DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	1	355
				(2)	SALINE RIVER-SOUTH (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

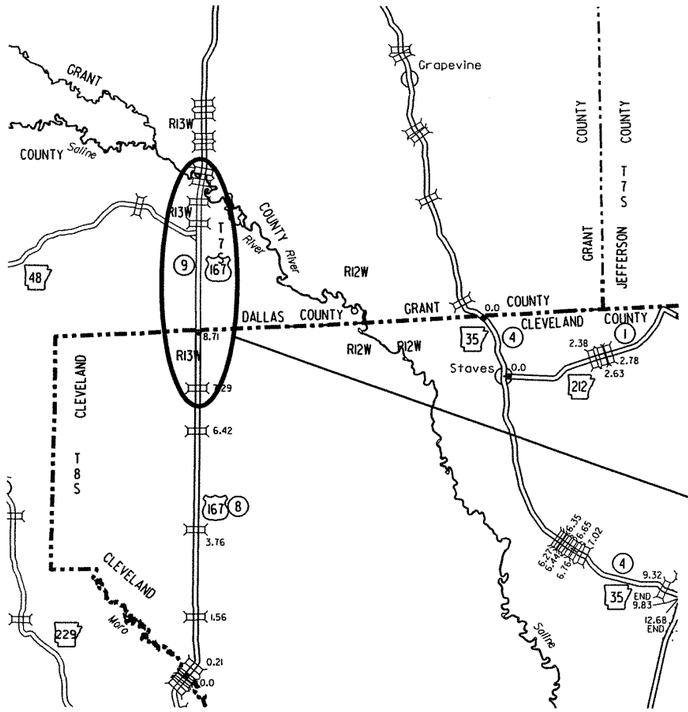
SALINE RIVER-SOUTH (S)

CLEVELAND & DALLAS COUNTIES

ROUTE 167 SECTIONS 8 & 9

JOB 070291

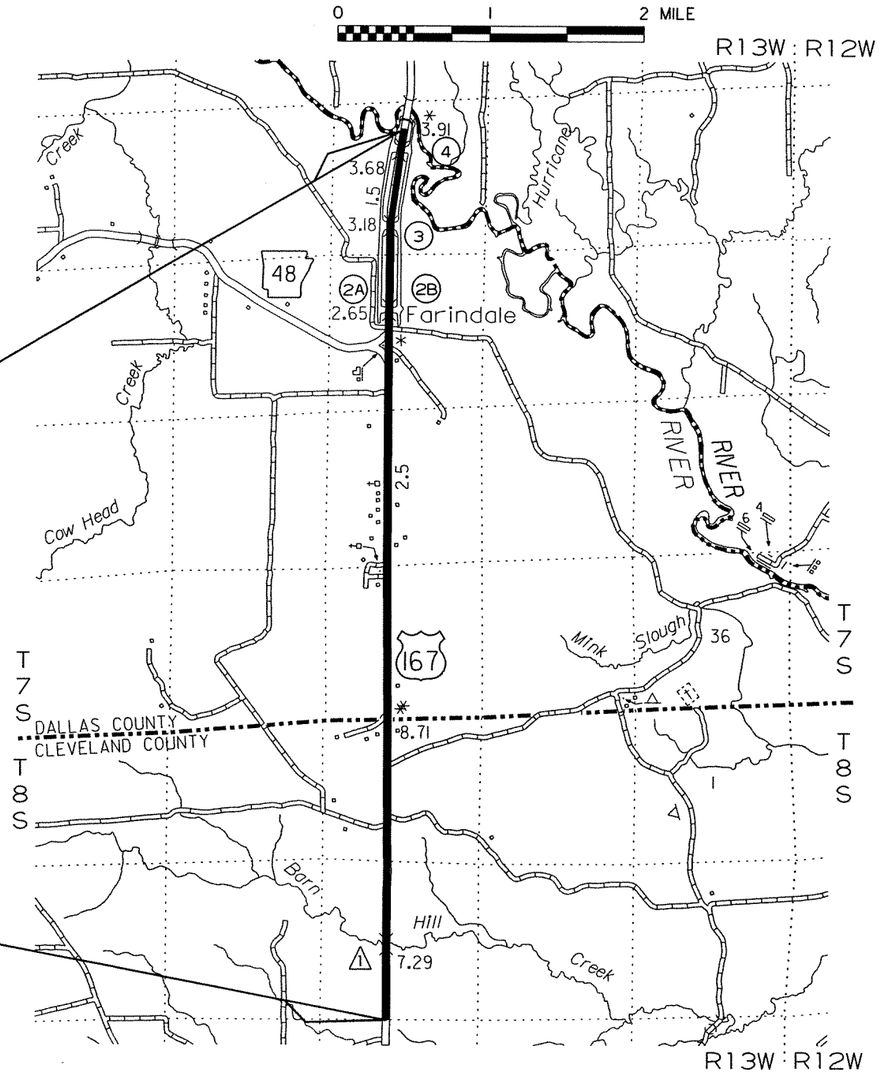
FED. AID PROJ. NH-1320(1)



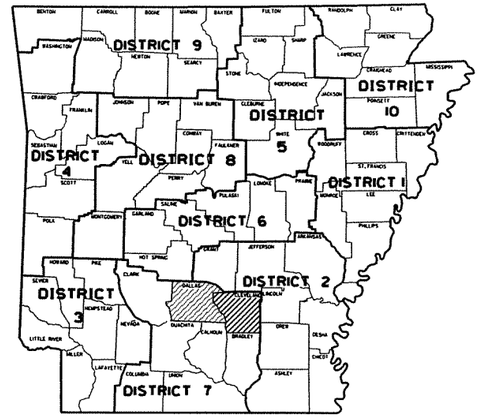
VICINITY MAP

PROJECT LOCATION

END JOB 070291
STA. 1181+89.17



BEGIN JOB 070291
STA. 882+00.00
LOG MILE 6.90



ARK. HWY. DIST. NO. 7

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2032
2012 ADT	4200
2032 ADT	5800
2032 DHV	638
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	24%
DESIGN SPEED	60 MPH
AVERAGE RUNNING SPEED	55 MPH

STRUCTURES OVER 20'-0" SPAN

(1) STA. 902+62 - IN PLACE
DBL. 10' x 8' x 80' R.C. BOX CULV'T.
RETAIN AND EXTEND 90'LT.
TO A COMPLETED LENGTH OF 170'
CONSTRUCT TYPE 'TM' DROP INLET IN MEDIAN
3'-0" x 2'-6½" x H = 0'-6"
Q50=1098cfs; D.A.=1777Ac.
SPAN = 22'-2"

BRIDGE DATA

(2A) STA. 1117+70.94 BR. END
180'-0" CONT. COMP. PRESTRESSED
CONCRETE GIRDER UNIT TYPE III
38'-0" CLEAR ROADWAY
BR. NO. A7244
STA. 1119+53.06 BR. END

(2B) STA. 1117+70.94 BR. END
180'-0" CONT. COMP. PRESTRESSED
CONCRETE GIRDER UNIT TYPE III
38'-0" CLEAR ROADWAY
BR. NO. B7244
STA. 1119+53.06 BR. END

(3) STA. 1145+73.40 BR. END
300'-0" CONT. COMP. PRESTRESSED
CONCRETE GIRDER UNIT TYPE III
75'-0" CLEAR ROADWAY
BR. NO. 07245
STA. 1148+75.60 BR. END

(4) STA. 1172+35.90 BR. END
240'-0" CONT. COMP. PRESTRESSED
CONCRETE GIRDER UNIT TYPE III
75'-0" CLEAR ROADWAY
BR. NO. 07246
STA. 1174+78.10 BR. END

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 34°01'56"	N 34°04'24"	N 34°06'52"
LONGITUDE	W 92°24'38"	W 92°24'32"	W 92°24'21"

LENGTH COMPUTED ALONG C.L. HWY. 167

GROSS LENGTH OF PROJECT	29989.17	FEET OR	5.680	MILES
NET	ROADWAY	29240.48	"	5.538	"
NET	BRIDGES	748.69	"	0.142	"
NET	PROJECT	29989.17	"	5.680	"

P.E. 001914
NON-PART.

N

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 8917
FRANK VOZEL

5/24/13

DEPUTY DIRECTOR
AND CHIEF ENGINEER

r070290.dgn 1/28/2010

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195	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER		TC-4	10-15-09
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NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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(2) INDEX OF SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

5/23/2012

R070291.DGN

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				6	ARK.			
				JOB NO.		070291	3	355

(2) GOVERNING SPECS. AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER **TITLE**

ERRATA_____ ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__ FHWA-1273 REVISIONS
FHWA-1273__ REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__ SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__ SUPPLEMENT - TRAINING PROGRAM - JOB 070291
FHWA-1273__ SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__ SUPPLEMENT - WAGE RATE DETERMINATION
100-2_____ MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
102-1_____ BIDDING REQUIREMENTS AND CONDITIONS
103-1_____ DETERMINATION OF DBE PARTICIPATION
105-1_____ CONSTRUCTION CONTROL MARKINGS
105-2_____ EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
105-3_____ CONTROL OF WORK
107-1_____ WORKER VISIBILITY
108-1_____ LIQUIDATED DAMAGES
110-1_____ PROTECTION OF WATER QUALITY AND WETLANDS
303-1_____ AGGREGATE BASE COURSE
404-1_____ PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
409-1_____ MINERAL AGGREGATES
410-3_____ DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-1_____ ASPHALT CONCRETE COLD PLANT MIX
600-1_____ WATER FOR VEGETATION
603-1_____ MAINTENANCE OF TRAFFIC
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-2_____ INSPECTION OF TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____ PIPE CULVERTS FOR SIDE DRAINS
606-2_____ PIPE CULVERTS
718-2_____ REFLECTORIZED PAINT PAVEMENT MARKINGS
719-2_____ THERMOPLASTIC PAVEMENT MARKING MATERIAL
804-1_____ INSTALLATION OF DOWEL BARS AND TIE BARS
JOB 070291__ ASPHALT CONCRETE HOT MIX SURFACE COURSE SURFACE TOLERANCE AND INCENTIVE PAYMENTS
JOB 070291__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 070291__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 070291__ CLEARING AND GRUBBING
JOB 070291__ COMPACTED EMBANKMENT
JOB 070291__ CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 070291__ COORDINATION OF WORK
JOB 070291__ CULVERT CLEAN OUT
JOB 070291__ EMBANKMENT CONSTRUCTION
JOB 070291__ EXTENSION FOR PIPE CULVERTS
JOB 070291__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 070291__ HIGH PERFORMANCE PAVEMENT MARKING
JOB 070291__ INTERNET BIDDING
JOB 070291__ NESTING SITES OF MIGRATORY BIRDS
JOB 070291__ PARTNERING REQUIREMENTS
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JOB 070291__ SILICONE JOINT SEALANT
JOB 070291__ SITE USE (A + C METHOD)
JOB 070291__ SOIL STABILIZATION
JOB 070291__ STORM WATER POLLUTION PREVENTION PLAN
JOB 070291__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 070291__ TEMPORARY IMPACT ATTENUATION BARRIER
JOB 070291__ UTILITY ADJUSTMENTS
JOB 070291__ VALUE ENGINEERING
JOB 070291__ WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY 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.

6/1/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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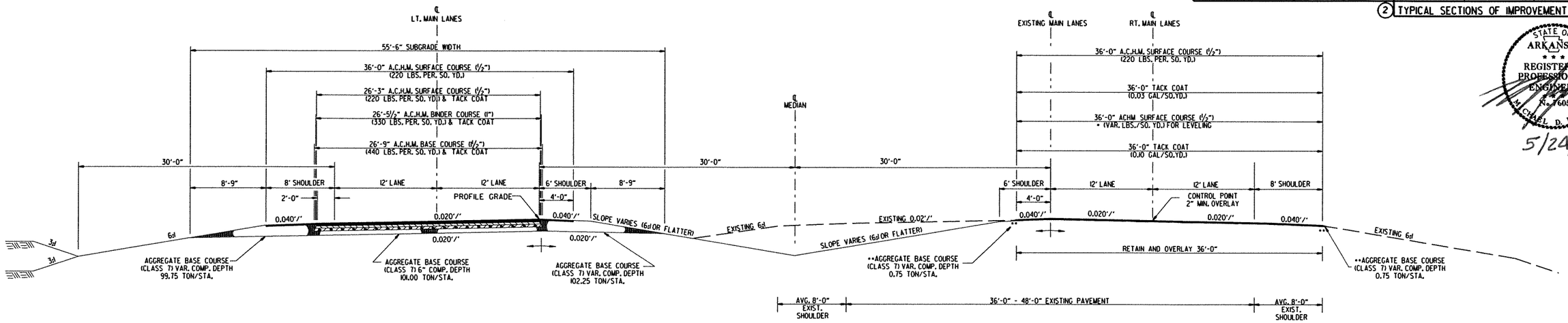
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 17605
MICHAEL D. PUGETT
5/24/12



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

•• AGGREGATE BASE COURSE SHALL BE UNIFORMLY COMPACTED, STABLE AND FREE OF SEGREGATED AREAS. THE DENSITY REQUIREMENTS OF SECTION 303 ARE WAIVED.

HWY. 167 - 4 LANE DIVIDED
(OVERLAY RIGHT MAIN LANES)

STA. 882+00.00 TO STA. 954+50.00

NOTES:

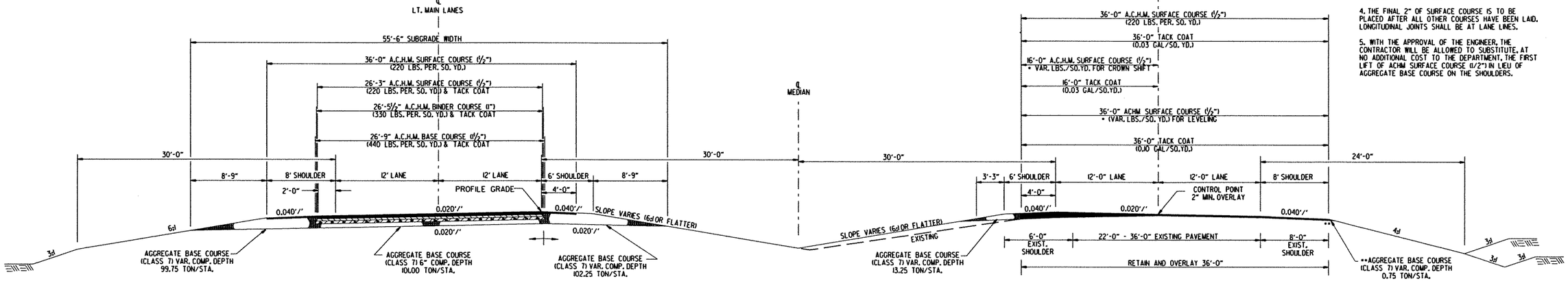
1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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

5. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

•• AGGREGATE BASE COURSE SHALL BE UNIFORMLY COMPACTED, STABLE AND FREE OF SEGREGATED AREAS. THE DENSITY REQUIREMENTS OF SECTION 303 ARE WAIVED.

HWY. 167 - 4 LANE DIVIDED
(OVERLAY RIGHT MAIN LANES)

STA. 954+50.00 TO STA. 1010+27.71①
STA. ②1077+71.82 TO STA. 1120+00.55③

① STA. 1010+27.71-1030+00.29 TRANSITION FROM OVERLAY RT. MAIN LANES TO OVERLAY LT. MAIN LANES

② STA. 1058+05.42-1077+71.82 TRANSITION FROM OVERLAY LT. MAIN LANES TO OVERLAY RT. MAIN LANES

③ STA. 1120+00.55-1142+50.00 TRANSITION FROM 4 LANE DIVIDED (OVERLAY RT. MAIN LANES) TO 5 LANE SECTION (FULL DEPTH)

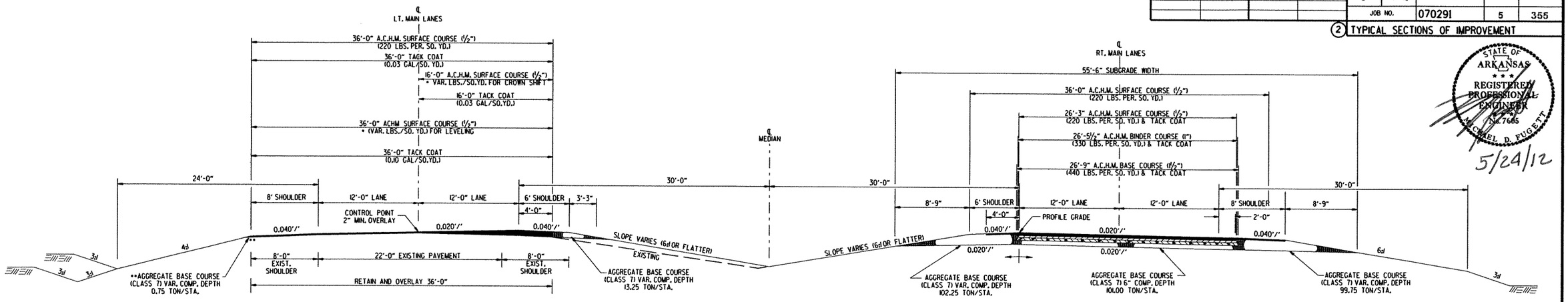
6/1/2012

R070291.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	5	355

(2) TYPICAL SECTIONS OF IMPROVEMENT



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

** AGGREGATE BASE COURSE SHALL BE UNIFORMLY COMPACTED, STABLE AND FREE OF SEGREGATED AREAS. THE DENSITY REQUIREMENTS OF SECTION 303 ARE WAIVED.

HWY. 167 - 4 LANE DIVIDED (OVERLAY LEFT MAIN LANES)

STA. ①1030+00.29 TO STA. 1058+05.42②

① STA. 1010+27.71-1030+00.29 TRANSITION FROM OVERLAY RT. MAIN LANES TO OVERLAY LT. MAIN LANES

② STA. 1058+05.42-1077+71.82 TRANSITION FROM OVERLAY LT. MAIN LANES TO OVERLAY RT. MAIN LANES

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

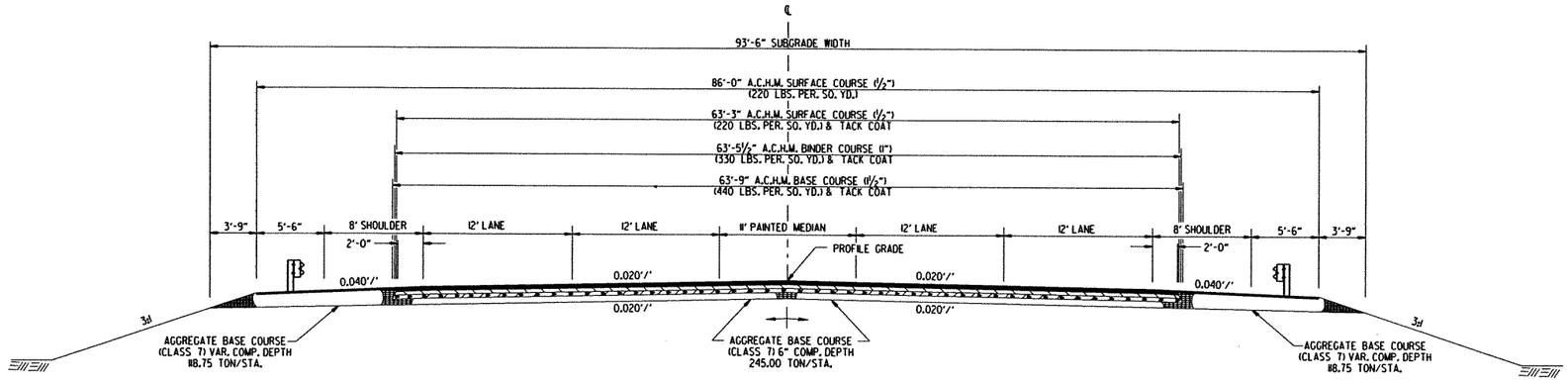
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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

5. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7665
MICHAEL D. PUGETT
5/24/12



HWY. 167 - 5 LANE SECTION (FULL DEPTH)

STA. ③1142+50.00 TO STA. 1145+73.40
STA. 1148+75.60 TO STA. 1148+94.74
STA. 1170+60.00 TO STA. 1172+35.90
STA. 1174+78.10 TO STA. 1177+00.00

③ STA. 1120+00.55-1142+50.00 TRANSITION FROM 4 LANE DIVIDED (OVERLAY RT. MAIN LANES) TO 5 LANE SECTION (FULL DEPTH)

6/1/2012

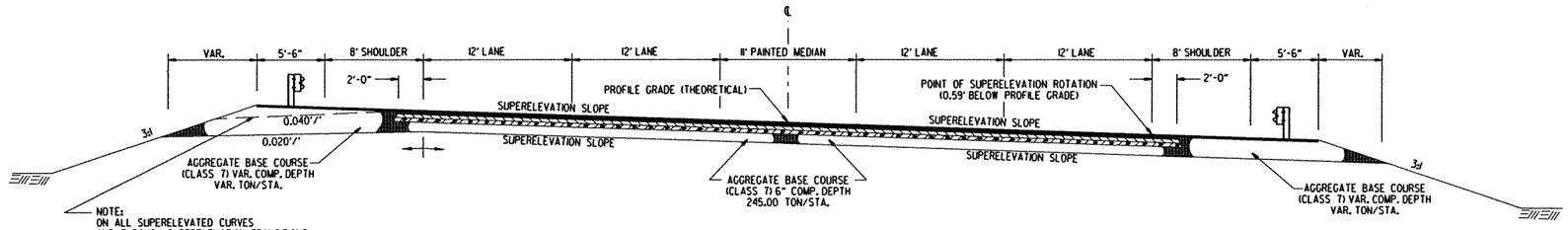
R070291.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	6	355

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 17605
MICHAEL D. FUGETT
5/24/12



HWY. 167 - 5 LANES
(SUPERELEVATED)

(PAVEMENT SECTION SAME AS SHOWN IN FULL DEPTH SECTION)

NOTE: ROTATE SUPERELEVATION AROUND INSIDE PAVEMENT EDGE

STA. 1148+94.74 TO STA. 1153+00.00

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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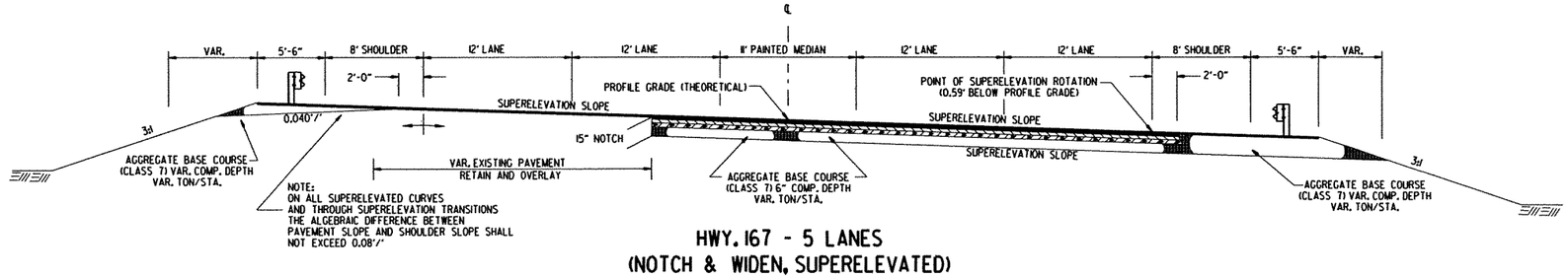

HWY. 167 - 5 LANES
(NOTCH & WIDEN, SUPERELEVATED)

(PAVEMENT SECTION SAME AS SHOWN IN NOTCH & WIDEN SECTION)

NOTE: ROTATE SUPERELEVATION AROUND INSIDE PAVEMENT EDGE

STA. 1153+00.00 TO STA. 1157+87.74

6/1/2012

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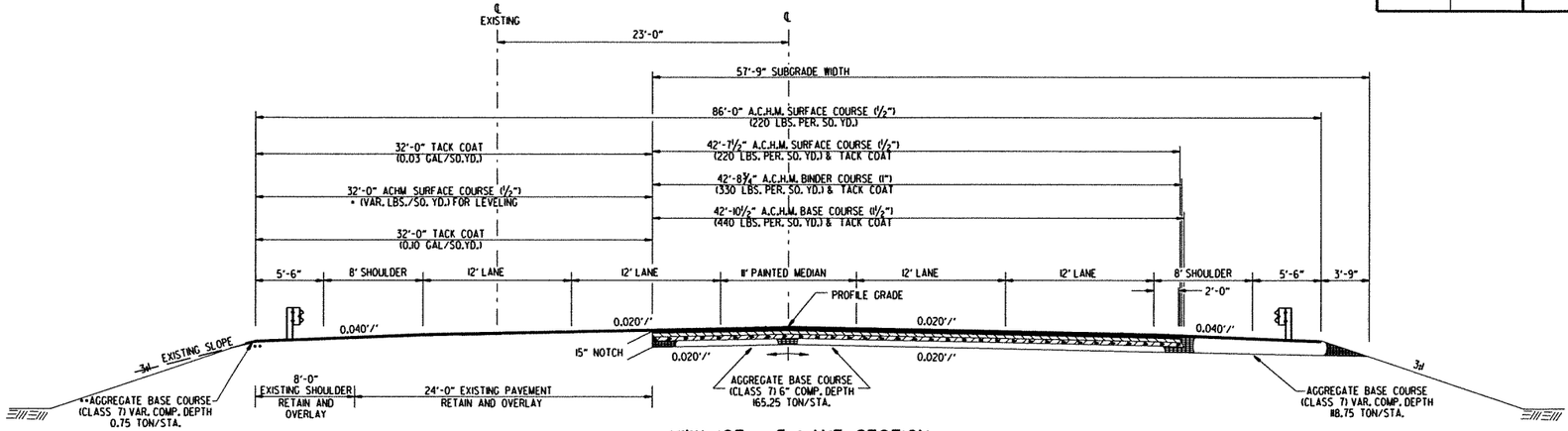
TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	7	355

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



HWY. 167 - 5 LANE SECTION (NOTCH AND WIDEN)

STA. 1157+87.74 TO STA. 1170+60.00
STA. 1177+00.00 TO STA. 1181+89.17

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

** AGGREGATE BASE COURSE SHALL BE UNIFORMLY COMPACTED, STABLE AND FREE OF SEGREGATED AREAS. THE DENSITY REQUIREMENTS OF SECTION 303 ARE WAIVED.

NOTES:

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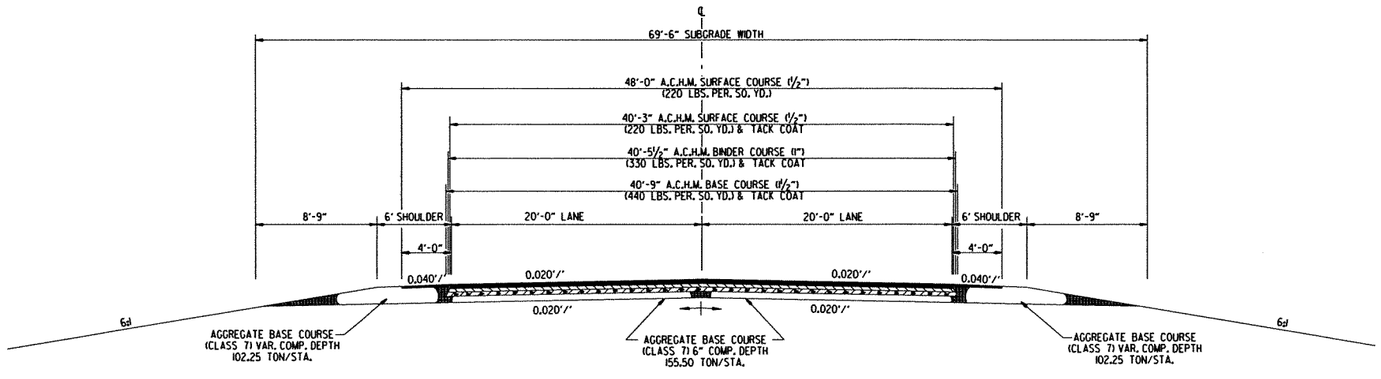


MEDIAN TURNAROUND & ST. HWY. COUNTY ROAD CROSSING TYPICAL

NOTE: CROSSINGS ON SKEW WILL INCREASE WIDTH OF PAVEMENT.

6/1/2012

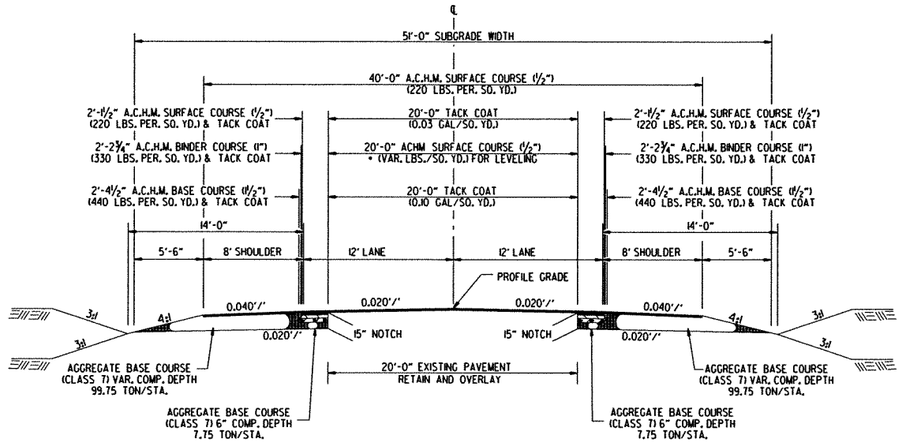
R070291.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	8	355

(2) TYPICAL SECTIONS OF IMPROVEMENT

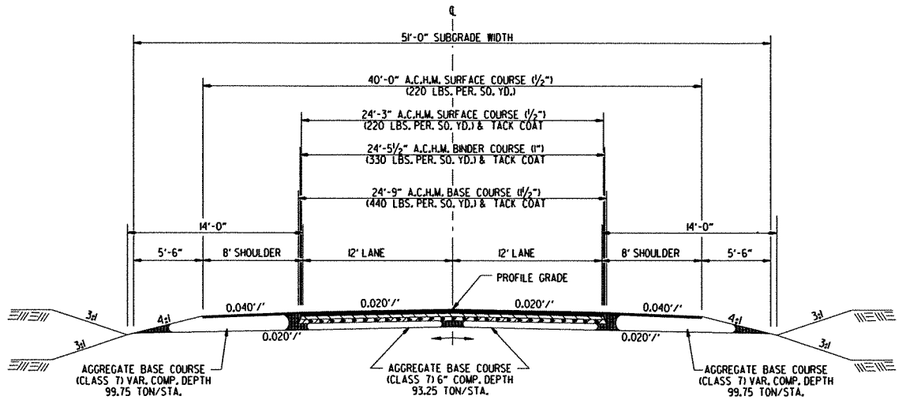
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



HWY. 48
(NOTCH AND WIDEN)

STA. 104+50.00 TO STA. 106+30.00

• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



HWY. 48
(FULL DEPTH)

STA. 106+30 TO STA. 109+16.51

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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6/1/2012

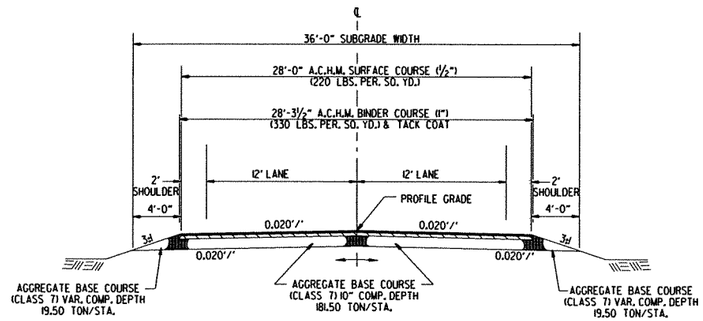
R070291.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	9	355

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



TEMPORARY CROSSOVER

STA. 1111+99.25 TO STA. 1117+59.43

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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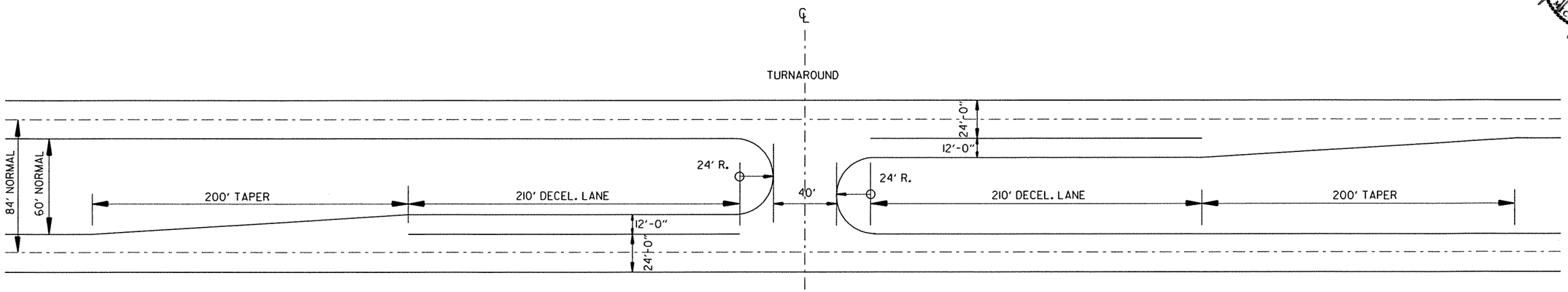
R070291.DGN 6/1/2012

TYPICAL SECTION OF IMPROVEMENT

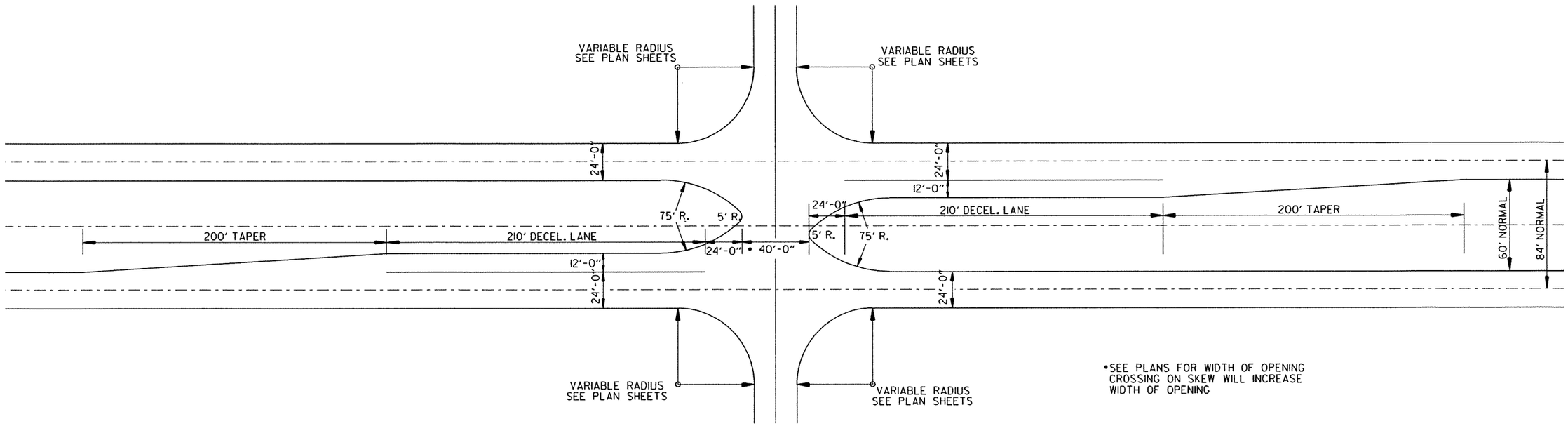
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	10	355

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



PLAN OF MEDIAN TURNAROUND

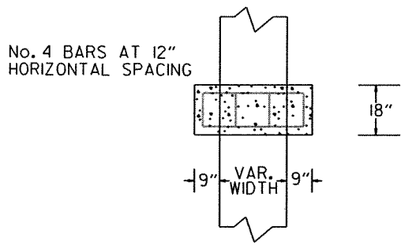


DETAIL OF HIGHWAY OR COUNTY ROAD CROSSING

R070291.DGN 6/1/2012

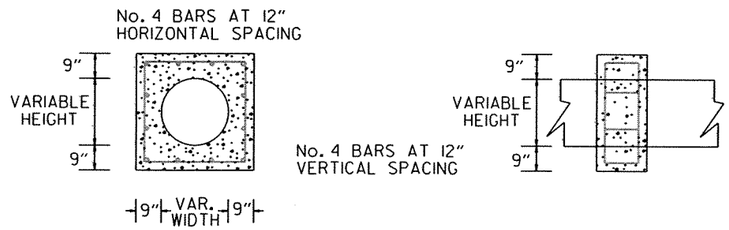
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	11	355

(2) SPECIAL DETAILS



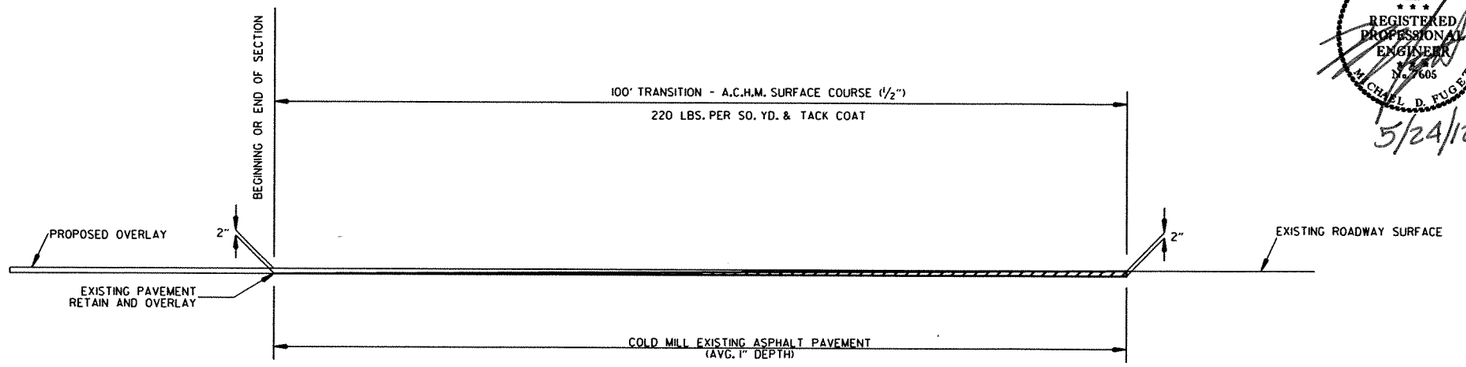
TOP VIEW

MIN 3" COVER



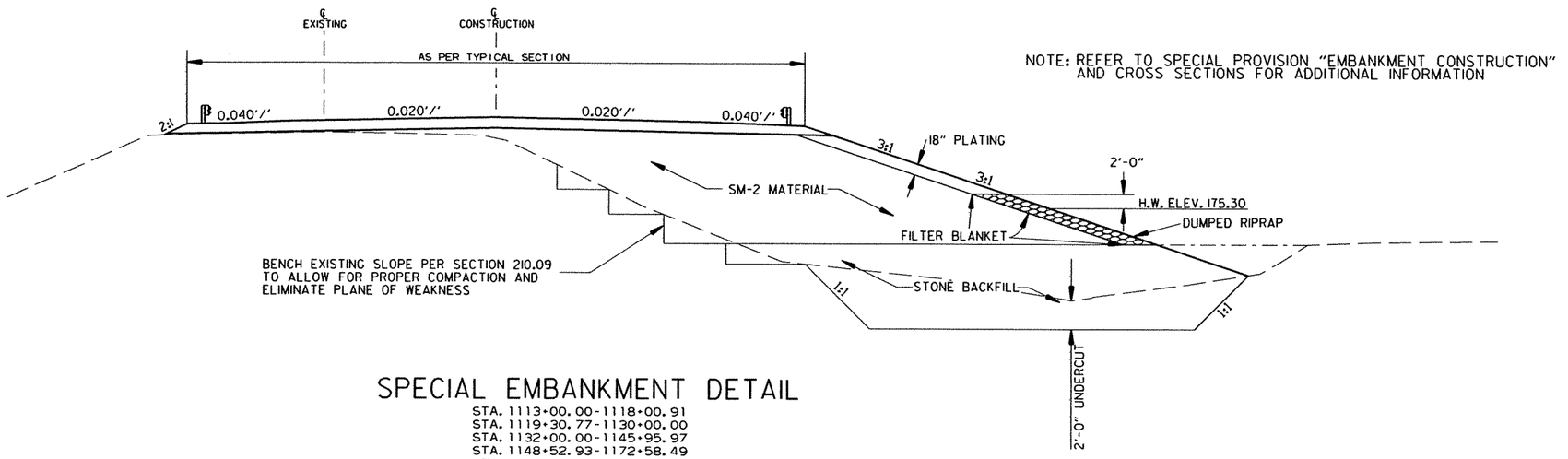
FRONT VIEW SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL



DETAILS FOR PAVEMENT TRANSITIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

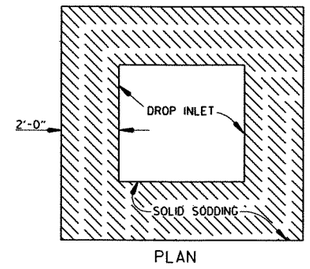


NOTE: REFER TO SPECIAL PROVISION "EMBANKMENT CONSTRUCTION" AND CROSS SECTIONS FOR ADDITIONAL INFORMATION

SPECIAL EMBANKMENT DETAIL

STA. 1113+00.00-1118+00.91
STA. 1119+30.77-1130+00.00
STA. 1132+00.00-1145+95.97
STA. 1148+52.93-1172+58.49
STA. 1174+55.45-1179+00.00

ADDITIONAL LOCATIONS OF UNDERCUT AS DIRECTED BY THE ENGINEER WHERE EMBANKMENT CONSTRUCTION EXTENDS OVER EXISTING BORROW DITCHES.



PLAN

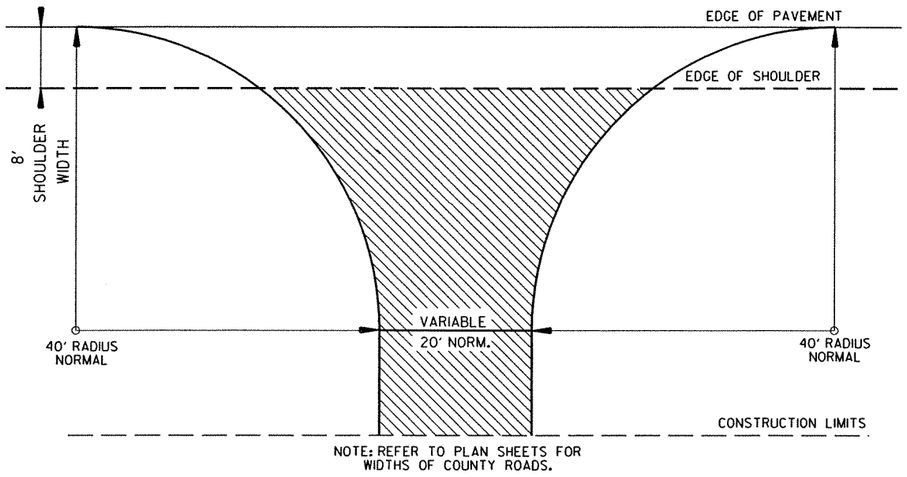
DETAIL OF SOLID SODDING AROUND DROP INLET

R070291.DGN 6/4/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	12	355

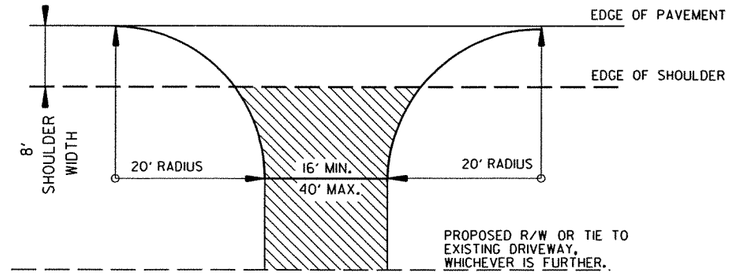
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. FUGETT
5/24/12



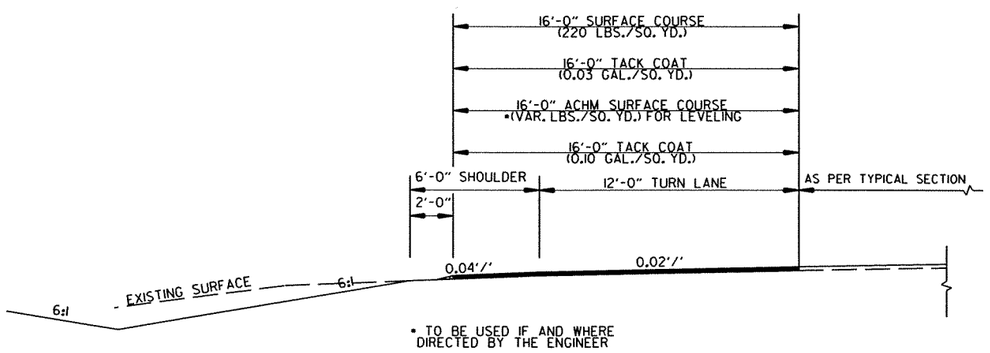
NOTE: REFER TO PLAN SHEETS FOR WIDTHS OF COUNTY ROADS.

A.C.H.M. SURFACE COURSE (½") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.



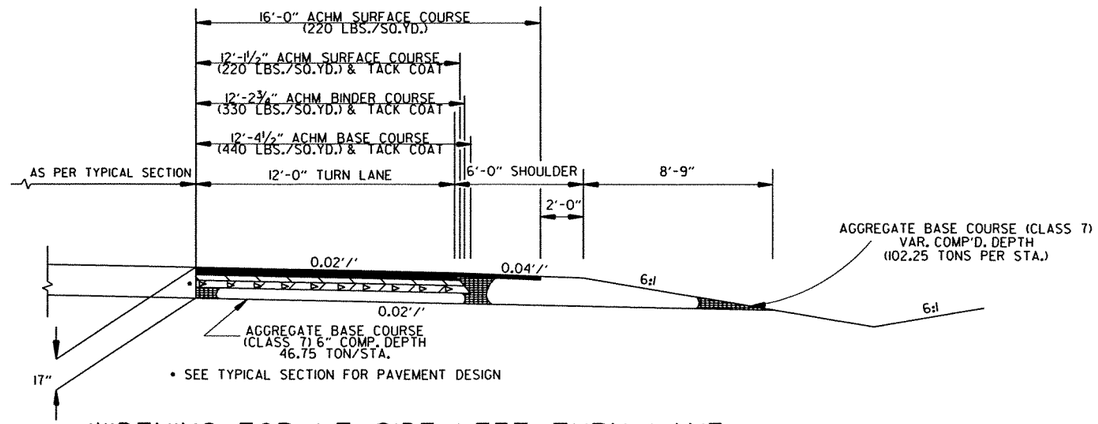
DETAIL FOR COUNTY ROAD TURNOUTS

DETAIL FOR DRIVEWAY TURNOUTS



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

WIDENING FOR RT. SIDE LEFT TURN LANE (OVERLAY)



* SEE TYPICAL SECTION FOR PAVEMENT DESIGN

WIDENING FOR LT. SIDE LEFT TURN LANE (FULL DEPTH)

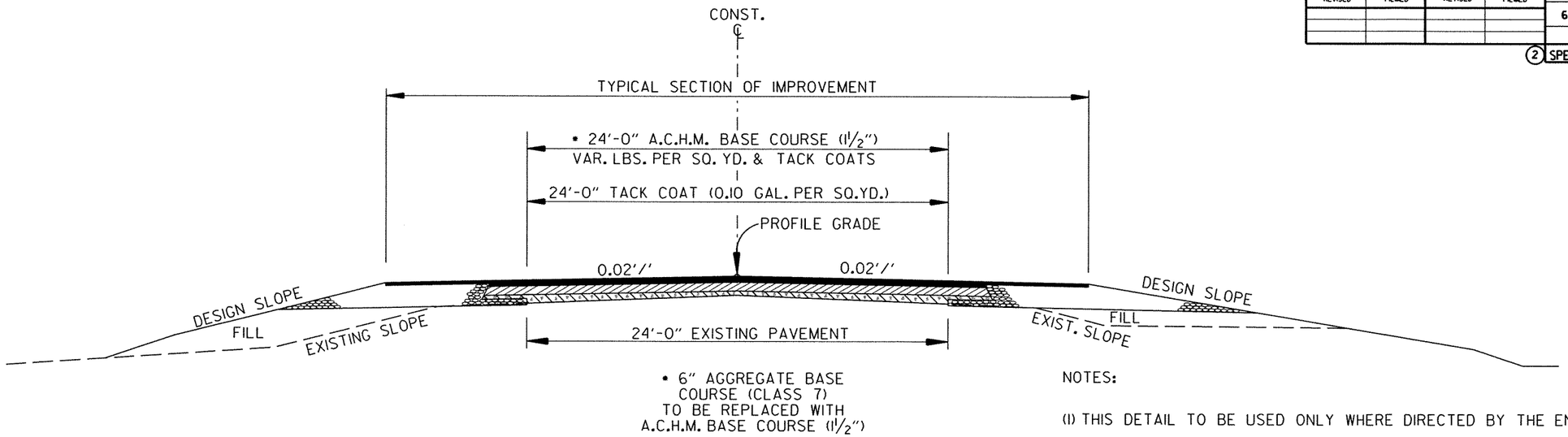
REVERSE DETAIL FOR RT. SIDE LEFT TURN LANE

R070291.DGN 6/1/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	13	355

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



• 6" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH A.C.H.M. BASE COURSE (1½")

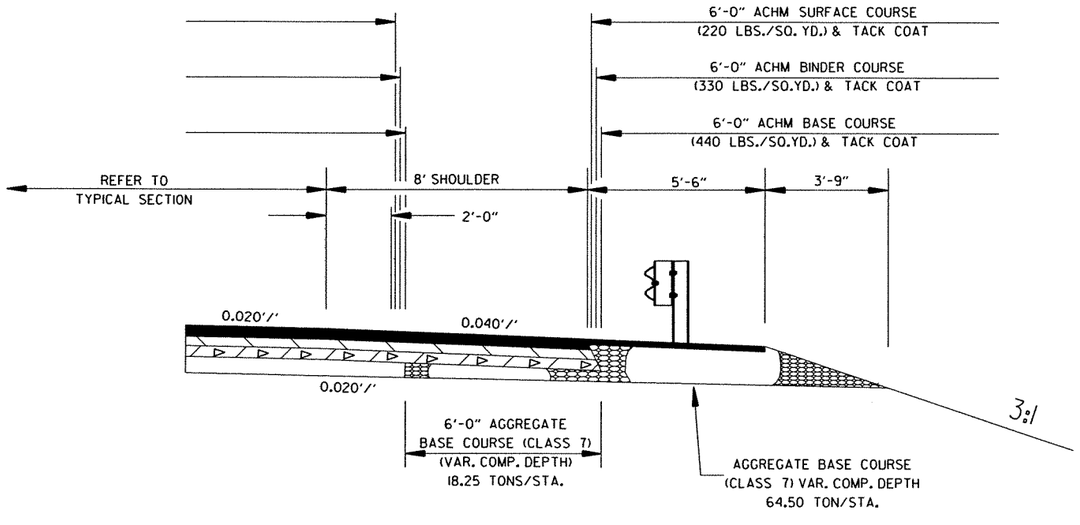
METHOD OF RAISING GRADE

NOTES:

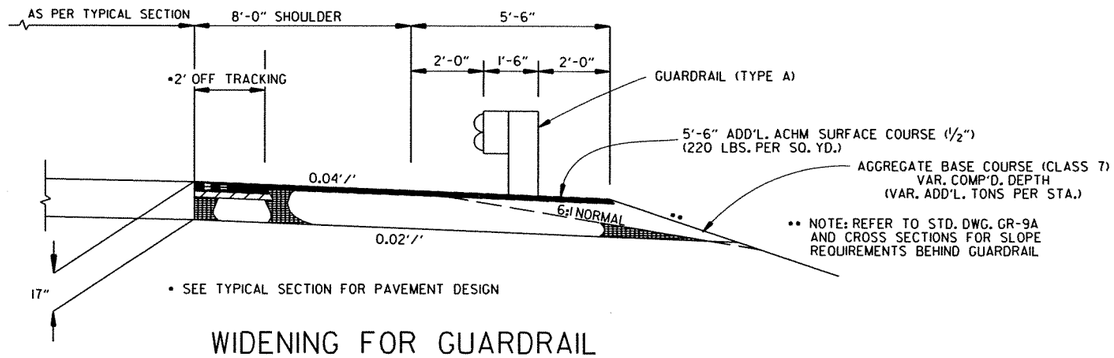
(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.

(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.

(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003.



FULL DEPTH SHOULDER FOR MAINTENANCE OF TRAFFIC



WIDENING FOR GUARDRAIL

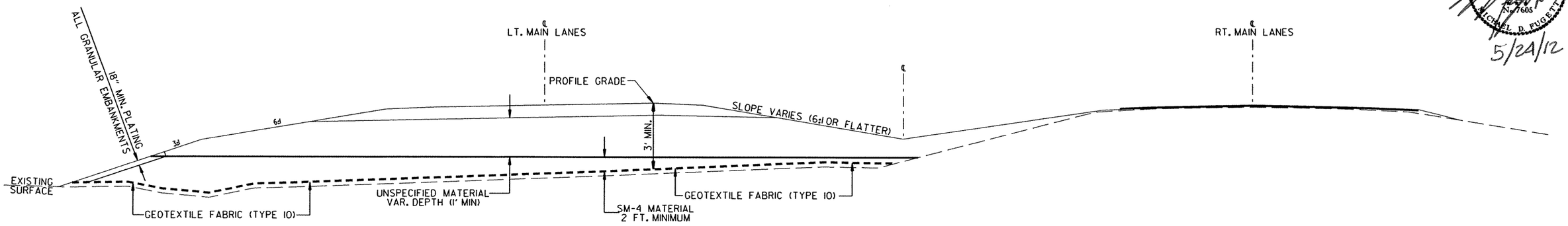
R070291.DGN 6/1/2012

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	14	355

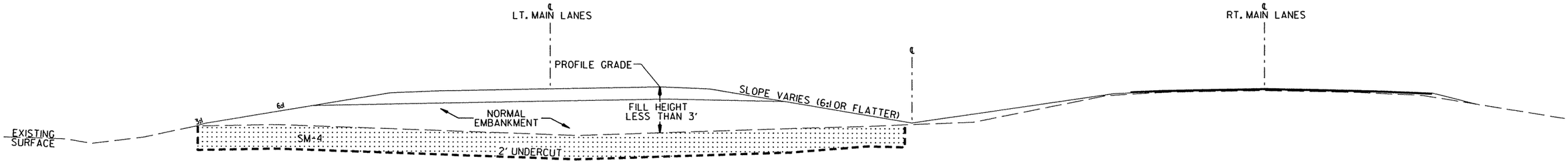
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
5/24/12



DETAIL OF EMBANKMENTS (GREATER THAN 3 FEET)

STA. 1030+00.29 TO STA. 1058+05.42 REVERSE DETAIL



DETAIL OF EMBANKMENTS (3 FEET OR LESS)

NOTE: TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

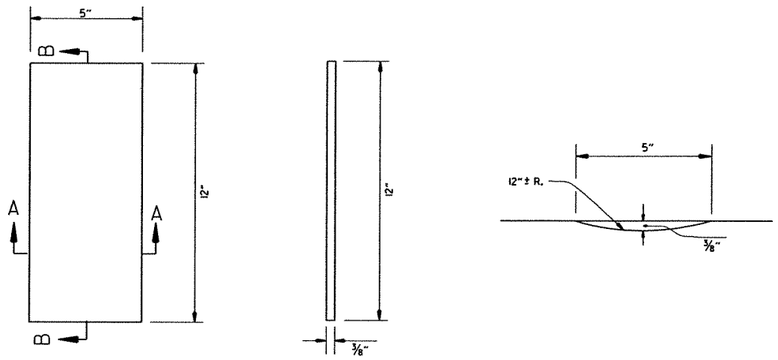
STA. 1030+00.29 TO STA. 1058+05.42 REVERSE DETAIL

R070291.DGN 6/1/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	15	355

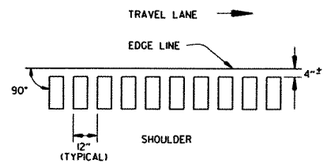
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

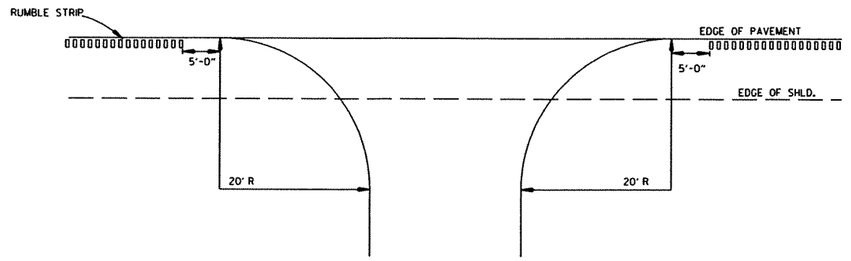


PLAN SECTION B-B SECTION A-A

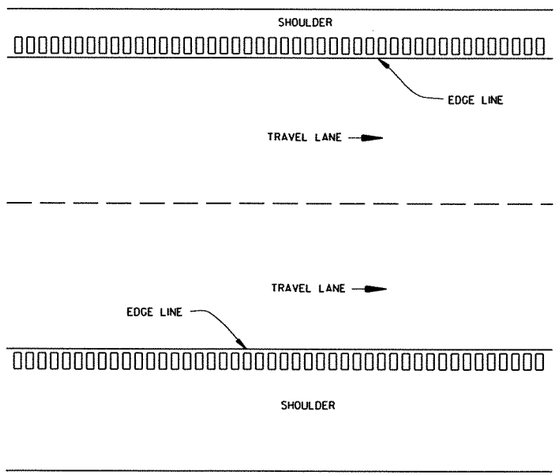
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



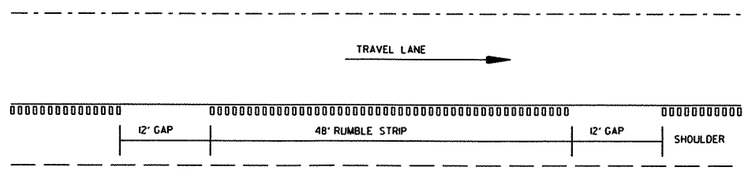
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPS SHALL NOT BE INSTALLED ON CURB SECTIONS, BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPS SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. THE 4" OFFSET FROM THE EDGE LINE MAY BE INCREASED TO AVOID LONGITUDINAL JOINTS. IN ALL CASES, THE LATERAL DEVIATION FROM THE PLANNED OFFSET SHOULD BE KEPT TO A MINIMUM.
4. RUMBLE STRIPS SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPS HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPS HAVE NOT BEEN CONSTRUCTED.
5. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



DETAIL FOR GAP PATTERN RUMBLE STRIP

NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

4 LANE DIVIDED

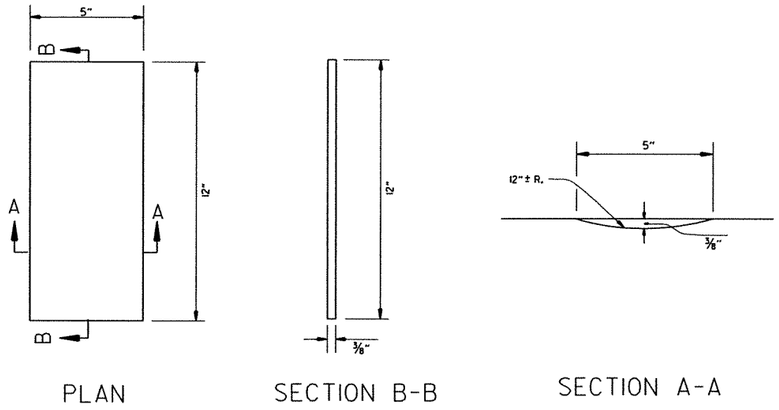
R070291.DGN 6/1/2012

SPECIAL DETAILS

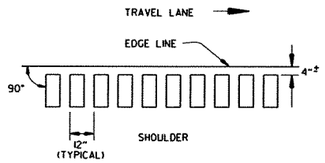
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	16	355

(2) SPECIAL DETAILS

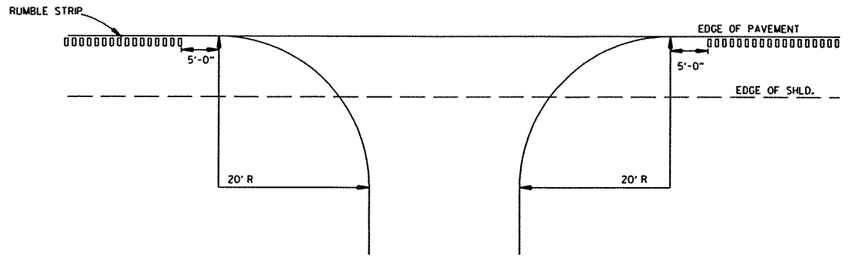
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



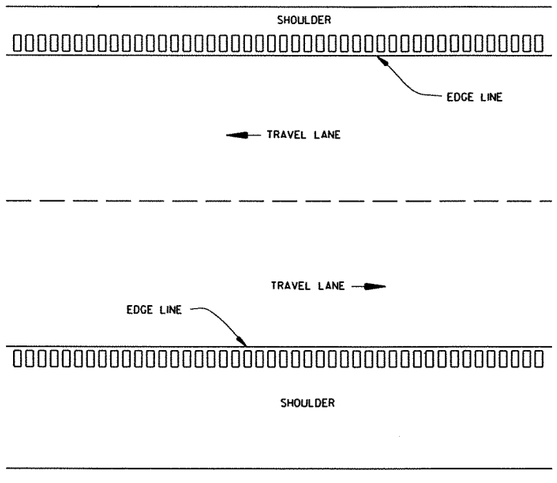
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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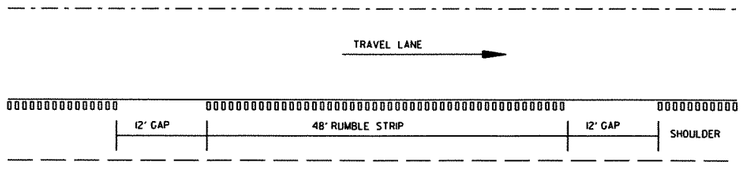


DETAIL FOR GAP PATTERN RUMBLE STRIP

NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

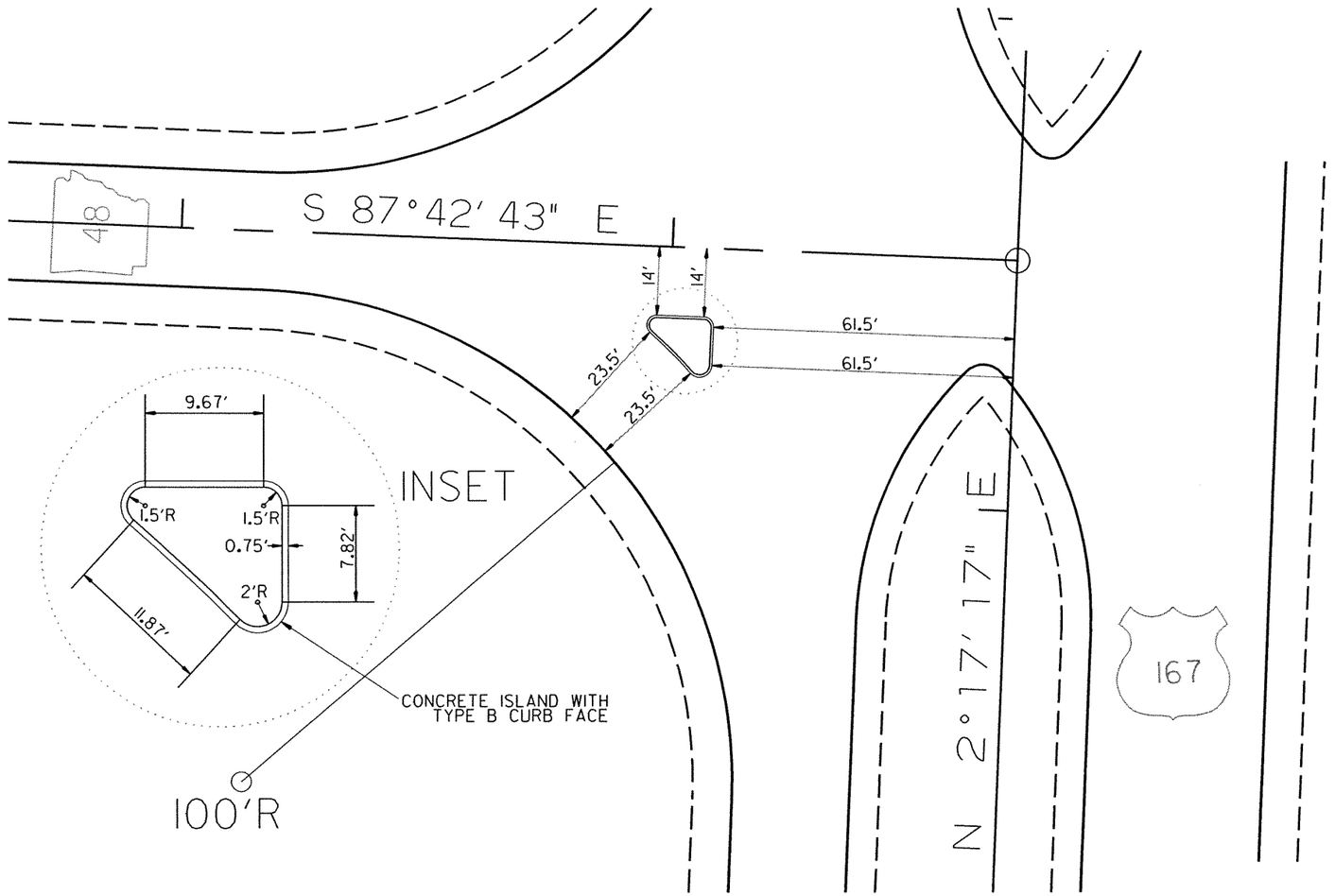
5 LANE UNDIVIDED

R070291.DGN 6/1/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	17	355

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

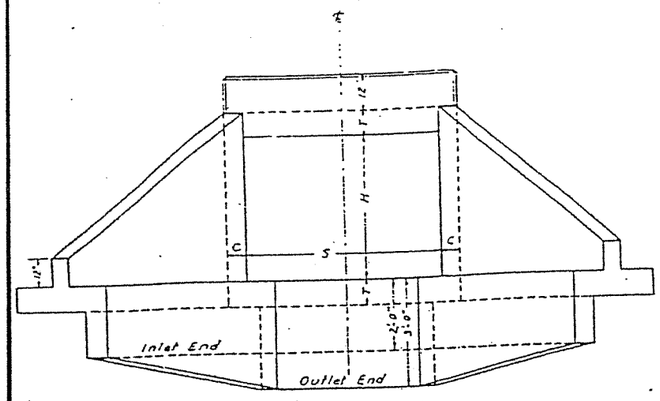


INTERSECTION OF HWY. 167 & HWY. 48
CONCRETE ISLAND DETAIL

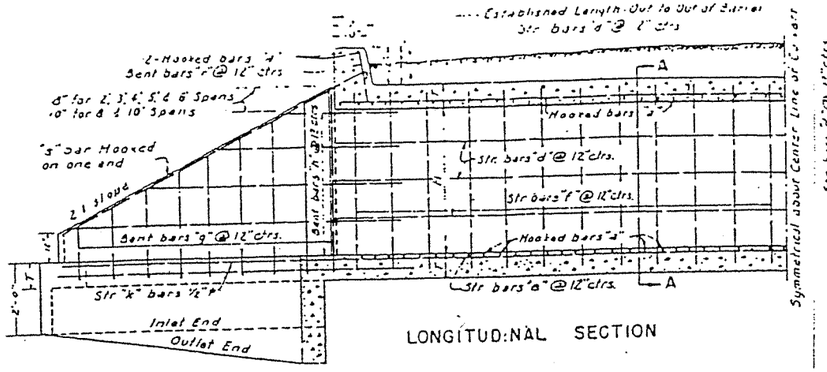
R070291.DGN 6/1/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	18	355

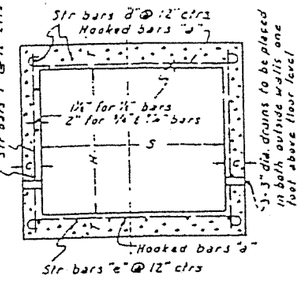
(2) SPECIAL DETAILS



END ELEVATION



LONGITUDINAL SECTION



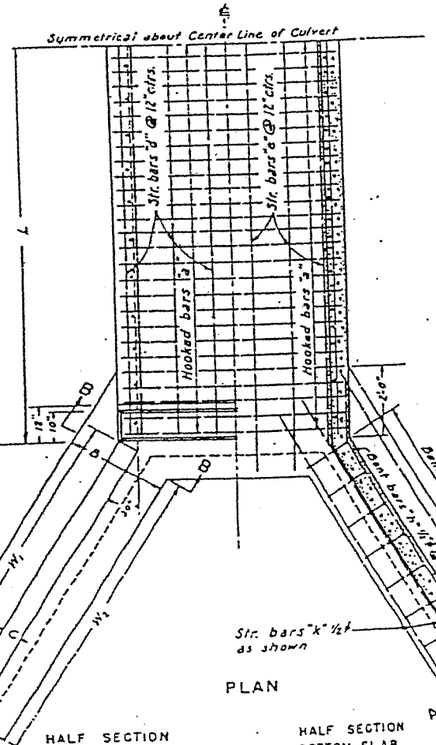
SECTION A-A

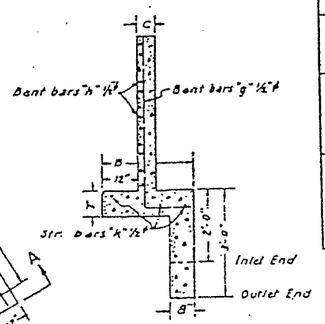
"S" to be drawn to be placed in both outlet walls one foot above floor level

DIMENSIONS & QUANTITIES

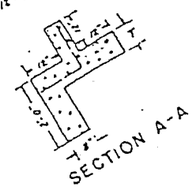
SPAN	HEIGHT	SIZE OF OPENING	WING DEPTH AT OUTLET	THICKNESS OF TOP SLAB	THICKNESS OF BOTTOM SLAB	THICKNESS OF HEADWALL AND WINGWALLS	WIDTH OF FOOTING	LENGTH OF FOOTING	LENGTH OF WING WALLS	LENGTH OF WINGWALLS FROM HEADWALL	CONCRETE CU YD HEADWALLS WINGWALLS & FOOTINGS	CONCRETE CU YD PER LINEAL FT. OF BARREL	STEEL LB. PER LINEAL FT. OF BARREL	STEEL LB. ADD STEEL FOR LAPS
S	H	A	D	T	C	B	W_2	W_1	E					
2	2	4	10'-0"	6½	6"	2'-6"	3'-3½	3'-10"	3'-4"	2.38	194	155	17.91	8.9
3	2	6	10'-0"	7"	6"	2'-6"	3'-4½	3'-10"	3'-4"	2.63	247	164	22.77	11.7
	3	9			6"		5'-10½	6'-2"	5'-4"	4.10	284	243	25.43	13.4
4	2	8	16'-0"	7½	6"	2'-6"	3'-6½	3'-10"	3'-4"	2.90	306	173	28.28	13.4
	3	12			6"		5'-10½	6'-2"	5'-4"	4.36	343	251	30.94	15.6
	4	16			6"		8'-2"	8'-5¾	7'-4"	5.94	390	332	33.60	17.8
5	2	10	10'-0"	8"	6"	2'-6"	3'-6½	3'-10"	3'-4"	3.15	370	189	34.56	15.6
	3	15			6"		5'-10½	6'-2"	5'-4"	4.60	407	267	37.22	17.8
	4	20			6"		8'-2"	8'-5¾	7'-4"	6.29	444	370	38.89	20.0
	5	25			7"	2'-9"	10'-8	10'-9¾	9'-4"	8.78	521	478	42.55	22.3
6	3	18	7'-8"	8½	6"	2'-6"	5'-10½	6'-2"	5'-4"	4.94	478	278	41.88	20.0
	4	24			6"		8'-2"	8'-5¾	7'-4"	6.61	515	383	44.54	22.3
	5	30			7"	2'-9"	10'-8	10'-9¾	9'-4"	9.14	592	492	47.20	24.5
	6	36			7"	3'-0"	13'-1"	13'-1"	11'-4"	11.58	633	611	49.86	26.7
8	3	24	5'-0"	10½	7"	2'-7"	8'-3¾	8'-10¾	7'-8"	8.31	843	505	90.62	31.2
	4	32			7"	2'-7"	8'-3¾	8'-10¾	7'-8"	8.88	762	429	63.47	26.3
	5	40			7"	2'-9"	11'-0¾	11'-2"	9'-8"	10.32	810	536	66.13	28.9
	6	48			7"	3'-0"	13'-5¾	13'-5¾	11'-8"	13.06	853	673	68.80	31.2
	7	56			7"	3'-4"	16'-0"	15'-5¾	13'-8"	16.03	897	976	71.46	33.4
	8	64			8"	3'-10"	18'-8"	18'-1"	15'-8"	20.69	1,000	1168	74.81	35.6
10	4	40	4'-0"	11¾	7"	2'-7"	8'-7¾	8'-10¾	7'-8"	8.91	843	505	90.62	31.2
	5	50			7"	2'-9"	11'-0¾	11'-2"	9'-8"	11.35	1,026	611	93.28	33.4
	6	60			7"	3'-0"	13'-5¾	13'-5¾	11'-8"	13.98	1,067	748	95.94	35.6
	7	70			7"	3'-4"	16'-0"	15'-5¾	13'-8"	17.27	1,112	1060	98.60	37.9
	8	80			8"	3'-10"	18'-8"	18'-1"	15'-8"	21.88	1,217	1253	101.26	40.1
	9	90			9"	4'-3"	21'-2"	20'-6¾	17'-8"	27.35	1,334	1740	111.86	42.3
	10	100			10"	4'-9"	23'-8½	22'-8¾	19'-8"	34.76	1,463	2181	115.27	44.5

LAP NOTE:
In computing quantities of steel from the above table add one lap for culverts up to 50' in length and one lap for each additional 25' in length.





SECTION B-B



SECTION A-A

NOTE:-
Angle of Wingwalls may be varied to conform to the natural or proposed inlet or outlet channel.

STEEL SCHEDULE

For Culvert 32' in Length Out to Out of Barrel

LENGTH OF SPAN	HEIGHT	"a" bars: Size	"a" bars: Spacing	"a" bars: Number	"a" bars: Length	"a" bars: X	"d" bars: Number	"d" bars: Length	"e" bars: Number	"e" bars: Length	"f" bars: Size	"f" bars: Spacing	"f" bars: Number	"f" bars: Length	"g" bars: Size	"g" bars: Spacing	"g" bars: Number	"g" bars: Length	"g" bars: X Min.	"g" bars: X Max.	"g" bars: Y Min.	"g" bars: Y Max.	"h" bars: Size	"h" bars: Spacing	"h" bars: Number	"h" bars: Length	"k" bars: Size	"k" bars: Spacing	"k" bars: Number	"k" bars: Length	"r" bars: Size	"r" bars: Spacing	"r" bars: Number	"r" bars: Length	"s" bars: Size	"s" bars: Spacing	"s" bars: Number	"s" bars: Length
S	H																																					
2	2	½" ϕ	6"	122	3'-7"	2'-3"	3				½" ϕ	12"	64	2'-10"	½" ϕ	12"	16	3'-4"	1'-4"	2'-3"	1'-3"	1'-3"	12	46'-7"	1'-4"	3'-8"	12	5'-4"	6	3'-2"	4	5'-3"								
3	2			132	4'-7"	3'-3"	3						64	3'-11"			16	3'-11"	1'-10"	2'-9"	1'-3"	1'-3"	12	46'-7"	1'-4"	3'-8"	12	5'-4"	8	3'-2"	4	5'-3"								
	3	⅝" ϕ	6"	132	4'-7"	3'-3"	3						64	3'-9"			24	3'-9"	1'-10"	3'-3"	1'-3"	1'-3"	12	46'-7"	1'-4"	3'-8"	12	5'-4"	10	3'-2"	4	5'-3"								
4	2			144	5'-7"	4'-3"	7						64	4'-0"			16	3'-5"	1'-5"	2'-10"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	10	3'-2"	4	7'-9"								
	3	⅞" ϕ	5½	144	5'-7"	4'-3"	9						64	4'-0"			24	3'-11"	1'-5"	3'-10"	1'-3"	1'-3"	20	71'-2"	1'-4"	8'-4"	12	10'-0"	10	3'-2"	4	10'-3"								
	4			144	5'-7"	4'-3"	11						64	5'-0"			36	4'-5"	1'-5"	4'-10"	1'-3"	1'-3"	12	46'-7"	1'-4"	3'-8"	12	5'-4"	14	3'-2"	4	5'-3"								
5	2			158	6'-7"	5'-3"	6						64	3'-7"			16	3'-6"	1'-5"	2'-11"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	14	3'-2"	4	7'-9"								
	3	⅞" ϕ	5"	158	6'-7"	5'-3"	10						64	4'-0"			24	3'-11"	1'-5"	3'-11"	1'-3"	1'-3"	20	71'-2"	1'-4"	8'-4"	12	10'-0"	14	3'-2"	4	10'-3"								
	4			158	6'-7"	5'-3"	12						64	4'-7"			36	4'-5"	1'-5"	4'-11"	1'-3"	1'-3"	24	8'-3"	1'-4"	10'-0"	12	12'-3"	14	3'-2"	4	12'-3"								
	5			158	6'-7"	5'-3"	14						64	5'-2"			44	5'-2"	1'-5"	5'-7"	1'-3"	1'-3"	28	9'-8"	1'-4"	11'-8"	12	14'-3"	14	3'-2"	4	14'-3"								
6	3			158	7'-7"	6'-3"	11						64	4'-2"			24	4'-1"	1'-5"	4'-3"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	16	3'-2"	4	7'-9"								
	4	⅞" ϕ	5"	158	7'-7"	6'-3"	13						64	5'-2"			36	4'-8"	1'-6"	5'-3"	1'-3"	1'-3"	20	71'-2"	1'-4"	8'-4"	12	10'-0"	16	3'-2"	4	10'-3"								
	5			158	7'-7"	6'-3"	15						64	6'-2"			44	5'-8"	1'-7"	6'-3"	1'-3"	1'-3"	28	9'-8"	1'-4"	13'-0"	12	14'-3"	16	3'-2"	4	14'-3"								
	6			158	7'-7"	6'-3"	17						64	7'-2"			52	5'-11"	1'-5"	7'-3"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	16	3'-2"	4	7'-9"								
8	3			132	9'-8"	8'-10"	13						64	4'-5"			28	4'-4"	1'-6"	4'-6"	1'-3"	1'-3"	20	71'-2"	1'-4"	8'-4"	12	10'-0"	20	3'-2"	4	10'-3"								
	4			132	9'-8"	8'-10"	15						64	5'-5"			36	4'-10"	1'-8"	5'-0"	1'-3"	1'-3"	24	8'-3"	1'-4"	10'-0"	12	12'-3"	20	3'-2"	4	12'-3"								
	5	⅝" ϕ	6"	132	9'-8"	8'-10"	17						64	6'-5"			44	5'-8"	1'-8"	6'-4"	1'-3"	1'-3"	28	10'-0"	1'-6"	13'-4"	12	15'-0"	20	3'-2"	4	15'-3"								
	6			132	9'-8"	8'-10"	19						64	7'-5"			56	6'-10"	1'-7"	7'-6"	1'-3"	1'-3"	32	11'-2"	1'-8"	15'-8"	12	17'-3"	20	3'-2"	4	18'-3"								
	7			132	9'-8"	8'-10"	21						64	8'-5"	⅝" ϕ	12"	64	6'-8"	1'-9"	8'-4"	1'-3"	2'-1"	32	11'-2"	1'-8"	15'-8"	12	17'-3"	20	3'-2"	4	18'-3"								
	8			132	9'-8"	9'-0"	21						64	9'-5"			72	7'-5"	1'-7"	9'-2"	1'-3"	2'-6"	36	12'-5"	1'-8"	17'-11"	12	19'-8"	20	3'-2"	4	20'-3"								
10	4			86	12'-6"	10'-10"	17						64	5'-7"			36	5'-0"	1'-10"	5'-6"	1'-4"	1'-6"	28	9'-8"	1'-4"	13'-0"	12	14'-3"	24	3'-2"	4	13'-3"								
	5			86	12'-6"	10'-10"	19						64	6'-7"	⅞" ϕ	12"	44	5'-6"	1'-8"	6'-6"	1'-4"	1'-6"	24	8'-3"	1'-4"	10'-8"	12	12'-3"	24	3'-2"	4	12'-3"								
	6			86	12'-6"	10'-10"	21						64	7'-7"			56	6'-7"	1'-8"	7'-6"	1'-4"	1'-6"	28	10'-0"	1'-6"	13'-4"	12	15'-0"	24	3'-2"	4	15'-3"								
	7	⅞" ϕ	5½	86	12'-6"	10'-10"	23						64	8'-7"			64	6'-11"	1'-10"	8'-6"	1'-4"	2'-1"	32	11'-2"	1'-8"	15'-8"	12	17'-3"	24	3'-2"	4	18'-3"								
	8			86	12'-6"	11'-0"	23						64	9'-7"			72	7'-7"	1'-8"	9'-6"	1'-5"	2'-6"	36	12'-5"	1'-8"	17'-11"	12	19'-8"	24	3'-2"	4	20'-3"								
	9			86	12'-8"	11'-2"	27						64	10'-7"	¾" ϕ	12"	9"	10'-8"	1'-8"	10'-6"	1'-6"	3'-0"	40	13'-7"	1'-8"	20'-2"	12	22'-8"	24	3'-2"	4	23'-3"								
	10			86	12'-10"	11'-4"	29						64	11'-7"			8"	13'-3"	1'-10"	11'-5"	1'-7"	3'-6"	44	14'-9"	1'-8"	22'-6"	12	24'-3"	24	3'-2"	4	25'-9"								

NOTE: Lengths given above do not include lap.

SPECIFICATIONS:- *Arkansas Standard Road and Bridge Specifications.*

REINFORCING STEEL:- *To be deformed bars of structural or intermediate grade.*

CHAMFER:- *All exposed corners to have ¾" Chamfer*

CONCRETE:- *All Concrete to be Class "S"*

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERTS

SINGLE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	19	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

STA. 882+00.00
END JOB 070290
BEGIN JOB 070291

N

EXISTING ROW

+00.00 100.00

+05.00 115.00

+50.00 105.00

PROPOSED ROW

+40.00 110.00

880

885

HWY. 167

N 1°46'01" E

E-6 ·00

E-6 ·50

EXISTING ROW

CONCRETE DRAIN

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE

N

+55.00 145.00

+35.00 110.00

PROPOSED ROW

P. I. 904+38.63
Δ=0°11'15"RT

+00.00 100.00

EXISTING ROW

895

900

905

910

HWY. 167

N 1°46'01" E

N 1°44'46" E

CONCRETE DRAIN

E-11

·50

STA. 897+50-900+50
SILT FENCE = 300 LIN. FT.

R070291.DGN 5/24/2012

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070291	20	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7609
MICHAEL D. FUGETT
5/24/12

N

+70.00
105.00

PROPOSED ROW

+00.00
104.00

+00.00
115.00

+85.00
125.00

+35.00
105.00

EXISTING ROW

910 925 930 935 940

HWY. 167

N 1°44'46" E

TRAIL

E-6 ·75 ·50 ·00

EXISTING ROW

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE

N

STA. 925+50-932+00
SILT FENCE = 650 LIN. FT.

+15.00
125.00

+55.00
110.00

PROPOSED ROW

EXISTING ROW

STA. 926+00-927+50
SILT FENCE = 150 LIN. FT.

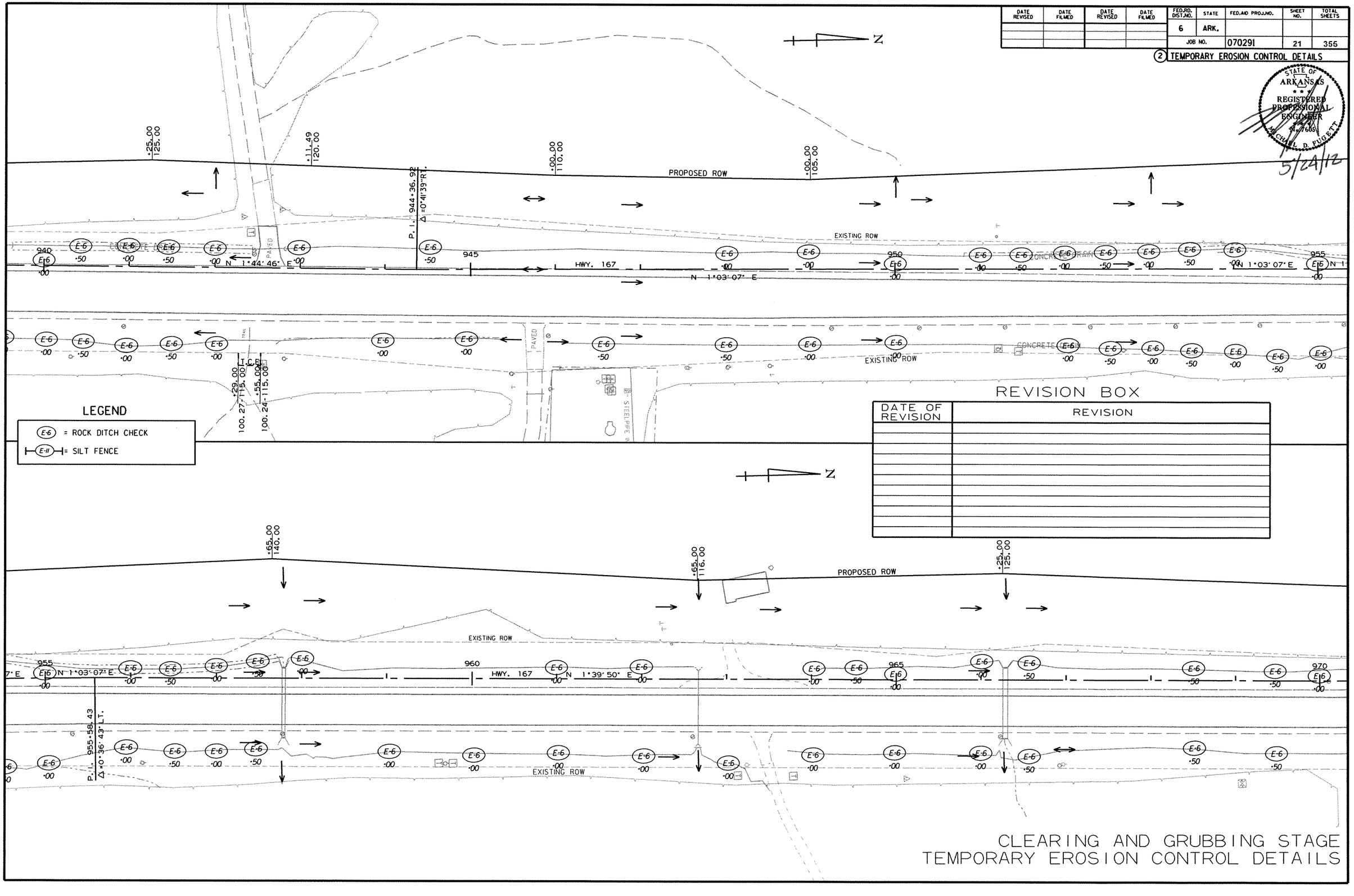
R070291.DGN 5/24/2012

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	21	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 17605
MICHAEL D. FUGETT
5/24/12



LEGEND

E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE

REVISION BOX

DATE OF REVISION	REVISION

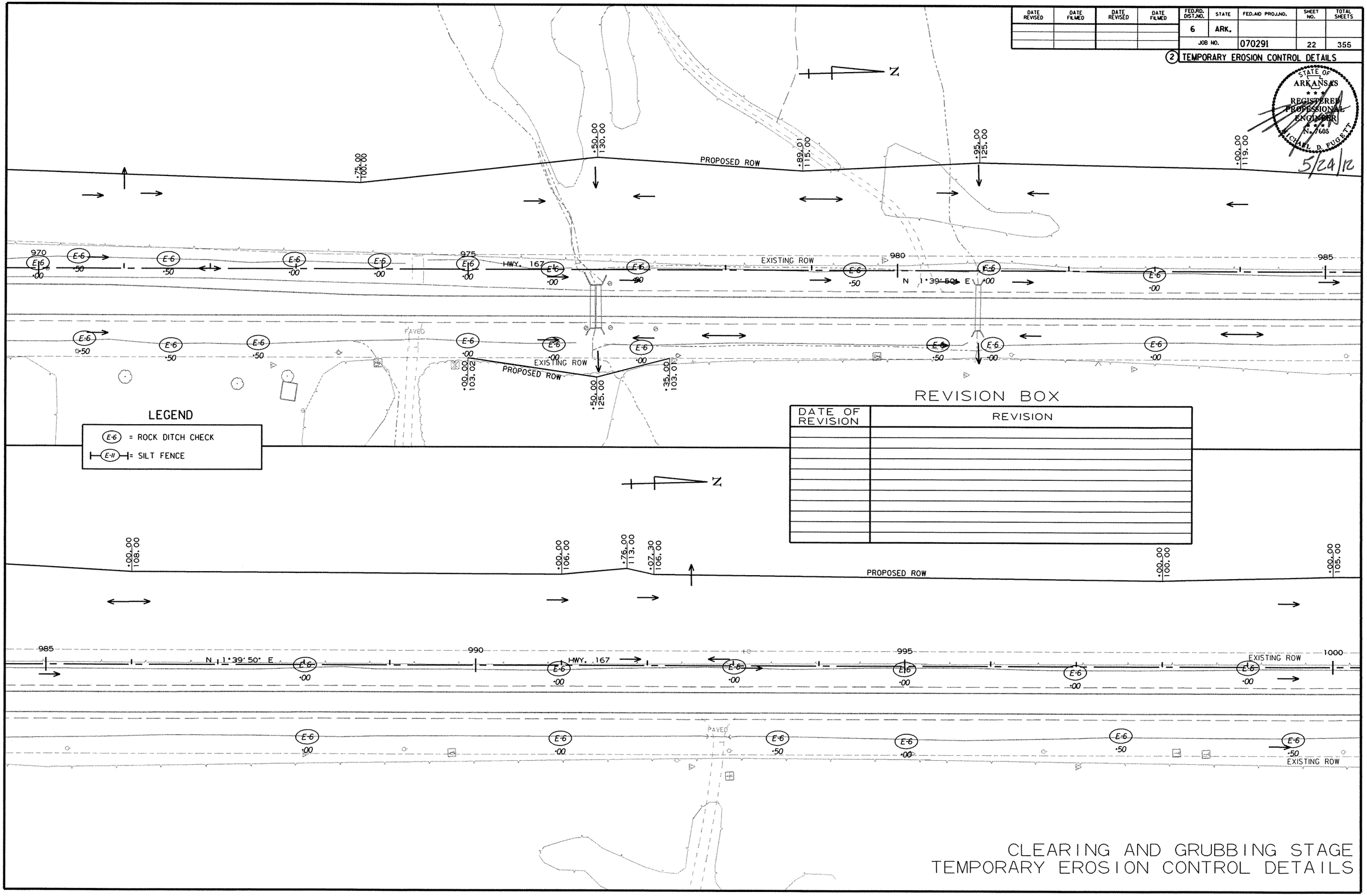
CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	22	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



REVISION BOX

DATE OF REVISION	REVISION

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	23	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

+00.00 105.00 | +25.00 105.00 | +24.77 119.00 | +20.00 135.00 | PROPOSED ROW | +00.00 104.00 | +00.00 105.00

1000 | N 1°39'50" E | 1005 | HWY. 167 | 1010 | EXISTING ROW | 1015

E-6 ·50 | E-6 ·00 | P.C. 1010+27.71 | +33.08 102.90 | +20.00 125.00 | +45.00 102.89

EXISTING ROW | PROPOSED ROW | +00.00 99.66

P.I. 1014+81.79

HWY. 167
P.I. 1014+81.79
Δ = 4°32'19"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
P.C. 1010+27.71
P.T. 1019+35.40

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE

HWY. 167
P.I. 1025+51.78
Δ = 4°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29

+45.00 105.00 | P.I. 1014+81.79 | PROPOSED ROW | P.C. 1021+02.81 | +80.00 94.27 | EXISTING ROW | P.T. 1030+00.29

1015 | N 6°12'09" E | 1020 | HWY. 167 | 1025 | N 1°42'54" E | 1030

E-6 ·50 | E-6 ·00 | P.T. 1019+35.40 | +55.91 100.00 | +90.00 105.00 | P.I. 1025+51.78 | +10.00 105.00

EXISTING ROW | PROPOSED ROW

HWY. 167
P.I. 1014+81.79
Δ = 4°32'19"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
P.C. 1010+27.71
P.T. 1019+35.40

R070291.DGN 5/24/2012

CLEARING AND GRUBBING STAGE TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	24	355

(2) TEMPORARY EROSION CONTROL DETAILS

HWY. 167
P.I. 1025+51.78
Δ = 4°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29

STA. 1036+00-1039+50
SILT FENCE = 350 LIN. FT.

STA. 1040+00-1041+00
SILT FENCE = 100 LIN. FT.

STA. 1040+25-1041+50
SILT FENCE = 125 LIN. FT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECK
E-11 = SILT FENCE

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	25	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
9476
MICHAEL D. FUGETT
5/24/12

HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64

HWY. 167
P.I. 1073+22.92
Δ = 4°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
P.C. 1068+73.57
P.T. 1077+71.82

STA. 1066+50-1068+50
SILT FENCE = 200 LIN. FT.

LEGEND
(E-6) = ROCK DITCH CHECK
(E-11) = SILT FENCE

REVISION BOX

DATE OF REVISION	REVISION

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	26	355

(2) TEMPORARY EROSION CONTROL DETAILS

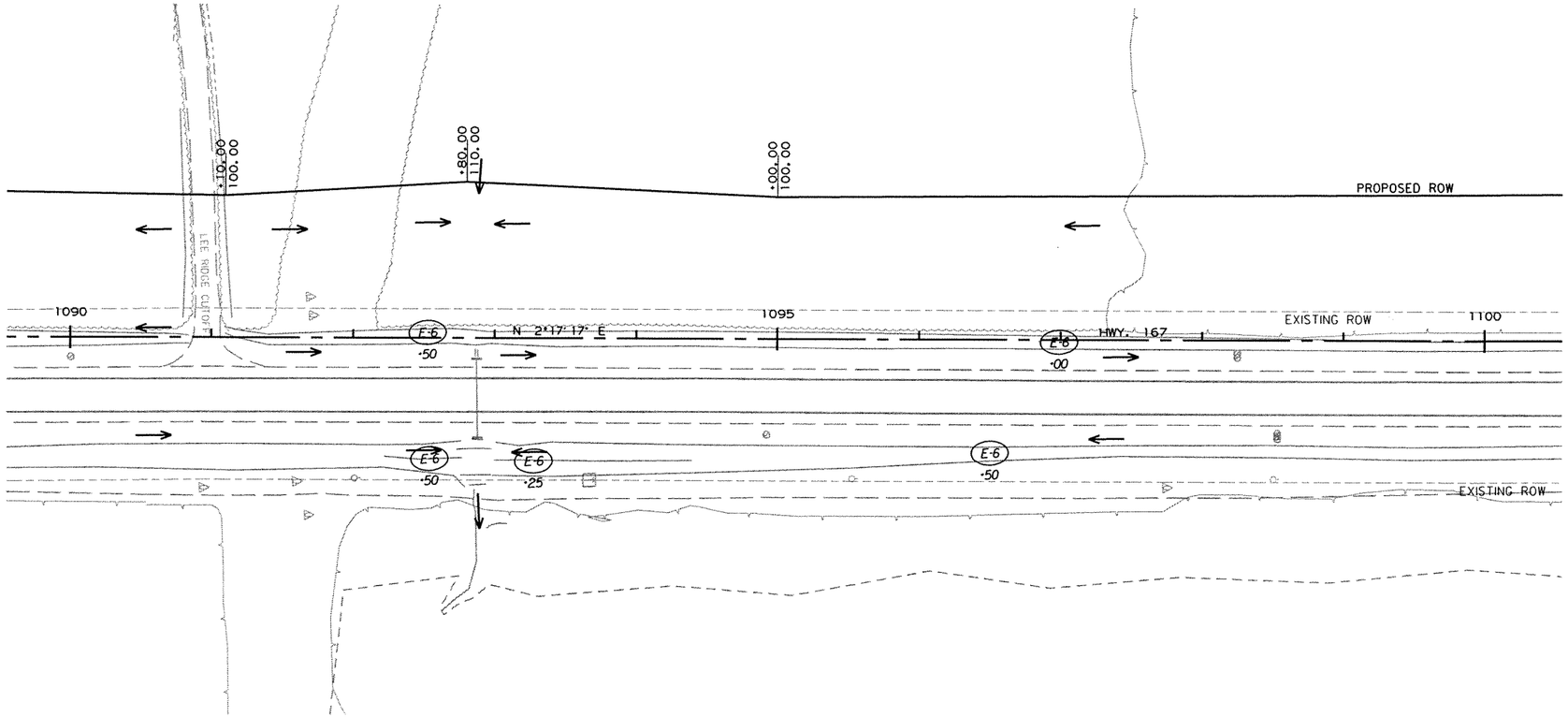
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

N

LEGEND

E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE



REVISION BOX

DATE OF REVISION	REVISION

R070291.DGN 5/24/2012

CLEARING AND GRUBBING STAGE TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	27	355

(2) TEMPORARY EROSION CONTROL DETAILS

REVISION BOX

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

N

LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

HWY. 48
P.I. 104+85.07
Δ = 7°43'57"RT.
D = 1°30'00"
T = 258.14'
L = 515.50'
P.C. 102+26.93
P.T. 107+42.43
MATCH EXIST. SUPER

N 84°33'20" E

EXISTING ROW

HWY. 48

EXISTING ROW

PARKING

T.C.E.

CB CON. PLANT

PAVED CONCRETE

PROPOSED ROW

EXISTING ROW

PAVED PARKING

N 2°17'17" E

HWY. 167

EXISTING ROW

EXISTING ROW

STA. 109+70.51 HWY. 48 =
STA. 1106+50.91 CONSTRUCTION C.L.

STA. 1112+36-1117+79
SILT FENCE = 543 LIN. FT.

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	28	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7608
MICHAEL D. FUGETT
5/24/12

N

+90.00
145.00

PROPOSED ROW

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

P.I. 1123+45.71

P.I. 1127+00.00
Δ = 0°01'47" R

P.C. 1127+63.98

1115 1120 1125 1127 1130

N 2°17'17" E

HWY. 167

LT. LANE SHIFT

N 5°44'23" E

N 5°44'19" E

RT. LANE SHIFT

P.C. 1120+00.55

HWY. 167
P.I. 1123+45.71
Δ = 3°27'02"RT.
D = 0°30'00"
T = 345.16'
L = 690.12'
P.C. 1120+00.55
P.T. 1126+90.67

P.T. 1126+90.67

STA. 1119+45-1129+50
SILT FENCE = 1005 LIN. FT.

E-6 ·00 · E-11 · ·79 · ·45 · E-11 · E-11 · E-6 ·50

EXISTING ROW

LEGEND

E-6 = ROCK DITCH CHECK
E-11 = SILT FENCE

REVISION BOX

DATE OF REVISION	REVISION

N

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

HWY. 167
P.I. 1134+23.52
Δ = 3°26'17"LT.
D = 0°30'00"
T = 343.91'
L = 687.61'
P.C. 1130+79.61
P.T. 1137+67.22

LT. LANE SHIFT
P.I. 1138+30.87
Δ = 3°26'20"LT.
D = 0°30'00"
T = 344.00'
L = 687.68'
P.C. 1134+86.88
P.T. 1141+74.66
NO SUPER

+55.00
146.32

EXISTING ROW

E-6 ·00 · E-6 ·00 · E-6 ·00 · E-6 ·50 · E-6 ·00 · E-6 ·50 · E-6 ·00

P.C. 1130+79.61 · P.C. 1134+86.88 · P.T. 1136+16.21 · P.T. 1137+67.22 · P.C. 1138+35.34 · P.I. 1139+17.65 · P.T. 1141+74.66

1130 1132 1135 1137 1140 1145

5°44'23" E
N 5°44'19" E
N 5°44'19" E
N 2°18'02" E
N 1°28'39" E
N 2°18'02" E
N 2°18'02" E
N 2°18'02" E

HWY. 167

LT. LANE SHIFT

P.I. 1131+90.29 · P.I. 1134+23.52 · P.I. 1138+30.87

RT. LANE SHIFT
P.I. 1139+17.65
Δ = 0°49'23"RT.
D = 0°30'00"
T = 82.31'
L = 164.62'
P.C. 1138+35.34
P.T. 1139+99.96
NO SUPER

P.T. 1139+99.96

E-6 ·50 · E-6 ·50 · E-6 ·50 · E-6 ·50

EXISTING ROW

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	29	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

N

1145 1150 1155 1160 1165 1170 1175

HWY. 167 N 2°18'02" E

HWY. 167 N 11°13'50" E

P.I. 1153+42.14

P.C. 1148+94.74

P.T. 1157+87.73

HWY. 167
P.I. 1153+42.14
Δ = 8°55'48"RT.
D = 1°00'00"
T = 447.40'
L = 893.00'
P.C. 1148+94.74
P.T. 1157+87.73

E-6 ·00
E-6 ·50

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE

EXISTING ROW

EXISTING ROW

EXISTING ROW

EXISTING ROW

5/24/2012

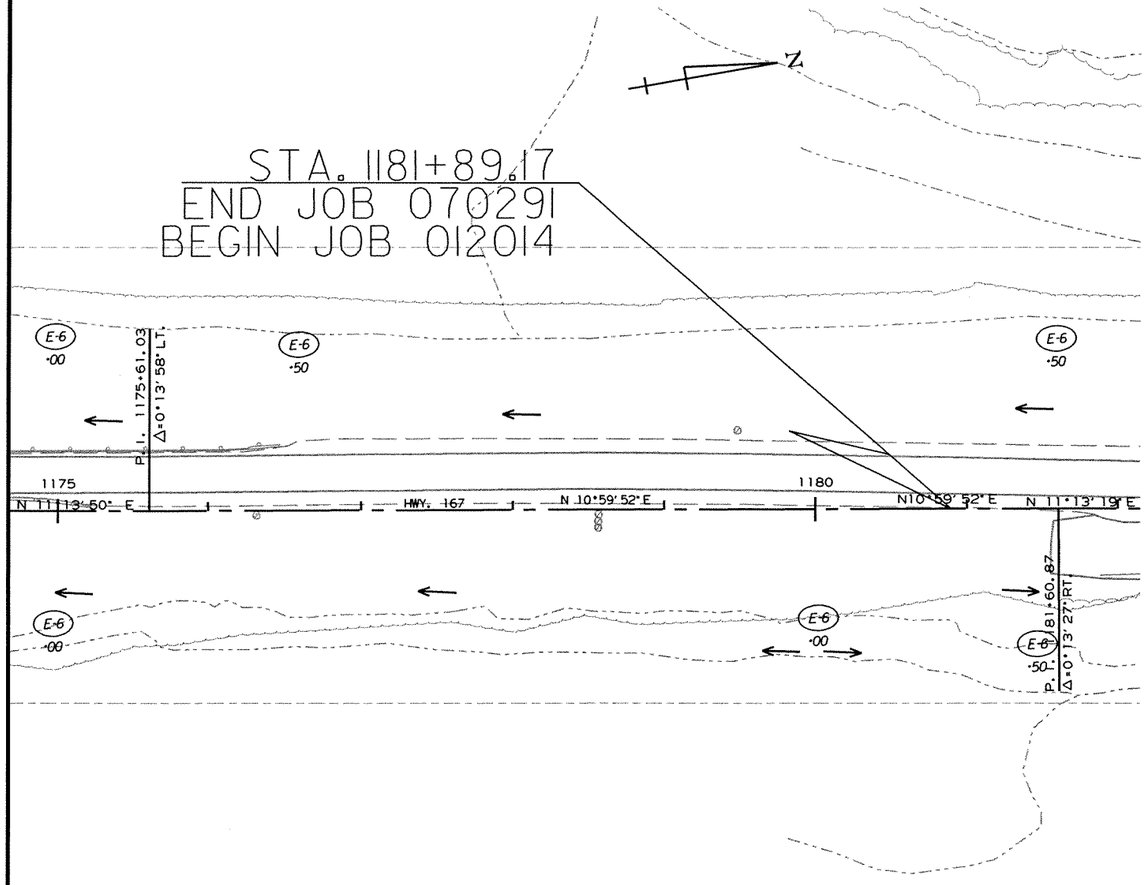
R070291.DGN

CLEARING AND GRUBBING STAGE TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	30	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7665
MICHAEL D. FUGETT
5/24/12



LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

REVISION BOX

DATE OF REVISION	REVISION

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	31	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

STA. 882+00.00
END JOB 070290
BEGIN JOB 070291

N

+00.00 100.00 EXISTING ROW
+05.00 115.00
+60.00 165.00
+40.00 110.00 PROPOSED ROW
CONST. LIMITS
POB 100+00.00
880 885 890 895
N 1°46'01" E
HWY. 167
STAGE 2
SMALL CONC DRAIN OUTLET
CONCRETE DRAIN

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN, XX CU FT

N

+35.00 110.00
+55.00 145.00
+00.00 100.00
E-14 19870 CU. FT.
E-14 22428 CU. FT.
PROPOSED ROW
CONST. LIMITS
16'
P.I. 904+38.63 Δ=0°11'5" RT.
P.I. 122+38.64 Δ=0°11'5" RT.
EXISTING ROW
895 900 905 910
N 1°46'01" E
HWY. 167
N 1°44'46" E
STAGE 2
CONCRETE DRAIN
SILT FENCE

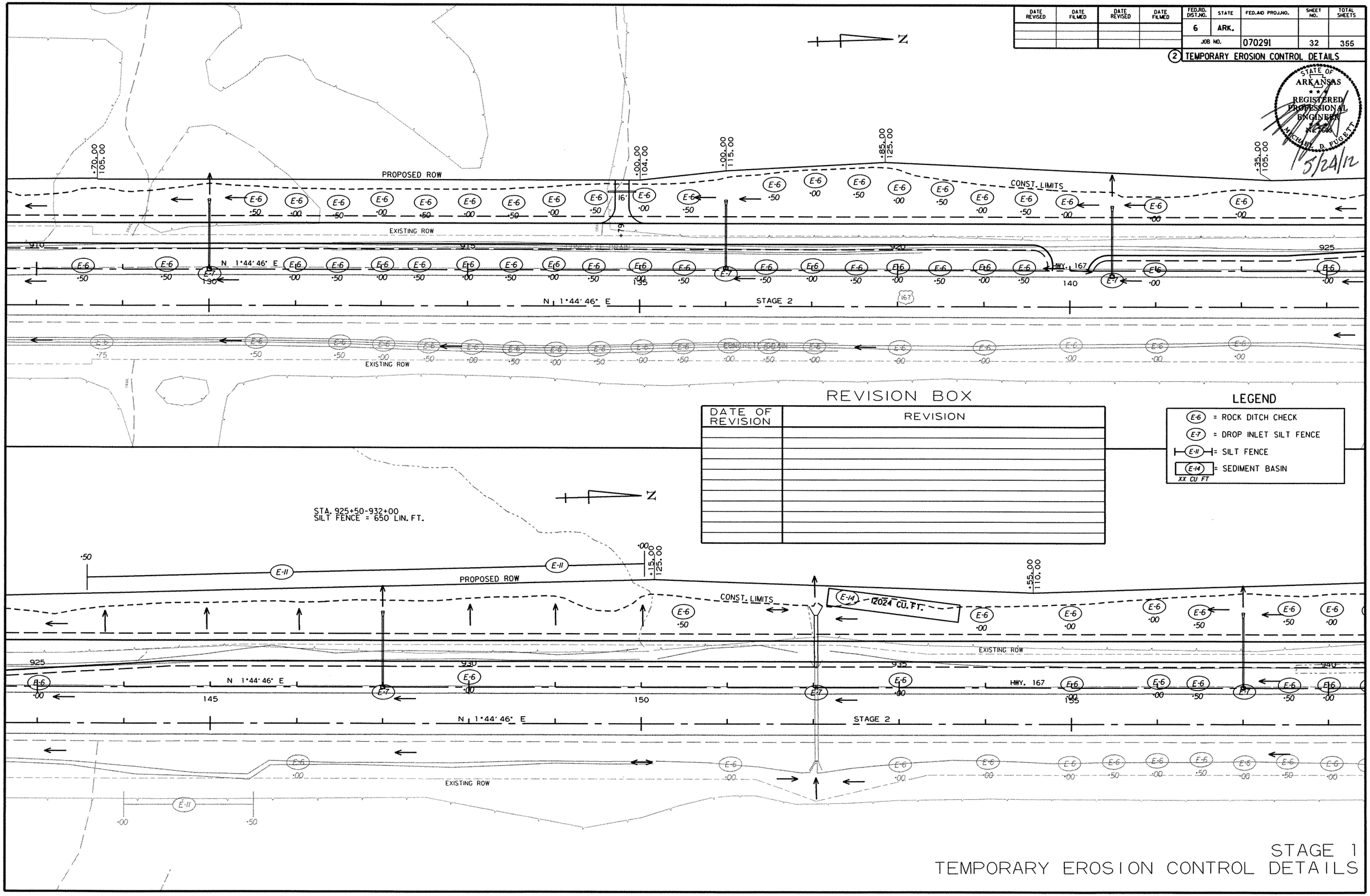
STAGE 1
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	32	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- E-6 = ROCK DITCH CHECK
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

STA. 925+50-932+00
SILT FENCE = 650 LIN. FT.

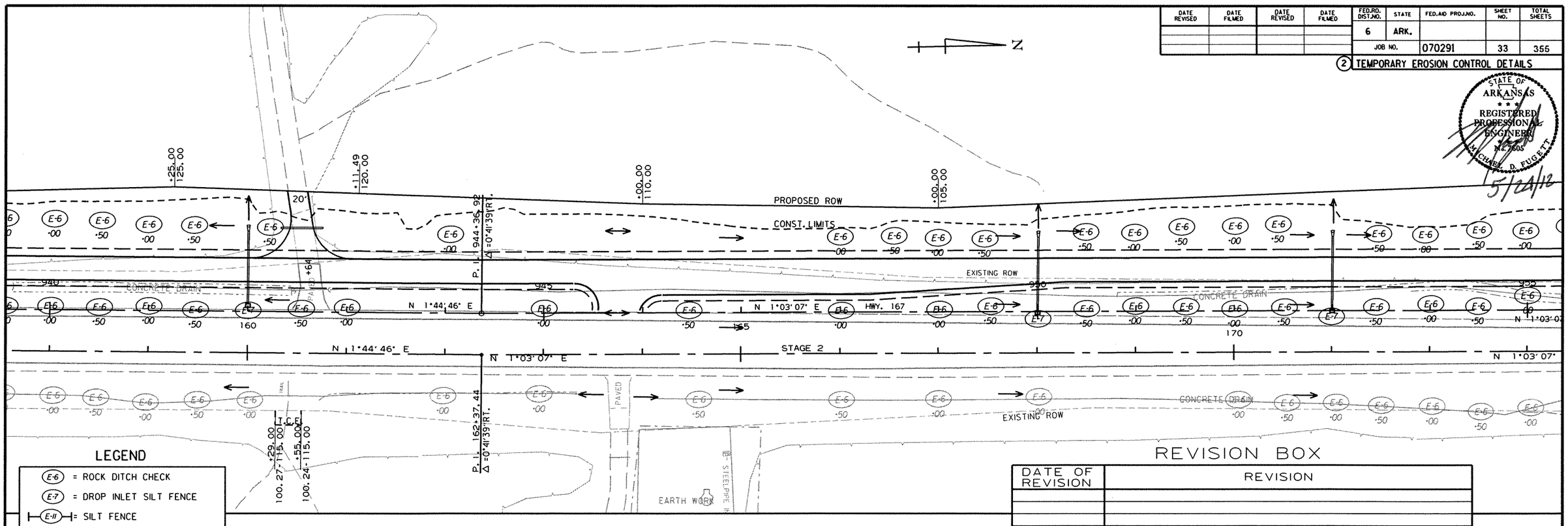
R070291.DGN 5/24/2012

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	33	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT

REVISION BOX

DATE OF REVISION	REVISION

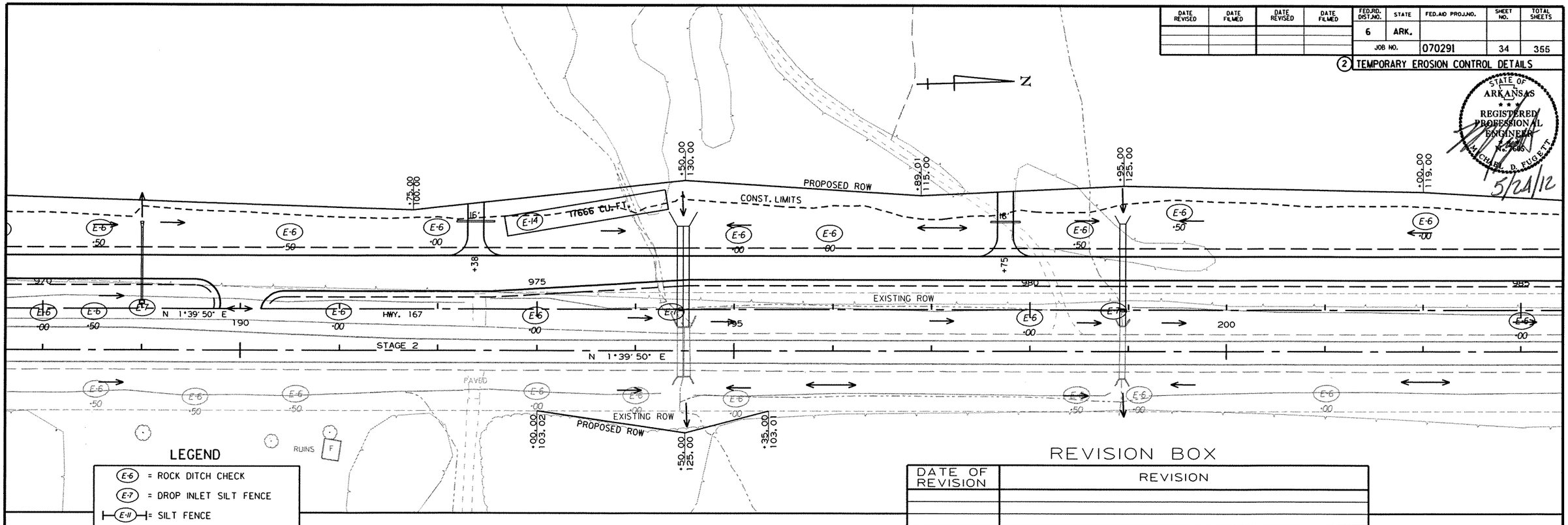
STAGE 1
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	34	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

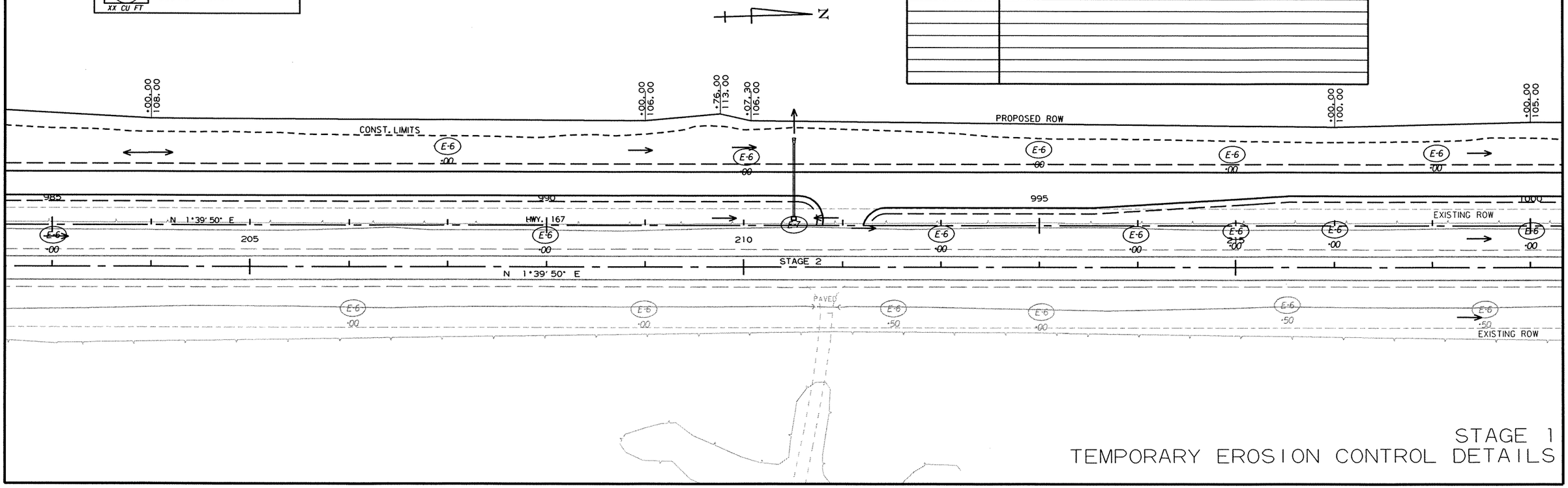


LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT

REVISION BOX

DATE OF REVISION	REVISION



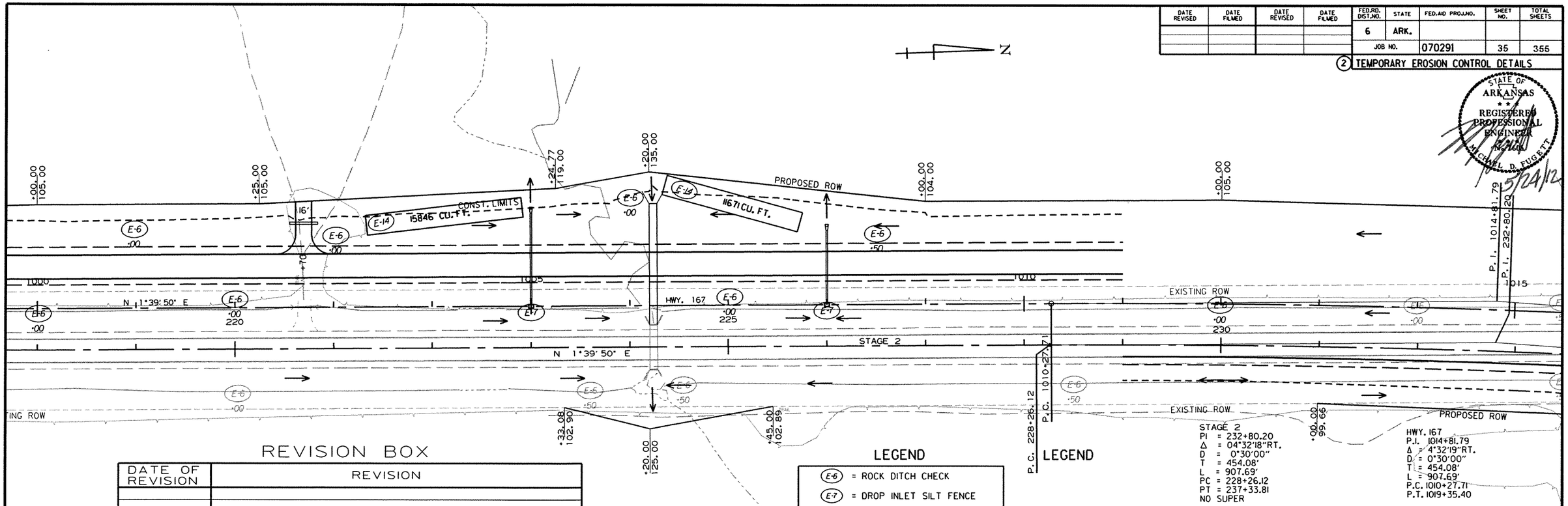
STAGE 1
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	35	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. FUGETT
5/24/12



STAGE 2
PI = 232+80.20
Δ = 04°32'18"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
PC = 228+26.12
PT = 237+33.81
NO SUPER

HWY. 167
P.I. 1014+81.79
Δ = 4°32'19"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
P.C. 1010+27.71
P.T. 1019+35.40

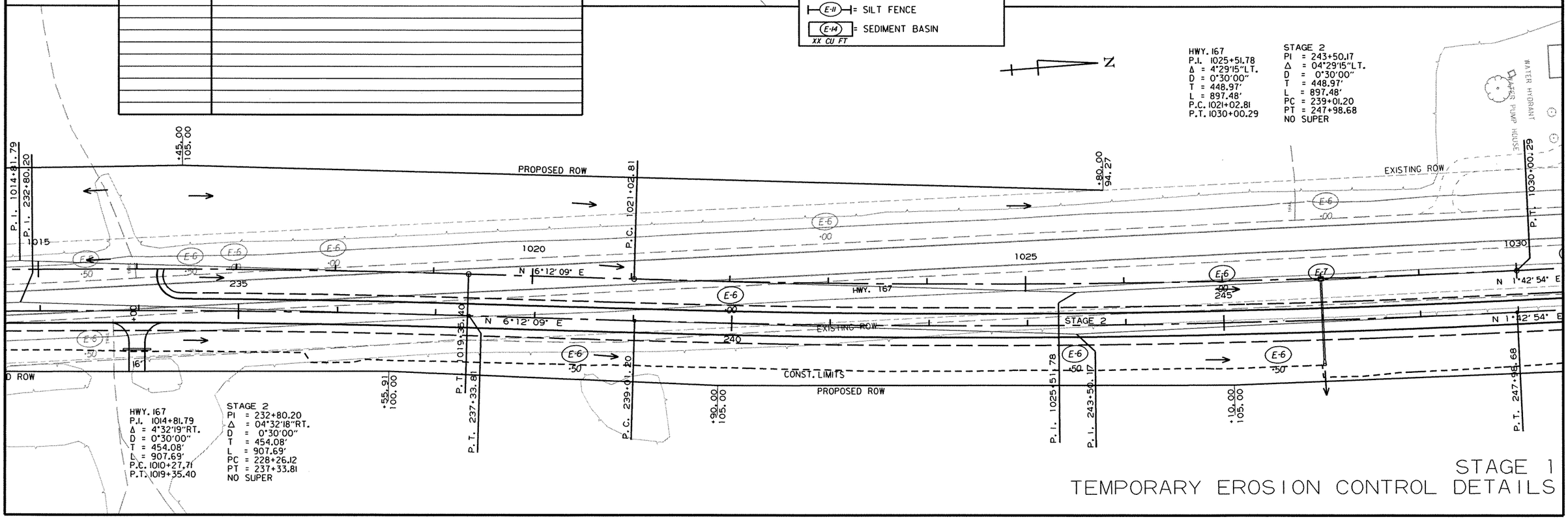
REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT

LEGEND



HWY. 167
P.I. 1014+81.79
Δ = 4°32'19"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
P.C. 1010+27.71
P.T. 1019+35.40

STAGE 2
PI = 232+80.20
Δ = 04°32'18"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
PC = 228+26.12
PT = 237+33.81
NO SUPER

HWY. 167
P.I. 1025+51.78
Δ = 4°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29

STAGE 2
PI = 243+50.17
Δ = 04°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
PC = 239+01.20
PT = 247+98.68
NO SUPER

R070291.DGN 5/24/2012

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	36	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 17605
MICHAEL D. FUGETT
5/24/12

MARK'S MEMORIAL CHURCH OF GOD IN CHRIST

HWY. 167
P.I. 1025+51.78
Δ = 4°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29

STAGE 2
PI = 243+50.17
Δ = 04°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48
PC = 239+01.20
PT = 247+98.68
NO SUPER

YOUNG PLANTED PINE

DALLAS COUNTY 436

EXISTING ROW

PROPOSED ROW

+00.00 102.27

P.T. 1030+00.29

P.T. 247+98.68

N 1°42' 54" E

HWY. 1167

STAGE 2

E-14 17703 CU.FT.

CONST. LIMITS

+63.34 105.00

+00.00 120.00

+80.21 108.00

STA. 1041+00-1044+50
SILT FENCE = 350 LIN. FT.

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

+65.00 150.00

+50.00 102.16

+36.00 102.09

+82.00 120.00

+92.00 102.08

L.C.F.

P.I. 1051+29.19
Δ=0°0'26"RT.

P.I. 269+29.22
Δ=0°0'26"RT.

+00.00 118.08

+80.00 120.00

LEA'S RIDGE MISSIONARY BAPTIST CHURCH

PARKING

HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64

STAGE 2
PI = 280+54.44
Δ = 04°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
PC = 276+07.10
PT = 285+01.32
NO SUPER

+89.12 100.29

P.C. 1058+05.42

P.C. 276+07.10

+93.58 95.00

+28.16 96.80

+31.00 110.00

+55.00 110.45

+59.45 98.52

T.C.E.

CONST. LIMITS

PROPOSED ROW

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070291	37	355

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64

STAGE 2
PI = 280+54.44
Δ = 04°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
PC = 276+07.10
PT = 285+01.32
NO SUPER

EARTHWORK

EARTHWORK

PROPOSED ROW

EXISTING ROW

CONST. LIMITS

HWY. 167

STAGE 2

N 1°42'28" E

N 2°45'48" W

N 1°43'40" E

N 2°17'17" E

E-14 4271 CU.FT.

E-14 7148 CU. FT.

E-14 4586 CU. FT.

E-14 14271 CU. FT.

REVISION BOX

DATE OF REVISION	REVISION

STAGE 2
PI = 291+24.60
Δ = 04°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
PC = 286+75.24
PT = 295+73.49
NO SUPER

HWY. 167
P.I. 1073+22.92
Δ = 4°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
P.C. 1068+73.57
P.T. 1077+71.82

LEGEND

- E-6 = ROCK DITCH CHECK
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

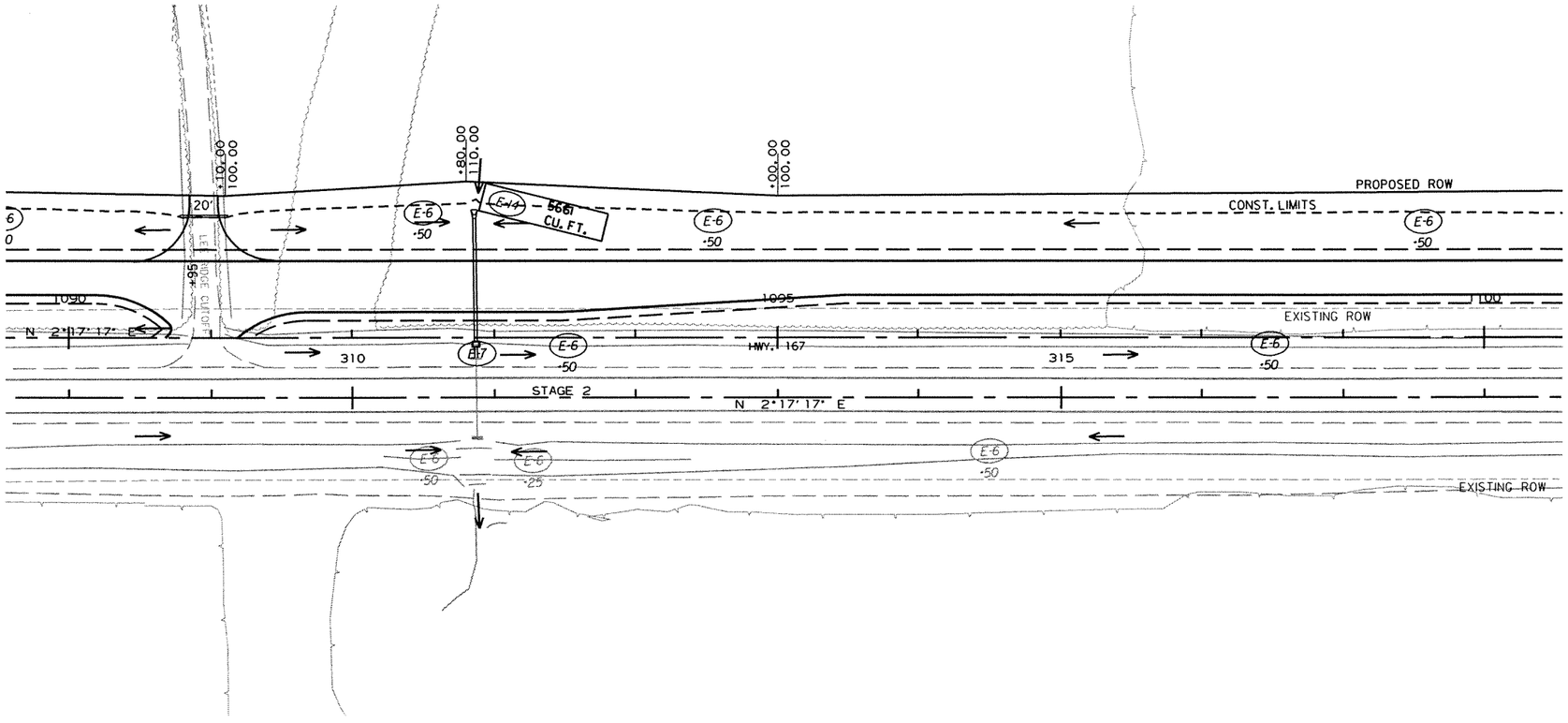
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	38	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT



REVISION BOX

DATE OF REVISION	REVISION

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	39	355

(2) TEMPORARY EROSION CONTROL DETAILS

REVISION BOX

DATE OF REVISION	REVISION

HWY. 48
P.I. 104+85.07
Δ = 7°43'57"RT.
D = 1°30'00"
T = 258.14'
L = 515.50'
P.C. 102+26.93
P.T. 107+42.43
MATCH EXIST. SUPER

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

STAGE 2
PI = 331+41.54
Δ = 16°59'44"LT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 329+98.87
PT = 332+82.13
NO SUPER

STAGE 2
PI = 334+26.83
Δ = 16°59'44"RT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 332+84.15
PT = 335+67.41
NO SUPER

STA. 109+70.51 HWY. 48 =
STA. 1106+50.91 CONSTRUCTION C.L.

