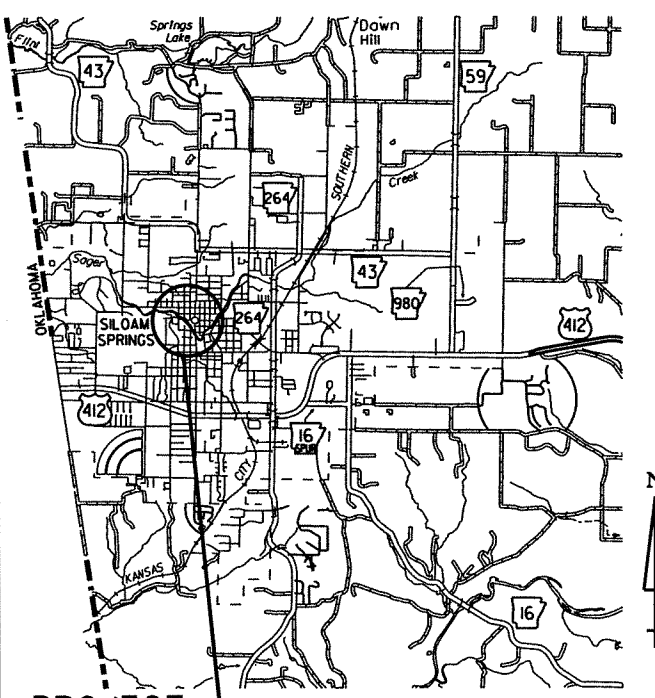


ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090268		1	72

2 SAGER CREEK STR. & APPRS. UNIVERSITY ST. (SILOAM SPRINGS) (S)



PROJECT LOCATION

VICINITY MAP

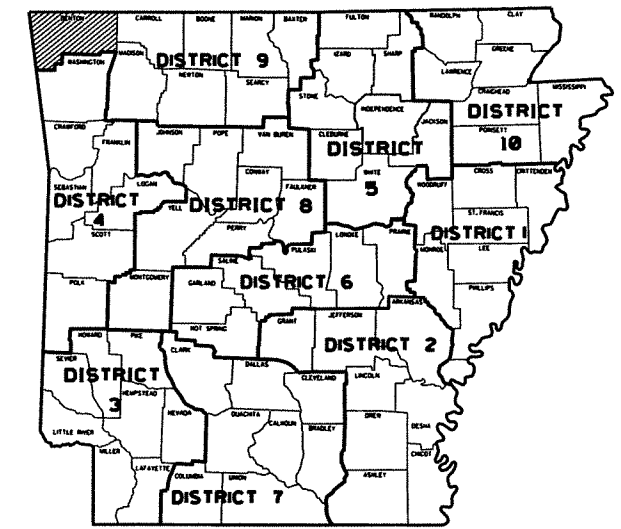
SAGER CREEK STR. & APPRS.
(UNIVERSITY ST.)
(SILOAM SPRINGS) (S)

BENTON COUNTY

F.A.P. BRN-9394(9)

JOB 090268

NOT TO SCALE
R 33 W



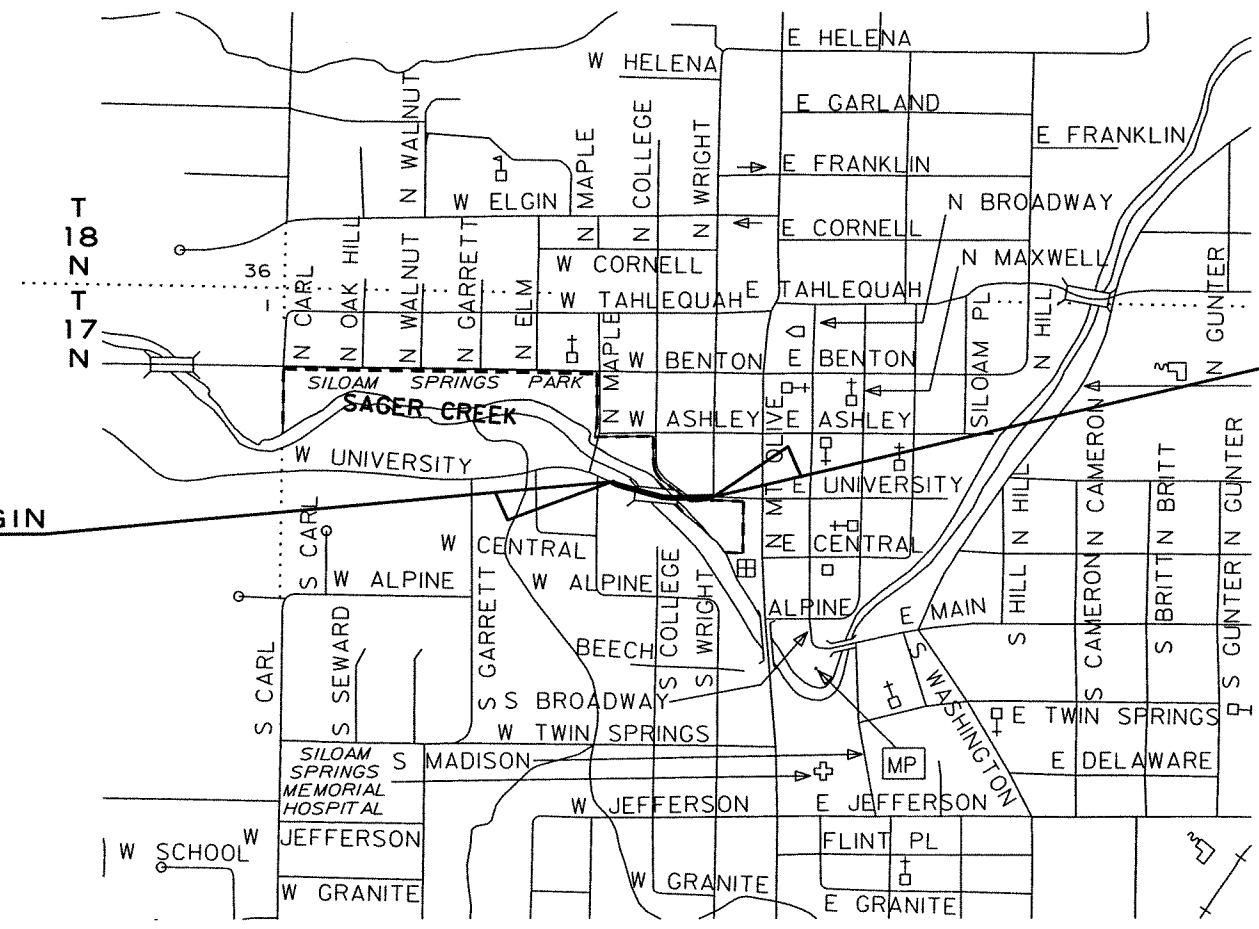
ARKANSAS HIGHWAY DISTRICT 9

BRIDGE CONSTRUCTION DATA

STA. 111+41.50 BR. END
BRIDGE NO. 04917
105'-0" CONT. COMP. W-BEAM UNIT (35'-35'-35')
24'-0" CLEAR ROADWAY
108'-0" TOTAL LENGTH
STA. 112+49.50 BR. END

STA. 109+25 BEGIN
JOB 090268

STA. 114+00 END
JOB 090268

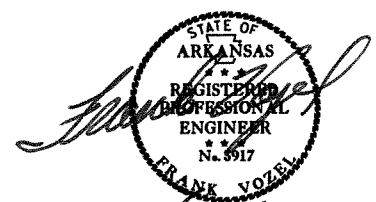


• DESIGN TRAFFIC DATA •

DESIGN YEAR-----2032
2012 ADT-----6000
2032 ADT-----8500
2032 DHV-----935
DIRECTIONAL DISTRIBUTION-----60%
TRUCKS-----3%
DESIGN SPEED-----30 MPH



APPROVED



3/16/12
DEPUTY DIRECTOR
AND CHIEF ENGINEER

PROJECT COORDINATES:

	BEGIN	MID-POINT	END
LAT.	N36° 11' 10"	N36° 11' 10"	N36° 11' 10"
LON.	W94° 32' 39"	W94° 32' 35"	W94° 32' 33"

GROSS LENGTH OF PROJECT 475.00 FEET OR 0.090 MILES
NET LENGTH OF ROADWAY 367.00 FEET OR 0.070 MILES
NET LENGTH OF BRIDGES 108.00 FEET OR 0.020 MILES
NET LENGTH OF PROJECT 475.00 FEET OR 0.090 MILES

P.E. JOB 090268
LICO-9394-009

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090268		2	72

2 INDEX OF SHEETS, GOV. SPEC. & GEN. NOTES

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG. NO.	DATE
1	TITLE SHEET			
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS AND GENERAL NOTES			
3	TYPICAL SECTIONS OF IMPROVEMENT			
4	TEMPORARY EROSION CONTROL DETAILS			
5	MAINTENANCE OF TRAFFIC DETAILS			
6	PERMANENT PAVEMENT MARKING DETAILS			
7 - 8	QUANTITY SHEETS			
9	SCHEDULE OF BRIDGE QUANTITIES	04917	52252	
10	SUMMARY OF QUANTITIES AND REVISION BOX			
11	SURVEY CONTROL DETAILS			
12 - 13	PLAN AND PROFILE SHEETS			
14	ILLUMINATION QUANTITIES SHEET			
15 - 16	ILLUMINATION PLAN SHEET			
17 - 19	ILLUMINATION DETAILS			
20	LAYOUT OF BRIDGE OVER SAGER CREEK (SHEET 1 OF 2)	04917	52253	
21	LAYOUT OF BRIDGE OVER SAGER CREEK (SHEET 2 OF 2)	04917	52254	
22	DETAILS OF EXISTING RETAINING WALL AND HANDRAIL MODIFICATIONS (SHEET 1 OF 2)	04917	52255	
23	DETAILS OF EXISTING RETAINING WALL AND HANDRAIL MODIFICATIONS (SHEET 2 OF 2)	04917	52256	
24	DETAILS OF ABUTMENT 1 (SHEET 1 OF 4)	04917	52257	
25	DETAILS OF ABUTMENT 1 (SHEET 2 OF 4)	04917	52258	
26	DETAILS OF ABUTMENT 1 (SHEET 3 OF 4)	04917	52259	
27	DETAILS OF ABUTMENT 1 (SHEET 4 OF 4)	04917	52260	
28	DETAILS OF PIERS 1 & 2 (SHEET 1 OF 2)	04917	52261	
29	DETAILS OF PIERS 1 & 2 (SHEET 2 OF 2)	04917	52262	
30	DETAILS OF ABUTMENT 2 (SHEET 1 OF 4)	04917	52263	
31	DETAILS OF ABUTMENT 2 (SHEET 2 OF 4)	04917	52264	
32	DETAILS OF ABUTMENT 2 (SHEET 3 OF 4)	04917	52265	
33	DETAILS OF ABUTMENT 2 (SHEET 4 OF 4)	04917	52266	
34	DETAILS OF ELASTOMERIC BEARINGS	04917	52267	
35	DETAILS OF 105'-0" CONTINUOUS W-BEAM UNIT (SHEET 1 OF 5)	04917	52268	
36	DETAILS OF 105'-0" CONTINUOUS W-BEAM UNIT (SHEET 2 OF 5)	04917	52269	
37	DETAILS OF 105'-0" CONTINUOUS W-BEAM UNIT (SHEET 3 OF 5)	04917	52270	
38	DETAILS OF 105'-0" CONTINUOUS W-BEAM UNIT (SHEET 4 OF 5)	04917	52271	
39	DETAILS OF 105'-0" CONTINUOUS W-BEAM UNIT (SHEET 5 OF 5)	04917	52272	
40	DETAILS OF COMBINATION BRIDGE RAIL (SHEET 1 OF 3)	04917	52273	
41	DETAILS OF COMBINATION BRIDGE RAIL (SHEET 2 OF 3)	04917	52274	
42	DETAILS OF COMBINATION BRIDGE RAIL (SHEET 3 OF 3)	04917	52275	
43	EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		1888A	4-10-03
44	DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES		1891F	4-10-03
45	DETAILS OF STANDARD TYPE D BRIDGE NAME PLATES		2387	9-08-11
46	DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS		14991	4-10-03
47	CURBING DETAILS		CG-1	11-29-07
48	DETAILS OF DROP INLETS & JUNCTION BOXES		FPC-9	11-16-01
49	DETAILS OF DROP INLETS (TYPE C)		FPC-9E	8-22-02
50	DETAILS OF DROP INLET (TYPE MO)		FPC-9M	8-22-02
51	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		PCC-1	12-15-11
52	METAL PIPE CULVERT FILL HEIGHTS & BEDDING		PCM-1	12-15-11
53	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)		PCP-1	12-15-11
54	PLASTIC PIPE CULVERT (PVC F949)		PCP-2	12-15-11
55	PAVEMENT MARKING DETAILS		PM-1	11-17-10
56	DETAILS OF PIPE UNDERDRAIN		PU-1	4-10-03
57	DETAILS OF SPECIAL ITEMS		SI-1	4-17-08
58	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-1	12-15-11
59	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-2	3-11-10
60	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-3	10-15-09
61	TEMPORARY EROSION CONTROL DEVICES		TEC-1	12-15-11
62	TEMPORARY EROSION CONTROL DEVICES		TEC-2	6-02-94
63	TEMPORARY EROSION CONTROL DEVICES		TEC-3	11-03-94
64	WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS		WR-1	11-10-05
65 - 72	CROSS SECTIONS			

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 - 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
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
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
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
711-1	CONCRETE PULL BOX
719-2	THERMOPLASTIC PAVEMENT MARKING MATERIAL
804-1	INSTALLATION OF DOWEL BARS AND TIE BARS
JOB 090268	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 090268	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 090268	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 090268	ELECTRICAL CONDUCTORS-IN-CONDUIT, COPPER
JOB 090268	FINISHING CONCRETE SURFACES
JOB 090268	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 090268	HIGH PERFORMANCE PAVEMENT MARKING
JOB 090268	INTERNET BIDDING
JOB 090268	NESTING SITES OF MIGRATORY BIRDS
JOB 090268	PLASTIC PIPE
JOB 090268	PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE
JOB 090268	RESTRAINING CONDITIONS
JOB 090268	ROADWAY ILLUMINATION POLE
JOB 090268	SECTION 404 NATIONWIDE PERMIT 14 REQUIREMENTS
JOB 090268	SILICONE JOINT SEALANT
JOB 090268	SPECIAL CONSTRUCTION REQUIREMENTS
JOB 090268	STACKED BOULDER REVETMENT
JOB 090268	STONE MASONRY FACING
JOB 090268	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 090268	UTILITY ADJUSTMENTS
JOB 090268	WARM MIX ASPHALT

GENERAL NOTES

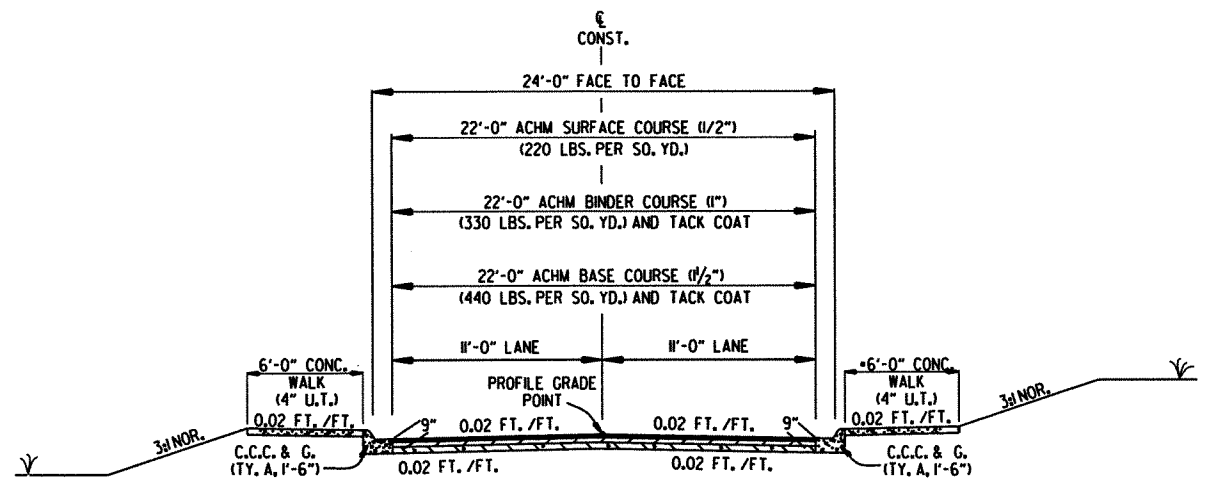
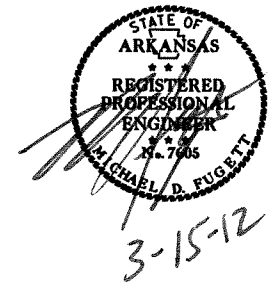
- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED IF AND WHERE 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.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- 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.



3-15-12

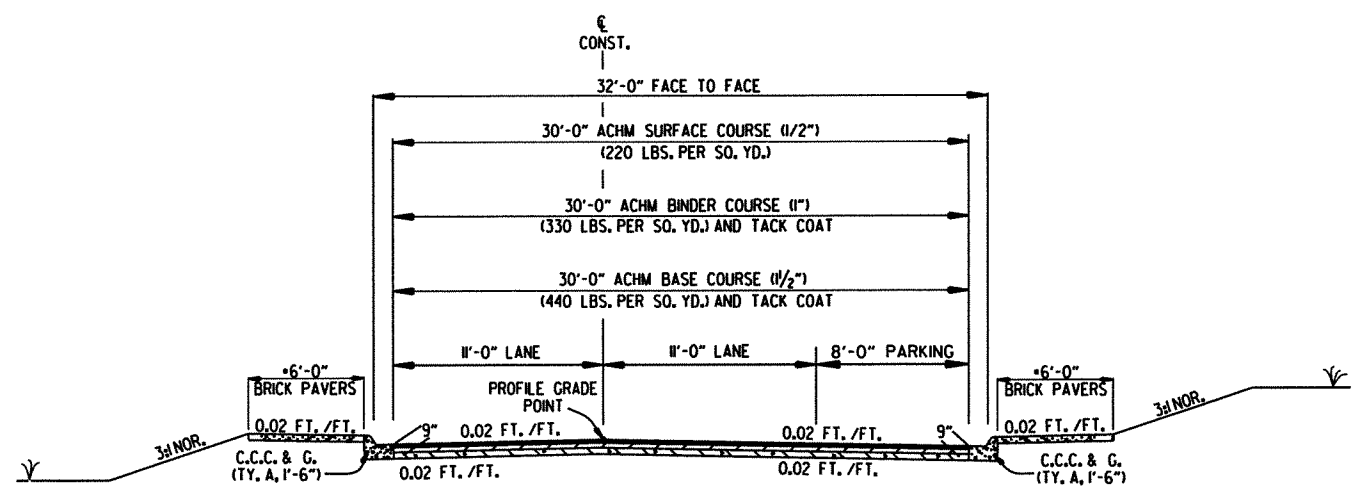
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				6	ARK.		3	72
				JOB NO.		090268		

2 TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION OF IMPROVEMENT - FULL DEPTH

•WHERE SHOWN ON PLANS



TYPICAL SECTION OF IMPROVEMENT - FULL DEPTH

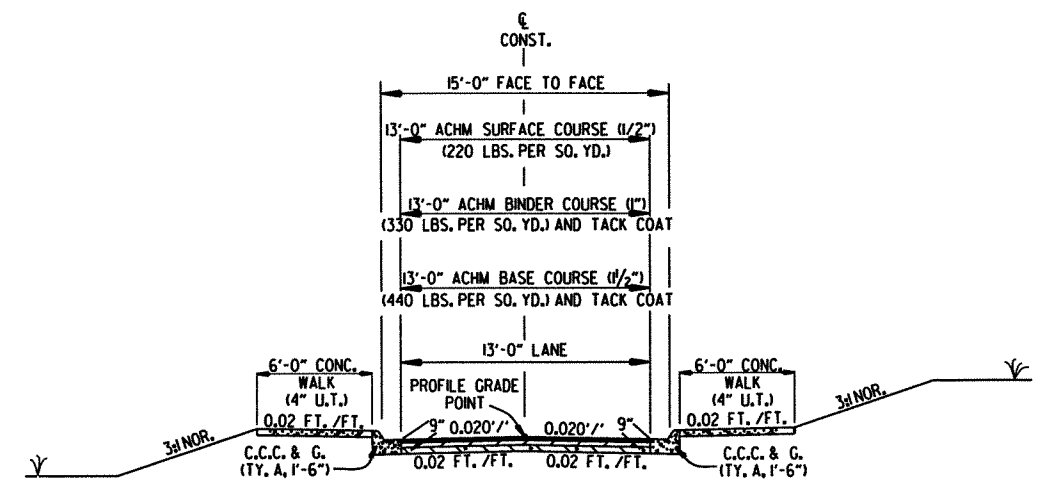
•REFER TO DETAIL OF BRICK WALK FOR ADDITIONAL DETAILS.

NOTES:

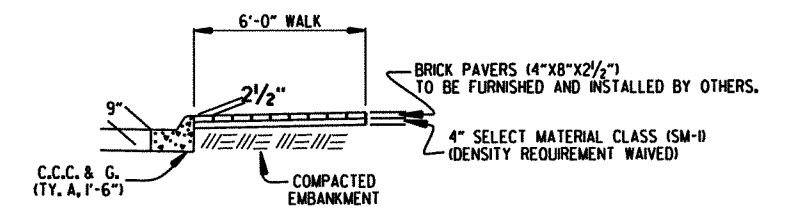
REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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



TYPICAL SECTION OF IMPROVEMENT - FULL DEPTH
NO. COLLEGE AVE.



DETAIL OF BRICK WALK
STA. 112+78 - STA. 114+00 RT.
STA. 112+84 - STA. 114+19 LT.

TYPICAL SECTIONS OF IMPROVEMENT

EROSION CONTROL GENERAL NOTES:

ROCK DITCH CHECKS ESTIMATED AT 5 CU. YD. PER DITCH CHECK.

DROP INLET SILT FENCE ESTIMATED AT 25 LIN. FT. PER DROP INLET.

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

TEMPORARY EROSION CONTROL QUANTITIES:
 ROCK DITCH CHECKS (E 6) = 10 CU. YD.
 DROP INLET SILT FENCE (E 7) = 125 LIN. FT.
 SILT FENCE (E 11) = 25 LIN. FT.
 SEDIMENT REMOVAL AND DISPOSAL 10 CU. YD.

FOR STAGE CONSTRUCTION SEQUENCE REFER TO MAINTENANCE OF TRAFFIC DETAILS.

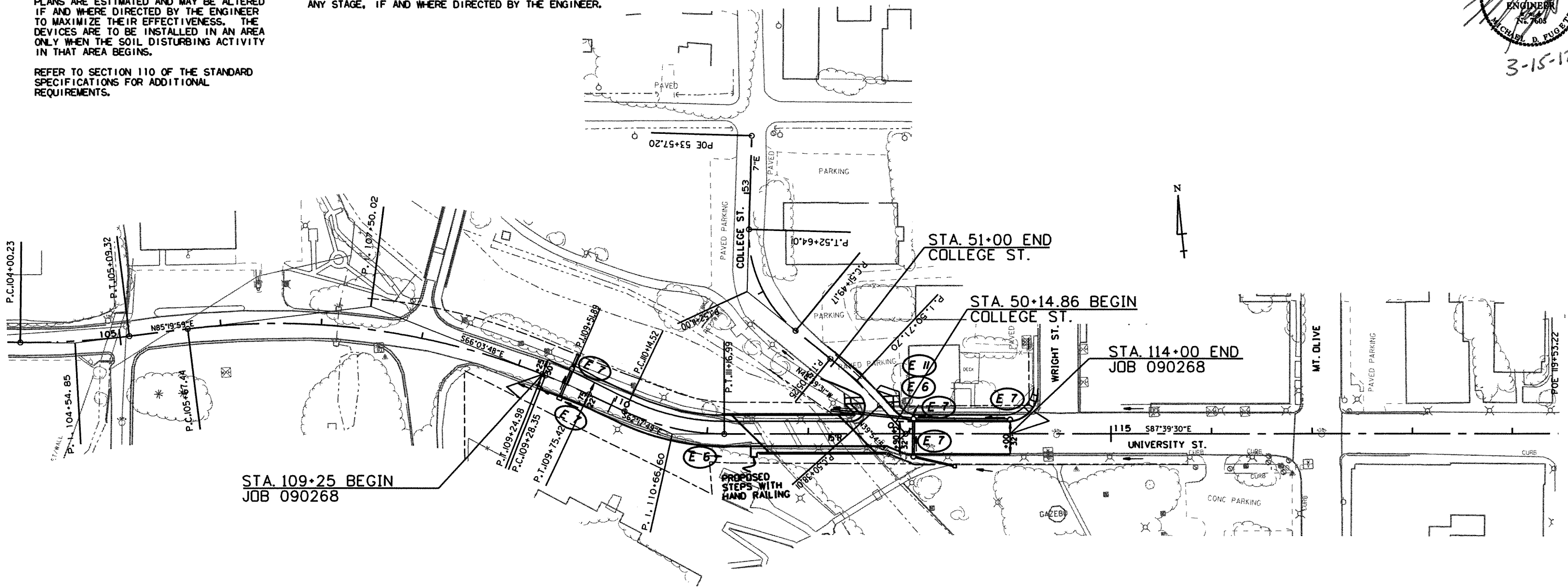
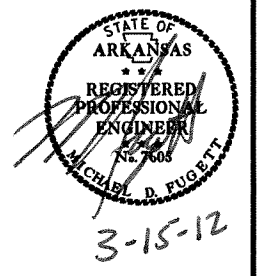
- QUANTITY IS ESTIMATED AND IS TO BE USED ANY STAGE, IF AND WHERE DIRECTED BY THE ENGINEER.

- (E-6) ROCK DITCH CHECKS
- (E-7) DROP INLET SILT FENCE
- (E-11) SILT FENCE

LEGEND

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. 090268							4	72

2 TEMPORARY EROSION CONTROL DETAILS



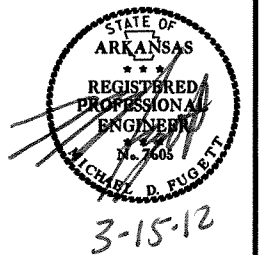
REVISIONS

DATE	REVISION

R090268.DGN 9/20/2011

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. 090268							5	72

2 MAINTENANCE OF TRAFFIC DETAILS

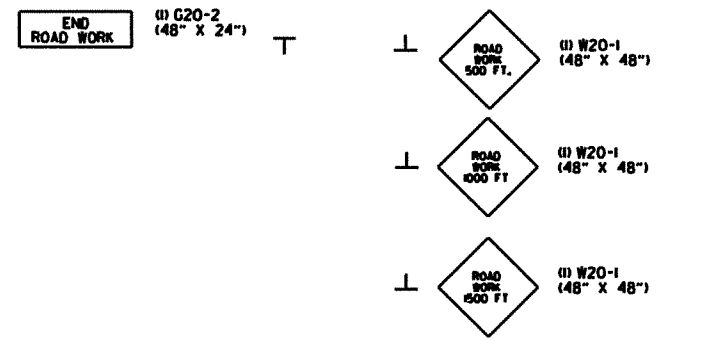


MAINTENANCE OF TRAFFIC:

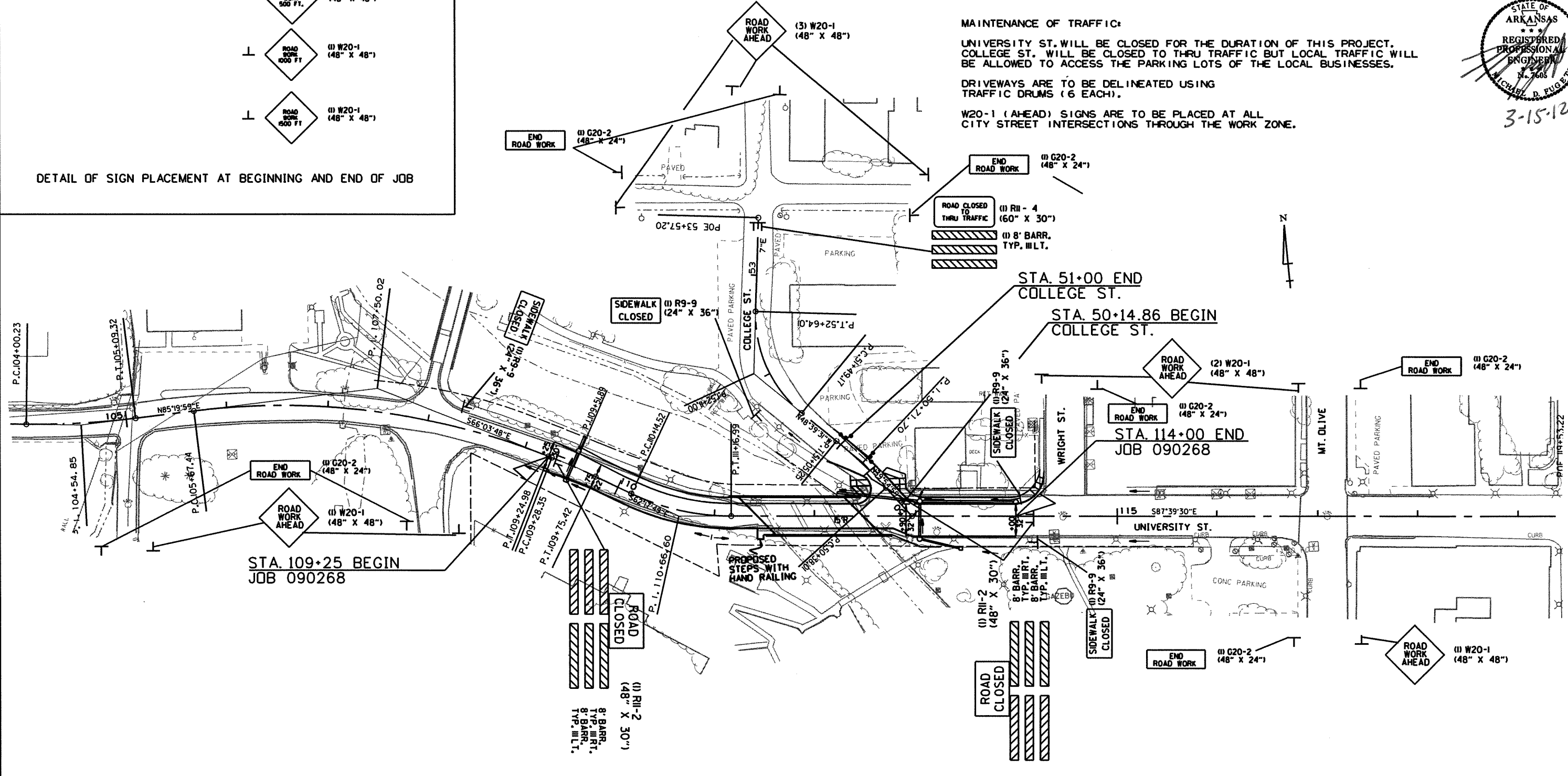
UNIVERSITY ST. WILL BE CLOSED FOR THE DURATION OF THIS PROJECT. COLLEGE ST. WILL BE CLOSED TO THRU TRAFFIC BUT LOCAL TRAFFIC WILL BE ALLOWED TO ACCESS THE PARKING LOTS OF THE LOCAL BUSINESSES.

DRIVEWAYS ARE TO BE DELINEATED USING TRAFFIC DRUMS (6 EACH).

W20-1 (AHEAD) SIGNS ARE TO BE PLACED AT ALL CITY STREET INTERSECTIONS THROUGH THE WORK ZONE.



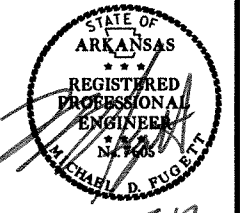
DETAIL OF SIGN PLACEMENT AT BEGINNING AND END OF JOB



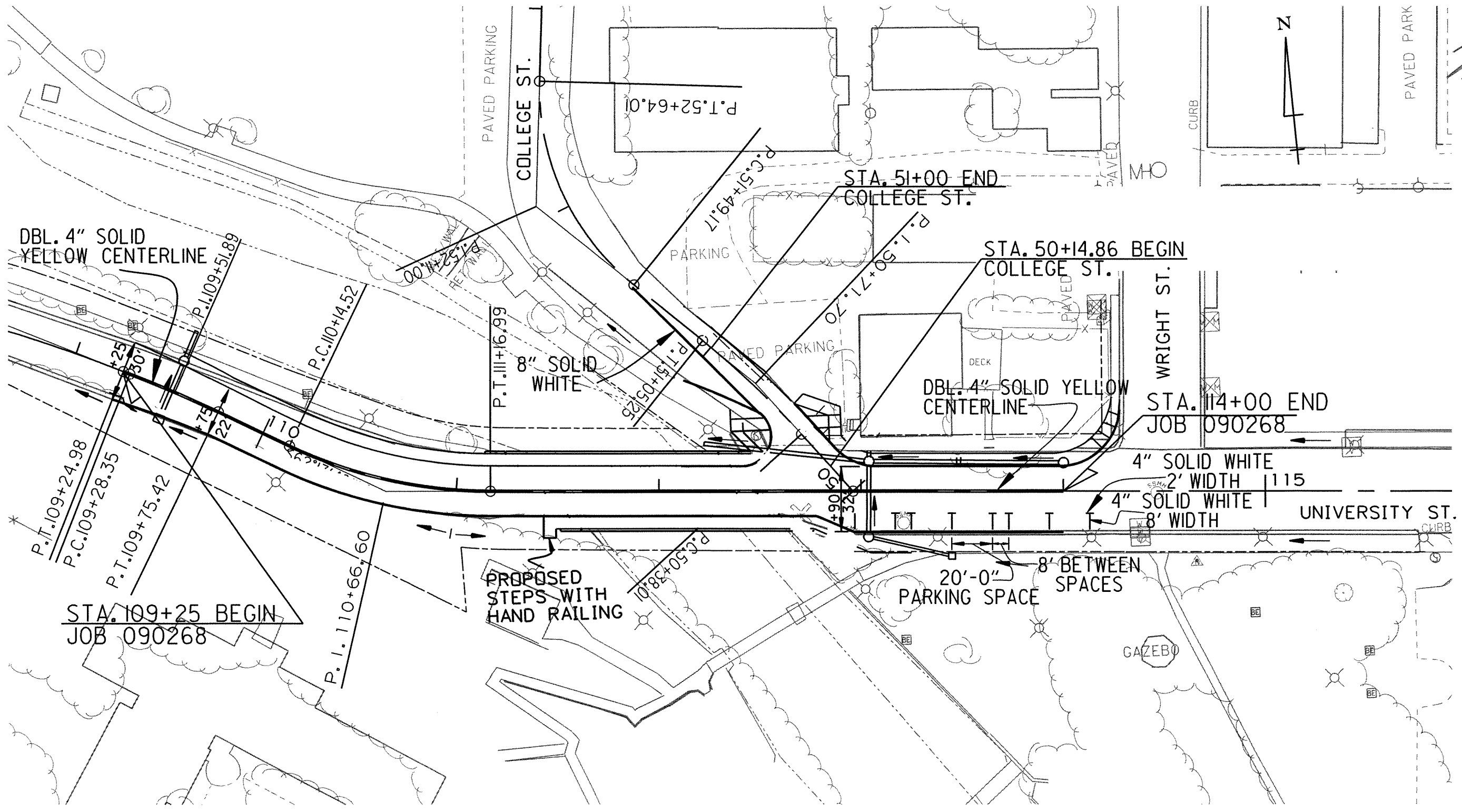
MAINTENANCE OF TRAFFIC QUANTITIES:
 SIGNS = 370.5 SQ. FT.
 TRAFFIC DRUMS = 6 EACH
 BARRICADES = 56 LIN. FT.

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.	090268		6	72

② PERMANENT PAVEMENT MARKING DETAILS



3-15-12



PERMANENT PAVEMENT MARKING QUANTITIES:
 THERMOPLASTIC PAVEMENT MARKINGS WHITE 4" = 80 LIN. FT.
 THERMOPLASTIC PAVEMENT MARKINGS WHITE 8" = 100 LIN. FT.
 THERMOPLASTIC PAVEMENT MARKINGS YELLOW 4" = 950 LIN. FT.

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. 090268	7	72

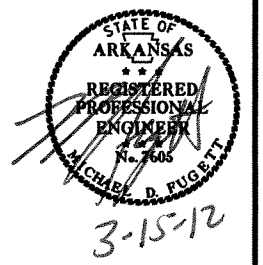
ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS EACH	BARRICADES (TYPE III)	
			LIN. FT. - EACH		NO.	SQ. FT.		RIGHT LIN. FT.	LEFT LIN. FT.
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	32.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	32.0			
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	32.0			
W20-1	ROAD WORK AHEAD	48"x48"	8	8	8	128.0			
G20-2	END ROAD WORK	48"x24"	10	10	10	80.0			
R9-9	SIDEWALK CLOSED	24"x36"	4	4	4	24.0			
R11-2	ROAD CLOSED	48"x30"	3	3	3	30.0			
R11-4	ROAD CLOSED TO THRU TRAFFIC	60"x30"	1	1	1	12.5			
	TRAFFIC DRUMS		6	6	6		6		
	TYPE III BARRICADE-RT. (8')		3	3	3			24	
	TYPE III BARRICADE-LT. (8')		4	4	4				32
ENTIRE PROJECT IF AND WHERE DIRECTED BY THE ENGINEER							20		
TOTALS:						370.5	26	24	32

QUANTITIES

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATION	
109+25	112+00	3	3
TOTALS:		3	3



EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	SELECT MATERIAL CLASS (SM-1)
			CU. YD.	CU. YD.	
ENTIRE PROJECT		MAIN LANES	149	630	
		COLLEGE RD.	5	40	
		ABUTMENT 1	150		
112+78	114+19	WALKS ON LT. & RT. (FOR FUTURE PAVER INSTALLATION)			20
TOTALS:			304	670	20

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

PERMANENT PAVEMENT MARKINGS

DESCRIPTION	END OF JOB	THERMOPLASTIC PAVEMENT MARKINGS			HIGH PERFORMANCE PAVT. MARKING
		4"		8" WHITE	4" YELLOW
		WHITE	YELLOW		
		LIN. FT.			
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")	80	80			
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")	950		950		
THERMOPLASTIC PAVEMENT MARKINGS WHITE (8")	100			100	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING	220				220
TOTALS:		80	950	100	220

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

RETAINING WALL

LOCATION	REMOVAL AND DISPOSAL OF RETAINING WALLS	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	CLASS S CONCRETE - ROADWAY	REINFORCING STEEL - ROADWAY (GRADE 60)	STONE MASONRY FACING
	LIN. FT.	CU. YD.		POUND	SQ. YD.
FOR LOCATION, RETAINING WALL & HAND RAIL. MODIFICATION DETAILS REFER TO BR. DWG. 52255 (SHEET NO. 22)	15.5	11	5.50	980	10
TOTALS:	15.5	11	5.50	980	10

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
111+41.50	BRIDGE END ON RT.	1
TOTALS:		

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	DESCRIPTION	CURB AND GUTTER	WALKS	STEPS	CONCRETE RAILING	DROP INLETS	PIPE CULVERTS	RETAINING WALLS	DECORATIVE LIGHT POLE
			LIN. FT.	SQ. YD.	SQ. YD.	LIN. FT.	EACH	EACH	LIN. FT.	EACH
109+25	111+43	CURB & GUTTER ON RT.	218							
109+25	111+36	CURB & GUTTER ON LT.	213							
112+45	112+50	CURB & GUTTER ON LT.	27							
112+56	114+00	CURB & GUTTER ON RT.	144							
112+99	114+00	CURB & GUTTER ON LT.	101							
109+25	111+36	WALK ON LT.		141						
112+42	112+50	WALK ON LT.		15						
112+83	114+27	WALK ON LT.		80						
111+46		STEPS ON RT.			10					
112+60	114+00	WALK ON RT.		155						
112+95		DROP INLETS LT. & RT.					2			
112+96		12" X 76' CLAY PIPE ON LT.						1		
112+39		RETAINING WALL ON LT.							14	
112+59	112+75	CONCRETE RAILING ON RT.				17				
110+17	113+38	DECORATIVE LIGHT POSTS ON RT.								5
110+47	114+26	DECORATIVE LIGHT POSTS ON LT.								6
TOTALS:			703	391	10	17	2	1	14	11

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
109+00	5.5' RT	0-1.8Z	22	7	A-2-4(0)	BROWN
115+00	5.5' LT	0-4.5Z	24	8	A-4(5)	BROWN
TOTALS:						

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

EROSION CONTROL

STATION	STATION	LOCATION	PERM. ERO. CTL.				TEMPORARY EROSION CONTROL					
			WATER	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	ROCK DITCH CHECKS	DROP INLET SILT FENCE	SILT FENCE	*SEDIMENT REMOVAL & DISPOSAL	*SAND BAG DITCH CHECK
								(E-6)	(E-7)	(E-11)		
M.GAL.	SQ.YD.	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	LIN. FT.	CU. YD.	BAG			
ENTIRE PROJECT	50+15 51+00	MAIN LANES COLLEGE RD.	3.9	306								
ENTIRE PROJECT		MAINTENANCE OF TRAFFIC			0.46	0.46	9.4	10	125	25	10	
ENTIRE PROJECT		ENTIRE PROJECT IF AND WHERE DIRECTED BY THE ENGINEER	3.8	300	0.50	0.50	10.2	15	50	275	50	50
TOTALS:			8.2	644	0.96	0.96	19.6	25	175	300	60	50

BASIS OF ESTIMATE:
 WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING.
 WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
 ROCK DITCH CHECKS.....5 CU.YD./LOCATION

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

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.

CONCRETE ITEMS

STATION	STATION	LOCATION	CURB & GUTTER TYPE A (1' 6")	CONCRETE STEPS	CONCRETE WALKS	WHEELCHAIR RAMPS (TYPE 4)	WHEELCHAIR RAMPS (TYPE 6)	HAND RAILING
			LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	LIN. FT.	
109+25	111+42	MAIN LANES RT.	217					
		STEPS ON RT.		5				10
109+25	111+42	MAIN LANES LT.	217		121			
112+50	114+00	MAIN LANES RT.	150					
112+50	114+00	MAIN LANES LT.	150					
114+26		MAIN LANES LT.					12	
50+15	50+52	COLLEGE ST. RT.			30			
50+15	50+59	COLLEGE ST. LT.			15			
50+15	51+00	COLLEGE ST. RT.	52					
50+15	51+00	COLLEGE ST. LT.	75					
50+35		COLLEGE ST RT.				21		
50+50		COLLEGE ST. LT.				14		
TOTALS:			861	5	166	35	12	10

STRUCTURES

STATION	DESCRIPTION	DROP INLETS		PIPE CULVERT STORM DRAIN ALTERNATES	YARD DRAIN	SIDE DRAIN	STD. DWG. NOS.
		TYPE					
		C	MO	18"	EACH	12"	
109+50	CONST. D.I. ON RT W/ PIPE OUTLET	1		29			FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
113+04	CONST. D.I. ON RT W/ PIPE OUTLET		1	33			FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
113+45	INSTALL YARD DRAIN W/ OUTLET				1	38	FPC-9, PCC-1, PCM-1, PCP-1, PCP-2
109+50	CONST. D.I. ON LT W/ PIPE OUTLET		1	12			FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
113+04	CONST. D.I. ON LT. W/ O.I.B. & PIPE OUTLET		1	82			FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
114+00	CONST. D.I. ON LT W/ PIPE OUTLET		1	92			FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
TOTALS:		1	4	248	1	38	

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

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH FEET	TACK COAT			ACHM BASE COURSE (1 1/2")			ACHM BINDER COURSE (1")			ACHM SURFACE COURSE (1/2")						
				TOTAL WID.	SQ.YD.	GALLONS / SQ.YD.	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	
				FEET	FEET	FEET	FEET	FEET	TON	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET
MAIN LANES																			
109+25	111+42	MAIN LANES	217.0	44.0	1060.9	0.03	31.8	22.0	530.4	440.0	116.7	22.0	530.4	330.0	87.5	22.0	530.4	220.0	58.3
112+50	112+90	MAIN LANES - TAPER	40.0	52.0	231.1	0.03	6.9	26.0	115.6	440.0	25.4	26.0	115.6	330.0	19.1	26.0	115.6	220.0	12.7
112+90	114+00	MAIN LANES & PARKING	110.0	60.0	733.3	0.03	22.0	30.0	366.7	440.0	80.7	30.0	366.7	330.0	60.5	30.0	366.7	220.0	40.3
50+15	50+50	COLLEGE ST.	35.0		190.0	0.03	5.7		95.0	440.0	20.9		95.0	330.0	15.7		95.0	220.0	10.5
50+50	51+00	COLLEGE ST.	50.0		220.0	0.03	6.6		110.0	440.0	24.2		110.0	330.0	18.2		110.0	220.0	12.1
TOTALS:							73.0				267.9				201.0				133.9

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
 ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
 ACHM BASE COURSE (1 1/2").....96% MIN. AGGR.....4% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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. 090268							8	72

QUANTITIES

SELECTED PIPE BEDDING & BACKFILL

LOCATION	SELECTED PIPE BEDDING CU.YD.	SELECTED PIPE BACKFILL CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	20	40
TOTALS:	20	40

NOTE: QUANTITIES ARE 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 DIRECTED BY THE ENGINEER	5	10
TOTALS:	5	10

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS LIN. FT.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			300
TOTAL:			300

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.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH FEET	COLD MILLING ASPHALT PAVEMENT SQ. YD.
108+25	109+25	MAIN LANES	28	311.11
114+00	115+00	MAIN LANES	30	333.33
TOTAL:				644.44

NOTE: AVERAGE MILLING DEPTH 1".

3/7/2012

R090268.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.	090268		9	72
				① 04917	QUANTITIES		52252	

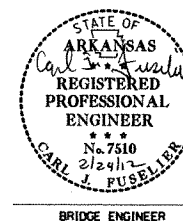
SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 090268

BRIDGE NO.	CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SP & 802	SP & 802	803	SS & 804	807	807	808	812	SP JOB 090268	SP JOB 090268	SP JOB 090268	SP JOB 090268	
				ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50)	② PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	SILICONE JOINT SEALANT	STACKED BOULDER REVETMENT	PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE	STONE MASONRY FACING	
				UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	TON	CU. INCH	EACH	LIN. FT.	LUMP SUM	LUMP SUM	SQ. YD.	
04917	X071	SAGER CREEK	ABUTMENT 1			797	182.54		7.0	27,637	961	0.5	897.2	1				154	
			PIER 1			54	80.28				9,039								89
			PIER 2			34	65.76				7,808								89
			ABUTMENT 2			681	153.32			7.0	23,304	961	0.5	1,206.6					93
			105'-0" CONTINUOUS W-BEAM UNIT						168.60	688.7	35,122	52,728	26.4			110			
TOTALS FOR JOB NO. 090268					1	① 1,566	481.90	168.60	702.7	102,910	54,650	27.4	4,578.0	1	110	1	1	425	

① INCLUDES APPROX. 257 CU. YDS. OF ROCK EXCAVATION.

② PAINT SHALL CONFORM TO FEDERAL STANDARD 595B, COLOR CHIP NO. 36515, GREY.

AILEEN SCHUBEL
DESIGN SECTION SUPERVISOR



SCHEDULE OF BRIDGE QUANTITIES
SAGER CREEK STR. & APPRS.
(UNIVERSITY ST.) (SILOAM SPRINGS) (S)
BENTON COUNTY

ROUTE UNIVERSITY ST.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: AMS, DATE: 10/10/11, FILENAME: b090268.q1.dgn
CHECKED BY: KMY, DATE: 2-24-11, SCALE: None
DESIGNED BY: _____, DATE: _____
BRIDGE NO. 04917, DRAWING NO. 52252

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	3	STATION
201	GRUBBING	3	STATION
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER	703	LN. FT.
202	REMOVAL AND DISPOSAL OF WALKS	391	SQ. YD.
202	REMOVAL AND DISPOSAL OF STEPS	10	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE RAILING	17	LN. FT.
202	REMOVAL AND DISPOSAL OF DROP INLETS	2	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	1	EACH
202	REMOVAL AND DISPOSAL OF RETAINING WALLS	30	LN. FT.
202	REMOVAL AND DISPOSAL OF DECORATIVE LIGHT POLE	11	EACH
210	UNCLASSIFIED EXCAVATION	304	CU. YD.
210	COMPACTED EMBANKMENT	670	CU. YD.
302	SELECTED MATERIAL (CLASS SM-1)	20	CU. YD.
401	TACK COAT	83	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	257	TON
SP, SS, & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")	11	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	192	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	9	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	126	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	8	TON
412	COLD MILLING ASPHALT PAVEMENT	644	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC MOBILIZATION	5	TON
601	FURNISHING FIELD OFFICE	1.00	LUMP SUM
SP & 602	MAINTENANCE OF TRAFFIC	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	371	SQ. FT.
SS & 604	BARRICADES	56	LN. FT.
SS & 604	TRAFFIC DRUMS	26	EACH
SS & 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 1)	248	LN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE (ALTERNATE NO. 2)	248	LN. FT.
* SP & 606	18" HIGH DENSITY POLYETHYLENE PIPE (ALTERNATE NO. 3)	248	LN. FT.
* SP & 606	18" PVC PIPE (ALTERNATE NO. 4)	248	LN. FT.
606	12" SIDE DRAIN	38	LN. FT.
606	SELECTED PIPE BEDDING	20	CU. YD.
606	SELECTED PIPE BACKFILL	40	CU. YD.
609	DROP INLETS (TYPE C)	1	EACH
609	DROP INLETS (TYPE MO)	4	EACH
609	YARD DRAINS	1	EACH
611	4" PIPE UNDERDRAINS	300	LN. FT.
SS & 620	MULCH COVER	0.96	ACRE
621	WATER	27.8	M.GAL.
621	TEMPORARY SEEDING	0.96	ACRE
621	SILT FENCE	300	LN. FT.
621	SAND BAG DITCH CHECKS	50	BAG
621	DROP INLET SILT FENCE	175	LN. FT.
621	SEDIMENT REMOVAL AND DISPOSAL	60	CU. YD.
621	ROCK DITCH CHECKS	25	CU. YD.
624	SOLID SODDING	644	SQ. YD.
633	CONCRETE WALKS	166	SQ. YD.
633	CONCRETE STEPS	5	SQ. YD.
633	HAND RAILING	10	LN. FT.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	861	LN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
641	WHEELCHAIR RAMPS (TYPE 4)	35	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 6)	12	SQ. YD.
710	NON-METALLIC CONDUIT (1.5")	390	LN. FT.
710	NON-METALLIC CONDUIT (3")	200	LN. FT.
SS & 711	CONCRETE PULL BOX (TYPE 1 HD)	2	EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT, COPPER (3C/4 A.W.G., EGC)	140	LN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT, COPPER (3C/6 A.W.G., EGC)	450	LN. FT.
SP	ROADWAY ILLUMINATION POLE (ACORN-175W-METAL HALIDE, ANTIQUE, 8')	6	EACH
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (4')	80	LN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4')	100	LN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4') (ALTERNATE NO. 1)	950	LN. FT.
SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4') (ALTERNATE NO. 2)	220	LN. FT.
SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4')	11	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	5.50	CU. YD.
SP & 802	CLASS S CONCRETE-ROADWAY	980	POUND
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	10	SQ. YD.
SP	STONE MASONRY FACING		
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	1566	CU. YD.
SP & 802	CLASS S CONCRETE-BRIDGE	481.90	CU. YD.
SP & 802	CLASS S(AE) CONCRETE-BRIDGE	168.60	CU. YD.
803	CLASS 2 PROTECTIVE SURFACE TREATMENT	702.7	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	102910	POUND
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR60)	54650	POUND
807	PAINTING STRUCTURAL STEEL	27.4	TON
808	ELASTOMERIC BEARINGS	4578.0	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
SP	SILICONE JOINT SEALANT	110	LN. FT.
SP	STACKED BOULDER REVEITEMENT	1.00	LUMP SUM
SP	PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE	1.00	LUMP SUM
SP	STONE MASONRY FACING	425	SQ. YD.

*ALTERNATE BID ITEMS

REVISION BOX

DATE	REVISION	SHEET NUMBER

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.						090268	10	72

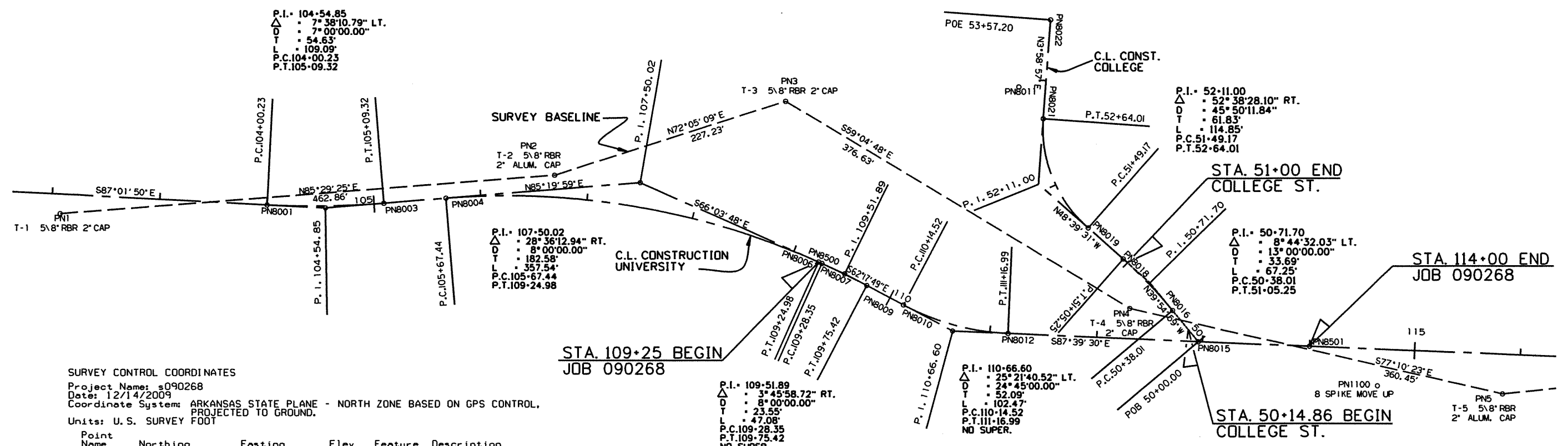
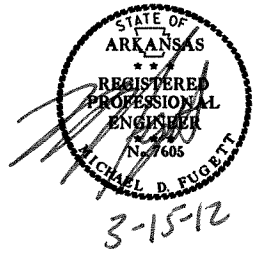
SUMMARY OF QUANTITIES AND REVISION BOX



3-15-12

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.	090268		11	72

2 SURVEY CONTROL DETAILS



SURVEY CONTROL COORDINATES
 Project Name: s090268
 Date: 12/14/2009
 Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
 Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	684203.2180	560934.0288	1102.71	CTL	T-1 5/8" REBAR W/ 2" ALUM CAP
2	684239.6114	561395.4561	1085.87	CTL	T-2 5/8" REBAR W/ 2" ALUM CAP
3	684309.5050	561611.6671	1084.38	CTL	T-3 5/8" REBAR W/ 2" ALUM CAP
4	684115.9733	561934.7681	1087.27	CTL	T-4 5/8" REBAR W/ 2" ALUM CAP
5	684035.9559	562286.2239	1092.88	CTL	T-5 5/8" REBAR W/ 2" ALUM CAP
6	684079.5691	562714.4563	1095.91	CTL	T-6 5/8" REBAR W/ 2" ALUM CAP
7	683848.5920	562179.6516	1096.31	CTL	T-7 5/8" REBAR W/ 2" ALUM CAP
100	685490.7409	566465.2705	1147.16	GPS	AHTD GPS 040034 RTK ELEV
101	693276.6934	558331.1130	1105.87	GPS	AHTD GPS 040039 RTK ELEV
102	691730.4367	558962.3403	1097.85	GPS	AHTD GPS 040039A RTK ELEV
103	686835.8440	567181.6657	1129.33	GPS	NGS B ORDER HORIZONTAL MARK
900	684702.4539	567060.0873	1140.51	BM	NGS 2ND ORDER VERTICAL MARK
901	684219.9861	566147.3694	1147.89	TBM	CHISELED SQUARE IN CONC OF SAN SEWER MANHOLE
902	683298.2627	564424.5575	1146.74	TBM	CHISELED SQUARE IN SE CORNER CATCH BASIN
903	683230.5815	562638.0138	1095.72	TBM	CHISELED SQUARE SE HEADWALL OF BRIDGE
904	684080.3662	562692.8047	1104.47	TBM	CHISELED SQUARE NW CORNER CATCH BASIN
905	684108.7059	561840.8533	1088.53	TBM	CHISELED SQUARE NW CORNER OF BRIDGE
906	684174.7881	560883.3344	1103.03	TBM	CHISELED SQUARE S END OF CURB
1500	684625.1090	561302.0357	1082.11	CTL	5/8" REBAR W/ 2" ALUM CAP
1501	683898.7732	560902.1903	1118.90	CTL	5/8" REBAR W/ 2" ALUM CAP

*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).
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
 A PROJECT CAF OF 0.9999426687 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 S090268G1.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 BEARING:
 ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
 DETERMINED FROM GPS CONTROL POINTS: SILDAM-040034, 040039-040039A
 CONVERGENCE ANGLE: 01-28-47.48 LEFT AT POINT NUMBER 4
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

UNIVERSITY ST.

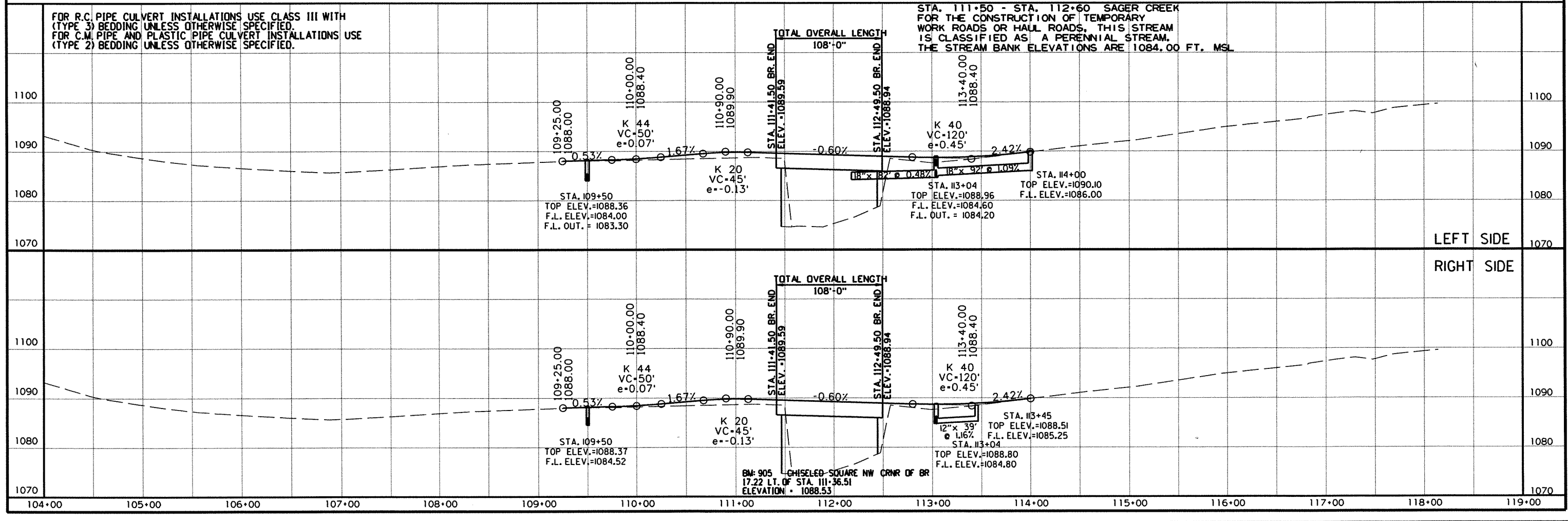
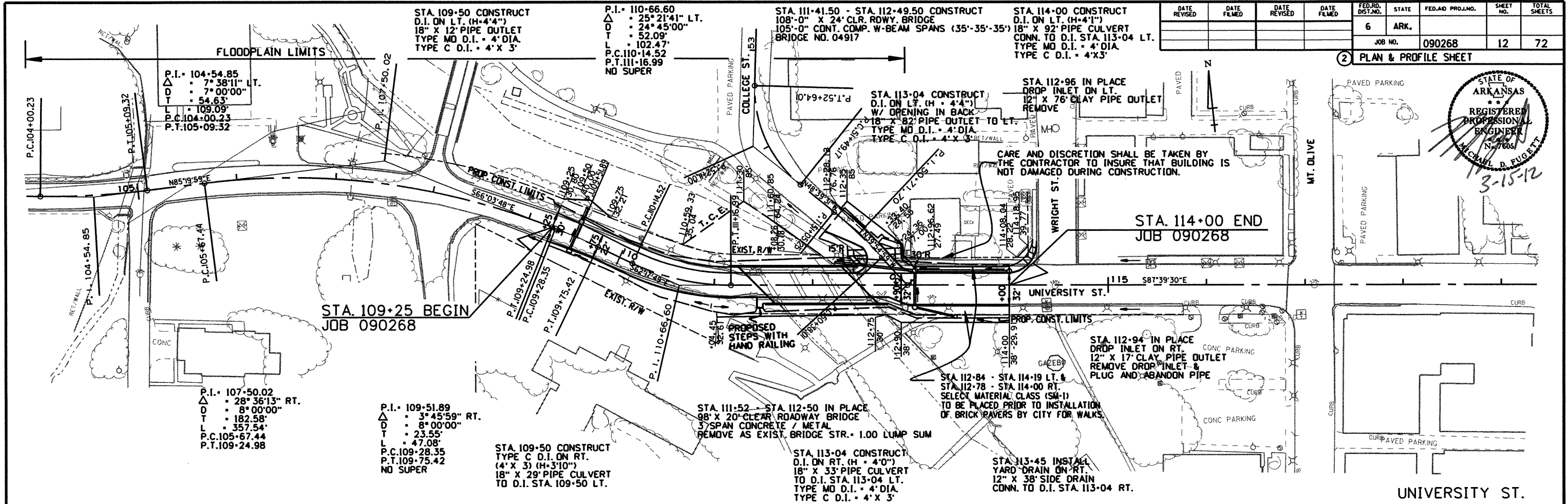
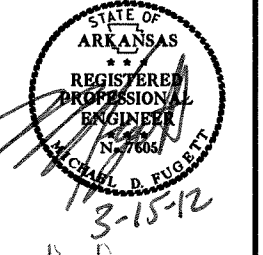
POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	684232.2937	560726.9575
8001	P.C.	04+00.23	684211.5612	561126.6452
8003	P.T.	05+09.32	684213.1760	561235.6430
8004	P.C.	05+67.44	684217.9051	561233.4254
8006	P.T.	09+24.98	684158.6959	561645.4408
8500	P.I.	09+25.00	684158.6959	561645.4408
8007	P.C.	09+28.35	684157.3190	561645.4989
8009	P.T.	09+75.42	684136.8178	561687.8702
8010	P.C.	10+14.52	684118.6449	561722.4803
8012	P.T.	11+16.99	684092.3015	561820.6422
8013	P.I.	14+00.00	684080.7378	562103.4202
8013	POE	119+53.22	684058.1337	562656.1791

COLLEGE ST.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8015	POB	112+96.10	684084.4831	561999.8057
8016	P.C.	112+70.54	684086.0273	561974.0633
8019	P.T.	112+21.70	684088.0229	561925.2733
8021	P.T.	111+41.29	684091.3083	561844.9291
8022	POE	111+43.96	684091.1993	561847.5952

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. 090268							12	72

2 PLAN & PROFILE SHEET



r090268p.dgn 12/14/2009

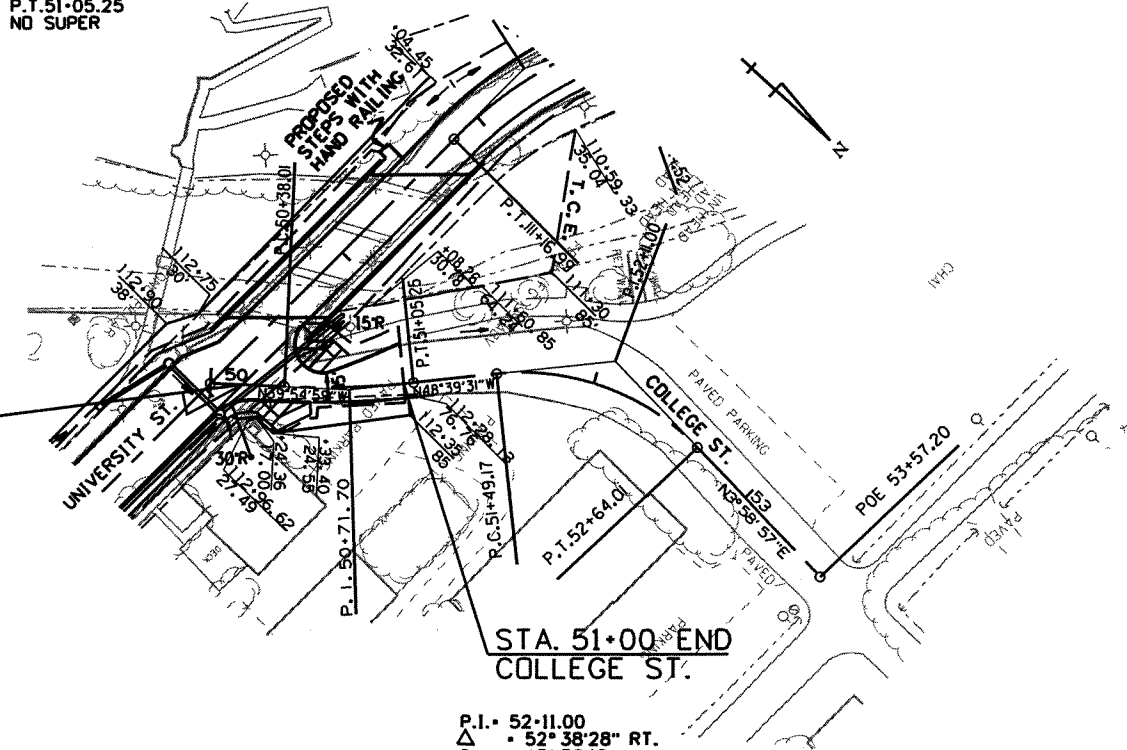
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				6	ARK.			
JOB NO. 090268							13	72

2 PLAN & PROFILE SHEET



P.I. 50+71.70
 Δ : 8° 44' 32" LT.
 D : 13° 00' 00"
 T : 33.69'
 L : 67.25'
 P.C. 50+38.01
 P.T. 51+05.25
 NO SUPER

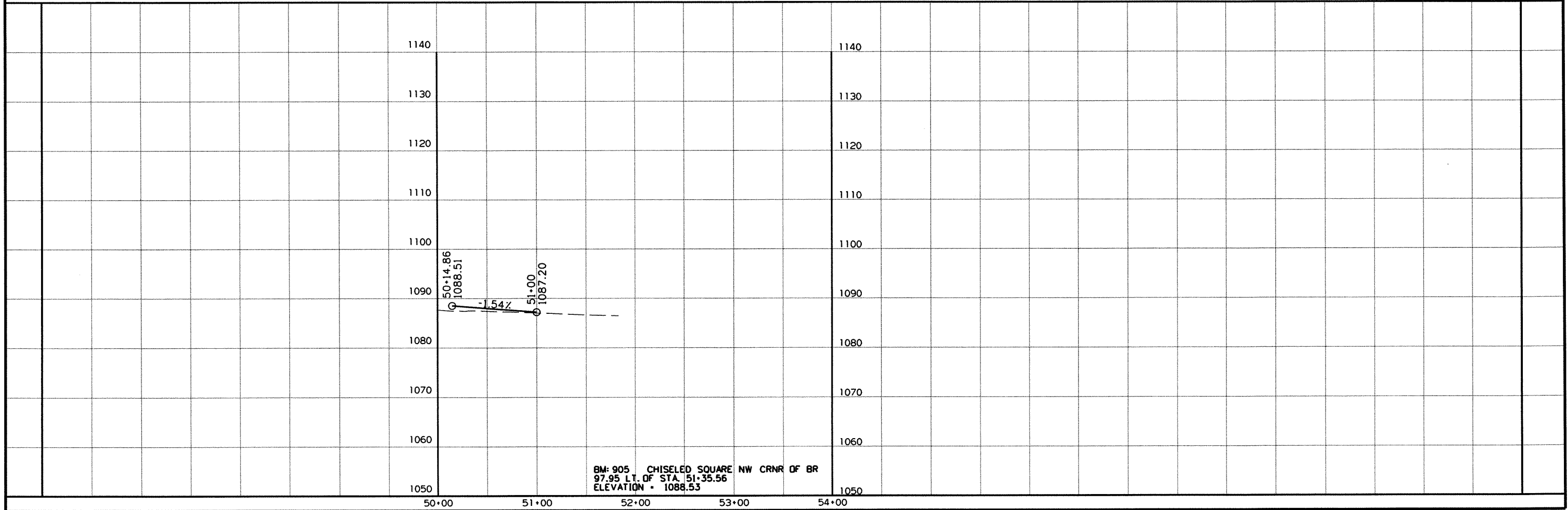
STA. 50+14.86 BEGIN
 COLLEGE ST.



