder Course ("C")
- Tack Coat Quantities were calculated using the Emulsified Asphalt rates. Refer to S5-405-I for the Residual Asphalt Application Rates.

- For C.M. pipe culvert installations use Type 2 bedding unless otherwise specified.

**SELECTED PIPE BEDDING**

- Location
- Selected Pipe Bedding
- W/ & YD.
- Entire Project to be used if and where directed by the engineer.

**TOTAL:**

- 30

**NOTE:**

- Quantities estimated
- See section 104.05 of the STD. Specs.
### Driveways & Turnouts

<table>
<thead>
<tr>
<th>Station</th>
<th>Side</th>
<th>Location</th>
<th>Width</th>
<th>ACHM Surface Course (1/2&quot;)</th>
<th>Aggregate Base Course (CLASS 7)</th>
<th>Side Drains</th>
<th>Standard Drawings</th>
</tr>
</thead>
<tbody>
<tr>
<td>104+82</td>
<td>LT</td>
<td>Main lanes driveway</td>
<td>16</td>
<td>140.16</td>
<td>15.42</td>
<td>57.23</td>
<td>48</td>
</tr>
<tr>
<td>202+86</td>
<td>LT</td>
<td>Temporary driveway on detour</td>
<td>16</td>
<td>48.68</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Full project temporary driveways: 50.00

**TOTALS:** 140.16 15.42 135.71 48

**Basis of Estimate:**
- ACHM Surface Course (1/2") 94.7% MN Aggr. 5.3% Asphalt Binder
- Maximum number of gyrations = 115 for PG 64-22

*Quantity Estimated:
- See Section 104.03 of the Std. Specs.
- To be used if and where directed by the engineer.

**Note:** For R.C. Pipe Culvert installations use Type 3 bedding unless otherwise specified.

**Note:** For C.M. Pipe Culvert installations use Type 2 bedding unless otherwise specified.

### Asphalt Concrete Patching for Maintenance of Traffic

<table>
<thead>
<tr>
<th>Location</th>
<th>Tonnage</th>
<th>Tack Coat Gallon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire project to be used if and where directed by the engineer</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total:** 1 2

**Basis of Estimate:**
- Asphalt concrete patching for maintenance of traffic...25 TON/MILE
- Tack coat for maintenance of traffic...50 GAL/MILE

**Note:** Quantities are estimated.

**See Section 104.03 of the Std. Specs.**

### Cold Milling Asphalt Pavement

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Avg. Width</th>
<th>Cold Milling Asphalt Pavement</th>
</tr>
</thead>
<tbody>
<tr>
<td>105+70.00</td>
<td>Main lanes</td>
<td>20.00</td>
<td>444.44</td>
</tr>
<tr>
<td>106+70.00</td>
<td>Main lanes</td>
<td>20.00</td>
<td></td>
</tr>
<tr>
<td>107+50.00</td>
<td>Main lanes</td>
<td>20.00</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Average milling depth 1".

### ACHM Patching of Existing Roadway

<table>
<thead>
<tr>
<th>Description</th>
<th>Tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire project to be used if and where directed by the engineer</td>
<td>50</td>
</tr>
</tbody>
</table>

**Total:** 50

**Note:** Quantity estimated.

**See Section 104.03 of the Std. Specs.**
SURVEY CONTROL COORDINATES

Project Name: a10615
Date: 2/7/2017
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL
PROJECTED TO GROUND.

Unit: U.S. SURVEY FOOT

<table>
<thead>
<tr>
<th>Point</th>
<th>Name</th>
<th>Northing</th>
<th>Easting</th>
<th>Elev</th>
<th>Feature Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>245830.2987</td>
<td>1504006.1686</td>
<td>176.925</td>
<td>CTL</td>
<td>5/8&quot; Rebar with 2&quot; Aluminum Cap STAMPED Ph1</td>
</tr>
<tr>
<td>2</td>
<td>246096.2358</td>
<td>1505565.6966</td>
<td>180.684</td>
<td>CTL</td>
<td>5/8&quot; Rebar with 2&quot; Aluminum Cap STAMPED Ph1</td>
</tr>
</tbody>
</table>

**SURVEY CONTROL DETAILS**

**SURVEY CONTROL COORDINATES**

**Name**

**Northing**

**Easting**

**Elev**

**Feature Description**

---

**Note:** Rebar and Cap - Standard: 5/8" Rebar with 2" Aluminum Cap stamped

*standard markings common to all cases; or as indicated

Other markings indicated in the point description of the individual point.

