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GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2004, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER  TITLE
ERRATA  ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-Q75  REQUIRED CONTRACT PROVISIONS: FEDERAL-IA CONSTRUCTION CONTRACTS
FHWA-Q75  SUPPLEMENT-EQUAL EMPLOYMENT OPPORTUNITY: NOTICE TO CONTRACTORS
FHWA-Q75  SUPPLEMENT-EQUAL EMPLOYMENT OPPORTUNITY: RESPONSIBILITIES (23 USC 430)
FHWA-Q75  SUPPLEMENT-EQUAL EMPLOYMENT OPPORTUNITY: GOALS AND TANGIBLES
FHWA-Q75  SUPPLEMENT-EQUAL EMPLOYMENT OPPORTUNITY: FEDERAL STANDARDS
FHWA-Q75  SUPPLEMENT-POSTERS AND NOTICES REQUIRED FOR FEDERAL AID PROJECTS
FHWA-Q75  SUPPLEMENT-WAGE RATE DETERMINATION
JOB-1  LIQUIDATION DAMAGES
JOB-2  CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
JOB-4  CONSTRUCTION SERVICE
JOB-4  BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB-4  CONCRETE DITCH PAVING
JOB-4  GUARD RAIL DETAILS
JOB-4  DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES
JOB-4  FLEXIBLE BEGINNING OF WORK
JOB-4  INTERNET BEDDING
JOB-4  MAINTENANCE OF TRAFFIC
JOB-4  REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIERS
JOB-4  SEQUENCE OF CONSTRUCTION
JOB-4  SITE USE (4-5-06)
JOB-4  STORM WATER POLLUTION PREVENTION PLAN
JOB-4  SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB-4  TEMPORARY PORTABLE RUMBLE STRIPS
JOB-4  TEMPORARY ROAD DEVICES IN CONSTRUCTION ZONES
JOB-4  UTILITY ADJUSTMENTS
JOB-4  WIRE MARY ASPHALT
JOB-4  WIRE ROPE SAFETY FENCE MARY SPECIFICATIONS
JOB-4  WIRE ROPE SAFETY FENCE POST REPAIR
JOB-4  WIRE TRAINING WORKSHOP

GENERAL NOTES

1. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LINED UNDER 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 MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 1012 OF THE STANDARD SPECIFICATIONS.
4. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAVED FOR UNDER THE ITALIC NOTES - UNCLASSIFIED EXCAVATION.
5. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A HEAT 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 TO THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
6. WASTE MATERIAL SHALL BE DISPOSED OF AS APPROVED BY THE ENGINEER; ANY REQUIRED EROSION CONTROL MEASURES FROM WASTING MATERIAL SHALL BE AS APPROVED BY THE ENGINEER.
7. CONSTRUCTION TO ADJUST POSTS IN THE FIELD SO THAT EXISTING DRAINAGE STRUCTURES ARE AVOIDED.

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES
PROPOSED TYPICAL SECTION
WRSF IN BOTTOM OF DITCH
STA. III+26.38 TO STA. II+6+62.29

NOTE: RETAIN EXISTING CONCRETE DITCH PAVING IN MEDIAN, CROWN EXISTING CONCRETE DITCH PAVING AS REQUIRED FOR LINE POST PLACEMENT, REMOVE EXISTING CONCRETE DITCH PAVING AS REQUIRED FOR CONSTRUCTION AND AS DIRECTED BY THE ENGINEER.

PROPOSED TYPICAL SECTION
WRSF IN BOTTOM OF DITCH
STA. II+6+62.29 TO STA. II+5+37.00
PROPOSED TYPICAL SECTION
WSRF IN BOTTOM OF DITCH
STA. 2175+20.09 TO STA. 2994+40.35

NOTE: RETAIN EXISTING CONCRETE DITCH PAVING IN MEDIAN, CORE EXISTING CONCRETE DITCH PAVING AS REQUIRED.
FOR LINE POST PLACEMENT, REMOVE EXISTING CONCRETE
DITCH PAVING FOR WSRF ANCHOR CONSTRUCTION.
AS DIRECTED BY THE ENGINEER.

