ARIZONA STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR PROPOSED COUNTY ROAD

LEFT HAND CHUTE OF LITTLE RIVER STR. & APPRS. (S)
COUNTY ROAD 105
POINSETT COUNTY
FED. AID PROJECT STPB-0056(31)

JOB BR5611
NOT TO SCALE

 STRUCTURES OVER 20’ - 0”

SITE NO. 1
STA. 105+59.50 BRIDGE END
PROPOSED 140’-0”
INTEGRAL W-BEAM UNIT
(SPANS = 43’, 54’, 43’)
BRIDGE NO. 159797
25'-0” CLEAR ROADWAY
STA. 107+00.50 BRIDGE END

STA. 113+50.00 END JOB BR5611
FED. AID PROJECT STPB-0056(31)

DESIGN TRAFFIC DATA

<table>
<thead>
<tr>
<th>DESIGN YEAR</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 ADT</td>
<td>50</td>
</tr>
<tr>
<td>2035 ADT</td>
<td>70</td>
</tr>
<tr>
<td>2035 DHV</td>
<td>8</td>
</tr>
<tr>
<td>DIRECTIONAL DISTRIBUTION</td>
<td>0.60</td>
</tr>
<tr>
<td>TRUCKS</td>
<td>3%</td>
</tr>
<tr>
<td>DESIGN SPEED</td>
<td>40 MPH</td>
</tr>
</tbody>
</table>

STA. 100+00.00 BEGIN JOB BR5611
FED. AID PROJECT STPB-0056(31)

GROSS LENGTH OF PROJECT 1305.00 FEET ON 2.006 MILES
NET - ROADWAY 1292.00 - 1.223
NET - PROJECT 1300.00 - 1.256

LATITUDE N35°33'44.1" N35°33'48.8" N35°33'55.7"
LONGITUDE W95°24'18.6" W95°24'20.8" W95°24'23.5"

APPROVED
DEPUTY DIRECTOR AND CHIEF ENGINEER

[Signature] 9-23-15
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3. A. TYPICAL SECTIONS OF IMPROVEMENT AND SPECIAL DETAILS

4. B. TEMPORARY EROSION CONTROL DETAILS

5. C. QUANTITIES

6. D. SCHEDULE OF BRIDGE QUANTITIES

7. SUMMARY OF QUANTITIES AND REVISIONS

8. E. SHEET NUMBER AND DRAWING DETAILS

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18. O. DETAILS OF 14D INTEGRAL W-BEAM UNIT (SHEET 5 OF 8)

19. P. DETAILS OF 14D INTEGRAL W-BEAM UNIT (SHEET 6 OF 8)

20. Q. DETAILS OF 14D INTEGRAL W-BEAM UNIT (SHEET 7 OF 8)

21. R. DETAILS OF 14D INTEGRAL W-BEAM UNIT (SHEET 8 OF 8)

22. S. BRIDGE AND BACKFILL AT BRIDGE ENDS

23. T. STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

24. U. STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL AND CONCRETE GIRDER SPANS

25. V. STANDARD DETAILS FOR CONCRETE FILLED STEEL HOLLOW PILES AND PILE ENCAPSULATIONS

26. W. STANDARD DETAILS FOR TYPE A APPROACH CUTTERS

27. X. STANDARD DETAILS FOR TYPE A APPROACH SLAB

28. Y. STANDARD DETAILS FOR TYPE A APPROACH SLAB

29. Z. FLARED END SECTION

30. AA. FLARED END SECTION

31. AB. GUARD RAIL DETAILS

32. AC. GUARD RAIL DETAILS

33. AD. GUARD RAIL DETAILS

34. AE. GUARD RAIL DETAILS

35. AF. GUARD RAIL DETAILS

36. AG. GUARD RAIL DETAILS

37. AH. GUARD RAIL DETAILS

38. AI. GUARD RAIL DETAILS

39. AJ. GUARD RAIL DETAILS

40. AK. CONCRETE PIPE CulVERT FILL HEIGHTS & BEDDING

41. AL. CONCRETE PIPE CulVERT FILL HEIGHTS & BEDDING

42. AM. PLASTIC PIPE CulVERT (HIGH DENSITY POLYETHYLENE)

43. AN. PLASTIC PIPE CulVERT (HIGH DENSITY POLYETHYLENE)

44. AO. PAVEMENT MARKING DETAILS

45. AP. TABLES AND METHODS OF SUPER-ELEVATION FOR TWO-WAY TRAFFIC

46. AQ. STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

47. AR. U-C HANNAL POST ASSEMBLIES

48. AS. U-C HANNAL POST ASSEMBLIES

49. AT. U-C HANNAL POST ASSEMBLIES

50. AU. U-C HANNAL POST ASSEMBLIES

51. AV. TEMPORARY EROSION CONTROL DEVICES

52. AW. TEMPORARY EROSION CONTROL DEVICES

53. AX. TEMPORARY EROSION CONTROL DEVICES

S4. CROSS SECTIONS

GENERAL NOTES

1. GRADE LINE DENOVINATIONS FINISHED GRADE WHERE SHOWN ON PLANS.

2. UTILITIES INTERFERING WITH CONSTRUCTION SHALL BE MOVED BY THE OWNERS.

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

4. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SHARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HANDED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.

5. SUPER-ELEVATION SHALL BE COMPUTED IN ACCORDANCE WITH STD. DRWG. 58.2 USING 40 M.P.H. DESIGN VALUES AND REVOLVE ABOUT THE INNER EDGE OF TRAVEL LANE UNLESS OTHERWISE ShOWN.

6. ALL SALVAGEABLE PIPE CulVERTS AND STEEL GIRDERs FROM EXISTING BRIDGE STRUCTURE SHALL BE STORED ON THE RIGHT OF WAY AND REMAIN THE PROPERTY OF POINSETT COUNTY. REMAINING BRIDGE MATERIALS SHALL BE THE PROPERTY OF THE CONTRACTOR.