P.I. 52+11.00
 Δ : 52° 38' 28" RT.
 D : 45° 50' 12"
 T : 61.83'
 L : 114.85'
 P.C. 51+49.17
 P.T. 52+64.01
 NO SUPER

STA. 51+00 END
 COLLEGE ST.

COLLEGE ST.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. NO. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 090268	14	72
② ILLUMINATION QUANTITIES SHEET								

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	QUANTITIES TOTAL	UNIT
710	NON-METALLIC CONDUIT (1.5")	390	LIN. FT.
710	NON-METALLIC CONDUIT (3")	200	LIN. FT.
SS & 711	CONCRETE PULL BOX (TYPE 1HD)	2	EACH
SP	ROADWAY ILLUMINATION POLE (ACORN-175W-METAL HALIDE, ANTIQUE, 8')	6	EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT, COPPER (3C/4 A.W.G., EGC)	140	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT, COPPER (3C/6 A.W.G., EGC)	450	LIN. FT.

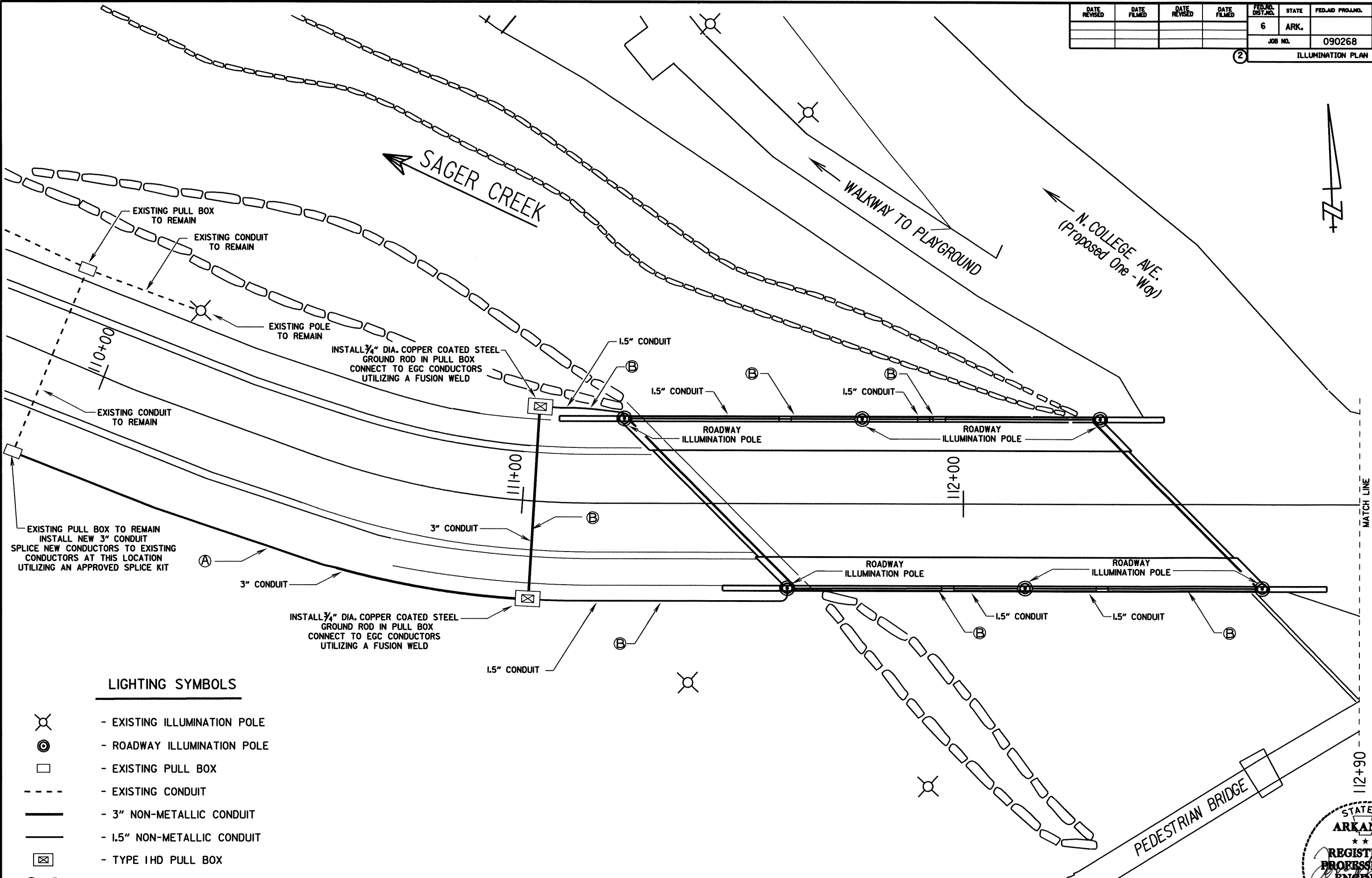
GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.
2. UNDERGROUND CONDUIT SHALL HAVE 24" OF COVER (MINIMUM).
3. UNDERGROUND CONDUIT INSTALLED UNDER PAVED SURFACES SHALL BE INSTALLED BY A PUSHING OR BORING METHOD.
4. ALL ELECTRICAL SPLICES SHALL BE INSTALLED USING "HOMAC RXL SERIES" ENCAPSULATING SPLICE KITS OR AS APPROVED BY THE JOB ENGINEER.
5. THE CONTRACTOR SHALL PERFORM A 48 HOUR BURN TEST COORDINATED WITH THE JOB ENGINEER.
6. ANY EXISTING EQUIPMENT REMOVED SHALL BECOME THE PROPERTY OF THE CITY.
7. THE ACORN FIXTURES AND STAINLESS STEEL PULL BOXES WITH CAPTIVATED STAINLESS STEEL SCREW-COVERS ARE CONSIDERED SUBSIDIARY TO THE ITEM ROADWAY ILLUMINATION POLE.
8. THE LUMINAIRE SHALL BE OF THE METAL HALIDE DESIGN (MH), 175 WATT, FULL CUTOFF SYMMETRIC LIGHT DISTRIBUTION ALLOWING LESS THAN 5% UP-LIGHT.
9. CONDUIT DEFLECTION/EXPANSION FITTINGS SHALL BE INSTALLED AT EACH OF THE BRIDGE EXPANSION JOINTS. THE DEFLECTION/EXPANSION FITTING USED SHALL BE O-Z/GEDNEY TYPE DX-150 OR AS APPROVED BY THE JOB ENGINEER. THE DEFLECTION/EXPANSION FITTINGS AND STANDARD ADAPTERS SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM NON-METALLIC CONDUIT. THE FITTINGS SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. 090268	15 72

(2) ILLUMINATION PLAN SHEET

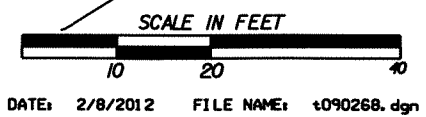


LIGHTING SYMBOLS

- EXISTING ILLUMINATION POLE
- ROADWAY ILLUMINATION POLE
- EXISTING PULL BOX
- EXISTING CONDUIT
- 3" NON-METALLIC CONDUIT
- 1.5" NON-METALLIC CONDUIT
- TYPE IHD PULL BOX
- KEYED CONDUIT RUN DATA

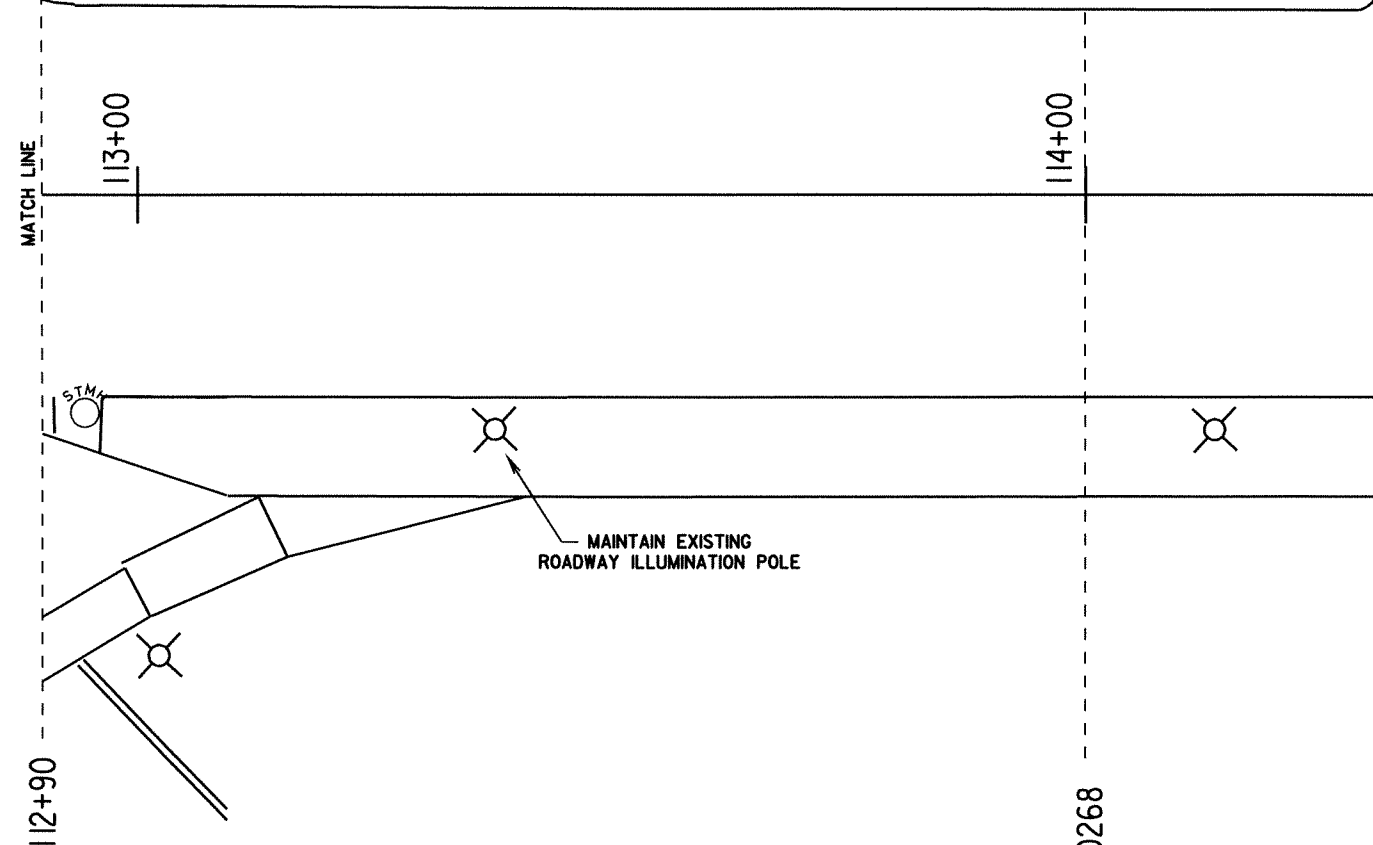
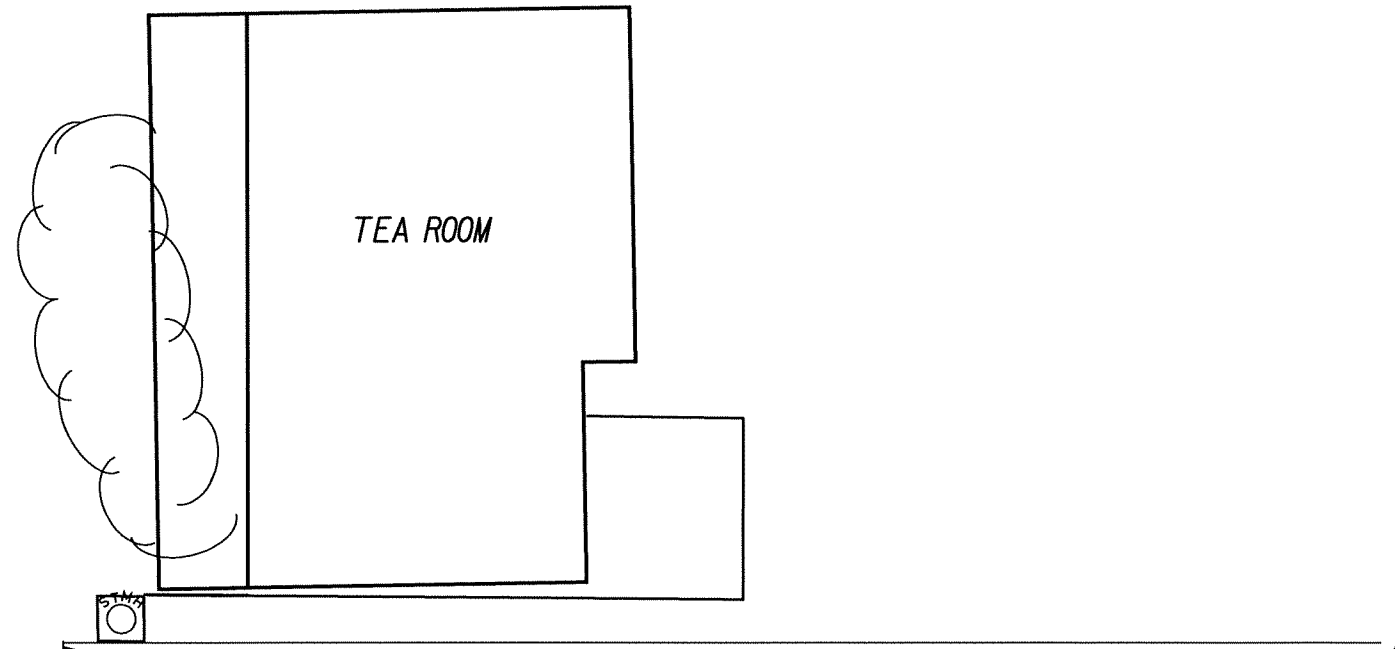
KEYED CONDUIT RUN DATA

- (A) 3C/*4 A.W.G., IC/*4 E.G.C.
- (B) 3C/*6 A.W.G., IC/*6 E.G.C.



DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						090268	16	72

ILLUMINATION PLAN SHEET



LIGHTING SYMBOLS

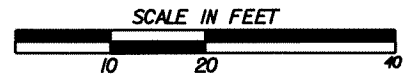
- EXISTING ILLUMINATION POLE
- ROADWAY ILLUMINATION POLE
- EXISTING PULL BOX
- EXISTING CONDUIT
- 3" NON-METALLIC CONDUIT
- 1.5" NON-METALLIC CONDUIT
- TYPE 1HD PULL BOX
- KEYED CONDUIT RUN DATA

MAINTAIN EXISTING ROADWAY ILLUMINATION POLE

KEYED CONDUIT RUN DATA

- Ⓐ 3C/*4 A.W.G., IC/*4 E.G.C.
- Ⓑ 3C/*6 A.W.G., IC/*6 E.G.C.

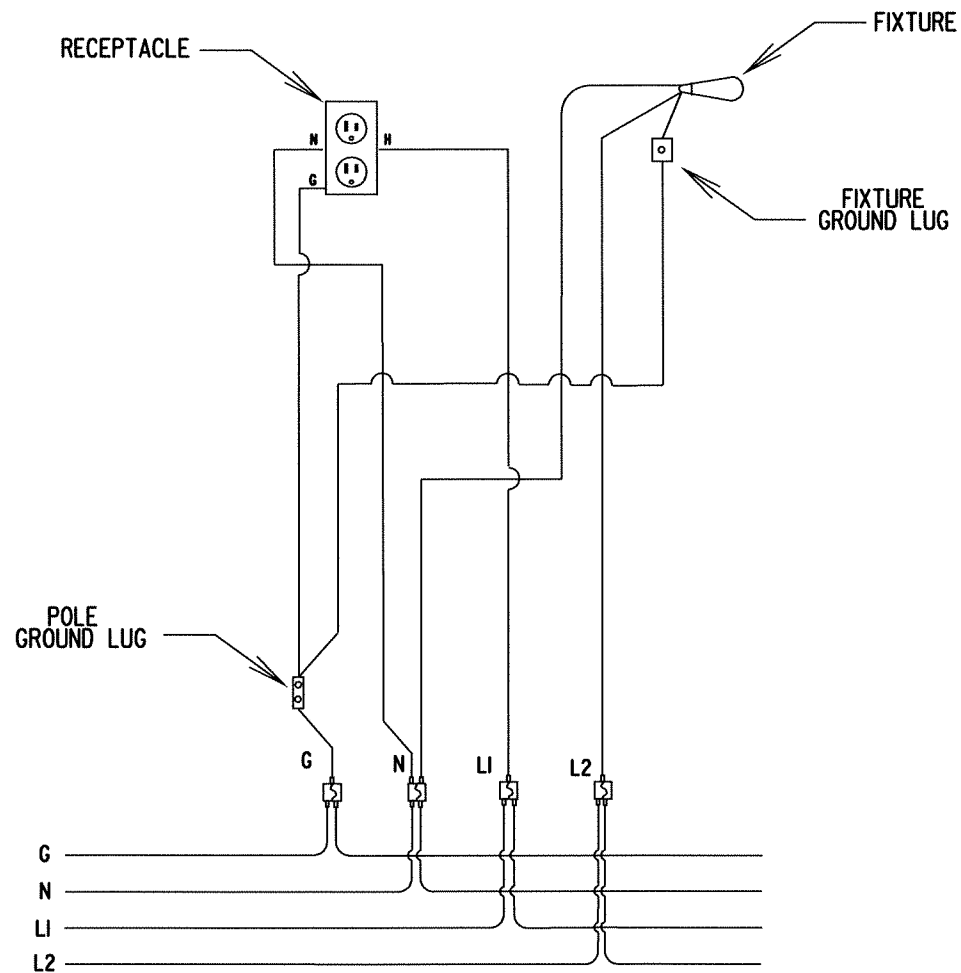
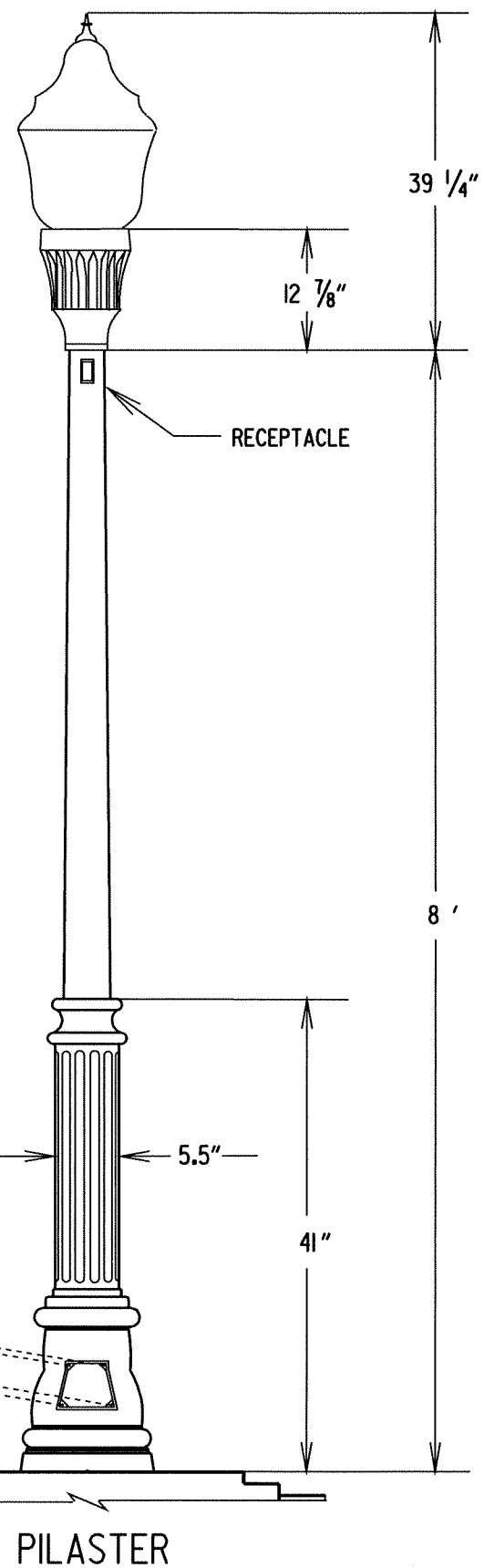
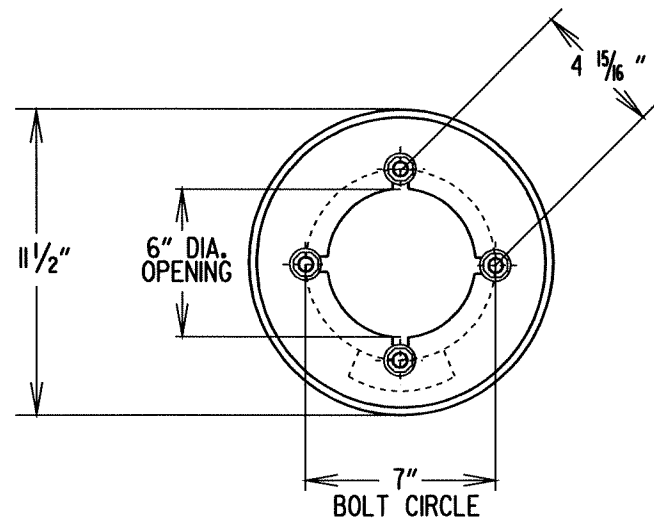
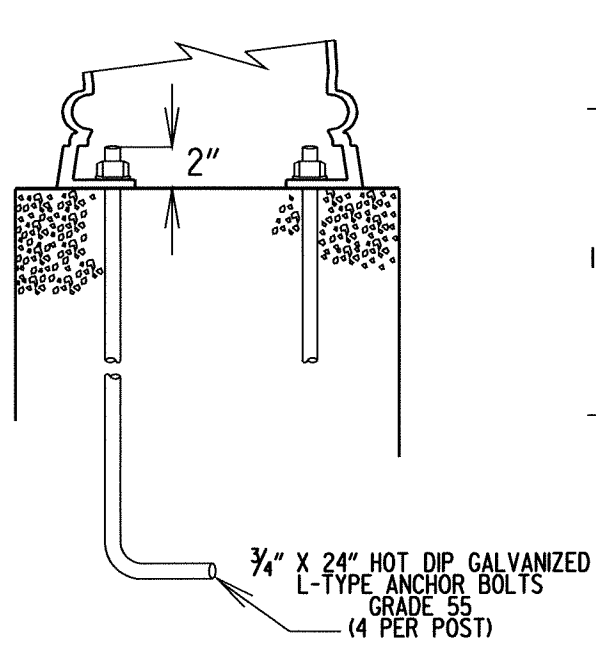
END JOB 090268



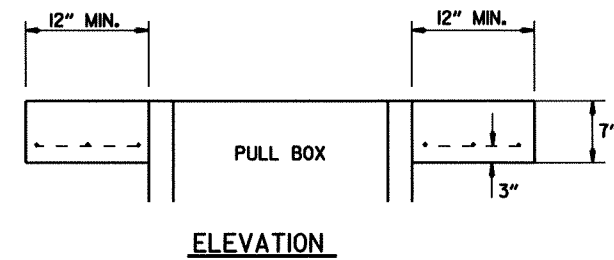
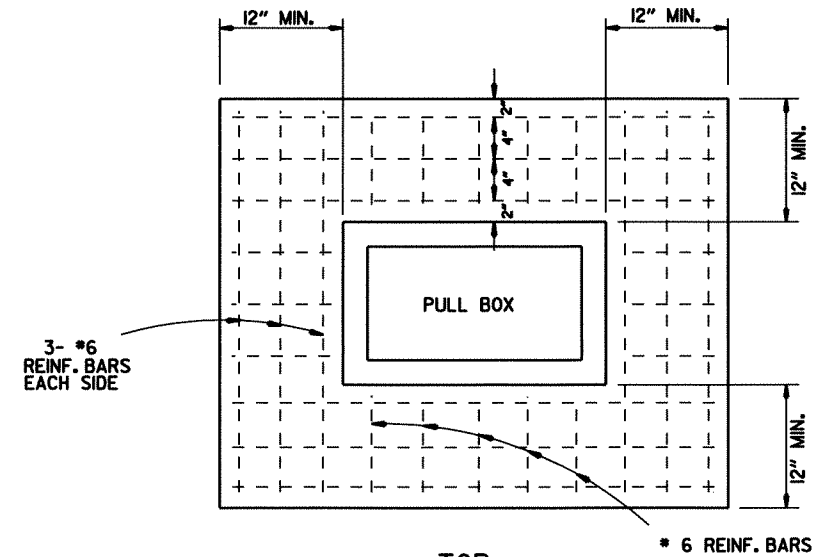
DATE: 2/8/2012 FILE NAME: t090268.dgn



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	090268	17 72
(2) ILLUMINATION DETAILS								



NOTE:
ALL REINFORCING BARS
TO BE GRADE 60

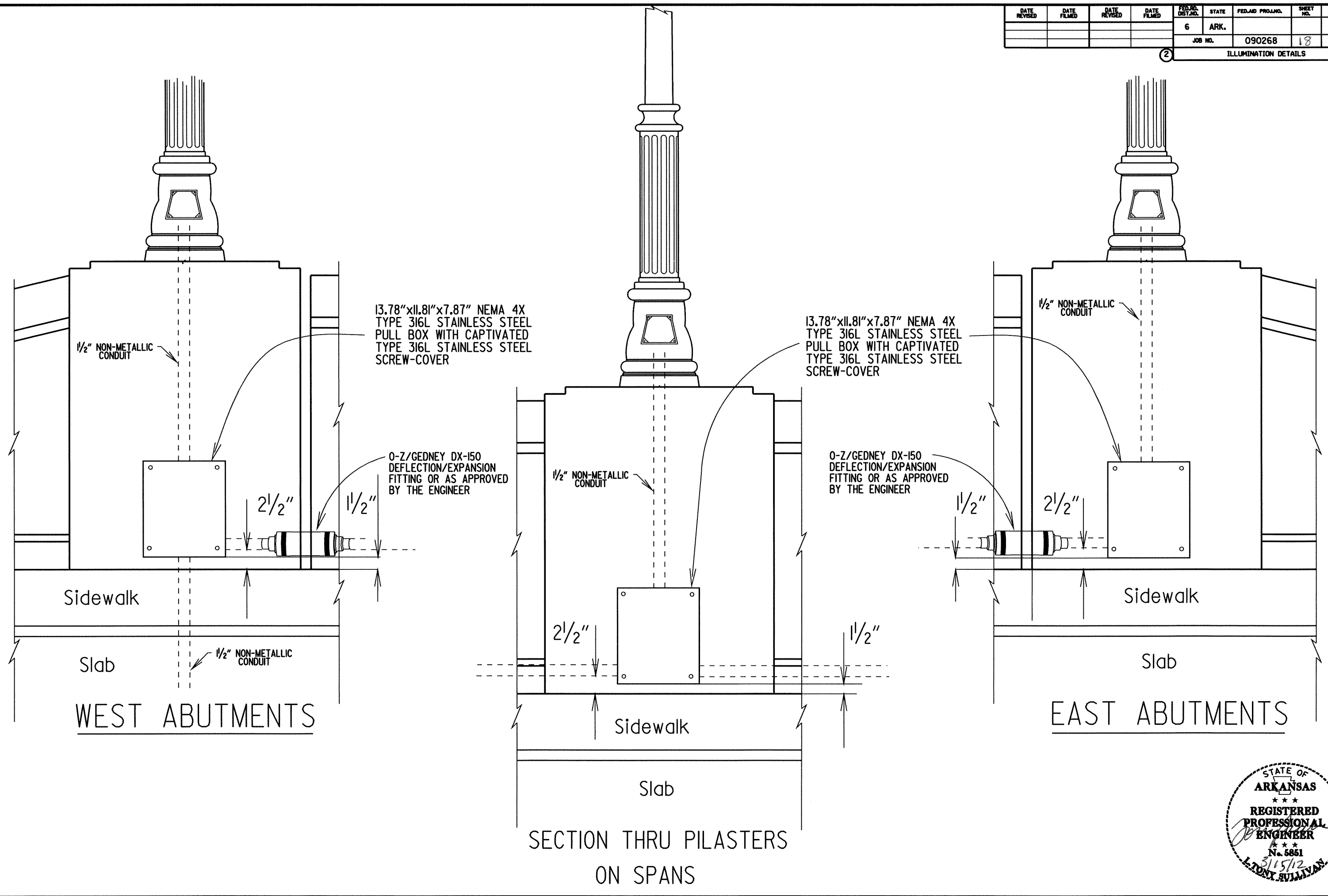


DETAILS OF CONCRETE APRON
FOR TYPE "HD" PULL BOX



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. NO. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090268	18	72	

2 ILLUMINATION DETAILS



13.78"x11.81"x7.87" NEMA 4X
TYPE 316L STAINLESS STEEL
PULL BOX WITH CAPTIVATED
TYPE 316L STAINLESS STEEL
SCREW-COVER

13.78"x11.81"x7.87" NEMA 4X
TYPE 316L STAINLESS STEEL
PULL BOX WITH CAPTIVATED
TYPE 316L STAINLESS STEEL
SCREW-COVER

0-Z/GEDNEY DX-150
DEFLECTION/EXPANSION
FITTING OR AS APPROVED
BY THE ENGINEER

0-Z/GEDNEY DX-150
DEFLECTION/EXPANSION
FITTING OR AS APPROVED
BY THE ENGINEER

Sidewalk

Sidewalk

Sidewalk

Slab

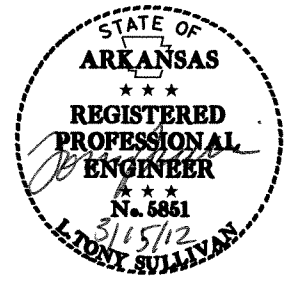
Slab

Slab

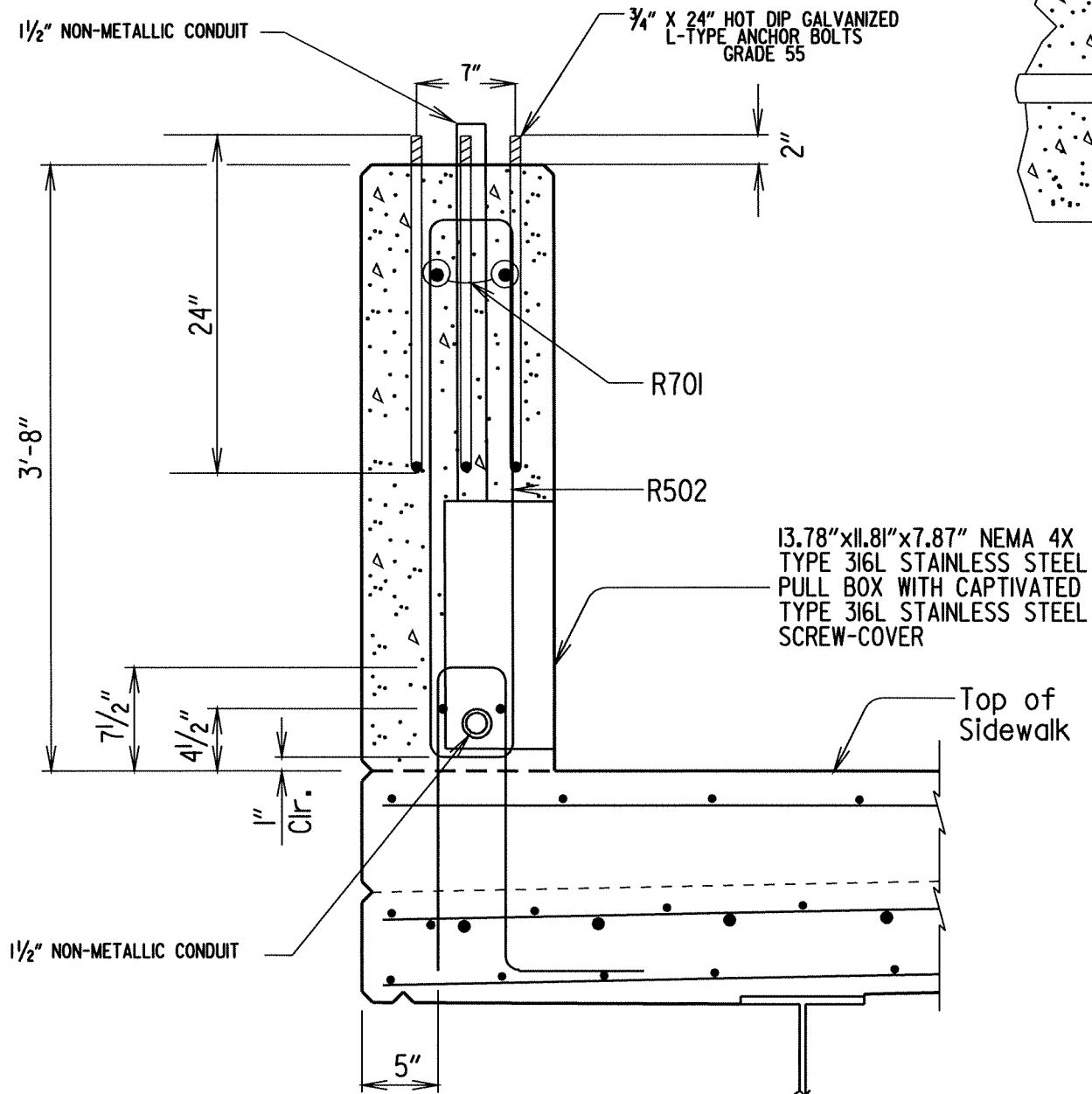
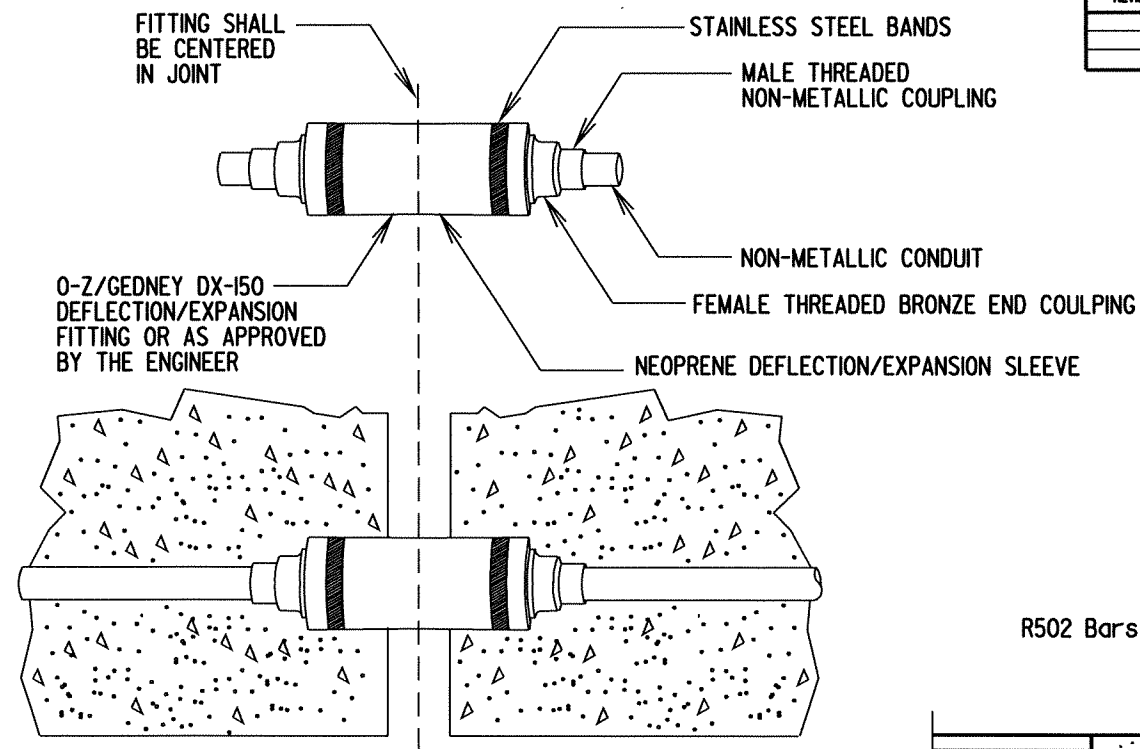
WEST ABUTMENTS

EAST ABUTMENTS

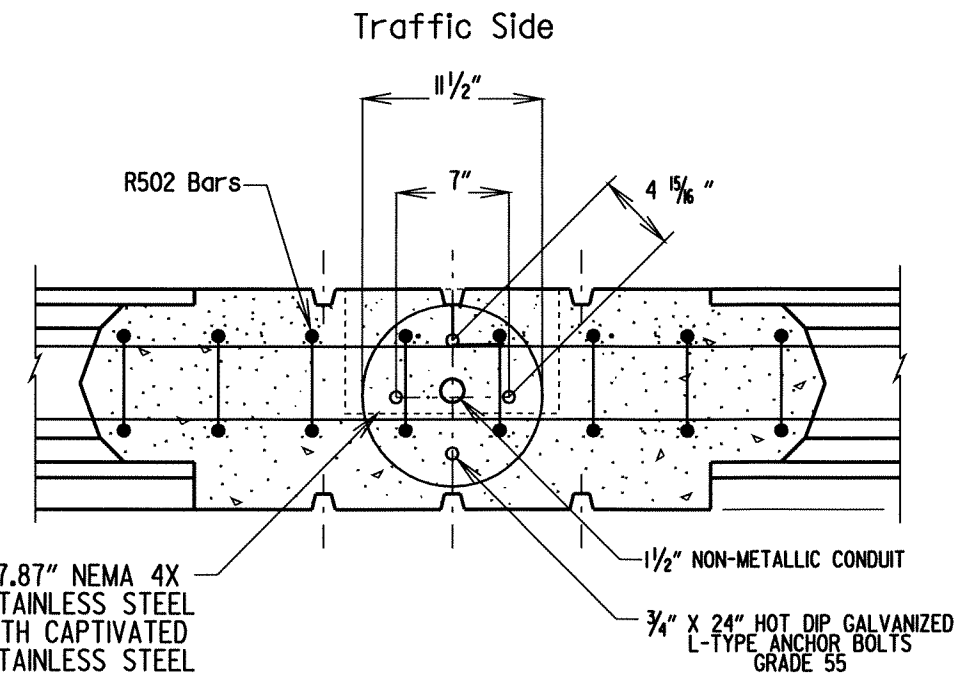
SECTION THRU PILASTERS
ON SPANS



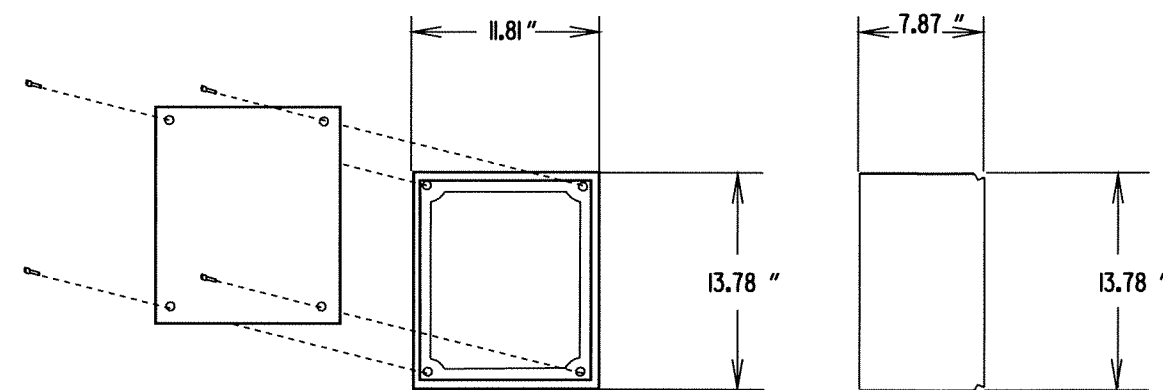
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				6	ARK.			
				JOB NO.	090268		19	72
ILLUMINATION DETAILS								



SECTION THRU PILASTERS
ON SPANS



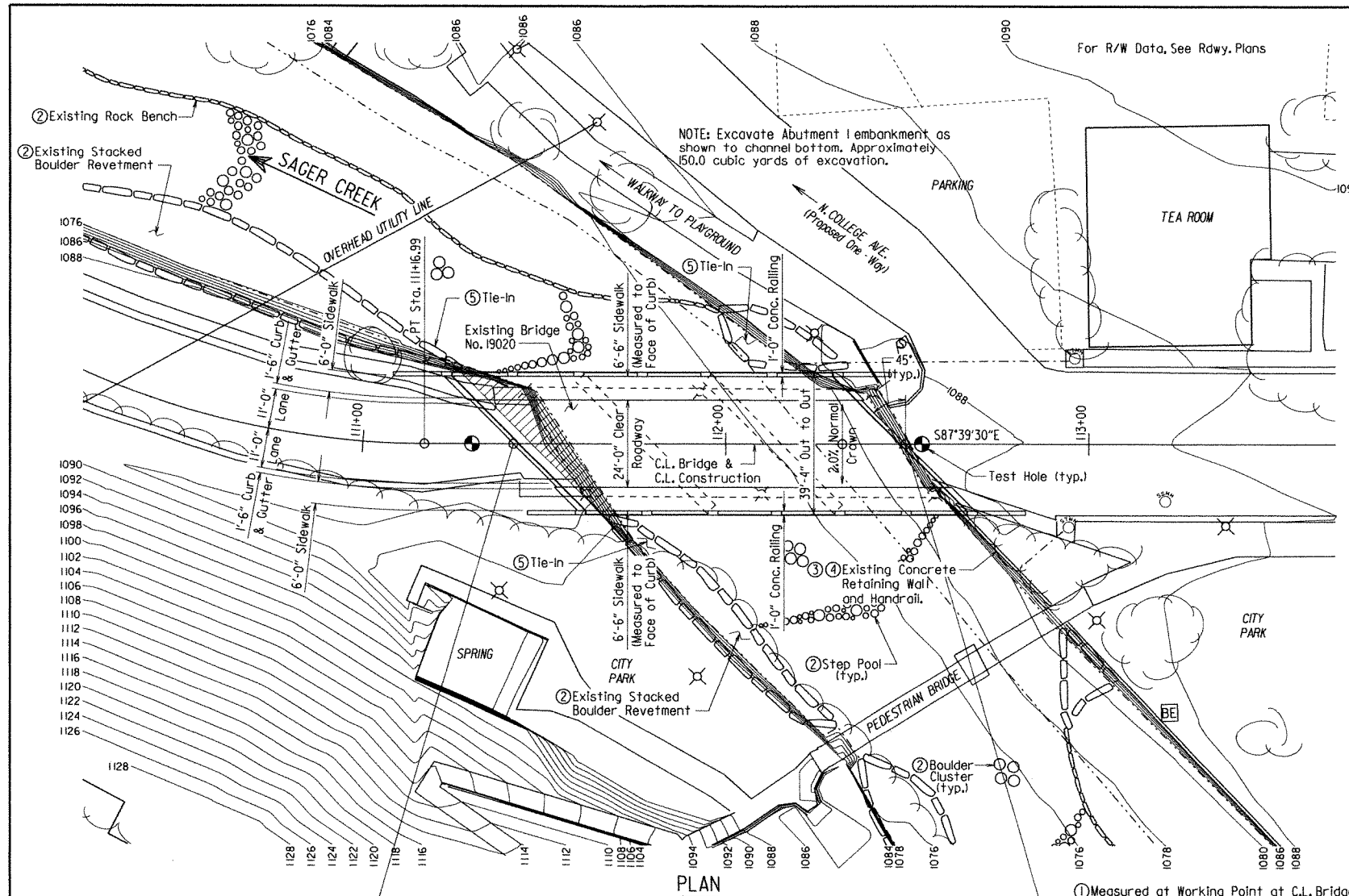
SECTION B-B



STAINLESS STEEL PULL BOX
NEMA 4X TYPE 316L STAINLESS STEEL



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.	090268		2072	
				04917	LAYOUT		52253	

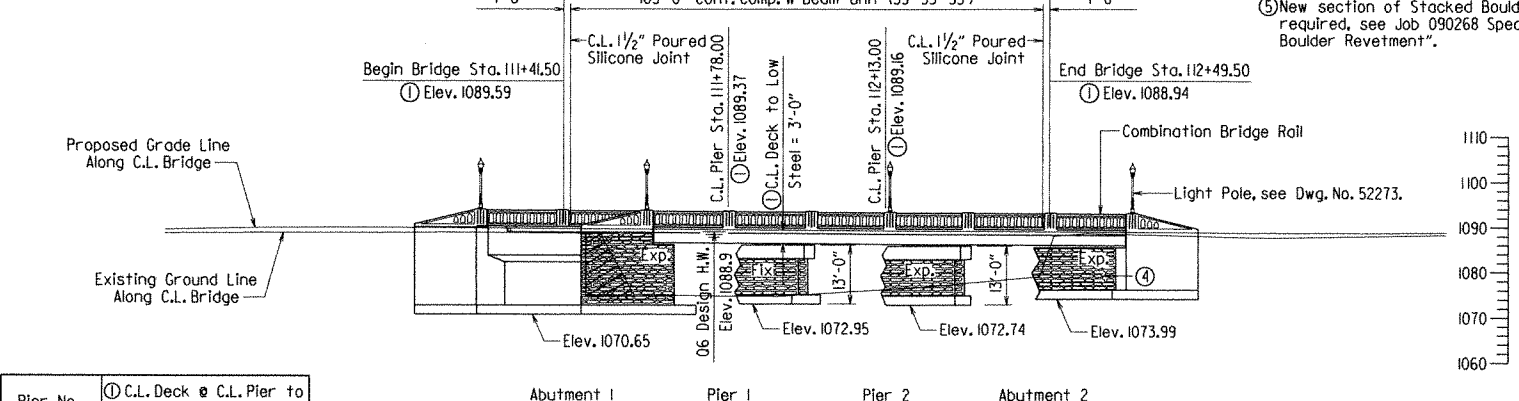


NOTE: THE CONTRACTOR IS ENCOURAGED TO VISIT THE SITE PRIOR TO PREPARING AND SUBMITTING A BID.

- Measured at Working Point at C.L. Bridge. See "Rounding Detail" on Dwg. No. 52268.
- See Job special provisions "Protection and Restoration of Property and Landscape" and "Stacked Boulder Revetment".
- See details on Dwg. Nos. 52255 and 52256 for existing retaining wall and handrail modifications.
- Limestone Masonry Facing on vertical surfaces of intermediate pier walls, bridge end abutments and existing retaining wall, see Job 090268 Special Provision "Stone Masonry Facing".
- New section of Stacked Boulder Revetment as required, see Job 090268 Special Provision "Stacked Boulder Revetment".

PROFILE GRADE LINE

Along C.L. Bridge



Pier No.	C.L. Deck @ C.L. Pier to Low Side Top of Cap
1	3'-5/8"
2	3'-5/8"

NOTE: See Dwg. No. 52254 for Soil Boring information & Hydraulic Data.

GENERAL NOTES

BENCH MARK: *905, chiseled square on NW corner of existing bridge, 17.22' Lt. of Sta. 111+36.51, Elevation 1088.53.

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, Section and Subsection refer to the Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition with 2010 Interims.

LIVE LOADING: HL93

SEISMIC PERFORMANCE ZONE: I

MATERIALS AND STRENGTHS:

Class (SAC) Concrete (superstructure)	f'c = 4,000 psi
Class 5 Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 53, Gr. 60)	Fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	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.

FOOTINGS: Footings shall be set a minimum of 2'-0" into material designated as calcareous chert and limestone on the boring legend. The top of abutment and pier footings shall be set at or below the channel bottom as determined by the lowest channel elevation within the footprint of the footing. Foundations for footings shall be prepared in accordance with subsection 80L04. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with subsection 80L08. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to protect nearby structures and spring and to avoid shattering of rock faces by excessive blasting. The Contractor shall be responsible for any extra work, damages and associated costs caused by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock.

PAINTING: All structural steel, except galvanized members, shall be painted as specified in subsection 807.75. Color of paint shall be Grey and shall match Federal Std. 595B, Color Chip 36515.

BRIDGE DECK: The concrete bridge deck (except the sidewalk surface) shall be given a fine finish as specified for final finishing in subsection 802J9 for Class 5 Tined Bridge Roadway Surface Finish. The sidewalks shall receive a broomed finish as specified for final finishing in subsection 802J9 for Class 6 Broomed Finish.

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the surface of the roadway and sidewalks and to all exposed surfaces of the concrete bridge railing.

DETAIL DRAWINGS

DETAIL DRAWINGS	DRAWING NO(S).
Abutment 1	52257-52260
Piers and 2	52261-52262
Abutment 2	52263-52266
Elastomeric Bearings	52267
105'-0" Cont. W-Beam Unit	52268-52272
Combination Bridge Roll	52273-52275

EXISTING BRIDGE: Existing Bridge No. 19020 is 30.5' wide and 101' long and consists of a concrete deck on steel beams supported by concrete wall piers and abutments.

REMOVAL AND SALVAGE: Existing Bridge No. 19020 shall be removed in accordance with Section 205. Portions of existing footings will need to be removed to a greater extent to avoid interference with new construction. This work shall be paid for under the Item "Removal of Existing Bridge Structure".

All material from the existing bridge shall become the property of the Contractor, except the following which shall remain the property of the City:

- Light Poles, Acorn Glass and Fixtures, Steel Beams

The Contractor shall stockpile salvaged items at the job site until time of pickup by the City. Salvaged items shall be loaded onto City vehicles by the Contractor. Payment for this work shall be considered subsidiary to the item "Removal of Existing Bridge Structure". Care shall be exercised to avoid damaging or destroying any member or part of serviceable quality in dismantling the structure. Any member rendered unfit for further use through the carelessness of the Contractor shall be replaced at no cost to the Department.

MAINTENANCE OF TRAFFIC: The road will be closed during the construction of this project.

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER
SAGER CREEK
SAGER CREEK STR. & APPRS.
(UNIVERSITY ST.) (SILOAM SPRINGS) (S)
BENTON COUNTY
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.



DRAWN BY: KMY DATE: 9-22-10 FILENAME: b090268_LLdgn
CHECKED BY: AMS DATE: 11-1-11 SCALE: 1" = 20'
DESIGNED BY: AMS DATE: 9-10
BRIDGE NO. 04917 DRAWING NO. 52253

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.		090268	21	72
				04917	LAYOUT			52254

BORING LEGEND

- AI-Hard, Black Asphalt Pavement
- BI-Moist, Medium Dense, Brown and Gray Gravel (Chert Fragments)
- CI-Moist, Medium Dense, Brown and Gray Gravel (Chert Fragments) with Clayey Sand
- DI-Moist, Medium Dense, Brown and Gray Clay with Gravel (Chert Fragments)
- EI-Hard, Gray, Boulder (Chert)
- FI-Stiff, Gray Clay with Gravel (Chert Fragments)
- GI-CALCAREOUS CHERT - Gray, Medium-Bedded, Weathered, Hard, some Vertical Fractures, a Vertical Layer of Calcite, Slight Dip
- HI-CALCAREOUS CHERT WITH OCCASSIONAL LIMESTONE LAYERS - Gray, Medium-Bedded, Weathered, Hard, Slight Dip
- JII-INTERBEDDED CALCAREOUS CHERT AND LIMESTONE - Gray, Medium-Bedded, Weathered, Hard, Slight Dip
- KI-Black, Asphalt and Concrete Pavement
- LI-Moist, Medium Dense, Brown and Gray Sand and Gravel
- MI-Moist, Loose, Brown and Gray Sand with Clay and Some Gravel
- NI-Void (Penetrated Culvert Pipe)
- PI-Moist, Medium Stiff, Brown and Gray Clay with Gravel (Chert Fragments)
- OI-Hard, Gray Boulder (Chert)
- RI-Moist, Medium Stiff, Gray Clay with Gravel (Chert Fragments)
- SI-CHERT - Gray, Weathered, Hard, Slight Dip
- TI-LIMESTONE WITH OCCASSIONAL CALCAREOUS CHERT LAYERS - Gray, Medium-Bedded, Weathered, Hard, Slight Dip
- UI-CALCAREOUS CHERT WITH OCCASSIONAL LIMESTONE LAYERS - Gray, Medium-Bedded, Highly Weathered to Weathered, Hard, Slight Dip
- VI-CALCAREOUS CHERT WITH OCCASSIONAL LIMESTONE SEAMS - Gray, Medium-Bedded, Weathered, Hard, some Vertical Fractures, Slight Dip
- WI-CALCAREOUS CHERT WITH FREQUENT LIMESTONE LAYERS - Gray, Medium-Bedded, Weathered, Hard, some Vertical Fractures, Slight Dip

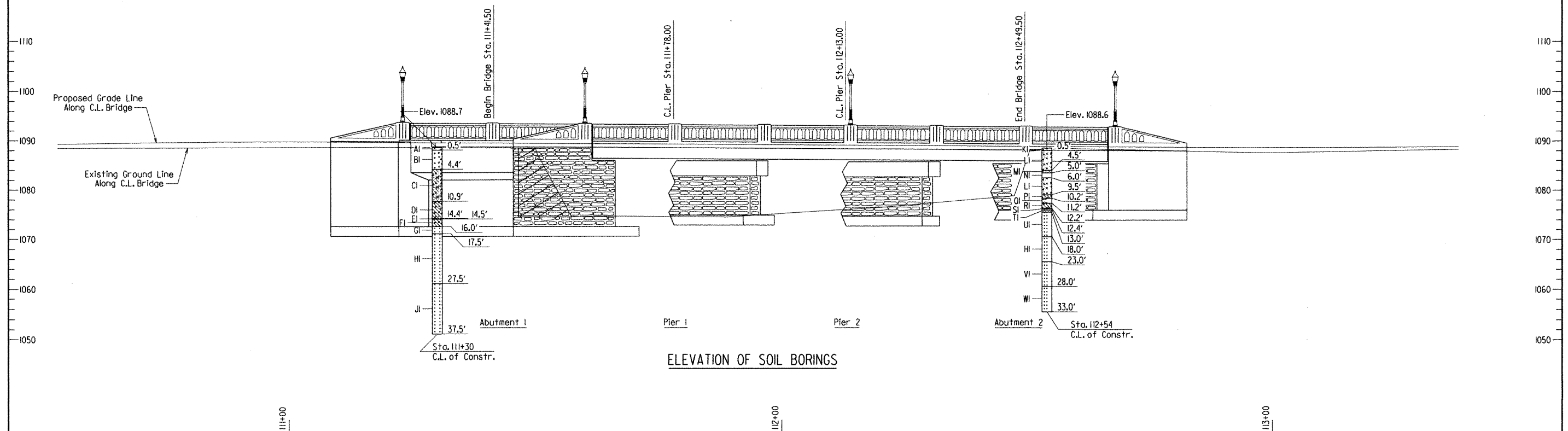
"N" VALUES

- Sta. 111+30 - Center Line of Construction
 - 4.9- 5.9, N=22
 - 9.9- 10.9, N=16
 - 14.4- 14.5, N=10 (1')
- Sta. 112+54 - Center Line of Construction
 - 5.0- 6.0, N=0

HYDRAULIC DATA

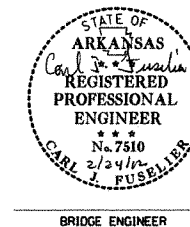
FLOOD DESCRIPTION	FREQUENCY YEARS	DISCHARGE CFS	WATER SURFACE ELEV. WITH BACKWATER
			FEET
⑦ Design	06	5,600	1088.9
Base	0100	9,400	1091.0
Extreme	0500	12,300	1091.9

- ⑥ Proposed Bridge is modeled with low-water bridge at North Maple in place and prior to stream restoration work by others.
 - ⑦ Design Flood based on overtopping event.
 - ⑧ Constricted water surface with structure and roadway approaches.
- 0100 backwater elevation for existing structure = 1091.0 feet
 Proposed Low Bridge Chord Elev. = 1085.85 feet
 Drainage area = 10.1 sq. miles

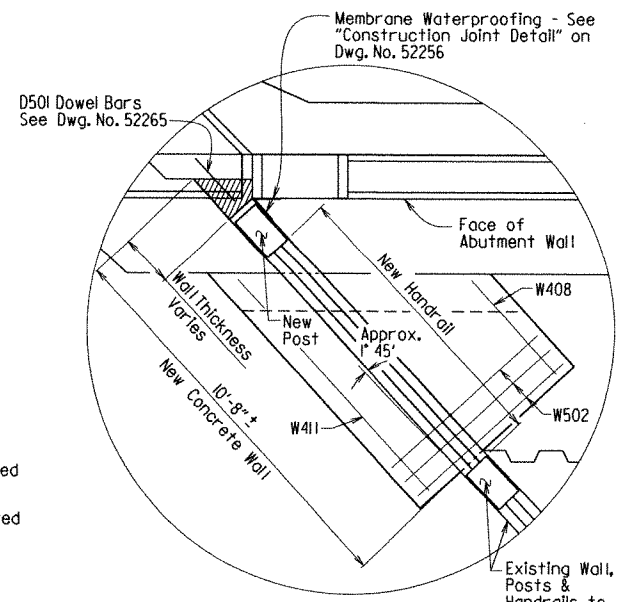
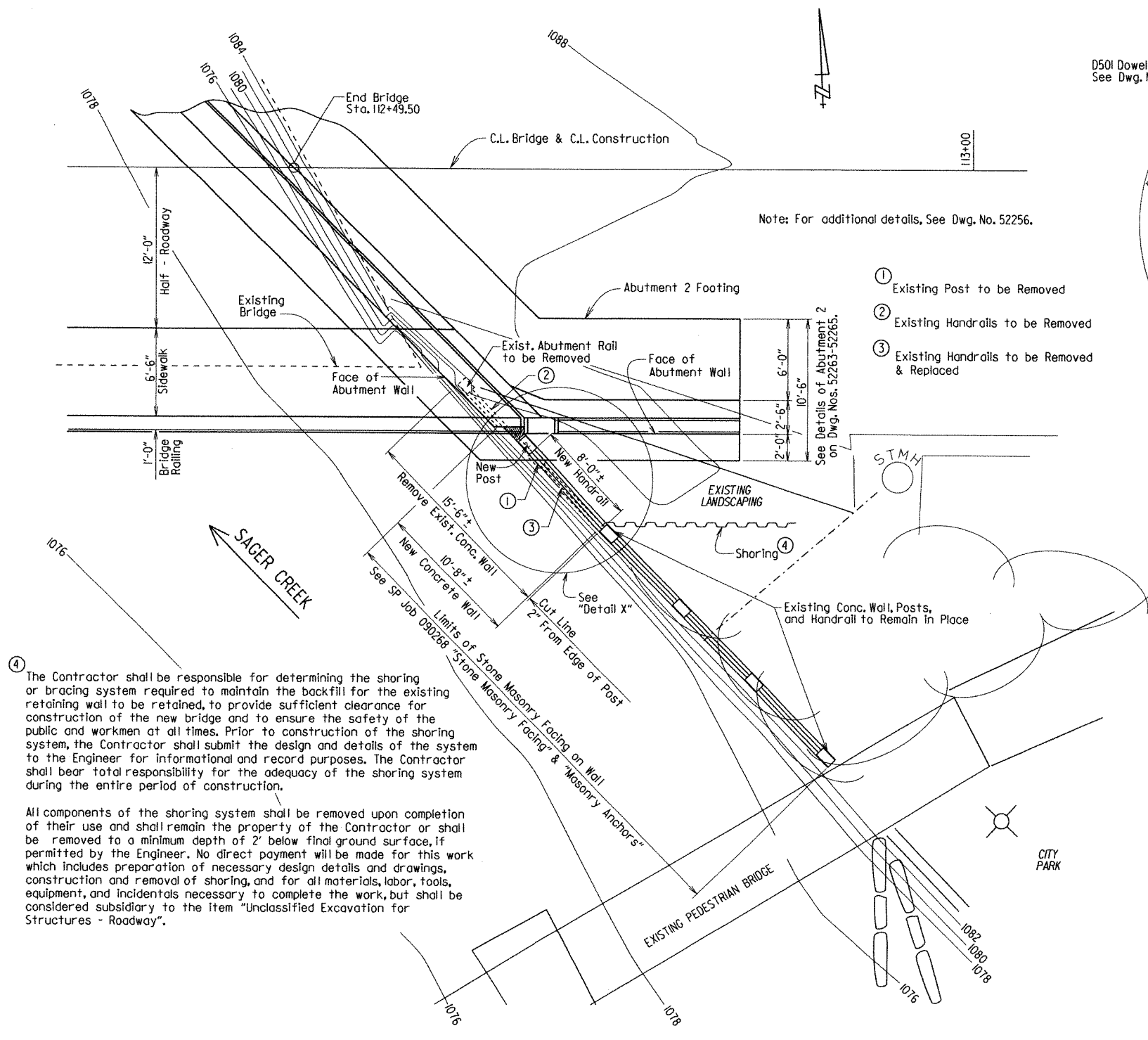


ELEVATION OF SOIL BORINGS

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER
SAGER CREEK
SAGER CREEK STR. & APPRS.
(UNIVERSITY ST.) (SILOAM SPRINGS) (S)
BENTON COUNTY
 ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KWy DATE: 12-8-10 FILENAME: b090268_LL.dgn
 CHECKED BY: AMS DATE: 11-1-11 SCALE: 1" = 10'
 DESIGNED BY: AMS DATE: 9-10
 BRIDGE NO. 04917 DRAWING NO. 52254



DATE REVISION	DATE FILMED	DATE REVISION	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090268		22	72
				04917	WALL MODIFICATIONS		52255	



DETAIL X
Note: Existing Wall to be Removed Not Shown for Clarity
No Scale

GENERAL NOTES

All measurements shall be field verified prior to construction. Adjustments shall be made as necessary to make the dimensions and appearance of the new work compatible with the existing structure as approved by the Engineer.

The Contractor shall use care in the removal and reconstruction of the retaining wall, posts and handrails to avoid damage to the existing wall and its attachments. Any damage to the existing retaining wall, posts or handrails to be retained shall be repaired or replaced by the Contractor at his expense to the satisfaction of the Engineer.

All concrete shall be Class S with a minimum 28 day compressive strength $f'c = 3,500$ psi and shall be paid for as Class S Concrete-Roadway. All exposed corners shall be chamfered $\frac{3}{4}$ " or to match existing unless otherwise directed by the Engineer.

Reinforcing steel shall conform to AASHTO M 31 or M 53, Grade 60 (Yield Strength = 60,000 psi) and shall be paid for as Reinforcing Steel-Roadway (Grade 60). A minimum cover of 2" shall be provided at ends of bars.

Weep Holes (Max. Spacing = 6' ctrs.) shall be placed where directed by the Engineer. Drain pipe for weep holes, mineral aggregate, and geotextile fabric will not be paid for directly, but shall be considered incidental to the various bid items.

Removal and reconstruction of portions of the existing concrete retaining wall, handrails, and posts shall be paid for under the bid items of Removal and Disposal of Retaining Walls, Unclassified Excavation for Structures-Roadway, Class S Concrete-Roadway, Reinforcing Steel-Roadway (Grade 60).