R070291.DGN 5/24/2012

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	40	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
5/24/12

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

STAGE 2
PI = 334+26.83
Δ = 16°59'44"RT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 332+84.15
PT = 335+67.41
NO SUPER

STAGE 2
PI = 341+55.06
Δ = 03°27'05"RT.
D = 0°30'00"
T = 345.25'
L = 690.29'
PC = 338+09.81
PT = 345+00.10
NO SUPER

HWY. 167
P.I. 1123+45.71
Δ = 3°27'02"RT.
D = 0°30'00"
T = 345.16'
L = 690.12'
P.C. 1120+00.55
P.T. 1126+90.67

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

REVISION BOX

DATE OF REVISION	REVISION

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

HWY. 167
P.I. 1134+23.52
Δ = 3°26'17"LT.
D = 0°30'00"
T = 343.91'
L = 687.61'
P.C. 1130+79.61
P.T. 1137+67.22

LT. LANE SHIFT
P.I. 1138+30.87
Δ = 3°26'20"LT.
D = 0°30'00"
T = 344.00'
L = 687.68'
P.C. 1134+86.88
P.T. 1141+74.66
NO SUPER

STAGE 2
PI = 363+24.59
Δ = 03°26'20"LT.
D = 04°00'00"
T = 43.00'
L = 85.97'
PC = 362+81.60
PT = 363+67.57
NO SUPER

RT. LANE SHIFT
P.I. 1139+17.65
Δ = 0°49'23"RT.
D = 0°30'00"
T = 82.31'
L = 164.62'
P.C. 1138+35.34
P.T. 1139+99.96
NO SUPER

5/24/2012

R070291.DGN

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	41	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15605
MICHAEL D. FUGETT
5/24/12

STAGE 2
PI = 363+24.59
Δ = 03°26'20"LT.
D = 04°00'00"
T = 43.00'
L = 85.97'
PC = 362+81.60
PT = 363+67.57
NO SUPER

STAGE 2
PI = 371+89.05
Δ = 08°55'48"RT.
D = 01°00'00"
T = 447.40'
L = 892.99'
PC = 367+41.65
PT = 376+34.64
NO SUPER

HWY. 167
P.I. 1153+42.14
Δ = 8°55'48"RT.
D = 1°00'00"
T = 447.40'
L = 893.00'
P.C. 1148+94.74
P.T. 1157+87.73

STAGE 2
PI = 389+49.07
Δ = 01°41'37"LT.
D = 01°30'00"
T = 56.46'
L = 112.92'
PC = 388+92.61
PT = 390+05.52
NO SUPER

STAGE 2
PI = 387+46.30
Δ = 01°41'38"RT.
D = 01°00'00"
T = 84.70'
L = 169.38'
PC = 386+61.60
PT = 388+30.98
NO SUPER

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN (XX CU FT)

EXISTING ROW

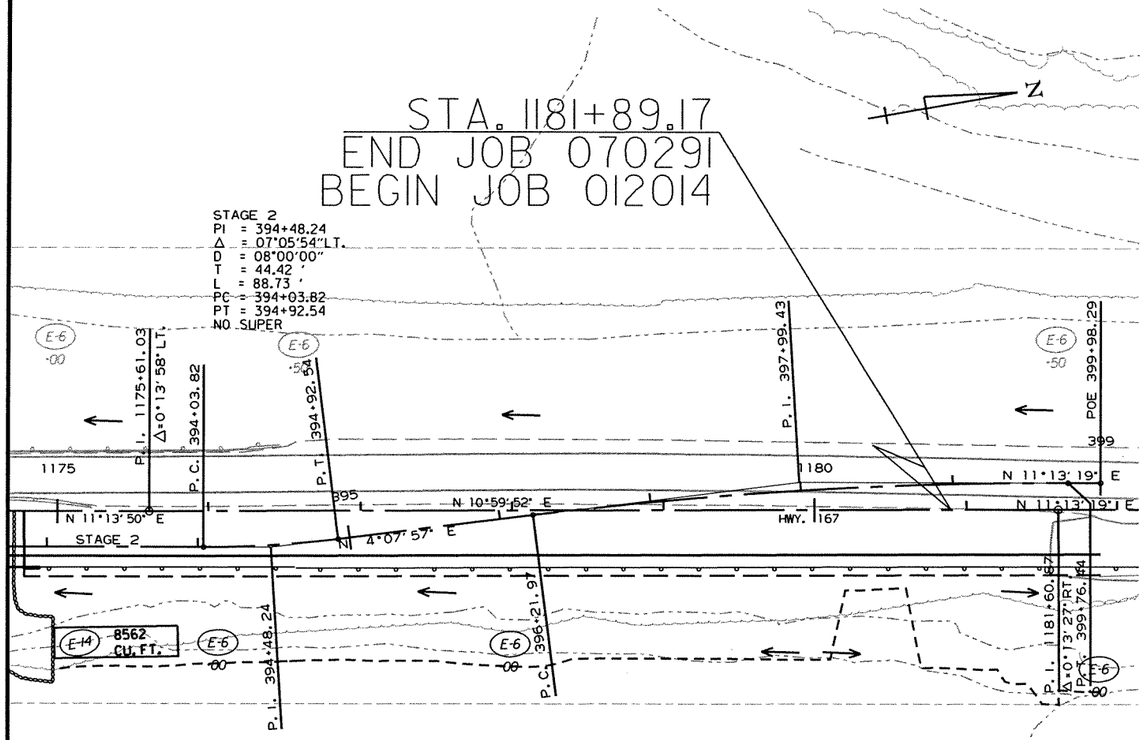
STAGE 1
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	42	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



STAGE 2
PI = 397+99.43
Δ = 07°05'22"RT.
D = 02°00'00"
T = 177.46'
L = 354.47'
PC = 396+21.97
PT = 399+76.44
NO SUPER

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT

REVISION BOX

DATE OF REVISION	REVISION

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

R070291.DGN 5/24/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	43	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
5/24/12

STA. 882+00.00
END JOB 070290
BEGIN JOB 070291

+00.00 100.00 | +05.00 115.00 | +60.00 165.00 | +40.00 110.00

EXISTING ROW | CONST. LIMITS | PROPOSED ROW

880 | 885 | 890 | 895

POB 100+00.00 | N 1°46'01" E | HWY. 167 | STAGE 2

100 | 105 | 110

CONST. LIMITS | EXISTING ROW

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

+35.00 110.00 | +35.00 145.00 | +00.00 100.00

E-14 19870 CU. FT. | E-14 22428 CU. FT. | PROPOSED ROW

CONST. LIMITS | 16' | EXISTING ROW

P.I. 904+38.63 Δ=01°15'RT.

895 | 900 | 905 | 910

N 1°46'01" E | HWY. 167 | N 1°44'46" E

115 | 120 | 125

STAGE 2

E-14 8762 CU. FT. | E-14 19327 CU. FT.

CONST. LIMITS | EXISTING ROW

P.I. 122+38.64 Δ=01°15'RT.

E-11

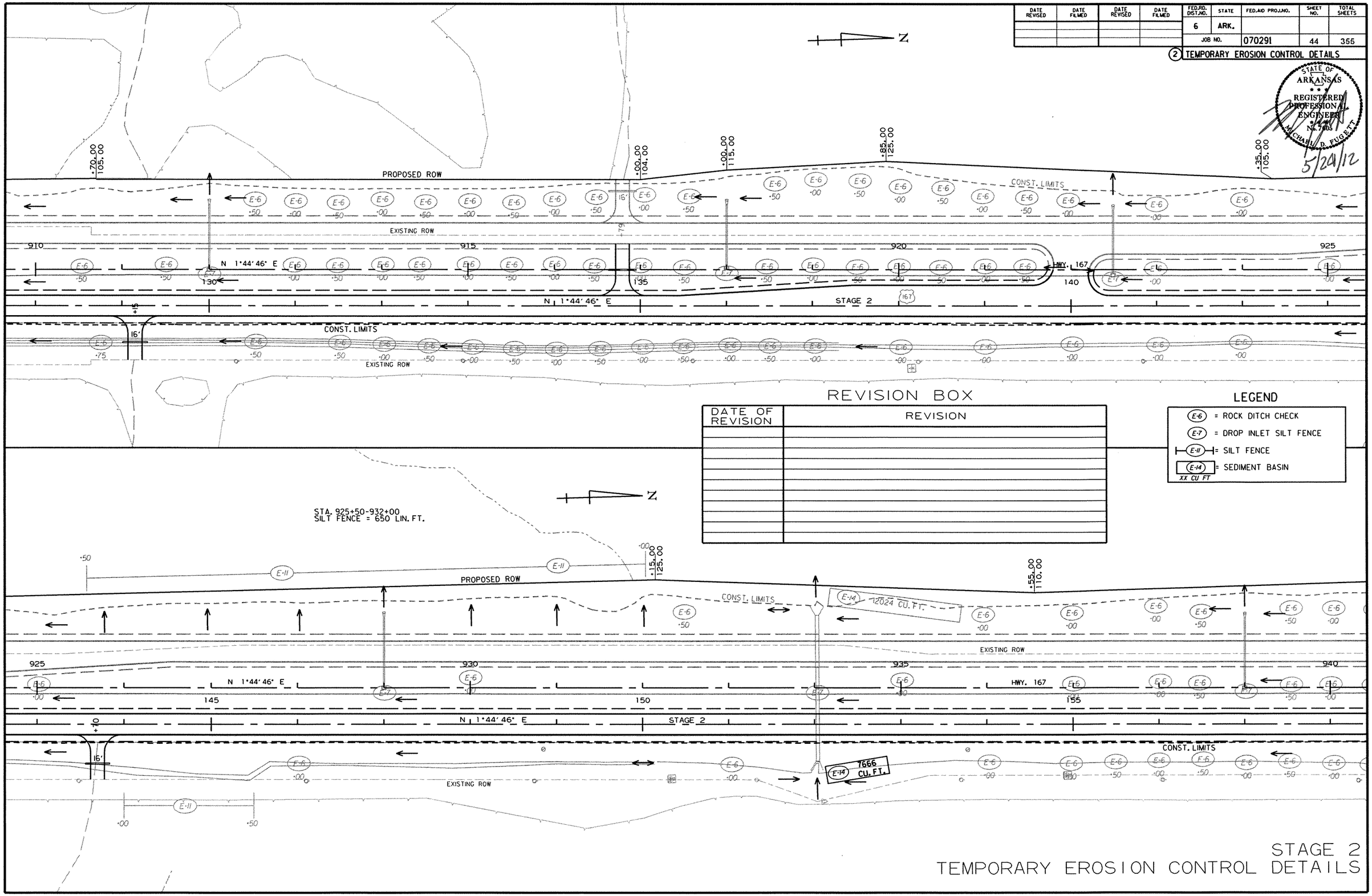
R070291.DGN 5/24/2012

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	44	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7405
MICHAEL D. FUGETT
5/24/12



REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

R070291.DGN 5/24/2012

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070291	45	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

N

+25.00
125.00

+11.49
120.00

+00.00
110.00

+00.00
105.00

PROPOSED ROW

20'

CONST. LIMITS

P. I. 944+36.92
Δ=0°41'39"RT.

EXISTING ROW

940 945 950 955

N 1°44'46" E

N 1°03'07" E

HWY. 167

160 155 170

STAGE 2

N 1°44'46" E

N 1°03'07" E

+42

+70

CONST. LIMITS

16'

+29.00
100.27+115.00 ℄

+55.00
100.24+115.00

P. I. 162+37.44
Δ=0°41'39"RT.

EXISTING ROW

N 1°03'07"

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

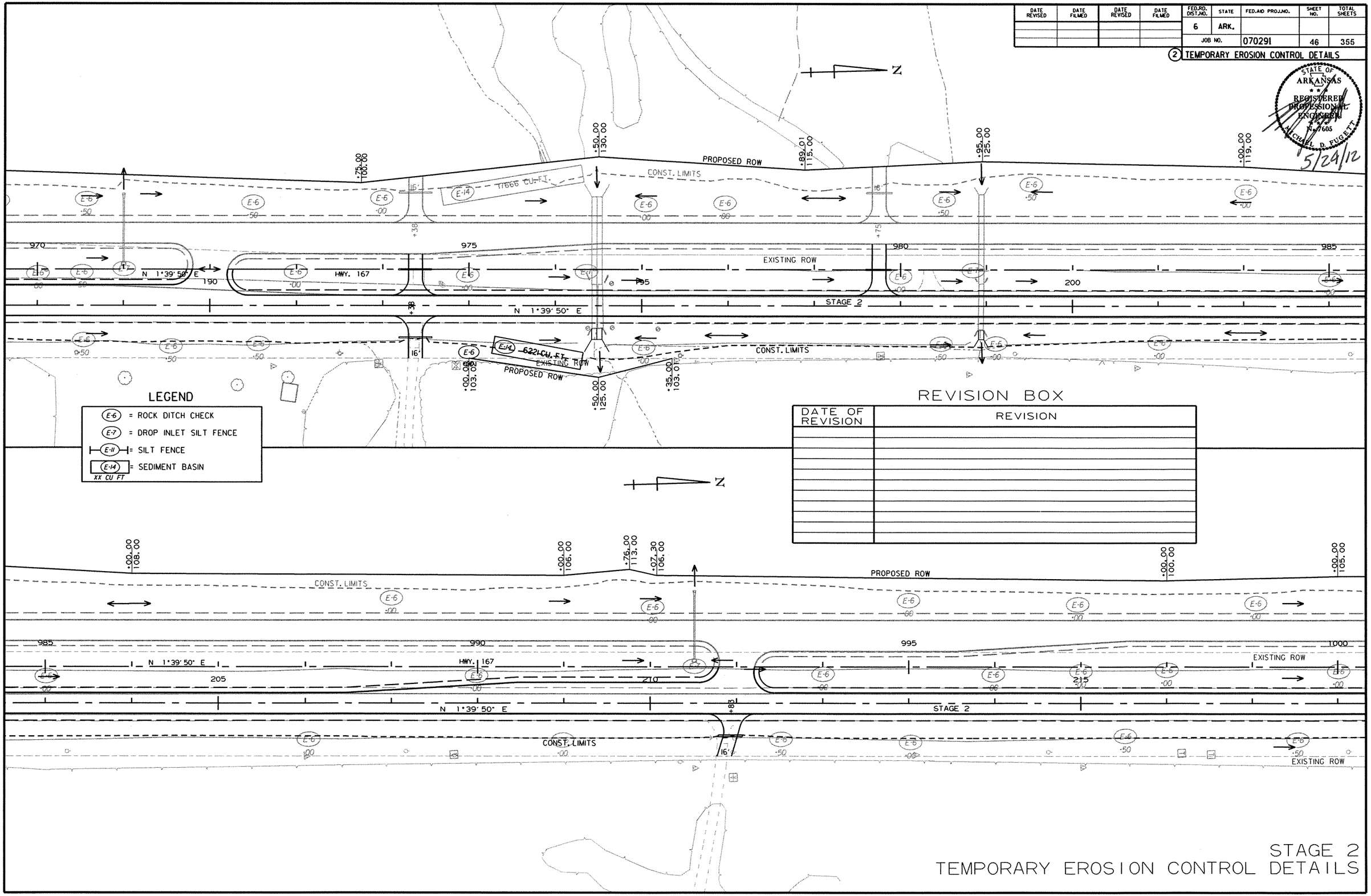
REVISION BOX

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	46	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



LEGEND

- E-6 = ROCK DITCH CHECK
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

REVISION BOX

DATE OF REVISION	REVISION

R070291.DGN 5/24/2012

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	47	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

N

+00.00 105.00 | +25.00 105.00 | +24.77 119.00 | +20.00 135.00 | +00.00 104.00 | +00.00 105.00

PROPOSED ROW

16' | CONST. LIMITS | E-14 15846 CU.FT. | E-6 .00 | E-14 11671 CU. FT. | E-6 .50

1000 | 1005 | 1010

N 1°39'50" E | HWY. 167 | N 1°39'50" E

220 | 225 | 230

EXISTING ROW

STAGE 2

P.I. 1014+81.79
P.I. 232+80.20

P.C. 228+26.12 | P.C. 1010+27.71

+33.08 102.90 | +20.00 125.00 | +45.00 102.89

CONST. LIMITS | E-14 1391 CU.FT.

ING ROW | EXISTING ROW | PROPOSED ROW | +00.00 99.66

STAGE 2
PI = 232+80.20
Δ = 04°32'18"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
PC = 228+26.12
PT = 237+33.81
NO SUPER

HWY. 167
P.I. 1014+81.79
Δ = 4°32'19"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
P.C. 1010+27.71
P.T. 1019+35.40

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- E-6 = ROCK DITCH CHECK
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

LEGEND

N

HWY. 167
P.I. 1025+51.78
Δ = 4°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29

STAGE 2
PI = 243+50.17
Δ = 04°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
PC = 239+01.20
PT = 247+98.68
NO SUPER

+45.00 105.00 | P.I. 1014+81.79 | P.I. 232+80.20 | P.C. 1021+02.81 | +80.00 94.27 | EXISTING ROW | P.T. 1030+00.29

16' | E-6 .50 | PROPOSED ROW | CONST. LIMITS | E-6 .50 | E-6 .50

1015 | 1020 | 1025

N 16°12'09" E | HWY. 167 | E-6 .00 | E-6 .50 | E-7 | N 1°42'54" E

235 | 240 | 245

N 6°12'09" E | EXISTING ROW | STAGE 2 | N 1°42'54" E

D ROW | CONST. LIMITS | PROPOSED ROW

+55.91 100.00 | P.T. 1019+35.40 | P.T. 237+33.81 | P.C. 239+01.20 | +90.00 105.00 | P.I. 1025+51.78 | P.I. 243+50.17 | +10.00 105.00 | P.T. 247+98.68

HWY. 167
P.I. 1014+81.79
Δ = 4°32'19"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
P.C. 1010+27.71
P.T. 1019+35.40

STAGE 2
PI = 232+80.20
Δ = 04°32'18"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
PC = 228+26.12
PT = 237+33.81
NO SUPER

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STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	48	355

(2) TEMPORARY EROSION CONTROL DETAILS

HWY. 167
P.I. 1025+51.78
Δ = 4°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29

STAGE 2
PI = 243+50.17
Δ = 04°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
PC = 239+01.20
PT = 247+98.68
NO SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN, XX CU FT

HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64

STAGE 2
PI = 280+54.44
Δ = 04°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
PC = 276+07.10
PT = 285+01.32
NO SUPER

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STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	49	355

2 TEMPORARY EROSION CONTROL DETAILS

HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64

STAGE 2
PI = 280+54.44
Δ = 04°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
PC = 276+07.10
PT = 285+01.32
NO SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7609
MICHAEL D. FUGETT
5/24/12

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

REVISION BOX

DATE OF REVISION	REVISION

STAGE 2
PI = 291+24.60
Δ = 04°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
PC = 286+75.24
PT = 295+73.49
NO SUPER

HWY. 167
P.I. 1073+22.92
Δ = 4°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
P.C. 1068+73.57
P.T. 1077+71.82

HWY. 167
P.I. 1073+22.92
Δ = 4°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
P.C. 1068+73.57
P.T. 1077+71.82

STAGE 2
PI = 291+24.60
Δ = 04°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
PC = 286+75.24
PT = 295+73.49
NO SUPER

2 BARB WIRE FENCE W/ 4' STEEL POSTS

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STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	50	355

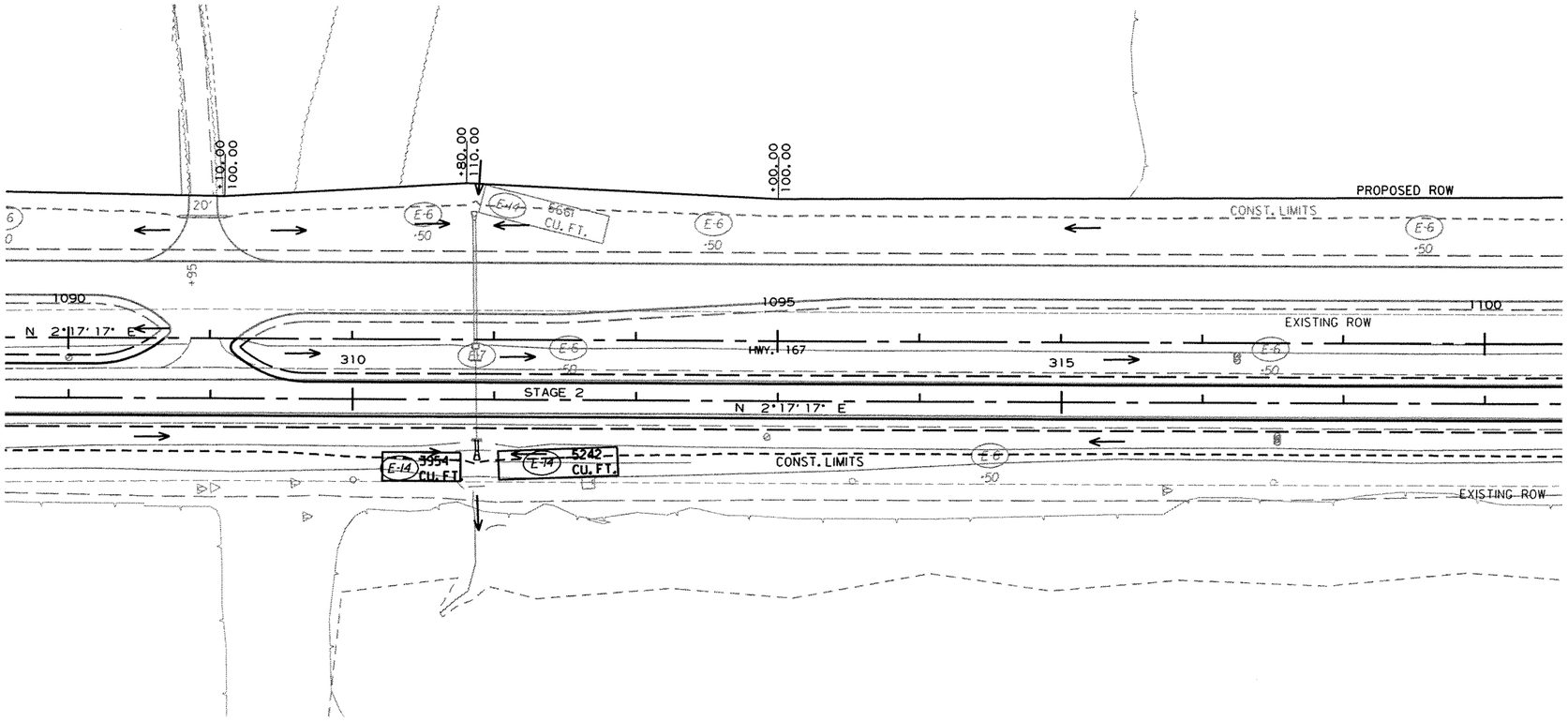
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
9476
MICHAEL D. FUGETT
5/24/12

N

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT



REVISION BOX

DATE OF REVISION	REVISION

R070291.DGN 5/24/2012

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	51	355

(2) TEMPORARY EROSION CONTROL DETAILS

REVISION BOX

DATE OF REVISION	REVISION

HWY. 48
P.I. 104+85.07
Δ = 7°43'57"RT.
D = 1°30'00"
T = 258.14'
L = 515.50'
P.C. 102+26.93
P.T. 107+42.43
MATCH EXIST. SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN, XX CU FT

STAGE 2
PI = 331+41.54
Δ = 16°59'44"LT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 329+98.87
PT = 332+82.13
NO SUPER

STAGE 2
PI = 334+26.83
Δ = 16°59'44"RT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 332+84.15
PT = 335+67.41
NO SUPER

STA. 109+70.51 HWY. 48 =
STA. 1106+50.91 CONSTRUCTION C.L.

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STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	52	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
DATE 7605
MICHAEL D. FUGATT
5/24/12

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

STAGE 2
PI = 334+26.83
Δ = 16°59'44"RT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 332+84.15
PT = 335+67.41
NO SUPER

STAGE 2
PI = 341+55.06
Δ = 03°27'05"RT.
D = 0°30'00"
T = 345.25'
L = 690.29'
PC = 338+09.81
PT = 345+00.10
NO SUPER

HWY. 167
P.I. 1123+45.71
Δ = 3°27'02"RT.
D = 0°30'00"
T = 345.16'
L = 690.12'
P.C. 1120+00.55
P.T. 1126+90.67
NO SUPER

LT. LANE SHIFT
P.I. 1138+30.87
Δ = 3°26'20"LT.
D = 0°30'00"
T = 344.00'
L = 687.68'
P.C. 1134+86.88
P.T. 1141+74.66
NO SUPER

STAGE 2
PI = 363+24.59
Δ = 03°26'20"LT.
D = 04°00'00"
T = 43.00'
L = 85.97'
PC = 362+81.60
PT = 363+67.57
NO SUPER

RT. LANE SHIFT
P.I. 1139+17.65
Δ = 0°49'23"RT.
D = 0°30'00"
T = 82.31'
L = 164.62'
P.C. 1138+35.34
P.T. 1139+99.96
NO SUPER

HWY. 167
P.I. 1134+23.52
Δ = 3°26'17"LT.
D = 0°30'00"
T = 343.91'
L = 687.61'
P.C. 1130+79.61
P.T. 1137+67.22

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

REVISION BOX

DATE OF REVISION	REVISION

8025 CU. FT.
23131 CU. FT.
35628 CU. FT.

STAGE 2

5/24/2012

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STAGE 2 TEMPORARY EROSION CONTROL DETAILS

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				6	ARK.			
				JOB NO.		070291	53	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. FUGETT
5/24/12

STAGE 2
PI = 363+24.59
Δ = 03°26'20"LT.
D = 04°00'00"
T = 43.00'
L = 85.97'
PC = 362+81.60
PT = 363+67.57
NO SUPER

E-14 33187 CU. FT.

P.I. 362+81.60 | P.T. 363+67.57 | 1145 | 365' | N 2°18'02" E | STAGE 2 | N 2°18'02" E | HWY. 167 | 370' | 1150 | P.I. 1153+42.14 | P.I. 371+89.05 | 1155 | CONST. LIMITS | 375' | 1160 | N 11°13'50" E | P.T. 1157+87.73 | P.T. 376+34.64

P.I. 363+24.59 | P.C. 1148+94.74 | P.C. 367+41.65 | E-14 23561 CU. FT.

E-6 ·00 | E-6 ·50

STAGE 2
PI = 371+89.05
Δ = 08°55'48"RT.
D = 01°00'00"
T = 447.40'
L = 892.99'
PC = 367+41.65
PT = 376+34.64
NO SUPER

HWY. 167
P.I. 1153+42.14
Δ = 8°55'48"RT.
D = 1°00'00"
T = 447.40'
L = 893.00'
P.C. 1148+94.74
P.T. 1157+87.73

REVISION BOX

DATE OF REVISION	REVISION

LEGEND

- E-6 = ROCK DITCH CHECK
- E-7 = DROP INLET SILT FENCE
- E-11 = SILT FENCE
- E-14 XX CU FT = SEDIMENT BASIN

EXISTING ROW

STAGE 2
PI = 389+49.07
Δ = 01°41'37"LT.
D = 01°30'00"
T = 56.46'
L = 112.92'
PC = 388+92.61
PT = 390+05.52
NO SUPER

1160 | 380' | N 11°13'50" E | 1165 | 385' | STAGE 2 | N 11°13'50" E | HWY. 167 | P.I. 387+46.30 | 1170 | P.C. 388+92.61 | P.T. 390+05.52 | 390' | N 12°55'28" E | 1175 | N 11°13'50" E

P.C. 386+61.60 | P.T. 388+30.98 | P.I. 389+49.07 | E-14 5320 CU. FT. | E-14

STAGE 2
PI = 387+46.30
Δ = 01°41'38"RT.
D = 01°00'00"
T = 84.70'
L = 169.38'
PC = 386+61.60
PT = 388+30.98
NO SUPER

EXISTING ROW | EXISTING ROW

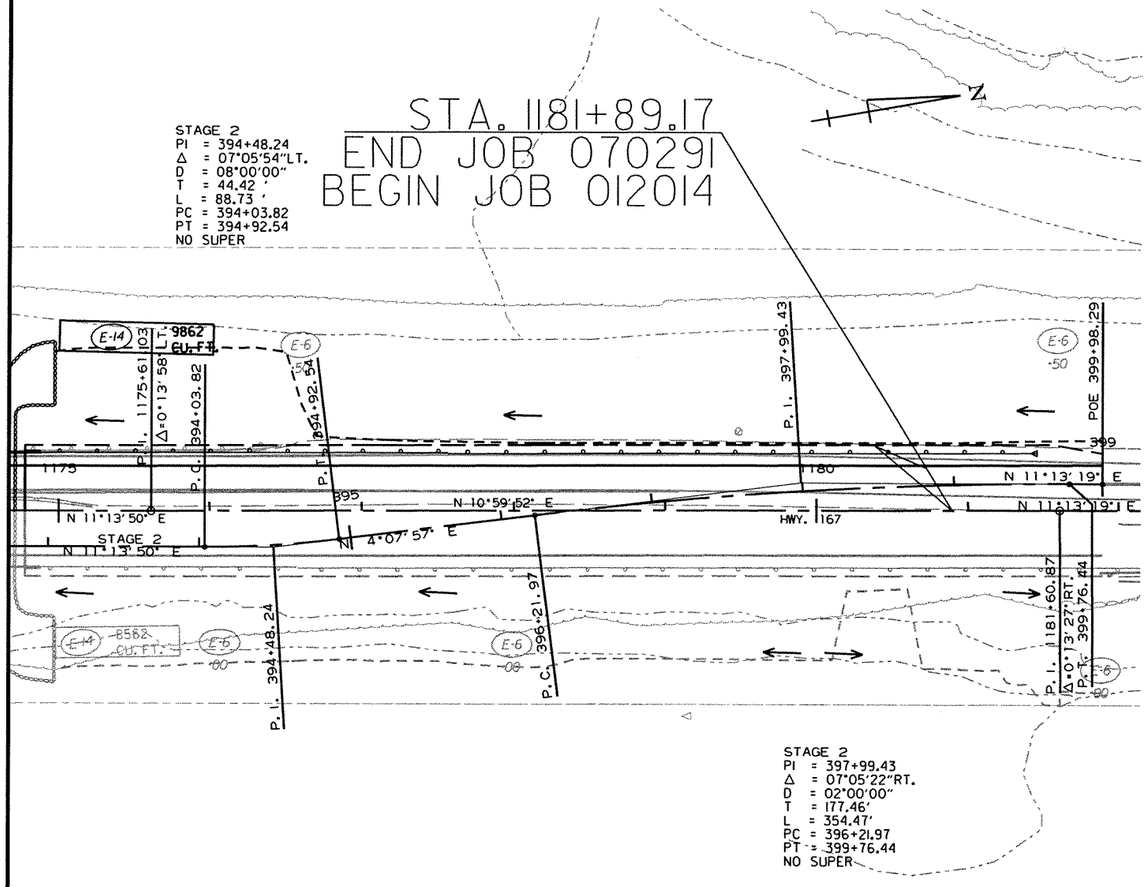
R070291.DGN 5/24/2012

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	54	355

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



STAGE 2
PI = 397+99.43
Δ = 07°05'22"RT.
D = 02°00'00"
T = 177.46'
L = 354.47'
PC = 396+21.97
PT = 399+76.44
NO SUPER

LEGEND

- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN
  XX CU FT

REVISION BOX

DATE OF REVISION	REVISION

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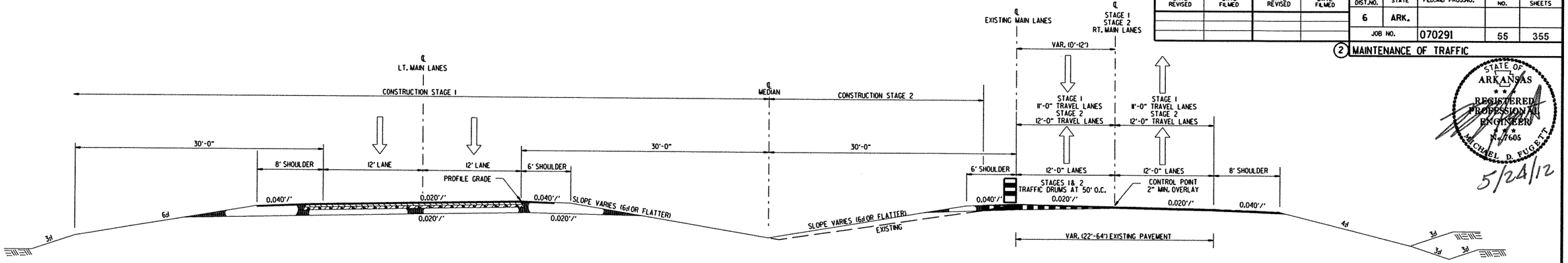
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	55	355

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 17605
MICHAEL D. FUGETT
5/24/12

SEQUENCE OF CONSTRUCTION

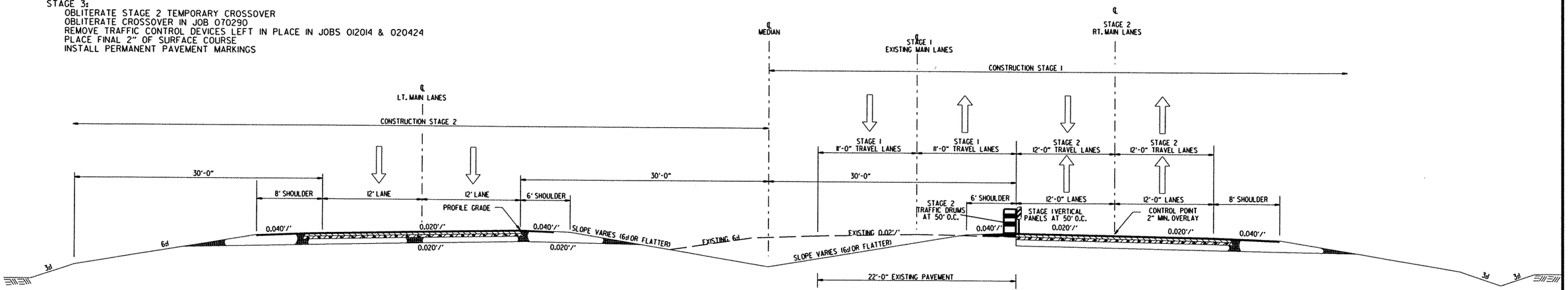
STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS

STAGE CONSTRUCTION

STA. 882+00 TO STA. 1011+00
STA. 1076+00 TO STA. 1115+00



STAGE CONSTRUCTION

STA. 1011+00 TO STA. 1019+58
STA. 1058+05 TO STA. 1067+20 *
STA. 1068+43 TO STA. 1076+00
STA. 1130+74 TO STA. 1135+60 **

* REVERSE CONSTRUCTION TYPICAL FOR RT. LANE FULL DEPTH/LT. LANE NOTCH & WIDEN (STAGE 2 TRAVEL LANES REMAIN ON RT.)

** REVERSE TYPICAL (INCLUDING STAGE 2 TRAVEL LANES) FOR RT. LANE FULL DEPTH/LT. LANE NOTCH & WIDEN

5/17/2012

R070291.DGN

ALL STAGES MAINTENANCE OF TRAFFIC

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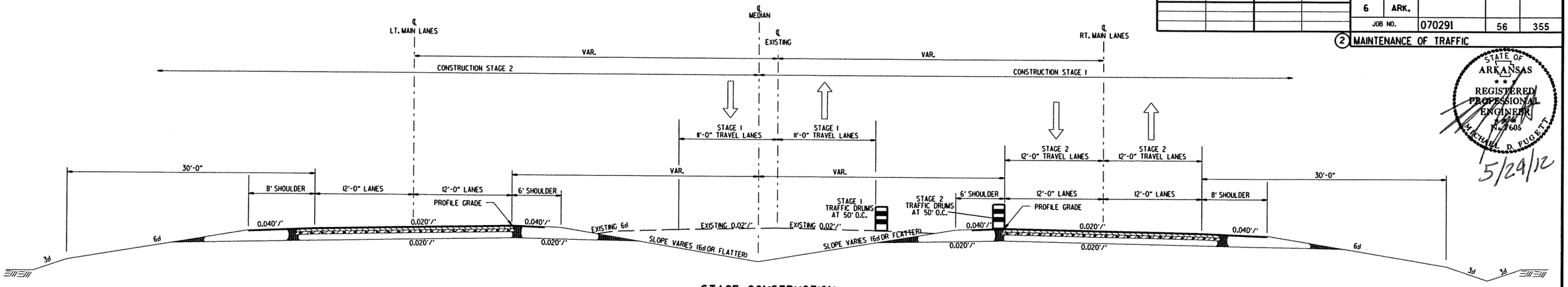
				6	ARK.			
				JOB NO.		070291	56	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/29/12



STAGE CONSTRUCTION

STA. 1019+58 TO STA. 1020+79
STA. 1067+20 TO STA. 1068+43
STA. 1130+49 TO STA. 1130+74 *

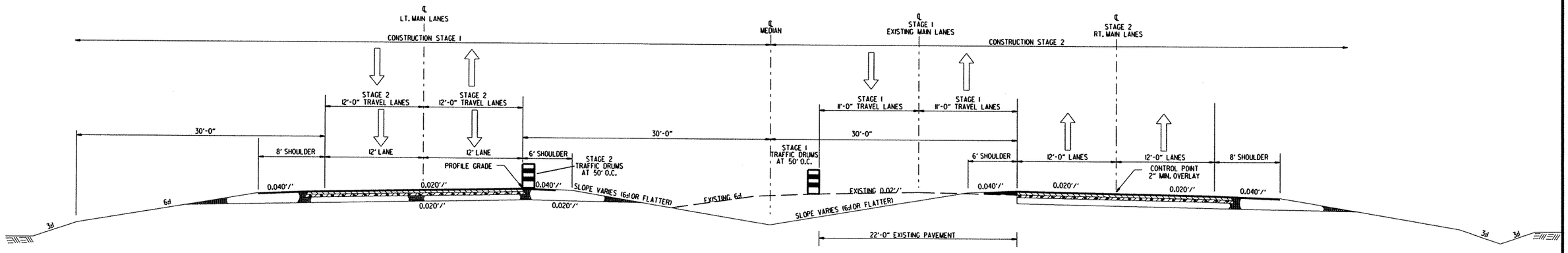
* REVERSE TYPICAL FOR STAGE 1 FULL DEPTH LT./STAGE 2 FULL DEPTH RT.

SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS



STAGE CONSTRUCTION

STA. 1020+79 TO STA. 1030+00 *
STA. 1120+01 TO STA. 1130+49

* REVERSE CONSTRUCTION TYPICAL FOR RT. LANE FULL DEPTH/LT. LANE NOTCH & WIDEN

ALL STAGES MAINTENANCE OF TRAFFIC

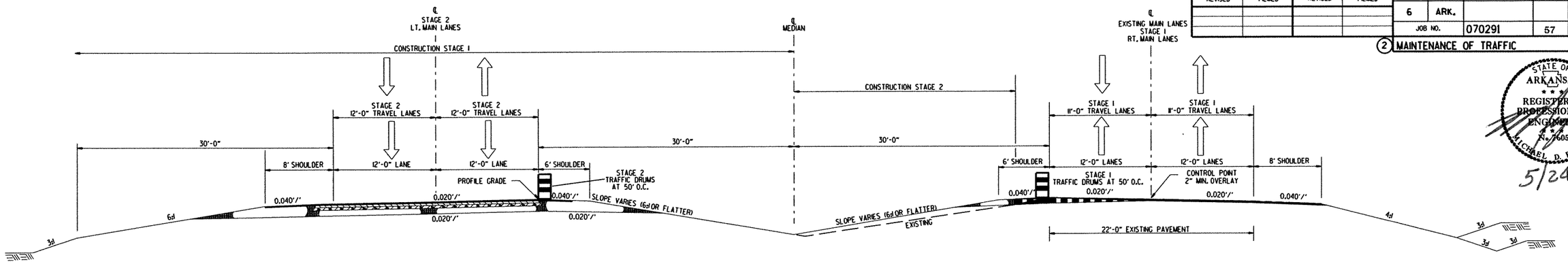
5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	57	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



STAGE CONSTRUCTION

STA. 1030+00 TO STA. 1058+05 *
STA. 1115+00 TO STA. 1120+01

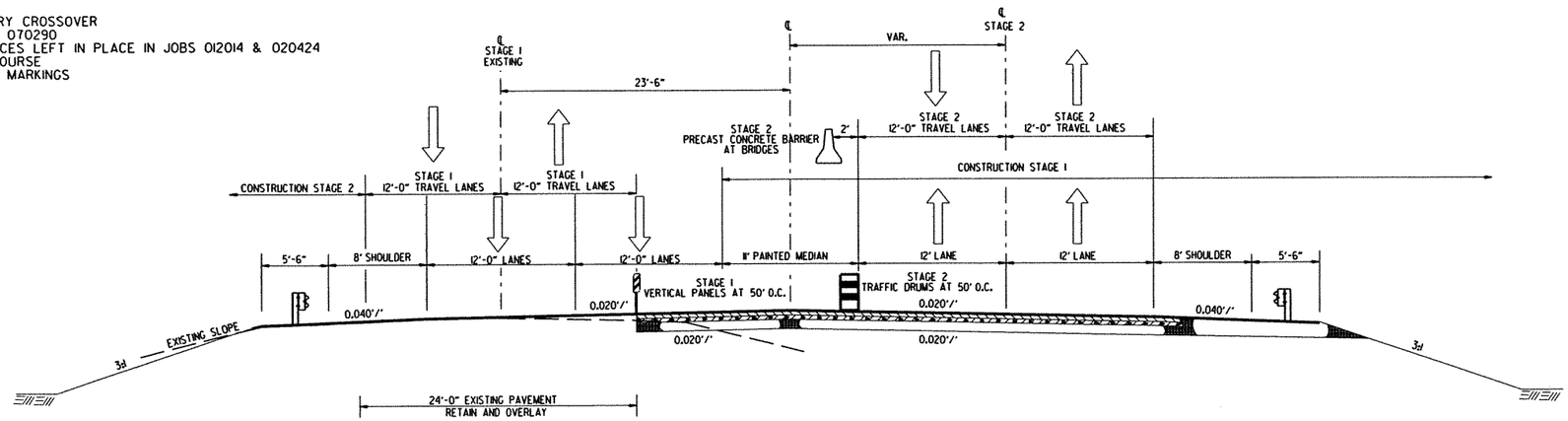
* REVERSE TYPICAL FOR RT. LANE FULL DEPTH/LT. LANE OVERLAY

SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS



STAGE CONSTRUCTION

STA. 1135+60 TO STA. 1138+00 *
STA. 1138+00 TO STA. 1181+89

* REVERSE TYPICAL FOR NOTCH AND WIDEN TO LT.

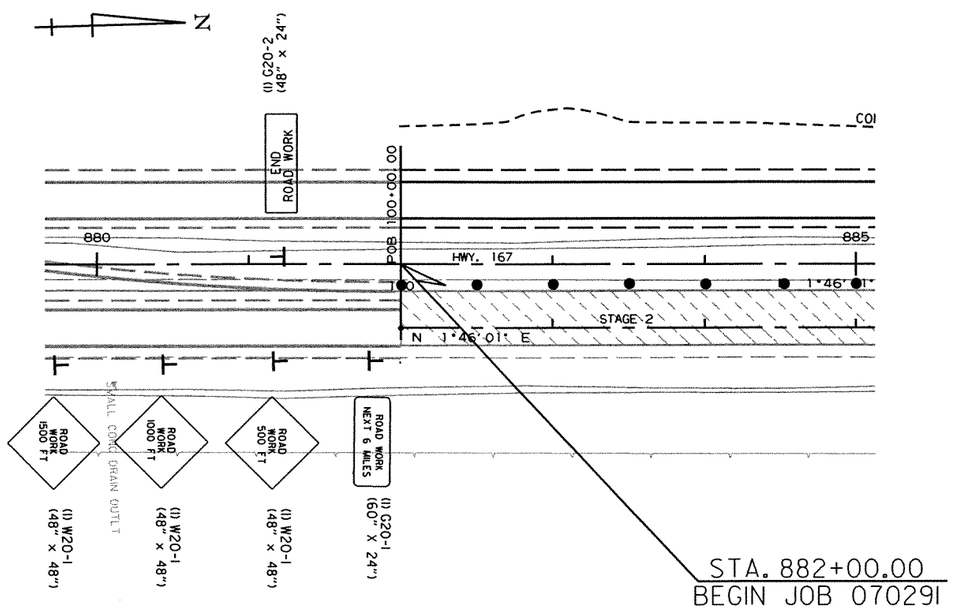
5/17/2012

R070291.DGN

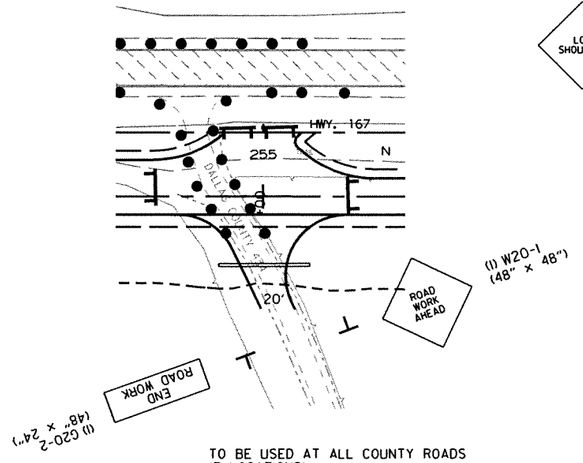
ALL STAGES MAINTENANCE OF TRAFFIC

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	58	355

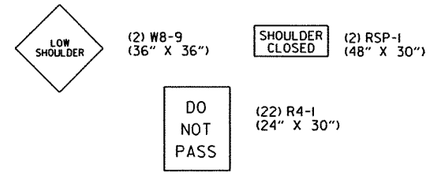
(2) MAINTENANCE OF TRAFFIC



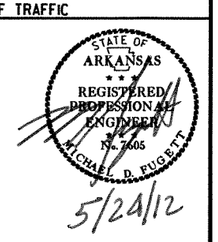
STA. 882+00.00
BEGIN JOB 070291
& END JOB 070290

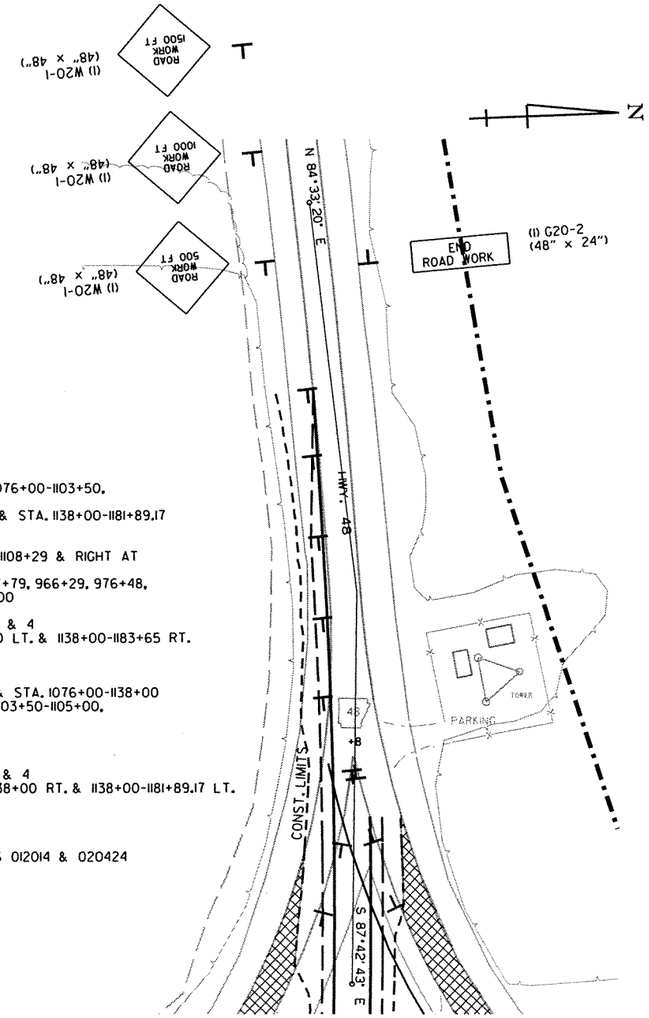


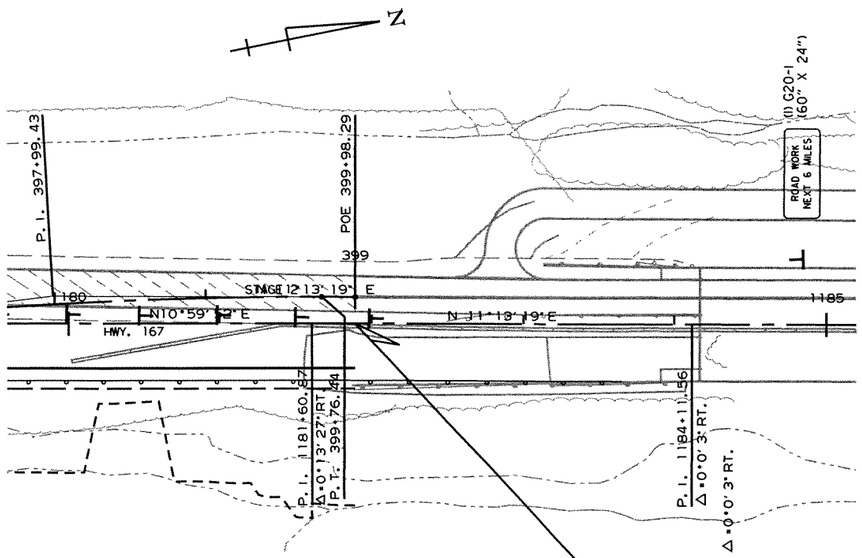
TO BE USED AT ALL COUNTY ROADS
(7 LOCATIONS)



•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER







STA. 1181+96.31
END JOB 070291
& BEGIN JOB 012014

SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS

ALL STAGES
MAINTENANCE OF TRAFFIC

5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	59	355

(2) MAINTENANCE OF TRAFFIC

AVERAGE 10 TRAFFIC DRUMS @ 20' O.C.
(10 DRIVES = 100 EACH)

*ROAD CLOSED BARRICADES
LT. & RT. OF TURNOUT ACCESS
3 LOCATIONS

CONSTRUCTION PAVEMENT MARKINGS

WHITE LANE EDGES
STA. 1011+00-1020+00 = 1800 LIN. FT.
STA. 1069+00-1076+00 = 1400 LIN. FT.
STA. 1132+00-1146+06 = 2812 LIN. FT.
STA. 1148+71-1172+47 = 4752 LIN. FT.
STA. 1174+46-1181+89 = 1486 LIN. FT.

DOUBLE YELLOW CENTERLINE
STA. 1011+00-1020+00 = 1800 LIN. FT.
STA. 1069+00-1076+00 = 1400 LIN. FT.
STA. 1132+00-1146+06 = 2812 LIN. FT.
STA. 1148+71-1172+47 = 4752 LIN. FT.
STA. 1174+46-1181+89 = 1486 LIN. FT.

VERTICAL PANELS @ 50' O.C. = 124 EACH
STA. 1011+00-1020+00
STA. 1068+50-1076+00
STA. 1131+50-1146+00
STA. 1149+00-1172+50
STA. 1174+50-1181+89

TRAFFIC DRUMS @ 50' O.C. = 457 EACH
STA. 882+00-1011+00
STA. 1020+00-1068+50
STA. 1076+00-1117+00
STA. 1121+50-1131+50

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
14,7605
MICHAEL D. FUGETT
5/24/12

(1) RII-2 (48" X 30")
24' BARR. TYP. III RT.
32' BARR. TYP. III LT.
(1) RII-2 (48" X 30")
ROAD CLOSED
ROAD CLOSED
16'
+00
CONST. LIMITS
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 226 LIN. FT.
(5 LOCATIONS = 1130 LIN. FT.)
TRAFFIC DRUMS AT 50' O.C.
P.I. 904+38.63
Δ=01°15" RT.
895
900
905
910
HWY. 167
N 1°46'01" E
N 1°44'46" E
105
120
125
STAGE 2
CONCRETE DRAIN
5 LOCATIONS 15 TOTAL
(3) OM-3L (12" X 36")
(4) OM-3R (12" X 36") 5 LOCATIONS 20 TOTAL
P.I. 122+38.64
Δ=01°15" RT.

SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS

TRAFFIC DRUMS AT 50' O.C.
16'
+38
CONST. LIMITS
16'
+75
970
975
980
985
HWY. 167
N 1°39'50" E
190
195
200
STAGE 2
ROAD CLOSED
(1) RII-2 (48" X 30")
24' BARR. TYP. III RT.
24' BARR. TYP. III LT.
PAVED
RUINS
5 LOCATIONS 15 TOTAL
(3) OM-3L (12" X 36")
(4) OM-3R (12" X 36") 5 LOCATIONS 20 TOTAL
(2) OM-3L (12" X 36")
(1) OM-3R (12" X 36")

ROAD CLOSED DOUBLE BARRICADE AT TURNAROUNDS
7 LOCATIONS AT 48 LIN. FT. = 336 LIN. FT.

RELOCATING PRECAST CONCRETE BARRIER = 226 LIN. FT.
(5 LOCATIONS = 1130 LIN. FT.)

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 173 LIN. FT.
INSTALL TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH

STAGE 1
MAINTENANCE OF TRAFFIC

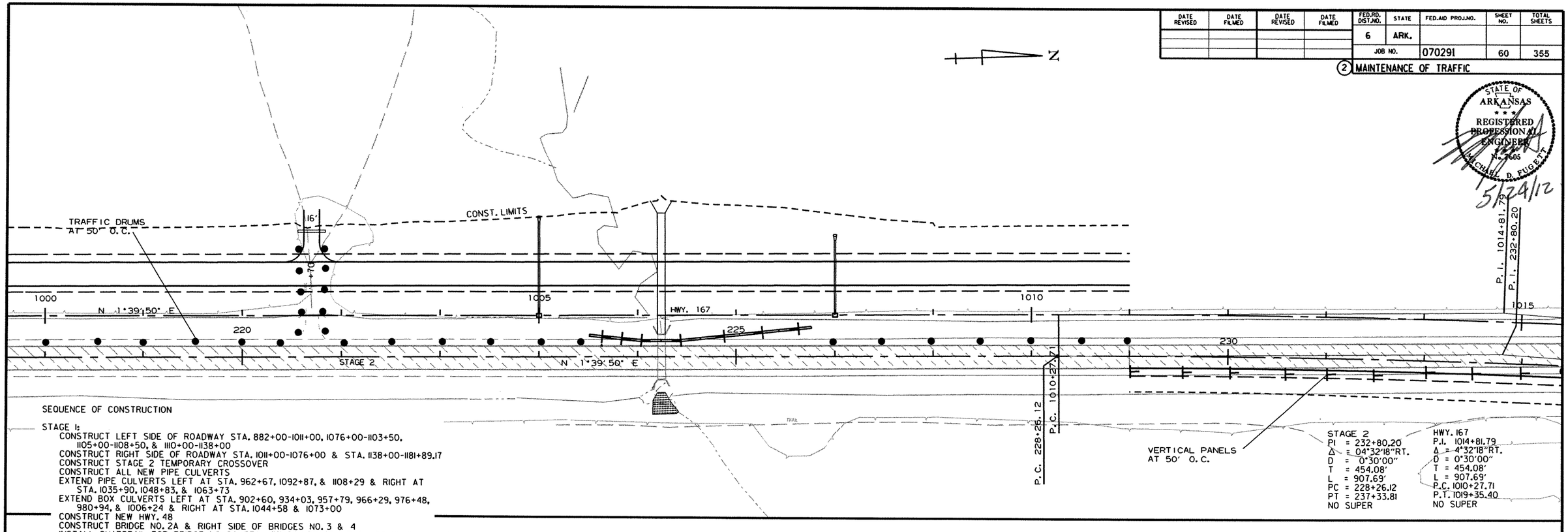
5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	60	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9605
MICHAEL D. FUGETT
5/24/12

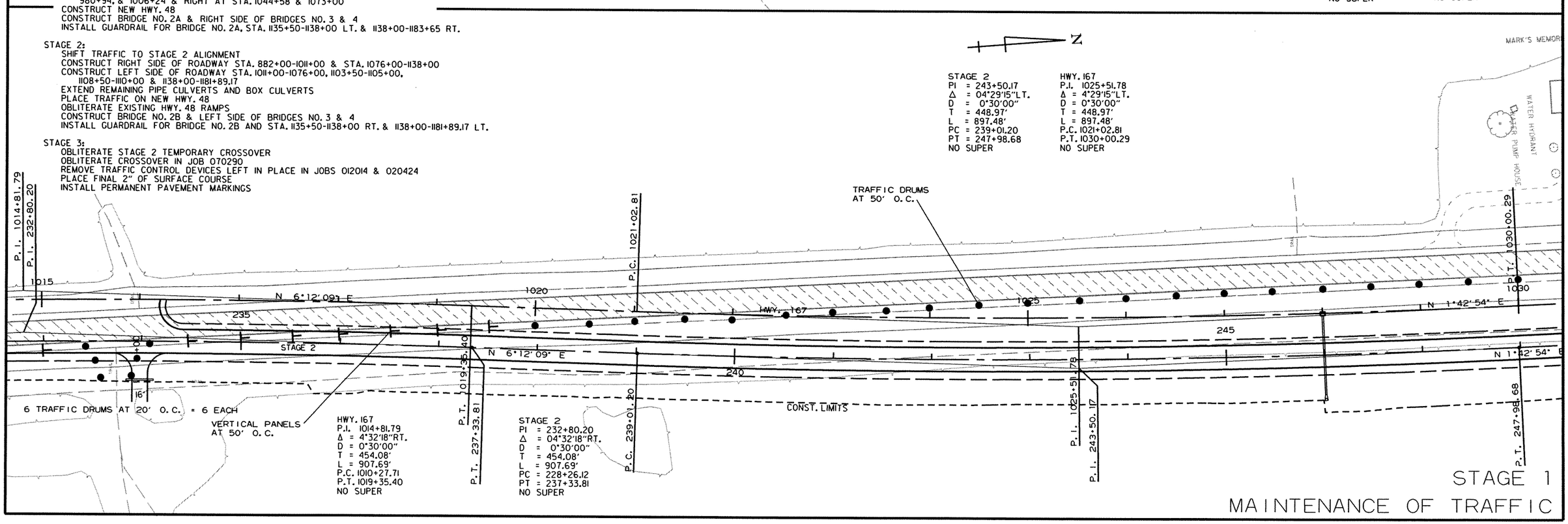


SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS



STAGE 1
MAINTENANCE OF TRAFFIC

5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	61	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

MARK'S MEMORIAL CHURCH OF GOD IN CHRIST

WATER HYDRANT

WATER PUMP HOUSE

DALLAS COUNTY 436

15 TRAFFIC DRUMS @ 20' O.C.
(6 LOCATIONS = 90 EACH)

120' 40' 120'

YOUNG PLANTED PINE

TRAFFIC DRUMS AT 50' O.C.

P.T. 1030+00.29

P.I. 1030

1035

1040

1045

HWY. 167

N 1°42'54" E

250

255

260

STAGE 2

80'

ROAD CLOSED

20'

CONST. LIMITS

(1) RII-2 (48" X 30")

32' BARR. TYP. III LT.

24' BARR. TYP. III RT.

(1) RII-2 (48" X 30")

YOUNG PLANTED PINE

•(1) RII-2 (48" X 30")

•24' BARR. TYP. III LT.

DALLAS COUNTY 434

•24' BARR. TYP. III RT.

•(1) RII-2 (48" X 30")

•ROAD CLOSED BARRICADES LT. & RT. OF CO. RD. (NO TURNOUT ACCESS) 2 LOCATIONS

AVERAGE 12 TRAFFIC DRUMS @ 20' O.C.
(3 COUNTY ROADS = 36 EACH)

P.T. 247+98.68

SEQUENCE OF CONSTRUCTION

STAGE 1:
CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
CONSTRUCT ALL NEW PIPE CULVERTS
EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
CONSTRUCT NEW HWY. 48
CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
PLACE TRAFFIC ON NEW HWY. 48
OBLITERATE EXISTING HWY. 48 RAMPS
CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
OBLITERATE STAGE 2 TEMPORARY CROSSOVER
OBLITERATE CROSSOVER IN JOB 070290
REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
PLACE FINAL 2" OF SURFACE COURSE
INSTALL PERMANENT PAVEMENT MARKINGS

EARTHWORK

HWY. 167	STAGE 2
P.I. 1062+52.76	PI = 280+54.44
Δ = 4°28'16"LT.	Δ = 04°28'16"LT.
D = 0°30'00"	D = 0°30'00"
T = 447.34'	T = 447.34'
L = 894.22'	L = 894.22'
P.C. 1058+05.42	PC = 276+07.10
P.T. 1066+99.64	PT = 285+01.32
NO SUPER	NO SUPER

TRAFFIC DRUMS AT 50' O.C.

P.T. 1066+99.64

120' 40' 120'

1065

1070

N 2°45'48" W

HWY. 167

285

STAGE 2

280

N 1°42'28" E

P.I. 1062+52.76

P.I. 280+54.44

CONST. LIMITS

P.T. 285+01.32

P.C. 286+75.24

P.C. 1068+73.57

VERTICAL PANELS AT 50' O.C.

P.I. 1073+22.92

P.I. 291+24.60

TRAFFIC DRUMS AT 50' O.C.

1075

N 1°43'40" E

295

290

95'

16'

4 TRAFFIC DRUMS AT 20' O.C. = 4 EACH

STAGE 2	HWY. 167
PI = 291+24.60	P.I. 1073+22.92
Δ = 04°29'28"RT.	Δ = 4°29'28"RT.
D = 0°30'00"	D = 0°30'00"
T = 449.35'	T = 449.35'
L = 898.25'	L = 898.25'
PC = 286+75.24	P.C. 1068+73.57
PT = 295+73.49	P.T. 1077+71.82
NO SUPER	NO SUPER

SHEDS

STAGE 1
MAINTENANCE OF TRAFFIC

5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	62	355

(2) MAINTENANCE OF TRAFFIC

SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS

VERTICAL PANELS AT 50' O.C.

11 VERTICAL PANELS AT 50' O.C. = 11 EACH

HWY. 48
P.I. 104+85.07
Δ = 7°43'57"RT.
D = 1°30'00"
T = 258.14'
L = 515.50'
P.C. 102+26.93
P.T. 107+42.43
MATCH EXIST. SUPER

TRAFFIC DRUMS @ 50' O.C. = 14 EACH

TRAFFIC DRUMS AT 50' O.C.

(1) RII-2 (48" X 30") 24' BARR. TYP. III RT.

(1) RII-2 (48" X 30") 24' BARR. TYP. III LT.

ROAD CLOSED

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 153 LIN. FT.

TRAFFIC DRUMS AT 20' O.C. = 9 EACH

CONST. LIMITS

(4) 0M-3L 42" x 36"

STAGE 2
PI = 331+41.54
Δ = 16°59'44"LT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 329+98.87
PT = 332+82.13
NO SUPER

STA. 1114+80 INSTALL 18" x 206' TEMPORARY PIPE CULVERT AT TEMPORARY CROSSOVER

STAGE 2
PI = 334+26.83
Δ = 16°59'44"RT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 332+84.15
PT = 335+67.41
NO SUPER

STA. 109+70.51 HWY. 48 = STA. 1106+50.91 HWY. 167

STAGE 2 N 2°17'17" E

N 14°42'27" W

HWY. 48 HWY. 167

CONST. LIMITS

PAVED PARKING

CONCRETE

SHEDS

FAIRNDALE DELI/LIQUOR

PARKING

TOWER

OPEN STORAGE

UNDERGRD ELECTRIC LINE

UNDERGRD ELECTRIC LINE

ARKLA JUNCTION BOX

ARKLA GRND PROPANE GAS

STATE HIGHWAY MAINTENANCE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

5/17/2012

R070291.DGN

STAGE 1
MAINTENANCE OF TRAFFIC

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	63	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

TRAFFIC DRUMS AT 50' O.C.

STAGE 2
PI = 334+26.83
Δ = 16°59'44"RT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 332+84.15
PT = 335+67.41
NO SUPER

HWY. 167
P.I. 1123+45.71
Δ = 3°27'02"RT.
D = 0°30'00"
T = 345.16'
L = 690.12'
P.C. 1120+00.55
P.T. 1126+90.67
NO SUPER

STAGE 2
PI = 341+55.06
Δ = 03°27'05"RT.
D = 0°30'00"
T = 345.25'
L = 690.29'
PC = 338+09.81
PT = 345+00.10
NO SUPER

SEQUENCE OF CONSTRUCTION

STAGE 1:
CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
CONSTRUCT ALL NEW PIPE CULVERTS
EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
CONSTRUCT NEW HWY. 48
CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
PLACE TRAFFIC ON NEW HWY. 48
OBLITERATE EXISTING HWY. 48 RAMPS
CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
OBLITERATE STAGE 2 TEMPORARY CROSSOVER
OBLITERATE CROSSOVER IN JOB 070290
REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
PLACE FINAL 2" OF SURFACE COURSE
INSTALL PERMANENT PAVEMENT MARKINGS

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

HWY. 167
P.I. 1134+23.52
Δ = 3°26'17"LT.
D = 0°30'00"
T = 343.91'
L = 687.61'
P.C. 1130+79.61
P.T. 1137+67.22
NO SUPER

LT. LANE SHIFT
P.I. 1138+30.87
Δ = 3°26'20"LT.
D = 0°30'00"
T = 344.00'
L = 687.68'
P.C. 1134+86.88
P.T. 1141+74.66
NO SUPER

STAGE 2
PI = 363+24.59
Δ = 03°26'20"LT.
D = 04°00'00"
T = 43.00'
L = 85.97'
PC = 362+81.60
PT = 363+67.57
NO SUPER

RT. LANE SHIFT
P.I. 1139+17.65
Δ = 0°49'23"RT.
D = 0°30'00"
T = 82.31'
L = 164.62'
P.C. 1138+35.34
P.T. 1139+99.96
NO SUPER

VERTICAL PANELS AT 50' O.C.

TRAFFIC DRUMS AT 50' O.C.

32' BARR. TYP. III RT.

(II) RII-2 (48" X 30")

ROAD CLOSED

CONST. LIMITS

STAGE 1
MAINTENANCE OF TRAFFIC

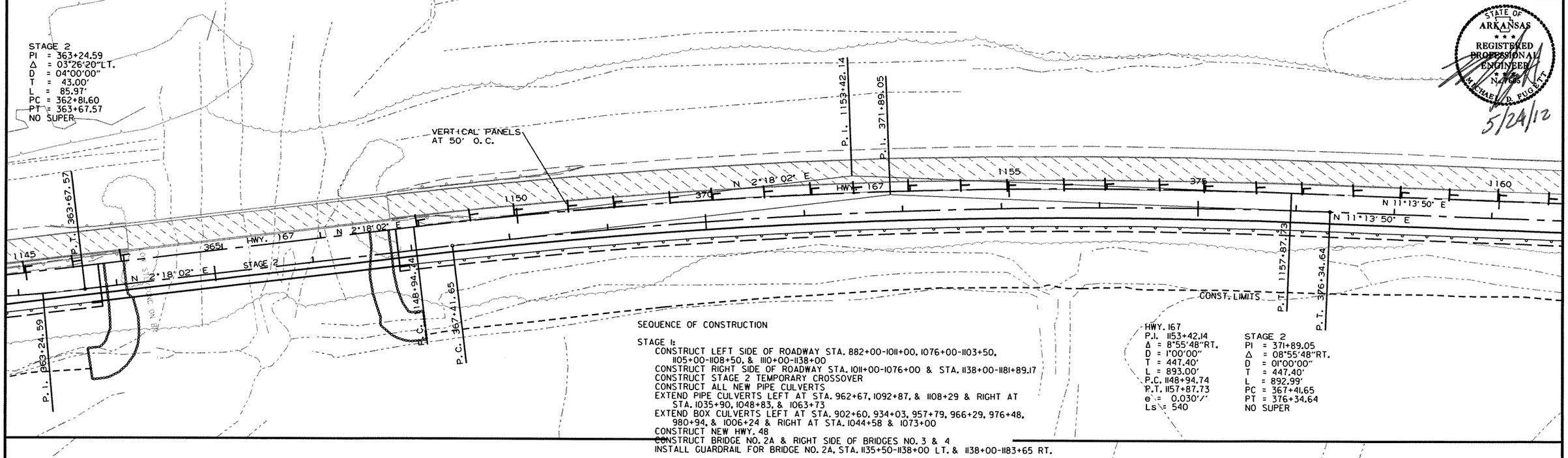
5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	64	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. FUGETT
5/24/12

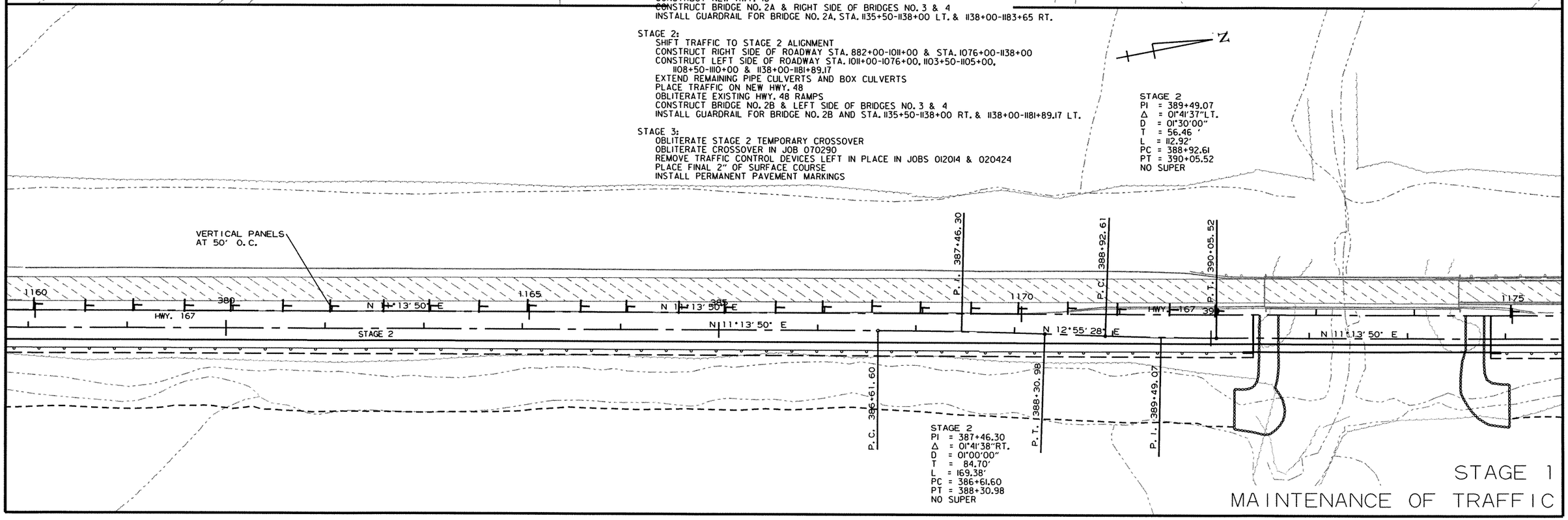


SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A. STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS



STAGE 1
MAINTENANCE OF TRAFFIC

5/17/2012

R070291.DGN

SEQUENCE OF CONSTRUCTION

STAGE 1:
CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
CONSTRUCT ALL NEW PIPE CULVERTS
EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
CONSTRUCT NEW HWY. 48
CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
PLACE TRAFFIC ON NEW HWY. 48
OBLITERATE EXISTING HWY. 48 RAMPS
CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
OBLITERATE STAGE 2 TEMPORARY CROSSOVER
OBLITERATE CROSSOVER IN JOB 070290
REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
PLACE FINAL 2" OF SURFACE COURSE
INSTALL PERMANENT PAVEMENT MARKINGS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		070291	65	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7603
MICHAEL D. FUGETT
5/24/12

STA. 1181+89.17
END JOB 070291
BEGIN JOB 012014

EXISTING RO

STAGE 2
PI = 394+48.24
Δ = 07°05'54"LT.
D = 08°00'00"
T = 44.42'
L = 88.73'
PC = 394+03.82
PT = 394+92.54
NO SUPER

P.I. 1175+61.03
Δ=0°13'58"LT.
P.C. 394+03.82
P.T. 394+92.54
VERTICAL PANELS AT 50' O.C.
P.I. 397+99.43
POE 399+98.29
1175
1180
1185
1190
399
N 11°13'50" E
N 10°59'52" E
N 4°07'57" E
N 11°13'19" E
N 11°13'22" E
HWY. 167
HWY. 167
STAGE 2
9'
P.I. 394+48.24
P.C. 396+21.97
ROAD CLOSED
P.I. 1181+60.87
Δ=0°13'27"RT.
P.T. 399+76.44
P.I. 1184+11.56
Δ=0°0'3"RT.
EXISTING ROW

STAGE 2
PI = 397+99.43
Δ = 07°05'22"RT.
D = 02°00'00"
T = 177.46'
L = 354.47'
PC = 396+21.97
PT = 399+76.44
NO SUPER

8' BARR. TYP. III RT.
(1) W1-6 (48" X 24")
(1) R11-2 (48" X 30")
(6) OM-3R (12"X 36")

SIGNS, BARRICADES, BARRIERS WALLS, AND VERTICAL PANELS LEFT IN PLACE FROM JOB 012014

5/17/2012
R070291.DGN

STAGE 1
MAINTENANCE OF TRAFFIC

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	66	355

(2) MAINTENANCE OF TRAFFIC

TRAFFIC DRUMS AT 50' O.C. = 364 EACH
STA. 882+00-988+00
STA. 994+00-1011+00
STA. 1016+50-1076+00
STA. 1081+00-1086+00
STA. 1092+00-1102+00
STA. 1107+50-1112+00
STA. 1115+00-1116+50
STA. 1123+00-1135+50

VERTICAL PANELS AT 50' O.C. = 121EACH
STA. 988+50-993+50
STA. 1011+50-1015+50
STA. 1076+50-1080+50
STA. 1086+50-1091+50
STA. 1102+50-1107+00
STA. 1112+00-1114+50
STA. 1136+00-1145+00
STA. 1150+50-1171+50
STA. 1176+50-1181+89

CONSTRUCTION PAVEMENT MARKINGS

WHITE LANE EDGES
STA. 882+00-1117+71 = 4714.2 LIN. FT.
STA. 1119+53-1145+73 = 524.0 LIN. FT.
STA. 1148+76-1172+36 = 472.0 LIN. FT.
STA. 1174+78-1181+89 = 142.2 LIN. FT.

DOUBLE YELLOW CENTERLINE
STA. 882+00-1117+71 = 4714.2 LIN. FT.
STA. 1119+53-1145+73 = 524.0 LIN. FT.
STA. 1148+76-1172+36 = 472.0 LIN. FT.
STA. 1174+78-1181+89 = 142.2 LIN. FT.

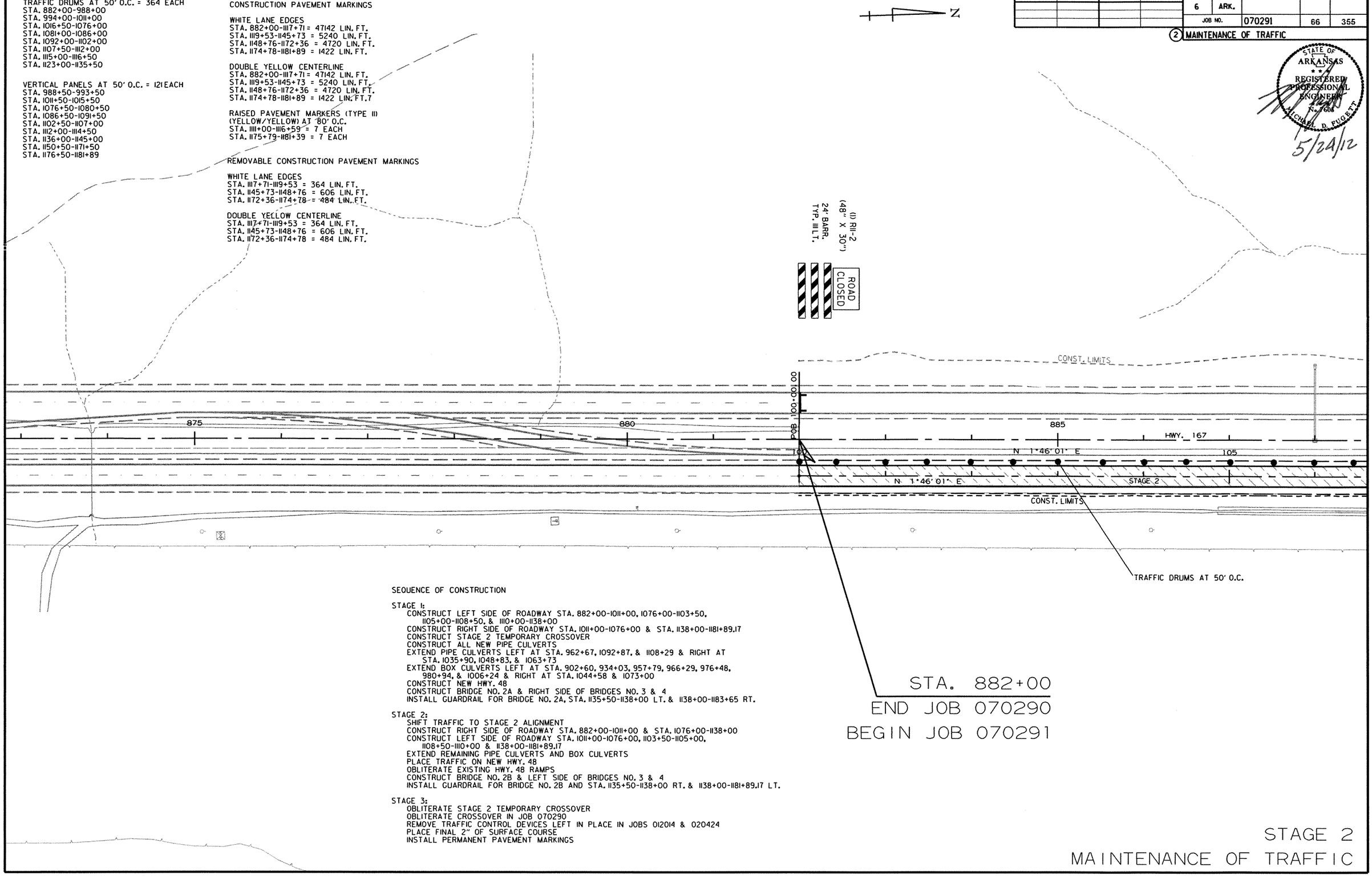
RAISED PAVEMENT MARKERS (TYPE II)
(YELLOW/YELLOW) AT 80' O.C.
STA. 1111+00-1116+59 = 7 EACH
STA. 1175+79-1181+39 = 7 EACH

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS

WHITE LANE EDGES
STA. 1117+71-1119+53 = 364 LIN. FT.
STA. 1145+73-1148+76 = 606 LIN. FT.
STA. 1172+36-1174+78 = 484 LIN. FT.

DOUBLE YELLOW CENTERLINE
STA. 1117+71-1119+53 = 364 LIN. FT.
STA. 1145+73-1148+76 = 606 LIN. FT.
STA. 1172+36-1174+78 = 484 LIN. FT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7606
MICHAEL D. FUGETT
5/24/12



SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS

5/17/2012

R070291.DGN

STAGE 2
MAINTENANCE OF TRAFFIC

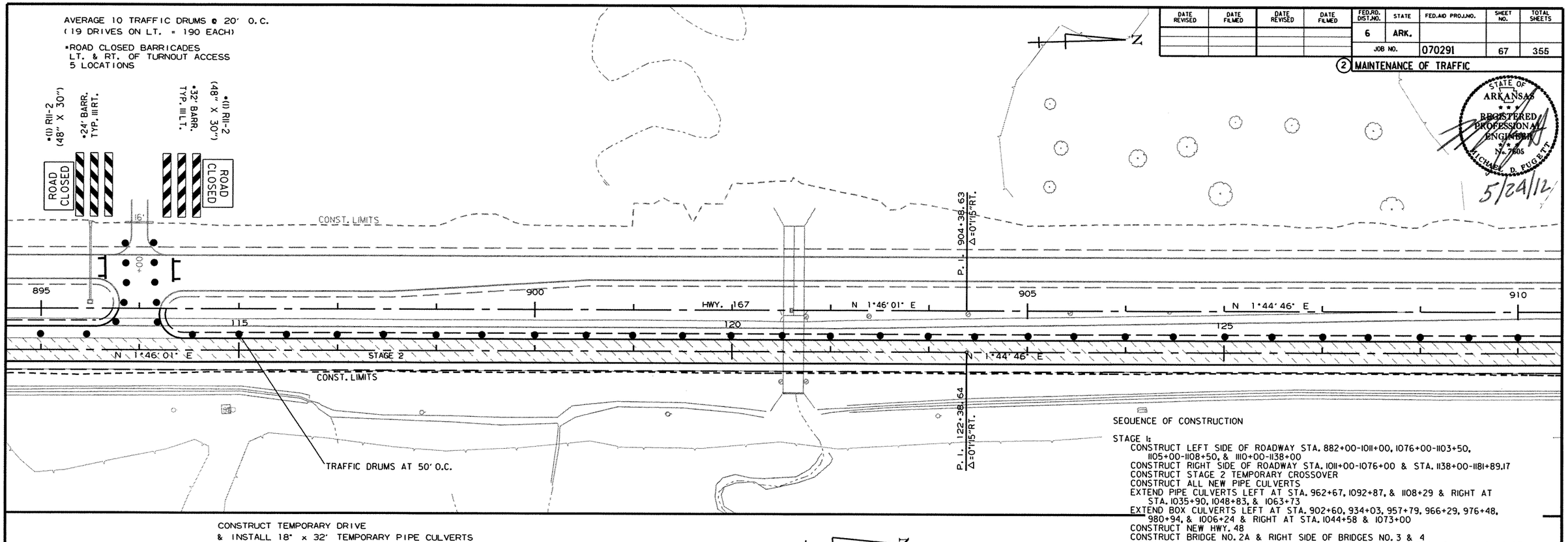
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	67	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

AVERAGE 10 TRAFFIC DRUMS @ 20' O.C.
(19 DRIVES ON LT. = 190 EACH)

•ROAD CLOSED BARRICADES
LT. & RT. OF TURNOUT ACCESS
5 LOCATIONS



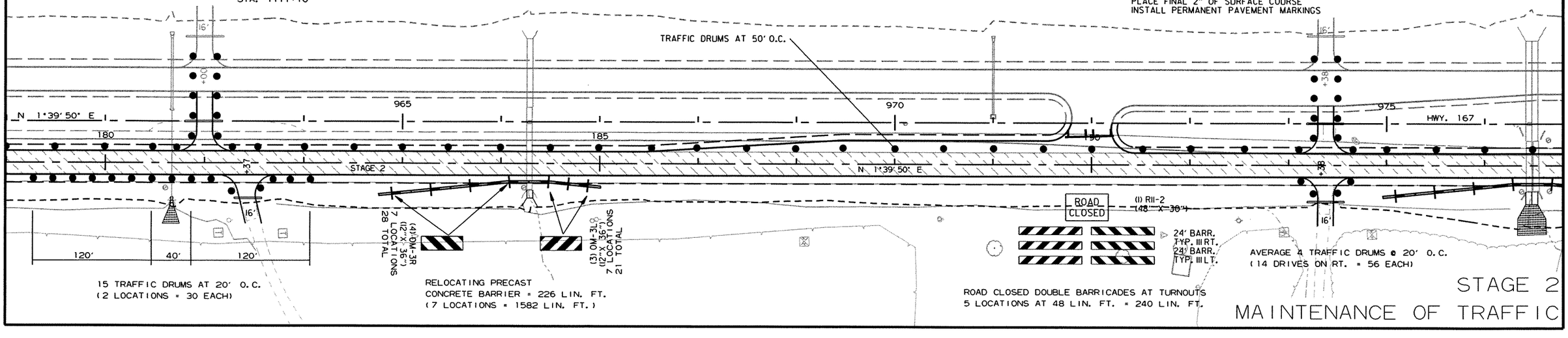
SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS

CONSTRUCT TEMPORARY DRIVE
& INSTALL 18" x 32' TEMPORARY PIPE CULVERTS
AT THE FOLLOWING LOCATIONS
- STA. 916+79
- STA. 963+00
- STA. 974+38
- STA. 979+75
- STA. 1002+70
- STA. 1027+76
- STA. 1030+00
- STA. 1046+20
- STA. 1052+05
- STA. 1053+10
- STA. 1066+10
- STA. 1070+87
- STA. 1111+10



STAGE 2
MAINTENANCE OF TRAFFIC

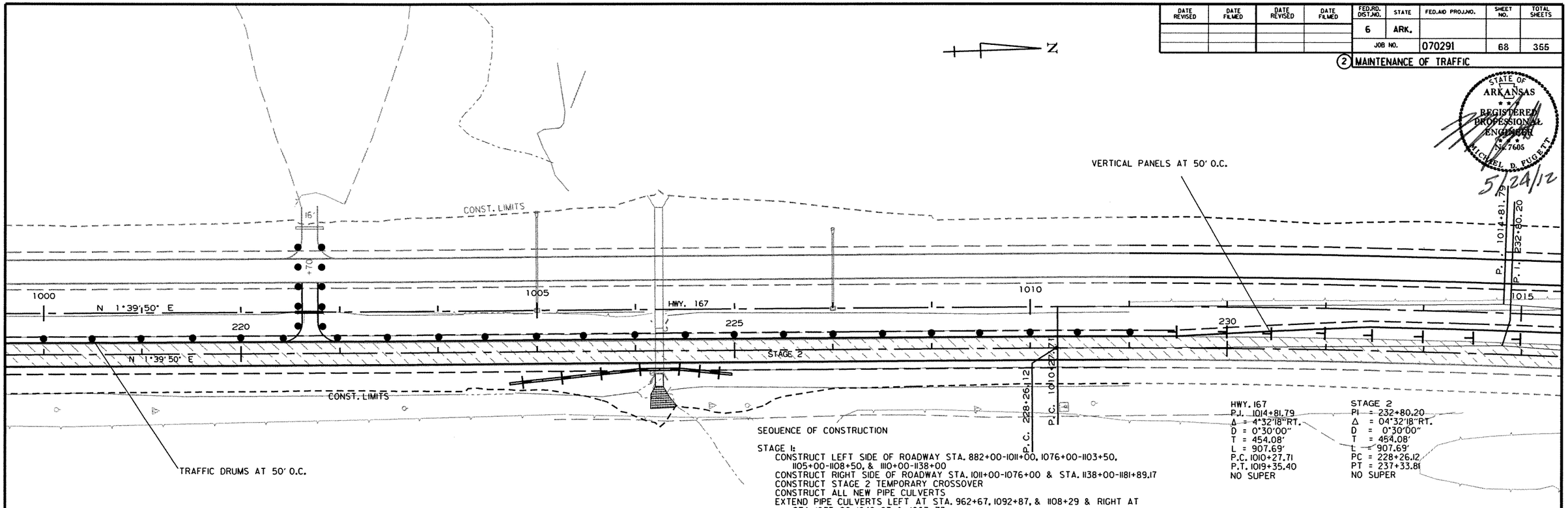
5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	68	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

HWY. 167
P.I. 1014+81.79
Δ = 4°32'18"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
P.C. 1010+27.71
P.T. 1019+35.40
NO SUPER

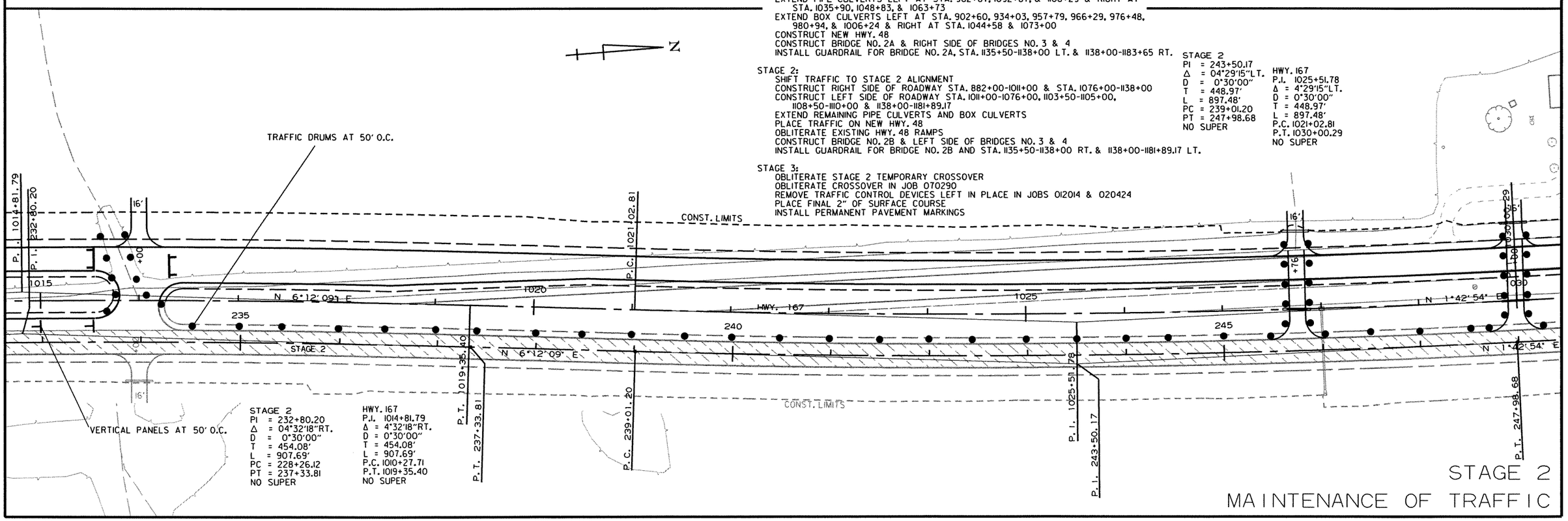
STAGE 2
PI = 232+80.20
Δ = 04°32'18"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
PC = 228+26.12
PT = 237+33.81
NO SUPER

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 2
PI = 243+50.17
Δ = 04°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
PC = 239+01.20
PT = 247+98.68
NO SUPER

HWY. 167
P.I. 1025+51.78
Δ = 4°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29
NO SUPER

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS



STAGE 2
PI = 232+80.20
Δ = 04°32'18"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
PC = 228+26.12
PT = 237+33.81
NO SUPER

HWY. 167
P.I. 1014+81.79
Δ = 4°32'18"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
P.C. 1010+27.71
P.T. 1019+35.40
NO SUPER

STAGE 2
MAINTENANCE OF TRAFFIC

5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	69	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

CONSTRUCT TEMPORARY COUNTY ROAD
& INSTALL 18" x 42' TEMPORARY PIPE CULVERTS
AT THE FOLLOWING LOCATIONS
STA. 942+64
STA. 1031+72
STA. 1039+66
STA. 1051+18

ROAD CLOSED BARRICADE
LT. & RT. OF CO. RD. (NO TURNOUT ACCESS)
4 LOCATIONS

AVERAGE 12 TRAFFIC DRUMS AT 20' O.C.
(5 COUNTY ROADS = 60 EACH)

(1) RII-2 (48" X 30")
24' BARR. TYP. III RT.
24' BARR. TYP. III LT.
(1) RII-2 (48" X 30")
ROAD CLOSED
ROAD CLOSED

STA. 1054+65 CONSTRUCT TEMPORARY DRIVE ON LT.
& INSTALL 18" x 36' TEMPORARY PIPE CULVERT

STA. 1057+52 CONSTRUCT TEMPORARY DRIVE ON LT.
& INSTALL 18" x 30' TEMPORARY PIPE CULVERT

PARKING

HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64
NO SUPER

STAGE 2
PI = 280+54.44
Δ = 04°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
PC = 276+07.10
PT = 285+01.32
NO SUPER

P.I. 1051+29.19
Δ=0°0'26"RT.
P.I. 269+29.22
Δ=0°0'26"RT.
P.C. 1058+05.42
P.C. 276+07.10

CONST. LIMITS
HWY. 167
STAGE 2
TING ROW
N 1°42'54" E
N 1°42'28" E

TRAFFIC DRUMS AT 50' O.C.

SEQUENCE OF CONSTRUCTION

STAGE 1:
CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
CONSTRUCT ALL NEW PIPE CULVERTS
EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
CONSTRUCT NEW HWY. 48
CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
PLACE TRAFFIC ON NEW HWY. 48
OBLITERATE EXISTING HWY. 48 RAMPS
CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
OBLITERATE STAGE 2 TEMPORARY CROSSOVER
OBLITERATE CROSSOVER IN JOB 070290
REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
PLACE FINAL 2" OF SURFACE COURSE
INSTALL PERMANENT PAVEMENT MARKINGS

TRAFFIC DRUMS AT 50' O.C.
CONST. LIMITS
VERTICAL PANELS AT 50' O.C.

P.I. 291+24.60
P.I. 1073+22.92
HWY. 167
STAGE 2
N 2°45'48" W
N 1°43'40" E
P.C. 1068+78.67
P.C. 286+75.24
P.T. 1077+71.82
P.T. 295+73.49

STAGE 2
PI = 291+24.60
Δ = 04°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
PC = 286+75.24
PT = 295+73.49
NO SUPER

HWY. 167
P.I. 1073+22.92
Δ = 4°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
P.C. 1068+73.57
P.T. 1077+71.82
NO SUPER

STAGE 2
MAINTENANCE OF TRAFFIC

5/17/2012
R070291.DGN

SEQUENCE OF CONSTRUCTION

STAGE 1:
CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
CONSTRUCT ALL NEW PIPE CULVERTS
EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
CONSTRUCT NEW HWY. 48
CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
PLACE TRAFFIC ON NEW HWY. 48
OBLITERATE EXISTING HWY. 48 RAMPS
CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
OBLITERATE STAGE 2 TEMPORARY CROSSOVER
OBLITERATE CROSSOVER IN JOB 070290
REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
PLACE FINAL 2" OF SURFACE COURSE
INSTALL PERMANENT PAVEMENT MARKINGS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	70	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGITT
5/24/12

HWY. 48 STA. 103+50-106+50
VERTICAL PANELS AT 50' O.C. = 6 EACH

N

VERTICAL PANELS AT 50' O.C.

HWY. 48
P.I. 104+85.07
Δ = 7°43'57"RT.
D = 1°30'00"
T = 258.14'
L = 515.50'
P.C. 102+26.93
P.T. 107+42.43
MATCH EXIST. SUPER

TRAFFIC DRUMS = 6 EACH

STAGE 2
PI = 331+41.54
Δ = 16°59'44"LT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 329+98.87
PT = 332+82.13
NO SUPER

STAGE 2
PI = 334+26.83
Δ = 16°59'44"RT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 332+84.15
PT = 335+67.41
NO SUPER

TRAFFIC DRUMS AT 50' O.C.

VERTICAL PANELS AT 50' O.C.

STA. 109+70.51 HWY. 48 =
STA. 1106+50.91 HWY. 167

RELOCATING PRECAST CONCRETE BARRIER = 133 L.IN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH

TRAFFIC DRUMS AT 50' O.C.

VERTICAL PANELS AT 50' O.C.

STAGE 2
MAINTENANCE OF TRAFFIC

5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	71	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
M. CHAEL D. FUGETT
NO. 7605
5/24/12

STAGE 2
PI = 331+41.54
Δ = 16°59'44"LT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 329+98.87
PT = 332+82.13
NO SUPER

RELOCATING PRECAST CONCRETE BARRIER = 73 LIN. FT.

(1) W8-1 (18" X 24")
(1) OM-3L (12" X 36")
(1) W8-1 (30" X 30")
BUMP
P.C. 338+09.81
P.I. 334+26.83
P.T. 332+82.13
P.C. 332+84.15
P.I. 335+67.41
P.C. 1120+00.55
N 2°17'17" E
N 14°42'27" W
1115
1120
335
340
STAGE 2

STAGE 2
PI = 334+26.83
Δ = 16°59'44"RT.
D = 06°00'00"
T = 142.68'
L = 283.26'
PC = 332+84.15
PT = 335+67.41
NO SUPER

RELOCATING PRECAST CONCRETE BARRIER = 173 LIN. FT.

(1) OM-3R (12" X 36")
(1) W8-1 (30" X 30")
BUMP

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

P.I. 1123+45.71
P.I. 1341+55.06
TRAFFIC DRUMS AT 50' O.C.
Δ=0°0'41"RT.
P.C. 1127+00.00
P.T. 1126+90.67
345
1125
127
N 5°44'23" E
N 5°44'19" E
LT. LANE SHIFT
RT. LANE SHIFT
HWY. 167
CONST. LIMITS

SEQUENCE OF CONSTRUCTION

STAGE 1:
CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
CONSTRUCT ALL NEW PIPE CULVERTS
EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
CONSTRUCT NEW HWY. 48
CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

HWY. 167
P.I. 1123+45.71
Δ = 3°27'02"RT.
D = 0°30'00"
T = 345.16'
L = 690.12'
P.C. 1120+00.55
P.T. 1126+90.67
NO SUPER

STAGE 2
PI = 341+55.06
Δ = 03°27'05"RT.
D = 0°30'00"
T = 345.25'
L = 690.29'
PC = 338+09.81
PT = 345+00.10
NO SUPER

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
PLACE TRAFFIC ON NEW HWY. 48
OBLITERATE EXISTING HWY. 48 RAMPS
CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
OBLITERATE STAGE 2 TEMPORARY CROSSOVER
OBLITERATE CROSSOVER IN JOB 070290
REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
PLACE FINAL 2" OF SURFACE COURSE
INSTALL PERMANENT PAVEMENT MARKINGS

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

HWY. 167
P.I. 1134+23.52
Δ = 3°26'17"LT.
D = 0°30'00"
T = 343.91'
L = 687.61'
P.C. 1130+79.61
P.T. 1137+67.22
NO SUPER

CONST. LIMITS
TRAFFIC DRUMS AT 50' O.C.
P.C. 1130+79.61
P.I. 1131+90.29
P.I. 1134+86.88
P.I. 1136+16.21
P.T. 1137+67.22
P.C. 1138+85.3
P.I. 1139+17.65
P.T. 1141+74.66
P.C. 362+81.60
350
355
360
1130
1132
1135
1137
1140
N 5°44'23" E
N 5°44'19" E
N 1°28'39" E
N 2°18'02" E
STAGE 2
HWY. 167
LT. LANE SHIFT
RT. LANE SHIFT

LT. LANE SHIFT
P.I. 1138+30.87
Δ = 3°26'20"LT.
D = 0°30'00"
T = 344.00'
L = 687.68'
P.C. 1134+86.88
P.T. 1141+74.66
NO SUPER

STAGE 2
PI = 363+24.59
Δ = 03°26'20"LT.
D = 04°00'00"
T = 43.00'
L = 85.97'
PC = 362+81.60
PT = 363+67.57
NO SUPER

RT. LANE SHIFT
P.I. 1139+17.65
Δ = 0°49'23"RT.
D = 0°30'00"
T = 82.31'
L = 164.62'
P.C. 1138+35.34
P.T. 1139+99.96
NO SUPER

P.I. 1131+90.29
P.I. 1134+23.52
P.I. 1138+30.87
P.T. 1139+99.96
CONST. LIMITS

VERTICAL PANELS AT 50' O.C.

5/17/2012

R070291.DGN

STAGE 2
MAINTENANCE OF TRAFFIC

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	72	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

STAGE 2
PI = 363+24.59
Δ = 03°26'20"LT.
D = 04°00'00"
T = 43.00'
L = 85.97'
PC = 362+81.60
PT = 363+67.57
NO SUPER

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 546 LIN. FT.

(1) W8-1 (30" X 30")
(3) OM-3L (12"X 36")
(4) OM-3R (12"X 36")
BUMP
P.C. 362+81.60
P.T. 363+67.57
P.I. 363+24.59
1145
1150
1155
1160
N 2°18'02" E
N 5°44'23" E
N 11°13'50" E
HWY. 167
STAGE 2
P.C. 1148+94.74
P.C. 367+41.65
P.I. 1153+42.14
P.I. 371+89.05
370
375
CONST. LIMITS
VERTICAL PANELS AT 50' O.C.
P.T. 1157+87.73
P.T. 376+34.64

HWY. 167
P.I. 1153+42.14
Δ = 8°55'48"RT.
D = 1°00'00"
T = 447.40'
L = 893.00'
P.C. 1148+94.74
P.T. 1157+87.73
e = 0.030'/'
Ls = 540

STAGE 2
PI = 371+89.05
Δ = 08°55'48"RT.
D = 01°00'00"
T = 447.40'
L = 892.99'
PC = 367+41.65
PT = 376+34.64
NO SUPER

SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS

STAGE 2
PI = 389+49.07
Δ = 01°41'37"LT.
D = 01°30'00"
T = 56.46 '
L = 112.92'
PC = 388+92.61
PT = 390+05.52
NO SUPER

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 526 LIN. FT.

(3) OM-3L (12"X 36")
(1) W8-1 (30" X 30")
BUMP
P.I. 387+46.30
P.C. 388+92.61
P.T. 390+05.52
1160
1165
1170
1175
380
385
390
HWY. 167
N 11°13'50" E
N 12°55'28" E
STAGE 2
P.C. 386+61.60
P.T. 388+30.98
P.I. 389+49.07
VERTICAL PANELS AT 50' O.C.

STAGE 2
PI = 387+46.30
Δ = 01°41'38"RT.
D = 01°00'00"
T = 84.70'
L = 169.38'
PC = 386+61.60
PT = 388+30.98
NO SUPER

STAGE 2
MAINTENANCE OF TRAFFIC

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	73	355

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

STAGE 2
PI = 394+48.24
Δ = 07°05'54"LT.
D = 08°00'00"
T = 44.42 '
L = 88.73 '
PC = 394+03.82
PT = 394+92.54
NO SUPER

(1) W8-1 (30" X 30")

BUMP

VERTICAL PANELS AT 50' O.C.

(8) W1-8 (18" X 24")

P.I. 1175+61.103
Δ=0°13'58"LT.
P.C. 394+03.82
P.T. 394+92.54
P.I. 394+48.24
(4) OM-3R (12"X 36")
P.C. 396+21.97
(8) W1-8 (18" X 24")

STAGE 2
PI = 397+99.43
Δ = 07°05'22"RT.
D = 02°00'00"
T = 177.46'
L = 354.47'
PC = 396+21.97
PT = 399+76.44
NO SUPER

P.I. 397+99.43
P.I. 1181+60.87
Δ=0°13'27"RT.
P.T. 399+76.44
POE 399+98.29
(6) OM-3R (12"X 36")
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
8 ' BARR. TYP. III RT.
ROAD CLOSED

N 11°13'50" E
N 4°07'57" E
N 10°59'52" E
N 11°13'19" E
N 11°13'22" E
STAGE 2
HWY. 167
1175
1180
1185
1190
395
399

P.I. 1184+11.56
Δ=0°0'3"RT.

SIGNS, BARRICADES, AND VERTICAL PANELS IN PLACE FROM JOB 012014

PRECAST CONCRETE BARRIER WALL = 1360 LIN. FT.
IN PLACE FROM JOB 012014

STA. 1181+89.17
END JOB 070291
BEGIN JOB 012014

SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS

STA. 1192+18
END JOB 012014
BEGIN JOB 020424

HWY. 167
P.I. 1193+16.75
Δ = 09°16'54"RT.
D = 3°00'00"
T = 155.03'
L = 309.39'
P.C. 1191+61.71
P.T. 1194+71.10
e = 0.077'/'
Ls = 540

P.C. 1191+61.71
P.T. 1194+71.10
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
8 ' BARR. TYP. III LT.
ROAD CLOSED
PDE 1198+52.36
1190
1195
1198
N 11°13'22"E
N 1°58'51" E
HWY. 167

P.I. 1193+16.75
(3) OM-3L (12"X 36")

PRECAST CONCRETE BARRIER WALL = 313 LIN. FT.
IN PLACE FROM JOB 020424

SIGNS, BARRICADES, AND VERTICAL PANELS IN PLACE FROM JOB 012014

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STAGE 2
MAINTENANCE OF TRAFFIC

THERMOPLASTIC PAVEMENT MARKINGS:

4" WHITE SOLID EDGE LINES
STA. 882+00-1036+44 RT. = 15,444 LIN. FT.
STA. 1037+55-1039+60 RT. = 205 LIN. FT.
STA. 1040+60-1196+13 RT. = 15,553 LIN. FT.
STA. 882+00-942+03 LT. = 6003 LIN. FT.
STA. 943+04-1031+19 LT. = 8815 LIN. FT.
STA. 1032+20-1039+16 LT. = 696 LIN. FT.
STA. 1040+16-1050+16 LT. = 1000 LIN. FT.
STA. 1051+30-1090+45 LT. = 3915 LIN. FT.
STA. 1091+45-1106+00 LT. = 1455 LIN. FT.
STA. 1107+00-1182+89 LT. = 7589 LIN. FT.

4" WHITE SKIP LINES
STA. 882+00-1036+75 RT. = 3869 LIN. FT.
STA. 1037+25-1117+71 RT. = 2012 LIN. FT.
STA. 1119+53-1145+73 RT. = 655 LIN. FT.
STA. 1148+76-1172+36 RT. = 590 LIN. FT.
STA. 1174+78-1184+17 RT. = 235 LIN. FT.
STA. 1190+53-1196+13 RT. = 140 LIN. FT.
STA. 882+00-1090+70 LT. = 5218 LIN. FT.
STA. 1091+20-1106+39 LT. = 380 LIN. FT.
STA. 1107+24-1117+71 LT. = 262 LIN. FT.
STA. 1119+53-1145+73 LT. = 655 LIN. FT.
STA. 1148+76-1172+36 LT. = 590 LIN. FT.
STA. 1174+78-1184+17 LT. = 235 LIN. FT.
STA. 1190+53-1196+13 RT. = 140 LIN. FT.

THERMOPLASTIC PAVEMENT MARKINGS (CONT.):

4" WHITE SOLID TURN LANE LINES
STA. 893+46-895+56 = 210 LIN. FT.
STA. 896+44-898+54 = 210 LIN. FT.
STA. 919+46-921+56 = 210 LIN. FT.
STA. 922+44-924+54 = 210 LIN. FT.
STA. 943+21-945+31 = 210 LIN. FT.
STA. 946+19-948+29 = 210 LIN. FT.
STA. 969+46-971+56 = 210 LIN. FT.
STA. 972+44-974+54 = 210 LIN. FT.
STA. 990+46-992+56 = 210 LIN. FT.
STA. 1013+46-1015+56 = 210 LIN. FT.
STA. 1016+44-1018+54 = 210 LIN. FT.
STA. 1034+46-1036+56 = 210 LIN. FT.
STA. 1037+44-1039+54 = 210 LIN. FT.
STA. 1054+10-1056+20 = 210 LIN. FT.
STA. 1057+08-1059+18 = 210 LIN. FT.
STA. 1077+46-1079+56 = 210 LIN. FT.
STA. 1080+44-1082+54 = 210 LIN. FT.
STA. 1088+40-1090+50 = 210 LIN. FT.
STA. 1091+38-1093+48 = 210 LIN. FT.
STA. 1103+97-1106+07 = 210 LIN. FT.
STA. 1106+95-1109+05 = 210 LIN. FT.
STA. 1133+40-1135+50 = 210 LIN. FT.

THERMOPLASTIC PAVEMENT MARKINGS (CONT.):

4" YELLOW SOLID INSIDE EDGES (LT. AND RT.)
STA. 882+00-895+56 = 2712 LIN. FT.
STA. 896+44-921+56 = 5024 LIN. FT.
STA. 922+44-945+31 = 4574 LIN. FT.
STA. 946+19-971+56 = 5074 LIN. FT.
STA. 972+44-992+56 = 4024 LIN. FT.
STA. 993+44-1015+56 = 4424 LIN. FT.
STA. 1016+44-1036+26 = 3964 LIN. FT.
STA. 1037+74-1056+20 = 3692 LIN. FT.
STA. 1057+08-1079+56 = 4496 LIN. FT.
STA. 1080+44-1090+21 = 1954 LIN. FT.
STA. 1091+68-1105+77 = 2818 LIN. FT.
STA. 1107+25-1117+71 = 2092 LIN. FT.
STA. 1119+53-1135+50 = 3194 LIN. FT.

4" YELLOW SOLID NOSES
16 TURNAROUND NOSES AT 75 FT. = 1200 LIN. FT.
6 CROSSING NOSES AT 121 FT. = 726 LIN. FT.
FINAL NOSE (STA. 1135+50) = 33 LIN. FT.

THERMOPLASTIC PAVEMENT MARKINGS (CONT.):

4" YELLOW SOLID FOR CENTER TURN LANE
STA. 1136+00-1145+73 = 1946 LIN. FT.
STA. 1148+76-1172+36 = 4720 LIN. FT.
STA. 1174+78-1184+17 = 1878 LIN. FT.
STA. 1190+53-1196+13 = 1120 LIN. FT.

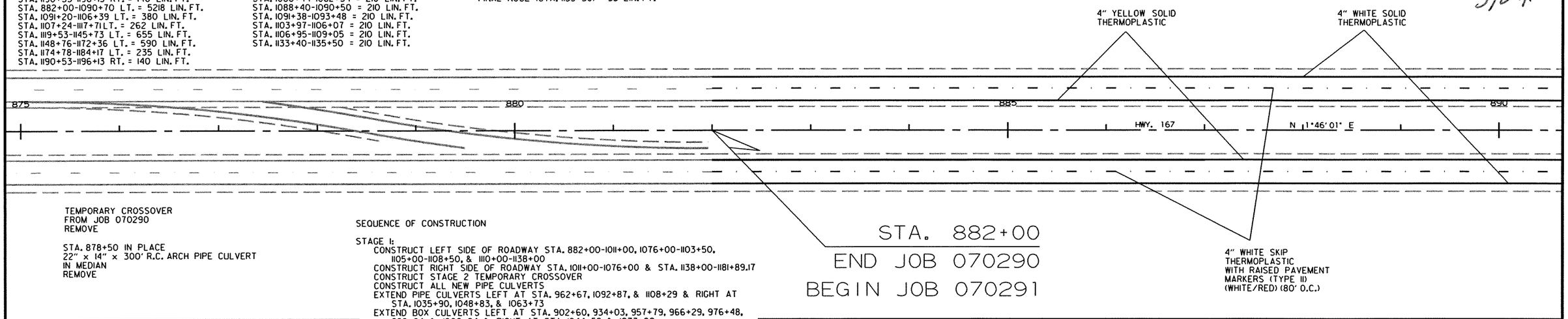
4" YELLOW SOLID START OF CENTER TURN LANE
STA. 1136+00 = 31 LIN. FT.

4" YELLOW SKIP FOR CENTER TURN LANE
STA. 1140+00-1145+73 = 288 LIN. FT.
STA. 1148+76-1172+36 = 1180 LIN. FT.
STA. 1174+78-1184+17 = 470 LIN. FT.
STA. 1190+53-1196+13 = 280 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	74	355

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. RUGGETT
5/24/12



STA. 882+00
END JOB 070290
BEGIN JOB 070291

TEMPORARY CROSSOVER
FROM JOB 070290
REMOVE

STA. 878+50 IN PLACE
22" x 14" x 300' R.C. ARCH PIPE CULVERT
IN MEDIAN
REMOVE

SEQUENCE OF CONSTRUCTION

STAGE 1:
CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
CONSTRUCT ALL NEW PIPE CULVERTS
EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
CONSTRUCT NEW HWY. 48
CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
PLACE TRAFFIC ON NEW HWY. 48
OBLITERATE EXISTING HWY. 48 RAMPS
CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
OBLITERATE STAGE 2 TEMPORARY CROSSOVER
OBLITERATE CROSSOVER IN JOB 070290
REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
PLACE FINAL 2" OF SURFACE COURSE
INSTALL PERMANENT PAVEMENT MARKINGS

HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS:

4" YELLOW SOLID INSIDE EDGES:
STA. 1117+71-1119+53 = 364 LIN. FT.

4" YELLOW SOLID FOR CENTER TURN LANE
STA. 1145+73-1148+76 = 606 LIN. FT.
STA. 1172+36-1174+78 = 484 LIN. FT.
STA. 1184+17-1190+53 = 1272 LIN. FT.

4" YELLOW SKIP FOR CENTER TURN LANE
STA. 1145+73-1148+76 = 152 LIN. FT.
STA. 1172+36-1174+78 = 121 LIN. FT.
STA. 1184+17-1190+53 = 318 LIN. FT.

4" WHITE SOLID SKIP LINE:
STA. 1117+71-1119+53 = 91 LIN. FT.
STA. 1145+73-1148+76 = 152 LIN. FT.
STA. 1172+36-1174+78 = 121 LIN. FT.
STA. 1184+17-1190+53 = 318 LIN. FT.

RAISED PAVEMENT MARKERS AT 80' O.C.:

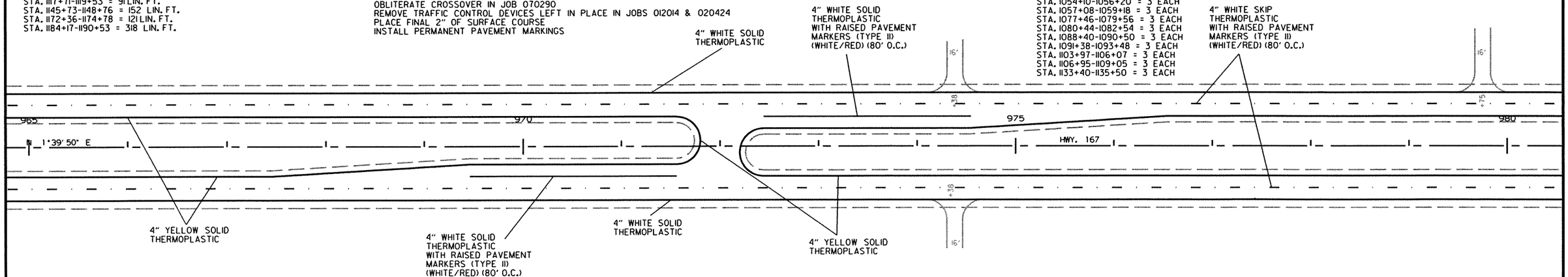
TYPE II (WHITE/RED) ON WHITE TURN LANE LINES
STA. 893+46-895+56 = 3 EACH
STA. 896+44-898+54 = 3 EACH
STA. 919+46-921+56 = 3 EACH
STA. 922+44-924+54 = 3 EACH
STA. 943+21-945+31 = 3 EACH
STA. 946+19-948+29 = 3 EACH
STA. 969+46-971+56 = 3 EACH
STA. 972+44-974+54 = 3 EACH
STA. 990+46-992+56 = 3 EACH
STA. 993+44-995+54 = 3 EACH
STA. 1013+46-1015+56 = 3 EACH
STA. 1016+44-1018+54 = 3 EACH
STA. 1034+46-1036+56 = 3 EACH
STA. 1037+44-1039+54 = 3 EACH
STA. 1054+10-1056+20 = 3 EACH
STA. 1057+08-1059+18 = 3 EACH
STA. 1077+46-1079+56 = 3 EACH
STA. 1080+44-1082+54 = 3 EACH
STA. 1088+40-1090+50 = 3 EACH
STA. 1091+38-1093+48 = 3 EACH
STA. 1103+97-1106+07 = 3 EACH
STA. 1106+95-1109+05 = 3 EACH
STA. 1133+40-1135+50 = 3 EACH

RAISED PAVEMENT MARKERS AT 80' O.C. (CONT.):

TYPE II (WHITE/RED) ON LT. SKIP LINES
STA. 882+00-1090+70 LT. = 261 EACH
STA. 1091+20-1106+39 LT. = 19 EACH
STA. 1107+24-1196+13 LT. = 224 EACH

TYPE II (WHITE/RED) ON RT. SKIP LINES
STA. 882+00-1036+75 RT. = 194 EACH
STA. 1037+25-1196+13 RT. = 398 EACH

TYPE II (YELLOW/YELLOW) ON CENTER TURN LANE SKIP LINES
STA. 1140+00-1196+13 = 141 EACH



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PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	75	355

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGH
5/24/12

THERMOPLASTIC PAVEMENT MARKINGS (HWY. 48):

4" WHITE SOLID EDGE LINES (HWY. 48)
STA. 103+50-109+17 RT. = 622 LIN. FT.
STA. 103+50-109+17 LT. = 625 LIN. FT.

4" DOUBLE YELLOW SOLID (HWY. 48)
STA. 103+50-109+04 = 1108 LIN. FT.

8" WHITE SOLID AROUND CURB = 170 LIN. FT.

12" WHITE SOLID FOR STOP BAR = 12 LIN. FT.

ARROWS = 1EACH

WORDS = 1EACH

RAISED PAVEMENT MARKERS AT 80' O.C. (HWY. 48):

TYPE II (YELLOW/YELLOW) ON DOUBLE YELLOW
STA. 103+50-109+04 = 7 EACH

REFLECTORIZED PAINT PAVEMENT MARKINGS:

10" WHITE SOLID ON CURB FACE = 44 LIN. FT.

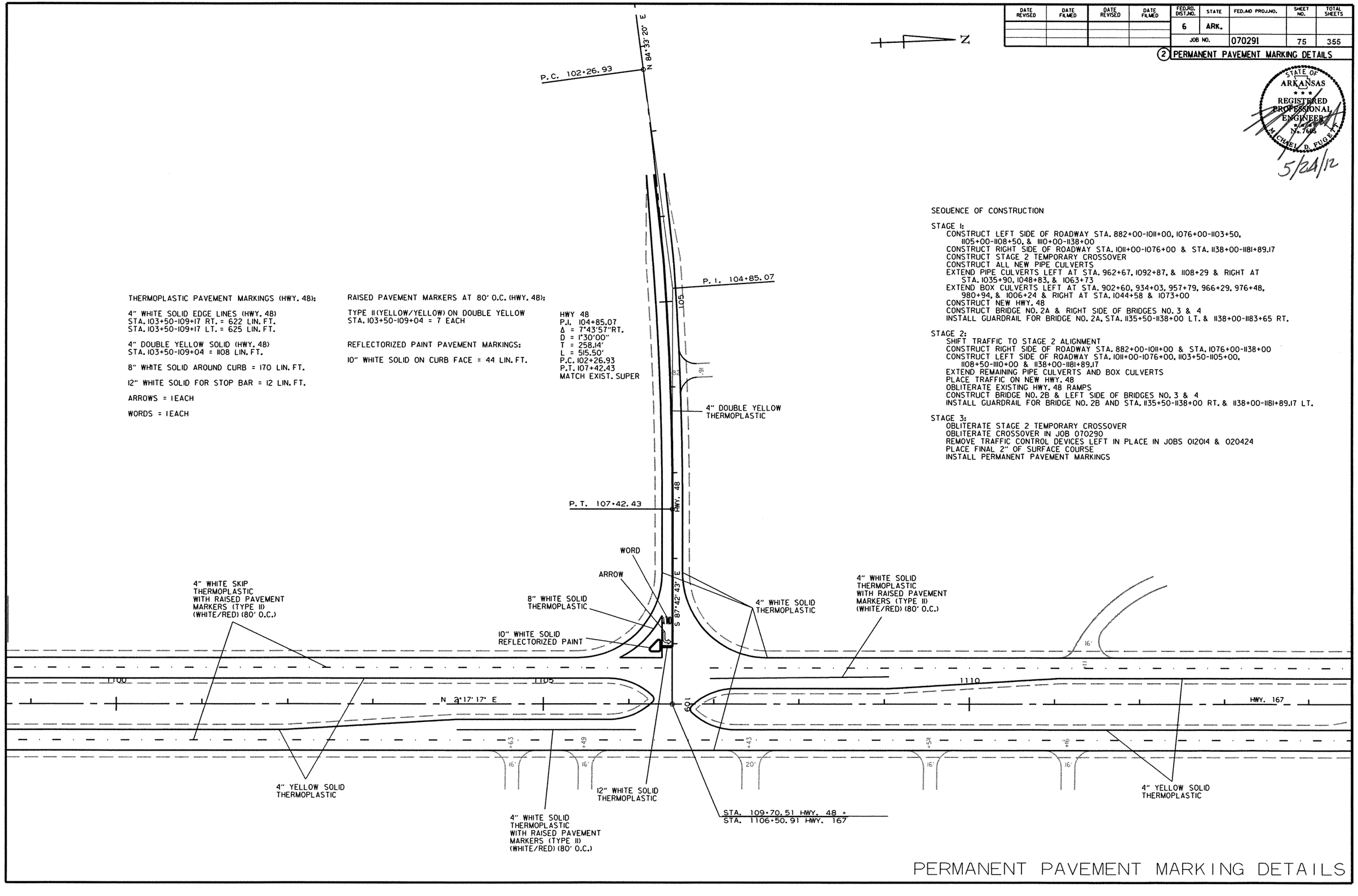
HWY 48
P.I. 104+85.07
Δ = 7°43'57"RT.
D = 1°30'00"
T = 258.14'
L = 515.50'
P.C. 102+26.93
P.T. 107+42.43
MATCH EXIST. SUPER

SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS



PERMANENT PAVEMENT MARKING DETAILS

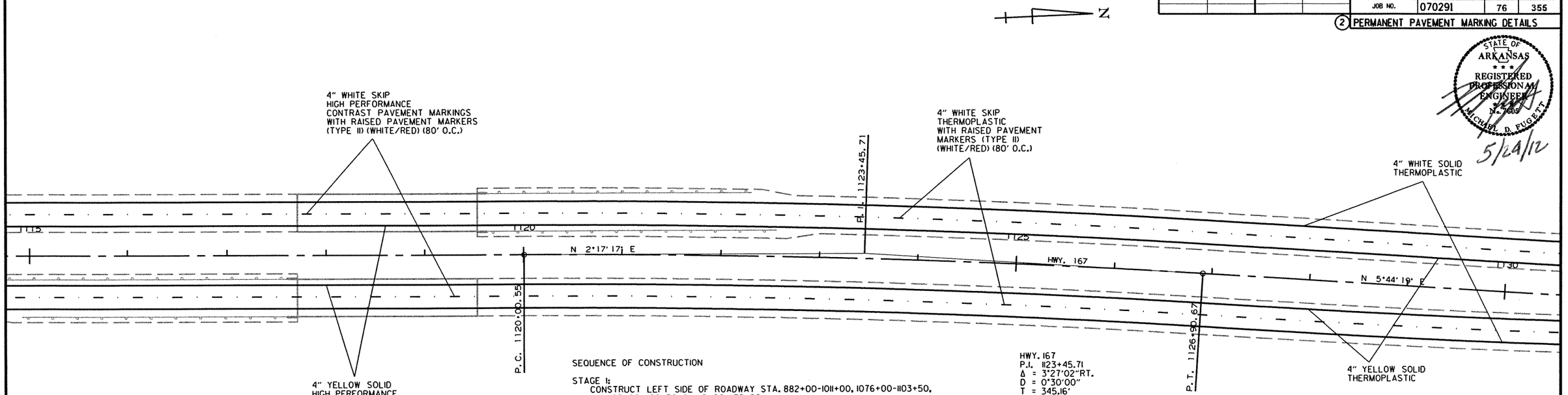
5/17/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	76	355

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9603
MICHAEL D. FUGETT
5/24/12



N

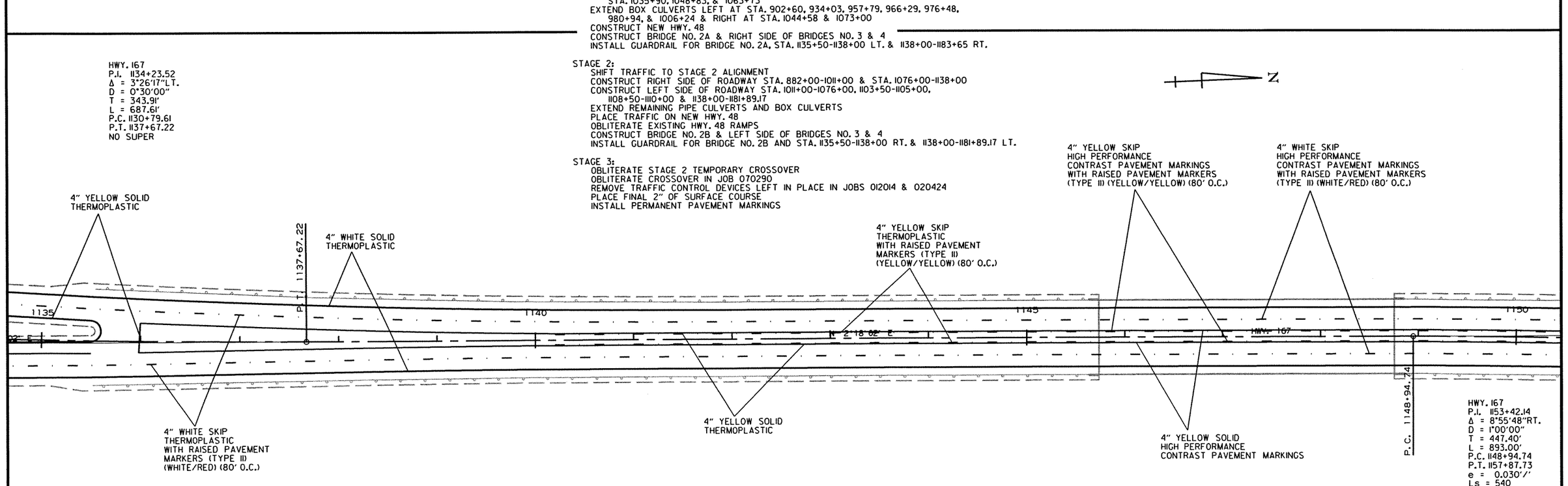
SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

HWY. 167
P.I. 1123+45.71
Δ = 3°27'02"RT.
D = 0°30'00"
T = 345.16'
L = 690.12'
P.C. 1120+00.55
P.T. 1126+90.67
NO SUPER

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS



HWY. 167
P.I. 1134+23.52
Δ = 3°26'17"LT.
D = 0°30'00"
T = 343.91'
L = 687.61'
P.C. 1130+79.61
P.T. 1137+67.22
NO SUPER

HWY. 167
P.I. 1153+42.14
Δ = 8°55'48"RT.
D = 1°00'00"
T = 447.40'
L = 893.00'
P.C. 1148+94.74
P.T. 1157+87.73
e = 0.030'/'
Ls = 540

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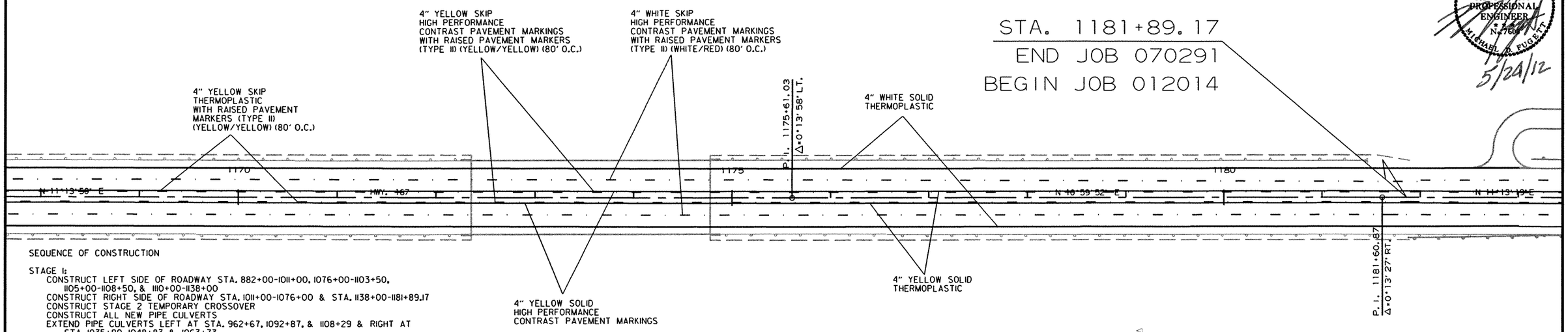
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	77	355

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7600
MICHAEL D. FUGETT
5/24/12



SEQUENCE OF CONSTRUCTION

STAGE 1:
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 882+00-1011+00, 1076+00-1103+50, 1105+00-1108+50, & 1110+00-1138+00
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 1011+00-1076+00 & STA. 1138+00-1181+89.17
- CONSTRUCT STAGE 2 TEMPORARY CROSSOVER
- CONSTRUCT ALL NEW PIPE CULVERTS
- EXTEND PIPE CULVERTS LEFT AT STA. 962+67, 1092+87, & 1108+29 & RIGHT AT STA. 1035+90, 1048+83, & 1063+73
- EXTEND BOX CULVERTS LEFT AT STA. 902+60, 934+03, 957+79, 966+29, 976+48, 980+94, & 1006+24 & RIGHT AT STA. 1044+58 & 1073+00
- CONSTRUCT NEW HWY. 48
- CONSTRUCT BRIDGE NO. 2A & RIGHT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2A, STA. 1135+50-1138+00 LT. & 1138+00-1183+65 RT.