PROPOSED TYPICAL SECTION
WSRF IN BOTTOM OF DITCH
STA. 2994+40.35 TO STA. 2999+60.00

TYPICAL SECTIONS OF IMPROVEMENT
PROPOSED TYPICAL SECTION
WRSF ON WB FORESLOPE
STA. 506+86.77 TO STA. 520+46.00

PROPOSED TYPICAL SECTION
WRSF ON EB FORESLOPE
STA. 523+40.00 TO STA. 575+63.20
DETAIL OF WIRE ROPE SAFETY FENCE AT EXISTING BRIDGE ENDS (I-49)

DETAIL AT MEDIAN CROSSING
DETAIL AT OVERPASS ON HWY. 71B

NOTICE: REFER TO PLAN SHEETS FOR PLACEMENT OF WIRE ROPE SAFETY FENCE ON EASTBOUND FORESLOPE. DIMENSIONS ARE TYPICAL BOTH DIRECTIONS.

SECTION B-B

SECTION A-A

SPECIAL DETAILS
DETAIL OF WIRE ROPE SAFETY FENCE AT EXISTING BRIDGE ENDS (HWY. 71B)

THREADED TERMINAL DETAIL
TEMPORARY EROSION CONTROL DETAILS

STA. 540+00 - STA. 575+63.20

END JOB 040646
SECTION 17B
END WRSF
ON EB FORESLOPE
LOC MILE 1.70
NOTE 1: W20-12 VARIOUS DISTANCE ADVANCE SIGNS TO BE REPLACED AS NEEDED BY EQUIVALENT W20-5 SIGNS AS WORKING AREA SHIFTS.

NOTE 2: 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
(I-49)
Advance signs at beginning and end of job
All stages

NOTE 1:
W-20=Various distance advance signs
to be replaced as needed by equivalent W-20-5 signs
as working area shifts.

NOTE 2:
(2) Portable changeable message sign
to be used if and where directed by the engineer.

Construction signs for entrance ramps
Road work ahead (W-20-1) 1

W-20 (4R x 4F)
On entrance ramps
TEMPORARY RUMBLE STRIP ARRAYS (2) TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. RUMBLE STRIP ARRAYS TO BE UTILIZED FOR HWY, FB CLOSURES ONLY.

19 TRAFFIC DRUMS
TRAFFIC DRUMS @ 60° O.C., 25' TAPER FOR LANE CLOSURE
TRAFFIC DRUMS @ 60° O.C., SOFT STABILIZATION ZONE

RT. LANE CLOSURE
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.

26 TRAFFIC DRUMS @ 60° O.C., 720° DIRECTED LANE TO CLEAR LT. LINES WORK AREA
BUFFER MNL 500' TRAFFIC DRUMS @ 60° O.C., 5 EACH

NOTE: MAINTAIN MINIMUM 0' LANE WIDTH ON LANE REMAINING OPEN

DIVERSION FOR LT. LANE WORK ZONE
NOTE: REFER TO SP-MANAGEMENT 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 AT EACH SECTION.
Match Line B

Max. 2 mile work area will take 17 traffic drums each side. Traffic drums @ 60' O.C. + 17 each 100' ACC process lane for work trucks.

500' buffer traffic drums @ 30' O.C. - 5 each.

Wire rope safety fence in median.

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

Work vehicle entry location

Work vehicle exit location

* Speed limit shall match permanent speed limit.

NOTE: Contractor must utilize entry/exit location as shown on the plans.

Movable work zone for WRNSF installation

Maintenance of traffic

Work areas (1-49)
MATCH LINE B

50' BUFFER
TRAFFIC DRUMS @ 200' G.C. = 5 EACH

NOTE:
MAY 2 MILE WORK AREA WILL TAKE 220 TRAFFIC DRUMS EACH SIDE
TRAFFIC DRUMS @ 600' G.C. IN CLOSED LANE
TRAFFIC DRUMS @ 600' G.C. ON OPPOSITE MEDIAN SHOULDER

INSTALL IN MEDIAN
WIRE ROPE SAFETY FENCE IN MEDIAN
ALTERNATE MEDIAN

MATCH LINE END PROJECT

LEGEND

. . TRAFFIC DRUMS

STA 575+63.20
END JOBSITE
SECTION 17B
END WRSF
ON EB FORESLOPE
LOG MILE 1.70

WORK VEHICLE ENTRY LOCATION

WORK VEHICLE EXIT LOCATION

SPEED LIMIT SHALL MATCH PERMANENT SPEED LIMIT.

NOTE: CONTRACTOR MUST UTILIZE ENTRY/EXIT LOCATION AS SHOWN ON THE PLANS.