A stone masonry facing shall be applied to the face of wall as shown. See Special Provisions Job 090268 "Stone Masonry Facing" and "Masonry Anchors".

TABLE OF QUANTITIES
(FOR INFORMATION ONLY)

ITEM 202	ITEM 801	ITEM 802	SS & ITEM 804	SP JOB 090268
REMOVAL AND DISPOSAL OF RETAINING WALLS	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	CLASS S CONCRETE-ROADWAY	REINFORCING STEEL-ROADWAY (GRADE 60)	STONE MASONRY FACING
LIN. FT.	CU. YD.	CU. YD.	LB.	SQ. YD.
15.5	11	5.50	980	10

Notes:
Removal of Posts and Handrails shall be considered incidental to the item "Removal and Disposal of Retaining Walls".

Quantities are based on estimated elevations and dimensions shown. Actual values may vary due to field conditions or to match existing dimensions and appearance.

④ The Contractor shall be responsible for determining the shoring or bracing system required to maintain the backfill for the existing retaining wall to be retained, to provide sufficient clearance for construction of the new bridge and to ensure the safety of the public and workmen at all times. Prior to construction of the shoring system, the Contractor shall submit the design and details of the system to the Engineer for informational and record purposes. The Contractor shall bear total responsibility for the adequacy of the shoring system during the entire period of construction.

All components of the shoring system shall be removed upon completion of their use and shall remain the property of the Contractor or shall be removed to a minimum depth of 2' below final ground surface, if permitted by the Engineer. No direct payment will be made for this work which includes preparation of necessary design details and drawings, construction and removal of shoring, and for all materials, labor, tools, equipment, and incidentals necessary to complete the work, but shall be considered subsidiary to the item "Unclassified Excavation for Structures - Roadway".

PLAN OF EXISTING CONCRETE RETAINING WALL & HANDRAIL MODIFICATIONS

Scale: 1" = 5'

SHEET 1 OF 2

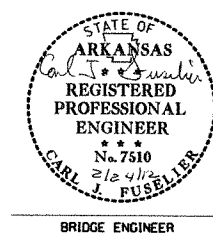
DETAILS OF EXISTING RETAINING WALL AND HANDRAIL MODIFICATIONS

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

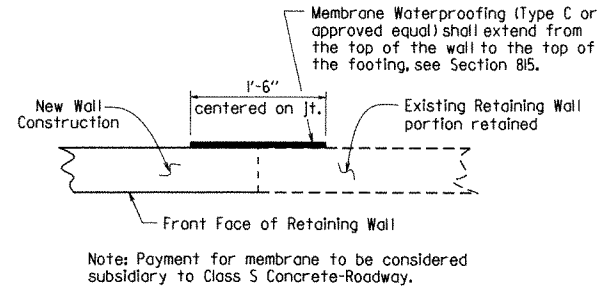
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CHECKED BY: KWY DATE: 2-24-12 SCALE: As Noted

DESIGNED BY: AMS DATE: 4/11
BRIDGE NO. 04917 DRAWING NO. 52255

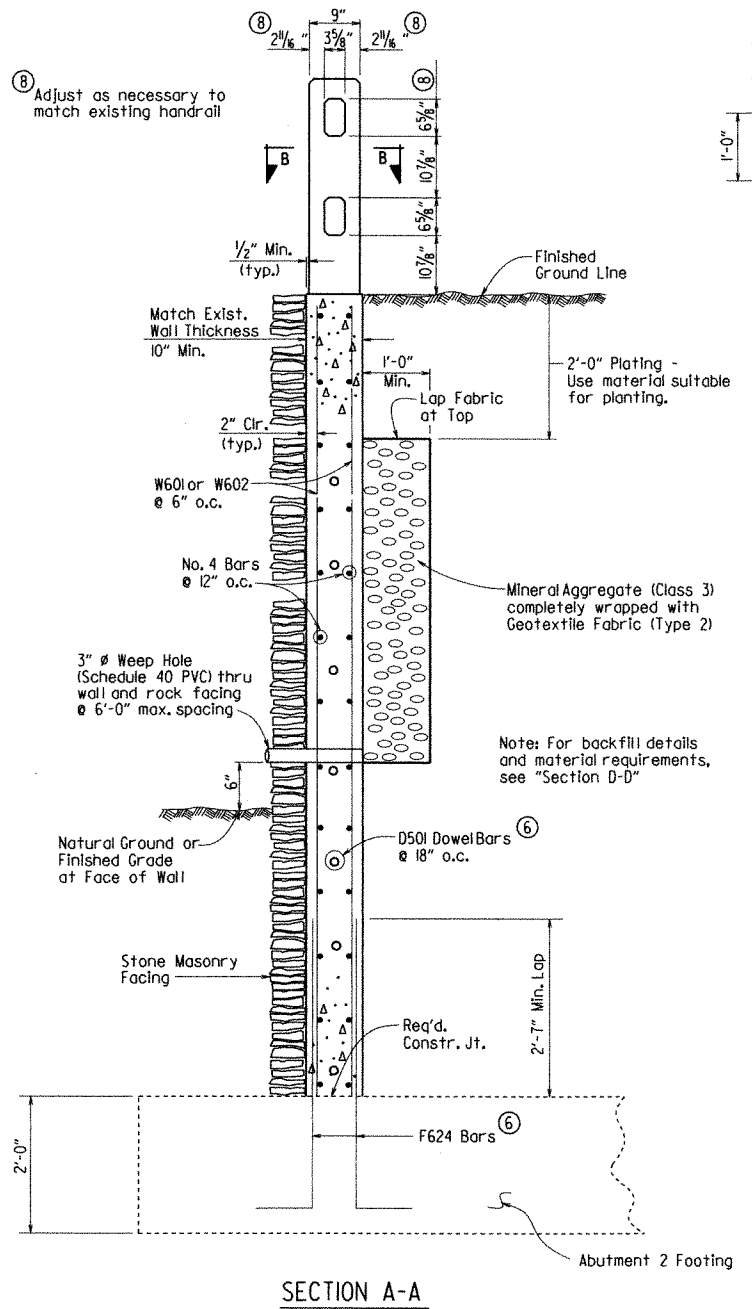


BRIDGE ENGINEER

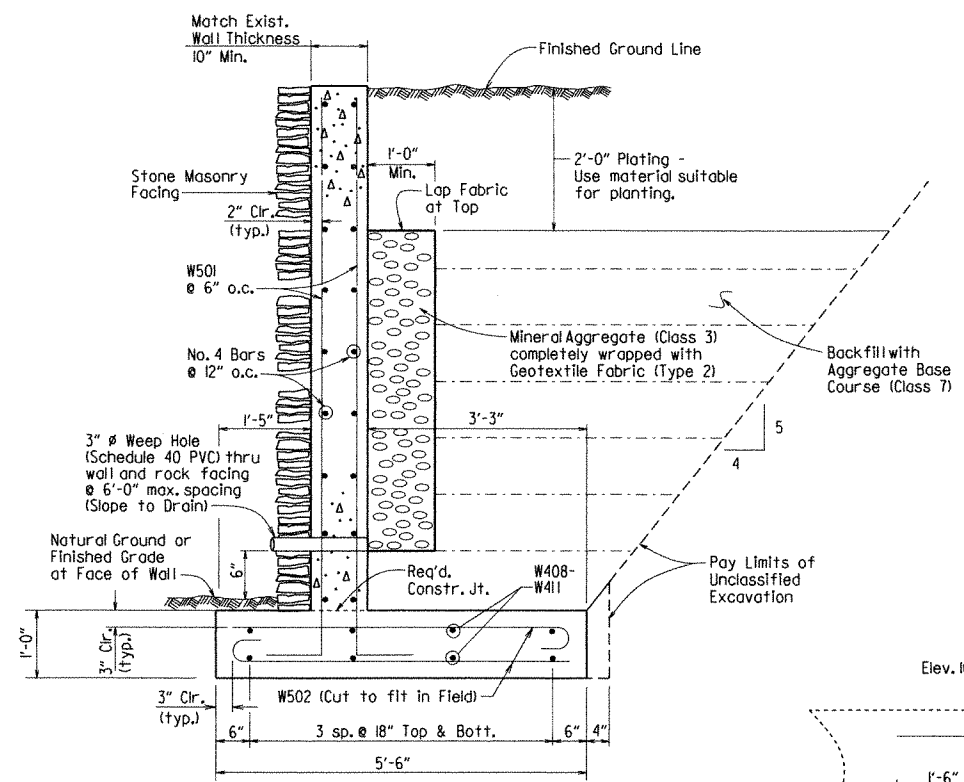
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		23	72
				JOB NO.	090268		23	72
				04917	WALL MODIFICATIONS		52256	



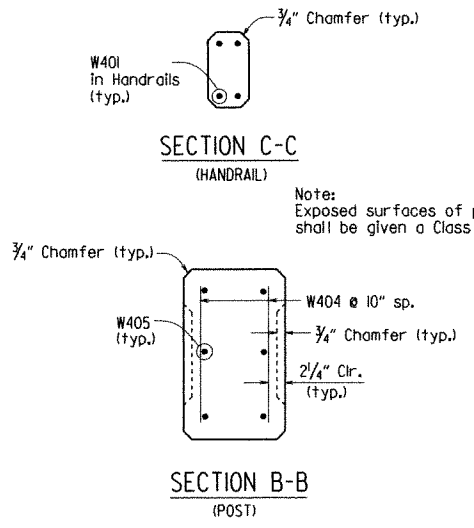
CONSTRUCTION JOINT DETAIL



SECTION A-A



SECTION D-D



SECTION C-C (HANDRAIL)

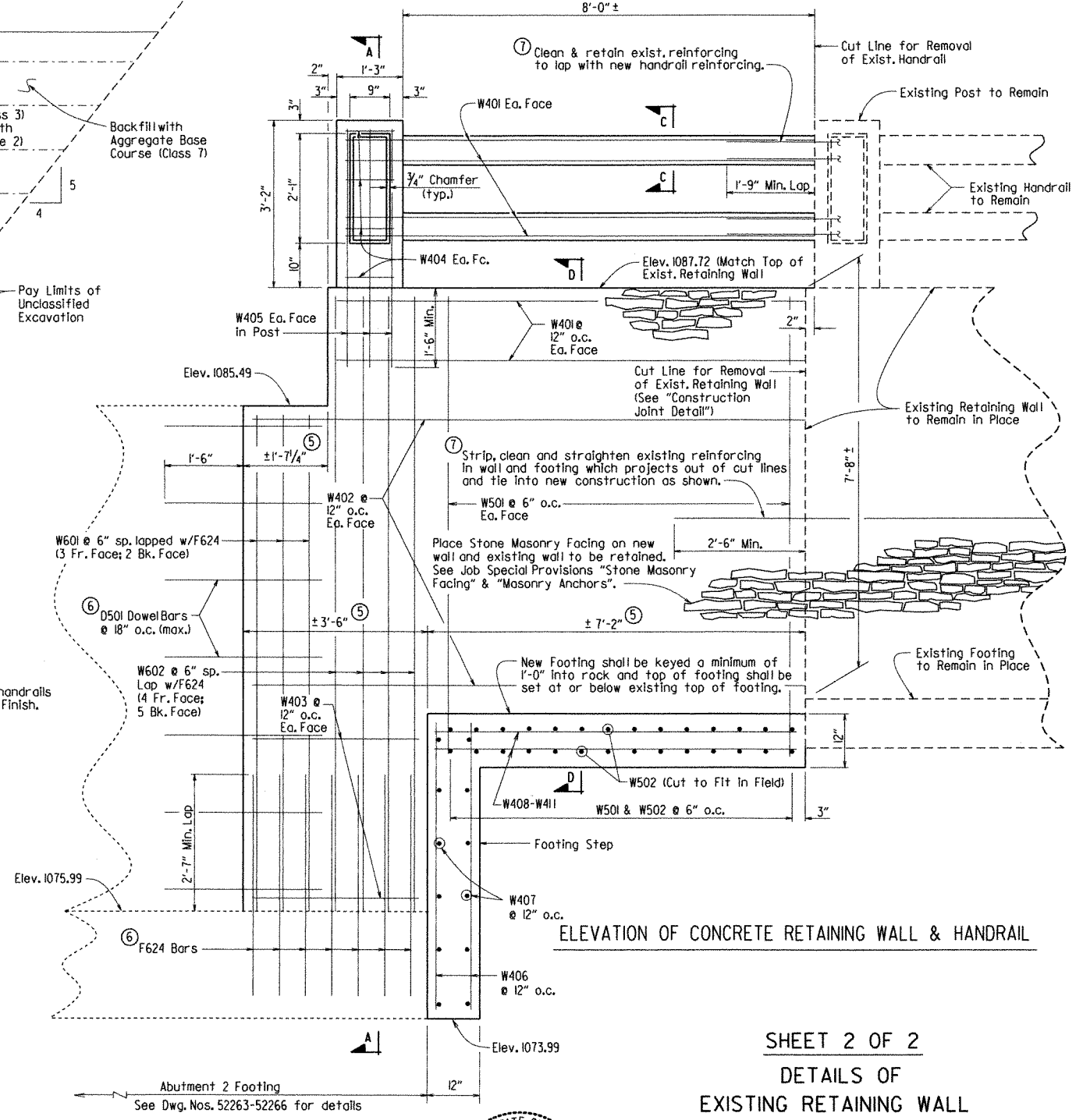
SECTION B-B (POST)

BAR LIST

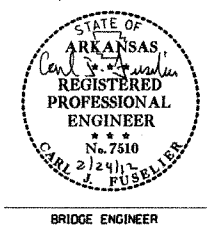
MARK	NO.	REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
W401	12		8'-11"	Str.	5'-0"
W402	12		10'-6"	Str.	
W403	8		3'-2"	Str.	W502
W404	8		11"	Str.	
W405	6		4'-6"	Str.	
W406	12		5'-7"	Str.	
W407	12		6'-10"	Str.	
W408-W411	2 Ea.		3'-3' to 7'-5"	Str.	W501
W501	28		9'-3"	3 3/4"	10"
W502	28		5'-7"	3 3/4"	
W601	5		9'-4"	Str.	
W602	9		11'-6"	Str.	

Dimensions are out to out of bars.

Existing reinforcing which is to be incorporated into new construction and is damaged by the Contractor shall be replaced at his expense to the satisfaction of the Engineer.



ELEVATION OF CONCRETE RETAINING WALL & HANDRAIL



SHEET 2 OF 2
DETAILS OF
EXISTING RETAINING WALL
AND HANDRAIL MODIFICATIONS

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

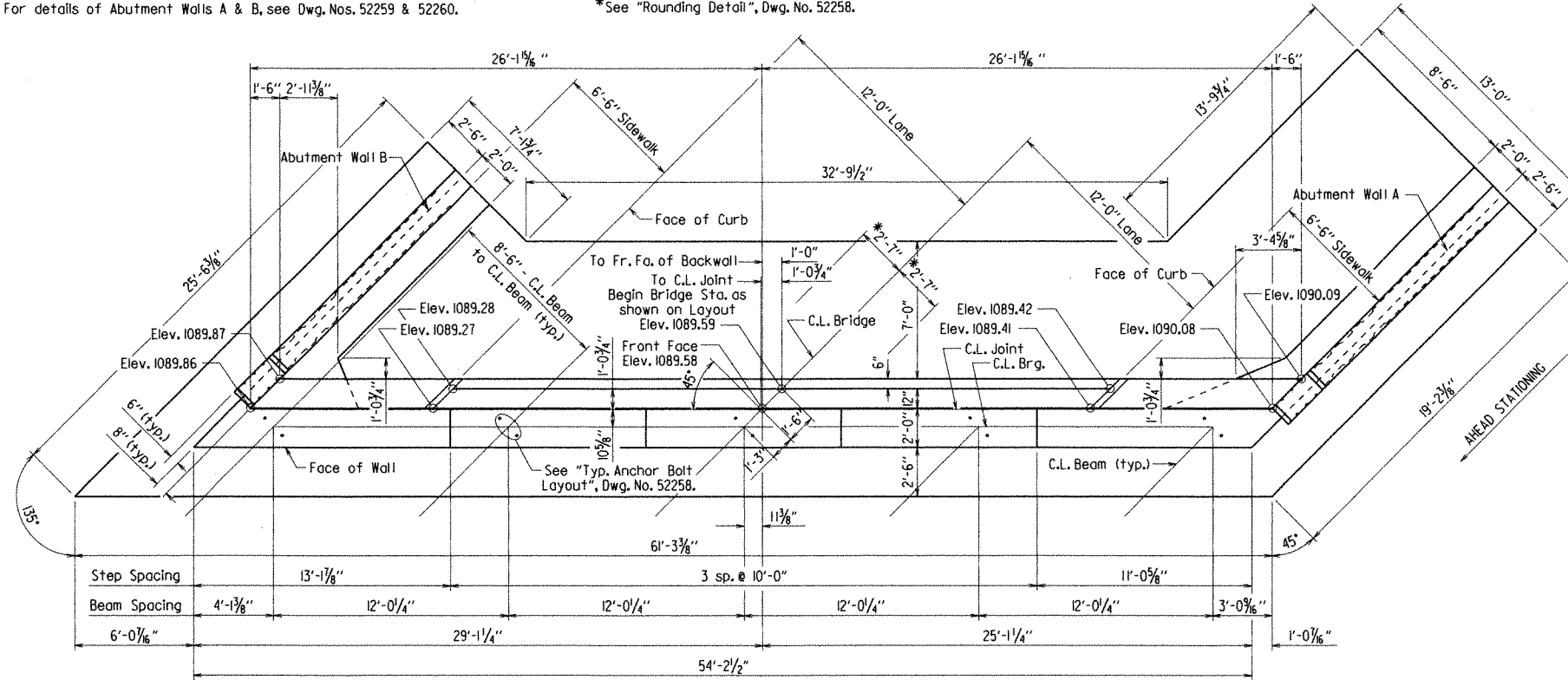
DRAWN BY: *AMS* DATE: 5/25/11 FILENAME: b090268_wallmod.dgn
 CHECKED BY: *EWJ* DATE: 2-24-12 SCALE: No Scale
 DESIGNED BY: *AMS* DATE: 4/11
 BRIDGE NO. 04917 DRAWING NO. 52256

⑤ Measured along front face of wall
 ⑥ See Abutment 2, Dwg. No. 52265 for additional details

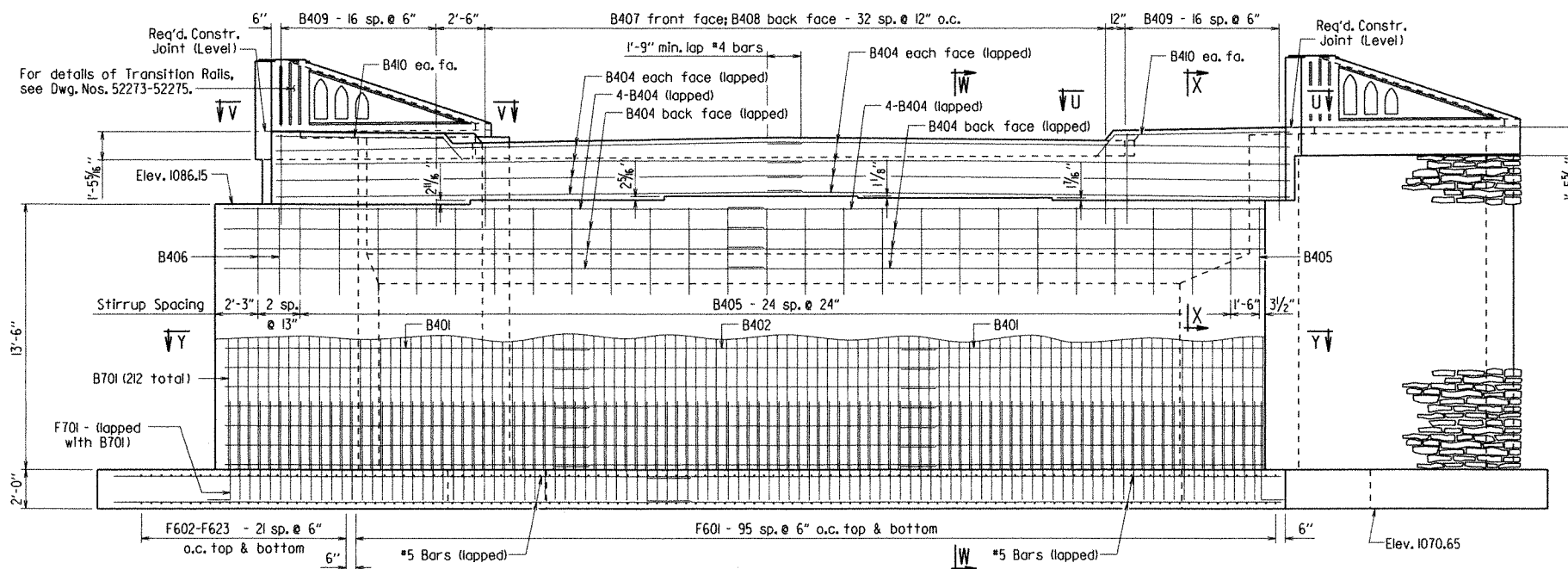
NOTE: Class 2 Protective Surface Treatment shall be applied to the top of the backwall and sidewalks and to all exposed surfaces of the transition rails.

For details of Abutment Walls A & B, see Dwg. Nos. 52259 & 52260.

*See "Rounding Detail", Dwg. No. 52258.



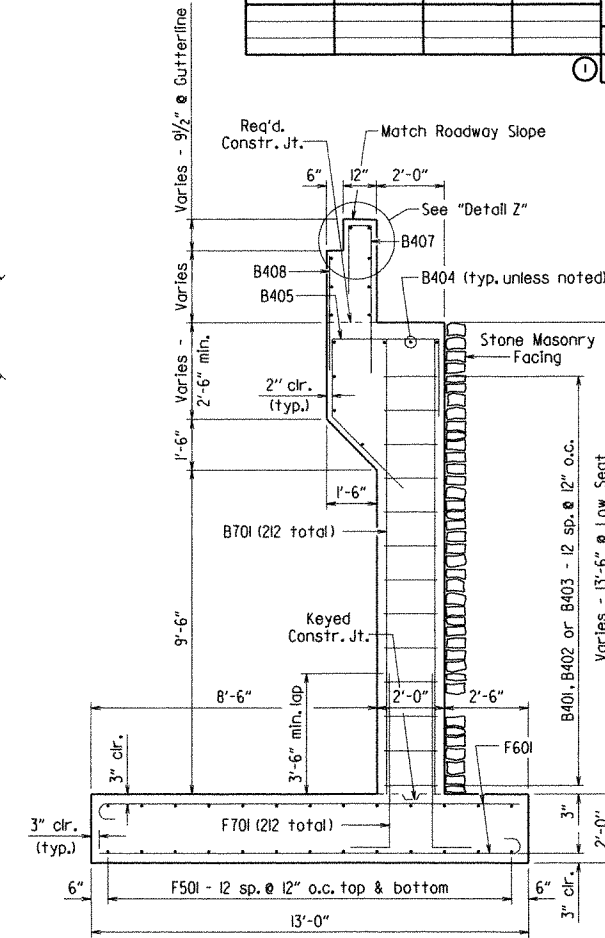
PLAN OF ABUTMENT I
1/4" = 1'-0"



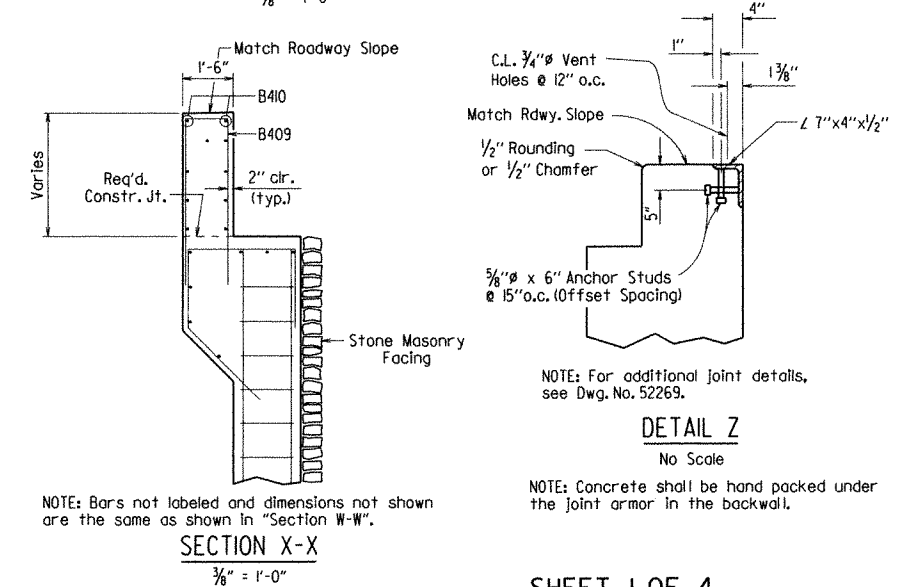
FRONT ELEVATION OF ABUTMENT I
Looking Back
1/4" = 1'-0"

NOTE: For "View U-U" and "View V-V" and "Section Y-Y", see Dwg. No. 52258.

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.		090268	2472	
				04917	ABUTMENT I			52257



SECTION W-W
3/8" = 1'-0"

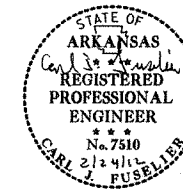


SECTION X-X
3/8" = 1'-0"

DETAIL Z
No Scale

NOTE: For additional joint details, see Dwg. No. 52269.

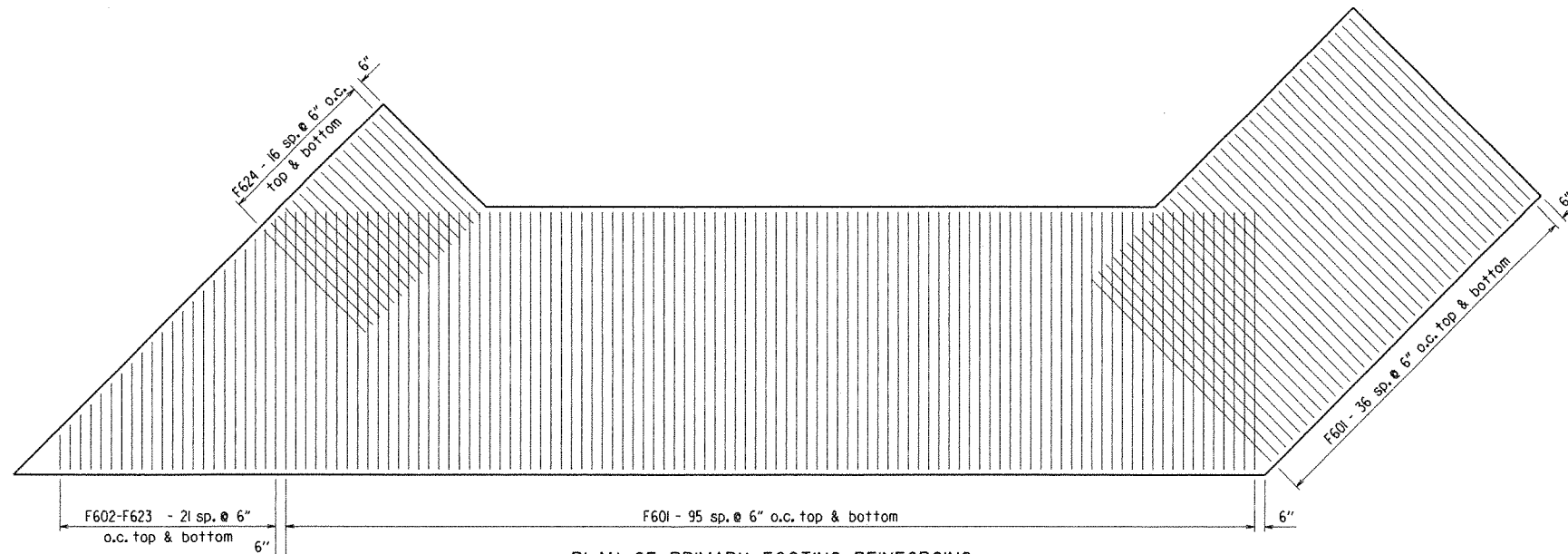
NOTE: Concrete shall be hand packed under the joint armor in the backwall.



BRIDGE ENGINEER

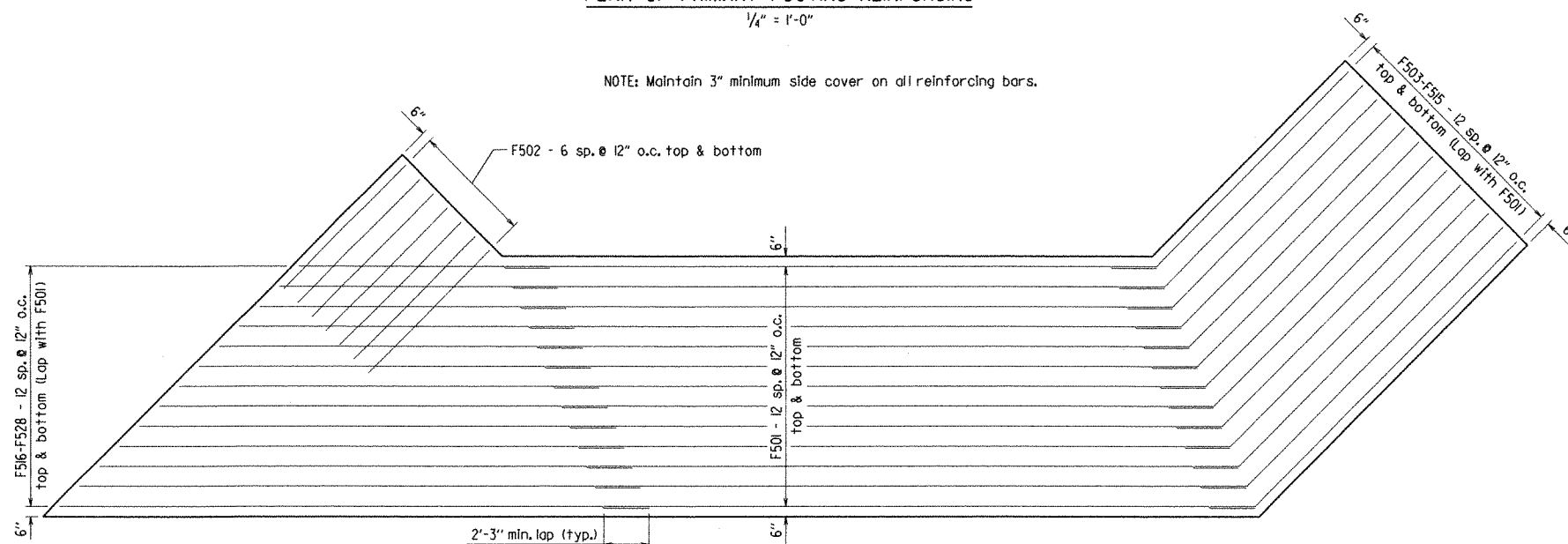
SHEET 1 OF 4
DETAILS OF ABUTMENT I
SAGER CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KWW DATE: 4-21-11 FILENAME: b090268.bl.dgn
CHECKED BY: AHS DATE: 7-5-11 SCALE: as noted
DESIGNED BY: KWW DATE: 4-11
BRIDGE NO. 04917 DRAWING NO. 52257

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.	090268		25	72
				04917	ABUTMENT I			52258

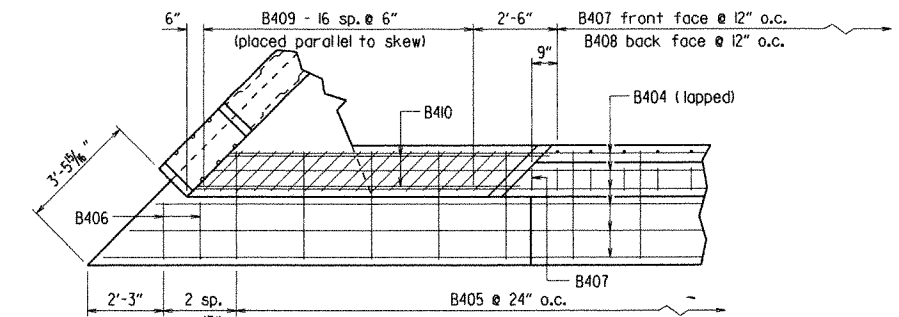


PLAN OF PRIMARY FOOTING REINFORCING
1/4" = 1'-0"

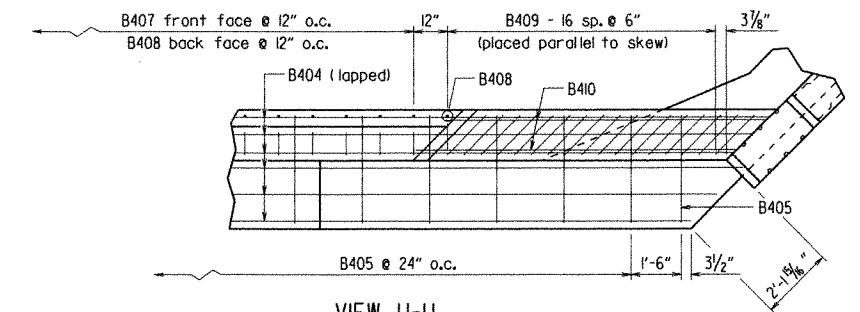
NOTE: Maintain 3" minimum side cover on all reinforcing bars.



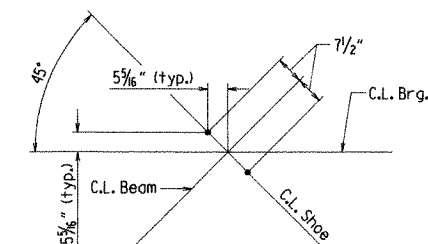
PLAN OF SECONDARY FOOTING REINFORCING
1/4" = 1'-0"



VIEW V-V
3/8" = 1'-0"

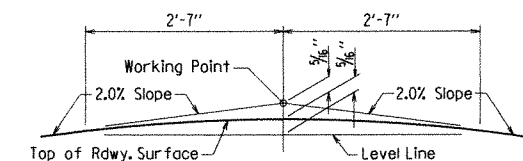


VIEW U-U
3/8" = 1'-0"



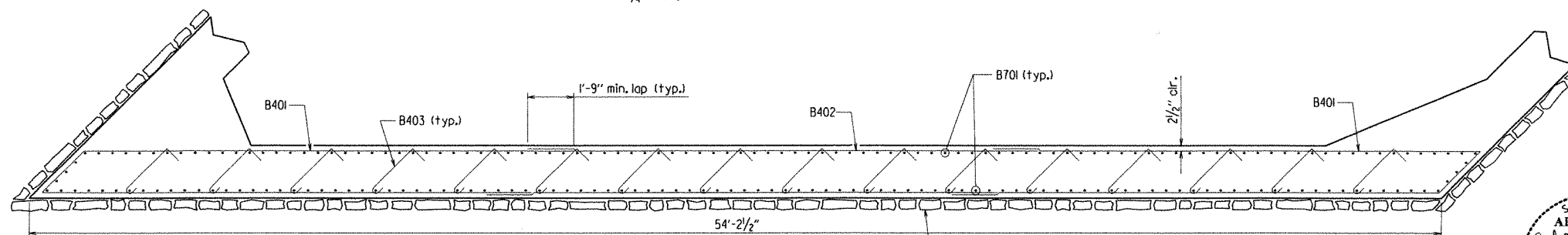
TYPICAL ANCHOR BOLT LAYOUT
3/4" = 1'-0"

For details of elastomeric bearings, see Dwg. No. 52267.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL
No Scale



SECTION Y-Y
3/8" = 1'-0"

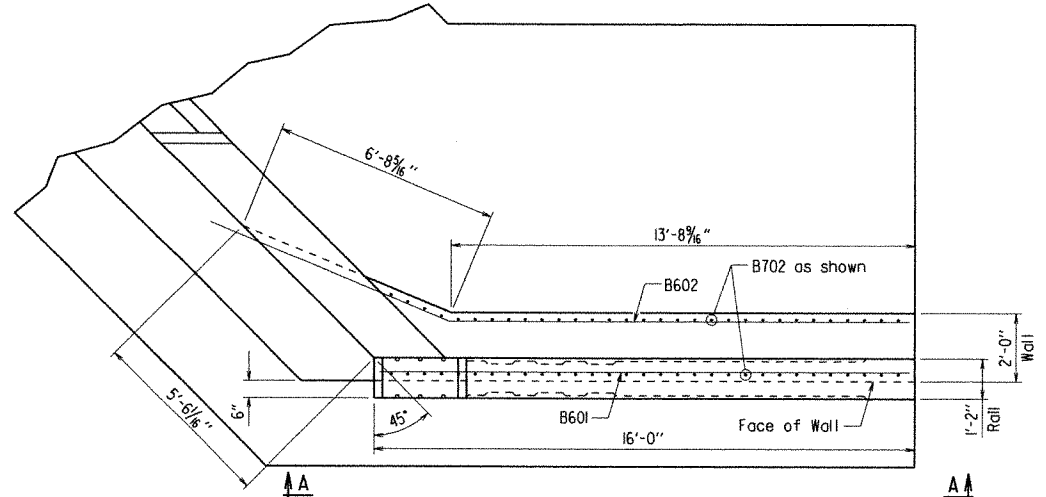
Stone Masonry Facing shall be applied to the front face of all abutment walls as shown. Dovetail anchoring devices shall be attached to formwork to anchor masonry. For additional information, see Job special provisions "Stone Masonry Facing" and "Masonry Anchors".



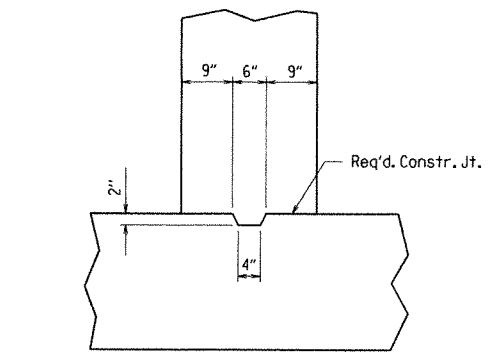
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF ABUTMENT I
SAGER CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: Kwy DATE: 4-27-11 FILENAME: b090268.bl.dgn
CHECKED BY: AMS DATE: 7-5-11 SCALE: as noted
DESIGNED BY: Kwy DATE: 4-11
BRIDGE NO. 04917 DRAWING NO. 52258

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.		090268	26	72
				04917	ABUTMENT I			52259

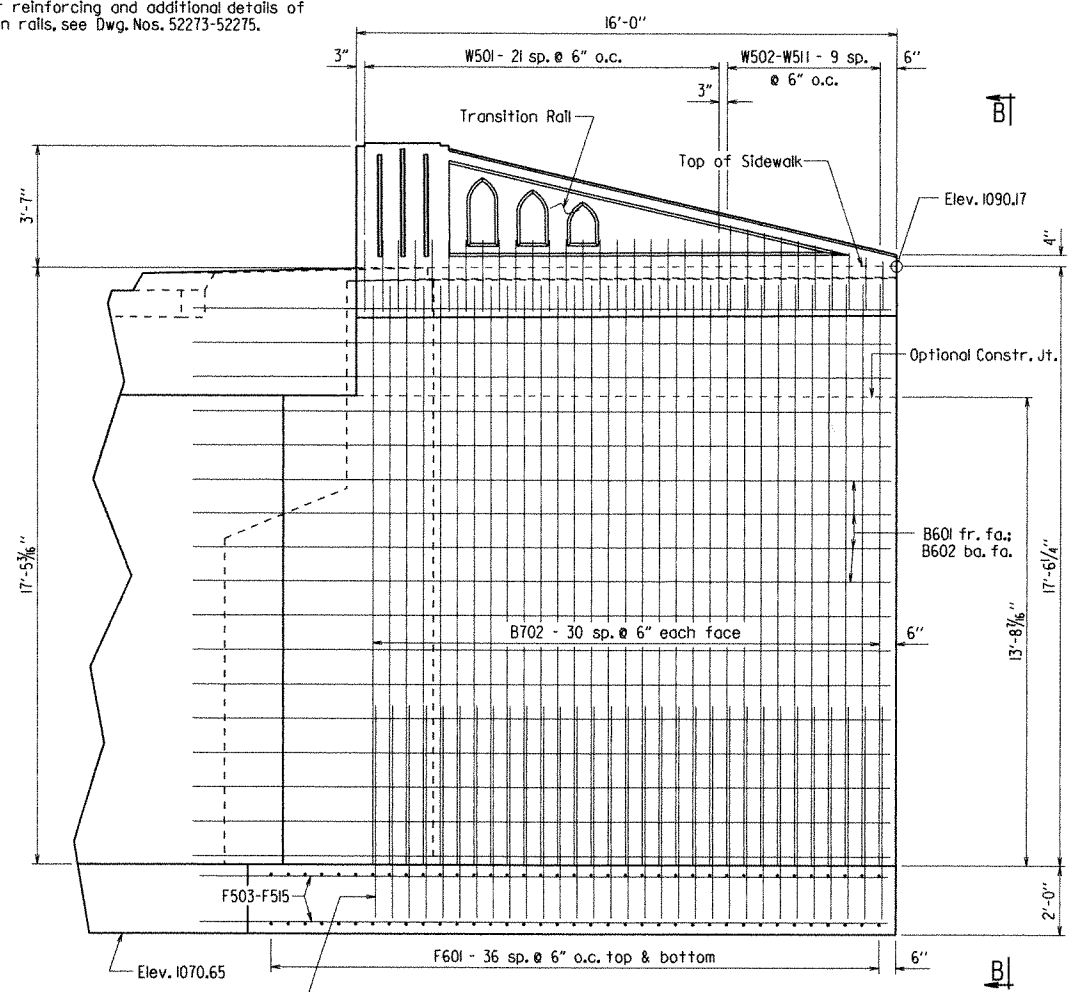


PLAN OF ABUTMENT WALL A
3/8" = 1'-0"

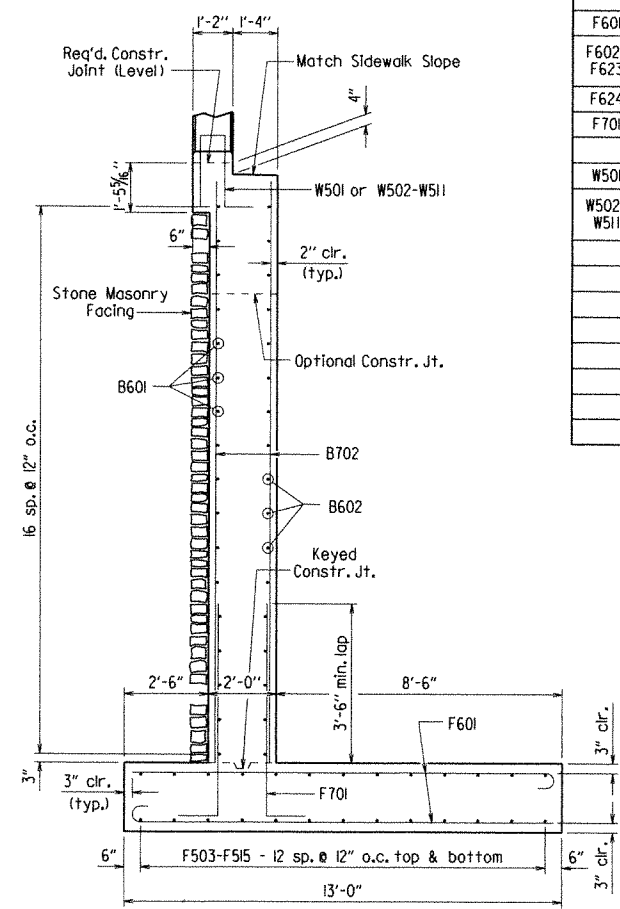


KEYED CONSTR. JOINT AT FOOTINGS (TYP.)
3/4" = 1'-0"

NOTE: For reinforcing and additional details of transition rails, see Dwg. Nos. 52273-52275.



VIEW A-A
3/8" = 1'-0"



VIEW B-B
3/8" = 1'-0"

BAR LIST

MARK	NO.	REQ'D.	LENGTH	A	B	P.D.	BENDING DIAGRAMS
B401	26		39'-8"			2"	
B402	26		19'-8"			Str.	
B403	208		3'-4"			3"	
B404	30		27'-9"			Str.	
B405	26		10'-4"	3'-2"		2"	
B406	2		5'-10"	1'-8"	2'-2"	2"	
B407	34		6'-10"			2"	
B408	34		3'-4"			Str.	
B409	34		11'-2"	1'-7 1/2"	4'-10"	2"	
B410	4		10'-3"			2"	
B601	34		15'-8"			Str.	
B602	17		21'-3"			4 1/2"	
B603	17		15'-3"			4 1/2"	
B701	212		13'-4"			Str.	
B702	62		16'-10"			Str.	
B703	54		16'-8"			Str.	
F501	26		32'-10"			Str.	
F502	14		8'-8"			Str.	
F503-F515	2 ea.		16'-0\"/>				

GENERAL NOTES

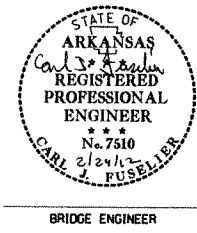
All concrete shall be Class S and shall be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

The backwall above the required construction joint shall not be poured until the adjacent concrete deck is in place. See Dwg. No. 52269 "Expansion Device Installation at Abutments" for additional information.

Structural steel in abutments shall be AASHTO M270, Gr. 50 and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50)". All structural steel except steel completely encased in concrete shall be cleaned and painted in accordance with subsection 807.75.

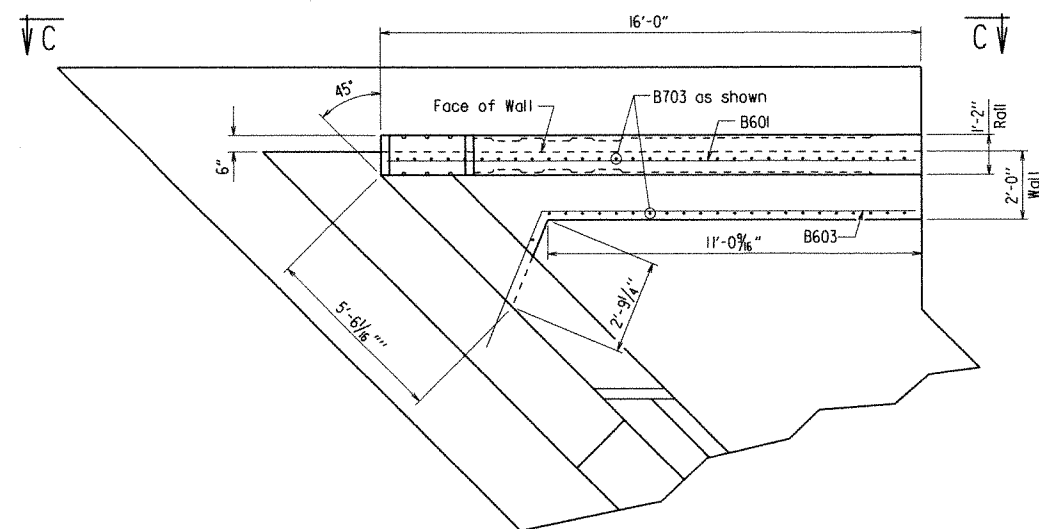
For additional information, see Layout.



SHEET 3 OF 4
 DETAILS OF ABUTMENT I
 SAGER CREEK
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

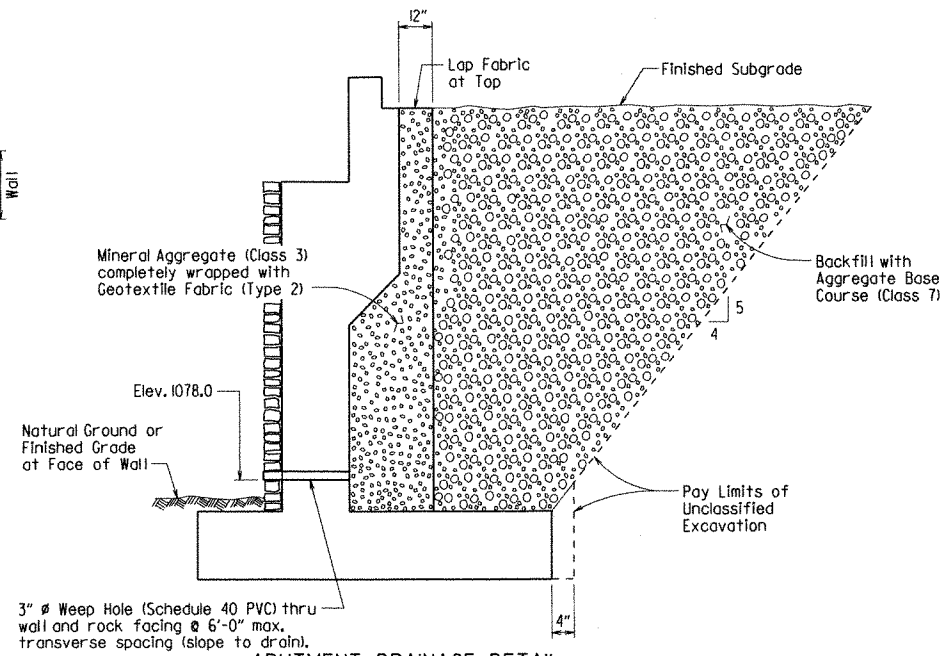
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 CHECKED BY: AMS DATE: 7-5-11 SCALE: as noted
 DESIGNED BY: KMY DATE: 4-11
 BRIDGE NO. 04917 DRAWING NO. 52259

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.	090268		27	72
				04917	ABUTMENT I			52260



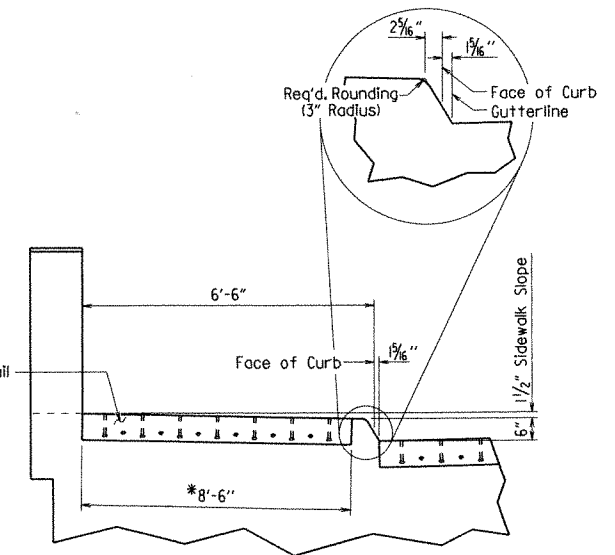
PLAN OF ABUTMENT WALL B
3/8" = 1'-0"

NOTE: For reinforcing and additional details of transition rolls, see Dwg. Nos. 52273-52275.



ABUTMENT DRAINAGE DETAIL
No Scale

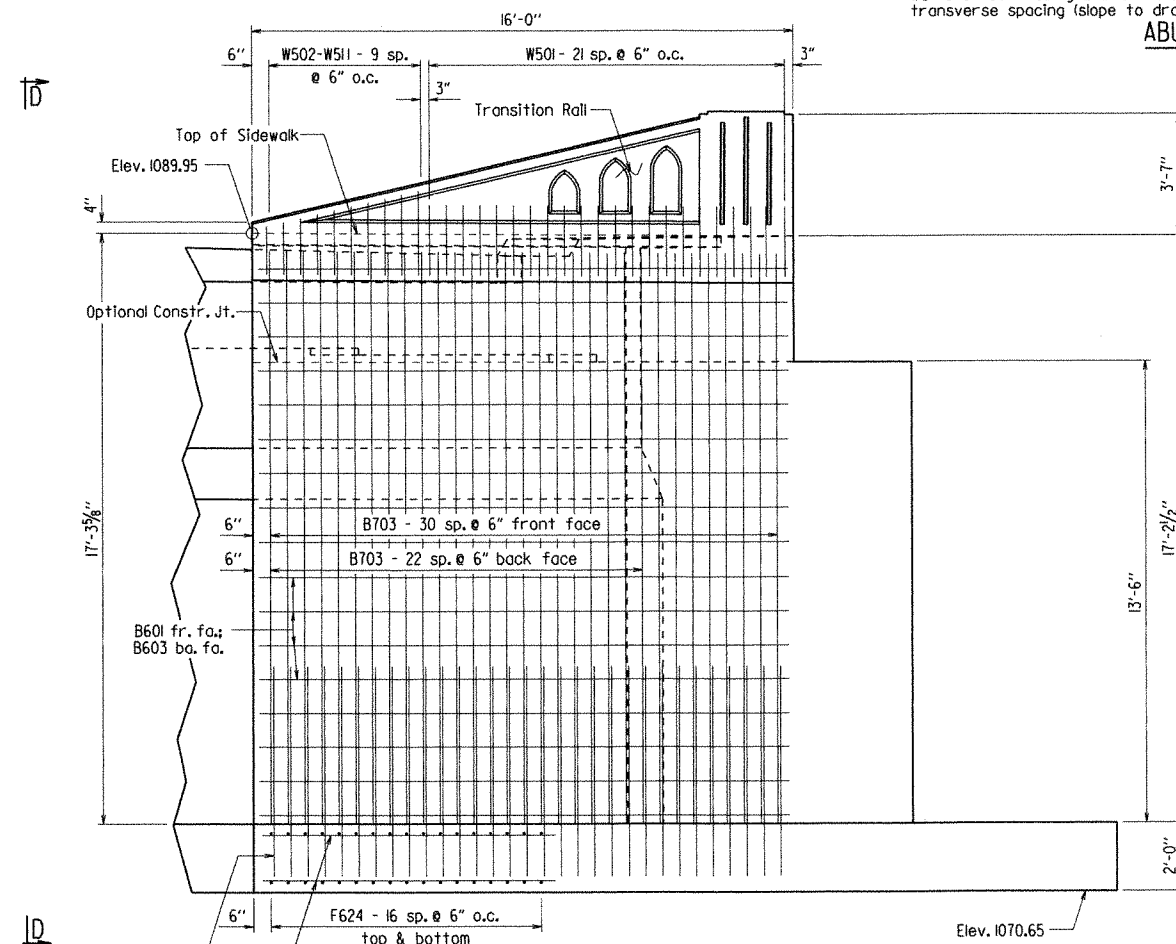
L 7"x4"x1/2" (See "Detail Z", Dwg. No. 52257.)



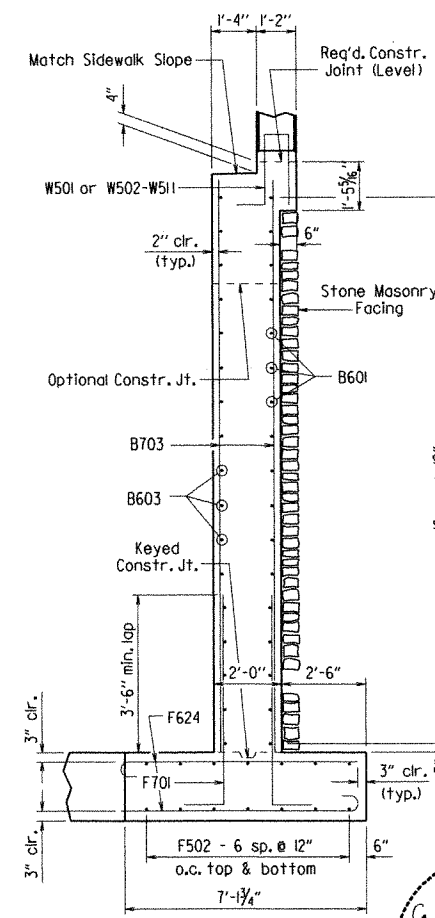
* Measured along skew.

SIDEWALK AND CURB DETAIL

Looking Back
1/2" = 1'-0"



VIEW C-C
3/8" = 1'-0"



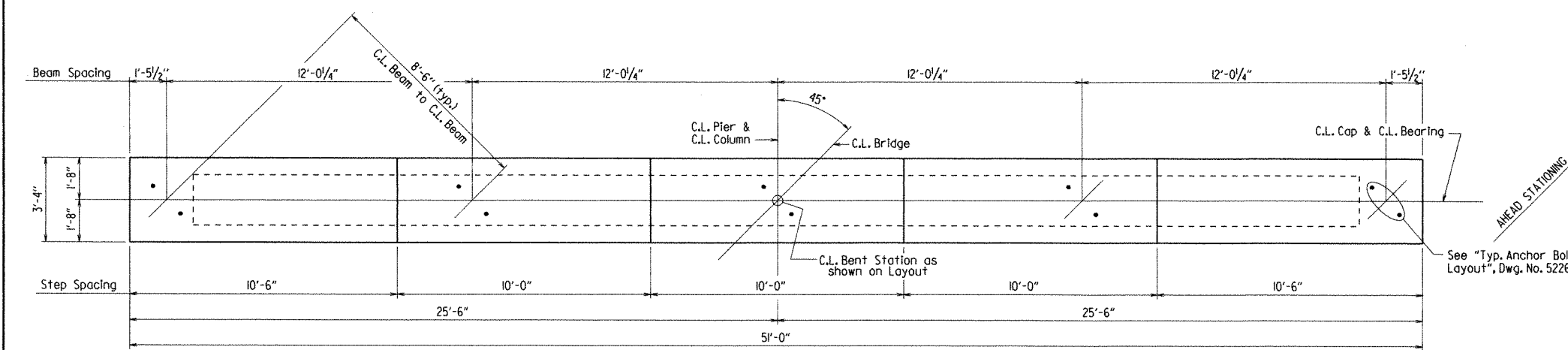
VIEW D-D
3/8" = 1'-0"



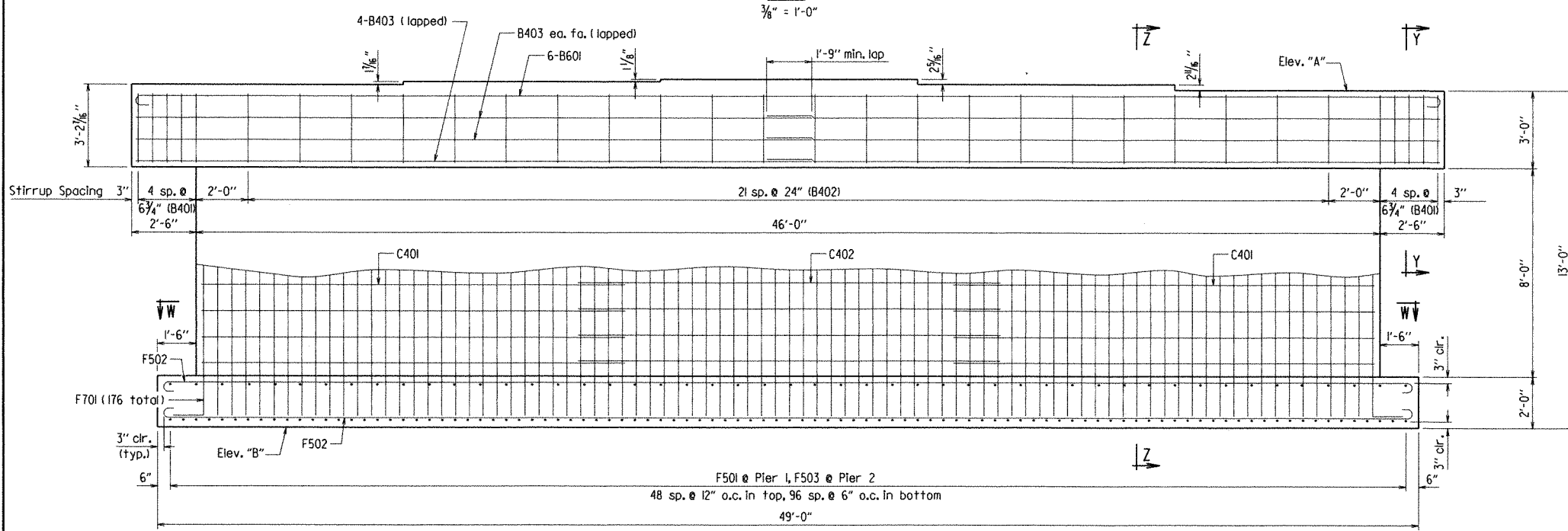
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF ABUTMENT I
SAGER CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KKY DATE: 5-4-11 FILENAME: b090268.bl.dgn
CHECKED BY: AMS DATE: 7-5-11 SCALE: as noted
DESIGNED BY: KKY DATE: 4-11
BRIDGE NO. 04917 DRAWING NO. 52260

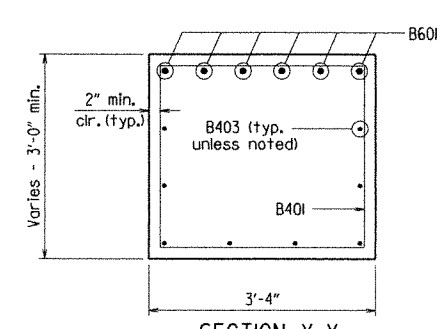
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		28	72
				JOB NO.	090268		28	72
				04917	PIERS		52261	



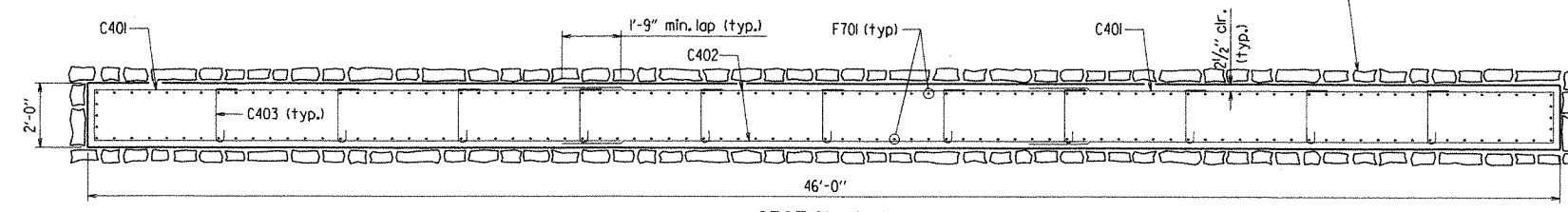
PLAN
3/8" = 1'-0"



ELEVATION
Logging Ahead
3/8" = 1'-0"



SECTION Y-Y
3/4" = 1'-0"

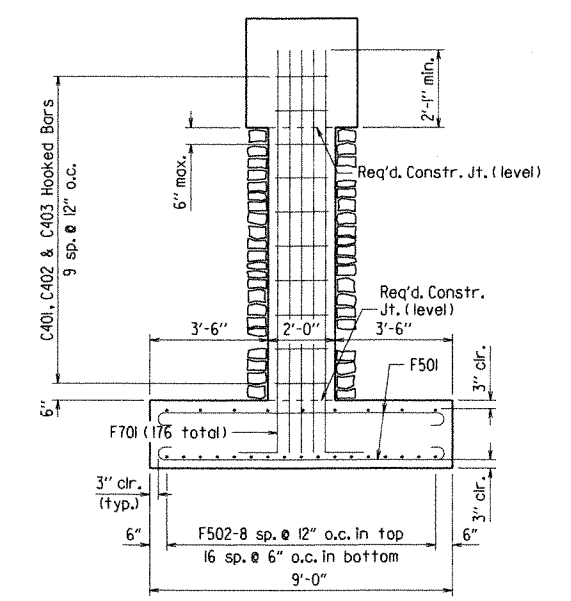


SECTION W-W
3/8" = 1'-0"

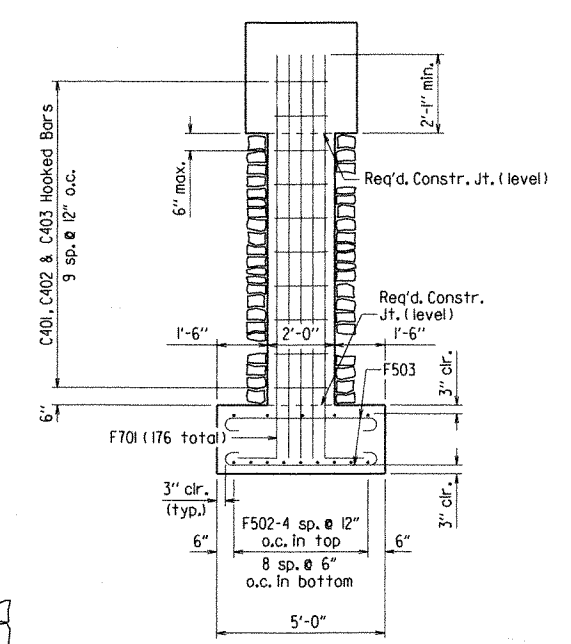
TABLE OF VARIABLES

Pier	"A"	"B"
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2	1085.74	1072.74

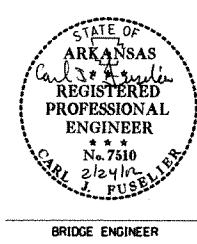
NOTE: For Bar Lists, General Notes & Plan of Footings see Dwg. No. 52262.



