"A PARTIALLY CONTROLLED ACCESS FACILITY"

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

SILOAM SPRINGS - TONTITOWN (SEL. SECS.)
(CABLE MEDIAN BARRIER) (S)

BENTON AND WASHINGTON COUNTY
ROUTE 412 SECTION 1 & 2

JOB 012169

FED. AID PROJ. HSIP-0472(5)

STA. 132+81
BEGIN JOB 012169
LOG MILE 4.83

STA. 1719+75
END JOB 012169
LOG MILE 2.44

EQUATIONS

1. EQUATION POT
STA. 502+25, 00 BK, +
STA. 1496+25, 76 AND,

2. EQUATION PT
STA. 1571+71, 45 BK, +
STA. 1571+92, 67 AND,

3. EQUATION POT
STA. 1698+91, 30 BK, +
STA. 1697+43, 72 AND,

EXCEPTIONS

STA. 255+20 STA. 256+90 [170']
STA. 309+12 STA. 323+19 [1407']
STA. 381+67 STA. 367+71 [604']
STA. 488+60 STA. 502+25 [1365']
STA. 1496+25, 76 STA. 1496+59 [23, 24']
STA. 1625+18 STA. 1627+41 [223']
TOTAL LENGTH OF EXCEPTIONS = 3792.24'

BEGINNING OF PROJECT MID-POINT OF PROJECT END OF PROJECT
LAT. + N 36°10'50" LAT. + N 36°10'18"
LONG. + W 94°29'07" LONG. + W 94°23'21"

GROSS LENGTH OF PROJECT = 5940.80 FEET OR 1.1250 MILES
NET = AGGREGATE 5560.50 NET = BRIDGES 0.00
NET = PROJECT 5560.50 NET = PROJECT 0.00

P.E. 0269

6/1/2002 6:30
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**GENERAL NOTES**

1. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.

2. 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.

3. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.

4. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.

5. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, 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.

6. ANY REQUIRED EROSION CONTROL MEASURES FROM WASTING MATERIAL SHALL BE AT THE CONTRACTOR'S EXPENSE.

**INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES**

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**INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES**
TYPICAL SECTION OF IMPROVEMENT

WIRE ROPE SAFETY FENCE ON EASTBOUND LANES FORESLOPE

** 3 LANES EASTBOUND & 20'-0" MEDIAN FROM STA 263+03 TO STA 324+03 TO STA 361+00 TO STA 422+85.
STA 263+03 TO STA 288+10 STA 289+00 TO STA 296+50
STA 296+50 TO STA 308+50 STA 309+50 TO STA 319+50
STA 319+50 TO STA 325+40 STA 326+40 TO STA 332+90
STA 332+90 TO STA 344+60 STA 345+60 TO STA 346+50
STA 346+50 TO STA 361+00 STA 362+00 TO STA 368+85
STA 368+85 TO STA 378+40 STA 378+40 TO STA 386+85
STA 386+85 TO STA 395+85 STA 396+85 TO STA 400+50
STA 400+50 TO STA 408+50 STA 409+50 TO STA 422+85.

MEDIAN VARIES FROM STA 288+10 TO STA 361+00 TO STA 422+85.

TYPICAL SECTION OF IMPROVEMENT

WIRE ROPE SAFETY FENCE ON WESTBOUND LANES FORESLOPE

** 3 LANES WESTBOUND & 20'-0" MEDIAN FROM
STA 288+10 TO STA 361+00 STA 362+00 TO STA 386+85
STA 386+85 TO STA 400+50 STA 401+00 TO STA 408+50
STA 408+50 TO STA 422+85 STA 423+03 TO 428+03
STA 428+03 TO STA 434+50 STA 434+50 TO STA 447+00
STA 447+00 TO STA 451+50 STA 452+50 TO STA 455+00
STA 455+00 TO STA 458+00 STA 459+00 TO STA 460+00
STA 460+00 TO STA 462+50 STA 463+50 TO STA 466+50
STA 466+50 TO STA 468+50 STA 469+00 TO 500+00.

MEDIAN VARIES FROM STA 288+10 TO STA 361+00 TO STA 422+85.
DETAIL OF WIRE ROPE SAFETY FENCE AT EXISTING BRIDGE ENDS

EXACT CONFIGURATION MAY VARY DEPENDING ON WHICH FORESLOPE THE WRSF IS LOCATED. SEE PLAN FOR LOCATION OF WRSF.

CABLE ANCHOR FOOTING
SEE PLAN FOR LOCATION.