NOTE: REFER TO SD-MAINTENANCE OF TRAFFIC FOR LANE CLOSURE LIMITATIONS AND RESTRICTIONS.
QUANTITY OF TRAFFIC DRUMS PROVIDED IN THE CONTRACT IS THE MINIMUM NUMBER REQUIRED
FOR ONE LANE CLOSURE AT EACH SECTION.

MOVABLE WORK ZONE FOR WRSF INSTALLATION

MAINTENANCE OF TRAFFIC
WORK AREAS (HWY. 71B)
EROSION CONTROL

<table>
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<tr>
<th>LOCATION</th>
<th>TEMPORARY EROSION CONTROL</th>
<th>PERMANENT EROSION CONTROL</th>
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<tr>
<td></td>
<td>MULCH COVER</td>
<td>SEEDING</td>
</tr>
<tr>
<td>ACRE</td>
<td>ACRE</td>
<td>%</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>ENTIRE JOB</td>
<td>4.54</td>
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ENTIRE PROJECT IF AND WHERE DIRECTED BY THE ENGINEER

| TOTALS | 4.54 | 4.54 | 92.56 | 400 | 450 | 47.8 | 4.54 | 0.67 | 4.54 | 4.54 | 482.76 |

BASIC OF ESTIMATE:

LIME: 2 TONS/ACRE OF SEEDING
WATER: 100 GAL/ACRE OF SEEDING
DROPPING MITT SILT FENCE: 20 FT IN LOCATION
SAND BAG CHECKS: 25 BAGS/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 OF U & WATERSWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE EMMITTMENT SYSTEM PERMIT.

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

GUARDRAIL

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<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
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<th>GUARDRAIL</th>
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<td></td>
<td>(TYPE 1)</td>
<td>(TYPE 2)</td>
<td>ANCHOR POST</td>
<td>EACH</td>
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<td></td>
<td></td>
<td>(TYPE 1)</td>
<td>(TYPE 2)</td>
<td>EACH</td>
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<tr>
<td>680+90.00</td>
<td>504+17.00</td>
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<tr>
<td>691+62.00</td>
<td>927+17.50</td>
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REMOVAL AND DISPOSAL ITEMS

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<th>IMPACT ATTENUATION BARRIER</th>
<th>REMOVAL AND DISPOSAL OF CONCRETE DITCHING</th>
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<td>EACH</td>
<td>SQ/YD</td>
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TOTALS: 2

QUANTITIES

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<th>QUANTITY</th>
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ENTIRE PROJECT - AS DIRECTED BY THE ENGINEER

QUANTITY IS ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

NOTE: THIS IS A HIGH VOLUME ROAD AS DEFINED IN SECTION 104.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014

SIGN NUMBER | DESCRIPTION | SIGN SIZE | TOTAL SIGNS REQUIRED | TRAFFIC CRUMBS | ADVANCE WARNING ARROW PANEL | PORTABLE CHANGABLE MESSAGE SIGN | TEMPORARY PORTABLE RUMBLE STRIPS |
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<td>MAXIMUM NUMBER REQUIRED</td>
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<td>SQ FT</td>
<td>EACH</td>
<td>DAY</td>
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<td>WD-1</td>
<td>ROAD WORK 1MILE</td>
<td>48&quot;X48&quot;</td>
<td>16</td>
<td>8</td>
<td>128</td>
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<td>WD-2</td>
<td>ROAD WORK 2MILE</td>
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<td>160</td>
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<tr>
<td>WS-1</td>
<td>ROAD WORK 6MILE</td>
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<td>16</td>
<td>10</td>
<td>160</td>
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<td>WS-2</td>
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<td>160</td>
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<tr>
<td>WS-3</td>
<td>ROAD WORK 8MILE</td>
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<td>10</td>
<td>160</td>
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<tr>
<td>BS-1</td>
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<td>100</td>
<td>SHOULDER CLOSURE</td>
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<td>ADVANCE WARNING ARROW PANEL</td>
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</tbody>
</table>

TOTALS: 205

* QUANTITY IS ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

NOTE: THIS IS A HIGH VOLUME ROAD AS DEFINED IN SECTION 104.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014

QUANTITIES
### CONCRETE DITCH PAVING

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<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>LENGTH</th>
<th>WIDTH</th>
<th>CONC. DITCH PAVING (TYPE)</th>
<th>SOLID SODDING</th>
<th>WATER</th>
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<td>692</td>
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TOTAL:    |        |                |        |       |                           |               |        |
| 5836      | 3836      | 48.5          |        |       |                           |               |        |

WATER: ........................................ 12.0 GAL / SQ. YD. OF SOLID SODDING.