SECTION Z-Z, PIER 1
3/8" = 1'-0"

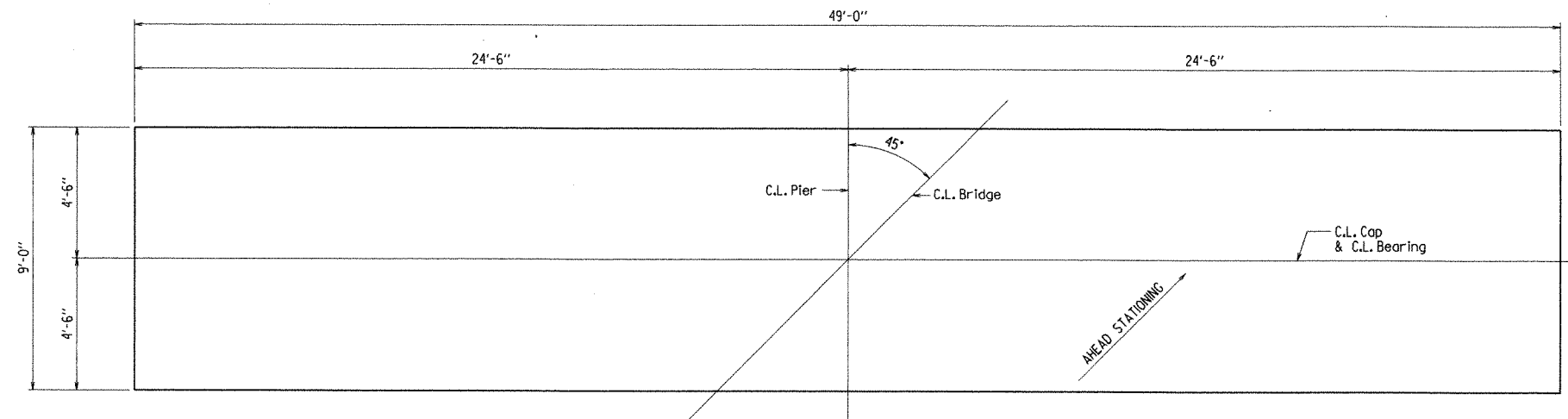


SECTION Z-Z, PIER 2
3/8" = 1'-0"

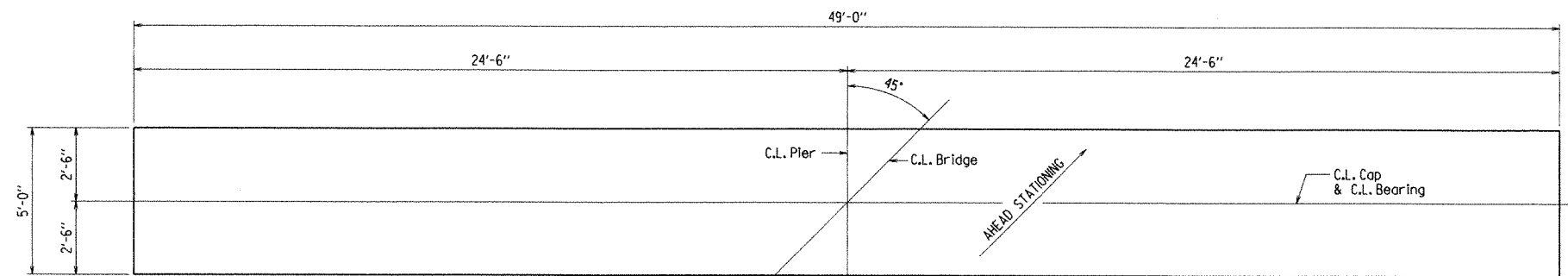


SHEET 1 OF 2
DETAILS OF PIERS 1 & 2
SAGER CREEK
 ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: Kwy DATE: 4-1-11 FILENAME: b090268_b2.dgn
 CHECKED BY: ANS DATE: 6-28-11 SCALE: as noted
 DESIGNED BY: Kwy DATE: 3-11
 BRIDGE NO. 04917 DRAWING NO. 52261

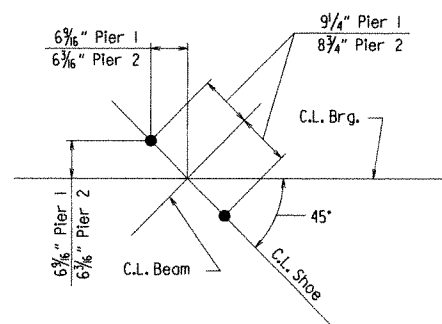
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090268	2972	
				04917	PIERS		52262	



PLAN OF PIER 1 FOOTING
3/8" = 1'-0"



PLAN OF PIER 2 FOOTING
3/8" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 52267.
TYPICAL ANCHOR BOLT LAYOUT
3/4" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" and shall be poured in the dry. All exposed corners of cap to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information, see Layout.

BAR LIST - PIER 1

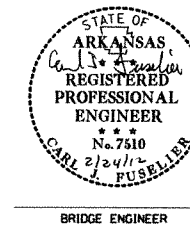
Mark	No. Req'd.	Length	A	B	Pin Dia.	Bending Diagrams
B401	10	11'-8"			2"	
B402	22	8'-2"	3'-0"	2'-8"	2"	
B403	8	26'-3"			Str.	
B601	6	52'-0"	50'-8"	6"	4 1/2"	
C401	20	36'-3"	1'-7"	17'-5"	2"	
C402	10	17'-5"			Str.	
C403	110	2'-8"			3"	
F501	146	9'-8"	8'-6"	5"	3 3/4"	
F502	26	49'-8"	48'-6"	5"	3 3/4"	
F701	176	12'-10"			5 1/4"	

(Dimensions are out to out of bars.)

BAR LIST - PIER 2

Mark	No. Req'd.	Length	A	B	Pin Dia.	Bending Diagrams
B401	10	11'-8"			2"	
B402	22	8'-2"	3'-0"	2'-8"	2"	
B403	8	26'-3"			Str.	
B601	6	52'-0"	50'-8"	6"	4 1/2"	
C401	20	36'-3"	1'-7"	17'-5"	2"	
C402	10	17'-5"			Str.	
C403	110	2'-8"			3"	
F502	14	49'-8"	48'-6"	5"	3 3/4"	
F503	146	5'-8"	4'-6"	5"	3 3/4"	
F701	176	12'-10"			5 1/4"	

(Dimensions are out to out of bars.)



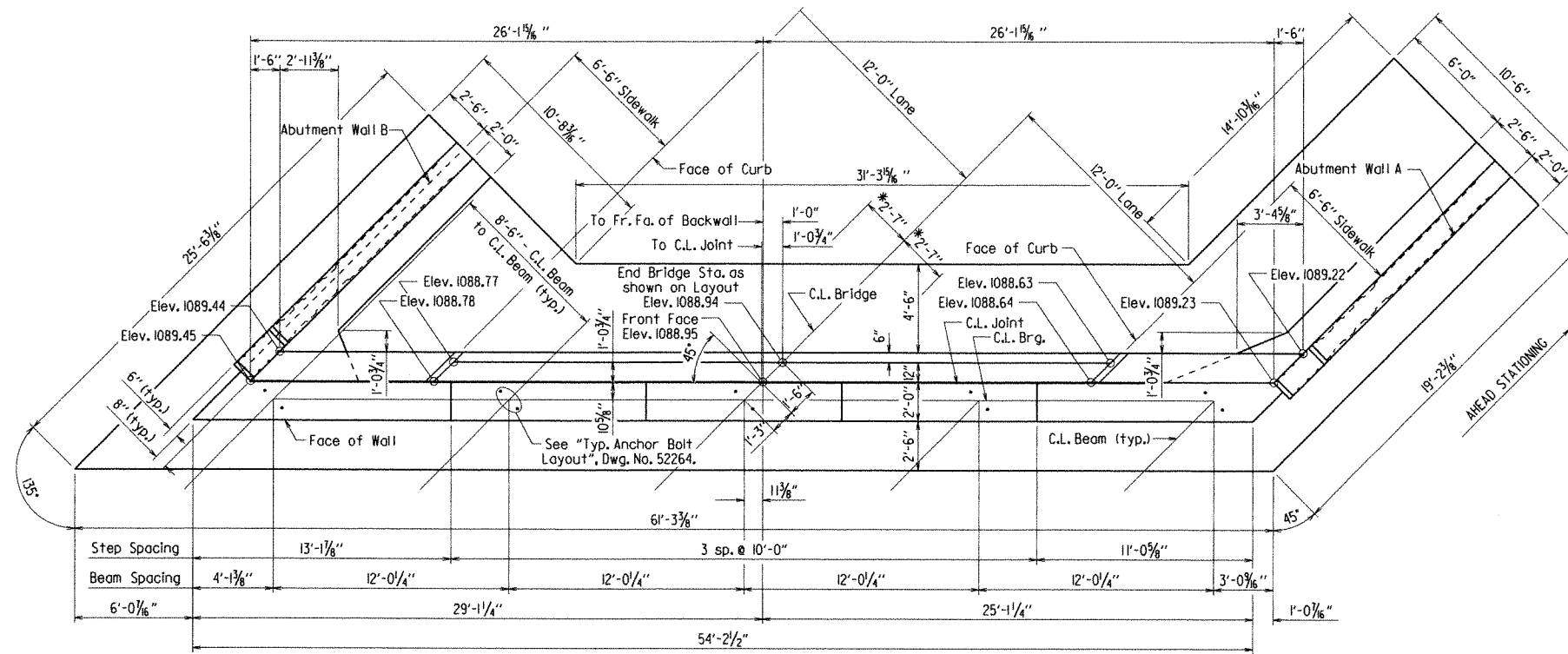
SHEET 2 OF 2
DETAILS OF PIERS 1 & 2
SAGER CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KWT DATE: 4-1-11 FILENAME: b090268.b2.dgn
CHECKED BY: AMS DATE: 6-28-11 SCALE: as noted
DESIGNED BY: KWT DATE: 3-11
BRIDGE NO. 04917 DRAWING NO. 52262

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.	090268		30	72
				04917	ABUTMENT 2			52263

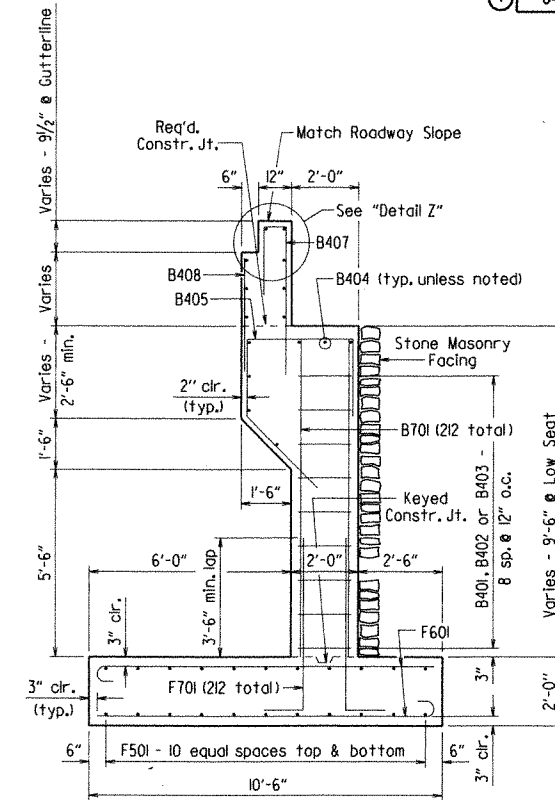
For details of Abutment Walls A & B, see Dwg. Nos. 52265 & 52266.

*See "Rounding Detail", Dwg. No. 52264.

NOTE: Class 2 Protective Surface Treatment shall be applied to the top of the backwall and sidewalks and to all exposed surfaces of the transition rails.

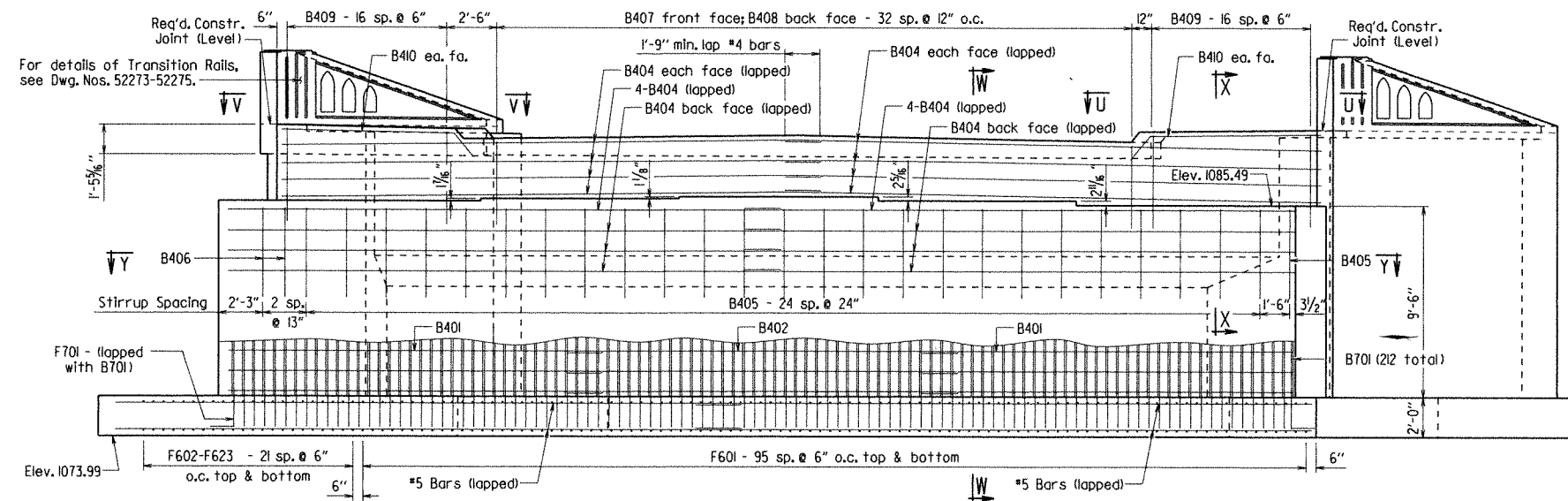


PLAN OF ABUTMENT 2
1/4" = 1'-0"

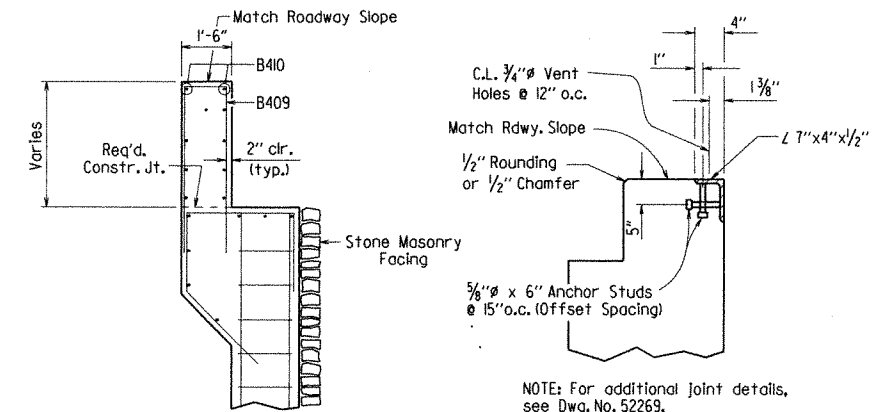


SECTION W-W
3/8" = 1'-0"

NOTE: For "View U-U", "View V-V" and "Section Y-Y", see Dwg. No. 52264.



FRONT ELEVATION OF ABUTMENT 2
Looking Ahead
1/4" = 1'-0"



NOTE: Bars not labeled and dimensions not shown are the same as shown in "Section W-W".

SECTION X-X
3/8" = 1'-0"

NOTE: For additional joint details, see Dwg. No. 52269.

DETAIL Z
No Scale

NOTE: Concrete shall be hand packed under the joint armor in the backwall.



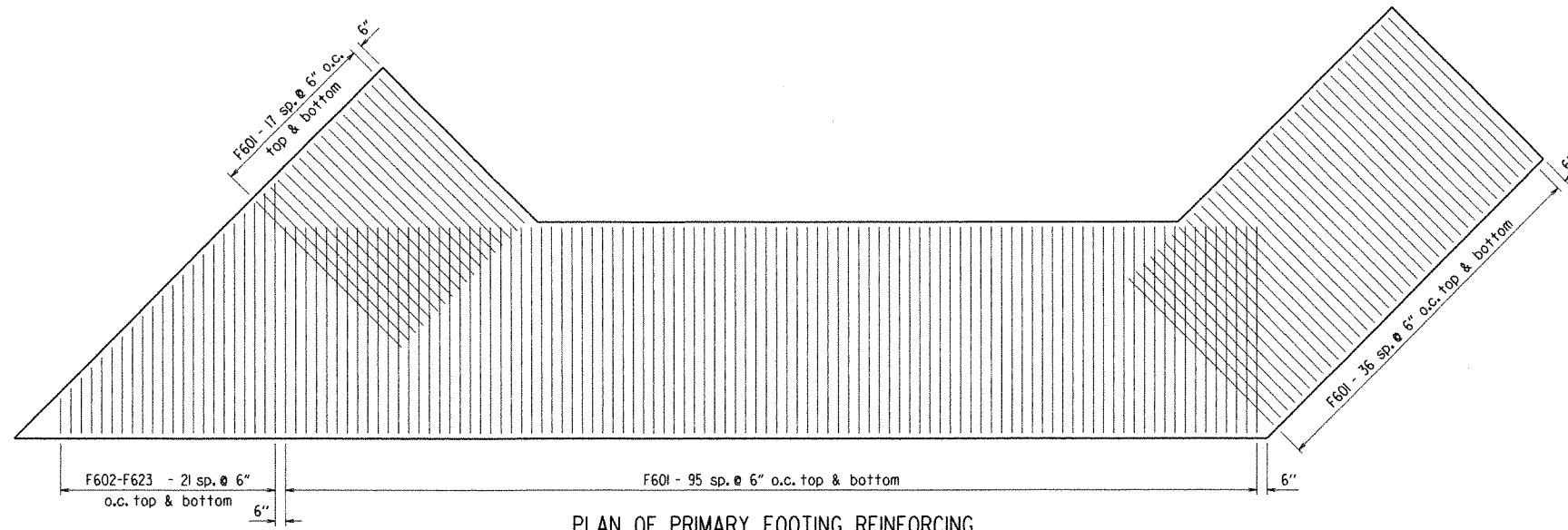
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF ABUTMENT 2
SAGER CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: Kwy DATE: 5-3-11 FILENAME: b090268.bl.dgn
CHECKED BY: AHS DATE: 7-6-11 SCALE: as noted
DESIGNED BY: Kwy DATE: 4-11

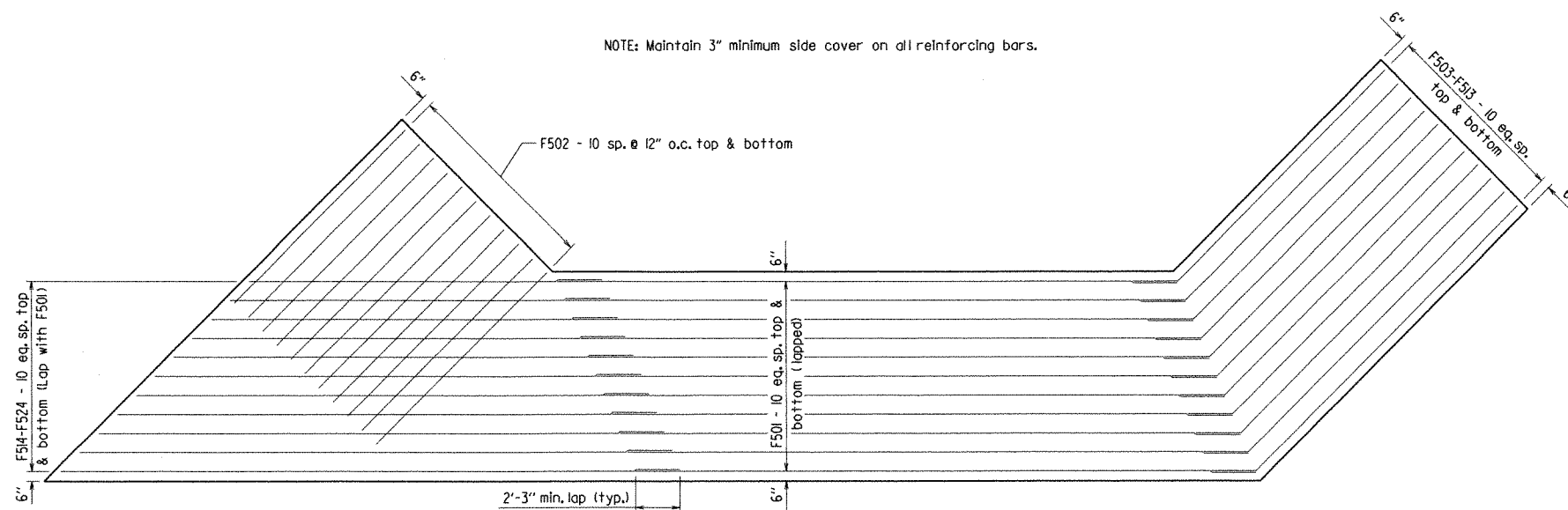
BRIDGE NO. 04917 DRAWING NO. 52263

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.		090268	31	72
				04917		ABUTMENT 2		52264

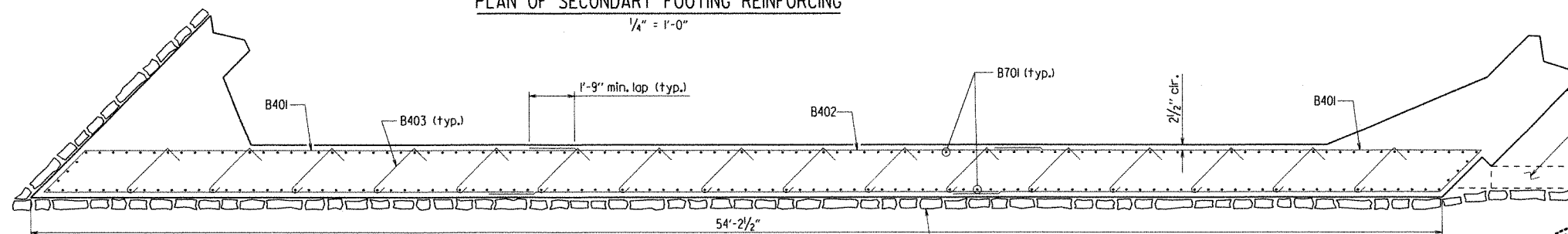


PLAN OF PRIMARY FOOTING REINFORCING
 $\frac{1}{4}'' = 1'-0''$

NOTE: Maintain 3" minimum side cover on all reinforcing bars.

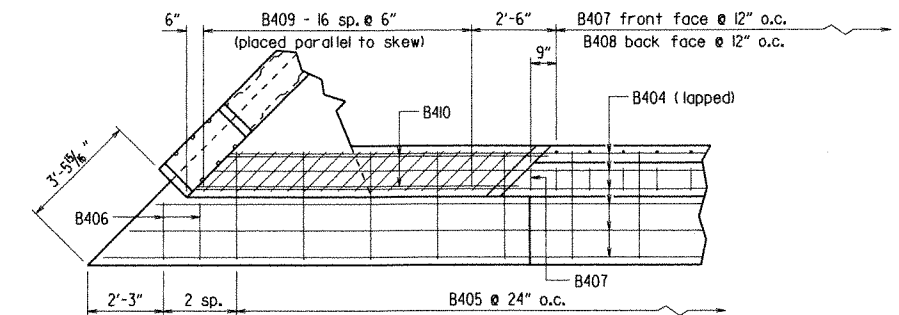


PLAN OF SECONDARY FOOTING REINFORCING
 $\frac{1}{4}'' = 1'-0''$

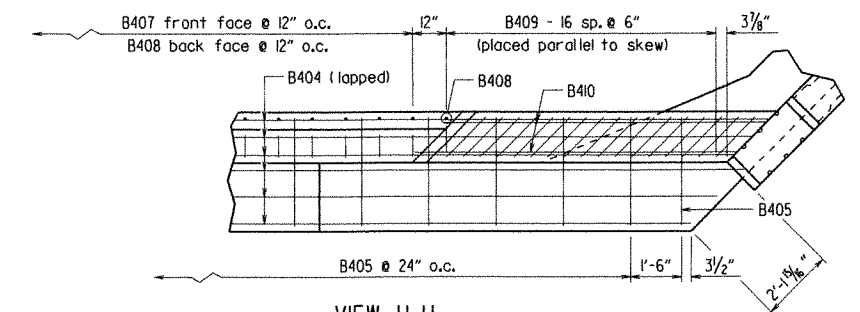


SECTION Y-Y
 $\frac{3}{8}'' = 1'-0''$

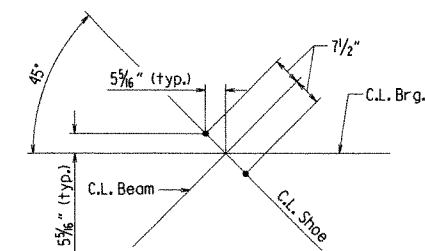
Stone Masonry Facing shall be applied to the front face of all abutment walls, except Abutment Wall A, as shown. Dovetail anchoring devices shall be attached to formwork to anchor masonry. For additional information, see job special provisions "Stone Masonry Facing" and "Masonry Anchors".



VIEW V-V
 $\frac{3}{8}'' = 1'-0''$

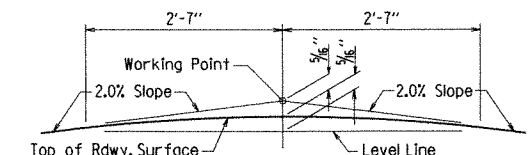


VIEW U-U
 $\frac{3}{8}'' = 1'-0''$



For details of elastomeric bearings, see Dwg. No. 52267.

TYPICAL ANCHOR BOLT LAYOUT
 $\frac{3}{4}'' = 1'-0''$



NOTE: Working Point matches Theoretical Roadway Grade.

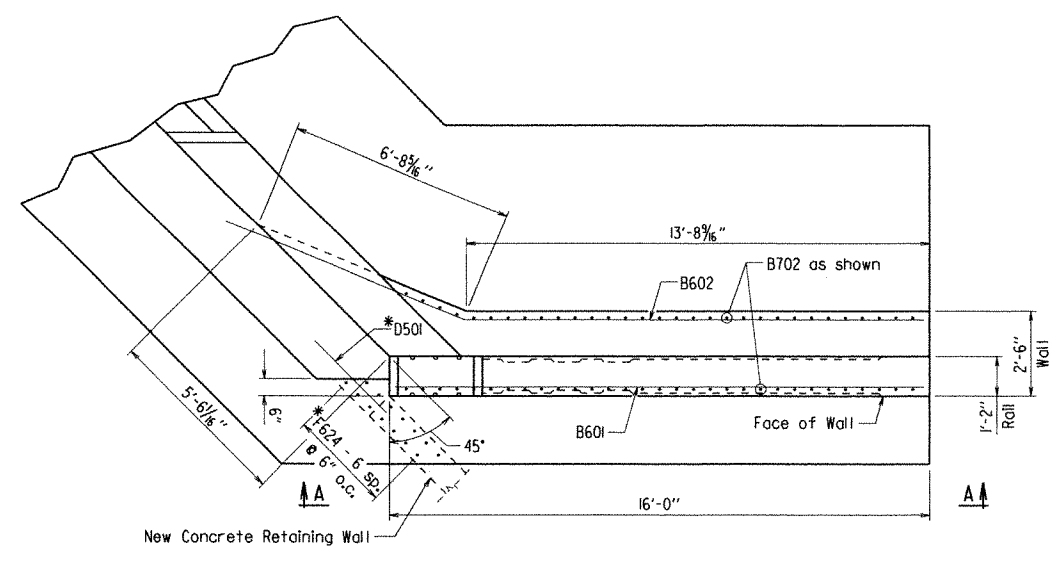
ROUNDING DETAIL
 No Scale



BRIDGE ENGINEER

SHEET 2 OF 4
 DETAILS OF ABUTMENT 2
 SAGER CREEK
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: K.W.Y. DATE: 5-3-11 FILENAME: b090268.bl.dgn
 CHECKED BY: A.H.S. DATE: 7-6-11 SCALE: as noted
 DESIGNED BY: K.W.Y. DATE: 4-11
 BRIDGE NO. 04917 DRAWING NO. 52264

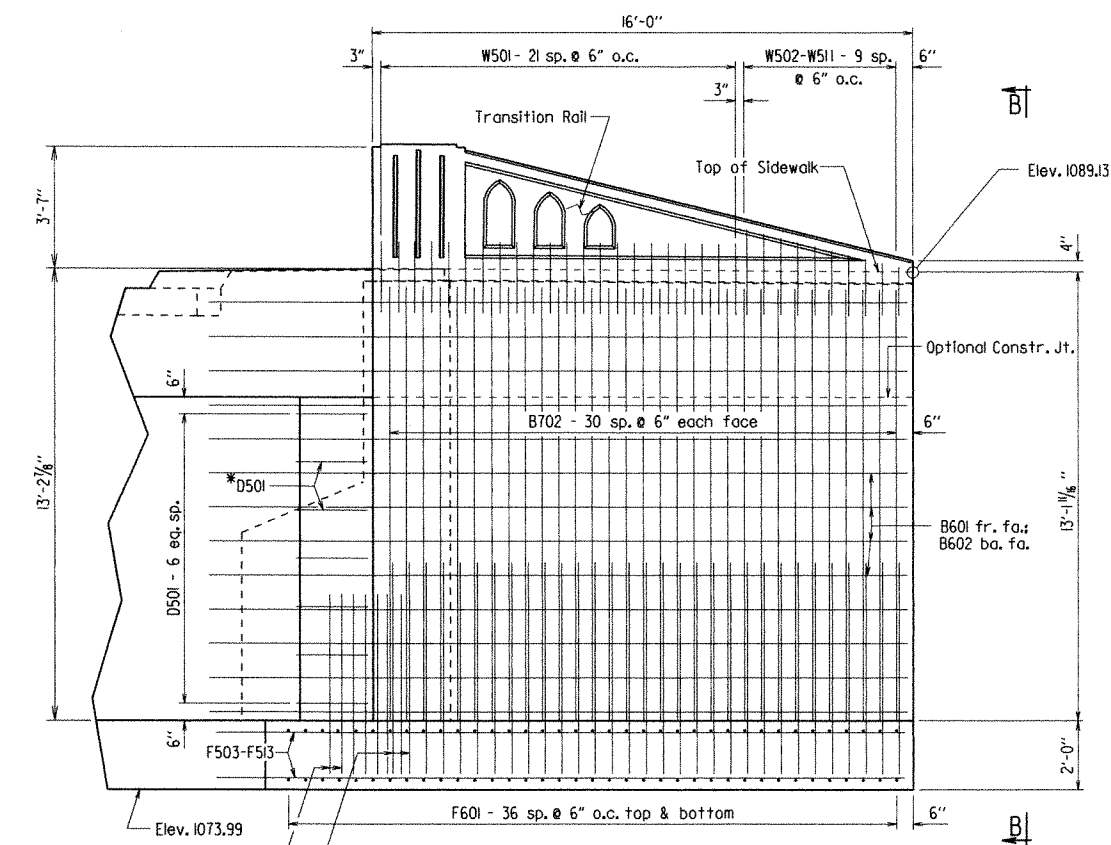
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090268		32	72
				04917	ABUTMENT 2			52265



PLAN OF ABUTMENT WALL A
3/8" = 1'-0"

NOTE: For reinforcing and additional details of transition rolls, see Dwg. Nos. 52273-52275.

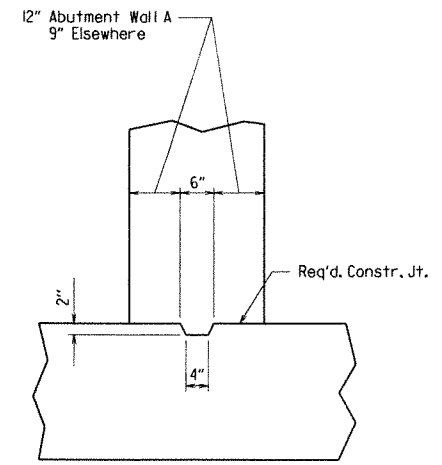
*For additional details, see Dwg. No. 52256.



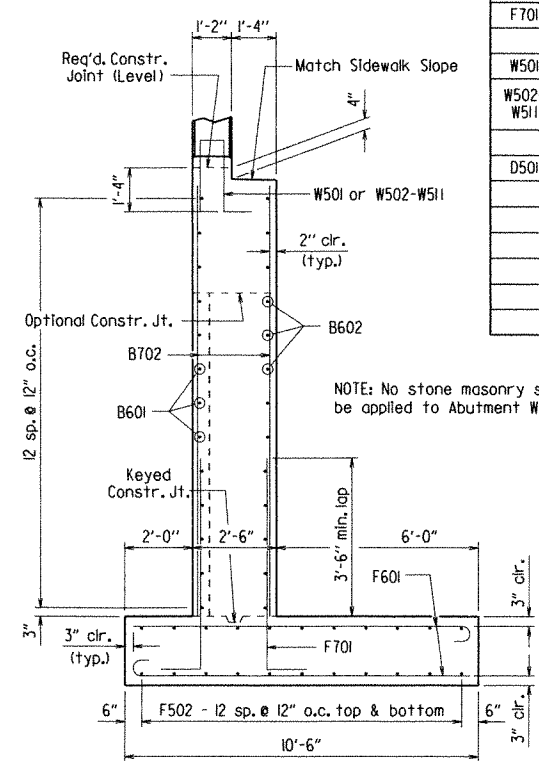
VIEW A-A
3/8" = 1'-0"

*F624 - (lapped with #6 bars in concrete retaining wall)

F701 - (lapped with B702)



KEYED CONSTR. JOINT AT FOOTINGS (TYP.)
3/4" = 1'-0"



VIEW B-B
3/8" = 1'-0"

NOTE: No stone masonry shall be applied to Abutment Wall A.

BAR LIST

MARK	NO.	REQ'D.	LENGTH	A	B	P.D.	BENDING DIAGRAMS
B401	18		39'-8"			2"	
B402	18		19'-8"			Str.	
B403	144		3'-4"			3"	
B404	30		27'-9"			Str.	
B405	26		10'-4"	3'-2"		2"	
B406	2		5'-10"	1'-8"	2'-2"	2"	
B407	34		6'-10"			2"	
B408	34		3'-4"			Str.	
B409	34		11'-2"	1'-7 1/2"	4'-10"	2"	
B410	4		10'-3"			2"	
B601	26		15'-8"			Str.	
B602	13		21'-3"			4 1/2"	
B603	13		15'-3"			4 1/2"	
B701	212		9'-4"			Str.	
B702	62		12'-7"			Str.	
B703	54		12'-9"			Str.	
F501	22		31'-4"			Str.	
F502	22		12'-2"			Str.	
F503-F513	2 ea.		17'-1" - 21'-0"	14'-10" - 18'-9"		3 3/4"	
F514-F524	2 ea.		17'-9" - 31'-2"			Str.	
F601	302		10'-8"	10'-0"		4 1/2"	
F602-F623	2 ea.		2'-4" - 12'-10"	1'-8" - 12'-2"		4 1/2"	
F624	14		6'-1"	5'-3"	12"	4 1/2"	
F701	328		7'-2"	6'-2"	1'-2"	5 1/4"	
W501	44		5'-5"	2'-1"		2 1/2"	
W502-W511	2 ea.		4'-0" - 6'-2"	1'-5" - 2'-6"		2 1/2"	
D501	7		3'-0"			Str.	

Dimensions are out to out of bars.

GENERAL NOTES

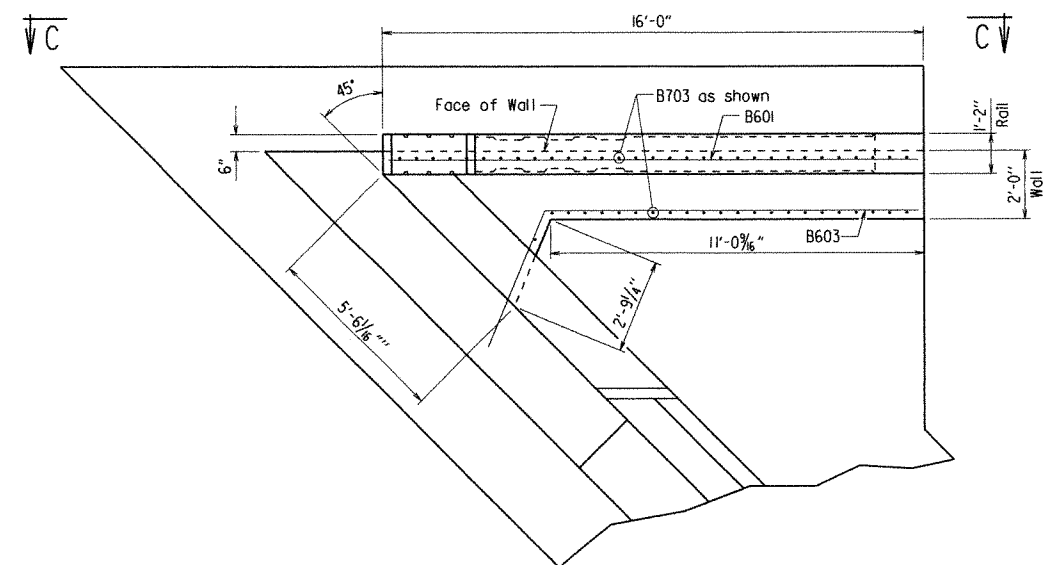
- All concrete shall be Class S and shall be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.
- All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.
- The backwall above the required construction joint shall not be poured until the adjacent concrete deck is in place. See Dwg. No. 52269 "Expansion Device Installation at Abutments" for additional information.
- Structural steel in abutments shall be AASHTO M270, Gr. 50 and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50)". All structural steel except steel completely encased in concrete shall be cleaned and painted in accordance with subsection 807.75.
- For additional information, see Layout.



SHEET 3 OF 4
 DETAILS OF ABUTMENT 2
 SAGER CREEK
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KMY DATE: 5-4-11 FILENAME: b090268.bl.dgn
 CHECKED BY: AHS DATE: 7-6-11 SCALE: as noted
 DESIGNED BY: KMY DATE: 4-11
 BRIDGE NO. 04917 DRAWING NO. 52265

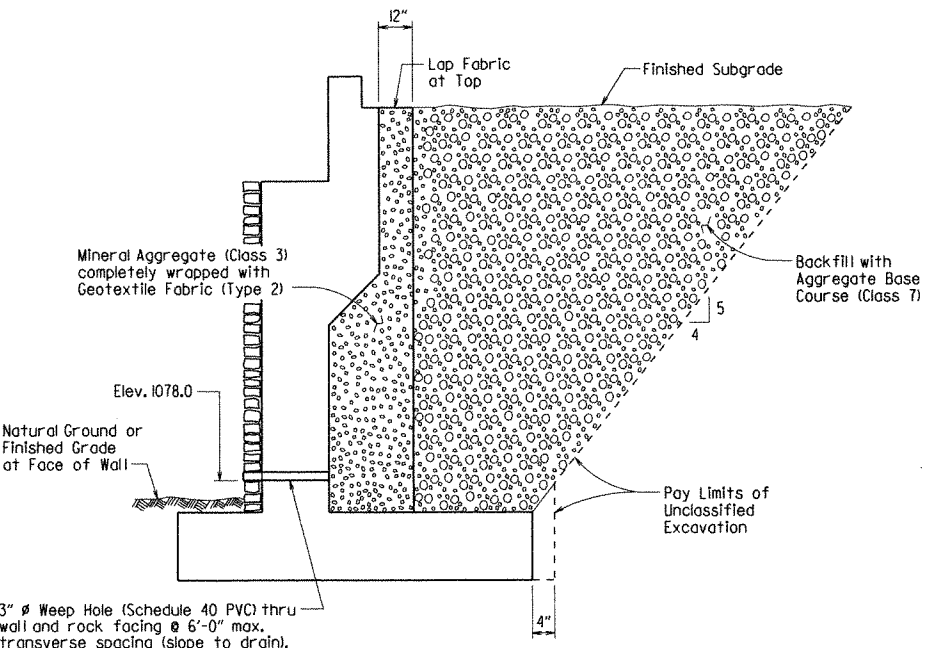
BRIDGE ENGINEER

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.	090268		33	72
				04917	ABUTMENT 2			52266

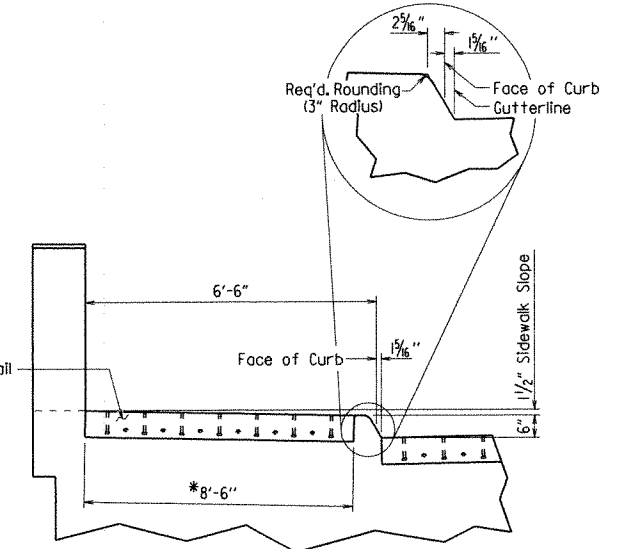


PLAN OF RAIL B & WALL B
3/8" = 1'-0"

NOTE: For reinforcing and additional details of transition rails, see Dwg. Nos. 52273-52275.

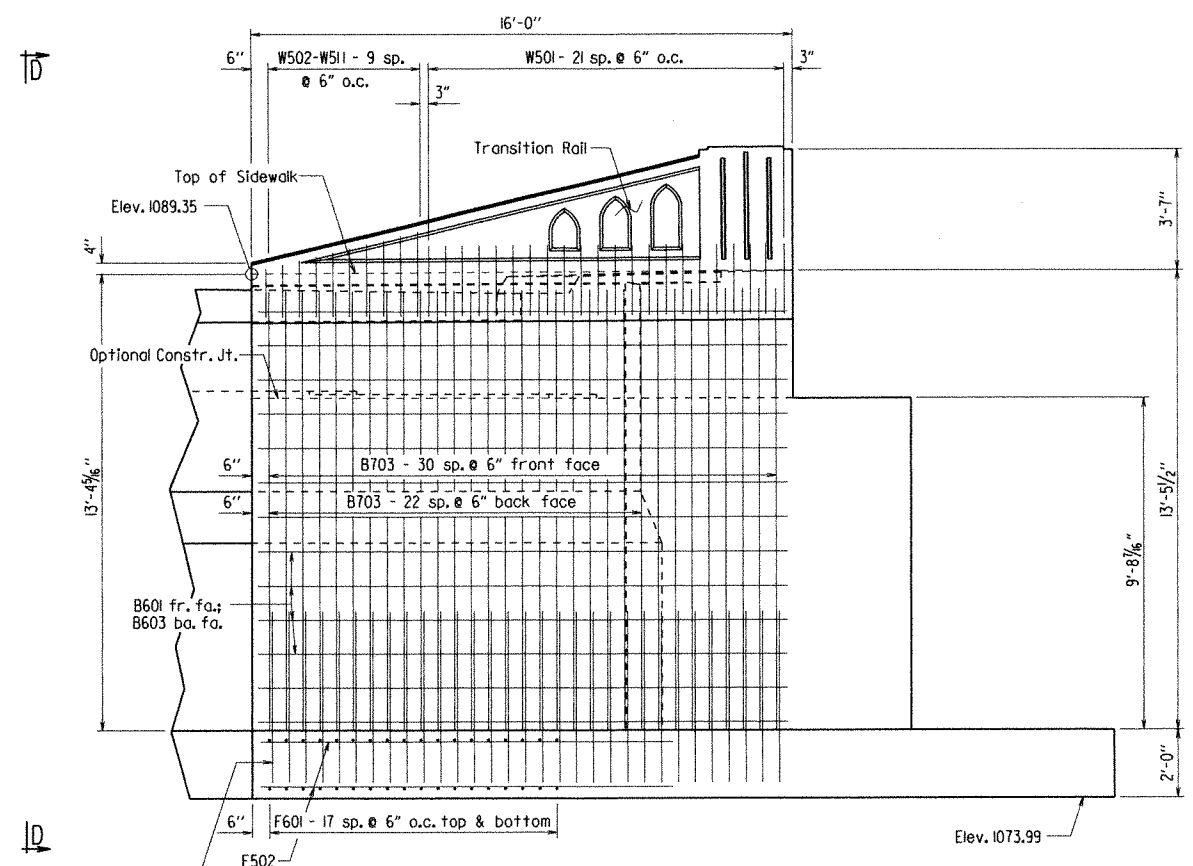


ABUTMENT DRAINAGE DETAIL
No Scale

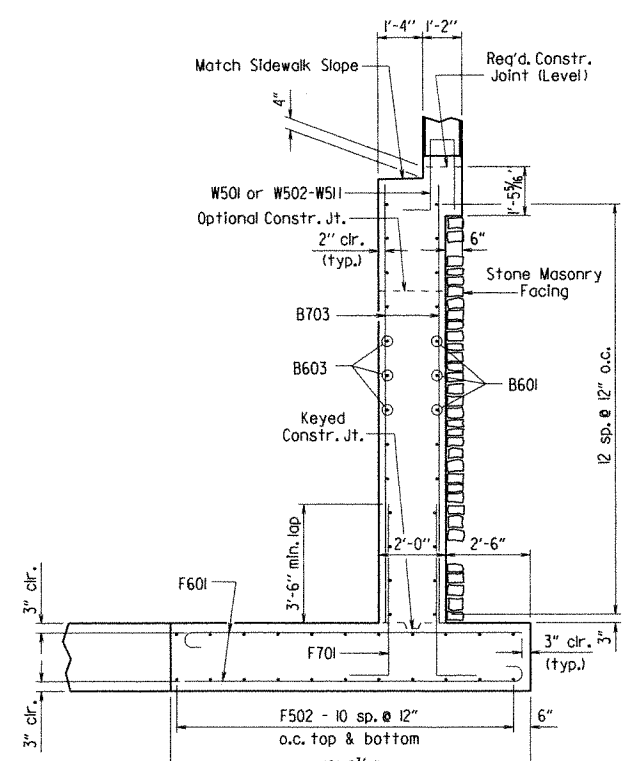


SIDEWALK AND CURB DETAIL
Looking Ahead
1/2" = 1'-0"

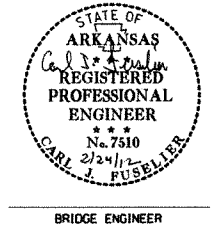
*Measured along skew.



VIEW C-C
3/8" = 1'-0"



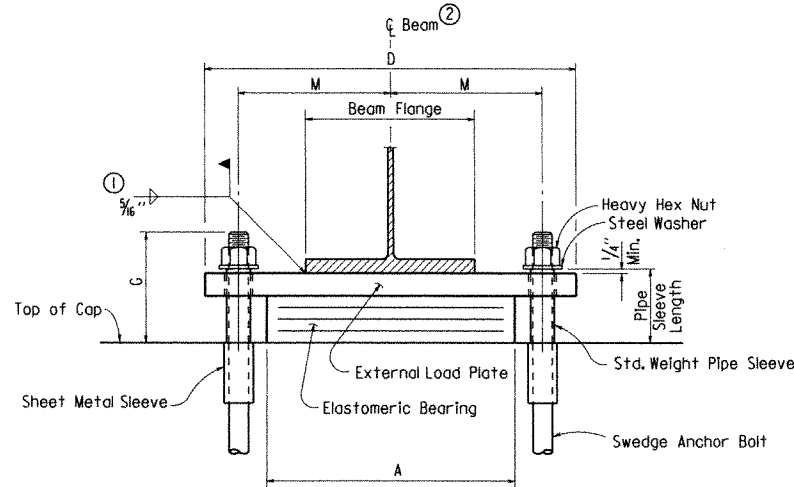
VIEW D-D
3/8" = 1'-0"



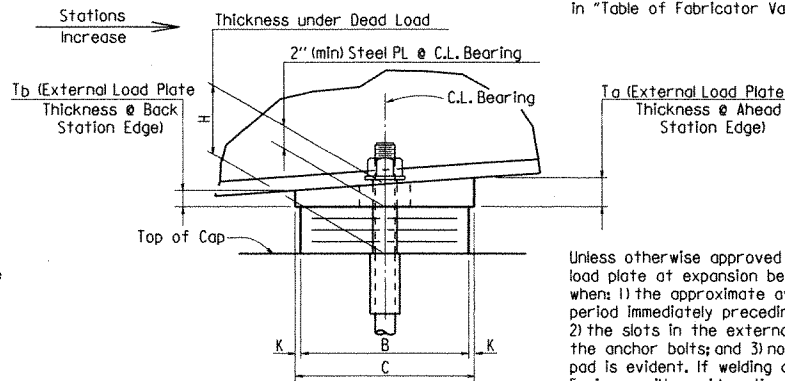
SHEET 4 OF 4
DETAILS OF ABUTMENT 2
SAGER CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KMY DATE: 5-4-11 FILENAME: b090268.bl.dgn
CHECKED BY: AMS DATE: 7-5-11 SCALE: as noted
DESIGNED BY: KMY DATE: 4-11
BRIDGE NO. 04917 DRAWING NO. 52266

BRIDGE ENGINEER

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.		090268	34	72
				04917	ELASTOMERIC BRGS.			52267



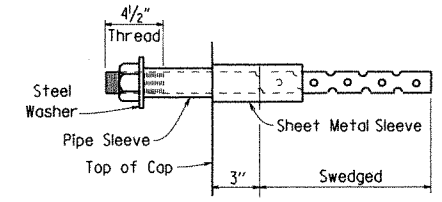
FRONT VIEW



SIDE VIEW

NOTE: The direction of bevel of the external load plate may not be accurately depicted with respect to T_a and T_b values shown in "Table of Fabricator Variables".

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the girder 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.

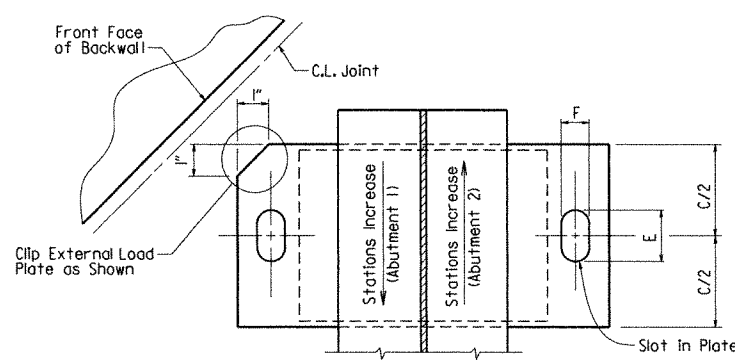


ANCHOR BOLT DETAIL

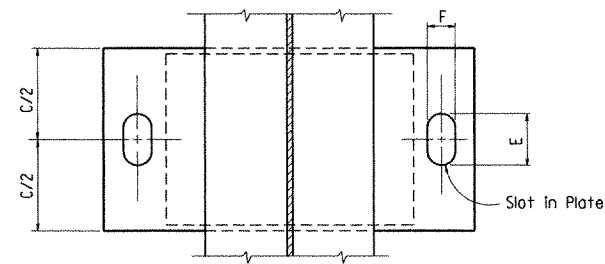
NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

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 (M 270, Gr. 50)".

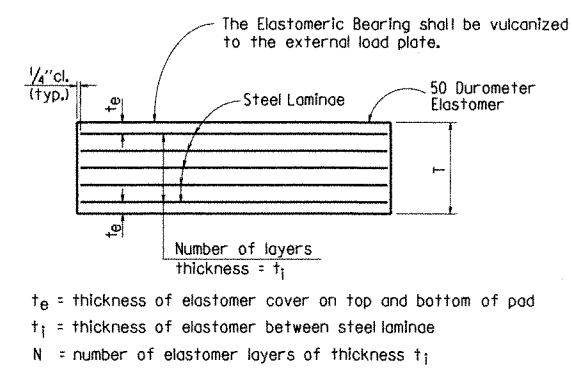
- ① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam flange before welding begins.
- ② C.L. Elastomeric pad shall be aligned with C.L. Beam.



PLAN VIEW @ ABUTMENTS



PLAN VIEW @ PIERS



ELASTOMERIC BEARING

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 50. 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 and bolt holes) 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 painted in accordance with subsection 807.75. The color of paint shall conform to Federal Standard 595B, Color Chip No. 3655, Grey. Painting will not be paid for directly, but will be considered subsidiary to "Elastomeric Bearings".

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.

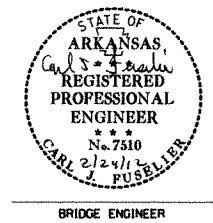
Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50)".

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.

TABLE OF FABRICATOR VARIABLES

* Maximum Design Load = Service I Limit State

LOCATION	BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	* MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD					EXTERNAL LOAD PLATE						ANCHOR BOLT								
							A	B	N	t ₁	t _e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T _a	T _b	ANCHOR BOLT (Ø x L)	PIPE SLEEVE SIZE (Ø x L)	SHEET METAL SLEEVE SIZE (Ø x L)	STEEL WASHER SIZE (O.D.)	
Abutment 1	All	Exp	5	87	6 3/8"	3 3/8"	11"	9"	2	1/2"	1/4"	3 @ 12 Ga.	1 1/8"	10"	20"	2 3/4"	2"	1/2"	7 1/2"	1.97"	2.03"	1 1/4" x 21"	55	1 1/4" x 4 1/8"	3" x 8"	2 1/2"
Pier 1	All	Fix	5	139	7 1/8"	3 1/8"	13"	10 1/2"	2	1/2"	1/4"	3 @ 12 Ga.	1 1/8"	11 1/2"	25"	3 3/8"	3 3/8"	1/2"	9 1/4"	1.97"	2.03"	2" x 29"	55	2 1/2" x 4 1/8"	4" x 8"	3 3/4"
Pier 2	All	Exp	5	139	6 5/8"	3 1/8"	13"	10 1/2"	2	1/2"	1/4"	3 @ 12 Ga.	1 1/8"	11 1/2"	23"	3"	2 1/4"	1/2"	8 3/4"	1.97"	2.03"	1 1/2" x 24"	55	1 1/2" x 4 1/8"	3" x 8"	3"
Abutment 2	All	Exp	5	87	6 3/8"	4 3/8"	11"	9"	3	1/2"	1/4"	4 @ 12 Ga.	2 3/8"	10"	20"	3 3/4"	2"	1/2"	7 1/2"	1.97"	2.03"	1 1/4" x 21"	55	1 1/4" x 4 5/8"	3" x 8"	2 1/2"



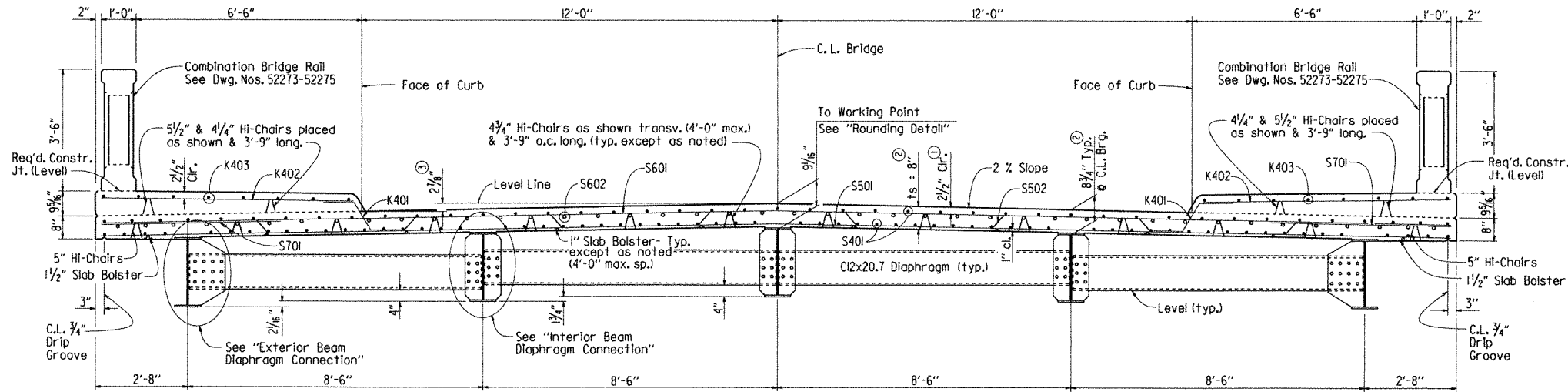
DETAILS OF ELASTOMERIC BEARINGS
SAGER CREEK

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: AMS. DATE: 12/6/10 FILENAME: b0090268_el.dgn
 CHECKED BY: KMY DATE: 2-24-12 SCALE: NONE
 DESIGNED BY: JYP DATE: 10-10
 BRIDGE NO. 04917 DRAWING NO. 52267

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.		090268	3572	
				①	04917	CONT. UNIT	52268	

Note: Class 2 Protective Surface Treatment shall be applied to the roadway and sidewalk surface and all exposed surfaces of the concrete bridge railing.



TYPICAL ROADWAY SECTION
1/2" = 1'-0"

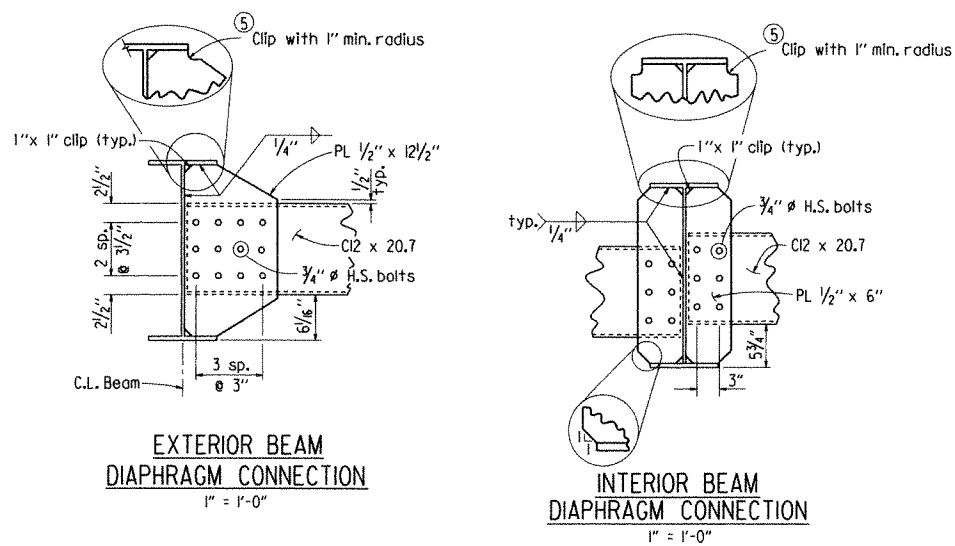
Slab Reinforcing:

Longitudinal: S401 Top & Bottom as Shown
S602 placed as shown over Int. Supports (See "Reinforcing Plan", Dwg. No. 52271)

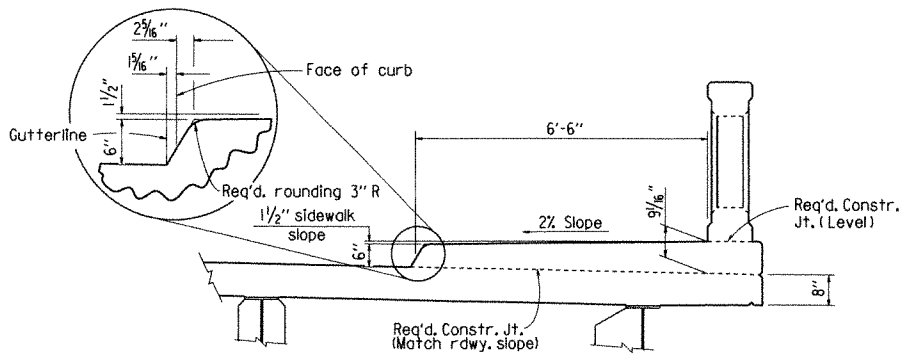
Transverse: S601 @ 15" o.c. in Top, S501 @ 15" in Bottom
S502 @ 15" o.c. Bent up over Beams
S701 @ 15" o.c. in Top of Overhang

- ① Tolerance: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".
- ② See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".
- ③ Working point to top of slab @ face of curb.

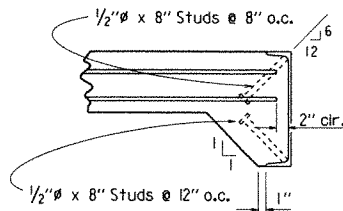
⑤ If permanent steel bridge deck forms are used, the Fabricator shall clip plate as necessary to accommodate the deck form supports.



Notes: Stop Welds 1/4" to 1" from end of clips (typ.)
Bolts in connections shall be properly installed and tightened in accordance with subsection 807.71.

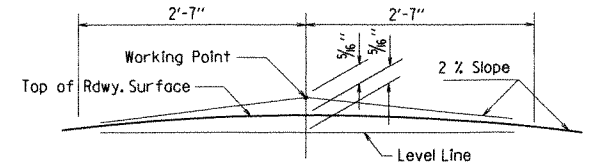


SIDEWALK & CURB DETAIL
1/2" = 1'-0"



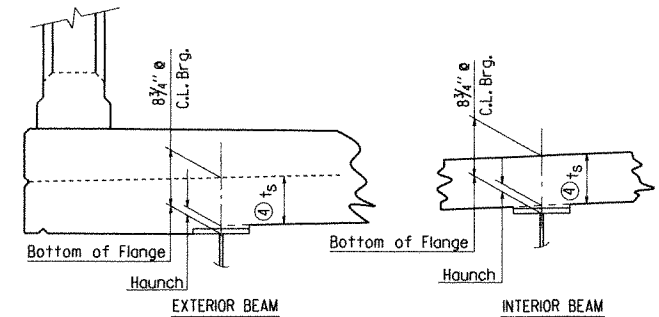
Note: As an alternate to 5/8" studs, 1/2" x 8" studs spaced as shown may be used. Use weight of 5/8" stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS
NTS



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL
No Scale



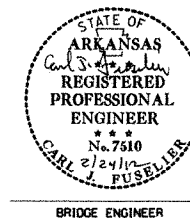
t_s = slab thickness as shown in "Typical Roadway Section"

④ Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Notes: Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain tolerances.

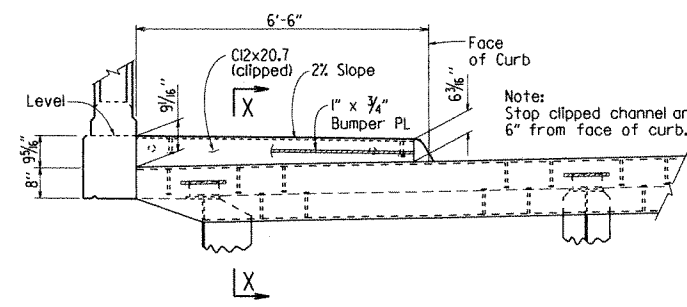
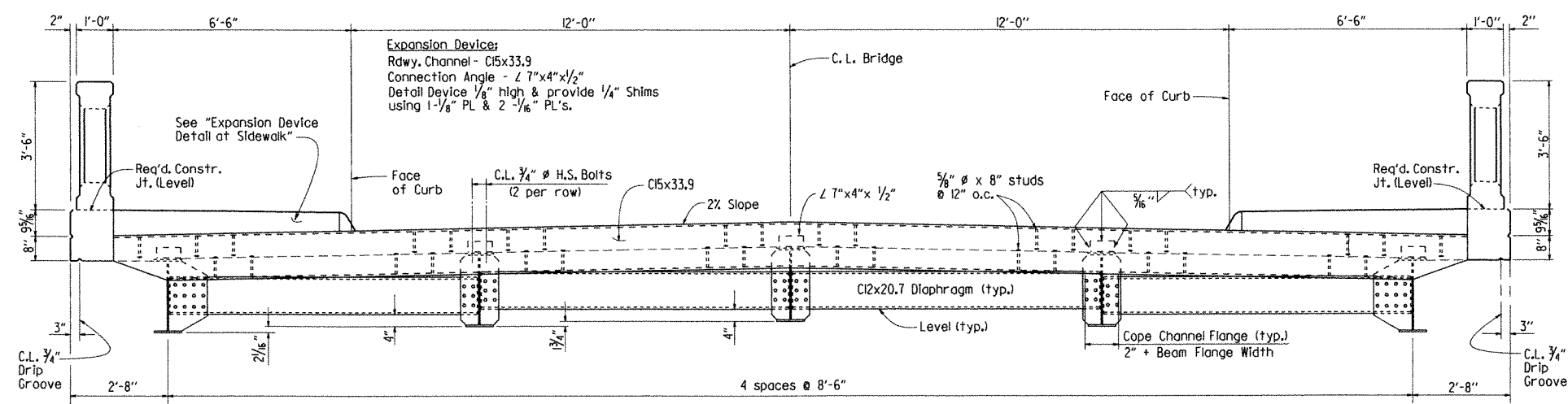
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 14991 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE
No Scale

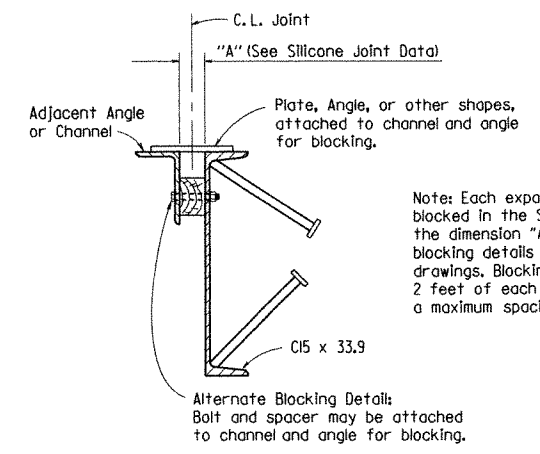
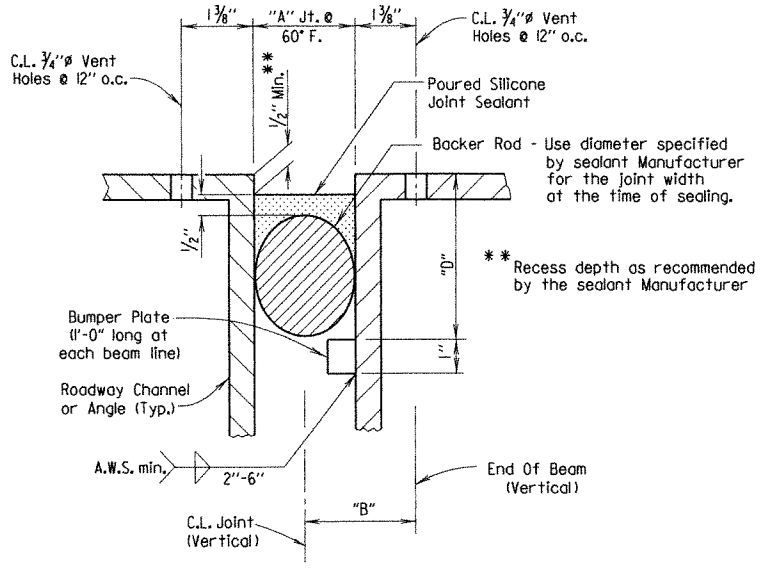
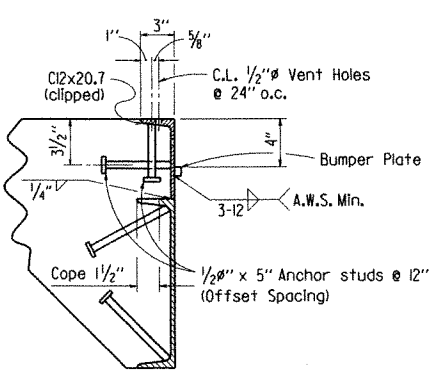


SHEET 1 OF 5
DETAILS OF
105'-0" CONTINUOUS W-BEAM UNIT
SAGER CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: AMS. DATE: 11/22/10. FILENAME: b090268_sl.dgn
CHECKED BY: Kwy DATE: 1-24-12. SCALE: As Noted
DESIGNED BY: JYP DATE: 10-10
BRIDGE NO. 04917 DRAWING NO. 52268

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.		090268	3672	
				04917	CONT. UNIT		52269	

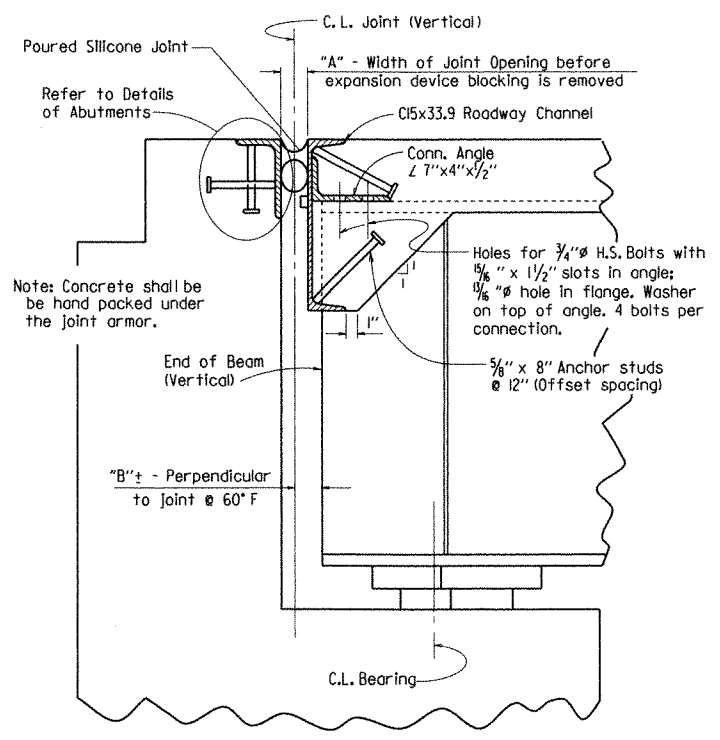


ROADWAY SECTION NEAR JOINT



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

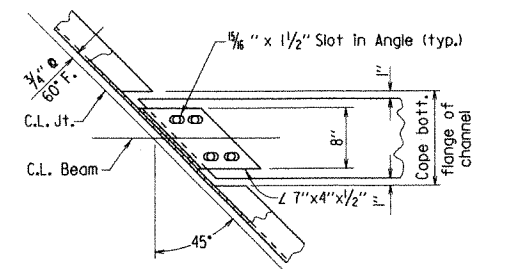
EXPANSION DEVICE INSTALLATION AT ABUTMENTS:
 The concrete span pour adjacent to joint shall be placed before the abutment backwall is placed. After the abutment backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the abutment. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.