7. THE ROAD WILL BE CLOSED TO THRU TRAFFIC UNTIL THE COMPLETION OF THE PROJECT.

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, & GENERAL NOTES

SHEET NO. 04932

NUMBERS 04932 56277

TITLE PHWA-1273

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2016, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

ERRATA

ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS

PHWA-1273 REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

PHWA-1273 SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS

PHWA-1273 SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)

PHWA-1273 SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES

PHWA-1273 SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS

PHWA-1273 SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS

PHWA-1273 SUPPLEMENT - WAGE RATE DETERMINATION

JOB BR5611 BIDDING REQUIREMENTS AND CONDITIONS

JOB BR5611 BRIDGE SITE PREPARATION

JOB BR5611 BROADBAND INTERNET SERVICE FOR FIELD OFFICE

JOB BR5611 CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS

JOB BR5611 DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES

JOB BR5611 GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION

JOB BR5611 GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

JOB BR5611 MANDATORY ELECTRONIC CONTRACT

JOB BR5611 PLASTIC PIPE

JOB BR5611 SECTION 40A NATIONWIDE 14 PERMIT REQUIREMENTS

JOB BR5611 SHORING FOR CULVERTS

JOB BR5611 STORM WATER POLLUTION PREVENTION PLAN
Tangent Section

Variable Width Subgrade

Super-elevation Section
DETAIL OF PRIVATE ENTRANCES
ADD'L BASE COURSE

NOTE: THE ABOVE DETAIL MAY BE MODIFIED TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

FINISHED CROWN
TRAVEL LANES

REFER TO DETAILS OF WIDENING FOR GUARDRAIL

TYPICAL SECTION
GUARDRAIL WIDENING

TYPICAL SECTION
3:1 SLOPE
4:1 SLOPE

0.04" SHOULDER

EDGE OF TRAVEL LANE

EDGE OF TRAVEL LANE

-0.040" OR SLOPE OF SUPER
0.025" OR SLOPE OF SUPER

GUIDE CURVE (TYPE A)
ADD'L AGG. BASE COURSE

GUARDRAIL TERMINAL
THREE BEAM

TRANSITION PANEL

-0.040" OR SLOPE OF SUPER

-0.025" OR SLOPE OF SUPER

NORM, AS SHOWN ON TYPICAL

SECTION A-A

SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL
(28'-0" CLEAR ROADWAY CAST IN PLACE BRIDGE)

ADDITIONAL AGGREGATE BASE COURSE (TWO SIDES) = 55.6 SQ. YDS.

SPECIAL DETAILS
### Earthwork

<table>
<thead>
<tr>
<th>Station</th>
<th>Unclassified Excavation Lanes</th>
<th>Additional Main Lanes</th>
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<td>1.00</td>
<td>1738</td>
<td>1748</td>
<td>4975</td>
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<tr>
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</tr>
<tr>
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<td>100+50</td>
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<td>Totals</td>
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<td>1738</td>
<td>25</td>
<td>1763</td>
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**Note:** Earthwork quantities shown shall be paid as plan quantity.

### ReflectORIZED Paint Pavement Markings

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<td>100+25</td>
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<tr>
<td>100-10</td>
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<td>2.00</td>
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<tr>
<td>100+50</td>
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<tr>
<td>Totals</td>
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**Note:** This is a low volume road as defined in Section 604.63 of the standard specifications for highway construction, 2014 edition.

### Traffic Control Devices

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<tr>
<th>Location</th>
<th>W3-2</th>
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<th>R11-3A</th>
<th>Barricades</th>
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<td>1000 FT</td>
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<td>12.5</td>
<td>TC-12.5</td>
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### Standard Highway Signs and Support Assemblies

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<th>Station</th>
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<th>Standard Sign Number</th>
<th>Support Assemblies (Type A)</th>
<th>Standard Drawing Number</th>
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</tr>
<tr>
<td>100+25</td>
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</tr>
<tr>
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<td>100-10</td>
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<td>100+50</td>
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<tr>
<td>Totals</td>
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### Clearing and Grubbing

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<th>Station</th>
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<th>Grubbing</th>
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<td>100-00</td>
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### Temporary Erosion Control

<table>
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<th>Station</th>
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<th>Standard Drawing Number</th>
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<tr>
<td>100-00</td>
<td>13+00</td>
<td>TEC-2, 253</td>
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**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.

### Temporary & Permanent Seeding

<table>
<thead>
<tr>
<th>Station</th>
<th>Temporary Seeding</th>
<th>Perennial Seeding</th>
<th>Mulch Cover</th>
<th>Water</th>
<th>Standards Drawing No.</th>
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<tr>
<td></td>
<td>Acre</td>
<td>Acre</td>
<td>Acre</td>
<td>M. Gal.</td>
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<td>1.03</td>
<td>2.06</td>
<td>126.1</td>
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**Note:** Quantities are estimated and shall be placed if and where directed by the engineer. See Section 104.23 of the standard specifications.