### WIRE ROPE SAFETY FENCE

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>STATION EQUATION</th>
<th>LOCATION</th>
<th>WIRE ROPE SAFETY FENCE</th>
<th>WIRESF ANCHOR</th>
<th>WIRESF MAINTENANCE MATERIALS</th>
<th>WIRESF POST REPAIR</th>
<th>UN. FT.</th>
<th>EACH</th>
<th>LUMP SUM</th>
<th>EACH</th>
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<td>59+65.77</td>
<td>59+65.90</td>
<td>LT. OF CL HWY 71B</td>
<td>583</td>
<td>583</td>
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<tr>
<td>59+65.77</td>
<td>59+65.90</td>
<td>LT. OF CL HWY 71B</td>
<td>583</td>
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<td>58+74.00</td>
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</table>

**ENTIRE PROJECT**: 50

**QUANTITY ESTIMATED**: SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

* THIS ITEM SHOWN FOR INFORMATION ONLY.

** TOTALS: **18008 10 1.00 50

### QUANTITIES
## BASE AND SURFACING

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>LENGTH</th>
<th>AGGREGATE BASE COURSE (CLASS 7)</th>
<th>ADMIXTURE SURFACE COURSE (10% VPO-44-02)</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>TON/STATION</td>
<td>FEET</td>
</tr>
<tr>
<td>490+50.00</td>
<td>500+00.00</td>
<td>RT. RUDEL AT RAMP OVERPASS (RAMP 748)</td>
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<tr>
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<td>501+50.00</td>
<td>LT. RUDEL AT RAMP OVERPASS (RAMP 748)</td>
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<td>501</td>
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</tr>
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</table>

**Totals:** 451.89 1032.13 150.14

**Basis of Estimate:**
- 110 lbs. per sq. yd. per inch of depth
- 8% steel, 4% mix, and 5% asphalt binder
- Maximum number of gradations = 115

**Quanities:**
## Earthwork

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Unclassified Excavation</th>
<th>Compacted Embankment</th>
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</thead>
<tbody>
<tr>
<td>498+20</td>
<td>Rt. Slide At E In RAMP Overpass (R&amp;M)</td>
<td>90</td>
<td>17</td>
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<tr>
<td>521+19</td>
<td>Lt. Slide At E In RAMP Overpass (R&amp;M)</td>
<td>88</td>
<td>27</td>
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</table>

* Entire Project - As Directed by the Engineer

| | | 500 | 500 |

**Total:** 1044

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

* Quantities are estimated for slope modification. See Section 2404 of the standard specifications.
## SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ITEM Description</th>
<th>QUANTITY</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER</td>
<td>2</td>
<td>EACH</td>
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<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF CONCRETE DITCH PAVING</td>
<td>225</td>
<td>SQ YD</td>
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<tr>
<td>210</td>
<td>UNCLASSIFIED EMBANKMENT</td>
<td>674</td>
<td>CU YD</td>
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<td>210</td>
<td>COMPACTED EMBANKMENT</td>
<td>544</td>
<td>CU YD</td>
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<td>AGGREGATE BASE COURSE (CLASS 7)</td>
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<td>SP, 55 &amp; 407</td>
<td>MINERAL AGGREGATE IN ADHIM SURFACE COURSE (1/2&quot;)</td>
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<td>SP, 55 &amp; 407</td>
<td>ASPHALT BINDER (PS 64-22) IN ADHIM SURFACE COURSE (1/2&quot;)</td>
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<td>601</td>
<td>MOBILIZATION</td>
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<td>LUMP SUM</td>
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<tr>
<td>603</td>
<td>MAINTENANCE OF TRAFFIC</td>
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<td>LUMP SUM</td>
</tr>
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<td>603</td>
<td>TRAFFIC CONTROL SUPERVISOR</td>
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</tr>
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<td>604</td>
<td>SIGNS</td>
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<td>SQ FT</td>
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<td>TRAFFIC DRUMS</td>
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<td>ADVANCE WARNING ARROW PANEL</td>
<td>75</td>
<td>DAY</td>
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<td>SP &amp; 604</td>
<td>PORTABLE CHANGEABLE MESSAGE SIGN</td>
<td>229</td>
<td>WEEK</td>
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<td>SP &amp; 605</td>
<td>CONCRETE DITCH PAVING (TYPE A)</td>
<td>35000</td>
<td>SQ YD</td>
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<td>617</td>
<td>GUARDRAIL (TYPE A)</td>
<td>1050</td>
<td>LF</td>
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<td>617</td>
<td>TERMINAL ANCHOR POSTS (TYPE 1)</td>
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<td>617</td>
<td>GUARDRAIL TERMINAL (TYPE 2)</td>
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<td>620</td>
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<td>620</td>
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<td>SS &amp; 620</td>
<td>MULCH COVER</td>
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<td>620</td>
<td>WATER</td>
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<td>TEMPORARY SEEDING</td>
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<td>DROP INLET SRK. FENCE</td>
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<td>SEDIMENT REMOVAL AND DISPOSAL</td>
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<td>SOLID SEEDING</td>
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## REVISIONS