STAGE 2:
- SHIFT TRAFFIC TO STAGE 2 ALIGNMENT
- CONSTRUCT RIGHT SIDE OF ROADWAY STA. 882+00-1011+00 & STA. 1076+00-1138+00
- CONSTRUCT LEFT SIDE OF ROADWAY STA. 1011+00-1076+00, 1103+50-1105+00, 1108+50-1110+00 & 1138+00-1181+89.17
- EXTEND REMAINING PIPE CULVERTS AND BOX CULVERTS
- PLACE TRAFFIC ON NEW HWY. 48
- OBLITERATE EXISTING HWY. 48 RAMPS
- CONSTRUCT BRIDGE NO. 2B & LEFT SIDE OF BRIDGES NO. 3 & 4
- INSTALL GUARDRAIL FOR BRIDGE NO. 2B AND STA. 1135+50-1138+00 RT. & 1138+00-1181+89.17 LT.

STAGE 3:
- OBLITERATE STAGE 2 TEMPORARY CROSSOVER
- OBLITERATE CROSSOVER IN JOB 070290
- REMOVE TRAFFIC CONTROL DEVICES LEFT IN PLACE IN JOBS 012014 & 020424
- PLACE FINAL 2" OF SURFACE COURSE
- INSTALL PERMANENT PAVEMENT MARKINGS

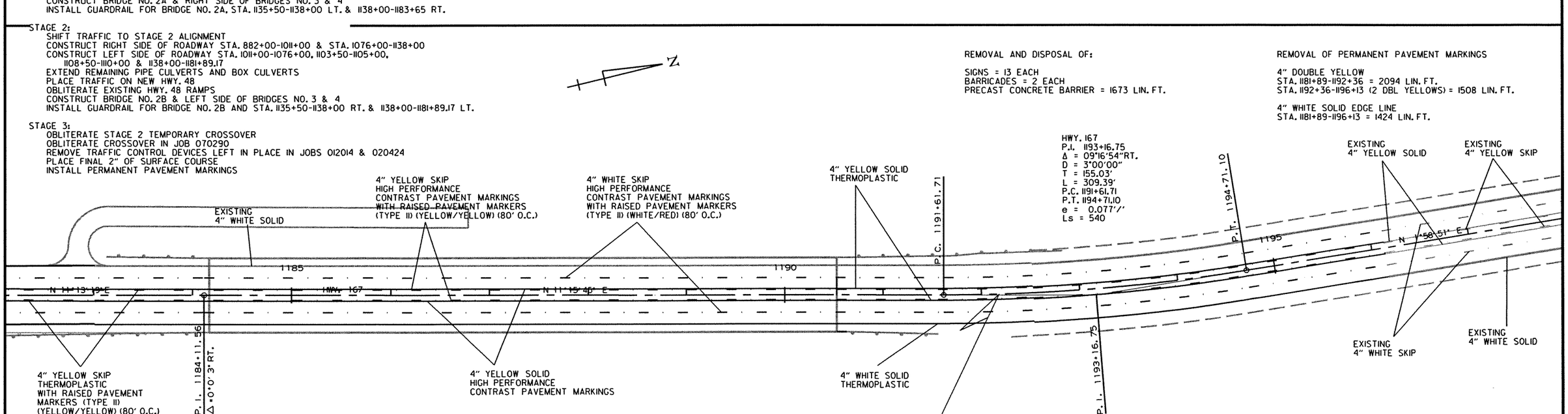
REMOVAL AND DISPOSAL OF:

SIGNS = 13 EACH
BARRICADES = 2 EACH
PRECAST CONCRETE BARRIER = 1673 LIN. FT.

REMOVAL OF PERMANENT PAVEMENT MARKINGS

4" DOUBLE YELLOW
STA. 1181+89-1192+36 = 2094 LIN. FT.
STA. 1192+36-1196+13 (2 DBL YELLOWS) = 1508 LIN. FT.

4" WHITE SOLID EDGE LINE
STA. 1181+89-1196+13 = 1424 LIN. FT.



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PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	78	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
											RIGHT	LEFT				
			LIN.FT. - EACH				NO.	SQ. FT.	EACH		LIN.FT.				EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	3	3	3	3	3	48.0								
W20-1	ROAD WORK 1000 FT.	48"x48"	3	3	3	3	3	48.0								
W20-1	ROAD WORK 500 FT.	48"x48"	3	3	3	3	3	48.0								
W20-1	ROAD WORK AHEAD	48"x48"	7	7	7	7	7	112.0								
G20-2	END ROAD WORK	48"x24"	10	10	10	10	10	80.0								
G20-1	ROAD WORK NEXT xx MILES	60"x24"	2	2	2	2	2	20.0								
R11-2	ROAD CLOSED	48"x30"	24	30		30	30	300.0								
OM-3L	OBJECT MARKER	12"x36"	35	33		35	35	105.0								
OM-3R	OBJECT MARKER	12"x36"	44	43		44	44	132.0								
W1-6	LARGE ARROW	48"x24"		4		4	4	32.0								
W1-8	CHEVRONS	18"x24"		32		32	32	96.0								
R4-1	DO NOT PASS	24"x30"	22	22	22	22	22	110.0								
RSP-1	SHOULDER CLOSED	48"x30"	2	2		2	2	20.0								
W8-1	BUMP	30"x30"		6		6	6	37.5								
W8-9	LOW SHOULDER	36"X36"	2	2		2	2	18.0								
	VERTICAL PANELS		135	127		135			135							
	TRAFFIC DRUMS		716	706		716				716						
	TYPE III BARRICADE-RT. (16')			2		2					32					
	TYPE III BARRICADE-LT. (16')			2		2						32				
	TYPE III BARRICADE-RT. (24')		15	14		15					360					
	TYPE III BARRICADE-LT. (24')		11	10		11						264				
	TYPE III BARRICADE-RT. (32')		1	2		2					64					
	TYPE III BARRICADE-LT. (32')		4	7		7						224				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		1456	1072		2528							2528			
	RELOCATING PRECAST CONCRETE BARRIER		1130	1961		3091								3091		
	TEMPORARY IMPACT ATTENUATION BARRIER		1	1		2									2	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1	1		2										2
TOTALS:								**1206.5**	**135**	**716**	**456**	**520**	**2528**	**3091**	**2**	**2**

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

6/1/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	79	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7405
MICHAEL D. FUGETT
5/24/12

RUMBLE STRIPS

STATION	STATION	LOCATION	* RUMBLE STRIPS
			LIN.FT.
882+00	1117+44	INSIDE SHOULDERS	36122
1119+80	1135+50	INSIDE SHOULDERS	2512
882+00	1105+39	LT. SHOULDER	16412
882+00	1117+44	RT. SHOULDER	17762
1107+63	1117+44	LT. SHOULDER	732
1119+80	1145+46	LT. SHOULDER	2053
1119+80	1145+46	RT. SHOULDER	2053
1149+03	1172+09	LT. SHOULDER	1845
1149+03	1172+09	RT. SHOULDER	1845
1175+05	1181+89	LT. SHOULDER	547
1175+05	1181+89	RT. SHOULDER	547
104+50	109+09	HWY. 48 SHOULDERS	629
TOTAL:			83059

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
902+63	LT. HEADWALL OF BOX CULVERT	1
934+03	LT. HEADWALL OF BOX CULVERT	1
957+79	RT. HEADWALL OF BOX CULVERT	1
966+29	LT. HEADWALL OF BOX CULVERT	1
976+48	RT. HEADWALL OF BOX CULVERT	1
980+94	LT. HEADWALL OF BOX CULVERT	1
1006+24	RT. HEADWALL OF BOX CULVERT	1
1044+58	LT. HEADWALL OF BOX CULVERT	1
1072+96	RT. HEADWALL OF BOX CULVERT	1
1108+29	LT. HEADWALL OF BOX CULVERT	1
1117+71	RT. SIDE OF BRIDGE NO. 2A	1
1145+74	RT. SIDE OF BRIDGE NO. 3	1
1172+36	LT. SIDE OF BRIDGE NO. 4	1
TOTAL:		13

NOTE: SHOWN FOR INFORMATION ONLY. BENCH MARKS SHALL BE FURNISHED AND PLACED BY STATE FORCES.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKINGS						REFLECTORIZED PAINT PAVEMENT MARKINGS	HIGH PERFORMANCE CONTRAST PAVEMENT MARKING	
							TYPE II (WHITE/RED	TYPE II (YEL/YEL)	4" WHITE	4" YELLOW	8" WHITE	12" WHITE	WORDS	ARROWS	10" WHITE	4" WHITE	4" YELLOW
	LIN.FT. - EACH			LIN.FT.		LIN.FT.	EACH		LIN.FT.				EACH		LIN.FT.	LIN.FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS			5026	5026													
CONSTRUCTION PAVEMENT MARKINGS	24500	117048			141548												
REMOVABLE CONSTRUCTION PAV'T MARKINGS		2908				2908											
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)			1165				1165										
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)		14	148					162									
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")			81733						81733								
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")			63022							63022							
THERMOPLASTIC PAVEMENT MARKINGS WHITE (8")			170								170						
THERMOPLASTIC PAVEMENT MARKINGS WHITE (12")			12									12					
THERMOPLASTIC PAVEMENT MARKINGS WORDS			1										1				
THERMOPLASTIC PAVEMENT MARKINGS ARROWS			1											1			
REFLECTORIZED PAINT PAVEMENT MARKINGS WHITE (10")			44												44		
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4")			682													682	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			3317														3317
TOTALS:				5026	141548	2908	1165	162	81733	63022	170	12	1	1	44	682	3317

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

6/1/2012

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	80	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
878+50	22" x 14" RC ARCH PIPE IN MEDIAN	1
942+64	18" x 32' CMP ON LT.	1
974+38	18" x 24' CMP ON RT.	1
992+83	24" x 24' CMP ON RT.	1
1002+70	24" x 22' CMP ON LT.	1
1027+76	24" x 24' CMP ON LT.	1
1029+29	18" x 24' CMP ON LT.	1
1031+72	18" x 43' CMP ON LT.	1
1036+56	24" x 24' CMP ON RT.	1
1040+09	18" x 24' CMP ON RT.	1
1046+10	24" x 24' CMP ON LT.	1
1050+78	24" x 24' PVC PIPE ON LT.	1
1051+33	18" x 19' CMP ON RT.	1
1052+05	18" x 24' CMP ON LT.	1
1053+10	18" x 24' CMP ON LT.	1
1054+65	18" x 35' PVC PIPE ON LT.	1
1056+64	18" x 24' CMP ON LT.	1
1057+04	18" x 40' CMP ON LT.	1
1057+52	18" x 24' CMP ON LT.	1
1063+73	22' RT. SIDE OF 24" RCP	1
1074+93	18" x 24' CMP ON RT.	1
1078+84	18" x 24' CMP ON RT.	1
1079+92	18" x 24' CMP ON RT.	1
1080+06	24" x 24' PVC PIPE ON LT.	1
1083+28	18" x 24' CMP ON LT.	1
1104+63	18" x 24' CMP ON RT.	1
1105+49	18" x 20' RCP ON RT.	1
1106+13	12" x 20' CMP ON LT.	1
1108+11	15" x 68' STEEL PIPE ON LT.	1
1109+54	24" x 24' RCP ON RT.	1
1111+11	18" x 40' CMP ON LT.	1
111+16	24" x 40' CMP ON RT.	1
TOTAL:		32

NOTE: QUANTITIES SHOWN ABOVE SHALL INCLUDE REMOVAL & DISPOSAL OF ALL HEADWALLS AND FLARED END SECTIONS IF APPLICABLE.

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	100
DIRECTED BY THE ENGINEER	
TOTAL:	100

NOTE: QUANTITY IS ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	150	300
DIRECTED BY THE ENGINEER		
TOTALS:	150	300

NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
889+00	914+00	HWY. 167	25	25
916+00	1181+89	HWY. 167	266	266
104+00	109+00	HWY. 48	5	5
TOTALS:			296	296

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	WELL	SIGN FOUNDATIONS	HEADWALLS	GUARDRAIL	LUMINAIRE POLE & FOUNDATION	CONCRETE DITCH PAVING	BARRICADES	PRECAST CONC. BARRIER	SIGNS
			EACH	EACH	EACH	LIN.FT.	EACH	SQ. YD.	EACH	LIN. FT.	EACH
913+41	920+29	CONCRETE DITCH PAVING ON LT.						676			
939+61	942+44	CONCRETE DITCH PAVING ON LT.						308			
950+81	957+73	CONCRETE DITCH PAVING ON LT.						683			
982+53		SIGN ON RT.									1
1030+85		LUMINAIRE POLE AND FOUNDATION ON LT.					1				
1031+08		BRICK SIGN AND SIGN FOUNDATION ON LT.		1							1
1046+35		CLOSE WELL ON LT.	1								
1050+65		LUMINAIRE POLE AND FOUNDATION ON RT.					1				
1051+76		CLOSE WELL ON RT.	1								
1059+42		BROKEN HEADWALL ON RT.			1	203					
1062+55		BROKEN HEADWALL ON RT.			1	77					
1105+55		CLOSE WELL ON LT.	1								
1108+92		SIGN ON LT. (ENCROACHING)									1
1115+76	1117+79	GUARDRAIL ON RT.				203					
1117+03	1117+80	GUARDRAIL ON LT.				77					
1119+45	1120+21	GUARDRAIL ON RT.				76					
1119+45	1121+47	GUARDRAIL ON LT.				202					
1144+04	1146+06	GUARDRAIL ON RT.				202					
1145+30	1146+06	GUARDRAIL ON LT.				76					
1148+91	1149+46	GUARDRAIL ON RT.				55					
1148+96	1150+72	GUARDRAIL ON LT.				176					
1170+45	1172+47	GUARDRAIL ON RT.				202					
1171+71	1172+47	GUARDRAIL ON LT.				76					
1174+46	1176+47	GUARDRAIL ON LT.				201					
1174+46	1175+22	GUARDRAIL ON RT.				76					
1180+00		BARRICADE ON RT.							1		2
1180+00	1196+00	PRECAST CONC. BARRIER WALL ON RT.								1673	9
1193+70		BARRICADE ON RT.							1		2
TOTALS:			3	1	2	1902	2	1667	2	1673	16

NOTE: ALL THE MATERIAL FROM THE EXISTING BRIDGE WILL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF APPROXIMATELY 20 GUARDRAIL POSTS AS DETERMINED BY THE ENGINEER.

6/4/2012

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	81	355

(2) QUANTITY SHEETS

SOIL LOG (1 OF 2)

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
880+00	34	01	52.4	92	24	38.8	C.L.	0-5	25	8	A-4(1)	BROWN
944+00	34	02	53.1	92	24	36.3	20' LT.	0-5	38	21	A-6(12)	BR/GR
992+00	34	03	40.3	92	24	35.0	C.L.	0-5	ND	NP	A-4(0)	BR/GR
1056+00	34	04	43.8	92	24	33.1	C.L.	0-5	30	14	A-6(12)	GR/BR
1181+00	34	06	49.2	92	24	21.4	20' RT.	0-5	35	21	A-6(4)	RED
103+00	34	05	35.9	92	24	42.9	5' RT.	0-5	28	12	A-6(8)	BROWN
110+00	34	05	33.9	92	24	35.7	C.L.	0-5	25	6	A-4(4)	BROWN
876+00	34	01	52.3	92	24	38.2	48' RT.	0-5	19	3	A-4(0)	GRAY
876+00	34	01	48.3	92	24	38.4	58' RT.	0-5	21	6	A-4(0)	BROWN
880+00	34	01	52.4	92	24	38.8	C.L.	0-5	19	4	A-4(0)	BROWN
884+00	34	01	56.2	92	24	38.7	14' RT.	0-5	ND	NP	A-4(0)	BROWN
884+00	34	01	56.4	92	24	37.9	24' RT.	0-5	26	6	A-4(3)	BROWN
888+00	34	01	58.7	92	24	38.6	C.L.	0-5	33	17	A-6(8)	GR/BR
892+00	34	02	2.6	92	24	38.0	48' RT.	0-5	27	14	A-6(3)	BROWN
892+00	34	02	2.7	92	24	37.7	58' RT.	0-5	ND	NP	A-4(0)	BROWN
896+00	34	02	7.3	92	24	38.3	C.L.	0-5	23	5	A-4(0)	BROWN
900+00	34	02	12.0	92	24	38.1	14' RT.	0-5	19	4	A-4(0)	BROWN
900+00	34	02	12.0	92	24	37.8	24' RT.	0-5	24	5	A-4(0)	BROWN
904+00	34	02	15.6	92	24	37.8	C.L.	0-5	20	7	A-4(1)	BR/GR
908+00	34	02	20.0	92	24	37.8	50' RT.	0-5	ND	NP	A-4(0)	GRAY
908+00	34	02	19.9	92	24	37.4	60' RT.	0-5	34	20	A-6(5)	RD/BR
912+00	34	02	21.5	92	24	37.6	C.L.	0-5	ND	NP	A-4(0)	BR/GR
916+00	34	02	26.3	92	24	37.7	4' RT.	0-5	22	6	A-4(0)	BROWN
916+00	34	02	26.3	92	24	37.3	14' RT.	0-5	ND	NP	A-4(0)	GRAY
920+00	34	02	27.1	92	24	37.1	20' LT.	0-5	27	11	A-6(2)	BROWN
924+00	34	02	33.2	92	24	36.7	50' RT.	0-5	20	5	A-4(0)	RED
924+00	34	02	35.6	92	24	36.9	60' RT.	0-5	40	24	A-6(6)	RD/BR
928+00	34	02	37.7	92	24	36.8	20' LT.	0-5	23	8	A-4(1)	GRAY
932+00	34	02	41.4	92	24	37.1	4' RT.	0-5	39	11	A-6(4)	BROWN
932+00	34	02	41.4	92	24	36.8	14' RT.	0-5	ND	NP	A-4(0)	BROWN
936+00	34	02	45.3	92	24	36.5	20' LT.	0-5	ND	NP	A-4(0)	BROWN
940+00	34	02	51.6	92	24	36.4	50' RT.	0-4Z	ND	NP	A-4(0)	BROWN
940+00	34	02	51.6	92	24	36.4	60' RT.	0-5	20	5	A-4(0)	RD/BR
944+00	34	02	53.1	92	24	36.3	20' LT.	0-5	40	24	A-6(12)	BR/GR
948+00	34	02	59.4	92	24	36.8	4' RT.	0-4Z	22	4	A-4(0)	BROWN
948+00	34	02	59.3	92	24	36.7	14' RT.	0-5	ND	NP	A-4(0)	RD/BR
952+00	34	03	0.3	92	24	36.1	20' LT.	0-3Z	ND	NP	A-4(0)	RD/BR
956+00	34	03	3.3	92	24	36.1	48' RT.	0-5	17	2	A-4(0)	RD/BR
956+00	34	03	3.3	92	24	36.1	58' RT.	0-5	ND	NP	A-4(0)	RD/BR
960+00	34	03	7.8	92	24	36.0	20' LT.	0-5	29	10	A-4(7)	BR/GR
964+00	34	03	12.6	92	24	36.2	14' RT.	0-5	ND	NP	A-4(0)	GRAY
964+00	34	03	12.5	92	24	36.0	24' RT.	0-5	ND	NP	A-4(0)	GRAY
968+00	34	03	14.7	92	24	36.0	20' LT.	0-5	40	21	A-6(11)	BROWN
972+00	34	03	20.7	92	24	35.7	48' RT.	0-5	ND	NP	A-4(0)	GRAY
972+00	34	03	20.7	92	24	35.3	58' RT.	0-5	ND	NP	A-4(0)	GRAY
976+00	34	03	23.4	92	24	35.5	C.L.	0-5	23	5	A-4(1)	GRAY
980+00	34	03	28.9	92	24	36.0	24' RT.	0-5	ND	NP	A-4(0)	GRAY
980+00	34	03	28.9	92	24	35.4	36' RT.	0-5	ND	NP	A-4(0)	GRAY
984+00	34	03	33.3	92	24	35.2	C.L.	0-5	21	4	A-4(0)	BROWN
988+00	34	03	37.3	92	24	34.9	48' RT.	0-5	20	4	A-4(0)	GRAY
988+00	34	03	39.1	92	24	35.0	58' RT.	0-5	19	4	A-4(0)	GRAY
992+00	34	03	40.3	92	24	35.0	C.L.	0-5	30	13	A-6(6)	BR/GR
996+00	34	03	47.3	92	24	35.0	24' RT.	0-5	ND	NP	A-4(0)	GRAY
996+00	34	03	44.6	92	24	35.1	36' RT.	0-5	ND	NP	A-4(0)	GRAY
1000+00	34	03	48.7	92	24	34.8	C.L.	0-5	21	4	A-4(0)	BROWN
1004+00	34	03	52.2	92	24	34.7	48' RT.	0-5	18	2	A-4(0)	GRAY
1004+00	34	03	54.2	92	24	34.5	58' RT.	0-5	21	5	A-4(1)	GRAY
1008+00	34	03	55.2	92	24	34.6	C.L.	0-5	20	2	A-4(0)	GRAY
1012+00	34	03	59.4	92	24	34.6	24' RT.	0-5	ND	NP	A-4(1)	GRAY
1012+00	34	03	59.4	92	24	34.4	36' RT.	0-5	ND	NP	A-4(0)	GRAY
1016+00	34	04	1.4	92	24	34.5	C.L.	0-5	19	3	A-4(0)	GRAY

SOIL CHARACTERISTICS TABULATED ABOVE ARE REPRESENTATIVE AT THE LOCATION OF THE SAMPLE, AND FROM SURFACE INDICATIONS ARE TYPICAL FOR THE LIMITS SHOWN. THESE DATA ARE SHOWN FOR INFORMATION ONLY. THE STATE WILL NOT BE RESPONSIBLE FOR VARIATIONS IN THE SOIL CHARACTERISTICS AND/OR EXTENT OF SAME DIFFERING FROM THE ABOVE TABULATIONS.
Z- AUGER REFUSAL
NP - NON-PLASTIC
ND - NOT DETERMINABLE

SOIL LOG (2 OF 2)

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
1020+00	34	04	9.6	92	24	34.2	48' RT.	0-5	17	2	A-4(0)	GRAY
1020+00	34	04	9.6	92	24	33.9	58' RT.	0-5	ND	NP	A-4(0)	GRAY
1024+00	34	04	11.3	92	24	34.1	C.L.	0-5	ND	NP	A-4(0)	BR/GR
1028+00	34	04	15.6	92	24	34.4	24' RT.	0-5	20	5	A-4(1)	GRAY
1028+00	34	04	15.6	92	24	34.0	36' RT.	0-5	22	8	A-4(2)	GRAY
1032+00	34	04	19.6	92	24	34.0	C.L.	0-5	23	8	A-4(3)	BROWN
1036+00	34	04	23.4	92	24	33.9	48' RT.	0-5	19	6	A-4(0)	GR/BR
1036+00	34	04	23.5	92	24	33.6	58' RT.	0-5	20	7	A-4(1)	GR/BR
1040+00	34	04	27.0	92	24	33.6	C.L.	0-5	31	15	A-6(12)	BR/GR
1044+00	34	04	32.6	92	24	34.0	24' RT.	0-5	17	2	A-4(0)	GRAY
1044+00	34	04	32.6	92	24	33.7	36' RT.	0-5	ND	NP	A-4(0)	GR/BR
1048+00	34	04	34.9	92	24	33.7	C.L.	0-5	23	8	A-4(4)	BR/GR
1052+00	34	04	38.8	92	24	33.7	48' RT.	0-5	22	6	A-4(1)	BR/GR
1052+00	34	04	38.8	92	24	33.4	58' RT.	0-5	22	6	A-4(2)	GR/BR
1056+00	34	04	43.8	92	24	33.1	C.L.	0-5	22	5	A-4(2)	GR/BR
1060+00	34	04	47.0	92	24	34.2	24' RT.	0-5	18	3	A-4(0)	GRAY
1060+00	34	04	47.0	92	24	33.8	36' RT.	0-5	19	4	A-4(0)	GRAY
1064+00	34	04	51.4	92	24	33.1	C.L.	0-5	24	7	A-4(3)	GRAY
1068+00	34	04	54.3	92	24	33.7	24' RT.	0-5	18	3	A-2-4(0)	BROWN
1068+00	34	04	54.2	92	24	33.2	36' RT.	0-5	22	6	A-4(1)	BROWN
1072+00	34	04	58.1	92	24	33.0	C.L.	0-5	22	6	A-4(3)	BROWN
1076+00	34	05	6.1	92	24	32.4	48' RT.	0-5	21	8	A-4(2)	BROWN
1076+00	34	05	6.0	92	24	32.4	58' RT.	0-5	20	8	A-4(1)	BR/GR
1080+00	34	05	6.7	92	24	32.5	C.L.	0-5	18	4	A-4(0)	GR/BR
1084+00	34	05	13.3	92	24	32.8	24' RT.	0-5	21	5	A-4(1)	GRAY
1084+00	34	05	13.2	92	24	32.6	36' RT.	0-5	20	5	A-4(0)	GR/BR
1088+00	34	05	14.1	92	24	32.5	C.L.	0-5	22	6	A-4(3)	BROWN
1092+00	34	05	20.0	92	24	32.1	48' RT.	0-5	21	6	A-4(2)	BR/GR
1092+00	34	05	20.1	92	24	31.8	58' RT.	0-5	21	6	A-4(1)	BR/GR
1096+00	34	05	21.5	92	24	31.9	C.L.	0-5	23	6	A-4(3)	BROWN
1104+00	34	05	33.6	92	24	31.6	26' LT.	0-5	18	4	A-4(0)	BROWN
1104+00	34	05	33.7	92	24	31.8	36' LT.	0-5	18	4	A-4(0)	BROWN
1112+00	34	05	41.6	92	24	30.5	20' RT.	0-5	24	9	A-4(4)	BROWN
1112+00	34	05	41.5	92	24	31.0	28' LT.	0-5	19	5	A-4(0)	BROWN
1112+00	34	05	41.5	92	24	31.4	36' LT.	0-5	18	4	A-4(0)	BROWN
1122+00	34	05	51.5	92	24	30.5	4' LT.	0-5	20	5	A-4(0)	BROWN
1122+00	34	05	51.5	92	24	30.5	14' LT.	0-5	ND	NP	A-2-4(0)	BROWN
1122+00	34	05	48.9	92	24	30.6	20' RT.	0-5	ND	NP	A-2-4(0)	BROWN
1128+00	34	05	56.8	92	24	30.1	20' RT.	0-5	ND	NP	A-2-4(0)	BROWN
1128+00	34	05	57.4	92	24	30.2	26' LT.	0-5	20	5	A-4(0)	BROWN
1128+00	34	05	57.4	92	24	30.7	36' LT.	0-5	20	6	A-4(0)	GR/BR
1136+00	34	06	5.2	92	24	30.0	4' LT.	0-5	21	7	A-4(1)	GRAY
1136+00	34	06	5.2	92	24	29.9	14' LT.	0-5	21	5	A-4(0)	GRAY
1136+00	34	06	5.3	92	24	24.7	20' RT.	0-1.5Z	20	6	A-4(0)	BROWN
1144+00	34	06	13.0	92	24	29.6	26' LT.	0-5	ND	NP	A-2-4(0)	BROWN
1144+00	34	06	12.9	92	24	30.0	36' LT.	0-5	ND	NP	A-2-4(0)	BROWN
1152+00	34	06	15.7	92	24	24.6	26' LT.	0-5	28	14	A-6(4)	BROWN
1152+00	34	06	15.8	92	24	30.2	36' LT.	0-5	ND	NP	A-2-4(0)	BROWN
1160+00	34	06	28.9	92	24	27.8	20' RT.	0-1.3Z	25	10	A-4(2)	BROWN
1160+00	34	06	28.8	92	24	27.9	26' LT.	0-5	26	12	A-6(3)	BROWN
1160+00	34	06	28.9	92	24	28.1	36' LT.	0-5	22	4	A-2-4(0)	BROWN
1168+00	34	06	36.5	92	24	25.9	4' LT.	0-5	20	7	A-4(0)	BROWN
1168+00	34	06	36.6	92	24	25.8	14' LT.	0-5	24	11	A-6(3)	BR/GR
1168+00	34	06	36.6	92	24	25.5	20' RT.	0-5	19	4	A-4(0)	BROWN
1177+00	34	06	45.3	92	24	23.6	20' RT.	0-5	41	25	A-7-6(16)	RD/BR
1177+00	34	06	45.2	92	24	23.9	26' LT.	0-5	28	11	A-6(5)	BROWN
1177+00	34	06	45.3	92	24	24.2	36' LT.	0-5	ND	NP	A-4(2)	BROWN
1181+00	34	06	49.1	92	24	23.0	4' LT.	0-5	19	3	A-2-4(0)	RD/BR
1181+00	34	06	49.0	92	24	23.1	14' LT.	0-5	ND	NP	A-2-4(0)	RED
1181+00	34	06	48.9	92	24	23.0	20' RT.	0-5	28	14	A-2-6(1)	RED

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Z- AUGER REFUSAL
NP - NON-PLASTIC
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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. FUGETT
5/24/12

6/1/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	82	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YDS.	SQ. YDS.
957+79	OUTLET OF BOX CULVERT	9	18
962+66	OUTLET OF PIPE CULVERT	11	22
976+48	OUTLET OF BOX CULVERT	43	86
1006+24	OUTLET OF BOX CULVERT	23	46
1035+86	OUTLET OF PIPE CULVERT	24	48
1044+58	OUTLET OF PIPE CULVERT	13	26
1063+68	OUTLET OF PIPE CULVERT	15	30
1072+96	OUTLET OF BOX CULVERT	78	156
1108+29	OUTLET OF PIPE CULVERT	14	28
1112+98	OUTLET OF PIPE CULVERT	11	22
1129+02	OUTLET OF PIPECULVERT	21	42
TOTALS:		262	524

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

NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
912+00	923+50	LT. SIDE OF HWY. 167	1150.0	1022.2
934+03	936+00	LT. SIDE OF HWY. 167	197.0	175.1
939+00	942+00	LT. SIDE OF HWY. 167	300.0	266.7
964+20	966+29	LT. SIDE OF HWY. 167	209.0	185.8
968+75	972+25	RT. SIDE OF HWY. 167	350.0	311.1
969+00	971+00	LT. SIDE OF HWY. 167	200.0	177.8
973+50	980+94	LT. SIDE OF HWY. 167	744.0	661.3
975+00	978+00	RT. SIDE OF HWY. 167	300.0	266.7
1006+24	1008+00	RT. SIDE OF HWY. 167	176.0	156.4
1043+00	1044+58	LT. SIDE OF HWY. 167	158.0	140.4
1048+83	1050+78	RT. SIDE OF HWY. 167	195.0	173.3
1124+50	1145+73	LT. SIDE OF HWY. 167	2123.0	1887.1
1129+50	1145+73	RT. SIDE OF HWY. 167	1623.0	1442.7
1148+76	1172+35	LT. SIDE OF HWY. 167	2359.0	2096.9
1148+76	1172+35	RT. SIDE OF HWY. 167	2359.0	2096.9
1174+78	1176+50	LT. SIDE OF HWY. 167	172.0	152.9
1174+78	1181+89	RT. SIDE OF HWY. 167	711.0	632.0
TOTAL:				11845.3

NOTE: AVERAGE WIDTH = 8'-0"

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	300
ENGINEER	
TOTAL:	300

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

CULVERT CLEAN OUT

STATION	LOCATION	EACH
1108+29	3'x2'x48' BOX CULVERT ON HWY. 167	1
TOTAL:		1

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
886+00	888+25	LT. SIDE OF HWY. 167	225.00	6.32	158.00	100.00	1.26
902+62	905+00	LT. SIDE OF HWY. 167	238.00	6.32	167.13	105.78	1.33
950+00	953+00	LT. SIDE OF HWY. 167	300.00	6.32	210.67	133.33	1.68
954+75	956+00	LT. SIDE OF HWY. 167	125.00	6.32	87.78	55.56	0.70
956+00	957+79	LT. SIDE OF HWY. 167	179.00	9.24	183.77	79.56	1.00
956+00	958+00	RT. SIDE OF HWY. 167	200.00	6.32	140.44	88.89	1.12
1005+10	1006+24	RT. SIDE OF HWY. 167	114.00	6.32	80.05	50.67	0.64
1044+58	1046+30	LT. SIDE OF HWY. 167	172.00	6.32	120.78	76.44	0.96
1071+50	1074+25	LT. SIDE OF HWY. 167	275.00	6.32	193.11	122.22	1.54
TOTALS:					1341.73	812.45	10.23

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS	
		(SINGLE)	(DOUBLE)
	EACH		
ENTIRE PROJECT	17	13	2
TOTALS:	17	13	2

FENCING

STATION	STATION	LOCATION	WIRE FENCE		* 16'-0" GATES
			(TYPE C)	(TYPE D)	
			LIN.FT.		EACH
1070+95	1071+64	RT. SIDE OF HWY. 167	69		
1071+64	1074+24	RT. SIDE OF HWY. 167		250	1
TOTALS:			69	250	1

* DENOTES ALTERNATE BID ITEM.

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL												
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	DROP INLET SILT FENCE	SILT FENCE	DIVERSION DITCH	SLOPE DRAIN (E-12) PIPE FOR SLOPE DRAINS	SLOPE DRAIN (E-12) DUMPED RIPRAP	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
											(E-5)	(E-6)	(E-7)	(E-11)	(E-8)					
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	CU.YD.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING										987		3423						456
ENTIRE	PROJECT	STAGE 1	27.54	55.08	27.54	2809.1	27.54	0.04	0.04	0.8		789	651	1000				9519	9519	9843
ENTIRE	PROJECT	STAGE 2	26.45	52.90	26.45	2697.9	26.45					69						7869	7869	7892
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.								139.32	139.32	2842.1	3300				1000	80	8			150
TOTALS:			53.99	107.98	53.99	5507.0	53.99	139.36	139.36	2842.9	3300	1845	651	4423	1000	80	8	17388	17388	18341

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING.
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING.
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./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 STD. SPECS.

6/4/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	83	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT				DUMPED RIPRAP	STONE BACKFILL	SOIL STABILIZATION	FILTER BLANKET	* GEOTEXTILE FABRIC TYPE 10
				NORM.	SM-2	* SM-4	TOTAL					
			CU. YD.						TON	TON	SQ. YDS.	
ENTIRE	PROJECT	STAGE 1-MAIN LANES	52452	93118	173736		266854	10771	83936		26377	
ENTIRE	PROJECT	* STAGE 1-COMP. EMB. OVER 3' (TO BE USED IF				24000	24000					36000
		AND WHERE DIRECTED BY THE ENGINEER)										
ENTIRE	PROJECT	STAGE 2-MAIN LANES	19504	41021	68085		109106	1805	11492		4493	
ENTIRE	PROJECT	STAGE 1-HWY. 48	654	325			325					
ENTIRE	PROJECT	STAGE 2-HWY. 48	141	4			4					
ENTIRE	PROJECT	REMOVE STAGE 2 TEMP. CROSSOVER	259									
ENTIRE	PROJECT	REMOVE TEMP. CROSSOVER FROM JOB 070290	733									
ENTIRE	PROJECT	BRIDGE PLANS (SITE 2)	515									
ENTIRE	PROJECT	BRIDGE PLANS (SITE 3)	1150									
ENTIRE	PROJECT	BRIDGE PLANS (SITE 4)	1660									
ENTIRE	PROJECT	APPROACHES		1885			1885					
ENTIRE	PROJECT	TEMPORARY APPROACHES		900			900					
902+62		CHANNEL CHANGE	377									
934+03		CHANNEL CHANGE	3									
957+79		CHANNEL CHANGE	47									
966+29		CHANNEL CHANGE	53									
976+48		CHANNEL CHANGE	88									
980+94		CHANNEL CHANGE	43									
1006+24		CHANNEL CHANGE	104									
1044+58		CHANNEL CHANGE	80									
1074+93		CHANNEL CHANGE	470									
1108+29		CHANNEL CHANGE	35									
* ENTIRE	PROJECT	UNDERCUT & BACKFILL-TO BE USED IF AND	96000			96000	96000					
		WHERE DIRECTED BY THE ENGINEER										
* ENTIRE	PROJECT	TO BE USED IF AND WHERE								1500		10000
		DIRECTED BY THE ENGINEER										
TOTALS:			174368	137253	241821	120000	499074	12576	95428	1500	30870	46000

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN.FT.	EACH
897+00	907+00	LT. SIDE OF HWY. 167	1080	5
931+50	936+50	LT. SIDE OF HWY. 167	540	3
1002+00	1008+00	LT. SIDE OF HWY. 167	660	4
1042+00	1048+00	RT. SIDE OF HWY. 167	660	4
1071+00	1075+00	LT. SIDE OF HWY. 167	440	3
1071+00	1075+00	RT. SIDE OF HWY. 167	440	3
1111+00	1115+00	LT. SIDE OF HWY. 167	440	3
1127+00	1131+00	LT. SIDE OF HWY. 167	440	3
1127+00	1131+00	RT. SIDE OF HWY. 167	440	3
1156+00	1162+00	RT. SIDE OF HWY. 167	660	4
1177+00	1181+00	RT. SIDE OF HWY. 167	440	3
* ENTIRE PROJECT TO BE USED IF AND			1500	7
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			7740	45

* NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

UNDERDRAINS SHALL BE STUBBED INTO THE PROPOSED DROP INLET IF AND WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR THIS TO BE INCLUDED IN THE UNIT PRICE BID FOR 4" PIPE UNDERDRAIN.

CONCRETE ISLAND

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND SQ.YD.
1106+31	HWY. 167 & HWY. 48 INTERSECTION	B	11
TOTAL:			11

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN.FT.	EACH	
1115+42.79	1117+61.54	RT. SIDE OF HWY. 167 RT. LANES	150	1	1
1115+42.79	1117+61.54	LT. SIDE OF HWY. 167 RT. LANES	150	1	1
1119+62.46	1121+81.21	LT. SIDE OF HWY. 167 LT. LANES	150	1	1
1119+62.46	1121+81.21	RT. SIDE OF HWY. 167 LT. LANES	150	1	1
1135+50.00	1145+63.40	RT. SIDE OF HWY. 167	945	1	1
1135+50.00	1145+63.40	LT. SIDE OF HWY. 167	945	1	1
1148+85.60	1172+26.50	RT. SIDE OF HWY. 167	2304	2	
1148+85.60	1172+26.50	LT. SIDE OF HWY. 167	2304	2	
1174+87.50	1181+89.17	LT. SIDE OF HWY. 167	633	1	1
1174+87.50	1183+65.00	RT. SIDE OF HWY. 167	859	1	
TOTALS:			8590	12	7

6/4/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	84	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
M. CHAD D. FUGETT
5/24/12

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	(CLASS III) 24"	(CLASS III) 30"	(CLASS IV) 24"	(CLASS IV) 30"	(CLASS IV) 36"	(CLASS IV) 22"X14"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	36"	SAFETY END SECTIONS FOR R.C. PIPE 22"x14"	TEMPORARY PIPE CULVERTS 18"	DROP INLETS TYPE RM	TM	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.							EACH					LIN. FT.	EACH		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
888+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	82							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
891+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	80							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
895+50	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	74							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
912+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	80							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
916+79	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
918+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	78							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
922+50	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	86							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
929+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	90							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
934+03	EXTEND 4'x4' RC BOX CULVERT															1	4	4	62	27.35	3169	16	7	0.09	R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3, FPC-9, FPC-9D
939+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	80							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
942+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	76							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
942+64	CONSTRUCT 18" x 42' TEMPORARY DRIVEWAY SIDE DRAIN													42											PCP-1, PCP-2, PCC-1, PCM-1
950+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	80							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
953+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	80							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
957+79	EXTEND 4'x3' RC BOX CULVERT															1	4	3	81	33.53	4046	22	12	0.15	R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3, FPC-9, FPC-9D
962+67	EXTEND 24" RC PIPE CULVERT W/ FES LT. & RT.				84					2													16	0.20	FES-1, FES-2, PCC-1
963+00	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
966+29	EXTEND 6'x3' RC BOX CULVERT															1	6	3	80	44.37	5934	29	13	0.16	R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3, FPC-9, FPC-9D
971+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	72							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
974+38	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
976+48	EXTEND DOUBLE 6'x6' RC BOX CULVERT															1	6	6	112	141.05	20381	63	22	0.28	R-200X-0, W-X003-1, RCB-1, RCB-2, RCB-3, FPC-9, FPC-9D
979+75	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
980+94	EXTEND 6'x3' RC BOX CULVERT															1	6	3	112	58.64	8080	37	13	0.16	R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3, FPC-9, FPC-9D
992+50	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	72							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
1002+70	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
1006+24	EXTEND 8'x5' RC BOX CULVERT															1	8	5	128	104.40	12802	57	18	0.23	R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3
1008+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	80							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
1027+76	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
1028+00	CONSTRUCT 4'x3' DROP INLET W/18" RCP W/FES RT.	80							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
1030+00	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
1031+72	CONSTRUCT 18" x 42' TEMPORARY DRIVEWAY SIDE DRAIN													42											PCP-1, PCP-2, PCC-1, PCM-1
1035+78	CONSTRUCT 36" RC PIPE CULVERT W/ FES LT. & RT.						156					2											34	0.43	FES-1, FES-2, PCC-1
1035+90	EXTEND 30" RC PIPE CULVERT W/ DROP INLET & FES LT. & RT.			22		86					2				1								26	0.33	FES-1, FES-2, PCC-1, FPC-9D
1039+66	CONSTRUCT 18" x 42' TEMPORARY DRIVEWAY SIDE DRAIN													42											PCP-1, PCP-2, PCC-1, PCM-1
1044+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES RT.	80							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
1044+58	EXTEND DBL. 8'x8' RC BOX CULVERT															1	8	8	114	215.42	30487	92	28	0.35	R-200X-0, W-X003-1, RCB-1, RCB-2, RCB-3
1046+20	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
1048+83	EXTEND 24" RC PIPE CULVERT W/ DROP INLET & FES LT. & RT.		100							2					1								16	0.20	FES-1, FES-2, PCC-1
1051+18	CONSTRUCT 18" x 42' TEMPORARY DRIVEWAY SIDE DRAIN													42											PCP-1, PCP-2, PCC-1, PCM-1
1052+05	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
1053+10	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
1054+65	CONSTRUCT 18" x 42' TEMPORARY DRIVEWAY SIDE DRAIN													36											PCP-1, PCP-2, PCC-1, PCM-1
1057+52	CONSTRUCT 18" x 36' TEMPORARY DRIVEWAY SIDE DRAIN													30											PCP-1, PCP-2, PCC-1, PCM-1
1063+73	EXTEND 24" RC PIPE CULVERT W/ DROP INLET & FES LT. & RT.		112							2					1								16	0.20	FES-1, FES-2, PCC-1
1066+10	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
1070+87	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
1072+97	EXTEND DOUBLE 8'x7' RC BOX CULVERT															1	8	7	124	225.84	26762	103	26	0.33	R-200X-X2, W-X003-1, RCB-1, RCB-2, RCB-3, FPC-9, FPC-9D
1085+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	78							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
1092+88	EXTEND 24" RC PIPE CULVERT W/ FES RT.		22							1													8	0.10	FES-1, FES-2, PCC-1
1092+87	CONSTRUCT 24" RC PIPE CULVERT W/ DROP INLET & FES LT.		86							1					1								8	0.10	FES-1, FES-2, PCC-1, FPC-9D
1005+00	CONSTRUCT 4' x 3' DROP INLET W/ 18" RC PIPE W/ FES LT.	80							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
1106+50	CONSTRUCT 22"x14" RC ARCH PIPE CULVERT W/ SES LT. & RT.							100					2										16	0.20	SES-1, PCC-1
1108+29	EXTEND 3'x2' RC BOX CULVERT															1	3	2	116	32.21	2933	27	6	0.08	SPECIAL DETAIL, RCB-1, RCB-2, RCB-3, FPC-9, FPC-9D
1111+10	CONSTRUCT 18" x 32' TEMPORARY DRIVEWAY SIDE DRAIN													32											PCP-1, PCP-2, PCC-1, PCM-1
1113+00	CONSTRUCT 4'x3' DROP INLET W/18" RCP W/FES RT.	108							1						1								5	0.06	FES-1, FES-2, PCC-1, FPC-9D
1114+80	INSTALL 18" TEMPORARY PIPE CULVERT													206											PCC-1, PCM-1, PCP-1, PCP-2
1129+00	CONSTRUCT 4'x3' DROP INLET W/ 18" RC PIPE CULVERT W/ FES LT.	116							1						1										FES-1, FES-2, PCC-1, FPC-9D
108+87	CONSTRUCT 24" RC PIPE CULVERT ON HWY. 48				126					2													16	0.20	PCC-1, PCM-1
SUBTOTALS:		**1652**	**320**	**22**	**210**	**86**	**156**	**100**	**20**	**10**	**2**	**2**	**2**	**856**	**24**	**7**				**882.81**	**114594**	**446**	**396**	**4.93**	
														STRUCTURES OVER 20' - 0" SPAN											
902+62	EXTEND DOUBLE 10'x8' RC BOX CULVERT															1	10	8	90	195.14	28885	84	15	0.19	R-200X-0, W-X003-1, RCB-1, RCB-2, RCB-3, FPC-9, FPC-9D
SUBTOTALS:																**1**				**195.14**	**28885**	**84**	**15**	**0.19**	
TOTALS:		**1652**	**320**	**22**	**210**	**86**	**156**	**100**	**20**	**10**	**2**	**2**	**2**	**856**	**24**	**8**				**1077.95**	**143479**	**530**	**411**	**5.12**	

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.

6/4/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	85	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		
							18"	24"	28"X20"
			FEET	SQ. YD.	TON	TON	LIN. FT.		
896+00	LT.	HWY. 167	16	88.7	9.8	36.2	28		
911+15	RT.	HWY. 167	16	58.5	6.4	23.9	28		
916+79	LT.	HWY. 167	16	78.0	8.6	31.9	32		
925+70	RT.	HWY. 167	16	88.7	9.8	36.2	28		
942+42	RT.	HWY. 167	16	97.6	10.7	39.9	28		
942+64	LT.	HWY. 167	16	169.3	18.6	69.1	42		
945+75	RT.	HWY. 167	16	108.3	11.9	44.2			
963+00	LT.	HWY. 167	16	101.1	11.1	41.3	38		
963+37	RT.	HWY. 167	16	83.4	9.2	34.1	28		
974+38	LT.	HWY. 167	16	88.7	9.8	36.2	28		
974+38	RT.	HWY. 167	16	81.6	9.0	33.3	38		
979+75	LT.	HWY. 167	16	106.5	11.7	43.5	30		
992+83	RT.	HWY. 167	16	76.3	8.4	31.2		28	
1002+70	LT.	HWY. 167	16	82.9	9.1	33.9			28
1016+00	LT.	HWY. 167	16	78.0	8.6	31.9			
1016+00	RT.	HWY. 167	16	76.3	8.4	31.2	28		
1027+76	LT.	HWY. 167	16	70.2	7.7	28.7		28	
1030+00	LT.	HWY. 167	16	74.1	8.2	30.3		28	
1031+72	LT.	HWY. 167	20	132.0	14.5	53.9		34	
1037+00	RT.	HWY. 167	20	137.7	15.1	56.2		60	
1039+66	LT.	HWY. 167	20	123.9	13.6	50.6	44		
1040+09	RT.	HWY. 167	20	158.4	17.4	64.7	30		
1046+10	LT.	HWY. 167	16	118.7	13.1	48.5		40	
1050+78	LT.	HWY. 167	22	179.0	19.7	73.1		56	
1051+33	LT.	HWY. 167	16	97.6	10.7	39.9	32		
1052+05	LT.	HWY. 167	16	74.8	8.2	30.5	28		
1053+10	LT.	HWY. 167	16	77.6	8.5	31.7	28		
1054+65	LT.	HWY. 167	26	119.8	13.2	48.9	36		
1056+64	LT.	HWY. 167	24	83.9	9.2	34.3	34		
1057+52	LT.	HWY. 167	20	70.5	7.8	28.8	30		
1058+50	RT.	HWY. 167	16	88.9	9.8	36.3	28		
1066+10	LT.	HWY. 167	16	88.5	9.7	36.1	28		
1070+87	LT.	HWY. 167	16	113.8	12.5	46.5	28		
1074+93	RT.	HWY. 167	16	77.0	8.5	31.4	28		
1078+84	RT.	HWY. 167	16	74.4	8.2	30.4	32		
1079+92	RT.	HWY. 167	16	74.4	8.2	30.4	32		
1080+06	LT.	HWY. 167	16	97.9	10.8	40.0		28	
1090+95	LT.	HWY. 167	20	119.8	13.2	48.9		34	
1104+63	RT.	HWY. 167	16	69.8	7.7	28.5	28		
1105+49	RT.	HWY. 167	16	69.5	7.6	28.4	28		
1107+43	RT.	HWY. 167	20	86.4	9.5	35.3	28		
1109+54	RT.	HWY. 167	16	69.5	7.6	28.4		28	
1111+16	RT.	HWY. 167	16	71.3	7.8	29.1		28	
1111+38	LT.	HWY. 167	16	222.7	24.5	90.9		50	
105+82	LT.	HWY. 48	16	55.4	6.1	22.6			
* ENTIRE PROJECT TEMPORARY DRIVES						1200.0			
TOTALS:				**4361.4**	**479.7**	**2981.3**	**898**	**442**	**28**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

* QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

THE CONTRACTOR, WITH APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
1035+78	HWY. 167	9.67	38	13.6
TOTAL:				**13.6**

AVG. DEPTH = 1'-0"

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
882+00	883+00	MAIN LANES	36	400.00
1180+89	1181+89	MAIN LANES	32	355.56
103+50	104+50	HWY. 48 LANES	20	222.22
TOTAL:				**977.78**

NOTE: AVERAGE MILLING DEPTH 1".

APPROACH GUTTERS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE B)	REINFORCING STEEL RDWY. (GR 60)
			CU.YD.	POUND
1117+43.94	1117+70.94	LT. SIDE - RT. MAIN LANES	5.25	459
1117+43.94	1117+70.94	RT. SIDE - RT. MAIN LANES	6.75	590
1117+43.94	1117+70.94	LT. SIDE - LT. MAIN LANES	6.75	590
1117+43.94	1117+70.94	RT. SIDE - LT. MAIN LANES	5.25	459
1119+53.06	1119+80.06	LT. SIDE - RT. MAIN LANES	5.25	459
1119+53.06	1119+80.06	RT. SIDE - RT. MAIN LANES	6.75	590
1119+53.06	1119+80.06	LT. SIDE - LT. MAIN LANES	6.75	590
1119+53.06	1119+80.06	RT. SIDE - LT. MAIN LANES	5.25	459
1145+46.40	1145+73.40	LT. SIDE	6.75	590
1145+46.40	1145+73.40	RT. SIDE	6.75	590
1148+75.60	1149+02.60	LT. SIDE	6.75	590
1148+75.60	1149+02.60	RT. SIDE	6.75	590
1172+08.90	1172+35.90	LT. SIDE	6.75	590
1172+08.90	1172+35.90	RT. SIDE	6.75	590
1174+78.10	1175+05.10	LT. SIDE	6.75	590
1174+78.10	1175+05.10	RT. SIDE	6.75	590
TOTALS:			**102.00**	**8916**

NOTE: USE T =17" FOR 6' & 8' SHOULDER.

6/1/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	86	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7603
RICHARD D. FUGETT
5/24/12

BASE AND SURFACING (BOX 1 OF 3)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON
MAIN LANES																					
882+00	891+46	HWY. 167 - OVERLAY - RT. M.L.	946.0	1.50	14.2	36.0	3784.0	0.03	113.5									36.0	3784.0	220.0	416.2
882+00	895+56	HWY. 167 - FULL DEPTH - LT. M.L.	1356.0	303.00	4108.7	79.5	11978.0	0.03	359.3	26.8	4037.9	440.0	888.3	26.5	3992.7	330.0	658.8	62.3	9386.5	220.0	1032.5
891+46	893+46	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE TAPER	200.0	1.50	3.0	42.0	933.3	0.03	28.0									42.0	933.3	220.0	102.7
893+46	895+56	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE	210.0	1.50	3.2	48.0	1120.0	0.03	33.6									48.0	1120.0	220.0	123.2
895+56	896+44	HWY. 167 - MEDIAN TURNAROUND	88.0	VAR.	405.5	VAR.	1634.8	0.03	49.0	VAR.	548.1	440.0	120.6	VAR.	544.6	330.0	89.9	VAR.	1644.7	220.0	180.9
896+44	898+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
896+44	917+46	HWY. 167 - OVERLAY - RT. M.L.	2102.0	1.50	31.5	36.0	8408.0	0.03	252.2									36.0	8408.0	220.0	924.9
898+54	900+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
900+54	921+56	HWY. 167 - FULL DEPTH - LT. M.L.	2102.0	303.00	6369.1	79.5	18567.7	0.03	557.0	26.8	6259.3	440.0	1377.0	26.5	6189.2	330.0	1021.2	62.3	14550.5	220.0	1600.6
917+46	919+46	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE TAPER	200.0	1.50	3.0	42.0	933.3	0.03	28.0									42.0	933.3	220.0	102.7
919+46	921+56	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE	210.0	1.50	3.2	48.0	1120.0	0.03	33.6									48.0	1120.0	220.0	123.2
921+56	922+44	HWY. 167 - MEDIAN TURNAROUND	88.0	VAR.	349.0	VAR.	1454.0	0.03	43.6	VAR.	487.3	440.0	107.2	VAR.	484.4	330.0	79.9	VAR.	1581.8	220.0	174.0
922+44	924+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
922+44	941+21	HWY. 167 - OVERLAY - RT. M.L.	1877.0	1.50	28.2	36.0	7508.0	0.03	225.2									36.0	7508.0	220.0	825.9
924+54	926+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
926+54	945+31	HWY. 167 - FULL DEPTH - LT. M.L.	1877.0	303.00	5687.3	79.5	16580.2	0.03	497.4	26.8	5589.3	440.0	1229.6	26.5	5526.7	330.0	911.9	62.3	12993.0	220.0	1429.2
941+21	943+21	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE TAPER	200.0	1.50	3.0	42.0	933.3	0.03	28.0									42.0	933.3	220.0	102.7
943+21	945+31	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE	210.0	1.50	3.2	48.0	1120.0	0.03	33.6									48.0	1120.0	220.0	123.2
945+31	946+19	HWY. 167 - MEDIAN TURNAROUND	88.0	VAR.	349.0	VAR.	1454.0	0.03	43.6	VAR.	487.3	440.0	107.2	VAR.	484.4	330.0	79.9	VAR.	1581.8	220.0	174.0
946+19	948+29	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
946+19	954+50	HWY. 167 - OVERLAY - RT. M.L.	831.0	1.50	12.5	36.0	3324.0	0.03	99.7									36.0	3324.0	220.0	365.6
954+50	967+46	HWY. 167 - OVERLAY - RT. M.L.	1296.0	1.50	19.4	36.0	5184.0	0.03	155.5									36.0	5184.0	220.0	570.2
948+29	950+29	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
950+29	970+00	HWY. 167 - FULL DEPTH - LT. M.L.	1971.0	303.00	5972.1	79.5	17410.5	0.03	522.3	26.8	5869.2	440.0	1291.2	26.5	5803.5	330.0	957.6	62.3	13643.7	220.0	1500.8
970+00	971+56	HWY. 167 - FULL DEPTH - LT. M.L.	156.0	303.00	472.7	79.5	1378.0	0.03	41.3	26.8	464.5	440.0	102.2	26.5	459.3	330.0	75.8	62.3	1079.9	220.0	118.8
967+46	969+46	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE TAPER	200.0	14.00	28.0	42.0	933.3	0.03	28.0									42.0	933.3	220.0	102.7
969+46	971+56	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE	210.0	14.00	29.4	48.0	1120.0	0.03	33.6									48.0	1120.0	220.0	123.2
971+56	972+44	HWY. 167 - MEDIAN TURNAROUND	88.0	VAR.	446.4	VAR.	1764.7	0.03	52.9	VAR.	591.5	440.0	130.1	VAR.	587.9	330.0	97.0	VAR.	1684.8	220.0	185.3
972+44	988+46	HWY. 167 - OVERLAY - RT. M.L.	1602.0	14.00	224.3	36.0	6408.0	0.03	192.2									36.0	6408.0	220.0	704.9
972+44	974+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
974+54	976+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
976+54	992+56	HWY. 167 - FULL DEPTH - LT. M.L.	1602.0	303.00	4854.1	79.5	14151.0	0.03	424.5	26.8	4770.4	440.0	1049.5	26.5	4717.0	330.0	778.3	62.3	11089.4	220.0	1219.8
988+46	990+46	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE TAPER	200.0	126.38	252.8	50.4	1120.0	0.03	33.6	6.2	137.8	440.0	30.3	6.1	135.6	330.0	22.4	48.1	1068.9	220.0	117.6
990+46	992+56	HWY. 167 - OVERLAY - RT. M.L. W/ LT. TURN LANE	210.0	149.75	314.5	68.7	1603.0	0.03	48.1	12.4	289.3	440.0	63.6	12.2	284.7	330.0	47.0	60.1	1402.3	220.0	154.3
992+56	993+44	HWY. 167 - MEDIAN TURNAROUND	88.0	VAR.	470.6	VAR.	1973.4	0.03	59.2	VAR.	661.3	440.0	145.5	VAR.	657.5	330.0	108.5	VAR.	1754.1	220.0	193.0
993+44	995+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
993+44	1011+46	HWY. 167 - OVERLAY - RT. M.L.	1802.0	14.00	252.3	36.0	7208.0	0.03	216.2									36.0	7208.0	220.0	792.9
995+54	997+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
997+54	1015+56	HWY. 167 - FULL DEPTH - LT. M.L.	1802.0	303.00	5460.1	79.5	15917.7	0.03	477.5	26.8	5366.0	440.0	1180.5	26.5	5305.9	330.0	875.5	62.3	12473.8	220.0	1372.1
1011+46	1013+46	HWY. 167 - NOTCH & WIDEN - RT. M.L. W/ LT. TURN LANE TAPER	200.0	427.38	854.8	56.4	1253.3	0.03	37.6	8.2	182.2	440.0	40.1	8.1	180.0	330.0	29.7	50.1	1113.3	220.0	122.5
1013+46	1015+56	HWY. 167 - NOTCH & WIDEN - RT. M.L. W/ LT. TURN LANE	210.0	450.75	946.6	74.7	1743.0	0.03	52.3	14.4	336.0	440.0	73.9	14.2	331.3	330.0	54.7	62.1	1449.0	220.0	159.4
1015+56	1016+44	HWY. 167 - MEDIAN TURNAROUND	88.0	VAR.	564.6	VAR.	2032.0	0.03	61.0	VAR.	680.8	440.0	149.8	VAR.	677.0	330.0	111.7	VAR.	1773.6	220.0	195.1
1016+44	1017+76	HWY. 167 - NOTCH & WIDEN - RT. M.L.	132.0	152.00	200.6	54.9	805.2	0.03	24.2	10.4	152.5	440.0	33.6	10.3	151.1	330.0	24.9	46.2	677.6	220.0	74.5
1016+44	1018+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
1017+76	1032+46	HWY. 167 - FULL DEPTH - RT. M.L.	1470.0	303.00	4454.1	79.5	12985.0	0.03	389.6	26.8	4377.3	440.0	963.0	26.5	4328.3	330.0	714.2	62.3	10175.7	220.0	1119.3
1018+54	1020+54	HWY. 167 - FULL DEPTH - LT. M.L. W/ LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
1020+54	1022+59	HWY. 167 - FULL DEPTH - LT. M.L.	205.0	303.00	621.2	79.5	1810.8	0.03	54.3	26.8	610.4	440.0	134.3	26.5	603.6	330.0	99.6	62.3	1419.1	220.0	156.1
1022+59	1028+77	HWY. 167 - NOTCH & WIDEN - LT. M.L.	618.0	163.50	1010.4	39.8	2732.9	0.03	82.0	13.4	920.1	440.0	202.4	13.3	913.3	330.0	150.7	49.1	3371.5	220.0	370.9
1028+77	1036+56	HWY. 167 - OVERLAY - LT. M.L.	779.0	14.00	109.1	36.0	3116.0	0.03	93.5									36.0	3116.0	220.0	342.8
1032+46	1034+46	HWY. 167 - FULL DEPTH - RT. M.L. W/LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
1034+46	1036+56	HWY. 167 - FULL DEPTH - RT. M.L. W/LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
1036+56	1037+44	HWY. 167 - MEDIAN CROSSING	88.0	VAR.	468.7	VAR.	2224.1	0.03	66.7	VAR.	744.4	440.0	163.8	VAR.	741.1	330.0	122.3	VAR.	1905.6	220.0	209.6
1037+44	1039+54	HWY. 167 - OVERLAY - LT. M.L. W/LT. TURN LANE	210.0	149.75	314.5	68.7	1603.0	0.03	48.1	12.4	289.3	440.0	63.6	12.2	284.7	330.0	47.0	60.1	1402.3	220.0	154.3
1037+44	1052+10	HWY. 167 - FULL DEPTH - RT. M.L.	1466.0	303.00	4442.0	79.5	12949.7	0.03	388.5	26.8	4365.4	440.0	960.4	26.5	4316.6	330.0	712.2	62.3	10148.0	220.0	1116.3
1039+54	1041+54	HWY. 167 - OVERLAY - LT. M.L. W/LT. TURN LANE TAPER	200.0	126.38	252.8	50.4	1120.0	0.03	33.6	6.2	137.8	440.0	30.3	6.1	135.6	330.0	22.4	48.1	1068.9	220.0	117.6
1041+54	1056+20	HWY. 167 - OVERLAY - LT. M.L.	1466.0	14.00	205.2	36.0	5864.0	0.03	175.9									36.0	5864.0	220.0	645.0
1052+10	1054+10	HWY. 167 - FULL DEPTH - RT. M.L. W/LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
1054+10	1056+20	HWY. 167 - FULL DEPTH - RT. M.L. W/LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
1056+20	1057+08	HWY. 167 - MEDIAN TURNAROUND	88.0	VAR.	470.6	VAR.	1973.4	0.03	59.2	VAR.	661.3	440.0	145.5	VAR.	657.5	330.0	108.5	VAR.	1754.1	220.0	193.0
1057+08	1059+18	HWY. 167 - OVERLAY - LT. M.L. W/LT. TURN LANE	210.0	149.75	314.5	68.7	1603.0	0.03	48.1	12.4	289.3	440.0	63.6	12.2	284.7	330.0	47.0	60.1	1402.3	220.0	154.3
1057+08	1070+22	HWY. 167 - FULL DEPTH - RT. M.L.	1314.0	303.00	3981.4	79.5	11607.0	0.03	348.2	26.8	3912.8	440.0	860.8	26.5	3869.0	330.0	638.4	62.3	9095.8	220.0	1000.5
1059+18	1061+18	HWY. 167 - NOTCH & WIDEN - LT. M.L. W/LT. TURN LANE TAPER	200.0	VAR.	519.2	VAR.	615.3	0.03	18.5	VAR.	210.2	440.0	46.2	VAR.	204.6	330.0	33.8	VAR.	1449.0	220.0	159.4
1061+18	1065+33	HWY. 167 - NOTCH & WIDEN - LT. M.L.	415.0	176.75	733.5	71.5	3296.9	0.03	98.9	16.8	774.7	440.0	170.4	16.6	765.4	330.0	126.3	52.5	2420.8	220.0	266.3
1065+33	1079+56	HWY. 167 - FULL DEPTH - LT. M.L.	1423.0	303.00	4311.7	79.5	12569.8	0.03	377.1	26.8	4237.4	440.0	932.2	26.5	4189.9	330.0	691.3	62.3	9850.3	220.0	1083.5
1070+22	1075+46	HWY. 167 - NOTCH & WIDEN - RT. M.L.	524.0	163.50	856.7	39.8	2317.2	0.03	69.5	13.4	780.2	440.0	171.6	13.3	774.4	330.0	127.8	49.1	2858.7	220.0	314.5
1075+46	1077+46	HWY. 167 - NOTCH & WIDEN - RT. M.L. W/LT. TURN LANE TAPER	200.0	VAR.	516.4	VAR.	593.3	0.03	17.8	VAR.	203.3	440.0	44.7	VAR.	197.1	330.0	32.5	VAR.	1167.2	220.0	128.4
1077+46	1079+56	HWY. 167 - OVERLAY - RT. M.L. W/LT. TURN LANE	210.0	149.75	314.5	68.7	1603.0	0.03	48.1	12.4	289.3	440.0	63.6	12.2	284.7	330.0	47.0	60.1	1402.3	220.0	154.3
1079+56	1080+44	HWY. 167 - MEDIAN TURNAROUND	88.0	VAR.	470.6	VAR.	1973.4	0.03	59.2	VAR.	661.3	440.0	145.5	VAR.	657.5	330.0	108.5	VAR.	1754.1	220.0	193.0
1080+44	1082+54	HWY. 167 - FULL DEPTH - LT. M.L. W/LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
1080+44	1086+40	HWY. 167 - OVERLAY - RT. M.L.	596.0	14.00	83.4	36.0	2384.0	0.03	71.5									36.0	2384.0	220.0	262.2
1082+54	1084+54	HWY. 167 - FULL DEPTH - LT. M.L. W/LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
1084+54	1090+50	HWY. 167 - FULL DEPTH - LT. M.L.	596.0	303.00	1805.9	79.5	5264.7	0.03	157.9	26.8	1774.8	440.0	390.5	26.5	1754.9	330.0	289.6	62.3	4125.6	220.0	453.8
SUBTOTALS:					**77479.0**		**296819.5**		**8904.6**		**76857.8**		**16909.0**		**76060.2**		**12550.4**		**252104.4**		**27731.6**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96% MIN. AGGR.....4% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

6/1/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	87	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

BASE AND SURFACING BOX (2 OF 3)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
			FEET	TON / STATION	TON	TOTAL WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON
MAIN LANES																					
1086+40	1088+40	HWY. 167 - OVERLAY - RT. M.L. W/LT. TURN LANE TAPER	200.0	126.38	252.8	50.4	1120.0	0.03	33.6	6.2	137.8	440.0	30.3	6.1	135.6	330.0	22.4	48.1	1068.9	220.0	117.6
1088+40	1090+50	HWY. 167 - OVERLAY - RT. M.L. W/LT. TURN LANE	210.0	149.75	314.5	68.7	1603.0	0.03	48.1	12.4	289.3	440.0	63.6	12.2	284.7	330.0	47.0	60.1	1402.3	220.0	154.3
1090+50	1091+38	HWY. 167 - MEDIAN CROSSING	88.0	VAR.	468.7	VAR.	2224.1	0.03	66.7	VAR.	744.4	440.0	163.8	VAR.	741.1	330.0	122.3	VAR.	1905.6	220.0	209.6
1091+38	1093+48	HWY. 167 - FULL DEPTH - LT. M.L. W/LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
1091+38	1101+97	HWY. 167 - OVERLAY - RT. M.L.	1059.0	14.00	148.3	36.0	4236.0	0.03	127.1									36.0	4236.0	220.0	466.0
1093+48	1095+48	HWY. 167 - FULL DEPTH - LT. M.L. W/LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
1095+48	1106+07	HWY. 167 - FULL DEPTH - LT. M.L.	1059.0	303.00	3208.8	79.5	9354.5	0.03	280.6	26.8	3153.5	440.0	693.8	26.5	3118.2	330.0	514.5	62.3	7330.6	220.0	806.4
1101+97	1103+97	HWY. 167 - OVERLAY - RT. M.L. W/LT. TURN LANE TAPER	200.0	126.38	252.8	50.4	1120.0	0.03	33.6	6.2	137.8	440.0	30.3	6.1	135.6	330.0	22.4	48.1	1068.9	220.0	117.6
1103+97	1106+07	HWY. 167 - OVERLAY - RT. M.L. W/LT. TURN LANE	210.0	149.75	314.5	68.7	1603.0	0.03	48.1	12.4	289.3	440.0	63.6	12.2	284.7	330.0	47.0	60.1	1402.3	220.0	154.3
1106+07	1106+95	HWY. 167 - HWY.48 INTERSECTION	88.0	VAR.	380.9	VAR.	2223.1	0.03	66.7	VAR.	744.4	440.0	163.8	VAR.	741.1	330.0	122.3	VAR.	1827.4	220.0	201.0
1106+95	1109+05	HWY. 167 - FULL DEPTH - LT. M.L. W/LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
1106+95	1115+00	HWY. 167 - OVERLAY - RT. M.L.	805.0	14.00	112.7	36.0	3220.0	0.03	96.6									36.0	3220.0	220.0	354.2
1109+05	1111+05	HWY. 167 - FULL DEPTH - LT. M.L. W/LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
1111+05	1117+71	HWY. 167 - FULL DEPTH - LT. M.L.	666.0	303.00	2018.0	79.5	5883.0	0.03	176.5	26.8	1983.2	440.0	436.3	26.5	1961.0	330.0	323.6	62.3	4610.2	220.0	507.1
1115+00	1117+71	HWY. 167 - FULL DEPTH - RT. M.L.	271.0	303.00	821.1	79.5	2393.8	0.03	71.8	26.8	807.0	440.0	177.5	26.5	797.9	330.0	131.7	62.3	1875.9	220.0	206.3
1119+53	1123+00	HWY. 167 - FULL DEPTH - RT. M.L.	347.0	303.00	1051.4	79.5	3065.2	0.03	92.0	26.8	1033.3	440.0	227.3	26.5	1021.7	330.0	168.6	62.3	2402.0	220.0	264.2
1119+53	1133+43	HWY. 167 - FULL DEPTH - LT. M.L.	1390.0	303.00	4211.7	79.5	12278.3	0.03	368.3	26.8	4139.1	440.0	910.6	26.5	4092.8	330.0	675.3	62.3	9621.9	220.0	1058.4
1123+00	1127+31	HWY. 167 - NOTCH & WIDEN - RT. M.L.	431.0	VAR.	650.9	VAR.	1397.6	0.03	41.9	VAR.	763.1	440.0	167.9	VAR.	749.2	330.0	123.6	VAR.	2552.0	220.0	280.7
1127+31	1131+40	HWY. 167 - FULL DEPTH - RT. M.L.	409.0	303.00	1239.3	79.5	3612.8	0.03	108.4	26.8	1217.9	440.0	267.9	26.5	1204.3	330.0	198.7	62.3	2831.2	220.0	311.4
1131+40	1133+40	HWY. 167 - FULL DEPTH - RT. M.L. W/LT. TURN LANE TAPER	200.0	326.38	652.8	97.5	2166.7	0.03	65.0	32.8	728.9	440.0	160.4	32.5	722.2	330.0	119.2	74.3	1651.1	220.0	181.6
1133+40	1135+50	HWY. 167 - FULL DEPTH - RT. M.L. W/LT. TURN LANE	210.0	349.75	734.5	115.5	2695.0	0.03	80.9	38.8	905.3	440.0	199.2	38.5	898.3	330.0	148.2	86.3	2013.7	220.0	221.5
1133+43	1135+50	HWY. 167 - NOTCH & WIDEN - LT. M.L.	207.0	190.50	394.3	60.4	1389.2	0.03	41.7	20.3	466.9	440.0	102.7	20.1	462.3	330.0	76.3	56.0	1288.0	220.0	141.7
1135+50	1142+50	HWY. 167 - NOTCH & WIDEN - TRANSITION	700.0	VAR.	2965.8	VAR.	11301.6	0.03	339.0	VAR.	3767.2	440.0	828.8	VAR.	3750.2	330.0	618.8	VAR.	10427.0	220.0	1147.0
1142+50	1144+48	HWY. 167 - FULL DEPTH	198.0	482.50	955.4	190.5	4191.0	0.03	125.7	63.8	1403.6	440.0	308.8	63.5	1397.0	330.0	230.5	149.3	3284.6	220.0	361.3
1144+48	1145+73	HWY. 167 - FULL DEPTH - W/FULL DEPTH SHOULDER	125.0	446.50	558.1	208.6	2897.2	0.03	86.9	69.8	969.4	440.0	213.3	69.5	965.3	330.0	159.3	155.3	2156.9	220.0	237.3
1148+76	1153+00	HWY. 167 - FULL DEPTH - W/FULL DEPTH SHOULDER	424.0	446.50	1893.2	208.6	9827.4	0.03	294.8	69.8	3288.4	440.0	723.4	69.5	3274.2	330.0	540.2	155.3	7316.4	220.0	804.8
1153+00	1155+18	HWY. 167 - NOTCH & WIDEN - W/FULL DEPTH SHOULDER	218.0	248.00	540.6	177.5	4299.4	0.03	129.0	48.9	1184.5	440.0	260.6	48.7	1179.6	330.0	194.6	134.6	3260.3	220.0	358.6
1155+18	1170+06	HWY. 167 - NOTCH & WIDEN	1488.0	284.75	4237.1	160.2	26486.4	0.03	794.6	42.9	7092.8	440.0	1560.4	42.7	7059.7	330.0	1164.9	128.6	21261.9	220.0	2338.8
1170+06	1170+60	HWY. 167 - NOTCH & WIDEN - W/FULL DEPTH SHOULDER	54.0	248.00	133.9	177.5	1065.0	0.03	32.0	48.9	293.4	440.0	64.5	48.7	292.2	330.0	48.2	134.6	807.6	220.0	88.8
1170+60	1172+36	HWY. 167 - FULL DEPTH - W/FULL DEPTH SHOULDER	176.0	446.50	785.8	208.6	4079.3	0.03	122.4	69.8	1365.0	440.0	300.3	69.5	1359.1	330.0	224.3	155.3	3037.0	220.0	334.1
1174+78	1176+77	HWY. 167 - FULL DEPTH - W/FULL DEPTH SHOULDER	199.0	446.50	888.5	208.6	4612.4	0.03	138.4	69.8	1543.4	440.0	339.5	69.5	1536.7	330.0	253.6	155.3	3433.9	220.0	377.7
1176+77	1177+00	HWY. 167 - FULL DEPTH	23.0	482.50	111.0	190.5	486.8	0.03	14.6	63.8	163.0	440.0	35.9	63.5	162.3	330.0	26.8	149.3	381.5	220.0	42.0
1177+00	1181+89	HWY. 167 - NOTCH & WIDEN	489.0	284.75	1392.4	160.2	8704.2	0.03	261.1	42.9	2330.9	440.0	512.8	42.7	2320.0	330.0	382.8	128.6	6987.3	220.0	768.6
HWY. 48																					
104+50	106+59	HWY. 48 - NOTCH & WIDEN	209.0	VAR.	252.0	VAR.	819.9	0.03	24.6	VAR.	131.8	440.0	29.0	VAR.	128.5	330.0	21.2	VAR.	1141.1	220.0	125.5
104+50	106+59	LEVELING	209.0			VAR.	432.8	0.10	43.3									VAR.	432.8	220.0	47.6
106+59	108+17	HWY. 48 - FULL DEPTH	158.0	292.75	462.5	73.5	1290.3	0.03	38.7	24.8	435.4	440.0	95.8	24.5	430.1	330.0	71.0	64.3	1128.8	220.0	124.2
103+50	104+50	HWY. 48 - TRANSITION	100.0	107.50	107.5	26.7	296.7	0.03	8.9	2.4	26.7	440.0	5.9	2.2	24.4	330.0	4.0	VAR.	1647.8	220.0	181.3
108+17	109+15	HWY. 48 - TURNOUT	98.0	VAR.	532.7	VAR.	2117.3	0.03	63.5	VAR.	709.8	440.0	156.2	VAR.	705.3	330.0	116.4	VAR.	1647.8	220.0	181.3
TEMPORARY CROSSOVER																					
1112+41	1117+55	STAGE 2 CROSSOVER	514.0	VAR.	413.3	VAR.	976.7	0.03	29.3					VAR.	814.7	330.0	134.4	VAR.	807.2	220.0	88.8
ADDITIONAL FOR GUARDRAIL WIDENING																					
1114+80	1115+42	HWY. 167 RT. MAIN LANES	62.0	19.00	11.8													2.8	19.3	220.0	2.1
1115+42	1117+71	HWY. 167 RT. MAIN LANES	229.0	38.00	87.0													5.5	139.9	220.0	15.4
1119+53	1121+81	HWY. 167 LT. MAIN LANES	228.0	38.00	86.6													5.5	139.3	220.0	15.3
1121+81	1122+41	HWY. 167 LT. MAIN LANES	60.0	19.00	11.4													2.8	18.7	220.0	2.1
ADDITIONAL FOR GRADE RAISE																					
1022+59	1025+75	HWY. 167	316.0											VAR.	166.1	330.0	27.4				
1111+68	1115+00	HWY. 167	332.0							VAR.	2119.5	440.0	466.3	VAR.	1344.8	330.0	221.9				
1122+00	1124+00	HWY. 167	200.0							VAR.	885.9	440.0	194.9	VAR.	446.7	330.0	73.7				
1134+00	1142+50	HWY. 167	850.0							VAR.	1228.2	440.0	270.2	VAR.	1410.3	330.0	232.7				
1153+00	1157+88	HWY. 167	488.0							VAR.	1664.1	440.0	366.1	VAR.	1326.7	330.0	218.9				
1168+64	1170+60	HWY. 167	196.0							VAR.	468.6	440.0	103.1	VAR.	413.3	330.0	68.2				
1177+00	1180+00	HWY. 167	300.0							VAR.	337.7	440.0	74.3	VAR.	564.8	330.0	93.2				
SUBTOTALS:					**36429.2**		**155193.1**		**4686.2**		**52218.9**		**11488.3**		**51663.7**		**8524.9**		**129114.7**		**14202.7**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96% MIN. AGGR.....4% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

6/1/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	88	355

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

BASE AND SURFACING BOX (3 OF 3)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
			FEET	TON / STATION	TON	TOTAL WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON
ADDITIONAL FOR LEVELING																					
882+00	891+46	HWY. 167 - LEVELING	946.0			36.0	3784.0	0.10	378.4									36.0	3784.0	220.0	416.2
891+46	893+46	HWY. 167 - LEVELING	200.0			42.0	933.3	0.10	93.3									42.0	933.3	220.0	102.7
893+46	896+44	HWY. 167 - LEVELING	298.0			48.0	1589.3	0.10	158.9									48.0	1589.3	220.0	174.8
896+44	917+46	HWY. 167 - LEVELING	2102.0			36.0	8408.0	0.10	840.8									36.0	8408.0	220.0	924.9
917+46	919+46	HWY. 167 - LEVELING	200.0			42.0	933.3	0.10	93.3									42.0	933.3	220.0	102.7
919+46	922+44	HWY. 167 - LEVELING	298.0			48.0	1589.3	0.10	158.9									48.0	1589.3	220.0	174.8
922+44	941+21	HWY. 167 - LEVELING	1877.0			36.0	7508.0	0.10	750.8									36.0	7508.0	220.0	825.9
941+21	943+21	HWY. 167 - LEVELING	200.0			42.0	933.3	0.10	93.3									42.0	933.3	220.0	102.7
943+21	946+19	HWY. 167 - LEVELING	298.0			48.0	1589.3	0.10	158.9									48.0	1589.3	220.0	174.8
946+19	954+50	HWY. 167 - LEVELING	831.0			36.0	3324.0	0.10	332.4									36.0	3324.0	220.0	365.6
954+50	967+46	HWY. 167 - LEVELING	1296.0			36.0	5184.0	0.10	518.4									36.0	5184.0	220.0	570.2
954+50	967+46	HWY. 167 - CROWN SHIFT	1296.0			16.0	2304.0	0.03	69.1									16.0	2304.0	440.0	506.9
967+46	969+46	HWY. 167 - LEVELING	200.0			42.0	933.3	0.10	93.3									42.0	933.3	220.0	102.7
967+46	969+46	HWY. 167 - CROWN SHIFT	200.0			16.0	355.6	0.03	10.7									16.0	355.6	440.0	78.2
969+46	972+44	HWY. 167 - LEVELING	298.0			48.0	1589.3	0.10	158.9									48.0	1589.3	220.0	174.8
969+46	972+44	HWY. 167 - CROWN SHIFT	298.0			16.0	529.8	0.03	15.9									16.0	529.8	440.0	116.6
972+44	988+46	HWY. 167 - LEVELING	1602.0			36.0	6408.0	0.10	640.8									36.0	6408.0	220.0	704.9
972+44	1010+28	HWY. 167 - CROWN SHIFT	3784.0			16.0	6727.1	0.03	201.8									16.0	6727.1	440.0	1480.0
988+46	993+44	HWY. 167 - LEVELING	498.0			32.0	1770.7	0.10	177.1									32.0	1770.7	220.0	194.8
993+44	1010+28	HWY. 167 - LEVELING	1684.0			36.0	6736.0	0.10	673.6									36.0	6736.0	220.0	741.0
1010+28	1030+00	HWY. 167 - LEVELING	1972.0			VAR.	3411.3	0.10	341.1									VAR.	3411.3	220.0	375.2
1030+00	1036+56	HWY. 167 - LEVELING	656.0			36.0	2624.0	0.10	262.4									36.0	2624.0	220.0	288.6
1030+00	1058+05	HWY. 167 - CROWN SHIFT	2805.0			16.0	4986.7	0.03	149.6									16.0	4986.7	440.0	1097.1
1036+56	1041+54	HWY. 167 - LEVELING	498.0			32.0	1770.7	0.10	177.1									32.0	1770.7	220.0	194.8
1041+54	1056+20	HWY. 167 - LEVELING	1466.0			36.0	5864.0	0.10	586.4									36.0	5864.0	220.0	645.0
1056+20	1058+05	HWY. 167 - LEVELING	185.0			32.0	657.8	0.10	65.8									32.0	657.8	220.0	72.4
1058+05	1077+72	HWY. 167 - LEVELING	1967.0			VAR.	2839.4	0.10	283.9									VAR.	2839.4	220.0	312.3
1077+72	1080+44	HWY. 167 - LEVELING	272.0			32.0	967.1	0.10	96.7									32.0	967.1	220.0	106.4
1077+72	1117+71	HWY. 167 - CROWN SHIFT	3999.0			16.0	7109.3	0.03	213.3									16.0	7109.3	440.0	1564.0
1080+44	1086+40	HWY. 167 - LEVELING	596.0			36.0	2384.0	0.10	238.4									36.0	2384.0	220.0	262.2
1086+40	1091+38	HWY. 167 - LEVELING	498.0			32.0	1770.7	0.10	177.1									32.0	1770.7	220.0	194.8
1091+38	1101+97	HWY. 167 - LEVELING	1059.0			36.0	4236.0	0.10	423.6									36.0	4236.0	220.0	466.0
1101+97	1106+95	HWY. 167 - LEVELING	498.0			32.0	1770.7	0.10	177.1									32.0	1770.7	220.0	194.8
1106+95	1117+71	HWY. 167 - LEVELING	1076.0			36.0	4304.0	0.10	430.4									36.0	4304.0	220.0	473.4
1119+53	1120+01	HWY. 167 - LEVELING	48.0			36.0	192.0	0.10	19.2									36.0	192.0	220.0	21.1
1119+53	1120+01	HWY. 167 - CROWN SHIFT	48.0			16.0	85.3	0.03	2.6									16.0	85.3	440.0	18.8
1123+00	1127+31	HWY. 167 - LEVELING	431.0			VAR.	512.5	0.10	51.3									VAR.	512.5	220.0	56.4
1153+00	1170+60	HWY. 167 - LEVELING	1760.0			32.0	6257.8	0.10	625.8									32.0	6257.8	220.0	688.4
1177+00	1181+89	HWY. 167 - LEVELING	489.0			32.0	1738.7	0.10	173.9									32.0	1738.7	220.0	191.3
SUBTOTALS:							**116611.6**		**10114.3**										**116611.6**		**15258.2**
TOTALS:					**113908.2**		**568624.2**		**23705.1**		**129076.7**		**28397.3**		**127723.9**		**21075.3**		**497830.7**		**57192.5**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96% MIN. AGGR.....4% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

6/1/2012

R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	89	355
				(1) A7244,B7244 07245,07246		QUANTITIES		43770

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 070291

BRIDGE NO.	CODE NO.	BRIDGE NAME PLATE TITLE	ITEM NO.	205	801	802	802	802	803	SS & 804	SS & 804	805	805	805	805	807	808	812	816	816	SP JOB 070291	SP JOB 070291
			UNIT OF STRUCTURE	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE -BRIDGE	CLASS S(AE) CONCRETE -BRIDGE	PRESTRESSED CONCRETE GIRDERS (TYPE III)	CLASS I PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL -BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	(2) CONCRETE PILING (16" SQ.)	(1) CONCRETE PILING (24" SQ.)	(2) TEST PILE (16" SQ.)	(1) TEST PILE (24" SQ.)	STRUCTURAL STEEL IN BEAM SPANS (M270-GR.50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	SILICONE JOINT SEALANT	SHORING (SITE NO.)
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	LIN. FT.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	CU. IN.	EA.	SQ. YD.	CU. YD.	LIN. FT.	LUMP SUM
A7244	X081	SALINE RIVER RELIEF NO. 3	BENT 1 & 4			62.02			0.5	7,660	-	360	-	45	-	1,485			1,047	551		
			BENT 2 & 3			36.78				3,310	-	-	360	-	45	-						
			180' PRESTR. CONC. GIRDER UNIT				252.50	885.0	18.1	-	56,500					3,255	17,719.0	1			82	
			TOTAL FOR BRIDGE A7244			98.80	252.50	885.0	18.6	10,970	56,500	360	360	45	45	4,740	17,719.0	1	1,047	551	82	
B7244	X081	SALINE RIVER RELIEF NO. 3	BENT 1 & 4		52	62.02			0.5	7,660	-	400	-	-		1,485			856	453		
			BENT 2 & 3			36.78				3,310	-	-	400	-	-	-						
			180' PRESTR. CONC. GIRDER UNIT				252.50	885.0	18.1	-	56,500					3,255	17,719.0	1			82	
			EXISTING BRIDGE NO. 01356 (SITE 2)	1																		
			TOTAL FOR BRIDGE B7244	1	52	98.80	252.50	885.0	18.6	10,970	56,500	400	400	-	-	4,740	17,719.0	1	856	453	82	
07245	X081	SALINE RIVER RELIEF NO. 2	BENT 1 & 6		55	111.80			0.7	13,760	-	765	-	50	-	2,930			1,579	834		
			BENT 2 - 5			151.00				13,600	-	-	2,040	-	130	-						
			300' PRESTR. CONC. GIRDER UNIT				747.30	2,655.0	54.8	-	158,970					8,040	53,156.0	1			156	
			EXISTING BRIDGE NO. 01355 (SITE 3)	1																		1
			TOTAL FOR BRIDGE 07245	1	55	262.80	747.30	2,655.0	55.5	27,360	158,970	765	2,040	50	130	10,970	53,156.0	1	1,579	834	156	1
07246	X081	SALINE RIVER RELIEF NO. 1	BENT 1 & 5		55	111.80			0.7	13,760	-	680	-	45	-	2,930			1,590	840		
			BENT 2 - 4			113.30				10,200	-	-	1,560	-	65	-						
			240' PRESTR. CONC. GIRDER UNIT				598.70	2,124.0	43.8	-	126,610					7,140		1				
			EXISTING BRIDGE NO. 01354 (SITE 4)	1													42,525.0				156	
			TOTAL FOR BRIDGE 07246	1	55	225.10	598.70	2,124.0	44.5	23,960	126,610	680	1,560	45	65	10,070	42,525.0	1	1,590	840	156	1
			TOTAL FOR JOB 070291		162	685.50	1,851.00	6,549.0	137.2	73,260	398,580	2,205	4,360	140	240	30,520	131,119.0	4	5,072	2,678	476	

(1) See Dwg. No. 43777 for details

(2) See Std. Dwg. No. 14964 for details

JIM TRIBO
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
CARL E. PUSELLER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/17/12

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
SALINE RIVER - SOUTH (S)
CLEVELAND & DALLAS COUNTIES

ROUTE 167 SEC. 8 & 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 1/30/12 FILENAME: b070291_ql.dgn
CHECKED BY: JCaT DATE: 3/20/12 SCALE:
DESIGNED BY: — DATE:

BRIDGE NO. A7244,B7244,07245,07246 DRAWING NO. 43770

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM		QUANTITY	UNIT
SP & 201	CLEARING		296	STATION
SP & 201	GRUBBING		296	STATION
202	REMOVAL AND DISPOSAL OF WELL		3	EACH
202	REMOVAL AND DISPOSAL OF BARRICADES		2	EACH
202	REMOVAL AND DISPOSAL OF PRECAST CONCRETE BARRIER		1673	LIN. FT.
202	REMOVAL AND DISPOSAL OF SIGNS		16	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DITCH PAVING		1667	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		32	EACH
202	REMOVAL AND DISPOSAL OF HEADWALLS		2	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		1902	LIN. FT.
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLE AND FOUNDATION		2	EACH
SP & 207	STONE BACKFILL		95428	TON
210	UNCLASSIFIED EXCAVATION		174368	CU. YD.
SP & 210	COMPACTED EMBANKMENT		499074	CU. YD.
SP & 210	SOIL STABILIZATION		1500	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		116890	TON
401	TACK COAT		24005	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		27261	TON
SP, SS, & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")		1136	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		20148	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")		927	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		54616	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		25	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		3031	TON
412	COLD MILLING ASPHALT PAVEMENT		978	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		150	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY		100	TON
504	APPROACH GUTTERS (TYPE B)		102.00	CU. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SS & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
603	18" TEMPORARY CULVERT		856	LIN. FT.
SS & 604	SIGNS		1207	SQ. FT.
SS & 604	BARRICADES		976	LIN. FT.
SS & 604	TRAFFIC DRUMS		716	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		2528	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER		3091	LIN. FT.
SS & 604	CONSTRUCTION PAVEMENT MARKINGS		141548	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		2908	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		5026	LIN. FT.
SS & 604	VERTICAL PANELS		135	EACH
605	CONCRETE DITCH PAVING (TYPE B)		1342	SQ. YD.
SS & 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		1652	LIN. FT.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		320	LIN. FT.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		210	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		22	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		86	LIN. FT.
SS & 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		156	LIN. FT.
SS & 606	22" X 14" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS IV)		100	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN		898	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN		442	LIN. FT.
SS & 606	28" X 20" SIDE DRAIN		28	LIN. FT.
606	22" X 14" SAFETY END SECTIONS FOR CROSS DRAIN ARCH PIPE CULVERTS (CLASS 2)		2	EACH
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		20	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		10	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	SELECTED PIPE BEDDING		300	CU. YD.
609	DROP INLETS (TYPE RM)		24	EACH
609	DROP INLETS (TYPE TM)		8	EACH
611	UNDERDRAIN OUTLET PROTECTORS		45	EACH
611	4" PIPE UNDERDRAINS		7740	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		13.6	CU. YD.
SS & 617	GUARDRAIL (TYPE A)		8590	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)		7	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL		12	EACH
619	WIRE FENCE (TYPE C)		69	LIN. FT.
619	WIRE FENCE (TYPE D)		250	LIN. FT.
* 619	16' STEEL GATES	(ALTERNATE NO. 1)	1	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	1	EACH
620	LIME		108	TON
620	SEEDING		53.99	ACRE
620	MULCH COVER		193.35	ACRE
SS & 620	WATER		8365.3	M.GAL.
621	TEMPORARY SEEDING		139.36	ACRE
621	SILT FENCE		4423	LIN. FT.
621	SAND BAG DITCH CHECKS		3300	BAG
621	DIVERSION DITCH		1000	LIN. FT.
621	DROP INLET SILT FENCE		651	LIN. FT.
621	SEDIMENT BASIN		17388	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		17388	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		18341	CU. YD.
621	PIPE FOR SLOPE DRAINS		80	LIN. FT.
621	ROCK DITCH CHECKS		1845	CU. YD.
623	SECOND SEEDING APPLICATION		53.99	ACRE
624	SOLID SODDING		1223	SQ. YD.
SP & 625	GEOTEXTILE FABRIC (TYPE 10)		46000	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)		11845	SQ. YD.
632	CONCRETE ISLAND		11	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		17	EACH
637	MAILBOX SUPPORTS (SINGLE)		13	EACH
637	MAILBOX SUPPORTS (DOUBLE)		2	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		83059	LIN. FT.

*DENOTES ALTERNATE BID ITEMS

SUMMARY OF QUANTITIES

STATE OF ARKANSAS — MICHAEL D. PUGSLEY — REGISTERED PROFESSIONAL ENGINEER — 14766

5/24/12

(2) SUMMARY OF QUANTITIES

DATE REVISED	DATE PLANS	DATE REVISED	DATE PLANS	FEDERAL DEPT./AGL.
				6
				JOB NO.
				ARK.
				STATE
				070291
				FED.AID PROJ.NO.
				90
				SHEET NO.
				356
				TOTAL SHEETS

SUMMARY OF QUANTITIES (BOX 2 OF2)

ITEM NUMBER	ITEM		QUANTITY	UNIT
SS & 718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")		44	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		81733	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")		170	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")		12	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		63022	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING (WORDS)		1	EACH
SS & 719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)		1	EACH
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4")	(ALTERNATE NO. 1)	682	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4")	(ALTERNATE NO. 2)	682	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	3317	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	3317	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		1327	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		446	CU. YD.
802	CLASS S CONCRETE-ROADWAY		882.81	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)		123510	POUND
SP & 816	FILTER BLANKET		31394	SQ. YD.
SP & 816	DUMPED RIPRAP		12846	CU. YD.
SP	CULVERT CLEAN OUT		1	EACH
SP	TEMPORARY IMPACT ATTENUATION BARRIER		2	EACH
SP	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		2	EACH
	STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 4)		1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		162	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		84	CU. YD.
802	CLASS S CONCRETE-ROADWAY		195.14	CU. YD.
802	CLASS S CONCRETE-BRIDGE		685.50	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE		1851.00	CU. YD.
802	PRESTRESSED CONCRETE GIRDERS (TYPE III)		6549.0	LIN. FT.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT		137.2	GAL.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)		28885	POUND
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)		73260	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)		398580	POUND
805	CONCRETE PILING (16" SQUARE)		2205	LIN. FT.
805	CONCRETE PILING (24" SQUARE)		4360	LIN. FT.
805	TEST PILE (16" SQUARE)		140	LIN. FT.
805	TEST PILE (24" SQUARE)		240	LIN. FT.
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		30520	POUND
808	ELASTOMERIC BEARINGS		131119.0	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)		4	EACH
816	FILTER BLANKET		5072	SQ. YD.
816	DUMPED RIPRAP		2678	CU. YD.
SP	SILICONE JOINT SEALANT		476	LIN. FT.
SP	SHORING (SITE NO. 3)		1.00	LUMP SUM
SP	SHORING (SITE NO. 4)		1.00	LUMP SUM

*DENOTES ALTERNATE BID ITEMS

REVISION BOX

DATE	REVISION	SHEET NUMBER

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.AID DIST.NO.	STATE	SHEET NO.	TOTAL SHEETS
6	ARK.	91	355

JOB NO. 070291 FED.AID PROJ.NO.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER MICHAEL D. FUGETT 14706

5/24/12

SURVEY CONTROL COORDINATES

Project Name: s070291
Date: 7/29/2010
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL.
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1734897.80	1187197.53	264.51	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
2	1735052.05	1187806.28	245.18	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
3	1736212.62	1187877.27	256.78	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
4	1737503.78	1187926.78	275.46	CTL	•CPS
5	1738603.01	1188012.92	253.65	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
6	1739741.53	1188034.81	214.23	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
7	1741140.00	1188076.31	213.61	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
8	1743281.41	1188146.91	214.18	CTL	•2 1•" ALUM CAP RBR
9	1744002.12	1188160.83	216.78	CTL	•CPS,HPT 701 OLD JOB RX0028 CPS
10	1745106.32	1188216.62	222.06	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
11	1746394.86	1188257.11	249.71	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
12	1747288.29	1188286.61	249.67	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
13	1748208.10	1188318.07	270.64	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
14	1749427.61	1188360.87	252.16	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
15	1750343.26	1188387.32	229.74	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
16	1751630.62	1188125.06	236.21	CTL	•CPS IN E-EB
17	1752591.94	1187923.66	204.88	CTL	•CPS IN E-EB,HPT 713
18	1753786.68	1187681.62	204.29	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
19	1754703.06	1187491.66	204.29	CTL	•CPS
20	1755285.59	1187366.55	208.10	CTL	•CPS,HPT 714 OLD JOB RX0028
21	1755821.28	1187257.51	210.58	CTL	•CPS,T15 FROM OLD JOB RX0028
22	1758246.65	1186721.16	220.97	CTL	•CPS IN W-EB T-22
23	1760242.56	1186364.38	204.97	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR T-23
24	1761236.34	1186157.58	207.09	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR RBR T-24
25	1762564.38	1185885.27	204.19	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR RBR T-25
26	1763654.72	1185655.15	206.90	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR RBR T-26
27	1764815.09	1185395.97	206.11	CTL	•2"1• ALUM CAP RBR
28	1766649.21	1184959.73	208.06	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR/RBR T-28
29	1765387.59	1185275.73	208.60	CTL	•CPS,OLD HPT-729 RX0028
30	1768184.51	1184699.83	204.97	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR/RBR T-30
31	1769123.39	1184466.05	207.68	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR RBR T-31
32	1770320.65	1184261.26	203.63	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR RBR T-32
33	1771427.32	1184067.23	207.92	CTL	•CPS
34	1772252.05	1184539.38	206.90	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR T-34
35	1773627.69	1185768.45	206.72	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR RBR T-35
36	1774860.78	1186824.86	207.04	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
37	1775723.05	1187171.78	212.24	CTL	•CPS
38	1777040.59	1187046.87	235.88	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
39	1778182.47	1187032.48	231.18	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
40	1779220.34	1187056.28	228.68	CTL	•CPS
41	1780296.80	1187056.09	245.10	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
42	1781392.36	1187137.66	255.13	CTL	•CPS
43	1782498.48	1187119.03	261.79	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
44	1783782.65	1187062.11	239.66	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
45	1785280.17	1187170.10	246.46	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
46	1786563.75	1187212.52	237.03	CTL	•CPS
47	1787835.29	1187268.53	259.40	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
48	1789169.54	1187312.58	287.77	CTL	•CPS
49	1789604.50	1187288.17	293.44	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
50	1790982.87	1187380.90	254.01	CTL	•CPS
51	1791979.23	1187424.48	246.40	CTL	•2" ALUMINUM CAP W/ 5/8" REBARAST HW
52	1793212.31	1187463.50	229.47	CTL	•CPS
53	1794419.73	1187507.35	229.56	CTL	•CPS
54	1795859.09	1187567.15	243.94	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
55	1797202.08	1187609.69	227.02	CTL	•CPS
56	1797933.38	1187636.51	240.78	CTL	•CPS
57	1799125.18	1187681.67	250.96	CTL	•CPS
58	1799883.86	1187713.98	256.45	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
59	1800979.43	1187752.04	235.00	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
60	1802208.33	1187793.69	222.79	CTL	•CPS
61	1804229.40	1187864.94	224.35	CTL	•CPS
62	1805421.44	1187903.21	207.46	CTL	•CPS
63	1806536.68	1187940.59	205.71	CTL	•CPS
64	1807604.57	1187992.61	215.35	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
65	1809388.07	1188047.76	239.88	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
66	1810029.21	1188064.13	236.62	CTL	•CPS
67	1811226.04	1188102.06	209.43	CTL	•CPS
68	1812366.62	1188142.89	215.28	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
69	1813774.77	1188183.28	248.18	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
70	1814937.44	1188218.88	252.60	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
71	1815768.78	1188248.30	270.78	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
72	1816381.47	1188253.77	261.90	CTL	•CPS
73	1817999.94	1188213.09	226.90	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
74	1819023.53	1188323.34	207.42	CTL	•CPS,T 86 FROM OLD JOB RX0028
75	1820106.79	1188353.98	205.26	CTL	•CPS,T 87 OLD JOB RX0028
76	1821110.87	1188382.76	196.34	CTL	•CPS,T 88 OLD JOB RX0028
77	1822180.87	1188413.87	191.46	CTL	•CPS,T 89 OLD JOB RX0028
78	1823184.45	1188443.33	191.17	CTL	•CPS,T 90 OLD JOB RX0028
79	1824166.94	1188434.58	189.32	CTL	•CPS,T 91 OLD JOB RX0028
80	1825250.56	1188508.89	182.79	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
81	1826397.75	1188548.32	185.61	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
82	1827623.62	1188578.09	188.42	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
83	1830079.34	1188648.46	189.99	CTL	•CPS
84	1830697.51	1188675.58	189.24	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR,T 1 OLD JOB 070244
85	1831658.50	1188672.14	189.24	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR,T 2 OLD JOB 070244
86	1832858.44	1188763.40	180.84	CTL	•T-3 OLD JOB 070244
87	1833814.44	1188799.11	181.06	CTL	•T-4 OLD JOB 070244
88	1835693.90	1188878.63	180.45	CTL	•T-5 OLD JOB 070244
89	1836788.87	1188957.37	180.13	CTL	•T-6 OLD JOB 070244
90	1837635.47	1189118.99	180.49	CTL	•2" ALUMINUM CAP W/ 5/8" REBAR
500	1782434.02	1187089.18	266.11	GPS	•AHTD GPS 130016
501	1783854.82	1187034.67	249.98	GPS	•AHTD GPS 130016A
502	1801244.02	1187787.24	231.67	GPS	•AHTD GPS 130021
503	1803126.67	1187875.18	229.36	GPS	•AHTD GPS 130021A
504	1814093.78	1188222.45	246.48	GPS	•AHTD GPS 130022
505	1742719.13	1188052.77	206.89	GPS	•AHTD GPS 200003
506	1741536.31	1188124.18	212.09	GPS	•AHTD GPS 200003A
507	1824258.55	1188406.37	186.02	GPS	•AHTD GPS 200006
508	1822851.51	1188469.74	189.14	GPS	•AHTD GPS 200006A
509	1757218.49	1187032.17	230.00	GPS	•AHTD GPS 200010
510	1759114.64	1186512.55	202.69	GPS	•AHTD GPS 200010A
511	1771700.03	1183817.48	208.89	GPS	•AHTD GPS 200011
512	1771707.75	1182223.15	206.58	GPS	•AHTD GPS 200011A
513	1831726.67	1188642.91	186.88	GPS	•AHTD GPS 200012
514	1828995.16	1188662.58	185.08	GPS	•AHTD GPS 200012A
515	1848644.81	1189879.79	181.49	GPS	•AHTD GPS 270002
516	1847368.43	1189815.68	181.73	GPS	•AHTD GPS 270002A
522	1815824.35	1188311.33	277.08	GPS	•AHTD GPS FARINDALE
900	1733147.83	1187810.48	239.43	BM	•TBM 900 CH. SQ. SW CONC. OF SE
901	1737659.67	1187887.61	273.15	BM	•CH. SQ. N END CB OF BREAD OF LI
902	1741155.51	1188038.74	214.65	BM	•CH. SQ. ON SW CONC. OF BR
903	1743191.12	1188094.31	213.86	BM	•CH. SQ. N END ON RCP
904	1746287.68	1188302.85	205.93	BM	•CPS IN SE CONC. OF DW TBM 904
905	1749183.75	1188387.99	253.15	BM	•CPS IN NE CONC. OF DW TBM 905
906	1751646.35	1188148.78	236.49	BM	•CH. SQ.
907	1753900.89	1187657.57	207.67	BM	•TBM 907 CH. SQ
908	1759178.50	1186882.54	203.91	BM	•CH. SQ AT CONC. ISLAND S END HWY
910	1759161.99	1186603.95	203.91	BM	•2" ALUM DISK SET ON NE HW
911	1760399.83	1186347.28	203.18	BM	•3" ALUM DISK AHTD
912	1763542.73	1185695.79	202.90	BM	•TBM 912 3" ALUM DISK AHTD
913	1766516.21	1184977.88	203.93	BM	•TBM 913 CH. SQ CENTER HW
914	-99999.00	-99999.00	208.44	BM	•167-7 6.54 LOG MILE
915	1772097.85	1184456.93	207.67	BM	•CH. SQ. SE HW TBM 915
916	1774745.80	1186726.03	207.43	BM	•CHSL SQ BR END
917	1777633.11	1186996.62	218.10	BM	•SQ SW COR WEST HW
918	-99999.00	-99999.00	230.54	BM	•CH SQ EAST HW
919	1783340.34	1187095.57	236.27	BM	•CHSL SQ EAST HW
920	1786226.58	1187214.73	234.87	BM	•CHSL SQ EAST HW
921	1788697.17	1187311.97	265.20	BM	•CHSL SQ
922	1791330.78	1187403.63	248.24	BM	•CHSL SQ EAST HW
923	-99999.00	-99999.00	225.97	BM	•CHSL SQ EAST HDWL
924	1798327.36	1187660.16	232.67	BM	•CHSL SQ HDWL
925	1800995.93	1187761.13	232.19	BM	•CHSL SQ HDWL
926	1803369.11	1187845.34	225.09	BM	•CHSL SQ HDWL
927	1806612.56	1187948.99	203.86	BM	•CHSL SQ HDWL
928	1811528.33	1188134.50	205.02	BM	•CHSL SQ HDWL
929	1817043.74	1188192.89	235.21	BM	•DISK HDWL
930	1819356.68	1188341.07	203.14	BM	•CHSL SQ HDWL
931	-99999.00	-99999.00	190.11	BM	•CHSL SQ HDWL
932	1824848.68	1188501.05	181.96	BM	•CHSL SQ HDWL
933	1827632.83	1188601.13	183.99	BM	•CHSL SQ HDWL
934	1830544.49	1188678.26	187.62	BM	•CHSL SQ HDWL,OLD BM 996 JOB 070244
935	1831670.92	1188747.38	188.06	BM	•USGS DISK 9CHC 1961
936	-99999.00	-99999.00	184.72	BM	•USGS CONC MON W/BRASS CAP
951	1730094.59	1187824.68	271.77	BM	•2 1/2" BRASS CAP NGS T-81
952	1729793.70	1187232.81	289.84	BM	•2 1/2" BRASS CAP U-11
953	1756794.42	1184728.01	229.05	BM	•2" BRASS CAP SET IN CONC.NGS
955	1796775.74	1197522.17	220.58	BM	•USGS DISK 12CHC 1962
956	1798454.75	1181952.47	272.34	BM	•USGS 13CHC 1962
995	1833029.92	1188767.26	182.20	BM	•CH SQ SE CORNER BR HW

HWY. 167 CL

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	872+00.00	1808469.7699	1187955.6909
8001	PI	904+38.63	1811706.8602	1188055.5584
8002	PI	944+36.92	1815703.2936	1188177.3922
8003	PI	955+58.43	1816824.6167	1188197.9805
8004	PC	1010+27.71	1822291.5846	1188356.7957
8006	PT	1019+35.40	1823196.9023	1188419.0412
8007	PC	1021+02.81	1823363.3293	1188437.1281
8009	PT	1030+00.29	1824258.4400	1188499.0725
8010	PI	1051+29.19	1826386.3851	1188562.7871
8011	PC	1058+05.42	1827062.3193	1188582.9399
8013	PT	1066+99.64	1827956.2747	1188574.7046
8014	PC	1068+73.57	1828130.0029	1188566.3193
8016	PT	1077+71.82	1829027.9841	1188558.2047
8017	PI	1088+24.12	1830079.8119	1188589.9346
8018	PC	1120+00.55	1833253.7064	1188716.7521
8020	PT	1126+90.67	1833942.0264	1188765.0460
8021	PC	1130+79.61	1834329.0224	1188803.9374
8023	PT	1137+67.22	1835014.8368	1188852.1309
8024	PC	1148+94.74	1836141.4411	1188897.3929
8026	PT	1157+87.73	1837027.3221	1189002.4890
8027	PI	1175+61.03	1838766.6614	1189347.8537
8028	PI	1181+60.87	1839355.4825	1189462.2853
8029	PI	1184+11.56	1839601.3852	1189511.0728
8030	PC	1191+61.71	1840337.0895	1189657.5811
8032	PT	1194+71.10	1840644.0811	1189693.2191
8033	POE	1198+52.36	1841025.1116	1189706.3972

HWY. 48

POINT NO.	TYPE	STATION	NORTHING	EASTING
8034	POB	100+00.00	1831878.5265	1187694.1537
8035	PC	102+26.93	1831900.0577	1187920.0626
8037	PT	107+42.43	1831914.2438	1188434.9756
8038	POE	109+70.51	1831905.1381	1188662.8681

HWY. 167 LT LANE SHIFT

POINT NO.	TYPE	STATION	NORTHING	EASTING
8039	POB	1127+00.00	1833954.3109	1188736.1294
8040	PC	1134+86.88	1834737.2425	1188814.8228
8042	PT	1141+74.66	1835423.2334	1188863.0340
8043	POE	1142+48.88	1835497.3936	1188866.0135

HWY. 167 RT LANE SHIFT

POINT NO.	TYPE	STATION	NORTHING	EASTING
8044	POB	1127+00.00	1833948.3119	1188795.8238
8045	PC	1127+63.98	1834011.9726	1188802.2214
8047	PT	1136+16.21	1834862.3195	1188855.8417
8048	PC	1138+35.34	1835081.3706	1188861.4918
8050	PT	1139+99.96	1835245.9031	1188866.9185
8051	POE	1142+51.26	1835497.0043	1188877.0067

STAGE 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8052	POB	100+00.00	1809468.0020	1188028.5129
8053	PI	122+38.64	1811705.5802	1188097.5389
8054	PI	162+37.44	1815702.5226	1188219.3851
8055	PI	173+58.51	1816823.3971	1188239.9628
8056	PC	228+26.12	1822288.7014	1188398.7297
8058	PT	237+33.81	1823194.0191	1188460.9751
8059	PC	239+01.20	1823360.4275	1188479.0600
8061	PT	247+98.68	1824255.5382	1188541.0044
8062	PI	269+29.22	1826385.1308	1188604.7684
8063	PC	276+07.10	1827062.7065	1188624.9701
8065	PT	285+01.32	1827956.6619	1188616.7348
8066	PC	286+75.24	1828130.3827	1188608.3498
8068	PT	295+73.49	1829028.3639	1188600.2353
8069	PI	306+24.15	1830078.5455	1188631.9155
8070	PC	329+98.87	1832451.3676	1188726.7265
8072	PT	332+82.13	1832731.9342	1188696.1994
8073	PC	332+84.15	1832733.8899	1188695.6861
8075	PT	335+67.41	1833014.4559	1188665.1590
8076	PC	338+09.81	1833256.6658	1188674.8368
8078	PT	345+00.10	1833945.1597	1188723.1482
8079	PC	362+81.60	1835717.7226	1188901.3101
8081	PT	363+67.57	1835803.4711	1188907.3365
8082	PC	367+41.65	1836177.2533	1188922.3534
8084	PT	376+34.64	1837063.1271	1189027.4481
8085	PC	386+61.60	1838070.4225	1189227.4562
8087	PT	388+30.98	1838236.0483	1189262.8951
8088	PC	388+92.61	1838296.1114	1189276.6783
8090	PT	390+05.52	1838406.5238	1189300.3033
8091	PC	394+03.82	1838797.1898	1189377.8742
8093	PT	394+92.54	1838885.0651	1189389.7266
8094	PC	396+21.97	1839014.1537	1189399.0531
8096	PT	399+76.44	1839365.2245	1189446.3770
8097	POE	399+98.29	1839386.6513	1189450.6281

•Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
•(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999094651 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME S070291GI.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL
IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASIS OF BEARINGS:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
CONVERGENCE ANGLE: 0-13-48.3 RIGHT AT LT: 34.00.51.4 LG: 92.24.39.8
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

SURVEY CONTROL DETAILS

DATE REVISED	DATE PLMED	DATE REVISED	DATE PLMED	FED.AID PROJ. NO.	STATE	FED.AID PROJECT	SHEET NO.	TOTAL SHEETS
				6	ARK.	070291	92	355

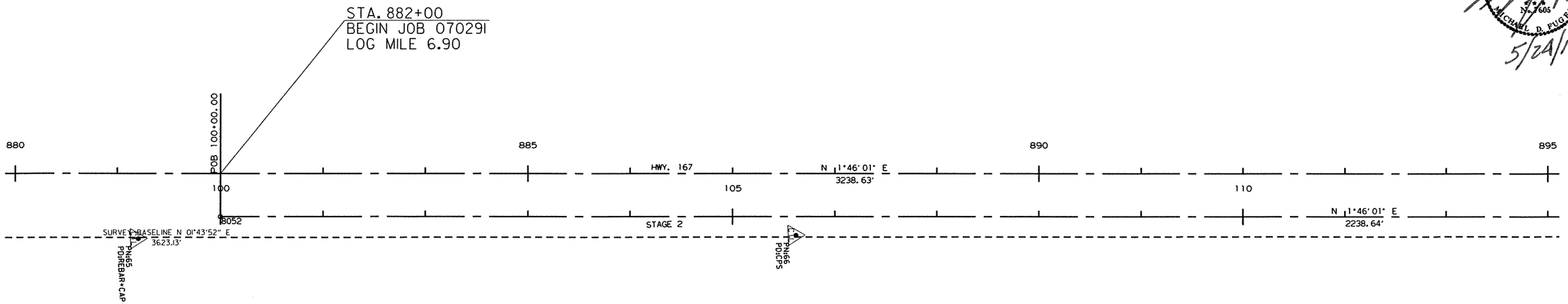
2 SURVEY CONTROL DETAILS

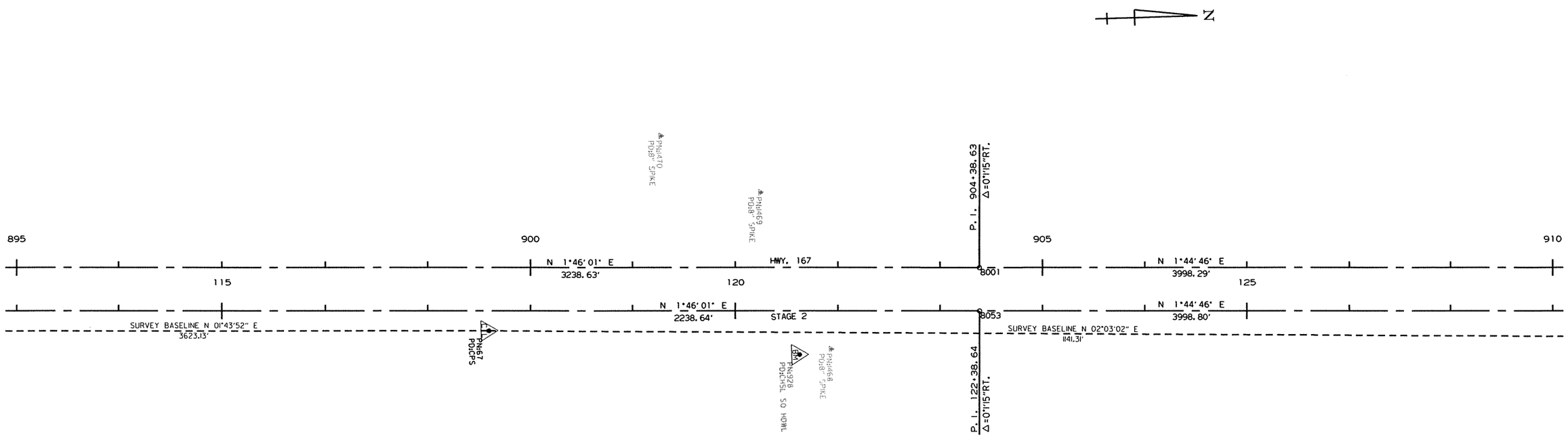
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JAMES R. HUGHETT
No. 7966
5/24/12

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	93	355

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12





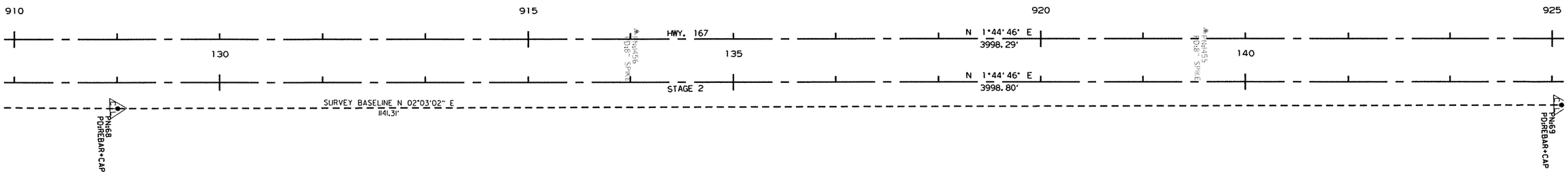
SURVEY CONTROL DETAILS

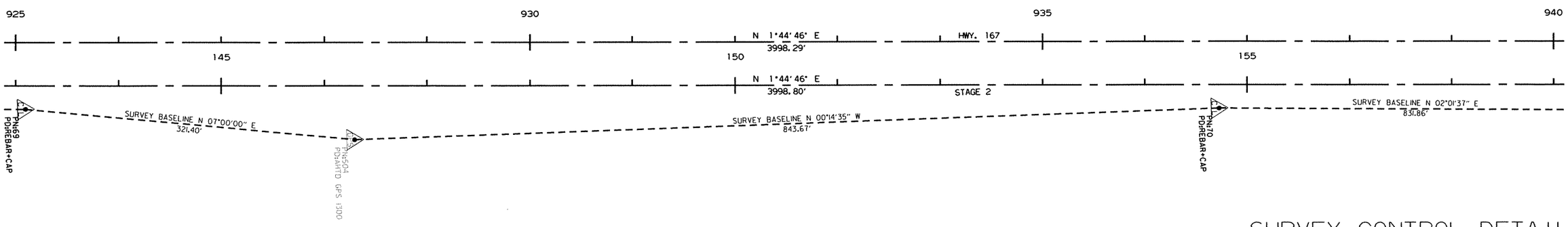
R070291.DGN 5/21/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	94	355

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7606
MICHAEL D. FUGETT
5/24/12





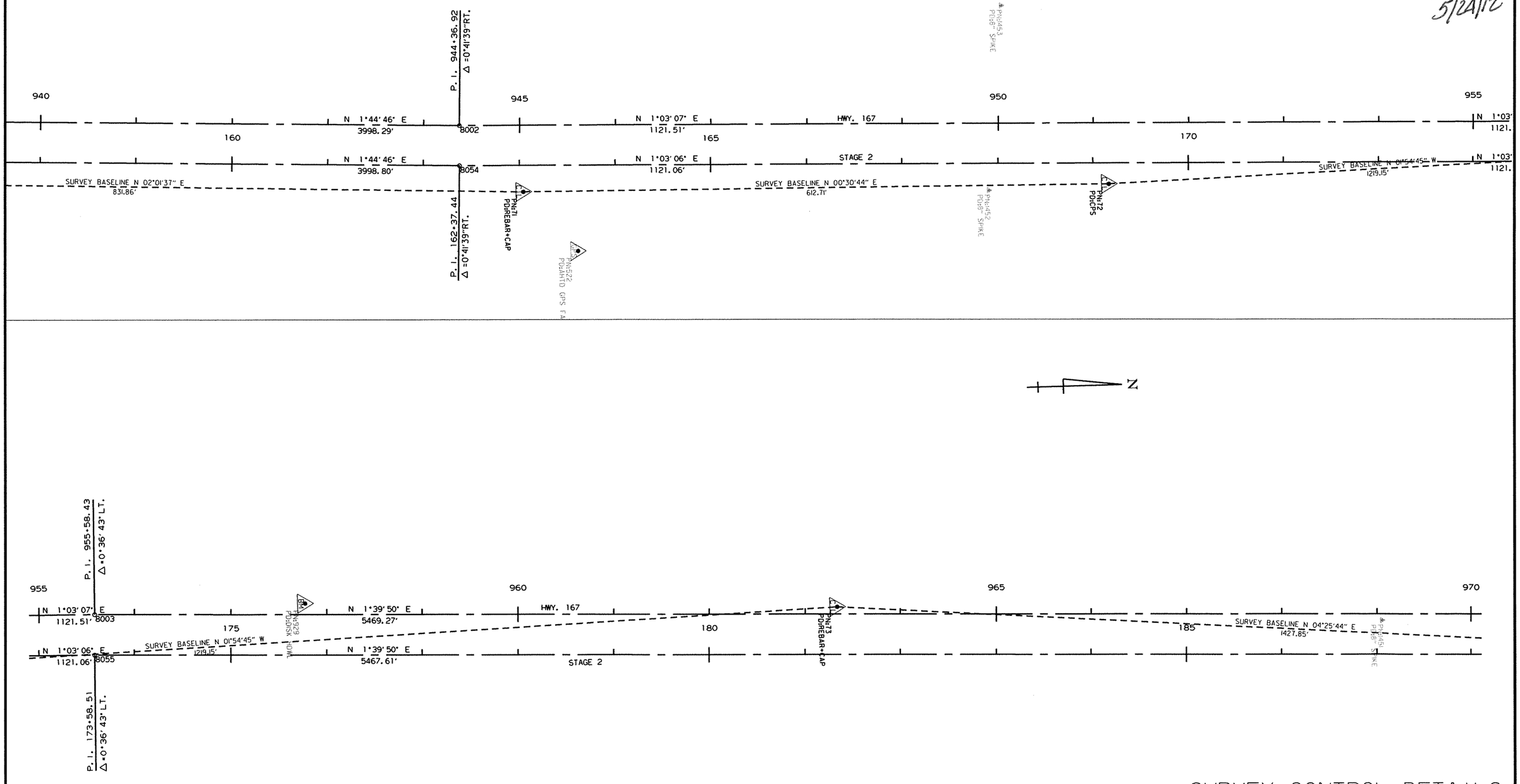
SURVEY CONTROL DETAILS

R070291.DGN 5/21/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	95	355

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
RICHARD D. FUGETT
5/24/12



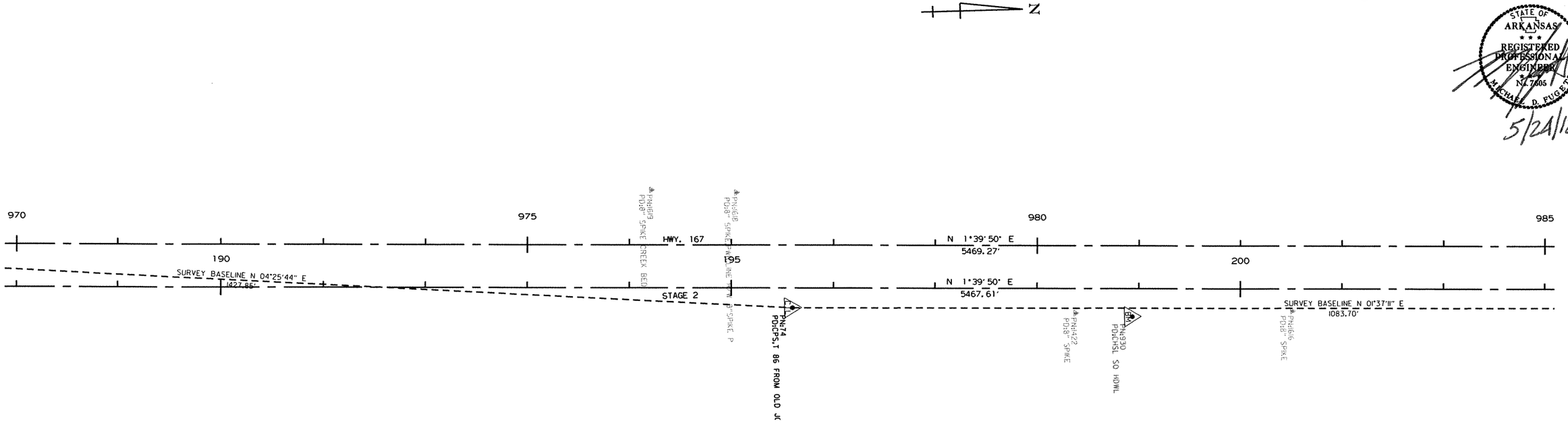
SURVEY CONTROL DETAILS

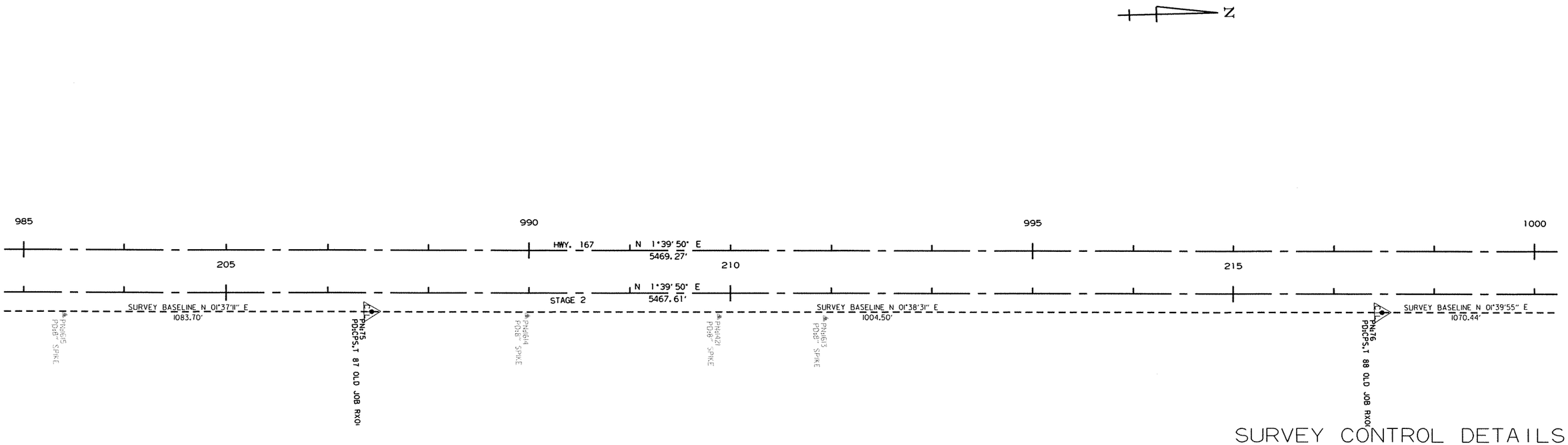
R070291.DGN 5/21/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	96	355

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGET, P.E.
5/24/12





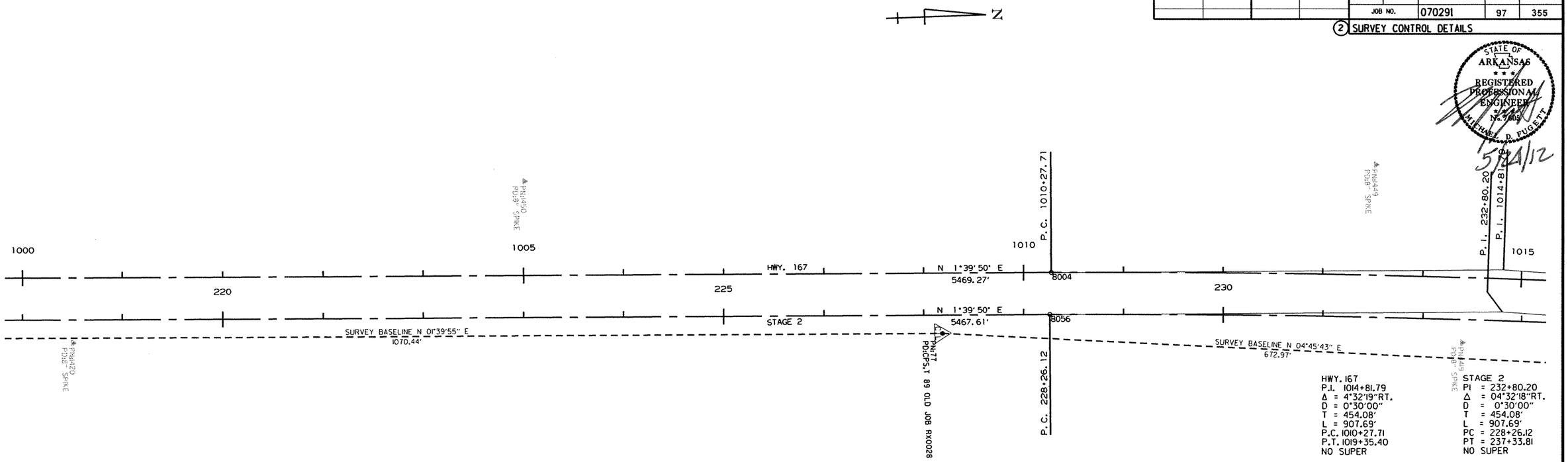
SURVEY CONTROL DETAILS

R070291.DGN 5/21/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	97	355

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MATTHEW D. FUGATT
5/24/12



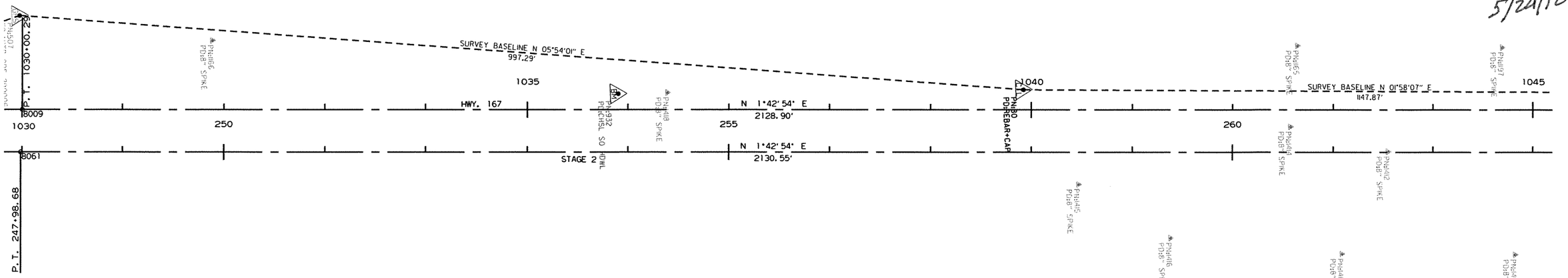
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	98	355