SECTION THRU JOINT AT ABUTMENT

SECTION X-X

DETAIL OF POURED SILICONE JOINT



CONNECTION ANGLE DETAIL

SILICONE JOINT DATA

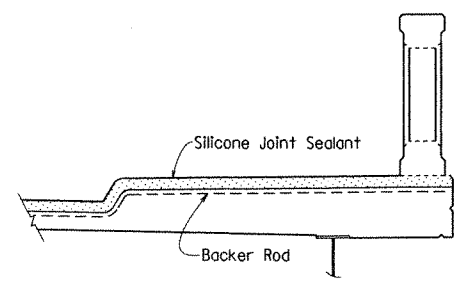
"A" Width Perpendicular to Joint at 24 Hour Average Temperature* Of:			"B" Perpendicular to Joint at 60°F	"D"	Bumper Plate Size
40°F	60°F	80°F			
1 3/8"	1 1/2"	1 1/8"	2" ±	4"	1" x 3/4"

* 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. Interpolation of the table may be necessary.

Notes:
 The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

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. Unless otherwise 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.

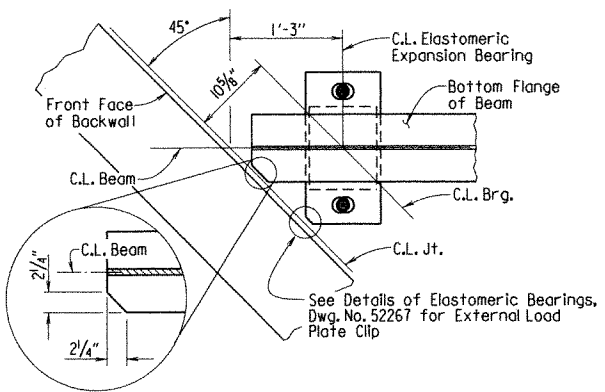
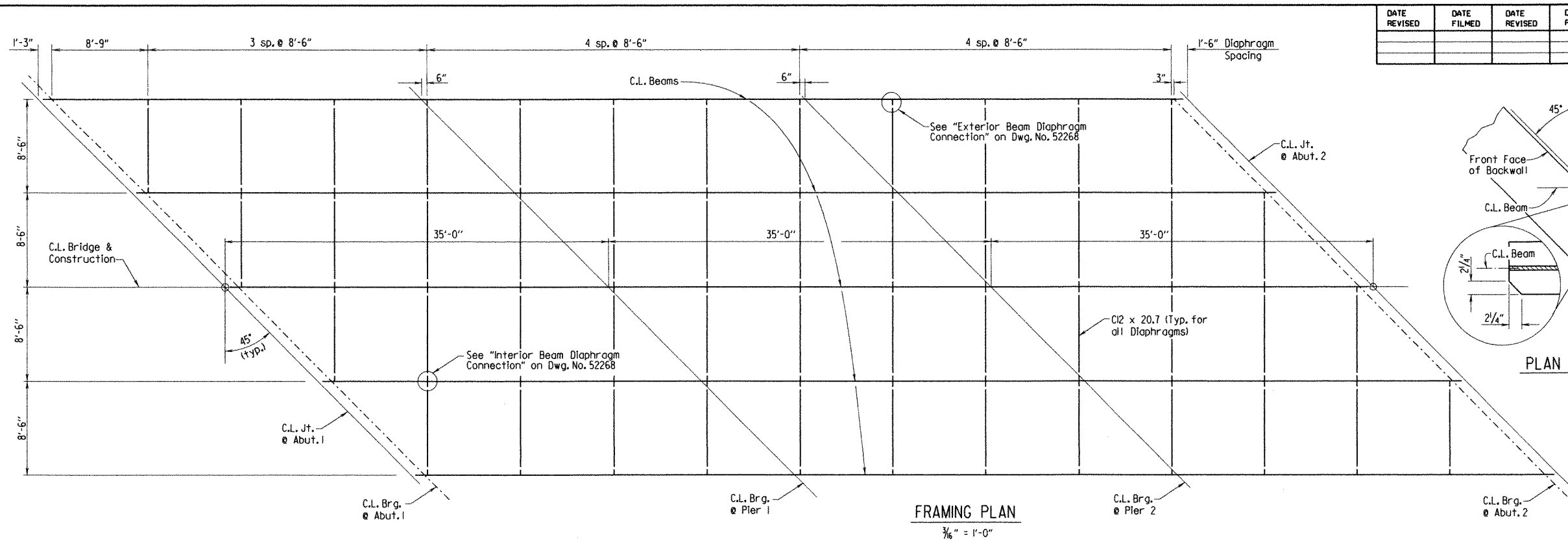


JOINT SEAL PLACEMENT AT CURB AND SIDEWALK



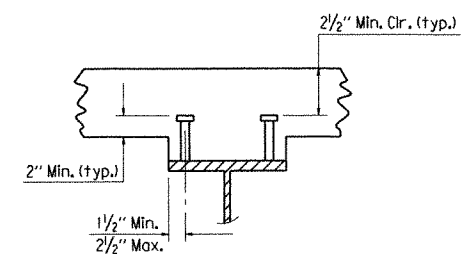
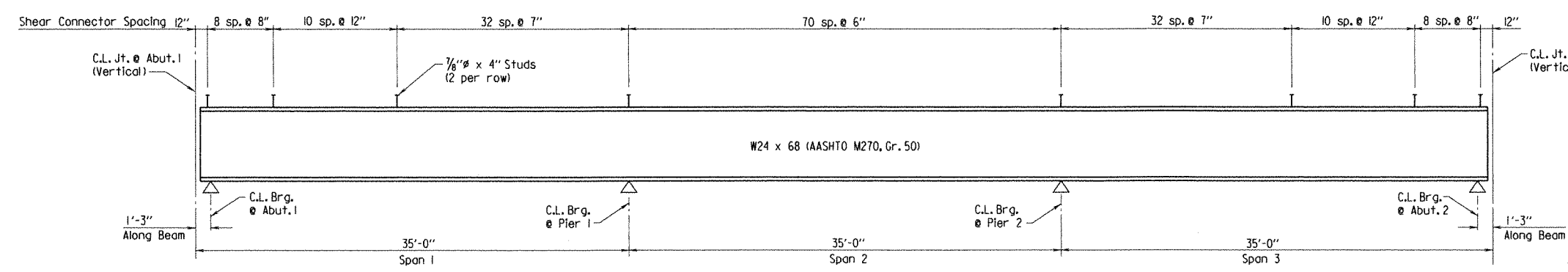
SHEET 2 OF 5
 DETAILS OF
 105'-0" CONTINUOUS W-BEAM UNIT
 SAGER CREEK
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: AMS. DATE: 11/22/10. FILENAME: b090268_sl.dgn
 CHECKED BY: V.W.Y. DATE: 2-24-12. SCALE: As Noted
 DESIGNED BY: JYP. DATE: 10-10
 BRIDGE NO. 04917 DRAWING NO. 52269

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. 04917							090268	3772
CONT. UNIT							52270	



FRAMING PLAN
3/8" = 1'-0"

PLAN OF BEARING AT ABUTMENTS
No Scale



Stud Shear Connectors shown shall be 7/8" x 4" automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. 3/4" studs may be used in place of the 7/8" studs shown at the ratio of 1.361-3/4" studs in place on one 7/8" stud. 7/8" studs will be used as the basis for measurement of structural steel in shear connectors.

TYPICAL BEAM ELEVATION
No Scale

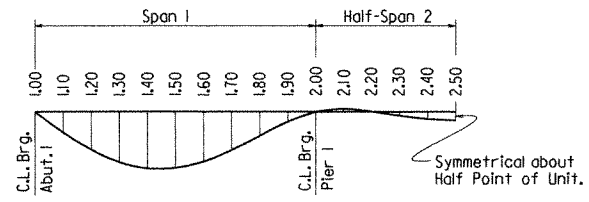
Note: No bolted field splices will be permitted.

SHEAR CONNECTOR DETAIL
No Scale

TABLE OF DEAD LOAD DEFLECTIONS-INCHES

Span	Point of Deflection	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Roll
		All Beams	All Beams	All Beams
Span 1	1.00	0.000	0.000	0.000
	1.10	0.010	0.100	0.121
	1.20	0.018	0.186	0.225
	1.30	0.023	0.247	0.299
	1.40	0.026	0.277	0.336
	1.50	0.026	0.275	0.333
	1.60	0.023	0.243	0.295
	1.70	0.018	0.187	0.227
	1.80	0.011	0.117	0.142
	1.90	0.005	0.048	0.059
Half-Span 2	2.00	0.000	0.000	0.000
	2.10	-0.001	-0.013	-0.016
	2.20	0.000	-0.001	-0.001
	2.30	0.002	0.019	0.023
	2.40	0.004	0.036	0.043
	2.50	0.004	0.042	0.051

Note: Camber for Dead Load Deflection +/- 1/4" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord.

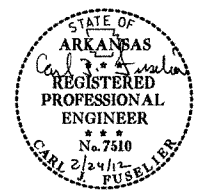


DEAD LOAD DEFLECTION DIAGRAM
No Scale

TABLE FOR WELD

Material Thickness Of Thicker Part Joined (inches)	Minimum Size Of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	Must Be Used
Over 3/4"	5/16"	

Note: When a fillet weld size, as shown on the plans, is larger than the minimum, the First Pass shall be that specified for minimum size of fillet weld.

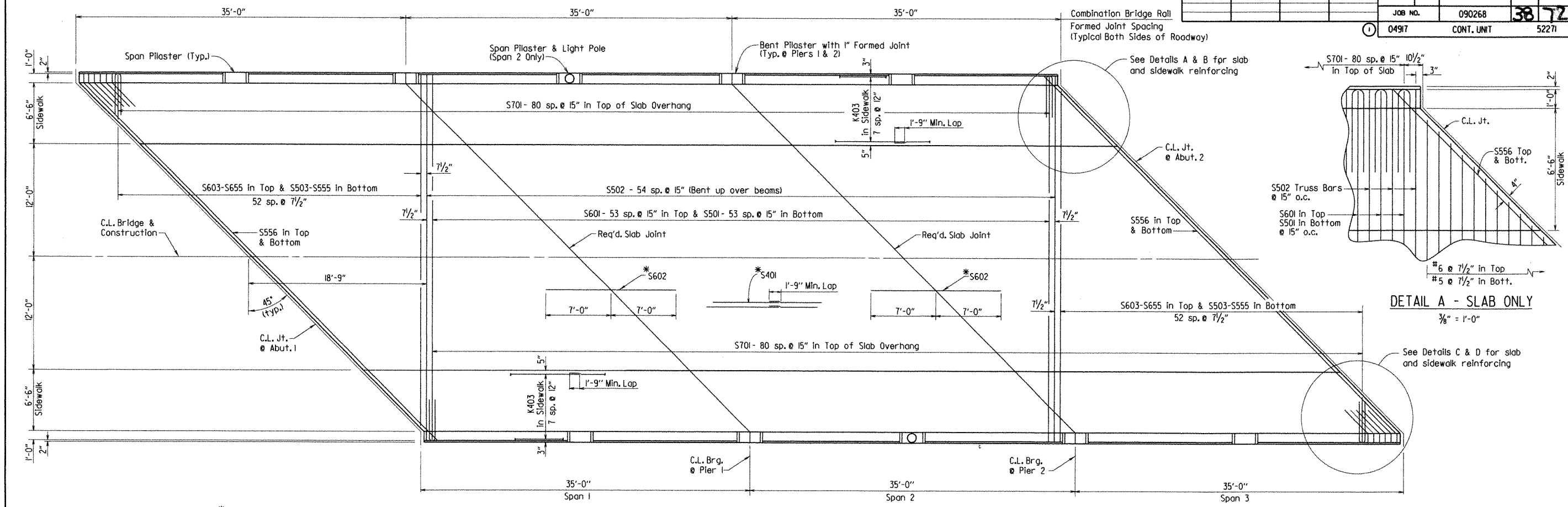


BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF
105'-0" CONTINUOUS W-BEAM UNIT
SAGER CREEK
ROUTE 146 SEC. 4
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: AMS. DATE: 11/22/10. FILENAME: b090268.sldgn
CHECKED BY: KMY. DATE: 2-24-11. SCALE: As Noted
DESIGNED BY: JYP. DATE: 10-10
BRIDGE NO. 04917 DRAWING NO. 52270

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		38	72
				JOB NO.	090268		CONT. UNIT	
				04917	CONT. UNIT		52271	



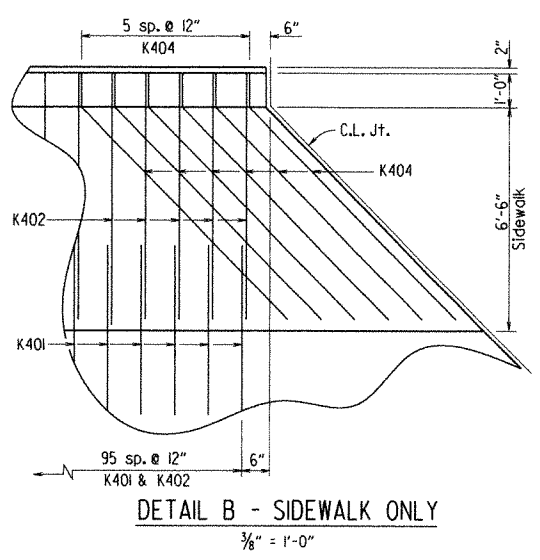
REINFORCING PLAN
3/8" = 1'-0"

* Place reinforcing as shown in "Typical Roadway Section", see Dwg. No. 52268.

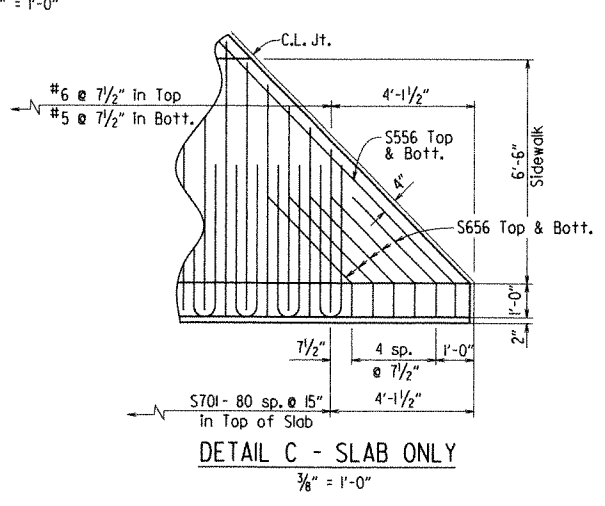
BAR LIST

Mark	No. Req'd.	Length	Pin Dia.	Bending Diagrams (Dimensions are out to out of bars.)
S401	321	36'-2"	Str.	
S501	54	39'-0"	Str.	
S502	55	39'-10"	3"	
S503-S555	2 ea.	4'-10" to 37'-4"	Str.	
S556	4	54'-8"	3 3/4"	
S601	54	38'-10"	Str.	
S602	84	14'-0"	Str.	
S603-S655	2 ea.	4'-9" to 37'-3"	Str.	
S656	20	5'-3"	4 1/2"	
S701	162	9'-1"	6 1/2"	
K401	192	4'-6"	2"	
K402	192	7'-2"	Str.	
K403	48	36'-2"	Str.	
K404	30	9'-9"	2"	

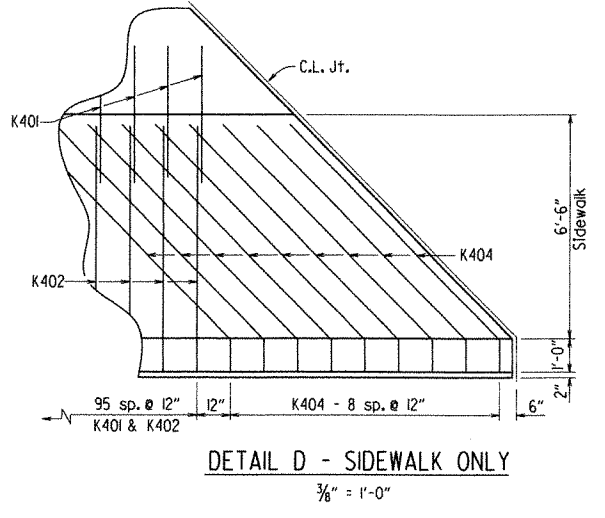
Notes:
At the Contractor's option, two straight #5 bars may be substituted for bar S502. Payment for reinforcing will be based on the weight of bar S502.
For bridge rail details and reinforcing, see Dwg. Nos. 52273 - 52275.



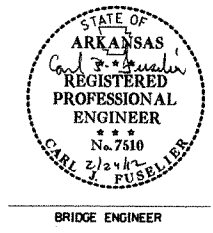
DETAIL B - SIDEWALK ONLY
3/8" = 1'-0"



DETAIL C - SLAB ONLY
3/8" = 1'-0"



DETAIL D - SIDEWALK ONLY
3/8" = 1'-0"



SHEET 4 OF 5
DETAILS OF
105'-0" CONTINUOUS W-BEAM UNIT
SAGER CREEK
ROUTE 146 SEC. 4
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: AMS. DATE: 11/22/10. FILENAME: b090268.s1.dgn
CHECKED BY: Kwy DATE: 2-24-12. SCALE: As Noted
DESIGNED BY: JJP DATE: 10-10
BRIDGE NO. 04917 DRAWING NO. 52271

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.		090268	39	72
				04917		CONT. UNIT		52272

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.

MATERIALS AND STRENGTHS:

Class S(AE) Concrete $f'_c = 4,000$ psi
 Reinforcing Steel (AASHTO M31 or M53, Gr. 60) $f_y = 60,000$ psi
 Structural Steel (AASHTO M 270, Gr. 50) $F_y = 50,000$ psi
 Structural Steel (AASHTO M 270, Gr. 36) $F_y = 36,000$ psi

CONCRETE :

Concrete shall be poured in the dry and all exposed corners to be chamfered $\frac{3}{4}$ " unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength $f'_c = 4,000$ psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 1499I 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 deck shall be given a fine finish in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. The sidewalk shall receive a Broomed Finish as specified for final finishing in subsection 802.19 for Class 6, Broomed Finish. Movement of the finishing machine across 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 beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the sidewalk and railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing.

REINFORCING STEEL :

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size 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 "Reinforcing Steel - Bridge (Grade 60)".

STRUCTURAL STEEL :

Structural steel shall be AASHTO M 270, Grade 50 unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50)". All exposed surfaces shall be cleaned in accordance with subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36.

All structural steel except galvanized steel and steel which is completely encased in concrete shall be painted in accordance with subsection 807.75. The color of paint shall conform to Federal Std. 595B, Color Chip No. 36515, Grey.

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.

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.

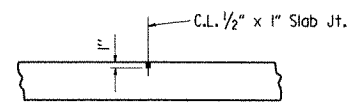
Beams are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50)".

All beams shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of $\frac{1}{4}$ " +/- is allowed for camber.

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.

Field connections shall be bolted with high-strength bolts and shall be $\frac{3}{4}$ " ϕ bolts unless otherwise noted. Holes for $\frac{3}{4}$ " ϕ high-strength bolts may be $\frac{5}{16}$ " ϕ diameter if a washer is supplied for use under both the nut and head of the bolt.

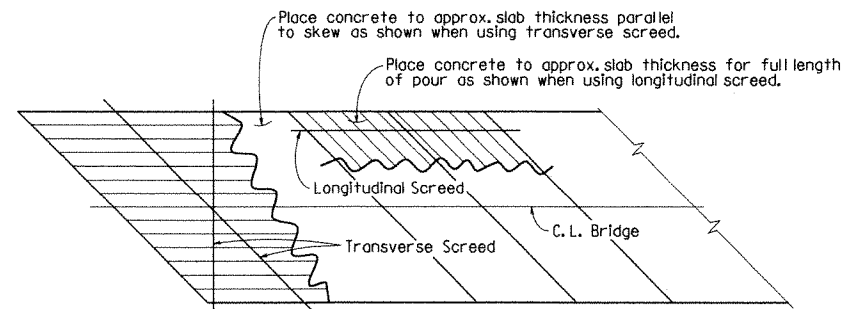
Diaphragms shall be installed as beams are erected. All bolts in diaphragms shall be installed and tightened in accordance with subsection 807.71 prior to pouring the concrete deck unless otherwise noted.



Use Type 3, 4, or 6 Joint Sealer. See subsections 50L02(h) and 50L05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to outside edge of the deck slab and shall be installed before the sidewalk is poured. After installation of the joint in the sidewalk and prior to pouring the bridge rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and across the top of the sidewalk to the edge of the slab. Slab joints shall align with formed joints at the front face of the bridge rail. No joint sealer shall be placed on the deck slab under the sidewalk. 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 required slab joint locations.

SLAB JOINT DETAIL

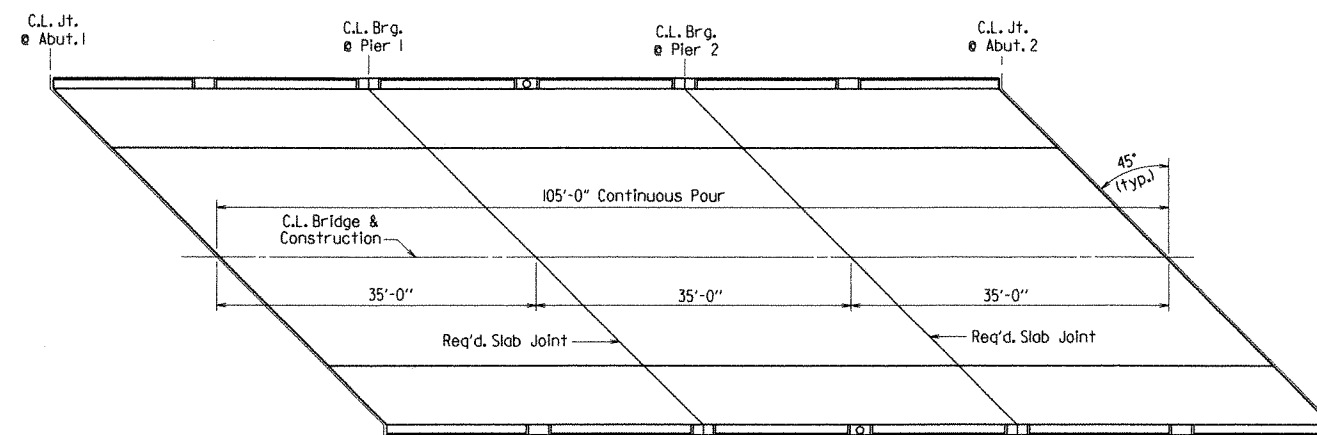
No Scale



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE

No Scale



Notes:
 A minimum of seven (7) days shall elapse after the completion of the entire deck slab before pouring the sidewalk. A minimum of 72 hours shall elapse between completion of the sidewalk and pouring of the rail.

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

POURING SEQUENCE

No Scale

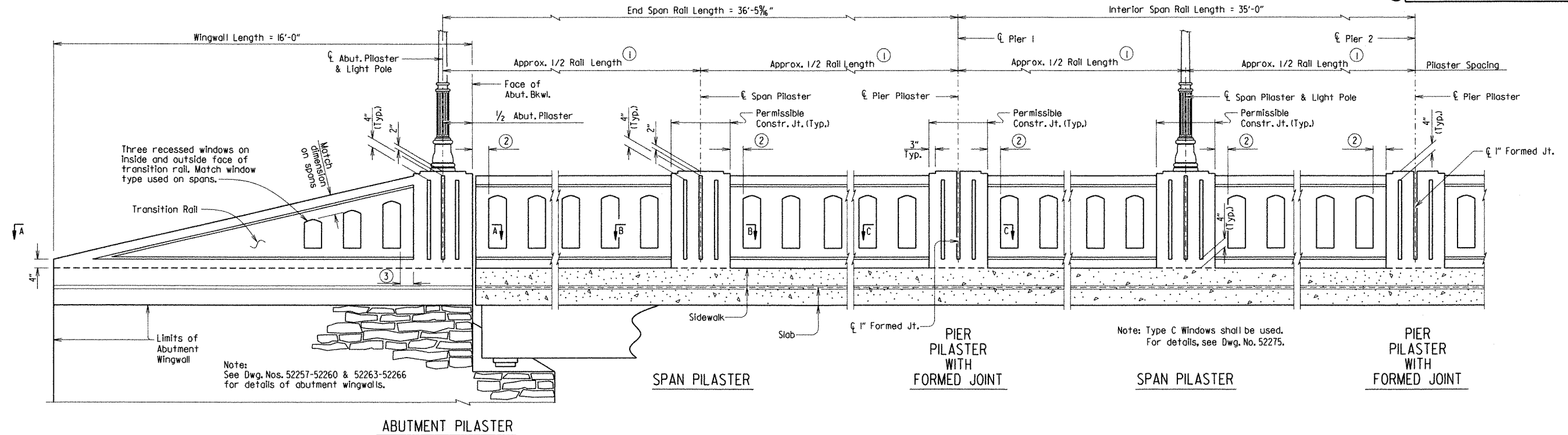


BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF
105'-0" CONTINUOUS W-BEAM UNIT
SAGER CREEK
 ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: AMS. DATE: 11/22/10. FILENAME: b090268_sl.dgn
 CHECKED BY: V.W.Y. DATE: 2-24-12. SCALE: As Noted
 DESIGNED BY: J.P. DATE: 10-10
 BRIDGE NO. 04917 DRAWING NO. 52272

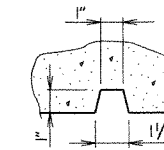
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090268	4072	
				04917		BRIDGE RAIL		52273



- Number of windows in each bay shall be equal within a span. Number of windows may vary from span to span. See "Table of Variables" on Dwg. No. 52275.
- Dimension is the same for all posts adjacent to Span and Pier Pilasters in a span. Dimension may vary from span to span, Min = 6", Max = 1'-3". See "Table of Variables" on Dwg. No. 52275.
- Match spacing to first window in adjacent span.
- See "Elevation Showing Typical Reinforcing Placement", on Dwg. No. 52274.

EXTERIOR ELEVATION OF RAIL

1/2" = 1'-0"



DETAIL "A"

GENERAL NOTES

All concrete for bridge and transition railing shall be Class (S/AE) with a minimum 28 day compressive strength $f'_c = 4,000$ psi. A Class 2 Rubbed Finish shall be applied to all exposed surfaces of railing in accordance with subsection 802.9(b)(2).

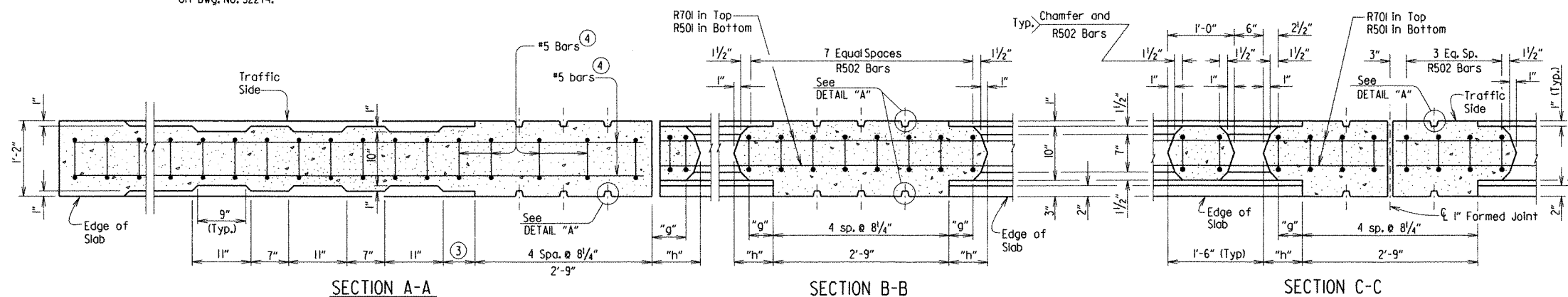
All reinforcing shall conform to AASHTO M 31 or M 53, Grade 60.

Face of rail and pilasters shall be plumb.

Working drawings showing span number, span pilaster locations, number of windows between pilasters and spacing to first window shall be submitted to the Engineer for approval prior to pouring railing.

For additional details of light poles, conduit, pull boxes and anchor bolts, see Illumination Plans.

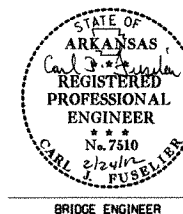
This rail was evaluated based on the results of previous crash tests and approved for a NCHRP Report 350 TL-2 rating.



PLAN VIEW OF RAIL

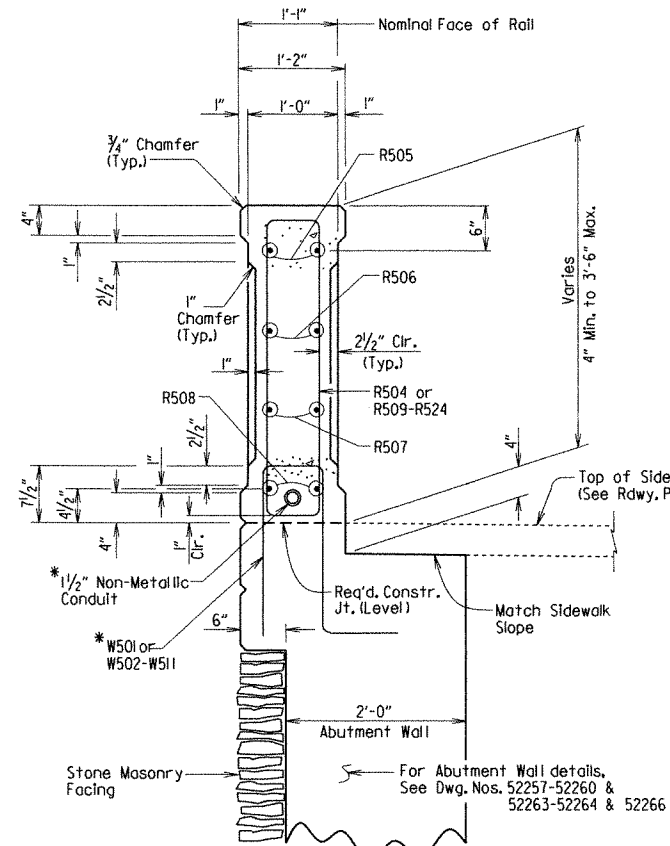
1/2" = 1'-0"

Note: For Table of Variables, See Dwg. No. 52275.



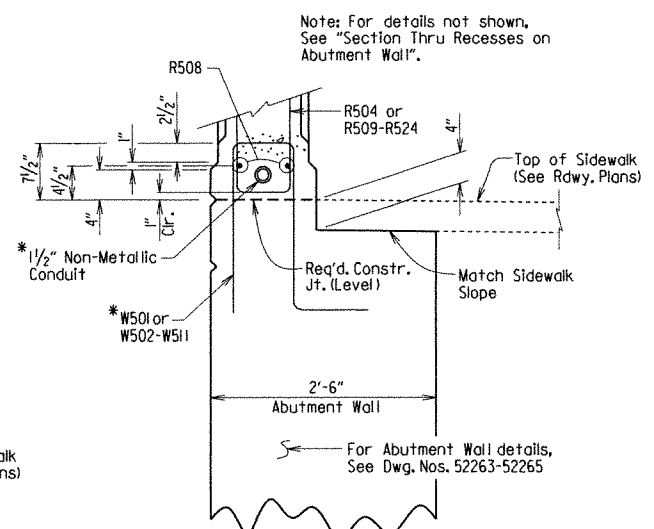
SHEET 1 OF 3
 DETAILS OF
 COMBINATION BRIDGE RAIL
 SAGER CREEK
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: AMS. DATE: 12/13/10 FILENAME: b090268_r1.dgn
 CHECKED BY: VWY DATE: 1-24-12 SCALE: As Noted
 DESIGNED BY: STD. DATE:
 BRIDGE NO. 04917 DRAWING NO. 52273

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		41	72
				JOB NO.	090268		4172	
				04917	BRIDGE RAIL		52274	

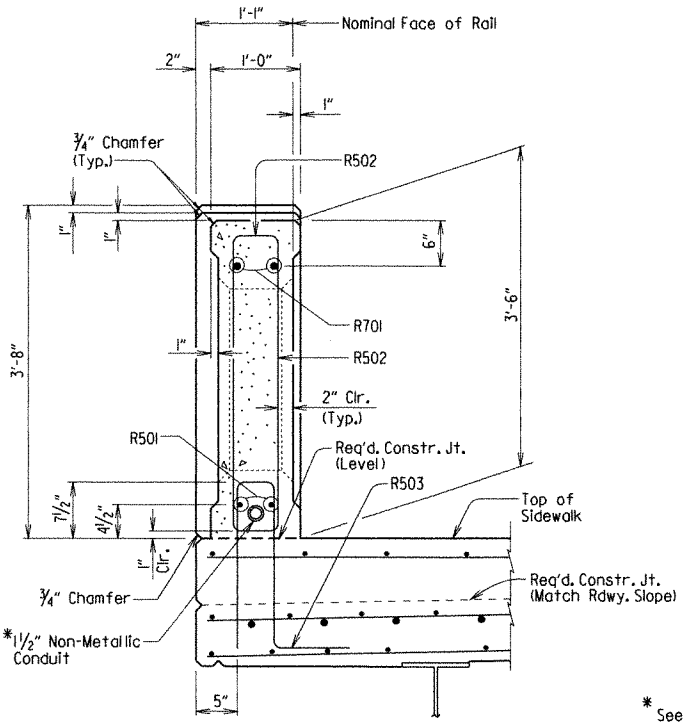


SECTION THRU RECESSES ON ABUTMENT WALL

ABUTMENT 1 - WALLS A & B, ABUTMENT 2 - WALL B
FOR ABUTMENT 2 - WALL A, SEE "DETAIL B"
1" = 1'-0"

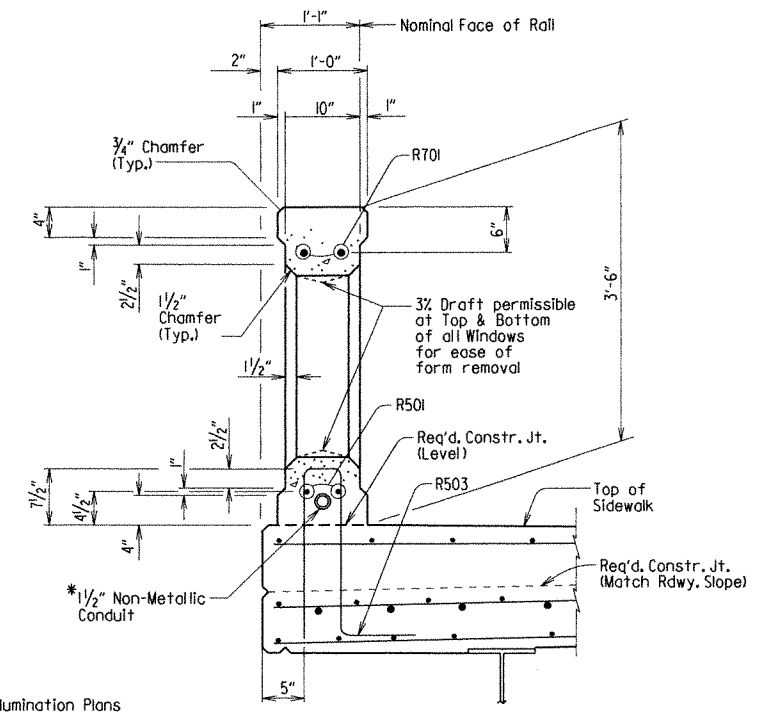


DETAIL B
ABUTMENT 2 - WALL A
1" = 1'-0"



SECTION THRU PILASTERS
ON SPANS

1" = 1'-0"



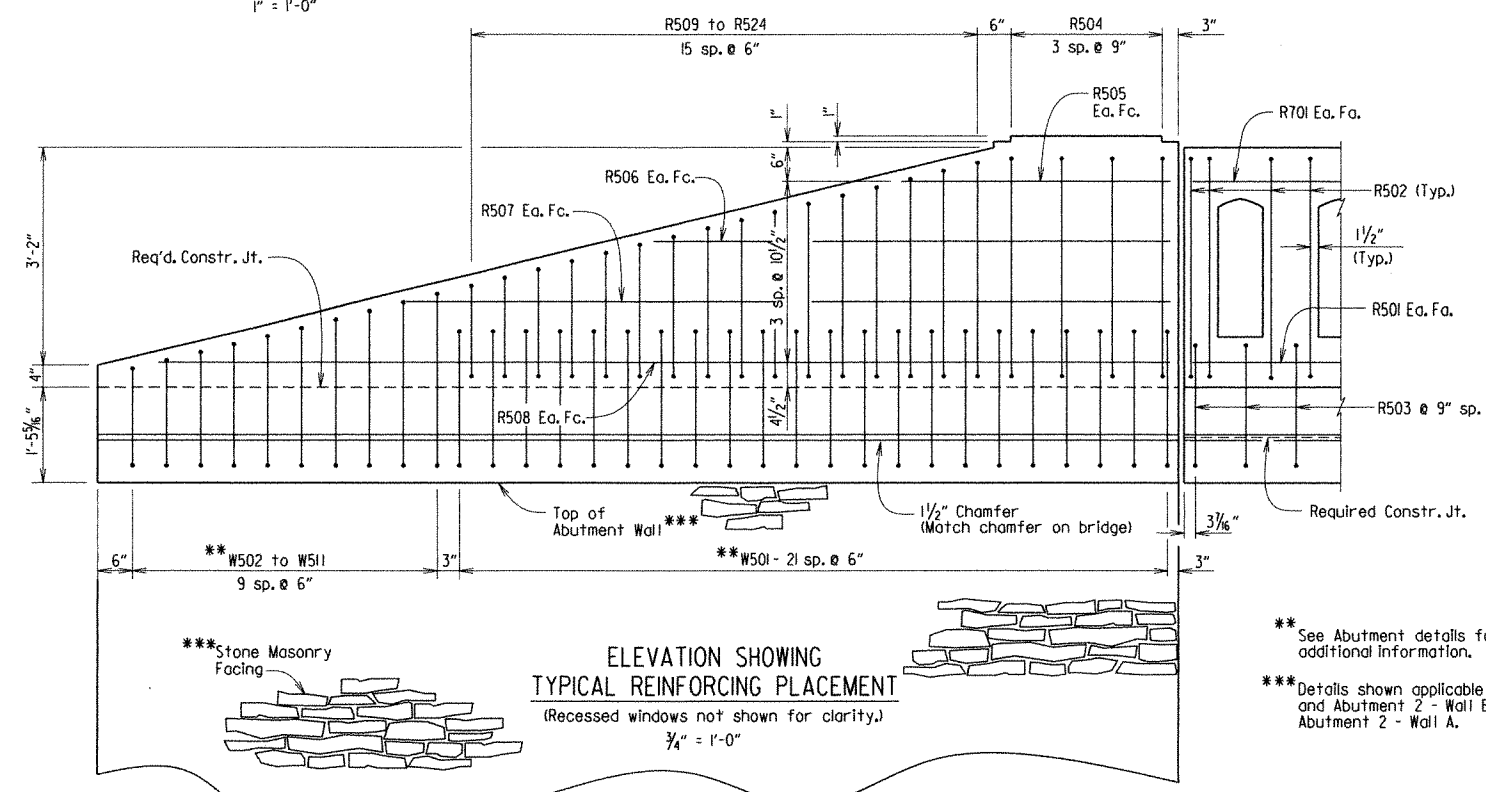
SECTION THRU WINDOWS
ON SPANS

1" = 1'-0"

BAR LIST

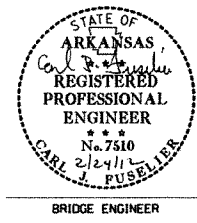
Mark	No. Req'd.	Length	A	B	Pin Dia.	Bending Diagrams (Dimensions are out to out of bars.)
R501	12	34'-7"	—	—	Str.	
R502	296	8'-0"	6"	3'-3"	2 1/2"	
R503	280	4'-11"	6"	1'-11"	2 1/2"	
R504	16	8'-2"	7"	3'-3"	2 1/2"	
R505	8	3'-11"	—	—	Str.	
R506	8	7'-7"	—	—	Str.	
R507	8	11'-3"	—	—	Str.	
R508	8	14'-11"	—	—	Str.	
R509 - R524	4 Ea.	4'-4" to 8'-0"	7"	1'-4" to 3'-2"	2 1/2"	
R701	12	34'-7"	—	—	Str.	
W501	See Abutment Details					
W502 - W511	See Abutment Details					

Note:
Bar List includes Reinforcing Steel for rails and pilasters on spans and for transition rails and abutment pilasters, except as noted.



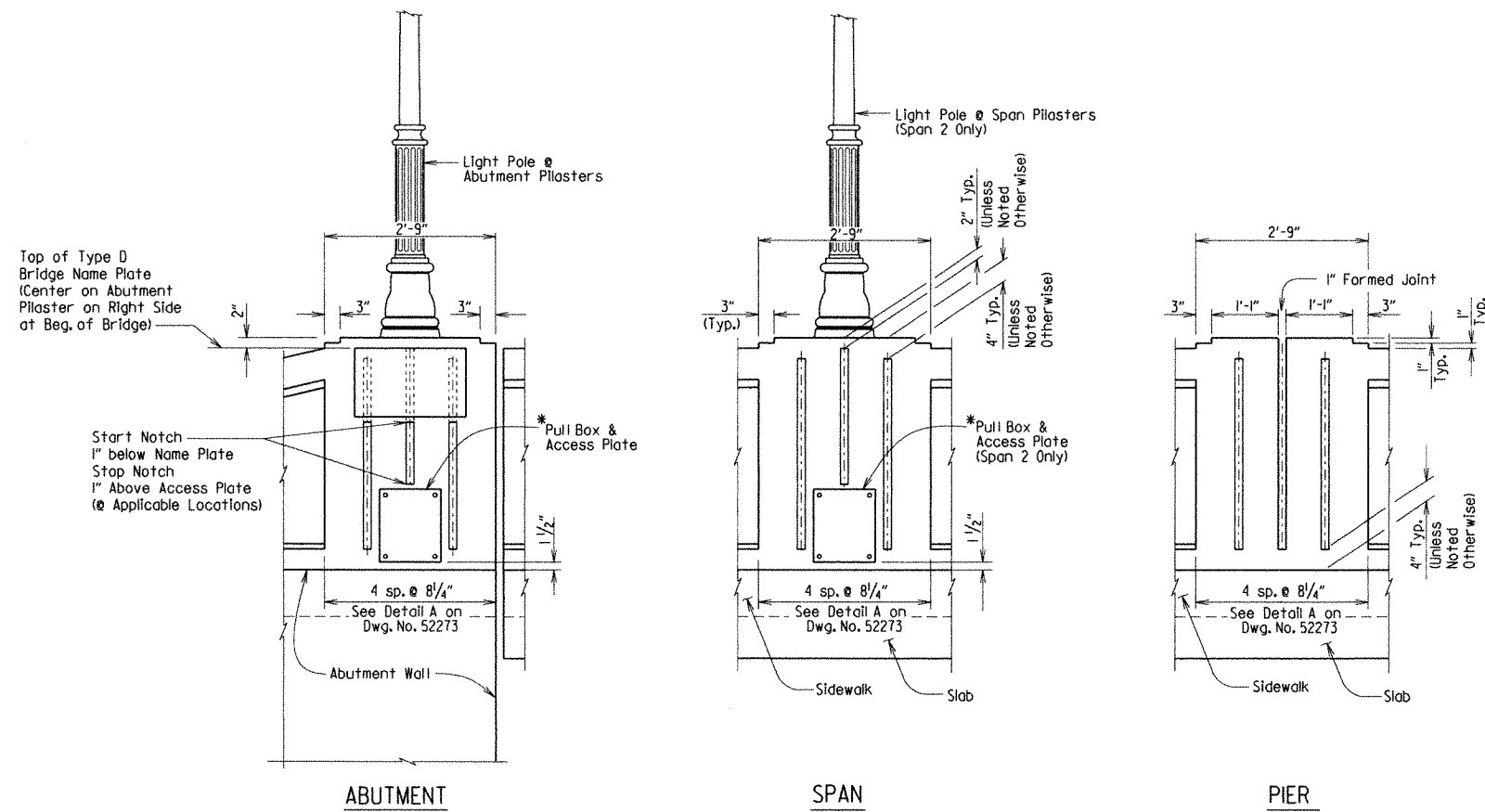
ELEVATION SHOWING
TYPICAL REINFORCING PLACEMENT
(Recessed windows not shown for clarity.)
3/4" = 1'-0"

** See Abutment details for reinforcing and additional information.
*** Details shown applicable to Abutment 1 - Wall A & B and Abutment 2 - Wall B. See "Detail B" for Abutment 2 - Wall A.



SHEET 2 OF 3
DETAILS OF
COMBINATION BRIDGE RAIL
SAGER CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: A.M.S. DATE: 12/13/10 FILENAME: b090268.rl.dgn
CHECKED BY: EWY DATE: 2-24-12 SCALE: As Noted
DESIGNED BY: STP DATE:
BRIDGE NO. 04917 DRAWING NO. 52274

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.		090268	4272	
				① 04917		BRIDGE RAIL	52275	



INTERIOR ELEVATION OF PILASTERS

3/4" = 1'-0"

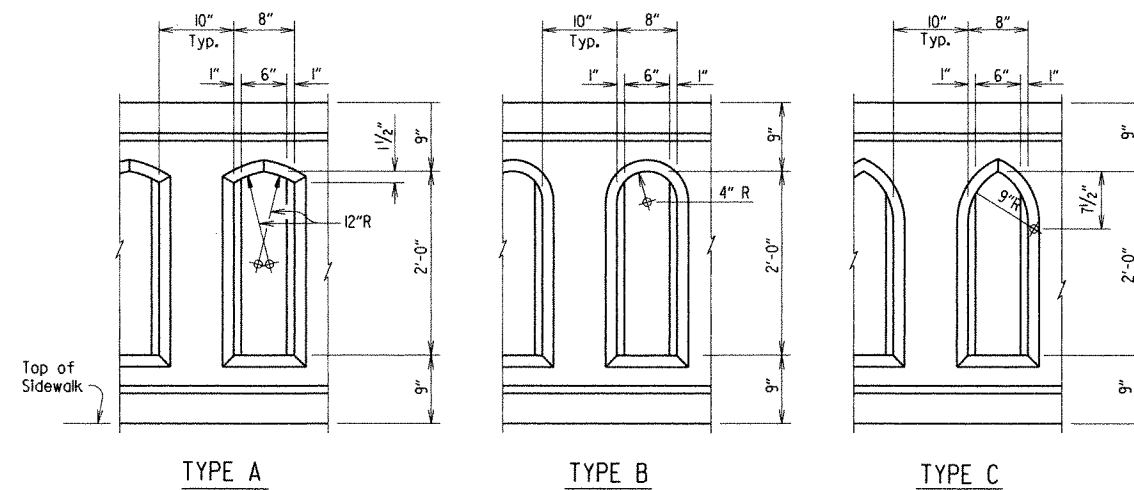
TABLE OF VARIABLES

Span No.	"g"	"h"	No. of Windows Per Bay	Window Type
1	6 3/8"	8 7/8"	10	C
2	11"	13 1/2"	9	C
3	6 3/8"	8 7/8"	10	C

TABLE OF QUANTITIES

(FOR INFORMATION ONLY)

Class "SIAE" Concrete - Bridge	Reinforcing Steel - Bridge (Grade 60)
Cu. Yds.	Lbs.
26.20	6,050

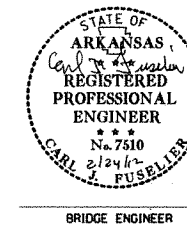


WINDOW TYPES

Not to Scale

Note: Same window type shall be used at all locations.

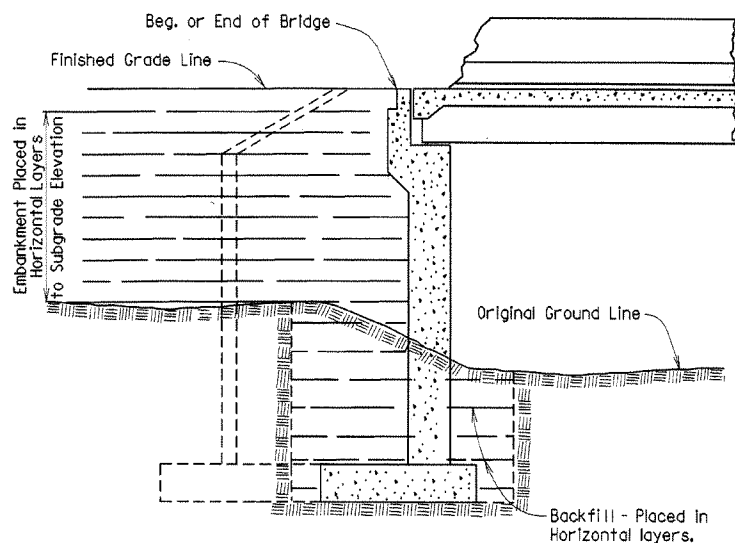
SHEET 3 OF 3
 DETAILS OF
 COMBINATION BRIDGE RAIL
 SAGER CREEK
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: AMS. DATE: 12/13/10. FILENAME: b090268_r1.dgn
 CHECKED BY: Kuy. DATE: 2-24-12. SCALE: As Noted
 DESIGNED BY: STP. DATE:
 BRIDGE NO. 04917 DRAWING NO. 52275



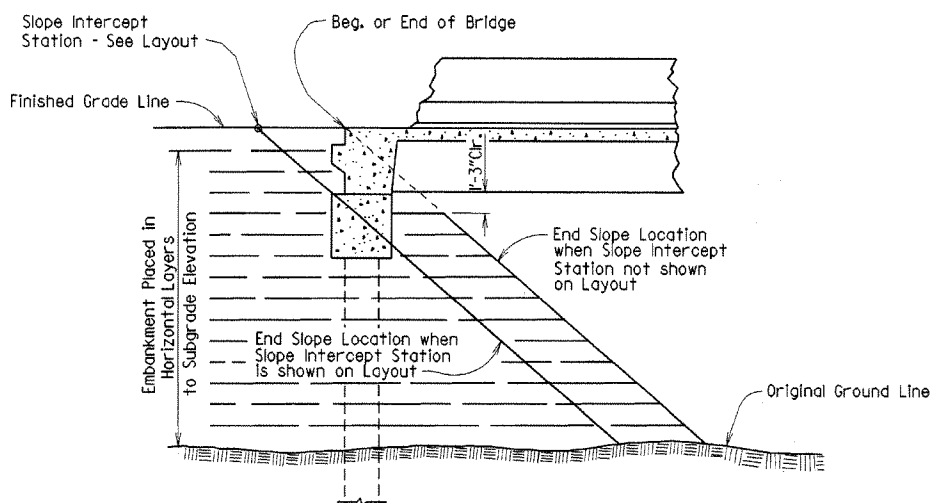
* See Illumination Plans

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.		43	
				JOB NO.				

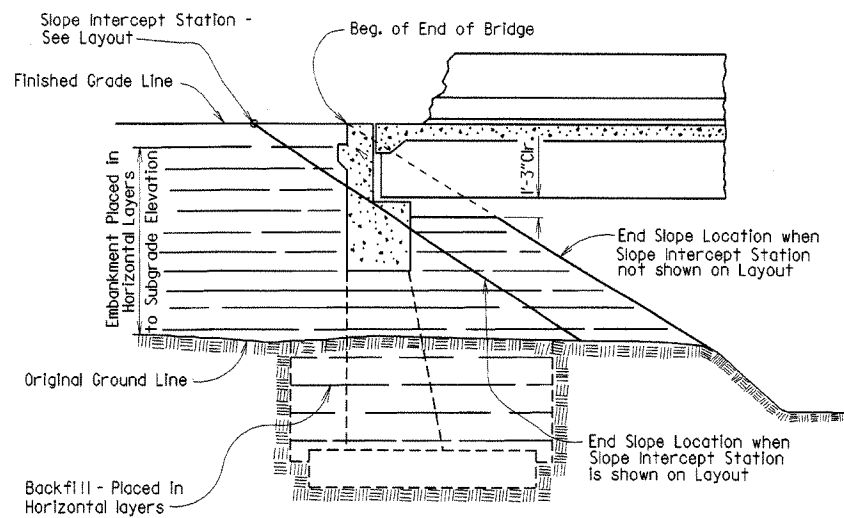
① EMBANKMENT & BACKFILL 1888A



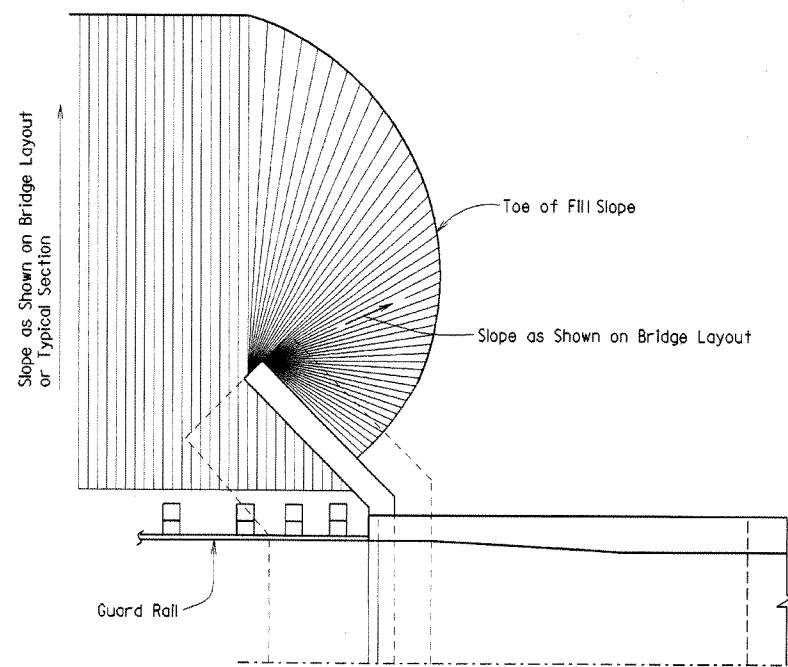
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



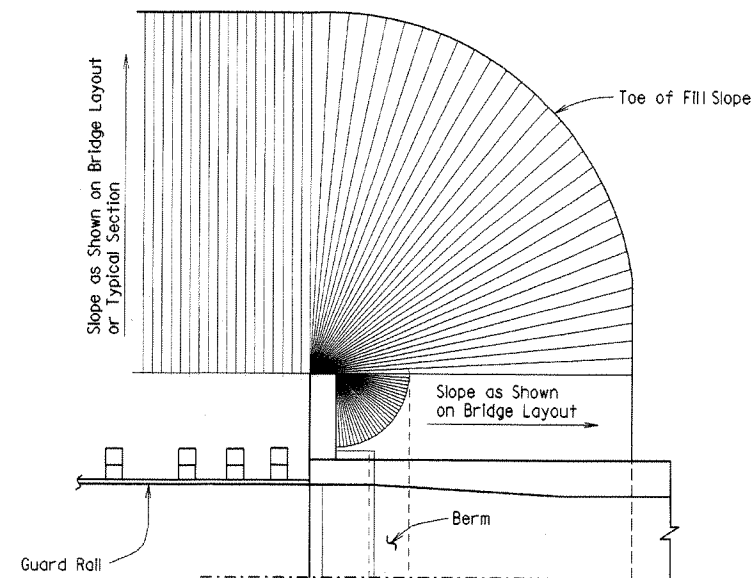
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



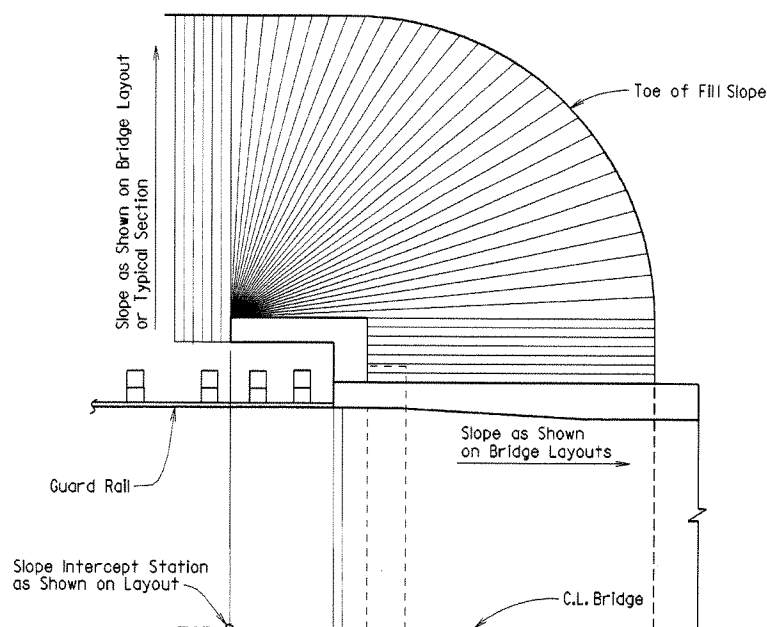
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



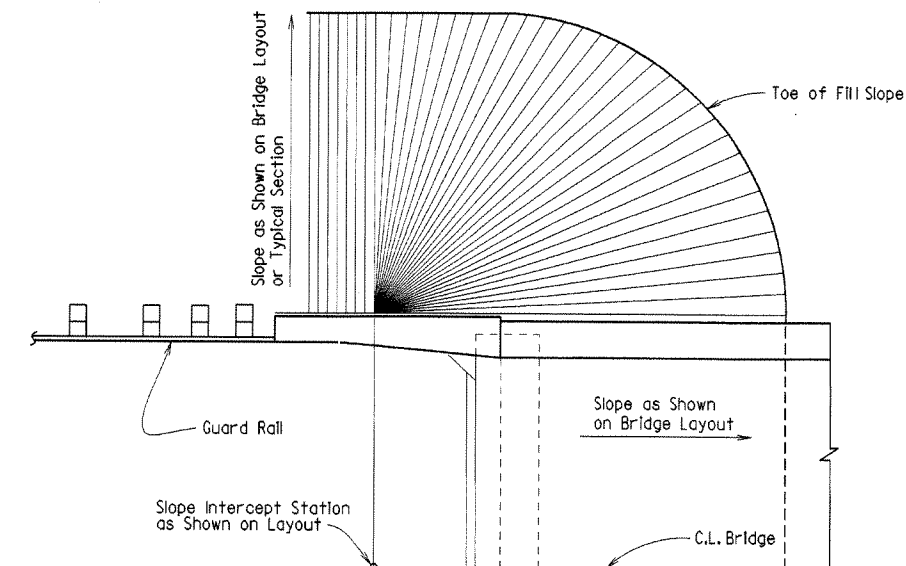
VERTICAL WALL ABUTMENTS



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



BRIDGE ENGINEER

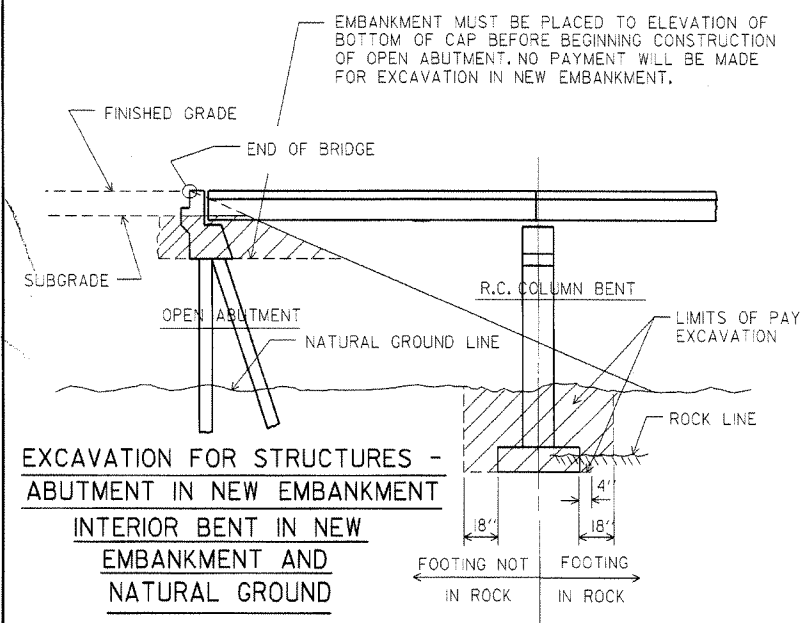
EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

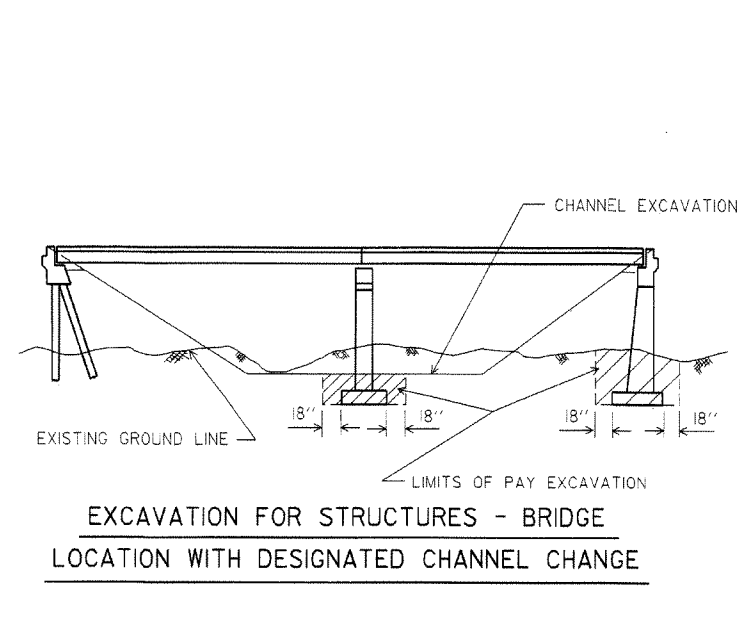
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 CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE

DESIGNED BY: STD DATE: BRIDGE NO. DRAWING NO. 1888A

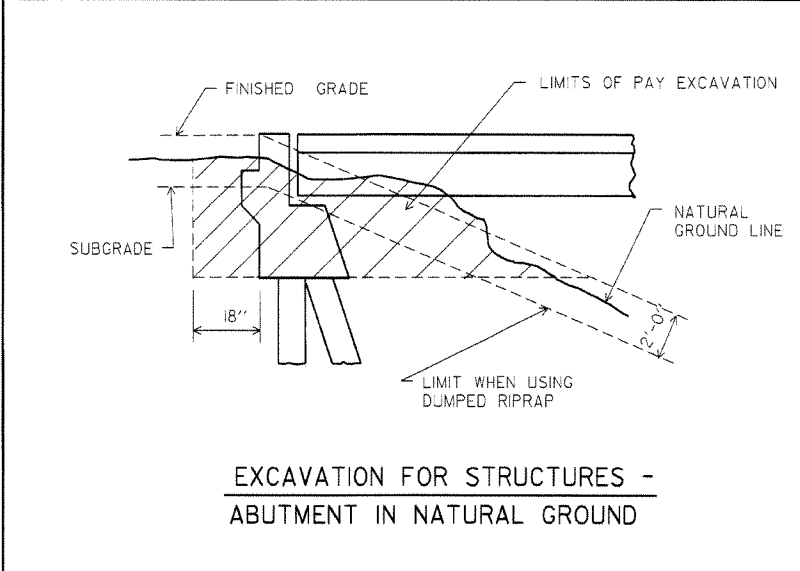
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		47	
JOB NO.							1	
RIP. & EXCAV.							1891F	