<table>
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<tr>
<th>DATE</th>
<th>REVISION</th>
<th>SHEET NUMBER</th>
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SUMMARY OF QUANTITIES AND REVISIONS
STA. H59+37.00
SECTION 2B
END WRSF
IN CL MEDIAN
LOG MILE 4J1

STA. H55+00
END WRSF IN
CL MEDIAN
BEGIN EXCEPTION

STA. H52+68
BEGIN WRSF IN
CL MEDIAN
END EXCEPTION

STA. H52+68 TO STA. H59+00
IN PLACE CONCRETE DITCH PAVING RETAIN

STA. H54+94 IN PLACE
12" HDPE RC PIPE SILVER
24" 32" LL, MW, SRR RETAIN

NOTES
CONTRACTOR TO VERIFY EXISTING CROSSING UTILITIES PRIOR TO CONSTRUCTION. EXERCISE CARE AND PRECAUTION WHILE WORKING IN THESE AREAS.

PLAN SHEETS
STA. H49+00 - STA. H60+30.18
STA. 299+60.00
SECTION 28
END WSSF
IN CL. MEDIAN
LOG MILE 60.43

STA. 2206+00 IN PLACE
8" PVC, GVE
TYPE RM DROP INLET IN MED.
RETAIN

STA. 2206+00 IN PLACE
8" PVC, GVE
TYPE RM DROP INLET IN MED.
RETAIN

NOTE:
CONTRACTOR TO VERIFY EXISTING CROSSING
UTILITIES PRIOR TO CONSTRUCTION. EXERCISE
CARE AND PRECAUTION WHILE WORKING IN
THESE AREAS.
Refer to tabulation of quantities for "W" dimension.

Excavate to neuq lines to construct ditch paving and solid footing.

Refer to tabulation of quantities for "W" dimension.

The steel and additional concrete for the wall shall be included in the base bid.

Toe wall detail for concrete ditch paving.

Toe wall depth may be related to 1/8" when directed by the engineer in rock excavation.

General notes:

The full width of each section shall be poured monolithically.

Toe walls may 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.

2" wide transverse expansion joints shall be placed in concrete ditch paving at 40' intervals. The space shall be filled with approved joint filler complying with AASHTO M15.
DETAILS OF W-BEAM GUARD RAIL
ALL SECTIONS OF CLOSED SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.

SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH

CUT STEEL WASHER
NUT

CHAPTER ONE SIZE
6/8 X 9/16 X 1/2 DEEP
REELS ONE BOX

-GENERAL NOTES-
ALL BOLTS SHALL BE EQUALLY SPACED AND TO EXTEND THROUGH THE FULL THICKNESS OF THE HOLE AND NO MORE THAN 1/2" BEYOND THE EXTERIOR SURFACE OF THE MEMBER. HOLE IN CONTEXT SHALL BE DUG OFF 1/2" DEEP UNLESS OTHERWISE NOTED. ALL STEEL NUTS AND NUTS AND BOLT CAPS AND OTHER SIMILAR PARTS SHALL BE OF THE STRENGTH AND QUALITY AS SPECIFIED.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXISTING IN WOODEN GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF SAME TYPE AS THOSE EXISTING SHALL BE USED.

SAND, TIDAL, OR WATER LINES EMBANKMENTS BODY OR ROAD POSTS & MUST BEiams AT THE DIRECTION OR REQUIREMENTS FOR WATERWAY, FLOOD, AND ROAD HAZARDS.