**Basis of Estimate:**
- Lime: 2 Tons per Acre
- Water: 102 M. Gals. per Acre Permanent Seeding
- Water: 20.4 M. Gals. per Acre Temporary Seeding
## STRUCTURES

### AGGREGATE BASE COURSE AND SURFACING

<table>
<thead>
<tr>
<th>STATION</th>
<th>DESCRIPTION</th>
<th>LENGTH</th>
<th>AGGREGATE BASE CRS.</th>
<th>WIDTH</th>
<th>AREA</th>
<th>PRIME COAT</th>
<th>ASPHALT SURFACE TREATMENT</th>
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<tbody>
<tr>
<td>100+00</td>
<td>COUNTY ROAD 105: TRANSITION</td>
<td>100</td>
<td>151.0</td>
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<td>112+50</td>
<td>COUNTY ROAD 105: TRANSITION</td>
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<td>109.8</td>
<td>19.8</td>
<td>251.1</td>
<td>88.4</td>
<td>18.8</td>
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</table>

**TOTALS:**
- 1807.1 TON
- 1060.4 GAL

### GUARDRAIL

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>SIDE</th>
<th>GUARDRAIL</th>
<th>TERMINAL ANCHOR POSTS</th>
<th>THREE BEAM GUARDRAIL</th>
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<tbody>
<tr>
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<td>104+55.75</td>
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<td>3</td>
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**TOTALS:**
- 200

### APPROACH GUTTER AND APPROACH SLAB

<table>
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<th>STATION</th>
<th>STATION</th>
<th>SIDE</th>
<th>APPROACH GUTTER</th>
<th>APPROACH SLAB</th>
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<tbody>
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<td>105+24.50</td>
<td>105+24.50</td>
<td>LT &amp; RT</td>
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<td>107+30.00</td>
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<td>LT &amp; RT</td>
<td>6.50</td>
<td>720</td>
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</tbody>
</table>

**TOTALS:**
- 17.00

Basis of Estimate:
- Water = 12.8 gal. per sq. yd. solid bedding.
- For C.M. or plastic pipe culvert installations, use type 2 bedding unless otherwise specified.
- For R.C. pipe culvert installations, use type 3 bedding unless otherwise specified.

Basis of Estimate:
- Aggregate Base Course (Class 7): 133 Tons per 100' STA. (Main Lanes)
- Aggregate Base Course (Class 7): 120 Tons per 100' STA. (Tapers)
- Prime Coat: 0.40 gal./sq. yd.
- Mineral Aggregate in Asphalt Surface Treatment (Class 1): 120 Lbs./sq. yd.
- Polymer Modified Cationic Emulsified Asphalt (CR-2P): 0.45 gal./sq. yd.

Mineral aggregate in asphalt surface treatment (Class 1): 30 Lbs./sq. yd.
Polymer modified cationic emulsified asphalt (CR-2P): 0.25 gal./sq. yd.

Quantities are estimated and shall be placed if and where directed by the Engineer. See Section 104.03 of the Standard Specifications.

Note: 
- Ranges may be modified if and where directed by the Engineer. See Section 104.03 of the Standard Specifications.
### SCHEDULE OF BRIDGE QUANTITIES - JOB NO. BR5611

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<th>ITEM NO.</th>
<th>205</th>
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<th>802</th>
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<td>REMOVAL OF EXISTING BRIDGE STRUCTURE</td>
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<td>CLASS</td>
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<td>LB.</td>
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<td>TOTALS FOR JOB NO. BR5611</td>
<td>4</td>
<td>48.10</td>
<td>173.60</td>
<td>11.2</td>
<td>4.116</td>
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<td>630</td>
<td>106</td>
<td>60</td>
<td>69,620</td>
<td>1</td>
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</tr>
</tbody>
</table>

1. **PILE ENCASEMENT** SHELL CONFORMS TO STL. SHELL NO. 32031, EXCEPT 10' STEEL SHELL PILES IN BENTS 3 & 4 SHALL USE ONLY CONICAL OR VIENNE PILE TIPS. FLAT PILE TIPS MAY BE USED AT BENTS 2 & 3.

2. THIS ITEM INCLUDES THE REMOVAL OF REMNANTS OF TIMBER PILING LEFT IN PLACE FROM A PREVIOUS STRUCTURE.
## SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ITEM DESCRIPTION</th>
<th>TOTAL</th>
<th>UNIT</th>
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</thead>
<tbody>
<tr>
<td>201</td>
<td>CLEARING</td>
<td>14</td>
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<td>230</td>
<td>DIGGING</td>
<td>14</td>
<td>STA</td>
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<tr>
<td>240</td>
<td>REMOVAL AND DISPOSAL OF PIPE/CULVERTS</td>
<td>1280</td>
<td>STA</td>
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<tr>
<td>210</td>
<td>UNCLASSIFIED EXCAVATION</td>
<td>1300</td>
<td>STA</td>
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<td>220</td>
<td>COMPACTED ENHANCEMENT</td>
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<td>225</td>
<td>OIL STABILIZED BASE</td>
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<td>235</td>
<td>AGGREGATE BASE COURSE</td>
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<tr>
<td>250</td>
<td>POLYMER MODIFIED CATIONIC EMULSIFIED ASPHALT (IRC-5P)</td>
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<td>APPROACH SLABS</td>
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<td>APPROACH CUTTERS</td>
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<td>290</td>
<td>SPACER</td>
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<td>370</td>
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## STRUCTURES OVER 20'-0" SPAN

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<td>BRIDGE CONSTRUCTION CONTROL</td>
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<td>UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE</td>
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<td>CLASS 3 PROTECTIVE SURFACE TREATMENT</td>
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<td>STEEL SHELL PLUG (12&quot; DIAMETER)</td>
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* * DENOTES ALTERNATE BID ITEMS.

## REVISIONS

<table>
<thead>
<tr>
<th>DATE</th>
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<th>SHEET NUMBER</th>
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<td>ADDED SS 100-3 TO THE INDEX SHEET.</td>
<td>X &amp; S</td>
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<td>NO.</td>
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<td>NTC</td>
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**COORDINATES LISTED BELOW ARE GROUND (Localized) COORDINATES!!!**

**Primary Control Monument - Rebar and Cap - Standard: 1/8" x 24" Rebar with 2" Aluminum cap stamped "(Includes all common information here)" plus other markings indicated in the point description of the individual point. AntiTuff monuments will be stamped "Arkansas Hwy & Trans Dept" with 'PH: HWS' & 'Job: xxxx'.**

All project control shall be established on the horizontal datum of the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevations have been established from the project datum with 2-inch level techniques.

**Reference Control Points (RPC00) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevations have been established from the project datum with 2-inch level techniques.**

All project control shall be established, measured, and adjusted with direct survey tools to at least two of the control points listed in the table above. No survey control shall be independent of the survey control listed above. This includes horizontal coordinates and elevations.