DETAIL OF WIRE ROPE SAFETY FENCE AT EXISTING MEDIAN CROSSINGS

EXISTING CLASS T AGGREGATE TO REMAIN IN PLACE.
CLASS T AGGREGATE EXCAVATED FOR WRSF TO BE PLACED OR REMOVED IF AND WHERE DIRECTED BY THE ENGINEER.

SOLID SODDING DETAIL

SPECIAL DETAILS
TEMPORARY EROSION CONTROL DETAILS STA. 1660+00 - STA. 1715+00
TEMPORARY EROSION CONTROL DETAILS STA. 1715+00 - STA. 1725+00
NOTE:

W-20 (VARIOUS DISTANCE) ADVANCE SIGNS
TO BE REPLACED AS NEEDED BY EQUIVALENT W-20-5 SIGNS
AS WORKING AREA SHIFTS.

Portable Changeable Message Sign
To be used if and where directed by the engineer.

Advance Signs at Beginning and End of Job
All Stages

Maintenance of Traffic
Advance Signs at Job Ends
I9 TRAFFIC DRUMS

TRAFFIC DRUMS @ 60" O.C.
840' TAPER FOR LANE CLOSURE

TRAFFIC DRUMS @ 100" O.C.
500' STABILIZING ZONE

MATCH LINE 1

ADVANCE WORK ZONE

MATCH LINE 2

TRAFFIC DRUMS @ 60" O.C.
720' DIRECTED LANE TO CLEAR
LT. LANE WORK AREA

26 TRAFFIC DRUMS

RT. LANE CLOSURE

DIVERSION FOR LT. LANE WORK ZONE

NOTE: ANY WORK ZONE OUTSIDE THE LIMITS OF THE LANE CLOSURE AREA MUST HAVE PRIOR WRITTEN APPROVAL OF THE ENGINEER AND ANY ADDITIONAL TRAFFIC CONTROL DEVICES REQUIRED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE DEPARTMENT.

MATCH LINE 3

TRAFFIC DRUMS @ 160" X 30"
EVENLY SPACED ON TAPER

MATCH LINE 4

NOTE: MAINTAIN MINIMUM 12" LANE WIDTH ON LANE REMAINING OPEN

CABLE MEDIAN BARRIER MAINTENANCE OF TRAFFIC LANE CLOSURE

NOTES REFER TO SP: MAINTENANCE OF TRAFFIC FOR LANE CLOSURE LIMITATIONS AND RESTRICTIONS. QUANTITY OF TRAFFIC DRUMS PROVIDED IN THE CONTRACT IS THE MAXIMUM NUMBER REQUIRED FOR ONE LANE CLOSURE.
**CABLE MEDIAN BARRIER**

**MAINTENANCE OF TRAFFIC**

**WORK AREAS**

---

**INTERSECTION WITHIN MOBILE WORK ZONE FOR WRSF INSTALLATION**

---

**NOTE:** Any work zone outside the limits of the lane closure area must have prior written approval of the engineer, and any additional traffic control devices required shall be provided at no additional cost to the department.

---

**MAX. 2 MILE WORK AREA WILL TAKE 20 TRAFFIC DRUMS EACH SIDE.**

**TRAFFIC DRUMS 50' O.C. IN CLOSED LANE.**

**TRAFFIC DRUMS 50' O.C. ON OPPOSITE MEDIAN SHOUNDER.**

**1000' ACCEL LANE FOR WORK TRUCKS.**

**500' BUFFER**

**TRAFFIC DRUMS 500' O.C. 5 EACH.**

**INSTALL WIRE ROPE SAFETY FENCE IN MEDIAN.**

**NOTE:** Maintain minimum 1/2' lane width on lane remaining open.

**EXISTING 60'-0" MEDIAN**

**WIRE ROPE SAFETY FENCE**

**EXISTING SLOPE**

**EXISTING SLOPE OR ADJUST TO 6% OR FLATTER.**

**4'-0" LINES ON LANE RETAIN.**

**6'-0" CONCRETE CHAINLINK FENCE (TYPE B).**

---

**MOVABLE WORK ZONE FOR WRSF INSTALLATION**

---

**LANES OPEN - SHOULDER CLOSED**

**RIGHT LANE OPEN**

---

**500'-0" TAPER**

**TRAFFIC DRUMS 50'-0" O.C.**

**TRAFFIC DRUMS 25'-0" O.C.**

**NOTE:** Maintain minimum 1/2' lane width on lane remaining open.

---

**50'-0" WORK ZONE AT INTERSECTION**

---

**6 ADDITIONAL TRAFFIC DRUMS REQUIRED IN EACH INTERSECTION WORK ZONE.**

---

**NOTE:** Refer to SP - MAINTENANCE OF TRAFFIC FOR LANE CLOSURE LIMITATIONS AND RESTRICTIONS. QUANTITY OF TRAFFIC DRUMS PROVIDED IN THE CONTRACT IS THE MAXIMUM NUMBER REQUIRED FOR ONE LANE CLOSURE.
ADVANCE WARNING SIGNS AND DEVICES