---

A PROJECT CAF OF 0.9999771127 HAS BEEN USED TO Compute THE ABOVE GROUND COORDINATES. THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.

---

GRID COORDINATES ARE STORED UNDER FILE NAME a10615.sct

---

HORIZONTAL DATUM NAD 83 (1997)

VERTICAL DATUM NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE.

---

REFERENCE POINTS (500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED. REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL.

---

BASIS OF BEARINGS:

ARKANSAS STATE PLANE GRID BEARINGS - 3031-NORTH ZONE

**CONVERGENCE ANGLE** 0°-22'-11" RIGHT AT LK 35-03-58 Lk 091-21-55

GRID AZIMUTH + ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

---

**PROJECTED TO GROUND**

---

**DETOUR**

---

**SURVEY CONTROL DETAILS**
**GENERAL NOTES**

1. PIPE SHALL CONFORM TO AASHTO M294. TYPE 5 INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CURRENT EDITION.

2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO ASHTO CULVERT DESIGN SPECIFICATIONS (CAST IRON, CAST STEEL, ETC.) WITH ZINC MATERIALS.

3. THE MINIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WITH PLUS A SUITABLE MARGIN TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT MACHINERY AND OTHER BACKFILL MATERIALS.

4. MACHINERY MATERIALS SHOULD BE PLACED AS DIRECTED BY THE ENGINEER. AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERIODIC MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.

5. WHEN DIRECTED BY THE ENGINEER, UNSTABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH SHOULD BE REPLACED WITH "STRUCTURAL BEDDING" MATERIAL AS EXCAVATED. UNSTABLE MATERIAL THAT IS ENCOUNTERED AT THE MIDDLE OF THE EXCAVATED TRENCH SHOULD BE REPLACED WITH "STRUCTURAL前の undocumented" MATERIAL AS EXCAVATED. UNSTABLE MATERIAL THAT IS ENCOUNTERED AT THE TOP OF THE EXCAVATED TRENCH SHOULD BE LEFT AS IS IN PLACE.

6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSTABLE, UNSTABLE MATERIAL THAT IS ENCOUNTERED AT THE MIDDLE OF THE EXCAVATED TRENCH SHOULD BE REPLACED WITH "STRUCTURAL previously undocumented" MATERIAL AS EXCAVATED. UNSTABLE MATERIAL THAT IS ENCOUNTERED AT THE TOP OF THE EXCAVATED TRENCH SHOULD BE LEFT AS IS IN PLACE.

7. FOR PIPE TYPES THAT ARE NOT SMASHED ON THE OUTSIDE (DURABLOK OR PROFILE MULTI-PIPE), INSTALLATION IN THE EXCAVATION SHOULD BE SELECTED THAT WILL OMIT THE INSTALLATION OF PROFILE VALLEY.

8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN SHALL BE ALLOWED.

9. JOINTS FOR PIPE WITH JOINTS SHALL MEET THE REQUIREMENTS FOR SOIL USED AS SHOWN IN ASHTO SECTION 610A AND OTHER "ASBESTOS-CEMENT PIPE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
INSTALLATION

TYPE J

**SELECTED MATERIALS**

- **Aggregates**
  - Material requirements for asphalt concrete aggregates are specified in "Asphalt Concrete Aggregates" in the Standard Specifications for Highway Construction.

**Structural Bedding Material**

- Must be selected in accordance with the requirements of "Asphalt Concrete Aggregates" in the Standard Specifications for Highway Construction.