**Positional Accuracy:**

- Horizontal: 0.1 cm (1 ppm)
- Vertical: 1 cm (5 ppm)

**Datum:** NAD 83 / State Plane Zone

**HORIZONTAL DATA:**

- NAD 1884 based on HWS
- A project Elevation Factor of 0.99999672 has been computed and incorporated in the above CAF.
- If Coordinates are listed as Ground:
- To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of H=0 & V=0.
- If Coordinates are listed as RD:
- To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0.

**Vertical Data:**

- Grid Bearing based on AntiTuff GPS points:
- Convergence Angle: 0.00-00.00, 30-30.00, 30-30.00
- Grid Adjustment: Astronomical Adjustment - Convergence Angle

**Survey Control Details:**

- Project No: 15621
- Date: 2/17/2014
- Coordinate System: Arkansas State Plane Coordinates
- Based on HWS - PER: 590001-560001a
- Projected to Ground Coordinates
- U.S.S. Survey Foot

**Survey Control Details:**

- POINT NAME: STATION: 
- NORTHING: EASTING
- 0000: POE: 100+00.00 491146.86/795 1786870.05/913
- 0001: PC: 100+00.44 491247.46/010 1786809.14/191
- 0002: CC: 491688.77/691 1787467.37/337
- 0003: PT: 103+94.88 491661.35/791 1787671.52/895
- 0004: PC: 108+42.04 491846.84/751 1785610.99/114
- 0005: CC: 492087.86/88 1787678.43/455
- 0006: PT: 110+92.98 492081.72/979 1786627.10/799
- 0007: POE: 113+69.00 492332.09/890 1785385.15/993

**Reference Data:**

- HWS: 492332.09/890 1785385.15/993
NOTES:
All concrete shall be Class "C" with a minimum 28-day compressive strength f'c = 3000 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 1/8" unless otherwise noted.
All reinforcing steel shall be Grade 60 yield strength = 60,000 psi conforming to API 5L X60 or A36, with all test reports.
Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts.
For details of pile caps and pile anchorage, see Std. Draw No. 5509.
Drainage backfill and pipe underdrains required behind and bent cap. See Draw No. 5695.
For additional information, see layout.

Bar List - Per Bent

<table>
<thead>
<tr>
<th>Mark</th>
<th>No.</th>
<th>Peg</th>
<th>L. (in)</th>
<th>P.D.</th>
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<td>B402</td>
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<td>8'-0&quot;</td>
<td>2&quot;</td>
<td></td>
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<td>B452</td>
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<tr>
<td>B503</td>
<td>6</td>
<td>8'-0&quot;</td>
<td>2&quot;</td>
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Details of End Bents

Left Hand Chute of Little River

Route SEC

Arkansas State Highway Commission

Little Rock, AR

Drawn By: RA

Checked By: RA

Prepared By: RA

Engineer:

Bridge No. 04932

Drawing No. 56280
TYPICAL ROADWAY SECTION

Scale: 1" = 1'-0"

1. Working point to gutterline.
2. Tolerances Mind Min. + 0". Plus equal to the amount of slab thickness used to meet slab thickness tolerances. See "Adjustment for Slab Thickness Tolerance".
3. See "Adjustment for Slab Thickness Tolerance".

INTERIOR BEAM

EXTerior BEAM

Tolerance: when removable deck forming is used is 1/16", 1/32". Hatch forming is required and shall be adjusted to minimize slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

TABLE FOR WELD

<table>
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<th>Material Thickness of Thicker Port</th>
<th>Minimum Size of Thinner Port</th>
<th>Single Pass</th>
<th>Multi Pass</th>
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<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
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</tbody>
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NOTE: "Over" is shown as the amount is larger than the minimum. The first pass shall not exceed the minimum size of the weld.

DETAIl X

No Scale

Notations in connections shall be properly indicated and tightened in accordance with Subsection 93805.

DETAIl Y

No Scale

No Scale
**TABLE OF DEAD LOAD DEFORMATIONS (INCHES)**

<table>
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<tr>
<th>Beam</th>
<th>Point of Deflection</th>
<th>Structural Steel</th>
<th>Structural Steel - Size</th>
<th>Structural Steel - Size + Purlin</th>
<th>Structural Steel - Size + Purlin + Beam</th>
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<td>0.058</td>
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**DEAD LOAD DEFORMATIONS DIAGRAM (TYP.)**

- **Note:** See Table for Dead Load Deflection plus Vertical curve 1/8 degree tolerance.
- Deflections shown are from 89' anchor bolts to 89' anchor bolts.
- Beam curve corrections not included. Neglective sign indicates point above chord.

**BEAM ELEVATION**

No Scale

**FRAMING PLAN**

Scale: 1/4" = 1'-0"

**NOTES:**
- Span between anchor bolts is 42'-0".
- Beams are concrete girders, see detail B-12.
- Support spans may be different or shop ordered spans may be substituted with the approval of the Engineer. Payment will be made on the basis of paid quantities.

**DRAWING NO.** 04932

**SHEET 2 OF 8**

**DETAILS OF 140' INTEGRAL**

**W-BEAM UNIT**

**LEFT HAND CHUTE**

**OF LITTLE RIVER**

**ROUTE** SEC.

**ARKANSAS STATE HIGHWAY COMMISSION**

**LITTLE ROCEL, ARK.**

**DRAWN BY:**

**CHECKED BY:**

**SCALE:**

**BEND NO.** 04932

**DRAWING NO.** 56283

**NEW ENGINEER:**

**SCOPE:**

**BEND NO.** 04932

**DRAWING NO.** 56283
FIELD SPICE DETAIL

Scale 1/8" = 1'-0"

BEARING PLATE DETAIL
No Scale

ANCHOR BOLT DETAIL
No Scale

SHEAR CONNECTOR DETAIL
No Scale

ANCHOR BOLT & CONCRETE DIAPHRAGM
No Scale

DETAIL K
No Scale

SECTION C-C
No Scale

SECTION E-E
No Scale

VIEW B-B
No Scale

VIEW D-D
No Scale

Anchor bolts shall comply with A2970 with Grade 80, with supplementary requirements 5L and galvanized, according to Subsection B11.01. Nuts for bolts shall be as specified in Subsubsection B11.01. Nuts, bolts, gaskets, nuts, and washers shall be paid for at the unit rate. Nuts and washers shall be provided with a plastic tag or by marking. Use lower nut and washer to adjust to grade. Screw tight hex nut and washer after grade is adjusted.