(2) SURVEY CONTROL DETAILS

STAGE 2
PI = 243+50.17
Δ = 04°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
PC = 239+01.20
PT = 247+98.68
NO SUPER

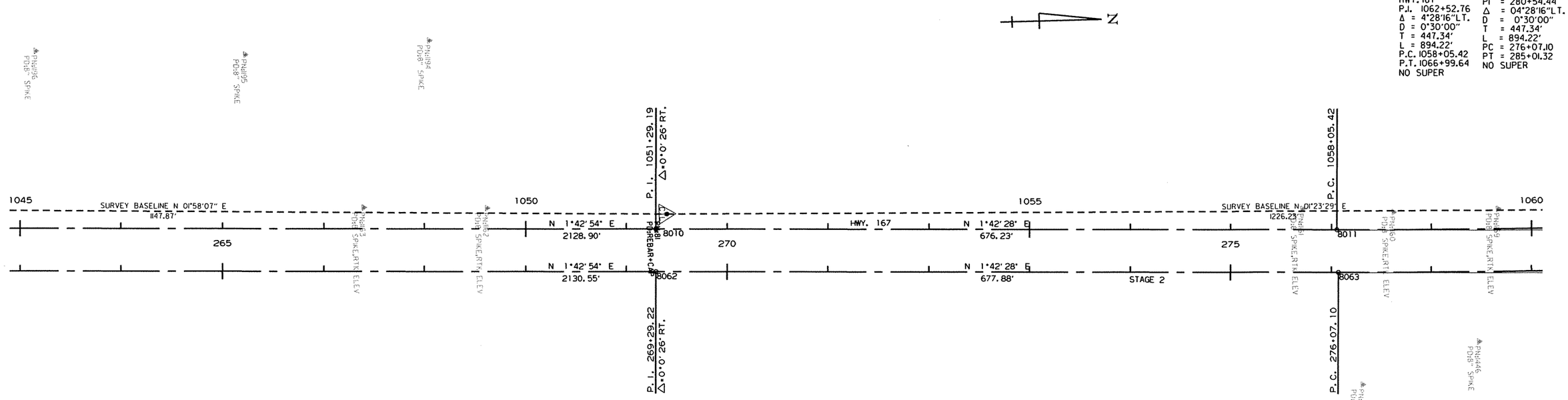
HWY. 167
P.I. 1025+51.78
Δ = 4°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29
NO SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64
NO SUPER

STAGE 2
PI = 280+54.44
Δ = 04°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
PC = 276+07.10
PT = 285+01.32
NO SUPER



SURVEY CONTROL DETAILS

R070291.DGN 5/21/2012

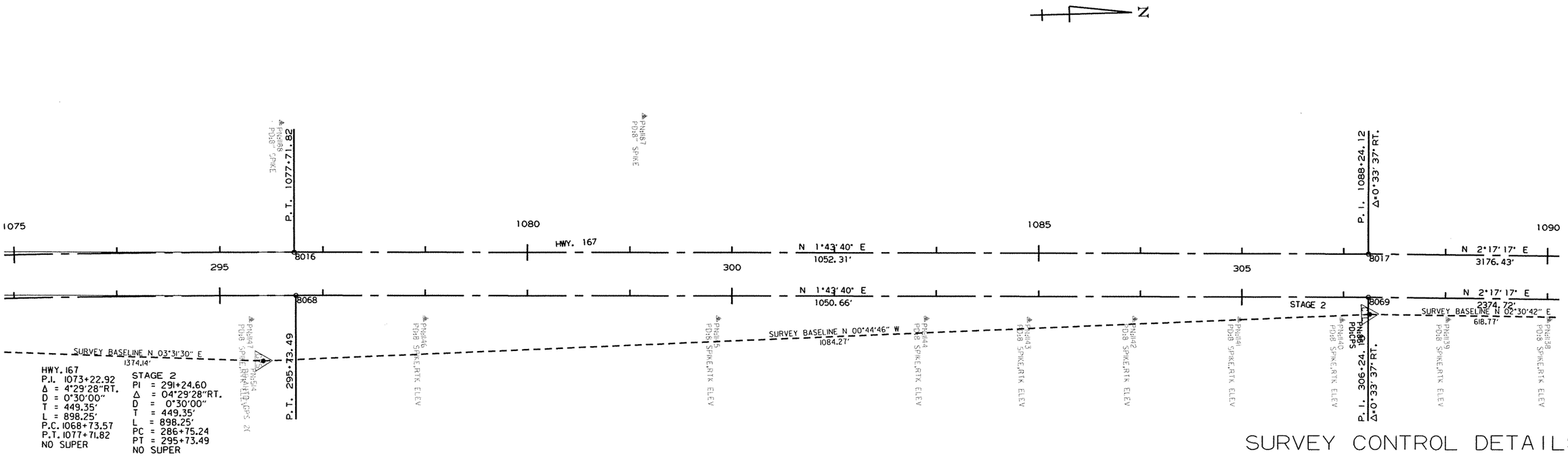
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	99	355

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7695
MICHAEL D. FUGETT
5/24/12

STAGE 2
PI = 280+54.44
Δ = 04°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
PC = 276+07.10
PT = 285+01.32
NO SUPER

HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64
NO SUPER



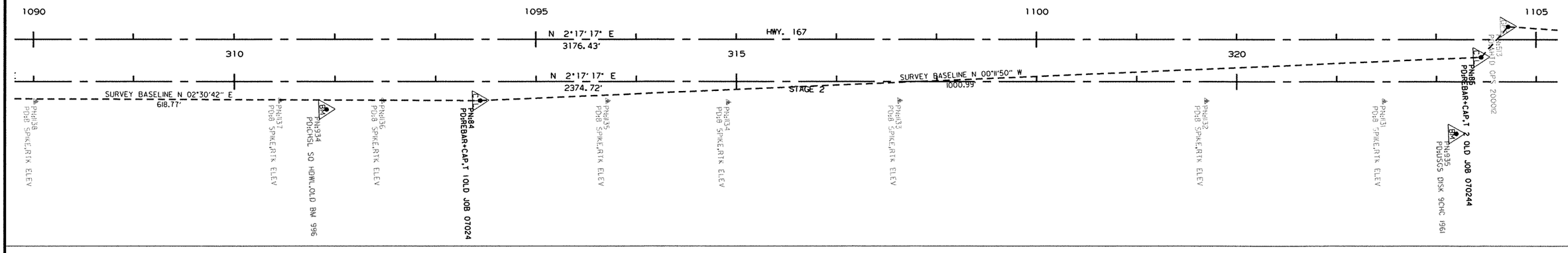
SURVEY CONTROL DETAILS

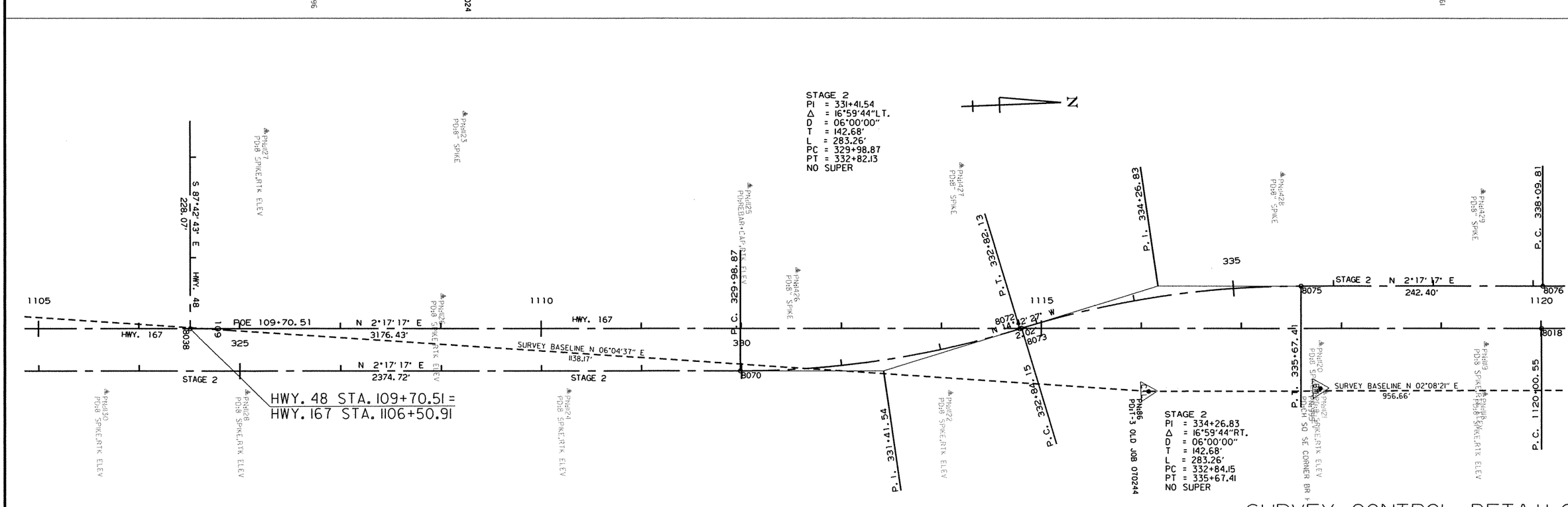
R070291.DGN 5/21/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	100	355

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12





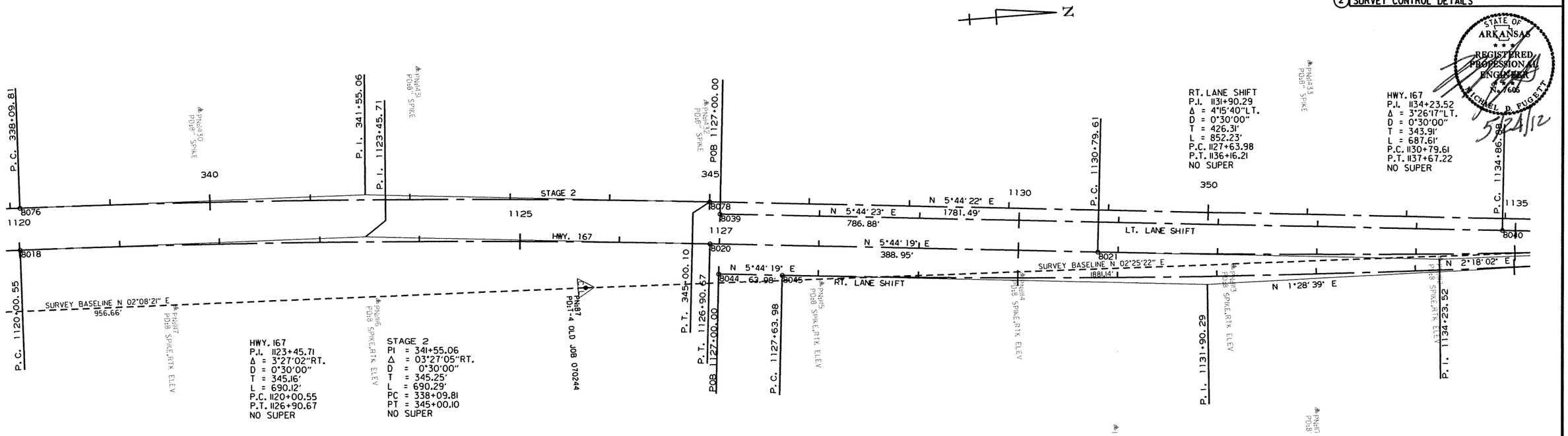
SURVEY CONTROL DETAILS

R070291.DGN 5/21/2012

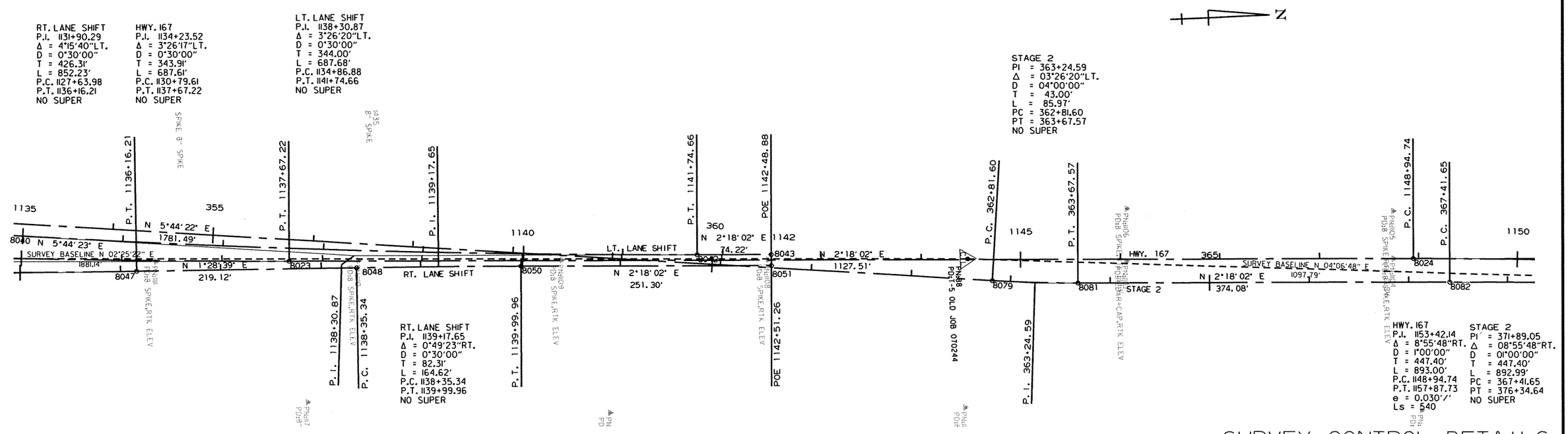
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	101	355

(2) SURVEY CONTROL DETAILS

EQUATIONS
C.L. CONST. STA. 1127+00.00 BK = C.L. LT. STA. 1127+00.00 AHD
C.L. CONST. STA. 1127+00.00 BK = C.L. RT. STA. 1127+00.00 AHD



EQUATIONS
C.L. LT. STA. 1142+48.25 BK = C.L. CONST. STA. 1142+50.00 AHD
C.L. RT. STA. 1142+51.99 BK = C.L. CONST. STA. 1142+50.00 AHD



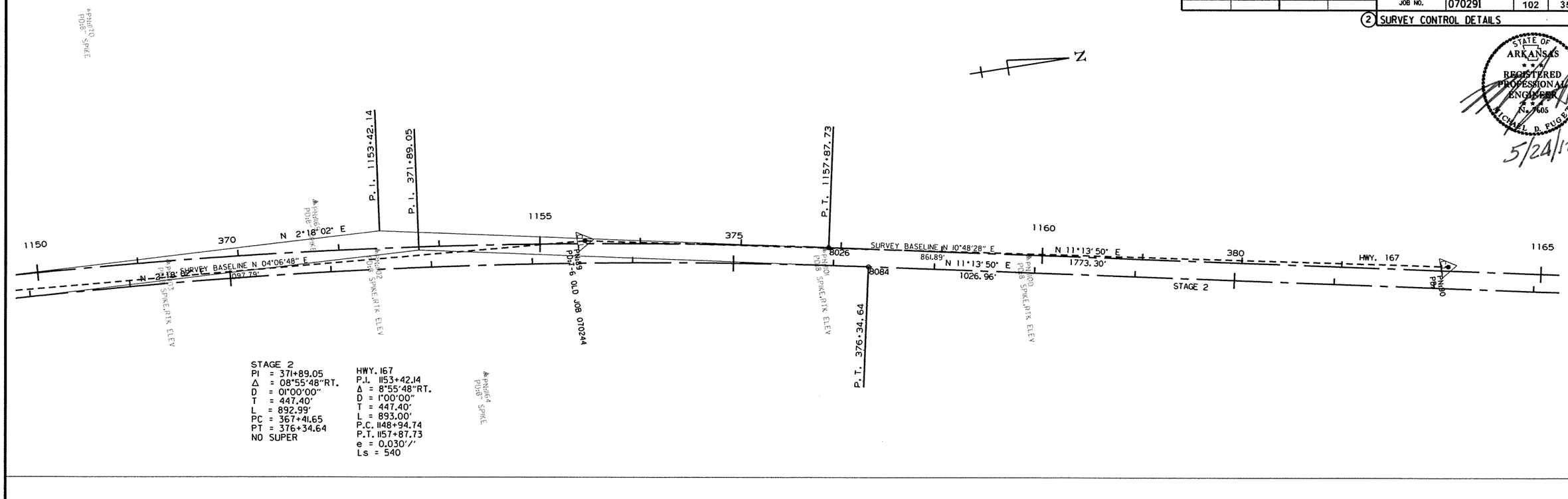
SURVEY CONTROL DETAILS

R070291.DGN 5/21/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	102	355

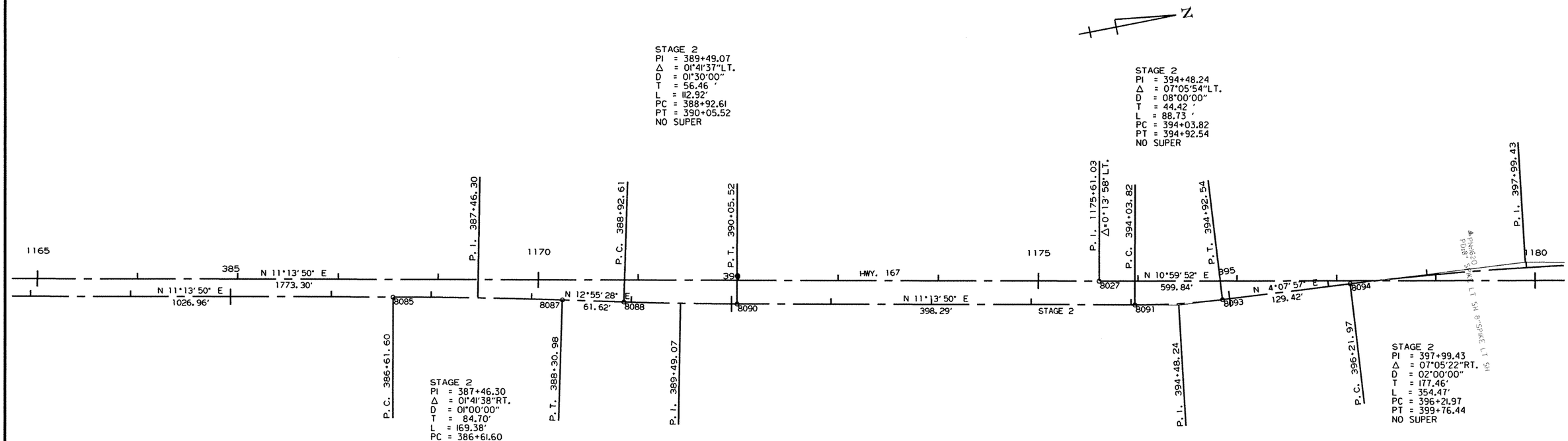
(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGATT
5/24/12



STAGE 2
PI = 371+89.05
Δ = 08°55'48"RT.
D = 01°00'00"
T = 447.40'
L = 892.99'
PC = 367+41.65
PT = 376+34.64
NO SUPER

HWY. 167
P.I. 1153+42.14
Δ = 8°55'48"RT.
D = 1°00'00"
T = 447.40'
L = 893.00'
P.C. 1148+94.74
P.T. 1157+87.73
e = 0.030'/'
Ls = 540



STAGE 2
PI = 389+49.07
Δ = 01°41'37"LT.
D = 01°30'00"
T = 56.46 '
L = 112.92'
PC = 388+92.61
PT = 390+05.52
NO SUPER

STAGE 2
PI = 394+48.24
Δ = 07°05'54"LT.
D = 08°00'00"
T = 44.42 '
L = 88.73 '
PC = 394+03.82
PT = 394+92.54
NO SUPER

STAGE 2
PI = 387+46.30
Δ = 01°41'38"RT.
D = 01°00'00"
T = 84.70'
L = 169.38'
PC = 386+61.60
PT = 388+30.98
NO SUPER

STAGE 2
PI = 397+99.43
Δ = 07°05'22"RT.
D = 02°00'00"
T = 177.46'
L = 354.47'
PC = 396+21.97
PT = 399+76.44
NO SUPER

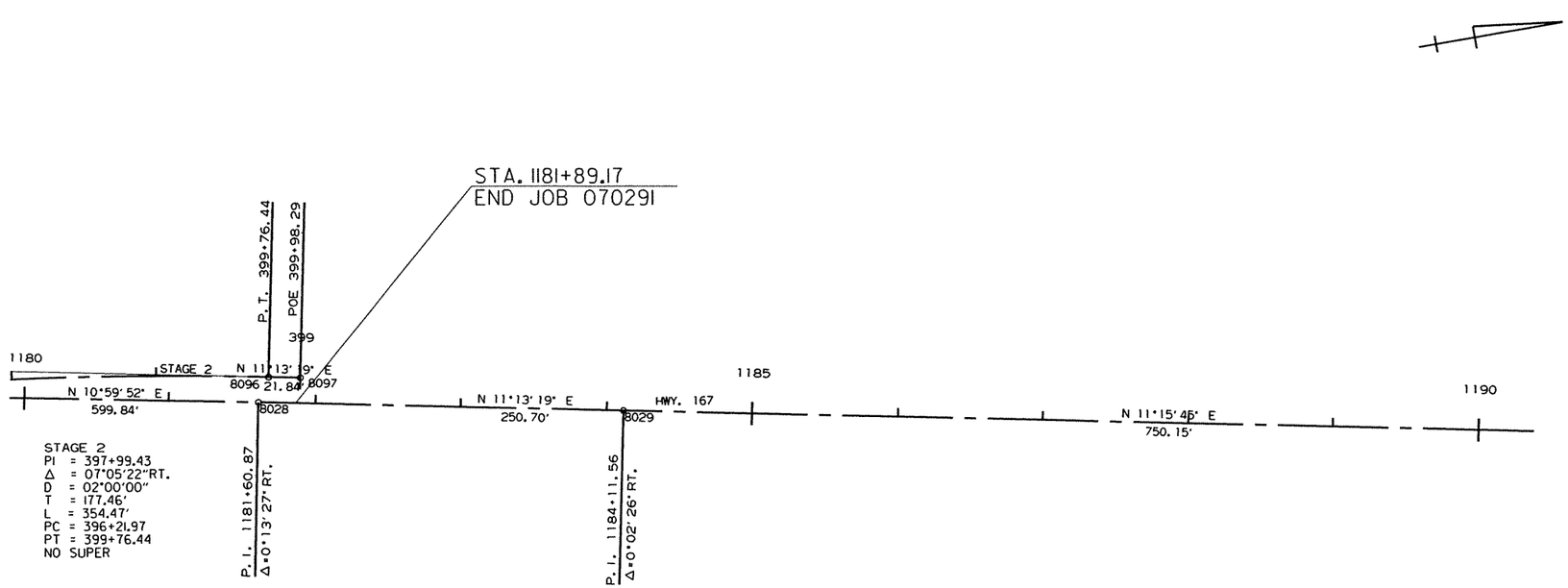
SURVEY CONTROL DETAILS

R070291.DGN 5/21/2012

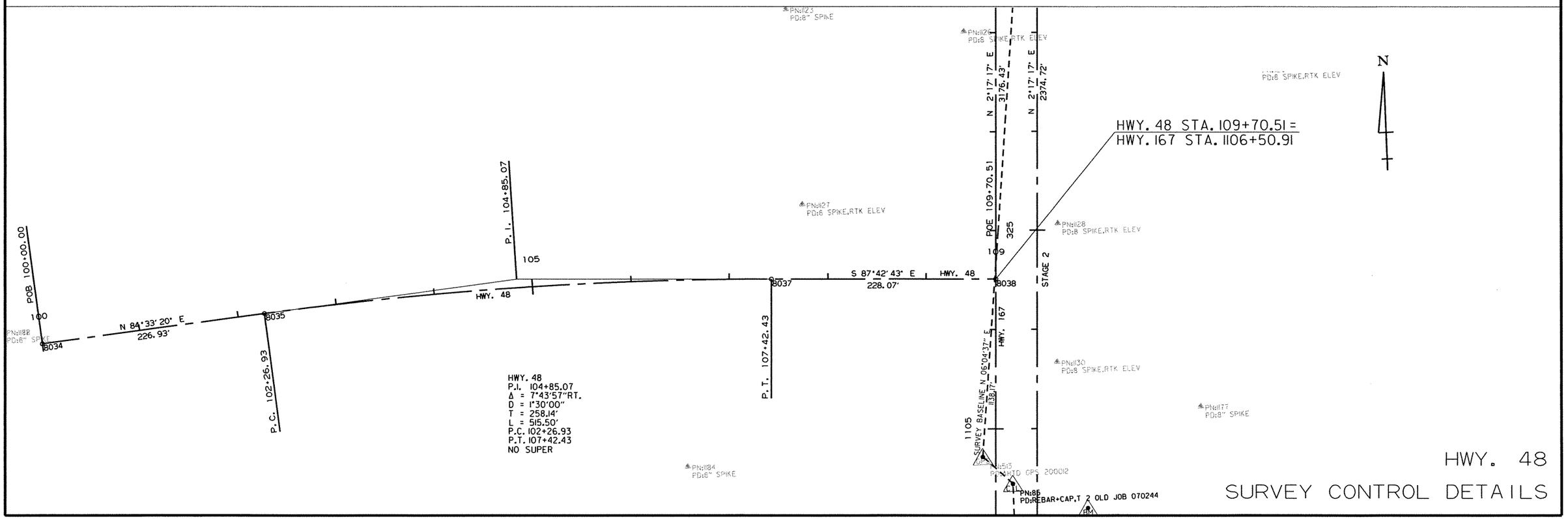
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	103	355

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12



HWY. 167



HWY. 48

SURVEY CONTROL DETAILS

R070291.DGN 5/21/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	104	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

STA. 888+00 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 2'-5"
W./ 18" x 82' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 82 LIN.FT.
18" F.E.S. = 1EA.

STA. 891+00 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 80' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 80 LIN.FT.
18" F.E.S. = 1EA.

N

EXISTING ROW
+00 100.00
+05 115.00
+60 105.00
CONST. LIMITS
PROPOSED ROW
+40.00 110.00
24.8'
6'
60'
880
885
HWY. 167
N 1°46'01" E
890
895
24'
6'
24'
+46
60'
148'
+46
24'
36'
200' TAPER
210' TURN LANE
PN465 PDREBAR+CAP
100' TRANSITION
+00
+00
CONST. LIMITS
PN466 PDREBAR+CAP
CONCRETE DRAIN
EXISTING ROW

BEGIN JOB 070291
STA. 882+00.00
LOG MILE 6.90
END JOB 070290

HWY. 167

255
250
245
240
235
230
225
220
215
210
205

STA. 882+00.00
BEGIN RT. LANE OVERLAY
BEGIN LT. LANE PROFILE GRADE
ELEV. 242.34

884+00.00
249.48

2.57%

CONSTRUCTED UNDER JOB 070290

K-155.86
VC-900'
e=-6.50'

+00.00 LT.DT.GR.
LT. ELEV. 236.64

-3.41% LT.DT.GR.

+00
TOP D.I. 232.26

-3.20%

+00.00 LT.DT.GR.
LT. ELEV. 229.82

F.L. D.I. 229.84
F.L. OUTLET 229.82

-3.05% LT.DT.GR.

K-251.09
VC-200'
e+0.20'

890+60.00
228.33

+00
TOP D.I. 223.28

-2.41%

+00.00 LT.DT.GR.
LT. ELEV. 220.68

F.L. D.I. 220.78
F.L. OUTLET 220.68

217.73

880+00 881+00 882+00 883+00 884+00 885+00 886+00 887+00 888+00 889+00 890+00 891+00 892+00 893+00 894+00 895+00

R070291.DGN 5/17/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070291		105	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL P. FUGETT
5/24/12

STA. 895+50 - CONSTRUCT
TYPE 'RM' DROP INLET 7' LT. C.L.
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 74' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 74 LIN.FT.
18" F.E.S. = 1EA.

STA. 896+00 - INSTALL
18" x 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

N

+35.00 110.00

+55.00 145.00

+00

EXISTING PAVEMENT TRANSITION

PROPOSED ROW

+00.00 100.00

904+38.63 Δ=01°16"RT

P. I.

EXISTING ROW

MAIN CHANNEL LIST

16'

CONST. LIMITS

24' 8' 6' 48' 6' 36' 18'

+00 +44 210' TURN LANE +54 36' 48' +56

200' TAPER 24' +54 60'

895 900 905 910

HWY. 167

N 1°46'01" E

N 1°44'46" E

40'

24'

CONST. LIMITS

PROFILE GRADE

RIP-RAP

SO. HOWL

CONCRETE DRAIN

EXISTING ROW

STA. 902+62 IN PLACE
DBL. 10' x 8' x 80' R.C. BOX CULV'T.
RETAIN AND EXTEND 90' LT.
TO A COMPLETED LENGTH OF 170'
CONSTRUCT TYPE 'TM' DROP INLET IN MEDIAN
3'-0" x 2'-6½" x H = 0'-6"
Q50=1098cfs; D.A.=1.777Ac.
SPAN = 22'-2"

HWY. 167

235

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS,
THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM.
THE STREAM BANK ELEVATIONS ARE 204 FT. MSL. REFER
TO SECTION 110.06 (c) OF THE 2003 STANDARD SPECIFICATIONS.

230 225 220 215 210 205 200 195 190 185

217.73

-2.41%

+50
TOP D.I. 214.66

F.L. D.I. 212.16
F.L. OUTLET 210.89

K-174.81
VC-400'
e-1.14'

898+15.00
210.15

-0.12%

+62
TOP D.I. 205.93

-0.08% MED.DT.GR.

0.19% MED.DT.GR.

-0.10% LT.DT.GR.

3.19% LT.DT.GR.

+00.00 MED.DT.GR.
MED. ELEV. 206.14

+62.00 MED.DT.GR.
MED. ELEV. 205.93

+00.00 LT.DT.GR.
LT. ELEV. 197.68

+62.00 LT.DT.GR.
LT. ELEV. 197.52

FL. INLET LT. 197.52
EXISTING FL. OUTLET RT. 195.96

K-345.58
VC-500'
e-0.90'

905+20.00
209.30

+00.00 LT.DT.GR.
LT. ELEV. 205.11

+00.00 MED.DT.GR.
MED. ELEV. 206.56

1.33%

215.67

BM: 928 CHISELED SQ. HDWL.
STA. 902+62.62, 84.41' RT., ELEV. 205.02

895+00 896+00 897+00 898+00 899+00 900+00 901+00 902+00 903+00 904+00 905+00 906+00 907+00 908+00 909+00 910+00

R070291.DGN 5/17/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	106	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
N. 7665
MICHAEL D. FIGGETT
5/24/12

STA. 912+00 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 80' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 80 LIN.FT.
18" F.E.S. = 1EA.

STA. 916+79 - INSTALL
18" x 32' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 65 CU.YD.

STA. 918+00 - CONSTRUCT
TYPE 'RM' DROP INLET 2' LT. C.L.
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 78' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 78 LIN.FT.
18" F.E.S. = 1EA.

STA. 922+50 - CONSTRUCT
TYPE 'RM' DROP INLET 7' RT. C.L.
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 86' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 86 LIN.FT.
18" F.E.S. = 1EA.

N

+70.00 105.00
+00
PROPOSED ROW
EXISTING ROW
910
915
HWY. 167
+00.00 104.00
+00.00 115.00
+85.00 125.00
CONST. LIMITS
CONCRETE DRAIN
+79
+44
210' TURN LANE
+35.00 105.00
920
925
44°46'
200' TAPER
+46
+56
24'
60'
48'
16'
+15
TRAIL
TRAIL
CONST. LIMITS
EXISTING ROW
CONCRETE DRAIN
-00.00 LT.DT.GR. LT. ELEV. 211.24
PDRE68 BAR+CAP
PDRE69 BAR+CAP

STA. 911+15 - INSTALL
18" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 25 CU.YD.

HWY. 167

250
245
240
235
230
225
220
215
210
205
200

215.67
1.33%
+00
TOP D.I. 214.46
-00.00 LT.DT.GR. LT. ELEV. 211.80
F.L. D.I. 211.96
F.L. OUTLET 211.80
0.28% LT.DT.GR.
K=216.74
VC=400'
e=0.92'
912+88.00 219.49
3.17%
2.88% LT.DT.GR.
918+94.00 238.72
K=305.67
VC=400'
e=-0.65'
+00
TOP D.I. 231.71
-00.00 LT.DT.GR. LT. ELEV. 229.09
F.L. D.I. 229.21
F.L. OUTLET 229.09
2.42% LT.DT.GR.
1.86%
+50
TOP D.I. 243.18
+50.00 LT.DT.GR. LT. ELEV. 239.97
F.L. D.I. 240.68
F.L. OUTLET 239.97
K=211.05
VC=400'
e=-0.95'

910+00 911+00 912+00 913+00 914+00 915+00 916+00 917+00 918+00 919+00 920+00 921+00 922+00 923+00 924+00 925+00

5/17/2012
R070291.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	107	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7405
MICHAEL D. PUGH
5/24/12

STA. 939+00 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 80' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 80 LIN.FT.
18" F.E.S. = 1EA.

PROPOSED ROW
CONST. LIMITS
EXISTING ROW
200' TAPER
925
930
935
940
N 1°44'46" E
HWY. 167
+15.00
125.00
+55.00
110.00
24'-8"
+54
60'
24'-6"
+70
16'
PNHS9 PDREBAR+CAP
PNHS4 PDREBAR+CAP
PNHT0 PDREBAR+CAP

STA. 925+70 - INSTALL
18" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 45 CU.YD.

STA. 929+00 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 90' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 90 LIN.FT.
18" F.E.S. = 1EA.

STA. 934+03 IN PLACE
4' x 4' x 108' R.C. BOX CULV'T.
RETAIN AND EXTEND 62' LT.
TO A COMPLETED LENGTH OF 170'
CONSTRUCT TYPE 'TM' DROP INLET IN MEDIAN
3'-0" x 2'-6½" x H = 0'-8"
050=3cfs; D.A.=2Ac.

HWY. 167

285 280 275 270 265 260 255 250 245 240 235

925-39.00
250.74
K-211.05
VC-400'
e--0.95'
-0.03%
+00
TOP D.I. 246.43
0.34% MED.DT.GR.
-00.00 MED.DT.GR.
MED. ELEV. 246.43
F.L. D.I. 243.93
F.L. OUTLET 240.65
+03
TOP D.I. 248.16
0.71% MED.DT.GR.
+03.00 MED.DT.GR.
MED. ELEV. 248.16
+03.00 LT.DT.GR.
LT. ELEV. 242.41
2.82% LT.DT.GR.
F.L. INLET RT. 243.33
F.L. OUTLET LT. 242.41
K-136.47
VC-400'
e-1.47'
935-87.00
250.41
-00.00 LT.DT.GR.
LT. ELEV. 247.97
1.76% LT.DT.GR.
-00.00 MED.DT.GR.
MED. ELEV. 250.27
262.97
2.90%
+00
TOP D.I. 255.87
2.99% LT.DT.GR.
F.L. D.I. 253.37
F.L. OUTLET 253.24
-00.00 LT.DT.GR.
LT. ELEV. 253.24

925+00 926+00 927+00 928+00 929+00 930+00 931+00 932+00 933+00 934+00 935+00 936+00 937+00 938+00 939+00 940+00

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				6	ARK.			
				JOB NO.		070291	108	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

STA. 942+00 - CONSTRUCT
TYPE 'RM' DROP INLET 3' LT. C.L.
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 76' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 76 LIN.FT.
18" F.E.S. = 1EA.

STA. 942+64 IN PLACE
18" x 32' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 42' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

STA. 950+00 - CONSTRUCT
TYPE 'RM' DROP INLET 1' RT. C.L.
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 80' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 80 LIN.FT.
18" F.E.S. = 1EA.

STA. 953+00 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 80' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 80 LIN.FT.
18" F.E.S. = 1EA.

STA. 942+42 - INSTALL
18" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 45 CU.YD.

STA. 945+75
CONST. APPR. = 15 CU.YD.

HWY. 167

R070291.DGN 5/17/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	109	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
5/24/12

STA. 963+00 - INSTALL
18" x 38' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 105 CU.YD.

N

EXISTING PAVEMENT TRANSITION

+65.00 140.00

+65.00 116.00

+25.00 125.00

PROPOSED ROW

CONST. LIMITS

EXISTING ROW

955 | 960 | 965 | 970

N 1°03'07" E — HWY. 167 — N 1°39'50" E

24' | 60' | 24' | 48'

200' TAPER | 10' TURN LANE

P.I. 956+58.43
Δ=0°38'43" Lt.

+00

+37

+46

+46

CONST. LIMITS

EXISTING ROW

STA. 957+79 IN PLACE
4' x 3' x 82' R.C. BOX CULV'T.
RETAIN AND EXTEND 73' LT. AND 8' RT.
TO A COMPLETED LENGTH OF 163'
CONSTRUCT TYPE 'TM' DROP INLET 7' LT. C.L.
3'-0" x 2'-6½" x H = 0'-6"
050=8cfs; D.A.=5Ac.

STA. 962+67 IN PLACE
24" x 86' R.C. PIPE CULV'T.
WITH HDWLS LT. & RT.
EXTEND 72' LT. & 4' RT. (CL. IV)
TO A COMPLETED LENGTH OF 162'
W./ F.E.S. LT. & RT.
(USE TYPE 3 BEDDING)
050=3cfs; D.A.=2Ac.
24" R.C. PIPE (CL. IV) = 84 LIN. FT.
24" F.E.S. = 2 EA.

STA. 963+37 - INSTALL
18" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 30 CU.YD.

STA. 966+29 IN PLACE
6' x 3' x 84' R.C. BOX CULV'T.
RETAIN AND EXTEND 70' LT. AND 10' RT.
TO A COMPLETED LENGTH OF 164'
CONSTRUCT TYPE 'TM' DROP INLET IN MEDIAN
3'-0" x 2'-6½" x H = 0'-8"
050=13cfs; D.A.=10Ac.

HWY. 167

247.58

-3.95%

K=136.89
VC-300'
e=0.82'

+00.00 LT.DT.GR.
LT.ELEV. 239.36
+00.00 RT.DT.GR.
RT.ELEV. 237.27

-4.25% LT.DT.GR.
-3.87% RT.DT.GR.

+57 12.00
239.21

+79
TOP D.I.-235.31

+79.00 LT.DT.GR.
LT.ELEV. 231.65

+00.00 RT.DT.GR.
RT.ELEV. 229.54

-0.78% LT.DT.GR.
-0.10% RT.DT.GR.

F.L. INLET LT. 231.65
F.L. OUTLET RT. 230.35

+80.00 LT.DT.GR.
LT. ELEV. 230.08
+00.00 RT.DT.GR.
RT.ELEV. 229.34

-1.76%

+67

F.L. INLET LT. 224.50
F.L. OUTLET RT. 222.24

+20.00 LT.DT.GR.
LT.ELEV. 222.31

965+20.00
225.03

-1.00% MED.DT.GR.

-2.91% LT.DT.GR.

+29
TOP D.I. 219.98

-1.90%

215.90

+00.00 MED.DT.GR.
MED. ELEV. 221.27

K=2048.49
VC-300'
e=-0.05'

+29.00 MED.DT.GR.
MED.ELEV. 219.98
+29.00 LT.DT.GR.
LT. ELEV. 216.23

-0.98% LT.DT.GR.

F.L. INLET LT. 216.23
F.L. OUTLET RT. 215.01

+70.00 LT.DT.GR.
LT. ELEV. 213.86

BM: 929 DISK HDWL.
STA. 957+77.32, 11.45' LT., ELEV. 235.21

250 245 240 235 230 225 220 215 210 205 200

955+00 956+00 957+00 958+00 959+00 960+00 961+00 962+00 963+00 964+00 965+00 966+00 967+00 968+00 969+00 970+00

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				6	ARK.			
				JOB NO.		070291	110	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
5/24/12

STA. 971+00 - CONSTRUCT
TYPE 'RM' DROP INLET 7' LT. C.L.
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 72' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 72 LIN.FT.
18" F.E.S. = 1EA.

STA. 974+38 - INSTALL
18" x 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 50 CU.YD.

STA. 979+75 - INSTALL
18" x 30' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 55 CU.YD.

EXISTING PAVEMENT TRANSITION
+00 +50
+75.00 100.00
+50.00 130.00
+89.01 115.00
+95.00 125.00
+00.00 119.00
PROPOSED ROW
CONST. LIMITS
16'
18'
24'
48'
970
40'
+44
210' TURN LANE
+38 +54
36'
200' TAPER
24'
54
975
HWY. 167
48'
60'
6
24'8"
+75
980
EXISTING ROW
N 1°39'50" E
985
TURN LANE
210' TURN LANE
+56
24'
+88
24'6"
PAVED
16'
CONST. LIMITS
EXISTING ROW
PROPOSED ROW
+00.00 103.02
+50.00 125.00
+35.00 130.00
RUINS
F
235
230
225
220
215
210
205
200
195
190
185

STA. 974+38 IN PLACE
18" x 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 38' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 90 CU.YD.

STA. 976+48 IN PLACE
DBL. 6' x 6' x 52' R.C. BOX CULV'T.
RETAIN AND EXTEND 102' LT. AND 10' RT.
TO A COMPLETED LENGTH OF 164'
CONSTRUCT TYPE 'TM' DROP INLET 6' LT. C.L.
3'-0" x 2'-6½" x H = 0'-6"
Q50=100cfs; D.A.=138Ac.

STA. 980+94 IN PLACE
6' x 3' x 54' R.C. BOX CULV'T.
RETAIN AND EXTEND 102' LT. AND 10' RT.
TO A COMPLETED LENGTH OF 166'
CONSTRUCT TYPE 'TM' DROP INLET IN MEDIAN
3'-0" x 2'-6½" x H = 0'-7"
Q50=24cfs; D.A.=16Ac.

HWY. 167

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS,
THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM.
THE STREAM BANK ELEVATIONS ARE 198 FT. MSL. REFER
TO SECTION 110.06 (c) OF THE 2003 STANDARD SPECIFICATIONS.

215.90
-1.90%
+00
TOP D.I. 211.01
-1.26% LT.DT.GR.
-00.00 LT.DT.GR.
LT. ELEV. 207.77
F.L. D.I. 208.51
F.L. OUTLET 207.77
K=220.26
VC=400'
e=0.91'
-50.00 LT.DT.GR.
LT. ELEV. 204.63
973+90.00
208.48
-2.05% LT.DT.GR.
-00.00 RT.DT.GR.
RT.ELEV. 201.15
-2.70% RT.DT.GR.
+48
TOP D.I. 204.94
-48.00 LT.DT.GR.
LT. ELEV. 198.51
-48.00 RT.DT.GR.
RT.ELEV. 197.16
F.L. INLET LT. 198.51
F.L. OUTLET RT. 197.16
2.09% RT.DT.GR.
2.10% LT.DT.GR.
-00.00 RT.DT.GR.
RT.ELEV. 200.33
-90.00 LT.DT.GR.
LT. ELEV. 203.60
-10.00 LT.DT.GR.
LT. ELEV. 203.58
-0.09%
-2.24% LT.DT.GR.
+94
TOP D.I. 203.61
-94.00 LT.DT.GR.
LT. ELEV. 199.46
INLET FL. LT. 199.46
OUTLET FL. RT. 199.10
0.60% LT.DT.GR.
983+20.00
207.69
K=1572.80
VC=400'
e=-0.13'

BM: 930 CHISELED SQ. HDWL.
STA. 980+93.59, 69.51' RT., ELEV. 203.14

970+00 971+00 972+00 973+00 974+00 975+00 976+00 977+00 978+00 979+00 980+00 981+00 982+00 983+00 984+00 985+00

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				6	ARK.			
				JOB NO.		070291	111	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
5/24/12

STA. 992+50 - CONSTRUCT
TYPE 'RM' DROP INLET 7' LT. C.L.
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 72' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 72 LIN.FT.
18" F.E.S. = 1EA.

N

+00.00 108.00 | +00.00 106.00 | +76.00 113.00 | +07.30 106.00 | +00.00 100.00

CONST. LIMITS | PROPOSED ROW | EXISTING ROW

985 | N 1°39' 50" E | 990 | HWY. 167 | 995 | 1000

24' | 60' | 48' | 40'

+44 | 210' TURN LANE | +54 | 36 | 200' TAPER | +54 | 24'

+46 | 24' | 200' TAPER | +46 | 36 | 210' TURN LANE | +56 | +83 | 24'

PAVED | 16'

CONST. LIMITS | EXISTING ROW

+46 PDPS,T 18" OLD JOB RX0028

+16 PDPS,T 18" OLD JOB RX0028

STA. 992+83 IN PLACE
24" x 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
24" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 40 CU. YD.

HWY. 167

225 | 220 | 215 | 210 | 205 | 200 | 195 | 190 | 185 | 180 | 175

K-1572.80
VC-400'
e=-0.13'

-0.34%

0.60% LT.DT.GR.

+70.00 LT.DT.GR.
LT. ELEV. 202.31

990+18.00
205.31

K-611.29
VC-400'
e=-0.33'

+50
TOP D.I. 200.55

-1.92% LT.DT.GR.

+00.00 LT.DT.GR.
LT. ELEV. 199.98

+50.00 LT.DT.GR.
LT. ELEV. 197.07

F.L. D.I. 198.05
F.L. OUTLET 197.07

-0.39% LT.DT.GR.

-0.99%

+00.00 LT.DT.GR.
LT. ELEV. 196.09

195.55

985+00 | 986+00 | 987+00 | 988+00 | 989+00 | 990+00 | 991+00 | 992+00 | 993+00 | 994+00 | 995+00 | 996+00 | 997+00 | 998+00 | 999+00 | 1000+00

R070291.DGN 5/17/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	112	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/9/12

STA. 1002+70 IN PLACE
24" x 22' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
28" x 20" x 28' ARCH PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 10 CU.YD.

STA. 1008+00 - CONSTRUCT
TYPE 'RM' DROP INLET 7' LT. C.L.
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 80' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 80 LIN.FT.
18" F.E.S. = 1EA.

N

+00.00 105.00 | +25.00 105.00 | +24.77 119.00 | +20.00 135.00 | +00.00 104.00 | +00.00 105.00

PROPOSED ROW | CONST. LIMITS | 16' | +70 | 24'-8" | 6" | 60' | N 1°39'50" E | 1000 | 1005 | HWY. 167 | 1010 | EXISTING ROW | 1015 | P.I. 1014+81.79 | 48' | +46 | 24' | 200' TAPER | 36' | 210' TURN LANE | 210' TURN LAN

CONST. LIMITS | STING ROW | +33.08 102.90 | +20.00 125.00 | +45.00 102.89 | 77 PCS+T 89 OLD JOB RX0028 | P.C. 1010+27.71 | EXISTING ROW | HWY. 167 | P.I. 1014+81.79 | Δ = 4°32'18"RT. | D = 0°30'00" | T = 454.08' | L = 907.69' | P.C. 1010+27.71 | P.T. 1019+35.40 | NO SUPER | +00.00 99.96 | PROPOSED ROW

STA. 1005+00 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 80' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 80 LIN.FT.
18" F.E.S. = 1EA.

STA. 1006+24 IN PLACE
8' x 5' x 47' R.C. BOX CULV'T.
RETAIN AND EXTEND 104' LT. AND 14' RT.
TO A COMPLETED LENGTH OF 165'
Q50=95cfs; D.A.=68Ac.

HWY. 167

225

220 | 215 | 210 | 205 | 200 | 195 | 190 | 185 | 180 | 175

195.55 | -0.99% | K=500.05 VC=500' e=0.62' | 0.01% | 192.28

+00.00 MED.DT.GR. MED. ELEV. 189.10 | +50.00 LT.DT.GR. LT. ELEV. 188.07 | 100+35.00 192.21 | +00 TOP D.I. 189.00 | -0.05% MED.DT.GR. | -1.76% LT.DT.GR. | F.L. D.I. 186.50 F.L. OUTLET 185.43 | +10.00 RT.DT.GR. RT.ELEV. 187.01 | 3.69% RT.DT.GR. | +24.00 LT.DT.GR. LT. ELEV. 183.25 | +24.00 MED.DT.GR. MED. ELEV. 188.41 | +24.00 RT.DT.GR. RT.ELEV. 182.80 | F.L. INLET LT. 183.25 F.L. OUTLET RT. 182.80 | 2.04% RT.DT.GR. | 1.28% LT.DT.GR. | +00 TOP D.I. 188.01 | 1.61% LT.DT.GR. | F.L. D.I. 185.51 F.L. OUTLET 185.50 | +00.00 RT.DT.GR. RT.ELEV. 186.39 | +00.00 LT.DT.GR. LT. ELEV. 187.11

1000+00 | 1001+00 | 1002+00 | 1003+00 | 1004+00 | 1005+00 | 1006+00 | 1007+00 | 1008+00 | 1009+00 | 1010+00 | 1011+00 | 1012+00 | 1013+00 | 1014+00 | 1015+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	113	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGATT
5/24/12

STA. 1016+00 CONSTRUCT
APPROACH = 25 CU.YD.

HWY. 167
P.I. 1025+51.78
Δ = 4°29'15"LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29
NO SUPER

STA. 1027+76 IN PLACE
24" x 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

STA. 1029+29 IN PLACE
18" x 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

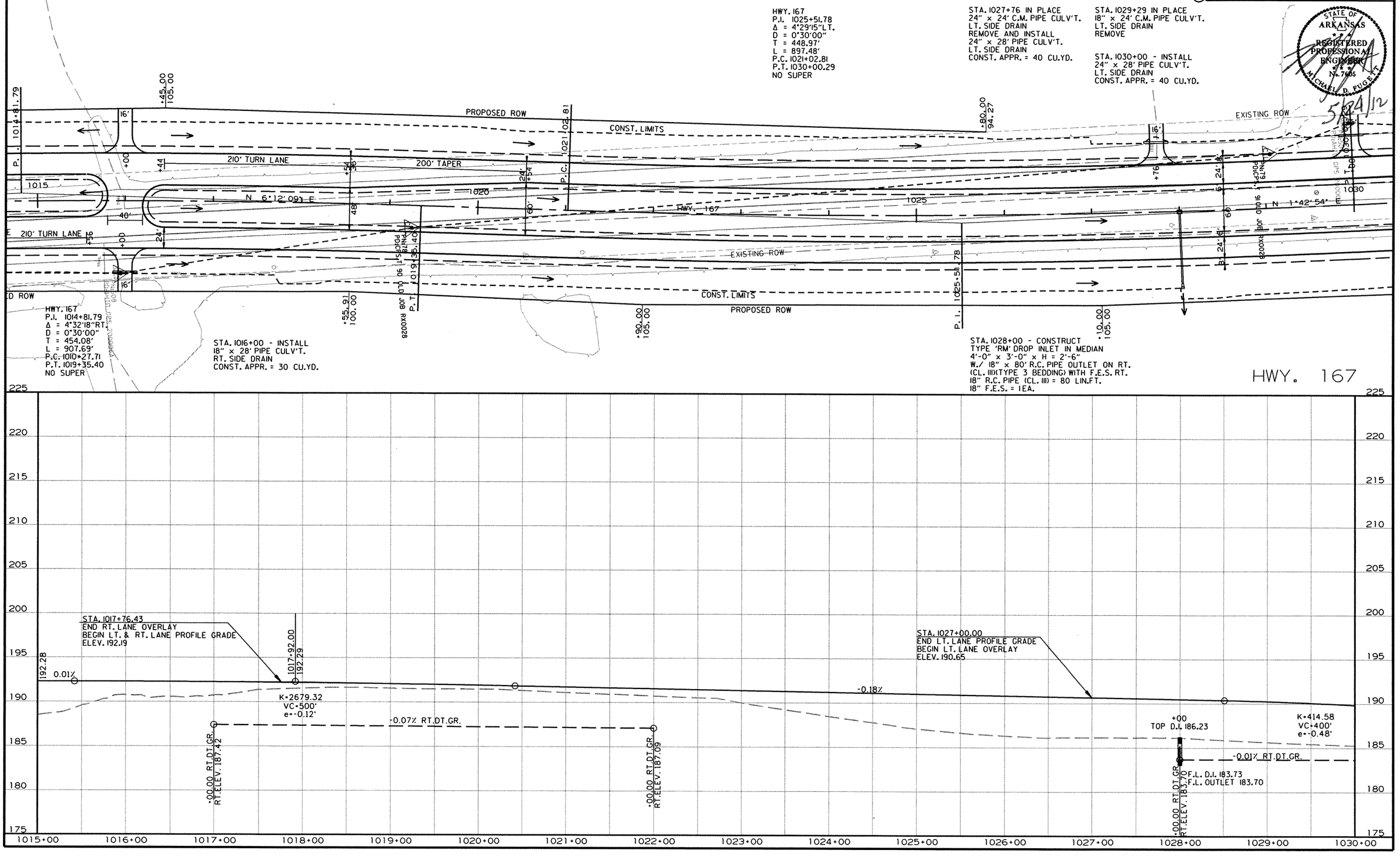
STA. 1030+00 - INSTALL
24" x 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

HWY. 167
P.I. 1014+81.79
Δ = 4°32'18"RT.
D = 0°30'00"
T = 454.08'
L = 907.69'
P.C. 1010+27.71
P.T. 1019+35.40
NO SUPER

STA. 1016+00 - INSTALL
18" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 30 CU.YD.

STA. 1028+00 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 80' R.C. PIPE OUTLET ON RT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. RT.
18" R.C. PIPE (CL. III) = 80 LIN.FT.
18" F.E.S. = 1EA.

HWY. 167


P.I. 1014+81.79
+45.00
105.00
16'
+00
+44
PROPOSED ROW
CONST. LIMITS
210' TURN LANE
200' TAPER
+54
+56
P.C. 1021+02.81
+80.00
94.27
EXISTING ROW
1015
1020
1025
1030
N 6°12'09" E
HWY. 167
N 1°42'54" E
40'
48'
60'
24'
+76
+00
+55
210' TURN LANE
EXISTING ROW
CONST. LIMITS
PROPOSED ROW
+55.91
100.00
P.T. 1019+35.40
+90.00
105.00
P.I. 1025+51.78
+10.00
105.00
RT. 30.00
RT. 24.18
RT. 24.54
RT. 24.54
RT. 24.18
RT. 24.54
RT. 24.54
RT. 24.18
RT. 24.54
RT. 24.54

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	114	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

MARK'S MEMORIAL CHURCH OF GOD IN CHRIST

HWY. 167
P.I. 1025+51.78
Δ = 4°29'15" LT.
D = 0°30'00"
T = 448.97'
L = 897.48'
P.C. 1021+02.81
P.T. 1030+00.29
NO SUPER

STA. 1031+72 IN PLACE
18" x 43' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 45 CU.YD.

STA. 1039+66 - INSTALL
18" x 44' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 35 CU.YD.

YOUNG PLANTED PINE

DALLAS COUNTY R 436

DALLAS COUNTY R 436

DALLAS COUNTY R 436

+00.00 102.27 PROPOSED ROW

EXISTING ROW

CONST. LIMITS

210' TURN LANE

200' TAPER

EXISTING ROW

200' TAPER

210' TURN LANE

CONST. LIMITS

N 1°42'54" E

HWY. 167

STA. 1035+78 - CONSTRUCT
36" x 156' R.C. PIPE CULV'T. (CL. IV)
W./ F.E.S. LT. & RT.
(USE TYPE 3 BEDDING)
Q50=82cfs; D.A.=46Ac.
36" R.C. PIPE (CL. IV) = 156 LIN. FT.
36" F.E.S. = 2 EA.

STA. 1035+90 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-4"
W./ 30" x 86' R.C. PIPE INLET ON RT. (CL. IV)
W./ F.E.S. RT.
(USE TYPE 3 BEDDING)
Q50=82cfs; D.A.=46Ac.
30" R.C. PIPE (CL. IV) = 86 LIN. FT.
30" F.E.S. = 1EA.

STA. 1035+90 IN PLACE
30" x 54' R.C. PIPE CULV'T.
WITH HDWLS LT. & RT.
EXTEND 8' LT. & 6' RT. (CL. III)
TO A COMPLETED LENGTH OF 68'
W./ F.E.S. LT.
(USE TYPE 3 BEDDING)
CONNECT TO D.I. @ STA. 1035+90
Q50=82cfs; D.A.=46Ac.
30" R.C. PIPE (CL. III) = 22 LIN. FT.
30" F.E.S. = 1EA.

STA. 1036+56 IN PLACE
24" x 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE

STA. 1037+00 INSTALL
24" x 60' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 85 CU.YD.

STA. 1040+09 IN PLACE
18" x 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 30' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

PROPOSED ROW

STA. 1044+00 - CONSTRUCT
TYPE 'RM' DROP INLET I RT. C.L.
4'-0" x 3'-0" x H = 2'-6"
W./ 18" x 80' R.C. PIPE OUTLET ON RT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. RT.
18" R.C. PIPE (CL. III) = 80 LIN.FT.
18" F.E.S. = 1EA.

STA. 1044+58 IN PLACE
DBL. 8' x 8' x 49' R.C. BOX CULV'T.
RETAIN AND EXTEND 12' LT. AND 102' RT.
TO A COMPLETED LENGTH OF 163'
Q50=661cfs; D.A.=1003Ac.

HWY. 167

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 175 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2003 STANDARD SPECIFICATIONS.

1030-51.00 190.01

K=414.58
VC=400'
e=-0.48'

-0.01% RT.DT.GR.

-1.15%

-20.00 RT.DT.GR. RT.ELEV. 183.64

-00.00 LT.DT.GR. LT.ELEV. 181.10
-00.00 RT.DT.GR. RT.ELEV. 181.58

-1.71% RT.DT.GR.
-1.82% LT.DT.GR.

1035-26.00 184.57

K=195.38
VC=200'
e=0.26'

+90 TOP D.I. 181.66 +78

-90.00 LT.DT.GR. LT.ELEV. 177.64
-90.00 RT.DT.GR. RT.ELEV. 178.33

F.L. INLET RT. 178.33
F.L. OUTLET LT. 177.64

F.L. D.I. 178.32
F.L. INLET RT. 178.33
F.L. OUTLET LT. 177.64

0.82% RT.DT.GR.
2.47% LT.DT.GR.

-50.00 LT.DT.GR. LT.ELEV. 179.62
-70.00 RT.DT.GR. RT.ELEV. 179.80

-0.12%

-00.00 RT.DT.GR. RT.ELEV. 179.33

-1.44% RT.DT.GR.

-00.00 RT.DT.GR. RT.ELEV. 176.46

-00.00 LT.DT.GR. LT.ELEV. 175.43

K=457.26
VC=200'
e=0.11'

1043+80.00 183.52

+00 TOP D.I. 179.57 +58

F.L. D.I. 177.07
F.L. OUTLET 176.53

2.83% LT.DT.GR.

4.96% LT.DT.GR.

F.L. INLET LT. 170.95
F.L. OUTLET RT. 170.88

+58.00 MED.DT.GR. MED. ELEV. 180.14

0.31%

183.90

0.11% MED.DT.GR.

+58.00 LT.DT.GR. LT.ELEV. 170.95

BM= 932 CHISELED SQ. HDWL.
STA. 1035+90.32, 15.69' LT., ELEV. 181.96

1030+00 1031+00 1032+00 1033+00 1034+00 1035+00 1036+00 1037+00 1038+00 1039+00 1040+00 1041+00 1042+00 1043+00 1044+00 1045+00

160 165 170 175 180 185 190 195 200 205 210

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				6	ARK.			
				JOB NO.		070291	115	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL B. FUGETT
5/24/12

STA. 1046+10 IN PLACE
24" x 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 40' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 135 CU.YD.

STA. 1050+78 IN PLACE
24" x 24' P.V.C. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 56' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 35 CU.YD.

STA. 1052+05 IN PLACE
18" x 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 30 CU.YD.

STA. 1053+10 IN PLACE
18" x 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 30 CU.YD.

STA. 1054+65 IN PLACE
18" x 35' P.V.C. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 36' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

STA. 1056+64 IN PLACE
18" x 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

STA. 1057+04 IN PLACE
18" x 40' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

STA. 1057+52 IN PLACE
18" x 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 30' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 35 CU.YD.

HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64
NO SUPER

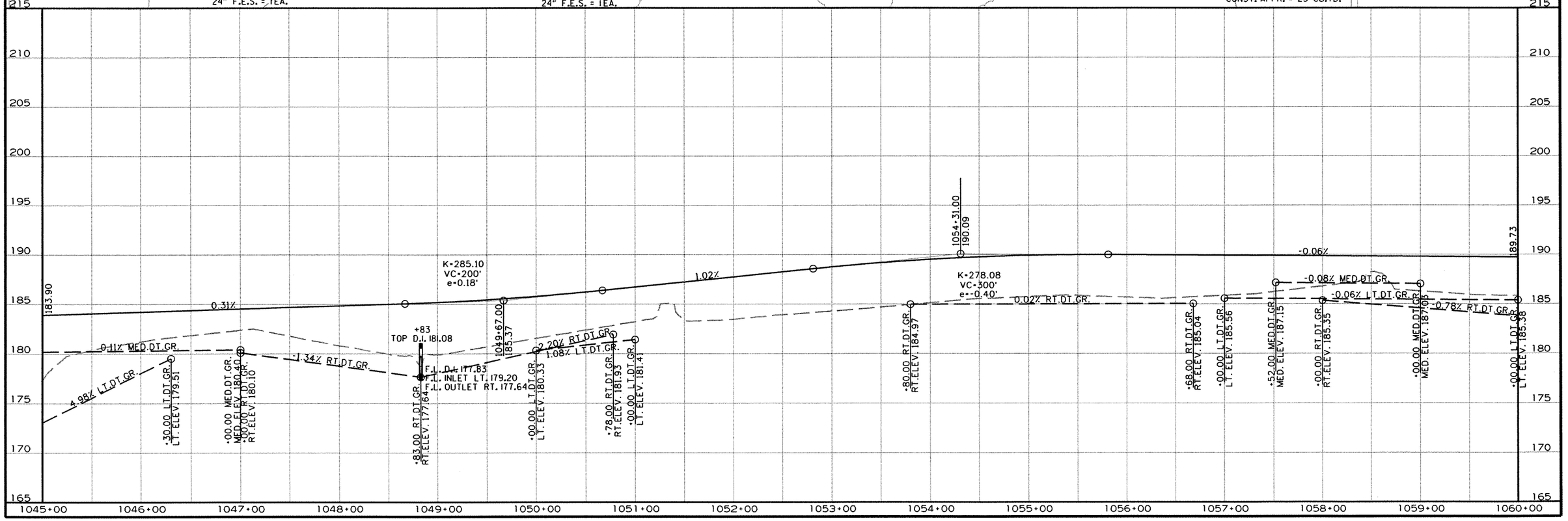
STA. 1048+83 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-3"
W./ 24" x 82' R.C. PIPE OUTLET ON RT. (CL. III)
W./ F.E.S. RT. (USE TYPE 3 BEDDING)
Q50=12cfs; D.A.=9Ac.
24" R.C. PIPE (CL. III) = 82 LIN. FT.
24" F.E.S. = 1EA.

STA. 1048+83 IN PLACE
24" x 68' R.C. PIPE CULV'T.
WITH HDWLS LT. & RT.
EXTEND 4' LT. & 6' RT. (CL. III)
TO A COMPLETED LENGTH OF 78'
W./ F.E.S. LT.
(USE TYPE 3 BEDDING)
CONNECT TO D.I. @ STA. 1048+83
Q50=12cfs; D.A.=9Ac.
24" R.C. PIPE (CL. III) = 18 LIN. FT.
24" F.E.S. = 1EA.

STA. 1051+33 IN PLACE
18" x 19' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 32' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 65 CU.YD.

STA. 1058+50 INSTALL
18" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 25 CU.YD.

HWY. 167



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				6	ARK.			
				JOB NO.		070291	116	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7805
MICHAEL D. FUGETT
5/24/12

STA. 1063+73 - CONSTRUCT TYPE 'RM' DROP INLET IN MEDIAN 4'-0" x 3'-0" x H = 4'-4" W./ 24" x 88' R.C. PIPE INLET ON RT. (CL. III) W./ F.E.S. RT. (USE TYPE 3 BEDDING) Q50=22cfs; D.A.=17Ac. 24" R.C. PIPE (CL. III) = 88 LIN. FT. 24" F.E.S. = 1EA.

STA. 1063+73 IN PLACE 24" x 79' R.C. PIPE CULV'T. WITH HDWLS LT. & RT. EXTEND 16' LT. & REMOVE 22' RT. (CL. III) TO A COMPLETED LENGTH OF 73' W./ F.E.S. LT. (USE TYPE 3 BEDDING) CONNECT TO D.I. @ STA. 1063+73 Q50=22cfs; D.A.=17Ac. 24" R.C. PIPE (CL. III) = 24 LIN. FT. 24" F.E.S. = 1EA.

STA. 1066+10 - INSTALL 18" x 28' PIPE CULV'T. LT. SIDE DRAIN CONST. APPR. = 40 CU.YD.

STA. 1070+87 - INSTALL 18" x 28' PIPE CULV'T. LT. SIDE DRAIN CONST. APPR. = 90 CU.YD.

HWY. 167
P.I. 1062+52.76
Δ = 4°28'16"LT.
D = 0°30'00"
T = 447.34'
L = 894.22'
P.C. 1058+05.42
P.T. 1066+99.64
NO SUPER

BEGIN FLOOD HAZARD AREA

LIMITS OF SPECIAL FLOOD HAZARD AREA STA. 1070+00 TO STA. 1075+20

END FLOOD HAZARD AREA

PROPOSED ROW
CONST. LIMITS
EXISTING ROW
TCE
HWY. 167
N 2°45'48" W
N 1°42'28" E
N 1°43'40" E
200' TAPER
200' TAPER
16' GATE
FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE EA.
1070+95	1071+64	RT.	TYPE C	69	
1071+64	1074+24	RT.	TYPE D	250	1

STA. 1072+97 IN PLACE
DBL. 8' x 7' x 48' R.C. BOX CULV'T.
RETAIN AND EXTEND 102' LT. AND 22' RT.
TO A COMPLETED LENGTH OF 172'
CONSTRUCT TYPE 'TM' DROP INLET IN MEDIAN
2'-0" x 2'-0" x H = 1'-7"
Q50=598cfs; D.A.=863Ac.

HWY. 167
P.I. 1073+22.92
Δ = 4°29'28"RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
P.C. 1068+73.57
P.T. 1077+71.82
NO SUPER

STA. 1074+93 IN PLACE
18" x 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 35 CU.YD.

HWY. 167

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 173 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2003 STANDARD SPECIFICATIONS.

STA. 1065+00.00
END LT. LANE OVERLAY
BEGIN LT. LANE PROFILE GRADE
ELEV. 189.42

STA. 1065+00.00
RT. LANE PROFILE GRADE
ELEV. 189.42

STA. 1070+50.00
END RT. LANE PROFILE GRADE
BEGIN RT. LANE OVERLAY
ELEV. 184.10

-0.06%
-0.78% RT.DT.GR.
-1.26% LT.DT.GR.
-1.08% RT.DT.GR.
1.33% LT.DT.GR.
1.62% RT.DT.GR.
-0.03% RT.DT.GR.
-1.63%
-0.06%
-2.30%
-4.85% RT.DT.GR.
-3.89% LT.DT.GR.
5.05% RT.DT.GR.
4.04% LT.DT.GR.
RT. MAIN LANES
RT. MAIN LANE VERTICAL TRANSITION

K-191.98
VC-300'
e=-0.59'

K-178.59
VC-400'
e=-1.12'

K-138.38
VC-440'
e=1.75'

+73
TOP D.I. 185.24
F.L. D.I. 180.91
F.L. INLET LT. 181.63
F.L. OUTLET RT. 180.04

+97
TOP D.I. 178.02
F.L. INLET LT. 168.92
F.L. OUTLET RT. 168.52

BM: 933 CHISELED SQ. HDWL.
STA. 1063+75.69, 15.38' RT., ELEV. 183.99

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				6	ARK.			
				JOB NO.		070291	117	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

END FLOOD HAZARD AREA

STA. 1080+06 IN PLACE
24" x 24' P.V.C. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 55 CU.YD.

STA. 1083+28 IN PLACE
18" x 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

N

+35.00 125.00
+21.39 115.00
+78.83 115.00
+28.28 115.00
+95.00 110.00
PROPOSED ROW
CONST. LIMITS
16'
+06
+44
210' TURN LANE
+54 36
200' TAPER
24'
+54
1075
1080
1085
1090
60'
48'
HWY. 167
EXISTING ROW
N 2°17'17" E
N 1°43'48" E
40'
+93
+46 24'
200' TAPER
+46 36
210' TURN LANE
+84
+56
+92
24'
+40 24'
200' TAPER
+40 36
210' TURN LANE
16'
TRAIL
CONST. LIMITS
EXISTING ROW
100.00
99.01
P.I. 1077+71.82
P.I. 1088+24.12
Δ=0°33'37" RT.
TUNNEL PIPES

HWY. 167
P.I. 1073+22.92
Δ = 4°29'28" RT.
D = 0°30'00"
T = 449.35'
L = 898.25'
P.C. 1068+73.57
P.T. 1077+71.82
NO SUPER

STA. 1078+84 IN PLACE
18" x 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 32' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

2 BARR WEB W/ 4 STEEL

STA. 1079+92 IN PLACE
18" x 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 32' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

STA. 1085+00 - CONSTRUCT
TYPE 'RM' DROP INLET 1' LT. C.L.
4'-0" x 3'-0" x H = 1'-10"
W./ 22" x 14" x 78' R.C. ARCH PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
22" x 14" R.C. PIPE (CL. III) = 78 LIN.FT.
22" x 14" F.E.S. = 1EA.

HWY. 167

215

210
205
200
195
190
185
180
175
170
165

+00.00 LT.DT.GR.
LT. ELEV. 197.15
185.55
1.55%
1078+14.00
190.43
K=194.89
VC=300'
e=-0.58'
+50.00 RT.DT.GR.
RT.ELEV. 185.00
0.17% RT.DT.GR.
1.24% LT.DT.GR.
+00.00 LT.DT.GR.
LT. ELEV. 183.30
+00.00 RT.DT.GR.
RT.ELEV. 185.25
+00.00 MED.DT.GR.
MED. ELEV. 187.80
-0.32% MED.DT.GR.
+00.00 RT.DT.GR.
RT.ELEV. 186.07
+00
TOP D.I. 186.52
F.L. D.I. 184.69
F.L. OUTLET RT. 184.62
0.26% LT.DT.GR.
+00.00 MED.DT.GR.
MED. ELEV. 186.52
0.01% RT.DT.GR.
+00.00 RT.DT.GR.
RT.ELEV. 186.10
0.02%
190.61

1075+00 1076+00 1077+00 1078+00 1079+00 1080+00 1081+00 1082+00 1083+00 1084+00 1085+00 1086+00 1087+00 1088+00 1089+00 1090+00

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				6	ARK.			
				JOB NO.		070291	118	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
5/24/12

STA. 1090+95 CONSTRUCT APPROACH = 45 CU.YD.

N

PROPOSED ROW
CONST. LIMITS
EXISTING ROW
HWY. 167
210' TURN LANE
200' TAPER
40'
N 2°17'17" E
PARKING
CONST. LIMITS
EXISTING ROW
210' TURN LANE
200' TAPER
16'
PNHH PDREBAR+CAP,T 1 OLD JOB 070244
PNHH PDREBAR+CAP,T 2 OLD JOB 070244
PNHH PDREBAR+CAP,T 3 OLD JOB 070244
PNHH PDREBAR+CAP,T 4 OLD JOB 070244
PNHH PDREBAR+CAP,T 5 OLD JOB 070244
PNHH PDREBAR+CAP,T 6 OLD JOB 070244
PNHH PDREBAR+CAP,T

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	119	355

(2) PLAN AND PROFILE SHEETS

STA. 1106+13 IN PLACE
12" x 20' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

STA. 1106+50 - CONSTRUCT
22" x 14" x 100' R.C. ARCH PIPE CULV'T.
IN MEDIAN (CL. IV)
W./ S.E.S. (CL. 2) LT. & RT.
(USE TYPE 3 BEDDING)
22" x 14" R.C. ARCH PIPE (CL. IV) = 100 LIN.FT.
22" x 14" S.E.S. (CL. 2) = 2 EA.

BEGIN FLOOD HAZARD AREA

STA. 1108+11 IN PLACE
15" x 68' STEEL PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

STA. 1111+11 IN PLACE
18" x 40' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +38
24" x 50' PIPE CULVERT
LT. SIDE DRAIN/
CONSTRUCT APPROACH = 310 CU. YD.

OBLITERATION OF EXISTING ASPHALT PAVEMENT

STA. 1113+00 - CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 2'-9"
W./ 18" x 108' R.C. PIPE OUTLET ON LT.
(CL. III)(TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 108 LIN.FT.
18" F.E.S. = 1EA.

LIMITS OF SPECIAL FLOOD HAZARD AREA
STA. 1110+00 TO END OF JOB

GUARDRAIL (TYPE A)

STA.	STA.	LANES	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE II)	THRIE BEAM GUARDRAIL TERMINAL
1115+42.79	1117+61.54	RT.	RT.	150		
1115+42.79	1117+61.54	RT.	LT.	150		

REMOVAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
1115+76	1117+79	RT.	203
1117+03	1117+80	LT.	77
1119+45	1120+21	RT.	76
1119+45	1121+47	LT.	202

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9605
MICHAEL D. PUGETT
5/24/12

STA. 1117+70.94 TO STA. 1119+53.06
CONSTRUCT 180'-0" x 38'-0" BRIDGE
CONT. COMP. PRESTRESSED
CONCRETE GIRDER UNIT TYPE III

STA. 1107+43 - INSTALL EXISTING ROW
18" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 25 CU.YD.

STA. 1106+50.91 C.L. HWY. 167 =
STA. 1109+70.51 C.L. HWY. 48
Δ = 90°00'00"

STA. 1105+49 IN PLACE
18" x 20' R.C. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 30 CU.YD.

STA. 1108+29 IN PLACE
3' x 2' x 48' R.C. BOX CULV'T.
RETAIN AND EXTEND 102' LT. AND 14' RT.
TO A COMPLETED LENGTH OF 164'
CONSTRUCT TYPE 'TM' DROP INLET IN MEDIAN
2'-0" x 2'-0" x H = 0'-6"
Q50=6cfs; D.A.=6Ac.

STA. 1109+54 IN PLACE
24" x 24' R.C. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
24" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 25 CU.YD.

STA. 1111+16 IN PLACE
24" x 40' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
24" x 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 35 CU.YD.

STA. 1117+79.01 - STA. 1119+45.20 IN PLACE
265.60' x 28' CLEAR ROADWAY
BRIDGE CONSISTING OF 5 SPAN STEEL AND CONCRETE
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 166 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2003 STANDARD SPECIFICATIONS.

HWY. 167

STA. 1111+68.12
END RT. LANE OVERLAY
BEGIN LT. & RT. LANE PROFILE GRADE
ELEV. 183.80

-0.03% MED.DT.GR.
K=419.07
VC=400'
e=-0.48'
50.00 MED.DT.GR. MED. ELEV. 187.50
-0.94%
-1.43% LT.DT.GR.
50.00 LT.DT.GR. LT. ELEV. 182.40
+29 TOP D.I. 184.57
29.00 LT.DT.GR. LT. ELEV. 181.27
F.L. INLET RT. 181.63
F.L. OUTLET LT. 181.27
-1.63% LT.DT.GR.
100.00 LT.DT.GR. LT. ELEV. 176.86
K=154.29
VC=200'
e=0.32'
1112+68.00 182.86
+00 TOP D.I. 178.89
F.L. D.I. 176.14
F.L. OUTLET 166.92
0.36%
1115+70.00 183.94
K=280.06
VC=100'
e=-0.04'
0.00%
BRIDGE STA. 1117+70.94 ELEV. 183.94
BRIDGE STA. 1119+53.06 ELEV. 183.94
183.94
1:2
168
050 DESIGN H.W. ELEV. = 175.30
2:1
168
-0.04% LT.DT.GR.
100.00 LT.DT.GR. LT. ELEV. 164.12
70.90 LT.DT.GR. LT. ELEV. 164.00

BM: 995 CHISELED SQ. SE CORNER BRIDGE HDWL.
STA. 1117+78.96, 59.41' RT., ELEV. 182.20

195 190 185 180 175 170 165 160 155 150

1105+00 1106+00 1107+00 1108+00 1109+00 1110+00 1111+00 1112+00 1113+00 1114+00 1115+00 1116+00 1117+00 1118+00 1119+00 1120+00

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				6	ARK.			
				JOB NO.		070291	120	355

(2) PLAN AND PROFILE SHEETS

GUARDRAIL (TYPE A)

STA.	STA.	LANES	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE II)	THRIE BEAM GUARDRAIL TERMINAL
1119+62.46	1121+81.21	LT.	LT.	150		
1119+62.46	1121+81.21	LT.	RT.	150		

EQUATIONS
C.L. CONST. STA. 1127+00.00 BK = C.L. LT. STA. 1127+00.00 AHD
C.L. CONST. STA. 1127+00.00 BK = C.L. RT. STA. 1127+00.00 AHD

LIMITS OF SPECIAL FLOOD HAZARD AREA
STA. 1110+00 TO END OF JOB

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL P. PUGETT
5/24/12

PROPOSED ROW
EXISTING ROW
CONST. LIMITS
HWY. 167
LT. LANE SHIFT
RT. LANE SHIFT
200' TAPER
N 2°17'17" E
N 5°44'123" E
N 5°44'19" E
N 2°18'02" E
N 1°28'39" E

+90.00 1145.00
+65.00 1146.32
P.I. 1123+45.7
P.I. 1127+00.00 RT.
Δ = 0°01'4"
P.C. 1130+79.61
P.C. 1134+86.88
P.I. 1131+90.29
P.I. 1134+23.52
P.C. 1120+00.55
P.T. 1126+90.67
P.T. 1126+87.4 OLD JOB 070244

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.3'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

HWY. 167
P.I. 1134+23.52
Δ = 3°26'17"LT.
D = 0°30'00"
T = 343.91'
L = 687.61'
P.C. 1130+79.61
P.T. 1137+67.22
NO SUPER

LT. LANE SHIFT
P.T. 1138+30.87
Δ = 3°26'20"LT.
D = 0°30'00"
T = 344.00'
L = 687.68'
P.C. 1134+86.88
P.T. 1141+74.66
NO SUPER

HWY. 167
P.I. 1123+45.71
Δ = 3°27'02"RT.
D = 0°30'00"
T = 345.16'
L = 690.12'
P.C. 1120+00.55
P.T. 1126+90.67
NO SUPER

STA. 1129+00 - CONSTRUCT TYPE "RM" DROP INLET IN MEDIAN 4'-0" x 3'-0" x H = 2'-6" W./ 18" x 116' R.C. PIPE OUTLET ON LT. (CL. III)(USE TYPE 3 BEDDING) WITH F.E.S. LT.
18" R.C. PIPE (CL. III) = 116 LIN.FT.
18" F.E.S. = 1EA.

HWY. 167

210
205
200
195
190
185
180
175
170
165
160

1120+00 1121+00 1122+00 1123+00 1124+00 1125+00 1126+00 1127+00 1128+00 1129+00 1130+00 1131+00 1132+00 1133+00 1134+00 1135+00

183.94
0.00%
1121+53.00 183.94
K=223.05
VC=200'
e=-0.22'
-0.90%
K=177.84
VC=150'
e=0.16'
1123+95.00 181.77
-0.05%
1127+00.00BK 181.61
-0.01% MED.DT.GR.
+00.00 MED.DT.GR. MED. ELEV. 177.42
+00.00 MED.DT.GR. MED. ELEV. 177.39

1127+00.00 AHD 181.61
0.05%
K=2904.87
VC=300'
e=0.04'
1128+77.00 181.52
+00 TOP D.I. 177.39
F.L. D.I. 174.89
F.L. OUTLET 162.49
0.05%
LT. MAIN LANES
181.85

1127+00.00 AHD 181.61
0.05%
K=2954.61
VC=300'
e=0.04'
1128+77.00 181.52
0.05%
RT. MAIN LANES
181.84

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				6	ARK.			
				JOB NO.		070291	121	355

(2) PLAN AND PROFILE SHEETS

RT. LANE SHIFT
P.I. 1131+90.29
Δ = 4°15'40"LT.
D = 0°30'00"
T = 426.31'
L = 852.23'
P.C. 1127+63.98
P.T. 1136+16.21
NO SUPER

HWY. 167
P.I. 1134+23.52
Δ = 3°26'17"LT.
D = 0°30'00"
T = 343.91'
L = 687.61'
P.C. 1130+79.61
P.T. 1137+67.22
NO SUPER

LT. LANE SHIFT
P.I. 1138+30.87
Δ = 3°26'20"LT.
D = 0°30'00"
T = 344.00'
L = 687.79'
P.C. 1134+86.88
P.T. 1141+74.66
NO SUPER

EQUATIONS
C.L. LT. STA. 1142+48.25 BK = C.L. CONST. STA. 1142+50.00 AHD
C.L. RT. STA. 1142+51.99 BK = C.L. CONST. STA. 1142+50.00 AHD

REMOVAL OF GUARDRAIL

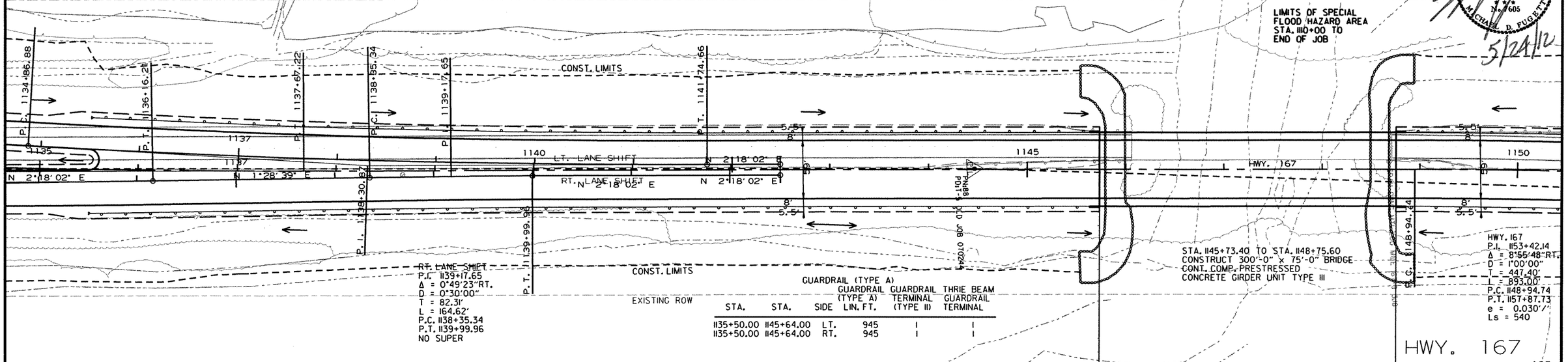
STA.	STA.	SIDE	LIN. FT.
1144+04	1146+06	RT.	202
1145+30	1146+06	LT.	76
1148+91	1149+46	RT.	55
1148+96	1150+72	LT.	176

EXISTING ROW

STA. 1146+05.78 - STA. 1148+70.99 IN PLACE
265.60' x 28' CLEAR ROADWAY
BRIDGE CONSISTING OF 8 SPAN METAL
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3) = 1.00 LUMP SUM

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9605
MICHAEL D. FUGETT
5/24/12

LIMITS OF SPECIAL FLOOD HAZARD AREA STA. 1110+00 TO END OF JOB



RT. LANE SHIFT
P.I. 1139+17.65
Δ = 0°49'23"RT.
D = 0°30'00"
T = 82.31'
L = 164.62'
P.C. 1138+35.34
P.T. 1139+99.96
NO SUPER

CONST. LIMITS

EXISTING ROW

GUARDRAIL (TYPE A)

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE II)	THRIE BEAM GUARDRAIL TERMINAL
1135+50.00	1145+64.00	LT.	945	1	1
1135+50.00	1145+64.00	RT.	945	1	1

STA. 1145+73.40 TO STA. 1148+75.60
CONSTRUCT 300'-0" x 75'-0" BRIDGE
CONT. COMP. PRESTRESSED
CONCRETE GIRDER UNIT TYPE III

HWY. 167
P.I. 1153+42.14
Δ = 8°56'48"RT.
D = 1°00'00"
T = 447.40'
L = 893.00'
P.C. 1148+94.74
P.T. 1157+87.73
e = 0.030'/'
Ls = 540

HWY. 167

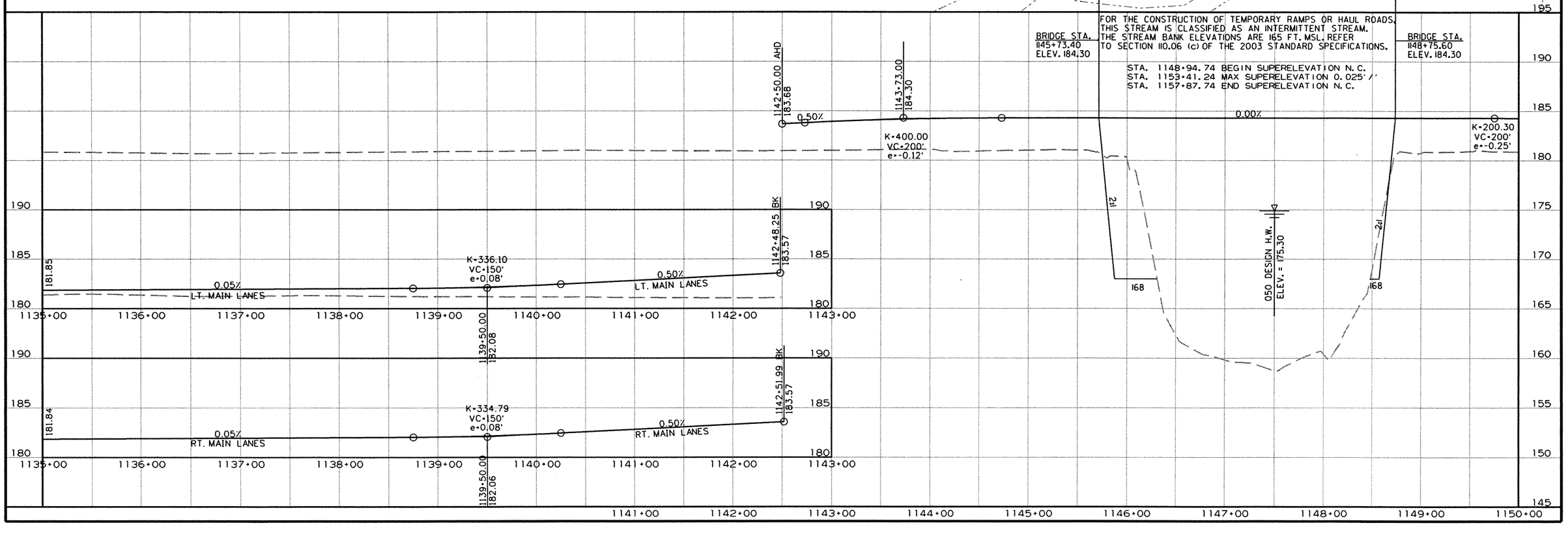
195

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 165 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2003 STANDARD SPECIFICATIONS.

STA. 1148+94.74 BEGIN SUPERELEVATION N.C.
STA. 1153+41.24 MAX SUPERELEVATION 0.025'/'
STA. 1157+87.74 END SUPERELEVATION N.C.

BRIDGE STA. 1145+73.40 ELEV. 184.30

BRIDGE STA. 1148+75.60 ELEV. 184.30



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				6	ARK.			
				JOB NO.		070291	122	355

(2) PLAN AND PROFILE SHEETS

LIMITS OF SPECIAL FLOOD HAZARD AREA
STA. 1110+00 TO
END OF JOB

GUARDRAIL (TYPE A)

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL
1148+85.00	1172+26.50	LT.	2304	2
1148+85.00	1172+26.50	RT.	2304	2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
5/24/12

EXISTING ROW
CONST. LIMITS
P.I. 1153+42.14
N 2°18'02" E
HWY. 167
1150
1155
1160
1165
PI N89 DID
JOB 070244
N 11°13'50" E
PI N90 DID
5'
8'
5'
P.T. 1157+87.73
CONST. LIMITS
EXISTING ROW

HWY. 167
P.I. 1153+42.14
Δ = 8°55'48"RT.
D = 1°00'00"
T = 447.40'
L = 893.00'
P.C. 1148+94.74
P.T. 1157+87.73
e = 0.030'/'
Ls = 540

HWY. 167

STA. 1148+94.74 BEGIN SUPERELEVATION N.C.
STA. 1153+41.24 MAX SUPERELEVATION 0.025'/'
STA. 1157+87.74 END SUPERELEVATION N.C.

1150+75.00
184.30
K=200.30
VC=200'
e=-0.25'
-1.00%
K=175.23
VC=150'
e=0.16'
1153+07.00
181.98
-0.14%
STA. 1157+87.74
END PROFILE GRADE
BEGIN OVERLAY
ELEV. 181.32
1157+87.74
181.32

215 210 205 200 195 190 185 180 175 170 165

1150+00 1151+00 1152+00 1153+00 1154+00 1155+00 1156+00 1157+00 1158+00 1159+00 1160+00 1161+00 1162+00 1163+00 1164+00 1165+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	123	355

(2) PLAN AND PROFILE SHEETS

STA. 1172+49.88 - STA. 1174+46.26 - IN PLACE
196.38' x 31' CLEAR ROADWAY
BRIDGE CONSISTING OF 6 SPAN
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 4) = 1.00 LUMP SUM

REMOVAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
1170+45	1172+47	RT.	202
1171+71	1172+47	LT.	76
1174+46	1176+47	LT.	201
1174+46	1175+22	RT.	76

LIMITS OF SPECIAL FLOOD HAZARD AREA
STA. 1110+00 TO
END OF JOB

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 17605
MICHAEL D. FUGETT
5/24/12

EXISTING ROW
CONST. LIMITS
5.5'
8'
5.5'
1165
1170
1175
1180
N 11°13' 50" E
HWY. 167
N 10°59' 52" E
P.I. 1175+61.103
Δ=0°13' 58" LT.
STA. 1172+35.90 TO STA. 1174+78.10
CONSTRUCT 240'-0" x 75'-0" BRIDGE
CONT. COMP. PRESTRESSED
CONCRETE GIRDER UNIT TYPE III
CONST. LIMITS
EXISTING ROW
CONST. LIMITS

GUARDRAIL (TYPE A)

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE II)	THRIE BEAM GUARDRAIL TERMINAL
1174+87.50	1181+89.17	LT.	633	1	1
1174+87.50	1183+65.00	RT.	859		1

HWY. 167

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 165 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2003 STANDARD SPECIFICATIONS.

BRIDGE STA. 1172+35.90 ELEV. 184.30
BRIDGE STA. 1174+78.10 ELEV. 184.30

STA. 1168+64.00
END OVERLAY
BEGIN PROFILE GRADE
ELEV. 182.25
1168+64.00 182.25
0.13%
K-170.50 VC-150' e-0.16'
1169+39.00 182.35
1.01%
1171+33.00 184.30
K-159.18 VC-160' e--0.20'
0.00%
2:1
2:1
050 DESIGN H.W. ELEV. = 175.30
168
168
1175+95.00 184.30
K-200.43 VC-150' e--0.14'
0.75%
1177+78.00 182.93
K-177.38 VC-160' e-0.18'
0.15%
K-148.63 VC-200' e-0.34'

200 195 190 185 180 175 170 165 160 155 150

1165+00 1166+00 1167+00 1168+00 1169+00 1170+00 1171+00 1172+00 1173+00 1174+00 1175+00 1176+00 1177+00 1178+00 1179+00 1180+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	124	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
5/24/12

LIMITS OF SPECIAL FLOOD HAZARD AREA
STA. 1110+00 TO
END OF JOB

N

EXISTING ROW

+89 100' TRANSITION +89

CONST. LIMITS

8'
5.5%

1180

N10°59'52"E

N 11°13'19"E

1185

HWY. 167

N 11°13'22"E

1190

8'
5.5%

CONST. LIMITS

P.I. 1181+60.87
Δ=0°13'27" RT.

P.I. 1184+11.56
Δ=0°0'3" RT.

Δ=0°0'3" RT.

EXISTING ROW

END JOB 070291
STA. 1181+89.17
ELEV. 185.65

HWY. 167

K=148.63
VC=200'
e=0.34'

1.50%

1182+51.17
186.70

CONSTRUCTED UNDER JOB 012014 0.00%

1185+00.00
186.70

K=166.76
VC=250'
e=-0.47'

1180+25.05
183.31

210
205
200
195
190
185
180
175
170
165
160

1180+00 1181+00 1182+00 1183+00 1184+00 1185+00 1186+00 1187+00 1188+00 1189+00 1190+00 1191+00 1192+00 1193+00 1194+00 1195+00

R070291.DGN 5/17/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	125	355

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
N. 7645
MICHAEL D. FUGETT
5/24/12

LIMITS OF SPECIAL FLOOD HAZARD AREA
STA. 110+00 TO END OF JOB

BEGIN FLOOD HAZARD AREA

STA. 105+82
CONST. APPR. = 5 CU.YD.

STA. 108+87 - CONSTRUCT
24" x 126' R.C. PIPE (CL. IV)
W./ F.E.S. LT. & RT. (USE TYPE 3 BEDDING)
Q50=23cfs; D.A.=23Ac.
24" R.C. PIPE (CL. IV) = 126 LIN. FT.
24" F.E.S. = 2 EA.

100' TRANSITION
EXISTING ROW
CONST. LIMITS
HWY. 48
T.C.E.
CONC. ISLAND W/ TYPE B CURB FACE
EB CON. PLANT
210' TURN LANE
EXISTING ROW
PAVED PARKING
SHEDS
FAIRNDALE CLIFF DRIVE
ELECTRIC CONC. LID
6' WEB WD PST POOR CND
WTR
STY WD FRM STRG BU

STA. 104+50.00
BEGIN HWY. 48

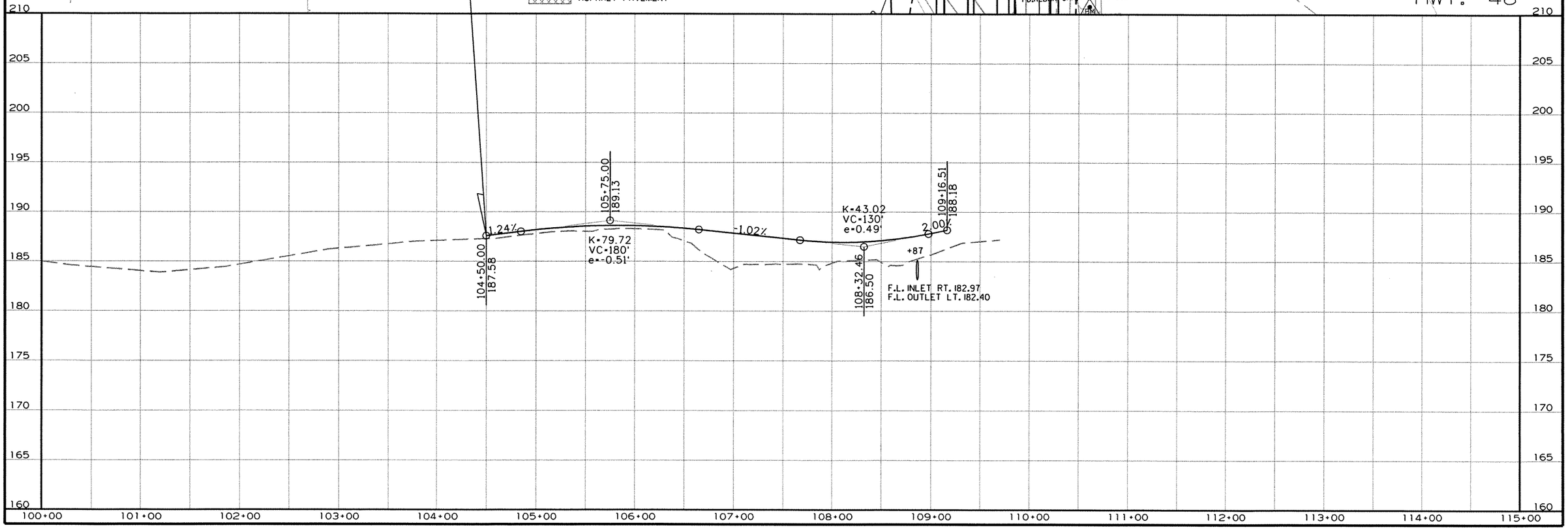
HWY. 48
P.I. 104+85.07
Δ = 7°43'57"RT.
D = 1°30'00"
T = 258.14'
L = 515.50'
P.C. 102+26.93
P.T. 107+42.43
NO SUPER

STA. 1106+50.91 C.L. HWY. 167 =
STA. 109+70.51 C.L. HWY. 48
Δ = 90°00'00"

PN:85
PD:REBAR+CAP;T 2 OLD JOB 070244

OBLITERATION OF EXISTING ASPHALT PAVEMENT

HWY. 48



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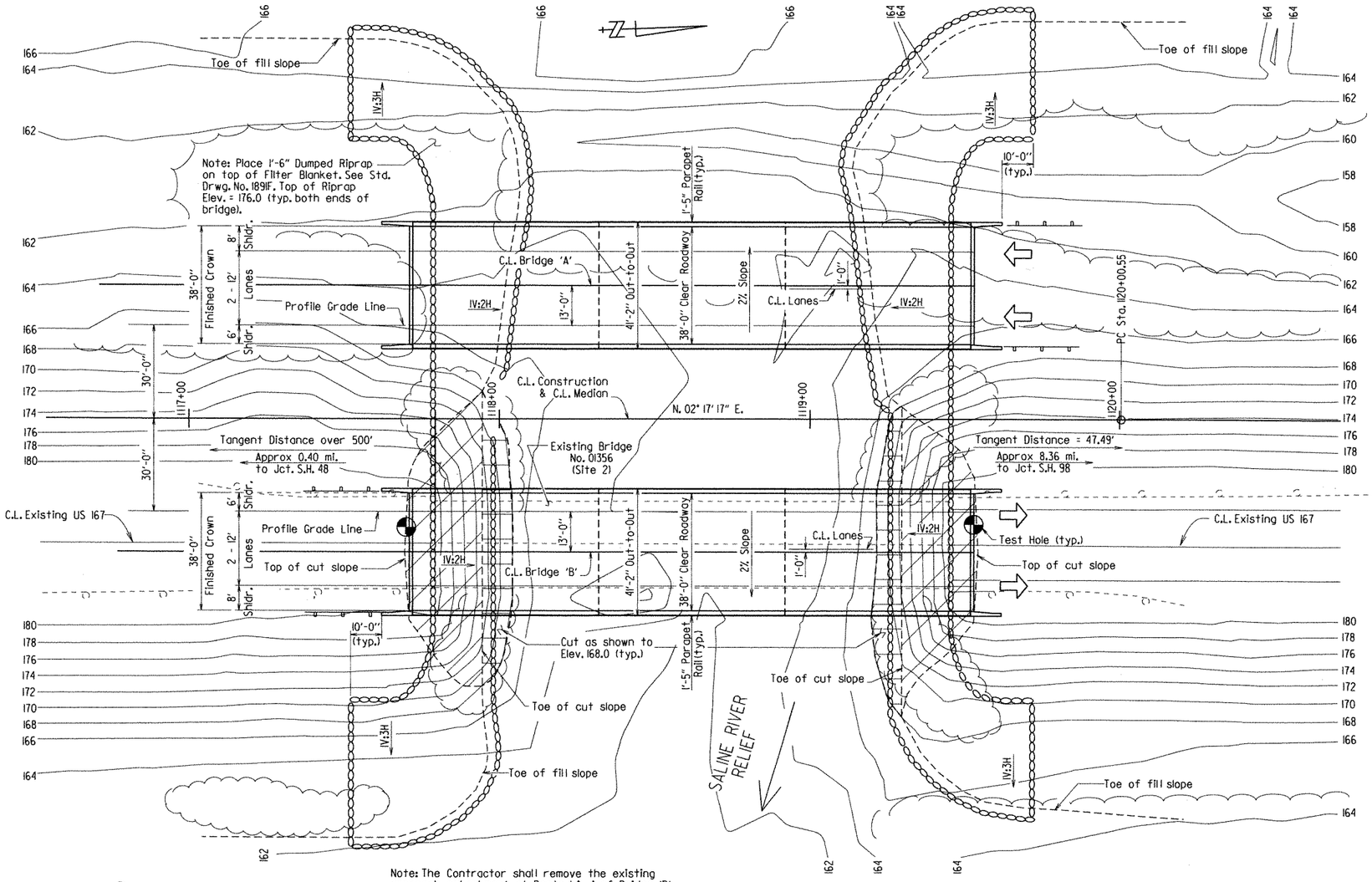
FOR R/W DATA, SEE RDWY. PLANS

Note: Type B Approach Gutters ("W" = 8'-0" & "W" = 6'-0") shall be placed at both ends of each bridge. See Std. Dwg. No. 2016B.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	126	355
				(1) A7244,B7244		LAYOUT		43771



Note: The Contractor shall remove the existing approach embankment at Bents 1 & 4 of Bridge 'B' as shown. Approx. 515 cubic yards of excavation.

PLAN BRIDGE 'A' AND BRIDGE 'B'

Note:
The proposed bridge is positioned to avoid interference with the existing piling. The Contractor shall verify the location of existing piling before driving any piling. Any adjustments necessary to fit the new bridge to the existing bridge location shall be submitted for the Engineer's approval.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	*TOTAL DISCHARGE	DISCHARGE THIS SITE	**NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	050	79,000	4,210	174.9	175.3
Base	0100	91,800	5,110	175.2	175.7
Extreme	0500	122,200	7,300	176.0	176.8
Overtopping	>0500	–	–	–	–

*Includes Saline River & Relief Bridges (Hwy. 167, Sec. 9, Log Mile 2.65, 3.18, 3.68, and Sec. 10, Log Mile 0.55, 0.81)

**Unconstricted water surface elevation without structure or roadway approaches.

0100 backwater elevation for existing structure = 175.9
Proposed Low Bridge Chord Elev. = 179.09
Historical H.W. Elev. = 176.6
Drainage area = 1,129 square miles (includes Saline River & relief bridges)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/3/12
CARL J. FUSELIER

BRIDGE ENGINEER

GENERAL NOTES

BENCH MARK: Chiseled Sq. on S.E. corner of existing bridge, 59.41' Rt. of Sta. 1117+78.96, Elev. 182.20.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 edition, with applicable supplemental specifications and special provisions. Unless otherwise noted in the plans Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (Fifth Edition) 2010 with 2010 interim specifications.

LIVE LOADING: HL-93

SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f 'c = 4,000 psi
Class S Concrete (substructure)	f 'c = 3,500 psi
Class S Concrete (Prestressed Girders)	f 'c = 6,000 psi
Reinforcing Steel (AASHTO M 31 or M 53, Gr. 60)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

CONCRETE PILING: Piling for Bents 1 and 4 shall be 16" square prestressed concrete and shall be driven to an ultimate bearing capacity of 213 tons per pile. Piling in Bents 2 and 3 shall be 24" square prestressed concrete and shall be driven to an ultimate bearing capacity of 366 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place. Piling in Bents 1 and 4 shall have a minimum tip elevation of 142.0 or lower. Piling in Bents 2 and 3 shall have a minimum tip elevation of 137.0 or lower. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. Drive one 45' test pile in Bent 2 of Bridge 'A' and one 45' test pile in Bent 4 of Bridge 'A'.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of subsection 805.09(b), "Method B – Wave equation Analysis (WEAP)". It is estimated that the minimum required rated energy of the hammer to obtain the minimum ultimate bearing capacity on 16" sq. piles will be 40,000 foot pounds per blow and on 24" sq. piles shall be 83,000 foot pounds per blow.

PREBORING: Preboring or other methods approved by the Engineer may be required to achieve the minimum pile penetration. Any cost associated with achieving the minimum pile penetration shall be incidental to "Concrete Piling".

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	43774 & 43775
Intermediate Bents	43776
Concrete Piling	14964 & 43777
180' Prestressed Conc. Girder Unit	43778 - 43783
Elastomeric Bearings	43784
Type B Approach Gutters	2016B

EXISTING BRIDGE: Existing Bridge No. 01356 (LM 2.65) is 166' in length and 31.5' wide and is comprised of 5 – 33' RCDG spans supported by concrete pile bents. Centerline of existing bridge is located approximately 40.5' east of the proposed median centerline.

REMOVAL AND SALVAGE: After Bridge 'A' is open to traffic, existing Bridge No. 01356 (Site No. 2) shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the bridge name plate which shall remain the property of AHTD.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

SHEET 1 OF 2
LAYOUT OF BRIDGES
OVER SALINE RIVER RELIEF (LM 2.65)
SALINE RIVER - SOUTH (S)
DALLAS COUNTY

ROUTE 167 SEC. 9

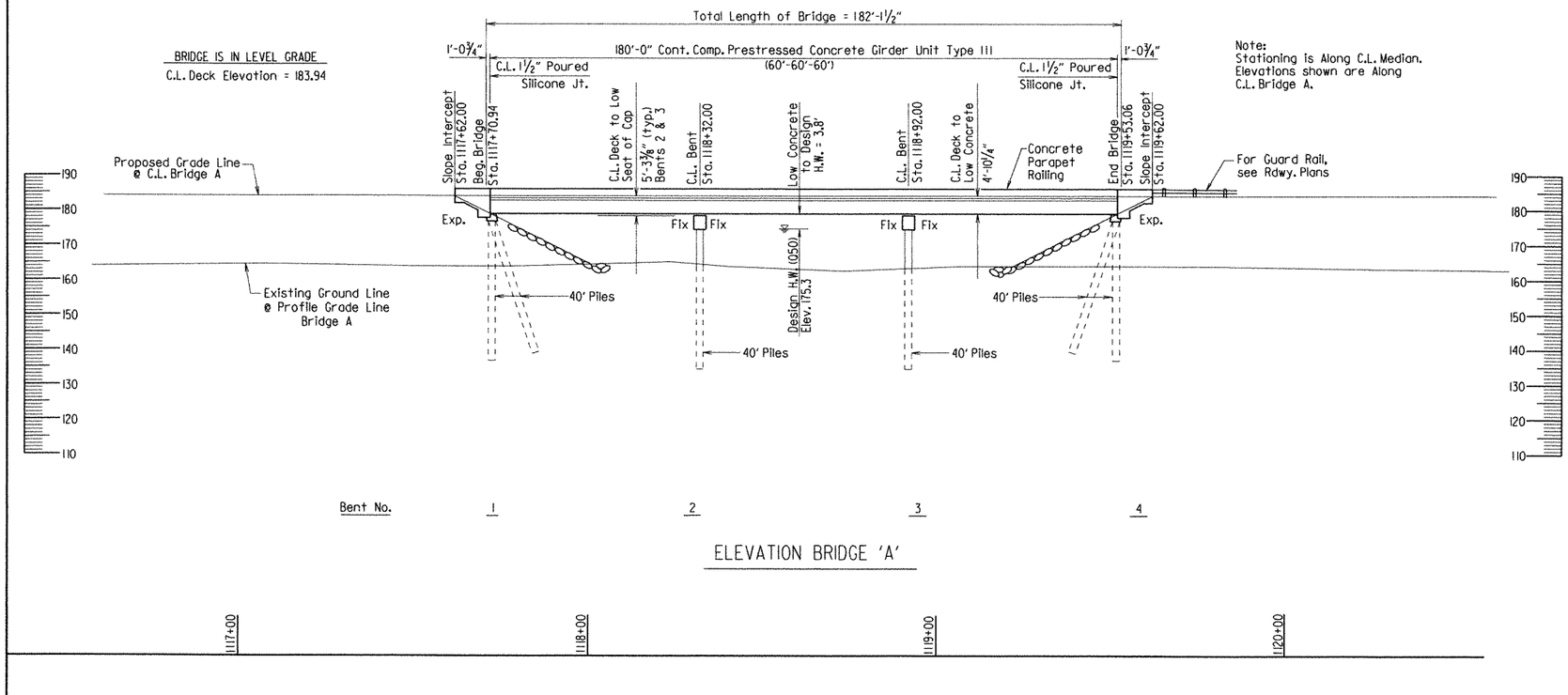
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

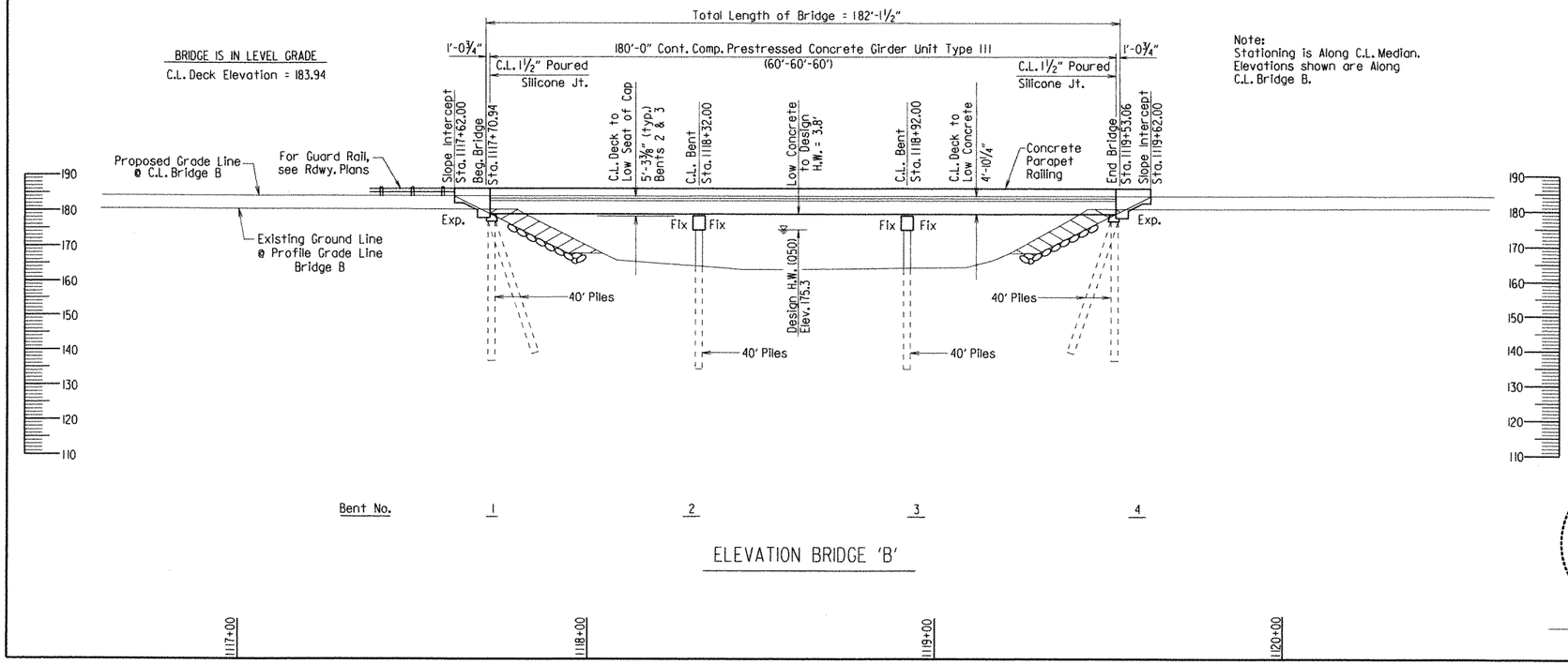
DRAWN BY: ACW/LJB DATE: 8/24/11 FILENAME: b070291_11.dgn
CHECKED BY: JGT DATE: 5/3/12 SCALE: 1"=20'-0"
DESIGNED BY: JGT DATE: 4/2011

BRIDGE NO. A7244,B7244 DRAWING NO. 43771

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	127	355
				(1) A7244,B7244		LAYOUT		43772



ELEVATION BRIDGE 'A'



ELEVATION BRIDGE 'B'

STATE OF ARKANSAS
Carl J. Pusellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLIER
5/17/11

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGES
OVER SALINE RIVER RELIEF (LM 2.65)
SALINE RIVER - SOUTH (S)
DALLAS COUNTY

ROUTE 167 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ACW/LJB DATE: 8/24/11 FILENAME: b070291_II.dgn
CHECKED BY: SGT DATE: 3/20/12 SCALE: 1"=20'-0"
DESIGNED BY: SGT DATE: 4/2011
BRIDGE NO. A7244,B7244 DRAWING NO. 43772

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	128	355
				(1) A7244,B7244		SOIL BORINGS		43773

BORING LEGEND

AI-Moist, Stiff, Gray Silty Clay with some Organic Matter and Trace of Gravel
BI-Moist, Loose, Gray Sand with Clay
CI-Moist, Medium Stiff, Gray Clay
DI-Moist, Stiff, Gray Clay with Sand
EI-Wet, Loose, Gray Sand
FI-Wet, Medium Dense, Gray Sand with Gravel
GI-Moist, Very Stiff, Brown Clay with Organic Matter
HI-Wet, Dense, Gray Sand
JI-Moist, Very Stiff, Gray Clay
KI-Moist, Very Stiff, Dark Brown Lignitic Clay
LI-Moist, Medium Stiff, Gray Sandy Clay with some Organic Matter
MI-Wet, Soft, Gray Clay with Sand
NI-Wet, Soft, Gray Clay with some Sand
PI-Wet, Dense, Gray Gravelly Sand
QI-Wet, Medium Dense, Gray Gravelly Sand
RI-Wet, Stiff, Gray Clay with Gravel
SI-Wet, Stiff, Brown Clay with Trace of Gravel and Organic Matter
TI-Wet, Medium Dense, Gray Sand with Trace of Gravel
UI-Wet, Dense, Gray Sand with Trace of Organic Matter
VI-Wet, Medium Dense, Gray Sand
WI-Moist, Hard, Gray Sandy Clay
XI-Moist, Hard, Gray and Brown Clay
YI-Moist, Hard, Gray and Brown Clay with Trace of Lignite

"N" VALUES

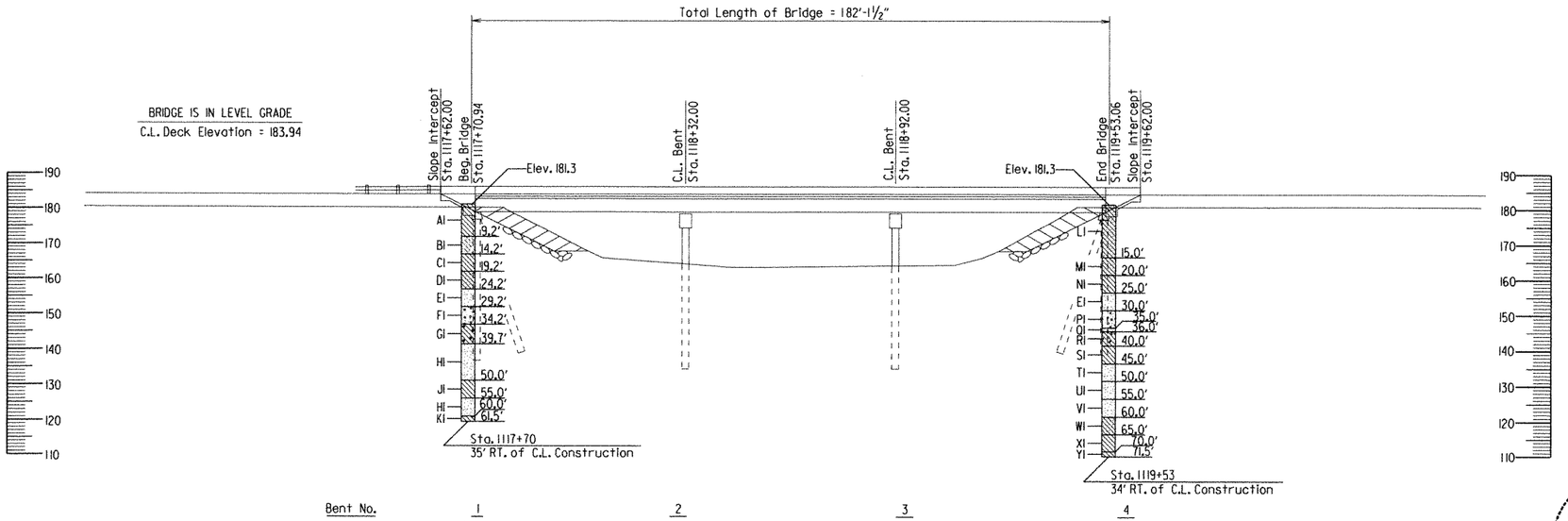
Sta. 1117+70 - 35' RT. of C.L. Construction

4.7 -	5.7, N=10
9.7 -	10.7, N=9
14.7 -	15.7, N=6
19.7 -	20.7, N=11
24.7 -	25.7, N=8
29.7 -	30.7, N=26
34.7 -	35.7, N=19
39.7 -	40.7, N=31
45.5 -	46.5, N=33
50.5 -	51.5, N=27
55.5 -	56.5, N=48
60.5 -	61.5, N=25

Sta. 1119+53 - 34' RT. of C.L. Construction

4.8 -	5.8, N=7
9.8 -	10.8, N=5
15.5 -	16.5, N=4
20.5 -	21.5, N=4
25.5 -	26.5, N=6
30.5 -	31.5, N=32
35.5 -	36.5, N=21
40.5 -	41.5, N=15
45.5 -	46.5, N=24
50.5 -	51.5, N=37
55.5 -	56.5, N=28
60.5 -	61.5, N=34
65.5 -	66.5, N=32
70.5 -	71.5, N=35

Note: Traces of organic matter, cemented sand, and Lignite were encountered in the borings and may be encountered in greater amounts at other locations in the project area.



ELEVATION BRIDGE 'B'

STATE OF ARKANSAS
Carl J. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLER
5/17/12

BRIDGE ENGINEER

SOIL BORINGS
SALINE RIVER RELIEF (LM 2.65)
SALINE RIVER - SOUTH (S)
DALLAS COUNTY

ROUTE 167 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION

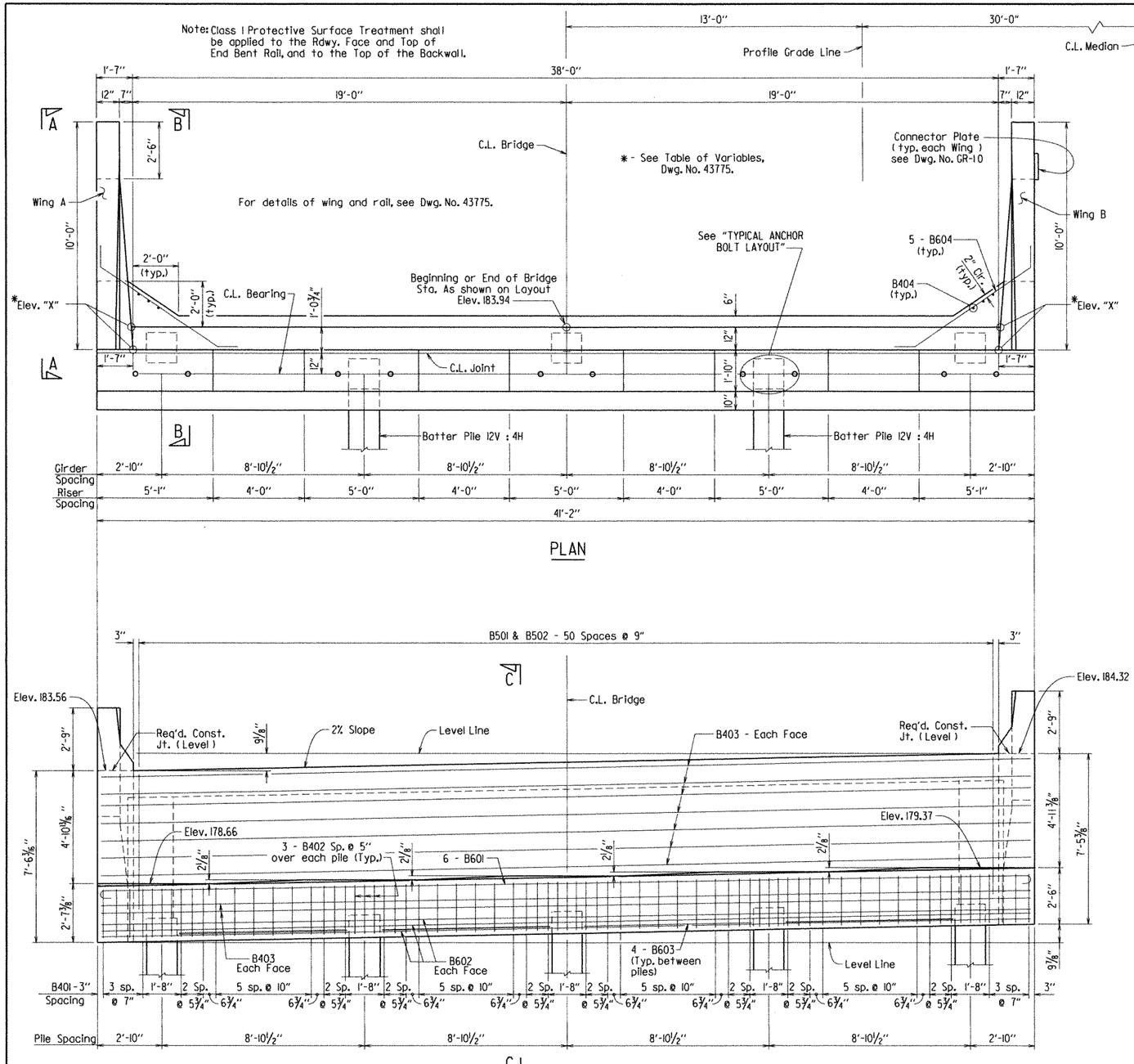
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 3/19/12 FILENAME: b070291_II.dgn
CHECKED BY: SGT DATE: 3/20/12 SCALE: 1"=20'-0"
DESIGNED BY: SGT DATE: 4/2011

BRIDGE NO. A7244,B7244 DRAWING NO. 43773

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	129	355
				(1) A7244,B7244 END BENTS				43774

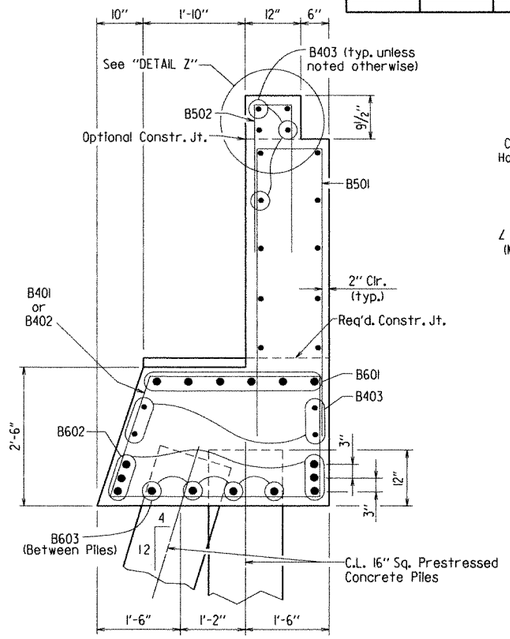
Note: Class 1 Protective Surface Treatment shall be applied to the Rdwy. Face and Top of End Bent Rail, and to the Top of the Backwall.



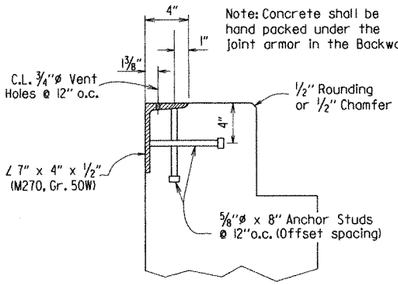
PLAN

ELEVATION

Bridge A - Looking Ahead Bent 4
Bridge B - Looking Back Bent 1
(See "ALTERNATE ELEVATION VIEW" for bents not shown)

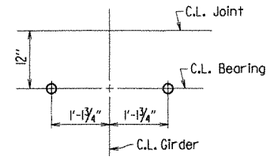


SECTION C-C
¾" = 1'-0"



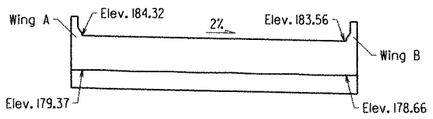
Note: For additional joint details, see Dwg. No. 43783.

DETAIL Z
N.T.S



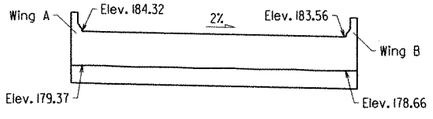
Note: For details of Elastomeric Bearings, see Dwg. No. 43784.

TYPICAL ANCHOR BOLT LAYOUT
N.T.S



Bridge B - Bent 4
(Looking Ahead)

Note: Details not shown are similiar to "ELEVATION".



Bridge A - Bent 1
(Looking Back)

ALTERNATE ELEVATION VIEW
N.T.S

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/17/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF END BENTS
SALINE RIVER RELIEF (LM 2.65)

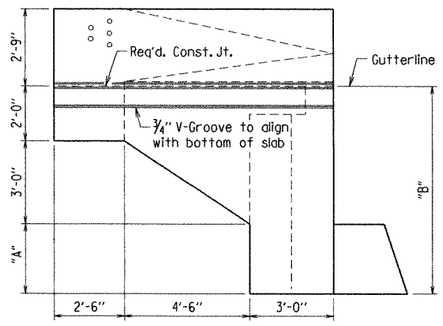
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ACW/LJB DATE: 11/15/11
CHECKED BY: TMG DATE: 4/3/12
DESIGNED BY: LJB DATE: 11/2011
FILENAME: b070291x2_bl.dgn
SCALE: 3/8"=1'-0" or As Noted.

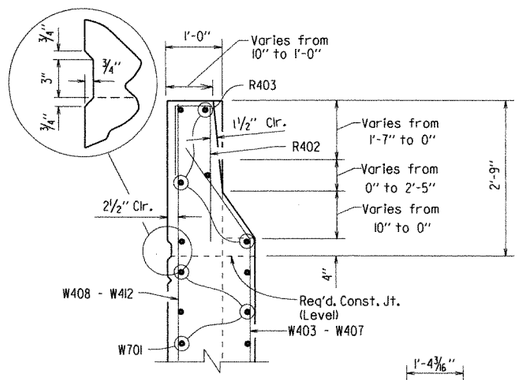
BRIDGE NO. A7244,B7244 DRAWING NO. 43774

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	130	355
				(1)	A7244,B7244	END BENTS		43775



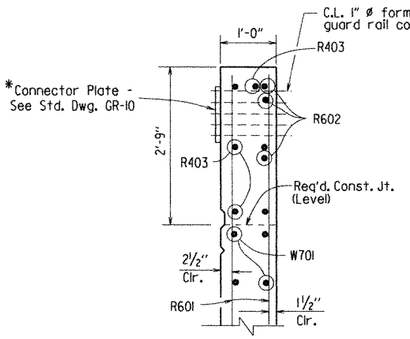
VIEW A-A

3/8" = 1'-0"



SECTION X-X

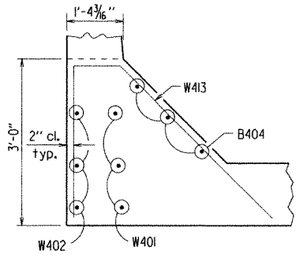
3/4" = 1'-0"



SECTION Y-Y

3/4" = 1'-0"

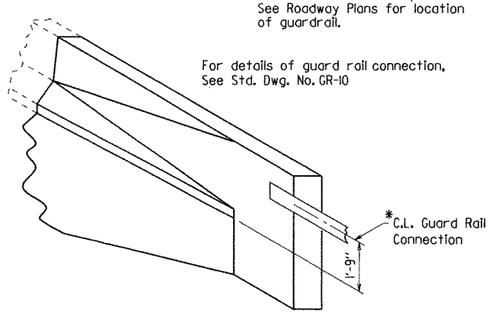
*Connector Plate as required. See Roadway Plans for location of guardrail.