- The selected material shall have a maximum particle size of 4.76 mm (No. 4) in size. The size of the aggregate may be increased to accommodate a greater than 4.76 mm (No. 4) size of aggregate, provided the final size of the aggregate is equal to or less than 20 mm (No. 10) size of aggregate.

MINIMUM TRENCH WIDTH BASED ON FILIP HEIGHT "H"

<table>
<thead>
<tr>
<th>Trench Width</th>
<th>Pipe Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>3' 0&quot; - 5' 0&quot;</td>
<td>6&quot; 10-0&quot;</td>
</tr>
<tr>
<td>5' 0&quot; - 6' 0&quot;</td>
<td>8&quot; 12-0&quot;</td>
</tr>
<tr>
<td>6' 0&quot; - 8' 0&quot;</td>
<td>10&quot; 14-0&quot;</td>
</tr>
</tbody>
</table>

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

<table>
<thead>
<tr>
<th>Pipe Diameter</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>8&quot;</td>
<td>1' 0&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>1' 0&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>1' 0&quot;</td>
</tr>
</tbody>
</table>

MINIMUM COVER FOR CONSTRUCTION LOADS

<table>
<thead>
<tr>
<th>Pipe Diameter</th>
<th>Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>8&quot;</td>
<td>4'-0&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>5'-0&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>6'-0&quot;</td>
</tr>
</tbody>
</table>

MULTIPLE INSTALLATION OF PVC PIPES

<table>
<thead>
<tr>
<th>Pipe Diameter</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>2'-0&quot;</td>
</tr>
</tbody>
</table>

GENERAL NOTES

1. Design shall conform to the "AASHTO - FIP 84" standard specifications for highway construction current edition.
2. Structural pipe culvert design shall conform to the "AASHTO - LRP 84" standard specifications, fifth edition, when used with underground utilities.
3. The minimum pipe size, trench width, and cover shall be the minimum with plus a sufficient buffer to ensure working room to properly fulfill safety and compacting of other backfill and structural bedding material.
4. Inert material shall be placed as directed by the engineer. At the ends of the culvert to prevent loss of structural bedding material when excavated material is used for structural bedding and/or backfill. The minimum pipe size, trench width, and cover shall be the minimum with plus a sufficient buffer to ensure working room to properly fulfill safety and compacting of other backfill and structural bedding material.
5. When the existing material excavated for the trench is determined by the engineer to be unacceptable for backfilling, the area identified as structural bedding material shall be excavated and replaced with material that is suitable for structural bedding. The area identified as structural bedding material shall be excavated and replaced with material that is suitable for structural bedding. The area identified as structural bedding material shall be excavated and replaced with material that is suitable for structural bedding. The area identified as structural bedding material shall be excavated and replaced with material that is suitable for structural bedding. The area identified as structural bedding material shall be excavated and replaced with material that is suitable for structural bedding. The area identified as structural bedding material shall be excavated and replaced with material that is suitable for structural bedding. The area identified as structural bedding material shall be excavated and replaced with material that is suitable for structural bedding. The area identified as structural bedding material shall be excavated and replaced with material that is suitable for structural bedding.
6. PVC pipes of diameters other than shown will not be allowed. PVC pipes of diameters other than shown will not be allowed.

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. The structural bedding shall be placed and compacted in increments not exceeding the maximum compacting thickness identified in the AASHTO LRFD Specification for Highway Construction. The compacting thickness for the backfill shall be determined by the engineer.
5. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process. PVC pipe shall not be damaged during the installation process.

LEGEND

- **M** = Fill Height (ft.)
- **D** = Outside diameter of pipe
- **H** = Fill Height (ft.)
- **W** = Maximum Width
- **ML** = Minimum
- **S** = Structural Bedding Material
- **S** = Undisturbed Soil

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT

(PVC F949)

STANDARD DRAWING PCP-2
NOTES:
1. REFER TO THE STRIPLING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION 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.