Shear Connectors shown shall be 1/4" x 4" long, galvanometer flange, filled with flax or asphalt and automatically and welded to the base plate in accordance with the recommendations of the manufacturer.
GENERAL
NOTES


MATERIALS AND STRENGTHS

C.O. 4" Concrete
F'c = 4,000 psi

Reinforcing Steel: Gr. 60, A811/H110/H200 or M50, Type AI
    F = 65,000 psi

Structural Steel: M50, S70, G50, G90
    Fy = 50,000 psi

           Structural Steel M50, S70, G50
    Fy = 50,000 psi

Concrete: Concrete shall be poured in the dry and all exposed corners shall be chamfered 6" unless otherwise noted. All concrete shall be C25/M40 or with a minimum 28 day compressive strength of 4,000 psi.

The superstructure details shown are for use when reusing deck forming is used and are the basis for obtaining the AASHTO LRFD Bridge Design Specifications, Sixth Edition (2016), with 2016 Interim Specifications.  See Table No. 55250 for allowable modifications and for references when modifying the concrete details shown.

Concrete in bridge superstructure shall be placed, consolidated and spread off for the entire pour before any concrete has taken its initial set. This may require the use of a rehandling agent.

The concrete deck shall be given a 6" finish in accordance with Subsection 6511.3.3.2. This finish shall be made up of a mixture of new concrete to be placed over the surface and shall be finished after 72 hours after placing the pour. Sufficient concrete must be placed ahead of the strike-off to fully cover the beam. If a lengthwise strike-off is used, a vertical corner adjustment must be made in the strike-off to account for the future deck top deflection due to the rolling, a minimum of 12 hours shall elapse between completion of the strike-off and the placing of the parapet railing.

Reinforcing steel shall be used for concrete spacers.

REINFORCING STEEL: All reinforcing steel shall be Grade 60 (60,000 psi) conforming to A811/H110/H200 or M50, Type AI and not to be re-used. The reinforcing steel is to be ordered either in the form and field finished in place by shop or supported such that it is not damaged during the course of construction. The wire supports shall not be paid for directly, but will be considered satisfactory to the extent that they are installed in accordance with Subsection 6715.16.2.5.3.2.2 (d) unless otherwise noted. Structural steel completely embedded in concrete may be 433610 M70, Gr. 36 or Gr. 50 unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with the Subsection 6511.3.2.2(a) submitted and approved prior to fabrication to begin.

Requests for substitution of structural steel shapes shown in tables of greater size must be submitted to the Contractor for the Engineer's approval. Such sizes of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the tables of shapes and weights shown in the plans, and no adjustment will be made for any adjustments due to substitutions.

Beams and field splice plates are considered to load carrying members and shall meet the longitudinal (axial) Load Rating of the Engineer specified in Subsection 6715.3.2.2.2. This work and material will be paid for directly, but shall not be considered supplementary to the "Structural Steel in Beam Spans M50/S70, G50".

All beams shall be loaded in main truss position in the shop with webs horizontal in groups as specified in Subsection 6511.3.2.2(a). The camber, length of sections, and distance between bearings shall be measured with the beams in their truss position and this information shall become part of the permanent record for this job. The components shall be marked and numbered in this assembly and these marks shall be given on the erection drawings. All beam dimensions are based on a temperature of 60 degrees F, a tension of 0.06 ksi, and an allowance of 0.75 psi. Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main truss and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be done in the manner agreed to by the Engineer. Additional welds are to be done in accordance with the Engineer's requirements. The procedure being followed for welding shall be submitted to the Engineer for approval. Additionally, additional welds will be provided for attaching brackets, supporting devices, or similar restraints to the structural steel that do not exceed the definitions of Subsection 6511.3.2.2(a) unless additional welds are identified. All welding shall conform to Subsection 6511.3.2.2(a).

Field connections shall be bolted with high-strength bolts and shall be 1/2" bolts unless otherwise noted. Bolts shall be 7/8" unless otherwise noted. Bolts shall be along with nuts on the outside face of the start-up beam webs and on the bottom of the brace flanges. Bolts for 3/4" high-strength bolts may be 1/2" in diameter if an anchor is supplied for use under both the nut and head of the bolt.

Beam splice plates shall be connected with beam splices. All bolts in splice plates and field splices shall be installed and tightened in accordance with Subsection 6511.3.2.2.5 prior to pouring the concrete deck.

All shop connections shall be grouted flush, filled, and sealed and shall be acceptable to the Engineer.
SALINE RIVER

2000

TYPICAL BRIDGE NAME PLATE - STYLE 1 - FULL SIZE

STREAM CROSSINGS

LITTLE MULBERRY RIVER

2000

TYPICAL BRIDGE NAME PLATE - STYLE 2 - FULL SIZE

STREAM CROSSINGS

CARLISLE INTERCHANGE

2000

TYPICAL BRIDGE NAME PLATE - STYLE 3 - FULL SIZE

GRADE SEPARATION STRUCTURES

SOUTHERN RAILROAD OVERPASS

2000

TYPICAL BRIDGE NAME PLATE - STYLE 4 - FULL SIZE

GRADE SEPARATION STRUCTURES

* Year in which contract is awarded.