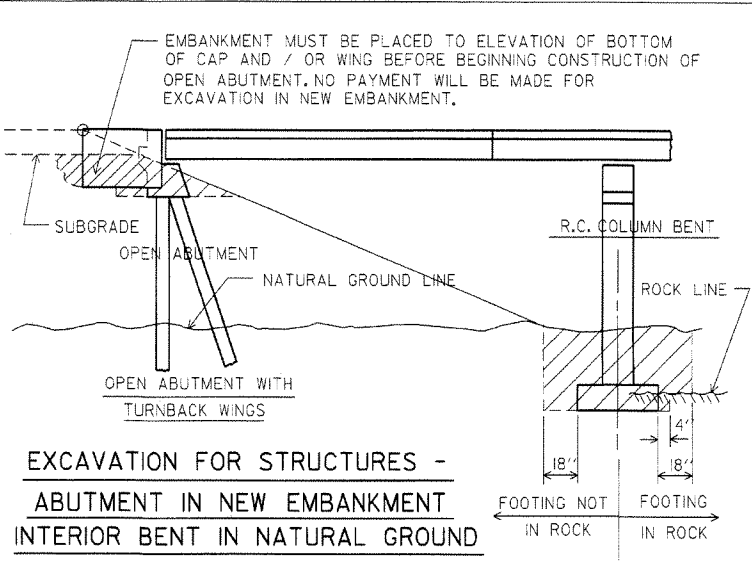
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT
INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



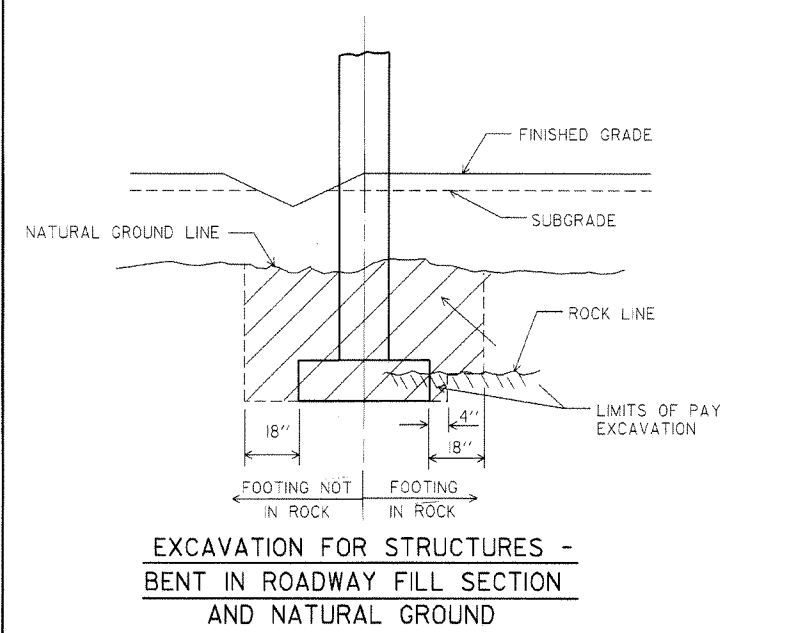
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



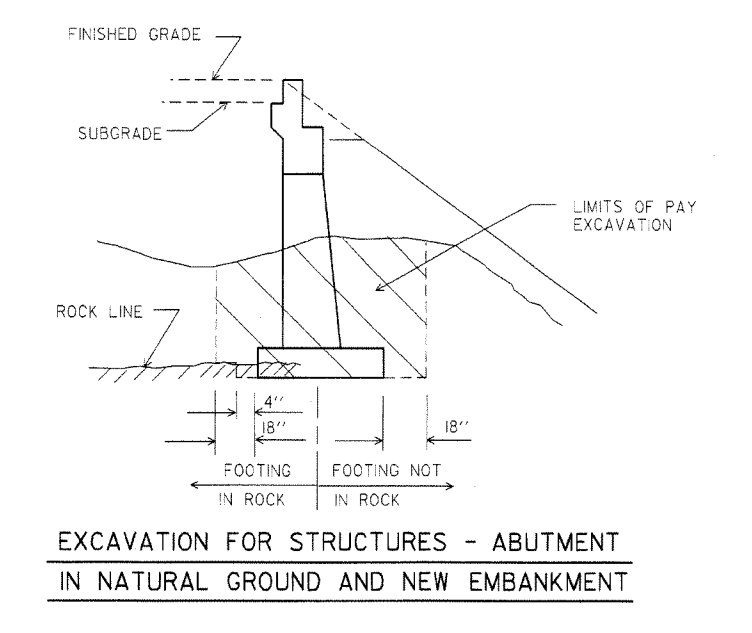
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



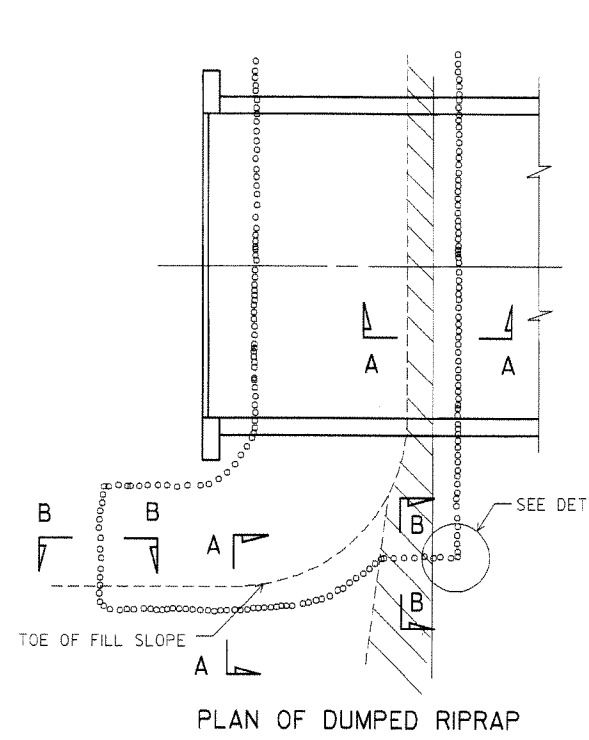
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT
INTERIOR BENT IN NATURAL GROUND



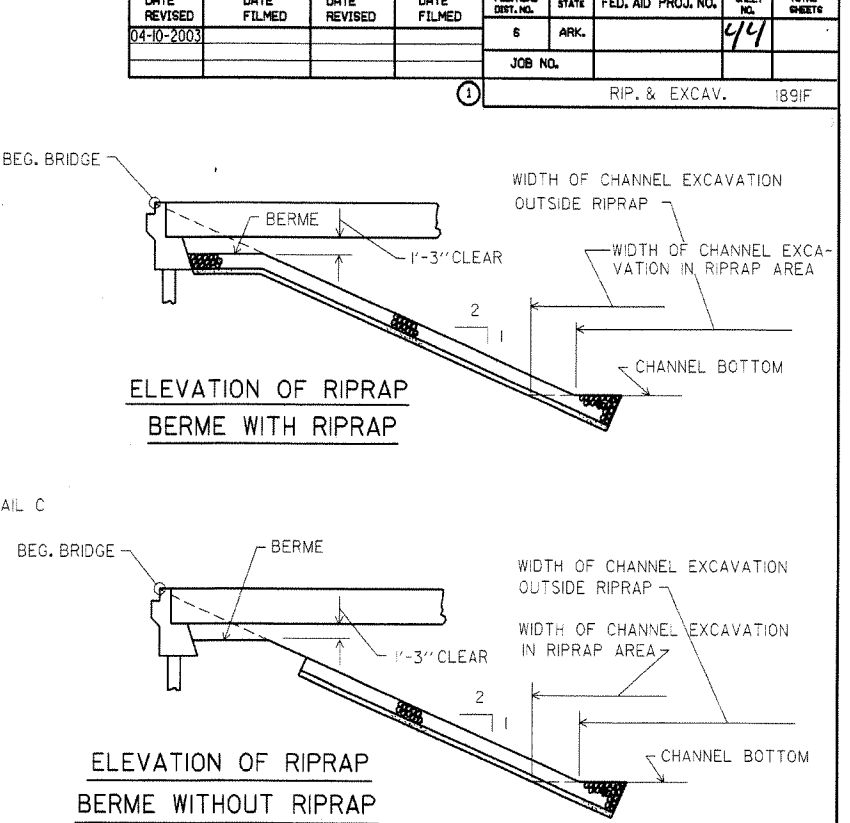
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



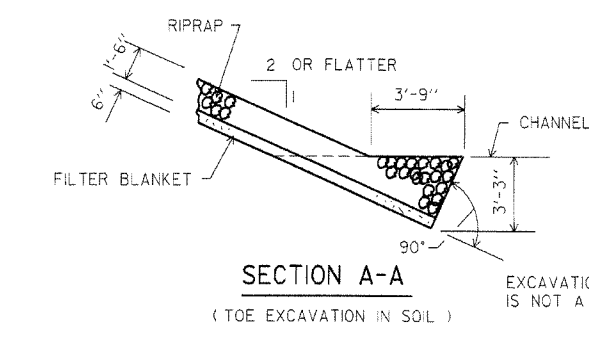
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



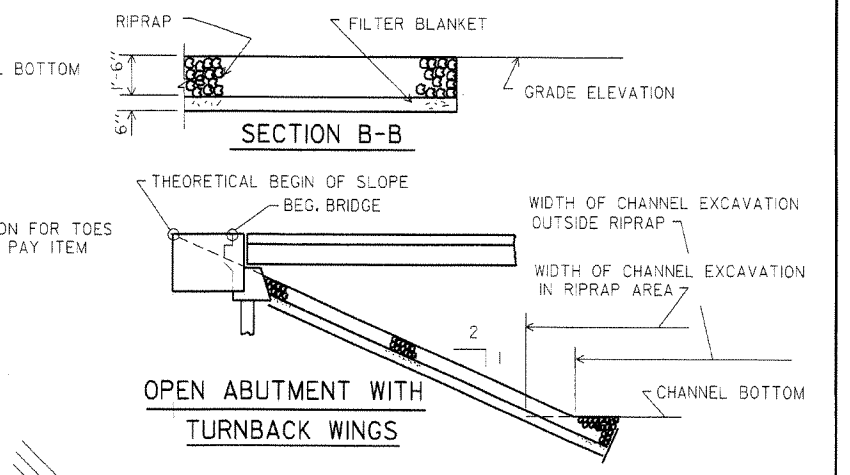
PLAN OF DUMPED RIPRAP



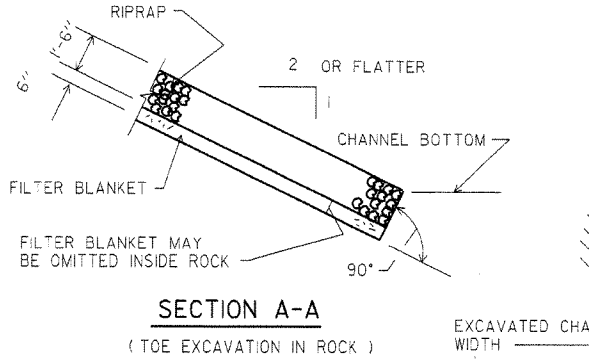
ELEVATION OF RIPRAP BERME WITH RIPRAP
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



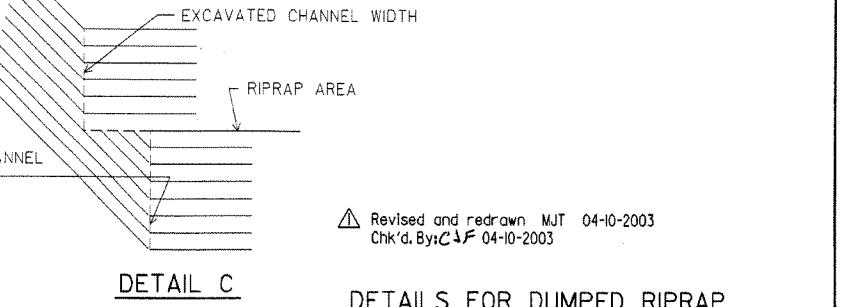
SECTION A-A (TOE EXCAVATION IN SOIL)



SECTION B-B
OPEN ABUTMENT WITH TURNBACK WINGS



SECTION A-A (TOE EXCAVATION IN ROCK)

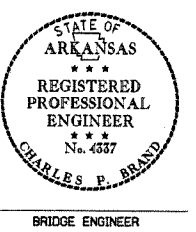


DETAIL C

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(e) 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.



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

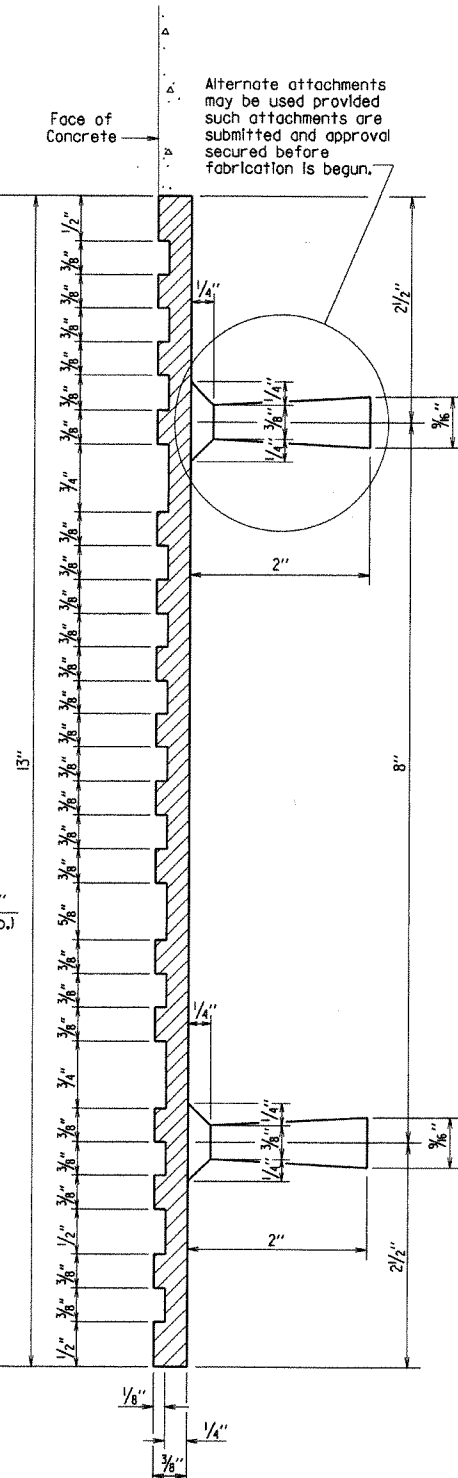
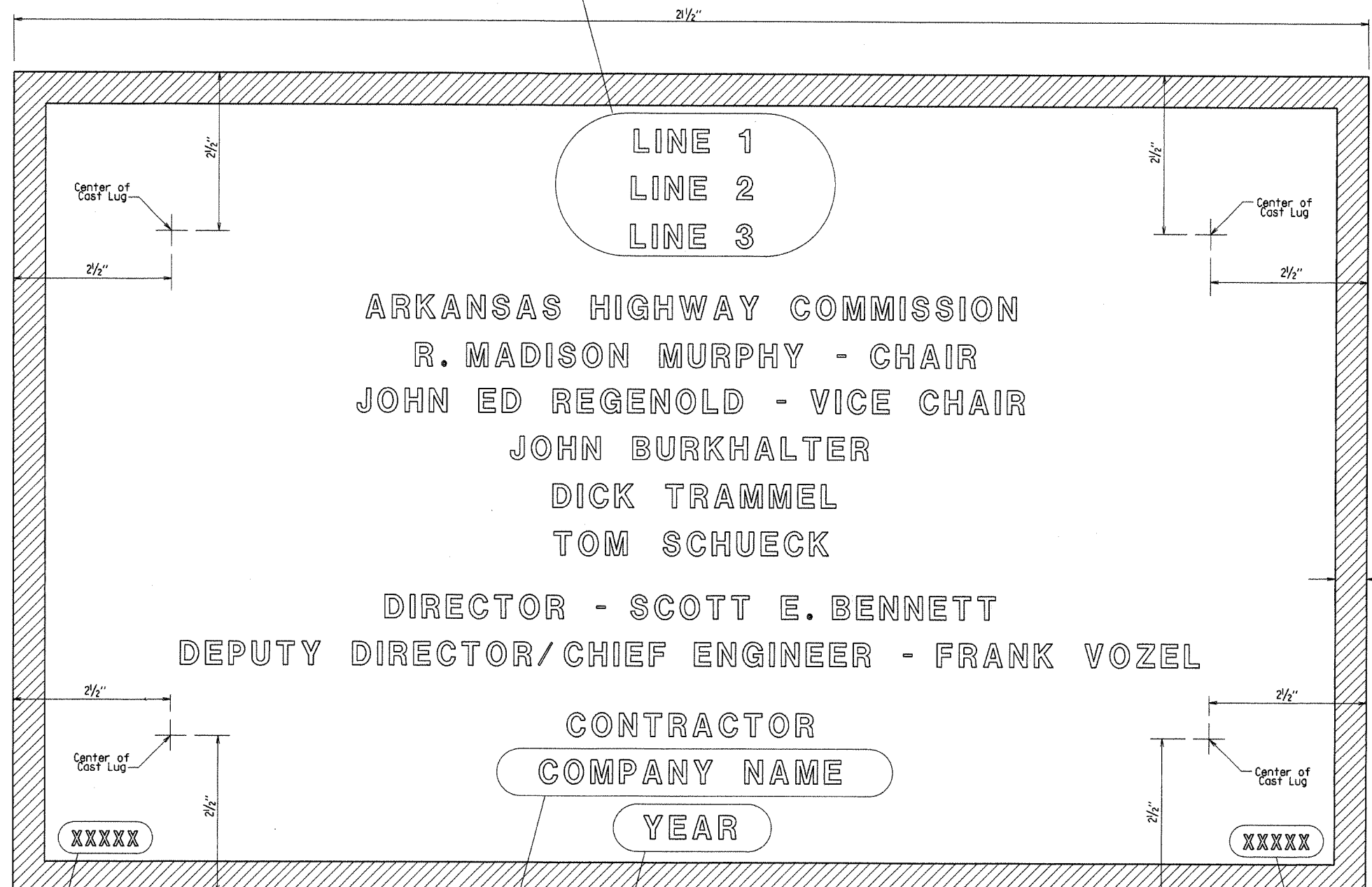
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

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
9-8-11				6	ARK.		45	
				JOB NO.	NAME PLATE			2387

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using $\frac{1}{8}$ " raised letters and numerals $\frac{3}{8}$ " high.

Line	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	Highway 5
Line 2	Relief	Railroad	River	
Line 3		Overpass	Relief	



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 $\frac{1}{4}$ " thick and shall include four tapering cone lugs $\frac{3}{8}$ " to $\frac{1}{8}$ " x 2" long. The border and all lettering shall be raised $\frac{1}{8}$ " 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.

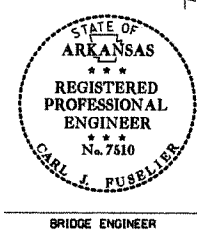
Place the design live loading here using $\frac{1}{8}$ " raised letters and numerals $\frac{1}{4}$ " high. Examples: HS 20 HL-93

Place the Year in which Contract was awarded here using $\frac{1}{8}$ " raised numerals $\frac{3}{8}$ " high. Example: 2001

Place the name of the company awarded the construction contract here using $\frac{1}{8}$ " raised letters and numerals $\frac{3}{8}$ " high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using $\frac{1}{8}$ " raised letters and numerals $\frac{1}{4}$ " high. Examples: A1234 05432

TYPICAL BRIDGE NAME PLATE



DETAILS OF STANDARD TYPE D BRIDGE NAME PLATE

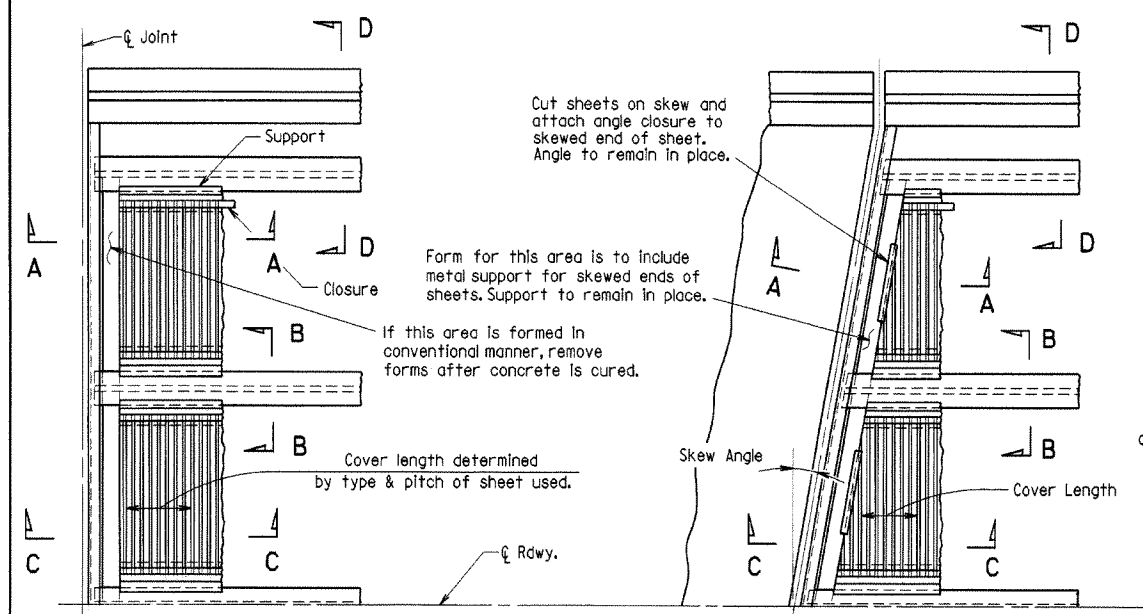
ROUTE SEC. ARKANSAS STATE HIGHWAY COMMISSION LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-8-11 FILENAME: B2387.STD
 CHECKED BY: CRE DATE: 9-8-11 SCALE: 1"=0' OR AS NOTED
 DESIGNED BY: STD. DATE: BRIDGE ENGINEER
 BRIDGE NO. DRAWING NO. 2387

Revised and Redrawn 9-8-11 KDH Checked By: CRE

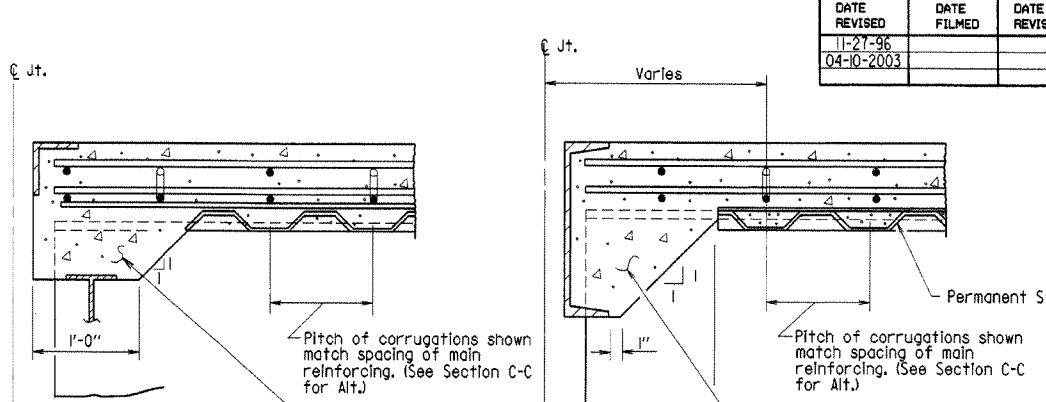
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-27-96						6	ARK.		46	
04-10-2003										

BR. DECK FORMS 14991



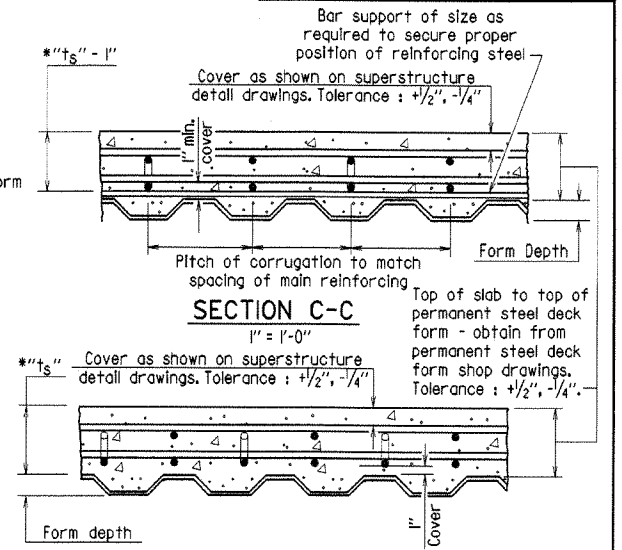
PART PLAN - SQUARE SPAN
3/8" = 1'-0"

PART PLAN - SKEWED SPAN
3/8" = 1'-0"

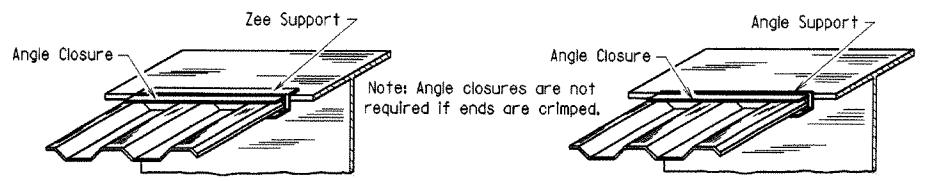


SECTION A-A
N.T.S.
(Angle at end of span)

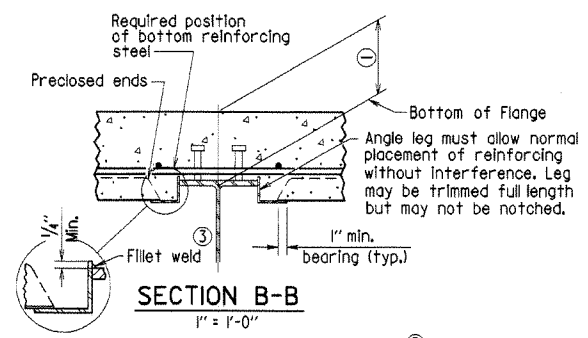
SECTION A-A
N.T.S.
(Channel at end of span)



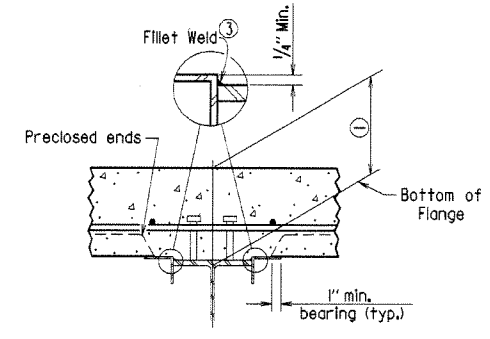
SECTION C-C - ALTERNATE
1" = 1'-0"



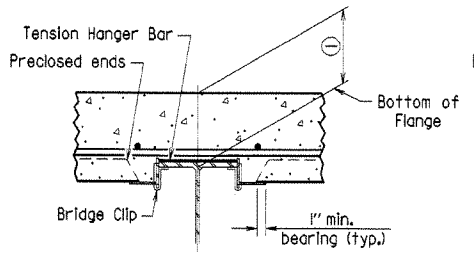
SKETCH OF PERMISSIBLE SUPPORTS
N.T.S.



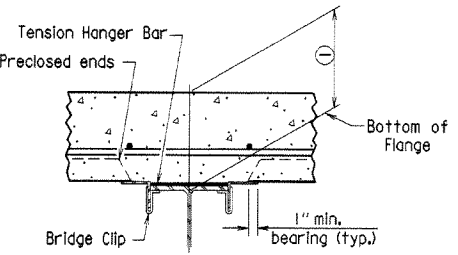
SECTION B-B
1" = 1'-0"



SECTION B-B
1" = 1'-0"



SECTION B-B
1" = 1'-0"



SECTION B-B
1" = 1'-0"

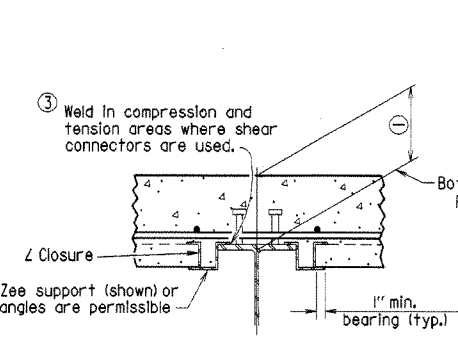
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1/2" (typ.)

(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)

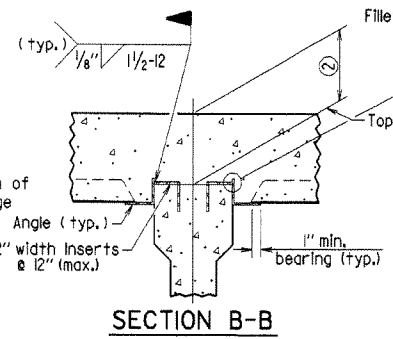
(Showing permissible support for tension flange where shear connectors are not used)

(Showing permissible support for tension flange where shear connectors are not used)



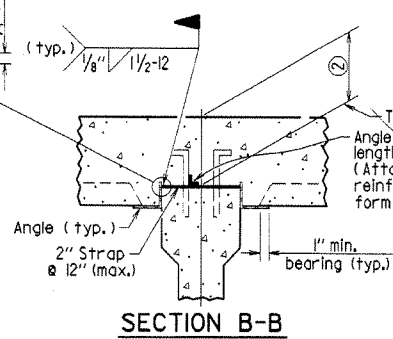
SECTION B-B
1" = 1'-0"

(Showing Z Closure)



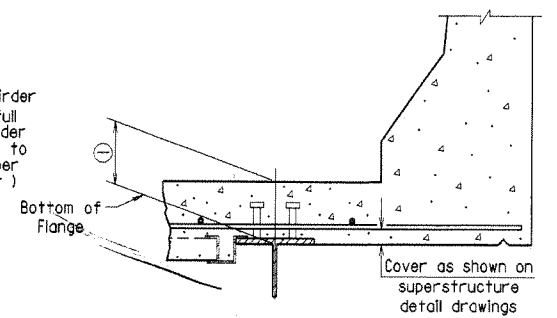
SECTION B-B (FOR CONCRETE GIRDERS)
1" = 1'-0"

(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 = $t_s + 1/4"$ + 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.

Revised for 2003 AHTD Construction Specifications and CPB Sect. MJT 04-10-2003
Chk'd. By: C.S.F. 04-10-2003

Redrawn and revised 11/27/96; MJT



BRIDGE ENGINEER

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 L 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.

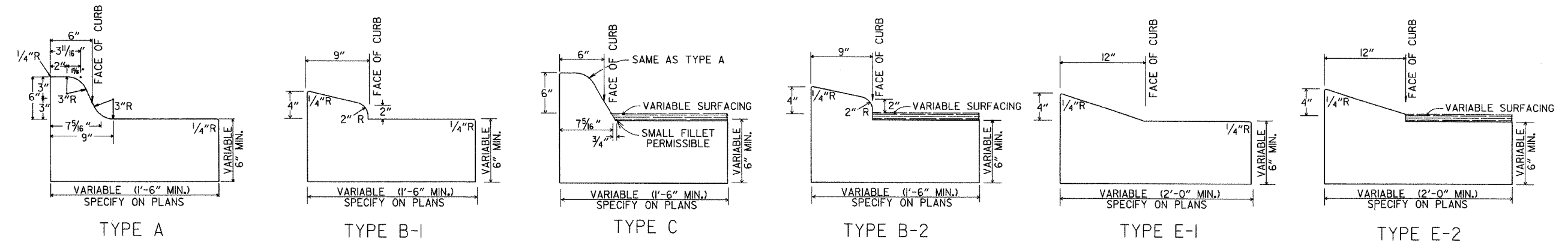
High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition), with applicable supplemental specifications and special provisions.

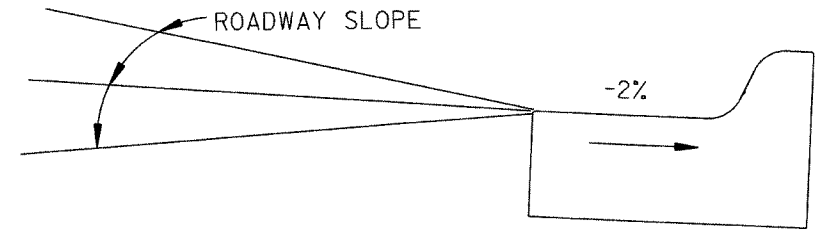
DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

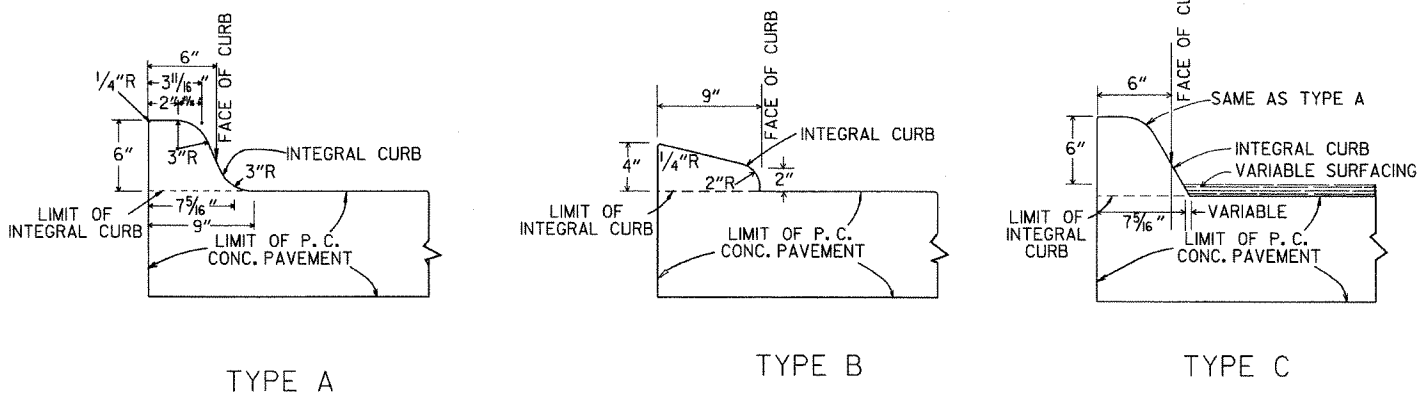
DRAWN BY: MJT DATE: 10-17-96
CHECKED BY: CPB DATE: 10-17-96 SCALE: as noted
DESIGNED BY: STD. DATE: —
BRIDGE NO. DRAWING NO. 14991



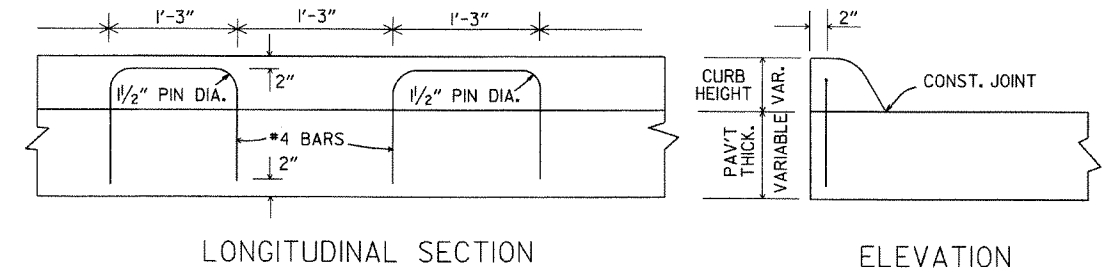
CONCRETE COMBINATION CURB AND GUTTER



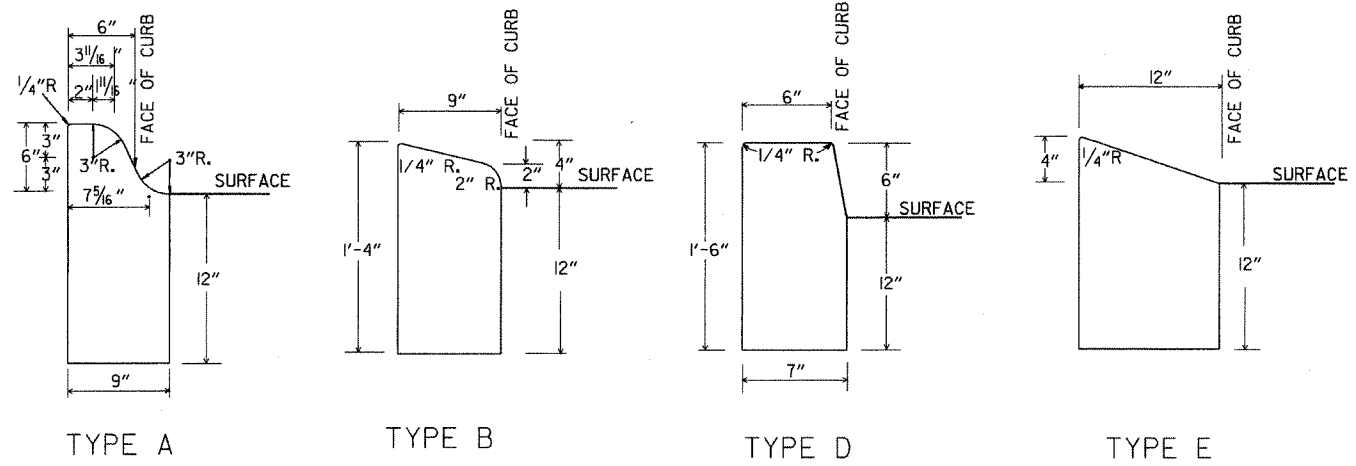
DETAIL OF GUTTER SLOPE
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



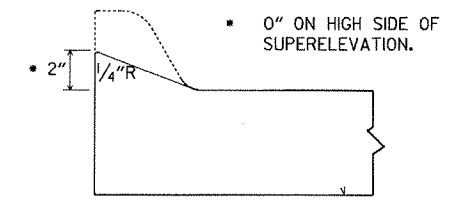
INTEGRAL CURB



ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



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.

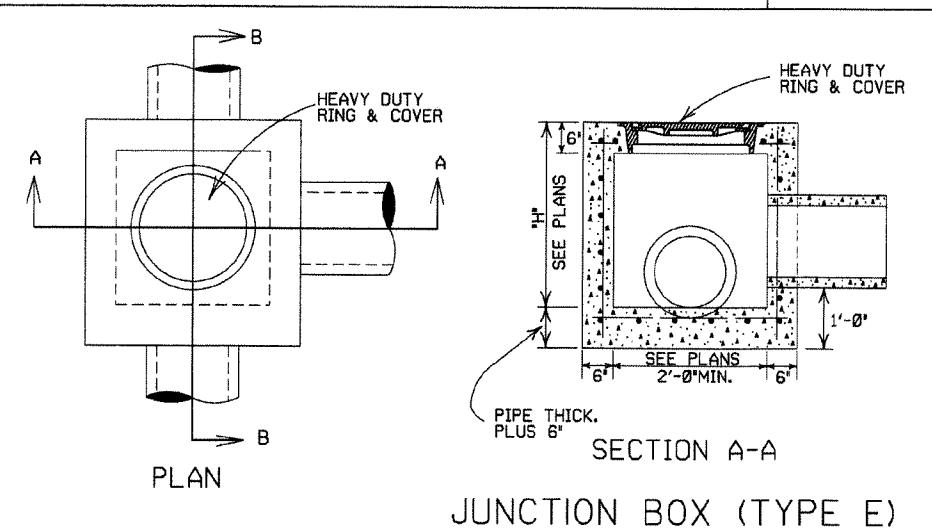
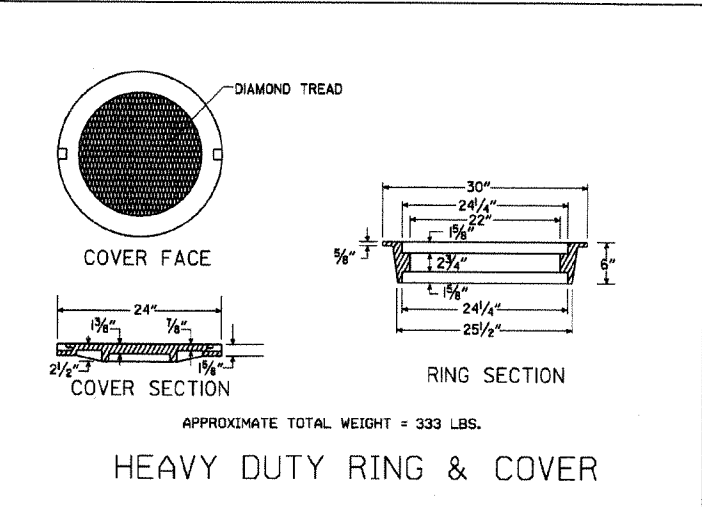
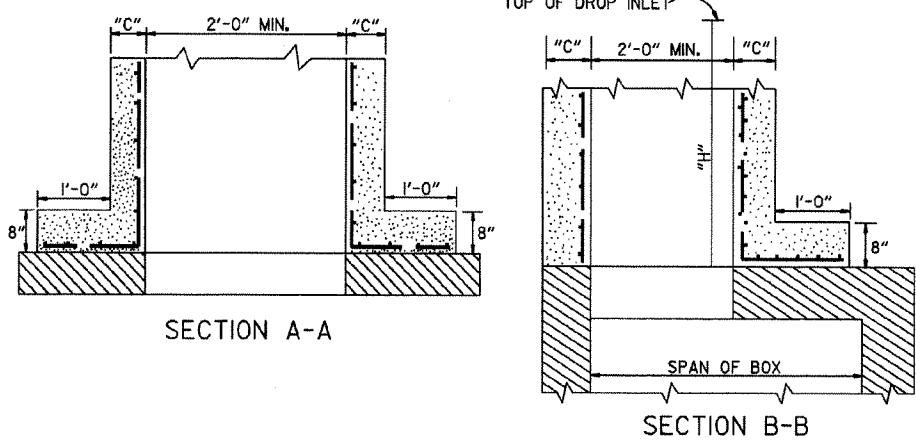
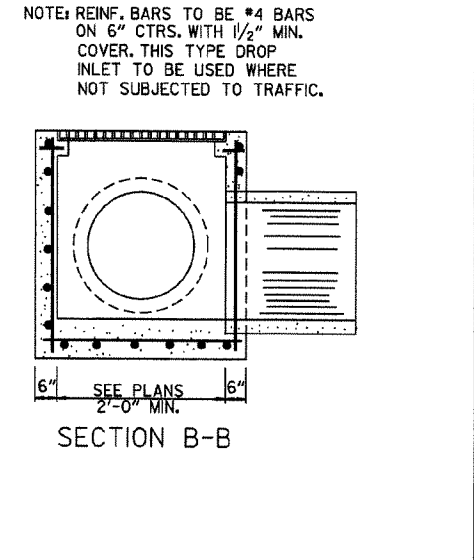
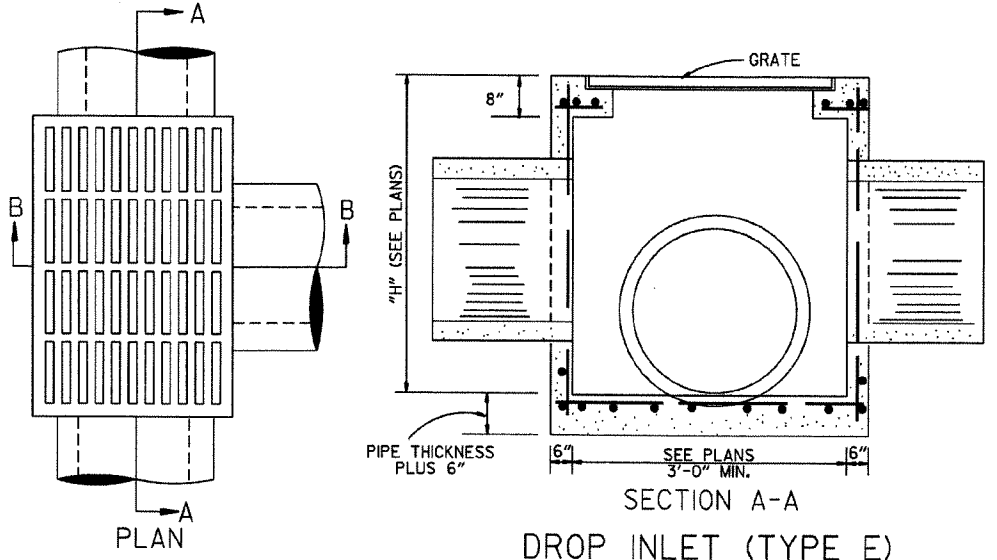
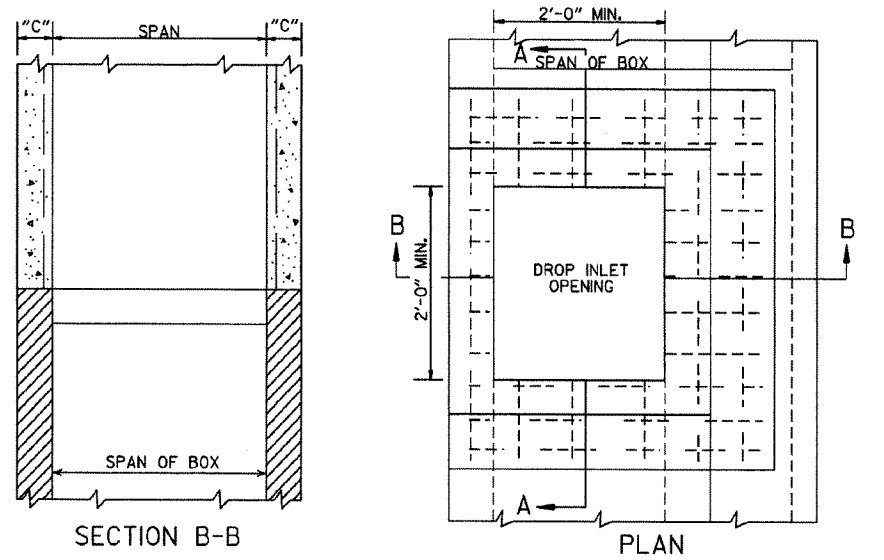
DETAILS OF MODIFIED CURB

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	VARIABLE 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

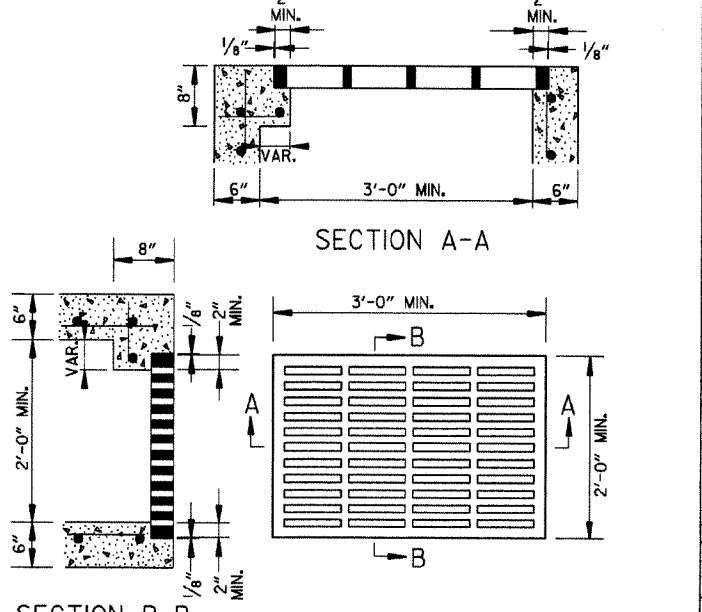
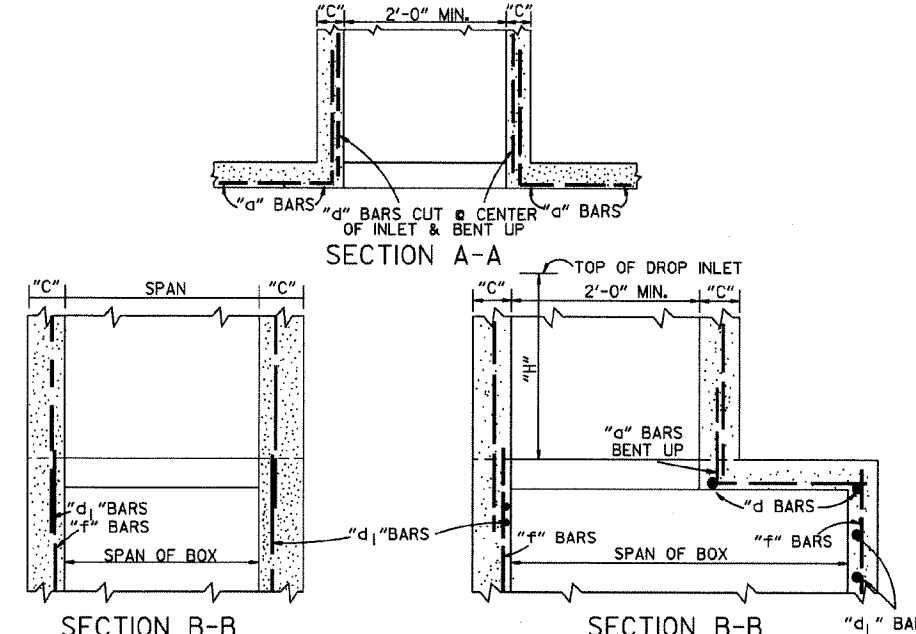
STANDARD DRAWING CG-1



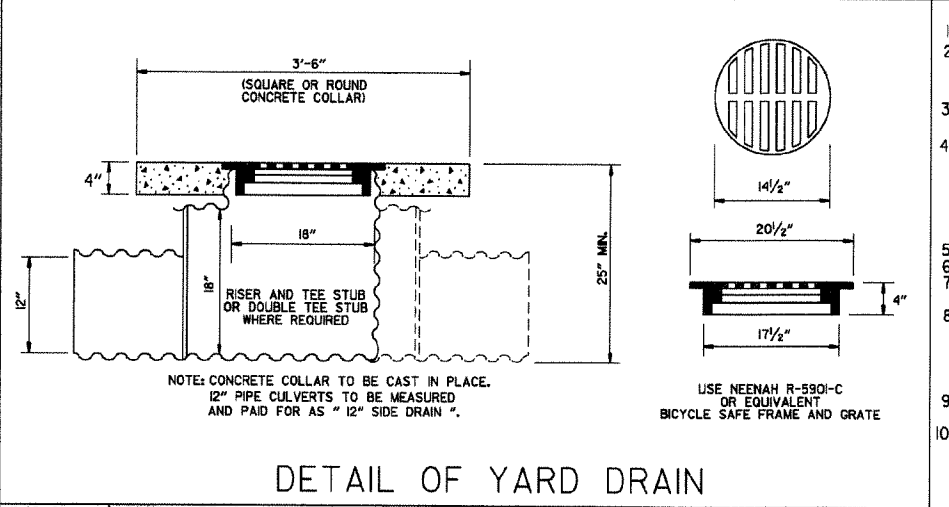
METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT

HEAVY DUTY RING & COVER

JUNCTION BOX (Type E)



GRATE FOR TYPE E DROP INLET



DETAIL OF YARD DRAIN

- GENERAL NOTES:
- ALL EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.
 - STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
 - EXPANSION JOINT MATERIAL SHALL BE 3/4" PREFORMED FIBER.
 - 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.
 - GRATE AND FRAME SHALL NOT BE PAINTED.
 - GRATE SHALL BE BICYCLE SAFE.
 - HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
 - 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 M 105 CLASS 35B & AASHTO M 306.
 - HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
 - 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 D (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	

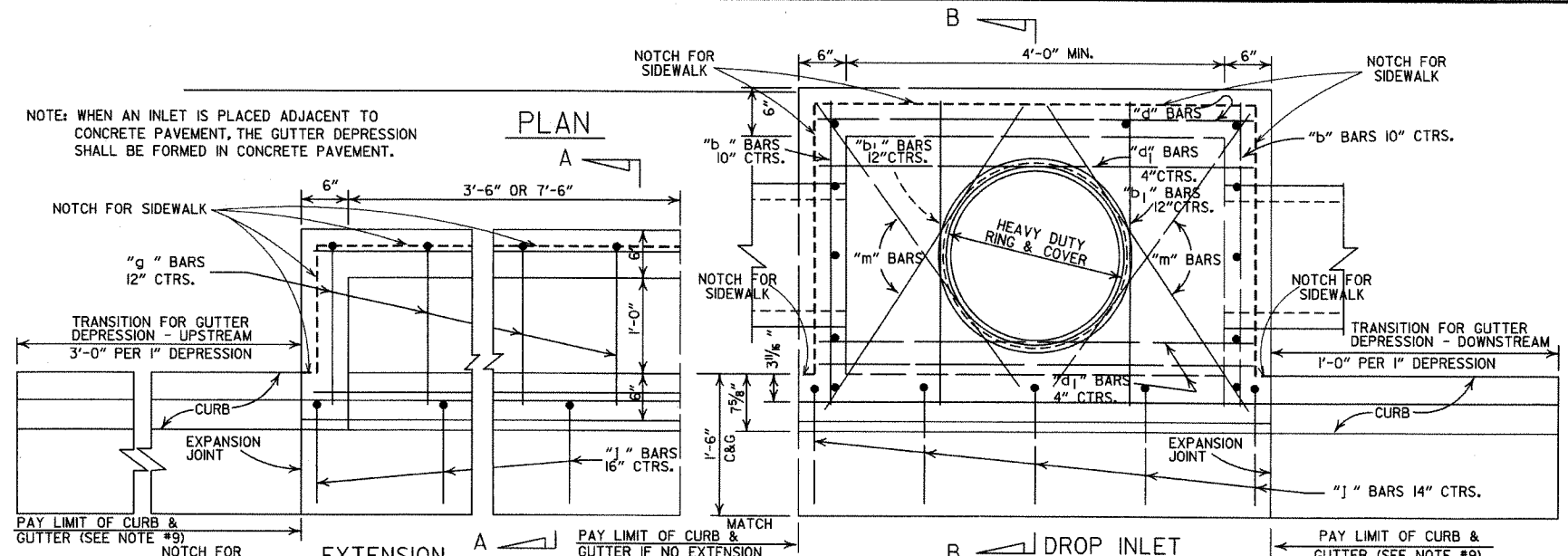
ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF DROP INLETS
 & JUNCTION BOXES
 STANDARD DRAWING FPC-9

4'-0" LENGTH DROP INLET DROP INLET EXTENSION

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0"		PLUS OR MINUS PER LIN. FT. OF HEIGHT		4'-0"		8'-0"	
		CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS
18"	2'-6"	1.77	156	0.28	22	0.58	38	0.87	72
24"	2'-6"	1.79	156	0.28	22				
30"	3'-2"	2.39	205	0.30	26				
36"	3'-8"	2.63	236	0.32	28				
42"	4'-4"	2.95	250	0.34	30				
48"	4'-10"	3.21	265	0.36	32				
						DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
						0.04	3		

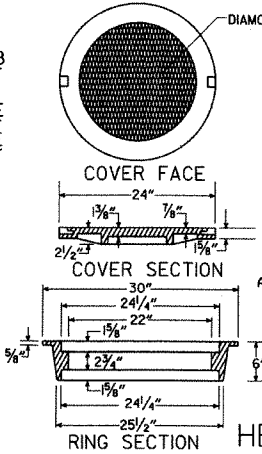
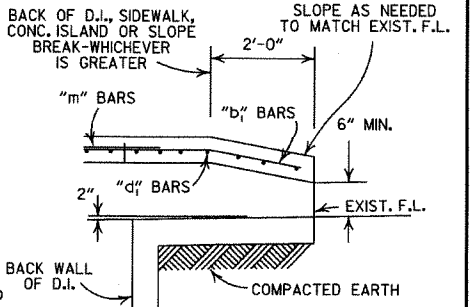
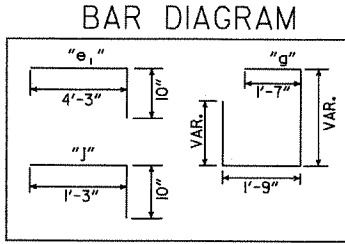
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

NOTE: WHEN AN INLET IS PLACED ADJACENT TO CONCRETE PAVEMENT, THE GUTTER DEPRESSION SHALL BE FORMED IN CONCRETE PAVEMENT.

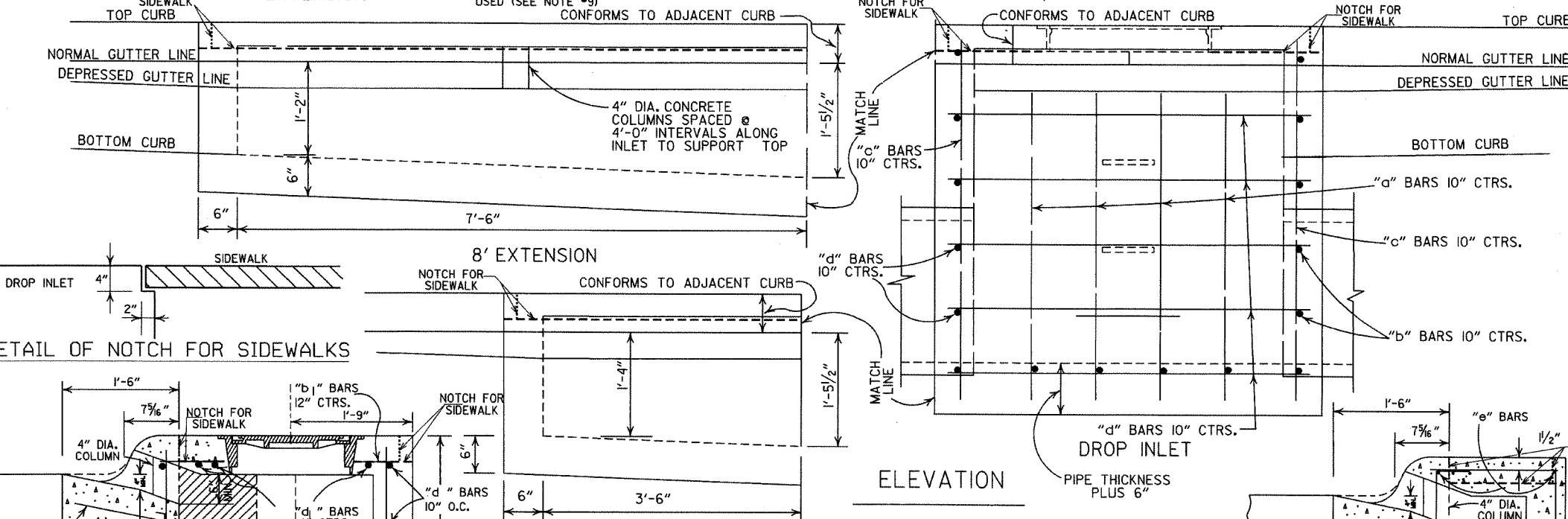


DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

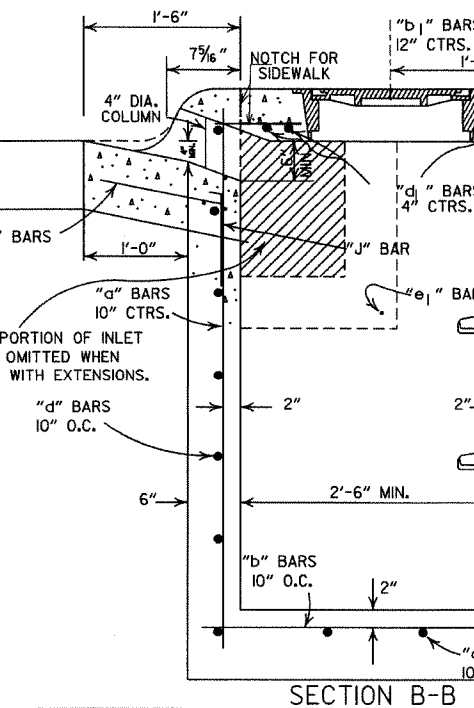
INSIDE DIA. PIPE INCHES	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8



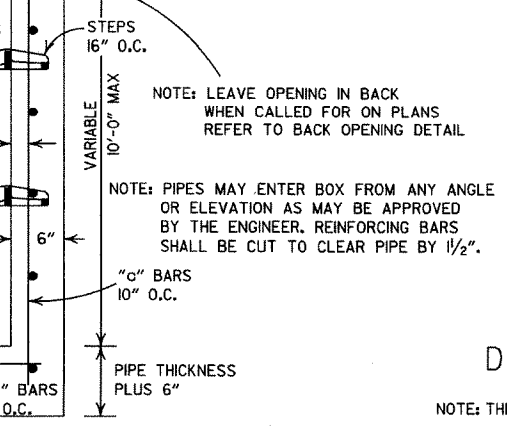
- GENERAL NOTES:
- ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
 - STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER AS APPROVED BY THE ENGINEER.
 - ALL REINF. BARS SHALL BE #4 AND HAVE 1/2" COVER.
 - DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
 - THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
 - WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
 - HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
 - DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
 - PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
 - 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.
 - HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
 - 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
 - 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.