SECTION Z-Z

3/4" = 1'-0"

For details of guard rail connection, See Std. Dwg. No. GR-10



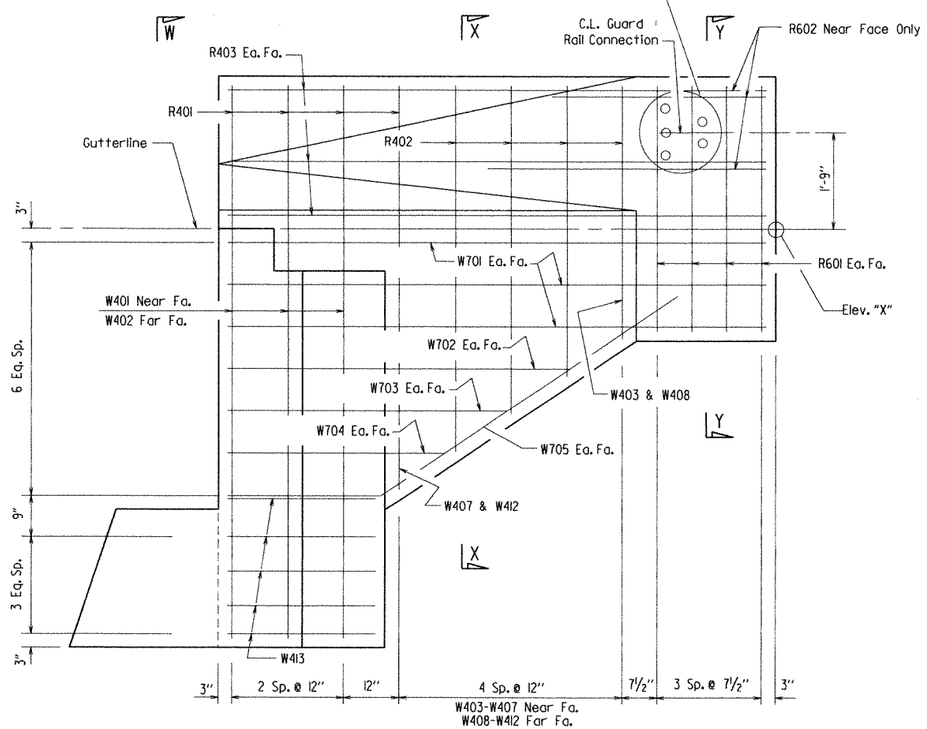
THREE DIMENSIONAL VIEW OF RAIL

No Scale

TABLE OF VARIABLES

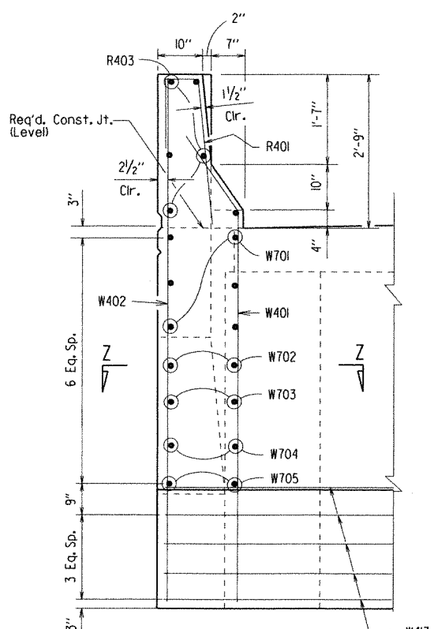
	Bent	Wing	"A"	"B"	Elev. "X"
BRIDGE A	1	A	2'-6"	7'-5 3/8"	184.32
		B	2'-7 3/8"	7'-6 3/16"	183.56
	4	A	2'-7 3/8"	7'-6 3/16"	183.56
		B	2'-6"	7'-5 3/8"	184.32
BRIDGE B	1	A	2'-7 3/8"	7'-6 3/16"	183.56
		B	2'-6"	7'-5 3/8"	184.32
	4	A	2'-6"	7'-5 3/8"	184.32
		B	2'-7 3/8"	7'-6 3/16"	183.56

5 - 1" ø formed holes for guard rail connection. See Dwg. No. GR-10 for bolt spacing and additional connection details.



SECTION B-B

3/4" = 1'-0"



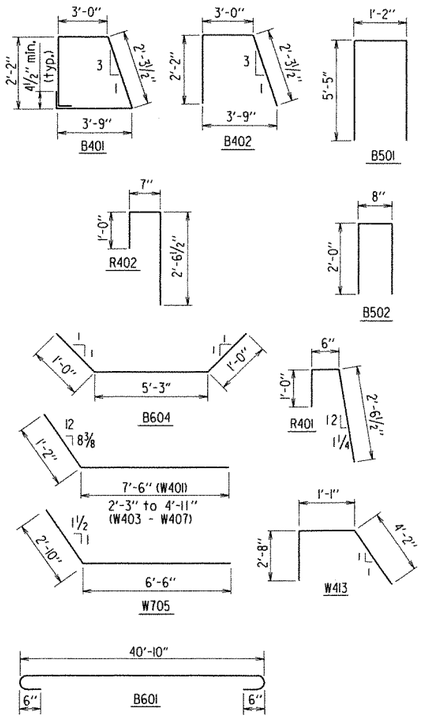
VIEW W-W

3/4" = 1'-0"

BAR LIST PER BENT

Mark	No. Req'd.	Length	Pin Dia.
B401	56	11'-7"	2"
B402	15	7'-4"	2"
B403	18	40'-10"	str.
B404	6	6'-4"	str.
B501	51	11'-10"	2 1/2"
B502	51	4'-6"	2 1/2"
B601	6	42'-2"	4 1/2"
B602	6	40'-10"	str.
B603	16	7'-2"	str.
B604	10	7'-3"	4 1/2"
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	str.
R601	16	4'-5"	str.
R602	6	4'-0"	str.
W401	6	8'-8"	2"
W402	6	9'-10"	str.
W403 to W407	2 Each	3'-5" to 6'-1"	2"
W408 to W412	2 Each	4'-6" to 7'-2"	str.
W413	10	7'-9"	2"
W701	12	9'-8"	str.
W702	4	6'-2"	str.
W703	4	5'-1"	str.
W704	4	4'-0"	str.
W705	4	9'-4"	5 1/4"

Bending Diagrams
(Dimensions are out to out of bars.)



General Notes :

All concrete shall be Class "S" with 28-Day Compressive strength f 'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield Strength = 60,000 psi).

Structural Steel in End Bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".

No Portion of the Backwall shall be poured before girders are in place. The portion of the backwall above the paving bracket shall not be placed until the adjacent deck pour has been made. See Expansion Device Installation on Dwg. No. 43783 for additional information.

If anchor bolts are drilled into cap, top reinforcing bars shall be placed to avoid damage.

For additional information, see layout.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/17/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF END BENTS
SALINE RIVER RELIEF (LM 2.65)

ROUTE SEC.

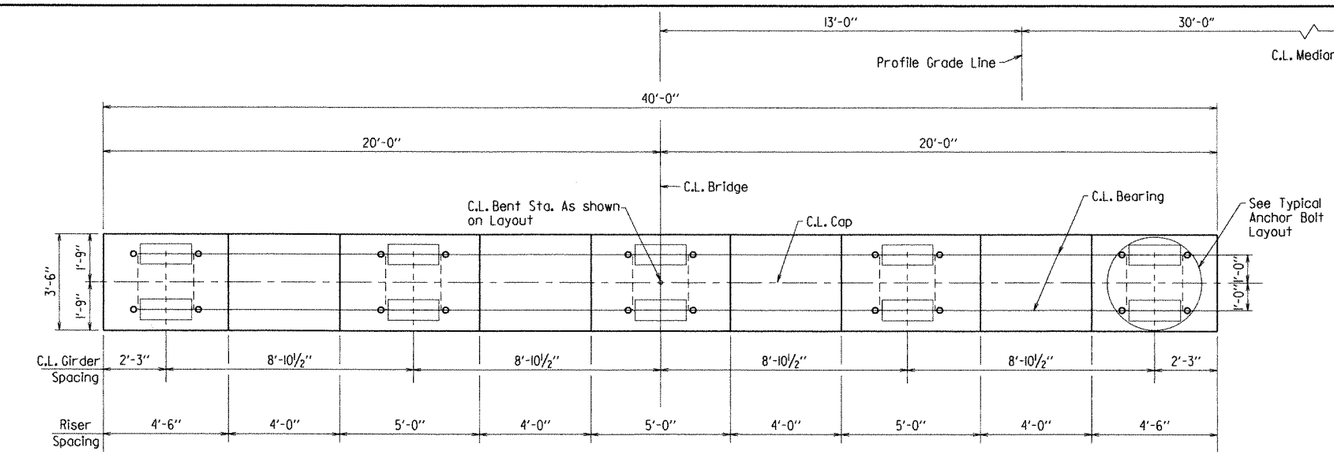
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

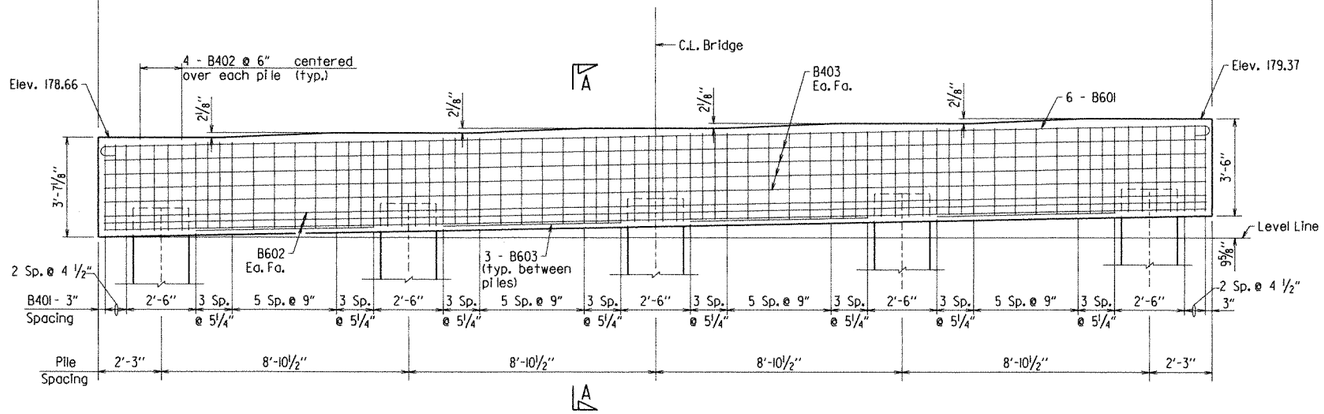
DRAWN BY: ACW/LJB DATE: 11/15/11
CHECKED BY: TMG DATE: 2/3/12
DESIGNED BY: LJB DATE: 11/2011
FILENAME: b070291x2_bl.dgn
SCALE: 3/8"=1'-0" or As Noted.

BRIDGE NO. A7244,B7244 DRAWING NO. 43775

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	131	355
				(1) A7244,B7244		INT. BENTS	43776	

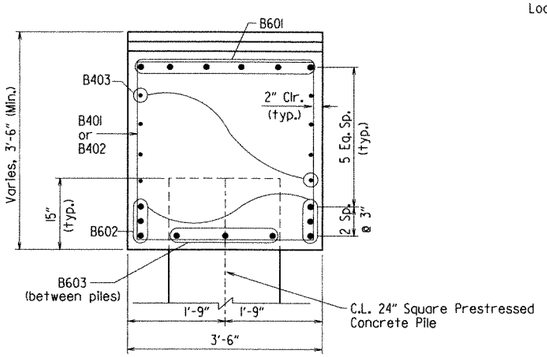


PLAN



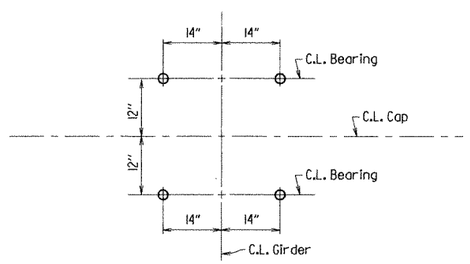
ELEVATION

Looking Back - Bridge B
Looking Ahead - Bridge A



SECTION A-A

¾" = 1'-0"



Note: For details of Elastomeric Bearings, see Dwg. No. 43784.

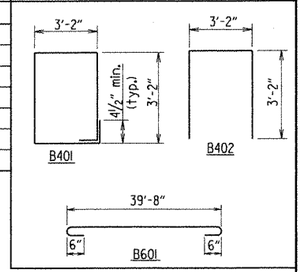
TYPICAL ANCHOR BOLT LAYOUT

N.T.S

BAR LIST (PER BENT)

MARK	NO. REQ'D.	LENGTH	P.D.
B401	54	13'-0"	2"
B402	20	9'-4"	2"
B403	8	39'-8"	Str.
B601	6	41'-0"	4½"
B602	6	39'-8"	Str.
B603	12	6'-7"	Str.

Bending Diagrams
(Dimensions are out to out of bars.)



General Notes :

All concrete shall be Class "S" with 28-Day Compressive strength f 'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield Strength = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be placed to avoid damage.

For additional information, see layout.

STATE OF ARKANSAS
Carl J. Puseliер
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELIER
5/17/12

BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS SALINE RIVER RELIEF (LM 2.65)

ROUTE SEC.

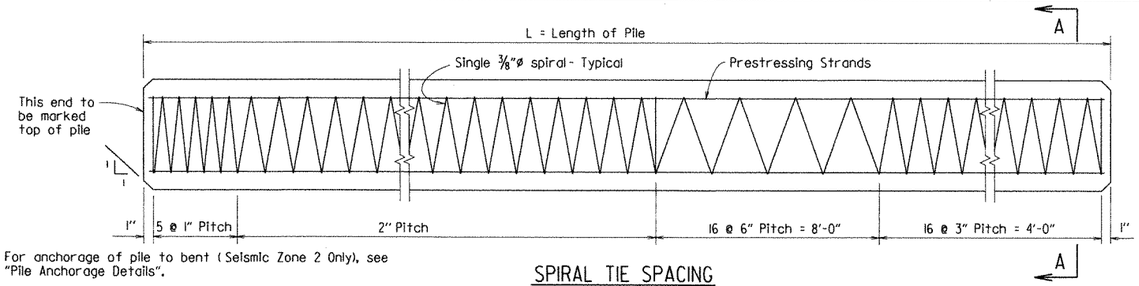
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	LJB	DATE:	11/30/11	FILENAME:	b070291x2_b2.dgn
CHECKED BY:	TMG	DATE:	2/3/12	SCALE:	⅜"=1'-0" or As Noted.
DESIGNED BY:	LJB	DATE:	11/2011		

BRIDGE NO. A7244,B7244 DRAWING NO. 43776

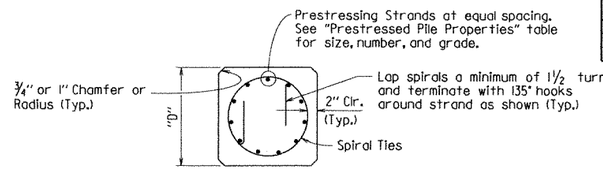
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		▸	
				JOB NO.		070291	132	355
				① A7244,B7244		CONC. PILES		43777
				07245,07246				



For anchorage of pile to bent (Seismic Zone 2 Only), see "Pile Anchorage Details".

SPIRAL TIE SPACING

NOTE: Spirals terminate with 1½ turns



SECTION A-A

PRESTRESSED CONCRETE PILES

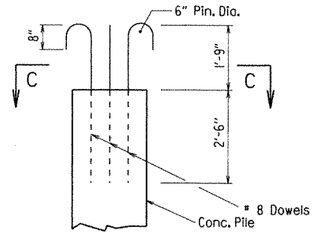
NOTE: Strand location shall be symmetrical about the axis of the pile. Circular spiral ties are required for all piles.

PRESTRESSED PILE PROPERTIES

	Grade	Strand Diameter	No. of Strands * per Size "D" 20" Sq.	No. of Strands * per Size "D" 24" Sq.	Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Intial Prestressing Force Per Strand (Lbs.)
Low Relaxation	250	7/16"	16	23	27,000	20,200
		½"	12	17	36,000	27,000
	270	7/16"	14	20	31,000	23,300
		½"	11	15	41,300	31,000

* Number based on initial prestress force of "B" x Ultimate Tensile Stress, Prestress Losses, and min. 700 psi Unit Prestress on concrete after Losses.

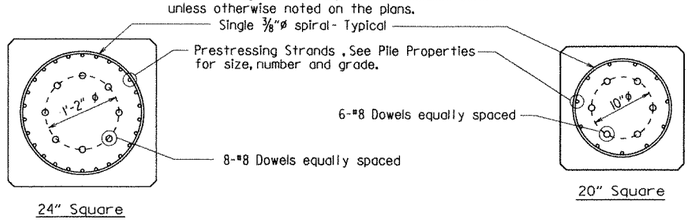
"B" — 0.75 Low Relaxation



PILE ANCHORAGE DETAILS FOR SEISMIC ZONE 2

No Scale

After driving, drill and grout # 8 dowels 2'-6" into piles using an approved non-shrink grout or an epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout manufacturer. Dowels, drilling and grouting shall not be paid for separately but shall be included in the price bid for Piling. Pile anchorage is not required for Seismic Zone 1 unless otherwise noted on the plans.



VIEW C-C

VIEW C-C

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications Fifth Edition (2010) with 2010 Interim Revisions.

SEISMIC ZONE: Zone 1 and Zone 2

The contractor shall use prestressed piles ONLY. Piles will be measured and paid for at the contract unit price bid for "Concrete Piling".

CONCRETE: Concrete in Precast Prestressed Piles shall be Class S (AE) and shall have a Minimum Compressive Strength (f'c) of 5000 psi at 28 days. Compressive strength at transfer of the Prestressing Force shall be not less than 4000 psi. Concrete in Build-Ups shall have a minimum Compressive Strength of 4000 psi. and shall be cured for a minimum of 10 days.

REINFORCING STEEL: Reinforcing Steel for Pile anchorage and build-up shall conform to AASHTO M31 or M53, Grade 60.

PRESTRESSING REINFORCING: Seven wire low relaxation strands shall conform to the general requirements of AASHTO M203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M32 or M225 or shall be plain round steel bars meeting the requirements of AASHTO M31 or M53, Gr. 60.

MANUFACTURE, TRANSPORTATION AND STORAGE: See Section 802 "Concrete for Structures".

FORMS: For forming exterior of piles, the use of steel forms on concrete founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

TOLERANCES: Pile ends shall be plane surfaces and perpendicular to axis of pile with a maximum tolerance of ⅛" per foot transversely.

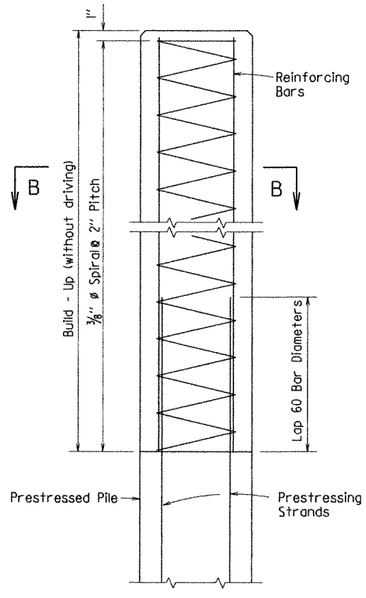
The maximum sweep (deviation from straightness measured along two perpendicular faces of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 Ft.

Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress.

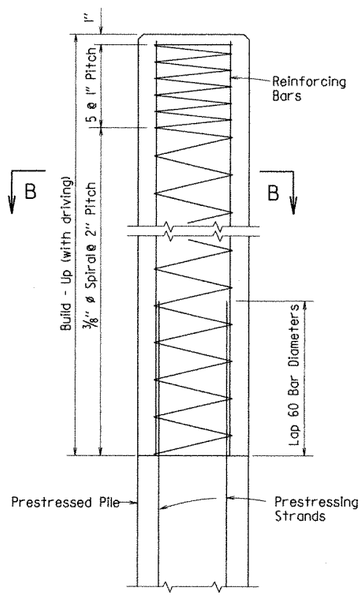
BUILD-UPS: To provide for Build-Ups of piles where authorized by the Engineer, concrete shall be cut back to expose the strands for a distance sufficient to provide a lap of 60 diameters of the reinforcing bars required for build-up.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling".

COARSE AGGREGATE: Maximum size of coarse aggregate shall be ¾".



DETAILS FOR BUILD-UP WITHOUT DRIVING

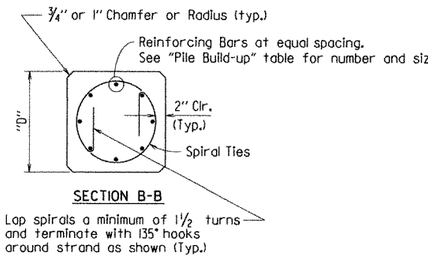


DETAILS FOR BUILD-UP WITH DRIVING

BUILD-UP PILE REINFORCING

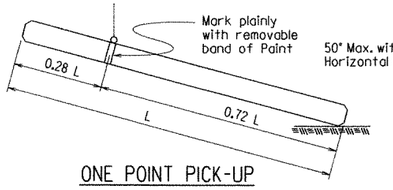
Pile Size	No. Req'd.	Bar Size
20" Sq.	8	# 9
24" Sq.	12	# 9

PILE BUILD-UP

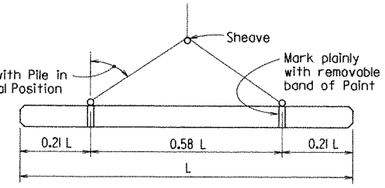


SECTION B-B

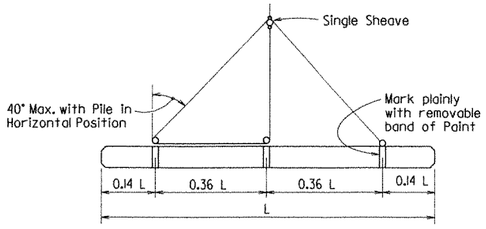
Lap spirals a minimum of 1½ turns and terminate with 135° hooks around strand as shown (Typ.)



ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP

MAXIMUM PICKUP LENGTHS L

Type of Pick - Up	Prestressed 20" Sq.	Prestressed 24" Sq.
One - Point	63'	69'
Two - Point	95'	104'
Three - Point	128'	138'

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/17/12
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF 20" & 24" PRESTRESSED CONCRETE PILES SALINE RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 12/20/11 FILENAME: b070291_cp.dgn

CHECKED BY: JSG DATE: 2/2/12 SCALE: 1"=1'-0"

DESIGNED BY: STD DATE:

BRIDGE NO. A7244,B7244,07245,07246 DRAWING NO. 43777

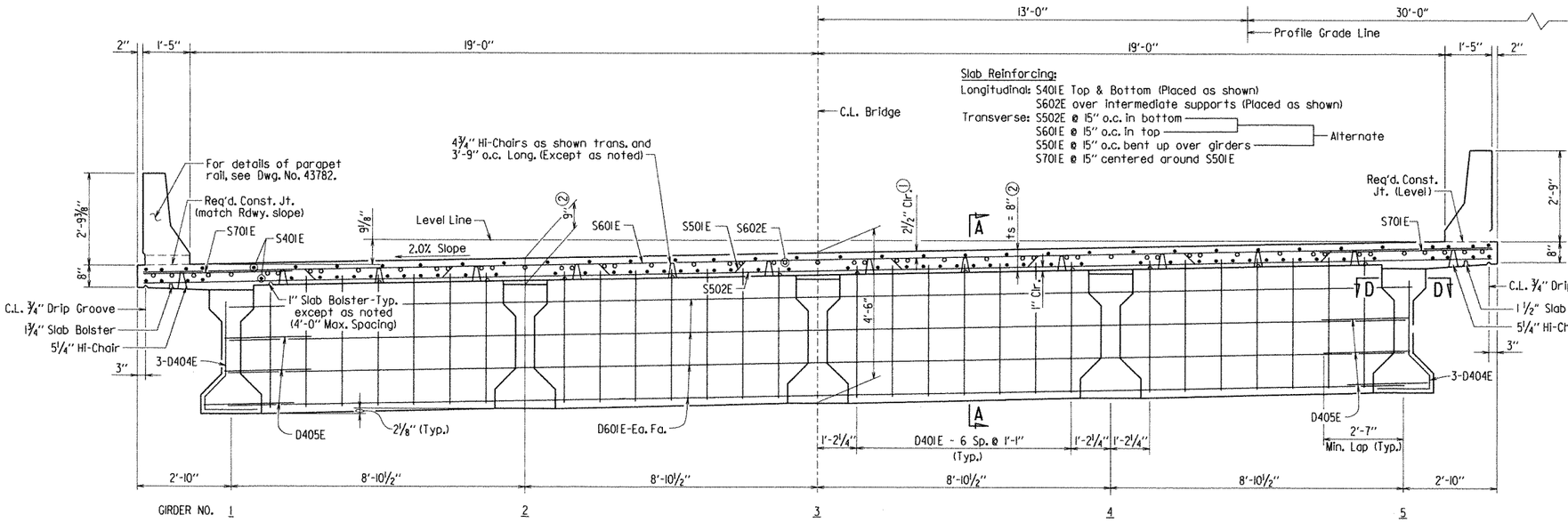
NOTE: Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the Roadway Face and Top of the Concrete Parapet Rail.

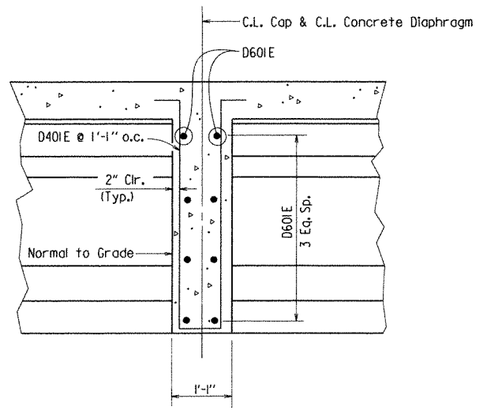
NOTE: At Contractor's option, in lieu of providing Bar S501E one straight #5 epoxy coated bar may be substituted top and bottom. Payment for Reinforcing will be based on the weight of bar S501E.

NOTE: All bars designated with a "E" suffix are to be Epoxy Coated.

NOTE: The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	133	355
				(1) A7244,B7244		SPAN DETAILS		43778





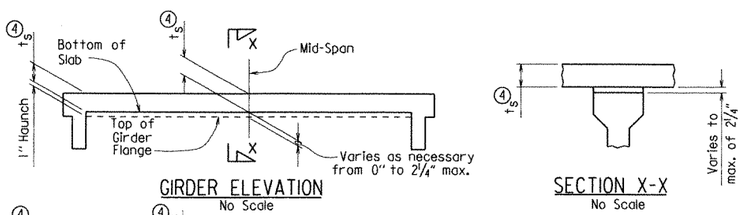
NOTE: All diaphragms shall be formed normal to Deck Grade at C.L. Bridge.

SECTION A-A
Intermediate Bent Diaphragms
¾" = 1'-0"

TYPICAL SECTION AT INTERMEDIATE BENTS
Bridge A - Looking Ahead
Bridge B - Looing Back
½" = 1'-0"

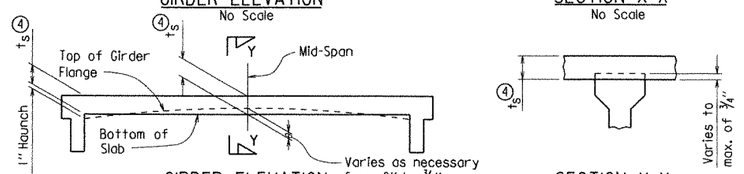
① Tolerance: Minus = ¼"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance - see "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED".

② See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED".



GIRDER ELEVATION
No Scale

SECTION X-X
No Scale



GIRDER ELEVATION
No Scale

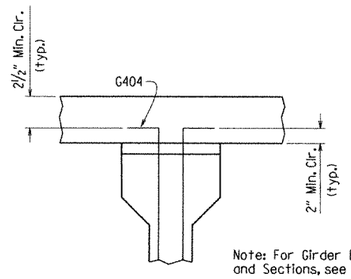
SECTION Y-Y
No Scale

NOTE: t_S = slab thickness as shown on superstructure details - See "TYPICAL SECTION AT INTERMEDIATE BENTS".

④ Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance. See Dwg. No. 14991 for tolerances when permanent steel deck forms are used.

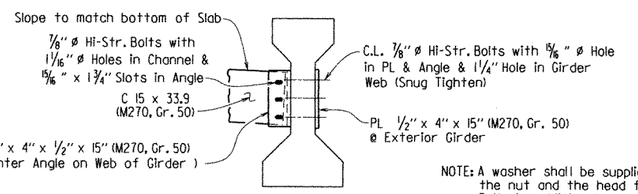
'Girder Elevation' sketches show the range of acceptability of the top of the Girder relative to bottom of slab after the placement of the slab. When the top of the Girder projects more than ¾" into the slab, a raise in grade will be necessary. Girders shall be set in a sufficient number of spans so when adjustment is necessary the Profile Grade can be adjusted over suitable increments so the revised grade line will produce a smooth riding surface. Variation of haunch height will be at the Contractor's expense.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED



Note: For Girder Elevations and Sections, see Dwg. No. 43780.

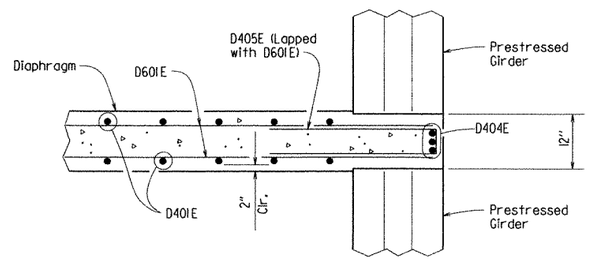
SHEAR REINFORCEMENT DETAIL
No Scale



DETAIL OF ALTERNATE ③ MIDSPAN DIAPHRAGM
No Scale

③ Galvanized Steel Diaphragms may be used in place of Concrete at Midspan Diaphragms only. All components of the Alternate Steel Diaphragms shall be Galvanized, in accordance with AASHTO M111. Payment will be based on concrete diaphragms.

NOTE: A washer shall be supplied under both the nut and the head for the ⅞" ø H.S. Bolt. An additional plate washer shall cover the angle slots.



SECTION D-D
¾" = 1'-0"

STATE OF ARKANSAS
Carl J. Puselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELIER
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 180'-0" PRESTRESSED CONCRETE GIRDER UNITS
SALINE RIVER RELIEF (LM 2.65)

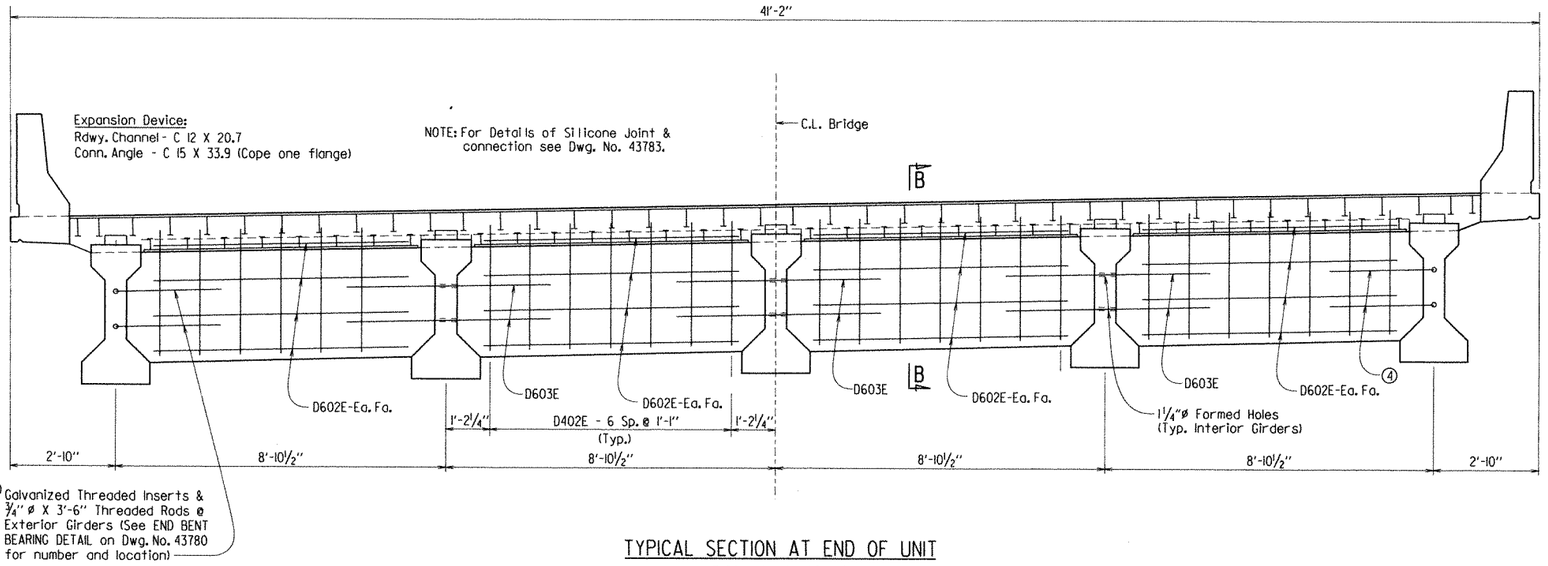
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE/LJB DATE: 10/13/11 FILENAME: b070291_sl.dgn
CHECKED BY: SNP DATE: 2/8/12 SCALE: As Noted
DESIGNED BY: LJB DATE: 10/2011

BRIDGE NO. A7244,B7244 DRAWING NO. 43778

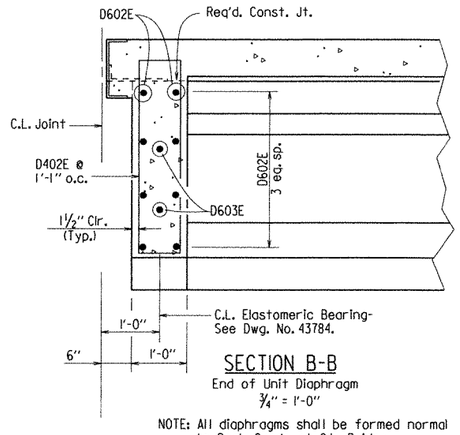
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	134	355
				(1)	A7244,B7244	SPAN DETAILS		43779



④ Galvanized Threaded Inserts & ¾" ø X 3'-6" Threaded Rods @ Exterior Girders (See END BENT BEARING DETAIL on Dwg. No. 43780 for number and location)

TYPICAL SECTION AT END OF UNIT

Bridge A - Looking Ahead
Bridge B - Looing Back
½" = 1'-0"

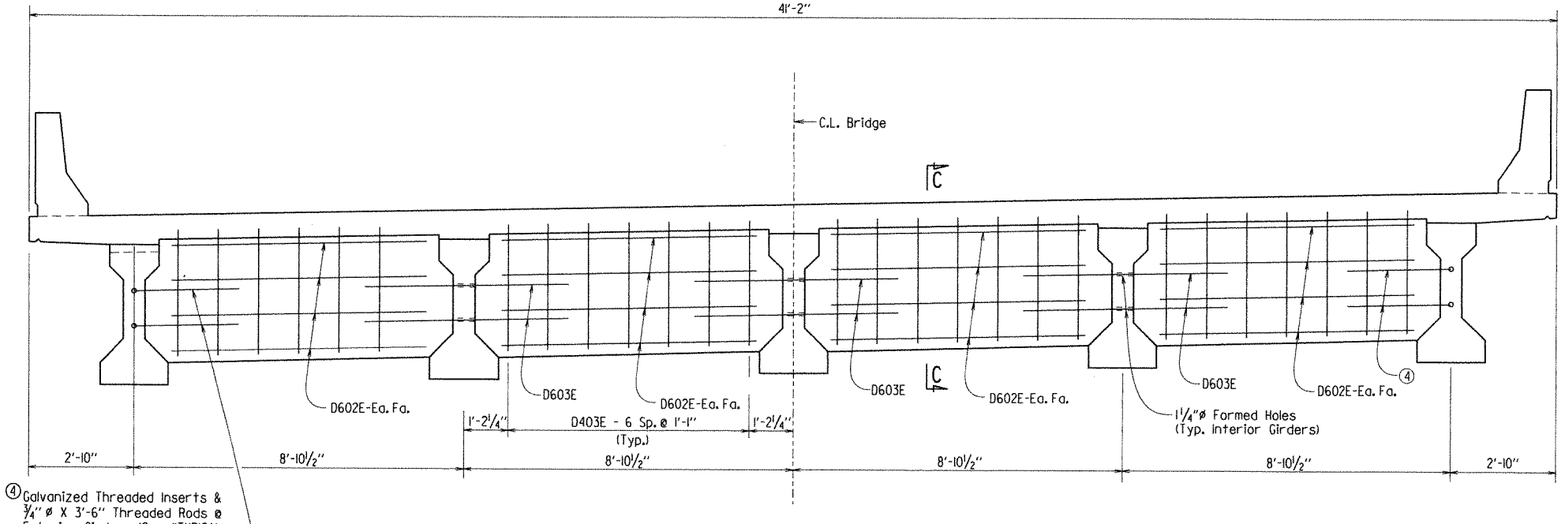


SECTION B-B

End of Unit Diaphragm
¾" = 1'-0"

NOTE: All diaphragms shall be formed normal to Deck Grade at C.L. Bridge.

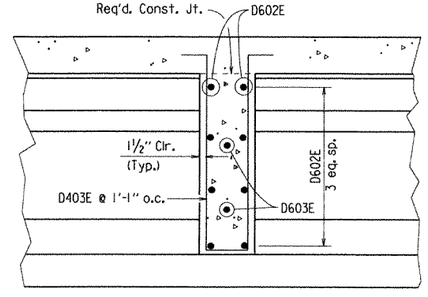
④ NOTE:
Galvanized Threaded Inserts shall be Dayton-Richmond F-42 Loop Ferule Inserts or approved equal, ¾" ø Galvanized Threaded Rods shall be AASHTO M 270, Grade 36 or AASHTO M 31 or M 53, Grade 60. Galvanizing shall be in accordance with AASHTO M 232 Class C or AASHTO M 298 Class 50. These items will not be paid for directly, but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".



④ Galvanized Threaded Inserts & ¾" ø X 3'-6" Threaded Rods @ Exterior Girders (See "TYPICAL GIRDER ELEVATION" on Dwg. No. 43780 for number and location)

TYPICAL SECTION AT MIDSPAN DIAPHRAGMS

Bridge A - Looking Ahead
Bridge B - Looing Back
½" = 1'-0"



SECTION C-C

Midspan Diaphragms
¾" = 1'-0"

NOTE: See "DETAIL OF ALTERNATE MIDSPAN DIAPHRAGM", Dwg. No. 43798.

STATE OF ARKANSAS
Carl J. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/13/12
CARL J. PUSELLER

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SHEET 2 OF 6
DETAILS OF 180'-0" PRESTRESSED CONCRETE GIRDER UNITS
SALINE RIVER RELIEF (LM 2.65)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

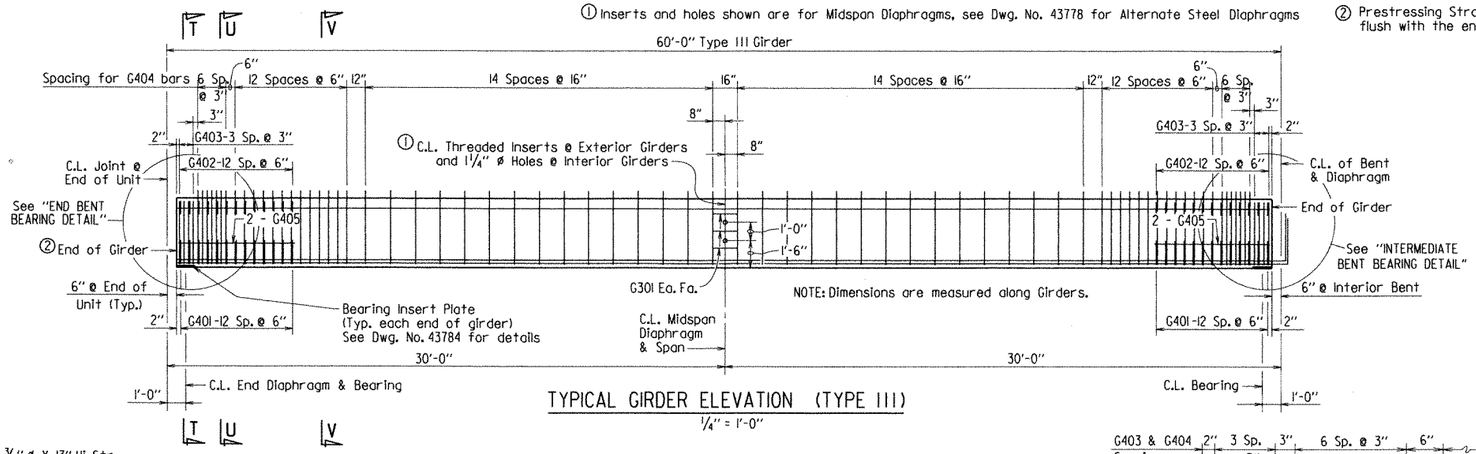
DRAWN BY: MRE/LJB DATE: 10/13/11
CHECKED BY: EmP DATE: 2/6/12
DESIGNED BY: LJB DATE: 10/2011
FILENAME: b070291_sl.dgn
SCALE: As Noted

BRIDGE NO. A7244,B7244 DRAWING NO. 43779

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	135	355
				① A7244,B7244		SPAN DETAILS		43780

① Inserts and holes shown are for Midspan Diaphragms, see Dwg. No. 43778 for Alternate Steel Diaphragms

② Prestressing Strands at End Bents shall be sawn flush with the end of the girders.

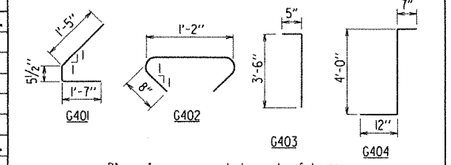


TYPICAL GIRDER ELEVATION (TYPE III)

¼" = 1'-0"

BAR LIST PER GIRDER

MARK	NO. REQ'D.	LENGTH	P. D.	BENDING DIAGRAMS
G301	6	1'-3"	Str.	
G401	52	3'-4"	2"	
G402	26	2'-9"	3"	
G403	16	3'-10"	2"	
G404	140	5'-5"	2"	
G405	4	6'-3"	Str.	

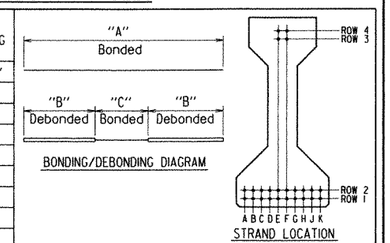


Dimensions are out to out of bars.

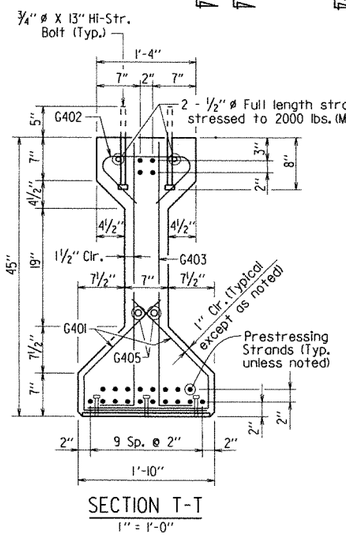
All bars in this list shall be subsidiary to the item "Prestressed Concrete Girders (Type III)". For Bar List of Span Reinforcing, See Dwg. Nos. 43781.

TABLE OF GIRDER VARIABLES

STRAND DESIGNATION		VARIABLES OF BONDING/DEBONDING		
ROW	LINE	"A"	"B"	"C"
1	A,B,C,D,E,F,G,H,J,K	59'		
2	B,C,D,E,F,G,H,J	59'		
3	E,F	59'		
4	E,F	59'		

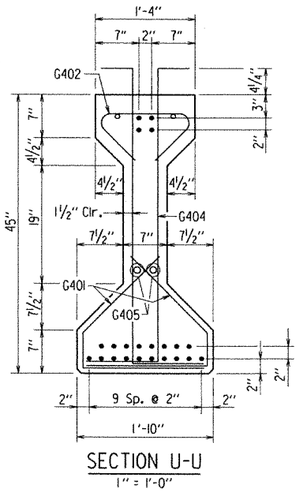


Note: Prestressing Strands shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)"



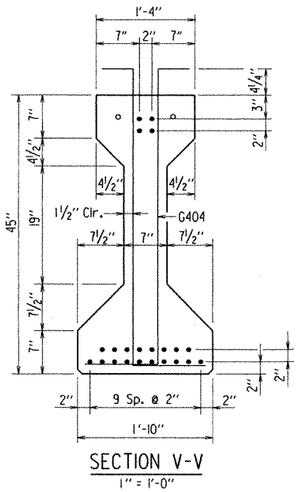
SECTION T-T

1" = 1'-0"



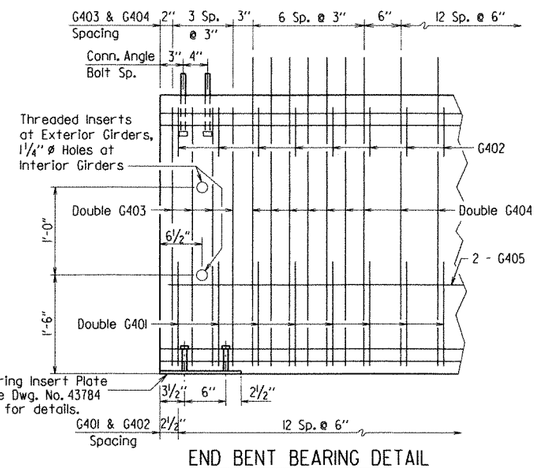
SECTION U-U

1" = 1'-0"



SECTION V-V

1" = 1'-0"

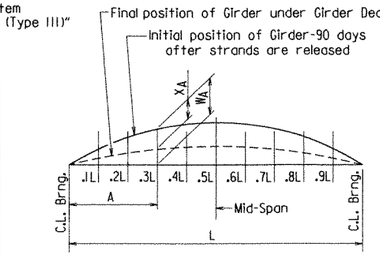


END BENT BEARING DETAIL

Not To Scale

Showing reinforcing in relation to bearing plate assembly and 1¼" ø holes and threaded inserts.

Span Pt.	Inches	
	W_A	X_A
0.00	0.000	0.000
0.10	0.354	0.127
0.20	0.611	0.250
0.30	0.785	0.347
0.40	0.884	0.409
0.50	0.916	0.431
0.60	0.884	0.409
0.70	0.785	0.347
0.80	0.611	0.250
0.90	0.354	0.127
1.00	0.000	0.000



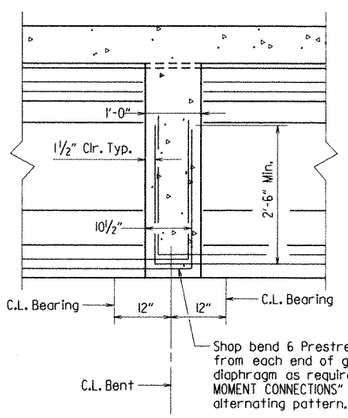
"W_A" is camber of Girder (Prestress + Dead Load of Girder @ 90 days after release)

"X_A" is Dead Load Deflection of Slab + Diaphragms + Composite Dead Load

CAMBER & DEFLECTIONS (INCHES)

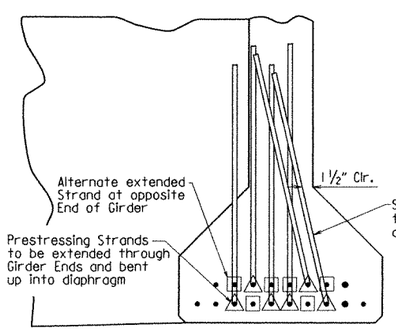
No Scale

NOTE: "W_A" & "X_A" shall be measured along bottom of girders unless otherwise approved by the Engineer. "W_A" & "X_A" may vary from the dimension shown. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" for limitations of the girder final position under dead load. The Contractor is responsible for any adjustment necessary to meet slab thickness tolerance and to achieve an acceptable finished grade. No payment shall be made for any additional concrete in the haunches when camber is less than shown.



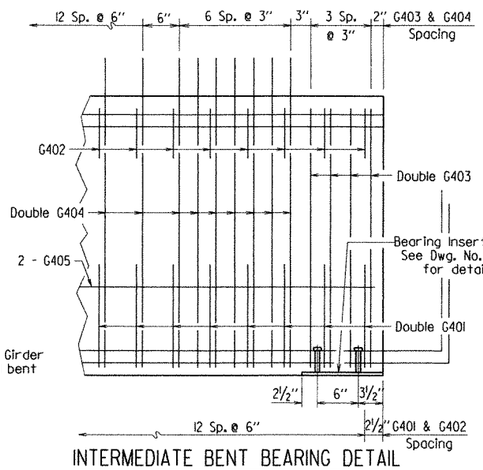
ELEVATION OF GIRDERS AT INTERMEDIATE BENTS

¾"=1'-0"



POSITIVE MOMENT CONNECTIONS

No Scale



INTERMEDIATE BENT BEARING DETAIL

Not To Scale

Showing reinforcing in relation to bearing plate assembly

STATE OF ARKANSAS
Carl J. Pusellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/17/12
CARL J. PUSELLIER

BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 180'-0" PRESTRESSED CONCRETE GIRDER UNITS
SALINE RIVER RELIEF (LM 2.65)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

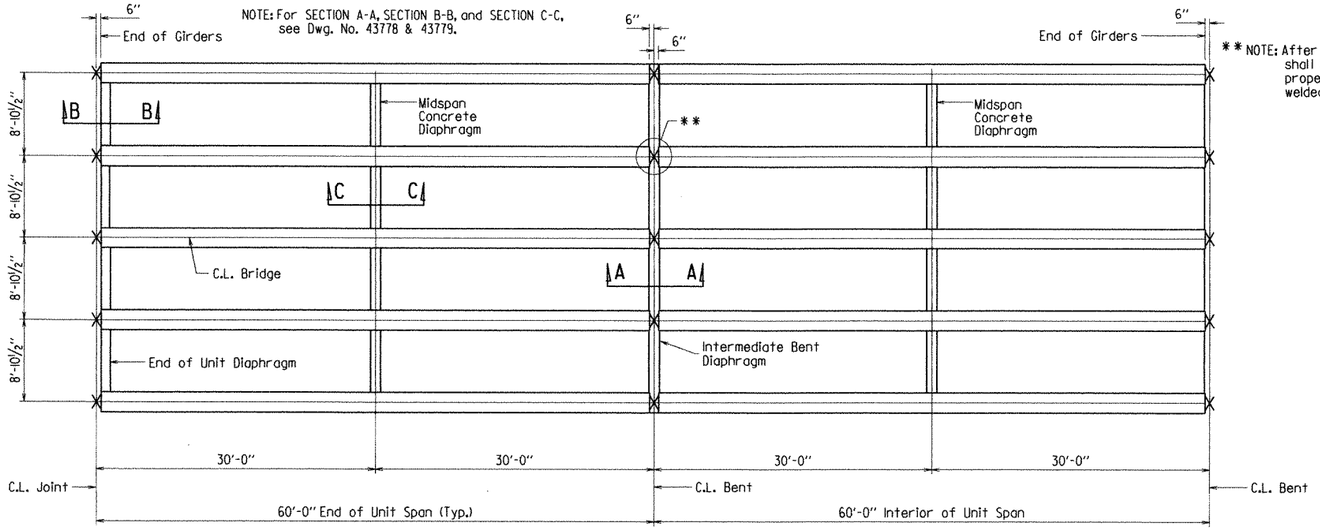
DRAWN BY: MRE/LJB DATE: 10/13/11 FILENAME: b070291_sl.dgn

CHECKED BY: CJP DATE: 5/17/2012 SCALE: As Noted

DESIGNED BY: LJB DATE: 10/2011

BRIDGE NO. A7244,B7244 DRAWING NO. 43780

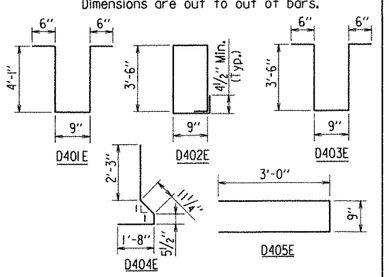
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	136	355
				(1) A7244,B7244		SPAN DETAILS		43781



DIAPHRAGM BAR LIST PER 180'-0" UNIT

MARK	NO. REQ'D.	LENGTH	P.D.
D401E	56	9'-7"	2"
D402E	60	8'-10"	2"
D403E	84	8'-5"	2"
D404E	12	5'-2"	2"
D405E	12	6'-7"	2"
D601E	16	35'-10"	Str.
D602E	160	7'-0"	Str.
D603E	30	5'-6"	Str.

BENDING DIAGRAMS
Dimensions are out to out of bars.

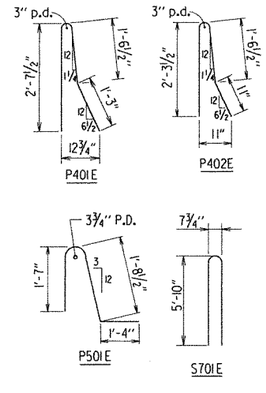


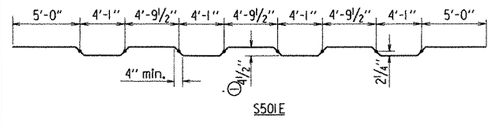
NOTE: Bars with an "E" suffix are to be Epoxy-Coated.

BAR LIST PER 180'-0 UNIT

Mark	No. Req'd.	Length	Pin Dia.
S401E	460	39'-9"	Str.
S501E	143	41'-5"	3"
S502E	144	40'-10"	Str.
S601E	144	40'-10"	Str.
S602E	106	27'-0"	Str.
S701E	286	11'-11"	6"
P401E	672	5'-5"	2"
P402E	48	4'-10"	2"
P403E	72	5'-6"	Str.
P404E	168	14'-8"	Str.
P501E	672	4'-9"	3¾"

Bending Diagrams (Dimensions are out to out of bars.)



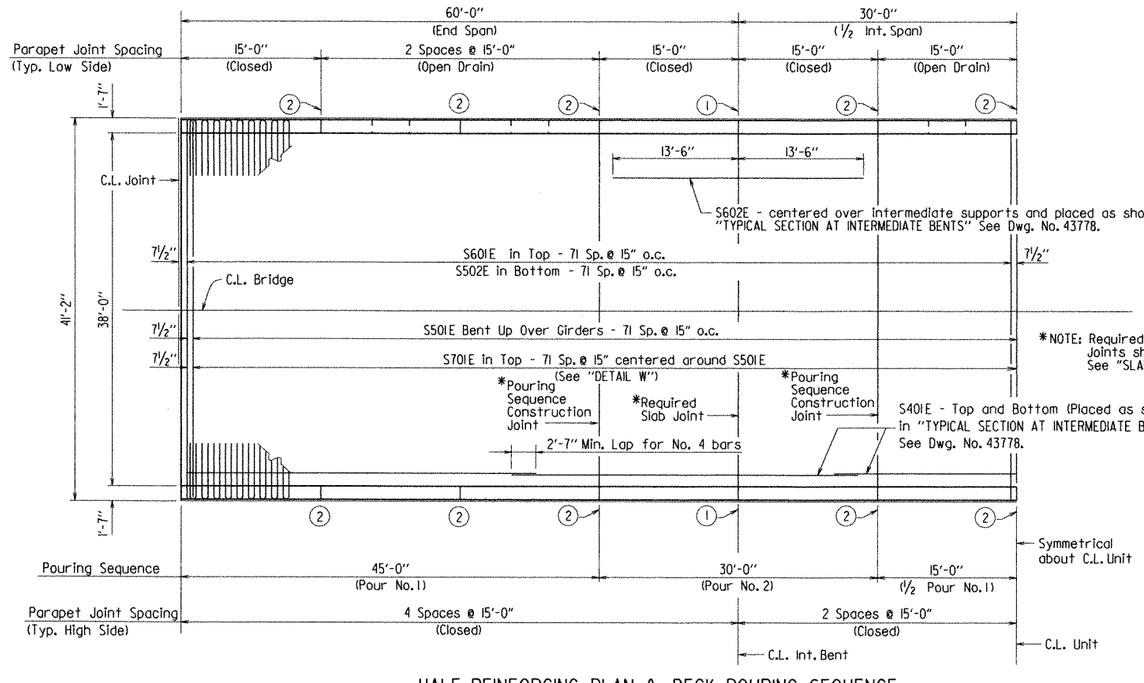


① ½" Overtolerance, No Undertolerance.

NOTE: All Bars designated with an "E" suffix are to be Epoxy Coated.

PARTIAL FRAMING PLAN

⅛" = 1'-0"



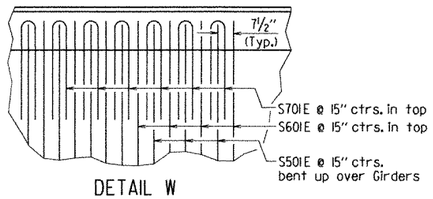
HALF-REINFORCING PLAN & DECK POURING SEQUENCE

⅛" = 1'-0"

*NOTE: Required Slab Joints and Pouring Sequence Joints shall align with Parapet Joints. See "SLAB JOINT DETAIL".

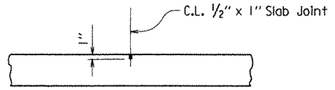
① C.L. Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab.

② C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab.



DETAIL W

No Scale



Use ½" X 1" Type 3, 4 or 6 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer rod shall not be installed. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations.

SLAB JOINT DETAIL

No Scale

NOTE: Pours with the same number may be poured simultaneously or separately. All pours (1) must be placed before pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour.

Any railing pours shall not be made before the entire slab unit has been placed unless approval of the Engineer has been obtained. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence.

Diaphragm Pours: End of unit diaphragms (Section B-B) and Midspan Diaphragms (Section C-C) shall be poured at least 48 hours prior to deck pours. Diaphragms at Bents (Section A-A) shall be poured monolithically with the slab but shall not be poured until 90 days after girders are cast. See Dwg. No. 43778 & 43779 for Section Details.

STATE OF ARKANSAS
Carl J. Fuselier
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No. 7510
5/17/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 180'-0" PRESTRESSED CONCRETE GIRDER UNITS
SALINE RIVER RELIEF (LM 2.65)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

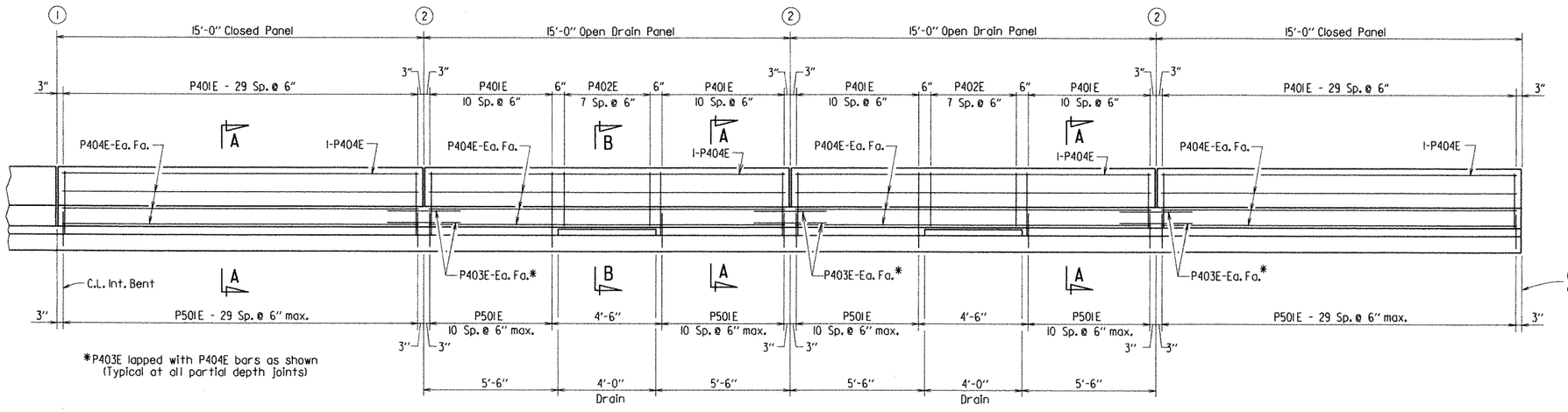
DRAWN BY: MRE/LJB DATE: 10/13/11 FILENAME: b070291_sl.dgn
CHECKED BY: DATE: 2/9/12 SCALE: As Noted
DESIGNED BY: DATE: 10/2011

BRIDGE NO. A7244,B7244 DRAWING NO. 43781

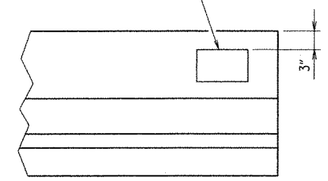
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	137	355
				(1) A7244,B7244		SPAN DETAILS		43782

(1) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.

(2) C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.



Place Type D Name Plate on front face of span rail approx. 2'-0" from C.L. of Joint. Place Name Plate on the rail at the Northwest corner of Bridge 'A' and at the Southeast corner of Bridge 'B' (See Std. Dwg. No. 2387)

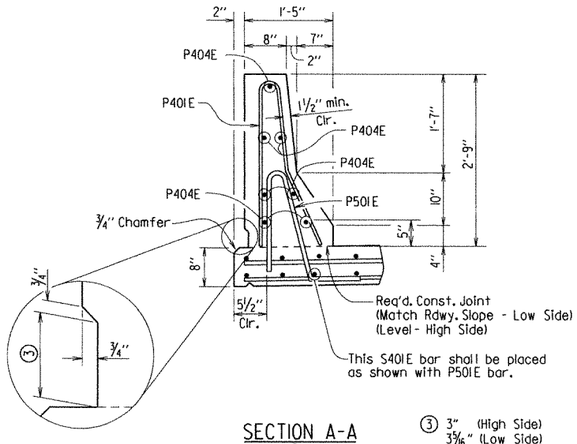


NAME PLATE DETAIL

No Scale

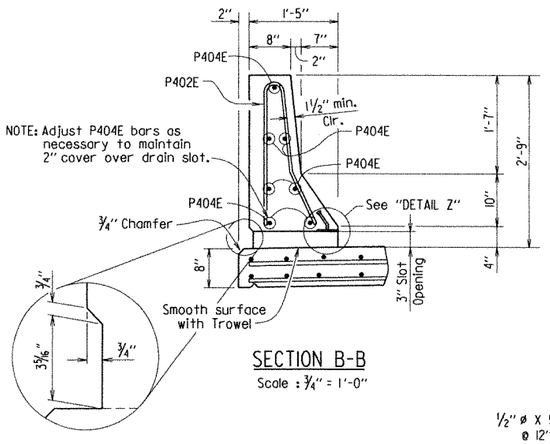
DETAILS OF PARAPET RAIL

(Low Side Shown)
No Scale
NOTE: See Dwg. No. 43781 for Bar List.

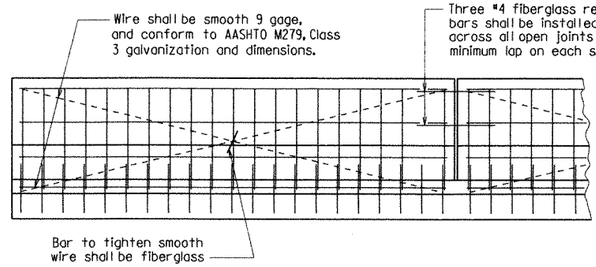


SECTION A-A
Scale : ¾" = 1'-0"

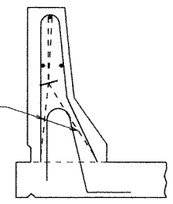
(3) 3" (High Side) 3 5/16" (Low Side)



SECTION B-B
Scale : ¾" = 1'-0"



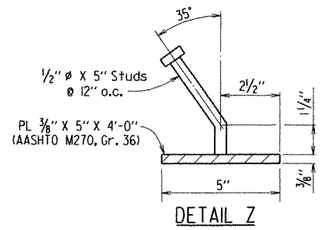
All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.



The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



DETAIL Z
No Scale

NOTE: Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)". The surfaces of the ⅜" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly but will be included in the item for structural steel.

STATE OF ARKANSAS, Carl J. Puselier, REGISTERED PROFESSIONAL ENGINEER, No. 7510, 5/17/11, CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 180'-0" PRESTRESSED CONCRETE GIRDER UNITS
SALINE RIVER RELIEF (LM 2.65)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE/LJB DATE: 10/13/11 FILENAME: b070291_sl.dgn
CHECKED BY: CJP DATE: 11/15/11 SCALE: As Noted
DESIGNED BY: LJB DATE: 10/2011

BRIDGE NO. A7244,B7244 DRAWING NO. 43782

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	138	355
				(1) A7244,B7244		SPAN DETAILS		43783

PRESTRESSED GIRDERS GENERAL NOTES

Pretensioning steel shall be 1/2" dia. Low Relaxation strands with a minimum ultimate strength of 270 ksi, and shall conform to AASHTO M 203.

Distances from the forms and spacing of the Prestressing Steel shall be maintained by stays, ties, hangers, spacers, or other approved supports which shall be shown on the Shop Drawings.

All girders shall be Type III as noted on the details and shall be the standard prestressed sections adopted by the Joint Committee of AASHTO and the Prestressed Concrete Institute. All girders shall be cast in concrete floored pallets and in metal forms. All work and materials shall be as specified in subsection 802.22.

Concrete shall be Class S and shall have a minimum 28 day compressive strength, f'c = 6,000 psi.

The initial tensile force applied to each 1/2" dia. strand shall be 31,000 lbs. except as noted. Transfer of this tensioning load to the girder shall not be done until the compressive strength of the concrete is 4,500 psi.

Dimensions shown are to the center of the strands.

The Contractor shall submit the method and sequence for release of strands to the Engineer for approval prior to casting of the girders.

The first 16" along the tops of the Girders at beginning and end of units shall have a smooth surface. The tops of the remaining length of girders shall be rough floated at approximately the time of set. This portion of the tops of girders shall be scrubbed transversely with a coarse wire brush to remove all laitance and to produce a roughened surface for bonding slabs.

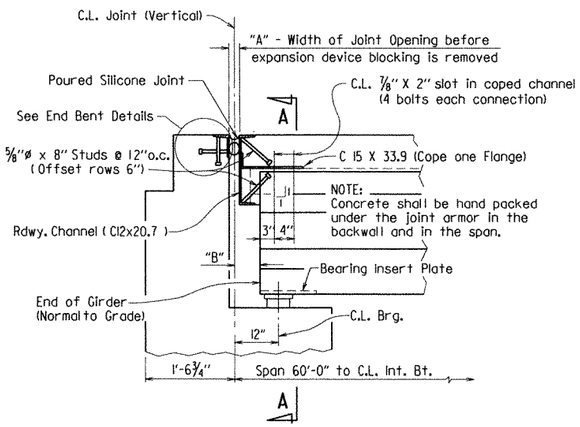
All exposed steel at end of unit girders shall be protected against corrosion with a coating of tar or other waterproofing material.

Extreme care shall be exercised in handling and moving precast prestressed concrete girders. Girders must be maintained in an upright position at all times and must be picked up from points near the girder ends. Disregard of this requirement may lead to collapse of the girder. The Contractor's proposed lifting details shall be submitted on shop drawings to the Engineer for approval. The use of holes for lifting purposes will not be permitted.

The points of support and directions of the reactions with respect to the member shall be approximately the same during transportation and storage as when the member is in its final position.

Reinforcing steel shall be AASHTO M31 or M53, Gr. 60 (fy = 60,000 psi).

The Contractor may submit alternate strand patterns with design calculations for review and approval in accordance with subsection 802.22, except that only 1/2" diameter strands shall be allowed.



SECTION THRU JOINT AT END BENTS
No Scale

SUPERSTRUCTURE GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Dept. Standard Specifications for Highway Construction, 2003 edition, with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 Interim Specifications.

LIVE LOADING: HL-93

REINFORCING STEEL: Reinforcing Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports sufficient in size and number to prevent displacement during the course of construction. The wire supports will not be paid for directly but will be considered subsidiary to the item of "Epoxy Coated Reinforcing Steel".

CONCRETE: Concrete in Slab, Parapet, and Diaphragms shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry. All end of unit and midspan diaphragms shall be poured a minimum of 48 hours before the slab is poured. Interior bent diaphragms shall be cast monolithically with the slab. The slab and intermediate bent diaphragms for the Prestressed Concrete Girder Units shall not be poured until at least 90 days after the release of the Prestressing Strands.

All exposed corners to be chamfered 3/4" unless otherwise noted.

The superstructure details shown are for when removable deck forming is used and are the basis for measurement of Class S (AE) Concrete. See Standard Drawing No. 14991 for allowable modifications and for tolerances when permanent steel bridge deck forms are used.

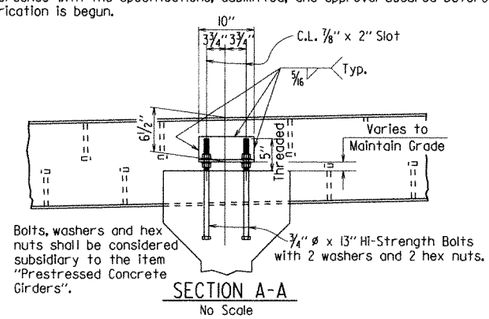
Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The concrete bridge deck shall be given a fine finish as specified for final finishing in subsection 802.19 for a Class 5 tined bridge roadway surface finish. Movement of the finishing machine across the new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the girder. A minimum of 72 hours shall elapse between completion of slab and pouring of parapet railing.

STRUCTURAL STEEL: All Structural Steel shall be AASHTO M270, Gr. 50W unless otherwise noted and shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W). All exposed surfaces to be cleaned in accordance with subsection 807.84(b). Structural Steel completely embedded in concrete may be AASHTO M 270, Grade 36 unless otherwise noted.

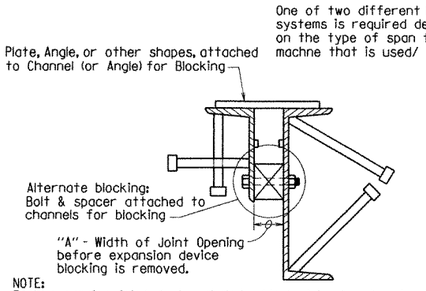
Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of subsection 802.13 will not require approval prior to construction. All welding shall conform to subsection 807.26.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, submitted, and approval secured before fabrication is begun.



SECTION A-A
No Scale



One of two different blocking systems is required depending on the type of span finishing machine that is used/

NOTE:
Each expansion joint device shall be blocked in the shop by the Fabricator to the dimension shown for 60°F, and the blocking details shall be shown on the Shop Drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE
No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives.

1) The concrete span pour adjacent to the expansion device shall be placed before the end bent backwall concrete is placed. The joint assembly shall be installed on the girders, adjusted for grade, and the bolts fully tightened prior to placing the adjacent span concrete pour. Immediately prior to pouring the backwall concrete supporting the expansion device, the blocking shall be removed, the joint opening shall be adjusted for temperature, and the backwall constructed.

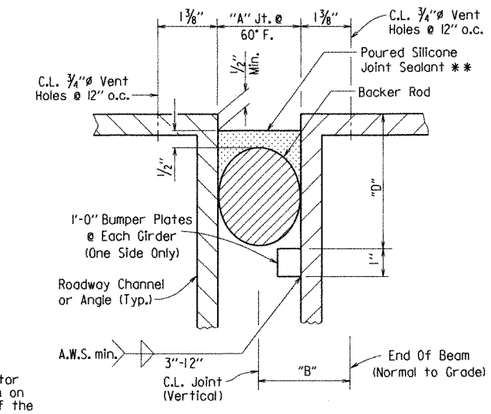
2) The backwall shall be poured to the optional construction joint after girders are erected. The expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed, the joint opening shall be adjusted for temperature, and the remainder of the backwall constructed.

SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature* Of:			"B" Perpendicular to Joint at 60°F	"D"	Bumper Plate Size
40°F	60°F	80°F			
1 5/8"	1 1/2"	1 3/8"	6"	5"	1" x 1"

*The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature.

NOTE: The temperature limitations recommended by the sealant manufacturer shall be observed. Interpolation of the table may be necessary.



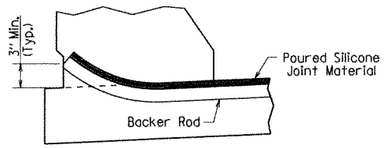
DETAIL OF POURED SILICONE JOINT
No Scale

BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

Except as noted, do not install more backer rod than can be sealed in the same day.

The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.



DETAILS OF POURED SILICONE JOINT AT GUTTERS
No Scale

**Silicone Joint Materials and installation shall be in accordance with S.P. Job No.070291 "Silicone Joint Sealant"

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER 5/17/12

BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 180'-0" PRESTRESSED CONCRETE GIRDER UNITS
SALINE RIVER RELIEF (LM 2.65)

ROUTE SEC.

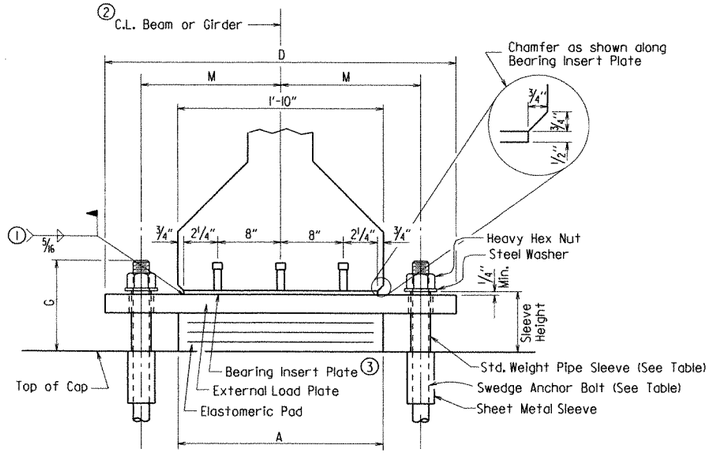
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE/LJB DATE: 10/13/11 FILENAME: b070291_sl.dgn
CHECKED BY: DATE: 2/2/12 SCALE: As Noted
DESIGNED BY: LJB DATE: 10/2011

BRIDGE NO. A7244,B7244 DRAWING NO. 43783

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	139	355

(1) A7244,B7244 ELASTOMERIC BEARINGS 43784
07245,07246

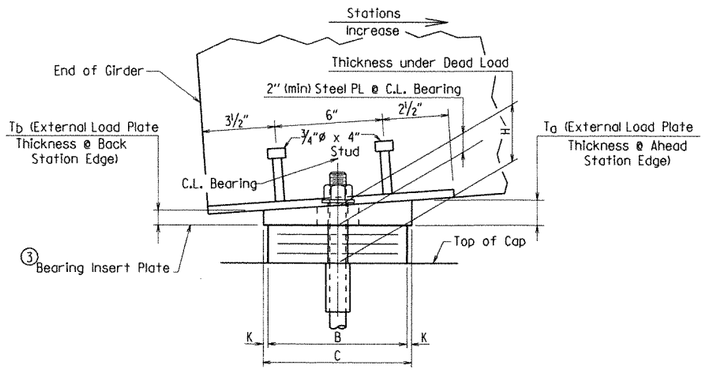


FRONT VIEW

(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the Bearing Insert Plate before welding begins.

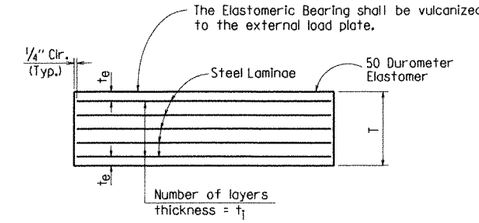
(2) C.L Elastomeric pad shall be aligned with C.L. Girder.

(3) Bearing Insert Plate, 1/2" x 12" x 1'-8 1/2" Plate (M270, Gr. 50W) with (6) 3/4"ø x 4" Shear Studs (as shown, typical each end of girders) shall be considered subsidiary to the item "Prestressed Concrete Girders".



SIDE VIEW

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the bearing insert plate will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

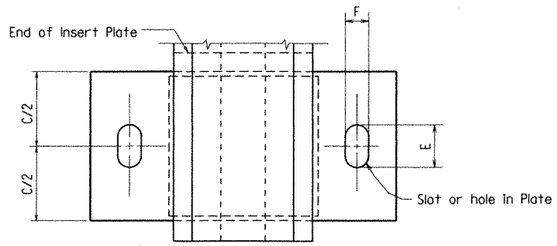


t_e = thickness of elastomer cover on top and bottom of pad

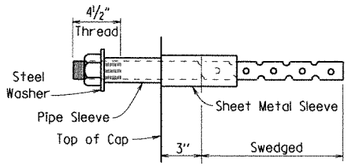
t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



PLAN VIEW



ANCHOR BOLT DETAIL

NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required. If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

TABLE OF FABRICATOR VALUES

*Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
A7244	1 & 4	All	Exp.	5	125	8"	5 1/8"	21"	9"	4	1/2"	5/16"	5 @ 12 Ga.	3 1/8"	10"	33"	3 3/4"	2 1/4"	1/2"	13 3/4"	2"	2"	1 1/2" X 24"	55	1 1/2" X 5 1/2"	3" X 10"	3"
	2 & 3	All	Fix.	10	143	8 1/4"	5 1/8"	21"	9"	4	1/2"	5/16"	5 @ 12 Ga.	3 1/8"	10"	34"	2 5/8"	2 5/8"	1/2"	14"	2"	2"	1 3/4" X 27"	55	2" X 5 1/2"	4" X 10"	3 3/8"
B7244	1 & 4	All	Exp.	5	125	8"	5 1/8"	21"	9"	4	1/2"	5/16"	5 @ 12 Ga.	3 1/8"	10"	33"	3 3/4"	2 1/4"	1/2"	13 3/4"	2"	2"	1 1/2" X 24"	55	1 1/2" X 5 1/2"	3" X 10"	3"
	2 & 3	All	Fix.	10	143	8 1/4"	5 1/8"	21"	9"	4	1/2"	5/16"	5 @ 12 Ga.	3 1/8"	10"	34"	2 5/8"	2 5/8"	1/2"	14"	2"	2"	1 3/4" X 27"	55	2" X 5 1/2"	4" X 10"	3 3/8"
07245	1 & 6	All	Exp.	9	118	8"	5 1/8"	21"	9"	4	1/2"	5/16"	5 @ 12 Ga.	3 1/8"	10"	33"	4 5/8"	2 1/4"	1/2"	13 3/4"	2"	2"	1 1/2" X 24"	55	1 1/2" X 5 1/2"	3" X 10"	3"
	2 - 5	All	Fix.	18	134	8 1/4"	5 1/8"	21"	9"	4	1/2"	5/16"	5 @ 12 Ga.	3 1/8"	10"	34"	2 5/8"	2 5/8"	1/2"	14"	2"	2"	1 3/4" X 27"	55	2" X 5 1/2"	4" X 10"	3 3/8"
07246	1 & 5	All	Exp.	9	118	8"	5 1/8"	21"	9"	4	1/2"	5/16"	5 @ 12 Ga.	3 1/8"	10"	33"	4 1/4"	2 1/4"	1/2"	13 3/4"	2"	2"	1 1/2" X 24"	55	1 1/2" X 5 1/2"	3" X 10"	3"
	2 - 4	All	Fix.	18	134	8 1/4"	5 1/8"	21"	9"	4	1/2"	5/16"	5 @ 12 Ga.	3 1/8"	10"	34"	2 5/8"	2 5/8"	1/2"	14"	2"	2"	1 3/4" X 27"	55	2" X 5 1/2"	4" X 10"	3 3/8"

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric bearings."

External load plates shall conform to AASHTO M 270, Grade 50W and will not be paid for separately, but will be included in the unit price bid for "Elastomeric Bearings". Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates shall be completely fabricated (including bevel, bolt holes and all shop welding) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with subsection 808.03. Other surfaces shall be blast cleaned in accordance with subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)".

Bearings shall be seated in accordance with subsection 808.08. This work and materials are considered as subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

Tabular Data by : MRE Date: 12/20/11

Checked by : SAP Date: 1/2012

Designed by : LJB Date: 10/11

STATE OF ARKANSAS
Carl E. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL E. PUSELLER
5/10/12

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS SALINE RIVER RELIEF

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

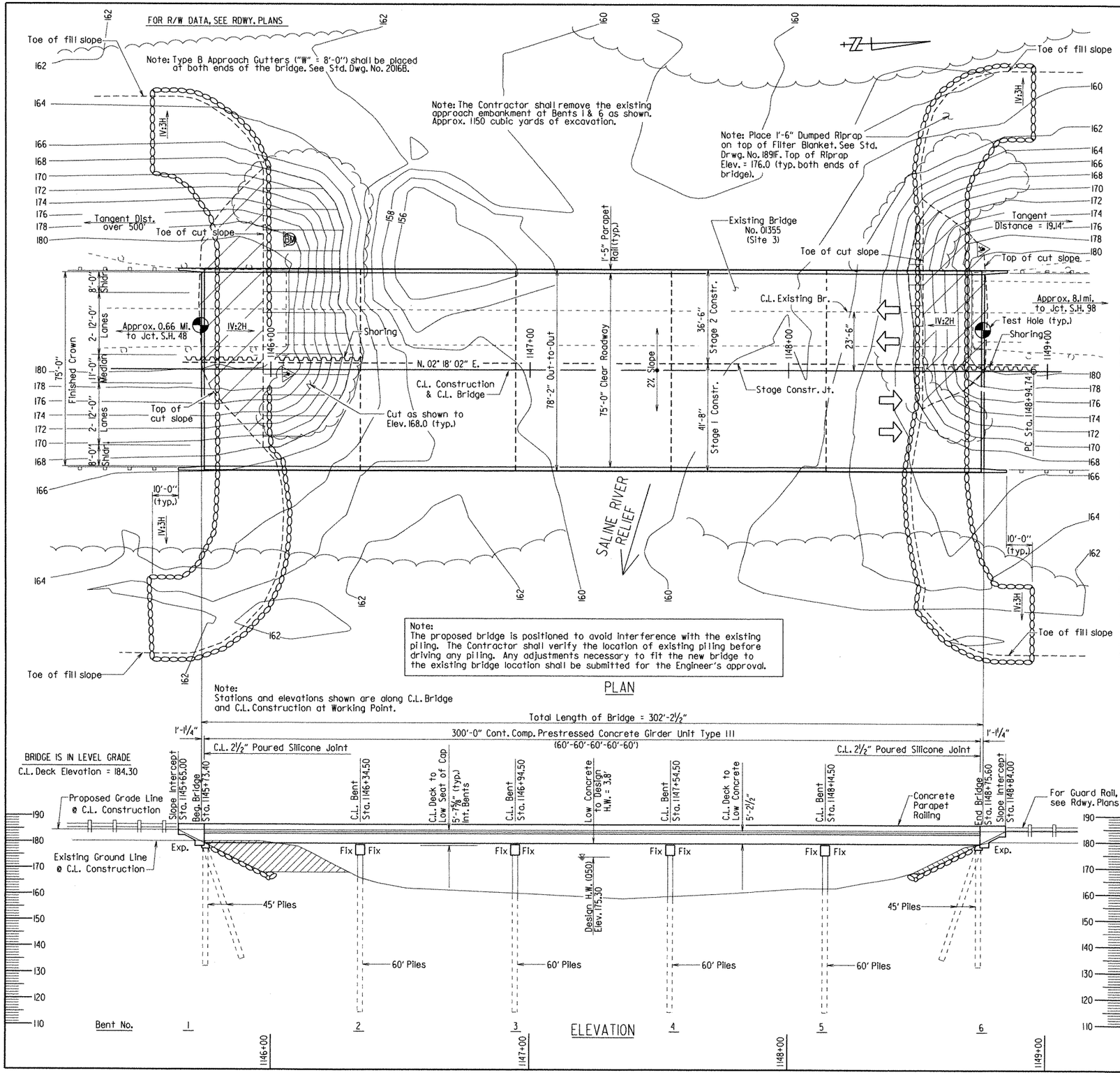
DRAWN BY: MRE DATE: 12/20/11 FILENAME: b070291_e.dgn

CHECKED BY: SAP DATE: 1/2012 SCALE: No Scale

DESIGNED BY: — DATE: —

BRIDGE NO. A7244,B7244,07245,07246 DRAWING NO. 43784

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	140	355
				(1) 07245		LAYOUT		43785



GENERAL NOTES

BENCH MARK: 8" Spike, 50.46' Lt. of Sta. 1146+07.22, Elev. 178.42.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 edition, with applicable supplemental specifications and special provisions. Unless otherwise noted in the plans Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (Fifth Edition) 2010 with 2010 interim specifications.

LIVE LOADING: HL-93

SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Class S Concrete (Prestressed Girders)	f'c = 6,000 psi
Reinforcing Steel (AASHTO M 31 or M 53, Gr. 60)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

CONCRETE PILING: Piling for Bents 1 and 6 shall be 16" square prestressed concrete and shall be driven to an ultimate bearing capacity of 213 tons per pile. Piling in Bents 2 thru 5 shall be 24" square prestressed concrete and shall be driven to an ultimate bearing capacity of 366 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place. Piling in Bents 1 and 6 shall have a minimum tip elevation of 142.0 or lower. Piling in Bents 2 thru 5 shall have a minimum tip elevation of 135.0 or lower. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. Drive one 65' test pile in Bent 2, one 65' test pile in Bent 4, and one 50' test pile in Bent 6.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of subsection 805.09(b), "Method B – Wave equation Analysis (WEAP)". It is estimated that the minimum required rated energy of the hammer to obtain the minimum ultimate bearing capacity on 16" sq. piles will be 40,000 foot pounds per blow and on 24" sq. piles shall be 83,000 foot pounds per blow.

PREBORING: Preboring or other methods approved by the Engineer may be required to achieve the minimum pile penetration. Any cost associated with achieving the minimum pile penetration shall be incidental to "Concrete Piling".

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	43790 - 43792
Intermediate Bents	43793
Concrete Piling	14964 & 43777
300' Prestressed Conc. Girder Unit	43794 - 43800
Elastomeric Bearings	43784
Type B Approach Gutters	2016B

EXISTING BRIDGE: Existing Bridge No. 01355 (LM 3.18) is 265' in length and 31.5' wide and is comprised of 8 – 33' RCDG spans supported by concrete pile bents. Centerline of existing bridge is located approximately 23.5' west of the proposed roadway centerline.

SHORING: Shoring is required at Bridge Ends for Stage 1 Construction. See SP Job 070291 "Shoring".

REMOVAL AND SALVAGE: After Stage 1 construction of the new bridge is open to traffic, existing Bridge No. 01355 (Site No. 3) shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the bridge name plate which shall remain the property of AHTD.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	* TOTAL DISCHARGE	DISCHARGE THIS SITE	**NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	050	79,000	9,950	174.9	175.3
Base	0100	91,800	11,900	175.2	175.7
Extreme	0500	122,200	16,300	176.0	176.8
Overtopping	>0500	–	–	–	–

*Includes Saline River & Relief Bridges (Hwy. 167, Sec. 9, Log Mile 2.65, 3.18, 3.68, and Sec. 10, Log Mile 0.55, 0.81)
**Unconstricted water surface elevation without structure or roadway approaches.
0100 backwater elevation for existing structure = 175.9
Proposed Low Bridge Chord Elev. = 179.09
Historical H.W. Elev. = 176.6
Drainage area = 1,129 square miles (includes Saline River & relief bridges)

STATE OF ARKANSAS
Carl S. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL S. PUSELLER
BRIDGE ENGINEER

LAYOUT OF BRIDGE
OVER SALINE RIVER RELIEF (LM 3.18)
SALINE RIVER - SOUTH (S)
DALLAS COUNTY
ROUTE 167 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ACW/LJB DATE: 8/24/11 FILENAME: b070291_11.dgn
CHECKED BY: JGT DATE: 5/9/12 SCALE: 1" = 20'-0"
DESIGNED BY: JGT DATE: 4/2011
BRIDGE NO. 07245 DRAWING NO. 43785

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	141	355
				①	07245	SOIL BORINGS		43786

BORING LEGEND

AI-Moist, Medium Stiff, Gray and Brown Clay with Asphalt Fragments
BI-Moist, Loose, Brown Sand
CI-Moist, Very Loose, Brown Sand
DI-Wet, Very Loose, Reddish Brown Sand
EI-Wet, Medium Dense, Brown Sand with Trace of Gravel
FI-Wet, Medium Dense, Brown Sand with Gravel
GI-Wet, Loose, Brown Gravelly Sand
HI-Wet, Stiff, Gray Clay with some Gravel
JI-Moist, Very Stiff, Gray Clay
KI-Moist, Very Stiff, Gray and Brown Clay
LI-Wet, Very Dense, Gray Clayey Sand
MI-Wet, Dense, Gray Sand with Clay
NI-Wet, Very Stiff, Gray Clay with Sand and some Lignite
PI-Moist, Hard, Gray Sandy Clay
QI-Moist, Very Stiff, Dark Brown Clay with Trace of Lignite
RI-Moist, Medium Stiff, Brown and Gray Clay
SI-Moist, Medium Stiff, Reddish Brown and Gray Clay with some Organic Matter
TI-Wet, Medium Stiff, Gray Clay with some Organic Matter
UI-Moist, Medium Stiff, Gray Clay with some Organic Matter
VI-Moist, Stiff, Gray Clay
WI-Moist, Medium Stiff, Gray Clay with Sand
XI-Wet, Dense, Gray Sand with Gravel
YI-Wet, Medium Dense, Gray Gravelly Sand
ZI-Wet, Very Stiff, Gray and Brown Clay with some Organic Matter
A2-Moist, Very Stiff, Dark Brown and Gray Clay with Organic Matter
B2-Moist, Dense, Gray Clayey Sand
C2-Wet, Dense, Gray Sand
D2-Wet, Very Dense, Gray Sand
E2-Moist, Hard, Dark Brown and Gray Clay
F2-Moist, Hard, Dark Brown and Gray Clay with Trace of Lignite

"N" VALUES

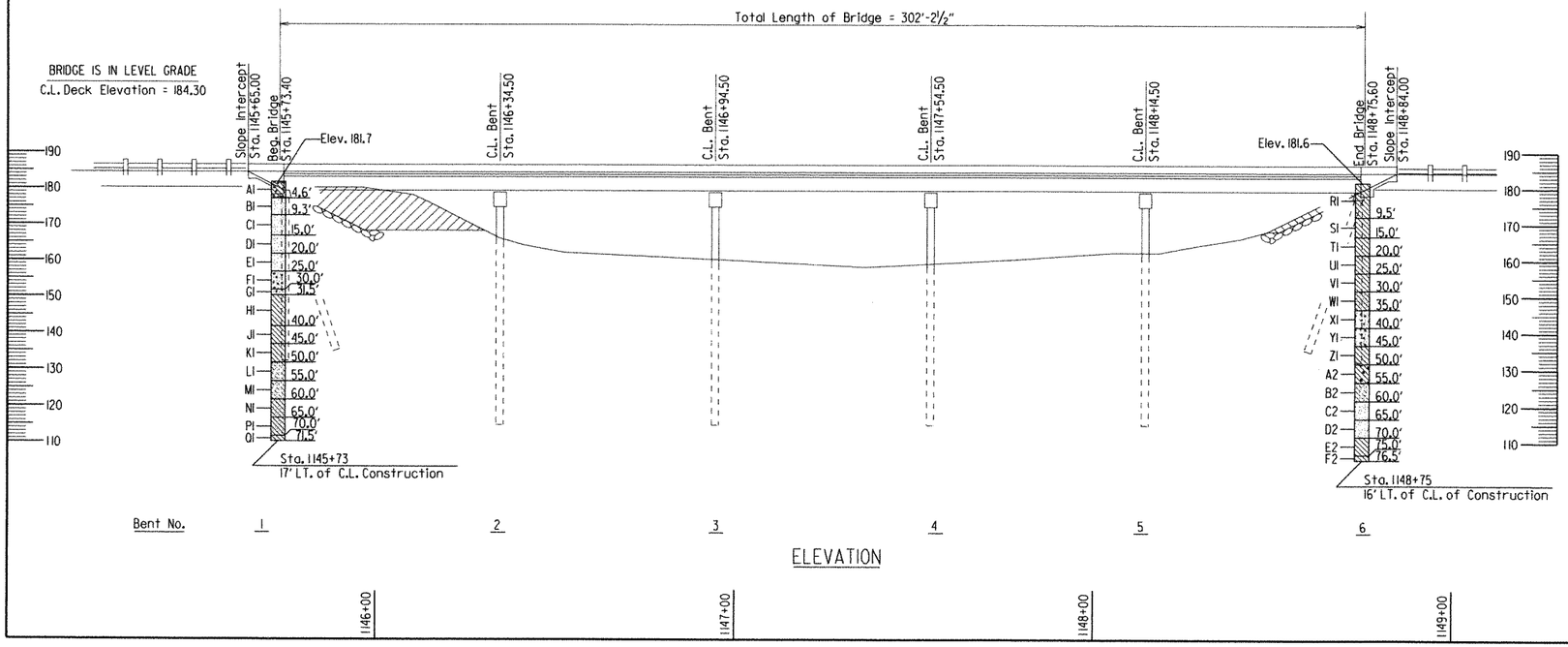
Sta. 1145+73 - 17' LT. of C.L. Construction

4.8- 5.8, N=7
9.8- 10.8, N=2
15.5- 16.5, N=2
20.5- 21.5, N=22
25.5- 26.5, N=11
30.5- 31.5, N=10
35.5- 36.5, N=13
40.5- 41.5, N=25
45.5- 46.5, N=18
50.5- 51.5, N=53
55.5- 56.5, N=50
60.5- 61.5, N=28
65.5- 66.5, N=32
70.5- 71.5, N=26

Sta. 1148+75 - 16' LT. of C.L. Construction

5.0- 6.0, N=6
10.0- 11.0, N=8
15.5- 16.5, N=5
20.5- 21.5, N=8
25.5- 26.5, N=9
30.5- 31.5, N=7
35.5- 36.5, N=41
40.5- 41.5, N=22
45.5- 46.5, N=25
50.5- 51.5, N=16
55.5- 56.5, N=38
60.5- 61.5, N=38
65.5- 66.5, N=69
70.5- 71.5, N=35
75.5- 76.5, N=35

Note: Traces of organic matter, cemented sand, and Lignite were encountered in the borings and may be encountered in greater amounts at other locations in the project area.



ELEVATION

STATE OF ARKANSAS
Carl J. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/17/12
CARL J. PUSELLER
BRIDGE ENGINEER

SOIL BORINGS
SALINE RIVER RELIEF (LM 3.18)
SALINE RIVER - SOUTH (S)
DALLAS COUNTY

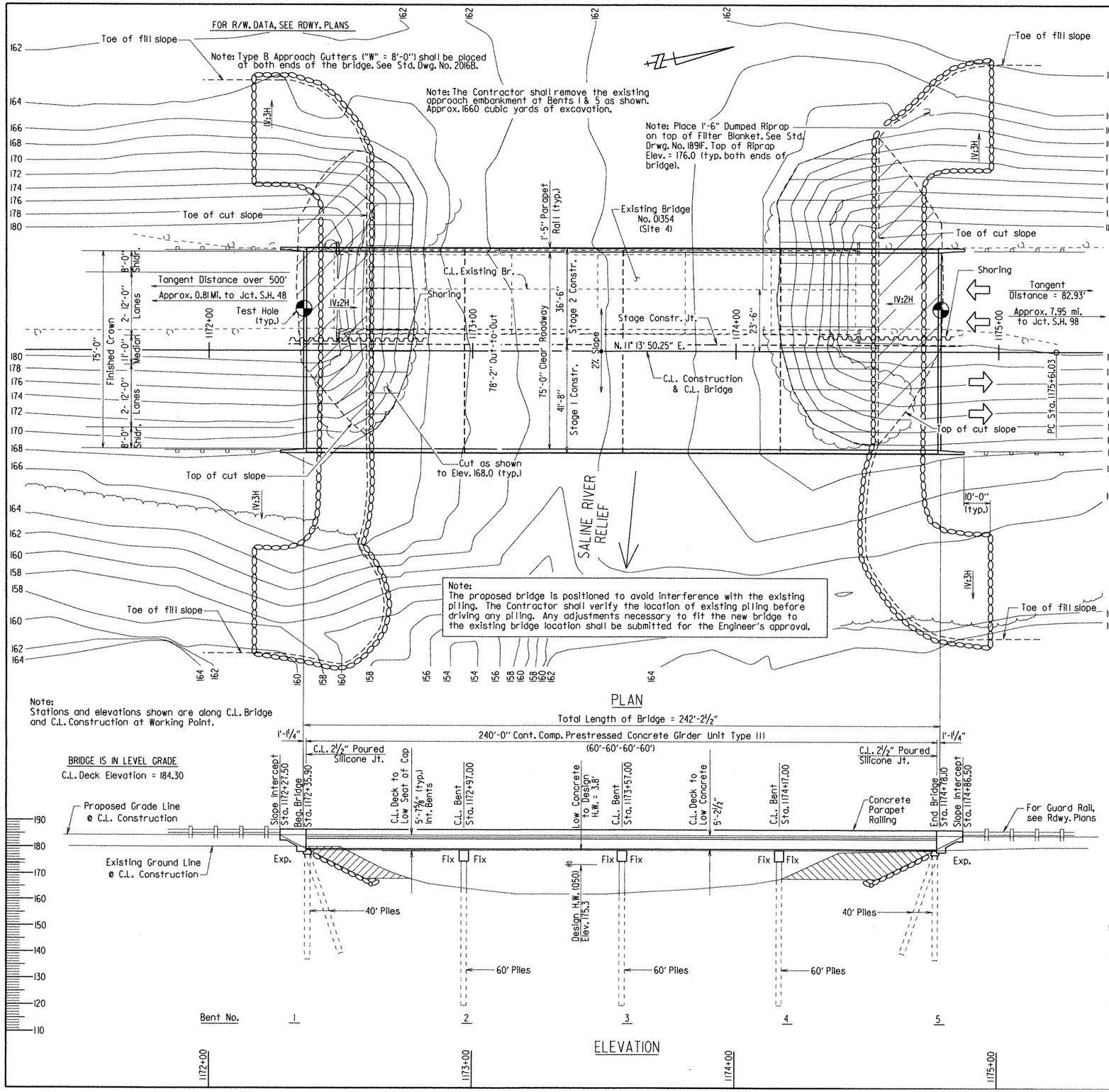
ROUTE 167 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 3/19/12 FILENAME: b070291.11.dgn
CHECKED BY: JGT DATE: 4/4/12 SCALE: 1" = 20'-0"
DESIGNED BY: JGT DATE: 4/2011

BRIDGE NO. 07245 DRAWING NO. 43786

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	142	355
				① 07246		LAYOUT		43787



GENERAL NOTES

BENCH MARK: Start of existing bridge, 36.38' Lt. of Sta. 1172+49.58, Elev. 182.54.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 edition, with applicable supplemental specifications and special provisions. Unless otherwise noted in the plans Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (Fifth Edition) 2010 with 2010 interim specifications.

LIVE LOADING: HL-93

SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Class S Concrete (Prestressed Girders)	f'c = 6,000 psi
Reinforcing Steel (AASHTO M 31 or M 53, Gr. 60)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

CONCRETE PILING: Piling for Bents 1 and 5 shall be 16" square prestressed concrete and shall be driven to an ultimate bearing capacity of 213 tons per pile. Piling in Bents 2 thru 4 shall be 24" square prestressed concrete and shall be driven to an ultimate bearing capacity of 366 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place. Piling in Bents 1 and 6 shall have a minimum tip elevation of 144.0 or lower. Piling in Bents 2 thru 4 shall have a minimum tip elevation of 132.0 or lower. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. Drive one 65' test pile in Bent 2, and one 45' test pile in Bent 5.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of subsection 805.09(b), "Method B – Wave equation Analysis (WEAP)". It is estimated that the minimum required rated energy of the hammer to obtain the minimum ultimate bearing capacity on 16" sq. piles will be 40,000 foot pounds per blow and on 24" sq. piles shall be 83,000 foot pounds per blow.

PREBORING: Preboring or other methods approved by the Engineer may be required to achieve the minimum pile penetration. Any cost associated with achieving the minimum pile penetration shall be incidental to "Concrete Piling".

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	43790 - 43792
Intermediate Bents	43793
Concrete Piling	14964 & 43777
240' Prestressed Conc. Girder Unit	43794 - 43793 & 43801 - 43803
Elastomeric Bearings	43784
Type B Approach Gutters	2016B

EXISTING BRIDGE: Existing Bridge No. 01354 (LM 3.68) is 199' in length and 31.5' wide and is comprised of 6 – 33' RCDG spans supported by concrete pile bents. Centerline of existing bridge is located approximately 23.5' west of the proposed roadway centerline.

SHORING: Shoring is required at Bridge Ends for Stage 1 Construction. See SP Job 070291 "Shoring".

REMOVAL AND SALVAGE: After Stage 1 construction of the new bridge is open to traffic, existing Bridge No. 01354 (Site No. 4) shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the bridge name plate which shall remain the property of AHTD.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	* TOTAL DISCHARGE	DISCHARGE THIS SITE	**NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	050	79,000	4,830	174.9	175.3
Base	0100	91,800	5,900	175.2	175.7
Extreme	0500	122,200	8,520	176.0	176.8
Overtopping	>0500	–	–	–	–

*Includes Saline River & Relief Bridges (Hwy. 167, Sec. 9, Log Mile 2.65, 3.18, 3.68, and Sec. 10, Log Mile 0.55, 0.81)
**Unconstricted water surface elevation without structure or roadway approaches.
Q100 backwater elevation for existing structure = 175.9
Proposed Low Bridge Chord Elev. = 179.09
Historical H.W. Elev. = 176.6
Drainage area = 1,129 square miles (Includes Saline River & relief bridges)

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
5/17/12
BRIDGE ENGINEER

LAYOUT OF BRIDGE OVER SALINE RIVER RELIEF (LM 3.68) SALINE RIVER - SOUTH (S) DALLAS COUNTY

ROUTE 167 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACW DATE: 8/24/11 FILENAME: b070291_11.dgn
CHECKED BY: JGT DATE: 5/5/12 SCALE: 1" = 20'-0
DESIGNED BY: JGT DATE: 4/2011

BRIDGE NO. 07246 DRAWING NO. 43787

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	143	355
				① 07246		SOIL BORINGS		43788

BORING LEGEND

AI-Moist, Medium Stiff, Brown and Gray Clay with Sand
BI-Wet, Medium Stiff, Gray Clay with some Organic Matter
CI-Wet, Soft, Gray Clay with some Organic Matter
DI-Wet, Soft, Gray Sandy Clay
EI-Wet, Medium Dense, Gray Gravelly Sand with Organic Matter
FI-Wet, Medium Dense, Reddish Brown Gravelly Sand
GI-Wet, Medium Dense, Gray Gravelly Sand
HI-Wet, Medium Dense, Gray Sand
JI-Wet, Dense, Gray Silty Sand
KI-Wet, Very Dense, Gray Silty Sand
LI-Moist, Medium Stiff, Reddish Brown Clay
MI-Moist, Soft, Gray and Brown Clay with some Organic Matter
NI-Wet, Loose, Brown Silty Sand
PI-Wet, Medium Dense, Brown Sand
QI-Wet, Medium Dense, Gray Sand with Gravel
RI-Wet, Medium Dense, Gray Silty Sand with Trace of Gravel
SI-Wet, Medium Dense, Gray Silty Sand with some Organic Matter
TI-Wet, Medium Dense, Gray Silty Sand
UI-Hard, Brown Cemented Sand (71.0' to 71.2')
VI-Wet, Dense, Gray Silty Sand with some Organic Matter

"N" VALUES

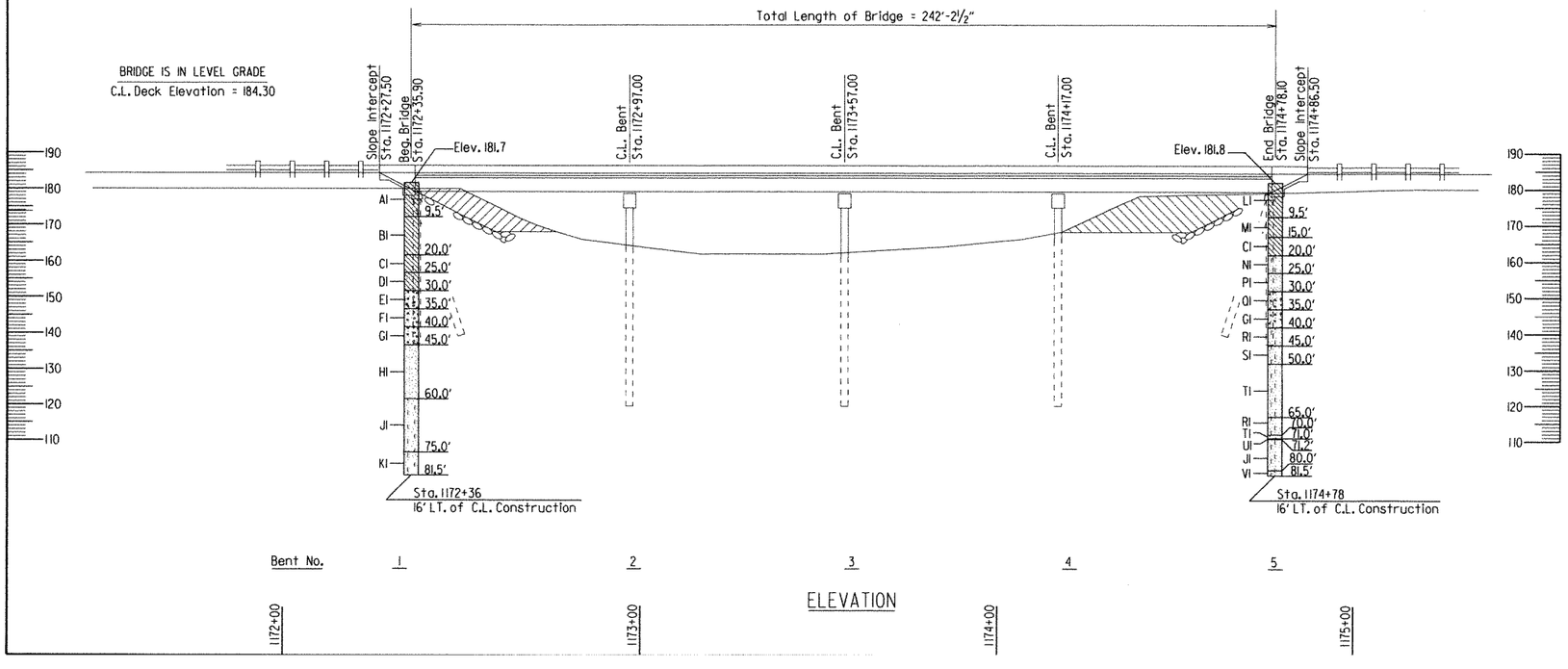
Sta. 1172+36 - 16 LT. of C.L. Construction

5.0- 6.0, N=5
10.0- 11.0, N=5
15.5- 16.5, N=5
20.5- 21.5, N=4
25.5- 26.5, N=4
30.5- 31.5, N=19
35.5- 36.5, N=18
40.5- 41.5, N=26
45.5- 46.5, N=23
50.5- 51.5, N=20
55.5- 56.5, N=22
60.5- 61.5, N=31
65.5- 66.5, N=40
70.5- 71.5, N=46
75.5- 76.5, N=52
80.5- 81.5, N=52

Sta. 1174+78 - 16' LT. of C.L. Construction

5.0- 6.0, N=7
10.0- 11.0, N=4
15.5- 16.5, N=4
20.5- 21.5, N=9
25.5- 26.5, N=13
30.5- 31.5, N=21
35.5- 36.5, N=20
40.5- 41.5, N=11
45.5- 46.5, N=19
50.5- 51.5, N=18
55.5- 56.5, N=19
60.5- 61.5, N=26
65.5- 66.5, N=30
70.5- 71.2, N=74(8")
75.5- 76.5, N=42
80.5- 81.5, N=48

Note: Traces of organic matter, cemented sand, and Lignite were encountered in the borings and may be encountered in greater amounts at other locations in the project area.



ELEVATION

STATE OF ARKANSAS
CARL J. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/17/12

BRIDGE ENGINEER

SOIL BORINGS
SALINE RIVER RELIEF (LM 3.68)
SALINE RIVER - SOUTH (S)
DALLAS COUNTY

ROUTE 167 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION

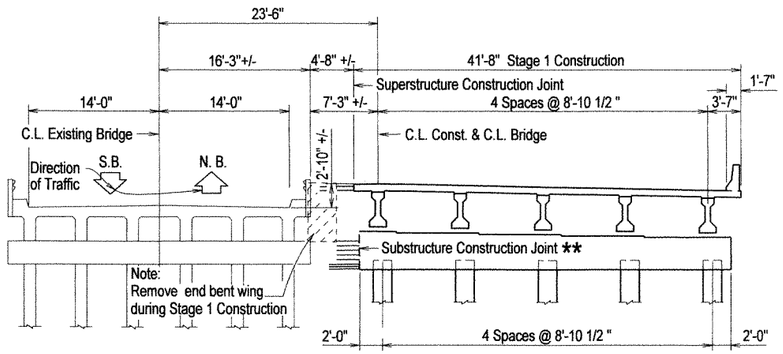
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 3/19/12 FILENAME: b070291.ll.dgn
CHECKED BY: JCT DATE: 3/20/12 SCALE: 1" = 20'-0"
DESIGNED BY: JCT DATE: 4/2011

BRIDGE NO. 07246 DRAWING NO. 43788

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	144	355

(1) 07245,07246 STAGE CONSTRUCTION 43789

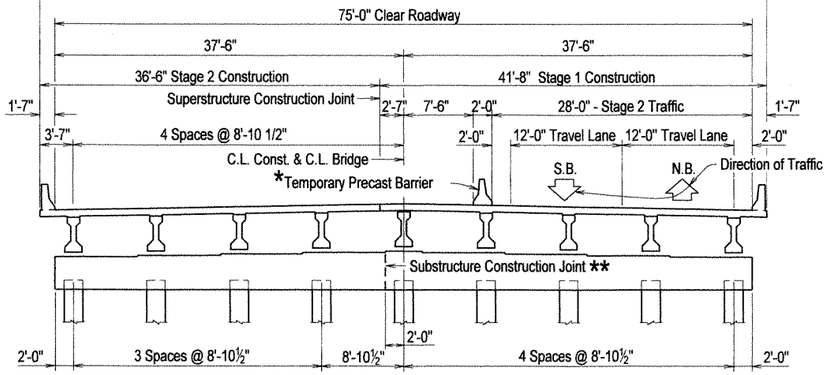


Note: After Stage 1 Construction is complete and open to traffic the Existing Bridge Nos. 01354 and 01355 shall be removed and Stage 2 Construction completed.

CONCRETE GIRDER SPANS STAGE 1

Looking Ahead

** Intermediate Bents only.



CONCRETE GIRDER SPANS STAGE 2

Looking Ahead

* Do not connect temporary precast barrier to deck

DETAILS OF STAGE CONSTRUCTION

Note: Details which relate to Maintenance of Traffic are shown on Bridge Plans for information only. See Roadway Plans for Maintenance of Traffic and additional information.

STATE OF ARKANSAS
Carl J. Fuselier
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No. 7510
5/7/12
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF STAGE CONSTRUCTION
SALINE RIVER RELIEF (LM 3.18 & LM 3.65)
SALINE RIVER - SOUTH (S)
DALLAS COUNTY

ROUTE 167 SEC. 9

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

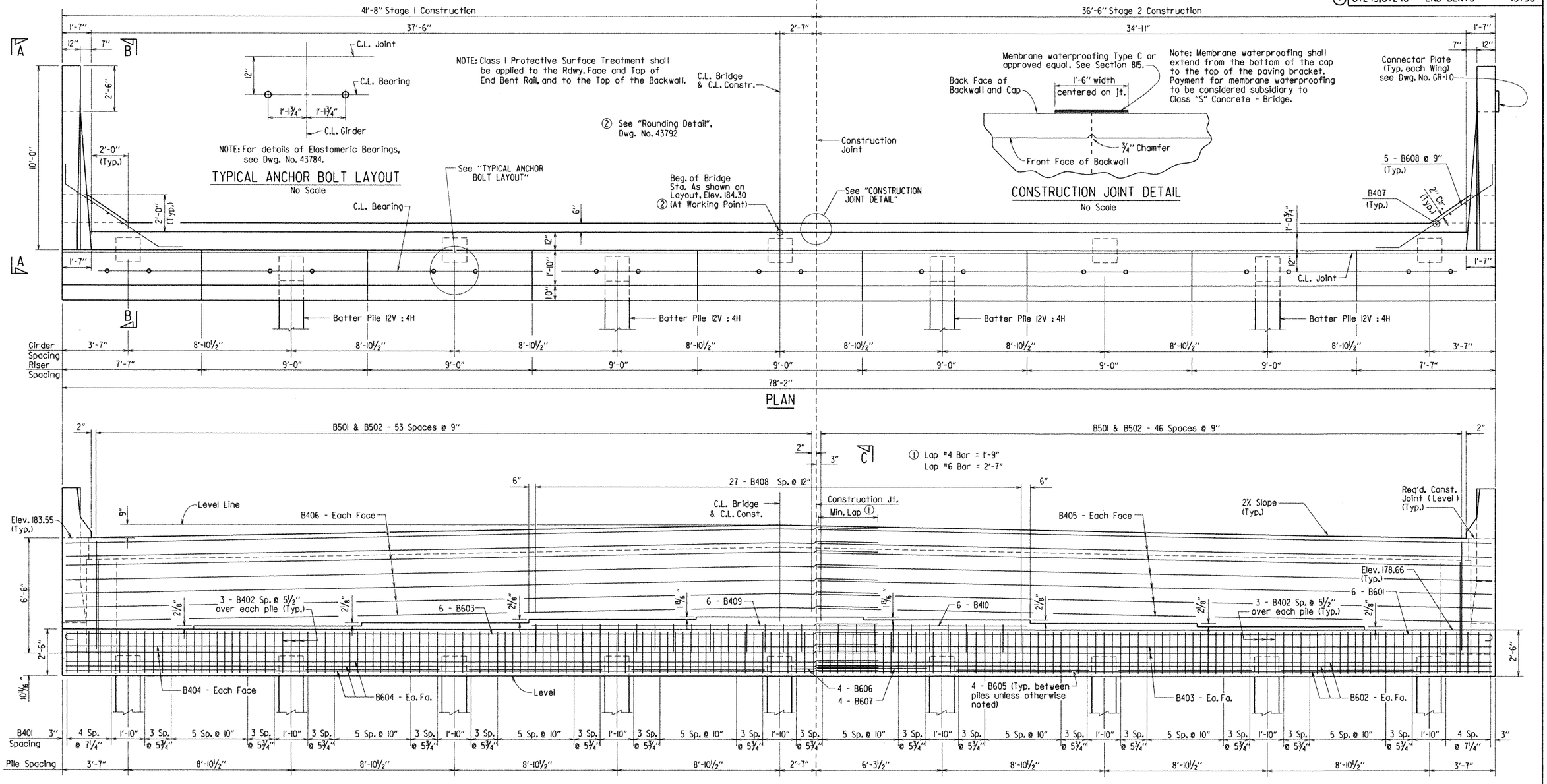
DRAWN BY: ACW/LJB DATE: 8/24/11 FILENAME: b070291ll.dgn
CHECKED BY: JCST DATE: 7/1/2012 SCALE: 1/8"=1'-0"
DESIGNED BY: JCST DATE: 4/2011

BRIDGE NO. 07245,07246 DRAWING NO. 43789

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	145	355
				① 07245,07246		END BENTS		43790

41'-8" Stage 1 Construction

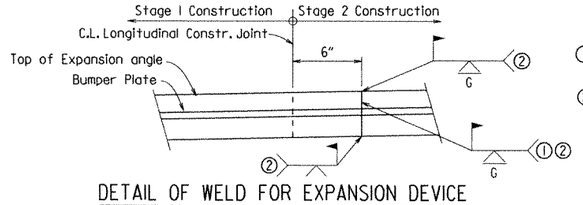
36'-6" Stage 2 Construction



PLAN

ELEVATION

LOOKING BACK
BRIDGE NO. 07245,07246 - BENT 1



DETAIL OF WELD FOR EXPANSION DEVICE

LOOKING BACK
BRIDGE NO. 07245,07246 - BENT 1
No Scale

①Grind flush from top of deck to top of bumper plate.

②Weld after Stage 1 Pour & prior to Stage 2 Pour

STATE OF ARKANSAS
Carl J. Puseliier
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CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF END BENTS
SALINE RIVER RELIEF (LM 3.18 & LM 3.68)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/16/11 FILENAME: b070291x3_bl.dgn
CHECKED BY: DATE: 2/8/2012 SCALE: 3/16"=1'-0"
DESIGNED BY: DATE: 10/2011

BRIDGE NO. 07245,07246 DRAWING NO. 43790

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	146	355
				① 07245,07246		END BENTS		43791

36'-6" Stage 2 Construction

41'-8" Stage 1 Construction

Membrane waterproofing Type C or approved equal. See Section 815.

Note: Membrane waterproofing shall extend from the bottom of the cap to the top of the paving bracket. Payment for membrane waterproofing to be considered subsidiary to Class "S" Concrete - Bridge.

Back Face of Backwall and Cap

1'-6" width centered on jt.

3/4" Chamfer

Front Face of Backwall

CONSTRUCTION JOINT DETAIL

No Scale

C.L. Bridge & C.L. Constr.

Construction Joint

See "CONSTRUCTION JOINT DETAIL"

② End of Bridge Sta. As shown on Layout, Elev. 184.30 (At Working Point)

② See "Rounding Detail", Dwg. No. 43792

NOTE: Class 1 Protective Surface Treatment shall be applied to the Rdwy. Face and Top of End Bent Rail, and to the Top of the Backwall.

See "TYPICAL ANCHOR BOLT LAYOUT"

C.L. Joint

C.L. Bearing

C.L. Girder

NOTE: For details of Elastomeric Bearings, see Dwg. No. 43784.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

Connector Plate (Typ. each Wing) see Dwg. No. GR-10

5 - B608 @ 9" (Typ.)

2" Clr. (Typ.)

B407 (Typ.)

C.L. Joint

Batter Pile 12V : 4H

Girder Spacing

Riser Spacing

78'-2"

PLAN

B501 & B502 - 46 Spaces @ 9"

B501 & B502 - 53 Spaces @ 9"

① Lap #4 Bar = 1'-9"
Lap #6 Bar = 2'-7"

Req'd. Const. Joint (Level) (Typ.)

2% Slope (Typ.)

Elev. 183.55 (Typ.)

Elev. 178.66 (Typ.)

Construction Jt.

① Min. Lap

C.L. Bridge & C.L. Const.

Level Line

6 - B601

3 - B402 Sp. @ 5 1/2" over each pile (Typ.)

B405 - Each Face

6 - B410

6 - B409

6 - B603

B406 - Each Face

B602 - Ea. Fa.

B403 - Ea. Fa.

4 - B605 (Typ. between piles unless otherwise noted)

4 - B606

4 - B607

Level

B604 - Ea. Fa.

B404 - Each Face

B401 Spacing

Pile Spacing

Stage 2 Construction | Stage 1 Construction

C.L. Longitudinal Constr. Joint

Top of Expansion angle

Bumper Plate

① Grind flush from top of deck to top of bumper plate.

② Weld after Stage 1 Pour & prior to Stage 2 Pour

DETAIL OF WELD FOR EXPANSION DEVICE

LOOKING AHEAD (No Scale)
BRIDGE NO. 07245 - BENT 6
BRIDGE NO. 07246 - BENT 5

ELEVATION

LOOKING AHEAD
BRIDGE NO. 07245 - BENT 6
BRIDGE NO. 07246 - BENT 5

STATE OF ARKANSAS
Carl J. Puselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/12/12
CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
SALINE RIVER RELIEF (LM 3.18 & LM 3.68)

ROUTE SEC.

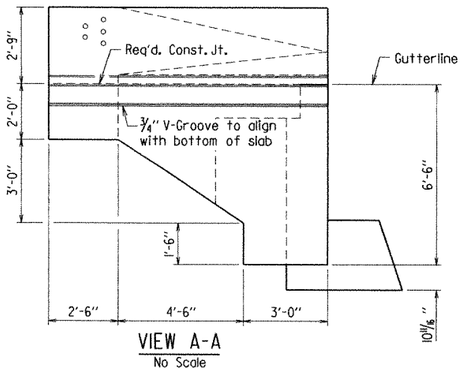
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

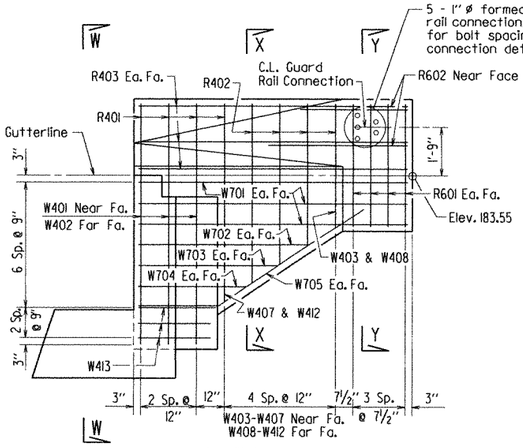
DRAWN BY: MRE DATE: 11/16/11 FILENAME: b070291x3_bl.dgn
CHECKED BY: SMP DATE: 2/17/12 SCALE: 3/8"=1'-0"
DESIGNED BY: SMP DATE: 10/2011

BRIDGE NO. 07245,07246 DRAWING NO. 43791

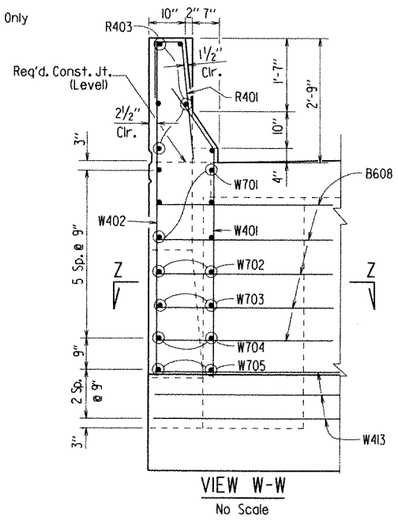
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	147	355
				(1) 07245,07246		END BENTS		43792



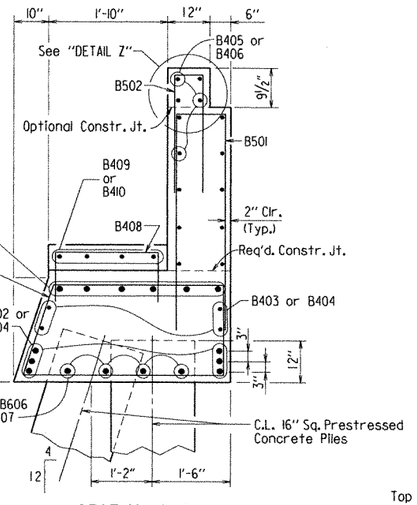
VIEW A-A
No Scale



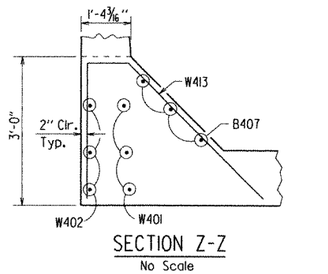
SECTION B-B
No Scale



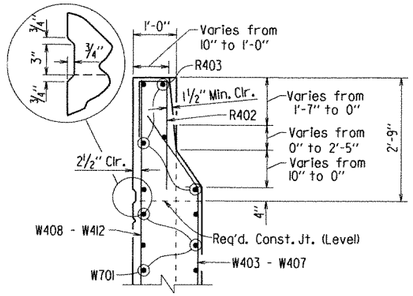
VIEW W-W
No Scale



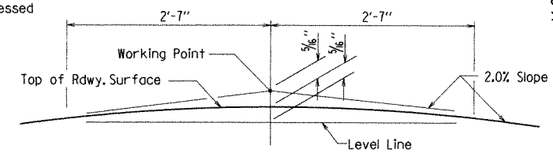
SECTION C-C
No Scale



SECTION Z-Z
No Scale

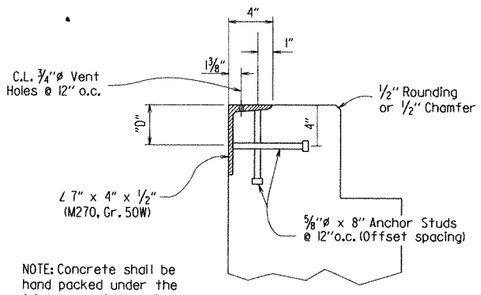


SECTION X-X
No Scale



NOTE: Working Point matches Theoretical Roadway Grade.

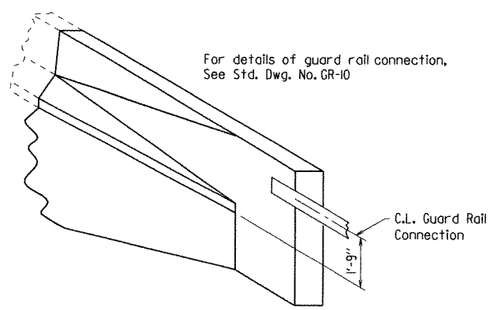
ROUNDING DETAIL
No Scale



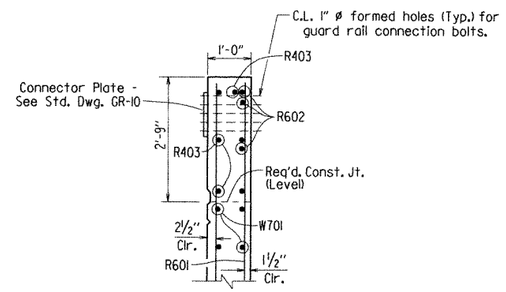
NOTE: Concrete shall be hand packed under the joint armor in the Backwall.

NOTE: For additional joint details, see Dwg. No. 43797.

DETAIL Z
No Scale



THREE DIMENSIONAL VIEW OF RAIL
No Scale

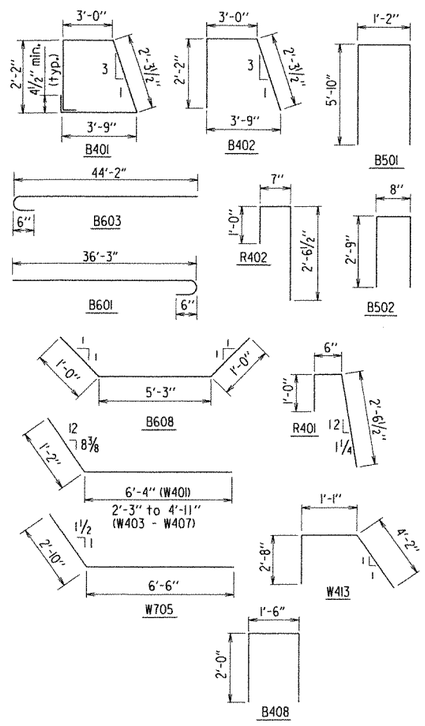


SECTION Y-Y
No Scale

BAR LIST PER END BENT

Mark	No. Req'd. Stage 1	No. Req'd. Stage 2	Length	Pin Dia.
B401	56	50	11'-7"	2"
B402	15	12	7'-4"	2"
B403	—	4	36'-3"	str.
B404	4	—	43'-4"	str.
B405	—	14	36'-3"	str.
B406	14	—	43'-4"	str.
B407	3	3	5'-4"	str.
B408	16	11	5'-4"	2"
B409	6	—	17'-9"	str.
B410	—	6	10'-8"	str.
B501	54	47	12'-8"	2 1/2"
B502	54	47	6'-0"	2 1/2"
B601	—	6	36'-11"	4 1/2"
B602	—	6	36'-3"	str.
B603	6	—	44'-10"	4 1/2"
B604	6	—	44'-2"	str.
B605	16	12	7'-2"	str.
B606	4	—	4'-4"	str.
B607	—	4	5'-4"	str.
B608	5	5	7'-3"	4 1/2"
R401	4	4	3'-11"	2"
R402	4	4	4'-0"	2"
R403	6	6	9'-8"	str.
R601	8	8	4'-5"	str.
R602	3	3	4'-0"	str.
W401	3	3	7'-7"	2"
W402	3	3	8'-11"	str.
W403 to W407	1 Each	1 Each	3'-5" to 6'-1"	2"
W408 to W412	1 Each	1 Each	4'-6" to 7'-2"	str.
W413	3	3	7'-9"	2"
W701	6	6	9'-8"	str.
W702	2	2	6'-2"	str.
W703	2	2	5'-1"	str.
W704	2	2	4'-0"	str.
W705	2	2	9'-4"	5/4"

Bending Diagrams
(Dimensions are out to out of bars.)



General Notes :

All concrete shall be Class "S" with 28-Day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield Strength = 60,000 psi).

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".

No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the paving bracket shall not be placed until the adjacent deck pour has been made. See Expansion Device Installation on Dwg. No. 43797 for additional information.

If anchor bolts are drilled into cap, top reinforcing bars shall be placed to avoid damage.

For additional information, see Layout.

STATE OF ARKANSAS
Carl J. Fuselier
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No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
SALINE RIVER RELIEF (LM 3.18 & LM 3.68)

ROUTE SEC.