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<th>TOTAL SIGNS REQUIRED</th>
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<td>V02-1</td>
<td>ROAD WORK 1 MILE</td>
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<td>LARGER ARROW</td>
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TRAFFIC DRUMS

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ADVANCE WARNING ARROW PANEL

- 50

PORTABLE CHANGEABLE MESSAGE SIGN

- 42

TOTALS:

- 118.5
- 574
- 50
- 42

This is a high traffic volume road as defined in Section 604-03, standard specifications for highway construction, 2003 edition.

EROSION CONTROL

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<td>*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER</td>
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TOTALS:

- 10.60
- 21.2
- 10.60
- 1081.2
- 10.60
- 2150
- 927
- 141

BASE OF ESTIMATE:

LIME:...2 TONS/ACRE OF SEEDING
WATER:...102.0GAL/ACRE OF SEEDING
SAND BAG DITCH CHECKS:...20 BAGS/LOCATION
DROP INLET SILT FENCE:.....18 UN FT/LOCATION

NOTE: The temporary erosion control devices shown above and on the plans shall be installed in such a sequence as to deter erosion and sedimentation on U.S. waterways as explained by the national pollutant discharge elimination system permit.

*QUANTITIES ARE ESTIMATED. SEE SECTION 104-03 OF THE STANDARD SPECIFICATIONS.

QUANTITIES
EARTHWORK

STATION  STATION  LOCATION  COMPACTED EMBANKMENT

ENTIRE PROJECT  AS DIRECTED BY THE ENGINEER  500 *

TOTAL:  500

* QUANTITIES ARE ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

WIRE ROPE SAFETY FENCE

STATION  STATION  LOCATION  WIRE ROPE SAFETY FENCE  WRSF ANCHOR*  WRSF MAINTENANCE MATERIALS

LIN FT  EACH  LUMP SUM

132+81.00  148+30.00  HWY. 412 CL MEDIUM LT  1349  2

147+83.00  173+00.00  HWY. 412 CL MEDIUM LT  2517  2

174+00.00  199+44.00  HWY. 412 CL MEDIUM RT  2544  2

200+28.00  225+84.00  HWY. 412 CL MEDIUM RT  3548  2

226+75.00  251+00.00  HWY. 412 CL MEDIUM RT  2944  2

256+90.00  281+06.00  HWY. 412 CL MEDIUM LT  916  2

281+50.00  306+85.00  HWY. 412 CL MEDIUM LT  2705  2

286+27.00  309+12.00  HWY. 412 CL MEDIUM LT  1280  2

323+18.00  349+04.00  HWY. 412 CL MEDIUM LT  630  2

330+47.00  355+56.00  HWY. 412 CL MEDIUM LT  2507  2

358+75.00  382+57.00  HWY. 412 CL MEDIUM LT  2482  2

387+13.00  408+00.00  HWY. 412 CL MEDIUM LT  1734  2

406+05.00  427+88.00  HWY. 412 CL MEDIUM LT  2180  2

428+25.00  449+02.00  HWY. 412 CL MEDIUM LT  3998  2

470+13.00  488+81.00  HWY. 412 CL MEDIUM RT  1847  2

496+59.00  513+04.00  HWY. 412 CL MEDIUM RT  741  2

535+49.00  553+25.00  HWY. 412 CL MEDIUM RT  2885  2

553+87.00  561+21.00  HWY. 412 CL MEDIUM RT  2534  2

562+73.00  569+88.00  HWY. 412 CL MEDIUM RT  2805  2

590+00.00  618+95.00  HWY. 412 CL MEDIUM RT  2895  2

619+96.00  635+18.00  HWY. 412 CL MEDIUM RT  522  2

637+41.00  655+50.00  HWY. 412 CL MEDIUM RT  2309  2

651+75.00  667+54.00  HWY. 412 CL MEDIUM RT  2509  2

667+75.00  704+57.00  HWY. 412 CL MEDIUM RT  2829  2

710+67.00  717+75.00  HWY. 412 CL MEDIUM RT  1368  2

ENTIRE PROJECT  1.00

TOTALS:  53298  50  1.00

* THIS ITEM SHOWN FOR INFORMATION ONLY.