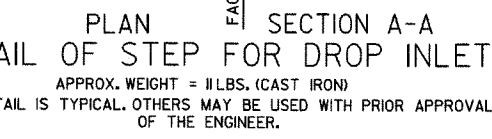
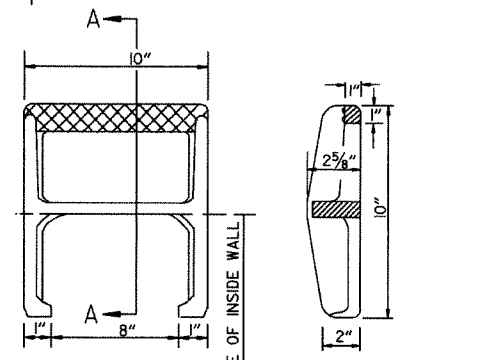
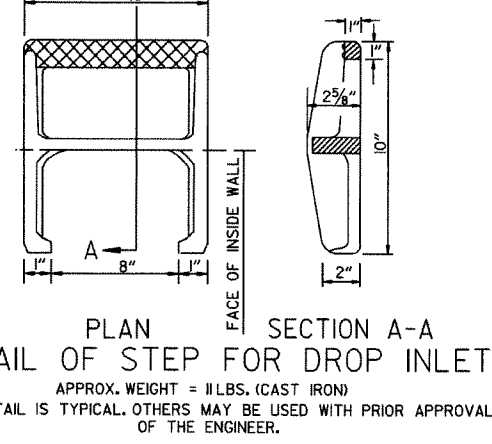
DETAIL OF NOTCH FOR SIDEWALKS



4' EXTENSION

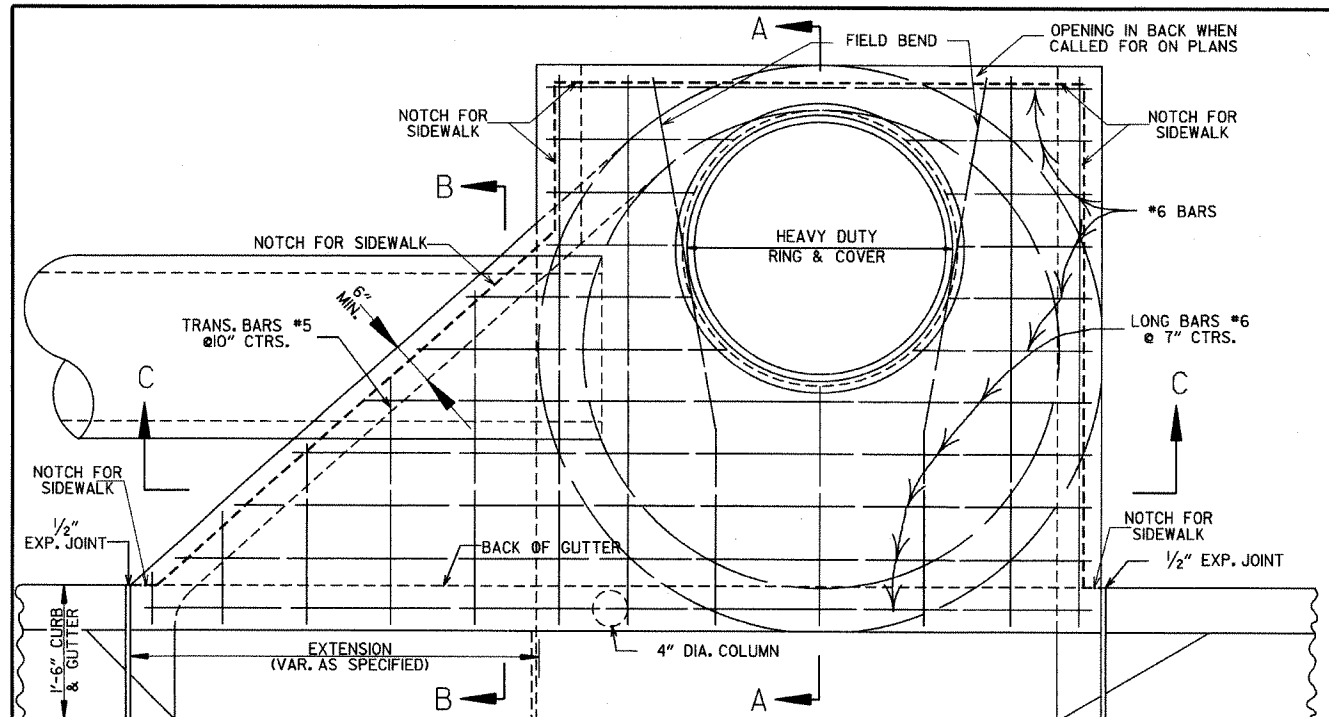


8' EXTENSION

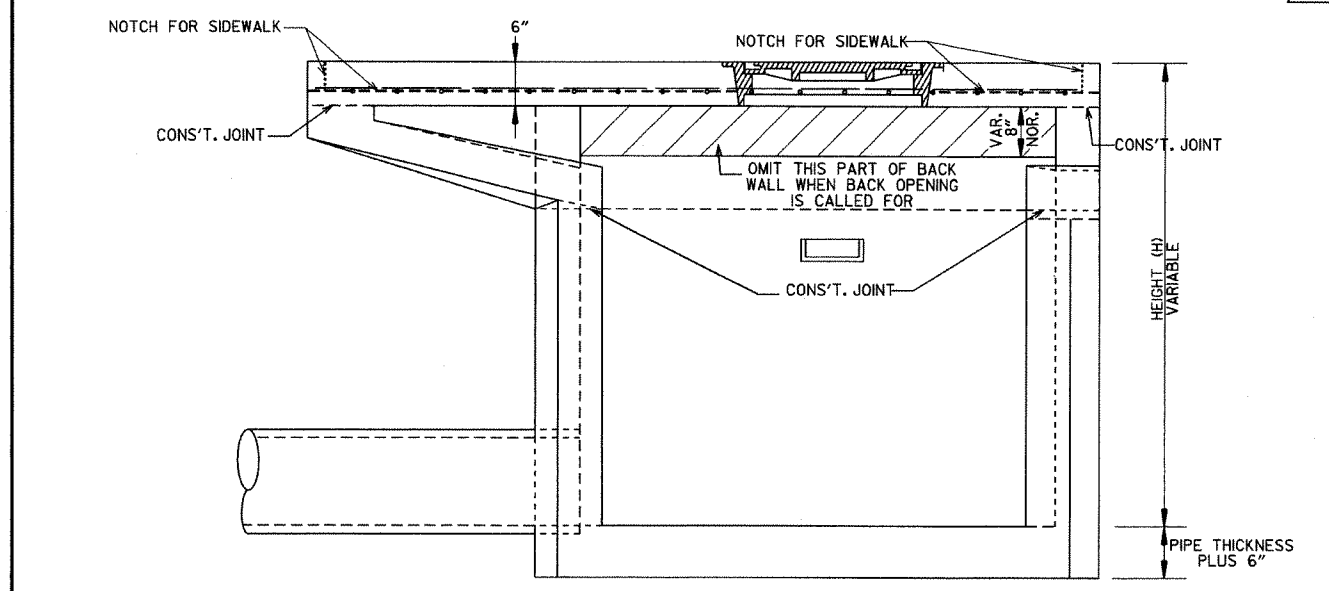
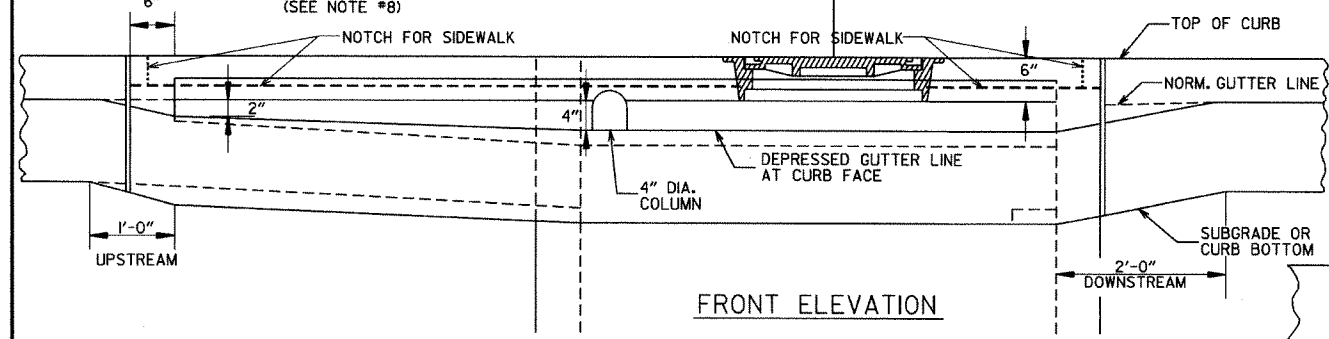


DATE	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER	
	ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
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	

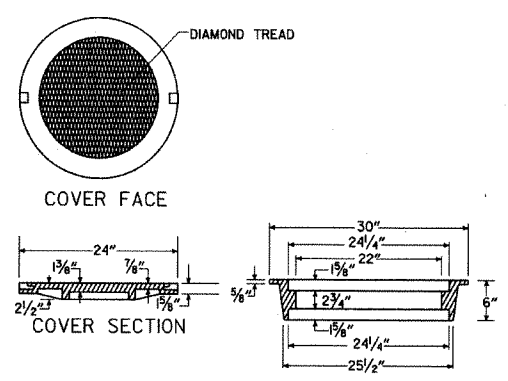
ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF DROP INLETS
 (TYPE C)
 STANDARD DRAWING FPC-9E



PLAN - W/SINGLE EXTENSION
 PAY LIMIT OF CURB & GUTTER (SEE NOTE #8)
 PAY LIMIT OF CURB & GUTTER IF NO EXTENSION USED (SEE NOTE #8)
 NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

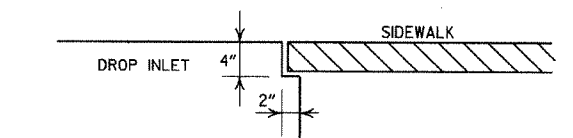


SECTION C-C
 PIPE THICKNESS PLUS 6"

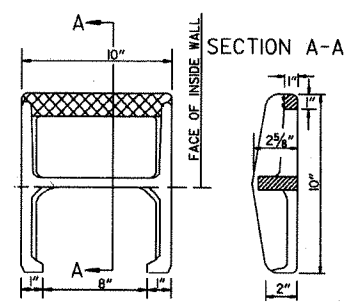


HEAVY DUTY RING & COVER
 APPROXIMATE TOTAL WEIGHT = 333 LBS.

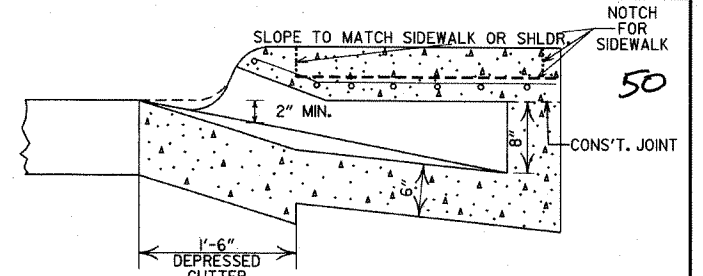
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



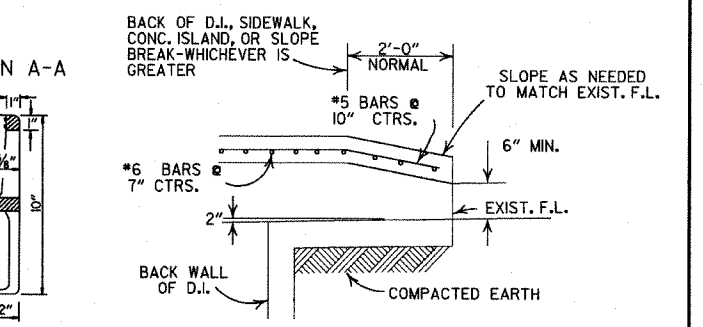
DETAIL OF NOTCH FOR SIDEWALKS



DETAIL OF STEP FOR DROP INLET
 APPROX. WEIGHT = 11 LBS. (CAST IRON)
 NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.



SECTION B-B



BACK OPENING
 WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

- GENERAL NOTES:**
1. ALL EXPOSED CORNERS TO HAVE 3/4\"/>
 2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
 3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1/2" COVER.
 4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
 5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
 6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
 7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
 8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
 9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
 10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
 11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
 12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
 13. 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.

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

MINIMUM WALL THICKNESS			
DIA. OF D.I.	DIA. OF OUTLET PIPE	CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILED
8-22-62	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-61	ADDED NOTE 13	
11-12-60	REVISED HEAVY DUTY RING & COVER	
5-13-59	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-58	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-28-58	ADDED NOTE 11, ADD. OPENING DIMENSION	
10-12-57	CORRECTED #6 BAR SPACING	
7-20-55	CORRECTED DIAMETER OF D.I. IN BOX	
7-2-55	TYPE C TO MO OPEN BACK DETAIL	
11-1-54	REVISED GENERAL NOTES	
4-1-54	REV. BACK OPEN DETAIL & NOTE	11-3-54
8-15-51	REVISED NOTES 11, 2 & ADDED BACK OPEN DETAIL	4-1-54
11-30-50	ADDED NOTE NO. 12	8-25-51
5-24-50	ADDED NOTE & MINIMUM WALL THICKNESS	513-1-30-50
7-15-48	ADDED EXTEND NOTE TO SECTION A-A	635-7-15-48
11-2-47	MODIFIED WALL THICKNESS	783-11-2-47
6-22-47	ISSUED	456-12-47

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA. INCHES	SPAN INCHES		RISE INCHES	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
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	43¾	44	26¾	27
42	51½	51	31¾	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	87¾	87
120	154	154	96¾	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. INCHES	AASHTO M 207 INCHES	
	SPAN	RISE
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)(I).

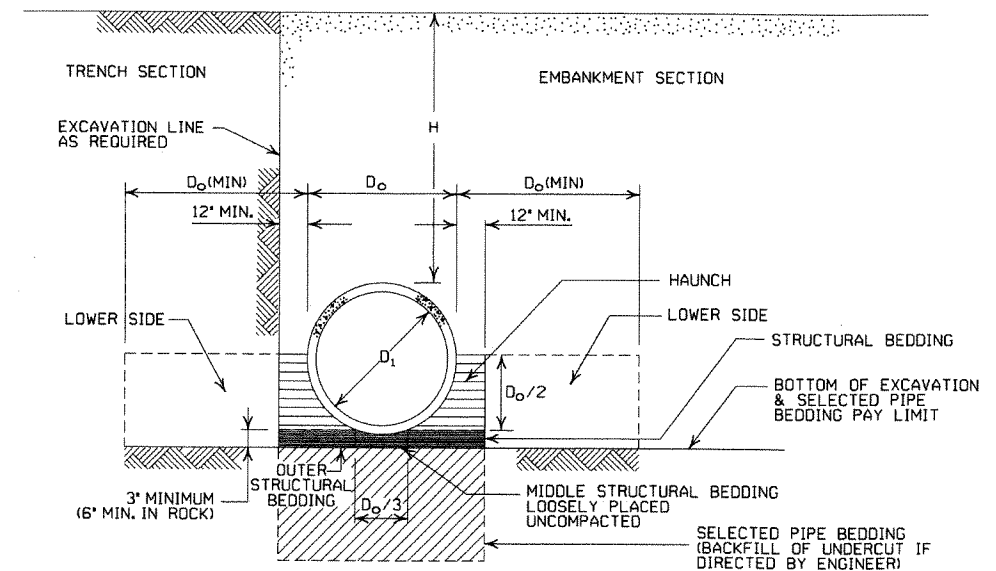
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

- LEGEND -

- D_i = 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

INSTALLATION TYPE	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
PIPE ID (IN.)	TYPE 1 OR 2	TYPE 3	ALL	ALL
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 MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
		0.064	0.079	0.109	0.138	0.168
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						
		48	60	88	111	118
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

CONSTRUCTION SEQUENCE

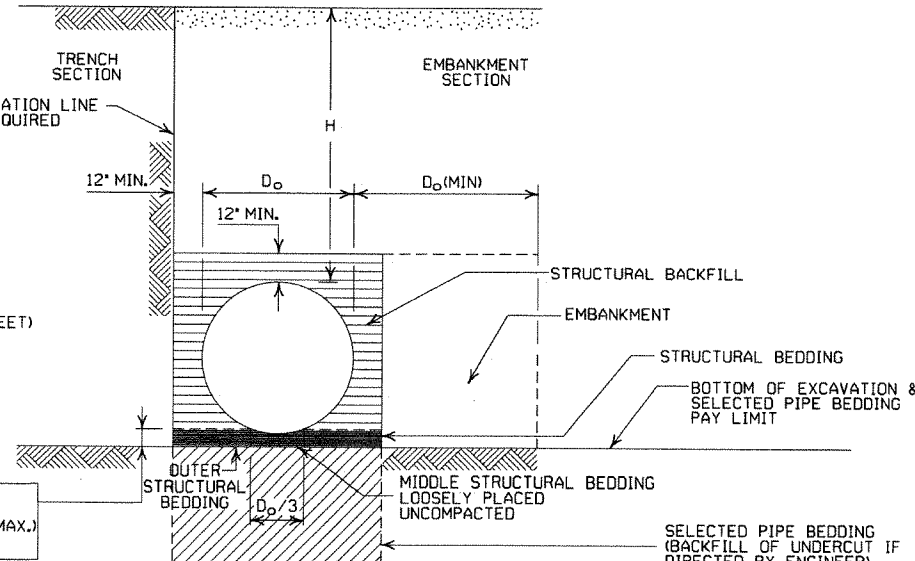
1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.
4. COMPLETE 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.

- LEGEND -
- D_o = OUTSIDE DIAMETER OF PIPE
 - MAX. = MAXIMUM
 - MIN. = MINIMUM
 - [Symbol] = STRUCTURAL BACKFILL MATERIAL
 - [Symbol] = 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. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 3/8" X 1/2" 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."

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM						
		0.060	0.075	0.105	0.135	0.164
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

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)			
				INSTALLATION TYPE 1	INSTALLATION TYPE 1		INSTALLATION TYPE 1	INSTALLATION TYPE 1		
2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, 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	3 1/2	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	0.135	3	14		
66	77x52	8	0.168	3	15	0.164	3	15		
72	83x57	9	0.168	3	15					
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM										
			INSTALLATION				INSTALLATION			
			TYPE 2		TYPE 1		TYPE 2		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			

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3" X 1/2" 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 1/2 INCH. 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.

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"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

NOTE:
 18" MIN. (18" - 30" DIAMETERS)
 24" MIN. (36" - 48" DIAMETERS)
 MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

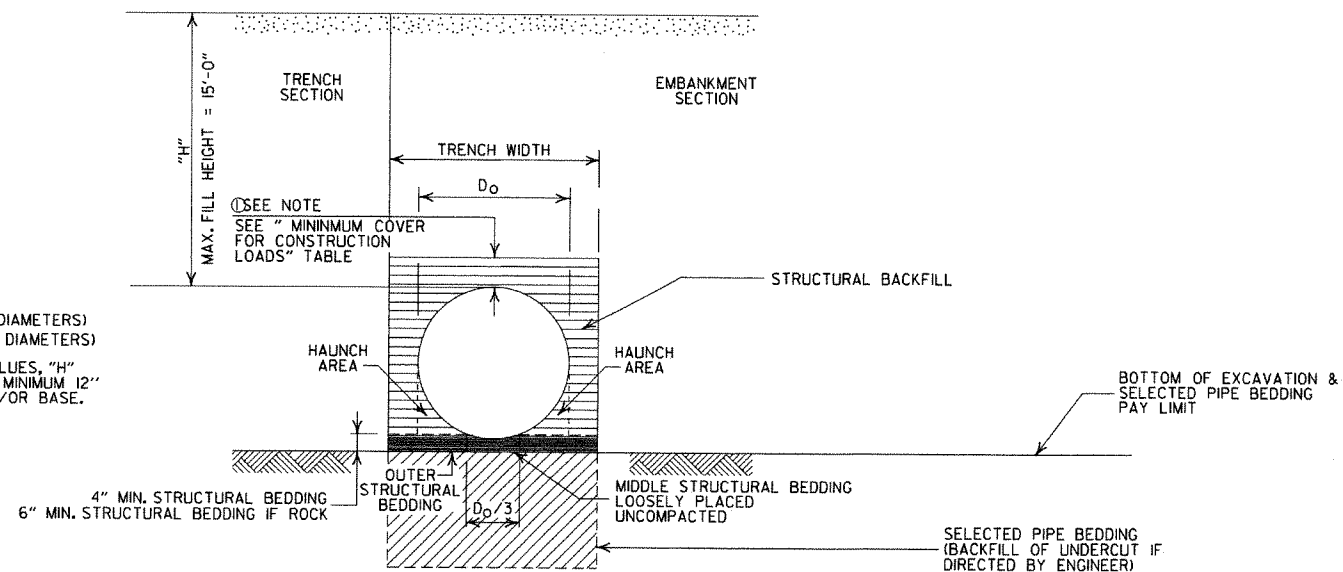
MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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 COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	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"

MINIMUM 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.

- LEGEND -

- H = FILL HEIGHT (FT.)
- Ø = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- ===== = STRUCTURAL BACKFILL MATERIAL
- ||||| = UNDISTURBED SOIL

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS 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.

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.

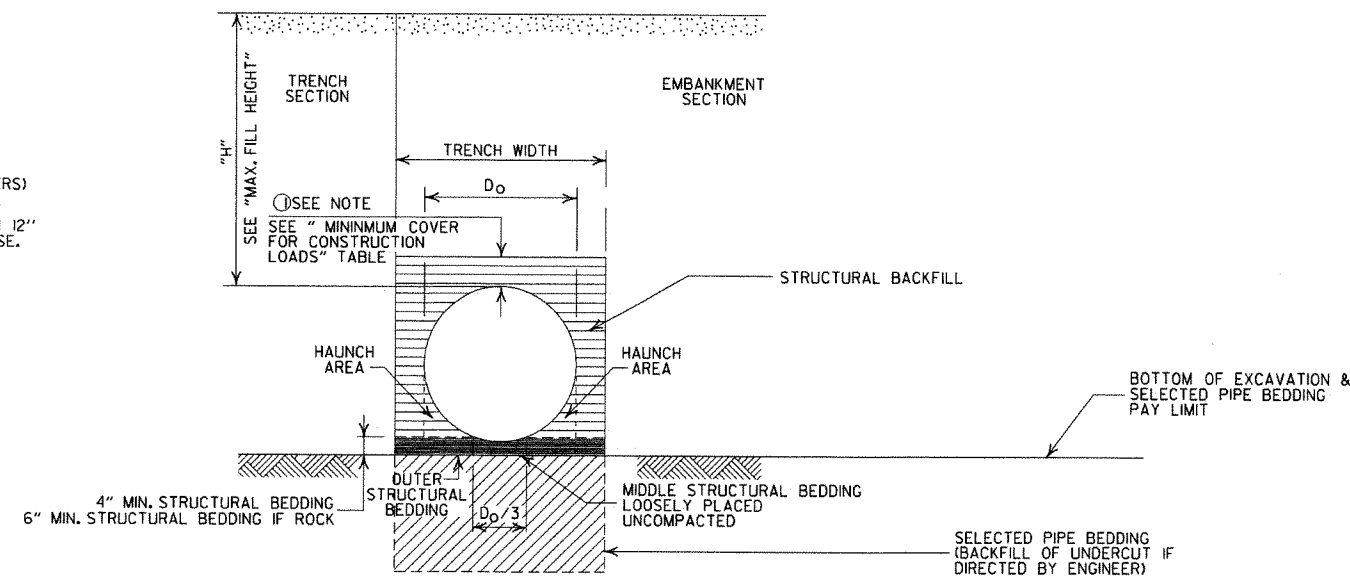
•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/8 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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.

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.



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.

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"

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"

② MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

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.

- LEGEND -

H = FILL HEIGHT (FT.)
D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

==== = STRUCTURAL BACKFILL MATERIAL
===== = UNDISTURBED SOIL

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS I2454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS 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 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.

12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

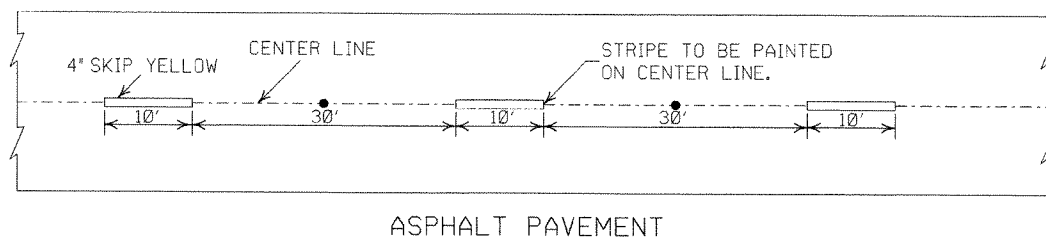
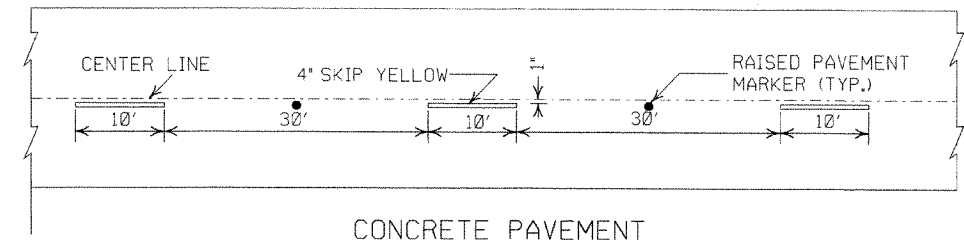
PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2



NOTES:

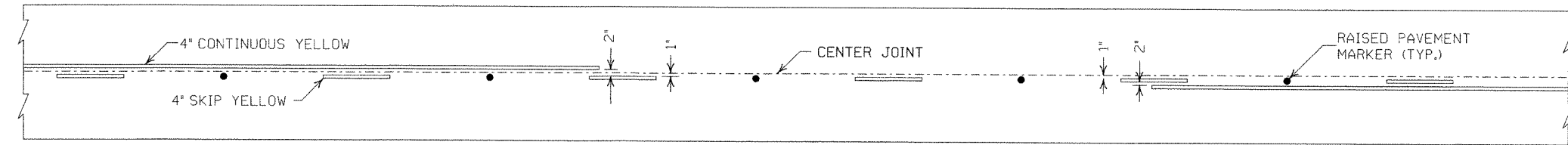
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.'
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.



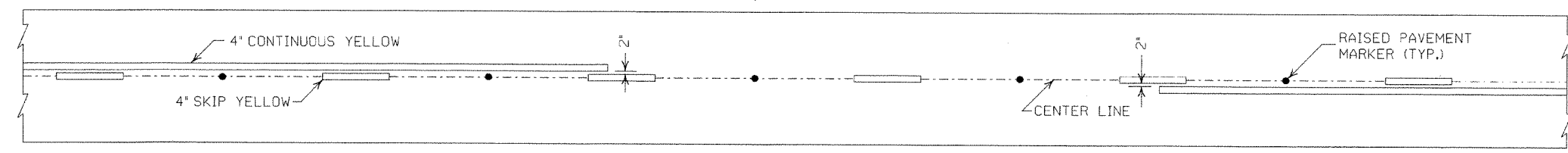
CONCRETE PAVEMENT

ASPHALT PAVEMENT

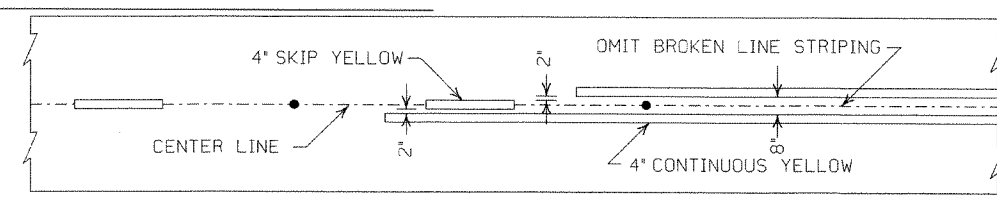
BROKEN LINE STRIPING



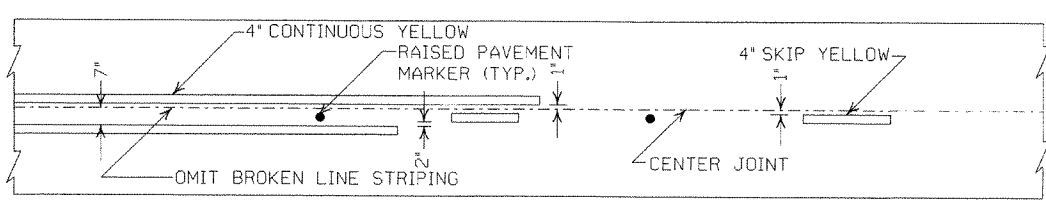
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

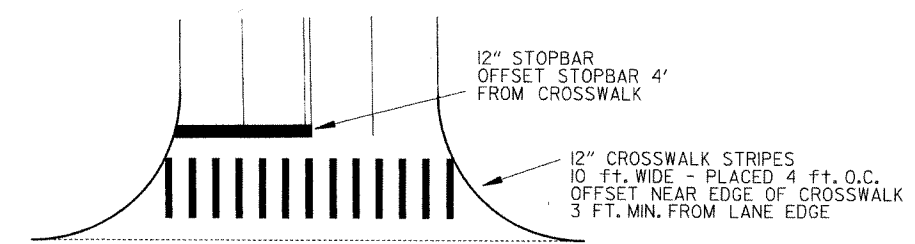


ASPHALT PAVEMENT



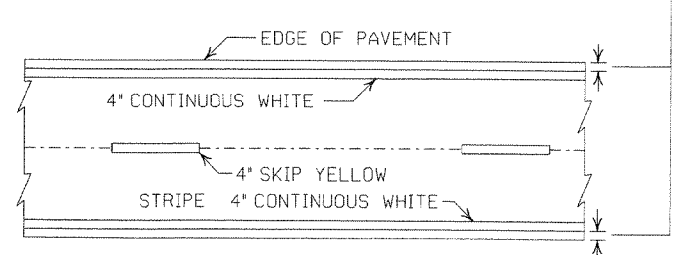
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

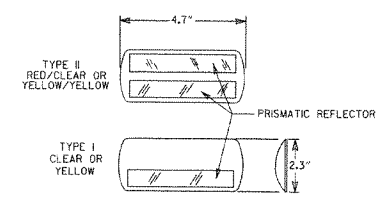


CROSSWALK AND STOPBAR DETAILS

2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



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.

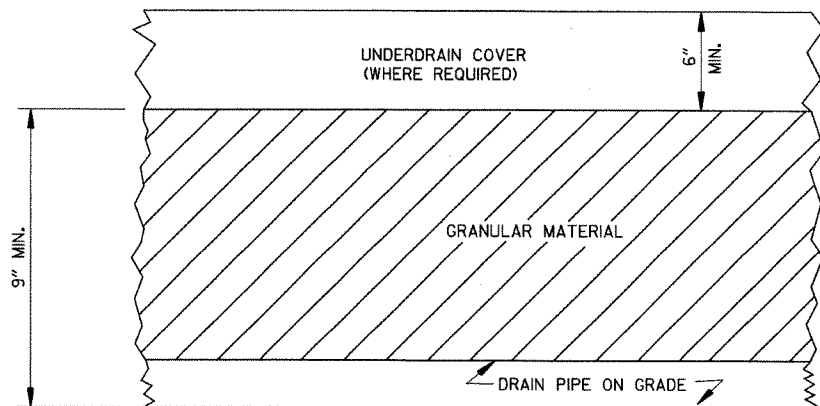
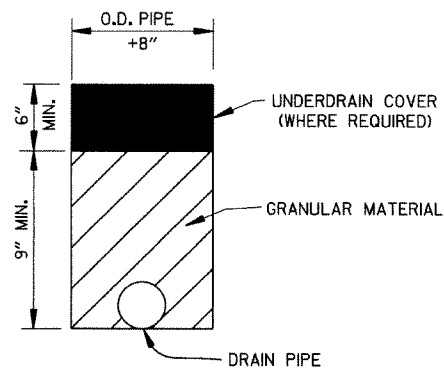
THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES', LATEST REVISION.

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.

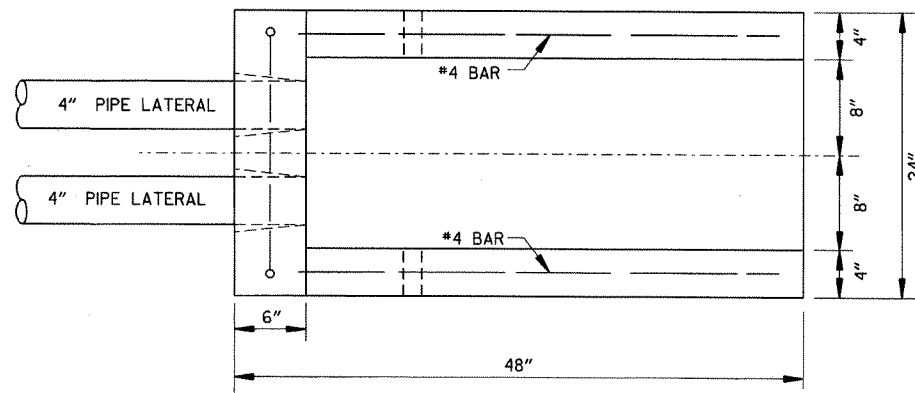
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION	
PAVEMENT MARKING DETAILS	
STANDARD DRAWING PM-1	

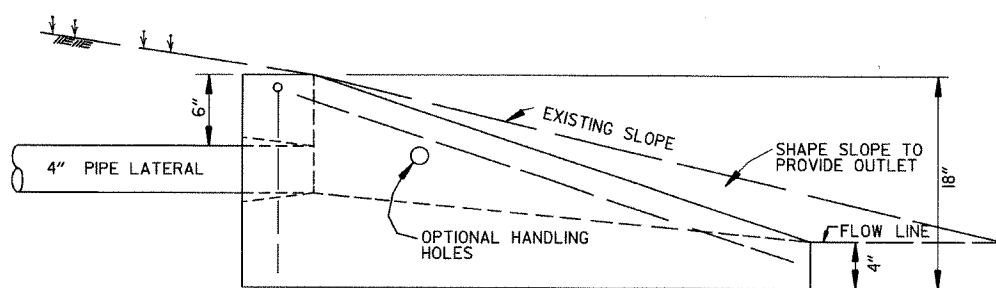
NOTE:
 1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
 2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
 3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



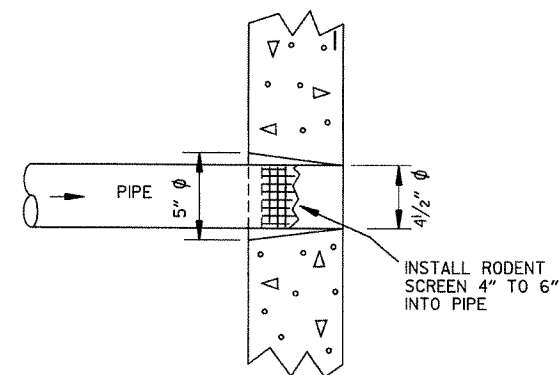
DETAILS OF PIPE UNDERDRAIN



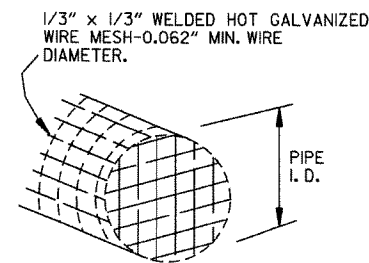
PLAN VIEW



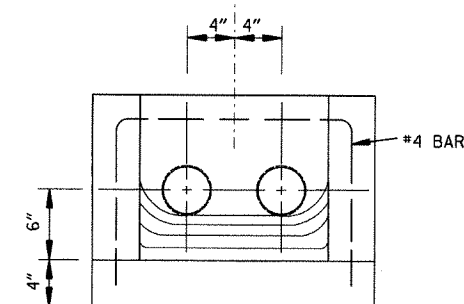
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE

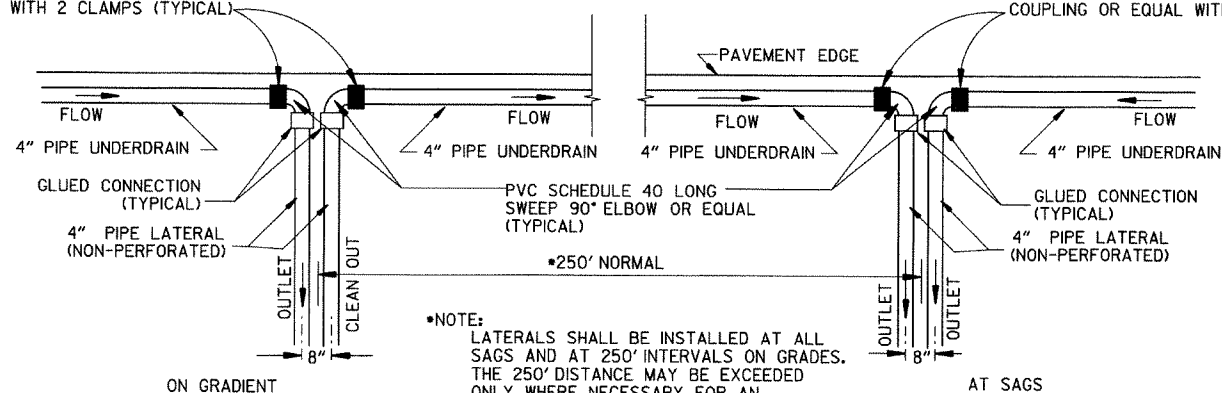


DETAIL OF RODENT SCREEN



FRONT VIEW

UNDERDRAIN OUTLET PROTECTORS
 FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



NOTE:
 LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

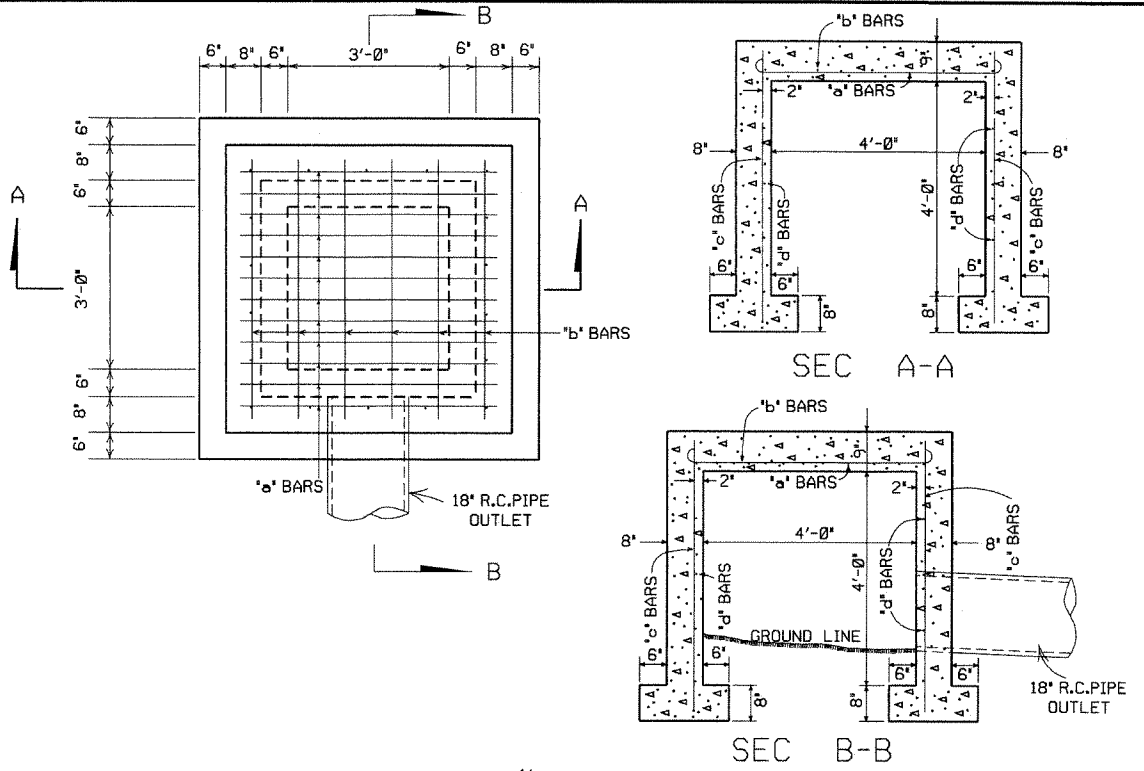
DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE
 NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

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; 5 1/2" 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 POLYETHYLENE 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
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1



STEEL SCHEDULE

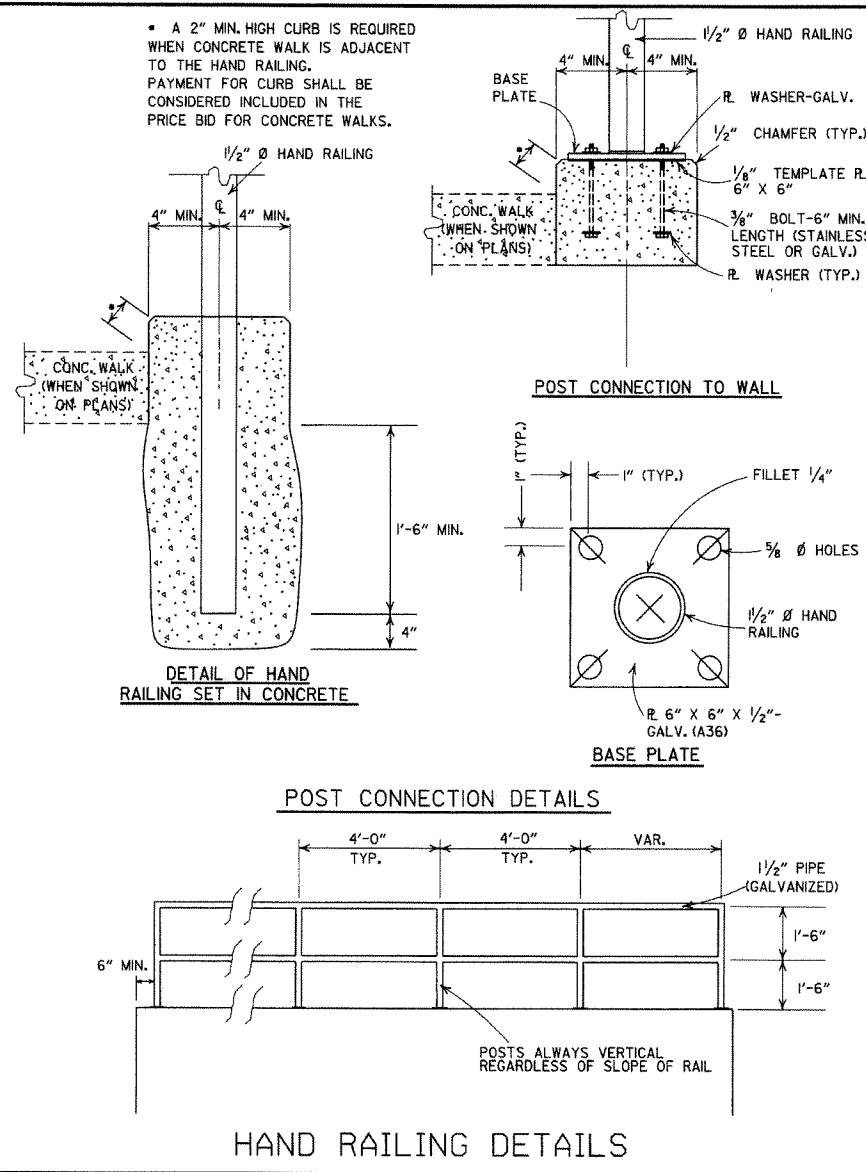
BAR	NUMBER	LENGTH	SPACING
'a'	11	6'-0"	5'
'b'	6	6'-0"	10'
'c'	16	5'-1"	12'
'd'	16	5'-0"	12'

ALL STEEL TO BE #4 BARS

QUANTITIES
 CONCRETE 3.40 CU. YDS.
 REINFORCING STEEL 176 LB.

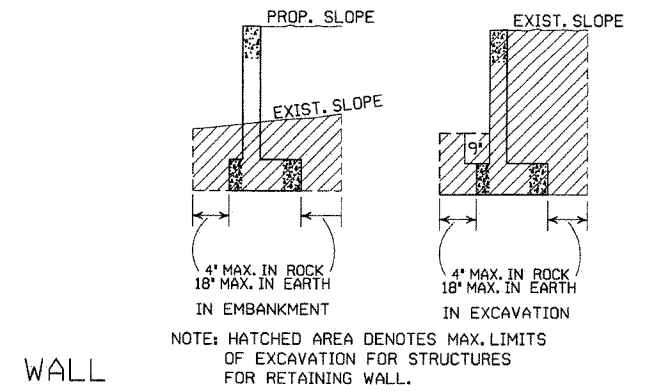
GENERAL NOTE:
 THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



STEEL SCHEDULE

'c'	'd'	'h'	'a'	'b'	V1 BARS	F1 BARS	H1	V2	F2	
SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SPAC.	SPAC.	NO.	REQ'D.	
8"	8"	1'-0"	8"	2'-0"	#4	12"	#4	18"	18"	5
8"	8"	2'-0"	8"	2'-0"	#4	12"	#4	18"	18"	5
8"	8"	3'-0"	8"	2'-0"	#4	12"	#4	18"	18"	5
8"	8"	4'-0"	1'-2"	2'-6"	#4	12"	#4	12"	18"	5
8"	8"	5'-0"	1'-2"	3'-0"	#4	9"	#4	9"	18"	5
8"	8"	6'-0"	2'-2"	3'-6"	#4	6"	#4	6"	18"	6
12"	8"	7'-0"	2'-4"	4'-0"	#4	8"	#4	8"	18"	6
12"	8"	8'-0"	2'-10"	4'-6"	#4	6"	#4	6"	18"	6
15"	10"	9'-0"	2'-11"	5'-0"	#4	5"	#4	5"	18"	6
17"	10"	10'-0"	3'-3"	5'-6"	#5	6"	#5	6"	18"	7



REINFORCED CONCRETE RETAINING WALL

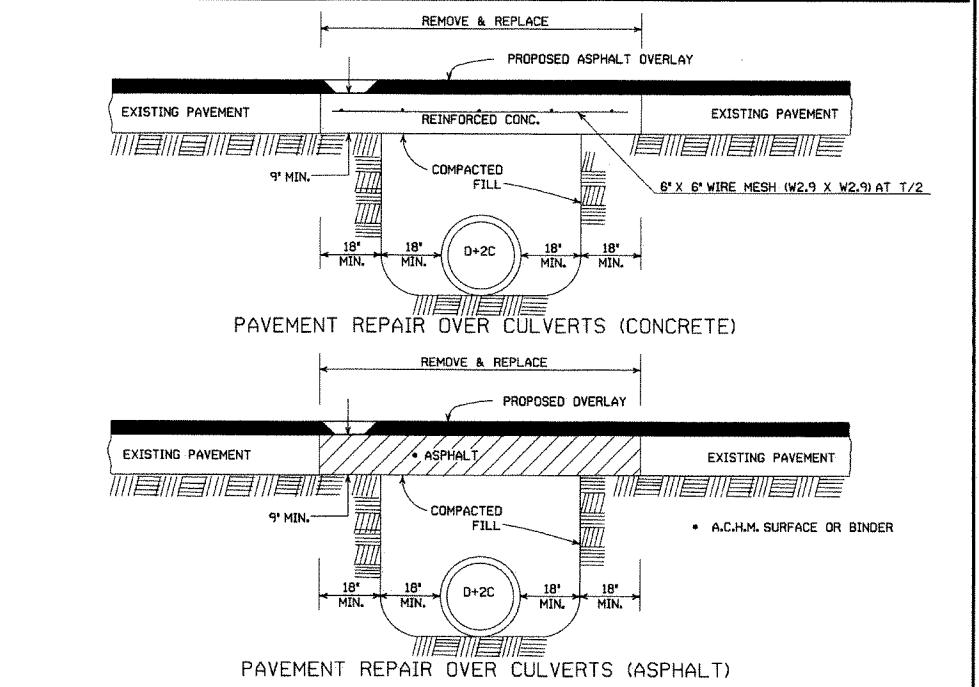
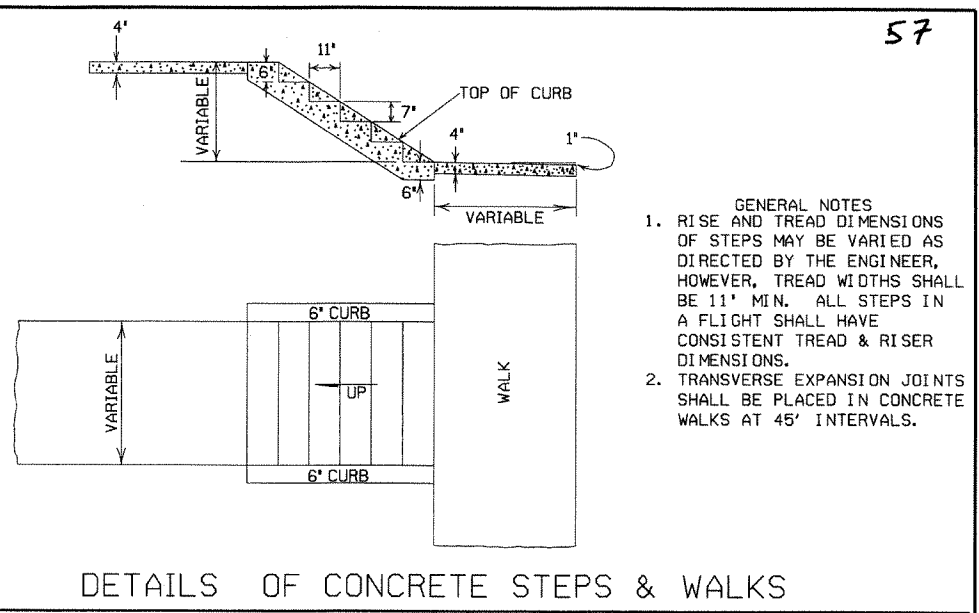
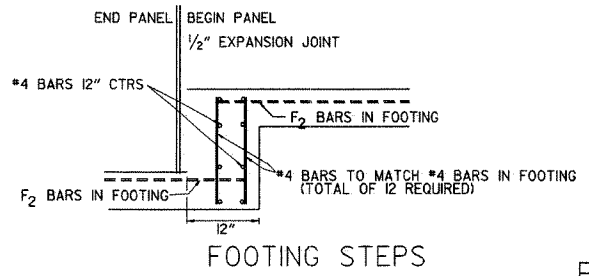
GENERAL NOTES

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 3/4".




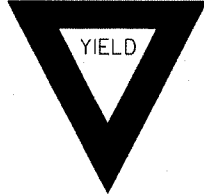
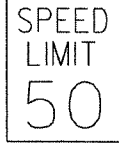






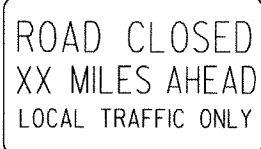
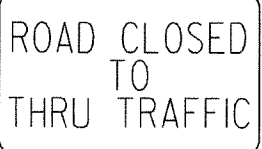
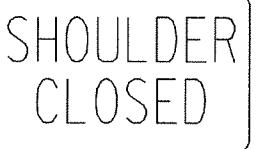
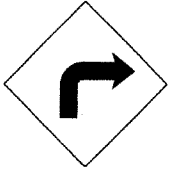
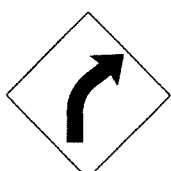
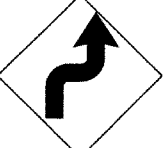


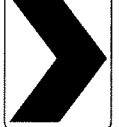
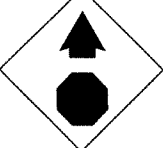
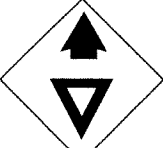
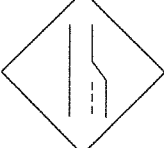



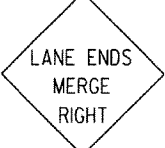


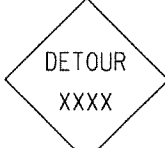





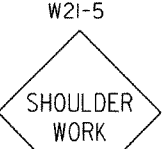

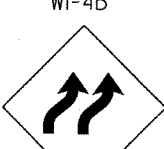


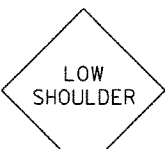
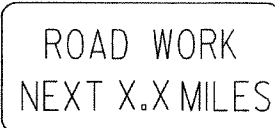
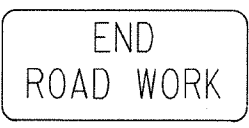
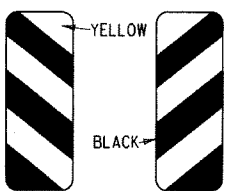


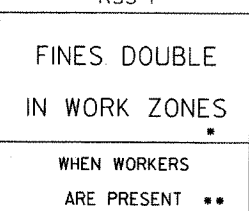
DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

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 HOLES/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	V. 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	682-1-4-83
	CHAMFER NOTE	
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
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>
<p>W20-3</p>  <p>STD. 48"x48"</p>	<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>
<p>WI-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>	<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>
<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60" * USE 6" C LETTERS ** USE 4" D LETTERS</p>				

ADVANCE DISTANCES (XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

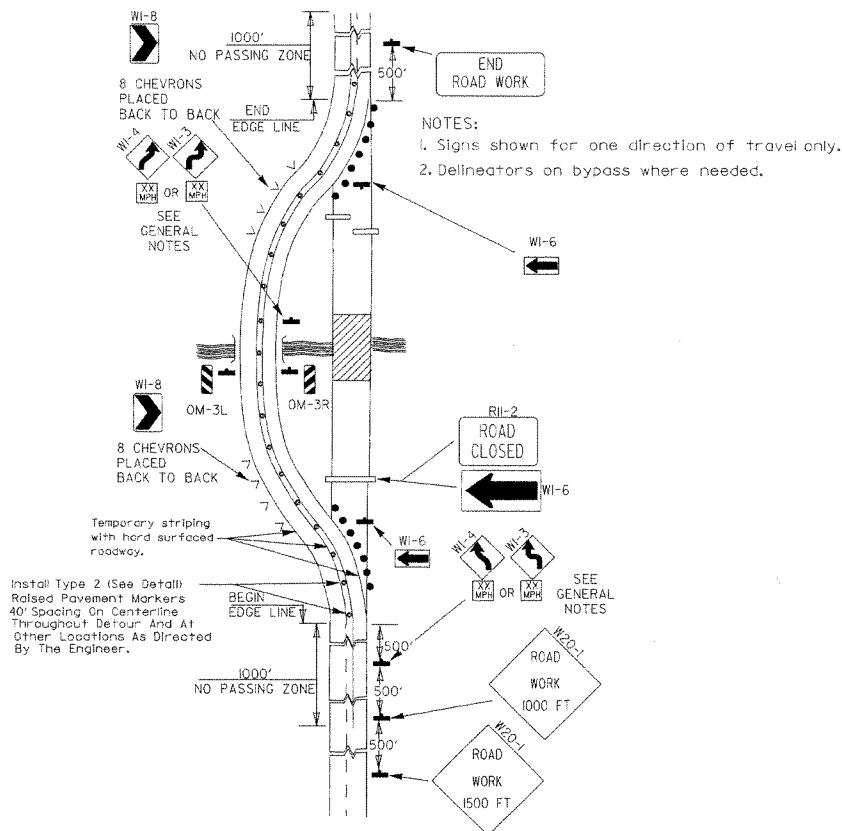
GENERAL NOTES:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- 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.
- 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.

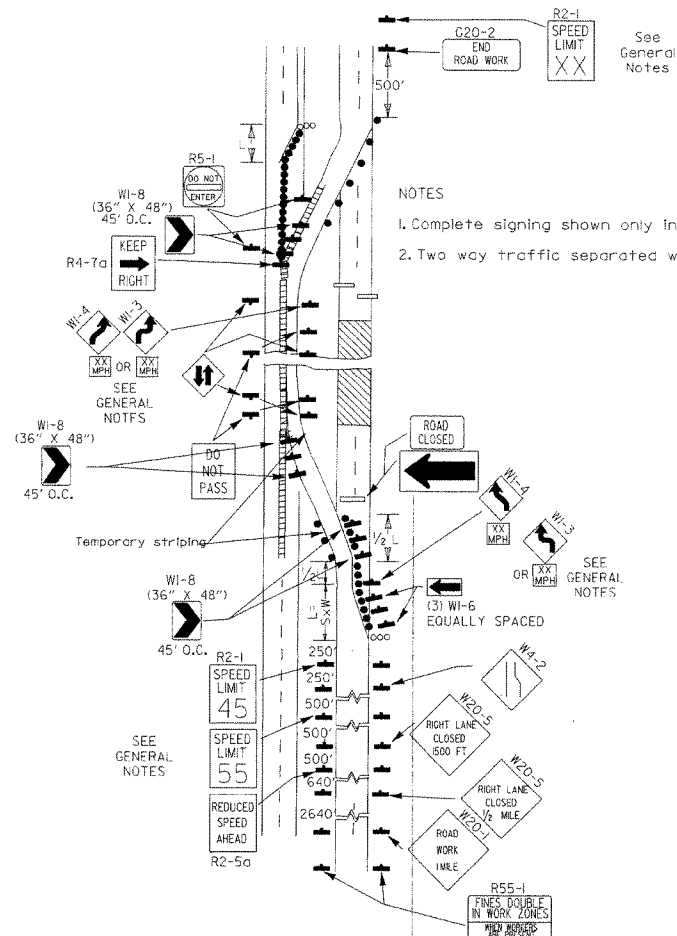
* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY 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	

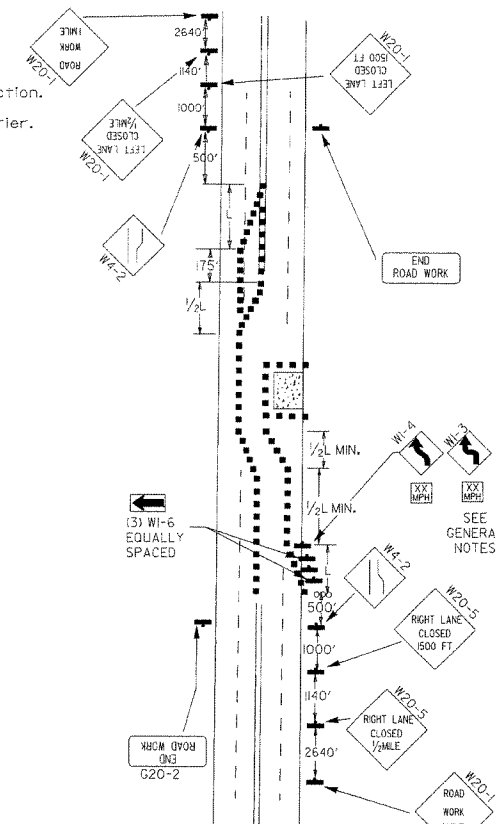
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



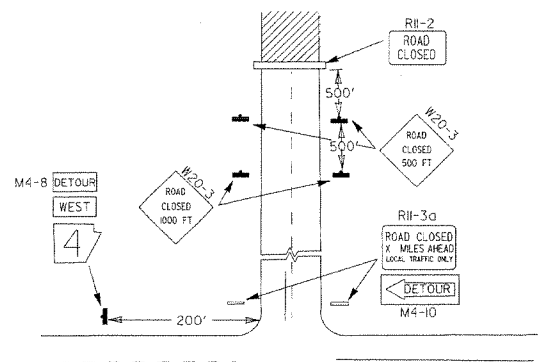
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



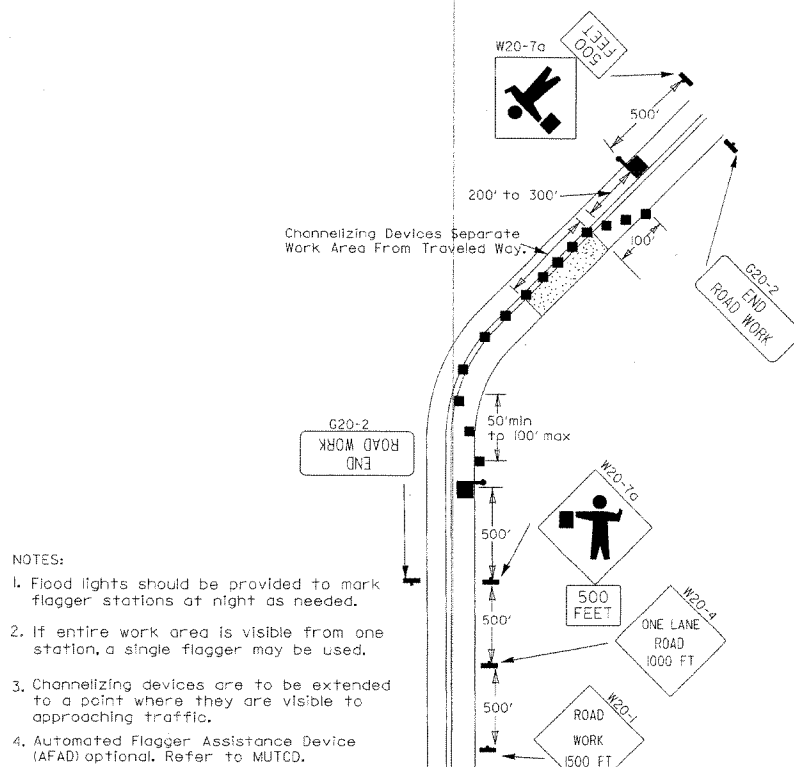
(B) Typical application - 4-lane divided roadway where one roadway is closed.



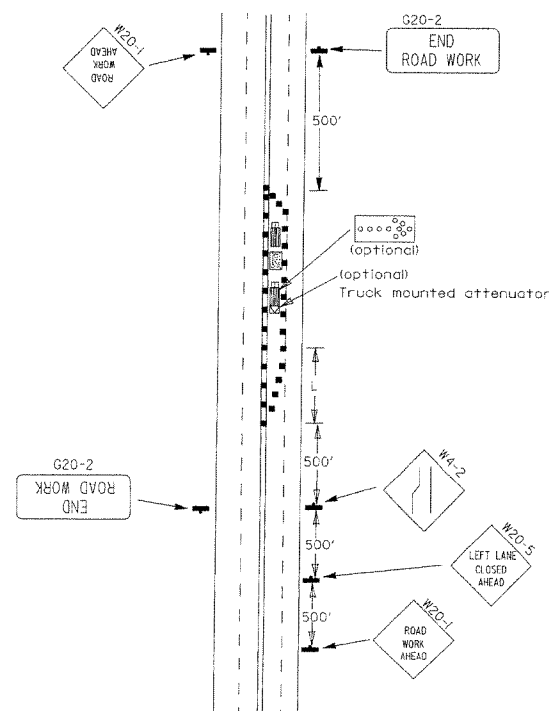
(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.



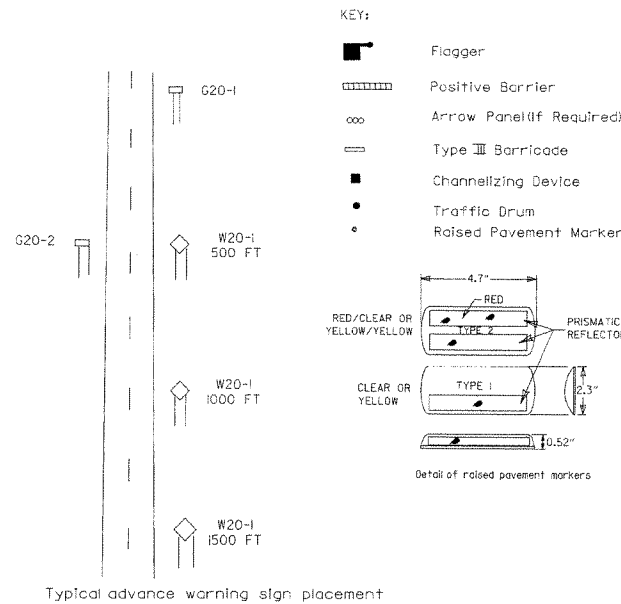
(D) Typical application - roadway closed beyond detour point.



(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.



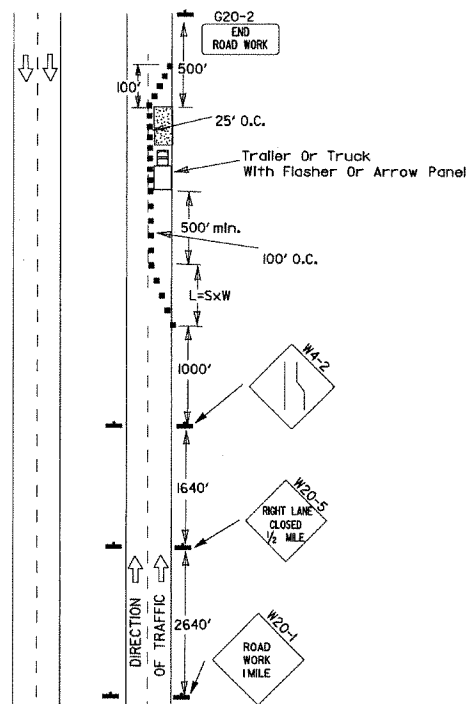
Taper formulae:
 $L = S \times W$ for speeds of 45mph or more.
 $L = \frac{WS^2}{60}$ for speeds of 40mph or less.
 Where:
 L = Minimum length of taper.
 S = Numerical value of posted speed limit prior to work or 85th percentile speed.
 W = Width of offset.

- GENERAL NOTES:
- 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.
 - When the existing speed limit is 45mph and the plans require a speed limit of 55mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(45) shall be installed to match original speed limit.
 - When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(45) shall be installed to match original speed limit.
 - 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.
 - Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
 - Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
 - 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.

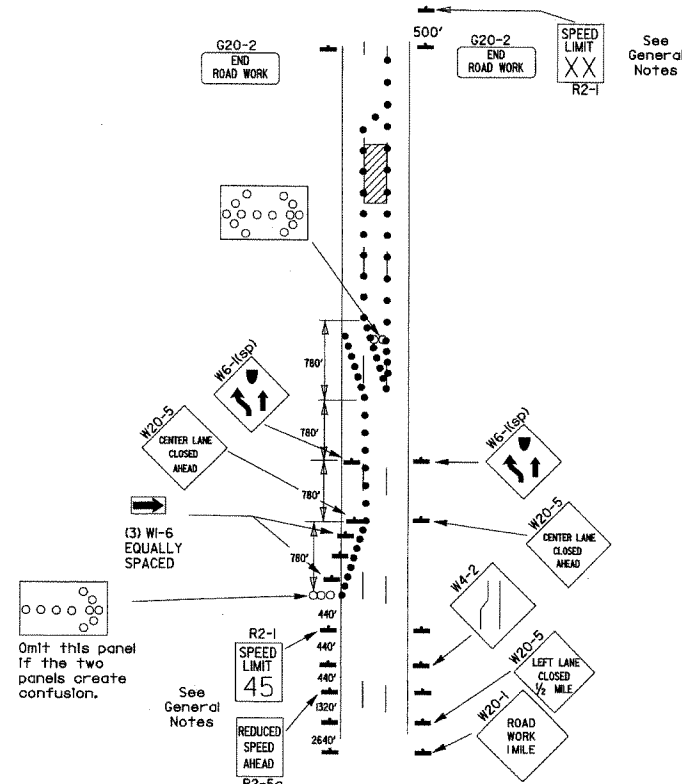
DATE	REVISION	FILMED
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION
 STANDARD TRAFFIC CONTROLS
 FOR HIGHWAY CONSTRUCTION

Channelizing devices



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.

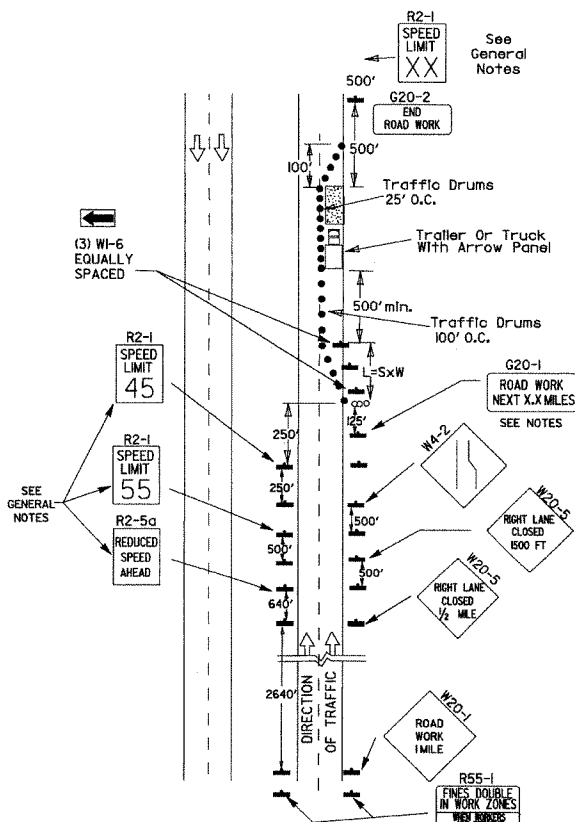


(B) Typical application - 3-lane oneway roadway where center lane is closed.

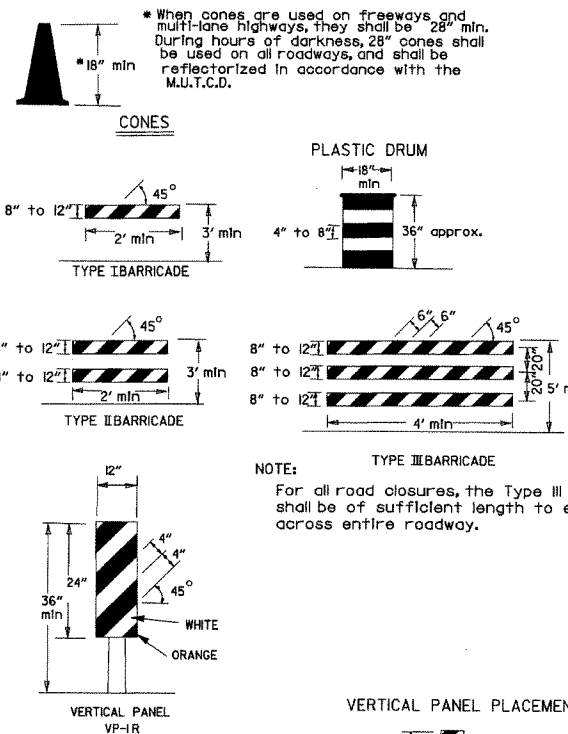
- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

GENERAL NOTES:

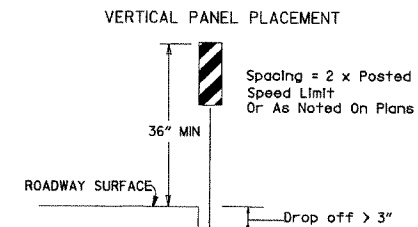
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1 mile 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 R2-155mph speed limit signs shall be installed at a maximum of 1 mile 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.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.