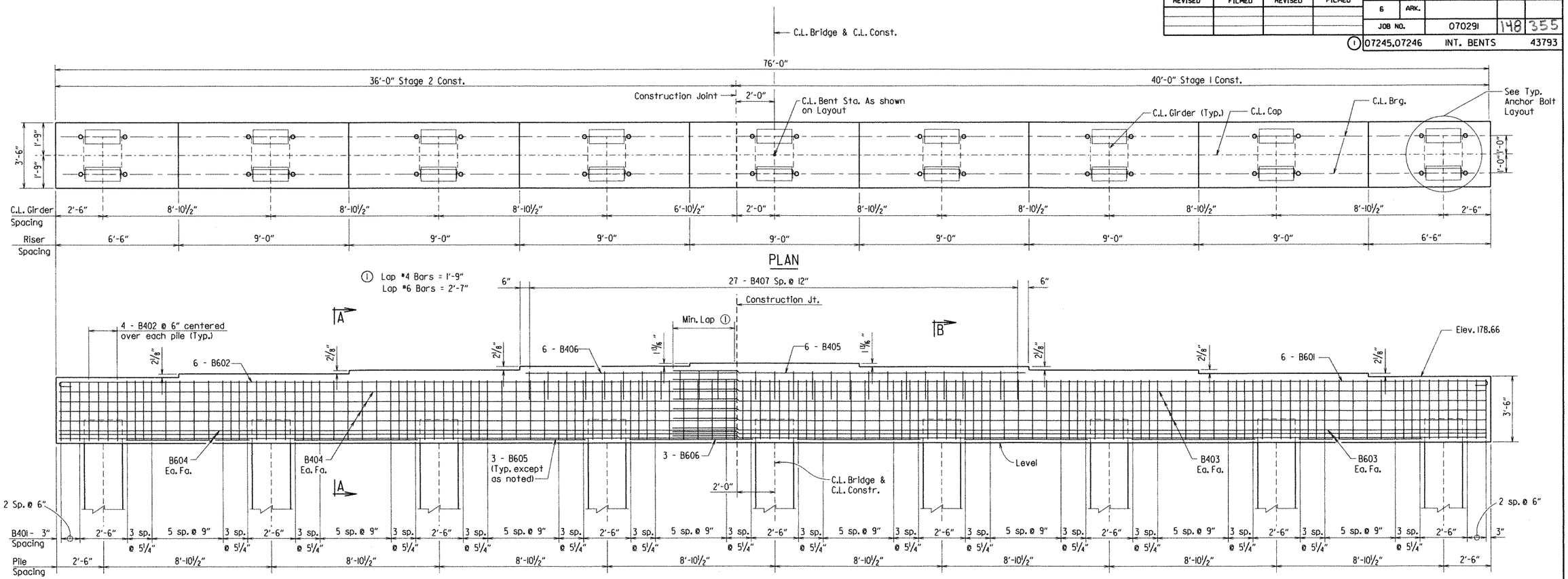
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

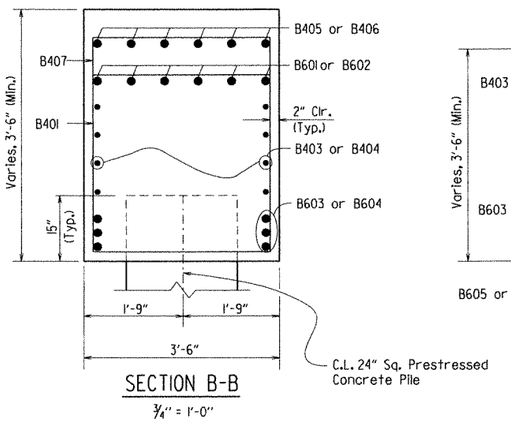
DRAWN BY: MRE DATE: 11/16/11 FILENAME: b070291x3_bl.dgn
CHECKED BY: DATE: 2/14/12 SCALE: As Noted
DESIGNED BY: DATE: 10/2011

BRIDGE NO. 07245,07246 DRAWING NO. 43792

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	148	355
				① 07245,07246		INT. BENTS		43793

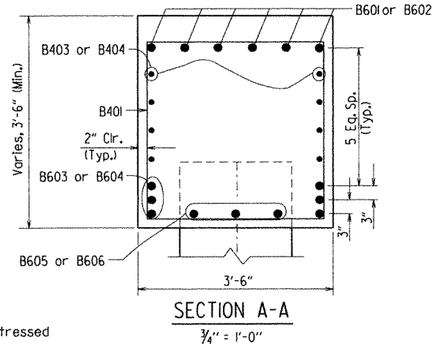


PLAN



SECTION B-B

¾" = 1'-0"

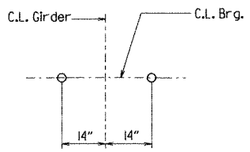


SECTION A-A

¾" = 1'-0"

ELEVATION

Looking Ahead



NOTE: For Details of Elastomeric Bearings See Dwg. No. 43784.

TYPICAL ANCHOR BOLT LAYOUT

¾" = 1'-0"

NOTES:

All concrete shall be Class "S" with a minimum 28-day compressive strength f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).

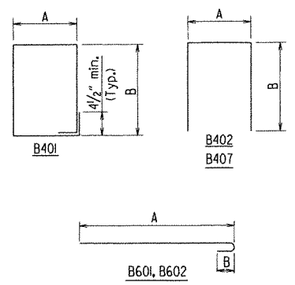
Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

BAR LIST (PER BENT)

MARK	NO. REQ'D.	LENGTH	A	B	P.D.
B401	102	13'-0"	3'-2"	3'-2"	2"
B402	36	9'-4"	3'-2"	3'-2"	2"
B403	8	41'-8"	-	-	Str.
B404	8	35'-9"	-	-	Str.
B405	6	17'-2"	-	-	Str.
B406	6	11'-3"	-	-	Str.
B407	27	6'-0"	3'-2"	1'-6"	2"
B601	6	43'-2"	42'-6"	6"	4½"
B602	6	36'-5"	35'-9"	6"	4½"
B603	6	42'-6"	-	-	Str.
B604	6	35'-9"	-	-	Str.
B605	21	6'-7"	-	-	Str.
B606	3	5'-5"	-	-	Str.

BENDING DIAGRAMS
(Dimensions are out to out of bars.)



STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS SALINE RIVER RELIEF (LM 3.18 & LM 3.68)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/17/11
CHECKED BY: SWP DATE: 2/8/12
DESIGNED BY: SWP DATE: 10/2011
FILENAME: b070291x3_b2.dgn
SCALE: ⅜"=1'-0" or As Noted.

BRIDGE NO. 07245,07246 DRAWING NO. 43793

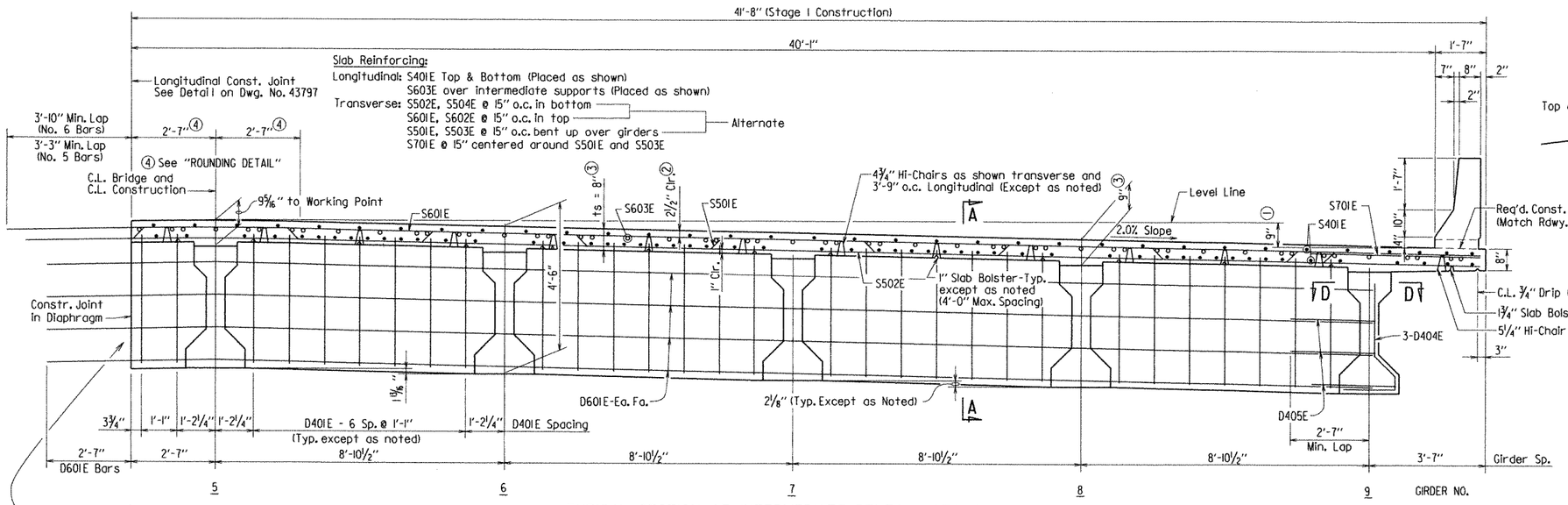
NOTE: Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the Roadway Face and Top of the Concrete Parapet Rail.

NOTE: At Contractor's option, in lieu of providing Bar S501E & S503E, two straight #5 epoxy coated bars may be substituted. Payment for Reinforcing will be based on the Weight of bar S501E & S503E.

NOTE: All bars designated with a "E" suffix are to be Epoxy Coated.

NOTE: The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	149	355
				(1) 07245,07246		SPAN DETAILS		43794



NOTE: For additional details of Deck Support at Longitudinal Construction Joint, see Dwg. No. 43799 or 43802.

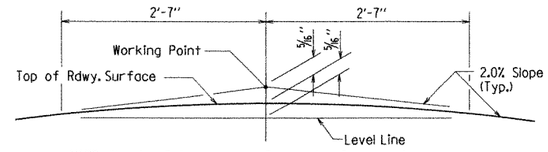
TYPICAL SECTION AT INTERMEDIATE BENTS - STAGE I

LOOKING AHEAD
3/8" = 1'-0"

① Working Point to Gutterline

② Tolerance: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance - see "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED", Dwg. No. 43798 or 43801.

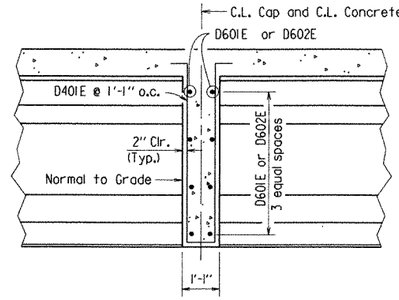
③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED", Dwg. No. 43798 or 43801



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

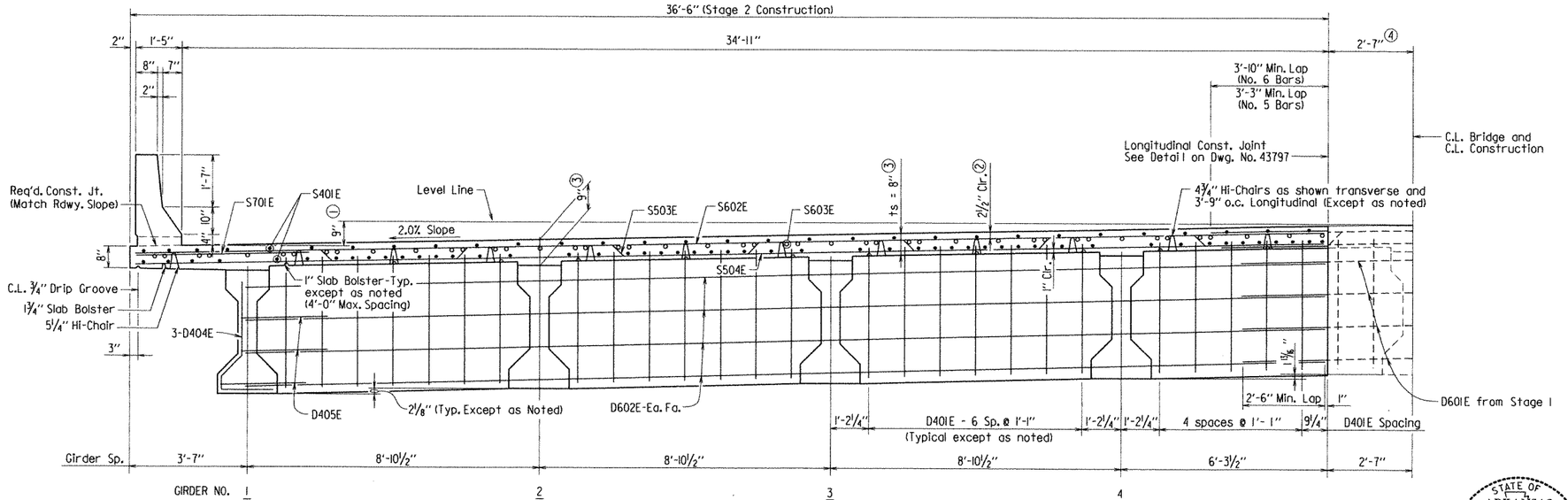
No Scale



NOTE: All diaphragms shall be formed normal to Deck Grade at C.L. Bridge.

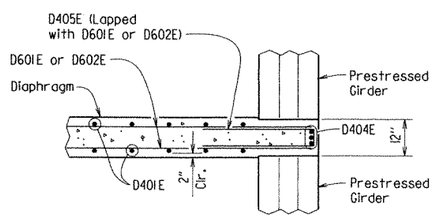
SECTION A-A

Intermediate Bent Diaphragm
1/2" = 1'-0"



TYPICAL SECTION AT INTERMEDIATE BENTS - STAGE 2

LOOKING AHEAD
3/8" = 1'-0"



SECTION D-D

1/2" = 1'-0"

STATE OF ARKANSAS
Carl J. Fusselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSSELIER

BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS COMMON TO PRESTRESSED CONCRETE GIRDERS - 75 FT. ROADWAY SALINE RIVER RELIEF (LM 3.18 & LM 3.68)

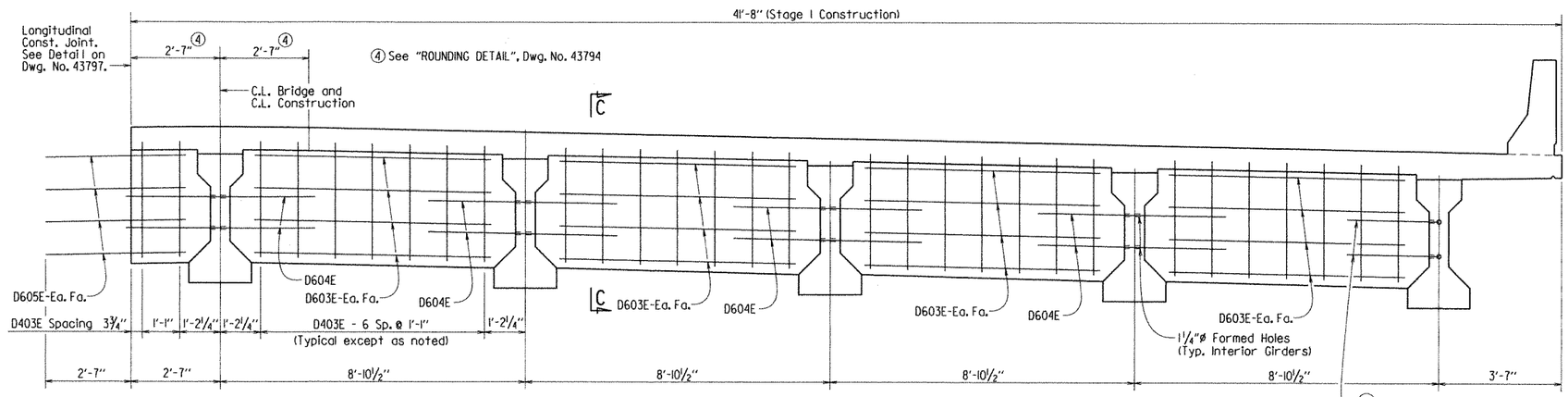
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291_sl.dgn
CHECKED BY: SmP DATE: 2/8/2012 SCALE: As Noted
DESIGNED BY: SmP DATE: 9/2011

BRIDGE NO. 07245,07246 DRAWING NO. 43794

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	150	355
				(1) 07245,07246		SPAN DETAILS		43795



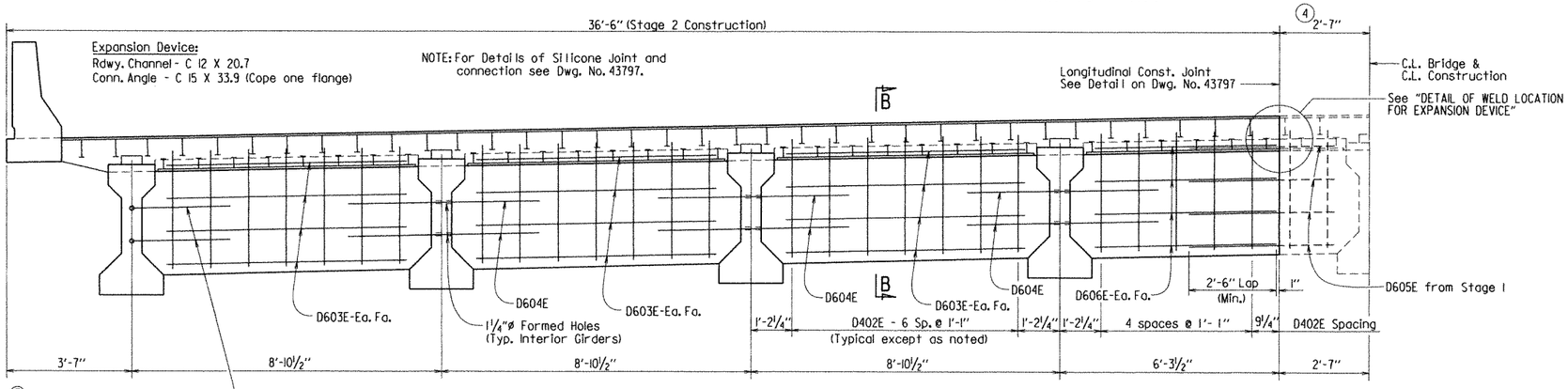
NOTE: Typical Section at Midspan Diaphragms - Stage 2 similar. Refer to "SECTION C-C".

TYPICAL SECTION AT MIDSPAN DIAPHRAGMS - STAGE I

LOOKING AHEAD
⅜" = 1'-0"

NOTE: See Dwg. No. 43798 or 43801 for "DETAILS OF ALTERNATE MIDSPAN DIAPHRAGMS".

⑤ Galvanized Threaded Inserts & ¾" ø X 3'-6" Threaded Rods @ Exterior Girders (See Typical Girder Elevations on Dwg. No. 43796 for number and location)



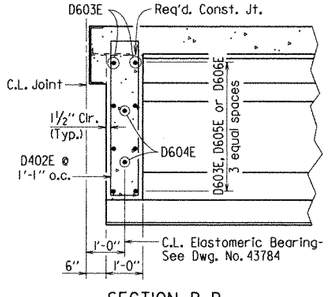
⑤ Galvanized Threaded Inserts & ¾" ø X 3'-6" Threaded Rods @ Exterior Girders (See End Bent Bearing Detail on Dwg. No. 43796 for number and location)

TYPICAL SECTION AT END OF UNIT - STAGE 2

LOOKING AHEAD
⅜" = 1'-0"

NOTE: Typical Section End of Unit - Stage I similar. Refer to "SECTION B-B".

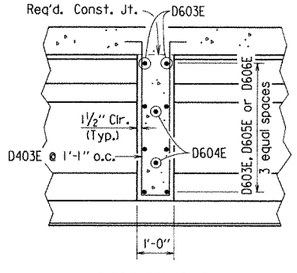
⑤ NOTE:
Galvanized Threaded Inserts shall be Dayton-Richmond F-42 Loop Ferule Inserts or approved equal. ¾" ø Galvanized Threaded Rods shall be AASHTO M 270, Grade 36 or AASHTO M 31 or M 53, Grade 60. Galvanizing shall be in accordance with AASHTO M 232 Class C or AASHTO M 298 Class 50. These items will not be paid for directly, but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".



SECTION B-B

End of Unit Diaphragm
½" = 1'-0"

NOTE: All diaphragms shall be formed normal to Deck Grade at C.L. Bridge.

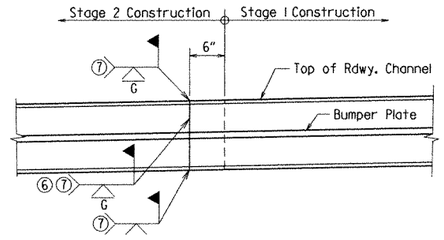


SECTION C-C

Midspan Diaphragms
½" = 1'-0"

NOTE: See "DETAIL OF ALTERNATE MIDSPAN DIAPHRAGM", Dwg. No. 43978 or 43801.

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE



⑥ Grind flush from top of deck to top of bumper plate.
⑦ Weld after Stage I Pour & prior to Stage 2 Pour.

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

Looking Ahead
No Scale

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CARL J. FUSSELIER

BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS COMMON TO PRESTRESSED CONCRETE GIRDERS - 75 FT. ROADWAY
SALINE RIVER RELIEF (LM 3.18 & LM 3.68)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

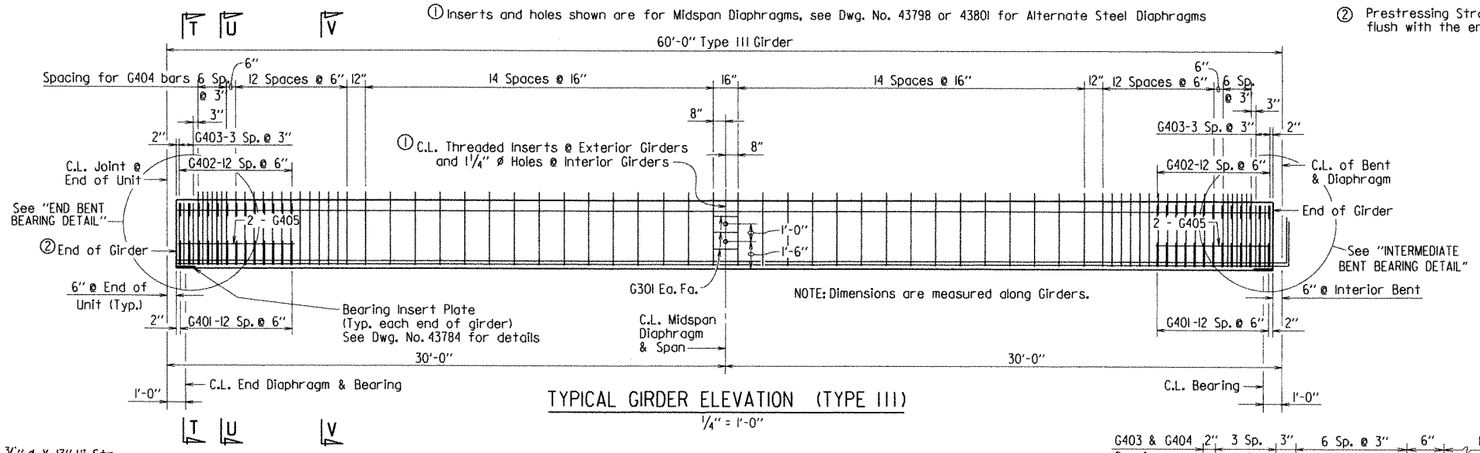
DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291sl.dgn
CHECKED BY: DATE: 2/8/12 SCALE: As Noted
DESIGNED BY: DATE: 9/2011

BRIDGE NO. 07245,07246 DRAWING NO. 43795

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	151	355
				① 07245,07246		SPAN DETAILS		43796

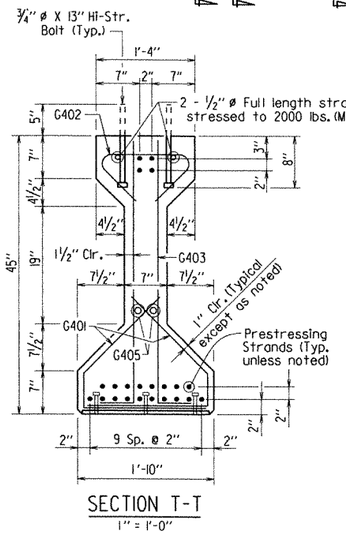
① Inserts and holes shown are for Midspan Diaphragms, see Dwg. No. 43798 or 43801 for Alternate Steel Diaphragms

② Prestressing Strands at End Bents shall be sawn flush with the end of the girders.



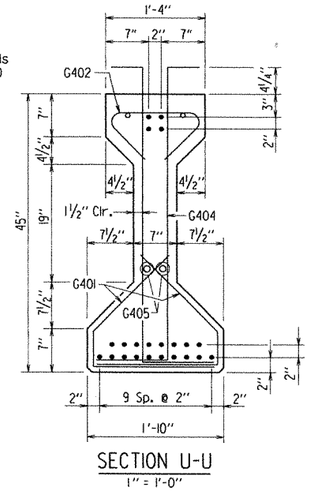
TYPICAL GIRDER ELEVATION (TYPE III)

¼" = 1'-0"



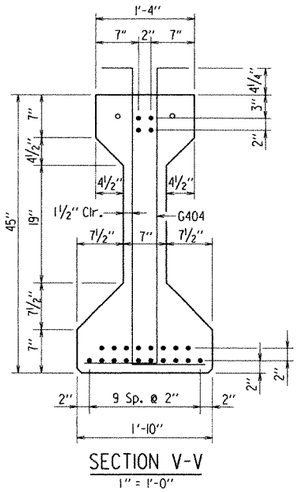
SECTION T-T

1" = 1'-0"



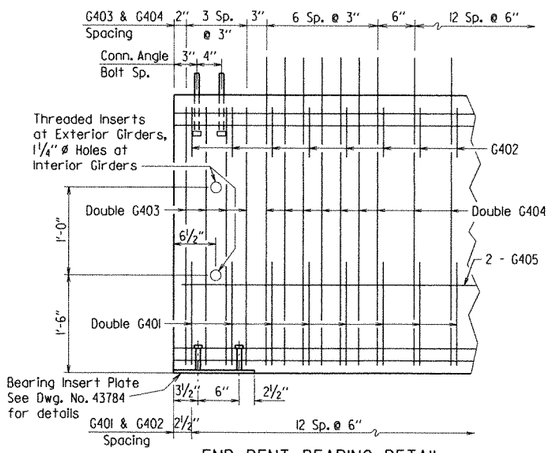
SECTION U-U

1" = 1'-0"



SECTION V-V

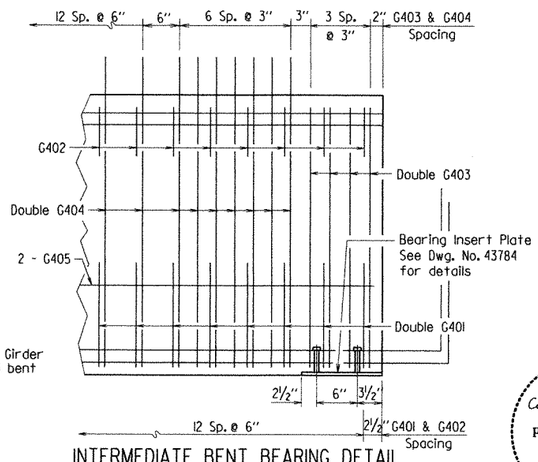
1" = 1'-0"



END BENT BEARING DETAIL

Not To Scale

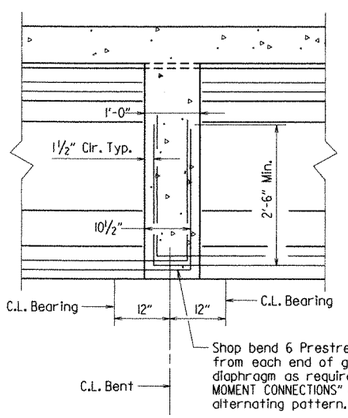
Showing reinforcing in relation to bearing plate assembly and 1¼" ø holes and threaded inserts.



INTERMEDIATE BENT BEARING DETAIL

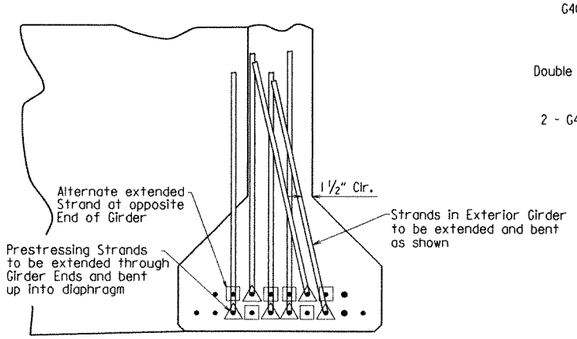
Not To Scale

Showing reinforcing in relation to bearing plate assembly



ELEVATION OF GIRDERS AT INTERMEDIATE BENTS

¾"=1'-0"



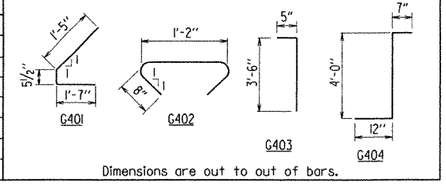
POSITIVE MOMENT CONNECTIONS

No Scale

BAR LIST PER GIRDER

MARK	NO. REQ'D.	LENGTH	P.D.
G301	6	1'-3"	Str.
G401	52	3'-4"	2"
G402	26	2'-9"	3"
G403	16	3'-10"	2"
G404	140	5'-5"	2"
G405	4	6'-3"	Str.

BENDING DIAGRAMS

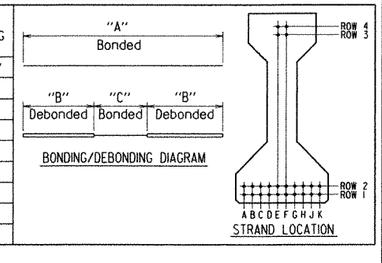


Dimensions are out to out of bars.

All bars in this list shall be subsidiary to the item "Prestressed Concrete Girders (Type III)". For Bar List of Span Reinforcing, See Dwg. Nos. 43781.

TABLE OF GIRDER VARIABLES

STRAND DESIGNATION		VARIABLES OF BONDING/DEBONDING		
ROW	LINE	"A"	"B"	"C"
1	A,B,C,D,E,F,G,H,J,K	59'		
2	B,C,D,E,F,G,H,J	59'		
3	E,F	59'		
4	E,F	59'		

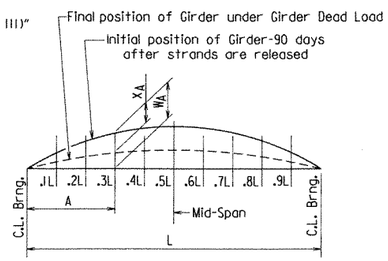


BONDING/DEBONDING DIAGRAM

STRAND LOCATION

Note: Prestressing Strands shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)"

Span Pt.	Inches	
	W_A	X_A
0.00	0.000	0.000
0.10	0.356	0.125
0.20	0.614	0.246
0.30	0.789	0.341
0.40	0.889	0.403
0.50	0.921	0.425
0.60	0.889	0.403
0.70	0.789	0.341
0.80	0.614	0.246
0.90	0.356	0.125
1.00	0.000	0.000



"W_A" is camber of Girder (Prestress + Dead Load of Girder @ 90 days after release)

"X_A" is Dead Load Deflection of Slab + Diaphragms + Composite Dead Load

CAMBER & DEFLECTIONS (INCHES)

No Scale

NOTE: "W_A" & "X_A" shall be measured along bottom of girders unless otherwise approved by the Engineer. "W_A" & "X_A" may vary from the dimension shown. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" for limitations of the girder final position under dead load. The Contractor is responsible for any adjustment necessary to meet slab thickness tolerance and to achieve an acceptable finished grade. No payment shall be made for any additional concrete in the haunches when camber is less than shown.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/15/12
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BRIDGE ENGINEER

SHEET 3 OF 4

DETAILS COMMON TO PRESTRESSED CONCRETE GIRDERS - 75 FT. ROADWAY SALINE RIVER RELIEF (LM 3.18 & LM 3.68)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291_sl.dgn

CHECKED BY: DATE: 2/8/12 SCALE: As Noted

DESIGNED BY: DATE: 9/2011

BRIDGE NO. 07245,07246 DRAWING NO. 43796

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	152	355
				(1) 07245,07246		SPAN DETAILS		43797

PRESTRESSED GIRDERS GENERAL NOTES

Pretensioning steel shall be ½" dia. Low Relaxation strands with a minimum ultimate strength of 270 ksi, and shall conform to AASHTO M 203.

Distances from the forms and spacing of the Prestressing Steel shall be maintained by stays, ties, hangers, spacers, or other approved supports which shall be shown on the Shop Drawings.

All girders shall be Type III as noted on the details and shall be the standard prestressed sections adopted by the Joint Committee of AASHTO and the Prestressed Concrete Institute. All girders shall be cast in concrete floored pallets and in metal forms. All work and materials shall be as specified in subsection 802.22.

Concrete shall be Class S and shall have a minimum 28 day compressive strength, f'c = 6,000 psi.

The initial tensile force applied to each ½" dia. strand shall be 31,000 lbs. except as noted. Transfer of this tensioning load to the girder shall not be done until the compressive strength of the concrete is 4,500 psi.

Dimensions shown are to the center of the strands.

The Contractor shall submit the method and sequence for release of strands to the Engineer for approval prior to casting of the girders.

The first 16" along the tops of the Girders at beginning and end of units shall have a smooth surface. The tops of the remaining length of girders shall be rough floated at approximately the time of set. This portion of the tops of girders shall be scrubbed transversely with a coarse wire brush to remove all laitance and to produce a roughened surface for bonding slabs.

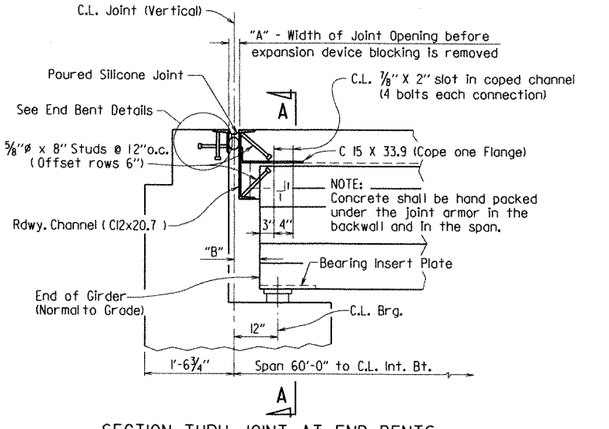
All exposed steel at end of unit girders shall be protected against corrosion with a coating of tar or other waterproofing material.

Extreme care shall be exercised in handling and moving precast prestressed concrete girders. Girders must be maintained in an upright position at all times and must be picked up from points near the girder ends. Disregard of this requirement may lead to collapse of the girder. The Contractor's proposed lifting details shall be submitted on shop drawings to the Engineer for approval. The use of holes for lifting purposes will not be permitted.

The points of support and directions of the reactions with respect to the member shall be approximately the same during transportation and storage as when the member is in its final position.

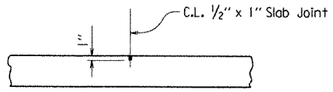
Reinforcing steel shall be AASHTO M31 or M53, Gr. 60 (fy = 60,000 psi).

The Contractor may submit alternate strand patterns with design calculations for review and approval in accordance with subsection 802.22, except that only ½" diameter strands shall be allowed.



SECTION THRU JOINT AT END BENTS

Scale: ¾" = 1'-0"



Use ½" X 1" Type 3, 4 or 6 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer rod shall not be installed. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations.

SLAB JOINT DETAIL

No Scale

SUPERSTRUCTURE GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Dept. Standard Specifications for Highway Construction, 2003 edition, with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 Interim Specifications.

LIVE LOADING: HL-93

REINFORCING STEEL: Reinforcing Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports sufficient in size and number to prevent displacement during the course of construction. The wire supports will not be paid for directly but will be considered subsidiary to the item of "Epoxy Coated Reinforcing Steel".

CONCRETE: Concrete in Slab, Parapet, and Diaphragms shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry. All end of unit and midspan diaphragms shall be poured a minimum of 48 hours before the slab is poured. Interior bent diaphragms shall be cast monolithically with the slab. The slab and intermediate bent diaphragms for the Prestressed Concrete Girder Units shall not be poured until at least 90 days after the release of the Prestressing Strands.

All exposed corners to be chamfered ¾" unless otherwise noted.

The superstructure details shown are for when removable deck forming is used and are the basis for measurement of Class S (AE) Concrete. See Standard Drawing No. 14991 for allowable modifications and for tolerances when permanent steel bridge deck forms are used.

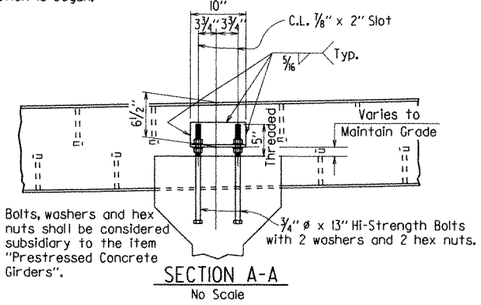
Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The concrete bridge deck shall be given a tine finish as specified for final finishing in subsection 802.19 for a Class 5 tined bridge roadway surface finish. Movement of the finishing machine across the new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the girder. A minimum of 72 hours shall elapse between completion of slab and pouring of parapet railing.

STRUCTURAL STEEL: All Structural Steel shall be AASHTO M270, Gr. 50W unless otherwise noted and shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W). All exposed surfaces to be cleaned in accordance with subsection 807.84(b). Structural Steel completely embedded in concrete may be AASHTO M 270, Grade 36 unless otherwise noted.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

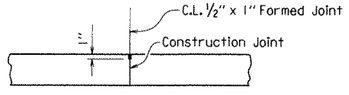
All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of subsection 802.13 will not require approval prior to construction. All welding shall conform to subsection 807.26.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, submitted, and approval secured before fabrication is begun.



SECTION A-A

No Scale

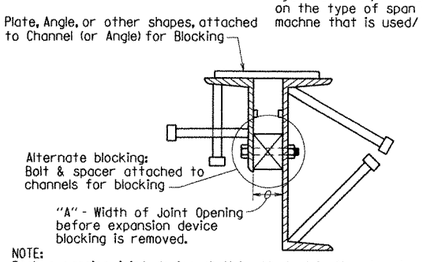


Use ½" X 1" Type 3, 4 or 6 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer Rod shall not be installed. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Sealant must be gray or other color similar to concrete.

LONGITUDINAL SLAB CONSTRUCTION JOINT DETAIL

No Scale

One of two different blocking systems is required depending on the type of span finishing machine that is used/



NOTE:
Each expansion joint device shall be blocked in the shop by the Fabricator to the dimension shown for 60°F, and the blocking details shall be shown on the Shop Drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives.

1) The concrete span pour adjacent to the expansion device shall be placed before the end bent backwall concrete is placed. The joint assembly shall be installed on the girders, adjusted for grade, and the bolts fully tightened prior to placing the adjacent span concrete pour. Immediately prior to pouring the backwall concrete supporting the expansion device, the blocking shall be removed, the joint opening shall be adjusted for temperature, and the backwall constructed.

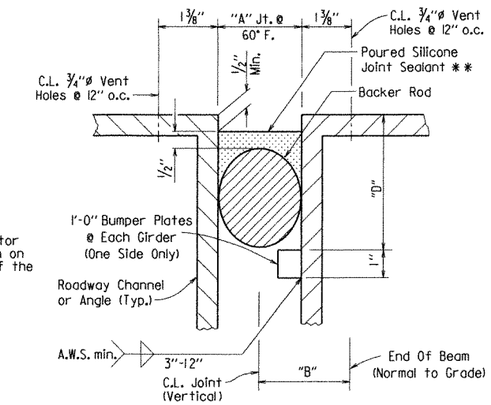
2) The backwall shall be poured to the optional construction joint after girders are erected. The expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed, the joint opening shall be adjusted for temperature, and the remainder of the backwall constructed.

SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature* Of:			"B" Perpendicular to Joint at 60°F	"D"	Bumper Plate Size
40°F	60°F	80°F			
2¾"	2½"	2¼"	6"	5"	1" x 1½"

*The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature.

NOTE: The temperature limitations recommended by the sealant manufacturer shall be observed. Interpolation of the table may be necessary.



DETAIL OF POURED SILICONE JOINT

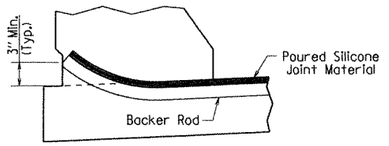
No Scale

BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

Except as noted, do not install more backer rod than can be sealed in the same day.

The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.



DETAILS OF POURED SILICONE JOINT AT GUTTERS

No Scale

** Silicone Joint Materials and installation shall be in accordance with S.P. Job No.070291 "Silicone Joint Sealant"

STATE OF ARKANSAS
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No. 7510
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5/17/12

BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS COMMON TO PRESTRESSED CONCRETE GIRDERS - 75 FT. ROADWAY SALINE RIVER RELIEF (LM 3.18 & LM 3.68)

ROUTE SEC.

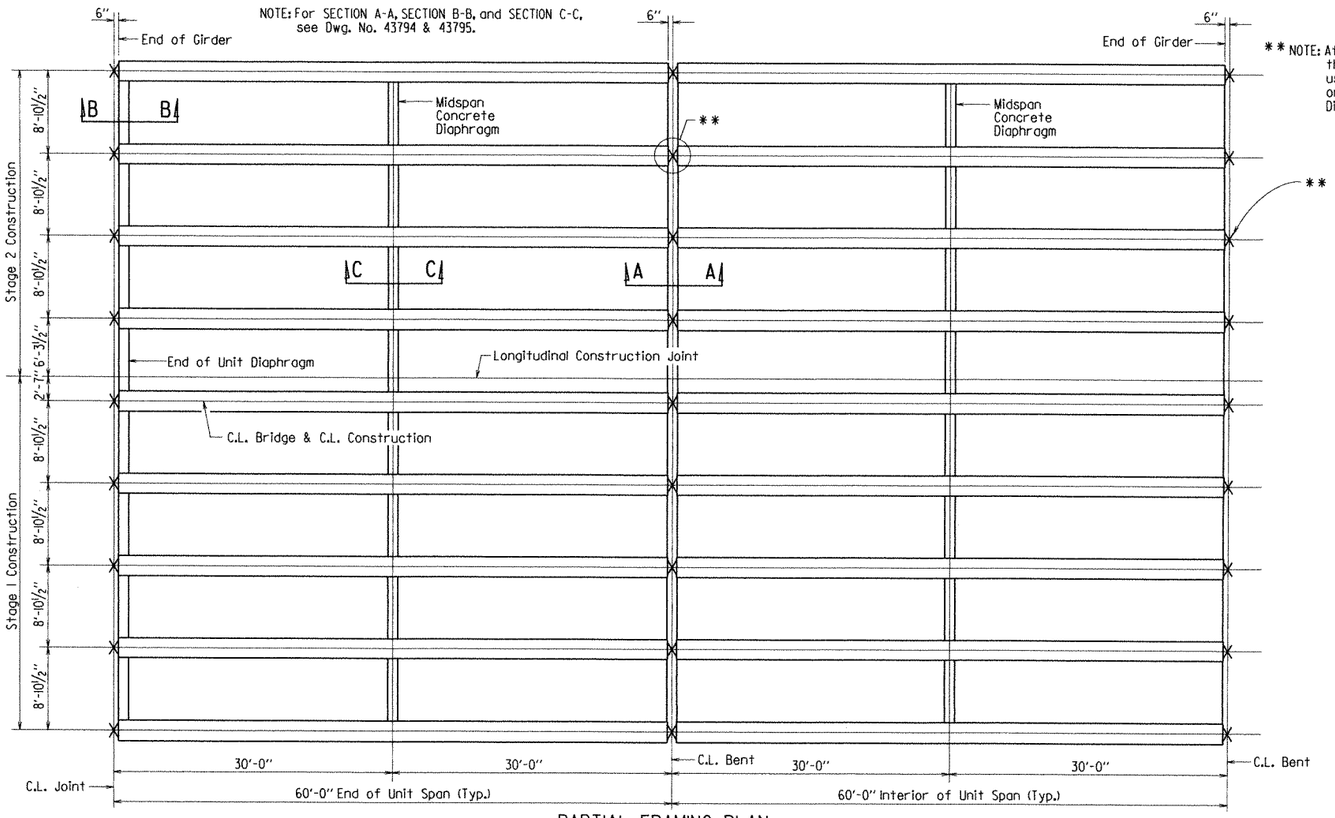
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291_sl.dgn
CHECKED BY: SMD DATE: 2/9/2012 SCALE: As Noted
DESIGNED BY: JGT DATE: 9/2011

BRIDGE NO. 07245,07246 DRAWING NO. 43797

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	153	355
				①	07245	SPAN DETAILS		43798



PARTIAL FRAMING PLAN

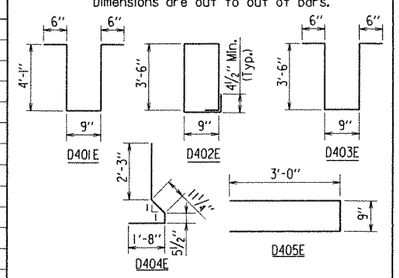
⅛" = 1'-0"

** NOTE: After erection for a particular stage (i.e. 1 or 2), the ends of Girders at all Bents shall be blocked using temporary blocking to maintain proper location on Bent Caps until all bearings are welded and Diaphragms are poured.

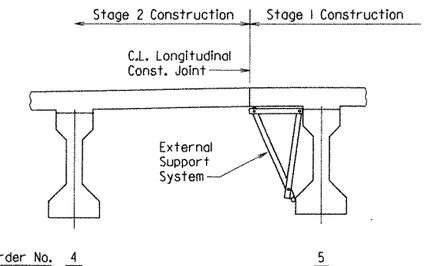
DIAPHRAGM BAR LIST (300'-0" UNIT)

MARK	NO. REQ'D. STAGE 1	NO. REQ'D. STAGE 2	LENGTH	P.D.
D401E	120	104	9'-7"	2"
D402E	60	52	8'-10"	2"
D403E	150	130	8'-5"	2"
D404E	12	12	5'-2"	2"
D405E	12	12	6'-7"	2"
D601E	32	—	40'-10"	Str.
D602E	—	32	33'-0"	Str.
D603E	224	168	7'-0"	Str.
D604E	56	42	5'-6"	Str.
D605E	56	—	4'-3"	Str.
D606E	—	56	5'-4"	Str.

BENDING DIAGRAMS
Dimensions are out to out of bars.



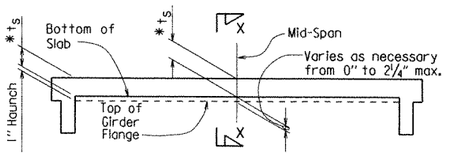
NOTE: Bars with an "E" suffix are to be Epoxy-Coated.



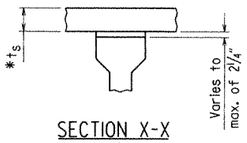
Stage 1 external supports in this bay shall remain in place until after completion of the Stage 2 deck pour. See subsection 802.15 for additional information regarding their removal.

DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT

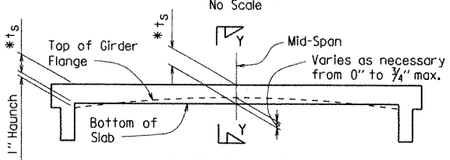
LOOKING AHEAD
No Scale



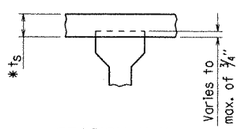
GIRDER ELEVATION
No Scale



SECTION X-X
No Scale



GIRDER ELEVATION
No Scale



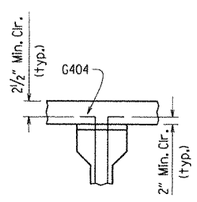
SECTION Y-Y
No Scale

NOTE: t_s = slab thickness as shown on superstructure details - See "TYPICAL SECTION AT INTERMEDIATE BENTS", Dwg. No. 43794.

*Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance. See Dwg. No. 14991 for tolerances when permanent steel deck forms are used.

'Girder Elevation' sketches show the range of acceptability of the top of the Girder relative to bottom of slab after the placement of the slab. When the top of the Girder projects more than ¾" into the slab, a raise in grade will be necessary. Girders shall be set in a sufficient number of spans so when adjustment is necessary the Profile Grade can be adjusted over suitable increments so the revised grade line will produce a smooth riding surface. Variation of haunch height will be at the Contractor's expense.

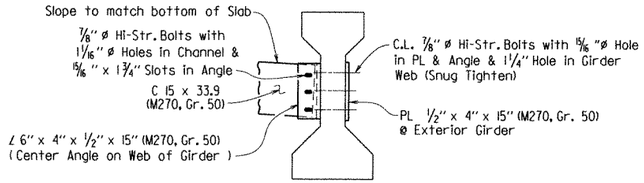
ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED



Note: For Girder Elevations and Sections, see Dwg. No. 43796.

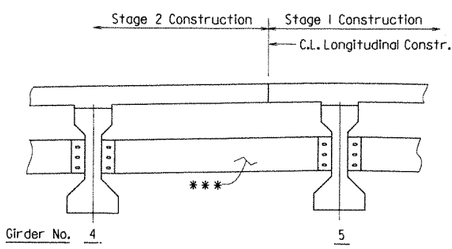
SHEAR REINFORCEMENT DETAIL

No Scale



NOTE: See Dwg. No. 43796 for Girder Details.

NOTE: A washer shall be supplied under both the nut and the head for the ⅞" ø H.S. Bolt. An additional plate washer shall cover the angle slots.



DETAIL OF ALTERNATE ① MIDSPAN DIAPHRAGM

No Scale

① Galvanized Steel Diaphragms may be used in place of Concrete at Midspan Diaphragms only. All components of the Alternate Steel Diaphragms shall be Galvanized in accordance with AASHTO M111. Payment will be based on concrete diaphragms. If Alternate Diaphragms are used, the bolts in the Diaphragms between Girders 4 & 5 shall not be tightened until the Deck Pour for Stage 2 Construction has been completed.

*** Before the Stage 2 deck pour, loosely install as many bolts as possible on both ends of the Alternate Steel Diaphragm in this bay to the satisfaction of the Engineer. An external means of supporting the Stage 1 overhang shall be provided and shall remain in place until after completion of the Stage 2 deck pour. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 2 deck pour.

STATE OF ARKANSAS
Carl J. Fuselier
No. 7510
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5/13/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF 300'-0" PRESTRESSED CONCRETE GIRDER UNIT
SALINE RIVER RELIEF (LM 3.18)

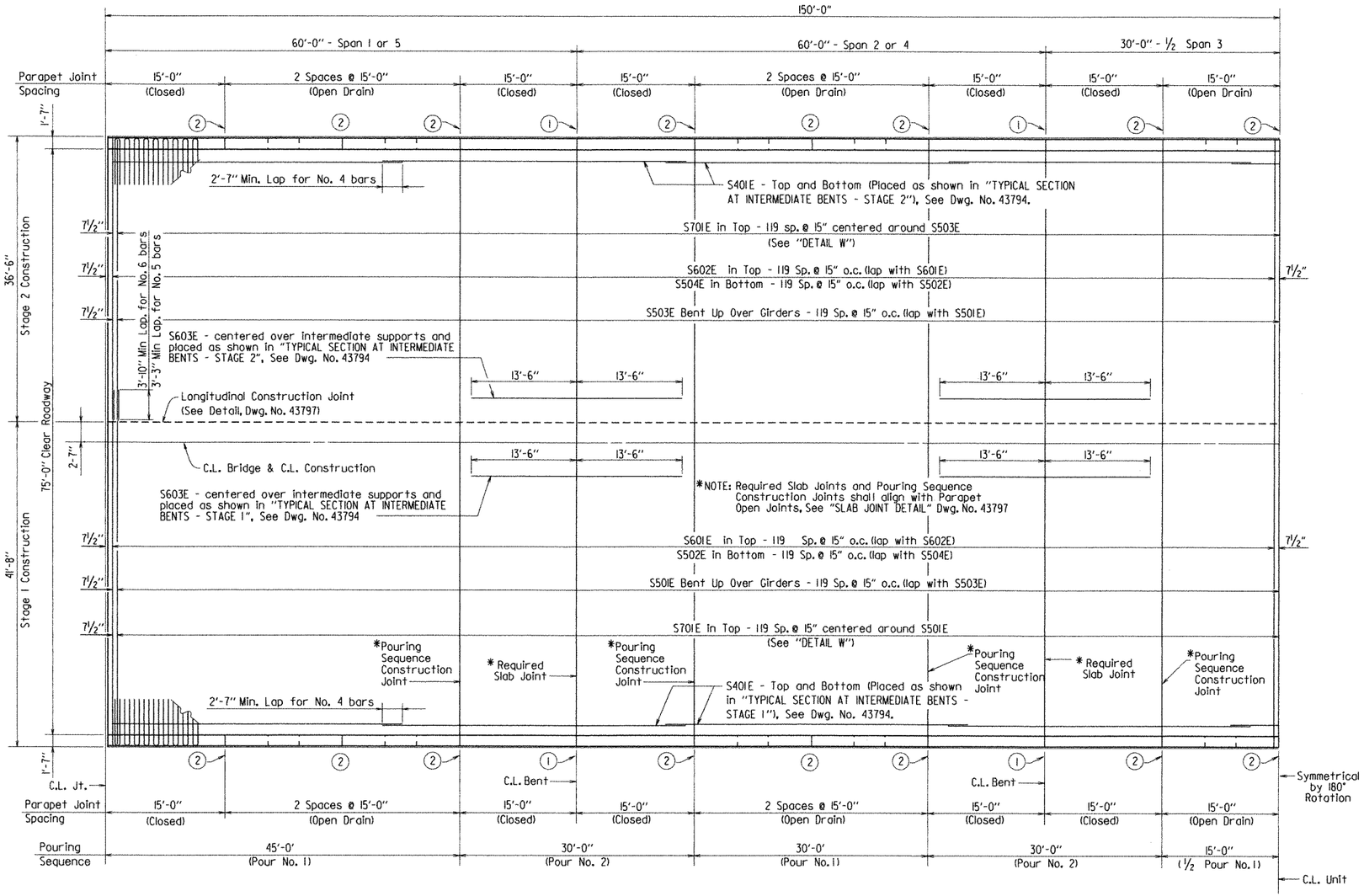
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291_sl.dgn
CHECKED BY: SWP DATE: 2/6/12 SCALE: As Noted
DESIGNED BY: JGT DATE: 9/2011

BRIDGE NO. 07245 DRAWING NO. 43798

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	154	355
				①	07245	SPAN DETAILS		43799



HALF-REINFORCING PLAN & DECK POURING SEQUENCE

⅛" = 1'-0"

NOTE: Pours with the same number may be poured simultaneously or separately. All pours (1) must be placed before pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour.

Diaphragm Pours: End of unit diaphragms (Section B-B) and Midspan Diaphragms (Section C-C) shall be poured at least 48 hours prior to deck pours. Diaphragms at Bents (Section A-A) shall be poured monolithically with the slab but shall not be poured until 90 days after girders are cast. See Dwg. No. 43794 and 43795 for Section Details.

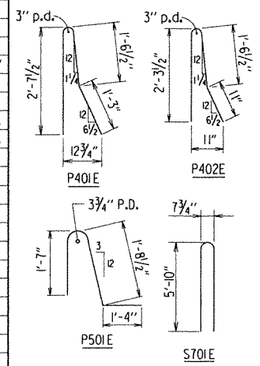
Any railing pours for a particular stage (i.e. 1 or 2) shall not be made before the entire slab unit of that stage has been placed unless approval of the Engineer has been obtained. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence.

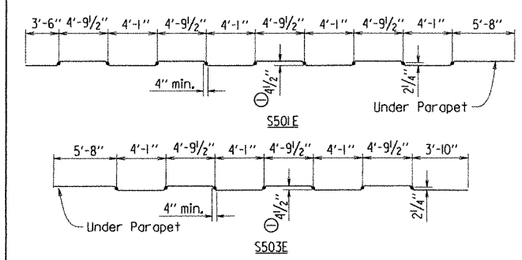
(1) C.L. Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab.

(2) C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab.

BAR LIST

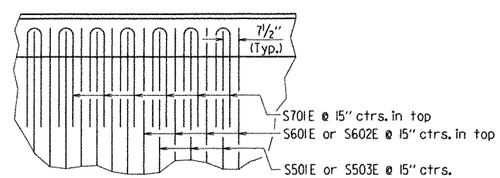
Mark	No. Req'd. Stage 1	No. Req'd. Stage 2	Length	Pin Dia.	Bending Diagrams (Dimensions are out to out of bars.)
S401E	704	640	39'-9"	Str.	
S501E	239	—	45'-10"	3"	
S502E	240	—	44'-9"	Str.	
S503E	—	239	37'-0"	3"	
S504E	—	240	36'-3"	Str.	
S601E	240	—	45'-4"	Str.	
S602E	—	240	36'-3"	Str.	
S603E	208	180	27'-0"	Str.	
S701E	239	239	11'-11"	6"	
P401E	520	520	5'-5"	2"	
P402E	60	60	4'-10"	2"	
P403E	52	52	5'-6"	Str.	
P404E	140	140	14'-8"	Str.	
P501E	520	520	4'-9"	3¾"	





① ½" Overtolerance, No Undertolerance.

NOTE: All Bars designated with an "E" suffix are to be Epoxy Coated.



DETAIL W

No Scale

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/13/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF 300'-0" PRESTRESSED CONCRETE GIRDER UNIT
SALINE RIVER RELIEF (LM 3.18)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291_s1.dgn

CHECKED BY: DATE: 11/8/12 SCALE: As Noted

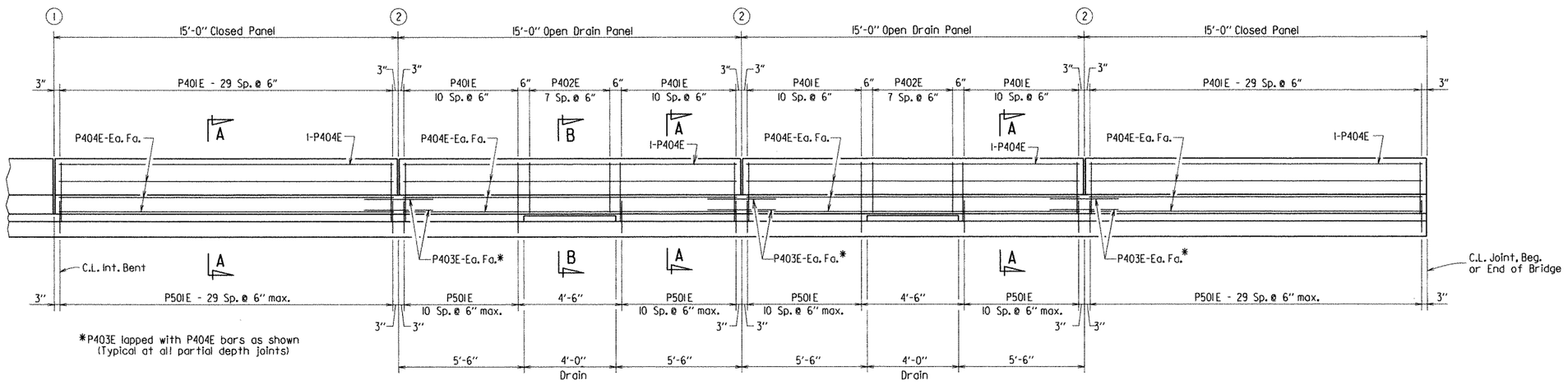
DESIGNED BY: DATE: 9/2011

BRIDGE NO. 07245 DRAWING NO. 43799

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	155	355
				① 07245		SPAN DETAILS		43800

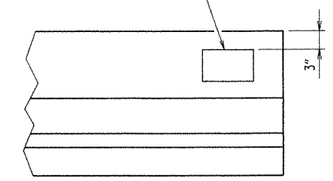
① C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.

② C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.



*P403E lapped with P404E bars as shown (Typical at all partial depth joints)

Place Type D Name Plate on front face of span rail approx. 2'-0" from C.L. of Joint at beginning of bridge (Right side of roadway only, see Std. Dwg. No. 2387)



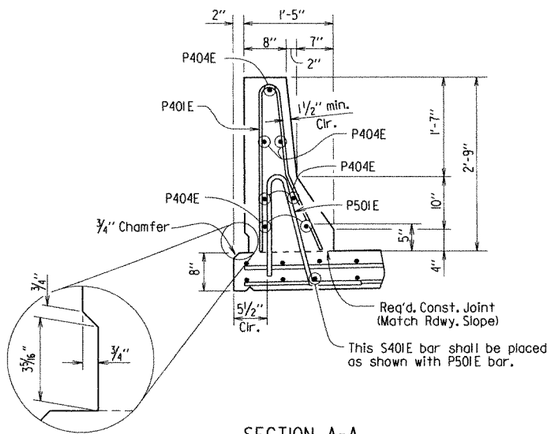
NAME PLATE DETAIL

No Scale

DETAILS OF PARAPET RAIL

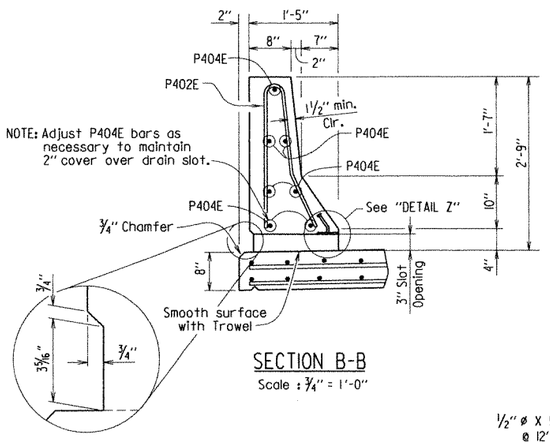
No Scale

NOTE: See Dwg. No. 43799 for Bar List.



SECTION A-A

Scale : ¾" = 1'-0"



SECTION B-B

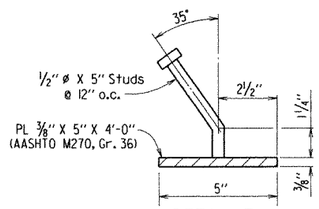
Scale : ¾" = 1'-0"

All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



DETAIL Z

No Scale

NOTE: Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)". The surfaces of the ⅜" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly but will be included in the item for structural steel.

STATE OF ARKANSAS
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No. 7510
5/17/12
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BRIDGE ENGINEER

SHEET 3 OF 3

DETAILS OF 300'-0" PRESTRESSED CONCRETE GIRDER UNITS SALINE RIVER RELIEF (LM 3.18)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291_sl.dgn

CHECKED BY: SMP DATE: 2/9/2012 SCALE: As Noted

DESIGNED BY: JSG DATE: 9/2011

BRIDGE NO. 07245 DRAWING NO. 43800

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	156	355
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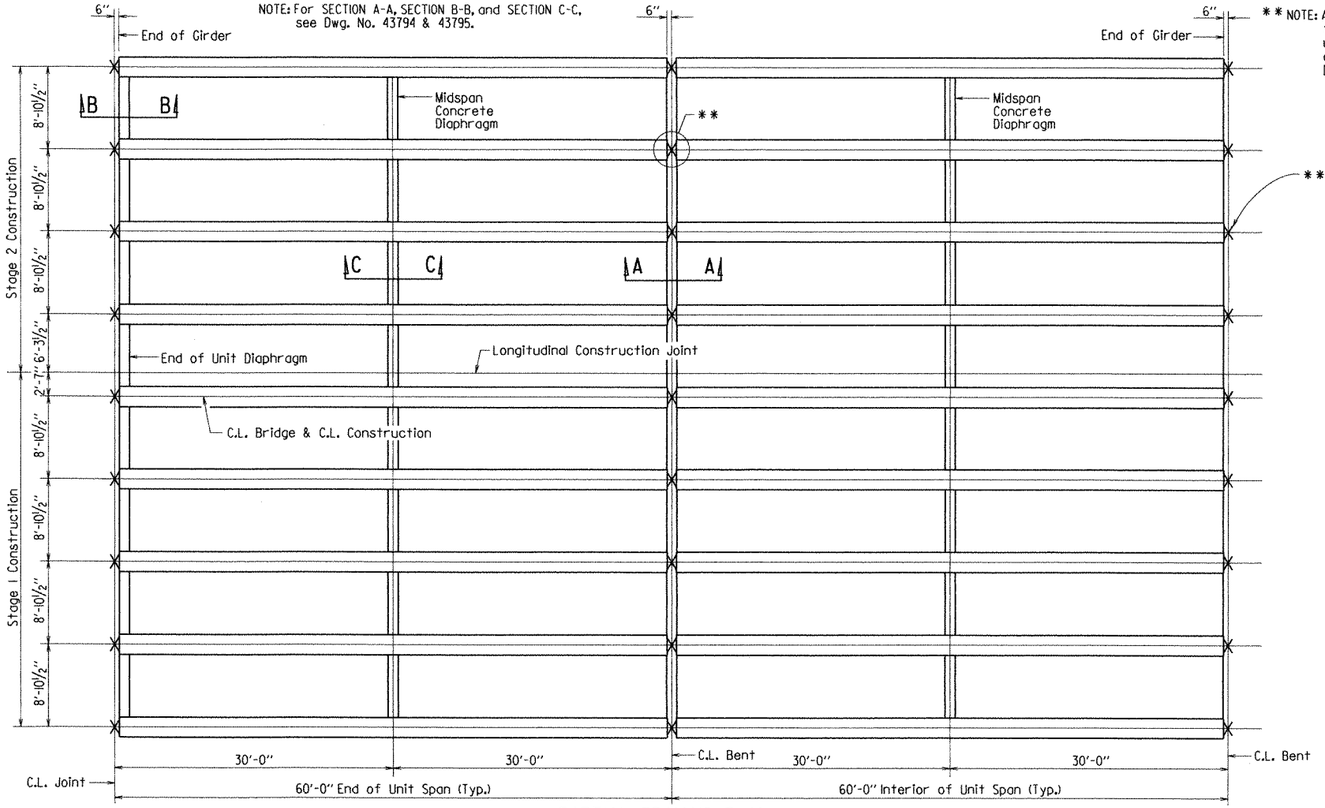


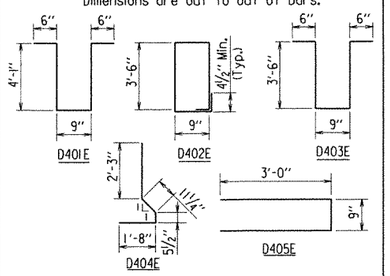
PARTIAL FRAMING PLAN
⅛" = 1'-0"

** NOTE: After erection for a particular stage (i.e. 1 or 2), the ends of Girders at all Bents shall be blocked using temporary blocking to maintain proper location on Bent Caps until all bearings are welded and Diaphragms are poured.

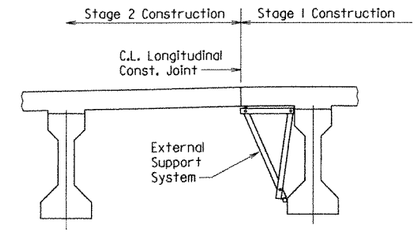
DIAPHRAGM BAR LIST (240'-0" UNIT)

MARK	NO. REQ'D. STAGE 1	NO. REQ'D. STAGE 2	LENGTH	P.D.
D401E	90	78	9'-7"	2"
D402E	60	52	8'-10"	2"
D403E	120	104	8'-5"	2"
D404E	9	9	5'-2"	2"
D405E	9	9	6'-7"	2"
D601E	24	—	40'-10"	Str.
D602E	—	24	33'-0"	Str.
D603E	192	144	7'-0"	Str.
D604E	48	36	5'-6"	Str.
D605E	48	—	4'-3"	Str.
D606E	—	48	5'-4"	Str.

BENDING DIAGRAMS
Dimensions are out to out of bars.



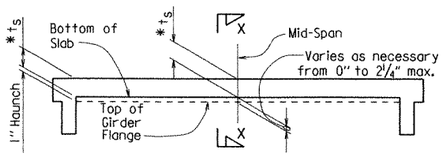
NOTE: Bars with an "E" suffix are to be Epoxy-Coated.



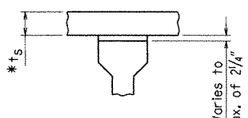
Girder No. 4 5

Stage 1 external supports in this bay shall remain in place until after completion of the Stage 2 deck pour. See subsection 802.15 for additional information regarding their removal.

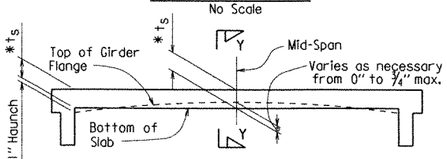
DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT
LOOKING AHEAD
No Scale



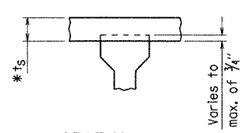
GIRDER ELEVATION
No Scale



SECTION X-X
No Scale



GIRDER ELEVATION
No Scale



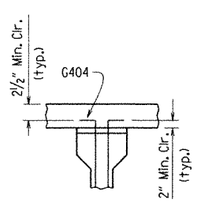
SECTION Y-Y
No Scale

NOTE: t_s = slab thickness as shown on superstructure details - See "TYPICAL SECTION AT INTERMEDIATE BENTS", Dwg. No. 43794.

*Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance. See Dwg. No. 14991 for tolerances when permanent steel deck forms are used.

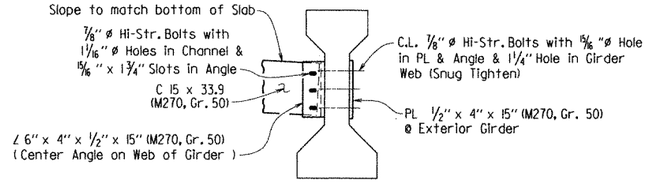
'Girder Elevation' sketches show the range of acceptability of the top of the Girder relative to bottom of slab after the placement of the slab. When the top of the Girder projects more than ¾" into the slab, a raise in grade will be necessary. Girders shall be set in a sufficient number of spans so when adjustment is necessary the Profile Grade can be adjusted over suitable increments so the revised grade line will produce a smooth riding surface. Variation of haunch height will be at the Contractor's expense.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED



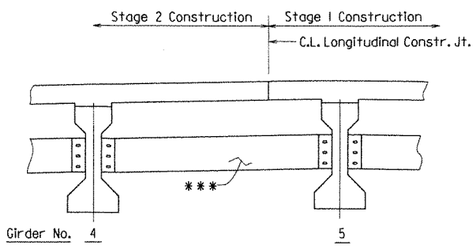
Note: For Girder Elevations and Sections, see Dwg. No. 43796.

SHEAR REINFORCEMENT DETAIL
No Scale



NOTE: See Dwg. No. 43796 for Girder Details.

NOTE: A washer shall be supplied under both the nut and the head for the ⅞" ø H.S. Bolt. An additional plate washer shall cover the angle slots.



DETAIL OF ALTERNATE ① MIDSPAN DIAPHRAGM
No Scale

① Galvanized Steel Diaphragms may be used in place of Concrete at Midspan Diaphragms only. All components of the Alternate Steel Diaphragms shall be Galvanized in accordance with AASHTO M111. Payment will be based on concrete diaphragms. If Alternate Diaphragms are used, the bolts in the Diaphragms between Girders 4 & 5 shall not be tightened until the Deck Pour for Stage 2 Construction has been completed.

*** Before the Stage 2 deck pour, loosely install as many bolts as possible on both ends of the Alternate Steel Diaphragm in this bay to the satisfaction of the Engineer. An external means of supporting the Stage 1 overhang shall be provided and shall remain in place until after completion of the Stage 2 deck pour. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 2 deck pour.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/17/12
CARL J. FUSELIER
BRIDGE ENGINEER

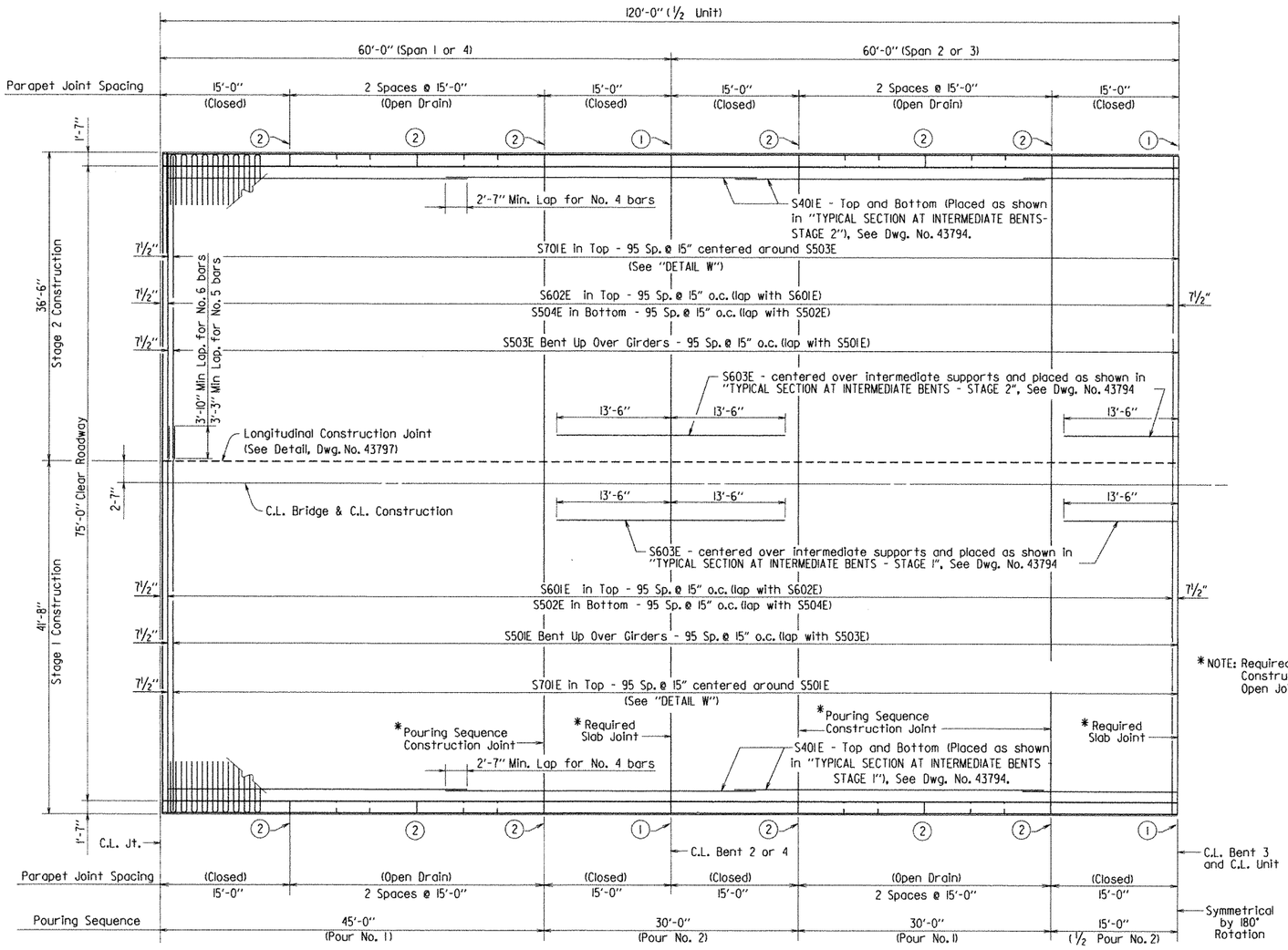
SHEET 1 OF 3
DETAILS OF 240'-0" PRESTRESSED CONCRETE GIRDER UNIT
SALINE RIVER RELIEF (LM 3.68)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291_sl.dgn
CHECKED BY: SJF DATE: 4/9/2012 SCALE: As Noted
DESIGNED BY: JCG DATE: 4/2011
BRIDGE NO. 07246 DRAWING NO. 43801

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	157	355
				(1)	07246	SPAN DETAILS		43802



*NOTE: Required Slab Joints and Pouring Sequence Construction Joints shall align with Parapet Open Joints. (See Detail, Dwg. No. 43797)

HALF-REINFORCING PLAN & DECK POURING SEQUENCE

⅛" = 1'-0"

NOTE: Pours with the same number may be poured simultaneously or separately. All pours (1) must be placed before pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour.

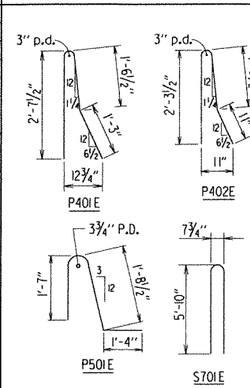
Diaphragm Pours: End of unit diaphragms (Section B-B) and Midspan Diaphragms (Section C-C) shall be poured at least 48 hours prior to deck pours. Diaphragms at Bents (Section A-A) shall be poured monolithically with the slab but shall not be poured until 90 days after girders are cast. See Dwg. No. 43794 and 43795 for Section Details.

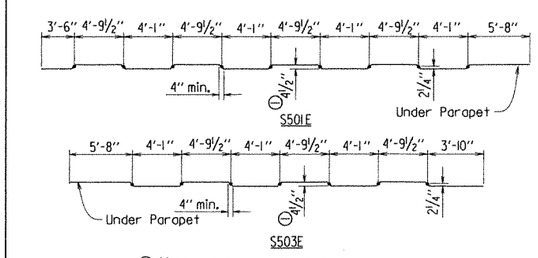
Any railing pours for a particular stage (i.e. 1 or 2) shall not be made before the entire slab unit of that stage has been placed unless approval of the Engineer has been obtained. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence.

BAR LIST

Mark	No. Req'd. Stage 1	No. Req'd. Stage 2	Length	Pin Dia.
S401E	616	560	36'-6"	Str.
S501E	191	—	45'-10"	3"
S502E	192	—	44'-9"	Str.
S503E	—	191	37'-0"	3"
S504E	—	192	36'-3"	Str.
S601E	192	—	45'-4"	Str.
S602E	—	192	36'-3"	Str.
S603E	156	132	27'-0"	Str.
S701E	191	191	11'-11"	6"
P401E	336	336	5'-5"	2"
P402E	48	48	4'-10"	2"
P403E	48	48	5'-6"	Str.
P404E	112	112	14'-8"	Str.
P501E	416	416	4'-9"	3¾"

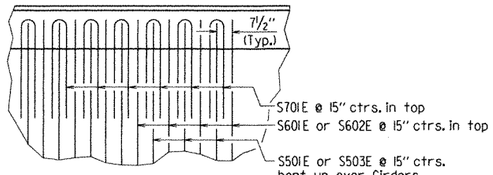
Bending Diagrams (Dimensions are out to out of bars.)





① ½" Overtolerance, No Undertolerance.

NOTE: All Bars designated with an "E" suffix are to be Epoxy Coated.



DETAIL W
No Scale

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/10/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF 240'-0" PRESTRESSED CONCRETE GIRDER UNIT
SALINE RIVER RELIEF (LM 3.68)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

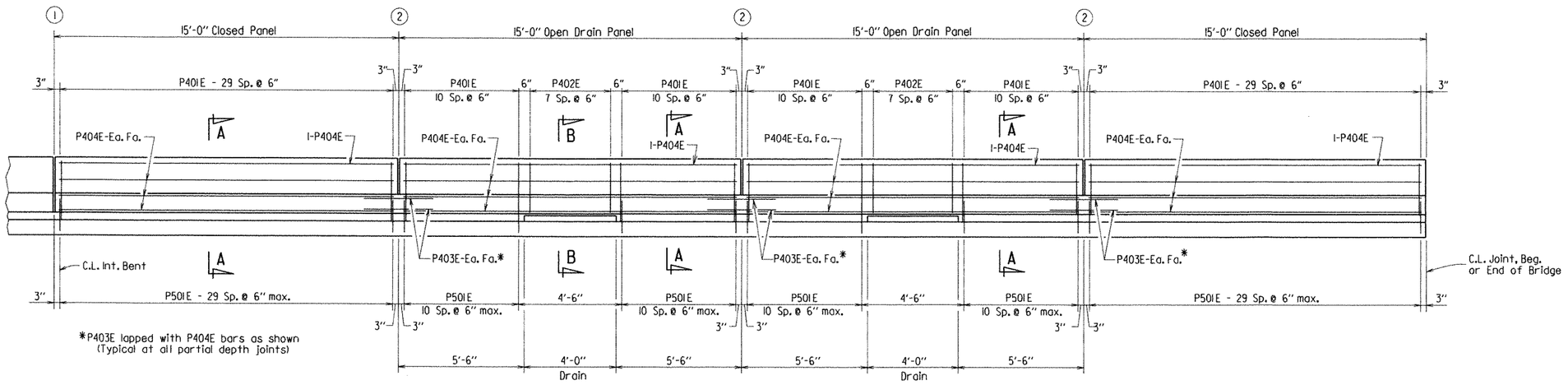
DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291_sl.dgn
CHECKED BY: DATE: 5/9/2012 SCALE: As Noted
DESIGNED BY: DATE: 4/20/11

BRIDGE NO. 07246 DRAWING NO. 43802

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070291	158	355
				(1) 07246		SPAN DETAILS		43803

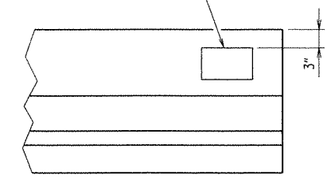
(1) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.

(2) C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.



*P403E lapped with P404E bars as shown (Typical at all partial depth joints)

Place Type D Name Plate on front face of span rail approx. 2'-0" from C.L. of Joint at beginning of bridge (Right side of roadway only, see Std. Dwg. No. 2387)



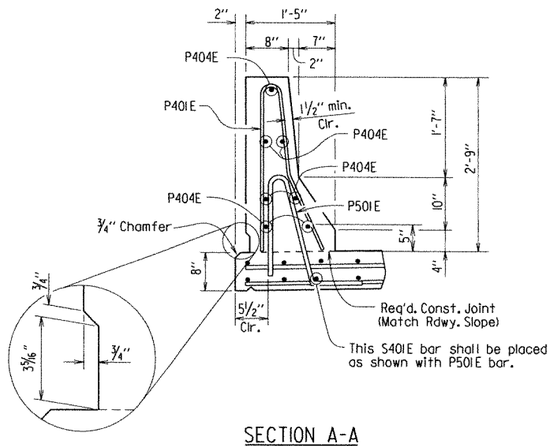
NAME PLATE DETAIL

No Scale

DETAILS OF PARAPET RAIL

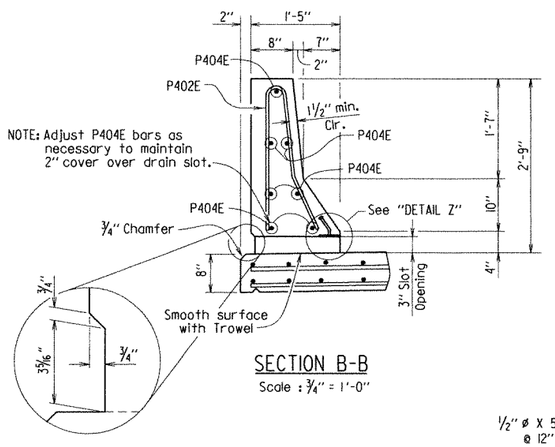
No Scale

NOTE: See Dwg. No. 43802 for Bar List.



SECTION A-A

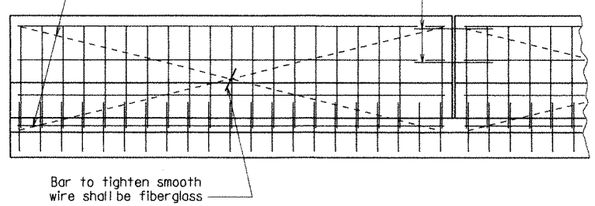
Scale : ¾" = 1'-0"

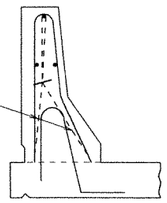


NOTE: Adjust P404E bars as necessary to maintain 2" cover over drain slot.

SECTION B-B

Scale : ¾" = 1'-0"



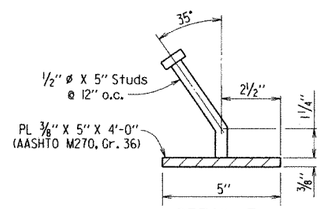


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



DETAIL Z

No Scale

NOTE: Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)". The surfaces of the ⅜" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly but will be included in the item for structural steel.

STATE OF ARKANSAS Carl J. Pusellier REGISTERED PROFESSIONAL ENGINEER No. 7510 5/10/12 CARL J. PUSELLIER

BRIDGE ENGINEER

SHEET 3 OF 3

DETAILS OF 240'-0" PRESTRESSED CONCRETE GIRDER UNITS SALINE RIVER RELIEF (LM 3.68)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/02/11 FILENAME: b070291_sl.dgn

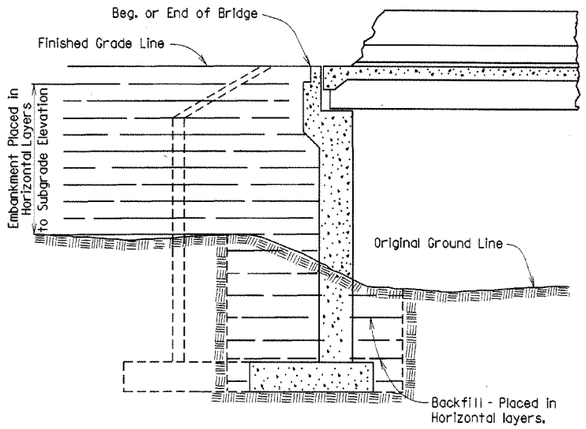
CHECKED BY: [illegible] DATE: 4/9/2012 SCALE: As Noted

DESIGNED BY: SGT DATE: 4/2011

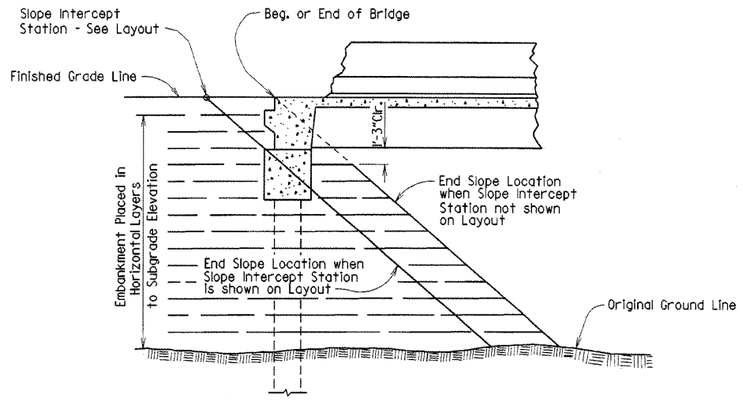
BRIDGE NO. 07246 DRAWING NO. 43803

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		159	
				JOB NO.				

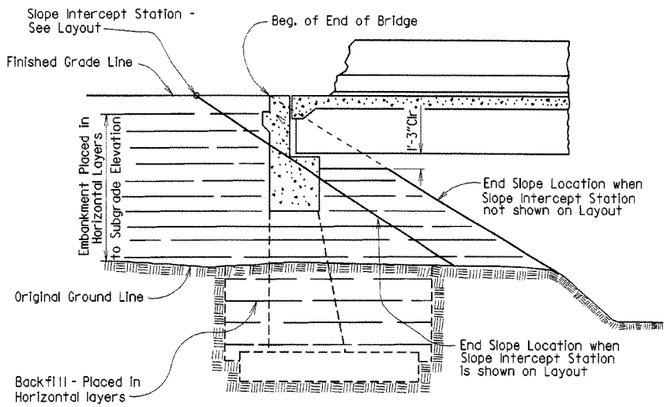
(1) EMBANKMENT & BACKFILL I888A



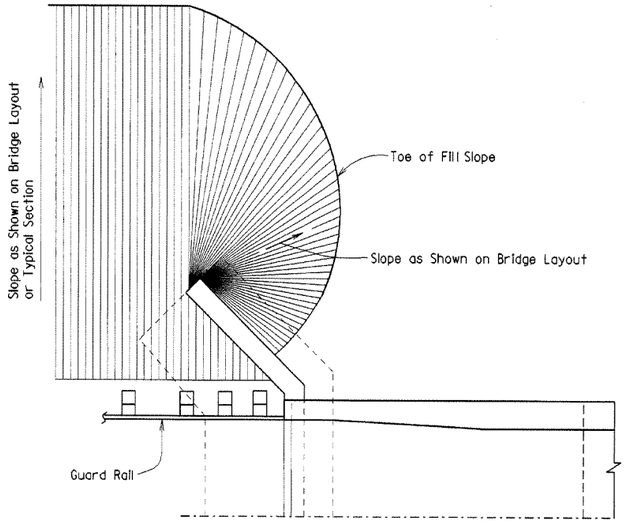
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



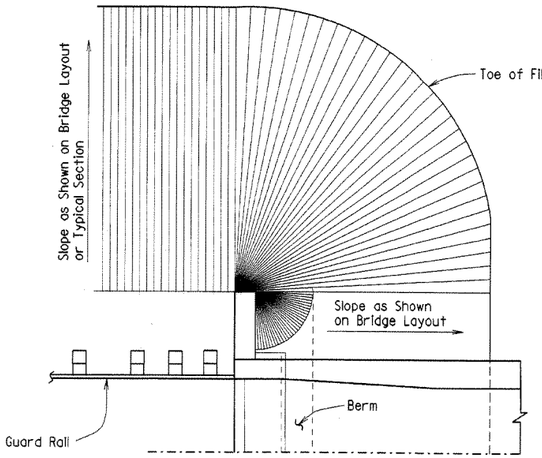
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



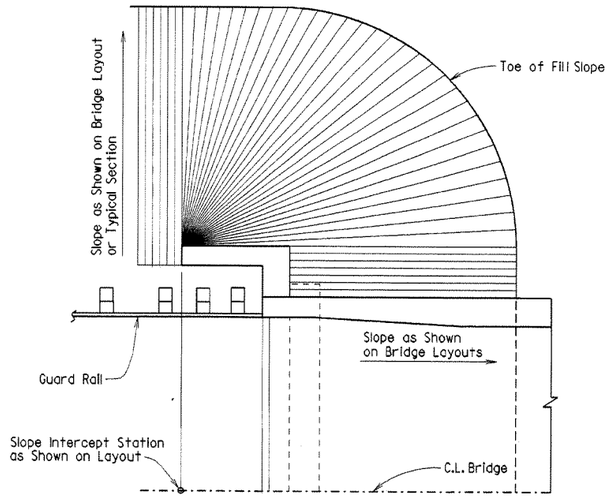
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



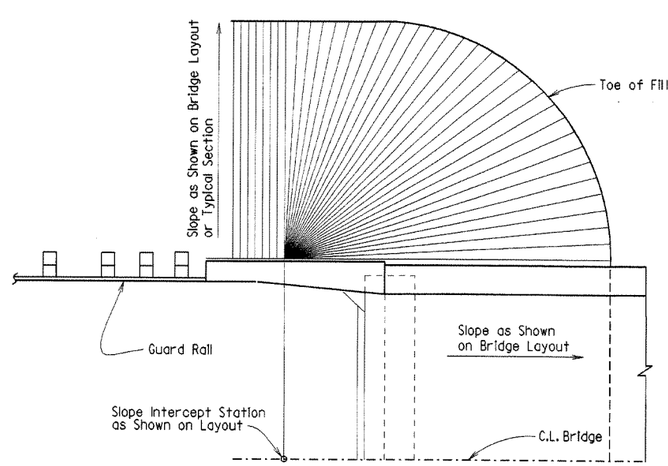
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 4 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to subsections 210.09, 210.10 and 801.08 of the Specifications for construction requirements.

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

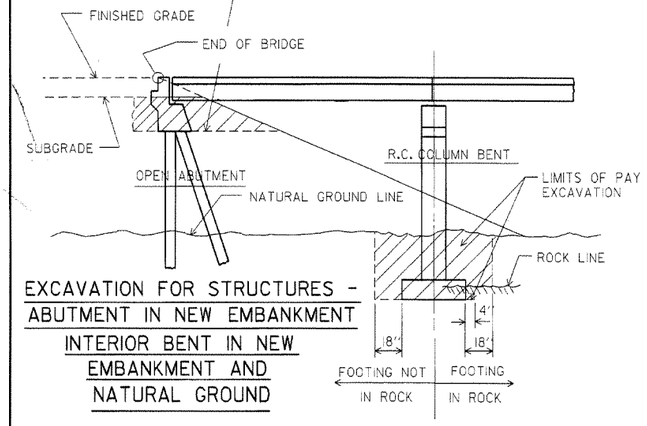
DRAWN BY: MJT DATE: 04-10-2003 FILENAME: BI888A.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
DESIGNED BY: STD. DATE: ——

BRIDGE NO. DRAWING NO. I888A

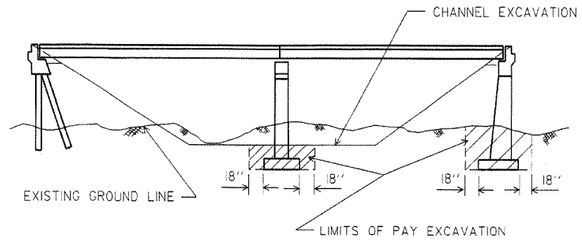
BI888A.STD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		160	
				JOB NO.				

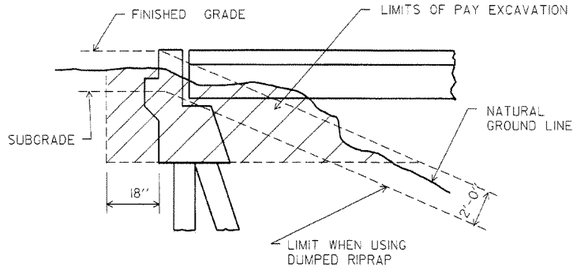
(1) RIP. & EXCAV. 1891F



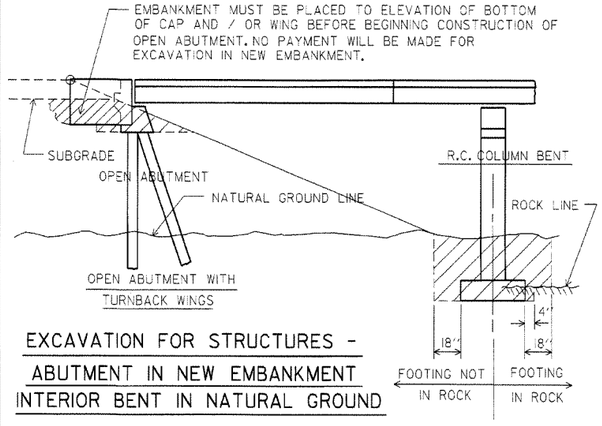
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



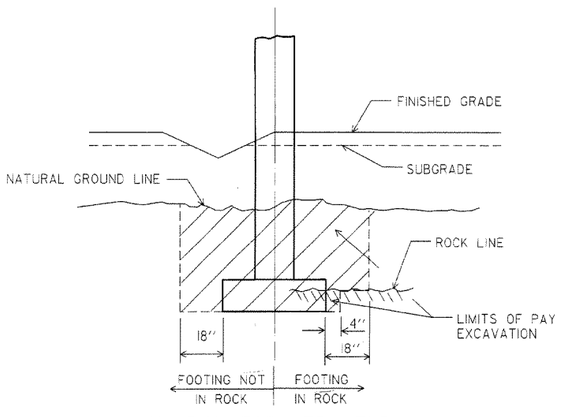
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



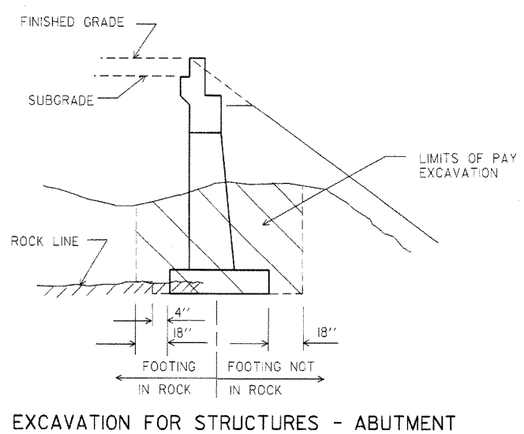
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



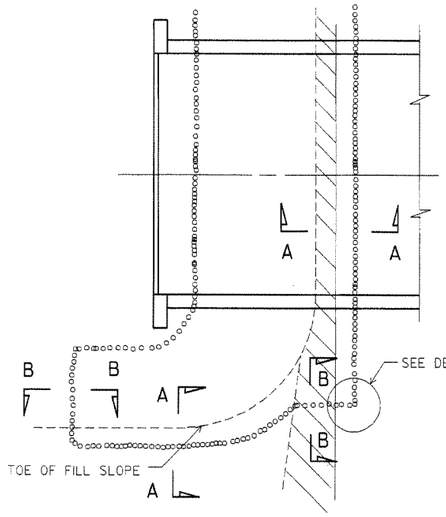
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



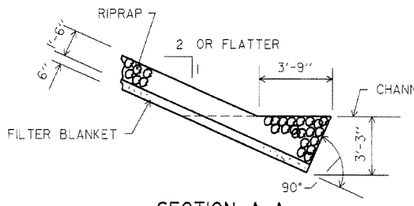
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



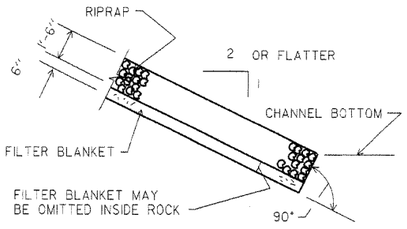
PLAN OF DUMPED RIPRAP



SECTION A-A

(TOE EXCAVATION IN SOIL)

EXCAVATION FOR TOES IS NOT A PAY ITEM



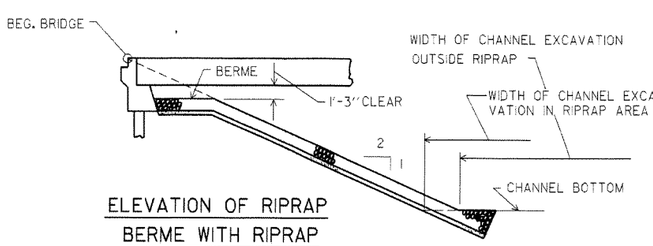
SECTION A-A

(TOE EXCAVATION IN ROCK)

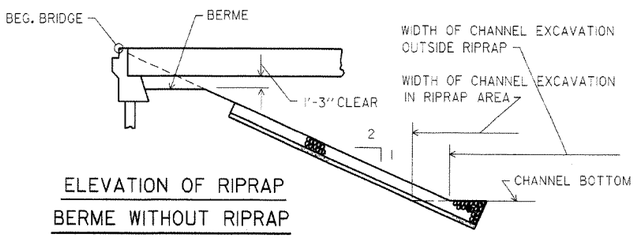
NOTE : USE THIS TYPE OF TOE WHEN ROCK IS ENCOUNTERED WHICH IS IN A STABLE CONDITION.

NOTE : IN LIEU OF AN AGGREGATE FILTER BLANKET, A SYNTHETIC FIBER GEOTEXTILE FABRIC COMPLYING WITH THE REQUIREMENTS OF SUBSECTION 816.02(a) MAY BE USED.

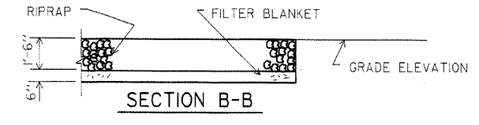
NOTE : DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES ARE INCLUDED FOR INFORMATION AS TO HOW PLAN QUANTITIES WERE CALCULATED AND FOR USE WHEN ADJUSTING QUANTITIES WHEN CHANGING FOOTING ELEVATION.



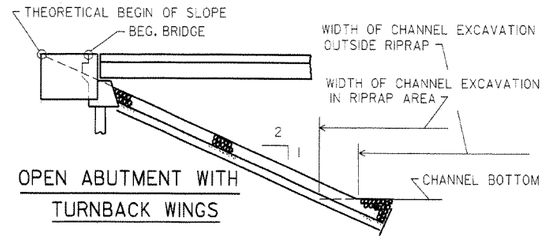
ELEVATION OF RIPRAP BERME WITH RIPRAP



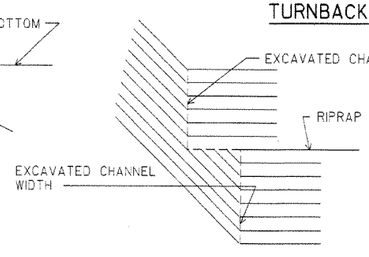
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND
BRIDGE ENGINEER

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

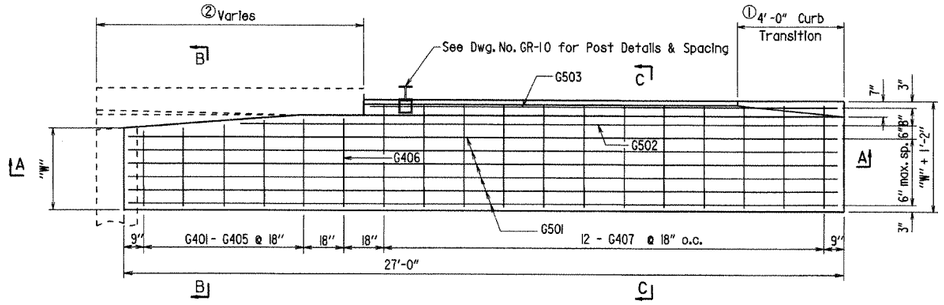
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B1891F.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

BRIDGE NO. DRAWING NO. 1891F

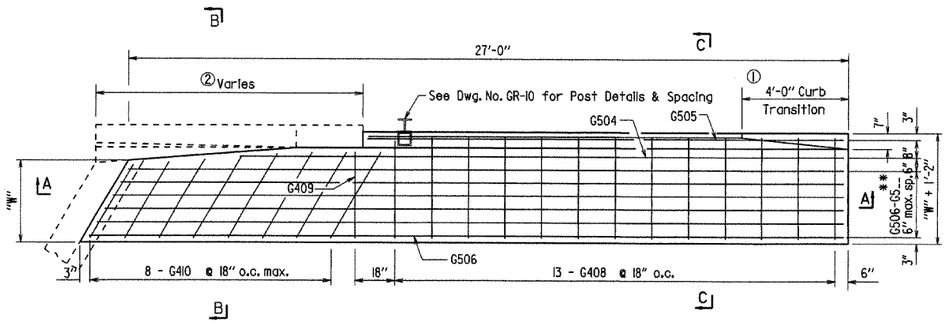
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4-10-2003				6	ARK.		161	
07-14-2010				JOB NO.				
						TYPE B GUTTERS		2016B

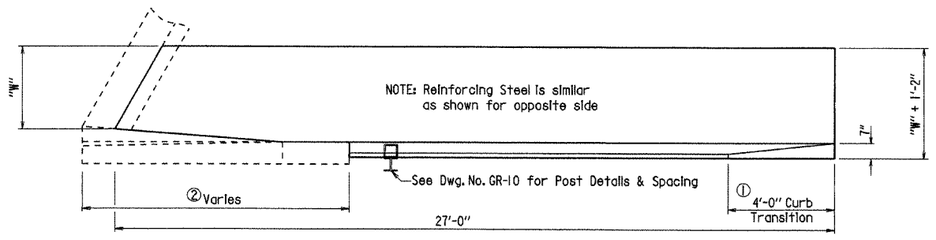
①



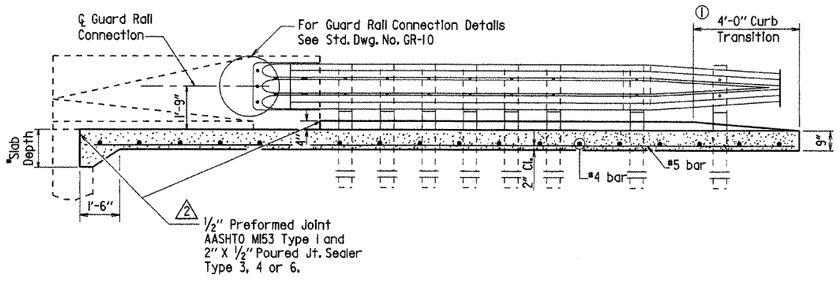
HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

② Length varies. See End Bent details for actual length. Quantities shown are for 10'-0" Transition Rail.





PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

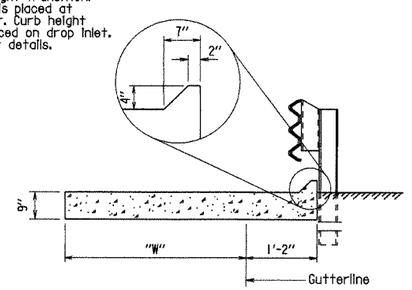


*Slab Depth Varies - See Span and Bent Details

SECTION A - A

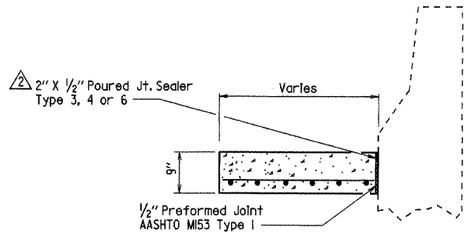
① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION C - C

N.T.S.



SECTION B - B

N.T.S.

***BAR LIST ②

TYPE B GUTTER

Mark	No. Required for Width "W"				Length	Square or Skewed
	3'-0"	4'-0"	6'-0"	8'-0"		
G401 - G405	1 each	1 each	1 each	1 each	"W" - 3" to "W" + 3"	Square
G406	1	1	1	1	"W" + 3"	Square
G407	12	12	12	12	"W" + 10"	Square
G408	13	13	13	13	"W" + 10"	Skewed
G409	1	1	1	1	"W" + 3"	Skewed
G410	8	8	8	8	*	Skewed
G501	6	8	12	16	26'-8"	Square
G502	1	1	1	1	22'-2"	Square
G503	1	1	1	1	17'-8"	Square
G504	1	1	1	1	*	Skewed
G505	1	1	1	1	*	Skewed
G506-G5__**	1 each	1 each	1 each	1 each	*	Skewed

*Bar Lengths vary with Skew.

**G512 for "W" = 3'
G514 for "W" = 4'
G518 for "W" = 6'
G522 for "W" = 8'

***Special bar list required when skew angle exceeds 40° for W = 8'; 50° for W = 6'; or 60° for W = 4'.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

"W" Width (ft.)	Reinforcing Steel (lbs.)	Concrete (cubic yards)
3	252	3.00
4	319	3.75
6	459	5.25
8	590	6.75

GENERAL NOTES

Concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement.

Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Approach Gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.

1 Revised and redrawn 4-10-2003. By KDH Ck. By: CJF 4-10-2003

2 Added joint sealer type & revised transition rail length 07-14-2010 by MJT Checked by: CJF 07-14-2010

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF STANDARD TYPE B APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-10-2003 FILENAME: B2016B.STD

CHECKED BY: CJF DATE: 4-10-2003 SCALE: 3/8" = 1'-0"

DESIGNED BY: STD DATE:

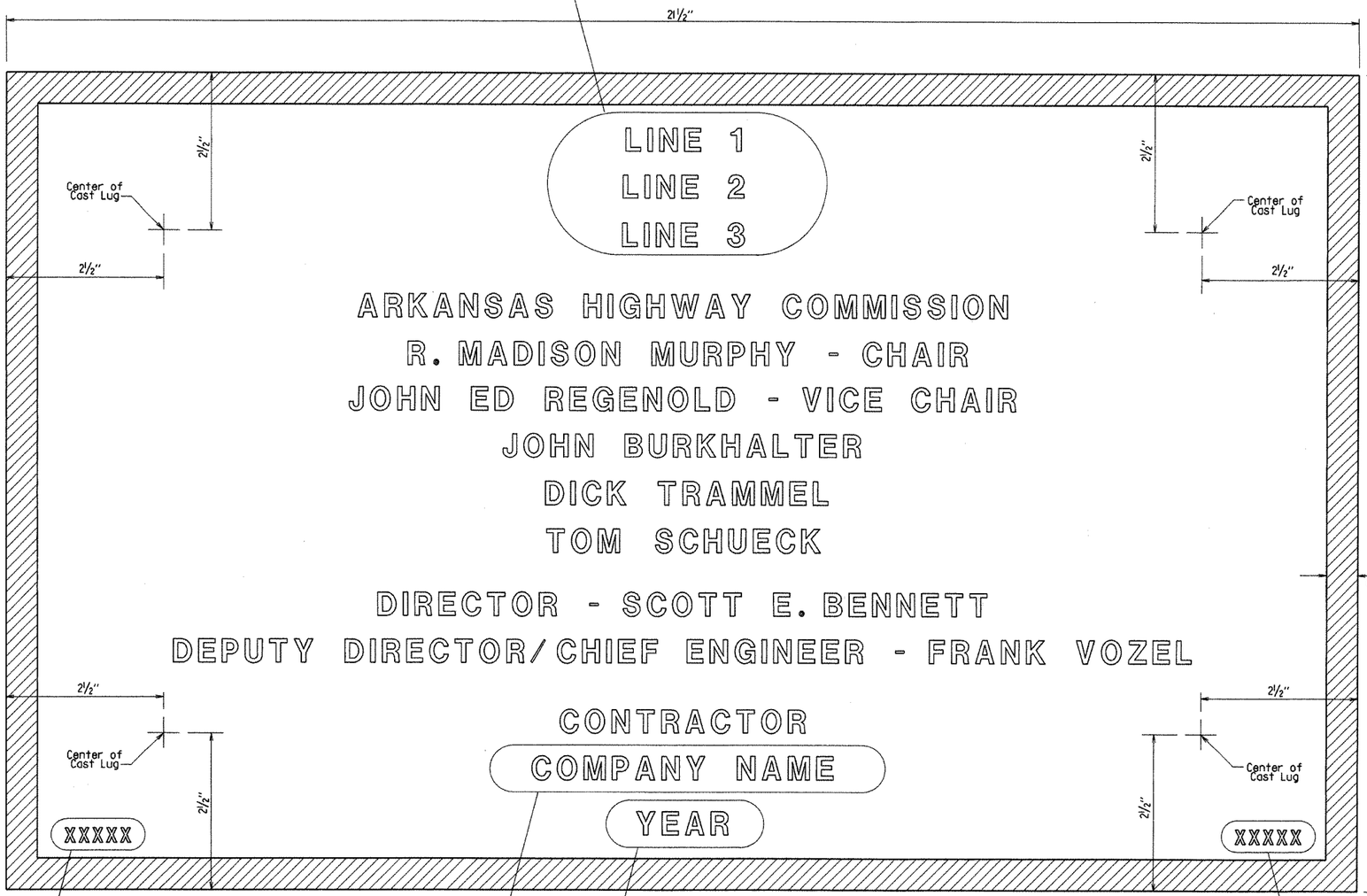
BRIDGE NO. DRAWING NO. 2016B

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9-8-11				6	ARK.		102	
				JOB NO.				

(1) NAME PLATE 2387

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



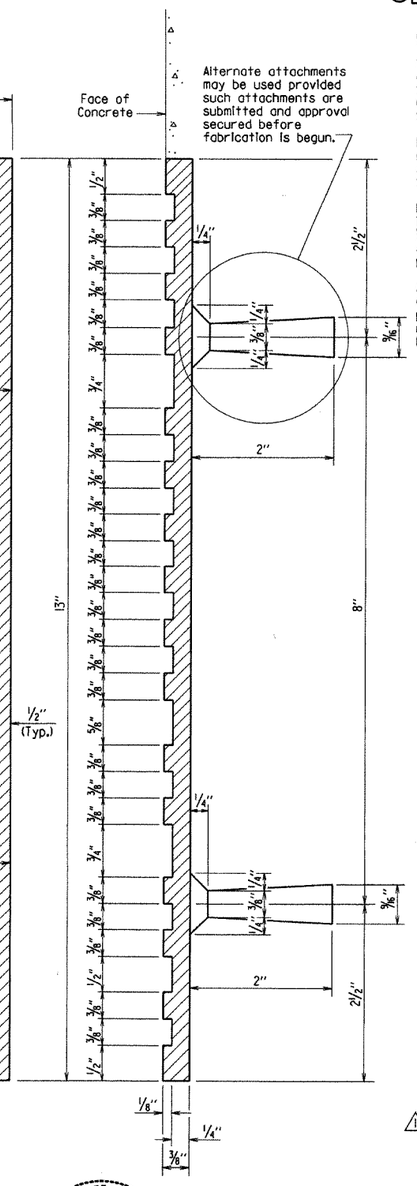
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20, HL-93

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : AI234, 05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812 of the Standard Specifications.

Body of plate shall be ¼" thick and shall include four tapering cone lugs ⅜" to ⅝"x 2" long. The border and all lettering shall be raised ⅛" above the face of plate and shall be polished.

All lettering shall be plain gothic, 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.

⚠ Revised and Redrawn 9-8-11 KDH Checked By: CRE

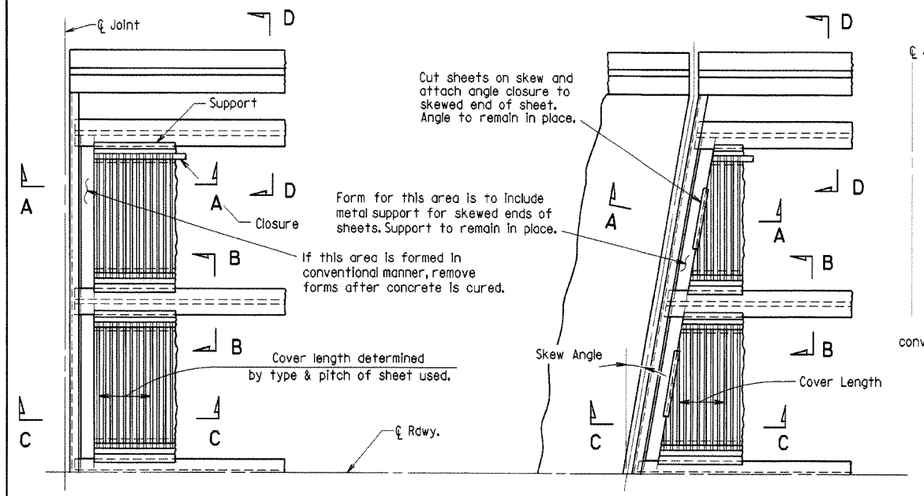
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLER
BRIDGE ENGINEER

DETAILS OF STANDARD TYPE D BRIDGE NAME PLATE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-8-11 FILENAME: B2387.STD
CHECKED BY: CRE DATE: 9-8-11 SCALE: 1'-0" = 1'-0" OR AS NOTED
DESIGNED BY: STD. DATE: —
BRIDGE NO. DRAWING NO. 2387

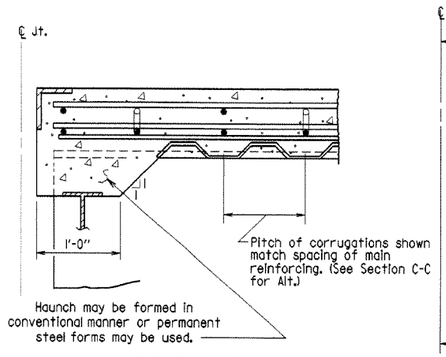
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-27-96						6	ARK.		163	
04-10-2003						JOB NO.				

① BR. DECK FORMS 14991

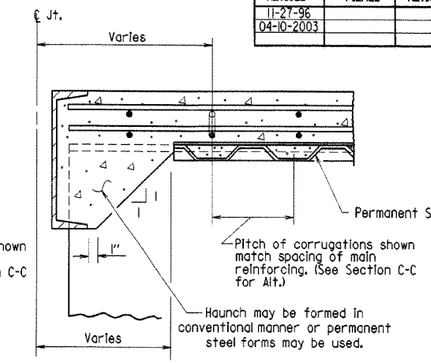


PART PLAN - SQUARE SPAN
⅜" = 1'-0"

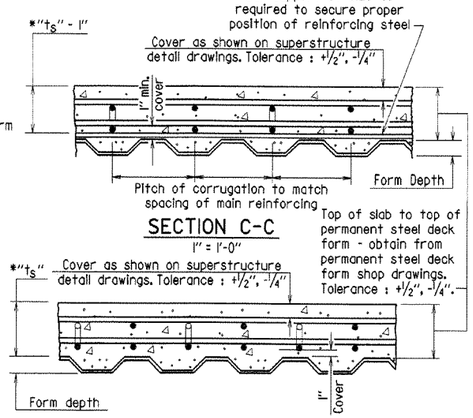
PART PLAN - SKEWED SPAN
⅜" = 1'-0"



SECTION A-A
N.T.S.
(Angle at end of span)

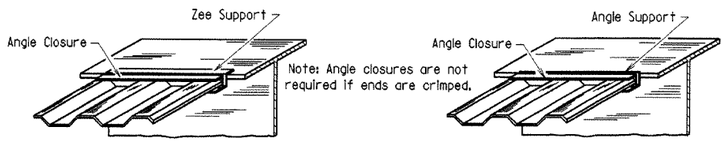


SECTION A-A
N.T.S.
(Channel at end of span)



SECTION C-C
1" = 1'-0"

SECTION C-C - ALTERNATE
1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS
N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to subsection 802.14(b) of the Standard Specifications. Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Bridge Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Bridge Engineer.

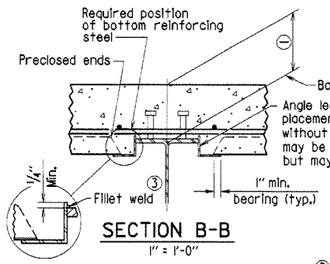
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Bridge Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

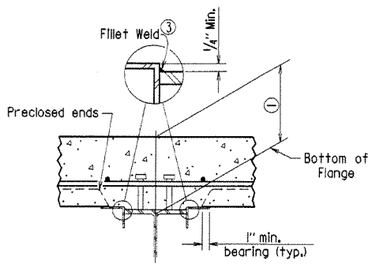
High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

⚠2 Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition), with applicable supplemental specifications and special provisions.

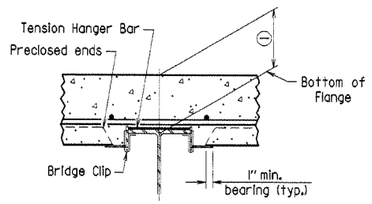


SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

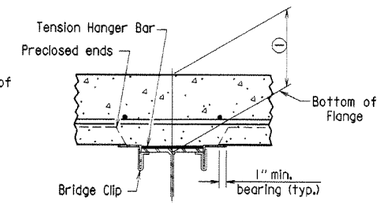
③ Minimum weld: ⅛" x 1" @ 18". More weld may be required; maximum length per weld = 1½" (typ.)



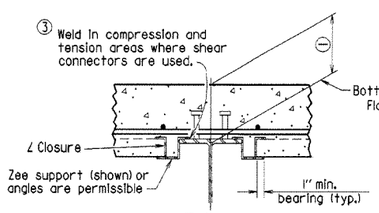
SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



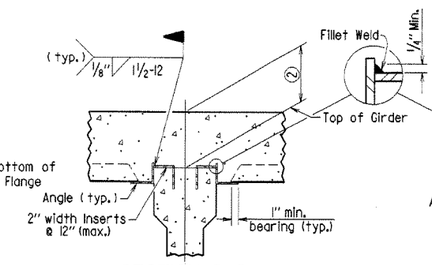
SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



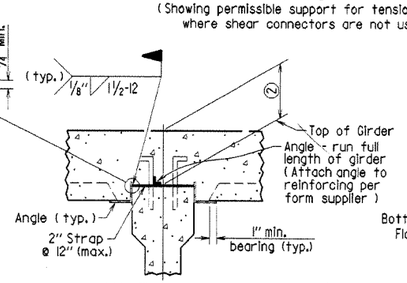
SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



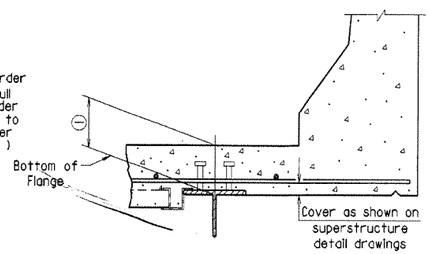
SECTION B-B
1" = 1'-0"
(Showing ∠ Closure)



SECTION B-B
(FOR CONCRETE GIRDERS)
1" = 1'-0"
(Showing support by insert cast in girder)



SECTION B-B
(FOR CONCRETE GIRDERS)
1" = 1'-0"
(Showing support by Strap)



SECTION D-D
1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_S + 1¾" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

⚠1 Redrawn and revised 11/27/96; MJT

⚠2 Revised for 2003 AHTD Construction Specifications and CPB Seal. MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ No. 4337 CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

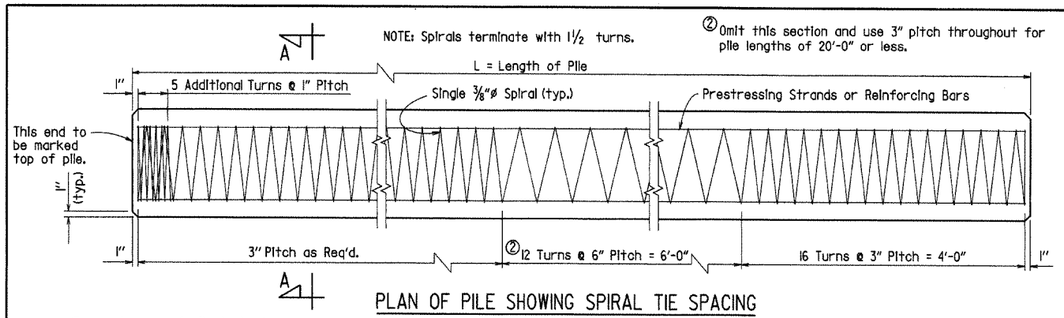
DRAWN BY: MJT DATE: 10-17-96
CHECKED BY: CPB DATE: 10-17-96
DESIGNED BY: STD. DATE: —
SCALE: as noted

BRIDGE NO. DRAWING NO. 14991

BI4991.STD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-10-2009				6	ARK.		164	
				JOB NO.				

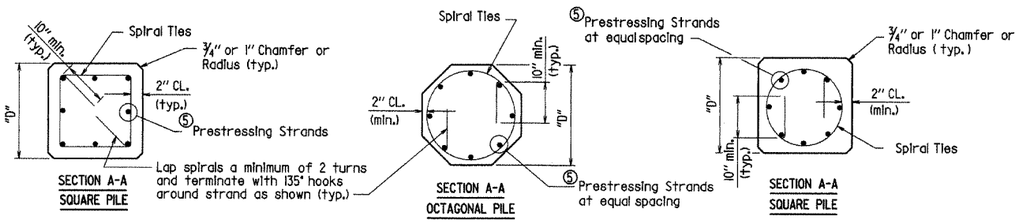
① CONCRETE PILES 14964



PLAN OF PILE SHOWING SPIRAL TIE SPACING

For anchorage of pile to bent, see Bent Details.

NOTE: Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



PRESTRESSED CONCRETE PILES

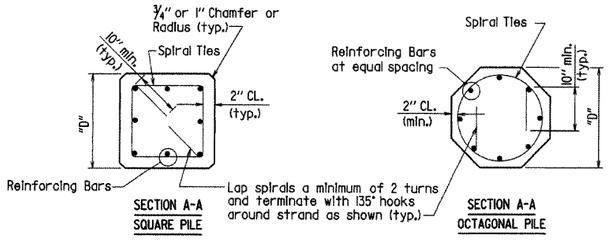
① Number based on initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation; 0.70 Stress-Relieved

⑤ See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

PRESTRESSED CONCRETE PILE PROPERTIES

	Grade	Strand Diameter	①Number of Strands per Size "D" 16" Oct.	18" Oct.	④ 14" Sq.	16" Sq.	18" Sq.	Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Initial Prestressing Force Per Strand (Lbs.)
Stress-Relieved	250	7/16"	11	13	10	13	16	27,000	18,900
		½"	8	10	8	10	12	36,000	25,200
	270	7/16"	9	11	8	12	14	31,000	21,700
		½"	7	9	6	8	10	41,300	28,900
Low Relaxation	250	7/16"	9	11	8	11	14	27,000	20,200
		½"	7	9	6	8	10	36,000	27,000
	270	7/16"	8	10	7	9	12	31,000	23,300
		½"	6	8	6	7	9	41,300	31,000

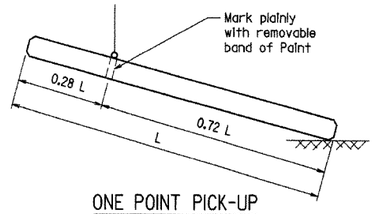


NON-PRESTRESSED PILE REINFORCING

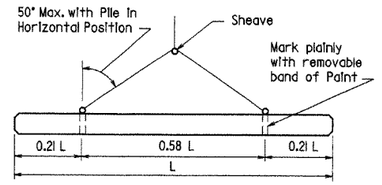
Pile Size	No. Req'd.	Bar Size
16" Oct.	8	# 7
18" Oct.	8	# 7
④ 14" Sq.	8	# 7
16" Sq.	8	# 7
18" Sq.	8	# 8

④ 14" sq. piles to be used in Seismic Performance Zone 1 only.

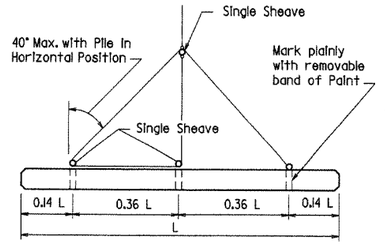
NON-PRESTRESSED CONCRETE PILES



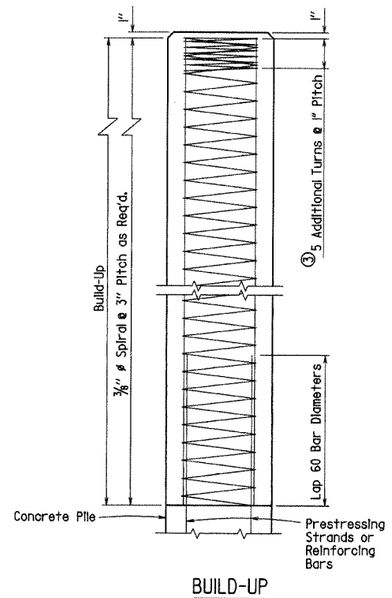
ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP



BUILD-UP

③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.

MAXIMUM PICKUP LENGTHS "L"

Type of Pick-Up	Prestressed 16" Oct.	18" Oct.	Non-Prestressed 16" or 18" Oct.	Prestressed ④ 14" Sq.	16" Sq.	18" Sq.	Non-Prestressed ④ 14" Sq.	16" Sq.	18" Sq.
One Point	52'	55'	46'	55'	59'	63'	52'	51'	55'
Two Point	75'	80'	67'	79'	84'	90'	75'	74'	79'
Three Point	105'	112'	93'	110'	117'	126'	104'	103'	111'

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fourth Edition.

SEISMIC PERFORMANCE ZONES: 1 & 2

The Contractor may use prestressed piles or non-prestressed piles. Either type will be measured and paid for at the contract unit price bid for "Concrete Piling".

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of AASHTO M 31 or M 53, Gr. 60.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" of the Standard Specifications for additional information.

⚠ Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of ⅛" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 feet.

BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, concrete shall be cut back to expose the reinforcing steel for a distance sufficient to provide a lap of 60 diameters of the reinforcing bars required for build-up. Reinforcing for build-ups shall be the reinforcing shown for non-prestressed piles.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling" of the Standard Specifications.

ADDITIONAL NOTES FOR PRESTRESSED PILES ONLY:

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

PRESTRESSING REINFORCING: Seven-wire stress-relieved or low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

ADDITIONAL NOTES FOR NON-PRESTRESSED PILES ONLY:

All concrete shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 4,000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars and shall conform to the requirements of AASHTO M 31 or M 53, GR. 60.

⚠ Added paragraph to General Notes KDH 12-10-2009
Checked by: CJF Date: 12-10-2009

STATE OF ARKANSAS ★★★ REGISTERED PROFESSIONAL ENGINEER ★★★ No. 4337 CHARLES P. BRAND

BRIDGE ENGINEER

STANDARD DETAILS OF CONCRETE PILES IN SEISMIC PERFORMANCE ZONES 1 & 2

ROUTE SEC.