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS IN W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS AS LONG AS THE BLOCKOUTS MEET THE REQUIREMENTS OF THIS SPECIFICATION OR AS PROVIDED.
EDGE OF TRAVELED WAY

TRAFFIC

A

B

EDGE OF SHOULDER

END TERMINAL

GUARD RAIL

5'-6" NORMAL

4'-6" Normal

2'-0" MIN

50'-0"

76'-0"

SLOPE AS SHOWN ON TYPICAL SECTION

NOTE: NORMAL SECTION TO BE WIDER APPROX. 8'-6"
SAY TO SUPPORT GUARD RAIL

NORMAL ROADWAY WIDTH

NORMAL ROADWAY WIDTH

SLOPE AS SHOWN ON TYPICAL SECTION

SECTION A-A

SLOPE AS SHOWN ON TYPICAL SECTION

SECTION B-B

GUARD RAIL (TYPE A)

GUARD RAIL (TYPE A)

3'-0" OR FLATTER

3'-0" OR FLATTER

0.04 FT/FT

0.02 FT/FT

VAR. 5'-6" NORM. ADD'L. SURFACING

NORMAL SHOUL. SURF. 7'-0" NORM.

NORMAL SHOUL. SURF. 7'-0" NORM.

0.04 FT/FT

0.02 FT/FT

VAR. 5'-6" NORM. ADD'L. SURFACING

METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DETAILS OF WIDENING FOR GUARD RAIL

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-9A
REINFORCED CONCRETE ARCH PIPE DIMENSIONS

MINIMUM HEIGHT OF.setFill "H" OVER R.C. AND PIPE CULVERTS

 Minimum Height

<table>
<thead>
<tr>
<th>CLASS OF PIPE</th>
<th>INSTALLATION TYPE</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS V</th>
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</thead>
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<td>2</td>
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<tr>
<td>PIPE ID ONLY</td>
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<td>12-15</td>
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<td>2</td>
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<td>5.5</td>
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<td>2</td>
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<td>84-96</td>
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Note: Minimum cover values must include a minimum of 12" of pavement and/or base.

MAXIMUM HEIGHT OF.setFill "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

 Maximum Height

<table>
<thead>
<tr>
<th>CLASS OF PIPE</th>
<th>INSTALLATION TYPE</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS V</th>
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</thead>
<tbody>
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<td></td>
<td>TYPE 2</td>
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</tr>
<tr>
<td></td>
<td>TYPE 3</td>
<td>13</td>
<td>20</td>
<td>30</td>
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</tbody>
</table>

Note: Maximum height exceeds 5 feet, a special design lift pipe will be required using type 1 installation.

GENERAL NOTES

1. CONCRETE PIPE CULVERTS shall conform to Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, current edition, with applicable supplements, specifications and special provisions. Unless otherwise noted in the plans, section and subsection refer to the standard construction specifications.

2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO ASHRAE LOAD DESIGN SPECIFICATIONS, FIFTH EDITION, 1989, WITH D20 INTERCEPT.

3. ALL PIPE SHALL CONFORM TO SECTION 9450 CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO ASHRAE WITH ALL ACH PIPE CULVERTS SHALL CONFORM TO ASHRAE NOSE AND HORIZONTAL, ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO ASHRAE NOSE.

4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE TO PASSAGE OF COMMERCE.

5. THE MINIMUM TRENCH DEPTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MINIMUM ALLOWABLE TRENCH DEPTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.

6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MAXIMUM CLEARANCE OF 24 INCHES BETWEEN TOWNSHIP OF PIPE REFER TO 5.14.1.2 FOR WORKING CLEARANCE WHERE FLARED SYSTEM IS NOT USED.

7. INFILL MATERIALLS SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE END OF THE TRENCH TO PREVENT LOSS OF EMBEDDING WHEN PRESSURE WATER IS USED FOR STRUCTURAL BEDDING AND OR BACKFILL.

8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE EXCAVATION. ONE MAY BE LEFT IN PLACE, BUT IN SUCH CASES, WATER EMBANKMENT MUST BE PROVIDED, WELL INSIDE OF THE INSTALLED CONCRETE PIPE. WHERE EMBANKMENT IS NOT PROVIDED A TWO INCHES SQUARE CUTTING OR DEPTH OF REMOVAL WILL NOT BE PERMITTED. HOLES SHOULD BE PLACED AROUND THE TRENCH HOLES WILL BE ATTAINED IN A NONMANDATORY MANNER. LIFTING HOLE WILL BE FILLED WITH WOOD, CONCRETE, OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