CONCRETE DITCH PAVING

STATION  STATION  LOCATION  LENGTH  WIDTH  CONC. DITCH PAVING (TYPE B)  SOLID SODDING  WATER

FEET  FEET  SQ YD  M/GAL

132+81.00  148+30.00  HWY. 412 CL MEDIUM LT  1349  4  600  300  3.8

147+83.00  173+00.00  HWY. 412 CL MEDIUM LT  2517  4  1119  559  7.8

174+00.00  199+44.00  HWY. 412 CL MEDIUM RT  2544  4  1137  591  7.1

200+28.00  225+84.00  HWY. 412 CL MEDIUM RT  3548  4  1120  691  7.1

226+75.00  251+00.00  HWY. 412 CL MEDIUM RT  2944  4  1264  632  8.0

256+90.00  281+06.00  HWY. 412 CL MEDIUM LT  916  4  407  204  2.8

281+50.00  306+85.00  HWY. 412 CL MEDIUM LT  2705  4  1322  661  7.6

286+27.00  309+12.00  HWY. 412 CL MEDIUM LT  1280  4  571  286  3.6

323+18.00  349+04.00  HWY. 412 CL MEDIUM LT  630  4  282  141  1.8

330+47.00  355+56.00  HWY. 412 CL MEDIUM LT  2507  4  1114  557  7.0

358+75.00  382+57.00  HWY. 412 CL MEDIUM LT  2482  4  1108  554  7.0

387+13.00  408+00.00  HWY. 412 CL MEDIUM LT  1734  4  771  385  4.9

406+05.00  427+88.00  HWY. 412 CL MEDIUM LT  2180  4  969  484  6.1

429+55.00  449+02.00  HWY. 412 CL MEDIUM LT  3995  4  1777  888  11.2

470+13.00  488+81.00  HWY. 412 CL MEDIUM LT  1847  4  621  310  5.2

496+59.00  513+04.00  HWY. 412 CL MEDIUM LT  741  4  329  165  2.1

535+49.00  553+25.00  HWY. 412 CL MEDIUM RT  2885  4  1282  641  8.1

553+87.00  561+21.00  HWY. 412 CL MEDIUM RT  2534  4  1126  563  7.1

562+73.00  569+88.00  HWY. 412 CL MEDIUM RT  2805  4  1158  579  7.3

590+00.00  618+95.00  HWY. 412 CL MEDIUM RT  2895  4  1267  643  8.1

619+96.00  635+18.00  HWY. 412 CL MEDIUM RT  522  4  232  116  1.5

637+41.00  655+50.00  HWY. 412 CL MEDIUM RT  2309  4  1026  513  6.5

651+75.00  667+54.00  HWY. 412 CL MEDIUM RT  2509  4  1115  558  7.0

667+75.00  704+57.00  HWY. 412 CL MEDIUM RT  2829  4  1257  629  7.9

710+67.00  717+75.00  HWY. 412 CL MEDIUM RT  1368  4  608  304  3.8

TOTALS:  23668  11843  149.4

BASIS OF ESTIMATE:

WATER. .................................... 12.6 GAL / SQ YD. OF SOLID SODDING.
### SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY</th>
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<tr>
<td>210</td>
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<tr>
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<td>SIGNS</td>
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<td>SQ FT</td>
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<td>SS &amp; 604</td>
<td>TRAFFIC DRUMS</td>
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<td>622</td>
<td>SEEDING</td>
<td>10.00</td>
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</tr>
<tr>
<td>620</td>
<td>MULCH COVER</td>
<td>10.00</td>
<td>ACRE</td>
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<tr>
<td>SS &amp; 620</td>
<td>WATER</td>
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<td>GAL</td>
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<td>DROP INLET SILT FENCE</td>
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<td>SP</td>
<td>WIRE ROPE SAFETY FENCE MNTN MATERIALS</td>
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### REVISIONS

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<th>DATE</th>
<th>REVISION</th>
<th>SHEET NUMBER</th>
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</tbody>
</table>

SUMMARY OF QUANTITIES & REVISIONS
TOE WALL DETAIL FOR CONCRETE DITCH PAVING

GENERAL NOTES:

- The full width of each section shall be poured monolithically.
- Toe walls to be constructed full width at each end of ditch paving, and poured monolithically.
- Solid sod along ditch paving to be placed within 14 days of ditch paving construction.
- A 2-inch transverse expansion joint shall be placed in concrete ditch paving at 40 intervals. The space shall be filled with approved joint filler complying with AASHTO M213.