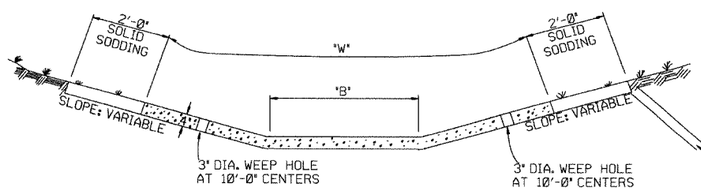
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 1-17-08 FILENAME: bl4964_std.dgn
CHECKED BY: JAC DATE: 1-17-08 SCALE: no scale
DESIGNED BY: Std. DATE: ——

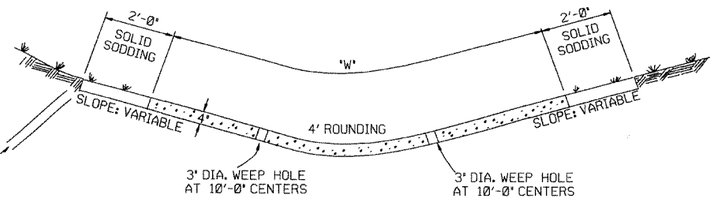
BRIDGE NO. DRAWING NO. 14964

REFER TO TABULATION OF QUANTITIES
FOR "W" & "B" DIMENSIONS



TYPE A

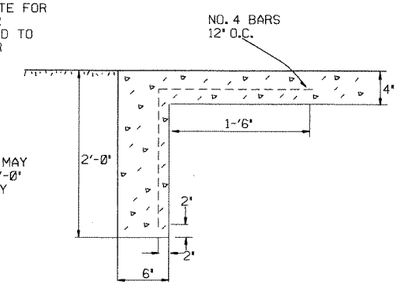
REFER TO TABULATION OF QUANTITIES
FOR "W" DIMENSIONS



EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

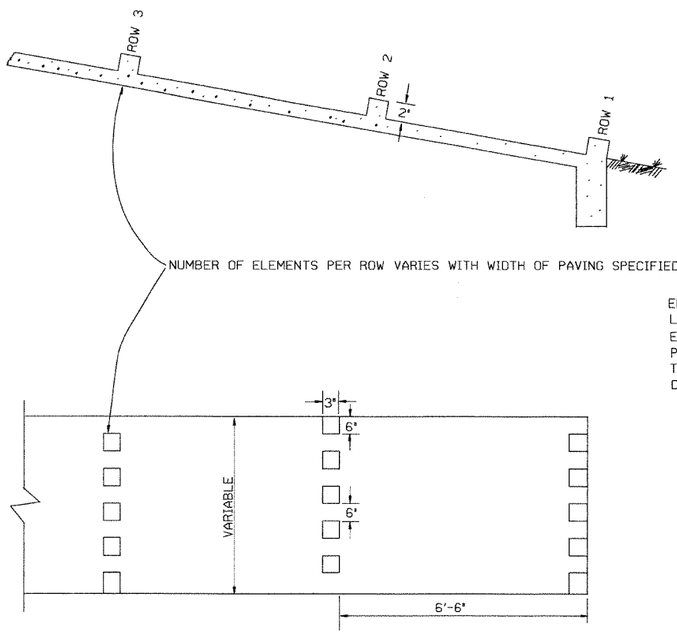
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR
CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE UNCLUDED IN THE PRICE BID 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.

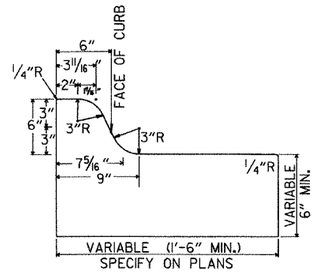
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

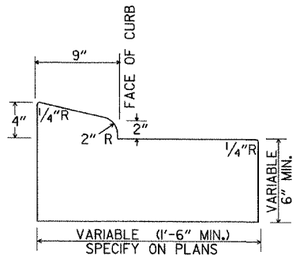
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1



TYPE A



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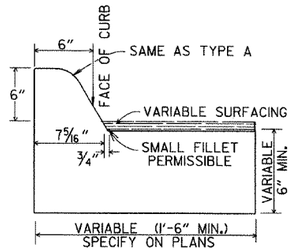
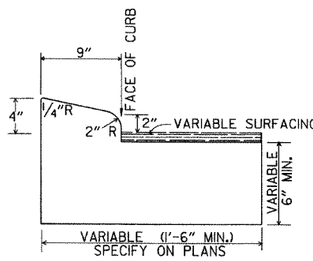


TYPE C



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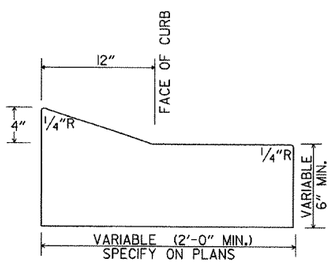
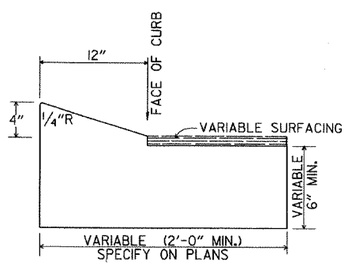
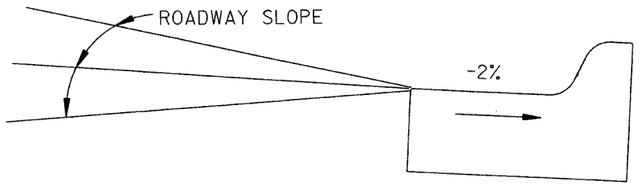


TYPE E-1



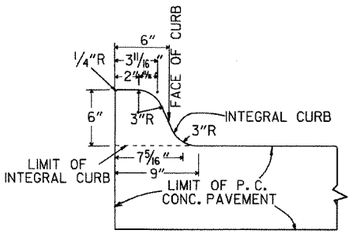
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

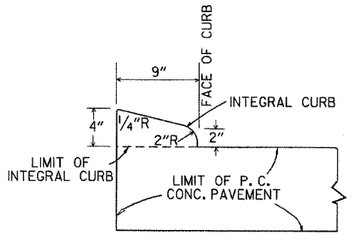


DETAIL OF GUTTER SLOPE

GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A



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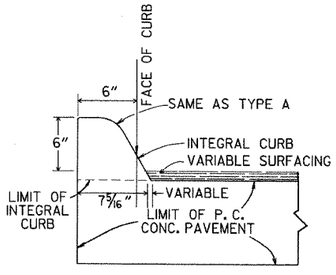
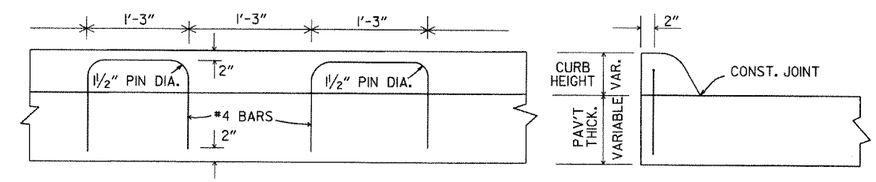


TYPE C

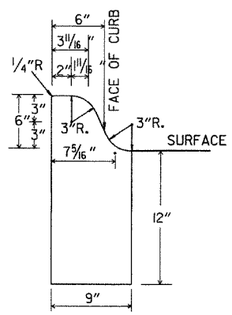
INTEGRAL CURB



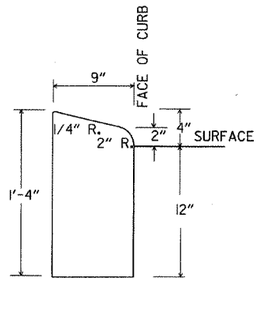
LONGITUDINAL SECTION

ELEVATION

ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



TYPE A



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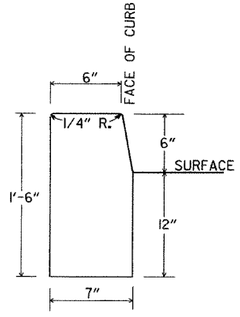

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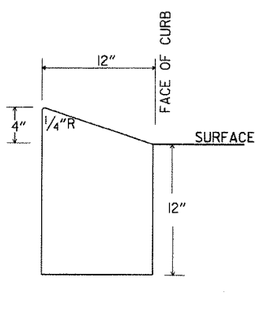
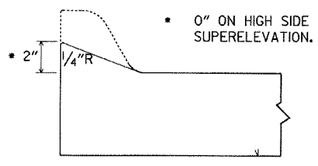


TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

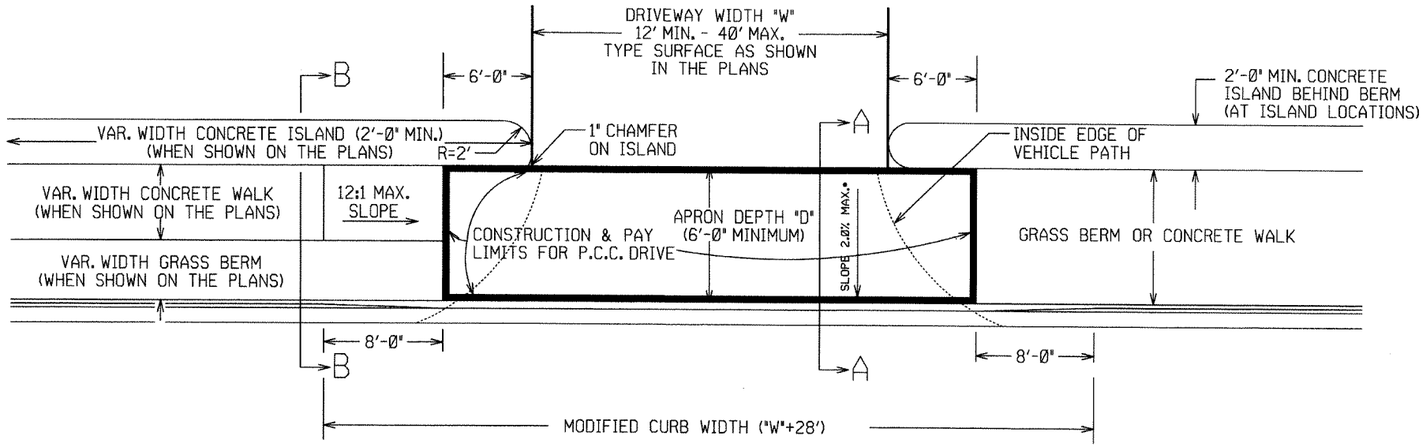
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B 1	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

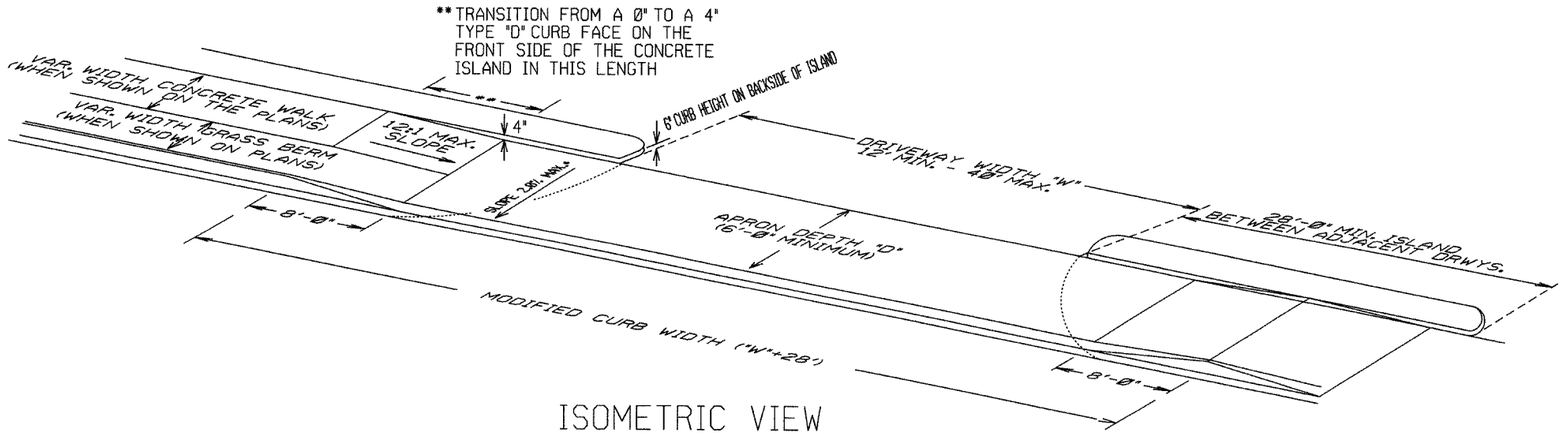
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

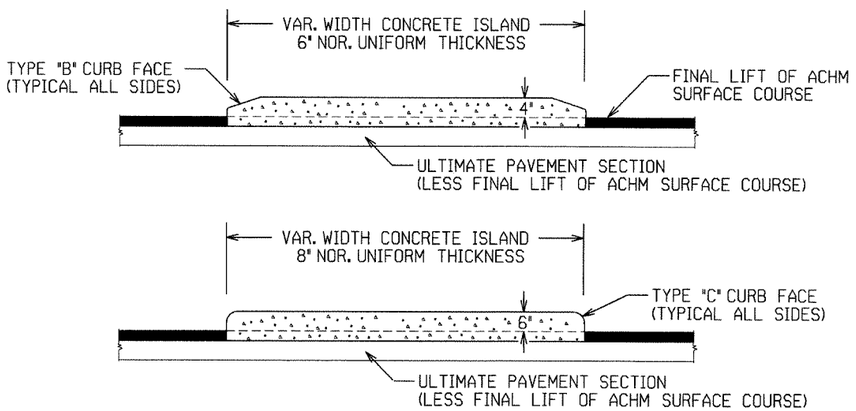
STANDARD DRAWING CG-1



PLAN VIEW

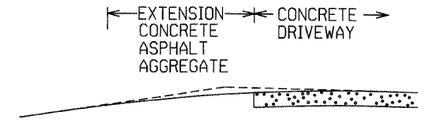


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

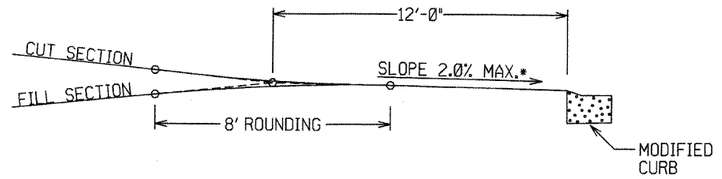
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

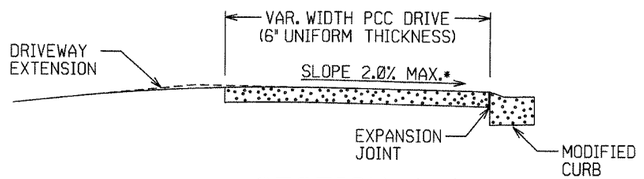
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

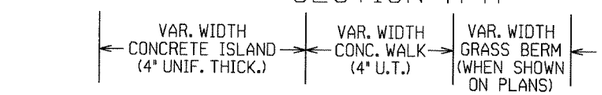


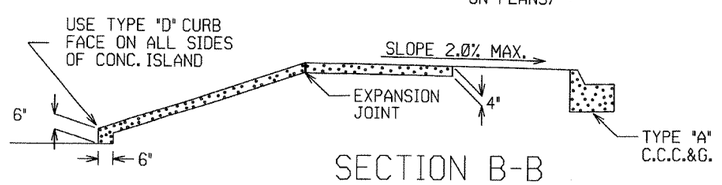
DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A

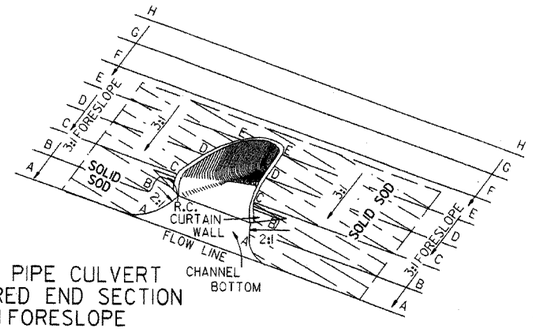




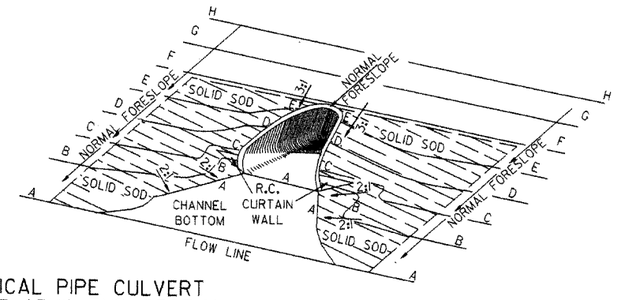
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

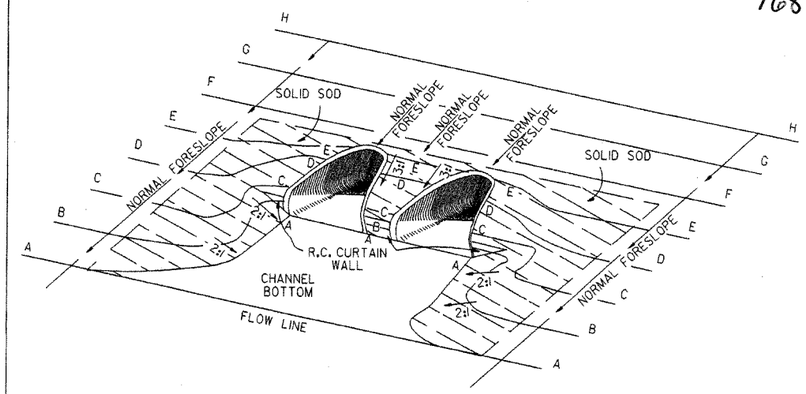
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.

REINFORCING STEEL SCHEDULE

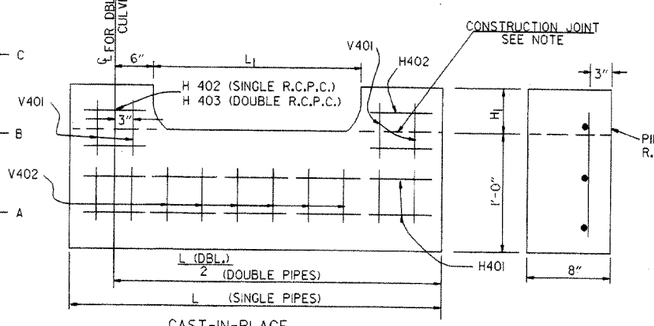
PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	NO.	H402 L	NO.	V401 L	NO.	V402 L	NO.	DOUBLE R.C. PIPE CULVERT H401 L	NO.	H402 L	NO.	H403 L	NO.	V401 L	NO.	V402 L	NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

PLAN VIEW
3:1 FORESLOPES

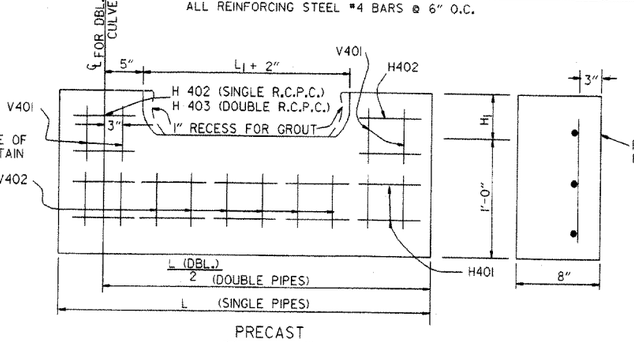
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

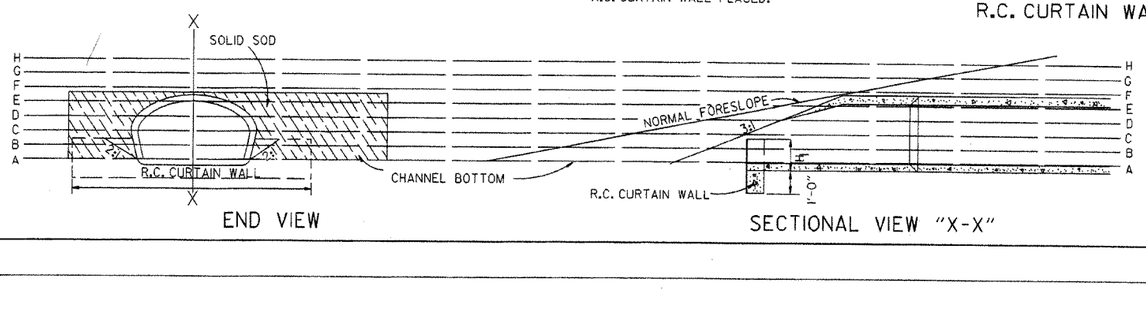
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

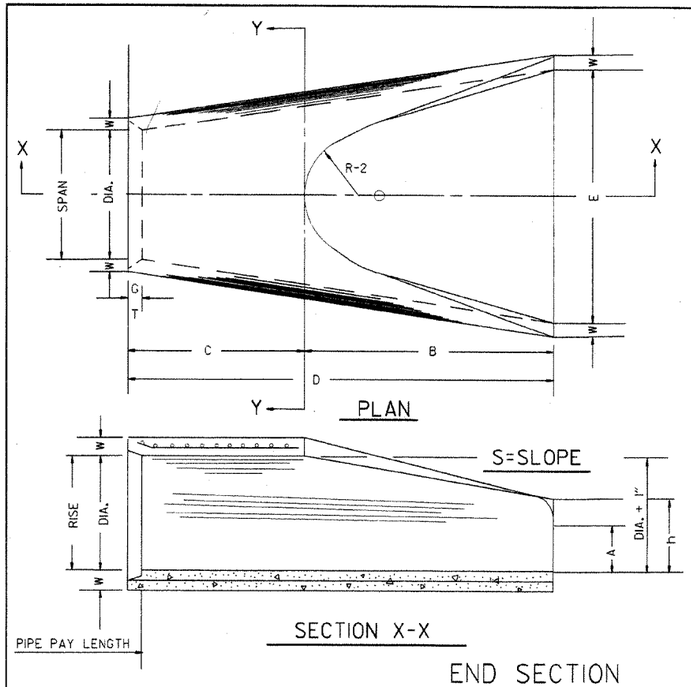
SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

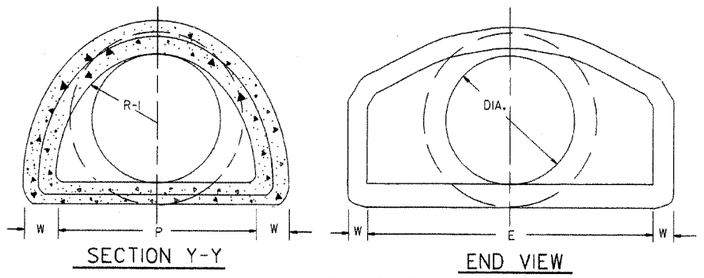
STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¼"	8'-1¼"	6'-0"	3:1	37"	47 13/16"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅜"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-0"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"

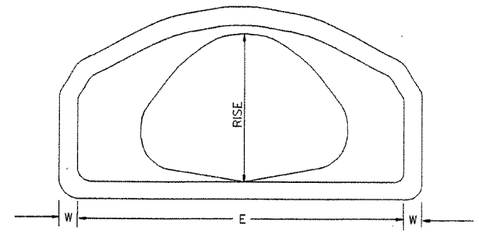


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

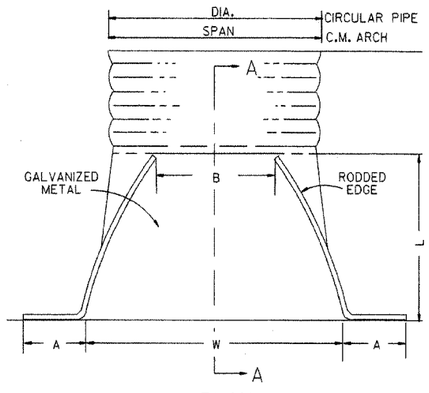
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 11/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 1/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2¼:1

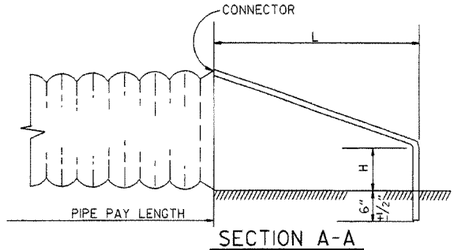
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



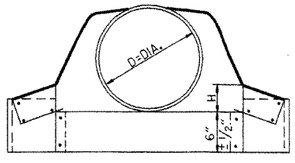
END VIEW
CONCRETE ARCH PIPE



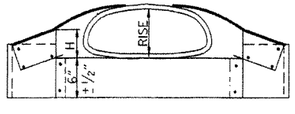
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

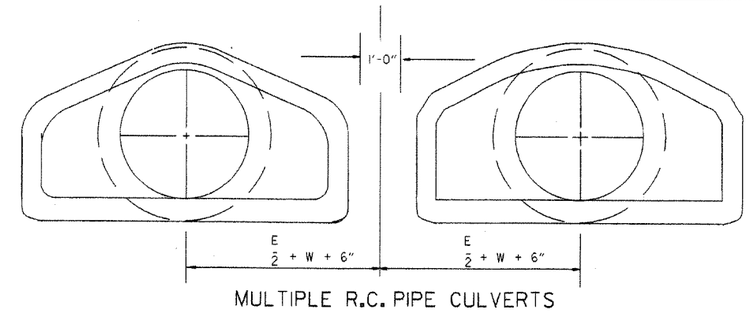
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
INCHES							
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

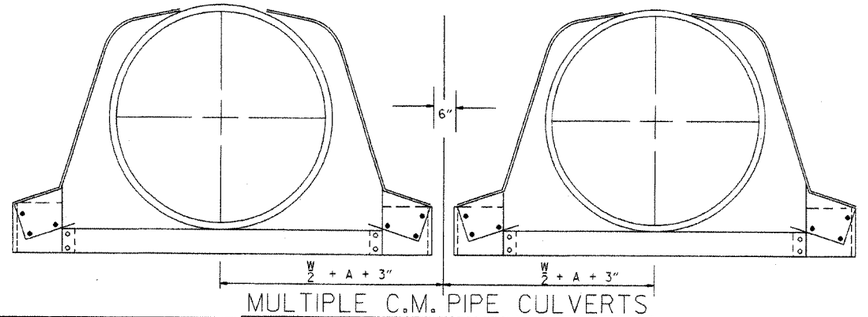
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
INCHES									
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

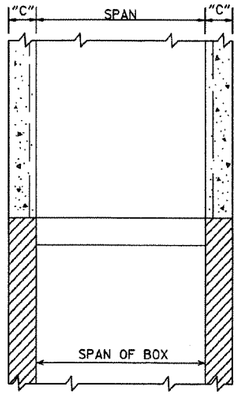
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

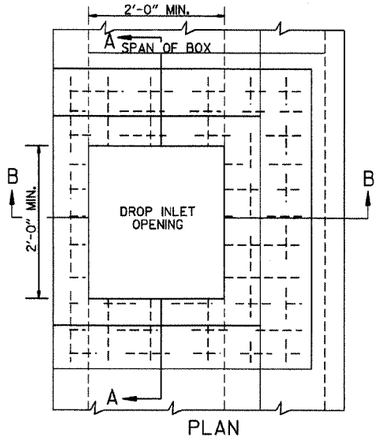
FLARED END SECTION

STANDARD DRAWING FES-2

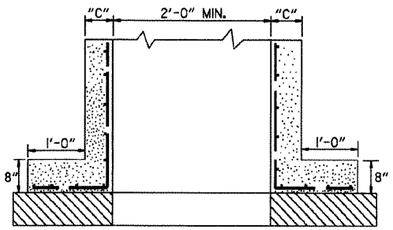
stdfes2.dgn



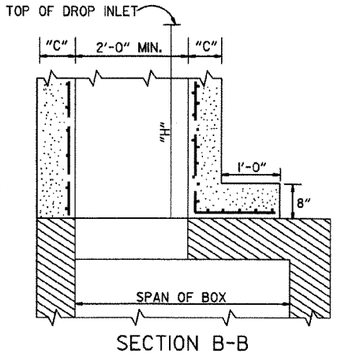
SECTION B-B



PLAN

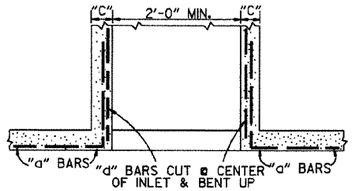


SECTION A-A

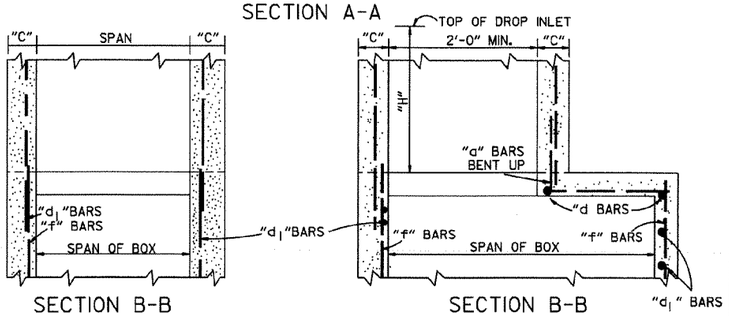


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



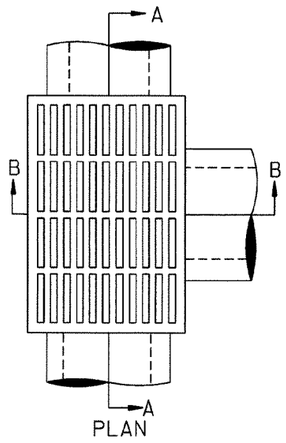
SECTION A-A



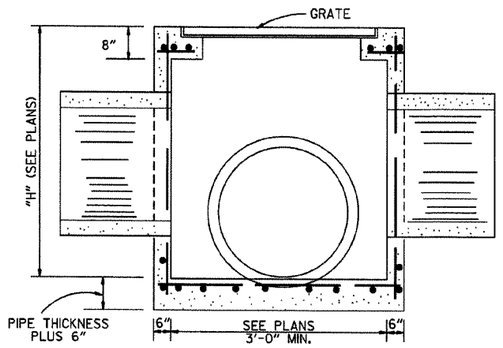
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

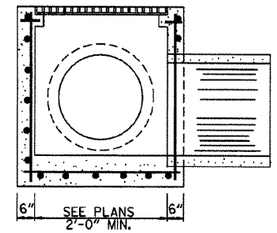


PLAN



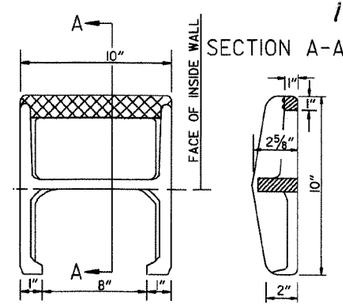
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

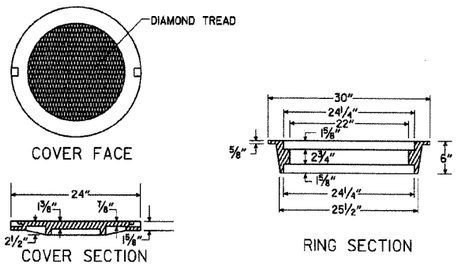


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

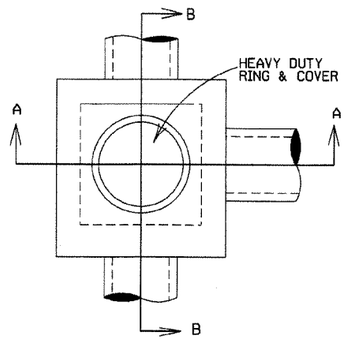
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

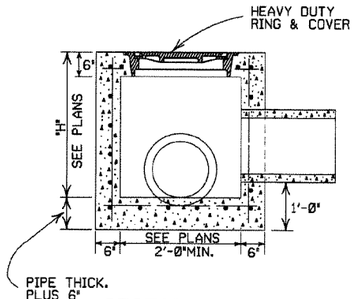


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

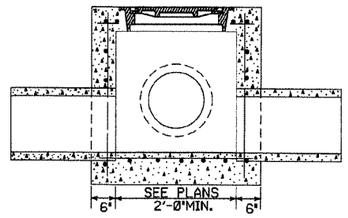


PLAN



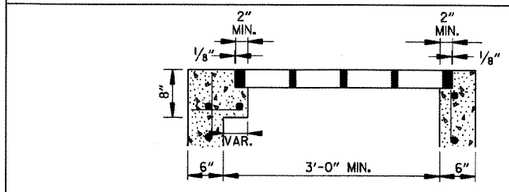
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

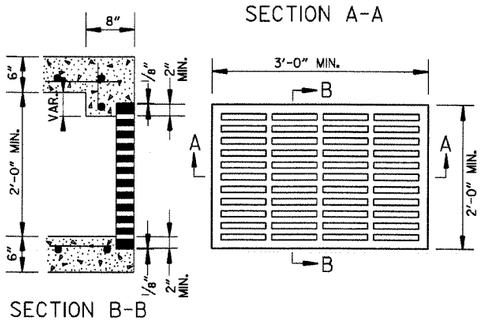


SECTION B-B

JUNCTION BOX (TYPE E)



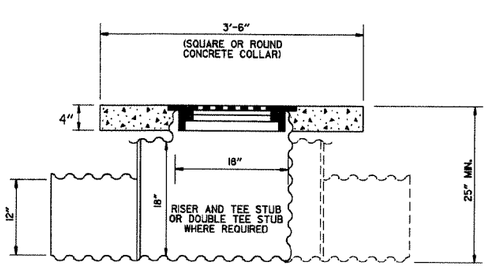
SECTION A-A



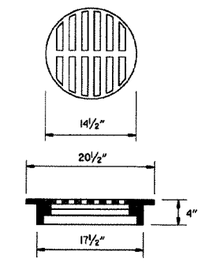
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

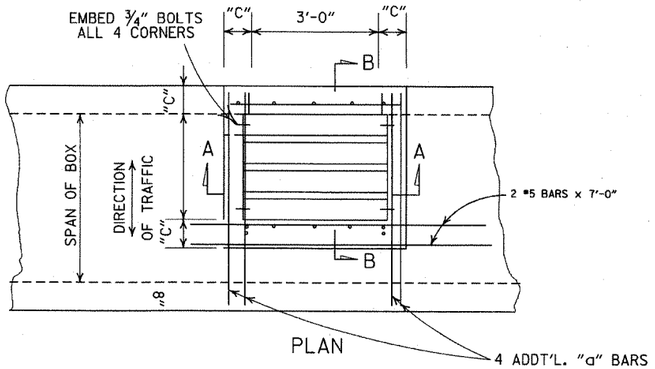
1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

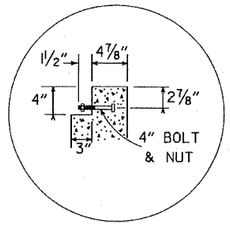
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

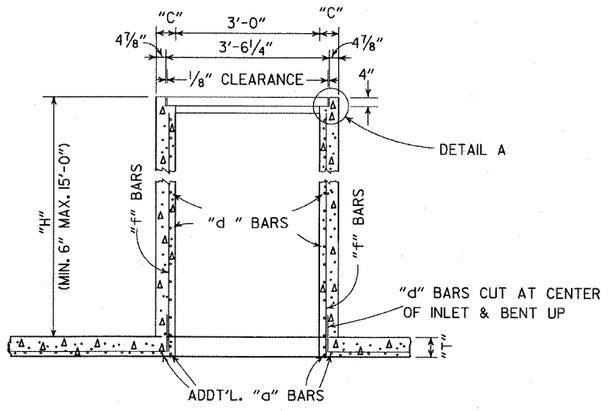
STANDARD DRAWING FPC-9



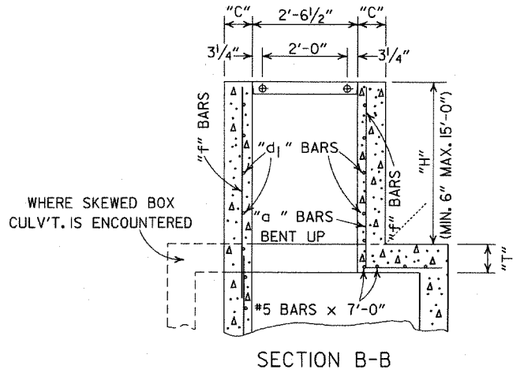
PLAN



DETAIL A



SECTION A-A

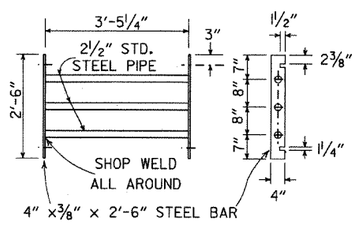


SECTION B-B

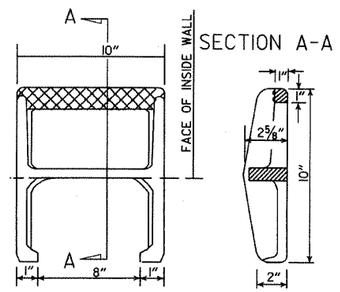
NOTE: ADDT'L.REINF. STEEL TO BE INCLUDED IN UNIT PRICE BID PER TYPE "TM" D.I.

DIMENSIONS & REINF. BARS FOR D.I. TO BE THE SAME AS THOSE SHOWN ON APPLICABLE STD. BARREL DRAWING FOR R.C. BOX CULVERTS.

DROP INLET TYPE "TM" FOR REINFORCED CONC. BOX CULVERTS



GRATE DETAIL



APPROX. WEIGHT = 111LBS. (CAST IRON)

PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

GENERAL NOTES:

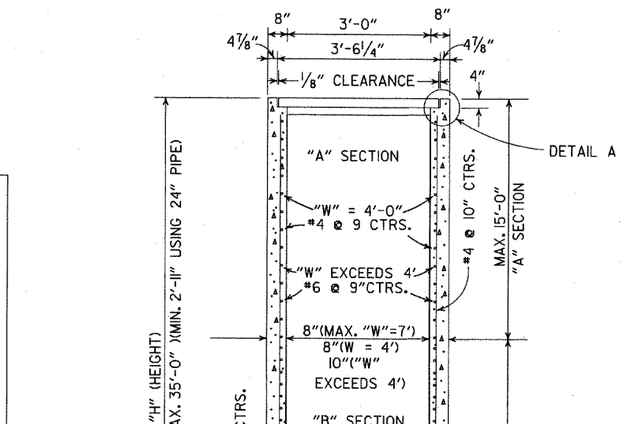
1. STEEL PIPE FOR GRATES AND BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 807. BOLTS SHALL CONFORM TO ONE OF THE FOLLOWING: ASTM A193, GRADE B8 CLASS 1 OR 2, ASTM A307 OR AASHTO M 164.
2. STEEL PIPE FOR GRATES SHALL BE "STANDARD WEIGHT" PIPE CONFORMING TO ASTM A53 NATIONAL STANDARD PIPE.
3. BOLTS, NUTS, WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232 OR AASHTO M 298, CLASS 40 OR 50.
4. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
5. ALL #4 AND #5 REINFORCING BARS TO HAVE 1½" COVER. LARGER SIZES TO HAVE 2" COVER.
6. THE COMPLETE PIPE GRATE SHALL BE PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TABLE OF "W" DIMENSIONS

171

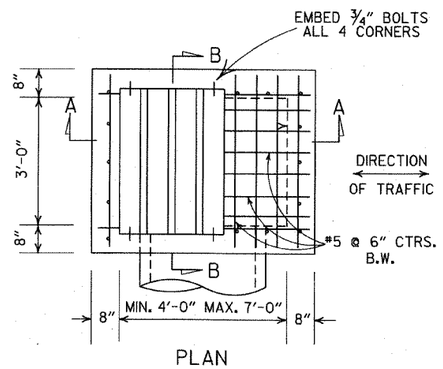
I.D. PIPE	SKEW OF CROSS DRAIN		
	STRAIGHT	30°	45°
	"W"	"W"	"W"
24"	4'-0"	4'-0"	4'-0"
30"	4'-0"	4'-0"	4'-5"
36"	4'-0"	4'-3"	5'-3"
42"	4'-3"	4'-11"	6'-1"
48"	4'-10"	5'-7"	6'-11"

NOTE: DIMENSIONS SHOWN ABOVE ARE FOR PIPES INTERSECTING DROP INLET ON ONE SIDE ONLY. FOR SKEWED PIPES INTERSECTING BOTH SIDES OF DROP INLET, "W" WILL NEED TO BE INCREASED OR AXIS OF INTERSECTING PIPES WILL NEED TO BE SHIFTED.

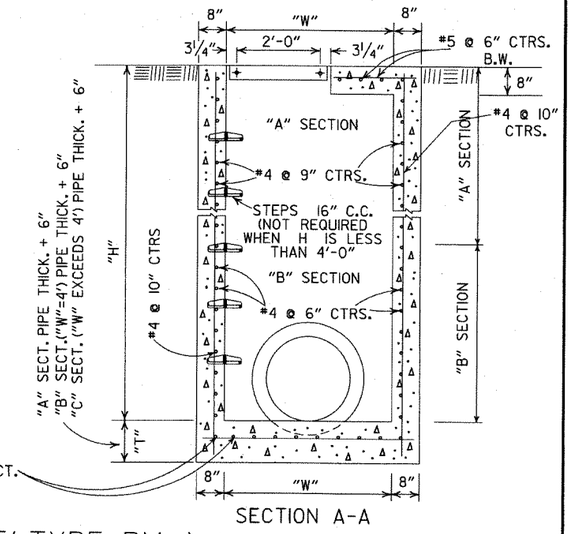


"A" SECT. (MAX. "W" = 7')
"B" SECT. ("W" = 4')
"C" SECT. ("W" EXCEEDS 4')

SECTION B-B



PLAN



SECTION A-A

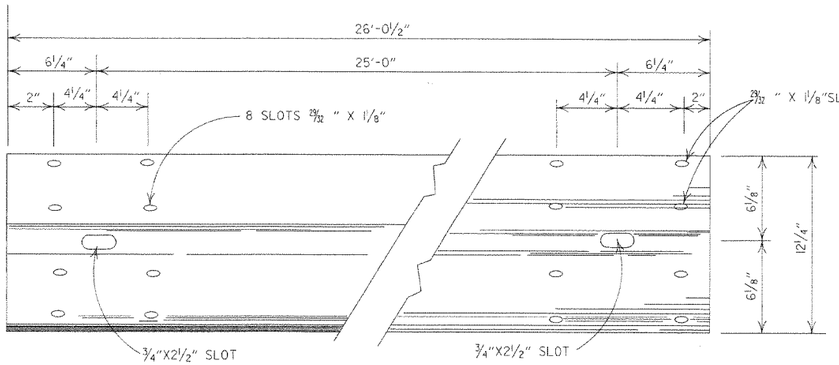
DROP INLET(TYPE RM)

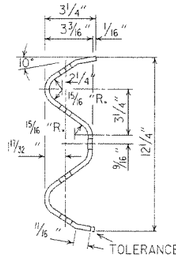
8-22-02	ADDED & REVISED DIMENSION TO SECTION A-A	
1-12-00	CORRECTED DIMENSION ON SECTION B-B	
11-06-97	ADDED DIMENSION TO SECTION A-A	
10-18-96	REVISED ASTM REF. TO AASHTO AND ADDED NOTE TO TABLE OF "W" DIMENSIONS	
10-1-92	ADDED DIRECTION OF TRAFFIC	10-1-92
8-15-91	ADDED NOTE ABOUT PAINTING OF GRATE	8-15-91
11-30-89	ALTERED DETAIL A	11-30-89
7-15-88	REVISED STEP DETAIL,TM & RM D.I. & GRATE DETAIL	719-7-15-88
10-2-72	REVISED AND REDRAWN	542-10-2-72
REVISED		DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

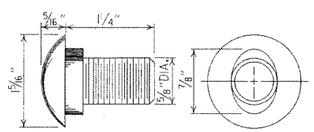
STANDARD DRAWING FPC-9D



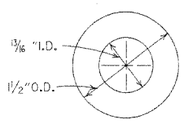


DETAILS OF W-BEAM GUARD RAIL

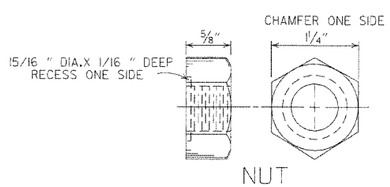
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



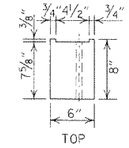
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

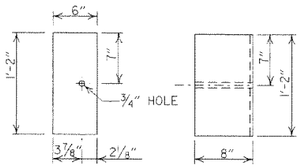


NUT

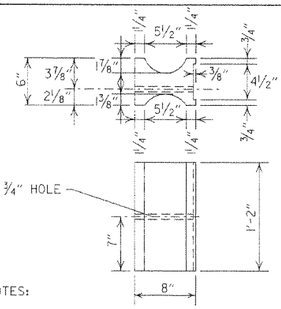


WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

TOP



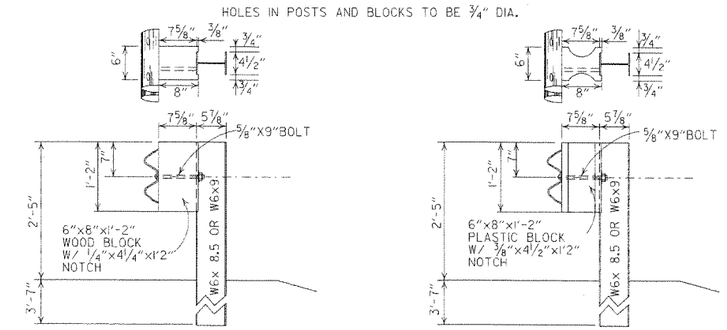
WOOD BLOCKOUT (W-BEAM)



NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

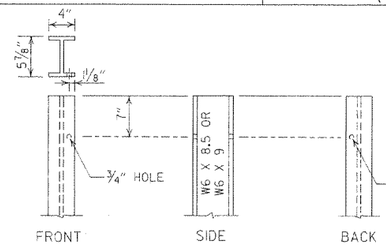
HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



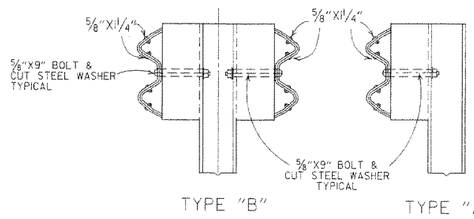
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

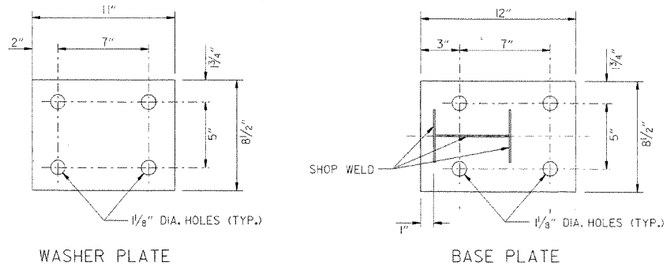
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

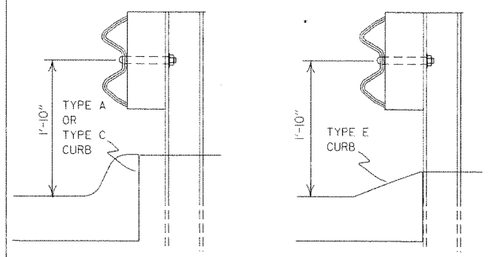
STANDARD DRAWING GR-8



WASHER PLATE

BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



FOR DESIGN SPEEDS OF 50 MPH OR LESS

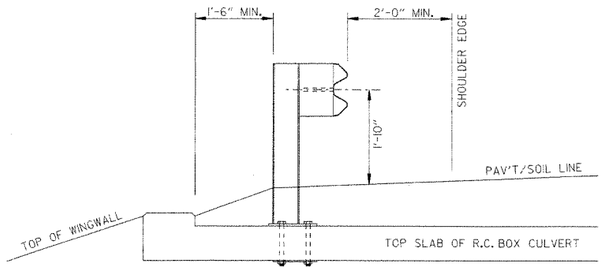
ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.

FOR DESIGN SPEEDS OF 55 MPH OR MORE

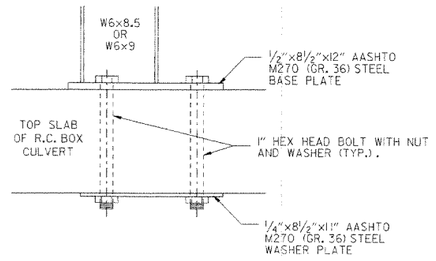
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

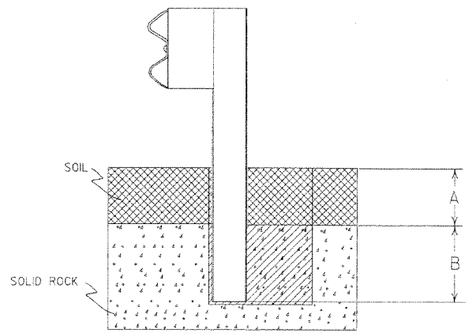


SECTION A-A

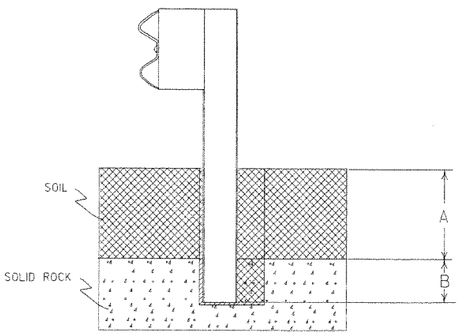


DETAIL OF CONNECTION

Case 1

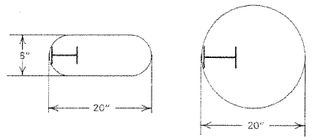


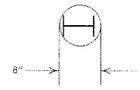
Case 2



Plan View Steel Posts

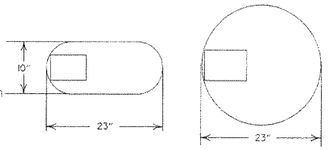
Either hole configuration acceptable

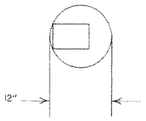




Plan View Wood Posts

Either hole configuration acceptable





Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

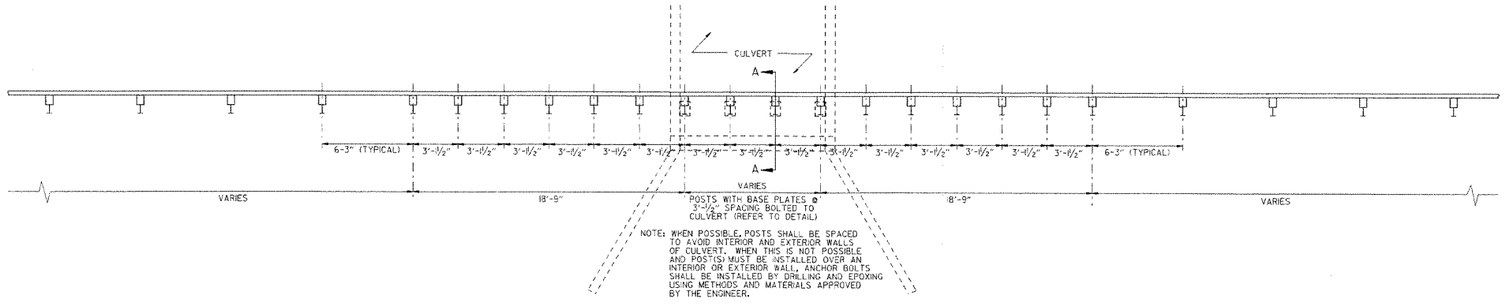
Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



NOTE: WHEN POSSIBLE, POSTS SHALL BE SPACED TO AVOID INTERIOR AND EXTERIOR WALLS OF CULVERT. WHEN THIS IS NOT POSSIBLE AND POST(S) MUST BE INSTALLED OVER AN INTERIOR OR EXTERIOR WALL, ANCHOR BOLTS SHALL BE INSTALLED BY DRILLING AND EPOXING USING METHODS AND MATERIALS APPROVED BY THE ENGINEER.

PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

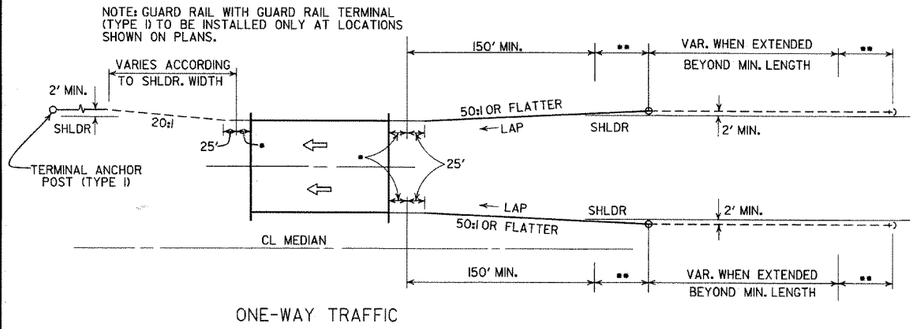
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULVT. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

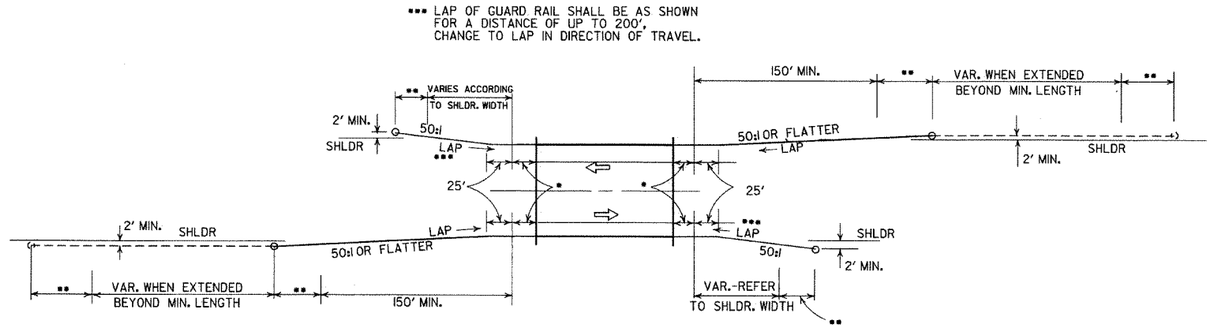
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8A



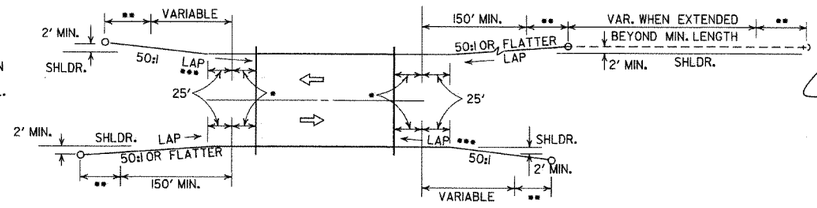
ONE-WAY TRAFFIC



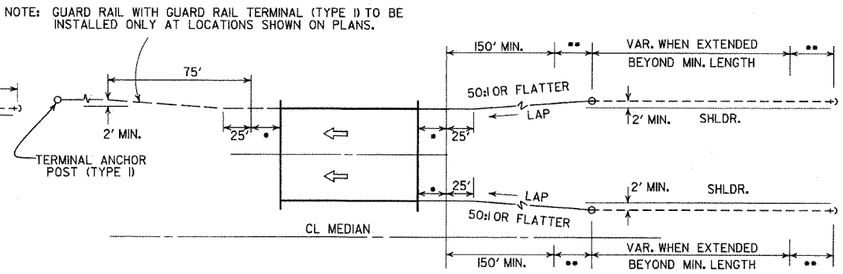
TWO-WAY TRAFFIC

METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



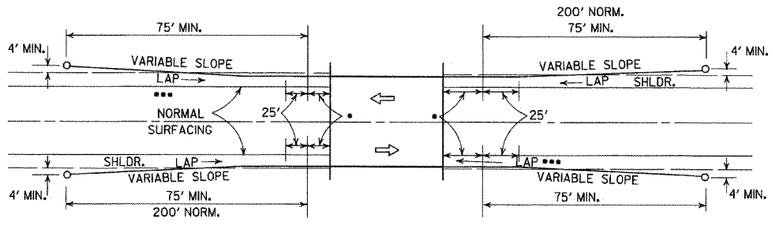
TWO-WAY TRAFFIC



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



LEGEND

- ▪ THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

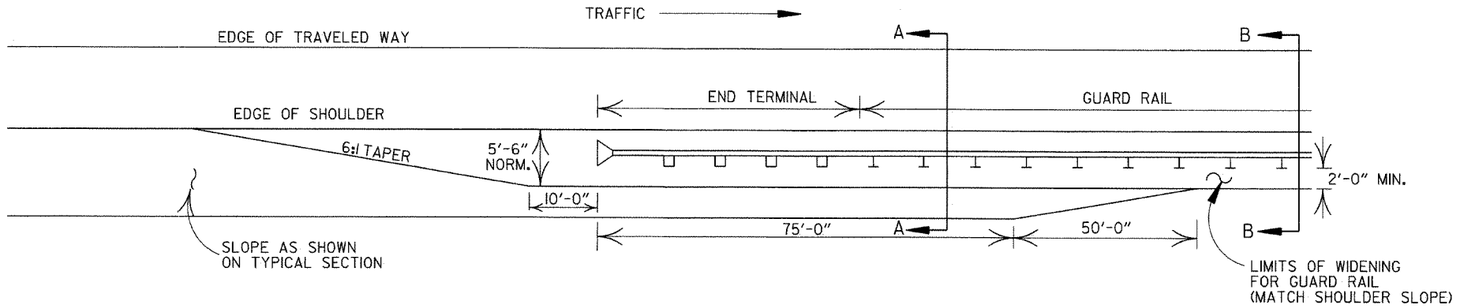
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

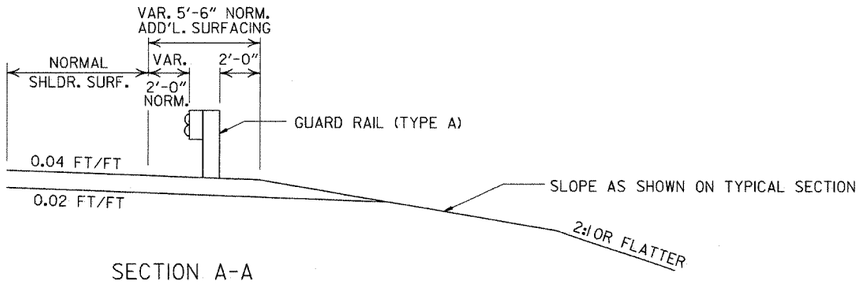
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

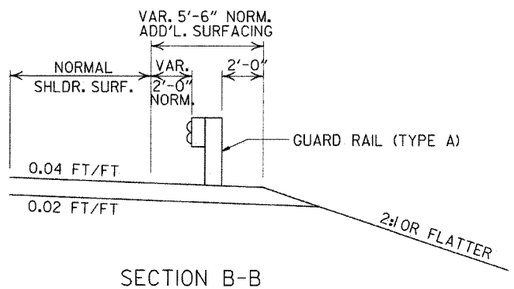
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





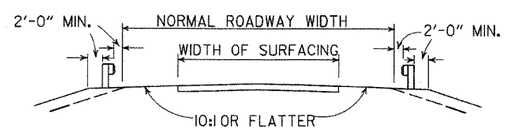
SECTION A-A



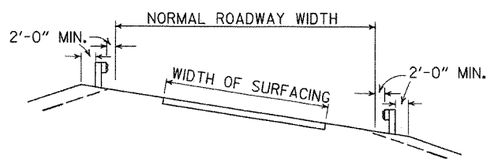
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

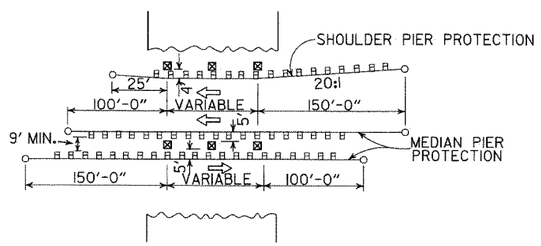


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



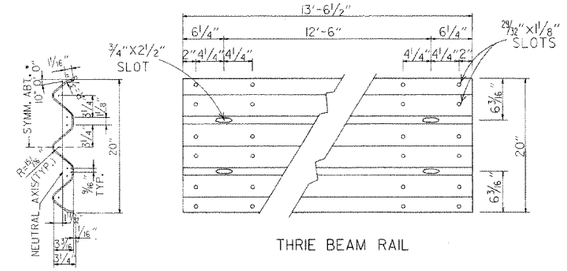
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

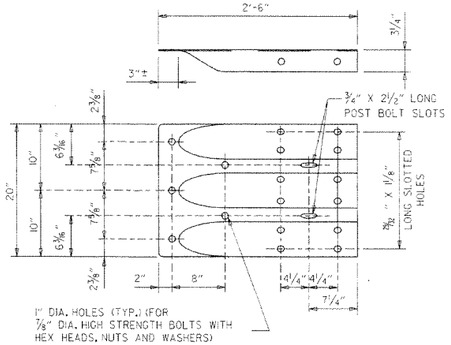
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A

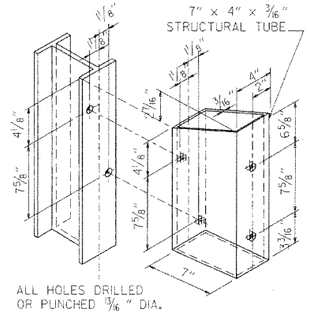


THRIE BEAM RAIL

SECTION THRU
THRIE BEAM RAIL

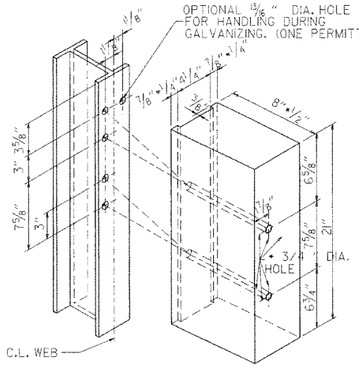


SPECIAL END SHOE



ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

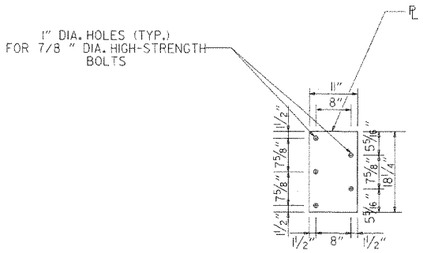
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

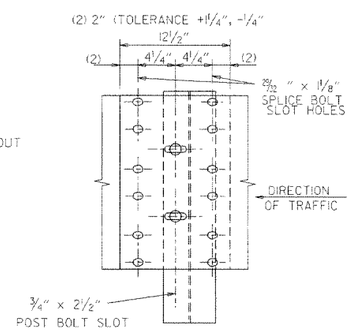
HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.

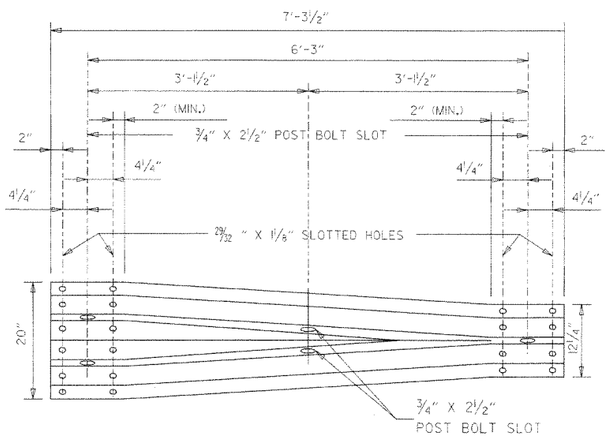


CONNECTOR PLATE

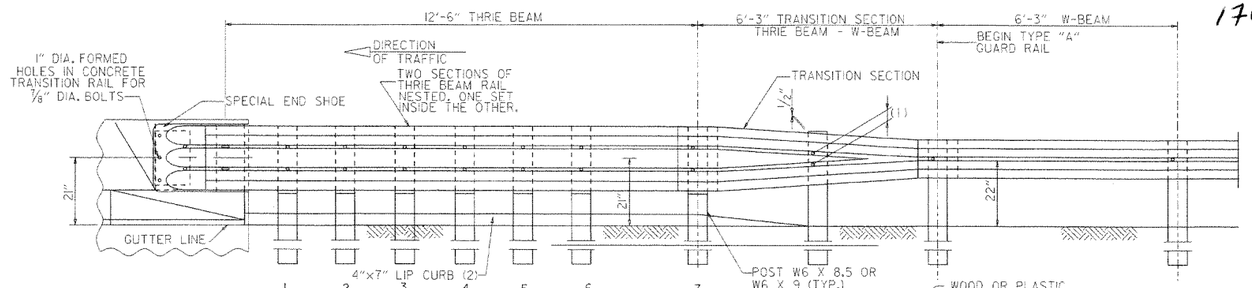
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



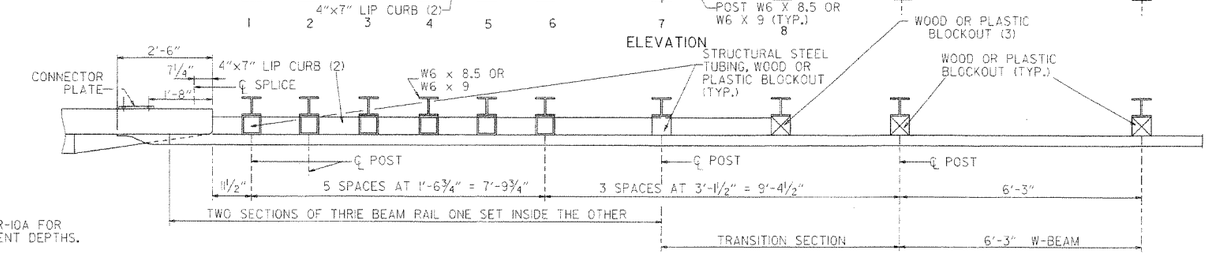
THRIE BEAM RAIL
SPLICE AT POST



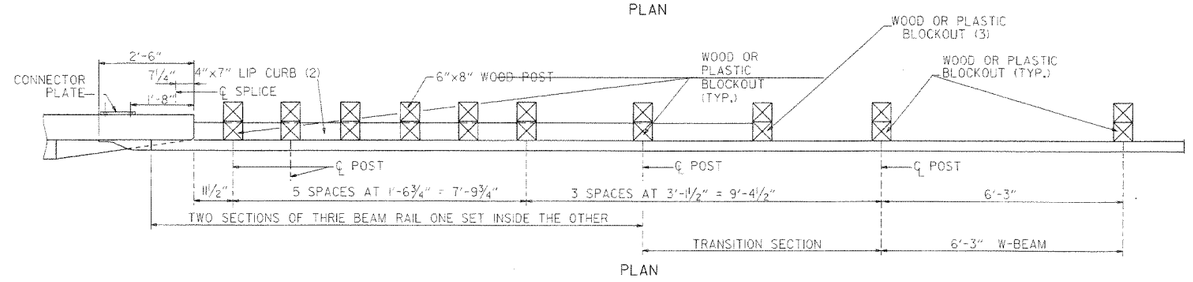
TRANSITION SECTION



ELEVATION



PLAN



PLAN

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE II.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

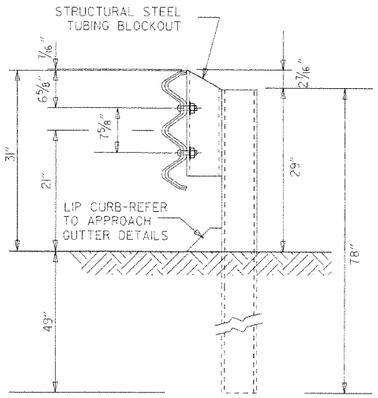
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

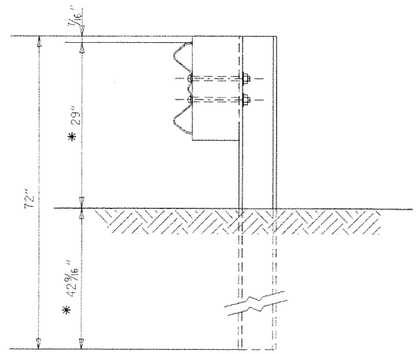
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

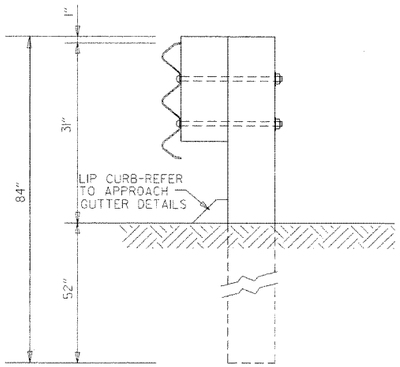


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

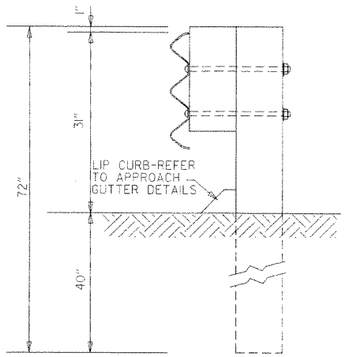


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

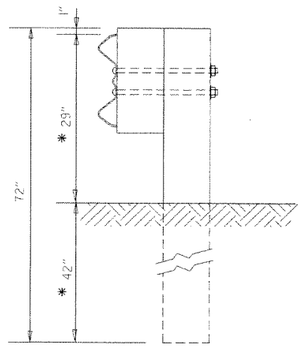
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

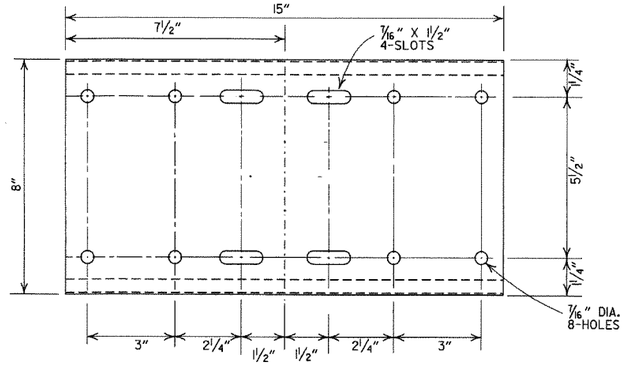
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

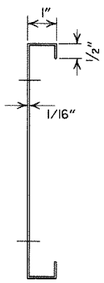
ARKANSAS STATE HIGHWAY COMMISSION

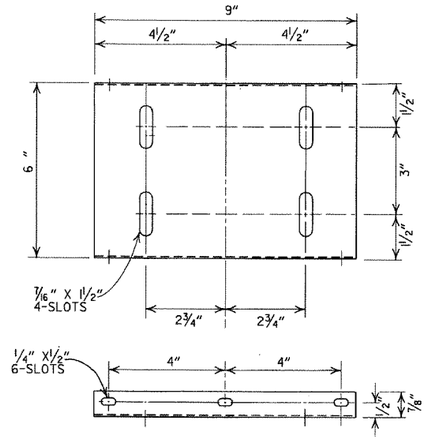
GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

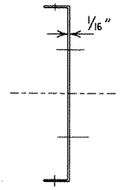


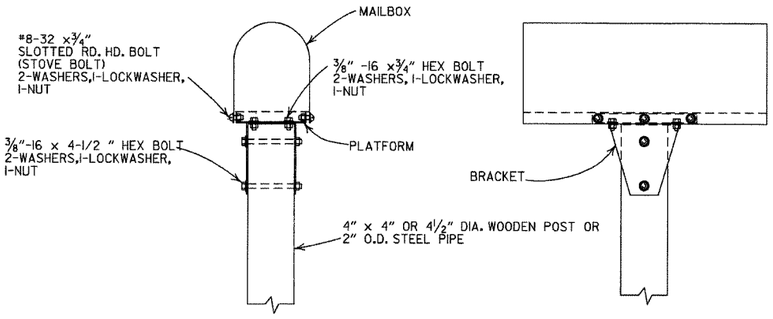
SHELF



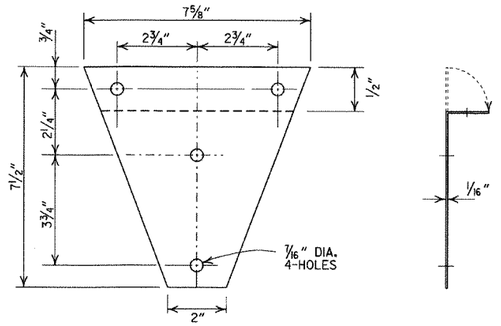


PLATFORM





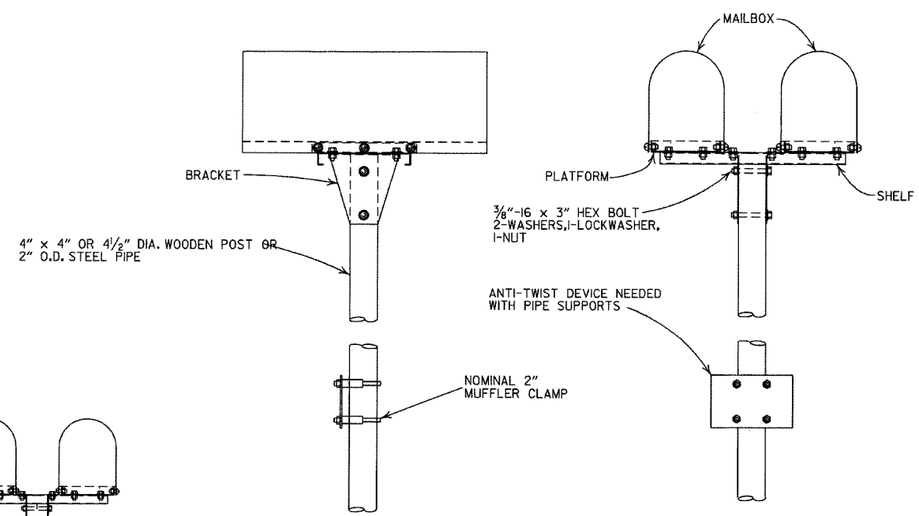
SINGLE INSTALLATION



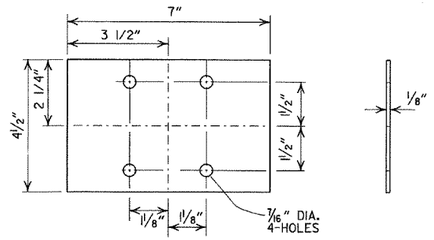
BRACKET

GENERAL NOTES

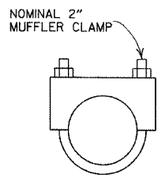
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



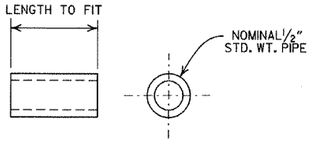
DOUBLE INSTALLATION



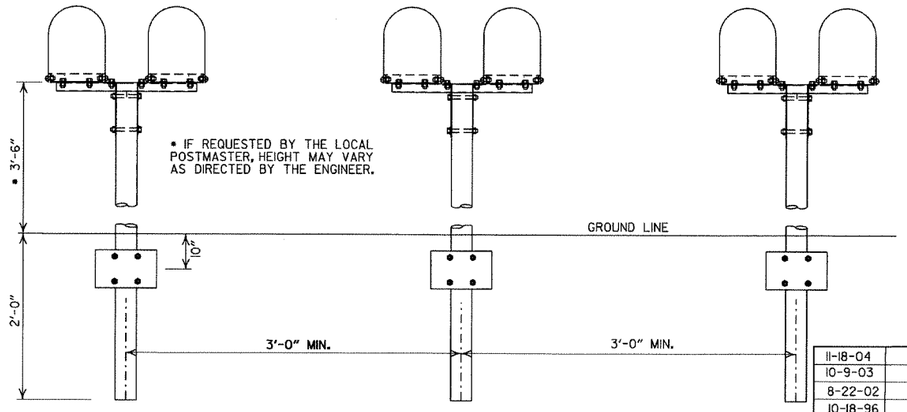
ANTI-TWIST PLATE



CLAMP



SPACER



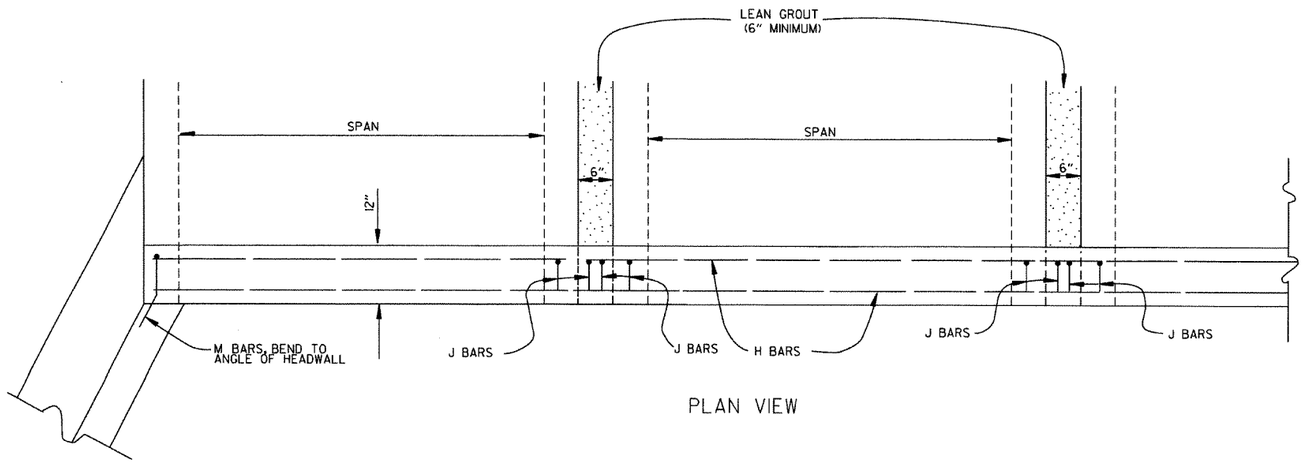
SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

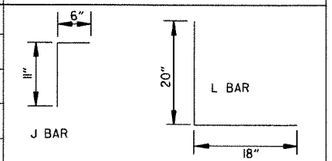
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

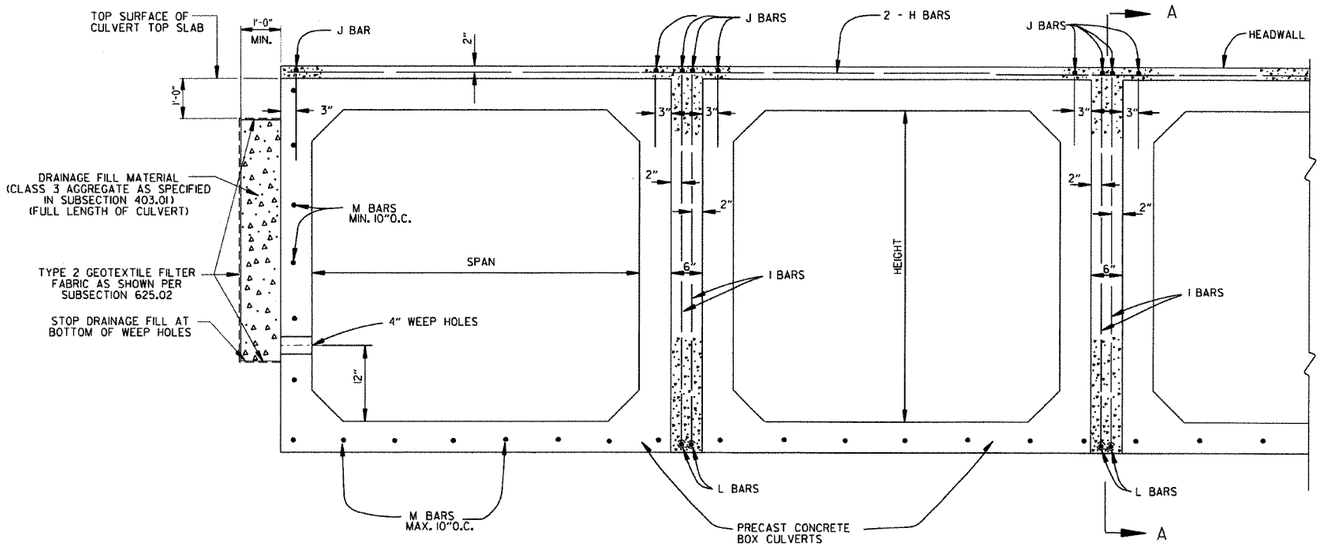
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

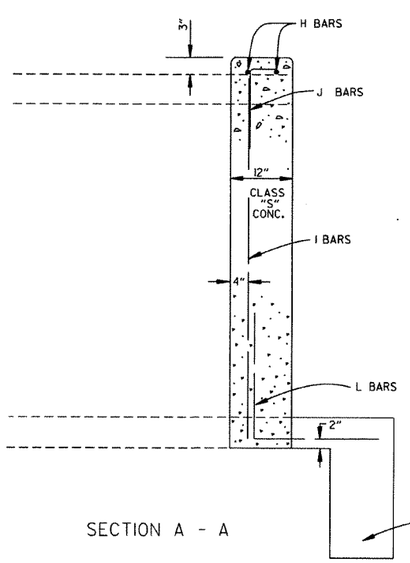
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT. SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

NOTE: HAUNCH AND STRUCTURAL BEDDING 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.

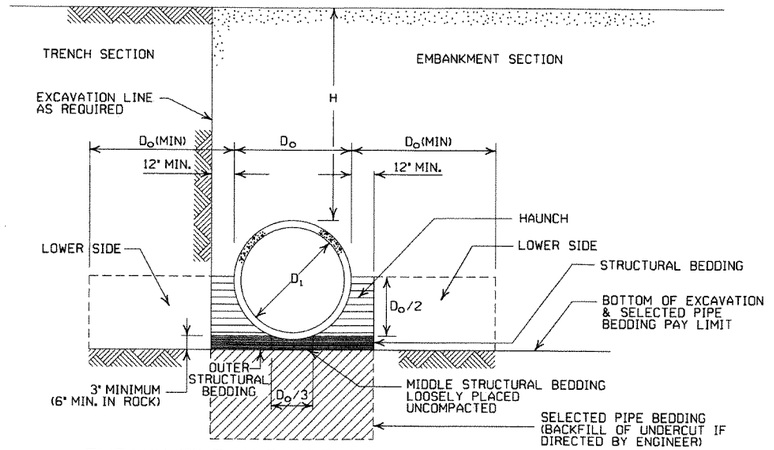
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL 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 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606, CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

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

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

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

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

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

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET) METAL THICKNESS (INCHES) 0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET) METAL THICKNESS IN INCHES 0.060	0.075	0.105	0.135	0.164
		2⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL MIN. THICKNESS REQUIRED INCHES	STEEL ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	STEEL MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	ALUMINUM MIN. THICKNESS REQUIRED INCHES	ALUMINUM ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	ALUMINUM MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM MIN. THICKNESS REQUIRED INCHES	INSTALLATION TYPE 2	INSTALLATION TYPE 1	INSTALLATION TYPE 2	INSTALLATION TYPE 1
36	40x31	5	0.079	3	2	12	15
42	46x36	6	0.079	3	2	13	15
48	53x41	7	0.079	3	2	13	15
54	60x46	8	0.079	3	2	13	15
60	66x51	9	0.079	3	2	13	15
66	73x55	12	0.079	3	2	15	15
72	81x59	14	0.079	3	2	15	15
78	87x63	14	0.079	3	2	15	15
84	95x67	16	0.109	3	2	15	15
90	103x71	16	0.109	3	2	15	15
96	112x75	18	0.109	3	2	15	15
102	117x79	18	0.109	3	2	15	15
108	128x83	18	0.138	3	2	15	15

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

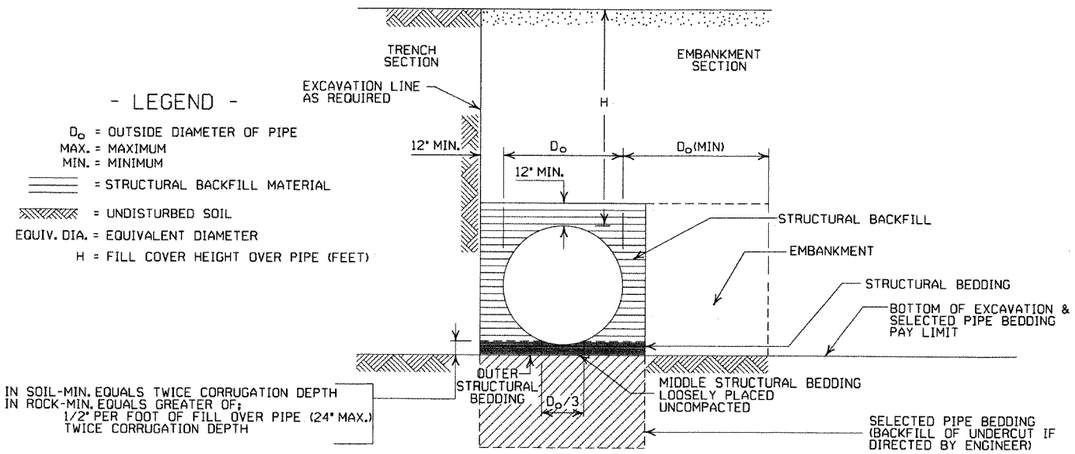
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES STEEL ZINC COATED	STEEL UNCOATED	ALUMINUM	GAUGE NUMBER
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

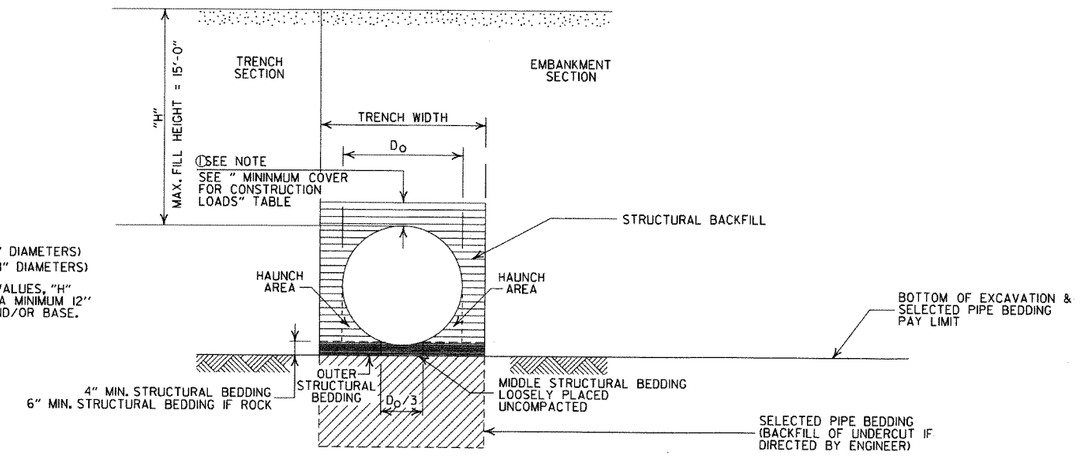
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
Ø = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PVC PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

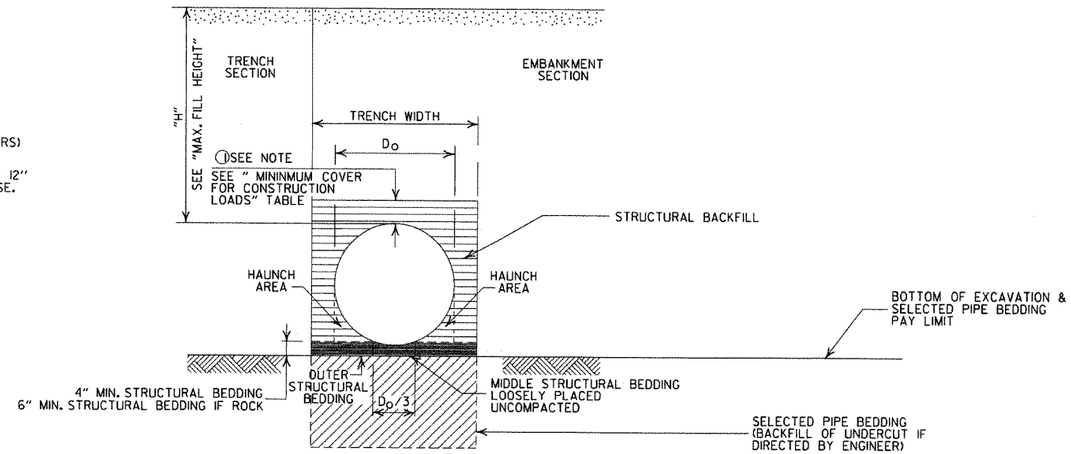
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION 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 SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

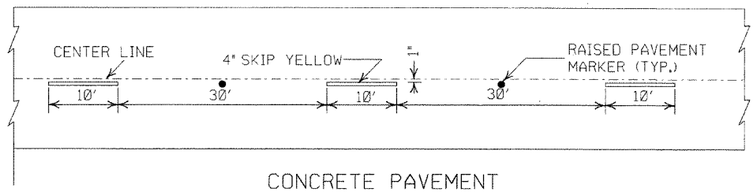
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

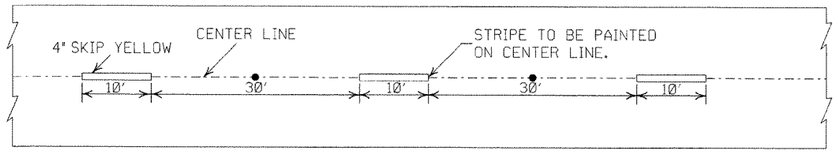
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

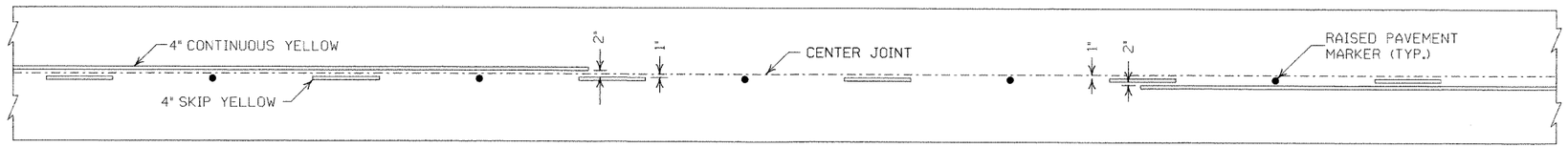


CONCRETE PAVEMENT

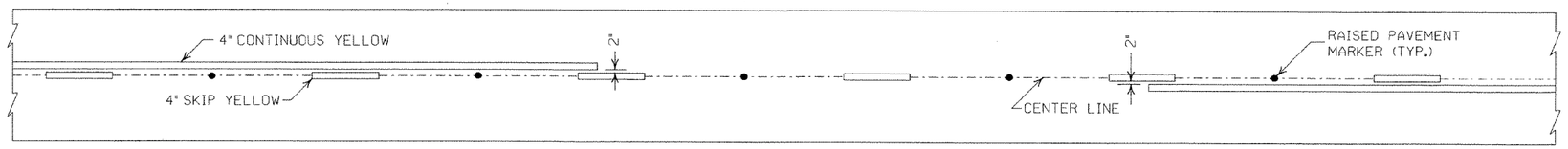


ASPHALT PAVEMENT

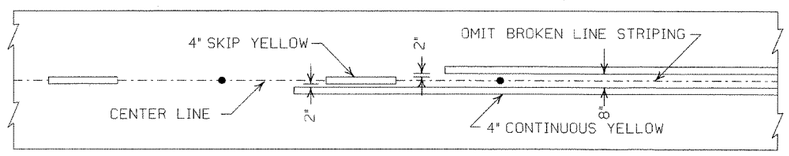
BROKEN LINE STRIPING



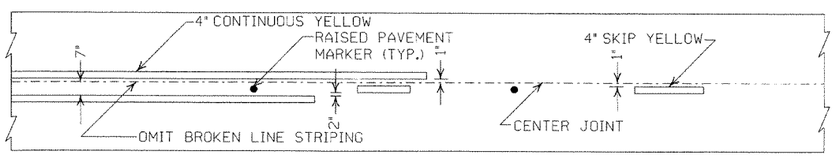
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

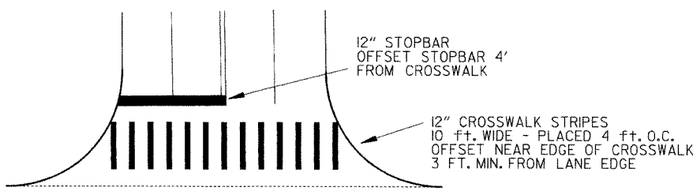


ASPHALT PAVEMENT



CONCRETE PAVEMENT

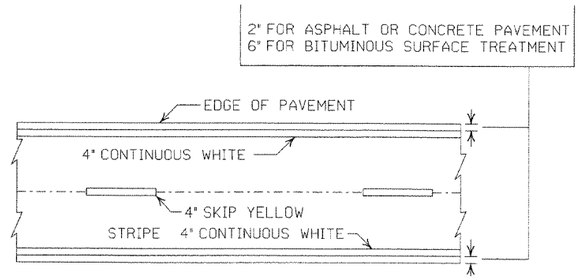
STRIPING AT ADJACENT NO PASSING LANES



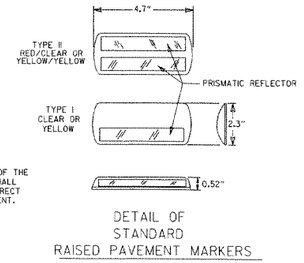
CROSSWALK AND STOPBAR DETAILS

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.'
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

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

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

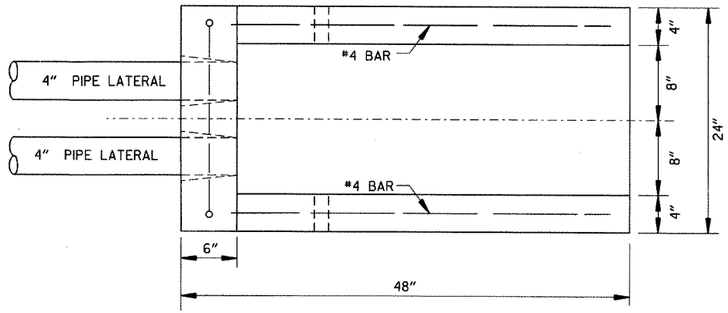
DATE	REVISION	FILMED
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

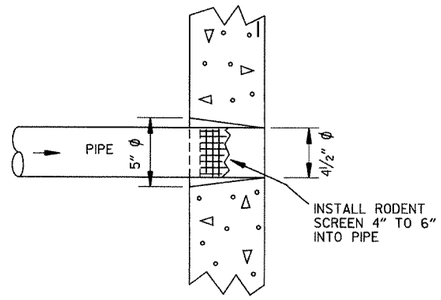
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

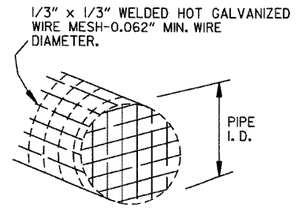
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



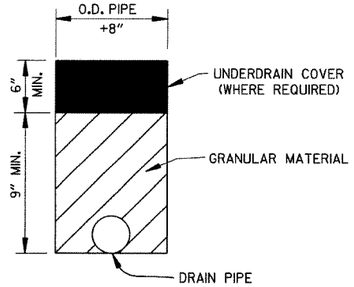
PLAN VIEW

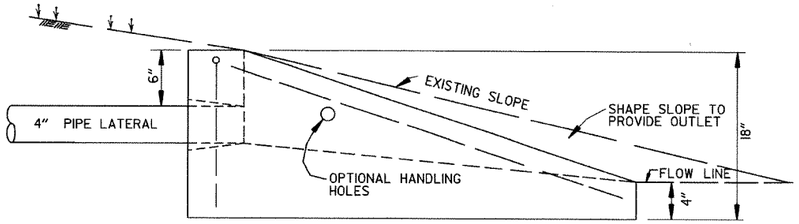


DETAIL OF HOLE FOR 4" PIPE

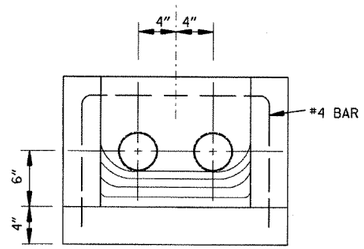


DETAIL OF RODENT SCREEN

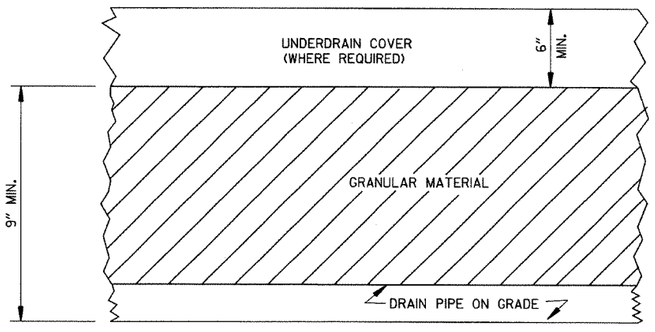




SIDE VIEW

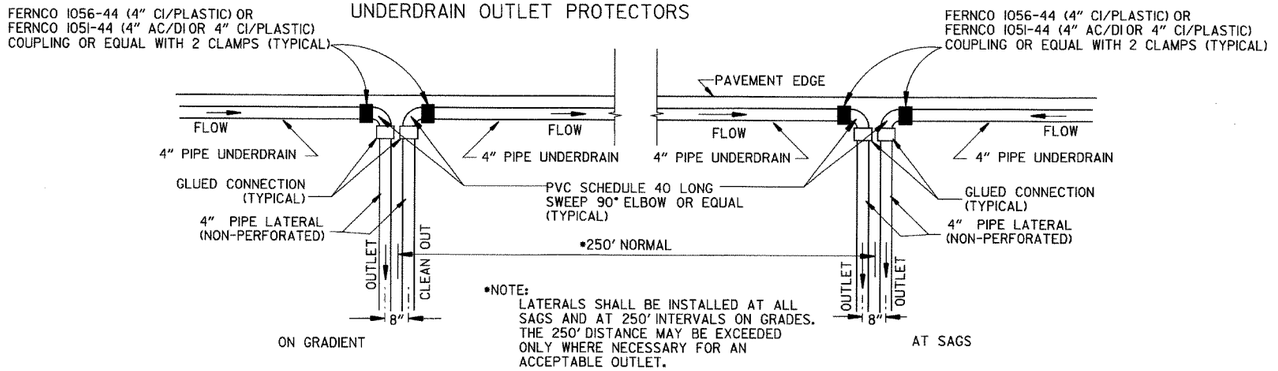


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

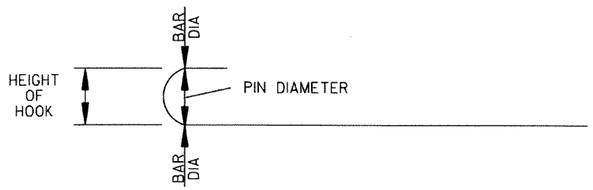
STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

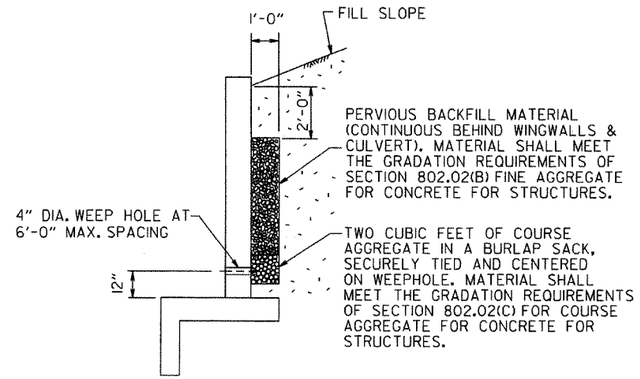
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

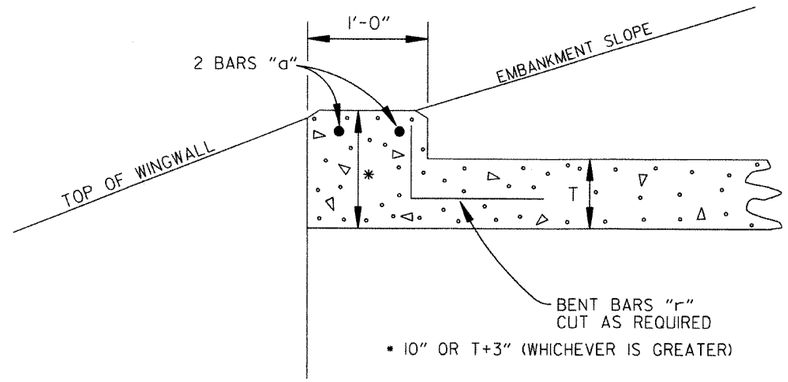
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



* 10" OR T+3" (WHICHEVER IS GREATER)

NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

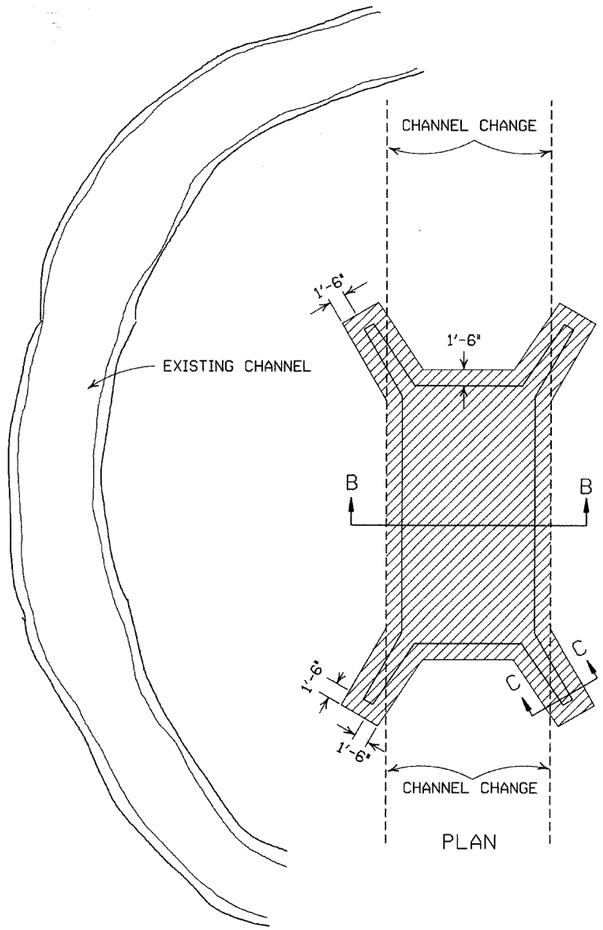
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
12-15-11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

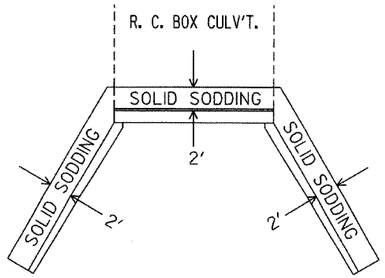
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

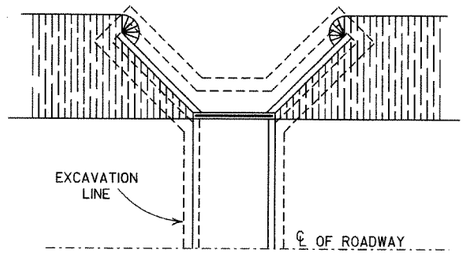
SOLID SODDING



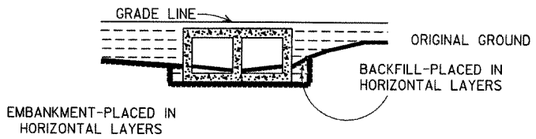
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

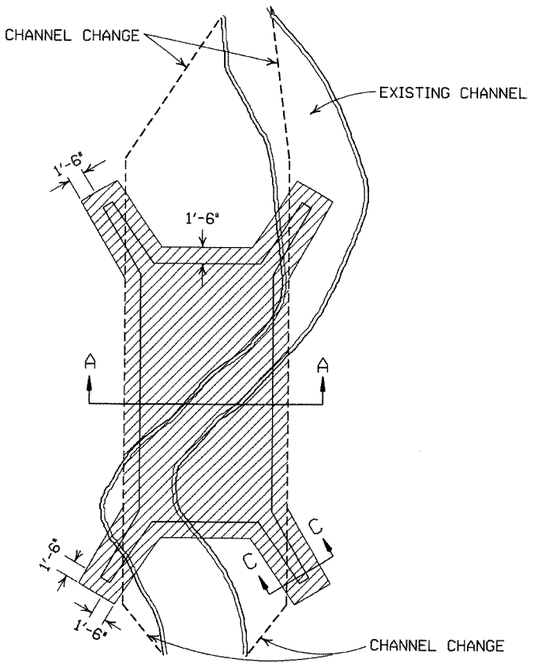


PLAN

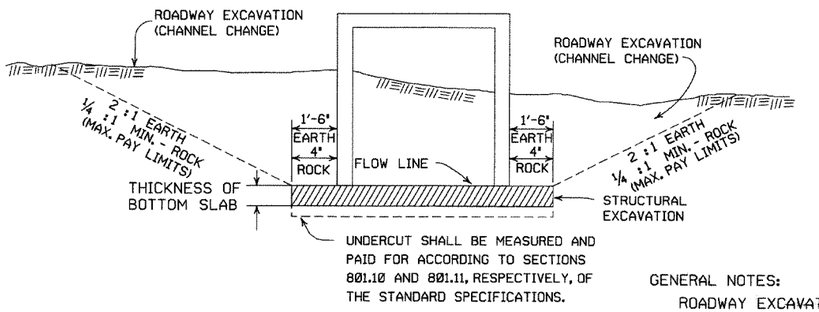


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

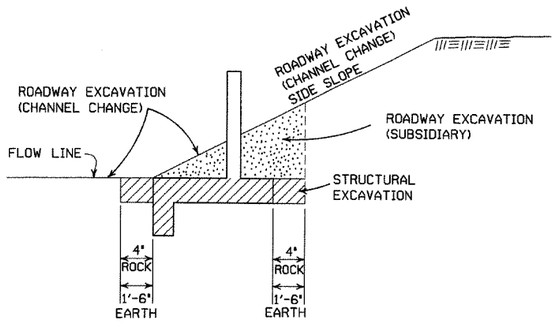


PLAN

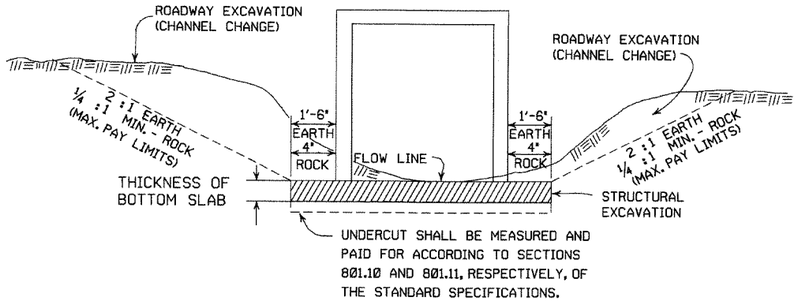


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

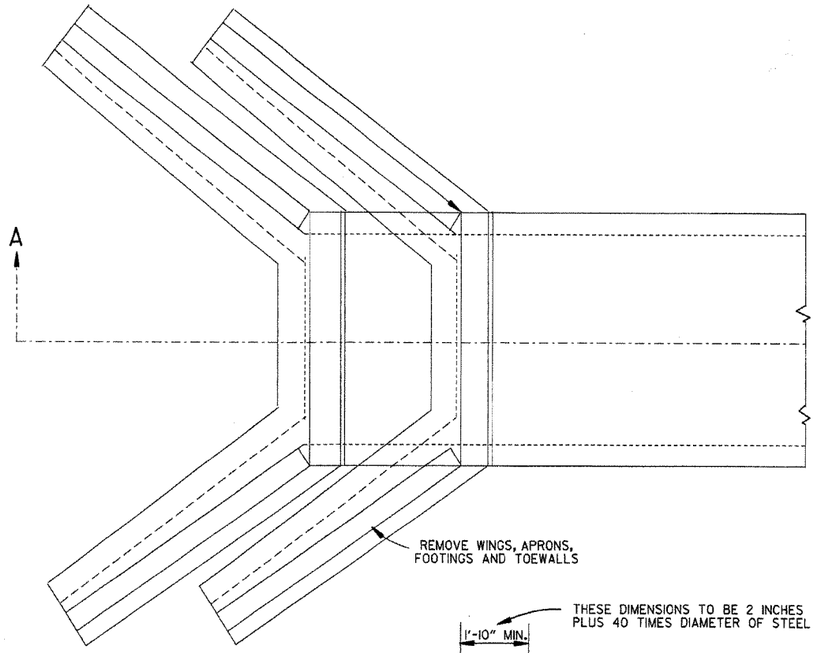
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 18918 AND 18884	
1-4-83	REVISED GENERAL NOTES AND ADDED MAXIMUM PAY LIMIT NOTES.	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

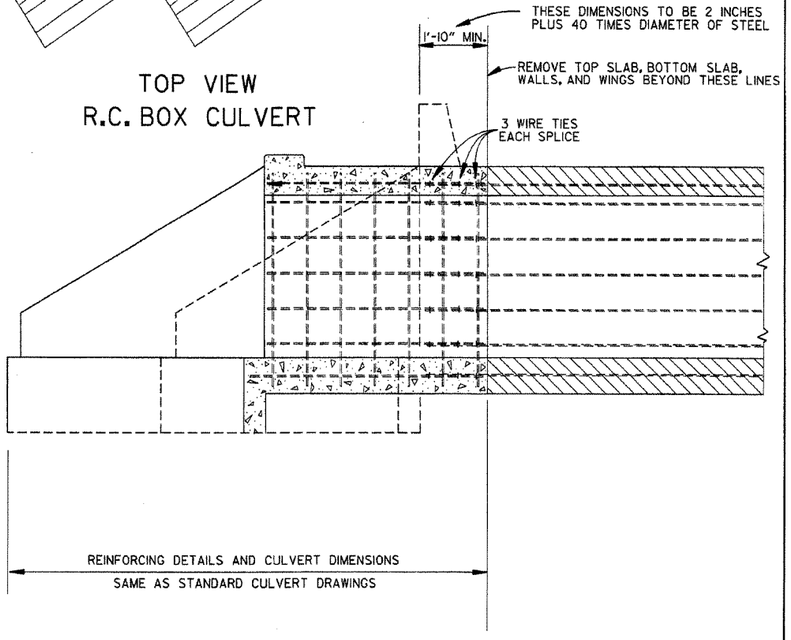
ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

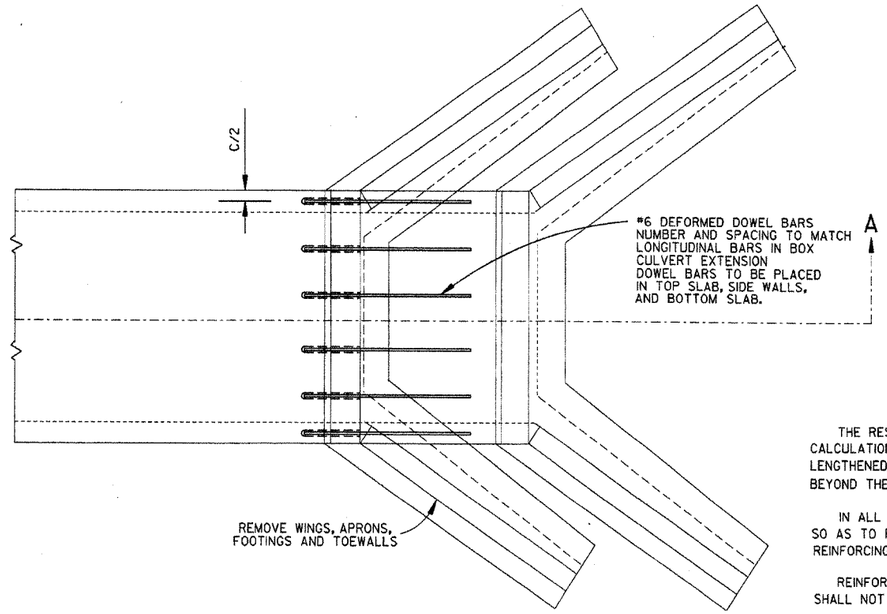


TOP VIEW
R.C. BOX CULVERT

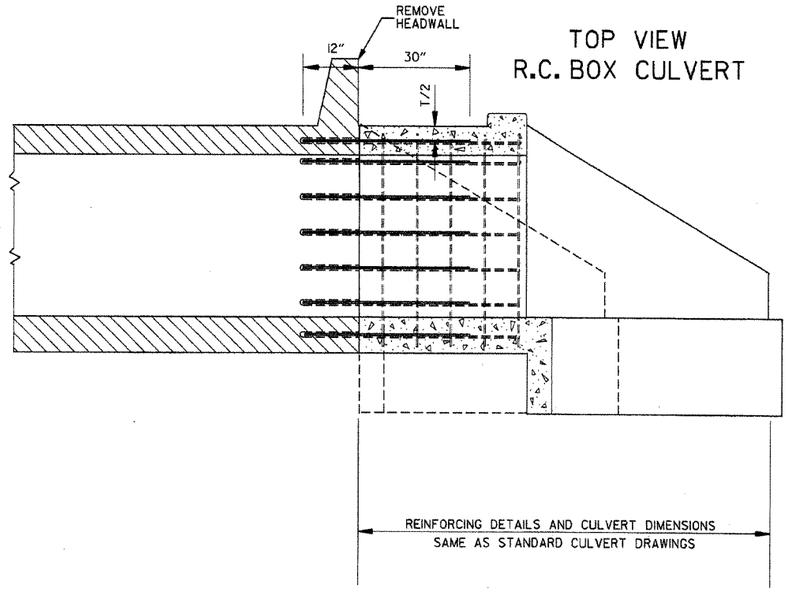


SECTION A-A

METHOD 1



TOP VIEW
R.C. BOX CULVERT



SECTION A-A

METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER. AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING
EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

FILE STDrcb3.dgn

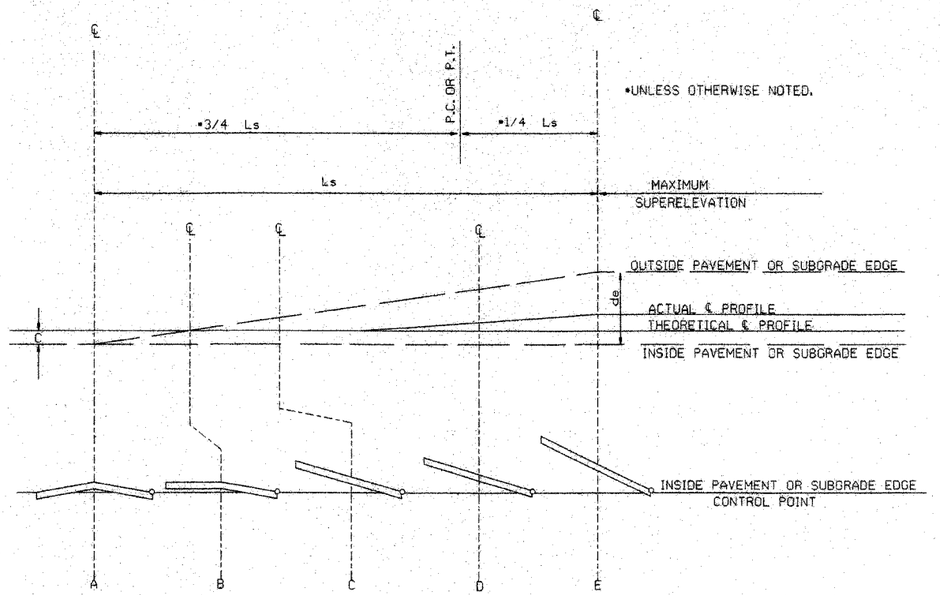
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054		
1° 45′	N.C.			0.025	175		0.036			0.043		300	0.049		300	0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037			0.053			0.063			0.072			0.091	335	
3° 00′	0.025			0.040		200	0.057			0.067	230		0.077	260		0.096	360	400
3° 15′	0.027	150		0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350			
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305				
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295		0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300	350						
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220		0.100	290										
8° 30′	0.061			0.087	225	250												
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

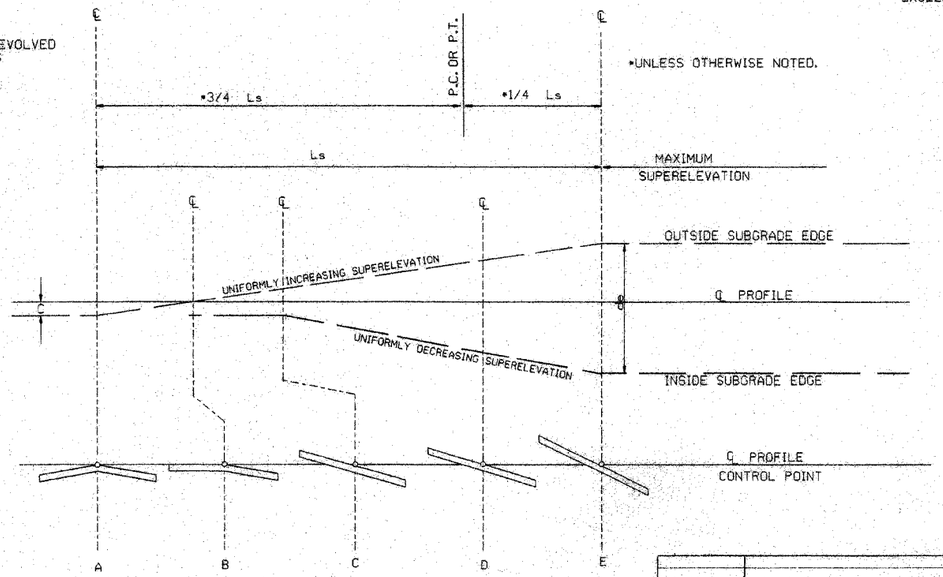
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

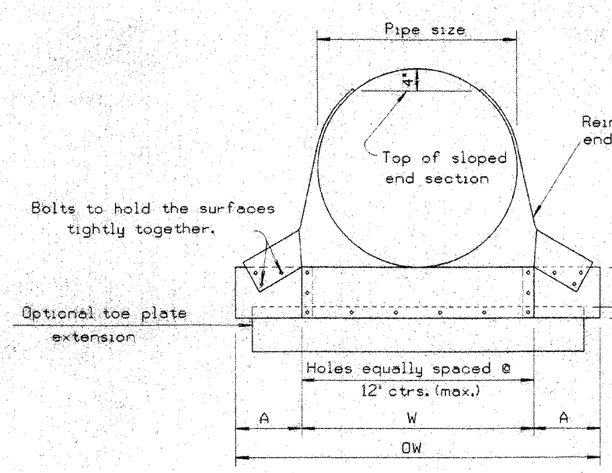
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

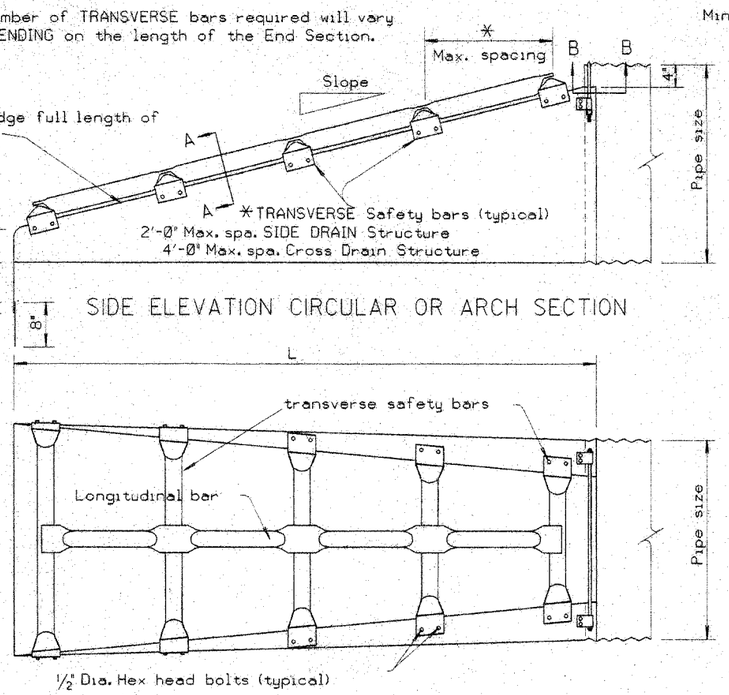
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

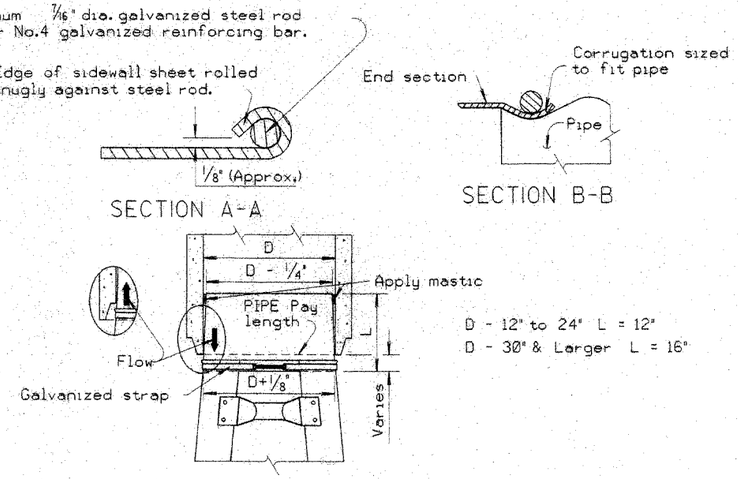
FILE STDSE2.DGN



FRONT VIEW CIRCULAR PIPE



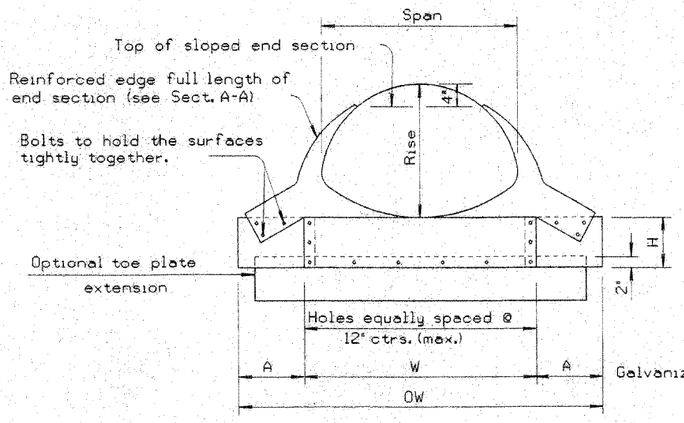
TOP VIEW CIRCULAR OR ARCH SECTION



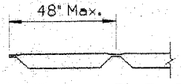
Note: Metal end section to be firmly wedged INTO PIPE END BEFORE BACKFILLING PIPE.

(Tapered sleeve to be 12 Ga. smooth galvanized steel in accordance with AASHTO M 218.)

STEEL END SECTION FOR CONCRETE PIPE
(Alternate for Concrete End Section)

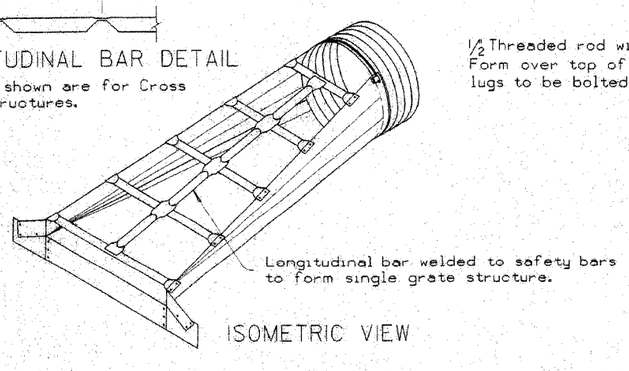


FRONT VIEW ARCH PIPE

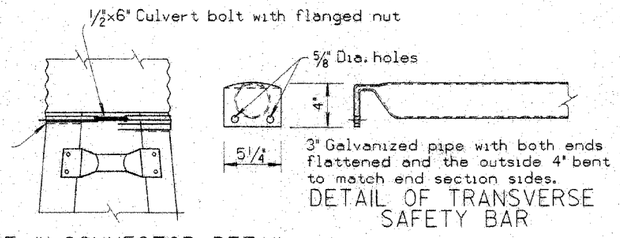


LONGITUDINAL BAR DETAIL

Note: Bars shown are for Cross Drain Structures.

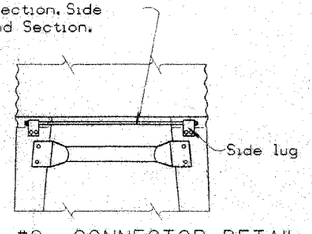


ISOMETRIC VIEW



DETAIL OF TRANSVERSE SAFETY BAR

TYPE #1 CONNECTOR DETAIL
For 15" thru 24" pipe



TYPE #2 CONNECTOR DETAIL
For 30" and larger round pipes & 21"x15" thru 64"x43" arch pipes

GENERAL NOTES

End sections shall be fabricated from galvanzied steel meeting the requirements of SUBSECTION 606.02(c)(1) OF THE STANDARD SPECIFICATIONS.
When specified optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section.
Dimensions shall be overall width less 6" by 8" high.
Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs.
Safety bars shall be fabricated from steel pipe meeting the requirements of ASTM A-53 Schedule 40 Specifications. Safety bars shall be hot dipped galvanized after fabrication.
All work and materials required for construction and installation of safety end section shall be included in the PRICE BID EACH FOR SAFETY END SECTIONS FOR PIPE CULVERTS.
Longitudinal and transverse bars will be required for cross drain structures when span is greater than 30", no safety bars will be REQUIRED FOR 30" SPAN OR LESS WHEN USED ON CROSS DRAIN STRUCTURES.
Transverse bars will be required for all sizes of side drain structures.
Class 1 safety end sections shall be end sections with a 4:1 slope.
Class 2 safety end sections shall be end sections with a 6:1 slope.

SAFETY END SECTIONS FOR ARCH PIPES														SAFETY END SECTIONS FOR CIRCULAR PIPES									
Equv. Dia.	Nom. W.W. Area Sq Ft	Pipe Arch Span (In.)	Pipe Arch Rise (In.)	Min. Gauge End Sect.	Dimensions in Inches A	H	W	OW	Slope	L (In)	Slope	L (In)	Pipe Dia.	Min. Gauge Ends	Dimensions in Inches A 1"Tol	H 1"Tol	W 2"Tol	OW	L Dimensions in Inches Slope	L	Slope	L
18"	1.6	21	15	16	8	6	27	43	4:1	20	6:1	30	15"	16	8	6	21	37	4:1	20	6:1	30
21"	2.2	24	18	16	8	6	30	46	4:1	32	6:1	48	18"	16	8	6	24	40	4:1	32	6:1	48
24"	2.9	28	20	16	8	6	34	50	4:1	40	6:1	60	21"	16	8	6	27	43	4:1	44	6:1	66
30"	4.5	35	24	14	12	9	41	65	4:1	56	6:1	84	24"	16	8	6	30	46	4:1	56	6:1	84
36"	6.5	42	29	12	12	9	48	72	4:1	76	6:1	114	30"	12	12	9	36	60	4:1	80	6:1	120
42"	8.9	49	33	12	16	12	55	87	4:1	92	6:1	138	36"	12	12	9	42	66	4:1	104	6:1	156
48"	11.6	57	38	12	16	12	63	95	4:1	112	6:1	168	42"	12	16	12	48	80	4:1	128	6:1	192
54"	14.7	64	43	12	16	12	70	102	4:1	132	6:1	198	48"	12	16	12	54	86	4:1	152	6:1	228
60"	18.1	71	47	12	16	12	77	109	4:1	148	6:1	222	54"	12	16	12	60	92	4:1	176	6:1	264
72"	26.0	83	57	12	16	12	89	121	4:1	188	6:1	282	60"	12	16	12	66	98	4:1	200	6:1	300

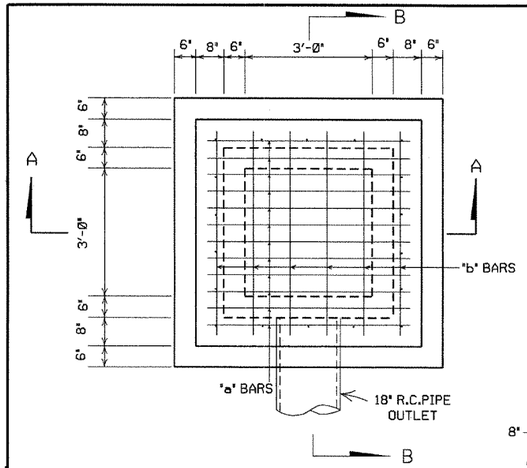
DATE	REVISION	DATE FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
8-15-91	DRAWN & ISSUED	

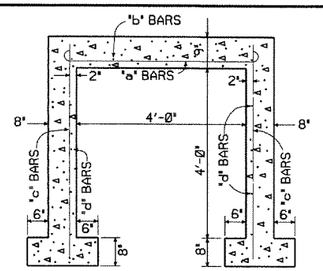
ARKANSAS STATE HIGHWAY COMMISSION

SAFETY END SECTION FOR CIRCULAR AND ARCH PIPES

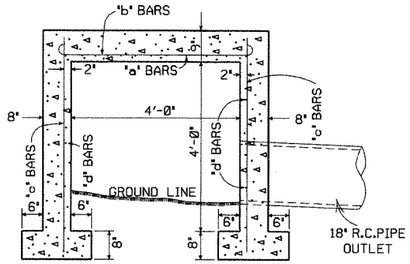
STANDARD DRAWING SES-1

FILE stdses1.dgn





SEC A-A

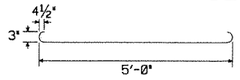


SEC B-B

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
'a'	11	6'-0"	5"
'b'	6	6'-0"	10"
'c'	16	5'-1"	12"
'd'	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



'a' & 'b' BARS

QUANTITIES

CONCRETE 3.40 CU. YDS.
REINFORCING STEEL 176 LB.

GENERAL NOTE:
THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX

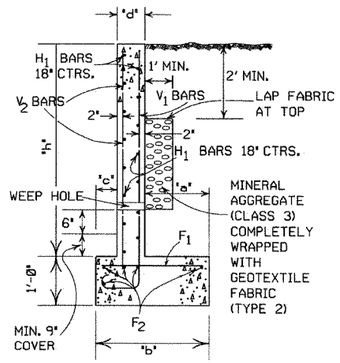
GENERAL NOTES

THE PAY ITEMS FOR THE CONSTRUCTION OF REINFORCED CONCRETE RETAINING WALL SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL AND EXCAVATION FOR STRUCTURES.