CONCRETE PAVEMENT

BROKEN LINE STRIPLING

ASPHALT PAVEMENT

SOLID LINE STRIPLING ON CONCRETE PAVEMENT

SOLID LINE STRIPLING ON ASPHALT PAVEMENT

CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LAKES

ASPHALT PAVEMENT

PAVEMENT EDGE LINE MARKING

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1
NOTE:
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THROUGHBLY COMPACTED EARTH AND SHALL BE SUBSIDY TO PIPE UNDERDRAIN.
2. CRANLAR MATERIAL SHALL BE WRAPPED ON THE WIDTH OF THE FRENCH AT THE TOP.

UNDERDRAIN COVER WHERE REQUIRED

CRANLAR MATERIAL

DRAIN PIPE ON GRADE

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 69 FOR TYPE I PAVEMENT FOR GEOTEXTILE FABRIC AND CRANLAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" ACCORDING WITH SECTION 69 OF THE STANDARD SPECIFICATIONS.

2. "4" NON-PERFORATED SCHEDULE 40 PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREIN. LATERALS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 69 OF THE STANDARD SPECIFICATIONS. UNDERDRAIN PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 69 OF THE STANDARD SPECIFICATIONS.

3. EXISTING "4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROPS HOLE(S) OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP HOLE(S) SHALL BE INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH "4" X "2" PERMANENT MARKING TAPE (TYPE B800) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED VERTICAL TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID EACH FOR "UNDERDRAIN OR SCREEN".

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND SUBMIT THE LIENSED HOLE OR INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

D-4-96
ADDED NOTES FOR PIPE UNDERDRAINS. REMOVED RODENT SCREEN DETAIL AND NOTES. ADDED NOTE FOR GEOTEXTILE FABRIC.

D-10-90
REVISED NOTES.

D-15-96
REVISED NOTES.

D-4-05-99
REVISED DETAILS OF UNDERDRAIN LATERAL.

E-1-98
REVISED NOTES.

D-15-99
REVISED DETAILS OF UNDERDRAIN LATERAL.

E-1-99
REVISED DETAILS OF UNDERDRAIN LATERAL.

H-1-99
REVISED DETAILS OF UNDERDRAIN LATERAL.

ARMSK STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN LATERAL WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PIPE LATERAL SHALL BE CONNECTED TO THE REQUIREMENTS OF ASTM D 1785 LATEST REVISION FOR SCHEDULE 40 PIPE.
STRENGTH:

- TOLERANCES FOR REINFORCEMENT SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER.
- THE TOLERANCES FOR ALL BARS SHALL BE IN ACCORDANCE WITH STANDARD DIAGRAM R.C. BOX CULVERTS.

REINFORCED CONCRETE BOX CULVERT HEADWALL MODIFICATIONS

- ADD BENT BAR "P" CUT AS REQUIRED.

NOTES:


ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1
**Arkansas State Highway Commission**

**Excavation Pay Limits, Backfill, & Solid Sodding for Box Culverts**

**Standard Drawing RCB-2**

**Section B-B Details for New Channels**

**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 locations. It will be paid to the limits shown and shall be confined to that portion of the indicated area that is below the channel flow line. Roadway excavation shown in Section C-C above is subsidiary and will not be measured separately, but payment will be considered to be included in the various items of excavation.

**Section C-C Details**

**Plan**
Partial section showing solid sodding at headwalls and wing walls.

**Longitudinal Section**
Backfill details for box culvert.

**Note:** Length measured along the center of 2'-0" strip of solid sodding.
### Table: Super-elevation Table for Two-Way Traffic

<table>
<thead>
<tr>
<th>Degree of Curve</th>
<th>MIN</th>
<th>DESIRABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>100°</td>
<td>175</td>
<td>200</td>
</tr>
<tr>
<td>115°</td>
<td>175</td>
<td>225</td>
</tr>
<tr>
<td>125°</td>
<td>175</td>
<td>250</td>
</tr>
</tbody>
</table>