SIGNAL NOTES


Some bridges shall be cast bronze and shall meet the material requirements as specified in Section 80.

Body of plate shall be 1/8" thick and shall include two tabbing pins, one at 10" and one at 16" long. The border and all lettering shall be ribbed 1/8" above the face of plate and cast into plate.

All lettering shall be polished, smooth, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, AR

CONTRACT U56017-002 P/N 56017-102 DATE 10-22-2019 SCALE NO SCALE

DRAWING NO. 55011
GENERAL NOTES FOR PILE ENCASMENTS:

See Bridge Layout for additional notes and required location of pile encasements.

Concrete shall be Class 3 with a minimum 28-day compressive strength, f_c = 3,500 psi, or concrete cannot be placed in the dry. See Concrete may be used from top to bottom of pile encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 131 type A.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 131 type A.

Concrete, welded wire fabric or reinforcing steel, and galvanized pipe shall not be used for direct, but shall be considered auxiliary to the items "Steel Shell Piling".

SECTION F-F (RENE, ALTERNATE)

PILE ENCASMENT DETAIL FOR STEEL SHELL PILES

Shown with Encasement to Bottom of Cap

Encasement when not extended to bottom of cap shall have 1/4" concrete cover for water tightness, as shown in the detail for partial height encasement.

Concrete pile encasement may not be allowed. See Bridge Layout.

SECTION G-G

ALTERNATE PILE ENCASMENT DETAIL FOR STEEL SHELL PILES

Shows with Partial Height Encasement

This document was originally issued and sealed by Garcia & Tuecke PC PE No. 705, on February 27, 2014.

This copy is not a signed and sealed document.

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASCMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, AR

Drawing No.: 4502

PRINTED: ARKANSAS STATE HIGHWAY COMMISSION

SIGNED:

Brooke Cook

DRAUGHT NO. INK: 15520
THREE BEAM RAIL

SECTION THRU THREE BEAM RAIL

THREE BEAM RAIL SPICE AT POST

THREE BEAM RAIL

TRANSITION SECTION

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE ASSEMBLED WITH OR 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL COMPLY TO SUBSECTION 703.311 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATES TO BE BOLTED TO SPECIAL END SHOE WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 703.111.

SPECIAL END SHOE

NOTED

FOR U.S.A. DRAWING CR-IO FOR GUARD RAIL, DETAIL PREPARED 06/01/11

WOOD OR PLASTIC REINFORCEMENT 3" x 3/4"

THREE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THREE BEAM RAIL SPECIAL END SHOE AND TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 0.125" THICK. CONCRETE SHALL BE LEFT UNTIL RAIL POSTS SHALL BE SET. HORIZONTAL TO THE ROADWAY PROFILE OR SEWER IN CROSS SECTION, REINFORCEMENT LENT TO THE END THROUGH THE FULL THICKNESS OF THE RAIL AND NO MORE THAN 1/4" BEYOND IT. ALL LAP JOINTS, INCLUDING SPECIALS, AND SHOULD BE MADE IN THE DIRECTION SHOWN. DETAIL 00-05. USE THREE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENAMEL JOB. THREE BEAM POSTS SHALL BE SAME MATERIAL AS THREE BEAM POSTS FOR ENTIRE JOB.
CONSTRUCTION SEQUENCE

1. Place structural grouting material, to grade, do not compact. 
2. Install pipe to grade. 
3. Compact structural grouting outside the middle third of the pipe. 
4. Add and compact a minimum of 12 inches of fill around the circumference of the pipe.

NOTE: Haunch and structural grouting material will not be paid for separately, but compensation will be considered to be included in the price bid per linear foot of concrete pipe.

- LEGEND -

D1 = Normal Inside Diameter of Pipe
D2 = Diameter of Excavation (Feet)
MIN = Minimum
H = Undiscovered Soil

EMBANKMENT AND TRENCH INSTALLATIONS

1. Materials in the middle and outer portions of the body that are compacted to keep the maximum density according to the type of material used.
2. Trenches between walls and structural grouting that are compacted to keep the maximum density according to the type of material used.
3. For embankments, the material in the outer side zone shall be compacted to keep the maximum density according to the type of material used.

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

<table>
<thead>
<tr>
<th>CLASS OF PIPE</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS V</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIPE ID (IN)</td>
<td>TYPE 1 OR 2</td>
<td>TYPE 3</td>
<td>ALL</td>
</tr>
<tr>
<td>12-15</td>
<td>2</td>
<td>2.5</td>
<td>2</td>
</tr>
<tr>
<td>18-24</td>
<td>2.5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>27-33</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>36-42</td>
<td>3.5</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>45-60</td>
<td>4.5</td>
<td>6.5</td>
<td>2</td>
</tr>
<tr>
<td>60-78</td>
<td>5</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>78-96</td>
<td>6</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>96-108</td>
<td>7.5</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS V</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE 1</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>TYPE 2</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CURVETS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS V</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE 1</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>TYPE 2</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>PIPE TYPE</th>
<th>INSTALLATION TYPE</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS V</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE 2 OR 3</td>
<td>TYPE 3</td>
<td>2.5</td>
<td>1.5</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH AND HORIZONTAL ELLIPTICAL PIPE CURVETS.

NOTE: FOR MINIMUM MATERIAL VALUES, SHALL INCLUDE A HEIGHT OF 1/2" OF PAVERMENT AND/OR BASE.