MINERAL AGGREGATE WRAPPED WITH GEOTEXTILE FABRIC (CONTINUOUS) TO BE PLACED 1'-0" IN WIDTH AND 1'-0" IN HEIGHT AS A SUBSIDIARY ITEM TO THE VARIOUS PAY ITEMS.

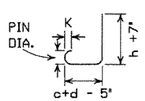
3" WEEP HOLES (MAX. SPACING 10'-0"CTRS.) TO BE PLACED WHERE SPECIFIED BY THE ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO PLACE CONTRACTION JOINTS ON 20' CENTERS AND EXPANSION JOINTS ON 60' CENTERS.

ALL EXPOSED EDGES TO BE CHAMFERED ¾".



BENDING DIAGRAM

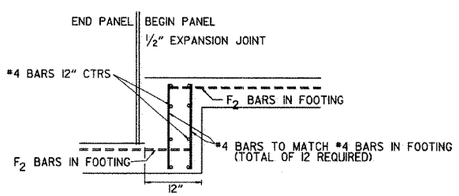
BAR SIZE	K	PIN DIA.
#4	4½"	2½"
#5	5"	3"



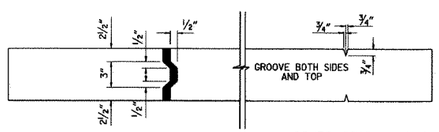
V1 BARS

STEEL SCHEDULE

'c'	'd'	'h'	'a'	'b'	V1 BARS SIZE	V1 BARS SPACING	F1 BARS SIZE	F1 BARS SPACING	H1 # 4 BARS SPAC.	V2 # 4 BARS SPAC.	F2 # 4 BARS NO. REQ'D.
8"	8"	1'-0"	8"	2'-0"	#4	12"	#4	18"	18"	18"	5
8"	8"	2'-0"	8"	2'-0"	#4	12"	#4	18"	18"	18"	5
8"	8"	3'-0"	8"	2'-0"	#4	12"	#4	18"	18"	18"	5
8"	8"	4'-0"	1'-2"	2'-6"	#4	12"	#4	12"	18"	18"	5
8"	8"	5'-0"	1'-8"	3'-0"	#4	9"	#4	9"	18"	18"	5
8"	8"	6'-0"	2'-2"	3'-6"	#4	6"	#4	6"	18"	18"	6
12"	8"	7'-0"	2'-4"	4'-0"	#4	8"	#4	8"	18"	18"	6
12"	8"	8'-0"	2'-10"	4'-6"	#4	6"	#4	6"	18"	18"	6
15"	10"	9'-0"	2'-11"	5'-0"	#4	5"	#4	5"	18"	18"	6
17"	10"	10'-0"	3'-3"	5'-6"	#5	6"	#5	6"	18"	18"	7



FOOTING STEPS



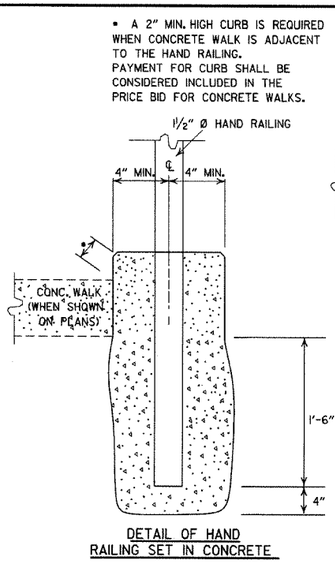
EXPANSION JOINT CONTRACTION JOINT

JOINT DETAILS

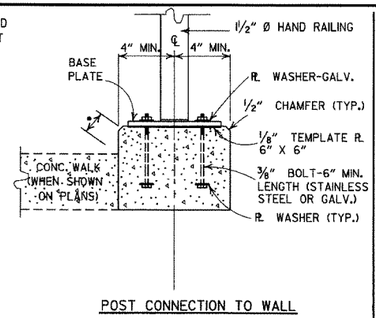
NOTE: JOINT MATERIAL SHALL BE PREFORMED MEETING THE REQUIREMENTS OF SUBSECTION 501.02(n) FOR TYPE 2

REINFORCED CONCRETE RETAINING WALL

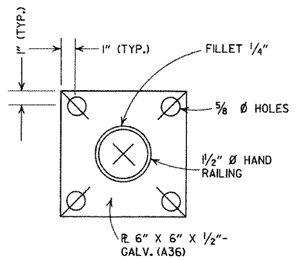
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

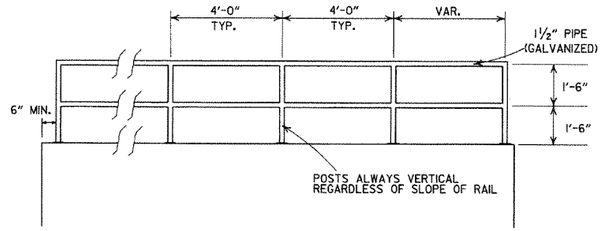


POST CONNECTION TO WALL

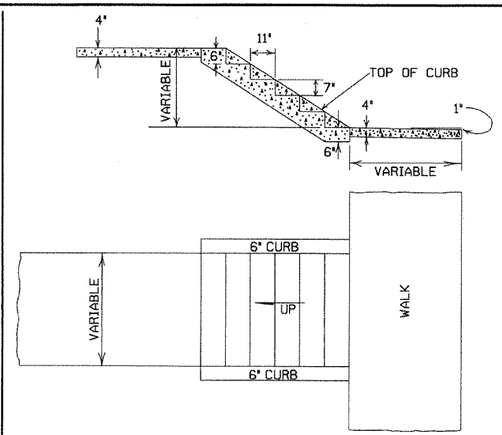


BASE PLATE

POST CONNECTION DETAILS

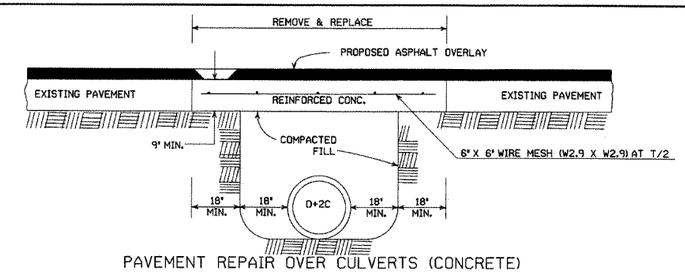


HAND RAILING DETAILS

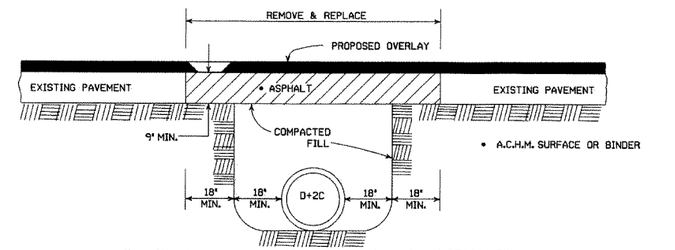


GENERAL NOTES
1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

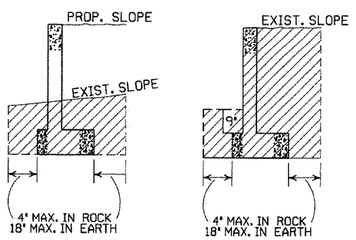


PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS



NOTE: HATCHED AREA DENOTES MAX. LIMITS OF EXCAVATION FOR STRUCTURES FOR RETAINING WALL.

DATE	REVISION	DATE FILMED
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V1 BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR	649-7-15-88
	ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF 'UNDERDRAIN'	721-3-2-81
4-20-79	REV. UNDERDRAIN DET.& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L. 568	4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3 567	5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

4-17-08	REV. JOINT & FOOTING STEP DETAILS
11-29-07	REVISED RETAINING WALL DRAINAGE

ARKANSAS STATE HIGHWAY COMMISSION

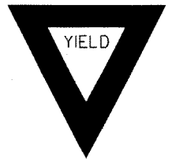
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

R1-1

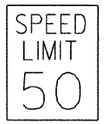
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5A

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

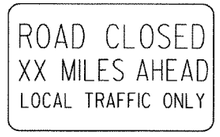
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2

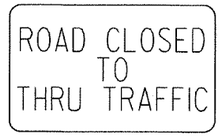
48"X30"

R11-3A



60"X30"

R11-4

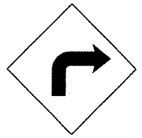


60"X30"

RSP-1

48"X30"

W1-1



STD. 36"X36"
FWY. 48"X48"

W1-2

STD. 36"X36"
FWY. 48"X48"

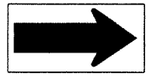
W1-3

STD. 48"X48"

W1-4

STD. 48"X48"

W1-6

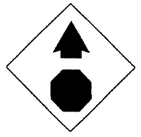


STD. 48"X24"
SPECIAL 60"X30"

W1-8

STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1

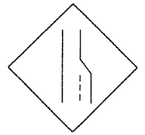


STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

W13-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

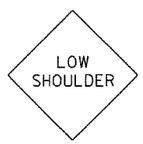
R56-1

STD. 18"X18"

W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

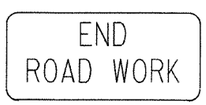


STD. 36"X36"
FWY. 48"X48"

G20-1

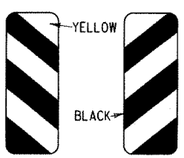
60"X24"

G20-2



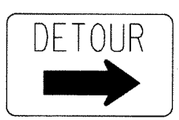
48"X24"

OM-3L OM-3R



12"X36"

M4-9

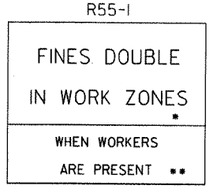


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

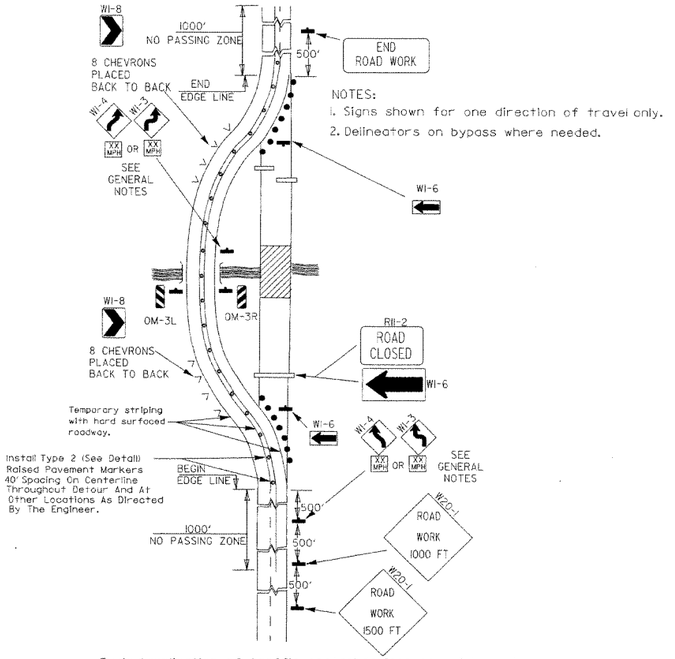
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

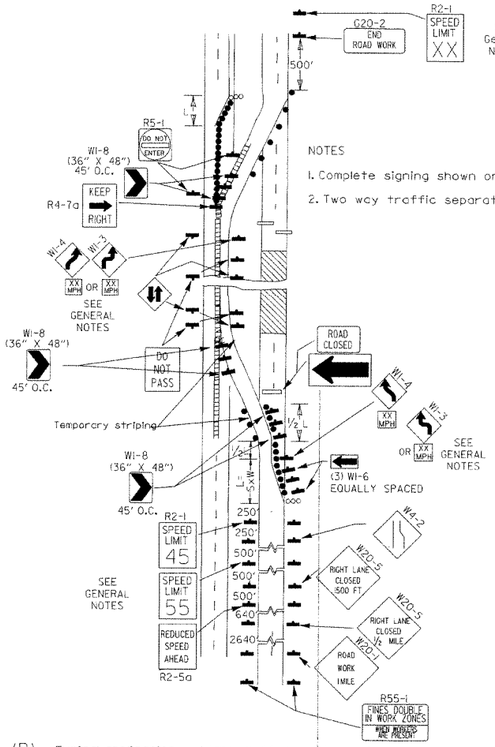
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



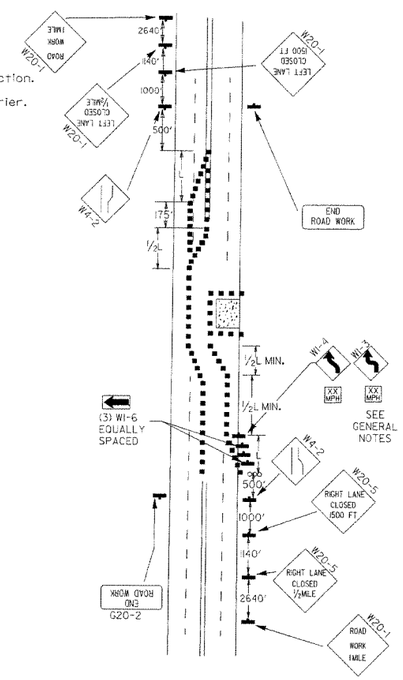
NOTES:
1. Signs shown for one direction of travel only.
2. Delineators on bypass where needed.

(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.

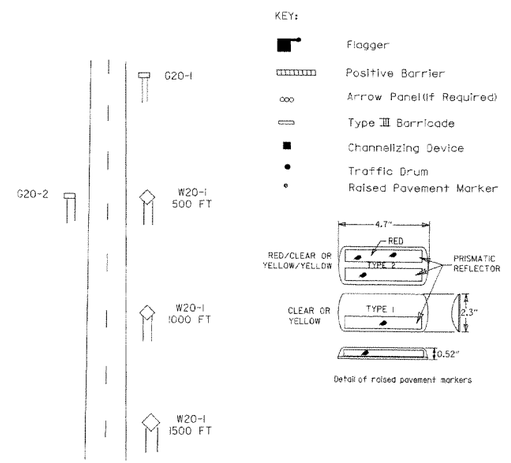


NOTES
1. Complete signing shown only in crossover direction.
2. Two way traffic separated with positive barrier.

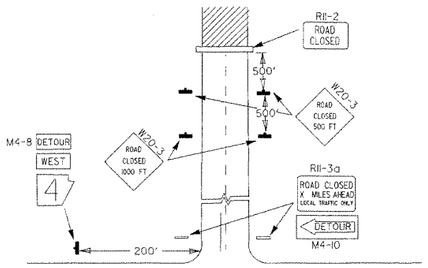
(B) Typical application - 4-lane divided roadway where one roadway is closed.



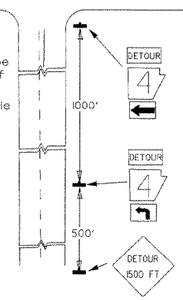
(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.



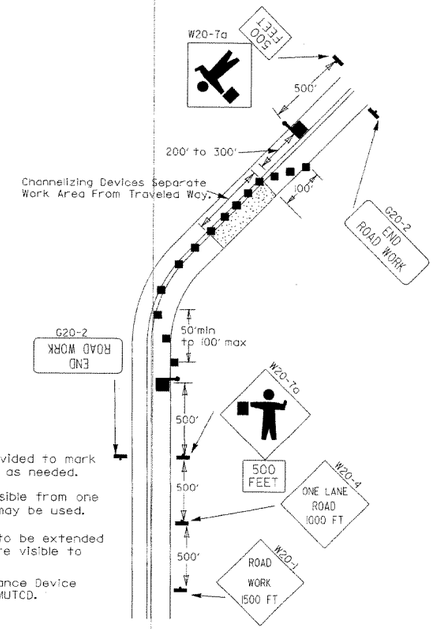
Typical advance warning sign placement



NOTES:
1. Regulatory traffic control devices to be modified as needed for the duration of the detour.
2. Street names may be used when desirable for directing detoured traffic.

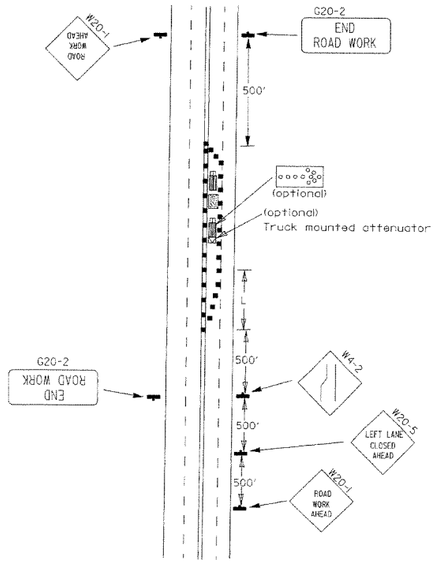


(D) Typical application - roadway closed beyond detour point.



NOTES:
1. Flood lights should be provided to mark flagger stations at night as needed.
2. If entire work area is visible from one station, a single flagger may be used.
3. Channelizing devices are to be extended to a point where they are visible to approaching traffic.
4. Automated Flagger Assistance Device (AFAD) optional. Refer to MUTCD.

(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.



(F) Typical application - 4-lane undivided roadway with inside lane closed.

Taper formulae:

L=SxW for speeds of 45mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40mph or less.

Where:
L= Minimum length of taper.
S= Numerical value of posted speed limit prior to work or 85th percentile speed.
W= Width of offset.

GENERAL NOTES:

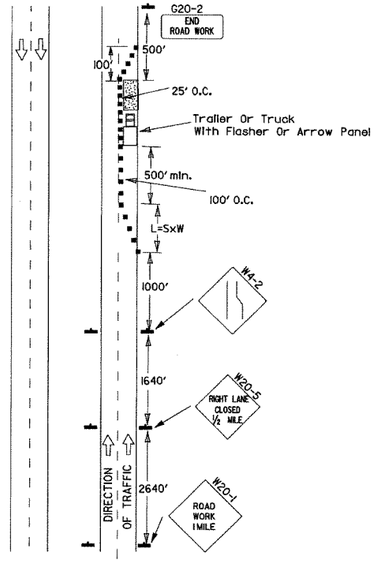
1. Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(xx) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(xx) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

DATE	REVISION	FIL.MED
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

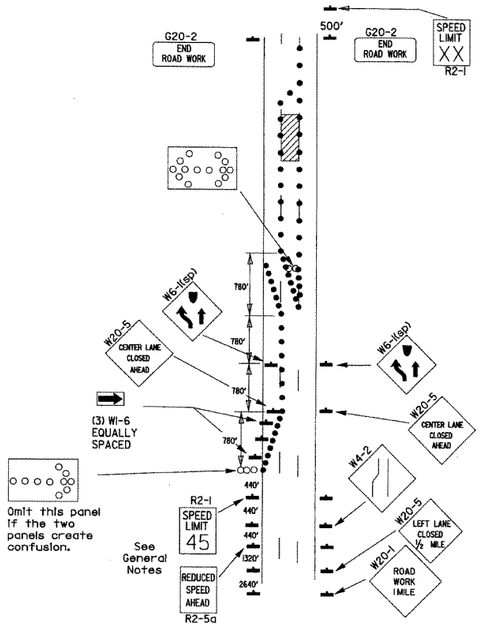
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

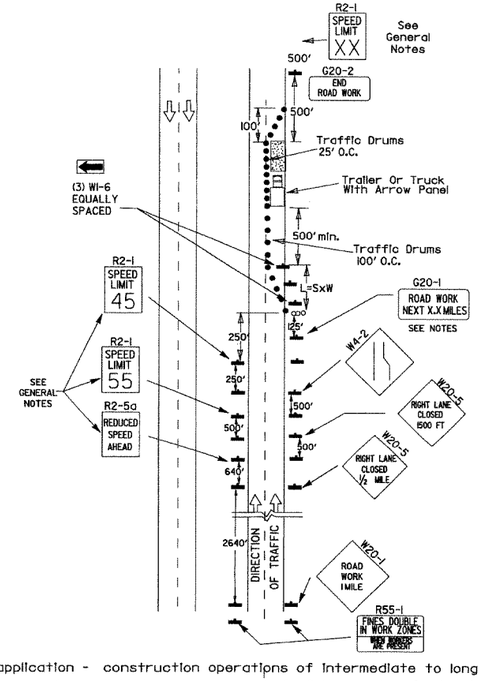
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

ooo Arrow Panel (If Required)

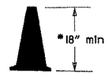
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

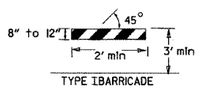
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

Channelizing devices



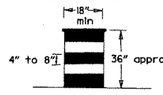
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

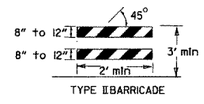
CONES



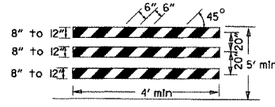
TYPE I BARRICADE

PLASTIC DRUM



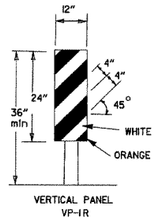


TYPE II BARRICADE



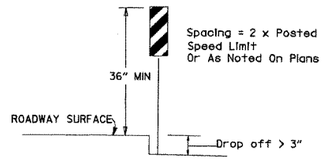
TYPE III BARRICADE

NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



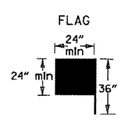
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

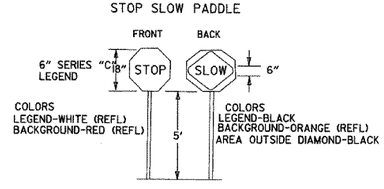
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

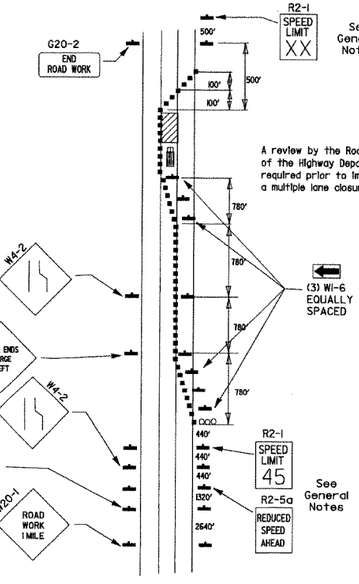
FLAG



Flag shall be of good grade red material

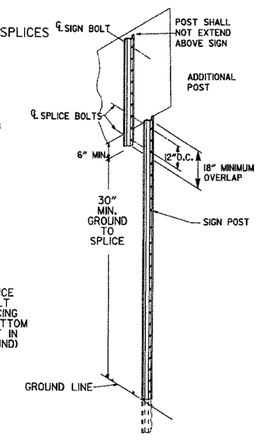
STOP SLOW PADDLE





(D) Typical application - closing multiple lanes of a multilane highway.

DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

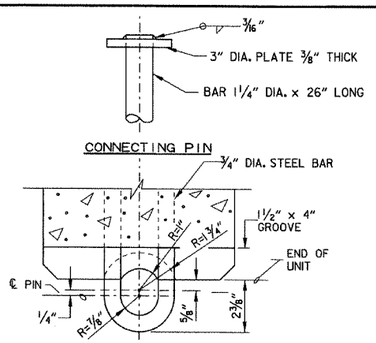
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

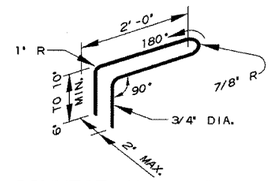
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

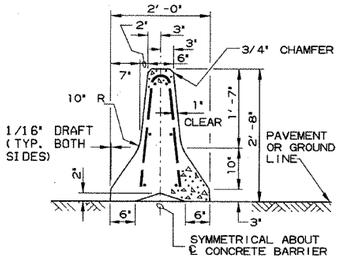
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", 90°, 3 3/8" R, LIFTING HOLE
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1" MIN. CLEAR TO BAR, 1'-6", 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 9 1/2", 2'-1 3/8", 4 3/8"



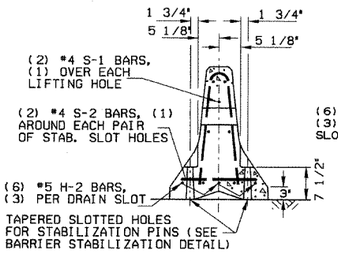
CONNECTION DETAILS



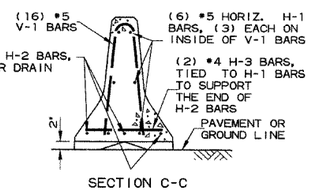
CONNECTION LOOP



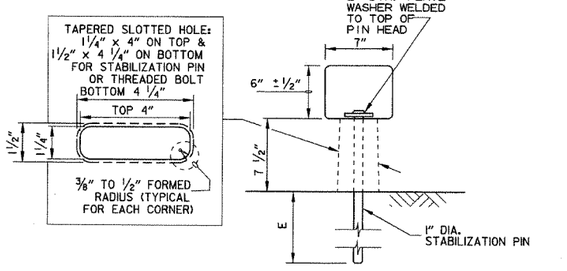
SECTION A-A



SECTION B-B



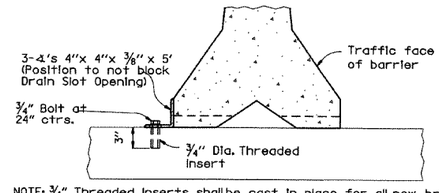
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

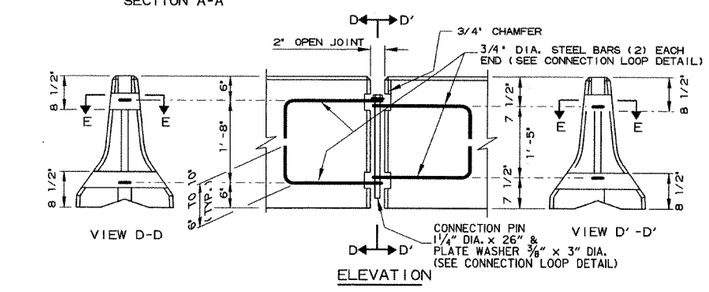
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks to be retained. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

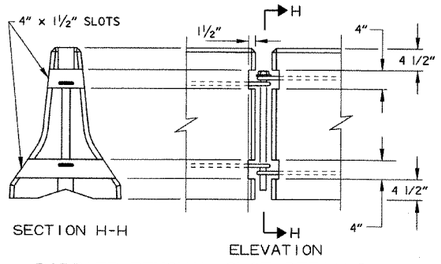
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

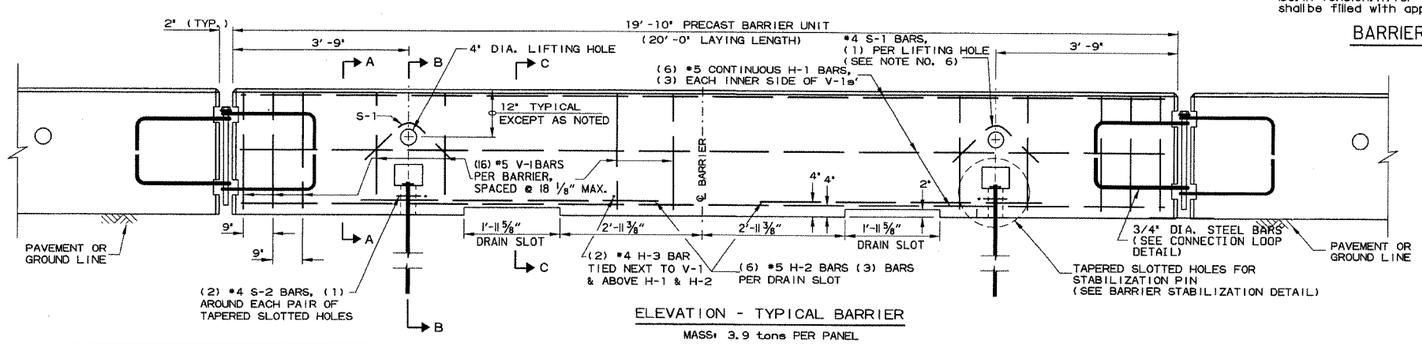
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

(1) The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

(2) Materials shall meet the following minimum requirements:
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

(3) Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

(4) Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

(5) Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

(6) A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

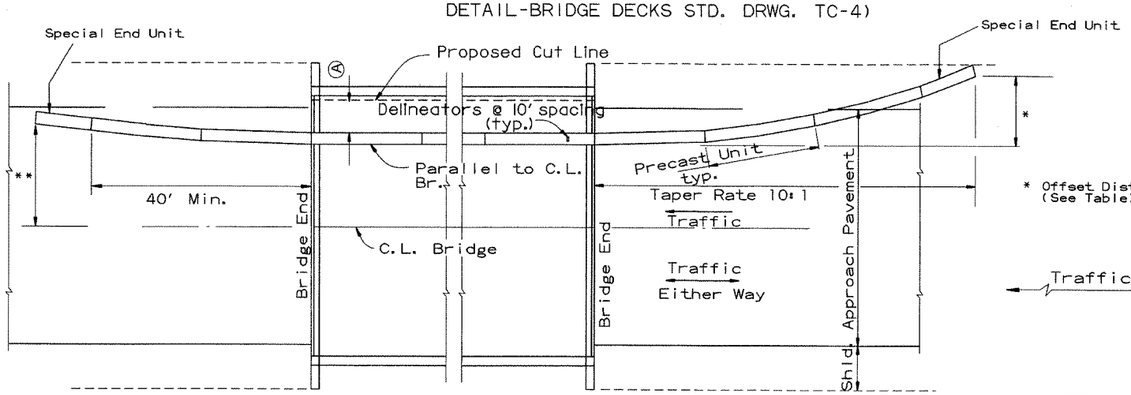
DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

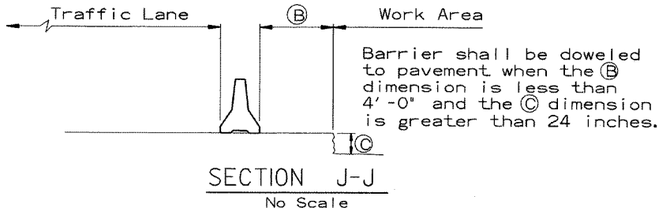
STANDARD DRAWING TC-4

Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

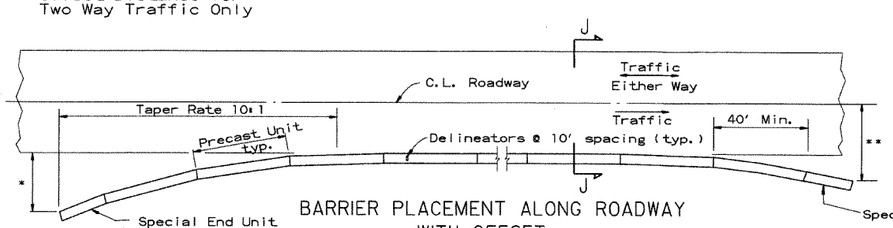


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

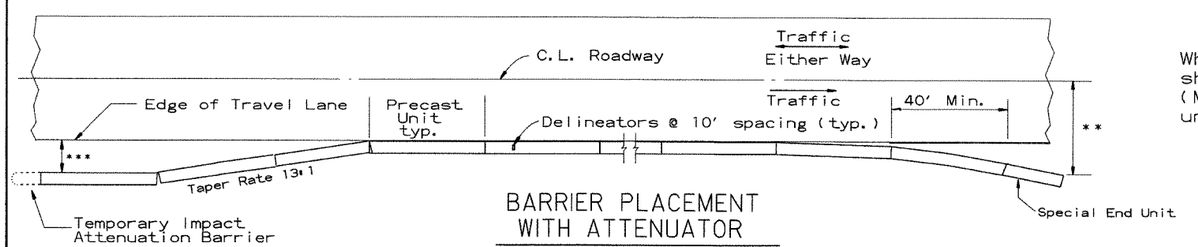
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

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

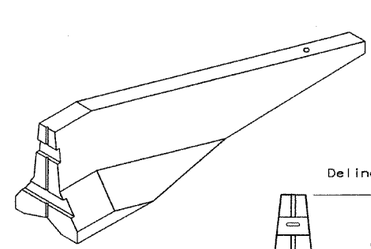


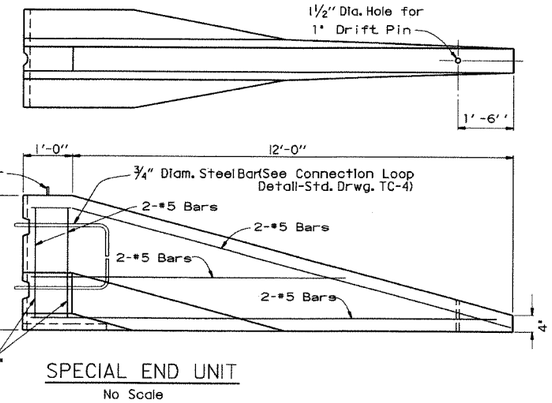
BARRIER PLACEMENT WITH ATTENUATOR

No Scale

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only





SPECIAL END UNIT

No Scale

General Notes

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

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

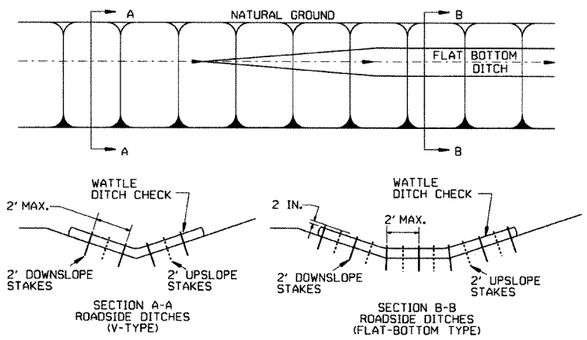
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

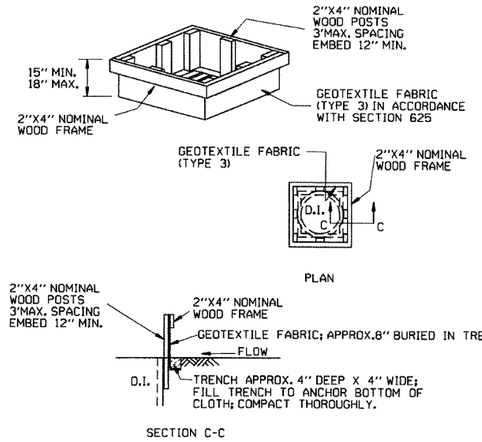
STANDARD DRAWING TC-5

GENERAL NOTES

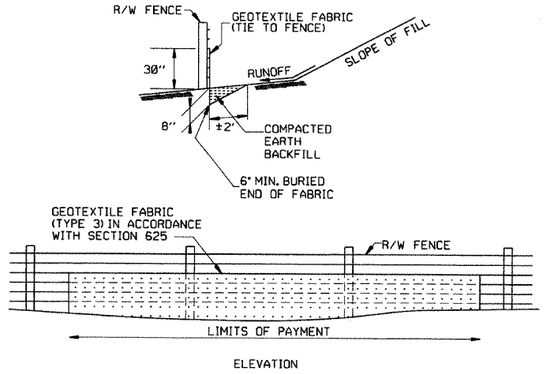
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

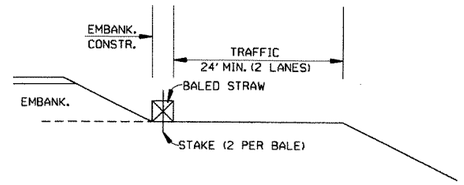
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

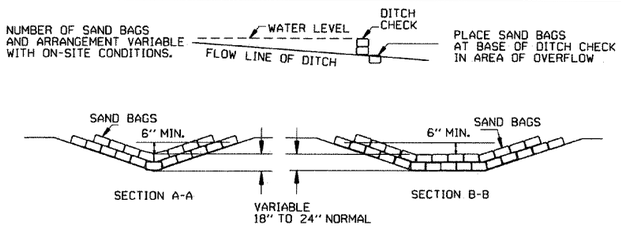
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

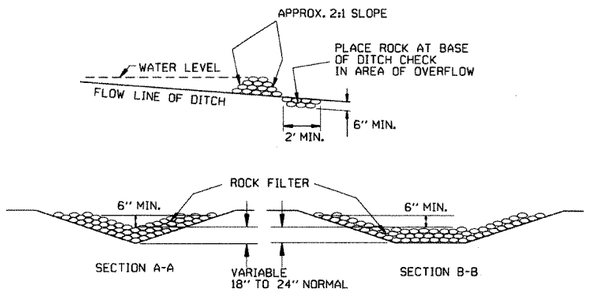
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



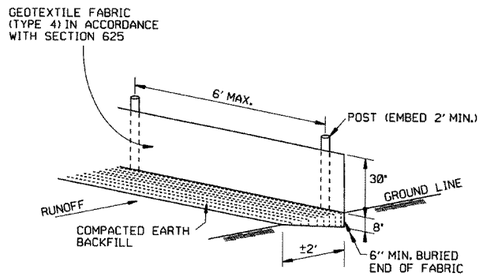
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

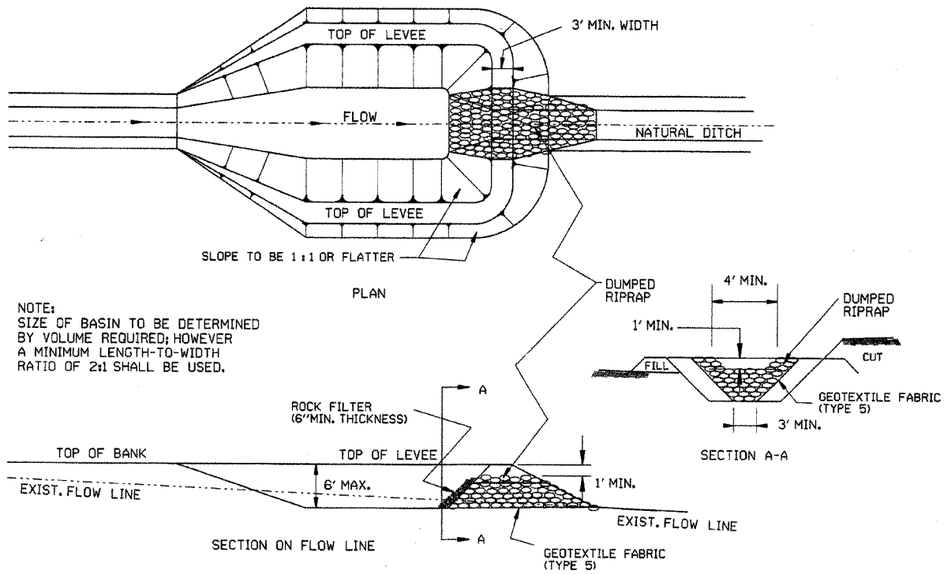
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

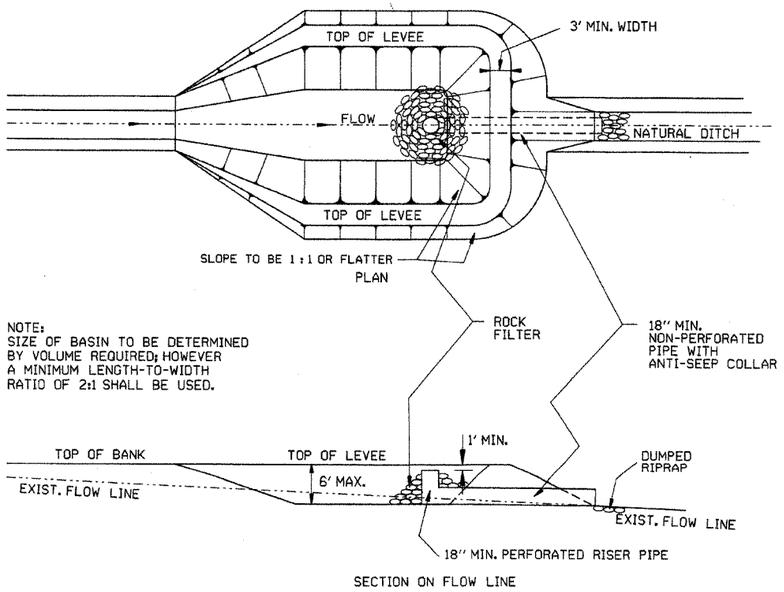
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

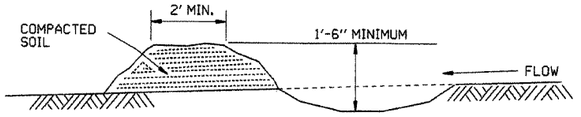
STANDARD DRAWING TEC-1



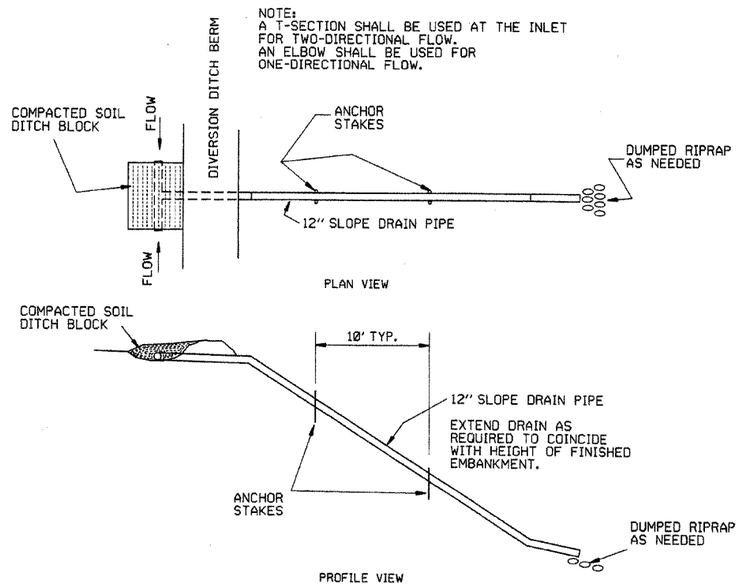
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



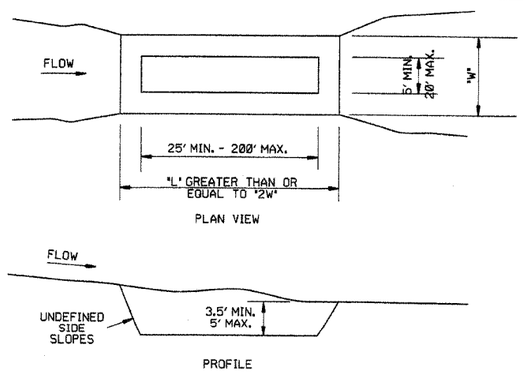
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

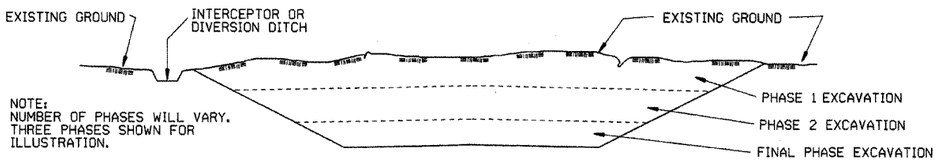
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



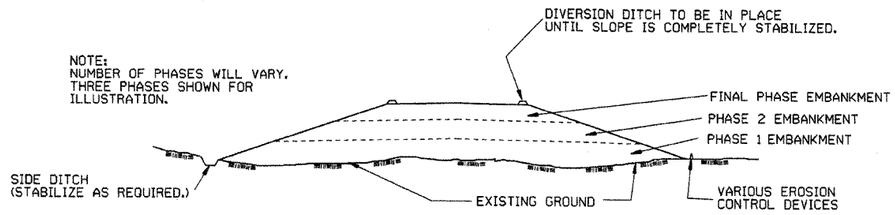
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

stdtec3.dgn

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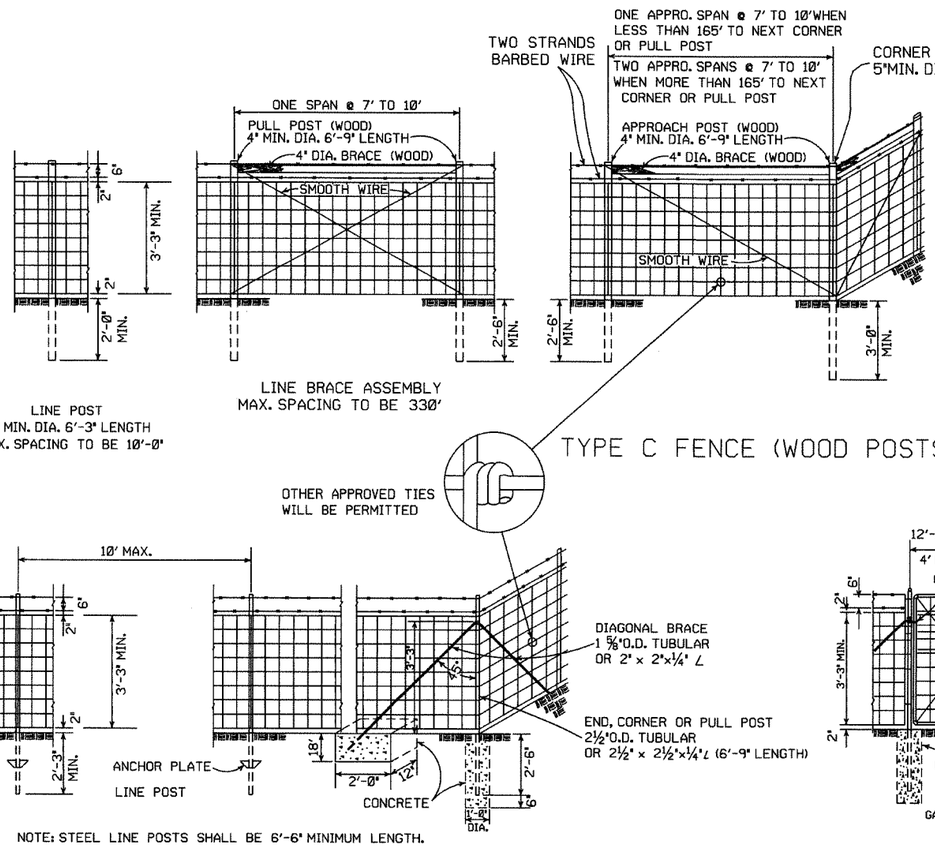


GENERAL NOTES:

STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED.
TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

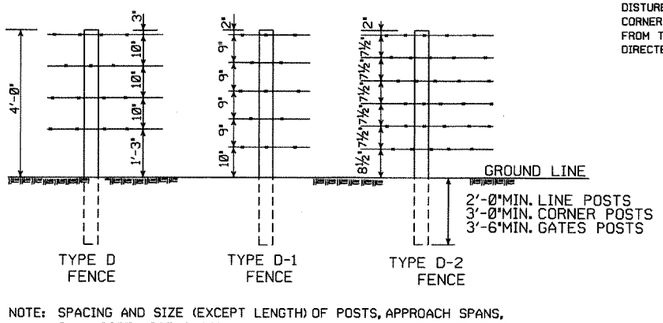
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

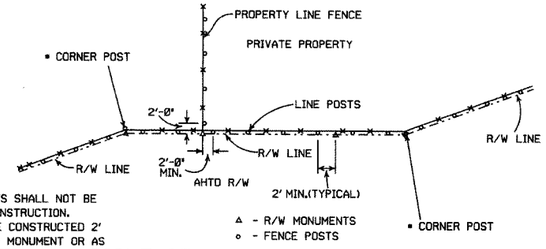
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.



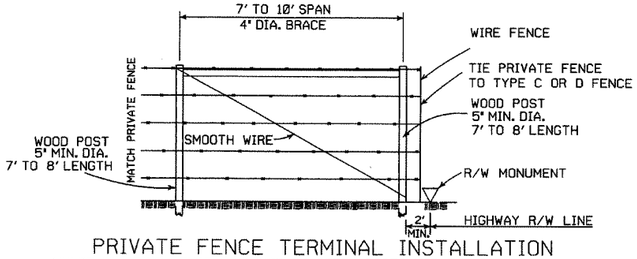
TYPE C FENCE (STEEL POSTS)

NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



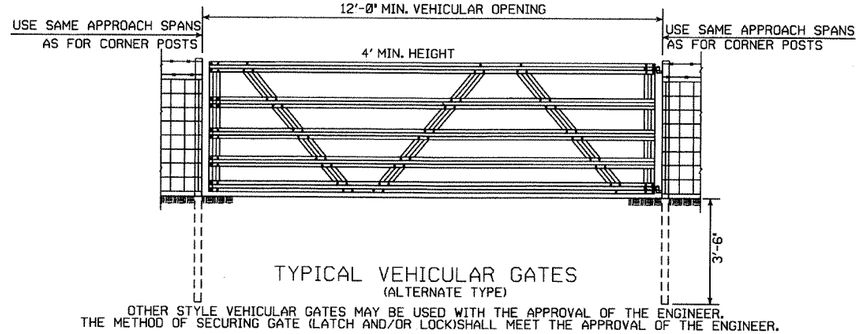
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

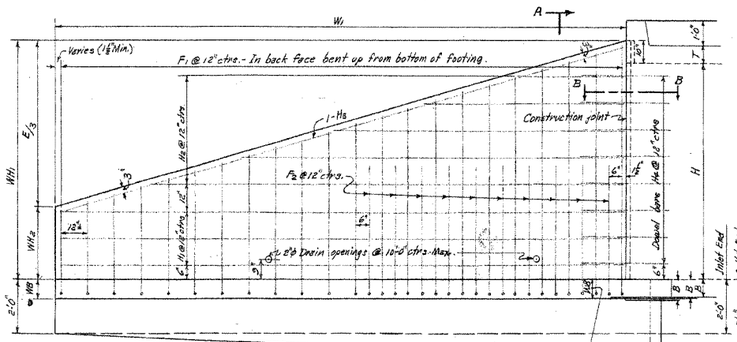
DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

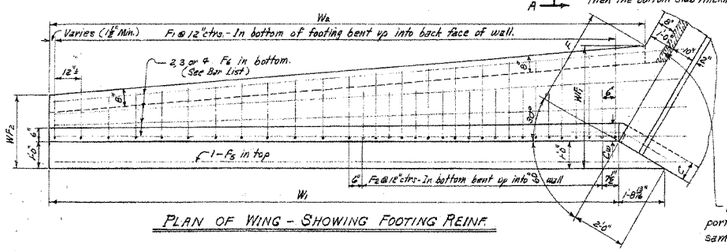
WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4

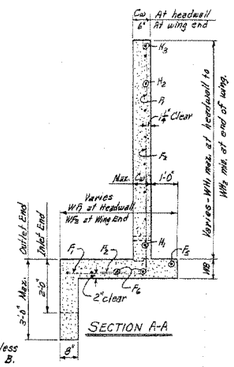
FED. ROAD PROJECT	STATE JOB NO.	FED. AID PROJECT	SHEET NO.	TOTAL SHEETS
G	[illegible]		201	
JOB NO.				



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

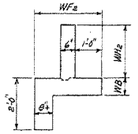


PLAN OF WING - SHOWING FOOTING REINF.

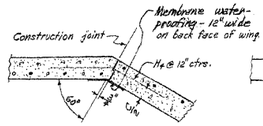


SECTION A-A

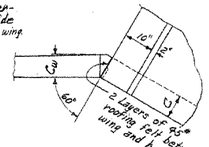
When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



END VIEW OF WING



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS: AT HEADWALL	WINGWALL HEIGHTS: AT END OF WING	WIDTHS OF WING FOOTINGS: AT HEADWALL	WIDTHS OF WING FOOTINGS: AT END OF WING	WIDTHS OF WING FOOTINGS: PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE: INLET END	* QUANTITY PER WING CLASS S CONCRETE: OUTLET END
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-9"	2'-0"	0'-11⅝"	6'-6"	7'-6"	7'-1⅝"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1⅛"	1'-4⅜"	8'-6"	9'-3⅝"	9'-7⅝"	1.338	1.466
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9"	10'-6"	12'-1⅝"	12'-1⅝"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅜"	12'-6"	14'-5⅝"	14'-7⅝"	2.478	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅜"	12'-6"	14'-5⅝"	14'-7⅝"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-4½"	14'-6"	16'-9"	17'-1⅝"	3.440	3.661
		7⅝"	6'-10"	2'-0"	3'-8"	2'-6"	2'-4⅝"	14'-6"	16'-9"	17'-1⅝"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-4⅝"	14'-6"	16'-9"	17'-1⅝"	3.582	3.803
7'	8½"	7⅝"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-3⅝"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-3⅝"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	18'-6"	21'-4⅝"	22'-1⅝"	5.761	6.097

* Quantity per wing does not include headwall or that portion of apron or footwall for the length W2.

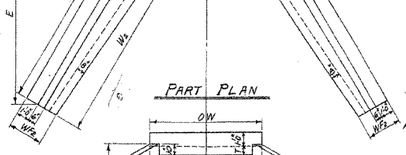
APRON DIMENSION W3 = (OW - 2F)

CLEAR SPAN	CLEAR HEIGHT	2 x FOOTING DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
S	H	2F	OW	W3	OW	W3	OW	W3	OW	W3	OW	W3
4'	2'	1'-11½"	5'-0"	3'-0½"	9'-8"	7'-8½"	14'-4"	12'-4½"	19'-0"	17'-0½"	23'-8"	21'-8½"
	3'	2'-0⅝"	5'-0"	2'-3¾"	9'-8"	6'-11⅛"	14'-4"	11'-7⅛"	19'-0"	16'-3¼"	23'-8"	20'-11⅜"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8⅝"	9'-8"	5'-10⅜"	14'-4"	10'-2⅜"	19'-0"	14'-10⅜"	23'-8"	19'-10⅜"
	6	5'-0½"	5'-2"	0'-1½"	9'-11"	4'-10½"	14'-8"	9'-7½"	19'-5"	14'-0½"	24'-2"	19'-1½"
5'	3'	2'-0⅝"	6'-0"	3'-3¾"	11'-8"	8'-11⅛"	17'-4"	14'-7⅛"	23'-0"	20'-3¼"	28'-8"	26'-1⅜"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅝"	11'-8"	7'-10⅜"	17'-4"	13'-2⅜"	23'-0"	18'-10⅜"	28'-8"	24'-10⅜"
	6'	5'-0½"	6'-2"	1'-1½"	11'-11"	6'-10½"	17'-8"	12'-7½"	23'-5"	18'-0½"	29'-2"	24'-1½"
	7'	6'-2⅝"	6'-3"	0'-0⅛"	12'-1"	5'-10⅛"	17'-11"	11'-8⅛"	23'-9"	17'-1⅛"	29'-7"	23'-2⅛"
6'	3'	2'-0⅝"	7'-0"	4'-3¾"	13'-8"	10'-11⅛"	20'-4"	17'-7⅛"	27'-0"	24'-3¼"	33'-8"	30'-1⅜"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅜"	7'-0"	2'-8⅝"	13'-8"	9'-10⅜"	20'-4"	16'-2⅜"	27'-0"	22'-10⅜"	33'-8"	29'-10⅜"
	6'	5'-0½"	7'-2"	2'-1½"	13'-11"	8'-10½"	20'-8"	15'-7½"	27'-5"	22'-0½"	34'-2"	29'-1½"
	7'	6'-2⅝"	7'-3"	1'-0⅛"	14'-1"	7'-10⅛"	20'-11"	14'-8⅛"	27'-9"	21'-1⅛"	34'-7"	28'-2⅛"
	8'	7'-4"	7'-6"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-8"	27'-8"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-6"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3⅜"	8'-0"	3'-8⅝"	15'-8"	11'-10⅜"	23'-4"	19'-0⅜"	31'-0"	26'-10⅜"	38'-8"	34'-10⅜"
	6'	5'-0½"	8'-2"	3'-1½"	15'-11"	10'-10½"	23'-8"	18'-3½"	31'-5"	26'-1½"	39'-2"	34'-1½"
	7'	6'-2⅝"	8'-3"	2'-0⅛"	16'-1"	9'-10⅛"	23'-11"	17'-4⅛"	31'-9"	25'-2⅛"	39'-7"	33'-2⅛"
	8'	7'-4"	8'-6"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-4"
8'	4'	3'-6"	9'-0"	5'-6"	17'-8"	14'-2"	26'-4"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3⅜"	9'-2"	4'-10⅜"	17'-11"	13'-7⅜"	26'-8"	22'-0⅜"	35'-5"	31'-1⅜"	44'-2"	39'-10⅜"
	6'	5'-0½"	9'-2"	4'-1½"	17'-11"	12'-10½"	26'-8"	21'-2½"	35'-5"	30'-1½"	44'-2"	39'-1½"
	7'	6'-2⅝"	9'-3"	3'-0⅛"	18'-1"	11'-10⅛"	26'-11"	20'-4⅛"	35'-9"	29'-2⅛"	44'-7"	38'-2⅛"
	8'	7'-4"	9'-6"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-6"	44'-8"	37'-8"
9'	5'	4'-3⅜"	10'-2"	5'-10⅜"	19'-11"	15'-7⅜"	29'-8"	25'-0⅜"	39'-5"	35'-1⅜"	49'-2"	44'-10⅜"
	6'	5'-0½"	10'-3"	5'-2½"	20'-1"	15'-0½"	29'-11"	24'-2½"	39'-9"	34'-0½"	49'-7"	44'-1½"
	7'	6'-2⅝"	10'-3"	4'-0⅛"	20'-1"	13'-10⅛"	29'-11"	23'-3⅛"	39'-10"	33'-1⅛"	49'-7"	43'-2⅛"
	8'	7'-4"	10'-6"	3'-0"	20'-2"	12'-10"	30'-0"	22'-8"	39'-10"	32'-5"	49'-8"	42'-4"
10'	5'	4'-3⅜"	11'-2"	6'-10⅜"	21'-11"	17'-7⅜"	32'-8"	28'-0⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0½"	11'-3"	6'-2½"	22'-1"	17'-0½"	32'-11"	27'-2½"	43'-9"	38'-0½"	54'-7"	49'-1½"
	7'	6'-2⅝"	11'-3"	5'-0⅛"	22'-1"	15'-10⅛"	32'-11"	26'-0⅛"	43'-9"	37'-1⅛"	54'-7"	48'-2⅛"
	8'	7'-4"	11'-6"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-6"	54'-8"	47'-4"
11'	6'	5'-0½"	12'-4"	7'-3½"	24'-2"	19'-1½"	36'-0"	30'-1½"	47'-10"	42'-1½"		
	7'	6'-2⅝"	12'-4"	6'-1⅛"	24'-2"	17'-11⅛"	36'-0"	28'-9⅛"	47'-10"	41'-1⅛"		
	8'	7'-4"	12'-6"	5'-0"	24'-2"	16'-10"	36'-0"	28'-8"	47'-10"	40'-6"		
12'	6'	5'-0½"	13'-0"	8'-3½"	26'-2"	21'-1½"	39'-0"	33'-1½"	51'-10"	44'-1½"		
	7'	6'-2⅝"	13'-0"	7'-1⅛"	26'-2"	19'-11⅛"	39'-0"	32'-3⅛"	51'-10"	43'-2⅛"		
	8'	7'-4"	13'-6"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	42'-6"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS: HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	108.0	4.50	5.96	6.92	7.38	8.34
	3'	6"	7"	164.9	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	259.6	8.33	9.28	10.24	11.20	12.16
	5'	6"	7"	357.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	164.9	6.97	7.43	8.79	9.36	11.12
	4'	6"	7"	259.6	9.58	9.70	10.87	10.03	12.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.98	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7⅝"	8⅝"	1139.6	18.94	20.15	21.37	22.59	23.80
6'	3'	6"	7"	164.9	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	259.6	8.75	10.14	11.99	12.87	14.25
	5'	6"	7"	357.8	11.15	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7⅝"	8⅝"	1139.6	19.15	20.58	22.00	23.43	24.86
	8'	8"	9"	1426.6	24.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	259.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.59	16.15	17.75
	6'	7"	8"	583.1	16.20	16.82	18.92	20.04	21.66
	7'	7⅝"	8⅝"	1139.6	19.38	21.02	22.69	24.28	25.92
	8'	8"	9"	1425.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	259.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.34
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75
	7'	7⅝"	8⅝"	1139.6	19.59	21.96	23.30	25.16	26.93
	8'	8"	9"	1925.6	24.54	26.91	28.24	30.11	31.96
9'	5'	7"	7"	357.8	12.26	13.84	16.87	18.45	20.47
	6'	7⅝"	8"	583.1	15.94	18.04	20.09	22.19	24.23
	7'	7⅝"	8⅝"	1139.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9"	1925.6	24.76	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.49	14.80	17.05	19.26	21.52
	6'	7⅝"	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7⅝"	8⅝"	1139.6	20.04	22.37	24.64	26.87	29.15
	8'	8"	9"	1925.6	24.98	27.31	29.58	31.81	34.10
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
	7'	8"	8⅝"	1139.6	20.64	23.22	25.71	28.18	
	8'	8"	9"	1925.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8⅝"	1139.6	20.87	23.69	26.40	29.19	
	8'	8"	9"	1925.6	25.42	28.25	30.96	33.69	

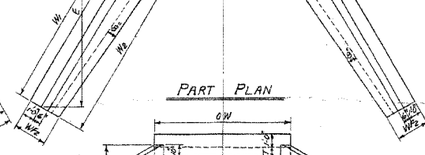
* For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.



PART PLAN

END ELEVATION

SINGLE BARREL CULVERT



PART PLAN

END ELEVATION

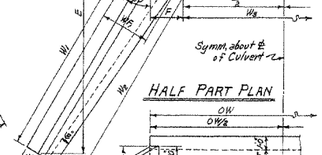
DOUBLE BARREL CULVERT

NOTE:- Plans and Elevations are not to scale.

PART PLAN

END ELEVATION

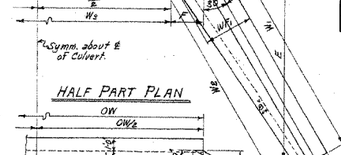
TRIPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUINTUPLE BARREL CULVERT

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT H	F1 Bent: In bottom of footing, bent up into back face of wing. One bar of each length. SIZE	F1 SPACING	F1 NO. REQD	F1 LENGTHS VARY MIN.	F1 LENGTHS VARY MAX.	F1 X MIN.	F1 X MAX.	F1 Y MIN.	F1 Y MAX.	F2 Bent: In bottom of footing, bent up into back face of wing. Alt. with F1 bars. SIZE	F2 SPACING	F2 NO. REQD	F2 LENGTH	F2 X	F2 Y	F3 Straight: Longitudinal in top of wing footing heel. SIZE	F3 NO. REQD	F3 LENGTH	F4 Straight: Longitudinal in bottom of wing footing toe. SIZE	F4 NO. REQD	F4 LENGTH	H1 Straight: Horizontal in back face of wing. SIZE	H1 SPACING	H1 NO. REQD	H1 LENGTH	H2 Straight: Horizontal in back face of wing. One bar of each length. SIZE	H2 SPACING	H2 NO. REQD	H2 LENGTHS VARY MAX.	H2 LENGTHS VARY MIN.	H3 In back face of wing at top-on slope. SIZE	H3 NO. REQD	H3 LENGTH	H4 Bent: Dowels thru construction joint at headwall. SIZE	H4 SPACING	H4 NO. REQD	H4 LENGTH	H4 X	QUANTITY REINFORCING STEEL PER WING LB.
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	#3	18"	1	——	4'-6"	#8	1	7'-4"	#3	12"	2	2'-8"	1'-4"	27.0
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	4'-0"	—	—	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	18"	2	7'-6"	4'-0"	#8	1	9'-9"	#3	12"	3	2'-8"	1'-4"	41.1
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	14'-9"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-0"	#3	1	12'-2"	#3	12"	9	2'-8"	1'-9"	63.7
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"	#3	12"	3	10'-11"	4'-0"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-9"	89.5
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-3"	#3	1	18'-5"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-6"	4'-0"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-4"	145.8
7'	#4	12"	20	3'-9"	10'-8"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-0"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-8"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4

BAR BENDING DIAGRAMS

REVISIONS:- Membrane added. 5-10-66 W.C.H.

Designed By:- W.C.H. 8-20-62
Drawn By:- W.C.H. 12-4-62.
Quantities By:- W.C.H. 12-14-62.
Checked By:- RHS. 1-9-63
Checked By:- RHS. 1-31-63
Recomputed By:- RHS. 3-29-63

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

KESHOT 3-4-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			202	
JOB No.					

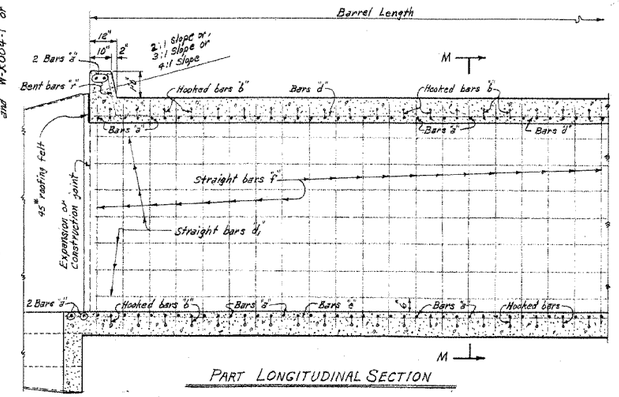
BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l. in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	"b" bars BENT - See Diagram below. In Top and Bottom Slabs of Barrel. Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"d'" bars STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	NO. REQ'D	LENGTH	"e" bars. Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"f" bars STRAIGHT Verticals in Sidewalls SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
0'-0" TO 5'-0" MAXIMUM	4' @ 4'	2'			120	120	4'-9"			110	110	5'-10"	4'-5"			6			4									120	120	2'-11"
		3'			120	120	4'-9"			110	110	5'-10"	4'-6"			6			6									120	120	3'-11"
		4'	#5	13"	120	120	4'-9"	#6	13"	110	110	5'-10"	4'-8"	#5	10½"	6	#4	12"	6							#4	12"	120	120	4'-11"
		5'			120	120	4'-9"			110	110	5'-10"	4'-8"			10			8									120	120	5'-11"
		6'			120	120	4'-11"			110	110	6'-0"	4'-10"			12			10									120	120	6'-11"
	5' @ 5'	3'			120	120	5'-9"			110	110	6'-10"	5'-8"			7			6									120	120	4'-6"
		4'			120	120	5'-9"			110	110	6'-10"	5'-8"			7			8									120	120	5'-5"
		5'	#6	13"	120	120	5'-9"	#6	13"	110	110	6'-10"	5'-8"	#5	10½"	7	#4	12"	10							#4	12"	120	120	6'-0"
		6'			120	120	5'-11"			110	110	7'-0"	5'-11"			12			12									120	120	7'-0"
		7'			120	120	6'-0"			110	110	7'-1"	5'-11"			14			14									120	120	8'-0"
	6' @ 6'	3'			128	128	6'-9"			118	118	7'-10"	6'-8"			8			6									120	120	4'-1"
		4'			128	128	6'-9"			118	118	7'-10"	6'-8"			8			8									120	120	5'-1"
		5'	#6	12"	128	128	6'-9"	#6	12"	118	118	7'-10"	6'-8"	#5	10½"	8	#4	12"	10							#4	12"	120	120	6'-1"
		6'			128	128	6'-11"			118	118	8'-0"	6'-10"			10			12									120	120	7'-1"
		7'			128	128	7'-0"			118	118	8'-1"	6'-11"			12			14									120	120	8'-1"
		8'			128	128	7'-1"			118	118	8'-2"	7'-0"			14			16							#5	12"	120	120	9'-1"
	7' @ 7'	4'			140	140	7'-9"			130	130	8'-10"	7'-8"			9			8									120	120	5'-2"
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"			9			10							#4	12"	120	120	6'-2"
		6'	#6	11"	140	140	7'-11"	#6	11"	130	130	9'-1"	7'-10"	#5	10½"	9	#4	12"	12					#4	12"			120	120	7'-2"
		7'			140	140	8'-0"			130	130	9'-1"	7'-11"			9			14									120	120	8'-2"
		8'			140	140	8'-1"			130	130	9'-2"	8'-0"			9			16							10"	144	144	9'-2"
		9'			140	140	8'-3"			130	130	9'-6"	8'-2"			9			18							#5	12"	120	120	10'-2"
	8' @ 8'	4'			128	128	8'-9"			118	118	9'-10"	8'-8"			9			8									120	120	5'-9"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			9			10							#4	12"	120	120	6'-9"
		6'			128	128	8'-11"			118	118	10'-0"	8'-10"			9			12									120	120	7'-9"
		7'	#7	12"	128	128	9'-0"	#6	12"	118	118	10'-1"	8'-11"	#5	10"	9	#4	12"	14					#4	12"			120	120	8'-9"
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"			9			16							10"	144	144	9'-10"
		9'			128	128	9'-3"			118	118	10'-4"	9'-2"			9			18							#5	12"	120	120	10'-4"
		10'			128	128	9'-5"			118	118	10'-6"	9'-4"			9			20							11"	132	132	11'-9"
	9' @ 9'	5'			140	140	9'-11"			130	130	11'-0"	9'-10"			10			10									120	120	6'-5"
		6'			140	140	10'-0"			130	130	11'-1"	9'-11"			10			12							#4	12"	120	120	7'-5"
		7'			140	140	10'-0"			130	130	11'-1"	9'-11"			10			14									120	120	8'-5"
		8'	#7	11"	140	140	10'-1"	#6	11"	130	130	11'-2"	10'-0"	#5	10"	10	#4	12"	16					#4	12"			144	144	9'-5"
		9'			140	140	10'-3"			130	130	11'-4"	10'-2"			10			18							12"	120	120	10'-5"
		10'			140	140	10'-5"			130	130	11'-6"	10'-4"			10			20							#5	11"	132	132	11'-5"
		11'			140	140	10'-7"			130	130	11'-8"	10'-6"			10			22							10"	144	144	12'-5"
	10' @ 10'	5'			128	128	10'-11"			118	118	12'-2"	10'-10"			13			10									120	120	6'-6"
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"			13			12							#4	12"	120	120	7'-6"
		7'			128	128	11'-0"			118	118	12'-3"	10'-11"			13			14									120	120	8'-6"
		8'	#7	12"	128	128	11'-1"	#7	12"	118	118	12'-4"	11'-0"	#5	10"	13	#4	12"	16					#4	12"			144	144	9'-6"
		9'			128	128	11'-3"			118	118	12'-6"	11'-2"			13			18							12"	120	120	10'-6"
		10'			128	128	11'-5"			118	118	12'-8"	11'-4"			13			20							#5	11"	132	132	11'-6"
		11'			128	128	11'-7"			118	118	12'-10"	11'-6"			13			22							10"	144	144	12'-6"
		12'			128	128	11'-9"			118	118	13'-0"	11'-8"			13			24							#6	12"	120	120	13'-6"
	11' @ 11'	6'			140	140	12'-1"			130	130	13'-4"	12'-0"			15			12									120	120	7'-7"
		7'			140	140	12'-1"			130	130	13'-5"	12'-0"			15			14							#4	12"	120	120	8'-7"
		8'			140	140	12'-2"			130	130	13'-6"	12'-0"			15			16									144	144	9'-7"
		9'	#7	11"	140	140	12'-3"	#7	11"	130	130	13'-6"	12'-2"	#5	9½"	15	#4	12"	18					#4	12"			120	120	10'-7"
		10'			140	140	12'-5"			130	130	13'-8"	12'-4"			15			20							#5	11"	132	132	11'-7"
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"			15			22							10"	144	144	12'-7"
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15			24							#6	12"	120	120	13'-7"
	12' @ 12'	6'			128	128	13'-1"			118	118	14'-4"	13'-0"			16			12									120	120	7'-9"
		7'			128	128	13'-1"			118	118	14'-4"	13'-0"			16			14							#4	12"	120	120	8'-9"
		8'			128	128	13'-1"			118	118	14'-4"	13'-0"			16			16									144	144	9'-9"
		9'	#8	12"	128	128	13'-3"	#7	12"	118	118	14'-6"	13'-2"	#5	9½"	16	#4	12"	18					#4	12"			120	120	10'-9"
		10'			128	128	13'-5"			118	118	14'-8"	13'-4"			16			20							#5	11"	132	132	11'-9"
		11'			128	128	13'-7"			118	118	14'-10"	13'-6"			16			22							10"	144	144	12'-9"
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"			16			24							#6	12"	120	120	13'-9"

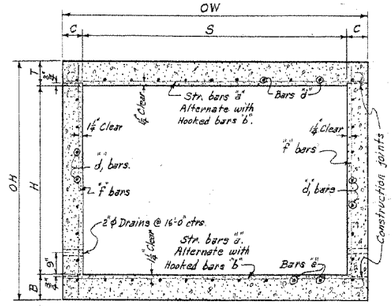
DIMENSIONS — QUANTITIES

MIN. DESIGN DEPTH OF COVER D	CLEAR SPAN S	BARREL DIMENSIONS CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	UNIT QUANTITIES CLASS S CONC. PER LIN. FT. OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. OF BARREL LB.	ADDITIONAL PER LAP LB.	ADDITIONAL TWO HEADWALLS & APRONS LB.
5'-0"	4' @ 4'	2'	8	5'-0"	6"	6½"	6"	3'-1½"	0.282	41.49	17.95	66.35
		3'	12	5'-0"	6"		6"	4'-1½"	0.319	44.16	19.62	66.35
		4'	16	5'-0"	6"		6"	5'-1½"	0.356	46.83	21.29	66.85
		5'	20	5'-0"	6"		6"	6'-1½"	0.394	49.50	22.96	66.35
		6'	24	5'-2"	7"		7"	7'-1½"	0.474	52.96	24.63	67.75
	5' @ 5'	3'	15	6'-0"	6"		6"	4'-2½"	0.380	55.55	22.19	101.27
		4'	20	6'-1"	6"		6"	5'-2½"	0.417	58.23	23.86	101.27
		5'	25	6'-0"	7½"	7"	6"	6'-2½"	0.454	60.90	25.53	101.27
		6'	30	6'-2"			7"	7'-2½"	0.535	64.99	27.20	103.27
		7'	35	6'-3"			7½"	8'-2½"	0.604	67.63	28.87	104.27
	6' @ 6'	3'	18	7'-0"			6"	4'-3½"	0.496	66.23	28.76	118.96
		4'	24	7'-0"			6"	5'-3½"	0.983	68.96	26.43	118.96
		5'	30	7'-0"			6"	6'-3½"	0.520	71.64	28.10	118.96
		6'	36	7'-2"	8"	7"	7"	7'-3½"	0.602	75.31	29.77	120.96
		7'	42	7'-3"			7½"	8'-3½"	0.671	78.98	31.44	121.87
		8'	48	7'-4"			8"	9'-3½"	0.746	88.97	33.11	122.87
	7' @ 7'	4'	28	8'-0"			6"	5'-5"	0.568	81.32	29.01	136.88
		5'	35	8'-0"			6"	6'-5"	0.605	84.00	30.68	136.88
		6'	42	8'-2"	8½"	8"	7"	7'-5"	0.688	87.76	32.35	138.88
		7'	49	8'-3"			7½"	8'-5"	0.757	90.38	34.02	139.88
		8'	56	8'-4"			8"	9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"			9"	10'-5"	0.996	105.59	37.36	142.89
	8' @ 8'	4'	32	9'-0"			6"	5'-7"	0.676	95.26	38.38	194.67
		5'	40	9'-2"			7"	6'-7"	0.754	99.12	39.99	196.80
		6'	48	9'-2"			7"	7'-7"	0.797	101.79	36.66	196.80
		7'	56	9'-3"	9½"	9"	7½"	8'-7"	0.867	105.05	38.33	198.16
		8'	64	9'-4"			8"	9'-7"	0.992	110.81	40.00	199.52
		9'	72	9'-6"			9"	10'-7"	1.057	119.92	41.67	202.25
		10'	80	9'-8"			10"	11'-7"	1.184	126.67	43.34	204.97
	9' @ 9'	5'	45	10'-2"	10"	10"	7"	6'-8"	0.844	114.72	37.56	219.61
		6'	54	10'-3"			7½"	7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"			7½"	8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"			8"	9'-8"	1.033	186.54	42.57	222.33
		9'	81	10'-6"			9"	10'-8"	1.148	135.80	44.24	223.04
		10'	90	10'-8"			10"	11'-8"	1.276	142.68	45.91	224.78
		11'	99	10'-10"			11"	12'-8"	1.416	150.40	47.58	230.61
	10' @ 10'	5'	50	11'-2"			7"	6'-9½"	0.957	130.66	40.13	242.64
		6'	60	11'-3"			7½"	7'-9½"	1.024	133.99	41.80	244.00
		7'	70	11'-3"			7½"	8'-9½"	1.071	136.66	43.47	244.00
		8'	80	11'-4"	10½"	9"	8"	9'-9½"	1.147	142.55	45.14	245.36
		9'	90	11'-6"			9"	10'-9½"	1.263	151.92	46.81	248.09
		10'	100	11'-8"			10"	11'-9½"	1.391	158.89	48.98	250.81
		11'	110	11'-10"			11"	12'-9½"	1.532	166.71	50.15	253.54
		12'	120	12'-0"			12"	13'-9½"	1.685	178.67	51.82	256.26
	11' @ 11'	6'	66	12'-3"	11"	11"	8"	7'-10½"	1.153	156.16	46.12	268.62
		7'	77	12'-4"			8"	8'-10½"	1.202	157.83	47.79	268.62
		8'	88	12'-4"			9"	9'-10½"	1.252	162.06	49.46	268.62
		9'	99	12'-6"			9"	10'-10½"	1.368	172.60	51.13	271.34
		10'	110	12'-8"			10"	11'-10½"	1.497	179.70	52.80	274.09
		11'	121	12'-10"			11"	12'-10½"	1.638	187.67	54.47	276.79
		12'	132	13'-0"			12"	13'-10½"	1.792	199.79	56.14	279.52
	12' @ 12'	6'	72	13'-3"			8"	8'-0"	1.284	172.20	48.69	357.62
		7'	84	13'-4"			8"	9'-0"	1.333	174.87	50.36	357.62
		8'	96	13'-4"			9"	10'-0"	1.383	180.15	52.03	357.62
		9'	108	13'-6"	11½"	9"	9"	11'-0"	1.500	183.85	53.70	361.18
		10'	120	13'-8"			10"	12'-0"	1.630	197.07	55.37	364.74
		11'	132	13'-10"			11"	13'-0"	1.772	205.16	57.04	368.30
		12'	144	14'-0"			12"	14'-0"	1.926	217.95	58.71	371.86

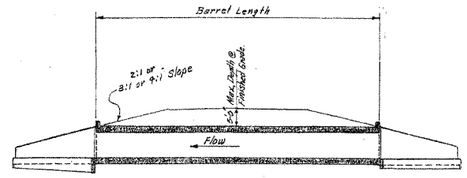
W-X002-1 or W-X003-1 or W-X004-1.
W-X002-2. W-X003-2. and W-X004-2.



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

Note:- For details of wings and bar data, see Drawing Nos. W-X003-1 and W-X004-1.

GENERAL NOTES:-
CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM Bars "b".
#6	3"	5"	1'-2"	K, Pin Diam., X
#7	3½"	5¾"	1'-4"	

NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	11"±	12	2'-6"	1'-3"
5'	#4	11"±	14	2'-7"	1'-3⅝"
6'	#4	11"±	16	2'-8"	1'-4"
7'	#4	11"±	18	2'-9"	1'-4⅝"
8'	#4	11⅛"±	20	2'-11"	1'-5⅝"
9'	#4	11⅛"±	22	3'-0"	1'-6"
10'	#4	11⅛"±	24	3'-1"	1'-6⅝"
11'	#4	12"±	26	3'-2"	1'-7"
12'	#4	12"±	28	3'-3"	1'-7⅝"

Bars "f" Dowel bars in Headwalls. (X, 12")

Note:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 29,000 Lb. Axles @ 9'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS
4,5,6,7,8,9,10,11 & 12' SPANS — 3:1 OR 4:1 SLOPES
SINGLES — UNDER 5'-0" COVER
STANDARD DRAWING NO. R-100X-0

Designed By:- W.C.H. 1-23-63. Checked By:- RBHS-5-8-63
Drawn By:- W.C.H. 2-8-63. Checked By:- RBHS-5-9-63
Quantities By:- W.C.H. 2-12-63. Checked By:- RBHS-5-24-63

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			203	
JOB No.					

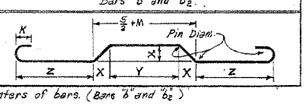
BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	"a" bars STRAIGHT: In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall - Each.				"b" bars BENT - See Diagram below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.							"b2" bars BENT - See Diagram below. In Top and Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars.							"c" bars STRAIGHT: In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars.				"j" bars STRAIGHT: Longitudinal in Top Slab of Barrel			"d" bars STRAIGHT: Longitudinal in Sidewalls and Division Walls			"e" bars STRAIGHT: Longitudinal in Bottom Slab of Barrel			"f" bars STRAIGHT: Vertical in Sidewalls and Division Walls.			
					NUMBER REQ'D				NUMBER REQ'D						NUMBER REQ'D						NUMBER REQ'D																		
D	S	H	SIZE	SPACING	3:1	4:1	LENGTH	SIZE	SPACING	3:1	4:1	LENGTH	X	Y	Z	SIZE	SPACING	3:1	4:1	LENGTH	X	Y	Z	SIZE	SPACING	3:1	4:1	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'-0"	2'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-9"			59	59	10'-6"	0'-2½"	2'-3½"	3'-6"			59	59	10'-6"	0'-2½"	2'-3½"	3'-6"			120	120	4'-8"			14			8			14			240	240	2'-10"
		3'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-9"			59	59	10'-6"	0'-2½"	2'-3½"	3'-6"			59	59	10'-6"	0'-2½"	2'-3½"	3'-6"			120	120	4'-8"			14			12			14			240	240	3'-10"
		4'	#5	12"	128	128	9'-5"	#5	12"	59	59	10'-6"	0'-3"	2'-2½"	3'-9"	#5	12"	59	59	10'-6"	0'-2½"	2'-3½"	3'-9"	#5	12"	59	59	10'-6"	0'-2½"	2'-3½"	3'-9"	#5	12"	120	120	4'-8"	#4	12"	14	#4	16"	16	#4	12"	14	#4	16"	16	240	240	4'-10"
		5'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-9"			59	59	10'-6"	0'-2½"	2'-3½"	3'-9"			59	59	10'-6"	0'-2½"	2'-3½"	3'-9"			120	120	4'-8"			14			16			14			240	240	5'-10"
		6'			128	128	9'-6"			59	59	10'-9"	0'-3"	2'-3"	3'-5"			59	59	10'-9"	0'-2½"	2'-3½"	3'-9"			59	59	10'-9"	0'-2½"	2'-3½"	3'-9"			120	120	4'-9"			14			20			14			240	240	6'-10"
		3'			128	128	11'-5"			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"			59	59	12'-6"	0'-3"	2'-8½"	4'-1"			59	59	12'-6"	0'-3"	2'-8½"	4'-1"			120	120	5'-8"			14			12			14			240	240	3'-11"
	2 @ 5'-0"	4'			128	128	11'-5"			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"			59	59	12'-6"	0'-3"	2'-8½"	4'-1"			59	59	12'-6"	0'-3"	2'-8½"	4'-1"			120	120	5'-8"			14			16			14			240	240	4'-11"
		5'	#6	12"	128	128	11'-5"	#5	12"	59	59	12'-7"	0'-3½"	2'-7½"	4'-1"	#5	12"	59	59	12'-6"	0'-3"	2'-8½"	4'-1"	#6	12"	59	59	12'-6"	0'-3"	2'-8½"	4'-1"	#5	12"	120	120	5'-8"	#5	11½"	14	#4	12"	20	#4	12"	14	#4	16"	16	240	240	5'-11"
		6'			128	128	11'-8"			59	59	12'-10"	0'-3½"	2'-8½"	4'-2"			59	59	12'-9"	0'-3"	2'-8½"	4'-2"			59	59	12'-9"	0'-3"	2'-8½"	4'-2"			120	120	5'-8"			14			24			14			240	240	6'-11"
		7'			128	128	11'-10"			59	59	13'-0"	0'-3½"	2'-9½"	4'-2½"			59	59	12'-11"	0'-3"	2'-10½"	4'-2½"			59	59	12'-11"	0'-3"	2'-10½"	4'-2½"			120	120	5'-10"			14			28			14			240	240	7'-11"
		3'			140	140	13'-5"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			132	132	6'-8"			18			12			18			240	240	9'-0"
		4'			140	140	13'-5"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			132	132	6'-8"			18			16			18			240	240	9'-0"
	2 @ 6'-0"	5'			140	140	13'-5"			65	65	14'-10"	0'-4"	3'-1½"	4'-11"			65	65	14'-10"	0'-4"	3'-1½"	4'-11"			65	65	14'-10"	0'-4"	3'-1½"	4'-11"			132	132	6'-8"			18			20			18			240	240	9'-0"
		6'	#6	11"	140	140	13'-8"	#5	11"	65	65	14'-10"	0'-4"	3'-1½"	4'-11"	#5	11½"	65	65	14'-10"	0'-4"	3'-1½"	4'-11"	#6	11"	65	65	14'-10"	0'-4"	3'-1½"	4'-11"	#5	11½"	132	132	6'-8"	#4	12"	18	#4	12"	24	#4	12"	18	#4	18"	18	240	240	7'-0"
		7'			140	140	13'-8"			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"			132	132	6'-9"			18			28			18			240	240	8'-0"
		8'			140	140	13'-11"			65	65	15'-1"	0'-4"	3'-2½"	5'-0"			65	65	15'-1"	0'-4"	3'-2½"	5'-0"			65	65	15'-1"	0'-4"	3'-2½"	5'-0"			132	132	6'-10"			18			32			18			240	240	8'-0"
		9'			128	128	15'-5"			59	59	16'-3"	0'-4½"	3'-5"	5'-3"			59	59	16'-3"	0'-4½"	3'-5"	5'-7"			59	59	16'-3"	0'-4½"	3'-5"	5'-7"			120	120	7'-8"			20			16			20			240	240	5'-1"
		5'			128	128	15'-6"			59	59	16'-3"	0'-4½"	3'-5"	5'-7"			59	59	16'-3"	0'-4½"	3'-5"	5'-7"			59	59	16'-3"	0'-4½"	3'-5"	5'-7"			120	120	7'-8"			20			20			20			240	240	6'-1"
		6'			128	128	15'-8"			59	59	17'-0"	0'-4½"	3'-6"	5'-8"			59	59	17'-0"	0'-4½"	3'-6"	5'-8"			59	59	17'-0"	0'-4½"	3'-6"	5'-8"			120	120	7'-9"			20			24			20			240	240	7'-1"
	2 @ 7'-0"	7'			128	128	15'-10"			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"			59	59	17'-2"	0'-4½"	3'-7"	5'-9"			59	59	17'-2"	0'-4½"	3'-7"	5'-9"			120	120	7'-10"			20			28			20			240	240	8'-1"
		8'			128	128	15'-11"			59	59	17'-3"	0'-4½"	3'-7"	5'-9"			59	59	17'-3"	0'-4½"	3'-7"	5'-10"			59	59	17'-3"	0'-4½"	3'-7"	5'-10"			120	120	7'-11"			20			32			20			240	240	9'-1"
		9'	#6	12"	128	128	16'-2"	#6	12"	59	59	17'-6"	0'-4½"	3'-8"	5'-10"	#6	12"	59	59	17'-6"	0'-4½"	3'-8"	5'-10"	#6	12"	59	59	17'-6"	0'-4½"	3'-8"	5'-10"	#5	11½"	120	120	7'-11"	#4	12"	20	#4	12"	36	#5	12"	20	#4	18"	20	240	240	10'-1"
		4'			140	140	17'-5"			65	65	18'-10"	0'-5"	3'-10½"	6'-4"			65	65	18'-10"	0'-5"	3'-10½"	6'-4"			65	65	18'-10"	0'-5"	3'-10½"	6'-4"			132	132	8'-8"			23			16			22			240	240	5'-3"
		5'			140	140	17'-8"			65	65	19'-1"	0'-5"	3'-11"	6'-5"			65	65	19'-1"	0'-5"	3'-11"	6'-5"			65	65	19'-1"	0'-5"	3'-11"	6'-5"			132	132	8'-9"			23			20			22			240	240	6'-5"
		6'			140	140	17'-8"			65	65	19'-2"	0'-5"	3'-11"	6'-5"			65	65	19'-1"	0'-5"	3'-11"	6'-5"			65	65	19'-1"	0'-5"	3'-11"	6'-5"			132	132	8'-9"			23			24			22			240	240	7'-5"
	2 @ 8'-0"	7'			140	140	17'-10"			65	65	19'-3"	0'-5"	4'-0"	6'-6⅝"			65	65	19'-3"	0'-5"	4'-0"	6'-6⅝"			65	65	19'-3"	0'-5"	4'-0"	6'-6⅝"			132	132	8'-10"			23			28			22			240	240	8'-5"
		8'			140	140	17'-11"			65	65	19'-3"	0'-5"	4'-0"	6'-6"			65	65	19'-3"	0'-5"	4'-0"	6'-6"			65	65	19'-3"	0'-5"	4'-0"	6'-6"			132	132	8'-11"			23			32			22			240	240	9'-5"
		9'	#6	11"	140	140	18'-2"	#6	11"	65	65	19'-7"	0'-5"	4'-1"	6'-7"	#6	11"	65	65	19'-7"	0'-5"	4'-1"	6'-7"	#6	11"	65	65	19'-7"	0'-5"	4'-1"	6'-7"	#5	11⅝"	132	132	8'-11"	#4	12"	23	#4	12"	36	#5	12"	23	#4	18"	22	240	240	10'-5"
		10'			140	140	18'-5"			65	65	19'-10"	0'-5"	4'-2"	6'-8"			65	65	19'-10"	0'-5"	4'-2"	6'-8"			65	65	19'-10"	0'-5"	4'-2"	6'-8"			132	132	9'-0"			23			40			22			240	240	11'-5"
		5'			190	190	19'-8"			65	65	21'-1"	0'-5½"	4'-4"	7'-2"			65	65	21'-1"	0'-5½"	4'-3⅝"	7'-2"			65	65	21'-1"	0'-5½"	4'-3⅝"	7'-2"			132	132	9'-9"			26			20			25			240	240	6'-8"
		6'			190	190	19'-10"			65	65	21'-3"	0'-5½"	4'-5"	7'-2½"			65	65	21'-3"	0'-5½"	4'-4½"	7'-2½"			65	65	21'-3"	0'-5½"	4'-4½"	7'-2½"			132	132	9'-10"			26			24			25			240	240	7'-3"
		7'			190	190	19'-10"			65	65	21'-3"	0'-5½"	4'-5"	7'-2½"			65	65	21'-3"	0'-5½"	4'-4½"	7'-2½"			65	65	21'-3"	0'-5½"	4'-4½"	7'-2½"			132	132	9'-10"			26			28			25			240	240	8'-3"
	2 @ 9'-0"	8'	#6	11"	190	190	19'-11"	#6	11"	65	65	21'-4"	0'-5½"	4'-5"	7'-3"	#6	11"	65	65	21'-4"	0'-5½"	4'-5"	7'-3"	#6	11"	65	65	21'-4"	0'-5½"	4'-5"	7'-3"	#5	11⅝"	132	132	9'-10"	#4	12"	26	#4	12"	32	#5	12"	26	#4	18"	25	240	240	9'-3"
		9'			190	190	20'-5"			65	65	21'-7"	0'-5½"	4'-6"	7'-4"			65	65	21'-7"	0'-5½"	4'-5½"	7'-4"			65	65	21'-7"	0'-5½"	4'-5½"	7'-4"			132	132	9'-11"			26			36			25			240	240	10'-3"
		10'			190	190	20'-5"			65	65	21'-10"	0'-5½"	4'-7"	7'-5"			65	65	21'-10"	0'-5½"	4'-6⅝"	7'-5"			65	65	21'-10"	0'-5½"	4'-6⅝"	7'-5"			132	132	10'-0"			26			40			25			240	240	11'-3"
		11'			190	190	20'-7"			65	65	22'-0"	0'-5½"	4'-7"	7'-6"			65	65	22'-0"	0'-5½"	4'-7"	7'-6"			65	65	22'-0"	0'-5½"	4'-7"	7'-6"			132	132	10'-0"			26			44			25			288	288	12'-3"
		5'			128	128	21'-8"			59	59	23'-2"	0'-6"	4'-9"	7'-11"			59	59	23'-2"	0'-6"	4'-8"	7'-11"			59	59	23'-2"	0'-6"	4'-8"	7'-11"			120	120	10'-9"			28			20			27			240	240	6'-7"
		6'			128	128	21'-10"			59	59	23'-4"	0'-6"	4'-9"	7'-11½"			59	59	23'-4"	0'-6"	4'-9"	7'-11½"			59	59	23'-4"	0'-6"	4'-9"	7'-11½"			120	120	10'-10"			28			24			27			240	240	7'-9"
		7'			128	128	21'-10"			59	59	23'-5"	0'-6"	4'-10"	8'-0"			59	59	23'-5"	0'-6"	4'-9"	8'-0"			59	59	23'-5"	0'-6"	4'-9"	8'-0"			120	120	10'-10"			28			28			27			240	240	8'-10"
	2 @ 10'-0"	8'	#7	12"	128	128	21'-11"	#6	12"	59	59	23'-8"	0'-6"	4'-10"	8'-1"	#6	12"	59	59	23'-8"	0'-6"	4'-10"	8'-1"	#7	12"	59	59	23'-8"	0'-6"	4'-10"	8'-1"	#5	11½"	120	120	10'-11"	#4	12"	28	#4	12"	32	#5	12"	28	#4	18"	27	240	240	10'-0"
		9'			128	128	22'-2"			59	59	23'-11"	0'-6"	4'-11"	8'-2"			59	59	23'-11"	0'-6"	4'-11"	8'-2"			59	59	23'-11"	0'-6"	4'-11"	8'-2"			120	120	11'-0"			28			36			27			240	240	10'-6"
		10'			128	128	22'-5"			59	59	24'-1"	0'-6"	5'-0"	8'-3"			59	59	24'-1"	0'-6"	4'-11"	8'-3"			59	59	24'-1"	0'-6"	4'-11"	8'-3"			120	120	11'-0"			28			40			27			240	240	11'-6"
		11'			128	128	22'-7"			59	59	24'-2"	0'-6"	5'-0"	8'-3"			59	59	24'-2"	0'-6"	5'-0"	8'-3"			59	59	24'-2"	0'-6"	5'-0"	8'-3"			120	120	11'-0"			28			44			27			288	288	12'-6"
		12'			128	128	22'-9"			59	59	24'-3"	0'-6"	5'-0"	8'-4"			59	59	24'-3"	0'-6"	5'-0"	8'-4"			59	59	24'-3"	0'-6"	5'-0"	8'-4"			120	120	11'-0"			28			48			27			288	288	12'-9"
		6'			128	128	23'-11"			59	59	25'-5"	0'-6½"	5'-3"	8'-9"			59	59	25'-4"	0'-7½"	5'-1"	8'-9"			59	59	25'-4"	0'-7½"	5'-1"	8'-9"			120	120	11'-10"			30			24			29			240	240	7'-4"
		7'			128	128	23'-11"			59	59	25'-5"	0'-6½"	5'-3"	8'-9"			59	59	25'-4"	0'-7½"	5'-1"	8'-9"			59	59	25'-4"	0'-7½"	5'-1"	8'-9"			120	120	11'-10"			30			28			29			240	240	8'-4"
	2 @ 11'-0"	8'			128	128	23'-11"			59	59	25'-6"	0'-6½"	5'-3"	8'-9"			59	59	25'-5"	0'-7½"	5'-2"	8'-10"			59	59	25'-5"	0'-7½"	5'-2"	8'-10"			120	120	11'-10"			30			32			29			240	240	9'-4"
		9'	#7	12"	128	128	24'-2"	#6	12"	59	59	25'-8"	0'-6½"	5'-4"	8'-10"	#6	12"	59	59	25'-11"	0'-7½"	5'-3"	8'-10"	#7	12"	59	59	25'-11"	0'-7½"	5'-3"	8'-10"	#5	11½"	120	120	11'-11"	#4	12"	30	#4	12"	36	#5	12"	30	#4	18"	29	240	240	10'-4"
		10'			128	128	24'-5"			59	59	25'-11"	0'-6½"	5'-5"	8'-11"			59	59	26'-0"	0'-7½"	5'-3"	8'-11"			59	59	26'-0"	0'-7½"	5'-3"	8'-11"			120	120	12'-0"			30			40			29			240	240	11'-4"
		11'			128	128	24'-7"			59	59	26'-1"	0'-6½"	5'-5"	9'-0"			59	59	26'-2"	0'-7½"	5'-3"	9'-0"			59	59	26'-2"	0'-7½"	5'-3"	9'-0"			120	120	12'-0"			30			44			29			288	288	12'-6"
		12'			128	128	24'-9"			59	59	26'-3"	0'-6½"	5'-5"	9'-1"			59	59	26'-4"	0'-7½"	5'-3"	9'-1"			59	59	26'-4"	0'-7½"	5'-3"	9'-1"			120	120	12'-0"			30			48			29			288	288	12'-9"
		6'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-6"			65	65	27'-7"	0'-8½"	5'-5"	9'-6"			65	65	27'-7"	0'-8½"	5'-5"	9'-6"			132	132	12'-10"			32			24			31			240	240	7'-7"
		7'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-6"			65	65	27'-7"	0'-8½"	5'-5"	9'-6"			65	65	27'-7"	0'-8½"	5'-5"	9'-6"			132	132	12'-10"			32			28			31			240	240	8'-7"
	2 @ 12'-0"	8'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-6"			65	65	27'-7"	0'-8½"	5'-5"	9'-6"			65	65	27'-7"	0'-8½"	5'-5"	9'-6"			132	132	12'-10"			32			32			31			240	240	9'-7"
		9'	#7	11"	140	140	26'-2"	#6	11"	65	65	27'-8"	0'-7"	5'-8"	9'-8"	#6	11"	65	65	27'-10"	0'-8½"	5'-6"	9'-8"	#7	11"	65	65	27'-10"	0'-8½"	5'-6"	9'-8"	#5	11⅝"	132	132	12'-11"	#4	12"	32	#4	12"	36	#5	12"	32	#4	18"	31	240	240	10'-7"
		10'			140	140	26'-5"			65	65	28'-1"	0'-7"	5'-10"	9'-9"			65	65	28'-3"	0'-8½"	5'-7"	9'-9"			65	65	28'-3"	0'-8½"	5'-7"	9'-9"			132	132	13'-0"			32			40			31			240	240	11'-7"
		11'			140	140	26'-7"			65	65	28'-3"	0'-7"	5'-10"	9'-9"			65	65	28'-5"	0'-8½"	5'-7"	9'-9"			65	65	28'-5"	0'-8½"	5'-7"	9'-9"			132	132	13'-0"			32			44			31			288	288	12'-7"
		12'			140	140	26'-9"			65	65	28'-3"	0'-7"	5'-10"	9'-10"			65	65	28'-5"	0'-8½"	5'-7"	9'-10"			65	65	28'-5"	0'-8½"	5'-7"	9'-10"			132	132	13'-0"			32			48			31			288	288	12'-7"

Designed by:- W.C.H. 1-17-63.
Drawn by:- W.C.H. 2-15-63.
Quantities by:- W.C.H. 2-19-63.
Checked by:- TMS:- 5-14-63
Checked by:- TMS:- 5-24-63
Checked by:- TMS:- 5-24-63

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#5	2⅝"	4½"	0'-11½"
#6	3"	5"	1'-2"

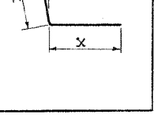
BENDING DIAGRAM FOR Bars "b" and "b2".



Note:- Dimensions are to centers of bars. (Bars "b" and "b2")

DOWEL BARS FOR TWO HEADWALLS

2 SPANS @	SIZE	SPACING	NO. REQ'D	LENGTH	X	Bars "r" Dowel bars in Headwalls.
4'-0"	#4	12"c	20	2'-5"	1'-2½"	
5'-0"	#4	12"c	24	2'-6"	1'-3"	
6'-0"	#4	12"c	28	2'-7"	1'-3½"	
7'-0"	#4	12"c	32	2'-8"	1'-4"	
8'-0"	#4	12"c	36	2'-9"	1'-4½"	
9'-0"	#4	12"c	40	2'-10"	1'-5"	
10'-0"	#4	12"c	46	2'-11"	1'-5½"	
11'-0"	#4	12"c	50	3'-0"	1'-6"	
12'-0"	#4	12"c	54	3'-1"	1'-6½"	



DIMENSIONS

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	BARREL DIMENSIONS: Sq. Ft. Opening	Overall Width OW	Thickness of Top Slab T	Thickness of Sidewalls C	Thickness of Division Wall M	Thickness of Bottom Slab B	Overall Height OH
D	S	H	A	OW	T	C	M	B	OH
5'-0"	2 @ 4'-0"	2'	16	9'-8"	6½"	6"	8"	6"	3'-0½"
		3'	24	9'-8"		6"	8"		4'-0½"
		4'	32	9'-8"		6"	8"		5'-0½"
		5'	40	9'-8"		6"	8"		6'-0½"
		6'	48	9'11"		7"	9"		7'-0½"
	2 @ 5'-0"	3'	30	11'-8"	7"	6"	8"	6½"	4'-1½"
		4'	40	11'-8"		6"	8"		5'-1½"
		5'	50	11'-8"		6"	8"		6'-1½"
		6'	60	11'-11"		7"	9"		7'-1½"
		7'	70	12'-1"		7½"	10"		8'-1½"
	2 @ 6'-0"	3'	36	13'-8"	7½"	6"	8"	7½"	4'-3"
		4'	48	13'-8"		6"	8"		5'-3"
		5'	60	13'-8"		6"	8"		6'-3"
		6'	72	13'-11"		7"	9"		7'-3"
		7'	84	14'-1"		7½"	10"		8'-3"
		8'	96	14'-2"		8"	10"		9'-3"
	2 @ 7'-0"	4'	56	15'8"	8"	6"	8"	8"	5'-4"
		5'	70	15'8"		6"	8"		6'-4"
		6'	84	15'11"		7"	9"		7'-4"
		7'	98	16'-1"		7½"	10"		8'-4"
		8'	112	16'8"		8"	10"		9'-4"
		9'	126	16'5"		9"	11"		10'-4"
	2 @ 8'-0"	4'	64	17'8"	8½"	6"	8"	8½"	5'-5"
		5'	80	17'11"		7"	9"		6'-5"
		6'	96	17'11"		7"	9"		7'-5"
		7'	112	18'1"		7½"	10"		8'-5"
		8'	128	18'2"		8"	10"		9'-5"
		9'	144	18'5"		9"	11"		10'-5"
		10'	160	18'8"		10"	12"		11'-5"
	2 @ 9'-0"	5'	90	19'11"	9"	7"	9"	9½"	6'-6"
		6'	108	20'1"		7½"	10"		7'-6"
		7'	126	20'1"		7½"	10"		8'-6"
		8'	144	20'2"		8"	10"		9'-6"
		9'	162	20'5"		9"	11"		10'-6"
		10'	180	20'8"		10"	12"		11'-6"
		11'	198	20'10"		11"	12"		12'-6"
	2 @ 10'-0"	5'	100	21'11"	9½"	7"	9"	10"	6'-7½"
		6'	120	22'1"		7½"	10"		7'-7½"
		7'	140	22'1"		7½"	10"		8'-7½"
		8'	160	22'2"		8"	10"		9'-7½"
		9'	180	22'5"		9"	11"		10'-7½"
		10'	200	22'8"		10"	12"		11'-7½"
		11'	220	22'10"		11"	12"		12'-7½"
		12'	240	23'0"		12"	12"		13'-7½"
	2 @ 11'-0"	6'	132	24'2"	10"	8"	10"	11"	7'-9"
		7'	154	24'2"		8"	10"		8'-9"
		8'	176	24'2"		8"	10"		9'-9"
		9'	198	24'5"		9"	11"		10'-9"
		10'	220	24'8"		10"	12"		11'-9"
		11'	242	24'10"		11"	12"		12'-9"
		12'	264	25'0"		12"	12"		13'-9"
	2 @ 12'-0"	6'	144	26'2"	11"	8"	10"	12"	7'-10½"
		7'	168	26'2"		8"	10"		8'-10½"
		8'	192	26'2"		8"	10"		9'-10½"

RESHOT 3-5-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			204	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTHS OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	'a' bars STRAIGHT: In Top and Bottom Slab of Barrel & Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
SECTION 'A' & BAR GROUP 'A'	3:1 = 32'-0"	D	S	H					
	4:1 = 32'-0"	0' TO 10'-0"	2 @ 8	5'	#5	13"	46	64	17'-8"
				6'			46	64	17'-8"
				7'			46	64	17'-10"
				8'			46	64	17'-11"
				9'			46	64	18'-0"
				10'			46	64	18'-5"
				6'			98	68	21'-10"
				7'			98	68	21'-10"
				8'			98	68	21'-11"
				9'	#5	12"	98	68	22'-2"
				10'			98	68	22'-5"
				11'			98	68	22'-7"
				12'			98	68	22'-9"
			2 @ 8	6'			52	74	25'-11"
				7'			52	74	25'-11"
				8'			52	74	25'-11"
				9'	#5	11"	52	74	26'-2"
				10'			52	74	26'-5"
				11'			52	74	26'-7"
				12'			52	74	26'-9"
SECTION 'B' & BAR GROUP 'B'	3:1 = 16'-0"	0' TO 15'-0"	2 @ 8	5'			22	32	17'-8"
	4:1 = 16'-0"	16'-0" TO 20'-0"		6'			22	32	17'-8"
				7'			22	32	17'-10"
				8'	#5	12"	22	32	18'-2"
				9'			22	32	18'-3"
				10'			22	32	18'-5"
				11'			22	32	18'-7"
				12'			22	32	18'-9"
			2 @ 8	6'			20	30	20'-10"
				7'			20	30	21'-0"
				8'			20	30	21'-1"
				9'	#6	13"	20	30	21'-3"
				10'			20	30	22'-5"
				11'			20	30	22'-7"
				12'			20	30	22'-9"
SECTION 'C' & BAR GROUP 'C'	3:1 = 16'-0"	0' TO 15'-0"	2 @ 8	5'			22	32	17'-8"
	4:1 = 16'-0"	15'-0" TO 20'-0"		6'			22	32	17'-9"
				7'			22	32	17'-10"
				8'	#5	12"	22	32	17'-11"
				9'			22	32	18'-0"
				10'			22	32	18'-2"
				11'			22	32	18'-5"
				12'			22	32	18'-7"
			2 @ 8	6'			24	34	25'-11"
				7'			24	34	25'-11"
				8'			24	34	26'-0"
				9'	#6	11"	24	34	26'-3"
				10'			24	34	26'-5"
				11'			24	34	26'-7"
				12'			24	34	26'-9"
SECTION 'D' & BAR GROUP 'D'	Varies with Length of Barrel		2 @ 8	5'					17'-6"
				6'					17'-9"
				7'					18'-0"
				8'	#5	11"			18'-1"
				9'					18'-6"
				10'					18'-7"
			2 @ 8	6'					21'-10"
				7'					22'-0"
				8'					22'-1"
				9'	#6	12"			22'-3"
				10'					22'-5"
				11'					22'-9"
				12'					22'-11"
			2 @ 12	6'					25'-11"
				7'					26'-0"
				8'					26'-4"
				9'	#6	10"			26'-6"
				10'					26'-8"
				11'					26'-9"
				12'					26'-11"

SECTION & BAR GROUP	'b' bars BENT - See Diagram below. In Bottom of Top Slab bent up over Division Wall - hooked Alternate with 'a' and 'c' bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
SECTION 'A' & BAR GROUP 'A'	#6	13"	20	29	19'-1"	0'-5⅜"	3'-8"	6'-6"
			20	29	19'-1"	0'-5⅜"	3'-9"	6'-6"
			20	29	19'-3"	0'-5⅜"	3'-9"	6'-6½"
			20	29	19'-5"	0'-5⅜"	3'-10"	6'-7"
			20	29	19'-7"	0'-5⅜"	3'-10"	6'-8"
			20	29	19'-10"	0'-5⅜"	3'-11"	6'-9"
	#6	12"	22	32	23'-10"	0'-7¾"	4'-2¾"	7'-11⅝"
			22	32	23'-11"	0'-7¾"	4'-3⅛"	7'-11⅝"
			22	32	23'-11"	0'-7¾"	4'-3⅛"	8'-0"
	#8	12"	22	32	23'-8"	0'-7¾"	4'-3⅛"	8'-1"
			22	32	23'-11"	0'-7¾"	4'-3⅛"	8'-2"
			22	32	24'-1"	0'-7¾"	4'-3⅛"	8'-2"
			22	32	24'-4"	0'-7¾"	4'-3⅛"	8'-3"
			22	32	24'-6"	0'-7¾"	4'-3⅛"	8'-4"
	#6	12"	24	35	27'-8"	0'-8⅜"	4'-8⅝"	9'-1"
			24	35	27'-9"	0'-8⅜"	4'-8⅝"	9'-1"
			24	35	27'-11"	0'-8⅜"	4'-8⅝"	9'-2"
	#8	12"	24	35	27'-11"	0'-8⅜"	4'-8⅝"	9'-2"
			24	35	28'-1"	0'-8⅜"	4'-8⅝"	9'-3"
			24	35	28'-3"	0'-8⅜"	4'-8⅝"	9'-3"
			24	35	28'-5"	0'-8⅜"	4'-8⅝"	9'-4"
	#7	11"	24	35	28'-6"	0'-8⅜"	4'-8⅝"	9'-5"
			24	35	28'-8"	0'-8⅜"	4'-8⅝"	9'-5"
			24	35	28'-10"	0'-8⅜"	4'-8⅝"	9'-6"
	#8	11"	24	35	29'-0"	0'-8⅜"	4'-8⅝"	9'-6"
			24	35	29'-2"	0'-8⅜"	4'-8⅝"	9'-7"
			24	35	29'-4"	0'-8⅜"	4'-8⅝"	9'-8"
			24	35	29'-6"	0'-8⅜"	4'-8⅝"	9'-8"
SECTION 'B' & BAR GROUP 'B'	#6	12"	11	16	19'-3"	0'-7⅛"	3'-5"	6'-6"
			11	16	19'-3"	0'-7⅛"	3'-5"	6'-6"
			11	16	19'-5"	0'-7⅛"	3'-6"	6'-6½"
	#7	12"	11	16	19'-6"	0'-7⅛"	3'-6"	6'-7"
			11	16	19'-7"	0'-7⅛"	3'-7"	6'-7"
			11	16	19'-9"	0'-7⅛"	3'-7"	6'-8"
	#8	12"	11	16	19'-10"	0'-7⅛"	3'-7"	6'-8"
			11	16	20'-0"	0'-7⅛"	3'-8"	6'-9"
			11	16	20'-2"	0'-7⅛"	3'-8"	6'-9"
	#6	12"	11	16	23'-1"	0'-8⅜"	4'-2⅝"	7'-11⅝"
			11	16	23'-2"	0'-8⅜"	4'-2⅝"	7'-11⅝"
			11	16	23'-3"	0'-8⅜"	4'-2⅝"	8'-0"
	#8	12"	11	16	23'-1"	0'-8⅜"	4'-2⅝"	8'-1"
			11	16	23'-4"	0'-8⅜"	4'-2⅝"	8'-1"
			11	16	23'-6"	0'-8⅜"	4'-2⅝"	8'-2"
			11	16	23'-8"	0'-8⅜"	4'-2⅝"	8'-2"
	#6	12"	15	21	27'-8"	0'-9⅝"	4'-11⅝"	9'-1"
			15	21	27'-9"	0'-9⅝"	4'-11⅝"	9'-1"
			15	21	27'-11"	0'-9⅝"	4'-11⅝"	9'-2"
	#8	12"	15	21	27'-11"	0'-9⅝"	4'-11⅝"	9'-2"
			15	21	28'-1"	0'-9⅝"	4'-11⅝"	9'-3"
			15	21	28'-3"	0'-9⅝"	4'-11⅝"	9'-3"
			15	21	28'-5"	0'-9⅝"	4'-11⅝"	9'-4"
	#7	11"	15	21	28'-6"	0'-9⅝"	4'-11⅝"	9'-5"
			15	21	28'-8"	0'-9⅝"	4'-11⅝"	9'-5"
			15	21	28'-10"	0'-9⅝"	4'-11⅝"	9'-6"
	#8	11"	15	21	29'-0"	0'-9⅝"	4'-11⅝"	9'-6"
			15	21	29'-2"	0'-9⅝"	4'-11⅝"	9'-7"
			15	21	29'-4"	0'-9⅝"	4'-11⅝"	9'-8"
			15	21	29'-6"	0'-9⅝"	4'-11⅝"	9'-8"
SECTION 'C' & BAR GROUP 'C'	#6	12"	11	16	19'-3"	0'-7⅛"	3'-5"	6'-6"
			11	16	19'-3"	0'-7⅛"	3'-5"	6'-6"
			11	16	19'-5"	0'-7⅛"	3'-6"	6'-6½"
	#8	12"	11	16	19'-6"	0'-7⅛"	3'-6"	6'-7"
			11	16	19'-7"	0'-7⅛"	3'-7"	6'-7"
			11	16	19'-9"	0'-7⅛"	3'-7"	6'-8"
			11	16	19'-10"	0'-7⅛"	3'-7"	6'-8"
			11	16	20'-0"	0'-7⅛"	3'-8"	6'-9"
			11	16	20'-2"	0'-7⅛"	3'-8"	6'-9"
	#6	12"	15	21	23'-1"	0'-8⅜"	4'-2⅝"	7'-11⅝"
			15	21	23'-2"	0'-8⅜"	4'-2⅝"	7'-11⅝"
			15	21	23'-3"	0'-8⅜"	4'-2⅝"	8'-0"
	#8	12"	15	21	23'-1"	0'-8⅜"	4'-2⅝"	8'-1"
			15	21	23'-4"	0'-8⅜"	4'-2⅝"	8'-1"
			15	21	23'-6"	0'-8⅜"	4'-2⅝"	8'-2"
			15	21	23'-8"	0'-8⅜"	4'-2⅝"	8'-2"
	#6	12"	19	27	27'-8"	0'-9⅝"	4'-11⅝"	9'-1"
			19	27	27'-9"	0'-9⅝"	4'-11⅝"	9'-1"
			19	27	27'-11"	0'-9⅝"	4'-11⅝"	9'-2"
	#8	12"	19	27	27'-11"	0'-9⅝"	4'-11⅝"	9'-2"
			19	27	28'-1"	0'-9⅝"	4'-11⅝"	9'-3"
			19	27	28'-3"	0'-9⅝"	4'-11⅝"	9'-3"
			19	27	28'-5"	0'-9⅝"	4'-11⅝"	9'-4"
	#7	11"	19	27	28'-6"	0'-9⅝"	4'-11⅝"	9'-5"
			19	27	28'-8"	0'-9⅝"	4'-11⅝"	9'-5"
			19	27	28'-10"	0'-9⅝"	4'-11⅝"	9'-6"
	#8	11"	19	27	29'-0"	0'-9⅝"	4'-11⅝"	9'-6"
			19	27	29'-2"	0'-9⅝"	4'-11⅝"	9'-7"
			19	27	29'-4"	0'-9⅝"	4'-11⅝"	9'-8"
			19	27	29'-6"	0'-9⅝"	4'-11⅝"	9'-8"
SECTION 'D' & BAR GROUP 'D'	Varies with Length of Barrel							

SECTION & BAR GROUP	'b2' bars BENT - See Diagram below In Top of Bottom Slab bent down under Division Wall - hooked Alternate with 'a' and 'c' bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
SECTION 'A' & BAR GROUP 'A'	#6	13"	20	29	19'-2"	0'-6⅝"	3'-7"	6'-6"
			20	29	19'-2"	0'-6⅝"	3'-7"	6'-6"
			20	29	19'-4"	0'-6⅝"	3'-8"	6'-6½"
			20	29	19'-5"	0'-6⅝"	3'-8"	6'-7"
			20	29	19'-8"	0'-6⅝"	3'-9"	6'-8"
			20	29	19'-10"	0'-6⅝"	3'-9"	6'-9"
	#6	12"	22	32	23'-5"	0'-8"	4'-6"	7'-11⅝"
			22	32	23'-5"	0'-8"	4'-6"	7'-11⅝"
			22	32	23'-6"	0'-8"	4'-6"	8'-0"
	#8	12"	22	32	23'-3"	0'-8"	4'-6"	8'-1"
			22	32	23'-6"	0'-8"	4'-6"	8'-2"
			22	32	23'-8"	0'-8"	4'-6"	8'-2"
			22	32	23'-10"	0'-8"	4'-6"	8'-3"
			22	32	24'-0"	0'-8"	4'-6"	8'-4"
	#6	12"	24	35	27'-3"	0'-9¼"	5'-2⅛"	9'-1"
			24	35	27'-4"	0'-9¼"	5'-2⅛"	9'-1"
			24	35	27'-6"	0'-9¼"	5'-2⅛"	9'-2"
	#8	12"	24	35	27'-6"	0'-9¼"	5'-2⅛"	9'-2"
			24	35	27'-8"	0'-9¼"	5'-2⅛"	9'-3"
			24	35	27'-10"	0'-9¼"	5'-2⅛"	9'-3"
			24	35	28'-0"	0'-9¼"	5'-2⅛"	9'-4"
	#7	11"	24	35	28'-1"	0'-9¼"	5'-2⅛"	9'-5"
			24	35	28'-3"	0'-9¼"	5'-2⅛"	9'-5"
			24	35	28'-5"	0'-9¼"	5'-2⅛"	9'-6"
	#8	11"	24	35	28'-7"	0'-9¼"	5'-2⅛"	9'-6"
			24	35	28'-9"	0'-9¼"	5'-2⅛"	9'-7"
			24	35	28'-11"	0'-9¼"	5'-2⅛"	9'-8"
			24	35	29'-1"	0'-9¼"	5'-2⅛"	9'-8"
SECTION 'B' & BAR GROUP 'B'	#6	12"	11	16	19'-3"	0'-7⅛"	3'-5"	6'-6"
			11	16	19'-3"	0'-7⅛"	3'-5"	6'-6"
			11	16	19'-5"	0'-7⅛"	3'-6"	6'-6½"
	#7	12"	11	16	19'-6"	0'-7⅛"	3'-6"	6'-7"
			11	16	19'-7"	0'-7⅛"	3'-7"	6'-7"
			11	16	19'-9"	0'-7⅛"	3'-7"	6'-8"
	#8	12"	11	16	19'-10"	0'-7⅛"	3'-7"	6'-8"
			11	16	20'-0"	0'-7⅛"	3'-8"	6'-9"
			11	16	20'-2"	0'-7⅛"	3'-8"	6'-9"
	#6	12"	15	21	24'-1"	0'-8⅜"	4'-3⅛"	8'-0"
			15	21	24'-2"	0'-8⅜"	4'-3⅛"	8'-0"
			15	21	24'-3"	0'-8⅜"	4'-3⅛"	8'-1"
	#8	12"	15	21	24'-1"	0'-8⅜"	4'-3⅛"	8'-1"
			15	21	24'-4"	0'-8⅜"	4'-3⅛"	8'-2"
			15	21	24'-6"	0'-8⅜"	4'-3⅛"	8'-2"
			15	21	24'-8"	0'-8⅜"	4'-3⅛"	8'-3"
	#6	12"	19	27	24'-10"	0'-9⅝"	4'-4⅞"	8'-4"
			19	27	25'-0"	0'-9⅝"	4'-4⅞"	8'-4"
			19	27	25'-2"	0'-9⅝"	4'-4⅞"	8'-5"
	#8	12"	19	27	25'-3"	0'-9⅝"	4'-4⅞"	8'-5"
			19	27	25'-5"	0'-9⅝"	4'-4⅞"	8'-6"
			19	27	25'-7"	0'-9⅝"	4'-4⅞"	8'-6"
			19	27	25'-9"	0'-9⅝"	4'-4⅞"	8'-7"
	#7	11"	19	27	25'-10"	0'-9⅝"	4'-4⅞"	8'-7"
			19	27	26'-0"	0'-9⅝"	4'-4⅞"	8'-8"
			19	27	26'-2"	0'-9⅝"	4'-4⅞"	8'-8"
	#8	11"	19	27	26'-4"	0'-9⅝"	4'-4⅞"	8'-9"
			19	27	26'-6"	0'-9⅝"	4'-4⅞"	8'-9"
			19	27	26'-8"	0'-9⅝"	4'-4⅞"	8'-10"
			19	27	26'-10"	0'-9⅝"	4'-4⅞"	8'-10"
SECTION 'C' & BAR GROUP 'C'	#6	12"	11	16	19'-3"	0'-7⅛"	3'-5"	6'-6"
			11	16	19'-3"	0'-7⅛"	3'-5"	6'-6"
			11	16	19'-5"	0'-7⅛"	3'-6"	6'-6½"
	#8	12"	11	16	19'-6"	0'-7⅛"	3'-6"	6'-7"
			11	16	19'-7"	0'-7⅛"	3'-7"	6'-7"
			11	16	19'-9"	0'-7⅛"	3'-7"	6'-8"
			11	16	19'-10"	0'-7⅛"	3'-7"	6'-8"
			11	16	20'-0"	0'-7⅛"	3'-8"	6'-9"
			11	16	20'-2"	0'-7⅛"	3'-8"	6'-9"
	#6	12"	15	21	24'-1"	0'-8⅜"	4'-3⅛"	8'-0"
			15	21	24'-2"	0'-8⅜"	4'-3⅛"	8'-0"
			15	21	24'-3"	0'-8⅜"	4'-3⅛"	8'-1"
	#8	12"	15	21	24'-1"	0'-8⅜"	4'-3⅛"	8'-1"
			15	21	24'-4"	0'-8⅜"	4'-3⅛"	8'-2"
			15	21	24'-6"	0'-8⅜"	4'-3⅛"	8'-2"
			15	21	24'-8"	0'-8⅜"	4'-3⅛"	8'-3"
	#6	12"	19	27	24'-10"	0'-9⅝"	4'-4⅞"	8'-4"
			19	27	25'-0"	0'-9⅝"	4'-4⅞"	8'-4"
			19	27	25'-2"	0'-9⅝"	4'-4⅞"	8'-5"
	#8	12"	19	27	25'-3"	0'-9⅝"	4'-4⅞"	8'-5"
			19	27	25'-5"	0'-9⅝"	4'-4⅞"	8'-6"
			19	27	25'-7"	0'-9⅝"	4'-4⅞"	8'-6"
			19	27	25'-9"	0'-9⅝"	4'-4⅞"	8'-7"
	#7	11"	19	27	25'-10"	0'-9⅝"	4'-4⅞"	8'-7"
			19	27	26'-0"	0'-9⅝"	4'-4⅞"	8'-8"
			19	27	26'-2"	0'-9⅝"	4'-4⅞"	8'-8"
	#8	11"	19	27	26'-4"	0'-9⅝"	4'-4⅞"	8'-9"
			19	27	26'-6"	0'-9⅝"	4'-4⅞"	8'-9"
			19	27	26'-8"	0'-9⅝"	4'-4⅞"	8'-10"
			19	27	26'-10"	0'-9⅝"	4'-4⅞"	8'-10"
SECTION 'D' & BAR GROUP 'D'	Varies with Length of Barrel							

SECTION & BAR GROUP	'c' bars STRAIGHT: In Top and Bottom Slab of Barrel SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
SECTION 'A' & BAR GROUP 'A'	#7	15"	42	60	8'-9"
			42	60	8'-9"
			42	60	8'-10"
			42	60	8'-10"
			42	60	8'-11"
			42	60	9'-0"
	#8	15"	44	64	10'-10"
			44	64	10'-10"
			44	64	10'-11"
			44	64	11'-0"
			44	64	11'-0"
			44	64	11'-1"
	#8	11"	44	64	11'-2"
			44	64	11'-3"
			44	64	11'-4"
			44	64	11'-5"
			44	64	11'-6"
			44	64	11'-7"
	#8	10"	44	64	11'-8"
			44	64	11'-9"
			44	64	11'-10"
			44	64	11'-11"
			44	64	12'-0"
			44	64	12'-1"
SECTION 'B' & BAR GROUP 'B'	#7	15"	20	30	12'-10"
			20	30	12'-10"
			20	30	12'-11"
			20	30	12'-11"
			20	30	13'-0"
			20	30	13'-0"
	#8	15"	20	30	13'-1"
			20	30	13'-2"
			20	30	13'-2"
			20	30	13'-3"
			20	30	13'-4"
			20	30	13'-4"
	#8	12"	20	30	13'-5"
			20	30	13'-6"
			20	30	13'-7"
			20	30	13'-7"
			20	30	13'-8"
			20	30	13'-9"
	#8	11"	20	30	13'-10"
			20	30	13'-10"
			20	30	13'-11"
			20	30	14'-0"
			20	30	14'-1"
			20	30	14'-2"
SECTION 'C' & BAR GROUP 'C'	#7	15"	20	30	16'-10"
			20	30	16'-10"
			20	30	16'-10"
			20	30	16'-11"
			20	30	17'-0"
			20	30	17'-0"
	#8	15"	20	30	17'-1"
			20	30	17'-2"
			20	30	17'-2"
			20	30	17'-3"
			20	30	17'-4"
			20	30	17'-4"
	#8	12"	20	30	17'-5"
			20	30	17'-6"
			20	30	17'-7"
			20	30	17'-7"
			20	30	17'-8"
			20	30	17'-9"
	#8	11"	20	30	17'-10"
			20	30	17'-10"
			20	30	17'-11"
			20	30	18'-0"
			20	30	18'-1"
			20	30	18'-2"
SECTION 'D' & BAR GROUP 'D'	Varies with Length of Barrel				

SECTION & BAR GROUP	'd' bars STRAIGHT: Longitudinal in Top Slab of Barrel SIZE	SPACING	NUMBER REQ'D	LENGTH
SECTION 'A' & BAR GROUP 'A'	#4	12"	23	
			24	
			28	
			32	
			36	
			90	
SECTION 'B' & BAR GROUP 'B'	#4	12"	23	
			24	
			28	
			32	
			36	
			90	
SECTION 'C' & BAR GROUP 'C'	#4	12"	24	
			28	
			32	
			36	
			44	
			98	
SECTION 'D' & BAR GROUP 'D'	Varies with Length of Barrel			

SECTION & BAR GROUP	'd1' bars STRAIGHT: Longitudinal in Sidewalls and Division Walls SIZE	SPACING	NUMBER REQ'D	LENGTH
SECTION 'A' & BAR GROUP 'A'	#4	12"	20	
			24	
			28	
			32	
			36	
			90	
SECTION 'B' & BAR GROUP 'B'	#4	12"	20	
			24	
			28	
			32	
			36	
			90	
SECTION 'C' & BAR GROUP 'C'	#4	12"	24	
			28	
			32	
			36	
			44	
			98	
SECTION 'D' & BAR GROUP 'D'	Varies with Length of Barrel			

SECTION & BAR GROUP	'e' bars STRAIGHT: Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NUMBER REQ'D	LENGTH
SECTION 'A' & BAR GROUP 'A'	#4	12"	25	
			27	
			27	
			27	
			27	
			27	
SECTION 'B' & BAR GROUP 'B'	#4	12"	25	
			27	
			27	
			27	
			27	
			27	
SECTION 'C' & BAR GROUP 'C'	#4	12"	27	
			27	
			27	
			27	
			27	
			27	
SECTION 'D' & BAR GROUP 'D'	Varies with Length of Barrel			

SECTION & BAR GROUP	'f' bars STRAIGHT: Vertical in Sidewalls and Division Walls SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
SECTION 'A' & BAR GROUP 'A'	#4	12"	88	128	6'-4"
			88	128	7'-6"
	#5	12"	88	128	8'-7"
			88	128	9'-7"
	#4	12"	88	128	9'-7"
	#5	12"	88	128	9'-7"
			88	128	10'-7"
	#6	12"	88	128	11'-7"
			88	128	11'-7"
	#4	12"	88	128	7'-11"
			88	128	8'-11"
	#5	12"	88	128	9'-11"
			88	128	10'-11"
	#6	12"	88	128	11'-11"
			88	128	12'-11"
SECTION 'B' & BAR GROUP 'B'	#4	12"	88	128	7'-11"
			88	128	8'-11"
	#5	12"	88	128	9'-11"
			88	128	10'-11"
	#6	12"	88	128	11'-11"
			88	128	12'-11"
	#4	12"	88	128	8'-2"
			88	128	9'-2"
	#5	12"	88	128	10'-2"
			88	128	11'-2"
	#6	12"	88	128	12'-2"
			88	128	13'-2"
SECTION 'C' & BAR GROUP 'C'	#4	12"	88	128	8'-5"
			88	128	9'-5"
	#5	12"	88	128	10'-5"
			88	128	11'-5"
	#6	12"	88	128	12'-5"
			88	128	13'-5"
	#7	11"	98	72	13'-5"
			98	72	14'-5"
	#4	12"	88	128	8'-8"
			88	128	9'-8"
	#5	12"	88	128	10'-8"
			88	128	11'-8"
	#6	12"	88	128	12'-8"
			88	128	13'-8"
	#7	11"	98	72	13'-8"
			98	72	14'-8"
SECTION 'D' & BAR GROUP 'D'	Varies with Length of Barrel				

DIMENSIONS — BARREL DIMENSIONS

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT
D	S	H	A	OW	T	C	M	B	OH
SECTION 'A' - 10'-0"	2 @ 8	5'	80	17'-11"	9½"	7"	9"	9¾"	6'-7"
		6'	96	17'-11"		7"	9"		7'-7"
		7'	112	18'-1"		7½"	10"		8'-7"
		8'	128	18'-2"		8"	10"		9'-7"
		9'	144	18'-5"		9"	11"		10'-7"
		10'	160	18'-5"		10"	12"		11'-7"
	2 @ 10	6'	120	22'-1"	10½"	7½"	10"	11½"	7'-10½"
		7'	140	22'-1"		7½"	10"		8'-10½"
		8'	160	22'-2"		8"	10"		9'-10½"
		9'