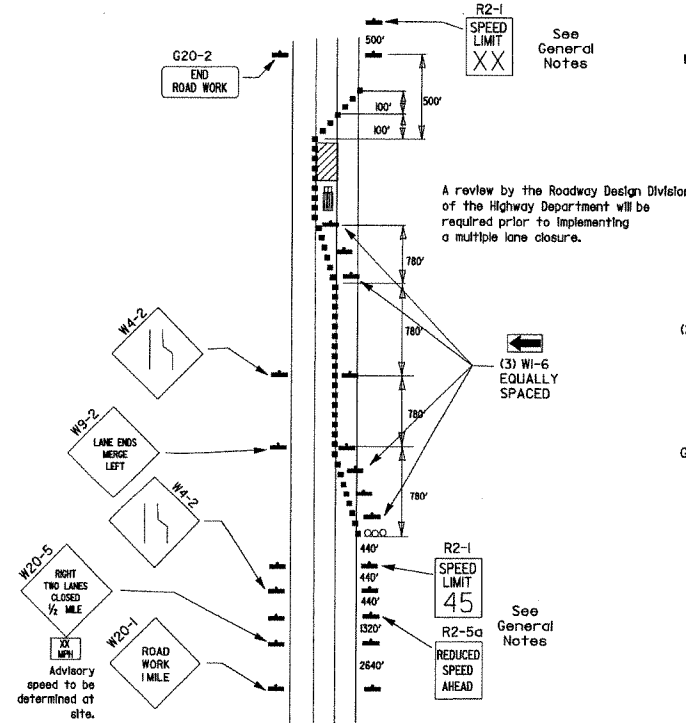
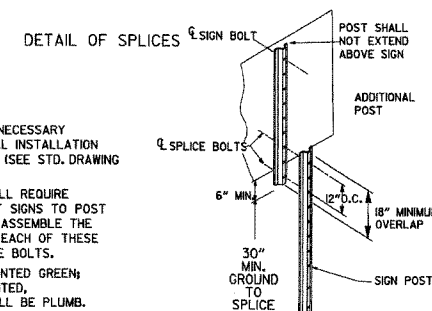
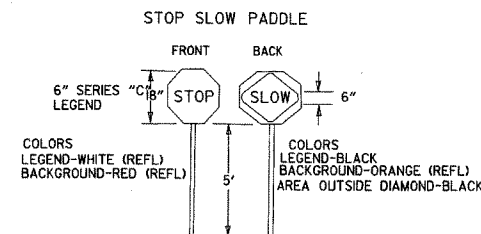
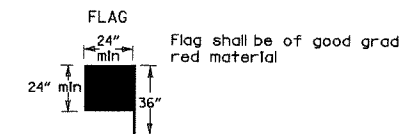
NOTE: For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



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-land vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

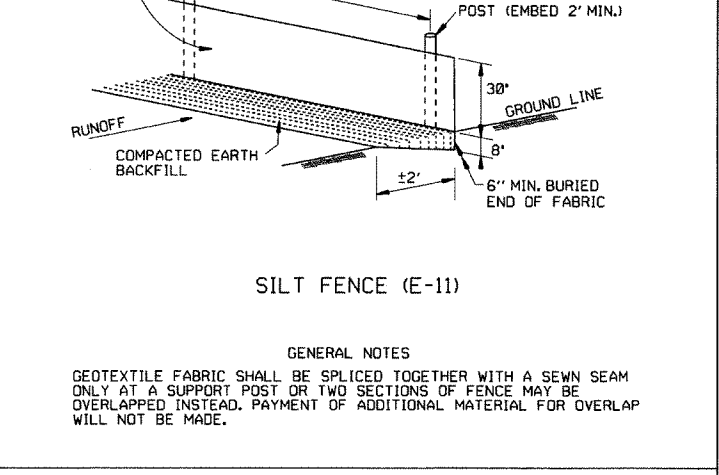
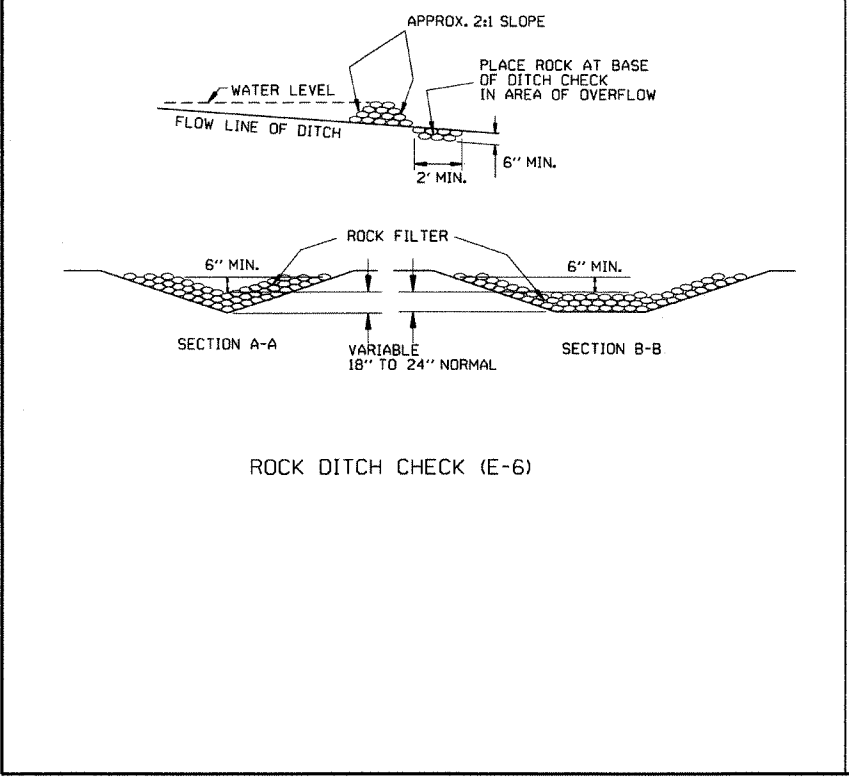
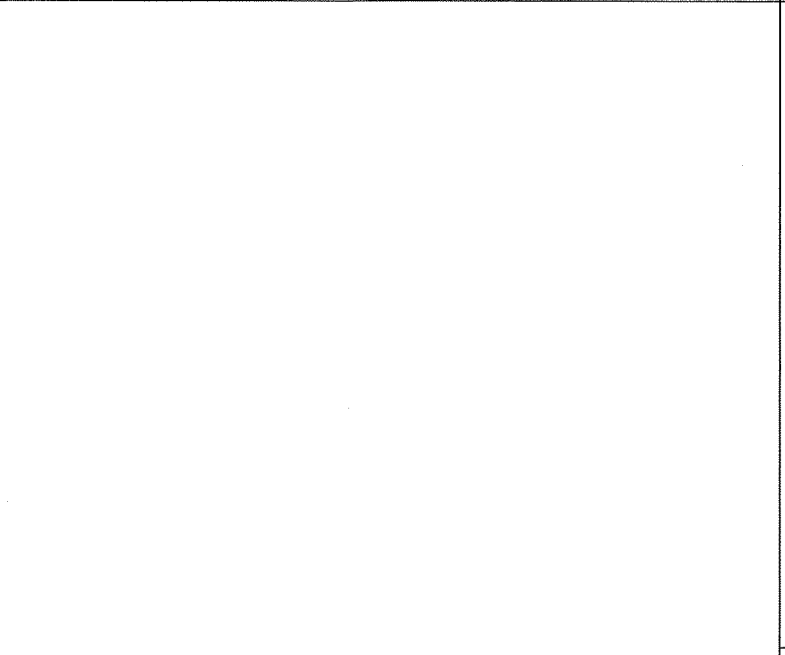
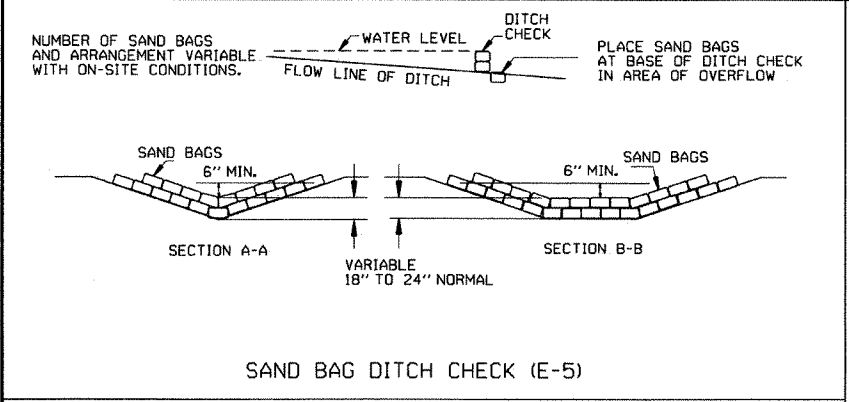
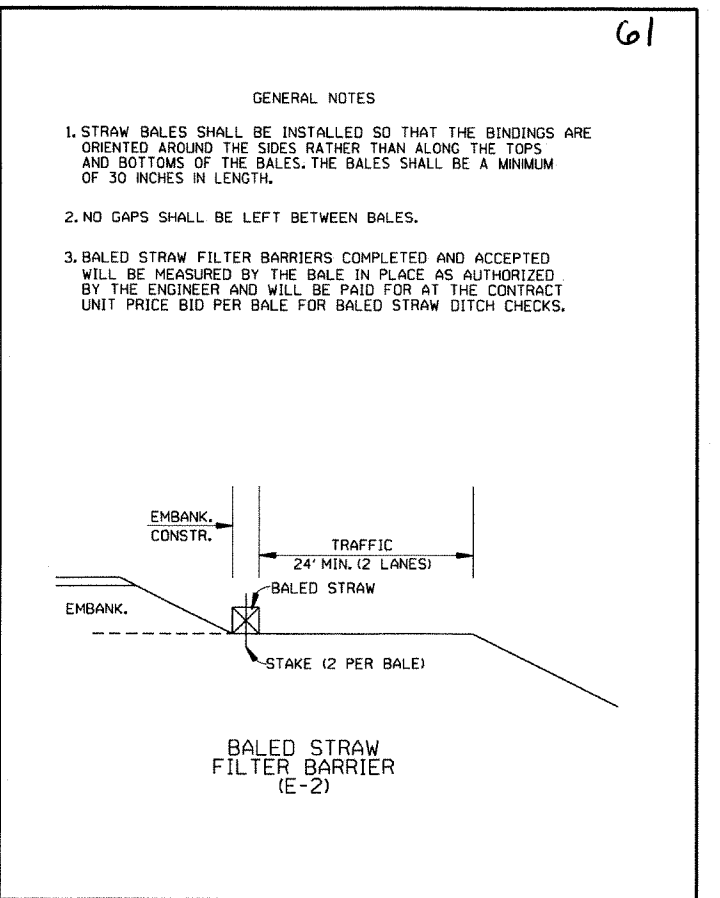
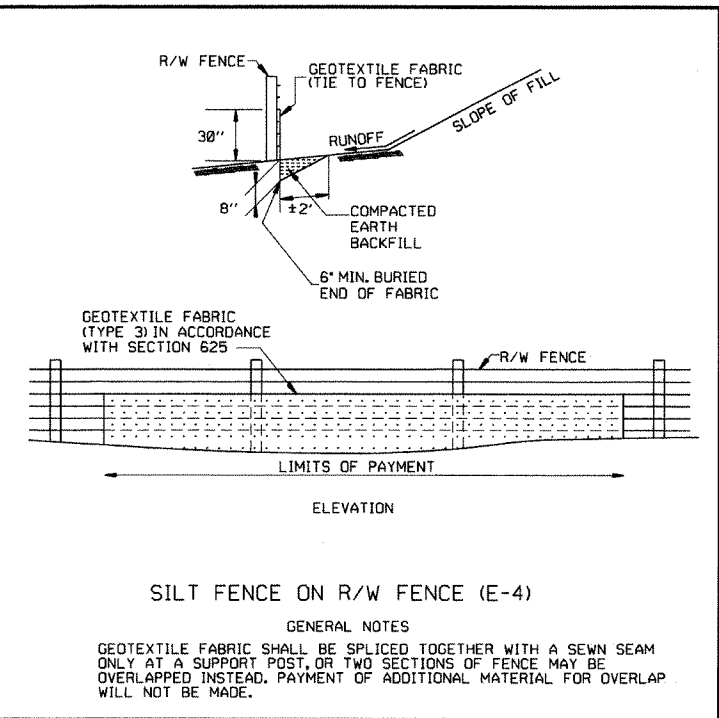
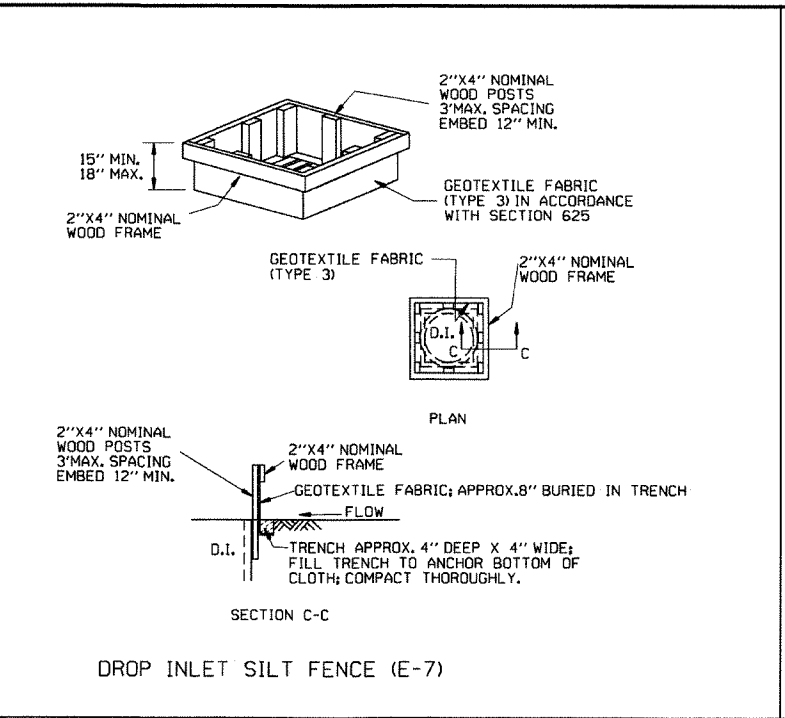
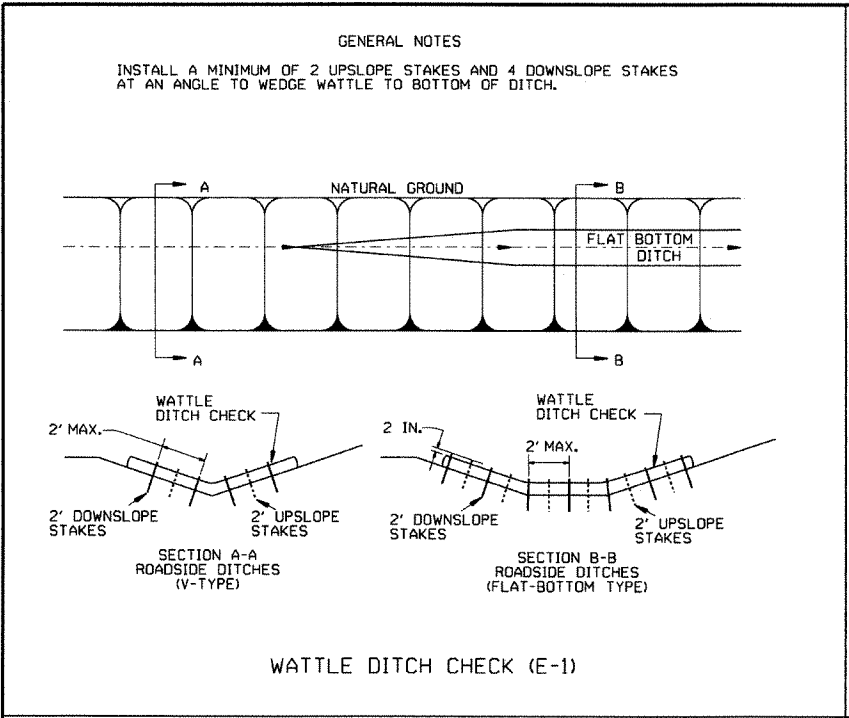
* When shown on the plans concrete barrier will be used. When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



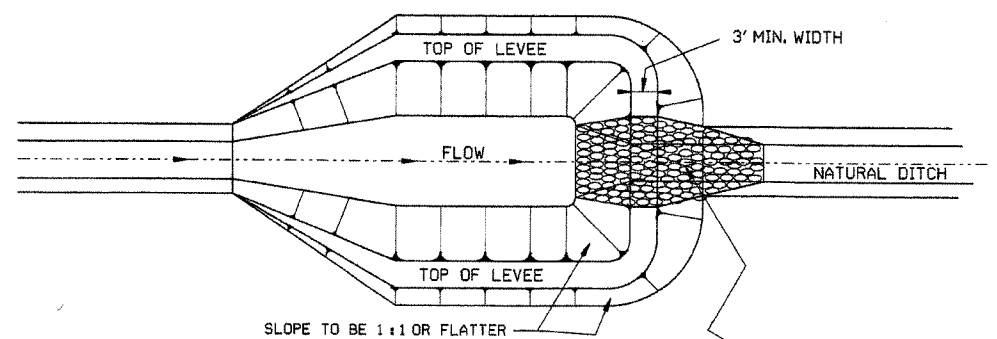
(D) Typical application - closing multiple lanes of a multilane highway.

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	

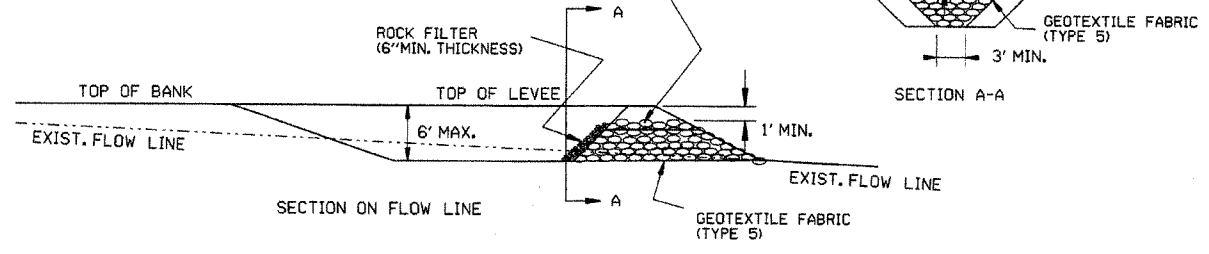
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-3



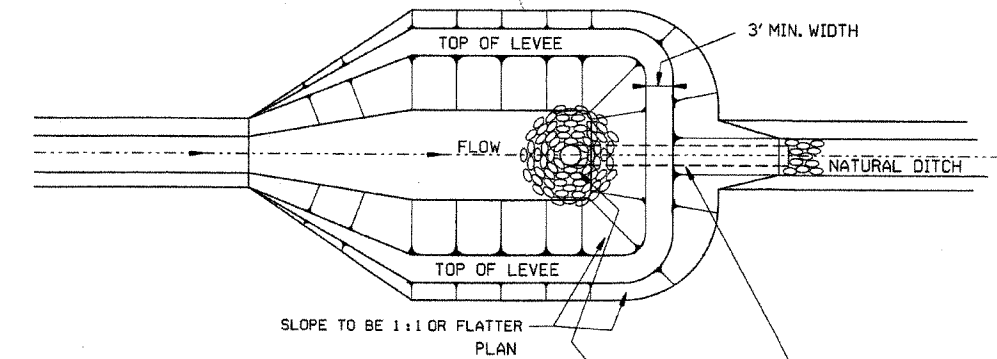
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		ARKANSAS STATE HIGHWAY COMMISSION
11-18-98	ADDED NOTES		
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC		
6-2-94	REVISED E-1, 4, 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	
DATE	REVISION	FILMED	STANDARD DRAWING TEC-1



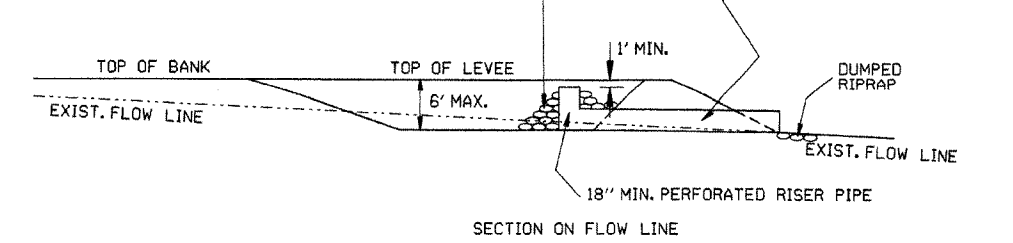
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



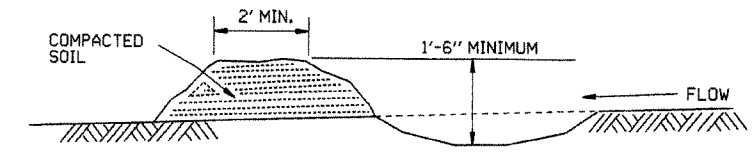
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



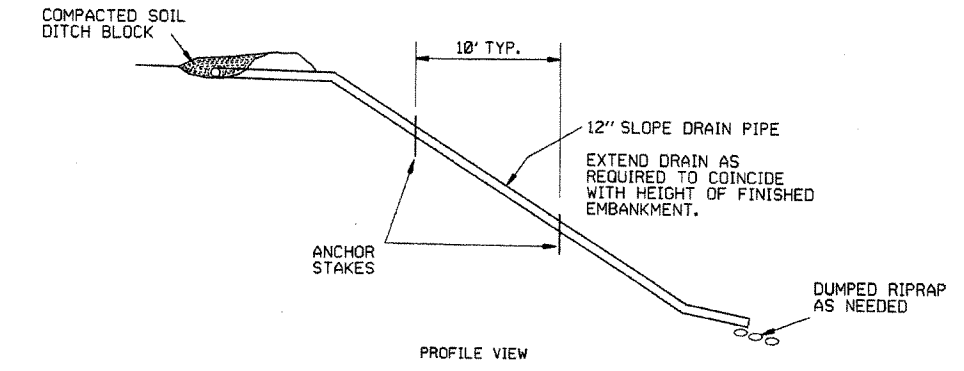
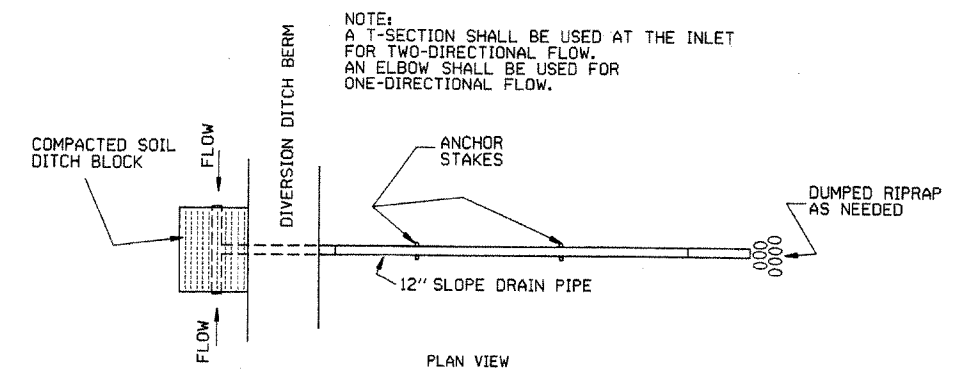
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



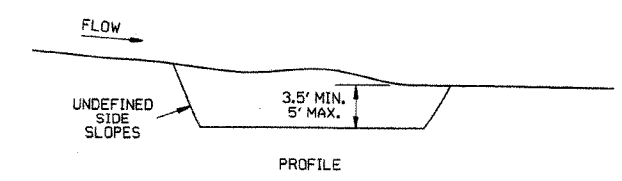
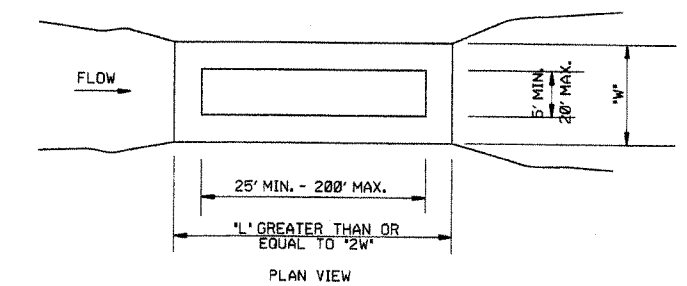
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

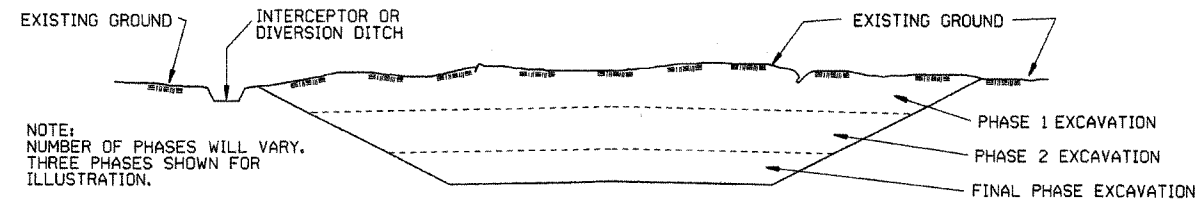
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION
 CONTROL DEVICES
 STANDARD DRAWING TEC-2

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



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

GENERAL NOTE

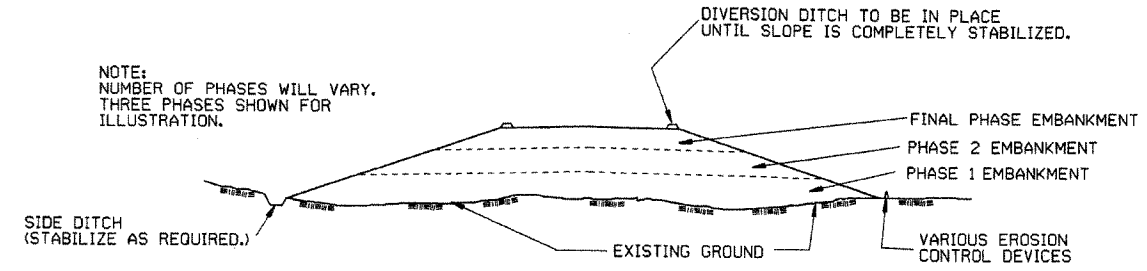
ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT

63



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

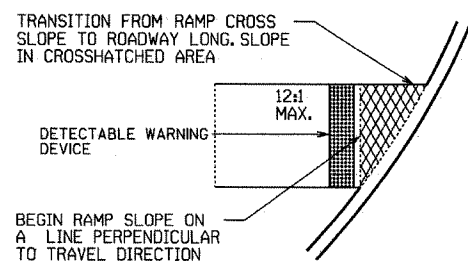
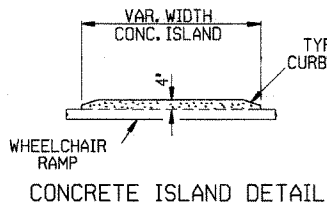
GENERAL NOTE

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.

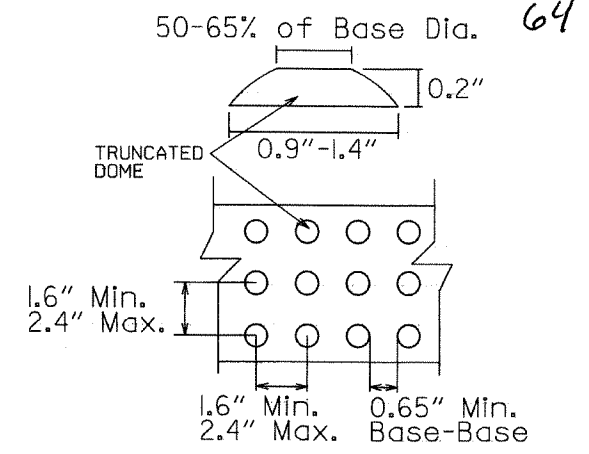
		ARKANSAS STATE HIGHWAY COMMISSION	
		TEMPORARY EROSION CONTROL DEVICES	
11-03-94	CORRECTED SPELLING		
6-2-94	Drawn & Issued		
DATE	REVISION	6-2-94	FILMED
		STANDARD DRAWING TEC-3	



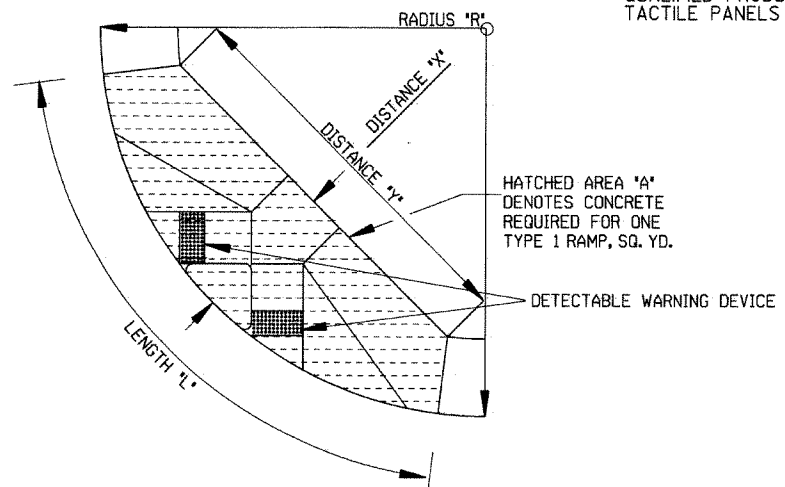
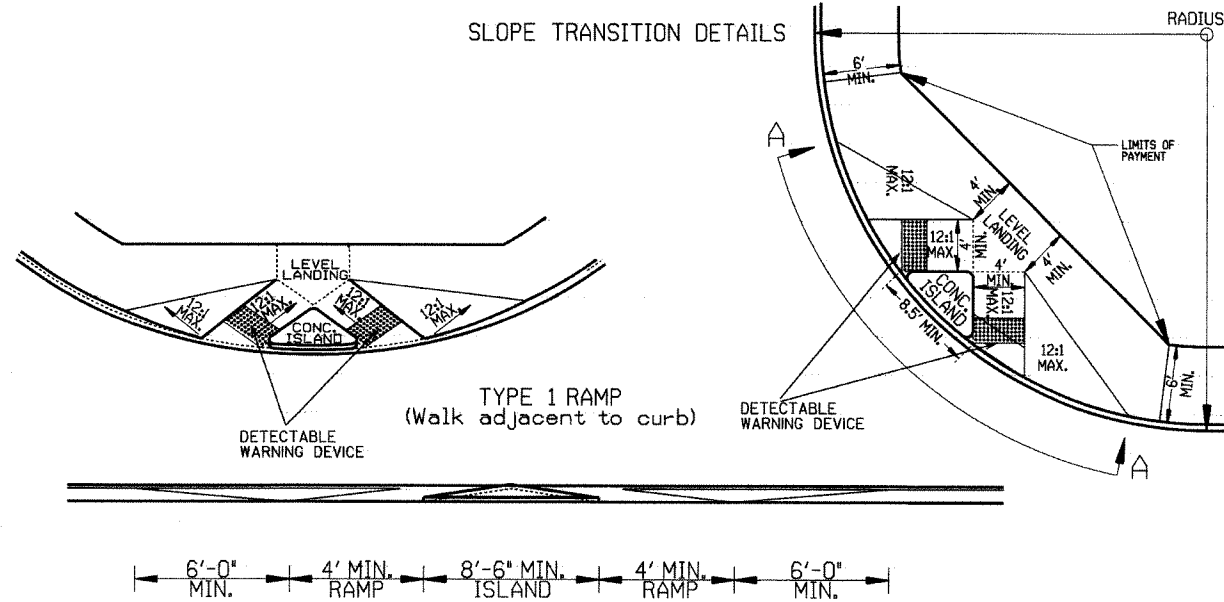
TYPE 1 RAMP DIMENSIONS AND QUANTITIES

RADIUS 'R'	DISTANCE 'X'	DISTANCE 'Y'	LENGTH 'L'	RAMP AREA 'A'
FEET	FEET	FEET	FEET	SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80

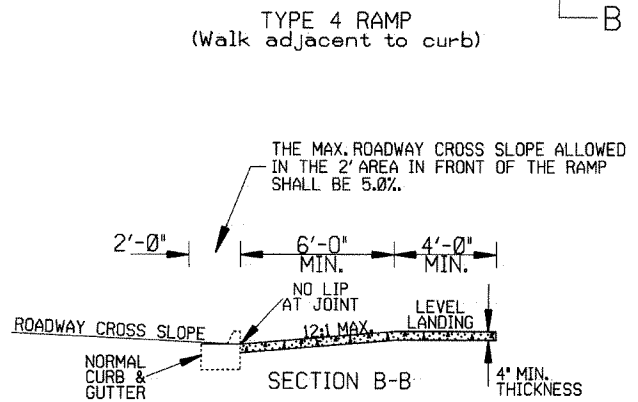
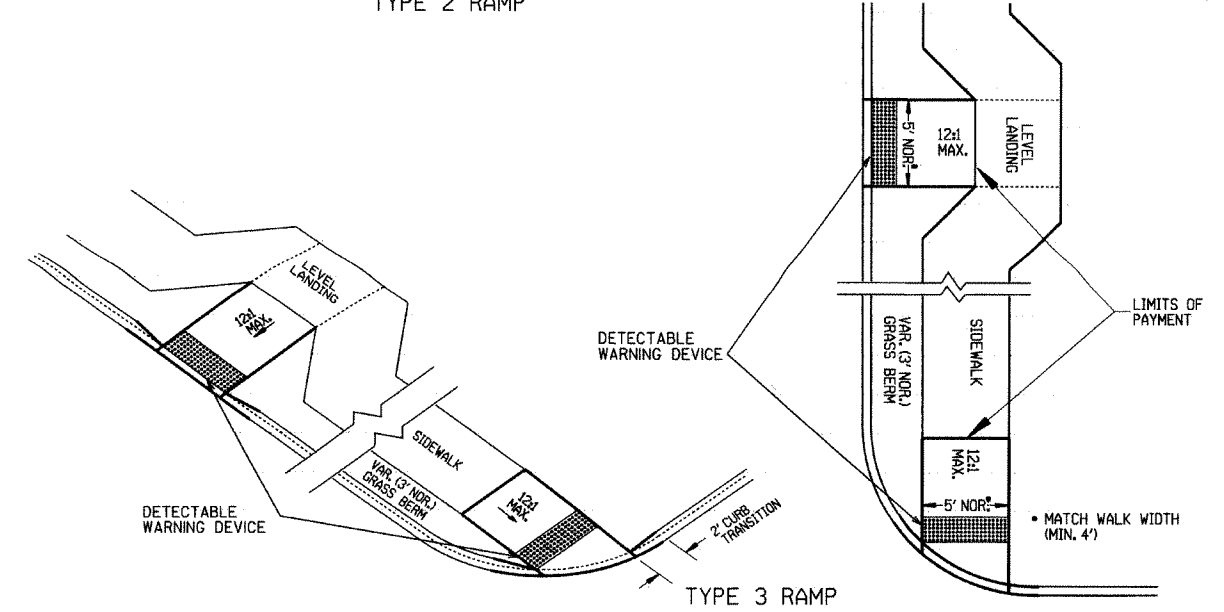
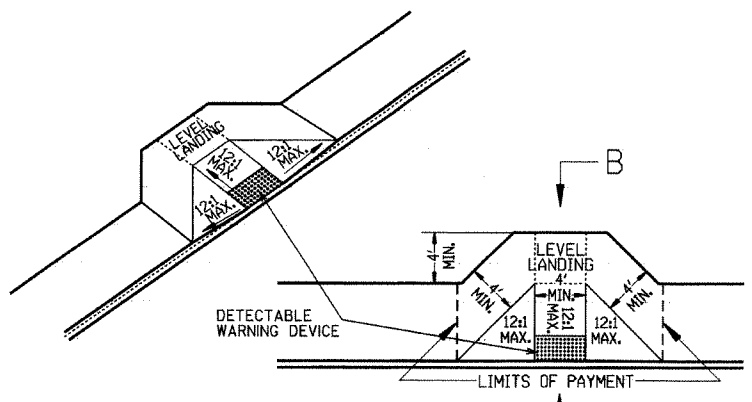
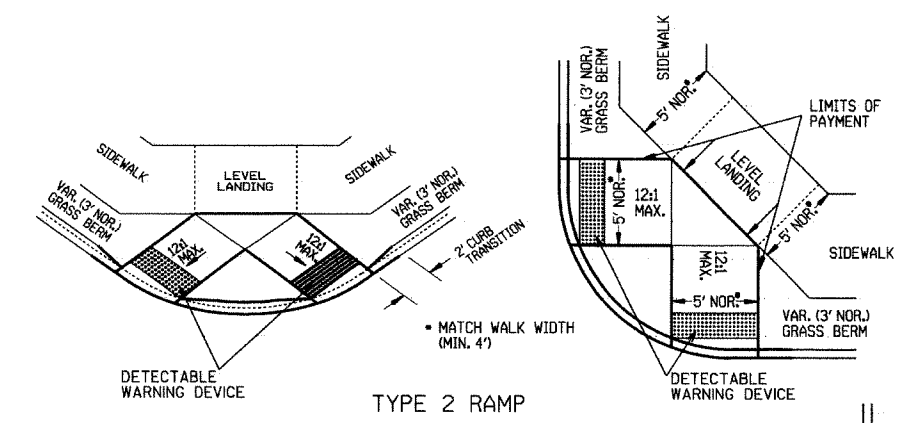
GENERAL NOTES FOR DETECTABLE WARNING DEVICES
 THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
 TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
 DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
 DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
 DETECTABLE WARNING DEVICE SHALL BE ON THE AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



DETECTABLE WARNING DEVICE DETAIL



NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGITUDINAL GRADE.



GENERAL NOTES:

IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
 IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
 THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
 THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
 ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
 THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4". THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
 RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
 THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.

RAMP SELECTION CRITERIA

CHOICE	TYPE	DESCRIPTION
FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

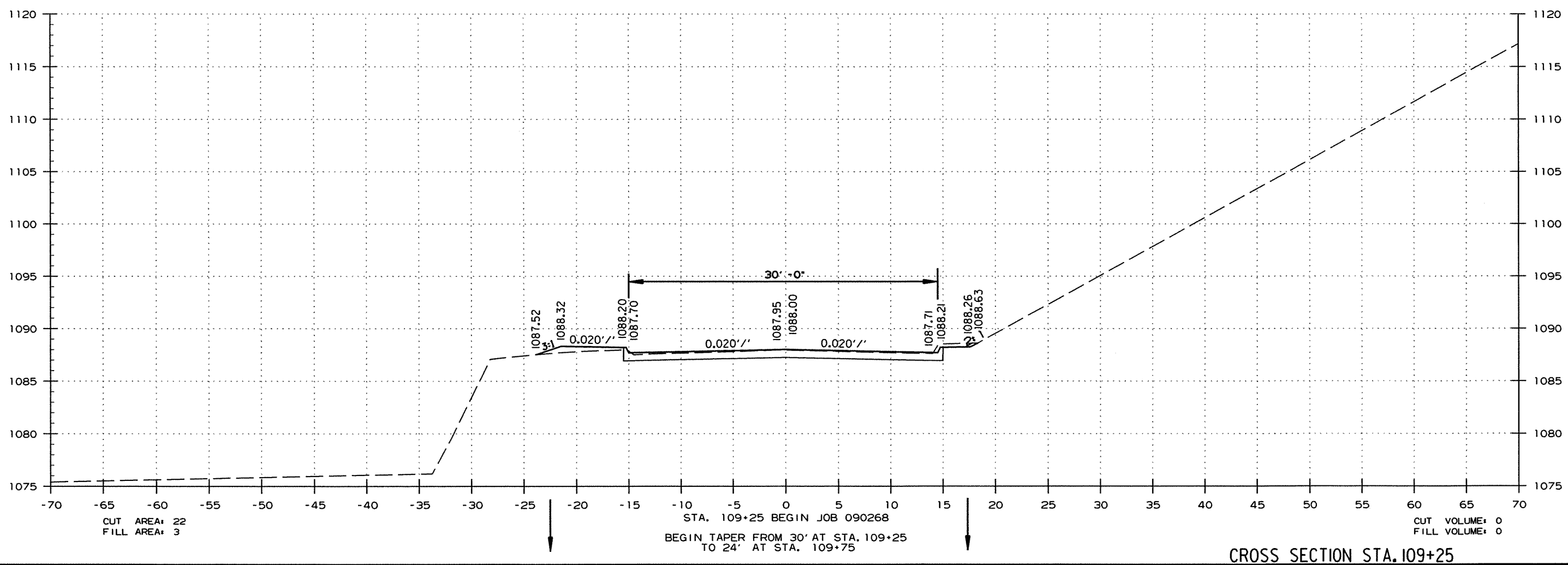
NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.
 AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

DATE	REVISION	DATE FILM
11-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD SLOPE TRANS. & REV. ISL. DIMS.	
11-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM HIT02: MAX. SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD. CONC. ISL. IN PAY ITEM	
6-02-76	ISSUED-P.H.D.	299-7-28-76
	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION
 WHEELCHAIR RAMPS
 NEW CONSTRUCTION
 AND ALTERATIONS
 STANDARD DRAWING WR-1

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.	090268		65	72

② CROSS SECTIONS



CUT AREA: 22
FILL AREA: 3

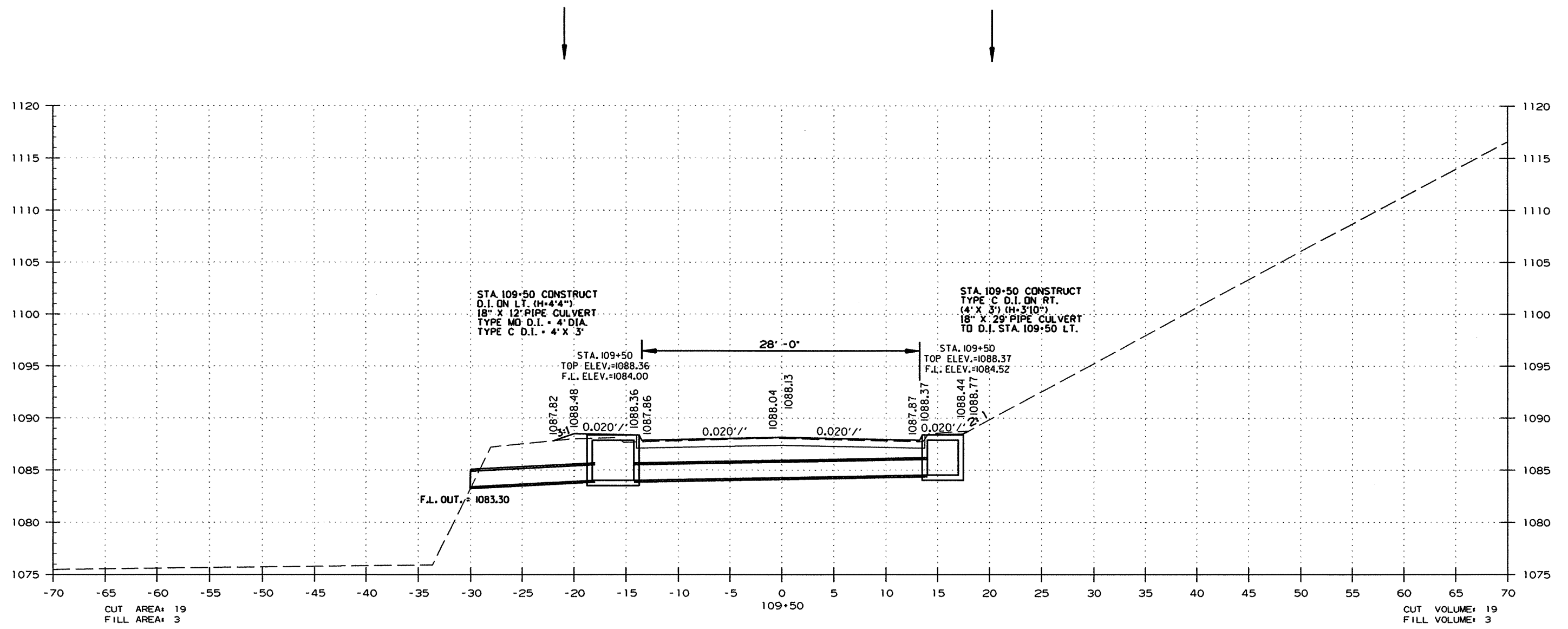
CUT VOLUME: 0
FILL VOLUME: 0

CROSS SECTION STA. 109+25

r090268.dgn 11/2/2010

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.	090268		66	72

② CROSS SECTIONS

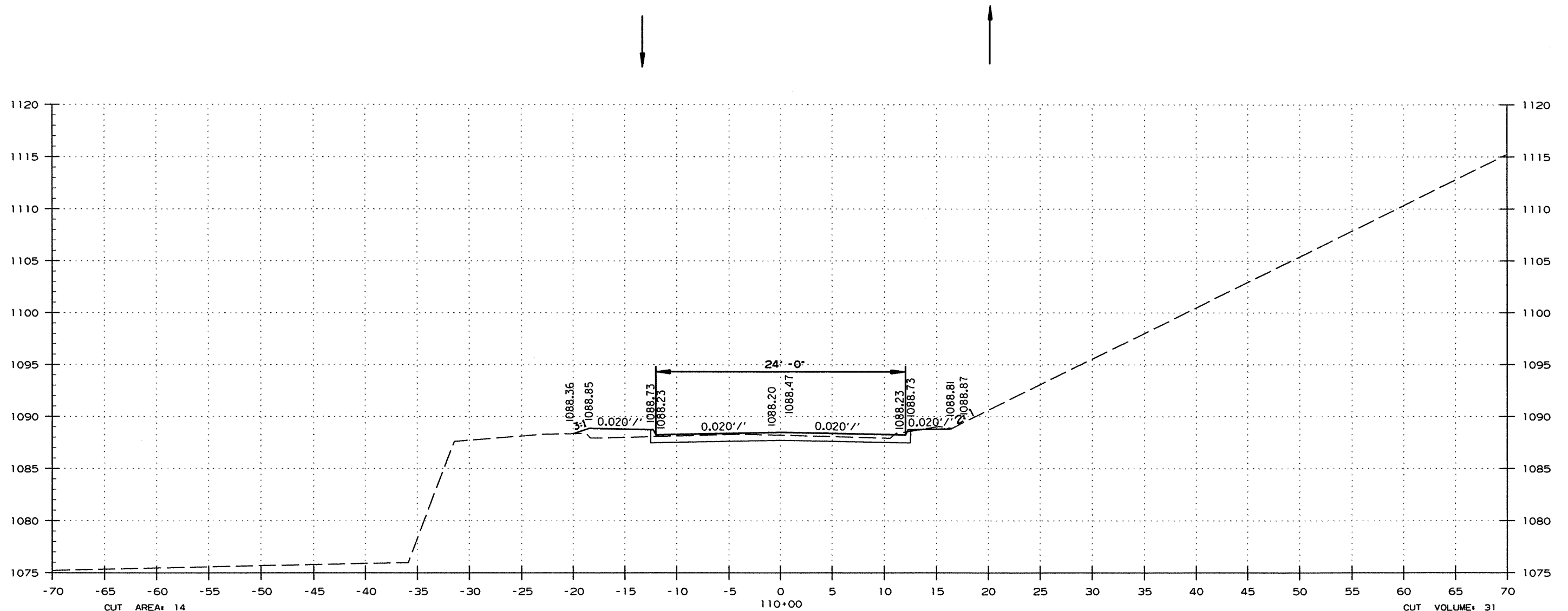


CROSS SECTION STA. 109+50

r090268.dgn 11/2/2010

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. 090268	67	72

② CROSS SECTIONS



CUT AREA: 14
FILL AREA: 5

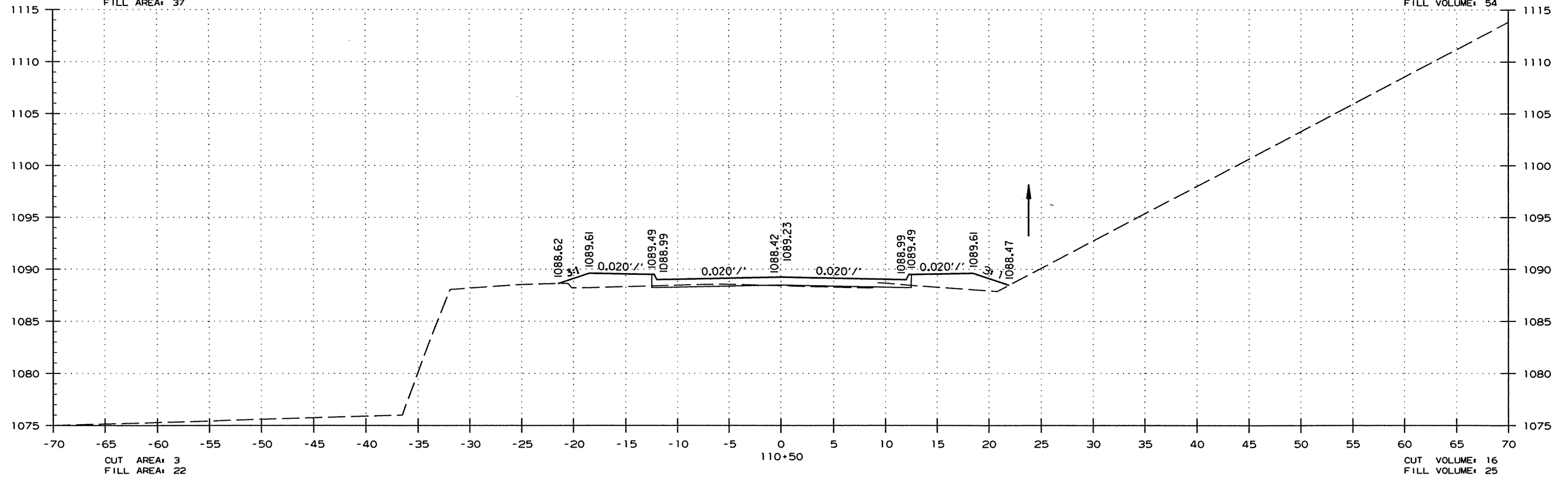
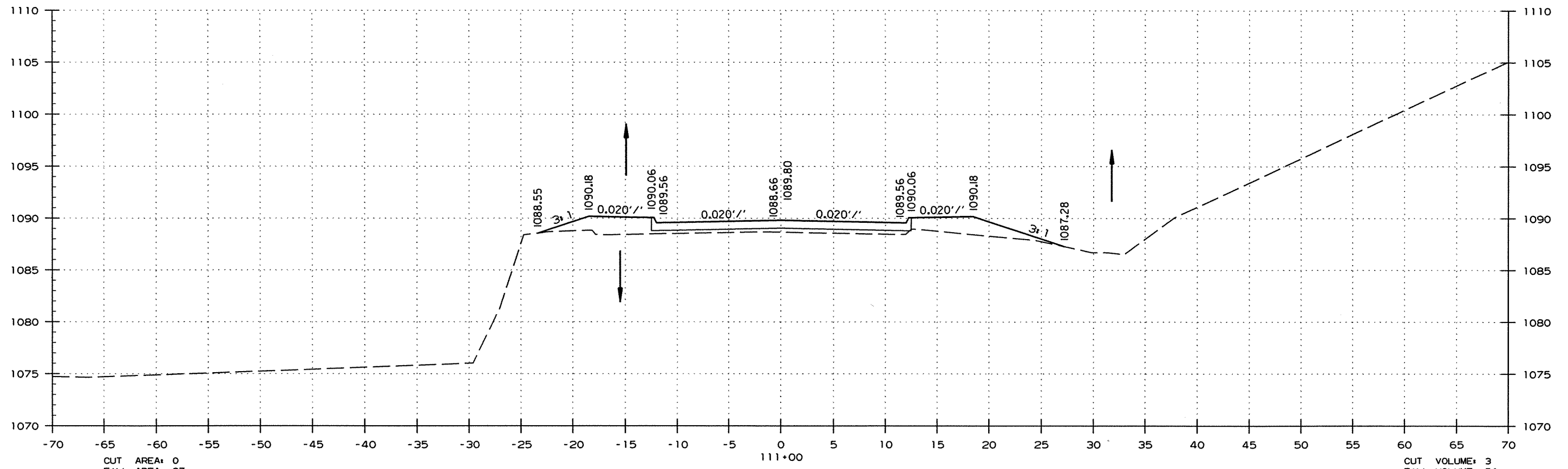
END TAPER FROM 30' AT STA. 109+25
TO 24' AT STA. 109+75

CUT VOLUME: 31
FILL VOLUME: 8

CROSS SECTION STA. 110+00

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. 090268							68	72

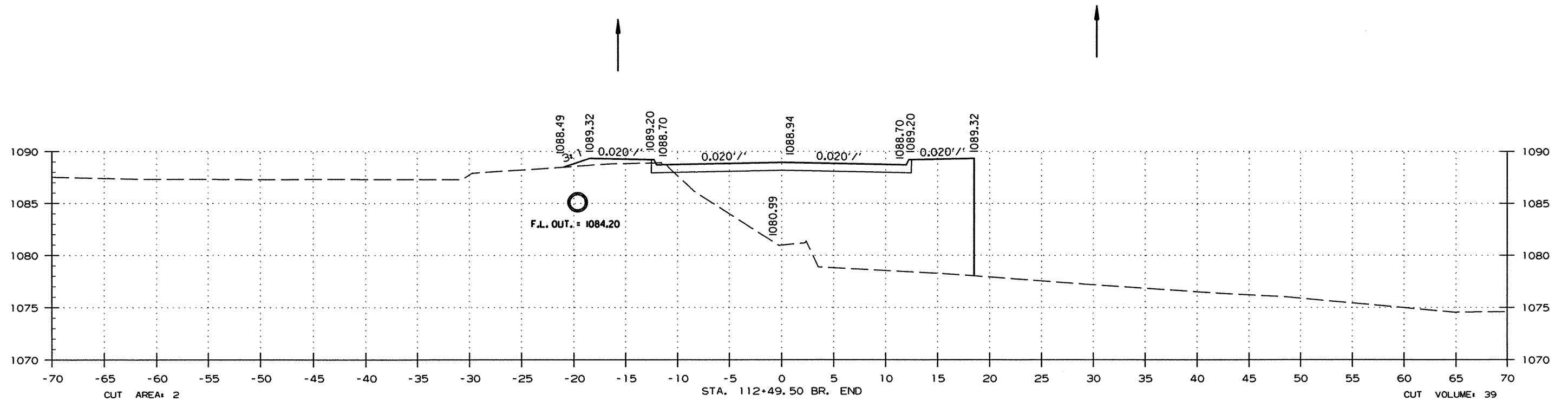
② CROSS SECTIONS



CROSS SECTION STA. 110+50 TO STA. 111+00

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.	090268		69	72

② CROSS SECTIONS



CUT AREA: 2
FILL AREA: 221

CUT AREA: 0
FILL AREA: 0

CUT VOLUME: 39
FILL VOLUME: 82

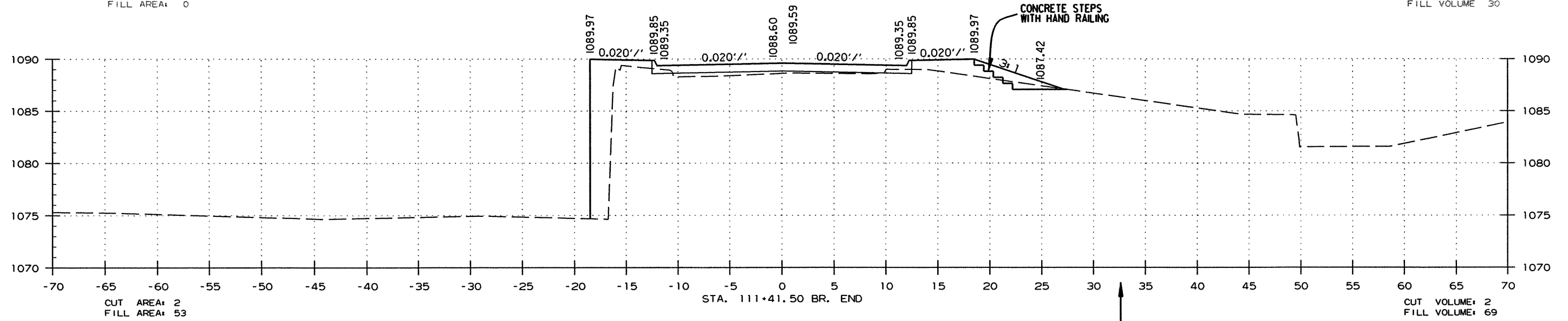
STA. 112+29.50 TOE OF SLOPE

STA. 111+41.50 - STA. 112+49.50 CONSTRUCT
108'-0" X 24' CLR. RDWY. BRIDGE
105'-0" CONT. COMP. W-BEAM SPANS (35'-35'-35')
BRIDGE NO. 04917

CUT AREA: 0
FILL AREA: 0

CUT VOLUME: 1
FILL VOLUME: 30

STA. 111+71.50 TOE OF SLOPE



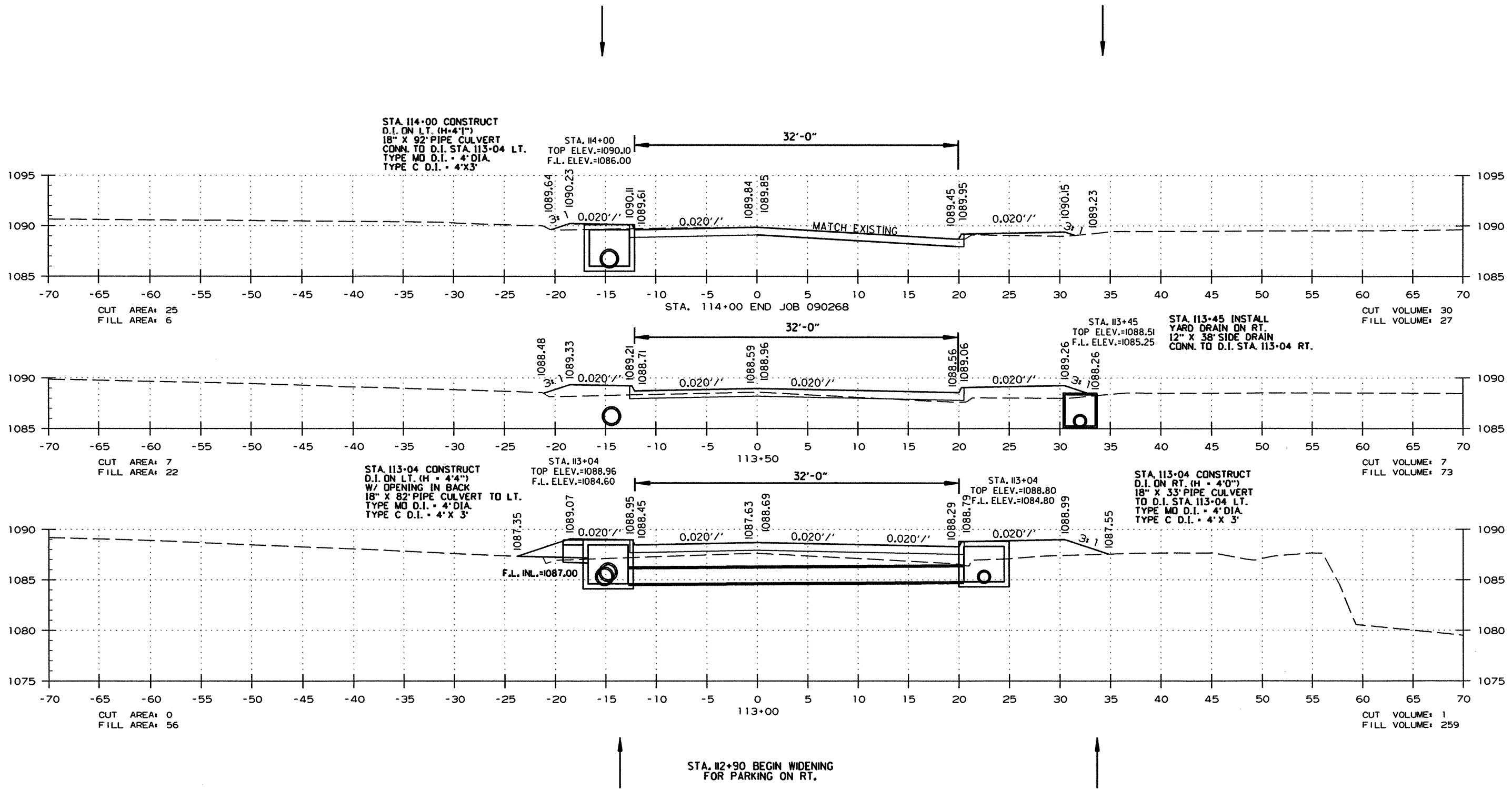
CUT AREA: 2
FILL AREA: 53

CUT VOLUME: 2
FILL VOLUME: 69

CROSS SECTION STA. 111+42 TO STA. 112+50

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.	090268		70	72

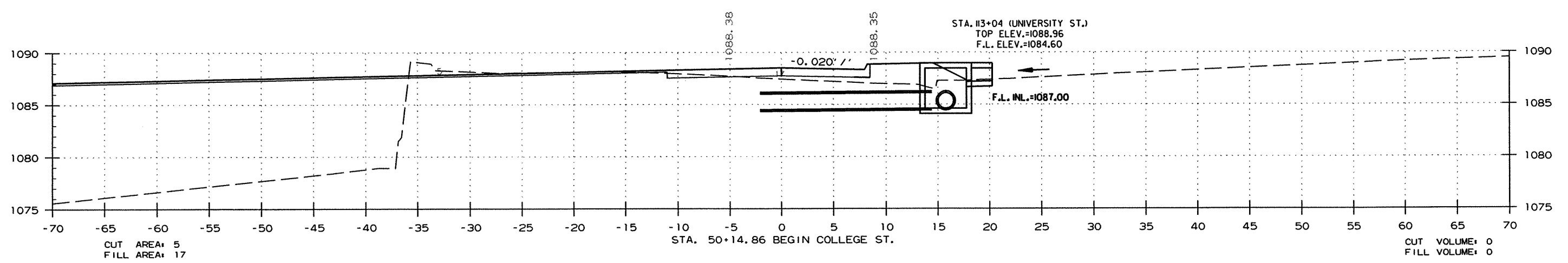
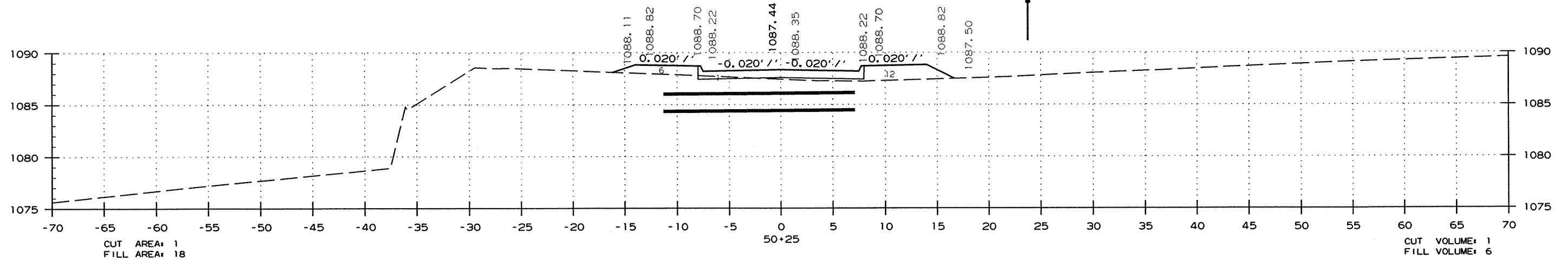
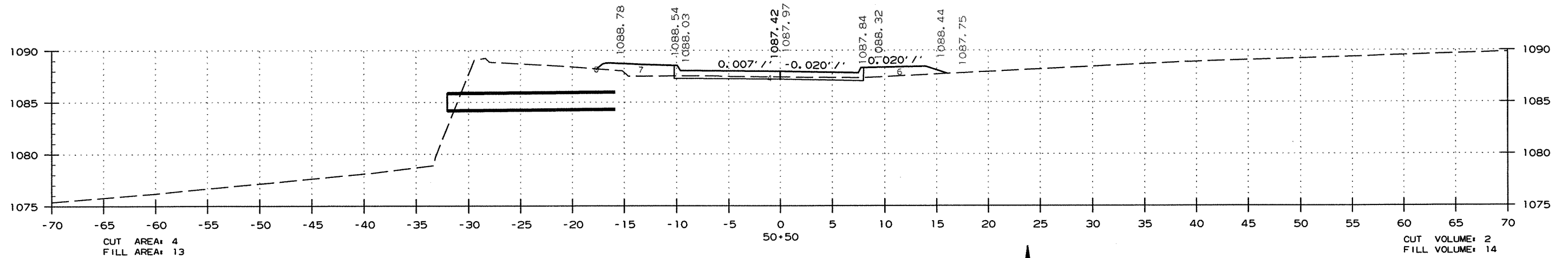
2 CROSS SECTIONS



CROSS SECTION STA. 113+00 TO STA. 114+00

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. 090268	71	72

② CROSS SECTIONS



CROSS SECTION STA. 50+15 TO STA. 50+50

r090268.dgn 11/2/2010

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.		090268	72	72

2 CROSS SECTIONS