### Notes

1. On pavement with two-way traffic, the super-elevation shall be revolved on the inside pavement edge unless otherwise noted on the plans.
2. Super-elevation values shown on the cross sections are values at 1/4 or 1/2 to be added to or subtracted from the point of control.
3. Lengths for L may be rounded in multiples of 25 ft or 50 ft.
4. All paved surfaces with 2 lanes shall have additional transition lengths as follows:
   - Lane Width: 4 ft: 200 ft
   - Lane Width: 5 ft: 400 ft
   - Lane Width: 6 ft: 800 ft

---

### Diagram: Standard Method When Super-elevation Revolves Around Center Line

- **Outside Subgrade Edge**
- **Inside Subgrade Edge**
- **Outside Pavement or Subgrade Edge**
- **Theoretical Profile**
- **Actual Profile**

---

### General Notes

- On pavement with two-way traffic, the super-elevation shall be revolved on the inside pavement edge unless otherwise noted on the plans.
- Super-elevation values shown on the cross sections are values at 1/4 or 1/2 to be added to or subtracted from the point of control.
- Lengths for L may be rounded in multiples of 25 ft or 50 ft.

---

### Terms & Abbreviations

- **NC**: Normal Crown
- **RC**: Reverse Crown
- **L**: Length of Super-elevation Transition (ft)
- **a**: Rate of Super-elevation (ft per ft)
- **S**: Normal Crown at any point (ft)
- **C**: Normal Crown at the end of super-elevation transition (ft)

---

### Note: Maintain normal crown on inside until super-elevation exceeds 2C.
BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

**Offset Distance for Two Way Traffic Only**

No Scale

Traffic Lane

**Offset Distance**

<table>
<thead>
<tr>
<th>Offset Distance Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed (MPH)</td>
</tr>
<tr>
<td>1.5</td>
</tr>
<tr>
<td>2.5</td>
</tr>
</tbody>
</table>

If offset distance is not attainable, then see "Barrier Placement With Attenuator" detail shown below.

BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

**Offset Distance**

<table>
<thead>
<tr>
<th>Offset Distance Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed (MPH)</td>
</tr>
<tr>
<td>1.5</td>
</tr>
<tr>
<td>2.5</td>
</tr>
</tbody>
</table>

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."

ARканSSA STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-5
**SEDIMENT BASIN WITH RIPRAP OUTLET (E-8)**

**SEDIMENT BASIN WITH PIPE OUTLET (E-18)**

**DIVERSION DITCH (E-8B)**

**SLOPE DRAIN (E-12)**

**SEDIMENT BASIN (E-14)**

**NOTE:**
Size of basin to be determined by volume required; however, a minimum length-to-width ratio of 2:1 shall be used.

**NOTE:**
Size of basin to be determined by volume required; however, a minimum length-to-width ratio of 2:1 shall be used.

**NOTE:**
Pipe outlet shall be used for one-directional flow.

**NOTE:**
Section shall be used at the inlet for directional flow. An flow pipe may be used for one-directional flow.

**RESTAURANT EROSION CONTROL DEVICES**

**STANDARD DRAWING TEC-2**

ARKANSAS STATE HIGHWAY COMMISSION
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
EXISTING GROUND

NOTE: NUMBER OF PHASES WILL VARY, ILLUSTRATION SHOWN FOR ILLUSTRATION.

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

CONSTRUCTION SEQUENCE
1. EXCAVATE AND STABILIZE INTERCEPTOR AND/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, PLACE INTERCEPTOR DITCHES, SIDE DITCHES, CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT

EMBANKMENT TO BE IN PLACE UNTIL SLOPE IS COMPLETELY STABILIZED.

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

CONSTRUCTION SEQUENCE
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 PHASE 3 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
5. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.

ARKANSAS STATE HIGHWAY COMMISSION
TEMPORARY EROSION CONTROL DEVICES

S-23.24 LEECH, ROY
DATE 3-2-74
S-23.34 SASKAY, PAUL
REVISION 5-2-74
STANDARD DRAWING TEC-3