GENERAL NOTES

1. Concrete pipe culvert construction is similar to Arkansas State Highway and Transportation Department’s standards and specifications for standard construction with applicable specifications and design criteria noted in the plans, section, and subsection refer to the standard construction specifications.
2. Concrete pipe culvert design shall conform to various pipe geometries conforming to Arkansas DOT standards and shall conform to the construction specifications.
3. Concrete pipe shall be constructed in accordance with the standards and specifications for structural and concrete pipe, and concrete and mortar shall comply with the structural design and construction requirements.
4. All pipe shall be protected during installation to prevent damage from subsequent to the standard construction specifications.
5. The pipe shall be installed directly at the ends of the pipe and within the limits of structural and concrete pipe, and concrete and mortar shall comply with the structural design and installation requirements.
6. Multiple pipe culvert shall be installed with a minimum clearance of 2 inches between pipe centers and a minimum of 3 inches between pipe centers and a minimum of 3 inches of fill around the pipe.
7. Wherever materials shall be placed as directed by the engineer and the ends of the pipe shall be covered with structural and concrete pipe, and concrete and mortar shall comply with the structural design and installation requirements.
8. Not more than one layer of fill material. Concrete pipe culvert shall be placed in a layer of fill material not more than 12 inches thick and shall be covered with structural and concrete pipe, and concrete and mortar shall comply with the structural design and installation requirements.
9. Structural and concrete pipe and concrete and mortar shall comply with the structural design and installation requirements.
10. Concrete and mortar shall be placed as directed by the engineer and the ends of the pipe shall be covered with structural and concrete pipe, and concrete and mortar shall comply with the structural design and installation requirements.
11. Side slopes shall be filled with mortar, concrete, or other material as approved by the engineer.
12. The engineer shall be directed by the engineer and the ends of the pipe shall be covered with structural and concrete pipe, and concrete and mortar shall comply with the structural design and installation requirements.
13. Wherever side slopes shall be filled with mortar, concrete, or other material as approved by the engineer.
14. Concrete and mortar shall be placed as directed by the engineer and the ends of the pipe shall be covered with structural and concrete pipe, and concrete and mortar shall comply with the structural design and installation requirements.

ARKANSAS STATE HIGHWAY COMMISSION
CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING
STANDARD DRAWING PCC-1
MINIMUM TRENCH WIDTH
BASED ON FILL HEIGHT "H"

MULITIPLE INSTALLATION
OF HIGH DENSITY POLYETHYLENE PIPES

MINIMUM COVER FOR CONSTRUCTION LOADS

GENERAL NOTES

CONSTRUCTION SEQUENCE

- LEGEND -

ARKANSAS STATE HIGHWAY COMMISSION
PLASTIC PIPE CULVERT
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

DATE
REVISED
DATE FIELD
INSTALLATION TYPE

** MATERIAL REQUIREMENTS FOR STRUCTURAL, BACKFILL, AND STRUCTURAL BEDDING **

** SELECTED MATERIALS **

- ** Aggregate base course (Class A.S.6, or P/V may be used in lieu of selected material. **
  - * Skirt will not be allowed. **

** Structural bedding material shall have a maximum particle size of 7/8". Structural, backfill, and bedding material shall be free of Organic Material content greater than 5% (by weight). **

** Structural backfill and structural, bedding material **

- 1 NOT TO BE REJECTED, but compensation will be calculated to be included in the price for linear feet of PVC pipe.

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

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Trench Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; x 6'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>5&quot; x 6'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>6&quot; x 6'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>8&quot; x 6'-0&quot;</td>
<td>6'-0&quot;</td>
</tr>
</tbody>
</table>

** MINIMUM COVER FOR CONSTRUCTION LOADS **

<table>
<thead>
<tr>
<th>Pipe Diameter</th>
<th>Clear Space Below Pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; x 6'-0&quot;</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td>5&quot; x 6'-0&quot;</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td>6&quot; x 6'-0&quot;</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td>8&quot; x 6'-0&quot;</td>
<td>3'-0&quot;</td>
</tr>
</tbody>
</table>

** MULTIPLE INSTALLATION OF PVC PIPES **

MINIMUM COVER SHOWN WILL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION HIGHWAY SURFACE, THE SURFACE SHALL BE MAINTAINED.

** GENERAL NOTES **

1. PIPE SHALL CONFORM TO ASTM F925 CLASS D. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISIONS "PLASTIC PIPE" AND SECTION K601 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SUBMITTAL EDITION.

2. PLASTIC PIPE DU VERT (DESIGN SHALL CONFORM TO ASHSHD LPD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (GOOD WITH YOUR OWN). **

3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUITABLE WIDTH TO ENSURE WORKING ROOM TO PERMISSIBLE AND SAFETY PLACE AND COMPACT, HANDLING AND OTHER BEDDING MATERIAL. **

4. UNCOMPACTED MATERIAL SHALL BE PLACED AS DIRECTED BY THE ENGINEER. AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERHAPS MATERIAL IS USED FOR STRUCTURAL BEDDING AND 0" BACKFILL. **

5. WHEN DIRECTED BY THE ENGINEER, UNCOMPACTED MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH BENEATH THE AREA DESIGNATED AS "STRUCTURAL BEDDING" MUST BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNCOMPACTED AREA TO THE SELECTED PIPE BEDDING LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING". **

6. WHEN THE EXCAVATED MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNCOMPACTED FOR BACKFILLING THE PIPE ABOVE THE AREA DESIGNATED AS "STRUCTURAL BEDDING" MATERIAL, THE CONTRACTOR SHALL SUBMIT A SAMPLE MATERIAL TO THE ENGINEER FOR EVALUATION. **

7. AY MATERIAL THAT IS NOT SUITABLE FOR THE PURPOSES OF PIPE INSTALLATION (QUALITY MATERIALS) ADEQUATIONS THAT WILL PERMIT THE FILLING OF THE COMPARTMENT OR PROFILE VALLEY, **

8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED. **

9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR DIFE TIGHTNESS AS SPECIFIED IN ASHSHD SECTION K601-2 AND SUPPLEMENTAL "ASHSHD LPD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. **

** PLASTIC PIPE CULVERT (PVC F925) **

** STANDARD DRAWING PCP-2 **

** ARKANSAS STATE HIGHWAY COMMISSION **

** LEGEND **

- ** FILL HEIGHT ITZ **
  - ** OUTSIDE DIAMETER OF PIPE **
  - ** MAXIMUM **
  - ** MINIMUM **

** TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS **

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 BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8", THE LAYERS SHALL BE BRIEFT UP EVENLY AND SMALL, UNTIL TO THE ELEVATION OF THE MINIMUM COVER. **

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

** CONSTRUCTION SEQUENCE **

I. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE, DO NOT COMPACT.