ENERGY DISSIPATORS

The steel and additional concrete for toe walls shall not be specified for toe walls, and the full width of each toe wall shall be poured monolithically.

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. The dissipators will not be placed directly but shall be considered to be included in the precast bed for concrete ditch paving.

NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED.

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. The dissipators will not be placed directly but shall be considered to be included in the precast bed for concrete ditch paving.

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1
DETAILS OF WIDENING FOR GUARD RAIL

SECTION A-A

SECTION B-B

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY

METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-9A
### CORRUGATED STEEL PIPE (ROUND)

<table>
<thead>
<tr>
<th>PIPE DIAMETER (INCHES)</th>
<th>MAX. FILL HEIGHT &quot;H&quot; ABOVE TOP OF PIPE (FEET)</th>
<th>METAL THICKNESS INCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1/8</td>
<td>0.046</td>
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<tr>
<td>12</td>
<td>1/8</td>
<td>0.060</td>
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<tr>
<td>14</td>
<td>1/8</td>
<td>0.075</td>
</tr>
<tr>
<td>16</td>
<td>1/8</td>
<td>0.084</td>
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</tbody>
</table>

### CONSTRUCTION SEQUENCE
1. Place structural bedding material to grade, do not compact.
2. Install corrugated steel pipe. Bury outside the middle third of the pipe. Ensure that both ends of the pipe are free from obstructions and that the ends are placed so that the pipe is level. The ends of the pipe shall be free from obstructions and shall be placed so that the pipe is level.
3. Structural bedding material will not be paid for separately, but compaction will be considered to be included in the price bid per linear foot of metal pipe.

### EQUIVALENT METAL THICKNESSES AND GAUGES

<table>
<thead>
<tr>
<th>STEEL</th>
<th>THICKNESS IN INCHES</th>
<th>GAUGE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZINC COATED UNCOATED</td>
<td>0.064</td>
<td>0.075</td>
</tr>
<tr>
<td>ALUMINUM</td>
<td>0.080</td>
<td>0.084</td>
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</tbody>
</table>

### GENERAL NOTES
1. Metal pipe culvert construction shall conform to Arkansas State Highway and Transportation Department and AASHTO specifications for highway construction designs with applicable design criteria included for each project.
2. All construction shall be done in accordance with the specifications, drawings, and instructions noted in the plans, sections, and specifications.
3. Metal pipe culvert materials and installations shall conform to section 606 and job-specific provisions. Metal pipe culvert, hanger, and related materials shall be used in accordance with the specifications and instructions.

### METAL PIPE CULVERT FILL HEIGHTS & BEDDING

<table>
<thead>
<tr>
<th>PIPE DIAMETER (INCHES)</th>
<th>MINIMUM FILL HEIGHT &quot;H&quot;</th>
<th>MAXIMUM FILL HEIGHT &quot;H&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 16</td>
<td>1/8</td>
<td>1/4</td>
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</tbody>
</table>

### INSTALLATION

- **TYPE 1**: Aggregate base course (Class 4, 5, 6, or 7). Installation of Type 2 will not be allowed.

### LEGEND
- CL: Outside diameter of pipe
- W: Maximum width
- N: Minimum
- SM: Structural backfill material
- U: Ungrouted soil
- E: Equivalent diameter
- M: Full crown height (over pipe feet)

### EMBANKMENT AND TRENCH INSTALLATIONS
1. Structural backfill and structural bedding material shall be compacted to 95% of the maximum density according to the type or class of material used.
2. Installation type 2 may be used for corrugated steel or aluminum pipe underdrain.
3. Installation type 1 shall be used for corrugated steel or aluminum pipe underdrain with 2" x 1/2" corrugation.
4. Installation type 2 may be used for corrugated steel or aluminum pipe underdrain with 3" x 1" or 5" x 1" corrugation.

### WEIGHTS AND MEASUREMENTS
- Use of selected pipe bedding material shall be determined by the engineer to be suitable for installation of the pipe under the area identified as structural bedding. Field measurements are to be made at the end of the pipe at a distance of 3" from the pipe. Compaction of the pipe bedding shall be tested according to the procedures noted in the specifications.

### METAL PIPE CULVERT COMMISSION
- Standard Drawing PCM-1

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