3. INSTALL PIPE TO GRADE.

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

5. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8", THE LAYERS SHALL BE BRIEFT UP EVENLY AND SMALL, UNTIL TO THE ELEVATION OF THE MINIMUM COVER.

6. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, BEACONING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.
### Superelevation Table for Two-Way Traffic

<table>
<thead>
<tr>
<th>Degree Of Curve (ft)</th>
<th>S.E. (ft)</th>
<th>S.S. (ft)</th>
<th>S.E. (ft)</th>
<th>S.S. (ft)</th>
<th>S.E. (ft)</th>
<th>S.S. (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
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<td></td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
</tr>
</tbody>
</table>

#### Abbreviations
- NC: Normal Crown
- RE: Reverse Crown
- S.E.: Superelevation at Normal Crown Slope
- S.S.: Superelevation at Reverse Crown Slope
- L: Length of Superelevation Transition (ft)
- Lmax: Maximum Superelevation (ft)
- Lmin: Minimum Superelevation (ft)
- Lm: Midpoint Superelevation (ft)
- W: Width of Subgrade (ft)
- Wt: Width of Subgrade Transition (ft)

#### General Notes
1. On pavements with two-way traffic, the superelevation shall be revolved on the inside of the pavement edge unless otherwise noted on the plans.
2. Superelevation values shown on the cross sections are values at T to be assured by restrictions at control points.
3. Note that the T shall be multiples of 25 ft, or 50 ft.
4. Pavements wider than 2 lanes shall have additional transition lengths as follows:
   - 3 lane unlimited: 3 T
   - 5 lane unlimited: 5 T
   - 6 lane unlimited: 6 T

#### Standard Method When Superelevation Revolves Around Inner Subgrade Point

ARMS DESIGNATION: 50 ft

OUTSIDE PAVEMENT OR SUBGRADE EDGE

NOTES: Maintain normal crown on inside until superelevation exceeds 2.5 ft.

Note: Maintain normal crown on inside until superelevation exceeds 2.5 ft.

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STORED.COM
CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE
1. PLACE PREVENTIVE CONTROLS (EX. SILT FENCES, DIVERSION DITCHES, SEEDING, EMBANKMENT).
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION

EXISTING GROUND
INTERCEPTOR OR DIVERSION DITCH
EXISTING GROUND

GENERAL NOTE

ALL CUT PLACES SHALL BE COVERED WITH TRANSPORTED SEEDING AND HAYED OR PLANTED WITH PLANTS AS SHOWN IN CONSULT WITH CONSTRUCTION SUPERVISOR ON SCHEDULED OR ACCELERATED BASIS. STABILIZATION TO BE PROVIDED AS SHOWN FOR ILLUSTRATION.

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.

EMBANKMENT

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

FINAL PHASE EMBANKMENT
PHASE 2 EMBANKMENT
PHASE 1 EMBANKMENT
GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE COVERED WITH TRANSPORTED SEEDING AND HAYED OR PLANTED WITH PLANTS AS SHOWN IN CONSULT WITH CONSTRUCTION SUPERVISOR ON SCHEDULED OR ACCELERATED BASIS. STABILIZATION TO BE PROVIDED AS SHOWN FOR ILLUSTRATION.

CONSTRUCTION SEQUENCE
1. PLACE PHASE 1 EMBANKMENT, PLACE PREVENTIVE CONTROLS (EX. SILT FENCES, SEEDING, EMBANKMENT).
2. PLACE PHASE 2 EMBANKMENT, PLACE PERMANENT OR TEMPORARY SEEDING.
3. PLACE PHASE 3 EMBANKMENT, PLACE PERMANENT OR TEMPORARY SEEDING.
4. PLACE FINAL PHASE OF EMBANKMENT, PLACE PERMANENT OR TEMPORARY SEEDING. SLOPES STABILIZED ON SCHEDULED OR ACCELERATED BASIS. STABILIZATION TO BE PROVIDED AS SHOWN FOR ILLUSTRATION.
END GUARDRAIL ON LT. AND RT.
END DITCH GRADE ON LT.
BEGIN BRIDGE

105+64
CUT VOLUME 0.00
FILL VOLUME 7.18
FILL SPECIAL 48.93

105+60
CUT VOLUME 0.00
FILL VOLUME 257.88
FILL SPECIAL 194.15

AREA CUT 0.00
AREA FILL 0.00

105+60

END GUARDRAIL ON LT. AND RT.
END DITCH GRADE ON LT.
BEGIN BRIDGE

105+52
CUT VOLUME 0.00
FILL VOLUME 45.88

105+50
CUT VOLUME 0.00
FILL VOLUME 125.72
FILL SPECIAL 125.72

AREA CUT 18.42
AREA FILL 219.49

105+50

AREA CUT 18.45
AREA FILL 219.53

105+00
CUT VOLUME 0.00
FILL VOLUME 77.94
FILL SPECIAL 218.63

AREA CUT 34.95
AREA FILL 103.73

104+81
CUT VOLUME 0.00
FILL VOLUME 58.91
FILL SPECIAL 252.20

BEGIN GUARDRAIL ON LT. AND RT.
107+25  →  AREA CUT 0.00
AREA FILL 173.28
CUT VOLUME 0.00
FILL VOLUME 57.65
FILL SPECIAL 365.71

107+09

107+01  →  BEGIN GUARDRAIL ON LT. AND RT.
END BRIDGE

106+96

106+81
TOE OF SLOPE

105+68
TOE OF SLOPE
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.